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MICROZONAZIONE SISMICA

Regione Emilia Romagna

UNIONE DEI COMUNI SAVENA-IDICE

Indagini geognostiche e geofisiche Geologica Toscana

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§ 1) INTRODUZIONE

1.1) Premessa

Il presente documento riferisce sulle prove geofisiche, di tipo sismico attivo e passivo, e sulle prove penetrometriche statiche e dinamiche realizzate per lo *"Studio di Microzonazione Sismica di III Livello"* dei Comuni di Ozzano dell'Emilia, Pianoro, Loiano, Monghidoro e Monterenzio.

Lo studio è stato redatto su incarico dell'Unione dei Comuni Savena – Idice (***Determina n. 319 del 27/08/2020***).

In accordo con l'Unione dei Comuni Savena Idice e con il Servizio Sismico della Regione Emilia Romagna, abbiamo distribuito in maniera omogenea sui territori dei 5 comuni interessati dallo studio di microzonazione sismica di III° livello una buona mole di indagini geognostiche (prove penetrometriche statiche e dinamiche) e geofisiche (sia misure di sismica attiva che passiva).

Tale approfondimento è finalizzato alla realizzazione della Carta delle Microzone Omogenee in Prospettiva Sismica (MOPS) ed in particolare alla Carta di Microzonazione Sismica, oltre agli elaborati propedeutici come la Carta delle Frequenze di Sito, la Carta delle Indagini e la Carta Geologico – Tecnica, eseguite con la finalità di guidare le scelte pianificatorie, nell'ottica di perseguire ed assicurare la riduzione del rischio sismico, evidenziando le criticità e identificando le aree per le quali sono richiesti studi di approfondimento.

In totale sono state eseguite 12 misure CPTU, 30 misure DPSH, 27 misure di rumore ambientale con tecnica a stazione singola di tipo H/V, 15 misure ESAC, 28 misure MASW e 9 stendimenti di sismica a rifrazione con restituzione tomografica.

Nello specifico le indagini sopra elencate sono state così distribuite per i 5 comuni interessati dallo studio:

Comune	HVSR	ESAC	MASW	SISMICA RIF.	DPSH	CPTU
Ozzano dell'Emilia	4	4	4	/	/	10
Pianoro	6	6	6	1	10	/
Loiano	5	/	5	2	6	/
Monghidoro	5	/	5	3	10	/
Monterenzio	7	5	8	3	4	2
Totale:	**27**	**15**	**28**	**9**	**30**	**12**

1.2) Contesto

Le indagini geofisiche e geognostiche previste, sono state eseguite all'interno del territorio dei 5 comuni afferenti l'Unione dei Comuni Savena Idice, in aree individuate con lo studio di Microzonazione sismica precedente (Studio di Microzonazione sismica di II° livello).

Si rimanda alla Carta delle Indagini per l'inquadramento delle prove eseguite nel territorio comunale.

1.3) Tipologia di indagini

La caratterizzazione sismica - dinamica del terreno, è stata eseguita attraverso prove geofisiche integrate e complementari fra loro, di cui:

• *Prove MASW (Multichannel Analysis of Surface Waves), per la determinazione di profili di velocità Vs nel sottosuolo, che hanno permesso di ottenere la classificazione del sottosuolo ai sensi della vigente normativa NCT 2018 "Aggiornamento delle Norme Tecniche per le Costruzione DM 17/01/2018";*

• *Prove ESAC (Extended Spatial AutoCorrelation) per determinazione di profili di velocità Vs nel sottosuolo e per eseguire l'analisi congiunta con le prospezioni MASW;*

• *Prospezioni geofisiche con acquisizione ed analisi dei microtremori (HVSR), e con processo di inversione e interpretazione secondo la metodologia di analisi del rapporto spettrale H/V o di Nakamura, per determinare l'eventuale comportamento amplificativo del terreno (usate anch'esse in maniera congiunta con le indagini MASW e MASW-ESAC);*

• *Sismica a rifrazione con onde P, con restituzione tomografica delle velocità Vp nel sottosuolo;*

La caratterizzazione geotecnica del terreno è avvenuta attraverso prove geognostiche di cui:

• Prove penetrometriche statiche con piezocono (CPTU) per l'individuazione delle eventuali aree a rischio liquefazione;

• Prove penetrometriche dinamiche (DPSH) consistono nell'infiggere nel terreno una particolare punta articolata e nel misurare il numero di colpi (N) necessari per infiggere le aste stesse ogni 20 centimetri.

1.4) Descrizione dei contenuti della relazione

La presente relazione illustrerà la metodologia di acquisizione, la strumentazione utilizzata, le tecniche e le modalità di inversione/interpretazione, oltre ad evidenziare i risultati ottenuti con la campagna di prospezione geofisica e geognostica, a supporto della caratterizzazione sismica e geognostica del sottosuolo relativamente alle diverse aree indagate.

Dopo una quadro descrittivo delle tecniche di indagine, riportate nel Capitolo 2 ("*Caratterizzazione sismica e geognostica*"), si riportano le modalità di interpretazione e analisi dei dati acquisiti ed i risultati, di cui al Capitolo 3 ("*Elaborazione dati e risultati*").

Negli allegati finali sono riportate tutte le prove geofisiche e geognostiche eseguite per lo studio in oggetto, suddivise per singolo Comune.

§ 2) CARATTERIZZAZIONE SISMICA E GEOGNOSTICA

Ai fini di una completa caratterizzazione sismica e geognostica delle aree oggetto di indagine, i dati sono stati acquisiti secondo modalità che hanno permesso l'inversione ed interpretazione sequenziale e correlata, secondo diverse tecniche di cui:

1. **Tecnica MASW** (Multichannel Analysis of Surface Waves) che è una derivazione delle tecniche SASW (Spectral Analysis of Surface Waves) che si basano sull'elaborazione delle proprietà spettrali delle onde di superficie per la costruzione di un modello monodimensionale verticale di velocità di propagazione delle onde di taglio Vs;
2. **Tecnica ESAC** (Extended Spatial AutoCorrelation method) è una generalizzazione del metodo ReMi finalizzata alla determinazione delle velocità di propagazione delle onde superficiali presenti nel campo delle vibrazioni ambientali alle varie frequenze;
3. **Acquisizione ed analisi dei microtremori (HVSR)**, con processo di inversione e interpretazione secondo la metodologia di analisi del rapporto spettrale H/V o di Nakamura, per la classificazione del sottosuolo ai sensi dalla vigente normativa, NTC 2018, e determinare l'eventuale comportamento amplificativo del terreno;
4. **Sismica a rifrazione in onde P** e tomografia sismica con restituzione di profilo tomografico 2D delle onde di taglio P (Pickwin e Plotrefa);
5. **Prove penetrometriche dinamiche (DPSH)**, eseguite con un penetrometro statico-dinamico di tipo Pagani superpesante (TG 63-200), infiggendo nel terreno una particolare punta articolata e misurando il numero di colpi (N) necessari per infiggere le aste stesse ogni 20 centimetri;
6. **Prove penetrometriche statiche con piezocono (CPTU)**, eseguite con un penetrometro statico-dinamico di tipo Pagani superpesante (TG 63-200), infiggendo nel terreno un piezocono il quale permette l'acquisizione dei parametri di resistenza alla punta (qc), attrito laterale (fs) e pressione neutra (U) per ogni cm di avanzamento delle aste.

2.1) Tecnica MASW

Il principio ispiratore della tecnica MASW è il carattere dispersivo delle onde di Rayleigh e di Love quando queste si propagano in un mezzo stratificato.

La dispersione consiste nella variazione della velocità di fase a diverse frequenze, con l'aumento della lunghezza d'onda (abbassamento di frequenza) la profondità coinvolta dalla propagazione dell'onda è via via maggiore.

È quindi possibile, impiegando onde di un certo intervallo di frequenza, caratterizzare le proprietà acustiche dei terreni sino ad una certa profondità.

Nella maggior parte delle indagini sismiche per le quali si utilizzano le onde compressive, più di due terzi dell'energia sismica totale generata viene trasmessa nella forma di onde di Rayleigh, la componente principale delle onde superficiali.

Ipotizzando una variazione di velocità dei terreni in senso verticale, ciascuna componente di frequenza dell'onda superficiale ha una diversa velocità di propagazione (chiamata velocità di fase) che, a sua volta, corrisponde ad una diversa lunghezza d'onda per ciascuna frequenza che si propaga.

Questa proprietà si chiama dispersione.

Sebbene le onde superficiali siano considerate rumore per le indagini sismiche che utilizzano le onde di corpo (riflessione e rifrazione), la loro proprietà dispersiva può essere utilizzata per studiare le proprietà elastiche dei terreni superficiali.

La costruzione di un profilo verticale di velocità delle onde di taglio (Vs), ottenuto dall'analisi delle onde piane della modalità fondamentale delle onde di Rayleigh è una delle pratiche più comuni per utilizzare le proprietà dispersive delle onde superficiali.

Questo tipo di analisi fornisce i parametri fondamentali comunemente utilizzati per valutare la rigidezza superficiale, una proprietà critica per molti studi geotecnici.

L'intero processo comprende tre passi successivi:

- L'acquisizione delle onde superficiali (ground roll);
- la costruzione di una curva di dispersione (dal grafico della velocità di fase rispetto alla frequenza);
- l'inversione della curva di dispersione per ottenere il profilo verticale delle Vs.

Per ottenere un profilo Vs bisogna produrre un treno d'onde superficiali a banda larga e registrarlo minimizzando il rumore.

Una molteplicità di tecniche diverse sono state utilizzate nel tempo per ricavare l'inversione dello spettro di velocità così prodotto, ciascuna con i suoi vantaggi e svantaggi, in quanto l'inversione di tale spettro viene realizzata iterativamente, utilizzandolo come riferimento sia per la modellazione diretta che per la procedura ai minimi quadrati.

I valori preliminari per il rapporto di Poisson e per la densità sono necessari per ottenere il profilo verticale Vs e vengono solitamente stimati utilizzando misure prese in loco o valutando le tipologie dei materiali.

Le onde superficiali riverberate (back scattered) possono essere prevalenti in un sismogramma multicanale, se in prossimità delle misure sono presenti discontinuità orizzontali quali fondazioni e muri di contenimento.

Le ampiezze relative di ciascuna tipologia di rumore generalmente cambiano con la frequenza e la distanza dalla sorgente.

Ciascun rumore, inoltre, ha diverse velocità e proprietà di attenuazione che possono essere identificate sulla registrazione multicanale grazie all'utilizzo di modelli di coerenza e in base ai tempi di arrivo e all'ampiezza di ciascuno.

La scomposizione di un campo di onde registrate in un formato a frequenza variabile consente l'identificazione della maggior parte del rumore, analizzando la fase e la frequenza in funzione della distanza dalla sorgente.

La scomposizione può essere quindi utilizzata in associazione con la registrazione multicanale per minimizzare il rumore durante l'acquisizione.

La scelta dei parametri di elaborazione così come del miglior intervallo di frequenza per il calcolo della velocità di fase, può essere fatto con maggior accuratezza utilizzando dei sismogrammi multicanale.

Una volta scomposto il sismogramma, un'opportuna misura di coerenza applicata nel tempo e nel dominio della frequenza può essere utilizzata per calcolare la velocità di fase rispetto alla frequenza.

La velocità di fase e la frequenza sono le due variabili (x; y), il cui legame costituisce lo spettro di velocità.

E' anche possibile determinare l'accuratezza del calcolo analizzando la pendenza lineare di ciascuna componente di frequenza delle onde superficiali in un singolo sismogramma.

In questo caso la prova MASW permette la miglior registrazione e separazione ad ampia banda ed elevati rapporti S/N.

Un buon rapporto S/N assicura accuratezza nel calcolo dello spettro di velocità, mentre l'ampiezza di banda migliora la risoluzione e la possibile profondità di indagine del profilo Vs.

Le onde di superficie sono facilmente generate da una sorgente sismica quale, ad esempio, una mazza battente.

In particolare l'analisi MASW è stata realizzata con il seguente tipo di acquisizione:

acquisizione ZVF ossia con energizzazione verticale e acquisizione con geofoni verticali per l'analisi MASW della componente verticale delle onde di Rayleigh.

2.1.1 Strumentazione per sismica MASW

Le misure MASW sono state effettuate con strumento combinato PASI MOD.16SG24-N corredato da 12 geofoni a 4,5 Hz.

I profili sismici sono stati eseguiti energizzando artificialmente il terreno e registrando le vibrazioni prodotte mediante captatori, denominati geofoni, collegati ad un ricevitore (sismografo) attraverso un cavo multipolare.

I 12 geofoni, con frequenza minima di soglia di 4,5 Hz, sono stati posizionati ad una distanza definita l'uno dall'altro così da coprire una distanza orizzontale predeterminata.

L'energizzazione è avvenuta battendo una mazza da 11 Kg su una piastra in alluminio; al momento della battuta vengono generate artificialmente onde sismiche nel terreno ed ha inizio la registrazione (trigger) con campionamento costante e predeterminato del segnale da parte dei geofoni.

Per ogni scoppio abbiamo utilizzato la metodologia dello stacking che consiste nel ripetere più volte le misurazioni al fine di amplificare l'ampiezza del segnale sismico ed ottenere quindi sismogrammi di più facile lettura.

Eseguita la prima acquisizione è stato allontanato il punto di scoppio pari alla metà della distanza tra il primo scoppio e il primo geofono e ripetute le operazioni di registrazione.

Questa operazione permette di avere sismogrammi a 24 tracce con soli 12 geofoni.

2.2) Metodo ESAC

Si tratta di una procedura sperimentale per la determinazione del profilo di velocità delle onde S nel sottosuolo a partire da misure di vibrazioni ambientali condotte con geofoni verticali posizionati con una geometria conosciuta (antenna sismica o seismic array).

In particolare, la procedura è finalizzata alla determinazione delle velocità di propagazione delle onde superficiali presenti nel campo delle vibrazioni ambientali alle varie frequenze di vibrazione ("spettro di velocità").

Questa informazione verrà poi utilizzata all'interno di una procedura di inversione per dedurre il profilo di velocità delle onde S nel sottosuolo nell'ipotesi che questo sia costituito da una pila di strati orizzontali sovrapposti ed omogenei al loro interno.

Il metodo ESAC (Extended Spectral AutoCorrelation method) è frutto di una idea sviluppata inizialmente da Aki (1957).

Secondo Aki, il campo d'onda delle vibrazioni ambientali può essere rappresentato come la combinazione lineare di onde piane di diverse frequenze e con fase ed ampiezza casuale che si muovono sul piano orizzontale e che provengono da direzioni differenti.

Aki dimostrò che, sebbene ogni serie temporale dedotta dalla registrazione di questo campo d'onde in un punto abbia un carattere stocastico, due registrazioni effettuate in punti diversi mostrino delle "somiglianze" (in senso statistico) e che da queste sia possibile dedurre informazioni sulle velocità di fase delle diverse onde misurate nelle due posizioni.

Queste somiglianze sono rivelate dall'andamento di una funzione di correlazione.

Dato che la stima della correlazione fra le due serie di registrazioni è effettuata senza tenere conto di alcuno sfasamento temporale, la funzione è detta di autocorrelazione.

Aki dimostrò che sotto condizioni molto generali (in particolare che le onde siano tutte fra loro indipendenti e che le direzioni di provenienza siano distribuite con probabilità uniforme attorno ai due geofoni) la funzione di autocorrelazione relativa alla componente verticale delle vibrazioni misurate in due posizioni ha la forma di una funzione di Bessel di ordine 0 e dipende solo dalla loro distanza relativa.

Per una data frequenza vengono calcolate le diverse funzioni di autocorrelazione per tutte le distanze relative alle diverse coppie di sensori.

La velocità di fase viene determinata in modo da riprodurre al meglio l'andamento osservato della funzione di correlazione in funzione della distanza Δr.

2.2.1 Strumentazione per sismica ESAC

I dati sono stati acquisiti con strumento combinato PASI MOD.16SG24-N corredato da 12 geofoni verticali a 4,5 Hz disposti ad L o comunque combinazioni molto simili, con lunghezza di acquisizione poco superiore ai venticinque minuti.

Le distanze tra i vari geofoni sono state scelte variabili per avere la massima correlazione tra le varie coppie di geofoni e per essere sicuri di avere la massima penetrazione possibile se in presenza di una coltre alterata di copertura.

2.3) Caratterizzazione sismica con microtremori - HVSR o Nakamura

Il metodo dei rapporti spettrali H/V (rapporto fra gli spettri di ampiezza delle componenti orizzontali rispetto a quelle verticali del moto del suolo) o metodo di Nakamura (Nakamura, 1989) è stato utilizzato in modo intensivo per stimare le frequenze di risonanza del sito in esame.

Esso è stato applicato in diversi campi d'indagine, quali la zonazione sismica in aree urbane (Lachet et al., 1996), lo studio dei bacini sedimentari (Al Yuncha & Luzon, 2000) e lo studio delle frequenze di risonanza delle strutture abitative (Mucciarelli & Monachesi, 1998; Mucciarelli et al., 2001; Nakamura et al., 2000).

L'ampio uso di tale metodologia ha evidenziato nelle diverse applicazioni numerosi punti di dibattito nell'ambito della comunità scientifica.

L'aspetto comune che può essere dedotto dai lavori presenti in letteratura è che la tecnica di Nakamura è in grado di stimare la frequenza di risonanza del sito in esame ma non è affidabile per la stima assoluta dell'amplificazione del moto del suolo (Mucciarelli et al., 2001).

Inoltre i numerosi lavori riguardanti l'applicazione del metodo H/V offrono spiegazioni non univoche circa alcune importanti assunzioni del metodo, quali la composizione del campo d'onda analizzato, le condizioni di registrazione del rumore sismico e la procedura di "pre - processing" dei dati di rumore.

Per l'utilizzo di tale metodo si assume che gli strati soffici siano piani e paralleli e che la componente verticale del moto non subisca amplificazioni all'interfaccia substrato sismico – strato soffice.

2.3.1 Strumentazione per microtremori

I dati sono stati acquisiti tramite un tromografo a 4,5 Hz scegliendo 27 postazioni di misura all'interno delle aree da analizzare e misurando per ognuna di esse i microtremori per un tempo minimo di 20 minuti.

Dopo aver posizionato il tromografo in piano e allineato i suoi assi orizzontali con le direzioni nord - sud e est - ovest, abbiamo scelto come frequenza di campionamento 300 Hz.

2.4) Sismica a rifrazione

Le onde elastiche provocate da una vibrazione si trasmettono nel suolo con velocità differenti per ogni litotipo, per cui nella prospezione sismica a rifrazione, si sfrutta la diversa velocità di propagazione delle onde longitudinali (onde P o "di compressione e dilatazione") o trasversali (onde SH o “di taglio”) per determinare spessori e andamento dei livelli presenti.

La tecnica di indagine consiste nel generare un'onda sismica di compressione o di taglio nel terreno attraverso una determinata sorgente di energia (colpo di mazza o di maglio, esplosivo etc.) e nel misurare il tempo impiegato da detta onda a compiere il percorso nel sottosuolo dal punto di energizzazione fino ai sensori di rilevazione (geofoni) secondo le leggi di rifrazione dell'ottica (Legge di Snell), nel rifrangersi sulle superfici di separazione tra due strati sovrapposti di densità (o meglio di modulo elastico) crescente.

La rifrazione si basa sull’analisi, secondo diversi modelli dei primi arrivi rispetto a geofoni posti a distanze diverse dalla sorgente energizzante, per ricostruire una serie di curve tempo-distanza (dromocrone).

Attraverso metodi analitici si ricavano quindi le velocità delle onde elastiche longitudinali (Vp) o trasversali (Vs) dei mezzi attraversati ed il loro spessore.

La velocità di propagazione delle onde elastiche nel suolo è compresa tra larghi limiti.

Per lo stesso tipo di materiale, può variare in funzione di numerosi parametri quali il grado di alterazione, di fessurazione e/o di fratturazione per i materiali litoidi, ed in funzione dello stato di consistenza/addensamento, grado di saturazione, per i materiali granulari e fini.

Sensibili differenze si possono avere, anche con riferimento all’assetto morfologico rispetto alle velocità rilevate lungo i piani di strato e quelle rilevate perpendicolarmente a questi.

Inoltre la velocità delle onde P compressionali, rispetto alle SH trasversali, è fortemente influenzata dalla presenza di eventuale acquifero e/o dal grado di saturazione.

Questo comporta che anche litotipi differenti possano avere uguali velocità delle onde sismiche compressionali (ad esempio roccia fortemente fratturata e materiale detritico saturo con velocità Vp dell'ordine di 1400÷1700 m/sec), per cui non necessariamente l'interpretazione sismostratigrafica corrisponderà con la reale situazione geologico - stratigrafica.

2.4.1) Tomografia sismica in onde P e SH

La tomografia sismica, per raggi diretti, è una tecnica d'indagine che permette l'individuazione di anomalie nella velocità di propagazione delle onde sismiche con un potere risolutivo nettamente superiore ad altri metodi, offrendo la possibilità della ricostruzione, con elevato grado di qualità, di anomalie stratigrafiche anche particolarmente complesse non risolvibili con differenti tecniche d'indagine.

Per la realizzazione di immagini tomografiche è necessario utilizzare un maggior numero di sorgenti di energizzazione e di punti di ricezione delle onde sismiche, che permettano una distribuzione dei raggi sismici omogenea e con una densità che viene predefinita in funzione del "target" da raggiungere.

Le tecniche operative possono essere molto diverse, si può infatti operare:

• a livello del piano di campagna disponendo i ricevitori (geofoni) ed i trasmettitori (punti di scoppio) su linee parallele;

• utilizzando due fori, residui di sondaggi geognostici, (tomografia cross-hole), dove, previo opportuno condizionamento, si alloggiano i ricevitori ed i trasmettitori;

• utilizzando un solo foro (sondaggio sismico tomografico), in cui sono alloggiati i ricevitori, eseguendo una serie di tiri a distanze crescenti dall'imboccatura del foro stesso.

Per il trattamento dei dati per la ricostruzione tomografica dell'immagine si utilizza una suddivisione dell'area di studio in celle elementari, calcolando per ciascuna di queste un valore di velocità congruente con il tempo di tragitto medio relativo ai percorsi dei raggi sismici che le attraversano; la presentazione delle elaborazioni eseguite dà come risultato una mappa della distribuzione delle velocità sismiche in una sezione piana contenente le sorgenti ed i geofoni.

Le classiche prospezioni sismiche si basano sul concetto che le onde acustiche si propagano nei diversi mezzi con velocità differenti.

Generando tali onde in un punto (detto di scoppio) e osservando i loro tempi di arrivo in altri punti predeterminati (detti di registrazione), è possibile ricostruire la distribuzione di velocità e con questa definire dal punto di vista elastico le aree oggetto di studio e individuare anomalie o corpi anomali.

L'applicazione della tecnica tomografica alle misure sismiche permette poi di ricostruire l'andamento di tale caratteristica fisica all'interno di una porzione di spazio non accessibile direttamente e di ottenere come risultati, immagini che visualizzano le non omogeneità incontrate nel mezzo.

Il risultato finale sarà la rappresentazione delle velocità (in m/s) per piani, secondo una scala cromatica prefissata, che in genere va dal magenta (basse velocità) al blu (alte velocità).

Quanto più il mezzo attraversato è rigido e incomprimibile, tanto maggiore sarà la sua velocità caratteristica.

Valori bassi della velocità mettono in evidenza la variazione negativa delle caratteristiche elastiche e meccaniche, indicando la presenza di un possibile deterioramento della struttura interna.

2.4.2 Strumentazione per sismica a rifrazione e tecnica tomografica

Le misure sono state effettuate con strumento combinato PASI MOD.16SG24-N corredato da 24 geofoni a 10 Hz ad asse verticale per le acquisizioni in onde P.

I geofoni verticali sono stati posizionati in corrispondenza della medesima progressiva metrica.

I profili sismici sono stati eseguiti a mezzo di energizzazione artificiale del terreno, battendo una mazza da 11 Kg su una piastra in alluminio tramite un argano artigianale.

Sono state scelte sette posizioni di battuta, tutte interne allo stendimento.

2.5) Prove penetrometriche

2.5.1 Prove penetrometriche statiche

Le prove penetrometriche statiche sono standardizzate nella norma n° 3.441 ASTM e comprese nelle raccomandazioni Issmafe (1976), nonchè AGI, per l'esecuzione delle indagini geotecniche (1977).

Le prove penetrometriche statiche sono state eseguite con un penetrometro statico olandese superpesante di tipo Pagani da 10 tonnellate.

La prova base consiste nell'infiggere nel terreno una particolare punta articolata e nel misurare la resistenza che essa incontra alla penetrazione.

Le caratteristiche della punta sono:

- *area di base della punta 10 cmq;*
- *superficie laterale friction 150 cmq.*

La spinta viene fornita da un'apparecchiatura idraulica ed è trasmessa alla punta mediante una batteria di aste cave nel cui interno scorrono aste più piccole.

La prova consiste nel far penetrare verticalmente nel terreno la punta attraverso la batteria di aste.

1) *scende solo la punta delle astine interne;*
2) *scende la punta ed un corto manicotto spinti dalle astine interne;*
3) *scende tutta la batteria fino a quando la punta e il manicotto tornano in battuta sull'involucro esterno delle aste e raggiungono la nuova quota di inizio misura.*

Nella fase 1 viene misurata la resistenza alla punta (Qc) relativa alla pressione di rottura del terreno a quella profondità, ottenuta dividendo la forza di spinta per l'area di punta.

Nella fase 2 si misura invece la resistenza laterale (Fs), cioè l'attrito acciaio/terreno, ottenuta dividendo la spinta esercitata, e depurata di quella misurata nella fase 1, per l'area della superficie laterale del manicotto.

Nella fase 3 viene misurata la resistenza totale all'avanzamento: tale dato tiene conto dell'attrito che si esercita su tutta la batteria.

Le letture elaborate sono presentate sotto forma di profili penetrometrici continui e sono diagrammate in funzione della profondità; i parametri forniti sono:

- resistenza alla punta (Qc);
- resistenza laterale (Fs);
- resistenza alla punta totale (Qt);
- natura litologica;
- peso di volume;
- coesione non drenata Cu (per la parte coesiva del sottosuolo);
- angolo d’attrito interno Φ (per la parte incoerente del sottosuolo);
- modulo edometrico Mo.

2.5.2 Prove penetrometriche statiche con piezocono

La prova penetrometrica statica con piezocono viene eseguita come la prova penetrometrica statica sopra descritta.

La differenza sostanziale la fa la grande precisione della prova nella lettura di tutti i parametri geotecnici (ogni cm di infissione) e delle pressioni interstiziali.

2.5.3 Prove penetrometriche dinamiche

Le prove penetrometriche dinamiche sono state eseguite con un penetrometro statico – dinamico Pagani TG 63-200 avente (con le modalità dinamiche) le seguenti caratteristiche:

- *massa battente (M)* *63,50 Kg*
- *altezza di caduta (h)* *75 cm*
- *area della punta (A)* *20,43 cmq*
- *angolo al vertice della punta* *90°*
- *peso delle aste (P)* *6,31 Kg/metro*

E' stato misurato il numero di colpi (N) necessari per infiggere nel terreno le aste di 20 in 20 centimetri, procedendo nell'infissione senza rivestimento essendo trascurabile l'attrito laterale, in quanto la sezione della punta è maggiore di quella delle aste (durante la prova le aste si sono mantenute costantemente libere).

I risultati sono riportati in diagrammi numerici aventi in ordinate la profondità e in ascisse il numero di colpi, nonché l'elaborazione della resistenza dinamica alla punta sempre in rapporto alla profondità.

§ 3) ELABORAZIONE DATI E RISULTATI

3.1) Elaborazione dei dati sismici MASW

Le tracce acquisite sono state elaborate attraverso il software di calcolo winMASW Academy 7.0 (Eliosoft Geophysical Software).

Sono state quindi caricate le registrazioni e verificati gli spettri di velocità.

Abbiamo quindi generato spettri di velocità artificiali da un modello sismostratigrafico immesso manualmente e progressivamente migliorato per farlo coincidere con lo spettro di velocità risultato dall'analisi.

Verificato l'andamento delle singole armoniche generate dal modello manuale è stato eseguito poi il ripasso grafico dei massimi dello spettro di velocità (picking) così da ottenere dei binomi velocità – frequenza anche attraverso l'ausilio della curva di dispersione effettiva scaturita dall'inversione ESAC.

La fase successiva ha interessato l'inversione analitica di questi dati considerando come modello di partenza quello calcolato precedentemente in maniera manuale.

E' stato altresì verificato che il modello sismostratigrafico fosse compatibile con l'analisi HVSR effettuata in corrispondenza o in prossimità delle stese sismiche (MASW e ESAC), producendo così un'inversione "robusta".

Il metodo d'inversione della curva di dispersione è basato su una tecnica di approssimazione particolarmente sofisticata (algoritmi genetici), che comunque non richiede necessariamente modelli di partenza.

Lanciata l'inversione il programma ha ricercato il modello medio e il modello migliore, tra i vari possibili nello spazio di ricerca che abbiamo precedentemente fissato.

La scelta dello spazio di ricerca è stata effettuata in modo oculato tenendo conto delle caratteristiche geologiche e sismiche dell'area.

3.2) Elaborazione dei dati tecnica ESAC

I sismogrammi ottenuti sono stati opportunamente elaborati con il software WinMasw Academy distribuito dalla ditta Eliosoft.

In particolare, dopo una visione generale delle registrazioni, è stato scelto l'intervallo di frequenze sul quale eseguire l'elaborazione.

E' stata poi generata la curva di dispersione effettiva utilizzata nell'inversione MASW per ottenere la massima penetrazione possibile degli strati.

3.3) Elaborazione dei dati microtremori – HVSR

I sismogrammi ottenuti sono stati opportunamente elaborati con il software WinMasw Academy 7.0 distribuito dalla ditta Eliosoft.

In particolare, dopo una visione generale delle registrazioni, sono state scelte le finestre temporali sulle quali eseguire i rapporti H/V.

E' stato scelto di usare finestre temporali variabili con t compreso tra 20 e 40 secondi dopo aver rimosso i possibili rumori antropici locali in modo da captare frequenze di risonanza minime dell'ordine di 0,5 - 1 Hz (se esistenti).

Inoltre il software è stato settato in modo da evitare fenomeni di triggering sul dato di campagna e ottenere uno smoothing triangolare tra il 5 e il 20% dei risultati finali.

Negli allegati sono mostrate le curve H/V con il grafico della persistenza, della stazionarietà e dei criteri del progetto SESAME.

Nella tabella seguente sono indicati i parametri derivati dalle misure H/V eseguite nelle aree oggetto d'intervento.

TIPO	f0	a0	Qualità
HVSR1	7.2	2.2	A1
HVSR2	2.1	1.2	A2
HVSR3	7.3	0.9	B2
HVSR4	7.2	2.0	B2
HVSR5	3.0	3.6	A1
HVSR6	5.1	2.2	C
HVSR7	16.4	2.5	B1
HVSR8	7.9	2.3	A1
HVSR9	5.0	1.9	A2
HVSR10	3.5	1.7	A2
HVSR11	2.7	2.1	A1
HVSR12	14.7	2.7	A1
HVSR13	3.6	1.3	A2
HVSR14	1.1	6.0	B1
HVSR15	4.9	1.4	B2
HVSR16	8.1	1.4	A2
HVSR17	2.9	2.4	C
HVSR18	0.8	1.9	B2
HVSR19	3.4	3.4	A1
HVSR20	4.3	3.5	A1
HVSR21	5.9	2.3	A1
HVSR22	5.0	1.0	A2
HVSR23	2.6	2.5	A1
HVSR24	10.9	3.5	A1
HVSR25	4.3	3.5	B1
HVSR26	4.5	1.3	A2
HVSR27	2.0	1.7	A2

3.4) Elaborazione dei dati sismici con tecnica tomografica

Le tracce acquisite sono state opportunamente filtrate utilizzando il programma Pickwin 3.14 della OYO Corporation: in particolare è stato eseguito un filtraggio passa basso (250 Hz) per eliminare le componenti in alta frequenza; quindi sono state inserite le coordinate di ogni geofono rispetto all'origine di riferimento.

Visualizzate le tracce dei 24 geofoni abbiamo effettuato, con l'ausilio del software sopra menzionato, il picking dei primi arrivi delle onde P per ciascuno dei 7 scoppi.

I dati relativi ai tempi dei primi arrivi delle onde P a ciascun geofono e le relative distanze dei geofoni dai punti di scoppio sono poi stati utilizzati per tracciare le traveltime su grafici distanza/tempo.

Lanciato il programma Plotrefa_ee 2.73 della OYO Corporation, abbiamo inserito i dati topografici del profilo investigato dopodiché è stata avviata la procedura tomografica in automatico, scegliendo le condizioni al contorno più attinenti possibili al contesto geologico e stratigrafico dell'area.

Dopo l'inversione è stata nostra cura controllare il fitting tra le dromocrone sperimentali e quelle calcolate.

3.5) Elaborazione prove penetrometriche statiche CPTU

I dati acquisiti in campagna sono stati opportunamente rielaborati a mezzo del programma della Geostru (*Static Probing*).

I risultati delle prove sono riportati in Allegato.

3.6) Elaborazione prove penetrometriche dinamiche

I dati acquisiti in campagna sono stati opportunamente rielaborati a mezzo del programma della Geostru (*Dinamic Probing*).

I risultati delle prove sono riportati in Allegato.

Poggibonsi 09/06/2021

REPORT DELLE INDAGINI GEOFISICHE E GEOGNOSTICHE

Comune di Ozzano dell'Emilia

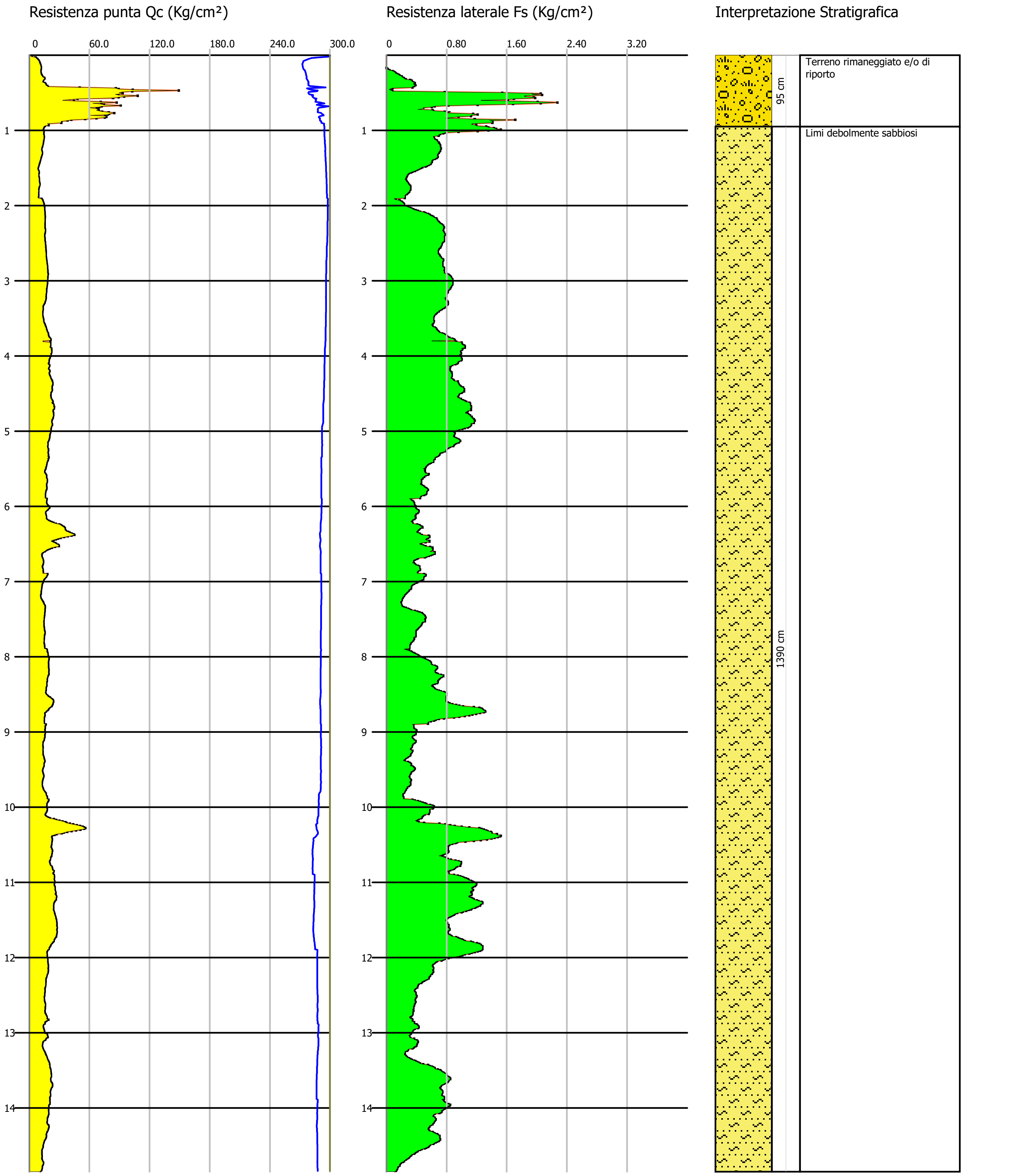
CPTU1_ms3

Geologica Toscana snc
Viale Marconi 106 - 53036 - Poggibonsi (SI)
tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

Probe CPTU - Piezocone Nr.1
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)

Data: 26/02/2021



Scala profondità 1:75 - Qc: 1 cm=56.29 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=5.629 Kg/cm²

Prova CPTU n. 1

PROVA CPTU Nr.1

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 26/02/2021
Profondità prova: 14.85 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	1.224	0.0	-0.02	0.1	0.0	0.0	0.0	0.0	0.0	0
0.02	2.447	0.0	0.09	0.2	0.0	0.0	0.0	0.0	0.0	0
0.03	6.118	0.0	1.41	0.1	0.0	0.0	0.0	0.0	0.0	0
0.04	6.934	0.0	1.84	0.1	0.0	0.0	0.0	0.0	0.0	0
0.05	7.75	0.0	2.15	0.1	0.0	0.0	0.0	0.0	0.0	0
0.06	8.362	0.0	2.33	0.1	0.0	0.0	0.0	0.0	0.0	0
0.07	8.973	0.0	2.51	0.2	0.0	0.0	0.0	0.0	0.0	0
0.08	9.585	0.0	2.65	0.2	0.0	0.0	0.0	0.0	0.0	0
0.09	9.993	0.0	2.68	0.2	0.0	0.0	0.0	0.0	0.0	0
0.10	9.993	0.0	2.70	0.2	0.0	0.0	0.0	0.0	0.0	0
0.11	10.401	0.0	2.74	0.2	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 1

0.12	10.707	0.0	2.75	0.2	0.0	0.0	0.0	0.0	0.0	0
0.13	11.013	0.0	2.74	0.2	0.0	0.0	0.0	0.0	0.0	0
0.14	11.217	0.0	2.73	0.2	0.0	0.0	0.0	0.0	0.0	0
0.15	11.421	0.0	2.72	0.2	0.0	0.0	0.0	0.0	0.0	0
0.16	11.523	0.0	2.69	0.2	0.0	0.0	0.0	0.0	0.0	0
0.17	11.523	0.0	2.67	0.2	0.0	0.0	0.0	0.0	0.0	0
0.18	11.421	0.01	2.64	0.2	1142.1	0.088	0.0	0.0	0.0	0
0.19	11.319	0.02	2.60	0.2	565.95	0.177	0.0	0.0	0.0	0
0.20	11.013	0.041	2.52	0.2	268.61	0.372	0.0	0.0	0.0	0
0.21	11.013	0.082	2.49	0.2	134.305	0.745	0.0	0.0	0.0	0
0.22	11.115	0.102	2.46	0.2	108.971	0.918	0.0	0.0	0.0	0
0.23	11.217	0.112	2.44	0.2	100.152	0.998	0.0	0.0	0.0	0
0.24	11.319	0.122	2.41	0.2	92.779	1.078	0.0	0.0	0.0	0
0.25	11.625	0.143	2.39	0.2	81.294	1.23	0.0	0.0	0.0	0
0.26	11.829	0.163	2.39	0.2	72.571	1.378	0.0	0.0	0.0	0
0.27	12.338	0.173	2.38	0.3	71.318	1.402	0.0	0.0	0.0	0
0.28	12.95	0.204	2.34	0.3	63.48	1.575	0.0	0.0	0.0	0
0.29	13.358	0.204	2.33	0.3	65.48	1.527	0.0	0.0	0.0	0
0.30	14.786	0.224	2.36	0.3	66.009	1.515	0.0	0.0	0.0	0
0.31	15.295	0.235	2.35	0.3	65.085	1.536	0.0	0.0	0.0	0
0.32	14.378	0.255	2.29	0.3	56.384	1.774	0.0	0.0	0.0	0
0.33	13.868	0.316	2.24	0.3	43.886	2.279	0.0	0.0	0.0	0
0.34	13.46	0.337	2.20	0.3	39.941	2.504	0.0	0.0	0.0	0
0.35	13.358	0.337	2.17	0.3	39.638	2.523	0.0	0.0	0.0	0
0.36	13.358	0.357	2.14	0.3	37.417	2.673	0.0	0.0	0.0	0
0.37	15.092	0.377	2.17	0.2	40.032	2.498	0.0	0.0	0.0	0
0.38	16.009	0.357	2.14	0.2	44.843	2.23	0.0	0.0	0.0	0
0.39	16.417	0.367	2.16	0.2	44.733	2.235	0.0	0.0	0.0	0
0.40	16.519	0.387	2.15	0.2	42.685	2.343	0.0	0.0	0.0	0
0.41	17.947	0.367	2.01	0.2	48.902	2.045	0.0	0.0	0.0	0
0.42	18.559	0.347	1.24	0.2	53.484	1.87	0.0	0.0	0.0	0
0.43	50.373	0.347	0.44	0.1	145.167	0.689	0.0	0.0	0.0	0
0.44	86.369	0.082	2.31	0.6	1053.28	0.095	0.0	0.0	0.0	0
0.45	89.122	0.041	2.13	0.9	2173.707	0.046	0.0	0.0	0.0	0
0.46	103.194	0.041	1.85	1.1	2516.927	0.04	0.0	0.0	0.0	0
0.47	149.182	0.071	1.23	1.0	2101.155	0.048	0.0	0.0	0.0	0
0.48	102.786	0.082	1.31	1.1	1253.488	0.08	0.0	0.0	0.0	0
0.49	92.589	0.775	2.11	1.0	119.47	0.837	0.0	0.0	0.0	0
0.50	89.836	1.54	2.15	1.0	58.335	1.714	0.0	0.0	0.0	0
0.51	93.201	2.05	2.13	0.9	45.464	2.2	0.0	0.0	0.0	0
0.52	86.063	1.937	2.03	0.9	44.431	2.251	0.0	0.0	0.0	0
0.53	88.816	2.07	1.68	0.8	42.906	2.331	0.0	0.0	0.0	0
0.54	108.088	1.835	1.81	0.8	58.904	1.698	0.0	0.0	0.0	0
0.55	94.526	1.835	1.69	0.8	51.513	1.941	0.0	0.0	0.0	0
0.56	89.122	1.958	1.70	0.8	45.517	2.197	0.0	0.0	0.0	0
0.57	83.513	1.978	1.56	0.8	42.221	2.368	0.0	0.0	0.0	0
0.58	48.232	1.693	1.36	0.8	28.489	3.51	0.0	0.0	0.0	0
0.59	39.87	1.611	1.43	0.8	24.749	4.041	0.0	0.0	0.0	0
0.60	33.344	1.254	1.40	0.8	26.59	3.761	0.0	0.0	0.0	0
0.61	44.663	1.611	1.42	0.8	27.724	3.607	0.0	0.0	0.0	0
0.62	71.175	2.009	1.47	0.9	35.428	2.823	0.0	0.0	0.0	0
0.63	87.286	2.274	0.98	0.9	38.384	2.605	0.0	0.0	0.0	0
0.64	63.323	2.05	0.56	0.9	30.889	3.237	0.0	0.0	0.0	0
0.65	71.889	1.683	1.15	0.9	42.715	2.341	0.0	0.0	0.0	0
0.66	74.54	1.213	1.32	0.9	61.451	1.627	0.0	0.0	0.0	0
0.67	91.263	0.826	0.90	0.8	110.488	0.905	0.0	0.0	0.0	0
0.68	72.195	0.642	0.13	0.8	112.453	0.889	0.0	0.0	0.0	0
0.69	69.849	0.602	0.57	0.8	116.028	0.862	0.0	0.0	0.0	0
0.70	59.245	0.489	1.10	0.8	121.155	0.825	0.0	0.0	0.0	0
0.71	67.402	0.489	1.20	0.9	137.836	0.725	0.0	0.0	0.0	0
0.72	69.034	0.428	1.22	0.9	161.294	0.62	0.0	0.0	0.0	0
0.73	66.994	0.612	1.20	0.9	109.467	0.914	0.0	0.0	0.0	0
0.74	69.34	0.622	1.20	0.9	111.479	0.897	0.0	0.0	0.0	0
0.75	72.603	0.775	1.21	0.9	93.681	1.067	0.0	0.0	0.0	0
0.76	79.231	0.836	1.22	0.9	94.774	1.055	0.0	0.0	0.0	0
0.77	84.737	0.795	0.89	0.8	106.587	0.938	0.0	0.0	0.0	0
0.78	79.537	1.152	0.80	0.8	69.043	1.448	0.0	0.0	0.0	0
0.79	78.517	1.213	0.69	0.8	64.73	1.545	0.0	0.0	0.0	0
0.80	61.08	1.122	0.64	0.9	54.439	1.837	0.0	0.0	0.0	0
0.81	75.764	1.122	0.96	0.9	67.526	1.481	0.0	0.0	0.0	0
0.82	76.987	0.959	1.11	0.9	80.278	1.246	0.0	0.0	0.0	0
0.83	75.254	0.867	1.09	0.9	86.798	1.152	0.0	0.0	0.0	0
0.84	66.994	0.785	1.00	0.9	85.343	1.172	0.0	0.0	0.0	0
0.85	55.88	1.173	1.01	0.9	47.639	2.099	0.0	0.0	0.0	0
0.86	41.91	1.713	1.01	0.9	24.466	4.087	0.0	0.0	0.0	0

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0.87	38.137	1.377	1.00	0.9	27.696	3.611	0.0	0.0	0.0	0
0.88	31.815	1.407	0.88	0.9	22.612	4.422	0.0	0.0	0.0	0
0.89	31.815	1.407	0.88	0.9	22.612	4.422	0.0	0.0	0.0	0
0.90	31.815	1.407	0.88	0.9	22.612	4.422	0.0	0.0	0.0	0
0.91	18.253	1.142	0.59	1.0	15.983	6.257	0.0	0.0	0.0	0
0.92	18.661	1.132	0.60	1.0	16.485	6.066	0.0	0.0	0.0	0
0.93	19.272	1.193	0.59	0.9	16.154	6.19	0.0	0.0	0.0	0
0.94	15.703	1.193	0.58	0.9	13.163	7.597	0.0	0.0	0.0	0
0.95	14.786	1.326	0.57	0.9	11.151	8.968	0.0	0.0	0.0	0
0.96	14.174	1.356	0.57	0.9	10.453	9.567	0.0	0.0	0.0	0
0.97	13.97	1.428	0.57	0.9	9.783	10.222	0.0	0.0	0.0	0
0.98	13.46	1.458	0.57	0.9	9.232	10.832	0.0	0.0	0.0	0
0.99	13.562	1.519	0.58	0.9	8.928	11.2	0.0	0.0	0.0	0
1.00	13.562	1.356	0.58	0.9	10.001	9.999	0.0	0.0	0.0	0
1.01	14.072	1.213	0.58	0.9	11.601	8.62	0.0	0.0	0.0	0
1.02	14.276	0.959	0.57	0.9	14.886	6.718	0.0	0.0	0.0	0
1.03	13.97	0.785	0.57	0.9	17.796	5.619	0.0	0.0	0.0	0
1.04	14.072	0.755	0.56	0.9	18.638	5.365	0.0	0.0	0.0	0
1.05	13.97	0.714	0.56	0.9	19.566	5.111	0.0	0.0	0.0	0
1.06	14.276	0.693	0.56	0.9	20.6	4.854	0.0	0.0	0.0	0
1.07	14.378	0.693	0.55	1.0	20.747	4.82	0.0	0.0	0.0	0
1.08	14.48	0.622	0.55	1.1	23.28	4.296	0.0	0.0	0.0	0
1.09	14.48	0.622	0.54	1.1	23.28	4.296	0.0	0.0	0.0	0
1.10	14.378	0.632	0.54	1.1	22.75	4.396	0.0	0.0	0.0	0
1.11	14.378	0.632	0.53	1.1	22.75	4.396	0.0	0.0	0.0	0
1.12	14.174	0.642	0.53	1.1	22.078	4.529	0.0	0.0	0.0	0
1.13	13.97	0.663	0.52	1.0	21.071	4.746	0.0	0.0	0.0	0
1.14	13.766	0.673	0.52	1.0	20.455	4.889	0.0	0.0	0.0	0
1.15	13.766	0.673	0.52	1.0	20.455	4.889	0.0	0.0	0.0	0
1.16	13.664	0.693	0.51	1.0	19.717	5.072	0.0	0.0	0.0	0
1.17	13.562	0.683	0.50	1.0	19.857	5.036	0.0	0.0	0.0	0
1.18	13.46	0.704	0.50	1.0	19.119	5.23	0.0	0.0	0.0	0
1.19	13.154	0.704	0.49	1.0	18.685	5.352	0.0	0.0	0.0	0
1.20	12.95	0.714	0.49	0.9	18.137	5.514	0.0	0.0	0.0	0
1.21	12.746	0.714	0.48	1.0	17.852	5.602	0.0	0.0	0.0	0
1.22	12.542	0.714	0.48	0.9	17.566	5.693	0.0	0.0	0.0	0
1.23	12.236	0.714	0.47	0.9	17.137	5.835	0.0	0.0	0.0	0
1.24	11.93	0.724	0.47	0.9	16.478	6.069	0.0	0.0	0.0	0
1.25	11.93	0.714	0.47	0.9	16.709	5.985	0.0	0.0	0.0	0
1.26	11.93	0.714	0.47	0.9	16.709	5.985	0.0	0.0	0.0	0
1.27	12.134	0.714	0.48	0.9	16.994	5.884	0.0	0.0	0.0	0
1.28	12.44	0.704	0.48	0.9	17.67	5.659	0.0	0.0	0.0	0
1.29	12.542	0.693	0.47	0.9	18.098	5.525	0.0	0.0	0.0	0
1.30	12.644	0.693	0.47	0.9	18.245	5.481	0.0	0.0	0.0	0
1.31	12.644	0.683	0.47	0.9	18.512	5.402	0.0	0.0	0.0	0
1.32	12.338	0.673	0.46	0.9	18.333	5.455	0.0	0.0	0.0	0
1.33	12.134	0.673	0.47	0.9	18.03	5.546	0.0	0.0	0.0	0
1.34	11.93	0.673	0.46	0.9	17.727	5.641	0.0	0.0	0.0	0
1.35	11.625	0.683	0.46	1.0	17.02	5.875	0.0	0.0	0.0	0
1.36	11.421	0.673	0.45	1.0	16.97	5.893	0.0	0.0	0.0	0
1.37	11.217	0.663	0.45	0.9	16.919	5.911	0.0	0.0	0.0	0
1.38	11.013	0.642	0.44	0.9	17.154	5.829	0.0	0.0	0.0	0
1.39	10.911	0.612	0.44	0.9	17.828	5.609	0.0	0.0	0.0	0
1.40	10.605	0.602	0.43	0.9	17.616	5.677	0.0	0.0	0.0	0
1.41	10.401	0.602	0.43	0.9	17.277	5.788	0.0	0.0	0.0	0
1.42	10.197	0.602	0.42	0.9	16.939	5.904	0.0	0.0	0.0	0
1.43	9.993	0.591	0.42	0.9	16.909	5.914	0.0	0.0	0.0	0
1.44	9.687	0.591	0.41	0.9	16.391	6.101	0.0	0.0	0.0	0
1.45	9.483	0.581	0.41	1.0	16.322	6.127	0.0	0.0	0.0	0
1.46	9.279	0.561	0.41	0.9	16.54	6.046	0.0	0.0	0.0	0
1.47	9.075	0.54	0.40	0.9	16.806	5.95	0.0	0.0	0.0	0
1.48	8.871	0.52	0.40	0.9	17.06	5.862	0.0	0.0	0.0	0
1.49	8.464	0.479	0.39	1.0	17.67	5.659	0.0	0.0	0.0	0
1.50	8.362	0.459	0.39	1.0	18.218	5.489	0.0	0.0	0.0	0
1.51	8.26	0.438	0.38	1.0	18.858	5.303	0.0	0.0	0.0	0
1.52	8.362	0.418	0.38	1.0	20.005	4.999	0.0	0.0	0.0	0
1.53	8.667	0.398	0.38	1.0	21.776	4.592	0.0	0.0	0.0	0
1.54	9.075	0.377	0.38	1.0	24.072	4.154	0.0	0.0	0.0	0
1.55	9.381	0.347	0.38	1.0	27.035	3.699	0.0	0.0	0.0	0
1.56	9.483	0.326	0.37	1.0	29.089	3.438	0.0	0.0	0.0	0
1.57	9.279	0.296	0.37	1.0	31.348	3.19	0.0	0.0	0.0	0
1.58	9.075	0.286	0.36	1.0	31.731	3.152	0.0	0.0	0.0	0
1.59	9.075	0.275	0.36	1.0	33.0	3.03	0.0	0.0	0.0	0
1.60	9.075	0.275	0.36	1.0	33.0	3.03	0.0	0.0	0.0	0
1.61	9.075	0.265	0.36	1.0	34.245	2.92	0.0	0.0	0.0	0

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1.62	9.279	0.265	0.36	1.0	35.015	2.856	0.0	0.0	0.0	0
1.63	9.483	0.255	0.36	1.0	37.188	2.689	0.0	0.0	0.0	0
1.64	9.585	0.255	0.35	1.0	37.588	2.66	0.0	0.0	0.0	0
1.65	9.585	0.245	0.35	1.0	39.122	2.556	0.0	0.0	0.0	0
1.66	9.585	0.255	0.35	1.0	37.588	2.66	0.0	0.0	0.0	0
1.67	9.585	0.265	0.34	1.0	36.17	2.765	0.0	0.0	0.0	0
1.68	9.687	0.265	0.34	1.0	36.555	2.736	0.0	0.0	0.0	0
1.69	9.789	0.275	0.34	1.0	35.596	2.809	0.0	0.0	0.0	0
1.70	9.993	0.286	0.34	1.0	34.941	2.862	0.0	0.0	0.0	0
1.71	10.197	0.286	0.34	1.0	35.654	2.805	0.0	0.0	0.0	0
1.72	10.299	0.296	0.33	1.0	34.794	2.874	0.0	0.0	0.0	0
1.73	10.095	0.306	0.33	1.0	32.99	3.031	0.0	0.0	0.0	0
1.74	9.891	0.316	0.32	1.0	31.301	3.195	0.0	0.0	0.0	0
1.75	9.381	0.316	0.32	1.0	29.687	3.369	0.0	0.0	0.0	0
1.76	9.279	0.316	0.32	1.0	29.364	3.406	0.0	0.0	0.0	0
1.77	9.177	0.316	0.32	1.0	29.041	3.443	0.0	0.0	0.0	0
1.78	8.973	0.316	0.32	1.0	28.396	3.522	0.0	0.0	0.0	0
1.79	8.973	0.316	0.32	1.0	28.396	3.522	0.0	0.0	0.0	0
1.80	9.075	0.306	0.31	1.1	29.657	3.372	0.0	0.0	0.0	0
1.81	9.075	0.306	0.31	1.0	29.657	3.372	0.0	0.0	0.0	0
1.82	8.871	0.296	0.31	1.1	29.97	3.337	0.0	0.0	0.0	0
1.83	8.871	0.286	0.31	1.1	31.017	3.224	0.0	0.0	0.0	0
1.84	8.871	0.275	0.31	1.1	32.258	3.1	0.0	0.0	0.0	0
1.85	8.871	0.265	0.30	1.1	33.475	2.987	0.0	0.0	0.0	0
1.86	8.973	0.245	0.30	1.1	36.624	2.73	0.0	0.0	0.0	0
1.87	8.871	0.245	0.30	1.1	36.208	2.762	0.0	0.0	0.0	0
1.88	8.769	0.245	0.30	1.1	35.792	2.794	0.0	0.0	0.0	0
1.89	8.769	0.245	0.30	1.1	35.792	2.794	0.0	0.0	0.0	0
1.90	8.769	0.245	0.30	1.1	35.792	2.794	0.0	0.0	0.0	0
1.91	12.032	0.102	0.21	1.2	117.961	0.848	0.0	0.0	0.0	0
1.92	12.44	0.122	0.21	1.2	101.967	0.981	0.0	0.0	0.0	0
1.93	13.052	0.173	0.22	1.2	75.445	1.325	0.0	0.0	0.0	0
1.94	13.358	0.184	0.22	1.2	72.598	1.377	0.0	0.0	0.0	0
1.95	13.46	0.204	0.24	1.2	65.98	1.516	0.0	0.0	0.0	0
1.96	13.766	0.214	0.24	1.2	64.327	1.555	0.0	0.0	0.0	0
1.97	14.072	0.224	0.24	1.2	62.821	1.592	0.0	0.0	0.0	0
1.98	14.276	0.235	0.24	1.2	60.749	1.646	0.0	0.0	0.0	0
1.99	14.48	0.235	0.24	1.2	61.617	1.623	0.0	0.0	0.0	0
2.00	14.582	0.235	0.24	1.2	62.051	1.612	0.0	0.0	0.0	0
2.01	14.684	0.265	0.24	1.2	55.411	1.805	0.0	0.0	0.0	0
2.02	14.786	0.286	0.24	1.2	51.699	1.934	0.0	0.0	0.0	0
2.03	14.888	0.316	0.24	1.2	47.114	2.123	0.0	0.0	0.0	0
2.04	14.888	0.337	0.24	1.2	44.178	2.264	0.0	0.0	0.0	0
2.05	14.99	0.357	0.24	1.2	41.989	2.382	0.0	0.0	0.0	0
2.06	14.99	0.387	0.24	1.2	38.734	2.582	0.0	0.0	0.0	0
2.07	14.99	0.418	0.24	1.2	35.861	2.789	0.0	0.0	0.0	0
2.08	15.092	0.449	0.24	1.2	33.612	2.975	0.0	0.0	0.0	0
2.09	15.092	0.5	0.24	1.2	30.184	3.313	0.0	0.0	0.0	0
2.10	15.194	0.52	0.24	1.2	29.219	3.422	0.0	0.0	0.0	0
2.11	15.194	0.551	0.24	1.2	27.575	3.626	0.0	0.0	0.0	0
2.12	15.194	0.571	0.24	1.2	26.609	3.758	0.0	0.0	0.0	0
2.13	15.295	0.581	0.24	1.3	26.325	3.799	0.0	0.0	0.0	0
2.14	15.397	0.602	0.24	1.2	25.576	3.91	0.0	0.0	0.0	0
2.15	15.397	0.622	0.24	1.3	24.754	4.04	0.0	0.0	0.0	0
2.16	15.397	0.632	0.24	1.3	24.362	4.105	0.0	0.0	0.0	0
2.17	15.295	0.663	0.24	1.3	23.069	4.335	0.0	0.0	0.0	0
2.18	15.295	0.663	0.24	1.3	23.069	4.335	0.0	0.0	0.0	0
2.19	15.295	0.673	0.24	1.3	22.727	4.4	0.0	0.0	0.0	0
2.20	15.295	0.673	0.24	1.3	22.727	4.4	0.0	0.0	0.0	0
2.21	15.295	0.683	0.25	1.3	22.394	4.466	0.0	0.0	0.0	0
2.22	15.295	0.693	0.25	1.2	22.071	4.531	0.0	0.0	0.0	0
2.23	15.194	0.704	0.25	1.2	21.582	4.633	0.0	0.0	0.0	0
2.24	15.194	0.714	0.25	1.2	21.28	4.699	0.0	0.0	0.0	0
2.25	15.092	0.734	0.25	1.2	20.561	4.864	0.0	0.0	0.0	0
2.26	15.194	0.744	0.25	1.2	20.422	4.897	0.0	0.0	0.0	0
2.27	15.194	0.755	0.25	1.2	20.125	4.969	0.0	0.0	0.0	0
2.28	15.194	0.755	0.25	1.2	20.125	4.969	0.0	0.0	0.0	0
2.29	15.194	0.765	0.25	1.2	19.861	5.035	0.0	0.0	0.0	0
2.30	15.194	0.755	0.25	1.2	20.125	4.969	0.0	0.0	0.0	0
2.31	15.499	0.755	0.25	1.2	20.528	4.871	0.0	0.0	0.0	0
2.32	15.703	0.755	0.26	1.2	20.799	4.808	0.0	0.0	0.0	0
2.33	15.703	0.744	0.26	1.2	21.106	4.738	0.0	0.0	0.0	0
2.34	15.805	0.755	0.26	1.2	20.934	4.777	0.0	0.0	0.0	0
2.35	15.295	0.755	0.26	1.2	20.258	4.936	0.0	0.0	0.0	0
2.36	15.499	0.765	0.26	1.2	20.26	4.936	0.0	0.0	0.0	0

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2.37	15.092	0.765	0.26	1.2	19.728	5.069	0.0	0.0	0.0	0
2.38	14.888	0.775	0.26	1.2	19.21	5.206	0.0	0.0	0.0	0
2.39	14.888	0.775	0.26	1.2	19.21	5.206	0.0	0.0	0.0	0
2.40	14.888	0.765	0.26	1.2	19.461	5.138	0.0	0.0	0.0	0
2.41	14.99	0.765	0.27	1.3	19.595	5.103	0.0	0.0	0.0	0
2.42	14.99	0.765	0.27	1.2	19.595	5.103	0.0	0.0	0.0	0
2.43	15.092	0.765	0.27	1.2	19.728	5.069	0.0	0.0	0.0	0
2.44	15.092	0.765	0.27	1.3	19.728	5.069	0.0	0.0	0.0	0
2.45	15.092	0.765	0.28	1.2	19.728	5.069	0.0	0.0	0.0	0
2.46	15.092	0.765	0.28	1.3	19.728	5.069	0.0	0.0	0.0	0
2.47	15.092	0.765	0.28	1.2	19.728	5.069	0.0	0.0	0.0	0
2.48	15.295	0.755	0.28	1.2	20.258	4.936	0.0	0.0	0.0	0
2.49	15.601	0.744	0.29	1.3	20.969	4.769	0.0	0.0	0.0	0
2.50	15.703	0.734	0.30	1.3	21.394	4.674	0.0	0.0	0.0	0
2.51	15.703	0.734	0.30	1.2	21.394	4.674	0.0	0.0	0.0	0
2.52	15.805	0.734	0.30	1.3	21.533	4.644	0.0	0.0	0.0	0
2.53	15.907	0.724	0.30	1.3	21.971	4.551	0.0	0.0	0.0	0
2.54	15.907	0.724	0.31	1.3	21.971	4.551	0.0	0.0	0.0	0
2.55	15.907	0.714	0.31	1.1	22.279	4.489	0.0	0.0	0.0	0
2.56	15.907	0.714	0.31	1.3	22.279	4.489	0.0	0.0	0.0	0
2.57	16.111	0.693	0.31	1.2	23.248	4.301	0.0	0.0	0.0	0
2.58	16.111	0.693	0.31	1.2	23.248	4.301	0.0	0.0	0.0	0
2.59	16.213	0.683	0.31	1.2	23.738	4.213	0.0	0.0	0.0	0
2.60	16.213	0.683	0.31	1.2	23.738	4.213	0.0	0.0	0.0	0
2.61	16.315	0.683	0.31	1.2	23.887	4.186	0.0	0.0	0.0	0
2.62	16.315	0.683	0.31	1.2	23.887	4.186	0.0	0.0	0.0	0
2.63	16.417	0.683	0.31	1.2	24.037	4.16	0.0	0.0	0.0	0
2.64	16.519	0.683	0.31	1.2	24.186	4.135	0.0	0.0	0.0	0
2.65	16.519	0.693	0.33	1.2	23.837	4.195	0.0	0.0	0.0	0
2.66	16.519	0.704	0.33	1.2	23.464	4.262	0.0	0.0	0.0	0
2.67	16.519	0.704	0.33	1.2	23.464	4.262	0.0	0.0	0.0	0
2.68	16.519	0.714	0.33	1.2	23.136	4.322	0.0	0.0	0.0	0
2.69	16.621	0.724	0.34	1.2	22.957	4.356	0.0	0.0	0.0	0
2.70	16.723	0.724	0.35	1.2	23.098	4.329	0.0	0.0	0.0	0
2.71	16.723	0.744	0.35	1.1	22.477	4.449	0.0	0.0	0.0	0
2.72	16.825	0.755	0.35	1.2	22.285	4.487	0.0	0.0	0.0	0
2.73	17.029	0.755	0.36	1.2	22.555	4.434	0.0	0.0	0.0	0
2.74	17.131	0.744	0.36	1.1	23.026	4.343	0.0	0.0	0.0	0
2.75	17.233	0.744	0.36	1.2	23.163	4.317	0.0	0.0	0.0	0
2.76	17.233	0.744	0.36	1.1	23.163	4.317	0.0	0.0	0.0	0
2.77	17.335	0.744	0.36	1.1	23.3	4.292	0.0	0.0	0.0	0
2.78	17.437	0.744	0.36	1.2	23.437	4.267	0.0	0.0	0.0	0
2.79	17.539	0.744	0.36	1.2	23.574	4.242	0.0	0.0	0.0	0
2.80	17.743	0.744	0.36	1.2	23.848	4.193	0.0	0.0	0.0	0
2.81	17.947	0.744	0.36	1.2	24.122	4.146	0.0	0.0	0.0	0
2.82	17.743	0.755	0.36	1.2	23.501	4.255	0.0	0.0	0.0	0
2.83	17.743	0.765	0.37	1.2	23.193	4.312	0.0	0.0	0.0	0
2.84	17.845	0.765	0.37	1.2	23.327	4.287	0.0	0.0	0.0	0
2.85	17.947	0.765	0.37	1.2	23.46	4.263	0.0	0.0	0.0	0
2.86	18.049	0.755	0.37	1.2	23.906	4.183	0.0	0.0	0.0	0
2.87	18.049	0.765	0.37	1.2	23.593	4.238	0.0	0.0	0.0	0
2.88	18.049	0.765	0.37	1.2	23.593	4.238	0.0	0.0	0.0	0
2.89	18.049	0.765	0.37	1.2	23.593	4.238	0.0	0.0	0.0	0
2.90	18.049	0.765	0.37	1.2	23.593	4.238	0.0	0.0	0.0	0
2.91	18.457	0.806	0.38	1.2	22.9	4.367	0.0	0.0	0.0	0
2.92	18.253	0.826	0.39	1.2	22.098	4.525	0.0	0.0	0.0	0
2.93	18.151	0.836	0.39	1.2	21.712	4.606	0.0	0.0	0.0	0
2.94	18.049	0.846	0.39	1.2	21.335	4.687	0.0	0.0	0.0	0
2.95	18.049	0.857	0.39	1.2	21.061	4.748	0.0	0.0	0.0	0
2.96	18.049	0.857	0.39	1.2	21.061	4.748	0.0	0.0	0.0	0
2.97	17.947	0.867	0.39	1.1	20.7	4.831	0.0	0.0	0.0	0
2.98	17.947	0.877	0.39	1.1	20.464	4.887	0.0	0.0	0.0	0
2.99	17.947	0.877	0.39	1.1	20.464	4.887	0.0	0.0	0.0	0
3.00	17.845	0.877	0.39	1.1	20.348	4.915	0.0	0.0	0.0	0
3.01	17.743	0.877	0.39	1.1	20.231	4.943	0.0	0.0	0.0	0
3.02	17.641	0.877	0.39	1.1	20.115	4.971	0.0	0.0	0.0	0
3.03	17.947	0.877	0.39	1.1	20.464	4.887	0.0	0.0	0.0	0
3.04	17.539	0.877	0.40	1.1	19.999	5.0	0.0	0.0	0.0	0
3.05	17.437	0.877	0.40	1.1	19.883	5.03	0.0	0.0	0.0	0
3.06	17.437	0.867	0.40	1.1	20.112	4.972	0.0	0.0	0.0	0
3.07	17.335	0.857	0.40	1.1	20.228	4.944	0.0	0.0	0.0	0
3.08	17.233	0.857	0.40	1.1	20.109	4.973	0.0	0.0	0.0	0
3.09	17.233	0.846	0.40	1.1	20.37	4.909	0.0	0.0	0.0	0
3.10	16.927	0.846	0.40	1.1	20.008	4.998	0.0	0.0	0.0	0
3.11	16.927	0.836	0.40	1.1	20.248	4.939	0.0	0.0	0.0	0

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3.12	16.825	0.826	0.40	1.1	20.369	4.909	0.0	0.0	0.0	0
3.13	16.927	0.816	0.40	1.1	20.744	4.821	0.0	0.0	0.0	0
3.14	16.825	0.816	0.40	1.1	20.619	4.85	0.0	0.0	0.0	0
3.15	16.723	0.816	0.40	1.1	20.494	4.88	0.0	0.0	0.0	0
3.16	16.723	0.806	0.40	1.1	20.748	4.82	0.0	0.0	0.0	0
3.17	16.519	0.795	0.40	1.1	20.779	4.813	0.0	0.0	0.0	0
3.18	16.417	0.795	0.40	1.1	20.65	4.843	0.0	0.0	0.0	0
3.19	16.315	0.795	0.40	1.1	20.522	4.873	0.0	0.0	0.0	0
3.20	16.315	0.795	0.40	1.1	20.522	4.873	0.0	0.0	0.0	0
3.21	16.213	0.795	0.40	1.1	20.394	4.903	0.0	0.0	0.0	0
3.22	16.315	0.785	0.41	1.1	20.783	4.812	0.0	0.0	0.0	0
3.23	16.315	0.775	0.40	1.1	21.052	4.75	0.0	0.0	0.0	0
3.24	16.213	0.775	0.40	1.1	20.92	4.78	0.0	0.0	0.0	0
3.25	16.009	0.785	0.40	1.1	20.394	4.903	0.0	0.0	0.0	0
3.26	16.009	0.785	0.40	1.1	20.394	4.903	0.0	0.0	0.0	0
3.27	15.499	0.806	0.40	1.1	19.23	5.2	0.0	0.0	0.0	0
3.28	15.295	0.816	0.40	1.1	18.744	5.335	0.0	0.0	0.0	0
3.29	15.092	0.806	0.40	1.1	18.725	5.341	0.0	0.0	0.0	0
3.30	14.684	0.816	0.40	1.1	17.995	5.557	0.0	0.0	0.0	0
3.31	14.378	0.816	0.40	1.1	17.62	5.675	0.0	0.0	0.0	0
3.32	13.766	0.806	0.40	1.1	17.079	5.855	0.0	0.0	0.0	0
3.33	13.562	0.795	0.40	1.1	17.059	5.862	0.0	0.0	0.0	0
3.34	13.358	0.785	0.40	1.1	17.017	5.877	0.0	0.0	0.0	0
3.35	13.256	0.775	0.40	1.1	17.105	5.846	0.0	0.0	0.0	0
3.36	13.46	0.765	0.40	1.1	17.595	5.684	0.0	0.0	0.0	0
3.37	13.46	0.744	0.40	1.1	18.091	5.527	0.0	0.0	0.0	0
3.38	13.256	0.734	0.40	1.1	18.06	5.537	0.0	0.0	0.0	0
3.39	13.46	0.714	0.40	1.1	18.852	5.305	0.0	0.0	0.0	0
3.40	13.052	0.693	0.40	1.1	18.834	5.31	0.0	0.0	0.0	0
3.41	13.052	0.693	0.40	1.1	18.834	5.31	0.0	0.0	0.0	0
3.42	13.052	0.673	0.40	1.1	19.394	5.156	0.0	0.0	0.0	0
3.43	12.95	0.663	0.41	1.1	19.532	5.12	0.0	0.0	0.0	0
3.44	12.95	0.653	0.41	1.1	19.832	5.042	0.0	0.0	0.0	0
3.45	12.95	0.642	0.41	1.1	20.171	4.958	0.0	0.0	0.0	0
3.46	12.95	0.632	0.41	1.1	20.491	4.88	0.0	0.0	0.0	0
3.47	13.154	0.632	0.41	1.1	20.813	4.805	0.0	0.0	0.0	0
3.48	13.358	0.622	0.41	1.1	21.476	4.656	0.0	0.0	0.0	0
3.49	13.46	0.622	0.41	1.1	21.64	4.621	0.0	0.0	0.0	0
3.50	13.562	0.622	0.41	1.1	21.804	4.586	0.0	0.0	0.0	0
3.51	13.766	0.622	0.41	1.1	22.132	4.518	0.0	0.0	0.0	0
3.52	14.072	0.622	0.41	1.0	22.624	4.42	0.0	0.0	0.0	0
3.53	13.868	0.622	0.41	1.1	22.296	4.485	0.0	0.0	0.0	0
3.54	13.868	0.632	0.42	1.0	21.943	4.557	0.0	0.0	0.0	0
3.55	14.174	0.622	0.42	1.1	22.788	4.388	0.0	0.0	0.0	0
3.56	14.48	0.622	0.42	1.1	23.28	4.296	0.0	0.0	0.0	0
3.57	14.786	0.612	0.42	1.1	24.16	4.139	0.0	0.0	0.0	0
3.58	15.092	0.602	0.42	1.1	25.07	3.989	0.0	0.0	0.0	0
3.59	15.499	0.602	0.42	1.1	25.746	3.884	0.0	0.0	0.0	0
3.60	15.703	0.612	0.42	1.0	25.658	3.897	0.0	0.0	0.0	0
3.61	15.907	0.612	0.42	1.0	25.992	3.847	0.0	0.0	0.0	0
3.62	16.417	0.642	0.43	1.0	25.572	3.911	0.0	0.0	0.0	0
3.63	16.519	0.653	0.43	1.0	25.297	3.953	0.0	0.0	0.0	0
3.64	16.723	0.663	0.43	1.0	25.223	3.965	0.0	0.0	0.0	0
3.65	16.927	0.663	0.43	1.0	25.531	3.917	0.0	0.0	0.0	0
3.66	17.233	0.673	0.43	1.0	25.606	3.905	0.0	0.0	0.0	0
3.67	17.437	0.683	0.43	1.0	25.53	3.917	0.0	0.0	0.0	0
3.68	17.641	0.693	0.43	1.0	25.456	3.928	0.0	0.0	0.0	0
3.69	18.151	0.704	0.43	1.0	25.783	3.879	0.0	0.0	0.0	0
3.70	18.559	0.744	0.44	1.0	24.945	4.009	0.0	0.0	0.0	0
3.71	18.559	0.765	0.44	1.0	24.26	4.122	0.0	0.0	0.0	0
3.72	18.762	0.785	0.44	1.0	23.901	4.184	0.0	0.0	0.0	0
3.73	18.762	0.795	0.44	1.0	23.6	4.237	0.0	0.0	0.0	0
3.74	18.966	0.806	0.44	1.0	23.531	4.25	0.0	0.0	0.0	0
3.75	19.374	0.816	0.44	1.0	23.743	4.212	0.0	0.0	0.0	0
3.76	19.986	0.836	0.44	1.0	23.907	4.183	0.0	0.0	0.0	0
3.77	20.802	0.877	0.45	1.0	23.719	4.216	0.0	0.0	0.0	0
3.78	21.108	0.897	0.45	1.0	23.532	4.25	0.0	0.0	0.0	0
3.79	21.21	0.908	0.45	1.0	23.359	4.281	0.0	0.0	0.0	0
3.80	13.562	0.602	0.45	1.0	22.528	4.439	0.0	0.0	0.0	0
3.81	13.664	0.928	0.46	1.0	14.724	6.792	0.0	0.0	0.0	0
3.82	21.006	0.999	0.46	1.0	21.027	4.756	0.0	0.0	0.0	0
3.83	20.802	0.999	0.47	1.0	20.823	4.802	0.0	0.0	0.0	0
3.84	20.904	0.999	0.47	1.0	20.925	4.779	0.0	0.0	0.0	0
3.85	21.006	1.01	0.47	1.0	20.798	4.808	0.0	0.0	0.0	0
3.86	20.802	1.03	0.47	1.0	20.196	4.951	0.0	0.0	0.0	0

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3.87	20.7	1.04	0.48	1.0	19.904	5.024	0.0	0.0	0.0	0
3.88	20.7	1.04	0.48	1.0	19.904	5.024	0.0	0.0	0.0	0
3.89	20.7	1.04	0.48	1.0	19.904	5.024	0.0	0.0	0.0	0
3.90	21.924	0.999	0.50	1.0	21.946	4.557	0.0	0.0	0.0	0
3.91	21.924	1.01	0.50	1.0	21.707	4.607	0.0	0.0	0.0	0
3.92	21.924	0.999	0.50	1.0	21.946	4.557	0.0	0.0	0.0	0
3.93	21.924	0.979	0.50	1.0	22.394	4.465	0.0	0.0	0.0	0
3.94	22.026	0.979	0.50	1.0	22.498	4.445	0.0	0.0	0.0	0
3.95	22.026	0.979	0.50	1.1	22.498	4.445	0.0	0.0	0.0	0
3.96	21.72	0.989	0.51	1.1	21.962	4.553	0.0	0.0	0.0	0
3.97	21.21	0.989	0.52	1.1	21.446	4.663	0.0	0.0	0.0	0
3.98	21.312	0.969	0.52	1.1	21.994	4.547	0.0	0.0	0.0	0
3.99	21.312	0.969	0.52	1.1	21.994	4.547	0.0	0.0	0.0	0
4.00	20.904	0.979	0.52	1.1	21.352	4.683	0.0	0.0	0.0	0
4.01	20.394	0.989	0.52	1.1	20.621	4.849	0.0	0.0	0.0	0
4.02	20.19	0.989	0.53	1.0	20.415	4.898	0.0	0.0	0.0	0
4.03	20.088	0.989	0.53	1.1	20.311	4.923	0.0	0.0	0.0	0
4.04	19.476	0.999	0.54	1.1	19.495	5.129	0.0	0.0	0.0	0
4.05	19.476	0.999	0.54	1.1	19.495	5.129	0.0	0.0	0.0	0
4.06	19.272	0.989	0.54	1.1	19.486	5.132	0.0	0.0	0.0	0
4.07	19.17	0.959	0.54	1.1	19.99	5.003	0.0	0.0	0.0	0
4.08	19.374	0.948	0.54	1.1	20.437	4.893	0.0	0.0	0.0	0
4.09	18.762	0.948	0.54	1.1	19.791	5.053	0.0	0.0	0.0	0
4.10	18.559	0.938	0.54	1.1	19.786	5.054	0.0	0.0	0.0	0
4.11	18.661	0.918	0.55	1.1	20.328	4.919	0.0	0.0	0.0	0
4.12	19.68	0.877	0.55	1.1	22.44	4.456	0.0	0.0	0.0	0
4.13	19.884	0.857	0.55	1.1	23.202	4.31	0.0	0.0	0.0	0
4.14	19.578	0.836	0.55	1.1	23.419	4.27	0.0	0.0	0.0	0
4.15	19.17	0.846	0.55	1.1	22.66	4.413	0.0	0.0	0.0	0
4.16	18.864	0.836	0.55	1.1	22.565	4.432	0.0	0.0	0.0	0
4.17	18.762	0.836	0.55	1.1	22.443	4.456	0.0	0.0	0.0	0
4.18	18.864	0.836	0.55	1.1	22.565	4.432	0.0	0.0	0.0	0
4.19	19.578	0.836	0.55	1.1	23.419	4.27	0.0	0.0	0.0	0
4.20	20.19	0.846	0.55	1.1	23.865	4.19	0.0	0.0	0.0	0
4.21	19.578	0.846	0.55	1.1	23.142	4.321	0.0	0.0	0.0	0
4.22	19.476	0.867	0.56	1.1	22.464	4.452	0.0	0.0	0.0	0
4.23	19.476	0.857	0.56	1.1	22.726	4.4	0.0	0.0	0.0	0
4.24	19.374	0.867	0.56	1.1	22.346	4.475	0.0	0.0	0.0	0
4.25	19.68	0.867	0.56	1.1	22.699	4.405	0.0	0.0	0.0	0
4.26	19.986	0.867	0.57	1.1	23.052	4.338	0.0	0.0	0.0	0
4.27	20.292	0.867	0.57	1.1	23.405	4.273	0.0	0.0	0.0	0
4.28	20.7	0.857	0.57	1.1	24.154	4.14	0.0	0.0	0.0	0
4.29	21.006	0.857	0.57	1.1	24.511	4.08	0.0	0.0	0.0	0
4.30	21.21	0.857	0.57	1.0	24.749	4.041	0.0	0.0	0.0	0
4.31	21.516	0.877	0.57	1.0	24.534	4.076	0.0	0.0	0.0	0
4.32	21.924	0.887	0.57	1.1	24.717	4.046	0.0	0.0	0.0	0
4.33	22.535	0.897	0.58	1.1	25.123	3.98	0.0	0.0	0.0	0
4.34	22.331	0.948	0.58	1.0	23.556	4.245	0.0	0.0	0.0	0
4.35	22.943	0.948	0.59	0.9	24.201	4.132	0.0	0.0	0.0	0
4.36	23.045	0.948	0.59	0.9	24.309	4.114	0.0	0.0	0.0	0
4.37	22.943	0.959	0.59	0.9	23.924	4.18	0.0	0.0	0.0	0
4.38	23.045	0.959	0.59	0.9	24.03	4.161	0.0	0.0	0.0	0
4.39	22.535	0.969	0.59	0.9	23.256	4.3	0.0	0.0	0.0	0
4.40	22.331	0.979	0.59	0.9	22.81	4.384	0.0	0.0	0.0	0
4.41	22.331	0.989	0.59	0.9	22.579	4.429	0.0	0.0	0.0	0
4.42	22.026	1.02	0.59	0.9	21.594	4.631	0.0	0.0	0.0	0
4.43	22.433	1.02	0.60	0.9	21.993	4.547	0.0	0.0	0.0	0
4.44	22.127	1.03	0.60	0.9	21.483	4.655	0.0	0.0	0.0	0
4.45	22.535	1.03	0.60	0.9	21.879	4.571	0.0	0.0	0.0	0
4.46	22.331	1.02	0.60	0.9	21.893	4.568	0.0	0.0	0.0	0
4.47	22.026	1.03	0.60	0.9	21.384	4.676	0.0	0.0	0.0	0
4.48	21.414	1.01	0.61	0.9	21.202	4.717	0.0	0.0	0.0	0
4.49	21.108	0.999	0.61	0.9	21.129	4.733	0.0	0.0	0.0	0
4.50	21.21	0.969	0.61	0.9	21.889	4.569	0.0	0.0	0.0	0
4.51	21.21	0.959	0.61	0.9	22.117	4.521	0.0	0.0	0.0	0
4.52	20.904	0.959	0.61	0.9	21.798	4.588	0.0	0.0	0.0	0
4.53	20.904	0.948	0.61	0.9	22.051	4.535	0.0	0.0	0.0	0
4.54	21.108	0.938	0.61	0.9	22.503	4.444	0.0	0.0	0.0	0
4.55	21.21	0.948	0.61	0.9	22.373	4.47	0.0	0.0	0.0	0
4.56	21.414	0.959	0.61	0.9	22.33	4.478	0.0	0.0	0.0	0
4.57	21.516	0.989	0.61	0.9	21.755	4.597	0.0	0.0	0.0	0
4.58	22.026	0.989	0.61	0.9	22.271	4.49	0.0	0.0	0.0	0
4.59	22.433	1.02	0.62	0.9	21.993	4.547	0.0	0.0	0.0	0
4.60	22.739	1.04	0.62	0.9	21.864	4.574	0.0	0.0	0.0	0
4.61	23.249	1.06	0.64	0.9	21.933	4.559	0.0	0.0	0.0	0

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4.62	22.331	1.101	0.66	1.0	20.282	4.93	0.0	0.0	0.0	0
4.63	22.637	1.111	0.66	0.9	20.375	4.908	0.0	0.0	0.0	0
4.64	23.453	1.111	0.67	1.0	21.11	4.737	0.0	0.0	0.0	0
4.65	24.167	1.111	0.67	0.9	21.752	4.597	0.0	0.0	0.0	0
4.66	24.167	1.111	0.68	0.9	21.752	4.597	0.0	0.0	0.0	0
4.67	24.065	1.122	0.68	1.0	21.448	4.662	0.0	0.0	0.0	0
4.68	24.677	1.122	0.68	1.0	21.994	4.547	0.0	0.0	0.0	0
4.69	24.371	1.122	0.68	0.9	21.721	4.604	0.0	0.0	0.0	0
4.70	24.575	1.111	0.68	0.9	22.12	4.521	0.0	0.0	0.0	0
4.71	23.657	1.111	0.68	0.9	21.293	4.696	0.0	0.0	0.0	0
4.72	23.351	1.122	0.68	0.9	20.812	4.805	0.0	0.0	0.0	0
4.73	23.351	1.081	0.68	0.9	21.601	4.629	0.0	0.0	0.0	0
4.74	23.351	1.071	0.69	0.9	21.803	4.587	0.0	0.0	0.0	0
4.75	23.555	1.05	0.68	1.0	22.433	4.458	0.0	0.0	0.0	0
4.76	23.759	1.05	0.68	1.0	22.628	4.419	0.0	0.0	0.0	0
4.77	23.759	1.081	0.69	1.0	21.979	4.55	0.0	0.0	0.0	0
4.78	23.759	1.091	0.69	1.0	21.777	4.592	0.0	0.0	0.0	0
4.79	23.861	1.111	0.69	1.0	21.477	4.656	0.0	0.0	0.0	0
4.80	23.657	1.111	0.69	1.0	21.293	4.696	0.0	0.0	0.0	0
4.81	23.453	1.132	0.69	0.9	20.718	4.827	0.0	0.0	0.0	0
4.82	23.351	1.132	0.69	0.9	20.628	4.848	0.0	0.0	0.0	0
4.83	23.147	1.142	0.69	0.9	20.269	4.934	0.0	0.0	0.0	0
4.84	22.637	1.162	0.69	1.0	19.481	5.133	0.0	0.0	0.0	0
4.85	22.331	1.152	0.69	0.9	19.385	5.159	0.0	0.0	0.0	0
4.86	22.127	1.173	0.69	0.9	18.864	5.301	0.0	0.0	0.0	0
4.87	22.026	1.162	0.69	0.9	18.955	5.276	0.0	0.0	0.0	0
4.88	22.026	1.162	0.69	0.9	18.955	5.276	0.0	0.0	0.0	0
4.89	22.026	1.162	0.69	0.9	18.955	5.276	0.0	0.0	0.0	0
4.90	22.433	1.122	0.70	0.9	19.994	5.002	0.0	0.0	0.0	0
4.91	22.535	1.122	0.71	0.9	20.085	4.979	0.0	0.0	0.0	0
4.92	22.535	1.122	0.76	0.9	20.085	4.979	0.0	0.0	0.0	0
4.93	22.026	1.111	0.78	0.9	19.825	5.044	0.0	0.0	0.0	0
4.94	21.822	1.101	0.79	0.9	19.82	5.045	0.0	0.0	0.0	0
4.95	21.516	1.081	0.79	0.9	19.904	5.024	0.0	0.0	0.0	0
4.96	21.414	1.04	0.79	0.9	20.59	4.857	0.0	0.0	0.0	0
4.97	21.108	1.01	0.79	0.9	20.899	4.785	0.0	0.0	0.0	0
4.98	21.108	0.969	0.79	0.9	21.783	4.591	0.0	0.0	0.0	0
4.99	21.21	0.928	0.79	0.9	22.856	4.375	0.0	0.0	0.0	0
5.00	20.904	0.897	0.79	0.9	23.304	4.291	0.0	0.0	0.0	0
5.01	20.904	0.887	0.79	0.9	23.567	4.243	0.0	0.0	0.0	0
5.02	20.802	0.897	0.79	0.9	23.191	4.312	0.0	0.0	0.0	0
5.03	20.394	0.908	0.79	0.9	22.46	4.452	0.0	0.0	0.0	0
5.04	20.19	0.897	0.79	0.9	22.508	4.443	0.0	0.0	0.0	0
5.05	19.986	0.897	0.79	0.9	22.281	4.488	0.0	0.0	0.0	0
5.06	19.884	0.887	0.79	0.9	22.417	4.461	0.0	0.0	0.0	0
5.07	19.986	0.887	0.79	0.9	22.532	4.438	0.0	0.0	0.0	0
5.08	19.884	0.897	0.79	0.9	22.167	4.511	0.0	0.0	0.0	0
5.09	19.68	0.918	0.79	0.9	21.438	4.665	0.0	0.0	0.0	0
5.10	19.374	0.938	0.79	0.9	20.655	4.842	0.0	0.0	0.0	0
5.11	19.476	0.959	0.79	0.9	20.309	4.924	0.0	0.0	0.0	0
5.12	18.864	0.969	0.79	0.9	19.467	5.137	0.0	0.0	0.0	0
5.13	18.661	0.979	0.78	0.9	19.061	5.246	0.0	0.0	0.0	0
5.14	18.151	0.969	0.79	0.9	18.732	5.339	0.0	0.0	0.0	0
5.15	18.049	0.959	0.79	0.9	18.821	5.313	0.0	0.0	0.0	0
5.16	18.049	0.928	0.79	0.9	19.449	5.142	0.0	0.0	0.0	0
5.17	18.151	0.908	0.78	0.9	19.99	5.002	0.0	0.0	0.0	0
5.18	18.151	0.897	0.78	1.0	20.235	4.942	0.0	0.0	0.0	0
5.19	18.049	0.887	0.78	0.9	20.348	4.914	0.0	0.0	0.0	0
5.20	17.743	0.887	0.79	0.9	20.003	4.999	0.0	0.0	0.0	0
5.21	17.947	0.846	0.79	0.9	21.214	4.714	0.0	0.0	0.0	0
5.22	18.049	0.826	0.79	0.9	21.851	4.576	0.0	0.0	0.0	0
5.23	18.151	0.806	0.79	0.9	22.52	4.441	0.0	0.0	0.0	0
5.24	18.762	0.795	0.79	0.9	23.6	4.237	0.0	0.0	0.0	0
5.25	18.151	0.785	0.79	0.9	23.122	4.325	0.0	0.0	0.0	0
5.26	18.864	0.785	0.80	0.9	24.031	4.161	0.0	0.0	0.0	0
5.27	18.253	0.775	0.80	0.9	23.552	4.246	0.0	0.0	0.0	0
5.28	18.151	0.744	0.80	0.9	24.397	4.099	0.0	0.0	0.0	0
5.29	18.253	0.714	0.80	0.9	25.564	3.912	0.0	0.0	0.0	0
5.30	18.457	0.704	0.80	0.9	26.217	3.814	0.0	0.0	0.0	0
5.31	18.457	0.704	0.81	0.9	26.217	3.814	0.0	0.0	0.0	0
5.32	18.661	0.693	0.81	0.9	26.928	3.714	0.0	0.0	0.0	0
5.33	18.355	0.683	0.81	0.9	26.874	3.721	0.0	0.0	0.0	0
5.34	18.661	0.663	0.81	0.9	28.146	3.553	0.0	0.0	0.0	0
5.35	19.17	0.642	0.86	0.9	29.86	3.349	0.0	0.0	0.0	0
5.36	18.253	0.642	0.86	0.9	28.431	3.517	0.0	0.0	0.0	0

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5.37	18.559	0.642	0.86	0.9	28.908	3.459	0.0	0.0	0.0	0
5.38	18.457	0.622	0.86	0.9	29.674	3.37	0.0	0.0	0.0	0
5.39	18.049	0.622	0.86	0.9	29.018	3.446	0.0	0.0	0.0	0
5.40	17.845	0.622	0.86	0.9	28.69	3.486	0.0	0.0	0.0	0
5.41	17.437	0.622	0.86	0.9	28.034	3.567	0.0	0.0	0.0	0
5.42	17.233	0.591	0.87	0.9	29.159	3.429	0.0	0.0	0.0	0
5.43	17.131	0.571	0.87	0.9	30.002	3.333	0.0	0.0	0.0	0
5.44	17.029	0.551	0.87	0.9	30.906	3.236	0.0	0.0	0.0	0
5.45	16.927	0.54	0.86	0.9	31.346	3.19	0.0	0.0	0.0	0
5.46	16.723	0.53	0.86	0.9	31.553	3.169	0.0	0.0	0.0	0
5.47	16.417	0.52	0.86	0.9	31.571	3.167	0.0	0.0	0.0	0
5.48	16.213	0.52	0.86	0.9	31.179	3.207	0.0	0.0	0.0	0
5.49	16.111	0.51	0.86	0.9	31.59	3.166	0.0	0.0	0.0	0
5.50	15.907	0.489	0.85	0.9	32.53	3.074	0.0	0.0	0.0	0
5.51	15.499	0.51	0.85	0.9	30.39	3.291	0.0	0.0	0.0	0
5.52	15.092	0.5	0.85	0.9	30.184	3.313	0.0	0.0	0.0	0
5.53	14.99	0.5	0.84	0.9	29.98	3.336	0.0	0.0	0.0	0
5.54	14.99	0.51	0.84	0.9	29.392	3.402	0.0	0.0	0.0	0
5.55	14.99	0.51	0.84	0.9	29.392	3.402	0.0	0.0	0.0	0
5.56	15.397	0.52	0.85	0.9	29.61	3.377	0.0	0.0	0.0	0
5.57	15.907	0.561	0.86	0.9	28.355	3.527	0.0	0.0	0.0	0
5.58	16.315	0.551	0.86	0.9	29.61	3.377	0.0	0.0	0.0	0
5.59	16.825	0.52	0.86	0.9	32.356	3.091	0.0	0.0	0.0	0
5.60	16.927	0.5	0.86	0.9	33.854	2.954	0.0	0.0	0.0	0
5.61	16.825	0.5	0.86	0.9	33.65	2.972	0.0	0.0	0.0	0
5.62	16.927	0.479	0.86	0.9	35.338	2.83	0.0	0.0	0.0	0
5.63	17.029	0.479	0.86	0.9	35.551	2.813	0.0	0.0	0.0	0
5.64	17.437	0.459	0.87	0.9	37.989	2.632	0.0	0.0	0.0	0
5.65	17.539	0.459	0.87	0.9	38.211	2.617	0.0	0.0	0.0	0
5.66	17.641	0.459	0.87	0.9	38.434	2.602	0.0	0.0	0.0	0
5.67	17.539	0.459	0.87	0.9	38.211	2.617	0.0	0.0	0.0	0
5.68	17.437	0.459	0.87	0.9	37.989	2.632	0.0	0.0	0.0	0
5.69	17.029	0.459	0.87	0.9	37.1	2.695	0.0	0.0	0.0	0
5.70	16.927	0.449	0.87	0.9	37.699	2.653	0.0	0.0	0.0	0
5.71	16.825	0.449	0.87	0.9	37.472	2.669	0.0	0.0	0.0	0
5.72	16.825	0.469	0.87	0.9	35.874	2.788	0.0	0.0	0.0	0
5.73	16.825	0.489	0.87	0.9	34.407	2.906	0.0	0.0	0.0	0
5.74	16.927	0.5	0.87	0.9	33.854	2.954	0.0	0.0	0.0	0
5.75	17.131	0.51	0.87	0.9	33.59	2.977	0.0	0.0	0.0	0
5.76	17.131	0.53	0.86	0.9	32.323	3.094	0.0	0.0	0.0	0
5.77	16.927	0.54	0.86	0.9	31.346	3.19	0.0	0.0	0.0	0
5.78	16.621	0.551	0.87	0.9	30.165	3.315	0.0	0.0	0.0	0
5.79	16.111	0.54	0.87	0.9	29.835	3.352	0.0	0.0	0.0	0
5.80	16.009	0.53	0.87	0.9	30.206	3.311	0.0	0.0	0.0	0
5.81	15.907	0.53	0.87	0.9	30.013	3.332	0.0	0.0	0.0	0
5.82	15.805	0.53	0.87	0.9	29.821	3.353	0.0	0.0	0.0	0
5.83	15.703	0.53	0.87	0.9	29.628	3.375	0.0	0.0	0.0	0
5.84	15.703	0.52	0.87	0.9	30.198	3.311	0.0	0.0	0.0	0
5.85	15.703	0.5	0.87	0.9	31.406	3.184	0.0	0.0	0.0	0
5.86	15.703	0.459	0.87	0.9	34.211	2.923	0.0	0.0	0.0	0
5.87	15.703	0.449	0.87	0.9	34.973	2.859	0.0	0.0	0.0	0
5.88	15.703	0.449	0.87	0.9	34.973	2.859	0.0	0.0	0.0	0
5.89	15.703	0.449	0.87	0.9	34.973	2.859	0.0	0.0	0.0	0
5.90	17.335	0.306	0.82	0.9	56.65	1.765	0.0	0.0	0.0	0
5.91	17.131	0.326	0.82	0.9	52.549	1.903	0.0	0.0	0.0	0
5.92	17.029	0.326	0.82	0.9	52.236	1.914	0.0	0.0	0.0	0
5.93	16.927	0.347	0.82	0.9	48.781	2.05	0.0	0.0	0.0	0
5.94	16.825	0.357	0.82	0.9	47.129	2.122	0.0	0.0	0.0	0
5.95	16.723	0.357	0.83	0.9	46.843	2.135	0.0	0.0	0.0	0
5.96	16.825	0.367	0.83	0.9	45.845	2.181	0.0	0.0	0.0	0
5.97	17.131	0.367	0.83	0.9	46.678	2.142	0.0	0.0	0.0	0
5.98	17.539	0.367	0.84	0.9	47.79	2.092	0.0	0.0	0.0	0
5.99	18.355	0.377	0.84	0.9	48.687	2.054	0.0	0.0	0.0	0
6.00	19.17	0.387	0.85	0.9	49.535	2.019	0.0	0.0	0.0	0
6.01	19.782	0.377	0.85	0.9	52.472	1.906	0.0	0.0	0.0	0
6.02	19.884	0.387	0.85	0.9	51.38	1.946	0.0	0.0	0.0	0
6.03	18.864	0.387	0.85	0.9	48.744	2.052	0.0	0.0	0.0	0
6.04	18.355	0.398	0.84	0.9	46.118	2.168	0.0	0.0	0.0	0
6.05	17.437	0.418	0.84	0.9	41.715	2.397	0.0	0.0	0.0	0
6.06	16.519	0.428	0.84	0.9	38.596	2.591	0.0	0.0	0.0	0
6.07	15.907	0.428	0.85	0.9	37.166	2.691	0.0	0.0	0.0	0
6.08	15.805	0.418	0.85	0.9	37.811	2.645	0.0	0.0	0.0	0
6.09	15.805	0.408	0.85	0.9	38.738	2.581	0.0	0.0	0.0	0
6.10	15.907	0.387	0.86	0.9	41.103	2.433	0.0	0.0	0.0	0
6.11	16.111	0.387	0.86	0.9	41.63	2.402	0.0	0.0	0.0	0

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6.12	16.417	0.377	0.86	0.9	43.546	2.296	0.0	0.0	0.0	0
6.13	16.519	0.377	0.87	0.9	43.817	2.282	0.0	0.0	0.0	0
6.14	16.723	0.377	0.87	0.8	44.358	2.254	0.0	0.0	0.0	0
6.15	16.723	0.387	0.87	0.9	43.212	2.314	0.0	0.0	0.0	0
6.16	16.519	0.377	0.87	0.8	43.817	2.282	0.0	0.0	0.0	0
6.17	16.825	0.367	0.88	0.8	45.845	2.181	0.0	0.0	0.0	0
6.18	17.743	0.347	0.89	0.8	51.133	1.956	0.0	0.0	0.0	0
6.19	18.966	0.337	0.90	0.8	56.279	1.777	0.0	0.0	0.0	0
6.20	20.394	0.326	0.91	0.8	62.558	1.599	0.0	0.0	0.0	0
6.21	22.127	0.337	0.92	0.8	65.659	1.523	0.0	0.0	0.0	0
6.22	24.167	0.347	0.93	0.8	69.646	1.436	0.0	0.0	0.0	0
6.23	26.41	0.347	0.94	0.8	76.11	1.314	0.0	0.0	0.0	0
6.24	30.081	0.408	0.94	0.8	73.728	1.356	0.0	0.0	0.0	0
6.25	31.407	0.438	0.94	0.8	71.705	1.395	0.0	0.0	0.0	0
6.26	32.426	0.449	0.94	0.8	72.218	1.385	0.0	0.0	0.0	0
6.27	33.752	0.469	0.94	0.8	71.966	1.39	0.0	0.0	0.0	0
6.28	34.772	0.479	0.95	0.8	72.593	1.378	0.0	0.0	0.0	0
6.29	35.486	0.449	0.95	0.8	79.033	1.265	0.0	0.0	0.0	0
6.30	35.384	0.438	0.95	0.8	80.785	1.238	0.0	0.0	0.0	0
6.31	35.384	0.428	0.95	0.8	82.673	1.21	0.0	0.0	0.0	0
6.32	35.893	0.418	0.95	0.8	85.868	1.165	0.0	0.0	0.0	0
6.33	36.811	0.408	0.95	0.8	90.223	1.108	0.0	0.0	0.0	0
6.34	38.749	0.398	0.97	0.8	97.359	1.027	0.0	0.0	0.0	0
6.35	40.278	0.408	0.99	0.8	98.721	1.013	0.0	0.0	0.0	0
6.36	42.114	0.438	1.01	0.8	96.151	1.04	0.0	0.0	0.0	0
6.37	44.153	0.449	1.01	0.8	98.336	1.017	0.0	0.0	0.0	0
6.38	44.867	0.469	1.01	0.8	95.665	1.045	0.0	0.0	0.0	0
6.39	42.114	0.561	1.00	0.8	75.07	1.332	0.0	0.0	0.0	0
6.40	38.443	0.571	0.98	0.8	67.326	1.485	0.0	0.0	0.0	0
6.41	34.67	0.571	0.98	0.8	60.718	1.647	0.0	0.0	0.0	0
6.42	31.203	0.551	0.97	0.9	56.63	1.766	0.0	0.0	0.0	0
6.43	28.552	0.53	0.96	0.8	53.872	1.856	0.0	0.0	0.0	0
6.44	26.512	0.52	0.95	0.8	50.985	1.961	0.0	0.0	0.0	0
6.45	24.065	0.53	0.94	0.8	45.406	2.202	0.0	0.0	0.0	0
6.46	21.924	0.571	0.94	0.9	38.396	2.604	0.0	0.0	0.0	0
6.47	22.637	0.571	0.96	0.8	39.644	2.522	0.0	0.0	0.0	0
6.48	24.167	0.52	0.97	0.9	46.475	2.152	0.0	0.0	0.0	0
6.49	25.9	0.459	0.98	0.8	56.427	1.772	0.0	0.0	0.0	0
6.50	26.92	0.438	0.99	0.8	61.461	1.627	0.0	0.0	0.0	0
6.51	28.552	0.459	1.00	0.8	62.205	1.608	0.0	0.0	0.0	0
6.52	29.367	0.489	1.01	0.8	60.055	1.665	0.0	0.0	0.0	0
6.53	29.571	0.52	1.01	0.8	56.867	1.758	0.0	0.0	0.0	0
6.54	25.696	0.581	0.99	0.8	44.227	2.261	0.0	0.0	0.0	0
6.55	22.637	0.612	0.98	0.8	36.989	2.704	0.0	0.0	0.0	0
6.56	20.598	0.602	0.96	0.9	34.216	2.923	0.0	0.0	0.0	0
6.57	18.762	0.612	0.96	0.8	30.657	3.262	0.0	0.0	0.0	0
6.58	17.233	0.612	0.95	0.8	28.158	3.551	0.0	0.0	0.0	0
6.59	16.009	0.602	0.94	0.9	26.593	3.76	0.0	0.0	0.0	0
6.60	15.092	0.581	0.93	0.9	25.976	3.85	0.0	0.0	0.0	0
6.61	13.562	0.642	0.92	0.9	21.125	4.734	0.0	0.0	0.0	0
6.62	12.746	0.642	0.93	0.9	19.854	5.037	0.0	0.0	0.0	0
6.63	12.134	0.642	0.93	0.9	18.9	5.291	0.0	0.0	0.0	0
6.64	12.032	0.612	0.94	0.9	19.66	5.086	0.0	0.0	0.0	0
6.65	12.032	0.591	0.94	0.9	20.359	4.912	0.0	0.0	0.0	0
6.66	12.134	0.561	0.94	0.9	21.629	4.623	0.0	0.0	0.0	0
6.67	12.338	0.53	0.94	0.9	23.279	4.296	0.0	0.0	0.0	0
6.68	12.44	0.51	0.94	0.9	24.392	4.1	0.0	0.0	0.0	0
6.69	12.848	0.418	0.94	0.9	30.737	3.253	0.0	0.0	0.0	0
6.70	13.154	0.398	0.94	0.9	33.05	3.026	0.0	0.0	0.0	0
6.71	13.46	0.377	0.95	0.9	35.703	2.801	0.0	0.0	0.0	0
6.72	13.562	0.357	0.95	0.8	37.989	2.632	0.0	0.0	0.0	0
6.73	13.766	0.357	0.95	0.9	38.56	2.593	0.0	0.0	0.0	0
6.74	13.766	0.357	0.95	0.9	38.56	2.593	0.0	0.0	0.0	0
6.75	13.664	0.347	0.94	0.9	39.378	2.54	0.0	0.0	0.0	0
6.76	13.562	0.367	0.94	0.9	36.954	2.706	0.0	0.0	0.0	0
6.77	13.358	0.377	0.94	0.9	35.432	2.822	0.0	0.0	0.0	0
6.78	13.052	0.387	0.94	0.8	33.726	2.965	0.0	0.0	0.0	0
6.79	12.542	0.418	0.94	0.8	30.005	3.333	0.0	0.0	0.0	0
6.80	12.44	0.438	0.94	0.8	28.402	3.521	0.0	0.0	0.0	0
6.81	12.542	0.438	0.94	0.9	28.635	3.492	0.0	0.0	0.0	0
6.82	12.848	0.438	0.95	0.8	29.333	3.409	0.0	0.0	0.0	0
6.83	13.052	0.438	0.95	0.8	29.799	3.356	0.0	0.0	0.0	0
6.84	13.46	0.449	0.95	0.9	29.978	3.336	0.0	0.0	0.0	0
6.85	13.256	0.438	0.95	0.9	30.265	3.304	0.0	0.0	0.0	0
6.86	13.256	0.418	0.95	0.8	31.713	3.153	0.0	0.0	0.0	0

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6.87	13.562	0.408	0.95	0.8	33.24	3.008	0.0	0.0	0.0	0
6.88	13.562	0.408	0.95	0.8	33.24	3.008	0.0	0.0	0.0	0
6.89	13.562	0.408	0.95	0.8	33.24	3.008	0.0	0.0	0.0	0
6.90	18.253	0.5	0.87	0.8	36.506	2.739	0.0	0.0	0.0	0
6.91	17.743	0.52	0.88	0.8	34.121	2.931	0.0	0.0	0.0	0
6.92	17.233	0.52	0.88	0.8	33.14	3.017	0.0	0.0	0.0	0
6.93	17.029	0.5	0.88	0.8	34.058	2.936	0.0	0.0	0.0	0
6.94	16.417	0.489	0.88	0.8	33.573	2.979	0.0	0.0	0.0	0
6.95	15.805	0.489	0.88	0.8	32.321	3.094	0.0	0.0	0.0	0
6.96	14.99	0.489	0.88	0.8	30.654	3.262	0.0	0.0	0.0	0
6.97	14.378	0.489	0.88	0.8	29.403	3.401	0.0	0.0	0.0	0
6.98	13.97	0.469	0.88	0.8	29.787	3.357	0.0	0.0	0.0	0
6.99	13.766	0.438	0.88	0.8	31.429	3.182	0.0	0.0	0.0	0
7.00	13.46	0.428	0.88	0.8	31.449	3.18	0.0	0.0	0.0	0
7.01	13.256	0.408	0.88	0.8	32.49	3.078	0.0	0.0	0.0	0
7.02	12.746	0.387	0.87	0.8	32.935	3.036	0.0	0.0	0.0	0
7.03	12.542	0.367	0.87	0.8	34.174	2.926	0.0	0.0	0.0	0
7.04	12.338	0.347	0.87	0.8	35.556	2.812	0.0	0.0	0.0	0
7.05	12.236	0.337	0.87	0.8	36.309	2.754	0.0	0.0	0.0	0
7.06	12.134	0.326	0.86	0.8	37.221	2.687	0.0	0.0	0.0	0
7.07	12.032	0.326	0.86	0.8	36.908	2.709	0.0	0.0	0.0	0
7.08	11.93	0.326	0.86	0.8	36.595	2.733	0.0	0.0	0.0	0
7.09	11.829	0.326	0.87	0.8	36.285	2.756	0.0	0.0	0.0	0
7.10	11.727	0.316	0.87	0.8	37.111	2.695	0.0	0.0	0.0	0
7.11	11.727	0.296	0.87	0.8	39.618	2.524	0.0	0.0	0.0	0
7.12	11.625	0.296	0.86	0.8	39.274	2.546	0.0	0.0	0.0	0
7.13	11.421	0.286	0.86	0.8	39.934	2.504	0.0	0.0	0.0	0
7.14	11.217	0.275	0.86	0.8	40.789	2.452	0.0	0.0	0.0	0
7.15	11.319	0.265	0.85	0.8	42.713	2.341	0.0	0.0	0.0	0
7.16	11.319	0.255	0.85	0.8	44.388	2.253	0.0	0.0	0.0	0
7.17	10.911	0.245	0.84	0.7	44.535	2.245	0.0	0.0	0.0	0
7.18	10.911	0.235	0.84	0.8	46.43	2.154	0.0	0.0	0.0	0
7.19	10.809	0.235	0.84	0.8	45.996	2.174	0.0	0.0	0.0	0
7.20	10.911	0.224	0.84	0.8	48.71	2.053	0.0	0.0	0.0	0
7.21	11.013	0.214	0.84	0.7	51.463	1.943	0.0	0.0	0.0	0
7.22	11.217	0.214	0.85	0.7	52.416	1.908	0.0	0.0	0.0	0
7.23	11.421	0.204	0.85	0.7	55.985	1.786	0.0	0.0	0.0	0
7.24	11.93	0.204	0.86	0.7	58.48	1.71	0.0	0.0	0.0	0
7.25	12.338	0.204	0.86	0.7	60.48	1.653	0.0	0.0	0.0	0
7.26	12.848	0.194	0.86	0.7	66.227	1.51	0.0	0.0	0.0	0
7.27	13.358	0.184	0.86	0.7	72.598	1.377	0.0	0.0	0.0	0
7.28	13.766	0.184	0.87	0.7	74.815	1.337	0.0	0.0	0.0	0
7.29	13.97	0.194	0.87	0.7	72.01	1.389	0.0	0.0	0.0	0
7.30	14.276	0.194	0.88	0.7	73.588	1.359	0.0	0.0	0.0	0
7.31	14.582	0.194	0.88	0.7	75.165	1.33	0.0	0.0	0.0	0
7.32	15.092	0.204	0.89	0.7	73.98	1.352	0.0	0.0	0.0	0
7.33	15.397	0.204	0.89	0.7	75.475	1.325	0.0	0.0	0.0	0
7.34	15.397	0.224	0.89	0.7	68.737	1.455	0.0	0.0	0.0	0
7.35	15.397	0.255	0.89	0.7	60.38	1.656	0.0	0.0	0.0	0
7.36	15.092	0.286	0.89	0.7	52.769	1.895	0.0	0.0	0.0	0
7.37	15.092	0.306	0.89	0.7	49.32	2.028	0.0	0.0	0.0	0
7.38	15.092	0.326	0.89	0.7	46.294	2.16	0.0	0.0	0.0	0
7.39	15.194	0.377	0.89	0.7	40.302	2.481	0.0	0.0	0.0	0
7.40	15.092	0.408	0.90	0.7	36.99	2.703	0.0	0.0	0.0	0
7.41	14.99	0.438	0.90	0.7	34.224	2.922	0.0	0.0	0.0	0
7.42	14.888	0.469	0.90	0.7	31.744	3.15	0.0	0.0	0.0	0
7.43	14.888	0.479	0.90	0.7	31.081	3.217	0.0	0.0	0.0	0
7.44	14.888	0.489	0.90	0.7	30.446	3.285	0.0	0.0	0.0	0
7.45	14.786	0.5	0.90	0.7	29.572	3.382	0.0	0.0	0.0	0
7.46	14.684	0.51	0.90	0.6	28.792	3.473	0.0	0.0	0.0	0
7.47	14.582	0.51	0.90	0.7	28.592	3.497	0.0	0.0	0.0	0
7.48	14.48	0.52	0.89	0.7	27.846	3.591	0.0	0.0	0.0	0
7.49	14.378	0.51	0.89	0.7	28.192	3.547	0.0	0.0	0.0	0
7.50	14.378	0.5	0.89	0.7	28.756	3.478	0.0	0.0	0.0	0
7.51	14.378	0.51	0.89	0.6	28.192	3.547	0.0	0.0	0.0	0
7.52	14.174	0.51	0.90	0.7	27.792	3.598	0.0	0.0	0.0	0
7.53	14.072	0.51	0.90	0.6	27.592	3.624	0.0	0.0	0.0	0
7.54	14.174	0.479	0.90	0.7	29.591	3.379	0.0	0.0	0.0	0
7.55	14.174	0.469	0.90	0.7	30.222	3.309	0.0	0.0	0.0	0
7.56	14.276	0.469	0.90	0.7	30.439	3.285	0.0	0.0	0.0	0
7.57	14.174	0.459	0.90	0.7	30.88	3.238	0.0	0.0	0.0	0
7.58	14.174	0.459	0.90	0.6	30.88	3.238	0.0	0.0	0.0	0
7.59	14.276	0.449	0.90	0.7	31.795	3.145	0.0	0.0	0.0	0
7.60	14.276	0.438	0.90	0.6	32.594	3.068	0.0	0.0	0.0	0
7.61	14.48	0.428	0.90	0.6	33.832	2.956	0.0	0.0	0.0	0

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7.62	14.48	0.418	0.90	0.7	34.641	2.887	0.0	0.0	0.0	0
7.63	14.582	0.408	0.90	0.7	35.74	2.798	0.0	0.0	0.0	0
7.64	14.684	0.398	0.90	0.6	36.894	2.71	0.0	0.0	0.0	0
7.65	14.786	0.387	0.91	0.6	38.207	2.617	0.0	0.0	0.0	0
7.66	14.888	0.387	0.91	0.6	38.47	2.599	0.0	0.0	0.0	0
7.67	15.092	0.387	0.91	0.6	38.997	2.564	0.0	0.0	0.0	0
7.68	15.295	0.387	0.91	0.6	39.522	2.53	0.0	0.0	0.0	0
7.69	15.194	0.387	0.91	0.6	39.261	2.547	0.0	0.0	0.0	0
7.70	14.99	0.387	0.91	0.6	38.734	2.582	0.0	0.0	0.0	0
7.71	14.786	0.387	0.91	0.6	38.207	2.617	0.0	0.0	0.0	0
7.72	14.684	0.387	0.91	0.6	37.943	2.636	0.0	0.0	0.0	0
7.73	14.582	0.387	0.91	0.6	37.68	2.654	0.0	0.0	0.0	0
7.74	14.582	0.367	0.91	0.6	39.733	2.517	0.0	0.0	0.0	0
7.75	14.48	0.357	0.91	0.6	40.56	2.465	0.0	0.0	0.0	0
7.76	14.48	0.367	0.92	0.6	39.455	2.535	0.0	0.0	0.0	0
7.77	14.378	0.357	0.92	0.6	40.275	2.483	0.0	0.0	0.0	0
7.78	14.378	0.357	0.92	0.6	40.275	2.483	0.0	0.0	0.0	0
7.79	14.378	0.347	0.92	0.6	41.435	2.413	0.0	0.0	0.0	0
7.80	14.378	0.337	0.92	0.5	42.665	2.344	0.0	0.0	0.0	0
7.81	14.276	0.326	0.92	0.5	43.791	2.284	0.0	0.0	0.0	0
7.82	14.276	0.316	0.92	0.5	45.177	2.214	0.0	0.0	0.0	0
7.83	14.48	0.316	0.92	0.5	45.823	2.182	0.0	0.0	0.0	0
7.84	14.684	0.306	0.92	0.5	47.987	2.084	0.0	0.0	0.0	0
7.85	14.786	0.306	0.92	0.5	48.32	2.07	0.0	0.0	0.0	0
7.86	14.786	0.306	0.92	0.5	48.32	2.07	0.0	0.0	0.0	0
7.87	14.99	0.306	0.93	0.5	48.987	2.041	0.0	0.0	0.0	0
7.88	14.99	0.306	0.93	0.5	48.987	2.041	0.0	0.0	0.0	0
7.89	14.99	0.306	0.93	0.5	48.987	2.041	0.0	0.0	0.0	0
7.90	17.029	0.235	0.89	0.5	72.464	1.38	0.0	0.0	0.0	0
7.91	17.335	0.265	0.90	0.5	65.415	1.529	0.0	0.0	0.0	0
7.92	17.539	0.296	0.90	0.5	59.253	1.688	0.0	0.0	0.0	0
7.93	17.233	0.326	0.91	0.5	52.862	1.892	0.0	0.0	0.0	0
7.94	17.539	0.337	0.91	0.5	52.045	1.921	0.0	0.0	0.0	0
7.95	18.049	0.357	0.91	0.5	50.557	1.978	0.0	0.0	0.0	0
7.96	18.151	0.377	0.91	0.5	48.146	2.077	0.0	0.0	0.0	0
7.97	18.253	0.398	0.92	0.5	45.862	2.18	0.0	0.0	0.0	0
7.98	18.253	0.418	0.92	0.5	43.667	2.29	0.0	0.0	0.0	0
7.99	18.457	0.428	0.92	0.5	43.124	2.319	0.0	0.0	0.0	0
8.00	18.559	0.449	0.92	0.5	41.334	2.419	0.0	0.0	0.0	0
8.01	18.864	0.459	0.92	0.5	41.098	2.433	0.0	0.0	0.0	0
8.02	19.272	0.489	0.92	0.5	39.411	2.537	0.0	0.0	0.0	0
8.03	19.272	0.51	0.92	0.5	37.788	2.646	0.0	0.0	0.0	0
8.04	19.068	0.53	0.92	0.5	35.977	2.78	0.0	0.0	0.0	0
8.05	18.864	0.551	0.92	0.5	34.236	2.921	0.0	0.0	0.0	0
8.06	18.762	0.571	0.92	0.5	32.858	3.043	0.0	0.0	0.0	0
8.07	18.762	0.581	0.92	0.4	32.293	3.097	0.0	0.0	0.0	0
8.08	18.559	0.591	0.92	0.4	31.403	3.184	0.0	0.0	0.0	0
8.09	18.661	0.591	0.92	0.4	31.575	3.167	0.0	0.0	0.0	0
8.10	18.762	0.591	0.92	0.4	31.746	3.15	0.0	0.0	0.0	0
8.11	18.762	0.602	0.92	0.5	31.166	3.209	0.0	0.0	0.0	0
8.12	18.762	0.642	0.93	0.4	29.224	3.422	0.0	0.0	0.0	0
8.13	18.661	0.663	0.93	0.5	28.146	3.553	0.0	0.0	0.0	0
8.14	18.762	0.673	0.93	0.5	27.878	3.587	0.0	0.0	0.0	0
8.15	18.762	0.673	0.94	0.5	27.878	3.587	0.0	0.0	0.0	0
8.16	18.966	0.663	0.94	0.5	28.606	3.496	0.0	0.0	0.0	0
8.17	19.068	0.653	0.94	0.4	29.201	3.425	0.0	0.0	0.0	0
8.18	19.272	0.642	0.94	0.4	30.019	3.331	0.0	0.0	0.0	0
8.19	18.966	0.642	0.94	0.4	29.542	3.385	0.0	0.0	0.0	0
8.20	18.966	0.642	0.94	0.4	29.542	3.385	0.0	0.0	0.0	0
8.21	19.068	0.642	0.94	0.4	29.701	3.367	0.0	0.0	0.0	0
8.22	19.068	0.663	0.94	0.4	28.76	3.477	0.0	0.0	0.0	0
8.23	19.17	0.683	0.94	0.4	28.067	3.563	0.0	0.0	0.0	0
8.24	18.762	0.724	0.94	0.4	25.914	3.859	0.0	0.0	0.0	0
8.25	18.355	0.755	0.94	0.4	24.311	4.113	0.0	0.0	0.0	0
8.26	18.151	0.755	0.94	0.3	24.041	4.16	0.0	0.0	0.0	0
8.27	17.947	0.734	0.95	0.3	24.451	4.09	0.0	0.0	0.0	0
8.28	17.743	0.714	0.95	0.3	24.85	4.024	0.0	0.0	0.0	0
8.29	17.437	0.704	0.95	0.3	24.768	4.037	0.0	0.0	0.0	0
8.30	17.335	0.693	0.95	0.3	25.014	3.998	0.0	0.0	0.0	0
8.31	17.437	0.683	0.95	0.3	25.53	3.917	0.0	0.0	0.0	0
8.32	17.539	0.673	0.95	0.3	26.061	3.837	0.0	0.0	0.0	0
8.33	17.131	0.673	0.95	0.3	25.455	3.929	0.0	0.0	0.0	0
8.34	17.131	0.683	0.95	0.3	25.082	3.987	0.0	0.0	0.0	0
8.35	17.029	0.673	0.95	0.3	25.303	3.952	0.0	0.0	0.0	0
8.36	17.029	0.642	0.95	0.3	26.525	3.77	0.0	0.0	0.0	0

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8.37	17.029	0.612	0.95	0.3	27.825	3.594	0.0	0.0	0.0	0
8.38	17.131	0.602	0.95	0.3	28.457	3.514	0.0	0.0	0.0	0
8.39	17.029	0.591	0.94	0.3	28.814	3.471	0.0	0.0	0.0	0
8.40	16.519	0.612	0.94	0.3	26.992	3.705	0.0	0.0	0.0	0
8.41	16.417	0.622	0.94	0.3	26.394	3.789	0.0	0.0	0.0	0
8.42	16.417	0.632	0.94	0.3	25.976	3.85	0.0	0.0	0.0	0
8.43	16.417	0.642	0.94	0.3	25.572	3.911	0.0	0.0	0.0	0
8.44	16.315	0.663	0.93	0.3	24.608	4.064	0.0	0.0	0.0	0
8.45	16.213	0.693	0.93	0.3	23.395	4.274	0.0	0.0	0.0	0
8.46	16.009	0.724	0.93	0.3	22.112	4.522	0.0	0.0	0.0	0
8.47	15.805	0.765	0.93	0.3	20.66	4.84	0.0	0.0	0.0	0
8.48	15.805	0.785	0.93	0.3	20.134	4.967	0.0	0.0	0.0	0
8.49	16.111	0.795	0.94	0.3	20.265	4.935	0.0	0.0	0.0	0
8.50	16.519	0.795	0.94	0.3	20.779	4.813	0.0	0.0	0.0	0
8.51	17.233	0.795	0.94	0.3	21.677	4.613	0.0	0.0	0.0	0
8.52	18.049	0.785	0.94	0.3	22.992	4.349	0.0	0.0	0.0	0
8.53	18.661	0.785	0.95	0.3	23.772	4.207	0.0	0.0	0.0	0
8.54	20.19	0.785	0.96	0.3	25.72	3.888	0.0	0.0	0.0	0
8.55	21.006	0.785	0.97	0.3	26.759	3.737	0.0	0.0	0.0	0
8.56	22.026	0.785	0.97	0.2	28.059	3.564	0.0	0.0	0.0	0
8.57	22.739	0.785	0.98	0.2	28.967	3.452	0.0	0.0	0.0	0
8.58	23.453	0.785	0.98	0.2	29.876	3.347	0.0	0.0	0.0	0
8.59	23.759	0.785	0.98	0.2	30.266	3.304	0.0	0.0	0.0	0
8.60	23.759	0.785	0.98	0.2	30.266	3.304	0.0	0.0	0.0	0
8.61	23.351	0.816	0.98	0.2	28.616	3.494	0.0	0.0	0.0	0
8.62	23.249	0.836	0.98	0.2	27.81	3.596	0.0	0.0	0.0	0
8.63	23.045	0.877	0.98	0.2	26.277	3.806	0.0	0.0	0.0	0
8.64	22.535	0.928	0.98	0.2	24.283	4.118	0.0	0.0	0.0	0
8.65	22.331	0.969	0.97	0.2	23.045	4.339	0.0	0.0	0.0	0
8.66	21.924	1.02	0.97	0.2	21.494	4.652	0.0	0.0	0.0	0
8.67	20.598	1.162	0.96	0.2	17.726	5.641	0.0	0.0	0.0	0
8.68	19.68	1.234	0.96	0.2	15.948	6.27	0.0	0.0	0.0	0
8.69	19.068	1.264	0.96	0.2	15.085	6.629	0.0	0.0	0.0	0
8.70	18.661	1.275	0.95	0.2	14.636	6.832	0.0	0.0	0.0	0
8.71	18.049	1.285	0.95	0.2	14.046	7.12	0.0	0.0	0.0	0
8.72	17.029	1.305	0.95	0.2	13.049	7.663	0.0	0.0	0.0	0
8.73	16.315	1.315	0.95	0.2	12.407	8.06	0.0	0.0	0.0	0
8.74	15.092	1.295	0.95	0.2	11.654	8.581	0.0	0.0	0.0	0
8.75	14.99	1.244	0.94	0.2	12.05	8.299	0.0	0.0	0.0	0
8.76	14.99	1.193	0.94	0.2	12.565	7.959	0.0	0.0	0.0	0
8.77	15.092	1.142	0.94	0.2	13.215	7.567	0.0	0.0	0.0	0
8.78	15.092	1.101	0.94	0.2	13.708	7.295	0.0	0.0	0.0	0
8.79	14.888	1.04	0.94	0.2	14.315	6.985	0.0	0.0	0.0	0
8.80	14.786	0.969	0.94	0.2	15.259	6.553	0.0	0.0	0.0	0
8.81	14.582	0.897	0.94	0.2	16.256	6.151	0.0	0.0	0.0	0
8.82	14.378	0.765	0.94	0.2	18.795	5.321	0.0	0.0	0.0	0
8.83	14.582	0.693	0.94	0.2	21.042	4.752	0.0	0.0	0.0	0
8.84	14.582	0.653	0.94	0.2	22.331	4.478	0.0	0.0	0.0	0
8.85	14.378	0.632	0.94	0.2	22.75	4.396	0.0	0.0	0.0	0
8.86	14.378	0.591	0.94	0.2	24.328	4.11	0.0	0.0	0.0	0
8.87	14.582	0.551	0.94	0.2	26.465	3.779	0.0	0.0	0.0	0
8.88	14.582	0.551	0.94	0.2	26.465	3.779	0.0	0.0	0.0	0
8.89	14.582	0.551	0.94	0.2	26.465	3.779	0.0	0.0	0.0	0
8.90	16.315	0.347	0.89	0.2	47.017	2.127	0.0	0.0	0.0	0
8.91	15.703	0.357	0.89	0.2	43.986	2.273	0.0	0.0	0.0	0
8.92	15.397	0.357	0.89	0.2	43.129	2.319	0.0	0.0	0.0	0
8.93	15.295	0.357	0.89	0.2	42.843	2.334	0.0	0.0	0.0	0
8.94	15.397	0.357	0.89	0.2	43.129	2.319	0.0	0.0	0.0	0
8.95	15.397	0.357	0.89	0.2	43.129	2.319	0.0	0.0	0.0	0
8.96	15.194	0.367	0.89	0.2	41.401	2.415	0.0	0.0	0.0	0
8.97	14.99	0.387	0.90	0.2	38.734	2.582	0.0	0.0	0.0	0
8.98	15.092	0.398	0.90	0.2	37.92	2.637	0.0	0.0	0.0	0
8.99	15.194	0.387	0.90	0.2	39.261	2.547	0.0	0.0	0.0	0
9.00	15.295	0.387	0.90	0.2	39.522	2.53	0.0	0.0	0.0	0
9.01	15.397	0.387	0.91	0.2	39.786	2.513	0.0	0.0	0.0	0
9.02	15.397	0.387	0.91	0.2	39.786	2.513	0.0	0.0	0.0	0
9.03	15.194	0.387	0.91	0.2	39.261	2.547	0.0	0.0	0.0	0
9.04	14.99	0.367	0.91	0.2	40.845	2.448	0.0	0.0	0.0	0
9.05	14.99	0.347	0.91	0.2	43.199	2.315	0.0	0.0	0.0	0
9.06	15.092	0.337	0.91	0.2	44.783	2.233	0.0	0.0	0.0	0
9.07	14.888	0.337	0.91	0.2	44.178	2.264	0.0	0.0	0.0	0
9.08	14.684	0.337	0.91	0.2	43.573	2.295	0.0	0.0	0.0	0
9.09	14.48	0.347	0.90	0.2	41.729	2.396	0.0	0.0	0.0	0
9.10	14.48	0.357	0.90	0.2	40.56	2.465	0.0	0.0	0.0	0
9.11	14.378	0.367	0.90	0.2	39.177	2.553	0.0	0.0	0.0	0

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9.12	13.664	0.387	0.90	0.2	35.307	2.832	0.0	0.0	0.0	0
9.13	13.358	0.387	0.90	0.2	34.517	2.897	0.0	0.0	0.0	0
9.14	13.358	0.377	0.90	0.2	35.432	2.822	0.0	0.0	0.0	0
9.15	13.154	0.367	0.90	0.2	35.842	2.79	0.0	0.0	0.0	0
9.16	13.154	0.347	0.90	0.2	37.908	2.638	0.0	0.0	0.0	0
9.17	13.052	0.347	0.90	0.2	37.614	2.659	0.0	0.0	0.0	0
9.18	12.95	0.337	0.89	0.2	38.427	2.602	0.0	0.0	0.0	0
9.19	13.052	0.337	0.89	0.1	38.73	2.582	0.0	0.0	0.0	0
9.20	13.256	0.337	0.88	0.2	39.335	2.542	0.0	0.0	0.0	0
9.21	13.256	0.326	0.88	0.1	40.663	2.459	0.0	0.0	0.0	0
9.22	13.154	0.316	0.89	0.1	41.627	2.402	0.0	0.0	0.0	0
9.23	13.154	0.316	0.89	0.1	41.627	2.402	0.0	0.0	0.0	0
9.24	13.154	0.316	0.89	0.1	41.627	2.402	0.0	0.0	0.0	0
9.25	13.154	0.347	0.90	0.1	37.908	2.638	0.0	0.0	0.0	0
9.26	13.256	0.337	0.90	0.2	39.335	2.542	0.0	0.0	0.0	0
9.27	13.154	0.337	0.90	0.1	39.033	2.562	0.0	0.0	0.0	0
9.28	13.154	0.326	0.90	0.2	40.35	2.478	0.0	0.0	0.0	0
9.29	13.256	0.316	0.90	0.2	41.949	2.384	0.0	0.0	0.0	0
9.30	13.358	0.316	0.90	0.2	42.272	2.366	0.0	0.0	0.0	0
9.31	13.358	0.316	0.90	0.2	42.272	2.366	0.0	0.0	0.0	0
9.32	13.664	0.306	0.91	0.2	44.654	2.239	0.0	0.0	0.0	0
9.33	13.97	0.286	0.92	0.2	48.846	2.047	0.0	0.0	0.0	0
9.34	14.174	0.275	0.92	0.2	51.542	1.94	0.0	0.0	0.0	0
9.35	14.276	0.255	0.92	0.2	55.984	1.786	0.0	0.0	0.0	0
9.36	14.48	0.245	0.92	0.2	59.102	1.692	0.0	0.0	0.0	0
9.37	14.684	0.235	0.92	0.2	62.485	1.6	0.0	0.0	0.0	0
9.38	14.99	0.224	0.92	0.2	66.92	1.494	0.0	0.0	0.0	0
9.39	15.092	0.245	0.92	0.2	61.6	1.623	0.0	0.0	0.0	0
9.40	14.684	0.286	0.93	0.2	51.343	1.948	0.0	0.0	0.0	0
9.41	14.378	0.306	0.93	0.2	46.987	2.128	0.0	0.0	0.0	0
9.42	14.276	0.316	0.93	0.2	45.177	2.214	0.0	0.0	0.0	0
9.43	14.276	0.326	0.93	0.2	43.791	2.284	0.0	0.0	0.0	0
9.44	14.378	0.326	0.93	0.2	44.104	2.267	0.0	0.0	0.0	0
9.45	14.276	0.316	0.92	0.2	45.177	2.214	0.0	0.0	0.0	0
9.46	13.868	0.347	0.91	0.2	39.965	2.502	0.0	0.0	0.0	0
9.47	13.664	0.357	0.91	0.2	38.275	2.613	0.0	0.0	0.0	0
9.48	13.358	0.367	0.91	0.2	36.398	2.747	0.0	0.0	0.0	0
9.49	13.052	0.377	0.91	0.2	34.621	2.888	0.0	0.0	0.0	0
9.50	12.95	0.367	0.91	0.2	35.286	2.834	0.0	0.0	0.0	0
9.51	12.746	0.357	0.90	0.2	35.703	2.801	0.0	0.0	0.0	0
9.52	12.542	0.347	0.90	0.2	36.144	2.767	0.0	0.0	0.0	0
9.53	12.95	0.326	0.90	0.2	39.724	2.517	0.0	0.0	0.0	0
9.54	13.052	0.326	0.90	0.2	40.037	2.498	0.0	0.0	0.0	0
9.55	13.256	0.316	0.91	0.2	41.949	2.384	0.0	0.0	0.0	0
9.56	13.46	0.316	0.91	0.2	42.595	2.348	0.0	0.0	0.0	0
9.57	13.766	0.306	0.91	0.2	44.987	2.223	0.0	0.0	0.0	0
9.58	13.97	0.306	0.91	0.2	45.654	2.19	0.0	0.0	0.0	0
9.59	13.97	0.296	0.91	0.2	47.196	2.119	0.0	0.0	0.0	0
9.60	13.868	0.296	0.91	0.2	46.851	2.134	0.0	0.0	0.0	0
9.61	13.562	0.306	0.91	0.2	44.32	2.256	0.0	0.0	0.0	0
9.62	13.256	0.306	0.91	0.2	43.32	2.308	0.0	0.0	0.0	0
9.63	13.052	0.316	0.91	0.2	41.304	2.421	0.0	0.0	0.0	0
9.64	12.95	0.326	0.91	0.2	39.724	2.517	0.0	0.0	0.0	0
9.65	12.746	0.316	0.91	0.2	40.335	2.479	0.0	0.0	0.0	0
9.66	12.44	0.316	0.90	0.2	39.367	2.54	0.0	0.0	0.0	0
9.67	12.44	0.306	0.90	0.2	40.654	2.46	0.0	0.0	0.0	0
9.68	12.542	0.316	0.90	0.2	39.69	2.52	0.0	0.0	0.0	0
9.69	12.44	0.316	0.91	0.2	39.367	2.54	0.0	0.0	0.0	0
9.70	12.44	0.316	0.91	0.2	39.367	2.54	0.0	0.0	0.0	0
9.71	12.44	0.306	0.91	0.2	40.654	2.46	0.0	0.0	0.0	0
9.72	12.542	0.296	0.91	0.2	42.372	2.36	0.0	0.0	0.0	0
9.73	12.848	0.275	0.92	0.2	46.72	2.14	0.0	0.0	0.0	0
9.74	12.95	0.275	0.92	0.2	47.091	2.124	0.0	0.0	0.0	0
9.75	13.256	0.265	0.93	0.2	50.023	1.999	0.0	0.0	0.0	0
9.76	13.562	0.255	0.93	0.2	53.184	1.88	0.0	0.0	0.0	0
9.77	13.766	0.255	0.94	0.2	53.984	1.852	0.0	0.0	0.0	0
9.78	14.174	0.245	0.95	0.2	57.853	1.729	0.0	0.0	0.0	0
9.79	14.582	0.245	0.95	0.2	59.518	1.68	0.0	0.0	0.0	0
9.80	15.295	0.235	0.99	0.2	65.085	1.536	0.0	0.0	0.0	0
9.81	15.805	0.235	1.03	0.2	67.255	1.487	0.0	0.0	0.0	0
9.82	16.315	0.214	1.07	0.2	76.238	1.312	0.0	0.0	0.0	0
9.83	16.519	0.214	1.09	0.2	77.192	1.295	0.0	0.0	0.0	0
9.84	16.519	0.214	1.09	0.2	77.192	1.295	0.0	0.0	0.0	0
9.85	16.723	0.214	1.10	0.2	78.145	1.28	0.0	0.0	0.0	0
9.86	17.335	0.214	1.10	0.2	81.005	1.234	0.0	0.0	0.0	0

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9.87	17.641	0.224	1.11	0.2	78.754	1.27	0.0	0.0	0.0	0
9.88	17.641	0.224	1.11	0.2	78.754	1.27	0.0	0.0	0.0	0
9.89	17.641	0.224	1.11	0.2	78.754	1.27	0.0	0.0	0.0	0
9.90	19.068	0.347	1.12	0.2	54.951	1.82	0.0	0.0	0.0	0
9.91	18.966	0.377	1.12	0.2	50.308	1.988	0.0	0.0	0.0	0
9.92	18.355	0.418	1.12	0.2	43.911	2.277	0.0	0.0	0.0	0
9.93	18.049	0.449	1.12	0.2	40.198	2.488	0.0	0.0	0.0	0
9.94	17.437	0.479	1.12	0.2	36.403	2.747	0.0	0.0	0.0	0
9.95	17.131	0.51	1.11	0.2	33.59	2.977	0.0	0.0	0.0	0
9.96	17.029	0.53	1.11	0.2	32.13	3.112	0.0	0.0	0.0	0
9.97	17.131	0.581	1.11	0.2	29.485	3.392	0.0	0.0	0.0	0
9.98	17.029	0.612	1.12	0.2	27.825	3.594	0.0	0.0	0.0	0
9.99	16.825	0.632	1.13	0.2	26.622	3.756	0.0	0.0	0.0	0
10.00	16.927	0.622	1.14	0.2	27.214	3.675	0.0	0.0	0.0	0
10.01	17.029	0.622	1.14	0.2	27.378	3.653	0.0	0.0	0.0	0
10.02	17.233	0.612	1.14	0.2	28.158	3.551	0.0	0.0	0.0	0
10.03	17.539	0.571	1.14	0.2	30.716	3.256	0.0	0.0	0.0	0
10.04	17.335	0.571	1.14	0.2	30.359	3.294	0.0	0.0	0.0	0
10.05	17.131	0.571	1.14	0.2	30.002	3.333	0.0	0.0	0.0	0
10.06	16.825	0.571	1.14	0.2	29.466	3.394	0.0	0.0	0.0	0
10.07	16.315	0.571	1.14	0.2	28.573	3.5	0.0	0.0	0.0	0
10.08	15.907	0.561	1.14	0.2	28.355	3.527	0.0	0.0	0.0	0
10.09	15.397	0.561	1.14	0.2	27.446	3.644	0.0	0.0	0.0	0
10.10	15.295	0.51	1.14	0.2	29.99	3.334	0.0	0.0	0.0	0
10.11	15.499	0.489	1.15	0.2	31.695	3.155	0.0	0.0	0.0	0
10.12	16.111	0.479	1.16	0.2	33.635	2.973	0.0	0.0	0.0	0
10.13	17.131	0.469	1.19	0.2	36.527	2.738	0.0	0.0	0.0	0
10.14	18.661	0.469	1.21	0.2	39.789	2.513	0.0	0.0	0.0	0
10.15	20.7	0.459	1.23	0.2	45.098	2.217	0.0	0.0	0.0	0
10.16	24.473	0.428	1.25	0.2	57.18	1.749	0.0	0.0	0.0	0
10.17	26.92	0.408	1.26	0.2	65.98	1.516	0.0	0.0	0.0	0
10.18	29.979	0.387	1.28	0.2	77.465	1.291	0.0	0.0	0.0	0
10.19	33.242	0.398	1.28	0.2	83.523	1.197	0.0	0.0	0.0	0
10.20	35.995	0.428	1.26	0.2	84.1	1.189	0.0	0.0	0.0	0
10.21	37.117	0.5	1.24	0.2	74.234	1.347	0.0	0.0	0.0	0
10.22	40.482	0.704	1.31	0.2	57.503	1.739	0.0	0.0	0.0	0
10.23	43.847	0.785	1.40	0.1	55.856	1.79	0.0	0.0	0.0	0
10.24	47.416	0.846	1.39	0.1	56.047	1.784	0.0	0.0	0.0	0
10.25	50.475	0.908	1.37	0.1	55.589	1.799	0.0	0.0	0.0	0
10.26	53.024	0.999	1.37	0.1	53.077	1.884	0.0	0.0	0.0	0
10.27	54.554	1.101	1.36	0.1	49.55	2.018	0.0	0.0	0.0	0
10.28	56.083	1.234	1.35	0.1	45.448	2.2	0.0	0.0	0.0	0
10.29	54.86	1.264	1.34	0.2	43.402	2.304	0.0	0.0	0.0	0
10.30	51.087	1.295	1.32	0.1	39.449	2.535	0.0	0.0	0.0	0
10.31	46.804	1.326	1.29	0.2	35.297	2.833	0.0	0.0	0.0	0
10.32	42.216	1.346	1.25	0.2	31.364	3.188	0.0	0.0	0.0	0
10.33	37.729	1.387	1.23	0.2	27.202	3.676	0.0	0.0	0.0	0
10.34	34.568	1.397	1.20	0.2	24.744	4.041	0.0	0.0	0.0	0
10.35	32.324	1.397	1.20	0.2	23.138	4.322	0.0	0.0	0.0	0
10.36	27.022	1.468	1.22	0.2	18.407	5.433	0.0	0.0	0.0	0
10.37	25.085	1.468	1.30	0.2	17.088	5.852	0.0	0.0	0.0	0
10.38	22.535	1.519	1.35	0.2	14.835	6.741	0.0	0.0	0.0	0
10.39	21.924	1.509	1.40	0.2	14.529	6.883	0.0	0.0	0.0	0
10.40	21.72	1.479	1.46	0.2	14.686	6.809	0.0	0.0	0.0	0
10.41	22.026	1.438	1.61	0.2	15.317	6.529	0.0	0.0	0.0	0
10.42	22.331	1.397	1.65	0.2	15.985	6.256	0.0	0.0	0.0	0
10.43	22.535	1.336	1.65	0.2	16.868	5.929	0.0	0.0	0.0	0
10.44	22.229	1.254	1.65	0.2	17.726	5.641	0.0	0.0	0.0	0
10.45	22.331	1.162	1.64	0.2	19.218	5.204	0.0	0.0	0.0	0
10.46	22.127	1.05	1.65	0.2	21.073	4.745	0.0	0.0	0.0	0
10.47	22.026	0.938	1.68	0.2	23.482	4.259	0.0	0.0	0.0	0
10.48	22.026	0.918	1.67	0.2	23.993	4.168	0.0	0.0	0.0	0
10.49	21.924	0.877	1.67	0.2	24.999	4.0	0.0	0.0	0.0	0
10.50	21.924	0.836	1.68	0.2	26.225	3.813	0.0	0.0	0.0	0
10.51	21.618	0.826	1.69	0.2	26.172	3.821	0.0	0.0	0.0	0
10.52	21.414	0.806	1.69	0.2	26.568	3.764	0.0	0.0	0.0	0
10.53	21.312	0.816	1.70	0.2	26.118	3.829	0.0	0.0	0.0	0
10.54	21.312	0.816	1.71	0.2	26.118	3.829	0.0	0.0	0.0	0
10.55	22.026	0.816	1.73	0.2	26.993	3.705	0.0	0.0	0.0	0
10.56	22.127	0.816	1.73	0.2	27.116	3.688	0.0	0.0	0.0	0
10.57	22.229	0.816	1.74	0.2	27.241	3.671	0.0	0.0	0.0	0
10.58	22.739	0.806	1.74	0.2	28.212	3.545	0.0	0.0	0.0	0
10.59	22.331	0.826	1.73	0.2	27.035	3.699	0.0	0.0	0.0	0
10.60	22.433	0.816	1.74	0.2	27.491	3.637	0.0	0.0	0.0	0
10.61	22.331	0.806	1.74	0.2	27.706	3.609	0.0	0.0	0.0	0

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10.62	22.127	0.775	1.75	0.2	28.551	3.503	0.0	0.0	0.0	0
10.63	22.026	0.755	1.75	0.2	29.174	3.428	0.0	0.0	0.0	0
10.64	21.924	0.724	1.73	0.2	30.282	3.302	0.0	0.0	0.0	0
10.65	21.924	0.704	1.72	0.2	31.142	3.211	0.0	0.0	0.0	0
10.66	21.108	0.744	1.72	0.2	28.371	3.525	0.0	0.0	0.0	0
10.67	20.802	0.775	1.72	0.2	26.841	3.726	0.0	0.0	0.0	0
10.68	20.802	0.795	1.71	0.2	26.166	3.822	0.0	0.0	0.0	0
10.69	20.802	0.816	1.71	0.2	25.493	3.923	0.0	0.0	0.0	0
10.70	20.496	0.857	1.71	0.2	23.916	4.181	0.0	0.0	0.0	0
10.71	19.986	0.918	1.71	0.2	21.771	4.593	0.0	0.0	0.0	0
10.72	19.782	0.959	1.72	0.2	20.628	4.848	0.0	0.0	0.0	0
10.73	19.782	0.989	1.72	0.2	20.002	4.999	0.0	0.0	0.0	0
10.74	19.884	0.989	1.72	0.2	20.105	4.974	0.0	0.0	0.0	0
10.75	20.088	0.989	1.72	0.2	20.311	4.923	0.0	0.0	0.0	0
10.76	20.394	0.979	1.72	0.2	20.831	4.8	0.0	0.0	0.0	0
10.77	20.598	0.979	1.72	0.2	21.04	4.753	0.0	0.0	0.0	0
10.78	21.006	0.979	1.72	0.2	21.457	4.661	0.0	0.0	0.0	0
10.79	22.026	0.938	1.73	0.2	23.482	4.259	0.0	0.0	0.0	0
10.80	22.229	0.918	1.73	0.2	24.215	4.13	0.0	0.0	0.0	0
10.81	22.637	0.908	1.74	0.2	24.931	4.011	0.0	0.0	0.0	0
10.82	22.739	0.897	1.74	0.2	25.35	3.945	0.0	0.0	0.0	0
10.83	22.841	0.877	1.73	0.2	26.044	3.84	0.0	0.0	0.0	0
10.84	23.045	0.846	1.73	0.2	27.24	3.671	0.0	0.0	0.0	0
10.85	24.371	0.806	1.73	0.2	30.237	3.307	0.0	0.0	0.0	0
10.86	24.167	0.806	1.73	0.2	29.984	3.335	0.0	0.0	0.0	0
10.87	23.249	0.826	1.72	0.2	28.146	3.553	0.0	0.0	0.0	0
10.88	23.249	0.826	1.72	0.2	28.146	3.553	0.0	0.0	0.0	0
10.89	23.249	0.826	1.72	0.2	28.146	3.553	0.0	0.0	0.0	0
10.90	24.269	0.897	1.53	0.2	27.056	3.696	0.0	0.0	0.0	0
10.91	24.575	0.948	1.54	0.2	25.923	3.858	0.0	0.0	0.0	0
10.92	24.575	0.979	1.54	0.2	25.102	3.984	0.0	0.0	0.0	0
10.93	24.779	1.01	1.54	0.2	24.534	4.076	0.0	0.0	0.0	0
10.94	24.575	1.03	1.54	0.2	23.859	4.191	0.0	0.0	0.0	0
10.95	24.371	1.06	1.54	0.2	22.992	4.349	0.0	0.0	0.0	0
10.96	24.371	1.081	1.54	0.2	22.545	4.436	0.0	0.0	0.0	0
10.97	24.473	1.091	1.54	0.2	22.432	4.458	0.0	0.0	0.0	0
10.98	24.881	1.122	1.54	0.2	22.176	4.509	0.0	0.0	0.0	0
10.99	25.085	1.142	1.54	0.2	21.966	4.553	0.0	0.0	0.0	0
11.00	24.983	1.162	1.54	0.2	21.5	4.651	0.0	0.0	0.0	0
11.01	24.575	1.183	1.54	0.2	20.773	4.814	0.0	0.0	0.0	0
11.02	24.371	1.193	1.55	0.2	20.428	4.895	0.0	0.0	0.0	0
11.03	24.473	1.193	1.55	0.2	20.514	4.875	0.0	0.0	0.0	0
11.04	24.473	1.183	1.55	0.2	20.687	4.834	0.0	0.0	0.0	0
11.05	24.779	1.173	1.56	0.2	21.124	4.734	0.0	0.0	0.0	0
11.06	25.187	1.152	1.56	0.2	21.864	4.574	0.0	0.0	0.0	0
11.07	25.391	1.132	1.56	0.2	22.43	4.458	0.0	0.0	0.0	0
11.08	25.391	1.132	1.56	0.2	22.43	4.458	0.0	0.0	0.0	0
11.09	25.391	1.132	1.56	0.2	22.43	4.458	0.0	0.0	0.0	0
11.10	25.289	1.152	1.56	0.2	21.952	4.555	0.0	0.0	0.0	0
11.11	25.391	1.142	1.57	0.2	22.234	4.498	0.0	0.0	0.0	0
11.12	25.798	1.111	1.56	0.2	23.221	4.307	0.0	0.0	0.0	0
11.13	25.798	1.122	1.57	0.2	22.993	4.349	0.0	0.0	0.0	0
11.14	26.206	1.111	1.55	0.2	23.588	4.239	0.0	0.0	0.0	0
11.15	25.391	1.132	1.56	0.2	22.43	4.458	0.0	0.0	0.0	0
11.16	25.696	1.132	1.57	0.2	22.7	4.405	0.0	0.0	0.0	0
11.17	26.104	1.122	1.58	0.2	23.266	4.298	0.0	0.0	0.0	0
11.18	26.512	1.101	1.58	0.2	24.08	4.153	0.0	0.0	0.0	0
11.19	26.818	1.091	1.58	0.2	24.581	4.068	0.0	0.0	0.0	0
11.20	26.716	1.101	1.58	0.2	24.265	4.121	0.0	0.0	0.0	0
11.21	26.41	1.132	1.59	0.2	23.33	4.286	0.0	0.0	0.0	0
11.22	26.512	1.152	1.57	0.2	23.014	4.345	0.0	0.0	0.0	0
11.23	26.308	1.162	1.57	0.2	22.64	4.417	0.0	0.0	0.0	0
11.24	25.492	1.203	1.57	0.2	21.19	4.719	0.0	0.0	0.0	0
11.25	25.085	1.224	1.56	0.2	20.494	4.879	0.0	0.0	0.0	0
11.26	24.677	1.264	1.56	0.2	19.523	5.122	0.0	0.0	0.0	0
11.27	24.269	1.275	1.56	0.2	19.035	5.254	0.0	0.0	0.0	0
11.28	23.861	1.275	1.56	0.2	18.715	5.343	0.0	0.0	0.0	0
11.29	23.963	1.254	1.56	0.2	19.109	5.233	0.0	0.0	0.0	0
11.30	23.861	1.244	1.56	0.2	19.181	5.214	0.0	0.0	0.0	0
11.31	23.657	1.244	1.56	0.2	19.017	5.258	0.0	0.0	0.0	0
11.32	23.759	1.213	1.56	0.2	19.587	5.105	0.0	0.0	0.0	0
11.33	23.861	1.193	1.56	0.2	20.001	5.0	0.0	0.0	0.0	0
11.34	23.759	1.173	1.56	0.2	20.255	4.937	0.0	0.0	0.0	0
11.35	23.759	1.132	1.57	0.2	20.989	4.765	0.0	0.0	0.0	0
11.36	23.657	1.122	1.58	0.2	21.085	4.743	0.0	0.0	0.0	0

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11.37	23.759	1.091	1.59	0.2	21.777	4.592	0.0	0.0	0.0	0
11.38	24.065	1.06	1.59	0.2	22.703	4.405	0.0	0.0	0.0	0
11.39	24.371	1.02	1.59	0.2	23.893	4.185	0.0	0.0	0.0	0
11.40	24.575	0.999	1.60	0.2	24.6	4.065	0.0	0.0	0.0	0
11.41	24.779	0.938	1.61	0.2	26.417	3.785	0.0	0.0	0.0	0
11.42	24.983	0.908	1.61	0.2	27.514	3.634	0.0	0.0	0.0	0
11.43	25.187	0.897	1.62	0.2	28.079	3.561	0.0	0.0	0.0	0
11.44	25.391	0.877	1.62	0.2	28.952	3.454	0.0	0.0	0.0	0
11.45	25.594	0.857	1.63	0.2	29.865	3.348	0.0	0.0	0.0	0
11.46	25.9	0.836	1.63	0.2	30.981	3.228	0.0	0.0	0.0	0
11.47	26.002	0.816	1.63	0.2	31.865	3.138	0.0	0.0	0.0	0
11.48	26.002	0.806	1.64	0.2	32.261	3.1	0.0	0.0	0.0	0
11.49	26.41	0.795	1.64	0.2	33.22	3.01	0.0	0.0	0.0	0
11.50	26.614	0.785	1.64	0.2	33.903	2.95	0.0	0.0	0.0	0
11.51	26.92	0.785	1.64	0.2	34.293	2.916	0.0	0.0	0.0	0
11.52	26.92	0.795	1.64	0.2	33.862	2.953	0.0	0.0	0.0	0
11.53	26.92	0.795	1.65	0.2	33.862	2.953	0.0	0.0	0.0	0
11.54	27.022	0.806	1.65	0.2	33.526	2.983	0.0	0.0	0.0	0
11.55	27.022	0.806	1.65	0.2	33.526	2.983	0.0	0.0	0.0	0
11.56	27.022	0.806	1.66	0.2	33.526	2.983	0.0	0.0	0.0	0
11.57	26.92	0.826	1.66	0.2	32.591	3.068	0.0	0.0	0.0	0
11.58	27.022	0.826	1.66	0.2	32.714	3.057	0.0	0.0	0.0	0
11.59	27.022	0.816	1.67	0.2	33.115	3.02	0.0	0.0	0.0	0
11.60	27.43	0.816	1.66	0.2	33.615	2.975	0.0	0.0	0.0	0
11.61	27.328	0.826	1.67	0.2	33.085	3.023	0.0	0.0	0.0	0
11.62	27.022	0.836	1.67	0.2	32.323	3.094	0.0	0.0	0.0	0
11.63	26.92	0.836	1.67	0.2	32.201	3.105	0.0	0.0	0.0	0
11.64	27.022	0.826	1.67	0.2	32.714	3.057	0.0	0.0	0.0	0
11.65	27.226	0.816	1.67	0.2	33.365	2.997	0.0	0.0	0.0	0
11.66	27.328	0.795	1.66	0.2	34.375	2.909	0.0	0.0	0.0	0
11.67	27.226	0.806	1.66	0.2	33.779	2.96	0.0	0.0	0.0	0
11.68	27.022	0.816	1.65	0.2	33.115	3.02	0.0	0.0	0.0	0
11.69	26.92	0.816	1.64	0.2	32.99	3.031	0.0	0.0	0.0	0
11.70	26.716	0.836	1.64	0.2	31.957	3.129	0.0	0.0	0.0	0
11.71	26.614	0.857	1.63	0.2	31.055	3.22	0.0	0.0	0.0	0
11.72	26.614	0.867	1.62	0.2	30.697	3.258	0.0	0.0	0.0	0
11.73	25.9	0.928	1.61	0.2	27.909	3.583	0.0	0.0	0.0	0
11.74	25.391	0.948	1.60	0.2	26.784	3.734	0.0	0.0	0.0	0
11.75	24.983	0.969	1.59	0.2	25.782	3.879	0.0	0.0	0.0	0
11.76	24.473	0.999	1.59	0.2	24.497	4.082	0.0	0.0	0.0	0
11.77	24.371	1.02	1.58	0.2	23.893	4.185	0.0	0.0	0.0	0
11.78	24.371	1.04	1.57	0.2	23.434	4.267	0.0	0.0	0.0	0
11.79	23.453	1.122	1.55	0.2	20.903	4.784	0.0	0.0	0.0	0
11.80	22.943	1.152	1.54	0.2	19.916	5.021	0.0	0.0	0.0	0
11.81	22.229	1.203	1.54	0.2	18.478	5.412	0.0	0.0	0.0	0
11.82	21.516	1.234	1.53	0.2	17.436	5.735	0.0	0.0	0.0	0
11.83	21.21	1.254	1.52	0.2	16.914	5.912	0.0	0.0	0.0	0
11.84	20.904	1.254	1.52	0.2	16.67	5.999	0.0	0.0	0.0	0
11.85	20.394	1.275	1.50	0.2	15.995	6.252	0.0	0.0	0.0	0
11.86	19.884	1.275	1.49	0.2	15.595	6.412	0.0	0.0	0.0	0
11.87	19.374	1.275	1.48	0.2	15.195	6.581	0.0	0.0	0.0	0
11.88	19.374	1.275	1.48	0.2	15.195	6.581	0.0	0.0	0.0	0
11.89	19.374	1.275	1.48	0.2	15.195	6.581	0.0	0.0	0.0	0
11.90	18.049	1.264	1.25	0.2	14.279	7.003	0.0	0.0	0.0	0
11.91	17.743	1.244	1.25	0.2	14.263	7.011	0.0	0.0	0.0	0
11.92	17.335	1.213	1.25	0.2	14.291	6.997	0.0	0.0	0.0	0
11.93	17.131	1.173	1.25	0.2	14.604	6.847	0.0	0.0	0.0	0
11.94	17.233	1.132	1.26	0.2	15.223	6.569	0.0	0.0	0.0	0
11.95	17.233	1.101	1.26	0.2	15.652	6.389	0.0	0.0	0.0	0
11.96	17.437	1.04	1.26	0.2	16.766	5.964	0.0	0.0	0.0	0
11.97	17.335	1.01	1.26	0.3	17.163	5.826	0.0	0.0	0.0	0
11.98	17.335	0.979	1.26	0.3	17.707	5.648	0.0	0.0	0.0	0
11.99	17.437	0.938	1.28	0.3	18.59	5.379	0.0	0.0	0.0	0
12.00	17.641	0.857	1.28	0.3	20.585	4.858	0.0	0.0	0.0	0
12.01	17.845	0.826	1.28	0.3	21.604	4.629	0.0	0.0	0.0	0
12.02	18.049	0.785	1.28	0.3	22.992	4.349	0.0	0.0	0.0	0
12.03	17.947	0.755	1.28	0.3	23.771	4.207	0.0	0.0	0.0	0
12.04	17.947	0.734	1.29	0.3	24.451	4.09	0.0	0.0	0.0	0
12.05	18.049	0.673	1.29	0.3	26.819	3.729	0.0	0.0	0.0	0
12.06	18.049	0.653	1.29	0.3	27.64	3.618	0.0	0.0	0.0	0
12.07	18.049	0.642	1.29	0.3	28.114	3.557	0.0	0.0	0.0	0
12.08	18.151	0.632	1.29	0.3	28.72	3.482	0.0	0.0	0.0	0
12.09	18.355	0.612	1.29	0.3	29.992	3.334	0.0	0.0	0.0	0
12.10	18.457	0.612	1.29	0.3	30.158	3.316	0.0	0.0	0.0	0
12.11	18.457	0.602	1.29	0.3	30.659	3.262	0.0	0.0	0.0	0

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12.12	18.457	0.612	1.29	0.3	30.158	3.316	0.0	0.0	0.0	0
12.13	18.559	0.612	1.29	0.3	30.325	3.298	0.0	0.0	0.0	0
12.14	18.355	0.622	1.29	0.3	29.51	3.389	0.0	0.0	0.0	0
12.15	18.355	0.622	1.29	0.3	29.51	3.389	0.0	0.0	0.0	0
12.16	18.559	0.612	1.29	0.3	30.325	3.298	0.0	0.0	0.0	0
12.17	18.457	0.612	1.29	0.3	30.158	3.316	0.0	0.0	0.0	0
12.18	18.457	0.612	1.29	0.3	30.158	3.316	0.0	0.0	0.0	0
12.19	18.355	0.622	1.29	0.3	29.51	3.389	0.0	0.0	0.0	0
12.20	18.355	0.612	1.29	0.3	29.992	3.334	0.0	0.0	0.0	0
12.21	18.151	0.602	1.29	0.3	30.151	3.317	0.0	0.0	0.0	0
12.22	17.437	0.602	1.28	0.3	28.965	3.452	0.0	0.0	0.0	0
12.23	17.437	0.581	1.28	0.3	30.012	3.332	0.0	0.0	0.0	0
12.24	17.233	0.581	1.28	0.3	29.661	3.371	0.0	0.0	0.0	0
12.25	17.029	0.571	1.28	0.3	29.823	3.353	0.0	0.0	0.0	0
12.26	16.825	0.561	1.26	0.3	29.991	3.334	0.0	0.0	0.0	0
12.27	16.519	0.561	1.26	0.3	29.446	3.396	0.0	0.0	0.0	0
12.28	16.111	0.561	1.28	0.3	28.718	3.482	0.0	0.0	0.0	0
12.29	16.009	0.54	1.28	0.3	29.646	3.373	0.0	0.0	0.0	0
12.30	16.111	0.52	1.28	0.3	30.983	3.228	0.0	0.0	0.0	0
12.31	16.111	0.5	1.28	0.3	32.222	3.103	0.0	0.0	0.0	0
12.32	16.111	0.479	1.28	0.3	33.635	2.973	0.0	0.0	0.0	0
12.33	16.111	0.469	1.28	0.3	34.352	2.911	0.0	0.0	0.0	0
12.34	16.009	0.459	1.28	0.3	34.878	2.867	0.0	0.0	0.0	0
12.35	16.009	0.428	1.28	0.3	37.404	2.673	0.0	0.0	0.0	0
12.36	16.009	0.418	1.28	0.3	38.299	2.611	0.0	0.0	0.0	0
12.37	16.009	0.418	1.28	0.3	38.299	2.611	0.0	0.0	0.0	0
12.38	15.805	0.408	1.26	0.3	38.738	2.581	0.0	0.0	0.0	0
12.39	15.601	0.408	1.26	0.3	38.238	2.615	0.0	0.0	0.0	0
12.40	15.295	0.408	1.26	0.3	37.488	2.668	0.0	0.0	0.0	0
12.41	14.99	0.387	1.26	0.3	38.734	2.582	0.0	0.0	0.0	0
12.42	15.092	0.377	1.26	0.3	40.032	2.498	0.0	0.0	0.0	0
12.43	15.194	0.367	1.25	0.3	41.401	2.415	0.0	0.0	0.0	0
12.44	15.194	0.367	1.25	0.3	41.401	2.415	0.0	0.0	0.0	0
12.45	15.194	0.367	1.25	0.3	41.401	2.415	0.0	0.0	0.0	0
12.46	15.092	0.377	1.25	0.3	40.032	2.498	0.0	0.0	0.0	0
12.47	14.888	0.387	1.24	0.3	38.47	2.599	0.0	0.0	0.0	0
12.48	14.888	0.387	1.24	0.3	38.47	2.599	0.0	0.0	0.0	0
12.49	14.99	0.387	1.24	0.3	38.734	2.582	0.0	0.0	0.0	0
12.50	14.888	0.387	1.23	0.3	38.47	2.599	0.0	0.0	0.0	0
12.51	14.684	0.398	1.23	0.3	36.894	2.71	0.0	0.0	0.0	0
12.52	14.48	0.398	1.23	0.3	36.382	2.749	0.0	0.0	0.0	0
12.53	14.48	0.387	1.23	0.3	37.416	2.673	0.0	0.0	0.0	0
12.54	14.582	0.387	1.23	0.3	37.68	2.654	0.0	0.0	0.0	0
12.55	14.582	0.377	1.23	0.3	38.679	2.585	0.0	0.0	0.0	0
12.56	14.582	0.377	1.23	0.3	38.679	2.585	0.0	0.0	0.0	0
12.57	14.684	0.377	1.23	0.3	38.95	2.567	0.0	0.0	0.0	0
12.58	14.786	0.377	1.23	0.3	39.22	2.55	0.0	0.0	0.0	0
12.59	14.99	0.387	1.23	0.3	38.734	2.582	0.0	0.0	0.0	0
12.60	15.092	0.377	1.23	0.3	40.032	2.498	0.0	0.0	0.0	0
12.61	15.397	0.377	1.24	0.3	40.841	2.449	0.0	0.0	0.0	0
12.62	15.703	0.367	1.24	0.3	42.787	2.337	0.0	0.0	0.0	0
12.63	15.805	0.367	1.24	0.3	43.065	2.322	0.0	0.0	0.0	0
12.64	15.805	0.367	1.24	0.3	43.065	2.322	0.0	0.0	0.0	0
12.65	15.499	0.357	1.24	0.3	43.415	2.303	0.0	0.0	0.0	0
12.66	15.499	0.357	1.24	0.3	43.415	2.303	0.0	0.0	0.0	0
12.67	15.397	0.357	1.24	0.3	43.129	2.319	0.0	0.0	0.0	0
12.68	15.397	0.357	1.23	0.3	43.129	2.319	0.0	0.0	0.0	0
12.69	15.295	0.347	1.23	0.3	44.078	2.269	0.0	0.0	0.0	0
12.70	15.194	0.347	1.23	0.3	43.787	2.284	0.0	0.0	0.0	0
12.71	14.99	0.357	1.23	0.4	41.989	2.382	0.0	0.0	0.0	0
12.72	15.092	0.347	1.23	0.3	43.493	2.299	0.0	0.0	0.0	0
12.73	15.194	0.347	1.24	0.4	43.787	2.284	0.0	0.0	0.0	0
12.74	15.397	0.347	1.24	0.4	44.372	2.254	0.0	0.0	0.0	0
12.75	15.703	0.347	1.25	0.4	45.254	2.21	0.0	0.0	0.0	0
12.76	16.111	0.347	1.25	0.4	46.429	2.154	0.0	0.0	0.0	0
12.77	16.519	0.337	1.26	0.4	49.018	2.04	0.0	0.0	0.0	0
12.78	16.927	0.326	1.26	0.4	51.923	1.926	0.0	0.0	0.0	0
12.79	17.233	0.306	1.26	0.4	56.317	1.776	0.0	0.0	0.0	0
12.80	17.437	0.306	1.25	0.4	56.984	1.755	0.0	0.0	0.0	0
12.81	17.233	0.316	1.25	0.4	54.535	1.834	0.0	0.0	0.0	0
12.82	17.539	0.337	1.25	0.4	52.045	1.921	0.0	0.0	0.0	0
12.83	18.966	0.347	1.26	0.4	54.657	1.83	0.0	0.0	0.0	0
12.84	17.131	0.337	1.24	0.4	50.834	1.967	0.0	0.0	0.0	0
12.85	15.907	0.337	1.22	0.4	47.202	2.119	0.0	0.0	0.0	0
12.86	15.194	0.367	1.22	0.4	41.401	2.415	0.0	0.0	0.0	0

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12.87	15.194	0.367	1.22	0.4	41.401	2.415	0.0	0.0	0.0	0
12.88	15.194	0.367	1.22	0.4	41.401	2.415	0.0	0.0	0.0	0
12.89	13.766	0.398	1.12	0.4	34.588	2.891	0.0	0.0	0.0	0
12.90	13.664	0.408	1.13	0.4	33.49	2.986	0.0	0.0	0.0	0
12.91	13.562	0.418	1.13	0.4	32.445	3.082	0.0	0.0	0.0	0
12.92	13.562	0.428	1.14	0.4	31.687	3.156	0.0	0.0	0.0	0
12.93	13.562	0.428	1.15	0.4	31.687	3.156	0.0	0.0	0.0	0
12.94	13.766	0.418	1.15	0.4	32.933	3.036	0.0	0.0	0.0	0
12.95	14.072	0.377	1.15	0.4	37.326	2.679	0.0	0.0	0.0	0
12.96	14.276	0.357	1.16	0.4	39.989	2.501	0.0	0.0	0.0	0
12.97	14.48	0.347	1.16	0.4	41.729	2.396	0.0	0.0	0.0	0
12.98	14.684	0.347	1.16	0.4	42.317	2.363	0.0	0.0	0.0	0
12.99	14.786	0.337	1.16	0.4	43.875	2.279	0.0	0.0	0.0	0
13.00	14.99	0.326	1.16	0.4	45.982	2.175	0.0	0.0	0.0	0
13.01	15.092	0.326	1.17	0.4	46.294	2.16	0.0	0.0	0.0	0
13.02	17.437	0.316	1.19	0.4	55.18	1.812	0.0	0.0	0.0	0
13.03	17.641	0.306	1.19	0.4	57.65	1.735	0.0	0.0	0.0	0
13.04	17.845	0.296	1.19	0.4	60.287	1.659	0.0	0.0	0.0	0
13.05	17.743	0.306	1.19	0.4	57.984	1.725	0.0	0.0	0.0	0
13.06	18.355	0.306	1.20	0.4	59.984	1.667	0.0	0.0	0.0	0
13.07	16.825	0.316	1.16	0.4	53.244	1.878	0.0	0.0	0.0	0
13.08	16.213	0.367	1.16	0.4	44.177	2.264	0.0	0.0	0.0	0
13.09	16.009	0.367	1.16	0.4	43.621	2.292	0.0	0.0	0.0	0
13.10	14.888	0.398	1.15	0.4	37.407	2.673	0.0	0.0	0.0	0
13.11	13.868	0.408	1.15	0.4	33.99	2.942	0.0	0.0	0.0	0
13.12	13.358	0.418	1.15	0.4	31.957	3.129	0.0	0.0	0.0	0
13.13	13.052	0.408	1.15	0.4	31.99	3.126	0.0	0.0	0.0	0
13.14	12.95	0.408	1.15	0.4	31.74	3.151	0.0	0.0	0.0	0
13.15	12.848	0.398	1.15	0.4	32.281	3.098	0.0	0.0	0.0	0
13.16	12.644	0.398	1.15	0.4	31.769	3.148	0.0	0.0	0.0	0
13.17	12.542	0.398	1.15	0.4	31.513	3.173	0.0	0.0	0.0	0
13.18	12.542	0.387	1.16	0.4	32.408	3.086	0.0	0.0	0.0	0
13.19	12.746	0.367	1.17	0.4	34.73	2.879	0.0	0.0	0.0	0
13.20	12.95	0.357	1.17	0.4	36.275	2.757	0.0	0.0	0.0	0
13.21	13.256	0.347	1.18	0.4	38.202	2.618	0.0	0.0	0.0	0
13.22	13.46	0.286	1.18	0.4	47.063	2.125	0.0	0.0	0.0	0
13.23	13.868	0.286	1.19	0.4	48.49	2.062	0.0	0.0	0.0	0
13.24	14.174	0.275	1.20	0.4	51.542	1.94	0.0	0.0	0.0	0
13.25	14.684	0.245	1.21	0.4	59.935	1.668	0.0	0.0	0.0	0
13.26	14.99	0.245	1.22	0.4	61.184	1.634	0.0	0.0	0.0	0
13.27	15.397	0.245	1.22	0.5	62.845	1.591	0.0	0.0	0.0	0
13.28	15.703	0.235	1.23	0.5	66.821	1.497	0.0	0.0	0.0	0
13.29	15.907	0.235	1.23	0.5	67.689	1.477	0.0	0.0	0.0	0
13.30	16.111	0.245	1.24	0.5	65.759	1.521	0.0	0.0	0.0	0
13.31	16.723	0.255	1.24	0.5	65.58	1.525	0.0	0.0	0.0	0
13.32	17.029	0.265	1.25	0.5	64.26	1.556	0.0	0.0	0.0	0
13.33	17.233	0.275	1.25	0.5	62.665	1.596	0.0	0.0	0.0	0
13.34	17.539	0.296	1.25	0.5	59.253	1.688	0.0	0.0	0.0	0
13.35	17.743	0.316	1.26	0.5	56.149	1.781	0.0	0.0	0.0	0
13.36	17.947	0.337	1.26	0.5	53.255	1.878	0.0	0.0	0.0	0
13.37	18.559	0.367	1.28	0.5	50.569	1.977	0.0	0.0	0.0	0
13.38	18.762	0.387	1.28	0.5	48.481	2.063	0.0	0.0	0.0	0
13.39	18.966	0.408	1.29	0.5	46.485	2.151	0.0	0.0	0.0	0
13.40	19.578	0.428	1.28	0.5	45.743	2.186	0.0	0.0	0.0	0
13.41	19.782	0.449	1.28	0.5	44.058	2.27	0.0	0.0	0.0	0
13.42	19.782	0.489	1.29	0.5	40.454	2.472	0.0	0.0	0.0	0
13.43	19.986	0.551	1.29	0.5	36.272	2.757	0.0	0.0	0.0	0
13.44	20.088	0.571	1.29	0.5	35.18	2.842	0.0	0.0	0.0	0
13.45	20.088	0.602	1.30	0.5	33.369	2.997	0.0	0.0	0.0	0
13.46	20.088	0.622	1.30	0.5	32.296	3.096	0.0	0.0	0.0	0
13.47	20.19	0.642	1.31	0.5	31.449	3.18	0.0	0.0	0.0	0
13.48	20.7	0.642	1.30	0.5	32.243	3.101	0.0	0.0	0.0	0
13.49	20.904	0.683	1.31	0.5	30.606	3.267	0.0	0.0	0.0	0
13.50	21.006	0.714	1.31	0.5	29.42	3.399	0.0	0.0	0.0	0
13.51	21.108	0.724	1.31	0.5	29.155	3.43	0.0	0.0	0.0	0
13.52	21.21	0.734	1.31	0.5	28.896	3.461	0.0	0.0	0.0	0
13.53	21.312	0.755	1.31	0.5	28.228	3.543	0.0	0.0	0.0	0
13.54	21.414	0.765	1.31	0.5	27.992	3.572	0.0	0.0	0.0	0
13.55	21.414	0.795	1.32	0.5	26.936	3.713	0.0	0.0	0.0	0
13.56	21.618	0.795	1.32	0.5	27.192	3.677	0.0	0.0	0.0	0
13.57	21.72	0.795	1.32	0.5	27.321	3.66	0.0	0.0	0.0	0
13.58	21.618	0.806	1.32	0.5	26.821	3.728	0.0	0.0	0.0	0
13.59	21.312	0.826	1.32	0.5	25.801	3.876	0.0	0.0	0.0	0
13.60	21.006	0.836	1.32	0.5	25.127	3.98	0.0	0.0	0.0	0
13.61	20.802	0.846	1.33	0.5	24.589	4.067	0.0	0.0	0.0	0

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13.62	20.904	0.846	1.33	0.5	24.709	4.047	0.0	0.0	0.0	0
13.63	20.904	0.826	1.34	0.5	25.308	3.951	0.0	0.0	0.0	0
13.64	21.006	0.826	1.34	0.5	25.431	3.932	0.0	0.0	0.0	0
13.65	21.21	0.816	1.34	0.5	25.993	3.847	0.0	0.0	0.0	0
13.66	21.414	0.806	1.35	0.5	26.568	3.764	0.0	0.0	0.0	0
13.67	22.229	0.785	1.36	0.5	28.317	3.531	0.0	0.0	0.0	0
13.68	22.331	0.765	1.36	0.5	29.191	3.426	0.0	0.0	0.0	0
13.69	22.739	0.744	1.36	0.5	30.563	3.272	0.0	0.0	0.0	0
13.70	22.841	0.724	1.36	0.5	31.548	3.17	0.0	0.0	0.0	0
13.71	22.637	0.724	1.36	0.5	31.267	3.198	0.0	0.0	0.0	0
13.72	22.433	0.714	1.36	0.5	31.419	3.183	0.0	0.0	0.0	0
13.73	21.72	0.704	1.36	0.5	30.852	3.241	0.0	0.0	0.0	0
13.74	21.516	0.704	1.35	0.5	30.563	3.272	0.0	0.0	0.0	0
13.75	21.108	0.714	1.35	0.5	29.563	3.383	0.0	0.0	0.0	0
13.76	20.904	0.724	1.35	0.5	28.873	3.463	0.0	0.0	0.0	0
13.77	20.802	0.734	1.35	0.5	28.341	3.529	0.0	0.0	0.0	0
13.78	20.394	0.744	1.35	0.5	27.411	3.648	0.0	0.0	0.0	0
13.79	20.496	0.744	1.35	0.5	27.548	3.63	0.0	0.0	0.0	0
13.80	20.598	0.744	1.36	0.5	27.685	3.612	0.0	0.0	0.0	0
13.81	20.598	0.734	1.36	0.5	28.063	3.563	0.0	0.0	0.0	0
13.82	20.802	0.734	1.35	0.5	28.341	3.529	0.0	0.0	0.0	0
13.83	20.802	0.724	1.35	0.5	28.732	3.48	0.0	0.0	0.0	0
13.84	20.7	0.734	1.34	0.5	28.202	3.546	0.0	0.0	0.0	0
13.85	20.088	0.755	1.34	0.5	26.607	3.758	0.0	0.0	0.0	0
13.86	19.884	0.765	1.34	0.5	25.992	3.847	0.0	0.0	0.0	0
13.87	19.884	0.765	1.34	0.5	25.992	3.847	0.0	0.0	0.0	0
13.88	19.884	0.765	1.34	0.5	25.992	3.847	0.0	0.0	0.0	0
13.89	20.19	0.734	1.21	0.6	27.507	3.635	0.0	0.0	0.0	0
13.90	19.884	0.755	1.22	0.6	26.336	3.797	0.0	0.0	0.0	0
13.91	19.986	0.755	1.23	0.6	26.472	3.778	0.0	0.0	0.0	0
13.92	20.088	0.765	1.23	0.6	26.259	3.808	0.0	0.0	0.0	0
13.93	20.19	0.775	1.23	0.6	26.052	3.839	0.0	0.0	0.0	0
13.94	20.19	0.795	1.24	0.6	25.396	3.938	0.0	0.0	0.0	0
13.95	19.884	0.826	1.24	0.6	24.073	4.154	0.0	0.0	0.0	0
13.96	19.068	0.846	1.25	0.6	22.539	4.437	0.0	0.0	0.0	0
13.97	18.966	0.836	1.26	0.6	22.687	4.408	0.0	0.0	0.0	0
13.98	18.966	0.806	1.25	0.6	23.531	4.25	0.0	0.0	0.0	0
13.99	19.068	0.785	1.25	0.6	24.29	4.117	0.0	0.0	0.0	0
14.00	18.864	0.775	1.25	0.6	24.341	4.108	0.0	0.0	0.0	0
14.01	18.661	0.775	1.26	0.6	24.079	4.153	0.0	0.0	0.0	0
14.02	18.762	0.755	1.26	0.6	24.85	4.024	0.0	0.0	0.0	0
14.03	18.762	0.744	1.26	0.6	25.218	3.965	0.0	0.0	0.0	0
14.04	18.864	0.724	1.26	0.6	26.055	3.838	0.0	0.0	0.0	0
14.05	18.762	0.734	1.29	0.6	25.561	3.912	0.0	0.0	0.0	0
14.06	18.864	0.724	1.29	0.6	26.055	3.838	0.0	0.0	0.0	0
14.07	18.864	0.704	1.30	0.6	26.795	3.732	0.0	0.0	0.0	0
14.08	18.966	0.642	1.29	0.6	29.542	3.385	0.0	0.0	0.0	0
14.09	18.762	0.622	1.28	0.6	30.164	3.315	0.0	0.0	0.0	0
14.10	18.559	0.622	1.28	0.6	29.838	3.351	0.0	0.0	0.0	0
14.11	18.355	0.612	1.28	0.6	29.992	3.334	0.0	0.0	0.0	0
14.12	18.049	0.622	1.26	0.6	29.018	3.446	0.0	0.0	0.0	0
14.13	17.641	0.642	1.28	0.6	27.478	3.639	0.0	0.0	0.0	0
14.14	17.641	0.642	1.28	0.6	27.478	3.639	0.0	0.0	0.0	0
14.15	17.641	0.653	1.28	0.6	27.015	3.702	0.0	0.0	0.0	0
14.16	17.539	0.653	1.29	0.6	26.859	3.723	0.0	0.0	0.0	0
14.17	17.437	0.642	1.30	0.6	27.16	3.682	0.0	0.0	0.0	0
14.18	17.335	0.632	1.30	0.6	27.429	3.646	0.0	0.0	0.0	0
14.19	17.029	0.632	1.30	0.6	26.945	3.711	0.0	0.0	0.0	0
14.20	17.029	0.622	1.31	0.6	27.378	3.653	0.0	0.0	0.0	0
14.21	17.437	0.612	1.31	0.6	28.492	3.51	0.0	0.0	0.0	0
14.22	17.743	0.612	1.32	0.6	28.992	3.449	0.0	0.0	0.0	0
14.23	18.457	0.591	1.32	0.6	31.23	3.202	0.0	0.0	0.0	0
14.24	19.068	0.571	1.32	0.6	33.394	2.995	0.0	0.0	0.0	0
14.25	19.272	0.571	1.32	0.6	33.751	2.963	0.0	0.0	0.0	0
14.26	18.966	0.561	1.32	0.6	33.807	2.958	0.0	0.0	0.0	0
14.27	18.762	0.551	1.31	0.6	34.051	2.937	0.0	0.0	0.0	0
14.28	18.559	0.551	1.31	0.6	33.682	2.969	0.0	0.0	0.0	0
14.29	18.355	0.551	1.31	0.6	33.312	3.002	0.0	0.0	0.0	0
14.30	18.151	0.561	1.31	0.6	32.355	3.091	0.0	0.0	0.0	0
14.31	17.641	0.571	1.30	0.6	30.895	3.237	0.0	0.0	0.0	0
14.32	17.131	0.612	1.30	0.6	27.992	3.572	0.0	0.0	0.0	0
14.33	17.029	0.622	1.29	0.6	27.378	3.653	0.0	0.0	0.0	0
14.34	16.723	0.642	1.29	0.6	26.048	3.839	0.0	0.0	0.0	0
14.35	16.417	0.673	1.29	0.6	24.394	4.099	0.0	0.0	0.0	0
14.36	16.315	0.683	1.29	0.6	23.887	4.186	0.0	0.0	0.0	0

Prova CPTU n. 1

14.37	16.621	0.704	1.29	0.6	23.609	4.236	0.0	0.0	0.0	0
14.38	16.621	0.704	1.29	0.6	23.609	4.236	0.0	0.0	0.0	0
14.39	16.417	0.704	1.28	0.6	23.32	4.288	0.0	0.0	0.0	0
14.40	16.213	0.704	1.28	0.6	23.03	4.342	0.0	0.0	0.0	0
14.41	15.805	0.704	1.28	0.6	22.45	4.454	0.0	0.0	0.0	0
14.42	15.499	0.714	1.28	0.6	21.707	4.607	0.0	0.0	0.0	0
14.43	14.786	0.704	1.28	0.6	21.003	4.761	0.0	0.0	0.0	0
14.44	14.582	0.693	1.26	0.6	21.042	4.752	0.0	0.0	0.0	0
14.45	14.378	0.673	1.26	0.6	21.364	4.681	0.0	0.0	0.0	0
14.46	14.072	0.653	1.26	0.6	21.55	4.64	0.0	0.0	0.0	0
14.47	13.868	0.632	1.26	0.6	21.943	4.557	0.0	0.0	0.0	0
14.48	13.664	0.622	1.26	0.5	21.968	4.552	0.0	0.0	0.0	0
14.49	13.46	0.581	1.25	0.5	23.167	4.316	0.0	0.0	0.0	0
14.50	13.358	0.571	1.25	0.5	23.394	4.275	0.0	0.0	0.0	0
14.51	13.358	0.561	1.25	0.5	23.811	4.2	0.0	0.0	0.0	0
14.52	13.256	0.551	1.25	0.5	24.058	4.157	0.0	0.0	0.0	0
14.53	12.95	0.53	1.25	0.5	24.434	4.093	0.0	0.0	0.0	0
14.54	12.644	0.51	1.24	0.5	24.792	4.034	0.0	0.0	0.0	0
14.55	12.236	0.469	1.24	0.5	26.09	3.833	0.0	0.0	0.0	0
14.56	12.134	0.449	1.24	0.5	27.024	3.7	0.0	0.0	0.0	0
14.57	12.134	0.418	1.24	0.5	29.029	3.445	0.0	0.0	0.0	0
14.58	12.134	0.408	1.24	0.5	29.74	3.362	0.0	0.0	0.0	0
14.59	12.134	0.387	1.24	0.5	31.354	3.189	0.0	0.0	0.0	0
14.60	12.134	0.377	1.24	0.4	32.186	3.107	0.0	0.0	0.0	0
14.61	12.134	0.367	1.24	0.4	33.063	3.025	0.0	0.0	0.0	0
14.62	12.134	0.337	1.24	0.4	36.006	2.777	0.0	0.0	0.0	0
14.63	12.134	0.326	1.24	0.4	37.221	2.687	0.0	0.0	0.0	0
14.64	12.338	0.316	1.24	0.4	39.044	2.561	0.0	0.0	0.0	0
14.65	12.338	0.306	1.24	0.4	40.32	2.48	0.0	0.0	0.0	0
14.66	12.032	0.296	1.24	0.4	40.649	2.46	0.0	0.0	0.0	0
14.67	12.032	0.286	1.24	0.4	42.07	2.377	0.0	0.0	0.0	0
14.68	12.134	0.265	1.24	0.4	45.789	2.184	0.0	0.0	0.0	0
14.69	12.338	0.255	1.24	0.4	48.384	2.067	0.0	0.0	0.0	0
14.70	12.644	0.235	1.25	0.4	53.804	1.859	0.0	0.0	0.0	0
14.71	12.95	0.235	1.25	0.4	55.106	1.815	0.0	0.0	0.0	0
14.72	13.46	0.214	1.26	0.4	62.897	1.59	0.0	0.0	0.0	0
14.73	13.766	0.194	1.25	0.4	70.959	1.409	0.0	0.0	0.0	0
14.74	13.664	0.184	1.25	0.4	74.261	1.347	0.0	0.0	0.0	0
14.75	13.562	0.173	1.24	0.4	78.393	1.276	0.0	0.0	0.0	0
14.76	13.052	0.173	1.24	0.4	75.445	1.325	0.0	0.0	0.0	0
14.77	12.542	0.173	1.24	0.4	72.497	1.379	0.0	0.0	0.0	0
14.78	12.44	0.153	1.24	0.4	81.307	1.23	0.0	0.0	0.0	0
14.79	12.542	0.143	1.24	0.5	87.706	1.14	0.0	0.0	0.0	0
14.80	12.44	0.143	1.24	0.5	86.993	1.15	0.0	0.0	0.0	0
14.81	12.236	0.143	1.23	0.5	85.566	1.169	0.0	0.0	0.0	0
14.82	12.032	0.133	1.23	0.5	90.466	1.105	0.0	0.0	0.0	0
14.83	11.829	0.133	1.23	0.5	88.94	1.124	0.0	0.0	0.0	0
14.84	11.013	0.122	1.23	0.5	90.27	1.108	0.0	0.0	0.0	0
14.85	11.013	0.112	1.23	0.5	98.33	1.017	0.0	0.0	0.0	0

Prova CPTU n. 1

STIMA PARAMETRI GEOTECNICI Nr.1

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	0.95	42.778	0.7	2.06	2.32	2.85	2.51	2.25	2.14
Strato 2	14.85	17.899	0.641	0.79	1.12	1.09	0.96	0.86	0.89

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	0.95	42.778	0.7	106.94	85.55	128.33	128.33
Strato 2	14.85	17.899	0.641	89.50	46.05	107.39	53.70

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	0.95	42.778	0.7	1600.61	64.20
Strato 2	14.85	17.899	0.641	614.57	26.70

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	0.95	42.778	0.7	Imai & Tomauchi	277.86
Strato 2	14.85	17.899	0.641	Imai & Tomauchi	163.17

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	0.95	42.778	0.7	>9
Strato 2	14.85	17.899	0.641	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	0.95	42.778	0.7	Meyerhof	2.10
Strato 2	14.85	17.899	0.641	Meyerhof	1.94

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	0.95	42.778	0.7	Meyerhof	2.18
Strato 2	14.85	17.899	0.641	Meyerhof	2.02

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	0.95	42.778	0.7	75.21	100	99.44	76.12	100
Strato 2	14.85	17.899	0.641	< 5	< 5	5	11.5	6.14

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	0.95	42.778	0.7	43.02	40.11	37.63	34.98	42	45	41.51	36.21
Strato 2	14.85	17.899	0.641	26.39	22.06	18.68	17.67	28.7	26.88	21.9	25.04

Prova CPTU n. 1

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	0.95	42.778	0.7	106.94	85.56	171.11
Strato 2	14.85	17.899	0.641	44.75	35.80	275.64

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	0.95	42.778	0.7	81.39	167.80	343.88	85.56	128.33
Strato 2	14.85	17.899	0.641	22.16	70.21	126.96	35.80	89.50

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	0.95	42.778	0.7	Imai & Tomauchi	277.86
Strato 2	14.85	17.899	0.641	Imai & Tomauchi	163.17

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	0.95	42.778	0.7	>9	>9	<0.5	>9
Strato 2	14.85	17.899	0.641	<0.5	3.58	<0.5	2.39

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	0.95	42.778	0.7	Kulhawy & Mayne (1990)	0.00
Strato 2	14.85	17.899	0.641	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	0.95	42.778	0.7	0.10985	0.01428
Strato 2	14.85	17.899	0.641	0.14131	0.01837

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	0.95	42.778	0.7	Meyerhof	1.90
Strato 2	14.85	17.899	0.641	Meyerhof	1.80

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	0.95	42.778	0.7	Meyerhof	2.20
Strato 2	14.85	17.899	0.641	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	0.95	42.778	0.7	Robertson & Wride 1997	0
Strato 2	14.85	17.899	0.641	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	0.95	42.778	0.7	Piacentini-Righi 1988	1.826633E-03
Strato 2	14.85	17.899	0.641	Piacentini-Righi 1988	6.951782E-07

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	0.95	42.778	0.7	Piacentini-Righi 1988	0
Strato 2	14.85	17.899	0.641	Piacentini-Righi 1988	3.732898E-02

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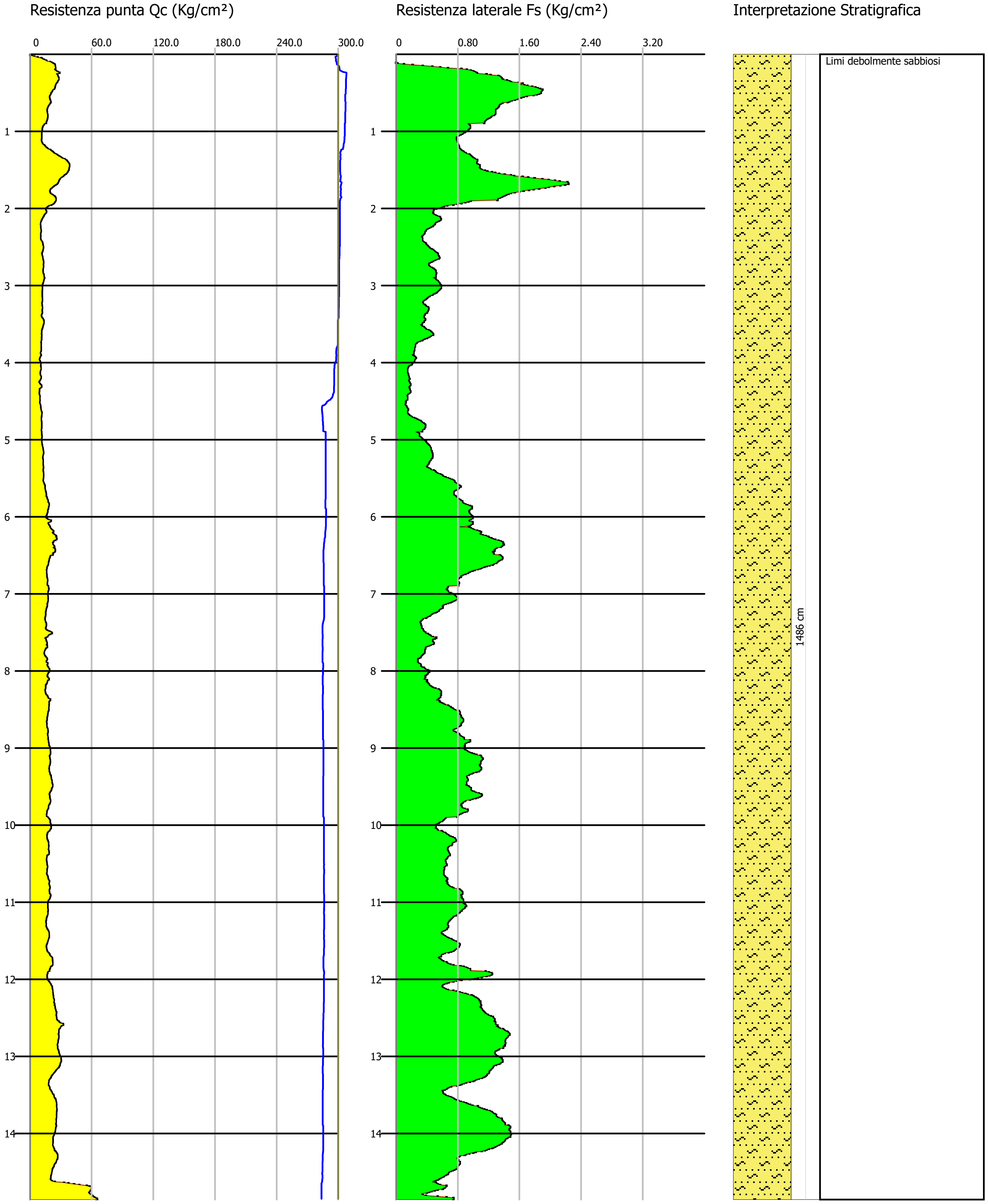
CPTU2_ms3

Probe CPTU - Piezocone Nr.2
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)
Data: 26/02/2021



Scala profondità 1:75 - Qc: 1 cm=56.29 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=5.629 Kg/cm²

Prova CPTU n. 2

PROVA CPTU Nr.2

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 26/02/2021
Profondità prova: 14.86 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	0.204	0.0	0.01	0.4	0.0	0.0	0.0	0.0	0.0	0
0.02	1.632	0.0	0.09	0.3	0.0	0.0	0.0	0.0	0.0	0
0.03	3.977	0.0	0.29	0.3	0.0	0.0	0.0	0.0	0.0	0
0.04	7.342	0.0	0.27	0.3	0.0	0.0	0.0	0.0	0.0	0
0.05	10.911	0.0	0.25	0.3	0.0	0.0	0.0	0.0	0.0	0
0.06	11.727	0.0	0.24	0.4	0.0	0.0	0.0	0.0	0.0	0
0.07	13.358	0.0	0.22	0.5	0.0	0.0	0.0	0.0	0.0	0
0.08	15.397	0.0	0.22	0.5	0.0	0.0	0.0	0.0	0.0	0
0.09	16.009	0.0	0.22	0.5	0.0	0.0	0.0	0.0	0.0	0
0.10	19.578	0.0	0.15	0.5	0.0	0.0	0.0	0.0	0.0	0
0.11	21.006	0.0	0.15	0.5	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 2

0.12	22.331	0.02	0.15	0.5	1116.55	0.09	0.0	0.0	0.0	0
0.13	23.453	0.102	0.13	0.5	229.931	0.435	0.0	0.0	0.0	0
0.14	24.167	0.214	0.02	0.5	112.93	0.886	0.0	0.0	0.0	0
0.15	24.065	0.347	-0.04	0.5	69.352	1.442	0.0	0.0	0.0	0
0.16	24.371	0.469	-0.08	0.5	51.964	1.924	0.0	0.0	0.0	0
0.17	24.371	0.571	-0.10	0.5	42.681	2.343	0.0	0.0	0.0	0
0.18	24.473	0.673	-0.11	0.4	36.364	2.75	0.0	0.0	0.0	0
0.19	23.657	0.846	-0.12	0.5	27.963	3.576	0.0	0.0	0.0	0
0.20	23.453	0.918	-0.13	0.5	25.548	3.914	0.0	0.0	0.0	0
0.21	24.677	0.969	-0.17	0.5	25.466	3.927	0.0	0.0	0.0	0
0.22	25.492	0.999	-0.32	0.4	25.518	3.919	0.0	0.0	0.0	0
0.23	26.92	1.02	-0.46	0.4	26.392	3.789	0.0	0.0	0.0	0
0.24	28.654	1.04	-0.82	0.4	27.552	3.63	0.0	0.0	0.0	0
0.25	25.492	1.05	-0.81	0.4	24.278	4.119	0.0	0.0	0.0	0
0.26	25.9	1.173	-0.80	0.5	22.08	4.529	0.0	0.0	0.0	0
0.27	26.41	1.224	-0.80	0.5	21.577	4.635	0.0	0.0	0.0	0
0.28	26.716	1.326	-0.79	0.4	20.148	4.963	0.0	0.0	0.0	0
0.29	26.92	1.346	-0.78	0.5	20.0	5.0	0.0	0.0	0.0	0
0.30	27.328	1.356	-0.78	0.5	20.153	4.962	0.0	0.0	0.0	0
0.31	27.736	1.366	-0.78	0.5	20.305	4.925	0.0	0.0	0.0	0
0.32	27.736	1.366	-0.77	0.5	20.305	4.925	0.0	0.0	0.0	0
0.33	27.43	1.387	-0.77	0.5	19.776	5.057	0.0	0.0	0.0	0
0.34	26.614	1.438	-0.77	0.5	18.508	5.403	0.0	0.0	0.0	0
0.35	26.512	1.468	-0.77	0.5	18.06	5.537	0.0	0.0	0.0	0
0.36	26.206	1.489	-0.77	0.5	17.6	5.682	0.0	0.0	0.0	0
0.37	25.391	1.591	-0.76	0.5	15.959	6.266	0.0	0.0	0.0	0
0.38	24.881	1.642	-0.76	0.5	15.153	6.599	0.0	0.0	0.0	0
0.39	24.575	1.611	-0.76	0.5	15.255	6.555	0.0	0.0	0.0	0
0.40	24.269	1.662	-0.74	0.5	14.602	6.848	0.0	0.0	0.0	0
0.41	24.065	1.703	-0.74	0.5	14.131	7.077	0.0	0.0	0.0	0
0.42	23.963	1.764	-0.74	0.5	13.584	7.361	0.0	0.0	0.0	0
0.43	23.759	1.805	-0.74	0.5	13.163	7.597	0.0	0.0	0.0	0
0.44	23.453	1.835	-0.74	0.5	12.781	7.824	0.0	0.0	0.0	0
0.45	22.943	1.866	-0.73	0.5	12.295	8.133	0.0	0.0	0.0	0
0.46	21.822	1.897	-0.73	0.5	11.503	8.693	0.0	0.0	0.0	0
0.47	21.414	1.886	-0.73	0.5	11.354	8.807	0.0	0.0	0.0	0
0.48	21.006	1.876	-0.73	0.5	11.197	8.931	0.0	0.0	0.0	0
0.49	20.496	1.876	-0.73	0.5	10.925	9.153	0.0	0.0	0.0	0
0.50	19.986	1.876	-0.72	0.5	10.654	9.387	0.0	0.0	0.0	0
0.51	19.68	1.856	-0.72	0.5	10.603	9.431	0.0	0.0	0.0	0
0.52	19.476	1.825	-0.67	0.5	10.672	9.371	0.0	0.0	0.0	0
0.53	18.864	1.784	-0.67	0.5	10.574	9.457	0.0	0.0	0.0	0
0.54	18.559	1.693	-0.67	0.5	10.962	9.122	0.0	0.0	0.0	0
0.55	18.559	1.652	-0.67	0.5	11.234	8.901	0.0	0.0	0.0	0
0.56	18.559	1.621	-0.67	0.5	11.449	8.734	0.0	0.0	0.0	0
0.57	18.661	1.591	-0.67	0.5	11.729	8.526	0.0	0.0	0.0	0
0.58	18.762	1.57	-0.67	0.5	11.95	8.368	0.0	0.0	0.0	0
0.59	18.966	1.54	-0.67	0.5	12.316	8.12	0.0	0.0	0.0	0
0.60	19.476	1.499	-0.67	0.5	12.993	7.697	0.0	0.0	0.0	0
0.61	19.578	1.468	-0.67	0.5	13.337	7.498	0.0	0.0	0.0	0
0.62	19.986	1.448	-0.71	0.5	13.802	7.245	0.0	0.0	0.0	0
0.63	19.17	1.377	-0.72	0.5	13.922	7.183	0.0	0.0	0.0	0
0.64	18.864	1.356	-0.71	0.5	13.912	7.188	0.0	0.0	0.0	0
0.65	18.355	1.336	-0.71	0.5	13.739	7.279	0.0	0.0	0.0	0
0.66	17.743	1.336	-0.71	0.5	13.281	7.53	0.0	0.0	0.0	0
0.67	17.335	1.326	-0.71	0.5	13.073	7.649	0.0	0.0	0.0	0
0.68	17.029	1.326	-0.71	0.5	12.842	7.787	0.0	0.0	0.0	0
0.69	16.723	1.315	-0.70	0.5	12.717	7.863	0.0	0.0	0.0	0
0.70	16.417	1.305	-0.70	0.5	12.58	7.949	0.0	0.0	0.0	0
0.71	16.213	1.285	-0.70	0.5	12.617	7.926	0.0	0.0	0.0	0
0.72	16.111	1.285	-0.70	0.5	12.538	7.976	0.0	0.0	0.0	0
0.73	16.213	1.285	-0.70	0.5	12.617	7.926	0.0	0.0	0.0	0
0.74	16.213	1.285	-0.70	0.6	12.617	7.926	0.0	0.0	0.0	0
0.75	16.315	1.285	-0.69	0.5	12.696	7.876	0.0	0.0	0.0	0
0.76	16.417	1.285	-0.69	0.5	12.776	7.827	0.0	0.0	0.0	0
0.77	16.519	1.285	-0.69	0.5	12.855	7.779	0.0	0.0	0.0	0
0.78	16.723	1.275	-0.69	0.5	13.116	7.624	0.0	0.0	0.0	0
0.79	16.825	1.264	-0.69	0.5	13.311	7.513	0.0	0.0	0.0	0
0.80	16.927	1.234	-0.69	0.6	13.717	7.29	0.0	0.0	0.0	0
0.81	16.825	1.224	-0.69	0.6	13.746	7.275	0.0	0.0	0.0	0
0.82	16.621	1.213	-0.69	0.6	13.702	7.298	0.0	0.0	0.0	0
0.83	16.621	1.193	-0.69	0.6	13.932	7.178	0.0	0.0	0.0	0
0.84	16.417	1.173	-0.68	0.6	13.996	7.145	0.0	0.0	0.0	0
0.85	16.213	1.162	-0.68	0.6	13.953	7.167	0.0	0.0	0.0	0
0.86	15.907	1.152	-0.68	0.6	13.808	7.242	0.0	0.0	0.0	0

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0.87	15.397	1.142	-0.68	0.6	13.482	7.417	0.0	0.0	0.0	0
0.88	15.397	1.142	-0.68	0.6	13.482	7.417	0.0	0.0	0.0	0
0.89	15.397	1.142	-0.68	0.6	13.482	7.417	0.0	0.0	0.0	0
0.90	13.664	0.928	-0.63	0.5	14.724	6.792	0.0	0.0	0.0	0
0.91	13.256	0.938	-0.63	0.5	14.132	7.076	0.0	0.0	0.0	0
0.92	12.44	0.948	-0.63	0.5	13.122	7.621	0.0	0.0	0.0	0
0.93	12.134	0.959	-0.63	0.5	12.653	7.903	0.0	0.0	0.0	0
0.94	11.829	0.959	-0.63	0.5	12.335	8.107	0.0	0.0	0.0	0
0.95	11.523	0.959	-0.63	0.5	12.016	8.322	0.0	0.0	0.0	0
0.96	11.319	0.948	-0.63	0.5	11.94	8.375	0.0	0.0	0.0	0
0.97	11.319	0.938	-0.62	0.5	12.067	8.287	0.0	0.0	0.0	0
0.98	11.319	0.928	-0.62	0.5	12.197	8.199	0.0	0.0	0.0	0
0.99	11.217	0.918	-0.62	0.5	12.219	8.184	0.0	0.0	0.0	0
1.00	11.013	0.897	-0.62	0.5	12.278	8.145	0.0	0.0	0.0	0
1.01	10.911	0.887	-0.62	0.5	12.301	8.129	0.0	0.0	0.0	0
1.02	10.911	0.867	-0.62	0.6	12.585	7.946	0.0	0.0	0.0	0
1.03	10.911	0.857	-0.62	0.6	12.732	7.854	0.0	0.0	0.0	0
1.04	10.911	0.836	-0.62	0.6	13.051	7.662	0.0	0.0	0.0	0
1.05	10.911	0.816	-0.62	0.6	13.371	7.479	0.0	0.0	0.0	0
1.06	10.911	0.795	-0.62	0.6	13.725	7.286	0.0	0.0	0.0	0
1.07	10.911	0.775	-0.61	0.6	14.079	7.103	0.0	0.0	0.0	0
1.08	10.809	0.775	-0.61	0.6	13.947	7.17	0.0	0.0	0.0	0
1.09	10.809	0.775	-0.61	0.6	13.947	7.17	0.0	0.0	0.0	0
1.10	10.707	0.775	-0.61	0.6	13.815	7.238	0.0	0.0	0.0	0
1.11	10.707	0.775	-0.60	0.6	13.815	7.238	0.0	0.0	0.0	0
1.12	10.707	0.785	-0.59	0.6	13.639	7.332	0.0	0.0	0.0	0
1.13	10.809	0.785	-0.59	0.6	13.769	7.262	0.0	0.0	0.0	0
1.14	11.013	0.785	-0.59	0.6	14.029	7.128	0.0	0.0	0.0	0
1.15	11.319	0.795	-0.56	0.6	14.238	7.024	0.0	0.0	0.0	0
1.16	11.829	0.795	-0.54	0.6	14.879	6.721	0.0	0.0	0.0	0
1.17	12.236	0.795	-0.52	0.6	15.391	6.497	0.0	0.0	0.0	0
1.18	13.562	0.806	-0.51	0.6	16.826	5.943	0.0	0.0	0.0	0
1.19	14.174	0.806	-0.50	0.6	17.586	5.686	0.0	0.0	0.0	0
1.20	14.786	0.816	-0.48	0.6	18.12	5.519	0.0	0.0	0.0	0
1.21	15.499	0.816	-0.48	0.5	18.994	5.265	0.0	0.0	0.0	0
1.22	16.315	0.816	-0.47	0.5	19.994	5.002	0.0	0.0	0.0	0
1.23	17.233	0.826	-0.47	0.5	20.863	4.793	0.0	0.0	0.0	0
1.24	19.272	0.836	-0.27	0.5	23.053	4.338	0.0	0.0	0.0	0
1.25	20.19	0.846	-0.27	0.6	23.865	4.19	0.0	0.0	0.0	0
1.26	21.21	0.867	-0.24	0.5	24.464	4.088	0.0	0.0	0.0	0
1.27	22.127	0.877	-0.19	0.5	25.23	3.963	0.0	0.0	0.0	0
1.28	22.841	0.897	-0.20	0.5	25.464	3.927	0.0	0.0	0.0	0
1.29	23.759	0.908	-0.20	0.5	26.166	3.822	0.0	0.0	0.0	0
1.30	25.492	0.948	-0.22	0.5	26.89	3.719	0.0	0.0	0.0	0
1.31	26.512	0.959	-0.22	0.5	27.645	3.617	0.0	0.0	0.0	0
1.32	27.634	0.969	-0.21	0.5	28.518	3.507	0.0	0.0	0.0	0
1.33	28.858	0.979	-0.21	0.5	29.477	3.392	0.0	0.0	0.0	0
1.34	30.081	0.989	-0.22	0.5	30.416	3.288	0.0	0.0	0.0	0
1.35	31.101	1.01	-0.20	0.5	30.793	3.247	0.0	0.0	0.0	0
1.36	33.446	1.02	-0.22	0.5	32.79	3.05	0.0	0.0	0.0	0
1.37	34.364	1.05	-0.20	0.5	32.728	3.056	0.0	0.0	0.0	0
1.38	35.384	1.05	-0.18	0.5	33.699	2.967	0.0	0.0	0.0	0
1.39	35.995	1.04	-0.18	0.5	34.611	2.889	0.0	0.0	0.0	0
1.40	36.505	1.04	-0.18	0.5	35.101	2.849	0.0	0.0	0.0	0
1.41	37.117	1.04	-0.18	0.5	35.689	2.802	0.0	0.0	0.0	0
1.42	37.525	1.04	-0.18	0.5	36.082	2.771	0.0	0.0	0.0	0
1.43	38.035	1.06	-0.18	0.5	35.882	2.787	0.0	0.0	0.0	0
1.44	38.137	1.081	-0.18	0.5	35.279	2.835	0.0	0.0	0.0	0
1.45	38.137	1.081	-0.18	0.5	35.279	2.835	0.0	0.0	0.0	0
1.46	37.729	1.081	-0.18	0.5	34.902	2.865	0.0	0.0	0.0	0
1.47	37.627	1.071	-0.17	0.5	35.133	2.846	0.0	0.0	0.0	0
1.48	37.627	1.081	-0.17	0.5	34.808	2.873	0.0	0.0	0.0	0
1.49	37.423	1.091	-0.17	0.5	34.302	2.915	0.0	0.0	0.0	0
1.50	37.321	1.111	-0.17	0.5	33.592	2.977	0.0	0.0	0.0	0
1.51	36.709	1.152	-0.18	0.5	31.865	3.138	0.0	0.0	0.0	0
1.52	36.403	1.183	-0.18	0.5	30.772	3.25	0.0	0.0	0.0	0
1.53	35.893	1.244	-0.19	0.5	28.853	3.466	0.0	0.0	0.0	0
1.54	35.282	1.285	-0.19	0.5	27.457	3.642	0.0	0.0	0.0	0
1.55	34.466	1.336	-0.19	0.5	25.798	3.876	0.0	0.0	0.0	0
1.56	33.344	1.407	-0.20	0.5	23.699	4.22	0.0	0.0	0.0	0
1.57	32.426	1.489	-0.24	0.5	21.777	4.592	0.0	0.0	0.0	0
1.58	31.815	1.53	-0.25	0.5	20.794	4.809	0.0	0.0	0.0	0
1.59	30.489	1.642	-0.26	0.5	18.568	5.386	0.0	0.0	0.0	0
1.60	29.673	1.713	-0.24	0.5	17.322	5.773	0.0	0.0	0.0	0
1.61	28.959	1.795	-0.24	0.5	16.133	6.198	0.0	0.0	0.0	0

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1.62	28.348	1.897	-0.22	0.5	14.944	6.692	0.0	0.0	0.0	0
1.63	27.94	1.978	-0.20	0.5	14.125	7.079	0.0	0.0	0.0	0
1.64	27.634	2.06	-0.20	0.5	13.415	7.455	0.0	0.0	0.0	0
1.65	27.43	2.121	-0.21	0.5	12.933	7.732	0.0	0.0	0.0	0
1.66	26.818	2.223	-0.33	0.5	12.064	8.289	0.0	0.0	0.0	0
1.67	26.614	2.223	-0.33	0.6	11.972	8.353	0.0	0.0	0.0	0
1.68	25.9	2.233	-0.31	0.5	11.599	8.622	0.0	0.0	0.0	0
1.69	24.677	2.192	-0.27	0.6	11.258	8.883	0.0	0.0	0.0	0
1.70	23.555	2.131	-0.26	0.6	11.053	9.047	0.0	0.0	0.0	0
1.71	22.535	2.05	-0.25	0.6	10.993	9.097	0.0	0.0	0.0	0
1.72	21.618	1.978	-0.22	0.6	10.929	9.15	0.0	0.0	0.0	0
1.73	20.904	1.937	-0.22	0.6	10.792	9.266	0.0	0.0	0.0	0
1.74	19.782	1.856	-0.26	0.6	10.658	9.382	0.0	0.0	0.0	0
1.75	19.374	1.784	-0.27	0.6	10.86	9.208	0.0	0.0	0.0	0
1.76	18.966	1.723	-0.26	0.6	11.008	9.085	0.0	0.0	0.0	0
1.77	18.762	1.652	-0.25	0.6	11.357	8.805	0.0	0.0	0.0	0
1.78	18.762	1.601	-0.24	0.6	11.719	8.533	0.0	0.0	0.0	0
1.79	18.966	1.54	-0.25	0.6	12.316	8.12	0.0	0.0	0.0	0
1.80	19.272	1.489	-0.25	0.6	12.943	7.726	0.0	0.0	0.0	0
1.81	19.782	1.458	-0.24	0.6	13.568	7.37	0.0	0.0	0.0	0
1.82	21.21	1.428	-0.25	0.6	14.853	6.733	0.0	0.0	0.0	0
1.83	22.127	1.407	-0.22	0.6	15.726	6.359	0.0	0.0	0.0	0
1.84	23.249	1.387	-0.26	0.6	16.762	5.966	0.0	0.0	0.0	0
1.85	23.963	1.366	-0.30	0.6	17.542	5.7	0.0	0.0	0.0	0
1.86	24.473	1.346	-0.31	0.6	18.182	5.5	0.0	0.0	0.0	0
1.87	24.881	1.315	-0.20	0.6	18.921	5.285	0.0	0.0	0.0	0
1.88	24.881	1.315	-0.20	0.6	18.921	5.285	0.0	0.0	0.0	0
1.89	24.881	1.315	-0.20	0.6	18.921	5.285	0.0	0.0	0.0	0
1.90	24.575	0.969	-0.16	0.6	25.361	3.943	0.0	0.0	0.0	0
1.91	23.963	0.938	-0.16	0.6	25.547	3.914	0.0	0.0	0.0	0
1.92	23.555	0.897	-0.16	0.6	26.26	3.808	0.0	0.0	0.0	0
1.93	22.943	0.846	-0.16	0.6	27.119	3.687	0.0	0.0	0.0	0
1.94	22.026	0.795	-0.16	0.6	27.706	3.609	0.0	0.0	0.0	0
1.95	20.7	0.744	-0.16	0.6	27.823	3.594	0.0	0.0	0.0	0
1.96	18.151	0.663	-0.16	0.6	27.377	3.653	0.0	0.0	0.0	0
1.97	17.029	0.622	-0.16	0.6	27.378	3.653	0.0	0.0	0.0	0
1.98	15.907	0.591	-0.16	0.6	26.915	3.715	0.0	0.0	0.0	0
1.99	15.092	0.561	-0.16	0.6	26.902	3.717	0.0	0.0	0.0	0
2.00	14.684	0.52	-0.16	0.6	28.238	3.541	0.0	0.0	0.0	0
2.01	14.684	0.489	-0.16	0.6	30.029	3.33	0.0	0.0	0.0	0
2.02	14.888	0.479	-0.16	0.6	31.081	3.217	0.0	0.0	0.0	0
2.03	15.092	0.479	-0.16	0.6	31.507	3.174	0.0	0.0	0.0	0
2.04	15.703	0.479	-0.16	0.6	32.783	3.05	0.0	0.0	0.0	0
2.05	15.397	0.469	-0.16	0.6	32.829	3.046	0.0	0.0	0.0	0
2.06	14.684	0.469	-0.16	0.6	31.309	3.194	0.0	0.0	0.0	0
2.07	13.97	0.479	-0.16	0.6	29.165	3.429	0.0	0.0	0.0	0
2.08	13.46	0.489	-0.16	0.6	27.526	3.633	0.0	0.0	0.0	0
2.09	13.052	0.51	-0.16	0.6	25.592	3.907	0.0	0.0	0.0	0
2.10	12.848	0.53	-0.16	0.6	24.242	4.125	0.0	0.0	0.0	0
2.11	12.236	0.561	-0.16	0.6	21.811	4.585	0.0	0.0	0.0	0
2.12	11.829	0.571	-0.16	0.6	20.716	4.827	0.0	0.0	0.0	0
2.13	11.421	0.571	-0.16	0.6	20.002	5.0	0.0	0.0	0.0	0
2.14	11.115	0.581	-0.16	0.6	19.131	5.227	0.0	0.0	0.0	0
2.15	10.707	0.571	-0.15	0.6	18.751	5.333	0.0	0.0	0.0	0
2.16	10.401	0.551	-0.15	0.6	18.877	5.298	0.0	0.0	0.0	0
2.17	10.095	0.53	-0.15	0.6	19.047	5.25	0.0	0.0	0.0	0
2.18	9.891	0.51	-0.15	0.6	19.394	5.156	0.0	0.0	0.0	0
2.19	9.789	0.5	-0.15	0.6	19.578	5.108	0.0	0.0	0.0	0
2.20	9.585	0.5	-0.16	0.6	19.17	5.216	0.0	0.0	0.0	0
2.21	9.687	0.489	-0.16	0.6	19.81	5.048	0.0	0.0	0.0	0
2.22	9.891	0.479	-0.16	0.6	20.649	4.843	0.0	0.0	0.0	0
2.23	9.993	0.469	-0.16	0.6	21.307	4.693	0.0	0.0	0.0	0
2.24	9.891	0.449	-0.16	0.6	22.029	4.539	0.0	0.0	0.0	0
2.25	9.993	0.428	-0.16	0.6	23.348	4.283	0.0	0.0	0.0	0
2.26	10.095	0.408	-0.16	0.6	24.743	4.042	0.0	0.0	0.0	0
2.27	10.095	0.387	-0.16	0.6	26.085	3.834	0.0	0.0	0.0	0
2.28	10.299	0.387	-0.15	0.6	26.612	3.758	0.0	0.0	0.0	0
2.29	10.401	0.377	-0.15	0.6	27.589	3.625	0.0	0.0	0.0	0
2.30	10.299	0.367	-0.15	0.6	28.063	3.563	0.0	0.0	0.0	0
2.31	10.095	0.367	-0.15	0.6	27.507	3.635	0.0	0.0	0.0	0
2.32	9.993	0.367	-0.15	0.6	27.229	3.673	0.0	0.0	0.0	0
2.33	9.891	0.357	-0.15	0.6	27.706	3.609	0.0	0.0	0.0	0
2.34	9.789	0.347	-0.15	0.6	28.21	3.545	0.0	0.0	0.0	0
2.35	9.993	0.337	-0.15	0.6	29.653	3.372	0.0	0.0	0.0	0
2.36	9.993	0.326	-0.15	0.6	30.653	3.262	0.0	0.0	0.0	0

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2.37	9.891	0.326	-0.15	0.6	30.34	3.296	0.0	0.0	0.0	0
2.38	9.789	0.337	-0.15	0.6	29.047	3.443	0.0	0.0	0.0	0
2.39	9.891	0.337	-0.15	0.6	29.35	3.407	0.0	0.0	0.0	0
2.40	9.993	0.337	-0.15	0.6	29.653	3.372	0.0	0.0	0.0	0
2.41	10.299	0.337	-0.15	0.6	30.561	3.272	0.0	0.0	0.0	0
2.42	10.605	0.337	-0.15	0.6	31.469	3.178	0.0	0.0	0.0	0
2.43	11.217	0.347	-0.14	0.6	32.326	3.094	0.0	0.0	0.0	0
2.44	11.523	0.357	-0.14	0.6	32.277	3.098	0.0	0.0	0.0	0
2.45	11.829	0.377	-0.14	0.6	31.377	3.187	0.0	0.0	0.0	0
2.46	11.93	0.387	-0.14	0.6	30.827	3.244	0.0	0.0	0.0	0
2.47	12.134	0.387	-0.14	0.6	31.354	3.189	0.0	0.0	0.0	0
2.48	12.338	0.398	-0.14	0.6	31.0	3.226	0.0	0.0	0.0	0
2.49	12.44	0.408	-0.14	0.6	30.49	3.28	0.0	0.0	0.0	0
2.50	12.644	0.418	-0.13	0.6	30.249	3.306	0.0	0.0	0.0	0
2.51	12.542	0.428	-0.12	0.6	29.304	3.413	0.0	0.0	0.0	0
2.52	12.44	0.438	-0.12	0.6	28.402	3.521	0.0	0.0	0.0	0
2.53	12.236	0.459	-0.12	0.6	26.658	3.751	0.0	0.0	0.0	0
2.54	12.032	0.479	-0.13	0.6	25.119	3.981	0.0	0.0	0.0	0
2.55	11.829	0.489	-0.13	0.7	24.19	4.134	0.0	0.0	0.0	0
2.56	11.625	0.5	-0.12	0.7	23.25	4.301	0.0	0.0	0.0	0
2.57	11.319	0.51	-0.12	0.7	22.194	4.506	0.0	0.0	0.0	0
2.58	10.911	0.53	-0.12	0.7	20.587	4.857	0.0	0.0	0.0	0
2.59	11.013	0.54	-0.12	0.7	20.394	4.903	0.0	0.0	0.0	0
2.60	11.217	0.54	-0.12	0.7	20.772	4.814	0.0	0.0	0.0	0
2.61	11.421	0.54	-0.12	0.7	21.15	4.728	0.0	0.0	0.0	0
2.62	11.625	0.551	-0.11	0.7	21.098	4.74	0.0	0.0	0.0	0
2.63	11.829	0.551	-0.11	0.7	21.468	4.658	0.0	0.0	0.0	0
2.64	11.93	0.561	-0.10	0.7	21.266	4.702	0.0	0.0	0.0	0
2.65	11.93	0.551	-0.10	0.7	21.652	4.619	0.0	0.0	0.0	0
2.66	12.236	0.52	-0.08	0.7	23.531	4.25	0.0	0.0	0.0	0
2.67	12.338	0.5	-0.08	0.7	24.676	4.053	0.0	0.0	0.0	0
2.68	12.542	0.479	-0.08	0.7	26.184	3.819	0.0	0.0	0.0	0
2.69	12.644	0.459	-0.08	0.7	27.547	3.63	0.0	0.0	0.0	0
2.70	12.746	0.438	-0.08	0.7	29.1	3.436	0.0	0.0	0.0	0
2.71	12.644	0.418	-0.08	0.7	30.249	3.306	0.0	0.0	0.0	0
2.72	12.542	0.418	-0.08	0.7	30.005	3.333	0.0	0.0	0.0	0
2.73	12.44	0.418	-0.08	0.7	29.761	3.36	0.0	0.0	0.0	0
2.74	12.542	0.418	-0.08	0.7	30.005	3.333	0.0	0.0	0.0	0
2.75	12.644	0.428	-0.08	0.7	29.542	3.385	0.0	0.0	0.0	0
2.76	12.644	0.438	-0.08	0.7	28.868	3.464	0.0	0.0	0.0	0
2.77	12.44	0.459	-0.08	0.7	27.102	3.69	0.0	0.0	0.0	0
2.78	12.338	0.479	-0.08	0.7	25.758	3.882	0.0	0.0	0.0	0
2.79	12.236	0.489	-0.08	0.7	25.022	3.996	0.0	0.0	0.0	0
2.80	12.134	0.5	-0.08	0.7	24.268	4.121	0.0	0.0	0.0	0
2.81	12.134	0.51	-0.08	0.7	23.792	4.203	0.0	0.0	0.0	0
2.82	12.236	0.51	-0.08	0.7	23.992	4.168	0.0	0.0	0.0	0
2.83	12.338	0.51	-0.08	0.7	24.192	4.134	0.0	0.0	0.0	0
2.84	12.338	0.52	-0.08	0.7	23.727	4.215	0.0	0.0	0.0	0
2.85	12.644	0.51	-0.08	0.7	24.792	4.034	0.0	0.0	0.0	0
2.86	13.052	0.51	-0.08	0.7	25.592	3.907	0.0	0.0	0.0	0
2.87	13.154	0.51	-0.08	0.7	25.792	3.877	0.0	0.0	0.0	0
2.88	13.154	0.51	-0.08	0.7	25.792	3.877	0.0	0.0	0.0	0
2.89	13.154	0.51	-0.08	0.7	25.792	3.877	0.0	0.0	0.0	0
2.90	13.766	0.479	-0.09	0.7	28.739	3.48	0.0	0.0	0.0	0
2.91	13.256	0.5	-0.09	0.7	26.512	3.772	0.0	0.0	0.0	0
2.92	13.154	0.51	-0.09	0.7	25.792	3.877	0.0	0.0	0.0	0
2.93	12.95	0.52	-0.09	0.7	24.904	4.015	0.0	0.0	0.0	0
2.94	12.746	0.54	-0.09	0.7	23.604	4.237	0.0	0.0	0.0	0
2.95	12.644	0.54	-0.09	0.7	23.415	4.271	0.0	0.0	0.0	0
2.96	12.338	0.551	-0.09	0.7	22.392	4.466	0.0	0.0	0.0	0
2.97	12.134	0.561	-0.09	0.7	21.629	4.623	0.0	0.0	0.0	0
2.98	11.829	0.561	-0.09	0.7	21.086	4.743	0.0	0.0	0.0	0
2.99	11.625	0.571	-0.09	0.7	20.359	4.912	0.0	0.0	0.0	0
3.00	11.421	0.581	-0.08	0.7	19.657	5.087	0.0	0.0	0.0	0
3.01	11.421	0.581	-0.08	0.7	19.657	5.087	0.0	0.0	0.0	0
3.02	11.523	0.581	-0.08	0.7	19.833	5.042	0.0	0.0	0.0	0
3.03	11.625	0.581	-0.08	0.7	20.009	4.998	0.0	0.0	0.0	0
3.04	11.625	0.571	-0.08	0.7	20.359	4.912	0.0	0.0	0.0	0
3.05	11.523	0.561	-0.08	0.7	20.54	4.869	0.0	0.0	0.0	0
3.06	11.421	0.551	-0.08	0.7	20.728	4.824	0.0	0.0	0.0	0
3.07	11.421	0.54	-0.08	0.7	21.15	4.728	0.0	0.0	0.0	0
3.08	11.319	0.53	-0.08	0.7	21.357	4.682	0.0	0.0	0.0	0
3.09	11.319	0.52	-0.08	0.7	21.767	4.594	0.0	0.0	0.0	0
3.10	11.319	0.5	-0.08	0.7	22.638	4.417	0.0	0.0	0.0	0
3.11	11.319	0.479	-0.08	0.7	23.63	4.232	0.0	0.0	0.0	0

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3.12	11.319	0.469	-0.08	0.7	24.134	4.143	0.0	0.0	0.0	0
3.13	11.319	0.438	-0.08	0.7	25.842	3.87	0.0	0.0	0.0	0
3.14	11.319	0.428	-0.08	0.7	26.446	3.781	0.0	0.0	0.0	0
3.15	11.421	0.408	-0.07	0.7	27.993	3.572	0.0	0.0	0.0	0
3.16	11.625	0.398	-0.07	0.7	29.209	3.424	0.0	0.0	0.0	0
3.17	11.625	0.387	-0.07	0.7	30.039	3.329	0.0	0.0	0.0	0
3.18	11.625	0.377	-0.07	0.7	30.836	3.243	0.0	0.0	0.0	0
3.19	11.625	0.357	-0.07	0.7	32.563	3.071	0.0	0.0	0.0	0
3.20	11.523	0.347	-0.07	0.7	33.207	3.011	0.0	0.0	0.0	0
3.21	11.217	0.337	-0.07	0.7	33.285	3.004	0.0	0.0	0.0	0
3.22	11.013	0.337	-0.07	0.7	32.68	3.06	0.0	0.0	0.0	0
3.23	11.013	0.347	-0.07	0.7	31.738	3.151	0.0	0.0	0.0	0
3.24	11.115	0.347	-0.07	0.7	32.032	3.122	0.0	0.0	0.0	0
3.25	11.217	0.367	-0.07	0.7	30.564	3.272	0.0	0.0	0.0	0
3.26	11.319	0.377	-0.07	0.7	30.024	3.331	0.0	0.0	0.0	0
3.27	11.421	0.387	-0.07	0.7	29.512	3.388	0.0	0.0	0.0	0
3.28	11.727	0.408	-0.06	0.7	28.743	3.479	0.0	0.0	0.0	0
3.29	11.727	0.418	-0.06	0.7	28.055	3.564	0.0	0.0	0.0	0
3.30	11.625	0.418	-0.05	0.7	27.811	3.596	0.0	0.0	0.0	0
3.31	11.421	0.418	-0.05	0.7	27.323	3.66	0.0	0.0	0.0	0
3.32	11.319	0.408	-0.05	0.7	27.743	3.605	0.0	0.0	0.0	0
3.33	11.217	0.408	-0.04	0.7	27.493	3.637	0.0	0.0	0.0	0
3.34	11.421	0.398	-0.04	0.7	28.696	3.485	0.0	0.0	0.0	0
3.35	11.523	0.398	-0.04	0.7	28.952	3.454	0.0	0.0	0.0	0
3.36	11.217	0.377	-0.04	0.7	29.753	3.361	0.0	0.0	0.0	0
3.37	10.911	0.367	-0.04	0.7	29.73	3.364	0.0	0.0	0.0	0
3.38	10.605	0.367	-0.04	0.7	28.896	3.461	0.0	0.0	0.0	0
3.39	10.503	0.357	-0.04	0.7	29.42	3.399	0.0	0.0	0.0	0
3.40	10.707	0.357	-0.04	0.7	29.992	3.334	0.0	0.0	0.0	0
3.41	10.911	0.357	-0.04	0.7	30.563	3.272	0.0	0.0	0.0	0
3.42	11.217	0.357	-0.04	0.7	31.42	3.183	0.0	0.0	0.0	0
3.43	12.032	0.367	0.00	0.7	32.785	3.05	0.0	0.0	0.0	0
3.44	12.44	0.377	0.01	0.7	32.997	3.031	0.0	0.0	0.0	0
3.45	12.848	0.367	0.03	0.7	35.008	2.856	0.0	0.0	0.0	0
3.46	13.052	0.357	0.04	0.7	36.56	2.735	0.0	0.0	0.0	0
3.47	13.154	0.357	0.04	0.7	36.846	2.714	0.0	0.0	0.0	0
3.48	13.154	0.337	0.04	0.7	39.033	2.562	0.0	0.0	0.0	0
3.49	12.95	0.337	0.04	0.7	38.427	2.602	0.0	0.0	0.0	0
3.50	12.848	0.326	0.04	0.7	39.411	2.537	0.0	0.0	0.0	0
3.51	12.44	0.316	0.04	0.7	39.367	2.54	0.0	0.0	0.0	0
3.52	12.236	0.326	0.03	0.7	37.534	2.664	0.0	0.0	0.0	0
3.53	12.134	0.337	0.03	0.7	36.006	2.777	0.0	0.0	0.0	0
3.54	11.93	0.357	0.03	0.7	33.417	2.992	0.0	0.0	0.0	0
3.55	11.625	0.367	0.03	0.7	31.676	3.157	0.0	0.0	0.0	0
3.56	11.319	0.377	0.03	0.7	30.024	3.331	0.0	0.0	0.0	0
3.57	11.013	0.387	0.03	0.7	28.457	3.514	0.0	0.0	0.0	0
3.58	10.809	0.418	0.04	0.7	25.859	3.867	0.0	0.0	0.0	0
3.59	10.911	0.438	0.04	0.7	24.911	4.014	0.0	0.0	0.0	0
3.60	10.911	0.449	0.04	0.7	24.301	4.115	0.0	0.0	0.0	0
3.61	10.809	0.459	0.04	0.7	23.549	4.246	0.0	0.0	0.0	0
3.62	10.707	0.469	0.04	0.7	22.829	4.38	0.0	0.0	0.0	0
3.63	10.707	0.479	0.04	0.7	22.353	4.474	0.0	0.0	0.0	0
3.64	10.809	0.479	0.04	0.7	22.566	4.431	0.0	0.0	0.0	0
3.65	10.911	0.449	0.04	0.7	24.301	4.115	0.0	0.0	0.0	0
3.66	10.809	0.438	0.04	0.7	24.678	4.052	0.0	0.0	0.0	0
3.67	10.605	0.418	0.04	0.7	25.371	3.942	0.0	0.0	0.0	0
3.68	10.605	0.398	0.04	0.7	26.646	3.753	0.0	0.0	0.0	0
3.69	10.809	0.367	0.04	0.7	29.452	3.395	0.0	0.0	0.0	0
3.70	10.707	0.347	0.04	0.7	30.856	3.241	0.0	0.0	0.0	0
3.71	10.605	0.337	0.04	0.7	31.469	3.178	0.0	0.0	0.0	0
3.72	10.605	0.306	0.04	0.7	34.657	2.885	0.0	0.0	0.0	0
3.73	10.095	0.275	0.04	0.7	36.709	2.724	0.0	0.0	0.0	0
3.74	10.095	0.265	0.04	0.7	38.094	2.625	0.0	0.0	0.0	0
3.75	10.401	0.255	0.04	0.7	40.788	2.452	0.0	0.0	0.0	0
3.76	10.401	0.245	0.04	0.7	42.453	2.356	0.0	0.0	0.0	0
3.77	10.299	0.245	0.04	0.7	42.037	2.379	0.0	0.0	0.0	0
3.78	10.299	0.245	0.05	0.7	42.037	2.379	0.0	0.0	0.0	0
3.79	10.299	0.245	0.06	0.7	42.037	2.379	0.0	0.0	0.0	0
3.80	10.401	0.235	0.13	0.7	44.26	2.259	0.0	0.0	0.0	0
3.81	10.401	0.235	0.15	0.7	44.26	2.259	0.0	0.0	0.0	0
3.82	10.299	0.235	0.17	0.7	43.826	2.282	0.0	0.0	0.0	0
3.83	10.401	0.235	0.17	0.7	44.26	2.259	0.0	0.0	0.0	0
3.84	10.401	0.235	0.18	0.7	44.26	2.259	0.0	0.0	0.0	0
3.85	10.197	0.224	0.19	0.7	45.522	2.197	0.0	0.0	0.0	0
3.86	9.891	0.224	0.19	0.7	44.156	2.265	0.0	0.0	0.0	0

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3.87	9.687	0.224	0.19	0.7	43.246	2.312	0.0	0.0	0.0	0
3.88	9.687	0.224	0.19	0.7	43.246	2.312	0.0	0.0	0.0	0
3.89	9.687	0.224	0.19	0.7	43.246	2.312	0.0	0.0	0.0	0
3.90	10.605	0.204	0.18	0.8	51.985	1.924	0.0	0.0	0.0	0
3.91	9.993	0.214	0.18	0.8	46.696	2.141	0.0	0.0	0.0	0
3.92	9.585	0.235	0.19	0.8	40.787	2.452	0.0	0.0	0.0	0
3.93	9.177	0.245	0.19	0.8	37.457	2.67	0.0	0.0	0.0	0
3.94	8.973	0.255	0.19	0.8	35.188	2.842	0.0	0.0	0.0	0
3.95	8.667	0.245	0.19	0.8	35.376	2.827	0.0	0.0	0.0	0
3.96	8.667	0.235	0.20	0.8	36.881	2.711	0.0	0.0	0.0	0
3.97	8.769	0.235	0.21	0.8	37.315	2.68	0.0	0.0	0.0	0
3.98	9.177	0.235	0.22	0.8	39.051	2.561	0.0	0.0	0.0	0
3.99	9.585	0.224	0.26	0.8	42.79	2.337	0.0	0.0	0.0	0
4.00	9.891	0.214	0.30	0.8	46.22	2.164	0.0	0.0	0.0	0
4.01	10.095	0.204	0.32	0.8	49.485	2.021	0.0	0.0	0.0	0
4.02	10.095	0.204	0.34	0.8	49.485	2.021	0.0	0.0	0.0	0
4.03	9.891	0.184	0.35	0.8	53.755	1.86	0.0	0.0	0.0	0
4.04	9.993	0.163	0.36	0.8	61.307	1.631	0.0	0.0	0.0	0
4.05	9.993	0.153	0.37	0.8	65.314	1.531	0.0	0.0	0.0	0
4.06	10.095	0.153	0.37	0.8	65.98	1.516	0.0	0.0	0.0	0
4.07	10.299	0.143	0.37	0.8	72.021	1.388	0.0	0.0	0.0	0
4.08	10.299	0.143	0.38	0.8	72.021	1.388	0.0	0.0	0.0	0
4.09	10.095	0.143	0.39	0.8	70.594	1.417	0.0	0.0	0.0	0
4.10	9.789	0.143	0.39	0.8	68.455	1.461	0.0	0.0	0.0	0
4.11	9.585	0.143	0.39	0.8	67.028	1.492	0.0	0.0	0.0	0
4.12	9.483	0.143	0.39	0.8	66.315	1.508	0.0	0.0	0.0	0
4.13	9.483	0.143	0.38	0.8	66.315	1.508	0.0	0.0	0.0	0
4.14	9.381	0.143	0.38	0.8	65.601	1.524	0.0	0.0	0.0	0
4.15	9.483	0.153	0.38	0.8	61.98	1.613	0.0	0.0	0.0	0
4.16	9.585	0.153	0.38	0.8	62.647	1.596	0.0	0.0	0.0	0
4.17	9.687	0.153	0.38	0.8	63.314	1.579	0.0	0.0	0.0	0
4.18	10.299	0.163	0.38	0.8	63.184	1.583	0.0	0.0	0.0	0
4.19	10.401	0.163	0.38	0.8	63.81	1.567	0.0	0.0	0.0	0
4.20	10.299	0.163	0.38	0.8	63.184	1.583	0.0	0.0	0.0	0
4.21	9.993	0.173	0.38	0.8	57.763	1.731	0.0	0.0	0.0	0
4.22	9.585	0.163	0.38	0.8	58.804	1.701	0.0	0.0	0.0	0
4.23	9.075	0.153	0.38	0.8	59.314	1.686	0.0	0.0	0.0	0
4.24	8.464	0.163	0.38	0.8	51.926	1.926	0.0	0.0	0.0	0
4.25	8.26	0.163	0.38	0.8	50.675	1.973	0.0	0.0	0.0	0
4.26	8.464	0.173	0.38	0.8	48.925	2.044	0.0	0.0	0.0	0
4.27	8.871	0.173	0.38	0.8	51.277	1.95	0.0	0.0	0.0	0
4.28	9.483	0.184	0.38	0.8	51.538	1.94	0.0	0.0	0.0	0
4.29	10.197	0.184	0.39	0.8	55.418	1.804	0.0	0.0	0.0	0
4.30	10.809	0.173	0.40	0.8	62.48	1.601	0.0	0.0	0.0	0
4.31	10.809	0.163	0.41	0.8	66.313	1.508	0.0	0.0	0.0	0
4.32	10.299	0.163	0.41	0.8	63.184	1.583	0.0	0.0	0.0	0
4.33	9.177	0.163	0.41	0.8	56.301	1.776	0.0	0.0	0.0	0
4.34	8.769	0.173	0.41	0.8	50.688	1.973	0.0	0.0	0.0	0
4.35	8.667	0.173	0.41	0.8	50.098	1.996	0.0	0.0	0.0	0
4.36	8.769	0.173	0.41	0.8	50.688	1.973	0.0	0.0	0.0	0
4.37	8.769	0.184	0.42	0.9	47.658	2.098	0.0	0.0	0.0	0
4.38	8.565	0.184	0.42	0.9	46.549	2.148	0.0	0.0	0.0	0
4.39	8.565	0.173	0.44	0.9	49.509	2.02	0.0	0.0	0.0	0
4.40	8.464	0.163	0.47	0.9	51.926	1.926	0.0	0.0	0.0	0
4.41	8.565	0.143	0.50	0.9	59.895	1.67	0.0	0.0	0.0	0
4.42	8.769	0.143	0.52	0.9	61.322	1.631	0.0	0.0	0.0	0
4.43	9.075	0.133	0.54	0.9	68.233	1.466	0.0	0.0	0.0	0
4.44	9.177	0.143	0.55	0.9	64.175	1.558	0.0	0.0	0.0	0
4.45	9.075	0.143	0.58	0.9	63.462	1.576	0.0	0.0	0.0	0
4.46	9.075	0.143	0.65	0.9	63.462	1.576	0.0	0.0	0.0	0
4.47	9.075	0.143	0.71	0.9	63.462	1.576	0.0	0.0	0.0	0
4.48	9.075	0.143	0.76	0.9	63.462	1.576	0.0	0.0	0.0	0
4.49	9.177	0.122	0.93	0.9	75.221	1.329	0.0	0.0	0.0	0
4.50	9.075	0.122	0.99	0.9	74.385	1.344	0.0	0.0	0.0	0
4.51	8.973	0.112	1.09	0.9	80.116	1.248	0.0	0.0	0.0	0
4.52	8.973	0.122	1.13	0.9	73.549	1.36	0.0	0.0	0.0	0
4.53	9.075	0.112	1.19	0.9	81.027	1.234	0.0	0.0	0.0	0
4.54	9.381	0.112	1.24	0.9	83.759	1.194	0.0	0.0	0.0	0
4.55	9.687	0.112	1.36	0.9	86.491	1.156	0.0	0.0	0.0	0
4.56	9.891	0.122	1.53	0.9	81.074	1.233	0.0	0.0	0.0	0
4.57	9.993	0.133	1.55	0.8	75.135	1.331	0.0	0.0	0.0	0
4.58	9.993	0.133	1.57	0.9	75.135	1.331	0.0	0.0	0.0	0
4.59	9.993	0.143	1.57	0.9	69.881	1.431	0.0	0.0	0.0	0
4.60	10.095	0.143	1.57	0.9	70.594	1.417	0.0	0.0	0.0	0
4.61	10.299	0.153	1.57	0.8	67.314	1.486	0.0	0.0	0.0	0

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4.62	10.401	0.143	1.57	0.9	72.734	1.375	0.0	0.0	0.0	0
4.63	10.503	0.143	1.57	0.9	73.448	1.362	0.0	0.0	0.0	0
4.64	10.911	0.143	1.56	0.9	76.301	1.311	0.0	0.0	0.0	0
4.65	11.115	0.143	1.55	0.9	77.727	1.287	0.0	0.0	0.0	0
4.66	11.013	0.143	1.55	0.9	77.014	1.298	0.0	0.0	0.0	0
4.67	11.013	0.153	1.54	0.9	71.98	1.389	0.0	0.0	0.0	0
4.68	10.911	0.163	1.53	0.9	66.939	1.494	0.0	0.0	0.0	0
4.69	10.809	0.173	1.53	0.9	62.48	1.601	0.0	0.0	0.0	0
4.70	10.707	0.194	1.53	0.9	55.191	1.812	0.0	0.0	0.0	0
4.71	10.707	0.204	1.52	0.9	52.485	1.905	0.0	0.0	0.0	0
4.72	10.605	0.235	1.51	0.9	45.128	2.216	0.0	0.0	0.0	0
4.73	10.503	0.255	1.51	0.9	41.188	2.428	0.0	0.0	0.0	0
4.74	10.503	0.275	1.50	0.9	38.193	2.618	0.0	0.0	0.0	0
4.75	10.605	0.296	1.50	0.9	35.828	2.791	0.0	0.0	0.0	0
4.76	10.707	0.316	1.50	0.9	33.883	2.951	0.0	0.0	0.0	0
4.77	10.809	0.326	1.49	0.9	33.156	3.016	0.0	0.0	0.0	0
4.78	10.809	0.337	1.49	0.9	32.074	3.118	0.0	0.0	0.0	0
4.79	10.809	0.357	1.48	0.9	30.277	3.303	0.0	0.0	0.0	0
4.80	10.809	0.367	1.48	0.9	29.452	3.395	0.0	0.0	0.0	0
4.81	10.809	0.377	1.48	0.9	28.671	3.488	0.0	0.0	0.0	0
4.82	10.809	0.377	1.47	0.9	28.671	3.488	0.0	0.0	0.0	0
4.83	10.911	0.377	1.47	0.9	28.942	3.455	0.0	0.0	0.0	0
4.84	10.911	0.367	1.47	0.9	29.73	3.364	0.0	0.0	0.0	0
4.85	10.911	0.367	1.46	0.9	29.73	3.364	0.0	0.0	0.0	0
4.86	10.707	0.357	1.46	0.9	29.992	3.334	0.0	0.0	0.0	0
4.87	10.503	0.337	1.45	0.9	31.166	3.209	0.0	0.0	0.0	0
4.88	10.503	0.337	1.45	0.9	31.166	3.209	0.0	0.0	0.0	0
4.89	10.503	0.337	1.45	0.9	31.166	3.209	0.0	0.0	0.0	0
4.90	10.911	0.255	1.23	1.0	42.788	2.337	0.0	0.0	0.0	0
4.91	10.911	0.275	1.23	0.9	39.676	2.52	0.0	0.0	0.0	0
4.92	10.809	0.296	1.23	0.9	36.517	2.738	0.0	0.0	0.0	0
4.93	10.809	0.296	1.23	0.9	36.517	2.738	0.0	0.0	0.0	0
4.94	10.911	0.296	1.23	0.9	36.861	2.713	0.0	0.0	0.0	0
4.95	11.115	0.296	1.23	1.0	37.551	2.663	0.0	0.0	0.0	0
4.96	11.115	0.296	1.23	0.9	37.551	2.663	0.0	0.0	0.0	0
4.97	11.013	0.316	1.23	0.9	34.851	2.869	0.0	0.0	0.0	0
4.98	10.911	0.326	1.23	0.9	33.469	2.988	0.0	0.0	0.0	0
4.99	10.911	0.337	1.23	1.0	32.377	3.089	0.0	0.0	0.0	0
5.00	10.911	0.347	1.22	0.9	31.444	3.18	0.0	0.0	0.0	0
5.01	10.911	0.357	1.22	1.0	30.563	3.272	0.0	0.0	0.0	0
5.02	10.911	0.377	1.22	0.9	28.942	3.455	0.0	0.0	0.0	0
5.03	11.013	0.387	1.22	1.0	28.457	3.514	0.0	0.0	0.0	0
5.04	11.013	0.387	1.22	1.0	28.457	3.514	0.0	0.0	0.0	0
5.05	11.115	0.398	1.22	1.0	27.927	3.581	0.0	0.0	0.0	0
5.06	11.217	0.408	1.22	1.0	27.493	3.637	0.0	0.0	0.0	0
5.07	11.319	0.418	1.22	1.0	27.079	3.693	0.0	0.0	0.0	0
5.08	11.523	0.428	1.22	1.0	26.923	3.714	0.0	0.0	0.0	0
5.09	11.727	0.438	1.22	1.0	26.774	3.735	0.0	0.0	0.0	0
5.10	11.93	0.438	1.22	1.0	27.237	3.671	0.0	0.0	0.0	0
5.11	12.134	0.449	1.22	1.0	27.024	3.7	0.0	0.0	0.0	0
5.12	12.236	0.449	1.22	1.0	27.252	3.669	0.0	0.0	0.0	0
5.13	12.338	0.449	1.22	1.0	27.479	3.639	0.0	0.0	0.0	0
5.14	12.44	0.449	1.22	1.0	27.706	3.609	0.0	0.0	0.0	0
5.15	12.542	0.459	1.22	1.0	27.325	3.66	0.0	0.0	0.0	0
5.16	12.644	0.459	1.22	1.0	27.547	3.63	0.0	0.0	0.0	0
5.17	12.746	0.459	1.22	1.0	27.769	3.601	0.0	0.0	0.0	0
5.18	12.542	0.469	1.23	1.0	26.742	3.739	0.0	0.0	0.0	0
5.19	12.44	0.469	1.23	1.0	26.525	3.77	0.0	0.0	0.0	0
5.20	12.236	0.469	1.23	1.0	26.09	3.833	0.0	0.0	0.0	0
5.21	12.134	0.469	1.23	1.0	25.872	3.865	0.0	0.0	0.0	0
5.22	11.93	0.469	1.23	1.0	25.437	3.931	0.0	0.0	0.0	0
5.23	11.829	0.469	1.23	1.0	25.222	3.965	0.0	0.0	0.0	0
5.24	11.829	0.459	1.23	1.0	25.771	3.88	0.0	0.0	0.0	0
5.25	12.032	0.449	1.23	1.0	26.797	3.732	0.0	0.0	0.0	0
5.26	12.236	0.449	1.23	1.0	27.252	3.669	0.0	0.0	0.0	0
5.27	12.338	0.438	1.22	1.0	28.169	3.55	0.0	0.0	0.0	0
5.28	12.44	0.428	1.22	1.0	29.065	3.441	0.0	0.0	0.0	0
5.29	12.338	0.428	1.22	1.0	28.827	3.469	0.0	0.0	0.0	0
5.30	12.236	0.418	1.22	1.0	29.273	3.416	0.0	0.0	0.0	0
5.31	12.236	0.418	1.22	1.0	29.273	3.416	0.0	0.0	0.0	0
5.32	12.236	0.408	1.22	1.0	29.99	3.334	0.0	0.0	0.0	0
5.33	12.338	0.398	1.22	1.0	31.0	3.226	0.0	0.0	0.0	0
5.34	12.44	0.398	1.22	1.0	31.256	3.199	0.0	0.0	0.0	0
5.35	12.542	0.387	1.22	1.0	32.408	3.086	0.0	0.0	0.0	0
5.36	12.542	0.398	1.22	1.0	31.513	3.173	0.0	0.0	0.0	0

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5.37	12.542	0.418	1.22	1.0	30.005	3.333	0.0	0.0	0.0	0
5.38	12.338	0.438	1.22	1.0	28.169	3.55	0.0	0.0	0.0	0
5.39	12.236	0.449	1.22	1.0	27.252	3.669	0.0	0.0	0.0	0
5.40	12.236	0.489	1.22	1.0	25.022	3.996	0.0	0.0	0.0	0
5.41	12.338	0.5	1.22	1.0	24.676	4.053	0.0	0.0	0.0	0
5.42	12.542	0.51	1.22	1.0	24.592	4.066	0.0	0.0	0.0	0
5.43	12.644	0.52	1.23	1.0	24.315	4.113	0.0	0.0	0.0	0
5.44	12.644	0.54	1.23	1.0	23.415	4.271	0.0	0.0	0.0	0
5.45	12.644	0.571	1.23	1.0	22.144	4.516	0.0	0.0	0.0	0
5.46	12.746	0.591	1.23	1.0	21.567	4.637	0.0	0.0	0.0	0
5.47	12.644	0.602	1.22	1.1	21.003	4.761	0.0	0.0	0.0	0
5.48	12.644	0.612	1.22	1.1	20.66	4.84	0.0	0.0	0.0	0
5.49	12.644	0.642	1.22	1.1	19.695	5.078	0.0	0.0	0.0	0
5.50	12.542	0.673	1.22	1.1	18.636	5.366	0.0	0.0	0.0	0
5.51	12.44	0.693	1.22	1.1	17.951	5.571	0.0	0.0	0.0	0
5.52	12.338	0.724	1.22	1.1	17.041	5.868	0.0	0.0	0.0	0
5.53	12.236	0.744	1.22	1.1	16.446	6.08	0.0	0.0	0.0	0
5.54	12.338	0.755	1.22	1.1	16.342	6.119	0.0	0.0	0.0	0
5.55	12.644	0.755	1.22	1.1	16.747	5.971	0.0	0.0	0.0	0
5.56	12.95	0.765	1.22	1.1	16.928	5.907	0.0	0.0	0.0	0
5.57	13.256	0.785	1.22	1.1	16.887	5.922	0.0	0.0	0.0	0
5.58	13.562	0.795	1.22	1.1	17.059	5.862	0.0	0.0	0.0	0
5.59	13.766	0.806	1.22	1.1	17.079	5.855	0.0	0.0	0.0	0
5.60	14.276	0.826	1.22	1.1	17.283	5.786	0.0	0.0	0.0	0
5.61	14.174	0.836	1.22	1.1	16.955	5.898	0.0	0.0	0.0	0
5.62	13.97	0.816	1.22	1.1	17.12	5.841	0.0	0.0	0.0	0
5.63	14.174	0.806	1.22	1.1	17.586	5.686	0.0	0.0	0.0	0
5.64	14.276	0.795	1.22	1.1	17.957	5.569	0.0	0.0	0.0	0
5.65	14.378	0.775	1.22	1.1	18.552	5.39	0.0	0.0	0.0	0
5.66	14.582	0.755	1.22	1.1	19.314	5.178	0.0	0.0	0.0	0
5.67	14.786	0.744	1.22	1.1	19.874	5.032	0.0	0.0	0.0	0
5.68	14.99	0.744	1.22	1.2	20.148	4.963	0.0	0.0	0.0	0
5.69	15.092	0.744	1.22	1.2	20.285	4.93	0.0	0.0	0.0	0
5.70	15.092	0.744	1.22	1.2	20.285	4.93	0.0	0.0	0.0	0
5.71	15.397	0.744	1.22	1.2	20.695	4.832	0.0	0.0	0.0	0
5.72	15.397	0.744	1.22	1.2	20.695	4.832	0.0	0.0	0.0	0
5.73	15.194	0.765	1.23	1.2	19.861	5.035	0.0	0.0	0.0	0
5.74	15.397	0.775	1.23	1.2	19.867	5.033	0.0	0.0	0.0	0
5.75	16.111	0.785	1.23	1.2	20.524	4.872	0.0	0.0	0.0	0
5.76	16.213	0.795	1.23	1.2	20.394	4.903	0.0	0.0	0.0	0
5.77	16.417	0.806	1.23	1.2	20.368	4.91	0.0	0.0	0.0	0
5.78	16.621	0.826	1.24	1.2	20.122	4.97	0.0	0.0	0.0	0
5.79	17.233	0.836	1.24	1.2	20.614	4.851	0.0	0.0	0.0	0
5.80	17.029	0.857	1.24	1.2	19.87	5.033	0.0	0.0	0.0	0
5.81	17.131	0.857	1.24	1.2	19.989	5.003	0.0	0.0	0.0	0
5.82	17.539	0.857	1.24	1.2	20.466	4.886	0.0	0.0	0.0	0
5.83	18.151	0.877	1.24	1.2	20.697	4.832	0.0	0.0	0.0	0
5.84	18.049	0.897	1.24	1.2	20.122	4.97	0.0	0.0	0.0	0
5.85	18.151	0.928	1.24	1.2	19.559	5.113	0.0	0.0	0.0	0
5.86	17.947	0.959	1.25	1.2	18.714	5.344	0.0	0.0	0.0	0
5.87	17.539	0.979	1.25	1.2	17.915	5.582	0.0	0.0	0.0	0
5.88	17.539	0.979	1.25	1.2	17.915	5.582	0.0	0.0	0.0	0
5.89	17.539	0.979	1.25	1.2	17.915	5.582	0.0	0.0	0.0	0
5.90	17.029	0.959	1.18	1.2	17.757	5.632	0.0	0.0	0.0	0
5.91	16.825	0.948	1.18	1.2	17.748	5.634	0.0	0.0	0.0	0
5.92	16.723	0.938	1.18	1.2	17.828	5.609	0.0	0.0	0.0	0
5.93	16.825	0.938	1.18	1.2	17.937	5.575	0.0	0.0	0.0	0
5.94	16.621	0.938	1.18	1.3	17.72	5.643	0.0	0.0	0.0	0
5.95	16.315	0.948	1.17	1.3	17.21	5.811	0.0	0.0	0.0	0
5.96	16.213	0.948	1.17	1.3	17.102	5.847	0.0	0.0	0.0	0
5.97	15.907	0.959	1.17	1.3	16.587	6.029	0.0	0.0	0.0	0
5.98	15.499	0.969	1.17	1.3	15.995	6.252	0.0	0.0	0.0	0
5.99	15.499	0.979	1.17	1.3	15.831	6.317	0.0	0.0	0.0	0
6.00	14.99	0.989	1.17	1.3	15.157	6.598	0.0	0.0	0.0	0
6.01	14.99	0.989	1.18	1.3	15.157	6.598	0.0	0.0	0.0	0
6.02	15.397	0.989	1.19	1.3	15.568	6.423	0.0	0.0	0.0	0
6.03	16.315	0.969	1.19	1.3	16.837	5.939	0.0	0.0	0.0	0
6.04	17.641	0.948	1.20	1.3	18.609	5.374	0.0	0.0	0.0	0
6.05	20.19	0.938	1.20	1.3	21.525	4.646	0.0	0.0	0.0	0
6.06	19.578	0.948	1.20	1.3	20.652	4.842	0.0	0.0	0.0	0
6.07	17.641	0.989	1.19	1.3	17.837	5.606	0.0	0.0	0.0	0
6.08	17.131	0.989	1.19	1.3	17.322	5.773	0.0	0.0	0.0	0
6.09	17.335	0.989	1.20	1.3	17.528	5.705	0.0	0.0	0.0	0
6.10	17.641	0.969	1.20	1.3	18.205	5.493	0.0	0.0	0.0	0
6.11	18.049	0.959	1.20	1.3	18.821	5.313	0.0	0.0	0.0	0

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6.12	18.457	0.938	1.20	1.3	19.677	5.082	0.0	0.0	0.0	0
6.13	18.966	0.826	1.20	1.3	22.961	4.355	0.0	0.0	0.0	0
6.14	19.272	0.948	1.21	1.3	20.329	4.919	0.0	0.0	0.0	0
6.15	19.578	0.969	1.21	1.3	20.204	4.949	0.0	0.0	0.0	0
6.16	20.19	0.989	1.21	1.3	20.415	4.898	0.0	0.0	0.0	0
6.17	20.904	1.01	1.23	1.3	20.697	4.832	0.0	0.0	0.0	0
6.18	21.924	1.05	1.24	1.3	20.88	4.789	0.0	0.0	0.0	0
6.19	22.637	1.081	1.25	1.3	20.941	4.775	0.0	0.0	0.0	0
6.20	21.414	1.101	1.26	1.4	19.45	5.141	0.0	0.0	0.0	0
6.21	21.618	1.091	1.26	1.4	19.815	5.047	0.0	0.0	0.0	0
6.22	22.127	1.081	1.26	1.3	20.469	4.885	0.0	0.0	0.0	0
6.23	23.147	1.091	1.26	1.3	21.216	4.713	0.0	0.0	0.0	0
6.24	23.963	1.122	1.26	1.3	21.357	4.682	0.0	0.0	0.0	0
6.25	25.187	1.162	1.28	1.3	21.676	4.613	0.0	0.0	0.0	0
6.26	24.473	1.193	1.29	1.3	20.514	4.875	0.0	0.0	0.0	0
6.27	25.492	1.203	1.31	1.4	21.19	4.719	0.0	0.0	0.0	0
6.28	25.492	1.234	1.33	1.4	20.658	4.841	0.0	0.0	0.0	0
6.29	25.696	1.254	1.34	1.4	20.491	4.88	0.0	0.0	0.0	0
6.30	24.473	1.285	1.36	1.4	19.045	5.251	0.0	0.0	0.0	0
6.31	22.535	1.326	1.36	1.4	16.995	5.884	0.0	0.0	0.0	0
6.32	22.637	1.356	1.36	1.4	16.694	5.99	0.0	0.0	0.0	0
6.33	21.414	1.377	1.37	1.4	15.551	6.43	0.0	0.0	0.0	0
6.34	21.924	1.387	1.38	1.4	15.807	6.326	0.0	0.0	0.0	0
6.35	21.822	1.377	1.40	1.4	15.847	6.31	0.0	0.0	0.0	0
6.36	21.822	1.397	1.40	1.4	15.621	6.402	0.0	0.0	0.0	0
6.37	22.433	1.377	1.41	1.4	16.291	6.138	0.0	0.0	0.0	0
6.38	22.739	1.366	1.41	1.4	16.646	6.007	0.0	0.0	0.0	0
6.39	23.453	1.356	1.41	1.4	17.296	5.782	0.0	0.0	0.0	0
6.40	22.026	1.305	1.42	1.4	16.878	5.925	0.0	0.0	0.0	0
6.41	23.249	1.285	1.42	1.4	18.093	5.527	0.0	0.0	0.0	0
6.42	23.759	1.275	1.42	1.4	18.635	5.366	0.0	0.0	0.0	0
6.43	24.269	1.264	1.44	1.4	19.2	5.208	0.0	0.0	0.0	0
6.44	23.963	1.275	1.44	1.4	18.795	5.321	0.0	0.0	0.0	0
6.45	23.963	1.244	1.43	1.4	19.263	5.191	0.0	0.0	0.0	0
6.46	22.841	1.244	1.43	1.4	18.361	5.446	0.0	0.0	0.0	0
6.47	21.414	1.264	1.44	1.4	16.941	5.903	0.0	0.0	0.0	0
6.48	22.127	1.254	1.43	1.4	17.645	5.667	0.0	0.0	0.0	0
6.49	21.924	1.264	1.43	1.4	17.345	5.765	0.0	0.0	0.0	0
6.50	19.374	1.346	1.43	1.4	14.394	6.947	0.0	0.0	0.0	0
6.51	19.272	1.356	1.43	1.4	14.212	7.036	0.0	0.0	0.0	0
6.52	18.966	1.366	1.43	1.4	13.884	7.202	0.0	0.0	0.0	0
6.53	18.762	1.377	1.43	1.4	13.625	7.339	0.0	0.0	0.0	0
6.54	18.355	1.377	1.43	1.4	13.33	7.502	0.0	0.0	0.0	0
6.55	18.253	1.366	1.43	1.4	13.362	7.484	0.0	0.0	0.0	0
6.56	17.947	1.346	1.43	1.4	13.334	7.5	0.0	0.0	0.0	0
6.57	18.049	1.326	1.43	1.4	13.612	7.347	0.0	0.0	0.0	0
6.58	17.641	1.315	1.43	1.4	13.415	7.454	0.0	0.0	0.0	0
6.59	17.539	1.305	1.43	1.4	13.44	7.441	0.0	0.0	0.0	0
6.60	17.437	1.295	1.42	1.4	13.465	7.427	0.0	0.0	0.0	0
6.61	17.335	1.264	1.42	1.4	13.714	7.292	0.0	0.0	0.0	0
6.62	17.233	1.254	1.42	1.4	13.742	7.277	0.0	0.0	0.0	0
6.63	16.723	1.213	1.42	1.4	13.786	7.253	0.0	0.0	0.0	0
6.64	16.417	1.173	1.42	1.4	13.996	7.145	0.0	0.0	0.0	0
6.65	16.009	1.142	1.42	1.4	14.018	7.133	0.0	0.0	0.0	0
6.66	15.907	1.111	1.42	1.4	14.318	6.984	0.0	0.0	0.0	0
6.67	15.907	1.091	1.42	1.4	14.58	6.859	0.0	0.0	0.0	0
6.68	15.805	1.06	1.42	1.4	14.91	6.707	0.0	0.0	0.0	0
6.69	15.499	1.02	1.42	1.4	15.195	6.581	0.0	0.0	0.0	0
6.70	15.601	0.989	1.42	1.4	15.775	6.339	0.0	0.0	0.0	0
6.71	15.805	0.959	1.42	1.4	16.481	6.068	0.0	0.0	0.0	0
6.72	15.805	0.938	1.42	1.4	16.85	5.935	0.0	0.0	0.0	0
6.73	15.703	0.928	1.42	1.4	16.921	5.91	0.0	0.0	0.0	0
6.74	15.805	0.897	1.42	1.4	17.62	5.675	0.0	0.0	0.0	0
6.75	15.907	0.867	1.42	1.4	18.347	5.45	0.0	0.0	0.0	0
6.76	15.907	0.846	1.42	1.4	18.803	5.318	0.0	0.0	0.0	0
6.77	15.805	0.836	1.42	1.4	18.906	5.289	0.0	0.0	0.0	0
6.78	15.907	0.836	1.42	1.4	19.028	5.256	0.0	0.0	0.0	0
6.79	16.213	0.816	1.42	1.5	19.869	5.033	0.0	0.0	0.0	0
6.80	16.417	0.806	1.42	1.5	20.368	4.91	0.0	0.0	0.0	0
6.81	16.519	0.795	1.42	1.5	20.779	4.813	0.0	0.0	0.0	0
6.82	16.621	0.795	1.42	1.5	20.907	4.783	0.0	0.0	0.0	0
6.83	16.723	0.795	1.42	1.5	21.035	4.754	0.0	0.0	0.0	0
6.84	16.519	0.795	1.42	1.5	20.779	4.813	0.0	0.0	0.0	0
6.85	16.417	0.806	1.42	1.5	20.368	4.91	0.0	0.0	0.0	0
6.86	16.315	0.816	1.42	1.5	19.994	5.002	0.0	0.0	0.0	0

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6.87	16.315	0.806	1.42	1.5	20.242	4.94	0.0	0.0	0.0	0
6.88	16.315	0.806	1.42	1.5	20.242	4.94	0.0	0.0	0.0	0
6.89	16.315	0.806	1.42	1.5	20.242	4.94	0.0	0.0	0.0	0
6.90	17.335	0.673	1.37	1.5	25.758	3.882	0.0	0.0	0.0	0
6.91	17.437	0.663	1.38	1.5	26.3	3.802	0.0	0.0	0.0	0
6.92	17.539	0.663	1.38	1.5	26.454	3.78	0.0	0.0	0.0	0
6.93	17.845	0.653	1.37	1.4	27.328	3.659	0.0	0.0	0.0	0
6.94	17.845	0.642	1.37	1.4	27.796	3.598	0.0	0.0	0.0	0
6.95	17.539	0.653	1.37	1.4	26.859	3.723	0.0	0.0	0.0	0
6.96	17.335	0.663	1.37	1.4	26.146	3.825	0.0	0.0	0.0	0
6.97	17.029	0.673	1.37	1.4	25.303	3.952	0.0	0.0	0.0	0
6.98	17.029	0.673	1.37	1.4	25.303	3.952	0.0	0.0	0.0	0
6.99	17.029	0.704	1.37	1.5	24.189	4.134	0.0	0.0	0.0	0
7.00	16.927	0.724	1.37	1.4	23.38	4.277	0.0	0.0	0.0	0
7.01	16.927	0.744	1.37	1.5	22.751	4.395	0.0	0.0	0.0	0
7.02	17.029	0.755	1.37	1.4	22.555	4.434	0.0	0.0	0.0	0
7.03	17.029	0.765	1.37	1.4	22.26	4.492	0.0	0.0	0.0	0
7.04	17.131	0.775	1.37	1.4	22.105	4.524	0.0	0.0	0.0	0
7.05	17.131	0.785	1.37	1.5	21.823	4.582	0.0	0.0	0.0	0
7.06	17.131	0.795	1.37	1.5	21.548	4.641	0.0	0.0	0.0	0
7.07	17.131	0.785	1.38	1.5	21.823	4.582	0.0	0.0	0.0	0
7.08	17.233	0.765	1.38	1.5	22.527	4.439	0.0	0.0	0.0	0
7.09	17.029	0.744	1.38	1.5	22.888	4.369	0.0	0.0	0.0	0
7.10	16.927	0.724	1.38	1.4	23.38	4.277	0.0	0.0	0.0	0
7.11	16.723	0.704	1.38	1.4	23.754	4.21	0.0	0.0	0.0	0
7.12	16.315	0.673	1.38	1.5	24.242	4.125	0.0	0.0	0.0	0
7.13	16.213	0.642	1.38	1.5	25.254	3.96	0.0	0.0	0.0	0
7.14	16.315	0.612	1.38	1.5	26.658	3.751	0.0	0.0	0.0	0
7.15	16.315	0.602	1.38	1.5	27.101	3.69	0.0	0.0	0.0	0
7.16	16.213	0.591	1.38	1.5	27.433	3.645	0.0	0.0	0.0	0
7.17	15.907	0.602	1.38	1.5	26.424	3.784	0.0	0.0	0.0	0
7.18	15.601	0.602	1.38	1.5	25.915	3.859	0.0	0.0	0.0	0
7.19	15.295	0.581	1.38	1.5	26.325	3.799	0.0	0.0	0.0	0
7.20	15.194	0.561	1.38	1.5	27.084	3.692	0.0	0.0	0.0	0
7.21	15.092	0.551	1.38	1.5	27.39	3.651	0.0	0.0	0.0	0
7.22	14.888	0.551	1.38	1.5	27.02	3.701	0.0	0.0	0.0	0
7.23	14.786	0.53	1.38	1.5	27.898	3.584	0.0	0.0	0.0	0
7.24	14.786	0.51	1.38	1.5	28.992	3.449	0.0	0.0	0.0	0
7.25	14.786	0.479	1.38	1.5	30.868	3.24	0.0	0.0	0.0	0
7.26	14.786	0.459	1.38	1.5	32.214	3.104	0.0	0.0	0.0	0
7.27	14.684	0.449	1.38	1.5	32.704	3.058	0.0	0.0	0.0	0
7.28	14.684	0.438	1.38	1.5	33.525	2.983	0.0	0.0	0.0	0
7.29	14.48	0.418	1.38	1.5	34.641	2.887	0.0	0.0	0.0	0
7.30	14.276	0.398	1.38	1.5	35.869	2.788	0.0	0.0	0.0	0
7.31	14.174	0.387	1.38	1.5	36.625	2.73	0.0	0.0	0.0	0
7.32	13.97	0.347	1.39	1.5	40.259	2.484	0.0	0.0	0.0	0
7.33	14.072	0.337	1.39	1.5	41.757	2.395	0.0	0.0	0.0	0
7.34	14.174	0.326	1.40	1.5	43.479	2.3	0.0	0.0	0.0	0
7.35	14.378	0.316	1.43	1.5	45.5	2.198	0.0	0.0	0.0	0
7.36	14.582	0.306	1.45	1.5	47.654	2.098	0.0	0.0	0.0	0
7.37	14.786	0.306	1.47	1.5	48.32	2.07	0.0	0.0	0.0	0
7.38	15.092	0.306	1.48	1.5	49.32	2.028	0.0	0.0	0.0	0
7.39	15.397	0.316	1.50	1.5	48.725	2.052	0.0	0.0	0.0	0
7.40	15.499	0.316	1.52	1.5	49.047	2.039	0.0	0.0	0.0	0
7.41	15.397	0.316	1.53	1.5	48.725	2.052	0.0	0.0	0.0	0
7.42	15.092	0.326	1.54	1.5	46.294	2.16	0.0	0.0	0.0	0
7.43	14.99	0.326	1.53	1.5	45.982	2.175	0.0	0.0	0.0	0
7.44	14.786	0.326	1.53	1.5	45.356	2.205	0.0	0.0	0.0	0
7.45	14.684	0.326	1.53	1.5	45.043	2.22	0.0	0.0	0.0	0
7.46	14.888	0.347	1.53	1.5	42.905	2.331	0.0	0.0	0.0	0
7.47	15.703	0.347	1.54	1.5	45.254	2.21	0.0	0.0	0.0	0
7.48	16.825	0.347	1.54	1.5	48.487	2.062	0.0	0.0	0.0	0
7.49	18.762	0.357	1.54	1.5	52.555	1.903	0.0	0.0	0.0	0
7.50	20.496	0.377	1.54	1.5	54.366	1.839	0.0	0.0	0.0	0
7.51	21.312	0.377	1.54	1.5	56.531	1.769	0.0	0.0	0.0	0
7.52	19.476	0.408	1.53	1.5	47.735	2.095	0.0	0.0	0.0	0
7.53	17.845	0.418	1.52	1.5	42.691	2.342	0.0	0.0	0.0	0
7.54	17.233	0.438	1.52	1.5	39.345	2.542	0.0	0.0	0.0	0
7.55	16.723	0.449	1.51	1.5	37.245	2.685	0.0	0.0	0.0	0
7.56	15.499	0.479	1.51	1.5	32.357	3.091	0.0	0.0	0.0	0
7.57	14.174	0.52	1.52	1.5	27.258	3.669	0.0	0.0	0.0	0
7.58	14.174	0.5	1.52	1.5	28.348	3.528	0.0	0.0	0.0	0
7.59	14.99	0.469	1.53	1.5	31.962	3.129	0.0	0.0	0.0	0
7.60	15.194	0.469	1.53	1.5	32.397	3.087	0.0	0.0	0.0	0
7.61	15.092	0.469	1.53	1.5	32.179	3.108	0.0	0.0	0.0	0

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7.62	15.601	0.469	1.53	1.5	33.264	3.006	0.0	0.0	0.0	0
7.63	16.009	0.479	1.53	1.5	33.422	2.992	0.0	0.0	0.0	0
7.64	16.111	0.489	1.53	1.5	32.947	3.035	0.0	0.0	0.0	0
7.65	16.213	0.479	1.53	1.5	33.848	2.954	0.0	0.0	0.0	0
7.66	15.499	0.449	1.53	1.6	34.519	2.897	0.0	0.0	0.0	0
7.67	15.907	0.428	1.53	1.5	37.166	2.691	0.0	0.0	0.0	0
7.68	16.519	0.398	1.53	1.6	41.505	2.409	0.0	0.0	0.0	0
7.69	16.315	0.377	1.52	1.5	43.276	2.311	0.0	0.0	0.0	0
7.70	15.092	0.377	1.52	1.5	40.032	2.498	0.0	0.0	0.0	0
7.71	14.684	0.377	1.52	1.6	38.95	2.567	0.0	0.0	0.0	0
7.72	14.378	0.367	1.52	1.6	39.177	2.553	0.0	0.0	0.0	0
7.73	13.868	0.367	1.52	1.6	37.787	2.646	0.0	0.0	0.0	0
7.74	13.664	0.367	1.52	1.6	37.232	2.686	0.0	0.0	0.0	0
7.75	13.46	0.367	1.53	1.6	36.676	2.727	0.0	0.0	0.0	0
7.76	13.256	0.367	1.53	1.6	36.12	2.769	0.0	0.0	0.0	0
7.77	13.256	0.357	1.53	1.6	37.132	2.693	0.0	0.0	0.0	0
7.78	13.256	0.347	1.53	1.6	38.202	2.618	0.0	0.0	0.0	0
7.79	13.562	0.337	1.53	1.6	40.243	2.485	0.0	0.0	0.0	0
7.80	13.868	0.326	1.53	1.6	42.54	2.351	0.0	0.0	0.0	0
7.81	14.276	0.316	1.53	1.6	45.177	2.214	0.0	0.0	0.0	0
7.82	14.888	0.316	1.53	1.6	47.114	2.123	0.0	0.0	0.0	0
7.83	15.601	0.296	1.53	1.6	52.706	1.897	0.0	0.0	0.0	0
7.84	16.213	0.275	1.53	1.6	58.956	1.696	0.0	0.0	0.0	0
7.85	16.315	0.275	1.53	1.6	59.327	1.686	0.0	0.0	0.0	0
7.86	15.703	0.275	1.53	1.6	57.102	1.751	0.0	0.0	0.0	0
7.87	15.499	0.275	1.53	1.6	56.36	1.774	0.0	0.0	0.0	0
7.88	15.499	0.275	1.53	1.6	56.36	1.774	0.0	0.0	0.0	0
7.89	15.499	0.275	1.53	1.6	56.36	1.774	0.0	0.0	0.0	0
7.90	17.029	0.286	1.45	1.6	59.542	1.679	0.0	0.0	0.0	0
7.91	16.519	0.306	1.45	1.6	53.984	1.852	0.0	0.0	0.0	0
7.92	16.213	0.316	1.46	1.6	51.307	1.949	0.0	0.0	0.0	0
7.93	16.315	0.316	1.46	1.6	51.63	1.937	0.0	0.0	0.0	0
7.94	16.621	0.316	1.46	1.6	52.598	1.901	0.0	0.0	0.0	0
7.95	17.029	0.326	1.46	1.6	52.236	1.914	0.0	0.0	0.0	0
7.96	17.743	0.357	1.47	1.6	49.7	2.012	0.0	0.0	0.0	0
7.97	17.947	0.367	1.48	1.6	48.902	2.045	0.0	0.0	0.0	0
7.98	18.559	0.377	1.48	1.6	49.228	2.031	0.0	0.0	0.0	0
7.99	18.559	0.408	1.48	1.6	45.488	2.198	0.0	0.0	0.0	0
8.00	18.559	0.428	1.48	1.6	43.362	2.306	0.0	0.0	0.0	0
8.01	18.049	0.428	1.48	1.6	42.171	2.371	0.0	0.0	0.0	0
8.02	17.233	0.408	1.48	1.6	42.238	2.368	0.0	0.0	0.0	0
8.03	17.233	0.408	1.48	1.6	42.238	2.368	0.0	0.0	0.0	0
8.04	16.621	0.398	1.49	1.6	41.761	2.395	0.0	0.0	0.0	0
8.05	16.315	0.387	1.49	1.6	42.158	2.372	0.0	0.0	0.0	0
8.06	16.417	0.367	1.50	1.6	44.733	2.235	0.0	0.0	0.0	0
8.07	16.111	0.367	1.50	1.6	43.899	2.278	0.0	0.0	0.0	0
8.08	16.825	0.377	1.51	1.6	44.629	2.241	0.0	0.0	0.0	0
8.09	17.029	0.367	1.51	1.6	46.401	2.155	0.0	0.0	0.0	0
8.10	18.049	0.367	1.51	1.6	49.18	2.033	0.0	0.0	0.0	0
8.11	18.253	0.357	1.51	1.6	51.129	1.956	0.0	0.0	0.0	0
8.12	16.927	0.398	1.51	1.6	42.53	2.351	0.0	0.0	0.0	0
8.13	16.519	0.387	1.51	1.6	42.685	2.343	0.0	0.0	0.0	0
8.14	16.315	0.387	1.51	1.6	42.158	2.372	0.0	0.0	0.0	0
8.15	16.009	0.398	1.50	1.6	40.224	2.486	0.0	0.0	0.0	0
8.16	15.907	0.408	1.50	1.6	38.988	2.565	0.0	0.0	0.0	0
8.17	15.194	0.418	1.50	1.6	36.349	2.751	0.0	0.0	0.0	0
8.18	14.786	0.428	1.50	1.6	34.547	2.895	0.0	0.0	0.0	0
8.19	14.786	0.428	1.49	1.6	34.547	2.895	0.0	0.0	0.0	0
8.20	14.786	0.449	1.49	1.6	32.931	3.037	0.0	0.0	0.0	0
8.21	14.684	0.459	1.49	1.6	31.991	3.126	0.0	0.0	0.0	0
8.22	14.684	0.479	1.49	1.6	30.656	3.262	0.0	0.0	0.0	0
8.23	14.48	0.51	1.49	1.6	28.392	3.522	0.0	0.0	0.0	0
8.24	14.276	0.551	1.49	1.6	25.909	3.86	0.0	0.0	0.0	0
8.25	14.276	0.561	1.49	1.6	25.447	3.93	0.0	0.0	0.0	0
8.26	14.174	0.571	1.49	1.6	24.823	4.029	0.0	0.0	0.0	0
8.27	14.378	0.581	1.49	1.6	24.747	4.041	0.0	0.0	0.0	0
8.28	14.48	0.581	1.49	1.6	24.923	4.012	0.0	0.0	0.0	0
8.29	14.684	0.571	1.49	1.6	25.716	3.889	0.0	0.0	0.0	0
8.30	14.888	0.571	1.49	1.6	26.074	3.835	0.0	0.0	0.0	0
8.31	15.092	0.581	1.50	1.6	25.976	3.85	0.0	0.0	0.0	0
8.32	16.213	0.571	1.50	1.6	28.394	3.522	0.0	0.0	0.0	0
8.33	16.621	0.571	1.50	1.6	29.109	3.435	0.0	0.0	0.0	0
8.34	16.927	0.571	1.50	1.6	29.644	3.373	0.0	0.0	0.0	0
8.35	17.233	0.551	1.51	1.6	31.276	3.197	0.0	0.0	0.0	0
8.36	17.845	0.54	1.51	1.6	33.046	3.026	0.0	0.0	0.0	0

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8.37	19.476	0.53	1.51	1.6	36.747	2.721	0.0	0.0	0.0	0
8.38	19.272	0.52	1.51	1.6	37.062	2.698	0.0	0.0	0.0	0
8.39	18.355	0.561	1.50	1.6	32.718	3.056	0.0	0.0	0.0	0
8.40	17.947	0.551	1.50	1.6	32.572	3.07	0.0	0.0	0.0	0
8.41	18.049	0.571	1.50	1.6	31.609	3.164	0.0	0.0	0.0	0
8.42	18.151	0.591	1.50	1.6	30.712	3.256	0.0	0.0	0.0	0
8.43	18.049	0.612	1.50	1.6	29.492	3.391	0.0	0.0	0.0	0
8.44	18.049	0.632	1.50	1.6	28.559	3.502	0.0	0.0	0.0	0
8.45	17.947	0.673	1.50	1.6	26.667	3.75	0.0	0.0	0.0	0
8.46	17.947	0.683	1.50	1.6	26.277	3.806	0.0	0.0	0.0	0
8.47	17.947	0.704	1.50	1.6	25.493	3.923	0.0	0.0	0.0	0
8.48	17.743	0.714	1.50	1.6	24.85	4.024	0.0	0.0	0.0	0
8.49	17.743	0.734	1.50	1.6	24.173	4.137	0.0	0.0	0.0	0
8.50	17.845	0.744	1.50	1.6	23.985	4.169	0.0	0.0	0.0	0
8.51	17.845	0.765	1.49	1.6	23.327	4.287	0.0	0.0	0.0	0
8.52	17.335	0.816	1.49	1.6	21.244	4.707	0.0	0.0	0.0	0
8.53	17.131	0.816	1.49	1.6	20.994	4.763	0.0	0.0	0.0	0
8.54	17.029	0.826	1.49	1.6	20.616	4.851	0.0	0.0	0.0	0
8.55	16.927	0.826	1.49	1.6	20.493	4.88	0.0	0.0	0.0	0
8.56	16.927	0.816	1.49	1.6	20.744	4.821	0.0	0.0	0.0	0
8.57	16.621	0.826	1.49	1.6	20.122	4.97	0.0	0.0	0.0	0
8.58	16.621	0.836	1.49	1.6	19.882	5.03	0.0	0.0	0.0	0
8.59	16.417	0.836	1.49	1.6	19.638	5.092	0.0	0.0	0.0	0
8.60	16.213	0.836	1.49	1.6	19.394	5.156	0.0	0.0	0.0	0
8.61	16.111	0.846	1.49	1.6	19.044	5.251	0.0	0.0	0.0	0
8.62	16.111	0.857	1.49	1.6	18.799	5.319	0.0	0.0	0.0	0
8.63	16.111	0.867	1.49	1.6	18.582	5.381	0.0	0.0	0.0	0
8.64	15.907	0.867	1.49	1.6	18.347	5.45	0.0	0.0	0.0	0
8.65	15.601	0.867	1.49	1.7	17.994	5.557	0.0	0.0	0.0	0
8.66	15.601	0.857	1.49	1.6	18.204	5.493	0.0	0.0	0.0	0
8.67	15.703	0.846	1.49	1.7	18.561	5.388	0.0	0.0	0.0	0
8.68	15.907	0.836	1.49	1.7	19.028	5.256	0.0	0.0	0.0	0
8.69	15.907	0.836	1.49	1.7	19.028	5.256	0.0	0.0	0.0	0
8.70	15.805	0.836	1.49	1.7	18.906	5.289	0.0	0.0	0.0	0
8.71	15.805	0.826	1.49	1.7	19.134	5.226	0.0	0.0	0.0	0
8.72	16.009	0.806	1.49	1.7	19.862	5.035	0.0	0.0	0.0	0
8.73	16.009	0.795	1.49	1.7	20.137	4.966	0.0	0.0	0.0	0
8.74	16.213	0.785	1.49	1.7	20.654	4.842	0.0	0.0	0.0	0
8.75	16.723	0.755	1.49	1.7	22.15	4.515	0.0	0.0	0.0	0
8.76	17.029	0.734	1.49	1.7	23.2	4.31	0.0	0.0	0.0	0
8.77	16.927	0.734	1.49	1.7	23.061	4.336	0.0	0.0	0.0	0
8.78	17.131	0.734	1.49	1.7	23.339	4.285	0.0	0.0	0.0	0
8.79	17.131	0.755	1.48	1.7	22.69	4.407	0.0	0.0	0.0	0
8.80	16.825	0.775	1.48	1.7	21.71	4.606	0.0	0.0	0.0	0
8.81	16.621	0.795	1.49	1.7	20.907	4.783	0.0	0.0	0.0	0
8.82	16.519	0.816	1.49	1.7	20.244	4.94	0.0	0.0	0.0	0
8.83	16.621	0.816	1.48	1.7	20.369	4.909	0.0	0.0	0.0	0
8.84	16.723	0.826	1.48	1.7	20.246	4.939	0.0	0.0	0.0	0
8.85	17.029	0.836	1.48	1.7	20.37	4.909	0.0	0.0	0.0	0
8.86	17.029	0.857	1.48	1.7	19.87	5.033	0.0	0.0	0.0	0
8.87	17.131	0.877	1.48	1.7	19.534	5.119	0.0	0.0	0.0	0
8.88	17.131	0.877	1.48	1.7	19.534	5.119	0.0	0.0	0.0	0
8.89	17.131	0.877	1.48	1.7	19.534	5.119	0.0	0.0	0.0	0
8.90	17.335	0.959	1.43	1.7	18.076	5.532	0.0	0.0	0.0	0
8.91	17.437	0.959	1.43	1.7	18.182	5.5	0.0	0.0	0.0	0
8.92	17.437	0.938	1.43	1.7	18.59	5.379	0.0	0.0	0.0	0
8.93	17.641	0.908	1.43	1.7	19.428	5.147	0.0	0.0	0.0	0
8.94	17.947	0.887	1.43	1.8	20.233	4.942	0.0	0.0	0.0	0
8.95	17.947	0.887	1.43	1.7	20.233	4.942	0.0	0.0	0.0	0
8.96	18.049	0.887	1.43	1.9	20.348	4.914	0.0	0.0	0.0	0
8.97	17.743	0.877	1.43	1.8	20.231	4.943	0.0	0.0	0.0	0
8.98	18.559	0.877	1.43	1.8	21.162	4.725	0.0	0.0	0.0	0
8.99	18.762	0.887	1.43	1.8	21.152	4.728	0.0	0.0	0.0	0
9.00	18.966	0.887	1.43	1.8	21.382	4.677	0.0	0.0	0.0	0
9.01	19.272	0.887	1.43	1.9	21.727	4.603	0.0	0.0	0.0	0
9.02	19.374	0.877	1.43	1.8	22.091	4.527	0.0	0.0	0.0	0
9.03	19.272	0.897	1.43	1.9	21.485	4.654	0.0	0.0	0.0	0
9.04	19.374	0.918	1.43	1.9	21.105	4.738	0.0	0.0	0.0	0
9.05	19.476	0.928	1.43	1.9	20.987	4.765	0.0	0.0	0.0	0
9.06	19.476	0.948	1.43	1.9	20.544	4.868	0.0	0.0	0.0	0
9.07	19.476	0.979	1.43	1.9	19.894	5.027	0.0	0.0	0.0	0
9.08	19.17	1.01	1.43	1.9	18.98	5.269	0.0	0.0	0.0	0
9.09	18.864	1.04	1.43	1.9	18.138	5.513	0.0	0.0	0.0	0
9.10	18.355	1.091	1.43	1.9	16.824	5.944	0.0	0.0	0.0	0
9.11	18.457	1.101	1.43	1.9	16.764	5.965	0.0	0.0	0.0	0

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9.12	18.661	1.101	1.43	1.9	16.949	5.9	0.0	0.0	0.0	0
9.13	18.762	1.111	1.43	1.9	16.887	5.922	0.0	0.0	0.0	0
9.14	18.864	1.122	1.43	1.9	16.813	5.948	0.0	0.0	0.0	0
9.15	19.068	1.111	1.43	1.9	17.163	5.827	0.0	0.0	0.0	0
9.16	19.374	1.101	1.43	1.9	17.597	5.683	0.0	0.0	0.0	0
9.17	19.272	1.091	1.43	1.9	17.665	5.661	0.0	0.0	0.0	0
9.18	19.272	1.091	1.43	1.9	17.665	5.661	0.0	0.0	0.0	0
9.19	19.272	1.091	1.43	1.9	17.665	5.661	0.0	0.0	0.0	0
9.20	19.068	1.091	1.43	1.9	17.478	5.722	0.0	0.0	0.0	0
9.21	19.068	1.081	1.43	1.9	17.639	5.669	0.0	0.0	0.0	0
9.22	18.762	1.071	1.43	1.9	17.518	5.708	0.0	0.0	0.0	0
9.23	18.355	1.081	1.43	1.9	16.98	5.889	0.0	0.0	0.0	0
9.24	18.253	1.081	1.43	1.9	16.885	5.922	0.0	0.0	0.0	0
9.25	18.151	1.091	1.43	1.9	16.637	6.011	0.0	0.0	0.0	0
9.26	18.049	1.101	1.44	1.9	16.393	6.1	0.0	0.0	0.0	0
9.27	18.049	1.101	1.44	1.9	16.393	6.1	0.0	0.0	0.0	0
9.28	18.151	1.091	1.44	1.9	16.637	6.011	0.0	0.0	0.0	0
9.29	18.355	1.081	1.44	1.9	16.98	5.889	0.0	0.0	0.0	0
9.30	18.151	1.071	1.44	1.9	16.948	5.901	0.0	0.0	0.0	0
9.31	18.253	1.04	1.44	1.9	17.551	5.698	0.0	0.0	0.0	0
9.32	18.661	0.999	1.44	1.9	18.68	5.353	0.0	0.0	0.0	0
9.33	18.864	0.979	1.44	1.9	19.269	5.19	0.0	0.0	0.0	0
9.34	18.966	0.948	1.44	1.9	20.006	4.998	0.0	0.0	0.0	0
9.35	19.17	0.938	1.44	1.9	20.437	4.893	0.0	0.0	0.0	0
9.36	19.884	0.908	1.44	1.9	21.899	4.566	0.0	0.0	0.0	0
9.37	19.986	0.908	1.45	1.9	22.011	4.543	0.0	0.0	0.0	0
9.38	20.088	0.908	1.45	1.9	22.123	4.52	0.0	0.0	0.0	0
9.39	20.19	0.918	1.46	1.9	21.993	4.547	0.0	0.0	0.0	0
9.40	20.292	0.918	1.46	1.9	22.105	4.524	0.0	0.0	0.0	0
9.41	20.394	0.928	1.46	2.0	21.976	4.55	0.0	0.0	0.0	0
9.42	20.7	0.928	1.47	2.0	22.306	4.483	0.0	0.0	0.0	0
9.43	21.006	0.908	1.46	2.0	23.134	4.323	0.0	0.0	0.0	0
9.44	21.006	0.908	1.46	2.0	23.134	4.323	0.0	0.0	0.0	0
9.45	20.904	0.908	1.46	2.0	23.022	4.344	0.0	0.0	0.0	0
9.46	21.108	0.908	1.46	2.0	23.247	4.302	0.0	0.0	0.0	0
9.47	21.414	0.908	1.46	2.0	23.584	4.24	0.0	0.0	0.0	0
9.48	21.822	0.897	1.46	2.0	24.328	4.111	0.0	0.0	0.0	0
9.49	21.822	0.918	1.46	2.0	23.771	4.207	0.0	0.0	0.0	0
9.50	21.516	0.938	1.46	2.0	22.938	4.36	0.0	0.0	0.0	0
9.51	21.108	0.948	1.46	2.0	22.266	4.491	0.0	0.0	0.0	0
9.52	20.7	0.969	1.46	2.0	21.362	4.681	0.0	0.0	0.0	0
9.53	20.394	0.969	1.46	2.0	21.046	4.751	0.0	0.0	0.0	0
9.54	20.394	0.959	1.46	2.0	21.266	4.702	0.0	0.0	0.0	0
9.55	19.884	0.969	1.45	2.0	20.52	4.873	0.0	0.0	0.0	0
9.56	19.476	0.979	1.45	2.0	19.894	5.027	0.0	0.0	0.0	0
9.57	19.068	1.01	1.45	2.0	18.879	5.297	0.0	0.0	0.0	0
9.58	18.762	1.03	1.45	2.0	18.216	5.49	0.0	0.0	0.0	0
9.59	18.355	1.071	1.46	2.0	17.138	5.835	0.0	0.0	0.0	0
9.60	18.253	1.101	1.46	2.0	16.579	6.032	0.0	0.0	0.0	0
9.61	18.355	1.111	1.46	2.0	16.521	6.053	0.0	0.0	0.0	0
9.62	18.762	1.101	1.47	2.0	17.041	5.868	0.0	0.0	0.0	0
9.63	18.762	1.081	1.47	2.0	17.356	5.762	0.0	0.0	0.0	0
9.64	18.762	1.06	1.47	2.0	17.7	5.65	0.0	0.0	0.0	0
9.65	18.762	1.03	1.47	2.0	18.216	5.49	0.0	0.0	0.0	0
9.66	18.966	0.989	1.47	2.0	19.177	5.215	0.0	0.0	0.0	0
9.67	19.272	0.959	1.47	2.0	20.096	4.976	0.0	0.0	0.0	0
9.68	19.578	0.897	1.46	2.0	21.826	4.582	0.0	0.0	0.0	0
9.69	19.578	0.887	1.46	2.0	22.072	4.531	0.0	0.0	0.0	0
9.70	19.374	0.867	1.46	2.0	22.346	4.475	0.0	0.0	0.0	0
9.71	19.068	0.857	1.46	2.0	22.25	4.494	0.0	0.0	0.0	0
9.72	18.661	0.846	1.46	2.0	22.058	4.534	0.0	0.0	0.0	0
9.73	18.355	0.836	1.46	2.0	21.956	4.555	0.0	0.0	0.0	0
9.74	17.743	0.836	1.46	2.0	21.224	4.712	0.0	0.0	0.0	0
9.75	17.539	0.836	1.46	2.0	20.98	4.767	0.0	0.0	0.0	0
9.76	17.539	0.846	1.46	2.0	20.732	4.824	0.0	0.0	0.0	0
9.77	17.539	0.846	1.46	2.0	20.732	4.824	0.0	0.0	0.0	0
9.78	17.335	0.857	1.45	2.0	20.228	4.944	0.0	0.0	0.0	0
9.79	17.029	0.887	1.46	2.0	19.198	5.209	0.0	0.0	0.0	0
9.80	16.519	0.928	1.46	2.0	17.801	5.618	0.0	0.0	0.0	0
9.81	16.213	0.928	1.46	2.0	17.471	5.724	0.0	0.0	0.0	0
9.82	15.907	0.918	1.46	2.0	17.328	5.771	0.0	0.0	0.0	0
9.83	15.805	0.887	1.46	2.0	17.818	5.612	0.0	0.0	0.0	0
9.84	15.907	0.857	1.45	2.0	18.561	5.388	0.0	0.0	0.0	0
9.85	15.805	0.836	1.45	2.0	18.906	5.289	0.0	0.0	0.0	0
9.86	15.499	0.816	1.45	2.0	18.994	5.265	0.0	0.0	0.0	0

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9.87	15.601	0.795	1.45	2.0	19.624	5.096	0.0	0.0	0.0	0
9.88	15.601	0.795	1.45	2.0	19.624	5.096	0.0	0.0	0.0	0
9.89	15.601	0.795	1.45	2.0	19.624	5.096	0.0	0.0	0.0	0
9.90	17.029	0.642	1.39	2.0	26.525	3.77	0.0	0.0	0.0	0
9.91	17.437	0.632	1.39	2.0	27.59	3.624	0.0	0.0	0.0	0
9.92	18.049	0.622	1.40	2.0	29.018	3.446	0.0	0.0	0.0	0
9.93	18.559	0.612	1.40	2.0	30.325	3.298	0.0	0.0	0.0	0
9.94	19.17	0.602	1.40	2.0	31.844	3.14	0.0	0.0	0.0	0
9.95	19.068	0.591	1.41	2.0	32.264	3.099	0.0	0.0	0.0	0
9.96	19.17	0.561	1.41	2.0	34.171	2.926	0.0	0.0	0.0	0
9.97	19.068	0.551	1.41	2.0	34.606	2.89	0.0	0.0	0.0	0
9.98	19.476	0.53	1.41	2.0	36.747	2.721	0.0	0.0	0.0	0
9.99	19.782	0.51	1.41	2.0	38.788	2.578	0.0	0.0	0.0	0
10.00	20.088	0.51	1.41	2.0	39.388	2.539	0.0	0.0	0.0	0
10.01	19.782	0.51	1.41	2.0	38.788	2.578	0.0	0.0	0.0	0
10.02	19.986	0.51	1.41	2.1	39.188	2.552	0.0	0.0	0.0	0
10.03	20.19	0.51	1.41	2.1	39.588	2.526	0.0	0.0	0.0	0
10.04	19.986	0.5	1.41	2.1	39.972	2.502	0.0	0.0	0.0	0
10.05	19.374	0.52	1.41	2.1	37.258	2.684	0.0	0.0	0.0	0
10.06	18.864	0.53	1.41	2.1	35.592	2.81	0.0	0.0	0.0	0
10.07	18.559	0.54	1.40	2.1	34.369	2.91	0.0	0.0	0.0	0
10.08	17.437	0.591	1.40	2.1	29.504	3.389	0.0	0.0	0.0	0
10.09	16.825	0.602	1.40	2.1	27.949	3.578	0.0	0.0	0.0	0
10.10	16.417	0.632	1.40	2.1	25.976	3.85	0.0	0.0	0.0	0
10.11	16.315	0.642	1.39	2.1	25.413	3.935	0.0	0.0	0.0	0
10.12	16.111	0.653	1.39	2.1	24.672	4.053	0.0	0.0	0.0	0
10.13	15.805	0.673	1.39	2.1	23.484	4.258	0.0	0.0	0.0	0
10.14	15.805	0.683	1.39	2.1	23.141	4.321	0.0	0.0	0.0	0
10.15	16.009	0.704	1.39	2.1	22.74	4.398	0.0	0.0	0.0	0
10.16	16.111	0.734	1.39	2.1	21.95	4.556	0.0	0.0	0.0	0
10.17	16.213	0.755	1.39	2.1	21.474	4.657	0.0	0.0	0.0	0
10.18	16.213	0.765	1.39	2.1	21.193	4.718	0.0	0.0	0.0	0
10.19	16.417	0.765	1.39	2.1	21.46	4.66	0.0	0.0	0.0	0
10.20	16.825	0.775	1.39	2.1	21.71	4.606	0.0	0.0	0.0	0
10.21	17.131	0.765	1.39	2.1	22.393	4.466	0.0	0.0	0.0	0
10.22	17.335	0.744	1.39	2.1	23.3	4.292	0.0	0.0	0.0	0
10.23	17.539	0.724	1.39	2.1	24.225	4.128	0.0	0.0	0.0	0
10.24	17.743	0.724	1.39	2.1	24.507	4.08	0.0	0.0	0.0	0
10.25	17.743	0.724	1.39	2.1	24.507	4.08	0.0	0.0	0.0	0
10.26	17.539	0.714	1.39	2.1	24.564	4.071	0.0	0.0	0.0	0
10.27	17.845	0.683	1.39	2.1	26.127	3.827	0.0	0.0	0.0	0
10.28	17.743	0.673	1.39	2.1	26.364	3.793	0.0	0.0	0.0	0
10.29	17.743	0.663	1.39	2.1	26.762	3.737	0.0	0.0	0.0	0
10.30	17.641	0.663	1.39	2.1	26.608	3.758	0.0	0.0	0.0	0
10.31	17.437	0.663	1.39	2.1	26.3	3.802	0.0	0.0	0.0	0
10.32	17.233	0.663	1.40	2.2	25.992	3.847	0.0	0.0	0.0	0
10.33	17.743	0.663	1.40	2.2	26.762	3.737	0.0	0.0	0.0	0
10.34	18.049	0.673	1.40	2.2	26.819	3.729	0.0	0.0	0.0	0
10.35	17.947	0.673	1.40	2.2	26.667	3.75	0.0	0.0	0.0	0
10.36	18.049	0.683	1.40	2.2	26.426	3.784	0.0	0.0	0.0	0
10.37	18.253	0.683	1.39	2.2	26.725	3.742	0.0	0.0	0.0	0
10.38	17.335	0.693	1.39	2.2	25.014	3.998	0.0	0.0	0.0	0
10.39	16.213	0.693	1.39	2.2	23.395	4.274	0.0	0.0	0.0	0
10.40	16.009	0.673	1.39	2.2	23.788	4.204	0.0	0.0	0.0	0
10.41	15.907	0.663	1.39	2.2	23.992	4.168	0.0	0.0	0.0	0
10.42	15.805	0.663	1.39	2.2	23.839	4.195	0.0	0.0	0.0	0
10.43	15.703	0.653	1.39	2.2	24.047	4.158	0.0	0.0	0.0	0
10.44	15.601	0.642	1.39	2.2	24.301	4.115	0.0	0.0	0.0	0
10.45	15.397	0.632	1.39	2.2	24.362	4.105	0.0	0.0	0.0	0
10.46	15.703	0.632	1.39	2.2	24.847	4.025	0.0	0.0	0.0	0
10.47	15.601	0.632	1.39	2.2	24.685	4.051	0.0	0.0	0.0	0
10.48	15.907	0.642	1.39	2.2	24.777	4.036	0.0	0.0	0.0	0
10.49	15.907	0.642	1.39	2.2	24.777	4.036	0.0	0.0	0.0	0
10.50	16.009	0.642	1.39	2.2	24.936	4.01	0.0	0.0	0.0	0
10.51	16.213	0.653	1.38	2.2	24.828	4.028	0.0	0.0	0.0	0
10.52	16.111	0.653	1.39	2.2	24.672	4.053	0.0	0.0	0.0	0
10.53	16.417	0.632	1.39	2.2	25.976	3.85	0.0	0.0	0.0	0
10.54	16.723	0.622	1.39	2.2	26.886	3.719	0.0	0.0	0.0	0
10.55	16.519	0.612	1.39	2.2	26.992	3.705	0.0	0.0	0.0	0
10.56	16.111	0.622	1.39	2.2	25.902	3.861	0.0	0.0	0.0	0
10.57	16.213	0.622	1.39	2.2	26.066	3.836	0.0	0.0	0.0	0
10.58	16.213	0.612	1.38	2.2	26.492	3.775	0.0	0.0	0.0	0
10.59	16.009	0.612	1.38	2.2	26.158	3.823	0.0	0.0	0.0	0
10.60	16.009	0.612	1.38	2.2	26.158	3.823	0.0	0.0	0.0	0
10.61	16.009	0.612	1.38	2.2	26.158	3.823	0.0	0.0	0.0	0

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10.62	15.703	0.612	1.38	2.2	25.658	3.897	0.0	0.0	0.0	0
10.63	15.601	0.612	1.38	2.2	25.492	3.923	0.0	0.0	0.0	0
10.64	15.907	0.612	1.39	2.2	25.992	3.847	0.0	0.0	0.0	0
10.65	16.213	0.612	1.39	2.2	26.492	3.775	0.0	0.0	0.0	0
10.66	16.621	0.622	1.39	2.2	26.722	3.742	0.0	0.0	0.0	0
10.67	16.927	0.632	1.39	2.2	26.783	3.734	0.0	0.0	0.0	0
10.68	17.131	0.642	1.40	2.2	26.684	3.748	0.0	0.0	0.0	0
10.69	17.029	0.653	1.40	2.2	26.078	3.835	0.0	0.0	0.0	0
10.70	17.335	0.663	1.40	2.2	26.146	3.825	0.0	0.0	0.0	0
10.71	17.641	0.653	1.40	2.2	27.015	3.702	0.0	0.0	0.0	0
10.72	18.049	0.642	1.40	2.2	28.114	3.557	0.0	0.0	0.0	0
10.73	18.559	0.642	1.40	2.3	28.908	3.459	0.0	0.0	0.0	0
10.74	18.151	0.653	1.40	2.3	27.796	3.598	0.0	0.0	0.0	0
10.75	18.151	0.663	1.40	2.3	27.377	3.653	0.0	0.0	0.0	0
10.76	17.743	0.653	1.40	2.3	27.172	3.68	0.0	0.0	0.0	0
10.77	18.151	0.663	1.40	2.3	27.377	3.653	0.0	0.0	0.0	0
10.78	18.355	0.673	1.40	2.2	27.273	3.667	0.0	0.0	0.0	0
10.79	18.559	0.683	1.40	2.2	27.173	3.68	0.0	0.0	0.0	0
10.80	18.661	0.693	1.40	2.3	26.928	3.714	0.0	0.0	0.0	0
10.81	19.068	0.724	1.40	2.2	26.337	3.797	0.0	0.0	0.0	0
10.82	18.762	0.744	1.40	2.2	25.218	3.965	0.0	0.0	0.0	0
10.83	18.457	0.806	1.41	2.3	22.9	4.367	0.0	0.0	0.0	0
10.84	18.355	0.826	1.41	2.2	22.222	4.5	0.0	0.0	0.0	0
10.85	18.253	0.836	1.41	2.3	21.834	4.58	0.0	0.0	0.0	0
10.86	18.253	0.846	1.41	2.3	21.576	4.635	0.0	0.0	0.0	0
10.87	18.457	0.857	1.41	2.3	21.537	4.643	0.0	0.0	0.0	0
10.88	18.457	0.857	1.41	2.3	21.537	4.643	0.0	0.0	0.0	0
10.89	18.457	0.857	1.41	2.3	21.537	4.643	0.0	0.0	0.0	0
10.90	19.272	0.836	1.38	2.3	23.053	4.338	0.0	0.0	0.0	0
10.91	19.782	0.836	1.37	2.3	23.663	4.226	0.0	0.0	0.0	0
10.92	19.476	0.836	1.37	2.3	23.297	4.292	0.0	0.0	0.0	0
10.93	19.272	0.846	1.37	2.3	22.78	4.39	0.0	0.0	0.0	0
10.94	18.966	0.836	1.37	2.3	22.687	4.408	0.0	0.0	0.0	0
10.95	18.864	0.846	1.37	2.3	22.298	4.485	0.0	0.0	0.0	0
10.96	18.355	0.857	1.38	2.3	21.418	4.669	0.0	0.0	0.0	0
10.97	17.641	0.867	1.38	2.3	20.347	4.915	0.0	0.0	0.0	0
10.98	17.233	0.867	1.38	2.3	19.877	5.031	0.0	0.0	0.0	0
10.99	17.029	0.867	1.38	2.3	19.641	5.091	0.0	0.0	0.0	0
11.00	16.621	0.867	1.38	2.3	19.171	5.216	0.0	0.0	0.0	0
11.01	16.621	0.867	1.38	2.3	19.171	5.216	0.0	0.0	0.0	0
11.02	16.723	0.867	1.38	2.3	19.288	5.184	0.0	0.0	0.0	0
11.03	16.825	0.887	1.38	2.3	18.968	5.272	0.0	0.0	0.0	0
11.04	16.927	0.897	1.38	2.3	18.871	5.299	0.0	0.0	0.0	0
11.05	16.927	0.908	1.38	2.4	18.642	5.364	0.0	0.0	0.0	0
11.06	16.927	0.887	1.38	2.4	19.083	5.24	0.0	0.0	0.0	0
11.07	16.825	0.887	1.38	2.4	18.968	5.272	0.0	0.0	0.0	0
11.08	16.927	0.877	1.39	2.4	19.301	5.181	0.0	0.0	0.0	0
11.09	17.029	0.857	1.38	2.4	19.87	5.033	0.0	0.0	0.0	0
11.10	17.131	0.846	1.39	2.4	20.249	4.938	0.0	0.0	0.0	0
11.11	17.131	0.846	1.38	2.4	20.249	4.938	0.0	0.0	0.0	0
11.12	16.927	0.826	1.39	2.4	20.493	4.88	0.0	0.0	0.0	0
11.13	16.825	0.826	1.39	2.4	20.369	4.909	0.0	0.0	0.0	0
11.14	17.029	0.806	1.39	2.4	21.128	4.733	0.0	0.0	0.0	0
11.15	17.029	0.795	1.39	2.4	21.42	4.669	0.0	0.0	0.0	0
11.16	16.723	0.785	1.38	2.4	21.303	4.694	0.0	0.0	0.0	0
11.17	16.519	0.775	1.38	2.4	21.315	4.692	0.0	0.0	0.0	0
11.18	16.111	0.744	1.38	2.4	21.655	4.618	0.0	0.0	0.0	0
11.19	15.907	0.734	1.38	2.4	21.672	4.614	0.0	0.0	0.0	0
11.20	15.703	0.724	1.38	2.4	21.689	4.611	0.0	0.0	0.0	0
11.21	15.397	0.714	1.38	2.4	21.564	4.637	0.0	0.0	0.0	0
11.22	15.499	0.704	1.38	2.4	22.016	4.542	0.0	0.0	0.0	0
11.23	15.397	0.693	1.38	2.4	22.218	4.501	0.0	0.0	0.0	0
11.24	14.99	0.683	1.38	2.4	21.947	4.556	0.0	0.0	0.0	0
11.25	14.888	0.673	1.37	2.4	22.122	4.52	0.0	0.0	0.0	0
11.26	14.99	0.673	1.37	2.4	22.273	4.49	0.0	0.0	0.0	0
11.27	15.092	0.663	1.37	2.4	22.763	4.393	0.0	0.0	0.0	0
11.28	15.194	0.663	1.37	2.4	22.917	4.364	0.0	0.0	0.0	0
11.29	15.295	0.663	1.37	2.4	23.069	4.335	0.0	0.0	0.0	0
11.30	15.092	0.663	1.37	2.4	22.763	4.393	0.0	0.0	0.0	0
11.31	15.092	0.673	1.37	2.4	22.425	4.459	0.0	0.0	0.0	0
11.32	15.194	0.673	1.38	2.5	22.577	4.429	0.0	0.0	0.0	0
11.33	15.601	0.663	1.38	2.5	23.531	4.25	0.0	0.0	0.0	0
11.34	16.009	0.653	1.38	2.5	24.516	4.079	0.0	0.0	0.0	0
11.35	16.213	0.653	1.38	2.4	24.828	4.028	0.0	0.0	0.0	0
11.36	16.927	0.632	1.39	2.4	26.783	3.734	0.0	0.0	0.0	0

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11.37	17.335	0.612	1.39	2.4	28.325	3.53	0.0	0.0	0.0	0
11.38	17.641	0.591	1.39	2.4	29.849	3.35	0.0	0.0	0.0	0
11.39	17.947	0.581	1.39	2.4	30.89	3.237	0.0	0.0	0.0	0
11.40	18.151	0.581	1.39	2.4	31.241	3.201	0.0	0.0	0.0	0
11.41	18.253	0.581	1.39	2.4	31.417	3.183	0.0	0.0	0.0	0
11.42	18.253	0.602	1.39	2.4	30.321	3.298	0.0	0.0	0.0	0
11.43	18.253	0.612	1.39	2.4	29.825	3.353	0.0	0.0	0.0	0
11.44	18.253	0.632	1.38	2.4	28.881	3.462	0.0	0.0	0.0	0
11.45	18.355	0.642	1.39	2.4	28.59	3.498	0.0	0.0	0.0	0
11.46	17.947	0.663	1.39	2.4	27.069	3.694	0.0	0.0	0.0	0
11.47	17.743	0.683	1.39	2.4	25.978	3.849	0.0	0.0	0.0	0
11.48	17.437	0.714	1.39	2.4	24.422	4.095	0.0	0.0	0.0	0
11.49	17.233	0.724	1.38	2.5	23.802	4.201	0.0	0.0	0.0	0
11.50	17.029	0.744	1.38	2.4	22.888	4.369	0.0	0.0	0.0	0
11.51	16.723	0.775	1.38	2.5	21.578	4.634	0.0	0.0	0.0	0
11.52	16.519	0.785	1.38	2.5	21.043	4.752	0.0	0.0	0.0	0
11.53	16.417	0.795	1.38	2.5	20.65	4.843	0.0	0.0	0.0	0
11.54	15.907	0.816	1.38	2.5	19.494	5.13	0.0	0.0	0.0	0
11.55	15.601	0.826	1.38	2.5	18.887	5.295	0.0	0.0	0.0	0
11.56	15.499	0.816	1.38	2.5	18.994	5.265	0.0	0.0	0.0	0
11.57	15.499	0.816	1.38	2.5	18.994	5.265	0.0	0.0	0.0	0
11.58	15.397	0.806	1.38	2.5	19.103	5.235	0.0	0.0	0.0	0
11.59	15.397	0.795	1.38	2.5	19.367	5.163	0.0	0.0	0.0	0
11.60	15.601	0.785	1.39	2.5	19.874	5.032	0.0	0.0	0.0	0
11.61	15.805	0.765	1.39	2.5	20.66	4.84	0.0	0.0	0.0	0
11.62	15.907	0.755	1.40	2.5	21.069	4.746	0.0	0.0	0.0	0
11.63	16.111	0.744	1.40	2.5	21.655	4.618	0.0	0.0	0.0	0
11.64	16.417	0.714	1.40	2.5	22.993	4.349	0.0	0.0	0.0	0
11.65	16.825	0.683	1.40	2.5	24.634	4.059	0.0	0.0	0.0	0
11.66	17.743	0.632	1.41	2.5	28.074	3.562	0.0	0.0	0.0	0
11.67	18.355	0.602	1.41	2.5	30.49	3.28	0.0	0.0	0.0	0
11.68	18.661	0.581	1.41	2.5	32.119	3.113	0.0	0.0	0.0	0
11.69	18.864	0.581	1.42	2.5	32.468	3.08	0.0	0.0	0.0	0
11.70	19.374	0.581	1.42	2.5	33.346	2.999	0.0	0.0	0.0	0
11.71	20.292	0.551	1.43	2.5	36.828	2.715	0.0	0.0	0.0	0
11.72	21.006	0.54	1.43	2.5	38.9	2.571	0.0	0.0	0.0	0
11.73	21.414	0.551	1.44	2.5	38.864	2.573	0.0	0.0	0.0	0
11.74	21.312	0.571	1.44	2.5	37.324	2.679	0.0	0.0	0.0	0
11.75	21.414	0.581	1.44	2.6	36.857	2.713	0.0	0.0	0.0	0
11.76	21.414	0.591	1.44	2.6	36.234	2.76	0.0	0.0	0.0	0
11.77	21.618	0.612	1.44	2.6	35.324	2.831	0.0	0.0	0.0	0
11.78	21.516	0.653	1.44	2.6	32.949	3.035	0.0	0.0	0.0	0
11.79	21.822	0.653	1.43	2.5	33.418	2.992	0.0	0.0	0.0	0
11.80	21.72	0.673	1.43	2.5	32.273	3.099	0.0	0.0	0.0	0
11.81	21.822	0.704	1.43	2.5	30.997	3.226	0.0	0.0	0.0	0
11.82	20.904	0.744	1.43	2.5	28.097	3.559	0.0	0.0	0.0	0
11.83	19.986	0.836	1.43	2.6	23.907	4.183	0.0	0.0	0.0	0
11.84	19.374	0.877	1.43	2.5	22.091	4.527	0.0	0.0	0.0	0
11.85	19.374	0.908	1.43	2.6	21.337	4.687	0.0	0.0	0.0	0
11.86	18.966	0.928	1.43	2.6	20.438	4.893	0.0	0.0	0.0	0
11.87	18.559	0.959	1.42	2.5	19.352	5.167	0.0	0.0	0.0	0
11.88	18.559	0.959	1.42	2.5	19.352	5.167	0.0	0.0	0.0	0
11.89	18.559	0.959	1.42	2.5	19.352	5.167	0.0	0.0	0.0	0
11.90	17.029	1.162	1.38	2.5	14.655	6.824	0.0	0.0	0.0	0
11.91	16.825	1.203	1.38	2.5	13.986	7.15	0.0	0.0	0.0	0
11.92	16.621	1.234	1.38	2.5	13.469	7.424	0.0	0.0	0.0	0
11.93	16.417	1.244	1.38	2.5	13.197	7.578	0.0	0.0	0.0	0
11.94	16.111	1.234	1.39	2.5	13.056	7.659	0.0	0.0	0.0	0
11.95	16.009	1.213	1.39	2.6	13.198	7.577	0.0	0.0	0.0	0
11.96	16.111	1.173	1.39	2.6	13.735	7.281	0.0	0.0	0.0	0
11.97	16.213	1.111	1.39	2.6	14.593	6.853	0.0	0.0	0.0	0
11.98	16.213	1.06	1.39	2.6	15.295	6.538	0.0	0.0	0.0	0
11.99	16.315	1.01	1.39	2.6	16.153	6.191	0.0	0.0	0.0	0
12.00	16.519	0.959	1.39	2.6	17.225	5.805	0.0	0.0	0.0	0
12.01	16.927	0.846	1.40	2.6	20.008	4.998	0.0	0.0	0.0	0
12.02	17.335	0.795	1.40	2.6	21.805	4.586	0.0	0.0	0.0	0
12.03	17.845	0.744	1.40	2.6	23.985	4.169	0.0	0.0	0.0	0
12.04	18.457	0.683	1.40	2.6	27.023	3.7	0.0	0.0	0.0	0
12.05	18.864	0.653	1.40	2.6	28.888	3.462	0.0	0.0	0.0	0
12.06	19.476	0.622	1.41	2.6	31.312	3.194	0.0	0.0	0.0	0
12.07	19.884	0.602	1.41	2.6	33.03	3.028	0.0	0.0	0.0	0
12.08	20.088	0.591	1.41	2.6	33.99	2.942	0.0	0.0	0.0	0
12.09	20.802	0.591	1.41	2.6	35.198	2.841	0.0	0.0	0.0	0
12.10	21.108	0.591	1.41	2.6	35.716	2.8	0.0	0.0	0.0	0
12.11	21.21	0.602	1.41	2.6	35.233	2.838	0.0	0.0	0.0	0

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12.12	21.21	0.622	1.41	2.6	34.1	2.933	0.0	0.0	0.0	0
12.13	21.414	0.642	1.41	2.6	33.355	2.998	0.0	0.0	0.0	0
12.14	21.516	0.673	1.41	2.6	31.97	3.128	0.0	0.0	0.0	0
12.15	21.822	0.744	1.41	2.6	29.331	3.409	0.0	0.0	0.0	0
12.16	21.822	0.785	1.41	2.6	27.799	3.597	0.0	0.0	0.0	0
12.17	21.822	0.826	1.41	2.6	26.419	3.785	0.0	0.0	0.0	0
12.18	21.924	0.857	1.41	2.6	25.582	3.909	0.0	0.0	0.0	0
12.19	22.026	0.897	1.41	2.6	24.555	4.072	0.0	0.0	0.0	0
12.20	22.026	0.928	1.41	2.6	23.735	4.213	0.0	0.0	0.0	0
12.21	22.127	0.979	1.41	2.6	22.602	4.424	0.0	0.0	0.0	0
12.22	22.229	0.999	1.41	2.6	22.251	4.494	0.0	0.0	0.0	0
12.23	22.229	1.01	1.41	2.6	22.009	4.544	0.0	0.0	0.0	0
12.24	22.331	1.03	1.41	2.6	21.681	4.612	0.0	0.0	0.0	0
12.25	22.433	1.05	1.41	2.6	21.365	4.681	0.0	0.0	0.0	0
12.26	22.739	1.06	1.41	2.6	21.452	4.662	0.0	0.0	0.0	0
12.27	23.147	1.071	1.41	2.6	21.613	4.627	0.0	0.0	0.0	0
12.28	22.943	1.071	1.41	2.6	21.422	4.668	0.0	0.0	0.0	0
12.29	22.943	1.091	1.41	2.6	21.029	4.755	0.0	0.0	0.0	0
12.30	22.841	1.081	1.41	2.6	21.13	4.733	0.0	0.0	0.0	0
12.31	22.841	1.091	1.42	2.6	20.936	4.776	0.0	0.0	0.0	0
12.32	23.657	1.091	1.42	2.7	21.684	4.612	0.0	0.0	0.0	0
12.33	23.147	1.091	1.42	2.7	21.216	4.713	0.0	0.0	0.0	0
12.34	23.147	1.101	1.42	2.7	21.024	4.757	0.0	0.0	0.0	0
12.35	23.861	1.091	1.42	2.7	21.871	4.572	0.0	0.0	0.0	0
12.36	23.861	1.081	1.42	2.7	22.073	4.53	0.0	0.0	0.0	0
12.37	23.963	1.091	1.42	2.7	21.964	4.553	0.0	0.0	0.0	0
12.38	24.065	1.101	1.42	2.7	21.857	4.575	0.0	0.0	0.0	0
12.39	24.371	1.111	1.42	2.7	21.936	4.559	0.0	0.0	0.0	0
12.40	24.473	1.111	1.42	2.7	22.028	4.54	0.0	0.0	0.0	0
12.41	24.677	1.122	1.42	2.7	21.994	4.547	0.0	0.0	0.0	0
12.42	24.881	1.132	1.42	2.7	21.98	4.55	0.0	0.0	0.0	0
12.43	25.492	1.142	1.42	2.7	22.322	4.48	0.0	0.0	0.0	0
12.44	24.983	1.152	1.43	2.7	21.687	4.611	0.0	0.0	0.0	0
12.45	25.289	1.162	1.43	2.7	21.763	4.595	0.0	0.0	0.0	0
12.46	24.983	1.183	1.43	2.7	21.118	4.735	0.0	0.0	0.0	0
12.47	24.881	1.193	1.43	2.7	20.856	4.795	0.0	0.0	0.0	0
12.48	25.187	1.224	1.43	2.7	20.578	4.86	0.0	0.0	0.0	0
12.49	25.391	1.254	1.43	2.7	20.248	4.939	0.0	0.0	0.0	0
12.50	25.492	1.254	1.43	2.7	20.329	4.919	0.0	0.0	0.0	0
12.51	25.594	1.264	1.44	2.7	20.248	4.939	0.0	0.0	0.0	0
12.52	25.289	1.275	1.44	2.7	19.835	5.042	0.0	0.0	0.0	0
12.53	25.9	1.275	1.45	2.7	20.314	4.923	0.0	0.0	0.0	0
12.54	26.512	1.264	1.45	2.7	20.975	4.768	0.0	0.0	0.0	0
12.55	27.838	1.264	1.45	2.7	22.024	4.541	0.0	0.0	0.0	0
12.56	27.94	1.285	1.45	2.7	21.743	4.599	0.0	0.0	0.0	0
12.57	29.265	1.285	1.46	2.8	22.774	4.391	0.0	0.0	0.0	0
12.58	32.019	1.285	1.47	2.8	24.918	4.013	0.0	0.0	0.0	0
12.59	32.223	1.285	1.46	2.8	25.076	3.988	0.0	0.0	0.0	0
12.60	30.489	1.315	1.46	2.8	23.186	4.313	0.0	0.0	0.0	0
12.61	29.571	1.295	1.45	2.8	22.835	4.379	0.0	0.0	0.0	0
12.62	29.163	1.315	1.45	2.8	22.177	4.509	0.0	0.0	0.0	0
12.63	28.959	1.326	1.46	2.8	21.839	4.579	0.0	0.0	0.0	0
12.64	28.042	1.346	1.46	2.8	20.834	4.8	0.0	0.0	0.0	0
12.65	27.736	1.387	1.46	2.8	19.997	5.001	0.0	0.0	0.0	0
12.66	27.634	1.397	1.47	2.8	19.781	5.055	0.0	0.0	0.0	0
12.67	27.532	1.407	1.47	2.8	19.568	5.11	0.0	0.0	0.0	0
12.68	27.532	1.438	1.48	2.8	19.146	5.223	0.0	0.0	0.0	0
12.69	27.532	1.448	1.48	2.8	19.014	5.259	0.0	0.0	0.0	0
12.70	27.328	1.458	1.48	2.8	18.743	5.335	0.0	0.0	0.0	0
12.71	27.124	1.468	1.49	2.8	18.477	5.412	0.0	0.0	0.0	0
12.72	27.124	1.468	1.49	2.8	18.477	5.412	0.0	0.0	0.0	0
12.73	27.634	1.448	1.49	2.8	19.084	5.24	0.0	0.0	0.0	0
12.74	27.736	1.448	1.49	2.8	19.155	5.221	0.0	0.0	0.0	0
12.75	27.634	1.438	1.49	2.8	19.217	5.204	0.0	0.0	0.0	0
12.76	27.43	1.428	1.49	2.8	19.209	5.206	0.0	0.0	0.0	0
12.77	27.328	1.417	1.49	2.8	19.286	5.185	0.0	0.0	0.0	0
12.78	27.022	1.417	1.49	2.8	19.07	5.244	0.0	0.0	0.0	0
12.79	26.92	1.407	1.49	2.8	19.133	5.227	0.0	0.0	0.0	0
12.80	26.92	1.407	1.49	2.8	19.133	5.227	0.0	0.0	0.0	0
12.81	26.92	1.407	1.49	2.8	19.133	5.227	0.0	0.0	0.0	0
12.82	26.614	1.407	1.49	2.8	18.915	5.287	0.0	0.0	0.0	0
12.83	26.512	1.417	1.49	2.8	18.71	5.345	0.0	0.0	0.0	0
12.84	26.104	1.407	1.49	2.8	18.553	5.39	0.0	0.0	0.0	0
12.85	26.002	1.397	1.49	2.8	18.613	5.373	0.0	0.0	0.0	0
12.86	26.002	1.407	1.50	2.8	18.48	5.411	0.0	0.0	0.0	0

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12.87	26.308	1.387	1.49	2.8	18.968	5.272	0.0	0.0	0.0	0
12.88	26.308	1.387	1.49	2.8	18.968	5.272	0.0	0.0	0.0	0
12.89	26.308	1.387	1.49	2.8	18.968	5.272	0.0	0.0	0.0	0
12.90	26.308	1.336	1.45	2.8	19.692	5.078	0.0	0.0	0.0	0
12.91	26.614	1.326	1.46	2.8	20.071	4.982	0.0	0.0	0.0	0
12.92	27.022	1.305	1.46	2.8	20.707	4.829	0.0	0.0	0.0	0
12.93	27.328	1.285	1.46	2.8	21.267	4.702	0.0	0.0	0.0	0
12.94	27.532	1.275	1.46	2.8	21.594	4.631	0.0	0.0	0.0	0
12.95	27.532	1.275	1.46	2.8	21.594	4.631	0.0	0.0	0.0	0
12.96	27.838	1.275	1.46	2.8	21.834	4.58	0.0	0.0	0.0	0
12.97	28.042	1.275	1.46	2.9	21.994	4.547	0.0	0.0	0.0	0
12.98	28.45	1.285	1.46	2.9	22.14	4.517	0.0	0.0	0.0	0
12.99	28.552	1.295	1.46	2.8	22.048	4.536	0.0	0.0	0.0	0
13.00	28.756	1.315	1.47	2.8	21.868	4.573	0.0	0.0	0.0	0
13.01	29.571	1.336	1.47	2.9	22.134	4.518	0.0	0.0	0.0	0
13.02	29.775	1.346	1.47	2.8	22.121	4.521	0.0	0.0	0.0	0
13.03	29.673	1.366	1.48	2.9	21.723	4.604	0.0	0.0	0.0	0
13.04	29.775	1.366	1.48	2.9	21.797	4.588	0.0	0.0	0.0	0
13.05	29.877	1.377	1.49	2.9	21.697	4.609	0.0	0.0	0.0	0
13.06	29.877	1.377	1.49	2.9	21.697	4.609	0.0	0.0	0.0	0
13.07	29.571	1.377	1.49	2.9	21.475	4.657	0.0	0.0	0.0	0
13.08	29.265	1.356	1.49	2.9	21.582	4.634	0.0	0.0	0.0	0
13.09	28.959	1.346	1.49	2.9	21.515	4.648	0.0	0.0	0.0	0
13.10	28.756	1.326	1.49	2.9	21.686	4.611	0.0	0.0	0.0	0
13.11	28.756	1.295	1.49	2.9	22.205	4.503	0.0	0.0	0.0	0
13.12	28.246	1.264	1.49	2.9	22.347	4.475	0.0	0.0	0.0	0
13.13	27.838	1.254	1.50	2.9	22.199	4.505	0.0	0.0	0.0	0
13.14	27.838	1.254	1.50	2.9	22.199	4.505	0.0	0.0	0.0	0
13.15	26.614	1.244	1.51	2.8	21.394	4.674	0.0	0.0	0.0	0
13.16	26.002	1.234	1.51	2.8	21.071	4.746	0.0	0.0	0.0	0
13.17	25.391	1.224	1.51	2.9	20.744	4.821	0.0	0.0	0.0	0
13.18	24.575	1.213	1.51	2.9	20.26	4.936	0.0	0.0	0.0	0
13.19	24.269	1.203	1.50	2.9	20.174	4.957	0.0	0.0	0.0	0
13.20	23.657	1.203	1.50	2.9	19.665	5.085	0.0	0.0	0.0	0
13.21	22.841	1.203	1.50	2.8	18.987	5.267	0.0	0.0	0.0	0
13.22	22.433	1.193	1.50	2.9	18.804	5.318	0.0	0.0	0.0	0
13.23	21.618	1.173	1.49	2.9	18.43	5.426	0.0	0.0	0.0	0
13.24	21.108	1.173	1.49	2.9	17.995	5.557	0.0	0.0	0.0	0
13.25	20.598	1.162	1.49	2.9	17.726	5.641	0.0	0.0	0.0	0
13.26	20.19	1.152	1.49	2.9	17.526	5.706	0.0	0.0	0.0	0
13.27	19.884	1.132	1.49	2.9	17.565	5.693	0.0	0.0	0.0	0
13.28	19.476	1.111	1.49	2.9	17.53	5.704	0.0	0.0	0.0	0
13.29	18.762	1.071	1.48	2.9	17.518	5.708	0.0	0.0	0.0	0
13.30	18.355	1.04	1.48	2.9	17.649	5.666	0.0	0.0	0.0	0
13.31	17.947	1.02	1.49	2.9	17.595	5.683	0.0	0.0	0.0	0
13.32	17.743	0.999	1.49	2.9	17.761	5.63	0.0	0.0	0.0	0
13.33	17.947	0.959	1.49	2.9	18.714	5.344	0.0	0.0	0.0	0
13.34	17.743	0.908	1.48	2.9	19.541	5.118	0.0	0.0	0.0	0
13.35	17.641	0.877	1.48	2.9	20.115	4.971	0.0	0.0	0.0	0
13.36	17.539	0.846	1.48	2.9	20.732	4.824	0.0	0.0	0.0	0
13.37	17.539	0.826	1.49	2.9	21.234	4.71	0.0	0.0	0.0	0
13.38	17.539	0.795	1.49	2.9	22.062	4.533	0.0	0.0	0.0	0
13.39	18.151	0.714	1.49	2.9	25.422	3.934	0.0	0.0	0.0	0
13.40	18.457	0.683	1.49	2.9	27.023	3.7	0.0	0.0	0.0	0
13.41	18.661	0.663	1.49	2.9	28.146	3.553	0.0	0.0	0.0	0
13.42	18.661	0.653	1.49	2.9	28.577	3.499	0.0	0.0	0.0	0
13.43	18.864	0.632	1.49	2.9	29.848	3.35	0.0	0.0	0.0	0
13.44	19.782	0.591	1.50	2.9	33.472	2.988	0.0	0.0	0.0	0
13.45	20.088	0.591	1.50	2.9	33.99	2.942	0.0	0.0	0.0	0
13.46	20.496	0.602	1.50	2.9	34.047	2.937	0.0	0.0	0.0	0
13.47	21.006	0.602	1.50	2.9	34.894	2.866	0.0	0.0	0.0	0
13.48	21.312	0.602	1.50	2.9	35.402	2.825	0.0	0.0	0.0	0
13.49	21.516	0.612	1.50	2.9	35.157	2.844	0.0	0.0	0.0	0
13.50	22.331	0.632	1.50	2.9	35.334	2.83	0.0	0.0	0.0	0
13.51	22.739	0.642	1.50	2.9	35.419	2.823	0.0	0.0	0.0	0
13.52	22.943	0.673	1.50	2.9	34.091	2.933	0.0	0.0	0.0	0
13.53	22.943	0.704	1.50	2.9	32.589	3.068	0.0	0.0	0.0	0
13.54	23.351	0.724	1.50	2.9	32.253	3.101	0.0	0.0	0.0	0
13.55	23.963	0.744	1.51	2.9	32.208	3.105	0.0	0.0	0.0	0
13.56	24.473	0.755	1.51	2.9	32.415	3.085	0.0	0.0	0.0	0
13.57	24.677	0.775	1.51	2.9	31.841	3.141	0.0	0.0	0.0	0
13.58	24.881	0.806	1.51	2.9	30.87	3.239	0.0	0.0	0.0	0
13.59	24.983	0.836	1.51	2.9	29.884	3.346	0.0	0.0	0.0	0
13.60	25.289	0.877	1.51	2.9	28.836	3.468	0.0	0.0	0.0	0
13.61	25.391	0.908	1.51	2.9	27.964	3.576	0.0	0.0	0.0	0

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13.62	25.391	0.928	1.51	2.9	27.361	3.655	0.0	0.0	0.0	0
13.63	25.492	0.959	1.51	2.9	26.582	3.762	0.0	0.0	0.0	0
13.64	25.492	0.989	1.51	2.9	25.776	3.88	0.0	0.0	0.0	0
13.65	25.391	1.06	1.51	2.9	23.954	4.175	0.0	0.0	0.0	0
13.66	25.391	1.06	1.51	2.9	23.954	4.175	0.0	0.0	0.0	0
13.67	25.594	1.081	1.51	2.9	23.676	4.224	0.0	0.0	0.0	0
13.68	25.594	1.111	1.51	2.9	23.037	4.341	0.0	0.0	0.0	0
13.69	25.696	1.142	1.51	2.9	22.501	4.444	0.0	0.0	0.0	0
13.70	25.696	1.173	1.51	2.9	21.906	4.565	0.0	0.0	0.0	0
13.71	25.492	1.213	1.51	2.9	21.016	4.758	0.0	0.0	0.0	0
13.72	25.289	1.234	1.51	2.9	20.494	4.88	0.0	0.0	0.0	0
13.73	25.391	1.244	1.51	2.9	20.411	4.899	0.0	0.0	0.0	0
13.74	25.492	1.254	1.51	2.9	20.329	4.919	0.0	0.0	0.0	0
13.75	25.391	1.275	1.51	2.9	19.915	5.021	0.0	0.0	0.0	0
13.76	25.187	1.295	1.51	2.9	19.449	5.142	0.0	0.0	0.0	0
13.77	25.289	1.295	1.51	2.9	19.528	5.121	0.0	0.0	0.0	0
13.78	25.391	1.295	1.51	2.9	19.607	5.1	0.0	0.0	0.0	0
13.79	25.289	1.305	1.51	2.9	19.379	5.16	0.0	0.0	0.0	0
13.80	25.187	1.326	1.51	2.9	18.995	5.265	0.0	0.0	0.0	0
13.81	24.881	1.366	1.51	2.9	18.214	5.49	0.0	0.0	0.0	0
13.82	24.881	1.366	1.51	2.9	18.214	5.49	0.0	0.0	0.0	0
13.83	24.983	1.366	1.51	2.9	18.289	5.468	0.0	0.0	0.0	0
13.84	25.085	1.377	1.51	2.9	18.217	5.489	0.0	0.0	0.0	0
13.85	25.085	1.387	1.51	2.9	18.086	5.529	0.0	0.0	0.0	0
13.86	24.881	1.397	1.51	3.0	17.81	5.615	0.0	0.0	0.0	0
13.87	24.677	1.407	1.51	3.0	17.539	5.702	0.0	0.0	0.0	0
13.88	24.677	1.407	1.51	3.0	17.539	5.702	0.0	0.0	0.0	0
13.89	24.677	1.407	1.51	3.0	17.539	5.702	0.0	0.0	0.0	0
13.90	25.289	1.458	1.46	3.0	17.345	5.765	0.0	0.0	0.0	0
13.91	24.779	1.468	1.46	3.0	16.879	5.924	0.0	0.0	0.0	0
13.92	24.575	1.479	1.46	3.0	16.616	6.018	0.0	0.0	0.0	0
13.93	24.473	1.468	1.46	3.0	16.671	5.998	0.0	0.0	0.0	0
13.94	24.371	1.458	1.46	3.0	16.715	5.983	0.0	0.0	0.0	0
13.95	24.371	1.458	1.46	3.0	16.715	5.983	0.0	0.0	0.0	0
13.96	24.269	1.458	1.46	3.0	16.645	6.008	0.0	0.0	0.0	0
13.97	23.963	1.468	1.46	3.0	16.324	6.126	0.0	0.0	0.0	0
13.98	23.861	1.479	1.45	3.0	16.133	6.198	0.0	0.0	0.0	0
13.99	23.555	1.479	1.45	3.0	15.926	6.279	0.0	0.0	0.0	0
14.00	23.351	1.479	1.45	3.0	15.788	6.334	0.0	0.0	0.0	0
14.01	22.943	1.489	1.45	3.0	15.408	6.49	0.0	0.0	0.0	0
14.02	22.943	1.479	1.45	3.0	15.513	6.446	0.0	0.0	0.0	0
14.03	22.331	1.479	1.45	3.0	15.099	6.623	0.0	0.0	0.0	0
14.04	22.026	1.479	1.45	3.0	14.892	6.715	0.0	0.0	0.0	0
14.05	21.924	1.448	1.45	3.0	15.141	6.605	0.0	0.0	0.0	0
14.06	21.822	1.438	1.45	3.0	15.175	6.59	0.0	0.0	0.0	0
14.07	21.924	1.417	1.45	3.0	15.472	6.463	0.0	0.0	0.0	0
14.08	21.924	1.407	1.45	3.0	15.582	6.418	0.0	0.0	0.0	0
14.09	21.924	1.407	1.45	3.0	15.582	6.418	0.0	0.0	0.0	0
14.10	21.924	1.397	1.45	3.0	15.694	6.372	0.0	0.0	0.0	0
14.11	21.924	1.387	1.45	3.0	15.807	6.326	0.0	0.0	0.0	0
14.12	21.924	1.366	1.45	3.0	16.05	6.231	0.0	0.0	0.0	0
14.13	21.822	1.366	1.45	3.0	15.975	6.26	0.0	0.0	0.0	0
14.14	21.72	1.346	1.45	3.0	16.137	6.197	0.0	0.0	0.0	0
14.15	21.618	1.326	1.46	3.0	16.303	6.134	0.0	0.0	0.0	0
14.16	21.72	1.305	1.46	3.0	16.644	6.008	0.0	0.0	0.0	0
14.17	22.026	1.285	1.46	3.0	17.141	5.834	0.0	0.0	0.0	0
14.18	22.229	1.264	1.46	3.0	17.586	5.686	0.0	0.0	0.0	0
14.19	22.637	1.244	1.46	3.0	18.197	5.495	0.0	0.0	0.0	0
14.20	23.045	1.203	1.46	3.0	19.156	5.22	0.0	0.0	0.0	0
14.21	23.249	1.173	1.47	3.0	19.82	5.045	0.0	0.0	0.0	0
14.22	23.351	1.152	1.47	3.1	20.27	4.933	0.0	0.0	0.0	0
14.23	23.759	1.111	1.47	3.1	21.385	4.676	0.0	0.0	0.0	0
14.24	24.677	1.03	1.48	3.1	23.958	4.174	0.0	0.0	0.0	0
14.25	25.187	0.999	1.49	3.1	25.212	3.966	0.0	0.0	0.0	0
14.26	25.696	0.948	1.49	3.1	27.105	3.689	0.0	0.0	0.0	0
14.27	26.104	0.908	1.50	3.1	28.749	3.478	0.0	0.0	0.0	0
14.28	26.308	0.887	1.50	3.1	29.66	3.372	0.0	0.0	0.0	0
14.29	26.512	0.826	1.51	3.1	32.097	3.116	0.0	0.0	0.0	0
14.30	26.41	0.816	1.51	3.1	32.365	3.09	0.0	0.0	0.0	0
14.31	26.41	0.795	1.52	3.1	33.22	3.01	0.0	0.0	0.0	0
14.32	26.308	0.785	1.51	3.1	33.513	2.984	0.0	0.0	0.0	0
14.33	26.104	0.785	1.51	3.1	33.254	3.007	0.0	0.0	0.0	0
14.34	25.594	0.795	1.52	3.1	32.194	3.106	0.0	0.0	0.0	0
14.35	25.289	0.806	1.52	3.1	31.376	3.187	0.0	0.0	0.0	0
14.36	25.085	0.806	1.52	3.1	31.123	3.213	0.0	0.0	0.0	0

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14.37	24.881	0.826	1.53	3.1	30.122	3.32	0.0	0.0	0.0	0
14.38	24.473	0.826	1.53	3.1	29.628	3.375	0.0	0.0	0.0	0
14.39	23.657	0.826	1.53	3.1	28.64	3.492	0.0	0.0	0.0	0
14.40	23.249	0.816	1.53	3.1	28.491	3.51	0.0	0.0	0.0	0
14.41	22.943	0.806	1.53	3.1	28.465	3.513	0.0	0.0	0.0	0
14.42	22.739	0.795	1.53	3.1	28.603	3.496	0.0	0.0	0.0	0
14.43	22.637	0.785	1.54	3.1	28.837	3.468	0.0	0.0	0.0	0
14.44	21.924	0.795	1.53	3.1	27.577	3.626	0.0	0.0	0.0	0
14.45	21.618	0.785	1.53	3.1	27.539	3.631	0.0	0.0	0.0	0
14.46	21.21	0.775	1.54	3.1	27.368	3.654	0.0	0.0	0.0	0
14.47	21.108	0.755	1.54	3.1	27.958	3.577	0.0	0.0	0.0	0
14.48	21.006	0.734	1.54	3.1	28.619	3.494	0.0	0.0	0.0	0
14.49	20.802	0.704	1.54	3.1	29.548	3.384	0.0	0.0	0.0	0
14.50	20.802	0.683	1.54	3.1	30.457	3.283	0.0	0.0	0.0	0
14.51	20.598	0.673	1.55	3.1	30.606	3.267	0.0	0.0	0.0	0
14.52	20.394	0.673	1.55	3.1	30.303	3.3	0.0	0.0	0.0	0
14.53	20.292	0.663	1.55	3.1	30.606	3.267	0.0	0.0	0.0	0
14.54	19.986	0.642	1.54	3.1	31.131	3.212	0.0	0.0	0.0	0
14.55	19.782	0.622	1.54	3.1	31.804	3.144	0.0	0.0	0.0	0
14.56	19.782	0.612	1.54	3.1	32.324	3.094	0.0	0.0	0.0	0
14.57	19.68	0.591	1.54	3.1	33.299	3.003	0.0	0.0	0.0	0
14.58	19.68	0.571	1.54	3.1	34.466	2.901	0.0	0.0	0.0	0
14.59	19.272	0.551	1.54	3.1	34.976	2.859	0.0	0.0	0.0	0
14.60	19.476	0.54	1.55	3.1	36.067	2.773	0.0	0.0	0.0	0
14.61	19.986	0.51	1.55	3.1	39.188	2.552	0.0	0.0	0.0	0
14.62	21.312	0.479	1.56	3.1	44.493	2.248	0.0	0.0	0.0	0
14.63	24.065	0.469	1.57	3.1	51.311	1.949	0.0	0.0	0.0	0
14.64	33.038	0.51	1.61	3.1	64.78	1.544	0.0	0.0	0.0	0
14.65	37.423	0.52	1.63	3.1	71.967	1.39	0.0	0.0	0.0	0
14.66	42.827	0.54	1.63	3.1	79.309	1.261	0.0	0.0	0.0	0
14.67	48.028	0.571	1.63	3.1	84.112	1.189	0.0	0.0	0.0	0
14.68	55.268	0.653	1.63	3.1	84.637	1.182	0.0	0.0	0.0	0
14.69	57.817	0.642	1.62	3.1	90.058	1.11	0.0	0.0	0.0	0
14.70	59.245	0.632	1.62	3.1	93.742	1.067	0.0	0.0	0.0	0
14.71	59.245	0.612	1.62	3.1	96.806	1.033	0.0	0.0	0.0	0
14.72	58.939	0.602	1.62	3.1	97.905	1.021	0.0	0.0	0.0	0
14.73	58.531	0.54	1.62	3.1	108.391	0.923	0.0	0.0	0.0	0
14.74	58.225	0.5	1.62	3.1	116.45	0.859	0.0	0.0	0.0	0
14.75	57.613	0.459	1.62	3.1	125.519	0.797	0.0	0.0	0.0	0
14.76	56.797	0.428	1.62	3.1	132.703	0.754	0.0	0.0	0.0	0
14.77	56.593	0.398	1.62	3.1	142.193	0.703	0.0	0.0	0.0	0
14.78	57.205	0.337	1.62	3.1	169.748	0.589	0.0	0.0	0.0	0
14.79	58.123	0.326	1.62	3.1	178.291	0.561	0.0	0.0	0.0	0
14.80	59.347	0.347	1.62	3.1	171.029	0.585	0.0	0.0	0.0	0
14.81	60.366	0.387	1.62	3.1	155.984	0.641	0.0	0.0	0.0	0
14.82	60.978	0.54	1.62	3.1	112.922	0.886	0.0	0.0	0.0	0
14.83	62.202	0.653	1.62	3.1	95.256	1.05	0.0	0.0	0.0	0
14.84	63.323	0.744	1.63	3.1	85.112	1.175	0.0	0.0	0.0	0
14.85	64.955	0.744	1.62	3.1	87.305	1.145	0.0	0.0	0.0	0
14.86	66.077	0.734	1.62	3.1	90.023	1.111	0.0	0.0	0.0	0

Prova CPTU n. 2

STIMA PARAMETRI GEOTECNICI Nr.2

TERRENI COESIVI
Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	14.86	18.194	0.778	0.81	1.14	1.12	0.99	0.88	0.91

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	14.86	18.194	0.778	90.97	45.60	109.16	54.58

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	14.86	18.194	0.778	629.34	27.30

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	14.86	18.194	0.778	Imai & Tomauchi	164.81

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	14.86	18.194	0.778	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	14.86	18.194	0.778	Meyerhof	1.94

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	14.86	18.194	0.778	Meyerhof	2.02

TERRENI INCOERENTI
Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	14.86	18.194	0.778	12.56	< 5	5.16	12.93	8.55

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	14.86	18.194	0.778	26.77	22.48	19.12	18.07	28.7	27.65	21.98	25.17

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	14.86	18.194	0.778	45.49	36.39	280.19

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	14.86	18.194	0.778	21.01	71.37	130.20	36.39	90.97

Prova CPTU n. 2

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	14.86	18.194	0.778	Imai & Tomauchi	164.81

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	14.86	18.194	0.778	<0.5	4.43	<0.5	2.68

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	14.86	18.194	0.778	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	14.86	18.194	0.778	0.1401	0.01821

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	14.86	18.194	0.778	Meyerhof	1.80

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	14.86	18.194	0.778	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	14.86	18.194	0.778	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	14.86	18.194	0.778	Piacentini-Righi 1988	2.976425E-08

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	14.86	18.194	0.778	Piacentini-Righi 1988	1.624592E-03

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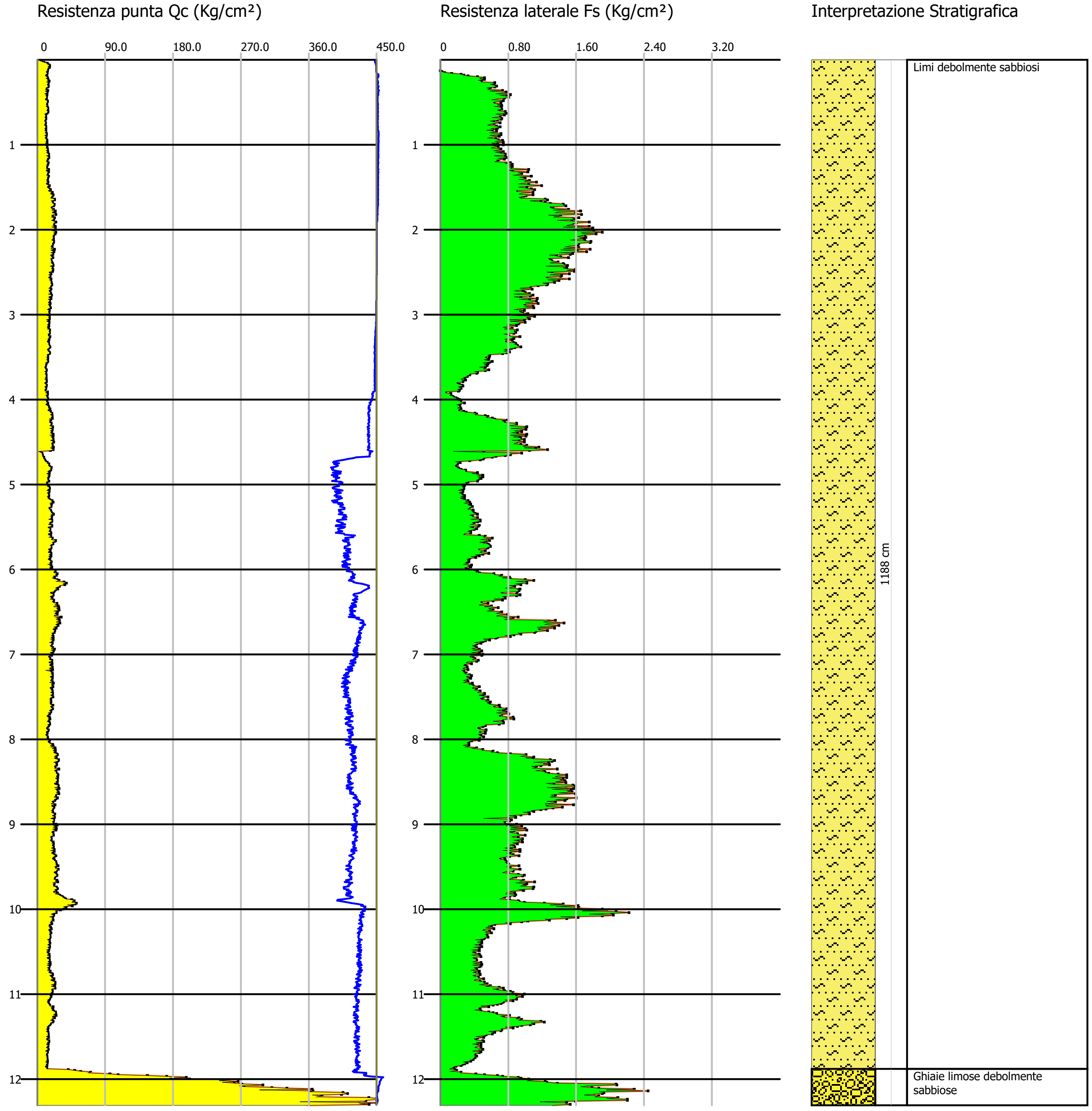
Sito web: www.geologicatoscana.eu

CPTU3_ms3

Probe CPTU - Piezocone Nr.3
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente:	Unione dei Comuni Savena Idice	Data: 03/03/2021
Cantiere:	Prove penetrometriche per Microzonazione sismica III° livello	
Località:	Ozzano dell'Emilia (BO)	



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

PROVA CPTU Nr.3

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 03/03/2021
Profondità prova: 12.31 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità
qc Resistenza punta (Kg/cm²);
fs Resistenza laterale (Kg/cm²);
Tilt Inclinazione (°)
Fr fs/qcx100 (Schmertmann)
qcn qc normalizzata (Kg/cm²);
fsn fs normalizzato (Kg/cm²);
U2 Pressione neutrale intorno al cono (Kg/cm²);
Uo Pressione neutrale rilevata (Kg/cm²);
Fc Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	3.12	0.0	0.04	0.4	0.0	0.0	0.0	0.0	0.0	0
0.02	5.772	0.0	0.25	0.4	0.0	0.0	0.0	0.0	0.0	0
0.03	8.861	0.0	0.19	0.4	0.0	0.0	0.0	0.0	0.0	0
0.04	13.134	0.0	0.10	0.4	0.0	0.0	0.0	0.0	0.0	0
0.05	13.399	0.0	0.09	0.4	0.0	0.0	0.0	0.0	0.0	0
0.06	15.397	0.0	0.08	0.3	0.0	0.0	0.0	0.0	0.0	0
0.07	16.366	0.0	0.07	0.3	0.0	0.0	0.0	0.0	0.0	0
0.08	14.317	0.0	0.06	0.3	0.0	0.0	0.0	0.0	0.0	0
0.09	15.938	0.0	0.06	0.3	0.0	0.0	0.0	0.0	0.0	0
0.10	13.715	0.0	0.05	0.3	0.0	0.0	0.0	0.0	0.0	0
0.11	13.705	0.0	0.05	0.3	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 3

0.12	12.909	0.0	0.05	0.3	0.0	0.0	0.0	0.0	0.0	0
0.13	13.521	0.0	0.05	0.3	0.0	0.0	0.0	0.0	0.0	0
0.14	11.676	0.02	0.04	0.3	583.8	0.171	0.0	0.0	0.0	0
0.15	12.206	0.051	0.01	0.3	239.333	0.418	0.0	0.0	0.0	0
0.16	13.276	0.133	0.01	0.3	99.82	1.002	0.0	0.0	0.0	0
0.17	12.257	0.245	-0.26	0.3	50.029	1.999	0.0	0.0	0.0	0
0.18	10.493	0.275	-0.22	0.3	38.156	2.621	0.0	0.0	0.0	0
0.19	10.788	0.326	-0.21	0.3	33.092	3.022	0.0	0.0	0.0	0
0.20	13.022	0.438	-0.26	0.3	29.731	3.364	0.0	0.0	0.0	0
0.21	13.389	0.52	-0.17	0.3	25.748	3.884	0.0	0.0	0.0	0
0.22	11.778	0.469	-0.06	0.3	25.113	3.982	0.0	0.0	0.0	0
0.23	14.184	0.52	-0.04	0.3	27.277	3.666	0.0	0.0	0.0	0
0.24	13.256	0.449	-0.09	0.2	29.523	3.387	0.0	0.0	0.0	0
0.25	15.591	0.489	-0.16	0.2	31.883	3.136	0.0	0.0	0.0	0
0.26	12.298	0.479	-0.15	0.2	25.674	3.895	0.0	0.0	0.0	0
0.27	14.867	0.642	-0.19	0.3	23.157	4.318	0.0	0.0	0.0	0
0.28	14.153	0.632	-0.15	0.3	22.394	4.465	0.0	0.0	0.0	0
0.29	13.236	0.591	-0.12	0.3	22.396	4.465	0.0	0.0	0.0	0
0.30	13.786	0.632	-0.13	0.3	21.813	4.584	0.0	0.0	0.0	0
0.31	14.449	0.663	-0.22	0.3	21.793	4.589	0.0	0.0	0.0	0
0.32	13.766	0.642	-0.21	0.3	21.442	4.664	0.0	0.0	0.0	0
0.33	11.563	0.551	-0.17	0.3	20.985	4.765	0.0	0.0	0.0	0
0.34	11.778	0.591	-0.16	0.3	19.929	5.018	0.0	0.0	0.0	0
0.35	11.023	0.561	-0.14	0.3	19.649	5.089	0.0	0.0	0.0	0
0.36	13.817	0.734	-0.33	0.3	18.824	5.312	0.0	0.0	0.0	0
0.37	10.605	0.581	-0.22	0.3	18.253	5.479	0.0	0.0	0.0	0
0.38	13.185	0.775	-0.21	0.3	17.013	5.878	0.0	0.0	0.0	0
0.39	12.196	0.765	-0.19	0.3	15.942	6.273	0.0	0.0	0.0	0
0.40	9.993	0.653	-0.15	0.3	15.303	6.535	0.0	0.0	0.0	0
0.41	12.858	0.826	-0.21	0.3	15.567	6.424	0.0	0.0	0.0	0
0.42	11.176	0.714	-0.17	0.3	15.653	6.389	0.0	0.0	0.0	0
0.43	12.012	0.785	-0.14	0.3	15.302	6.535	0.0	0.0	0.0	0
0.44	12.308	0.806	-0.13	0.3	15.27	6.549	0.0	0.0	0.0	0
0.45	11.971	0.755	-0.13	0.3	15.856	6.307	0.0	0.0	0.0	0
0.46	10.584	0.663	-0.11	0.3	15.964	6.264	0.0	0.0	0.0	0
0.47	10.503	0.612	-0.10	0.3	17.162	5.827	0.0	0.0	0.0	0
0.48	13.103	0.744	-0.13	0.3	17.612	5.678	0.0	0.0	0.0	0
0.49	13.562	0.714	-0.11	0.3	18.994	5.265	0.0	0.0	0.0	0
0.50	12.981	0.622	-0.08	0.3	20.87	4.792	0.0	0.0	0.0	0
0.51	12.44	0.632	-0.15	0.3	19.684	5.08	0.0	0.0	0.0	0
0.52	12.165	0.714	-0.16	0.3	17.038	5.869	0.0	0.0	0.0	0
0.53	11.859	0.673	-0.15	0.3	17.621	5.675	0.0	0.0	0.0	0
0.54	12.899	0.724	-0.16	0.3	17.816	5.613	0.0	0.0	0.0	0
0.55	11.767	0.642	-0.14	0.3	18.329	5.456	0.0	0.0	0.0	0
0.56	13.603	0.714	-0.16	0.3	19.052	5.249	0.0	0.0	0.0	0
0.57	13.858	0.714	-0.16	0.3	19.409	5.152	0.0	0.0	0.0	0
0.58	13.684	0.724	-0.16	0.3	18.901	5.291	0.0	0.0	0.0	0
0.59	12.553	0.673	-0.14	0.3	18.652	5.361	0.0	0.0	0.0	0
0.60	12.879	0.693	-0.15	0.5	18.584	5.381	0.0	0.0	0.0	0
0.61	14.337	0.765	-0.16	0.5	18.741	5.336	0.0	0.0	0.0	0
0.62	13.531	0.755	-0.15	0.5	17.922	5.58	0.0	0.0	0.0	0
0.63	12.42	0.785	-0.15	0.5	15.822	6.32	0.0	0.0	0.0	0
0.64	9.789	0.653	-0.13	0.5	14.991	6.671	0.0	0.0	0.0	0
0.65	11.023	0.755	-0.15	0.5	14.6	6.849	0.0	0.0	0.0	0
0.66	11.043	0.693	-0.15	0.5	15.935	6.275	0.0	0.0	0.0	0
0.67	11.013	0.704	-0.15	0.5	15.643	6.392	0.0	0.0	0.0	0
0.68	9.708	0.612	-0.14	0.5	15.863	6.304	0.0	0.0	0.0	0
0.69	11.349	0.724	-0.16	0.5	15.675	6.379	0.0	0.0	0.0	0
0.70	10.952	0.714	-0.15	0.5	15.339	6.519	0.0	0.0	0.0	0
0.71	10.024	0.673	-0.14	0.5	14.895	6.714	0.0	0.0	0.0	0
0.72	9.33	0.591	-0.13	0.5	15.787	6.334	0.0	0.0	0.0	0
0.73	10.075	0.632	-0.14	0.5	15.941	6.273	0.0	0.0	0.0	0
0.74	11.166	0.704	-0.15	0.5	15.861	6.305	0.0	0.0	0.0	0
0.75	10.279	0.632	-0.14	0.5	16.264	6.148	0.0	0.0	0.0	0
0.76	9.84	0.591	-0.13	0.5	16.65	6.006	0.0	0.0	0.0	0
0.77	9.371	0.561	-0.13	0.5	16.704	5.987	0.0	0.0	0.0	0
0.78	11.013	0.663	-0.15	0.5	16.611	6.02	0.0	0.0	0.0	0
0.79	11.4	0.704	-0.16	0.5	16.193	6.175	0.0	0.0	0.0	0
0.80	10.911	0.673	-0.15	0.5	16.212	6.168	0.0	0.0	0.0	0
0.81	9.983	0.602	-0.13	0.5	16.583	6.03	0.0	0.0	0.0	0
0.82	11.41	0.663	-0.15	0.5	17.21	5.811	0.0	0.0	0.0	0
0.83	9.86	0.551	-0.17	0.5	17.895	5.588	0.0	0.0	0.0	0
0.84	11.023	0.612	-0.25	0.5	18.011	5.552	0.0	0.0	0.0	0
0.85	11.594	0.663	-0.27	0.5	17.487	5.718	0.0	0.0	0.0	0
0.86	10.258	0.591	-0.24	0.5	17.357	5.761	0.0	0.0	0.0	0

Prova CPTU n. 3

0.87	12.236	0.714	-0.28	0.5	17.137	5.835	0.0	0.0	0.0	0
0.88	12.196	0.714	-0.28	0.5	17.081	5.854	0.0	0.0	0.0	0
0.89	9.942	0.581	-0.22	0.5	17.112	5.844	0.0	0.0	0.0	0
0.90	11.727	0.693	-0.27	0.5	16.922	5.909	0.0	0.0	0.0	0
0.91	10.962	0.602	-0.26	0.5	18.209	5.492	0.0	0.0	0.0	0
0.92	10.085	0.561	-0.24	0.5	17.977	5.563	0.0	0.0	0.0	0
0.93	11.533	0.653	-0.26	0.5	17.662	5.662	0.0	0.0	0.0	0
0.94	11.961	0.683	-0.26	0.5	17.512	5.71	0.0	0.0	0.0	0
0.95	12.828	0.734	-0.28	0.5	17.477	5.722	0.0	0.0	0.0	0
0.96	11.349	0.653	-0.24	0.5	17.38	5.754	0.0	0.0	0.0	0
0.97	12.848	0.744	-0.27	0.6	17.269	5.791	0.0	0.0	0.0	0
0.98	10.809	0.612	-0.21	0.6	17.662	5.662	0.0	0.0	0.0	0
0.99	11.89	0.673	-0.24	0.6	17.667	5.66	0.0	0.0	0.0	0
1.00	13.307	0.744	-0.26	0.6	17.886	5.591	0.0	0.0	0.0	0
1.01	11.013	0.612	-0.20	0.6	17.995	5.557	0.0	0.0	0.0	0
1.02	12.787	0.683	-0.22	0.6	18.722	5.341	0.0	0.0	0.0	0
1.03	12.002	0.632	-0.21	0.6	18.991	5.266	0.0	0.0	0.0	0
1.04	11.543	0.602	-0.20	0.6	19.174	5.215	0.0	0.0	0.0	0
1.05	13.582	0.714	-0.24	0.6	19.022	5.257	0.0	0.0	0.0	0
1.06	13.246	0.693	-0.21	0.6	19.114	5.232	0.0	0.0	0.0	0
1.07	11.89	0.632	-0.18	0.7	18.813	5.315	0.0	0.0	0.0	0
1.08	14.051	0.744	-0.21	0.7	18.886	5.295	0.0	0.0	0.0	0
1.09	12.328	0.653	-0.18	0.7	18.879	5.297	0.0	0.0	0.0	0
1.10	13.603	0.714	-0.19	0.7	19.052	5.249	0.0	0.0	0.0	0
1.11	15.03	0.765	-0.21	0.7	19.647	5.09	0.0	0.0	0.0	0
1.12	15.163	0.765	-0.21	0.7	19.821	5.045	0.0	0.0	0.0	0
1.13	12.512	0.632	-0.17	0.7	19.797	5.051	0.0	0.0	0.0	0
1.14	15.03	0.765	-0.21	0.7	19.647	5.09	0.0	0.0	0.0	0
1.15	15.275	0.785	-0.21	0.7	19.459	5.139	0.0	0.0	0.0	0
1.16	13.011	0.683	-0.18	0.7	19.05	5.249	0.0	0.0	0.0	0
1.17	13.96	0.755	-0.20	0.8	18.49	5.408	0.0	0.0	0.0	0
1.18	12.196	0.663	-0.17	0.8	18.395	5.436	0.0	0.0	0.0	0
1.19	12.654	0.683	-0.18	0.8	18.527	5.398	0.0	0.0	0.0	0
1.20	11.829	0.642	-0.17	0.8	18.425	5.427	0.0	0.0	0.0	0
1.21	14.786	0.826	-0.21	0.8	17.901	5.586	0.0	0.0	0.0	0
1.22	13.134	0.765	-0.18	0.8	17.169	5.825	0.0	0.0	0.0	0
1.23	13.96	0.846	-0.20	0.8	16.501	6.06	0.0	0.0	0.0	0
1.24	12.318	0.806	-0.17	0.8	15.283	6.543	0.0	0.0	0.0	0
1.25	12.787	0.846	-0.18	0.8	15.115	6.616	0.0	0.0	0.0	0
1.26	11.961	0.806	-0.17	0.8	14.84	6.739	0.0	0.0	0.0	0
1.27	12.43	0.846	-0.17	0.8	14.693	6.806	0.0	0.0	0.0	0
1.28	11.859	0.826	-0.17	0.8	14.357	6.965	0.0	0.0	0.0	0
1.29	14.877	1.04	-0.21	0.8	14.305	6.991	0.0	0.0	0.0	0
1.30	11.625	0.806	-0.16	0.8	14.423	6.933	0.0	0.0	0.0	0
1.31	12.206	0.846	-0.17	0.8	14.428	6.931	0.0	0.0	0.0	0
1.32	14.877	1.03	-0.21	0.8	14.444	6.923	0.0	0.0	0.0	0
1.33	13.256	0.918	-0.18	0.8	14.44	6.925	0.0	0.0	0.0	0
1.34	13.603	0.959	-0.19	0.8	14.185	7.05	0.0	0.0	0.0	0
1.35	13.134	0.928	-0.18	0.8	14.153	7.066	0.0	0.0	0.0	0
1.36	12.41	0.867	-0.17	0.8	14.314	6.986	0.0	0.0	0.0	0
1.37	15.153	1.071	-0.20	0.8	14.148	7.068	0.0	0.0	0.0	0
1.38	13.124	0.938	-0.18	0.8	13.991	7.147	0.0	0.0	0.0	0
1.39	13.725	0.989	-0.18	0.8	13.878	7.206	0.0	0.0	0.0	0
1.40	13.603	0.999	-0.18	0.8	13.617	7.344	0.0	0.0	0.0	0
1.41	12.298	0.928	-0.17	0.8	13.252	7.546	0.0	0.0	0.0	0
1.42	13.603	1.05	-0.19	0.8	12.955	7.719	0.0	0.0	0.0	0
1.43	12.44	0.999	-0.17	0.8	12.452	8.031	0.0	0.0	0.0	0
1.44	14.184	1.132	-0.20	0.8	12.53	7.981	0.0	0.0	0.0	0
1.45	12.44	0.989	-0.17	0.8	12.578	7.95	0.0	0.0	0.0	0
1.46	11.727	0.928	-0.16	0.8	12.637	7.913	0.0	0.0	0.0	0
1.47	13.593	1.04	-0.18	0.8	13.07	7.651	0.0	0.0	0.0	0
1.48	15.918	1.193	-0.20	0.8	13.343	7.495	0.0	0.0	0.0	0
1.49	13.797	1.02	-0.17	0.8	13.526	7.393	0.0	0.0	0.0	0
1.50	12.981	0.928	-0.16	0.8	13.988	7.149	0.0	0.0	0.0	0
1.51	14.714	1.02	-0.17	0.8	14.425	6.932	0.0	0.0	0.0	0
1.52	15.867	1.071	-0.18	0.7	14.815	6.75	0.0	0.0	0.0	0
1.53	17.304	1.111	-0.19	0.7	15.575	6.42	0.0	0.0	0.0	0
1.54	14.48	0.897	-0.15	0.7	16.143	6.195	0.0	0.0	0.0	0
1.55	15.856	0.897	-0.16	0.8	17.677	5.657	0.0	0.0	0.0	0
1.56	19.915	1.091	-0.19	0.7	18.254	5.478	0.0	0.0	0.0	0
1.57	17.835	0.959	-0.16	0.7	18.597	5.377	0.0	0.0	0.0	0
1.58	17.569	0.928	-0.16	0.7	18.932	5.282	0.0	0.0	0.0	0
1.59	21.036	1.091	-0.18	0.8	19.281	5.186	0.0	0.0	0.0	0
1.60	19.935	1.01	-0.17	0.8	19.738	5.066	0.0	0.0	0.0	0
1.61	19.181	0.979	-0.16	0.8	19.592	5.104	0.0	0.0	0.0	0

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1.62	18.028	0.928	-0.15	0.8	19.427	5.148	0.0	0.0	0.0	0
1.63	18.028	0.948	-0.15	0.8	19.017	5.258	0.0	0.0	0.0	0
1.64	22.668	1.234	-0.19	0.8	18.37	5.444	0.0	0.0	0.0	0
1.65	22.8	1.264	-0.19	0.8	18.038	5.544	0.0	0.0	0.0	0
1.66	18.589	1.06	-0.15	0.8	17.537	5.702	0.0	0.0	0.0	0
1.67	19.996	1.183	-0.16	0.8	16.903	5.916	0.0	0.0	0.0	0
1.68	19.762	1.234	-0.16	0.8	16.015	6.244	0.0	0.0	0.0	0
1.69	20.527	1.295	-0.16	0.8	15.851	6.309	0.0	0.0	0.0	0
1.70	22.617	1.448	-0.18	0.8	15.619	6.402	0.0	0.0	0.0	0
1.71	22.077	1.448	-0.17	0.8	15.247	6.559	0.0	0.0	0.0	0
1.72	21.353	1.479	-0.16	0.8	14.437	6.926	0.0	0.0	0.0	0
1.73	18.406	1.295	-0.13	0.8	14.213	7.036	0.0	0.0	0.0	0
1.74	18.151	1.295	-0.12	0.8	14.016	7.135	0.0	0.0	0.0	0
1.75	18.722	1.326	-0.12	0.8	14.119	7.083	0.0	0.0	0.0	0
1.76	21.526	1.509	-0.13	0.8	14.265	7.01	0.0	0.0	0.0	0
1.77	19.058	1.326	-0.10	0.8	14.373	6.958	0.0	0.0	0.0	0
1.78	23.902	1.652	-0.12	0.8	14.469	6.912	0.0	0.0	0.0	0
1.79	20.108	1.387	-0.10	0.8	14.497	6.898	0.0	0.0	0.0	0
1.80	19.721	1.356	-0.10	0.9	14.544	6.876	0.0	0.0	0.0	0
1.81	23.392	1.591	-0.11	0.9	14.703	6.801	0.0	0.0	0.0	0
1.82	24.524	1.662	-0.11	0.9	14.756	6.777	0.0	0.0	0.0	0
1.83	18.762	1.275	-0.08	0.9	14.715	6.796	0.0	0.0	0.0	0
1.84	20.527	1.417	-0.09	0.9	14.486	6.903	0.0	0.0	0.0	0
1.85	18.926	1.336	-0.07	0.9	14.166	7.059	0.0	0.0	0.0	0
1.86	22.699	1.632	-0.09	0.9	13.909	7.19	0.0	0.0	0.0	0
1.87	21.414	1.56	-0.08	0.9	13.727	7.285	0.0	0.0	0.0	0
1.88	21.903	1.591	-0.08	0.9	13.767	7.264	0.0	0.0	0.0	0
1.89	18.926	1.377	-0.07	0.9	13.744	7.276	0.0	0.0	0.0	0
1.90	21.342	1.55	-0.08	0.9	13.769	7.263	0.0	0.0	0.0	0
1.91	24.738	1.754	-0.02	0.9	14.104	7.09	0.0	0.0	0.0	0
1.92	22.168	1.601	-0.02	0.9	13.846	7.222	0.0	0.0	0.0	0
1.93	21.811	1.56	-0.02	0.9	13.981	7.152	0.0	0.0	0.0	0
1.94	21.536	1.54	-0.02	0.9	13.984	7.151	0.0	0.0	0.0	0
1.95	20.455	1.489	-0.02	0.9	13.737	7.279	0.0	0.0	0.0	0
1.96	23.83	1.754	-0.02	0.9	13.586	7.36	0.0	0.0	0.0	0
1.97	19.374	1.448	-0.02	0.9	13.38	7.474	0.0	0.0	0.0	0
1.98	24.024	1.795	-0.02	0.9	13.384	7.472	0.0	0.0	0.0	0
1.99	22.005	1.652	-0.02	0.9	13.32	7.507	0.0	0.0	0.0	0
2.00	20.057	1.509	-0.02	0.9	13.292	7.524	0.0	0.0	0.0	0
2.01	19.272	1.499	-0.02	0.9	12.857	7.778	0.0	0.0	0.0	0
2.02	23.004	1.805	-0.02	0.9	12.745	7.846	0.0	0.0	0.0	0
2.03	24.473	1.907	-0.02	0.9	12.833	7.792	0.0	0.0	0.0	0
2.04	21.505	1.662	-0.02	0.9	12.939	7.728	0.0	0.0	0.0	0
2.05	23.453	1.835	-0.02	0.9	12.781	7.824	0.0	0.0	0.0	0
2.06	21.618	1.703	-0.02	0.9	12.694	7.878	0.0	0.0	0.0	0
2.07	20.822	1.662	-0.02	0.9	12.528	7.982	0.0	0.0	0.0	0
2.08	20.669	1.621	-0.02	0.9	12.751	7.843	0.0	0.0	0.0	0
2.09	21.526	1.713	-0.02	0.9	12.566	7.958	0.0	0.0	0.0	0
2.10	20.669	1.642	-0.02	0.9	12.588	7.944	0.0	0.0	0.0	0
2.11	21.414	1.693	-0.02	0.9	12.649	7.906	0.0	0.0	0.0	0
2.12	19.272	1.53	-0.02	0.9	12.596	7.939	0.0	0.0	0.0	0
2.13	20.934	1.703	-0.02	0.9	12.292	8.135	0.0	0.0	0.0	0
2.14	21.72	1.774	-0.02	0.9	12.244	8.168	0.0	0.0	0.0	0
2.15	21.465	1.764	-0.02	0.9	12.168	8.218	0.0	0.0	0.0	0
2.16	19.874	1.632	-0.02	0.9	12.178	8.212	0.0	0.0	0.0	0
2.17	20.282	1.621	-0.02	0.9	12.512	7.992	0.0	0.0	0.0	0
2.18	19.762	1.621	-0.02	0.9	12.191	8.203	0.0	0.0	0.0	0
2.19	18.589	1.53	-0.02	0.9	12.15	8.231	0.0	0.0	0.0	0
2.20	17.957	1.479	-0.02	0.9	12.141	8.236	0.0	0.0	0.0	0
2.21	20.057	1.632	-0.02	0.9	12.29	8.137	0.0	0.0	0.0	0
2.22	18.171	1.448	-0.02	0.9	12.549	7.969	0.0	0.0	0.0	0
2.23	22.79	1.764	-0.02	0.9	12.92	7.74	0.0	0.0	0.0	0
2.24	18.069	1.417	-0.02	0.9	12.752	7.842	0.0	0.0	0.0	0
2.25	20.333	1.611	-0.02	0.9	12.621	7.923	0.0	0.0	0.0	0
2.26	22.321	1.723	-0.02	0.9	12.955	7.719	0.0	0.0	0.0	0
2.27	18.202	1.397	-0.02	0.9	13.029	7.675	0.0	0.0	0.0	0
2.28	20.455	1.56	-0.02	0.9	13.112	7.626	0.0	0.0	0.0	0
2.29	20.578	1.53	-0.02	0.9	13.45	7.435	0.0	0.0	0.0	0
2.30	17.335	1.285	-0.01	0.9	13.49	7.413	0.0	0.0	0.0	0
2.31	18.263	1.366	-0.02	0.9	13.37	7.48	0.0	0.0	0.0	0
2.32	19.13	1.417	-0.02	0.9	13.5	7.407	0.0	0.0	0.0	0
2.33	20.802	1.509	-0.02	0.9	13.785	7.254	0.0	0.0	0.0	0
2.34	17.682	1.275	-0.01	0.9	13.868	7.211	0.0	0.0	0.0	0
2.35	18.028	1.285	-0.01	0.9	14.03	7.128	0.0	0.0	0.0	0
2.36	18.263	1.305	-0.01	0.9	13.995	7.146	0.0	0.0	0.0	0

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2.37	18.334	1.315	-0.01	0.9	13.942	7.172	0.0	0.0	0.0	0
2.38	19.354	1.387	-0.02	0.9	13.954	7.166	0.0	0.0	0.0	0
2.39	18.161	1.295	-0.01	0.9	14.024	7.131	0.0	0.0	0.0	0
2.40	20.384	1.448	-0.02	0.9	14.077	7.104	0.0	0.0	0.0	0
2.41	20.435	1.458	-0.01	0.9	14.016	7.135	0.0	0.0	0.0	0
2.42	20.985	1.499	-0.02	0.9	13.999	7.143	0.0	0.0	0.0	0
2.43	17.06	1.244	-0.01	0.9	13.714	7.292	0.0	0.0	0.0	0
2.44	20.149	1.489	-0.02	0.9	13.532	7.39	0.0	0.0	0.0	0
2.45	19.252	1.448	-0.02	0.9	13.296	7.521	0.0	0.0	0.0	0
2.46	19.252	1.489	-0.02	0.9	12.929	7.734	0.0	0.0	0.0	0
2.47	20.547	1.591	-0.02	0.9	12.915	7.743	0.0	0.0	0.0	0
2.48	19.313	1.499	-0.02	0.9	12.884	7.762	0.0	0.0	0.0	0
2.49	20.282	1.581	-0.01	0.9	12.829	7.795	0.0	0.0	0.0	0
2.50	15.703	1.254	-0.01	0.9	12.522	7.986	0.0	0.0	0.0	0
2.51	15.999	1.315	-0.01	0.9	12.167	8.219	0.0	0.0	0.0	0
2.52	18.283	1.519	-0.01	0.9	12.036	8.308	0.0	0.0	0.0	0
2.53	15.377	1.295	-0.01	0.9	11.874	8.422	0.0	0.0	0.0	0
2.54	17.029	1.428	0.00	0.9	11.925	8.386	0.0	0.0	0.0	0
2.55	16.917	1.417	0.00	0.9	11.939	8.376	0.0	0.0	0.0	0
2.56	14.806	1.244	0.00	0.9	11.902	8.402	0.0	0.0	0.0	0
2.57	15.132	1.254	0.01	0.9	12.067	8.287	0.0	0.0	0.0	0
2.58	18.426	1.519	0.01	0.9	12.13	8.244	0.0	0.0	0.0	0
2.59	15.877	1.264	0.01	0.9	12.561	7.961	0.0	0.0	0.0	0
2.60	17.988	1.397	0.01	0.9	12.876	7.766	0.0	0.0	0.0	0
2.61	17.682	1.326	0.01	0.9	13.335	7.499	0.0	0.0	0.0	0
2.62	18.661	1.346	0.01	0.9	13.864	7.213	0.0	0.0	0.0	0
2.63	17.865	1.213	0.01	0.9	14.728	6.79	0.0	0.0	0.0	0
2.64	18.762	1.264	0.01	0.9	14.843	6.737	0.0	0.0	0.0	0
2.65	19.058	1.254	0.01	0.9	15.198	6.58	0.0	0.0	0.0	0
2.66	17.712	1.152	0.01	0.9	15.375	6.504	0.0	0.0	0.0	0
2.67	17.243	1.06	0.01	0.9	16.267	6.147	0.0	0.0	0.0	0
2.68	17.009	1.05	0.01	0.9	16.199	6.173	0.0	0.0	0.0	0
2.69	15.275	0.938	0.01	0.9	16.285	6.141	0.0	0.0	0.0	0
2.70	18.191	1.081	0.02	0.9	16.828	5.942	0.0	0.0	0.0	0
2.71	16.529	0.959	0.01	0.9	17.236	5.802	0.0	0.0	0.0	0
2.72	15.081	0.877	0.01	0.9	17.196	5.815	0.0	0.0	0.0	0
2.73	16.713	0.979	0.02	0.9	17.072	5.858	0.0	0.0	0.0	0
2.74	17.009	0.999	0.02	0.9	17.026	5.873	0.0	0.0	0.0	0
2.75	17.865	1.05	0.02	0.9	17.014	5.877	0.0	0.0	0.0	0
2.76	14.99	0.867	0.02	0.9	17.29	5.784	0.0	0.0	0.0	0
2.77	19.017	1.091	0.02	0.9	17.431	5.737	0.0	0.0	0.0	0
2.78	18.416	1.06	0.02	0.9	17.374	5.756	0.0	0.0	0.0	0
2.79	15.092	0.867	0.02	0.9	17.407	5.745	0.0	0.0	0.0	0
2.80	15.673	0.948	0.02	0.9	16.533	6.049	0.0	0.0	0.0	0
2.81	18.375	1.142	0.02	0.9	16.09	6.215	0.0	0.0	0.0	0
2.82	14.663	0.928	0.02	0.9	15.801	6.329	0.0	0.0	0.0	0
2.83	16.162	1.05	0.02	0.9	15.392	6.497	0.0	0.0	0.0	0
2.84	16.529	1.132	0.03	0.9	14.602	6.849	0.0	0.0	0.0	0
2.85	15.367	1.071	0.03	0.9	14.348	6.969	0.0	0.0	0.0	0
2.86	14.582	0.999	0.03	0.9	14.597	6.851	0.0	0.0	0.0	0
2.87	17.1	1.152	0.03	1.0	14.844	6.737	0.0	0.0	0.0	0
2.88	14.979	0.979	0.03	0.9	15.3	6.536	0.0	0.0	0.0	0
2.89	15.112	0.989	0.03	0.9	15.28	6.544	0.0	0.0	0.0	0
2.90	16.57	1.091	0.03	0.9	15.188	6.584	0.0	0.0	0.0	0
2.91	16.244	0.999	0.06	0.9	16.26	6.15	0.0	0.0	0.0	0
2.92	17.631	1.101	0.06	1.0	16.014	6.245	0.0	0.0	0.0	0
2.93	14.826	0.948	0.05	1.0	15.639	6.394	0.0	0.0	0.0	0
2.94	13.521	0.867	0.05	1.0	15.595	6.412	0.0	0.0	0.0	0
2.95	16.162	0.989	0.06	1.0	16.342	6.119	0.0	0.0	0.0	0
2.96	14.979	0.928	0.05	1.0	16.141	6.195	0.0	0.0	0.0	0
2.97	15.0	0.938	0.06	1.0	15.991	6.253	0.0	0.0	0.0	0
2.98	15.285	0.969	0.06	1.0	15.774	6.34	0.0	0.0	0.0	0
2.99	15.55	1.03	0.06	1.0	15.097	6.624	0.0	0.0	0.0	0
3.00	14.551	0.979	0.06	1.0	14.863	6.728	0.0	0.0	0.0	0
3.01	12.44	0.846	0.05	1.0	14.704	6.801	0.0	0.0	0.0	0
3.02	16.172	1.111	0.07	1.0	14.556	6.87	0.0	0.0	0.0	0
3.03	15.051	1.02	0.06	1.0	14.756	6.777	0.0	0.0	0.0	0
3.04	15.306	1.02	0.06	1.0	15.006	6.664	0.0	0.0	0.0	0
3.05	15.928	1.05	0.07	1.0	15.17	6.592	0.0	0.0	0.0	0
3.06	12.44	0.816	0.06	1.0	15.245	6.559	0.0	0.0	0.0	0
3.07	15.295	0.989	0.07	1.0	15.465	6.466	0.0	0.0	0.0	0
3.08	12.848	0.826	0.07	1.0	15.554	6.429	0.0	0.0	0.0	0
3.09	15.663	0.999	0.08	1.0	15.679	6.378	0.0	0.0	0.0	0
3.10	14.806	0.928	0.08	1.0	15.955	6.268	0.0	0.0	0.0	0
3.11	14.928	0.918	0.08	1.0	16.261	6.15	0.0	0.0	0.0	0

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3.12	13.307	0.785	0.07	1.0	16.952	5.899	0.0	0.0	0.0	0
3.13	15.173	0.897	0.08	1.0	16.915	5.912	0.0	0.0	0.0	0
3.14	13.419	0.785	0.08	1.0	17.094	5.85	0.0	0.0	0.0	0
3.15	12.899	0.744	0.08	1.0	17.337	5.768	0.0	0.0	0.0	0
3.16	14.877	0.846	0.10	1.0	17.585	5.687	0.0	0.0	0.0	0
3.17	13.593	0.755	0.10	1.0	18.004	5.554	0.0	0.0	0.0	0
3.18	16.55	0.908	0.13	1.0	18.227	5.486	0.0	0.0	0.0	0
3.19	15.693	0.867	0.15	1.0	18.1	5.525	0.0	0.0	0.0	0
3.20	15.581	0.867	0.15	1.0	17.971	5.564	0.0	0.0	0.0	0
3.21	16.111	0.887	0.16	1.0	18.163	5.506	0.0	0.0	0.0	0
3.22	16.111	0.867	0.16	1.0	18.582	5.381	0.0	0.0	0.0	0
3.23	14.184	0.755	0.14	1.0	18.787	5.323	0.0	0.0	0.0	0
3.24	14.786	0.795	0.16	1.0	18.599	5.377	0.0	0.0	0.0	0
3.25	14.429	0.806	0.16	1.0	17.902	5.586	0.0	0.0	0.0	0
3.26	16.835	0.938	0.19	1.0	17.948	5.572	0.0	0.0	0.0	0
3.27	15.367	0.846	0.18	1.0	18.164	5.505	0.0	0.0	0.0	0
3.28	15.51	0.867	0.20	1.0	17.889	5.59	0.0	0.0	0.0	0
3.29	13.756	0.765	0.18	1.0	17.982	5.561	0.0	0.0	0.0	0
3.30	15.245	0.846	0.21	1.0	18.02	5.549	0.0	0.0	0.0	0
3.31	13.419	0.765	0.19	1.0	17.541	5.701	0.0	0.0	0.0	0
3.32	13.052	0.765	0.19	1.0	17.061	5.861	0.0	0.0	0.0	0
3.33	14.765	0.867	0.22	1.0	17.03	5.872	0.0	0.0	0.0	0
3.34	15.153	0.887	0.24	1.0	17.083	5.854	0.0	0.0	0.0	0
3.35	15.01	0.877	0.24	1.0	17.115	5.843	0.0	0.0	0.0	0
3.36	15.397	0.908	0.25	1.0	16.957	5.897	0.0	0.0	0.0	0
3.37	15.775	0.908	0.26	1.1	17.373	5.756	0.0	0.0	0.0	0
3.38	16.835	0.948	0.28	1.1	17.758	5.631	0.0	0.0	0.0	0
3.39	15.499	0.877	0.26	1.1	17.673	5.658	0.0	0.0	0.0	0
3.40	14.357	0.836	0.25	1.1	17.173	5.823	0.0	0.0	0.0	0
3.41	12.899	0.755	0.22	1.1	17.085	5.853	0.0	0.0	0.0	0
3.42	14.286	0.806	0.25	1.1	17.725	5.642	0.0	0.0	0.0	0
3.43	14.133	0.755	0.25	1.1	18.719	5.342	0.0	0.0	0.0	0
3.44	15.805	0.816	0.28	1.1	19.369	5.163	0.0	0.0	0.0	0
3.45	16.315	0.785	0.29	1.1	20.783	4.812	0.0	0.0	0.0	0
3.46	15.805	0.734	0.28	1.1	21.533	4.644	0.0	0.0	0.0	0
3.47	13.042	0.581	0.22	1.1	22.448	4.455	0.0	0.0	0.0	0
3.48	12.94	0.561	0.22	1.1	23.066	4.335	0.0	0.0	0.0	0
3.49	13.827	0.581	0.25	1.1	23.799	4.202	0.0	0.0	0.0	0
3.50	12.746	0.53	0.22	1.1	24.049	4.158	0.0	0.0	0.0	0
3.51	12.767	0.53	0.24	1.1	24.089	4.151	0.0	0.0	0.0	0
3.52	13.725	0.571	0.26	1.1	24.037	4.16	0.0	0.0	0.0	0
3.53	12.216	0.52	0.22	1.1	23.492	4.257	0.0	0.0	0.0	0
3.54	13.47	0.561	0.26	1.1	24.011	4.165	0.0	0.0	0.0	0
3.55	13.99	0.612	0.28	1.1	22.859	4.375	0.0	0.0	0.0	0
3.56	12.858	0.581	0.26	1.1	22.131	4.519	0.0	0.0	0.0	0
3.57	11.033	0.51	0.22	1.1	21.633	4.622	0.0	0.0	0.0	0
3.58	11.625	0.561	0.25	1.1	20.722	4.826	0.0	0.0	0.0	0
3.59	10.686	0.52	0.24	1.1	20.55	4.866	0.0	0.0	0.0	0
3.60	10.952	0.551	0.25	1.1	19.877	5.031	0.0	0.0	0.0	0
3.61	10.523	0.53	0.24	1.2	19.855	5.037	0.0	0.0	0.0	0
3.62	9.473	0.469	0.21	1.2	20.198	4.951	0.0	0.0	0.0	0
3.63	10.697	0.53	0.25	1.2	20.183	4.955	0.0	0.0	0.0	0
3.64	10.574	0.51	0.25	1.2	20.733	4.823	0.0	0.0	0.0	0
3.65	12.063	0.571	0.28	1.2	21.126	4.733	0.0	0.0	0.0	0
3.66	11.788	0.53	0.27	1.2	22.242	4.496	0.0	0.0	0.0	0
3.67	9.84	0.408	0.22	1.2	24.118	4.146	0.0	0.0	0.0	0
3.68	11.166	0.438	0.26	1.2	25.493	3.923	0.0	0.0	0.0	0
3.69	11.349	0.428	0.26	1.2	26.516	3.771	0.0	0.0	0.0	0
3.70	10.054	0.347	0.22	1.2	28.974	3.451	0.0	0.0	0.0	0
3.71	11.859	0.347	0.27	1.2	34.176	2.926	0.0	0.0	0.0	0
3.72	11.38	0.316	0.26	1.2	36.013	2.777	0.0	0.0	0.0	0
3.73	11.818	0.316	0.27	1.2	37.399	2.674	0.0	0.0	0.0	0
3.74	10.605	0.275	0.24	1.2	38.564	2.593	0.0	0.0	0.0	0
3.75	11.635	0.286	0.27	1.2	40.682	2.458	0.0	0.0	0.0	0
3.76	9.86	0.245	0.22	1.2	40.245	2.485	0.0	0.0	0.0	0
3.77	12.328	0.296	0.28	1.2	41.649	2.401	0.0	0.0	0.0	0
3.78	11.217	0.255	0.26	1.2	43.988	2.273	0.0	0.0	0.0	0
3.79	12.175	0.265	0.28	1.2	45.943	2.177	0.0	0.0	0.0	0
3.80	9.973	0.194	0.22	1.2	51.407	1.945	0.0	0.0	0.0	0
3.81	9.769	0.194	0.22	1.2	50.356	1.986	0.0	0.0	0.0	0
3.82	11.166	0.224	0.26	1.3	49.848	2.006	0.0	0.0	0.0	0
3.83	11.971	0.255	0.28	1.3	46.945	2.13	0.0	0.0	0.0	0
3.84	11.788	0.265	0.28	1.3	44.483	2.248	0.0	0.0	0.0	0
3.85	9.85	0.214	0.22	1.3	46.028	2.173	0.0	0.0	0.0	0
3.86	10.931	0.235	0.25	1.3	46.515	2.15	0.0	0.0	0.0	0

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3.87	11.472	0.245	0.27	1.3	46.824	2.136	0.0	0.0	0.0	0
3.88	9.769	0.204	0.22	1.3	47.887	2.088	0.0	0.0	0.0	0
3.89	10.432	0.224	0.25	1.3	46.571	2.147	0.0	0.0	0.0	0
3.90	9.962	0.214	0.24	1.3	46.551	2.148	0.0	0.0	0.0	0
3.91	13.674	0.061	0.50	1.3	224.164	0.446	0.0	0.0	0.0	0
3.92	11.023	0.061	0.44	1.3	180.705	0.553	0.0	0.0	0.0	0
3.93	13.623	0.122	0.58	1.3	111.664	0.896	0.0	0.0	0.0	0
3.94	13.47	0.122	0.59	1.3	110.41	0.906	0.0	0.0	0.0	0
3.95	11.237	0.112	0.48	1.3	100.33	0.997	0.0	0.0	0.0	0
3.96	12.654	0.143	0.54	1.3	88.49	1.13	0.0	0.0	0.0	0
3.97	12.216	0.153	0.52	1.3	79.843	1.252	0.0	0.0	0.0	0
3.98	13.093	0.184	0.58	1.3	71.158	1.405	0.0	0.0	0.0	0
3.99	13.97	0.204	0.63	1.3	68.48	1.46	0.0	0.0	0.0	0
4.00	13.511	0.224	0.68	1.3	60.317	1.658	0.0	0.0	0.0	0
4.01	11.237	0.204	0.63	1.3	55.083	1.815	0.0	0.0	0.0	0
4.02	12.318	0.245	0.74	1.3	50.278	1.989	0.0	0.0	0.0	0
4.03	12.002	0.235	0.76	1.3	51.072	1.958	0.0	0.0	0.0	0
4.04	14.051	0.286	0.96	1.3	49.129	2.035	0.0	0.0	0.0	0
4.05	11.778	0.235	0.86	1.3	50.119	1.995	0.0	0.0	0.0	0
4.06	11.431	0.194	0.84	1.3	58.923	1.697	0.0	0.0	0.0	0
4.07	13.96	0.224	1.01	1.3	62.321	1.605	0.0	0.0	0.0	0
4.08	14.561	0.224	1.03	1.3	65.004	1.538	0.0	0.0	0.0	0
4.09	15.306	0.235	1.07	1.3	65.132	1.535	0.0	0.0	0.0	0
4.10	14.449	0.204	0.95	1.3	70.828	1.412	0.0	0.0	0.0	0
4.11	16.692	0.245	1.08	1.3	68.131	1.468	0.0	0.0	0.0	0
4.12	13.97	0.214	0.90	1.3	65.28	1.532	0.0	0.0	0.0	0
4.13	14.113	0.214	0.88	1.3	65.949	1.516	0.0	0.0	0.0	0
4.14	17.396	0.275	1.05	1.3	63.258	1.581	0.0	0.0	0.0	0
4.15	17.151	0.306	1.01	1.3	56.049	1.784	0.0	0.0	0.0	0
4.16	19.354	0.408	1.13	1.3	47.436	2.108	0.0	0.0	0.0	0
4.17	19.201	0.428	1.12	1.3	44.862	2.229	0.0	0.0	0.0	0
4.18	17.202	0.408	0.99	1.3	42.162	2.372	0.0	0.0	0.0	0
4.19	19.721	0.53	1.07	1.3	37.209	2.687	0.0	0.0	0.0	0
4.20	19.527	0.561	1.06	1.3	34.807	2.873	0.0	0.0	0.0	0
4.21	17.998	0.54	0.96	1.3	33.33	3.0	0.0	0.0	0.0	0
4.22	19.874	0.612	1.03	1.3	32.474	3.079	0.0	0.0	0.0	0
4.23	15.805	0.642	0.93	1.3	24.618	4.062	0.0	0.0	0.0	0
4.24	17.957	0.795	1.09	1.3	22.587	4.427	0.0	0.0	0.0	0
4.25	15.999	0.724	0.98	1.3	22.098	4.525	0.0	0.0	0.0	0
4.26	16.519	0.755	1.00	1.3	21.879	4.57	0.0	0.0	0.0	0
4.27	16.274	0.755	0.98	1.3	21.555	4.639	0.0	0.0	0.0	0
4.28	18.569	0.897	1.10	1.3	20.701	4.831	0.0	0.0	0.0	0
4.29	17.947	0.897	1.07	1.3	20.008	4.998	0.0	0.0	0.0	0
4.30	17.784	0.877	1.06	1.3	20.278	4.931	0.0	0.0	0.0	0
4.31	16.642	0.816	0.98	1.3	20.395	4.903	0.0	0.0	0.0	0
4.32	20.261	1.02	1.19	1.3	19.864	5.034	0.0	0.0	0.0	0
4.33	19.782	0.999	1.16	1.3	19.802	5.05	0.0	0.0	0.0	0
4.34	16.601	0.836	0.97	1.3	19.858	5.036	0.0	0.0	0.0	0
4.35	20.047	1.01	1.16	1.3	19.849	5.038	0.0	0.0	0.0	0
4.36	19.089	0.959	1.10	1.3	19.905	5.024	0.0	0.0	0.0	0
4.37	17.386	0.877	1.02	1.3	19.824	5.044	0.0	0.0	0.0	0
4.38	19.405	0.959	1.13	1.3	20.235	4.942	0.0	0.0	0.0	0
4.39	17.396	0.846	1.00	1.3	20.563	4.863	0.0	0.0	0.0	0
4.40	18.762	0.908	1.07	1.3	20.663	4.84	0.0	0.0	0.0	0
4.41	20.975	1.02	1.19	1.4	20.564	4.863	0.0	0.0	0.0	0
4.42	16.998	0.826	0.95	1.4	20.579	4.859	0.0	0.0	0.0	0
4.43	21.118	1.01	1.16	1.4	20.909	4.783	0.0	0.0	0.0	0
4.44	18.1	0.857	0.99	1.4	21.12	4.735	0.0	0.0	0.0	0
4.45	19.874	0.938	1.08	1.4	21.188	4.72	0.0	0.0	0.0	0
4.46	20.17	0.948	1.09	1.4	21.276	4.7	0.0	0.0	0.0	0
4.47	20.996	0.989	1.13	1.4	21.23	4.71	0.0	0.0	0.0	0
4.48	17.886	0.846	0.97	1.4	21.142	4.73	0.0	0.0	0.0	0
4.49	19.874	0.928	1.07	1.4	21.416	4.669	0.0	0.0	0.0	0
4.50	21.597	0.989	1.13	1.4	21.837	4.579	0.0	0.0	0.0	0
4.51	19.344	0.897	1.01	1.4	21.565	4.637	0.0	0.0	0.0	0
4.52	18.742	0.867	0.96	1.4	21.617	4.626	0.0	0.0	0.0	0
4.53	19.752	0.948	1.02	1.4	20.835	4.8	0.0	0.0	0.0	0
4.54	20.078	1.02	1.05	1.4	19.684	5.08	0.0	0.0	0.0	0
4.55	18.691	0.979	0.99	1.4	19.092	5.238	0.0	0.0	0.0	0
4.56	21.414	1.162	1.15	1.4	18.429	5.426	0.0	0.0	0.0	0
4.57	17.539	0.989	0.96	1.4	17.734	5.639	0.0	0.0	0.0	0
4.58	19.527	1.122	1.08	1.4	17.404	5.746	0.0	0.0	0.0	0
4.59	21.118	1.264	1.21	1.4	16.707	5.985	0.0	0.0	0.0	0
4.60	17.264	1.05	1.00	1.4	16.442	6.082	0.0	0.0	0.0	0
4.61	1.581	0.153	0.56	1.5	10.333	9.677	0.0	0.0	0.0	0

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4.62	3.946	0.51	0.85	1.5	7.737	12.924	0.0	0.0	0.0	0
4.63	6.169	0.959	0.94	1.5	6.433	15.545	0.0	0.0	0.0	0
4.64	6.108	0.826	0.86	1.5	7.395	13.523	0.0	0.0	0.0	0
4.65	6.801	0.826	0.94	1.5	8.234	12.145	0.0	0.0	0.0	0
4.66	6.965	0.765	0.94	1.5	9.105	10.983	0.0	0.0	0.0	0
4.67	6.832	0.653	0.90	1.5	10.462	9.558	0.0	0.0	0.0	0
4.68	8.351	0.612	2.69	1.5	13.645	7.328	0.0	0.0	0.0	0
4.69	7.892	0.51	3.09	1.5	15.475	6.462	0.0	0.0	0.0	0
4.70	8.933	0.5	3.79	1.5	17.866	5.597	0.0	0.0	0.0	0
4.71	9.891	0.469	4.26	1.5	21.09	4.742	0.0	0.0	0.0	0
4.72	9.973	0.347	5.13	1.4	28.741	3.479	0.0	0.0	0.0	0
4.73	11.227	0.184	5.67	1.5	61.016	1.639	0.0	0.0	0.0	0
4.74	13.358	0.235	5.75	1.5	56.843	1.759	0.0	0.0	0.0	0
4.75	12.95	0.194	5.00	1.5	66.753	1.498	0.0	0.0	0.0	0
4.76	15.418	0.204	5.64	1.5	75.578	1.323	0.0	0.0	0.0	0
4.77	14.888	0.184	5.29	1.5	80.913	1.236	0.0	0.0	0.0	0
4.78	14.877	0.173	5.12	1.5	85.994	1.163	0.0	0.0	0.0	0
4.79	16.489	0.184	5.46	1.5	89.614	1.116	0.0	0.0	0.0	0
4.80	18.559	0.204	6.07	1.5	90.975	1.099	0.0	0.0	0.0	0
4.81	17.569	0.214	5.78	1.5	82.098	1.218	0.0	0.0	0.0	0
4.82	17.763	0.245	5.90	1.5	72.502	1.379	0.0	0.0	0.0	0
4.83	17.274	0.296	5.82	1.5	58.358	1.714	0.0	0.0	0.0	0
4.84	15.336	0.296	5.21	1.5	51.811	1.93	0.0	0.0	0.0	0
4.85	13.664	0.296	4.74	1.4	46.162	2.166	0.0	0.0	0.0	0
4.86	15.928	0.438	5.80	1.4	36.365	2.75	0.0	0.0	0.0	0
4.87	12.797	0.377	4.75	1.4	33.944	2.946	0.0	0.0	0.0	0
4.88	14.062	0.438	5.28	1.4	32.105	3.115	0.0	0.0	0.0	0
4.89	15.785	0.5	5.96	1.4	31.57	3.168	0.0	0.0	0.0	0
4.90	13.715	0.438	5.20	1.4	31.313	3.194	0.0	0.0	0.0	0
4.91	15.051	0.5	5.69	1.4	30.102	3.322	0.0	0.0	0.0	0
4.92	12.991	0.449	4.96	1.4	28.933	3.456	0.0	0.0	0.0	0
4.93	13.96	0.479	5.42	1.4	29.144	3.431	0.0	0.0	0.0	0
4.94	13.837	0.449	5.36	1.4	30.817	3.245	0.0	0.0	0.0	0
4.95	13.725	0.428	5.34	1.4	32.068	3.118	0.0	0.0	0.0	0
4.96	15.377	0.438	5.92	1.4	35.107	2.848	0.0	0.0	0.0	0
4.97	12.185	0.326	4.69	1.4	37.377	2.675	0.0	0.0	0.0	0
4.98	11.727	0.296	4.54	1.4	39.618	2.524	0.0	0.0	0.0	0
4.99	12.899	0.306	4.99	1.4	42.154	2.372	0.0	0.0	0.0	0
5.00	12.563	0.275	4.93	1.4	45.684	2.189	0.0	0.0	0.0	0
5.01	13.48	0.286	5.27	1.4	47.133	2.122	0.0	0.0	0.0	0
5.02	12.899	0.255	5.00	1.4	50.584	1.977	0.0	0.0	0.0	0
5.03	15.173	0.265	5.65	1.4	57.257	1.747	0.0	0.0	0.0	0
5.04	15.918	0.275	5.84	1.4	57.884	1.728	0.0	0.0	0.0	0
5.05	15.928	0.275	5.76	1.4	57.92	1.727	0.0	0.0	0.0	0
5.06	14.031	0.235	5.03	1.4	59.706	1.675	0.0	0.0	0.0	0
5.07	12.848	0.214	4.52	1.4	60.037	1.666	0.0	0.0	0.0	0
5.08	15.673	0.265	5.52	1.4	59.143	1.691	0.0	0.0	0.0	0
5.09	15.295	0.255	5.44	1.4	59.98	1.667	0.0	0.0	0.0	0
5.10	13.175	0.224	4.74	1.5	58.817	1.7	0.0	0.0	0.0	0
5.11	14.684	0.255	5.31	1.5	57.584	1.737	0.0	0.0	0.0	0
5.12	14.561	0.255	5.33	1.5	57.102	1.751	0.0	0.0	0.0	0
5.13	15.295	0.286	5.59	1.5	53.479	1.87	0.0	0.0	0.0	0
5.14	13.215	0.245	4.77	1.5	53.939	1.854	0.0	0.0	0.0	0
5.15	14.928	0.286	5.33	1.5	52.196	1.916	0.0	0.0	0.0	0
5.16	13.756	0.235	4.60	1.5	58.536	1.708	0.0	0.0	0.0	0
5.17	15.092	0.255	4.85	1.5	59.184	1.69	0.0	0.0	0.0	0
5.18	16.774	0.286	5.21	1.5	58.65	1.705	0.0	0.0	0.0	0
5.19	19.752	0.326	5.91	1.5	60.589	1.65	0.0	0.0	0.0	0
5.20	18.895	0.296	5.21	1.5	63.834	1.567	0.0	0.0	0.0	0
5.21	20.863	0.347	5.72	1.5	60.124	1.663	0.0	0.0	0.0	0
5.22	16.621	0.286	4.56	1.5	58.115	1.721	0.0	0.0	0.0	0
5.23	18.813	0.357	5.09	1.5	52.697	1.898	0.0	0.0	0.0	0
5.24	16.845	0.326	4.46	1.5	51.672	1.935	0.0	0.0	0.0	0
5.25	18.385	0.357	4.81	1.5	51.499	1.942	0.0	0.0	0.0	0
5.26	18.161	0.377	4.82	1.5	48.172	2.076	0.0	0.0	0.0	0
5.27	15.387	0.347	4.34	1.5	44.343	2.255	0.0	0.0	0.0	0
5.28	15.377	0.337	4.22	1.5	45.629	2.192	0.0	0.0	0.0	0
5.29	15.601	0.326	4.28	1.5	47.856	2.09	0.0	0.0	0.0	0
5.30	17.682	0.387	5.03	1.5	45.69	2.189	0.0	0.0	0.0	0
5.31	17.009	0.367	4.77	1.5	46.346	2.158	0.0	0.0	0.0	0
5.32	18.446	0.387	4.98	1.5	47.664	2.098	0.0	0.0	0.0	0
5.33	18.497	0.387	4.53	1.5	47.796	2.092	0.0	0.0	0.0	0
5.34	19.588	0.408	4.66	1.5	48.01	2.083	0.0	0.0	0.0	0
5.35	21.373	0.438	5.03	1.5	48.797	2.049	0.0	0.0	0.0	0
5.36	17.712	0.347	4.08	1.5	51.043	1.959	0.0	0.0	0.0	0

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5.37	19.405	0.377	4.33	1.5	51.472	1.943	0.0	0.0	0.0	0
5.38	17.539	0.377	4.00	1.5	46.523	2.149	0.0	0.0	0.0	0
5.39	18.885	0.438	4.48	1.5	43.116	2.319	0.0	0.0	0.0	0
5.40	17.824	0.428	4.53	1.5	41.645	2.401	0.0	0.0	0.0	0
5.41	15.346	0.367	4.03	1.5	41.815	2.392	0.0	0.0	0.0	0
5.42	19.466	0.469	5.25	1.5	41.505	2.409	0.0	0.0	0.0	0
5.43	19.446	0.469	5.27	1.5	41.463	2.412	0.0	0.0	0.0	0
5.44	18.538	0.438	5.10	1.5	42.324	2.363	0.0	0.0	0.0	0
5.45	16.254	0.377	4.48	1.5	43.114	2.319	0.0	0.0	0.0	0
5.46	16.754	0.398	4.64	1.5	42.095	2.376	0.0	0.0	0.0	0
5.47	14.888	0.357	4.18	1.5	41.703	2.398	0.0	0.0	0.0	0
5.48	19.058	0.459	5.36	1.5	41.521	2.408	0.0	0.0	0.0	0
5.49	19.334	0.449	5.39	1.5	43.06	2.322	0.0	0.0	0.0	0
5.50	14.826	0.347	4.21	1.5	42.726	2.34	0.0	0.0	0.0	0
5.51	14.317	0.377	4.32	1.5	37.976	2.633	0.0	0.0	0.0	0
5.52	16.947	0.428	5.15	1.6	39.596	2.526	0.0	0.0	0.0	0
5.53	16.529	0.398	5.03	1.6	41.53	2.408	0.0	0.0	0.0	0
5.54	16.397	0.357	5.01	1.6	45.93	2.177	0.0	0.0	0.0	0
5.55	15.112	0.326	4.55	1.6	46.356	2.157	0.0	0.0	0.0	0
5.56	17.039	0.357	5.11	1.6	47.728	2.095	0.0	0.0	0.0	0
5.57	18.416	0.357	5.40	1.6	51.585	1.939	0.0	0.0	0.0	0
5.58	14.847	0.286	4.35	1.6	51.913	1.926	0.0	0.0	0.0	0
5.59	14.419	0.275	4.23	1.6	52.433	1.907	0.0	0.0	0.0	0
5.60	17.304	0.459	2.89	1.6	37.699	2.653	0.0	0.0	0.0	0
5.61	17.998	0.53	3.23	1.6	33.958	2.945	0.0	0.0	0.0	0
5.62	15.55	0.51	3.09	1.6	30.49	3.28	0.0	0.0	0.0	0
5.63	19.996	0.612	4.16	1.6	32.673	3.061	0.0	0.0	0.0	0
5.64	19.66	0.551	4.11	1.6	35.681	2.803	0.0	0.0	0.0	0
5.65	18.528	0.479	3.71	1.6	38.681	2.585	0.0	0.0	0.0	0
5.66	24.381	0.581	4.48	1.6	41.964	2.383	0.0	0.0	0.0	0
5.67	23.147	0.54	4.29	1.6	42.865	2.333	0.0	0.0	0.0	0
5.68	19.935	0.469	3.70	1.6	42.505	2.353	0.0	0.0	0.0	0
5.69	20.812	0.51	3.65	1.6	40.808	2.451	0.0	0.0	0.0	0
5.70	20.649	0.561	3.80	1.6	36.807	2.717	0.0	0.0	0.0	0
5.71	18.293	0.571	3.57	1.6	32.037	3.121	0.0	0.0	0.0	0
5.72	17.325	0.581	3.79	1.6	29.819	3.354	0.0	0.0	0.0	0
5.73	18.355	0.591	4.25	1.6	31.058	3.22	0.0	0.0	0.0	0
5.74	17.937	0.561	4.20	1.6	31.973	3.128	0.0	0.0	0.0	0
5.75	18.1	0.551	4.27	1.6	32.849	3.044	0.0	0.0	0.0	0
5.76	14.704	0.449	3.52	1.6	32.748	3.054	0.0	0.0	0.0	0
5.77	14.745	0.449	3.55	1.6	32.84	3.045	0.0	0.0	0.0	0
5.78	16.988	0.53	4.07	1.6	32.053	3.12	0.0	0.0	0.0	0
5.79	14.99	0.479	3.60	1.6	31.294	3.195	0.0	0.0	0.0	0
5.80	14.378	0.469	3.46	1.6	30.657	3.262	0.0	0.0	0.0	0
5.81	18.1	0.571	4.33	1.6	31.699	3.155	0.0	0.0	0.0	0
5.82	17.355	0.5	4.13	1.6	34.71	2.881	0.0	0.0	0.0	0
5.83	15.744	0.418	3.75	1.6	37.665	2.655	0.0	0.0	0.0	0
5.84	18.12	0.459	4.38	1.6	39.477	2.533	0.0	0.0	0.0	0
5.85	15.061	0.367	3.71	1.6	41.038	2.437	0.0	0.0	0.0	0
5.86	17.06	0.418	4.26	1.7	40.813	2.45	0.0	0.0	0.0	0
5.87	15.224	0.347	3.80	1.6	43.873	2.279	0.0	0.0	0.0	0
5.88	14.317	0.316	3.54	1.6	45.307	2.207	0.0	0.0	0.0	0
5.89	16.274	0.337	4.01	1.6	48.291	2.071	0.0	0.0	0.0	0
5.90	16.968	0.316	4.16	1.7	53.696	1.862	0.0	0.0	0.0	0
5.91	18.691	0.337	4.57	1.7	55.463	1.803	0.0	0.0	0.0	0
5.92	16.274	0.296	4.00	1.7	54.98	1.819	0.0	0.0	0.0	0
5.93	17.58	0.316	4.32	1.7	55.633	1.797	0.0	0.0	0.0	0
5.94	14.113	0.275	3.52	1.7	51.32	1.949	0.0	0.0	0.0	0
5.95	18.426	0.367	4.55	1.7	50.207	1.992	0.0	0.0	0.0	0
5.96	16.336	0.326	3.95	1.7	50.11	1.996	0.0	0.0	0.0	0
5.97	19.425	0.357	4.53	1.7	54.412	1.838	0.0	0.0	0.0	0
5.98	16.223	0.286	3.66	1.7	56.724	1.763	0.0	0.0	0.0	0
5.99	17.1	0.296	3.65	1.7	57.77	1.731	0.0	0.0	0.0	0
6.00	19.425	0.326	3.90	1.7	59.586	1.678	0.0	0.0	0.0	0
6.01	22.342	0.377	4.00	1.7	59.263	1.687	0.0	0.0	0.0	0
6.02	23.943	0.438	3.96	1.7	54.664	1.829	0.0	0.0	0.0	0
6.03	21.638	0.418	3.22	1.7	51.766	1.932	0.0	0.0	0.0	0
6.04	22.27	0.459	3.19	1.7	48.519	2.061	0.0	0.0	0.0	0
6.05	26.247	0.632	3.21	1.7	41.53	2.408	0.0	0.0	0.0	0
6.06	24.197	0.632	2.88	1.7	38.286	2.612	0.0	0.0	0.0	0
6.07	25.503	0.724	3.15	1.7	35.225	2.839	0.0	0.0	0.0	0
6.08	21.016	0.693	3.02	1.7	30.326	3.297	0.0	0.0	0.0	0
6.09	22.994	0.816	3.42	1.7	28.179	3.549	0.0	0.0	0.0	0
6.10	19.782	0.724	2.95	1.7	27.323	3.66	0.0	0.0	0.0	0
6.11	22.148	0.826	3.25	1.7	26.814	3.729	0.0	0.0	0.0	0

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6.12	25.951	0.999	3.53	1.7	25.977	3.85	0.0	0.0	0.0	0
6.13	28.898	1.101	3.71	1.7	26.247	3.81	0.0	0.0	0.0	0
6.14	25.38	0.897	3.06	1.7	28.294	3.534	0.0	0.0	0.0	0
6.15	35.526	1.02	3.10	1.7	34.829	2.871	0.0	0.0	0.0	0
6.16	38.412	1.02	2.65	1.7	37.659	2.655	0.0	0.0	0.0	0
6.17	34.231	0.897	1.95	1.7	38.162	2.62	0.0	0.0	0.0	0
6.18	36.434	0.948	1.55	1.7	38.432	2.602	0.0	0.0	0.0	0
6.19	29.357	0.816	1.02	1.7	35.977	2.78	0.0	0.0	0.0	0
6.20	29.459	0.877	1.12	1.7	33.591	2.977	0.0	0.0	0.0	0
6.21	26.023	0.836	1.06	1.7	31.128	3.213	0.0	0.0	0.0	0
6.22	24.055	0.775	0.99	1.7	31.039	3.222	0.0	0.0	0.0	0
6.23	26.981	0.938	1.26	1.7	28.764	3.477	0.0	0.0	0.0	0
6.24	24.065	0.908	1.43	1.7	26.503	3.773	0.0	0.0	0.0	0
6.25	22.699	0.928	1.69	1.7	24.46	4.088	0.0	0.0	0.0	0
6.26	22.097	0.908	1.92	1.7	24.336	4.109	0.0	0.0	0.0	0
6.27	17.335	0.714	2.05	1.7	24.279	4.119	0.0	0.0	0.0	0
6.28	17.406	0.724	2.42	1.7	24.041	4.159	0.0	0.0	0.0	0
6.29	21.016	0.897	2.99	1.7	23.429	4.268	0.0	0.0	0.0	0
6.30	20.914	0.938	3.09	1.7	22.296	4.485	0.0	0.0	0.0	0
6.31	20.108	0.897	3.00	1.8	22.417	4.461	0.0	0.0	0.0	0
6.32	17.131	0.734	2.55	1.8	23.339	4.285	0.0	0.0	0.0	0
6.33	18.171	0.755	2.67	1.8	24.068	4.155	0.0	0.0	0.0	0
6.34	19.537	0.765	2.88	1.8	25.539	3.916	0.0	0.0	0.0	0
6.35	17.182	0.632	2.55	1.8	27.187	3.678	0.0	0.0	0.0	0
6.36	21.801	0.734	3.16	1.8	29.702	3.367	0.0	0.0	0.0	0
6.37	20.934	0.622	2.95	1.8	33.656	2.971	0.0	0.0	0.0	0
6.38	19.956	0.479	2.66	1.8	41.662	2.4	0.0	0.0	0.0	0
6.39	21.495	0.479	2.80	1.8	44.875	2.228	0.0	0.0	0.0	0
6.40	26.002	0.561	3.30	1.8	46.349	2.158	0.0	0.0	0.0	0
6.41	25.176	0.489	3.08	1.8	51.485	1.942	0.0	0.0	0.0	0
6.42	22.913	0.459	2.77	1.8	49.919	2.003	0.0	0.0	0.0	0
6.43	27.715	0.602	3.40	1.8	46.038	2.172	0.0	0.0	0.0	0
6.44	21.934	0.52	2.74	1.8	42.181	2.371	0.0	0.0	0.0	0
6.45	28.501	0.683	3.60	1.8	41.729	2.396	0.0	0.0	0.0	0
6.46	25.666	0.571	3.21	1.8	44.949	2.225	0.0	0.0	0.0	0
6.47	27.022	0.581	3.33	1.8	46.509	2.15	0.0	0.0	0.0	0
6.48	28.807	0.622	3.52	1.8	46.314	2.159	0.0	0.0	0.0	0
6.49	22.362	0.561	2.84	1.8	39.861	2.509	0.0	0.0	0.0	0
6.50	26.808	0.724	3.49	1.8	37.028	2.701	0.0	0.0	0.0	0
6.51	24.371	0.693	3.28	1.8	35.167	2.844	0.0	0.0	0.0	0
6.52	23.188	0.663	3.18	1.8	34.974	2.859	0.0	0.0	0.0	0
6.53	26.512	0.795	3.58	1.8	33.348	2.999	0.0	0.0	0.0	0
6.54	22.597	0.683	3.02	1.8	33.085	3.023	0.0	0.0	0.0	0
6.55	22.229	0.663	2.89	1.8	33.528	2.983	0.0	0.0	0.0	0
6.56	31.59	0.918	3.68	1.8	34.412	2.906	0.0	0.0	0.0	0
6.57	24.605	0.744	2.33	1.8	33.071	3.024	0.0	0.0	0.0	0
6.58	28.388	0.857	2.68	1.8	33.125	3.019	0.0	0.0	0.0	0
6.59	25.074	0.755	2.38	1.8	33.211	3.011	0.0	0.0	0.0	0
6.60	29.459	1.356	1.85	1.8	21.725	4.603	0.0	0.0	0.0	0
6.61	27.44	1.275	1.77	1.8	21.522	4.647	0.0	0.0	0.0	0
6.62	25.125	1.213	1.72	1.8	20.713	4.828	0.0	0.0	0.0	0
6.63	30.02	1.458	2.15	1.8	20.59	4.857	0.0	0.0	0.0	0
6.64	26.482	1.264	1.71	1.8	20.951	4.773	0.0	0.0	0.0	0
6.65	24.677	1.234	1.53	1.8	19.998	5.001	0.0	0.0	0.0	0
6.66	27.41	1.397	1.76	1.8	19.621	5.097	0.0	0.0	0.0	0
6.67	25.258	1.315	1.91	1.8	19.208	5.206	0.0	0.0	0.0	0
6.68	21.913	1.142	1.81	1.8	19.188	5.212	0.0	0.0	0.0	0
6.69	25.125	1.346	2.25	1.8	18.666	5.357	0.0	0.0	0.0	0
6.70	21.036	1.152	1.94	1.8	18.26	5.476	0.0	0.0	0.0	0
6.71	20.863	1.162	2.00	1.8	17.954	5.57	0.0	0.0	0.0	0
6.72	23.331	1.264	2.27	1.8	18.458	5.418	0.0	0.0	0.0	0
6.73	21.954	1.122	2.26	1.8	19.567	5.111	0.0	0.0	0.0	0
6.74	22.576	1.111	2.37	1.9	20.32	4.921	0.0	0.0	0.0	0
6.75	19.068	0.918	2.04	1.9	20.771	4.814	0.0	0.0	0.0	0
6.76	20.435	0.948	2.24	1.9	21.556	4.639	0.0	0.0	0.0	0
6.77	20.027	0.867	2.34	1.9	23.099	4.329	0.0	0.0	0.0	0
6.78	18.671	0.765	2.19	1.8	24.407	4.097	0.0	0.0	0.0	0
6.79	21.108	0.826	2.48	1.8	25.554	3.913	0.0	0.0	0.0	0
6.80	18.059	0.673	2.13	1.9	26.834	3.727	0.0	0.0	0.0	0
6.81	21.2	0.653	2.58	1.8	32.466	3.08	0.0	0.0	0.0	0
6.82	17.559	0.51	2.17	1.8	34.429	2.904	0.0	0.0	0.0	0
6.83	20.945	0.581	2.63	1.8	36.05	2.774	0.0	0.0	0.0	0
6.84	19.211	0.53	2.46	1.8	36.247	2.759	0.0	0.0	0.0	0
6.85	19.527	0.5	2.61	1.8	39.054	2.561	0.0	0.0	0.0	0
6.86	16.336	0.408	2.23	1.8	40.039	2.498	0.0	0.0	0.0	0

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6.87	20.149	0.479	2.80	1.9	42.065	2.377	0.0	0.0	0.0	0
6.88	18.63	0.428	2.63	1.9	43.528	2.297	0.0	0.0	0.0	0
6.89	18.497	0.408	2.58	1.9	45.336	2.206	0.0	0.0	0.0	0
6.90	17.07	0.377	2.42	1.9	45.279	2.209	0.0	0.0	0.0	0
6.91	18.457	0.408	2.63	1.8	45.238	2.211	0.0	0.0	0.0	0
6.92	20.282	0.428	2.89	1.8	47.388	2.11	0.0	0.0	0.0	0
6.93	18.61	0.377	2.57	1.8	49.363	2.026	0.0	0.0	0.0	0
6.94	22.79	0.459	3.03	1.9	49.651	2.014	0.0	0.0	0.0	0
6.95	18.589	0.387	2.54	1.8	48.034	2.082	0.0	0.0	0.0	0
6.96	21.536	0.489	3.08	1.8	44.041	2.271	0.0	0.0	0.0	0
6.97	20.527	0.459	3.00	1.8	44.721	2.236	0.0	0.0	0.0	0
6.98	16.968	0.377	2.53	1.8	45.008	2.222	0.0	0.0	0.0	0
6.99	19.599	0.459	2.98	1.9	42.699	2.342	0.0	0.0	0.0	0
7.00	18.864	0.5	3.07	1.8	37.728	2.651	0.0	0.0	0.0	0
7.01	18.926	0.489	3.18	1.8	38.703	2.584	0.0	0.0	0.0	0
7.02	14.786	0.357	2.51	1.8	41.417	2.414	0.0	0.0	0.0	0
7.03	14.786	0.347	2.54	1.8	42.611	2.347	0.0	0.0	0.0	0
7.04	15.856	0.387	2.78	1.8	40.972	2.441	0.0	0.0	0.0	0
7.05	16.743	0.408	2.96	1.8	41.037	2.437	0.0	0.0	0.0	0
7.06	15.856	0.377	2.81	1.8	42.058	2.378	0.0	0.0	0.0	0
7.07	19.079	0.449	3.39	1.8	42.492	2.353	0.0	0.0	0.0	0
7.08	19.466	0.428	3.45	1.8	45.481	2.199	0.0	0.0	0.0	0
7.09	15.591	0.326	2.79	1.8	47.825	2.091	0.0	0.0	0.0	0
7.10	15.438	0.306	2.79	1.8	50.451	1.982	0.0	0.0	0.0	0
7.11	19.619	0.367	3.57	1.9	53.458	1.871	0.0	0.0	0.0	0
7.12	16.713	0.286	3.11	1.8	58.437	1.711	0.0	0.0	0.0	0
7.13	16.325	0.275	3.02	1.8	59.364	1.685	0.0	0.0	0.0	0
7.14	18.477	0.306	3.46	1.9	60.382	1.656	0.0	0.0	0.0	0
7.15	20.017	0.316	3.82	1.9	63.345	1.579	0.0	0.0	0.0	0
7.16	16.478	0.275	3.27	1.9	59.92	1.669	0.0	0.0	0.0	0
7.17	16.336	0.265	3.23	1.9	61.645	1.622	0.0	0.0	0.0	0
7.18	20.414	0.326	4.08	1.9	62.62	1.597	0.0	0.0	0.0	0
7.19	11.533	0.255	3.23	1.9	45.227	2.211	0.0	0.0	0.0	0
7.20	18.089	0.275	3.66	1.9	65.778	1.52	0.0	0.0	0.0	0
7.21	18.049	0.275	3.68	1.9	65.633	1.524	0.0	0.0	0.0	0
7.22	19.945	0.306	4.06	1.9	65.18	1.534	0.0	0.0	0.0	0
7.23	18.089	0.286	3.75	1.9	63.248	1.581	0.0	0.0	0.0	0
7.24	19.945	0.347	4.24	1.9	57.478	1.74	0.0	0.0	0.0	0
7.25	20.129	0.367	4.35	1.9	54.847	1.823	0.0	0.0	0.0	0
7.26	16.958	0.306	3.67	1.9	55.418	1.804	0.0	0.0	0.0	0
7.27	17.784	0.316	3.93	1.9	56.278	1.777	0.0	0.0	0.0	0
7.28	20.129	0.357	4.50	1.9	56.384	1.774	0.0	0.0	0.0	0
7.29	18.253	0.316	4.09	1.9	57.763	1.731	0.0	0.0	0.0	0
7.30	18.528	0.306	4.14	1.9	60.549	1.652	0.0	0.0	0.0	0
7.31	17.182	0.275	3.80	1.9	62.48	1.601	0.0	0.0	0.0	0
7.32	20.139	0.326	4.41	1.9	61.776	1.619	0.0	0.0	0.0	0
7.33	16.621	0.275	3.55	1.9	60.44	1.655	0.0	0.0	0.0	0
7.34	21.312	0.377	4.59	1.9	56.531	1.769	0.0	0.0	0.0	0
7.35	18.395	0.337	3.92	1.8	54.585	1.832	0.0	0.0	0.0	0
7.36	20.068	0.377	4.28	1.8	53.231	1.879	0.0	0.0	0.0	0
7.37	18.926	0.387	4.14	1.8	48.904	2.045	0.0	0.0	0.0	0
7.38	20.649	0.459	4.62	1.8	44.987	2.223	0.0	0.0	0.0	0
7.39	16.866	0.387	3.80	1.8	43.581	2.295	0.0	0.0	0.0	0
7.40	16.917	0.377	3.76	1.8	44.873	2.229	0.0	0.0	0.0	0
7.41	19.252	0.428	4.23	1.8	44.981	2.223	0.0	0.0	0.0	0
7.42	18.008	0.408	3.91	1.8	44.137	2.266	0.0	0.0	0.0	0
7.43	20.231	0.469	4.33	1.8	43.136	2.318	0.0	0.0	0.0	0
7.44	19.017	0.459	4.05	1.8	41.431	2.414	0.0	0.0	0.0	0
7.45	17.773	0.438	3.76	1.8	40.578	2.464	0.0	0.0	0.0	0
7.46	20.435	0.52	4.28	1.8	39.298	2.545	0.0	0.0	0.0	0
7.47	19.976	0.52	4.21	1.8	38.415	2.603	0.0	0.0	0.0	0
7.48	17.671	0.459	3.73	1.8	38.499	2.597	0.0	0.0	0.0	0
7.49	19.068	0.5	4.05	1.8	38.136	2.622	0.0	0.0	0.0	0
7.50	20.781	0.561	4.43	1.8	37.043	2.7	0.0	0.0	0.0	0
7.51	18.059	0.5	3.81	1.8	36.118	2.769	0.0	0.0	0.0	0
7.52	16.998	0.469	3.55	1.8	36.243	2.759	0.0	0.0	0.0	0
7.53	16.723	0.489	3.51	1.8	34.198	2.924	0.0	0.0	0.0	0
7.54	17.845	0.561	3.79	1.8	31.809	3.144	0.0	0.0	0.0	0
7.55	16.682	0.53	3.54	1.8	31.475	3.177	0.0	0.0	0.0	0
7.56	18.12	0.591	3.80	1.8	30.66	3.262	0.0	0.0	0.0	0
7.57	16.519	0.551	3.49	1.8	29.98	3.336	0.0	0.0	0.0	0
7.58	16.845	0.571	3.56	1.8	29.501	3.39	0.0	0.0	0.0	0
7.59	17.345	0.581	3.66	1.8	29.854	3.35	0.0	0.0	0.0	0
7.60	20.567	0.693	4.05	1.8	29.678	3.369	0.0	0.0	0.0	0
7.61	17.784	0.622	3.50	1.8	28.592	3.498	0.0	0.0	0.0	0

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7.62	17.569	0.632	3.48	1.8	27.799	3.597	0.0	0.0	0.0	0
7.63	19.007	0.704	3.82	1.8	26.999	3.704	0.0	0.0	0.0	0
7.64	20.394	0.785	4.17	1.8	25.98	3.849	0.0	0.0	0.0	0
7.65	18.477	0.755	3.88	1.8	24.473	4.086	0.0	0.0	0.0	0
7.66	15.846	0.673	3.39	1.8	23.545	4.247	0.0	0.0	0.0	0
7.67	17.274	0.744	3.73	1.8	23.218	4.307	0.0	0.0	0.0	0
7.68	17.916	0.785	3.92	1.9	22.823	4.382	0.0	0.0	0.0	0
7.69	14.622	0.663	3.23	1.9	22.054	4.534	0.0	0.0	0.0	0
7.70	16.489	0.806	3.77	1.8	20.458	4.888	0.0	0.0	0.0	0
7.71	14.347	0.724	3.36	1.9	19.816	5.046	0.0	0.0	0.0	0
7.72	13.358	0.693	3.19	1.9	19.276	5.188	0.0	0.0	0.0	0
7.73	12.848	0.693	3.18	1.9	18.54	5.394	0.0	0.0	0.0	0
7.74	16.193	0.857	4.01	1.9	18.895	5.292	0.0	0.0	0.0	0
7.75	14.276	0.765	3.57	1.9	18.661	5.359	0.0	0.0	0.0	0
7.76	16.703	0.867	4.15	1.9	19.265	5.191	0.0	0.0	0.0	0
7.77	14.633	0.734	3.58	1.9	19.936	5.016	0.0	0.0	0.0	0
7.78	14.775	0.724	3.65	1.9	20.407	4.9	0.0	0.0	0.0	0
7.79	12.981	0.622	3.21	1.9	20.87	4.792	0.0	0.0	0.0	0
7.80	15.55	0.744	3.94	1.9	20.901	4.785	0.0	0.0	0.0	0
7.81	16.183	0.744	4.10	1.9	21.751	4.597	0.0	0.0	0.0	0
7.82	16.315	0.693	4.10	1.9	23.543	4.248	0.0	0.0	0.0	0
7.83	13.654	0.53	3.42	1.9	25.762	3.882	0.0	0.0	0.0	0
7.84	15.051	0.53	3.76	1.9	28.398	3.521	0.0	0.0	0.0	0
7.85	13.939	0.5	3.54	1.9	27.878	3.587	0.0	0.0	0.0	0
7.86	12.359	0.438	3.16	1.9	28.217	3.544	0.0	0.0	0.0	0
7.87	11.93	0.438	3.13	1.9	27.237	3.671	0.0	0.0	0.0	0
7.88	12.318	0.459	3.28	1.9	26.837	3.726	0.0	0.0	0.0	0
7.89	14.541	0.54	3.89	1.9	26.928	3.714	0.0	0.0	0.0	0
7.90	14.062	0.53	3.78	1.9	26.532	3.769	0.0	0.0	0.0	0
7.91	11.88	0.459	3.25	1.9	25.882	3.864	0.0	0.0	0.0	0
7.92	11.655	0.459	3.23	1.9	25.392	3.938	0.0	0.0	0.0	0
7.93	13.236	0.53	3.70	1.9	24.974	4.004	0.0	0.0	0.0	0
7.94	11.217	0.449	3.14	1.9	24.982	4.003	0.0	0.0	0.0	0
7.95	11.431	0.459	3.18	1.9	24.904	4.015	0.0	0.0	0.0	0
7.96	12.328	0.479	3.40	1.9	25.737	3.885	0.0	0.0	0.0	0
7.97	13.603	0.51	3.69	1.9	26.673	3.749	0.0	0.0	0.0	0
7.98	12.889	0.459	3.46	1.9	28.081	3.561	0.0	0.0	0.0	0
7.99	13.226	0.449	3.51	1.9	29.457	3.395	0.0	0.0	0.0	0
8.00	14.194	0.449	3.71	1.9	31.612	3.163	0.0	0.0	0.0	0
8.01	16.315	0.459	4.11	1.9	35.545	2.813	0.0	0.0	0.0	0
8.02	14.337	0.367	3.55	1.9	39.065	2.56	0.0	0.0	0.0	0
8.03	14.317	0.337	3.41	1.9	42.484	2.354	0.0	0.0	0.0	0
8.04	15.061	0.316	3.43	1.9	47.661	2.098	0.0	0.0	0.0	0
8.05	16.601	0.326	3.66	1.9	50.923	1.964	0.0	0.0	0.0	0
8.06	20.527	0.337	4.07	1.9	60.911	1.642	0.0	0.0	0.0	0
8.07	17.304	0.275	3.07	1.9	62.924	1.589	0.0	0.0	0.0	0
8.08	21.22	0.337	3.27	1.9	62.967	1.588	0.0	0.0	0.0	0
8.09	17.845	0.296	2.70	1.9	60.287	1.659	0.0	0.0	0.0	0
8.10	23.596	0.428	3.57	1.9	55.131	1.814	0.0	0.0	0.0	0
8.11	19.782	0.377	2.80	1.9	52.472	1.906	0.0	0.0	0.0	0
8.12	23.902	0.5	3.28	1.9	47.804	2.092	0.0	0.0	0.0	0
8.13	20.894	0.489	2.89	1.9	42.728	2.34	0.0	0.0	0.0	0
8.14	23.953	0.622	3.27	1.9	38.51	2.597	0.0	0.0	0.0	0
8.15	21.76	0.602	2.92	1.9	36.146	2.767	0.0	0.0	0.0	0
8.16	22.189	0.673	2.95	1.9	32.97	3.033	0.0	0.0	0.0	0
8.17	25.238	0.826	3.32	2.0	30.554	3.273	0.0	0.0	0.0	0
8.18	26.91	1.01	3.45	2.0	26.644	3.753	0.0	0.0	0.0	0
8.19	25.503	1.01	3.22	2.0	25.25	3.96	0.0	0.0	0.0	0
8.20	22.8	0.948	2.85	2.0	24.051	4.158	0.0	0.0	0.0	0
8.21	25.574	1.101	3.15	2.0	23.228	4.305	0.0	0.0	0.0	0
8.22	22.484	1.01	2.73	2.0	22.261	4.492	0.0	0.0	0.0	0
8.23	24.106	1.091	2.88	2.0	22.095	4.526	0.0	0.0	0.0	0
8.24	28.062	1.295	3.32	2.0	21.669	4.615	0.0	0.0	0.0	0
8.25	27.889	1.346	3.39	2.0	20.72	4.826	0.0	0.0	0.0	0
8.26	26.594	1.315	3.26	2.0	20.224	4.945	0.0	0.0	0.0	0
8.27	21.832	1.101	2.71	2.0	19.829	5.043	0.0	0.0	0.0	0
8.28	25.309	1.275	3.13	2.0	19.85	5.038	0.0	0.0	0.0	0
8.29	24.116	1.213	3.03	2.0	19.881	5.03	0.0	0.0	0.0	0
8.30	25.656	1.285	3.25	2.0	19.966	5.009	0.0	0.0	0.0	0
8.31	23.902	1.183	3.00	2.0	20.205	4.949	0.0	0.0	0.0	0
8.32	22.433	1.081	2.75	2.0	20.752	4.819	0.0	0.0	0.0	0
8.33	23.881	1.132	2.86	2.0	21.096	4.74	0.0	0.0	0.0	0
8.34	22.841	1.091	2.68	2.0	20.936	4.776	0.0	0.0	0.0	0
8.35	28.429	1.377	3.38	2.0	20.646	4.844	0.0	0.0	0.0	0
8.36	24.218	1.193	2.92	2.0	20.3	4.926	0.0	0.0	0.0	0

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8.37	22.862	1.132	2.78	2.0	20.196	4.951	0.0	0.0	0.0	0
8.38	24.565	1.224	3.15	2.0	20.069	4.983	0.0	0.0	0.0	0
8.39	25.125	1.234	3.28	2.0	20.361	4.911	0.0	0.0	0.0	0
8.40	25.003	1.275	3.38	2.0	19.61	5.099	0.0	0.0	0.0	0
8.41	26.4	1.387	3.61	2.0	19.034	5.254	0.0	0.0	0.0	0
8.42	27.542	1.489	3.79	2.0	18.497	5.406	0.0	0.0	0.0	0
8.43	25.727	1.387	3.60	2.0	18.549	5.391	0.0	0.0	0.0	0
8.44	25.197	1.356	3.57	2.0	18.582	5.382	0.0	0.0	0.0	0
8.45	27.369	1.489	3.88	2.0	18.381	5.44	0.0	0.0	0.0	0
8.46	24.106	1.315	3.40	2.0	18.332	5.455	0.0	0.0	0.0	0
8.47	26.624	1.448	3.73	2.0	18.387	5.439	0.0	0.0	0.0	0
8.48	25.972	1.407	3.65	2.0	18.459	5.417	0.0	0.0	0.0	0
8.49	26.716	1.468	3.78	2.0	18.199	5.495	0.0	0.0	0.0	0
8.50	24.432	1.356	3.48	2.0	18.018	5.55	0.0	0.0	0.0	0
8.51	26.369	1.479	3.76	2.0	17.829	5.609	0.0	0.0	0.0	0
8.52	22.372	1.254	3.18	2.0	17.841	5.605	0.0	0.0	0.0	0
8.53	23.565	1.336	3.38	2.0	17.638	5.669	0.0	0.0	0.0	0
8.54	27.236	1.56	3.91	2.0	17.459	5.728	0.0	0.0	0.0	0
8.55	27.889	1.591	4.00	2.0	17.529	5.705	0.0	0.0	0.0	0
8.56	26.533	1.479	3.75	2.0	17.94	5.574	0.0	0.0	0.0	0
8.57	23.015	1.254	3.18	2.0	18.353	5.449	0.0	0.0	0.0	0
8.58	28.766	1.57	3.98	2.0	18.322	5.458	0.0	0.0	0.0	0
8.59	24.116	1.315	3.33	2.0	18.339	5.453	0.0	0.0	0.0	0
8.60	26.155	1.54	3.56	2.1	16.984	5.888	0.0	0.0	0.0	0
8.61	25.788	1.499	3.46	2.1	17.203	5.813	0.0	0.0	0.0	0
8.62	27.848	1.55	3.51	2.1	17.966	5.566	0.0	0.0	0.0	0
8.63	25.227	1.397	3.08	2.1	18.058	5.538	0.0	0.0	0.0	0
8.64	28.674	1.591	3.50	2.1	18.023	5.549	0.0	0.0	0.0	0
8.65	24.34	1.346	2.96	2.1	18.083	5.53	0.0	0.0	0.0	0
8.66	23.667	1.305	2.77	2.1	18.136	5.514	0.0	0.0	0.0	0
8.67	24.116	1.356	2.84	2.1	17.785	5.623	0.0	0.0	0.0	0
8.68	22.372	1.295	2.63	2.1	17.276	5.788	0.0	0.0	0.0	0
8.69	26.706	1.601	3.09	2.1	16.681	5.995	0.0	0.0	0.0	0
8.70	24.677	1.489	2.79	2.1	16.573	6.034	0.0	0.0	0.0	0
8.71	22.525	1.356	2.49	2.1	16.611	6.02	0.0	0.0	0.0	0
8.72	23.127	1.468	2.57	2.1	15.754	6.348	0.0	0.0	0.0	0
8.73	19.323	1.254	2.18	2.1	15.409	6.49	0.0	0.0	0.0	0
8.74	20.669	1.356	2.37	2.1	15.243	6.561	0.0	0.0	0.0	0
8.75	20.261	1.346	2.35	2.1	15.053	6.643	0.0	0.0	0.0	0
8.76	18.334	1.234	2.20	2.1	14.857	6.731	0.0	0.0	0.0	0
8.77	23.463	1.57	3.01	2.1	14.945	6.691	0.0	0.0	0.0	0
8.78	18.844	1.244	2.46	2.1	15.148	6.602	0.0	0.0	0.0	0
8.79	19.099	1.254	2.54	2.1	15.23	6.566	0.0	0.0	0.0	0
8.80	22.178	1.438	3.01	2.2	15.423	6.484	0.0	0.0	0.0	0
8.81	20.934	1.326	2.87	2.2	15.787	6.334	0.0	0.0	0.0	0
8.82	20.282	1.244	2.78	2.2	16.304	6.134	0.0	0.0	0.0	0
8.83	19.782	1.183	2.71	2.2	16.722	5.98	0.0	0.0	0.0	0
8.84	18.742	1.071	2.52	2.2	17.5	5.714	0.0	0.0	0.0	0
8.85	20.261	1.101	2.71	2.2	18.402	5.434	0.0	0.0	0.0	0
8.86	18.864	0.979	2.54	2.2	19.269	5.19	0.0	0.0	0.0	0
8.87	20.822	1.04	2.84	2.2	20.021	4.995	0.0	0.0	0.0	0
8.88	23.259	1.05	3.16	2.2	22.151	4.514	0.0	0.0	0.0	0
8.89	21.975	0.948	2.96	2.2	23.18	4.314	0.0	0.0	0.0	0
8.90	19.772	0.806	2.62	2.2	24.531	4.076	0.0	0.0	0.0	0
8.91	22.24	0.877	2.94	2.2	25.359	3.943	0.0	0.0	0.0	0
8.92	22.943	0.887	3.00	2.2	25.866	3.866	0.0	0.0	0.0	0
8.93	17.702	0.51	2.86	2.2	34.71	2.881	0.0	0.0	0.0	0
8.94	21.251	0.806	2.79	2.2	26.366	3.793	0.0	0.0	0.0	0
8.95	22.005	0.836	2.94	2.2	26.322	3.799	0.0	0.0	0.0	0
8.96	21.536	0.816	2.87	2.2	26.392	3.789	0.0	0.0	0.0	0
8.97	19.884	0.744	2.61	2.2	26.726	3.742	0.0	0.0	0.0	0
8.98	20.904	0.755	2.65	2.2	27.687	3.612	0.0	0.0	0.0	0
8.99	20.7	0.755	2.63	2.2	27.417	3.647	0.0	0.0	0.0	0
9.00	24.758	0.897	3.13	2.2	27.601	3.623	0.0	0.0	0.0	0
9.01	26.553	0.959	3.33	2.2	27.688	3.612	0.0	0.0	0.0	0
9.02	21.22	0.775	2.67	2.2	27.381	3.652	0.0	0.0	0.0	0
9.03	24.758	0.959	3.18	2.2	25.816	3.873	0.0	0.0	0.0	0
9.04	21.2	0.836	2.73	2.2	25.359	3.943	0.0	0.0	0.0	0
9.05	25.258	0.999	3.29	2.2	25.283	3.955	0.0	0.0	0.0	0
9.06	20.669	0.826	2.72	2.2	25.023	3.996	0.0	0.0	0.0	0
9.07	24.605	1.02	3.28	2.2	24.123	4.145	0.0	0.0	0.0	0
9.08	20.7	0.867	2.78	2.2	23.875	4.188	0.0	0.0	0.0	0
9.09	19.16	0.806	2.59	2.2	23.772	4.207	0.0	0.0	0.0	0
9.10	19.517	0.836	2.65	2.2	23.346	4.283	0.0	0.0	0.0	0
9.11	21.087	0.908	2.88	2.2	23.224	4.306	0.0	0.0	0.0	0

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9.12	20.078	0.908	2.81	2.2	22.112	4.522	0.0	0.0	0.0	0
9.13	21.536	0.999	3.07	2.2	21.558	4.639	0.0	0.0	0.0	0
9.14	18.63	0.877	2.69	2.2	21.243	4.707	0.0	0.0	0.0	0
9.15	17.437	0.846	2.57	2.2	20.611	4.852	0.0	0.0	0.0	0
9.16	17.947	0.918	2.72	2.2	19.55	5.115	0.0	0.0	0.0	0
9.17	18.732	0.969	2.89	2.2	19.331	5.173	0.0	0.0	0.0	0
9.18	18.559	0.959	2.87	2.2	19.352	5.167	0.0	0.0	0.0	0
9.19	16.886	0.867	2.62	2.2	19.476	5.134	0.0	0.0	0.0	0
9.20	18.344	0.918	2.85	2.2	19.983	5.004	0.0	0.0	0.0	0
9.21	20.853	0.969	3.19	2.2	21.52	4.647	0.0	0.0	0.0	0
9.22	19.293	0.857	2.90	2.2	22.512	4.442	0.0	0.0	0.0	0
9.23	21.414	0.908	3.14	2.2	23.584	4.24	0.0	0.0	0.0	0
9.24	20.394	0.836	2.95	2.2	24.395	4.099	0.0	0.0	0.0	0
9.25	19.629	0.816	2.87	2.2	24.055	4.157	0.0	0.0	0.0	0
9.26	21.057	0.867	3.07	2.2	24.287	4.117	0.0	0.0	0.0	0
9.27	21.353	0.877	3.11	2.2	24.348	4.107	0.0	0.0	0.0	0
9.28	18.956	0.765	2.74	2.2	24.779	4.036	0.0	0.0	0.0	0
9.29	21.465	0.836	3.02	2.2	25.676	3.895	0.0	0.0	0.0	0
9.30	22.535	0.938	3.35	2.2	24.025	4.162	0.0	0.0	0.0	0
9.31	17.814	0.734	2.66	2.2	24.27	4.12	0.0	0.0	0.0	0
9.32	22.495	0.938	3.37	2.2	23.982	4.17	0.0	0.0	0.0	0
9.33	19.762	0.826	2.99	2.2	23.925	4.18	0.0	0.0	0.0	0
9.34	18.946	0.785	2.96	2.2	24.135	4.143	0.0	0.0	0.0	0
9.35	20.812	0.816	3.16	2.2	25.505	3.921	0.0	0.0	0.0	0
9.36	22.393	0.857	3.32	2.2	26.13	3.827	0.0	0.0	0.0	0
9.37	24.656	0.928	3.61	2.2	26.569	3.764	0.0	0.0	0.0	0
9.38	22.597	0.816	3.32	2.2	27.692	3.611	0.0	0.0	0.0	0
9.39	21.454	0.755	3.15	2.2	28.416	3.519	0.0	0.0	0.0	0
9.40	19.976	0.693	3.04	2.2	28.825	3.469	0.0	0.0	0.0	0
9.41	20.282	0.704	3.14	2.2	28.81	3.471	0.0	0.0	0.0	0
9.42	22.413	0.765	3.42	2.2	29.298	3.413	0.0	0.0	0.0	0
9.43	22.637	0.755	3.42	2.2	29.983	3.335	0.0	0.0	0.0	0
9.44	24.789	0.785	3.63	2.2	31.578	3.167	0.0	0.0	0.0	0
9.45	24.299	0.765	3.50	2.2	31.763	3.148	0.0	0.0	0.0	0
9.46	24.646	0.775	3.55	2.2	31.801	3.145	0.0	0.0	0.0	0
9.47	25.197	0.806	3.66	2.2	31.262	3.199	0.0	0.0	0.0	0
9.48	24.33	0.795	3.64	2.2	30.604	3.268	0.0	0.0	0.0	0
9.49	27.532	0.928	4.03	2.2	29.668	3.371	0.0	0.0	0.0	0
9.50	23.127	0.785	3.39	2.2	29.461	3.394	0.0	0.0	0.0	0
9.51	24.228	0.826	3.52	2.2	29.332	3.409	0.0	0.0	0.0	0
9.52	23.667	0.795	3.40	2.2	29.77	3.359	0.0	0.0	0.0	0
9.53	27.919	0.938	4.06	2.2	29.764	3.36	0.0	0.0	0.0	0
9.54	25.452	0.857	3.72	2.2	29.699	3.367	0.0	0.0	0.0	0
9.55	25.554	0.857	3.76	2.2	29.818	3.354	0.0	0.0	0.0	0
9.56	22.8	0.765	3.37	2.2	29.804	3.355	0.0	0.0	0.0	0
9.57	21.924	0.734	3.24	2.2	29.869	3.348	0.0	0.0	0.0	0
9.58	24.116	0.806	3.56	2.2	29.921	3.342	0.0	0.0	0.0	0
9.59	24.86	0.918	3.41	2.3	27.081	3.693	0.0	0.0	0.0	0
9.60	26.125	0.989	3.65	2.3	26.416	3.786	0.0	0.0	0.0	0
9.61	25.023	0.969	3.60	2.2	25.824	3.872	0.0	0.0	0.0	0
9.62	23.025	0.887	3.32	2.2	25.958	3.852	0.0	0.0	0.0	0
9.63	22.484	0.846	3.33	2.3	26.577	3.763	0.0	0.0	0.0	0
9.64	22.699	0.836	3.49	2.3	27.152	3.683	0.0	0.0	0.0	0
9.65	22.036	0.806	3.36	2.3	27.34	3.658	0.0	0.0	0.0	0
9.66	25.911	0.979	4.07	2.3	26.467	3.778	0.0	0.0	0.0	0
9.67	23.524	0.938	3.69	2.3	25.079	3.987	0.0	0.0	0.0	0
9.68	27.042	1.111	4.24	2.2	24.34	4.108	0.0	0.0	0.0	0
9.69	20.496	0.887	3.24	2.2	23.107	4.328	0.0	0.0	0.0	0
9.70	22.617	1.02	3.64	2.2	22.174	4.51	0.0	0.0	0.0	0
9.71	20.863	0.969	3.50	2.2	21.53	4.645	0.0	0.0	0.0	0
9.72	21.811	0.999	3.77	2.2	21.833	4.58	0.0	0.0	0.0	0
9.73	21.342	0.948	3.68	2.2	22.513	4.442	0.0	0.0	0.0	0
9.74	25.391	1.101	4.38	2.2	23.062	4.336	0.0	0.0	0.0	0
9.75	25.513	1.081	4.31	2.2	23.601	4.237	0.0	0.0	0.0	0
9.76	26.889	1.091	4.34	2.2	24.646	4.057	0.0	0.0	0.0	0
9.77	23.117	0.928	3.72	2.2	24.911	4.014	0.0	0.0	0.0	0
9.78	25.054	0.979	3.99	2.2	25.591	3.908	0.0	0.0	0.0	0
9.79	22.158	0.836	3.50	2.2	26.505	3.773	0.0	0.0	0.0	0
9.80	21.414	0.785	3.39	2.2	27.279	3.666	0.0	0.0	0.0	0
9.81	26.655	0.877	3.99	2.2	30.393	3.29	0.0	0.0	0.0	0
9.82	23.902	0.765	3.50	2.2	31.244	3.201	0.0	0.0	0.0	0
9.83	28.623	0.887	4.04	2.1	32.269	3.099	0.0	0.0	0.0	0
9.84	29.785	0.877	3.98	2.1	33.962	2.944	0.0	0.0	0.0	0
9.85	32.763	0.816	3.45	2.0	40.151	2.491	0.0	0.0	0.0	0
9.86	33.874	0.755	3.18	2.0	44.866	2.229	0.0	0.0	0.0	0

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9.87	35.628	0.724	3.48	2.0	49.21	2.032	0.0	0.0	0.0	0
9.88	37.627	0.704	4.19	2.0	53.447	1.871	0.0	0.0	0.0	0
9.89	45.621	0.816	5.16	1.9	55.908	1.789	0.0	0.0	0.0	0
9.90	48.905	0.918	5.21	1.8	53.273	1.877	0.0	0.0	0.0	0
9.91	46.896	0.928	4.57	1.8	50.534	1.979	0.0	0.0	0.0	0
9.92	45.795	0.989	3.72	1.7	46.304	2.16	0.0	0.0	0.0	0
9.93	51.719	1.224	3.39	1.7	42.254	2.367	0.0	0.0	0.0	0
9.94	50.118	1.448	2.40	1.7	34.612	2.889	0.0	0.0	0.0	0
9.95	40.696	1.295	1.83	1.7	31.425	3.182	0.0	0.0	0.0	0
9.96	46.468	1.621	2.04	1.7	28.666	3.488	0.0	0.0	0.0	0
9.97	35.292	1.366	1.48	1.7	25.836	3.871	0.0	0.0	0.0	0
9.98	38.259	1.632	1.62	1.6	23.443	4.266	0.0	0.0	0.0	0
9.99	33.956	1.591	1.50	1.6	21.343	4.685	0.0	0.0	0.0	0
10.00	33.385	1.907	1.80	1.6	17.507	5.712	0.0	0.0	0.0	0
10.01	30.856	1.958	1.85	1.6	15.759	6.346	0.0	0.0	0.0	0
10.02	23.82	1.672	1.55	1.6	14.246	7.019	0.0	0.0	0.0	0
10.03	24.921	2.07	1.91	1.6	12.039	8.306	0.0	0.0	0.0	0
10.04	25.125	2.223	2.10	1.5	11.302	8.848	0.0	0.0	0.0	0
10.05	21.597	2.019	1.94	1.5	10.697	9.349	0.0	0.0	0.0	0
10.06	18.344	1.754	1.74	1.5	10.458	9.562	0.0	0.0	0.0	0
10.07	21.577	2.039	2.22	1.6	10.582	9.45	0.0	0.0	0.0	0
10.08	20.975	1.907	2.21	1.6	10.999	9.092	0.0	0.0	0.0	0
10.09	16.621	1.417	1.75	1.6	11.73	8.525	0.0	0.0	0.0	0
10.10	20.404	1.621	2.15	1.6	12.587	7.945	0.0	0.0	0.0	0
10.11	20.068	1.489	2.13	1.6	13.478	7.42	0.0	0.0	0.0	0
10.12	19.211	1.244	2.09	1.6	15.443	6.475	0.0	0.0	0.0	0
10.13	20.914	1.285	2.32	1.6	16.275	6.144	0.0	0.0	0.0	0
10.14	18.049	1.03	2.03	1.6	17.523	5.707	0.0	0.0	0.0	0
10.15	18.293	0.959	2.09	1.6	19.075	5.242	0.0	0.0	0.0	0
10.16	17.009	0.775	2.01	1.7	21.947	4.556	0.0	0.0	0.0	0
10.17	19.374	0.826	2.33	1.7	23.455	4.263	0.0	0.0	0.0	0
10.18	15.856	0.642	1.93	1.7	24.698	4.049	0.0	0.0	0.0	0
10.19	15.652	0.602	1.94	1.7	26.0	3.846	0.0	0.0	0.0	0
10.20	15.092	0.561	1.89	1.7	26.902	3.717	0.0	0.0	0.0	0
10.21	17.416	0.602	2.22	1.8	28.93	3.457	0.0	0.0	0.0	0
10.22	15.969	0.54	2.06	1.8	29.572	3.382	0.0	0.0	0.0	0
10.23	18.65	0.632	2.43	1.8	29.509	3.389	0.0	0.0	0.0	0
10.24	15.316	0.51	2.01	1.8	30.031	3.33	0.0	0.0	0.0	0
10.25	14.704	0.5	1.97	1.8	29.408	3.4	0.0	0.0	0.0	0
10.26	17.172	0.581	2.34	1.8	29.556	3.383	0.0	0.0	0.0	0
10.27	15.928	0.53	2.19	1.8	30.053	3.327	0.0	0.0	0.0	0
10.28	18.028	0.602	2.51	1.8	29.947	3.339	0.0	0.0	0.0	0
10.29	16.387	0.54	2.29	1.8	30.346	3.295	0.0	0.0	0.0	0
10.30	16.387	0.53	2.31	1.8	30.919	3.234	0.0	0.0	0.0	0
10.31	16.947	0.551	2.41	1.8	30.757	3.251	0.0	0.0	0.0	0
10.32	16.682	0.54	2.39	1.8	30.893	3.237	0.0	0.0	0.0	0
10.33	17.09	0.561	2.46	1.8	30.463	3.283	0.0	0.0	0.0	0
10.34	16.172	0.52	2.37	1.9	31.1	3.215	0.0	0.0	0.0	0
10.35	16.04	0.51	2.35	1.9	31.451	3.18	0.0	0.0	0.0	0
10.36	13.389	0.418	1.97	1.9	32.031	3.122	0.0	0.0	0.0	0
10.37	16.04	0.489	2.36	1.9	32.802	3.049	0.0	0.0	0.0	0
10.38	15.642	0.479	2.31	1.9	32.656	3.062	0.0	0.0	0.0	0
10.39	14.735	0.438	2.19	1.9	33.642	2.973	0.0	0.0	0.0	0
10.40	16.703	0.489	2.52	1.9	34.157	2.928	0.0	0.0	0.0	0
10.41	15.285	0.459	2.33	2.0	33.301	3.003	0.0	0.0	0.0	0
10.42	13.858	0.408	2.11	2.0	33.966	2.944	0.0	0.0	0.0	0
10.43	15.795	0.469	2.41	2.0	33.678	2.969	0.0	0.0	0.0	0
10.44	16.57	0.489	2.54	2.0	33.885	2.951	0.0	0.0	0.0	0
10.45	13.644	0.398	2.10	2.0	34.281	2.917	0.0	0.0	0.0	0
10.46	15.683	0.459	2.43	2.0	34.168	2.927	0.0	0.0	0.0	0
10.47	15.173	0.449	2.41	2.0	33.793	2.959	0.0	0.0	0.0	0
10.48	12.461	0.377	2.01	2.0	33.053	3.025	0.0	0.0	0.0	0
10.49	15.051	0.459	2.44	2.0	32.791	3.05	0.0	0.0	0.0	0
10.50	12.828	0.387	2.09	2.0	33.147	3.017	0.0	0.0	0.0	0
10.51	12.818	0.377	2.07	2.0	34.0	2.941	0.0	0.0	0.0	0
10.52	13.807	0.408	2.23	2.0	33.841	2.955	0.0	0.0	0.0	0
10.53	15.673	0.459	2.54	2.0	34.146	2.929	0.0	0.0	0.0	0
10.54	12.94	0.377	2.10	2.1	34.324	2.913	0.0	0.0	0.0	0
10.55	15.795	0.469	2.58	2.1	33.678	2.969	0.0	0.0	0.0	0
10.56	16.04	0.479	2.62	2.1	33.486	2.986	0.0	0.0	0.0	0
10.57	13.083	0.387	2.13	2.1	33.806	2.958	0.0	0.0	0.0	0
10.58	13.083	0.387	2.13	2.1	33.806	2.958	0.0	0.0	0.0	0
10.59	15.53	0.418	2.35	2.1	37.153	2.692	0.0	0.0	0.0	0
10.60	16.05	0.428	2.40	2.2	37.5	2.667	0.0	0.0	0.0	0
10.61	15.52	0.418	2.32	2.2	37.129	2.693	0.0	0.0	0.0	0

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10.62	14.204	0.387	2.12	2.2	36.703	2.725	0.0	0.0	0.0	0
10.63	17.1	0.479	2.56	2.2	35.699	2.801	0.0	0.0	0.0	0
10.64	13.939	0.398	2.09	2.2	35.023	2.855	0.0	0.0	0.0	0
10.65	16.968	0.489	2.54	2.2	34.699	2.882	0.0	0.0	0.0	0
10.66	13.185	0.387	1.99	2.2	34.07	2.935	0.0	0.0	0.0	0
10.67	16.183	0.479	2.44	2.3	33.785	2.96	0.0	0.0	0.0	0
10.68	15.408	0.459	2.34	2.3	33.569	2.979	0.0	0.0	0.0	0
10.69	13.47	0.398	2.04	2.3	33.844	2.955	0.0	0.0	0.0	0
10.70	14.745	0.418	2.22	2.3	35.275	2.835	0.0	0.0	0.0	0
10.71	15.255	0.428	2.27	2.3	35.643	2.806	0.0	0.0	0.0	0
10.72	13.256	0.367	1.96	2.3	36.12	2.769	0.0	0.0	0.0	0
10.73	17.213	0.459	2.46	2.3	37.501	2.667	0.0	0.0	0.0	0
10.74	14.745	0.387	2.05	2.3	38.101	2.625	0.0	0.0	0.0	0
10.75	16.121	0.408	2.17	2.3	39.512	2.531	0.0	0.0	0.0	0
10.76	19.221	0.459	2.51	2.3	41.876	2.388	0.0	0.0	0.0	0
10.77	20.527	0.469	2.61	2.3	43.768	2.285	0.0	0.0	0.0	0
10.78	16.784	0.387	2.13	2.4	43.37	2.306	0.0	0.0	0.0	0
10.79	17.223	0.398	2.18	2.4	43.274	2.311	0.0	0.0	0.0	0
10.80	19.232	0.449	2.44	2.4	42.833	2.335	0.0	0.0	0.0	0
10.81	19.181	0.449	2.42	2.4	42.719	2.341	0.0	0.0	0.0	0
10.82	22.229	0.51	2.72	2.4	43.586	2.294	0.0	0.0	0.0	0
10.83	18.242	0.408	2.19	2.5	44.711	2.237	0.0	0.0	0.0	0
10.84	18.028	0.398	2.13	2.5	45.296	2.208	0.0	0.0	0.0	0
10.85	21.414	0.469	2.49	2.5	45.659	2.19	0.0	0.0	0.0	0
10.86	23.677	0.52	2.71	2.5	45.533	2.196	0.0	0.0	0.0	0
10.87	22.393	0.51	2.52	2.6	43.908	2.277	0.0	0.0	0.0	0
10.88	23.453	0.551	2.64	2.6	42.564	2.349	0.0	0.0	0.0	0
10.89	18.762	0.459	2.14	2.6	40.876	2.446	0.0	0.0	0.0	0
10.90	22.77	0.591	2.65	2.6	38.528	2.596	0.0	0.0	0.0	0
10.91	18.722	0.54	2.28	2.6	34.67	2.884	0.0	0.0	0.0	0
10.92	22.994	0.693	2.84	2.6	33.18	3.014	0.0	0.0	0.0	0
10.93	23.728	0.744	2.95	2.6	31.892	3.136	0.0	0.0	0.0	0
10.94	19.17	0.622	2.39	2.6	30.82	3.245	0.0	0.0	0.0	0
10.95	18.661	0.673	2.35	2.6	27.728	3.606	0.0	0.0	0.0	0
10.96	19.639	0.755	2.51	2.6	26.012	3.844	0.0	0.0	0.0	0
10.97	19.925	0.826	2.63	2.7	24.122	4.146	0.0	0.0	0.0	0
10.98	19.211	0.857	2.64	2.7	22.417	4.461	0.0	0.0	0.0	0
10.99	17.702	0.836	2.53	2.7	21.175	4.723	0.0	0.0	0.0	0
11.00	19.191	0.989	2.91	2.7	19.404	5.153	0.0	0.0	0.0	0
11.01	17.029	0.887	2.62	2.7	19.198	5.209	0.0	0.0	0.0	0
11.02	16.794	0.887	2.62	2.7	18.933	5.282	0.0	0.0	0.0	0
11.03	18.14	0.969	2.89	2.7	18.72	5.342	0.0	0.0	0.0	0
11.04	16.764	0.897	2.70	2.7	18.689	5.351	0.0	0.0	0.0	0
11.05	16.285	0.887	2.71	2.7	18.36	5.447	0.0	0.0	0.0	0
11.06	15.928	0.897	2.74	2.7	17.757	5.632	0.0	0.0	0.0	0
11.07	13.389	0.765	2.38	2.7	17.502	5.714	0.0	0.0	0.0	0
11.08	14.928	0.857	2.69	2.7	17.419	5.741	0.0	0.0	0.0	0
11.09	13.042	0.744	2.35	2.7	17.53	5.705	0.0	0.0	0.0	0
11.10	13.644	0.734	2.42	2.7	18.589	5.38	0.0	0.0	0.0	0
11.11	14.5	0.714	2.53	2.7	20.308	4.924	0.0	0.0	0.0	0
11.12	15.377	0.673	2.65	2.8	22.848	4.377	0.0	0.0	0.0	0
11.13	16.346	0.622	2.69	2.8	26.28	3.805	0.0	0.0	0.0	0
11.14	16.54	0.479	2.44	2.8	34.53	2.896	0.0	0.0	0.0	0
11.15	21.271	0.571	3.04	2.8	37.252	2.684	0.0	0.0	0.0	0
11.16	18.263	0.459	2.53	2.8	39.789	2.513	0.0	0.0	0.0	0
11.17	18.875	0.449	2.56	2.8	42.038	2.379	0.0	0.0	0.0	0
11.18	20.578	0.469	2.73	2.8	43.876	2.279	0.0	0.0	0.0	0
11.19	19.262	0.408	2.40	2.8	47.211	2.118	0.0	0.0	0.0	0
11.20	21.393	0.479	2.64	2.8	44.662	2.239	0.0	0.0	0.0	0
11.21	23.902	0.571	2.96	2.8	41.86	2.389	0.0	0.0	0.0	0
11.22	24.218	0.622	2.99	2.8	38.936	2.568	0.0	0.0	0.0	0
11.23	24.146	0.663	2.98	2.8	36.419	2.746	0.0	0.0	0.0	0
11.24	21.648	0.663	2.65	2.8	32.652	3.063	0.0	0.0	0.0	0
11.25	24.86	0.816	3.06	2.8	30.466	3.282	0.0	0.0	0.0	0
11.26	20.455	0.714	2.53	2.8	28.648	3.491	0.0	0.0	0.0	0
11.27	19.854	0.744	2.48	2.8	26.685	3.747	0.0	0.0	0.0	0
11.28	23.015	0.928	2.94	2.8	24.801	4.032	0.0	0.0	0.0	0
11.29	19.497	0.897	2.58	2.8	21.736	4.601	0.0	0.0	0.0	0
11.30	19.354	0.959	2.65	2.8	20.181	4.955	0.0	0.0	0.0	0
11.31	17.6	0.928	2.47	2.8	18.966	5.273	0.0	0.0	0.0	0
11.32	21.016	1.183	3.03	2.8	17.765	5.629	0.0	0.0	0.0	0
11.33	20.149	1.224	3.05	2.8	16.462	6.075	0.0	0.0	0.0	0
11.34	17.243	1.071	2.69	2.8	16.1	6.211	0.0	0.0	0.0	0
11.35	17.396	1.101	2.81	2.8	15.8	6.329	0.0	0.0	0.0	0
11.36	16.387	1.06	2.76	2.8	15.459	6.469	0.0	0.0	0.0	0

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11.37	14.826	0.959	2.58	2.8	15.46	6.468	0.0	0.0	0.0	0
11.38	14.286	0.908	2.62	2.8	15.733	6.356	0.0	0.0	0.0	0
11.39	12.542	0.765	2.32	2.8	16.395	6.1	0.0	0.0	0.0	0
11.40	14.317	0.857	2.68	2.8	16.706	5.986	0.0	0.0	0.0	0
11.41	12.257	0.714	2.34	2.8	17.167	5.825	0.0	0.0	0.0	0
11.42	12.767	0.724	2.48	2.8	17.634	5.671	0.0	0.0	0.0	0
11.43	14.072	0.714	2.76	2.8	19.709	5.074	0.0	0.0	0.0	0
11.44	12.063	0.571	2.37	2.8	21.126	4.733	0.0	0.0	0.0	0
11.45	14.317	0.642	2.78	2.8	22.301	4.484	0.0	0.0	0.0	0
11.46	14.072	0.602	2.75	2.8	23.375	4.278	0.0	0.0	0.0	0
11.47	14.663	0.612	2.88	2.8	23.959	4.174	0.0	0.0	0.0	0
11.48	14.194	0.54	2.78	2.8	26.285	3.804	0.0	0.0	0.0	0
11.49	14.429	0.52	2.83	2.8	27.748	3.604	0.0	0.0	0.0	0
11.50	11.829	0.418	2.32	2.8	28.299	3.534	0.0	0.0	0.0	0
11.51	15.02	0.51	2.94	2.8	29.451	3.395	0.0	0.0	0.0	0
11.52	12.899	0.438	2.55	2.9	29.45	3.396	0.0	0.0	0.0	0
11.53	11.961	0.398	2.37	2.8	30.053	3.327	0.0	0.0	0.0	0
11.54	12.654	0.418	2.48	2.9	30.273	3.303	0.0	0.0	0.0	0
11.55	15.377	0.5	3.00	2.9	30.754	3.252	0.0	0.0	0.0	0
11.56	15.377	0.51	3.00	2.9	30.151	3.317	0.0	0.0	0.0	0
11.57	13.011	0.428	2.54	2.9	30.4	3.29	0.0	0.0	0.0	0
11.58	14.551	0.479	2.84	2.9	30.378	3.292	0.0	0.0	0.0	0
11.59	12.063	0.387	2.25	2.9	31.171	3.208	0.0	0.0	0.0	0
11.60	13.491	0.438	2.54	2.9	30.801	3.247	0.0	0.0	0.0	0
11.61	14.419	0.479	2.73	2.9	30.102	3.322	0.0	0.0	0.0	0
11.62	12.553	0.418	2.39	2.9	30.031	3.33	0.0	0.0	0.0	0
11.63	12.104	0.408	2.35	2.9	29.667	3.371	0.0	0.0	0.0	0
11.64	13.807	0.479	2.69	2.9	28.825	3.469	0.0	0.0	0.0	0
11.65	14.602	0.5	2.85	2.9	29.204	3.424	0.0	0.0	0.0	0
11.66	13.001	0.449	2.58	2.9	28.955	3.454	0.0	0.0	0.0	0
11.67	11.013	0.387	2.20	2.9	28.457	3.514	0.0	0.0	0.0	0
11.68	13.654	0.479	2.73	2.9	28.505	3.508	0.0	0.0	0.0	0
11.69	13.307	0.459	2.68	2.9	28.991	3.449	0.0	0.0	0.0	0
11.70	12.114	0.408	2.43	2.9	29.691	3.368	0.0	0.0	0.0	0
11.71	12.104	0.408	2.45	2.9	29.667	3.371	0.0	0.0	0.0	0
11.72	11.676	0.398	2.39	2.9	29.337	3.409	0.0	0.0	0.0	0
11.73	12.828	0.428	2.64	2.9	29.972	3.336	0.0	0.0	0.0	0
11.74	12.287	0.398	2.56	2.9	30.872	3.239	0.0	0.0	0.0	0
11.75	12.92	0.408	2.68	2.9	31.667	3.158	0.0	0.0	0.0	0
11.76	12.818	0.387	2.66	2.9	33.121	3.019	0.0	0.0	0.0	0
11.77	13.236	0.387	2.75	2.9	34.202	2.924	0.0	0.0	0.0	0
11.78	12.185	0.347	2.54	2.9	35.115	2.848	0.0	0.0	0.0	0
11.79	13.572	0.357	2.80	3.0	38.017	2.63	0.0	0.0	0.0	0
11.80	10.921	0.275	2.25	3.0	39.713	2.518	0.0	0.0	0.0	0
11.81	13.338	0.316	2.77	3.0	42.209	2.369	0.0	0.0	0.0	0
11.82	12.603	0.286	2.62	3.0	44.066	2.269	0.0	0.0	0.0	0
11.83	11.655	0.255	2.43	3.0	45.706	2.188	0.0	0.0	0.0	0
11.84	12.767	0.245	2.71	3.0	52.11	1.919	0.0	0.0	0.0	0
11.85	10.503	0.184	2.24	3.0	57.082	1.752	0.0	0.0	0.0	0
11.86	10.605	0.153	2.24	3.0	69.314	1.443	0.0	0.0	0.0	0
11.87	12.553	0.143	2.58	3.0	87.783	1.139	0.0	0.0	0.0	0
11.88	12.42	0.112	2.41	3.0	110.893	0.902	0.0	0.0	0.0	0
11.89	41.186	0.173	2.96	2.9	238.069	0.42	0.0	0.0	0.0	0
11.90	49.578	0.194	2.64	2.8	255.557	0.391	0.0	0.0	0.0	0
11.91	57.491	0.122	3.15	2.8	471.238	0.212	0.0	0.0	0.0	0
11.92	70.665	0.245	3.03	2.8	288.429	0.347	0.0	0.0	0.0	0
11.93	67.769	0.235	1.37	2.9	288.379	0.347	0.0	0.0	0.0	0
11.94	96.362	0.418	1.39	2.9	230.531	0.434	0.0	0.0	0.0	0
11.95	107.364	0.52	1.70	2.9	206.469	0.484	0.0	0.0	0.0	0
11.96	145.95	0.673	1.59	3.0	216.865	0.461	0.0	0.0	0.0	0
11.97	171.585	0.734	0.80	3.0	233.767	0.428	0.0	0.0	0.0	0
11.98	197.577	0.918	-0.89	3.0	215.225	0.465	0.0	0.0	0.0	0
11.99	175.327	0.948	-0.65	3.0	184.944	0.541	0.0	0.0	0.0	0
12.00	201.819	1.04	-0.61	3.1	194.057	0.515	0.0	0.0	0.0	0
12.01	254.599	1.081	-0.59	3.1	235.522	0.425	0.0	0.0	0.0	0
12.02	241.271	1.03	-0.47	3.1	234.244	0.427	0.0	0.0	0.0	0
12.03	266.397	1.234	-0.42	3.2	215.881	0.463	0.0	0.0	0.0	0
12.04	245.442	1.254	-0.37	3.3	195.727	0.511	0.0	0.0	0.0	0
12.05	261.349	1.377	-0.41	3.3	189.796	0.527	0.0	0.0	0.0	0
12.06	271.24	2.07	-0.39	3.3	131.034	0.763	0.0	0.0	0.0	0
12.07	299.262	2.08	-0.34	3.3	143.876	0.695	0.0	0.0	0.0	0
12.08	268.803	1.733	-0.27	3.3	155.108	0.645	0.0	0.0	0.0	0
12.09	274.258	1.652	-0.26	3.3	166.016	0.602	0.0	0.0	0.0	0
12.10	311.039	1.784	-0.26	3.3	174.349	0.574	0.0	0.0	0.0	0
12.11	331.046	1.866	-0.25	3.4	177.409	0.564	0.0	0.0	0.0	0

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12.12	364.635	2.284	-0.25	3.4	159.648	0.626	0.0	0.0	0.0	0
12.13	294.765	1.958	-0.19	3.5	150.544	0.664	0.0	0.0	0.0	0
12.14	365.664	2.447	-0.21	3.6	149.434	0.669	0.0	0.0	0.0	0
12.15	360.474	1.876	-0.11	3.6	192.15	0.52	0.0	0.0	0.0	0
12.16	405.188	1.927	-0.09	3.7	210.269	0.476	0.0	0.0	0.0	0
12.17	411.653	1.907	-0.04	3.7	215.864	0.463	0.0	0.0	0.0	0
12.18	403.332	1.805	-0.04	3.7	223.453	0.448	0.0	0.0	0.0	0
12.19	364.889	1.693	0.01	3.8	215.528	0.464	0.0	0.0	0.0	0
12.20	377.299	1.866	-0.07	3.8	202.197	0.495	0.0	0.0	0.0	0
12.21	370.314	1.825	-0.07	3.8	202.912	0.493	0.0	0.0	0.0	0
12.22	439.766	2.09	-0.07	3.8	210.414	0.475	0.0	0.0	0.0	0
12.23	452.818	1.958	-0.06	3.8	231.266	0.432	0.0	0.0	0.0	0
12.24	466.39	2.203	-0.12	3.7	211.707	0.472	0.0	0.0	0.0	0
12.25	435.626	2.203	-0.13	3.7	197.742	0.506	0.0	0.0	0.0	0
12.26	434.963	1.591	-0.14	3.7	273.39	0.366	0.0	0.0	0.0	0
12.27	348.411	1.173	-0.08	3.8	297.026	0.337	0.0	0.0	0.0	0
12.28	454.684	1.489	0.00	3.9	305.362	0.327	0.0	0.0	0.0	0
12.29	426.877	1.479	0.03	3.9	288.625	0.346	0.0	0.0	0.0	0
12.30	440.011	1.53	0.03	3.9	287.589	0.348	0.0	0.0	0.0	0
12.31	358.506	1.326	0.02	4.0	270.367	0.37	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.3

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	11.88	17.84	0.755	0.81	1.14	1.11	0.98	0.88	0.89
Strato 2	12.31	287.992	1.396	13.80	5.18	19.05	16.80	15.04	14.40

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	11.88	17.84	0.755	89.20	46.14	107.04	53.52
Strato 2	12.31	287.992	1.396	719.98	575.97	863.98	431.99

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	11.88	17.84	0.755	626.68	26.70
Strato 2	12.31	287.992	1.396	10713.12	432.00

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	11.88	17.84	0.755	Imai & Tomauchi	162.84
Strato 2	12.31	287.992	1.396	Imai & Tomauchi	890.92

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	11.88	17.84	0.755	<0.5
Strato 2	12.31	287.992	1.396	2.9

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	11.88	17.84	0.755	Meyerhof	1.94
Strato 2	12.31	287.992	1.396	Meyerhof	2.42

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	11.88	17.84	0.755	Meyerhof	2.02
Strato 2	12.31	287.992	1.396	Meyerhof	2.50

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TERRENI INCOERENT I

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	11.88	17.84	0.755	15.18	< 5	9.87	15.58	14.4
Strato 2	12.31	287.992	1.396	84.06	86.96	88.22	85.05	73.62

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	11.88	17.84	0.755	27.69	23.49	20.18	19.04	28.7	29.44	22.18	25.01
Strato 2	12.31	287.992	1.396	37.82	33.74	30.94	28.87	40.17	41.86	29.44	45

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	11.88	17.84	0.755	44.60	35.68	274.74
Strato 2	12.31	287.992	1.396	719.98	575.98	1602.62

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	11.88	17.84	0.755	17.69	69.98	129.62	35.68	89.20
Strato 2	12.31	287.992	1.396	104.35	584.85	2348.64	431.99	431.99

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	11.88	17.84	0.755	Imai & Tomauchi	162.84
Strato 2	12.31	287.992	1.396	Imai & Tomauchi	890.92

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	11.88	17.84	0.755	<0.5	5.42	<0.5	3.53
Strato 2	12.31	287.992	1.396	2.9	>9	1.12	>9

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	11.88	17.84	0.755	Kulhawy & Mayne (1990)	0.00
Strato 2	12.31	287.992	1.396	Kulhawy & Mayne (1990)	0.70

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	11.88	17.84	0.755	0.14155	0.0184
Strato 2	12.31	287.992	1.396	0.03545	0.00461

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	11.88	17.84	0.755	Meyerhof	1.80
Strato 2	12.31	287.992	1.396	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	11.88	17.84	0.755	Meyerhof	2.10
Strato 2	12.31	287.992	1.396	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	11.88	17.84	0.755	Robertson & Wride 1997	0
Strato 2	12.31	287.992	1.396	Robertson & Wride 1997	0

Prova CPTU n. 3

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	11.88	17.84	0.755	Piacentini-Righi 1988	3.732562E-08
Strato 2	12.31	287.992	1.396	Piacentini-Righi 1988	0.001

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	11.88	17.84	0.755	Piacentini-Righi 1988	1.997667E-03
Strato 2	12.31	287.992	1.396	Piacentini-Righi 1988	0

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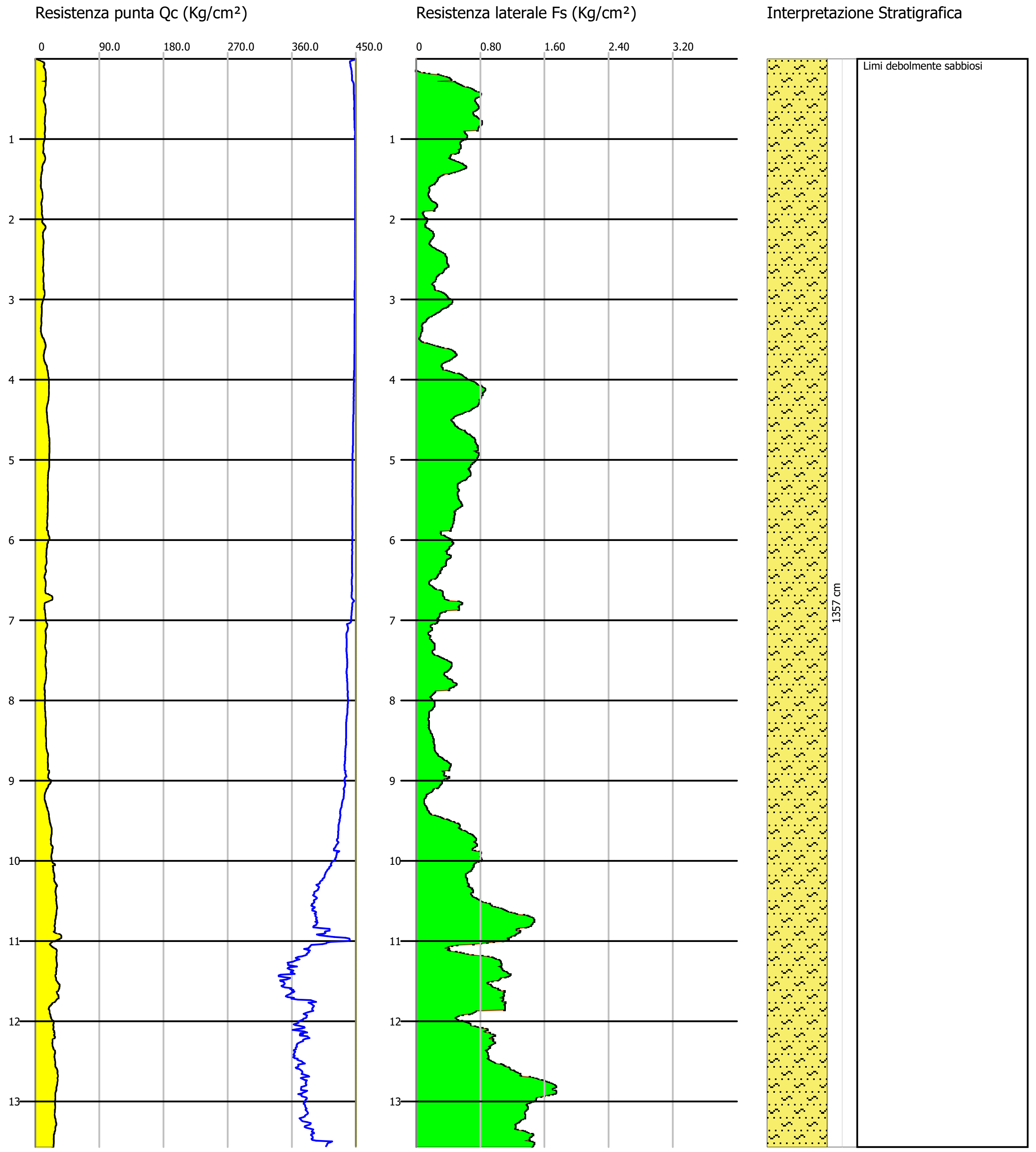
Sito web: www.geologicatoscana.eu

CPTU4_ms3

Probe CPTU - Piezocone Nr.4
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)

Data: 26/02/2021



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 4

PROVA CPTU Nr.4

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 26/02/2021
Profondità prova: 13.57 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	0.918	0.0	0.14	0.1	0.0	0.0	0.0	0.0	0.0	0
0.02	3.977	0.0	0.51	0.2	0.0	0.0	0.0	0.0	0.0	0
0.03	6.832	0.0	0.83	0.2	0.0	0.0	0.0	0.0	0.0	0
0.04	9.687	0.0	0.86	0.3	0.0	0.0	0.0	0.0	0.0	0
0.05	11.421	0.0	0.83	0.5	0.0	0.0	0.0	0.0	0.0	0
0.06	12.134	0.0	0.80	0.6	0.0	0.0	0.0	0.0	0.0	0
0.07	12.032	0.0	0.78	0.6	0.0	0.0	0.0	0.0	0.0	0
0.08	11.319	0.0	0.76	0.7	0.0	0.0	0.0	0.0	0.0	0
0.09	10.911	0.0	0.74	0.7	0.0	0.0	0.0	0.0	0.0	0
0.10	10.911	0.0	0.72	0.7	0.0	0.0	0.0	0.0	0.0	0
0.11	11.217	0.0	0.70	0.7	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 4

0.12	11.829	0.0	0.67	0.8	0.0	0.0	0.0	0.0	0.0	0
0.13	12.542	0.0	0.65	0.8	0.0	0.0	0.0	0.0	0.0	0
0.14	13.154	0.0	0.63	0.8	0.0	0.0	0.0	0.0	0.0	0
0.15	13.46	0.0	0.61	0.8	0.0	0.0	0.0	0.0	0.0	0
0.16	13.664	0.02	0.60	0.8	683.2	0.146	0.0	0.0	0.0	0
0.17	13.766	0.041	0.58	0.8	335.756	0.298	0.0	0.0	0.0	0
0.18	13.766	0.102	0.57	0.9	134.961	0.741	0.0	0.0	0.0	0
0.19	13.766	0.163	0.57	0.9	84.454	1.184	0.0	0.0	0.0	0
0.20	13.664	0.275	0.56	0.9	49.687	2.013	0.0	0.0	0.0	0
0.21	13.868	0.306	0.56	0.9	45.32	2.207	0.0	0.0	0.0	0
0.22	13.97	0.337	0.56	0.9	41.454	2.412	0.0	0.0	0.0	0
0.23	14.174	0.377	0.55	1.0	37.597	2.66	0.0	0.0	0.0	0
0.24	14.276	0.408	0.55	1.0	34.99	2.858	0.0	0.0	0.0	0
0.25	14.276	0.418	0.55	1.0	34.153	2.928	0.0	0.0	0.0	0
0.26	14.174	0.428	0.54	1.0	33.117	3.02	0.0	0.0	0.0	0
0.27	14.174	0.438	0.54	1.0	32.361	3.09	0.0	0.0	0.0	0
0.28	9.483	0.265	0.44	1.0	35.785	2.794	0.0	0.0	0.0	0
0.29	13.97	0.479	0.39	1.0	29.165	3.429	0.0	0.0	0.0	0
0.30	13.97	0.489	0.35	1.0	28.569	3.5	0.0	0.0	0.0	0
0.31	14.072	0.51	0.33	1.1	27.592	3.624	0.0	0.0	0.0	0
0.32	13.97	0.53	0.31	1.1	26.358	3.794	0.0	0.0	0.0	0
0.33	13.868	0.551	0.30	1.1	25.169	3.973	0.0	0.0	0.0	0
0.34	13.664	0.571	0.30	1.1	23.93	4.179	0.0	0.0	0.0	0
0.35	13.358	0.591	0.30	1.1	22.602	4.424	0.0	0.0	0.0	0
0.36	12.848	0.642	0.30	1.1	20.012	4.997	0.0	0.0	0.0	0
0.37	12.644	0.673	0.29	1.2	18.788	5.323	0.0	0.0	0.0	0
0.38	12.644	0.693	0.29	1.2	18.245	5.481	0.0	0.0	0.0	0
0.39	12.746	0.714	0.29	1.2	17.852	5.602	0.0	0.0	0.0	0
0.40	12.95	0.724	0.29	1.2	17.887	5.591	0.0	0.0	0.0	0
0.41	13.256	0.744	0.29	1.2	17.817	5.613	0.0	0.0	0.0	0
0.42	13.562	0.785	0.29	1.2	17.276	5.788	0.0	0.0	0.0	0
0.43	13.562	0.795	0.29	1.2	17.059	5.862	0.0	0.0	0.0	0
0.44	13.46	0.806	0.29	1.2	16.7	5.988	0.0	0.0	0.0	0
0.45	13.256	0.795	0.28	1.2	16.674	5.997	0.0	0.0	0.0	0
0.46	12.95	0.795	0.28	1.2	16.289	6.139	0.0	0.0	0.0	0
0.47	12.542	0.785	0.28	1.2	15.977	6.259	0.0	0.0	0.0	0
0.48	12.032	0.755	0.27	1.2	15.936	6.275	0.0	0.0	0.0	0
0.49	11.727	0.734	0.27	1.2	15.977	6.259	0.0	0.0	0.0	0
0.50	11.421	0.734	0.27	1.2	15.56	6.427	0.0	0.0	0.0	0
0.51	11.217	0.724	0.26	1.2	15.493	6.454	0.0	0.0	0.0	0
0.52	11.013	0.724	0.25	1.2	15.211	6.574	0.0	0.0	0.0	0
0.53	10.911	0.724	0.24	1.2	15.07	6.636	0.0	0.0	0.0	0
0.54	11.217	0.734	0.24	1.2	15.282	6.544	0.0	0.0	0.0	0
0.55	11.727	0.744	0.24	1.2	15.762	6.344	0.0	0.0	0.0	0
0.56	12.236	0.744	0.22	1.2	16.446	6.08	0.0	0.0	0.0	0
0.57	12.746	0.755	0.22	1.2	16.882	5.923	0.0	0.0	0.0	0
0.58	13.154	0.765	0.22	1.2	17.195	5.816	0.0	0.0	0.0	0
0.59	13.358	0.765	0.22	1.2	17.461	5.727	0.0	0.0	0.0	0
0.60	13.46	0.775	0.25	1.2	17.368	5.758	0.0	0.0	0.0	0
0.61	13.46	0.775	0.27	1.2	17.368	5.758	0.0	0.0	0.0	0
0.62	13.664	0.765	0.26	1.2	17.861	5.599	0.0	0.0	0.0	0
0.63	13.766	0.755	0.26	1.2	18.233	5.485	0.0	0.0	0.0	0
0.64	13.868	0.744	0.25	1.2	18.64	5.365	0.0	0.0	0.0	0
0.65	13.97	0.724	0.25	1.2	19.296	5.183	0.0	0.0	0.0	0
0.66	14.072	0.704	0.24	1.2	19.989	5.003	0.0	0.0	0.0	0
0.67	13.97	0.704	0.24	1.2	19.844	5.039	0.0	0.0	0.0	0
0.68	13.766	0.704	0.24	1.2	19.554	5.114	0.0	0.0	0.0	0
0.69	13.562	0.704	0.22	1.2	19.264	5.191	0.0	0.0	0.0	0
0.70	13.358	0.714	0.22	1.2	18.709	5.345	0.0	0.0	0.0	0
0.71	13.256	0.714	0.22	1.2	18.566	5.386	0.0	0.0	0.0	0
0.72	12.848	0.744	0.22	1.2	17.269	5.791	0.0	0.0	0.0	0
0.73	12.746	0.755	0.21	1.2	16.882	5.923	0.0	0.0	0.0	0
0.74	12.644	0.765	0.21	1.2	16.528	6.05	0.0	0.0	0.0	0
0.75	12.542	0.775	0.21	1.2	16.183	6.179	0.0	0.0	0.0	0
0.76	12.644	0.785	0.21	1.2	16.107	6.208	0.0	0.0	0.0	0
0.77	12.746	0.795	0.20	1.2	16.033	6.237	0.0	0.0	0.0	0
0.78	12.644	0.816	0.20	1.2	15.495	6.454	0.0	0.0	0.0	0
0.79	12.542	0.816	0.19	1.2	15.37	6.506	0.0	0.0	0.0	0
0.80	12.44	0.816	0.19	1.2	15.245	6.559	0.0	0.0	0.0	0
0.81	12.44	0.816	0.19	1.2	15.245	6.559	0.0	0.0	0.0	0
0.82	12.542	0.806	0.19	1.2	15.561	6.426	0.0	0.0	0.0	0
0.83	12.644	0.795	0.18	1.2	15.904	6.288	0.0	0.0	0.0	0
0.84	13.052	0.775	0.18	1.2	16.841	5.938	0.0	0.0	0.0	0
0.85	13.154	0.775	0.18	1.2	16.973	5.892	0.0	0.0	0.0	0
0.86	13.154	0.765	0.18	1.2	17.195	5.816	0.0	0.0	0.0	0

Prova CPTU n. 4

0.87	13.154	0.765	0.17	1.2	17.195	5.816	0.0	0.0	0.0	0
0.88	13.154	0.765	0.17	1.2	17.195	5.816	0.0	0.0	0.0	0
0.89	13.154	0.765	0.17	1.2	17.195	5.816	0.0	0.0	0.0	0
0.90	12.848	0.591	0.11	1.3	21.739	4.6	0.0	0.0	0.0	0
0.91	12.644	0.591	0.11	1.3	21.394	4.674	0.0	0.0	0.0	0
0.92	12.44	0.602	0.11	1.3	20.664	4.839	0.0	0.0	0.0	0
0.93	12.44	0.602	0.11	1.3	20.664	4.839	0.0	0.0	0.0	0
0.94	12.44	0.612	0.11	1.3	20.327	4.92	0.0	0.0	0.0	0
0.95	12.542	0.622	0.13	1.3	20.164	4.959	0.0	0.0	0.0	0
0.96	12.644	0.632	0.15	1.3	20.006	4.998	0.0	0.0	0.0	0
0.97	12.848	0.632	0.15	1.3	20.329	4.919	0.0	0.0	0.0	0
0.98	12.746	0.622	0.15	1.3	20.492	4.88	0.0	0.0	0.0	0
0.99	12.542	0.622	0.15	1.4	20.164	4.959	0.0	0.0	0.0	0
1.00	12.338	0.612	0.14	1.4	20.16	4.96	0.0	0.0	0.0	0
1.01	12.134	0.581	0.11	1.4	20.885	4.788	0.0	0.0	0.0	0
1.02	11.829	0.561	0.11	1.4	21.086	4.743	0.0	0.0	0.0	0
1.03	11.421	0.551	0.10	1.4	20.728	4.824	0.0	0.0	0.0	0
1.04	11.115	0.54	0.10	1.4	20.583	4.858	0.0	0.0	0.0	0
1.05	10.911	0.54	0.10	1.4	20.206	4.949	0.0	0.0	0.0	0
1.06	10.707	0.54	0.10	1.4	19.828	5.043	0.0	0.0	0.0	0
1.07	10.707	0.54	0.10	1.4	19.828	5.043	0.0	0.0	0.0	0
1.08	10.605	0.551	0.12	1.4	19.247	5.196	0.0	0.0	0.0	0
1.09	10.605	0.551	0.13	1.4	19.247	5.196	0.0	0.0	0.0	0
1.10	10.809	0.551	0.13	1.4	19.617	5.098	0.0	0.0	0.0	0
1.11	10.809	0.551	0.14	1.4	19.617	5.098	0.0	0.0	0.0	0
1.12	10.911	0.54	0.14	1.4	20.206	4.949	0.0	0.0	0.0	0
1.13	10.809	0.52	0.14	1.4	20.787	4.811	0.0	0.0	0.0	0
1.14	10.707	0.53	0.14	1.4	20.202	4.95	0.0	0.0	0.0	0
1.15	10.503	0.53	0.14	1.4	19.817	5.046	0.0	0.0	0.0	0
1.16	10.299	0.53	0.14	1.4	19.432	5.146	0.0	0.0	0.0	0
1.17	10.299	0.52	0.14	1.4	19.806	5.049	0.0	0.0	0.0	0
1.18	10.707	0.489	0.14	1.4	21.896	4.567	0.0	0.0	0.0	0
1.19	11.625	0.428	0.14	1.4	27.161	3.682	0.0	0.0	0.0	0
1.20	12.134	0.428	0.14	1.4	28.35	3.527	0.0	0.0	0.0	0
1.21	12.44	0.418	0.14	1.4	29.761	3.36	0.0	0.0	0.0	0
1.22	12.848	0.418	0.14	1.4	30.737	3.253	0.0	0.0	0.0	0
1.23	13.256	0.408	0.14	1.4	32.49	3.078	0.0	0.0	0.0	0
1.24	13.358	0.398	0.14	1.5	33.563	2.979	0.0	0.0	0.0	0
1.25	13.358	0.418	0.14	1.5	31.957	3.129	0.0	0.0	0.0	0
1.26	13.052	0.438	0.13	1.5	29.799	3.356	0.0	0.0	0.0	0
1.27	12.542	0.469	0.13	1.5	26.742	3.739	0.0	0.0	0.0	0
1.28	11.93	0.489	0.13	1.5	24.397	4.099	0.0	0.0	0.0	0
1.29	11.319	0.52	0.13	1.5	21.767	4.594	0.0	0.0	0.0	0
1.30	10.809	0.54	0.13	1.5	20.017	4.996	0.0	0.0	0.0	0
1.31	9.993	0.571	0.12	1.5	17.501	5.714	0.0	0.0	0.0	0
1.32	9.687	0.581	0.12	1.5	16.673	5.998	0.0	0.0	0.0	0
1.33	9.381	0.591	0.12	1.5	15.873	6.3	0.0	0.0	0.0	0
1.34	9.075	0.612	0.13	1.5	14.828	6.744	0.0	0.0	0.0	0
1.35	8.871	0.622	0.13	1.5	14.262	7.012	0.0	0.0	0.0	0
1.36	8.871	0.612	0.14	1.5	14.495	6.899	0.0	0.0	0.0	0
1.37	8.973	0.591	0.14	1.5	15.183	6.586	0.0	0.0	0.0	0
1.38	9.177	0.561	0.14	1.5	16.358	6.113	0.0	0.0	0.0	0
1.39	9.075	0.54	0.14	1.5	16.806	5.95	0.0	0.0	0.0	0
1.40	8.667	0.51	0.14	1.5	16.994	5.884	0.0	0.0	0.0	0
1.41	8.464	0.479	0.14	1.4	17.67	5.659	0.0	0.0	0.0	0
1.42	8.158	0.438	0.13	1.4	18.626	5.369	0.0	0.0	0.0	0
1.43	8.056	0.408	0.13	1.4	19.745	5.065	0.0	0.0	0.0	0
1.44	7.546	0.337	0.12	1.4	22.392	4.466	0.0	0.0	0.0	0
1.45	7.546	0.316	0.12	1.4	23.88	4.188	0.0	0.0	0.0	0
1.46	7.546	0.296	0.13	1.4	25.493	3.923	0.0	0.0	0.0	0
1.47	7.342	0.286	0.12	1.4	25.671	3.895	0.0	0.0	0.0	0
1.48	7.24	0.265	0.12	1.4	27.321	3.66	0.0	0.0	0.0	0
1.49	7.24	0.265	0.12	1.4	27.321	3.66	0.0	0.0	0.0	0
1.50	7.036	0.265	0.12	1.4	26.551	3.766	0.0	0.0	0.0	0
1.51	7.036	0.255	0.12	1.4	27.592	3.624	0.0	0.0	0.0	0
1.52	7.138	0.255	0.12	1.4	27.992	3.572	0.0	0.0	0.0	0
1.53	7.24	0.245	0.12	1.4	29.551	3.384	0.0	0.0	0.0	0
1.54	7.342	0.235	0.12	1.4	31.243	3.201	0.0	0.0	0.0	0
1.55	7.24	0.224	0.12	1.4	32.321	3.094	0.0	0.0	0.0	0
1.56	7.24	0.224	0.12	1.4	32.321	3.094	0.0	0.0	0.0	0
1.57	7.036	0.194	0.12	1.4	36.268	2.757	0.0	0.0	0.0	0
1.58	7.036	0.173	0.12	1.4	40.671	2.459	0.0	0.0	0.0	0
1.59	7.036	0.163	0.12	1.4	43.166	2.317	0.0	0.0	0.0	0
1.60	7.138	0.153	0.12	1.4	46.654	2.143	0.0	0.0	0.0	0
1.61	7.24	0.153	0.12	1.4	47.32	2.113	0.0	0.0	0.0	0

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1.62	7.444	0.153	0.12	1.4	48.654	2.055	0.0	0.0	0.0	0
1.63	8.056	0.163	0.12	1.4	49.423	2.023	0.0	0.0	0.0	0
1.64	8.362	0.163	0.12	1.4	51.301	1.949	0.0	0.0	0.0	0
1.65	8.667	0.153	0.12	1.4	56.647	1.765	0.0	0.0	0.0	0
1.66	8.973	0.153	0.12	1.4	58.647	1.705	0.0	0.0	0.0	0
1.67	9.177	0.143	0.12	1.4	64.175	1.558	0.0	0.0	0.0	0
1.68	9.381	0.143	0.12	1.4	65.601	1.524	0.0	0.0	0.0	0
1.69	9.483	0.143	0.12	1.4	66.315	1.508	0.0	0.0	0.0	0
1.70	9.483	0.143	0.12	1.4	66.315	1.508	0.0	0.0	0.0	0
1.71	9.687	0.143	0.12	1.4	67.741	1.476	0.0	0.0	0.0	0
1.72	9.687	0.153	0.12	1.4	63.314	1.579	0.0	0.0	0.0	0
1.73	9.687	0.153	0.12	1.4	63.314	1.579	0.0	0.0	0.0	0
1.74	9.381	0.163	0.12	1.4	57.552	1.738	0.0	0.0	0.0	0
1.75	8.769	0.173	0.12	1.4	50.688	1.973	0.0	0.0	0.0	0
1.76	8.667	0.173	0.12	1.4	50.098	1.996	0.0	0.0	0.0	0
1.77	8.464	0.184	0.11	1.4	46.0	2.174	0.0	0.0	0.0	0
1.78	8.158	0.194	0.11	1.4	42.052	2.378	0.0	0.0	0.0	0
1.79	7.852	0.214	0.11	1.4	36.692	2.725	0.0	0.0	0.0	0
1.80	7.648	0.235	0.11	1.4	32.545	3.073	0.0	0.0	0.0	0
1.81	7.546	0.245	0.11	1.4	30.8	3.247	0.0	0.0	0.0	0
1.82	7.852	0.255	0.11	1.4	30.792	3.248	0.0	0.0	0.0	0
1.83	8.056	0.255	0.11	1.4	31.592	3.165	0.0	0.0	0.0	0
1.84	8.26	0.255	0.11	1.4	32.392	3.087	0.0	0.0	0.0	0
1.85	8.362	0.245	0.11	1.4	34.131	2.93	0.0	0.0	0.0	0
1.86	8.362	0.235	0.11	1.4	35.583	2.81	0.0	0.0	0.0	0
1.87	8.362	0.224	0.12	1.4	37.33	2.679	0.0	0.0	0.0	0
1.88	8.362	0.224	0.12	1.4	37.33	2.679	0.0	0.0	0.0	0
1.89	8.362	0.224	0.12	1.4	37.33	2.679	0.0	0.0	0.0	0
1.90	8.769	0.092	0.11	1.5	95.315	1.049	0.0	0.0	0.0	0
1.91	8.362	0.082	0.11	1.5	101.976	0.981	0.0	0.0	0.0	0
1.92	8.26	0.071	0.11	1.5	116.338	0.86	0.0	0.0	0.0	0
1.93	8.362	0.071	0.11	1.5	117.775	0.849	0.0	0.0	0.0	0
1.94	8.565	0.082	0.11	1.5	104.451	0.957	0.0	0.0	0.0	0
1.95	8.769	0.082	0.11	1.5	106.939	0.935	0.0	0.0	0.0	0
1.96	9.279	0.092	0.11	1.5	100.859	0.991	0.0	0.0	0.0	0
1.97	9.483	0.092	0.11	1.5	103.076	0.97	0.0	0.0	0.0	0
1.98	9.687	0.102	0.11	1.5	94.971	1.053	0.0	0.0	0.0	0
1.99	9.993	0.122	0.12	1.5	81.91	1.221	0.0	0.0	0.0	0
2.00	9.585	0.133	0.12	1.5	72.068	1.388	0.0	0.0	0.0	0
2.01	9.075	0.133	0.12	1.5	68.233	1.466	0.0	0.0	0.0	0
2.02	8.769	0.133	0.12	1.5	65.932	1.517	0.0	0.0	0.0	0
2.03	8.769	0.122	0.12	1.5	71.877	1.391	0.0	0.0	0.0	0
2.04	8.871	0.122	0.12	1.5	72.713	1.375	0.0	0.0	0.0	0
2.05	9.789	0.112	0.13	1.5	87.402	1.144	0.0	0.0	0.0	0
2.06	10.707	0.102	0.13	1.5	104.971	0.953	0.0	0.0	0.0	0
2.07	11.727	0.102	0.13	1.5	114.971	0.87	0.0	0.0	0.0	0
2.08	12.746	0.102	0.13	1.5	124.961	0.8	0.0	0.0	0.0	0
2.09	13.562	0.112	0.13	1.5	121.089	0.826	0.0	0.0	0.0	0
2.10	14.072	0.102	0.13	1.5	137.961	0.725	0.0	0.0	0.0	0
2.11	13.562	0.122	0.10	1.5	111.164	0.9	0.0	0.0	0.0	0
2.12	12.644	0.143	0.10	1.5	88.42	1.131	0.0	0.0	0.0	0
2.13	11.93	0.163	0.10	1.5	73.19	1.366	0.0	0.0	0.0	0
2.14	11.319	0.163	0.10	1.5	69.442	1.44	0.0	0.0	0.0	0
2.15	10.809	0.184	0.09	1.5	58.745	1.702	0.0	0.0	0.0	0
2.16	10.299	0.204	0.10	1.5	50.485	1.981	0.0	0.0	0.0	0
2.17	9.993	0.204	0.10	1.5	48.985	2.041	0.0	0.0	0.0	0
2.18	10.095	0.204	0.10	1.5	49.485	2.021	0.0	0.0	0.0	0
2.19	10.095	0.214	0.11	1.5	47.173	2.12	0.0	0.0	0.0	0
2.20	9.993	0.214	0.11	1.5	46.696	2.141	0.0	0.0	0.0	0
2.21	9.993	0.214	0.11	1.5	46.696	2.141	0.0	0.0	0.0	0
2.22	9.891	0.204	0.11	1.5	48.485	2.062	0.0	0.0	0.0	0
2.23	10.095	0.204	0.11	1.5	49.485	2.021	0.0	0.0	0.0	0
2.24	10.299	0.194	0.11	1.5	53.088	1.884	0.0	0.0	0.0	0
2.25	10.503	0.184	0.12	1.5	57.082	1.752	0.0	0.0	0.0	0
2.26	10.809	0.173	0.12	1.5	62.48	1.601	0.0	0.0	0.0	0
2.27	11.013	0.173	0.12	1.5	63.659	1.571	0.0	0.0	0.0	0
2.28	11.013	0.163	0.12	1.5	67.564	1.48	0.0	0.0	0.0	0
2.29	11.013	0.163	0.13	1.5	67.564	1.48	0.0	0.0	0.0	0
2.30	10.911	0.153	0.12	1.5	71.314	1.402	0.0	0.0	0.0	0
2.31	10.809	0.153	0.12	1.5	70.647	1.415	0.0	0.0	0.0	0
2.32	10.707	0.163	0.12	1.5	65.687	1.522	0.0	0.0	0.0	0
2.33	10.707	0.173	0.12	1.5	61.89	1.616	0.0	0.0	0.0	0
2.34	10.707	0.184	0.12	1.5	58.19	1.719	0.0	0.0	0.0	0
2.35	10.605	0.194	0.12	1.5	54.665	1.829	0.0	0.0	0.0	0
2.36	10.503	0.214	0.12	1.5	49.079	2.038	0.0	0.0	0.0	0

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2.37	10.299	0.235	0.12	1.5	43.826	2.282	0.0	0.0	0.0	0
2.38	10.299	0.245	0.12	1.5	42.037	2.379	0.0	0.0	0.0	0
2.39	10.197	0.265	0.12	1.5	38.479	2.599	0.0	0.0	0.0	0
2.40	9.993	0.286	0.12	1.5	34.941	2.862	0.0	0.0	0.0	0
2.41	9.993	0.306	0.12	1.5	32.657	3.062	0.0	0.0	0.0	0
2.42	10.197	0.326	0.13	1.5	31.279	3.197	0.0	0.0	0.0	0
2.43	10.299	0.337	0.12	1.5	30.561	3.272	0.0	0.0	0.0	0
2.44	10.299	0.357	0.13	1.5	28.849	3.466	0.0	0.0	0.0	0
2.45	10.299	0.357	0.13	1.5	28.849	3.466	0.0	0.0	0.0	0
2.46	10.401	0.357	0.13	1.5	29.134	3.432	0.0	0.0	0.0	0
2.47	10.503	0.367	0.13	1.5	28.619	3.494	0.0	0.0	0.0	0
2.48	10.605	0.377	0.13	1.5	28.13	3.555	0.0	0.0	0.0	0
2.49	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.50	10.911	0.377	0.13	1.5	28.942	3.455	0.0	0.0	0.0	0
2.51	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.52	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.53	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.54	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.55	10.809	0.377	0.13	1.5	28.671	3.488	0.0	0.0	0.0	0
2.56	10.809	0.387	0.13	1.5	27.93	3.58	0.0	0.0	0.0	0
2.57	10.707	0.387	0.13	1.5	27.667	3.614	0.0	0.0	0.0	0
2.58	10.503	0.398	0.13	1.5	26.389	3.789	0.0	0.0	0.0	0
2.59	10.299	0.398	0.13	1.5	25.877	3.864	0.0	0.0	0.0	0
2.60	9.993	0.377	0.13	1.5	26.507	3.773	0.0	0.0	0.0	0
2.61	10.095	0.367	0.13	1.5	27.507	3.635	0.0	0.0	0.0	0
2.62	10.095	0.347	0.13	1.5	29.092	3.437	0.0	0.0	0.0	0
2.63	10.299	0.347	0.13	1.5	29.68	3.369	0.0	0.0	0.0	0
2.64	10.299	0.337	0.13	1.5	30.561	3.272	0.0	0.0	0.0	0
2.65	10.299	0.337	0.13	1.5	30.561	3.272	0.0	0.0	0.0	0
2.66	10.401	0.326	0.14	1.5	31.905	3.134	0.0	0.0	0.0	0
2.67	10.809	0.316	0.14	1.5	34.206	2.923	0.0	0.0	0.0	0
2.68	11.217	0.286	0.14	1.5	39.22	2.55	0.0	0.0	0.0	0
2.69	11.217	0.275	0.14	1.5	40.789	2.452	0.0	0.0	0.0	0
2.70	11.115	0.265	0.14	1.5	41.943	2.384	0.0	0.0	0.0	0
2.71	10.911	0.255	0.14	1.5	42.788	2.337	0.0	0.0	0.0	0
2.72	10.809	0.245	0.14	1.5	44.118	2.267	0.0	0.0	0.0	0
2.73	10.707	0.245	0.14	1.5	43.702	2.288	0.0	0.0	0.0	0
2.74	10.605	0.245	0.14	1.5	43.286	2.31	0.0	0.0	0.0	0
2.75	10.503	0.235	0.14	1.5	44.694	2.237	0.0	0.0	0.0	0
2.76	10.503	0.235	0.14	1.5	44.694	2.237	0.0	0.0	0.0	0
2.77	10.605	0.235	0.15	1.5	45.128	2.216	0.0	0.0	0.0	0
2.78	10.707	0.214	0.15	1.5	50.033	1.999	0.0	0.0	0.0	0
2.79	10.809	0.204	0.16	1.5	52.985	1.887	0.0	0.0	0.0	0
2.80	11.115	0.194	0.15	1.5	57.294	1.745	0.0	0.0	0.0	0
2.81	11.217	0.184	0.15	1.5	60.962	1.64	0.0	0.0	0.0	0
2.82	11.013	0.194	0.15	1.5	56.768	1.762	0.0	0.0	0.0	0
2.83	10.911	0.214	0.15	1.5	50.986	1.961	0.0	0.0	0.0	0
2.84	10.911	0.214	0.16	1.5	50.986	1.961	0.0	0.0	0.0	0
2.85	10.911	0.224	0.16	1.5	48.71	2.053	0.0	0.0	0.0	0
2.86	11.013	0.224	0.16	1.5	49.165	2.034	0.0	0.0	0.0	0
2.87	11.013	0.224	0.16	1.5	49.165	2.034	0.0	0.0	0.0	0
2.88	11.013	0.224	0.16	1.5	49.165	2.034	0.0	0.0	0.0	0
2.89	12.032	0.235	0.18	1.5	51.2	1.953	0.0	0.0	0.0	0
2.90	12.338	0.275	0.18	1.5	44.865	2.229	0.0	0.0	0.0	0
2.91	12.44	0.306	0.18	1.4	40.654	2.46	0.0	0.0	0.0	0
2.92	12.542	0.326	0.18	1.5	38.472	2.599	0.0	0.0	0.0	0
2.93	12.542	0.347	0.18	1.5	36.144	2.767	0.0	0.0	0.0	0
2.94	12.542	0.357	0.18	1.5	35.132	2.846	0.0	0.0	0.0	0
2.95	12.032	0.367	0.18	1.5	32.785	3.05	0.0	0.0	0.0	0
2.96	11.829	0.377	0.18	1.5	31.377	3.187	0.0	0.0	0.0	0
2.97	11.421	0.387	0.18	1.5	29.512	3.388	0.0	0.0	0.0	0
2.98	11.217	0.387	0.17	1.5	28.984	3.45	0.0	0.0	0.0	0
2.99	11.013	0.398	0.17	1.5	27.671	3.614	0.0	0.0	0.0	0
3.00	10.707	0.418	0.17	1.5	25.615	3.904	0.0	0.0	0.0	0
3.01	9.993	0.449	0.17	1.5	22.256	4.493	0.0	0.0	0.0	0
3.02	9.789	0.449	0.17	1.5	21.802	4.587	0.0	0.0	0.0	0
3.03	9.483	0.449	0.17	1.5	21.12	4.735	0.0	0.0	0.0	0
3.04	9.177	0.438	0.17	1.5	20.952	4.773	0.0	0.0	0.0	0
3.05	8.871	0.438	0.17	1.5	20.253	4.937	0.0	0.0	0.0	0
3.06	8.565	0.418	0.17	1.5	20.49	4.88	0.0	0.0	0.0	0
3.07	8.464	0.398	0.17	1.5	21.266	4.702	0.0	0.0	0.0	0
3.08	8.26	0.398	0.17	1.5	20.754	4.818	0.0	0.0	0.0	0
3.09	8.158	0.387	0.17	1.5	21.08	4.744	0.0	0.0	0.0	0
3.10	8.158	0.367	0.17	1.5	22.229	4.499	0.0	0.0	0.0	0
3.11	8.362	0.337	0.17	1.5	24.813	4.03	0.0	0.0	0.0	0

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3.12	8.565	0.316	0.17	1.5	27.104	3.689	0.0	0.0	0.0	0
3.13	8.565	0.306	0.17	1.5	27.99	3.573	0.0	0.0	0.0	0
3.14	8.565	0.296	0.17	1.5	28.936	3.456	0.0	0.0	0.0	0
3.15	8.464	0.286	0.17	1.5	29.594	3.379	0.0	0.0	0.0	0
3.16	8.464	0.265	0.17	1.5	31.94	3.131	0.0	0.0	0.0	0
3.17	8.26	0.245	0.17	1.5	33.714	2.966	0.0	0.0	0.0	0
3.18	8.26	0.235	0.18	1.5	35.149	2.845	0.0	0.0	0.0	0
3.19	8.158	0.214	0.18	1.5	38.121	2.623	0.0	0.0	0.0	0
3.20	8.158	0.194	0.18	1.5	42.052	2.378	0.0	0.0	0.0	0
3.21	8.158	0.184	0.18	1.5	44.337	2.255	0.0	0.0	0.0	0
3.22	7.954	0.153	0.18	1.5	51.987	1.924	0.0	0.0	0.0	0
3.23	7.852	0.143	0.18	1.5	54.909	1.821	0.0	0.0	0.0	0
3.24	7.852	0.133	0.18	1.5	59.038	1.694	0.0	0.0	0.0	0
3.25	7.75	0.122	0.18	1.5	63.525	1.574	0.0	0.0	0.0	0
3.26	7.648	0.122	0.18	1.5	62.689	1.595	0.0	0.0	0.0	0
3.27	7.75	0.112	0.18	1.5	69.196	1.445	0.0	0.0	0.0	0
3.28	7.852	0.102	0.18	1.5	76.98	1.299	0.0	0.0	0.0	0
3.29	8.056	0.082	0.18	1.5	98.244	1.018	0.0	0.0	0.0	0
3.30	7.954	0.071	0.19	1.5	112.028	0.893	0.0	0.0	0.0	0
3.31	7.954	0.071	0.19	1.5	112.028	0.893	0.0	0.0	0.0	0
3.32	7.852	0.061	0.19	1.5	128.721	0.777	0.0	0.0	0.0	0
3.33	7.444	0.061	0.18	1.5	122.033	0.819	0.0	0.0	0.0	0
3.34	7.24	0.061	0.18	1.5	118.689	0.843	0.0	0.0	0.0	0
3.35	7.138	0.071	0.18	1.5	100.535	0.995	0.0	0.0	0.0	0
3.36	7.138	0.071	0.18	1.5	100.535	0.995	0.0	0.0	0.0	0
3.37	7.138	0.061	0.18	1.5	117.016	0.855	0.0	0.0	0.0	0
3.38	7.24	0.061	0.18	1.5	118.689	0.843	0.0	0.0	0.0	0
3.39	7.138	0.071	0.19	1.5	100.535	0.995	0.0	0.0	0.0	0
3.40	7.138	0.061	0.19	1.5	117.016	0.855	0.0	0.0	0.0	0
3.41	7.24	0.061	0.19	1.5	118.689	0.843	0.0	0.0	0.0	0
3.42	7.546	0.051	0.19	1.5	147.961	0.676	0.0	0.0	0.0	0
3.43	7.75	0.051	0.19	1.5	151.961	0.658	0.0	0.0	0.0	0
3.44	8.158	0.051	0.19	1.5	159.961	0.625	0.0	0.0	0.0	0
3.45	8.464	0.051	0.19	1.5	165.961	0.603	0.0	0.0	0.0	0
3.46	8.871	0.041	0.20	1.5	216.366	0.462	0.0	0.0	0.0	0
3.47	9.279	0.041	0.20	1.5	226.317	0.442	0.0	0.0	0.0	0
3.48	9.687	0.031	0.20	1.5	312.484	0.32	0.0	0.0	0.0	0
3.49	10.707	0.031	0.20	1.5	345.387	0.29	0.0	0.0	0.0	0
3.50	11.319	0.031	0.20	1.5	365.129	0.274	0.0	0.0	0.0	0
3.51	11.829	0.041	0.20	1.5	288.512	0.347	0.0	0.0	0.0	0
3.52	12.134	0.051	0.20	1.5	237.922	0.42	0.0	0.0	0.0	0
3.53	12.44	0.061	0.20	1.5	203.934	0.49	0.0	0.0	0.0	0
3.54	12.848	0.082	0.20	1.5	156.683	0.638	0.0	0.0	0.0	0
3.55	13.46	0.133	0.20	1.5	101.203	0.988	0.0	0.0	0.0	0
3.56	13.562	0.163	0.20	1.5	83.202	1.202	0.0	0.0	0.0	0
3.57	13.766	0.194	0.20	1.5	70.959	1.409	0.0	0.0	0.0	0
3.58	13.766	0.224	0.20	1.5	61.455	1.627	0.0	0.0	0.0	0
3.59	13.766	0.265	0.20	1.5	51.947	1.925	0.0	0.0	0.0	0
3.60	13.562	0.296	0.20	1.5	45.818	2.183	0.0	0.0	0.0	0
3.61	13.256	0.337	0.20	1.5	39.335	2.542	0.0	0.0	0.0	0
3.62	12.644	0.398	0.20	1.5	31.769	3.148	0.0	0.0	0.0	0
3.63	12.338	0.428	0.20	1.5	28.827	3.469	0.0	0.0	0.0	0
3.64	12.134	0.449	0.20	1.5	27.024	3.7	0.0	0.0	0.0	0
3.65	11.93	0.459	0.20	1.5	25.991	3.847	0.0	0.0	0.0	0
3.66	11.625	0.479	0.20	1.5	24.269	4.12	0.0	0.0	0.0	0
3.67	11.625	0.479	0.20	1.5	24.269	4.12	0.0	0.0	0.0	0
3.68	11.115	0.489	0.20	1.5	22.73	4.399	0.0	0.0	0.0	0
3.69	10.911	0.5	0.21	1.5	21.822	4.583	0.0	0.0	0.0	0
3.70	10.911	0.489	0.21	1.5	22.313	4.482	0.0	0.0	0.0	0
3.71	11.013	0.479	0.21	1.6	22.992	4.349	0.0	0.0	0.0	0
3.72	11.115	0.459	0.21	1.5	24.216	4.13	0.0	0.0	0.0	0
3.73	11.217	0.449	0.22	1.6	24.982	4.003	0.0	0.0	0.0	0
3.74	11.319	0.438	0.22	1.6	25.842	3.87	0.0	0.0	0.0	0
3.75	11.523	0.418	0.22	1.6	27.567	3.628	0.0	0.0	0.0	0
3.76	11.727	0.408	0.22	1.6	28.743	3.479	0.0	0.0	0.0	0
3.77	12.032	0.377	0.24	1.6	31.915	3.133	0.0	0.0	0.0	0
3.78	12.44	0.357	0.24	1.6	34.846	2.87	0.0	0.0	0.0	0
3.79	13.052	0.337	0.24	1.6	38.73	2.582	0.0	0.0	0.0	0
3.80	13.562	0.316	0.24	1.6	42.918	2.33	0.0	0.0	0.0	0
3.81	13.868	0.316	0.24	1.6	43.886	2.279	0.0	0.0	0.0	0
3.82	14.786	0.306	0.24	1.6	48.32	2.07	0.0	0.0	0.0	0
3.83	15.194	0.306	0.25	1.6	49.654	2.014	0.0	0.0	0.0	0
3.84	15.499	0.306	0.25	1.6	50.65	1.974	0.0	0.0	0.0	0
3.85	15.703	0.316	0.25	1.6	49.693	2.012	0.0	0.0	0.0	0
3.86	15.805	0.326	0.25	1.6	48.482	2.063	0.0	0.0	0.0	0

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3.87	15.805	0.326	0.25	1.6	48.482	2.063	0.0	0.0	0.0	0
3.88	15.805	0.326	0.25	1.6	48.482	2.063	0.0	0.0	0.0	0
3.89	16.723	0.377	0.26	1.6	44.358	2.254	0.0	0.0	0.0	0
3.90	16.723	0.408	0.26	1.6	40.988	2.44	0.0	0.0	0.0	0
3.91	16.927	0.438	0.26	1.6	38.646	2.588	0.0	0.0	0.0	0
3.92	17.131	0.469	0.27	1.6	36.527	2.738	0.0	0.0	0.0	0
3.93	17.233	0.53	0.28	1.6	32.515	3.075	0.0	0.0	0.0	0
3.94	17.335	0.551	0.28	1.6	31.461	3.179	0.0	0.0	0.0	0
3.95	17.437	0.571	0.28	1.6	30.538	3.275	0.0	0.0	0.0	0
3.96	17.539	0.581	0.28	1.6	30.188	3.313	0.0	0.0	0.0	0
3.97	17.539	0.591	0.29	1.6	29.677	3.37	0.0	0.0	0.0	0
3.98	18.049	0.612	0.29	1.6	29.492	3.391	0.0	0.0	0.0	0
3.99	18.253	0.622	0.29	1.6	29.346	3.408	0.0	0.0	0.0	0
4.00	18.253	0.632	0.28	1.6	28.881	3.462	0.0	0.0	0.0	0
4.01	18.253	0.663	0.28	1.6	27.531	3.632	0.0	0.0	0.0	0
4.02	18.355	0.683	0.28	1.6	26.874	3.721	0.0	0.0	0.0	0
4.03	18.457	0.714	0.28	1.6	25.85	3.868	0.0	0.0	0.0	0
4.04	18.457	0.734	0.29	1.6	25.146	3.977	0.0	0.0	0.0	0
4.05	18.559	0.744	0.29	1.6	24.945	4.009	0.0	0.0	0.0	0
4.06	18.661	0.755	0.29	1.6	24.717	4.046	0.0	0.0	0.0	0
4.07	18.457	0.765	0.29	1.6	24.127	4.145	0.0	0.0	0.0	0
4.08	18.355	0.806	0.29	1.6	22.773	4.391	0.0	0.0	0.0	0
4.09	18.457	0.816	0.29	1.6	22.619	4.421	0.0	0.0	0.0	0
4.10	18.457	0.826	0.30	1.6	22.345	4.475	0.0	0.0	0.0	0
4.11	18.253	0.846	0.30	1.6	21.576	4.635	0.0	0.0	0.0	0
4.12	18.253	0.857	0.30	1.6	21.299	4.695	0.0	0.0	0.0	0
4.13	18.253	0.857	0.31	1.6	21.299	4.695	0.0	0.0	0.0	0
4.14	18.253	0.846	0.31	1.6	21.576	4.635	0.0	0.0	0.0	0
4.15	18.355	0.836	0.31	1.6	21.956	4.555	0.0	0.0	0.0	0
4.16	18.457	0.826	0.31	1.6	22.345	4.475	0.0	0.0	0.0	0
4.17	18.559	0.816	0.31	1.5	22.744	4.397	0.0	0.0	0.0	0
4.18	18.253	0.826	0.33	1.5	22.098	4.525	0.0	0.0	0.0	0
4.19	18.253	0.826	0.32	1.6	22.098	4.525	0.0	0.0	0.0	0
4.20	18.253	0.806	0.32	1.5	22.646	4.416	0.0	0.0	0.0	0
4.21	18.151	0.806	0.32	1.5	22.52	4.441	0.0	0.0	0.0	0
4.22	17.947	0.806	0.33	1.5	22.267	4.491	0.0	0.0	0.0	0
4.23	17.845	0.795	0.33	1.5	22.447	4.455	0.0	0.0	0.0	0
4.24	17.947	0.795	0.33	1.5	22.575	4.43	0.0	0.0	0.0	0
4.25	17.743	0.775	0.32	1.5	22.894	4.368	0.0	0.0	0.0	0
4.26	17.539	0.785	0.32	1.5	22.343	4.476	0.0	0.0	0.0	0
4.27	17.233	0.785	0.33	1.5	21.953	4.555	0.0	0.0	0.0	0
4.28	17.029	0.785	0.33	1.5	21.693	4.61	0.0	0.0	0.0	0
4.29	16.825	0.775	0.33	1.5	21.71	4.606	0.0	0.0	0.0	0
4.30	16.417	0.775	0.33	1.5	21.183	4.721	0.0	0.0	0.0	0
4.31	16.213	0.765	0.33	1.5	21.193	4.718	0.0	0.0	0.0	0
4.32	15.907	0.765	0.33	1.6	20.793	4.809	0.0	0.0	0.0	0
4.33	15.703	0.755	0.33	1.5	20.799	4.808	0.0	0.0	0.0	0
4.34	15.397	0.734	0.33	1.5	20.977	4.767	0.0	0.0	0.0	0
4.35	15.194	0.714	0.33	1.5	21.28	4.699	0.0	0.0	0.0	0
4.36	15.194	0.693	0.33	1.5	21.925	4.561	0.0	0.0	0.0	0
4.37	15.092	0.683	0.33	1.5	22.097	4.526	0.0	0.0	0.0	0
4.38	15.092	0.673	0.34	1.5	22.425	4.459	0.0	0.0	0.0	0
4.39	15.092	0.653	0.34	1.5	23.112	4.327	0.0	0.0	0.0	0
4.40	15.194	0.612	0.35	1.5	24.827	4.028	0.0	0.0	0.0	0
4.41	15.295	0.591	0.35	1.5	25.88	3.864	0.0	0.0	0.0	0
4.42	15.499	0.571	0.35	1.5	27.144	3.684	0.0	0.0	0.0	0
4.43	15.703	0.54	0.35	1.6	29.08	3.439	0.0	0.0	0.0	0
4.44	15.703	0.51	0.36	1.5	30.79	3.248	0.0	0.0	0.0	0
4.45	15.907	0.489	0.36	1.5	32.53	3.074	0.0	0.0	0.0	0
4.46	16.009	0.469	0.36	1.5	34.134	2.93	0.0	0.0	0.0	0
4.47	15.907	0.459	0.36	1.5	34.656	2.886	0.0	0.0	0.0	0
4.48	15.805	0.459	0.37	1.5	34.434	2.904	0.0	0.0	0.0	0
4.49	16.111	0.438	0.37	1.5	36.783	2.719	0.0	0.0	0.0	0
4.50	16.213	0.428	0.37	1.5	37.881	2.64	0.0	0.0	0.0	0
4.51	16.315	0.428	0.37	1.5	38.119	2.623	0.0	0.0	0.0	0
4.52	16.315	0.438	0.37	1.5	37.249	2.685	0.0	0.0	0.0	0
4.53	16.417	0.449	0.39	1.5	36.563	2.735	0.0	0.0	0.0	0
4.54	16.723	0.459	0.39	1.5	36.434	2.745	0.0	0.0	0.0	0
4.55	16.927	0.469	0.40	1.5	36.092	2.771	0.0	0.0	0.0	0
4.56	17.233	0.469	0.40	1.5	36.744	2.722	0.0	0.0	0.0	0
4.57	17.335	0.479	0.40	1.5	36.19	2.763	0.0	0.0	0.0	0
4.58	17.539	0.479	0.39	1.5	36.616	2.731	0.0	0.0	0.0	0
4.59	17.743	0.5	0.39	1.5	35.486	2.818	0.0	0.0	0.0	0
4.60	17.743	0.51	0.39	1.5	34.79	2.874	0.0	0.0	0.0	0
4.61	17.947	0.52	0.39	1.5	34.513	2.897	0.0	0.0	0.0	0

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4.62	17.947	0.54	0.39	1.5	33.235	3.009	0.0	0.0	0.0	0
4.63	18.049	0.561	0.40	1.5	32.173	3.108	0.0	0.0	0.0	0
4.64	18.049	0.602	0.41	1.5	29.982	3.335	0.0	0.0	0.0	0
4.65	18.049	0.602	0.41	1.5	29.982	3.335	0.0	0.0	0.0	0
4.66	18.151	0.612	0.41	1.5	29.658	3.372	0.0	0.0	0.0	0
4.67	18.151	0.622	0.41	1.5	29.182	3.427	0.0	0.0	0.0	0
4.68	18.151	0.632	0.41	1.5	28.72	3.482	0.0	0.0	0.0	0
4.69	18.355	0.663	0.41	1.5	27.685	3.612	0.0	0.0	0.0	0
4.70	18.559	0.673	0.41	1.5	27.577	3.626	0.0	0.0	0.0	0
4.71	18.559	0.683	0.41	1.5	27.173	3.68	0.0	0.0	0.0	0
4.72	18.661	0.693	0.42	1.5	26.928	3.714	0.0	0.0	0.0	0
4.73	18.762	0.714	0.42	1.5	26.277	3.806	0.0	0.0	0.0	0
4.74	19.068	0.724	0.43	1.5	26.337	3.797	0.0	0.0	0.0	0
4.75	19.068	0.724	0.43	1.5	26.337	3.797	0.0	0.0	0.0	0
4.76	18.966	0.734	0.43	1.5	25.839	3.87	0.0	0.0	0.0	0
4.77	19.068	0.724	0.43	1.5	26.337	3.797	0.0	0.0	0.0	0
4.78	19.374	0.724	0.43	1.5	26.76	3.737	0.0	0.0	0.0	0
4.79	19.272	0.734	0.43	1.5	26.256	3.809	0.0	0.0	0.0	0
4.80	19.272	0.744	0.43	1.5	25.903	3.861	0.0	0.0	0.0	0
4.81	19.272	0.744	0.43	1.5	25.903	3.861	0.0	0.0	0.0	0
4.82	19.272	0.755	0.43	1.5	25.526	3.918	0.0	0.0	0.0	0
4.83	18.966	0.765	0.44	1.5	24.792	4.034	0.0	0.0	0.0	0
4.84	19.068	0.755	0.44	1.5	25.256	3.96	0.0	0.0	0.0	0
4.85	19.068	0.755	0.44	1.5	25.256	3.96	0.0	0.0	0.0	0
4.86	19.068	0.765	0.44	1.5	24.925	4.012	0.0	0.0	0.0	0
4.87	19.068	0.765	0.44	1.5	24.925	4.012	0.0	0.0	0.0	0
4.88	19.068	0.765	0.44	1.5	24.925	4.012	0.0	0.0	0.0	0
4.89	19.272	0.714	0.43	1.5	26.992	3.705	0.0	0.0	0.0	0
4.90	19.272	0.734	0.44	1.5	26.256	3.809	0.0	0.0	0.0	0
4.91	19.272	0.744	0.44	1.5	25.903	3.861	0.0	0.0	0.0	0
4.92	18.864	0.775	0.46	1.5	24.341	4.108	0.0	0.0	0.0	0
4.93	18.762	0.775	0.46	1.5	24.209	4.131	0.0	0.0	0.0	0
4.94	18.762	0.775	0.47	1.5	24.209	4.131	0.0	0.0	0.0	0
4.95	18.864	0.765	0.47	1.5	24.659	4.055	0.0	0.0	0.0	0
4.96	18.762	0.765	0.48	1.5	24.525	4.077	0.0	0.0	0.0	0
4.97	18.864	0.755	0.48	1.5	24.985	4.002	0.0	0.0	0.0	0
4.98	18.762	0.755	0.48	1.5	24.85	4.024	0.0	0.0	0.0	0
4.99	18.864	0.755	0.48	1.5	24.985	4.002	0.0	0.0	0.0	0
5.00	18.966	0.744	0.48	1.5	25.492	3.923	0.0	0.0	0.0	0
5.01	18.864	0.734	0.49	1.5	25.7	3.891	0.0	0.0	0.0	0
5.02	18.762	0.724	0.49	1.5	25.914	3.859	0.0	0.0	0.0	0
5.03	18.864	0.714	0.49	1.5	26.42	3.785	0.0	0.0	0.0	0
5.04	18.966	0.693	0.48	1.5	27.368	3.654	0.0	0.0	0.0	0
5.05	18.966	0.693	0.48	1.5	27.368	3.654	0.0	0.0	0.0	0
5.06	18.966	0.673	0.48	1.5	28.181	3.548	0.0	0.0	0.0	0
5.07	18.864	0.673	0.48	1.5	28.03	3.568	0.0	0.0	0.0	0
5.08	18.864	0.673	0.49	1.5	28.03	3.568	0.0	0.0	0.0	0
5.09	18.762	0.663	0.49	1.5	28.299	3.534	0.0	0.0	0.0	0
5.10	18.661	0.653	0.49	1.5	28.577	3.499	0.0	0.0	0.0	0
5.11	18.559	0.642	0.48	1.6	28.908	3.459	0.0	0.0	0.0	0
5.12	18.355	0.642	0.48	1.5	28.59	3.498	0.0	0.0	0.0	0
5.13	18.049	0.653	0.48	1.5	27.64	3.618	0.0	0.0	0.0	0
5.14	17.845	0.663	0.48	1.5	26.916	3.715	0.0	0.0	0.0	0
5.15	17.641	0.663	0.48	1.5	26.608	3.758	0.0	0.0	0.0	0
5.16	17.437	0.673	0.48	1.5	25.909	3.86	0.0	0.0	0.0	0
5.17	17.437	0.673	0.48	1.5	25.909	3.86	0.0	0.0	0.0	0
5.18	17.233	0.673	0.49	1.5	25.606	3.905	0.0	0.0	0.0	0
5.19	17.131	0.673	0.50	1.5	25.455	3.929	0.0	0.0	0.0	0
5.20	17.131	0.663	0.50	1.5	25.839	3.87	0.0	0.0	0.0	0
5.21	17.233	0.642	0.50	1.5	26.843	3.725	0.0	0.0	0.0	0
5.22	17.131	0.632	0.50	1.5	27.106	3.689	0.0	0.0	0.0	0
5.23	17.029	0.622	0.50	1.5	27.378	3.653	0.0	0.0	0.0	0
5.24	16.927	0.622	0.50	1.5	27.214	3.675	0.0	0.0	0.0	0
5.25	16.927	0.602	0.50	1.5	28.118	3.556	0.0	0.0	0.0	0
5.26	16.825	0.571	0.51	1.5	29.466	3.394	0.0	0.0	0.0	0
5.27	16.825	0.551	0.51	1.5	30.535	3.275	0.0	0.0	0.0	0
5.28	16.927	0.54	0.51	1.6	31.346	3.19	0.0	0.0	0.0	0
5.29	16.927	0.52	0.50	1.6	32.552	3.072	0.0	0.0	0.0	0
5.30	16.927	0.51	0.50	1.6	33.19	3.013	0.0	0.0	0.0	0
5.31	16.723	0.51	0.50	1.6	32.79	3.05	0.0	0.0	0.0	0
5.32	16.723	0.51	0.50	1.6	32.79	3.05	0.0	0.0	0.0	0
5.33	16.723	0.51	0.51	1.5	32.79	3.05	0.0	0.0	0.0	0
5.34	16.825	0.51	0.50	1.5	32.99	3.031	0.0	0.0	0.0	0
5.35	16.927	0.51	0.50	1.6	33.19	3.013	0.0	0.0	0.0	0
5.36	16.825	0.51	0.50	1.6	32.99	3.031	0.0	0.0	0.0	0

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5.37	16.621	0.52	0.51	1.6	31.963	3.129	0.0	0.0	0.0	0
5.38	16.519	0.53	0.52	1.6	31.168	3.208	0.0	0.0	0.0	0
5.39	16.825	0.52	0.52	1.6	32.356	3.091	0.0	0.0	0.0	0
5.40	17.131	0.51	0.51	1.6	33.59	2.977	0.0	0.0	0.0	0
5.41	17.233	0.51	0.51	1.6	33.79	2.959	0.0	0.0	0.0	0
5.42	17.233	0.51	0.51	1.6	33.79	2.959	0.0	0.0	0.0	0
5.43	17.233	0.51	0.51	1.6	33.79	2.959	0.0	0.0	0.0	0
5.44	17.233	0.51	0.51	1.6	33.79	2.959	0.0	0.0	0.0	0
5.45	17.029	0.51	0.51	1.6	33.39	2.995	0.0	0.0	0.0	0
5.46	17.029	0.52	0.51	1.6	32.748	3.054	0.0	0.0	0.0	0
5.47	17.131	0.52	0.50	1.6	32.944	3.035	0.0	0.0	0.0	0
5.48	17.131	0.52	0.50	1.6	32.944	3.035	0.0	0.0	0.0	0
5.49	17.131	0.52	0.50	1.6	32.944	3.035	0.0	0.0	0.0	0
5.50	17.029	0.53	0.50	1.6	32.13	3.112	0.0	0.0	0.0	0
5.51	17.029	0.53	0.50	1.6	32.13	3.112	0.0	0.0	0.0	0
5.52	16.825	0.54	0.50	1.6	31.157	3.21	0.0	0.0	0.0	0
5.53	16.825	0.551	0.50	1.6	30.535	3.275	0.0	0.0	0.0	0
5.54	16.723	0.551	0.50	1.6	30.35	3.295	0.0	0.0	0.0	0
5.55	16.825	0.561	0.50	1.6	29.991	3.334	0.0	0.0	0.0	0
5.56	16.825	0.561	0.50	1.6	29.991	3.334	0.0	0.0	0.0	0
5.57	16.621	0.571	0.51	1.6	29.109	3.435	0.0	0.0	0.0	0
5.58	16.621	0.551	0.51	1.6	30.165	3.315	0.0	0.0	0.0	0
5.59	16.723	0.54	0.51	1.6	30.969	3.229	0.0	0.0	0.0	0
5.60	16.621	0.52	0.51	1.6	31.963	3.129	0.0	0.0	0.0	0
5.61	16.825	0.51	0.51	1.6	32.99	3.031	0.0	0.0	0.0	0
5.62	16.825	0.489	0.52	1.6	34.407	2.906	0.0	0.0	0.0	0
5.63	16.825	0.489	0.51	1.6	34.407	2.906	0.0	0.0	0.0	0
5.64	16.825	0.469	0.51	1.6	35.874	2.788	0.0	0.0	0.0	0
5.65	16.825	0.469	0.51	1.6	35.874	2.788	0.0	0.0	0.0	0
5.66	16.723	0.469	0.51	1.6	35.657	2.805	0.0	0.0	0.0	0
5.67	16.417	0.479	0.52	1.6	34.273	2.918	0.0	0.0	0.0	0
5.68	16.417	0.479	0.52	1.6	34.273	2.918	0.0	0.0	0.0	0
5.69	16.723	0.469	0.52	1.6	35.657	2.805	0.0	0.0	0.0	0
5.70	16.519	0.469	0.52	1.6	35.222	2.839	0.0	0.0	0.0	0
5.71	16.315	0.469	0.52	1.6	34.787	2.875	0.0	0.0	0.0	0
5.72	16.315	0.469	0.52	1.6	34.787	2.875	0.0	0.0	0.0	0
5.73	16.315	0.459	0.52	1.6	35.545	2.813	0.0	0.0	0.0	0
5.74	16.111	0.459	0.52	1.6	35.1	2.849	0.0	0.0	0.0	0
5.75	15.907	0.469	0.52	1.6	33.917	2.948	0.0	0.0	0.0	0
5.76	15.907	0.459	0.52	1.6	34.656	2.886	0.0	0.0	0.0	0
5.77	15.907	0.459	0.52	1.6	34.656	2.886	0.0	0.0	0.0	0
5.78	15.907	0.459	0.52	1.6	34.656	2.886	0.0	0.0	0.0	0
5.79	16.009	0.459	0.52	1.6	34.878	2.867	0.0	0.0	0.0	0
5.80	16.213	0.449	0.52	1.6	36.109	2.769	0.0	0.0	0.0	0
5.81	16.315	0.449	0.52	1.6	36.336	2.752	0.0	0.0	0.0	0
5.82	16.213	0.449	0.52	1.6	36.109	2.769	0.0	0.0	0.0	0
5.83	16.009	0.449	0.52	1.6	35.655	2.805	0.0	0.0	0.0	0
5.84	15.397	0.438	0.52	1.6	35.153	2.845	0.0	0.0	0.0	0
5.85	15.194	0.428	0.52	1.6	35.5	2.817	0.0	0.0	0.0	0
5.86	15.499	0.428	0.52	1.6	36.213	2.761	0.0	0.0	0.0	0
5.87	15.499	0.428	0.52	1.6	36.213	2.761	0.0	0.0	0.0	0
5.88	15.499	0.428	0.52	1.6	36.213	2.761	0.0	0.0	0.0	0
5.89	17.233	0.296	0.49	1.6	58.22	1.718	0.0	0.0	0.0	0
5.90	17.131	0.306	0.50	1.6	55.984	1.786	0.0	0.0	0.0	0
5.91	17.335	0.296	0.50	1.6	58.564	1.708	0.0	0.0	0.0	0
5.92	17.335	0.296	0.50	1.6	58.564	1.708	0.0	0.0	0.0	0
5.93	17.437	0.306	0.50	1.6	56.984	1.755	0.0	0.0	0.0	0
5.94	17.641	0.306	0.49	1.6	57.65	1.735	0.0	0.0	0.0	0
5.95	18.151	0.347	0.51	1.6	52.308	1.912	0.0	0.0	0.0	0
5.96	18.661	0.357	0.52	1.6	52.272	1.913	0.0	0.0	0.0	0
5.97	19.068	0.377	0.53	1.6	50.578	1.977	0.0	0.0	0.0	0
5.98	19.17	0.398	0.53	1.6	48.166	2.076	0.0	0.0	0.0	0
5.99	19.17	0.418	0.53	1.6	45.861	2.18	0.0	0.0	0.0	0
6.00	17.743	0.438	0.53	1.6	40.509	2.469	0.0	0.0	0.0	0
6.01	17.335	0.449	0.53	1.6	38.608	2.59	0.0	0.0	0.0	0
6.02	17.335	0.438	0.52	1.6	39.578	2.527	0.0	0.0	0.0	0
6.03	17.029	0.438	0.51	1.6	38.879	2.572	0.0	0.0	0.0	0
6.04	16.417	0.459	0.53	1.6	35.767	2.796	0.0	0.0	0.0	0
6.05	15.907	0.449	0.54	1.6	35.428	2.823	0.0	0.0	0.0	0
6.06	15.907	0.438	0.53	1.6	36.317	2.754	0.0	0.0	0.0	0
6.07	16.009	0.428	0.53	1.6	37.404	2.673	0.0	0.0	0.0	0
6.08	16.009	0.408	0.52	1.6	39.238	2.549	0.0	0.0	0.0	0
6.09	15.907	0.408	0.51	1.6	38.988	2.565	0.0	0.0	0.0	0
6.10	15.295	0.408	0.53	1.6	37.488	2.668	0.0	0.0	0.0	0
6.11	15.194	0.398	0.53	1.6	38.176	2.619	0.0	0.0	0.0	0

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6.12	15.092	0.387	0.54	1.6	38.997	2.564	0.0	0.0	0.0	0
6.13	14.99	0.377	0.54	1.6	39.761	2.515	0.0	0.0	0.0	0
6.14	15.092	0.357	0.53	1.6	42.275	2.365	0.0	0.0	0.0	0
6.15	14.888	0.377	0.53	1.6	39.491	2.532	0.0	0.0	0.0	0
6.16	14.99	0.377	0.53	1.6	39.761	2.515	0.0	0.0	0.0	0
6.17	14.99	0.377	0.53	1.6	39.761	2.515	0.0	0.0	0.0	0
6.18	14.99	0.377	0.53	1.6	39.761	2.515	0.0	0.0	0.0	0
6.19	14.684	0.408	0.54	1.6	35.99	2.779	0.0	0.0	0.0	0
6.20	14.582	0.428	0.54	1.6	34.07	2.935	0.0	0.0	0.0	0
6.21	14.582	0.428	0.55	1.6	34.07	2.935	0.0	0.0	0.0	0
6.22	14.786	0.418	0.55	1.6	35.373	2.827	0.0	0.0	0.0	0
6.23	14.888	0.398	0.55	1.6	37.407	2.673	0.0	0.0	0.0	0
6.24	15.092	0.377	0.55	1.6	40.032	2.498	0.0	0.0	0.0	0
6.25	15.092	0.377	0.55	1.6	40.032	2.498	0.0	0.0	0.0	0
6.26	15.092	0.367	0.55	1.6	41.123	2.432	0.0	0.0	0.0	0
6.27	15.194	0.367	0.54	1.6	41.401	2.415	0.0	0.0	0.0	0
6.28	15.194	0.367	0.54	1.6	41.401	2.415	0.0	0.0	0.0	0
6.29	15.092	0.357	0.54	1.6	42.275	2.365	0.0	0.0	0.0	0
6.30	14.684	0.367	0.54	1.6	40.011	2.499	0.0	0.0	0.0	0
6.31	13.97	0.367	0.55	1.6	38.065	2.627	0.0	0.0	0.0	0
6.32	13.664	0.357	0.55	1.6	38.275	2.613	0.0	0.0	0.0	0
6.33	13.562	0.337	0.55	1.6	40.243	2.485	0.0	0.0	0.0	0
6.34	13.562	0.316	0.54	1.6	42.918	2.33	0.0	0.0	0.0	0
6.35	13.46	0.306	0.54	1.6	43.987	2.273	0.0	0.0	0.0	0
6.36	13.562	0.316	0.54	1.6	42.918	2.33	0.0	0.0	0.0	0
6.37	13.868	0.306	0.54	1.6	45.32	2.207	0.0	0.0	0.0	0
6.38	14.276	0.296	0.55	1.6	48.23	2.073	0.0	0.0	0.0	0
6.39	14.48	0.286	0.54	1.6	50.629	1.975	0.0	0.0	0.0	0
6.40	14.072	0.286	0.55	1.6	49.203	2.032	0.0	0.0	0.0	0
6.41	13.562	0.296	0.55	1.6	45.818	2.183	0.0	0.0	0.0	0
6.42	13.46	0.275	0.53	1.6	48.945	2.043	0.0	0.0	0.0	0
6.43	12.746	0.265	0.52	1.6	48.098	2.079	0.0	0.0	0.0	0
6.44	12.44	0.265	0.53	1.6	46.943	2.13	0.0	0.0	0.0	0
6.45	12.236	0.255	0.53	1.6	47.984	2.084	0.0	0.0	0.0	0
6.46	12.134	0.255	0.54	1.6	47.584	2.102	0.0	0.0	0.0	0
6.47	12.134	0.245	0.54	1.6	49.527	2.019	0.0	0.0	0.0	0
6.48	12.338	0.235	0.55	1.6	52.502	1.905	0.0	0.0	0.0	0
6.49	12.95	0.184	0.57	1.6	70.38	1.421	0.0	0.0	0.0	0
6.50	13.256	0.173	0.57	1.6	76.624	1.305	0.0	0.0	0.0	0
6.51	13.562	0.163	0.57	1.6	83.202	1.202	0.0	0.0	0.0	0
6.52	13.868	0.153	0.57	1.6	90.641	1.103	0.0	0.0	0.0	0
6.53	13.97	0.153	0.57	1.6	91.307	1.095	0.0	0.0	0.0	0
6.54	13.97	0.153	0.57	1.6	91.307	1.095	0.0	0.0	0.0	0
6.55	13.97	0.153	0.57	1.6	91.307	1.095	0.0	0.0	0.0	0
6.56	13.97	0.163	0.57	1.6	85.706	1.167	0.0	0.0	0.0	0
6.57	13.97	0.173	0.56	1.6	80.751	1.238	0.0	0.0	0.0	0
6.58	13.664	0.194	0.56	1.6	70.433	1.42	0.0	0.0	0.0	0
6.59	13.664	0.204	0.56	1.6	66.98	1.493	0.0	0.0	0.0	0
6.60	13.562	0.214	0.56	1.6	63.374	1.578	0.0	0.0	0.0	0
6.61	13.46	0.224	0.55	1.6	60.089	1.664	0.0	0.0	0.0	0
6.62	13.358	0.245	0.55	1.6	54.522	1.834	0.0	0.0	0.0	0
6.63	13.154	0.296	0.56	1.6	44.439	2.25	0.0	0.0	0.0	0
6.64	13.256	0.316	0.56	1.6	41.949	2.384	0.0	0.0	0.0	0
6.65	13.358	0.326	0.57	1.6	40.975	2.44	0.0	0.0	0.0	0
6.66	13.664	0.326	0.57	1.6	41.914	2.386	0.0	0.0	0.0	0
6.67	14.174	0.326	0.58	1.6	43.479	2.3	0.0	0.0	0.0	0
6.68	17.641	0.326	0.60	1.6	54.113	1.848	0.0	0.0	0.0	0
6.69	19.578	0.326	0.62	1.6	60.055	1.665	0.0	0.0	0.0	0
6.70	22.229	0.326	0.63	1.6	68.187	1.467	0.0	0.0	0.0	0
6.71	22.739	0.337	0.63	1.6	67.475	1.482	0.0	0.0	0.0	0
6.72	23.555	0.347	0.58	1.6	67.882	1.473	0.0	0.0	0.0	0
6.73	23.657	0.347	0.51	1.6	68.176	1.467	0.0	0.0	0.0	0
6.74	23.045	0.347	0.45	1.6	66.412	1.506	0.0	0.0	0.0	0
6.75	20.802	0.377	0.34	1.6	55.178	1.812	0.0	0.0	0.0	0
6.76	18.151	0.398	0.27	1.6	45.606	2.193	0.0	0.0	0.0	0
6.77	15.194	0.53	0.35	1.6	28.668	3.488	0.0	0.0	0.0	0
6.78	13.052	0.551	0.44	1.6	23.688	4.222	0.0	0.0	0.0	0
6.79	12.236	0.571	0.51	1.6	21.429	4.667	0.0	0.0	0.0	0
6.80	12.236	0.561	0.53	1.6	21.811	4.585	0.0	0.0	0.0	0
6.81	12.236	0.53	0.53	1.6	23.087	4.331	0.0	0.0	0.0	0
6.82	12.134	0.53	0.53	1.6	22.894	4.368	0.0	0.0	0.0	0
6.83	12.236	0.52	0.53	1.6	23.531	4.25	0.0	0.0	0.0	0
6.84	12.134	0.52	0.54	1.6	23.335	4.285	0.0	0.0	0.0	0
6.85	12.032	0.53	0.55	1.6	22.702	4.405	0.0	0.0	0.0	0
6.86	12.032	0.53	0.55	1.6	22.702	4.405	0.0	0.0	0.0	0

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6.87	12.032	0.53	0.55	1.6	22.702	4.405	0.0	0.0	0.0	0
6.88	13.052	0.367	0.57	1.6	35.564	2.812	0.0	0.0	0.0	0
6.89	13.052	0.357	0.58	1.6	36.56	2.735	0.0	0.0	0.0	0
6.90	13.052	0.316	0.60	1.6	41.304	2.421	0.0	0.0	0.0	0
6.91	13.052	0.296	0.62	1.6	44.095	2.268	0.0	0.0	0.0	0
6.92	13.256	0.286	0.62	1.6	46.35	2.158	0.0	0.0	0.0	0
6.93	13.46	0.286	0.62	1.6	47.063	2.125	0.0	0.0	0.0	0
6.94	13.562	0.286	0.63	1.6	47.42	2.109	0.0	0.0	0.0	0
6.95	13.664	0.286	0.65	1.6	47.776	2.093	0.0	0.0	0.0	0
6.96	13.664	0.275	0.65	1.6	49.687	2.013	0.0	0.0	0.0	0
6.97	13.664	0.265	0.65	1.6	51.562	1.939	0.0	0.0	0.0	0
6.98	13.766	0.255	0.64	1.6	53.984	1.852	0.0	0.0	0.0	0
6.99	13.868	0.255	0.64	1.6	54.384	1.839	0.0	0.0	0.0	0
7.00	13.766	0.275	0.66	1.6	50.058	1.998	0.0	0.0	0.0	0
7.01	14.072	0.265	0.67	1.6	53.102	1.883	0.0	0.0	0.0	0
7.02	14.48	0.255	0.70	1.6	56.784	1.761	0.0	0.0	0.0	0
7.03	14.786	0.255	0.78	1.6	57.984	1.725	0.0	0.0	0.0	0
7.04	15.295	0.235	0.96	1.6	65.085	1.536	0.0	0.0	0.0	0
7.05	16.213	0.194	1.26	1.6	83.572	1.197	0.0	0.0	0.0	0
7.06	16.315	0.173	1.22	1.6	94.306	1.06	0.0	0.0	0.0	0
7.07	16.213	0.173	1.17	1.6	93.717	1.067	0.0	0.0	0.0	0
7.08	15.805	0.173	1.15	1.6	91.358	1.095	0.0	0.0	0.0	0
7.09	15.397	0.173	1.11	1.6	89.0	1.124	0.0	0.0	0.0	0
7.10	14.582	0.194	1.09	1.6	75.165	1.33	0.0	0.0	0.0	0
7.11	14.174	0.194	1.11	1.6	73.062	1.369	0.0	0.0	0.0	0
7.12	13.766	0.194	1.14	1.6	70.959	1.409	0.0	0.0	0.0	0
7.13	13.562	0.173	1.17	1.6	78.393	1.276	0.0	0.0	0.0	0
7.14	13.46	0.163	1.20	1.6	82.577	1.211	0.0	0.0	0.0	0
7.15	13.664	0.143	1.28	1.6	95.552	1.047	0.0	0.0	0.0	0
7.16	13.766	0.143	1.32	1.6	96.266	1.039	0.0	0.0	0.0	0
7.17	13.868	0.143	1.34	1.6	96.979	1.031	0.0	0.0	0.0	0
7.18	14.174	0.143	1.35	1.6	99.119	1.009	0.0	0.0	0.0	0
7.19	14.276	0.153	1.34	1.6	93.307	1.072	0.0	0.0	0.0	0
7.20	14.174	0.173	1.34	1.6	81.931	1.221	0.0	0.0	0.0	0
7.21	14.174	0.163	1.33	1.6	86.957	1.15	0.0	0.0	0.0	0
7.22	14.072	0.163	1.34	1.6	86.331	1.158	0.0	0.0	0.0	0
7.23	14.174	0.163	1.30	1.6	86.957	1.15	0.0	0.0	0.0	0
7.24	14.072	0.163	1.29	1.6	86.331	1.158	0.0	0.0	0.0	0
7.25	13.664	0.184	1.32	1.6	74.261	1.347	0.0	0.0	0.0	0
7.26	13.766	0.184	1.31	1.6	74.815	1.337	0.0	0.0	0.0	0
7.27	13.868	0.194	1.31	1.6	71.485	1.399	0.0	0.0	0.0	0
7.28	13.766	0.204	1.31	1.6	67.48	1.482	0.0	0.0	0.0	0
7.29	13.664	0.214	1.32	1.6	63.85	1.566	0.0	0.0	0.0	0
7.30	13.256	0.224	1.32	1.6	59.179	1.69	0.0	0.0	0.0	0
7.31	13.052	0.224	1.32	1.6	58.268	1.716	0.0	0.0	0.0	0
7.32	12.95	0.224	1.31	1.6	57.813	1.73	0.0	0.0	0.0	0
7.33	12.95	0.224	1.32	1.6	57.813	1.73	0.0	0.0	0.0	0
7.34	13.052	0.224	1.31	1.6	58.268	1.716	0.0	0.0	0.0	0
7.35	13.46	0.224	1.33	1.6	60.089	1.664	0.0	0.0	0.0	0
7.36	13.46	0.224	1.33	1.6	60.089	1.664	0.0	0.0	0.0	0
7.37	14.072	0.204	1.34	1.6	68.98	1.45	0.0	0.0	0.0	0
7.38	14.378	0.194	1.34	1.6	74.113	1.349	0.0	0.0	0.0	0
7.39	14.582	0.194	1.35	1.6	75.165	1.33	0.0	0.0	0.0	0
7.40	14.888	0.194	1.32	1.6	76.742	1.303	0.0	0.0	0.0	0
7.41	14.888	0.194	1.31	1.6	76.742	1.303	0.0	0.0	0.0	0
7.42	14.786	0.204	1.30	1.6	72.48	1.38	0.0	0.0	0.0	0
7.43	14.684	0.214	1.28	1.6	68.617	1.457	0.0	0.0	0.0	0
7.44	14.48	0.224	1.26	1.6	64.643	1.547	0.0	0.0	0.0	0
7.45	14.072	0.265	1.25	1.5	53.102	1.883	0.0	0.0	0.0	0
7.46	13.97	0.286	1.25	1.5	48.846	2.047	0.0	0.0	0.0	0
7.47	13.868	0.306	1.25	1.5	45.32	2.207	0.0	0.0	0.0	0
7.48	13.868	0.326	1.24	1.5	42.54	2.351	0.0	0.0	0.0	0
7.49	13.766	0.347	1.24	1.6	39.671	2.521	0.0	0.0	0.0	0
7.50	13.766	0.377	1.23	1.6	36.515	2.739	0.0	0.0	0.0	0
7.51	13.766	0.387	1.22	1.5	35.571	2.811	0.0	0.0	0.0	0
7.52	13.766	0.408	1.22	1.5	33.74	2.964	0.0	0.0	0.0	0
7.53	13.664	0.428	1.21	1.5	31.925	3.132	0.0	0.0	0.0	0
7.54	13.664	0.438	1.22	1.5	31.196	3.206	0.0	0.0	0.0	0
7.55	13.358	0.438	1.22	1.5	30.498	3.279	0.0	0.0	0.0	0
7.56	13.46	0.438	1.22	1.5	30.731	3.254	0.0	0.0	0.0	0
7.57	13.562	0.438	1.22	1.5	30.963	3.23	0.0	0.0	0.0	0
7.58	13.562	0.428	1.22	1.5	31.687	3.156	0.0	0.0	0.0	0
7.59	13.766	0.428	1.23	1.5	32.164	3.109	0.0	0.0	0.0	0
7.60	13.97	0.418	1.26	1.5	33.421	2.992	0.0	0.0	0.0	0
7.61	14.276	0.408	1.29	1.5	34.99	2.858	0.0	0.0	0.0	0

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7.62	14.48	0.398	1.30	1.5	36.382	2.749	0.0	0.0	0.0	0
7.63	14.582	0.387	1.32	1.5	37.68	2.654	0.0	0.0	0.0	0
7.64	14.684	0.377	1.33	1.5	38.95	2.567	0.0	0.0	0.0	0
7.65	14.786	0.347	1.32	1.5	42.611	2.347	0.0	0.0	0.0	0
7.66	14.888	0.347	1.33	1.5	42.905	2.331	0.0	0.0	0.0	0
7.67	14.684	0.337	1.31	1.5	43.573	2.295	0.0	0.0	0.0	0
7.68	14.786	0.337	1.28	1.5	43.875	2.279	0.0	0.0	0.0	0
7.69	14.684	0.347	1.28	1.5	42.317	2.363	0.0	0.0	0.0	0
7.70	14.684	0.357	1.25	1.5	41.132	2.431	0.0	0.0	0.0	0
7.71	14.378	0.377	1.26	1.5	38.138	2.622	0.0	0.0	0.0	0
7.72	14.378	0.387	1.26	1.5	37.152	2.692	0.0	0.0	0.0	0
7.73	14.378	0.387	1.24	1.5	37.152	2.692	0.0	0.0	0.0	0
7.74	13.97	0.418	1.24	1.5	33.421	2.992	0.0	0.0	0.0	0
7.75	13.766	0.438	1.25	1.5	31.429	3.182	0.0	0.0	0.0	0
7.76	13.664	0.449	1.24	1.5	30.432	3.286	0.0	0.0	0.0	0
7.77	13.562	0.449	1.22	1.5	30.205	3.311	0.0	0.0	0.0	0
7.78	13.256	0.459	1.20	1.5	28.88	3.463	0.0	0.0	0.0	0
7.79	12.644	0.489	1.20	1.5	25.857	3.867	0.0	0.0	0.0	0
7.80	12.44	0.5	1.20	1.5	24.88	4.019	0.0	0.0	0.0	0
7.81	12.236	0.489	1.19	1.5	25.022	3.996	0.0	0.0	0.0	0
7.82	12.236	0.469	1.19	1.6	26.09	3.833	0.0	0.0	0.0	0
7.83	12.236	0.459	1.19	1.5	26.658	3.751	0.0	0.0	0.0	0
7.84	12.134	0.428	1.19	1.5	28.35	3.527	0.0	0.0	0.0	0
7.85	12.032	0.408	1.20	1.5	29.49	3.391	0.0	0.0	0.0	0
7.86	12.032	0.408	1.20	1.5	29.49	3.391	0.0	0.0	0.0	0
7.87	12.032	0.408	1.20	1.5	29.49	3.391	0.0	0.0	0.0	0
7.88	12.848	0.235	1.15	1.5	54.672	1.829	0.0	0.0	0.0	0
7.89	12.848	0.235	1.14	1.5	54.672	1.829	0.0	0.0	0.0	0
7.90	12.746	0.224	1.13	1.5	56.902	1.757	0.0	0.0	0.0	0
7.91	12.542	0.214	1.15	1.5	58.607	1.706	0.0	0.0	0.0	0
7.92	12.44	0.204	1.16	1.5	60.98	1.64	0.0	0.0	0.0	0
7.93	12.44	0.194	1.16	1.5	64.124	1.559	0.0	0.0	0.0	0
7.94	12.644	0.184	1.16	1.5	68.717	1.455	0.0	0.0	0.0	0
7.95	12.746	0.173	1.15	1.5	73.676	1.357	0.0	0.0	0.0	0
7.96	13.052	0.163	1.12	1.5	80.074	1.249	0.0	0.0	0.0	0
7.97	12.95	0.173	1.12	1.5	74.855	1.336	0.0	0.0	0.0	0
7.98	12.848	0.184	1.12	1.5	69.826	1.432	0.0	0.0	0.0	0
7.99	12.746	0.194	1.11	1.5	65.701	1.522	0.0	0.0	0.0	0
8.00	12.644	0.194	1.12	1.5	65.175	1.534	0.0	0.0	0.0	0
8.01	12.644	0.214	1.13	1.5	59.084	1.693	0.0	0.0	0.0	0
8.02	12.644	0.224	1.13	1.5	56.446	1.772	0.0	0.0	0.0	0
8.03	12.644	0.224	1.14	1.5	56.446	1.772	0.0	0.0	0.0	0
8.04	12.644	0.224	1.14	1.5	56.446	1.772	0.0	0.0	0.0	0
8.05	12.542	0.224	1.15	1.5	55.991	1.786	0.0	0.0	0.0	0
8.06	12.542	0.224	1.15	1.5	55.991	1.786	0.0	0.0	0.0	0
8.07	12.542	0.224	1.17	1.5	55.991	1.786	0.0	0.0	0.0	0
8.08	12.644	0.214	1.17	1.5	59.084	1.693	0.0	0.0	0.0	0
8.09	12.644	0.204	1.17	1.5	61.98	1.613	0.0	0.0	0.0	0
8.10	12.746	0.204	1.18	1.5	62.48	1.601	0.0	0.0	0.0	0
8.11	12.848	0.194	1.18	1.5	66.227	1.51	0.0	0.0	0.0	0
8.12	12.95	0.184	1.18	1.5	70.38	1.421	0.0	0.0	0.0	0
8.13	13.052	0.163	1.19	1.5	80.074	1.249	0.0	0.0	0.0	0
8.14	13.154	0.153	1.20	1.5	85.974	1.163	0.0	0.0	0.0	0
8.15	13.664	0.153	1.21	1.5	89.307	1.12	0.0	0.0	0.0	0
8.16	13.562	0.153	1.21	1.5	88.641	1.128	0.0	0.0	0.0	0
8.17	13.256	0.153	1.22	1.5	86.641	1.154	0.0	0.0	0.0	0
8.18	13.358	0.153	1.23	1.5	87.307	1.145	0.0	0.0	0.0	0
8.19	13.358	0.153	1.25	1.5	87.307	1.145	0.0	0.0	0.0	0
8.20	13.46	0.153	1.29	1.5	87.974	1.137	0.0	0.0	0.0	0
8.21	13.562	0.153	1.31	1.5	88.641	1.128	0.0	0.0	0.0	0
8.22	13.868	0.143	1.32	1.5	96.979	1.031	0.0	0.0	0.0	0
8.23	13.97	0.143	1.32	1.5	97.692	1.024	0.0	0.0	0.0	0
8.24	14.072	0.143	1.33	1.5	98.406	1.016	0.0	0.0	0.0	0
8.25	14.174	0.143	1.34	1.5	99.119	1.009	0.0	0.0	0.0	0
8.26	14.276	0.153	1.35	1.5	93.307	1.072	0.0	0.0	0.0	0
8.27	14.378	0.153	1.37	1.5	93.974	1.064	0.0	0.0	0.0	0
8.28	14.378	0.153	1.38	1.5	93.974	1.064	0.0	0.0	0.0	0
8.29	14.378	0.153	1.38	1.5	93.974	1.064	0.0	0.0	0.0	0
8.30	14.378	0.153	1.37	1.5	93.974	1.064	0.0	0.0	0.0	0
8.31	14.276	0.143	1.37	1.5	99.832	1.002	0.0	0.0	0.0	0
8.32	13.97	0.153	1.38	1.5	91.307	1.095	0.0	0.0	0.0	0
8.33	13.97	0.153	1.38	1.5	91.307	1.095	0.0	0.0	0.0	0
8.34	13.97	0.143	1.38	1.5	97.692	1.024	0.0	0.0	0.0	0
8.35	13.868	0.153	1.38	1.5	90.641	1.103	0.0	0.0	0.0	0
8.36	13.868	0.153	1.38	1.5	90.641	1.103	0.0	0.0	0.0	0

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8.37	13.868	0.163	1.37	1.5	85.08	1.175	0.0	0.0	0.0	0
8.38	13.766	0.163	1.38	1.5	84.454	1.184	0.0	0.0	0.0	0
8.39	13.766	0.173	1.38	1.5	79.572	1.257	0.0	0.0	0.0	0
8.40	13.766	0.173	1.37	1.5	79.572	1.257	0.0	0.0	0.0	0
8.41	13.868	0.173	1.37	1.5	80.162	1.247	0.0	0.0	0.0	0
8.42	13.766	0.184	1.38	1.5	74.815	1.337	0.0	0.0	0.0	0
8.43	13.868	0.194	1.37	1.5	71.485	1.399	0.0	0.0	0.0	0
8.44	13.868	0.194	1.37	1.5	71.485	1.399	0.0	0.0	0.0	0
8.45	13.868	0.194	1.38	1.5	71.485	1.399	0.0	0.0	0.0	0
8.46	13.97	0.204	1.39	1.5	68.48	1.46	0.0	0.0	0.0	0
8.47	14.378	0.204	1.40	1.5	70.48	1.419	0.0	0.0	0.0	0
8.48	14.582	0.204	1.41	1.5	71.48	1.399	0.0	0.0	0.0	0
8.49	14.684	0.214	1.42	1.5	68.617	1.457	0.0	0.0	0.0	0
8.50	14.684	0.214	1.42	1.5	68.617	1.457	0.0	0.0	0.0	0
8.51	14.786	0.204	1.41	1.5	72.48	1.38	0.0	0.0	0.0	0
8.52	14.786	0.204	1.40	1.5	72.48	1.38	0.0	0.0	0.0	0
8.53	14.582	0.214	1.41	1.5	68.14	1.468	0.0	0.0	0.0	0
8.54	14.582	0.214	1.40	1.5	68.14	1.468	0.0	0.0	0.0	0
8.55	14.684	0.214	1.39	1.5	68.617	1.457	0.0	0.0	0.0	0
8.56	14.378	0.224	1.42	1.5	64.188	1.558	0.0	0.0	0.0	0
8.57	14.48	0.224	1.44	1.5	64.643	1.547	0.0	0.0	0.0	0
8.58	14.684	0.224	1.44	1.5	65.554	1.525	0.0	0.0	0.0	0
8.59	14.786	0.214	1.45	1.5	69.093	1.447	0.0	0.0	0.0	0
8.60	14.786	0.224	1.48	1.5	66.009	1.515	0.0	0.0	0.0	0
8.61	15.092	0.224	1.50	1.5	67.375	1.484	0.0	0.0	0.0	0
8.62	15.397	0.224	1.50	1.5	68.737	1.455	0.0	0.0	0.0	0
8.63	15.601	0.224	1.50	1.5	69.647	1.436	0.0	0.0	0.0	0
8.64	15.907	0.235	1.51	1.5	67.689	1.477	0.0	0.0	0.0	0
8.65	16.111	0.235	1.53	1.5	68.557	1.459	0.0	0.0	0.0	0
8.66	16.723	0.245	1.53	1.5	68.257	1.465	0.0	0.0	0.0	0
8.67	17.029	0.255	1.52	1.5	66.78	1.497	0.0	0.0	0.0	0
8.68	17.335	0.265	1.53	1.5	65.415	1.529	0.0	0.0	0.0	0
8.69	17.029	0.265	1.53	1.5	64.26	1.556	0.0	0.0	0.0	0
8.70	17.029	0.275	1.55	1.5	61.924	1.615	0.0	0.0	0.0	0
8.71	16.927	0.296	1.50	1.5	57.186	1.749	0.0	0.0	0.0	0
8.72	16.825	0.316	1.51	1.5	53.244	1.878	0.0	0.0	0.0	0
8.73	16.723	0.326	1.52	1.5	51.298	1.949	0.0	0.0	0.0	0
8.74	16.825	0.337	1.53	1.5	49.926	2.003	0.0	0.0	0.0	0
8.75	16.825	0.347	1.53	1.5	48.487	2.062	0.0	0.0	0.0	0
8.76	16.825	0.377	1.54	1.5	44.629	2.241	0.0	0.0	0.0	0
8.77	16.723	0.387	1.54	1.5	43.212	2.314	0.0	0.0	0.0	0
8.78	16.723	0.398	1.55	1.5	42.018	2.38	0.0	0.0	0.0	0
8.79	17.029	0.408	1.57	1.5	41.738	2.396	0.0	0.0	0.0	0
8.80	17.131	0.428	1.61	1.5	40.026	2.498	0.0	0.0	0.0	0
8.81	17.131	0.428	1.62	1.5	40.026	2.498	0.0	0.0	0.0	0
8.82	17.131	0.418	1.60	1.5	40.983	2.44	0.0	0.0	0.0	0
8.83	17.029	0.418	1.59	1.5	40.739	2.455	0.0	0.0	0.0	0
8.84	16.927	0.408	1.59	1.5	41.488	2.41	0.0	0.0	0.0	0
8.85	16.825	0.408	1.58	1.5	41.238	2.425	0.0	0.0	0.0	0
8.86	16.825	0.408	1.58	1.5	41.238	2.425	0.0	0.0	0.0	0
8.87	16.825	0.408	1.58	1.5	41.238	2.425	0.0	0.0	0.0	0
8.88	18.661	0.316	1.45	1.5	59.054	1.693	0.0	0.0	0.0	0
8.89	18.762	0.326	1.47	1.5	57.552	1.738	0.0	0.0	0.0	0
8.90	18.559	0.347	1.51	1.5	53.484	1.87	0.0	0.0	0.0	0
8.91	17.947	0.347	1.49	1.5	51.72	1.933	0.0	0.0	0.0	0
8.92	17.641	0.337	1.45	1.5	52.347	1.91	0.0	0.0	0.0	0
8.93	17.437	0.337	1.41	1.5	51.742	1.933	0.0	0.0	0.0	0
8.94	17.335	0.337	1.37	1.5	51.439	1.944	0.0	0.0	0.0	0
8.95	17.233	0.367	1.35	1.5	46.956	2.13	0.0	0.0	0.0	0
8.96	16.825	0.408	1.52	1.5	41.238	2.425	0.0	0.0	0.0	0
8.97	17.335	0.387	1.56	1.5	44.793	2.232	0.0	0.0	0.0	0
8.98	18.253	0.347	1.58	1.5	52.602	1.901	0.0	0.0	0.0	0
8.99	19.068	0.337	1.61	1.5	56.582	1.767	0.0	0.0	0.0	0
9.00	21.108	0.316	1.56	1.5	66.797	1.497	0.0	0.0	0.0	0
9.01	21.414	0.316	1.55	1.5	67.766	1.476	0.0	0.0	0.0	0
9.02	21.108	0.316	1.56	1.5	66.797	1.497	0.0	0.0	0.0	0
9.03	20.394	0.316	1.54	1.5	64.538	1.549	0.0	0.0	0.0	0
9.04	19.374	0.306	1.49	1.5	63.314	1.579	0.0	0.0	0.0	0
9.05	17.947	0.296	1.53	1.4	60.632	1.649	0.0	0.0	0.0	0
9.06	17.743	0.286	1.53	1.4	62.038	1.612	0.0	0.0	0.0	0
9.07	17.437	0.286	1.55	1.4	60.969	1.64	0.0	0.0	0.0	0
9.08	16.927	0.275	1.60	1.4	61.553	1.625	0.0	0.0	0.0	0
9.09	16.315	0.265	1.67	1.5	61.566	1.624	0.0	0.0	0.0	0
9.10	15.194	0.214	1.74	1.4	71.0	1.408	0.0	0.0	0.0	0
9.11	14.786	0.204	1.73	1.5	72.48	1.38	0.0	0.0	0.0	0

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9.12	14.48	0.204	1.67	1.5	70.98	1.409	0.0	0.0	0.0	0
9.13	14.072	0.194	1.64	1.4	72.536	1.379	0.0	0.0	0.0	0
9.14	13.664	0.184	1.64	1.5	74.261	1.347	0.0	0.0	0.0	0
9.15	13.154	0.163	1.67	1.5	80.699	1.239	0.0	0.0	0.0	0
9.16	12.848	0.143	1.70	1.5	89.846	1.113	0.0	0.0	0.0	0
9.17	12.542	0.122	1.70	1.5	102.803	0.973	0.0	0.0	0.0	0
9.18	12.44	0.122	1.69	1.5	101.967	0.981	0.0	0.0	0.0	0
9.19	12.44	0.122	1.69	1.5	101.967	0.981	0.0	0.0	0.0	0
9.20	12.44	0.112	1.73	1.5	111.071	0.9	0.0	0.0	0.0	0
9.21	12.44	0.112	1.73	1.5	111.071	0.9	0.0	0.0	0.0	0
9.22	12.338	0.102	1.74	1.5	120.961	0.827	0.0	0.0	0.0	0
9.23	12.338	0.092	1.77	1.5	134.109	0.746	0.0	0.0	0.0	0
9.24	12.338	0.092	1.82	1.5	134.109	0.746	0.0	0.0	0.0	0
9.25	12.848	0.092	1.87	1.5	139.652	0.716	0.0	0.0	0.0	0
9.26	13.154	0.092	1.90	1.5	142.978	0.699	0.0	0.0	0.0	0
9.27	13.46	0.092	1.94	1.5	146.304	0.684	0.0	0.0	0.0	0
9.28	13.766	0.092	1.95	1.5	149.63	0.668	0.0	0.0	0.0	0
9.29	14.072	0.092	1.97	1.5	152.957	0.654	0.0	0.0	0.0	0
9.30	14.582	0.102	1.98	1.5	142.961	0.699	0.0	0.0	0.0	0
9.31	14.786	0.102	1.99	1.5	144.961	0.69	0.0	0.0	0.0	0
9.32	14.99	0.112	2.00	1.5	133.839	0.747	0.0	0.0	0.0	0
9.33	15.194	0.122	2.02	1.5	124.541	0.803	0.0	0.0	0.0	0
9.34	15.499	0.122	2.07	1.5	127.041	0.787	0.0	0.0	0.0	0
9.35	16.417	0.133	2.14	1.5	123.436	0.81	0.0	0.0	0.0	0
9.36	16.417	0.133	2.15	1.5	123.436	0.81	0.0	0.0	0.0	0
9.37	16.621	0.133	2.17	1.5	124.97	0.8	0.0	0.0	0.0	0
9.38	16.825	0.143	2.18	1.5	117.657	0.85	0.0	0.0	0.0	0
9.39	17.539	0.153	2.23	1.5	114.634	0.872	0.0	0.0	0.0	0
9.40	17.947	0.153	2.19	1.5	117.301	0.853	0.0	0.0	0.0	0
9.41	17.947	0.163	2.22	1.5	110.104	0.908	0.0	0.0	0.0	0
9.42	18.151	0.173	2.20	1.5	104.919	0.953	0.0	0.0	0.0	0
9.43	18.559	0.184	2.15	1.5	100.864	0.991	0.0	0.0	0.0	0
9.44	18.355	0.235	2.17	1.5	78.106	1.28	0.0	0.0	0.0	0
9.45	18.457	0.265	2.18	1.5	69.649	1.436	0.0	0.0	0.0	0
9.46	18.661	0.296	2.23	1.5	63.044	1.586	0.0	0.0	0.0	0
9.47	18.864	0.316	2.22	1.5	59.696	1.675	0.0	0.0	0.0	0
9.48	18.966	0.337	2.25	1.5	56.279	1.777	0.0	0.0	0.0	0
9.49	19.17	0.387	2.34	1.5	49.535	2.019	0.0	0.0	0.0	0
9.50	19.476	0.408	2.28	1.5	47.735	2.095	0.0	0.0	0.0	0
9.51	19.578	0.428	2.31	1.5	45.743	2.186	0.0	0.0	0.0	0
9.52	19.578	0.469	2.35	1.5	41.744	2.396	0.0	0.0	0.0	0
9.53	19.884	0.479	2.36	1.5	41.511	2.409	0.0	0.0	0.0	0
9.54	20.394	0.52	2.38	1.5	39.219	2.55	0.0	0.0	0.0	0
9.55	20.598	0.53	2.43	1.5	38.864	2.573	0.0	0.0	0.0	0
9.56	20.904	0.54	2.46	1.5	38.711	2.583	0.0	0.0	0.0	0
9.57	21.21	0.54	2.45	1.5	39.278	2.546	0.0	0.0	0.0	0
9.58	21.516	0.53	2.44	1.5	40.596	2.463	0.0	0.0	0.0	0
9.59	22.026	0.52	2.44	1.5	42.358	2.361	0.0	0.0	0.0	0
9.60	22.229	0.53	2.44	1.5	41.942	2.384	0.0	0.0	0.0	0
9.61	22.331	0.551	2.43	1.5	40.528	2.467	0.0	0.0	0.0	0
9.62	22.331	0.561	2.45	1.5	39.806	2.512	0.0	0.0	0.0	0
9.63	22.433	0.602	2.50	1.5	37.264	2.684	0.0	0.0	0.0	0
9.64	22.433	0.622	2.52	1.5	36.066	2.773	0.0	0.0	0.0	0
9.65	22.535	0.632	2.49	1.5	35.657	2.805	0.0	0.0	0.0	0
9.66	22.331	0.642	2.48	1.5	34.783	2.875	0.0	0.0	0.0	0
9.67	22.026	0.673	2.50	1.5	32.728	3.055	0.0	0.0	0.0	0
9.68	21.618	0.693	2.53	1.5	31.195	3.206	0.0	0.0	0.0	0
9.69	21.618	0.704	2.52	1.5	30.707	3.257	0.0	0.0	0.0	0
9.70	21.516	0.714	2.51	1.5	30.134	3.318	0.0	0.0	0.0	0
9.71	21.312	0.724	2.52	1.5	29.436	3.397	0.0	0.0	0.0	0
9.72	21.21	0.734	2.53	1.5	28.896	3.461	0.0	0.0	0.0	0
9.73	21.006	0.744	2.65	1.5	28.234	3.542	0.0	0.0	0.0	0
9.74	21.006	0.744	2.67	1.5	28.234	3.542	0.0	0.0	0.0	0
9.75	21.21	0.734	2.65	1.5	28.896	3.461	0.0	0.0	0.0	0
9.76	21.312	0.714	2.56	1.5	29.849	3.35	0.0	0.0	0.0	0
9.77	21.516	0.714	2.47	1.5	30.134	3.318	0.0	0.0	0.0	0
9.78	21.312	0.734	2.52	1.5	29.035	3.444	0.0	0.0	0.0	0
9.79	21.006	0.744	2.60	1.5	28.234	3.542	0.0	0.0	0.0	0
9.80	21.516	0.755	2.73	1.5	28.498	3.509	0.0	0.0	0.0	0
9.81	22.127	0.755	2.77	1.5	29.307	3.412	0.0	0.0	0.0	0
9.82	23.147	0.734	2.85	1.5	31.535	3.171	0.0	0.0	0.0	0
9.83	24.065	0.724	2.89	1.5	33.239	3.009	0.0	0.0	0.0	0
9.84	23.963	0.704	2.94	1.5	34.038	2.938	0.0	0.0	0.0	0
9.85	23.249	0.693	3.07	1.5	33.548	2.981	0.0	0.0	0.0	0
9.86	23.249	0.693	3.07	1.5	33.548	2.981	0.0	0.0	0.0	0

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9.87	23.249	0.693	3.07	1.5	33.548	2.981	0.0	0.0	0.0	0
9.88	22.841	0.734	2.33	1.5	31.119	3.214	0.0	0.0	0.0	0
9.89	23.147	0.795	2.46	1.5	29.116	3.435	0.0	0.0	0.0	0
9.90	22.433	0.806	2.70	1.5	27.833	3.593	0.0	0.0	0.0	0
9.91	22.229	0.795	2.68	1.5	27.961	3.576	0.0	0.0	0.0	0
9.92	21.924	0.795	2.70	1.5	27.577	3.626	0.0	0.0	0.0	0
9.93	21.924	0.795	2.74	1.5	27.577	3.626	0.0	0.0	0.0	0
9.94	21.822	0.795	2.76	1.5	27.449	3.643	0.0	0.0	0.0	0
9.95	21.72	0.785	2.76	1.5	27.669	3.614	0.0	0.0	0.0	0
9.96	21.822	0.795	2.78	1.5	27.449	3.643	0.0	0.0	0.0	0
9.97	22.026	0.806	2.91	1.5	27.328	3.659	0.0	0.0	0.0	0
9.98	22.127	0.806	2.89	1.5	27.453	3.643	0.0	0.0	0.0	0
9.99	22.331	0.816	2.99	1.5	27.366	3.654	0.0	0.0	0.0	0
10.00	22.433	0.806	3.10	1.5	27.833	3.593	0.0	0.0	0.0	0
10.01	23.147	0.785	3.33	1.5	29.487	3.391	0.0	0.0	0.0	0
10.02	23.453	0.744	3.41	1.5	31.523	3.172	0.0	0.0	0.0	0
10.03	23.963	0.724	3.44	1.5	33.098	3.021	0.0	0.0	0.0	0
10.04	25.696	0.714	3.52	1.5	35.989	2.779	0.0	0.0	0.0	0
10.05	27.022	0.714	3.52	1.5	37.846	2.642	0.0	0.0	0.0	0
10.06	23.861	0.704	3.46	1.5	33.893	2.95	0.0	0.0	0.0	0
10.07	23.963	0.714	3.63	1.5	33.562	2.98	0.0	0.0	0.0	0
10.08	24.167	0.704	3.75	1.5	34.328	2.913	0.0	0.0	0.0	0
10.09	24.575	0.693	3.72	1.5	35.462	2.82	0.0	0.0	0.0	0
10.10	24.575	0.693	3.78	1.5	35.462	2.82	0.0	0.0	0.0	0
10.11	24.167	0.683	3.98	1.5	35.384	2.826	0.0	0.0	0.0	0
10.12	24.473	0.683	4.02	1.5	35.832	2.791	0.0	0.0	0.0	0
10.13	24.677	0.663	4.08	1.5	37.22	2.687	0.0	0.0	0.0	0
10.14	24.881	0.642	4.19	1.5	38.755	2.58	0.0	0.0	0.0	0
10.15	24.983	0.632	4.28	1.5	39.53	2.53	0.0	0.0	0.0	0
10.16	25.798	0.612	4.28	1.5	42.154	2.372	0.0	0.0	0.0	0
10.17	25.9	0.612	4.33	1.5	42.32	2.363	0.0	0.0	0.0	0
10.18	25.9	0.612	4.39	1.5	42.32	2.363	0.0	0.0	0.0	0
10.19	25.9	0.612	4.43	1.5	42.32	2.363	0.0	0.0	0.0	0
10.20	26.41	0.612	4.42	1.5	43.154	2.317	0.0	0.0	0.0	0
10.21	26.002	0.612	4.45	1.5	42.487	2.354	0.0	0.0	0.0	0
10.22	25.391	0.622	4.63	1.5	40.822	2.45	0.0	0.0	0.0	0
10.23	25.594	0.632	4.70	1.5	40.497	2.469	0.0	0.0	0.0	0
10.24	25.798	0.622	4.71	1.5	41.476	2.411	0.0	0.0	0.0	0
10.25	25.9	0.632	4.86	1.5	40.981	2.44	0.0	0.0	0.0	0
10.26	26.104	0.632	5.02	1.5	41.304	2.421	0.0	0.0	0.0	0
10.27	26.92	0.632	5.08	1.5	42.595	2.348	0.0	0.0	0.0	0
10.28	27.634	0.632	5.04	1.5	43.725	2.287	0.0	0.0	0.0	0
10.29	28.042	0.642	5.22	1.5	43.679	2.289	0.0	0.0	0.0	0
10.30	28.858	0.653	5.56	1.5	44.193	2.263	0.0	0.0	0.0	0
10.31	29.979	0.642	5.46	1.5	46.696	2.141	0.0	0.0	0.0	0
10.32	28.858	0.632	5.26	1.5	45.661	2.19	0.0	0.0	0.0	0
10.33	28.654	0.653	5.16	1.5	43.881	2.279	0.0	0.0	0.0	0
10.34	28.042	0.673	5.23	1.5	41.667	2.4	0.0	0.0	0.0	0
10.35	28.042	0.693	5.32	1.5	40.465	2.471	0.0	0.0	0.0	0
10.36	27.736	0.683	5.31	1.5	40.609	2.463	0.0	0.0	0.0	0
10.37	27.838	0.704	5.44	1.5	39.543	2.529	0.0	0.0	0.0	0
10.38	27.43	0.704	5.63	1.5	38.963	2.567	0.0	0.0	0.0	0
10.39	27.226	0.704	5.85	1.5	38.673	2.586	0.0	0.0	0.0	0
10.40	27.736	0.673	5.86	1.5	41.212	2.426	0.0	0.0	0.0	0
10.41	27.94	0.673	5.82	1.5	41.516	2.409	0.0	0.0	0.0	0
10.42	28.042	0.673	5.92	1.5	41.667	2.4	0.0	0.0	0.0	0
10.43	28.144	0.683	6.02	1.5	41.206	2.427	0.0	0.0	0.0	0
10.44	28.654	0.693	5.89	1.5	41.348	2.419	0.0	0.0	0.0	0
10.45	28.959	0.693	5.65	1.5	41.788	2.393	0.0	0.0	0.0	0
10.46	29.061	0.714	5.51	1.5	40.702	2.457	0.0	0.0	0.0	0
10.47	28.552	0.744	5.51	1.5	38.376	2.606	0.0	0.0	0.0	0
10.48	28.348	0.755	5.68	1.5	37.547	2.663	0.0	0.0	0.0	0
10.49	28.45	0.775	5.89	1.5	36.71	2.724	0.0	0.0	0.0	0
10.50	28.552	0.785	5.90	1.5	36.372	2.749	0.0	0.0	0.0	0
10.51	28.858	0.806	5.82	1.5	35.804	2.793	0.0	0.0	0.0	0
10.52	29.061	0.826	5.82	1.5	35.183	2.842	0.0	0.0	0.0	0
10.53	28.959	0.867	6.03	1.5	33.401	2.994	0.0	0.0	0.0	0
10.54	29.265	0.918	6.21	1.5	31.879	3.137	0.0	0.0	0.0	0
10.55	29.469	0.918	6.14	1.5	32.101	3.115	0.0	0.0	0.0	0
10.56	29.571	0.938	6.28	1.5	31.526	3.172	0.0	0.0	0.0	0
10.57	29.673	0.938	6.07	1.5	31.634	3.161	0.0	0.0	0.0	0
10.58	29.979	0.979	5.75	1.5	30.622	3.266	0.0	0.0	0.0	0
10.59	29.775	1.02	5.86	1.5	29.191	3.426	0.0	0.0	0.0	0
10.60	29.469	1.06	6.11	1.5	27.801	3.597	0.0	0.0	0.0	0
10.61	29.367	1.081	6.05	1.5	27.167	3.681	0.0	0.0	0.0	0

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10.62	29.163	1.101	6.12	1.5	26.488	3.775	0.0	0.0	0.0	0
10.63	29.163	1.122	5.76	1.5	25.992	3.847	0.0	0.0	0.0	0
10.64	29.163	1.142	5.59	1.5	25.537	3.916	0.0	0.0	0.0	0
10.65	28.858	1.183	5.63	1.5	24.394	4.099	0.0	0.0	0.0	0
10.66	28.756	1.224	5.80	1.5	23.493	4.257	0.0	0.0	0.0	0
10.67	28.756	1.254	5.64	1.5	22.931	4.361	0.0	0.0	0.0	0
10.68	28.144	1.346	5.69	1.5	20.909	4.783	0.0	0.0	0.0	0
10.69	28.144	1.387	5.71	1.5	20.291	4.928	0.0	0.0	0.0	0
10.70	28.144	1.407	5.57	1.5	20.003	4.999	0.0	0.0	0.0	0
10.71	27.94	1.438	5.48	1.5	19.43	5.147	0.0	0.0	0.0	0
10.72	27.838	1.458	5.60	1.5	19.093	5.237	0.0	0.0	0.0	0
10.73	27.226	1.458	5.60	1.5	18.674	5.355	0.0	0.0	0.0	0
10.74	27.022	1.468	5.48	1.5	18.407	5.433	0.0	0.0	0.0	0
10.75	27.124	1.458	5.44	1.5	18.604	5.375	0.0	0.0	0.0	0
10.76	26.92	1.468	5.70	1.5	18.338	5.453	0.0	0.0	0.0	0
10.77	27.226	1.448	5.37	1.5	18.802	5.318	0.0	0.0	0.0	0
10.78	27.022	1.448	5.50	1.5	18.662	5.359	0.0	0.0	0.0	0
10.79	26.716	1.438	5.53	1.5	18.579	5.383	0.0	0.0	0.0	0
10.80	26.512	1.428	5.58	1.5	18.566	5.386	0.0	0.0	0.0	0
10.81	26.104	1.428	5.89	1.5	18.28	5.47	0.0	0.0	0.0	0
10.82	26.308	1.397	5.98	1.5	18.832	5.31	0.0	0.0	0.0	0
10.83	26.512	1.366	6.00	1.5	19.408	5.152	0.0	0.0	0.0	0
10.84	27.328	1.275	5.00	1.5	21.434	4.666	0.0	0.0	0.0	0
10.85	26.716	1.244	3.70	1.5	21.476	4.656	0.0	0.0	0.0	0
10.86	26.716	1.244	3.70	1.5	21.476	4.656	0.0	0.0	0.0	0
10.87	26.716	1.244	3.70	1.5	21.476	4.656	0.0	0.0	0.0	0
10.88	24.881	1.295	4.31	1.5	19.213	5.205	0.0	0.0	0.0	0
10.89	25.289	1.285	4.36	1.5	19.68	5.081	0.0	0.0	0.0	0
10.90	26.716	1.264	4.26	1.5	21.136	4.731	0.0	0.0	0.0	0
10.91	28.858	1.244	4.45	1.5	23.198	4.311	0.0	0.0	0.0	0
10.92	33.344	1.234	5.51	1.5	27.021	3.701	0.0	0.0	0.0	0
10.93	35.078	1.224	5.17	1.5	28.658	3.489	0.0	0.0	0.0	0
10.94	35.791	1.183	3.98	1.5	30.254	3.305	0.0	0.0	0.0	0
10.95	36.097	1.173	3.04	1.5	30.773	3.25	0.0	0.0	0.0	0
10.96	35.588	1.132	1.47	1.5	31.438	3.181	0.0	0.0	0.0	0
10.97	33.548	1.132	0.96	1.5	29.636	3.374	0.0	0.0	0.0	0
10.98	31.101	1.152	0.88	1.5	26.997	3.704	0.0	0.0	0.0	0
10.99	28.756	1.132	0.89	1.5	25.403	3.937	0.0	0.0	0.0	0
11.00	26.92	1.081	1.05	1.5	24.903	4.016	0.0	0.0	0.0	0
11.01	22.943	0.969	3.51	1.5	23.677	4.224	0.0	0.0	0.0	0
11.02	21.516	0.887	4.08	1.5	24.257	4.123	0.0	0.0	0.0	0
11.03	20.394	0.806	4.18	1.5	25.303	3.952	0.0	0.0	0.0	0
11.04	19.476	0.714	4.70	1.5	27.277	3.666	0.0	0.0	0.0	0
11.05	19.884	0.51	6.24	1.5	38.988	2.565	0.0	0.0	0.0	0
11.06	21.006	0.449	6.37	1.5	46.784	2.137	0.0	0.0	0.0	0
11.07	22.229	0.398	6.43	1.5	55.852	1.79	0.0	0.0	0.0	0
11.08	23.555	0.377	6.61	1.5	62.48	1.601	0.0	0.0	0.0	0
11.09	25.187	0.357	6.64	1.5	70.552	1.417	0.0	0.0	0.0	0
11.10	27.532	0.408	7.26	1.5	67.48	1.482	0.0	0.0	0.0	0
11.11	28.654	0.387	6.86	1.5	74.041	1.351	0.0	0.0	0.0	0
11.12	29.571	0.387	6.43	1.5	76.411	1.309	0.0	0.0	0.0	0
11.13	29.367	0.418	6.65	1.5	70.256	1.423	0.0	0.0	0.0	0
11.14	29.061	0.5	6.61	1.5	58.122	1.721	0.0	0.0	0.0	0
11.15	29.061	0.551	6.78	1.5	52.742	1.896	0.0	0.0	0.0	0
11.16	29.367	0.591	6.90	1.5	49.69	2.012	0.0	0.0	0.0	0
11.17	29.469	0.642	6.88	1.5	45.902	2.179	0.0	0.0	0.0	0
11.18	29.265	0.704	7.09	1.5	41.57	2.406	0.0	0.0	0.0	0
11.19	28.756	0.826	7.61	1.4	34.814	2.872	0.0	0.0	0.0	0
11.20	28.45	0.897	8.10	1.5	31.717	3.153	0.0	0.0	0.0	0
11.21	28.348	0.948	8.43	1.5	29.903	3.344	0.0	0.0	0.0	0
11.22	28.756	0.969	8.28	1.5	29.676	3.37	0.0	0.0	0.0	0
11.23	28.858	0.989	7.91	1.5	29.179	3.427	0.0	0.0	0.0	0
11.24	28.756	1.03	8.36	1.5	27.918	3.582	0.0	0.0	0.0	0
11.25	29.061	1.04	8.59	1.4	27.943	3.579	0.0	0.0	0.0	0
11.26	29.163	1.05	8.84	1.5	27.774	3.6	0.0	0.0	0.0	0
11.27	29.367	1.05	9.62	1.4	27.969	3.575	0.0	0.0	0.0	0
11.28	29.571	1.05	9.45	1.4	28.163	3.551	0.0	0.0	0.0	0
11.29	29.571	1.06	9.52	1.4	27.897	3.585	0.0	0.0	0.0	0
11.30	29.775	1.06	9.50	1.4	28.09	3.56	0.0	0.0	0.0	0
11.31	29.673	1.05	8.96	1.4	28.26	3.539	0.0	0.0	0.0	0
11.32	29.673	1.02	8.25	1.4	29.091	3.437	0.0	0.0	0.0	0
11.33	28.858	1.05	9.37	1.4	27.484	3.639	0.0	0.0	0.0	0
11.34	28.552	1.06	9.58	1.4	26.936	3.713	0.0	0.0	0.0	0
11.35	28.654	1.06	9.39	1.4	27.032	3.699	0.0	0.0	0.0	0
11.36	28.756	1.071	9.15	1.4	26.85	3.724	0.0	0.0	0.0	0

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11.37	28.756	1.071	8.76	1.4	26.85	3.724	0.0	0.0	0.0	0
11.38	28.45	1.091	8.93	1.4	26.077	3.835	0.0	0.0	0.0	0
11.39	28.246	1.122	9.17	1.4	25.175	3.972	0.0	0.0	0.0	0
11.40	28.552	1.132	8.88	1.4	25.223	3.965	0.0	0.0	0.0	0
11.41	28.654	1.142	8.61	1.4	25.091	3.985	0.0	0.0	0.0	0
11.42	27.532	1.173	10.55	1.4	23.471	4.26	0.0	0.0	0.0	0
11.43	27.226	1.162	10.85	1.4	23.43	4.268	0.0	0.0	0.0	0
11.44	27.328	1.142	10.84	1.4	23.93	4.179	0.0	0.0	0.0	0
11.45	27.634	1.111	10.25	1.4	24.873	4.02	0.0	0.0	0.0	0
11.46	28.246	1.05	9.22	1.4	26.901	3.717	0.0	0.0	0.0	0
11.47	28.552	1.04	9.35	1.4	27.454	3.642	0.0	0.0	0.0	0
11.48	28.552	1.03	9.73	1.4	27.72	3.607	0.0	0.0	0.0	0
11.49	28.348	1.02	10.65	1.4	27.792	3.598	0.0	0.0	0.0	0
11.50	29.163	0.948	10.60	1.4	30.763	3.251	0.0	0.0	0.0	0
11.51	30.081	0.897	10.14	1.4	33.535	2.982	0.0	0.0	0.0	0
11.52	30.591	0.877	10.11	1.4	34.881	2.867	0.0	0.0	0.0	0
11.53	31.407	0.877	10.00	1.4	35.812	2.792	0.0	0.0	0.0	0
11.54	32.324	0.887	10.05	1.4	36.442	2.744	0.0	0.0	0.0	0
11.55	33.446	0.928	10.16	1.4	36.041	2.775	0.0	0.0	0.0	0
11.56	33.446	0.928	10.44	1.4	36.041	2.775	0.0	0.0	0.0	0
11.57	33.14	0.938	10.32	1.3	35.33	2.83	0.0	0.0	0.0	0
11.58	33.14	0.948	9.95	1.4	34.958	2.861	0.0	0.0	0.0	0
11.59	32.834	0.979	9.06	1.4	33.538	2.982	0.0	0.0	0.0	0
11.60	32.223	1.02	9.22	1.4	31.591	3.165	0.0	0.0	0.0	0
11.61	31.917	1.01	8.77	1.4	31.601	3.164	0.0	0.0	0.0	0
11.62	31.407	1.04	8.98	1.4	30.199	3.311	0.0	0.0	0.0	0
11.63	29.265	1.101	8.65	1.3	26.58	3.762	0.0	0.0	0.0	0
11.64	29.469	1.091	8.77	1.4	27.011	3.702	0.0	0.0	0.0	0
11.65	29.673	1.081	9.09	1.4	27.45	3.643	0.0	0.0	0.0	0
11.66	30.081	1.081	9.18	1.4	27.827	3.594	0.0	0.0	0.0	0
11.67	30.489	1.081	9.40	1.4	28.204	3.546	0.0	0.0	0.0	0
11.68	31.713	1.091	9.74	1.4	29.068	3.44	0.0	0.0	0.0	0
11.69	31.815	1.081	9.83	1.4	29.431	3.398	0.0	0.0	0.0	0
11.70	32.121	1.06	9.60	1.4	30.303	3.3	0.0	0.0	0.0	0
11.71	32.121	1.04	8.70	1.4	30.886	3.238	0.0	0.0	0.0	0
11.72	30.183	1.081	9.06	1.4	27.921	3.581	0.0	0.0	0.0	0
11.73	29.163	1.081	8.19	1.4	26.978	3.707	0.0	0.0	0.0	0
11.74	28.348	1.071	6.35	1.4	26.469	3.778	0.0	0.0	0.0	0
11.75	27.532	1.06	5.94	1.4	25.974	3.85	0.0	0.0	0.0	0
11.76	26.308	1.071	5.58	1.4	24.564	4.071	0.0	0.0	0.0	0
11.77	23.555	1.111	6.68	1.4	21.202	4.717	0.0	0.0	0.0	0
11.78	22.637	1.101	6.39	1.4	20.56	4.864	0.0	0.0	0.0	0
11.79	21.924	1.091	6.22	1.4	20.095	4.976	0.0	0.0	0.0	0
11.80	21.108	1.091	6.04	1.4	19.347	5.169	0.0	0.0	0.0	0
11.81	19.578	1.101	5.87	1.4	17.782	5.624	0.0	0.0	0.0	0
11.82	18.864	1.101	5.98	1.4	17.134	5.837	0.0	0.0	0.0	0
11.83	18.457	1.101	6.02	1.3	16.764	5.965	0.0	0.0	0.0	0
11.84	18.049	1.101	6.11	1.4	16.393	6.1	0.0	0.0	0.0	0
11.85	18.049	1.101	6.11	1.4	16.393	6.1	0.0	0.0	0.0	0
11.86	18.049	1.101	6.11	1.4	16.393	6.1	0.0	0.0	0.0	0
11.87	19.374	0.744	5.98	1.3	26.04	3.84	0.0	0.0	0.0	0
11.88	19.374	0.734	6.42	1.4	26.395	3.789	0.0	0.0	0.0	0
11.89	19.374	0.714	6.81	1.4	27.134	3.685	0.0	0.0	0.0	0
11.90	19.476	0.693	7.11	1.4	28.104	3.558	0.0	0.0	0.0	0
11.91	19.578	0.663	7.35	1.4	29.529	3.386	0.0	0.0	0.0	0
11.92	20.292	0.581	7.10	1.4	34.926	2.863	0.0	0.0	0.0	0
11.93	20.598	0.53	6.83	1.4	38.864	2.573	0.0	0.0	0.0	0
11.94	20.7	0.51	6.95	1.4	40.588	2.464	0.0	0.0	0.0	0
11.95	20.904	0.489	6.93	1.4	42.748	2.339	0.0	0.0	0.0	0
11.96	21.312	0.479	7.04	1.4	44.493	2.248	0.0	0.0	0.0	0
11.97	21.618	0.489	7.37	1.4	44.209	2.262	0.0	0.0	0.0	0
11.98	22.229	0.5	7.40	1.4	44.458	2.249	0.0	0.0	0.0	0
11.99	23.045	0.52	7.67	1.4	44.317	2.256	0.0	0.0	0.0	0
12.00	24.575	0.571	8.06	1.4	43.039	2.323	0.0	0.0	0.0	0
12.01	25.085	0.591	8.05	1.4	42.445	2.356	0.0	0.0	0.0	0
12.02	25.187	0.622	8.06	1.4	40.494	2.47	0.0	0.0	0.0	0
12.03	24.881	0.653	8.33	1.4	38.103	2.624	0.0	0.0	0.0	0
12.04	24.371	0.673	8.75	1.4	36.212	2.761	0.0	0.0	0.0	0
12.05	24.269	0.673	8.54	1.4	36.061	2.773	0.0	0.0	0.0	0
12.06	24.677	0.673	7.90	1.4	36.667	2.727	0.0	0.0	0.0	0
12.07	24.881	0.734	7.29	1.4	33.898	2.95	0.0	0.0	0.0	0
12.08	24.983	0.765	7.18	1.4	32.658	3.062	0.0	0.0	0.0	0
12.09	24.575	0.826	7.56	1.4	29.752	3.361	0.0	0.0	0.0	0
12.10	24.167	0.877	8.30	1.4	27.556	3.629	0.0	0.0	0.0	0
12.11	24.575	0.887	8.87	1.4	27.706	3.609	0.0	0.0	0.0	0

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12.12	25.085	0.857	8.04	1.4	29.271	3.416	0.0	0.0	0.0	0
12.13	25.9	0.836	7.29	1.4	30.981	3.228	0.0	0.0	0.0	0
12.14	25.085	0.857	6.84	1.4	29.271	3.416	0.0	0.0	0.0	0
12.15	26.614	0.918	7.79	1.4	28.991	3.449	0.0	0.0	0.0	0
12.16	26.512	0.918	7.41	1.4	28.88	3.463	0.0	0.0	0.0	0
12.17	25.391	0.959	7.86	1.4	26.477	3.777	0.0	0.0	0.0	0
12.18	25.492	0.979	7.84	1.4	26.039	3.84	0.0	0.0	0.0	0
12.19	25.9	0.948	6.81	1.4	27.321	3.66	0.0	0.0	0.0	0
12.20	27.226	0.938	6.75	1.4	29.026	3.445	0.0	0.0	0.0	0
12.21	25.9	0.908	6.51	1.4	28.524	3.506	0.0	0.0	0.0	0
12.22	23.657	0.908	7.10	1.4	26.054	3.838	0.0	0.0	0.0	0
12.23	23.351	0.959	7.38	1.4	24.349	4.107	0.0	0.0	0.0	0
12.24	23.555	0.948	7.45	1.4	24.847	4.025	0.0	0.0	0.0	0
12.25	23.657	0.948	7.41	1.4	24.955	4.007	0.0	0.0	0.0	0
12.26	23.555	0.959	7.72	1.4	24.562	4.071	0.0	0.0	0.0	0
12.27	23.249	0.979	8.02	1.4	23.748	4.211	0.0	0.0	0.0	0
12.28	23.147	0.959	8.23	1.4	24.137	4.143	0.0	0.0	0.0	0
12.29	23.351	0.938	8.22	1.4	24.894	4.017	0.0	0.0	0.0	0
12.30	23.351	0.928	8.33	1.4	25.163	3.974	0.0	0.0	0.0	0
12.31	23.555	0.908	8.32	1.4	25.942	3.855	0.0	0.0	0.0	0
12.32	23.759	0.897	8.28	1.4	26.487	3.775	0.0	0.0	0.0	0
12.33	24.167	0.918	8.44	1.4	26.326	3.799	0.0	0.0	0.0	0
12.34	24.473	0.897	8.43	1.4	27.283	3.665	0.0	0.0	0.0	0
12.35	24.881	0.887	8.40	1.4	28.051	3.565	0.0	0.0	0.0	0
12.36	25.492	0.857	8.70	1.4	29.746	3.362	0.0	0.0	0.0	0
12.37	26.92	0.857	8.72	1.4	31.412	3.184	0.0	0.0	0.0	0
12.38	27.022	0.877	8.55	1.4	30.812	3.246	0.0	0.0	0.0	0
12.39	27.124	0.877	8.58	1.4	30.928	3.233	0.0	0.0	0.0	0
12.40	27.124	0.887	8.68	1.4	30.579	3.27	0.0	0.0	0.0	0
12.41	26.41	0.887	8.72	1.4	29.775	3.359	0.0	0.0	0.0	0
12.42	26.308	0.887	8.76	1.4	29.66	3.372	0.0	0.0	0.0	0
12.43	26.206	0.887	8.60	1.4	29.545	3.385	0.0	0.0	0.0	0
12.44	26.002	0.897	8.64	1.4	28.988	3.45	0.0	0.0	0.0	0
12.45	25.9	0.897	8.81	1.4	28.874	3.463	0.0	0.0	0.0	0
12.46	26.206	0.887	8.61	1.4	29.545	3.385	0.0	0.0	0.0	0
12.47	26.614	0.877	8.17	1.4	30.347	3.295	0.0	0.0	0.0	0
12.48	26.716	0.897	8.23	1.4	29.784	3.358	0.0	0.0	0.0	0
12.49	26.716	0.908	7.97	1.4	29.423	3.399	0.0	0.0	0.0	0
12.50	27.226	0.928	7.65	1.4	29.338	3.409	0.0	0.0	0.0	0
12.51	27.328	0.948	7.51	1.4	28.827	3.469	0.0	0.0	0.0	0
12.52	27.43	0.969	7.38	1.4	28.308	3.533	0.0	0.0	0.0	0
12.53	27.532	0.979	7.15	1.4	28.123	3.556	0.0	0.0	0.0	0
12.54	27.124	1.06	8.11	1.4	25.589	3.908	0.0	0.0	0.0	0
12.55	27.226	1.081	8.08	1.4	25.186	3.97	0.0	0.0	0.0	0
12.56	27.43	1.091	8.06	1.4	25.142	3.977	0.0	0.0	0.0	0
12.57	27.532	1.111	8.13	1.4	24.781	4.035	0.0	0.0	0.0	0
12.58	28.246	1.152	8.43	1.4	24.519	4.078	0.0	0.0	0.0	0
12.59	28.756	1.162	8.33	1.4	24.747	4.041	0.0	0.0	0.0	0
12.60	29.571	1.162	7.93	1.4	25.448	3.93	0.0	0.0	0.0	0
12.61	30.081	1.173	7.72	1.4	25.645	3.899	0.0	0.0	0.0	0
12.62	30.387	1.213	7.61	1.4	25.051	3.992	0.0	0.0	0.0	0
12.63	30.693	1.224	7.53	1.4	25.076	3.988	0.0	0.0	0.0	0
12.64	30.285	1.244	7.53	1.4	24.345	4.108	0.0	0.0	0.0	0
12.65	30.285	1.264	7.53	1.5	23.96	4.174	0.0	0.0	0.0	0
12.66	30.489	1.295	7.64	1.5	23.544	4.247	0.0	0.0	0.0	0
12.67	30.795	1.295	7.18	1.4	23.78	4.205	0.0	0.0	0.0	0
12.68	31.203	1.285	6.72	1.4	24.282	4.118	0.0	0.0	0.0	0
12.69	31.203	1.305	6.55	1.5	23.91	4.182	0.0	0.0	0.0	0
12.70	30.489	1.417	7.37	1.5	21.517	4.648	0.0	0.0	0.0	0
12.71	30.387	1.458	7.75	1.5	20.842	4.798	0.0	0.0	0.0	0
12.72	30.489	1.499	7.52	1.4	20.34	4.917	0.0	0.0	0.0	0
12.73	30.795	1.519	7.24	1.4	20.273	4.933	0.0	0.0	0.0	0
12.74	30.897	1.57	6.88	1.5	19.68	5.081	0.0	0.0	0.0	0
12.75	30.489	1.601	7.02	1.5	19.044	5.251	0.0	0.0	0.0	0
12.76	30.285	1.621	7.00	1.5	18.683	5.352	0.0	0.0	0.0	0
12.77	30.081	1.652	7.06	1.5	18.209	5.492	0.0	0.0	0.0	0
12.78	30.081	1.683	7.05	1.5	17.873	5.595	0.0	0.0	0.0	0
12.79	29.979	1.703	6.94	1.4	17.604	5.681	0.0	0.0	0.0	0
12.80	29.673	1.723	6.98	1.4	17.222	5.807	0.0	0.0	0.0	0
12.81	29.367	1.733	7.27	1.4	16.946	5.901	0.0	0.0	0.0	0
12.82	28.858	1.744	7.68	1.4	16.547	6.043	0.0	0.0	0.0	0
12.83	28.858	1.723	7.67	1.4	16.749	5.971	0.0	0.0	0.0	0
12.84	28.756	1.693	7.69	1.4	16.985	5.887	0.0	0.0	0.0	0
12.85	28.756	1.693	7.69	1.4	16.985	5.887	0.0	0.0	0.0	0
12.86	28.756	1.693	7.69	1.4	16.985	5.887	0.0	0.0	0.0	0

Prova CPTU n. 4

12.87	28.246	1.733	6.83	1.5	16.299	6.135	0.0	0.0	0.0	0
12.88	27.94	1.744	7.08	1.5	16.021	6.242	0.0	0.0	0.0	0
12.89	27.532	1.744	7.40	1.5	15.787	6.334	0.0	0.0	0.0	0
12.90	27.43	1.733	7.56	1.5	15.828	6.318	0.0	0.0	0.0	0
12.91	27.226	1.703	8.09	1.5	15.987	6.255	0.0	0.0	0.0	0
12.92	27.43	1.652	7.65	1.5	16.604	6.023	0.0	0.0	0.0	0
12.93	27.532	1.601	7.66	1.5	17.197	5.815	0.0	0.0	0.0	0
12.94	27.43	1.56	7.54	1.5	17.583	5.687	0.0	0.0	0.0	0
12.95	27.634	1.499	6.99	1.5	18.435	5.424	0.0	0.0	0.0	0
12.96	27.532	1.489	6.88	1.5	18.49	5.408	0.0	0.0	0.0	0
12.97	27.43	1.489	6.93	1.5	18.422	5.428	0.0	0.0	0.0	0
12.98	27.226	1.489	7.05	1.5	18.285	5.469	0.0	0.0	0.0	0
12.99	27.022	1.479	7.11	1.5	18.27	5.473	0.0	0.0	0.0	0
13.00	26.92	1.458	7.21	1.5	18.464	5.416	0.0	0.0	0.0	0
13.01	26.92	1.428	7.10	1.5	18.852	5.305	0.0	0.0	0.0	0
13.02	26.92	1.407	7.31	1.5	19.133	5.227	0.0	0.0	0.0	0
13.03	27.022	1.377	7.35	1.5	19.624	5.096	0.0	0.0	0.0	0
13.04	27.022	1.366	7.19	1.5	19.782	5.055	0.0	0.0	0.0	0
13.05	27.124	1.366	7.14	1.5	19.857	5.036	0.0	0.0	0.0	0
13.06	27.226	1.377	7.13	1.5	19.772	5.058	0.0	0.0	0.0	0
13.07	27.328	1.387	7.09	1.5	19.703	5.075	0.0	0.0	0.0	0
13.08	27.226	1.387	7.03	1.5	19.629	5.094	0.0	0.0	0.0	0
13.09	27.226	1.387	6.91	1.5	19.629	5.094	0.0	0.0	0.0	0
13.10	26.818	1.377	7.05	1.5	19.476	5.135	0.0	0.0	0.0	0
13.11	26.716	1.366	7.05	1.5	19.558	5.113	0.0	0.0	0.0	0
13.12	26.818	1.356	6.93	1.5	19.777	5.056	0.0	0.0	0.0	0
13.13	26.818	1.346	6.86	1.5	19.924	5.019	0.0	0.0	0.0	0
13.14	26.614	1.346	6.72	1.5	19.773	5.057	0.0	0.0	0.0	0
13.15	26.614	1.346	6.75	1.5	19.773	5.057	0.0	0.0	0.0	0
13.16	26.614	1.346	6.82	1.5	19.773	5.057	0.0	0.0	0.0	0
13.17	26.41	1.356	7.03	1.5	19.476	5.134	0.0	0.0	0.0	0
13.18	26.512	1.356	7.16	1.4	19.552	5.115	0.0	0.0	0.0	0
13.19	26.716	1.356	7.17	1.4	19.702	5.076	0.0	0.0	0.0	0
13.20	26.716	1.346	7.41	1.4	19.848	5.038	0.0	0.0	0.0	0
13.21	26.92	1.356	7.90	1.4	19.853	5.037	0.0	0.0	0.0	0
13.22	27.634	1.326	7.83	1.4	20.84	4.798	0.0	0.0	0.0	0
13.23	27.838	1.305	7.69	1.4	21.332	4.688	0.0	0.0	0.0	0
13.24	27.94	1.295	7.63	1.4	21.575	4.635	0.0	0.0	0.0	0
13.25	27.94	1.285	7.45	1.4	21.743	4.599	0.0	0.0	0.0	0
13.26	28.042	1.275	6.82	1.4	21.994	4.547	0.0	0.0	0.0	0
13.27	28.552	1.254	6.35	1.4	22.769	4.392	0.0	0.0	0.0	0
13.28	28.858	1.234	6.33	1.4	23.386	4.276	0.0	0.0	0.0	0
13.29	28.756	1.224	6.50	1.4	23.493	4.257	0.0	0.0	0.0	0
13.30	28.144	1.234	6.85	1.4	22.807	4.385	0.0	0.0	0.0	0
13.31	27.736	1.234	7.17	1.4	22.476	4.449	0.0	0.0	0.0	0
13.32	27.532	1.234	7.19	1.4	22.311	4.482	0.0	0.0	0.0	0
13.33	27.328	1.234	7.00	1.4	22.146	4.516	0.0	0.0	0.0	0
13.34	27.532	1.224	6.36	1.4	22.493	4.446	0.0	0.0	0.0	0
13.35	27.634	1.224	5.99	1.4	22.577	4.429	0.0	0.0	0.0	0
13.36	27.328	1.264	6.08	1.4	21.62	4.625	0.0	0.0	0.0	0
13.37	26.716	1.326	6.13	1.4	20.148	4.963	0.0	0.0	0.0	0
13.38	26.41	1.356	6.18	1.4	19.476	5.134	0.0	0.0	0.0	0
13.39	26.308	1.377	5.92	1.4	19.105	5.234	0.0	0.0	0.0	0
13.40	26.104	1.397	5.89	1.4	18.686	5.352	0.0	0.0	0.0	0
13.41	25.391	1.448	6.28	1.4	17.535	5.703	0.0	0.0	0.0	0
13.42	25.187	1.458	6.29	1.4	17.275	5.789	0.0	0.0	0.0	0
13.43	25.289	1.438	6.17	1.4	17.586	5.686	0.0	0.0	0.0	0
13.44	25.391	1.428	6.08	1.4	17.781	5.624	0.0	0.0	0.0	0
13.45	25.289	1.407	6.07	1.4	17.974	5.564	0.0	0.0	0.0	0
13.46	25.187	1.407	6.07	1.4	17.901	5.586	0.0	0.0	0.0	0
13.47	24.983	1.407	6.23	1.4	17.756	5.632	0.0	0.0	0.0	0
13.48	25.187	1.397	6.11	1.4	18.029	5.547	0.0	0.0	0.0	0
13.49	25.391	1.356	5.61	1.4	18.725	5.34	0.0	0.0	0.0	0
13.50	25.187	1.417	3.36	1.4	17.775	5.626	0.0	0.0	0.0	0
13.51	25.391	1.448	3.57	1.4	17.535	5.703	0.0	0.0	0.0	0
13.52	25.289	1.468	3.91	1.4	17.227	5.805	0.0	0.0	0.0	0
13.53	25.085	1.468	4.01	1.4	17.088	5.852	0.0	0.0	0.0	0
13.54	24.881	1.458	4.06	1.4	17.065	5.86	0.0	0.0	0.0	0
13.55	24.779	1.458	4.13	1.4	16.995	5.884	0.0	0.0	0.0	0
13.56	24.881	1.448	4.21	1.4	17.183	5.82	0.0	0.0	0.0	0
13.57	25.085	1.448	4.24	1.4	17.324	5.772	0.0	0.0	0.0	0

Prova CPTU n. 4

STIMA PARAMETRI GEOTECNICI Nr.4

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.- Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	13.57	17.531	0.567	0.78	1.11	1.08	0.96	0.85	0.88

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	13.57	17.531	0.567	87.66	46.56	105.19	52.59

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	13.57	17.531	0.567	609.07	26.40

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	13.57	17.531	0.567	Imai & Tomauchi	161.11

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	13.57	17.531	0.567	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	13.57	17.531	0.567	Meyerhof	1.94

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	13.57	17.531	0.567	Meyerhof	2.02

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	13.57	17.531	0.567	12.79	< 5	6.07	13.17	10.09

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	13.57	17.531	0.567	27	22.75	19.4	18.32	28.7	28.15	22.02	24.87

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	13.57	17.531	0.567	43.83	35.06	269.98

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	13.57	17.531	0.567	19.56	68.77	125.75	35.06	87.65

Prova CPTU n. 4

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	13.57	17.531	0.567	Imai & Tomauchi	161.11

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	13.57	17.531	0.567	<0.5	3.85	<0.5	2.88

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	13.57	17.531	0.567	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	13.57	17.531	0.567	0.14287	0.01857

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	13.57	17.531	0.567	Meyerhof	1.80

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	13.57	17.531	0.567	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	13.57	17.531	0.567	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	13.57	17.531	0.567	Piacentini-Righi 1988	3.110204E-06

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	13.57	17.531	0.567	Piacentini-Righi 1988	0.1635749

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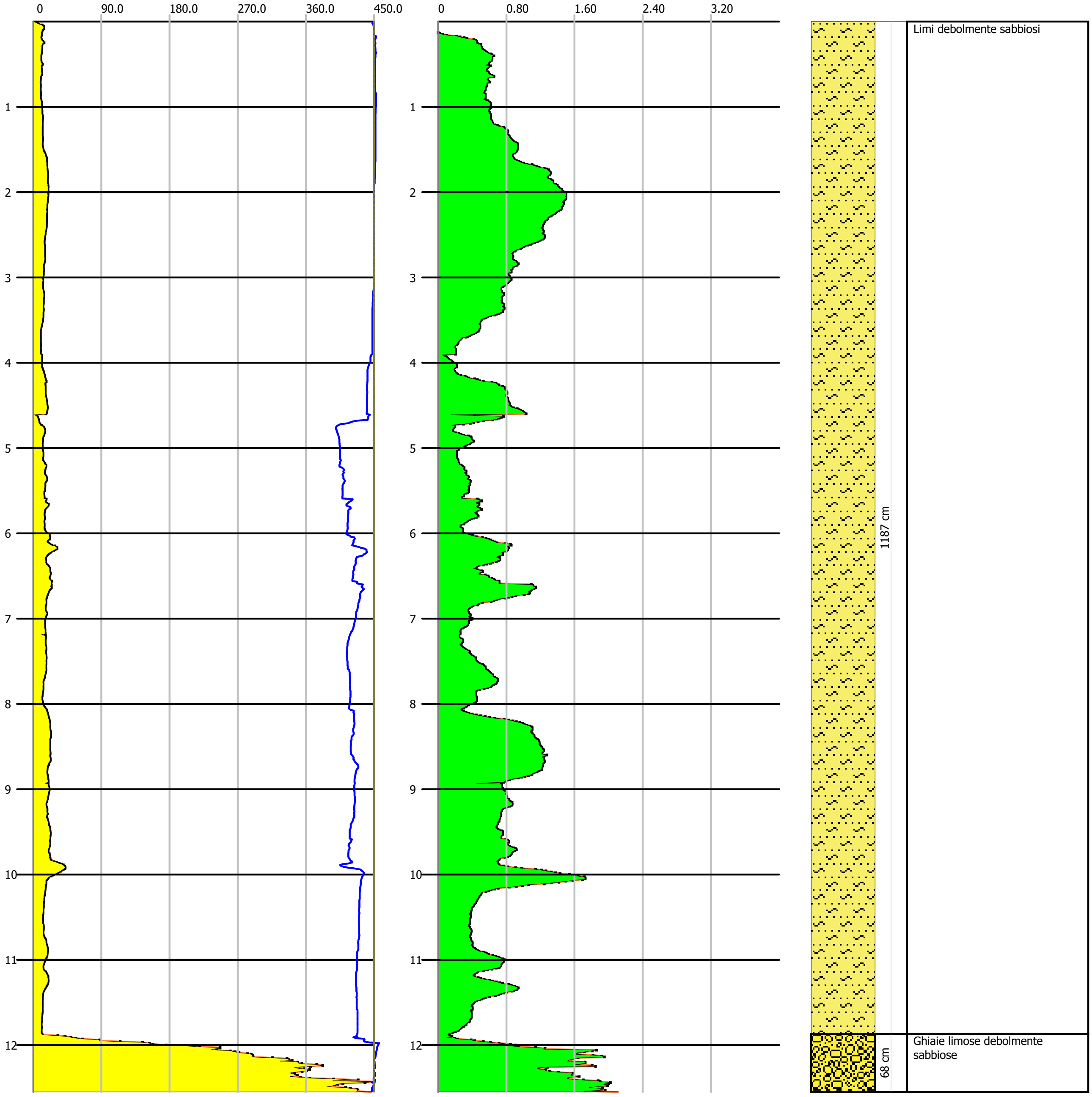
CPTU5_ms3

Probe CPTU - Piezocone Nr.5
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente:	Unione dei Comuni Savena Idice	Data: 03/03/2021
Cantiere:	Prove penetrometriche per Microzonazione sismica III° livello	
Località:	Ozzano dell'Emilia (BO)	

Resistenza punta Qc (Kg/cm²) | Resistenza laterale Fs (Kg/cm²) | Interpretazione Stratigrafica



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

PROVA CPTU Nr.5

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 03/03/2021
Profondità prova: 12.55 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	3.059	0.0	0.04	0.4	0.0	0.0	0.0	0.0	0.0	0
0.02	5.2	0.0	0.22	0.4	0.0	0.0	0.0	0.0	0.0	0
0.03	7.444	0.0	0.16	0.4	0.0	0.0	0.0	0.0	0.0	0
0.04	11.319	0.0	0.09	0.4	0.0	0.0	0.0	0.0	0.0	0
0.05	12.644	0.0	0.08	0.4	0.0	0.0	0.0	0.0	0.0	0
0.06	13.868	0.0	0.07	0.3	0.0	0.0	0.0	0.0	0.0	0
0.07	13.868	0.0	0.06	0.3	0.0	0.0	0.0	0.0	0.0	0
0.08	13.766	0.0	0.06	0.3	0.0	0.0	0.0	0.0	0.0	0
0.09	12.746	0.0	0.05	0.3	0.0	0.0	0.0	0.0	0.0	0
0.10	12.134	0.0	0.04	0.3	0.0	0.0	0.0	0.0	0.0	0
0.11	11.421	0.0	0.04	0.3	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 5

0.12	11.421	0.0	0.04	0.3	0.0	0.0	0.0	0.0	0.0	0
0.13	10.401	0.0	0.04	0.3	0.0	0.0	0.0	0.0	0.0	0
0.14	10.809	0.02	0.04	0.3	540.45	0.185	0.0	0.0	0.0	0
0.15	10.707	0.051	0.01	0.3	209.941	0.476	0.0	0.0	0.0	0
0.16	10.707	0.102	0.01	0.3	104.971	0.953	0.0	0.0	0.0	0
0.17	10.299	0.214	-0.21	0.3	48.126	2.078	0.0	0.0	0.0	0
0.18	9.993	0.255	-0.21	0.3	39.188	2.552	0.0	0.0	0.0	0
0.19	9.993	0.306	-0.20	0.3	32.657	3.062	0.0	0.0	0.0	0
0.20	10.095	0.337	-0.20	0.3	29.955	3.338	0.0	0.0	0.0	0
0.21	10.707	0.418	-0.13	0.3	25.615	3.904	0.0	0.0	0.0	0
0.22	11.115	0.438	-0.06	0.3	25.377	3.941	0.0	0.0	0.0	0
0.23	12.44	0.449	-0.03	0.3	27.706	3.609	0.0	0.0	0.0	0
0.24	13.256	0.449	-0.09	0.2	29.523	3.387	0.0	0.0	0.0	0
0.25	14.174	0.449	-0.15	0.2	31.568	3.168	0.0	0.0	0.0	0
0.26	11.829	0.459	-0.15	0.2	25.771	3.88	0.0	0.0	0.0	0
0.27	11.523	0.5	-0.14	0.3	23.046	4.339	0.0	0.0	0.0	0
0.28	11.319	0.5	-0.12	0.3	22.638	4.417	0.0	0.0	0.0	0
0.29	11.217	0.5	-0.10	0.3	22.434	4.458	0.0	0.0	0.0	0
0.30	11.115	0.51	-0.10	0.3	21.794	4.588	0.0	0.0	0.0	0
0.31	11.115	0.51	-0.17	0.3	21.794	4.588	0.0	0.0	0.0	0
0.32	11.013	0.51	-0.17	0.3	21.594	4.631	0.0	0.0	0.0	0
0.33	10.911	0.52	-0.16	0.3	20.983	4.766	0.0	0.0	0.0	0
0.34	10.809	0.54	-0.15	0.3	20.017	4.996	0.0	0.0	0.0	0
0.35	10.809	0.551	-0.14	0.3	19.617	5.098	0.0	0.0	0.0	0
0.36	10.707	0.571	-0.26	0.3	18.751	5.333	0.0	0.0	0.0	0
0.37	10.605	0.581	-0.22	0.3	18.253	5.479	0.0	0.0	0.0	0
0.38	10.299	0.612	-0.17	0.3	16.828	5.942	0.0	0.0	0.0	0
0.39	9.993	0.632	-0.15	0.3	15.812	6.324	0.0	0.0	0.0	0
0.40	9.993	0.653	-0.15	0.3	15.303	6.535	0.0	0.0	0.0	0
0.41	9.891	0.632	-0.16	0.3	15.65	6.39	0.0	0.0	0.0	0
0.42	9.891	0.632	-0.15	0.3	15.65	6.39	0.0	0.0	0.0	0
0.43	9.687	0.632	-0.11	0.3	15.328	6.524	0.0	0.0	0.0	0
0.44	9.687	0.632	-0.10	0.3	15.328	6.524	0.0	0.0	0.0	0
0.45	9.891	0.622	-0.10	0.3	15.902	6.289	0.0	0.0	0.0	0
0.46	9.891	0.622	-0.10	0.3	15.902	6.289	0.0	0.0	0.0	0
0.47	10.299	0.602	-0.10	0.3	17.108	5.845	0.0	0.0	0.0	0
0.48	10.401	0.591	-0.10	0.3	17.599	5.682	0.0	0.0	0.0	0
0.49	11.115	0.591	-0.09	0.3	18.807	5.317	0.0	0.0	0.0	0
0.50	12.134	0.581	-0.07	0.3	20.885	4.788	0.0	0.0	0.0	0
0.51	11.013	0.561	-0.13	0.3	19.631	5.094	0.0	0.0	0.0	0
0.52	10.401	0.612	-0.13	0.3	16.995	5.884	0.0	0.0	0.0	0
0.53	10.401	0.591	-0.13	0.3	17.599	5.682	0.0	0.0	0.0	0
0.54	10.401	0.581	-0.13	0.3	17.902	5.586	0.0	0.0	0.0	0
0.55	10.503	0.571	-0.13	0.3	18.394	5.437	0.0	0.0	0.0	0
0.56	10.707	0.561	-0.13	0.3	19.086	5.24	0.0	0.0	0.0	0
0.57	10.911	0.561	-0.13	0.3	19.449	5.142	0.0	0.0	0.0	0
0.58	10.605	0.561	-0.13	0.3	18.904	5.29	0.0	0.0	0.0	0
0.59	10.911	0.581	-0.13	0.3	18.78	5.325	0.0	0.0	0.0	0
0.60	10.911	0.591	-0.13	0.5	18.462	5.417	0.0	0.0	0.0	0
0.61	11.115	0.591	-0.12	0.5	18.807	5.317	0.0	0.0	0.0	0
0.62	10.911	0.602	-0.12	0.5	18.125	5.517	0.0	0.0	0.0	0
0.63	10.095	0.632	-0.12	0.5	15.973	6.261	0.0	0.0	0.0	0
0.64	9.789	0.653	-0.13	0.5	14.991	6.671	0.0	0.0	0.0	0
0.65	9.585	0.653	-0.13	0.5	14.678	6.813	0.0	0.0	0.0	0
0.66	9.279	0.581	-0.13	0.5	15.971	6.261	0.0	0.0	0.0	0
0.67	9.177	0.581	-0.13	0.5	15.795	6.331	0.0	0.0	0.0	0
0.68	9.075	0.571	-0.13	0.5	15.893	6.292	0.0	0.0	0.0	0
0.69	9.075	0.581	-0.13	0.5	15.62	6.402	0.0	0.0	0.0	0
0.70	8.973	0.591	-0.13	0.5	15.183	6.586	0.0	0.0	0.0	0
0.71	8.871	0.602	-0.13	0.5	14.736	6.786	0.0	0.0	0.0	0
0.72	8.973	0.571	-0.13	0.5	15.715	6.364	0.0	0.0	0.0	0
0.73	9.075	0.571	-0.13	0.5	15.893	6.292	0.0	0.0	0.0	0
0.74	9.075	0.571	-0.12	0.5	15.893	6.292	0.0	0.0	0.0	0
0.75	9.177	0.571	-0.12	0.5	16.072	6.222	0.0	0.0	0.0	0
0.76	9.279	0.561	-0.12	0.5	16.54	6.046	0.0	0.0	0.0	0
0.77	9.279	0.551	-0.12	0.5	16.84	5.938	0.0	0.0	0.0	0
0.78	9.177	0.551	-0.12	0.5	16.655	6.004	0.0	0.0	0.0	0
0.79	8.973	0.551	-0.12	0.5	16.285	6.141	0.0	0.0	0.0	0
0.80	8.871	0.551	-0.12	0.5	16.1	6.211	0.0	0.0	0.0	0
0.81	9.075	0.54	-0.12	0.5	16.806	5.95	0.0	0.0	0.0	0
0.82	9.279	0.54	-0.12	0.5	17.183	5.82	0.0	0.0	0.0	0
0.83	9.483	0.53	-0.16	0.5	17.892	5.589	0.0	0.0	0.0	0
0.84	9.585	0.53	-0.21	0.5	18.085	5.529	0.0	0.0	0.0	0
0.85	9.585	0.551	-0.21	0.5	17.396	5.749	0.0	0.0	0.0	0
0.86	9.585	0.551	-0.21	0.5	17.396	5.749	0.0	0.0	0.0	0

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0.87	9.483	0.551	-0.21	0.5	17.211	5.81	0.0	0.0	0.0	0
0.88	9.381	0.551	-0.21	0.5	17.025	5.874	0.0	0.0	0.0	0
0.89	9.381	0.551	-0.21	0.5	17.025	5.874	0.0	0.0	0.0	0
0.90	9.381	0.551	-0.21	0.5	17.025	5.874	0.0	0.0	0.0	0
0.91	9.789	0.53	-0.22	0.5	18.47	5.414	0.0	0.0	0.0	0
0.92	9.891	0.551	-0.24	0.5	17.951	5.571	0.0	0.0	0.0	0
0.93	10.299	0.581	-0.22	0.5	17.726	5.641	0.0	0.0	0.0	0
0.94	10.401	0.591	-0.22	0.5	17.599	5.682	0.0	0.0	0.0	0
0.95	10.605	0.602	-0.22	0.5	17.616	5.677	0.0	0.0	0.0	0
0.96	10.605	0.612	-0.22	0.5	17.328	5.771	0.0	0.0	0.0	0
0.97	10.707	0.612	-0.21	0.6	17.495	5.716	0.0	0.0	0.0	0
0.98	10.809	0.612	-0.21	0.6	17.662	5.662	0.0	0.0	0.0	0
0.99	10.911	0.612	-0.21	0.6	17.828	5.609	0.0	0.0	0.0	0
1.00	10.911	0.612	-0.21	0.6	17.828	5.609	0.0	0.0	0.0	0
1.01	11.013	0.612	-0.20	0.6	17.995	5.557	0.0	0.0	0.0	0
1.02	11.115	0.602	-0.19	0.6	18.463	5.416	0.0	0.0	0.0	0
1.03	11.217	0.591	-0.19	0.6	18.98	5.269	0.0	0.0	0.0	0
1.04	11.319	0.591	-0.19	0.6	19.152	5.221	0.0	0.0	0.0	0
1.05	11.319	0.591	-0.19	0.6	19.152	5.221	0.0	0.0	0.0	0
1.06	11.319	0.591	-0.18	0.6	19.152	5.221	0.0	0.0	0.0	0
1.07	11.319	0.602	-0.18	0.7	18.802	5.318	0.0	0.0	0.0	0
1.08	11.421	0.602	-0.17	0.7	18.972	5.271	0.0	0.0	0.0	0
1.09	11.523	0.612	-0.17	0.7	18.828	5.311	0.0	0.0	0.0	0
1.10	11.727	0.612	-0.17	0.7	19.162	5.219	0.0	0.0	0.0	0
1.11	11.93	0.612	-0.17	0.7	19.493	5.13	0.0	0.0	0.0	0
1.12	12.032	0.612	-0.17	0.7	19.66	5.086	0.0	0.0	0.0	0
1.13	12.032	0.612	-0.17	0.7	19.66	5.086	0.0	0.0	0.0	0
1.14	11.93	0.612	-0.17	0.7	19.493	5.13	0.0	0.0	0.0	0
1.15	11.93	0.612	-0.17	0.7	19.493	5.13	0.0	0.0	0.0	0
1.16	11.829	0.622	-0.17	0.7	19.018	5.258	0.0	0.0	0.0	0
1.17	11.727	0.632	-0.17	0.8	18.555	5.389	0.0	0.0	0.0	0
1.18	11.727	0.632	-0.17	0.8	18.555	5.389	0.0	0.0	0.0	0
1.19	11.829	0.642	-0.17	0.8	18.425	5.427	0.0	0.0	0.0	0
1.20	11.829	0.642	-0.17	0.8	18.425	5.427	0.0	0.0	0.0	0
1.21	11.829	0.663	-0.16	0.8	17.842	5.605	0.0	0.0	0.0	0
1.22	11.829	0.693	-0.16	0.8	17.069	5.858	0.0	0.0	0.0	0
1.23	11.727	0.714	-0.16	0.8	16.424	6.089	0.0	0.0	0.0	0
1.24	11.625	0.765	-0.16	0.8	15.196	6.581	0.0	0.0	0.0	0
1.25	11.727	0.775	-0.16	0.8	15.132	6.609	0.0	0.0	0.0	0
1.26	11.727	0.785	-0.16	0.8	14.939	6.694	0.0	0.0	0.0	0
1.27	11.727	0.795	-0.16	0.8	14.751	6.779	0.0	0.0	0.0	0
1.28	11.625	0.816	-0.16	0.8	14.246	7.019	0.0	0.0	0.0	0
1.29	11.625	0.816	-0.16	0.8	14.246	7.019	0.0	0.0	0.0	0
1.30	11.625	0.806	-0.16	0.8	14.423	6.933	0.0	0.0	0.0	0
1.31	11.625	0.806	-0.16	0.8	14.423	6.933	0.0	0.0	0.0	0
1.32	11.625	0.806	-0.16	0.8	14.423	6.933	0.0	0.0	0.0	0
1.33	11.727	0.816	-0.16	0.8	14.371	6.958	0.0	0.0	0.0	0
1.34	11.727	0.826	-0.16	0.8	14.197	7.044	0.0	0.0	0.0	0
1.35	11.829	0.836	-0.16	0.8	14.15	7.067	0.0	0.0	0.0	0
1.36	11.93	0.836	-0.16	0.8	14.27	7.008	0.0	0.0	0.0	0
1.37	11.93	0.846	-0.16	0.8	14.102	7.091	0.0	0.0	0.0	0
1.38	11.93	0.857	-0.16	0.8	13.921	7.184	0.0	0.0	0.0	0
1.39	11.93	0.867	-0.16	0.8	13.76	7.267	0.0	0.0	0.0	0
1.40	11.93	0.877	-0.16	0.8	13.603	7.351	0.0	0.0	0.0	0
1.41	11.829	0.887	-0.16	0.8	13.336	7.499	0.0	0.0	0.0	0
1.42	11.727	0.908	-0.16	0.8	12.915	7.743	0.0	0.0	0.0	0
1.43	11.523	0.928	-0.16	0.8	12.417	8.053	0.0	0.0	0.0	0
1.44	11.625	0.928	-0.16	0.8	12.527	7.983	0.0	0.0	0.0	0
1.45	11.625	0.928	-0.16	0.8	12.527	7.983	0.0	0.0	0.0	0
1.46	11.727	0.928	-0.16	0.8	12.637	7.913	0.0	0.0	0.0	0
1.47	12.134	0.928	-0.16	0.8	13.075	7.648	0.0	0.0	0.0	0
1.48	12.338	0.928	-0.16	0.8	13.295	7.521	0.0	0.0	0.0	0
1.49	12.542	0.928	-0.16	0.8	13.515	7.399	0.0	0.0	0.0	0
1.50	12.848	0.928	-0.16	0.8	13.845	7.223	0.0	0.0	0.0	0
1.51	13.256	0.918	-0.16	0.8	14.44	6.925	0.0	0.0	0.0	0
1.52	13.562	0.918	-0.16	0.7	14.773	6.769	0.0	0.0	0.0	0
1.53	14.072	0.908	-0.16	0.7	15.498	6.453	0.0	0.0	0.0	0
1.54	14.48	0.897	-0.15	0.7	16.143	6.195	0.0	0.0	0.0	0
1.55	15.397	0.877	-0.15	0.8	17.556	5.696	0.0	0.0	0.0	0
1.56	15.805	0.867	-0.15	0.7	18.23	5.486	0.0	0.0	0.0	0
1.57	16.213	0.867	-0.15	0.7	18.7	5.348	0.0	0.0	0.0	0
1.58	16.417	0.867	-0.15	0.7	18.935	5.281	0.0	0.0	0.0	0
1.59	16.825	0.877	-0.15	0.8	19.185	5.212	0.0	0.0	0.0	0
1.60	17.335	0.877	-0.15	0.8	19.766	5.059	0.0	0.0	0.0	0
1.61	17.437	0.887	-0.15	0.8	19.658	5.087	0.0	0.0	0.0	0

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1.62	17.335	0.897	-0.15	0.8	19.326	5.175	0.0	0.0	0.0	0
1.63	17.335	0.918	-0.15	0.8	18.883	5.296	0.0	0.0	0.0	0
1.64	17.437	0.948	-0.15	0.8	18.393	5.437	0.0	0.0	0.0	0
1.65	17.539	0.969	-0.14	0.8	18.1	5.525	0.0	0.0	0.0	0
1.66	17.539	0.999	-0.14	0.8	17.557	5.696	0.0	0.0	0.0	0
1.67	17.539	1.04	-0.14	0.8	16.864	5.93	0.0	0.0	0.0	0
1.68	17.641	1.101	-0.14	0.8	16.023	6.241	0.0	0.0	0.0	0
1.69	17.845	1.122	-0.14	0.8	15.905	6.287	0.0	0.0	0.0	0
1.70	17.947	1.152	-0.14	0.8	15.579	6.419	0.0	0.0	0.0	0
1.71	17.947	1.183	-0.14	0.8	15.171	6.592	0.0	0.0	0.0	0
1.72	17.947	1.244	-0.13	0.8	14.427	6.932	0.0	0.0	0.0	0
1.73	18.049	1.275	-0.13	0.8	14.156	7.064	0.0	0.0	0.0	0
1.74	18.151	1.295	-0.12	0.8	14.016	7.135	0.0	0.0	0.0	0
1.75	18.355	1.295	-0.12	0.8	14.174	7.055	0.0	0.0	0.0	0
1.76	18.559	1.305	-0.11	0.8	14.221	7.032	0.0	0.0	0.0	0
1.77	18.864	1.315	-0.10	0.8	14.345	6.971	0.0	0.0	0.0	0
1.78	18.966	1.315	-0.10	0.8	14.423	6.933	0.0	0.0	0.0	0
1.79	18.966	1.305	-0.10	0.8	14.533	6.881	0.0	0.0	0.0	0
1.80	18.966	1.305	-0.09	0.9	14.533	6.881	0.0	0.0	0.0	0
1.81	18.864	1.285	-0.09	0.9	14.68	6.812	0.0	0.0	0.0	0
1.82	18.864	1.275	-0.08	0.9	14.795	6.759	0.0	0.0	0.0	0
1.83	18.762	1.275	-0.08	0.9	14.715	6.796	0.0	0.0	0.0	0
1.84	18.661	1.285	-0.08	0.9	14.522	6.886	0.0	0.0	0.0	0
1.85	18.559	1.315	-0.07	0.9	14.113	7.086	0.0	0.0	0.0	0
1.86	18.457	1.326	-0.07	0.9	13.919	7.184	0.0	0.0	0.0	0
1.87	18.457	1.346	-0.07	0.9	13.712	7.293	0.0	0.0	0.0	0
1.88	18.559	1.346	-0.07	0.9	13.788	7.253	0.0	0.0	0.0	0
1.89	18.559	1.346	-0.07	0.9	13.788	7.253	0.0	0.0	0.0	0
1.90	18.559	1.346	-0.07	0.9	13.788	7.253	0.0	0.0	0.0	0
1.91	19.476	1.377	-0.02	0.9	14.144	7.07	0.0	0.0	0.0	0
1.92	19.272	1.397	-0.02	0.9	13.795	7.249	0.0	0.0	0.0	0
1.93	19.476	1.397	-0.02	0.9	13.941	7.173	0.0	0.0	0.0	0
1.94	19.578	1.407	-0.02	0.9	13.915	7.187	0.0	0.0	0.0	0
1.95	19.476	1.417	-0.02	0.9	13.745	7.276	0.0	0.0	0.0	0
1.96	19.374	1.428	-0.02	0.9	13.567	7.371	0.0	0.0	0.0	0
1.97	19.374	1.448	-0.02	0.9	13.38	7.474	0.0	0.0	0.0	0
1.98	19.374	1.448	-0.02	0.9	13.38	7.474	0.0	0.0	0.0	0
1.99	19.476	1.458	-0.02	0.9	13.358	7.486	0.0	0.0	0.0	0
2.00	19.476	1.468	-0.02	0.9	13.267	7.537	0.0	0.0	0.0	0
2.01	19.272	1.499	-0.02	0.9	12.857	7.778	0.0	0.0	0.0	0
2.02	19.17	1.499	-0.02	0.9	12.789	7.82	0.0	0.0	0.0	0
2.03	19.272	1.499	-0.02	0.9	12.857	7.778	0.0	0.0	0.0	0
2.04	19.374	1.499	-0.02	0.9	12.925	7.737	0.0	0.0	0.0	0
2.05	19.068	1.489	-0.02	0.9	12.806	7.809	0.0	0.0	0.0	0
2.06	18.966	1.499	-0.02	0.9	12.652	7.904	0.0	0.0	0.0	0
2.07	18.762	1.499	-0.02	0.9	12.516	7.99	0.0	0.0	0.0	0
2.08	18.966	1.489	-0.02	0.9	12.737	7.851	0.0	0.0	0.0	0
2.09	18.559	1.479	-0.02	0.9	12.548	7.969	0.0	0.0	0.0	0
2.10	18.457	1.468	-0.02	0.9	12.573	7.954	0.0	0.0	0.0	0
2.11	18.457	1.458	-0.02	0.9	12.659	7.899	0.0	0.0	0.0	0
2.12	18.355	1.458	-0.02	0.9	12.589	7.943	0.0	0.0	0.0	0
2.13	18.049	1.468	-0.02	0.9	12.295	8.133	0.0	0.0	0.0	0
2.14	17.947	1.468	-0.02	0.9	12.225	8.18	0.0	0.0	0.0	0
2.15	17.743	1.458	-0.02	0.9	12.169	8.217	0.0	0.0	0.0	0
2.16	17.743	1.458	-0.02	0.9	12.169	8.217	0.0	0.0	0.0	0
2.17	17.947	1.438	-0.02	0.9	12.481	8.012	0.0	0.0	0.0	0
2.18	17.641	1.448	-0.02	0.9	12.183	8.208	0.0	0.0	0.0	0
2.19	17.539	1.448	-0.02	0.9	12.113	8.256	0.0	0.0	0.0	0
2.20	17.437	1.438	-0.02	0.9	12.126	8.247	0.0	0.0	0.0	0
2.21	17.437	1.417	-0.02	0.9	12.306	8.126	0.0	0.0	0.0	0
2.22	17.641	1.407	-0.02	0.9	12.538	7.976	0.0	0.0	0.0	0
2.23	17.947	1.387	-0.02	0.9	12.939	7.728	0.0	0.0	0.0	0
2.24	17.539	1.377	-0.02	0.9	12.737	7.851	0.0	0.0	0.0	0
2.25	17.233	1.366	-0.02	0.9	12.616	7.927	0.0	0.0	0.0	0
2.26	17.437	1.346	-0.02	0.9	12.955	7.719	0.0	0.0	0.0	0
2.27	17.335	1.326	-0.02	0.9	13.073	7.649	0.0	0.0	0.0	0
2.28	17.335	1.315	-0.02	0.9	13.183	7.586	0.0	0.0	0.0	0
2.29	17.437	1.295	-0.01	0.9	13.465	7.427	0.0	0.0	0.0	0
2.30	17.335	1.285	-0.01	0.9	13.49	7.413	0.0	0.0	0.0	0
2.31	17.233	1.285	-0.01	0.9	13.411	7.457	0.0	0.0	0.0	0
2.32	17.233	1.275	-0.01	0.9	13.516	7.399	0.0	0.0	0.0	0
2.33	17.335	1.254	-0.01	0.9	13.824	7.234	0.0	0.0	0.0	0
2.34	17.335	1.244	-0.01	0.9	13.935	7.176	0.0	0.0	0.0	0
2.35	17.335	1.244	-0.01	0.9	13.935	7.176	0.0	0.0	0.0	0
2.36	17.233	1.234	-0.01	0.9	13.965	7.161	0.0	0.0	0.0	0

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2.37	17.131	1.234	-0.01	0.9	13.882	7.203	0.0	0.0	0.0	0
2.38	17.131	1.224	-0.01	0.9	13.996	7.145	0.0	0.0	0.0	0
2.39	17.131	1.224	-0.01	0.9	13.996	7.145	0.0	0.0	0.0	0
2.40	17.131	1.224	-0.01	0.9	13.996	7.145	0.0	0.0	0.0	0
2.41	17.029	1.213	-0.01	0.9	14.039	7.123	0.0	0.0	0.0	0
2.42	16.927	1.203	-0.01	0.9	14.071	7.107	0.0	0.0	0.0	0
2.43	16.723	1.213	-0.01	0.9	13.786	7.253	0.0	0.0	0.0	0
2.44	16.519	1.224	-0.01	0.9	13.496	7.41	0.0	0.0	0.0	0
2.45	16.315	1.224	-0.01	0.9	13.329	7.502	0.0	0.0	0.0	0
2.46	15.907	1.234	-0.01	0.9	12.891	7.758	0.0	0.0	0.0	0
2.47	15.805	1.224	-0.01	0.9	12.913	7.744	0.0	0.0	0.0	0
2.48	15.703	1.224	-0.01	0.9	12.829	7.795	0.0	0.0	0.0	0
2.49	15.601	1.213	-0.01	0.9	12.862	7.775	0.0	0.0	0.0	0
2.50	15.397	1.234	-0.01	0.9	12.477	8.015	0.0	0.0	0.0	0
2.51	15.092	1.244	-0.01	0.9	12.132	8.243	0.0	0.0	0.0	0
2.52	14.99	1.244	-0.01	0.9	12.05	8.299	0.0	0.0	0.0	0
2.53	14.786	1.244	-0.01	0.9	11.886	8.413	0.0	0.0	0.0	0
2.54	14.684	1.234	0.00	0.9	11.9	8.404	0.0	0.0	0.0	0
2.55	14.582	1.224	0.00	0.9	11.913	8.394	0.0	0.0	0.0	0
2.56	14.378	1.203	0.00	0.9	11.952	8.367	0.0	0.0	0.0	0
2.57	14.276	1.183	0.00	0.9	12.068	8.287	0.0	0.0	0.0	0
2.58	14.174	1.162	0.01	0.9	12.198	8.198	0.0	0.0	0.0	0
2.59	14.174	1.132	0.01	0.9	12.521	7.986	0.0	0.0	0.0	0
2.60	14.276	1.101	0.01	0.9	12.966	7.712	0.0	0.0	0.0	0
2.61	14.378	1.081	0.01	0.9	13.301	7.518	0.0	0.0	0.0	0
2.62	14.582	1.05	0.01	0.9	13.888	7.201	0.0	0.0	0.0	0
2.63	14.888	1.02	0.01	0.9	14.596	6.851	0.0	0.0	0.0	0
2.64	14.888	0.999	0.01	0.9	14.903	6.71	0.0	0.0	0.0	0
2.65	14.888	0.979	0.01	0.9	15.207	6.576	0.0	0.0	0.0	0
2.66	14.888	0.969	0.01	0.9	15.364	6.509	0.0	0.0	0.0	0
2.67	14.99	0.928	0.01	0.9	16.153	6.191	0.0	0.0	0.0	0
2.68	14.786	0.908	0.01	0.9	16.284	6.141	0.0	0.0	0.0	0
2.69	14.684	0.897	0.01	0.9	16.37	6.109	0.0	0.0	0.0	0
2.70	14.786	0.877	0.01	0.9	16.86	5.931	0.0	0.0	0.0	0
2.71	14.888	0.867	0.01	0.9	17.172	5.823	0.0	0.0	0.0	0
2.72	14.786	0.857	0.01	0.9	17.253	5.796	0.0	0.0	0.0	0
2.73	14.786	0.867	0.01	0.9	17.054	5.864	0.0	0.0	0.0	0
2.74	14.786	0.867	0.02	0.9	17.054	5.864	0.0	0.0	0.0	0
2.75	14.888	0.877	0.02	0.9	16.976	5.891	0.0	0.0	0.0	0
2.76	14.99	0.867	0.02	0.9	17.29	5.784	0.0	0.0	0.0	0
2.77	15.092	0.867	0.02	0.9	17.407	5.745	0.0	0.0	0.0	0
2.78	15.092	0.867	0.02	0.9	17.407	5.745	0.0	0.0	0.0	0
2.79	15.092	0.867	0.02	0.9	17.407	5.745	0.0	0.0	0.0	0
2.80	14.786	0.887	0.02	0.9	16.67	5.999	0.0	0.0	0.0	0
2.81	14.582	0.908	0.02	0.9	16.059	6.227	0.0	0.0	0.0	0
2.82	14.378	0.918	0.02	0.9	15.662	6.385	0.0	0.0	0.0	0
2.83	14.174	0.918	0.02	0.9	15.44	6.477	0.0	0.0	0.0	0
2.84	13.664	0.938	0.02	0.9	14.567	6.865	0.0	0.0	0.0	0
2.85	13.358	0.928	0.02	0.9	14.394	6.947	0.0	0.0	0.0	0
2.86	13.256	0.918	0.02	0.9	14.44	6.925	0.0	0.0	0.0	0
2.87	13.256	0.887	0.02	1.0	14.945	6.691	0.0	0.0	0.0	0
2.88	13.256	0.867	0.03	0.9	15.29	6.54	0.0	0.0	0.0	0
2.89	13.256	0.867	0.03	0.9	15.29	6.54	0.0	0.0	0.0	0
2.90	13.256	0.867	0.03	0.9	15.29	6.54	0.0	0.0	0.0	0
2.91	13.766	0.846	0.05	0.9	16.272	6.146	0.0	0.0	0.0	0
2.92	13.562	0.846	0.05	1.0	16.031	6.238	0.0	0.0	0.0	0
2.93	13.358	0.857	0.05	1.0	15.587	6.416	0.0	0.0	0.0	0
2.94	13.256	0.846	0.05	1.0	15.669	6.382	0.0	0.0	0.0	0
2.95	13.358	0.816	0.05	1.0	16.37	6.109	0.0	0.0	0.0	0
2.96	13.256	0.816	0.05	1.0	16.245	6.156	0.0	0.0	0.0	0
2.97	13.154	0.816	0.05	1.0	16.12	6.203	0.0	0.0	0.0	0
2.98	12.95	0.826	0.05	1.0	15.678	6.378	0.0	0.0	0.0	0
2.99	12.644	0.836	0.05	1.0	15.124	6.612	0.0	0.0	0.0	0
3.00	12.542	0.836	0.05	1.0	15.002	6.666	0.0	0.0	0.0	0
3.01	12.44	0.846	0.05	1.0	14.704	6.801	0.0	0.0	0.0	0
3.02	12.44	0.857	0.05	1.0	14.516	6.889	0.0	0.0	0.0	0
3.03	12.542	0.846	0.05	1.0	14.825	6.745	0.0	0.0	0.0	0
3.04	12.542	0.836	0.05	1.0	15.002	6.666	0.0	0.0	0.0	0
3.05	12.44	0.826	0.05	1.0	15.061	6.64	0.0	0.0	0.0	0
3.06	12.44	0.816	0.06	1.0	15.245	6.559	0.0	0.0	0.0	0
3.07	12.338	0.795	0.06	1.0	15.519	6.444	0.0	0.0	0.0	0
3.08	12.236	0.795	0.06	1.0	15.391	6.497	0.0	0.0	0.0	0
3.09	12.236	0.785	0.06	1.0	15.587	6.415	0.0	0.0	0.0	0
3.10	12.236	0.765	0.06	1.0	15.995	6.252	0.0	0.0	0.0	0
3.11	12.236	0.755	0.06	1.0	16.207	6.17	0.0	0.0	0.0	0

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3.12	12.44	0.734	0.06	1.0	16.948	5.9	0.0	0.0	0.0	0
3.13	12.44	0.734	0.07	1.0	16.948	5.9	0.0	0.0	0.0	0
3.14	12.542	0.734	0.07	1.0	17.087	5.852	0.0	0.0	0.0	0
3.15	12.644	0.734	0.08	1.0	17.226	5.805	0.0	0.0	0.0	0
3.16	13.052	0.744	0.09	1.0	17.543	5.7	0.0	0.0	0.0	0
3.17	13.46	0.744	0.10	1.0	18.091	5.527	0.0	0.0	0.0	0
3.18	13.562	0.744	0.11	1.0	18.228	5.486	0.0	0.0	0.0	0
3.19	13.766	0.765	0.13	1.0	17.995	5.557	0.0	0.0	0.0	0
3.20	13.664	0.765	0.13	1.0	17.861	5.599	0.0	0.0	0.0	0
3.21	13.766	0.755	0.13	1.0	18.233	5.485	0.0	0.0	0.0	0
3.22	13.766	0.744	0.14	1.0	18.503	5.405	0.0	0.0	0.0	0
3.23	13.766	0.734	0.14	1.0	18.755	5.332	0.0	0.0	0.0	0
3.24	13.562	0.734	0.14	1.0	18.477	5.412	0.0	0.0	0.0	0
3.25	13.358	0.744	0.15	1.0	17.954	5.57	0.0	0.0	0.0	0
3.26	13.358	0.744	0.15	1.0	17.954	5.57	0.0	0.0	0.0	0
3.27	13.358	0.734	0.16	1.0	18.199	5.495	0.0	0.0	0.0	0
3.28	13.256	0.744	0.17	1.0	17.817	5.613	0.0	0.0	0.0	0
3.29	13.358	0.744	0.18	1.0	17.954	5.57	0.0	0.0	0.0	0
3.30	13.256	0.734	0.18	1.0	18.06	5.537	0.0	0.0	0.0	0
3.31	13.154	0.755	0.18	1.0	17.423	5.74	0.0	0.0	0.0	0
3.32	13.052	0.765	0.19	1.0	17.061	5.861	0.0	0.0	0.0	0
3.33	12.95	0.765	0.19	1.0	16.928	5.907	0.0	0.0	0.0	0
3.34	12.95	0.755	0.20	1.0	17.152	5.83	0.0	0.0	0.0	0
3.35	13.052	0.765	0.20	1.0	17.061	5.861	0.0	0.0	0.0	0
3.36	13.052	0.775	0.21	1.0	16.841	5.938	0.0	0.0	0.0	0
3.37	13.256	0.765	0.21	1.1	17.328	5.771	0.0	0.0	0.0	0
3.38	13.358	0.755	0.21	1.1	17.693	5.652	0.0	0.0	0.0	0
3.39	13.358	0.755	0.21	1.1	17.693	5.652	0.0	0.0	0.0	0
3.40	13.052	0.755	0.21	1.1	17.287	5.785	0.0	0.0	0.0	0
3.41	12.644	0.734	0.22	1.1	17.226	5.805	0.0	0.0	0.0	0
3.42	12.644	0.714	0.22	1.1	17.709	5.647	0.0	0.0	0.0	0
3.43	12.848	0.683	0.22	1.1	18.811	5.316	0.0	0.0	0.0	0
3.44	12.848	0.663	0.22	1.1	19.379	5.16	0.0	0.0	0.0	0
3.45	12.644	0.612	0.22	1.1	20.66	4.84	0.0	0.0	0.0	0
3.46	12.644	0.581	0.22	1.1	21.762	4.595	0.0	0.0	0.0	0
3.47	12.542	0.561	0.21	1.1	22.357	4.473	0.0	0.0	0.0	0
3.48	12.44	0.54	0.21	1.1	23.037	4.341	0.0	0.0	0.0	0
3.49	12.236	0.51	0.21	1.1	23.992	4.168	0.0	0.0	0.0	0
3.50	12.134	0.5	0.21	1.1	24.268	4.121	0.0	0.0	0.0	0
3.51	11.93	0.5	0.21	1.1	23.86	4.191	0.0	0.0	0.0	0
3.52	11.727	0.489	0.21	1.1	23.982	4.17	0.0	0.0	0.0	0
3.53	11.523	0.489	0.21	1.1	23.564	4.244	0.0	0.0	0.0	0
3.54	11.319	0.479	0.21	1.1	23.63	4.232	0.0	0.0	0.0	0
3.55	11.013	0.479	0.21	1.1	22.992	4.349	0.0	0.0	0.0	0
3.56	10.809	0.489	0.21	1.1	22.104	4.524	0.0	0.0	0.0	0
3.57	10.605	0.489	0.21	1.1	21.687	4.611	0.0	0.0	0.0	0
3.58	10.197	0.489	0.21	1.1	20.853	4.796	0.0	0.0	0.0	0
3.59	9.891	0.489	0.21	1.1	20.227	4.944	0.0	0.0	0.0	0
3.60	9.687	0.479	0.21	1.1	20.223	4.945	0.0	0.0	0.0	0
3.61	9.483	0.479	0.21	1.2	19.797	5.051	0.0	0.0	0.0	0
3.62	9.381	0.469	0.21	1.2	20.002	4.999	0.0	0.0	0.0	0
3.63	9.381	0.469	0.21	1.2	20.002	4.999	0.0	0.0	0.0	0
3.64	9.279	0.449	0.21	1.2	20.666	4.839	0.0	0.0	0.0	0
3.65	9.279	0.438	0.21	1.2	21.185	4.72	0.0	0.0	0.0	0
3.66	9.279	0.418	0.21	1.2	22.199	4.505	0.0	0.0	0.0	0
3.67	9.279	0.387	0.21	1.2	23.977	4.171	0.0	0.0	0.0	0
3.68	9.381	0.367	0.21	1.2	25.561	3.912	0.0	0.0	0.0	0
3.69	9.381	0.347	0.21	1.2	27.035	3.699	0.0	0.0	0.0	0
3.70	9.483	0.326	0.21	1.2	29.089	3.438	0.0	0.0	0.0	0
3.71	9.483	0.275	0.21	1.2	34.484	2.9	0.0	0.0	0.0	0
3.72	9.483	0.265	0.21	1.2	35.785	2.794	0.0	0.0	0.0	0
3.73	9.381	0.255	0.21	1.2	36.788	2.718	0.0	0.0	0.0	0
3.74	9.381	0.245	0.21	1.2	38.29	2.612	0.0	0.0	0.0	0
3.75	9.381	0.235	0.21	1.2	39.919	2.505	0.0	0.0	0.0	0
3.76	9.483	0.235	0.21	1.2	40.353	2.478	0.0	0.0	0.0	0
3.77	9.483	0.224	0.21	1.2	42.335	2.362	0.0	0.0	0.0	0
3.78	9.585	0.224	0.21	1.2	42.79	2.337	0.0	0.0	0.0	0
3.79	9.585	0.214	0.21	1.2	44.79	2.233	0.0	0.0	0.0	0
3.80	9.585	0.194	0.21	1.2	49.407	2.024	0.0	0.0	0.0	0
3.81	9.483	0.194	0.21	1.2	48.881	2.046	0.0	0.0	0.0	0
3.82	9.381	0.194	0.21	1.3	48.356	2.068	0.0	0.0	0.0	0
3.83	9.279	0.194	0.21	1.3	47.83	2.091	0.0	0.0	0.0	0
3.84	9.279	0.204	0.21	1.3	45.485	2.199	0.0	0.0	0.0	0
3.85	9.381	0.204	0.21	1.3	45.985	2.175	0.0	0.0	0.0	0
3.86	9.585	0.204	0.21	1.3	46.985	2.128	0.0	0.0	0.0	0

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3.87	9.483	0.204	0.21	1.3	46.485	2.151	0.0	0.0	0.0	0
3.88	9.483	0.204	0.22	1.3	46.485	2.151	0.0	0.0	0.0	0
3.89	9.483	0.204	0.22	1.3	46.485	2.151	0.0	0.0	0.0	0
3.90	9.483	0.204	0.22	1.3	46.485	2.151	0.0	0.0	0.0	0
3.91	11.115	0.051	0.41	1.3	217.941	0.459	0.0	0.0	0.0	0
3.92	10.809	0.061	0.43	1.3	177.197	0.564	0.0	0.0	0.0	0
3.93	10.809	0.092	0.46	1.3	117.489	0.851	0.0	0.0	0.0	0
3.94	10.605	0.102	0.46	1.3	103.971	0.962	0.0	0.0	0.0	0
3.95	10.809	0.112	0.46	1.3	96.509	1.036	0.0	0.0	0.0	0
3.96	10.911	0.122	0.46	1.3	89.434	1.118	0.0	0.0	0.0	0
3.97	10.911	0.143	0.47	1.3	76.301	1.311	0.0	0.0	0.0	0
3.98	10.911	0.153	0.48	1.3	71.314	1.402	0.0	0.0	0.0	0
3.99	10.911	0.163	0.50	1.3	66.939	1.494	0.0	0.0	0.0	0
4.00	10.809	0.173	0.55	1.3	62.48	1.601	0.0	0.0	0.0	0
4.01	10.605	0.194	0.59	1.3	54.665	1.829	0.0	0.0	0.0	0
4.02	10.707	0.214	0.64	1.3	50.033	1.999	0.0	0.0	0.0	0
4.03	10.911	0.214	0.69	1.3	50.986	1.961	0.0	0.0	0.0	0
4.04	10.809	0.214	0.73	1.3	50.509	1.98	0.0	0.0	0.0	0
4.05	10.707	0.214	0.78	1.3	50.033	1.999	0.0	0.0	0.0	0
4.06	11.319	0.194	0.83	1.3	58.345	1.714	0.0	0.0	0.0	0
4.07	11.727	0.184	0.86	1.3	63.734	1.569	0.0	0.0	0.0	0
4.08	12.134	0.184	0.87	1.3	65.946	1.516	0.0	0.0	0.0	0
4.09	12.44	0.184	0.88	1.3	67.609	1.479	0.0	0.0	0.0	0
4.10	13.256	0.194	0.88	1.3	68.33	1.463	0.0	0.0	0.0	0
4.11	13.46	0.194	0.87	1.3	69.381	1.441	0.0	0.0	0.0	0
4.12	13.562	0.204	0.87	1.3	66.48	1.504	0.0	0.0	0.0	0
4.13	13.97	0.214	0.87	1.3	65.28	1.532	0.0	0.0	0.0	0
4.14	14.378	0.224	0.87	1.3	64.188	1.558	0.0	0.0	0.0	0
4.15	14.786	0.265	0.87	1.3	55.796	1.792	0.0	0.0	0.0	0
4.16	14.888	0.316	0.87	1.3	47.114	2.123	0.0	0.0	0.0	0
4.17	14.888	0.337	0.87	1.3	44.178	2.264	0.0	0.0	0.0	0
4.18	15.092	0.357	0.87	1.3	42.275	2.365	0.0	0.0	0.0	0
4.19	15.907	0.428	0.87	1.3	37.166	2.691	0.0	0.0	0.0	0
4.20	16.009	0.459	0.87	1.3	34.878	2.867	0.0	0.0	0.0	0
4.21	16.213	0.489	0.87	1.3	33.155	3.016	0.0	0.0	0.0	0
4.22	17.131	0.53	0.89	1.3	32.323	3.094	0.0	0.0	0.0	0
4.23	15.499	0.632	0.92	1.3	24.524	4.078	0.0	0.0	0.0	0
4.24	15.092	0.673	0.92	1.3	22.425	4.459	0.0	0.0	0.0	0
4.25	15.092	0.683	0.92	1.3	22.097	4.526	0.0	0.0	0.0	0
4.26	15.295	0.704	0.93	1.3	21.726	4.603	0.0	0.0	0.0	0
4.27	15.499	0.714	0.93	1.3	21.707	4.607	0.0	0.0	0.0	0
4.28	15.601	0.755	0.93	1.3	20.664	4.839	0.0	0.0	0.0	0
4.29	15.601	0.775	0.93	1.3	20.13	4.968	0.0	0.0	0.0	0
4.30	15.601	0.775	0.93	1.3	20.13	4.968	0.0	0.0	0.0	0
4.31	15.703	0.775	0.93	1.3	20.262	4.935	0.0	0.0	0.0	0
4.32	15.703	0.785	0.93	1.3	20.004	4.999	0.0	0.0	0.0	0
4.33	15.703	0.795	0.92	1.3	19.752	5.063	0.0	0.0	0.0	0
4.34	15.805	0.795	0.92	1.3	19.881	5.03	0.0	0.0	0.0	0
4.35	15.907	0.806	0.92	1.3	19.736	5.067	0.0	0.0	0.0	0
4.36	15.907	0.806	0.92	1.3	19.736	5.067	0.0	0.0	0.0	0
4.37	15.805	0.795	0.93	1.3	19.881	5.03	0.0	0.0	0.0	0
4.38	15.907	0.785	0.93	1.3	20.264	4.935	0.0	0.0	0.0	0
4.39	16.111	0.785	0.93	1.3	20.524	4.872	0.0	0.0	0.0	0
4.40	16.315	0.785	0.93	1.3	20.783	4.812	0.0	0.0	0.0	0
4.41	16.519	0.806	0.94	1.4	20.495	4.879	0.0	0.0	0.0	0
4.42	16.825	0.816	0.94	1.4	20.619	4.85	0.0	0.0	0.0	0
4.43	17.029	0.816	0.94	1.4	20.869	4.792	0.0	0.0	0.0	0
4.44	17.233	0.816	0.94	1.4	21.119	4.735	0.0	0.0	0.0	0
4.45	17.437	0.816	0.95	1.4	21.369	4.68	0.0	0.0	0.0	0
4.46	17.539	0.826	0.95	1.4	21.234	4.71	0.0	0.0	0.0	0
4.47	17.641	0.826	0.95	1.4	21.357	4.682	0.0	0.0	0.0	0
4.48	17.539	0.836	0.95	1.4	20.98	4.767	0.0	0.0	0.0	0
4.49	17.743	0.836	0.95	1.4	21.224	4.712	0.0	0.0	0.0	0
4.50	18.151	0.826	0.95	1.4	21.975	4.551	0.0	0.0	0.0	0
4.51	18.253	0.846	0.95	1.4	21.576	4.635	0.0	0.0	0.0	0
4.52	18.559	0.857	0.95	1.4	21.656	4.618	0.0	0.0	0.0	0
4.53	18.457	0.887	0.95	1.4	20.808	4.806	0.0	0.0	0.0	0
4.54	18.253	0.928	0.96	1.4	19.669	5.084	0.0	0.0	0.0	0
4.55	18.151	0.948	0.96	1.4	19.147	5.223	0.0	0.0	0.0	0
4.56	17.845	0.969	0.96	1.4	18.416	5.43	0.0	0.0	0.0	0
4.57	17.539	0.989	0.96	1.4	17.734	5.639	0.0	0.0	0.0	0
4.58	17.437	0.999	0.97	1.4	17.454	5.729	0.0	0.0	0.0	0
4.59	17.029	1.02	0.98	1.4	16.695	5.99	0.0	0.0	0.0	0
4.60	16.927	1.03	0.98	1.4	16.434	6.085	0.0	0.0	0.0	0
4.61	1.53	0.153	0.55	1.5	10.0	10.0	0.0	0.0	0.0	0

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4.62	3.263	0.428	0.69	1.5	7.624	13.117	0.0	0.0	0.0	0
4.63	4.895	0.765	0.74	1.5	6.399	15.628	0.0	0.0	0.0	0
4.64	5.506	0.744	0.78	1.5	7.401	13.513	0.0	0.0	0.0	0
4.65	5.914	0.714	0.82	1.5	8.283	12.073	0.0	0.0	0.0	0
4.66	6.22	0.683	0.84	1.5	9.107	10.981	0.0	0.0	0.0	0
4.67	6.628	0.642	0.88	1.5	10.324	9.686	0.0	0.0	0.0	0
4.68	7.138	0.53	2.31	1.5	13.468	7.425	0.0	0.0	0.0	0
4.69	7.24	0.469	2.84	1.5	15.437	6.478	0.0	0.0	0.0	0
4.70	7.444	0.418	3.16	1.5	17.809	5.615	0.0	0.0	0.0	0
4.71	7.852	0.377	3.39	1.5	20.828	4.801	0.0	0.0	0.0	0
4.72	8.667	0.296	4.46	1.4	29.28	3.415	0.0	0.0	0.0	0
4.73	9.279	0.153	4.68	1.5	60.647	1.649	0.0	0.0	0.0	0
4.74	11.319	0.194	4.87	1.5	58.345	1.714	0.0	0.0	0.0	0
4.75	12.95	0.194	5.00	1.5	66.753	1.498	0.0	0.0	0.0	0
4.76	13.766	0.184	5.04	1.5	74.815	1.337	0.0	0.0	0.0	0
4.77	14.174	0.173	5.04	1.5	81.931	1.221	0.0	0.0	0.0	0
4.78	14.582	0.173	5.02	1.5	84.289	1.186	0.0	0.0	0.0	0
4.79	14.99	0.163	4.96	1.5	91.963	1.087	0.0	0.0	0.0	0
4.80	15.092	0.163	4.94	1.5	92.589	1.08	0.0	0.0	0.0	0
4.81	14.888	0.173	4.90	1.5	86.058	1.162	0.0	0.0	0.0	0
4.82	14.684	0.204	4.87	1.5	71.98	1.389	0.0	0.0	0.0	0
4.83	14.276	0.245	4.81	1.5	58.269	1.716	0.0	0.0	0.0	0
4.84	14.072	0.265	4.78	1.5	53.102	1.883	0.0	0.0	0.0	0
4.85	13.664	0.296	4.74	1.4	46.162	2.166	0.0	0.0	0.0	0
4.86	12.848	0.357	4.68	1.4	35.989	2.779	0.0	0.0	0.0	0
4.87	12.542	0.377	4.65	1.4	33.268	3.006	0.0	0.0	0.0	0
4.88	12.338	0.387	4.63	1.4	31.881	3.137	0.0	0.0	0.0	0
4.89	12.236	0.387	4.62	1.4	31.618	3.163	0.0	0.0	0.0	0
4.90	12.134	0.387	4.60	1.4	31.354	3.189	0.0	0.0	0.0	0
4.91	12.134	0.398	4.59	1.4	30.487	3.28	0.0	0.0	0.0	0
4.92	12.032	0.418	4.59	1.4	28.785	3.474	0.0	0.0	0.0	0
4.93	11.829	0.398	4.59	1.4	29.721	3.365	0.0	0.0	0.0	0
4.94	11.829	0.377	4.58	1.4	31.377	3.187	0.0	0.0	0.0	0
4.95	11.727	0.367	4.57	1.4	31.954	3.13	0.0	0.0	0.0	0
4.96	11.829	0.337	4.56	1.4	35.101	2.849	0.0	0.0	0.0	0
4.97	11.829	0.316	4.55	1.4	37.434	2.671	0.0	0.0	0.0	0
4.98	11.727	0.296	4.54	1.4	39.618	2.524	0.0	0.0	0.0	0
4.99	11.727	0.286	4.54	1.4	41.003	2.439	0.0	0.0	0.0	0
5.00	11.523	0.255	4.52	1.4	45.188	2.213	0.0	0.0	0.0	0
5.01	11.523	0.245	4.51	1.4	47.033	2.126	0.0	0.0	0.0	0
5.02	11.625	0.235	4.50	1.4	49.468	2.022	0.0	0.0	0.0	0
5.03	12.134	0.214	4.52	1.4	56.701	1.764	0.0	0.0	0.0	0
5.04	12.338	0.214	4.53	1.4	57.654	1.734	0.0	0.0	0.0	0
5.05	12.542	0.214	4.54	1.4	58.607	1.706	0.0	0.0	0.0	0
5.06	12.644	0.214	4.53	1.4	59.084	1.693	0.0	0.0	0.0	0
5.07	12.848	0.214	4.52	1.4	60.037	1.666	0.0	0.0	0.0	0
5.08	12.848	0.214	4.53	1.4	60.037	1.666	0.0	0.0	0.0	0
5.09	12.746	0.214	4.54	1.4	59.561	1.679	0.0	0.0	0.0	0
5.10	12.542	0.214	4.52	1.5	58.607	1.706	0.0	0.0	0.0	0
5.11	12.44	0.214	4.50	1.5	58.131	1.72	0.0	0.0	0.0	0
5.12	12.236	0.214	4.49	1.5	57.178	1.749	0.0	0.0	0.0	0
5.13	12.236	0.224	4.47	1.5	54.625	1.831	0.0	0.0	0.0	0
5.14	12.236	0.224	4.43	1.5	54.625	1.831	0.0	0.0	0.0	0
5.15	12.338	0.235	4.41	1.5	52.502	1.905	0.0	0.0	0.0	0
5.16	13.358	0.235	4.47	1.5	56.843	1.759	0.0	0.0	0.0	0
5.17	13.97	0.235	4.50	1.5	59.447	1.682	0.0	0.0	0.0	0
5.18	14.582	0.245	4.53	1.5	59.518	1.68	0.0	0.0	0.0	0
5.19	15.194	0.245	4.55	1.5	62.016	1.612	0.0	0.0	0.0	0
5.20	16.723	0.265	4.61	1.5	63.106	1.585	0.0	0.0	0.0	0
5.21	16.825	0.275	4.61	1.5	61.182	1.634	0.0	0.0	0.0	0
5.22	16.621	0.286	4.56	1.5	58.115	1.721	0.0	0.0	0.0	0
5.23	15.805	0.306	4.27	1.5	51.65	1.936	0.0	0.0	0.0	0
5.24	15.601	0.296	4.12	1.5	52.706	1.897	0.0	0.0	0.0	0
5.25	15.194	0.296	3.98	1.5	51.331	1.948	0.0	0.0	0.0	0
5.26	14.888	0.306	3.96	1.5	48.654	2.055	0.0	0.0	0.0	0
5.27	14.378	0.326	4.06	1.5	44.104	2.267	0.0	0.0	0.0	0
5.28	14.786	0.326	4.06	1.5	45.356	2.205	0.0	0.0	0.0	0
5.29	14.582	0.306	4.00	1.5	47.654	2.098	0.0	0.0	0.0	0
5.30	14.378	0.316	4.09	1.5	45.5	2.198	0.0	0.0	0.0	0
5.31	14.786	0.326	4.15	1.5	45.356	2.205	0.0	0.0	0.0	0
5.32	15.499	0.326	4.18	1.5	47.543	2.103	0.0	0.0	0.0	0
5.33	16.519	0.347	4.04	1.5	47.605	2.101	0.0	0.0	0.0	0
5.34	17.029	0.357	4.05	1.5	47.7	2.096	0.0	0.0	0.0	0
5.35	17.233	0.347	4.06	1.5	49.663	2.014	0.0	0.0	0.0	0
5.36	17.539	0.337	4.04	1.5	52.045	1.921	0.0	0.0	0.0	0

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5.37	17.641	0.337	3.94	1.5	52.347	1.91	0.0	0.0	0.0	0
5.38	17.029	0.367	3.88	1.5	46.401	2.155	0.0	0.0	0.0	0
5.39	16.417	0.377	3.90	1.5	43.546	2.296	0.0	0.0	0.0	0
5.40	15.499	0.367	3.94	1.5	42.232	2.368	0.0	0.0	0.0	0
5.41	15.194	0.357	3.99	1.5	42.56	2.35	0.0	0.0	0.0	0
5.42	15.092	0.357	4.07	1.5	42.275	2.365	0.0	0.0	0.0	0
5.43	15.194	0.367	4.12	1.5	41.401	2.415	0.0	0.0	0.0	0
5.44	15.194	0.357	4.18	1.5	42.56	2.35	0.0	0.0	0.0	0
5.45	15.194	0.347	4.18	1.5	43.787	2.284	0.0	0.0	0.0	0
5.46	15.092	0.357	4.18	1.5	42.275	2.365	0.0	0.0	0.0	0
5.47	14.888	0.357	4.18	1.5	41.703	2.398	0.0	0.0	0.0	0
5.48	14.888	0.357	4.19	1.5	41.703	2.398	0.0	0.0	0.0	0
5.49	14.99	0.347	4.18	1.5	43.199	2.315	0.0	0.0	0.0	0
5.50	14.684	0.347	4.17	1.5	42.317	2.363	0.0	0.0	0.0	0
5.51	13.766	0.357	4.15	1.5	38.56	2.593	0.0	0.0	0.0	0
5.52	13.664	0.347	4.15	1.6	39.378	2.54	0.0	0.0	0.0	0
5.53	13.664	0.326	4.15	1.6	41.914	2.386	0.0	0.0	0.0	0
5.54	13.664	0.296	4.17	1.6	46.162	2.166	0.0	0.0	0.0	0
5.55	13.868	0.296	4.18	1.6	46.851	2.134	0.0	0.0	0.0	0
5.56	13.97	0.296	4.18	1.6	47.196	2.119	0.0	0.0	0.0	0
5.57	14.276	0.275	4.19	1.6	51.913	1.926	0.0	0.0	0.0	0
5.58	14.276	0.275	4.19	1.6	51.913	1.926	0.0	0.0	0.0	0
5.59	14.276	0.275	4.19	1.6	51.913	1.926	0.0	0.0	0.0	0
5.60	17.131	0.459	2.86	1.6	37.322	2.679	0.0	0.0	0.0	0
5.61	16.213	0.479	2.91	1.6	33.848	2.954	0.0	0.0	0.0	0
5.62	15.397	0.51	3.06	1.6	30.19	3.312	0.0	0.0	0.0	0
5.63	15.499	0.479	3.22	1.6	32.357	3.091	0.0	0.0	0.0	0
5.64	16.111	0.449	3.38	1.6	35.882	2.787	0.0	0.0	0.0	0
5.65	17.641	0.449	3.53	1.6	39.29	2.545	0.0	0.0	0.0	0
5.66	19.986	0.479	3.67	1.6	41.724	2.397	0.0	0.0	0.0	0
5.67	19.782	0.469	3.67	1.6	42.179	2.371	0.0	0.0	0.0	0
5.68	19.17	0.459	3.56	1.6	41.765	2.394	0.0	0.0	0.0	0
5.69	18.253	0.449	3.20	1.6	40.653	2.46	0.0	0.0	0.0	0
5.70	16.927	0.459	3.12	1.6	36.878	2.712	0.0	0.0	0.0	0
5.71	15.907	0.489	3.10	1.6	32.53	3.074	0.0	0.0	0.0	0
5.72	15.194	0.51	3.33	1.6	29.792	3.357	0.0	0.0	0.0	0
5.73	14.684	0.469	3.41	1.6	31.309	3.194	0.0	0.0	0.0	0
5.74	14.582	0.449	3.42	1.6	32.477	3.079	0.0	0.0	0.0	0
5.75	14.48	0.438	3.42	1.6	33.059	3.025	0.0	0.0	0.0	0
5.76	14.276	0.428	3.42	1.6	33.355	2.998	0.0	0.0	0.0	0
5.77	14.174	0.438	3.42	1.6	32.361	3.09	0.0	0.0	0.0	0
5.78	14.276	0.449	3.43	1.6	31.795	3.145	0.0	0.0	0.0	0
5.79	14.276	0.459	3.43	1.6	31.102	3.215	0.0	0.0	0.0	0
5.80	14.378	0.469	3.46	1.6	30.657	3.262	0.0	0.0	0.0	0
5.81	14.48	0.449	3.47	1.6	32.249	3.101	0.0	0.0	0.0	0
5.82	14.582	0.418	3.47	1.6	34.885	2.867	0.0	0.0	0.0	0
5.83	14.582	0.387	3.48	1.6	37.68	2.654	0.0	0.0	0.0	0
5.84	14.378	0.367	3.47	1.6	39.177	2.553	0.0	0.0	0.0	0
5.85	14.072	0.347	3.47	1.6	40.553	2.466	0.0	0.0	0.0	0
5.86	13.868	0.337	3.47	1.7	41.151	2.43	0.0	0.0	0.0	0
5.87	13.97	0.316	3.49	1.6	44.209	2.262	0.0	0.0	0.0	0
5.88	14.174	0.306	3.51	1.6	46.32	2.159	0.0	0.0	0.0	0
5.89	14.276	0.296	3.52	1.6	48.23	2.073	0.0	0.0	0.0	0
5.90	14.378	0.265	3.53	1.7	54.257	1.843	0.0	0.0	0.0	0
5.91	14.378	0.255	3.52	1.7	56.384	1.774	0.0	0.0	0.0	0
5.92	14.276	0.255	3.50	1.7	55.984	1.786	0.0	0.0	0.0	0
5.93	14.174	0.255	3.49	1.7	55.584	1.799	0.0	0.0	0.0	0
5.94	13.97	0.275	3.48	1.7	50.8	1.969	0.0	0.0	0.0	0
5.95	14.174	0.286	3.50	1.7	49.559	2.018	0.0	0.0	0.0	0
5.96	14.582	0.286	3.53	1.7	50.986	1.961	0.0	0.0	0.0	0
5.97	15.295	0.286	3.56	1.7	53.479	1.87	0.0	0.0	0.0	0
5.98	15.907	0.286	3.59	1.7	55.619	1.798	0.0	0.0	0.0	0
5.99	16.927	0.286	3.61	1.7	59.185	1.69	0.0	0.0	0.0	0
6.00	18.151	0.306	3.64	1.7	59.317	1.686	0.0	0.0	0.0	0
6.01	20.496	0.347	3.67	1.7	59.066	1.693	0.0	0.0	0.0	0
6.02	21.006	0.377	3.48	1.7	55.719	1.795	0.0	0.0	0.0	0
6.03	21.21	0.408	3.16	1.7	51.985	1.924	0.0	0.0	0.0	0
6.04	21.414	0.449	3.07	1.7	47.693	2.097	0.0	0.0	0.0	0
6.05	21.516	0.52	2.63	1.7	41.377	2.417	0.0	0.0	0.0	0
6.06	21.414	0.561	2.55	1.7	38.171	2.62	0.0	0.0	0.0	0
6.07	20.904	0.591	2.58	1.7	35.371	2.827	0.0	0.0	0.0	0
6.08	18.762	0.612	2.69	1.7	30.657	3.262	0.0	0.0	0.0	0
6.09	18.253	0.642	2.71	1.7	28.431	3.517	0.0	0.0	0.0	0
6.10	18.151	0.663	2.70	1.7	27.377	3.653	0.0	0.0	0.0	0
6.11	18.457	0.683	2.71	1.7	27.023	3.7	0.0	0.0	0.0	0

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6.12	20.598	0.795	2.80	1.7	25.909	3.86	0.0	0.0	0.0	0
6.13	22.229	0.846	2.86	1.7	26.275	3.806	0.0	0.0	0.0	0
6.14	24.167	0.857	2.92	1.7	28.2	3.546	0.0	0.0	0.0	0
6.15	28.654	0.816	2.50	1.7	35.115	2.848	0.0	0.0	0.0	0
6.16	30.489	0.806	2.10	1.7	37.828	2.644	0.0	0.0	0.0	0
6.17	31.407	0.826	1.78	1.7	38.023	2.63	0.0	0.0	0.0	0
6.18	31.407	0.816	1.34	1.7	38.489	2.598	0.0	0.0	0.0	0
6.19	29.061	0.816	1.01	1.7	35.614	2.808	0.0	0.0	0.0	0
6.20	27.022	0.806	1.03	1.7	33.526	2.983	0.0	0.0	0.0	0
6.21	24.779	0.795	1.01	1.7	31.169	3.208	0.0	0.0	0.0	0
6.22	23.351	0.755	0.96	1.7	30.928	3.233	0.0	0.0	0.0	0
6.23	21.414	0.744	1.01	1.7	28.782	3.474	0.0	0.0	0.0	0
6.24	19.884	0.755	1.18	1.7	26.336	3.797	0.0	0.0	0.0	0
6.25	18.457	0.755	1.38	1.7	24.446	4.091	0.0	0.0	0.0	0
6.26	17.539	0.724	1.53	1.7	24.225	4.128	0.0	0.0	0.0	0
6.27	16.825	0.693	1.99	1.7	24.278	4.119	0.0	0.0	0.0	0
6.28	16.417	0.683	2.28	1.7	24.037	4.16	0.0	0.0	0.0	0
6.29	16.417	0.704	2.34	1.7	23.32	4.288	0.0	0.0	0.0	0
6.30	16.213	0.724	2.40	1.7	22.394	4.466	0.0	0.0	0.0	0
6.31	16.213	0.724	2.42	1.8	22.394	4.466	0.0	0.0	0.0	0
6.32	16.315	0.704	2.43	1.8	23.175	4.315	0.0	0.0	0.0	0
6.33	16.519	0.683	2.43	1.8	24.186	4.135	0.0	0.0	0.0	0
6.34	16.417	0.642	2.42	1.8	25.572	3.911	0.0	0.0	0.0	0
6.35	16.519	0.612	2.45	1.8	26.992	3.705	0.0	0.0	0.0	0
6.36	17.029	0.571	2.47	1.8	29.823	3.353	0.0	0.0	0.0	0
6.37	17.743	0.53	2.50	1.8	33.477	2.987	0.0	0.0	0.0	0
6.38	19.374	0.469	2.58	1.8	41.309	2.421	0.0	0.0	0.0	0
6.39	20.088	0.449	2.62	1.8	44.739	2.235	0.0	0.0	0.0	0
6.40	20.802	0.449	2.64	1.8	46.33	2.158	0.0	0.0	0.0	0
6.41	21.516	0.418	2.63	1.8	51.474	1.943	0.0	0.0	0.0	0
6.42	21.822	0.438	2.64	1.8	49.822	2.007	0.0	0.0	0.0	0
6.43	21.822	0.469	2.67	1.8	46.529	2.149	0.0	0.0	0.0	0
6.44	21.72	0.51	2.71	1.8	42.588	2.348	0.0	0.0	0.0	0
6.45	21.924	0.52	2.77	1.8	42.162	2.372	0.0	0.0	0.0	0
6.46	22.127	0.489	2.76	1.8	45.249	2.21	0.0	0.0	0.0	0
6.47	22.331	0.479	2.75	1.8	46.62	2.145	0.0	0.0	0.0	0
6.48	22.331	0.479	2.72	1.8	46.62	2.145	0.0	0.0	0.0	0
6.49	21.924	0.551	2.77	1.8	39.789	2.513	0.0	0.0	0.0	0
6.50	21.618	0.581	2.80	1.8	37.208	2.688	0.0	0.0	0.0	0
6.51	21.006	0.591	2.83	1.8	35.543	2.813	0.0	0.0	0.0	0
6.52	20.7	0.591	2.85	1.8	35.025	2.855	0.0	0.0	0.0	0
6.53	21.21	0.632	2.86	1.8	33.56	2.98	0.0	0.0	0.0	0
6.54	21.516	0.653	2.87	1.8	32.949	3.035	0.0	0.0	0.0	0
6.55	22.229	0.663	2.89	1.8	33.528	2.983	0.0	0.0	0.0	0
6.56	24.677	0.714	2.88	1.8	34.562	2.893	0.0	0.0	0.0	0
6.57	23.657	0.714	2.24	1.8	33.133	3.018	0.0	0.0	0.0	0
6.58	23.657	0.714	2.24	1.8	33.133	3.018	0.0	0.0	0.0	0
6.59	23.657	0.714	2.24	1.8	33.133	3.018	0.0	0.0	0.0	0
6.60	23.759	1.091	1.49	1.8	21.777	4.592	0.0	0.0	0.0	0
6.61	23.861	1.111	1.54	1.8	21.477	4.656	0.0	0.0	0.0	0
6.62	22.841	1.111	1.57	1.8	20.559	4.864	0.0	0.0	0.0	0
6.63	23.453	1.142	1.67	1.8	20.537	4.869	0.0	0.0	0.0	0
6.64	23.861	1.142	1.55	1.8	20.894	4.786	0.0	0.0	0.0	0
6.65	22.433	1.122	1.39	1.8	19.994	5.002	0.0	0.0	0.0	0
6.66	21.414	1.091	1.38	1.8	19.628	5.095	0.0	0.0	0.0	0
6.67	20.7	1.081	1.56	1.8	19.149	5.222	0.0	0.0	0.0	0
6.68	20.292	1.06	1.67	1.8	19.143	5.224	0.0	0.0	0.0	0
6.69	19.782	1.06	1.77	1.8	18.662	5.358	0.0	0.0	0.0	0
6.70	19.476	1.071	1.80	1.8	18.185	5.499	0.0	0.0	0.0	0
6.71	18.966	1.06	1.82	1.8	17.892	5.589	0.0	0.0	0.0	0
6.72	18.661	1.01	1.83	1.8	18.476	5.412	0.0	0.0	0.0	0
6.73	17.845	0.908	1.84	1.8	19.653	5.088	0.0	0.0	0.0	0
6.74	17.641	0.867	1.85	1.9	20.347	4.915	0.0	0.0	0.0	0
6.75	17.335	0.826	1.86	1.9	20.987	4.765	0.0	0.0	0.0	0
6.76	17.029	0.795	1.87	1.9	21.42	4.669	0.0	0.0	0.0	0
6.77	16.417	0.714	1.92	1.9	22.993	4.349	0.0	0.0	0.0	0
6.78	16.519	0.683	1.94	1.8	24.186	4.135	0.0	0.0	0.0	0
6.79	16.621	0.653	1.96	1.8	25.453	3.929	0.0	0.0	0.0	0
6.80	16.723	0.622	1.98	1.9	26.886	3.719	0.0	0.0	0.0	0
6.81	16.825	0.52	2.05	1.8	32.356	3.091	0.0	0.0	0.0	0
6.82	16.723	0.479	2.07	1.8	34.912	2.864	0.0	0.0	0.0	0
6.83	16.621	0.459	2.09	1.8	36.211	2.762	0.0	0.0	0.0	0
6.84	16.417	0.459	2.10	1.8	35.767	2.796	0.0	0.0	0.0	0
6.85	16.009	0.408	2.13	1.8	39.238	2.549	0.0	0.0	0.0	0
6.86	15.703	0.387	2.15	1.8	40.576	2.464	0.0	0.0	0.0	0

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6.87	15.499	0.367	2.16	1.9	42.232	2.368	0.0	0.0	0.0	0
6.88	15.397	0.357	2.17	1.9	43.129	2.319	0.0	0.0	0.0	0
6.89	15.805	0.347	2.20	1.9	45.548	2.196	0.0	0.0	0.0	0
6.90	15.805	0.347	2.23	1.9	45.548	2.196	0.0	0.0	0.0	0
6.91	15.907	0.347	2.26	1.8	45.841	2.181	0.0	0.0	0.0	0
6.92	16.621	0.347	2.37	1.8	47.899	2.088	0.0	0.0	0.0	0
6.93	17.233	0.357	2.39	1.8	48.272	2.072	0.0	0.0	0.0	0
6.94	17.947	0.357	2.39	1.9	50.272	1.989	0.0	0.0	0.0	0
6.95	17.539	0.367	2.39	1.8	47.79	2.092	0.0	0.0	0.0	0
6.96	16.825	0.377	2.41	1.8	44.629	2.241	0.0	0.0	0.0	0
6.97	16.417	0.367	2.40	1.8	44.733	2.235	0.0	0.0	0.0	0
6.98	16.009	0.357	2.39	1.8	44.843	2.23	0.0	0.0	0.0	0
6.99	15.805	0.367	2.40	1.9	43.065	2.322	0.0	0.0	0.0	0
7.00	15.092	0.398	2.46	1.8	37.92	2.637	0.0	0.0	0.0	0
7.01	14.786	0.387	2.49	1.8	38.207	2.617	0.0	0.0	0.0	0
7.02	14.786	0.357	2.51	1.8	41.417	2.414	0.0	0.0	0.0	0
7.03	14.786	0.347	2.54	1.8	42.611	2.347	0.0	0.0	0.0	0
7.04	14.684	0.357	2.58	1.8	41.132	2.431	0.0	0.0	0.0	0
7.05	14.684	0.357	2.60	1.8	41.132	2.431	0.0	0.0	0.0	0
7.06	14.684	0.347	2.61	1.8	42.317	2.363	0.0	0.0	0.0	0
7.07	14.786	0.347	2.62	1.8	42.611	2.347	0.0	0.0	0.0	0
7.08	15.092	0.337	2.67	1.8	44.783	2.233	0.0	0.0	0.0	0
7.09	14.99	0.316	2.69	1.8	47.437	2.108	0.0	0.0	0.0	0
7.10	14.99	0.296	2.72	1.8	50.642	1.975	0.0	0.0	0.0	0
7.11	15.092	0.286	2.74	1.9	52.769	1.895	0.0	0.0	0.0	0
7.12	15.194	0.265	2.83	1.8	57.336	1.744	0.0	0.0	0.0	0
7.13	15.397	0.255	2.85	1.8	60.38	1.656	0.0	0.0	0.0	0
7.14	15.397	0.255	2.89	1.9	60.38	1.656	0.0	0.0	0.0	0
7.15	15.397	0.245	2.94	1.9	62.845	1.591	0.0	0.0	0.0	0
7.16	15.397	0.255	3.06	1.9	60.38	1.656	0.0	0.0	0.0	0
7.17	15.703	0.255	3.11	1.9	61.58	1.624	0.0	0.0	0.0	0
7.18	15.703	0.255	3.13	1.9	61.58	1.624	0.0	0.0	0.0	0
7.19	11.421	0.245	3.20	1.9	46.616	2.145	0.0	0.0	0.0	0
7.20	16.009	0.245	3.23	1.9	65.343	1.53	0.0	0.0	0.0	0
7.21	16.111	0.245	3.28	1.9	65.759	1.521	0.0	0.0	0.0	0
7.22	16.213	0.245	3.30	1.9	66.176	1.511	0.0	0.0	0.0	0
7.23	16.009	0.255	3.31	1.9	62.78	1.593	0.0	0.0	0.0	0
7.24	15.703	0.275	3.35	1.9	57.102	1.751	0.0	0.0	0.0	0
7.25	15.601	0.286	3.38	1.9	54.549	1.833	0.0	0.0	0.0	0
7.26	15.703	0.286	3.41	1.9	54.906	1.821	0.0	0.0	0.0	0
7.27	15.601	0.286	3.45	1.9	54.549	1.833	0.0	0.0	0.0	0
7.28	15.601	0.275	3.49	1.9	56.731	1.763	0.0	0.0	0.0	0
7.29	15.601	0.275	3.50	1.9	56.731	1.763	0.0	0.0	0.0	0
7.30	15.703	0.255	3.51	1.9	61.58	1.624	0.0	0.0	0.0	0
7.31	15.907	0.255	3.52	1.9	62.38	1.603	0.0	0.0	0.0	0
7.32	16.111	0.265	3.52	1.9	60.796	1.645	0.0	0.0	0.0	0
7.33	16.621	0.275	3.55	1.9	60.44	1.655	0.0	0.0	0.0	0
7.34	16.519	0.286	3.56	1.9	57.759	1.731	0.0	0.0	0.0	0
7.35	16.723	0.306	3.56	1.8	54.65	1.83	0.0	0.0	0.0	0
7.36	16.723	0.316	3.57	1.8	52.921	1.89	0.0	0.0	0.0	0
7.37	16.315	0.337	3.57	1.8	48.412	2.066	0.0	0.0	0.0	0
7.38	16.009	0.357	3.58	1.8	44.843	2.23	0.0	0.0	0.0	0
7.39	15.907	0.367	3.58	1.8	43.343	2.307	0.0	0.0	0.0	0
7.40	16.111	0.357	3.59	1.8	45.129	2.216	0.0	0.0	0.0	0
7.41	16.315	0.367	3.59	1.8	44.455	2.249	0.0	0.0	0.0	0
7.42	16.519	0.377	3.59	1.8	43.817	2.282	0.0	0.0	0.0	0
7.43	16.723	0.387	3.58	1.8	43.212	2.314	0.0	0.0	0.0	0
7.44	16.825	0.408	3.59	1.8	41.238	2.425	0.0	0.0	0.0	0
7.45	16.927	0.418	3.59	1.8	40.495	2.469	0.0	0.0	0.0	0
7.46	17.029	0.438	3.57	1.8	38.879	2.572	0.0	0.0	0.0	0
7.47	16.927	0.438	3.57	1.8	38.646	2.588	0.0	0.0	0.0	0
7.48	16.825	0.438	3.56	1.8	38.413	2.603	0.0	0.0	0.0	0
7.49	16.723	0.438	3.55	1.8	38.18	2.619	0.0	0.0	0.0	0
7.50	16.621	0.449	3.54	1.8	37.018	2.701	0.0	0.0	0.0	0
7.51	16.723	0.459	3.54	1.8	36.434	2.745	0.0	0.0	0.0	0
7.52	16.825	0.469	3.52	1.8	35.874	2.788	0.0	0.0	0.0	0
7.53	16.723	0.489	3.51	1.8	34.198	2.924	0.0	0.0	0.0	0
7.54	16.519	0.52	3.51	1.8	31.767	3.148	0.0	0.0	0.0	0
7.55	16.519	0.53	3.50	1.8	31.168	3.208	0.0	0.0	0.0	0
7.56	16.621	0.54	3.49	1.8	30.78	3.249	0.0	0.0	0.0	0
7.57	16.519	0.551	3.49	1.8	29.98	3.336	0.0	0.0	0.0	0
7.58	16.519	0.551	3.49	1.8	29.98	3.336	0.0	0.0	0.0	0
7.59	16.519	0.551	3.49	1.8	29.98	3.336	0.0	0.0	0.0	0
7.60	16.723	0.561	3.28	1.8	29.809	3.355	0.0	0.0	0.0	0
7.61	16.621	0.581	3.27	1.8	28.608	3.496	0.0	0.0	0.0	0

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7.62	16.417	0.591	3.25	1.8	27.778	3.6	0.0	0.0	0.0	0
7.63	16.111	0.602	3.24	1.8	26.762	3.737	0.0	0.0	0.0	0
7.64	15.805	0.612	3.23	1.8	25.825	3.872	0.0	0.0	0.0	0
7.65	15.397	0.622	3.23	1.8	24.754	4.04	0.0	0.0	0.0	0
7.66	15.092	0.642	3.23	1.8	23.508	4.254	0.0	0.0	0.0	0
7.67	14.888	0.642	3.22	1.8	23.19	4.312	0.0	0.0	0.0	0
7.68	14.684	0.642	3.21	1.9	22.872	4.372	0.0	0.0	0.0	0
7.69	14.48	0.663	3.20	1.9	21.84	4.579	0.0	0.0	0.0	0
7.70	13.97	0.683	3.20	1.8	20.454	4.889	0.0	0.0	0.0	0
7.71	13.664	0.693	3.19	1.9	19.717	5.072	0.0	0.0	0.0	0
7.72	13.358	0.693	3.19	1.9	19.276	5.188	0.0	0.0	0.0	0
7.73	12.848	0.693	3.18	1.9	18.54	5.394	0.0	0.0	0.0	0
7.74	12.848	0.683	3.18	1.9	18.811	5.316	0.0	0.0	0.0	0
7.75	12.746	0.683	3.19	1.9	18.662	5.359	0.0	0.0	0.0	0
7.76	12.848	0.673	3.19	1.9	19.091	5.238	0.0	0.0	0.0	0
7.77	12.95	0.653	3.17	1.9	19.832	5.042	0.0	0.0	0.0	0
7.78	12.848	0.632	3.17	1.9	20.329	4.919	0.0	0.0	0.0	0
7.79	12.848	0.622	3.18	1.9	20.656	4.841	0.0	0.0	0.0	0
7.80	12.644	0.612	3.20	1.9	20.66	4.84	0.0	0.0	0.0	0
7.81	12.644	0.581	3.20	1.9	21.762	4.595	0.0	0.0	0.0	0
7.82	12.644	0.54	3.18	1.9	23.415	4.271	0.0	0.0	0.0	0
7.83	12.644	0.489	3.17	1.9	25.857	3.867	0.0	0.0	0.0	0
7.84	12.542	0.449	3.14	1.9	27.933	3.58	0.0	0.0	0.0	0
7.85	12.338	0.438	3.13	1.9	28.169	3.55	0.0	0.0	0.0	0
7.86	12.236	0.438	3.13	1.9	27.936	3.58	0.0	0.0	0.0	0
7.87	11.93	0.438	3.13	1.9	27.237	3.671	0.0	0.0	0.0	0
7.88	11.727	0.438	3.13	1.9	26.774	3.735	0.0	0.0	0.0	0
7.89	11.727	0.438	3.13	1.9	26.774	3.735	0.0	0.0	0.0	0
7.90	11.625	0.438	3.13	1.9	26.541	3.768	0.0	0.0	0.0	0
7.91	11.421	0.438	3.13	1.9	26.075	3.835	0.0	0.0	0.0	0
7.92	11.319	0.449	3.13	1.9	25.209	3.967	0.0	0.0	0.0	0
7.93	11.217	0.449	3.14	1.9	24.982	4.003	0.0	0.0	0.0	0
7.94	11.217	0.449	3.14	1.9	24.982	4.003	0.0	0.0	0.0	0
7.95	11.319	0.449	3.15	1.9	25.209	3.967	0.0	0.0	0.0	0
7.96	11.523	0.449	3.17	1.9	25.664	3.897	0.0	0.0	0.0	0
7.97	11.727	0.438	3.18	1.9	26.774	3.735	0.0	0.0	0.0	0
7.98	11.93	0.428	3.20	1.9	27.874	3.588	0.0	0.0	0.0	0
7.99	12.134	0.408	3.21	1.9	29.74	3.362	0.0	0.0	0.0	0
8.00	12.338	0.387	3.22	1.9	31.881	3.137	0.0	0.0	0.0	0
8.01	12.848	0.357	3.23	1.9	35.989	2.779	0.0	0.0	0.0	0
8.02	13.154	0.337	3.25	1.9	39.033	2.562	0.0	0.0	0.0	0
8.03	13.766	0.326	3.27	1.9	42.227	2.368	0.0	0.0	0.0	0
8.04	14.48	0.306	3.30	1.9	47.32	2.113	0.0	0.0	0.0	0
8.05	15.092	0.296	3.32	1.9	50.986	1.961	0.0	0.0	0.0	0
8.06	16.417	0.265	3.25	1.9	61.951	1.614	0.0	0.0	0.0	0
8.07	17.131	0.265	3.04	1.9	64.645	1.547	0.0	0.0	0.0	0
8.08	17.539	0.275	2.70	1.9	63.778	1.568	0.0	0.0	0.0	0
8.09	17.845	0.296	2.70	1.9	60.287	1.659	0.0	0.0	0.0	0
8.10	18.151	0.326	2.74	1.9	55.678	1.796	0.0	0.0	0.0	0
8.11	18.661	0.357	2.65	1.9	52.272	1.913	0.0	0.0	0.0	0
8.12	18.966	0.398	2.61	1.9	47.653	2.098	0.0	0.0	0.0	0
8.13	19.17	0.449	2.64	1.9	42.695	2.342	0.0	0.0	0.0	0
8.14	19.476	0.5	2.66	1.9	38.952	2.567	0.0	0.0	0.0	0
8.15	19.782	0.551	2.65	1.9	35.902	2.785	0.0	0.0	0.0	0
8.16	19.986	0.602	2.65	1.9	33.199	3.012	0.0	0.0	0.0	0
8.17	20.19	0.663	2.66	2.0	30.452	3.284	0.0	0.0	0.0	0
8.18	20.7	0.775	2.65	2.0	26.71	3.744	0.0	0.0	0.0	0
8.19	20.904	0.826	2.64	2.0	25.308	3.951	0.0	0.0	0.0	0
8.20	21.108	0.877	2.63	2.0	24.068	4.155	0.0	0.0	0.0	0
8.21	21.312	0.918	2.62	2.0	23.216	4.307	0.0	0.0	0.0	0
8.22	21.414	0.959	2.60	2.0	22.33	4.478	0.0	0.0	0.0	0
8.23	21.72	0.989	2.59	2.0	21.962	4.553	0.0	0.0	0.0	0
8.24	21.924	1.01	2.60	2.0	21.707	4.607	0.0	0.0	0.0	0
8.25	21.618	1.04	2.63	2.0	20.787	4.811	0.0	0.0	0.0	0
8.26	21.618	1.071	2.65	2.0	20.185	4.954	0.0	0.0	0.0	0
8.27	21.618	1.091	2.68	2.0	19.815	5.047	0.0	0.0	0.0	0
8.28	21.822	1.101	2.70	2.0	19.82	5.045	0.0	0.0	0.0	0
8.29	21.924	1.101	2.75	2.0	19.913	5.022	0.0	0.0	0.0	0
8.30	21.924	1.101	2.77	2.0	19.913	5.022	0.0	0.0	0.0	0
8.31	22.127	1.091	2.77	2.0	20.281	4.931	0.0	0.0	0.0	0
8.32	22.433	1.081	2.75	2.0	20.752	4.819	0.0	0.0	0.0	0
8.33	22.739	1.081	2.72	2.0	21.035	4.754	0.0	0.0	0.0	0
8.34	22.841	1.091	2.68	2.0	20.936	4.776	0.0	0.0	0.0	0
8.35	22.739	1.101	2.70	2.0	20.653	4.842	0.0	0.0	0.0	0
8.36	22.637	1.111	2.72	2.0	20.375	4.908	0.0	0.0	0.0	0

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8.37	22.637	1.122	2.75	2.0	20.176	4.956	0.0	0.0	0.0	0
8.38	22.535	1.122	2.90	2.0	20.085	4.979	0.0	0.0	0.0	0
8.39	22.841	1.122	2.99	2.0	20.357	4.912	0.0	0.0	0.0	0
8.40	22.127	1.132	2.99	2.0	19.547	5.116	0.0	0.0	0.0	0
8.41	21.822	1.142	2.98	2.0	19.109	5.233	0.0	0.0	0.0	0
8.42	21.516	1.162	2.97	2.0	18.516	5.401	0.0	0.0	0.0	0
8.43	21.618	1.173	3.03	2.0	18.43	5.426	0.0	0.0	0.0	0
8.44	21.72	1.173	3.08	2.0	18.517	5.401	0.0	0.0	0.0	0
8.45	21.72	1.183	3.07	2.0	18.36	5.447	0.0	0.0	0.0	0
8.46	21.72	1.183	3.06	2.0	18.36	5.447	0.0	0.0	0.0	0
8.47	21.822	1.183	3.06	2.0	18.446	5.421	0.0	0.0	0.0	0
8.48	21.822	1.183	3.06	2.0	18.446	5.421	0.0	0.0	0.0	0
8.49	21.72	1.193	3.08	2.0	18.206	5.493	0.0	0.0	0.0	0
8.50	21.618	1.203	3.08	2.0	17.97	5.565	0.0	0.0	0.0	0
8.51	21.618	1.213	3.08	2.0	17.822	5.611	0.0	0.0	0.0	0
8.52	21.72	1.213	3.09	2.0	17.906	5.585	0.0	0.0	0.0	0
8.53	21.618	1.224	3.10	2.0	17.662	5.662	0.0	0.0	0.0	0
8.54	21.618	1.234	3.10	2.0	17.519	5.708	0.0	0.0	0.0	0
8.55	21.618	1.234	3.10	2.0	17.519	5.708	0.0	0.0	0.0	0
8.56	21.924	1.224	3.10	2.0	17.912	5.583	0.0	0.0	0.0	0
8.57	22.127	1.213	3.06	2.0	18.242	5.482	0.0	0.0	0.0	0
8.58	22.127	1.213	3.06	2.0	18.242	5.482	0.0	0.0	0.0	0
8.59	22.127	1.213	3.06	2.0	18.242	5.482	0.0	0.0	0.0	0
8.60	21.618	1.275	2.95	2.1	16.955	5.898	0.0	0.0	0.0	0
8.61	21.312	1.244	2.86	2.1	17.132	5.837	0.0	0.0	0.0	0
8.62	21.924	1.224	2.76	2.1	17.912	5.583	0.0	0.0	0.0	0
8.63	22.127	1.224	2.70	2.1	18.078	5.532	0.0	0.0	0.0	0
8.64	22.229	1.234	2.71	2.1	18.014	5.551	0.0	0.0	0.0	0
8.65	22.331	1.234	2.71	2.1	18.096	5.526	0.0	0.0	0.0	0
8.66	22.535	1.234	2.64	2.1	18.262	5.476	0.0	0.0	0.0	0
8.67	22.127	1.244	2.60	2.1	17.787	5.622	0.0	0.0	0.0	0
8.68	21.516	1.244	2.53	2.1	17.296	5.782	0.0	0.0	0.0	0
8.69	20.7	1.234	2.40	2.1	16.775	5.961	0.0	0.0	0.0	0
8.70	20.394	1.224	2.32	2.1	16.662	6.002	0.0	0.0	0.0	0
8.71	20.292	1.224	2.24	2.1	16.578	6.032	0.0	0.0	0.0	0
8.72	19.272	1.224	2.14	2.1	15.745	6.351	0.0	0.0	0.0	0
8.73	18.762	1.224	2.11	2.1	15.328	6.524	0.0	0.0	0.0	0
8.74	18.457	1.213	2.11	2.1	15.216	6.572	0.0	0.0	0.0	0
8.75	18.253	1.213	2.11	2.1	15.048	6.645	0.0	0.0	0.0	0
8.76	18.151	1.213	2.18	2.1	14.964	6.683	0.0	0.0	0.0	0
8.77	18.049	1.213	2.32	2.1	14.88	6.721	0.0	0.0	0.0	0
8.78	17.947	1.183	2.35	2.1	15.171	6.592	0.0	0.0	0.0	0
8.79	17.845	1.162	2.38	2.1	15.357	6.512	0.0	0.0	0.0	0
8.80	17.743	1.152	2.41	2.2	15.402	6.493	0.0	0.0	0.0	0
8.81	17.743	1.122	2.43	2.2	15.814	6.324	0.0	0.0	0.0	0
8.82	17.947	1.101	2.47	2.2	16.301	6.135	0.0	0.0	0.0	0
8.83	18.151	1.091	2.49	2.2	16.637	6.011	0.0	0.0	0.0	0
8.84	18.559	1.06	2.50	2.2	17.508	5.712	0.0	0.0	0.0	0
8.85	18.762	1.02	2.51	2.2	18.394	5.437	0.0	0.0	0.0	0
8.86	18.864	0.979	2.54	2.2	19.269	5.19	0.0	0.0	0.0	0
8.87	18.762	0.938	2.56	2.2	20.002	4.999	0.0	0.0	0.0	0
8.88	19.068	0.867	2.59	2.2	21.993	4.547	0.0	0.0	0.0	0
8.89	19.272	0.836	2.59	2.2	23.053	4.338	0.0	0.0	0.0	0
8.90	19.578	0.795	2.60	2.2	24.626	4.061	0.0	0.0	0.0	0
8.91	19.68	0.775	2.60	2.2	25.394	3.938	0.0	0.0	0.0	0
8.92	19.782	0.765	2.59	2.2	25.859	3.867	0.0	0.0	0.0	0
8.93	15.805	0.449	2.55	2.2	35.2	2.841	0.0	0.0	0.0	0
8.94	19.68	0.744	2.59	2.2	26.452	3.78	0.0	0.0	0.0	0
8.95	19.476	0.744	2.60	2.2	26.177	3.82	0.0	0.0	0.0	0
8.96	19.578	0.744	2.61	2.2	26.315	3.8	0.0	0.0	0.0	0
8.97	19.884	0.744	2.61	2.2	26.726	3.742	0.0	0.0	0.0	0
8.98	20.7	0.744	2.62	2.2	27.823	3.594	0.0	0.0	0.0	0
8.99	20.7	0.755	2.63	2.2	27.417	3.647	0.0	0.0	0.0	0
9.00	20.802	0.755	2.63	2.2	27.552	3.629	0.0	0.0	0.0	0
9.01	20.904	0.755	2.62	2.2	27.687	3.612	0.0	0.0	0.0	0
9.02	20.802	0.765	2.62	2.2	27.192	3.678	0.0	0.0	0.0	0
9.03	20.292	0.785	2.60	2.2	25.85	3.869	0.0	0.0	0.0	0
9.04	20.19	0.795	2.60	2.2	25.396	3.938	0.0	0.0	0.0	0
9.05	19.884	0.785	2.60	2.2	25.33	3.948	0.0	0.0	0.0	0
9.06	19.68	0.785	2.59	2.2	25.07	3.989	0.0	0.0	0.0	0
9.07	19.374	0.795	2.59	2.2	24.37	4.103	0.0	0.0	0.0	0
9.08	19.17	0.795	2.58	2.2	24.113	4.147	0.0	0.0	0.0	0
9.09	18.966	0.795	2.57	2.2	23.857	4.192	0.0	0.0	0.0	0
9.10	18.762	0.806	2.55	2.2	23.278	4.296	0.0	0.0	0.0	0
9.11	18.661	0.806	2.55	2.2	23.153	4.319	0.0	0.0	0.0	0

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9.12	18.253	0.826	2.56	2.2	22.098	4.525	0.0	0.0	0.0	0
9.13	17.947	0.826	2.56	2.2	21.728	4.602	0.0	0.0	0.0	0
9.14	17.743	0.836	2.57	2.2	21.224	4.712	0.0	0.0	0.0	0
9.15	17.437	0.846	2.57	2.2	20.611	4.852	0.0	0.0	0.0	0
9.16	16.927	0.867	2.57	2.2	19.524	5.122	0.0	0.0	0.0	0
9.17	16.723	0.867	2.58	2.2	19.288	5.184	0.0	0.0	0.0	0
9.18	16.723	0.867	2.58	2.2	19.288	5.184	0.0	0.0	0.0	0
9.19	16.723	0.857	2.59	2.2	19.513	5.125	0.0	0.0	0.0	0
9.20	16.825	0.836	2.61	2.2	20.126	4.969	0.0	0.0	0.0	0
9.21	17.233	0.806	2.64	2.2	21.381	4.677	0.0	0.0	0.0	0
9.22	17.539	0.775	2.63	2.2	22.631	4.419	0.0	0.0	0.0	0
9.23	17.845	0.755	2.62	2.2	23.636	4.231	0.0	0.0	0.0	0
9.24	18.049	0.744	2.61	2.2	24.259	4.122	0.0	0.0	0.0	0
9.25	17.845	0.744	2.61	2.2	23.985	4.169	0.0	0.0	0.0	0
9.26	17.845	0.734	2.60	2.2	24.312	4.113	0.0	0.0	0.0	0
9.27	17.947	0.734	2.61	2.2	24.451	4.09	0.0	0.0	0.0	0
9.28	18.049	0.724	2.61	2.2	24.93	4.011	0.0	0.0	0.0	0
9.29	18.661	0.724	2.63	2.2	25.775	3.88	0.0	0.0	0.0	0
9.30	17.743	0.734	2.64	2.2	24.173	4.137	0.0	0.0	0.0	0
9.31	17.641	0.734	2.63	2.2	24.034	4.161	0.0	0.0	0.0	0
9.32	17.437	0.724	2.61	2.2	24.084	4.152	0.0	0.0	0.0	0
9.33	17.335	0.724	2.62	2.2	23.943	4.177	0.0	0.0	0.0	0
9.34	17.539	0.724	2.73	2.2	24.225	4.128	0.0	0.0	0.0	0
9.35	18.253	0.714	2.77	2.2	25.564	3.912	0.0	0.0	0.0	0
9.36	18.661	0.714	2.77	2.2	26.136	3.826	0.0	0.0	0.0	0
9.37	18.966	0.714	2.78	2.2	26.563	3.765	0.0	0.0	0.0	0
9.38	19.476	0.704	2.87	2.2	27.665	3.615	0.0	0.0	0.0	0
9.39	19.68	0.693	2.90	2.2	28.398	3.521	0.0	0.0	0.0	0
9.40	19.782	0.693	3.01	2.2	28.545	3.503	0.0	0.0	0.0	0
9.41	19.884	0.693	3.08	2.2	28.693	3.485	0.0	0.0	0.0	0
9.42	20.19	0.683	3.08	2.2	29.561	3.383	0.0	0.0	0.0	0
9.43	20.394	0.683	3.08	2.2	29.859	3.349	0.0	0.0	0.0	0
9.44	21.006	0.673	3.07	2.2	31.212	3.204	0.0	0.0	0.0	0
9.45	21.312	0.673	3.07	2.2	31.667	3.158	0.0	0.0	0.0	0
9.46	21.618	0.683	3.12	2.2	31.652	3.159	0.0	0.0	0.0	0
9.47	21.72	0.693	3.15	2.2	31.342	3.191	0.0	0.0	0.0	0
9.48	21.72	0.714	3.24	2.2	30.42	3.287	0.0	0.0	0.0	0
9.49	22.026	0.744	3.22	2.2	29.605	3.378	0.0	0.0	0.0	0
9.50	22.026	0.755	3.22	2.2	29.174	3.428	0.0	0.0	0.0	0
9.51	22.229	0.755	3.23	2.2	29.442	3.396	0.0	0.0	0.0	0
9.52	22.535	0.755	3.23	2.2	29.848	3.35	0.0	0.0	0.0	0
9.53	22.331	0.755	3.24	2.2	29.577	3.381	0.0	0.0	0.0	0
9.54	22.127	0.744	3.24	2.2	29.741	3.362	0.0	0.0	0.0	0
9.55	22.026	0.734	3.24	2.2	30.008	3.332	0.0	0.0	0.0	0
9.56	21.924	0.734	3.24	2.2	29.869	3.348	0.0	0.0	0.0	0
9.57	21.924	0.734	3.24	2.2	29.869	3.348	0.0	0.0	0.0	0
9.58	21.924	0.734	3.24	2.2	29.869	3.348	0.0	0.0	0.0	0
9.59	21.618	0.795	2.96	2.3	27.192	3.677	0.0	0.0	0.0	0
9.60	21.414	0.816	3.00	2.3	26.243	3.811	0.0	0.0	0.0	0
9.61	21.21	0.826	3.05	2.2	25.678	3.894	0.0	0.0	0.0	0
9.62	21.516	0.826	3.11	2.2	26.048	3.839	0.0	0.0	0.0	0
9.63	21.618	0.806	3.20	2.3	26.821	3.728	0.0	0.0	0.0	0
9.64	21.822	0.806	3.36	2.3	27.074	3.694	0.0	0.0	0.0	0
9.65	21.822	0.795	3.32	2.3	27.449	3.643	0.0	0.0	0.0	0
9.66	21.414	0.816	3.37	2.3	26.243	3.811	0.0	0.0	0.0	0
9.67	21.006	0.836	3.30	2.3	25.127	3.98	0.0	0.0	0.0	0
9.68	20.802	0.857	3.26	2.2	24.273	4.12	0.0	0.0	0.0	0
9.69	20.496	0.887	3.24	2.2	23.107	4.328	0.0	0.0	0.0	0
9.70	20.19	0.908	3.25	2.2	22.236	4.497	0.0	0.0	0.0	0
9.71	19.68	0.918	3.29	2.2	21.438	4.665	0.0	0.0	0.0	0
9.72	19.476	0.897	3.38	2.2	21.712	4.606	0.0	0.0	0.0	0
9.73	19.578	0.877	3.39	2.2	22.324	4.48	0.0	0.0	0.0	0
9.74	19.68	0.857	3.39	2.2	22.964	4.355	0.0	0.0	0.0	0
9.75	20.088	0.857	3.40	2.2	23.44	4.266	0.0	0.0	0.0	0
9.76	21.006	0.857	3.40	2.2	24.511	4.08	0.0	0.0	0.0	0
9.77	21.21	0.846	3.41	2.2	25.071	3.989	0.0	0.0	0.0	0
9.78	21.414	0.836	3.41	2.2	25.615	3.904	0.0	0.0	0.0	0
9.79	21.516	0.816	3.40	2.2	26.368	3.793	0.0	0.0	0.0	0
9.80	21.414	0.785	3.39	2.2	27.279	3.666	0.0	0.0	0.0	0
9.81	22.026	0.724	3.29	2.2	30.423	3.287	0.0	0.0	0.0	0
9.82	22.127	0.714	3.24	2.2	30.99	3.227	0.0	0.0	0.0	0
9.83	22.535	0.704	3.18	2.1	32.01	3.124	0.0	0.0	0.0	0
9.84	23.453	0.693	3.13	2.1	33.843	2.955	0.0	0.0	0.0	0
9.85	27.532	0.683	2.90	2.0	40.31	2.481	0.0	0.0	0.0	0
9.86	30.795	0.693	2.89	2.0	44.437	2.25	0.0	0.0	0.0	0

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9.87	34.262	0.693	3.35	2.0	49.44	2.023	0.0	0.0	0.0	0
9.88	37.627	0.704	4.19	2.0	53.447	1.871	0.0	0.0	0.0	0
9.89	39.666	0.714	4.49	1.9	55.555	1.8	0.0	0.0	0.0	0
9.90	41.094	0.765	4.38	1.8	53.718	1.862	0.0	0.0	0.0	0
9.91	41.502	0.816	4.04	1.8	50.86	1.966	0.0	0.0	0.0	0
9.92	42.012	0.908	3.42	1.7	46.269	2.161	0.0	0.0	0.0	0
9.93	41.706	0.979	2.73	1.7	42.601	2.347	0.0	0.0	0.0	0
9.94	39.462	1.142	1.89	1.7	34.555	2.894	0.0	0.0	0.0	0
9.95	38.035	1.213	1.70	1.7	31.356	3.189	0.0	0.0	0.0	0
9.96	36.301	1.264	1.59	1.7	28.719	3.482	0.0	0.0	0.0	0
9.97	34.262	1.326	1.43	1.7	25.839	3.87	0.0	0.0	0.0	0
9.98	32.426	1.377	1.38	1.6	23.548	4.247	0.0	0.0	0.0	0
9.99	30.591	1.428	1.36	1.6	21.422	4.668	0.0	0.0	0.0	0
10.00	26.92	1.54	1.45	1.6	17.481	5.721	0.0	0.0	0.0	0
10.01	25.085	1.591	1.51	1.6	15.767	6.342	0.0	0.0	0.0	0
10.02	23.351	1.642	1.53	1.6	14.221	7.032	0.0	0.0	0.0	0
10.03	20.598	1.713	1.58	1.6	12.025	8.316	0.0	0.0	0.0	0
10.04	19.476	1.723	1.63	1.5	11.304	8.847	0.0	0.0	0.0	0
10.05	18.457	1.723	1.66	1.5	10.712	9.335	0.0	0.0	0.0	0
10.06	17.641	1.693	1.68	1.5	10.42	9.597	0.0	0.0	0.0	0
10.07	16.723	1.581	1.72	1.6	10.577	9.454	0.0	0.0	0.0	0
10.08	16.519	1.499	1.73	1.6	11.02	9.074	0.0	0.0	0.0	0
10.09	16.621	1.417	1.75	1.6	11.73	8.525	0.0	0.0	0.0	0
10.10	16.723	1.326	1.76	1.6	12.612	7.929	0.0	0.0	0.0	0
10.11	16.723	1.244	1.77	1.6	13.443	7.439	0.0	0.0	0.0	0
10.12	16.417	1.06	1.78	1.6	15.488	6.457	0.0	0.0	0.0	0
10.13	16.213	0.989	1.80	1.6	16.393	6.1	0.0	0.0	0.0	0
10.14	16.111	0.918	1.81	1.6	17.55	5.698	0.0	0.0	0.0	0
10.15	15.907	0.836	1.82	1.6	19.028	5.256	0.0	0.0	0.0	0
10.16	15.601	0.704	1.85	1.7	22.161	4.513	0.0	0.0	0.0	0
10.17	15.499	0.663	1.86	1.7	23.377	4.278	0.0	0.0	0.0	0
10.18	15.397	0.622	1.88	1.7	24.754	4.04	0.0	0.0	0.0	0
10.19	15.194	0.591	1.88	1.7	25.709	3.89	0.0	0.0	0.0	0
10.20	15.092	0.561	1.89	1.7	26.902	3.717	0.0	0.0	0.0	0
10.21	14.888	0.51	1.90	1.8	29.192	3.426	0.0	0.0	0.0	0
10.22	14.786	0.5	1.91	1.8	29.572	3.382	0.0	0.0	0.0	0
10.23	14.684	0.5	1.91	1.8	29.368	3.405	0.0	0.0	0.0	0
10.24	14.582	0.489	1.92	1.8	29.82	3.353	0.0	0.0	0.0	0
10.25	14.276	0.479	1.92	1.8	29.804	3.355	0.0	0.0	0.0	0
10.26	14.072	0.479	1.92	1.8	29.378	3.404	0.0	0.0	0.0	0
10.27	13.97	0.469	1.92	1.8	29.787	3.357	0.0	0.0	0.0	0
10.28	13.868	0.459	1.93	1.8	30.214	3.31	0.0	0.0	0.0	0
10.29	13.766	0.459	1.93	1.8	29.991	3.334	0.0	0.0	0.0	0
10.30	13.766	0.449	1.94	1.8	30.659	3.262	0.0	0.0	0.0	0
10.31	13.664	0.449	1.94	1.8	30.432	3.286	0.0	0.0	0.0	0
10.32	13.562	0.438	1.94	1.8	30.963	3.23	0.0	0.0	0.0	0
10.33	13.46	0.438	1.94	1.8	30.731	3.254	0.0	0.0	0.0	0
10.34	13.256	0.428	1.94	1.9	30.972	3.229	0.0	0.0	0.0	0
10.35	13.256	0.418	1.94	1.9	31.713	3.153	0.0	0.0	0.0	0
10.36	13.256	0.418	1.95	1.9	31.713	3.153	0.0	0.0	0.0	0
10.37	13.256	0.408	1.95	1.9	32.49	3.078	0.0	0.0	0.0	0
10.38	13.256	0.398	1.96	1.9	33.307	3.002	0.0	0.0	0.0	0
10.39	13.154	0.387	1.96	1.9	33.99	2.942	0.0	0.0	0.0	0
10.40	13.052	0.387	1.97	1.9	33.726	2.965	0.0	0.0	0.0	0
10.41	12.95	0.387	1.97	2.0	33.463	2.988	0.0	0.0	0.0	0
10.42	12.95	0.387	1.98	2.0	33.463	2.988	0.0	0.0	0.0	0
10.43	12.95	0.377	1.97	2.0	34.35	2.911	0.0	0.0	0.0	0
10.44	12.848	0.377	1.97	2.0	34.08	2.934	0.0	0.0	0.0	0
10.45	12.746	0.377	1.96	2.0	33.809	2.958	0.0	0.0	0.0	0
10.46	12.644	0.367	1.96	2.0	34.452	2.903	0.0	0.0	0.0	0
10.47	12.44	0.367	1.97	2.0	33.896	2.95	0.0	0.0	0.0	0
10.48	12.338	0.377	1.99	2.0	32.727	3.056	0.0	0.0	0.0	0
10.49	12.338	0.377	2.00	2.0	32.727	3.056	0.0	0.0	0.0	0
10.50	12.338	0.377	2.01	2.0	32.727	3.056	0.0	0.0	0.0	0
10.51	12.44	0.367	2.01	2.0	33.896	2.95	0.0	0.0	0.0	0
10.52	12.44	0.367	2.01	2.0	33.896	2.95	0.0	0.0	0.0	0
10.53	12.44	0.367	2.02	2.0	33.896	2.95	0.0	0.0	0.0	0
10.54	12.44	0.367	2.02	2.1	33.896	2.95	0.0	0.0	0.0	0
10.55	12.338	0.367	2.02	2.1	33.619	2.975	0.0	0.0	0.0	0
10.56	12.338	0.367	2.01	2.1	33.619	2.975	0.0	0.0	0.0	0
10.57	12.338	0.367	2.01	2.1	33.619	2.975	0.0	0.0	0.0	0
10.58	12.338	0.367	2.01	2.1	33.619	2.975	0.0	0.0	0.0	0
10.59	13.052	0.357	1.97	2.1	36.56	2.735	0.0	0.0	0.0	0
10.60	13.154	0.357	1.97	2.2	36.846	2.714	0.0	0.0	0.0	0
10.61	13.154	0.357	1.97	2.2	36.846	2.714	0.0	0.0	0.0	0

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10.62	13.154	0.367	1.97	2.2	35.842	2.79	0.0	0.0	0.0	0
10.63	13.154	0.367	1.97	2.2	35.842	2.79	0.0	0.0	0.0	0
10.64	13.154	0.377	1.97	2.2	34.891	2.866	0.0	0.0	0.0	0
10.65	13.154	0.377	1.97	2.2	34.891	2.866	0.0	0.0	0.0	0
10.66	13.052	0.387	1.97	2.2	33.726	2.965	0.0	0.0	0.0	0
10.67	13.052	0.387	1.97	2.3	33.726	2.965	0.0	0.0	0.0	0
10.68	12.95	0.377	1.97	2.3	34.35	2.911	0.0	0.0	0.0	0
10.69	12.95	0.377	1.97	2.3	34.35	2.911	0.0	0.0	0.0	0
10.70	13.052	0.377	1.97	2.3	34.621	2.888	0.0	0.0	0.0	0
10.71	13.154	0.367	1.96	2.3	35.842	2.79	0.0	0.0	0.0	0
10.72	13.256	0.367	1.96	2.3	36.12	2.769	0.0	0.0	0.0	0
10.73	13.766	0.367	1.97	2.3	37.51	2.666	0.0	0.0	0.0	0
10.74	14.174	0.367	1.97	2.3	38.621	2.589	0.0	0.0	0.0	0
10.75	14.786	0.377	1.99	2.3	39.22	2.55	0.0	0.0	0.0	0
10.76	15.499	0.377	2.02	2.3	41.111	2.432	0.0	0.0	0.0	0
10.77	16.417	0.377	2.09	2.3	43.546	2.296	0.0	0.0	0.0	0
10.78	16.621	0.387	2.11	2.4	42.948	2.328	0.0	0.0	0.0	0
10.79	16.723	0.387	2.11	2.4	43.212	2.314	0.0	0.0	0.0	0
10.80	16.723	0.398	2.12	2.4	42.018	2.38	0.0	0.0	0.0	0
10.81	16.825	0.398	2.11	2.4	42.274	2.366	0.0	0.0	0.0	0
10.82	17.233	0.387	2.11	2.4	44.53	2.246	0.0	0.0	0.0	0
10.83	17.539	0.387	2.11	2.5	45.32	2.207	0.0	0.0	0.0	0
10.84	17.845	0.398	2.11	2.5	44.837	2.23	0.0	0.0	0.0	0
10.85	18.151	0.398	2.11	2.5	45.606	2.193	0.0	0.0	0.0	0
10.86	18.355	0.408	2.10	2.5	44.988	2.223	0.0	0.0	0.0	0
10.87	18.661	0.428	2.10	2.6	43.6	2.294	0.0	0.0	0.0	0
10.88	18.762	0.438	2.11	2.6	42.836	2.335	0.0	0.0	0.0	0
10.89	18.762	0.459	2.14	2.6	40.876	2.446	0.0	0.0	0.0	0
10.90	18.661	0.479	2.17	2.6	38.958	2.567	0.0	0.0	0.0	0
10.91	18.355	0.53	2.23	2.6	34.632	2.887	0.0	0.0	0.0	0
10.92	18.253	0.551	2.25	2.6	33.127	3.019	0.0	0.0	0.0	0
10.93	18.253	0.571	2.26	2.6	31.967	3.128	0.0	0.0	0.0	0
10.94	18.253	0.591	2.27	2.6	30.885	3.238	0.0	0.0	0.0	0
10.95	17.947	0.642	2.25	2.6	27.955	3.577	0.0	0.0	0.0	0
10.96	17.539	0.673	2.24	2.6	26.061	3.837	0.0	0.0	0.0	0
10.97	17.029	0.704	2.24	2.7	24.189	4.134	0.0	0.0	0.0	0
10.98	16.417	0.724	2.25	2.7	22.675	4.41	0.0	0.0	0.0	0
10.99	15.805	0.755	2.26	2.7	20.934	4.777	0.0	0.0	0.0	0
11.00	14.99	0.775	2.27	2.7	19.342	5.17	0.0	0.0	0.0	0
11.01	14.684	0.765	2.26	2.7	19.195	5.21	0.0	0.0	0.0	0
11.02	14.48	0.765	2.25	2.7	18.928	5.283	0.0	0.0	0.0	0
11.03	14.174	0.755	2.25	2.7	18.774	5.327	0.0	0.0	0.0	0
11.04	13.97	0.744	2.25	2.7	18.777	5.326	0.0	0.0	0.0	0
11.05	13.46	0.734	2.24	2.7	18.338	5.453	0.0	0.0	0.0	0
11.06	13.052	0.734	2.25	2.7	17.782	5.624	0.0	0.0	0.0	0
11.07	12.746	0.734	2.26	2.7	17.365	5.759	0.0	0.0	0.0	0
11.08	12.542	0.724	2.26	2.7	17.323	5.773	0.0	0.0	0.0	0
11.09	12.542	0.714	2.25	2.7	17.566	5.693	0.0	0.0	0.0	0
11.10	12.746	0.683	2.25	2.7	18.662	5.359	0.0	0.0	0.0	0
11.11	12.95	0.632	2.26	2.7	20.491	4.88	0.0	0.0	0.0	0
11.12	13.256	0.581	2.28	2.8	22.816	4.383	0.0	0.0	0.0	0
11.13	13.97	0.53	2.31	2.8	26.358	3.794	0.0	0.0	0.0	0
11.14	15.907	0.459	2.35	2.8	34.656	2.886	0.0	0.0	0.0	0
11.15	16.621	0.449	2.38	2.8	37.018	2.701	0.0	0.0	0.0	0
11.16	17.233	0.428	2.39	2.8	40.264	2.484	0.0	0.0	0.0	0
11.17	17.641	0.418	2.39	2.8	42.203	2.369	0.0	0.0	0.0	0
11.18	18.049	0.408	2.40	2.8	44.238	2.261	0.0	0.0	0.0	0
11.19	19.068	0.408	2.38	2.8	46.735	2.14	0.0	0.0	0.0	0
11.20	19.272	0.428	2.38	2.8	45.028	2.221	0.0	0.0	0.0	0
11.21	19.272	0.469	2.39	2.8	41.092	2.434	0.0	0.0	0.0	0
11.22	19.374	0.5	2.40	2.8	38.748	2.581	0.0	0.0	0.0	0
11.23	19.476	0.54	2.40	2.8	36.067	2.773	0.0	0.0	0.0	0
11.24	19.68	0.602	2.41	2.8	32.691	3.059	0.0	0.0	0.0	0
11.25	19.578	0.642	2.41	2.8	30.495	3.279	0.0	0.0	0.0	0
11.26	19.476	0.683	2.41	2.8	28.515	3.507	0.0	0.0	0.0	0
11.27	19.272	0.724	2.41	2.8	26.619	3.757	0.0	0.0	0.0	0
11.28	18.864	0.755	2.41	2.8	24.985	4.002	0.0	0.0	0.0	0
11.29	18.049	0.826	2.40	2.8	21.851	4.576	0.0	0.0	0.0	0
11.30	17.437	0.857	2.39	2.8	20.347	4.915	0.0	0.0	0.0	0
11.31	16.927	0.897	2.38	2.8	18.871	5.299	0.0	0.0	0.0	0
11.32	16.417	0.918	2.37	2.8	17.883	5.592	0.0	0.0	0.0	0
11.33	15.499	0.938	2.35	2.8	16.523	6.052	0.0	0.0	0.0	0
11.34	14.99	0.928	2.34	2.8	16.153	6.191	0.0	0.0	0.0	0
11.35	14.378	0.918	2.33	2.8	15.662	6.385	0.0	0.0	0.0	0
11.36	13.766	0.887	2.33	2.8	15.52	6.443	0.0	0.0	0.0	0

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11.37	13.358	0.867	2.33	2.8	15.407	6.49	0.0	0.0	0.0	0
11.38	12.644	0.806	2.32	2.8	15.687	6.375	0.0	0.0	0.0	0
11.39	12.542	0.765	2.32	2.8	16.395	6.1	0.0	0.0	0.0	0
11.40	12.338	0.734	2.32	2.8	16.809	5.949	0.0	0.0	0.0	0
11.41	12.134	0.704	2.32	2.8	17.236	5.802	0.0	0.0	0.0	0
11.42	11.93	0.673	2.32	2.8	17.727	5.641	0.0	0.0	0.0	0
11.43	11.829	0.602	2.32	2.8	19.65	5.089	0.0	0.0	0.0	0
11.44	11.829	0.561	2.33	2.8	21.086	4.743	0.0	0.0	0.0	0
11.45	11.93	0.53	2.32	2.8	22.509	4.443	0.0	0.0	0.0	0
11.46	11.829	0.51	2.32	2.8	23.194	4.311	0.0	0.0	0.0	0
11.47	11.829	0.489	2.32	2.8	24.19	4.134	0.0	0.0	0.0	0
11.48	11.829	0.449	2.32	2.8	26.345	3.796	0.0	0.0	0.0	0
11.49	11.829	0.428	2.32	2.8	27.638	3.618	0.0	0.0	0.0	0
11.50	11.829	0.418	2.32	2.8	28.299	3.534	0.0	0.0	0.0	0
11.51	11.829	0.408	2.32	2.8	28.993	3.449	0.0	0.0	0.0	0
11.52	11.727	0.398	2.32	2.9	29.465	3.394	0.0	0.0	0.0	0
11.53	11.727	0.387	2.32	2.8	30.302	3.3	0.0	0.0	0.0	0
11.54	11.829	0.387	2.32	2.9	30.566	3.272	0.0	0.0	0.0	0
11.55	11.829	0.387	2.31	2.9	30.566	3.272	0.0	0.0	0.0	0
11.56	11.829	0.398	2.31	2.9	29.721	3.365	0.0	0.0	0.0	0
11.57	11.829	0.398	2.31	2.9	29.721	3.365	0.0	0.0	0.0	0
11.58	11.829	0.398	2.31	2.9	29.721	3.365	0.0	0.0	0.0	0
11.59	11.829	0.377	2.21	2.9	31.377	3.187	0.0	0.0	0.0	0
11.60	11.727	0.377	2.21	2.9	31.106	3.215	0.0	0.0	0.0	0
11.61	11.625	0.387	2.21	2.9	30.039	3.329	0.0	0.0	0.0	0
11.62	11.625	0.387	2.20	2.9	30.039	3.329	0.0	0.0	0.0	0
11.63	11.421	0.387	2.21	2.9	29.512	3.388	0.0	0.0	0.0	0
11.64	11.319	0.387	2.21	2.9	29.248	3.419	0.0	0.0	0.0	0
11.65	11.319	0.387	2.20	2.9	29.248	3.419	0.0	0.0	0.0	0
11.66	11.115	0.387	2.20	2.9	28.721	3.482	0.0	0.0	0.0	0
11.67	11.013	0.387	2.20	2.9	28.457	3.514	0.0	0.0	0.0	0
11.68	11.013	0.387	2.20	2.9	28.457	3.514	0.0	0.0	0.0	0
11.69	10.911	0.377	2.19	2.9	28.942	3.455	0.0	0.0	0.0	0
11.70	10.911	0.367	2.19	2.9	29.73	3.364	0.0	0.0	0.0	0
11.71	10.809	0.367	2.19	2.9	29.452	3.395	0.0	0.0	0.0	0
11.72	10.707	0.367	2.18	2.9	29.174	3.428	0.0	0.0	0.0	0
11.73	10.605	0.357	2.18	2.9	29.706	3.366	0.0	0.0	0.0	0
11.74	10.503	0.337	2.18	2.9	31.166	3.209	0.0	0.0	0.0	0
11.75	10.503	0.326	2.18	2.9	32.218	3.104	0.0	0.0	0.0	0
11.76	10.503	0.326	2.18	2.9	32.218	3.104	0.0	0.0	0.0	0
11.77	10.503	0.306	2.18	2.9	34.324	2.913	0.0	0.0	0.0	0
11.78	10.503	0.296	2.18	2.9	35.483	2.818	0.0	0.0	0.0	0
11.79	10.605	0.275	2.19	3.0	38.564	2.593	0.0	0.0	0.0	0
11.80	10.605	0.265	2.19	3.0	40.019	2.499	0.0	0.0	0.0	0
11.81	10.503	0.255	2.19	3.0	41.188	2.428	0.0	0.0	0.0	0
11.82	10.503	0.245	2.19	3.0	42.869	2.333	0.0	0.0	0.0	0
11.83	10.503	0.235	2.19	3.0	44.694	2.237	0.0	0.0	0.0	0
11.84	10.299	0.204	2.19	3.0	50.485	1.981	0.0	0.0	0.0	0
11.85	10.299	0.173	2.20	3.0	59.532	1.68	0.0	0.0	0.0	0
11.86	10.503	0.153	2.21	3.0	68.647	1.457	0.0	0.0	0.0	0
11.87	10.911	0.122	2.24	3.0	89.434	1.118	0.0	0.0	0.0	0
11.88	11.829	0.112	2.29	3.0	105.616	0.947	0.0	0.0	0.0	0
11.89	32.426	0.133	2.33	2.9	243.805	0.41	0.0	0.0	0.0	0
11.90	42.012	0.163	2.23	2.8	257.742	0.388	0.0	0.0	0.0	0
11.91	49.557	0.102	2.72	2.8	485.853	0.206	0.0	0.0	0.0	0
11.92	56.083	0.194	2.41	2.8	289.088	0.346	0.0	0.0	0.0	0
11.93	65.159	0.224	1.32	2.9	290.888	0.344	0.0	0.0	0.0	0
11.94	88.408	0.387	1.28	2.9	228.444	0.438	0.0	0.0	0.0	0
11.95	87.286	0.428	1.39	2.9	203.939	0.49	0.0	0.0	0.0	0
11.96	114.92	0.53	1.25	3.0	216.83	0.461	0.0	0.0	0.0	0
11.97	144.186	0.612	0.67	3.0	235.598	0.424	0.0	0.0	0.0	0
11.98	153.159	0.714	-0.68	3.0	214.508	0.466	0.0	0.0	0.0	0
11.99	157.952	0.846	-0.58	3.0	186.704	0.536	0.0	0.0	0.0	0
12.00	175.49	0.908	-0.53	3.1	193.271	0.517	0.0	0.0	0.0	0
12.01	200.473	0.857	-0.47	3.1	233.924	0.427	0.0	0.0	0.0	0
12.02	219.337	0.938	-0.43	3.1	233.835	0.428	0.0	0.0	0.0	0
12.03	246.665	1.142	-0.39	3.2	215.994	0.463	0.0	0.0	0.0	0
12.04	245.442	1.254	-0.37	3.3	195.727	0.511	0.0	0.0	0.0	0
12.05	235.449	1.244	-0.37	3.3	189.268	0.528	0.0	0.0	0.0	0
12.06	242.179	1.856	-0.35	3.3	130.484	0.766	0.0	0.0	0.0	0
12.07	260.227	1.805	-0.30	3.3	144.17	0.694	0.0	0.0	0.0	0
12.08	266.142	1.713	-0.27	3.3	155.366	0.644	0.0	0.0	0.0	0
12.09	271.546	1.632	-0.25	3.3	166.388	0.601	0.0	0.0	0.0	0
12.10	282.763	1.621	-0.22	3.3	174.437	0.573	0.0	0.0	0.0	0
12.11	287.861	1.621	-0.21	3.4	177.582	0.563	0.0	0.0	0.0	0

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12.12	289.391	1.815	-0.19	3.4	159.444	0.627	0.0	0.0	0.0	0
12.13	288.983	1.917	-0.19	3.5	150.748	0.663	0.0	0.0	0.0	0
12.14	290.207	1.948	-0.16	3.6	148.977	0.671	0.0	0.0	0.0	0
12.15	316.209	1.642	-0.10	3.6	192.576	0.519	0.0	0.0	0.0	0
12.16	334.869	1.591	-0.07	3.7	210.477	0.475	0.0	0.0	0.0	0
12.17	337.419	1.56	-0.03	3.7	216.294	0.462	0.0	0.0	0.0	0
12.18	341.803	1.53	-0.03	3.7	223.401	0.448	0.0	0.0	0.0	0
12.19	325.794	1.519	0.01	3.8	214.479	0.466	0.0	0.0	0.0	0
12.20	349.349	1.723	-0.07	3.8	202.756	0.493	0.0	0.0	0.0	0
12.21	349.349	1.723	-0.07	3.8	202.756	0.493	0.0	0.0	0.0	0
12.22	354.652	1.683	-0.06	3.8	210.726	0.475	0.0	0.0	0.0	0
12.23	374.23	1.621	-0.05	3.8	230.864	0.433	0.0	0.0	0.0	0
12.24	382.286	1.805	-0.10	3.7	211.793	0.472	0.0	0.0	0.0	0
12.25	366.072	1.846	-0.11	3.7	198.306	0.504	0.0	0.0	0.0	0
12.26	350.777	1.285	-0.11	3.7	272.978	0.366	0.0	0.0	0.0	0
12.27	344.964	1.162	-0.08	3.8	296.871	0.337	0.0	0.0	0.0	0
12.28	358.017	1.173	0.00	3.9	305.215	0.328	0.0	0.0	0.0	0
12.29	364.849	1.264	0.03	3.9	288.646	0.346	0.0	0.0	0.0	0
12.30	360.668	1.254	0.02	3.9	287.614	0.348	0.0	0.0	0.0	0
12.31	354.958	1.305	0.02	4.0	271.998	0.368	0.0	0.0	0.0	0
12.32	345.168	1.407	0.00	4.0	245.322	0.408	0.0	0.0	0.0	0
12.33	338.744	1.581	-0.12	4.0	214.259	0.467	0.0	0.0	0.0	0
12.34	344.353	1.56	-0.11	4.0	220.739	0.453	0.0	0.0	0.0	0
12.35	344.659	1.56	-0.11	4.1	220.935	0.453	0.0	0.0	0.0	0
12.36	348.737	1.56	-0.10	4.1	223.549	0.447	0.0	0.0	0.0	0
12.37	339.458	1.652	-0.05	4.1	205.483	0.487	0.0	0.0	0.0	0
12.38	352.918	1.53	0.00	4.1	230.665	0.434	0.0	0.0	0.0	0
12.39	365.358	1.509	0.04	4.1	242.119	0.413	0.0	0.0	0.0	0
12.40	396.459	1.519	0.08	4.1	261.0	0.383	0.0	0.0	0.0	0
12.41	428.886	1.703	-0.12	4.2	251.841	0.397	0.0	0.0	0.0	0
12.42	395.338	1.876	-0.10	4.2	210.735	0.475	0.0	0.0	0.0	0
12.43	450.809	1.897	-0.06	4.3	237.643	0.421	0.0	0.0	0.0	0
12.44	437.859	2.019	0.30	4.3	216.869	0.461	0.0	0.0	0.0	0
12.45	408.696	1.999	-0.03	4.3	204.45	0.489	0.0	0.0	0.0	0
12.46	402.272	1.937	0.00	4.3	207.678	0.482	0.0	0.0	0.0	0
12.47	398.397	1.958	0.02	4.3	203.471	0.491	0.0	0.0	0.0	0
12.48	394.624	1.988	0.11	4.3	198.503	0.504	0.0	0.0	0.0	0
12.49	388.404	1.846	0.12	4.3	210.403	0.475	0.0	0.0	0.0	0
12.50	412.673	1.774	0.28	4.4	232.623	0.43	0.0	0.0	0.0	0
12.51	418.383	1.927	0.26	4.4	217.116	0.461	0.0	0.0	0.0	0
12.52	427.356	1.897	0.26	4.5	225.28	0.444	0.0	0.0	0.0	0
12.53	428.784	1.958	0.29	4.6	218.991	0.457	0.0	0.0	0.0	0
12.54	426.846	1.713	0.32	4.6	249.18	0.401	0.0	0.0	0.0	0
12.55	446.221	2.111	0.34	4.6	211.379	0.473	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.5

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	11.87	15.591	0.661	0.70	1.01	0.96	0.85	0.76	0.78
Strato 2	12.55	297.247	1.395	14.25	5.21	19.66	17.35	15.52	14.86

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	11.87	15.591	0.661	77.96	48.23	93.55	46.77
Strato 2	12.55	297.247	1.395	743.12	594.48	891.74	445.87

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	11.87	15.591	0.661	542.38	23.40
Strato 2	12.55	297.247	1.395	11059.13	445.80

Prova CPTU n. 5

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	11.87	15.591	0.661	Imai & Tomauchi	149.97
Strato 2	12.55	297.247	1.395	Imai & Tomauchi	908.31

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	11.87	15.591	0.661	<0.5
Strato 2	12.55	297.247	1.395	2.96

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	11.87	15.591	0.661	Meyerhof	1.92
Strato 2	12.55	297.247	1.395	Meyerhof	2.43

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	11.87	15.591	0.661	Meyerhof	2.00
Strato 2	12.55	297.247	1.395	Meyerhof	2.51

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	11.87	15.591	0.661	11.36	< 5	5.26	11.73	10.57
Strato 2	12.55	297.247	1.395	84.79	87.79	89.02	85.78	74.18

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunouglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	11.87	15.591	0.661	27.04	22.83	19.48	18.4	28.7	28.3	22.03	24
Strato 2	12.55	297.247	1.395	37.91	33.83	31.05	28.97	40.29	41.96	29.59	45

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	11.87	15.591	0.661	38.98	31.18	240.10
Strato 2	12.55	297.247	1.395	743.12	594.49	1624.51

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	11.87	15.591	0.661	17.61	61.16	111.07	31.18	77.96
Strato 2	12.55	297.247	1.395	105.61	603.00	2424.76	445.87	445.87

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	11.87	15.591	0.661	Imai & Tomauchi	149.97
Strato 2	12.55	297.247	1.395	Imai & Tomauchi	908.31

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	11.87	15.591	0.661	<0.5	4.75	<0.5	2.95
Strato 2	12.55	297.247	1.395	2.96	>9	1.1	>9

Prova CPTU n. 5

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Ko
Strato 1	11.87	15.591	0.661	Kulhawy & Mayne (1990)	0.00
Strato 2	12.55	297.247	1.395	Kulhawy & Mayne (1990)	0.71

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	C	Crm
Strato 1	11.87	15.591	0.661	0.15231	0.0198
Strato 2	12.55	297.247	1.395	0.04164	0.00541

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Peso unità di volume (t/m^3)
Strato 1	11.87	15.591	0.661	Meyerhof	1.80
Strato 2	12.55	297.247	1.395	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Peso unità di volume saturo (t/m^3)
Strato 1	11.87	15.591	0.661	Meyerhof	2.10
Strato 2	12.55	297.247	1.395	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	11.87	15.591	0.661	Robertson & Wride 1997	0
Strato 2	12.55	297.247	1.395	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Permeabilità (cm/s)
Strato 1	11.87	15.591	0.661	Piacentini-Righi 1988	4.103933E-08
Strato 2	12.55	297.247	1.395	Piacentini-Righi 1988	0.001

Coefficiente di consolidazione

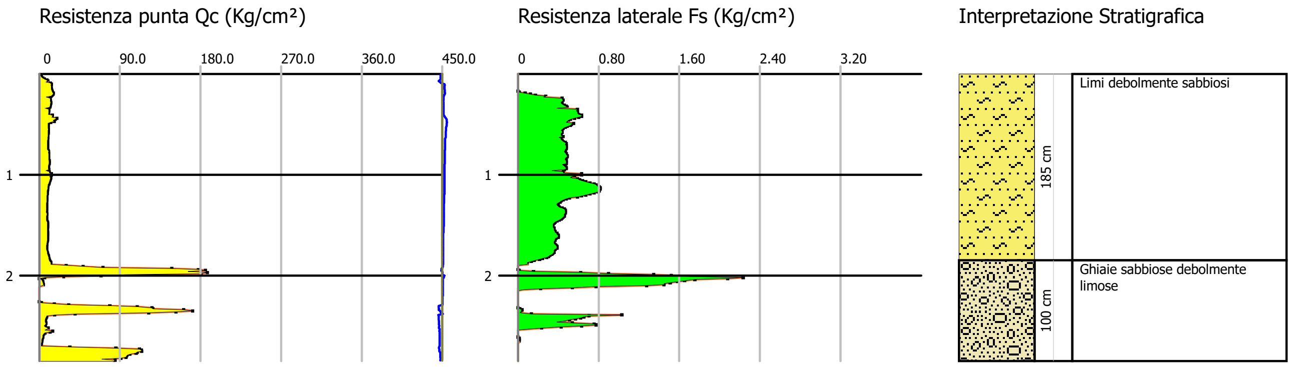
	Prof. Strato (m)	qc (Kg/cm^2)	fs (Kg/cm^2)	Correlazione	Coefficiente di consolidazione (cm^2/s)
Strato 1	11.87	15.591	0.661	Piacentini-Righi 1988	1.919533E-03
Strato 2	12.55	297.247	1.395	Piacentini-Righi 1988	0

CPTU6_ms3

Geologica Toscana snc
Viale Marconi 106 - 53036 - Poggibonsi (SI)
tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

Probe CPTU - Piezocone Nr.6
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente:	Unione dei Comuni Savena Idice	Data: 26/02/2021
Cantiere:	Prove penetrometriche per Microzonazione sismica III° livello	
Località:	Ozzano dell'Emilia (BO)	



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

PROVA CPTU Nr.6

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 26/02/2021
Profondità prova: 2.85 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	1.428	0.0	0.19	0.7	0.0	0.0	0.0	0.0	0.0	0
0.02	2.039	0.0	0.19	0.7	0.0	0.0	0.0	0.0	0.0	0
0.03	2.447	0.0	0.19	0.7	0.0	0.0	0.0	0.0	0.0	0
0.04	4.079	0.0	0.19	0.7	0.0	0.0	0.0	0.0	0.0	0
0.05	5.914	0.0	0.19	0.8	0.0	0.0	0.0	0.0	0.0	0
0.06	8.464	0.0	0.26	0.8	0.0	0.0	0.0	0.0	0.0	0
0.07	9.585	0.0	0.42	0.8	0.0	0.0	0.0	0.0	0.0	0
0.08	7.852	0.0	0.27	0.8	0.0	0.0	0.0	0.0	0.0	0
0.09	12.44	0.0	0.17	0.8	0.0	0.0	0.0	0.0	0.0	0
0.10	13.562	0.0	-0.25	0.8	0.0	0.0	0.0	0.0	0.0	0
0.11	13.154	0.0	-0.27	0.8	0.0	0.0	0.0	0.0	0.0	0
0.12	13.358	0.0	-0.26	0.8	0.0	0.0	0.0	0.0	0.0	0
0.13	13.256	0.0	-0.26	0.8	0.0	0.0	0.0	0.0	0.0	0
0.14	13.256	0.0	-0.26	0.8	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 6

0.15	13.46	0.0	-0.26	0.8	0.0	0.0	0.0	0.0	0.0	0
0.16	13.868	0.0	-0.28	0.9	0.0	0.0	0.0	0.0	0.0	0
0.17	14.276	0.0	-0.28	0.9	0.0	0.0	0.0	0.0	0.0	0
0.18	14.786	0.01	-0.28	0.9	1478.6	0.068	0.0	0.0	0.0	0
0.19	15.601	0.071	-0.29	0.9	219.732	0.455	0.0	0.0	0.0	0
0.20	15.397	0.122	-0.28	0.9	126.205	0.792	0.0	0.0	0.0	0
0.21	14.378	0.173	-0.18	0.9	83.11	1.203	0.0	0.0	0.0	0
0.22	13.256	0.275	-0.16	1.0	48.204	2.075	0.0	0.0	0.0	0
0.23	8.056	0.255	-0.12	1.0	31.592	3.165	0.0	0.0	0.0	0
0.24	12.236	0.438	-0.12	1.0	27.936	3.58	0.0	0.0	0.0	0
0.25	12.236	0.438	-0.12	1.0	27.936	3.58	0.0	0.0	0.0	0
0.26	12.236	0.449	-0.11	1.0	27.252	3.669	0.0	0.0	0.0	0
0.27	12.44	0.438	-0.10	1.0	28.402	3.521	0.0	0.0	0.0	0
0.28	12.644	0.428	-0.12	1.0	29.542	3.385	0.0	0.0	0.0	0
0.29	12.644	0.428	-0.14	1.0	29.542	3.385	0.0	0.0	0.0	0
0.30	12.44	0.438	-0.14	1.0	28.402	3.521	0.0	0.0	0.0	0
0.31	12.338	0.459	-0.14	1.0	26.88	3.72	0.0	0.0	0.0	0
0.32	11.93	0.479	-0.14	1.0	24.906	4.015	0.0	0.0	0.0	0
0.33	11.727	0.489	-0.14	1.1	23.982	4.17	0.0	0.0	0.0	0
0.34	7.138	0.387	-0.13	1.1	18.444	5.422	0.0	0.0	0.0	0
0.35	10.605	0.591	-0.13	1.1	17.944	5.573	0.0	0.0	0.0	0
0.36	10.707	0.581	-0.13	1.1	18.429	5.426	0.0	0.0	0.0	0
0.37	10.503	0.581	-0.13	1.1	18.077	5.532	0.0	0.0	0.0	0
0.38	10.503	0.591	-0.12	1.1	17.772	5.627	0.0	0.0	0.0	0
0.39	10.401	0.591	-0.12	1.1	17.599	5.682	0.0	0.0	0.0	0
0.40	10.197	0.602	-0.12	1.1	16.939	5.904	0.0	0.0	0.0	0
0.41	14.684	0.632	-0.15	1.1	23.234	4.304	0.0	0.0	0.0	0
0.42	14.786	0.632	-0.24	1.1	23.396	4.274	0.0	0.0	0.0	0
0.43	14.276	0.602	-0.33	1.1	23.714	4.217	0.0	0.0	0.0	0
0.44	19.578	0.561	-0.41	1.1	34.898	2.865	0.0	0.0	0.0	0
0.45	17.743	0.52	-0.48	1.1	34.121	2.931	0.0	0.0	0.0	0
0.46	15.703	0.5	-0.50	1.1	31.406	3.184	0.0	0.0	0.0	0
0.47	16.825	0.489	-0.50	1.1	34.407	2.906	0.0	0.0	0.0	0
0.48	12.644	0.479	-0.51	1.1	26.397	3.788	0.0	0.0	0.0	0
0.49	9.891	0.551	-0.50	1.1	17.951	5.571	0.0	0.0	0.0	0
0.50	9.993	0.53	-0.49	1.1	18.855	5.304	0.0	0.0	0.0	0
0.51	9.891	0.52	-0.48	1.1	19.021	5.257	0.0	0.0	0.0	0
0.52	9.789	0.489	-0.46	1.1	20.018	4.995	0.0	0.0	0.0	0
0.53	9.891	0.469	-0.41	1.1	21.09	4.742	0.0	0.0	0.0	0
0.54	9.993	0.449	-0.40	1.1	22.256	4.493	0.0	0.0	0.0	0
0.55	10.095	0.438	-0.40	1.1	23.048	4.339	0.0	0.0	0.0	0
0.56	9.891	0.428	-0.40	1.2	23.11	4.327	0.0	0.0	0.0	0
0.57	9.891	0.438	-0.39	1.2	22.582	4.428	0.0	0.0	0.0	0
0.58	9.891	0.438	-0.39	1.2	22.582	4.428	0.0	0.0	0.0	0
0.59	9.891	0.428	-0.39	1.2	23.11	4.327	0.0	0.0	0.0	0
0.60	9.789	0.428	-0.39	1.2	22.871	4.372	0.0	0.0	0.0	0
0.61	9.687	0.428	-0.39	1.1	22.633	4.418	0.0	0.0	0.0	0
0.62	9.687	0.449	-0.38	1.2	21.575	4.635	0.0	0.0	0.0	0
0.63	9.585	0.408	-0.37	1.2	23.493	4.257	0.0	0.0	0.0	0
0.64	9.483	0.428	-0.33	1.2	22.157	4.513	0.0	0.0	0.0	0
0.65	9.381	0.428	-0.32	1.2	21.918	4.562	0.0	0.0	0.0	0
0.66	9.279	0.438	-0.30	1.2	21.185	4.72	0.0	0.0	0.0	0
0.67	9.075	0.449	-0.30	1.2	20.212	4.948	0.0	0.0	0.0	0
0.68	9.075	0.469	-0.29	1.2	19.35	5.168	0.0	0.0	0.0	0
0.69	9.075	0.479	-0.29	1.2	18.946	5.278	0.0	0.0	0.0	0
0.70	9.075	0.469	-0.29	1.2	19.35	5.168	0.0	0.0	0.0	0
0.71	9.177	0.479	-0.29	1.2	19.159	5.22	0.0	0.0	0.0	0
0.72	9.279	0.479	-0.29	1.1	19.372	5.162	0.0	0.0	0.0	0
0.73	9.279	0.479	-0.29	1.2	19.372	5.162	0.0	0.0	0.0	0
0.74	9.177	0.479	-0.29	1.1	19.159	5.22	0.0	0.0	0.0	0
0.75	9.177	0.469	-0.29	1.1	19.567	5.111	0.0	0.0	0.0	0
0.76	10.095	0.469	-0.28	1.1	21.525	4.646	0.0	0.0	0.0	0
0.77	10.503	0.459	-0.28	1.1	22.882	4.37	0.0	0.0	0.0	0
0.78	10.299	0.469	-0.28	1.1	21.959	4.554	0.0	0.0	0.0	0
0.79	10.401	0.479	-0.28	1.1	21.714	4.605	0.0	0.0	0.0	0
0.80	10.503	0.479	-0.28	1.1	21.927	4.561	0.0	0.0	0.0	0
0.81	10.401	0.489	-0.28	1.1	21.27	4.701	0.0	0.0	0.0	0
0.82	10.401	0.489	-0.28	1.1	21.27	4.701	0.0	0.0	0.0	0
0.83	10.401	0.479	-0.28	1.1	21.714	4.605	0.0	0.0	0.0	0
0.84	10.401	0.469	-0.28	1.1	22.177	4.509	0.0	0.0	0.0	0
0.85	10.401	0.469	-0.28	1.1	22.177	4.509	0.0	0.0	0.0	0
0.86	11.013	0.479	-0.28	1.1	22.992	4.349	0.0	0.0	0.0	0
0.87	11.013	0.479	-0.28	1.1	22.992	4.349	0.0	0.0	0.0	0
0.88	11.013	0.479	-0.28	1.1	22.992	4.349	0.0	0.0	0.0	0
0.89	11.013	0.479	-0.28	1.1	22.992	4.349	0.0	0.0	0.0	0

Prova CPTU n. 6

0.90	10.401	0.438	-0.25	1.1	23.747	4.211	0.0	0.0	0.0	0
0.91	10.299	0.459	-0.25	1.1	22.438	4.457	0.0	0.0	0.0	0
0.92	10.197	0.469	-0.25	1.2	21.742	4.599	0.0	0.0	0.0	0
0.93	10.095	0.479	-0.25	1.1	21.075	4.745	0.0	0.0	0.0	0
0.94	10.299	0.479	-0.24	1.2	21.501	4.651	0.0	0.0	0.0	0
0.95	10.605	0.459	-0.24	1.2	23.105	4.328	0.0	0.0	0.0	0
0.96	7.546	0.337	-0.24	1.2	22.392	4.466	0.0	0.0	0.0	0
0.97	11.115	0.449	-0.24	1.2	24.755	4.04	0.0	0.0	0.0	0
0.98	11.115	0.449	-0.24	1.2	24.755	4.04	0.0	0.0	0.0	0
0.99	13.664	0.632	-0.24	1.2	21.62	4.625	0.0	0.0	0.0	0
1.00	13.664	0.632	-0.24	1.2	21.62	4.625	0.0	0.0	0.0	0
1.01	12.95	0.561	-0.22	1.2	23.084	4.332	0.0	0.0	0.0	0
1.02	11.727	0.53	-0.21	1.2	22.126	4.519	0.0	0.0	0.0	0
1.03	12.848	0.52	-0.21	1.2	24.708	4.047	0.0	0.0	0.0	0
1.04	12.44	0.591	-0.21	1.2	21.049	4.751	0.0	0.0	0.0	0
1.05	12.134	0.612	-0.21	1.2	19.827	5.044	0.0	0.0	0.0	0
1.06	11.727	0.642	-0.21	1.2	18.266	5.475	0.0	0.0	0.0	0
1.07	11.217	0.673	-0.21	1.2	16.667	6.0	0.0	0.0	0.0	0
1.08	10.911	0.714	-0.21	1.2	15.282	6.544	0.0	0.0	0.0	0
1.09	10.605	0.755	-0.21	1.2	14.046	7.119	0.0	0.0	0.0	0
1.10	9.993	0.775	-0.21	1.2	12.894	7.755	0.0	0.0	0.0	0
1.11	9.789	0.785	-0.21	1.2	12.47	8.019	0.0	0.0	0.0	0
1.12	9.585	0.806	-0.21	1.2	11.892	8.409	0.0	0.0	0.0	0
1.13	9.381	0.816	-0.21	1.3	11.496	8.698	0.0	0.0	0.0	0
1.14	9.381	0.816	-0.21	1.2	11.496	8.698	0.0	0.0	0.0	0
1.15	9.075	0.806	-0.21	1.2	11.259	8.882	0.0	0.0	0.0	0
1.16	8.871	0.806	-0.21	1.2	11.006	9.086	0.0	0.0	0.0	0
1.17	8.871	0.795	-0.21	1.2	11.158	8.962	0.0	0.0	0.0	0
1.18	8.871	0.755	-0.21	1.3	11.75	8.511	0.0	0.0	0.0	0
1.19	8.769	0.714	-0.21	1.2	12.282	8.142	0.0	0.0	0.0	0
1.20	8.667	0.673	-0.20	1.2	12.878	7.765	0.0	0.0	0.0	0
1.21	8.565	0.632	-0.20	1.2	13.552	7.379	0.0	0.0	0.0	0
1.22	8.464	0.591	-0.20	1.2	14.321	6.983	0.0	0.0	0.0	0
1.23	8.464	0.51	-0.19	1.2	16.596	6.026	0.0	0.0	0.0	0
1.24	8.362	0.479	-0.19	1.2	17.457	5.728	0.0	0.0	0.0	0
1.25	8.362	0.449	-0.19	1.2	18.624	5.37	0.0	0.0	0.0	0
1.26	8.26	0.428	-0.18	1.2	19.299	5.182	0.0	0.0	0.0	0
1.27	8.26	0.418	-0.18	1.2	19.761	5.061	0.0	0.0	0.0	0
1.28	8.158	0.398	-0.18	1.2	20.497	4.879	0.0	0.0	0.0	0
1.29	8.056	0.387	-0.17	1.2	20.817	4.804	0.0	0.0	0.0	0
1.30	8.056	0.387	-0.17	1.2	20.817	4.804	0.0	0.0	0.0	0
1.31	8.056	0.398	-0.17	1.2	20.241	4.94	0.0	0.0	0.0	0
1.32	8.056	0.408	-0.17	1.2	19.745	5.065	0.0	0.0	0.0	0
1.33	8.158	0.438	-0.17	1.2	18.626	5.369	0.0	0.0	0.0	0
1.34	8.056	0.459	-0.16	1.2	17.551	5.698	0.0	0.0	0.0	0
1.35	8.158	0.469	-0.16	1.2	17.394	5.749	0.0	0.0	0.0	0
1.36	8.158	0.469	-0.16	1.2	17.394	5.749	0.0	0.0	0.0	0
1.37	7.852	0.469	-0.16	1.2	16.742	5.973	0.0	0.0	0.0	0
1.38	8.26	0.469	-0.16	1.2	17.612	5.678	0.0	0.0	0.0	0
1.39	8.667	0.459	-0.16	1.2	18.882	5.296	0.0	0.0	0.0	0
1.40	8.26	0.459	-0.16	1.2	17.996	5.557	0.0	0.0	0.0	0
1.41	8.056	0.459	-0.16	1.2	17.551	5.698	0.0	0.0	0.0	0
1.42	8.056	0.449	-0.16	1.2	17.942	5.573	0.0	0.0	0.0	0
1.43	8.056	0.438	-0.15	1.2	18.393	5.437	0.0	0.0	0.0	0
1.44	8.056	0.428	-0.15	1.2	18.822	5.313	0.0	0.0	0.0	0
1.45	8.158	0.408	-0.15	1.2	19.995	5.001	0.0	0.0	0.0	0
1.46	8.464	0.387	-0.15	1.2	21.871	4.572	0.0	0.0	0.0	0
1.47	9.075	0.367	-0.15	1.2	24.728	4.044	0.0	0.0	0.0	0
1.48	9.177	0.357	-0.15	1.2	25.706	3.89	0.0	0.0	0.0	0
1.49	9.279	0.347	-0.15	1.2	26.741	3.74	0.0	0.0	0.0	0
1.50	9.177	0.347	-0.15	1.2	26.447	3.781	0.0	0.0	0.0	0
1.51	9.279	0.347	-0.15	1.2	26.741	3.74	0.0	0.0	0.0	0
1.52	9.177	0.347	-0.14	1.2	26.447	3.781	0.0	0.0	0.0	0
1.53	9.075	0.357	-0.14	1.2	25.42	3.934	0.0	0.0	0.0	0
1.54	8.973	0.357	-0.14	1.2	25.134	3.979	0.0	0.0	0.0	0
1.55	8.973	0.357	-0.13	1.2	25.134	3.979	0.0	0.0	0.0	0
1.56	9.075	0.367	-0.13	1.2	24.728	4.044	0.0	0.0	0.0	0
1.57	9.075	0.367	-0.12	1.2	24.728	4.044	0.0	0.0	0.0	0
1.58	9.279	0.387	-0.09	1.2	23.977	4.171	0.0	0.0	0.0	0
1.59	9.177	0.387	-0.08	1.2	23.713	4.217	0.0	0.0	0.0	0
1.60	9.279	0.398	-0.08	1.2	23.314	4.289	0.0	0.0	0.0	0
1.61	9.279	0.398	-0.08	1.3	23.314	4.289	0.0	0.0	0.0	0
1.62	9.177	0.398	-0.08	1.3	23.058	4.337	0.0	0.0	0.0	0
1.63	8.973	0.377	-0.08	1.3	23.801	4.201	0.0	0.0	0.0	0
1.64	9.177	0.367	-0.08	1.3	25.005	3.999	0.0	0.0	0.0	0

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1.65	9.279	0.367	-0.08	1.3	25.283	3.955	0.0	0.0	0.0	0
1.66	8.871	0.357	-0.08	1.3	24.849	4.024	0.0	0.0	0.0	0
1.67	8.667	0.357	-0.08	1.3	24.277	4.119	0.0	0.0	0.0	0
1.68	8.565	0.357	-0.08	1.3	23.992	4.168	0.0	0.0	0.0	0
1.69	8.362	0.367	-0.09	1.3	22.785	4.389	0.0	0.0	0.0	0
1.70	8.158	0.377	-0.09	1.3	21.639	4.621	0.0	0.0	0.0	0
1.71	8.158	0.387	-0.08	1.3	21.08	4.744	0.0	0.0	0.0	0
1.72	8.158	0.387	-0.08	1.3	21.08	4.744	0.0	0.0	0.0	0
1.73	8.056	0.387	-0.08	1.3	20.817	4.804	0.0	0.0	0.0	0
1.74	8.158	0.367	-0.08	1.3	22.229	4.499	0.0	0.0	0.0	0
1.75	8.26	0.357	-0.08	1.3	23.137	4.322	0.0	0.0	0.0	0
1.76	8.667	0.357	-0.08	1.3	24.277	4.119	0.0	0.0	0.0	0
1.77	8.973	0.357	-0.08	1.3	25.134	3.979	0.0	0.0	0.0	0
1.78	9.177	0.347	-0.08	1.3	26.447	3.781	0.0	0.0	0.0	0
1.79	9.483	0.337	-0.08	1.3	28.139	3.554	0.0	0.0	0.0	0
1.80	9.891	0.316	-0.08	1.3	31.301	3.195	0.0	0.0	0.0	0
1.81	10.197	0.306	-0.08	1.3	33.324	3.001	0.0	0.0	0.0	0
1.82	10.401	0.286	-0.08	1.3	36.367	2.75	0.0	0.0	0.0	0
1.83	10.605	0.245	-0.08	1.3	43.286	2.31	0.0	0.0	0.0	0
1.84	10.911	0.214	-0.08	1.3	50.986	1.961	0.0	0.0	0.0	0
1.85	11.421	0.163	-0.08	1.2	70.067	1.427	0.0	0.0	0.0	0
1.86	11.93	0.133	-0.08	1.2	89.699	1.115	0.0	0.0	0.0	0
1.87	12.95	0.092	-0.08	1.2	140.761	0.71	0.0	0.0	0.0	0
1.88	12.95	0.092	-0.08	1.2	140.761	0.71	0.0	0.0	0.0	0
1.89	12.95	0.092	-0.08	1.2	140.761	0.71	0.0	0.0	0.0	0
1.90	30.183	0.0	-0.04	1.1	0.0	0.0	0.0	0.0	0.0	0
1.91	48.946	0.0	-0.04	0.8	0.0	0.0	0.0	0.0	0.0	0
1.92	71.073	0.0	-0.01	0.6	0.0	0.0	0.0	0.0	0.0	0
1.93	148.162	0.0	0.09	0.9	0.0	0.0	0.0	0.0	0.0	0
1.94	177.734	0.0	0.09	0.9	0.0	0.0	0.0	0.0	0.0	0
1.95	185.483	0.01	0.10	1.0	18548.3	0.005	0.0	0.0	0.0	0
1.96	166.007	0.153	0.06	1.0	1085.013	0.092	0.0	0.0	0.0	0
1.97	187.727	0.622	-0.01	1.1	301.812	0.331	0.0	0.0	0.0	0
1.98	180.487	0.897	0.02	1.2	201.212	0.497	0.0	0.0	0.0	0
1.99	95.648	1.346	-0.03	1.2	71.061	1.407	0.0	0.0	0.0	0
2.00	69.034	1.519	-0.21	1.1	45.447	2.2	0.0	0.0	0.0	0
2.01	27.328	1.723	-0.17	1.1	15.861	6.305	0.0	0.0	0.0	0
2.02	6.118	2.233	-0.16	1.1	2.74	36.499	0.0	0.0	0.0	0
2.03	0.204	2.08	-0.04	1.1	0.098	1019.608	0.0	0.0	0.0	0
2.04	2.345	1.754	-0.05	1.1	1.337	74.797	0.0	0.0	0.0	0
2.05	3.263	1.652	-0.05	1.1	1.975	50.628	0.0	0.0	0.0	0
2.06	3.773	1.581	-0.04	1.1	2.386	41.903	0.0	0.0	0.0	0
2.07	4.079	1.509	-0.04	1.1	2.703	36.994	0.0	0.0	0.0	0
2.08	4.385	1.448	-0.04	1.1	3.028	33.022	0.0	0.0	0.0	0
2.09	4.691	1.448	-0.04	1.1	3.24	30.868	0.0	0.0	0.0	0
2.10	4.079	1.275	-0.04	1.1	3.199	31.258	0.0	0.0	0.0	0
2.11	0.0	0.775	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.12	0.0	0.54	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.13	0.0	0.224	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.14	0.0	0.051	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.15	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.16	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.17	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.18	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.19	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.20	0.0	0.0	-0.04	1.2	0.0	0.0	0.0	0.0	0.0	0
2.21	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.22	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.23	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.24	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.25	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.26	0.0	0.0	-0.03	1.3	0.0	0.0	0.0	0.0	0.0	0
2.27	2.447	0.0	-0.03	1.5	0.0	0.0	0.0	0.0	0.0	0
2.28	16.723	0.0	-0.02	2.0	0.0	0.0	0.0	0.0	0.0	0
2.29	32.936	0.0	-0.01	2.6	0.0	0.0	0.0	0.0	0.0	0
2.30	78.823	0.0	0.42	4.0	0.0	0.0	0.0	0.0	0.0	0
2.31	109.312	0.0	0.42	4.5	0.0	0.0	0.0	0.0	0.0	0
2.32	125.831	0.0	0.41	4.7	0.0	0.0	0.0	0.0	0.0	0
2.33	126.953	0.02	0.38	4.6	6347.65	0.016	0.0	0.0	0.0	0
2.34	161.215	0.041	0.39	4.5	3932.073	0.025	0.0	0.0	0.0	0
2.35	171.31	0.031	0.27	4.5	5526.129	0.018	0.0	0.0	0.0	0
2.36	152.547	0.031	0.19	4.4	4920.871	0.02	0.0	0.0	0.0	0
2.37	122.262	0.02	0.15	4.3	6113.1	0.016	0.0	0.0	0.0	0
2.38	40.176	0.133	-0.04	4.3	302.075	0.331	0.0	0.0	0.0	0
2.39	17.233	1.03	0.44	4.4	16.731	5.977	0.0	0.0	0.0	0

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2.40	8.26	0.704	0.41	4.4	11.733	8.523	0.0	0.0	0.0	0
2.41	8.158	0.653	0.40	4.4	12.493	8.004	0.0	0.0	0.0	0
2.42	7.444	0.622	0.40	4.4	11.968	8.356	0.0	0.0	0.0	0
2.43	7.036	0.571	0.39	4.5	12.322	8.115	0.0	0.0	0.0	0
2.44	6.73	0.51	0.39	4.5	13.196	7.578	0.0	0.0	0.0	0
2.45	6.628	0.459	0.38	4.5	14.44	6.925	0.0	0.0	0.0	0
2.46	6.628	0.387	0.38	4.5	17.127	5.839	0.0	0.0	0.0	0
2.47	7.444	0.54	0.37	4.4	13.785	7.254	0.0	0.0	0.0	0
2.48	7.24	0.755	0.37	4.4	9.589	10.428	0.0	0.0	0.0	0
2.49	6.73	0.775	0.37	4.3	8.684	11.516	0.0	0.0	0.0	0
2.50	5.608	0.632	0.33	4.4	8.873	11.27	0.0	0.0	0.0	0
2.51	6.73	0.428	0.36	4.4	15.724	6.36	0.0	0.0	0.0	0
2.52	10.095	0.235	0.36	4.4	42.957	2.328	0.0	0.0	0.0	0
2.53	8.667	0.112	0.31	4.5	77.384	1.292	0.0	0.0	0.0	0
2.54	6.526	0.0	0.29	4.7	0.0	0.0	0.0	0.0	0.0	0
2.55	14.888	0.0	0.34	4.7	0.0	0.0	0.0	0.0	0.0	0
2.56	12.134	0.0	0.30	4.7	0.0	0.0	0.0	0.0	0.0	0
2.57	6.322	0.0	0.29	4.7	0.0	0.0	0.0	0.0	0.0	0
2.58	4.997	0.0	0.30	4.7	0.0	0.0	0.0	0.0	0.0	0
2.59	3.977	0.0	0.31	4.7	0.0	0.0	0.0	0.0	0.0	0
2.60	3.773	0.0	0.31	4.7	0.0	0.0	0.0	0.0	0.0	0
2.61	4.079	0.0	0.31	4.7	0.0	0.0	0.0	0.0	0.0	0
2.62	3.365	0.01	0.32	4.8	336.5	0.297	0.0	0.0	0.0	0
2.63	3.059	0.01	0.32	4.8	305.9	0.327	0.0	0.0	0.0	0
2.64	2.753	0.01	0.32	4.8	275.3	0.363	0.0	0.0	0.0	0
2.65	2.753	0.01	0.32	4.8	275.3	0.363	0.0	0.0	0.0	0
2.66	2.651	0.01	0.32	4.8	265.1	0.377	0.0	0.0	0.0	0
2.67	2.447	0.0	0.32	4.8	0.0	0.0	0.0	0.0	0.0	0
2.68	2.345	0.0	0.32	4.8	0.0	0.0	0.0	0.0	0.0	0
2.69	2.243	0.0	0.32	4.8	0.0	0.0	0.0	0.0	0.0	0
2.70	2.345	0.0	0.31	4.8	0.0	0.0	0.0	0.0	0.0	0
2.71	34.16	0.0	0.36	5.1	0.0	0.0	0.0	0.0	0.0	0
2.72	85.655	0.0	0.36	5.7	0.0	0.0	0.0	0.0	0.0	0
2.73	111.963	0.0	0.35	5.6	0.0	0.0	0.0	0.0	0.0	0
2.74	114.002	0.0	0.34	5.8	0.0	0.0	0.0	0.0	0.0	0
2.75	114.41	0.0	0.33	5.9	0.0	0.0	0.0	0.0	0.0	0
2.76	109.21	0.0	0.26	6.1	0.0	0.0	0.0	0.0	0.0	0
2.77	108.19	0.0	0.24	6.5	0.0	0.0	0.0	0.0	0.0	0
2.78	101.154	0.0	0.21	6.6	0.0	0.0	0.0	0.0	0.0	0
2.79	98.095	0.0	0.21	6.7	0.0	0.0	0.0	0.0	0.0	0
2.80	97.279	0.0	0.21	7.0	0.0	0.0	0.0	0.0	0.0	0
2.81	96.77	0.0	0.21	7.1	0.0	0.0	0.0	0.0	0.0	0
2.82	91.161	0.0	0.18	7.3	0.0	0.0	0.0	0.0	0.0	0
2.83	69.849	0.0	0.19	7.6	0.0	0.0	0.0	0.0	0.0	0
2.84	84.737	0.0	0.21	7.7	0.0	0.0	0.0	0.0	0.0	0
2.85	83.513	0.0	0.20	8.1	0.0	0.0	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.6

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	1.85	10.091	0.42	0.48	0.73	0.66	0.58	0.52	0.50
Strato 2	2.85	42.135	0.32	2.01	2.28	2.78	2.45	2.19	2.11

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	1.85	10.091	0.42	50.46	43.73	60.55	30.27
Strato 2	2.85	42.135	0.32	105.34	84.27	126.40	126.40

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Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	1.85	10.091	0.42	371.82	15.00
Strato 2	2.85	42.135	0.32	1563.32	63.30

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	1.85	10.091	0.42	Imai & Tomauchi	114.96
Strato 2	2.85	42.135	0.32	Imai & Tomauchi	275.31

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	1.85	10.091	0.42	1.34
Strato 2	2.85	42.135	0.32	2.19

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	1.85	10.091	0.42	Meyerhof	1.86
Strato 2	2.85	42.135	0.32	Meyerhof	2.10

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	1.85	10.091	0.42	Meyerhof	1.94
Strato 2	2.85	42.135	0.32	Meyerhof	2.18

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	1.85	10.091	0.42	25.41	33.58	35.02	25.9	51.38
Strato 2	2.85	42.135	0.32	52.78	60.81	61.7	53.5	65.62

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	1.85	10.091	0.42	33.32	29.89	26.9	25.18	32.7	37.64	24.8	21.53
Strato 2	2.85	42.135	0.32	35.98	32.35	29.49	27.54	36.51	40.4	27.47	35.92

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	1.85	10.091	0.42	25.23	20.18	120.79
Strato 2	2.85	42.135	0.32	105.34	84.27	366.69

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	1.85	10.091	0.42	28.89	39.58	73.55	20.18	50.45
Strato 2	2.85	42.135	0.32	54.53	165.28	335.68	84.27	126.40

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	1.85	10.091	0.42	Imai & Tomauchi	114.96
Strato 2	2.85	42.135	0.32	Imai & Tomauchi	275.31

Prova CPTU n. 6

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	1.85	10.091	0.42	1.34	>9	2.76	>9
Strato 2	2.85	42.135	0.32	2.19	>9	1.36	>9

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	1.85	10.091	0.42	Kulhawy & Mayne (1990)	0.42
Strato 2	2.85	42.135	0.32	Kulhawy & Mayne (1990)	0.58

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	1.85	10.091	0.42	0.1988	0.02584
Strato 2	2.85	42.135	0.32	0.11029	0.01434

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	1.85	10.091	0.42	Meyerhof	1.80
Strato 2	2.85	42.135	0.32	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	1.85	10.091	0.42	Meyerhof	2.10
Strato 2	2.85	42.135	0.32	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	1.85	10.091	0.42	Robertson & Wride 1997	0
Strato 2	2.85	42.135	0.32	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	1.85	10.091	0.42	Piacentini-Righi 1988	7.852315E-08
Strato 2	2.85	42.135	0.32	Piacentini-Righi 1988	0.001

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	1.85	10.091	0.42	Piacentini-Righi 1988	2.377131E-03
Strato 2	2.85	42.135	0.32	Piacentini-Righi 1988	0

CPTU7_ms3

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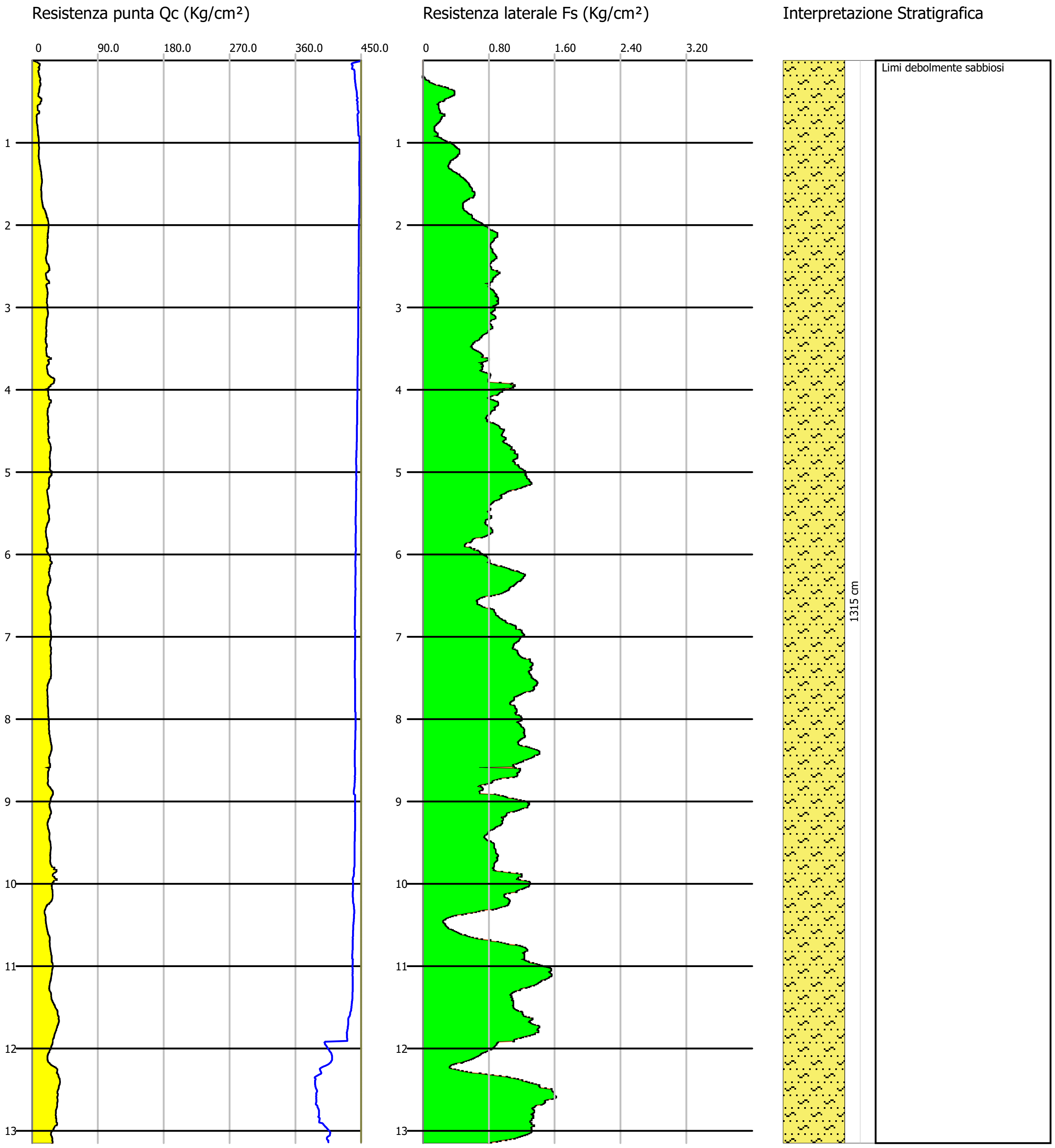
Probe CPTU - Piezocone Nr.7
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice

Data: 03/03/2021

Cantiere: Prove penetrometriche per Microzonazione sismica III° livello

Località: Ozzano dell'Emilia (BO)



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 7

PROVA DPSH Nr.7

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 03/03/2021
Profondità prova: 13.15 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	1.122	0.0	0.16	0.2	0.0	0.0	0.0	0.0	0.0	0
0.02	3.977	0.0	0.63	0.3	0.0	0.0	0.0	0.0	0.0	0
0.03	6.832	0.0	1.17	0.3	0.0	0.0	0.0	0.0	0.0	0
0.04	8.565	0.0	1.32	0.5	0.0	0.0	0.0	0.0	0.0	0
0.05	9.891	0.0	1.31	0.7	0.0	0.0	0.0	0.0	0.0	0
0.06	9.687	0.0	1.15	0.8	0.0	0.0	0.0	0.0	0.0	0
0.07	8.871	0.0	1.19	0.8	0.0	0.0	0.0	0.0	0.0	0
0.08	8.565	0.0	1.21	0.8	0.0	0.0	0.0	0.0	0.0	0
0.09	7.852	0.0	1.22	0.7	0.0	0.0	0.0	0.0	0.0	0
0.10	9.075	0.0	1.25	0.7	0.0	0.0	0.0	0.0	0.0	0
0.11	8.871	0.0	0.98	0.7	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 7

0.12	7.648	0.0	0.94	0.7	0.0	0.0	0.0	0.0	0.0	0
0.13	7.852	0.0	0.91	0.7	0.0	0.0	0.0	0.0	0.0	0
0.14	7.546	0.0	0.91	0.7	0.0	0.0	0.0	0.0	0.0	0
0.15	7.954	0.0	0.91	0.7	0.0	0.0	0.0	0.0	0.0	0
0.16	8.362	0.0	0.90	0.7	0.0	0.0	0.0	0.0	0.0	0
0.17	8.464	0.0	0.89	0.7	0.0	0.0	0.0	0.0	0.0	0
0.18	8.667	0.0	0.89	0.7	0.0	0.0	0.0	0.0	0.0	0
0.19	9.279	0.0	0.89	0.7	0.0	0.0	0.0	0.0	0.0	0
0.20	9.075	0.0	0.88	0.7	0.0	0.0	0.0	0.0	0.0	0
0.21	9.891	0.01	0.87	0.7	989.1	0.101	0.0	0.0	0.0	0
0.22	10.401	0.02	0.87	0.7	520.05	0.192	0.0	0.0	0.0	0
0.23	10.707	0.02	0.87	0.7	535.35	0.187	0.0	0.0	0.0	0
0.24	9.891	0.031	0.84	0.8	319.065	0.313	0.0	0.0	0.0	0
0.25	9.789	0.061	0.83	0.8	160.475	0.623	0.0	0.0	0.0	0
0.26	10.095	0.071	0.83	0.8	142.183	0.703	0.0	0.0	0.0	0
0.27	10.095	0.071	0.82	0.8	142.183	0.703	0.0	0.0	0.0	0
0.28	10.605	0.102	0.80	0.8	103.971	0.962	0.0	0.0	0.0	0
0.29	11.013	0.122	0.79	0.8	90.27	1.108	0.0	0.0	0.0	0
0.30	10.605	0.143	0.77	0.8	74.161	1.348	0.0	0.0	0.0	0
0.31	9.891	0.194	0.74	0.8	50.985	1.961	0.0	0.0	0.0	0
0.32	9.585	0.224	0.73	0.8	42.79	2.337	0.0	0.0	0.0	0
0.33	9.381	0.265	0.71	0.8	35.4	2.825	0.0	0.0	0.0	0
0.34	9.177	0.296	0.70	0.8	31.003	3.225	0.0	0.0	0.0	0
0.35	9.075	0.306	0.68	0.8	29.657	3.372	0.0	0.0	0.0	0
0.36	8.667	0.347	0.65	0.8	24.977	4.004	0.0	0.0	0.0	0
0.37	8.769	0.367	0.63	0.8	23.894	4.185	0.0	0.0	0.0	0
0.38	8.769	0.377	0.62	0.7	23.26	4.299	0.0	0.0	0.0	0
0.39	8.26	0.377	0.60	0.8	21.91	4.564	0.0	0.0	0.0	0
0.40	7.852	0.377	0.59	0.7	20.828	4.801	0.0	0.0	0.0	0
0.41	7.852	0.377	0.59	0.7	20.828	4.801	0.0	0.0	0.0	0
0.42	7.954	0.367	0.59	0.7	21.673	4.614	0.0	0.0	0.0	0
0.43	7.75	0.347	0.58	0.7	22.334	4.477	0.0	0.0	0.0	0
0.44	7.75	0.326	0.57	0.7	23.773	4.206	0.0	0.0	0.0	0
0.45	9.381	0.306	0.53	0.7	30.657	3.262	0.0	0.0	0.0	0
0.46	10.605	0.275	0.50	0.7	38.564	2.593	0.0	0.0	0.0	0
0.47	12.134	0.255	0.54	0.7	47.584	2.102	0.0	0.0	0.0	0
0.48	12.338	0.255	0.61	0.7	48.384	2.067	0.0	0.0	0.0	0
0.49	11.625	0.245	0.57	0.7	47.449	2.108	0.0	0.0	0.0	0
0.50	10.809	0.204	0.50	0.7	52.985	1.887	0.0	0.0	0.0	0
0.51	10.605	0.184	0.50	0.8	57.636	1.735	0.0	0.0	0.0	0
0.52	10.707	0.184	0.54	0.8	58.19	1.719	0.0	0.0	0.0	0
0.53	9.177	0.163	0.52	0.8	56.301	1.776	0.0	0.0	0.0	0
0.54	7.24	0.173	0.51	0.8	41.85	2.39	0.0	0.0	0.0	0
0.55	6.628	0.184	0.50	0.8	36.022	2.776	0.0	0.0	0.0	0
0.56	6.73	0.184	0.49	0.8	36.576	2.734	0.0	0.0	0.0	0
0.57	6.628	0.184	0.49	0.8	36.022	2.776	0.0	0.0	0.0	0
0.58	6.832	0.184	0.48	0.8	37.13	2.693	0.0	0.0	0.0	0
0.59	6.832	0.184	0.47	0.8	37.13	2.693	0.0	0.0	0.0	0
0.60	6.934	0.194	0.46	0.8	35.742	2.798	0.0	0.0	0.0	0
0.61	7.036	0.194	0.43	0.8	36.268	2.757	0.0	0.0	0.0	0
0.62	8.769	0.204	0.36	0.8	42.985	2.326	0.0	0.0	0.0	0
0.63	9.177	0.204	0.33	0.8	44.985	2.223	0.0	0.0	0.0	0
0.64	8.565	0.194	0.40	0.8	44.149	2.265	0.0	0.0	0.0	0
0.65	6.322	0.224	0.49	0.8	28.223	3.543	0.0	0.0	0.0	0
0.66	5.71	0.255	0.51	0.8	22.392	4.466	0.0	0.0	0.0	0
0.67	5.404	0.255	0.51	0.8	21.192	4.719	0.0	0.0	0.0	0
0.68	5.302	0.224	0.50	0.9	23.67	4.225	0.0	0.0	0.0	0
0.69	5.404	0.224	0.49	0.9	24.125	4.145	0.0	0.0	0.0	0
0.70	5.506	0.214	0.49	0.8	25.729	3.887	0.0	0.0	0.0	0
0.71	5.506	0.214	0.48	0.9	25.729	3.887	0.0	0.0	0.0	0
0.72	5.506	0.204	0.47	0.8	26.99	3.705	0.0	0.0	0.0	0
0.73	5.506	0.204	0.46	0.9	26.99	3.705	0.0	0.0	0.0	0
0.74	5.506	0.194	0.46	0.9	28.381	3.523	0.0	0.0	0.0	0
0.75	5.608	0.184	0.45	0.9	30.478	3.281	0.0	0.0	0.0	0
0.76	5.608	0.173	0.44	0.9	32.416	3.085	0.0	0.0	0.0	0
0.77	5.812	0.163	0.44	0.9	35.656	2.805	0.0	0.0	0.0	0
0.78	6.118	0.153	0.44	0.9	39.987	2.501	0.0	0.0	0.0	0
0.79	6.322	0.143	0.44	0.9	44.21	2.262	0.0	0.0	0.0	0
0.80	6.628	0.133	0.43	0.9	49.835	2.007	0.0	0.0	0.0	0
0.81	6.73	0.133	0.42	0.9	50.602	1.976	0.0	0.0	0.0	0
0.82	6.73	0.133	0.42	0.9	50.602	1.976	0.0	0.0	0.0	0
0.83	6.832	0.133	0.41	0.9	51.368	1.947	0.0	0.0	0.0	0
0.84	6.934	0.133	0.41	0.9	52.135	1.918	0.0	0.0	0.0	0
0.85	7.036	0.133	0.40	0.9	52.902	1.89	0.0	0.0	0.0	0
0.86	7.138	0.133	0.39	0.9	53.669	1.863	0.0	0.0	0.0	0

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0.87	7.24	0.143	0.38	0.9	50.629	1.975	0.0	0.0	0.0	0
0.88	7.342	0.153	0.38	0.9	47.987	2.084	0.0	0.0	0.0	0
0.89	7.444	0.173	0.37	0.9	43.029	2.324	0.0	0.0	0.0	0
0.90	7.444	0.173	0.37	0.9	43.029	2.324	0.0	0.0	0.0	0
0.91	7.444	0.173	0.37	0.9	43.029	2.324	0.0	0.0	0.0	0
0.92	7.852	0.133	0.26	0.9	59.038	1.694	0.0	0.0	0.0	0
0.93	8.056	0.173	0.25	0.9	46.566	2.147	0.0	0.0	0.0	0
0.94	8.158	0.194	0.25	0.9	42.052	2.378	0.0	0.0	0.0	0
0.95	8.26	0.214	0.25	0.9	38.598	2.591	0.0	0.0	0.0	0
0.96	8.26	0.224	0.25	1.0	36.875	2.712	0.0	0.0	0.0	0
0.97	8.362	0.245	0.25	1.0	34.131	2.93	0.0	0.0	0.0	0
0.98	8.464	0.265	0.25	1.0	31.94	3.131	0.0	0.0	0.0	0
0.99	8.464	0.286	0.25	1.0	29.594	3.379	0.0	0.0	0.0	0
1.00	8.565	0.326	0.24	1.0	26.273	3.806	0.0	0.0	0.0	0
1.01	8.565	0.337	0.24	1.0	25.415	3.935	0.0	0.0	0.0	0
1.02	8.464	0.347	0.24	1.0	24.392	4.1	0.0	0.0	0.0	0
1.03	8.464	0.367	0.24	1.0	23.063	4.336	0.0	0.0	0.0	0
1.04	8.565	0.377	0.24	1.0	22.719	4.402	0.0	0.0	0.0	0
1.05	8.667	0.387	0.24	1.1	22.395	4.465	0.0	0.0	0.0	0
1.06	8.769	0.398	0.24	1.1	22.033	4.539	0.0	0.0	0.0	0
1.07	8.769	0.408	0.24	1.1	21.493	4.653	0.0	0.0	0.0	0
1.08	8.667	0.428	0.24	1.1	20.25	4.938	0.0	0.0	0.0	0
1.09	8.565	0.438	0.24	1.1	19.555	5.114	0.0	0.0	0.0	0
1.10	8.464	0.438	0.24	1.1	19.324	5.175	0.0	0.0	0.0	0
1.11	8.362	0.438	0.24	1.1	19.091	5.238	0.0	0.0	0.0	0
1.12	8.362	0.438	0.24	1.1	19.091	5.238	0.0	0.0	0.0	0
1.13	8.362	0.438	0.24	1.1	19.091	5.238	0.0	0.0	0.0	0
1.14	8.26	0.418	0.24	1.1	19.761	5.061	0.0	0.0	0.0	0
1.15	8.158	0.418	0.24	1.1	19.517	5.124	0.0	0.0	0.0	0
1.16	8.158	0.408	0.24	1.1	19.995	5.001	0.0	0.0	0.0	0
1.17	8.158	0.398	0.24	1.1	20.497	4.879	0.0	0.0	0.0	0
1.18	8.26	0.387	0.24	1.1	21.344	4.685	0.0	0.0	0.0	0
1.19	8.464	0.367	0.24	1.1	23.063	4.336	0.0	0.0	0.0	0
1.20	8.565	0.357	0.24	1.1	23.992	4.168	0.0	0.0	0.0	0
1.21	8.973	0.337	0.25	1.1	26.626	3.756	0.0	0.0	0.0	0
1.22	9.177	0.326	0.25	1.1	28.15	3.552	0.0	0.0	0.0	0
1.23	9.177	0.326	0.26	1.1	28.15	3.552	0.0	0.0	0.0	0
1.24	9.279	0.316	0.26	1.1	29.364	3.406	0.0	0.0	0.0	0
1.25	9.483	0.316	0.27	1.1	30.009	3.332	0.0	0.0	0.0	0
1.26	9.585	0.306	0.27	1.1	31.324	3.192	0.0	0.0	0.0	0
1.27	9.687	0.306	0.27	1.1	31.657	3.159	0.0	0.0	0.0	0
1.28	10.299	0.296	0.27	1.1	34.794	2.874	0.0	0.0	0.0	0
1.29	10.299	0.296	0.27	1.1	34.794	2.874	0.0	0.0	0.0	0
1.30	10.503	0.306	0.27	1.1	34.324	2.913	0.0	0.0	0.0	0
1.31	10.605	0.306	0.27	1.1	34.657	2.885	0.0	0.0	0.0	0
1.32	10.707	0.316	0.27	1.1	33.883	2.951	0.0	0.0	0.0	0
1.33	10.911	0.337	0.27	1.2	32.377	3.089	0.0	0.0	0.0	0
1.34	11.115	0.347	0.27	1.1	32.032	3.122	0.0	0.0	0.0	0
1.35	11.421	0.357	0.27	1.2	31.992	3.126	0.0	0.0	0.0	0
1.36	11.727	0.377	0.27	1.2	31.106	3.215	0.0	0.0	0.0	0
1.37	11.829	0.398	0.27	1.2	29.721	3.365	0.0	0.0	0.0	0
1.38	11.625	0.408	0.27	1.2	28.493	3.51	0.0	0.0	0.0	0
1.39	11.829	0.438	0.27	1.2	27.007	3.703	0.0	0.0	0.0	0
1.40	11.93	0.438	0.27	1.2	27.237	3.671	0.0	0.0	0.0	0
1.41	12.134	0.449	0.27	1.2	27.024	3.7	0.0	0.0	0.0	0
1.42	12.236	0.459	0.27	1.2	26.658	3.751	0.0	0.0	0.0	0
1.43	12.338	0.479	0.27	1.2	25.758	3.882	0.0	0.0	0.0	0
1.44	12.44	0.489	0.27	1.2	25.44	3.931	0.0	0.0	0.0	0
1.45	12.644	0.5	0.27	1.2	25.288	3.954	0.0	0.0	0.0	0
1.46	12.644	0.51	0.26	1.2	24.792	4.034	0.0	0.0	0.0	0
1.47	12.644	0.52	0.26	1.2	24.315	4.113	0.0	0.0	0.0	0
1.48	12.644	0.53	0.26	1.2	23.857	4.192	0.0	0.0	0.0	0
1.49	12.542	0.54	0.26	1.2	23.226	4.306	0.0	0.0	0.0	0
1.50	12.338	0.551	0.26	1.2	22.392	4.466	0.0	0.0	0.0	0
1.51	12.338	0.551	0.26	1.2	22.392	4.466	0.0	0.0	0.0	0
1.52	12.134	0.561	0.26	1.2	21.629	4.623	0.0	0.0	0.0	0
1.53	11.829	0.561	0.25	1.3	21.086	4.743	0.0	0.0	0.0	0
1.54	11.727	0.571	0.25	1.3	20.538	4.869	0.0	0.0	0.0	0
1.55	11.727	0.581	0.25	1.3	20.184	4.954	0.0	0.0	0.0	0
1.56	11.523	0.591	0.25	1.3	19.497	5.129	0.0	0.0	0.0	0
1.57	11.421	0.591	0.25	1.3	19.325	5.175	0.0	0.0	0.0	0
1.58	11.727	0.591	0.25	1.3	19.843	5.04	0.0	0.0	0.0	0
1.59	11.829	0.591	0.25	1.3	20.015	4.996	0.0	0.0	0.0	0
1.60	11.93	0.612	0.25	1.3	19.493	5.13	0.0	0.0	0.0	0
1.61	11.93	0.622	0.25	1.3	19.18	5.214	0.0	0.0	0.0	0

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1.62	11.93	0.622	0.25	1.3	19.18	5.214	0.0	0.0	0.0	0
1.63	11.93	0.622	0.25	1.3	19.18	5.214	0.0	0.0	0.0	0
1.64	11.93	0.612	0.25	1.3	19.493	5.13	0.0	0.0	0.0	0
1.65	11.93	0.612	0.25	1.3	19.493	5.13	0.0	0.0	0.0	0
1.66	12.032	0.602	0.25	1.3	19.987	5.003	0.0	0.0	0.0	0
1.67	12.338	0.561	0.25	1.3	21.993	4.547	0.0	0.0	0.0	0
1.68	12.338	0.551	0.25	1.3	22.392	4.466	0.0	0.0	0.0	0
1.69	12.44	0.53	0.25	1.3	23.472	4.26	0.0	0.0	0.0	0
1.70	12.542	0.52	0.25	1.3	24.119	4.146	0.0	0.0	0.0	0
1.71	12.746	0.5	0.25	1.3	25.492	3.923	0.0	0.0	0.0	0
1.72	12.95	0.489	0.25	1.3	26.483	3.776	0.0	0.0	0.0	0
1.73	13.154	0.479	0.25	1.3	27.461	3.641	0.0	0.0	0.0	0
1.74	13.46	0.479	0.25	1.3	28.1	3.559	0.0	0.0	0.0	0
1.75	13.562	0.479	0.25	1.3	28.313	3.532	0.0	0.0	0.0	0
1.76	13.766	0.479	0.26	1.3	28.739	3.48	0.0	0.0	0.0	0
1.77	13.868	0.479	0.26	1.3	28.952	3.454	0.0	0.0	0.0	0
1.78	14.174	0.479	0.26	1.3	29.591	3.379	0.0	0.0	0.0	0
1.79	14.48	0.479	0.26	1.3	30.23	3.308	0.0	0.0	0.0	0
1.80	14.888	0.479	0.26	1.3	31.081	3.217	0.0	0.0	0.0	0
1.81	16.009	0.489	0.27	1.3	32.738	3.055	0.0	0.0	0.0	0
1.82	16.519	0.489	0.27	1.3	33.781	2.96	0.0	0.0	0.0	0
1.83	17.029	0.5	0.27	1.3	34.058	2.936	0.0	0.0	0.0	0
1.84	17.335	0.52	0.27	1.3	33.337	3.0	0.0	0.0	0.0	0
1.85	17.743	0.53	0.28	1.4	33.477	2.987	0.0	0.0	0.0	0
1.86	18.151	0.54	0.28	1.4	33.613	2.975	0.0	0.0	0.0	0
1.87	18.457	0.551	0.28	1.4	33.497	2.985	0.0	0.0	0.0	0
1.88	18.864	0.581	0.28	1.4	32.468	3.08	0.0	0.0	0.0	0
1.89	19.272	0.591	0.28	1.4	32.609	3.067	0.0	0.0	0.0	0
1.90	19.272	0.591	0.28	1.4	32.609	3.067	0.0	0.0	0.0	0
1.91	19.272	0.591	0.28	1.4	32.609	3.067	0.0	0.0	0.0	0
1.92	20.292	0.591	0.31	1.4	34.335	2.912	0.0	0.0	0.0	0
1.93	20.598	0.612	0.31	1.4	33.657	2.971	0.0	0.0	0.0	0
1.94	20.802	0.622	0.32	1.4	33.444	2.99	0.0	0.0	0.0	0
1.95	21.108	0.642	0.32	1.4	32.879	3.042	0.0	0.0	0.0	0
1.96	21.516	0.663	0.32	1.4	32.452	3.081	0.0	0.0	0.0	0
1.97	21.516	0.683	0.32	1.4	31.502	3.174	0.0	0.0	0.0	0
1.98	21.516	0.704	0.32	1.4	30.563	3.272	0.0	0.0	0.0	0
1.99	21.72	0.714	0.32	1.4	30.42	3.287	0.0	0.0	0.0	0
2.00	21.924	0.724	0.32	1.4	30.282	3.302	0.0	0.0	0.0	0
2.01	21.924	0.734	0.32	1.4	29.869	3.348	0.0	0.0	0.0	0
2.02	21.822	0.755	0.32	1.4	28.903	3.46	0.0	0.0	0.0	0
2.03	21.618	0.785	0.32	1.4	27.539	3.631	0.0	0.0	0.0	0
2.04	21.516	0.785	0.32	1.5	27.409	3.648	0.0	0.0	0.0	0
2.05	21.516	0.795	0.32	1.5	27.064	3.695	0.0	0.0	0.0	0
2.06	21.414	0.806	0.33	1.5	26.568	3.764	0.0	0.0	0.0	0
2.07	21.414	0.836	0.33	1.5	25.615	3.904	0.0	0.0	0.0	0
2.08	21.312	0.857	0.33	1.5	24.868	4.021	0.0	0.0	0.0	0
2.09	21.108	0.877	0.33	1.5	24.068	4.155	0.0	0.0	0.0	0
2.10	20.7	0.897	0.33	1.5	23.077	4.333	0.0	0.0	0.0	0
2.11	20.598	0.897	0.33	1.5	22.963	4.355	0.0	0.0	0.0	0
2.12	20.7	0.897	0.33	1.5	23.077	4.333	0.0	0.0	0.0	0
2.13	20.7	0.897	0.33	1.5	23.077	4.333	0.0	0.0	0.0	0
2.14	20.19	0.897	0.33	1.5	22.508	4.443	0.0	0.0	0.0	0
2.15	20.904	0.877	0.33	1.5	23.836	4.195	0.0	0.0	0.0	0
2.16	20.19	0.857	0.33	1.5	23.559	4.245	0.0	0.0	0.0	0
2.17	20.088	0.857	0.33	1.5	23.44	4.266	0.0	0.0	0.0	0
2.18	20.088	0.857	0.33	1.5	23.44	4.266	0.0	0.0	0.0	0
2.19	20.088	0.846	0.33	1.5	23.745	4.211	0.0	0.0	0.0	0
2.20	20.19	0.836	0.33	1.5	24.151	4.141	0.0	0.0	0.0	0
2.21	20.292	0.826	0.33	1.5	24.567	4.071	0.0	0.0	0.0	0
2.22	20.394	0.816	0.34	1.5	24.993	4.001	0.0	0.0	0.0	0
2.23	20.496	0.816	0.34	1.5	25.118	3.981	0.0	0.0	0.0	0
2.24	20.496	0.806	0.34	1.5	25.429	3.932	0.0	0.0	0.0	0
2.25	20.7	0.806	0.34	1.5	25.682	3.894	0.0	0.0	0.0	0
2.26	20.7	0.795	0.34	1.5	26.038	3.841	0.0	0.0	0.0	0
2.27	20.394	0.816	0.34	1.5	24.993	4.001	0.0	0.0	0.0	0
2.28	20.394	0.816	0.34	1.5	24.993	4.001	0.0	0.0	0.0	0
2.29	20.394	0.826	0.34	1.5	24.69	4.05	0.0	0.0	0.0	0
2.30	19.986	0.836	0.34	1.5	23.907	4.183	0.0	0.0	0.0	0
2.31	19.884	0.836	0.34	1.5	23.785	4.204	0.0	0.0	0.0	0
2.32	19.884	0.836	0.34	1.5	23.785	4.204	0.0	0.0	0.0	0
2.33	19.782	0.836	0.34	1.6	23.663	4.226	0.0	0.0	0.0	0
2.34	19.578	0.846	0.34	1.6	23.142	4.321	0.0	0.0	0.0	0
2.35	19.272	0.857	0.34	1.6	22.488	4.447	0.0	0.0	0.0	0
2.36	18.864	0.867	0.34	1.6	21.758	4.596	0.0	0.0	0.0	0

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2.37	18.661	0.877	0.33	1.6	21.278	4.7	0.0	0.0	0.0	0
2.38	18.355	0.877	0.33	1.6	20.929	4.778	0.0	0.0	0.0	0
2.39	18.049	0.887	0.33	1.6	20.348	4.914	0.0	0.0	0.0	0
2.40	18.049	0.887	0.34	1.6	20.348	4.914	0.0	0.0	0.0	0
2.41	18.151	0.867	0.34	1.6	20.935	4.777	0.0	0.0	0.0	0
2.42	18.457	0.857	0.34	1.6	21.537	4.643	0.0	0.0	0.0	0
2.43	18.559	0.846	0.34	1.6	21.937	4.558	0.0	0.0	0.0	0
2.44	18.864	0.826	0.34	1.6	22.838	4.379	0.0	0.0	0.0	0
2.45	19.272	0.826	0.34	1.6	23.332	4.286	0.0	0.0	0.0	0
2.46	19.476	0.816	0.34	1.6	23.868	4.19	0.0	0.0	0.0	0
2.47	19.986	0.806	0.35	1.6	24.797	4.033	0.0	0.0	0.0	0
2.48	21.312	0.795	0.35	1.6	26.808	3.73	0.0	0.0	0.0	0
2.49	21.924	0.795	0.35	1.6	27.577	3.626	0.0	0.0	0.0	0
2.50	22.026	0.806	0.35	1.6	27.328	3.659	0.0	0.0	0.0	0
2.51	22.433	0.816	0.36	1.6	27.491	3.637	0.0	0.0	0.0	0
2.52	22.637	0.826	0.37	1.6	27.406	3.649	0.0	0.0	0.0	0
2.53	22.433	0.826	0.37	1.6	27.159	3.682	0.0	0.0	0.0	0
2.54	23.147	0.826	0.37	1.6	28.023	3.568	0.0	0.0	0.0	0
2.55	21.618	0.846	0.37	1.6	25.553	3.913	0.0	0.0	0.0	0
2.56	21.312	0.897	0.36	1.6	23.759	4.209	0.0	0.0	0.0	0
2.57	20.19	0.887	0.36	1.6	22.762	4.393	0.0	0.0	0.0	0
2.58	18.049	0.928	0.35	1.6	19.449	5.142	0.0	0.0	0.0	0
2.59	17.947	0.908	0.35	1.6	19.765	5.059	0.0	0.0	0.0	0
2.60	17.947	0.897	0.36	1.6	20.008	4.998	0.0	0.0	0.0	0
2.61	18.151	0.877	0.36	1.6	20.697	4.832	0.0	0.0	0.0	0
2.62	18.355	0.877	0.36	1.6	20.929	4.778	0.0	0.0	0.0	0
2.63	18.559	0.857	0.36	1.6	21.656	4.618	0.0	0.0	0.0	0
2.64	18.762	0.846	0.36	1.6	22.177	4.509	0.0	0.0	0.0	0
2.65	18.966	0.846	0.36	1.6	22.418	4.461	0.0	0.0	0.0	0
2.66	19.068	0.836	0.36	1.6	22.809	4.384	0.0	0.0	0.0	0
2.67	20.19	0.836	0.37	1.6	24.151	4.141	0.0	0.0	0.0	0
2.68	21.822	0.836	0.37	1.6	26.103	3.831	0.0	0.0	0.0	0
2.69	22.331	0.816	0.37	1.6	27.366	3.654	0.0	0.0	0.0	0
2.70	22.739	0.806	0.38	1.6	28.212	3.545	0.0	0.0	0.0	0
2.71	19.782	0.755	0.37	1.6	26.201	3.817	0.0	0.0	0.0	0
2.72	18.864	0.795	0.37	1.6	23.728	4.214	0.0	0.0	0.0	0
2.73	18.559	0.806	0.37	1.6	23.026	4.343	0.0	0.0	0.0	0
2.74	18.762	0.785	0.37	1.6	23.901	4.184	0.0	0.0	0.0	0
2.75	18.966	0.785	0.37	1.6	24.161	4.139	0.0	0.0	0.0	0
2.76	19.272	0.795	0.37	1.6	24.242	4.125	0.0	0.0	0.0	0
2.77	19.578	0.806	0.37	1.6	24.29	4.117	0.0	0.0	0.0	0
2.78	19.986	0.816	0.37	1.6	24.493	4.083	0.0	0.0	0.0	0
2.79	20.088	0.836	0.37	1.6	24.029	4.162	0.0	0.0	0.0	0
2.80	20.088	0.846	0.37	1.6	23.745	4.211	0.0	0.0	0.0	0
2.81	20.19	0.857	0.38	1.6	23.559	4.245	0.0	0.0	0.0	0
2.82	20.7	0.857	0.38	1.6	24.154	4.14	0.0	0.0	0.0	0
2.83	20.7	0.867	0.38	1.6	23.875	4.188	0.0	0.0	0.0	0
2.84	20.394	0.877	0.37	1.7	23.254	4.3	0.0	0.0	0.0	0
2.85	20.394	0.887	0.37	1.7	22.992	4.349	0.0	0.0	0.0	0
2.86	20.394	0.867	0.38	1.7	23.522	4.251	0.0	0.0	0.0	0
2.87	20.088	0.877	0.38	1.7	22.905	4.366	0.0	0.0	0.0	0
2.88	20.19	0.897	0.38	1.7	22.508	4.443	0.0	0.0	0.0	0
2.89	19.374	0.908	0.38	1.7	21.337	4.687	0.0	0.0	0.0	0
2.90	19.374	0.908	0.38	1.7	21.337	4.687	0.0	0.0	0.0	0
2.91	19.374	0.908	0.38	1.7	21.337	4.687	0.0	0.0	0.0	0
2.92	19.578	0.887	0.40	1.7	22.072	4.531	0.0	0.0	0.0	0
2.93	19.374	0.897	0.40	1.7	21.599	4.63	0.0	0.0	0.0	0
2.94	19.272	0.908	0.40	1.7	21.225	4.711	0.0	0.0	0.0	0
2.95	19.476	0.908	0.41	1.7	21.449	4.662	0.0	0.0	0.0	0
2.96	19.782	0.887	0.41	1.7	22.302	4.484	0.0	0.0	0.0	0
2.97	20.19	0.877	0.41	1.7	23.022	4.344	0.0	0.0	0.0	0
2.98	20.394	0.846	0.41	1.7	24.106	4.148	0.0	0.0	0.0	0
2.99	20.292	0.846	0.41	1.7	23.986	4.169	0.0	0.0	0.0	0
3.00	19.986	0.857	0.41	1.7	23.321	4.288	0.0	0.0	0.0	0
3.01	19.884	0.867	0.42	1.7	22.934	4.36	0.0	0.0	0.0	0
3.02	19.884	0.867	0.42	1.7	22.934	4.36	0.0	0.0	0.0	0
3.03	20.19	0.867	0.42	1.7	23.287	4.294	0.0	0.0	0.0	0
3.04	20.598	0.846	0.42	1.8	24.348	4.107	0.0	0.0	0.0	0
3.05	20.7	0.836	0.42	1.7	24.761	4.039	0.0	0.0	0.0	0
3.06	20.904	0.816	0.42	1.8	25.618	3.904	0.0	0.0	0.0	0
3.07	21.006	0.816	0.42	1.8	25.743	3.885	0.0	0.0	0.0	0
3.08	21.006	0.826	0.42	1.8	25.431	3.932	0.0	0.0	0.0	0
3.09	20.802	0.836	0.42	1.8	24.883	4.019	0.0	0.0	0.0	0
3.10	20.802	0.857	0.42	1.8	24.273	4.12	0.0	0.0	0.0	0
3.11	20.394	0.867	0.42	1.8	23.522	4.251	0.0	0.0	0.0	0

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3.12	19.884	0.877	0.42	1.8	22.673	4.411	0.0	0.0	0.0	0
3.13	19.374	0.877	0.42	1.8	22.091	4.527	0.0	0.0	0.0	0
3.14	19.068	0.857	0.42	1.8	22.25	4.494	0.0	0.0	0.0	0
3.15	19.17	0.826	0.42	1.8	23.208	4.309	0.0	0.0	0.0	0
3.16	19.068	0.816	0.42	1.8	23.368	4.279	0.0	0.0	0.0	0
3.17	18.966	0.795	0.42	1.8	23.857	4.192	0.0	0.0	0.0	0
3.18	19.068	0.795	0.42	1.8	23.985	4.169	0.0	0.0	0.0	0
3.19	18.966	0.795	0.42	1.8	23.857	4.192	0.0	0.0	0.0	0
3.20	18.864	0.806	0.42	1.8	23.404	4.273	0.0	0.0	0.0	0
3.21	18.762	0.816	0.42	1.8	22.993	4.349	0.0	0.0	0.0	0
3.22	18.762	0.826	0.42	1.8	22.714	4.403	0.0	0.0	0.0	0
3.23	18.559	0.826	0.42	1.8	22.469	4.451	0.0	0.0	0.0	0
3.24	18.253	0.836	0.43	1.8	21.834	4.58	0.0	0.0	0.0	0
3.25	18.049	0.836	0.43	1.8	21.59	4.632	0.0	0.0	0.0	0
3.26	18.355	0.816	0.43	1.8	22.494	4.446	0.0	0.0	0.0	0
3.27	18.661	0.795	0.43	1.8	23.473	4.26	0.0	0.0	0.0	0
3.28	18.762	0.785	0.43	1.8	23.901	4.184	0.0	0.0	0.0	0
3.29	18.762	0.785	0.43	1.8	23.901	4.184	0.0	0.0	0.0	0
3.30	18.559	0.785	0.43	1.8	23.642	4.23	0.0	0.0	0.0	0
3.31	18.457	0.765	0.43	1.8	24.127	4.145	0.0	0.0	0.0	0
3.32	18.355	0.744	0.43	1.8	24.671	4.053	0.0	0.0	0.0	0
3.33	18.457	0.724	0.43	1.8	25.493	3.923	0.0	0.0	0.0	0
3.34	18.762	0.714	0.43	1.8	26.277	3.806	0.0	0.0	0.0	0
3.35	18.559	0.704	0.43	1.8	26.362	3.793	0.0	0.0	0.0	0
3.36	18.253	0.704	0.43	1.8	25.928	3.857	0.0	0.0	0.0	0
3.37	17.845	0.683	0.43	1.8	26.127	3.827	0.0	0.0	0.0	0
3.38	17.641	0.683	0.44	1.8	25.829	3.872	0.0	0.0	0.0	0
3.39	17.437	0.673	0.44	1.8	25.909	3.86	0.0	0.0	0.0	0
3.40	18.151	0.653	0.44	1.8	27.796	3.598	0.0	0.0	0.0	0
3.41	17.743	0.622	0.44	1.8	28.526	3.506	0.0	0.0	0.0	0
3.42	17.743	0.622	0.44	1.8	28.526	3.506	0.0	0.0	0.0	0
3.43	18.049	0.602	0.44	1.9	29.982	3.335	0.0	0.0	0.0	0
3.44	18.355	0.602	0.44	1.9	30.49	3.28	0.0	0.0	0.0	0
3.45	19.272	0.591	0.44	1.9	32.609	3.067	0.0	0.0	0.0	0
3.46	19.374	0.581	0.44	1.9	33.346	2.999	0.0	0.0	0.0	0
3.47	19.68	0.581	0.45	1.9	33.873	2.952	0.0	0.0	0.0	0
3.48	18.762	0.571	0.44	1.9	32.858	3.043	0.0	0.0	0.0	0
3.49	18.457	0.591	0.44	1.9	31.23	3.202	0.0	0.0	0.0	0
3.50	18.457	0.591	0.44	1.9	31.23	3.202	0.0	0.0	0.0	0
3.51	18.559	0.602	0.44	1.9	30.829	3.244	0.0	0.0	0.0	0
3.52	18.559	0.622	0.44	1.9	29.838	3.351	0.0	0.0	0.0	0
3.53	18.661	0.642	0.45	1.9	29.067	3.44	0.0	0.0	0.0	0
3.54	18.661	0.663	0.45	1.9	28.146	3.553	0.0	0.0	0.0	0
3.55	18.661	0.683	0.45	1.9	27.322	3.66	0.0	0.0	0.0	0
3.56	18.762	0.693	0.45	1.9	27.074	3.694	0.0	0.0	0.0	0
3.57	19.068	0.704	0.45	1.9	27.085	3.692	0.0	0.0	0.0	0
3.58	19.068	0.714	0.45	1.9	26.706	3.744	0.0	0.0	0.0	0
3.59	19.272	0.724	0.46	1.9	26.619	3.757	0.0	0.0	0.0	0
3.60	20.292	0.704	0.47	1.9	28.824	3.469	0.0	0.0	0.0	0
3.61	22.433	0.714	0.47	1.9	31.419	3.183	0.0	0.0	0.0	0
3.62	25.187	0.775	0.47	1.9	32.499	3.077	0.0	0.0	0.0	0
3.63	22.026	0.795	0.47	1.9	27.706	3.609	0.0	0.0	0.0	0
3.64	20.802	0.785	0.47	1.9	26.499	3.774	0.0	0.0	0.0	0
3.65	20.802	0.755	0.48	1.9	27.552	3.629	0.0	0.0	0.0	0
3.66	21.822	0.724	0.48	1.9	30.141	3.318	0.0	0.0	0.0	0
3.67	22.535	0.673	0.49	1.9	33.484	2.986	0.0	0.0	0.0	0
3.68	22.229	0.714	0.48	1.9	31.133	3.212	0.0	0.0	0.0	0
3.69	21.006	0.693	0.47	1.9	30.312	3.299	0.0	0.0	0.0	0
3.70	19.884	0.714	0.47	1.9	27.849	3.591	0.0	0.0	0.0	0
3.71	19.476	0.724	0.47	1.9	26.901	3.717	0.0	0.0	0.0	0
3.72	19.374	0.704	0.47	1.9	27.52	3.634	0.0	0.0	0.0	0
3.73	19.374	0.714	0.47	1.9	27.134	3.685	0.0	0.0	0.0	0
3.74	19.476	0.714	0.47	1.9	27.277	3.666	0.0	0.0	0.0	0
3.75	19.578	0.714	0.48	1.9	27.42	3.647	0.0	0.0	0.0	0
3.76	20.088	0.693	0.48	1.9	28.987	3.45	0.0	0.0	0.0	0
3.77	20.292	0.683	0.48	1.9	29.71	3.366	0.0	0.0	0.0	0
3.78	20.394	0.704	0.48	1.9	28.969	3.452	0.0	0.0	0.0	0
3.79	20.598	0.734	0.48	1.9	28.063	3.563	0.0	0.0	0.0	0
3.80	20.7	0.765	0.48	1.9	27.059	3.696	0.0	0.0	0.0	0
3.81	20.904	0.806	0.48	1.9	25.935	3.856	0.0	0.0	0.0	0
3.82	21.516	0.816	0.48	1.9	26.368	3.793	0.0	0.0	0.0	0
3.83	22.841	0.806	0.50	1.9	28.339	3.529	0.0	0.0	0.0	0
3.84	23.963	0.806	0.51	1.9	29.731	3.364	0.0	0.0	0.0	0
3.85	25.289	0.806	0.51	1.9	31.376	3.187	0.0	0.0	0.0	0
3.86	27.736	0.795	0.53	1.9	34.888	2.866	0.0	0.0	0.0	0

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3.87	29.265	0.785	0.53	1.9	37.28	2.682	0.0	0.0	0.0	0
3.88	30.081	0.785	0.53	2.0	38.32	2.61	0.0	0.0	0.0	0
3.89	29.265	0.785	0.52	2.0	37.28	2.682	0.0	0.0	0.0	0
3.90	29.265	0.785	0.52	2.0	37.28	2.682	0.0	0.0	0.0	0
3.91	29.265	0.785	0.52	2.0	37.28	2.682	0.0	0.0	0.0	0
3.92	27.94	0.938	0.51	2.0	29.787	3.357	0.0	0.0	0.0	0
3.93	25.9	1.081	0.51	2.0	23.959	4.174	0.0	0.0	0.0	0
3.94	24.677	1.06	0.52	2.0	23.28	4.295	0.0	0.0	0.0	0
3.95	24.473	1.111	0.53	2.0	22.028	4.54	0.0	0.0	0.0	0
3.96	22.637	1.081	0.52	2.1	20.941	4.775	0.0	0.0	0.0	0
3.97	21.822	1.091	0.52	2.0	20.002	5.0	0.0	0.0	0.0	0
3.98	21.822	1.06	0.52	2.1	20.587	4.857	0.0	0.0	0.0	0
3.99	17.131	0.857	0.50	2.1	19.989	5.003	0.0	0.0	0.0	0
4.00	20.904	0.979	0.52	2.1	21.352	4.683	0.0	0.0	0.0	0
4.01	21.006	0.959	0.52	2.1	21.904	4.565	0.0	0.0	0.0	0
4.02	21.108	0.959	0.52	2.1	22.01	4.543	0.0	0.0	0.0	0
4.03	21.312	0.928	0.52	2.1	22.966	4.354	0.0	0.0	0.0	0
4.04	21.414	0.918	0.52	2.1	23.327	4.287	0.0	0.0	0.0	0
4.05	21.516	0.908	0.52	2.1	23.696	4.22	0.0	0.0	0.0	0
4.06	21.414	0.897	0.52	2.1	23.873	4.189	0.0	0.0	0.0	0
4.07	21.414	0.836	0.52	2.1	25.615	3.904	0.0	0.0	0.0	0
4.08	21.822	0.816	0.52	2.1	26.743	3.739	0.0	0.0	0.0	0
4.09	22.229	0.795	0.52	2.1	27.961	3.576	0.0	0.0	0.0	0
4.10	22.433	0.775	0.53	2.1	28.946	3.455	0.0	0.0	0.0	0
4.11	22.229	0.785	0.53	2.1	28.317	3.531	0.0	0.0	0.0	0
4.12	22.229	0.816	0.53	2.1	27.241	3.671	0.0	0.0	0.0	0
4.13	24.473	0.846	0.56	2.1	28.928	3.457	0.0	0.0	0.0	0
4.14	25.492	0.867	0.55	2.1	29.403	3.401	0.0	0.0	0.0	0
4.15	24.983	0.897	0.55	2.1	27.852	3.59	0.0	0.0	0.0	0
4.16	23.351	0.908	0.55	2.1	25.717	3.888	0.0	0.0	0.0	0
4.17	22.943	0.908	0.54	2.1	25.268	3.958	0.0	0.0	0.0	0
4.18	22.943	0.908	0.55	2.1	25.268	3.958	0.0	0.0	0.0	0
4.19	22.637	0.897	0.55	2.1	25.236	3.963	0.0	0.0	0.0	0
4.20	22.229	0.877	0.55	2.2	25.347	3.945	0.0	0.0	0.0	0
4.21	21.924	0.857	0.55	2.2	25.582	3.909	0.0	0.0	0.0	0
4.22	21.21	0.857	0.55	2.2	24.749	4.041	0.0	0.0	0.0	0
4.23	20.7	0.867	0.54	2.2	23.875	4.188	0.0	0.0	0.0	0
4.24	20.802	0.867	0.54	2.2	23.993	4.168	0.0	0.0	0.0	0
4.25	20.7	0.836	0.54	2.2	24.761	4.039	0.0	0.0	0.0	0
4.26	20.394	0.826	0.54	2.2	24.69	4.05	0.0	0.0	0.0	0
4.27	20.598	0.816	0.55	2.2	25.243	3.962	0.0	0.0	0.0	0
4.28	20.394	0.816	0.55	2.2	24.993	4.001	0.0	0.0	0.0	0
4.29	20.19	0.806	0.55	2.2	25.05	3.992	0.0	0.0	0.0	0
4.30	20.19	0.795	0.55	2.2	25.396	3.938	0.0	0.0	0.0	0
4.31	20.292	0.775	0.55	2.2	26.183	3.819	0.0	0.0	0.0	0
4.32	20.598	0.765	0.56	2.2	26.925	3.714	0.0	0.0	0.0	0
4.33	20.904	0.765	0.56	2.2	27.325	3.66	0.0	0.0	0.0	0
4.34	21.108	0.755	0.56	2.2	27.958	3.577	0.0	0.0	0.0	0
4.35	21.108	0.755	0.56	2.2	27.958	3.577	0.0	0.0	0.0	0
4.36	21.108	0.765	0.56	2.2	27.592	3.624	0.0	0.0	0.0	0
4.37	21.108	0.775	0.56	2.2	27.236	3.672	0.0	0.0	0.0	0
4.38	21.72	0.765	0.56	2.2	28.392	3.522	0.0	0.0	0.0	0
4.39	21.72	0.775	0.56	2.2	28.026	3.568	0.0	0.0	0.0	0
4.40	21.108	0.806	0.56	2.2	26.189	3.818	0.0	0.0	0.0	0
4.41	21.006	0.846	0.56	2.2	24.83	4.027	0.0	0.0	0.0	0
4.42	21.006	0.867	0.56	2.3	24.228	4.127	0.0	0.0	0.0	0
4.43	21.108	0.887	0.57	2.2	23.797	4.202	0.0	0.0	0.0	0
4.44	21.21	0.908	0.58	2.3	23.359	4.281	0.0	0.0	0.0	0
4.45	21.312	0.918	0.59	2.3	23.216	4.307	0.0	0.0	0.0	0
4.46	21.516	0.928	0.58	2.3	23.185	4.313	0.0	0.0	0.0	0
4.47	21.414	0.928	0.58	2.3	23.075	4.334	0.0	0.0	0.0	0
4.48	21.21	0.948	0.58	2.3	22.373	4.47	0.0	0.0	0.0	0
4.49	21.006	0.979	0.58	2.3	21.457	4.661	0.0	0.0	0.0	0
4.50	21.006	0.969	0.58	2.3	21.678	4.613	0.0	0.0	0.0	0
4.51	21.006	0.969	0.58	2.3	21.678	4.613	0.0	0.0	0.0	0
4.52	21.006	0.959	0.58	2.3	21.904	4.565	0.0	0.0	0.0	0
4.53	21.312	0.959	0.59	2.3	22.223	4.5	0.0	0.0	0.0	0
4.54	21.312	0.948	0.59	2.3	22.481	4.448	0.0	0.0	0.0	0
4.55	21.516	0.948	0.59	2.3	22.696	4.406	0.0	0.0	0.0	0
4.56	21.618	0.948	0.59	2.3	22.804	4.385	0.0	0.0	0.0	0
4.57	21.516	0.959	0.59	2.3	22.436	4.457	0.0	0.0	0.0	0
4.58	22.943	0.979	0.59	2.3	23.435	4.267	0.0	0.0	0.0	0
4.59	21.312	0.999	0.59	2.3	21.333	4.688	0.0	0.0	0.0	0
4.60	21.21	0.999	0.60	2.3	21.231	4.71	0.0	0.0	0.0	0
4.61	21.516	0.979	0.60	2.3	21.978	4.55	0.0	0.0	0.0	0

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4.62	21.924	0.969	0.60	2.3	22.625	4.42	0.0	0.0	0.0	0
4.63	22.127	0.959	0.60	2.3	23.073	4.334	0.0	0.0	0.0	0
4.64	22.535	0.969	0.61	2.3	23.256	4.3	0.0	0.0	0.0	0
4.65	23.147	0.979	0.61	2.3	23.644	4.229	0.0	0.0	0.0	0
4.66	23.759	1.01	0.62	2.3	23.524	4.251	0.0	0.0	0.0	0
4.67	24.371	1.02	0.61	2.3	23.893	4.185	0.0	0.0	0.0	0
4.68	24.371	1.04	0.61	2.3	23.434	4.267	0.0	0.0	0.0	0
4.69	24.371	1.05	0.62	2.3	23.21	4.308	0.0	0.0	0.0	0
4.70	24.983	1.071	0.62	2.3	23.327	4.287	0.0	0.0	0.0	0
4.71	24.881	1.071	0.62	2.3	23.232	4.304	0.0	0.0	0.0	0
4.72	24.779	1.06	0.62	2.3	23.376	4.278	0.0	0.0	0.0	0
4.73	24.881	1.06	0.63	2.3	23.473	4.26	0.0	0.0	0.0	0
4.74	24.371	1.101	0.65	2.3	22.135	4.518	0.0	0.0	0.0	0
4.75	23.963	1.111	0.65	2.3	21.569	4.636	0.0	0.0	0.0	0
4.76	23.963	1.111	0.65	2.3	21.569	4.636	0.0	0.0	0.0	0
4.77	23.963	1.101	0.65	2.3	21.765	4.595	0.0	0.0	0.0	0
4.78	23.759	1.111	0.65	2.3	21.385	4.676	0.0	0.0	0.0	0
4.79	23.657	1.142	0.65	2.3	20.715	4.827	0.0	0.0	0.0	0
4.80	23.759	1.142	0.65	2.3	20.805	4.807	0.0	0.0	0.0	0
4.81	23.351	1.142	0.66	2.3	20.447	4.891	0.0	0.0	0.0	0
4.82	23.249	1.142	0.67	2.3	20.358	4.912	0.0	0.0	0.0	0
4.83	23.045	1.132	0.68	2.3	20.358	4.912	0.0	0.0	0.0	0
4.84	23.351	1.111	0.68	2.3	21.018	4.758	0.0	0.0	0.0	0
4.85	23.657	1.091	0.68	2.3	21.684	4.612	0.0	0.0	0.0	0
4.86	23.861	1.091	0.68	2.3	21.871	4.572	0.0	0.0	0.0	0
4.87	23.759	1.081	0.68	2.3	21.979	4.55	0.0	0.0	0.0	0
4.88	23.861	1.101	0.69	2.3	21.672	4.614	0.0	0.0	0.0	0
4.89	23.861	1.111	0.69	2.3	21.477	4.656	0.0	0.0	0.0	0
4.90	23.861	1.111	0.69	2.3	21.477	4.656	0.0	0.0	0.0	0
4.91	23.861	1.111	0.69	2.3	21.477	4.656	0.0	0.0	0.0	0
4.92	23.861	1.152	0.67	2.3	20.713	4.828	0.0	0.0	0.0	0
4.93	23.861	1.152	0.67	2.3	20.713	4.828	0.0	0.0	0.0	0
4.94	23.759	1.162	0.67	2.4	20.447	4.891	0.0	0.0	0.0	0
4.95	23.555	1.162	0.67	2.4	20.271	4.933	0.0	0.0	0.0	0
4.96	23.351	1.183	0.67	2.4	19.739	5.066	0.0	0.0	0.0	0
4.97	23.453	1.203	0.66	2.4	19.495	5.129	0.0	0.0	0.0	0
4.98	23.963	1.213	0.66	2.4	19.755	5.062	0.0	0.0	0.0	0
4.99	24.881	1.234	0.67	2.4	20.163	4.96	0.0	0.0	0.0	0
5.00	26.206	1.224	0.67	2.4	21.41	4.671	0.0	0.0	0.0	0
5.01	25.9	1.224	0.68	2.4	21.16	4.726	0.0	0.0	0.0	0
5.02	25.187	1.244	0.68	2.4	20.247	4.939	0.0	0.0	0.0	0
5.03	26.002	1.234	0.69	2.4	21.071	4.746	0.0	0.0	0.0	0
5.04	25.085	1.234	0.68	2.4	20.328	4.919	0.0	0.0	0.0	0
5.05	24.167	1.244	0.67	2.4	19.427	5.148	0.0	0.0	0.0	0
5.06	23.147	1.254	0.67	2.4	18.459	5.418	0.0	0.0	0.0	0
5.07	22.433	1.254	0.67	2.4	17.889	5.59	0.0	0.0	0.0	0
5.08	22.535	1.254	0.67	2.4	17.97	5.565	0.0	0.0	0.0	0
5.09	22.229	1.275	0.67	2.4	17.435	5.736	0.0	0.0	0.0	0
5.10	22.229	1.285	0.67	2.4	17.299	5.781	0.0	0.0	0.0	0
5.11	22.433	1.285	0.68	2.4	17.458	5.728	0.0	0.0	0.0	0
5.12	22.331	1.295	0.68	2.4	17.244	5.799	0.0	0.0	0.0	0
5.13	22.127	1.305	0.68	2.4	16.956	5.898	0.0	0.0	0.0	0
5.14	22.127	1.315	0.68	2.4	16.827	5.943	0.0	0.0	0.0	0
5.15	22.127	1.295	0.68	2.4	17.086	5.853	0.0	0.0	0.0	0
5.16	22.739	1.254	0.69	2.4	18.133	5.515	0.0	0.0	0.0	0
5.17	22.331	1.234	0.69	2.4	18.096	5.526	0.0	0.0	0.0	0
5.18	22.026	1.203	0.68	2.4	18.309	5.462	0.0	0.0	0.0	0
5.19	22.026	1.183	0.68	2.4	18.619	5.371	0.0	0.0	0.0	0
5.20	21.108	1.142	0.68	2.4	18.483	5.41	0.0	0.0	0.0	0
5.21	20.088	1.122	0.67	2.4	17.904	5.585	0.0	0.0	0.0	0
5.22	19.68	1.06	0.68	2.4	18.566	5.386	0.0	0.0	0.0	0
5.23	19.782	1.03	0.68	2.4	19.206	5.207	0.0	0.0	0.0	0
5.24	19.782	1.01	0.68	2.4	19.586	5.106	0.0	0.0	0.0	0
5.25	19.884	0.999	0.68	2.4	19.904	5.024	0.0	0.0	0.0	0
5.26	20.088	0.979	0.68	2.4	20.519	4.874	0.0	0.0	0.0	0
5.27	20.292	0.948	0.68	2.4	21.405	4.672	0.0	0.0	0.0	0
5.28	20.496	0.938	0.69	2.4	21.851	4.577	0.0	0.0	0.0	0
5.29	20.7	0.928	0.69	2.4	22.306	4.483	0.0	0.0	0.0	0
5.30	20.904	0.948	0.69	2.4	22.051	4.535	0.0	0.0	0.0	0
5.31	21.108	0.948	0.69	2.5	22.266	4.491	0.0	0.0	0.0	0
5.32	21.21	0.928	0.70	2.4	22.856	4.375	0.0	0.0	0.0	0
5.33	21.414	0.918	0.70	2.4	23.327	4.287	0.0	0.0	0.0	0
5.34	21.414	0.887	0.70	2.4	24.142	4.142	0.0	0.0	0.0	0
5.35	21.618	0.857	0.70	2.4	25.225	3.964	0.0	0.0	0.0	0
5.36	21.822	0.846	0.71	2.4	25.794	3.877	0.0	0.0	0.0	0

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5.37	21.924	0.836	0.71	2.4	26.225	3.813	0.0	0.0	0.0	0
5.38	22.026	0.826	0.71	2.5	26.666	3.75	0.0	0.0	0.0	0
5.39	22.229	0.816	0.71	2.5	27.241	3.671	0.0	0.0	0.0	0
5.40	22.433	0.795	0.71	2.5	28.218	3.544	0.0	0.0	0.0	0
5.41	22.739	0.795	0.71	2.5	28.603	3.496	0.0	0.0	0.0	0
5.42	22.637	0.795	0.72	2.5	28.474	3.512	0.0	0.0	0.0	0
5.43	22.739	0.795	0.71	2.5	28.603	3.496	0.0	0.0	0.0	0
5.44	22.229	0.795	0.71	2.5	27.961	3.576	0.0	0.0	0.0	0
5.45	21.21	0.816	0.72	2.5	25.993	3.847	0.0	0.0	0.0	0
5.46	21.108	0.806	0.72	2.5	26.189	3.818	0.0	0.0	0.0	0
5.47	21.006	0.785	0.72	2.5	26.759	3.737	0.0	0.0	0.0	0
5.48	20.904	0.775	0.71	2.5	26.973	3.707	0.0	0.0	0.0	0
5.49	20.802	0.785	0.71	2.5	26.499	3.774	0.0	0.0	0.0	0
5.50	20.904	0.795	0.72	2.5	26.294	3.803	0.0	0.0	0.0	0
5.51	21.21	0.795	0.72	2.5	26.679	3.748	0.0	0.0	0.0	0
5.52	21.822	0.795	0.73	2.5	27.449	3.643	0.0	0.0	0.0	0
5.53	22.229	0.795	0.73	2.5	27.961	3.576	0.0	0.0	0.0	0
5.54	22.331	0.826	0.76	2.5	27.035	3.699	0.0	0.0	0.0	0
5.55	22.433	0.826	0.76	2.5	27.159	3.682	0.0	0.0	0.0	0
5.56	22.535	0.806	0.76	2.5	27.959	3.577	0.0	0.0	0.0	0
5.57	22.841	0.775	0.76	2.5	29.472	3.393	0.0	0.0	0.0	0
5.58	22.535	0.755	0.77	2.5	29.848	3.35	0.0	0.0	0.0	0
5.59	22.127	0.755	0.77	2.5	29.307	3.412	0.0	0.0	0.0	0
5.60	21.822	0.755	0.76	2.5	28.903	3.46	0.0	0.0	0.0	0
5.61	20.904	0.744	0.74	2.5	28.097	3.559	0.0	0.0	0.0	0
5.62	20.394	0.744	0.74	2.5	27.411	3.648	0.0	0.0	0.0	0
5.63	19.986	0.755	0.74	2.6	26.472	3.778	0.0	0.0	0.0	0
5.64	19.782	0.755	0.74	2.5	26.201	3.817	0.0	0.0	0.0	0
5.65	19.374	0.775	0.73	2.6	24.999	4.0	0.0	0.0	0.0	0
5.66	19.068	0.785	0.73	2.6	24.29	4.117	0.0	0.0	0.0	0
5.67	18.559	0.795	0.73	2.6	23.345	4.284	0.0	0.0	0.0	0
5.68	18.253	0.806	0.73	2.6	22.646	4.416	0.0	0.0	0.0	0
5.69	18.253	0.826	0.73	2.6	22.098	4.525	0.0	0.0	0.0	0
5.70	18.253	0.826	0.73	2.6	22.098	4.525	0.0	0.0	0.0	0
5.71	18.151	0.836	0.73	2.6	21.712	4.606	0.0	0.0	0.0	0
5.72	17.845	0.836	0.73	2.6	21.346	4.685	0.0	0.0	0.0	0
5.73	17.947	0.836	0.73	2.6	21.468	4.658	0.0	0.0	0.0	0
5.74	18.049	0.816	0.73	2.6	22.119	4.521	0.0	0.0	0.0	0
5.75	18.253	0.806	0.74	2.6	22.646	4.416	0.0	0.0	0.0	0
5.76	18.355	0.785	0.74	2.6	23.382	4.277	0.0	0.0	0.0	0
5.77	18.457	0.765	0.74	2.6	24.127	4.145	0.0	0.0	0.0	0
5.78	18.355	0.744	0.74	2.6	24.671	4.053	0.0	0.0	0.0	0
5.79	18.355	0.714	0.76	2.6	25.707	3.89	0.0	0.0	0.0	0
5.80	19.068	0.622	0.76	2.6	30.656	3.262	0.0	0.0	0.0	0
5.81	19.374	0.602	0.76	2.6	32.183	3.107	0.0	0.0	0.0	0
5.82	19.578	0.591	0.77	2.6	33.127	3.019	0.0	0.0	0.0	0
5.83	19.884	0.591	0.78	2.6	33.645	2.972	0.0	0.0	0.0	0
5.84	19.986	0.581	0.78	2.6	34.399	2.907	0.0	0.0	0.0	0
5.85	20.19	0.571	0.79	2.6	35.359	2.828	0.0	0.0	0.0	0
5.86	20.496	0.52	0.79	2.6	39.415	2.537	0.0	0.0	0.0	0
5.87	20.7	0.51	0.78	2.6	40.588	2.464	0.0	0.0	0.0	0
5.88	20.802	0.5	0.78	2.6	41.604	2.404	0.0	0.0	0.0	0
5.89	20.7	0.5	0.78	2.6	41.4	2.415	0.0	0.0	0.0	0
5.90	20.7	0.5	0.78	2.6	41.4	2.415	0.0	0.0	0.0	0
5.91	20.7	0.5	0.78	2.6	41.4	2.415	0.0	0.0	0.0	0
5.92	19.986	0.571	0.73	2.6	35.002	2.857	0.0	0.0	0.0	0
5.93	18.864	0.581	0.72	2.6	32.468	3.08	0.0	0.0	0.0	0
5.94	19.068	0.622	0.73	2.6	30.656	3.262	0.0	0.0	0.0	0
5.95	19.068	0.612	0.73	2.6	31.157	3.21	0.0	0.0	0.0	0
5.96	19.272	0.663	0.73	2.6	29.068	3.44	0.0	0.0	0.0	0
5.97	19.68	0.683	0.74	2.6	28.814	3.471	0.0	0.0	0.0	0
5.98	20.394	0.683	0.74	2.6	29.859	3.349	0.0	0.0	0.0	0
5.99	21.006	0.693	0.74	2.6	30.312	3.299	0.0	0.0	0.0	0
6.00	21.414	0.714	0.76	2.6	29.992	3.334	0.0	0.0	0.0	0
6.01	21.924	0.724	0.76	2.6	30.282	3.302	0.0	0.0	0.0	0
6.02	23.555	0.744	0.77	2.6	31.66	3.159	0.0	0.0	0.0	0
6.03	23.657	0.765	0.78	2.6	30.924	3.234	0.0	0.0	0.0	0
6.04	24.065	0.775	0.78	2.6	31.052	3.22	0.0	0.0	0.0	0
6.05	24.371	0.785	0.79	2.6	31.046	3.221	0.0	0.0	0.0	0
6.06	23.963	0.795	0.79	2.6	30.142	3.318	0.0	0.0	0.0	0
6.07	23.963	0.795	0.79	2.6	30.142	3.318	0.0	0.0	0.0	0
6.08	24.065	0.806	0.81	2.6	29.857	3.349	0.0	0.0	0.0	0
6.09	25.391	0.785	0.81	2.6	32.345	3.092	0.0	0.0	0.0	0
6.10	26.206	0.775	0.82	2.6	33.814	2.957	0.0	0.0	0.0	0
6.11	25.492	0.806	0.81	2.6	31.628	3.162	0.0	0.0	0.0	0

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6.12	24.371	0.826	0.80	2.6	29.505	3.389	0.0	0.0	0.0	0
6.13	23.963	0.867	0.80	2.6	27.639	3.618	0.0	0.0	0.0	0
6.14	24.371	0.887	0.80	2.6	27.476	3.64	0.0	0.0	0.0	0
6.15	23.657	0.948	0.80	2.6	24.955	4.007	0.0	0.0	0.0	0
6.16	23.555	0.979	0.79	2.6	24.06	4.156	0.0	0.0	0.0	0
6.17	23.249	1.01	0.79	2.6	23.019	4.344	0.0	0.0	0.0	0
6.18	22.841	1.04	0.79	2.6	21.963	4.553	0.0	0.0	0.0	0
6.19	22.943	1.06	0.79	2.6	21.644	4.62	0.0	0.0	0.0	0
6.20	22.943	1.091	0.79	2.6	21.029	4.755	0.0	0.0	0.0	0
6.21	21.924	1.142	0.79	2.6	19.198	5.209	0.0	0.0	0.0	0
6.22	22.026	1.162	0.79	2.6	18.955	5.276	0.0	0.0	0.0	0
6.23	22.229	1.183	0.79	2.6	18.79	5.322	0.0	0.0	0.0	0
6.24	22.433	1.213	0.79	2.6	18.494	5.407	0.0	0.0	0.0	0
6.25	22.535	1.234	0.79	2.6	18.262	5.476	0.0	0.0	0.0	0
6.26	22.841	1.224	0.80	2.7	18.661	5.359	0.0	0.0	0.0	0
6.27	23.555	1.213	0.80	2.7	19.419	5.15	0.0	0.0	0.0	0
6.28	23.759	1.213	0.80	2.7	19.587	5.105	0.0	0.0	0.0	0
6.29	23.963	1.203	0.81	2.7	19.919	5.02	0.0	0.0	0.0	0
6.30	24.371	1.193	0.81	2.7	20.428	4.895	0.0	0.0	0.0	0
6.31	24.677	1.183	0.81	2.7	20.86	4.794	0.0	0.0	0.0	0
6.32	23.963	1.173	0.81	2.7	20.429	4.895	0.0	0.0	0.0	0
6.33	23.963	1.142	0.81	2.7	20.983	4.766	0.0	0.0	0.0	0
6.34	23.861	1.132	0.81	2.7	21.079	4.744	0.0	0.0	0.0	0
6.35	22.943	1.122	0.81	2.7	20.448	4.89	0.0	0.0	0.0	0
6.36	22.229	1.111	0.81	2.7	20.008	4.998	0.0	0.0	0.0	0
6.37	22.331	1.101	0.81	2.7	20.282	4.93	0.0	0.0	0.0	0
6.38	21.312	1.091	0.80	2.7	19.534	5.119	0.0	0.0	0.0	0
6.39	21.108	1.06	0.80	2.7	19.913	5.022	0.0	0.0	0.0	0
6.40	21.006	1.05	0.80	2.7	20.006	4.999	0.0	0.0	0.0	0
6.41	20.904	1.04	0.79	2.7	20.1	4.975	0.0	0.0	0.0	0
6.42	20.802	1.04	0.79	2.7	20.002	5.0	0.0	0.0	0.0	0
6.43	20.802	1.03	0.79	2.7	20.196	4.951	0.0	0.0	0.0	0
6.44	20.496	1.01	0.80	2.7	20.293	4.928	0.0	0.0	0.0	0
6.45	20.394	0.989	0.80	2.7	20.621	4.849	0.0	0.0	0.0	0
6.46	20.292	0.969	0.80	2.7	20.941	4.775	0.0	0.0	0.0	0
6.47	20.292	0.948	0.81	2.7	21.405	4.672	0.0	0.0	0.0	0
6.48	20.292	0.918	0.81	2.7	22.105	4.524	0.0	0.0	0.0	0
6.49	20.394	0.867	0.82	2.7	23.522	4.251	0.0	0.0	0.0	0
6.50	20.7	0.826	0.82	2.7	25.061	3.99	0.0	0.0	0.0	0
6.51	21.21	0.744	0.82	2.7	28.508	3.508	0.0	0.0	0.0	0
6.52	21.516	0.714	0.83	2.7	30.134	3.318	0.0	0.0	0.0	0
6.53	21.822	0.683	0.83	2.7	31.95	3.13	0.0	0.0	0.0	0
6.54	21.924	0.673	0.83	2.7	32.577	3.07	0.0	0.0	0.0	0
6.55	22.127	0.653	0.83	2.7	33.885	2.951	0.0	0.0	0.0	0
6.56	22.535	0.642	0.83	2.7	35.101	2.849	0.0	0.0	0.0	0
6.57	22.943	0.642	0.84	2.7	35.737	2.798	0.0	0.0	0.0	0
6.58	23.249	0.653	0.84	2.8	35.603	2.809	0.0	0.0	0.0	0
6.59	23.861	0.653	0.85	2.8	36.541	2.737	0.0	0.0	0.0	0
6.60	24.167	0.653	0.85	2.8	37.009	2.702	0.0	0.0	0.0	0
6.61	24.167	0.653	0.85	2.8	37.009	2.702	0.0	0.0	0.0	0
6.62	24.167	0.683	0.85	2.8	35.384	2.826	0.0	0.0	0.0	0
6.63	24.371	0.704	0.85	2.8	34.618	2.889	0.0	0.0	0.0	0
6.64	24.881	0.714	0.85	2.8	34.847	2.87	0.0	0.0	0.0	0
6.65	24.575	0.744	0.85	2.8	33.031	3.027	0.0	0.0	0.0	0
6.66	24.065	0.806	0.86	2.8	29.857	3.349	0.0	0.0	0.0	0
6.67	23.657	0.836	0.85	2.8	28.298	3.534	0.0	0.0	0.0	0
6.68	23.351	0.857	0.85	2.8	27.247	3.67	0.0	0.0	0.0	0
6.69	23.351	0.857	0.85	2.8	27.247	3.67	0.0	0.0	0.0	0
6.70	23.147	0.857	0.85	2.8	27.009	3.702	0.0	0.0	0.0	0
6.71	23.249	0.867	0.85	2.8	26.815	3.729	0.0	0.0	0.0	0
6.72	23.351	0.877	0.86	2.8	26.626	3.756	0.0	0.0	0.0	0
6.73	23.861	0.877	0.86	2.8	27.208	3.675	0.0	0.0	0.0	0
6.74	24.167	0.877	0.86	2.8	27.556	3.629	0.0	0.0	0.0	0
6.75	24.371	0.897	0.87	2.8	27.169	3.681	0.0	0.0	0.0	0
6.76	24.473	0.908	0.87	2.8	26.953	3.71	0.0	0.0	0.0	0
6.77	24.473	0.918	0.87	2.8	26.659	3.751	0.0	0.0	0.0	0
6.78	24.575	0.928	0.87	2.8	26.482	3.776	0.0	0.0	0.0	0
6.79	24.575	0.948	0.87	2.9	25.923	3.858	0.0	0.0	0.0	0
6.80	24.473	0.959	0.87	2.9	25.519	3.919	0.0	0.0	0.0	0
6.81	24.371	0.989	0.87	2.9	24.642	4.058	0.0	0.0	0.0	0
6.82	24.473	0.999	0.87	2.9	24.497	4.082	0.0	0.0	0.0	0
6.83	24.575	0.999	0.87	2.9	24.6	4.065	0.0	0.0	0.0	0
6.84	24.167	1.02	0.87	2.9	23.693	4.221	0.0	0.0	0.0	0
6.85	23.963	1.06	0.87	2.9	22.607	4.423	0.0	0.0	0.0	0
6.86	23.759	1.081	0.87	2.9	21.979	4.55	0.0	0.0	0.0	0

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6.87	23.657	1.111	0.87	2.9	21.293	4.696	0.0	0.0	0.0	0
6.88	23.759	1.122	0.87	2.9	21.176	4.722	0.0	0.0	0.0	0
6.89	23.963	1.122	0.87	2.9	21.357	4.682	0.0	0.0	0.0	0
6.90	23.963	1.122	0.87	2.9	21.357	4.682	0.0	0.0	0.0	0
6.91	23.963	1.122	0.87	2.9	21.357	4.682	0.0	0.0	0.0	0
6.92	23.963	1.173	0.82	2.9	20.429	4.895	0.0	0.0	0.0	0
6.93	24.779	1.193	0.82	2.9	20.77	4.815	0.0	0.0	0.0	0
6.94	24.881	1.193	0.82	2.9	20.856	4.795	0.0	0.0	0.0	0
6.95	24.983	1.193	0.83	2.9	20.941	4.775	0.0	0.0	0.0	0
6.96	25.085	1.203	0.83	2.9	20.852	4.796	0.0	0.0	0.0	0
6.97	24.983	1.213	0.84	2.9	20.596	4.855	0.0	0.0	0.0	0
6.98	24.881	1.224	0.84	2.9	20.328	4.919	0.0	0.0	0.0	0
6.99	25.187	1.203	0.84	3.0	20.937	4.776	0.0	0.0	0.0	0
7.00	25.187	1.183	0.84	2.9	21.291	4.697	0.0	0.0	0.0	0
7.01	25.289	1.173	0.84	3.0	21.559	4.638	0.0	0.0	0.0	0
7.02	25.187	1.173	0.84	3.0	21.472	4.657	0.0	0.0	0.0	0
7.03	24.983	1.162	0.84	2.9	21.5	4.651	0.0	0.0	0.0	0
7.04	24.677	1.162	0.84	2.9	21.237	4.709	0.0	0.0	0.0	0
7.05	24.167	1.152	0.84	3.0	20.978	4.767	0.0	0.0	0.0	0
7.06	24.065	1.132	0.84	2.9	21.259	4.704	0.0	0.0	0.0	0
7.07	24.065	1.122	0.84	3.0	21.448	4.662	0.0	0.0	0.0	0
7.08	24.167	1.101	0.84	3.0	21.95	4.556	0.0	0.0	0.0	0
7.09	23.963	1.101	0.84	3.0	21.765	4.595	0.0	0.0	0.0	0
7.10	23.657	1.091	0.84	3.0	21.684	4.612	0.0	0.0	0.0	0
7.11	23.861	1.091	0.84	3.0	21.871	4.572	0.0	0.0	0.0	0
7.12	24.371	1.091	0.84	3.0	22.338	4.477	0.0	0.0	0.0	0
7.13	24.779	1.081	0.85	3.0	22.922	4.363	0.0	0.0	0.0	0
7.14	25.187	1.081	0.85	2.9	23.3	4.292	0.0	0.0	0.0	0
7.15	25.391	1.081	0.85	3.0	23.488	4.257	0.0	0.0	0.0	0
7.16	24.983	1.111	0.85	3.0	22.487	4.447	0.0	0.0	0.0	0
7.17	24.779	1.132	0.86	3.0	21.89	4.568	0.0	0.0	0.0	0
7.18	24.779	1.142	0.86	3.0	21.698	4.609	0.0	0.0	0.0	0
7.19	25.085	1.142	0.86	3.0	21.966	4.553	0.0	0.0	0.0	0
7.20	25.187	1.142	0.86	3.0	22.055	4.534	0.0	0.0	0.0	0
7.21	24.881	1.152	0.85	3.0	21.598	4.63	0.0	0.0	0.0	0
7.22	24.473	1.152	0.85	3.0	21.244	4.707	0.0	0.0	0.0	0
7.23	24.065	1.162	0.85	3.0	20.71	4.829	0.0	0.0	0.0	0
7.24	24.065	1.173	0.85	3.0	20.516	4.874	0.0	0.0	0.0	0
7.25	24.473	1.183	0.86	3.0	20.687	4.834	0.0	0.0	0.0	0
7.26	24.575	1.203	0.86	3.0	20.428	4.895	0.0	0.0	0.0	0
7.27	24.473	1.234	0.86	3.0	19.832	5.042	0.0	0.0	0.0	0
7.28	24.371	1.295	0.86	3.0	18.819	5.314	0.0	0.0	0.0	0
7.29	24.575	1.295	0.87	3.0	18.977	5.27	0.0	0.0	0.0	0
7.30	24.677	1.295	0.87	3.0	19.056	5.248	0.0	0.0	0.0	0
7.31	24.677	1.295	0.87	3.0	19.056	5.248	0.0	0.0	0.0	0
7.32	24.575	1.315	0.87	3.0	18.688	5.351	0.0	0.0	0.0	0
7.33	24.779	1.326	0.87	3.0	18.687	5.351	0.0	0.0	0.0	0
7.34	24.881	1.326	0.87	3.0	18.764	5.329	0.0	0.0	0.0	0
7.35	25.085	1.315	0.87	3.0	19.076	5.242	0.0	0.0	0.0	0
7.36	24.983	1.305	0.87	3.0	19.144	5.224	0.0	0.0	0.0	0
7.37	24.881	1.295	0.87	3.0	19.213	5.205	0.0	0.0	0.0	0
7.38	24.881	1.295	0.87	3.0	19.213	5.205	0.0	0.0	0.0	0
7.39	24.575	1.315	0.87	3.0	18.688	5.351	0.0	0.0	0.0	0
7.40	24.779	1.305	0.88	3.0	18.988	5.267	0.0	0.0	0.0	0
7.41	25.085	1.285	0.88	3.0	19.521	5.123	0.0	0.0	0.0	0
7.42	25.187	1.275	0.88	3.0	19.755	5.062	0.0	0.0	0.0	0
7.43	25.085	1.275	0.88	3.0	19.675	5.083	0.0	0.0	0.0	0
7.44	25.085	1.285	0.88	3.0	19.521	5.123	0.0	0.0	0.0	0
7.45	25.085	1.285	0.88	3.0	19.521	5.123	0.0	0.0	0.0	0
7.46	25.289	1.295	0.89	3.0	19.528	5.121	0.0	0.0	0.0	0
7.47	25.391	1.305	0.89	3.0	19.457	5.14	0.0	0.0	0.0	0
7.48	24.779	1.305	0.88	3.0	18.988	5.267	0.0	0.0	0.0	0
7.49	24.575	1.315	0.87	3.0	18.688	5.351	0.0	0.0	0.0	0
7.50	25.085	1.305	0.88	3.0	19.222	5.202	0.0	0.0	0.0	0
7.51	23.759	1.326	0.86	3.0	17.918	5.581	0.0	0.0	0.0	0
7.52	23.147	1.336	0.86	3.0	17.326	5.772	0.0	0.0	0.0	0
7.53	22.841	1.356	0.86	3.0	16.844	5.937	0.0	0.0	0.0	0
7.54	22.433	1.366	0.85	3.0	16.422	6.089	0.0	0.0	0.0	0
7.55	22.127	1.377	0.85	3.0	16.069	6.223	0.0	0.0	0.0	0
7.56	21.312	1.387	0.84	3.0	15.366	6.508	0.0	0.0	0.0	0
7.57	21.006	1.377	0.84	3.0	15.255	6.555	0.0	0.0	0.0	0
7.58	20.598	1.377	0.84	3.0	14.959	6.685	0.0	0.0	0.0	0
7.59	20.394	1.366	0.84	3.0	14.93	6.698	0.0	0.0	0.0	0
7.60	20.394	1.346	0.84	3.0	15.152	6.6	0.0	0.0	0.0	0
7.61	20.496	1.336	0.84	3.1	15.341	6.518	0.0	0.0	0.0	0

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7.62	20.496	1.336	0.83	3.1	15.341	6.518	0.0	0.0	0.0	0
7.63	20.19	1.346	0.83	3.1	15.0	6.667	0.0	0.0	0.0	0
7.64	19.884	1.336	0.83	3.1	14.883	6.719	0.0	0.0	0.0	0
7.65	19.68	1.326	0.83	3.1	14.842	6.738	0.0	0.0	0.0	0
7.66	19.782	1.295	0.84	3.1	15.276	6.546	0.0	0.0	0.0	0
7.67	20.19	1.234	0.84	3.1	16.361	6.112	0.0	0.0	0.0	0
7.68	20.19	1.213	0.84	3.1	16.645	6.008	0.0	0.0	0.0	0
7.69	20.088	1.193	0.84	3.1	16.838	5.939	0.0	0.0	0.0	0
7.70	20.19	1.173	0.84	3.1	17.212	5.81	0.0	0.0	0.0	0
7.71	20.292	1.152	0.84	3.1	17.615	5.677	0.0	0.0	0.0	0
7.72	20.394	1.132	0.84	3.1	18.016	5.551	0.0	0.0	0.0	0
7.73	20.598	1.101	0.84	3.1	18.708	5.345	0.0	0.0	0.0	0
7.74	20.496	1.101	0.85	3.1	18.616	5.372	0.0	0.0	0.0	0
7.75	20.394	1.101	0.85	3.2	18.523	5.399	0.0	0.0	0.0	0
7.76	20.496	1.101	0.85	3.1	18.616	5.372	0.0	0.0	0.0	0
7.77	20.598	1.091	0.85	3.2	18.88	5.297	0.0	0.0	0.0	0
7.78	20.7	1.071	0.85	3.2	19.328	5.174	0.0	0.0	0.0	0
7.79	20.598	1.06	0.85	3.2	19.432	5.146	0.0	0.0	0.0	0
7.80	20.598	1.05	0.85	3.2	19.617	5.098	0.0	0.0	0.0	0
7.81	20.7	1.05	0.85	3.2	19.714	5.072	0.0	0.0	0.0	0
7.82	20.7	1.05	0.85	3.2	19.714	5.072	0.0	0.0	0.0	0
7.83	20.598	1.06	0.85	3.2	19.432	5.146	0.0	0.0	0.0	0
7.84	20.394	1.101	0.85	3.2	18.523	5.399	0.0	0.0	0.0	0
7.85	20.598	1.111	0.85	3.2	18.54	5.394	0.0	0.0	0.0	0
7.86	20.904	1.111	0.85	3.2	18.815	5.315	0.0	0.0	0.0	0
7.87	21.108	1.111	0.86	3.2	18.999	5.263	0.0	0.0	0.0	0
7.88	21.21	1.122	0.86	3.2	18.904	5.29	0.0	0.0	0.0	0
7.89	21.312	1.132	0.85	3.2	18.827	5.312	0.0	0.0	0.0	0
7.90	21.312	1.132	0.85	3.2	18.827	5.312	0.0	0.0	0.0	0
7.91	21.312	1.132	0.85	3.2	18.827	5.312	0.0	0.0	0.0	0
7.92	21.21	1.111	0.78	3.2	19.091	5.238	0.0	0.0	0.0	0
7.93	21.312	1.111	0.78	3.2	19.183	5.213	0.0	0.0	0.0	0
7.94	21.414	1.122	0.78	3.2	19.086	5.24	0.0	0.0	0.0	0
7.95	21.516	1.122	0.78	3.2	19.176	5.215	0.0	0.0	0.0	0
7.96	21.312	1.162	0.78	3.2	18.341	5.452	0.0	0.0	0.0	0
7.97	21.414	1.183	0.78	3.2	18.101	5.524	0.0	0.0	0.0	0
7.98	21.618	1.183	0.78	3.2	18.274	5.472	0.0	0.0	0.0	0
7.99	21.822	1.193	0.78	3.2	18.292	5.467	0.0	0.0	0.0	0
8.00	21.618	1.193	0.79	3.2	18.121	5.519	0.0	0.0	0.0	0
8.01	21.516	1.193	0.79	3.2	18.035	5.545	0.0	0.0	0.0	0
8.02	21.822	1.173	0.79	3.2	18.604	5.375	0.0	0.0	0.0	0
8.03	22.331	1.142	0.79	3.2	19.554	5.114	0.0	0.0	0.0	0
8.04	22.331	1.132	0.79	3.2	19.727	5.069	0.0	0.0	0.0	0
8.05	22.127	1.152	0.79	3.2	19.207	5.206	0.0	0.0	0.0	0
8.06	22.026	1.162	0.79	3.2	18.955	5.276	0.0	0.0	0.0	0
8.07	22.127	1.173	0.79	3.2	18.864	5.301	0.0	0.0	0.0	0
8.08	22.229	1.183	0.79	3.2	18.79	5.322	0.0	0.0	0.0	0
8.09	22.535	1.183	0.79	3.2	19.049	5.25	0.0	0.0	0.0	0
8.10	22.331	1.193	0.79	3.3	18.718	5.342	0.0	0.0	0.0	0
8.11	22.229	1.213	0.79	3.3	18.326	5.457	0.0	0.0	0.0	0
8.12	22.127	1.213	0.79	3.3	18.242	5.482	0.0	0.0	0.0	0
8.13	22.229	1.224	0.79	3.3	18.161	5.506	0.0	0.0	0.0	0
8.14	22.535	1.224	0.80	3.3	18.411	5.432	0.0	0.0	0.0	0
8.15	22.637	1.224	0.80	3.3	18.494	5.407	0.0	0.0	0.0	0
8.16	22.637	1.213	0.80	3.3	18.662	5.358	0.0	0.0	0.0	0
8.17	22.535	1.213	0.80	3.3	18.578	5.383	0.0	0.0	0.0	0
8.18	22.535	1.224	0.81	3.3	18.411	5.432	0.0	0.0	0.0	0
8.19	22.943	1.224	0.81	3.3	18.744	5.335	0.0	0.0	0.0	0
8.20	23.351	1.224	0.81	3.3	19.078	5.242	0.0	0.0	0.0	0
8.21	23.453	1.234	0.81	3.3	19.006	5.262	0.0	0.0	0.0	0
8.22	23.657	1.224	0.82	3.3	19.328	5.174	0.0	0.0	0.0	0
8.23	23.759	1.203	0.82	3.3	19.75	5.063	0.0	0.0	0.0	0
8.24	24.167	1.183	0.82	3.3	20.429	4.895	0.0	0.0	0.0	0
8.25	24.167	1.173	0.82	3.3	20.603	4.854	0.0	0.0	0.0	0
8.26	24.269	1.162	0.83	3.3	20.886	4.788	0.0	0.0	0.0	0
8.27	24.473	1.152	0.83	3.3	21.244	4.707	0.0	0.0	0.0	0
8.28	24.677	1.142	0.83	3.3	21.609	4.628	0.0	0.0	0.0	0
8.29	25.085	1.152	0.84	3.3	21.775	4.592	0.0	0.0	0.0	0
8.30	25.187	1.152	0.84	3.3	21.864	4.574	0.0	0.0	0.0	0
8.31	25.391	1.152	0.84	3.3	22.041	4.537	0.0	0.0	0.0	0
8.32	25.696	1.162	0.84	3.3	22.114	4.522	0.0	0.0	0.0	0
8.33	25.9	1.193	0.84	3.3	21.71	4.606	0.0	0.0	0.0	0
8.34	25.9	1.254	0.84	3.3	20.654	4.842	0.0	0.0	0.0	0
8.35	26.002	1.285	0.84	3.3	20.235	4.942	0.0	0.0	0.0	0
8.36	25.9	1.315	0.85	3.3	19.696	5.077	0.0	0.0	0.0	0

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8.37	25.9	1.346	0.86	3.3	19.242	5.197	0.0	0.0	0.0	0
8.38	25.696	1.377	0.89	3.3	18.661	5.359	0.0	0.0	0.0	0
8.39	25.085	1.397	0.89	3.3	17.956	5.569	0.0	0.0	0.0	0
8.40	24.983	1.407	0.89	3.3	17.756	5.632	0.0	0.0	0.0	0
8.41	24.779	1.407	0.88	3.3	17.611	5.678	0.0	0.0	0.0	0
8.42	24.371	1.407	0.88	3.3	17.321	5.773	0.0	0.0	0.0	0
8.43	23.861	1.387	0.88	3.4	17.203	5.813	0.0	0.0	0.0	0
8.44	23.555	1.346	0.87	3.4	17.5	5.714	0.0	0.0	0.0	0
8.45	22.943	1.346	0.87	3.4	17.045	5.867	0.0	0.0	0.0	0
8.46	22.535	1.326	0.87	3.4	16.995	5.884	0.0	0.0	0.0	0
8.47	22.331	1.305	0.87	3.4	17.112	5.844	0.0	0.0	0.0	0
8.48	22.433	1.275	0.87	3.4	17.595	5.684	0.0	0.0	0.0	0
8.49	22.637	1.254	0.87	3.4	18.052	5.54	0.0	0.0	0.0	0
8.50	22.739	1.213	0.87	3.4	18.746	5.334	0.0	0.0	0.0	0
8.51	22.637	1.213	0.88	3.4	18.662	5.358	0.0	0.0	0.0	0
8.52	22.637	1.183	0.88	3.4	19.135	5.226	0.0	0.0	0.0	0
8.53	22.739	1.152	0.88	3.4	19.739	5.066	0.0	0.0	0.0	0
8.54	23.045	1.132	0.89	3.4	20.358	4.912	0.0	0.0	0.0	0
8.55	23.861	1.091	0.89	3.4	21.871	4.572	0.0	0.0	0.0	0
8.56	23.963	1.081	0.89	3.4	22.167	4.511	0.0	0.0	0.0	0
8.57	23.861	1.091	0.89	3.4	21.871	4.572	0.0	0.0	0.0	0
8.58	23.861	1.101	0.89	3.4	21.672	4.614	0.0	0.0	0.0	0
8.59	18.151	0.683	0.85	3.4	26.575	3.763	0.0	0.0	0.0	0
8.60	22.229	1.122	0.86	3.4	19.812	5.047	0.0	0.0	0.0	0
8.61	22.433	1.173	0.86	3.4	19.124	5.229	0.0	0.0	0.0	0
8.62	21.924	1.173	0.85	3.4	18.691	5.35	0.0	0.0	0.0	0
8.63	21.414	1.162	0.85	3.4	18.429	5.426	0.0	0.0	0.0	0
8.64	21.006	1.162	0.85	3.4	18.077	5.532	0.0	0.0	0.0	0
8.65	21.006	1.142	0.85	3.4	18.394	5.437	0.0	0.0	0.0	0
8.66	21.108	1.132	0.85	3.4	18.647	5.363	0.0	0.0	0.0	0
8.67	21.108	1.142	0.86	3.4	18.483	5.41	0.0	0.0	0.0	0
8.68	21.108	1.142	0.86	3.4	18.483	5.41	0.0	0.0	0.0	0
8.69	21.108	1.132	0.87	3.4	18.647	5.363	0.0	0.0	0.0	0
8.70	20.904	1.101	0.87	3.4	18.986	5.267	0.0	0.0	0.0	0
8.71	20.802	1.03	0.86	3.4	20.196	4.951	0.0	0.0	0.0	0
8.72	20.802	0.938	0.87	3.4	22.177	4.509	0.0	0.0	0.0	0
8.73	20.802	0.897	0.86	3.4	23.191	4.312	0.0	0.0	0.0	0
8.74	21.21	0.857	0.87	3.4	24.749	4.041	0.0	0.0	0.0	0
8.75	21.21	0.836	0.87	3.4	25.371	3.942	0.0	0.0	0.0	0
8.76	21.108	0.836	0.89	3.4	25.249	3.961	0.0	0.0	0.0	0
8.77	20.598	0.826	0.89	3.4	24.937	4.01	0.0	0.0	0.0	0
8.78	20.19	0.795	0.90	3.4	25.396	3.938	0.0	0.0	0.0	0
8.79	20.496	0.755	0.90	3.4	27.147	3.684	0.0	0.0	0.0	0
8.80	21.108	0.693	0.90	3.4	30.459	3.283	0.0	0.0	0.0	0
8.81	21.516	0.673	0.91	3.4	31.97	3.128	0.0	0.0	0.0	0
8.82	22.229	0.663	0.91	3.4	33.528	2.983	0.0	0.0	0.0	0
8.83	23.453	0.704	0.94	3.4	33.314	3.002	0.0	0.0	0.0	0
8.84	24.167	0.714	0.96	3.5	33.847	2.954	0.0	0.0	0.0	0
8.85	24.983	0.724	0.98	3.5	34.507	2.898	0.0	0.0	0.0	0
8.86	25.696	0.714	0.99	3.4	35.989	2.779	0.0	0.0	0.0	0
8.87	26.716	0.683	1.00	3.5	39.116	2.557	0.0	0.0	0.0	0
8.88	27.43	0.673	1.00	3.5	40.758	2.454	0.0	0.0	0.0	0
8.89	27.736	0.683	1.00	3.5	40.609	2.463	0.0	0.0	0.0	0
8.90	27.736	0.683	1.00	3.5	40.609	2.463	0.0	0.0	0.0	0
8.91	27.736	0.683	1.00	3.5	40.609	2.463	0.0	0.0	0.0	0
8.92	27.022	0.877	0.84	3.5	30.812	3.246	0.0	0.0	0.0	0
8.93	26.614	0.918	0.84	3.5	28.991	3.449	0.0	0.0	0.0	0
8.94	26.104	0.969	0.84	3.5	26.939	3.712	0.0	0.0	0.0	0
8.95	25.391	0.999	0.83	3.5	25.416	3.934	0.0	0.0	0.0	0
8.96	24.983	1.02	0.83	3.5	24.493	4.083	0.0	0.0	0.0	0
8.97	24.575	1.091	0.84	3.5	22.525	4.439	0.0	0.0	0.0	0
8.98	24.473	1.132	0.84	3.5	21.619	4.626	0.0	0.0	0.0	0
8.99	24.371	1.183	0.84	3.5	20.601	4.854	0.0	0.0	0.0	0
9.00	24.065	1.224	0.84	3.5	19.661	5.086	0.0	0.0	0.0	0
9.01	23.759	1.264	0.84	3.5	18.797	5.32	0.0	0.0	0.0	0
9.02	23.453	1.264	0.83	3.5	18.555	5.39	0.0	0.0	0.0	0
9.03	22.841	1.285	0.83	3.5	17.775	5.626	0.0	0.0	0.0	0
9.04	22.841	1.275	0.83	3.5	17.915	5.582	0.0	0.0	0.0	0
9.05	22.943	1.264	0.83	3.5	18.151	5.509	0.0	0.0	0.0	0
9.06	23.147	1.264	0.84	3.5	18.313	5.461	0.0	0.0	0.0	0
9.07	23.147	1.264	0.84	3.5	18.313	5.461	0.0	0.0	0.0	0
9.08	23.453	1.213	0.85	3.5	19.335	5.172	0.0	0.0	0.0	0
9.09	23.861	1.183	0.86	3.5	20.17	4.958	0.0	0.0	0.0	0
9.10	24.167	1.162	0.86	3.5	20.798	4.808	0.0	0.0	0.0	0
9.11	24.575	1.132	0.86	3.5	21.709	4.606	0.0	0.0	0.0	0

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9.12	24.881	1.101	0.87	3.5	22.599	4.425	0.0	0.0	0.0	0
9.13	25.289	1.04	0.86	3.5	24.316	4.112	0.0	0.0	0.0	0
9.14	25.289	1.01	0.86	3.5	25.039	3.994	0.0	0.0	0.0	0
9.15	24.677	1.01	0.86	3.5	24.433	4.093	0.0	0.0	0.0	0
9.16	24.065	1.01	0.86	3.5	23.827	4.197	0.0	0.0	0.0	0
9.17	23.555	0.999	0.86	3.5	23.579	4.241	0.0	0.0	0.0	0
9.18	23.351	0.989	0.86	3.5	23.611	4.235	0.0	0.0	0.0	0
9.19	23.657	0.948	0.85	3.6	24.955	4.007	0.0	0.0	0.0	0
9.20	22.943	0.948	0.84	3.6	24.201	4.132	0.0	0.0	0.0	0
9.21	22.026	0.969	0.84	3.6	22.731	4.399	0.0	0.0	0.0	0
9.22	21.618	0.969	0.84	3.6	22.31	4.482	0.0	0.0	0.0	0
9.23	21.414	0.959	0.84	3.6	22.33	4.478	0.0	0.0	0.0	0
9.24	21.006	0.948	0.83	3.6	22.158	4.513	0.0	0.0	0.0	0
9.25	20.7	0.959	0.83	3.6	21.585	4.633	0.0	0.0	0.0	0
9.26	20.292	0.959	0.83	3.6	21.16	4.726	0.0	0.0	0.0	0
9.27	20.19	0.948	0.83	3.6	21.297	4.695	0.0	0.0	0.0	0
9.28	20.19	0.938	0.83	3.6	21.525	4.646	0.0	0.0	0.0	0
9.29	20.292	0.928	0.84	3.6	21.866	4.573	0.0	0.0	0.0	0
9.30	20.598	0.897	0.84	3.6	22.963	4.355	0.0	0.0	0.0	0
9.31	20.802	0.877	0.84	3.7	23.719	4.216	0.0	0.0	0.0	0
9.32	20.904	0.867	0.84	3.7	24.111	4.148	0.0	0.0	0.0	0
9.33	21.108	0.857	0.85	3.7	24.63	4.06	0.0	0.0	0.0	0
9.34	21.414	0.836	0.85	3.7	25.615	3.904	0.0	0.0	0.0	0
9.35	21.924	0.806	0.86	3.7	27.201	3.676	0.0	0.0	0.0	0
9.36	22.331	0.795	0.86	3.7	28.089	3.56	0.0	0.0	0.0	0
9.37	22.535	0.785	0.87	3.7	28.707	3.483	0.0	0.0	0.0	0
9.38	22.739	0.785	0.88	3.7	28.967	3.452	0.0	0.0	0.0	0
9.39	23.147	0.775	0.88	3.7	29.867	3.348	0.0	0.0	0.0	0
9.40	23.249	0.765	0.88	3.7	30.391	3.29	0.0	0.0	0.0	0
9.41	22.943	0.744	0.88	3.7	30.837	3.243	0.0	0.0	0.0	0
9.42	22.841	0.744	0.88	3.7	30.7	3.257	0.0	0.0	0.0	0
9.43	22.841	0.734	0.88	3.8	31.119	3.214	0.0	0.0	0.0	0
9.44	22.841	0.734	0.88	3.8	31.119	3.214	0.0	0.0	0.0	0
9.45	22.841	0.744	0.88	3.8	30.7	3.257	0.0	0.0	0.0	0
9.46	22.841	0.755	0.88	3.8	30.253	3.305	0.0	0.0	0.0	0
9.47	23.147	0.765	0.88	3.8	30.258	3.305	0.0	0.0	0.0	0
9.48	23.351	0.775	0.89	3.8	30.13	3.319	0.0	0.0	0.0	0
9.49	23.963	0.816	0.90	3.8	29.366	3.405	0.0	0.0	0.0	0
9.50	24.167	0.826	0.90	3.8	29.258	3.418	0.0	0.0	0.0	0
9.51	24.371	0.846	0.90	3.8	28.807	3.471	0.0	0.0	0.0	0
9.52	24.371	0.857	0.90	3.8	28.438	3.516	0.0	0.0	0.0	0
9.53	24.677	0.857	0.91	3.8	28.795	3.473	0.0	0.0	0.0	0
9.54	24.779	0.857	0.90	3.8	28.914	3.459	0.0	0.0	0.0	0
9.55	24.779	0.857	0.90	3.8	28.914	3.459	0.0	0.0	0.0	0
9.56	24.983	0.857	0.90	3.8	29.152	3.43	0.0	0.0	0.0	0
9.57	24.983	0.857	0.90	3.8	29.152	3.43	0.0	0.0	0.0	0
9.58	24.779	0.867	0.90	3.8	28.58	3.499	0.0	0.0	0.0	0
9.59	24.575	0.877	0.90	3.8	28.022	3.569	0.0	0.0	0.0	0
9.60	24.371	0.877	0.90	3.8	27.789	3.599	0.0	0.0	0.0	0
9.61	24.371	0.877	0.90	3.8	27.789	3.599	0.0	0.0	0.0	0
9.62	24.269	0.877	0.90	3.8	27.673	3.614	0.0	0.0	0.0	0
9.63	24.167	0.877	0.90	3.8	27.556	3.629	0.0	0.0	0.0	0
9.64	24.167	0.887	0.90	3.8	27.246	3.67	0.0	0.0	0.0	0
9.65	23.963	0.897	0.90	3.8	26.715	3.743	0.0	0.0	0.0	0
9.66	23.861	0.908	0.91	3.8	26.279	3.805	0.0	0.0	0.0	0
9.67	24.065	0.897	0.91	3.8	26.828	3.727	0.0	0.0	0.0	0
9.68	24.269	0.887	0.91	3.8	27.361	3.655	0.0	0.0	0.0	0
9.69	24.167	0.887	0.91	3.9	27.246	3.67	0.0	0.0	0.0	0
9.70	24.065	0.897	0.91	3.9	26.828	3.727	0.0	0.0	0.0	0
9.71	24.065	0.897	0.91	3.9	26.828	3.727	0.0	0.0	0.0	0
9.72	23.963	0.887	0.90	3.9	27.016	3.702	0.0	0.0	0.0	0
9.73	23.963	0.877	0.90	3.9	27.324	3.66	0.0	0.0	0.0	0
9.74	24.065	0.867	0.90	3.9	27.757	3.603	0.0	0.0	0.0	0
9.75	24.269	0.857	0.90	3.8	28.319	3.531	0.0	0.0	0.0	0
9.76	24.473	0.857	0.91	3.8	28.557	3.502	0.0	0.0	0.0	0
9.77	24.779	0.857	0.91	3.9	28.914	3.459	0.0	0.0	0.0	0
9.78	25.492	0.857	0.92	3.9	29.746	3.362	0.0	0.0	0.0	0
9.79	26.002	0.857	0.92	3.8	30.341	3.296	0.0	0.0	0.0	0
9.80	26.512	0.846	0.93	3.8	31.338	3.191	0.0	0.0	0.0	0
9.81	30.081	0.836	0.97	3.9	35.982	2.779	0.0	0.0	0.0	0
9.82	29.163	0.846	0.97	3.9	34.472	2.901	0.0	0.0	0.0	0
9.83	28.858	0.857	0.98	3.8	33.673	2.97	0.0	0.0	0.0	0
9.84	32.936	0.846	1.01	3.9	38.931	2.569	0.0	0.0	0.0	0
9.85	32.223	0.877	1.01	3.9	36.742	2.722	0.0	0.0	0.0	0
9.86	30.795	0.959	0.99	3.8	32.112	3.114	0.0	0.0	0.0	0

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9.87	28.654	1.05	0.97	3.8	27.29	3.664	0.0	0.0	0.0	0
9.88	27.838	1.142	0.98	3.8	24.377	4.102	0.0	0.0	0.0	0
9.89	27.328	1.193	1.00	3.9	22.907	4.365	0.0	0.0	0.0	0
9.90	27.328	1.193	1.00	3.9	22.907	4.365	0.0	0.0	0.0	0
9.91	27.328	1.193	1.00	3.9	22.907	4.365	0.0	0.0	0.0	0
9.92	29.673	1.152	1.11	3.9	25.758	3.882	0.0	0.0	0.0	0
9.93	29.673	1.152	1.12	3.9	25.758	3.882	0.0	0.0	0.0	0
9.94	30.795	1.132	1.15	3.9	27.204	3.676	0.0	0.0	0.0	0
9.95	33.14	1.132	1.15	3.9	29.276	3.416	0.0	0.0	0.0	0
9.96	29.061	1.173	1.12	3.9	24.775	4.036	0.0	0.0	0.0	0
9.97	28.858	1.244	1.11	3.9	23.198	4.311	0.0	0.0	0.0	0
9.98	27.634	1.285	1.11	3.9	21.505	4.65	0.0	0.0	0.0	0
9.99	27.124	1.295	1.11	3.9	20.945	4.774	0.0	0.0	0.0	0
10.00	26.818	1.295	1.11	3.9	20.709	4.829	0.0	0.0	0.0	0
10.01	26.206	1.285	1.11	3.9	20.394	4.903	0.0	0.0	0.0	0
10.02	26.002	1.285	1.11	3.9	20.235	4.942	0.0	0.0	0.0	0
10.03	26.002	1.275	1.11	3.9	20.394	4.903	0.0	0.0	0.0	0
10.04	26.308	1.244	1.11	3.9	21.148	4.729	0.0	0.0	0.0	0
10.05	26.512	1.224	1.11	4.0	21.66	4.617	0.0	0.0	0.0	0
10.06	26.308	1.203	1.13	4.0	21.869	4.573	0.0	0.0	0.0	0
10.07	26.614	1.162	1.14	4.0	22.904	4.366	0.0	0.0	0.0	0
10.08	27.022	1.142	1.14	4.0	23.662	4.226	0.0	0.0	0.0	0
10.09	27.226	1.122	1.14	4.0	24.266	4.121	0.0	0.0	0.0	0
10.10	27.124	1.132	1.15	4.0	23.961	4.173	0.0	0.0	0.0	0
10.11	27.226	1.05	1.15	4.0	25.93	3.857	0.0	0.0	0.0	0
10.12	27.226	0.999	1.15	4.0	27.253	3.669	0.0	0.0	0.0	0
10.13	27.226	0.979	1.16	4.0	27.81	3.596	0.0	0.0	0.0	0
10.14	27.43	0.979	1.15	4.0	28.018	3.569	0.0	0.0	0.0	0
10.15	27.328	0.979	1.15	4.0	27.914	3.582	0.0	0.0	0.0	0
10.16	27.328	0.979	1.15	4.0	27.914	3.582	0.0	0.0	0.0	0
10.17	27.226	0.989	1.14	4.0	27.529	3.633	0.0	0.0	0.0	0
10.18	26.92	1.02	1.14	4.0	26.392	3.789	0.0	0.0	0.0	0
10.19	26.512	1.03	1.13	4.0	25.74	3.885	0.0	0.0	0.0	0
10.20	26.002	1.04	1.13	4.0	25.002	4.0	0.0	0.0	0.0	0
10.21	25.391	1.05	1.11	4.1	24.182	4.135	0.0	0.0	0.0	0
10.22	24.371	1.04	1.10	4.1	23.434	4.267	0.0	0.0	0.0	0
10.23	23.249	1.04	1.09	4.1	22.355	4.473	0.0	0.0	0.0	0
10.24	22.331	1.03	1.07	4.1	21.681	4.612	0.0	0.0	0.0	0
10.25	20.394	1.03	1.03	4.1	19.8	5.051	0.0	0.0	0.0	0
10.26	19.578	1.02	1.01	4.1	19.194	5.21	0.0	0.0	0.0	0
10.27	18.762	0.989	1.00	4.1	18.971	5.271	0.0	0.0	0.0	0
10.28	18.355	0.948	0.99	4.1	19.362	5.165	0.0	0.0	0.0	0
10.29	17.947	0.918	0.98	4.1	19.55	5.115	0.0	0.0	0.0	0
10.30	17.539	0.887	0.97	4.1	19.773	5.057	0.0	0.0	0.0	0
10.31	17.131	0.846	0.97	4.1	20.249	4.938	0.0	0.0	0.0	0
10.32	16.519	0.734	0.96	4.1	22.505	4.443	0.0	0.0	0.0	0
10.33	16.213	0.683	0.96	4.1	23.738	4.213	0.0	0.0	0.0	0
10.34	16.111	0.642	0.96	4.1	25.095	3.985	0.0	0.0	0.0	0
10.35	16.213	0.591	0.96	4.1	27.433	3.645	0.0	0.0	0.0	0
10.36	16.417	0.52	0.96	4.1	31.571	3.167	0.0	0.0	0.0	0
10.37	16.621	0.479	0.97	4.1	34.699	2.882	0.0	0.0	0.0	0
10.38	17.131	0.398	0.97	4.1	43.043	2.323	0.0	0.0	0.0	0
10.39	17.335	0.357	0.98	4.1	48.557	2.059	0.0	0.0	0.0	0
10.40	17.641	0.326	0.98	4.1	54.113	1.848	0.0	0.0	0.0	0
10.41	17.947	0.296	0.98	4.1	60.632	1.649	0.0	0.0	0.0	0
10.42	17.845	0.275	0.99	4.1	64.891	1.541	0.0	0.0	0.0	0
10.43	17.641	0.265	1.00	4.1	66.57	1.502	0.0	0.0	0.0	0
10.44	17.743	0.245	1.01	4.1	72.42	1.381	0.0	0.0	0.0	0
10.45	17.845	0.235	1.02	4.1	75.936	1.317	0.0	0.0	0.0	0
10.46	17.947	0.235	1.03	4.1	76.37	1.309	0.0	0.0	0.0	0
10.47	18.049	0.235	1.04	4.1	76.804	1.302	0.0	0.0	0.0	0
10.48	18.151	0.245	1.05	4.1	74.086	1.35	0.0	0.0	0.0	0
10.49	18.355	0.255	1.06	4.1	71.98	1.389	0.0	0.0	0.0	0
10.50	18.661	0.265	1.07	4.1	70.419	1.42	0.0	0.0	0.0	0
10.51	18.762	0.265	1.08	4.1	70.8	1.412	0.0	0.0	0.0	0
10.52	18.966	0.275	1.08	4.1	68.967	1.45	0.0	0.0	0.0	0
10.53	19.068	0.286	1.08	4.1	66.671	1.5	0.0	0.0	0.0	0
10.54	19.374	0.296	1.08	4.1	65.453	1.528	0.0	0.0	0.0	0
10.55	19.578	0.306	1.09	4.1	63.98	1.563	0.0	0.0	0.0	0
10.56	19.884	0.337	1.09	4.1	59.003	1.695	0.0	0.0	0.0	0
10.57	20.088	0.357	1.10	4.1	56.269	1.777	0.0	0.0	0.0	0
10.58	20.394	0.377	1.10	4.1	54.095	1.849	0.0	0.0	0.0	0
10.59	20.7	0.398	1.11	4.2	52.01	1.923	0.0	0.0	0.0	0
10.60	20.904	0.418	1.12	4.2	50.01	2.0	0.0	0.0	0.0	0
10.61	21.108	0.438	1.12	4.2	48.192	2.075	0.0	0.0	0.0	0

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10.62	21.414	0.459	1.13	4.2	46.654	2.143	0.0	0.0	0.0	0
10.63	22.229	0.51	1.14	4.2	43.586	2.294	0.0	0.0	0.0	0
10.64	22.841	0.53	1.14	4.2	43.096	2.32	0.0	0.0	0.0	0
10.65	23.249	0.561	1.15	4.2	41.442	2.413	0.0	0.0	0.0	0
10.66	23.453	0.602	1.15	4.2	38.958	2.567	0.0	0.0	0.0	0
10.67	23.555	0.653	1.14	4.2	36.072	2.772	0.0	0.0	0.0	0
10.68	23.453	0.714	1.15	4.2	32.847	3.044	0.0	0.0	0.0	0
10.69	23.249	0.816	1.15	4.2	28.491	3.51	0.0	0.0	0.0	0
10.70	23.249	0.816	1.15	4.2	28.491	3.51	0.0	0.0	0.0	0
10.71	23.249	0.908	1.15	4.2	25.605	3.906	0.0	0.0	0.0	0
10.72	23.351	0.948	1.15	4.2	24.632	4.06	0.0	0.0	0.0	0
10.73	23.453	0.989	1.15	4.2	23.714	4.217	0.0	0.0	0.0	0
10.74	23.555	1.03	1.15	4.2	22.869	4.373	0.0	0.0	0.0	0
10.75	23.351	1.132	1.15	4.2	20.628	4.848	0.0	0.0	0.0	0
10.76	23.555	1.173	1.15	4.2	20.081	4.98	0.0	0.0	0.0	0
10.77	23.759	1.203	1.16	4.2	19.75	5.063	0.0	0.0	0.0	0
10.78	23.861	1.234	1.16	4.2	19.336	5.172	0.0	0.0	0.0	0
10.79	24.065	1.244	1.16	4.2	19.345	5.169	0.0	0.0	0.0	0
10.80	24.269	1.254	1.17	4.2	19.353	5.167	0.0	0.0	0.0	0
10.81	24.371	1.264	1.18	4.3	19.281	5.186	0.0	0.0	0.0	0
10.82	24.575	1.234	1.19	4.3	19.915	5.021	0.0	0.0	0.0	0
10.83	24.779	1.224	1.20	4.3	20.244	4.94	0.0	0.0	0.0	0
10.84	25.085	1.203	1.20	4.3	20.852	4.796	0.0	0.0	0.0	0
10.85	25.187	1.213	1.21	4.3	20.764	4.816	0.0	0.0	0.0	0
10.86	25.289	1.224	1.22	4.3	20.661	4.84	0.0	0.0	0.0	0
10.87	25.492	1.224	1.23	4.3	20.827	4.802	0.0	0.0	0.0	0
10.88	26.002	1.224	1.23	4.3	21.243	4.707	0.0	0.0	0.0	0
10.89	26.002	1.224	1.22	4.3	21.243	4.707	0.0	0.0	0.0	0
10.90	26.002	1.224	1.22	4.3	21.243	4.707	0.0	0.0	0.0	0
10.91	26.002	1.224	1.22	4.3	21.243	4.707	0.0	0.0	0.0	0
10.92	26.104	1.193	1.14	4.3	21.881	4.57	0.0	0.0	0.0	0
10.93	26.104	1.224	1.15	4.3	21.327	4.689	0.0	0.0	0.0	0
10.94	26.002	1.244	1.15	4.3	20.902	4.784	0.0	0.0	0.0	0
10.95	26.002	1.275	1.16	4.3	20.394	4.903	0.0	0.0	0.0	0
10.96	26.308	1.285	1.17	4.3	20.473	4.884	0.0	0.0	0.0	0
10.97	27.226	1.336	1.17	4.3	20.379	4.907	0.0	0.0	0.0	0
10.98	27.634	1.377	1.17	4.3	20.068	4.983	0.0	0.0	0.0	0
10.99	27.634	1.407	1.18	4.3	19.64	5.092	0.0	0.0	0.0	0
11.00	27.634	1.438	1.18	4.3	19.217	5.204	0.0	0.0	0.0	0
11.01	27.94	1.458	1.18	4.3	19.163	5.218	0.0	0.0	0.0	0
11.02	27.532	1.509	1.18	4.3	18.245	5.481	0.0	0.0	0.0	0
11.03	27.124	1.54	1.17	4.3	17.613	5.678	0.0	0.0	0.0	0
11.04	26.716	1.55	1.17	4.3	17.236	5.802	0.0	0.0	0.0	0
11.05	26.512	1.55	1.18	4.3	17.105	5.846	0.0	0.0	0.0	0
11.06	26.512	1.54	1.17	4.3	17.216	5.809	0.0	0.0	0.0	0
11.07	26.512	1.519	1.17	4.3	17.454	5.729	0.0	0.0	0.0	0
11.08	26.206	1.53	1.18	4.3	17.128	5.838	0.0	0.0	0.0	0
11.09	26.104	1.54	1.17	4.3	16.951	5.899	0.0	0.0	0.0	0
11.10	25.9	1.55	1.18	4.3	16.71	5.985	0.0	0.0	0.0	0
11.11	25.798	1.56	1.18	4.3	16.537	6.047	0.0	0.0	0.0	0
11.12	25.594	1.55	1.18	4.3	16.512	6.056	0.0	0.0	0.0	0
11.13	25.492	1.53	1.17	4.3	16.661	6.002	0.0	0.0	0.0	0
11.14	25.187	1.519	1.17	4.3	16.581	6.031	0.0	0.0	0.0	0
11.15	24.881	1.499	1.17	4.3	16.598	6.025	0.0	0.0	0.0	0
11.16	24.881	1.479	1.17	4.3	16.823	5.944	0.0	0.0	0.0	0
11.17	24.473	1.438	1.17	4.3	17.019	5.876	0.0	0.0	0.0	0
11.18	24.167	1.428	1.16	4.3	16.924	5.909	0.0	0.0	0.0	0
11.19	23.963	1.417	1.16	4.3	16.911	5.913	0.0	0.0	0.0	0
11.20	23.759	1.397	1.16	4.3	17.007	5.88	0.0	0.0	0.0	0
11.21	23.351	1.387	1.16	4.3	16.836	5.94	0.0	0.0	0.0	0
11.22	23.351	1.366	1.16	4.3	17.094	5.85	0.0	0.0	0.0	0
11.23	23.351	1.346	1.16	4.3	17.348	5.764	0.0	0.0	0.0	0
11.24	22.841	1.305	1.15	4.3	17.503	5.713	0.0	0.0	0.0	0
11.25	22.637	1.285	1.15	4.3	17.616	5.677	0.0	0.0	0.0	0
11.26	22.637	1.254	1.15	4.3	18.052	5.54	0.0	0.0	0.0	0
11.27	22.535	1.193	1.15	4.3	18.889	5.294	0.0	0.0	0.0	0
11.28	22.637	1.173	1.16	4.3	19.298	5.182	0.0	0.0	0.0	0
11.29	22.637	1.173	1.16	4.3	19.298	5.182	0.0	0.0	0.0	0
11.30	23.249	1.122	1.16	4.3	20.721	4.826	0.0	0.0	0.0	0
11.31	23.759	1.101	1.17	4.3	21.579	4.634	0.0	0.0	0.0	0
11.32	24.371	1.081	1.18	4.3	22.545	4.436	0.0	0.0	0.0	0
11.33	24.881	1.071	1.19	4.3	23.232	4.304	0.0	0.0	0.0	0
11.34	25.187	1.06	1.20	4.3	23.761	4.209	0.0	0.0	0.0	0
11.35	25.391	1.05	1.20	4.3	24.182	4.135	0.0	0.0	0.0	0
11.36	25.492	1.06	1.20	4.3	24.049	4.158	0.0	0.0	0.0	0

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11.37	25.187	1.071	1.21	4.3	23.517	4.252	0.0	0.0	0.0	0
11.38	25.492	1.06	1.20	4.3	24.049	4.158	0.0	0.0	0.0	0
11.39	25.696	1.071	1.21	4.3	23.993	4.168	0.0	0.0	0.0	0
11.40	25.696	1.081	1.21	4.3	23.771	4.207	0.0	0.0	0.0	0
11.41	26.104	1.071	1.22	4.3	24.373	4.103	0.0	0.0	0.0	0
11.42	26.512	1.071	1.23	4.4	24.754	4.04	0.0	0.0	0.0	0
11.43	27.022	1.091	1.25	4.4	24.768	4.037	0.0	0.0	0.0	0
11.44	27.532	1.091	1.26	4.4	25.236	3.963	0.0	0.0	0.0	0
11.45	28.042	1.091	1.28	4.4	25.703	3.891	0.0	0.0	0.0	0
11.46	28.654	1.091	1.30	4.4	26.264	3.807	0.0	0.0	0.0	0
11.47	29.265	1.091	1.31	4.4	26.824	3.728	0.0	0.0	0.0	0
11.48	29.979	1.081	1.32	4.4	27.733	3.606	0.0	0.0	0.0	0
11.49	30.489	1.091	1.33	4.4	27.946	3.578	0.0	0.0	0.0	0
11.50	30.591	1.091	1.34	4.4	28.039	3.566	0.0	0.0	0.0	0
11.51	31.203	1.091	1.35	4.4	28.6	3.496	0.0	0.0	0.0	0
11.52	31.917	1.101	1.36	4.4	28.989	3.45	0.0	0.0	0.0	0
11.53	32.63	1.111	1.39	4.4	29.37	3.405	0.0	0.0	0.0	0
11.54	33.344	1.132	1.40	4.4	29.456	3.395	0.0	0.0	0.0	0
11.55	33.956	1.152	1.44	4.4	29.476	3.393	0.0	0.0	0.0	0
11.56	34.16	1.193	1.50	4.4	28.634	3.492	0.0	0.0	0.0	0
11.57	33.854	1.203	1.51	4.4	28.141	3.553	0.0	0.0	0.0	0
11.58	34.058	1.203	1.51	4.4	28.311	3.532	0.0	0.0	0.0	0
11.59	34.16	1.203	1.53	4.4	28.396	3.522	0.0	0.0	0.0	0
11.60	34.364	1.213	1.57	4.4	28.33	3.53	0.0	0.0	0.0	0
11.61	34.976	1.213	1.58	4.4	28.834	3.468	0.0	0.0	0.0	0
11.62	35.791	1.244	1.70	4.4	28.771	3.476	0.0	0.0	0.0	0
11.63	35.689	1.285	1.74	4.4	27.774	3.601	0.0	0.0	0.0	0
11.64	35.282	1.326	1.77	4.4	26.608	3.758	0.0	0.0	0.0	0
11.65	35.486	1.315	1.77	4.4	26.986	3.706	0.0	0.0	0.0	0
11.66	35.995	1.295	1.77	4.4	27.795	3.598	0.0	0.0	0.0	0
11.67	35.995	1.285	1.78	4.4	28.012	3.57	0.0	0.0	0.0	0
11.68	35.689	1.275	1.77	4.4	27.991	3.573	0.0	0.0	0.0	0
11.69	35.282	1.295	1.77	4.4	27.245	3.67	0.0	0.0	0.0	0
11.70	34.874	1.305	1.77	4.4	26.723	3.742	0.0	0.0	0.0	0
11.71	34.67	1.326	1.78	4.4	26.146	3.825	0.0	0.0	0.0	0
11.72	34.058	1.356	1.80	4.4	25.117	3.981	0.0	0.0	0.0	0
11.73	33.446	1.397	1.81	4.4	23.941	4.177	0.0	0.0	0.0	0
11.74	33.344	1.407	1.82	4.4	23.699	4.22	0.0	0.0	0.0	0
11.75	32.936	1.397	1.84	4.4	23.576	4.242	0.0	0.0	0.0	0
11.76	32.63	1.387	1.86	4.4	23.526	4.251	0.0	0.0	0.0	0
11.77	32.324	1.387	1.87	4.4	23.305	4.291	0.0	0.0	0.0	0
11.78	31.917	1.377	1.92	4.4	23.179	4.314	0.0	0.0	0.0	0
11.79	31.509	1.397	1.93	4.4	22.555	4.434	0.0	0.0	0.0	0
11.80	31.203	1.397	1.95	4.5	22.336	4.477	0.0	0.0	0.0	0
11.81	30.591	1.356	1.97	4.5	22.56	4.433	0.0	0.0	0.0	0
11.82	30.183	1.356	1.96	4.5	22.259	4.493	0.0	0.0	0.0	0
11.83	29.979	1.326	1.96	4.5	22.609	4.423	0.0	0.0	0.0	0
11.84	29.673	1.295	1.96	4.5	22.914	4.364	0.0	0.0	0.0	0
11.85	29.469	1.254	1.96	4.5	23.5	4.255	0.0	0.0	0.0	0
11.86	29.265	1.213	1.95	4.5	24.126	4.145	0.0	0.0	0.0	0
11.87	28.959	1.183	1.95	4.4	24.479	4.085	0.0	0.0	0.0	0
11.88	28.144	1.132	1.93	4.4	24.862	4.022	0.0	0.0	0.0	0
11.89	27.634	1.101	1.93	4.4	25.099	3.984	0.0	0.0	0.0	0
11.90	27.634	1.101	1.93	4.4	25.099	3.984	0.0	0.0	0.0	0
11.91	27.634	1.101	1.93	4.4	25.099	3.984	0.0	0.0	0.0	0
11.92	27.634	0.908	4.93	4.5	30.434	3.286	0.0	0.0	0.0	0
11.93	27.328	0.897	5.03	4.5	30.466	3.282	0.0	0.0	0.0	0
11.94	27.022	0.887	4.96	4.5	30.464	3.283	0.0	0.0	0.0	0
11.95	26.716	0.887	4.96	4.5	30.12	3.32	0.0	0.0	0.0	0
11.96	25.9	0.877	4.82	4.5	29.532	3.386	0.0	0.0	0.0	0
11.97	25.696	0.867	4.77	4.5	29.638	3.374	0.0	0.0	0.0	0
11.98	25.391	0.857	4.70	4.5	29.628	3.375	0.0	0.0	0.0	0
11.99	25.085	0.846	4.63	4.5	29.651	3.373	0.0	0.0	0.0	0
12.00	24.779	0.836	4.57	4.5	29.64	3.374	0.0	0.0	0.0	0
12.01	24.269	0.826	4.52	4.5	29.381	3.404	0.0	0.0	0.0	0
12.02	23.351	0.795	4.39	4.5	29.372	3.405	0.0	0.0	0.0	0
12.03	22.943	0.775	4.33	4.5	29.604	3.378	0.0	0.0	0.0	0
12.04	22.637	0.755	4.28	4.5	29.983	3.335	0.0	0.0	0.0	0
12.05	21.924	0.724	4.16	4.5	30.282	3.302	0.0	0.0	0.0	0
12.06	21.414	0.704	4.10	4.5	30.418	3.288	0.0	0.0	0.0	0
12.07	21.006	0.693	4.05	4.5	30.312	3.299	0.0	0.0	0.0	0
12.08	20.7	0.683	4.02	4.5	30.307	3.3	0.0	0.0	0.0	0
12.09	20.394	0.663	3.99	4.5	30.76	3.251	0.0	0.0	0.0	0
12.10	20.394	0.642	3.98	4.5	31.766	3.148	0.0	0.0	0.0	0
12.11	20.394	0.622	3.97	4.5	32.788	3.05	0.0	0.0	0.0	0

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12.12	20.394	0.602	3.97	4.5	33.877	2.952	0.0	0.0	0.0	0
12.13	20.292	0.581	3.99	4.5	34.926	2.863	0.0	0.0	0.0	0
12.14	20.394	0.551	4.00	4.5	37.013	2.702	0.0	0.0	0.0	0
12.15	20.598	0.52	4.05	4.5	39.612	2.525	0.0	0.0	0.0	0
12.16	20.904	0.489	4.12	4.5	42.748	2.339	0.0	0.0	0.0	0
12.17	21.312	0.469	4.17	4.5	45.441	2.201	0.0	0.0	0.0	0
12.18	22.637	0.398	4.31	4.5	56.877	1.758	0.0	0.0	0.0	0
12.19	23.453	0.367	4.41	4.5	63.905	1.565	0.0	0.0	0.0	0
12.20	24.575	0.337	4.61	4.5	72.923	1.371	0.0	0.0	0.0	0
12.21	26.104	0.326	4.86	4.6	80.074	1.249	0.0	0.0	0.0	0
12.22	27.94	0.316	5.16	4.5	88.418	1.131	0.0	0.0	0.0	0
12.23	29.979	0.316	5.38	4.5	94.87	1.054	0.0	0.0	0.0	0
12.24	31.611	0.316	5.56	4.6	100.035	1.0	0.0	0.0	0.0	0
12.25	33.038	0.337	5.66	4.6	98.036	1.02	0.0	0.0	0.0	0
12.26	33.854	0.387	5.62	4.6	87.478	1.143	0.0	0.0	0.0	0
12.27	33.752	0.428	5.59	4.6	78.86	1.268	0.0	0.0	0.0	0
12.28	33.446	0.479	5.53	4.6	69.825	1.432	0.0	0.0	0.0	0
12.29	32.936	0.53	5.51	4.6	62.143	1.609	0.0	0.0	0.0	0
12.30	32.834	0.581	5.46	4.6	56.513	1.77	0.0	0.0	0.0	0
12.31	33.956	0.693	5.54	4.6	48.999	2.041	0.0	0.0	0.0	0
12.32	34.568	0.765	5.78	4.6	45.187	2.213	0.0	0.0	0.0	0
12.33	35.18	0.846	5.97	4.6	41.584	2.405	0.0	0.0	0.0	0
12.34	35.384	0.938	6.20	4.6	37.723	2.651	0.0	0.0	0.0	0
12.35	35.588	1.02	6.33	4.6	34.89	2.866	0.0	0.0	0.0	0
12.36	35.893	1.05	6.33	4.6	34.184	2.925	0.0	0.0	0.0	0
12.37	36.913	1.111	6.23	4.6	33.225	3.01	0.0	0.0	0.0	0
12.38	37.117	1.152	6.25	4.6	32.22	3.104	0.0	0.0	0.0	0
12.39	37.219	1.203	6.30	4.6	30.938	3.232	0.0	0.0	0.0	0
12.40	37.219	1.203	6.30	4.6	30.938	3.232	0.0	0.0	0.0	0
12.41	37.525	1.254	6.31	4.6	29.924	3.342	0.0	0.0	0.0	0
12.42	37.321	1.285	6.30	4.6	29.044	3.443	0.0	0.0	0.0	0
12.43	37.117	1.326	6.31	4.6	27.992	3.572	0.0	0.0	0.0	0
12.44	36.607	1.366	6.30	4.6	26.799	3.732	0.0	0.0	0.0	0
12.45	35.791	1.407	6.28	4.6	25.438	3.931	0.0	0.0	0.0	0
12.46	35.893	1.397	6.28	4.6	25.693	3.892	0.0	0.0	0.0	0
12.47	35.689	1.407	6.24	4.6	25.365	3.942	0.0	0.0	0.0	0
12.48	35.588	1.417	6.18	4.6	25.115	3.982	0.0	0.0	0.0	0
12.49	35.282	1.489	6.17	4.6	23.695	4.22	0.0	0.0	0.0	0
12.50	34.568	1.56	6.10	4.6	22.159	4.513	0.0	0.0	0.0	0
12.51	34.364	1.56	6.05	4.6	22.028	4.54	0.0	0.0	0.0	0
12.52	33.956	1.56	6.04	4.7	21.767	4.594	0.0	0.0	0.0	0
12.53	33.65	1.57	6.05	4.7	21.433	4.666	0.0	0.0	0.0	0
12.54	33.752	1.581	6.11	4.7	21.349	4.684	0.0	0.0	0.0	0
12.55	33.956	1.591	6.15	4.7	21.343	4.685	0.0	0.0	0.0	0
12.56	34.772	1.581	6.13	4.7	21.994	4.547	0.0	0.0	0.0	0
12.57	34.364	1.591	6.11	4.7	21.599	4.63	0.0	0.0	0.0	0
12.58	33.854	1.601	6.15	4.7	21.146	4.729	0.0	0.0	0.0	0
12.59	33.548	1.611	6.17	4.7	20.824	4.802	0.0	0.0	0.0	0
12.60	33.548	1.601	6.13	4.7	20.954	4.772	0.0	0.0	0.0	0
12.61	33.65	1.57	6.15	4.7	21.433	4.666	0.0	0.0	0.0	0
12.62	34.058	1.509	6.13	4.7	22.57	4.431	0.0	0.0	0.0	0
12.63	34.16	1.479	6.14	4.7	23.097	4.33	0.0	0.0	0.0	0
12.64	34.16	1.468	6.13	4.7	23.27	4.297	0.0	0.0	0.0	0
12.65	33.956	1.479	6.14	4.7	22.959	4.356	0.0	0.0	0.0	0
12.66	33.548	1.468	6.15	4.7	22.853	4.376	0.0	0.0	0.0	0
12.67	33.344	1.458	6.22	4.7	22.87	4.373	0.0	0.0	0.0	0
12.68	33.446	1.438	6.18	4.7	23.259	4.299	0.0	0.0	0.0	0
12.69	33.752	1.366	6.07	4.7	24.709	4.047	0.0	0.0	0.0	0
12.70	33.548	1.356	6.00	4.7	24.74	4.042	0.0	0.0	0.0	0
12.71	33.242	1.346	5.98	4.7	24.697	4.049	0.0	0.0	0.0	0
12.72	32.936	1.326	5.94	4.7	24.839	4.026	0.0	0.0	0.0	0
12.73	32.732	1.315	5.86	4.7	24.891	4.017	0.0	0.0	0.0	0
12.74	32.121	1.326	5.84	4.7	24.224	4.128	0.0	0.0	0.0	0
12.75	31.509	1.336	5.78	4.7	23.585	4.24	0.0	0.0	0.0	0
12.76	31.611	1.346	5.76	4.7	23.485	4.258	0.0	0.0	0.0	0
12.77	31.815	1.346	5.77	4.7	23.637	4.231	0.0	0.0	0.0	0
12.78	31.713	1.336	5.77	4.7	23.737	4.213	0.0	0.0	0.0	0
12.79	31.713	1.326	5.77	4.7	23.916	4.181	0.0	0.0	0.0	0
12.80	31.509	1.305	5.78	4.7	24.145	4.142	0.0	0.0	0.0	0
12.81	31.305	1.315	5.77	4.7	23.806	4.201	0.0	0.0	0.0	0
12.82	31.509	1.336	5.78	4.7	23.585	4.24	0.0	0.0	0.0	0
12.83	32.121	1.326	5.89	4.7	24.224	4.128	0.0	0.0	0.0	0
12.84	31.815	1.336	5.75	4.7	23.814	4.199	0.0	0.0	0.0	0
12.85	31.713	1.315	5.65	4.7	24.116	4.147	0.0	0.0	0.0	0
12.86	32.324	1.315	5.69	4.7	24.581	4.068	0.0	0.0	0.0	0

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12.87	32.426	1.315	5.69	4.7	24.659	4.055	0.0	0.0	0.0	0
12.88	32.426	1.295	5.73	4.7	25.039	3.994	0.0	0.0	0.0	0
12.89	32.426	1.295	5.73	4.7	25.039	3.994	0.0	0.0	0.0	0
12.90	32.426	1.295	5.73	4.7	25.039	3.994	0.0	0.0	0.0	0
12.91	33.65	1.315	5.31	4.7	25.589	3.908	0.0	0.0	0.0	0
12.92	33.548	1.305	5.20	4.7	25.707	3.89	0.0	0.0	0.0	0
12.93	32.834	1.315	5.14	4.7	24.969	4.005	0.0	0.0	0.0	0
12.94	30.489	1.346	5.03	4.7	22.652	4.415	0.0	0.0	0.0	0
12.95	30.183	1.315	4.93	4.7	22.953	4.357	0.0	0.0	0.0	0
12.96	29.469	1.305	4.79	4.7	22.582	4.428	0.0	0.0	0.0	0
12.97	28.959	1.305	4.69	4.7	22.191	4.506	0.0	0.0	0.0	0
12.98	28.552	1.315	4.61	4.8	21.713	4.606	0.0	0.0	0.0	0
12.99	28.144	1.305	4.51	4.8	21.566	4.637	0.0	0.0	0.0	0
13.00	26.512	1.315	4.35	4.8	20.161	4.96	0.0	0.0	0.0	0
13.01	25.798	1.315	4.29	4.8	19.618	5.097	0.0	0.0	0.0	0
13.02	25.187	1.305	4.24	4.8	19.3	5.181	0.0	0.0	0.0	0
13.03	25.085	1.285	4.25	4.8	19.521	5.123	0.0	0.0	0.0	0
13.04	24.881	1.264	4.27	4.8	19.684	5.08	0.0	0.0	0.0	0
13.05	24.983	1.234	4.27	4.8	20.246	4.939	0.0	0.0	0.0	0
13.06	25.187	1.203	4.30	4.8	20.937	4.776	0.0	0.0	0.0	0
13.07	25.798	1.173	4.56	4.8	21.993	4.547	0.0	0.0	0.0	0
13.08	26.41	1.142	4.67	4.8	23.126	4.324	0.0	0.0	0.0	0
13.09	26.716	1.111	4.70	4.8	24.047	4.159	0.0	0.0	0.0	0
13.10	27.124	1.06	4.69	4.8	25.589	3.908	0.0	0.0	0.0	0
13.11	26.818	1.01	4.64	4.8	26.552	3.766	0.0	0.0	0.0	0
13.12	26.512	0.938	4.48	4.8	28.264	3.538	0.0	0.0	0.0	0
13.13	27.022	0.897	4.51	4.8	30.125	3.32	0.0	0.0	0.0	0
13.14	27.532	0.826	4.47	4.8	33.332	3.0	0.0	0.0	0.0	0
13.15	27.226	0.795	4.40	4.8	34.247	2.92	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.7

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	13.15	21.673	0.888	0.98	1.33	1.36	1.20	1.07	1.08

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	13.15	21.673	0.888	54.18	43.35	65.02	65.02

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	13.15	21.673	0.888	763.42	32.40

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	13.15	21.673	0.888	Imai & Tomauchi	183.40

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	13.15	21.673	0.888	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	13.15	21.673	0.888	Meyerhof	1.98

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	13.15	21.673	0.888	Meyerhof	2.06

Prova CPTU n. 7

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	13.15	21.673	0.888	18.54	7.42	12.88	18.97	15.6

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	13.15	21.673	0.888	27.93	23.7	20.4	19.24	29.04	29.73	22.24	26.73

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	13.15	21.673	0.888	54.18	43.35	327.47

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	13.15	21.673	0.888	21.90	85.02	159.70	43.35	108.37

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	13.15	21.673	0.888	Imai & Tomauchi	183.40

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	13.15	21.673	0.888	<0.5	5.5	<0.5	3.73

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	13.15	21.673	0.888	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	13.15	21.673	0.888	0.12837	0.01669

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	13.15	21.673	0.888	Meyerhof	1.80

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	13.15	21.673	0.888	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	13.15	21.673	0.888	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	13.15	21.673	0.888	Piacentini-Righi 1988	5.711028E-08

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	13.15	21.673	0.888	Piacentini-Righi 1988	3.713253E-03

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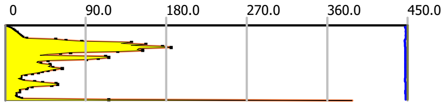
CPTU8_ms3

Probe CPTU - Piezocone Nr.8
Strumento utilizzato PAGANI 200 kN (CPTU)

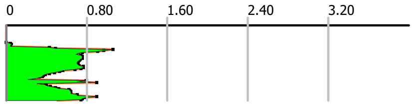
Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)

Data: 03/03/2021

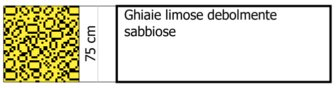
Resistenza punta Qc (Kg/cm²)



Resistenza laterale Fs (Kg/cm²)



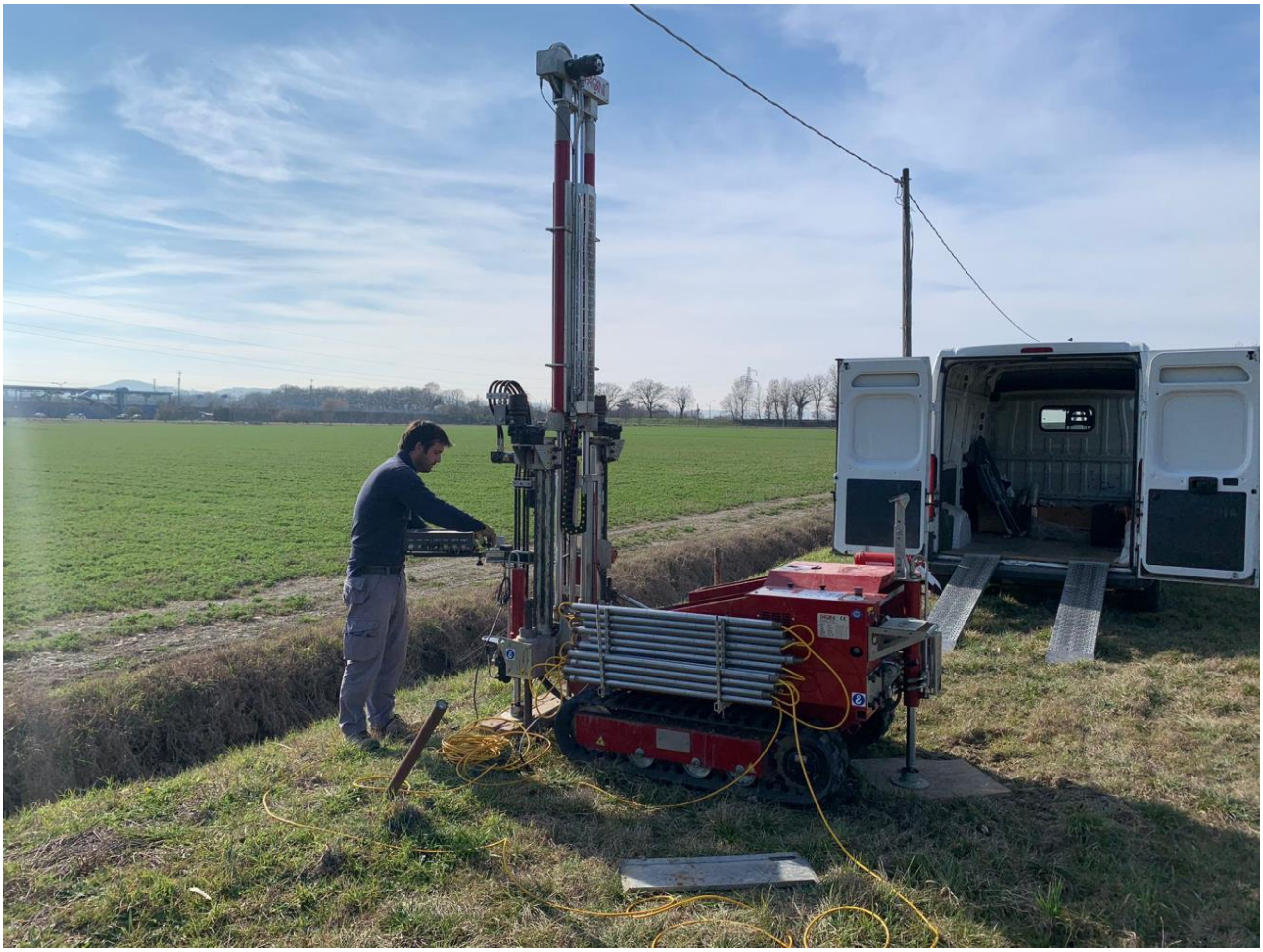
Interpretazione Stratigrafica



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 8

PROVA CPTU Nr.8



Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 03/03/2021
Profondità prova: .75 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	1.02	0.0	0.07	0.8	0.0	0.0	0.0	0.0	0.0	0
0.02	4.181	0.0	0.32	0.7	0.0	0.0	0.0	0.0	0.0	0
0.03	6.526	0.0	0.22	0.7	0.0	0.0	0.0	0.0	0.0	0
0.04	8.464	0.0	0.20	0.8	0.0	0.0	0.0	0.0	0.0	0
0.05	9.993	0.0	0.20	0.9	0.0	0.0	0.0	0.0	0.0	0
0.06	11.115	0.0	0.21	0.9	0.0	0.0	0.0	0.0	0.0	0
0.07	13.154	0.0	0.20	0.9	0.0	0.0	0.0	0.0	0.0	0
0.08	14.072	0.0	0.20	0.9	0.0	0.0	0.0	0.0	0.0	0
0.09	15.397	0.0	0.20	0.9	0.0	0.0	0.0	0.0	0.0	0
0.10	16.723	0.0	0.21	0.9	0.0	0.0	0.0	0.0	0.0	0
0.11	18.355	0.0	0.20	0.9	0.0	0.0	0.0	0.0	0.0	0

Prova CPTU n. 8

0.12	19.782	0.0	0.20	0.8	0.0	0.0	0.0	0.0	0.0	0
0.13	23.963	0.0	0.22	0.9	0.0	0.0	0.0	0.0	0.0	0
0.14	56.389	0.0	0.27	0.9	0.0	0.0	0.0	0.0	0.0	0
0.15	68.014	0.0	0.33	1.2	0.0	0.0	0.0	0.0	0.0	0
0.16	85.655	0.0	0.33	1.5	0.0	0.0	0.0	0.0	0.0	0
0.17	141.126	0.0	0.32	2.1	0.0	0.0	0.0	0.0	0.0	0
0.18	129.502	0.041	0.32	2.7	3158.585	0.032	0.0	0.0	0.0	0
0.19	157.34	0.051	0.32	4.4	3085.098	0.032	0.0	0.0	0.0	0
0.20	140.719	0.041	0.31	4.2	3432.171	0.029	0.0	0.0	0.0	0
0.21	175.898	0.041	0.31	4.6	4290.195	0.023	0.0	0.0	0.0	0
0.22	185.381	0.428	0.28	4.9	433.133	0.231	0.0	0.0	0.0	0
0.23	149.794	0.489	0.28	5.2	306.327	0.326	0.0	0.0	0.0	0
0.24	147.347	1.06	0.28	3.1	139.007	0.719	0.0	0.0	0.0	0
0.25	153.771	0.969	0.28	3.1	158.69	0.63	0.0	0.0	0.0	0
0.26	125.933	0.908	0.27	3.1	138.693	0.721	0.0	0.0	0.0	0
0.27	73.112	0.755	0.27	3.2	96.837	1.033	0.0	0.0	0.0	0
0.28	61.794	0.714	0.27	3.2	86.546	1.155	0.0	0.0	0.0	0
0.29	45.886	0.693	0.27	3.2	66.214	1.51	0.0	0.0	0.0	0
0.30	38.851	0.744	0.27	3.1	52.219	1.915	0.0	0.0	0.0	0
0.31	112.371	0.755	0.26	3.1	148.836	0.672	0.0	0.0	0.0	0
0.32	115.94	0.755	0.26	3.0	153.563	0.651	0.0	0.0	0.0	0
0.33	104.111	0.755	0.26	3.0	137.895	0.725	0.0	0.0	0.0	0
0.34	90.855	0.734	0.26	3.0	123.781	0.808	0.0	0.0	0.0	0
0.35	47.926	0.724	0.28	3.0	66.196	1.511	0.0	0.0	0.0	0
0.36	36.199	0.714	0.27	3.0	50.699	1.972	0.0	0.0	0.0	0
0.37	35.078	0.704	0.28	3.0	49.827	2.007	0.0	0.0	0.0	0
0.38	39.87	0.704	0.28	3.0	56.634	1.766	0.0	0.0	0.0	0
0.39	49.965	0.714	0.28	3.0	69.979	1.429	0.0	0.0	0.0	0
0.40	50.271	0.724	0.28	2.9	69.435	1.44	0.0	0.0	0.0	0
0.41	48.232	0.765	0.27	2.9	63.048	1.586	0.0	0.0	0.0	0
0.42	53.228	0.765	0.27	2.9	69.579	1.437	0.0	0.0	0.0	0
0.43	63.731	0.744	0.28	2.9	85.66	1.167	0.0	0.0	0.0	0
0.44	55.166	0.683	0.26	2.9	80.77	1.238	0.0	0.0	0.0	0
0.45	48.028	0.561	0.26	2.9	85.611	1.168	0.0	0.0	0.0	0
0.46	41.502	0.53	0.26	2.9	78.306	1.277	0.0	0.0	0.0	0
0.47	37.219	0.479	0.27	2.9	77.701	1.287	0.0	0.0	0.0	0
0.48	30.489	0.428	0.27	2.9	71.236	1.404	0.0	0.0	0.0	0
0.49	23.147	0.387	0.27	2.9	59.811	1.672	0.0	0.0	0.0	0
0.50	17.539	0.367	0.28	2.9	47.79	2.092	0.0	0.0	0.0	0
0.51	17.539	0.357	0.28	2.9	49.129	2.035	0.0	0.0	0.0	0
0.52	17.539	0.326	0.28	2.9	53.801	1.859	0.0	0.0	0.0	0
0.53	14.378	0.296	0.29	2.9	48.574	2.059	0.0	0.0	0.0	0
0.54	16.825	0.214	0.29	2.9	78.621	1.272	0.0	0.0	0.0	0
0.55	20.496	0.795	0.29	2.9	25.781	3.879	0.0	0.0	0.0	0
0.56	32.834	0.704	0.30	2.9	46.639	2.144	0.0	0.0	0.0	0
0.57	41.706	0.897	0.25	2.9	46.495	2.151	0.0	0.0	0.0	0
0.58	56.899	0.306	0.24	2.9	185.944	0.538	0.0	0.0	0.0	0
0.59	58.531	0.387	0.24	2.9	151.243	0.661	0.0	0.0	0.0	0
0.60	52.005	0.398	0.24	3.0	130.666	0.765	0.0	0.0	0.0	0
0.61	30.081	0.438	0.25	2.9	68.678	1.456	0.0	0.0	0.0	0
0.62	24.473	0.489	0.25	2.9	50.047	1.998	0.0	0.0	0.0	0
0.63	24.065	0.52	0.25	2.9	46.279	2.161	0.0	0.0	0.0	0
0.64	15.703	0.622	0.25	2.9	25.246	3.961	0.0	0.0	0.0	0
0.65	15.499	0.632	0.26	2.9	24.524	4.078	0.0	0.0	0.0	0
0.66	16.213	0.642	0.26	2.9	25.254	3.96	0.0	0.0	0.0	0
0.67	11.625	0.642	0.26	2.9	18.107	5.523	0.0	0.0	0.0	0
0.68	11.829	0.642	0.26	2.9	18.425	5.427	0.0	0.0	0.0	0
0.69	11.93	0.704	0.25	2.9	16.946	5.901	0.0	0.0	0.0	0
0.70	11.013	0.704	0.25	2.9	15.643	6.392	0.0	0.0	0.0	0
0.71	12.032	0.897	0.25	2.9	13.414	7.455	0.0	0.0	0.0	0
0.72	15.092	0.785	0.24	2.9	19.225	5.201	0.0	0.0	0.0	0
0.73	18.355	0.755	0.24	2.9	24.311	4.113	0.0	0.0	0.0	0
0.74	115.94	0.744	0.24	3.0	155.833	0.642	0.0	0.0	0.0	0
0.75	388.2	0.51	0.26	3.0	761.176	0.131	0.0	0.0	0.0	0

Prova CPTU n. 8

STIMA PARAMETRI GEOTECNICI Nr.8

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	0.75	56.679	0.458	2.73	2.76	3.77	3.33	2.98	2.83

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	0.75	56.679	0.458	141.70	113.36	170.04	85.02

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	0.75	56.679	0.458	2122.51	84.90

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	0.75	56.679	0.458	Imai & Tomauchi	329.99

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	0.75	56.679	0.458	>9

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	0.75	56.679	0.458	Meyerhof	2.15

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	0.75	56.679	0.458	Meyerhof	2.23

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	0.75	56.679	0.458	85.87	100	100	86.87	100

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	0.75	56.679	0.458	45	42.43	40.08	37.22	42	45	41.4	42.45

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	0.75	56.679	0.458	141.70	113.36	226.72

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	0.75	56.679	0.458	81.62	222.33	458.70	96.35	85.02

Prova CPTU n. 8

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	0.75	56.679	0.458	Imai & Tomauchi	329.99

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	0.75	56.679	0.458	>9	>9	<0.5	>9

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	0.75	56.679	0.458	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	0.75	56.679	0.458	0.10278	0.01336

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	0.75	56.679	0.458	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	0.75	56.679	0.458	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	0.75	56.679	0.458	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	0.75	56.679	0.458	Piacentini-Righi 1988	0.001

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	0.75	56.679	0.458	Piacentini-Righi 1988	0

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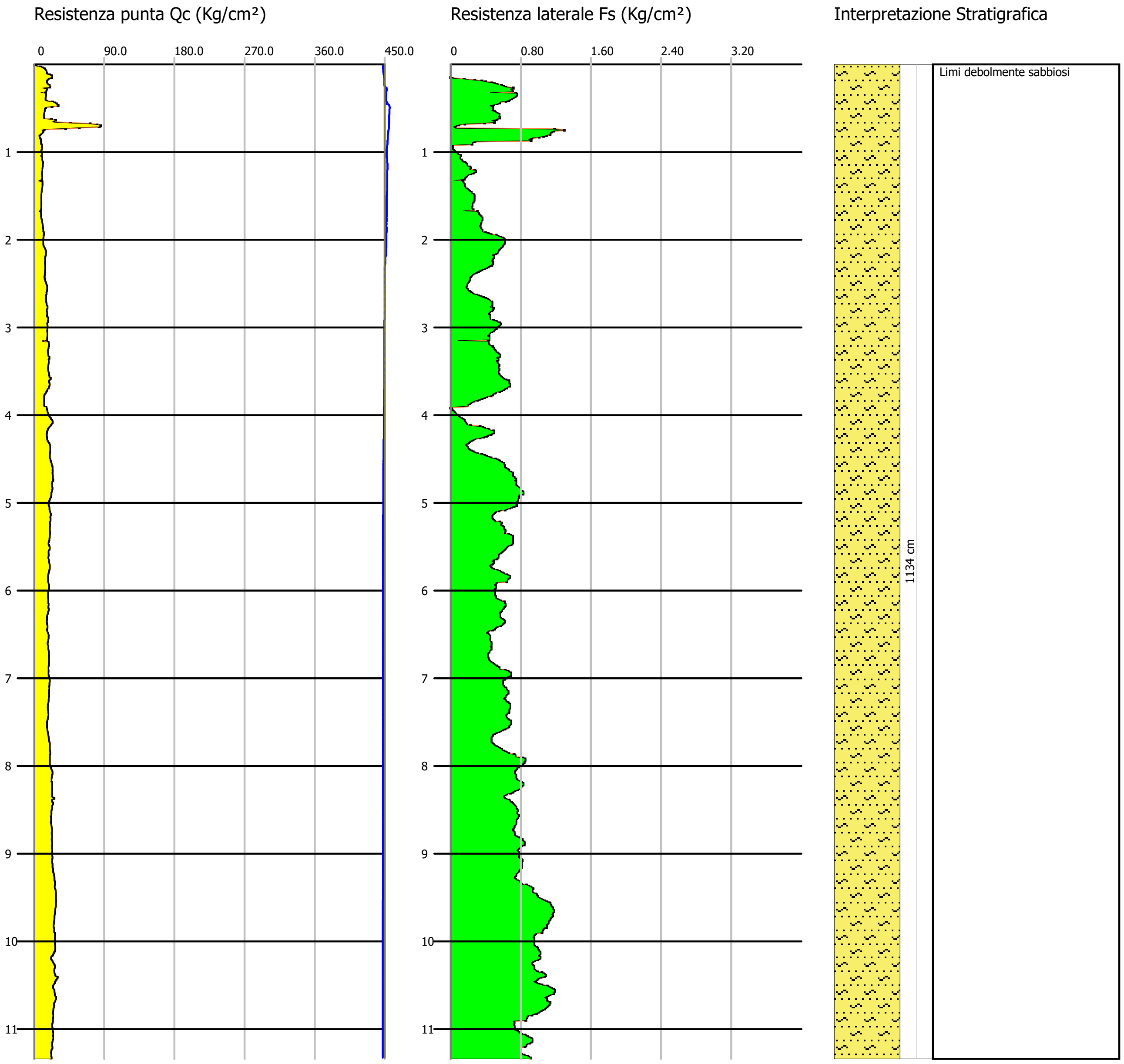
CPTU9_ms3

Probe CPTU - Piezocone Nr.9
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)

Data: 17/03/2021



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 9

PROVA CPTU Nr.9

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 17/03/2021
Profondità prova: 11.34 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	0.612	0.0	0.15	1.3	0.0	0.0	0.0	0.0	0.0	0
0.02	2.447	0.0	0.21	1.2	0.0	0.0	0.0	0.0	0.0	0
0.03	8.362	0.0	0.21	1.2	0.0	0.0	0.0	0.0	0.0	0
0.04	10.401	0.0	0.21	1.3	0.0	0.0	0.0	0.0	0.0	0
0.05	12.746	0.0	0.21	1.3	0.0	0.0	0.0	0.0	0.0	0
0.06	13.562	0.0	0.20	1.2	0.0	0.0	0.0	0.0	0.0	0
0.07	14.378	0.0	0.20	1.2	0.0	0.0	0.0	0.0	0.0	0
0.08	15.092	0.0	0.19	1.2	0.0	0.0	0.0	0.0	0.0	0
0.09	15.194	0.0	0.19	1.2	0.0	0.0	0.0	0.0	0.0	0
0.10	15.499	0.0	0.17	1.2	0.0	0.0	0.0	0.0	0.0	0
0.11	15.907	0.0	0.16	1.3	0.0	0.0	0.0	0.0	0.0	0
0.12	19.68	0.0	0.14	1.3	0.0	0.0	0.0	0.0	0.0	0
0.13	22.229	0.0	0.09	1.2	0.0	0.0	0.0	0.0	0.0	0
0.14	22.331	0.0	0.08	1.2	0.0	0.0	0.0	0.0	0.0	0
0.15	22.331	0.0	0.08	1.2	0.0	0.0	0.0	0.0	0.0	0
0.16	18.355	0.02	0.07	1.2	917.75	0.109	0.0	0.0	0.0	0
0.17	16.927	0.153	0.06	1.2	110.634	0.904	0.0	0.0	0.0	0
0.18	15.397	0.275	0.05	1.2	55.989	1.786	0.0	0.0	0.0	0
0.19	15.499	0.357	0.05	1.2	43.415	2.303	0.0	0.0	0.0	0
0.20	15.092	0.398	0.05	1.3	37.92	2.637	0.0	0.0	0.0	0

Prova CPTU n. 9

0.21	15.601	0.469	0.06	1.2	33.264	3.006	0.0	0.0	0.0	0
0.22	16.213	0.5	0.06	1.2	32.426	3.084	0.0	0.0	0.0	0
0.23	16.927	0.53	0.06	1.2	31.938	3.131	0.0	0.0	0.0	0
0.24	19.272	0.581	0.05	1.2	33.17	3.015	0.0	0.0	0.0	0
0.25	19.374	0.602	0.00	1.3	32.183	3.107	0.0	0.0	0.0	0
0.26	20.088	0.632	-0.09	1.2	31.785	3.146	0.0	0.0	0.0	0
0.27	10.095	0.714	-0.22	1.2	14.139	7.073	0.0	0.0	0.0	0
0.28	15.499	0.683	-0.21	1.3	22.693	4.407	0.0	0.0	0.0	0
0.29	15.194	0.683	-0.21	1.3	22.246	4.495	0.0	0.0	0.0	0
0.30	14.99	0.693	-0.21	1.3	21.631	4.623	0.0	0.0	0.0	0
0.31	14.582	0.704	-0.20	1.3	20.713	4.828	0.0	0.0	0.0	0
0.32	9.075	0.449	-0.17	1.3	20.212	4.948	0.0	0.0	0.0	0
0.33	14.378	0.744	-0.18	1.3	19.325	5.175	0.0	0.0	0.0	0
0.34	14.48	0.755	-0.17	1.3	19.179	5.214	0.0	0.0	0.0	0
0.35	14.48	0.755	-0.16	1.3	19.179	5.214	0.0	0.0	0.0	0
0.36	14.174	0.744	-0.13	1.3	19.051	5.249	0.0	0.0	0.0	0
0.37	13.97	0.734	-0.16	1.3	19.033	5.254	0.0	0.0	0.0	0
0.38	13.868	0.714	-0.16	1.4	19.423	5.149	0.0	0.0	0.0	0
0.39	13.766	0.693	-0.16	1.3	19.864	5.034	0.0	0.0	0.0	0
0.40	13.766	0.673	-0.16	1.3	20.455	4.889	0.0	0.0	0.0	0
0.41	13.868	0.663	-0.16	1.3	20.917	4.781	0.0	0.0	0.0	0
0.42	15.907	0.632	-0.18	1.3	25.169	3.973	0.0	0.0	0.0	0
0.43	23.657	0.561	-0.24	1.4	42.169	2.371	0.0	0.0	0.0	0
0.44	25.9	0.561	-0.34	1.4	46.168	2.166	0.0	0.0	0.0	0
0.45	28.042	0.53	-0.24	1.4	52.909	1.89	0.0	0.0	0.0	0
0.46	29.061	0.489	-0.51	1.4	59.429	1.683	0.0	0.0	0.0	0
0.47	30.795	0.449	-0.59	1.4	68.586	1.458	0.0	0.0	0.0	0
0.48	22.739	0.459	-0.60	1.4	49.54	2.019	0.0	0.0	0.0	0
0.49	14.684	0.479	-0.62	1.4	30.656	3.262	0.0	0.0	0.0	0
0.50	13.052	0.479	-0.62	1.4	27.248	3.67	0.0	0.0	0.0	0
0.51	12.95	0.479	-0.61	1.3	27.035	3.699	0.0	0.0	0.0	0
0.52	12.848	0.479	-0.60	1.4	26.823	3.728	0.0	0.0	0.0	0
0.53	12.644	0.469	-0.60	1.4	26.959	3.709	0.0	0.0	0.0	0
0.54	12.542	0.5	-0.58	1.4	25.084	3.987	0.0	0.0	0.0	0
0.55	12.338	0.51	-0.57	1.4	24.192	4.134	0.0	0.0	0.0	0
0.56	12.134	0.53	-0.57	1.4	22.894	4.368	0.0	0.0	0.0	0
0.57	11.829	0.551	-0.57	1.4	21.468	4.658	0.0	0.0	0.0	0
0.58	11.625	0.551	-0.56	1.4	21.098	4.74	0.0	0.0	0.0	0
0.59	11.625	0.551	-0.56	1.4	21.098	4.74	0.0	0.0	0.0	0
0.60	11.727	0.54	-0.56	1.4	21.717	4.605	0.0	0.0	0.0	0
0.61	11.829	0.561	-0.56	1.4	21.086	4.743	0.0	0.0	0.0	0
0.62	11.93	0.53	-0.56	1.4	22.509	4.443	0.0	0.0	0.0	0
0.63	22.127	0.52	-0.55	1.4	42.552	2.35	0.0	0.0	0.0	0
0.64	27.634	0.469	-0.55	1.4	58.921	1.697	0.0	0.0	0.0	0
0.65	23.657	0.489	-0.54	1.5	48.378	2.067	0.0	0.0	0.0	0
0.66	25.289	0.5	-0.54	1.5	50.578	1.977	0.0	0.0	0.0	0
0.67	46.804	0.387	-0.54	1.4	120.941	0.827	0.0	0.0	0.0	0
0.68	71.889	0.163	-0.53	1.2	441.037	0.227	0.0	0.0	0.0	0
0.69	80.964	0.092	-0.53	1.2	880.043	0.114	0.0	0.0	0.0	0
0.70	85.247	0.061	-0.51	1.2	1397.492	0.072	0.0	0.0	0.0	0
0.71	83.411	0.031	-0.51	1.3	2690.677	0.037	0.0	0.0	0.0	0
0.72	57.919	0.041	-0.52	1.3	1412.659	0.071	0.0	0.0	0.0	0
0.73	40.38	0.051	-0.53	1.3	791.765	0.126	0.0	0.0	0.0	0
0.74	12.644	1.183	-0.48	1.3	10.688	9.356	0.0	0.0	0.0	0
0.75	9.891	1.295	-0.48	1.4	7.638	13.093	0.0	0.0	0.0	0
0.76	11.319	1.173	-0.46	1.4	9.65	10.363	0.0	0.0	0.0	0
0.77	10.605	1.152	-0.45	1.4	9.206	10.863	0.0	0.0	0.0	0
0.78	9.687	1.132	-0.43	1.4	8.557	11.686	0.0	0.0	0.0	0
0.79	8.362	1.132	-0.41	1.4	7.387	13.537	0.0	0.0	0.0	0
0.80	7.342	1.132	-0.41	1.4	6.486	15.418	0.0	0.0	0.0	0
0.81	5.812	1.091	-0.39	1.4	5.327	18.772	0.0	0.0	0.0	0
0.82	5.914	1.06	-0.39	1.4	5.579	17.924	0.0	0.0	0.0	0
0.83	6.118	1.01	-0.38	1.4	6.057	16.509	0.0	0.0	0.0	0
0.84	6.628	0.928	-0.38	1.4	7.142	14.001	0.0	0.0	0.0	0
0.85	7.138	0.897	-0.37	1.5	7.958	12.567	0.0	0.0	0.0	0
0.86	7.852	0.887	-0.37	1.5	8.852	11.296	0.0	0.0	0.0	0
0.87	8.158	0.918	-0.36	1.5	8.887	11.253	0.0	0.0	0.0	0
0.88	7.852	0.275	-0.35	1.4	28.553	3.502	0.0	0.0	0.0	0
0.89	7.954	0.245	-0.35	1.4	32.465	3.08	0.0	0.0	0.0	0
0.90	7.954	0.245	-0.35	1.4	32.465	3.08	0.0	0.0	0.0	0
0.91	7.954	0.245	-0.35	1.4	32.465	3.08	0.0	0.0	0.0	0
0.92	9.177	0.02	-0.29	1.4	458.85	0.218	0.0	0.0	0.0	0
0.93	9.075	0.02	-0.30	1.4	453.75	0.22	0.0	0.0	0.0	0
0.94	9.075	0.02	-0.27	1.4	453.75	0.22	0.0	0.0	0.0	0
0.95	9.075	0.02	-0.27	1.4	453.75	0.22	0.0	0.0	0.0	0

Prova CPTU n. 9

0.96	9.381	0.02	-0.27	1.5	469.05	0.213	0.0	0.0	0.0	0
0.97	8.769	0.02	-0.26	1.5	438.45	0.228	0.0	0.0	0.0	0
0.98	8.565	0.031	-0.26	1.5	276.29	0.362	0.0	0.0	0.0	0
0.99	8.464	0.041	-0.26	1.5	206.439	0.484	0.0	0.0	0.0	0
1.00	8.565	0.051	-0.25	1.5	167.941	0.595	0.0	0.0	0.0	0
1.01	8.769	0.071	-0.25	1.5	123.507	0.81	0.0	0.0	0.0	0
1.02	9.177	0.071	-0.25	1.5	129.254	0.774	0.0	0.0	0.0	0
1.03	9.483	0.082	-0.25	1.5	115.646	0.865	0.0	0.0	0.0	0
1.04	8.464	0.112	-0.25	1.5	75.571	1.323	0.0	0.0	0.0	0
1.05	8.565	0.102	-0.24	1.5	83.971	1.191	0.0	0.0	0.0	0
1.06	9.483	0.102	-0.25	1.5	92.971	1.076	0.0	0.0	0.0	0
1.07	9.789	0.102	-0.30	1.5	95.971	1.042	0.0	0.0	0.0	0
1.08	9.483	0.102	-0.33	1.5	92.971	1.076	0.0	0.0	0.0	0
1.09	9.585	0.122	-0.33	1.5	78.566	1.273	0.0	0.0	0.0	0
1.10	9.789	0.122	-0.33	1.5	80.238	1.246	0.0	0.0	0.0	0
1.11	10.095	0.133	-0.33	1.5	75.902	1.317	0.0	0.0	0.0	0
1.12	10.605	0.163	-0.33	1.5	65.061	1.537	0.0	0.0	0.0	0
1.13	10.503	0.173	-0.34	1.5	60.711	1.647	0.0	0.0	0.0	0
1.14	10.401	0.184	-0.34	1.5	56.527	1.769	0.0	0.0	0.0	0
1.15	10.401	0.184	-0.34	1.5	56.527	1.769	0.0	0.0	0.0	0
1.16	10.299	0.184	-0.34	1.5	55.973	1.787	0.0	0.0	0.0	0
1.17	10.095	0.214	-0.34	1.5	47.173	2.12	0.0	0.0	0.0	0
1.18	9.993	0.224	-0.34	1.5	44.612	2.242	0.0	0.0	0.0	0
1.19	9.789	0.214	-0.34	1.5	45.743	2.186	0.0	0.0	0.0	0
1.20	9.687	0.214	-0.34	1.5	45.266	2.209	0.0	0.0	0.0	0
1.21	9.687	0.275	-0.33	1.5	35.225	2.839	0.0	0.0	0.0	0
1.22	9.585	0.286	-0.33	1.5	33.514	2.984	0.0	0.0	0.0	0
1.23	9.381	0.265	-0.33	1.6	35.4	2.825	0.0	0.0	0.0	0
1.24	9.279	0.255	-0.33	1.6	36.388	2.748	0.0	0.0	0.0	0
1.25	9.279	0.224	-0.31	1.6	41.424	2.414	0.0	0.0	0.0	0
1.26	9.279	0.194	-0.30	1.6	47.83	2.091	0.0	0.0	0.0	0
1.27	9.381	0.184	-0.30	1.6	50.984	1.961	0.0	0.0	0.0	0
1.28	9.585	0.173	-0.30	1.6	55.405	1.805	0.0	0.0	0.0	0
1.29	9.789	0.163	-0.31	1.6	60.055	1.665	0.0	0.0	0.0	0
1.30	9.585	0.153	-0.32	1.6	62.647	1.596	0.0	0.0	0.0	0
1.31	9.585	0.153	-0.32	1.6	62.647	1.596	0.0	0.0	0.0	0
1.32	7.138	0.051	-0.32	1.6	139.961	0.714	0.0	0.0	0.0	0
1.33	5.404	0.133	-0.32	1.6	40.632	2.461	0.0	0.0	0.0	0
1.34	9.891	0.133	-0.31	1.6	74.368	1.345	0.0	0.0	0.0	0
1.35	9.993	0.143	-0.31	1.6	69.881	1.431	0.0	0.0	0.0	0
1.36	9.993	0.143	-0.31	1.6	69.881	1.431	0.0	0.0	0.0	0
1.37	9.993	0.153	-0.31	1.6	65.314	1.531	0.0	0.0	0.0	0
1.38	9.891	0.153	-0.31	1.6	64.647	1.547	0.0	0.0	0.0	0
1.39	9.687	0.153	-0.31	1.6	63.314	1.579	0.0	0.0	0.0	0
1.40	9.687	0.163	-0.31	1.6	59.429	1.683	0.0	0.0	0.0	0
1.41	9.483	0.163	-0.31	1.6	58.178	1.719	0.0	0.0	0.0	0
1.42	9.075	0.184	-0.30	1.6	49.321	2.028	0.0	0.0	0.0	0
1.43	8.973	0.194	-0.30	1.6	46.253	2.162	0.0	0.0	0.0	0
1.44	8.871	0.204	-0.29	1.6	43.485	2.3	0.0	0.0	0.0	0
1.45	8.769	0.214	-0.28	1.6	40.977	2.44	0.0	0.0	0.0	0
1.46	8.667	0.235	-0.28	1.6	36.881	2.711	0.0	0.0	0.0	0
1.47	8.667	0.235	-0.27	1.6	36.881	2.711	0.0	0.0	0.0	0
1.48	8.565	0.255	-0.27	1.6	33.588	2.977	0.0	0.0	0.0	0
1.49	8.464	0.265	-0.27	1.7	31.94	3.131	0.0	0.0	0.0	0
1.50	8.362	0.265	-0.26	1.7	31.555	3.169	0.0	0.0	0.0	0
1.51	8.26	0.265	-0.26	1.7	31.17	3.208	0.0	0.0	0.0	0
1.52	8.26	0.265	-0.26	1.7	31.17	3.208	0.0	0.0	0.0	0
1.53	8.26	0.265	-0.26	1.7	31.17	3.208	0.0	0.0	0.0	0
1.54	8.26	0.265	-0.26	1.7	31.17	3.208	0.0	0.0	0.0	0
1.55	8.26	0.265	-0.25	1.7	31.17	3.208	0.0	0.0	0.0	0
1.56	8.26	0.255	-0.25	1.7	32.392	3.087	0.0	0.0	0.0	0
1.57	8.362	0.255	-0.25	1.7	32.792	3.05	0.0	0.0	0.0	0
1.58	8.362	0.245	-0.25	1.7	34.131	2.93	0.0	0.0	0.0	0
1.59	8.362	0.245	-0.25	1.7	34.131	2.93	0.0	0.0	0.0	0
1.60	8.362	0.245	-0.25	1.7	34.131	2.93	0.0	0.0	0.0	0
1.61	8.26	0.245	-0.25	1.7	33.714	2.966	0.0	0.0	0.0	0
1.62	8.26	0.235	-0.25	1.7	35.149	2.845	0.0	0.0	0.0	0
1.63	8.26	0.235	-0.24	1.7	35.149	2.845	0.0	0.0	0.0	0
1.64	8.26	0.235	-0.24	1.7	35.149	2.845	0.0	0.0	0.0	0
1.65	8.158	0.245	-0.22	1.7	33.298	3.003	0.0	0.0	0.0	0
1.66	8.158	0.255	-0.22	1.7	31.992	3.126	0.0	0.0	0.0	0
1.67	6.628	0.143	-0.21	1.7	46.35	2.158	0.0	0.0	0.0	0
1.68	6.322	0.306	-0.21	1.7	20.66	4.84	0.0	0.0	0.0	0
1.69	7.954	0.306	-0.21	1.8	25.993	3.847	0.0	0.0	0.0	0
1.70	7.954	0.316	-0.21	1.8	25.171	3.973	0.0	0.0	0.0	0

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1.71	7.954	0.316	-0.21	1.8	25.171	3.973	0.0	0.0	0.0	0
1.72	8.056	0.326	-0.21	1.8	24.712	4.047	0.0	0.0	0.0	0
1.73	8.056	0.337	-0.21	1.8	23.905	4.183	0.0	0.0	0.0	0
1.74	8.158	0.347	-0.21	1.8	23.51	4.253	0.0	0.0	0.0	0
1.75	8.362	0.357	-0.20	1.8	23.423	4.269	0.0	0.0	0.0	0
1.76	8.565	0.357	-0.21	1.8	23.992	4.168	0.0	0.0	0.0	0
1.77	8.769	0.357	-0.21	1.8	24.563	4.071	0.0	0.0	0.0	0
1.78	9.075	0.347	-0.21	1.8	26.153	3.824	0.0	0.0	0.0	0
1.79	9.279	0.347	-0.21	1.8	26.741	3.74	0.0	0.0	0.0	0
1.80	9.483	0.347	-0.20	1.8	27.329	3.659	0.0	0.0	0.0	0
1.81	9.789	0.337	-0.20	1.8	29.047	3.443	0.0	0.0	0.0	0
1.82	9.891	0.337	-0.21	1.8	29.35	3.407	0.0	0.0	0.0	0
1.83	10.095	0.337	-0.20	1.9	29.955	3.338	0.0	0.0	0.0	0
1.84	10.197	0.326	-0.20	1.9	31.279	3.197	0.0	0.0	0.0	0
1.85	10.401	0.326	-0.20	1.9	31.905	3.134	0.0	0.0	0.0	0
1.86	10.503	0.337	-0.21	1.9	31.166	3.209	0.0	0.0	0.0	0
1.87	10.605	0.337	-0.21	1.9	31.469	3.178	0.0	0.0	0.0	0
1.88	10.809	0.347	-0.21	1.9	31.15	3.21	0.0	0.0	0.0	0
1.89	10.809	0.357	-0.21	1.9	30.277	3.303	0.0	0.0	0.0	0
1.90	10.809	0.357	-0.21	1.9	30.277	3.303	0.0	0.0	0.0	0
1.91	10.809	0.357	-0.21	1.9	30.277	3.303	0.0	0.0	0.0	0
1.92	11.625	0.398	-0.18	1.9	29.209	3.424	0.0	0.0	0.0	0
1.93	11.727	0.428	-0.18	1.9	27.4	3.65	0.0	0.0	0.0	0
1.94	11.727	0.459	-0.18	1.9	25.549	3.914	0.0	0.0	0.0	0
1.95	11.421	0.52	-0.18	1.9	21.963	4.553	0.0	0.0	0.0	0
1.96	11.319	0.54	-0.18	1.9	20.961	4.771	0.0	0.0	0.0	0
1.97	11.217	0.571	-0.18	1.9	19.644	5.09	0.0	0.0	0.0	0
1.98	11.013	0.591	-0.18	1.9	18.635	5.366	0.0	0.0	0.0	0
1.99	10.911	0.602	-0.18	1.9	18.125	5.517	0.0	0.0	0.0	0
2.00	10.809	0.612	-0.18	1.9	17.662	5.662	0.0	0.0	0.0	0
2.01	10.809	0.612	-0.18	1.9	17.662	5.662	0.0	0.0	0.0	0
2.02	10.809	0.612	-0.18	1.9	17.662	5.662	0.0	0.0	0.0	0
2.03	10.809	0.612	-0.18	1.9	17.662	5.662	0.0	0.0	0.0	0
2.04	10.809	0.612	-0.18	1.9	17.662	5.662	0.0	0.0	0.0	0
2.05	10.911	0.602	-0.18	1.9	18.125	5.517	0.0	0.0	0.0	0
2.06	10.911	0.591	-0.18	1.9	18.462	5.417	0.0	0.0	0.0	0
2.07	11.115	0.591	-0.18	1.9	18.807	5.317	0.0	0.0	0.0	0
2.08	11.625	0.581	-0.18	1.9	20.009	4.998	0.0	0.0	0.0	0
2.09	12.236	0.571	-0.18	1.9	21.429	4.667	0.0	0.0	0.0	0
2.10	13.052	0.561	-0.17	1.9	23.266	4.298	0.0	0.0	0.0	0
2.11	13.562	0.551	-0.17	1.9	24.613	4.063	0.0	0.0	0.0	0
2.12	13.97	0.54	-0.17	1.9	25.87	3.865	0.0	0.0	0.0	0
2.13	14.276	0.54	-0.17	1.9	26.437	3.783	0.0	0.0	0.0	0
2.14	14.48	0.53	-0.17	1.9	27.321	3.66	0.0	0.0	0.0	0
2.15	14.378	0.53	-0.17	2.0	27.128	3.686	0.0	0.0	0.0	0
2.16	14.378	0.51	-0.17	2.0	28.192	3.547	0.0	0.0	0.0	0
2.17	14.174	0.479	-0.17	2.0	29.591	3.379	0.0	0.0	0.0	0
2.18	13.868	0.479	-0.17	2.0	28.952	3.454	0.0	0.0	0.0	0
2.19	13.562	0.489	-0.06	2.0	27.734	3.606	0.0	0.0	0.0	0
2.20	13.256	0.489	-0.05	2.0	27.108	3.689	0.0	0.0	0.0	0
2.21	13.154	0.479	-0.05	2.0	27.461	3.641	0.0	0.0	0.0	0
2.22	13.052	0.479	-0.05	2.0	27.248	3.67	0.0	0.0	0.0	0
2.23	13.256	0.469	-0.04	2.0	28.264	3.538	0.0	0.0	0.0	0
2.24	13.256	0.469	-0.04	2.0	28.264	3.538	0.0	0.0	0.0	0
2.25	13.154	0.469	-0.04	2.0	28.047	3.565	0.0	0.0	0.0	0
2.26	13.052	0.479	-0.04	2.0	27.248	3.67	0.0	0.0	0.0	0
2.27	13.052	0.479	-0.04	2.0	27.248	3.67	0.0	0.0	0.0	0
2.28	13.154	0.469	-0.02	2.0	28.047	3.565	0.0	0.0	0.0	0
2.29	13.256	0.469	-0.01	2.0	28.264	3.538	0.0	0.0	0.0	0
2.30	13.46	0.438	0.00	2.0	30.731	3.254	0.0	0.0	0.0	0
2.31	13.358	0.428	0.01	2.0	31.21	3.204	0.0	0.0	0.0	0
2.32	13.358	0.408	0.01	2.1	32.74	3.054	0.0	0.0	0.0	0
2.33	13.358	0.387	0.01	2.0	34.517	2.897	0.0	0.0	0.0	0
2.34	13.256	0.357	0.01	2.0	37.132	2.693	0.0	0.0	0.0	0
2.35	13.154	0.337	0.01	2.1	39.033	2.562	0.0	0.0	0.0	0
2.36	13.154	0.316	0.01	2.1	41.627	2.402	0.0	0.0	0.0	0
2.37	13.052	0.296	0.01	2.0	44.095	2.268	0.0	0.0	0.0	0
2.38	12.95	0.275	0.01	2.1	47.091	2.124	0.0	0.0	0.0	0
2.39	12.848	0.255	0.01	2.1	50.384	1.985	0.0	0.0	0.0	0
2.40	12.746	0.245	0.01	2.1	52.024	1.922	0.0	0.0	0.0	0
2.41	12.644	0.235	0.01	2.1	53.804	1.859	0.0	0.0	0.0	0
2.42	12.44	0.224	0.01	2.1	55.536	1.801	0.0	0.0	0.0	0
2.43	12.338	0.214	0.01	2.1	57.654	1.734	0.0	0.0	0.0	0
2.44	12.644	0.214	0.01	2.1	59.084	1.693	0.0	0.0	0.0	0
2.45	12.848	0.214	0.01	2.1	60.037	1.666	0.0	0.0	0.0	0

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2.46	13.154	0.214	0.01	2.1	61.467	1.627	0.0	0.0	0.0	0
2.47	13.46	0.204	0.02	2.1	65.98	1.516	0.0	0.0	0.0	0
2.48	13.868	0.204	0.02	2.1	67.98	1.471	0.0	0.0	0.0	0
2.49	14.276	0.194	0.02	2.1	73.588	1.359	0.0	0.0	0.0	0
2.50	14.582	0.184	0.02	2.1	79.25	1.262	0.0	0.0	0.0	0
2.51	14.888	0.184	0.02	2.1	80.913	1.236	0.0	0.0	0.0	0
2.52	15.397	0.184	0.02	2.1	83.679	1.195	0.0	0.0	0.0	0
2.53	16.009	0.173	0.02	2.1	92.538	1.081	0.0	0.0	0.0	0
2.54	15.907	0.173	0.02	2.1	91.948	1.088	0.0	0.0	0.0	0
2.55	15.907	0.173	0.02	2.1	91.948	1.088	0.0	0.0	0.0	0
2.56	15.805	0.184	0.02	2.1	85.897	1.164	0.0	0.0	0.0	0
2.57	15.907	0.194	0.02	2.1	81.995	1.22	0.0	0.0	0.0	0
2.58	15.499	0.194	0.02	2.1	79.892	1.252	0.0	0.0	0.0	0
2.59	15.092	0.214	0.02	2.1	70.523	1.418	0.0	0.0	0.0	0
2.60	14.786	0.224	0.02	2.1	66.009	1.515	0.0	0.0	0.0	0
2.61	15.194	0.245	0.02	2.1	62.016	1.612	0.0	0.0	0.0	0
2.62	14.684	0.255	0.02	2.1	57.584	1.737	0.0	0.0	0.0	0
2.63	14.582	0.296	0.02	2.1	49.264	2.03	0.0	0.0	0.0	0
2.64	14.582	0.316	0.02	2.1	46.146	2.167	0.0	0.0	0.0	0
2.65	14.48	0.347	0.02	2.1	41.729	2.396	0.0	0.0	0.0	0
2.66	14.48	0.377	0.02	2.1	38.408	2.604	0.0	0.0	0.0	0
2.67	14.48	0.398	0.02	2.1	36.382	2.749	0.0	0.0	0.0	0
2.68	14.48	0.418	0.02	2.1	34.641	2.887	0.0	0.0	0.0	0
2.69	14.378	0.438	0.02	2.1	32.826	3.046	0.0	0.0	0.0	0
2.70	14.276	0.449	0.02	2.1	31.795	3.145	0.0	0.0	0.0	0
2.71	14.582	0.469	0.02	2.2	31.092	3.216	0.0	0.0	0.0	0
2.72	14.888	0.469	0.02	2.2	31.744	3.15	0.0	0.0	0.0	0
2.73	15.092	0.469	0.02	2.2	32.179	3.108	0.0	0.0	0.0	0
2.74	15.194	0.469	0.02	2.2	32.397	3.087	0.0	0.0	0.0	0
2.75	15.397	0.469	0.02	2.2	32.829	3.046	0.0	0.0	0.0	0
2.76	16.417	0.459	0.02	2.2	35.767	2.796	0.0	0.0	0.0	0
2.77	16.621	0.449	0.02	2.2	37.018	2.701	0.0	0.0	0.0	0
2.78	16.315	0.489	0.02	2.2	33.364	2.997	0.0	0.0	0.0	0
2.79	15.397	0.469	0.02	2.2	32.829	3.046	0.0	0.0	0.0	0
2.80	15.397	0.479	0.02	2.2	32.144	3.111	0.0	0.0	0.0	0
2.81	15.397	0.469	0.02	2.2	32.829	3.046	0.0	0.0	0.0	0
2.82	15.397	0.449	0.02	2.2	34.292	2.916	0.0	0.0	0.0	0
2.83	15.805	0.438	0.02	2.2	36.084	2.771	0.0	0.0	0.0	0
2.84	16.009	0.428	0.02	2.2	37.404	2.673	0.0	0.0	0.0	0
2.85	15.907	0.428	0.02	2.2	37.166	2.691	0.0	0.0	0.0	0
2.86	15.499	0.449	0.02	2.2	34.519	2.897	0.0	0.0	0.0	0
2.87	15.601	0.438	0.02	2.2	35.619	2.808	0.0	0.0	0.0	0
2.88	15.703	0.438	0.02	2.2	35.852	2.789	0.0	0.0	0.0	0
2.89	17.437	0.449	0.02	2.2	38.835	2.575	0.0	0.0	0.0	0
2.90	17.437	0.449	0.02	2.2	38.835	2.575	0.0	0.0	0.0	0
2.91	17.437	0.449	0.02	2.2	38.835	2.575	0.0	0.0	0.0	0
2.92	16.621	0.489	0.03	2.3	33.99	2.942	0.0	0.0	0.0	0
2.93	17.131	0.52	0.03	2.2	32.944	3.035	0.0	0.0	0.0	0
2.94	16.621	0.53	0.03	2.2	31.36	3.189	0.0	0.0	0.0	0
2.95	16.009	0.561	0.03	2.2	28.537	3.504	0.0	0.0	0.0	0
2.96	16.009	0.571	0.03	2.3	28.037	3.567	0.0	0.0	0.0	0
2.97	16.213	0.561	0.03	2.3	28.9	3.46	0.0	0.0	0.0	0
2.98	16.315	0.551	0.03	2.3	29.61	3.377	0.0	0.0	0.0	0
2.99	16.519	0.53	0.03	2.3	31.168	3.208	0.0	0.0	0.0	0
3.00	16.315	0.52	0.03	2.3	31.375	3.187	0.0	0.0	0.0	0
3.01	16.111	0.52	0.03	2.3	30.983	3.228	0.0	0.0	0.0	0
3.02	16.213	0.5	0.03	2.3	32.426	3.084	0.0	0.0	0.0	0
3.03	16.009	0.489	0.03	2.3	32.738	3.055	0.0	0.0	0.0	0
3.04	16.009	0.489	0.03	2.3	32.738	3.055	0.0	0.0	0.0	0
3.05	16.009	0.469	0.03	2.3	34.134	2.93	0.0	0.0	0.0	0
3.06	16.111	0.449	0.03	2.3	35.882	2.787	0.0	0.0	0.0	0
3.07	16.111	0.438	0.03	2.3	36.783	2.719	0.0	0.0	0.0	0
3.08	16.213	0.438	0.03	2.3	37.016	2.702	0.0	0.0	0.0	0
3.09	16.213	0.418	0.03	2.3	38.787	2.578	0.0	0.0	0.0	0
3.10	16.111	0.418	0.03	2.3	38.543	2.595	0.0	0.0	0.0	0
3.11	15.805	0.438	0.03	2.3	36.084	2.771	0.0	0.0	0.0	0
3.12	15.805	0.438	0.03	2.3	36.084	2.771	0.0	0.0	0.0	0
3.13	15.805	0.438	0.03	2.3	36.084	2.771	0.0	0.0	0.0	0
3.14	16.009	0.438	0.04	2.3	36.55	2.736	0.0	0.0	0.0	0
3.15	10.401	0.082	0.04	2.3	126.841	0.788	0.0	0.0	0.0	0
3.16	10.299	0.428	0.04	2.3	24.063	4.156	0.0	0.0	0.0	0
3.17	17.947	0.428	0.04	2.3	41.932	2.385	0.0	0.0	0.0	0
3.18	17.947	0.428	0.04	2.3	41.932	2.385	0.0	0.0	0.0	0
3.19	18.355	0.428	0.04	2.3	42.886	2.332	0.0	0.0	0.0	0
3.20	18.355	0.438	0.04	2.3	41.906	2.386	0.0	0.0	0.0	0

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3.21	18.559	0.449	0.04	2.3	41.334	2.419	0.0	0.0	0.0	0
3.22	17.539	0.479	0.04	2.3	36.616	2.731	0.0	0.0	0.0	0
3.23	17.845	0.469	0.04	2.3	38.049	2.628	0.0	0.0	0.0	0
3.24	17.539	0.489	0.04	2.3	35.867	2.788	0.0	0.0	0.0	0
3.25	16.927	0.489	0.04	2.3	34.616	2.889	0.0	0.0	0.0	0
3.26	16.723	0.5	0.04	2.3	33.446	2.99	0.0	0.0	0.0	0
3.27	16.519	0.51	0.04	2.3	32.39	3.087	0.0	0.0	0.0	0
3.28	16.723	0.51	0.04	2.3	32.79	3.05	0.0	0.0	0.0	0
3.29	16.927	0.53	0.04	2.3	31.938	3.131	0.0	0.0	0.0	0
3.30	17.131	0.54	0.04	2.3	31.724	3.152	0.0	0.0	0.0	0
3.31	17.233	0.551	0.04	2.3	31.276	3.197	0.0	0.0	0.0	0
3.32	17.437	0.561	0.04	2.3	31.082	3.217	0.0	0.0	0.0	0
3.33	17.539	0.561	0.04	2.3	31.264	3.199	0.0	0.0	0.0	0
3.34	18.864	0.53	0.04	2.3	35.592	2.81	0.0	0.0	0.0	0
3.35	18.966	0.52	0.04	2.3	36.473	2.742	0.0	0.0	0.0	0
3.36	17.641	0.54	0.04	2.3	32.669	3.061	0.0	0.0	0.0	0
3.37	17.641	0.54	0.04	2.3	32.669	3.061	0.0	0.0	0.0	0
3.38	17.947	0.52	0.04	2.3	34.513	2.897	0.0	0.0	0.0	0
3.39	17.947	0.52	0.04	2.3	34.513	2.897	0.0	0.0	0.0	0
3.40	17.947	0.53	0.05	2.4	33.862	2.953	0.0	0.0	0.0	0
3.41	17.743	0.53	0.05	2.4	33.477	2.987	0.0	0.0	0.0	0
3.42	17.641	0.54	0.05	2.4	32.669	3.061	0.0	0.0	0.0	0
3.43	17.335	0.551	0.05	2.4	31.461	3.179	0.0	0.0	0.0	0
3.44	17.233	0.54	0.05	2.4	31.913	3.134	0.0	0.0	0.0	0
3.45	17.131	0.54	0.05	2.4	31.724	3.152	0.0	0.0	0.0	0
3.46	17.029	0.54	0.05	2.4	31.535	3.171	0.0	0.0	0.0	0
3.47	17.131	0.54	0.05	2.4	31.724	3.152	0.0	0.0	0.0	0
3.48	17.131	0.551	0.05	2.4	31.091	3.216	0.0	0.0	0.0	0
3.49	17.233	0.54	0.05	2.4	31.913	3.134	0.0	0.0	0.0	0
3.50	17.437	0.54	0.05	2.4	32.291	3.097	0.0	0.0	0.0	0
3.51	17.641	0.54	0.05	2.4	32.669	3.061	0.0	0.0	0.0	0
3.52	18.049	0.54	0.05	2.4	33.424	2.992	0.0	0.0	0.0	0
3.53	18.253	0.54	0.05	2.4	33.802	2.958	0.0	0.0	0.0	0
3.54	18.355	0.551	0.05	2.4	33.312	3.002	0.0	0.0	0.0	0
3.55	18.559	0.561	0.06	2.4	33.082	3.023	0.0	0.0	0.0	0
3.56	18.966	0.571	0.06	2.4	33.215	3.011	0.0	0.0	0.0	0
3.57	18.966	0.581	0.06	2.4	32.644	3.063	0.0	0.0	0.0	0
3.58	20.7	0.591	0.06	2.5	35.025	2.855	0.0	0.0	0.0	0
3.59	19.578	0.602	0.06	2.5	32.522	3.075	0.0	0.0	0.0	0
3.60	18.457	0.632	0.06	2.5	29.204	3.424	0.0	0.0	0.0	0
3.61	18.355	0.663	0.06	2.5	27.685	3.612	0.0	0.0	0.0	0
3.62	18.457	0.663	0.06	2.5	27.839	3.592	0.0	0.0	0.0	0
3.63	18.559	0.663	0.07	2.5	27.992	3.572	0.0	0.0	0.0	0
3.64	18.762	0.663	0.07	2.5	28.299	3.534	0.0	0.0	0.0	0
3.65	19.068	0.673	0.07	2.5	28.333	3.529	0.0	0.0	0.0	0
3.66	18.966	0.673	0.07	2.5	28.181	3.548	0.0	0.0	0.0	0
3.67	18.559	0.673	0.07	2.5	27.577	3.626	0.0	0.0	0.0	0
3.68	18.355	0.642	0.07	2.5	28.59	3.498	0.0	0.0	0.0	0
3.69	17.947	0.642	0.07	2.4	27.955	3.577	0.0	0.0	0.0	0
3.70	16.621	0.612	0.07	2.4	27.158	3.682	0.0	0.0	0.0	0
3.71	16.111	0.602	0.08	2.5	26.762	3.737	0.0	0.0	0.0	0
3.72	15.703	0.581	0.08	2.4	27.028	3.7	0.0	0.0	0.0	0
3.73	14.888	0.561	0.08	2.4	26.538	3.768	0.0	0.0	0.0	0
3.74	14.276	0.51	0.08	2.5	27.992	3.572	0.0	0.0	0.0	0
3.75	13.664	0.5	0.08	2.5	27.328	3.659	0.0	0.0	0.0	0
3.76	12.746	0.479	0.08	2.5	26.61	3.758	0.0	0.0	0.0	0
3.77	12.338	0.479	0.08	2.5	25.758	3.882	0.0	0.0	0.0	0
3.78	12.134	0.459	0.08	2.5	26.436	3.783	0.0	0.0	0.0	0
3.79	12.032	0.408	0.08	2.5	29.49	3.391	0.0	0.0	0.0	0
3.80	12.032	0.387	0.08	2.5	31.09	3.216	0.0	0.0	0.0	0
3.81	12.032	0.357	0.08	2.5	33.703	2.967	0.0	0.0	0.0	0
3.82	11.93	0.326	0.08	2.5	36.595	2.733	0.0	0.0	0.0	0
3.83	11.93	0.306	0.08	2.5	38.987	2.565	0.0	0.0	0.0	0
3.84	11.829	0.265	0.08	2.5	44.638	2.24	0.0	0.0	0.0	0
3.85	11.829	0.245	0.08	2.5	48.282	2.071	0.0	0.0	0.0	0
3.86	11.93	0.224	0.08	2.5	53.259	1.878	0.0	0.0	0.0	0
3.87	12.032	0.214	0.08	2.5	56.224	1.779	0.0	0.0	0.0	0
3.88	12.134	0.194	0.08	2.5	62.546	1.599	0.0	0.0	0.0	0
3.89	12.134	0.194	0.08	2.5	62.546	1.599	0.0	0.0	0.0	0
3.90	12.134	0.194	0.08	2.5	62.546	1.599	0.0	0.0	0.0	0
3.91	15.092	0.0	0.10	2.6	0.0	0.0	0.0	0.0	0.0	0
3.92	15.295	0.0	0.10	2.6	0.0	0.0	0.0	0.0	0.0	0
3.93	15.397	0.01	0.10	2.6	1539.7	0.065	0.0	0.0	0.0	0
3.94	15.601	0.01	0.10	2.6	1560.1	0.064	0.0	0.0	0.0	0
3.95	16.111	0.02	0.10	2.6	805.55	0.124	0.0	0.0	0.0	0

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3.96	16.417	0.031	0.10	2.6	529.581	0.189	0.0	0.0	0.0	0
3.97	16.621	0.041	0.10	2.6	405.39	0.247	0.0	0.0	0.0	0
3.98	16.825	0.051	0.10	2.6	329.902	0.303	0.0	0.0	0.0	0
3.99	17.233	0.061	0.10	2.6	282.508	0.354	0.0	0.0	0.0	0
4.00	18.049	0.082	0.10	2.6	220.11	0.454	0.0	0.0	0.0	0
4.01	18.559	0.082	0.10	2.6	226.329	0.442	0.0	0.0	0.0	0
4.02	18.966	0.092	0.10	2.6	206.152	0.485	0.0	0.0	0.0	0
4.03	19.578	0.102	0.11	2.6	191.941	0.521	0.0	0.0	0.0	0
4.04	20.802	0.122	0.12	2.6	170.508	0.586	0.0	0.0	0.0	0
4.05	21.108	0.143	0.12	2.6	147.608	0.677	0.0	0.0	0.0	0
4.06	22.331	0.153	0.12	2.6	145.954	0.685	0.0	0.0	0.0	0
4.07	22.841	0.153	0.13	2.6	149.288	0.67	0.0	0.0	0.0	0
4.08	23.351	0.163	0.13	2.6	143.258	0.698	0.0	0.0	0.0	0
4.09	22.433	0.173	0.13	2.6	129.671	0.771	0.0	0.0	0.0	0
4.10	21.516	0.173	0.13	2.6	124.37	0.804	0.0	0.0	0.0	0
4.11	21.108	0.184	0.13	2.6	114.717	0.872	0.0	0.0	0.0	0
4.12	20.394	0.224	0.13	2.6	91.045	1.098	0.0	0.0	0.0	0
4.13	18.966	0.337	0.13	2.6	56.279	1.777	0.0	0.0	0.0	0
4.14	18.355	0.367	0.13	2.6	50.014	1.999	0.0	0.0	0.0	0
4.15	17.029	0.387	0.13	2.6	44.003	2.273	0.0	0.0	0.0	0
4.16	16.723	0.428	0.13	2.6	39.072	2.559	0.0	0.0	0.0	0
4.17	16.519	0.438	0.13	2.6	37.715	2.651	0.0	0.0	0.0	0
4.18	15.907	0.489	0.14	2.6	32.53	3.074	0.0	0.0	0.0	0
4.19	15.703	0.489	0.14	2.6	32.112	3.114	0.0	0.0	0.0	0
4.20	15.499	0.489	0.14	2.6	31.695	3.155	0.0	0.0	0.0	0
4.21	15.295	0.469	0.14	2.6	32.612	3.066	0.0	0.0	0.0	0
4.22	15.194	0.459	0.14	2.6	33.102	3.021	0.0	0.0	0.0	0
4.23	15.194	0.418	0.14	2.6	36.349	2.751	0.0	0.0	0.0	0
4.24	15.295	0.408	0.14	2.6	37.488	2.668	0.0	0.0	0.0	0
4.25	15.499	0.377	0.14	2.6	41.111	2.432	0.0	0.0	0.0	0
4.26	15.601	0.337	0.14	2.6	46.294	2.16	0.0	0.0	0.0	0
4.27	15.805	0.275	0.14	2.7	57.473	1.74	0.0	0.0	0.0	0
4.28	15.907	0.255	0.15	2.7	62.38	1.603	0.0	0.0	0.0	0
4.29	16.213	0.235	0.15	2.7	68.991	1.449	0.0	0.0	0.0	0
4.30	16.723	0.214	0.15	2.7	78.145	1.28	0.0	0.0	0.0	0
4.31	17.335	0.204	0.15	2.6	84.975	1.177	0.0	0.0	0.0	0
4.32	18.559	0.194	0.16	2.7	95.665	1.045	0.0	0.0	0.0	0
4.33	18.966	0.173	0.16	2.7	109.63	0.912	0.0	0.0	0.0	0
4.34	19.374	0.163	0.16	2.7	118.859	0.841	0.0	0.0	0.0	0
4.35	19.578	0.173	0.16	2.7	113.168	0.884	0.0	0.0	0.0	0
4.36	19.782	0.184	0.16	2.7	107.511	0.93	0.0	0.0	0.0	0
4.37	19.782	0.194	0.17	2.7	101.969	0.981	0.0	0.0	0.0	0
4.38	19.782	0.194	0.17	2.7	101.969	0.981	0.0	0.0	0.0	0
4.39	19.782	0.204	0.17	2.7	96.971	1.031	0.0	0.0	0.0	0
4.40	19.782	0.214	0.17	2.7	92.439	1.082	0.0	0.0	0.0	0
4.41	19.782	0.235	0.17	2.7	84.179	1.188	0.0	0.0	0.0	0
4.42	19.68	0.255	0.16	2.7	77.176	1.296	0.0	0.0	0.0	0
4.43	19.578	0.275	0.16	2.7	71.193	1.405	0.0	0.0	0.0	0
4.44	19.476	0.306	0.16	2.7	63.647	1.571	0.0	0.0	0.0	0
4.45	19.17	0.357	0.17	2.7	53.697	1.862	0.0	0.0	0.0	0
4.46	19.068	0.387	0.17	2.7	49.271	2.03	0.0	0.0	0.0	0
4.47	19.068	0.408	0.17	2.7	46.735	2.14	0.0	0.0	0.0	0
4.48	19.068	0.438	0.17	2.7	43.534	2.297	0.0	0.0	0.0	0
4.49	19.374	0.459	0.17	2.7	42.209	2.369	0.0	0.0	0.0	0
4.50	19.884	0.51	0.17	2.7	38.988	2.565	0.0	0.0	0.0	0
4.51	20.088	0.53	0.17	2.7	37.902	2.638	0.0	0.0	0.0	0
4.52	20.394	0.551	0.18	2.7	37.013	2.702	0.0	0.0	0.0	0
4.53	20.802	0.561	0.18	2.7	37.08	2.697	0.0	0.0	0.0	0
4.54	21.108	0.581	0.17	2.7	36.33	2.753	0.0	0.0	0.0	0
4.55	21.516	0.602	0.18	2.7	35.741	2.798	0.0	0.0	0.0	0
4.56	21.72	0.602	0.18	2.7	36.08	2.772	0.0	0.0	0.0	0
4.57	21.822	0.612	0.18	2.7	35.657	2.805	0.0	0.0	0.0	0
4.58	22.026	0.612	0.18	2.7	35.99	2.779	0.0	0.0	0.0	0
4.59	22.637	0.612	0.18	2.7	36.989	2.704	0.0	0.0	0.0	0
4.60	22.739	0.612	0.18	2.7	37.155	2.691	0.0	0.0	0.0	0
4.61	22.943	0.632	0.18	2.7	36.302	2.755	0.0	0.0	0.0	0
4.62	22.637	0.653	0.18	2.7	34.666	2.885	0.0	0.0	0.0	0
4.63	22.841	0.663	0.18	2.7	34.451	2.903	0.0	0.0	0.0	0
4.64	23.249	0.663	0.19	2.7	35.066	2.852	0.0	0.0	0.0	0
4.65	22.739	0.683	0.19	2.7	33.293	3.004	0.0	0.0	0.0	0
4.66	22.637	0.704	0.19	2.7	32.155	3.11	0.0	0.0	0.0	0
4.67	22.841	0.704	0.19	2.7	32.445	3.082	0.0	0.0	0.0	0
4.68	22.943	0.704	0.19	2.7	32.589	3.068	0.0	0.0	0.0	0
4.69	23.351	0.704	0.19	2.7	33.169	3.015	0.0	0.0	0.0	0
4.70	23.351	0.704	0.19	2.7	33.169	3.015	0.0	0.0	0.0	0

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4.71	23.351	0.724	0.19	2.7	32.253	3.101	0.0	0.0	0.0	0
4.72	22.943	0.724	0.19	2.7	31.689	3.156	0.0	0.0	0.0	0
4.73	23.351	0.744	0.20	2.7	31.386	3.186	0.0	0.0	0.0	0
4.74	23.861	0.734	0.20	2.7	32.508	3.076	0.0	0.0	0.0	0
4.75	23.249	0.724	0.20	2.7	32.112	3.114	0.0	0.0	0.0	0
4.76	22.433	0.744	0.20	2.7	30.152	3.317	0.0	0.0	0.0	0
4.77	22.229	0.744	0.20	2.7	29.878	3.347	0.0	0.0	0.0	0
4.78	22.127	0.734	0.20	2.8	30.146	3.317	0.0	0.0	0.0	0
4.79	22.229	0.734	0.20	2.8	30.285	3.302	0.0	0.0	0.0	0
4.80	22.229	0.744	0.20	2.8	29.878	3.347	0.0	0.0	0.0	0
4.81	22.229	0.755	0.20	2.8	29.442	3.396	0.0	0.0	0.0	0
4.82	22.535	0.765	0.20	2.8	29.458	3.395	0.0	0.0	0.0	0
4.83	22.637	0.785	0.20	2.8	28.837	3.468	0.0	0.0	0.0	0
4.84	22.637	0.785	0.20	2.8	28.837	3.468	0.0	0.0	0.0	0
4.85	22.433	0.795	0.20	2.8	28.218	3.544	0.0	0.0	0.0	0
4.86	22.535	0.795	0.20	2.8	28.346	3.528	0.0	0.0	0.0	0
4.87	21.924	0.816	0.20	2.8	26.868	3.722	0.0	0.0	0.0	0
4.88	21.414	0.826	0.20	2.8	25.925	3.857	0.0	0.0	0.0	0
4.89	21.414	0.826	0.20	2.8	25.925	3.857	0.0	0.0	0.0	0
4.90	21.414	0.826	0.20	2.8	25.925	3.857	0.0	0.0	0.0	0
4.91	21.312	0.775	0.20	2.8	27.499	3.636	0.0	0.0	0.0	0
4.92	21.108	0.775	0.20	2.8	27.236	3.672	0.0	0.0	0.0	0
4.93	20.904	0.765	0.20	2.8	27.325	3.66	0.0	0.0	0.0	0
4.94	20.394	0.775	0.20	2.8	26.315	3.8	0.0	0.0	0.0	0
4.95	19.578	0.765	0.20	2.8	25.592	3.907	0.0	0.0	0.0	0
4.96	19.068	0.765	0.19	2.8	24.925	4.012	0.0	0.0	0.0	0
4.97	18.762	0.765	0.19	2.8	24.525	4.077	0.0	0.0	0.0	0
4.98	18.457	0.755	0.19	2.8	24.446	4.091	0.0	0.0	0.0	0
4.99	18.355	0.744	0.19	2.8	24.671	4.053	0.0	0.0	0.0	0
5.00	18.049	0.734	0.19	2.8	24.59	4.067	0.0	0.0	0.0	0
5.01	17.845	0.734	0.19	2.8	24.312	4.113	0.0	0.0	0.0	0
5.02	17.743	0.744	0.19	2.8	23.848	4.193	0.0	0.0	0.0	0
5.03	17.743	0.755	0.20	2.8	23.501	4.255	0.0	0.0	0.0	0
5.04	18.253	0.724	0.20	2.8	25.211	3.966	0.0	0.0	0.0	0
5.05	18.661	0.693	0.20	2.8	26.928	3.714	0.0	0.0	0.0	0
5.06	18.864	0.673	0.20	2.8	28.03	3.568	0.0	0.0	0.0	0
5.07	18.762	0.642	0.20	2.8	29.224	3.422	0.0	0.0	0.0	0
5.08	18.661	0.622	0.20	2.8	30.002	3.333	0.0	0.0	0.0	0
5.09	19.068	0.551	0.20	2.8	34.606	2.89	0.0	0.0	0.0	0
5.10	19.476	0.51	0.20	2.8	38.188	2.619	0.0	0.0	0.0	0
5.11	19.782	0.5	0.20	2.8	39.564	2.528	0.0	0.0	0.0	0
5.12	20.088	0.489	0.20	2.8	41.08	2.434	0.0	0.0	0.0	0
5.13	20.7	0.479	0.20	2.8	43.215	2.314	0.0	0.0	0.0	0
5.14	20.598	0.469	0.21	2.8	43.919	2.277	0.0	0.0	0.0	0
5.15	20.19	0.469	0.21	2.8	43.049	2.323	0.0	0.0	0.0	0
5.16	19.986	0.469	0.21	2.8	42.614	2.347	0.0	0.0	0.0	0
5.17	19.884	0.469	0.22	2.8	42.397	2.359	0.0	0.0	0.0	0
5.18	20.394	0.469	0.22	2.8	43.484	2.3	0.0	0.0	0.0	0
5.19	20.292	0.479	0.22	2.8	42.363	2.361	0.0	0.0	0.0	0
5.20	20.19	0.489	0.22	2.8	41.288	2.422	0.0	0.0	0.0	0
5.21	19.986	0.5	0.22	2.8	39.972	2.502	0.0	0.0	0.0	0
5.22	19.068	0.561	0.22	2.8	33.989	2.942	0.0	0.0	0.0	0
5.23	19.068	0.581	0.22	2.8	32.819	3.047	0.0	0.0	0.0	0
5.24	19.374	0.571	0.22	2.8	33.93	2.947	0.0	0.0	0.0	0
5.25	19.68	0.571	0.22	2.8	34.466	2.901	0.0	0.0	0.0	0
5.26	19.782	0.571	0.22	2.8	34.644	2.886	0.0	0.0	0.0	0
5.27	19.272	0.591	0.22	2.9	32.609	3.067	0.0	0.0	0.0	0
5.28	19.068	0.602	0.22	2.8	31.674	3.157	0.0	0.0	0.0	0
5.29	19.068	0.602	0.22	2.8	31.674	3.157	0.0	0.0	0.0	0
5.30	19.17	0.602	0.22	2.8	31.844	3.14	0.0	0.0	0.0	0
5.31	19.17	0.612	0.22	2.9	31.324	3.192	0.0	0.0	0.0	0
5.32	19.272	0.622	0.22	2.9	30.984	3.227	0.0	0.0	0.0	0
5.33	19.476	0.612	0.22	2.9	31.824	3.142	0.0	0.0	0.0	0
5.34	19.578	0.612	0.22	2.9	31.99	3.126	0.0	0.0	0.0	0
5.35	19.68	0.612	0.22	2.9	32.157	3.11	0.0	0.0	0.0	0
5.36	19.476	0.663	0.22	2.9	29.376	3.404	0.0	0.0	0.0	0
5.37	19.374	0.683	0.22	2.9	28.366	3.525	0.0	0.0	0.0	0
5.38	19.374	0.704	0.22	2.9	27.52	3.634	0.0	0.0	0.0	0
5.39	19.17	0.704	0.22	2.9	27.23	3.672	0.0	0.0	0.0	0
5.40	18.762	0.704	0.22	2.9	26.651	3.752	0.0	0.0	0.0	0
5.41	18.661	0.704	0.22	2.9	26.507	3.773	0.0	0.0	0.0	0
5.42	18.762	0.704	0.22	2.9	26.651	3.752	0.0	0.0	0.0	0
5.43	18.355	0.704	0.22	2.9	26.072	3.835	0.0	0.0	0.0	0
5.44	18.049	0.704	0.22	2.9	25.638	3.9	0.0	0.0	0.0	0
5.45	17.641	0.704	0.22	2.9	25.058	3.991	0.0	0.0	0.0	0

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5.46	17.641	0.704	0.22	2.9	25.058	3.991	0.0	0.0	0.0	0
5.47	17.539	0.693	0.22	2.9	25.309	3.951	0.0	0.0	0.0	0
5.48	17.743	0.683	0.22	2.9	25.978	3.849	0.0	0.0	0.0	0
5.49	18.559	0.653	0.22	2.9	28.421	3.519	0.0	0.0	0.0	0
5.50	18.864	0.642	0.22	2.9	29.383	3.403	0.0	0.0	0.0	0
5.51	19.068	0.632	0.22	2.9	30.171	3.314	0.0	0.0	0.0	0
5.52	19.476	0.622	0.22	2.9	31.312	3.194	0.0	0.0	0.0	0
5.53	18.864	0.612	0.22	2.9	30.824	3.244	0.0	0.0	0.0	0
5.54	18.049	0.602	0.22	3.0	29.982	3.335	0.0	0.0	0.0	0
5.55	17.539	0.591	0.22	3.0	29.677	3.37	0.0	0.0	0.0	0
5.56	17.539	0.581	0.22	3.0	30.188	3.313	0.0	0.0	0.0	0
5.57	17.641	0.571	0.22	3.0	30.895	3.237	0.0	0.0	0.0	0
5.58	17.743	0.551	0.22	3.0	32.201	3.105	0.0	0.0	0.0	0
5.59	17.743	0.54	0.22	3.0	32.857	3.043	0.0	0.0	0.0	0
5.60	17.743	0.54	0.22	3.0	32.857	3.043	0.0	0.0	0.0	0
5.61	17.539	0.54	0.22	3.0	32.48	3.079	0.0	0.0	0.0	0
5.62	17.335	0.54	0.22	3.0	32.102	3.115	0.0	0.0	0.0	0
5.63	17.335	0.53	0.22	3.0	32.708	3.057	0.0	0.0	0.0	0
5.64	17.539	0.52	0.22	3.0	33.729	2.965	0.0	0.0	0.0	0
5.65	17.947	0.489	0.22	3.0	36.701	2.725	0.0	0.0	0.0	0
5.66	18.253	0.479	0.22	3.0	38.106	2.624	0.0	0.0	0.0	0
5.67	18.355	0.469	0.22	3.0	39.136	2.555	0.0	0.0	0.0	0
5.68	18.355	0.489	0.22	3.0	37.536	2.664	0.0	0.0	0.0	0
5.69	18.661	0.479	0.22	3.1	38.958	2.567	0.0	0.0	0.0	0
5.70	18.864	0.469	0.22	3.1	40.222	2.486	0.0	0.0	0.0	0
5.71	19.068	0.449	0.24	3.1	42.468	2.355	0.0	0.0	0.0	0
5.72	19.374	0.438	0.24	3.1	44.233	2.261	0.0	0.0	0.0	0
5.73	19.272	0.449	0.22	3.1	42.922	2.33	0.0	0.0	0.0	0
5.74	19.272	0.459	0.22	3.1	41.987	2.382	0.0	0.0	0.0	0
5.75	19.17	0.469	0.22	3.1	40.874	2.447	0.0	0.0	0.0	0
5.76	18.762	0.489	0.22	3.1	38.368	2.606	0.0	0.0	0.0	0
5.77	18.457	0.53	0.22	3.1	34.825	2.872	0.0	0.0	0.0	0
5.78	18.355	0.561	0.22	3.1	32.718	3.056	0.0	0.0	0.0	0
5.79	18.151	0.571	0.22	3.1	31.788	3.146	0.0	0.0	0.0	0
5.80	17.845	0.591	0.22	3.1	30.195	3.312	0.0	0.0	0.0	0
5.81	17.437	0.602	0.22	3.1	28.965	3.452	0.0	0.0	0.0	0
5.82	17.233	0.642	0.22	3.1	26.843	3.725	0.0	0.0	0.0	0
5.83	17.029	0.653	0.22	3.1	26.078	3.835	0.0	0.0	0.0	0
5.84	16.927	0.673	0.22	3.1	25.152	3.976	0.0	0.0	0.0	0
5.85	16.927	0.673	0.22	3.1	25.152	3.976	0.0	0.0	0.0	0
5.86	16.927	0.653	0.22	3.1	25.922	3.858	0.0	0.0	0.0	0
5.87	16.927	0.653	0.22	3.1	25.922	3.858	0.0	0.0	0.0	0
5.88	16.825	0.642	0.22	3.1	26.207	3.816	0.0	0.0	0.0	0
5.89	16.825	0.642	0.22	3.1	26.207	3.816	0.0	0.0	0.0	0
5.90	16.825	0.642	0.22	3.1	26.207	3.816	0.0	0.0	0.0	0
5.91	17.437	0.52	0.22	3.1	33.533	2.982	0.0	0.0	0.0	0
5.92	17.641	0.51	0.22	3.2	34.59	2.891	0.0	0.0	0.0	0
5.93	17.947	0.5	0.22	3.1	35.894	2.786	0.0	0.0	0.0	0
5.94	18.253	0.5	0.22	3.2	36.506	2.739	0.0	0.0	0.0	0
5.95	18.457	0.51	0.22	3.2	36.19	2.763	0.0	0.0	0.0	0
5.96	18.355	0.51	0.22	3.2	35.99	2.779	0.0	0.0	0.0	0
5.97	18.151	0.51	0.22	3.2	35.59	2.81	0.0	0.0	0.0	0
5.98	18.049	0.5	0.22	3.2	36.098	2.77	0.0	0.0	0.0	0
5.99	18.049	0.489	0.22	3.2	36.91	2.709	0.0	0.0	0.0	0
6.00	17.743	0.5	0.22	3.2	35.486	2.818	0.0	0.0	0.0	0
6.01	17.233	0.5	0.22	3.2	34.466	2.901	0.0	0.0	0.0	0
6.02	17.131	0.5	0.22	3.2	34.262	2.919	0.0	0.0	0.0	0
6.03	17.029	0.5	0.22	3.2	34.058	2.936	0.0	0.0	0.0	0
6.04	16.825	0.5	0.22	3.2	33.65	2.972	0.0	0.0	0.0	0
6.05	16.825	0.5	0.22	3.2	33.65	2.972	0.0	0.0	0.0	0
6.06	16.825	0.5	0.22	3.2	33.65	2.972	0.0	0.0	0.0	0
6.07	16.927	0.51	0.22	3.2	33.19	3.013	0.0	0.0	0.0	0
6.08	17.029	0.51	0.22	3.2	33.39	2.995	0.0	0.0	0.0	0
6.09	17.131	0.51	0.22	3.2	33.59	2.977	0.0	0.0	0.0	0
6.10	17.335	0.53	0.22	3.2	32.708	3.057	0.0	0.0	0.0	0
6.11	17.335	0.551	0.22	3.2	31.461	3.179	0.0	0.0	0.0	0
6.12	17.233	0.571	0.22	3.2	30.18	3.313	0.0	0.0	0.0	0
6.13	17.335	0.612	0.22	3.2	28.325	3.53	0.0	0.0	0.0	0
6.14	17.233	0.612	0.22	3.2	28.158	3.551	0.0	0.0	0.0	0
6.15	17.233	0.612	0.22	3.2	28.158	3.551	0.0	0.0	0.0	0
6.16	17.947	0.622	0.22	3.2	28.854	3.466	0.0	0.0	0.0	0
6.17	17.641	0.622	0.22	3.2	28.362	3.526	0.0	0.0	0.0	0
6.18	17.437	0.612	0.22	3.2	28.492	3.51	0.0	0.0	0.0	0
6.19	17.335	0.602	0.22	3.2	28.796	3.473	0.0	0.0	0.0	0
6.20	17.437	0.602	0.22	3.2	28.965	3.452	0.0	0.0	0.0	0

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6.21	17.845	0.591	0.22	3.2	30.195	3.312	0.0	0.0	0.0	0
6.22	18.049	0.581	0.22	3.2	31.065	3.219	0.0	0.0	0.0	0
6.23	17.641	0.581	0.22	3.2	30.363	3.293	0.0	0.0	0.0	0
6.24	16.825	0.571	0.22	3.2	29.466	3.394	0.0	0.0	0.0	0
6.25	16.825	0.551	0.22	3.2	30.535	3.275	0.0	0.0	0.0	0
6.26	16.825	0.551	0.22	3.2	30.535	3.275	0.0	0.0	0.0	0
6.27	16.213	0.561	0.22	3.2	28.9	3.46	0.0	0.0	0.0	0
6.28	15.907	0.561	0.22	3.2	28.355	3.527	0.0	0.0	0.0	0
6.29	15.805	0.561	0.22	3.2	28.173	3.55	0.0	0.0	0.0	0
6.30	15.703	0.561	0.22	3.2	27.991	3.573	0.0	0.0	0.0	0
6.31	15.601	0.561	0.22	3.2	27.809	3.596	0.0	0.0	0.0	0
6.32	15.601	0.571	0.22	3.2	27.322	3.66	0.0	0.0	0.0	0
6.33	15.499	0.591	0.22	3.2	26.225	3.813	0.0	0.0	0.0	0
6.34	15.397	0.602	0.22	3.2	25.576	3.91	0.0	0.0	0.0	0
6.35	15.397	0.612	0.22	3.2	25.158	3.975	0.0	0.0	0.0	0
6.36	15.295	0.612	0.22	3.3	24.992	4.001	0.0	0.0	0.0	0
6.37	15.499	0.602	0.22	3.3	25.746	3.884	0.0	0.0	0.0	0
6.38	15.703	0.591	0.22	3.3	26.57	3.764	0.0	0.0	0.0	0
6.39	15.805	0.581	0.22	3.3	27.203	3.676	0.0	0.0	0.0	0
6.40	16.111	0.571	0.22	3.3	28.215	3.544	0.0	0.0	0.0	0
6.41	16.315	0.53	0.22	3.3	30.783	3.249	0.0	0.0	0.0	0
6.42	16.519	0.51	0.22	3.3	32.39	3.087	0.0	0.0	0.0	0
6.43	16.009	0.5	0.22	3.3	32.018	3.123	0.0	0.0	0.0	0
6.44	15.805	0.5	0.22	3.3	31.61	3.164	0.0	0.0	0.0	0
6.45	15.703	0.479	0.22	3.3	32.783	3.05	0.0	0.0	0.0	0
6.46	16.009	0.428	0.22	3.3	37.404	2.673	0.0	0.0	0.0	0
6.47	16.213	0.418	0.22	3.3	38.787	2.578	0.0	0.0	0.0	0
6.48	16.519	0.408	0.22	3.3	40.488	2.47	0.0	0.0	0.0	0
6.49	17.029	0.408	0.22	3.3	41.738	2.396	0.0	0.0	0.0	0
6.50	17.641	0.428	0.22	3.3	41.217	2.426	0.0	0.0	0.0	0
6.51	17.743	0.438	0.22	3.3	40.509	2.469	0.0	0.0	0.0	0
6.52	17.845	0.449	0.22	3.3	39.744	2.516	0.0	0.0	0.0	0
6.53	17.743	0.449	0.22	3.3	39.517	2.531	0.0	0.0	0.0	0
6.54	17.743	0.449	0.22	3.3	39.517	2.531	0.0	0.0	0.0	0
6.55	17.539	0.438	0.22	3.3	40.043	2.497	0.0	0.0	0.0	0
6.56	17.437	0.438	0.22	3.3	39.811	2.512	0.0	0.0	0.0	0
6.57	17.335	0.449	0.22	3.3	38.608	2.59	0.0	0.0	0.0	0
6.58	16.927	0.449	0.22	3.3	37.699	2.653	0.0	0.0	0.0	0
6.59	16.723	0.459	0.22	3.3	36.434	2.745	0.0	0.0	0.0	0
6.60	16.417	0.459	0.22	3.3	35.767	2.796	0.0	0.0	0.0	0
6.61	16.417	0.459	0.22	3.3	35.767	2.796	0.0	0.0	0.0	0
6.62	16.621	0.459	0.22	3.3	36.211	2.762	0.0	0.0	0.0	0
6.63	17.029	0.459	0.22	3.3	37.1	2.695	0.0	0.0	0.0	0
6.64	17.539	0.449	0.22	3.3	39.062	2.56	0.0	0.0	0.0	0
6.65	17.437	0.459	0.22	3.3	37.989	2.632	0.0	0.0	0.0	0
6.66	17.437	0.459	0.22	3.3	37.989	2.632	0.0	0.0	0.0	0
6.67	17.335	0.459	0.22	3.3	37.767	2.648	0.0	0.0	0.0	0
6.68	17.539	0.449	0.22	3.3	39.062	2.56	0.0	0.0	0.0	0
6.69	17.743	0.438	0.22	3.4	40.509	2.469	0.0	0.0	0.0	0
6.70	18.049	0.438	0.22	3.3	41.208	2.427	0.0	0.0	0.0	0
6.71	18.151	0.428	0.22	3.4	42.409	2.358	0.0	0.0	0.0	0
6.72	18.151	0.418	0.22	3.4	43.423	2.303	0.0	0.0	0.0	0
6.73	18.151	0.418	0.22	3.4	43.423	2.303	0.0	0.0	0.0	0
6.74	18.151	0.418	0.22	3.4	43.423	2.303	0.0	0.0	0.0	0
6.75	18.151	0.418	0.22	3.4	43.423	2.303	0.0	0.0	0.0	0
6.76	18.151	0.418	0.22	3.4	43.423	2.303	0.0	0.0	0.0	0
6.77	18.151	0.428	0.22	3.4	42.409	2.358	0.0	0.0	0.0	0
6.78	18.151	0.428	0.22	3.4	42.409	2.358	0.0	0.0	0.0	0
6.79	18.253	0.428	0.22	3.4	42.647	2.345	0.0	0.0	0.0	0
6.80	18.253	0.438	0.22	3.4	41.674	2.4	0.0	0.0	0.0	0
6.81	18.151	0.449	0.22	3.4	40.425	2.474	0.0	0.0	0.0	0
6.82	18.151	0.459	0.22	3.4	39.545	2.529	0.0	0.0	0.0	0
6.83	18.049	0.479	0.22	3.4	37.681	2.654	0.0	0.0	0.0	0
6.84	18.049	0.489	0.22	3.4	36.91	2.709	0.0	0.0	0.0	0
6.85	18.049	0.5	0.22	3.4	36.098	2.77	0.0	0.0	0.0	0
6.86	17.743	0.52	0.22	3.4	34.121	2.931	0.0	0.0	0.0	0
6.87	17.539	0.53	0.22	3.4	33.092	3.022	0.0	0.0	0.0	0
6.88	17.539	0.551	0.22	3.4	31.831	3.142	0.0	0.0	0.0	0
6.89	17.539	0.551	0.22	3.4	31.831	3.142	0.0	0.0	0.0	0
6.90	17.539	0.551	0.22	3.4	31.831	3.142	0.0	0.0	0.0	0
6.91	17.641	0.622	0.22	3.4	28.362	3.526	0.0	0.0	0.0	0
6.92	17.743	0.653	0.22	3.4	27.172	3.68	0.0	0.0	0.0	0
6.93	17.641	0.663	0.22	3.4	26.608	3.758	0.0	0.0	0.0	0
6.94	17.539	0.683	0.22	3.5	25.679	3.894	0.0	0.0	0.0	0
6.95	17.539	0.683	0.22	3.5	25.679	3.894	0.0	0.0	0.0	0

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6.96	17.539	0.683	0.22	3.5	25.679	3.894	0.0	0.0	0.0	0
6.97	17.743	0.683	0.22	3.5	25.978	3.849	0.0	0.0	0.0	0
6.98	18.151	0.653	0.22	3.5	27.796	3.598	0.0	0.0	0.0	0
6.99	18.559	0.642	0.22	3.5	28.908	3.459	0.0	0.0	0.0	0
7.00	18.762	0.632	0.22	3.5	29.687	3.369	0.0	0.0	0.0	0
7.01	18.966	0.612	0.22	3.5	30.99	3.227	0.0	0.0	0.0	0
7.02	19.272	0.591	0.22	3.5	32.609	3.067	0.0	0.0	0.0	0
7.03	19.272	0.591	0.22	3.5	32.609	3.067	0.0	0.0	0.0	0
7.04	19.068	0.591	0.22	3.5	32.264	3.099	0.0	0.0	0.0	0
7.05	18.966	0.591	0.22	3.5	32.091	3.116	0.0	0.0	0.0	0
7.06	18.864	0.591	0.22	3.5	31.919	3.133	0.0	0.0	0.0	0
7.07	18.864	0.591	0.22	3.5	31.919	3.133	0.0	0.0	0.0	0
7.08	18.762	0.591	0.22	3.5	31.746	3.15	0.0	0.0	0.0	0
7.09	18.559	0.602	0.22	3.5	30.829	3.244	0.0	0.0	0.0	0
7.10	18.457	0.602	0.22	3.5	30.659	3.262	0.0	0.0	0.0	0
7.11	18.661	0.622	0.22	3.6	30.002	3.333	0.0	0.0	0.0	0
7.12	18.661	0.632	0.22	3.6	29.527	3.387	0.0	0.0	0.0	0
7.13	18.559	0.632	0.22	3.6	29.366	3.405	0.0	0.0	0.0	0
7.14	18.559	0.642	0.22	3.6	28.908	3.459	0.0	0.0	0.0	0
7.15	18.559	0.653	0.22	3.6	28.421	3.519	0.0	0.0	0.0	0
7.16	18.253	0.653	0.22	3.6	27.953	3.577	0.0	0.0	0.0	0
7.17	18.049	0.653	0.22	3.6	27.64	3.618	0.0	0.0	0.0	0
7.18	18.049	0.642	0.22	3.6	28.114	3.557	0.0	0.0	0.0	0
7.19	18.457	0.632	0.22	3.6	29.204	3.424	0.0	0.0	0.0	0
7.20	18.457	0.622	0.22	3.6	29.674	3.37	0.0	0.0	0.0	0
7.21	18.049	0.622	0.22	3.6	29.018	3.446	0.0	0.0	0.0	0
7.22	17.947	0.612	0.22	3.6	29.325	3.41	0.0	0.0	0.0	0
7.23	17.947	0.602	0.22	3.6	29.812	3.354	0.0	0.0	0.0	0
7.24	17.845	0.602	0.22	3.6	29.643	3.373	0.0	0.0	0.0	0
7.25	17.743	0.622	0.22	3.6	28.526	3.506	0.0	0.0	0.0	0
7.26	17.743	0.622	0.22	3.6	28.526	3.506	0.0	0.0	0.0	0
7.27	17.641	0.632	0.22	3.6	27.913	3.583	0.0	0.0	0.0	0
7.28	17.437	0.653	0.22	3.6	26.703	3.745	0.0	0.0	0.0	0
7.29	17.029	0.663	0.22	3.6	25.685	3.893	0.0	0.0	0.0	0
7.30	16.723	0.673	0.22	3.6	24.848	4.024	0.0	0.0	0.0	0
7.31	16.825	0.673	0.22	3.6	25.0	4.0	0.0	0.0	0.0	0
7.32	16.723	0.673	0.22	3.6	24.848	4.024	0.0	0.0	0.0	0
7.33	16.519	0.673	0.22	3.6	24.545	4.074	0.0	0.0	0.0	0
7.34	16.519	0.673	0.22	3.6	24.545	4.074	0.0	0.0	0.0	0
7.35	16.723	0.663	0.22	3.6	25.223	3.965	0.0	0.0	0.0	0
7.36	16.825	0.663	0.22	3.6	25.377	3.941	0.0	0.0	0.0	0
7.37	17.029	0.663	0.21	3.6	25.685	3.893	0.0	0.0	0.0	0
7.38	17.233	0.663	0.21	3.6	25.992	3.847	0.0	0.0	0.0	0
7.39	17.335	0.663	0.22	3.6	26.146	3.825	0.0	0.0	0.0	0
7.40	17.437	0.642	0.21	3.6	27.16	3.682	0.0	0.0	0.0	0
7.41	17.539	0.632	0.21	3.6	27.752	3.603	0.0	0.0	0.0	0
7.42	17.539	0.622	0.22	3.6	28.198	3.546	0.0	0.0	0.0	0
7.43	17.335	0.622	0.22	3.6	27.87	3.588	0.0	0.0	0.0	0
7.44	16.927	0.632	0.22	3.6	26.783	3.734	0.0	0.0	0.0	0
7.45	16.825	0.632	0.22	3.6	26.622	3.756	0.0	0.0	0.0	0
7.46	16.723	0.642	0.22	3.6	26.048	3.839	0.0	0.0	0.0	0
7.47	16.417	0.653	0.22	3.6	25.141	3.978	0.0	0.0	0.0	0
7.48	16.111	0.663	0.22	3.6	24.3	4.115	0.0	0.0	0.0	0
7.49	15.703	0.683	0.22	3.6	22.991	4.349	0.0	0.0	0.0	0
7.50	15.703	0.683	0.22	3.6	22.991	4.349	0.0	0.0	0.0	0
7.51	15.703	0.683	0.22	3.6	22.991	4.349	0.0	0.0	0.0	0
7.52	15.703	0.683	0.22	3.6	22.991	4.349	0.0	0.0	0.0	0
7.53	15.805	0.673	0.22	3.6	23.484	4.258	0.0	0.0	0.0	0
7.54	15.703	0.663	0.22	3.6	23.685	4.222	0.0	0.0	0.0	0
7.55	15.703	0.663	0.22	3.6	23.685	4.222	0.0	0.0	0.0	0
7.56	15.703	0.653	0.22	3.6	24.047	4.158	0.0	0.0	0.0	0
7.57	15.907	0.632	0.22	3.6	25.169	3.973	0.0	0.0	0.0	0
7.58	15.907	0.612	0.22	3.6	25.992	3.847	0.0	0.0	0.0	0
7.59	16.111	0.591	0.22	3.6	27.261	3.668	0.0	0.0	0.0	0
7.60	16.315	0.571	0.22	3.6	28.573	3.5	0.0	0.0	0.0	0
7.61	16.519	0.551	0.22	3.6	29.98	3.336	0.0	0.0	0.0	0
7.62	16.723	0.52	0.22	3.6	32.16	3.109	0.0	0.0	0.0	0
7.63	16.927	0.5	0.22	3.6	33.854	2.954	0.0	0.0	0.0	0
7.64	17.029	0.479	0.22	3.6	35.551	2.813	0.0	0.0	0.0	0
7.65	17.335	0.479	0.22	3.6	36.19	2.763	0.0	0.0	0.0	0
7.66	17.539	0.469	0.22	3.6	37.397	2.674	0.0	0.0	0.0	0
7.67	17.743	0.459	0.22	3.6	38.656	2.587	0.0	0.0	0.0	0
7.68	17.743	0.459	0.22	3.7	38.656	2.587	0.0	0.0	0.0	0
7.69	17.947	0.459	0.22	3.6	39.1	2.558	0.0	0.0	0.0	0
7.70	18.049	0.459	0.22	3.7	39.322	2.543	0.0	0.0	0.0	0

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7.71	18.049	0.459	0.22	3.7	39.322	2.543	0.0	0.0	0.0	0
7.72	18.253	0.459	0.22	3.7	39.767	2.515	0.0	0.0	0.0	0
7.73	18.762	0.459	0.22	3.7	40.876	2.446	0.0	0.0	0.0	0
7.74	19.068	0.469	0.22	3.7	40.657	2.46	0.0	0.0	0.0	0
7.75	19.272	0.479	0.22	3.7	40.234	2.485	0.0	0.0	0.0	0
7.76	19.272	0.489	0.22	3.7	39.411	2.537	0.0	0.0	0.0	0
7.77	19.476	0.5	0.22	3.7	38.952	2.567	0.0	0.0	0.0	0
7.78	19.476	0.52	0.22	3.7	37.454	2.67	0.0	0.0	0.0	0
7.79	19.476	0.54	0.22	3.7	36.067	2.773	0.0	0.0	0.0	0
7.80	19.374	0.561	0.22	3.7	34.535	2.896	0.0	0.0	0.0	0
7.81	19.374	0.581	0.22	3.7	33.346	2.999	0.0	0.0	0.0	0
7.82	19.476	0.581	0.22	3.7	33.522	2.983	0.0	0.0	0.0	0
7.83	19.68	0.602	0.22	3.7	32.691	3.059	0.0	0.0	0.0	0
7.84	19.782	0.622	0.22	3.7	31.804	3.144	0.0	0.0	0.0	0
7.85	19.884	0.642	0.22	3.7	30.972	3.229	0.0	0.0	0.0	0
7.86	19.884	0.663	0.22	3.7	29.991	3.334	0.0	0.0	0.0	0
7.87	19.374	0.724	0.22	3.7	26.76	3.737	0.0	0.0	0.0	0
7.88	19.374	0.734	0.22	3.7	26.395	3.789	0.0	0.0	0.0	0
7.89	19.374	0.734	0.22	3.7	26.395	3.789	0.0	0.0	0.0	0
7.90	19.374	0.734	0.22	3.7	26.395	3.789	0.0	0.0	0.0	0
7.91	19.272	0.826	0.21	3.7	23.332	4.286	0.0	0.0	0.0	0
7.92	19.374	0.846	0.21	3.7	22.901	4.367	0.0	0.0	0.0	0
7.93	19.272	0.846	0.21	3.7	22.78	4.39	0.0	0.0	0.0	0
7.94	19.272	0.846	0.21	3.7	22.78	4.39	0.0	0.0	0.0	0
7.95	19.272	0.836	0.21	3.7	23.053	4.338	0.0	0.0	0.0	0
7.96	19.272	0.836	0.21	3.7	23.053	4.338	0.0	0.0	0.0	0
7.97	19.272	0.826	0.21	3.7	23.332	4.286	0.0	0.0	0.0	0
7.98	19.374	0.816	0.21	3.7	23.743	4.212	0.0	0.0	0.0	0
7.99	19.374	0.806	0.21	3.7	24.037	4.16	0.0	0.0	0.0	0
8.00	19.578	0.795	0.21	3.7	24.626	4.061	0.0	0.0	0.0	0
8.01	19.782	0.775	0.21	3.8	25.525	3.918	0.0	0.0	0.0	0
8.02	20.7	0.755	0.21	3.8	27.417	3.647	0.0	0.0	0.0	0
8.03	21.006	0.755	0.21	3.8	27.823	3.594	0.0	0.0	0.0	0
8.04	21.414	0.744	0.21	3.8	28.782	3.474	0.0	0.0	0.0	0
8.05	21.924	0.734	0.21	3.8	29.869	3.348	0.0	0.0	0.0	0
8.06	22.433	0.724	0.21	3.8	30.985	3.227	0.0	0.0	0.0	0
8.07	22.637	0.724	0.21	3.8	31.267	3.198	0.0	0.0	0.0	0
8.08	22.637	0.724	0.21	3.8	31.267	3.198	0.0	0.0	0.0	0
8.09	22.637	0.724	0.21	3.8	31.267	3.198	0.0	0.0	0.0	0
8.10	22.127	0.734	0.21	3.8	30.146	3.317	0.0	0.0	0.0	0
8.11	22.127	0.744	0.21	3.8	29.741	3.362	0.0	0.0	0.0	0
8.12	22.026	0.734	0.22	3.8	30.008	3.332	0.0	0.0	0.0	0
8.13	21.618	0.734	0.22	3.8	29.452	3.395	0.0	0.0	0.0	0
8.14	21.516	0.744	0.22	3.8	28.919	3.458	0.0	0.0	0.0	0
8.15	21.516	0.744	0.22	3.8	28.919	3.458	0.0	0.0	0.0	0
8.16	21.516	0.755	0.22	3.8	28.498	3.509	0.0	0.0	0.0	0
8.17	21.516	0.765	0.22	3.8	28.125	3.555	0.0	0.0	0.0	0
8.18	21.312	0.795	0.22	3.8	26.808	3.73	0.0	0.0	0.0	0
8.19	22.127	0.806	0.22	3.8	27.453	3.643	0.0	0.0	0.0	0
8.20	22.331	0.826	0.22	3.9	27.035	3.699	0.0	0.0	0.0	0
8.21	22.127	0.826	0.22	3.9	26.788	3.733	0.0	0.0	0.0	0
8.22	22.127	0.826	0.22	3.8	26.788	3.733	0.0	0.0	0.0	0
8.23	22.331	0.806	0.22	3.9	27.706	3.609	0.0	0.0	0.0	0
8.24	22.331	0.795	0.22	3.9	28.089	3.56	0.0	0.0	0.0	0
8.25	22.229	0.795	0.22	3.9	27.961	3.576	0.0	0.0	0.0	0
8.26	22.331	0.785	0.22	3.9	28.447	3.515	0.0	0.0	0.0	0
8.27	22.127	0.765	0.22	3.9	28.924	3.457	0.0	0.0	0.0	0
8.28	22.229	0.734	0.22	3.9	30.285	3.302	0.0	0.0	0.0	0
8.29	22.331	0.714	0.22	3.9	31.276	3.197	0.0	0.0	0.0	0
8.30	22.535	0.704	0.22	3.9	32.01	3.124	0.0	0.0	0.0	0
8.31	22.535	0.683	0.22	3.9	32.994	3.031	0.0	0.0	0.0	0
8.32	22.535	0.642	0.22	3.9	35.101	2.849	0.0	0.0	0.0	0
8.33	22.535	0.622	0.22	3.9	36.23	2.76	0.0	0.0	0.0	0
8.34	22.535	0.602	0.22	3.9	37.434	2.671	0.0	0.0	0.0	0
8.35	22.535	0.602	0.22	3.9	37.434	2.671	0.0	0.0	0.0	0
8.36	22.841	0.602	0.22	3.9	37.942	2.636	0.0	0.0	0.0	0
8.37	25.492	0.612	0.22	3.9	41.654	2.401	0.0	0.0	0.0	0
8.38	22.433	0.632	0.22	3.9	35.495	2.817	0.0	0.0	0.0	0
8.39	22.127	0.663	0.22	3.9	33.374	2.996	0.0	0.0	0.0	0
8.40	22.026	0.673	0.22	3.9	32.728	3.055	0.0	0.0	0.0	0
8.41	22.331	0.673	0.22	3.9	33.181	3.014	0.0	0.0	0.0	0
8.42	22.637	0.693	0.22	3.9	32.665	3.061	0.0	0.0	0.0	0
8.43	23.453	0.704	0.24	3.9	33.314	3.002	0.0	0.0	0.0	0
8.44	22.943	0.714	0.24	3.9	32.133	3.112	0.0	0.0	0.0	0
8.45	22.433	0.724	0.22	3.9	30.985	3.227	0.0	0.0	0.0	0

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8.46	22.229	0.734	0.22	3.9	30.285	3.302	0.0	0.0	0.0	0
8.47	22.331	0.744	0.22	4.0	30.015	3.332	0.0	0.0	0.0	0
8.48	22.535	0.744	0.22	4.0	30.289	3.302	0.0	0.0	0.0	0
8.49	22.026	0.744	0.22	4.0	29.605	3.378	0.0	0.0	0.0	0
8.50	21.72	0.755	0.22	4.0	28.768	3.476	0.0	0.0	0.0	0
8.51	21.414	0.765	0.22	3.9	27.992	3.572	0.0	0.0	0.0	0
8.52	21.312	0.755	0.22	3.9	28.228	3.543	0.0	0.0	0.0	0
8.53	21.312	0.755	0.22	4.0	28.228	3.543	0.0	0.0	0.0	0
8.54	21.312	0.755	0.22	4.0	28.228	3.543	0.0	0.0	0.0	0
8.55	21.312	0.755	0.22	4.0	28.228	3.543	0.0	0.0	0.0	0
8.56	21.21	0.765	0.22	4.0	27.725	3.607	0.0	0.0	0.0	0
8.57	20.904	0.775	0.22	4.0	26.973	3.707	0.0	0.0	0.0	0
8.58	20.7	0.765	0.22	4.0	27.059	3.696	0.0	0.0	0.0	0
8.59	20.802	0.765	0.22	4.0	27.192	3.678	0.0	0.0	0.0	0
8.60	20.904	0.755	0.22	4.0	27.687	3.612	0.0	0.0	0.0	0
8.61	21.006	0.744	0.22	4.0	28.234	3.542	0.0	0.0	0.0	0
8.62	20.904	0.744	0.22	4.0	28.097	3.559	0.0	0.0	0.0	0
8.63	20.802	0.744	0.22	4.0	27.96	3.577	0.0	0.0	0.0	0
8.64	20.598	0.744	0.22	4.0	27.685	3.612	0.0	0.0	0.0	0
8.65	20.598	0.744	0.22	4.0	27.685	3.612	0.0	0.0	0.0	0
8.66	20.802	0.744	0.22	4.0	27.96	3.577	0.0	0.0	0.0	0
8.67	21.21	0.734	0.24	4.0	28.896	3.461	0.0	0.0	0.0	0
8.68	21.414	0.724	0.24	4.0	29.577	3.381	0.0	0.0	0.0	0
8.69	21.516	0.724	0.24	4.0	29.718	3.365	0.0	0.0	0.0	0
8.70	21.72	0.714	0.24	4.0	30.42	3.287	0.0	0.0	0.0	0
8.71	21.822	0.714	0.24	4.0	30.563	3.272	0.0	0.0	0.0	0
8.72	22.026	0.704	0.24	4.0	31.287	3.196	0.0	0.0	0.0	0
8.73	22.026	0.704	0.24	4.0	31.287	3.196	0.0	0.0	0.0	0
8.74	22.229	0.704	0.24	4.0	31.575	3.167	0.0	0.0	0.0	0
8.75	22.127	0.714	0.24	4.0	30.99	3.227	0.0	0.0	0.0	0
8.76	21.822	0.724	0.24	4.0	30.141	3.318	0.0	0.0	0.0	0
8.77	21.72	0.724	0.24	4.0	30.0	3.333	0.0	0.0	0.0	0
8.78	21.822	0.724	0.24	4.0	30.141	3.318	0.0	0.0	0.0	0
8.79	22.026	0.724	0.24	4.0	30.423	3.287	0.0	0.0	0.0	0
8.80	22.127	0.734	0.24	4.0	30.146	3.317	0.0	0.0	0.0	0
8.81	22.229	0.755	0.24	4.0	29.442	3.396	0.0	0.0	0.0	0
8.82	22.026	0.775	0.24	4.0	28.421	3.519	0.0	0.0	0.0	0
8.83	21.822	0.795	0.24	4.0	27.449	3.643	0.0	0.0	0.0	0
8.84	21.72	0.816	0.24	4.0	26.618	3.757	0.0	0.0	0.0	0
8.85	21.822	0.816	0.24	4.0	26.743	3.739	0.0	0.0	0.0	0
8.86	22.127	0.826	0.24	4.0	26.788	3.733	0.0	0.0	0.0	0
8.87	22.535	0.836	0.24	4.0	26.956	3.71	0.0	0.0	0.0	0
8.88	22.433	0.836	0.24	4.0	26.834	3.727	0.0	0.0	0.0	0
8.89	22.433	0.836	0.24	4.0	26.834	3.727	0.0	0.0	0.0	0
8.90	22.433	0.836	0.24	4.0	26.834	3.727	0.0	0.0	0.0	0
8.91	21.618	0.806	0.24	4.1	26.821	3.728	0.0	0.0	0.0	0
8.92	21.924	0.795	0.24	4.1	27.577	3.626	0.0	0.0	0.0	0
8.93	22.026	0.785	0.24	4.1	28.059	3.564	0.0	0.0	0.0	0
8.94	22.127	0.775	0.24	4.1	28.551	3.503	0.0	0.0	0.0	0
8.95	22.229	0.765	0.24	4.0	29.058	3.441	0.0	0.0	0.0	0
8.96	22.331	0.755	0.24	4.1	29.577	3.381	0.0	0.0	0.0	0
8.97	22.331	0.755	0.24	4.1	29.577	3.381	0.0	0.0	0.0	0
8.98	22.229	0.765	0.24	4.1	29.058	3.441	0.0	0.0	0.0	0
8.99	22.127	0.775	0.24	4.1	28.551	3.503	0.0	0.0	0.0	0
9.00	22.127	0.765	0.24	4.1	28.924	3.457	0.0	0.0	0.0	0
9.01	22.229	0.765	0.24	4.1	29.058	3.441	0.0	0.0	0.0	0
9.02	22.331	0.775	0.24	4.1	28.814	3.471	0.0	0.0	0.0	0
9.03	22.535	0.775	0.24	4.1	29.077	3.439	0.0	0.0	0.0	0
9.04	22.637	0.765	0.24	4.1	29.591	3.379	0.0	0.0	0.0	0
9.05	22.637	0.775	0.24	4.1	29.209	3.424	0.0	0.0	0.0	0
9.06	22.433	0.785	0.24	4.1	28.577	3.499	0.0	0.0	0.0	0
9.07	22.229	0.806	0.24	4.1	27.579	3.626	0.0	0.0	0.0	0
9.08	22.229	0.816	0.24	4.1	27.241	3.671	0.0	0.0	0.0	0
9.09	22.229	0.806	0.24	4.1	27.579	3.626	0.0	0.0	0.0	0
9.10	22.331	0.806	0.24	4.1	27.706	3.609	0.0	0.0	0.0	0
9.11	22.535	0.795	0.24	4.1	28.346	3.528	0.0	0.0	0.0	0
9.12	22.739	0.806	0.24	4.1	28.212	3.545	0.0	0.0	0.0	0
9.13	22.637	0.806	0.24	4.1	28.086	3.561	0.0	0.0	0.0	0
9.14	22.637	0.806	0.24	4.1	28.086	3.561	0.0	0.0	0.0	0
9.15	22.637	0.806	0.24	4.1	28.086	3.561	0.0	0.0	0.0	0
9.16	22.637	0.806	0.24	4.1	28.086	3.561	0.0	0.0	0.0	0
9.17	23.147	0.795	0.24	4.1	29.116	3.435	0.0	0.0	0.0	0
9.18	23.453	0.785	0.24	4.1	29.876	3.347	0.0	0.0	0.0	0
9.19	23.555	0.775	0.24	4.1	30.394	3.29	0.0	0.0	0.0	0
9.20	23.555	0.775	0.24	4.1	30.394	3.29	0.0	0.0	0.0	0

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9.21	23.555	0.765	0.24	4.1	30.791	3.248	0.0	0.0	0.0	0
9.22	23.963	0.755	0.24	4.1	31.739	3.151	0.0	0.0	0.0	0
9.23	24.371	0.744	0.24	4.1	32.757	3.053	0.0	0.0	0.0	0
9.24	24.473	0.744	0.24	4.1	32.894	3.04	0.0	0.0	0.0	0
9.25	24.473	0.744	0.24	4.1	32.894	3.04	0.0	0.0	0.0	0
9.26	24.881	0.724	0.24	4.1	34.366	2.91	0.0	0.0	0.0	0
9.27	25.187	0.724	0.24	4.1	34.789	2.874	0.0	0.0	0.0	0
9.28	25.391	0.724	0.24	4.1	35.07	2.851	0.0	0.0	0.0	0
9.29	25.391	0.734	0.24	4.1	34.593	2.891	0.0	0.0	0.0	0
9.30	25.391	0.744	0.24	4.1	34.128	2.93	0.0	0.0	0.0	0
9.31	25.391	0.765	0.24	4.1	33.191	3.013	0.0	0.0	0.0	0
9.32	25.696	0.785	0.25	4.1	32.734	3.055	0.0	0.0	0.0	0
9.33	25.9	0.785	0.25	4.1	32.994	3.031	0.0	0.0	0.0	0
9.34	26.002	0.795	0.25	4.1	32.707	3.057	0.0	0.0	0.0	0
9.35	26.002	0.806	0.25	4.1	32.261	3.1	0.0	0.0	0.0	0
9.36	25.696	0.867	0.25	4.1	29.638	3.374	0.0	0.0	0.0	0
9.37	25.594	0.887	0.25	4.1	28.855	3.466	0.0	0.0	0.0	0
9.38	25.492	0.908	0.25	4.1	28.075	3.562	0.0	0.0	0.0	0
9.39	25.594	0.918	0.25	4.1	27.88	3.587	0.0	0.0	0.0	0
9.40	25.798	0.938	0.25	4.1	27.503	3.636	0.0	0.0	0.0	0
9.41	26.512	0.928	0.25	4.2	28.569	3.5	0.0	0.0	0.0	0
9.42	26.818	0.928	0.25	4.2	28.899	3.46	0.0	0.0	0.0	0
9.43	26.92	0.928	0.25	4.2	29.009	3.447	0.0	0.0	0.0	0
9.44	27.022	0.928	0.25	4.2	29.119	3.434	0.0	0.0	0.0	0
9.45	27.124	0.938	0.25	4.2	28.917	3.458	0.0	0.0	0.0	0
9.46	27.124	0.969	0.25	4.2	27.992	3.572	0.0	0.0	0.0	0
9.47	27.226	0.979	0.25	4.2	27.81	3.596	0.0	0.0	0.0	0
9.48	27.226	0.979	0.25	4.2	27.81	3.596	0.0	0.0	0.0	0
9.49	27.328	0.989	0.25	4.2	27.632	3.619	0.0	0.0	0.0	0
9.50	27.328	0.989	0.25	4.2	27.632	3.619	0.0	0.0	0.0	0
9.51	27.124	1.01	0.25	4.2	26.855	3.724	0.0	0.0	0.0	0
9.52	27.124	1.03	0.25	4.2	26.334	3.797	0.0	0.0	0.0	0
9.53	27.226	1.05	0.26	4.2	25.93	3.857	0.0	0.0	0.0	0
9.54	27.43	1.071	0.26	4.2	25.612	3.904	0.0	0.0	0.0	0
9.55	27.328	1.091	0.26	4.2	25.049	3.992	0.0	0.0	0.0	0
9.56	27.328	1.122	0.26	4.2	24.357	4.106	0.0	0.0	0.0	0
9.57	27.328	1.132	0.26	4.2	24.141	4.142	0.0	0.0	0.0	0
9.58	27.226	1.132	0.26	4.3	24.051	4.158	0.0	0.0	0.0	0
9.59	27.226	1.142	0.26	4.3	23.841	4.195	0.0	0.0	0.0	0
9.60	27.124	1.142	0.26	4.3	23.751	4.21	0.0	0.0	0.0	0
9.61	26.716	1.152	0.26	4.3	23.191	4.312	0.0	0.0	0.0	0
9.62	26.512	1.162	0.26	4.3	22.816	4.383	0.0	0.0	0.0	0
9.63	26.308	1.162	0.26	4.3	22.64	4.417	0.0	0.0	0.0	0
9.64	26.308	1.162	0.26	4.3	22.64	4.417	0.0	0.0	0.0	0
9.65	26.206	1.173	0.26	4.3	22.341	4.476	0.0	0.0	0.0	0
9.66	25.9	1.173	0.26	4.3	22.08	4.529	0.0	0.0	0.0	0
9.67	25.798	1.162	0.26	4.3	22.201	4.504	0.0	0.0	0.0	0
9.68	25.798	1.162	0.26	4.3	22.201	4.504	0.0	0.0	0.0	0
9.69	25.696	1.152	0.26	4.3	22.306	4.483	0.0	0.0	0.0	0
9.70	25.594	1.152	0.26	4.3	22.217	4.501	0.0	0.0	0.0	0
9.71	25.289	1.162	0.26	4.3	21.763	4.595	0.0	0.0	0.0	0
9.72	25.187	1.152	0.26	4.3	21.864	4.574	0.0	0.0	0.0	0
9.73	25.187	1.142	0.26	4.3	22.055	4.534	0.0	0.0	0.0	0
9.74	25.085	1.132	0.26	4.3	22.16	4.513	0.0	0.0	0.0	0
9.75	25.187	1.132	0.26	4.3	22.25	4.494	0.0	0.0	0.0	0
9.76	24.983	1.122	0.26	4.4	22.266	4.491	0.0	0.0	0.0	0
9.77	24.881	1.111	0.26	4.4	22.395	4.465	0.0	0.0	0.0	0
9.78	24.677	1.111	0.26	4.4	22.212	4.502	0.0	0.0	0.0	0
9.79	24.473	1.111	0.26	4.4	22.028	4.54	0.0	0.0	0.0	0
9.80	24.371	1.101	0.26	4.4	22.135	4.518	0.0	0.0	0.0	0
9.81	24.269	1.091	0.26	4.4	22.245	4.495	0.0	0.0	0.0	0
9.82	24.167	1.091	0.26	4.4	22.151	4.514	0.0	0.0	0.0	0
9.83	24.065	1.091	0.26	4.4	22.058	4.534	0.0	0.0	0.0	0
9.84	24.065	1.091	0.26	4.4	22.058	4.534	0.0	0.0	0.0	0
9.85	24.473	1.06	0.27	4.4	23.088	4.331	0.0	0.0	0.0	0
9.86	24.779	1.05	0.27	4.4	23.599	4.237	0.0	0.0	0.0	0
9.87	24.881	1.05	0.27	4.4	23.696	4.22	0.0	0.0	0.0	0
9.88	24.983	1.04	0.27	4.4	24.022	4.163	0.0	0.0	0.0	0
9.89	24.983	1.04	0.27	4.4	24.022	4.163	0.0	0.0	0.0	0
9.90	24.983	1.04	0.27	4.4	24.022	4.163	0.0	0.0	0.0	0
9.91	25.9	0.969	0.26	4.4	26.729	3.741	0.0	0.0	0.0	0
9.92	26.002	0.959	0.26	4.4	27.114	3.688	0.0	0.0	0.0	0
9.93	25.9	0.948	0.26	4.4	27.321	3.66	0.0	0.0	0.0	0
9.94	25.798	0.948	0.26	4.4	27.213	3.675	0.0	0.0	0.0	0
9.95	25.798	0.938	0.26	4.4	27.503	3.636	0.0	0.0	0.0	0

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9.96	25.798	0.938	0.26	4.4	27.503	3.636	0.0	0.0	0.0	0
9.97	25.798	0.948	0.26	4.4	27.213	3.675	0.0	0.0	0.0	0
9.98	25.798	0.948	0.26	4.4	27.213	3.675	0.0	0.0	0.0	0
9.99	26.002	0.948	0.26	4.4	27.428	3.646	0.0	0.0	0.0	0
10.00	25.9	0.938	0.26	4.4	27.612	3.622	0.0	0.0	0.0	0
10.01	25.9	0.938	0.26	4.4	27.612	3.622	0.0	0.0	0.0	0
10.02	25.9	0.948	0.26	4.4	27.321	3.66	0.0	0.0	0.0	0
10.03	26.002	0.948	0.26	4.4	27.428	3.646	0.0	0.0	0.0	0
10.04	26.104	0.948	0.26	4.5	27.536	3.632	0.0	0.0	0.0	0
10.05	26.206	0.948	0.26	4.5	27.643	3.617	0.0	0.0	0.0	0
10.06	26.308	0.959	0.26	4.5	27.433	3.645	0.0	0.0	0.0	0
10.07	26.206	0.979	0.26	4.5	26.768	3.736	0.0	0.0	0.0	0
10.08	26.206	0.989	0.26	4.5	26.497	3.774	0.0	0.0	0.0	0
10.09	26.206	0.989	0.26	4.5	26.497	3.774	0.0	0.0	0.0	0
10.10	26.104	0.999	0.26	4.5	26.13	3.827	0.0	0.0	0.0	0
10.11	25.9	0.999	0.26	4.5	25.926	3.857	0.0	0.0	0.0	0
10.12	24.983	1.01	0.26	4.5	24.736	4.043	0.0	0.0	0.0	0
10.13	24.473	1.02	0.26	4.5	23.993	4.168	0.0	0.0	0.0	0
10.14	23.963	1.02	0.26	4.5	23.493	4.257	0.0	0.0	0.0	0
10.15	23.453	1.01	0.26	4.5	23.221	4.306	0.0	0.0	0.0	0
10.16	22.841	0.999	0.26	4.5	22.864	4.374	0.0	0.0	0.0	0
10.17	21.516	0.999	0.26	4.5	21.538	4.643	0.0	0.0	0.0	0
10.18	21.006	1.02	0.26	4.5	20.594	4.856	0.0	0.0	0.0	0
10.19	20.802	1.02	0.26	4.5	20.394	4.903	0.0	0.0	0.0	0
10.20	20.802	1.01	0.26	4.5	20.596	4.855	0.0	0.0	0.0	0
10.21	21.006	0.989	0.26	4.5	21.24	4.708	0.0	0.0	0.0	0
10.22	21.924	0.959	0.26	4.5	22.861	4.374	0.0	0.0	0.0	0
10.23	22.637	0.938	0.26	4.5	24.133	4.144	0.0	0.0	0.0	0
10.24	23.351	0.918	0.26	4.5	25.437	3.931	0.0	0.0	0.0	0
10.25	23.861	0.918	0.26	4.5	25.992	3.847	0.0	0.0	0.0	0
10.26	24.677	0.918	0.26	4.5	26.881	3.72	0.0	0.0	0.0	0
10.27	25.187	0.928	0.26	4.5	27.141	3.684	0.0	0.0	0.0	0
10.28	25.696	0.938	0.26	4.5	27.394	3.65	0.0	0.0	0.0	0
10.29	25.798	0.948	0.27	4.5	27.213	3.675	0.0	0.0	0.0	0
10.30	25.798	0.948	0.27	4.5	27.213	3.675	0.0	0.0	0.0	0
10.31	25.391	0.948	0.27	4.5	26.784	3.734	0.0	0.0	0.0	0
10.32	25.085	0.948	0.27	4.5	26.461	3.779	0.0	0.0	0.0	0
10.33	24.983	0.959	0.27	4.5	26.051	3.839	0.0	0.0	0.0	0
10.34	24.881	0.969	0.27	4.5	25.677	3.895	0.0	0.0	0.0	0
10.35	25.085	0.989	0.27	4.5	25.364	3.943	0.0	0.0	0.0	0
10.36	25.289	1.04	0.27	4.5	24.316	4.112	0.0	0.0	0.0	0
10.37	25.492	1.06	0.27	4.5	24.049	4.158	0.0	0.0	0.0	0
10.38	25.9	1.071	0.27	4.5	24.183	4.135	0.0	0.0	0.0	0
10.39	26.308	1.081	0.27	4.5	24.337	4.109	0.0	0.0	0.0	0
10.40	26.818	1.071	0.27	4.5	25.04	3.994	0.0	0.0	0.0	0
10.41	29.673	1.03	0.27	4.5	28.809	3.471	0.0	0.0	0.0	0
10.42	28.959	0.999	0.27	4.5	28.988	3.45	0.0	0.0	0.0	0
10.43	28.144	0.989	0.27	4.5	28.457	3.514	0.0	0.0	0.0	0
10.44	27.124	0.979	0.27	4.5	27.706	3.609	0.0	0.0	0.0	0
10.45	26.716	0.969	0.27	4.5	27.571	3.627	0.0	0.0	0.0	0
10.46	26.002	0.948	0.27	4.5	27.428	3.646	0.0	0.0	0.0	0
10.47	25.9	0.959	0.27	4.5	27.007	3.703	0.0	0.0	0.0	0
10.48	25.085	0.979	0.27	4.5	25.623	3.903	0.0	0.0	0.0	0
10.49	24.167	1.01	0.27	4.5	23.928	4.179	0.0	0.0	0.0	0
10.50	23.759	1.04	0.27	4.5	22.845	4.377	0.0	0.0	0.0	0
10.51	23.249	1.101	0.27	4.5	21.116	4.736	0.0	0.0	0.0	0
10.52	23.453	1.111	0.27	4.5	21.11	4.737	0.0	0.0	0.0	0
10.53	23.555	1.132	0.27	4.5	20.808	4.806	0.0	0.0	0.0	0
10.54	23.759	1.152	0.27	4.5	20.624	4.849	0.0	0.0	0.0	0
10.55	24.167	1.173	0.27	4.5	20.603	4.854	0.0	0.0	0.0	0
10.56	25.289	1.183	0.27	4.5	21.377	4.678	0.0	0.0	0.0	0
10.57	25.187	1.183	0.27	4.5	21.291	4.697	0.0	0.0	0.0	0
10.58	25.391	1.173	0.27	4.5	21.646	4.62	0.0	0.0	0.0	0
10.59	25.492	1.162	0.27	4.5	21.938	4.558	0.0	0.0	0.0	0
10.60	25.696	1.173	0.27	4.5	21.906	4.565	0.0	0.0	0.0	0
10.61	25.696	1.132	0.27	4.5	22.7	4.405	0.0	0.0	0.0	0
10.62	26.104	1.111	0.27	4.5	23.496	4.256	0.0	0.0	0.0	0
10.63	26.614	1.091	0.27	4.5	24.394	4.099	0.0	0.0	0.0	0
10.64	27.532	1.071	0.27	4.5	25.707	3.89	0.0	0.0	0.0	0
10.65	27.43	1.081	0.27	4.5	25.375	3.941	0.0	0.0	0.0	0
10.66	26.92	1.091	0.27	4.6	24.675	4.053	0.0	0.0	0.0	0
10.67	26.512	1.091	0.27	4.6	24.301	4.115	0.0	0.0	0.0	0
10.68	26.308	1.091	0.27	4.6	24.114	4.147	0.0	0.0	0.0	0
10.69	25.798	1.101	0.27	4.6	23.431	4.268	0.0	0.0	0.0	0
10.70	24.779	1.132	0.27	4.6	21.89	4.568	0.0	0.0	0.0	0

Prova CPTU n. 9

10.71	24.473	1.122	0.27	4.6	21.812	4.585	0.0	0.0	0.0	0
10.72	24.371	1.122	0.27	4.6	21.721	4.604	0.0	0.0	0.0	0
10.73	24.575	1.111	0.27	4.6	22.12	4.521	0.0	0.0	0.0	0
10.74	24.779	1.101	0.27	4.6	22.506	4.443	0.0	0.0	0.0	0
10.75	24.473	1.091	0.27	4.6	22.432	4.458	0.0	0.0	0.0	0
10.76	24.269	1.081	0.27	4.6	22.451	4.454	0.0	0.0	0.0	0
10.77	23.963	1.071	0.27	4.6	22.374	4.469	0.0	0.0	0.0	0
10.78	23.861	1.05	0.28	4.6	22.725	4.4	0.0	0.0	0.0	0
10.79	23.759	1.03	0.28	4.6	23.067	4.335	0.0	0.0	0.0	0
10.80	23.351	1.01	0.28	4.6	23.12	4.325	0.0	0.0	0.0	0
10.81	23.249	0.999	0.28	4.6	23.272	4.297	0.0	0.0	0.0	0
10.82	23.249	0.979	0.28	4.6	23.748	4.211	0.0	0.0	0.0	0
10.83	23.453	0.948	0.28	4.6	24.739	4.042	0.0	0.0	0.0	0
10.84	23.657	0.928	0.28	4.6	25.492	3.923	0.0	0.0	0.0	0
10.85	23.759	0.877	0.28	4.7	27.091	3.691	0.0	0.0	0.0	0
10.86	23.657	0.867	0.28	4.7	27.286	3.665	0.0	0.0	0.0	0
10.87	23.555	0.867	0.28	4.7	27.168	3.681	0.0	0.0	0.0	0
10.88	23.351	0.857	0.28	4.7	27.247	3.67	0.0	0.0	0.0	0
10.89	23.351	0.857	0.28	4.7	27.247	3.67	0.0	0.0	0.0	0
10.90	23.351	0.857	0.28	4.7	27.247	3.67	0.0	0.0	0.0	0
10.91	23.147	0.714	0.27	4.7	32.419	3.085	0.0	0.0	0.0	0
10.92	23.147	0.714	0.27	4.7	32.419	3.085	0.0	0.0	0.0	0
10.93	22.637	0.724	0.27	4.7	31.267	3.198	0.0	0.0	0.0	0
10.94	22.535	0.714	0.27	4.7	31.562	3.168	0.0	0.0	0.0	0
10.95	22.535	0.714	0.27	4.7	31.562	3.168	0.0	0.0	0.0	0
10.96	22.433	0.714	0.27	4.7	31.419	3.183	0.0	0.0	0.0	0
10.97	22.331	0.724	0.27	4.7	30.844	3.242	0.0	0.0	0.0	0
10.98	22.433	0.724	0.27	4.7	30.985	3.227	0.0	0.0	0.0	0
10.99	22.637	0.724	0.27	4.7	31.267	3.198	0.0	0.0	0.0	0
11.00	22.739	0.724	0.27	4.7	31.407	3.184	0.0	0.0	0.0	0
11.01	22.943	0.724	0.27	4.7	31.689	3.156	0.0	0.0	0.0	0
11.02	23.147	0.744	0.27	4.7	31.112	3.214	0.0	0.0	0.0	0
11.03	23.249	0.765	0.27	4.7	30.391	3.29	0.0	0.0	0.0	0
11.04	23.453	0.775	0.27	4.7	30.262	3.304	0.0	0.0	0.0	0
11.05	23.657	0.785	0.27	4.7	30.136	3.318	0.0	0.0	0.0	0
11.06	23.657	0.806	0.27	4.7	29.351	3.407	0.0	0.0	0.0	0
11.07	23.555	0.846	0.27	4.8	27.843	3.592	0.0	0.0	0.0	0
11.08	23.555	0.857	0.27	4.8	27.485	3.638	0.0	0.0	0.0	0
11.09	23.657	0.877	0.27	4.8	26.975	3.707	0.0	0.0	0.0	0
11.10	23.657	0.897	0.27	4.8	26.373	3.792	0.0	0.0	0.0	0
11.11	23.657	0.918	0.27	4.8	25.77	3.88	0.0	0.0	0.0	0
11.12	23.351	0.928	0.27	4.8	25.163	3.974	0.0	0.0	0.0	0
11.13	23.045	0.928	0.27	4.8	24.833	4.027	0.0	0.0	0.0	0
11.14	22.841	0.928	0.27	4.8	24.613	4.063	0.0	0.0	0.0	0
11.15	22.433	0.918	0.27	4.8	24.437	4.092	0.0	0.0	0.0	0
11.16	22.229	0.897	0.27	4.8	24.781	4.035	0.0	0.0	0.0	0
11.17	22.229	0.867	0.27	4.8	25.639	3.9	0.0	0.0	0.0	0
11.18	22.229	0.857	0.27	4.8	25.938	3.855	0.0	0.0	0.0	0
11.19	22.331	0.857	0.27	4.8	26.057	3.838	0.0	0.0	0.0	0
11.20	22.535	0.846	0.27	4.8	26.637	3.754	0.0	0.0	0.0	0
11.21	22.637	0.795	0.27	4.8	28.474	3.512	0.0	0.0	0.0	0
11.22	22.433	0.795	0.27	4.8	28.218	3.544	0.0	0.0	0.0	0
11.23	21.822	0.795	0.27	4.8	27.449	3.643	0.0	0.0	0.0	0
11.24	21.414	0.795	0.27	4.8	26.936	3.713	0.0	0.0	0.0	0
11.25	21.21	0.795	0.27	4.8	26.679	3.748	0.0	0.0	0.0	0
11.26	20.802	0.795	0.27	4.8	26.166	3.822	0.0	0.0	0.0	0
11.27	20.802	0.795	0.27	4.8	26.166	3.822	0.0	0.0	0.0	0
11.28	21.006	0.795	0.27	4.8	26.423	3.785	0.0	0.0	0.0	0
11.29	21.21	0.806	0.27	4.8	26.315	3.8	0.0	0.0	0.0	0
11.30	21.21	0.836	0.27	4.8	25.371	3.942	0.0	0.0	0.0	0
11.31	21.108	0.877	0.27	4.9	24.068	4.155	0.0	0.0	0.0	0
11.32	21.312	0.887	0.27	4.9	24.027	4.162	0.0	0.0	0.0	0
11.33	21.618	0.908	0.27	4.9	23.808	4.2	0.0	0.0	0.0	0
11.34	21.822	0.918	0.27	4.9	23.771	4.207	0.0	0.0	0.0	0

Prova CPTU n. 9

STIMA PARAMETRI GEOTECNICI Nr.9

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	11.34	18.579	0.596	0.85	1.18	1.17	1.03	0.92	0.93

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	11.34	18.579	0.596	92.90	44.95	111.47	55.74

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	11.34	18.579	0.596	656.31	27.90

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	11.34	18.579	0.596	Imai & Tomauchi	166.93

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	11.34	18.579	0.596	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	11.34	18.579	0.596	Meyerhof	1.95

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	11.34	18.579	0.596	Meyerhof	2.03

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	11.34	18.579	0.596	16.99	7.14	12.38	17.41	16.9

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	11.34	18.579	0.596	28.09	23.92	20.64	19.45	29	30.04	22.28	25.34

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	11.34	18.579	0.596	46.45	37.16	281.35

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	11.34	18.579	0.596	18.80	72.88	136.14	37.16	92.90

Prova CPTU n. 9

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	11.34	18.579	0.596	Imai & Tomauchi	166.93

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	11.34	18.579	0.596	<0.5	4.88	<0.5	3.96

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	11.34	18.579	0.596	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	11.34	18.579	0.596	0.13859	0.01802

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	11.34	18.579	0.596	Meyerhof	1.80

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	11.34	18.579	0.596	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	11.34	18.579	0.596	Robertson & Wride 1997	0

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	11.34	18.579	0.596	Piacentini-Righi 1988	3.397542E-06

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	11.34	18.579	0.596	Piacentini-Righi 1988	0.1893688

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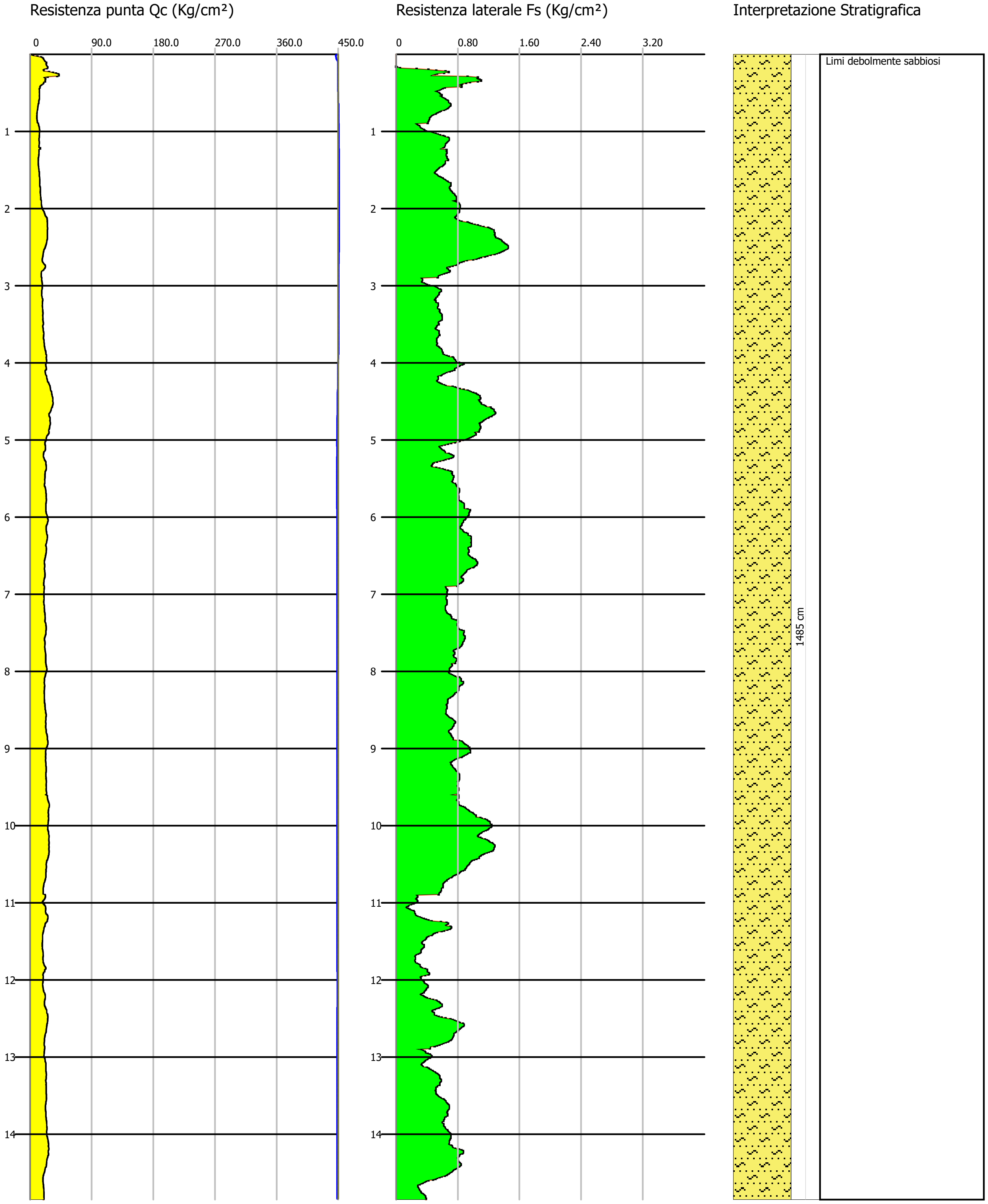
Sito web: www.geologicatoscana.eu

CPTU10_ms3

Probe CPTU - Piezocone Nr.10
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Ozzano dell'Emilia (BO)
Data: 17/03/2021



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 10

PROVA CPTU Nr.10

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 17/03/2021
Profondità prova: 14.85 mt
Località: Ozzano dell'Emilia (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	1.224	0.0	0.30	0.1	0.0	0.0	0.0	0.0	0.0	0
0.02	4.283	0.0	0.36	0.1	0.0	0.0	0.0	0.0	0.0	0
0.03	10.707	0.0	0.34	0.1	0.0	0.0	0.0	0.0	0.0	0
0.04	16.111	0.0	0.32	0.0	0.0	0.0	0.0	0.0	0.0	0
0.05	17.845	0.0	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0
0.06	18.864	0.0	0.26	0.1	0.0	0.0	0.0	0.0	0.0	0
0.07	19.272	0.0	0.21	0.1	0.0	0.0	0.0	0.0	0.0	0
0.08	20.088	0.0	0.10	0.1	0.0	0.0	0.0	0.0	0.0	0
0.09	20.7	0.0	0.08	0.1	0.0	0.0	0.0	0.0	0.0	0
0.10	21.72	0.0	0.07	0.1	0.0	0.0	0.0	0.0	0.0	0
0.11	23.555	0.0	0.06	0.2	0.0	0.0	0.0	0.0	0.0	0
0.12	22.433	0.0	0.06	0.1	0.0	0.0	0.0	0.0	0.0	0
0.13	22.637	0.0	0.06	0.1	0.0	0.0	0.0	0.0	0.0	0
0.14	23.249	0.0	0.06	0.1	0.0	0.0	0.0	0.0	0.0	0
0.15	23.555	0.0	0.06	0.1	0.0	0.0	0.0	0.0	0.0	0
0.16	24.371	0.0	0.06	0.1	0.0	0.0	0.0	0.0	0.0	0
0.17	25.289	0.01	0.06	0.1	2528.9	0.04	0.0	0.0	0.0	0
0.18	24.167	0.051	0.06	0.1	473.863	0.211	0.0	0.0	0.0	0
0.19	19.986	0.265	0.06	0.1	75.419	1.326	0.0	0.0	0.0	0
0.20	18.559	0.418	0.06	0.1	44.4	2.252	0.0	0.0	0.0	0

Prova CPTU n. 10

0.21	18.762	0.52	0.06	0.0	36.081	2.772	0.0	0.0	0.0	0
0.22	19.68	0.642	0.05	0.1	30.654	3.262	0.0	0.0	0.0	0
0.23	27.736	0.683	0.04	0.1	40.609	2.463	0.0	0.0	0.0	0
0.24	33.344	0.622	0.05	0.2	53.608	1.865	0.0	0.0	0.0	0
0.25	37.933	0.53	0.06	0.2	71.572	1.397	0.0	0.0	0.0	0
0.26	40.992	0.5	0.06	0.2	81.984	1.22	0.0	0.0	0.0	0
0.27	41.91	0.469	0.06	0.3	89.36	1.119	0.0	0.0	0.0	0
0.28	39.768	0.449	0.06	0.4	88.57	1.129	0.0	0.0	0.0	0
0.29	25.696	0.928	0.06	0.4	27.69	3.611	0.0	0.0	0.0	0
0.30	19.374	1.06	0.06	0.5	18.277	5.471	0.0	0.0	0.0	0
0.31	20.904	1.04	0.06	0.5	20.1	4.975	0.0	0.0	0.0	0
0.32	22.229	1.05	0.05	0.5	21.17	4.724	0.0	0.0	0.0	0
0.33	21.108	1.081	0.05	0.5	19.526	5.121	0.0	0.0	0.0	0
0.34	21.312	1.101	0.05	0.5	19.357	5.166	0.0	0.0	0.0	0
0.35	21.618	1.06	0.05	0.5	20.394	4.903	0.0	0.0	0.0	0
0.36	19.374	0.959	0.04	0.5	20.202	4.95	0.0	0.0	0.0	0
0.37	19.272	0.908	0.04	0.5	21.225	4.711	0.0	0.0	0.0	0
0.38	18.355	0.857	0.04	0.5	21.418	4.669	0.0	0.0	0.0	0
0.39	16.621	0.826	0.04	0.5	20.122	4.97	0.0	0.0	0.0	0
0.40	14.888	0.795	0.04	0.5	18.727	5.34	0.0	0.0	0.0	0
0.41	14.174	0.846	0.04	0.5	16.754	5.969	0.0	0.0	0.0	0
0.42	13.562	0.846	0.04	0.5	16.031	6.238	0.0	0.0	0.0	0
0.43	13.97	0.632	0.03	0.5	22.104	4.524	0.0	0.0	0.0	0
0.44	12.542	0.602	0.03	0.5	20.834	4.8	0.0	0.0	0.0	0
0.45	12.644	0.581	0.03	0.5	21.762	4.595	0.0	0.0	0.0	0
0.46	12.848	0.561	0.03	0.5	22.902	4.366	0.0	0.0	0.0	0
0.47	13.052	0.53	0.03	0.5	24.626	4.061	0.0	0.0	0.0	0
0.48	12.95	0.5	0.03	0.5	25.9	3.861	0.0	0.0	0.0	0
0.49	12.848	0.53	0.02	0.5	24.242	4.125	0.0	0.0	0.0	0
0.50	12.95	0.551	0.02	0.5	23.503	4.255	0.0	0.0	0.0	0
0.51	13.052	0.561	0.02	0.5	23.266	4.298	0.0	0.0	0.0	0
0.52	12.95	0.571	0.02	0.5	22.68	4.409	0.0	0.0	0.0	0
0.53	13.052	0.591	0.02	0.5	22.085	4.528	0.0	0.0	0.0	0
0.54	12.746	0.561	0.02	0.5	22.72	4.401	0.0	0.0	0.0	0
0.55	12.95	0.581	0.02	0.5	22.289	4.486	0.0	0.0	0.0	0
0.56	13.052	0.591	0.02	0.5	22.085	4.528	0.0	0.0	0.0	0
0.57	12.95	0.612	0.02	0.5	21.16	4.726	0.0	0.0	0.0	0
0.58	12.848	0.632	0.02	0.5	20.329	4.919	0.0	0.0	0.0	0
0.59	12.44	0.642	0.02	0.5	19.377	5.161	0.0	0.0	0.0	0
0.60	12.134	0.663	0.01	0.5	18.302	5.464	0.0	0.0	0.0	0
0.61	11.93	0.673	0.01	0.5	17.727	5.641	0.0	0.0	0.0	0
0.62	11.829	0.673	0.01	0.5	17.577	5.689	0.0	0.0	0.0	0
0.63	11.93	0.673	0.01	0.5	17.727	5.641	0.0	0.0	0.0	0
0.64	11.319	0.693	-0.06	0.5	16.333	6.122	0.0	0.0	0.0	0
0.65	11.217	0.704	-0.06	0.5	15.933	6.276	0.0	0.0	0.0	0
0.66	11.013	0.704	-0.06	0.5	15.643	6.392	0.0	0.0	0.0	0
0.67	10.809	0.693	-0.06	0.5	15.597	6.411	0.0	0.0	0.0	0
0.68	10.605	0.683	-0.06	0.5	15.527	6.44	0.0	0.0	0.0	0
0.69	10.401	0.673	-0.06	0.5	15.455	6.471	0.0	0.0	0.0	0
0.70	10.401	0.663	-0.06	0.5	15.688	6.374	0.0	0.0	0.0	0
0.71	10.299	0.642	-0.07	0.5	16.042	6.234	0.0	0.0	0.0	0
0.72	10.095	0.622	-0.07	0.5	16.23	6.161	0.0	0.0	0.0	0
0.73	9.687	0.581	-0.07	0.5	16.673	5.998	0.0	0.0	0.0	0
0.74	9.687	0.561	-0.07	0.5	17.267	5.791	0.0	0.0	0.0	0
0.75	9.585	0.54	-0.07	0.5	17.75	5.634	0.0	0.0	0.0	0
0.76	9.483	0.52	-0.07	0.5	18.237	5.483	0.0	0.0	0.0	0
0.77	9.279	0.51	-0.07	0.5	18.194	5.496	0.0	0.0	0.0	0
0.78	9.381	0.479	-0.07	0.5	19.585	5.106	0.0	0.0	0.0	0
0.79	9.177	0.459	-0.07	0.5	19.993	5.002	0.0	0.0	0.0	0
0.80	9.075	0.449	-0.07	0.4	20.212	4.948	0.0	0.0	0.0	0
0.81	9.075	0.438	-0.07	0.4	20.719	4.826	0.0	0.0	0.0	0
0.82	9.177	0.428	-0.07	0.4	21.442	4.664	0.0	0.0	0.0	0
0.83	9.075	0.428	-0.07	0.5	21.203	4.716	0.0	0.0	0.0	0
0.84	9.177	0.428	-0.07	0.4	21.442	4.664	0.0	0.0	0.0	0
0.85	9.381	0.418	-0.07	0.4	22.443	4.456	0.0	0.0	0.0	0
0.86	9.585	0.418	-0.07	0.4	22.931	4.361	0.0	0.0	0.0	0
0.87	9.891	0.408	-0.07	0.4	24.243	4.125	0.0	0.0	0.0	0
0.88	9.891	0.408	-0.07	0.4	24.243	4.125	0.0	0.0	0.0	0
0.89	9.891	0.408	-0.07	0.4	24.243	4.125	0.0	0.0	0.0	0
0.90	11.319	0.245	-0.09	0.4	46.2	2.165	0.0	0.0	0.0	0
0.91	11.523	0.265	-0.09	0.3	43.483	2.3	0.0	0.0	0.0	0
0.92	11.727	0.275	-0.09	0.3	42.644	2.345	0.0	0.0	0.0	0
0.93	12.134	0.296	-0.09	0.3	40.993	2.439	0.0	0.0	0.0	0
0.94	12.338	0.306	-0.09	0.3	40.32	2.48	0.0	0.0	0.0	0
0.95	12.644	0.306	-0.09	0.3	41.32	2.42	0.0	0.0	0.0	0

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0.96	12.848	0.316	-0.09	0.3	40.658	2.46	0.0	0.0	0.0	0
0.97	13.052	0.337	-0.09	0.3	38.73	2.582	0.0	0.0	0.0	0
0.98	13.154	0.357	-0.09	0.3	36.846	2.714	0.0	0.0	0.0	0
0.99	13.256	0.367	-0.09	0.3	36.12	2.769	0.0	0.0	0.0	0
1.00	13.154	0.387	-0.10	0.3	33.99	2.942	0.0	0.0	0.0	0
1.01	13.052	0.449	-0.10	0.3	29.069	3.44	0.0	0.0	0.0	0
1.02	13.052	0.479	-0.10	0.3	27.248	3.67	0.0	0.0	0.0	0
1.03	13.052	0.51	-0.10	0.2	25.592	3.907	0.0	0.0	0.0	0
1.04	12.95	0.54	-0.10	0.2	23.981	4.17	0.0	0.0	0.0	0
1.05	12.848	0.571	-0.10	0.2	22.501	4.444	0.0	0.0	0.0	0
1.06	12.644	0.612	-0.10	0.2	20.66	4.84	0.0	0.0	0.0	0
1.07	12.644	0.632	-0.10	0.2	20.006	4.998	0.0	0.0	0.0	0
1.08	12.542	0.673	-0.10	0.2	18.636	5.366	0.0	0.0	0.0	0
1.09	12.44	0.683	-0.10	0.2	18.214	5.49	0.0	0.0	0.0	0
1.10	12.338	0.683	-0.10	0.2	18.064	5.536	0.0	0.0	0.0	0
1.11	12.44	0.683	-0.10	0.2	18.214	5.49	0.0	0.0	0.0	0
1.12	12.44	0.673	-0.10	0.2	18.484	5.41	0.0	0.0	0.0	0
1.13	12.542	0.663	-0.10	0.2	18.917	5.286	0.0	0.0	0.0	0
1.14	12.644	0.653	-0.10	0.2	19.363	5.165	0.0	0.0	0.0	0
1.15	12.644	0.642	-0.10	0.2	19.695	5.078	0.0	0.0	0.0	0
1.16	12.542	0.632	-0.10	0.2	19.845	5.039	0.0	0.0	0.0	0
1.17	12.542	0.632	-0.10	0.2	19.845	5.039	0.0	0.0	0.0	0
1.18	12.44	0.632	-0.10	0.2	19.684	5.08	0.0	0.0	0.0	0
1.19	12.338	0.622	-0.10	0.2	19.836	5.041	0.0	0.0	0.0	0
1.20	12.338	0.622	-0.10	0.2	19.836	5.041	0.0	0.0	0.0	0
1.21	12.44	0.602	-0.10	0.2	20.664	4.839	0.0	0.0	0.0	0
1.22	14.582	0.591	-0.10	0.2	24.673	4.053	0.0	0.0	0.0	0
1.23	12.542	0.571	-0.11	0.2	21.965	4.553	0.0	0.0	0.0	0
1.24	12.236	0.653	-0.11	0.2	18.738	5.337	0.0	0.0	0.0	0
1.25	12.44	0.642	-0.12	0.2	19.377	5.161	0.0	0.0	0.0	0
1.26	12.338	0.642	-0.12	0.2	19.218	5.203	0.0	0.0	0.0	0
1.27	12.236	0.653	-0.12	0.2	18.738	5.337	0.0	0.0	0.0	0
1.28	12.236	0.653	-0.12	0.2	18.738	5.337	0.0	0.0	0.0	0
1.29	12.236	0.642	-0.12	0.2	19.059	5.247	0.0	0.0	0.0	0
1.30	12.134	0.642	-0.12	0.2	18.9	5.291	0.0	0.0	0.0	0
1.31	12.032	0.642	-0.12	0.2	18.741	5.336	0.0	0.0	0.0	0
1.32	11.829	0.642	-0.12	0.2	18.425	5.427	0.0	0.0	0.0	0
1.33	11.727	0.653	-0.12	0.2	17.959	5.568	0.0	0.0	0.0	0
1.34	11.421	0.653	-0.12	0.2	17.49	5.718	0.0	0.0	0.0	0
1.35	11.319	0.653	-0.12	0.2	17.334	5.769	0.0	0.0	0.0	0
1.36	11.421	0.663	-0.12	0.2	17.226	5.805	0.0	0.0	0.0	0
1.37	11.421	0.673	-0.12	0.2	16.97	5.893	0.0	0.0	0.0	0
1.38	11.421	0.632	-0.12	0.2	18.071	5.534	0.0	0.0	0.0	0
1.39	11.217	0.632	-0.12	0.2	17.748	5.634	0.0	0.0	0.0	0
1.40	11.217	0.632	-0.12	0.2	17.748	5.634	0.0	0.0	0.0	0
1.41	11.319	0.632	-0.12	0.2	17.91	5.584	0.0	0.0	0.0	0
1.42	11.421	0.622	-0.12	0.2	18.362	5.446	0.0	0.0	0.0	0
1.43	11.421	0.612	-0.12	0.2	18.662	5.359	0.0	0.0	0.0	0
1.44	11.421	0.602	-0.12	0.2	18.972	5.271	0.0	0.0	0.0	0
1.45	11.523	0.591	-0.12	0.2	19.497	5.129	0.0	0.0	0.0	0
1.46	11.727	0.561	-0.12	0.2	20.904	4.784	0.0	0.0	0.0	0
1.47	11.829	0.551	-0.12	0.2	21.468	4.658	0.0	0.0	0.0	0
1.48	11.829	0.54	-0.12	0.2	21.906	4.565	0.0	0.0	0.0	0
1.49	12.032	0.53	-0.12	0.2	22.702	4.405	0.0	0.0	0.0	0
1.50	12.236	0.52	-0.12	0.2	23.531	4.25	0.0	0.0	0.0	0
1.51	12.338	0.51	-0.12	0.2	24.192	4.134	0.0	0.0	0.0	0
1.52	12.338	0.5	-0.12	0.2	24.676	4.053	0.0	0.0	0.0	0
1.53	12.644	0.489	-0.12	0.2	25.857	3.867	0.0	0.0	0.0	0
1.54	12.746	0.489	-0.12	0.2	26.065	3.836	0.0	0.0	0.0	0
1.55	12.746	0.5	-0.12	0.2	25.492	3.923	0.0	0.0	0.0	0
1.56	12.644	0.52	-0.12	0.2	24.315	4.113	0.0	0.0	0.0	0
1.57	12.746	0.53	-0.12	0.2	24.049	4.158	0.0	0.0	0.0	0
1.58	12.848	0.54	-0.12	0.2	23.793	4.203	0.0	0.0	0.0	0
1.59	13.052	0.561	-0.12	0.2	23.266	4.298	0.0	0.0	0.0	0
1.60	13.256	0.581	-0.12	0.2	22.816	4.383	0.0	0.0	0.0	0
1.61	13.256	0.602	-0.13	0.2	22.02	4.541	0.0	0.0	0.0	0
1.62	13.358	0.612	-0.12	0.2	21.827	4.582	0.0	0.0	0.0	0
1.63	13.46	0.632	-0.13	0.2	21.297	4.695	0.0	0.0	0.0	0
1.64	13.46	0.642	-0.13	0.2	20.966	4.77	0.0	0.0	0.0	0
1.65	13.46	0.663	-0.13	0.2	20.302	4.926	0.0	0.0	0.0	0
1.66	13.46	0.673	-0.13	0.2	20.0	5.0	0.0	0.0	0.0	0
1.67	13.46	0.704	-0.13	0.2	19.119	5.23	0.0	0.0	0.0	0
1.68	13.358	0.704	-0.13	0.1	18.974	5.27	0.0	0.0	0.0	0
1.69	13.256	0.704	-0.13	0.1	18.83	5.311	0.0	0.0	0.0	0
1.70	13.358	0.704	-0.13	0.1	18.974	5.27	0.0	0.0	0.0	0

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1.71	13.562	0.693	-0.13	0.1	19.57	5.11	0.0	0.0	0.0	0
1.72	13.868	0.683	-0.13	0.1	20.305	4.925	0.0	0.0	0.0	0
1.73	14.174	0.683	-0.13	0.1	20.753	4.819	0.0	0.0	0.0	0
1.74	14.378	0.683	-0.13	0.1	21.051	4.75	0.0	0.0	0.0	0
1.75	14.276	0.693	-0.13	0.1	20.6	4.854	0.0	0.0	0.0	0
1.76	14.378	0.693	-0.13	0.1	20.747	4.82	0.0	0.0	0.0	0
1.77	14.276	0.704	-0.13	0.1	20.278	4.931	0.0	0.0	0.0	0
1.78	14.174	0.714	-0.13	0.1	19.852	5.037	0.0	0.0	0.0	0
1.79	14.174	0.724	-0.13	0.1	19.577	5.108	0.0	0.0	0.0	0
1.80	14.174	0.724	-0.13	0.1	19.577	5.108	0.0	0.0	0.0	0
1.81	14.378	0.744	-0.13	0.1	19.325	5.175	0.0	0.0	0.0	0
1.82	14.378	0.755	-0.13	0.1	19.044	5.251	0.0	0.0	0.0	0
1.83	14.48	0.755	-0.13	0.1	19.179	5.214	0.0	0.0	0.0	0
1.84	14.684	0.765	-0.13	0.1	19.195	5.21	0.0	0.0	0.0	0
1.85	14.786	0.775	-0.13	0.1	19.079	5.241	0.0	0.0	0.0	0
1.86	14.888	0.775	-0.13	0.1	19.21	5.206	0.0	0.0	0.0	0
1.87	14.99	0.775	-0.13	0.1	19.342	5.17	0.0	0.0	0.0	0
1.88	14.99	0.775	-0.13	0.1	19.342	5.17	0.0	0.0	0.0	0
1.89	14.99	0.775	-0.13	0.1	19.342	5.17	0.0	0.0	0.0	0
1.90	15.805	0.724	-0.12	0.0	21.83	4.581	0.0	0.0	0.0	0
1.91	15.805	0.755	-0.12	0.0	20.934	4.777	0.0	0.0	0.0	0
1.92	15.805	0.785	-0.12	0.0	20.134	4.967	0.0	0.0	0.0	0
1.93	15.907	0.806	-0.12	0.0	19.736	5.067	0.0	0.0	0.0	0
1.94	15.907	0.816	-0.12	0.0	19.494	5.13	0.0	0.0	0.0	0
1.95	15.907	0.816	-0.12	0.0	19.494	5.13	0.0	0.0	0.0	0
1.96	16.009	0.826	-0.12	0.0	19.381	5.16	0.0	0.0	0.0	0
1.97	16.111	0.826	-0.12	0.0	19.505	5.127	0.0	0.0	0.0	0
1.98	16.315	0.826	-0.12	0.0	19.752	5.063	0.0	0.0	0.0	0
1.99	16.723	0.826	-0.12	0.0	20.246	4.939	0.0	0.0	0.0	0
2.00	17.131	0.816	-0.12	0.0	20.994	4.763	0.0	0.0	0.0	0
2.01	17.437	0.816	-0.12	0.0	21.369	4.68	0.0	0.0	0.0	0
2.02	17.947	0.816	-0.12	0.0	21.994	4.547	0.0	0.0	0.0	0
2.03	18.559	0.816	-0.12	0.1	22.744	4.397	0.0	0.0	0.0	0
2.04	19.374	0.816	-0.12	0.1	23.743	4.212	0.0	0.0	0.0	0
2.05	19.884	0.806	-0.12	0.1	24.67	4.054	0.0	0.0	0.0	0
2.06	20.19	0.795	-0.12	0.1	25.396	3.938	0.0	0.0	0.0	0
2.07	20.598	0.785	-0.12	0.1	26.239	3.811	0.0	0.0	0.0	0
2.08	20.904	0.785	-0.12	0.1	26.629	3.755	0.0	0.0	0.0	0
2.09	21.414	0.775	-0.12	0.1	27.631	3.619	0.0	0.0	0.0	0
2.10	21.822	0.765	-0.12	0.0	28.525	3.506	0.0	0.0	0.0	0
2.11	22.841	0.755	-0.12	0.0	30.253	3.305	0.0	0.0	0.0	0
2.12	23.453	0.755	-0.12	0.0	31.064	3.219	0.0	0.0	0.0	0
2.13	24.167	0.765	-0.12	0.0	31.591	3.165	0.0	0.0	0.0	0
2.14	24.167	0.775	-0.12	0.0	31.183	3.207	0.0	0.0	0.0	0
2.15	24.167	0.795	-0.12	0.0	30.399	3.29	0.0	0.0	0.0	0
2.16	24.677	0.816	-0.12	0.0	30.241	3.307	0.0	0.0	0.0	0
2.17	24.167	0.846	-0.12	0.0	28.566	3.501	0.0	0.0	0.0	0
2.18	24.371	0.928	-0.12	0.0	26.262	3.808	0.0	0.0	0.0	0
2.19	24.575	0.948	-0.12	0.0	25.923	3.858	0.0	0.0	0.0	0
2.20	24.473	0.979	-0.12	0.0	24.998	4.0	0.0	0.0	0.0	0
2.21	24.371	1.02	-0.12	0.0	23.893	4.185	0.0	0.0	0.0	0
2.22	24.371	1.06	-0.12	0.0	22.992	4.349	0.0	0.0	0.0	0
2.23	24.575	1.091	-0.12	0.0	22.525	4.439	0.0	0.0	0.0	0
2.24	24.473	1.132	-0.12	0.0	21.619	4.626	0.0	0.0	0.0	0
2.25	24.779	1.193	-0.12	0.1	20.77	4.815	0.0	0.0	0.0	0
2.26	24.983	1.213	-0.12	0.0	20.596	4.855	0.0	0.0	0.0	0
2.27	24.473	1.234	-0.12	0.0	19.832	5.042	0.0	0.0	0.0	0
2.28	24.575	1.264	-0.12	0.0	19.442	5.143	0.0	0.0	0.0	0
2.29	24.473	1.264	-0.12	0.1	19.362	5.165	0.0	0.0	0.0	0
2.30	24.575	1.264	-0.12	0.1	19.442	5.143	0.0	0.0	0.0	0
2.31	24.575	1.264	-0.12	0.1	19.442	5.143	0.0	0.0	0.0	0
2.32	24.575	1.275	-0.12	0.1	19.275	5.188	0.0	0.0	0.0	0
2.33	24.473	1.275	-0.12	0.1	19.195	5.21	0.0	0.0	0.0	0
2.34	24.677	1.264	-0.12	0.0	19.523	5.122	0.0	0.0	0.0	0
2.35	24.677	1.275	-0.12	0.1	19.355	5.167	0.0	0.0	0.0	0
2.36	24.575	1.275	-0.12	0.0	19.275	5.188	0.0	0.0	0.0	0
2.37	24.575	1.285	-0.12	0.0	19.125	5.229	0.0	0.0	0.0	0
2.38	24.473	1.285	-0.12	0.0	19.045	5.251	0.0	0.0	0.0	0
2.39	24.473	1.315	-0.12	0.0	18.611	5.373	0.0	0.0	0.0	0
2.40	24.167	1.336	-0.12	0.0	18.089	5.528	0.0	0.0	0.0	0
2.41	23.963	1.356	-0.12	0.0	17.672	5.659	0.0	0.0	0.0	0
2.42	23.759	1.366	-0.12	0.0	17.393	5.749	0.0	0.0	0.0	0
2.43	23.657	1.366	-0.12	0.0	17.318	5.774	0.0	0.0	0.0	0
2.44	23.351	1.387	-0.12	0.0	16.836	5.94	0.0	0.0	0.0	0
2.45	23.147	1.397	-0.12	0.0	16.569	6.035	0.0	0.0	0.0	0

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2.46	22.841	1.407	-0.11	0.0	16.234	6.16	0.0	0.0	0.0	0
2.47	22.535	1.428	-0.11	0.0	15.781	6.337	0.0	0.0	0.0	0
2.48	22.127	1.438	-0.11	0.0	15.387	6.499	0.0	0.0	0.0	0
2.49	21.72	1.448	-0.11	0.0	15.0	6.667	0.0	0.0	0.0	0
2.50	21.312	1.448	-0.11	0.0	14.718	6.794	0.0	0.0	0.0	0
2.51	20.904	1.448	-0.11	0.0	14.436	6.927	0.0	0.0	0.0	0
2.52	20.394	1.438	-0.11	0.0	14.182	7.051	0.0	0.0	0.0	0
2.53	19.68	1.417	-0.11	0.0	13.888	7.2	0.0	0.0	0.0	0
2.54	19.476	1.397	-0.11	0.0	13.941	7.173	0.0	0.0	0.0	0
2.55	19.272	1.377	-0.11	0.0	13.996	7.145	0.0	0.0	0.0	0
2.56	18.864	1.356	-0.11	0.0	13.912	7.188	0.0	0.0	0.0	0
2.57	18.661	1.336	-0.10	0.0	13.968	7.159	0.0	0.0	0.0	0
2.58	18.457	1.305	-0.09	0.0	14.143	7.07	0.0	0.0	0.0	0
2.59	18.355	1.275	-0.09	0.0	14.396	6.946	0.0	0.0	0.0	0
2.60	18.151	1.224	-0.08	0.0	14.829	6.743	0.0	0.0	0.0	0
2.61	18.049	1.183	-0.08	0.0	15.257	6.554	0.0	0.0	0.0	0
2.62	17.845	1.152	-0.09	0.0	15.49	6.456	0.0	0.0	0.0	0
2.63	17.539	1.101	-0.08	0.0	15.93	6.277	0.0	0.0	0.0	0
2.64	17.335	1.071	-0.08	0.0	16.186	6.178	0.0	0.0	0.0	0
2.65	17.029	1.04	-0.08	0.0	16.374	6.107	0.0	0.0	0.0	0
2.66	16.927	0.999	-0.08	0.0	16.944	5.902	0.0	0.0	0.0	0
2.67	17.029	0.918	-0.08	0.1	18.55	5.391	0.0	0.0	0.0	0
2.68	17.029	0.877	-0.08	0.1	19.417	5.15	0.0	0.0	0.0	0
2.69	17.233	0.846	-0.08	0.1	20.37	4.909	0.0	0.0	0.0	0
2.70	17.845	0.816	-0.08	0.1	21.869	4.573	0.0	0.0	0.0	0
2.71	18.661	0.806	-0.08	0.1	23.153	4.319	0.0	0.0	0.0	0
2.72	19.476	0.785	-0.06	0.1	24.81	4.031	0.0	0.0	0.0	0
2.73	20.496	0.775	-0.06	0.1	26.446	3.781	0.0	0.0	0.0	0
2.74	21.414	0.734	-0.05	0.1	29.174	3.428	0.0	0.0	0.0	0
2.75	21.924	0.693	-0.05	0.1	31.636	3.161	0.0	0.0	0.0	0
2.76	21.21	0.653	-0.04	0.1	32.481	3.079	0.0	0.0	0.0	0
2.77	21.006	0.653	-0.04	0.1	32.168	3.109	0.0	0.0	0.0	0
2.78	19.782	0.653	-0.04	0.1	30.294	3.301	0.0	0.0	0.0	0
2.79	19.068	0.673	-0.06	0.1	28.333	3.529	0.0	0.0	0.0	0
2.80	17.947	0.673	-0.07	0.1	26.667	3.75	0.0	0.0	0.0	0
2.81	16.213	0.693	-0.07	0.1	23.395	4.274	0.0	0.0	0.0	0
2.82	15.907	0.683	-0.07	0.2	23.29	4.294	0.0	0.0	0.0	0
2.83	15.805	0.653	-0.07	0.2	24.204	4.132	0.0	0.0	0.0	0
2.84	15.703	0.622	-0.07	0.2	25.246	3.961	0.0	0.0	0.0	0
2.85	15.601	0.591	-0.07	0.2	26.398	3.788	0.0	0.0	0.0	0
2.86	15.601	0.561	-0.07	0.2	27.809	3.596	0.0	0.0	0.0	0
2.87	15.499	0.54	-0.07	0.2	28.702	3.484	0.0	0.0	0.0	0
2.88	15.499	0.54	-0.07	0.2	28.702	3.484	0.0	0.0	0.0	0
2.89	15.499	0.54	-0.07	0.2	28.702	3.484	0.0	0.0	0.0	0
2.90	16.315	0.316	-0.05	0.2	51.63	1.937	0.0	0.0	0.0	0
2.91	16.111	0.326	-0.05	0.2	49.42	2.023	0.0	0.0	0.0	0
2.92	16.213	0.337	-0.05	0.2	48.11	2.079	0.0	0.0	0.0	0
2.93	16.213	0.337	-0.05	0.2	48.11	2.079	0.0	0.0	0.0	0
2.94	16.417	0.326	-0.05	0.2	50.359	1.986	0.0	0.0	0.0	0
2.95	16.723	0.326	-0.05	0.2	51.298	1.949	0.0	0.0	0.0	0
2.96	16.723	0.326	-0.05	0.2	51.298	1.949	0.0	0.0	0.0	0
2.97	17.029	0.357	-0.05	0.2	47.7	2.096	0.0	0.0	0.0	0
2.98	17.131	0.377	-0.05	0.2	45.44	2.201	0.0	0.0	0.0	0
2.99	17.233	0.398	-0.05	0.2	43.299	2.31	0.0	0.0	0.0	0
3.00	17.029	0.428	-0.05	0.2	39.787	2.513	0.0	0.0	0.0	0
3.01	17.029	0.489	-0.05	0.2	34.824	2.872	0.0	0.0	0.0	0
3.02	17.029	0.51	-0.05	0.2	33.39	2.995	0.0	0.0	0.0	0
3.03	17.131	0.53	-0.05	0.2	32.323	3.094	0.0	0.0	0.0	0
3.04	16.927	0.54	-0.05	0.2	31.346	3.19	0.0	0.0	0.0	0
3.05	16.519	0.571	-0.05	0.2	28.93	3.457	0.0	0.0	0.0	0
3.06	16.315	0.581	-0.05	0.2	28.081	3.561	0.0	0.0	0.0	0
3.07	16.315	0.581	-0.05	0.2	28.081	3.561	0.0	0.0	0.0	0
3.08	16.315	0.561	-0.05	0.2	29.082	3.439	0.0	0.0	0.0	0
3.09	16.315	0.551	-0.05	0.2	29.61	3.377	0.0	0.0	0.0	0
3.10	16.315	0.551	-0.05	0.2	29.61	3.377	0.0	0.0	0.0	0
3.11	16.111	0.551	-0.05	0.2	29.24	3.42	0.0	0.0	0.0	0
3.12	16.111	0.54	-0.05	0.2	29.835	3.352	0.0	0.0	0.0	0
3.13	16.111	0.53	-0.05	0.2	30.398	3.29	0.0	0.0	0.0	0
3.14	16.621	0.53	-0.05	0.2	31.36	3.189	0.0	0.0	0.0	0
3.15	16.825	0.51	-0.05	0.2	32.99	3.031	0.0	0.0	0.0	0
3.16	16.927	0.51	-0.05	0.2	33.19	3.013	0.0	0.0	0.0	0
3.17	17.233	0.5	-0.05	0.2	34.466	2.901	0.0	0.0	0.0	0
3.18	17.845	0.489	-0.05	0.2	36.493	2.74	0.0	0.0	0.0	0
3.19	17.743	0.489	-0.05	0.2	36.284	2.756	0.0	0.0	0.0	0
3.20	17.233	0.51	-0.05	0.2	33.79	2.959	0.0	0.0	0.0	0

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3.21	17.335	0.51	-0.05	0.2	33.99	2.942	0.0	0.0	0.0	0
3.22	17.335	0.51	-0.05	0.2	33.99	2.942	0.0	0.0	0.0	0
3.23	17.233	0.54	-0.05	0.2	31.913	3.134	0.0	0.0	0.0	0
3.24	17.233	0.54	-0.05	0.2	31.913	3.134	0.0	0.0	0.0	0
3.25	17.233	0.54	-0.05	0.2	31.913	3.134	0.0	0.0	0.0	0
3.26	17.131	0.54	-0.05	0.2	31.724	3.152	0.0	0.0	0.0	0
3.27	17.233	0.53	-0.05	0.3	32.515	3.075	0.0	0.0	0.0	0
3.28	17.335	0.53	-0.05	0.3	32.708	3.057	0.0	0.0	0.0	0
3.29	17.539	0.53	-0.05	0.3	33.092	3.022	0.0	0.0	0.0	0
3.30	17.641	0.53	-0.05	0.3	33.285	3.004	0.0	0.0	0.0	0
3.31	17.539	0.551	-0.05	0.3	31.831	3.142	0.0	0.0	0.0	0
3.32	17.743	0.561	-0.05	0.3	31.627	3.162	0.0	0.0	0.0	0
3.33	17.743	0.551	-0.05	0.3	32.201	3.105	0.0	0.0	0.0	0
3.34	17.845	0.561	-0.05	0.3	31.809	3.144	0.0	0.0	0.0	0
3.35	18.049	0.561	-0.05	0.3	32.173	3.108	0.0	0.0	0.0	0
3.36	18.151	0.571	-0.06	0.3	31.788	3.146	0.0	0.0	0.0	0
3.37	17.947	0.581	-0.06	0.3	30.89	3.237	0.0	0.0	0.0	0
3.38	17.845	0.591	-0.06	0.3	30.195	3.312	0.0	0.0	0.0	0
3.39	17.845	0.581	-0.06	0.3	30.714	3.256	0.0	0.0	0.0	0
3.40	17.947	0.591	-0.06	0.3	30.367	3.293	0.0	0.0	0.0	0
3.41	17.947	0.591	-0.06	0.3	30.367	3.293	0.0	0.0	0.0	0
3.42	17.947	0.591	-0.06	0.3	30.367	3.293	0.0	0.0	0.0	0
3.43	18.151	0.591	-0.06	0.3	30.712	3.256	0.0	0.0	0.0	0
3.44	17.743	0.591	-0.06	0.4	30.022	3.331	0.0	0.0	0.0	0
3.45	17.947	0.571	-0.06	0.4	31.431	3.182	0.0	0.0	0.0	0
3.46	18.151	0.551	-0.06	0.4	32.942	3.036	0.0	0.0	0.0	0
3.47	18.457	0.54	-0.06	0.4	34.18	2.926	0.0	0.0	0.0	0
3.48	18.559	0.54	-0.06	0.4	34.369	2.91	0.0	0.0	0.0	0
3.49	18.864	0.54	-0.06	0.4	34.933	2.863	0.0	0.0	0.0	0
3.50	18.661	0.551	-0.06	0.4	33.868	2.953	0.0	0.0	0.0	0
3.51	17.947	0.53	-0.05	0.4	33.862	2.953	0.0	0.0	0.0	0
3.52	17.845	0.52	-0.05	0.4	34.317	2.914	0.0	0.0	0.0	0
3.53	17.743	0.52	-0.05	0.4	34.121	2.931	0.0	0.0	0.0	0
3.54	17.947	0.51	-0.05	0.4	35.19	2.842	0.0	0.0	0.0	0
3.55	18.151	0.5	-0.05	0.4	36.302	2.755	0.0	0.0	0.0	0
3.56	18.457	0.5	-0.05	0.4	36.914	2.709	0.0	0.0	0.0	0
3.57	18.559	0.51	-0.05	0.4	36.39	2.748	0.0	0.0	0.0	0
3.58	18.559	0.53	-0.05	0.5	35.017	2.856	0.0	0.0	0.0	0
3.59	18.661	0.551	-0.05	0.5	33.868	2.953	0.0	0.0	0.0	0
3.60	18.864	0.551	-0.05	0.5	34.236	2.921	0.0	0.0	0.0	0
3.61	19.272	0.551	-0.05	0.5	34.976	2.859	0.0	0.0	0.0	0
3.62	19.374	0.551	-0.05	0.5	35.162	2.844	0.0	0.0	0.0	0
3.63	19.476	0.551	-0.05	0.5	35.347	2.829	0.0	0.0	0.0	0
3.64	18.864	0.561	-0.05	0.5	33.626	2.974	0.0	0.0	0.0	0
3.65	19.068	0.54	-0.05	0.5	35.311	2.832	0.0	0.0	0.0	0
3.66	18.762	0.54	-0.05	0.5	34.744	2.878	0.0	0.0	0.0	0
3.67	18.661	0.53	-0.05	0.5	35.209	2.84	0.0	0.0	0.0	0
3.68	18.762	0.52	-0.05	0.5	36.081	2.772	0.0	0.0	0.0	0
3.69	18.966	0.52	-0.05	0.5	36.473	2.742	0.0	0.0	0.0	0
3.70	19.17	0.52	-0.05	0.5	36.865	2.713	0.0	0.0	0.0	0
3.71	19.578	0.52	-0.05	0.5	37.65	2.656	0.0	0.0	0.0	0
3.72	19.782	0.52	-0.05	0.5	38.042	2.629	0.0	0.0	0.0	0
3.73	19.68	0.52	-0.05	0.5	37.846	2.642	0.0	0.0	0.0	0
3.74	19.782	0.52	-0.05	0.5	38.042	2.629	0.0	0.0	0.0	0
3.75	19.884	0.53	-0.05	0.5	37.517	2.665	0.0	0.0	0.0	0
3.76	20.088	0.52	-0.05	0.5	38.631	2.589	0.0	0.0	0.0	0
3.77	19.986	0.52	-0.05	0.5	38.435	2.602	0.0	0.0	0.0	0
3.78	20.088	0.52	-0.05	0.5	38.631	2.589	0.0	0.0	0.0	0
3.79	20.394	0.54	-0.05	0.5	37.767	2.648	0.0	0.0	0.0	0
3.80	20.598	0.551	-0.05	0.5	37.383	2.675	0.0	0.0	0.0	0
3.81	20.802	0.561	-0.04	0.5	37.08	2.697	0.0	0.0	0.0	0
3.82	21.006	0.581	-0.04	0.5	36.155	2.766	0.0	0.0	0.0	0
3.83	21.21	0.581	-0.04	0.5	36.506	2.739	0.0	0.0	0.0	0
3.84	21.414	0.591	-0.04	0.5	36.234	2.76	0.0	0.0	0.0	0
3.85	22.127	0.591	-0.04	0.5	37.44	2.671	0.0	0.0	0.0	0
3.86	22.127	0.591	-0.04	0.5	37.44	2.671	0.0	0.0	0.0	0
3.87	22.331	0.602	-0.04	0.5	37.095	2.696	0.0	0.0	0.0	0
3.88	22.331	0.602	-0.04	0.5	37.095	2.696	0.0	0.0	0.0	0
3.89	22.331	0.602	-0.04	0.5	37.095	2.696	0.0	0.0	0.0	0
3.90	23.249	0.622	-0.02	0.5	37.378	2.675	0.0	0.0	0.0	0
3.91	23.351	0.653	-0.02	0.5	35.76	2.796	0.0	0.0	0.0	0
3.92	23.249	0.683	-0.02	0.5	34.04	2.938	0.0	0.0	0.0	0
3.93	22.841	0.734	-0.01	0.5	31.119	3.214	0.0	0.0	0.0	0
3.94	22.943	0.744	-0.01	0.5	30.837	3.243	0.0	0.0	0.0	0
3.95	23.147	0.744	-0.01	0.5	31.112	3.214	0.0	0.0	0.0	0

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3.96	23.249	0.755	0.00	0.6	30.793	3.247	0.0	0.0	0.0	0
3.97	23.453	0.765	0.00	0.5	30.658	3.262	0.0	0.0	0.0	0
3.98	23.555	0.765	0.00	0.6	30.791	3.248	0.0	0.0	0.0	0
3.99	23.555	0.785	0.00	0.6	30.006	3.333	0.0	0.0	0.0	0
4.00	22.739	0.816	0.01	0.6	27.866	3.589	0.0	0.0	0.0	0
4.01	22.229	0.877	0.02	0.6	25.347	3.945	0.0	0.0	0.0	0
4.02	22.026	0.857	0.03	0.6	25.701	3.891	0.0	0.0	0.0	0
4.03	22.026	0.826	0.04	0.6	26.666	3.75	0.0	0.0	0.0	0
4.04	22.229	0.816	0.05	0.6	27.241	3.671	0.0	0.0	0.0	0
4.05	22.433	0.795	0.05	0.6	28.218	3.544	0.0	0.0	0.0	0
4.06	22.943	0.775	0.05	0.6	29.604	3.378	0.0	0.0	0.0	0
4.07	22.739	0.755	0.05	0.6	30.118	3.32	0.0	0.0	0.0	0
4.08	23.147	0.755	0.05	0.6	30.658	3.262	0.0	0.0	0.0	0
4.09	22.026	0.755	0.05	0.6	29.174	3.428	0.0	0.0	0.0	0
4.10	21.21	0.724	0.06	0.6	29.296	3.413	0.0	0.0	0.0	0
4.11	21.21	0.693	0.06	0.6	30.606	3.267	0.0	0.0	0.0	0
4.12	21.312	0.653	0.06	0.6	32.637	3.064	0.0	0.0	0.0	0
4.13	21.516	0.632	0.06	0.6	34.044	2.937	0.0	0.0	0.0	0
4.14	21.822	0.612	0.07	0.6	35.657	2.805	0.0	0.0	0.0	0
4.15	21.924	0.591	0.07	0.6	37.096	2.696	0.0	0.0	0.0	0
4.16	22.229	0.581	0.07	0.6	38.26	2.614	0.0	0.0	0.0	0
4.17	23.147	0.54	0.07	0.6	42.865	2.333	0.0	0.0	0.0	0
4.18	23.351	0.53	0.07	0.6	44.058	2.27	0.0	0.0	0.0	0
4.19	23.657	0.54	0.07	0.6	43.809	2.283	0.0	0.0	0.0	0
4.20	23.657	0.54	0.07	0.6	43.809	2.283	0.0	0.0	0.0	0
4.21	23.963	0.54	0.07	0.6	44.376	2.253	0.0	0.0	0.0	0
4.22	24.371	0.53	0.07	0.6	45.983	2.175	0.0	0.0	0.0	0
4.23	24.473	0.52	0.07	0.6	47.063	2.125	0.0	0.0	0.0	0
4.24	24.779	0.52	0.07	0.6	47.652	2.099	0.0	0.0	0.0	0
4.25	24.983	0.53	0.07	0.6	47.138	2.121	0.0	0.0	0.0	0
4.26	26.206	0.551	0.07	0.6	47.561	2.103	0.0	0.0	0.0	0
4.27	26.614	0.571	0.07	0.6	46.609	2.145	0.0	0.0	0.0	0
4.28	27.022	0.591	0.07	0.6	45.723	2.187	0.0	0.0	0.0	0
4.29	27.634	0.622	0.07	0.6	44.428	2.251	0.0	0.0	0.0	0
4.30	28.246	0.642	0.07	0.6	43.997	2.273	0.0	0.0	0.0	0
4.31	28.45	0.734	0.07	0.6	38.76	2.58	0.0	0.0	0.0	0
4.32	28.654	0.765	0.07	0.6	37.456	2.67	0.0	0.0	0.0	0
4.33	28.959	0.795	0.07	0.6	36.426	2.745	0.0	0.0	0.0	0
4.34	29.061	0.826	0.07	0.6	35.183	2.842	0.0	0.0	0.0	0
4.35	29.163	0.877	0.08	0.6	33.253	3.007	0.0	0.0	0.0	0
4.36	29.367	0.928	0.08	0.6	31.645	3.16	0.0	0.0	0.0	0
4.37	29.877	0.948	0.09	0.6	31.516	3.173	0.0	0.0	0.0	0
4.38	30.591	0.969	0.10	0.6	31.57	3.168	0.0	0.0	0.0	0
4.39	30.897	0.999	0.10	0.6	30.928	3.233	0.0	0.0	0.0	0
4.40	30.795	1.03	0.11	0.6	29.898	3.345	0.0	0.0	0.0	0
4.41	31.101	1.04	0.11	0.6	29.905	3.344	0.0	0.0	0.0	0
4.42	31.407	1.06	0.11	0.6	29.629	3.375	0.0	0.0	0.0	0
4.43	31.509	1.081	0.12	0.6	29.148	3.431	0.0	0.0	0.0	0
4.44	31.713	1.081	0.12	0.7	29.337	3.409	0.0	0.0	0.0	0
4.45	32.223	1.081	0.12	0.7	29.809	3.355	0.0	0.0	0.0	0
4.46	32.426	1.091	0.12	0.7	29.721	3.365	0.0	0.0	0.0	0
4.47	32.63	1.081	0.12	0.7	30.185	3.313	0.0	0.0	0.0	0
4.48	32.63	1.06	0.12	0.7	30.783	3.249	0.0	0.0	0.0	0
4.49	32.426	1.071	0.13	0.7	30.276	3.303	0.0	0.0	0.0	0
4.50	32.528	1.071	0.13	0.7	30.372	3.293	0.0	0.0	0.0	0
4.51	32.63	1.081	0.13	0.7	30.185	3.313	0.0	0.0	0.0	0
4.52	32.936	1.091	0.13	0.7	30.189	3.312	0.0	0.0	0.0	0
4.53	32.834	1.101	0.13	0.7	29.822	3.353	0.0	0.0	0.0	0
4.54	32.528	1.101	0.14	0.7	29.544	3.385	0.0	0.0	0.0	0
4.55	32.223	1.132	0.14	0.7	28.466	3.513	0.0	0.0	0.0	0
4.56	31.815	1.152	0.14	0.7	27.617	3.621	0.0	0.0	0.0	0
4.57	31.611	1.162	0.14	0.7	27.204	3.676	0.0	0.0	0.0	0
4.58	30.795	1.224	0.14	0.7	25.159	3.975	0.0	0.0	0.0	0
4.59	30.489	1.224	0.14	0.7	24.909	4.015	0.0	0.0	0.0	0
4.60	30.081	1.244	0.14	0.7	24.181	4.136	0.0	0.0	0.0	0
4.61	29.775	1.264	0.14	0.7	23.556	4.245	0.0	0.0	0.0	0
4.62	29.469	1.264	0.14	0.7	23.314	4.289	0.0	0.0	0.0	0
4.63	29.061	1.264	0.14	0.7	22.991	4.349	0.0	0.0	0.0	0
4.64	28.348	1.275	0.14	0.7	22.234	4.498	0.0	0.0	0.0	0
4.65	27.634	1.285	0.14	0.7	21.505	4.65	0.0	0.0	0.0	0
4.66	26.818	1.275	0.14	0.7	21.034	4.754	0.0	0.0	0.0	0
4.67	26.92	1.264	0.14	0.7	21.297	4.695	0.0	0.0	0.0	0
4.68	26.92	1.244	0.14	0.7	21.64	4.621	0.0	0.0	0.0	0
4.69	27.022	1.234	0.15	0.7	21.898	4.567	0.0	0.0	0.0	0
4.70	27.532	1.203	0.14	0.7	22.886	4.369	0.0	0.0	0.0	0

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4.71	28.042	1.193	0.15	0.7	23.505	4.254	0.0	0.0	0.0	0
4.72	28.552	1.162	0.15	0.7	24.571	4.07	0.0	0.0	0.0	0
4.73	28.552	1.152	0.15	0.7	24.785	4.035	0.0	0.0	0.0	0
4.74	28.45	1.132	0.15	0.7	25.133	3.979	0.0	0.0	0.0	0
4.75	28.246	1.122	0.15	0.7	25.175	3.972	0.0	0.0	0.0	0
4.76	28.45	1.111	0.15	0.7	25.608	3.905	0.0	0.0	0.0	0
4.77	28.654	1.091	0.15	0.7	26.264	3.807	0.0	0.0	0.0	0
4.78	28.756	1.071	0.15	0.8	26.85	3.724	0.0	0.0	0.0	0
4.79	28.756	1.071	0.15	0.8	26.85	3.724	0.0	0.0	0.0	0
4.80	28.654	1.081	0.15	0.8	26.507	3.773	0.0	0.0	0.0	0
4.81	28.246	1.081	0.15	0.7	26.13	3.827	0.0	0.0	0.0	0
4.82	27.94	1.081	0.15	0.7	25.846	3.869	0.0	0.0	0.0	0
4.83	27.736	1.091	0.15	0.7	25.423	3.934	0.0	0.0	0.0	0
4.84	27.736	1.091	0.15	0.8	25.423	3.934	0.0	0.0	0.0	0
4.85	27.532	1.081	0.15	0.8	25.469	3.926	0.0	0.0	0.0	0
4.86	27.124	1.081	0.15	0.7	25.092	3.985	0.0	0.0	0.0	0
4.87	26.614	1.071	0.15	0.7	24.85	4.024	0.0	0.0	0.0	0
4.88	26.614	1.071	0.15	0.7	24.85	4.024	0.0	0.0	0.0	0
4.89	26.614	1.071	0.15	0.7	24.85	4.024	0.0	0.0	0.0	0
4.90	27.022	1.01	0.17	0.8	26.754	3.738	0.0	0.0	0.0	0
4.91	26.716	1.02	0.17	0.8	26.192	3.818	0.0	0.0	0.0	0
4.92	26.104	1.03	0.17	0.8	25.344	3.946	0.0	0.0	0.0	0
4.93	25.391	1.03	0.17	0.8	24.651	4.057	0.0	0.0	0.0	0
4.94	24.167	1.01	0.17	0.8	23.928	4.179	0.0	0.0	0.0	0
4.95	23.657	0.989	0.17	0.8	23.92	4.181	0.0	0.0	0.0	0
4.96	23.351	0.969	0.17	0.8	24.098	4.15	0.0	0.0	0.0	0
4.97	22.943	0.948	0.17	0.8	24.201	4.132	0.0	0.0	0.0	0
4.98	22.841	0.928	0.17	0.8	24.613	4.063	0.0	0.0	0.0	0
4.99	22.943	0.897	0.17	0.8	25.577	3.91	0.0	0.0	0.0	0
5.00	22.841	0.867	0.17	0.8	26.345	3.796	0.0	0.0	0.0	0
5.01	22.026	0.826	0.17	0.8	26.666	3.75	0.0	0.0	0.0	0
5.02	21.414	0.806	0.18	0.8	26.568	3.764	0.0	0.0	0.0	0
5.03	21.108	0.765	0.18	0.8	27.592	3.624	0.0	0.0	0.0	0
5.04	21.108	0.714	0.18	0.8	29.563	3.383	0.0	0.0	0.0	0
5.05	21.006	0.673	0.18	0.8	31.212	3.204	0.0	0.0	0.0	0
5.06	21.108	0.632	0.18	0.8	33.399	2.994	0.0	0.0	0.0	0
5.07	21.414	0.591	0.18	0.8	36.234	2.76	0.0	0.0	0.0	0
5.08	21.618	0.551	0.18	0.8	39.234	2.549	0.0	0.0	0.0	0
5.09	21.516	0.551	0.17	0.8	39.049	2.561	0.0	0.0	0.0	0
5.10	21.516	0.561	0.17	0.8	38.353	2.607	0.0	0.0	0.0	0
5.11	21.618	0.571	0.17	0.8	37.86	2.641	0.0	0.0	0.0	0
5.12	21.618	0.581	0.17	0.8	37.208	2.688	0.0	0.0	0.0	0
5.13	21.312	0.591	0.17	0.8	36.061	2.773	0.0	0.0	0.0	0
5.14	20.802	0.612	0.17	0.8	33.99	2.942	0.0	0.0	0.0	0
5.15	19.578	0.622	0.17	0.8	31.476	3.177	0.0	0.0	0.0	0
5.16	19.272	0.632	0.17	0.8	30.494	3.279	0.0	0.0	0.0	0
5.17	19.272	0.632	0.17	0.8	30.494	3.279	0.0	0.0	0.0	0
5.18	18.966	0.683	0.17	0.8	27.769	3.601	0.0	0.0	0.0	0
5.19	18.762	0.704	0.17	0.8	26.651	3.752	0.0	0.0	0.0	0
5.20	18.661	0.724	0.17	0.8	25.775	3.88	0.0	0.0	0.0	0
5.21	18.661	0.744	0.17	0.8	25.082	3.987	0.0	0.0	0.0	0
5.22	18.661	0.734	0.18	0.8	25.424	3.933	0.0	0.0	0.0	0
5.23	19.068	0.714	0.18	0.8	26.706	3.744	0.0	0.0	0.0	0
5.24	19.578	0.683	0.18	0.8	28.665	3.489	0.0	0.0	0.0	0
5.25	20.088	0.642	0.18	0.8	31.29	3.196	0.0	0.0	0.0	0
5.26	20.394	0.612	0.18	0.8	33.324	3.001	0.0	0.0	0.0	0
5.27	21.006	0.571	0.18	0.8	36.788	2.718	0.0	0.0	0.0	0
5.28	21.72	0.53	0.18	0.8	40.981	2.44	0.0	0.0	0.0	0
5.29	22.433	0.489	0.18	0.8	45.875	2.18	0.0	0.0	0.0	0
5.30	22.535	0.469	0.18	0.8	48.049	2.081	0.0	0.0	0.0	0
5.31	22.535	0.469	0.18	0.8	48.049	2.081	0.0	0.0	0.0	0
5.32	22.535	0.459	0.18	0.8	49.096	2.037	0.0	0.0	0.0	0
5.33	22.637	0.449	0.18	0.8	50.416	1.983	0.0	0.0	0.0	0
5.34	22.739	0.449	0.18	0.8	50.644	1.975	0.0	0.0	0.0	0
5.35	22.943	0.459	0.18	0.8	49.985	2.001	0.0	0.0	0.0	0
5.36	22.943	0.52	0.18	0.8	44.121	2.266	0.0	0.0	0.0	0
5.37	22.943	0.561	0.18	0.8	40.897	2.445	0.0	0.0	0.0	0
5.38	22.841	0.602	0.18	0.8	37.942	2.636	0.0	0.0	0.0	0
5.39	22.331	0.632	0.18	0.8	35.334	2.83	0.0	0.0	0.0	0
5.40	21.72	0.673	0.18	0.8	32.273	3.099	0.0	0.0	0.0	0
5.41	21.312	0.704	0.18	0.8	30.273	3.303	0.0	0.0	0.0	0
5.42	21.21	0.724	0.18	0.8	29.296	3.413	0.0	0.0	0.0	0
5.43	21.312	0.714	0.18	0.8	29.849	3.35	0.0	0.0	0.0	0
5.44	21.108	0.714	0.18	0.8	29.563	3.383	0.0	0.0	0.0	0
5.45	21.108	0.724	0.18	0.8	29.155	3.43	0.0	0.0	0.0	0

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5.46	21.108	0.724	0.18	0.8	29.155	3.43	0.0	0.0	0.0	0
5.47	21.006	0.744	0.18	0.8	28.234	3.542	0.0	0.0	0.0	0
5.48	20.904	0.744	0.18	0.8	28.097	3.559	0.0	0.0	0.0	0
5.49	21.108	0.734	0.18	0.8	28.757	3.477	0.0	0.0	0.0	0
5.50	20.802	0.734	0.18	0.8	28.341	3.529	0.0	0.0	0.0	0
5.51	20.598	0.734	0.18	0.7	28.063	3.563	0.0	0.0	0.0	0
5.52	20.598	0.724	0.18	0.8	28.45	3.515	0.0	0.0	0.0	0
5.53	20.802	0.724	0.18	0.7	28.732	3.48	0.0	0.0	0.0	0
5.54	20.802	0.714	0.18	0.7	29.134	3.432	0.0	0.0	0.0	0
5.55	20.802	0.724	0.18	0.7	28.732	3.48	0.0	0.0	0.0	0
5.56	20.598	0.734	0.18	0.7	28.063	3.563	0.0	0.0	0.0	0
5.57	20.19	0.765	0.18	0.8	26.392	3.789	0.0	0.0	0.0	0
5.58	20.088	0.765	0.18	0.8	26.259	3.808	0.0	0.0	0.0	0
5.59	20.088	0.775	0.18	0.8	25.92	3.858	0.0	0.0	0.0	0
5.60	20.394	0.775	0.18	0.8	26.315	3.8	0.0	0.0	0.0	0
5.61	21.006	0.785	0.18	0.8	26.759	3.737	0.0	0.0	0.0	0
5.62	21.414	0.795	0.18	0.8	26.936	3.713	0.0	0.0	0.0	0
5.63	21.822	0.806	0.18	0.8	27.074	3.694	0.0	0.0	0.0	0
5.64	21.924	0.816	0.18	0.8	26.868	3.722	0.0	0.0	0.0	0
5.65	22.026	0.816	0.18	0.8	26.993	3.705	0.0	0.0	0.0	0
5.66	22.229	0.816	0.18	0.8	27.241	3.671	0.0	0.0	0.0	0
5.67	22.331	0.816	0.18	0.8	27.366	3.654	0.0	0.0	0.0	0
5.68	22.433	0.806	0.18	0.8	27.833	3.593	0.0	0.0	0.0	0
5.69	22.433	0.806	0.18	0.8	27.833	3.593	0.0	0.0	0.0	0
5.70	22.739	0.795	0.18	0.8	28.603	3.496	0.0	0.0	0.0	0
5.71	22.739	0.795	0.18	0.8	28.603	3.496	0.0	0.0	0.0	0
5.72	22.739	0.795	0.18	0.8	28.603	3.496	0.0	0.0	0.0	0
5.73	22.841	0.806	0.18	0.8	28.339	3.529	0.0	0.0	0.0	0
5.74	22.841	0.806	0.18	0.8	28.339	3.529	0.0	0.0	0.0	0
5.75	22.943	0.806	0.18	0.8	28.465	3.513	0.0	0.0	0.0	0
5.76	22.841	0.806	0.18	0.8	28.339	3.529	0.0	0.0	0.0	0
5.77	23.147	0.795	0.18	0.8	29.116	3.435	0.0	0.0	0.0	0
5.78	23.147	0.795	0.18	0.8	29.116	3.435	0.0	0.0	0.0	0
5.79	22.943	0.816	0.18	0.8	28.116	3.557	0.0	0.0	0.0	0
5.80	22.841	0.836	0.18	0.8	27.322	3.66	0.0	0.0	0.0	0
5.81	22.739	0.846	0.18	0.8	26.878	3.72	0.0	0.0	0.0	0
5.82	22.535	0.867	0.18	0.8	25.992	3.847	0.0	0.0	0.0	0
5.83	22.433	0.877	0.18	0.8	25.579	3.909	0.0	0.0	0.0	0
5.84	22.229	0.877	0.18	0.8	25.347	3.945	0.0	0.0	0.0	0
5.85	22.229	0.877	0.18	0.8	25.347	3.945	0.0	0.0	0.0	0
5.86	22.433	0.877	0.18	0.8	25.579	3.909	0.0	0.0	0.0	0
5.87	22.535	0.877	0.18	0.8	25.696	3.892	0.0	0.0	0.0	0
5.88	22.535	0.877	0.18	0.8	25.696	3.892	0.0	0.0	0.0	0
5.89	22.535	0.877	0.18	0.8	25.696	3.892	0.0	0.0	0.0	0
5.90	22.535	0.928	0.17	0.8	24.283	4.118	0.0	0.0	0.0	0
5.91	22.433	0.959	0.17	0.9	23.392	4.275	0.0	0.0	0.0	0
5.92	22.535	0.948	0.17	0.9	23.771	4.207	0.0	0.0	0.0	0
5.93	22.535	0.948	0.17	0.9	23.771	4.207	0.0	0.0	0.0	0
5.94	22.637	0.938	0.17	0.9	24.133	4.144	0.0	0.0	0.0	0
5.95	22.841	0.938	0.17	0.9	24.351	4.107	0.0	0.0	0.0	0
5.96	22.943	0.938	0.17	0.9	24.459	4.088	0.0	0.0	0.0	0
5.97	23.657	0.938	0.17	0.9	25.221	3.965	0.0	0.0	0.0	0
5.98	24.065	0.928	0.17	0.9	25.932	3.856	0.0	0.0	0.0	0
5.99	24.371	0.918	0.17	0.9	26.548	3.767	0.0	0.0	0.0	0
6.00	24.575	0.918	0.17	0.9	26.77	3.736	0.0	0.0	0.0	0
6.01	24.575	0.897	0.17	0.9	27.397	3.65	0.0	0.0	0.0	0
6.02	24.779	0.897	0.17	0.9	27.624	3.62	0.0	0.0	0.0	0
6.03	25.289	0.887	0.17	0.9	28.511	3.507	0.0	0.0	0.0	0
6.04	25.696	0.867	0.17	0.9	29.638	3.374	0.0	0.0	0.0	0
6.05	25.492	0.867	0.17	0.9	29.403	3.401	0.0	0.0	0.0	0
6.06	24.983	0.867	0.17	0.9	28.815	3.47	0.0	0.0	0.0	0
6.07	24.779	0.857	0.17	0.9	28.914	3.459	0.0	0.0	0.0	0
6.08	24.677	0.846	0.17	0.9	29.169	3.428	0.0	0.0	0.0	0
6.09	24.065	0.846	0.17	0.9	28.446	3.515	0.0	0.0	0.0	0
6.10	23.555	0.846	0.17	0.9	27.843	3.592	0.0	0.0	0.0	0
6.11	23.147	0.836	0.17	0.9	27.688	3.612	0.0	0.0	0.0	0
6.12	22.637	0.826	0.17	0.9	27.406	3.649	0.0	0.0	0.0	0
6.13	22.637	0.826	0.17	0.9	27.406	3.649	0.0	0.0	0.0	0
6.14	22.739	0.826	0.17	0.9	27.529	3.633	0.0	0.0	0.0	0
6.15	22.637	0.826	0.17	0.9	27.406	3.649	0.0	0.0	0.0	0
6.16	22.637	0.836	0.17	0.9	27.078	3.693	0.0	0.0	0.0	0
6.17	22.637	0.857	0.17	0.9	26.414	3.786	0.0	0.0	0.0	0
6.18	22.943	0.857	0.17	0.9	26.771	3.735	0.0	0.0	0.0	0
6.19	23.249	0.867	0.17	0.9	26.815	3.729	0.0	0.0	0.0	0
6.20	23.453	0.877	0.17	0.9	26.742	3.739	0.0	0.0	0.0	0

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6.21	23.453	0.908	0.17	0.9	25.829	3.872	0.0	0.0	0.0	0
6.22	23.657	0.928	0.17	0.9	25.492	3.923	0.0	0.0	0.0	0
6.23	23.963	0.928	0.17	0.9	25.822	3.873	0.0	0.0	0.0	0
6.24	24.473	0.928	0.17	0.9	26.372	3.792	0.0	0.0	0.0	0
6.25	24.473	0.959	0.17	0.9	25.519	3.919	0.0	0.0	0.0	0
6.26	24.473	0.969	0.17	1.0	25.256	3.959	0.0	0.0	0.0	0
6.27	24.371	0.969	0.17	1.0	25.151	3.976	0.0	0.0	0.0	0
6.28	24.371	0.959	0.17	1.0	25.413	3.935	0.0	0.0	0.0	0
6.29	24.167	0.969	0.17	1.0	24.94	4.01	0.0	0.0	0.0	0
6.30	23.861	0.969	0.17	1.0	24.624	4.061	0.0	0.0	0.0	0
6.31	23.759	0.969	0.17	1.0	24.519	4.078	0.0	0.0	0.0	0
6.32	23.555	0.969	0.17	1.0	24.309	4.114	0.0	0.0	0.0	0
6.33	23.351	0.959	0.17	1.0	24.349	4.107	0.0	0.0	0.0	0
6.34	22.943	0.969	0.17	1.0	23.677	4.224	0.0	0.0	0.0	0
6.35	22.433	0.969	0.17	1.0	23.151	4.32	0.0	0.0	0.0	0
6.36	22.229	0.969	0.17	1.0	22.94	4.359	0.0	0.0	0.0	0
6.37	22.127	0.969	0.17	1.0	22.835	4.379	0.0	0.0	0.0	0
6.38	22.433	0.959	0.17	1.0	23.392	4.275	0.0	0.0	0.0	0
6.39	22.943	0.928	0.17	1.0	24.723	4.045	0.0	0.0	0.0	0
6.40	22.943	0.928	0.17	1.0	24.723	4.045	0.0	0.0	0.0	0
6.41	23.147	0.928	0.17	1.0	24.943	4.009	0.0	0.0	0.0	0
6.42	23.147	0.928	0.17	1.0	24.943	4.009	0.0	0.0	0.0	0
6.43	22.943	0.938	0.17	1.0	24.459	4.088	0.0	0.0	0.0	0
6.44	22.841	0.938	0.17	1.0	24.351	4.107	0.0	0.0	0.0	0
6.45	23.045	0.938	0.17	1.0	24.568	4.07	0.0	0.0	0.0	0
6.46	22.841	0.928	0.17	1.0	24.613	4.063	0.0	0.0	0.0	0
6.47	22.433	0.928	0.17	1.0	24.173	4.137	0.0	0.0	0.0	0
6.48	22.331	0.928	0.17	1.0	24.064	4.156	0.0	0.0	0.0	0
6.49	22.026	0.928	0.17	1.0	23.735	4.213	0.0	0.0	0.0	0
6.50	21.822	0.938	0.17	1.0	23.264	4.298	0.0	0.0	0.0	0
6.51	21.618	0.948	0.17	1.1	22.804	4.385	0.0	0.0	0.0	0
6.52	21.516	0.959	0.17	1.1	22.436	4.457	0.0	0.0	0.0	0
6.53	21.108	0.979	0.17	1.1	21.561	4.638	0.0	0.0	0.0	0
6.54	21.108	0.989	0.17	1.1	21.343	4.685	0.0	0.0	0.0	0
6.55	20.598	1.02	0.17	1.1	20.194	4.952	0.0	0.0	0.0	0
6.56	20.394	1.03	0.17	1.1	19.8	5.051	0.0	0.0	0.0	0
6.57	20.19	1.03	0.17	1.1	19.602	5.102	0.0	0.0	0.0	0
6.58	20.19	1.04	0.17	1.1	19.413	5.151	0.0	0.0	0.0	0
6.59	20.19	1.05	0.17	1.1	19.229	5.201	0.0	0.0	0.0	0
6.60	20.088	1.05	0.17	1.1	19.131	5.227	0.0	0.0	0.0	0
6.61	20.394	1.04	0.17	1.1	19.61	5.1	0.0	0.0	0.0	0
6.62	20.598	1.04	0.17	1.1	19.806	5.049	0.0	0.0	0.0	0
6.63	20.7	1.02	0.17	1.1	20.294	4.928	0.0	0.0	0.0	0
6.64	20.7	1.01	0.17	1.1	20.495	4.879	0.0	0.0	0.0	0
6.65	20.496	0.999	0.17	1.1	20.517	4.874	0.0	0.0	0.0	0
6.66	20.088	0.959	0.17	1.1	20.947	4.774	0.0	0.0	0.0	0
6.67	20.088	0.938	0.17	1.1	21.416	4.669	0.0	0.0	0.0	0
6.68	20.292	0.918	0.17	1.1	22.105	4.524	0.0	0.0	0.0	0
6.69	20.496	0.908	0.17	1.1	22.573	4.43	0.0	0.0	0.0	0
6.70	20.598	0.908	0.17	1.1	22.685	4.408	0.0	0.0	0.0	0
6.71	20.598	0.897	0.17	1.1	22.963	4.355	0.0	0.0	0.0	0
6.72	20.802	0.887	0.17	1.1	23.452	4.264	0.0	0.0	0.0	0
6.73	20.904	0.877	0.17	1.1	23.836	4.195	0.0	0.0	0.0	0
6.74	20.904	0.867	0.17	1.1	24.111	4.148	0.0	0.0	0.0	0
6.75	20.904	0.857	0.17	1.1	24.392	4.1	0.0	0.0	0.0	0
6.76	21.006	0.846	0.17	1.1	24.83	4.027	0.0	0.0	0.0	0
6.77	20.904	0.836	0.17	1.1	25.005	3.999	0.0	0.0	0.0	0
6.78	20.7	0.836	0.17	1.1	24.761	4.039	0.0	0.0	0.0	0
6.79	20.394	0.836	0.17	1.1	24.395	4.099	0.0	0.0	0.0	0
6.80	19.884	0.857	0.17	1.1	23.202	4.31	0.0	0.0	0.0	0
6.81	19.782	0.867	0.17	1.1	22.817	4.383	0.0	0.0	0.0	0
6.82	19.68	0.867	0.17	1.1	22.699	4.405	0.0	0.0	0.0	0
6.83	19.578	0.857	0.17	1.1	22.845	4.377	0.0	0.0	0.0	0
6.84	19.374	0.846	0.17	1.1	22.901	4.367	0.0	0.0	0.0	0
6.85	19.272	0.836	0.17	1.1	23.053	4.338	0.0	0.0	0.0	0
6.86	19.068	0.816	0.17	1.1	23.368	4.279	0.0	0.0	0.0	0
6.87	19.272	0.795	0.17	1.1	24.242	4.125	0.0	0.0	0.0	0
6.88	19.272	0.795	0.17	1.1	24.242	4.125	0.0	0.0	0.0	0
6.89	19.272	0.795	0.17	1.1	24.242	4.125	0.0	0.0	0.0	0
6.90	20.19	0.632	0.16	1.1	31.946	3.13	0.0	0.0	0.0	0
6.91	20.19	0.632	0.16	1.1	31.946	3.13	0.0	0.0	0.0	0
6.92	19.986	0.642	0.16	1.1	31.131	3.212	0.0	0.0	0.0	0
6.93	19.986	0.642	0.16	1.1	31.131	3.212	0.0	0.0	0.0	0
6.94	19.782	0.653	0.16	1.1	30.294	3.301	0.0	0.0	0.0	0
6.95	19.782	0.663	0.16	1.1	29.837	3.352	0.0	0.0	0.0	0

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6.96	19.782	0.653	0.16	1.1	30.294	3.301	0.0	0.0	0.0	0
6.97	19.68	0.653	0.16	1.1	30.138	3.318	0.0	0.0	0.0	0
6.98	19.476	0.653	0.16	1.1	29.825	3.353	0.0	0.0	0.0	0
6.99	19.374	0.653	0.16	1.1	29.669	3.37	0.0	0.0	0.0	0
7.00	19.17	0.653	0.16	1.1	29.357	3.406	0.0	0.0	0.0	0
7.01	19.374	0.653	0.16	1.1	29.669	3.37	0.0	0.0	0.0	0
7.02	19.578	0.653	0.16	1.1	29.982	3.335	0.0	0.0	0.0	0
7.03	19.68	0.642	0.16	1.1	30.654	3.262	0.0	0.0	0.0	0
7.04	19.68	0.642	0.16	1.1	30.654	3.262	0.0	0.0	0.0	0
7.05	19.782	0.642	0.16	1.1	30.813	3.245	0.0	0.0	0.0	0
7.06	19.782	0.642	0.16	1.1	30.813	3.245	0.0	0.0	0.0	0
7.07	19.578	0.642	0.16	1.1	30.495	3.279	0.0	0.0	0.0	0
7.08	19.374	0.653	0.16	1.1	29.669	3.37	0.0	0.0	0.0	0
7.09	19.272	0.653	0.16	1.1	29.513	3.388	0.0	0.0	0.0	0
7.10	19.272	0.653	0.16	1.1	29.513	3.388	0.0	0.0	0.0	0
7.11	19.272	0.653	0.16	1.1	29.513	3.388	0.0	0.0	0.0	0
7.12	19.374	0.653	0.16	1.1	29.669	3.37	0.0	0.0	0.0	0
7.13	19.476	0.653	0.16	1.1	29.825	3.353	0.0	0.0	0.0	0
7.14	19.68	0.642	0.16	1.1	30.654	3.262	0.0	0.0	0.0	0
7.15	20.19	0.632	0.16	1.1	31.946	3.13	0.0	0.0	0.0	0
7.16	20.19	0.632	0.16	1.1	31.946	3.13	0.0	0.0	0.0	0
7.17	20.088	0.632	0.16	1.1	31.785	3.146	0.0	0.0	0.0	0
7.18	19.986	0.632	0.16	1.1	31.623	3.162	0.0	0.0	0.0	0
7.19	20.088	0.632	0.16	1.1	31.785	3.146	0.0	0.0	0.0	0
7.20	20.292	0.632	0.16	1.1	32.108	3.115	0.0	0.0	0.0	0
7.21	20.292	0.632	0.16	1.1	32.108	3.115	0.0	0.0	0.0	0
7.22	20.292	0.642	0.16	1.1	31.607	3.164	0.0	0.0	0.0	0
7.23	20.394	0.642	0.16	1.1	31.766	3.148	0.0	0.0	0.0	0
7.24	20.598	0.653	0.16	1.1	31.544	3.17	0.0	0.0	0.0	0
7.25	20.904	0.653	0.16	1.2	32.012	3.124	0.0	0.0	0.0	0
7.26	21.108	0.673	0.16	1.2	31.364	3.188	0.0	0.0	0.0	0
7.27	21.108	0.693	0.16	1.2	30.459	3.283	0.0	0.0	0.0	0
7.28	21.21	0.704	0.16	1.2	30.128	3.319	0.0	0.0	0.0	0
7.29	21.21	0.704	0.16	1.2	30.128	3.319	0.0	0.0	0.0	0
7.30	21.21	0.714	0.16	1.2	29.706	3.366	0.0	0.0	0.0	0
7.31	21.312	0.714	0.16	1.2	29.849	3.35	0.0	0.0	0.0	0
7.32	21.414	0.714	0.16	1.2	29.992	3.334	0.0	0.0	0.0	0
7.33	21.108	0.744	0.16	1.2	28.371	3.525	0.0	0.0	0.0	0
7.34	21.006	0.775	0.16	1.2	27.105	3.689	0.0	0.0	0.0	0
7.35	21.006	0.795	0.16	1.2	26.423	3.785	0.0	0.0	0.0	0
7.36	21.108	0.795	0.16	1.2	26.551	3.766	0.0	0.0	0.0	0
7.37	21.516	0.795	0.16	1.2	27.064	3.695	0.0	0.0	0.0	0
7.38	22.026	0.785	0.16	1.2	28.059	3.564	0.0	0.0	0.0	0
7.39	22.229	0.785	0.16	1.2	28.317	3.531	0.0	0.0	0.0	0
7.40	22.433	0.785	0.16	1.2	28.577	3.499	0.0	0.0	0.0	0
7.41	22.433	0.785	0.16	1.2	28.577	3.499	0.0	0.0	0.0	0
7.42	22.637	0.795	0.16	1.2	28.474	3.512	0.0	0.0	0.0	0
7.43	22.739	0.795	0.16	1.3	28.603	3.496	0.0	0.0	0.0	0
7.44	22.739	0.795	0.16	1.3	28.603	3.496	0.0	0.0	0.0	0
7.45	22.739	0.806	0.16	1.3	28.212	3.545	0.0	0.0	0.0	0
7.46	22.739	0.816	0.16	1.3	27.866	3.589	0.0	0.0	0.0	0
7.47	22.433	0.846	0.16	1.3	26.517	3.771	0.0	0.0	0.0	0
7.48	22.331	0.877	0.16	1.3	25.463	3.927	0.0	0.0	0.0	0
7.49	22.433	0.877	0.16	1.3	25.579	3.909	0.0	0.0	0.0	0
7.50	22.433	0.867	0.16	1.3	25.874	3.865	0.0	0.0	0.0	0
7.51	22.331	0.867	0.16	1.3	25.757	3.882	0.0	0.0	0.0	0
7.52	22.127	0.867	0.16	1.3	25.521	3.918	0.0	0.0	0.0	0
7.53	21.822	0.867	0.16	1.3	25.17	3.973	0.0	0.0	0.0	0
7.54	21.414	0.877	0.16	1.3	24.417	4.095	0.0	0.0	0.0	0
7.55	21.108	0.887	0.16	1.3	23.797	4.202	0.0	0.0	0.0	0
7.56	20.7	0.887	0.16	1.3	23.337	4.285	0.0	0.0	0.0	0
7.57	20.394	0.887	0.16	1.3	22.992	4.349	0.0	0.0	0.0	0
7.58	20.394	0.877	0.16	1.3	23.254	4.3	0.0	0.0	0.0	0
7.59	20.394	0.877	0.16	1.3	23.254	4.3	0.0	0.0	0.0	0
7.60	20.394	0.877	0.16	1.3	23.254	4.3	0.0	0.0	0.0	0
7.61	20.7	0.867	0.16	1.4	23.875	4.188	0.0	0.0	0.0	0
7.62	21.006	0.857	0.16	1.3	24.511	4.08	0.0	0.0	0.0	0
7.63	21.108	0.857	0.16	1.3	24.63	4.06	0.0	0.0	0.0	0
7.64	21.006	0.857	0.16	1.4	24.511	4.08	0.0	0.0	0.0	0
7.65	20.904	0.846	0.16	1.3	24.709	4.047	0.0	0.0	0.0	0
7.66	20.802	0.846	0.16	1.3	24.589	4.067	0.0	0.0	0.0	0
7.67	20.802	0.836	0.16	1.3	24.883	4.019	0.0	0.0	0.0	0
7.68	20.598	0.826	0.16	1.3	24.937	4.01	0.0	0.0	0.0	0
7.69	20.598	0.816	0.16	1.4	25.243	3.962	0.0	0.0	0.0	0
7.70	20.802	0.785	0.16	1.3	26.499	3.774	0.0	0.0	0.0	0

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7.71	21.006	0.765	0.16	1.4	27.459	3.642	0.0	0.0	0.0	0
7.72	21.108	0.744	0.16	1.4	28.371	3.525	0.0	0.0	0.0	0
7.73	21.21	0.734	0.16	1.4	28.896	3.461	0.0	0.0	0.0	0
7.74	21.414	0.734	0.16	1.4	29.174	3.428	0.0	0.0	0.0	0
7.75	21.516	0.744	0.16	1.4	28.919	3.458	0.0	0.0	0.0	0
7.76	21.822	0.755	0.16	1.4	28.903	3.46	0.0	0.0	0.0	0
7.77	21.924	0.755	0.16	1.4	29.038	3.444	0.0	0.0	0.0	0
7.78	22.026	0.744	0.16	1.3	29.605	3.378	0.0	0.0	0.0	0
7.79	22.127	0.734	0.16	1.4	30.146	3.317	0.0	0.0	0.0	0
7.80	22.127	0.734	0.16	1.4	30.146	3.317	0.0	0.0	0.0	0
7.81	22.026	0.744	0.16	1.3	29.605	3.378	0.0	0.0	0.0	0
7.82	22.026	0.744	0.16	1.4	29.605	3.378	0.0	0.0	0.0	0
7.83	22.026	0.765	0.16	1.4	28.792	3.473	0.0	0.0	0.0	0
7.84	22.026	0.775	0.16	1.4	28.421	3.519	0.0	0.0	0.0	0
7.85	22.026	0.785	0.16	1.4	28.059	3.564	0.0	0.0	0.0	0
7.86	22.127	0.775	0.16	1.4	28.551	3.503	0.0	0.0	0.0	0
7.87	22.127	0.765	0.16	1.4	28.924	3.457	0.0	0.0	0.0	0
7.88	22.127	0.765	0.16	1.4	28.924	3.457	0.0	0.0	0.0	0
7.89	22.127	0.765	0.16	1.4	28.924	3.457	0.0	0.0	0.0	0
7.90	22.535	0.714	0.16	1.4	31.562	3.168	0.0	0.0	0.0	0
7.91	22.535	0.714	0.16	1.4	31.562	3.168	0.0	0.0	0.0	0
7.92	22.739	0.724	0.16	1.4	31.407	3.184	0.0	0.0	0.0	0
7.93	22.739	0.714	0.16	1.4	31.847	3.14	0.0	0.0	0.0	0
7.94	23.249	0.704	0.16	1.4	33.024	3.028	0.0	0.0	0.0	0
7.95	23.555	0.693	0.16	1.4	33.99	2.942	0.0	0.0	0.0	0
7.96	23.759	0.683	0.16	1.4	34.786	2.875	0.0	0.0	0.0	0
7.97	23.963	0.683	0.16	1.4	35.085	2.85	0.0	0.0	0.0	0
7.98	23.963	0.683	0.16	1.4	35.085	2.85	0.0	0.0	0.0	0
7.99	23.555	0.683	0.16	1.4	34.488	2.9	0.0	0.0	0.0	0
8.00	23.147	0.693	0.16	1.4	33.401	2.994	0.0	0.0	0.0	0
8.01	22.739	0.673	0.16	1.4	33.788	2.96	0.0	0.0	0.0	0
8.02	22.433	0.673	0.16	1.4	33.333	3.0	0.0	0.0	0.0	0
8.03	22.127	0.683	0.16	1.4	32.397	3.087	0.0	0.0	0.0	0
8.04	21.822	0.704	0.16	1.4	30.997	3.226	0.0	0.0	0.0	0
8.05	21.618	0.724	0.16	1.4	29.859	3.349	0.0	0.0	0.0	0
8.06	21.312	0.744	0.16	1.4	28.645	3.491	0.0	0.0	0.0	0
8.07	21.006	0.765	0.16	1.4	27.459	3.642	0.0	0.0	0.0	0
8.08	20.496	0.816	0.16	1.4	25.118	3.981	0.0	0.0	0.0	0
8.09	20.394	0.826	0.16	1.4	24.69	4.05	0.0	0.0	0.0	0
8.10	20.394	0.836	0.16	1.4	24.395	4.099	0.0	0.0	0.0	0
8.11	20.394	0.836	0.16	1.4	24.395	4.099	0.0	0.0	0.0	0
8.12	20.394	0.836	0.16	1.4	24.395	4.099	0.0	0.0	0.0	0
8.13	20.19	0.836	0.16	1.4	24.151	4.141	0.0	0.0	0.0	0
8.14	19.986	0.867	0.16	1.5	23.052	4.338	0.0	0.0	0.0	0
8.15	19.986	0.867	0.16	1.5	23.052	4.338	0.0	0.0	0.0	0
8.16	20.088	0.857	0.16	1.5	23.44	4.266	0.0	0.0	0.0	0
8.17	20.292	0.846	0.16	1.5	23.986	4.169	0.0	0.0	0.0	0
8.18	20.496	0.826	0.16	1.5	24.814	4.03	0.0	0.0	0.0	0
8.19	20.598	0.816	0.16	1.5	25.243	3.962	0.0	0.0	0.0	0
8.20	20.394	0.806	0.16	1.5	25.303	3.952	0.0	0.0	0.0	0
8.21	20.292	0.806	0.16	1.5	25.176	3.972	0.0	0.0	0.0	0
8.22	20.292	0.806	0.16	1.5	25.176	3.972	0.0	0.0	0.0	0
8.23	20.292	0.806	0.16	1.5	25.176	3.972	0.0	0.0	0.0	0
8.24	20.088	0.806	0.16	1.5	24.923	4.012	0.0	0.0	0.0	0
8.25	19.986	0.795	0.16	1.5	25.14	3.978	0.0	0.0	0.0	0
8.26	19.782	0.795	0.16	1.5	24.883	4.019	0.0	0.0	0.0	0
8.27	19.884	0.775	0.16	1.5	25.657	3.898	0.0	0.0	0.0	0
8.28	19.986	0.755	0.16	1.5	26.472	3.778	0.0	0.0	0.0	0
8.29	19.986	0.755	0.16	1.5	26.472	3.778	0.0	0.0	0.0	0
8.30	20.088	0.744	0.16	1.5	27.0	3.704	0.0	0.0	0.0	0
8.31	20.088	0.734	0.16	1.5	27.368	3.654	0.0	0.0	0.0	0
8.32	20.088	0.724	0.16	1.5	27.746	3.604	0.0	0.0	0.0	0
8.33	20.19	0.704	0.16	1.5	28.679	3.487	0.0	0.0	0.0	0
8.34	20.19	0.693	0.16	1.5	29.134	3.432	0.0	0.0	0.0	0
8.35	20.088	0.673	0.16	1.5	29.848	3.35	0.0	0.0	0.0	0
8.36	20.19	0.663	0.16	1.5	30.452	3.284	0.0	0.0	0.0	0
8.37	20.292	0.663	0.16	1.5	30.606	3.267	0.0	0.0	0.0	0
8.38	20.292	0.663	0.16	1.5	30.606	3.267	0.0	0.0	0.0	0
8.39	20.292	0.663	0.16	1.5	30.606	3.267	0.0	0.0	0.0	0
8.40	20.292	0.663	0.16	1.5	30.606	3.267	0.0	0.0	0.0	0
8.41	20.394	0.663	0.16	1.5	30.76	3.251	0.0	0.0	0.0	0
8.42	20.7	0.653	0.16	1.6	31.7	3.155	0.0	0.0	0.0	0
8.43	20.904	0.642	0.16	1.6	32.561	3.071	0.0	0.0	0.0	0
8.44	21.006	0.642	0.16	1.6	32.72	3.056	0.0	0.0	0.0	0
8.45	20.904	0.653	0.16	1.6	32.012	3.124	0.0	0.0	0.0	0

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8.46	21.006	0.653	0.16	1.6	32.168	3.109	0.0	0.0	0.0	0
8.47	21.21	0.653	0.16	1.6	32.481	3.079	0.0	0.0	0.0	0
8.48	21.312	0.653	0.16	1.6	32.637	3.064	0.0	0.0	0.0	0
8.49	21.414	0.642	0.16	1.6	33.355	2.998	0.0	0.0	0.0	0
8.50	21.414	0.642	0.16	1.6	33.355	2.998	0.0	0.0	0.0	0
8.51	21.924	0.642	0.16	1.6	34.15	2.928	0.0	0.0	0.0	0
8.52	22.026	0.642	0.16	1.6	34.308	2.915	0.0	0.0	0.0	0
8.53	21.924	0.642	0.16	1.6	34.15	2.928	0.0	0.0	0.0	0
8.54	22.127	0.642	0.16	1.6	34.466	2.901	0.0	0.0	0.0	0
8.55	22.433	0.632	0.16	1.6	35.495	2.817	0.0	0.0	0.0	0
8.56	22.841	0.642	0.16	1.6	35.578	2.811	0.0	0.0	0.0	0
8.57	22.841	0.653	0.16	1.6	34.979	2.859	0.0	0.0	0.0	0
8.58	22.637	0.663	0.16	1.6	34.143	2.929	0.0	0.0	0.0	0
8.59	22.535	0.673	0.16	1.6	33.484	2.986	0.0	0.0	0.0	0
8.60	22.535	0.683	0.16	1.6	32.994	3.031	0.0	0.0	0.0	0
8.61	22.433	0.704	0.16	1.6	31.865	3.138	0.0	0.0	0.0	0
8.62	22.331	0.724	0.16	1.6	30.844	3.242	0.0	0.0	0.0	0
8.63	22.229	0.734	0.16	1.6	30.285	3.302	0.0	0.0	0.0	0
8.64	22.026	0.744	0.16	1.6	29.605	3.378	0.0	0.0	0.0	0
8.65	21.924	0.755	0.16	1.6	29.038	3.444	0.0	0.0	0.0	0
8.66	21.924	0.765	0.16	1.6	28.659	3.489	0.0	0.0	0.0	0
8.67	22.127	0.755	0.16	1.6	29.307	3.412	0.0	0.0	0.0	0
8.68	22.331	0.744	0.16	1.6	30.015	3.332	0.0	0.0	0.0	0
8.69	22.229	0.744	0.16	1.6	29.878	3.347	0.0	0.0	0.0	0
8.70	22.127	0.744	0.16	1.6	29.741	3.362	0.0	0.0	0.0	0
8.71	22.026	0.734	0.16	1.6	30.008	3.332	0.0	0.0	0.0	0
8.72	22.127	0.724	0.16	1.6	30.562	3.272	0.0	0.0	0.0	0
8.73	22.127	0.724	0.16	1.6	30.562	3.272	0.0	0.0	0.0	0
8.74	22.229	0.714	0.16	1.6	31.133	3.212	0.0	0.0	0.0	0
8.75	22.229	0.704	0.16	1.6	31.575	3.167	0.0	0.0	0.0	0
8.76	22.637	0.683	0.16	1.6	33.143	3.017	0.0	0.0	0.0	0
8.77	22.739	0.673	0.16	1.6	33.788	2.96	0.0	0.0	0.0	0
8.78	22.841	0.673	0.16	1.6	33.939	2.946	0.0	0.0	0.0	0
8.79	22.841	0.673	0.16	1.6	33.939	2.946	0.0	0.0	0.0	0
8.80	23.045	0.683	0.16	1.6	33.741	2.964	0.0	0.0	0.0	0
8.81	23.351	0.693	0.16	1.6	33.696	2.968	0.0	0.0	0.0	0
8.82	23.861	0.704	0.16	1.6	33.893	2.95	0.0	0.0	0.0	0
8.83	24.167	0.704	0.16	1.6	34.328	2.913	0.0	0.0	0.0	0
8.84	24.269	0.714	0.16	1.6	33.99	2.942	0.0	0.0	0.0	0
8.85	24.473	0.714	0.16	1.6	34.276	2.918	0.0	0.0	0.0	0
8.86	24.677	0.724	0.16	1.6	34.084	2.934	0.0	0.0	0.0	0
8.87	24.677	0.734	0.16	1.6	33.62	2.974	0.0	0.0	0.0	0
8.88	24.677	0.734	0.16	1.6	33.62	2.974	0.0	0.0	0.0	0
8.89	24.677	0.734	0.16	1.6	33.62	2.974	0.0	0.0	0.0	0
8.90	25.085	0.816	0.15	1.7	30.741	3.253	0.0	0.0	0.0	0
8.91	25.187	0.846	0.15	1.7	29.772	3.359	0.0	0.0	0.0	0
8.92	25.187	0.857	0.15	1.7	29.39	3.403	0.0	0.0	0.0	0
8.93	25.492	0.867	0.15	1.7	29.403	3.401	0.0	0.0	0.0	0
8.94	25.187	0.877	0.15	1.7	28.719	3.482	0.0	0.0	0.0	0
8.95	24.779	0.887	0.15	1.7	27.936	3.58	0.0	0.0	0.0	0
8.96	24.473	0.908	0.15	1.7	26.953	3.71	0.0	0.0	0.0	0
8.97	24.269	0.928	0.15	1.7	26.152	3.824	0.0	0.0	0.0	0
8.98	23.759	0.928	0.15	1.7	25.602	3.906	0.0	0.0	0.0	0
8.99	23.045	0.948	0.15	1.7	24.309	4.114	0.0	0.0	0.0	0
9.00	22.637	0.948	0.15	1.7	23.879	4.188	0.0	0.0	0.0	0
9.01	22.433	0.948	0.15	1.7	23.664	4.226	0.0	0.0	0.0	0
9.02	22.229	0.948	0.15	1.7	23.448	4.265	0.0	0.0	0.0	0
9.03	22.127	0.959	0.15	1.7	23.073	4.334	0.0	0.0	0.0	0
9.04	21.924	0.959	0.15	1.7	22.861	4.374	0.0	0.0	0.0	0
9.05	21.924	0.959	0.15	1.7	22.861	4.374	0.0	0.0	0.0	0
9.06	22.026	0.928	0.15	1.7	23.735	4.213	0.0	0.0	0.0	0
9.07	22.026	0.918	0.15	1.7	23.993	4.168	0.0	0.0	0.0	0
9.08	22.026	0.897	0.15	1.7	24.555	4.072	0.0	0.0	0.0	0
9.09	22.026	0.877	0.15	1.7	25.115	3.982	0.0	0.0	0.0	0
9.10	21.924	0.857	0.15	1.7	25.582	3.909	0.0	0.0	0.0	0
9.11	21.822	0.846	0.15	1.7	25.794	3.877	0.0	0.0	0.0	0
9.12	22.026	0.806	0.15	1.8	27.328	3.659	0.0	0.0	0.0	0
9.13	22.026	0.775	0.15	1.8	28.421	3.519	0.0	0.0	0.0	0
9.14	21.924	0.755	0.15	1.8	29.038	3.444	0.0	0.0	0.0	0
9.15	21.822	0.744	0.15	1.8	29.331	3.409	0.0	0.0	0.0	0
9.16	21.924	0.724	0.15	1.8	30.282	3.302	0.0	0.0	0.0	0
9.17	22.026	0.714	0.15	1.8	30.849	3.242	0.0	0.0	0.0	0
9.18	22.127	0.693	0.15	1.8	31.929	3.132	0.0	0.0	0.0	0
9.19	22.229	0.704	0.15	1.8	31.575	3.167	0.0	0.0	0.0	0
9.20	22.433	0.704	0.15	1.8	31.865	3.138	0.0	0.0	0.0	0

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9.21	22.535	0.704	0.15	1.8	32.01	3.124	0.0	0.0	0.0	0
9.22	22.535	0.714	0.15	1.8	31.562	3.168	0.0	0.0	0.0	0
9.23	22.535	0.724	0.15	1.8	31.126	3.213	0.0	0.0	0.0	0
9.24	22.637	0.724	0.15	1.8	31.267	3.198	0.0	0.0	0.0	0
9.25	22.739	0.734	0.15	1.8	30.98	3.228	0.0	0.0	0.0	0
9.26	22.739	0.744	0.15	1.8	30.563	3.272	0.0	0.0	0.0	0
9.27	22.637	0.755	0.15	1.8	29.983	3.335	0.0	0.0	0.0	0
9.28	22.739	0.765	0.15	1.8	29.724	3.364	0.0	0.0	0.0	0
9.29	22.739	0.765	0.15	1.8	29.724	3.364	0.0	0.0	0.0	0
9.30	22.637	0.775	0.15	1.8	29.209	3.424	0.0	0.0	0.0	0
9.31	22.535	0.795	0.15	1.8	28.346	3.528	0.0	0.0	0.0	0
9.32	22.535	0.795	0.15	1.8	28.346	3.528	0.0	0.0	0.0	0
9.33	22.433	0.806	0.15	1.8	27.833	3.593	0.0	0.0	0.0	0
9.34	22.331	0.816	0.15	1.9	27.366	3.654	0.0	0.0	0.0	0
9.35	22.331	0.816	0.15	1.9	27.366	3.654	0.0	0.0	0.0	0
9.36	22.331	0.816	0.15	1.9	27.366	3.654	0.0	0.0	0.0	0
9.37	22.535	0.816	0.15	1.9	27.616	3.621	0.0	0.0	0.0	0
9.38	22.637	0.816	0.15	1.9	27.741	3.605	0.0	0.0	0.0	0
9.39	22.535	0.816	0.15	1.9	27.616	3.621	0.0	0.0	0.0	0
9.40	22.637	0.816	0.15	1.9	27.741	3.605	0.0	0.0	0.0	0
9.41	22.739	0.806	0.15	1.9	28.212	3.545	0.0	0.0	0.0	0
9.42	22.943	0.806	0.15	1.9	28.465	3.513	0.0	0.0	0.0	0
9.43	23.249	0.785	0.15	1.9	29.617	3.376	0.0	0.0	0.0	0
9.44	23.045	0.795	0.15	1.9	28.987	3.45	0.0	0.0	0.0	0
9.45	22.943	0.795	0.15	1.9	28.859	3.465	0.0	0.0	0.0	0
9.46	22.841	0.795	0.15	1.9	28.731	3.481	0.0	0.0	0.0	0
9.47	22.739	0.795	0.15	1.9	28.603	3.496	0.0	0.0	0.0	0
9.48	22.739	0.785	0.15	1.9	28.967	3.452	0.0	0.0	0.0	0
9.49	22.841	0.785	0.15	1.9	29.097	3.437	0.0	0.0	0.0	0
9.50	22.943	0.795	0.15	1.9	28.859	3.465	0.0	0.0	0.0	0
9.51	22.943	0.795	0.15	1.9	28.859	3.465	0.0	0.0	0.0	0
9.52	22.739	0.806	0.15	1.9	28.212	3.545	0.0	0.0	0.0	0
9.53	22.739	0.806	0.15	1.9	28.212	3.545	0.0	0.0	0.0	0
9.54	22.841	0.806	0.15	1.9	28.339	3.529	0.0	0.0	0.0	0
9.55	22.739	0.795	0.15	1.9	28.603	3.496	0.0	0.0	0.0	0
9.56	23.147	0.795	0.15	1.9	29.116	3.435	0.0	0.0	0.0	0
9.57	23.351	0.795	0.15	1.9	29.372	3.405	0.0	0.0	0.0	0
9.58	23.453	0.795	0.15	1.9	29.501	3.39	0.0	0.0	0.0	0
9.59	23.555	0.795	0.15	1.9	29.629	3.375	0.0	0.0	0.0	0
9.60	21.822	0.714	0.15	1.9	30.563	3.272	0.0	0.0	0.0	0
9.61	23.759	0.806	0.15	1.9	29.478	3.392	0.0	0.0	0.0	0
9.62	24.473	0.806	0.15	1.9	30.364	3.293	0.0	0.0	0.0	0
9.63	24.575	0.806	0.15	1.9	30.49	3.28	0.0	0.0	0.0	0
9.64	24.677	0.806	0.15	1.9	30.617	3.266	0.0	0.0	0.0	0
9.65	24.779	0.795	0.15	1.9	31.169	3.208	0.0	0.0	0.0	0
9.66	24.983	0.785	0.15	1.9	31.825	3.142	0.0	0.0	0.0	0
9.67	25.391	0.775	0.15	1.9	32.763	3.052	0.0	0.0	0.0	0
9.68	25.492	0.785	0.15	1.9	32.474	3.079	0.0	0.0	0.0	0
9.69	26.002	0.795	0.15	1.9	32.707	3.057	0.0	0.0	0.0	0
9.70	26.206	0.806	0.15	1.9	32.514	3.076	0.0	0.0	0.0	0
9.71	26.716	0.806	0.15	1.9	33.146	3.017	0.0	0.0	0.0	0
9.72	27.226	0.795	0.15	1.9	34.247	2.92	0.0	0.0	0.0	0
9.73	27.328	0.806	0.15	1.9	33.906	2.949	0.0	0.0	0.0	0
9.74	27.532	0.816	0.15	1.9	33.74	2.964	0.0	0.0	0.0	0
9.75	27.328	0.836	0.15	1.9	32.689	3.059	0.0	0.0	0.0	0
9.76	27.022	0.867	0.15	1.9	31.167	3.208	0.0	0.0	0.0	0
9.77	26.614	0.887	0.15	1.9	30.005	3.333	0.0	0.0	0.0	0
9.78	26.512	0.897	0.15	1.9	29.556	3.383	0.0	0.0	0.0	0
9.79	26.206	0.908	0.15	1.9	28.861	3.465	0.0	0.0	0.0	0
9.80	26.002	0.928	0.15	1.9	28.019	3.569	0.0	0.0	0.0	0
9.81	25.9	0.938	0.15	1.9	27.612	3.622	0.0	0.0	0.0	0
9.82	25.9	0.948	0.15	2.0	27.321	3.66	0.0	0.0	0.0	0
9.83	25.696	0.969	0.15	2.0	26.518	3.771	0.0	0.0	0.0	0
9.84	25.798	0.989	0.15	2.0	26.085	3.834	0.0	0.0	0.0	0
9.85	26.002	0.999	0.15	2.0	26.028	3.842	0.0	0.0	0.0	0
9.86	26.206	1.01	0.15	2.0	25.947	3.854	0.0	0.0	0.0	0
9.87	26.104	1.03	0.15	2.0	25.344	3.946	0.0	0.0	0.0	0
9.88	26.104	1.03	0.15	2.0	25.344	3.946	0.0	0.0	0.0	0
9.89	26.104	1.03	0.15	2.0	25.344	3.946	0.0	0.0	0.0	0
9.90	26.512	1.091	0.15	2.0	24.301	4.115	0.0	0.0	0.0	0
9.91	26.41	1.111	0.15	2.0	23.771	4.207	0.0	0.0	0.0	0
9.92	26.308	1.152	0.15	2.0	22.837	4.379	0.0	0.0	0.0	0
9.93	26.002	1.173	0.15	2.0	22.167	4.511	0.0	0.0	0.0	0
9.94	26.002	1.183	0.15	2.0	21.98	4.55	0.0	0.0	0.0	0
9.95	25.798	1.203	0.15	2.0	21.445	4.663	0.0	0.0	0.0	0

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9.96	25.696	1.213	0.15	2.0	21.184	4.721	0.0	0.0	0.0	0
9.97	25.798	1.213	0.15	2.0	21.268	4.702	0.0	0.0	0.0	0
9.98	25.492	1.213	0.15	2.0	21.016	4.758	0.0	0.0	0.0	0
9.99	25.085	1.234	0.15	2.0	20.328	4.919	0.0	0.0	0.0	0
10.00	24.983	1.234	0.15	2.0	20.246	4.939	0.0	0.0	0.0	0
10.01	24.881	1.234	0.15	2.0	20.163	4.96	0.0	0.0	0.0	0
10.02	25.085	1.224	0.15	2.1	20.494	4.879	0.0	0.0	0.0	0
10.03	25.085	1.203	0.15	2.1	20.852	4.796	0.0	0.0	0.0	0
10.04	25.085	1.193	0.15	2.1	21.027	4.756	0.0	0.0	0.0	0
10.05	24.983	1.183	0.15	2.1	21.118	4.735	0.0	0.0	0.0	0
10.06	25.289	1.162	0.15	2.1	21.763	4.595	0.0	0.0	0.0	0
10.07	25.696	1.132	0.15	2.1	22.7	4.405	0.0	0.0	0.0	0
10.08	26.002	1.111	0.15	2.1	23.404	4.273	0.0	0.0	0.0	0
10.09	26.206	1.101	0.15	2.1	23.802	4.201	0.0	0.0	0.0	0
10.10	26.308	1.081	0.15	2.1	24.337	4.109	0.0	0.0	0.0	0
10.11	26.41	1.071	0.15	2.1	24.659	4.055	0.0	0.0	0.0	0
10.12	26.614	1.06	0.15	2.1	25.108	3.983	0.0	0.0	0.0	0
10.13	26.92	1.05	0.15	2.1	25.638	3.9	0.0	0.0	0.0	0
10.14	27.022	1.05	0.15	2.1	25.735	3.886	0.0	0.0	0.0	0
10.15	26.92	1.06	0.15	2.1	25.396	3.938	0.0	0.0	0.0	0
10.16	26.92	1.091	0.15	2.1	24.675	4.053	0.0	0.0	0.0	0
10.17	26.614	1.111	0.15	2.1	23.955	4.174	0.0	0.0	0.0	0
10.18	26.614	1.152	0.15	2.1	23.102	4.329	0.0	0.0	0.0	0
10.19	26.716	1.173	0.15	2.1	22.776	4.391	0.0	0.0	0.0	0
10.20	26.716	1.193	0.15	2.1	22.394	4.465	0.0	0.0	0.0	0
10.21	26.92	1.203	0.15	2.1	22.377	4.469	0.0	0.0	0.0	0
10.22	27.124	1.213	0.15	2.1	22.361	4.472	0.0	0.0	0.0	0
10.23	27.022	1.244	0.15	2.1	21.722	4.604	0.0	0.0	0.0	0
10.24	26.818	1.254	0.15	2.1	21.386	4.676	0.0	0.0	0.0	0
10.25	26.818	1.264	0.15	2.1	21.217	4.713	0.0	0.0	0.0	0
10.26	26.818	1.275	0.15	2.1	21.034	4.754	0.0	0.0	0.0	0
10.27	26.92	1.275	0.15	2.1	21.114	4.736	0.0	0.0	0.0	0
10.28	27.022	1.264	0.15	2.1	21.378	4.678	0.0	0.0	0.0	0
10.29	26.818	1.264	0.15	2.1	21.217	4.713	0.0	0.0	0.0	0
10.30	26.716	1.264	0.15	2.1	21.136	4.731	0.0	0.0	0.0	0
10.31	26.716	1.254	0.15	2.1	21.305	4.694	0.0	0.0	0.0	0
10.32	26.818	1.254	0.16	2.1	21.386	4.676	0.0	0.0	0.0	0
10.33	27.022	1.234	0.16	2.1	21.898	4.567	0.0	0.0	0.0	0
10.34	27.124	1.203	0.16	2.1	22.547	4.435	0.0	0.0	0.0	0
10.35	26.92	1.173	0.16	2.1	22.95	4.357	0.0	0.0	0.0	0
10.36	26.716	1.142	0.16	2.1	23.394	4.275	0.0	0.0	0.0	0
10.37	26.716	1.122	0.16	2.1	23.811	4.2	0.0	0.0	0.0	0
10.38	26.512	1.101	0.16	2.1	24.08	4.153	0.0	0.0	0.0	0
10.39	26.104	1.091	0.16	2.1	23.927	4.179	0.0	0.0	0.0	0
10.40	26.002	1.071	0.16	2.1	24.278	4.119	0.0	0.0	0.0	0
10.41	25.696	1.071	0.16	2.1	23.993	4.168	0.0	0.0	0.0	0
10.42	25.289	1.071	0.16	2.1	23.613	4.235	0.0	0.0	0.0	0
10.43	25.085	1.04	0.16	2.1	24.12	4.146	0.0	0.0	0.0	0
10.44	24.677	1.01	0.16	2.1	24.433	4.093	0.0	0.0	0.0	0
10.45	23.861	0.979	0.16	2.2	24.373	4.103	0.0	0.0	0.0	0
10.46	23.555	0.969	0.16	2.2	24.309	4.114	0.0	0.0	0.0	0
10.47	23.453	0.959	0.16	2.2	24.456	4.089	0.0	0.0	0.0	0
10.48	23.147	0.948	0.16	2.2	24.417	4.096	0.0	0.0	0.0	0
10.49	22.943	0.948	0.16	2.2	24.201	4.132	0.0	0.0	0.0	0
10.50	22.739	0.938	0.16	2.2	24.242	4.125	0.0	0.0	0.0	0
10.51	22.841	0.928	0.16	2.2	24.613	4.063	0.0	0.0	0.0	0
10.52	23.045	0.918	0.16	2.2	25.103	3.984	0.0	0.0	0.0	0
10.53	23.147	0.908	0.16	2.2	25.492	3.923	0.0	0.0	0.0	0
10.54	23.147	0.908	0.16	2.2	25.492	3.923	0.0	0.0	0.0	0
10.55	22.943	0.897	0.16	2.2	25.577	3.91	0.0	0.0	0.0	0
10.56	22.739	0.887	0.16	2.2	25.636	3.901	0.0	0.0	0.0	0
10.57	22.535	0.887	0.16	2.2	25.406	3.936	0.0	0.0	0.0	0
10.58	22.535	0.867	0.16	2.2	25.992	3.847	0.0	0.0	0.0	0
10.59	22.637	0.836	0.16	2.2	27.078	3.693	0.0	0.0	0.0	0
10.60	22.535	0.826	0.16	2.2	27.282	3.665	0.0	0.0	0.0	0
10.61	22.535	0.816	0.16	2.2	27.616	3.621	0.0	0.0	0.0	0
10.62	22.331	0.806	0.16	2.2	27.706	3.609	0.0	0.0	0.0	0
10.63	22.331	0.775	0.16	2.2	28.814	3.471	0.0	0.0	0.0	0
10.64	22.433	0.755	0.16	2.2	29.713	3.366	0.0	0.0	0.0	0
10.65	22.535	0.734	0.16	2.2	30.702	3.257	0.0	0.0	0.0	0
10.66	22.433	0.724	0.16	2.2	30.985	3.227	0.0	0.0	0.0	0
10.67	22.229	0.714	0.16	2.2	31.133	3.212	0.0	0.0	0.0	0
10.68	21.924	0.683	0.16	2.2	32.1	3.115	0.0	0.0	0.0	0
10.69	21.618	0.673	0.16	2.2	32.122	3.113	0.0	0.0	0.0	0
10.70	21.414	0.653	0.16	2.2	32.793	3.049	0.0	0.0	0.0	0

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10.71	21.108	0.653	0.16	2.2	32.325	3.094	0.0	0.0	0.0	0
10.72	20.802	0.632	0.16	2.2	32.915	3.038	0.0	0.0	0.0	0
10.73	20.496	0.622	0.16	2.2	32.952	3.035	0.0	0.0	0.0	0
10.74	19.782	0.612	0.16	2.2	32.324	3.094	0.0	0.0	0.0	0
10.75	19.68	0.602	0.16	2.2	32.691	3.059	0.0	0.0	0.0	0
10.76	19.476	0.602	0.16	2.2	32.352	3.091	0.0	0.0	0.0	0
10.77	19.272	0.602	0.15	2.2	32.013	3.124	0.0	0.0	0.0	0
10.78	19.068	0.602	0.16	2.2	31.674	3.157	0.0	0.0	0.0	0
10.79	18.864	0.602	0.15	2.2	31.336	3.191	0.0	0.0	0.0	0
10.80	18.661	0.602	0.15	2.2	30.998	3.226	0.0	0.0	0.0	0
10.81	18.457	0.581	0.15	2.2	31.768	3.148	0.0	0.0	0.0	0
10.82	18.457	0.581	0.15	2.2	31.768	3.148	0.0	0.0	0.0	0
10.83	18.559	0.581	0.15	2.3	31.943	3.131	0.0	0.0	0.0	0
10.84	18.559	0.581	0.15	2.3	31.943	3.131	0.0	0.0	0.0	0
10.85	18.559	0.571	0.15	2.3	32.503	3.077	0.0	0.0	0.0	0
10.86	18.457	0.571	0.15	2.3	32.324	3.094	0.0	0.0	0.0	0
10.87	18.559	0.551	0.15	2.3	33.682	2.969	0.0	0.0	0.0	0
10.88	18.559	0.551	0.15	2.3	33.682	2.969	0.0	0.0	0.0	0
10.89	18.559	0.551	0.15	2.3	33.682	2.969	0.0	0.0	0.0	0
10.90	21.312	0.255	0.15	2.3	83.576	1.197	0.0	0.0	0.0	0
10.91	21.618	0.265	0.15	2.3	81.577	1.226	0.0	0.0	0.0	0
10.92	21.618	0.275	0.15	2.3	78.611	1.272	0.0	0.0	0.0	0
10.93	21.312	0.265	0.15	2.3	80.423	1.243	0.0	0.0	0.0	0
10.94	21.006	0.255	0.15	2.3	82.376	1.214	0.0	0.0	0.0	0
10.95	20.292	0.245	0.15	2.3	82.824	1.207	0.0	0.0	0.0	0
10.96	19.578	0.255	0.15	2.4	76.776	1.302	0.0	0.0	0.0	0
10.97	18.559	0.265	0.15	2.4	70.034	1.428	0.0	0.0	0.0	0
10.98	17.743	0.275	0.15	2.4	64.52	1.55	0.0	0.0	0.0	0
10.99	17.131	0.265	0.15	2.4	64.645	1.547	0.0	0.0	0.0	0
11.00	17.437	0.245	0.15	2.4	71.171	1.405	0.0	0.0	0.0	0
11.01	18.049	0.224	0.15	2.4	80.576	1.241	0.0	0.0	0.0	0
11.02	18.966	0.194	0.15	2.4	97.763	1.023	0.0	0.0	0.0	0
11.03	19.884	0.163	0.15	2.4	121.988	0.82	0.0	0.0	0.0	0
11.04	20.7	0.153	0.15	2.5	135.294	0.739	0.0	0.0	0.0	0
11.05	21.618	0.133	0.15	2.5	162.541	0.615	0.0	0.0	0.0	0
11.06	21.924	0.122	0.15	2.5	179.705	0.556	0.0	0.0	0.0	0
11.07	22.026	0.133	0.15	2.5	165.609	0.604	0.0	0.0	0.0	0
11.08	22.026	0.153	0.15	2.5	143.961	0.695	0.0	0.0	0.0	0
11.09	22.026	0.173	0.15	2.5	127.318	0.785	0.0	0.0	0.0	0
11.10	21.924	0.194	0.15	2.5	113.01	0.885	0.0	0.0	0.0	0
11.11	21.72	0.224	0.15	2.5	96.964	1.031	0.0	0.0	0.0	0
11.12	21.924	0.235	0.15	2.5	93.294	1.072	0.0	0.0	0.0	0
11.13	21.924	0.235	0.15	2.5	93.294	1.072	0.0	0.0	0.0	0
11.14	22.331	0.235	0.15	2.5	95.026	1.052	0.0	0.0	0.0	0
11.15	22.739	0.245	0.15	2.5	92.812	1.077	0.0	0.0	0.0	0
11.16	24.167	0.245	0.15	2.6	98.641	1.014	0.0	0.0	0.0	0
11.17	24.881	0.255	0.15	2.6	97.573	1.025	0.0	0.0	0.0	0
11.18	25.289	0.275	0.15	2.6	91.96	1.087	0.0	0.0	0.0	0
11.19	25.492	0.306	0.15	2.6	83.307	1.2	0.0	0.0	0.0	0
11.20	25.391	0.326	0.15	2.6	77.887	1.284	0.0	0.0	0.0	0
11.21	24.983	0.357	0.15	2.6	69.98	1.429	0.0	0.0	0.0	0
11.22	24.677	0.387	0.15	2.6	63.765	1.568	0.0	0.0	0.0	0
11.23	24.473	0.418	0.15	2.6	58.548	1.708	0.0	0.0	0.0	0
11.24	24.065	0.459	0.15	2.6	52.429	1.907	0.0	0.0	0.0	0
11.25	22.943	0.581	0.15	2.6	39.489	2.532	0.0	0.0	0.0	0
11.26	22.026	0.653	0.15	2.6	33.73	2.965	0.0	0.0	0.0	0
11.27	21.312	0.673	0.15	2.6	31.667	3.158	0.0	0.0	0.0	0
11.28	21.21	0.653	0.15	2.6	32.481	3.079	0.0	0.0	0.0	0
11.29	21.108	0.632	0.15	2.6	33.399	2.994	0.0	0.0	0.0	0
11.30	20.904	0.642	0.15	2.6	32.561	3.071	0.0	0.0	0.0	0
11.31	20.088	0.704	0.15	2.6	28.534	3.505	0.0	0.0	0.0	0
11.32	19.782	0.714	0.15	2.6	27.706	3.609	0.0	0.0	0.0	0
11.33	19.578	0.704	0.15	2.6	27.81	3.596	0.0	0.0	0.0	0
11.34	19.374	0.693	0.15	2.6	27.957	3.577	0.0	0.0	0.0	0
11.35	19.374	0.663	0.15	2.6	29.222	3.422	0.0	0.0	0.0	0
11.36	18.966	0.622	0.15	2.6	30.492	3.28	0.0	0.0	0.0	0
11.37	18.762	0.591	0.15	2.6	31.746	3.15	0.0	0.0	0.0	0
11.38	18.457	0.53	0.15	2.6	34.825	2.872	0.0	0.0	0.0	0
11.39	18.151	0.5	0.15	2.6	36.302	2.755	0.0	0.0	0.0	0
11.40	17.947	0.479	0.15	2.6	37.468	2.669	0.0	0.0	0.0	0
11.41	17.641	0.469	0.15	2.6	37.614	2.659	0.0	0.0	0.0	0
11.42	17.539	0.459	0.15	2.6	38.211	2.617	0.0	0.0	0.0	0
11.43	17.539	0.418	0.15	2.6	41.959	2.383	0.0	0.0	0.0	0
11.44	17.539	0.398	0.15	2.6	44.068	2.269	0.0	0.0	0.0	0
11.45	17.539	0.387	0.15	2.6	45.32	2.207	0.0	0.0	0.0	0

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11.46	17.641	0.387	0.15	2.6	45.584	2.194	0.0	0.0	0.0	0
11.47	17.641	0.377	0.15	2.6	46.793	2.137	0.0	0.0	0.0	0
11.48	17.641	0.367	0.15	2.7	48.068	2.08	0.0	0.0	0.0	0
11.49	17.335	0.347	0.15	2.7	49.957	2.002	0.0	0.0	0.0	0
11.50	17.335	0.337	0.15	2.7	51.439	1.944	0.0	0.0	0.0	0
11.51	17.233	0.326	0.15	2.7	52.862	1.892	0.0	0.0	0.0	0
11.52	17.131	0.326	0.15	2.7	52.549	1.903	0.0	0.0	0.0	0
11.53	17.131	0.326	0.15	2.7	52.549	1.903	0.0	0.0	0.0	0
11.54	17.029	0.337	0.15	2.7	50.531	1.979	0.0	0.0	0.0	0
11.55	17.029	0.357	0.15	2.7	47.7	2.096	0.0	0.0	0.0	0
11.56	17.131	0.357	0.15	2.7	47.986	2.084	0.0	0.0	0.0	0
11.57	17.131	0.357	0.15	2.7	47.986	2.084	0.0	0.0	0.0	0
11.58	17.233	0.347	0.15	2.7	49.663	2.014	0.0	0.0	0.0	0
11.59	17.233	0.337	0.15	2.7	51.136	1.956	0.0	0.0	0.0	0
11.60	17.131	0.326	0.15	2.7	52.549	1.903	0.0	0.0	0.0	0
11.61	17.539	0.316	0.15	2.7	55.503	1.802	0.0	0.0	0.0	0
11.62	17.743	0.316	0.15	2.7	56.149	1.781	0.0	0.0	0.0	0
11.63	17.947	0.316	0.15	2.7	56.794	1.761	0.0	0.0	0.0	0
11.64	18.151	0.316	0.15	2.7	57.44	1.741	0.0	0.0	0.0	0
11.65	18.253	0.306	0.15	2.8	59.65	1.676	0.0	0.0	0.0	0
11.66	18.355	0.286	0.15	2.8	64.178	1.558	0.0	0.0	0.0	0
11.67	18.355	0.255	0.15	2.8	71.98	1.389	0.0	0.0	0.0	0
11.68	18.355	0.245	0.15	2.8	74.918	1.335	0.0	0.0	0.0	0
11.69	18.457	0.235	0.15	2.8	78.54	1.273	0.0	0.0	0.0	0
11.70	18.151	0.235	0.15	2.8	77.238	1.295	0.0	0.0	0.0	0
11.71	18.049	0.245	0.15	2.8	73.669	1.357	0.0	0.0	0.0	0
11.72	17.947	0.245	0.15	2.8	73.253	1.365	0.0	0.0	0.0	0
11.73	17.947	0.245	0.15	2.8	73.253	1.365	0.0	0.0	0.0	0
11.74	18.151	0.235	0.15	2.8	77.238	1.295	0.0	0.0	0.0	0
11.75	18.355	0.235	0.15	2.8	78.106	1.28	0.0	0.0	0.0	0
11.76	18.253	0.235	0.15	2.9	77.672	1.287	0.0	0.0	0.0	0
11.77	18.355	0.245	0.15	2.8	74.918	1.335	0.0	0.0	0.0	0
11.78	18.457	0.245	0.15	2.9	75.335	1.327	0.0	0.0	0.0	0
11.79	19.17	0.265	0.15	2.9	72.34	1.382	0.0	0.0	0.0	0
11.80	19.374	0.286	0.15	2.9	67.741	1.476	0.0	0.0	0.0	0
11.81	19.782	0.306	0.15	2.9	64.647	1.547	0.0	0.0	0.0	0
11.82	20.394	0.306	0.15	2.9	66.647	1.5	0.0	0.0	0.0	0
11.83	21.21	0.306	0.15	2.9	69.314	1.443	0.0	0.0	0.0	0
11.84	21.822	0.316	0.15	2.9	69.057	1.448	0.0	0.0	0.0	0
11.85	22.535	0.337	0.15	3.0	66.869	1.495	0.0	0.0	0.0	0
11.86	21.516	0.377	0.15	3.0	57.072	1.752	0.0	0.0	0.0	0
11.87	20.598	0.398	0.15	3.0	51.754	1.932	0.0	0.0	0.0	0
11.88	20.598	0.398	0.15	3.0	51.754	1.932	0.0	0.0	0.0	0
11.89	20.598	0.398	0.15	3.0	51.754	1.932	0.0	0.0	0.0	0
11.90	19.272	0.398	0.14	3.0	48.422	2.065	0.0	0.0	0.0	0
11.91	18.762	0.418	0.14	3.0	44.885	2.228	0.0	0.0	0.0	0
11.92	18.355	0.428	0.14	3.0	42.886	2.332	0.0	0.0	0.0	0
11.93	18.049	0.418	0.14	3.0	43.179	2.316	0.0	0.0	0.0	0
11.94	17.947	0.377	0.14	3.0	47.605	2.101	0.0	0.0	0.0	0
11.95	18.253	0.326	0.14	3.0	55.991	1.786	0.0	0.0	0.0	0
11.96	18.661	0.306	0.14	3.0	60.984	1.64	0.0	0.0	0.0	0
11.97	18.559	0.306	0.14	3.0	60.65	1.649	0.0	0.0	0.0	0
11.98	18.355	0.316	0.14	3.0	58.085	1.722	0.0	0.0	0.0	0
11.99	18.355	0.316	0.14	3.0	58.085	1.722	0.0	0.0	0.0	0
12.00	18.355	0.316	0.14	3.0	58.085	1.722	0.0	0.0	0.0	0
12.01	18.151	0.337	0.14	3.0	53.861	1.857	0.0	0.0	0.0	0
12.02	18.151	0.347	0.14	3.0	52.308	1.912	0.0	0.0	0.0	0
12.03	18.049	0.357	0.14	3.0	50.557	1.978	0.0	0.0	0.0	0
12.04	17.743	0.357	0.14	3.0	49.7	2.012	0.0	0.0	0.0	0
12.05	17.641	0.367	0.14	3.0	48.068	2.08	0.0	0.0	0.0	0
12.06	17.539	0.387	0.14	3.0	45.32	2.207	0.0	0.0	0.0	0
12.07	17.641	0.398	0.14	3.0	44.324	2.256	0.0	0.0	0.0	0
12.08	17.845	0.408	0.14	3.0	43.738	2.286	0.0	0.0	0.0	0
12.09	17.947	0.408	0.14	3.0	43.988	2.273	0.0	0.0	0.0	0
12.10	18.049	0.398	0.14	3.0	45.349	2.205	0.0	0.0	0.0	0
12.11	18.253	0.387	0.14	3.0	47.165	2.12	0.0	0.0	0.0	0
12.12	18.457	0.387	0.14	3.0	47.693	2.097	0.0	0.0	0.0	0
12.13	18.661	0.377	0.14	3.0	49.499	2.02	0.0	0.0	0.0	0
12.14	18.966	0.367	0.14	3.0	51.678	1.935	0.0	0.0	0.0	0
12.15	19.17	0.357	0.14	3.0	53.697	1.862	0.0	0.0	0.0	0
12.16	19.374	0.357	0.14	3.0	54.269	1.843	0.0	0.0	0.0	0
12.17	20.19	0.337	0.14	3.0	59.911	1.669	0.0	0.0	0.0	0
12.18	20.802	0.316	0.14	3.0	65.829	1.519	0.0	0.0	0.0	0
12.19	21.108	0.306	0.14	3.0	68.98	1.45	0.0	0.0	0.0	0
12.20	21.312	0.316	0.14	3.0	67.443	1.483	0.0	0.0	0.0	0

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12.21	21.516	0.347	0.14	3.0	62.006	1.613	0.0	0.0	0.0	0
12.22	21.516	0.357	0.14	3.0	60.269	1.659	0.0	0.0	0.0	0
12.23	21.516	0.377	0.14	3.0	57.072	1.752	0.0	0.0	0.0	0
12.24	21.414	0.398	0.14	3.0	53.804	1.859	0.0	0.0	0.0	0
12.25	21.108	0.438	0.14	3.0	48.192	2.075	0.0	0.0	0.0	0
12.26	20.7	0.479	0.14	3.1	43.215	2.314	0.0	0.0	0.0	0
12.27	20.496	0.52	0.14	3.1	39.415	2.537	0.0	0.0	0.0	0
12.28	20.394	0.53	0.14	3.1	38.479	2.599	0.0	0.0	0.0	0
12.29	20.394	0.551	0.14	3.1	37.013	2.702	0.0	0.0	0.0	0
12.30	20.292	0.561	0.14	3.1	36.171	2.765	0.0	0.0	0.0	0
12.31	20.394	0.571	0.14	3.1	35.716	2.8	0.0	0.0	0.0	0
12.32	20.394	0.591	0.14	3.1	34.508	2.898	0.0	0.0	0.0	0
12.33	20.292	0.591	0.14	3.1	34.335	2.912	0.0	0.0	0.0	0
12.34	20.598	0.591	0.14	3.1	34.853	2.869	0.0	0.0	0.0	0
12.35	21.108	0.571	0.14	3.1	36.967	2.705	0.0	0.0	0.0	0
12.36	21.618	0.551	0.15	3.1	39.234	2.549	0.0	0.0	0.0	0
12.37	22.026	0.52	0.15	3.1	42.358	2.361	0.0	0.0	0.0	0
12.38	22.433	0.5	0.15	3.1	44.866	2.229	0.0	0.0	0.0	0
12.39	23.249	0.469	0.15	3.1	49.571	2.017	0.0	0.0	0.0	0
12.40	23.657	0.459	0.15	3.1	51.54	1.94	0.0	0.0	0.0	0
12.41	23.759	0.459	0.15	3.1	51.763	1.932	0.0	0.0	0.0	0
12.42	23.759	0.469	0.15	3.2	50.659	1.974	0.0	0.0	0.0	0
12.43	23.759	0.489	0.15	3.2	48.587	2.058	0.0	0.0	0.0	0
12.44	24.065	0.489	0.15	3.2	49.213	2.032	0.0	0.0	0.0	0
12.45	24.983	0.489	0.15	3.2	51.09	1.957	0.0	0.0	0.0	0
12.46	24.983	0.489	0.15	3.2	51.09	1.957	0.0	0.0	0.0	0
12.47	24.983	0.52	0.15	3.2	48.044	2.081	0.0	0.0	0.0	0
12.48	25.187	0.551	0.15	3.2	45.711	2.188	0.0	0.0	0.0	0
12.49	25.187	0.591	0.15	3.2	42.618	2.346	0.0	0.0	0.0	0
12.50	24.983	0.642	0.15	3.2	38.914	2.57	0.0	0.0	0.0	0
12.51	24.881	0.704	0.15	3.2	35.342	2.829	0.0	0.0	0.0	0
12.52	24.983	0.734	0.15	3.2	34.037	2.938	0.0	0.0	0.0	0
12.53	24.881	0.755	0.15	3.2	32.955	3.034	0.0	0.0	0.0	0
12.54	24.779	0.785	0.15	3.2	31.566	3.168	0.0	0.0	0.0	0
12.55	24.677	0.806	0.15	3.2	30.617	3.266	0.0	0.0	0.0	0
12.56	24.473	0.826	0.15	3.2	29.628	3.375	0.0	0.0	0.0	0
12.57	23.963	0.867	0.15	3.2	27.639	3.618	0.0	0.0	0.0	0
12.58	23.861	0.877	0.15	3.2	27.208	3.675	0.0	0.0	0.0	0
12.59	23.861	0.877	0.15	3.2	27.208	3.675	0.0	0.0	0.0	0
12.60	23.555	0.867	0.15	3.2	27.168	3.681	0.0	0.0	0.0	0
12.61	23.453	0.846	0.15	3.2	27.722	3.607	0.0	0.0	0.0	0
12.62	23.351	0.836	0.15	3.2	27.932	3.58	0.0	0.0	0.0	0
12.63	23.249	0.826	0.15	3.2	28.146	3.553	0.0	0.0	0.0	0
12.64	22.943	0.806	0.15	3.2	28.465	3.513	0.0	0.0	0.0	0
12.65	22.739	0.806	0.15	3.2	28.212	3.545	0.0	0.0	0.0	0
12.66	22.841	0.785	0.15	3.2	29.097	3.437	0.0	0.0	0.0	0
12.67	22.841	0.775	0.15	3.2	29.472	3.393	0.0	0.0	0.0	0
12.68	22.535	0.765	0.15	3.2	29.458	3.395	0.0	0.0	0.0	0
12.69	21.924	0.744	0.15	3.2	29.468	3.394	0.0	0.0	0.0	0
12.70	21.516	0.744	0.15	3.2	28.919	3.458	0.0	0.0	0.0	0
12.71	21.312	0.744	0.15	3.2	28.645	3.491	0.0	0.0	0.0	0
12.72	21.108	0.744	0.15	3.2	28.371	3.525	0.0	0.0	0.0	0
12.73	20.904	0.734	0.15	3.2	28.48	3.511	0.0	0.0	0.0	0
12.74	20.7	0.734	0.15	3.2	28.202	3.546	0.0	0.0	0.0	0
12.75	20.496	0.724	0.15	3.2	28.309	3.532	0.0	0.0	0.0	0
12.76	20.394	0.724	0.15	3.2	28.169	3.55	0.0	0.0	0.0	0
12.77	20.394	0.714	0.15	3.2	28.563	3.501	0.0	0.0	0.0	0
12.78	20.292	0.704	0.15	3.2	28.824	3.469	0.0	0.0	0.0	0
12.79	20.292	0.683	0.15	3.2	29.71	3.366	0.0	0.0	0.0	0
12.80	20.19	0.673	0.15	3.2	30.0	3.333	0.0	0.0	0.0	0
12.81	19.884	0.642	0.15	3.2	30.972	3.229	0.0	0.0	0.0	0
12.82	19.884	0.612	0.15	3.2	32.49	3.078	0.0	0.0	0.0	0
12.83	19.782	0.591	0.15	3.2	33.472	2.988	0.0	0.0	0.0	0
12.84	19.782	0.561	0.15	3.2	35.262	2.836	0.0	0.0	0.0	0
12.85	19.986	0.53	0.15	3.2	37.709	2.652	0.0	0.0	0.0	0
12.86	20.088	0.5	0.15	3.2	40.176	2.489	0.0	0.0	0.0	0
12.87	20.598	0.438	0.15	3.2	47.027	2.126	0.0	0.0	0.0	0
12.88	20.598	0.438	0.15	3.2	47.027	2.126	0.0	0.0	0.0	0
12.89	20.598	0.438	0.15	3.2	47.027	2.126	0.0	0.0	0.0	0
12.90	20.394	0.275	0.15	3.2	74.16	1.348	0.0	0.0	0.0	0
12.91	20.292	0.326	0.15	3.3	62.245	1.607	0.0	0.0	0.0	0
12.92	20.088	0.347	0.15	3.3	57.89	1.727	0.0	0.0	0.0	0
12.93	19.986	0.367	0.15	3.3	54.458	1.836	0.0	0.0	0.0	0
12.94	19.986	0.377	0.15	3.3	53.013	1.886	0.0	0.0	0.0	0
12.95	19.986	0.377	0.15	3.3	53.013	1.886	0.0	0.0	0.0	0

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12.96	19.782	0.408	0.15	3.3	48.485	2.062	0.0	0.0	0.0	0
12.97	19.782	0.438	0.15	3.3	45.164	2.214	0.0	0.0	0.0	0
12.98	19.578	0.449	0.15	3.3	43.604	2.293	0.0	0.0	0.0	0
12.99	19.68	0.459	0.15	3.3	42.876	2.332	0.0	0.0	0.0	0
13.00	19.68	0.449	0.15	3.3	43.831	2.282	0.0	0.0	0.0	0
13.01	20.088	0.438	0.15	3.3	45.863	2.18	0.0	0.0	0.0	0
13.02	20.598	0.408	0.15	3.3	50.485	1.981	0.0	0.0	0.0	0
13.03	20.904	0.398	0.15	3.3	52.523	1.904	0.0	0.0	0.0	0
13.04	21.21	0.377	0.15	3.3	56.26	1.777	0.0	0.0	0.0	0
13.05	21.312	0.367	0.15	3.3	58.071	1.722	0.0	0.0	0.0	0
13.06	21.312	0.357	0.15	3.3	59.697	1.675	0.0	0.0	0.0	0
13.07	21.618	0.347	0.15	3.3	62.3	1.605	0.0	0.0	0.0	0
13.08	22.229	0.326	0.15	3.3	68.187	1.467	0.0	0.0	0.0	0
13.09	22.331	0.326	0.15	3.3	68.5	1.46	0.0	0.0	0.0	0
13.10	22.535	0.316	0.15	3.3	71.313	1.402	0.0	0.0	0.0	0
13.11	22.535	0.326	0.15	3.4	69.126	1.447	0.0	0.0	0.0	0
13.12	22.535	0.337	0.15	3.4	66.869	1.495	0.0	0.0	0.0	0
13.13	22.535	0.347	0.15	3.4	64.942	1.54	0.0	0.0	0.0	0
13.14	22.331	0.398	0.15	3.4	56.108	1.782	0.0	0.0	0.0	0
13.15	22.331	0.418	0.15	3.4	53.423	1.872	0.0	0.0	0.0	0
13.16	22.331	0.428	0.15	3.4	52.175	1.917	0.0	0.0	0.0	0
13.17	22.331	0.449	0.15	3.4	49.735	2.011	0.0	0.0	0.0	0
13.18	22.331	0.469	0.15	3.4	47.614	2.1	0.0	0.0	0.0	0
13.19	22.433	0.479	0.15	3.4	46.833	2.135	0.0	0.0	0.0	0
13.20	22.841	0.5	0.15	3.4	45.682	2.189	0.0	0.0	0.0	0
13.21	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.22	22.943	0.53	0.15	3.4	43.289	2.31	0.0	0.0	0.0	0
13.23	23.147	0.54	0.15	3.4	42.865	2.333	0.0	0.0	0.0	0
13.24	23.045	0.551	0.15	3.4	41.824	2.391	0.0	0.0	0.0	0
13.25	22.739	0.561	0.15	3.4	40.533	2.467	0.0	0.0	0.0	0
13.26	22.739	0.561	0.15	3.4	40.533	2.467	0.0	0.0	0.0	0
13.27	22.637	0.561	0.15	3.4	40.351	2.478	0.0	0.0	0.0	0
13.28	22.637	0.561	0.15	3.4	40.351	2.478	0.0	0.0	0.0	0
13.29	22.331	0.571	0.15	3.4	39.109	2.557	0.0	0.0	0.0	0
13.30	22.127	0.581	0.15	3.4	38.084	2.626	0.0	0.0	0.0	0
13.31	22.026	0.581	0.15	3.4	37.91	2.638	0.0	0.0	0.0	0
13.32	22.229	0.571	0.15	3.4	38.93	2.569	0.0	0.0	0.0	0
13.33	22.535	0.561	0.15	3.4	40.169	2.489	0.0	0.0	0.0	0
13.34	22.739	0.561	0.15	3.4	40.533	2.467	0.0	0.0	0.0	0
13.35	22.637	0.561	0.15	3.4	40.351	2.478	0.0	0.0	0.0	0
13.36	22.433	0.561	0.15	3.4	39.988	2.501	0.0	0.0	0.0	0
13.37	22.739	0.53	0.15	3.4	42.904	2.331	0.0	0.0	0.0	0
13.38	22.739	0.53	0.15	3.4	42.904	2.331	0.0	0.0	0.0	0
13.39	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.40	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.41	22.739	0.51	0.15	3.4	44.586	2.243	0.0	0.0	0.0	0
13.42	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.43	22.841	0.5	0.15	3.4	45.682	2.189	0.0	0.0	0.0	0
13.44	22.841	0.5	0.15	3.4	45.682	2.189	0.0	0.0	0.0	0
13.45	22.739	0.51	0.15	3.4	44.586	2.243	0.0	0.0	0.0	0
13.46	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.47	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.48	22.841	0.51	0.15	3.4	44.786	2.233	0.0	0.0	0.0	0
13.49	23.147	0.52	0.15	3.4	44.513	2.247	0.0	0.0	0.0	0
13.50	23.147	0.53	0.15	3.4	43.674	2.29	0.0	0.0	0.0	0
13.51	23.045	0.54	0.15	3.4	42.676	2.343	0.0	0.0	0.0	0
13.52	23.147	0.551	0.15	3.4	42.009	2.38	0.0	0.0	0.0	0
13.53	23.147	0.571	0.15	3.4	40.538	2.467	0.0	0.0	0.0	0
13.54	23.147	0.581	0.15	3.4	39.84	2.51	0.0	0.0	0.0	0
13.55	23.147	0.612	0.15	3.5	37.822	2.644	0.0	0.0	0.0	0
13.56	22.943	0.622	0.15	3.5	36.886	2.711	0.0	0.0	0.0	0
13.57	22.637	0.632	0.15	3.5	35.818	2.792	0.0	0.0	0.0	0
13.58	22.433	0.642	0.15	3.5	34.942	2.862	0.0	0.0	0.0	0
13.59	22.331	0.642	0.15	3.5	34.783	2.875	0.0	0.0	0.0	0
13.60	22.331	0.653	0.15	3.5	34.198	2.924	0.0	0.0	0.0	0
13.61	22.127	0.663	0.15	3.5	33.374	2.996	0.0	0.0	0.0	0
13.62	21.924	0.673	0.15	3.5	32.577	3.07	0.0	0.0	0.0	0
13.63	21.822	0.683	0.15	3.5	31.95	3.13	0.0	0.0	0.0	0
13.64	21.822	0.683	0.15	3.5	31.95	3.13	0.0	0.0	0.0	0
13.65	21.72	0.683	0.15	3.5	31.801	3.145	0.0	0.0	0.0	0
13.66	21.822	0.683	0.15	3.5	31.95	3.13	0.0	0.0	0.0	0
13.67	21.822	0.683	0.15	3.5	31.95	3.13	0.0	0.0	0.0	0
13.68	21.822	0.673	0.15	3.5	32.425	3.084	0.0	0.0	0.0	0
13.69	21.822	0.663	0.15	3.5	32.914	3.038	0.0	0.0	0.0	0
13.70	22.026	0.663	0.15	3.5	33.222	3.01	0.0	0.0	0.0	0

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13.71	22.127	0.653	0.15	3.5	33.885	2.951	0.0	0.0	0.0	0
13.72	22.331	0.653	0.15	3.5	34.198	2.924	0.0	0.0	0.0	0
13.73	22.535	0.653	0.15	3.5	34.51	2.898	0.0	0.0	0.0	0
13.74	22.535	0.663	0.15	3.5	33.989	2.942	0.0	0.0	0.0	0
13.75	22.331	0.663	0.15	3.6	33.682	2.969	0.0	0.0	0.0	0
13.76	22.331	0.663	0.15	3.6	33.682	2.969	0.0	0.0	0.0	0
13.77	22.433	0.642	0.15	3.6	34.942	2.862	0.0	0.0	0.0	0
13.78	22.535	0.622	0.15	3.6	36.23	2.76	0.0	0.0	0.0	0
13.79	22.637	0.622	0.15	3.6	36.394	2.748	0.0	0.0	0.0	0
13.80	22.841	0.622	0.15	3.6	36.722	2.723	0.0	0.0	0.0	0
13.81	22.841	0.612	0.15	3.6	37.322	2.679	0.0	0.0	0.0	0
13.82	22.943	0.612	0.15	3.6	37.489	2.667	0.0	0.0	0.0	0
13.83	23.147	0.612	0.15	3.6	37.822	2.644	0.0	0.0	0.0	0
13.84	23.453	0.591	0.15	3.6	39.684	2.52	0.0	0.0	0.0	0
13.85	23.555	0.591	0.15	3.6	39.856	2.509	0.0	0.0	0.0	0
13.86	23.555	0.591	0.15	3.6	39.856	2.509	0.0	0.0	0.0	0
13.87	23.657	0.612	0.15	3.6	38.655	2.587	0.0	0.0	0.0	0
13.88	23.657	0.612	0.15	3.6	38.655	2.587	0.0	0.0	0.0	0
13.89	23.657	0.612	0.15	3.6	38.655	2.587	0.0	0.0	0.0	0
13.90	23.759	0.612	0.15	3.6	38.822	2.576	0.0	0.0	0.0	0
13.91	23.963	0.622	0.15	3.6	38.526	2.596	0.0	0.0	0.0	0
13.92	23.963	0.632	0.15	3.6	37.916	2.637	0.0	0.0	0.0	0
13.93	24.065	0.632	0.15	3.6	38.078	2.626	0.0	0.0	0.0	0
13.94	23.963	0.642	0.15	3.6	37.326	2.679	0.0	0.0	0.0	0
13.95	23.657	0.663	0.15	3.6	35.682	2.803	0.0	0.0	0.0	0
13.96	23.555	0.663	0.15	3.6	35.528	2.815	0.0	0.0	0.0	0
13.97	23.555	0.673	0.15	3.6	35.0	2.857	0.0	0.0	0.0	0
13.98	23.555	0.683	0.15	3.6	34.488	2.9	0.0	0.0	0.0	0
13.99	23.657	0.693	0.15	3.6	34.137	2.929	0.0	0.0	0.0	0
14.00	23.657	0.704	0.15	3.6	33.604	2.976	0.0	0.0	0.0	0
14.01	23.759	0.704	0.15	3.6	33.749	2.963	0.0	0.0	0.0	0
14.02	23.759	0.704	0.15	3.6	33.749	2.963	0.0	0.0	0.0	0
14.03	23.963	0.704	0.15	3.6	34.038	2.938	0.0	0.0	0.0	0
14.04	24.473	0.704	0.15	3.7	34.763	2.877	0.0	0.0	0.0	0
14.05	24.677	0.704	0.15	3.6	35.053	2.853	0.0	0.0	0.0	0
14.06	24.983	0.693	0.15	3.7	36.051	2.774	0.0	0.0	0.0	0
14.07	25.085	0.693	0.15	3.7	36.198	2.763	0.0	0.0	0.0	0
14.08	25.492	0.683	0.15	3.7	37.324	2.679	0.0	0.0	0.0	0
14.09	25.696	0.683	0.15	3.7	37.622	2.658	0.0	0.0	0.0	0
14.10	25.696	0.683	0.15	3.7	37.622	2.658	0.0	0.0	0.0	0
14.11	25.9	0.683	0.15	3.7	37.921	2.637	0.0	0.0	0.0	0
14.12	26.104	0.683	0.15	3.7	38.22	2.616	0.0	0.0	0.0	0
14.13	26.206	0.673	0.15	3.7	38.939	2.568	0.0	0.0	0.0	0
14.14	26.308	0.683	0.15	3.7	38.518	2.596	0.0	0.0	0.0	0
14.15	25.9	0.714	0.15	3.7	36.275	2.757	0.0	0.0	0.0	0
14.16	25.9	0.724	0.15	3.7	35.773	2.795	0.0	0.0	0.0	0
14.17	26.206	0.724	0.15	3.7	36.196	2.763	0.0	0.0	0.0	0
14.18	26.614	0.734	0.15	3.7	36.259	2.758	0.0	0.0	0.0	0
14.19	26.818	0.765	0.15	3.7	35.056	2.853	0.0	0.0	0.0	0
14.20	26.614	0.816	0.15	3.7	32.615	3.066	0.0	0.0	0.0	0
14.21	26.104	0.846	0.15	3.7	30.856	3.241	0.0	0.0	0.0	0
14.22	25.798	0.867	0.15	3.7	29.755	3.361	0.0	0.0	0.0	0
14.23	25.798	0.867	0.15	3.7	29.755	3.361	0.0	0.0	0.0	0
14.24	25.798	0.867	0.15	3.7	29.755	3.361	0.0	0.0	0.0	0
14.25	26.002	0.857	0.15	3.7	30.341	3.296	0.0	0.0	0.0	0
14.26	26.308	0.826	0.15	3.7	31.85	3.14	0.0	0.0	0.0	0
14.27	25.9	0.816	0.15	3.7	31.74	3.151	0.0	0.0	0.0	0
14.28	25.289	0.816	0.15	3.7	30.991	3.227	0.0	0.0	0.0	0
14.29	25.085	0.806	0.15	3.7	31.123	3.213	0.0	0.0	0.0	0
14.30	24.983	0.795	0.15	3.7	31.425	3.182	0.0	0.0	0.0	0
14.31	24.371	0.785	0.15	3.7	31.046	3.221	0.0	0.0	0.0	0
14.32	24.065	0.795	0.15	3.7	30.27	3.304	0.0	0.0	0.0	0
14.33	23.861	0.795	0.15	3.7	30.014	3.332	0.0	0.0	0.0	0
14.34	23.759	0.795	0.15	3.7	29.886	3.346	0.0	0.0	0.0	0
14.35	23.657	0.795	0.15	3.7	29.757	3.361	0.0	0.0	0.0	0
14.36	23.555	0.806	0.15	3.7	29.225	3.422	0.0	0.0	0.0	0
14.37	23.453	0.816	0.15	3.7	28.741	3.479	0.0	0.0	0.0	0
14.38	23.351	0.826	0.15	3.7	28.27	3.537	0.0	0.0	0.0	0
14.39	23.249	0.836	0.15	3.7	27.81	3.596	0.0	0.0	0.0	0
14.40	23.147	0.836	0.15	3.7	27.688	3.612	0.0	0.0	0.0	0
14.41	22.943	0.826	0.15	3.7	27.776	3.6	0.0	0.0	0.0	0
14.42	22.739	0.816	0.15	3.7	27.866	3.589	0.0	0.0	0.0	0
14.43	21.822	0.795	0.15	3.7	27.449	3.643	0.0	0.0	0.0	0
14.44	21.516	0.785	0.15	3.7	27.409	3.648	0.0	0.0	0.0	0
14.45	21.21	0.765	0.15	3.7	27.725	3.607	0.0	0.0	0.0	0

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14.46	21.006	0.744	0.15	3.8	28.234	3.542	0.0	0.0	0.0	0
14.47	20.802	0.734	0.15	3.7	28.341	3.529	0.0	0.0	0.0	0
14.48	20.7	0.724	0.15	3.7	28.591	3.498	0.0	0.0	0.0	0
14.49	20.394	0.714	0.15	3.7	28.563	3.501	0.0	0.0	0.0	0
14.50	19.884	0.693	0.15	3.8	28.693	3.485	0.0	0.0	0.0	0
14.51	19.476	0.683	0.15	3.7	28.515	3.507	0.0	0.0	0.0	0
14.52	19.068	0.663	0.15	3.7	28.76	3.477	0.0	0.0	0.0	0
14.53	18.762	0.653	0.15	3.7	28.732	3.48	0.0	0.0	0.0	0
14.54	18.457	0.632	0.15	3.7	29.204	3.424	0.0	0.0	0.0	0
14.55	18.253	0.591	0.15	3.7	30.885	3.238	0.0	0.0	0.0	0
14.56	18.151	0.561	0.15	3.7	32.355	3.091	0.0	0.0	0.0	0
14.57	18.151	0.53	0.15	3.7	34.247	2.92	0.0	0.0	0.0	0
14.58	18.151	0.51	0.15	3.7	35.59	2.81	0.0	0.0	0.0	0
14.59	18.049	0.479	0.15	3.8	37.681	2.654	0.0	0.0	0.0	0
14.60	17.947	0.418	0.15	3.7	42.935	2.329	0.0	0.0	0.0	0
14.61	18.049	0.387	0.15	3.8	46.638	2.144	0.0	0.0	0.0	0
14.62	18.151	0.367	0.15	3.7	49.458	2.022	0.0	0.0	0.0	0
14.63	18.253	0.347	0.15	3.8	52.602	1.901	0.0	0.0	0.0	0
14.64	18.457	0.326	0.15	3.7	56.617	1.766	0.0	0.0	0.0	0
14.65	18.457	0.306	0.15	3.7	60.317	1.658	0.0	0.0	0.0	0
14.66	18.762	0.275	0.15	3.8	68.225	1.466	0.0	0.0	0.0	0
14.67	18.762	0.275	0.15	3.8	68.225	1.466	0.0	0.0	0.0	0
14.68	18.864	0.275	0.15	3.8	68.596	1.458	0.0	0.0	0.0	0
14.69	18.966	0.275	0.15	3.8	68.967	1.45	0.0	0.0	0.0	0
14.70	19.068	0.286	0.15	3.8	66.671	1.5	0.0	0.0	0.0	0
14.71	19.068	0.286	0.15	3.8	66.671	1.5	0.0	0.0	0.0	0
14.72	19.374	0.296	0.15	3.8	65.453	1.528	0.0	0.0	0.0	0
14.73	19.374	0.296	0.15	3.8	65.453	1.528	0.0	0.0	0.0	0
14.74	19.374	0.306	0.15	3.8	63.314	1.579	0.0	0.0	0.0	0
14.75	19.476	0.316	0.15	3.8	61.633	1.623	0.0	0.0	0.0	0
14.76	19.578	0.316	0.15	3.8	61.956	1.614	0.0	0.0	0.0	0
14.77	19.578	0.326	0.15	3.8	60.055	1.665	0.0	0.0	0.0	0
14.78	19.578	0.347	0.15	3.8	56.421	1.772	0.0	0.0	0.0	0
14.79	19.578	0.357	0.15	3.9	54.84	1.823	0.0	0.0	0.0	0
14.80	19.578	0.367	0.15	3.9	53.346	1.875	0.0	0.0	0.0	0
14.81	19.476	0.377	0.15	3.9	51.66	1.936	0.0	0.0	0.0	0
14.82	19.578	0.377	0.15	3.9	51.931	1.926	0.0	0.0	0.0	0
14.83	19.782	0.377	0.15	3.9	52.472	1.906	0.0	0.0	0.0	0
14.84	19.782	0.387	0.15	3.8	51.116	1.956	0.0	0.0	0.0	0
14.85	19.782	0.387	0.15	3.8	51.116	1.956	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.10

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	14.85	20.994	0.702	0.94	1.29	1.30	1.15	1.03	1.05

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	14.85	20.994	0.702	52.48	41.99	62.98	62.98

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	14.85	20.994	0.702	731.59	31.50

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	14.85	20.994	0.702	Imai & Tomauchi	179.87

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Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	14.85	20.994	0.702	<0.5

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	14.85	20.994	0.702	Meyerhof	1.97

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	14.85	20.994	0.702	Meyerhof	2.05

TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	14.85	20.994	0.702	15.91	< 5	8.86	16.31	11.2

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	14.85	20.994	0.702	27.23	22.94	19.6	18.51	28.7	28.5	22.07	26.43

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	14.85	20.994	0.702	52.48	41.99	323.31

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	14.85	20.994	0.702	21.95	82.35	152.70	41.99	104.97

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	14.85	20.994	0.702	Imai & Tomauchi	179.87

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	14.85	20.994	0.702	<0.5	4.08	<0.5	3.04

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	14.85	20.994	0.702	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	14.85	20.994	0.702	0.13035	0.01695

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	14.85	20.994	0.702	Meyerhof	1.80

Prova CPTU n. 10

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	14.85	20.994	0.702	Meyerhof	2.10

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	14.85	20.994	0.702	Robertson & Wride 1997	0

Permeabilità

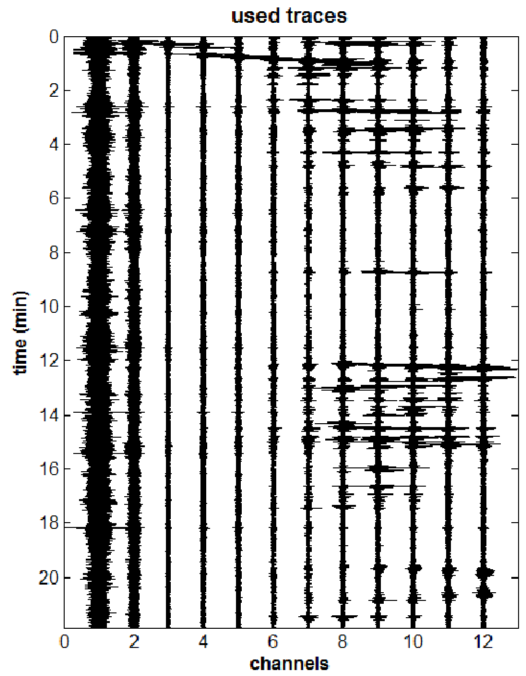
	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	14.85	20.994	0.702	Piacentini-Righi 1988	1.790859E-06

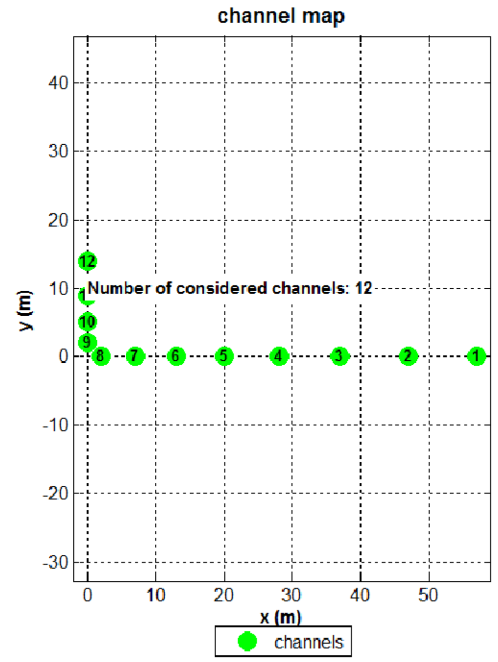
Coefficiente di consolidazione

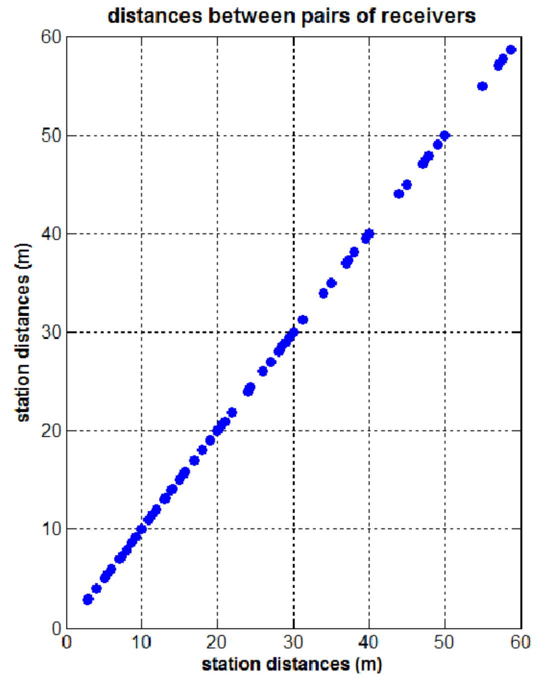
	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	14.85	20.994	0.702	Piacentini-Righi 1988	0.1127919

ACQUISIZIONE ESAC

MASW1_MS3 - ESAC1_MS3

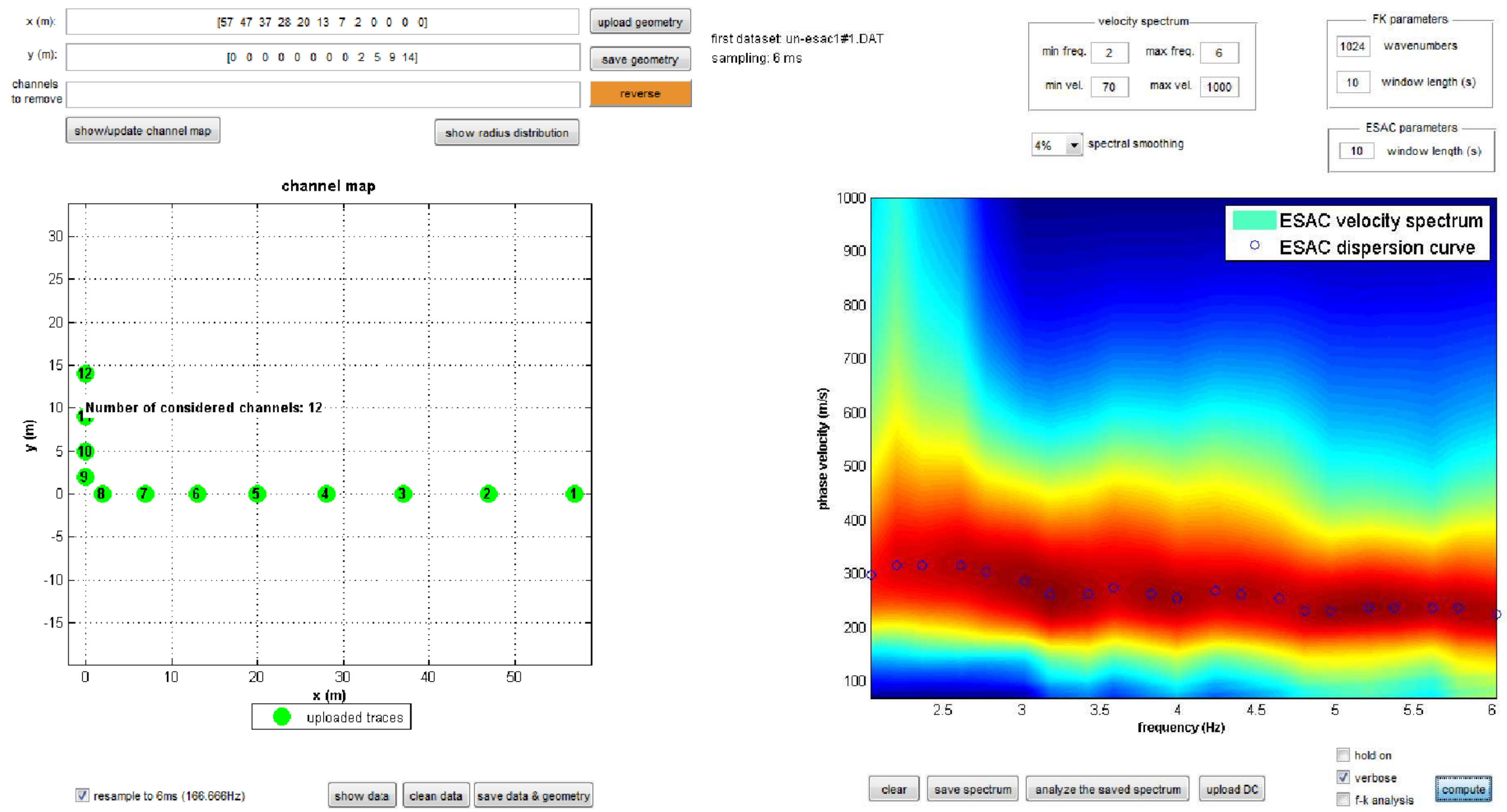






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

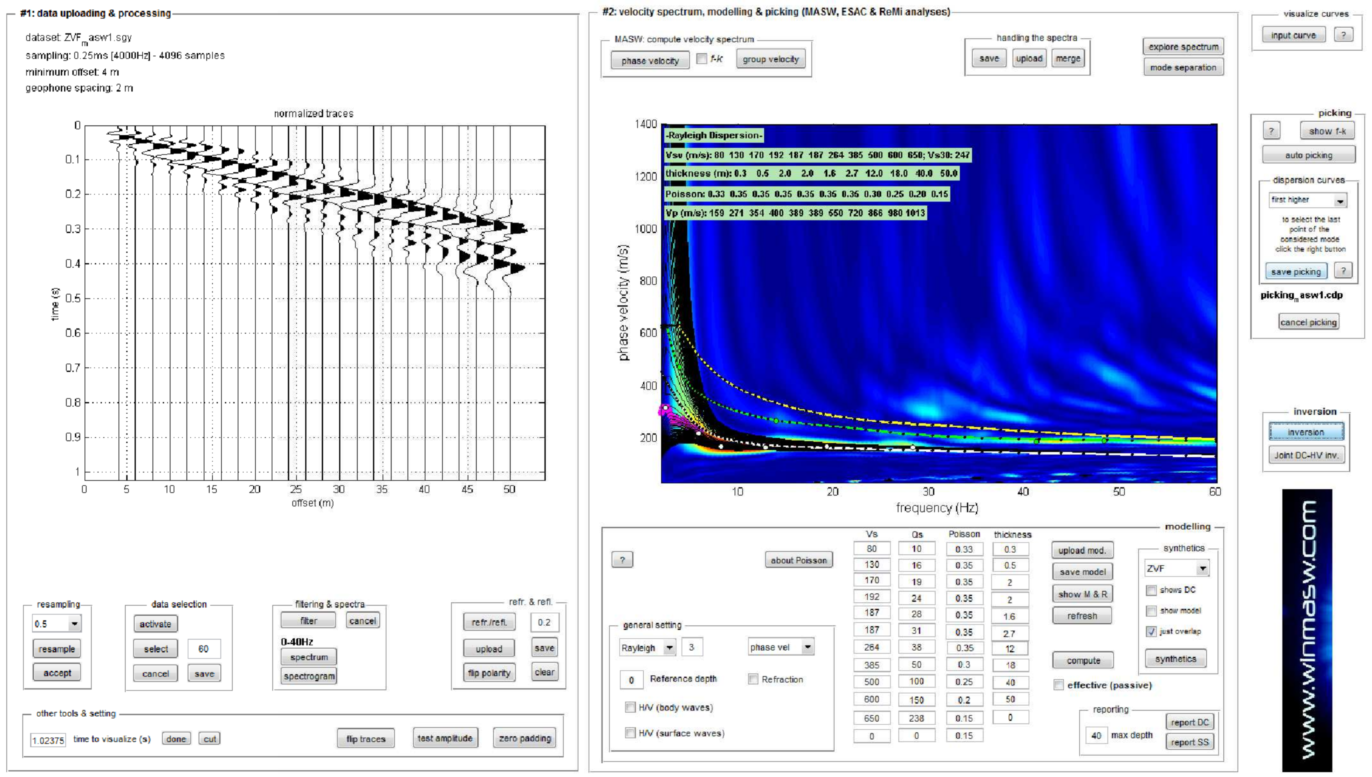
Stendimento ESAC1



GEOLOGICA TOSCANA s.n.c.

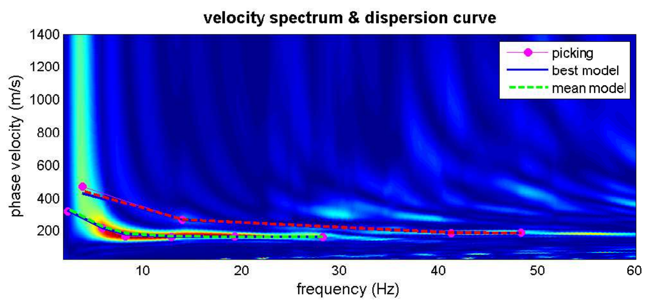
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 1 - ESAC 1

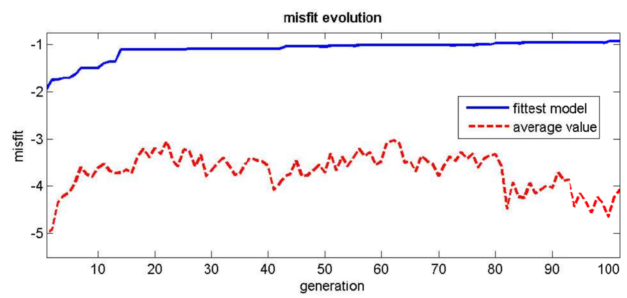
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

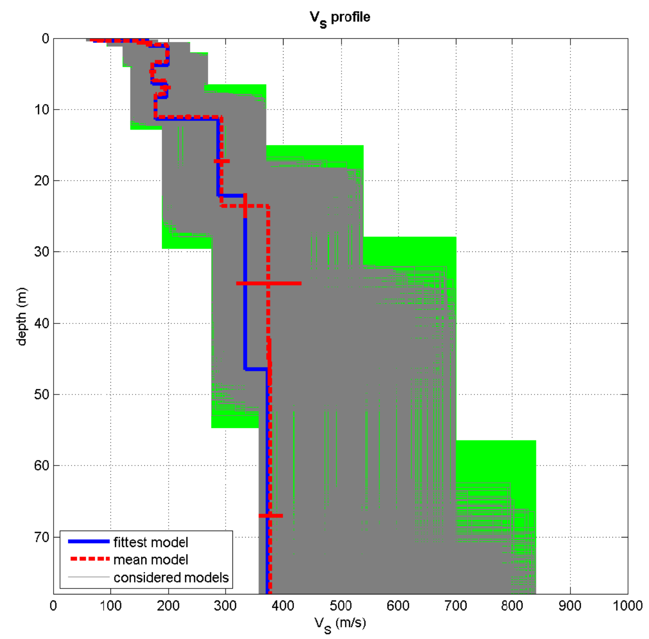


Stendimento MASW 1

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







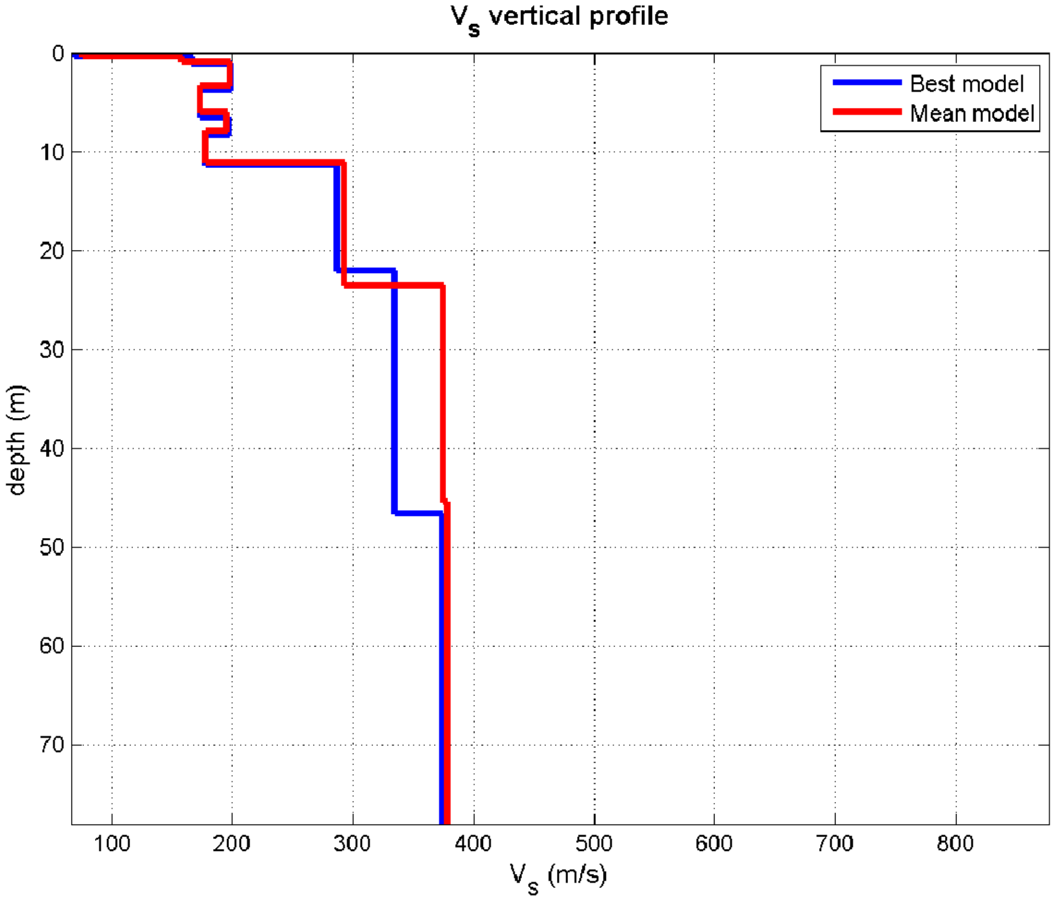
www.winmasw.com

dataset: ZVF_masw1.sgy
dispersion curve: $picking_m$asw1.cdp
Vs30 (best model): 237 m/s
Vs30 (mean model): 244 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 1 - ESAC 1

PROFILO DI VELOCITA' MASW 1 — ESAC 1



Vs (m/s):76, 158, 198, 173, 195, 178, 293, 375, 378, 764, 709
Standard deviations (m/s):13, 13, 3, 6, 9, 3, 13, 56, 21, 73, 116

Thickness (m):0.4, 0.6, 2.4, 2.7, 1.9, 3.1, 12.4, 21.9, 43.2, 55.6
Standard deviations (m/s):0.0, 0.1, 0.2, 0.2, 0.2, 0.3, 1.7, 3.3, 4.8, 7.9

Density (gr/cm3) (approximate values):1.621.821.811.781.831.771.941.971.942.112.08
Seismic/Dynamic Shear modulus (MPa) (approximate values):945715370561672772771231 1047

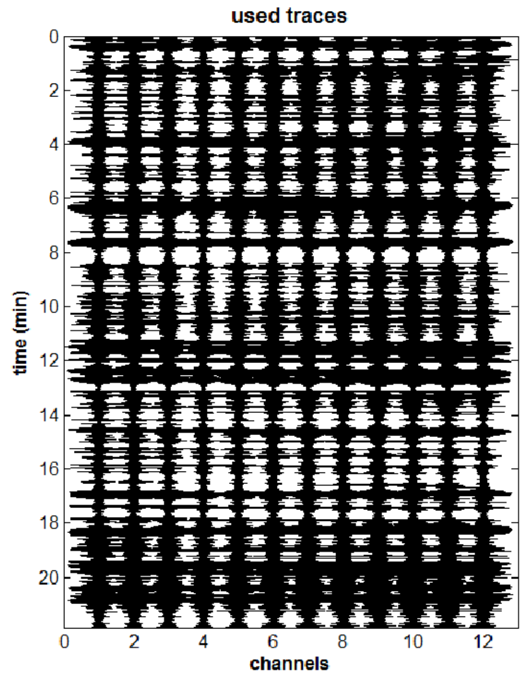
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):16238136032139230862870061812561124
Poisson:0.360.400.280.300.340.250.360.300.200.210.17

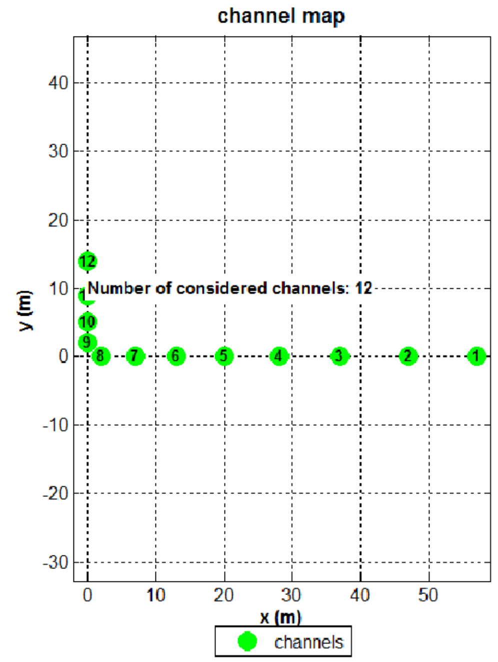
Vs30 (m/s): 244

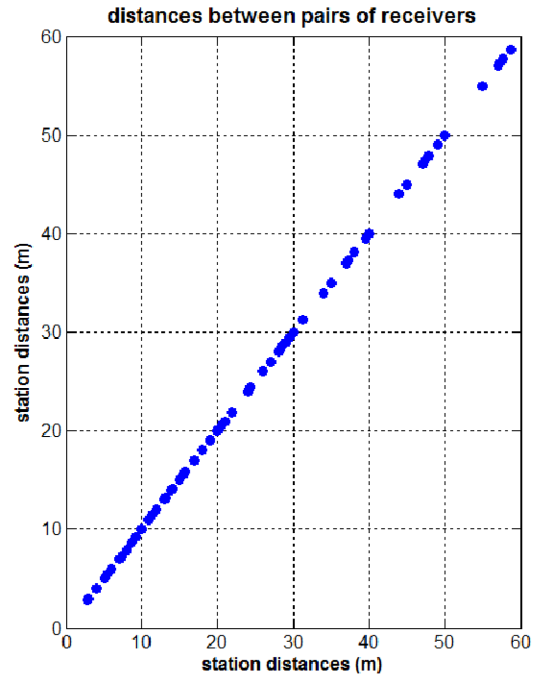
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW2_MS3 - ESAC2_MS3

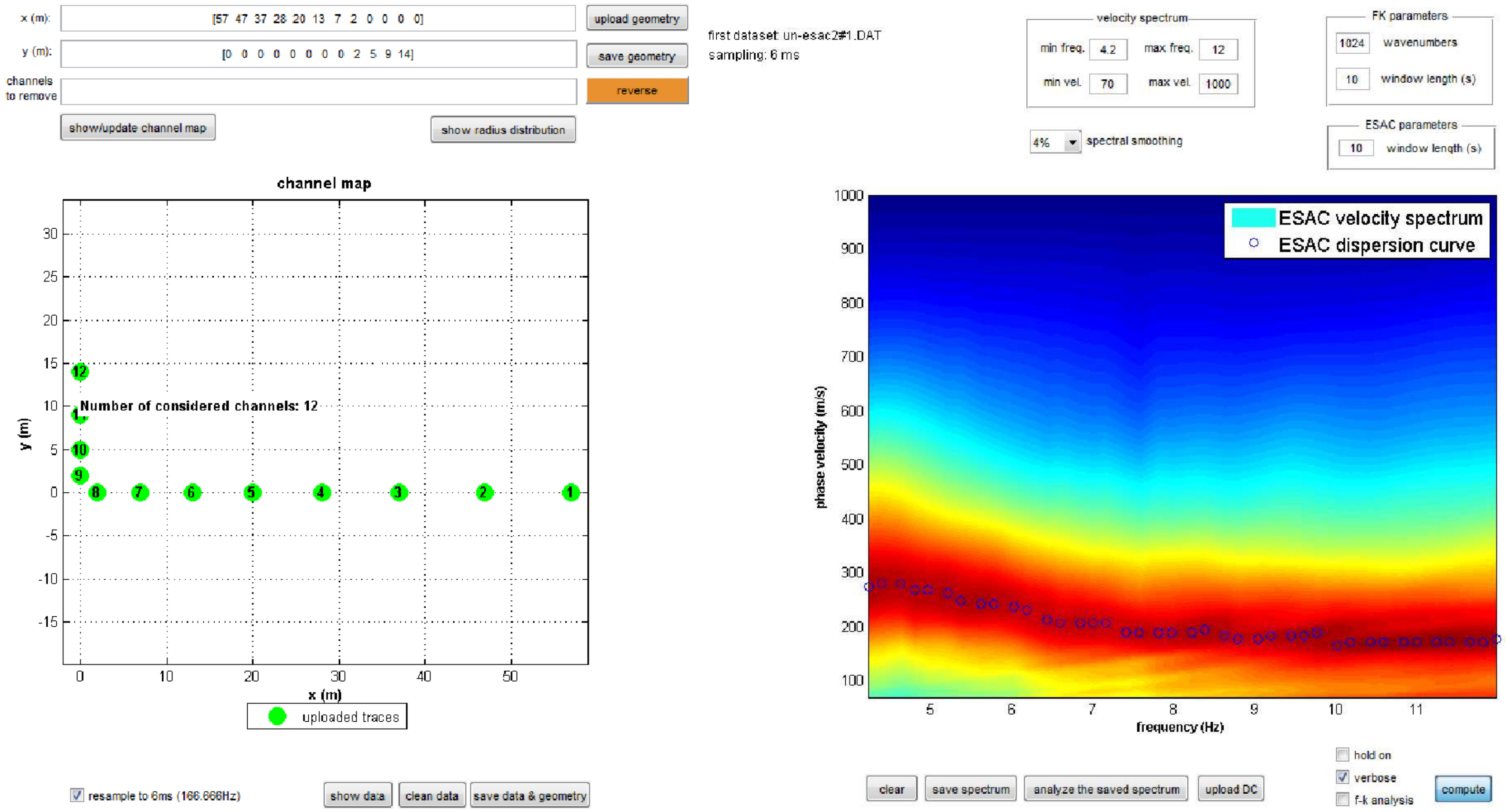






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

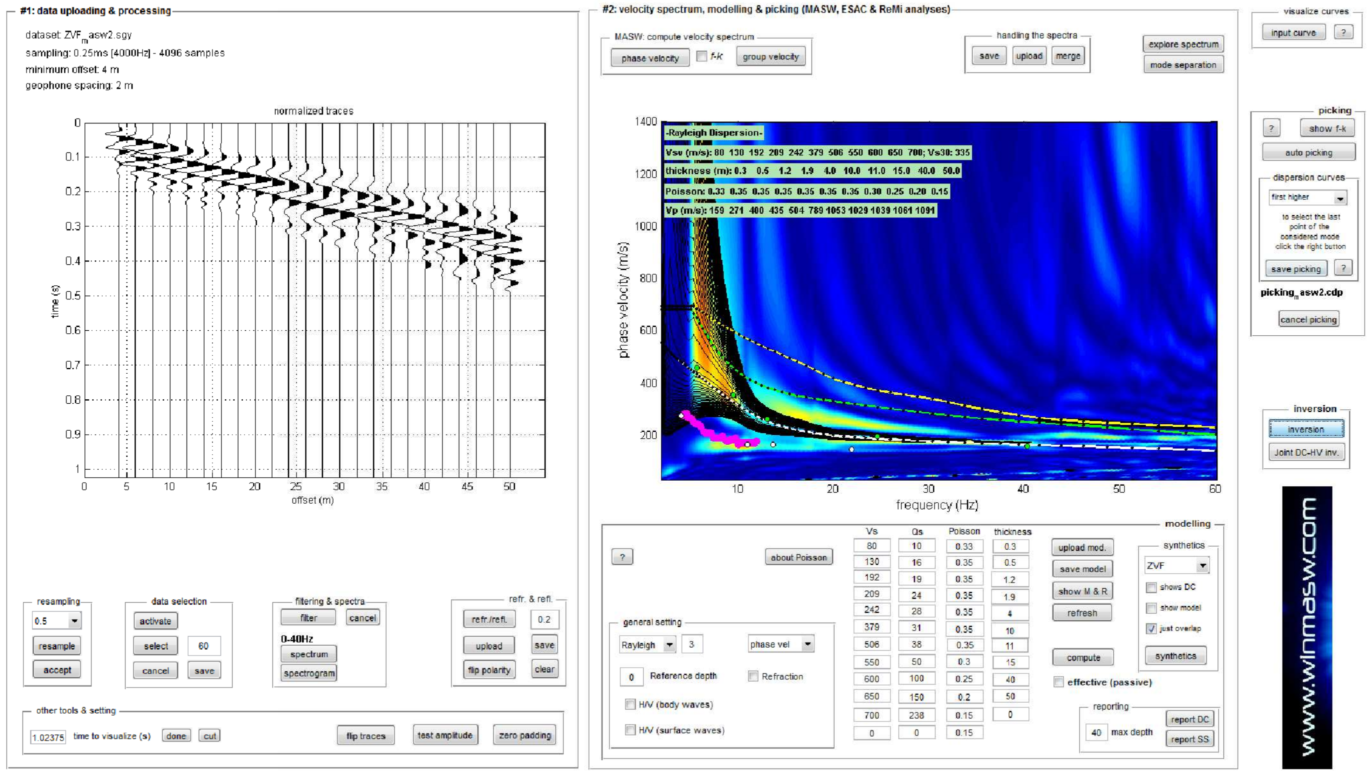
Stendimento ESAC2



GEOLOGICA TOSCANA s.n.c.

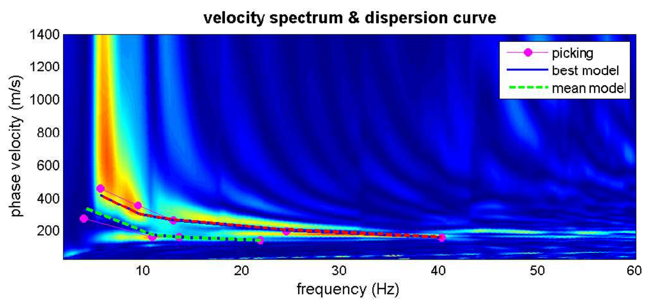
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 2 - ESAC 2

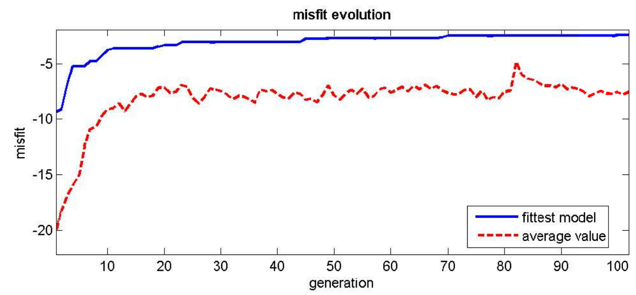
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

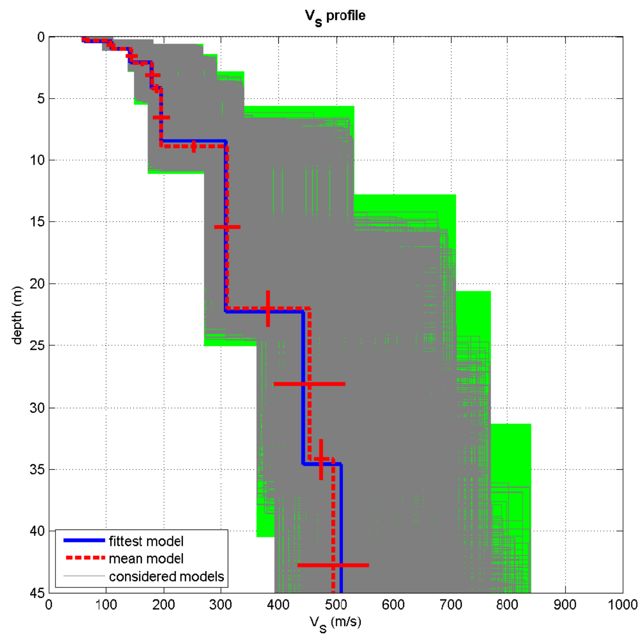


Stendimento MASW 2

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'





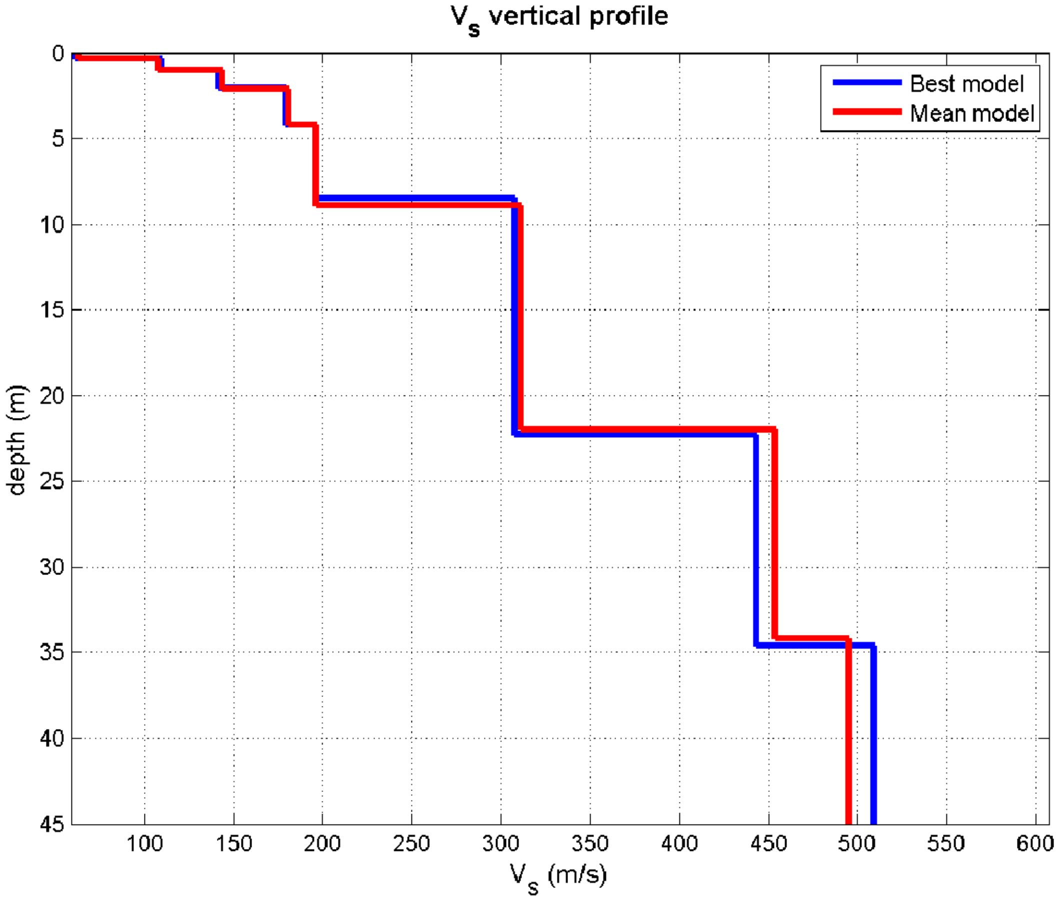


dataset: ZVF_masw2.sgy
dispersion curve: picking_masw2.cdp
Vs30 (best model): 260 m/s
Vs30 (mean model): 262 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 2 - ESAC 2

PROFILO DI VELOCITA' MASW 2 – ESAC 2



Vs (m/s):63, 108, 144, 181, 196, 311, 454, 495, 559, 598, 751
Standard deviations (m/s):6, 7, 10, 13, 14, 22, 62, 62, 75, 93, 86
Thickness (m):0.4, 0.6, 1.1, 2.1, 4.7, 13.1, 12.2, 17.2, 50.2, 42.4
Standard deviations (m/s):0.0, 0.1, 0.2, 0.3, 0.4, 1.4, 1.6, 2.0, 6.9, 6.4

Density (gr/cm3) (approximate values):1.571.721.741.771.801.902.012.032.042.042.09
Seismic/Dynamic Shear modulus (MPa) (approximate values):620365869184415498636729 1179

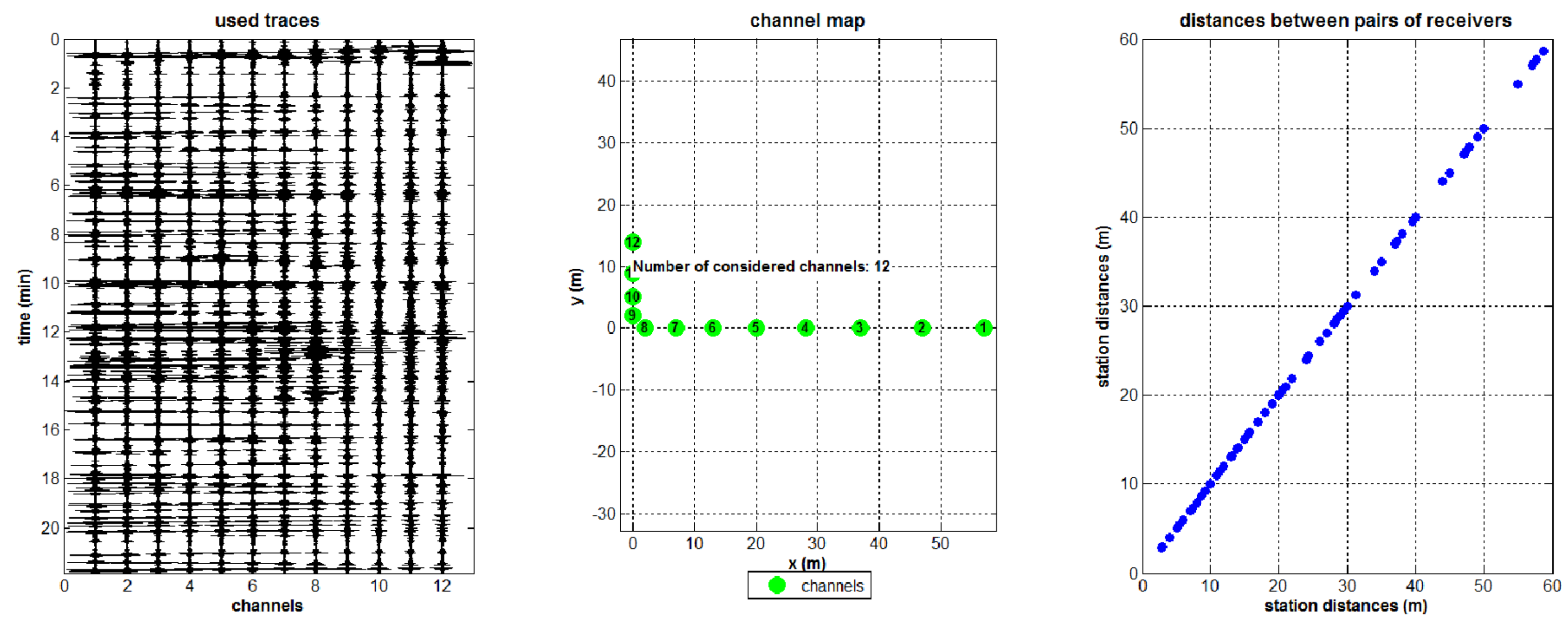
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):133249270311344532847917927942 1159
Poisson:0.360.380.300.240.260.240.300.290.210.160.14

Vs30 (m/s): 262

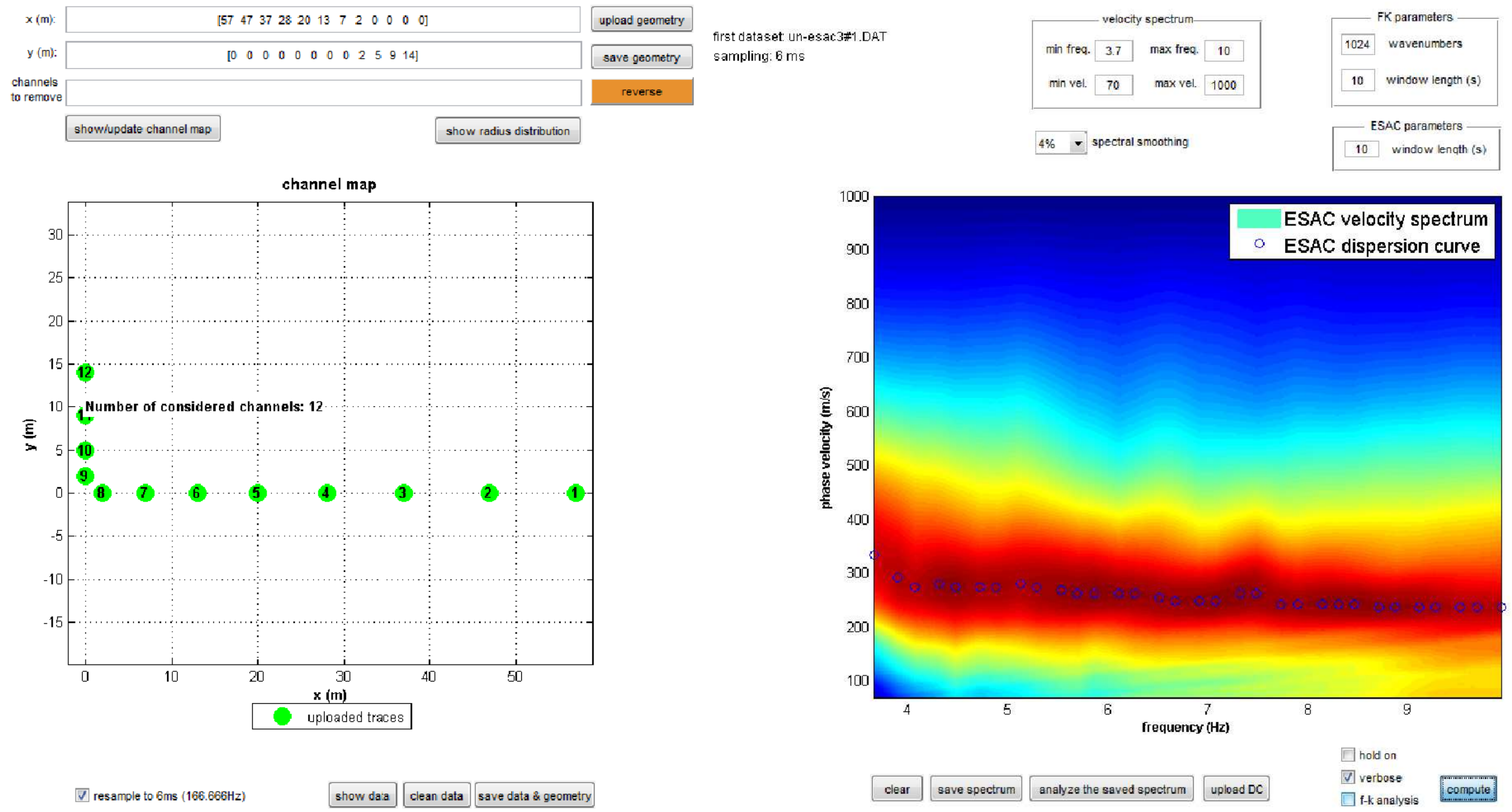
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW3_MS3 - ESAC3_MS3



SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

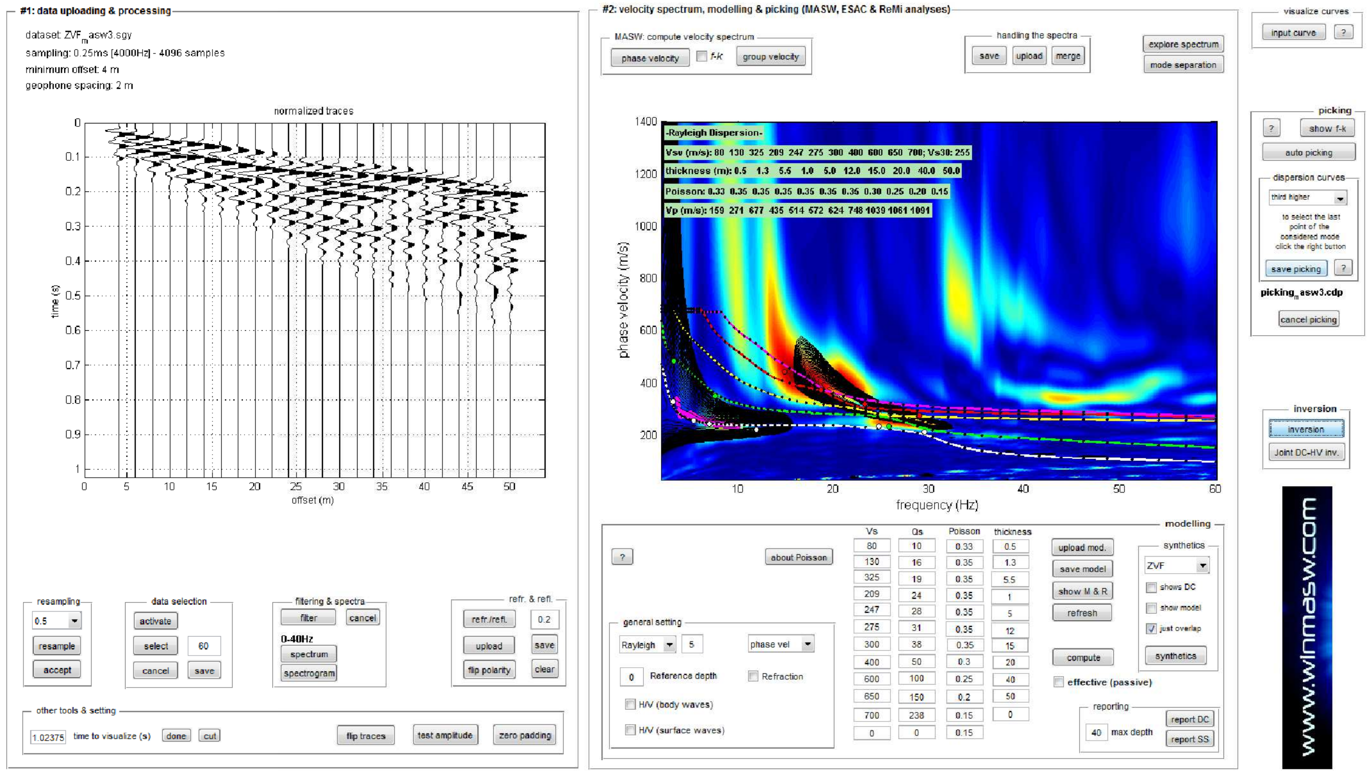


Stendimento ESAC3

GEOLOGICA TOSCANA s.n.c.

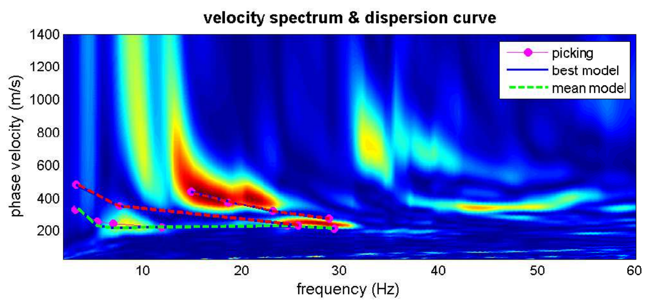
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 3 - ESAC 3

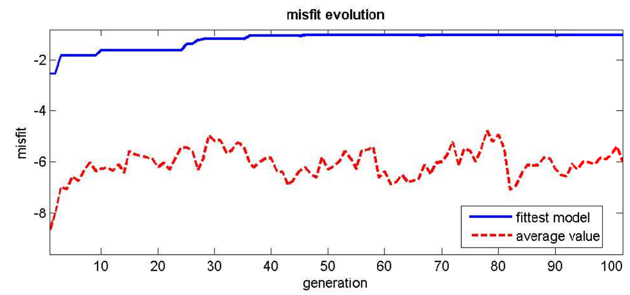
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

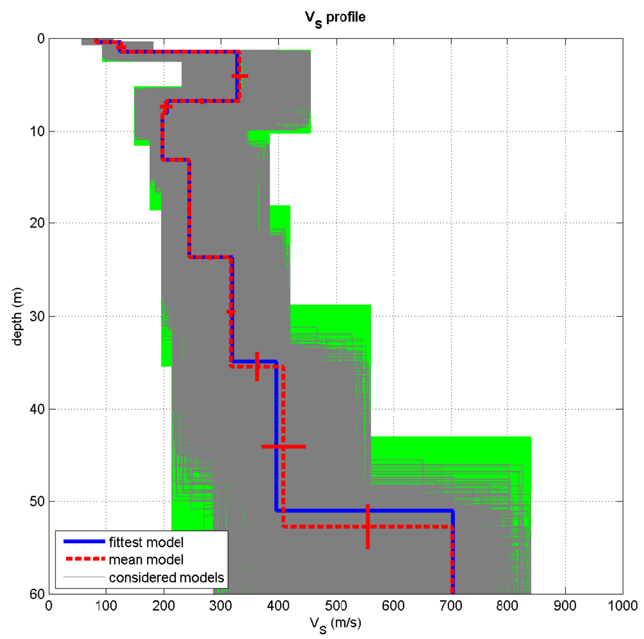


Stendimento MASW 3

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







dataset: ZVF_m asw3.sgy
dispersion curve: picking_m asw3.cdp
Vs30 (best model): 241 m/s
Vs30 (mean model): 241 m/s

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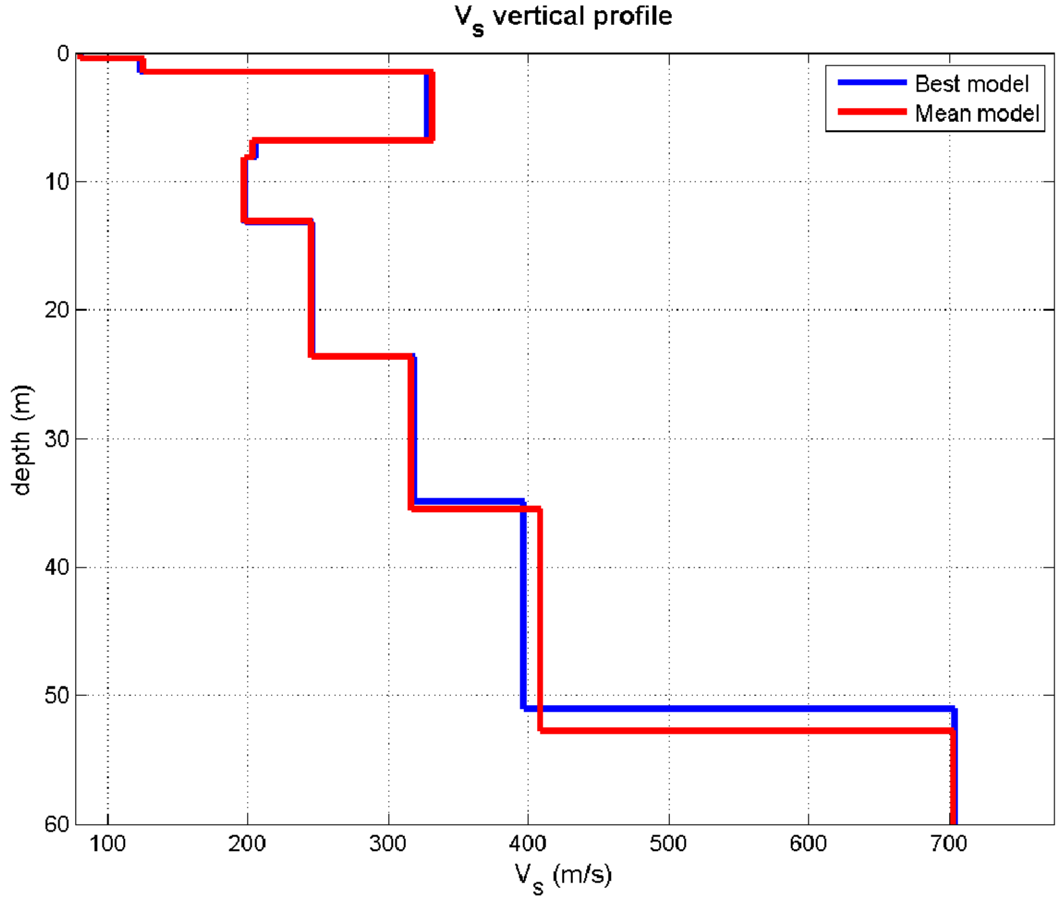
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 3 - ESAC 3

PROFILO DI VELOCITA' MASW 3 – ESAC 3



Vs (m/s):81, 126, 332, 204, 198, 246, 317, 409, 703, 574, 702
Standard deviations (m/s):2, 8, 14, 11, 2, 2, 7, 37, 63, 81, 105

Thickness (m):0.5, 1.0, 5.3, 1.3, 5.1, 10.5, 11.8, 17.3, 37.3, 61.6
Standard deviations (m/s):0.1, 0.0, 0.3, 0.1, 0.1, 0.2, 1.5, 2.4, 2.9, 6.2

Density (gr/cm3) (approximate values):1.601.731.951.851.811.902.021.982.092.042.07
Seismic/Dynamic Shear modulus (MPa) (approximate values):1027215777111520333110316721021

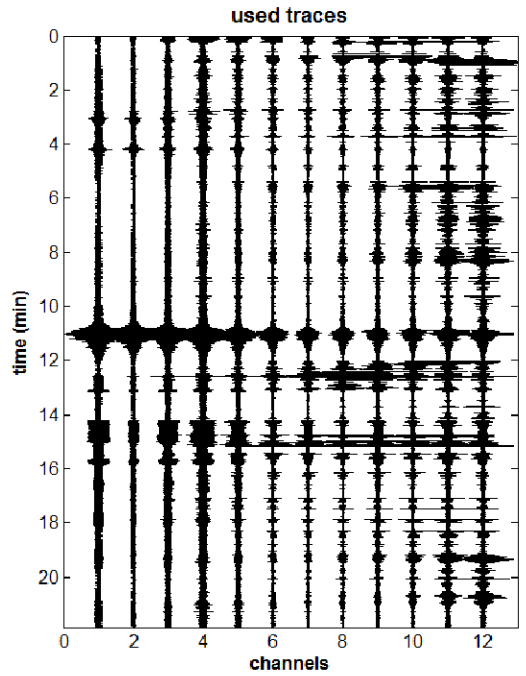
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1502566514373665238577381141943 1074
Poisson:0.290.340.320.360.290.360.420.280.190.210.13

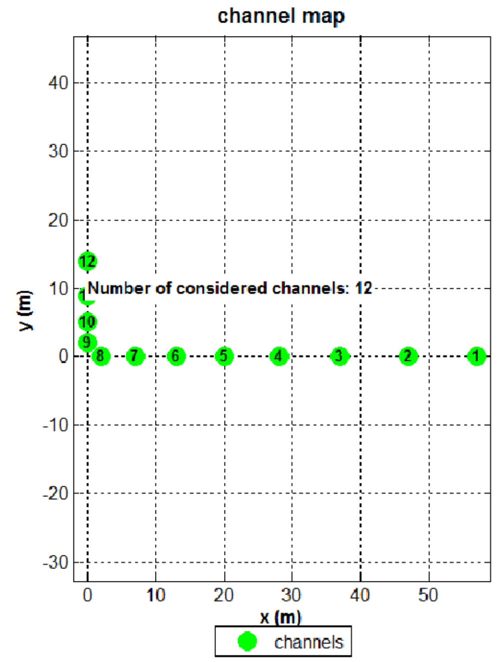
Vs30 (m/s): 241

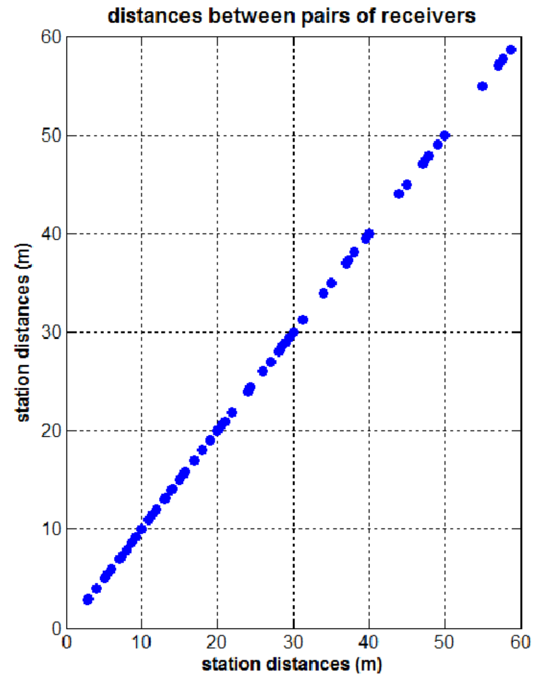
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW4_MS3 - ESAC4_MS3

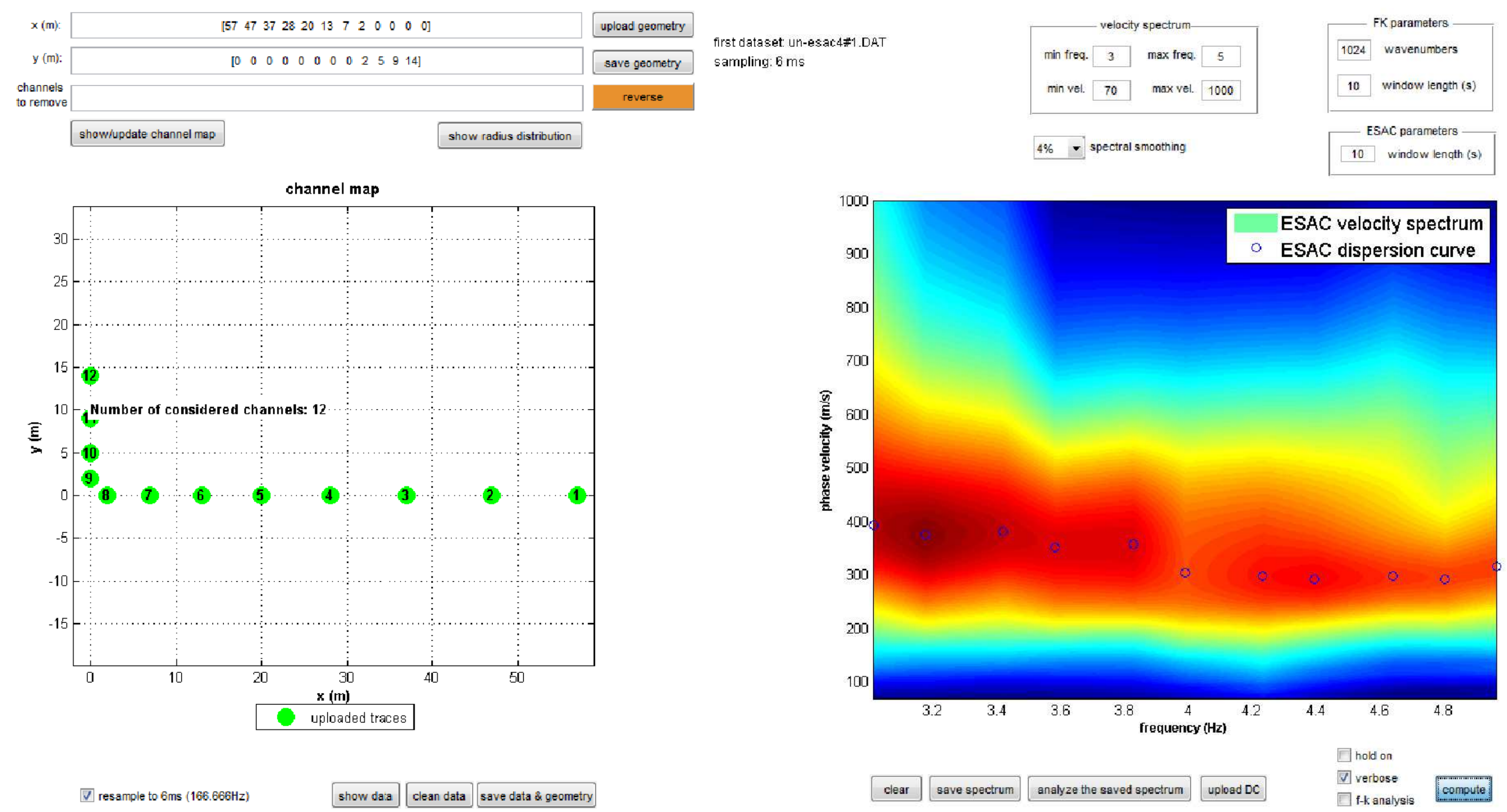






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

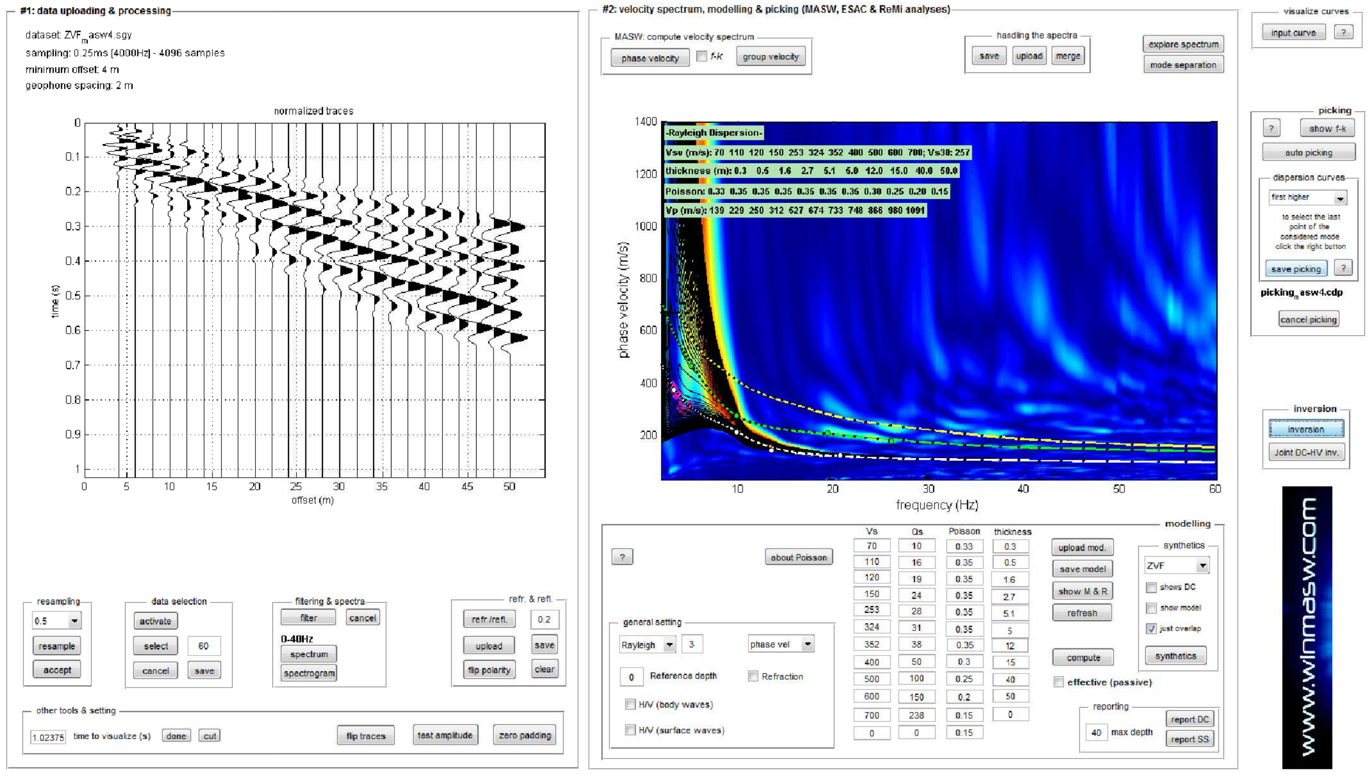
Stendimento ESAC4



GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 4 - ESAC 4

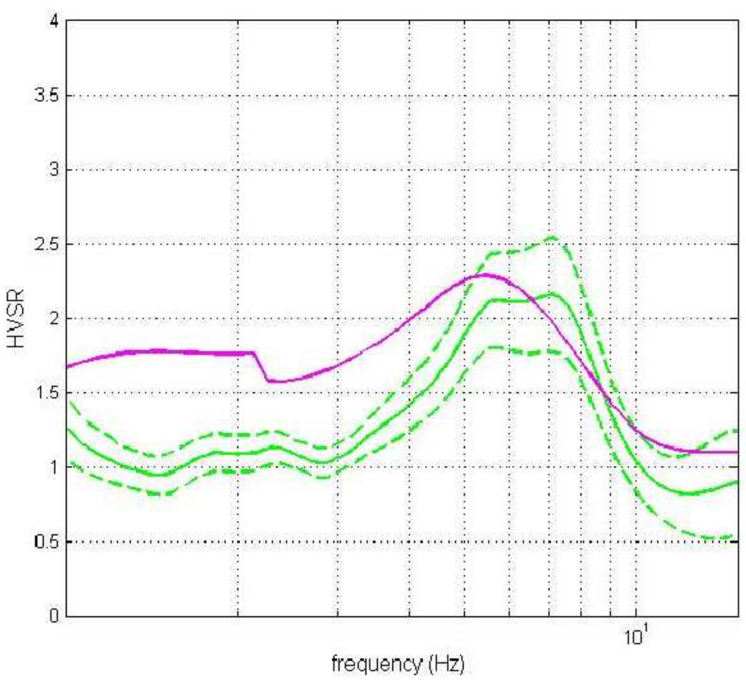
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

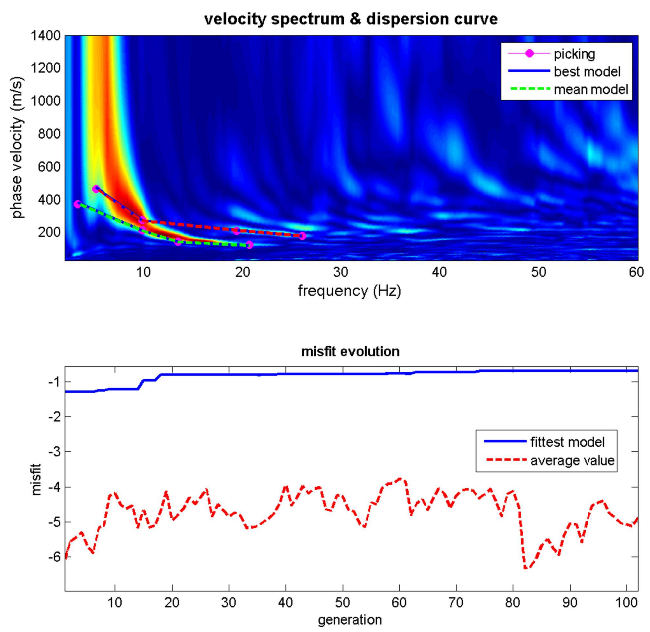


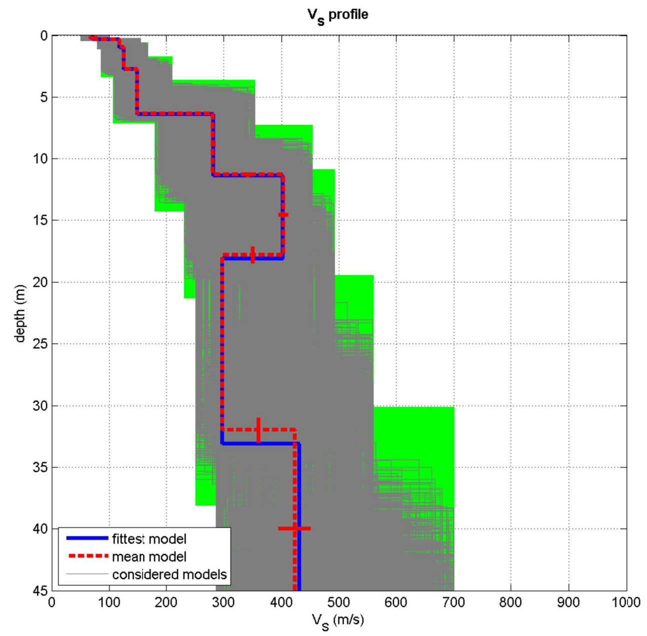
Stendimento MASW 4

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR1 – MASW4 – ESAC4







dataset: ZVF_masw4.sgy
dispersion curve: $picking_m$asw4.cdp
Vs30 (best model): 243 m/s
Vs30 (mean model): 243 m/s

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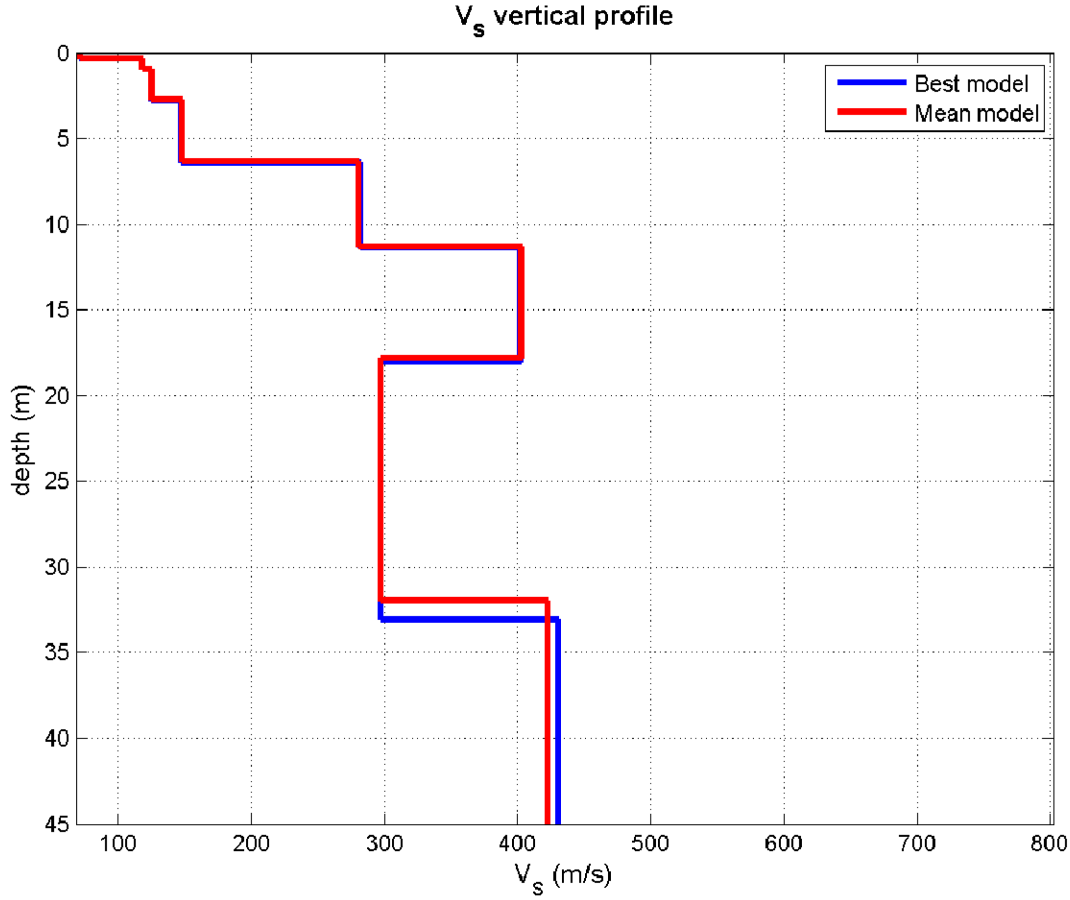
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 4 - ESAC 4

PROFILO DI VELOCITA' MASW 4 – ESAC 4



Vs (m/s):72, 118, 125, 148, 281, 403, 297, 423, 557, 630, 805
Standard deviations (m/s):7, 2, 0, 1, 4, 8, 0, 28, 79, 117, 43

Thickness (m):0.3, 0.6, 1.8, 3.6, 4.9, 6.5, 14.2, 16.0, 35.0, 55.0
Standard deviations (m/s):0.0, 0.1, 0.0, 0.0, 0.2, 0.7, 1.0, 1.8, 1.3, 6.8

Density (gr/cm3) (approximate values):1.561.721.851.822.052.091.941.992.052.072.11
Seismic/Dynamic Shear modulus (MPa) (approximate values):824294016233917135663582013 69

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):126253429375998114762176196610521274
Poisson:0.260.360.450.410.460.430.350.280.250.220.17

Vs30 (m/s): 243

GEOLOGICA TOSCANA s.n.c.

HVSR1

DATE 05.02.2021	HOUR 11:07	PLACE Ozzano dell'Emilia (B)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4928095	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 220860	ALTITUDE 50 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR1.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 9 Remarks

GROUND TYPE
- ☐ earth (☐ hard ☐ soft) ☐ gravel ☐ sand ☐ rock ☐ grass = (☐ short ☐ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☒ other
- ☐ dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	●					
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

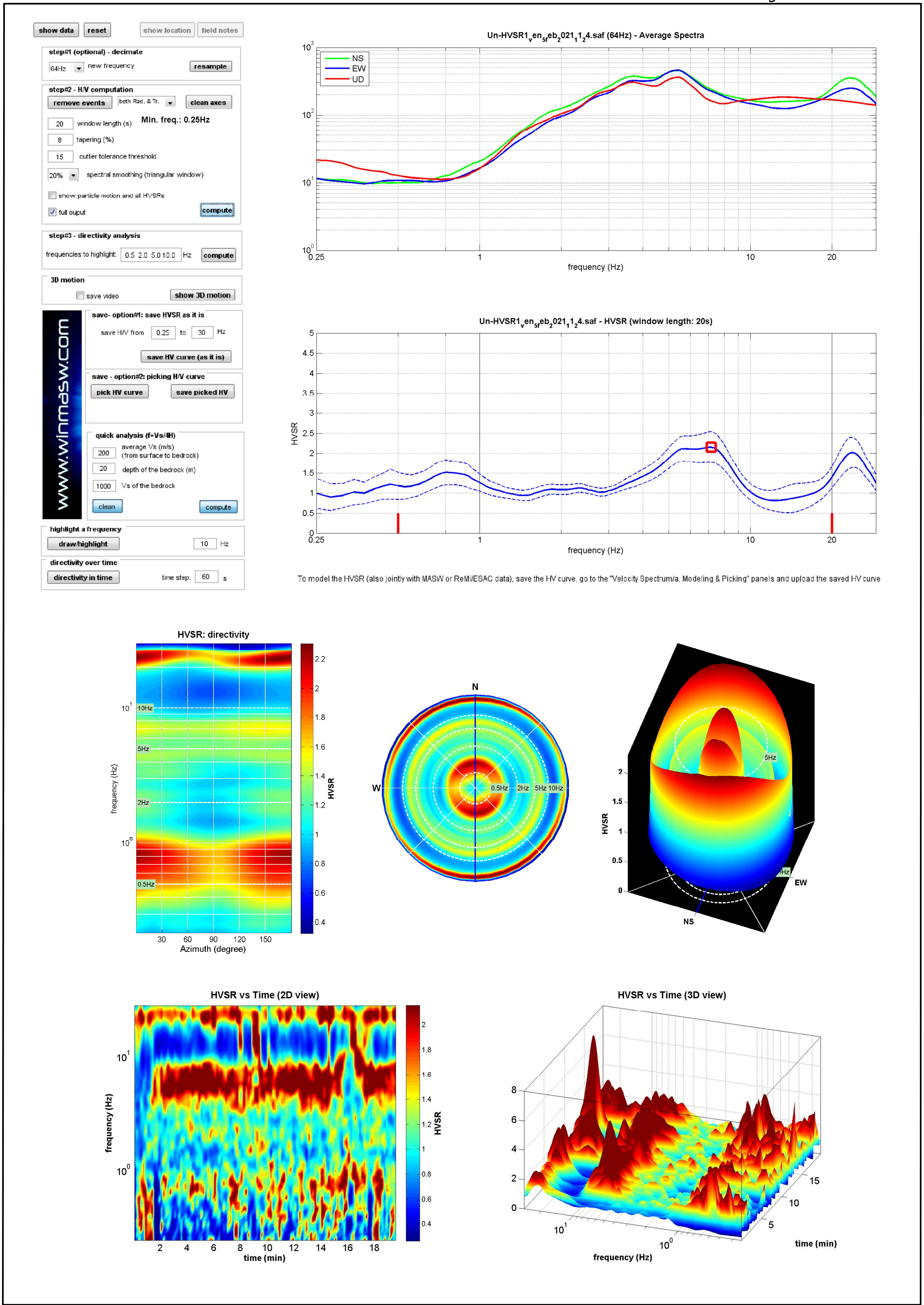
MISURA TIPO A1

HVSR1

Peak frequency (Hz): 7.2 (±4.5)
Peak HVSR value: 2.2 (±0.4)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 7.163 > 0.5 (OK)
#2. [nc > 200]: 16905 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 2.6Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 9.9Hz (OK)
#3. [A0 > 2]: 2.2 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 4.498 > 0.358 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.384 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20 window length (s)
Min. freq.: 0.25Hz
8 tapering (%)
15 outlier tolerance threshold
20% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight: 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Un-HVSR1_ven_5feb_2021_1_24.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un-HVSR1_ven_5feb_2021_1_24.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
10Hz
5Hz
2Hz
0.5Hz
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz 10Hz
HVSR
5Hz
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR2

DATE 05.02.2021	HOUR 11:53	PLACE Ozzano dell'Emilia (B)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4927609	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 221423	ALTITUDE 52 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR2.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ● none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ● none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 9 Remarks

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ● asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ● dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type

BUILDING DENSITY ☐ none ● scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other		●				

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☐ no ● yes, type Railways

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

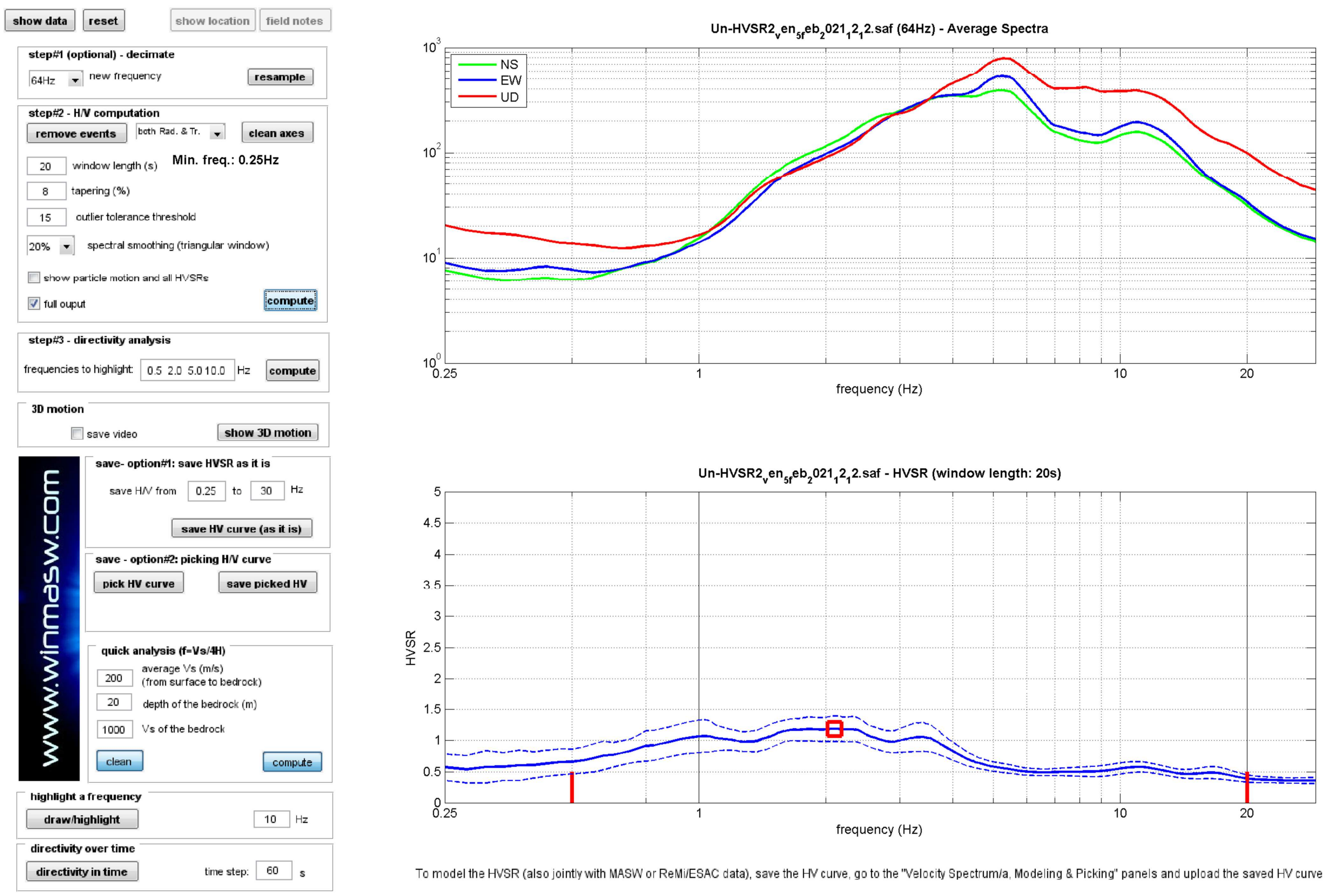
MISURA TIPO A2

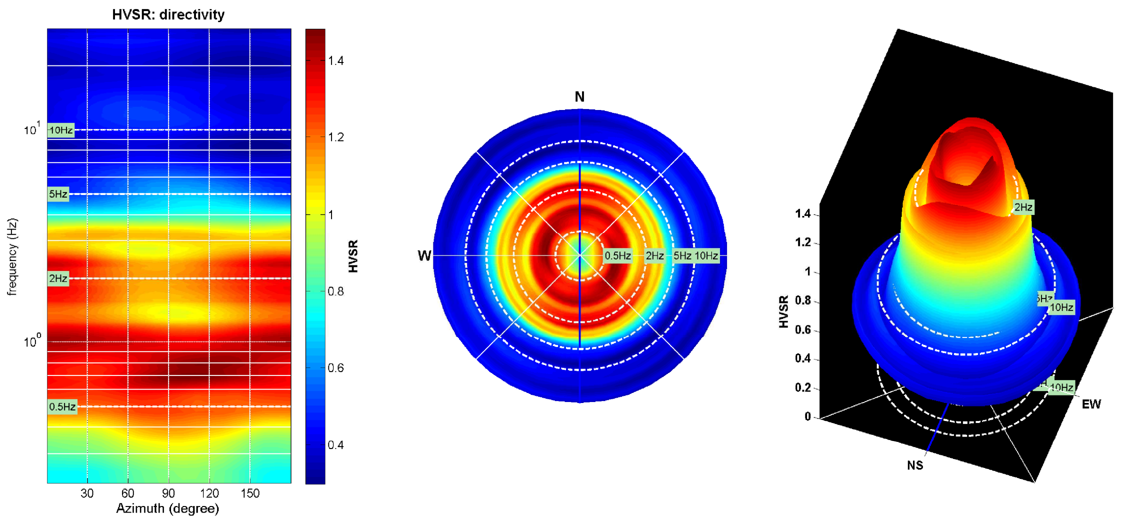
HVSR2

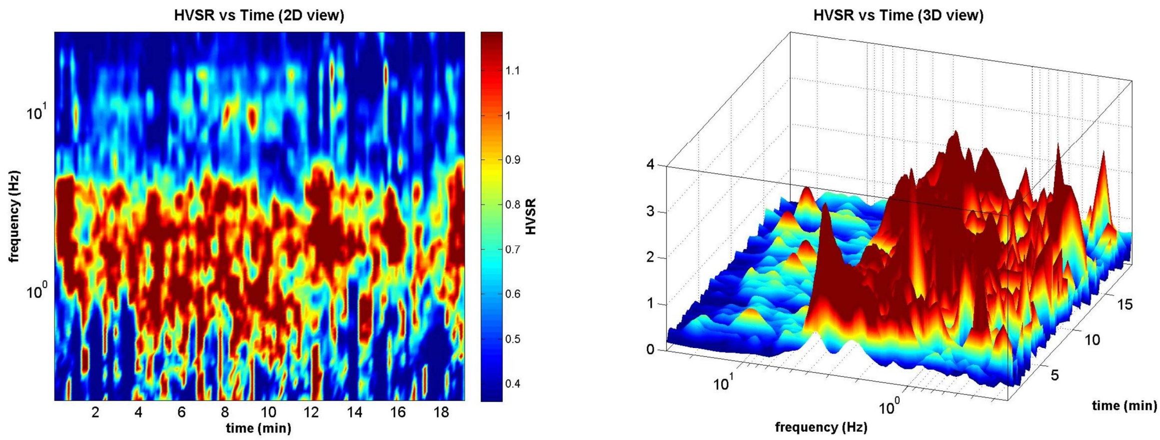
Peak frequency (Hz): 2.1 (±0.8)
Peak HVSR value: 1.2 (±0.2)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 2.096 > 0.5 (OK)
#2. [nc > 200]: 4820 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 0.6Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 5.0Hz (OK)
#3. [A0 > 2]: 1.2 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 0.780 > 0.105 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.203 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
new frequency
resample
step#2 - H/V computation
remove events
clean axes
window length (s)
Min. freq.: 0.25Hz
tapering (%)
outlier tolerance threshold
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
average Vs (m/s) (from surface to bedrock)
depth of the bedrock (m)
Vs of the bedrock
clean
highlight a frequency
draw/highlight
directivity over time
directivity in time
time step: 60 s
Average Spectra
NS
EW
UD
frequency (Hz)
HVSR (window length: 20s)
HVSR
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR3

DATE 05.02.2021	HOUR 12:53	PLACE Ozzano dell'Emilia (B)			
OPERATOR Geologica Toscana S.n.c.		GPS TYPE and #			
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4927453	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 219820	ALTITUDE 60 m slm			
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz				
STATION #	SENSOR #	DISK #			
FILE NAME UN HVSR3.saf		POINT #			
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds			

WEATHER CONDITIONS
- WIND: ● none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ● none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 8 Remarks

GROUND TYPE
- ☐ earth (☐ hard ☐ soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐ short ☐ tall)
- ● asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ● dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type

BUILDING DENSITY ☐ none ● scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	●					
trucks	●					
pedestrians		●				
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ● no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

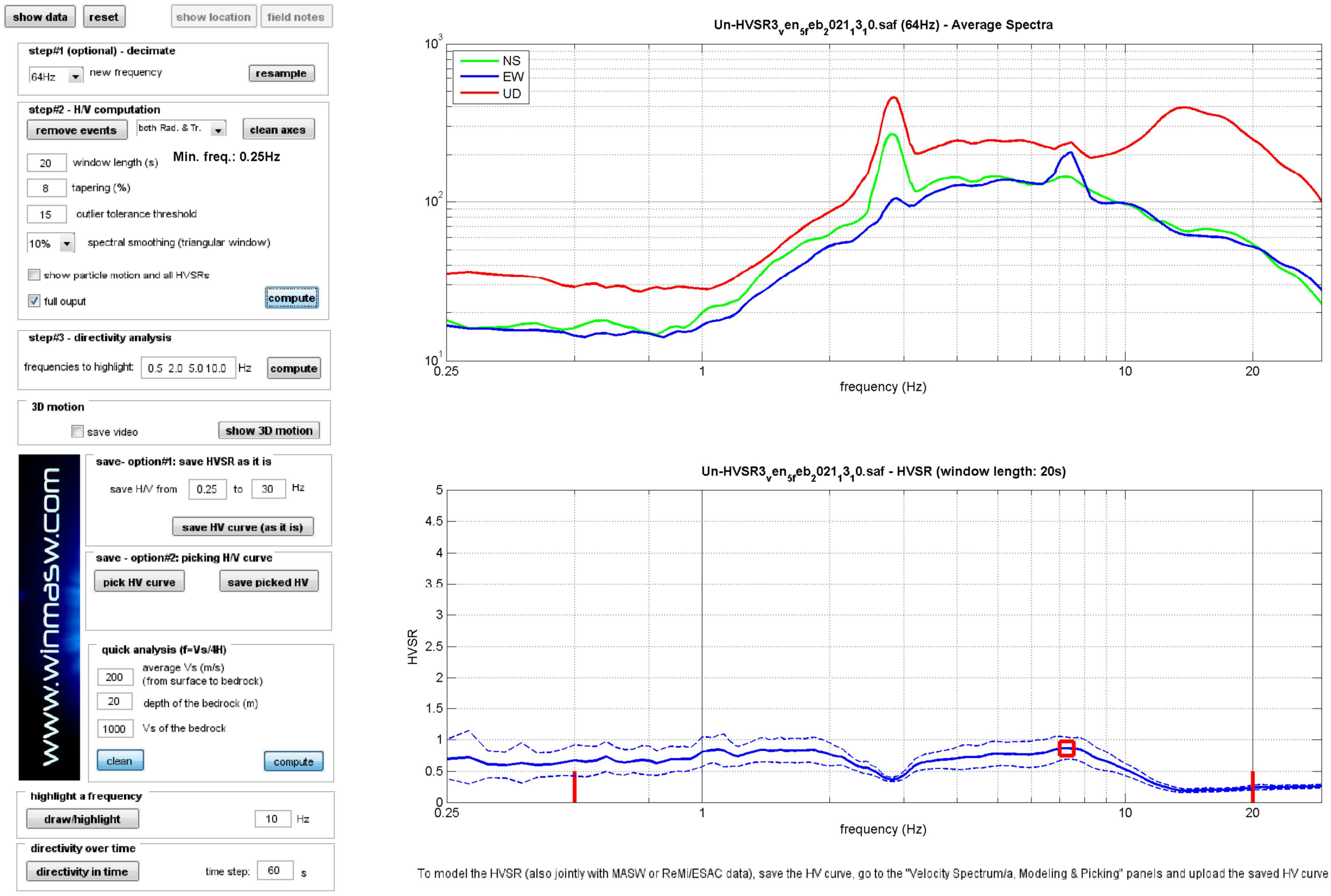
MISURA TIPO B2

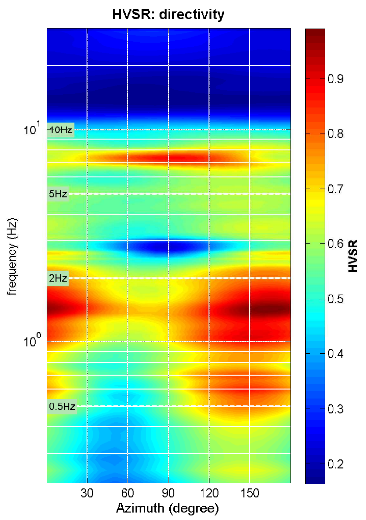
HVSR3

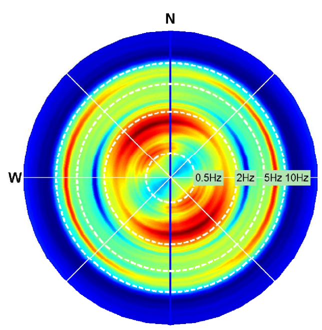
Peak frequency (Hz): 7.3 (±1.7)
Peak HVSR value: 0.9 (±0.2)

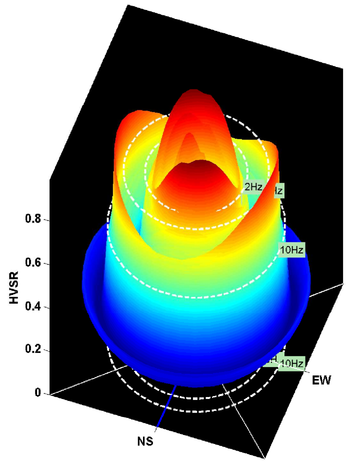
=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 7.257 > 0.5 (OK)
#2. [nc > 200]: 16401 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

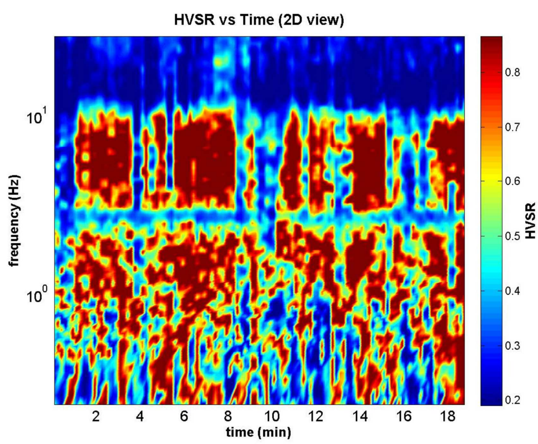
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 2.7Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 10.8Hz (OK)
#3. [A0 > 2]: 0.9 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 1.702 > 0.363 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.176 < 1.58 (OK)

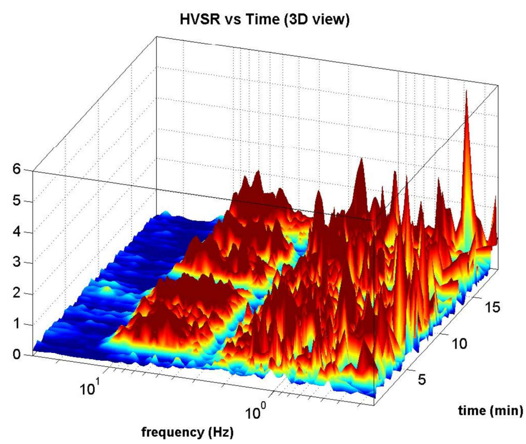

show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20 window length (s)
Min. freq.: 0.25Hz
8 tapering (%)
15 outlier tolerance threshold
10% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight: 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Un-HVSR3_ven_5feb_2021_3_10.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un-HVSR3_ven_5feb_2021_3_10.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR


N
W
0.5Hz
2Hz
5Hz
10Hz


HVSR
2Hz
10Hz
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR


HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR4_MS3

HVSR4

DATE 05.02.2021	HOUR 12:24	PLACE Ozzano dell'Emilia (B)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4926641	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 219821	ALTITUDE 72 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR4.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 8 Remarks ______

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ☒ asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ☒ dry soil ☐ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ______

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other	●					

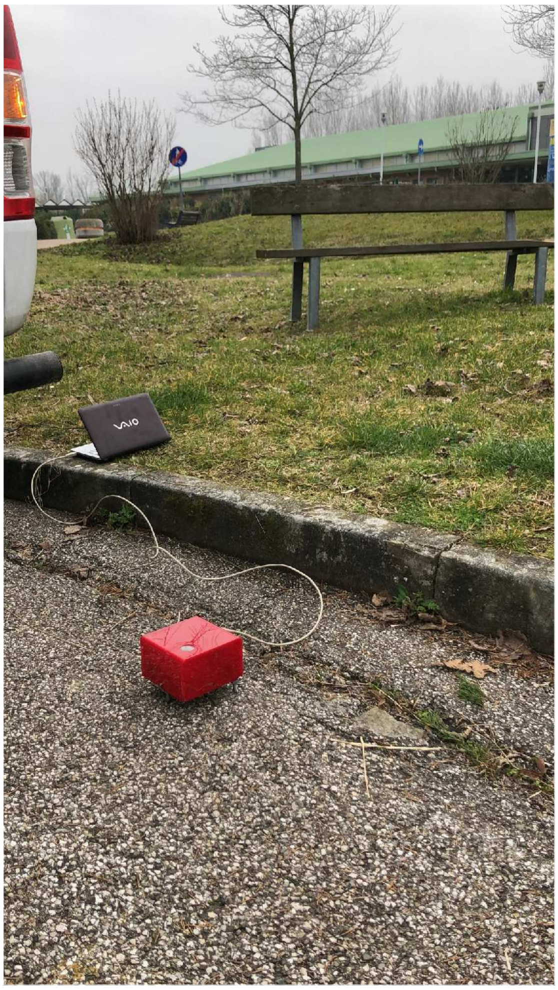
MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)



Qualità della misura:

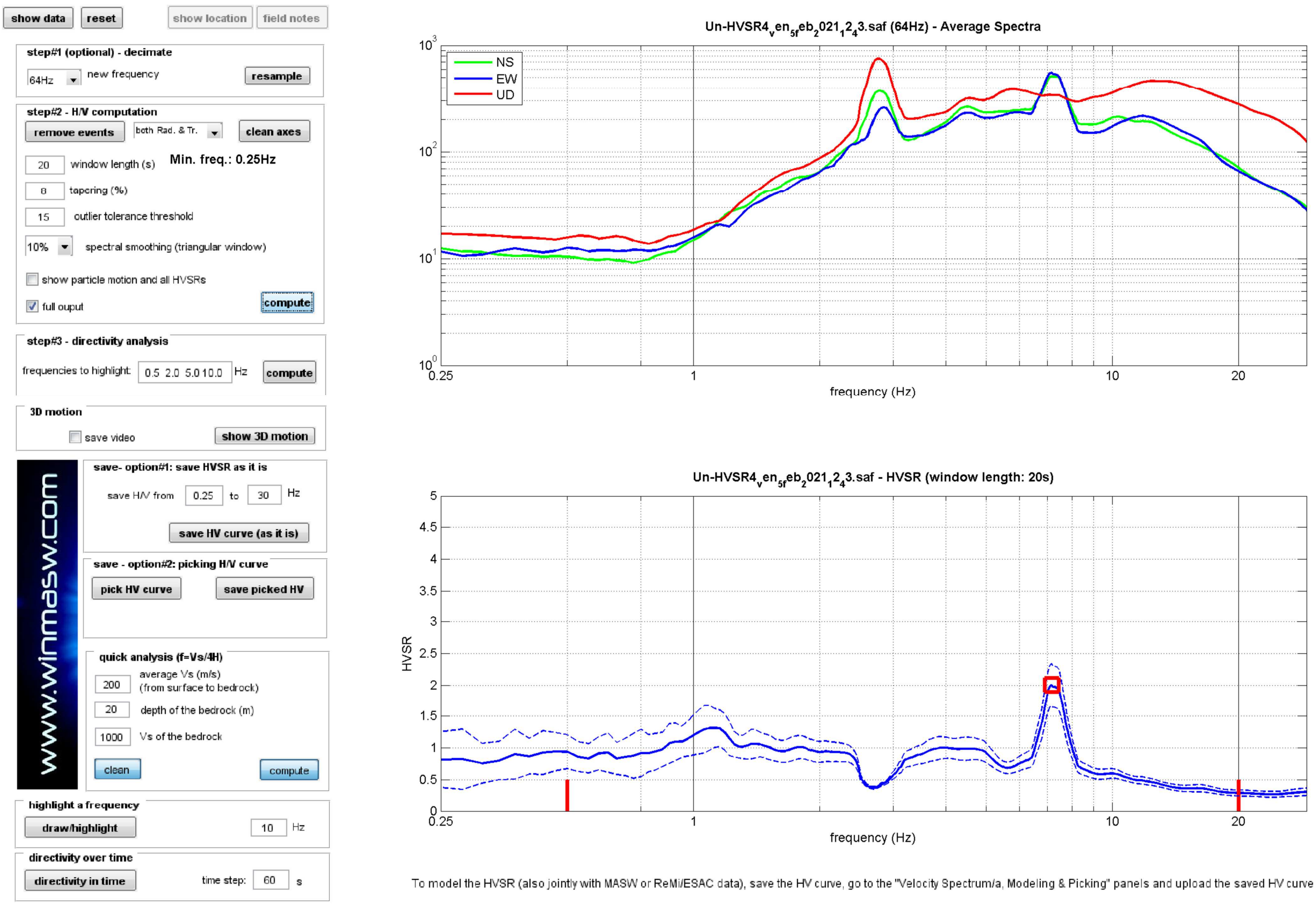
HVSR4

MISURA TIPO B2

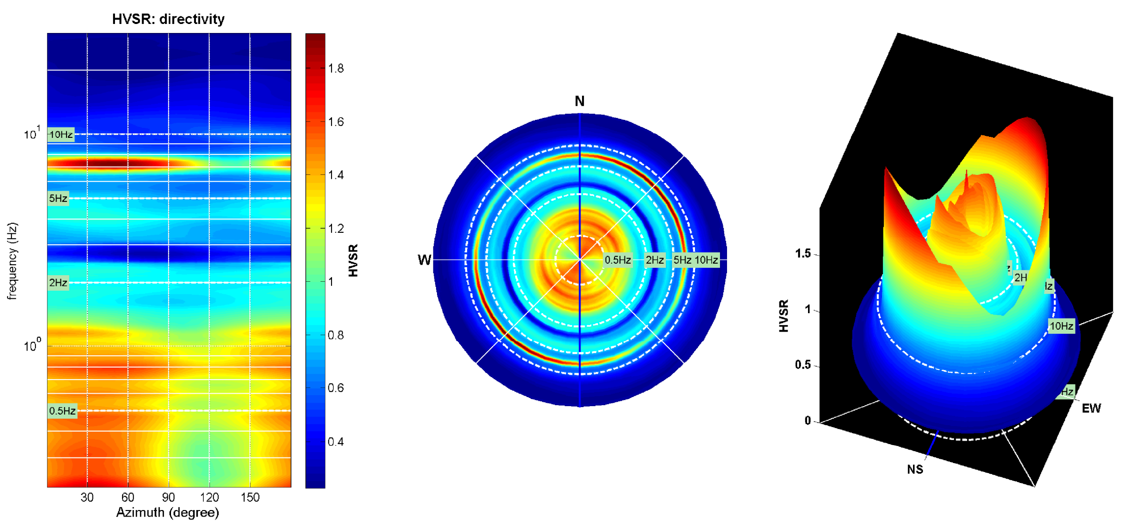
Peak frequency (Hz): 7.2 (±3.1)
Peak HVSR value: 2.0 (±0.3)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 7.163 > 0.5 (OK)
#2. [nc > 200]: 15616 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

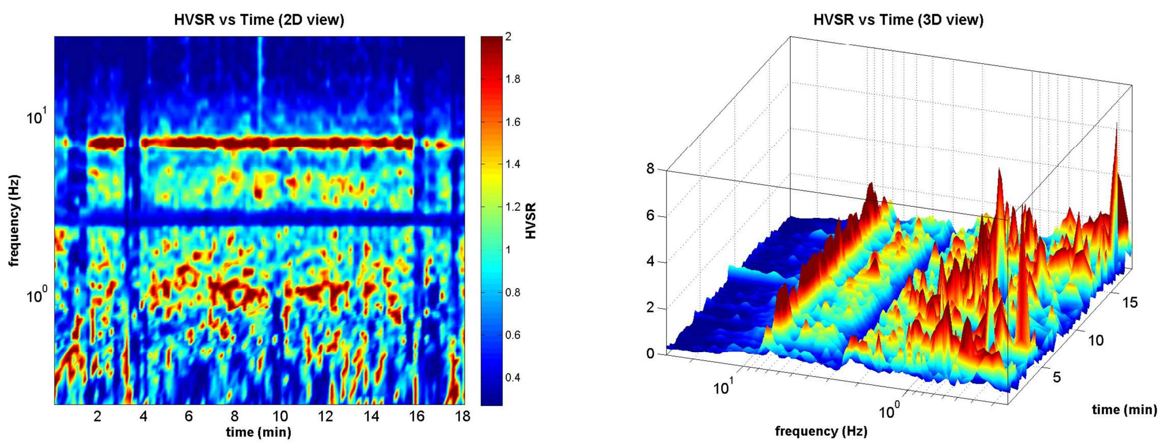
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.9Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 8.0Hz (OK)
#3. [A0 > 2]: 2.0 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 3.112 > 0.358 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.336 < 1.58 (OK)



show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
10%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Un-HVSR4venSfeb2021243.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un-HVSR4venSfeb2021243.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve



HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
2H
10Hz
EW
NS



HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

REPORT DELLE INDAGINI GEOFISICHE E GEOGNOSTICHE

Comune di Pianoro

Geologica Toscana snc
Viale Marconi 106 - 53036 - Poggibonsi (SI)
tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

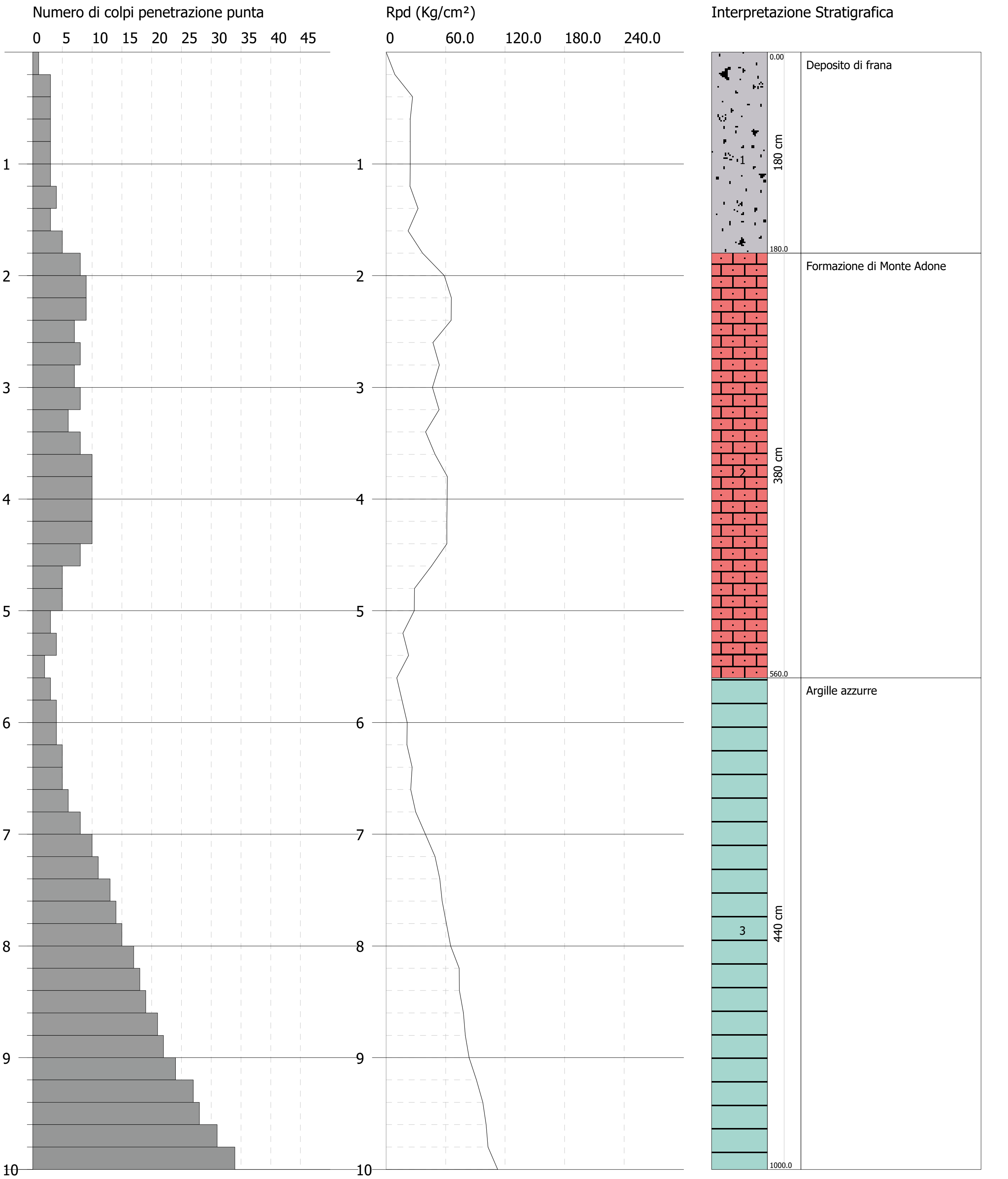
DPSH1_ms3

PROVA PENETROMETRICA DINAMICA Nr.1
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50



Prova n. 1

PROVA DPSH Nr.1

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 10.00 mt
Falda non rilevata
Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	3	0.851	26.82	31.52	1.34	1.58
0.60	3	0.847	24.50	28.93	1.23	1.45
0.80	3	0.843	24.40	28.93	1.22	1.45
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	4	0.833	32.13	38.57	1.61	1.93
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	8	0.823	58.68	71.29	2.93	3.56
2.20	9	0.820	65.77	80.20	3.29	4.01
2.40	9	0.817	65.53	80.20	3.28	4.01
2.60	7	0.814	47.20	57.97	2.36	2.90
2.80	8	0.811	53.76	66.25	2.69	3.31
3.00	7	0.809	46.88	57.97	2.34	2.90
3.20	8	0.806	53.40	66.25	2.67	3.31
3.40	6	0.803	39.92	49.69	2.00	2.48
3.60	8	0.801	49.56	61.88	2.48	3.09
3.80	10	0.798	61.76	77.36	3.09	3.87
4.00	10	0.796	61.58	77.36	3.08	3.87
4.20	10	0.794	61.40	77.36	3.07	3.87

Prova n. 1

4.40	10	0.791	61.22	77.36	3.06	3.87
4.60	8	0.789	45.82	58.06	2.29	2.90
4.80	5	0.787	28.56	36.28	1.43	1.81
5.00	5	0.785	28.48	36.28	1.42	1.81
5.20	3	0.783	17.05	21.77	0.85	1.09
5.40	4	0.781	22.67	29.03	1.13	1.45
5.60	2	0.779	10.65	13.67	0.53	0.68
5.80	3	0.777	15.94	20.50	0.80	1.03
6.00	4	0.775	21.20	27.34	1.06	1.37
6.20	4	0.774	21.15	27.34	1.06	1.37
6.40	5	0.772	26.38	34.17	1.32	1.71
6.60	5	0.770	24.87	32.29	1.24	1.61
6.80	6	0.769	29.79	38.75	1.49	1.94
7.00	8	0.767	39.63	51.66	1.98	2.58
7.20	10	0.766	49.44	64.58	2.47	3.23
7.40	11	0.764	54.28	71.04	2.71	3.55
7.60	13	0.713	56.71	79.57	2.84	3.98
7.80	14	0.711	60.95	85.69	3.05	4.28
8.00	15	0.710	65.18	91.81	3.26	4.59
8.20	17	0.709	73.73	104.05	3.69	5.20
8.40	18	0.707	77.92	110.18	3.90	5.51
8.60	19	0.706	78.03	110.53	3.90	5.53
8.80	21	0.655	79.98	122.16	4.00	6.11
9.00	22	0.653	83.63	127.98	4.18	6.40
9.20	24	0.652	91.07	139.62	4.55	6.98
9.40	27	0.651	102.27	157.07	5.11	7.85
9.60	28	0.650	100.86	155.19	5.04	7.76
9.80	31	0.599	102.89	171.81	5.14	8.59
10.00	34	0.598	112.63	188.44	5.63	9.42

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.8	3.11	29.73	Incoerente - coesivo	0	1.73	1.87	0.16	1.47	4.57	Deposito di frana
5.6	7.21	57.7	Incoerente - coesivo	0	1.98	2.18	0.69	1.47	10.6	Formazione di Monte Adone
10	15.41	91.44	Incoerente - coesivo	0	2.11	2.16	1.53	1.47	22.65	Argille azzurre

STIMA PARAMETRI GEOTECNICI PROVA Nr.1

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	4.57	1.80	0.29	0.57	0.25	0.19	0.44	0.89	0.41	0.77	0.23	0.59	0.57
[2] - Formazione di Monte Adone	10.6	5.60	0.72	1.33	0.50	0.42	1.04	1.73	0.94	1.25	0.53	1.10	1.33
[3] - Argille azzurre	22.65	10.00	1.53	2.83	1.00	0.87	2.25	2.74	1.90	2.34	1.13	2.54	2.83

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.57	1.80	Robertson (1983)	9.14
[2] - Formazione di Monte Adone	10.6	5.60	Robertson (1983)	21.20
[3] - Argille azzurre	22.65	10.00	Robertson (1983)	45.30

Prova n. 1

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	4.57	1.80	20.97	68.55	48.40	57.13
[2] - Formazione di Monte Adone	10.6	5.60	48.63	--	109.91	106.00
[3] - Argille azzurre	22.65	10.00	103.92	--	232.81	226.50

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	4.57	1.80	32.16	45.70
[2] - Formazione di Monte Adone	10.6	5.60	101.50	106.00
[3] - Argille azzurre	22.65	10.00	240.08	226.50

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	4.57	1.80	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monte Adone	10.6	5.60	A.G.I. (1977)	CONSISTENTE
[3] - Argille azzurre	22.65	10.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	4.57	1.80	Meyerhof	1.73
[2] - Formazione di Monte Adone	10.6	5.60	Meyerhof	1.98
[3] - Argille azzurre	22.65	10.00	Meyerhof	2.11

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	4.57	1.80	Meyerhof	1.87
[2] - Formazione di Monte Adone	10.6	5.60	Meyerhof	2.18
[3] - Argille azzurre	22.65	10.00	Meyerhof	2.16

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.57	1.80		0
[2] - Formazione di Monte Adone	10.6	5.60		0
[3] - Argille azzurre	22.65	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	4.57	1.80	22.14	48.53	57.6	19.68
[2] - Formazione di Monte Adone	10.6	5.60	29.77	58.04	58.36	34.3
[3] - Argille azzurre	22.65	10.00	35.82	66.96	68.06	54.96

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	4.57	1.80	4.57	28.31	21.31	29.28	31.5	31.49	0	<30	23.28	28.37	31.67	24.56

Prova n. 1

[2] - Formazione di Monte Adone	10.6	5.60	10.6	30.03	23.03	30.97	29.64	33.9	36.13	<30	27.61	30.18	37	29.56
[3] - Argille azzurre	22.65	10.00	22.65	33.47	26.47	34.34	29.13	37.84	37.37	30-32	33.43	33.79	40.43	36.28

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	4.57	1.80	4.57	---	36.56	---	---	---
[2] - Formazione di Monte Adone	10.6	5.60	10.6	232.39	84.80	125.78	259.50	128.00
[3] - Argille azzurre	22.65	10.00	22.65	339.71	181.20	267.97	349.88	188.25

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	4.57	1.80	4.57	---	36.85	32.45	58.38
[2] - Formazione di Monte Adone	10.6	5.60	10.6	63.60	49.24	75.26	85.28
[3] - Argille azzurre	22.65	10.00	22.65	135.90	73.99	160.82	139.02

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	4.57	1.80	4.57	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monte Adone	10.6	5.60	10.6	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Argille azzurre	22.65	10.00	22.65	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	4.57	1.80	4.57	Meyerhof et al.	1.52
[2] - Formazione di Monte Adone	10.6	5.60	10.6	Meyerhof et al.	1.75
[3] - Argille azzurre	22.65	10.00	22.65	Meyerhof et al.	2.04

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	4.57	1.80	4.57	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	10.6	5.60	10.6	Terzaghi-Peck 1948-1967	1.92
[3] - Argille azzurre	22.65	10.00	22.65	Terzaghi-Peck 1948-1967	2.00

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	4.57	1.80	4.57	(A.G.I.)	0.34
[2] - Formazione di Monte Adone	10.6	5.60	10.6	(A.G.I.)	0.33
[3] - Argille azzurre	22.65	10.00	22.65	(A.G.I.)	0.31

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	4.57	1.80	4.57	271.17	316.31
[2] - Formazione di Monte Adone	10.6	5.60	10.6	598.00	528.90
[3] - Argille azzurre	22.65	10.00	22.65	1220.89	841.12

Prova n. 1

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.57	1.80	4.57	Ohta & Goto (1978) Limi	87.19
[2] - Formazione di Monte Adone	10.6	5.60	10.6	Ohta & Goto (1978) Limi	132.48
[3] - Argille azzurre	22.65	10.00	22.65	Ohta & Goto (1978) Limi	174.47

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	4.57	1.80	4.57	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	10.6	5.60	10.6	Seed e Idriss (1971)	--
[3] - Argille azzurre	22.65	10.00	22.65	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	4.57	1.80	4.57		---
[2] - Formazione di Monte Adone	10.6	5.60	10.6		---
[3] - Argille azzurre	22.65	10.00	22.65		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.57	1.80	4.57		---
[2] - Formazione di Monte Adone	10.6	5.60	10.6		---
[3] - Argille azzurre	22.65	10.00	22.65		---

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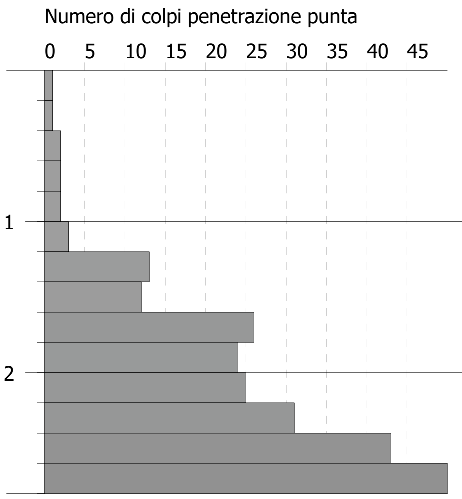
DPSH2_ms3

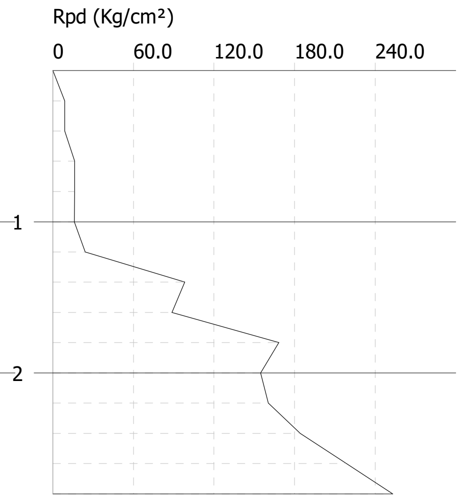
PROVA PENETROMETRICA DINAMICA Nr.2
Strumento utilizzato... DPSH TG 63-200 PAGANI

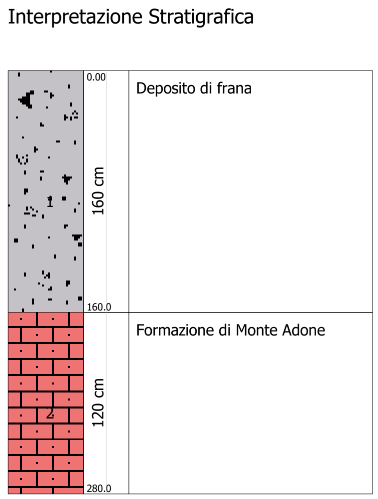
Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50







Prova n. 2

PROVA DPSH Nr.2

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 2.80 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	13	0.783	98.14	125.36	4.91	6.27
1.60	12	0.830	88.70	106.93	4.44	5.35
1.80	26	0.726	168.28	231.68	8.41	11.58
2.00	24	0.723	154.66	213.86	7.73	10.69
2.20	25	0.720	160.42	222.77	8.02	11.14
2.40	31	0.667	184.29	276.24	9.21	13.81
2.60	43	0.614	218.74	356.11	10.94	17.81
2.80	50	0.611	253.18	414.08	12.66	20.70

Prova n. 2

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.6	4.5	42.51	Incoerente - coesivo	0	1.84	1.89	0.15	1.47	6.62	Deposito di frana
2.8	33.17	285.79	Incoerente - coesivo	0	2.5	2.5	0.44	1.47	48.76	Formazione di Monte Adone

STIMA PARAMETRI GEOTECNICI PROVA Nr.2

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	6.62	1.60	0.41	0.83	0.25	0.27	0.65	1.28	0.59	0.93	0.33	0.97	0.83
[2] - Formazione di Monte Adone	48.76	2.80	3.29	6.10	0.00	1.71	4.88	8.57	3.62	5.32	2.44	8.21	6.10

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	6.62	1.60	Robertson (1983)	13.24
[2] - Formazione di Monte Adone	48.76	2.80	Robertson (1983)	97.52

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	6.62	1.60	30.37	--	69.31	82.75
[2] - Formazione di Monte Adone	48.76	2.80	223.71	--	499.11	487.60

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	6.62	1.60	55.73	66.20
[2] - Formazione di Monte Adone	48.76	2.80	540.34	487.60

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	6.62	1.60	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monte Adone	48.76	2.80	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	6.62	1.60	Meyerhof	1.84
[2] - Formazione di Monte Adone	48.76	2.80	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	6.62	1.60	Meyerhof	1.89
[2] - Formazione di Monte Adone	48.76	2.80	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	6.62	1.60		0
[2] - Formazione di Monte Adone	48.76	2.80		0

Prova n. 2

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	6.62	1.60	29.35	58.7	69.79	25.03
[2] - Formazione di Monte Adone	48.76	2.80	71.1	100	100	79.33

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	6.62	1.60	6.62	28.89	21.89	29.85	32.22	32.34	0	<30	24.96	28.99	34.94	26.51
[2] - Formazione di Monte Adone	48.76	2.80	48.76	40.93	33.93	41.65	33.06	42.39	42	35-38	42.04	41.63	51.24	46.23

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	6.62	1.60	6.62	---	52.96	---	---	---
[2] - Formazione di Monte Adone	48.76	2.80	48.76	498.43	390.08	576.07	545.70	318.80

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	6.62	1.60	6.62	---	41.06	47.00	67.53
[2] - Formazione di Monte Adone	48.76	2.80	48.76	292.56	127.62	346.20	255.47

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	6.62	1.60	6.62	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monte Adone	48.76	2.80	48.76	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	6.62	1.60	6.62	Meyerhof et al.	1.61
[2] - Formazione di Monte Adone	48.76	2.80	48.76	Meyerhof et al.	2.23

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	6.62	1.60	6.62	Terzaghi-Peck 1948-1967	1.90
[2] - Formazione di Monte Adone	48.76	2.80	48.76	Terzaghi-Peck 1948-1967	2.16

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	6.62	1.60	6.62	(A.G.I.)	0.34
[2] - Formazione di Monte Adone	48.76	2.80	48.76	(A.G.I.)	0.26

Prova n. 2

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	6.62	1.60	6.62	384.17	396.69
[2] - Formazione di Monte Adone	48.76	2.80	48.76	2510.11	1343.75

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	6.62	1.60	6.62	Ohta & Goto (1978) Limi	90.87
[2] - Formazione di Monte Adone	48.76	2.80	48.76	Ohta & Goto (1978) Limi	156.04

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	6.62	1.60	6.62	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	48.76	2.80	48.76	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	6.62	1.60	6.62		---
[2] - Formazione di Monte Adone	48.76	2.80	48.76		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	6.62	1.60	6.62		---
[2] - Formazione di Monte Adone	48.76	2.80	48.76		---

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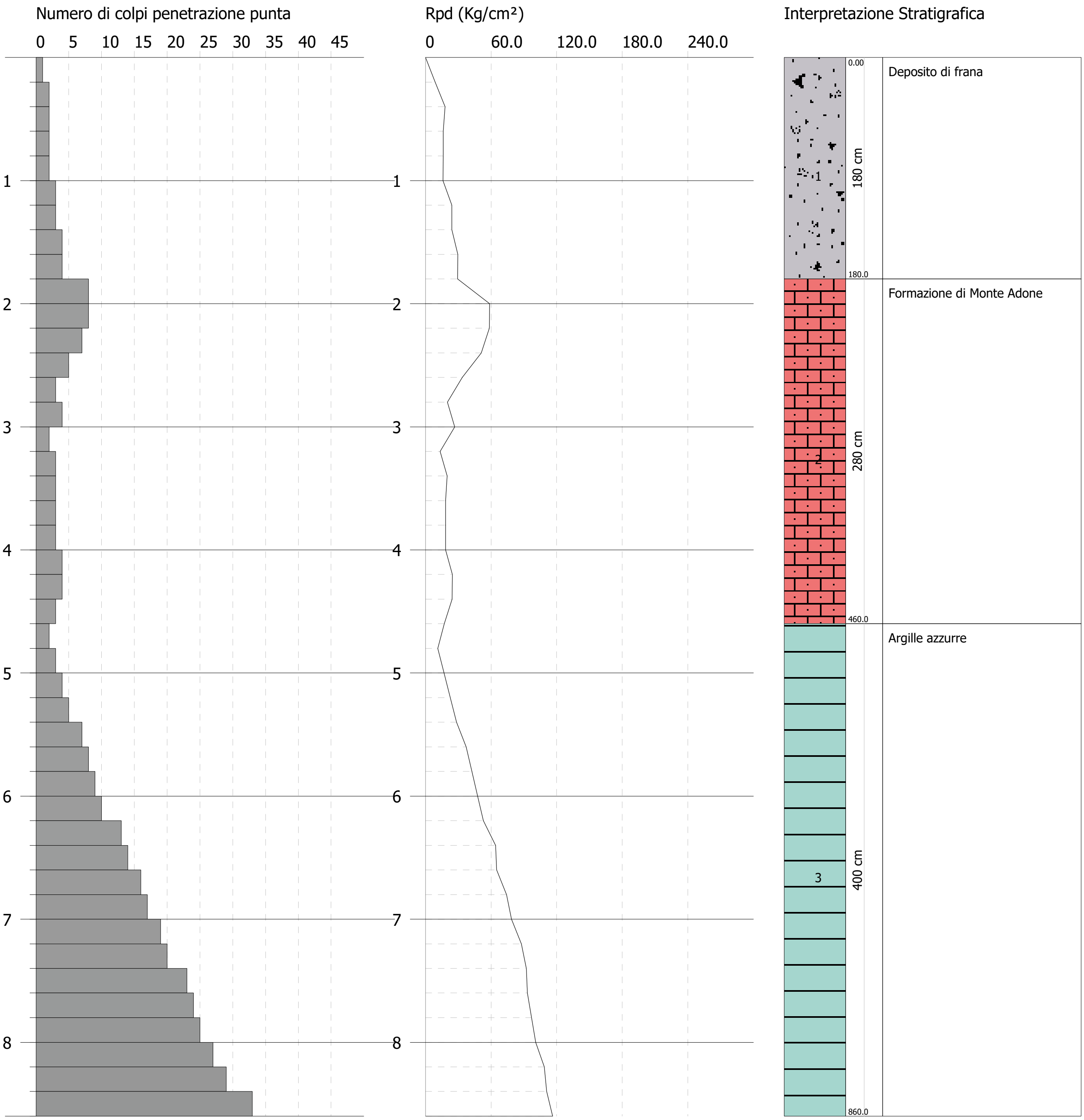
DPSH3_ms3

PROVA PENETROMETRICA DINAMICA Nr.3
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50



Prova n. 3

PROVA DPSH Nr.3

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 8.60 mt
Falda non rilevata
Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	4	0.830	29.57	35.64	1.48	1.78
1.80	4	0.826	29.45	35.64	1.47	1.78
2.00	8	0.823	58.68	71.29	2.93	3.56
2.20	8	0.820	58.46	71.29	2.92	3.56
2.40	7	0.817	50.97	62.38	2.55	3.12
2.60	5	0.814	33.72	41.41	1.69	2.07
2.80	3	0.811	20.16	24.85	1.01	1.24
3.00	4	0.809	26.79	33.13	1.34	1.66
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	3	0.801	18.59	23.21	0.93	1.16
3.80	3	0.798	18.53	23.21	0.93	1.16
4.00	3	0.796	18.47	23.21	0.92	1.16
4.20	4	0.794	24.56	30.94	1.23	1.55

Prova n. 3

4.40	4	0.791	24.49	30.94	1.22	1.55
4.60	3	0.789	17.18	21.77	0.86	1.09
4.80	2	0.787	11.42	14.51	0.57	0.73
5.00	3	0.785	17.09	21.77	0.85	1.09
5.20	4	0.783	22.73	29.03	1.14	1.45
5.40	5	0.781	28.34	36.28	1.42	1.81
5.60	7	0.779	37.27	47.84	1.86	2.39
5.80	8	0.777	42.50	54.67	2.12	2.73
6.00	9	0.775	47.70	61.51	2.38	3.08
6.20	10	0.774	52.88	68.34	2.64	3.42
6.40	13	0.722	64.15	88.84	3.21	4.44
6.60	14	0.720	65.13	90.41	3.26	4.52
6.80	16	0.719	74.26	103.33	3.71	5.17
7.00	17	0.717	78.73	109.78	3.94	5.49
7.20	19	0.716	87.81	122.70	4.39	6.13
7.40	20	0.714	92.24	129.16	4.61	6.46
7.60	23	0.663	93.30	140.78	4.66	7.04
7.80	24	0.661	97.14	146.90	4.86	7.35
8.00	25	0.660	100.98	153.02	5.05	7.65
8.20	27	0.659	108.84	165.26	5.44	8.26
8.40	29	0.657	116.67	177.50	5.83	8.88
8.60	33	0.606	116.33	191.97	5.82	9.60

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.8	2.56	24.28	Incoerente - coesivo	0	1.68	1.87	0.15	1.47	3.76	Deposito di frana
4.6	4.29	35.65	Incoerente - coesivo	0	1.83	1.89	0.56	1.47	6.31	Formazione di Monte Adone
8.6	15.4	97.68	Incoerente - coesivo	0	2.11	2.16	1.24	1.47	22.64	Argille azzurre

STIMA PARAMETRI GEOTECNICI PROVA Nr.3

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	3.76	1.80	0.24	0.47	0.15	0.15	0.37	0.73	0.34	0.71	0.19	0.46	0.47
[2] - Formazione di Monte Adone	6.31	4.60	0.39	0.79	0.25	0.26	0.62	1.07	0.57	0.91	0.32	0.53	0.79
[3] - Argille azzurre	22.64	8.60	1.53	2.83	1.00	0.87	2.24	2.93	1.90	2.34	1.13	2.75	2.83

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.76	1.80	Robertson (1983)	7.52
[2] - Formazione di Monte Adone	6.31	4.60	Robertson (1983)	12.62
[3] - Argille azzurre	22.64	8.60	Robertson (1983)	45.28

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.76	1.80	17.25	56.40	40.14	47.00
[2] - Formazione di Monte Adone	6.31	4.60	28.95	--	66.15	78.88
[3] - Argille azzurre	22.64	8.60	103.87	--	232.71	226.40

Prova n. 3

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.76	1.80	22.84	37.60
[2] - Formazione di Monte Adone	6.31	4.60	52.17	63.10
[3] - Argille azzurre	22.64	8.60	239.96	226.40

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.76	1.80	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Adone	6.31	4.60	A.G.I. (1977)	MODERAT. CONSISTENTE
[3] - Argille azzurre	22.64	8.60	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.76	1.80	Meyerhof	1.68
[2] - Formazione di Monte Adone	6.31	4.60	Meyerhof	1.83
[3] - Argille azzurre	22.64	8.60	Meyerhof	2.11

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.76	1.80	Meyerhof	1.87
[2] - Formazione di Monte Adone	6.31	4.60	Meyerhof	1.89
[3] - Argille azzurre	22.64	8.60	Meyerhof	2.16

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.76	1.80		0
[2] - Formazione di Monte Adone	6.31	4.60		0
[3] - Argille azzurre	22.64	8.60		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.76	1.80	18.74	44.14	52.88	17.45
[2] - Formazione di Monte Adone	6.31	4.60	21.65	47.02	48.09	24.24
[3] - Argille azzurre	22.64	8.60	38.85	71.8	71.92	54.95

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.76	1.80	3.76	28.07	21.07	29.05	31.25	31.14	0	<30	22.51	28.13	29.99	23.67
[2] - Formazione di Monte Adone	6.31	4.60	6.31	28.8	21.8	29.77	29.25	32.21	0	<30	24.73	28.89	32.96	26.23
[3] - Argille azzurre	22.64	8.60	22.64	33.47	26.47	34.34	29.59	37.83	38.05	30-32	33.43	33.79	41.54	36.28

Prova n. 3

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.76	1.80	3.76	---	30.08	---	---	---
[2] - Formazione di Monte Adone	6.31	4.60	6.31	---	50.48	---	---	---
[3] - Argille azzurre	22.64	8.60	22.64	339.63	181.12	267.85	349.80	188.20

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.76	1.80	3.76	---	35.19	26.70	54.77
[2] - Formazione di Monte Adone	6.31	4.60	6.31	---	40.43	44.80	66.14
[3] - Argille azzurre	22.64	8.60	22.64	135.84	73.97	160.74	138.97

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.76	1.80	3.76	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	6.31	4.60	6.31	Classificazione A.G.I	POCO ADDENSATO
[3] - Argille azzurre	22.64	8.60	22.64	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.76	1.80	3.76	Meyerhof et al.	1.48
[2] - Formazione di Monte Adone	6.31	4.60	6.31	Meyerhof et al.	1.59
[3] - Argille azzurre	22.64	8.60	22.64	Meyerhof et al.	2.04

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.76	1.80	3.76	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	6.31	4.60	6.31	Terzaghi-Peck 1948-1967	1.90
[3] - Argille azzurre	22.64	8.60	22.64	Terzaghi-Peck 1948-1967	2.00

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.76	1.80	3.76	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	6.31	4.60	6.31	(A.G.I.)	0.34
[3] - Argille azzurre	22.64	8.60	22.64	(A.G.I.)	0.31

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.76	1.80	3.76	225.73	280.77
[2] - Formazione di Monte Adone	6.31	4.60	6.31	367.23	385.24
[3] - Argille azzurre	22.64	8.60	22.64	1220.39	840.89

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.76	1.80	3.76	Ohta & Goto (1978) Limi	84.29
[2] - Formazione di Monte Adone	6.31	4.60	6.31	Ohta & Goto (1978) Limi	117.77
[3] - Argille azzurre	22.64	8.60	22.64	Ohta & Goto (1978) Limi	168.92

Prova n. 3

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.76	1.80	3.76	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	6.31	4.60	6.31	Seed e Idriss (1971)	--
[3] - Argille azzurre	22.64	8.60	22.64	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.76	1.80	3.76		---
[2] - Formazione di Monte Adone	6.31	4.60	6.31		---
[3] - Argille azzurre	22.64	8.60	22.64		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.76	1.80	3.76		---
[2] - Formazione di Monte Adone	6.31	4.60	6.31		---
[3] - Argille azzurre	22.64	8.60	22.64		---

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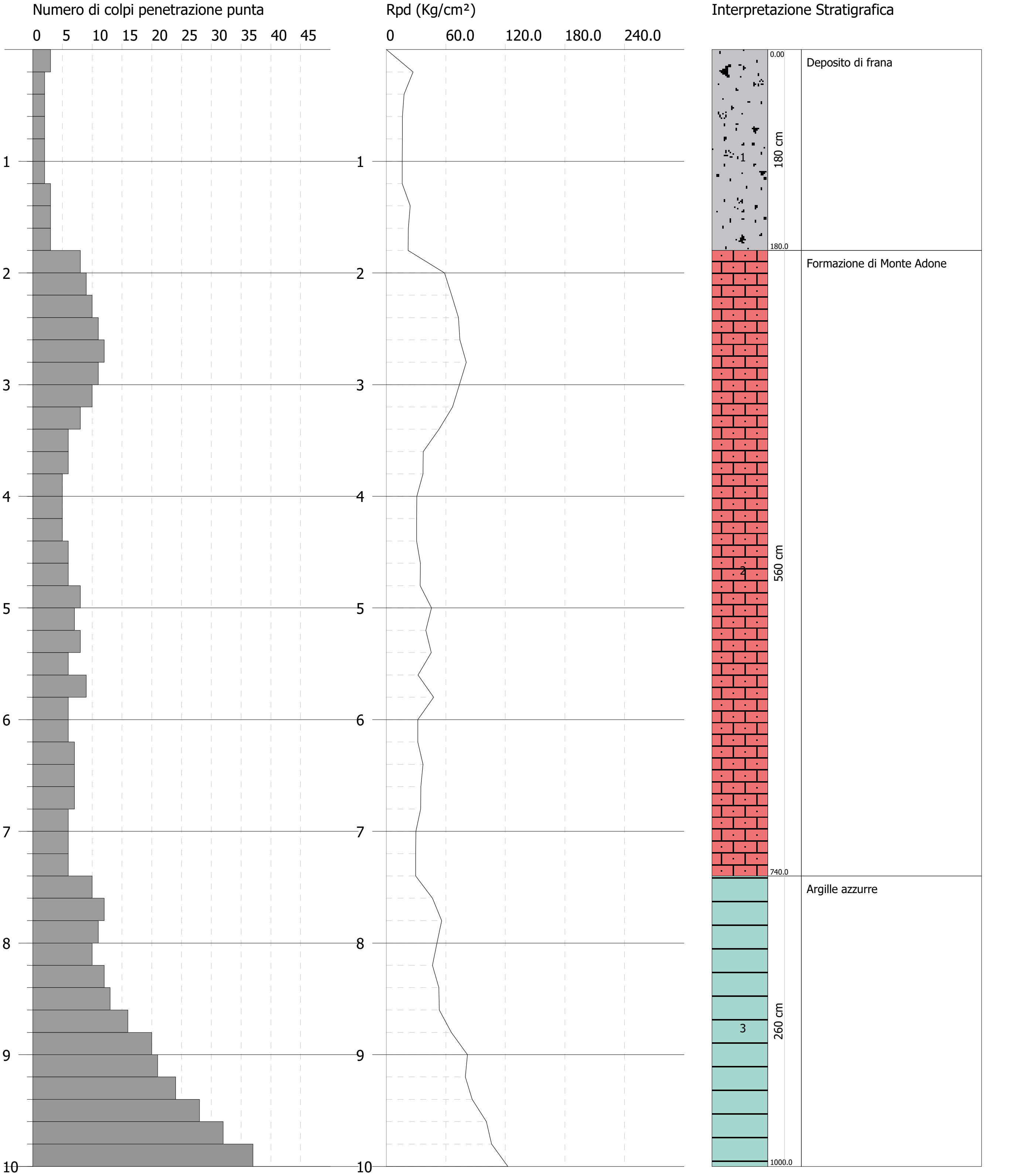
DPSH4_ms3

PROVA PENETROMETRICA DINAMICA Nr.4
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50



Prova n. 4

PROVA DPSH Nr.4

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 10.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	3	0.855	26.94	31.52	1.35	1.58
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	3	0.826	22.09	26.73	1.10	1.34
2.00	8	0.823	58.68	71.29	2.93	3.56
2.20	9	0.820	65.77	80.20	3.29	4.01
2.40	10	0.817	72.81	89.11	3.64	4.46
2.60	11	0.814	74.18	91.10	3.71	4.55
2.80	12	0.811	80.64	99.38	4.03	4.97
3.00	11	0.809	73.67	91.10	3.68	4.55
3.20	10	0.806	66.75	82.82	3.34	4.14
3.40	8	0.803	53.23	66.25	2.66	3.31
3.60	6	0.801	37.17	46.41	1.86	2.32
3.80	6	0.798	37.06	46.41	1.85	2.32
4.00	5	0.796	30.79	38.68	1.54	1.93

Prova n. 4

4.20	5	0.794	30.70	38.68	1.53	1.93
4.40	5	0.791	30.61	38.68	1.53	1.93
4.60	6	0.789	34.36	43.54	1.72	2.18
4.80	6	0.787	34.27	43.54	1.71	2.18
5.00	8	0.785	45.57	58.06	2.28	2.90
5.20	7	0.783	39.78	50.80	1.99	2.54
5.40	8	0.781	45.34	58.06	2.27	2.90
5.60	6	0.779	31.95	41.00	1.60	2.05
5.80	9	0.777	47.81	61.51	2.39	3.08
6.00	6	0.775	31.80	41.00	1.59	2.05
6.20	6	0.774	31.73	41.00	1.59	2.05
6.40	7	0.772	36.93	47.84	1.85	2.39
6.60	7	0.770	34.82	45.20	1.74	2.26
6.80	7	0.769	34.75	45.20	1.74	2.26
7.00	6	0.767	29.73	38.75	1.49	1.94
7.20	6	0.766	29.67	38.75	1.48	1.94
7.40	6	0.764	29.61	38.75	1.48	1.94
7.60	10	0.763	46.68	61.21	2.33	3.06
7.80	12	0.761	55.92	73.45	2.80	3.67
8.00	11	0.760	51.16	67.33	2.56	3.37
8.20	10	0.759	46.43	61.21	2.32	3.06
8.40	12	0.757	55.62	73.45	2.78	3.67
8.60	13	0.706	53.39	75.62	2.67	3.78
8.80	16	0.705	65.59	93.08	3.28	4.65
9.00	20	0.703	81.85	116.35	4.09	5.82
9.20	21	0.652	79.69	122.16	3.98	6.11
9.40	24	0.651	90.90	139.62	4.55	6.98
9.60	28	0.650	100.86	155.19	5.04	7.76
9.80	32	0.599	106.20	177.36	5.31	8.87
10.00	37	0.598	122.57	205.07	6.13	10.25

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.8	2.44	23.57	Incoerente - coesivo	0	1.67	1.87	0.15	1.47	3.59	Deposito di frana
7.4	7.39	56.18	Incoerente - coesivo	0	1.99	2.19	0.86	1.47	10.86	Formazione di Monte Adone
10	18.92	109.32	Incoerente - coesivo	0	2.14	2.3	1.69	1.47	27.81	Argille azzurre

STIMA PARAMETRI GEOTECNICI PROVA Nr.4

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi-Peck	Sanglerat	Terzaghi-Peck (1948)	U.S.D.M.S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.59	1.80	0.22	0.45	0.15	0.15	0.35	0.71	0.33	0.70	0.18	0.43	0.45
[2] - Formazione di Monte Adone	10.86	7.40	0.73	1.36	0.50	0.43	1.07	1.69	0.96	1.27	0.54	0.89	1.36
[3] - Argille azzurre	27.81	10.00	1.88	3.48	1.00	1.05	2.76	3.28	2.28	2.86	1.39	3.44	3.48

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.59	1.80	Robertson (1983)	7.18
[2] - Formazione di Monte Adone	10.86	7.40	Robertson (1983)	21.72
[3] - Argille azzurre	27.81	10.00	Robertson (1983)	55.62

Prova n. 4

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.59	1.80	16.47	53.85	38.41	44.88
[2] - Formazione di Monte Adone	10.86	7.40	49.83	--	112.56	108.60
[3] - Argille azzurre	27.81	10.00	127.59	--	285.44	278.10

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.59	1.80	20.89	35.90
[2] - Formazione di Monte Adone	10.86	7.40	104.49	108.60
[3] - Argille azzurre	27.81	10.00	299.42	278.10

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.59	1.80	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Adone	10.86	7.40	A.G.I. (1977)	CONSISTENTE
[3] - Argille azzurre	27.81	10.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.59	1.80	Meyerhof	1.67
[2] - Formazione di Monte Adone	10.86	7.40	Meyerhof	1.99
[3] - Argille azzurre	27.81	10.00	Meyerhof	2.14

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.59	1.80	Meyerhof	1.87
[2] - Formazione di Monte Adone	10.86	7.40	Meyerhof	2.19
[3] - Argille azzurre	27.81	10.00	Meyerhof	2.30

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.59	1.80		0
[2] - Formazione di Monte Adone	10.86	7.40		0
[3] - Argille azzurre	27.81	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.59	1.80	17.95	43.15	51.8	16.98
[2] - Formazione di Monte Adone	10.86	7.40	28.06	55.45	55.72	34.86
[3] - Argille azzurre	27.81	10.00	38.67	71.59	73.08	61.2

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.59	1.80	3.59	28.03	21.03	29.01	31.19	31.07	0	<30	22.34	28.08	29.59	23.47
[2] - Formazione di Monte Adone	10.86	7.40	10.86	30.1	23.1	31.04	29.2	33.99	35.76	<30	27.76	30.26	36.56	29.74
[3] - Argille azzurre	27.81	10.00	27.81	34.95	27.95	35.79	29.24	39.17	38.02	32-35	35.42	35.34	41.6	38.58

Prova n. 4

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.59	1.80	3.59	---	28.72	---	---	---
[2] - Formazione di Monte Adone	10.86	7.40	10.86	235.23	86.88	128.85	261.45	129.30
[3] - Argille azzurre	27.81	10.00	27.81	376.42	222.48	328.86	388.57	214.05

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.59	1.80	3.59	---	34.84	25.49	54.01
[2] - Formazione di Monte Adone	10.86	7.40	10.86	65.16	49.77	77.11	86.44
[3] - Argille azzurre	27.81	10.00	27.81	166.86	84.59	197.45	162.03

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.59	1.80	3.59	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	10.86	7.40	10.86	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Argille azzurre	27.81	10.00	27.81	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.59	1.80	3.59	Meyerhof et al.	1.48
[2] - Formazione di Monte Adone	10.86	7.40	10.86	Meyerhof et al.	1.76
[3] - Argille azzurre	27.81	10.00	27.81	Meyerhof et al.	2.11

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.59	1.80	3.59	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	10.86	7.40	10.86	Terzaghi-Peck 1948-1967	1.92
[3] - Argille azzurre	27.81	10.00	27.81	Terzaghi-Peck 1948-1967	2.03

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.59	1.80	3.59	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	10.86	7.40	10.86	(A.G.I.)	0.33
[3] - Argille azzurre	27.81	10.00	27.81	(A.G.I.)	0.3

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.59	1.80	3.59	216.12	272.94
[2] - Formazione di Monte Adone	10.86	7.40	10.86	611.78	536.79
[3] - Argille azzurre	27.81	10.00	27.81	1480.68	953.49

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.59	1.80	3.59	Ohta & Goto (1978) Limi	83.62
[2] - Formazione di Monte Adone	10.86	7.40	10.86	Ohta & Goto (1978) Limi	138.75
[3] - Argille azzurre	27.81	10.00	27.81	Ohta & Goto (1978) Limi	184.63

Prova n. 4

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.59	1.80	3.59	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	10.86	7.40	10.86	Seed e Idriss (1971)	--
[3] - Argille azzurre	27.81	10.00	27.81	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.59	1.80	3.59		---
[2] - Formazione di Monte Adone	10.86	7.40	10.86		---
[3] - Argille azzurre	27.81	10.00	27.81		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.59	1.80	3.59		---
[2] - Formazione di Monte Adone	10.86	7.40	10.86		---
[3] - Argille azzurre	27.81	10.00	27.81		---

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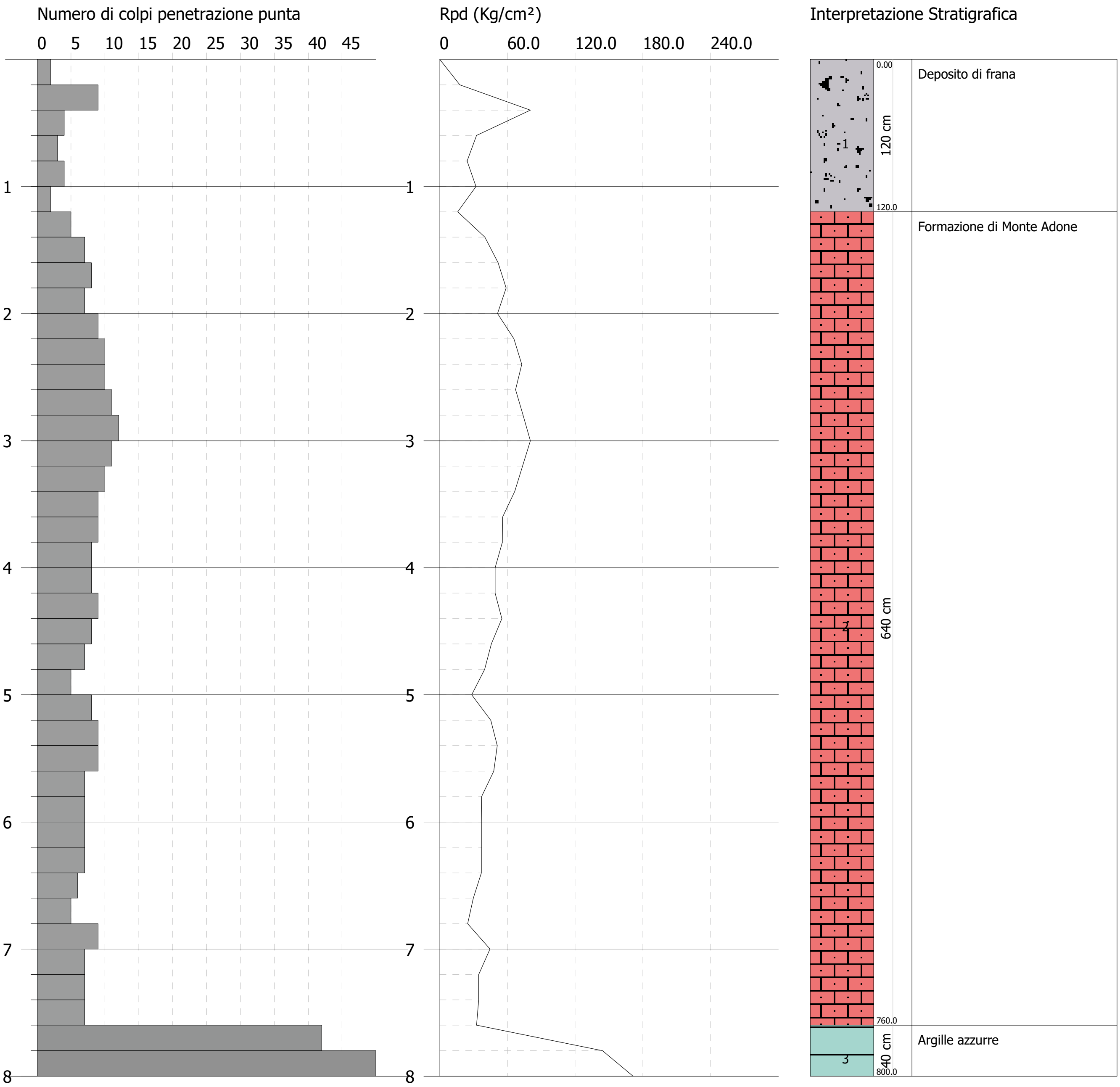
DPSH5_ms3

PROVA PENETROMETRICA DINAMICA Nr.5
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50



Prova n. 5

PROVA DPSH Nr.5

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 8.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	2	0.855	17.96	21.01	0.90	1.05
0.40	9	0.851	80.45	94.57	4.02	4.73
0.60	4	0.847	32.67	38.57	1.63	1.93
0.80	3	0.843	24.40	28.93	1.22	1.45
1.00	4	0.840	32.39	38.57	1.62	1.93
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	5	0.833	40.16	48.22	2.01	2.41
1.60	7	0.830	51.74	62.38	2.59	3.12
1.80	8	0.826	58.91	71.29	2.95	3.56
2.00	7	0.823	51.35	62.38	2.57	3.12
2.20	9	0.820	65.77	80.20	3.29	4.01
2.40	10	0.817	72.81	89.11	3.64	4.46
2.60	10	0.814	67.43	82.82	3.37	4.14
2.80	11	0.811	73.92	91.10	3.70	4.55
3.00	12	0.809	80.37	99.38	4.02	4.97
3.20	11	0.806	73.43	91.10	3.67	4.55
3.40	10	0.803	66.54	82.82	3.33	4.14
3.60	9	0.801	55.76	69.62	2.79	3.48
3.80	9	0.798	55.59	69.62	2.78	3.48
4.00	8	0.796	49.26	61.88	2.46	3.09

Prova n. 5

4.20	8	0.794	49.12	61.88	2.46	3.09
4.40	9	0.791	55.10	69.62	2.75	3.48
4.60	8	0.789	45.82	58.06	2.29	2.90
4.80	7	0.787	39.98	50.80	2.00	2.54
5.00	5	0.785	28.48	36.28	1.42	1.81
5.20	8	0.783	45.46	58.06	2.27	2.90
5.40	9	0.781	51.01	65.31	2.55	3.27
5.60	9	0.779	47.92	61.51	2.40	3.08
5.80	7	0.777	37.18	47.84	1.86	2.39
6.00	7	0.775	37.10	47.84	1.85	2.39
6.20	7	0.774	37.01	47.84	1.85	2.39
6.40	7	0.772	36.93	47.84	1.85	2.39
6.60	6	0.770	29.85	38.75	1.49	1.94
6.80	5	0.769	24.82	32.29	1.24	1.61
7.00	9	0.767	44.59	58.12	2.23	2.91
7.20	7	0.766	34.61	45.20	1.73	2.26
7.40	7	0.764	34.54	45.20	1.73	2.26
7.60	7	0.763	32.68	42.85	1.63	2.14
7.80	42	0.561	144.29	257.08	7.21	12.85
8.00	50	0.560	171.36	306.04	8.57	15.30

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.2	4	40.16	Incoerente - coesivo	0	1.81	1.89	0.11	1.47	5.88	Deposito di frana
7.6	8.06	61.79	Incoerente - coesivo	0	2.01	2.21	0.86	1.47	11.85	Formazione di Monte Adone
8	46	281.56	Incoerente - coesivo	0	2.5	2.5	1.55	1.47	67.62	Argille azzurre

STIMA PARAMETRI GEOTECNICI PROVA Nr.5

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	5.88	1.20	0.37	0.74	0.25	0.24	0.57	1.21	0.53	0.87	0.29	0.90	0.74
[2] - Formazione di Monte Adone	11.85	7.60	0.80	1.48	0.50	0.47	1.17	1.85	1.04	1.35	0.59	1.03	1.48
[3] - Argille azzurre	67.62	8.00	4.56	8.45	0.00	2.22	6.79	8.45	4.54	8.01	3.38	10.65	8.45

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.88	1.20	Robertson (1983)	11.76
[2] - Formazione di Monte Adone	11.85	7.60	Robertson (1983)	23.70
[3] - Argille azzurre	67.62	8.00	Robertson (1983)	135.24

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	5.88	1.20	26.98	88.20	61.76	73.50
[2] - Formazione di Monte Adone	11.85	7.60	54.37	--	122.66	118.50
[3] - Argille azzurre	67.62	8.00	310.24	--	691.47	676.20

Prova n. 5

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	5.88	1.20	47.22	58.80
[2] - Formazione di Monte Adone	11.85	7.60	115.88	118.50
[3] - Argille azzurre	67.62	8.00	757.23	676.20

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	5.88	1.20	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monte Adone	11.85	7.60	A.G.I. (1977)	CONSISTENTE
[3] - Argille azzurre	67.62	8.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	5.88	1.20	Meyerhof	1.81
[2] - Formazione di Monte Adone	11.85	7.60	Meyerhof	2.01
[3] - Argille azzurre	67.62	8.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	5.88	1.20	Meyerhof	1.89
[2] - Formazione di Monte Adone	11.85	7.60	Meyerhof	2.21
[3] - Argille azzurre	67.62	8.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.88	1.20		0
[2] - Formazione di Monte Adone	11.85	7.60		0
[3] - Argille azzurre	67.62	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	5.88	1.20	27.82	56.63	71.41	23.14
[2] - Formazione di Monte Adone	11.85	7.60	29.75	57.87	58.04	36.93
[3] - Argille azzurre	67.62	8.00	61.83	100	100	100

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	5.88	1.20	5.88	28.68	21.68	29.65	32.69	32.04	0	<30	24.39	28.76	34.05	25.84
[2] - Formazione di Monte Adone	11.85	7.60	11.85	30.39	23.39	31.32	29.33	34.36	36.1	<30	28.33	30.56	37.31	30.39
[3] - Argille azzurre	67.62	8.00	67.62	46.32	39.32	46.93	30.87	42.29	42	>38	46.85	47.29	49.88	51.77

Prova n. 5

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	5.88	1.20	5.88	---	47.04	---	---	---
[2] - Formazione di Monte Adone	11.85	7.60	11.85	245.71	94.80	140.53	268.88	134.25
[3] - Argille azzurre	67.62	8.00	67.62	586.96	540.96	798.62	687.15	413.10

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	5.88	1.20	5.88	---	39.54	41.75	64.22
[2] - Formazione di Monte Adone	11.85	7.60	11.85	71.10	51.80	84.14	90.85
[3] - Argille azzurre	67.62	8.00	67.62	405.72	166.36	480.10	339.59

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	5.88	1.20	5.88	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monte Adone	11.85	7.60	11.85	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Argille azzurre	67.62	8.00	67.62	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	5.88	1.20	5.88	Meyerhof et al.	1.58
[2] - Formazione di Monte Adone	11.85	7.60	11.85	Meyerhof et al.	1.79
[3] - Argille azzurre	67.62	8.00	67.62	Meyerhof et al.	2.37

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	5.88	1.20	5.88	Terzaghi-Peck 1948-1967	1.89
[2] - Formazione di Monte Adone	11.85	7.60	11.85	Terzaghi-Peck 1948-1967	1.93
[3] - Argille azzurre	67.62	8.00	67.62	Terzaghi-Peck 1948-1967	2.19

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	5.88	1.20	5.88	(A.G.I.)	0.34
[2] - Formazione di Monte Adone	11.85	7.60	11.85	(A.G.I.)	0.33
[3] - Argille azzurre	67.62	8.00	67.62	(A.G.I.)	0.22

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	5.88	1.20	5.88	343.66	368.98
[2] - Formazione di Monte Adone	11.85	7.60	11.85	664.06	566.18
[3] - Argille azzurre	67.62	8.00	67.62	3413.38	1640.91

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.88	1.20	5.88	Ohta & Goto (1978) Limi	84.22
[2] - Formazione di Monte Adone	11.85	7.60	11.85	Ohta & Goto (1978) Limi	139.66
[3] - Argille azzurre	67.62	8.00	67.62	Ohta & Goto (1978) Limi	210.81

Prova n. 5

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	5.88	1.20	5.88	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	11.85	7.60	11.85	Seed e Idriss (1971)	--
[3] - Argille azzurre	67.62	8.00	67.62	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	5.88	1.20	5.88		---
[2] - Formazione di Monte Adone	11.85	7.60	11.85		---
[3] - Argille azzurre	67.62	8.00	67.62		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.88	1.20	5.88		---
[2] - Formazione di Monte Adone	11.85	7.60	11.85		---
[3] - Argille azzurre	67.62	8.00	67.62		---

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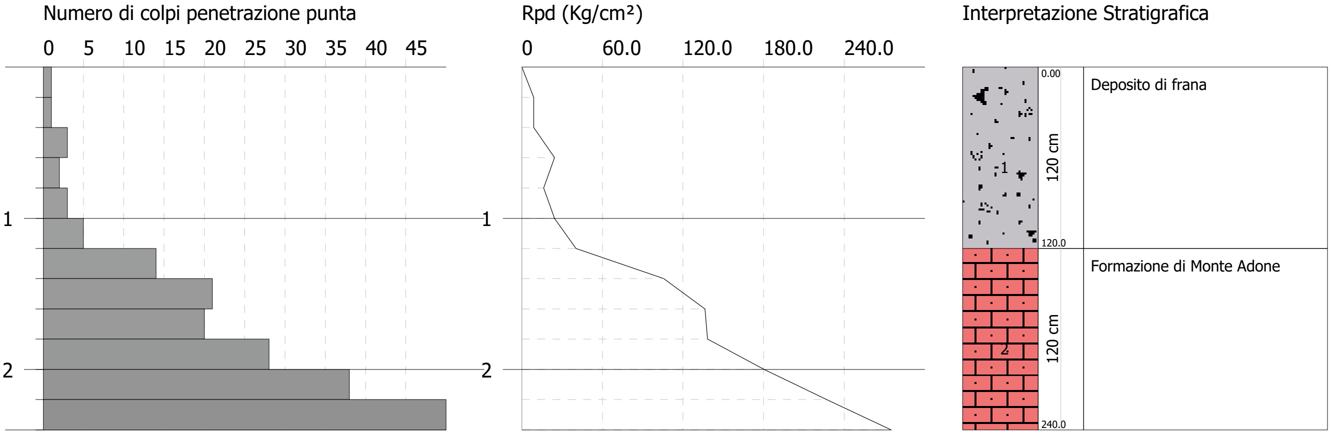
DPSH6_ms3

PROVA PENETROMETRICA DINAMICA Nr.6
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:50



Prova n. 6

PROVA DPSH Nr.6

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 2.40 mt
Falda non rilevata
Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	3	0.847	24.50	28.93	1.23	1.45
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	5	0.836	40.32	48.22	2.02	2.41
1.40	14	0.783	105.69	135.01	5.28	6.75
1.60	21	0.730	136.52	187.13	6.83	9.36
1.80	20	0.776	138.35	178.22	6.92	8.91
2.00	28	0.723	180.44	249.50	9.02	12.48
2.20	38	0.670	226.91	338.61	11.35	16.93
2.40	50	0.617	274.96	445.54	13.75	22.28

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.2	2.5	24.4	Incoerente - coesivo	0	1.68	1.87	0.1	1.47	3.68	Deposito di frana
2.4	28.5	255.67	Incoerente - coesivo	0	2.5	2.5	0.35	1.47	41.9	Formazione di Monte Adone

Prova n. 6

STIMA PARAMETRI GEOTECNICI PROVA Nr.6

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.68	1.20	0.23	0.46	0.15	0.15	0.36	0.73	0.33	0.71	0.18	0.51	0.46
[2] - Formazione di Monte Adone	41.9	2.40	2.83	5.24	0.00	1.51	4.18	7.67	3.21	4.45	2.10	7.05	5.24

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.68	1.20	Robertson (1983)	7.36
[2] - Formazione di Monte Adone	41.9	2.40	Robertson (1983)	83.80

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.68	1.20	16.88	55.20	39.33	46.00
[2] - Formazione di Monte Adone	41.9	2.40	192.24	--	429.15	419.00

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.68	1.20	21.92	36.80
[2] - Formazione di Monte Adone	41.9	2.40	461.45	419.00

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.68	1.20	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Adone	41.9	2.40	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.68	1.20	Meyerhof	1.68
[2] - Formazione di Monte Adone	41.9	2.40	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.68	1.20	Meyerhof	1.87
[2] - Formazione di Monte Adone	41.9	2.40	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.68	1.20		0
[2] - Formazione di Monte Adone	41.9	2.40		0

Prova n. 6

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.68	1.20	19.29	45.02	58.21	17.23
[2] - Formazione di Monte Adone	41.9	2.40	68.96	100	100	73.87

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.68	1.20	3.68	28.05	21.05	29.03	32.09	31.11	0	<30	22.43	28.1	29.99	23.58
[2] - Formazione di Monte Adone	41.9	2.40	41.9	38.97	31.97	39.73	33.32	41.72	42	35-38	40.07	39.57	50.27	43.95

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.68	1.20	3.68	---	29.44	---	---	---
[2] - Formazione di Monte Adone	41.9	2.40	41.9	462.04	335.20	495.12	494.25	284.50

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.68	1.20	3.68	---	35.02	26.13	54.41
[2] - Formazione di Monte Adone	41.9	2.40	41.9	251.40	113.53	297.49	224.87

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.68	1.20	3.68	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	41.9	2.40	41.9	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.68	1.20	3.68	Meyerhof et al.	1.48
[2] - Formazione di Monte Adone	41.9	2.40	41.9	Meyerhof et al.	2.21

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.68	1.20	3.68	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	41.9	2.40	41.9	Terzaghi-Peck 1948-1967	2.12

Prova n. 6

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.68	1.20	3.68	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	41.9	2.40	41.9	(A.G.I.)	0.27

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.68	1.20	3.68	221.21	277.10
[2] - Formazione di Monte Adone	41.9	2.40	41.9	2176.68	1224.85

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.68	1.20	3.68	Ohta & Goto (1978) Limi	77.66
[2] - Formazione di Monte Adone	41.9	2.40	41.9	Ohta & Goto (1978) Limi	146.23

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.68	1.20	3.68	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	41.9	2.40	41.9	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.68	1.20	3.68		---
[2] - Formazione di Monte Adone	41.9	2.40	41.9		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.68	1.20	3.68		---
[2] - Formazione di Monte Adone	41.9	2.40	41.9		---

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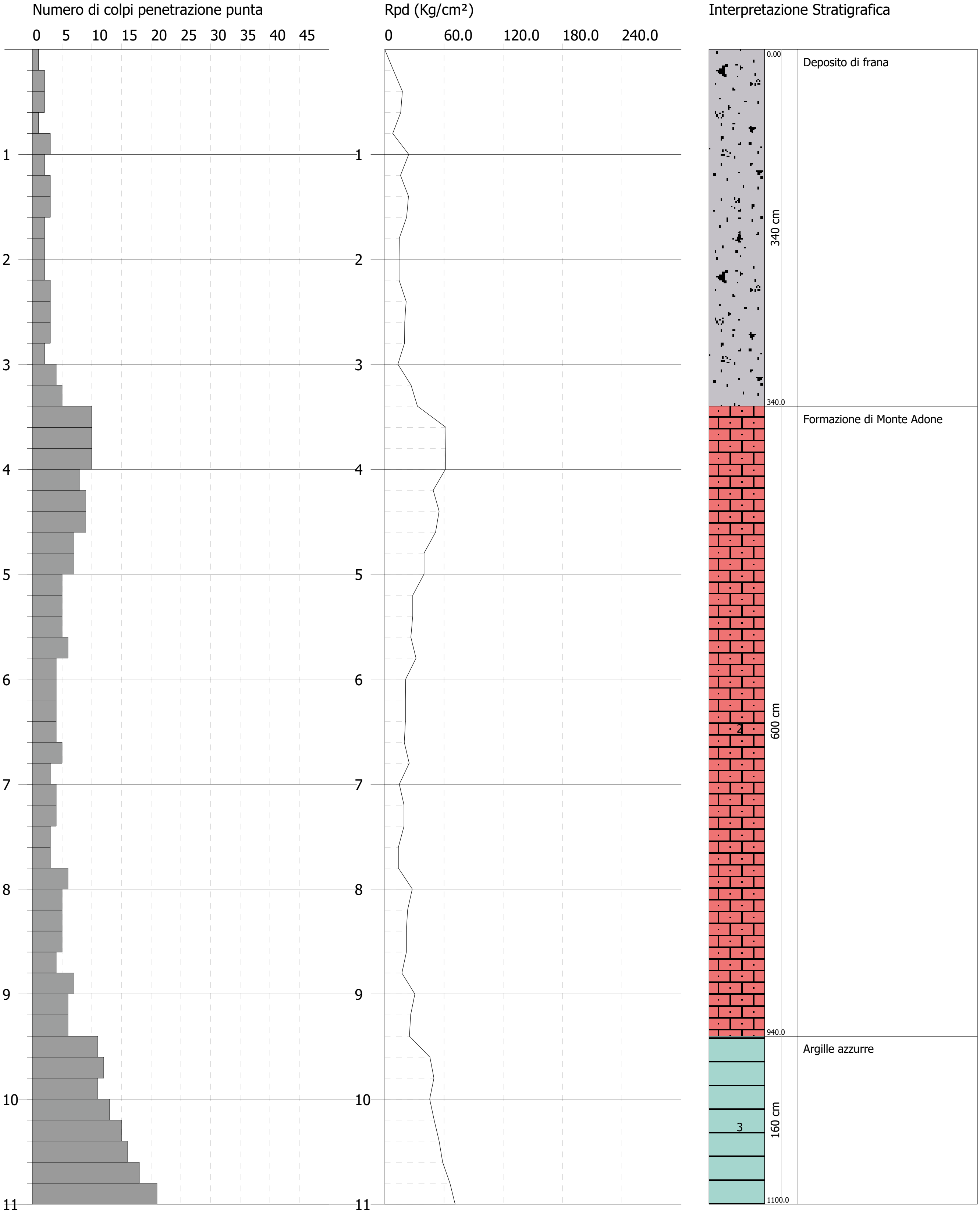
DPSH7_ms3

PROVA PENETROMETRICA DINAMICA Nr.7
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 12/02/2021

Scala 1:53



Prova n. 7

PROVA DPSH Nr.7

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 12/02/2021
Profondità prova 11.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	2	0.823	14.67	17.82	0.73	0.89
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	3	0.817	21.84	26.73	1.09	1.34
2.60	3	0.814	20.23	24.85	1.01	1.24
2.80	3	0.811	20.16	24.85	1.01	1.24
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	4	0.806	26.70	33.13	1.34	1.66
3.40	5	0.803	33.27	41.41	1.66	2.07
3.60	10	0.801	61.95	77.36	3.10	3.87
3.80	10	0.798	61.76	77.36	3.09	3.87
4.00	10	0.796	61.58	77.36	3.08	3.87

Prova n. 7

4.20	8	0.794	49.12	61.88	2.46	3.09
4.40	9	0.791	55.10	69.62	2.75	3.48
4.60	9	0.789	51.55	65.31	2.58	3.27
4.80	7	0.787	39.98	50.80	2.00	2.54
5.00	7	0.785	39.88	50.80	1.99	2.54
5.20	5	0.783	28.41	36.28	1.42	1.81
5.40	5	0.781	28.34	36.28	1.42	1.81
5.60	5	0.779	26.62	34.17	1.33	1.71
5.80	6	0.777	31.87	41.00	1.59	2.05
6.00	4	0.775	21.20	27.34	1.06	1.37
6.20	4	0.774	21.15	27.34	1.06	1.37
6.40	4	0.772	21.10	27.34	1.06	1.37
6.60	4	0.770	19.90	25.83	0.99	1.29
6.80	5	0.769	24.82	32.29	1.24	1.61
7.00	3	0.767	14.86	19.37	0.74	0.97
7.20	4	0.766	19.78	25.83	0.99	1.29
7.40	4	0.764	19.74	25.83	0.99	1.29
7.60	3	0.763	14.01	18.36	0.70	0.92
7.80	3	0.761	13.98	18.36	0.70	0.92
8.00	6	0.760	27.91	36.73	1.40	1.84
8.20	5	0.759	23.22	30.60	1.16	1.53
8.40	5	0.757	23.18	30.60	1.16	1.53
8.60	5	0.756	21.99	29.09	1.10	1.45
8.80	4	0.755	17.56	23.27	0.88	1.16
9.00	7	0.753	30.68	40.72	1.53	2.04
9.20	6	0.752	26.26	34.90	1.31	1.75
9.40	6	0.751	26.22	34.90	1.31	1.75
9.60	11	0.750	45.72	60.97	2.29	3.05
9.80	12	0.749	49.80	66.51	2.49	3.33
10.00	11	0.748	45.58	60.97	2.28	3.05
10.20	13	0.697	50.19	72.05	2.51	3.60
10.40	15	0.696	57.82	83.14	2.89	4.16
10.60	16	0.694	58.80	84.68	2.94	4.23
10.80	18	0.693	66.05	95.26	3.30	4.76
11.00	21	0.642	71.39	111.14	3.57	5.56

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.4	2.53	22.67	Incoerente - coesivo	0	1.68	1.87	0.29	1.47	3.72	Deposito di frana
9.4	5.77	39.56	Incoerente - coesivo	0	1.92	2.11	1.15	1.47	8.48	Formazione di Monte Adone
11	14.62	79.34	Incoerente - coesivo	0	2.1	2.13	1.89	1.47	21.49	Argille azzurre

STIMA PARAMETRI GEOTECNICI PROVA Nr.7

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	3.72	3.40	0.23	0.47	0.15	0.15	0.36	0.68	0.34	0.71	0.19	0.26	0.47
[2] - Formazione di Monte Adone	8.48	9.40	0.57	1.06	0.50	0.34	0.83	1.19	0.76	1.08	0.42	0.23	1.06
[3] - Argille azzurre	21.49	11.00	1.45	2.69	1.00	0.83	2.13	2.38	1.81	2.22	1.07	2.19	2.69

Prova n. 7

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.72	3.40	Robertson (1983)	7.44
[2] - Formazione di Monte Adone	8.48	9.40	Robertson (1983)	16.96
[3] - Argille azzurre	21.49	11.00	Robertson (1983)	42.98

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.72	3.40	17.07	55.80	39.73	46.50
[2] - Formazione di Monte Adone	8.48	9.40	38.91	--	88.28	106.00
[3] - Argille azzurre	21.49	11.00	98.60	--	220.98	214.90

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.72	3.40	22.38	37.20
[2] - Formazione di Monte Adone	8.48	9.40	77.12	84.80
[3] - Argille azzurre	21.49	11.00	226.74	214.90

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.72	3.40	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Adone	8.48	9.40	A.G.I. (1977)	CONSISTENTE
[3] - Argille azzurre	21.49	11.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.72	3.40	Meyerhof	1.68
[2] - Formazione di Monte Adone	8.48	9.40	Meyerhof	1.92
[3] - Argille azzurre	21.49	11.00	Meyerhof	2.10

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.72	3.40	Meyerhof	1.87
[2] - Formazione di Monte Adone	8.48	9.40	Meyerhof	2.11
[3] - Argille azzurre	21.49	11.00	Meyerhof	2.13

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.72	3.40		0
[2] - Formazione di Monte Adone	8.48	9.40		0
[3] - Argille azzurre	21.49	11.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.72	3.40	16.32	40.8	44.54	17.34
[2] - Formazione di Monte Adone	8.48	9.40	20.32	44.99	45.87	29.53
[3] - Argille azzurre	21.49	11.00	31.5	60.48	62.76	53.38

Prova n. 7

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.72	3.40	3.72	28.06	21.06	29.04	29.85	31.13	0	<30	22.47	28.12	29.38	23.63
[2] - Formazione di Monte Adone	8.48	9.40	8.48	29.42	22.42	30.37	28.16	33.08	0	<30	26.28	29.54	33.3	28.02
[3] - Argille azzurre	21.49	11.00	21.49	33.14	26.14	34.02	28.59	37.51	36.47	30-32	32.95	33.45	38.59	35.73

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.72	3.40	3.72	---	29.76	---	---	---
[2] - Formazione di Monte Adone	8.48	9.40	8.48	---	67.84	100.76	---	---
[3] - Argille azzurre	21.49	11.00	21.49	330.89	171.92	254.28	341.17	182.45

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.72	3.40	3.72	---	35.11	26.41	54.59
[2] - Formazione di Monte Adone	8.48	9.40	8.48	---	44.88	60.21	75.82
[3] - Argille azzurre	21.49	11.00	21.49	128.94	71.61	152.58	133.85

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.72	3.40	3.72	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	8.48	9.40	8.48	Classificazione A.G.I	POCO ADDENSATO
[3] - Argille azzurre	21.49	11.00	21.49	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.72	3.40	3.72	Meyerhof et al.	1.48
[2] - Formazione di Monte Adone	8.48	9.40	8.48	Meyerhof et al.	1.68
[3] - Argille azzurre	21.49	11.00	21.49	Meyerhof et al.	2.02

Peso unità di Volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.72	3.40	3.72	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	8.48	9.40	8.48	Terzaghi-Peck 1948-1967	1.91
[3] - Argille azzurre	21.49	11.00	21.49	Terzaghi-Peck 1948-1967	1.99

Prova n. 7

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.72	3.40	3.72	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	8.48	9.40	8.48	(A.G.I.)	0.34
[3] - Argille azzurre	21.49	11.00	21.49	(A.G.I.)	0.31

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.72	3.40	3.72	223.47	278.94
[2] - Formazione di Monte Adone	8.48	9.40	8.48	484.85	461.49
[3] - Argille azzurre	21.49	11.00	21.49	1162.03	814.53

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.72	3.40	3.72	Ohta & Goto (1978) Limi	95.13
[2] - Formazione di Monte Adone	8.48	9.40	8.48	Ohta & Goto (1978) Limi	141.69
[3] - Argille azzurre	21.49	11.00	21.49	Ohta & Goto (1978) Limi	182.08

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.72	3.40	3.72	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	8.48	9.40	8.48	Seed e Idriss (1971)	--
[3] - Argille azzurre	21.49	11.00	21.49	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.72	3.40	3.72		---
[2] - Formazione di Monte Adone	8.48	9.40	8.48		---
[3] - Argille azzurre	21.49	11.00	21.49		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.72	3.40	3.72		---
[2] - Formazione di Monte Adone	8.48	9.40	8.48		---
[3] - Argille azzurre	21.49	11.00	21.49		---

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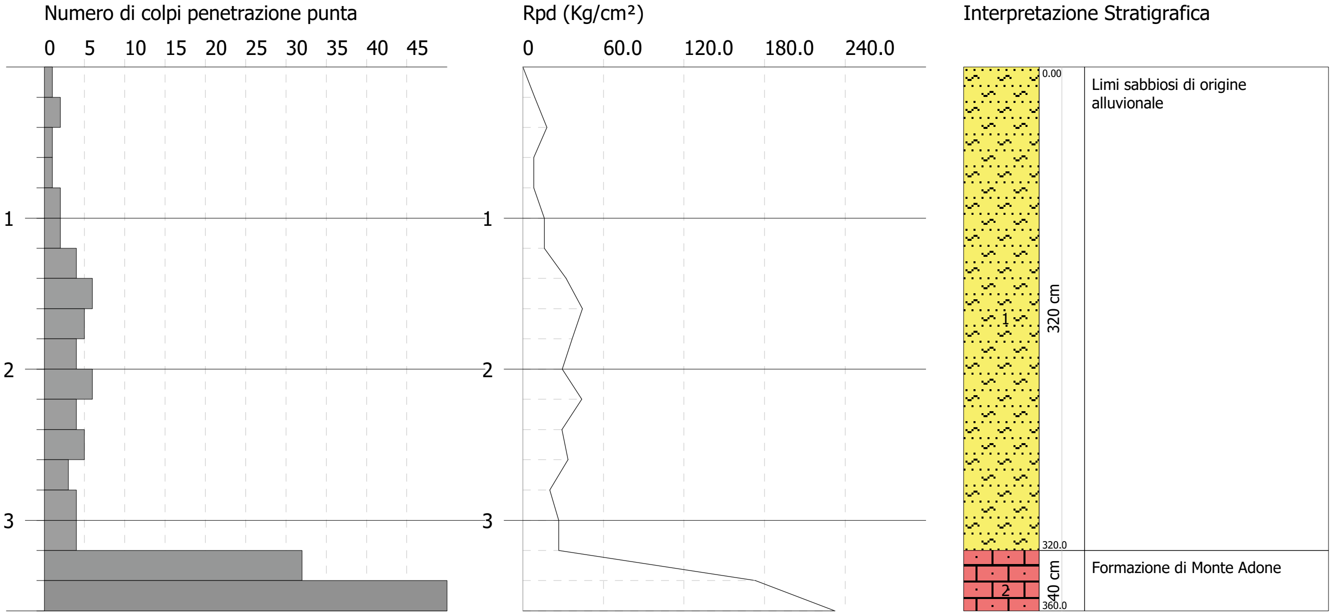
DPSH8_ms3

PROVA PENETROMETRICA DINAMICA Nr.8
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 8

PROVA DPSH Nr.8

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 3.60 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	4	0.833	32.13	38.57	1.61	1.93
1.60	6	0.830	44.35	53.47	2.22	2.67
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	4	0.823	29.34	35.64	1.47	1.78
2.20	6	0.820	43.85	53.47	2.19	2.67
2.40	4	0.817	29.13	35.64	1.46	1.78
2.60	5	0.814	33.72	41.41	1.69	2.07
2.80	3	0.811	20.16	24.85	1.01	1.24
3.00	4	0.809	26.79	33.13	1.34	1.66
3.20	4	0.806	26.70	33.13	1.34	1.66
3.40	32	0.653	173.16	265.01	8.66	13.25
3.60	50	0.601	232.40	386.78	11.62	19.34

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.2	3.38	30.2	Incoerente - coesivo	0	1.76	1.88	0.28	1.47	4.97	Limi sabbiosi di origine alluvionale
3.6	41	325.9	Incoerente - coesivo	0	2.5	2.5	0.61	1.47	60.27	Formazione di Monte Adone

Prova n. 8

STIMA PARAMETRI GEOTECNICI PROVA Nr.8

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	0.31	0.62	0.25	0.20	0.48	0.91	0.45	0.80	0.25	0.49	0.62
[2] - Formazione di Monte Adone	60.27	3.60	4.07	7.53	0.00	2.03	6.04	9.78	4.21	6.91	3.01	10.12	7.53

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	Robertson (1983)	9.94
[2] - Formazione di Monte Adone	60.27	3.60	Robertson (1983)	120.54

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	22.80	74.55	52.48	62.13
[2] - Formazione di Monte Adone	60.27	3.60	276.52	--	616.51	602.70

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	36.76	49.70
[2] - Formazione di Monte Adone	60.27	3.60	672.71	602.70

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monte Adone	60.27	3.60	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	Meyerhof	1.76
[2] - Formazione di Monte Adone	60.27	3.60	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	Meyerhof	1.88
[2] - Formazione di Monte Adone	60.27	3.60	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20		0
[2] - Formazione di Monte Adone	60.27	3.60		0

Prova n. 8

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	21.45	47.25	51.34	20.75
[2] - Formazione di Monte Adone	60.27	3.60	73.57	100	100	90.36

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	28.42	21.42	29.39	30.35	31.66	0	<30	23.63	28.49	31.93	24.97
[2] - Formazione di Monte Adone	60.27	3.60	60.27	44.22	37.22	44.88	32.7	42.66	42	>38	45.07	45.08	52.45	49.72

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	---	39.76	---	---	---
[2] - Formazione di Monte Adone	60.27	3.60	60.27	554.14	482.16	711.89	632.03	376.35

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	---	37.67	35.29	60.17
[2] - Formazione di Monte Adone	60.27	3.60	60.27	361.62	151.26	427.92	306.80

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monte Adone	60.27	3.60	60.27	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	Meyerhof et al.	1.54
[2] - Formazione di Monte Adone	60.27	3.60	60.27	Meyerhof et al.	2.29

Prova n. 8

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	Terzaghi-Peck 1948-1967	1.89
[2] - Formazione di Monte Adone	60.27	3.60	60.27	Terzaghi-Peck 1948-1967	2.17

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	(A.G.I.)	0.34
[2] - Formazione di Monte Adone	60.27	3.60	60.27	(A.G.I.)	0.23

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	293.42	332.95
[2] - Formazione di Monte Adone	60.27	3.60	60.27	3063.43	1529.51

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	Ohta & Goto (1978) Limi	98.85
[2] - Formazione di Monte Adone	60.27	3.60	60.27	Ohta & Goto (1978) Limi	176.06

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	60.27	3.60	60.27	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97		---
[2] - Formazione di Monte Adone	60.27	3.60	60.27		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Limi sabbiosi di origine alluvionale	4.97	3.20	4.97		---
[2] - Formazione di Monte Adone	60.27	3.60	60.27		---

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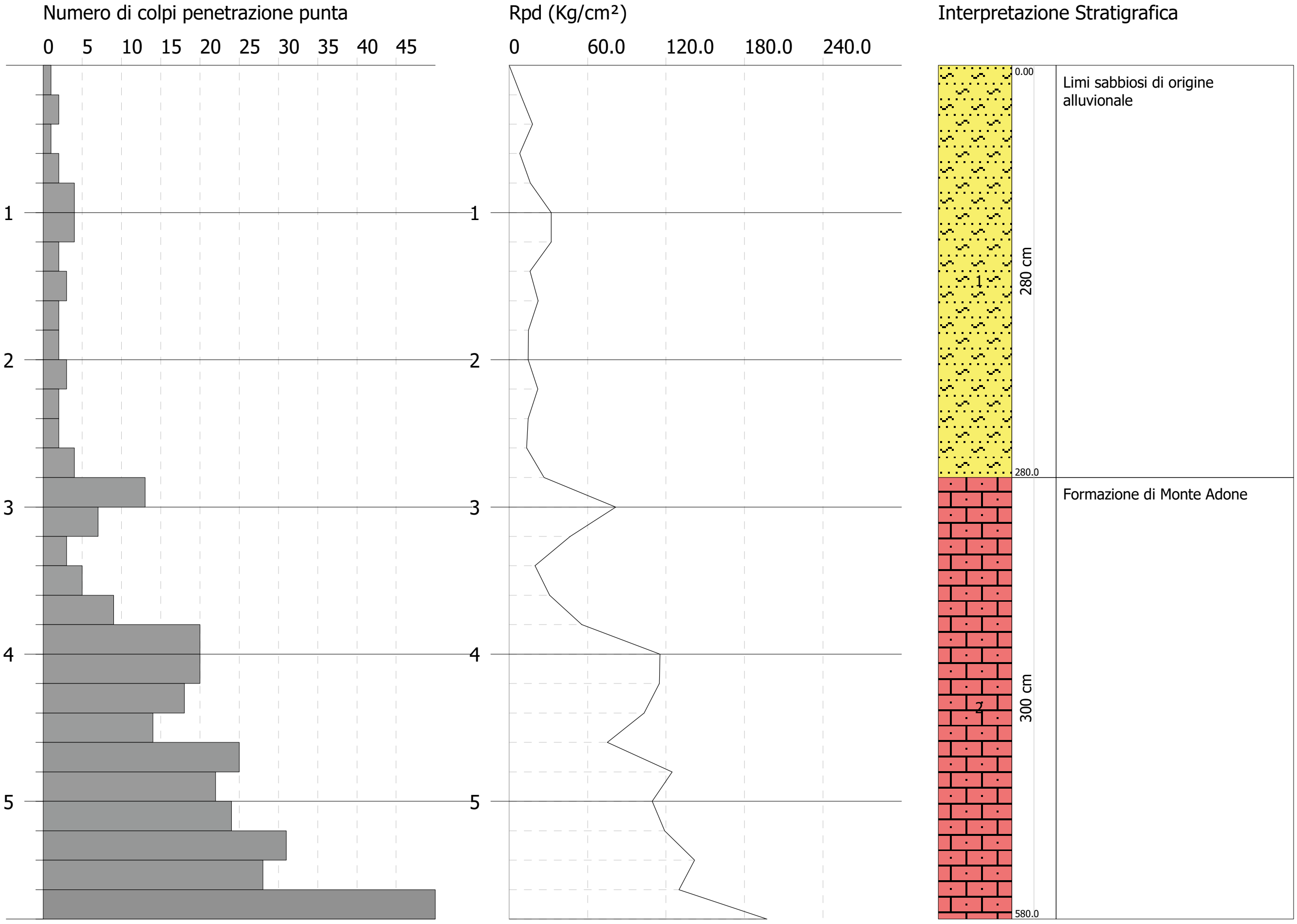
DPSH9_ms3

PROVA PENETROMETRICA DINAMICA Nr.9
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 9

PROVA DPSH Nr.9

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 5.80 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	4	0.840	32.39	38.57	1.62	1.93
1.20	4	0.836	32.26	38.57	1.61	1.93
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	2	0.823	14.67	17.82	0.73	0.89
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	2	0.814	13.49	16.56	0.67	0.83
2.80	4	0.811	26.88	33.13	1.34	1.66
3.00	13	0.759	81.68	107.66	4.08	5.38
3.20	7	0.806	46.73	57.97	2.34	2.90
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	5	0.801	30.98	38.68	1.55	1.93
3.80	9	0.798	55.59	69.62	2.78	3.48
4.00	20	0.746	115.42	154.71	5.77	7.74
4.20	20	0.744	115.06	154.71	5.75	7.74
4.40	18	0.741	103.24	139.24	5.16	6.96
4.60	14	0.739	75.10	101.60	3.76	5.08
4.80	25	0.687	124.66	181.42	6.23	9.07
5.00	22	0.685	109.37	159.65	5.47	7.98
5.20	24	0.683	118.96	174.17	5.95	8.71
5.40	31	0.631	141.96	224.96	7.10	11.25
5.60	28	0.679	129.96	191.36	6.50	9.57
5.80	50	0.577	197.26	341.71	9.86	17.09

Prova n. 9

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
2.8	2.43	22.39	Incoerente - coesivo	0	1.67	1.87	0.23	1.47	3.57	Limi sabbiosi di origine alluvionale
5.8	19.27	141.49	Incoerente - coesivo	0	2.14	2.32	0.79	1.47	28.33	Formazione di Monte Adone

STIMA PARAMETRI GEOTECNICI PROVA Nr.9

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	0.22	0.45	0.15	0.15	0.35	0.67	0.33	0.70	0.18	0.30	0.45
[2] - Formazione di Monte Adone	28.33	5.80	1.91	3.54	1.00	1.07	2.82	4.25	2.32	2.91	1.42	4.17	3.54

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	Robertson (1983)	7.14
[2] - Formazione di Monte Adone	28.33	5.80	Robertson (1983)	56.66

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	16.38	53.55	38.20	44.63
[2] - Formazione di Monte Adone	28.33	5.80	129.98	--	290.74	283.30

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	20.66	35.70
[2] - Formazione di Monte Adone	28.33	5.80	305.40	283.30

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Adone	28.33	5.80	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	Meyerhof	1.67
[2] - Formazione di Monte Adone	28.33	5.80	Meyerhof	2.14

Prova n. 9

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	Meyerhof	1.87
[2] - Formazione di Monte Adone	28.33	5.80	Meyerhof	2.32

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80		0
[2] - Formazione di Monte Adone	28.33	5.80		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	16.44	41.06	46.02	16.92
[2] - Formazione di Monte Adone	28.33	5.80	50.01	91.61	90.07	61.76

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	28.02	21.02	29	30.22	31.06	0	<30	22.32	28.07	29.22	23.45
[2] - Formazione di Monte Adone	28.33	5.80	28.33	35.09	28.09	35.93	30.93	39.29	40.83	32-35	35.61	35.5	45.2	38.8

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	---	28.56	---	---	---
[2] - Formazione di Monte Adone	28.33	5.80	28.33	379.92	226.64	334.99	392.48	216.65

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	---	34.80	25.35	53.92
[2] - Formazione di Monte Adone	28.33	5.80	28.33	169.98	85.66	201.14	164.35

Prova n. 9

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	28.33	5.80	28.33	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m^3)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	Meyerhof et al.	1.48
[2] - Formazione di Monte Adone	28.33	5.80	28.33	Meyerhof et al.	2.12

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m^3)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Adone	28.33	5.80	28.33	Terzaghi-Peck 1948-1967	2.03

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	28.33	5.80	28.33	(A.G.I.)	0.3

Modulo di deformazione a taglio dinamico (Kg/cm^2)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	214.99	272.01
[2] - Formazione di Monte Adone	28.33	5.80	28.33	1506.69	964.35

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	Ohta & Goto (1978) Limi	90.98
[2] - Formazione di Monte Adone	28.33	5.80	28.33	Ohta & Goto (1978) Limi	161.67

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	28.33	5.80	28.33	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57		---
[2] - Formazione di Monte Adone	28.33	5.80	28.33		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm^2)
[1] - Limi sabbiosi di origine alluvionale	3.57	2.80	3.57		---
[2] - Formazione di Monte Adone	28.33	5.80	28.33		---

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tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

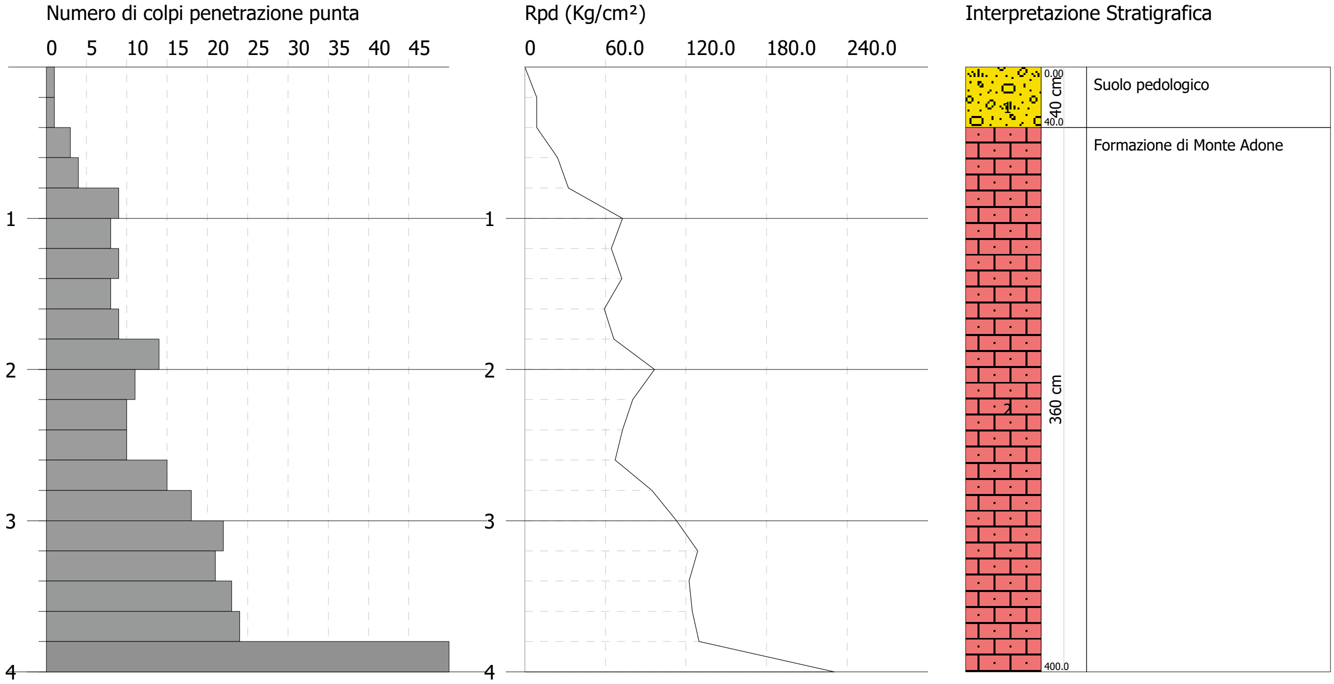
DPSH10_ms3

PROVA PENETROMETRICA DINAMICA Nr.10
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Pianoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 10

PROVA DPSH Nr.10

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 4.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	3	0.847	24.50	28.93	1.23	1.45
0.80	4	0.843	32.53	38.57	1.63	1.93
1.00	9	0.840	72.88	86.79	3.64	4.34
1.20	8	0.836	64.52	77.15	3.23	3.86
1.40	9	0.833	72.29	86.79	3.61	4.34
1.60	8	0.830	59.14	71.29	2.96	3.56
1.80	9	0.826	66.27	80.20	3.31	4.01
2.00	14	0.773	96.46	124.75	4.82	6.24
2.20	11	0.820	80.39	98.02	4.02	4.90
2.40	10	0.817	72.81	89.11	3.64	4.46
2.60	10	0.814	67.43	82.82	3.37	4.14
2.80	15	0.761	94.59	124.23	4.73	6.21
3.00	18	0.759	113.10	149.07	5.65	7.45
3.20	22	0.706	128.63	182.20	6.43	9.11
3.40	21	0.703	122.33	173.92	6.12	8.70
3.60	23	0.701	124.70	177.92	6.23	8.90
3.80	24	0.698	129.66	185.65	6.48	9.28
4.00	50	0.596	230.53	386.78	11.53	19.34

Prova n. 10

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
0.4	1	10.51	Incoerente - coesivo	0	1.52	1.85	0.03	1.47	1.47	Suolo pedologico
4	14.89	124.68	Incoerente - coesivo	0	2.11	2.14	0.44	1.47	21.89	Formazione di Monte Adone

STIMA PARAMETRI GEOTECNICI PROVA Nr.10

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Suolo pedologico	1.47	0.40	0.09	0.18	0.00	0.06	0.14	0.32	0.14	0.55	0.07	0.22	0.18
[2] - Formazione di Monte Adone	21.89	4.00	1.48	2.74	1.00	0.84	2.17	3.74	1.84	2.26	1.09	3.31	2.74

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Suolo pedologico	1.47	0.40	Robertson (1983)	2.94
[2] - Formazione di Monte Adone	21.89	4.00	Robertson (1983)	43.78

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Suolo pedologico	1.47	0.40	6.74	22.05	16.79	18.38
[2] - Formazione di Monte Adone	21.89	4.00	100.43	--	225.06	218.90

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Suolo pedologico	1.47	0.40	-3.50	14.70
[2] - Formazione di Monte Adone	21.89	4.00	231.34	218.90

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Suolo pedologico	1.47	0.40	A.G.I. (1977)	PRIVO DI CONSISTENZA
[2] - Formazione di Monte Adone	21.89	4.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Suolo pedologico	1.47	0.40	Meyerhof	1.52
[2] - Formazione di Monte Adone	21.89	4.00	Meyerhof	2.11

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Suolo pedologico	1.47	0.40	Meyerhof	1.85
[2] - Formazione di Monte Adone	21.89	4.00	Meyerhof	2.14

Prova n. 10

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Suolo pedologico	1.47	0.40		0
[2] - Formazione di Monte Adone	21.89	4.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Suolo pedologico	1.47	0.40	5.82	29.79	51.39	10.79
[2] - Formazione di Monte Adone	21.89	4.00	49.82	92	92.75	53.93

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Suolo pedologico	1.47	0.40	1.47	27.42	20.42	28.41	33.21	30.14	0	<30	19.7	27.44	22.25	20.42
[2] - Formazione di Monte Adone	21.89	4.00	21.89	33.25	26.25	34.13	31.78	37.62	40.88	30-32	33.12	33.57	44.27	35.92

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Suolo pedologico	1.47	0.40	1.47	---	11.76	---	---	---
[2] - Formazione di Monte Adone	21.89	4.00	21.89	333.96	175.12	259.00	344.17	184.45

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Suolo pedologico	1.47	0.40	1.47	---	30.48	10.44	44.56
[2] - Formazione di Monte Adone	21.89	4.00	21.89	131.34	72.43	155.42	135.63

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Suolo pedologico	1.47	0.40	1.47	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Adone	21.89	4.00	21.89	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Suolo pedologico	1.47	0.40	1.47	Meyerhof et al.	1.38
[2] - Formazione di Monte Adone	21.89	4.00	21.89	Meyerhof et al.	2.03

Prova n. 10

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Suolo pedologico	1.47	0.40	1.47	Terzaghi-Peck 1948-1967	1.87
[2] - Formazione di Monte Adone	21.89	4.00	21.89	Terzaghi-Peck 1948-1967	1.99

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Suolo pedologico	1.47	0.40	1.47	(A.G.I.)	0.35
[2] - Formazione di Monte Adone	21.89	4.00	21.89	(A.G.I.)	0.31

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Suolo pedologico	1.47	0.40	1.47	93.37	158.18
[2] - Formazione di Monte Adone	21.89	4.00	21.89	1182.35	823.76

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Suolo pedologico	1.47	0.40	1.47	Ohta & Goto (1978) Limi	53.6
[2] - Formazione di Monte Adone	21.89	4.00	21.89	Ohta & Goto (1978) Limi	135.85

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Suolo pedologico	1.47	0.40	1.47	Seed e Idriss (1971)	--
[2] - Formazione di Monte Adone	21.89	4.00	21.89	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

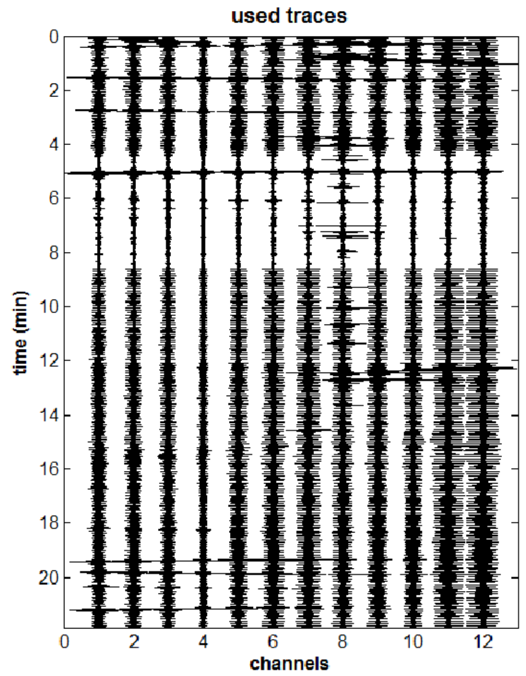
	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Suolo pedologico	1.47	0.40	1.47		---
[2] - Formazione di Monte Adone	21.89	4.00	21.89		---

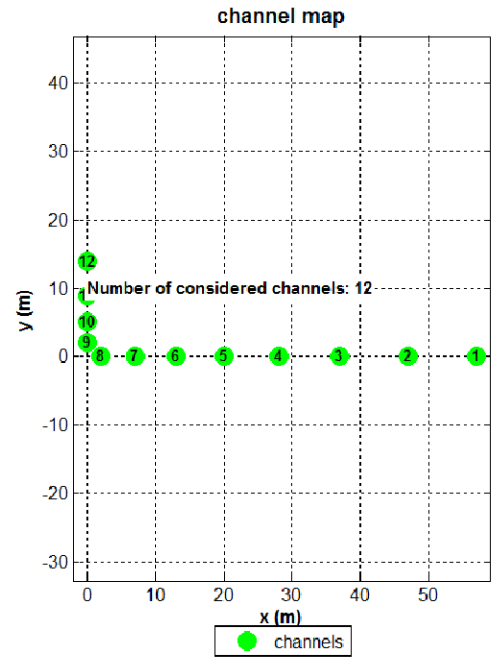
Qc (Resistenza punta Penetrometro Statico)

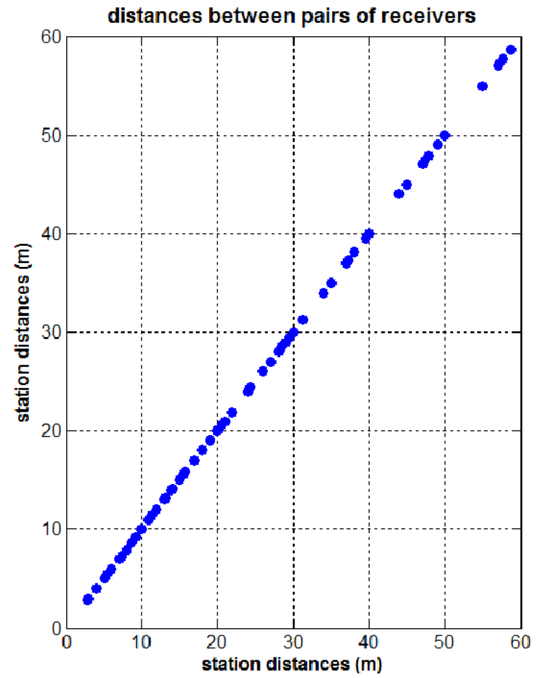
	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Suolo pedologico	1.47	0.40	1.47		---
[2] - Formazione di Monte Adone	21.89	4.00	21.89		---

MASW5_MS3 - ESAC5_MS3

ACQUISIZIONE ESAC

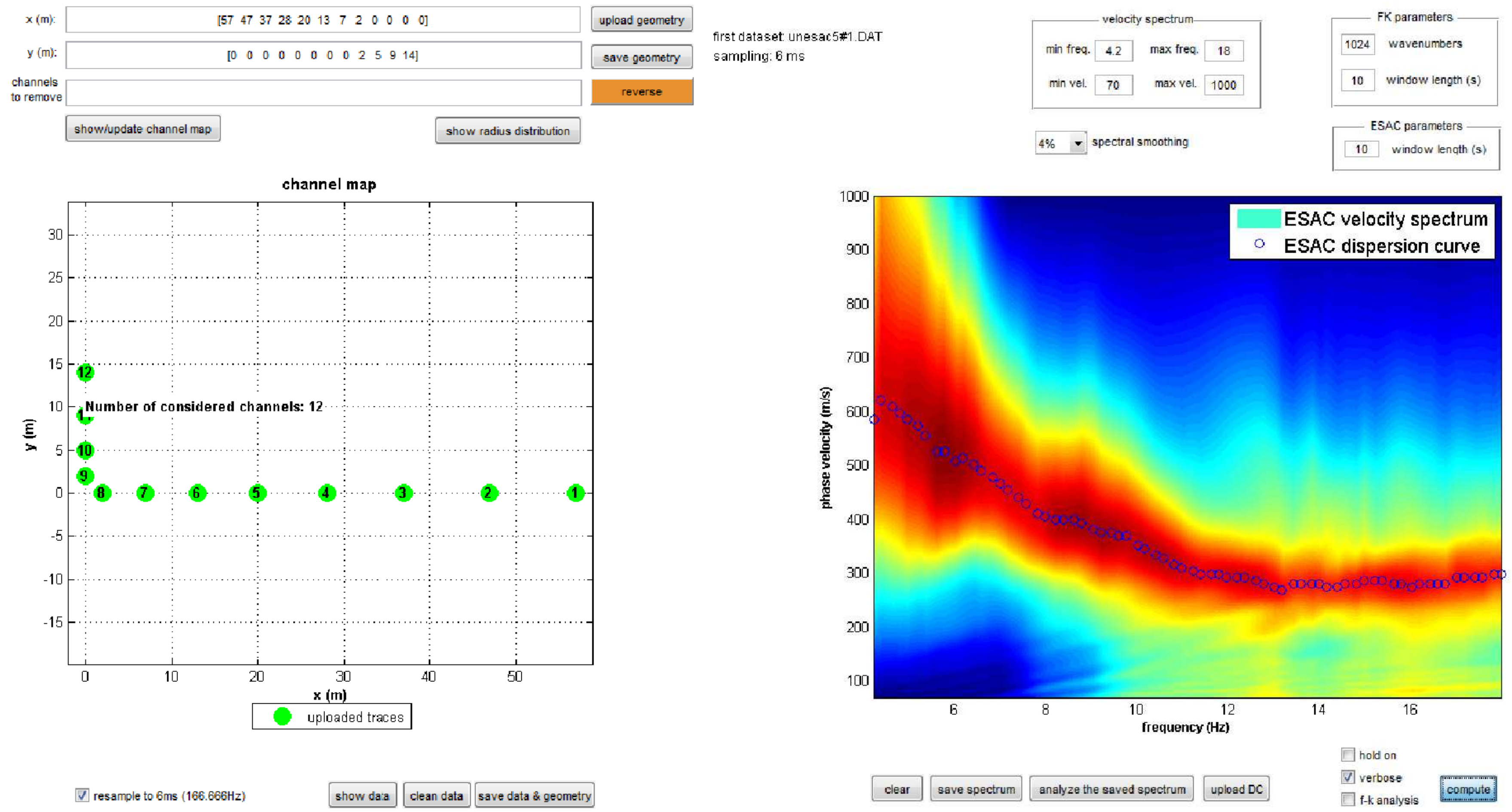






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

Stendimento ESAC5



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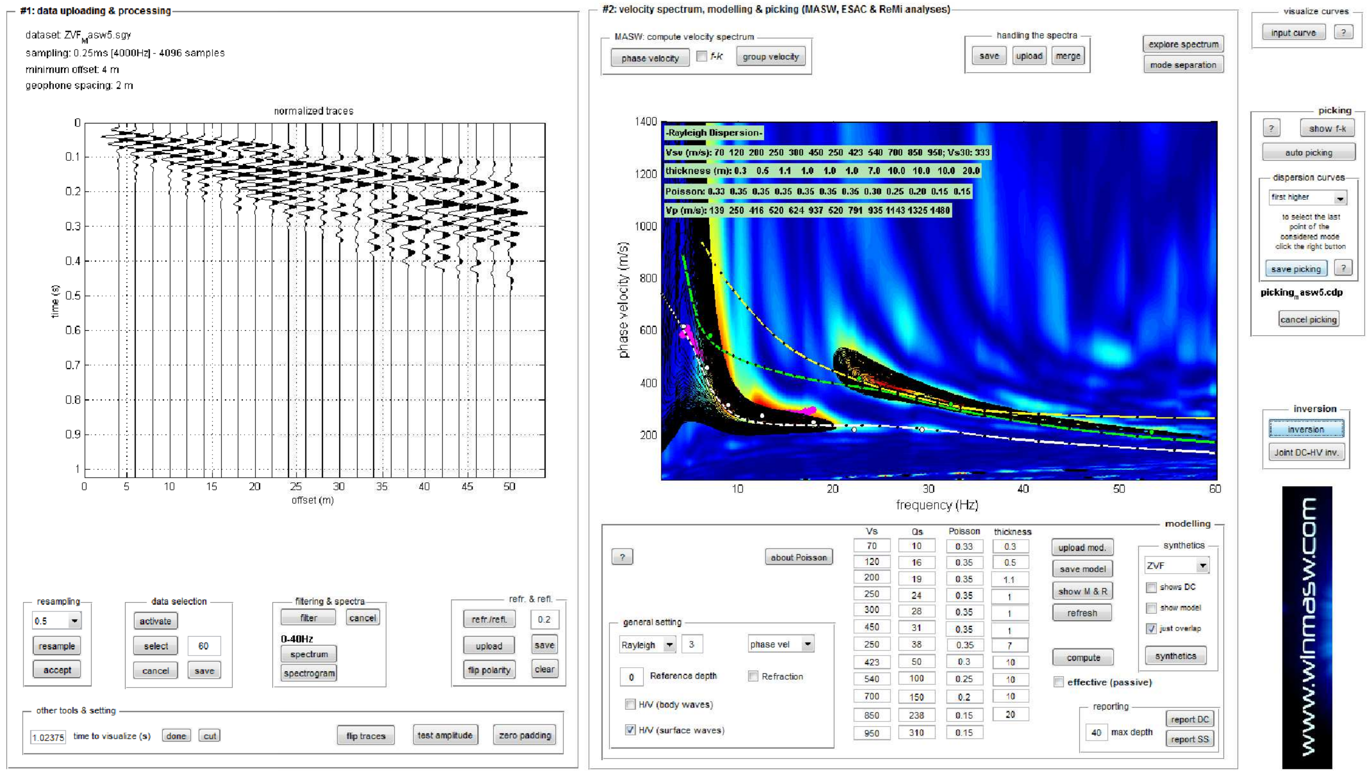
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 5 - ESAC 5

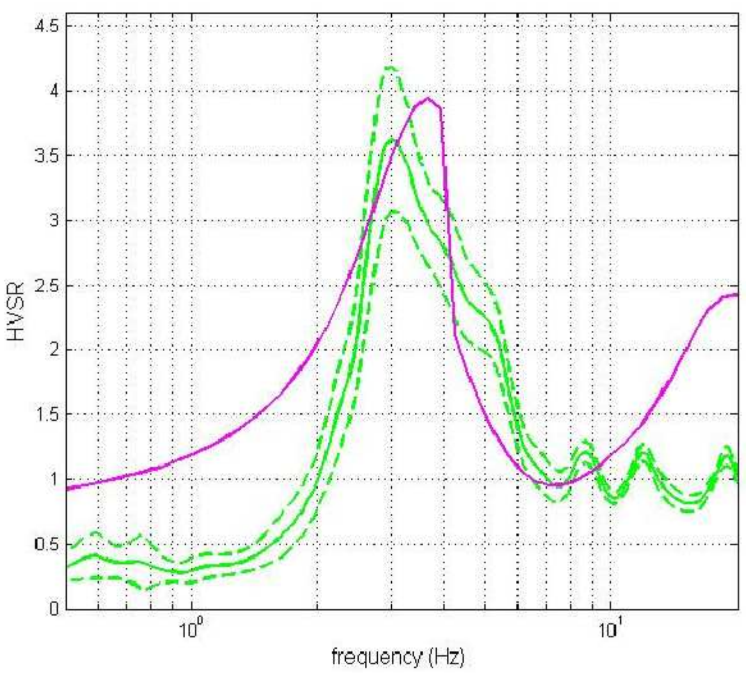
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

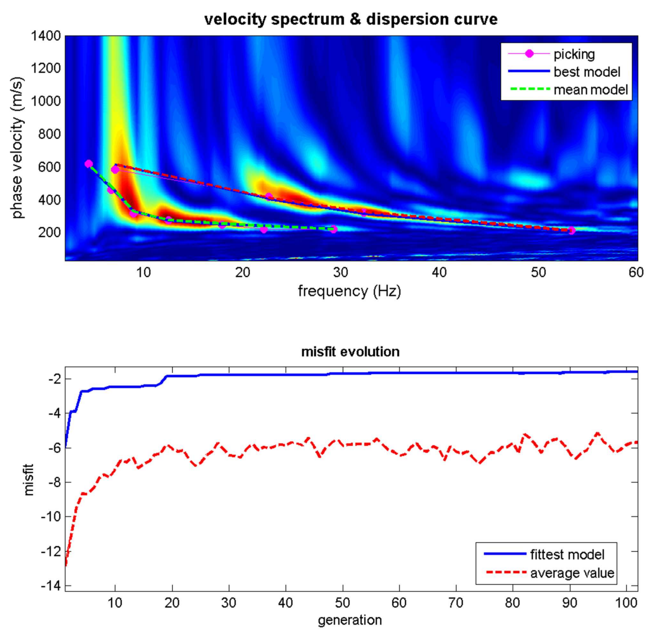


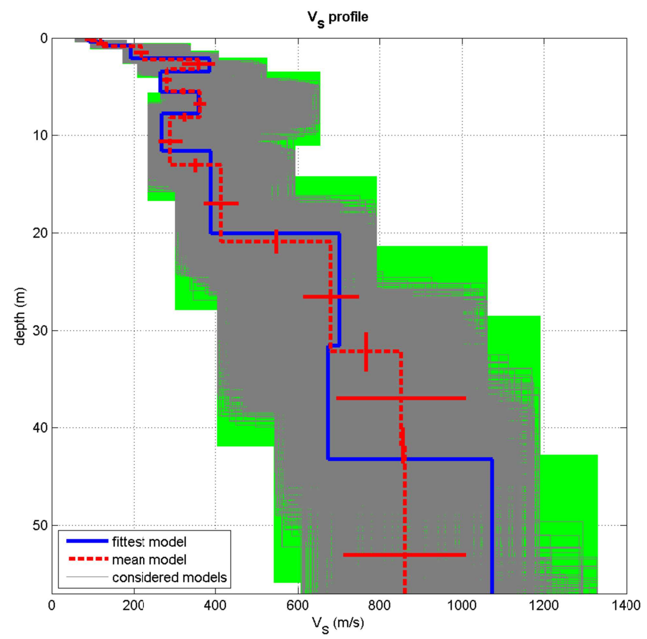
Stendimento MASW 5

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR5 – MASW5 – ESAC5







dataset: ZVF_M asw5.sgy
dispersion curve: picking_m asw5.cdp
Vs30 (best model): 366 m/s
Vs30 (mean model): 368 m/s

www.winmasw.com

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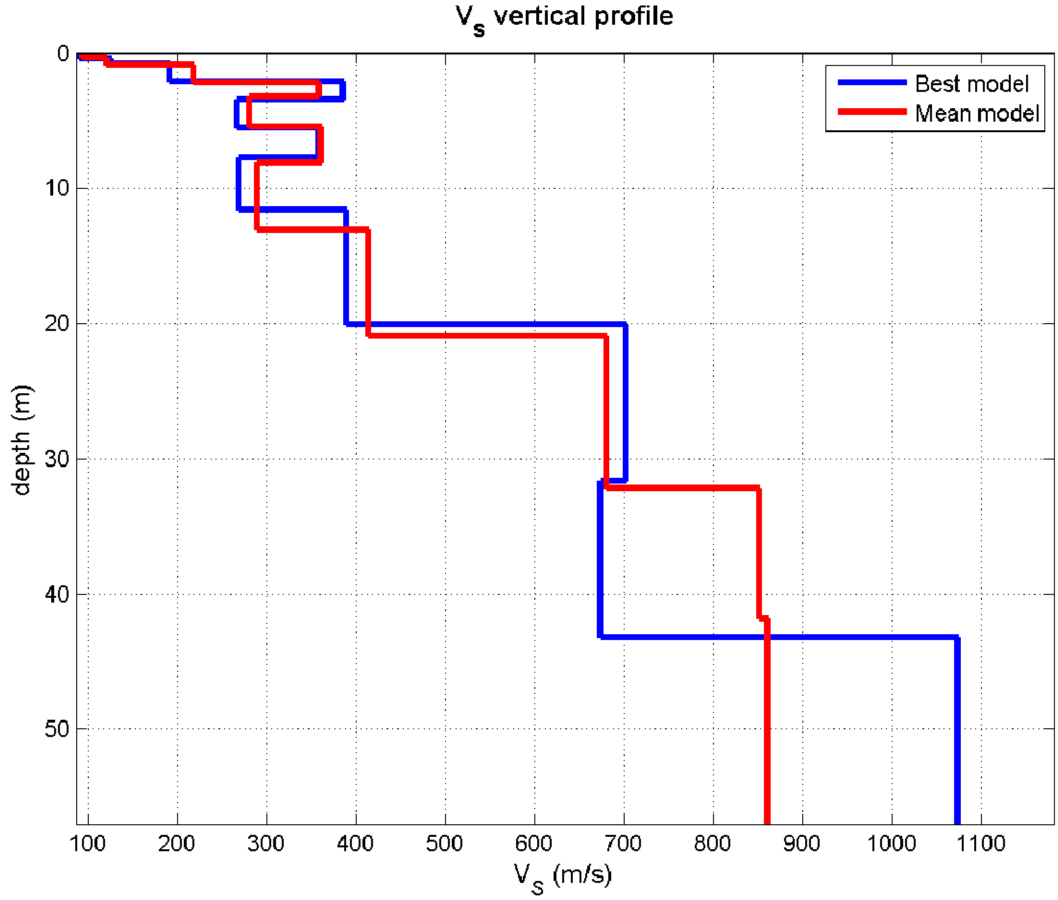
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 5 - ESAC 5

PROFILO DI VELOCITA' MASW 5 — ESAC 5



Vs (m/s):94, 122, 219, 359, 282, 362, 290, 414, 681, 852, 861, 837
Standard deviations (m/s):13, 12, 19, 40, 10, 15, 29, 42, 68, 158, 149, 140

Thickness (m):0.3, 0.6, 1.3, 1.0, 2.2, 2.7, 4.9, 7.8, 11.3, 9.6, 22.6
Standard deviations (m/s):0.0, 0.1, 0.1, 0.2, 0.3, 0.4, 0.7, 1.2, 2.0, 1.8, 3.9

Density (gr/cm3) (approximate values):1.661.721.811.951.892.001.921.972.092.132.132.12
Seismic/Dynamic Shear modulus (MPa) (approximate values):1526872511502621623389671547157814 85

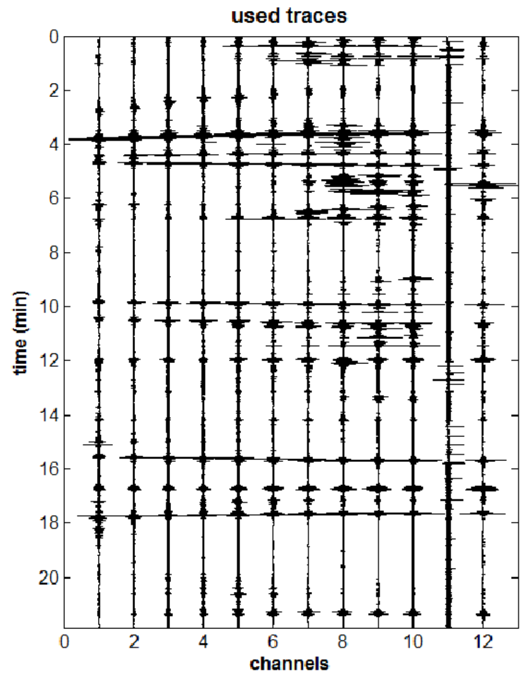
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):192251370639504794586715113713751361 1314
Poisson:0.340.350.230.270.270.370.340.250.220.190.170.16

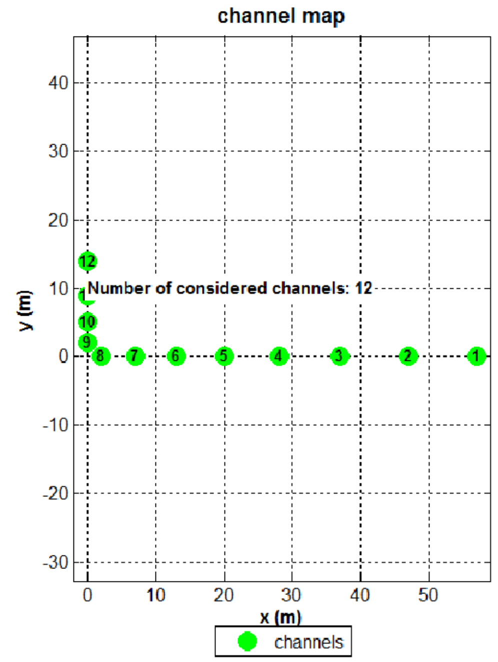
Vs30 (m/s): 368

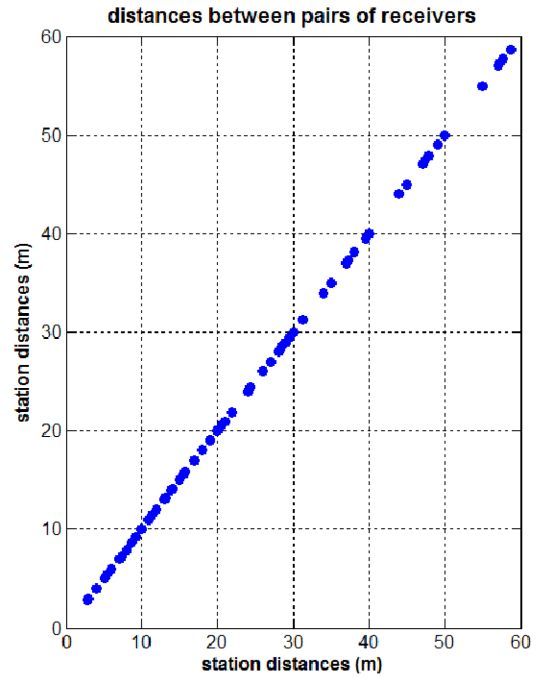
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

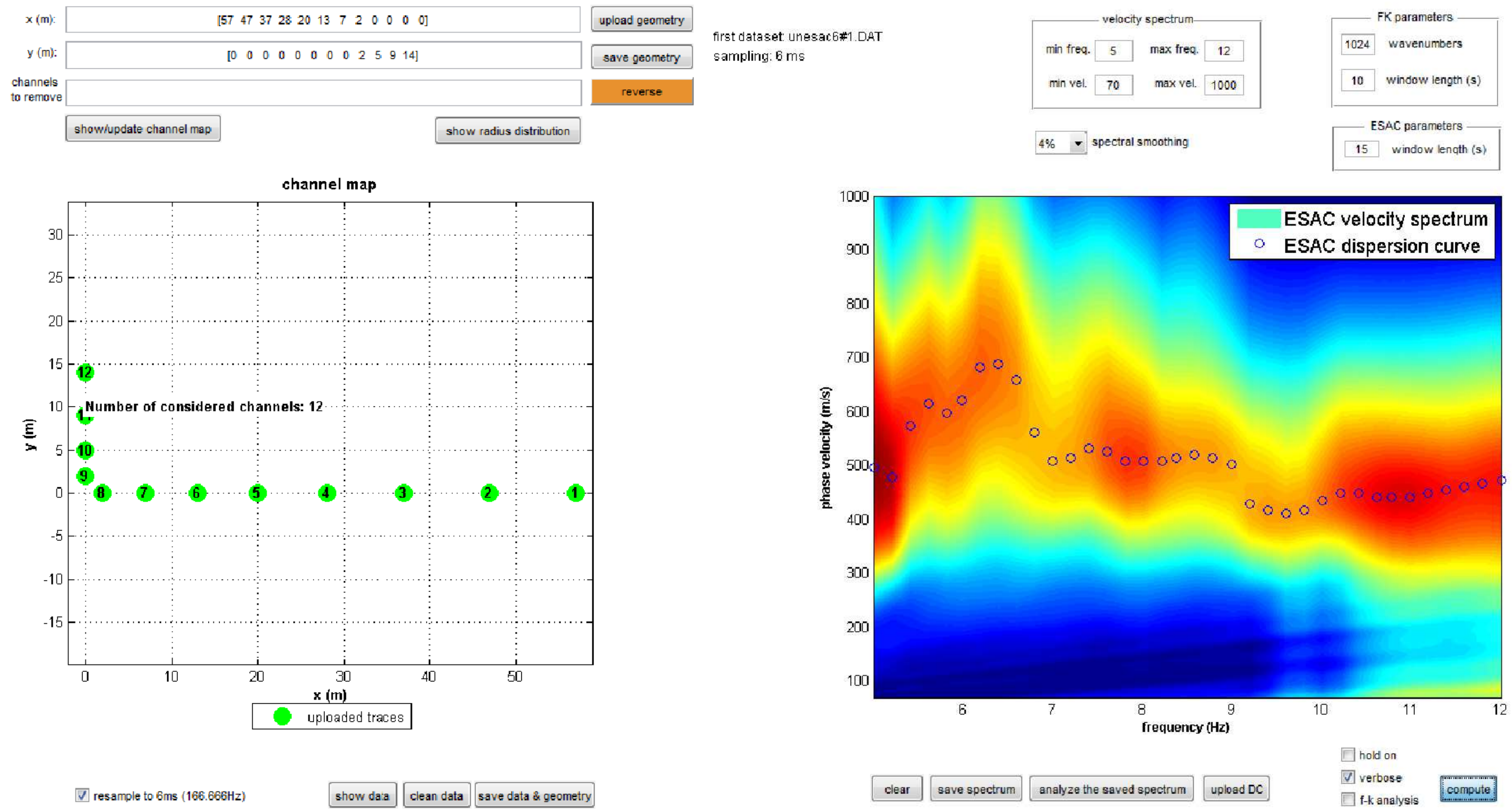
MASW6_MS3 - ESAC6_MS3







SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

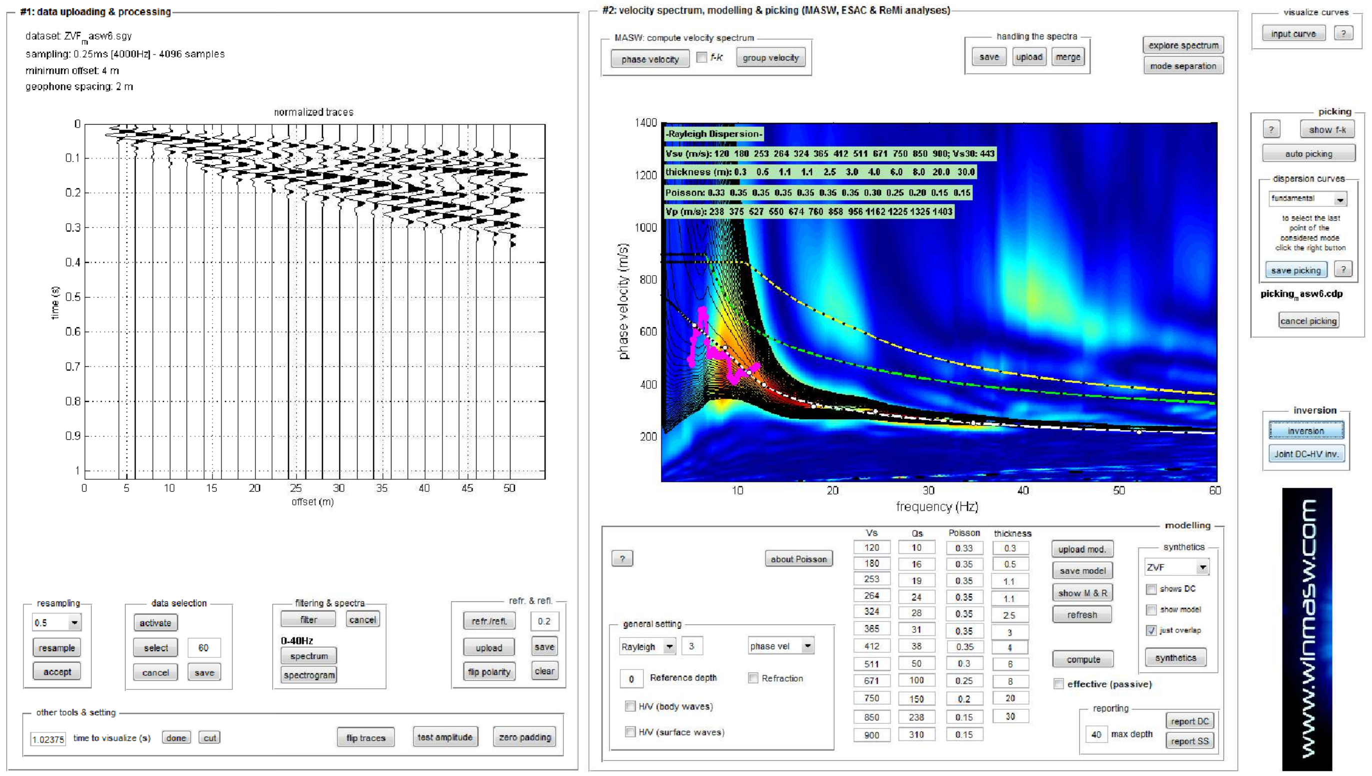


Stendimento ESAC6

GEOLOGICA TOSCANA s.n.c.

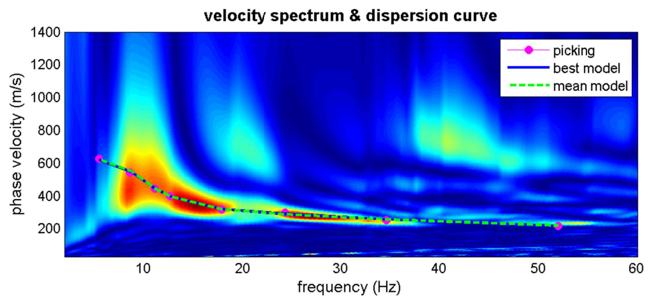
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 6 - ESAC 6

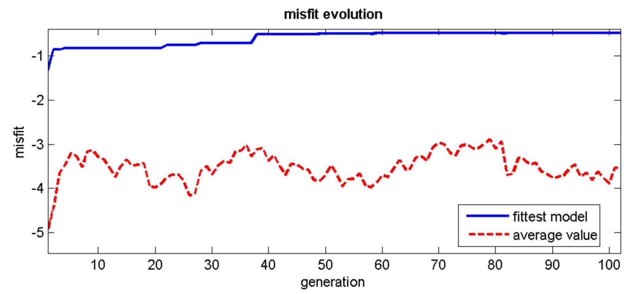
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

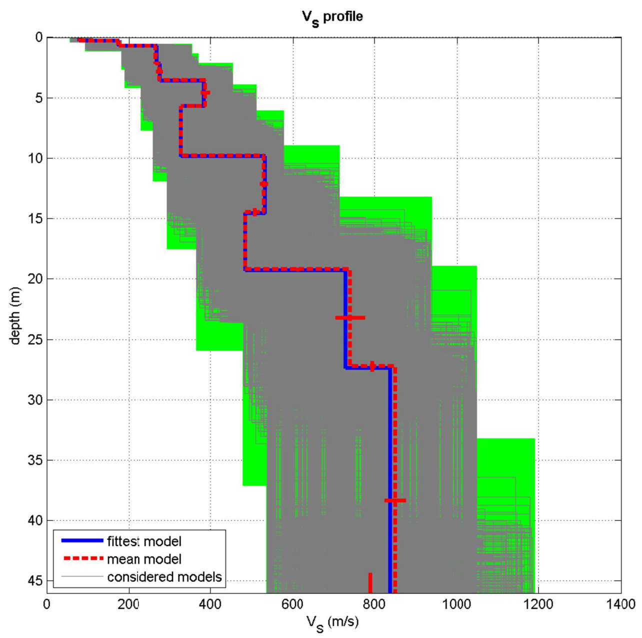


Stendimento MASW 6

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







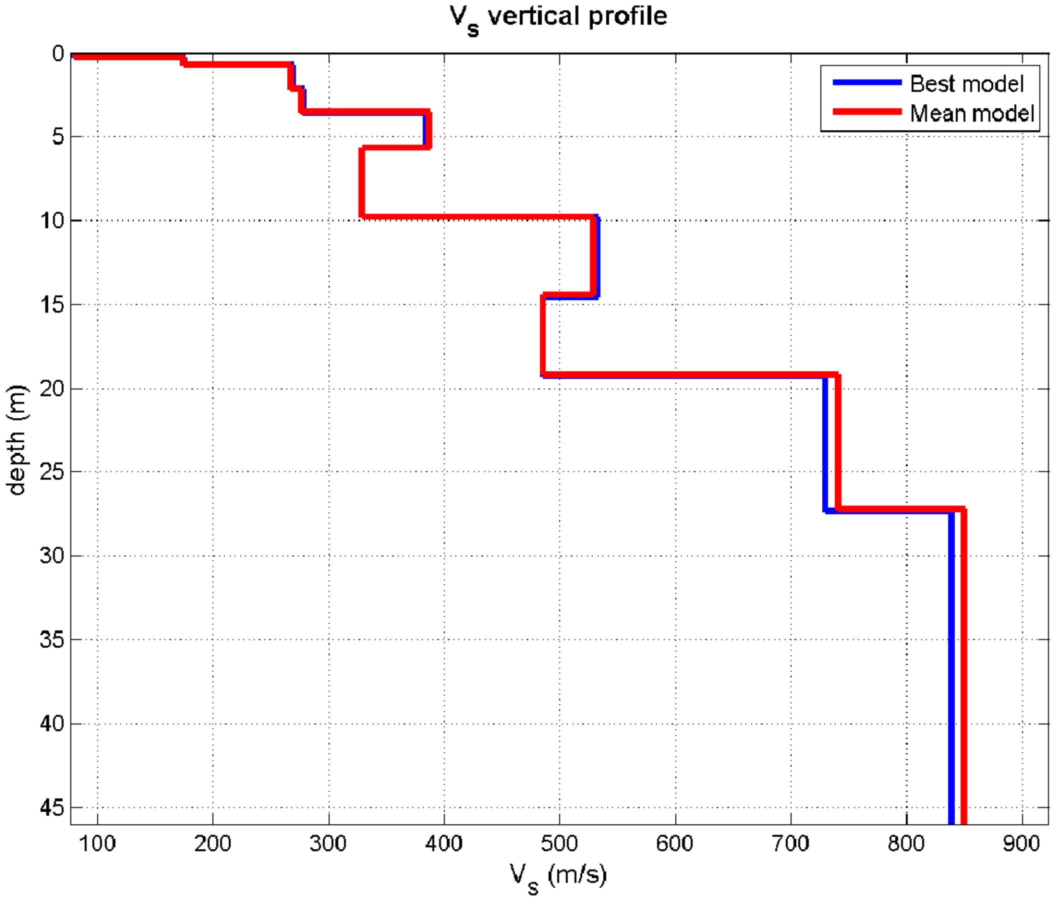
www.winmasw.com

dataset: ZVF_masw6.sgy
dispersion curve: picking_masw6.cdp
Vs30 (best model): 444 m/s
Vs30 (mean model): 446 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 6 - ESAC 6

PROFILO DI VELOCITA' MASW 6 — ESAC 6



Vs (m/s):81, 174, 267, 276, 387, 329, 529, 485, 741, 850, 730, 892
Standard deviations (m/s):4, 4, 4, 8, 10, 0, 9, 1, 36, 25, 26, 92

Thickness (m):0.3, 0.4, 1.5, 1.4, 2.1, 4.1, 4.7, 4.7, 8.0, 22.2, 34.1
Standard deviations (m/s):0.0, 0.0, 0.1, 0.1, 0.1, 0.0, 0.3, 0.1, 0.4, 5.1, 6.5

Density (gr/cm3) (approximate values):1.591.851.891.882.071.972.062.012.112.142.082.13
Seismic/Dynamic Shear modulus (MPa) (approximate values):10561351433102135774731160154811101697

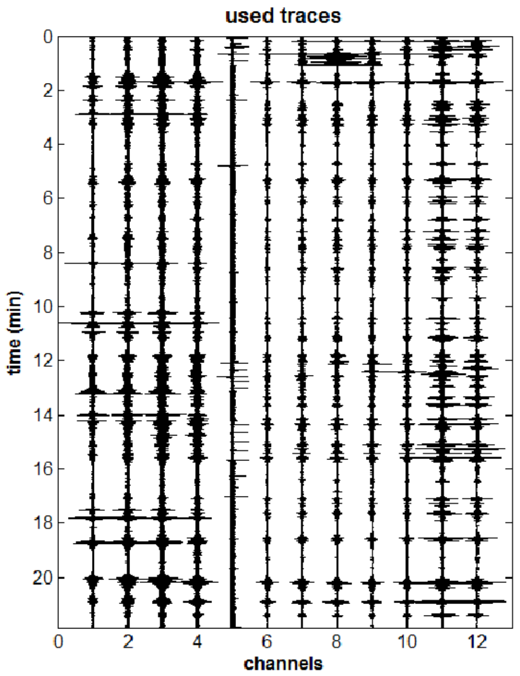
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):148430517481107569410318301273143711241384
Poisson:0.290.400.320.250.430.360.320.240.240.230.140.14

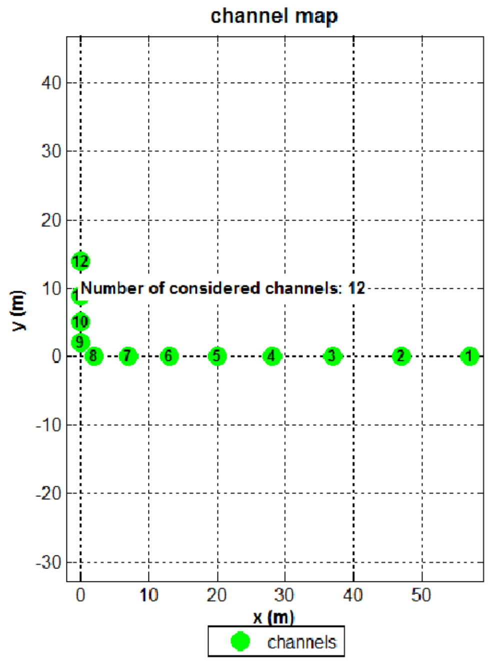
Vs30 (m/s): 446

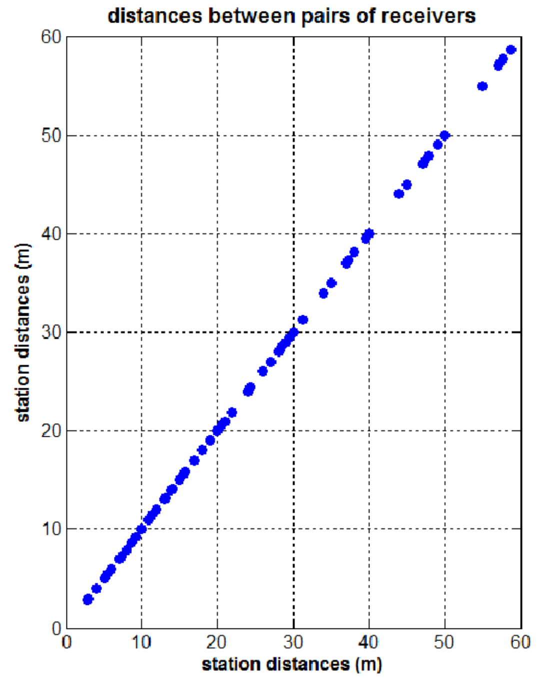
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW7_MS3 - ESAC7_MS3

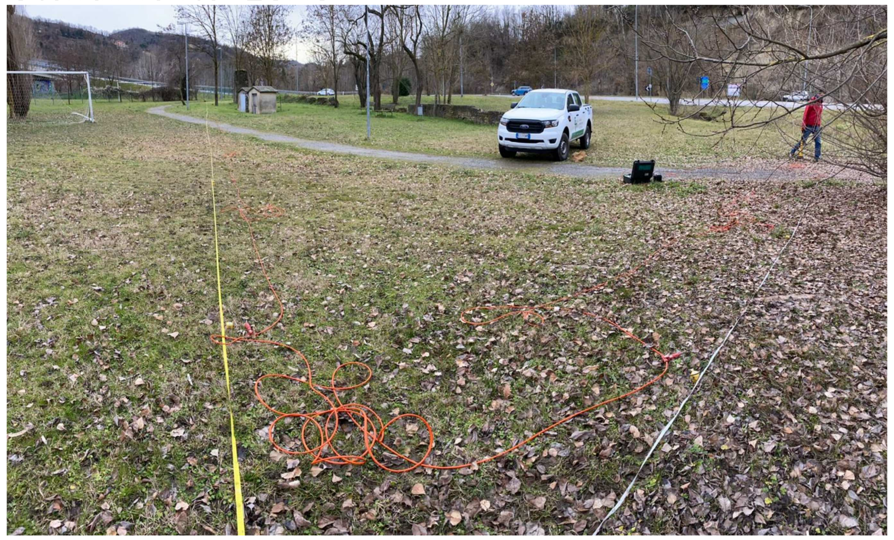


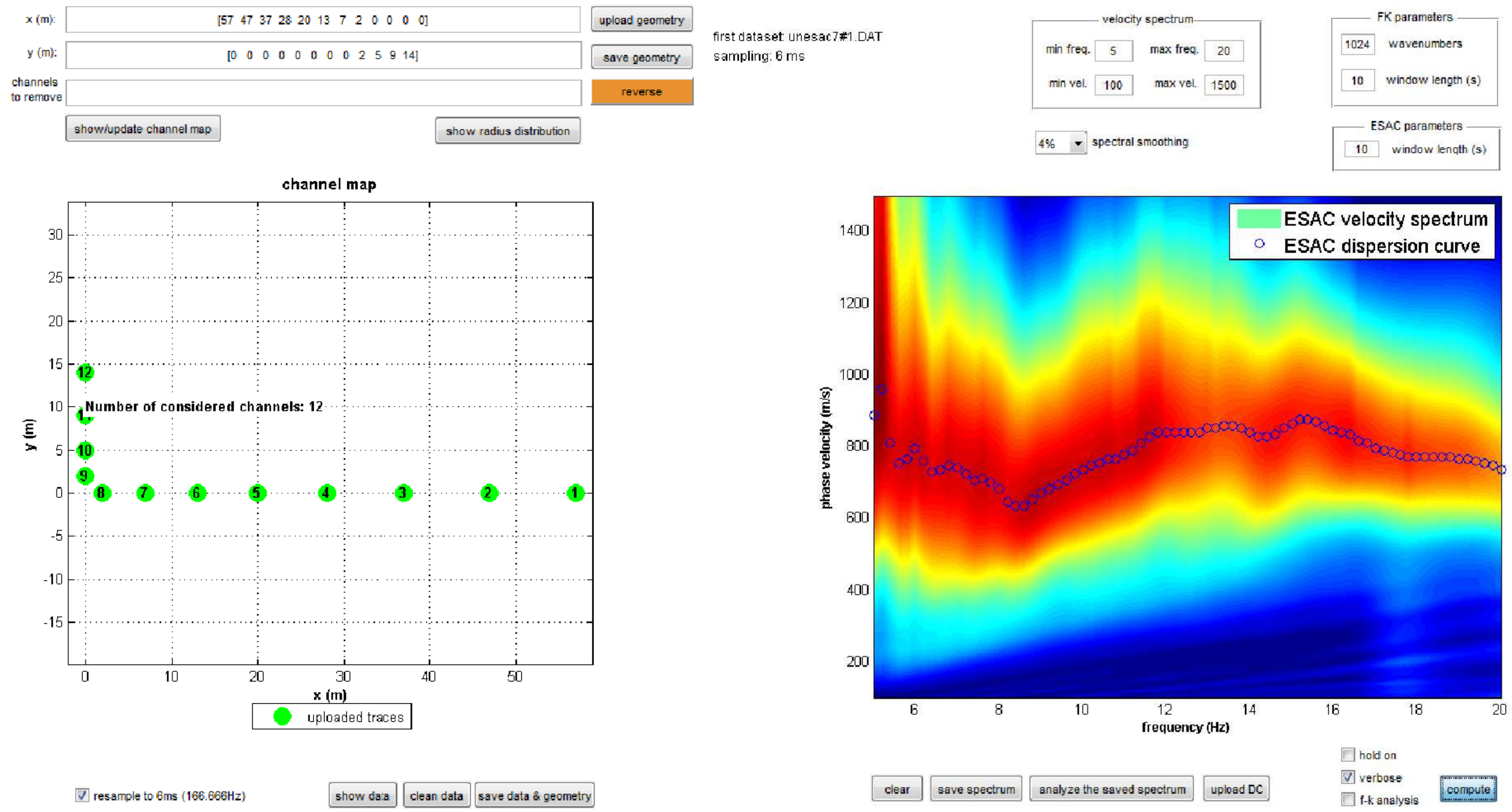




SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

Stendimento ESAC7





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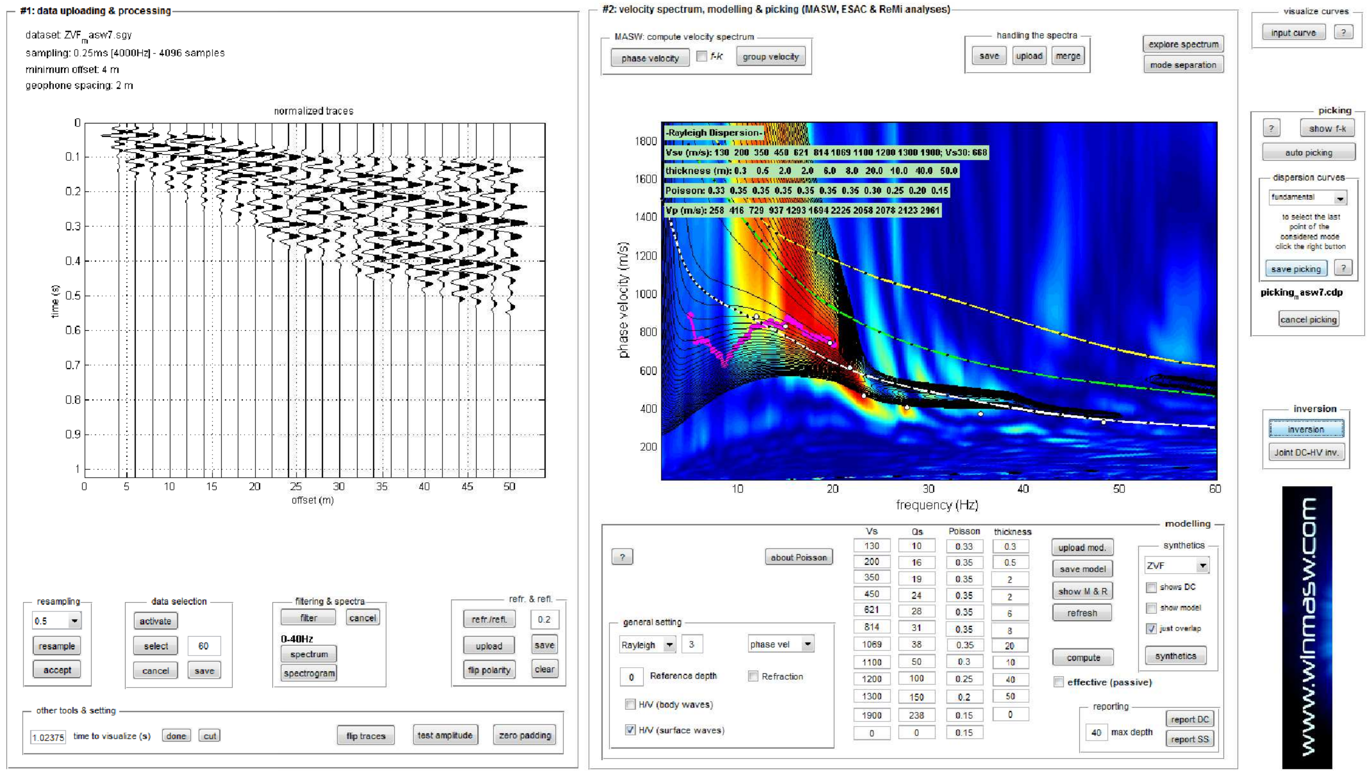
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 7 - ESAC 7

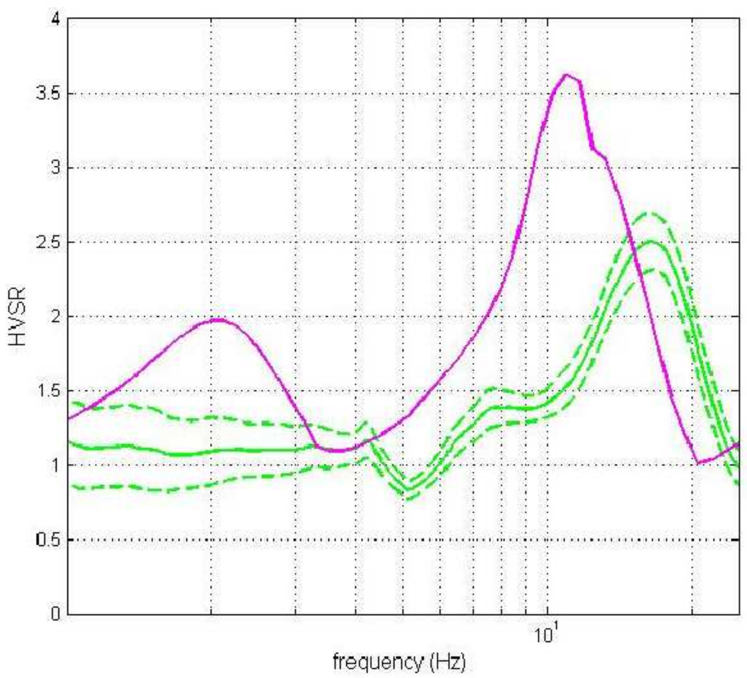
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

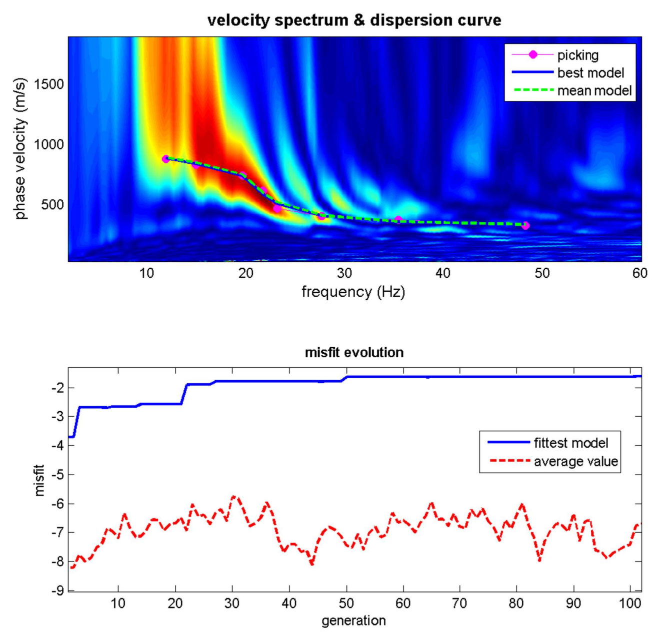


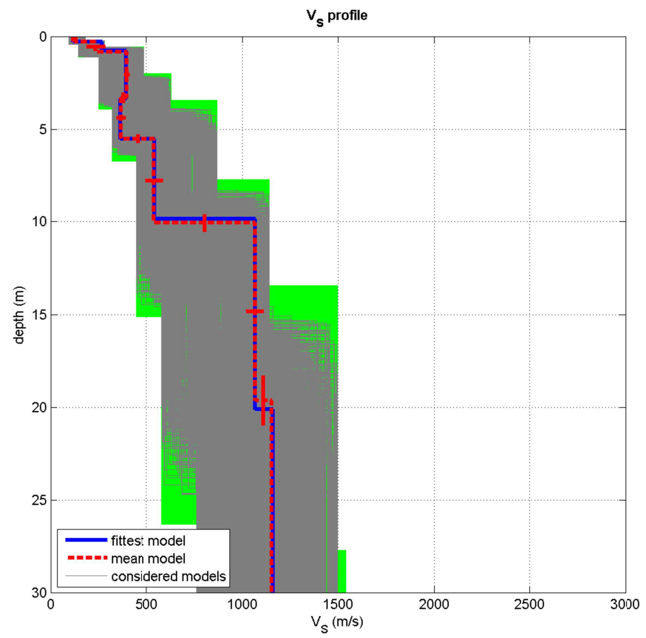
Stendimento MASW 7

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR7 – MASW7 – ESAC7







www.winmasw.com

dataset: ZVF_m_asw7.sgy
dispersion curve: picking_m_asw7.cdp
Vs30 (best model): 698 m/s
Vs30 (mean model): 693 m/s

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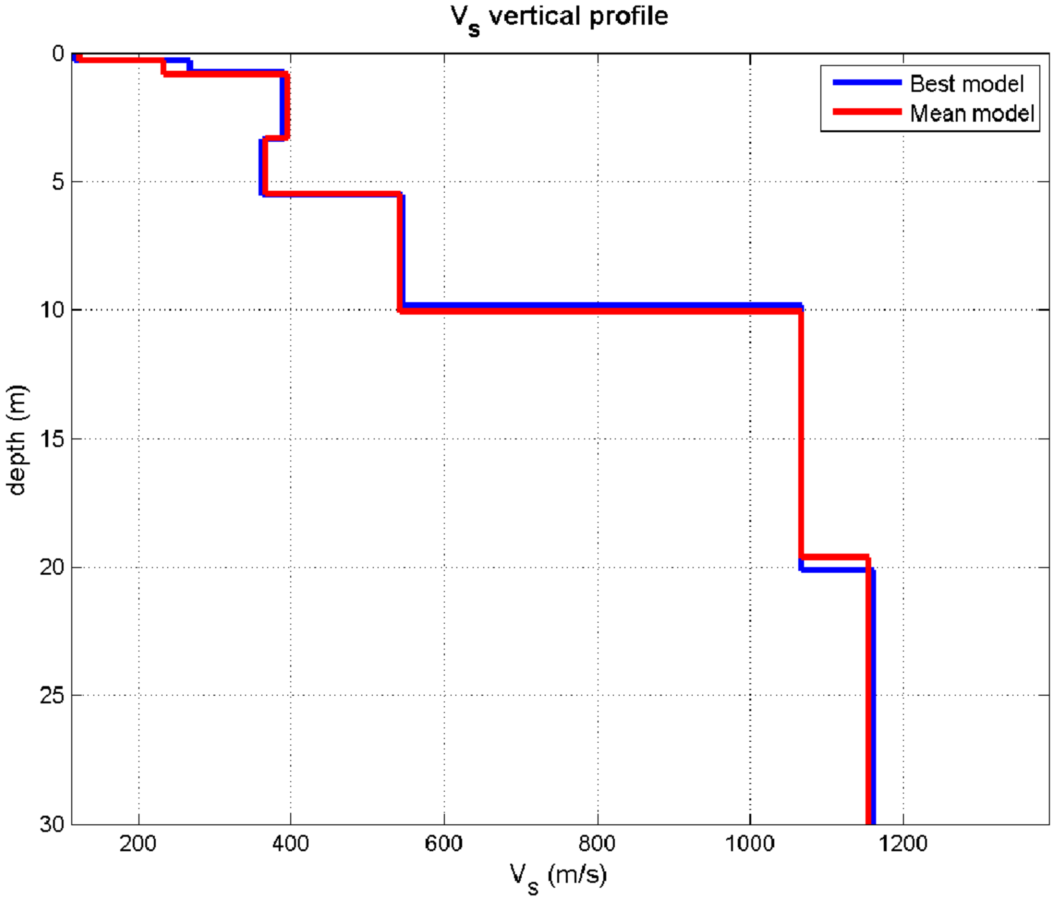
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 7 - ESAC 7

PROFILO DI VELOCITA' MASW 7 – ESAC 7



Vs (m/s):123, 234, 395, 366, 543, 1067, 1155, 926, 1240, 1321, 2302
Standard deviations (m/s):14, 48, 13, 22, 44, 44, 73, 136, 154, 155, 431

Thickness (m):0.3, 0.5, 2.5, 2.2, 4.5, 9.6, 22.6, 9.7, 44.9, 51.7
Standard deviations (m/s):0.0, 0.1, 0.3, 0.2, 0.5, 1.3, 1.8, 1.7, 7.7, 7.1

Density (gr/cm3) (approximate values):1.691.912.021.952.142.232.262.192.262.242.36
Seismic/Dynamic Shear modulus (MPa) (approximate values):261053162616312537301618793471391612529

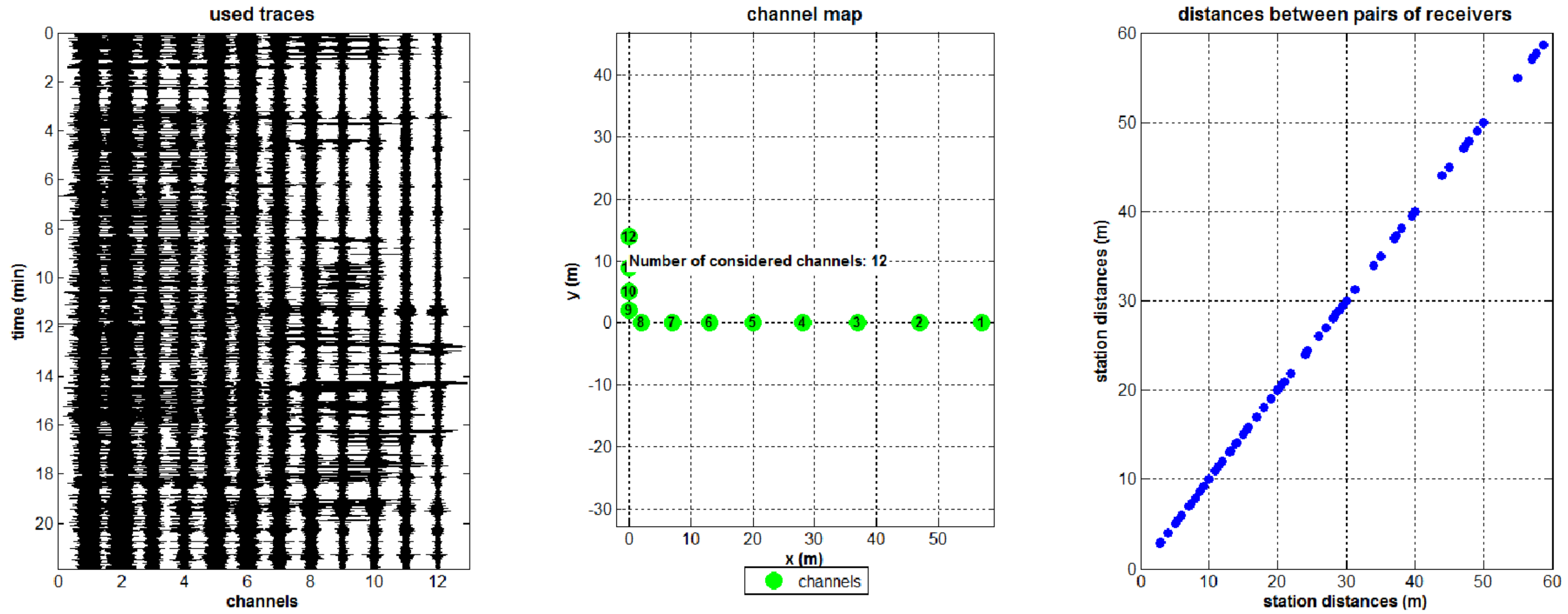
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):2225628826531420204523411758231121873576
Poisson:0.280.400.370.270.410.310.340.310.300.210.15

Vs30 (m/s): 693

GEOLOGICA TOSCANA s.n.c.

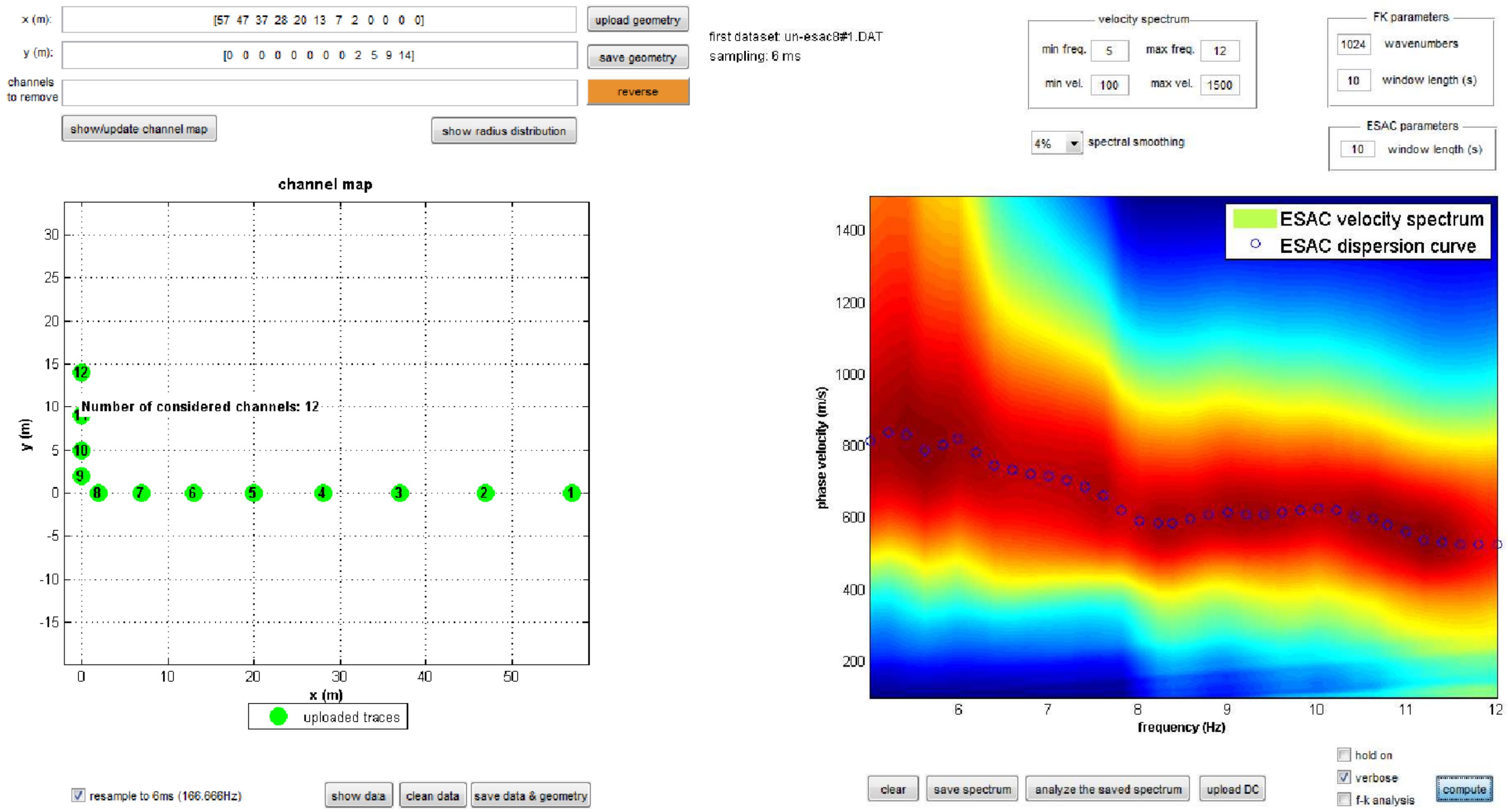
ACQUISIZIONE ESAC

MASW8_MS3 - ESAC8_MS3



SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

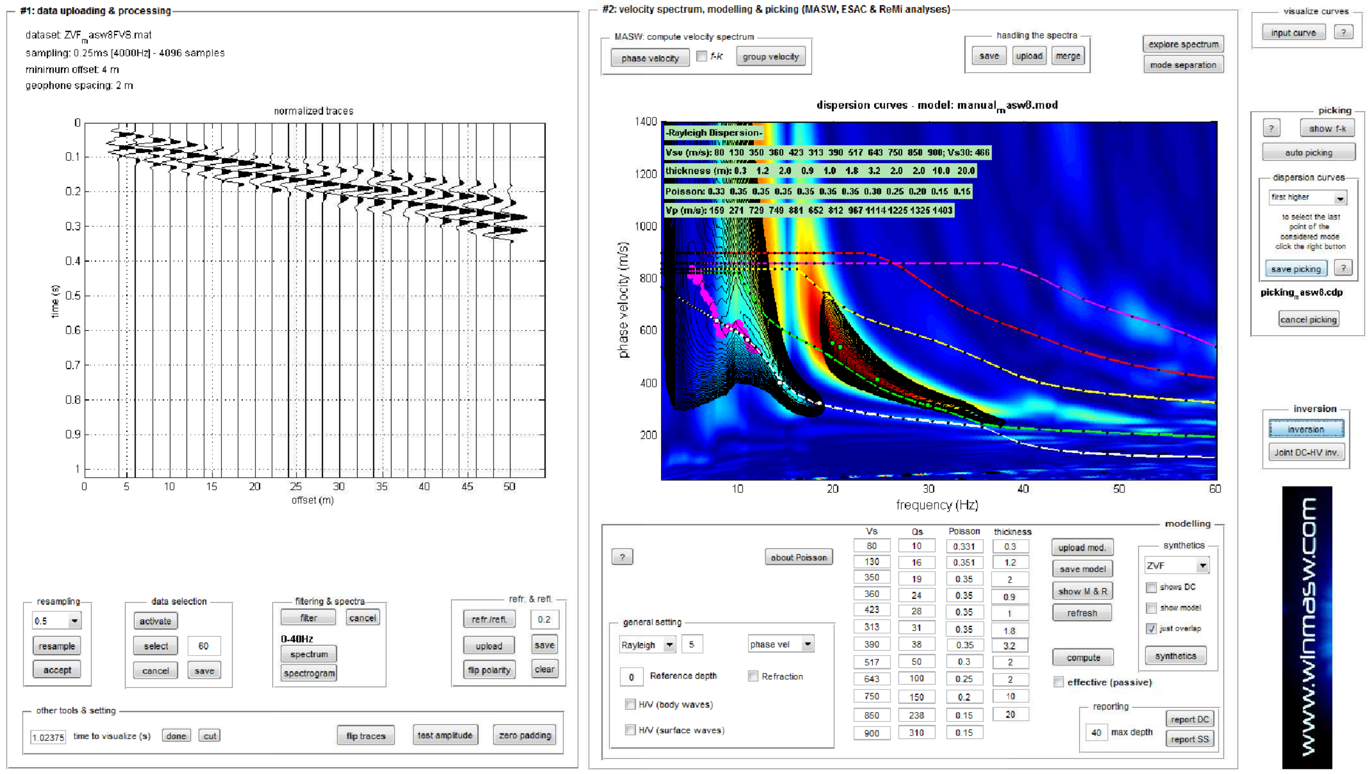
Stendimento ESAC8



GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 8 - ESAC 8

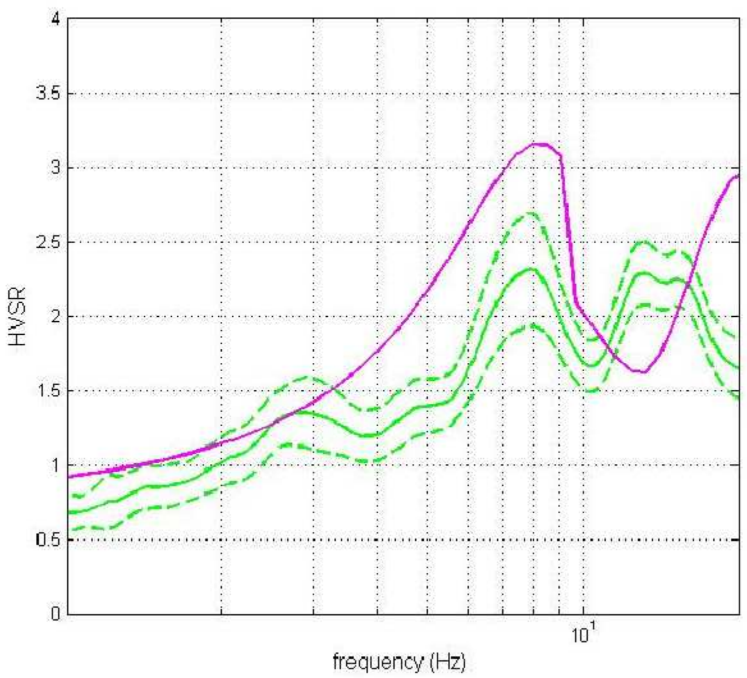
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

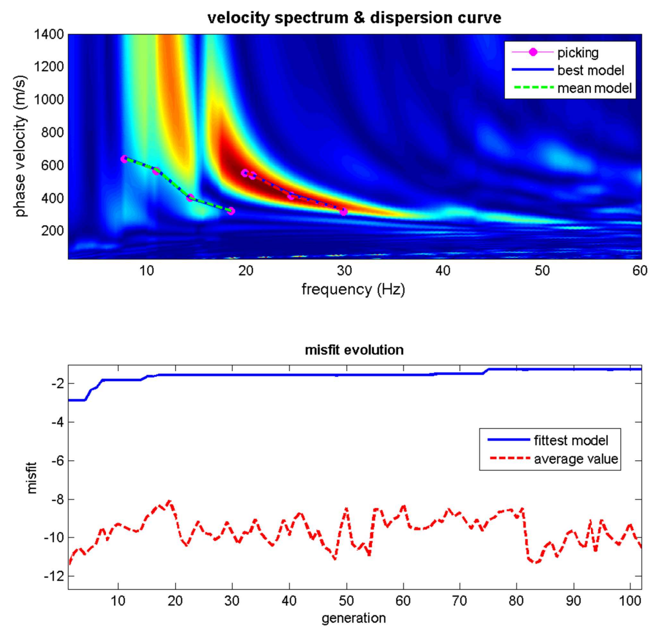


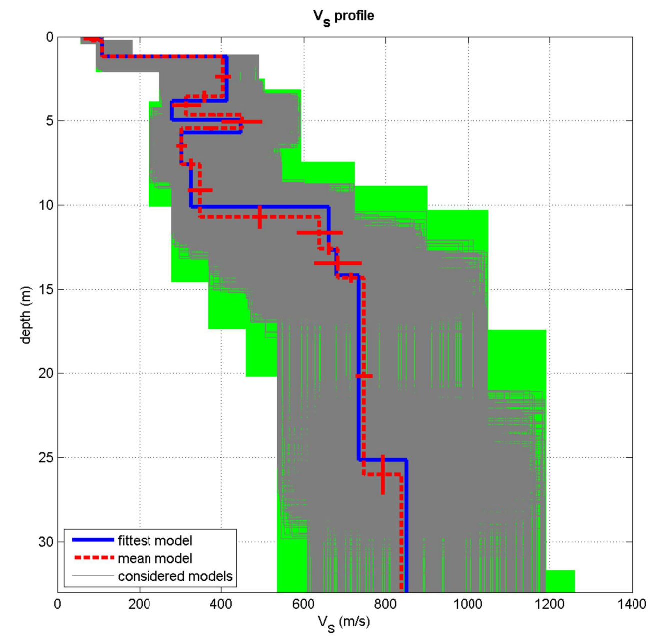
Stendimento MASW 8

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR8 – MASW8 – ESAC8







dataset: ZVF_m_asw8FVS.mat
dispersion curve: picking_m_asw8.cdp
Vs30 (best model): 469 m/s
Vs30 (mean model): 464 m/s

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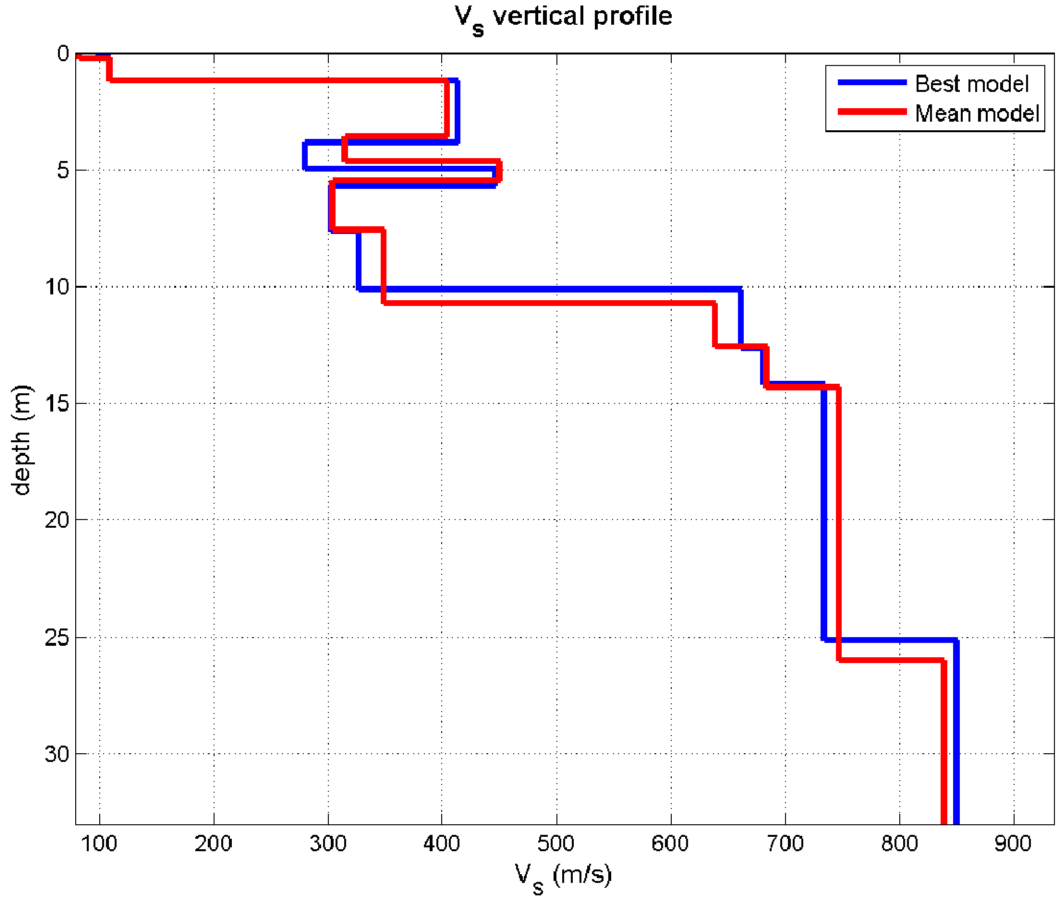
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 8 - ESAC 8

PROFILO DI VELOCITA' MASW 8 – ESAC 8



Vs (m/s):83, 109, 404, 315, 450, 304, 349, 639, 684, 747, 839, 874
Standard deviations (m/s):19, 0, 18, 35, 49, 12, 30, 55, 57, 20, 30, 87

Thickness (m):0.2, 1.0, 2.4, 1.1, 0.8, 2.1, 3.1, 1.9, 1.7, 11.7, 22.3
Standard deviations (m/s):0.0, 0.0, 0.3, 0.1, 0.1, 0.3, 0.7, 0.4, 0.3, 1.2, 2.7

Density (gr/cm3) (approximate values):1.641.732.021.992.051.942.002.082.082.102.122.13
Seismic/Dynamic Shear modulus (MPa) (approximate values):1121330198414180243850971117314921630

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1802598717789686317951126109212221313 1392
Poisson:0.360.390.360.400.360.350.380.260.180.200.150.17

Vs30 (m/s): 464

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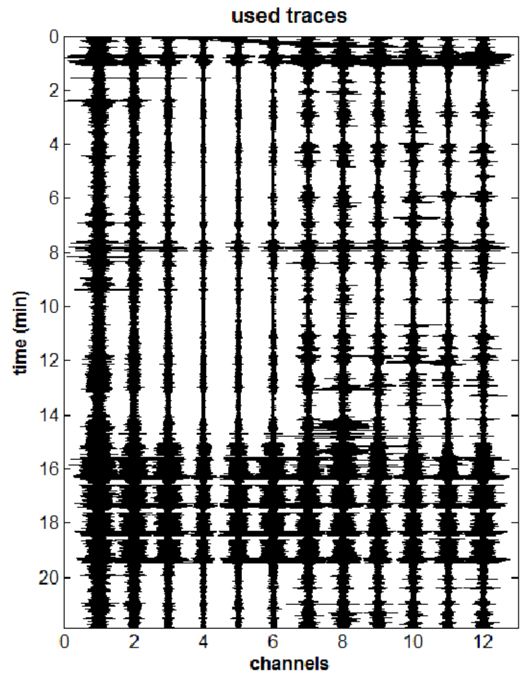
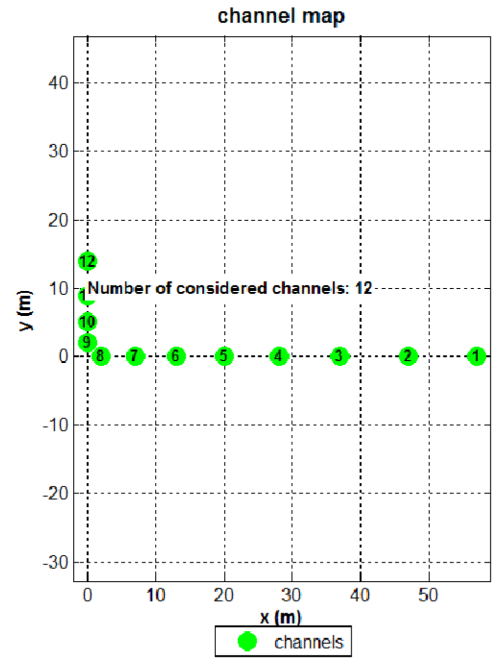
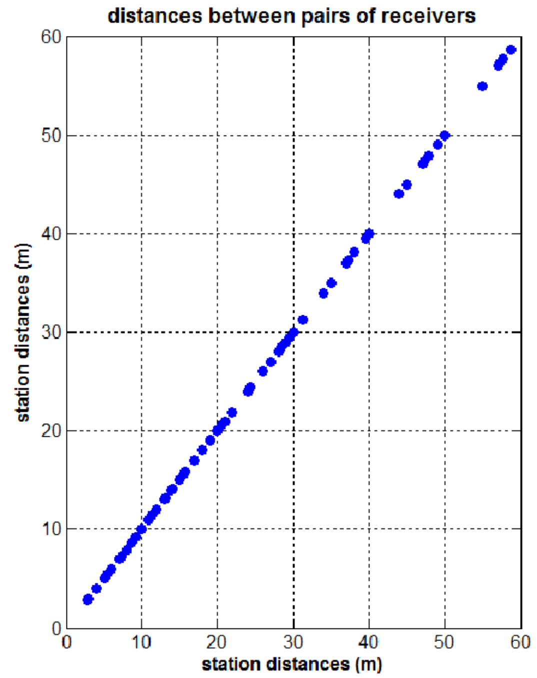
ACQUISIZIONE ESAC

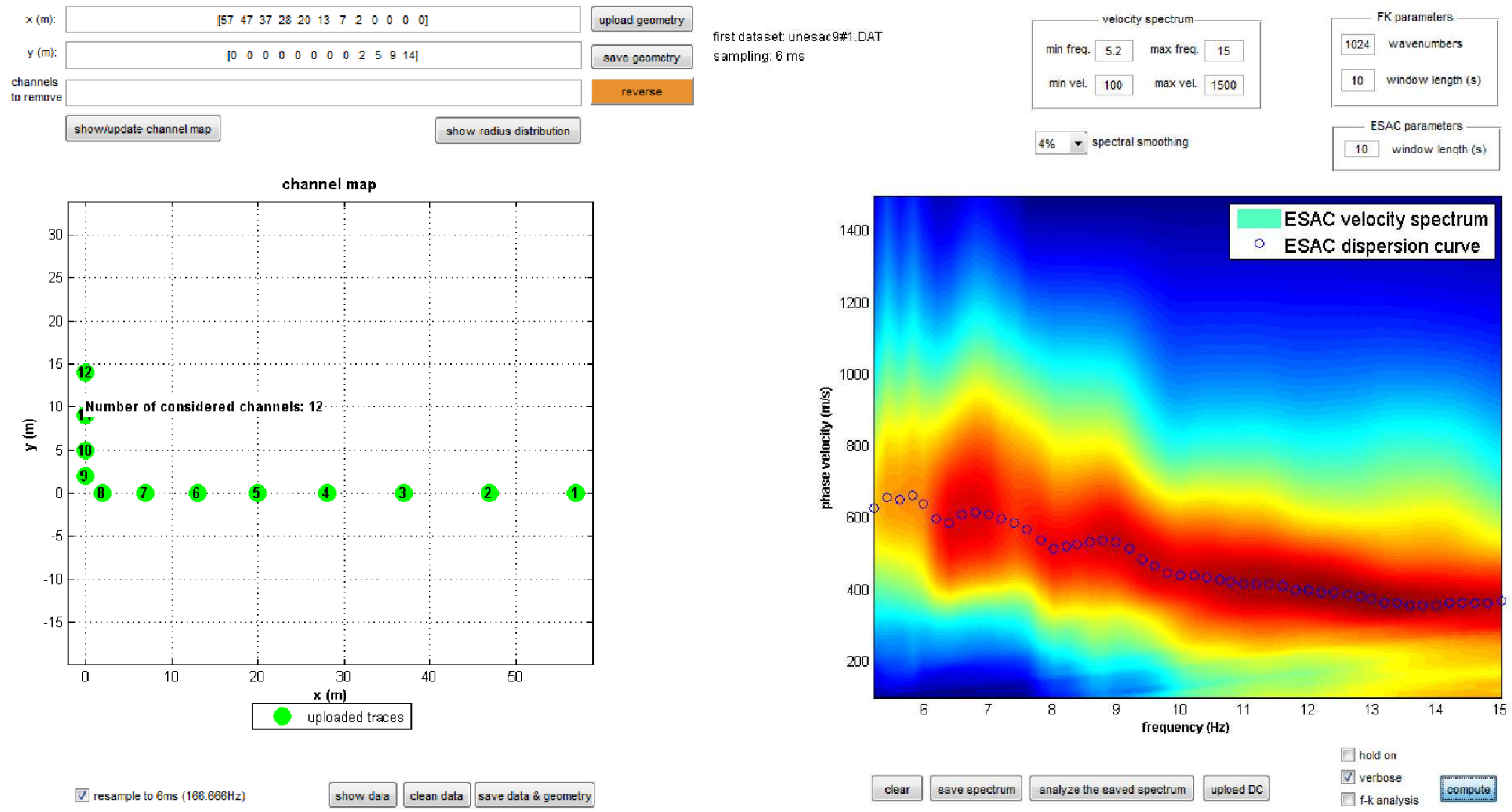
MASW9_MS3 - ESAC9_MS3







SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

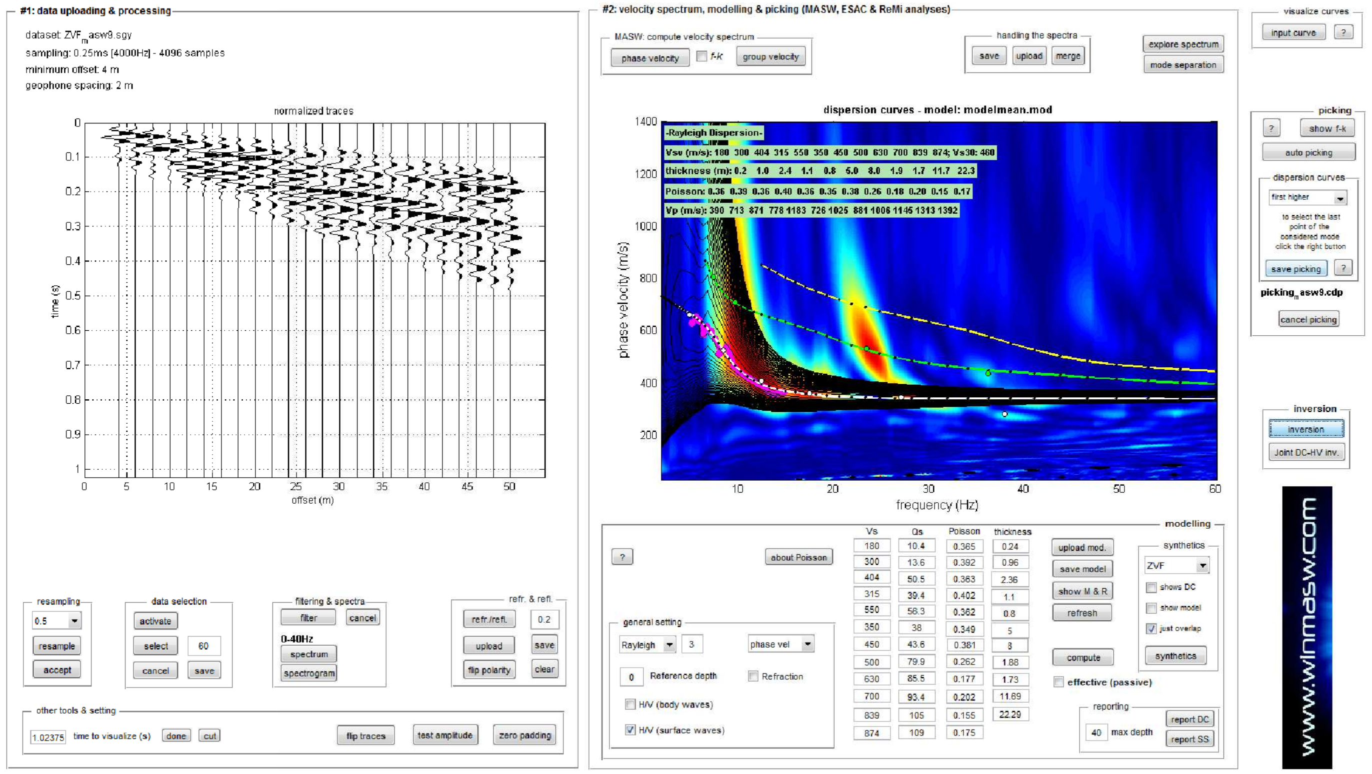


Stendimento ESAC9

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 9 - ESAC 9

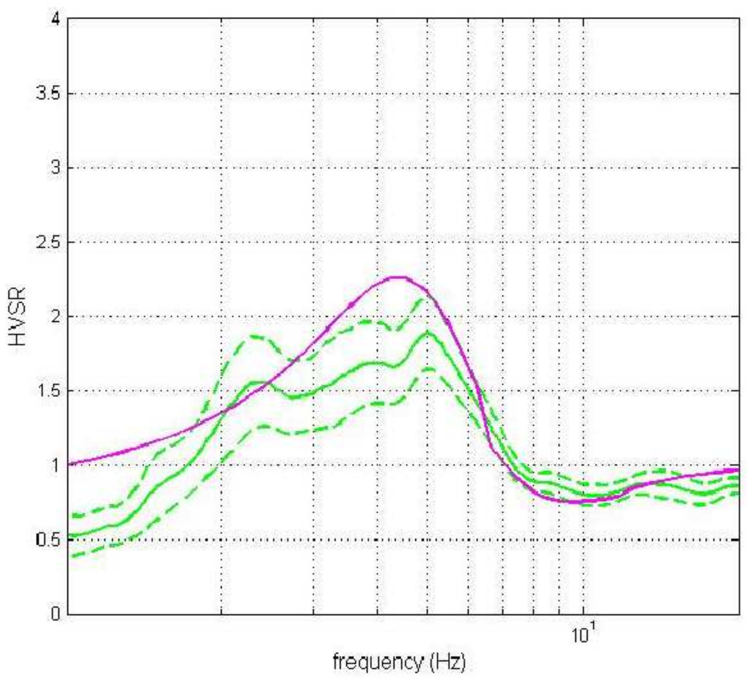
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

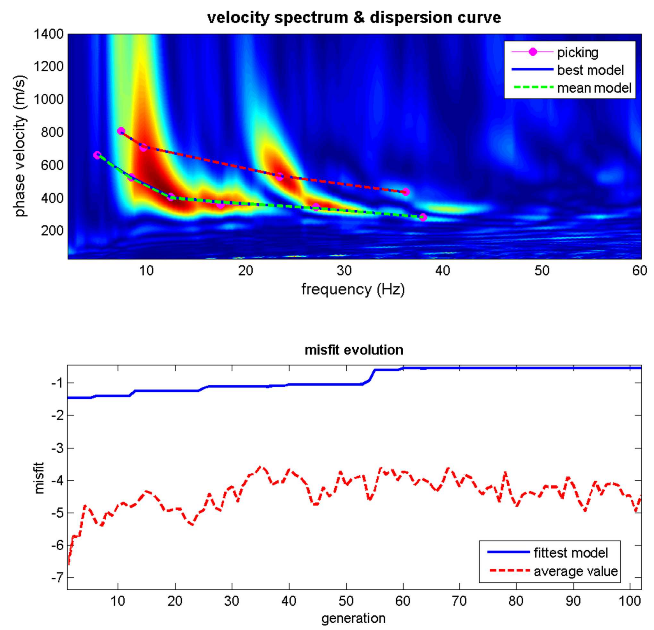


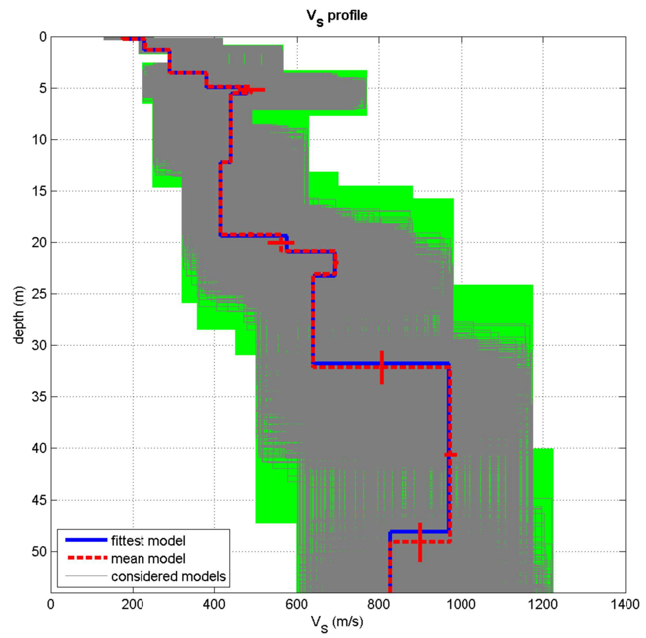
Stendimento MASW 9

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR9 – MASW9 – ESAC9







dataset: ZVF_masw9.sgy
dispersion curve: picking_masw9.cdp
Vs30 (best model): 443 m/s
Vs30 (mean model): 444 m/s

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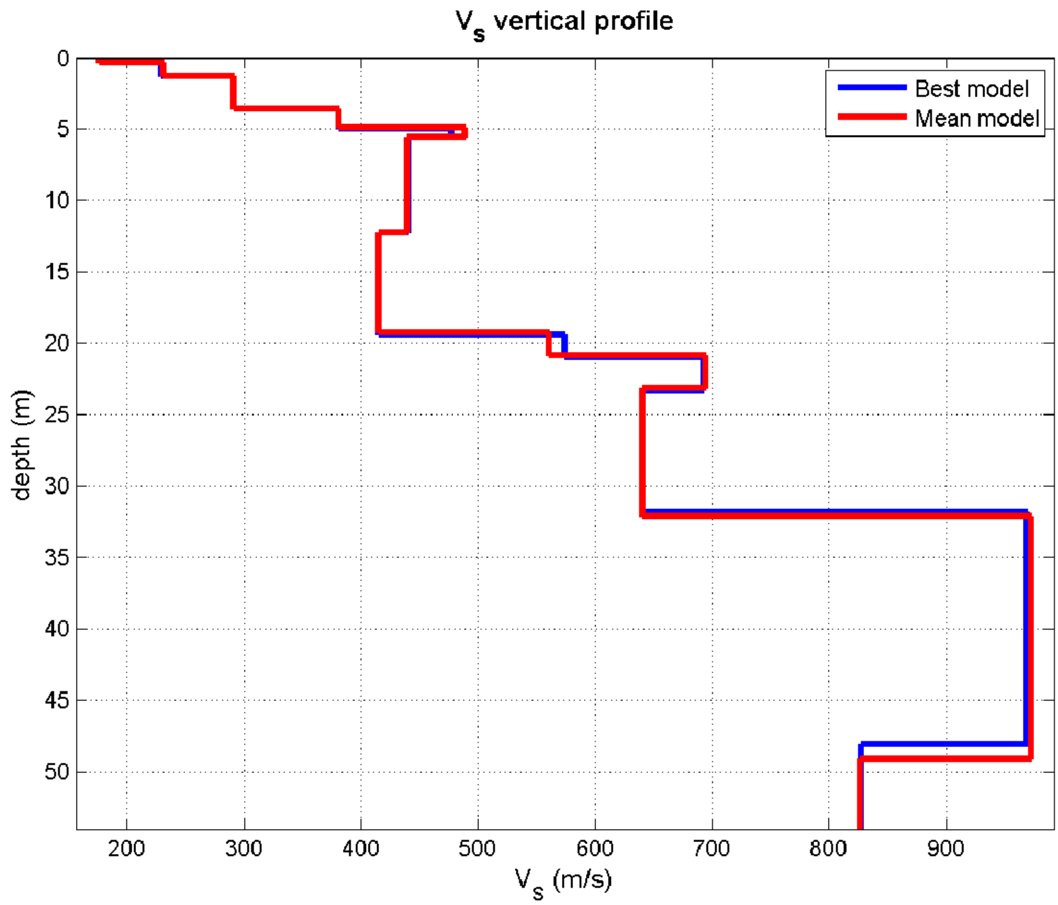
GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 9 - ESAC 9

PROFILO DI VELOCITA' MASW 9 – ESAC 9



Vs (m/s):176, 231, 291, 381, 489, 440, 415, 561, 695, 641, 973, 827
Standard deviations (m/s):5, 4, 0, 0, 32, 0, 0, 32, 6, 0, 15, 0

Thickness (m):0.3, 1.0, 2.3, 1.4, 0.6, 6.7, 7.0, 1.6, 2.2, 9.0, 17.0
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.0, 0.0, 0.2, 0.1, 0.2, 1.6, 1.9

Density (gr/cm3) (approximate values):2.031.841.942.132.112.002.112.042.082.062.172.13
Seismic/Dynamic Shear modulus (MPa) (approximate values):6398164309504388363642100484820531455

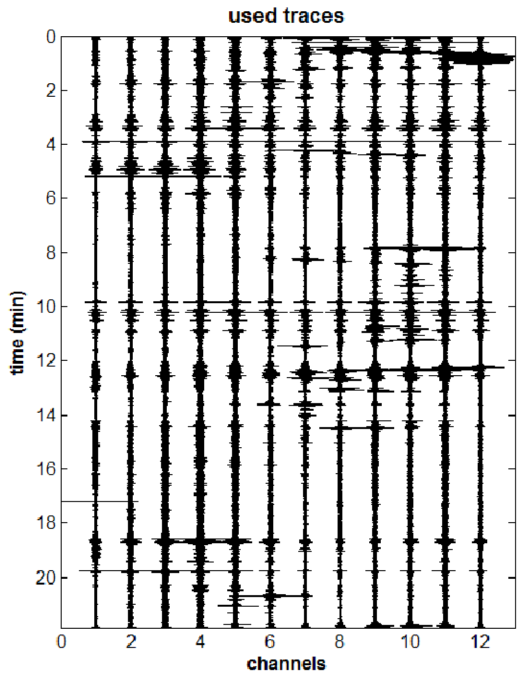
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):918413628137312438101256949111104016021355
Poisson:0.480.270.360.460.410.290.440.230.180.190.210.20

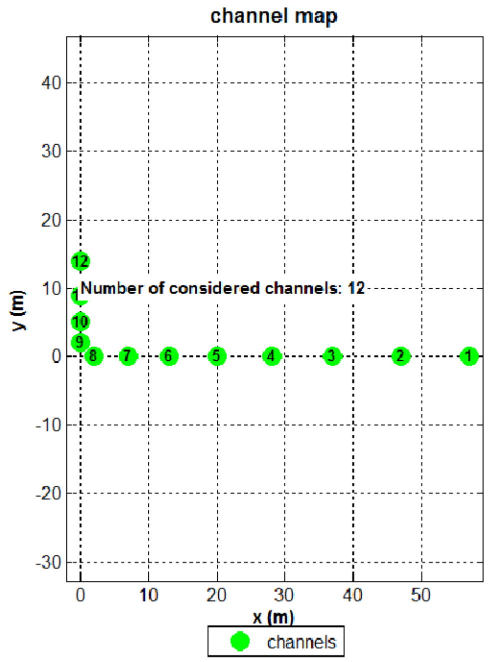
Vs30 (m/s): 444

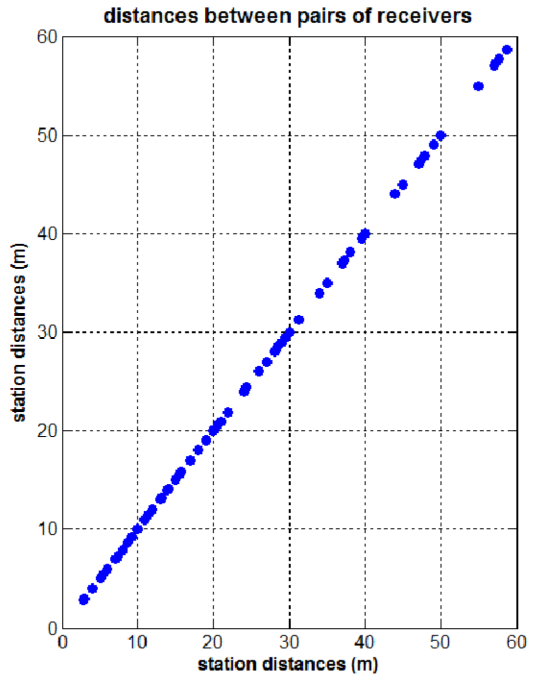
GEOLOGICA TOSCANA s.n.c.

MASW10_MS3 - ESAC10_MS3

ACQUISIZIONE ESAC

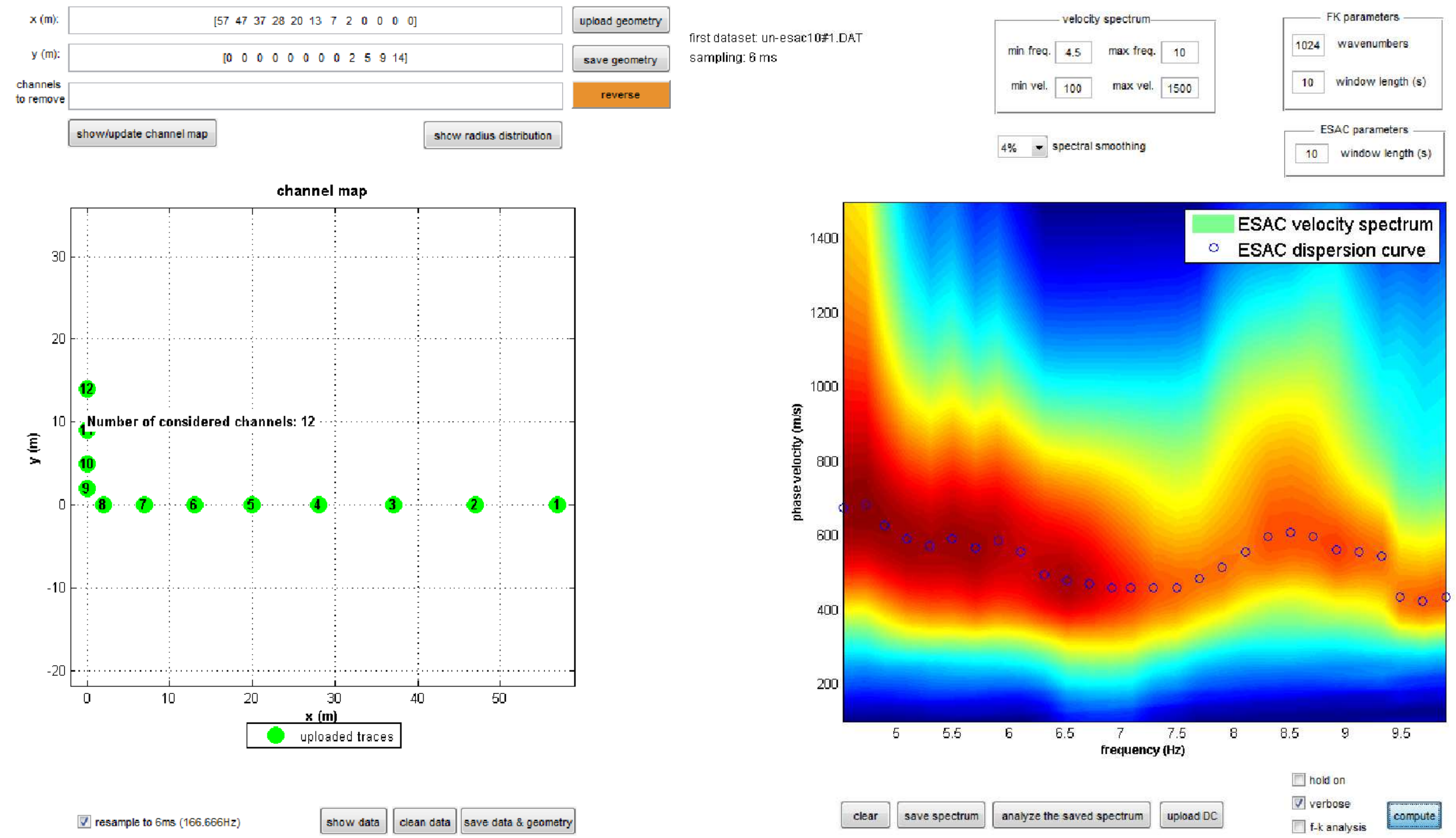






Stendimento ESAC10

SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE



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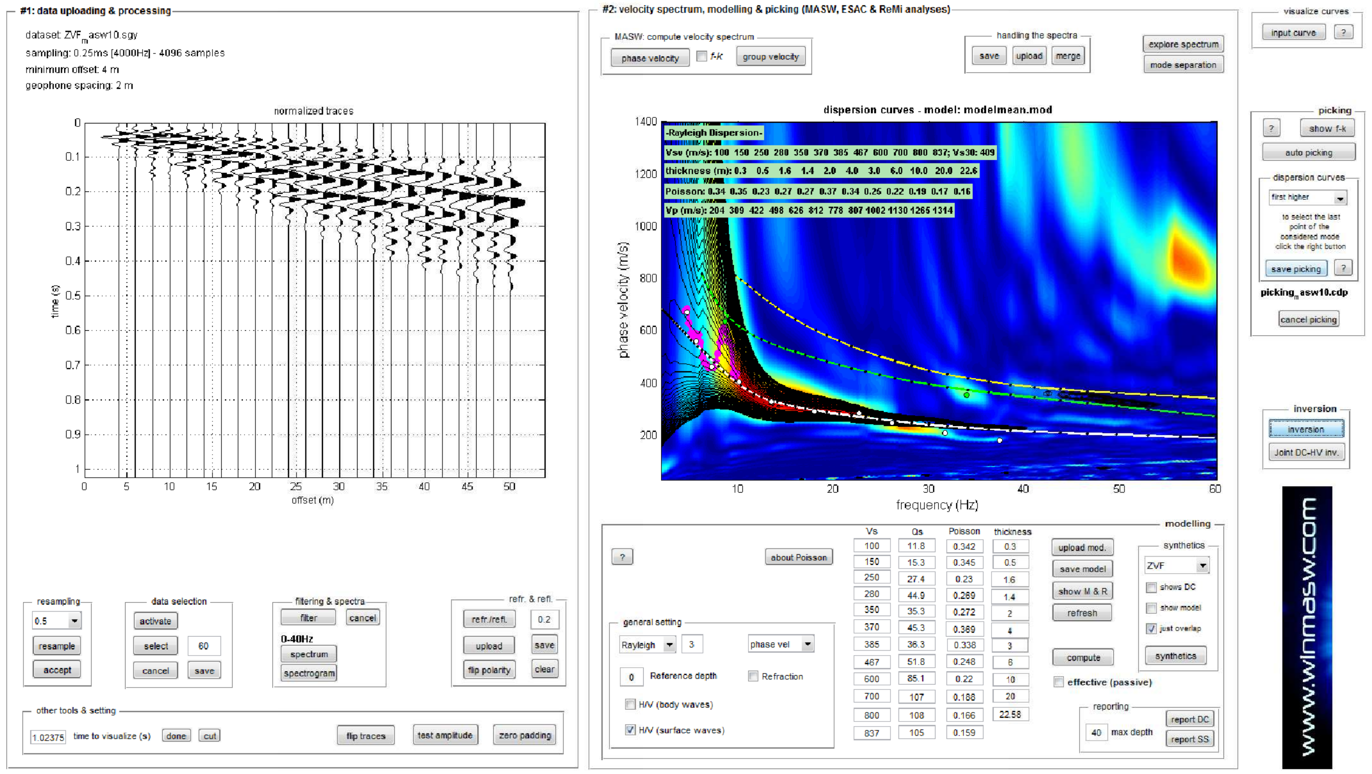
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 10 - ESAC 10

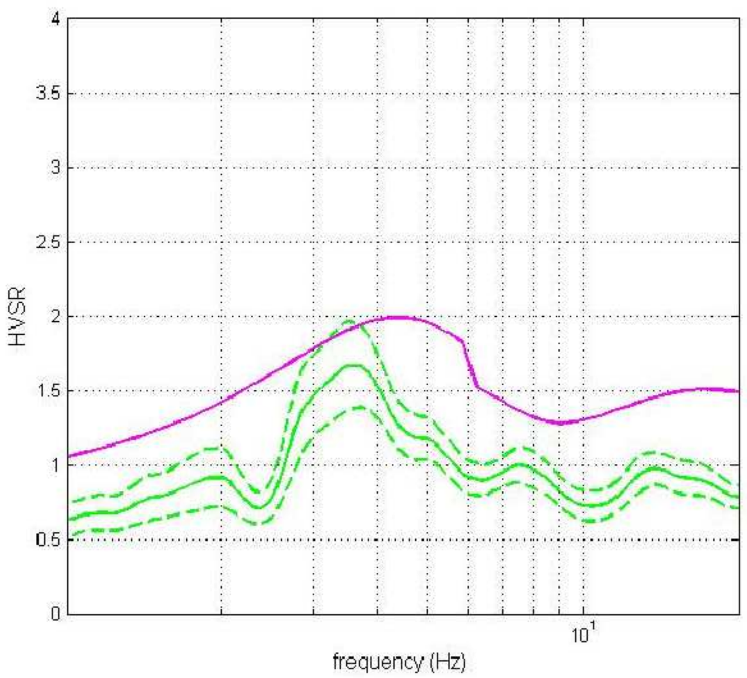
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

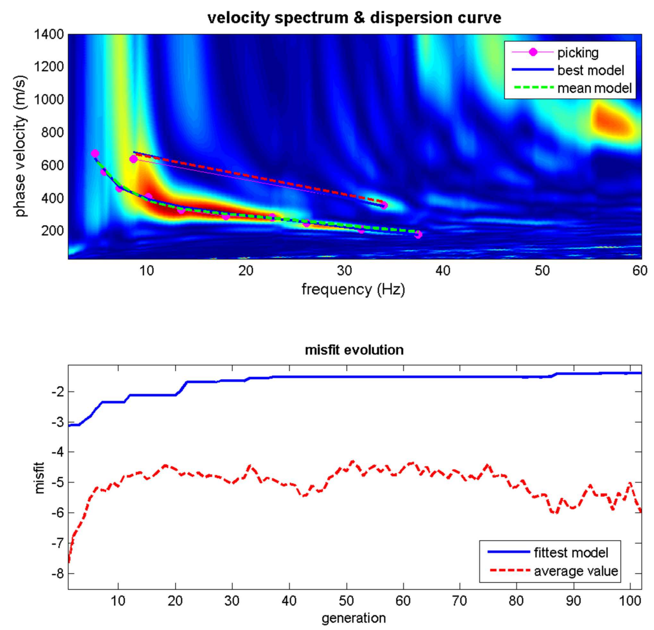


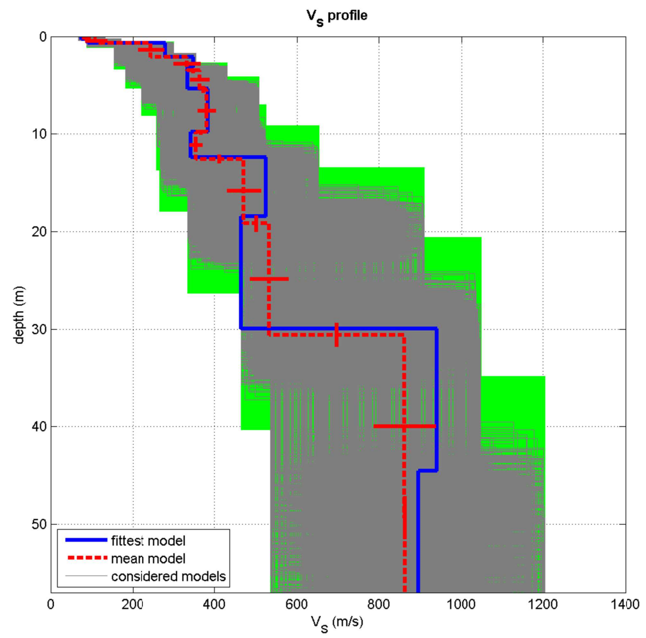
Stendimento MASW 10

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR10 – MASW10 – ESAC10







dataset: ZVF_masw10.sgy
dispersion curve: $picking_m$asw10.cdp
Vs30 (best model): 382 m/s
Vs30 (mean model): 394 m/s

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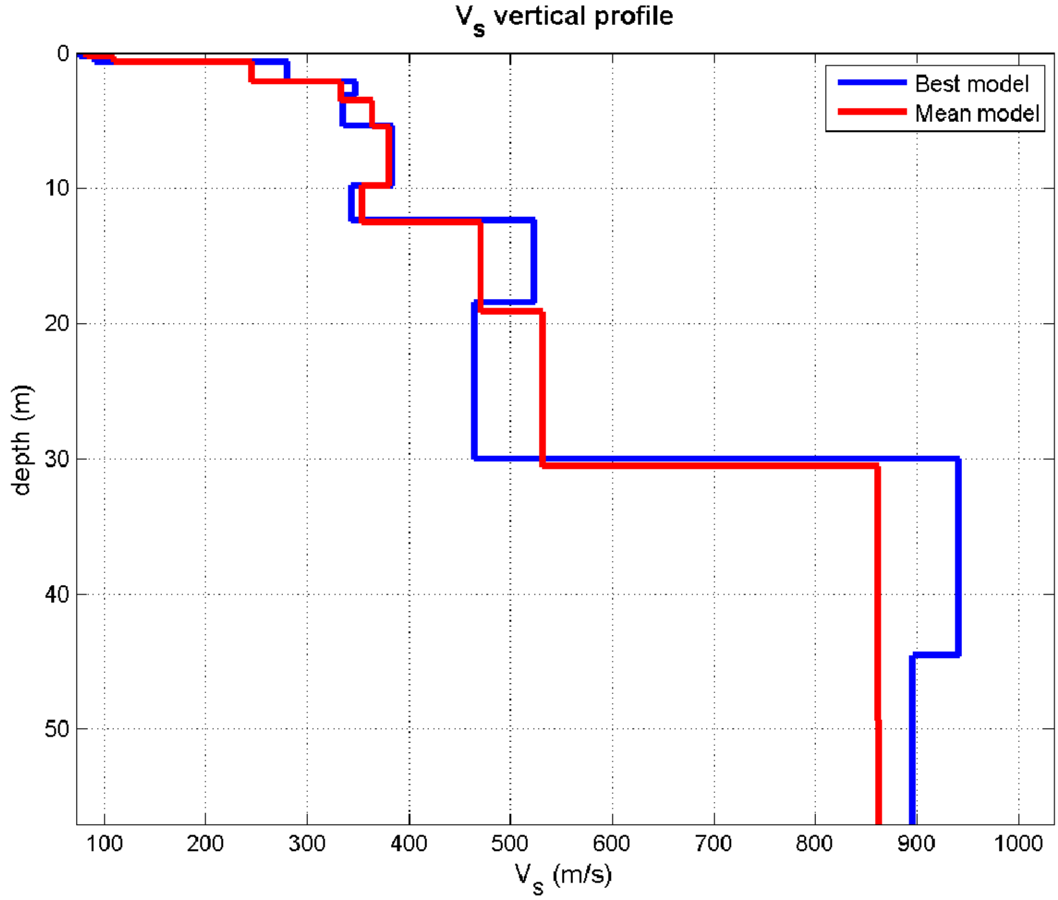
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 10 - ESAC 10

PROFILO DI VELOCITA' MASW 10 – ESAC 10



Vs (m/s):83, 110, 245, 333, 364, 381, 354, 471, 532, 862, 863, 1002
Standard deviations (m/s):6, 26, 32, 32, 23, 22, 15, 41, 47, 75, 109, 104

Thickness (m):0.3, 0.4, 1.4, 1.4, 1.9, 4.4, 2.8, 6.6, 11.4, 18.7, 25.9
Standard deviations (m/s):0.0, 0.0, 0.1, 0.2, 0.3, 0.2, 0.4, 0.8, 1.2, 2.2, 3.1

Density (gr/cm3) (approximate values):1.581.651.831.941.952.031.962.012.012.142.132.16
Seismic/Dynamic Shear modulus (MPa) (approximate values):1120110215258294245445570159015872171

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):142187393619648894674819850142213731565
Poisson:0.240.240.180.300.270.390.310.250.180.210.170.15

Vs30 (m/s): 394

GEOLOGICA TOSCANA s.n.c.

HVSR5

DATE 27.01.2021	HOUR 10:53	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4921595	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208253	ALTITUDE 150 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR5.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND [x] none [ ] weak (5m/s) [ ] medium [ ] strong Measurement (if any): ______
- RAIN [x] none [ ] weak [ ] medium [ ] strong Measurement (if any): ______
- Temperature (approx): 3 Remarks ______

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [ ] gravel [ ] sand [ ] rock [ ] grass = ([ ] short [ ] tall)
- [x] asphalt [ ] cement [ ] concrete [ ] paved [ ] other ______
- [x] dry soil [ ] wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type ______

BUILDING DENSITY [ ] none [x] scattered [ ] dense [ ] other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
[ ] no [x] yes, type Factories

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)
Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

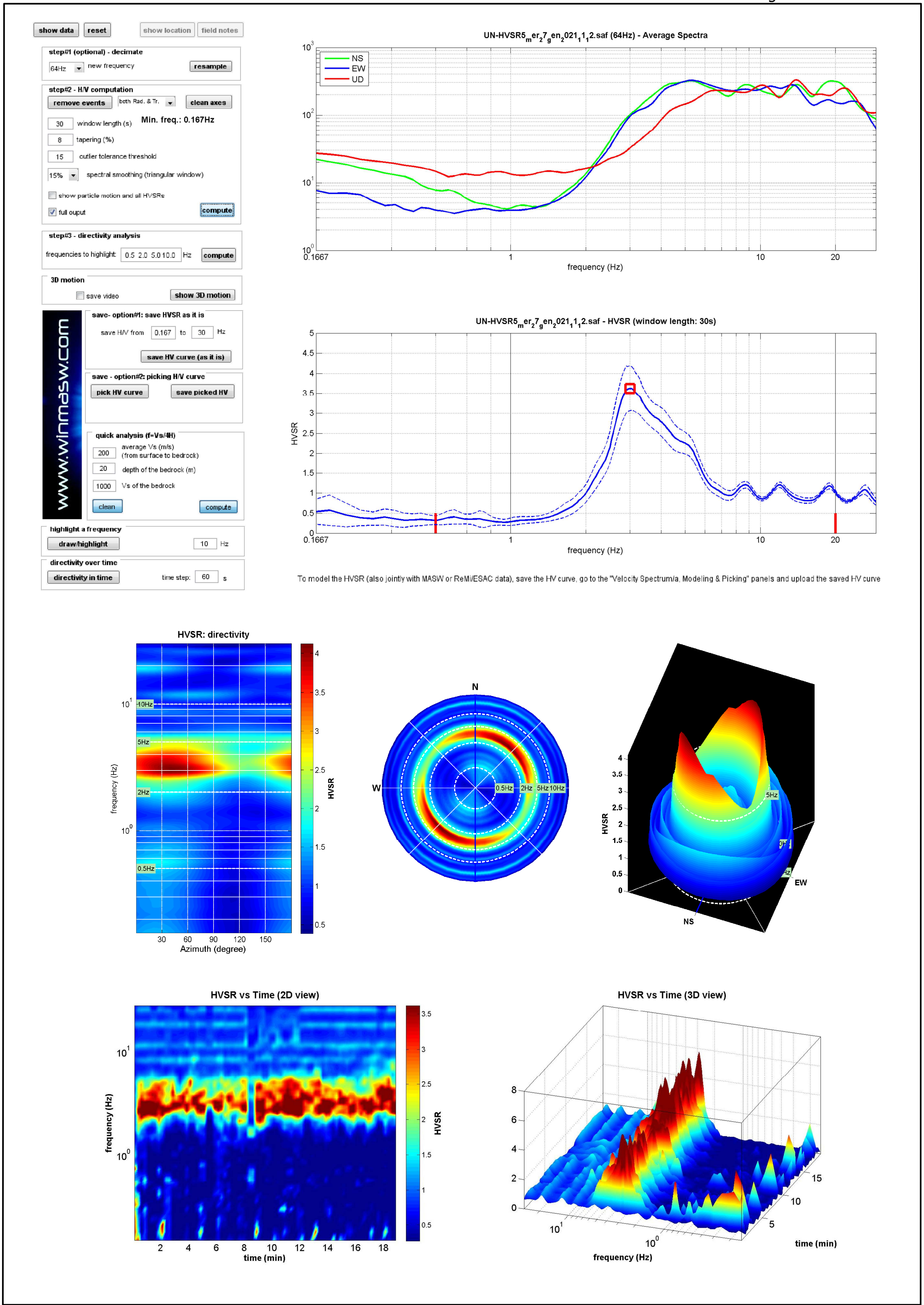
MISURA TIPO A1

HVSR5

Peak frequency (Hz): 3.0 (±0.6)
Peak HVSR value: 3.6 (±0.6)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 3.003 > 0.33333 (OK)
#2. [nc > 200]: 6847 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 0.8Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 5.6Hz (OK)
#3. [A0 > 2]: 3.6 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 0.562 > 0.150 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.560 < 1.58 (OK)



show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30
window length (s)
Min. freq.: 0.167Hz
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.167
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
UN-HVSR5_mer_2 7_gen_2 021_1 1_1 2.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR5_mer_2 7_gen_2 021_1 1_1 2.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
5Hz
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR6

DATE 27.01.2021	HOUR 14:26	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4920001	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208262	ALTITUDE 166m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR6.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND [x] none [ ] weak (5m/s) [ ] medium [ ] strong Measurement (if any): ______
- RAIN [x] none [ ] weak [ ] medium [ ] strong Measurement (if any): ______
- Temperature (approx): 7 Remarks ______

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [ ] gravel [ ] sand [ ] rock [ ] grass = ([ ] short [ ] tall)
- [x] asphalt [ ] cement [ ] concrete [ ] paved [ ] other ______
- [x] dry soil [ ] wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type ______

BUILDING DENSITY [x] none [ ] scattered [ ] dense [ ] other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars			●			
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) [ ] no [x] yes, type Rivers

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

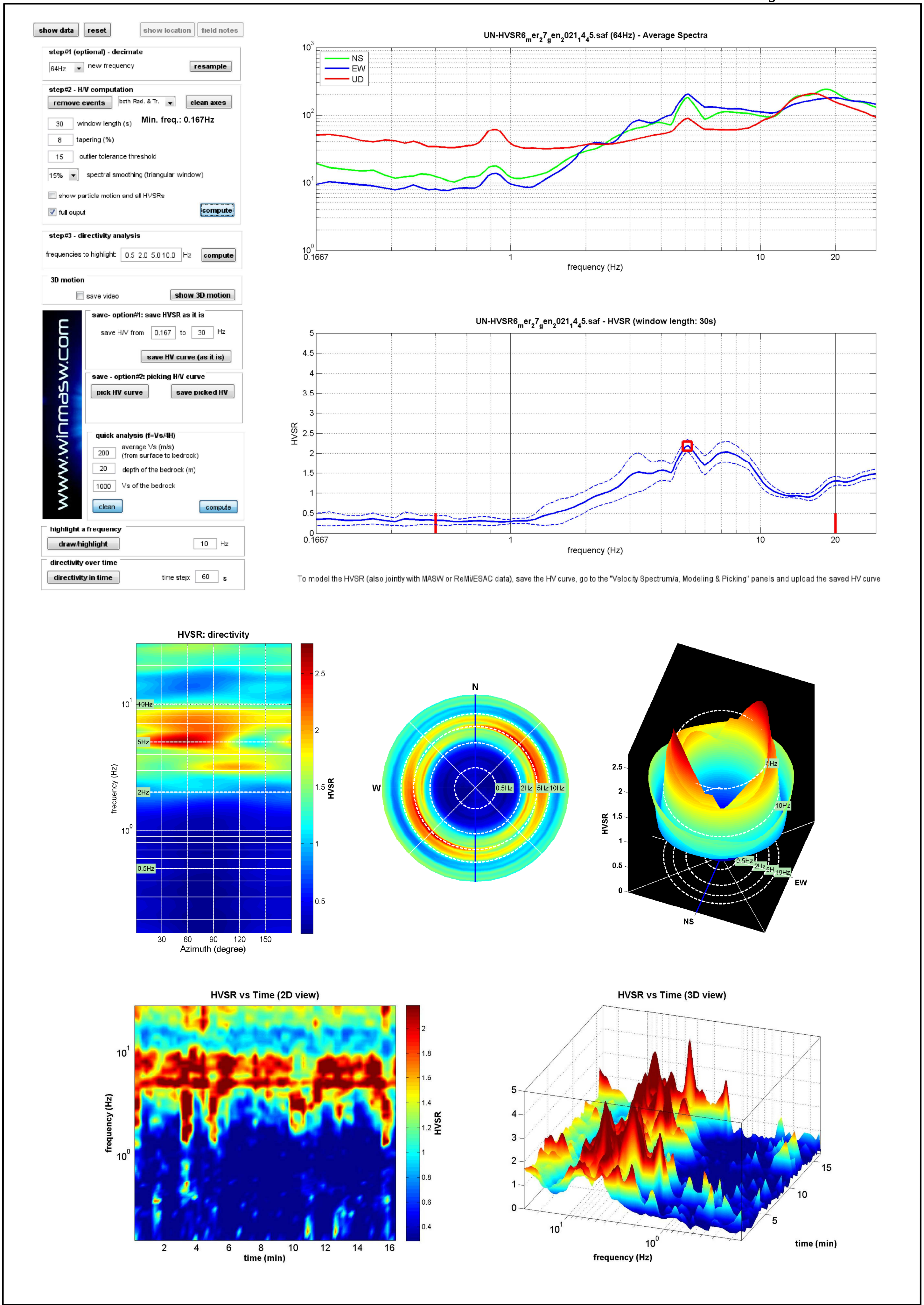
HVSR6

MISURA TIPO C

Peak frequency (Hz): 5.1 (±1.7)
Peak HVSR value: 2.2 (±0.2)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 5.099 > 0.33333 (OK)
#2. [nc > 200]: 10095 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.3Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 11.0Hz (OK)
#3. [A0 > 2]: 2.2 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 1.739 > 0.255 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.154 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30 window length (s)
Min. freq.: 0.167Hz
8 tapering (%)
15 outlier tolerance threshold
15% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight: 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.167 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
UN-HVSR6_mer_2 7_g en_2 021_4 4_5.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR6_mer_2 7_g en_2 021_4 4_5.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR7

DATE 27.01.2021	HOUR 12:53	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4919507	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208304	ALTITUDE 173 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR7.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS — WIND: none (checked), weak (5m/s), medium, strong; Measurement (if any): ____ — RAIN: none (checked), weak, medium, strong; Measurement (if any): ____ — Temperature (approx): 7 — Remarks ____

GROUND TYPE — earth (checked) (hard / soft (checked)), gravel, sand, rock, grass (short / tall), asphalt, cement, concrete, paved, other ____ — dry soil, wet soil (checked) — Remarks ____

ARTIFICIAL GROUND-SENSOR COUPLING: no (checked), yes, type ____

BUILDING DENSITY: none, scattered (checked), dense, other, type ____

TRANSIENTS	none	few	moderate	many	very dense	distance
cars			●			
trucks	●					
pedestrians		●				
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...): no (checked), yes, type ____

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

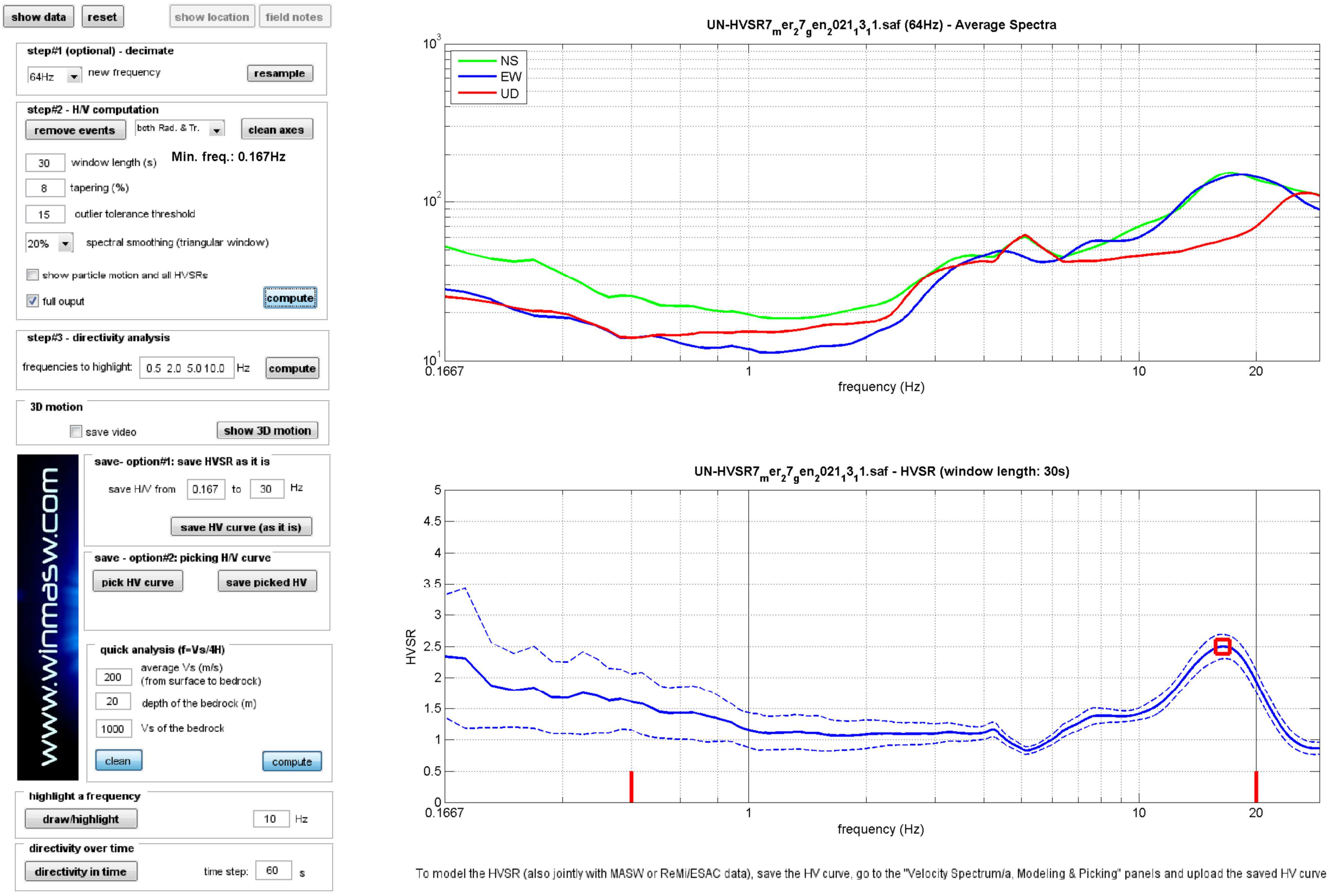
MISURA TIPO B1

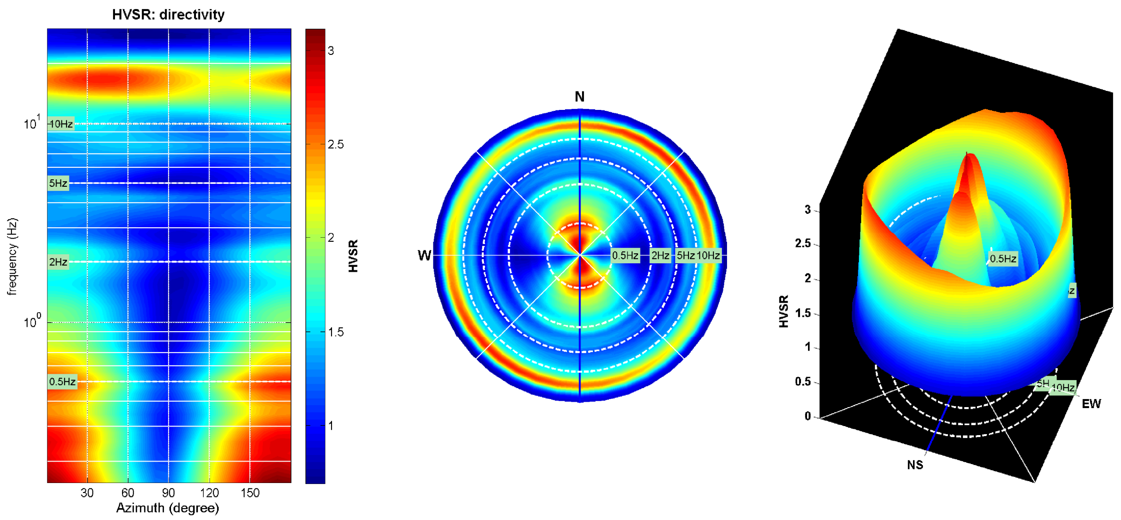
HVSR7

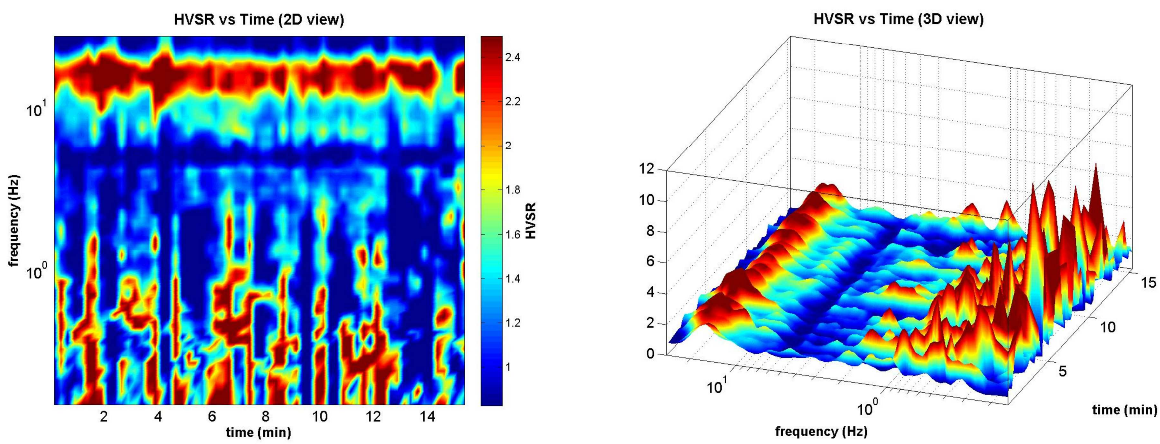
Peak frequency (Hz): 16.4 (±7.4)
Peak HVSR value: 2.5 (±0.2)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 16.391 > 0.33333 (OK)
#2. [nc > 200]: 30487 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 4.1Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 2.5 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 7.402 > 0.820 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.193 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30
window length (s)
Min. freq.: 0.167Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.167
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
UN-HVSR7_mer_27_gen_2021_13_11.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR7_mer_27_gen_2021_13_11.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR8

DATE 27.01.2021	HOUR 9:01	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4922055	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208049	ALTITUDE 147 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR8.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 1 Remarks ______

GROUND TYPE
- ☒ earth (☒ hard ☐ soft) ☐ gravel ☐ sand ☐ rock ☐ grass = (☐ short ☐ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ☒ dry soil ☐ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ______

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	☒					
trucks	☒					
pedestrians	☒					
other	☒					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
☒ no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Trees, Buildings

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

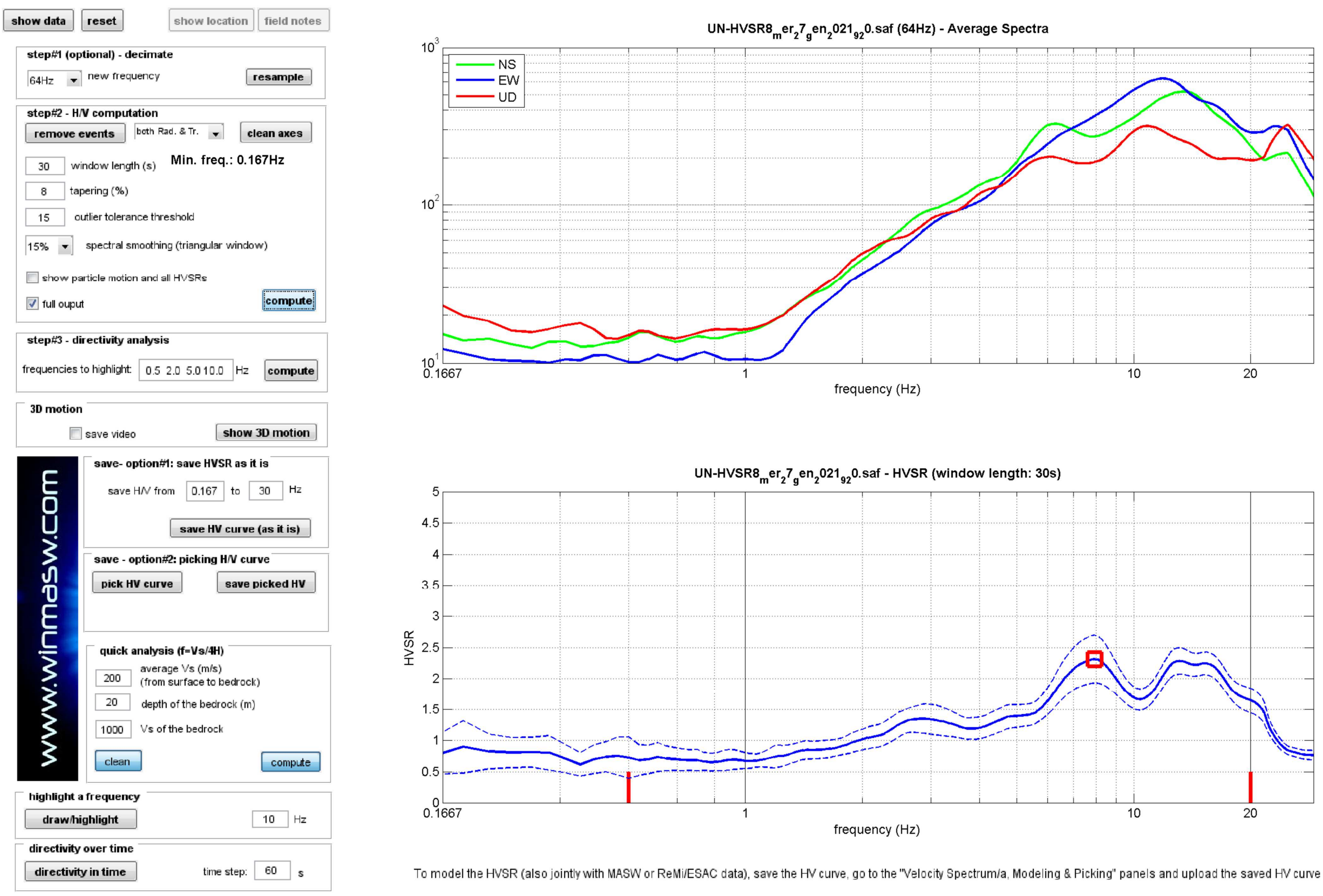
HVSR8

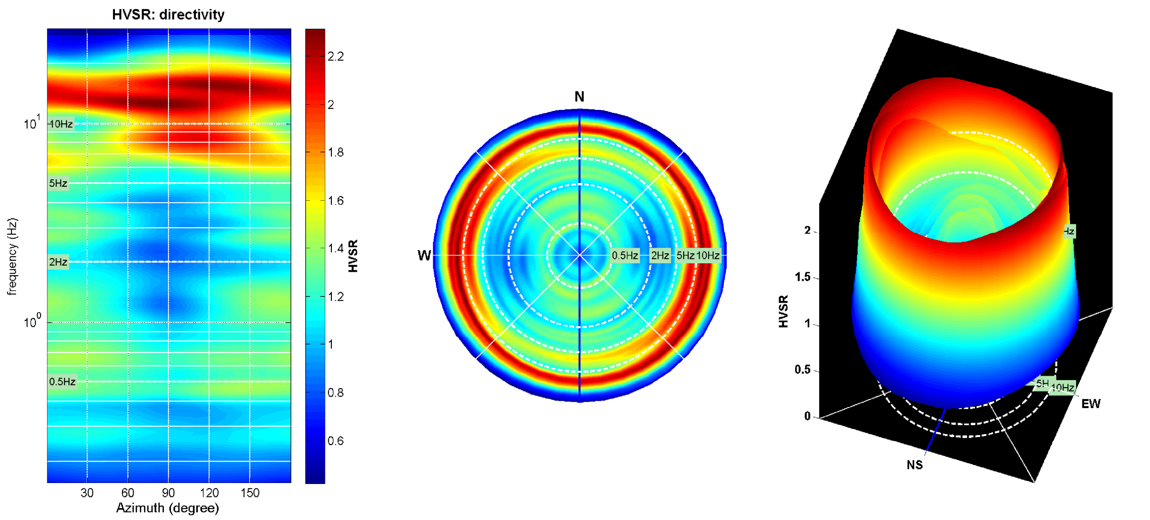
MISURA TIPO A1

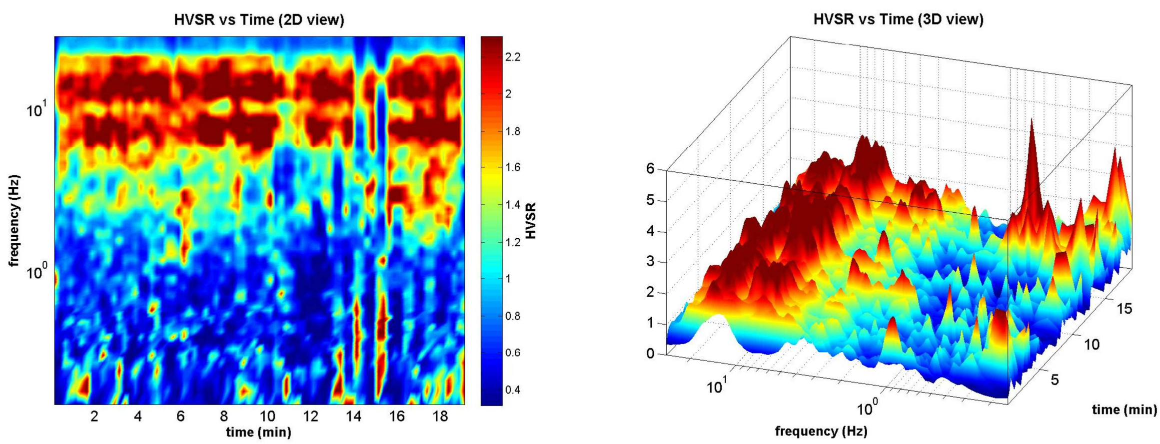
Peak frequency (Hz): 7.9 (±4.2)
Peak HVSR value: 2.3 (±0.4)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 7.914 > 0.33333 (OK)
#2. [nc > 200]: 18281 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 2.0Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 2.3 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 4.215 > 0.396 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.382 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30
window length (s)
Min. freq.: 0.167Hz
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.167
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
UN-HVSR8_mer_27_gen_2021_920.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR8_mer_27_gen_2021_920.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR9

DATE 27.01.2021	HOUR 12:01	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4921110	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208790	ALTITUDE 199 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR9.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min (minutes / seconds)

WEATHER CONDITIONS
- WIND: ● none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN: ● none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 6 Remarks ______

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ● asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ● dry soil ☐ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type ______

BUILDING DENSITY ☐ none ☐ scattered ● dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians			●			
other	●					

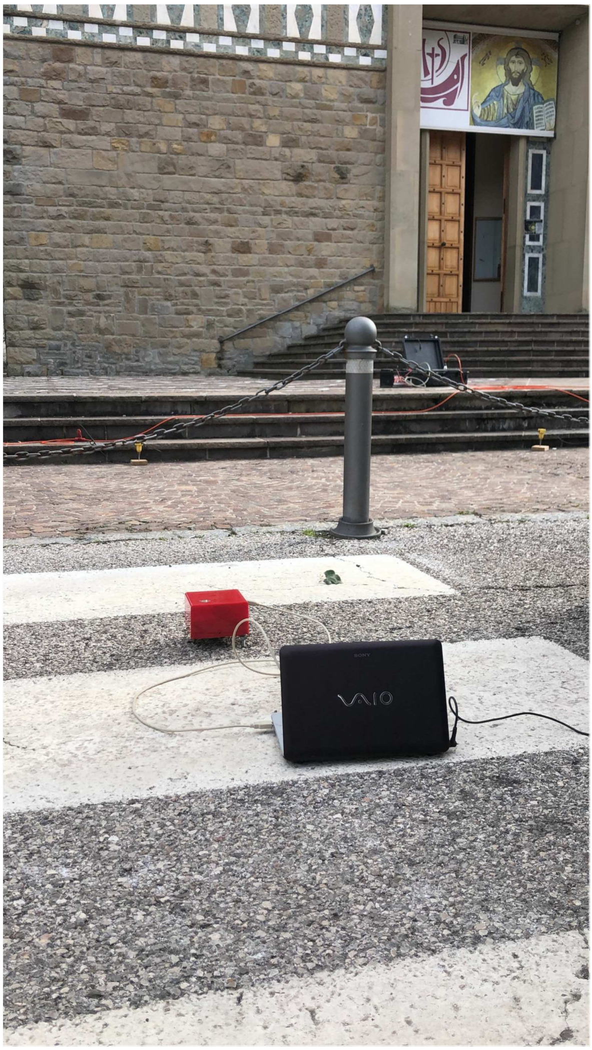
MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ● no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Buildings

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)



Qualità della misura:

MISURA TIPO A2

HVSR9

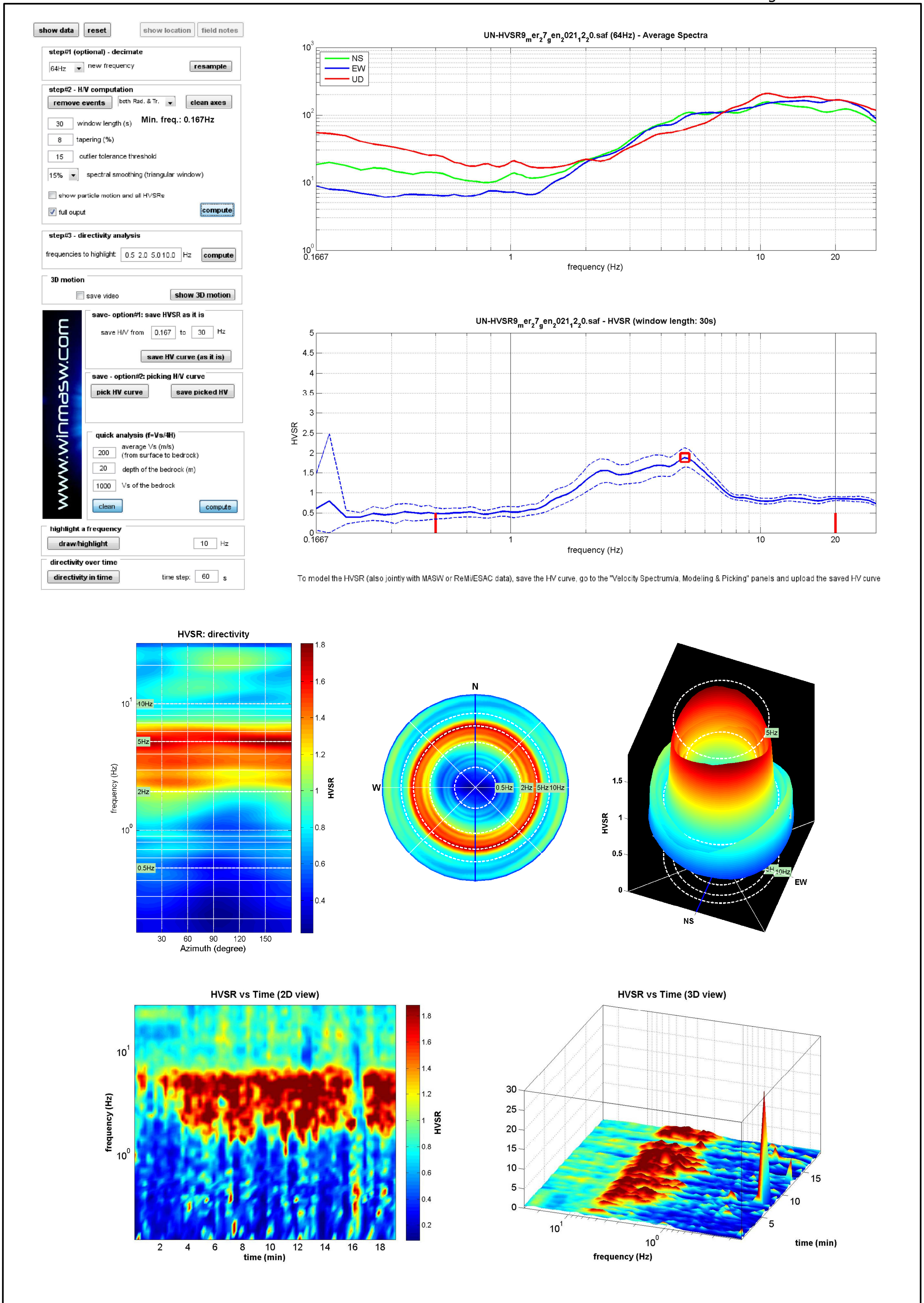
Peak frequency (Hz): 5.0 (±1.3)
Peak HVSR value: 1.9 (±0.2)

=== Criteria for a reliable H/V curve ====================================

#1. [f0 > 10/Lw]: 4.974 > 0.33333 (OK)
#2. [nc > 200]: 11489 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========

#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.3Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 7.6Hz (OK)
#3. [A0 > 2]: 1.9 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 1.292 > 0.249 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.247 < 1.58 (OK)



show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
Min. freq.: 0.167Hz
30 window length (s)
8 tapering (%)
15 outlier tolerance threshold
15% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.167 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
UN-HVSR9mer27gen2021220.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR9mer27gen2021220.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR10

DATE 27.01.2021	HOUR 9:53	PLACE Pianoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4922023	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208991	ALTITUDE 177 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR10.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND ● none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN ● none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 2 Remarks ______

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ● asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ● dry soil ☐ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type ______

BUILDING DENSITY ☐ none ● scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	●					
trucks	●					
pedestrians		●				
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ● no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Trees, Buildings

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

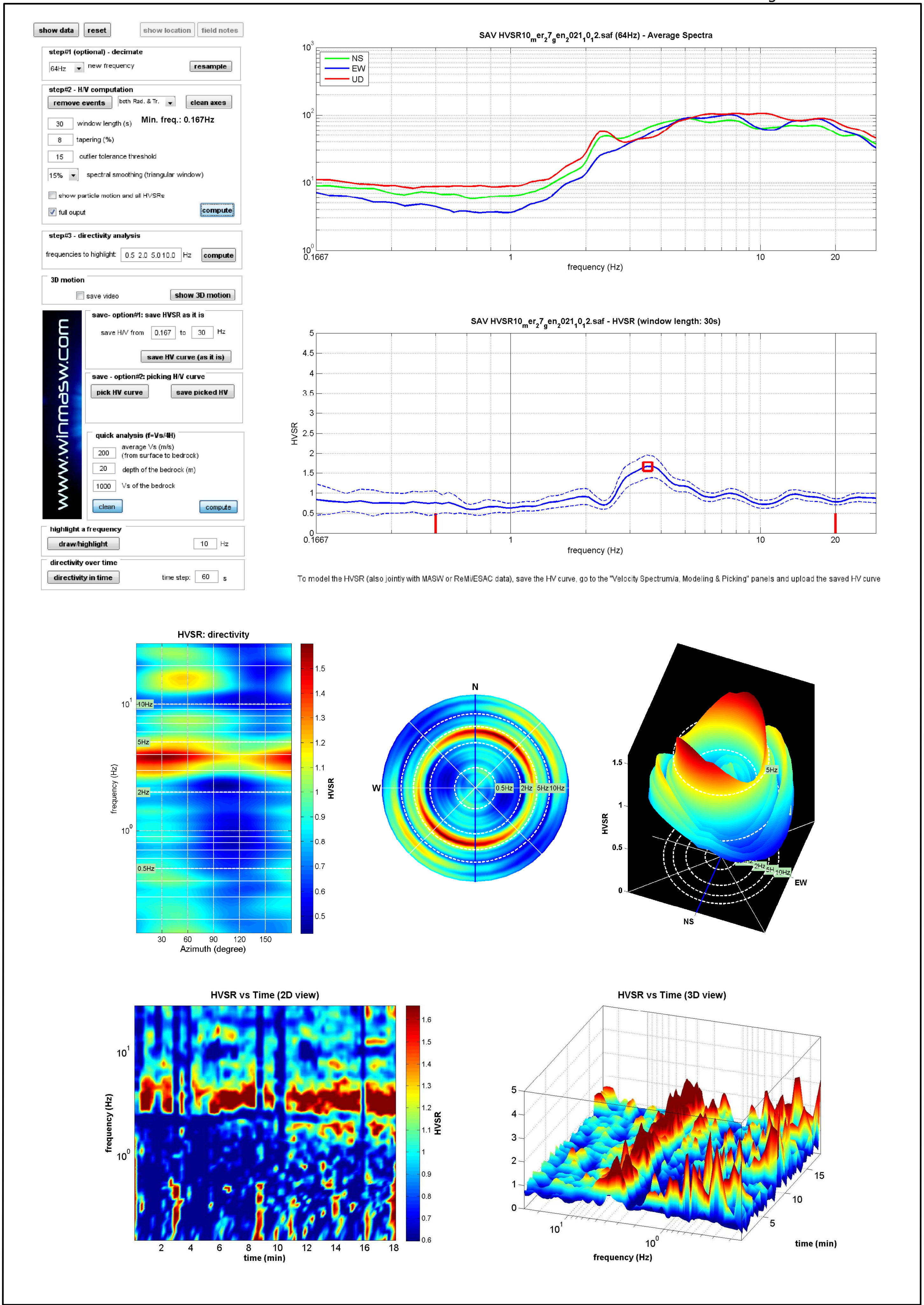
MISURA TIPO A2

HVSR10

Peak frequency (Hz): 3.5 (±1.2)
Peak HVSR value: 1.7 (±0.3)

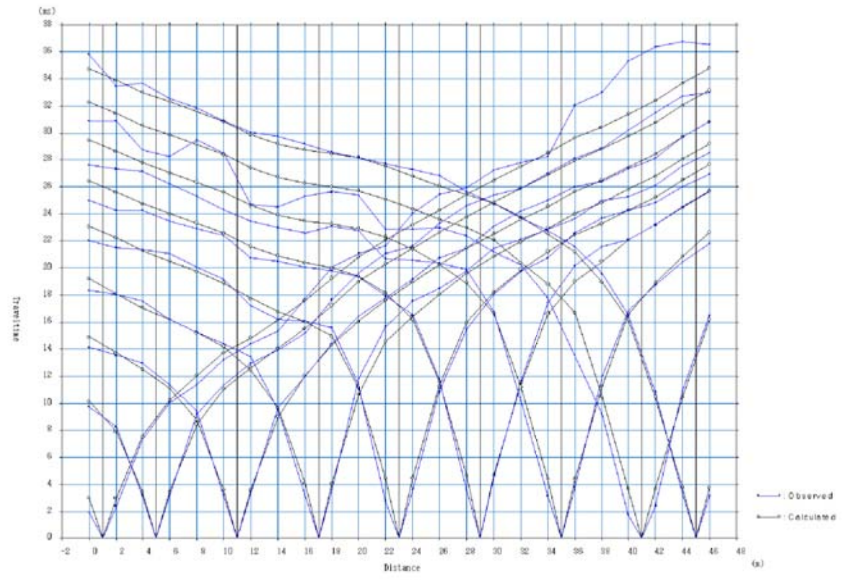
=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 3.535 > 0.33333 (OK)
#2. [nc > 200]: 7741 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 0.9Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 9.0Hz (OK)
#3. [A0 > 2]: 1.7 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 1.246 > 0.177 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.296 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30
window length (s)
Min. freq.: 0.167Hz
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.167
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
SAV HVSR10_m er_2 7_g en_2 021_1 0_1 2.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
SAV HVSR10_m er_2 7_g en_2 021_1 0_1 2.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
10Hz
5Hz
2Hz
0.5Hz
N
W
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

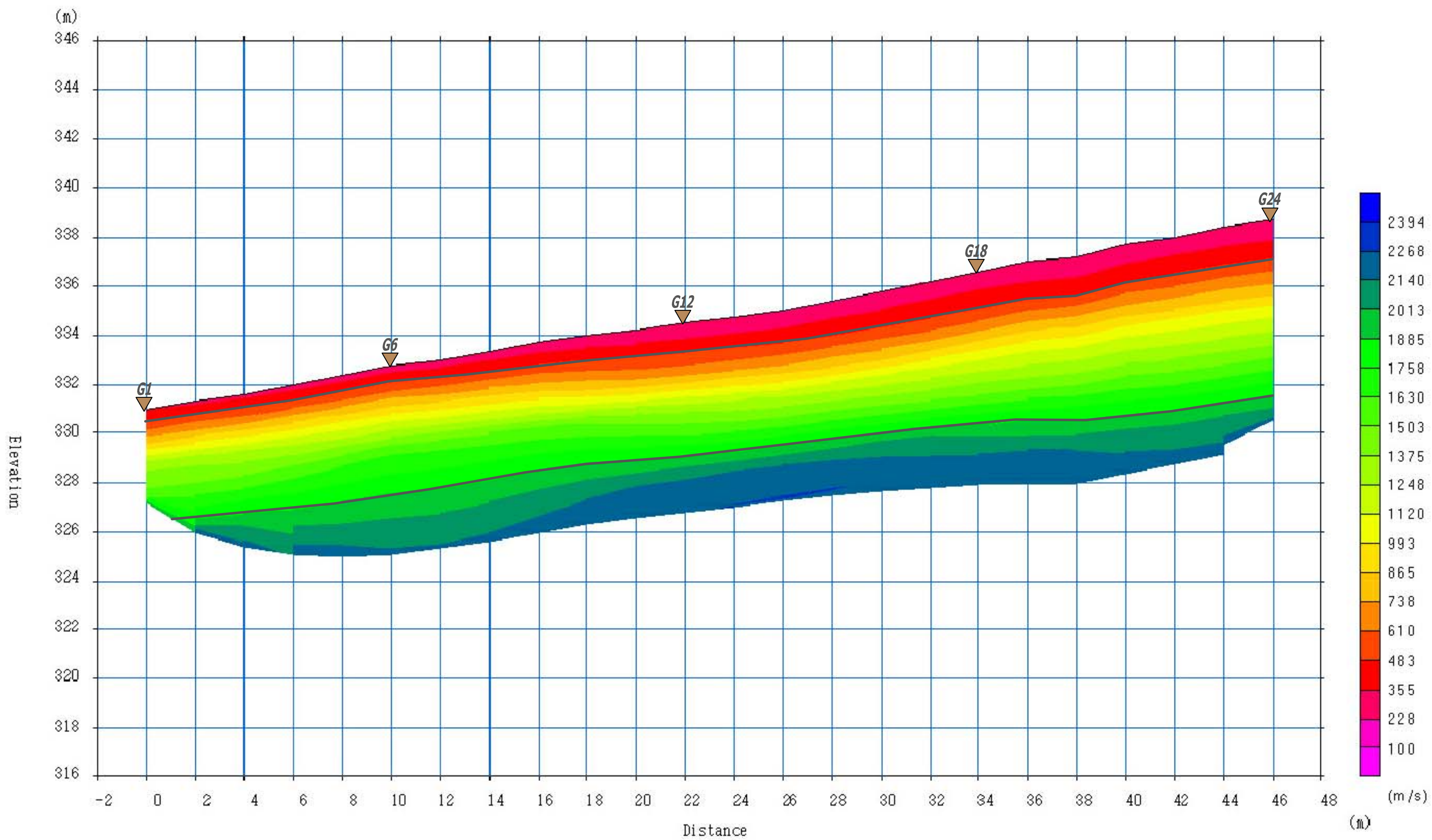
Committente: UNIONE DEI COMUNI SAVENA IDICE
Via Belvedere- Loc. Pianoro Vecchio
Comune di Pianoro (BO)

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO9

GEOLOGICA TOSCANA s.n.c.

REPORT DELLE INDAGINI GEOFISICHE E GEOGNOSTICHE

Comune di Loiano

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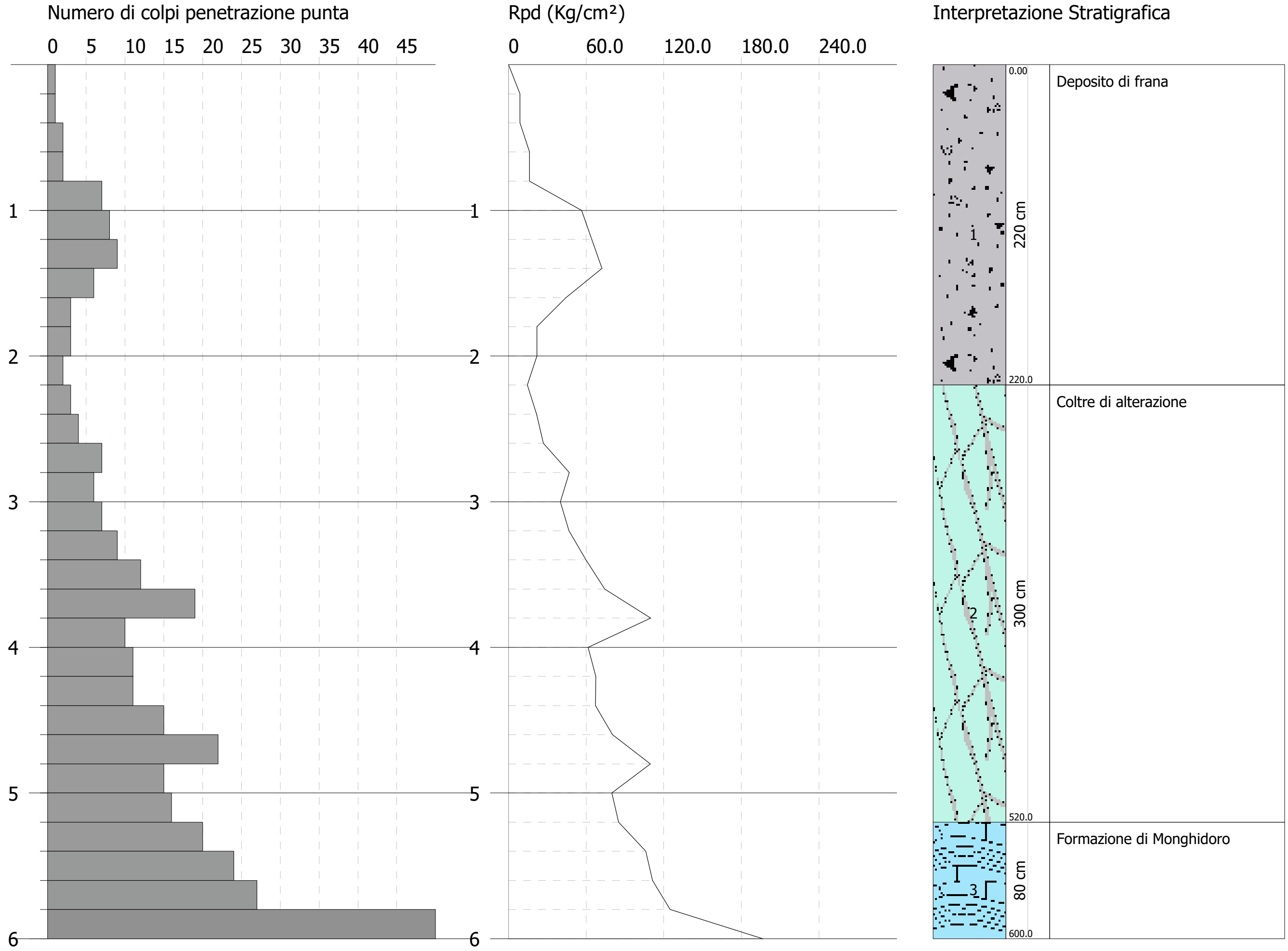
DPSH11_ms3

PROVA PENETROMETRICA DINAMICA Nr.11
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 11

PROVA DPSH Nr.11

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 6.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	7	0.840	56.69	67.50	2.83	3.38
1.20	8	0.836	64.52	77.15	3.23	3.86
1.40	9	0.833	72.29	86.79	3.61	4.34
1.60	6	0.830	44.35	53.47	2.22	2.67
1.80	3	0.826	22.09	26.73	1.10	1.34
2.00	3	0.823	22.01	26.73	1.10	1.34
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	3	0.817	21.84	26.73	1.09	1.34
2.60	4	0.814	26.97	33.13	1.35	1.66
2.80	7	0.811	47.04	57.97	2.35	2.90
3.00	6	0.809	40.18	49.69	2.01	2.48
3.20	7	0.806	46.73	57.97	2.34	2.90
3.40	9	0.803	59.88	74.54	2.99	3.73
3.60	12	0.801	74.34	92.83	3.72	4.64
3.80	19	0.748	110.00	146.97	5.50	7.35
4.00	10	0.796	61.58	77.36	3.08	3.87

Prova n. 11

4.20	11	0.794	67.54	85.09	3.38	4.25
4.40	11	0.791	67.34	85.09	3.37	4.25
4.60	15	0.739	80.47	108.85	4.02	5.44
4.80	22	0.687	109.70	159.65	5.48	7.98
5.00	15	0.735	80.01	108.85	4.00	5.44
5.20	16	0.733	85.11	116.11	4.26	5.81
5.40	20	0.731	106.10	145.14	5.31	7.26
5.60	24	0.679	111.39	164.02	5.57	8.20
5.80	27	0.677	124.97	184.52	6.25	9.23
6.00	50	0.575	196.64	341.71	9.83	17.09

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
2.2	4	37.8	Incoerente - coesivo	0	1.81	1.89	0.2	1.47	5.88	Deposito di frana
5.2	11.13	85.39	Incoerente - coesivo	0	2.08	2.29	0.71	1.47	16.36	Coltre di alterazione
6	30.25	208.85	Incoerente - coesivo	0	2.5	2.5	1.12	1.47	44.47	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.11

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	5.88	2.20	0.37	0.74	0.25	0.24	0.57	1.13	0.53	0.87	0.29	0.77	0.74
[2] - Coltre di alterazione	16.36	5.20	1.10	2.05	1.00	0.64	1.62	2.56	1.41	1.75	0.82	2.15	2.05
[3] - Formazione di Monghidoro	44.47	6.00	3.00	5.56	0.00	1.59	4.44	6.27	3.37	4.77	2.22	6.87	5.56

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.88	2.20	Robertson (1983)	11.76
[2] - Coltre di alterazione	16.36	5.20	Robertson (1983)	32.72
[3] - Formazione di Monghidoro	44.47	6.00	Robertson (1983)	88.94

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	5.88	2.20	26.98	88.20	61.76	73.50
[2] - Coltre di alterazione	16.36	5.20	75.06	--	168.65	163.60
[3] - Formazione di Monghidoro	44.47	6.00	204.03	--	455.36	444.70

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	5.88	2.20	47.22	58.80
[2] - Coltre di alterazione	16.36	5.20	167.74	163.60
[3] - Formazione di Monghidoro	44.47	6.00	491.01	444.70

Prova n. 11

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	5.88	2.20	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Coltre di alterazione	16.36	5.20	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	44.47	6.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	5.88	2.20	Meyerhof	1.81
[2] - Coltre di alterazione	16.36	5.20	Meyerhof	2.08
[3] - Formazione di Monghidoro	44.47	6.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	5.88	2.20	Meyerhof	1.89
[2] - Coltre di alterazione	16.36	5.20	Meyerhof	2.29
[3] - Formazione di Monghidoro	44.47	6.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.88	2.20		0
[2] - Coltre di alterazione	16.36	5.20		0
[3] - Formazione di Monghidoro	44.47	6.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	5.88	2.20	26.03	53.7	60.93	23.14
[2] - Coltre di alterazione	16.36	5.20	38.51	71.53	71.21	45.42
[3] - Formazione di Monghidoro	44.47	6.00	56.39	100	100	75.89

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	5.88	2.20	5.88	28.68	21.68	29.65	31.37	32.04	0	<30	24.39	28.76	33.71	25.84
[2] - Coltre di alterazione	16.36	5.20	16.36	31.67	24.67	32.58	30.27	35.93	38.01	30-32	30.67	31.91	40.7	33.09
[3] - Formazione di Monghidoro	44.47	6.00	44.47	39.71	32.71	40.45	30.9	42.02	42	35-38	40.83	40.34	47.86	44.82

Prova n. 11

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	5.88	2.20	5.88	---	47.04	---	---	---
[2] - Coltre di alterazione	16.36	5.20	16.36	288.71	130.88	193.75	302.70	156.80
[3] - Formazione di Monghidoro	44.47	6.00	44.47	476.00	355.76	525.45	513.53	297.35

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	5.88	2.20	5.88	---	39.54	41.75	64.22
[2] - Coltre di alterazione	16.36	5.20	16.36	98.16	61.07	116.16	110.97
[3] - Formazione di Monghidoro	44.47	6.00	44.47	266.82	118.81	315.74	236.34

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	5.88	2.20	5.88	Classificazione A.G.I	POCO ADDENSATO
[2] - Coltre di alterazione	16.36	5.20	16.36	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	44.47	6.00	44.47	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	5.88	2.20	5.88	Meyerhof et al.	1.58
[2] - Coltre di alterazione	16.36	5.20	16.36	Meyerhof et al.	1.91
[3] - Formazione di Monghidoro	44.47	6.00	44.47	Meyerhof et al.	2.22

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	5.88	2.20	5.88	Terzaghi-Peck 1948-1967	1.89
[2] - Coltre di alterazione	16.36	5.20	16.36	Terzaghi-Peck 1948-1967	1.96
[3] - Formazione di Monghidoro	44.47	6.00	44.47	Terzaghi-Peck 1948-1967	2.13

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	5.88	2.20	5.88	(A.G.I.)	0.34
[2] - Coltre di alterazione	16.36	5.20	16.36	(A.G.I.)	0.32
[3] - Formazione di Monghidoro	44.47	6.00	44.47	(A.G.I.)	0.27

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	5.88	2.20	5.88	343.66	368.98
[2] - Coltre di alterazione	16.36	5.20	16.36	899.23	689.50
[3] - Formazione di Monghidoro	44.47	6.00	44.47	2301.95	1270.22

Prova n. 11

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.88	2.20	5.88	Ohta & Goto (1978) Limi	94.67
[2] - Coltre di alterazione	16.36	5.20	16.36	Ohta & Goto (1978) Limi	142.81
[3] - Formazione di Monghidoro	44.47	6.00	44.47	Ohta & Goto (1978) Limi	183.92

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	5.88	2.20	5.88	Seed e Idriss (1971)	--
[2] - Coltre di alterazione	16.36	5.20	16.36	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	44.47	6.00	44.47	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	5.88	2.20	5.88		---
[2] - Coltre di alterazione	16.36	5.20	16.36		---
[3] - Formazione di Monghidoro	44.47	6.00	44.47		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.88	2.20	5.88		---
[2] - Coltre di alterazione	16.36	5.20	16.36		---
[3] - Formazione di Monghidoro	44.47	6.00	44.47		---

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Sito web: www.geologicatoscana.eu

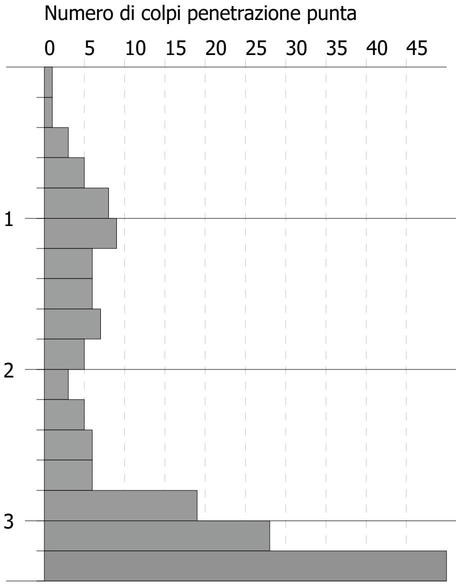
DPSH12_ms3

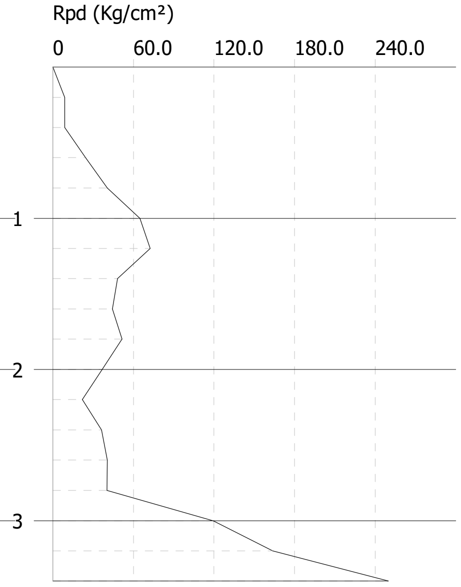
PROVA PENETROMETRICA DINAMICA Nr.12
Strumento utilizzato... DPSH TG 63-200 PAGANI

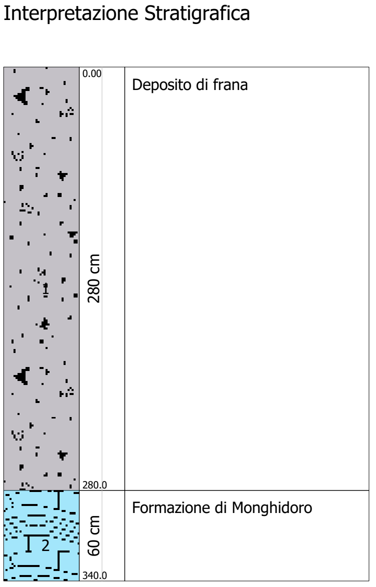
Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50







Prova n. 12

PROVA DPSH Nr.12

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 3.40 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	3	0.847	24.50	28.93	1.23	1.45
0.80	5	0.843	40.66	48.22	2.03	2.41
1.00	8	0.840	64.78	77.15	3.24	3.86
1.20	9	0.836	72.58	86.79	3.63	4.34
1.40	6	0.833	48.19	57.86	2.41	2.89
1.60	6	0.830	44.35	53.47	2.22	2.67
1.80	7	0.826	51.54	62.38	2.58	3.12
2.00	5	0.823	36.68	44.55	1.83	2.23
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	5	0.817	36.41	44.55	1.82	2.23
2.60	6	0.814	40.46	49.69	2.02	2.48
2.80	6	0.811	40.32	49.69	2.02	2.48
3.00	19	0.759	119.38	157.35	5.97	7.87
3.20	28	0.706	163.71	231.89	8.19	11.59
3.40	50	0.603	249.86	414.08	12.49	20.70

Prova n. 12

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
2.8	5.07	46.5	Incoerente - coesivo	0	1.88	1.9	0.26	1.47	7.45	Deposito di frana
3.4	32.33	267.77	Incoerente - coesivo	0	2.5	2.5	0.6	1.47	47.53	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.12

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	7.45	2.80	0.47	0.93	0.25	0.30	0.73	1.40	0.67	1.00	0.37	0.95	0.93
[2] - Formazione di Monghidoro	47.53	3.40	3.21	5.94	0.00	1.68	4.75	8.03	3.55	5.16	2.38	7.88	5.94

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.45	2.80	Robertson (1983)	14.90
[2] - Formazione di Monghidoro	47.53	3.40	Robertson (1983)	95.06

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	7.45	2.80	34.18	--	77.78	93.13
[2] - Formazione di Monghidoro	47.53	3.40	218.07	--	486.57	475.30

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	7.45	2.80	65.28	74.50
[2] - Formazione di Monghidoro	47.53	3.40	526.20	475.30

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	7.45	2.80	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monghidoro	47.53	3.40	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	7.45	2.80	Meyerhof	1.88
[2] - Formazione di Monghidoro	47.53	3.40	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	7.45	2.80	Meyerhof	1.90
[2] - Formazione di Monghidoro	47.53	3.40	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.45	2.80		0
[2] - Formazione di Monghidoro	47.53	3.40		0

Prova n. 12

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	7.45	2.80	29.45	58.4	63.41	27.08
[2] - Formazione di Monghidoro	47.53	3.40	66.95	100	100	78.33

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	7.45	2.80	7.45	29.13	22.13	30.09	31.15	32.67	0	<30	25.57	29.24	35.53	27.21
[2] - Formazione di Monghidoro	47.53	3.40	47.53	40.58	33.58	41.31	32.36	42.3	42	35-38	41.7	41.26	50.42	45.83

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	7.45	2.80	7.45	---	59.60	---	---	---
[2] - Formazione di Monghidoro	47.53	3.40	47.53	492.10	380.24	561.55	536.47	312.65

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	7.45	2.80	7.45	---	42.77	52.90	71.23
[2] - Formazione di Monghidoro	47.53	3.40	47.53	285.18	125.09	337.46	249.98

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	7.45	2.80	7.45	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monghidoro	47.53	3.40	47.53	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	7.45	2.80	7.45	Meyerhof et al.	1.64
[2] - Formazione di Monghidoro	47.53	3.40	47.53	Meyerhof et al.	2.23

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	7.45	2.80	7.45	Terzaghi-Peck 1948-1967	1.90
[2] - Formazione di Monghidoro	47.53	3.40	47.53	Terzaghi-Peck 1948-1967	2.15

Prova n. 12

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	7.45	2.80	7.45	(A.G.I.)	0.34
[2] - Formazione di Monghidoro	47.53	3.40	47.53	(A.G.I.)	0.26

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	7.45	2.80	7.45	429.28	426.38
[2] - Formazione di Monghidoro	47.53	3.40	47.53	2450.55	1322.93

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.45	2.80	7.45	Ohta & Goto (1978) Limi	103.33
[2] - Formazione di Monghidoro	47.53	3.40	47.53	Ohta & Goto (1978) Limi	165.99

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	7.45	2.80	7.45	Seed e Idriss (1971)	--
[2] - Formazione di Monghidoro	47.53	3.40	47.53	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	7.45	2.80	7.45		---
[2] - Formazione di Monghidoro	47.53	3.40	47.53		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.45	2.80	7.45		---
[2] - Formazione di Monghidoro	47.53	3.40	47.53		---

Geologica Toscana snc
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tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

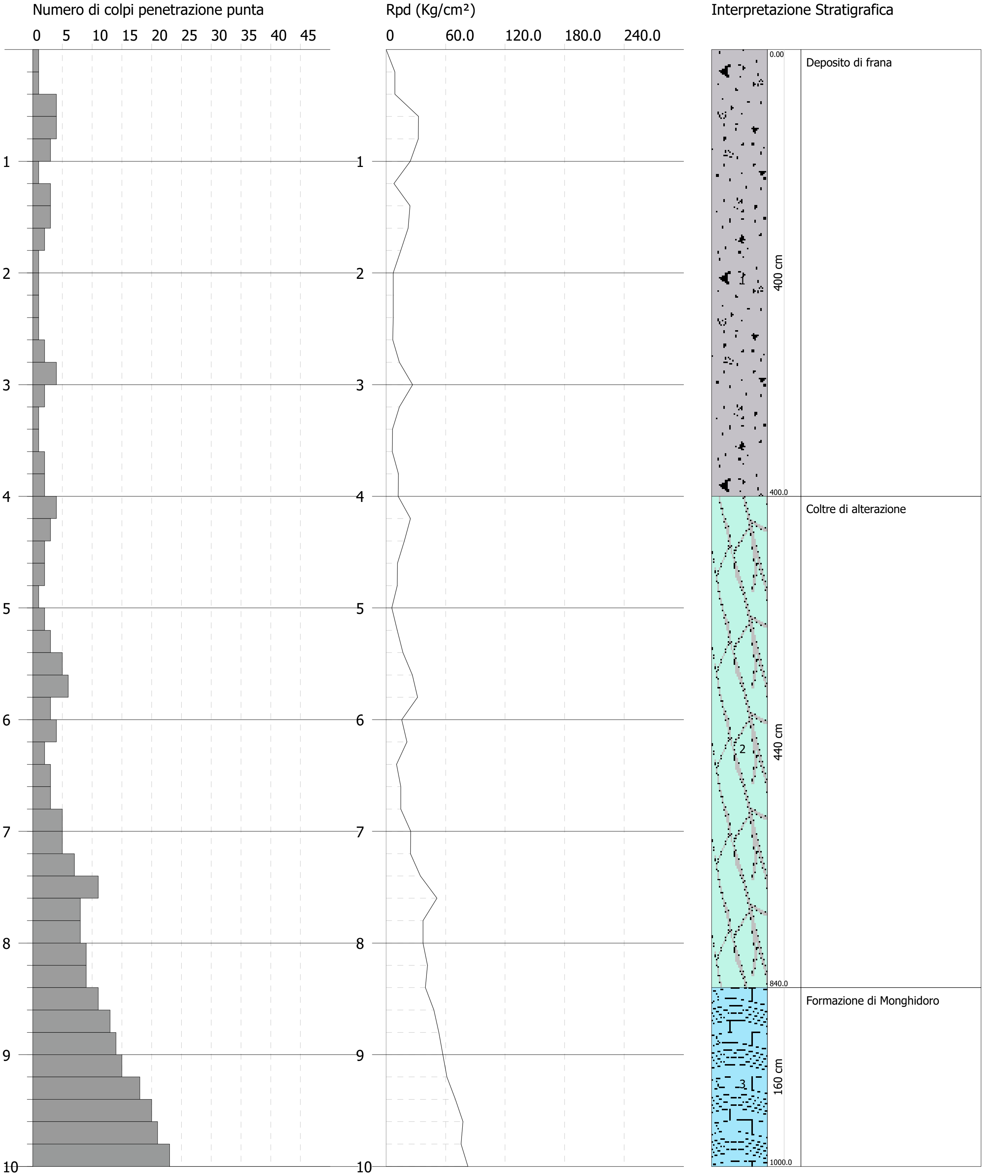
DPSH13_ms3

PROVA PENETROMETRICA DINAMICA Nr.13
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 13

PROVA DPSH Nr.13

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 10.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	4	0.847	32.67	38.57	1.63	1.93
0.80	4	0.843	32.53	38.57	1.63	1.93
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	1	0.836	8.06	9.64	0.40	0.48
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	1	0.820	7.31	8.91	0.37	0.45
2.40	1	0.817	7.28	8.91	0.36	0.45
2.60	1	0.814	6.74	8.28	0.34	0.41
2.80	2	0.811	13.44	16.56	0.67	0.83
3.00	4	0.809	26.79	33.13	1.34	1.66
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	1	0.803	6.65	8.28	0.33	0.41
3.60	1	0.801	6.20	7.74	0.31	0.39
3.80	2	0.798	12.35	15.47	0.62	0.77
4.00	2	0.796	12.32	15.47	0.62	0.77

Prova n. 13

4.20	4	0.794	24.56	30.94	1.23	1.55
4.40	3	0.791	18.37	23.21	0.92	1.16
4.60	2	0.789	11.45	14.51	0.57	0.73
4.80	2	0.787	11.42	14.51	0.57	0.73
5.00	1	0.785	5.70	7.26	0.28	0.36
5.20	2	0.783	11.36	14.51	0.57	0.73
5.40	3	0.781	17.00	21.77	0.85	1.09
5.60	5	0.779	26.62	34.17	1.33	1.71
5.80	6	0.777	31.87	41.00	1.59	2.05
6.00	3	0.775	15.90	20.50	0.79	1.03
6.20	4	0.774	21.15	27.34	1.06	1.37
6.40	2	0.772	10.55	13.67	0.53	0.68
6.60	3	0.770	14.92	19.37	0.75	0.97
6.80	3	0.769	14.89	19.37	0.74	0.97
7.00	5	0.767	24.77	32.29	1.24	1.61
7.20	5	0.766	24.72	32.29	1.24	1.61
7.40	7	0.764	34.54	45.20	1.73	2.26
7.60	11	0.763	51.35	67.33	2.57	3.37
7.80	8	0.761	37.28	48.97	1.86	2.45
8.00	8	0.760	37.21	48.97	1.86	2.45
8.20	9	0.759	41.79	55.09	2.09	2.75
8.40	9	0.757	41.72	55.09	2.09	2.75
8.60	11	0.756	48.37	63.99	2.42	3.20
8.80	13	0.705	53.29	75.62	2.66	3.78
9.00	14	0.703	57.29	81.44	2.86	4.07
9.20	15	0.702	61.28	87.26	3.06	4.36
9.40	18	0.701	73.41	104.71	3.67	5.24
9.60	20	0.700	77.59	110.85	3.88	5.54
9.80	21	0.649	75.52	116.39	3.78	5.82
10.00	23	0.648	82.57	127.48	4.13	6.37

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
4	2	17.92	Incoerente - coesivo	0	1.63	1.86	0.33	1.47	2.94	Deposito di frana
8.4	4.77	31.24	Incoerente - coesivo	0	1.86	1.9	1.06	1.47	7.01	Coltre di alterazione
10	16.88	95.97	Incoerente - coesivo	0	2.12	2.22	1.64	1.47	24.81	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.13

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	2.94	4.00	0.18	0.37	0.15	0.12	0.28	0.54	0.27	0.65	0.15	0.06	0.37
[2] - Coltre di alterazione	7.01	8.40	0.44	0.88	0.25	0.28	0.69	0.94	0.63	0.96	0.35	0.14	0.88
[3] - Formazione di Monghidoro	24.81	10.00	1.68	3.10	1.00	0.95	2.46	2.88	2.06	2.55	1.24	2.92	3.10

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	2.94	4.00	Robertson (1983)	5.88
[2] - Coltre di alterazione	7.01	8.40	Robertson (1983)	14.02
[3] - Formazione di Monghidoro	24.81	10.00	Robertson (1983)	49.62

Prova n. 13

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	2.94	4.00	13.49	44.10	31.78	36.75
[2] - Coltre di alterazione	7.01	8.40	32.16	--	73.29	87.63
[3] - Formazione di Monghidoro	24.81	10.00	113.83	--	254.84	248.10

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	2.94	4.00	13.41	29.40
[2] - Coltre di alterazione	7.01	8.40	60.22	70.10
[3] - Formazione di Monghidoro	24.81	10.00	264.92	248.10

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	2.94	4.00	A.G.I. (1977)	POCO CONSISTENTE
[2] - Coltre di alterazione	7.01	8.40	A.G.I. (1977)	MODERAT. CONSISTENTE
[3] - Formazione di Monghidoro	24.81	10.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	2.94	4.00	Meyerhof	1.63
[2] - Coltre di alterazione	7.01	8.40	Meyerhof	1.86
[3] - Formazione di Monghidoro	24.81	10.00	Meyerhof	2.12

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	2.94	4.00	Meyerhof	1.86
[2] - Coltre di alterazione	7.01	8.40	Meyerhof	1.90
[3] - Formazione di Monghidoro	24.81	10.00	Meyerhof	2.22

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	2.94	4.00		0
[2] - Coltre di alterazione	7.01	8.40		0
[3] - Formazione di Monghidoro	24.81	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	2.94	4.00	11.85	35.55	38.44	15.13
[2] - Coltre di alterazione	7.01	8.40	17.81	41.9	42.75	26
[3] - Formazione di Monghidoro	24.81	10.00	36.69	68.38	69.78	57.72

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	2.94	4.00	2.94	27.84	20.84	28.82	29.18	30.79	0	<30	21.64	27.88	27.18	22.67
[2] - Coltre di alterazione	7.01	8.40	7.01	29	22	29.96	28.03	32.5	0	<30	25.25	29.1	31.97	26.84
[3] - Formazione di Monghidoro	24.81	10.00	24.81	34.09	27.09	34.95	29.13	38.42	37.57	30-32	34.29	34.44	40.8	37.28

Prova n. 13

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	2.94	4.00	2.94	---	23.52	---	---	---
[2] - Coltre di alterazione	7.01	8.40	7.01	---	56.08	---	---	---
[3] - Formazione di Monghidoro	24.81	10.00	24.81	355.54	198.48	293.46	366.07	199.05

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	2.94	4.00	2.94	---	33.50	20.87	51.11
[2] - Coltre di alterazione	7.01	8.40	7.01	---	41.86	49.77	69.26
[3] - Formazione di Monghidoro	24.81	10.00	24.81	148.86	78.43	176.15	148.65

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	2.94	4.00	2.94	Classificazione A.G.I	SCIOLTO
[2] - Coltre di alterazione	7.01	8.40	7.01	Classificazione A.G.I	POCO ADDENSATO
[3] - Formazione di Monghidoro	24.81	10.00	24.81	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	2.94	4.00	2.94	Meyerhof et al.	1.45
[2] - Coltre di alterazione	7.01	8.40	7.01	Meyerhof et al.	1.62
[3] - Formazione di Monghidoro	24.81	10.00	24.81	Meyerhof et al.	2.07

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	2.94	4.00	2.94	Terzaghi-Peck 1948-1967	1.87
[2] - Coltre di alterazione	7.01	8.40	7.01	Terzaghi-Peck 1948-1967	1.90
[3] - Formazione di Monghidoro	24.81	10.00	24.81	Terzaghi-Peck 1948-1967	2.01

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	2.94	4.00	2.94	(A.G.I.)	0.35
[2] - Coltre di alterazione	7.01	8.40	7.01	(A.G.I.)	0.34
[3] - Formazione di Monghidoro	24.81	10.00	24.81	(A.G.I.)	0.31

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	2.94	4.00	2.94	179.13	241.59
[2] - Coltre di alterazione	7.01	8.40	7.01	405.40	410.81
[3] - Formazione di Monghidoro	24.81	10.00	24.81	1330.03	889.26

Prova n. 13

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	2.94	4.00	2.94	Ohta & Goto (1978) Limi	94.24
[2] - Coltre di alterazione	7.01	8.40	7.01	Ohta & Goto (1978) Limi	136.26
[3] - Formazione di Monghidoro	24.81	10.00	24.81	Ohta & Goto (1978) Limi	182.98

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	2.94	4.00	2.94	Seed e Idriss (1971)	--
[2] - Coltre di alterazione	7.01	8.40	7.01	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	24.81	10.00	24.81	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	2.94	4.00	2.94		---
[2] - Coltre di alterazione	7.01	8.40	7.01		---
[3] - Formazione di Monghidoro	24.81	10.00	24.81		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	2.94	4.00	2.94		---
[2] - Coltre di alterazione	7.01	8.40	7.01		---
[3] - Formazione di Monghidoro	24.81	10.00	24.81		---

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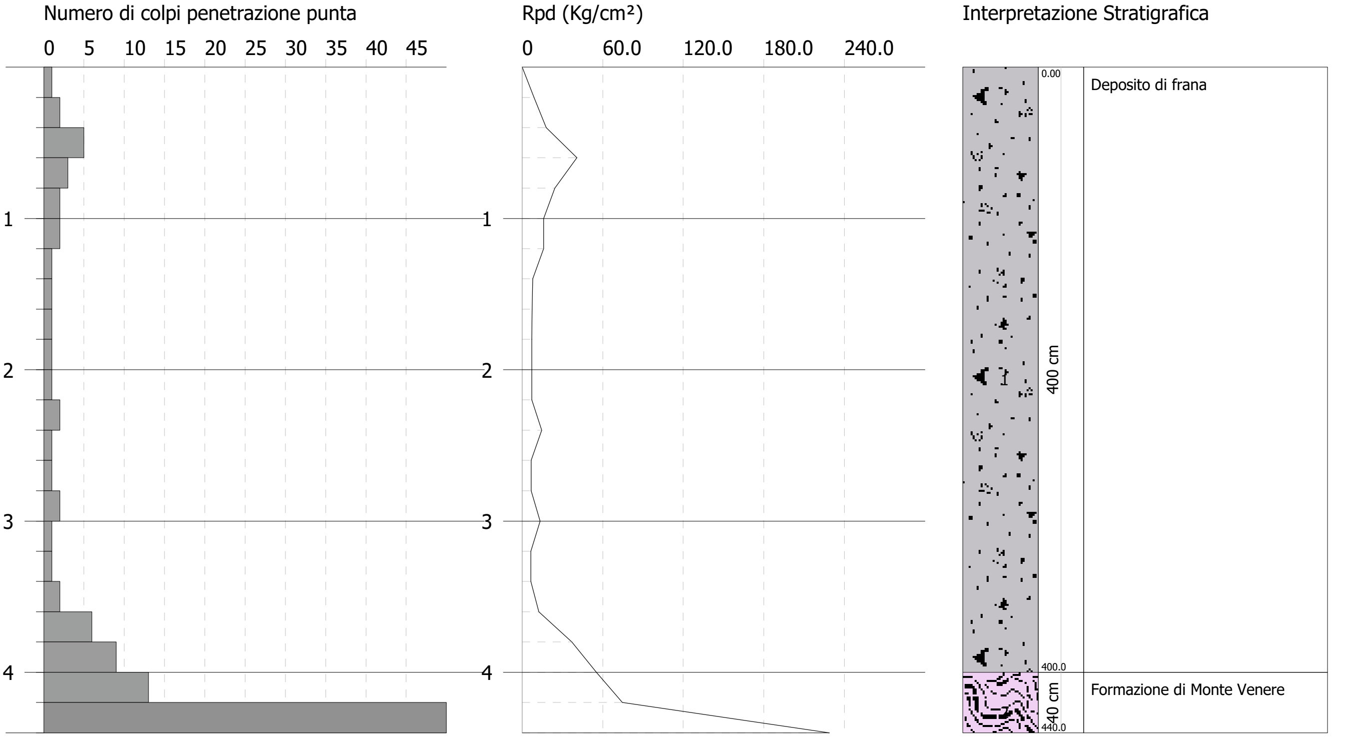
DPSH14_ms3

PROVA PENETROMETRICA DINAMICA Nr.14
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 14

PROVA DPSH Nr.14

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 4.40 mt
Falda non rilevata
Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	5	0.847	40.84	48.22	2.04	2.41
0.80	3	0.843	24.40	28.93	1.22	1.45
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	1	0.833	8.03	9.64	0.40	0.48
1.60	1	0.830	7.39	8.91	0.37	0.45
1.80	1	0.826	7.36	8.91	0.37	0.45
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	1	0.820	7.31	8.91	0.37	0.45
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	1	0.814	6.74	8.28	0.34	0.41
2.80	1	0.811	6.72	8.28	0.34	0.41
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	1	0.806	6.68	8.28	0.33	0.41
3.40	1	0.803	6.65	8.28	0.33	0.41
3.60	2	0.801	12.39	15.47	0.62	0.77
3.80	6	0.798	37.06	46.41	1.85	2.32
4.00	9	0.796	55.42	69.62	2.77	3.48
4.20	13	0.744	74.79	100.56	3.74	5.03
4.40	50	0.591	228.75	386.78	11.44	19.34

Prova n. 14

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
4	2.25	19.58	Incoerente - coesivo	0	1.66	1.86	0.33	1.47	3.31	Deposito di frana
4.4	31.5	243.67	Incoerente - coesivo	0	2.5	2.5	0.71	1.47	46.31	Formazione di Monte Venere

STIMA PARAMETRI GEOTECNICI PROVA Nr.14

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	3.31	4.00	0.21	0.41	0.15	0.14	0.32	0.59	0.30	0.68	0.17	0.12	0.41
[2] - Formazione di Monte Venere	46.31	4.40	3.13	5.79	0.00	1.64	4.63	7.31	3.48	5.00	2.32	7.48	5.79

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.31	4.00	Robertson (1983)	6.62
[2] - Formazione di Monte Venere	46.31	4.40	Robertson (1983)	92.62

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.31	4.00	15.19	49.65	35.55	41.38
[2] - Formazione di Monte Venere	46.31	4.40	212.47	--	474.13	463.10

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.31	4.00	17.67	33.10
[2] - Formazione di Monte Venere	46.31	4.40	512.17	463.10

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.31	4.00	A.G.I. (1977)	POCO CONSISTENTE
[2] - Formazione di Monte Venere	46.31	4.40	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.31	4.00	Meyerhof	1.66
[2] - Formazione di Monte Venere	46.31	4.40	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.31	4.00	Meyerhof	1.86
[2] - Formazione di Monte Venere	46.31	4.40	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.31	4.00		0
[2] - Formazione di Monte Venere	46.31	4.40		0

Prova n. 14

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.31	4.00	13.68	37.61	40.49	16.19
[2] - Formazione di Monte Venere	46.31	4.40	64.04	100	100	77.35

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.31	4.00	3.31	27.95	20.95	28.93	29.33	30.95	0	<30	22.05	27.99	28.19	23.14
[2] - Formazione di Monte Venere	46.31	4.40	46.31	40.23	33.23	40.97	31.94	42.19	42	35-38	41.36	40.89	49.77	45.43

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.31	4.00	3.31	---	26.48	---	---	---
[2] - Formazione di Monte Venere	46.31	4.40	46.31	485.74	370.48	547.16	527.33	306.55

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.31	4.00	3.31	---	34.26	23.50	52.76
[2] - Formazione di Monte Venere	46.31	4.40	46.31	277.86	122.59	328.80	244.54

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.31	4.00	3.31	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monte Venere	46.31	4.40	46.31	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.31	4.00	3.31	Meyerhof et al.	1.46
[2] - Formazione di Monte Venere	46.31	4.40	46.31	Meyerhof et al.	2.22

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.31	4.00	3.31	Terzaghi-Peck 1948-1967	1.88
[2] - Formazione di Monte Venere	46.31	4.40	46.31	Terzaghi-Peck 1948-1967	2.14

Prova n. 14

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.31	4.00	3.31	(A.G.I.)	0.35
[2] - Formazione di Monte Venere	46.31	4.40	46.31	(A.G.I.)	0.26

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.31	4.00	3.31	200.24	259.73
[2] - Formazione di Monte Venere	46.31	4.40	46.31	2391.38	1302.08

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.31	4.00	3.31	Ohta & Goto (1978) Limi	96.19
[2] - Formazione di Monte Venere	46.31	4.40	46.31	Ohta & Goto (1978) Limi	175.21

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.31	4.00	3.31	Seed e Idriss (1971)	--
[2] - Formazione di Monte Venere	46.31	4.40	46.31	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.31	4.00	3.31		---
[2] - Formazione di Monte Venere	46.31	4.40	46.31		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.31	4.00	3.31		---
[2] - Formazione di Monte Venere	46.31	4.40	46.31		---

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Sito web: www.geologicatoscana.eu

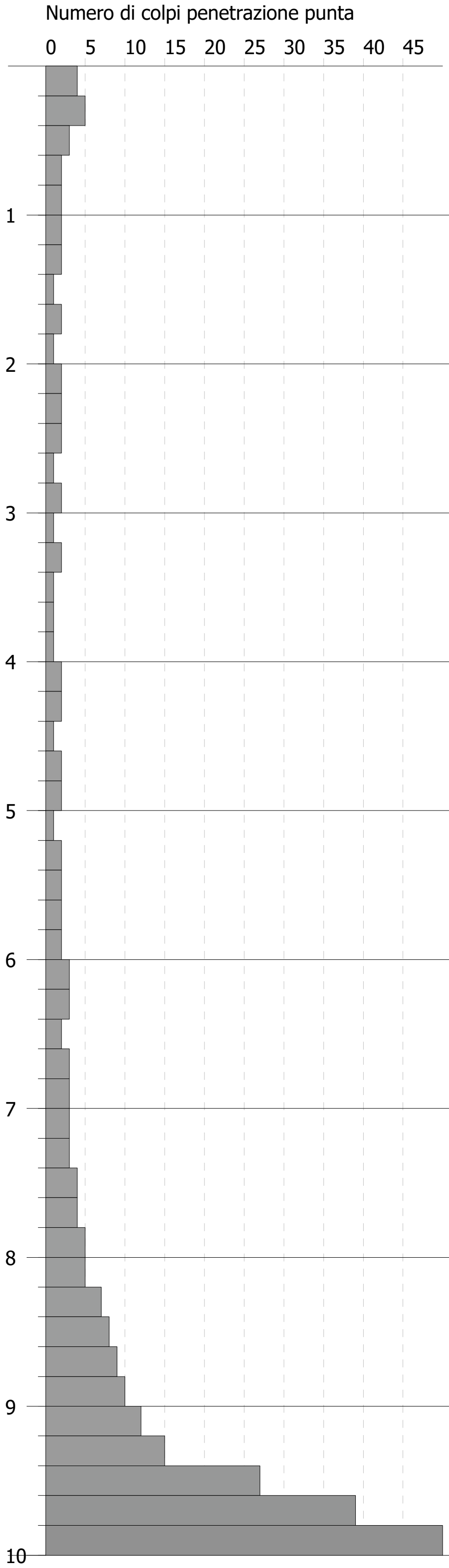
DPSH15_ms3

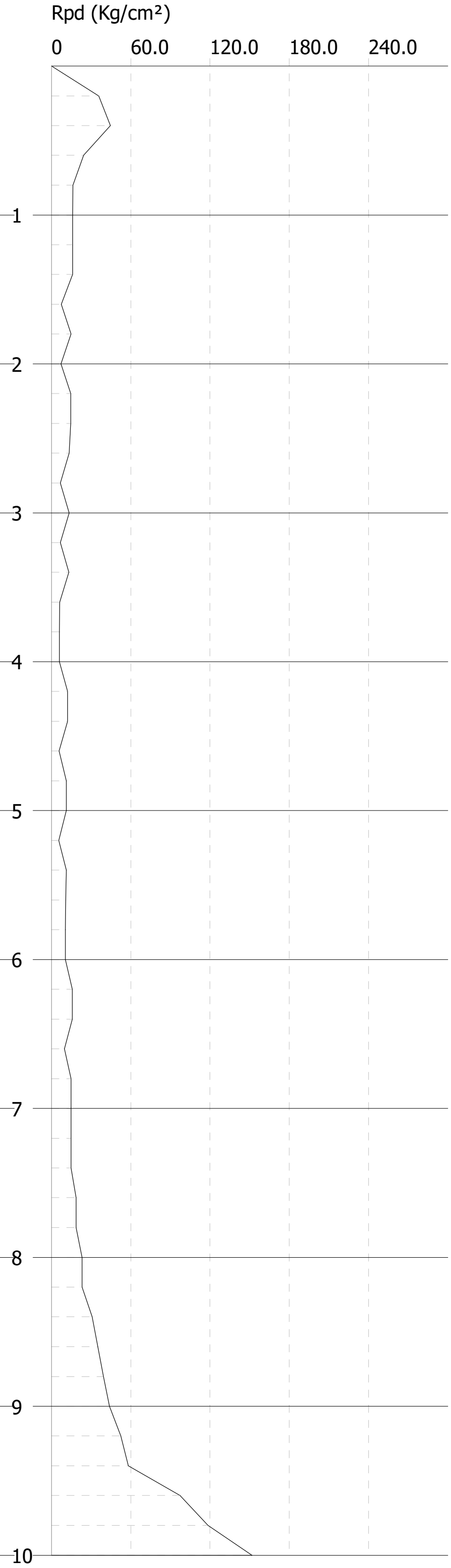
PROVA PENETROMETRICA DINAMICA Nr.15
Strumento utilizzato... DPSH TG 63-200 PAGANI

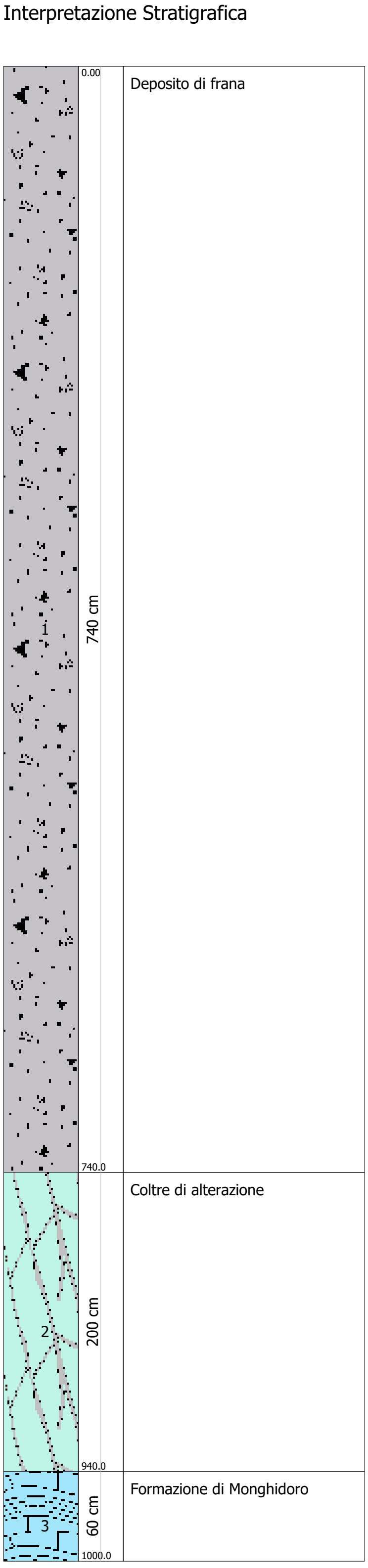
Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50







Prova n. 15

PROVA DPSH Nr.15

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 10.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	4	0.855	35.92	42.03	1.80	2.10
0.40	5	0.851	44.70	52.54	2.23	2.63
0.60	3	0.847	24.50	28.93	1.23	1.45
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	1	0.830	7.39	8.91	0.37	0.45
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	2	0.814	13.49	16.56	0.67	0.83
2.80	1	0.811	6.72	8.28	0.34	0.41
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	1	0.806	6.68	8.28	0.33	0.41
3.40	2	0.803	13.31	16.56	0.67	0.83
3.60	1	0.801	6.20	7.74	0.31	0.39
3.80	1	0.798	6.18	7.74	0.31	0.39
4.00	1	0.796	6.16	7.74	0.31	0.39

Prova n. 15

4.20	2	0.794	12.28	15.47	0.61	0.77
4.40	2	0.791	12.24	15.47	0.61	0.77
4.60	1	0.789	5.73	7.26	0.29	0.36
4.80	2	0.787	11.42	14.51	0.57	0.73
5.00	2	0.785	11.39	14.51	0.57	0.73
5.20	1	0.783	5.68	7.26	0.28	0.36
5.40	2	0.781	11.34	14.51	0.57	0.73
5.60	2	0.779	10.65	13.67	0.53	0.68
5.80	2	0.777	10.62	13.67	0.53	0.68
6.00	2	0.775	10.60	13.67	0.53	0.68
6.20	3	0.774	15.86	20.50	0.79	1.03
6.40	3	0.772	15.83	20.50	0.79	1.03
6.60	2	0.770	9.95	12.92	0.50	0.65
6.80	3	0.769	14.89	19.37	0.74	0.97
7.00	3	0.767	14.86	19.37	0.74	0.97
7.20	3	0.766	14.83	19.37	0.74	0.97
7.40	3	0.764	14.80	19.37	0.74	0.97
7.60	4	0.763	18.67	24.48	0.93	1.22
7.80	4	0.761	18.64	24.48	0.93	1.22
8.00	5	0.760	23.26	30.60	1.16	1.53
8.20	5	0.759	23.22	30.60	1.16	1.53
8.40	7	0.757	32.45	42.85	1.62	2.14
8.60	8	0.756	35.18	46.54	1.76	2.33
8.80	9	0.755	39.51	52.36	1.98	2.62
9.00	10	0.753	43.83	58.17	2.19	2.91
9.20	12	0.752	52.52	69.81	2.63	3.49
9.40	15	0.701	61.18	87.26	3.06	4.36
9.60	27	0.650	97.26	149.65	4.86	7.48
9.80	39	0.549	118.63	216.15	5.93	10.81
10.00	50	0.548	151.78	277.12	7.59	13.86

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
7.4	2.08	16.83	Incoerente - coesivo	0	1.64	1.86	0.61	1.47	3.06	Deposito di frana
9.4	7.9	46.72	Incoerente - coesivo	0	2.01	2.21	1.41	1.47	11.61	Coltre di alterazione
10	38.67	214.31	Incoerente - coesivo	0	2.5	2.5	1.69	1.47	56.84	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.15

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.06	7.40	0.19	0.38	0.15	0.13	0.30	0.51	0.28	0.66	0.15	0.00	0.38
[2] - Coltre di alterazione	11.61	9.40	0.78	1.45	0.50	0.46	1.14	1.40	1.02	1.33	0.58	0.72	1.45
[3] - Formazione di Monghidoro	56.84	10.00	3.84	7.11	0.00	1.94	5.70	6.43	4.05	6.42	2.84	8.36	7.11

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.06	7.40	Robertson (1983)	6.12
[2] - Coltre di alterazione	11.61	9.40	Robertson (1983)	23.22
[3] - Formazione di Monghidoro	56.84	10.00	Robertson (1983)	113.68

Prova n. 15

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.06	7.40	14.04	45.90	33.00	38.25
[2] - Coltre di alterazione	11.61	9.40	53.27	--	120.21	116.10
[3] - Formazione di Monghidoro	56.84	10.00	260.78	--	581.53	568.40

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.06	7.40	14.79	30.60
[2] - Coltre di alterazione	11.61	9.40	113.12	116.10
[3] - Formazione di Monghidoro	56.84	10.00	633.26	568.40

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.06	7.40	A.G.I. (1977)	POCO CONSISTENTE
[2] - Coltre di alterazione	11.61	9.40	A.G.I. (1977)	CONSISTENTE
[3] - Formazione di Monghidoro	56.84	10.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.06	7.40	Meyerhof	1.64
[2] - Coltre di alterazione	11.61	9.40	Meyerhof	2.01
[3] - Formazione di Monghidoro	56.84	10.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.06	7.40	Meyerhof	1.86
[2] - Coltre di alterazione	11.61	9.40	Meyerhof	2.21
[3] - Formazione di Monghidoro	56.84	10.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.06	7.40		0
[2] - Coltre di alterazione	11.61	9.40		0
[3] - Formazione di Monghidoro	56.84	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.06	7.40	8.99	32.13	33.3	15.47
[2] - Coltre di alterazione	11.61	9.40	23.58	49.21	50.46	36.44
[3] - Formazione di Monghidoro	56.84	10.00	55.67	100	100	86.65

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.06	7.40	3.06	27.87	20.87	28.86	27.9	30.84	0	<30	21.77	27.92	26.46	22.82
[2] - Coltre di alterazione	11.61	9.40	11.61	30.32	23.32	31.25	28.22	34.27	34.89	<30	28.2	30.48	35.03	30.24

Prova n. 15

[3] - Formazione di Monghidoro	56.84	10.00	56.84	43.24	36.24	43.92	30.4	42.69	42	>38	44.2	44.05	47.85	48.72

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.06	7.40	3.06	---	24.48	---	---	---
[2] - Coltre di alterazione	11.61	9.40	11.61	243.21	92.88	137.70	267.08	133.05
[3] - Formazione di Monghidoro	56.84	10.00	56.84	538.14	454.72	671.41	606.30	359.20

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.06	7.40	3.06	---	33.75	21.73	51.65
[2] - Coltre di alterazione	11.61	9.40	11.61	69.66	51.31	82.43	89.78
[3] - Formazione di Monghidoro	56.84	10.00	56.84	341.04	144.22	403.56	291.51

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.06	7.40	3.06	Classificazione A.G.I	SCIOLTO
[2] - Coltre di alterazione	11.61	9.40	11.61	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	56.84	10.00	56.84	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.06	7.40	3.06	Meyerhof et al.	1.45
[2] - Coltre di alterazione	11.61	9.40	11.61	Meyerhof et al.	1.78
[3] - Formazione di Monghidoro	56.84	10.00	56.84	Meyerhof et al.	2.27

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.06	7.40	3.06	Terzaghi-Peck 1948-1967	1.87
[2] - Coltre di alterazione	11.61	9.40	11.61	Terzaghi-Peck 1948-1967	1.93
[3] - Formazione di Monghidoro	56.84	10.00	56.84	Terzaghi-Peck 1948-1967	2.16

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.06	7.40	3.06	(A.G.I.)	0.35
[2] - Coltre di alterazione	11.61	9.40	11.61	(A.G.I.)	0.33
[3] - Formazione di Monghidoro	56.84	10.00	56.84	(A.G.I.)	0.24

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.06	7.40	3.06	185.99	247.56
[2] - Coltre di alterazione	11.61	9.40	11.61	651.41	559.14
[3] - Formazione di Monghidoro	56.84	10.00	56.84	2899.27	1475.72

Prova n. 15

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.06	7.40	3.06	Ohta & Goto (1978) Limi	106.86
[2] - Coltre di alterazione	11.61	9.40	11.61	Ohta & Goto (1978) Limi	157.66
[3] - Formazione di Monghidoro	56.84	10.00	56.84	Ohta & Goto (1978) Limi	213.37

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.06	7.40	3.06	Seed e Idriss (1971)	--
[2] - Coltre di alterazione	11.61	9.40	11.61	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	56.84	10.00	56.84	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.06	7.40	3.06		---
[2] - Coltre di alterazione	11.61	9.40	11.61		---
[3] - Formazione di Monghidoro	56.84	10.00	56.84		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.06	7.40	3.06		---
[2] - Coltre di alterazione	11.61	9.40	11.61		---
[3] - Formazione di Monghidoro	56.84	10.00	56.84		---

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Sito web: www.geologicatoscana.eu

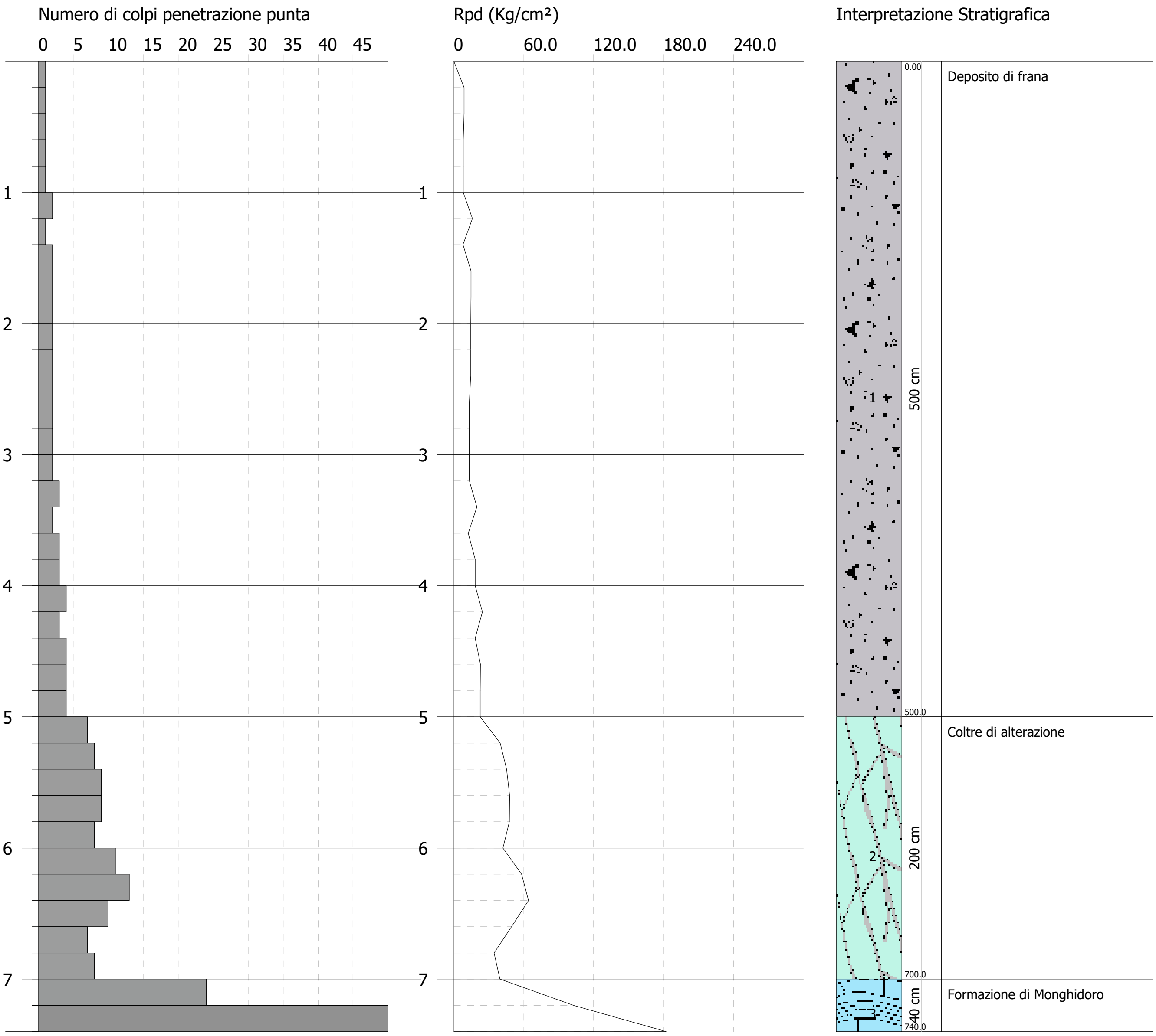
DPSH16_ms3

PROVA PENETROMETRICA DINAMICA Nr.16
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Loiano (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 16

PROVA DPSH Nr.16

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 7.40 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	1	0.840	8.10	9.64	0.40	0.48
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	1	0.833	8.03	9.64	0.40	0.48
1.60	2	0.830	14.78	17.82	0.74	0.89
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	2	0.823	14.67	17.82	0.73	0.89
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	2	0.814	13.49	16.56	0.67	0.83
2.80	2	0.811	13.44	16.56	0.67	0.83
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	2	0.801	12.39	15.47	0.62	0.77
3.80	3	0.798	18.53	23.21	0.93	1.16
4.00	3	0.796	18.47	23.21	0.92	1.16

Prova n. 16

4.20	4	0.794	24.56	30.94	1.23	1.55
4.40	3	0.791	18.37	23.21	0.92	1.16
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	4	0.787	22.85	29.03	1.14	1.45
5.00	4	0.785	22.79	29.03	1.14	1.45
5.20	7	0.783	39.78	50.80	1.99	2.54
5.40	8	0.781	45.34	58.06	2.27	2.90
5.60	9	0.779	47.92	61.51	2.40	3.08
5.80	9	0.777	47.81	61.51	2.39	3.08
6.00	8	0.775	42.40	54.67	2.12	2.73
6.20	11	0.774	58.16	75.18	2.91	3.76
6.40	13	0.722	64.15	88.84	3.21	4.44
6.60	10	0.770	49.75	64.58	2.49	3.23
6.80	7	0.769	34.75	45.20	1.74	2.26
7.00	8	0.767	39.63	51.66	1.98	2.58
7.20	24	0.666	103.17	154.99	5.16	7.75
7.40	50	0.564	182.16	322.89	9.11	16.14

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
5	2.24	18.49	Incoerente - coesivo	0	1.65	1.86	0.41	1.47	3.29	Deposito di frana
7	9	61.2	Incoerente - coesivo	0	2.04	2.24	1.03	1.47	13.23	Coltre di alterazione
7.4	37	238.94	Incoerente - coesivo	0	2.5	2.5	1.28	1.47	54.39	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.16

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	3.29	5.00	0.21	0.41	0.15	0.13	0.32	0.56	0.30	0.68	0.16	0.00	0.41
[2] - Coltre di alterazione	13.23	7.00	0.89	1.65	0.50	0.52	1.30	1.84	1.16	1.47	0.66	1.34	1.65
[3] - Formazione di Monghidor o	54.39	7.40	3.67	6.80	0.00	1.87	5.45	7.17	3.92	6.08	2.72	8.39	6.80

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.29	5.00	Robertson (1983)	6.58
[2] - Coltre di alterazione	13.23	7.00	Robertson (1983)	26.46
[3] - Formazione di Monghidoro	54.39	7.40	Robertson (1983)	108.78

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.29	5.00	15.10	49.35	35.35	41.13
[2] - Coltre di alterazione	13.23	7.00	60.70	--	136.73	132.30
[3] - Formazione di Monghidoro	54.39	7.40	249.54	--	556.54	543.90

Prova n. 16

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.29	5.00	17.44	32.90
[2] - Coltre di alterazione	13.23	7.00	131.75	132.30
[3] - Formazione di Monghidoro	54.39	7.40	605.09	543.90

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.29	5.00	A.G.I. (1977)	POCO CONSISTENTE
[2] - Coltre di alterazione	13.23	7.00	A.G.I. (1977)	CONSISTENTE
[3] - Formazione di Monghidoro	54.39	7.40	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.29	5.00	Meyerhof	1.65
[2] - Coltre di alterazione	13.23	7.00	Meyerhof	2.04
[3] - Formazione di Monghidoro	54.39	7.40	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.29	5.00	Meyerhof	1.86
[2] - Coltre di alterazione	13.23	7.00	Meyerhof	2.24
[3] - Formazione di Monghidoro	54.39	7.40	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.29	5.00		0
[2] - Coltre di alterazione	13.23	7.00		0
[3] - Formazione di Monghidoro	54.39	7.40		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.29	5.00	12.48	36.11	38.14	16.13
[2] - Coltre di alterazione	13.23	7.00	29.95	58.09	58.38	39.69
[3] - Formazione di Monghidoro	54.39	7.40	59.46	100	100	84.26

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.29	5.00	3.29	27.94	20.94	28.92	28.85	30.94	0	<30	22.02	27.99	27.83	23.11
[2] - Coltre di alterazione	13.23	7.00	13.23	30.78	23.78	31.7	29.12	34.86	36.13	30-32	29.09	30.97	37.63	31.27
[3] - Formazione di Monghidoro	54.39	7.40	54.39	42.54	35.54	43.23	30.93	42.66	42	>38	43.56	43.32	49.01	47.98

Prova n. 16

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.29	5.00	3.29	---	26.32	---	---	---
[2] - Coltre di alterazione	13.23	7.00	13.23	259.63	105.84	156.81	279.23	141.15
[3] - Formazione di Monghidoro	54.39	7.40	54.39	526.42	435.12	642.50	587.92	346.95

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.29	5.00	3.29	---	34.22	23.36	52.67
[2] - Coltre di alterazione	13.23	7.00	13.23	79.38	54.64	93.93	97.01
[3] - Formazione di Monghidoro	54.39	7.40	54.39	326.34	139.18	386.17	280.58

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.29	5.00	3.29	Classificazione A.G.I	SCIOLTO
[2] - Coltre di alterazione	13.23	7.00	13.23	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	54.39	7.40	54.39	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.29	5.00	3.29	Meyerhof et al.	1.46
[2] - Coltre di alterazione	13.23	7.00	13.23	Meyerhof et al.	1.83
[3] - Formazione di Monghidoro	54.39	7.40	54.39	Meyerhof et al.	2.26

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.29	5.00	3.29	Terzaghi-Peck 1948-1967	1.88
[2] - Coltre di alterazione	13.23	7.00	13.23	Terzaghi-Peck 1948-1967	1.94
[3] - Formazione di Monghidoro	54.39	7.40	54.39	Terzaghi-Peck 1948-1967	2.16

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.29	5.00	3.29	(A.G.I.)	0.35
[2] - Coltre di alterazione	13.23	7.00	13.23	(A.G.I.)	0.33
[3] - Formazione di Monghidoro	54.39	7.40	54.39	(A.G.I.)	0.24

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.29	5.00	3.29	199.10	258.77
[2] - Coltre di alterazione	13.23	7.00	13.23	736.51	605.60
[3] - Formazione di Monghidoro	54.39	7.40	54.39	2781.64	1436.52

Prova n. 16

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.29	5.00	3.29	Ohta & Goto (1978) Limi	100.32
[2] - Coltre di alterazione	13.23	7.00	13.23	Ohta & Goto (1978) Limi	151.12
[3] - Formazione di Monghidoro	54.39	7.40	54.39	Ohta & Goto (1978) Limi	199.91

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.29	5.00	3.29	Seed e Idriss (1971)	--
[2] - Coltre di alterazione	13.23	7.00	13.23	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	54.39	7.40	54.39	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

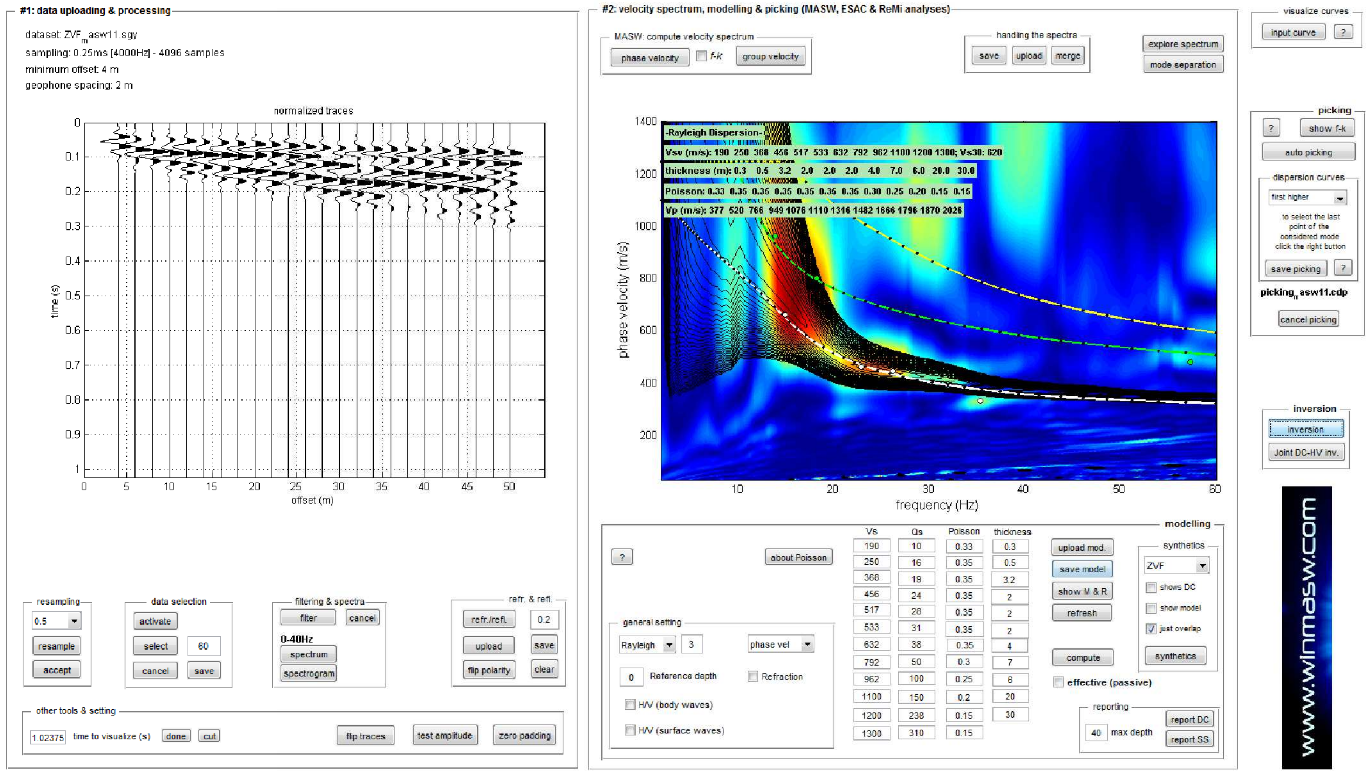
	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.29	5.00	3.29		---
[2] - Coltre di alterazione	13.23	7.00	13.23		---
[3] - Formazione di Monghidoro	54.39	7.40	54.39		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.29	5.00	3.29		---
[2] - Coltre di alterazione	13.23	7.00	13.23		---
[3] - Formazione di Monghidoro	54.39	7.40	54.39		---

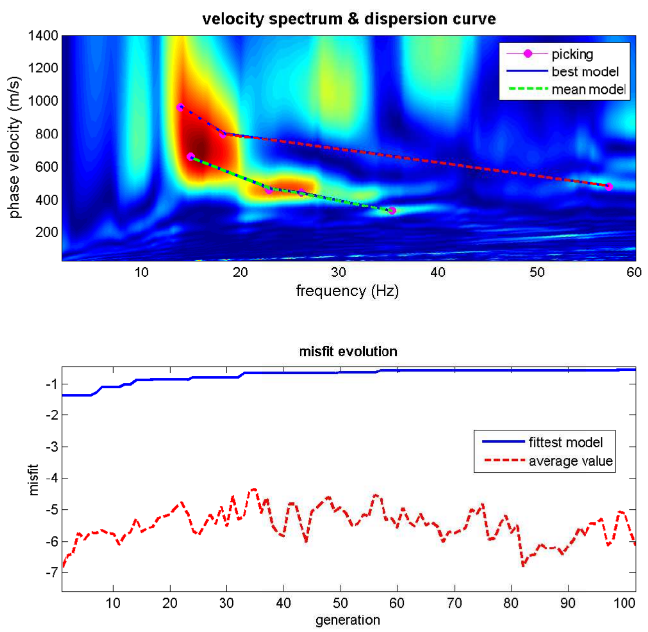
SPETTRO DI VELOCITA' MASW

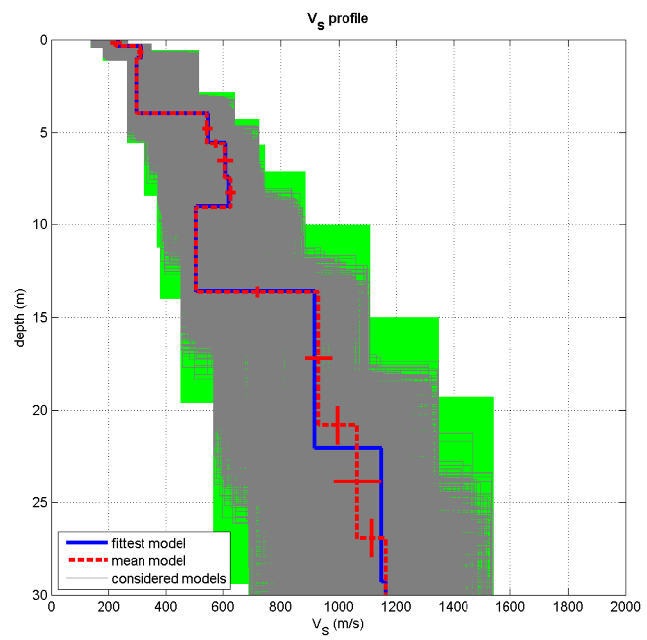
MASW11_MS3



Stendimento MASW 11

INVERSIONE MASW E PROFILO DI VELOCITA'





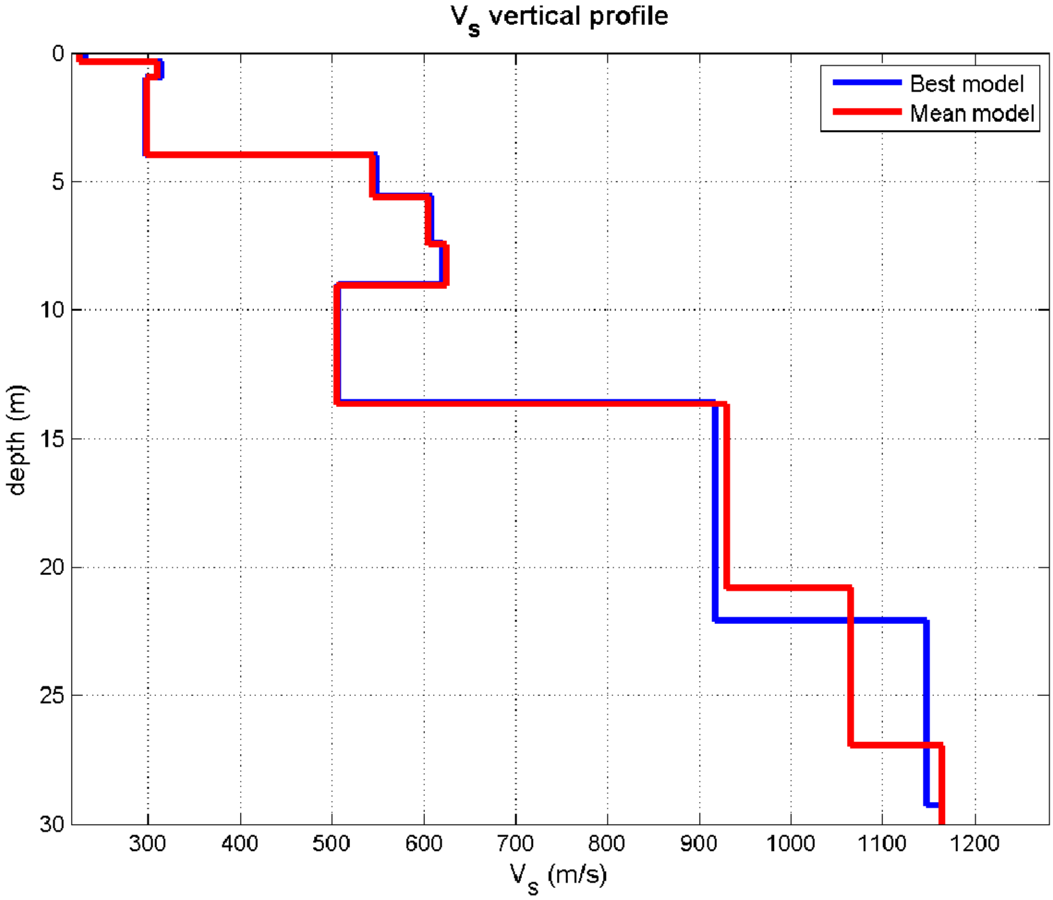
dataset: ZVF_masw11.sgy
dispersion curve: $picking_m$asw11.cdp
Vs30 (best model): 634 m/s
Vs30 (mean model): 632 m/s

www.winmasw.com

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 11

PROFILO DI VELOCITA' MASW 11



Vs (m/s):225, 310, 298, 545, 605, 625, 506, 930, 1065, 1165, 1319, 1156
Standard deviations (m/s):19, 12, 0, 17, 26, 16, 0, 47, 82, 0, 161, 192

Thickness (m):0.4, 0.6, 3.0, 1.6, 1.8, 1.6, 4.6, 7.2, 6.1, 25.3, 32.5
Standard deviations (m/s):0.0, 0.0, 0.0, 0.2, 0.1, 0.0, 0.3, 1.0, 1.0, 2.5, 3.7

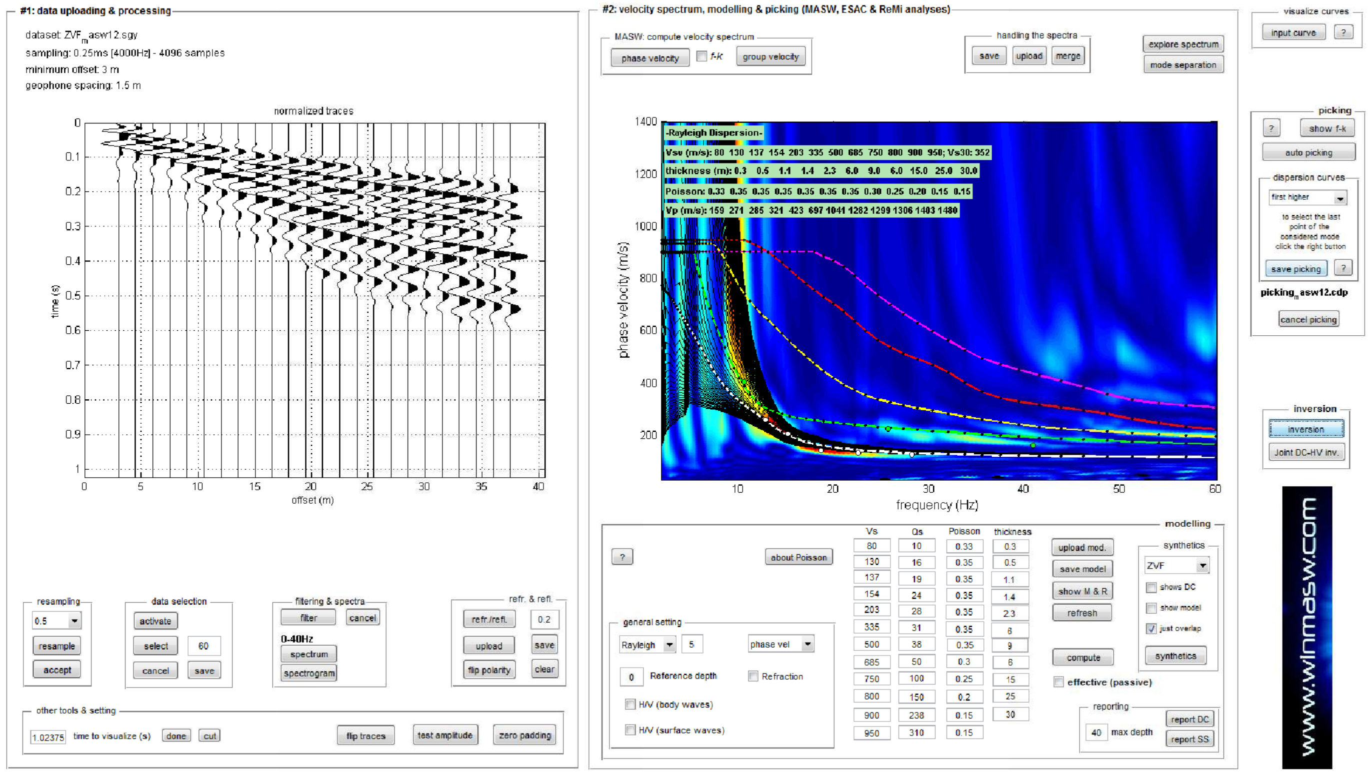
Density (gr/cm3) (approximate values):1.851.931.932.142.172.102.052.192.192.202.232.20
Seismic/Dynamic Shear modulus (MPa) (approximate values):9418617163579381952418962487298738812934

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):42960059714031582119097117641768183120691791
Poisson:0.310.320.330.410.410.310.310.310.220.160.160.14

Vs30 (m/s): 632

GEOLOGICA TOSCANA s.n.c.

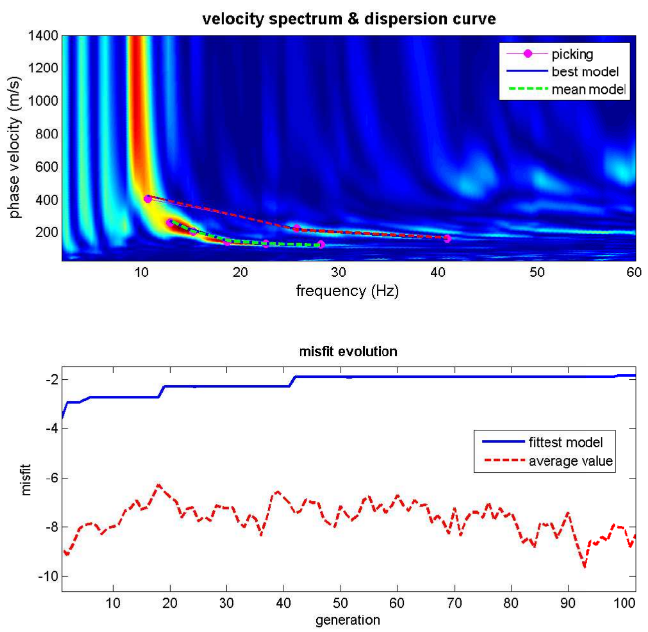
SPETTRO DI VELOCITA' MASW

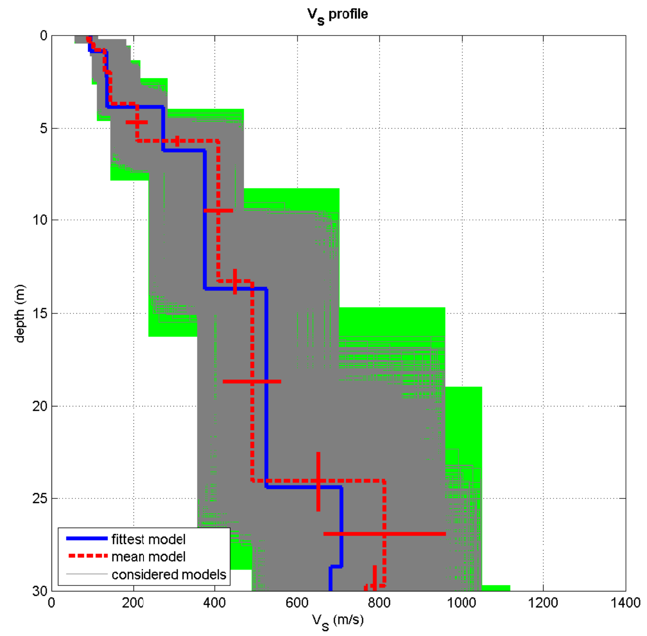


MASW12_MS3

Stendimento MASW 12

INVERSIONE MASW E PROFILO DI VELOCITA'



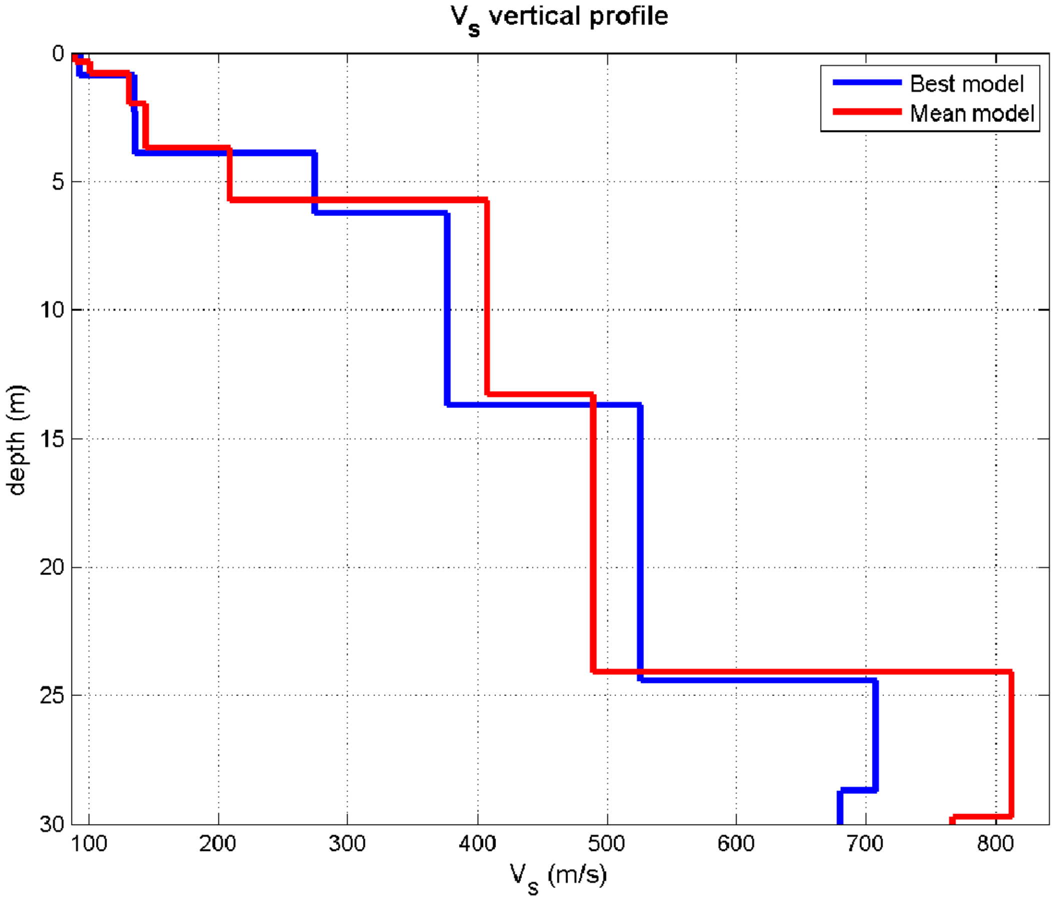


dataset: ZVF_masw12.sgy
dispersion curve: $picking_m$asw12.cdp
Vs30 (best model): 339 m/s
Vs30 (mean model): 345 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 12

PROFILO DI VELOCITA' MASW 12



Vs (m/s):90, 101, 131, 144, 209, 408, 490, 812, 767, 858, 982, 857
Standard deviations (m/s):6, 4, 3, 4, 27, 35, 70, 149, 145, 82, 148, 191

Thickness (m):0.3, 0.5, 1.2, 1.7, 2.0, 7.6, 10.8, 5.6, 15.3, 26.1, 33.2
Standard deviations (m/s):0.0, 0.1, 0.1, 0.1, 0.3, 0.7, 1.6, 1.1, 1.4, 4.8, 5.6

Density (gr/cm3) (approximate values):1.731.691.831.851.912.052.052.172.122.142.162.12
Seismic/Dynamic Shear modulus (MPa) (approximate values):14173138843414931433125015752081156O

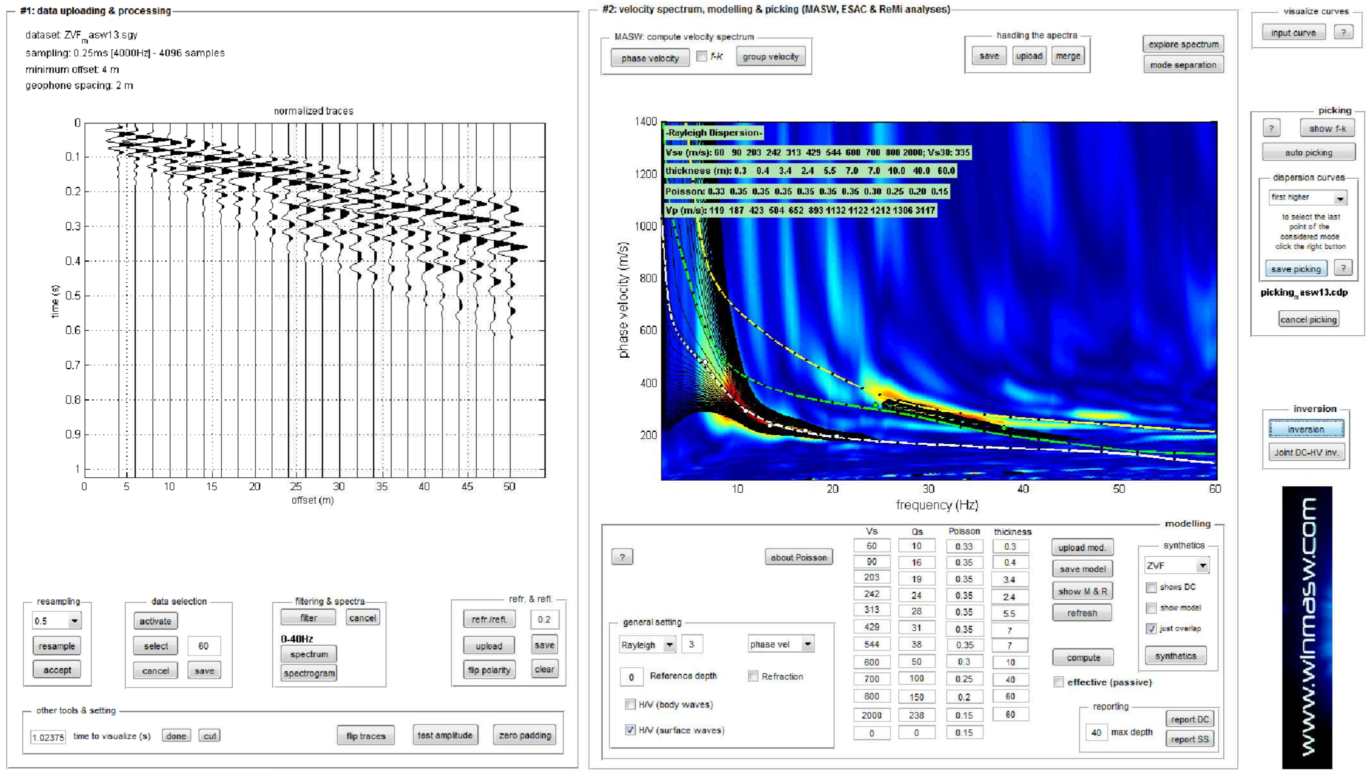
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):260221395428559987997163213401426153313 37
Poisson:0.430.370.440.440.420.400.340.340.260.220.150.15

Vs30 (m/s): 345

GEOLOGICA TOSCANA s.n.c.

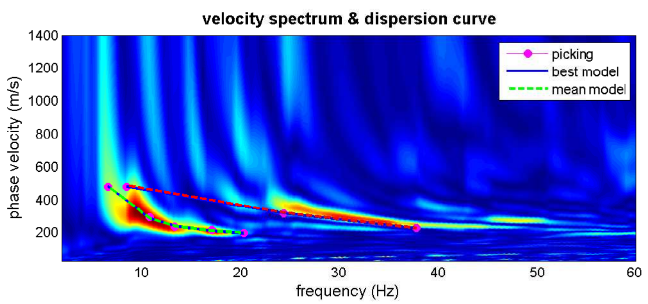
SPETTRO DI VELOCITA' MASW

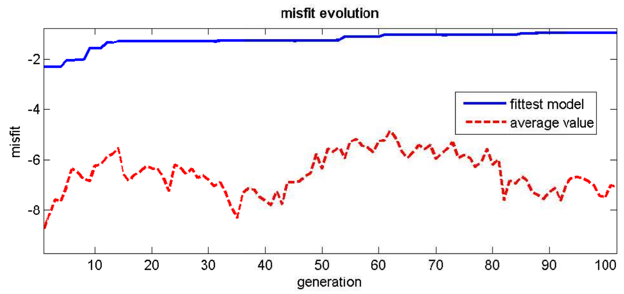
MASW13_MS3

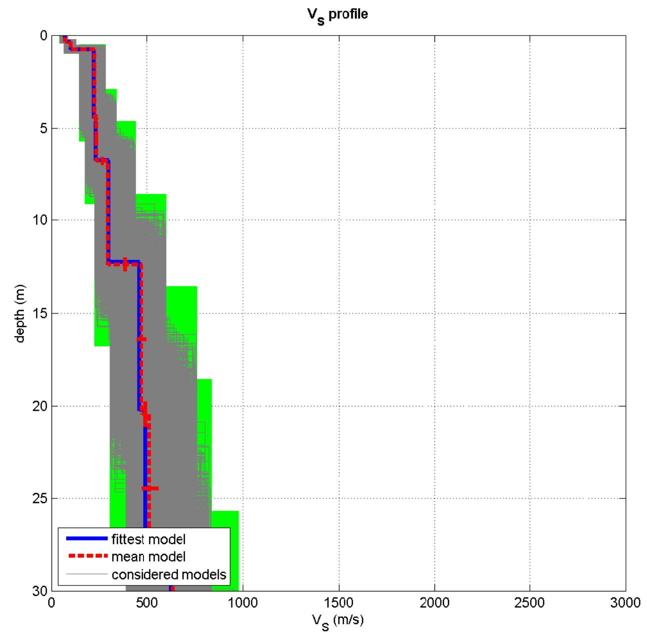


Stendimento MASW 13

INVERSIONE MASW E PROFILO DI VELOCITA'







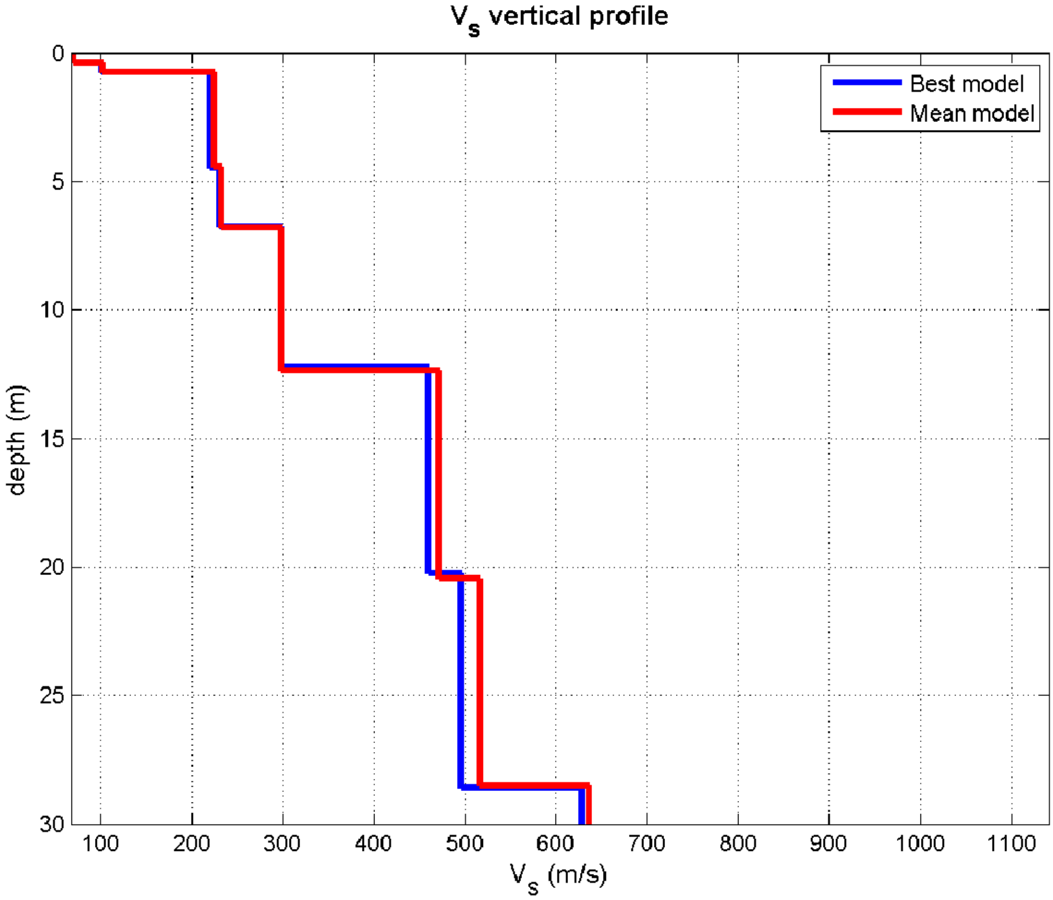
www.winmasw.com

dataset: ZVF_masw13.sgy
dispersion curve: picking_masw13.cdp
Vs30 (best model): 331 m/s
Vs30 (mean model): 335 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 13

PROFILO DI VELOCITA' MASW 13



Vs (m/s):70, 102, 224, 233, 298, 471, 516, 636, 778, 1310, 2258
Standard deviations (m/s):2, 2, 4, 8, 3, 26, 46, 39, 65, 185, 257

Thickness (m):0.4, 0.4, 3.7, 2.4, 5.6, 8.1, 8.1, 9.7, 45.6, 48.5
Standard deviations (m/s):0.0, 0.0, 0.2, 0.2, 0.4, 0.7, 0.9, 1.3, 5.1, 9.1

Density (gr/cm3) (approximate values):1.561.651.871.852.042.002.142.102.132.232.37
Seismic/Dynamic Shear modulus (MPa) (approximate values):8179410018144557085112903835 12071

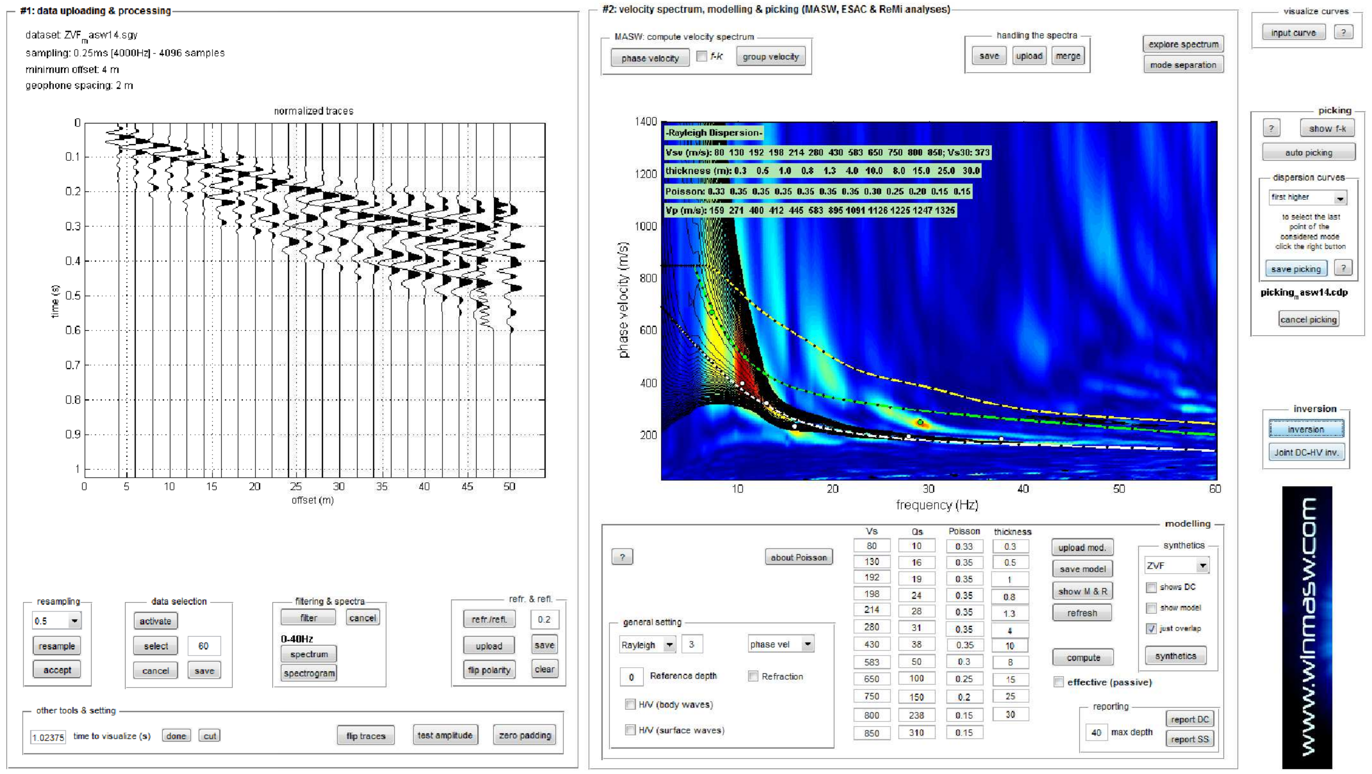
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):126187467422933813143112291375210436 22
Poisson:0.280.290.350.280.440.250.430.320.260.180.18

Vs30 (m/s): 335

GEOLOGICA TOSCANA s.n.c.

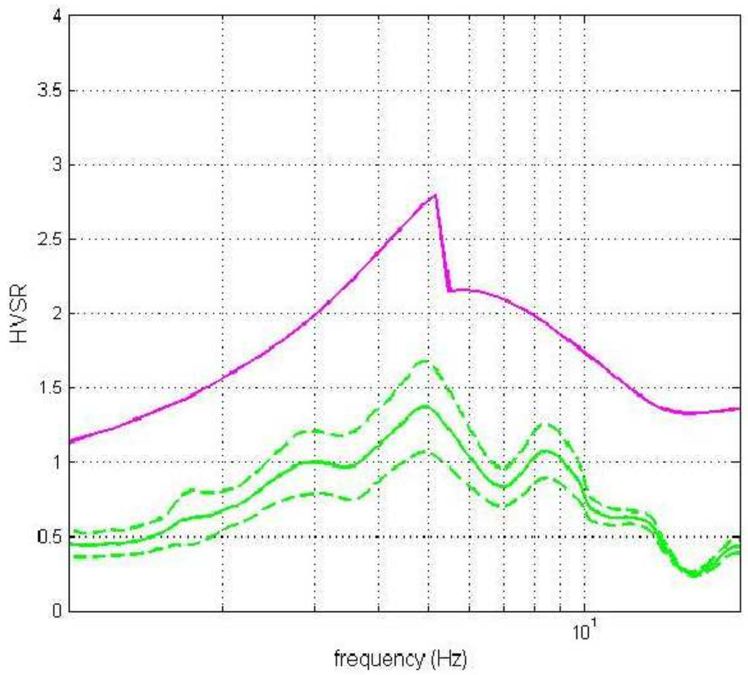
SPETTRO DI VELOCITA' MASW

MASW14_MS3

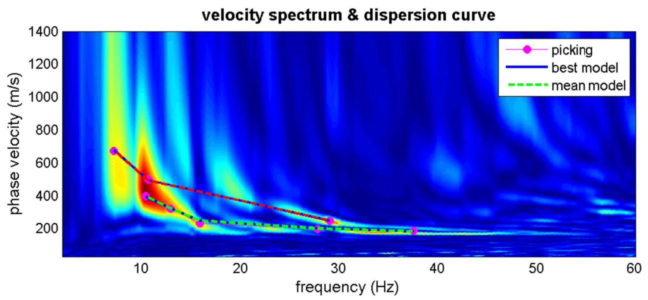


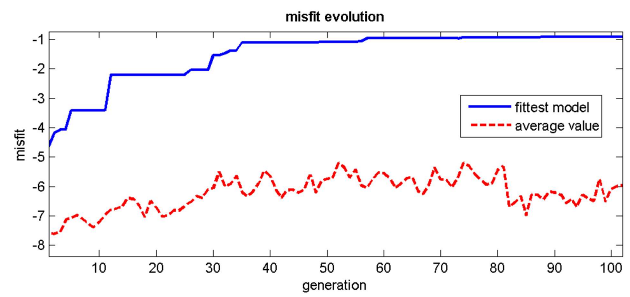
Stendimento MASW 14

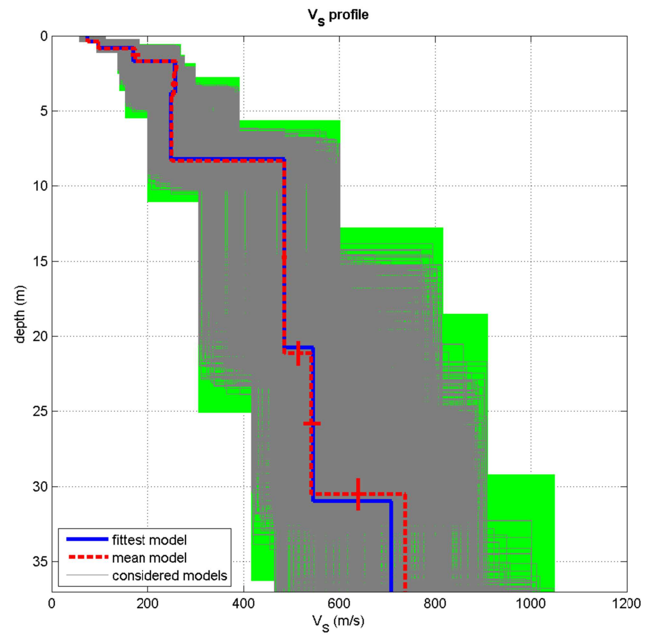
INVERSIONE CONGIUNTA HVSR15 – MASW14



INVERSIONE MASW E PROFILO DI VELOCITA'







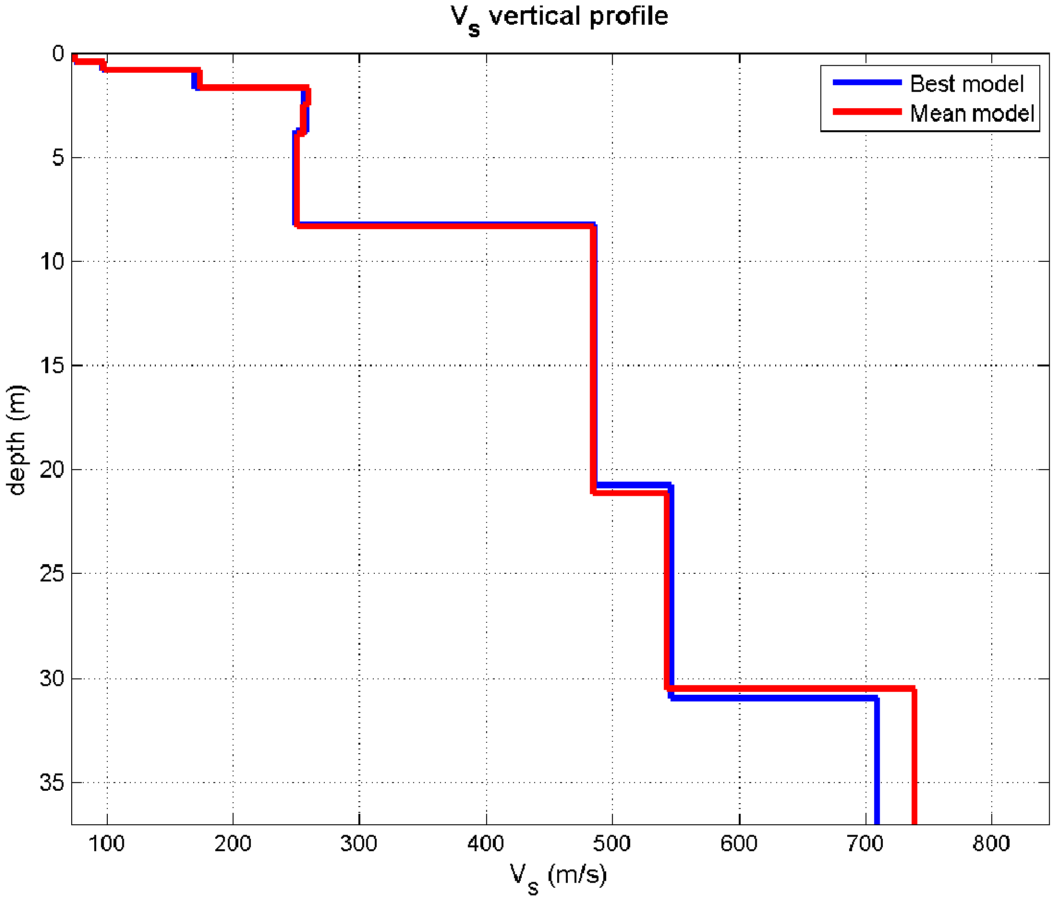
www.winmasw.com

dataset: ZVF_masw14.sgy
dispersion curve: $picking_m$asw14.cdp
Vs30 (best model): 360 m/s
Vs30 (mean model): 358 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 14

PROFILO DI VELOCITA' MASW 14



Vs (m/s):75, 98, 174, 260, 256, 251, 485, 543, 739, 744, 894, 999
Standard deviations (m/s):0, 2, 10, 4, 7, 3, 4, 18, 92, 116, 149, 86

Thickness (m):0.4, 0.4, 0.8, 0.8, 1.4, 4.4, 12.8, 9.3, 19.0, 28.6, 32.8
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.1, 0.1, 0.8, 1.1, 1.9, 2.3, 4.9

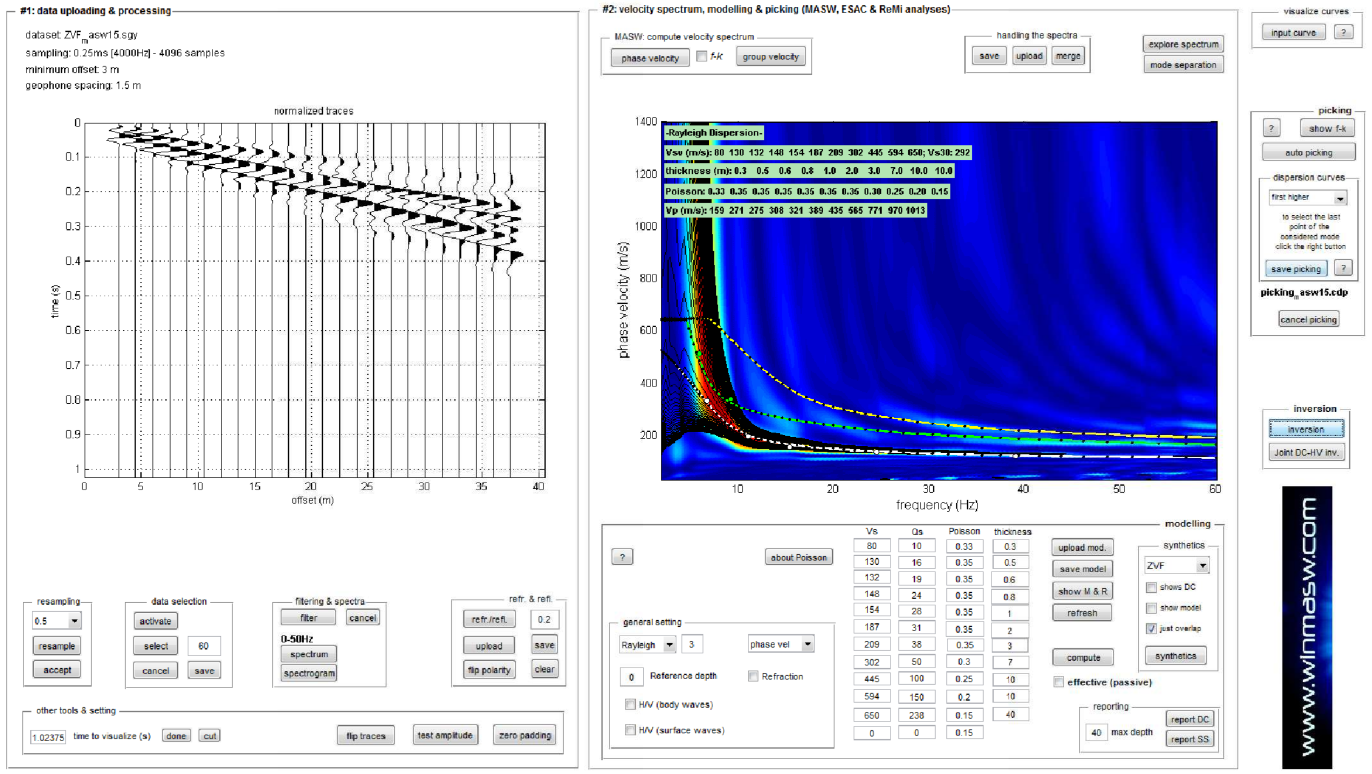
Density (gr/cm3) (approximate values):1.651.721.841.881.871.982.042.042.102.092.142.17
Seismic/Dynamic Shear modulus (MPa) (approximate values):9175612712312547960211471159171021 62

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):191254418488470746932944120811771423158 8
Poisson:0.410.410.400.300.290.440.310.250.200.170.170.17

Vs30 (m/s): 358

GEOLOGICA TOSCANA s.n.c.

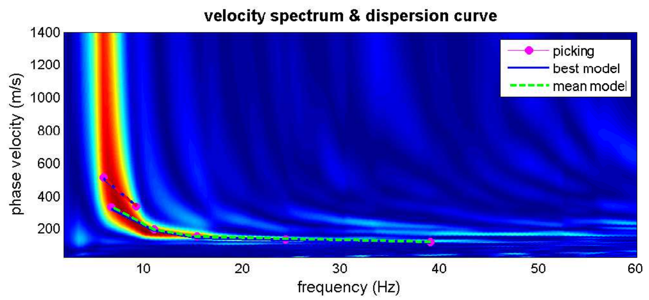
SPETTRO DI VELOCITA' MASW

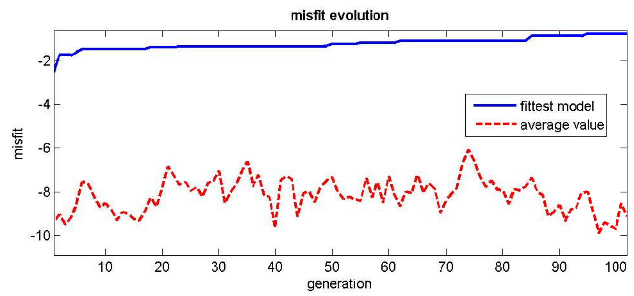


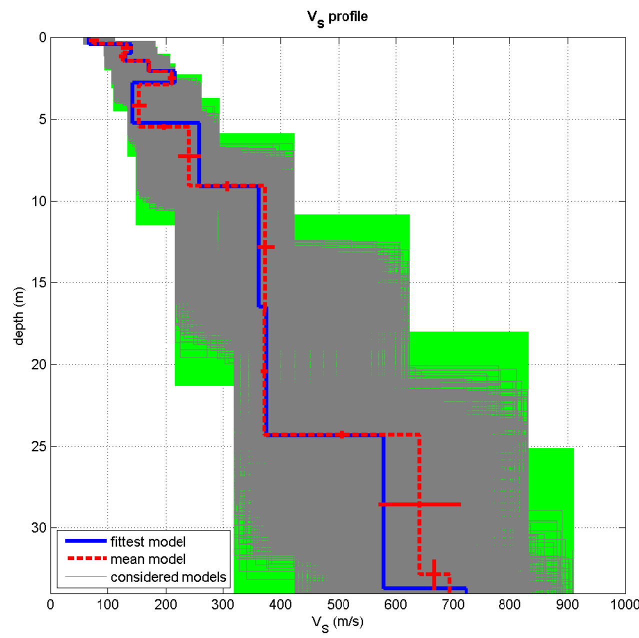
MASW15_MS3

Stendimento MASW 15

INVERSIONE MASW E PROFILO DI VELOCITA'





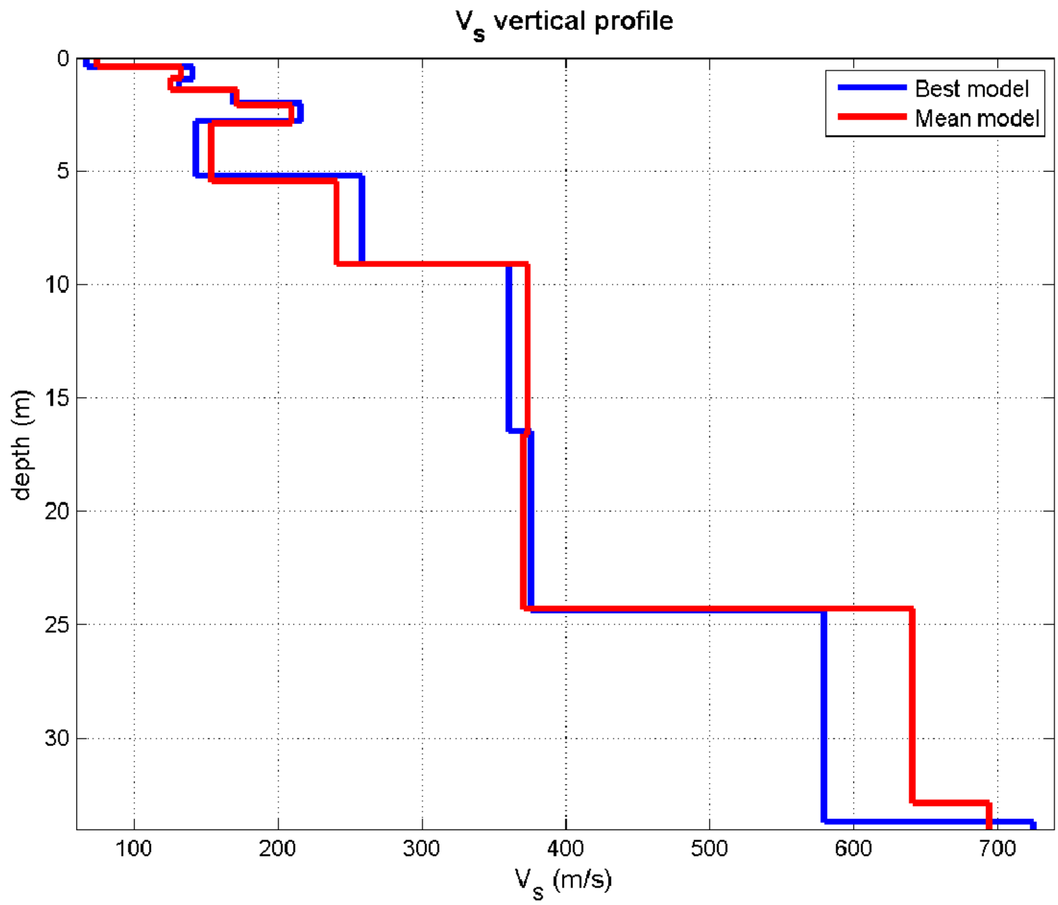


dataset: ZVF$_m$asw15.sgy
dispersion curve: picking$_m$asw15.cdp
Vs30 (best model): 289 m/s
Vs30 (mean model): 294 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 15

PROFILO DI VELOCITA' MASW 15



Vs (m/s):75, 133, 126, 172, 210, 154, 241, 374, 371, 641, 694
Standard deviations (m/s):9, 10, 6, 2, 6, 12, 20, 15, 6, 71, 35

Thickness (m):0.4, 0.5, 0.5, 0.7, 0.8, 2.6, 3.6, 7.5, 7.7, 8.6
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.1, 0.1, 0.3, 0.2, 0.2, 0.9

Density (gr/cm3) (approximate values):1.591.711.681.801.871.781.891.971.942.072.08
Seismic/Dynamic Shear modulus (MPa) (approximate values):930275383421102752678521000

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):14624320935547532251570362110871096
Poisson:0.320.290.210.350.380.350.360.300.220.230.17

Vs30 (m/s): 294

GEOLOGICA TOSCANA s.n.c.

HVSR11

DATE 27.01.2021	HOUR 15:04	PLACE Loiano(Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4912751	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 207108	ALTITUDE 583 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR11.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min (minutes / seconds)

WEATHER CONDITIONS						
WIND	☒ none	☐ weak (5m/s)	☐ medium	☐ strong	Measurement (if any):
RAIN	☒ none	☐ weak	☐ medium	☐ strong	Measurement (if any):
Temperature (approx): 6	Remarks				

GROUND TYPE						
☐ earth (☐ hard ☐ soft)	☐ gravel	☐ sand	☐ rock	☐ grass (☐ short ☐ tall)	
☐ asphalt	☐ cement	☐ concrete	☒ paved	☐ other	
☒ dry soil	☐ wet soil	Remarks			

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		☒				
trucks	☒					
pedestrians	☒					
other	☒					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

MISURA TIPO A1

HVSR11

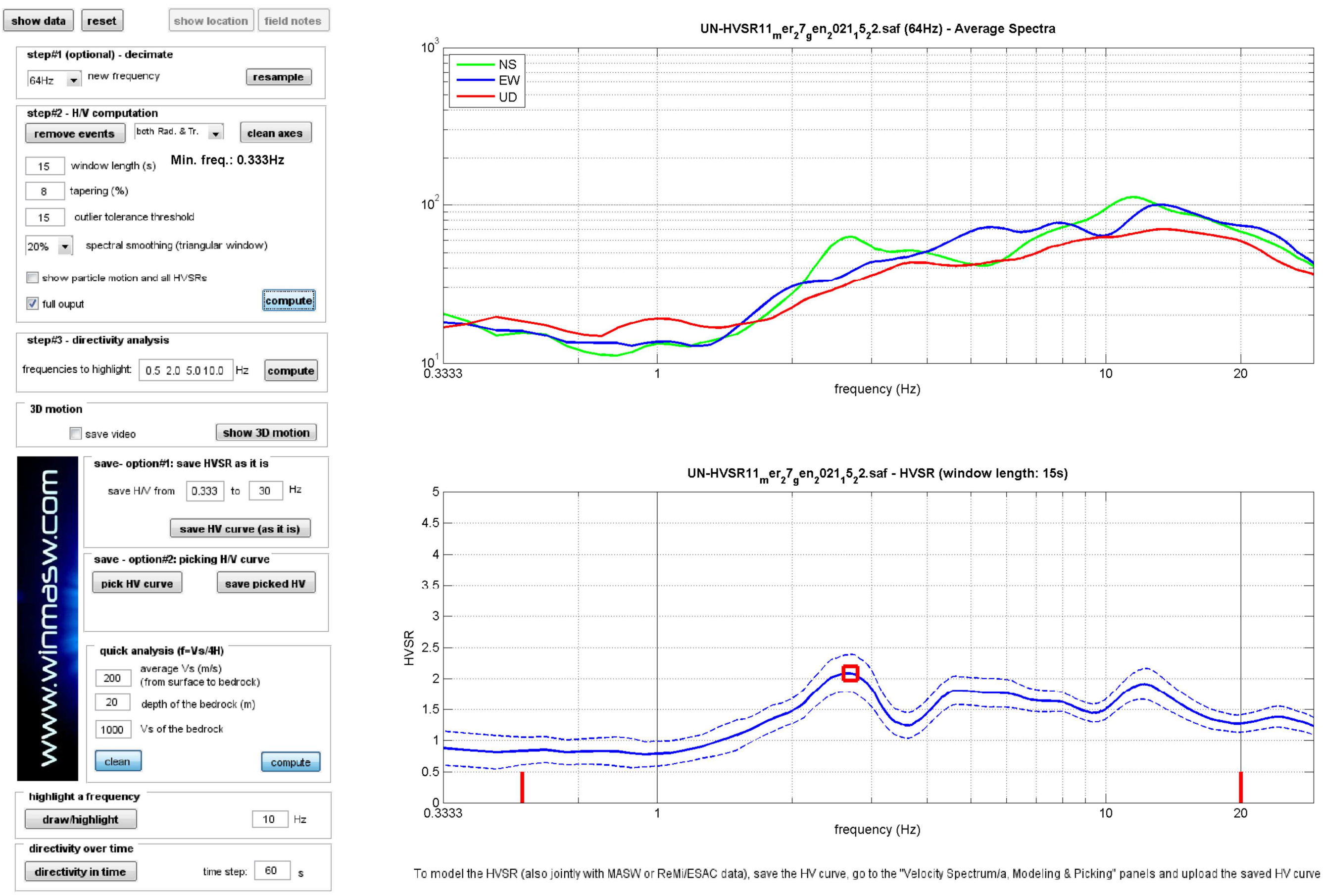
Peak frequency (Hz): 2.7 (±4.1)
Peak HVSR value: 2.1 (±0.3)

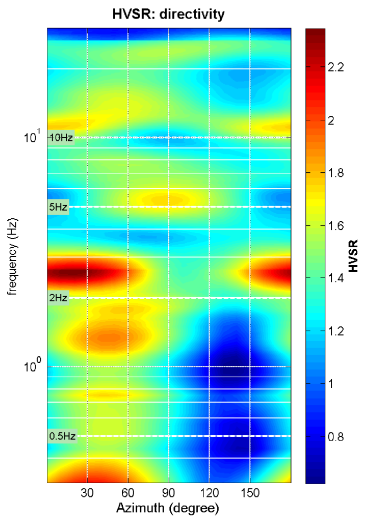
=== Criteria for a reliable H/V curve ====================================

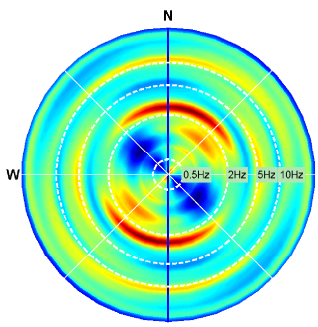
#1. [f0 > 10/Lw]: 2.693 > 0.66667 (OK)
#2. [nc > 200]: 6341 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

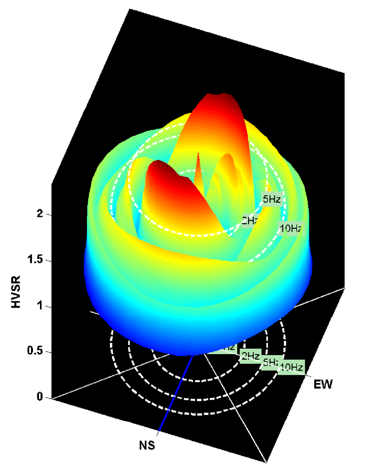
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============

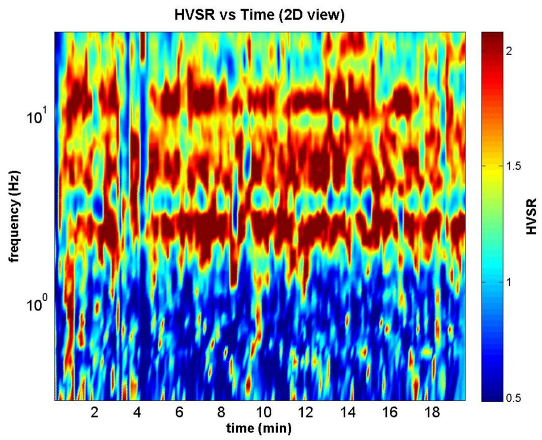
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 0.8Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes (considering standard deviations), at frequency Hz (OK)
#3. [A0 > 2]: 2.1 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 4.106 > 0.135 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.305 < 1.58 (OK)

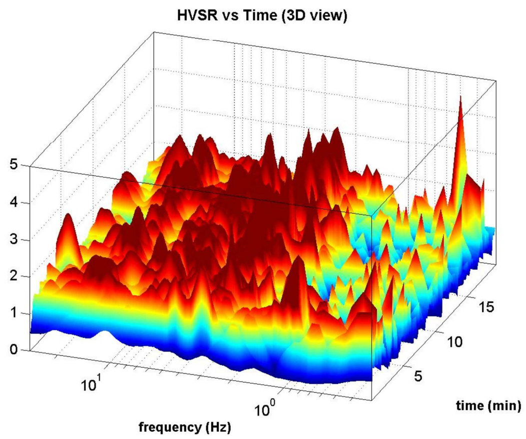

show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
15
window length (s)
Min. freq.: 0.333Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.333
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
UN-HVSR11_mer_27_gen_2021_15_22.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR11_mer_27_gen_2021_15_22.saf - HVSR (window length: 15s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR


N
W
0.5Hz
2Hz
5Hz
10Hz


HVSR
5Hz
10Hz
2Hz
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR


HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR12

DATE 27.01.2021	HOUR 15:53	PLACE Loiano(Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4912712	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 206408	ALTITUDE 613 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR12.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND [x] none [ ] weak (5m/s) [ ] medium [ ] strong Measurement (if any): ______
- RAIN [x] none [ ] weak [ ] medium [ ] strong Measurement (if any): ______
- Temperature (approx): 5 Remarks ______

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [ ] gravel [ ] sand [ ] rock [ ] grass ([ ] short [ ] tall)
- [ ] asphalt [ ] cement [ ] concrete [x] paved [ ] other ______
- [x] dry soil [ ] wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type ______

BUILDING DENSITY [ ] none [x] scattered [ ] dense [ ] other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	●					
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) [x] no [ ] yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

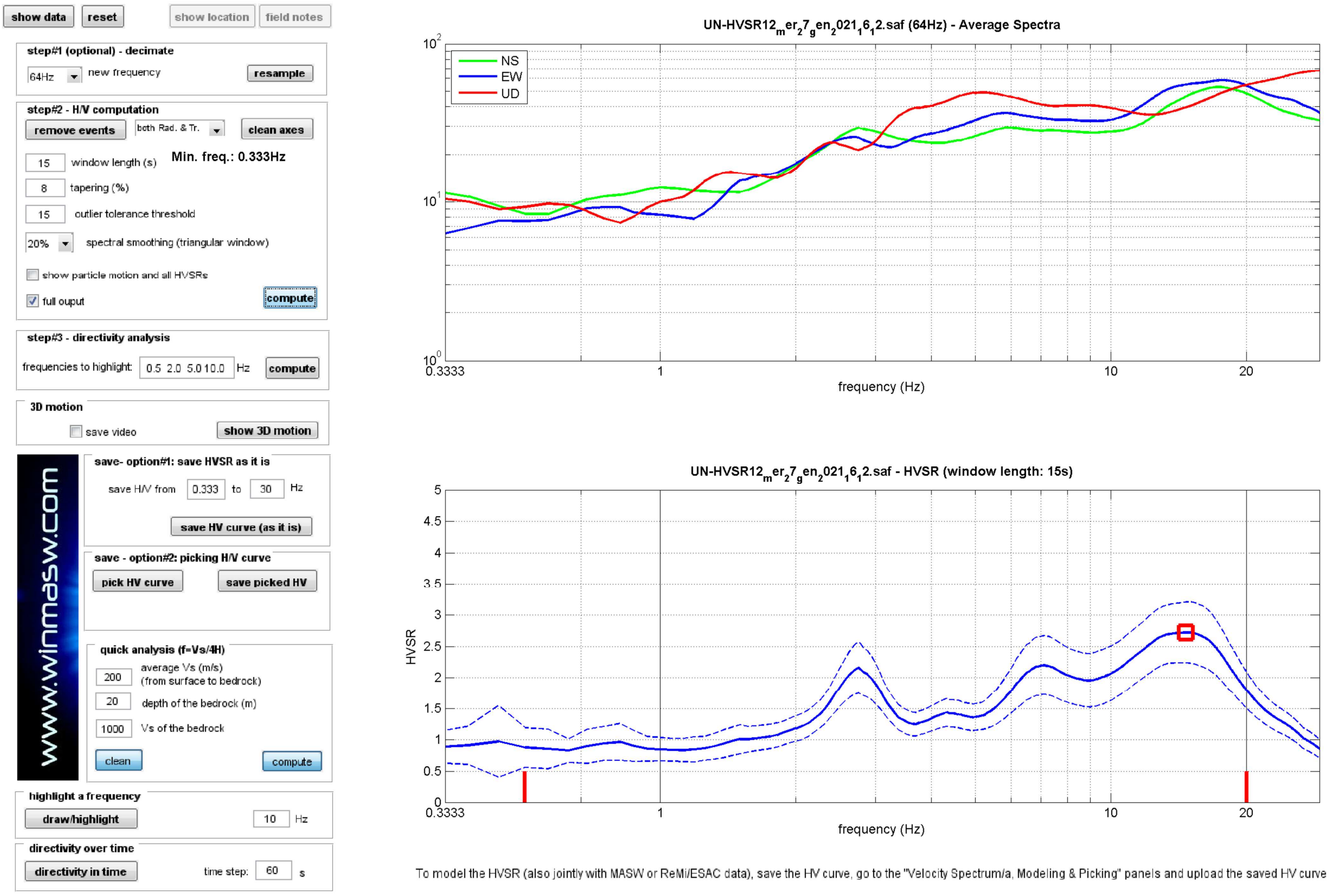
HVSR12

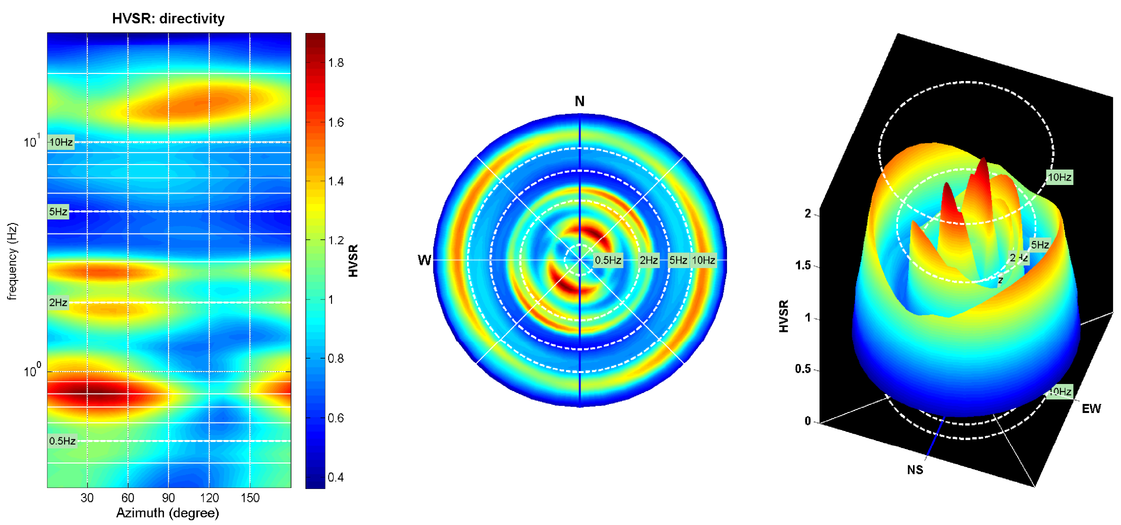
MISURA TIPO A1

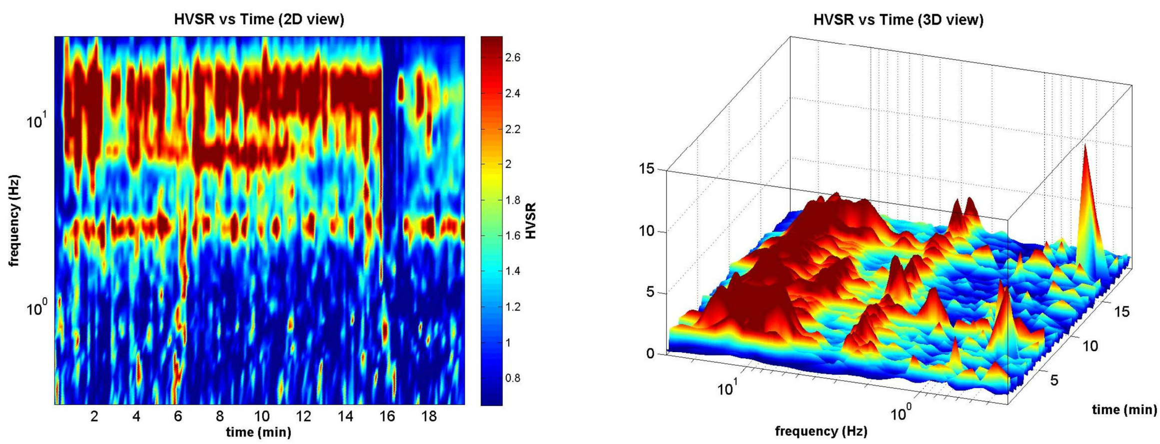
Peak frequency (Hz): 14.7 (±5.5)
Peak HVSR value: 2.7 (±0.5)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 14.654 > 0.66667 (OK)
#2. [nc > 200]: 34729 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 3.7Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 2.7 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 5.539 > 0.733 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.483 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
15
window length (s)
Min. freq.: 0.333Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight: 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.333 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step: 60 s
UN-HVSR12_mer_27_gen_2021_6_12.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR12_mer_27_gen_2021_6_12.saf - HVSR (window length: 15s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR13

DATE 03.02.2021	HOUR 14:35	PLACE Loiano(Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4907685	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 206612	ALTITUDE 715 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR13.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☐ none ☒ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ____
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any): ____
- Temperature (approx): 10 Remarks ____

GROUND TYPE: ☐ earth (☐hard ☐soft) ☐gravel ☐sand ☐rock ☐grass (☐short ☐tall) ☒ asphalt ☐cement ☐concrete ☐paved ☐other ____
☒ dry soil ☐ wet soil Remarks ____

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ____

BUILDING DENSITY ☐none ☐scattered ☒dense ☐other, type ____

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒no ☐ yes, type ____

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

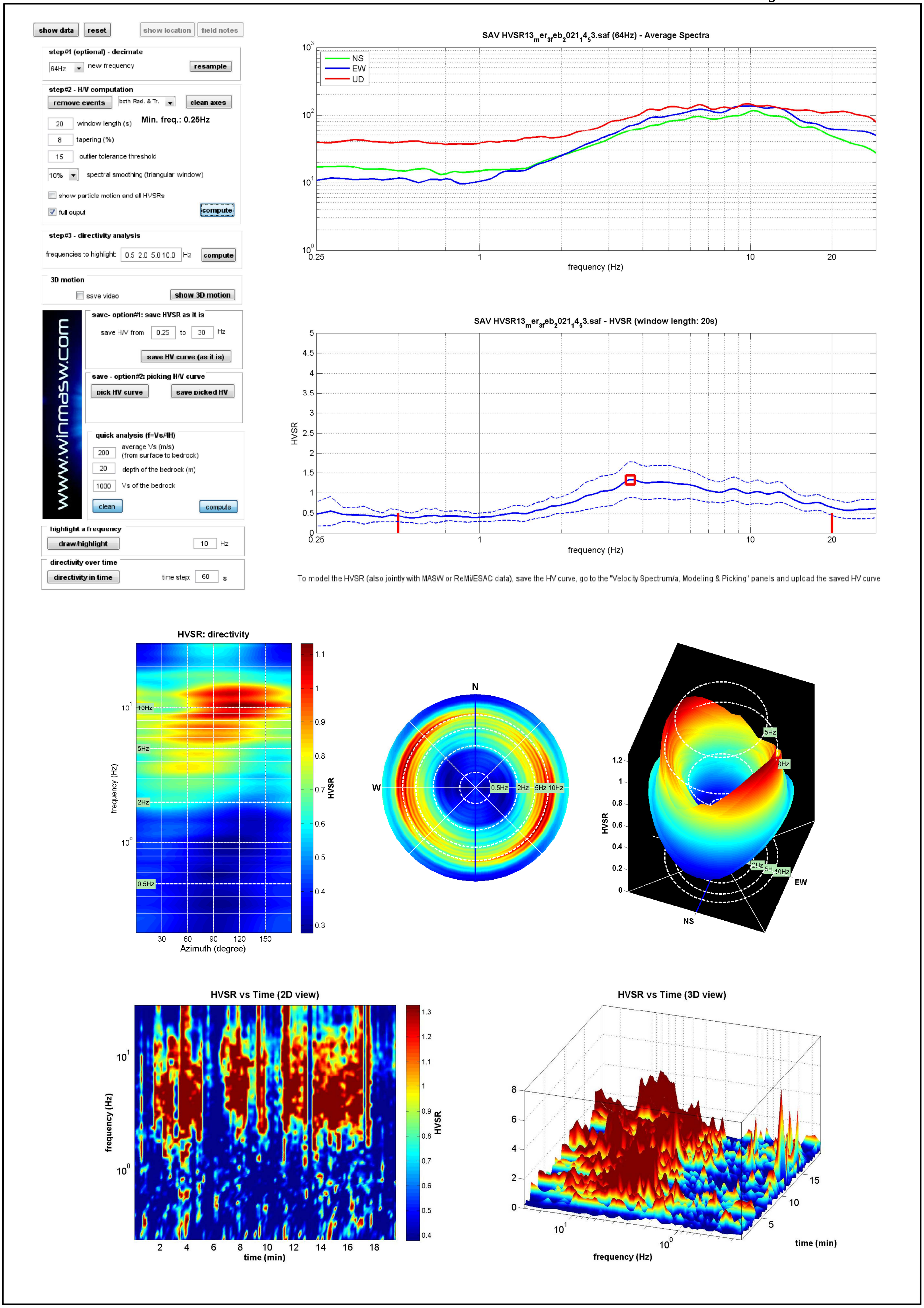
MISURA TIPO A2

HVSR13

Peak frequency (Hz): 3.6 (±3.0)
Peak HVSR value: 1.3 (±0.4)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 3.597 > 0.5 (OK)
#2. [nc > 200]: 8490 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 0.9Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes (considering standard deviations), at frequency Hz (OK)
#3. [A0 > 2]: 1.3 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 3.046 > 0.180 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.444 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20 window length (s)
Min. freq.: 0.25Hz
8 tapering (%)
15 outlier tolerance threshold
10% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight: 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
SAV HVSR13_m er_3f eb_2 021_1 4_5 3.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
SAV HVSR13_m er_3f eb_2 021_1 4_5 3.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz 2Hz 5Hz 10Hz
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR14

DATE 03.02.2021	HOUR 15:05	PLACE Loiano (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4908051	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 206346	ALTITUDE 671 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR14.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☐ none ☐ weak (5m/s) ◉ medium ☐ strong Measurement (if any):
- RAIN: ◉ none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 10 Remarks

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ◉ grass (◉short ☐tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ☐ dry soil ◉ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ◉ no ☐ yes, type

BUILDING DENSITY ☐ none ◉ scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars			●			
trucks		●				
pedestrians	●					
other			●			

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☐ no ◉ yes, type Factories

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

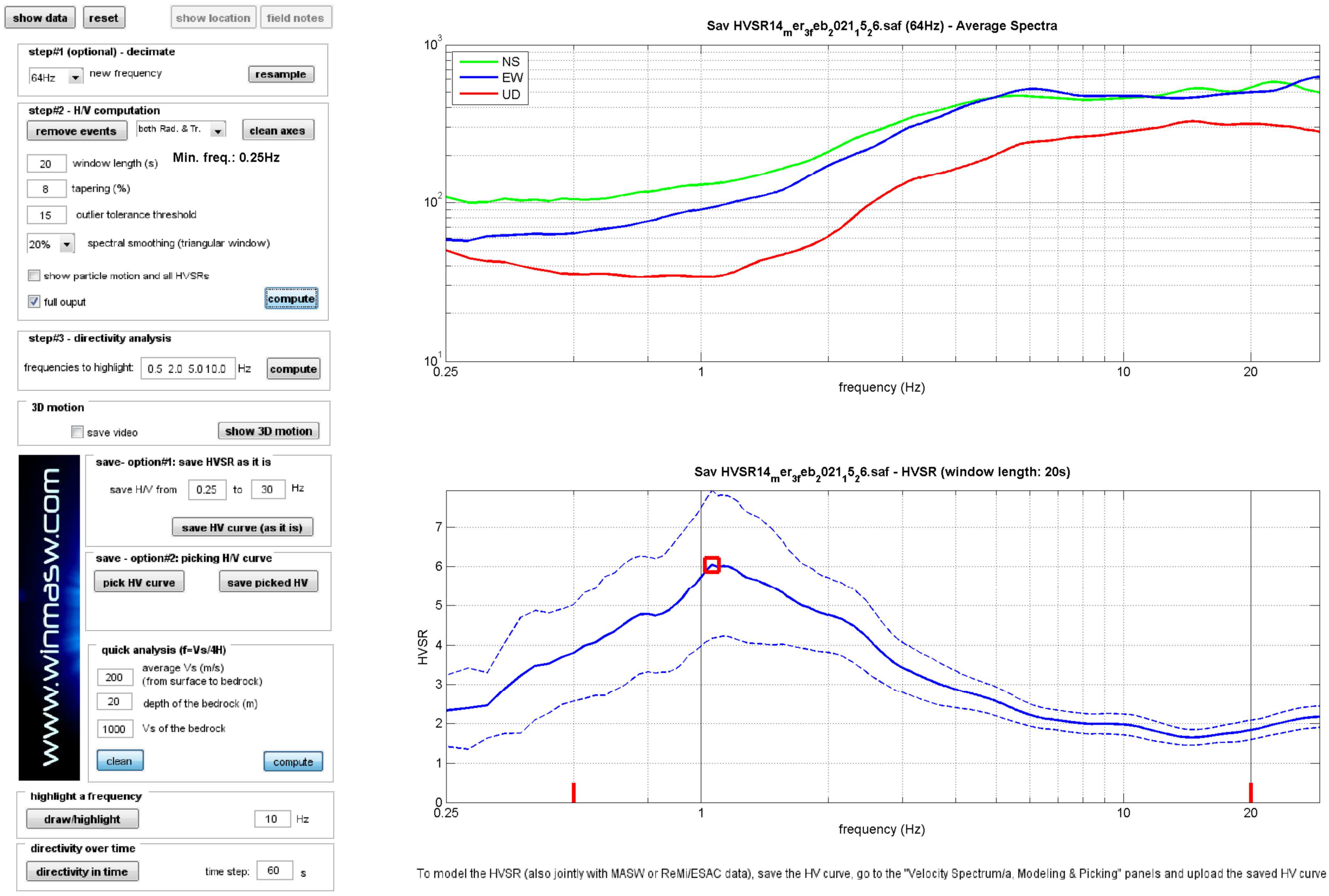
MISURA TIPO B1

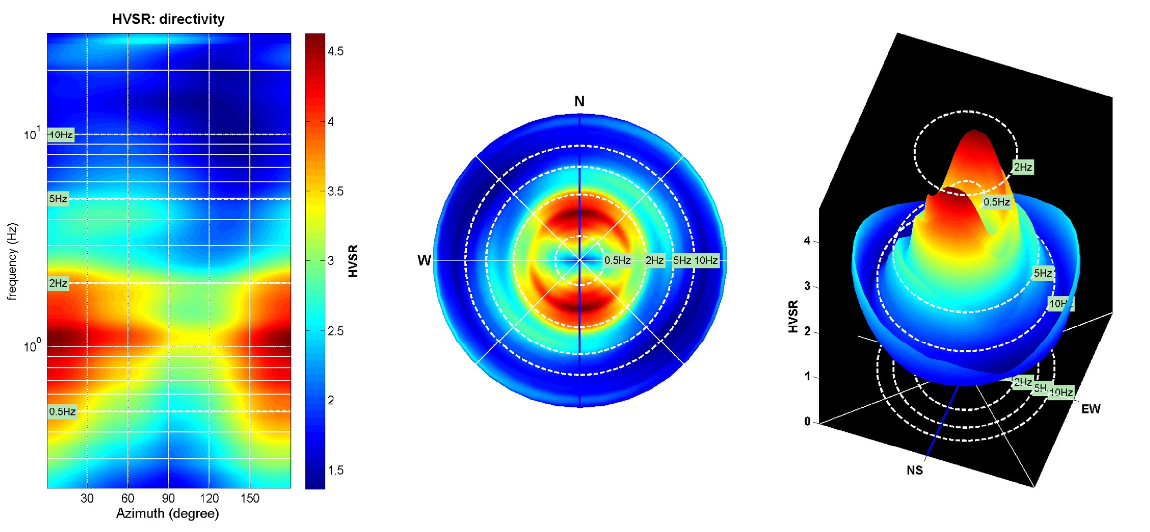
HVSR14

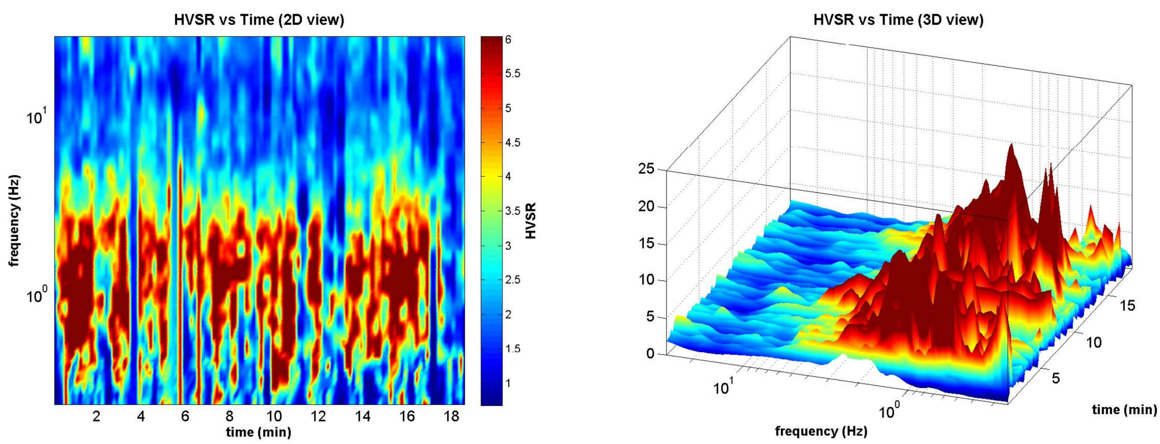
Peak frequency (Hz): 1.1 (±2.4)
Peak HVSR value: 6.0 (±1.8)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 1.064 > 0.5 (OK)
#2. [nc > 200]: 2382 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 0.5Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 3.7Hz (OK)
#3. [A0 > 2]: 6.0 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 2.432 > 0.106 (NO)
#6. [sigmaA(f0) < theta(f0)]: 1.876 < 1.78 (NO)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
average Vs (m/s)
(from surface to bedrock)
200
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Sav HVSR14_m er_3r eb_2 021_1 5_2 6.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR14_m er_3r eb_2 021_1 5_2 6.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR15

DATE 27.01.2021	HOUR 16:35	PLACE Loiano (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4908214	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 206027	ALTITUDE 627 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR15.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ● none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ● none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 5 Remarks

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ● asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ● dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type

BUILDING DENSITY ☐ none ● scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☐ no ● yes, type Factories

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

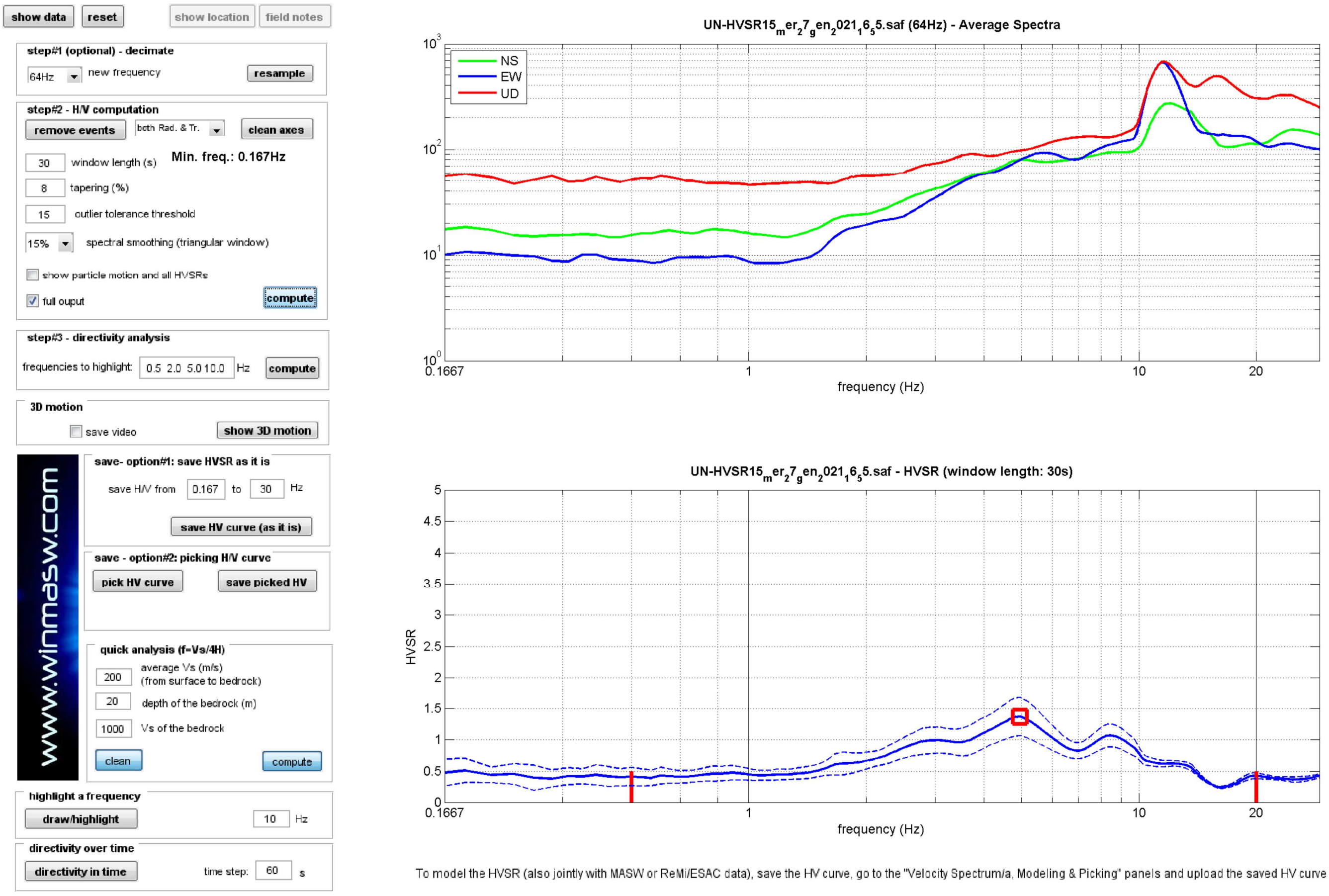
MISURA TIPO B2

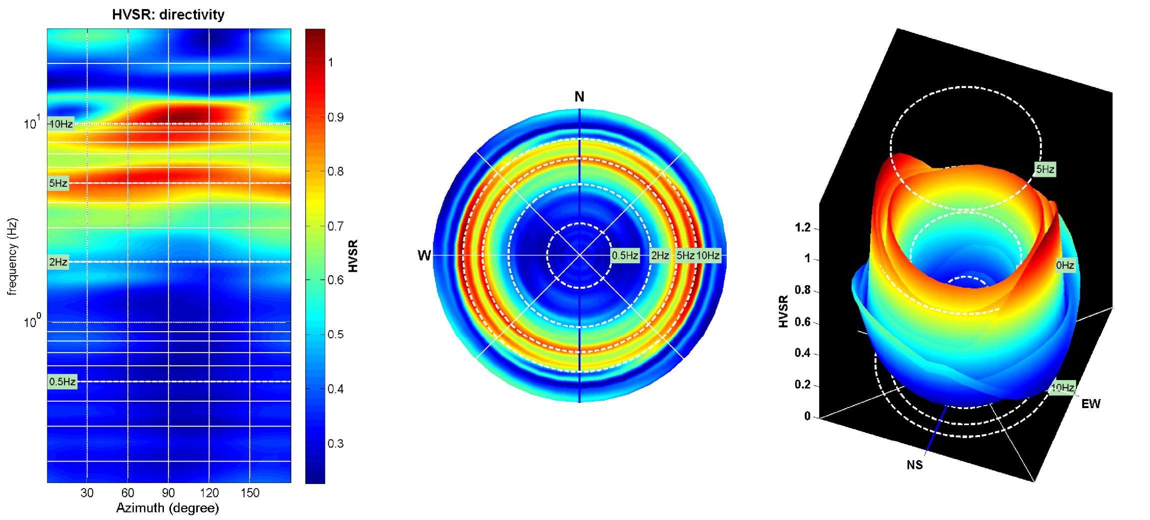
HVSR15

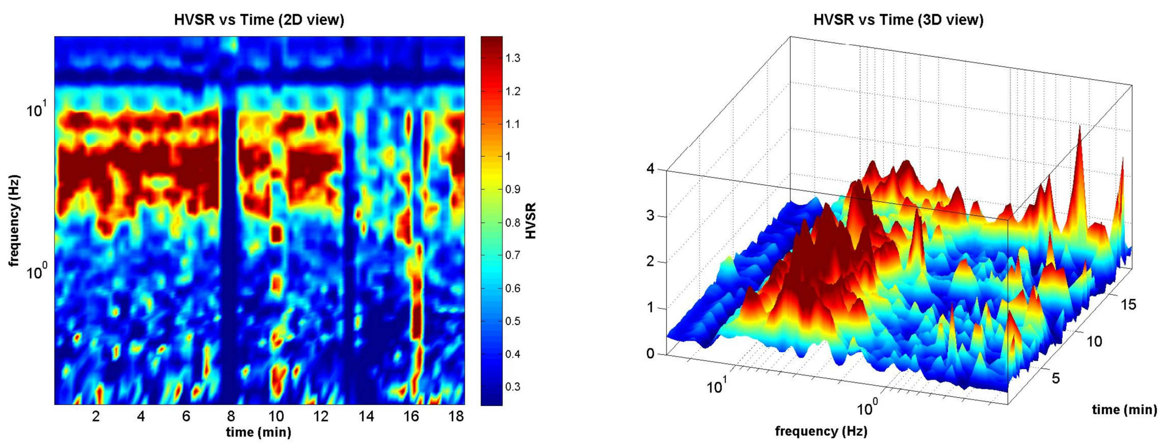
Peak frequency (Hz): 4.9 (±2.3)
Peak HVSR value: 1.4 (±0.3)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 4.942 > 0.33333 (OK)
#2. [nc > 200]: 10972 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

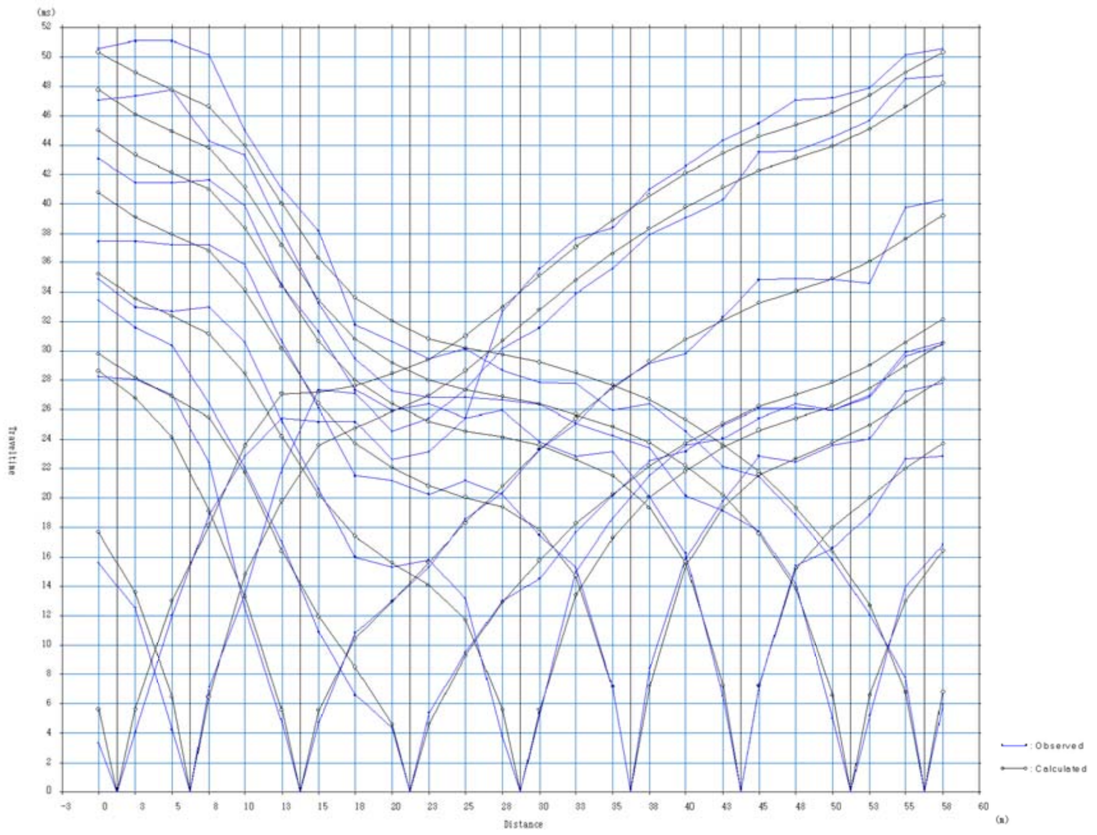
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.3Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 10.4Hz (OK)
#3. [A0 > 2]: 1.4 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 2.320 > 0.247 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.303 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
30
window length (s)
Min. freq.: 0.167Hz
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.167
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s) (from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
UN-HVSR15_mer_2 7_gen_2 021_1 6_5 5.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
UN-HVSR15_mer_2 7_gen_2 021_1 6_5 5.saf - HVSR (window length: 30s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
10Hz
5Hz
2Hz
0.5Hz
N
W
EW
NS
HVSR


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

Traveltime osservate e calcolate

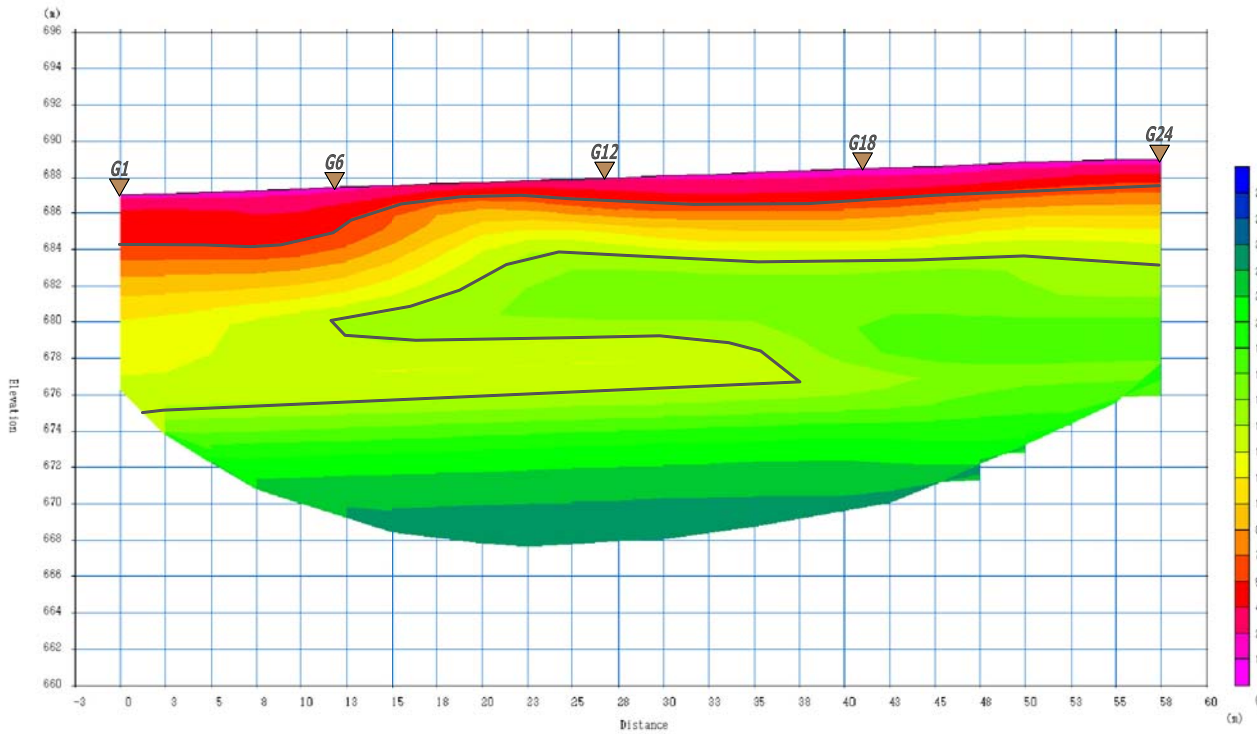


TOMO1_ms3

Committente: UNIONE DEI COMUNI SAVENA IDICE
Via Monsignor Turrini - Comune di Loiano (BO)

Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



Scala 1:500

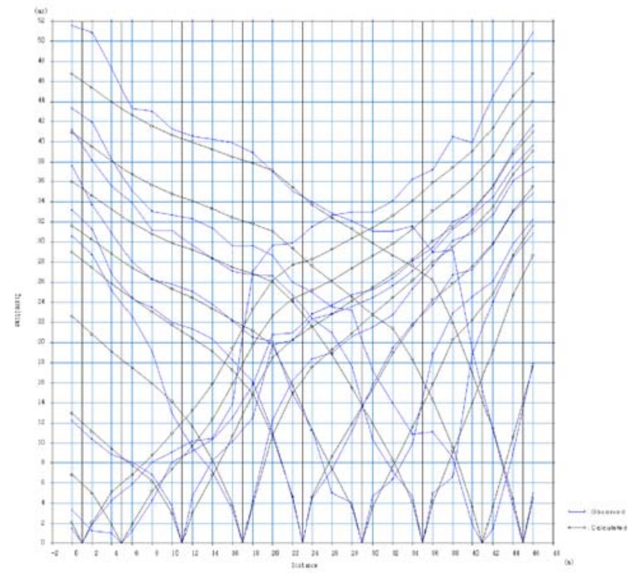
INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO1

GEOLOGICA TOSCANA s.n.c.

Committente: UNIONE DEI COMUNI SAVENA IDICE
Via Savena - Comune di Loiano (BO)

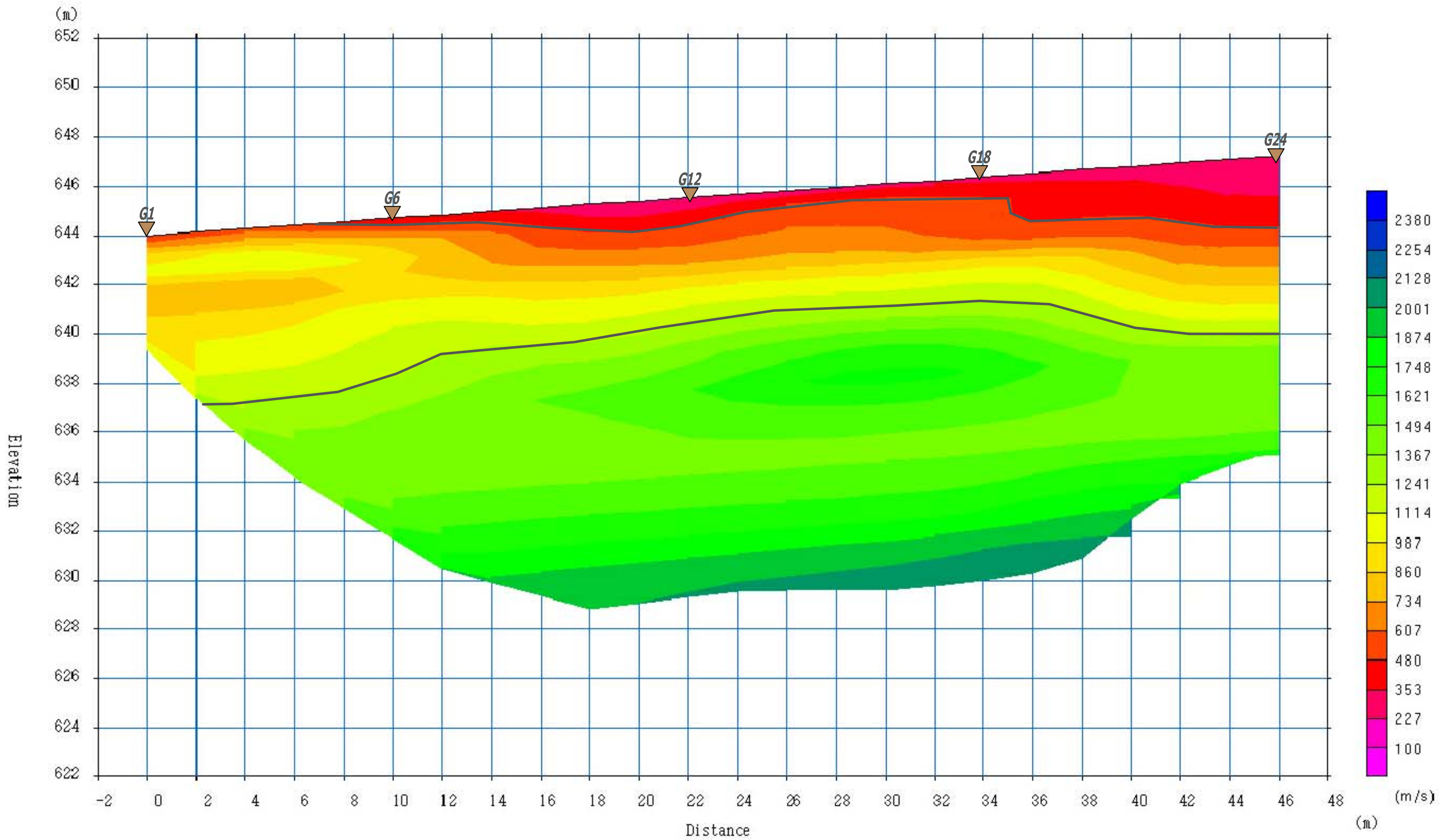
TOMO2_ms3

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO2

GEOLOGICA TOSCANA s.n.c.

REPORT DELLE INDAGINI GEOFISICHE E GEOGNOSTICHE

Comune di Monterenzio

Geologica Toscana snc
Viale Marconi 106 - 53036 - Poggibonsi (SI)
tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

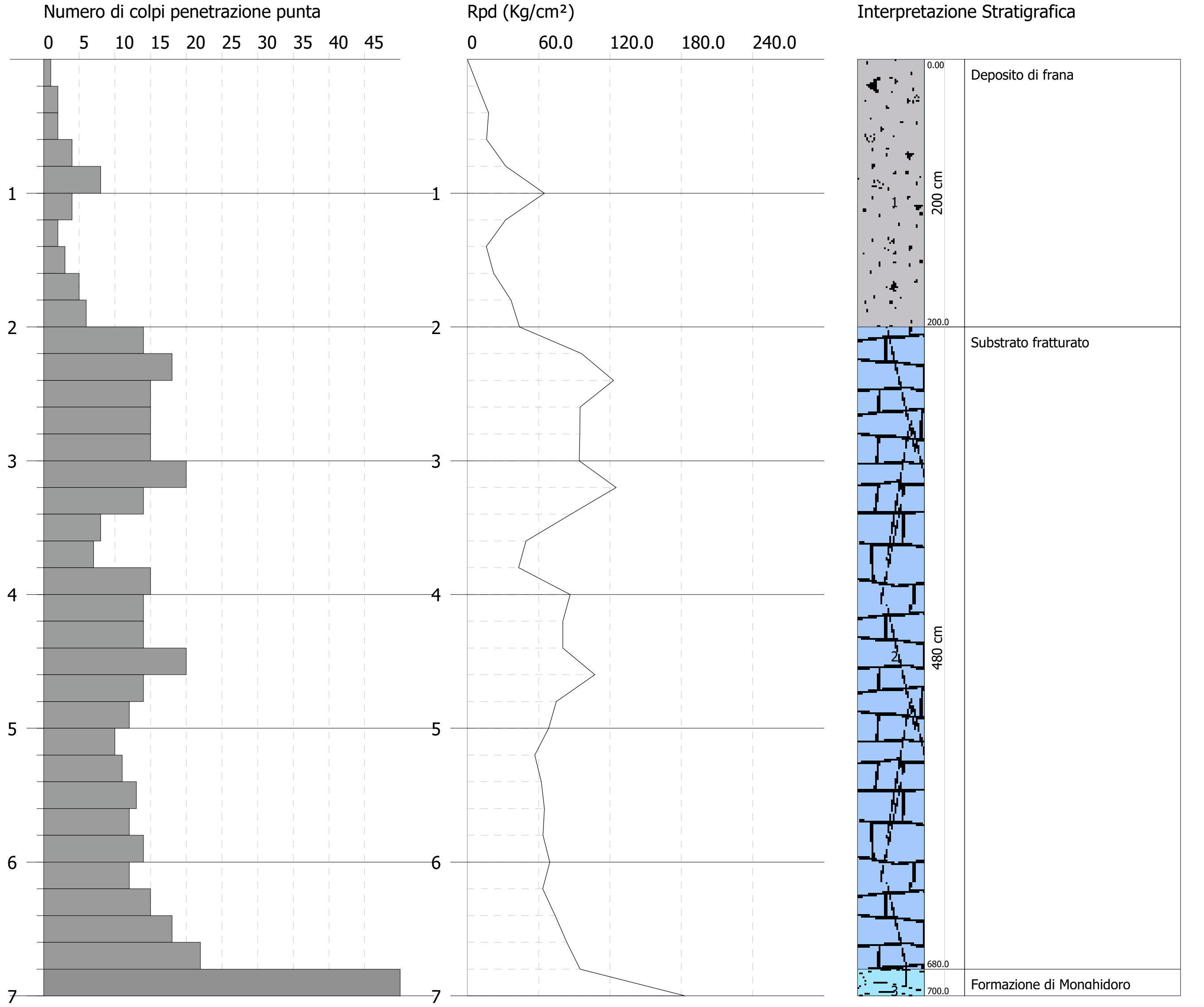
DPSH27_ms3

PROVA PENETROMETRICA DINAMICA Nr.27
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monterenzio (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 27

PROVA DPSH Nr.27

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 7.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	4	0.843	32.53	38.57	1.63	1.93
1.00	8	0.840	64.78	77.15	3.24	3.86
1.20	4	0.836	32.26	38.57	1.61	1.93
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	6	0.823	44.01	53.47	2.20	2.67
2.20	14	0.770	96.07	124.75	4.80	6.24
2.40	18	0.767	123.05	160.40	6.15	8.02
2.60	15	0.764	94.94	124.23	4.75	6.21
2.80	15	0.761	94.59	124.23	4.73	6.21
3.00	15	0.759	94.25	124.23	4.71	6.21
3.20	20	0.756	125.22	165.63	6.26	8.28
3.40	14	0.753	87.35	115.94	4.37	5.80
3.60	8	0.801	49.56	61.88	2.48	3.09
3.80	7	0.798	43.23	54.15	2.16	2.71
4.00	15	0.746	86.56	116.03	4.33	5.80

Prova n. 27

4.20	14	0.744	80.54	108.30	4.03	5.41
4.40	14	0.741	80.30	108.30	4.01	5.41
4.60	20	0.739	107.29	145.14	5.36	7.26
4.80	14	0.737	74.89	101.60	3.74	5.08
5.00	12	0.785	68.36	87.08	3.42	4.35
5.20	10	0.783	56.82	72.57	2.84	3.63
5.40	11	0.781	62.35	79.83	3.12	3.99
5.60	13	0.729	64.78	88.84	3.24	4.44
5.80	12	0.777	63.74	82.01	3.19	4.10
6.00	14	0.725	69.41	95.68	3.47	4.78
6.20	12	0.774	63.45	82.01	3.17	4.10
6.40	15	0.722	74.02	102.51	3.70	5.13
6.60	18	0.720	83.74	116.24	4.19	5.81
6.80	22	0.669	95.01	142.07	4.75	7.10
7.00	50	0.567	183.14	322.89	9.16	16.14

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
2	3.7	34.92	Incoerente - coesivo	0	1.78	1.88	0.18	1.47	5.44	Deposito di frana
6.8	14.25	107.65	Incoerente - coesivo	0	2.1	2.12	0.86	1.47	20.95	Substrato fratturato
7	50	322.89	Incoerente - coesivo	0	2.5	2.5	1.39	1.47	73.5	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.27

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	5.44	2.00	0.34	0.68	0.25	0.22	0.53	1.05	0.49	0.84	0.27	0.72	0.68
[2] - Substrato fratturato	20.95	6.80	1.41	2.62	1.00	0.81	2.07	3.23	1.77	2.17	1.05	2.72	2.62
[3] - Formazione di Monghidoro	73.5	7.00	4.96	9.19	0.00	2.36	7.39	9.69	4.78	8.94	3.68	11.88	9.19

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.44	2.00	Robertson (1983)	10.88
[2] - Substrato fratturato	20.95	6.80	Robertson (1983)	41.90
[3] - Formazione di Monghidoro	73.5	7.00	Robertson (1983)	147.00

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	5.44	2.00	24.96	81.60	57.28	68.00
[2] - Substrato fratturato	20.95	6.80	96.12	--	215.47	209.50
[3] - Formazione di Monghidoro	73.5	7.00	337.22	--	751.45	735.00

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	5.44	2.00	42.16	54.40
[2] - Substrato fratturato	20.95	6.80	220.53	209.50
[3] - Formazione di Monghidoro	73.5	7.00	824.85	735.00

Prova n. 27

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	5.44	2.00	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato fratturato	20.95	6.80	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	73.5	7.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	5.44	2.00	Meyerhof	1.78
[2] - Substrato fratturato	20.95	6.80	Meyerhof	2.10
[3] - Formazione di Monghidoro	73.5	7.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	5.44	2.00	Meyerhof	1.88
[2] - Substrato fratturato	20.95	6.80	Meyerhof	2.12
[3] - Formazione di Monghidoro	73.5	7.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.44	2.00		0
[2] - Substrato fratturato	20.95	6.80		0
[3] - Formazione di Monghidoro	73.5	7.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	5.44	2.00	24.95	52.27	60.45	22
[2] - Substrato fratturato	20.95	6.80	41.85	76.96	76.22	52.62
[3] - Formazione di Monghidoro	73.5	7.00	66.24	100	100	100

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	5.44	2.00	5.44	28.55	21.55	29.52	31.49	31.85	0	<30	24.03	28.63	33.11	25.43
[2] - Substrato fratturato	20.95	6.80	20.95	32.99	25.99	33.87	30.26	37.35	38.77	30-32	32.73	33.28	42.29	35.47
[3] - Formazione di Monghidoro	73.5	7.00	73.5	48	41	48.58	31.25	41.67	42	>38	48.2	49.05	51.24	53.34

Prova n. 27

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	5.44	2.00	5.44	---	43.52	---	---	---
[2] - Substrato fratturato	20.95	6.80	20.95	326.71	167.60	247.91	337.12	179.75
[3] - Formazione di Monghidoro	73.5	7.00	73.5	611.95	588.00	868.00	731.25	442.50

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	5.44	2.00	5.44	---	38.64	38.62	62.26
[2] - Substrato fratturato	20.95	6.80	20.95	125.70	70.50	148.75	131.44
[3] - Formazione di Monghidoro	73.5	7.00	73.5	441.00	178.44	521.85	365.81

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	5.44	2.00	5.44	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato fratturato	20.95	6.80	20.95	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	73.5	7.00	73.5	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	5.44	2.00	5.44	Meyerhof et al.	1.56
[2] - Substrato fratturato	20.95	6.80	20.95	Meyerhof et al.	2.01
[3] - Formazione di Monghidoro	73.5	7.00	73.5	Meyerhof et al.	2.46

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	5.44	2.00	5.44	Terzaghi-Peck 1948-1967	1.89
[2] - Substrato fratturato	20.95	6.80	20.95	Terzaghi-Peck 1948-1967	1.99
[3] - Formazione di Monghidoro	73.5	7.00	73.5	Terzaghi-Peck 1948-1967	2.20

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	5.44	2.00	5.44	(A.G.I.)	0.34
[2] - Substrato fratturato	20.95	6.80	20.95	(A.G.I.)	0.31
[3] - Formazione di Monghidoro	73.5	7.00	73.5	(A.G.I.)	0.2

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	5.44	2.00	5.44	319.43	351.85
[2] - Substrato fratturato	20.95	6.80	20.95	1134.56	801.96
[3] - Formazione di Monghidoro	73.5	7.00	73.5	3691.68	1726.68

Prova n. 27

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.44	2.00	5.44	Ohta & Goto (1978) Limi	91.7
[2] - Substrato fratturato	20.95	6.80	20.95	Ohta & Goto (1978) Limi	154.12
[3] - Formazione di Monghidoro	73.5	7.00	73.5	Ohta & Goto (1978) Limi	208.88

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	5.44	2.00	5.44	Seed e Idriss (1971)	--
[2] - Substrato fratturato	20.95	6.80	20.95	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	73.5	7.00	73.5	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	5.44	2.00	5.44		---
[2] - Substrato fratturato	20.95	6.80	20.95		---
[3] - Formazione di Monghidoro	73.5	7.00	73.5		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.44	2.00	5.44		---
[2] - Substrato fratturato	20.95	6.80	20.95		---
[3] - Formazione di Monghidoro	73.5	7.00	73.5		---

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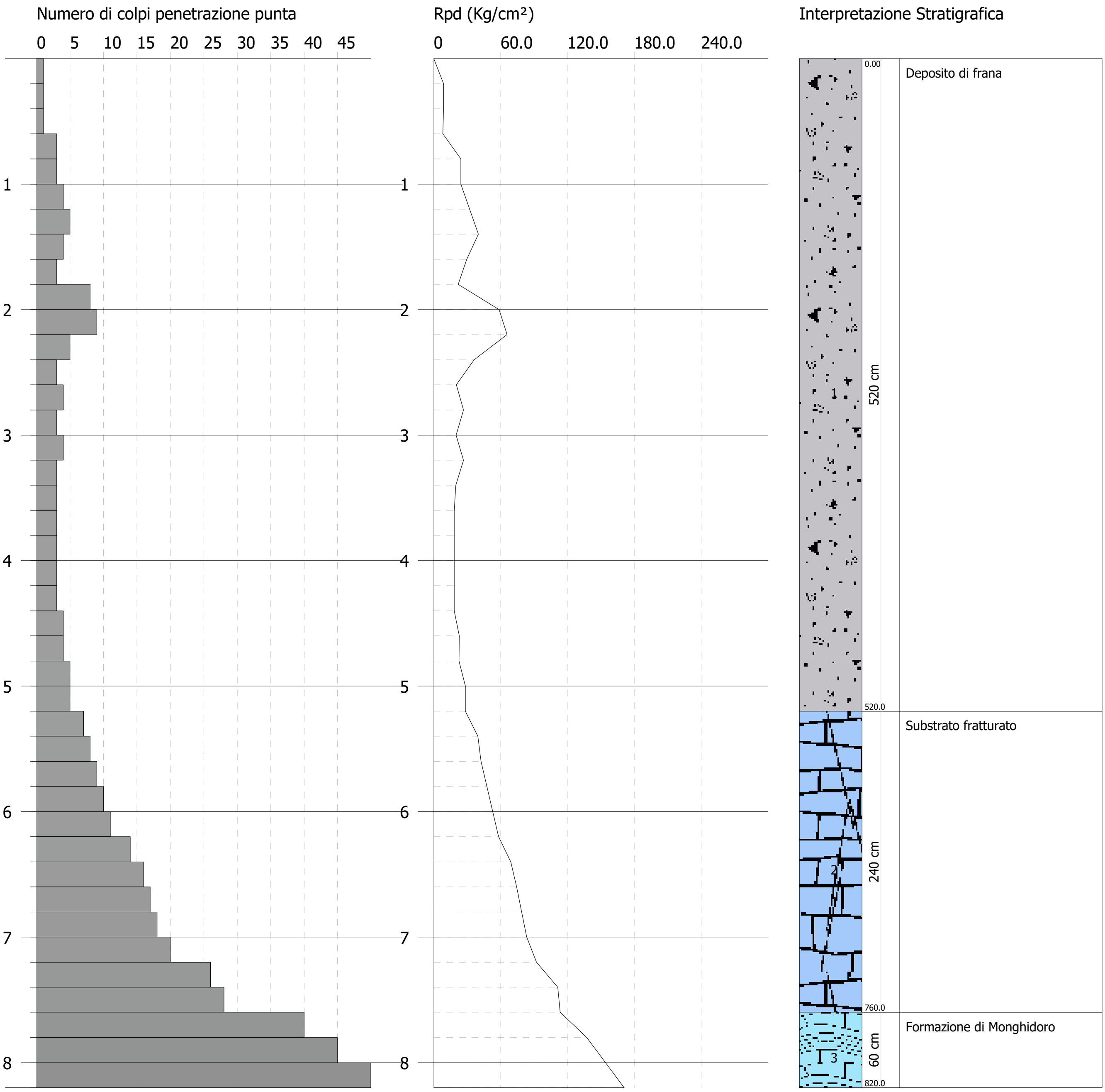
DPSH28_ms3

PROVA PENETROMETRICA DINAMICA Nr.28
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monterenzio (BO)

Data: 11/02/2021

Scala 1:50



Prova n. 28

PROVA DPSH Nr.28

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 11/02/2021
Profondità prova 8.20 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	3	0.843	24.40	28.93	1.22	1.45
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	4	0.836	32.26	38.57	1.61	1.93
1.40	5	0.833	40.16	48.22	2.01	2.41
1.60	4	0.830	29.57	35.64	1.48	1.78
1.80	3	0.826	22.09	26.73	1.10	1.34
2.00	8	0.823	58.68	71.29	2.93	3.56
2.20	9	0.820	65.77	80.20	3.29	4.01
2.40	5	0.817	36.41	44.55	1.82	2.23
2.60	3	0.814	20.23	24.85	1.01	1.24
2.80	4	0.811	26.88	33.13	1.34	1.66
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	4	0.806	26.70	33.13	1.34	1.66
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	3	0.801	18.59	23.21	0.93	1.16
3.80	3	0.798	18.53	23.21	0.93	1.16
4.00	3	0.796	18.47	23.21	0.92	1.16

Prova n. 28

4.20	3	0.794	18.42	23.21	0.92	1.16
4.40	3	0.791	18.37	23.21	0.92	1.16
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	4	0.787	22.85	29.03	1.14	1.45
5.00	5	0.785	28.48	36.28	1.42	1.81
5.20	5	0.783	28.41	36.28	1.42	1.81
5.40	7	0.781	39.68	50.80	1.98	2.54
5.60	8	0.779	42.60	54.67	2.13	2.73
5.80	9	0.777	47.81	61.51	2.39	3.08
6.00	10	0.775	53.00	68.34	2.65	3.42
6.20	11	0.774	58.16	75.18	2.91	3.76
6.40	14	0.722	69.08	95.68	3.45	4.78
6.60	16	0.720	74.43	103.33	3.72	5.17
6.80	17	0.719	78.91	109.78	3.95	5.49
7.00	18	0.717	83.37	116.24	4.17	5.81
7.20	20	0.716	92.43	129.16	4.62	6.46
7.40	26	0.664	111.51	167.90	5.58	8.40
7.60	28	0.663	113.58	171.38	5.68	8.57
7.80	40	0.561	137.42	244.83	6.87	12.24
8.00	45	0.560	154.22	275.44	7.71	13.77
8.20	50	0.559	170.95	306.04	8.55	15.30

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
5.2	3.73	31.59	Incoerente - coesivo	0	1.79	1.88	0.47	1.47	5.48	Deposito di frana
7.6	15.33	100.33	Incoerente - coesivo	0	2.11	2.16	1.18	1.47	22.54	Substrato fratturato
8.2	45	275.44	Incoerente - coesivo	0	2.5	2.5	1.51	1.47	66.15	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.28

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	5.48	5.20	0.34	0.69	0.25	0.22	0.53	0.95	0.49	0.84	0.27	0.31	0.69
[2] - Substrato fratturato	22.54	7.60	1.52	2.82	1.00	0.87	2.23	3.01	1.89	2.33	1.13	2.88	2.82
[3] - Formazione di Monghidoro	66.15	8.20	4.47	8.27	0.00	2.18	6.64	8.26	4.48	7.79	3.31	10.35	8.27

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.48	5.20	Robertson (1983)	10.96
[2] - Substrato fratturato	22.54	7.60	Robertson (1983)	45.08
[3] - Formazione di Monghidoro	66.15	8.20	Robertson (1983)	132.30

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	5.48	5.20	25.14	82.20	57.69	68.50
[2] - Substrato fratturato	22.54	7.60	103.41	--	231.69	225.40
[3] - Formazione di Monghidoro	66.15	8.20	303.50	--	676.48	661.50

Prova n. 28

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	5.48	5.20	42.62	54.80
[2] - Substrato fratturato	22.54	7.60	238.81	225.40
[3] - Formazione di Monghidoro	66.15	8.20	740.33	661.50

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	5.48	5.20	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato fratturato	22.54	7.60	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	66.15	8.20	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	5.48	5.20	Meyerhof	1.79
[2] - Substrato fratturato	22.54	7.60	Meyerhof	2.11
[3] - Formazione di Monghidoro	66.15	8.20	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	5.48	5.20	Meyerhof	1.88
[2] - Substrato fratturato	22.54	7.60	Meyerhof	2.16
[3] - Formazione di Monghidoro	66.15	8.20	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.48	5.20		0
[2] - Substrato fratturato	22.54	7.60		0
[3] - Formazione di Monghidoro	66.15	8.20		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	5.48	5.20	20.4	45.54	47.16	22.1
[2] - Substrato fratturato	22.54	7.60	39.36	72.64	72.59	54.81
[3] - Formazione di Monghidoro	66.15	8.20	61.75	100	100	97.95

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	5.48	5.20	5.48	28.57	21.57	29.53	29.42	31.87	0	<30	24.07	28.64	32.08	25.47
[2] - Substrato fratturato	22.54	7.60	22.54	33.44	26.44	34.31	29.68	37.81	38.17	30-32	33.39	33.76	41.7	36.23
[3] - Formazione di Monghidoro	66.15	8.20	66.15	45.9	38.9	46.52	30.89	42.4	42	>38	46.5	46.85	49.85	51.37

Prova n. 28

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	5.48	5.20	5.48	---	43.84	---	---	---
[2] - Substrato fratturato	22.54	7.60	22.54	338.88	180.32	266.67	349.05	187.70
[3] - Formazione di Monghidoro	66.15	8.20	66.15	580.54	529.20	781.27	676.12	405.75

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	5.48	5.20	5.48	---	38.72	38.91	62.44
[2] - Substrato fratturato	22.54	7.60	22.54	135.24	73.76	160.03	138.53
[3] - Formazione di Monghidoro	66.15	8.20	66.15	396.90	163.34	469.67	333.03

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	5.48	5.20	5.48	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato fratturato	22.54	7.60	22.54	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	66.15	8.20	66.15	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	5.48	5.20	5.48	Meyerhof et al.	1.56
[2] - Substrato fratturato	22.54	7.60	22.54	Meyerhof et al.	2.04
[3] - Formazione di Monghidoro	66.15	8.20	66.15	Meyerhof et al.	2.35

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	5.48	5.20	5.48	Terzaghi-Peck 1948-1967	1.89
[2] - Substrato fratturato	22.54	7.60	22.54	Terzaghi-Peck 1948-1967	2.00
[3] - Formazione di Monghidoro	66.15	8.20	66.15	Terzaghi-Peck 1948-1967	2.18

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	5.48	5.20	5.48	(A.G.I.)	0.34
[2] - Substrato fratturato	22.54	7.60	22.54	(A.G.I.)	0.31
[3] - Formazione di Monghidoro	66.15	8.20	66.15	(A.G.I.)	0.22

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	5.48	5.20	5.48	321.64	353.43
[2] - Substrato fratturato	22.54	7.60	22.54	1215.32	838.62
[3] - Formazione di Monghidoro	66.15	8.20	66.15	3343.58	1619.03

Prova n. 28

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.48	5.20	5.48	Ohta & Goto (1978) Limi	110.41
[2] - Substrato fratturato	22.54	7.60	22.54	Ohta & Goto (1978) Limi	167.79
[3] - Formazione di Monghidoro	66.15	8.20	66.15	Ohta & Goto (1978) Limi	210.53

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	5.48	5.20	5.48	Seed e Idriss (1971)	--
[2] - Substrato fratturato	22.54	7.60	22.54	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	66.15	8.20	66.15	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	5.48	5.20	5.48		---
[2] - Substrato fratturato	22.54	7.60	22.54		---
[3] - Formazione di Monghidoro	66.15	8.20	66.15		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.48	5.20	5.48		---
[2] - Substrato fratturato	22.54	7.60	22.54		---
[3] - Formazione di Monghidoro	66.15	8.20	66.15		---

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tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

DPSH29_ms3

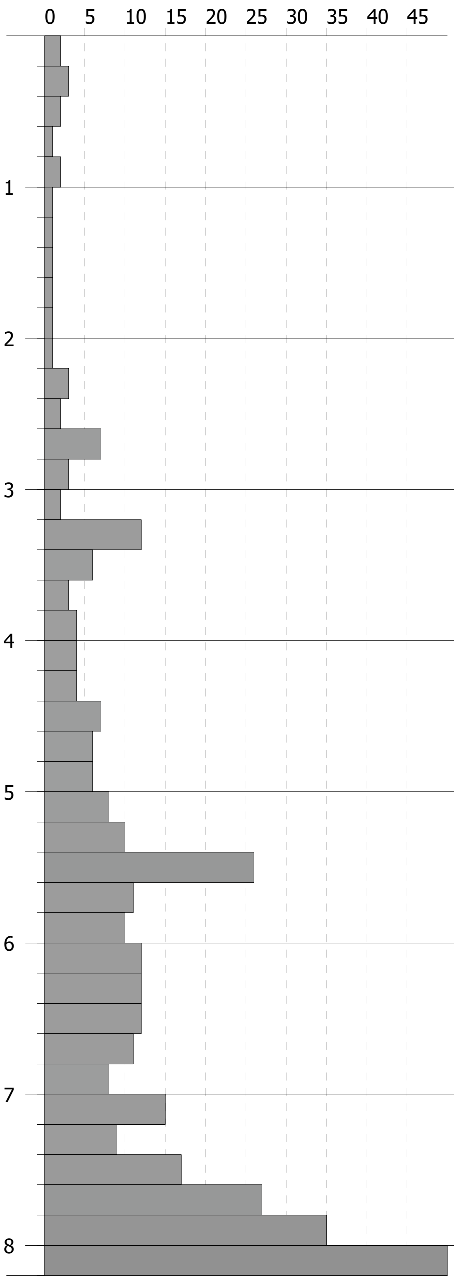
PROVA PENETROMETRICA DINAMICA Nr.29
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monterenzio (BO)

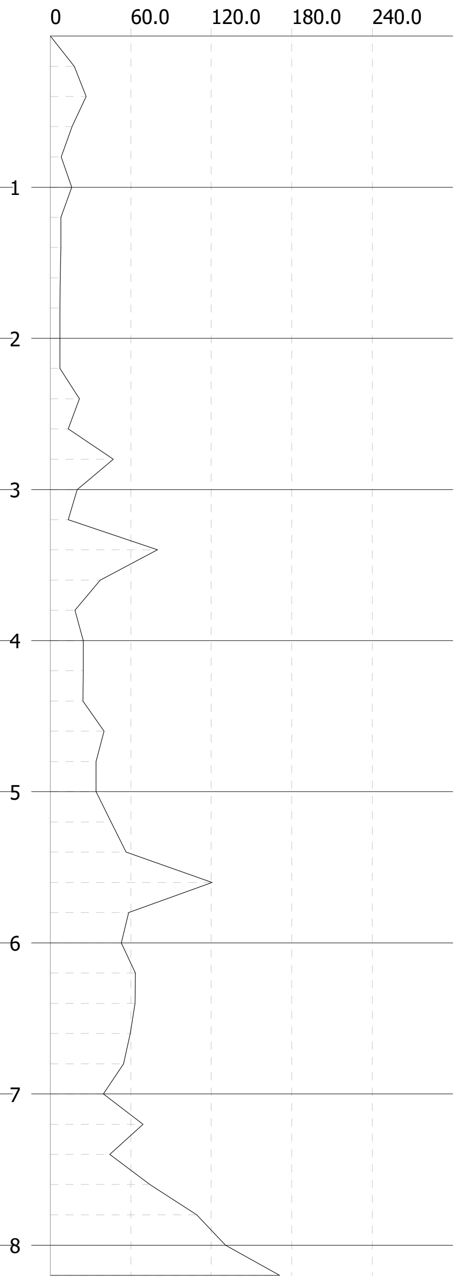
Data: 17/02/2021

Scala 1:50

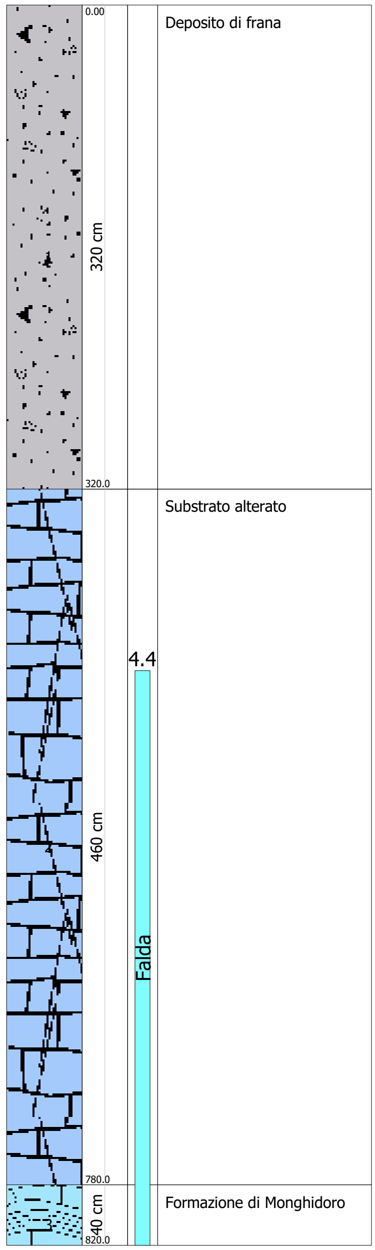
Numero di colpi penetrazione punta



Rpd (Kg/cm²)



Interpretazione Stratigrafica



Prova n. 29

PROVA DPSH Nr.29

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 8.20 mt
Falda rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	2	0.855	17.96	21.01	0.90	1.05
0.40	3	0.851	26.82	31.52	1.34	1.58
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	1	0.836	8.06	9.64	0.40	0.48
1.40	1	0.833	8.03	9.64	0.40	0.48
1.60	1	0.830	7.39	8.91	0.37	0.45
1.80	1	0.826	7.36	8.91	0.37	0.45
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	1	0.820	7.31	8.91	0.37	0.45
2.40	3	0.817	21.84	26.73	1.09	1.34
2.60	2	0.814	13.49	16.56	0.67	0.83
2.80	7	0.811	47.04	57.97	2.35	2.90
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	12	0.803	79.84	99.38	3.99	4.97
3.60	6	0.801	37.17	46.41	1.86	2.32
3.80	3	0.798	18.53	23.21	0.93	1.16
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	4	0.794	24.56	30.94	1.23	1.55
4.40	4	0.791	24.49	30.94	1.22	1.55
4.60	7	0.789	40.09	50.80	2.00	2.54
4.80	6	0.787	34.27	43.54	1.71	2.18
5.00	6	0.785	34.18	43.54	1.71	2.18
5.20	8	0.783	45.46	58.06	2.27	2.90
5.40	10	0.781	56.68	72.57	2.83	3.63
5.60	26	0.679	120.67	177.69	6.03	8.88
5.80	11	0.777	58.43	75.18	2.92	3.76
6.00	10	0.775	53.00	68.34	2.65	3.42

Prova n. 29

6.20	12	0.774	63.45	82.01	3.17	4.10
6.40	12	0.772	63.31	82.01	3.17	4.10
6.60	12	0.770	59.70	77.49	2.98	3.87
6.80	11	0.769	54.61	71.04	2.73	3.55
7.00	8	0.767	39.63	51.66	1.98	2.58
7.20	15	0.716	69.32	96.87	3.47	4.84
7.40	9	0.764	44.41	58.12	2.22	2.91
7.60	17	0.713	74.16	104.05	3.71	5.20
7.80	27	0.661	109.29	165.26	5.46	8.26
8.00	35	0.610	130.66	214.23	6.53	10.71
8.20	50	0.559	170.95	306.04	8.55	15.30

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.2	2.06	18.65	Incoerente - coesivo	0	1.64	1.86	0.26	1.47	3.03	Deposito di frana
7.8	10.43	71.31	Incoerente - coesivo	0	2.07	2.28	0.91	1.47	15.33	Substrato alterato
8.2	42.5	260.14	Incoerente - coesivo	0	2.5	2.5	1.24	1.47	62.48	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.29

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.03	3.20	0.19	0.38	0.15	0.12	0.29	0.56	0.28	0.66	0.15	0.17	0.38
[2] - Substrato alterato	15.33	7.80	1.04	1.92	1.00	0.60	1.51	2.14	1.33	1.65	0.77	1.58	1.92
[3] - Formazione di Monghidoro	62.48	8.20	4.22	7.81	0.00	2.09	6.27	7.80	4.32	7.24	3.12	9.69	7.81

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.03	3.20	Robertson (1983)	6.06
[2] - Substrato alterato	15.33	7.80	Robertson (1983)	30.66
[3] - Formazione di Monghidoro	62.48	8.20	Robertson (1983)	124.96

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.03	3.20	13.90	45.45	32.70	37.88
[2] - Substrato alterato	15.33	7.80	70.33	--	158.15	153.30
[3] - Formazione di Monghidoro	62.48	8.20	286.66	--	639.05	624.80

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.03	3.20	14.45	30.30
[2] - Substrato alterato	15.33	7.80	155.90	153.30
[3] - Formazione di Monghidoro	62.48	8.20	698.12	624.80

Prova n. 29

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.03	3.20	A.G.I. (1977)	POCO CONSISTENTE
[2] - Substrato alterato	15.33	7.80	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	62.48	8.20	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.03	3.20	Meyerhof	1.64
[2] - Substrato alterato	15.33	7.80	Meyerhof	2.07
[3] - Formazione di Monghidoro	62.48	8.20	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.03	3.20	Meyerhof	1.86
[2] - Substrato alterato	15.33	7.80	Meyerhof	2.28
[3] - Formazione di Monghidoro	62.48	8.20	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.03	3.20		0
[2] - Substrato alterato	15.33	7.80		0
[3] - Formazione di Monghidoro	62.48	8.20		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.03	3.20	13.27	37.26	41.28	15.39
[2] - Substrato alterato	15.33	7.80	34.34	64.72	64.61	43.61
[3] - Formazione di Monghidoro	62.48	8.20	51.35	93.88	92.94	71.35

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.03	3.20	3.03	27.87	20.87	28.85	29.7	30.83	0	<30	21.74	27.91	27.68	22.78
[2] - Substrato alterato	15.33	7.80	15.33	31.38	24.38	32.29	29.62	35.58	37.06	30-32	30.16	31.6	39.36	32.51
[3] - Formazione di Monghidoro	62.48	8.20	38.74	38.07	31.07	38.85	30.46	41.29	41.14	35-38	39.11	38.62	46.22	42.84

Prova n. 29

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.03	3.20	3.03	---	24.24	---	---	---
[2] - Substrato alterato	15.33	7.80	15.33	279.47	122.64	181.59	294.98	151.65
[3] - Formazione di Monghidoro	62.48	8.20	38.74	444.27	309.92	457.83	470.55	268.70

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.03	3.20	3.03	---	33.69	21.51	51.51
[2] - Substrato alterato	15.33	7.80	15.33	91.98	58.95	108.84	106.37
[3] - Formazione di Monghidoro	62.48	8.20	38.74	232.44	107.04	275.05	210.78

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.03	3.20	3.03	Classificazione A.G.I	SCIOLTO
[2] - Substrato alterato	15.33	7.80	15.33	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	62.48	8.20	38.74	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.03	3.20	3.03	Meyerhof et al.	1.45
[2] - Substrato alterato	15.33	7.80	15.33	Meyerhof et al.	1.89
[3] - Formazione di Monghidoro	62.48	8.20	38.74	Meyerhof et al.	2.20

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.03	3.20	3.03	Terzaghi-Peck 1948-1967	1.87
[2] - Substrato alterato	15.33	7.80	15.33	Terzaghi-Peck 1948-1967	1.95
[3] - Formazione di Monghidoro	62.48	8.20	38.74	Terzaghi-Peck 1948-1967	2.10

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.03	3.20	3.03	(A.G.I.)	0.35
[2] - Substrato alterato	15.33	7.80	15.33	(A.G.I.)	0.32
[3] - Formazione di Monghidoro	62.48	8.20	38.74	(A.G.I.)	0.28

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.03	3.20	3.03	184.28	246.08
[2] - Substrato alterato	15.33	7.80	15.33	845.91	662.64
[3] - Formazione di Monghidoro	62.48	8.20	38.74	2022.01	1167.55

Prova n. 29

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.03	3.20	3.03	Ohta & Goto (1978) Limi	90.74
[2] - Substrato alterato	15.33	7.80	15.33	Ohta & Goto (1978) Limi	152.44
[3] - Formazione di Monghidoro	62.48	8.20	38.74	Ohta & Goto (1978) Limi	192.38

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.03	3.20	3.03	Seed e Idriss (1971)	--
[2] - Substrato alterato	15.33	7.80	15.33	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	62.48	8.20	38.74	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.03	3.20	3.03		---
[2] - Substrato alterato	15.33	7.80	15.33		---
[3] - Formazione di Monghidoro	62.48	8.20	38.74		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.03	3.20	3.03		---
[2] - Substrato alterato	15.33	7.80	15.33		---
[3] - Formazione di Monghidoro	62.48	8.20	38.74		---

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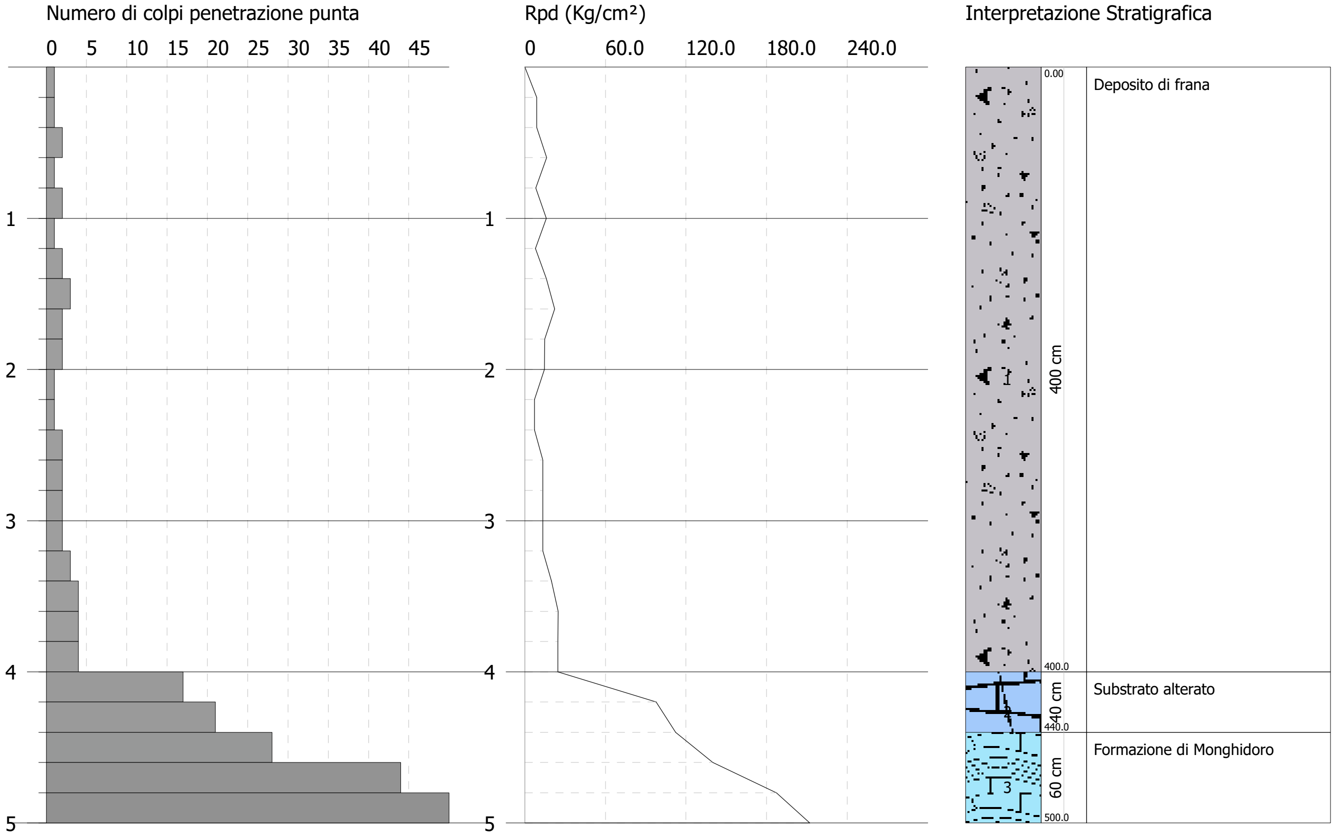
DPSH30_ms3

PROVA PENETROMETRICA DINAMICA Nr.30
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monterenzio (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 30

PROVA DPSH Nr.30

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 5.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	1	0.836	8.06	9.64	0.40	0.48
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	2	0.823	14.67	17.82	0.73	0.89
2.20	1	0.820	7.31	8.91	0.37	0.45
2.40	1	0.817	7.28	8.91	0.36	0.45
2.60	2	0.814	13.49	16.56	0.67	0.83
2.80	2	0.811	13.44	16.56	0.67	0.83
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	4	0.801	24.78	30.94	1.24	1.55
3.80	4	0.798	24.70	30.94	1.24	1.55
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	17	0.744	97.80	131.50	4.89	6.58
4.40	21	0.691	112.32	162.45	5.62	8.12
4.60	28	0.689	140.05	203.19	7.00	10.16
4.80	44	0.587	187.46	319.30	9.37	15.97
5.00	50	0.585	212.27	362.85	10.61	18.14

Prova n. 30

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
4	2.1	18.11	Incoerente - coesivo	0	1.64	1.86	0.33	1.47	3.09	Deposito di frana
4.4	19	146.98	Incoerente - coesivo	0	2.14	2.31	0.7	1.47	27.93	Substrato alterato
5	40.67	295.12	Incoerente - coesivo	0	2.5	2.5	0.82	1.47	59.78	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.30

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.09	4.00	0.19	0.39	0.15	0.13	0.30	0.54	0.28	0.66	0.15	0.08	0.39
[2] - Substrato alterato	27.93	4.40	1.89	3.49	1.00	1.06	2.78	4.41	2.29	2.87	1.40	4.32	3.49
[3] - Formazione di Monghidoro	59.78	5.00	4.04	7.47	0.00	2.02	5.99	8.85	4.19	6.84	2.99	9.78	7.47

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.09	4.00	Robertson (1983)	6.18
[2] - Substrato alterato	27.93	4.40	Robertson (1983)	55.86
[3] - Formazione di Monghidoro	59.78	5.00	Robertson (1983)	119.56

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.09	4.00	14.18	46.35	33.31	38.63
[2] - Substrato alterato	27.93	4.40	128.14	--	286.66	279.30
[3] - Formazione di Monghidoro	59.78	5.00	274.27	--	611.51	597.80

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.09	4.00	15.14	30.90
[2] - Substrato alterato	27.93	4.40	300.80	279.30
[3] - Formazione di Monghidoro	59.78	5.00	667.07	597.80

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.09	4.00	A.G.I. (1977)	POCO CONSISTENTE
[2] - Substrato alterato	27.93	4.40	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	59.78	5.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.09	4.00	Meyerhof	1.64
[2] - Substrato alterato	27.93	4.40	Meyerhof	2.14
[3] - Formazione di Monghidoro	59.78	5.00	Meyerhof	2.50

Prova n. 30

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.09	4.00	Meyerhof	1.86
[2] - Substrato alterato	27.93	4.40	Meyerhof	2.31
[3] - Formazione di Monghidoro	59.78	5.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.09	4.00		0
[2] - Substrato alterato	27.93	4.40		0
[3] - Formazione di Monghidoro	59.78	5.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.09	4.00	12.62	36.41	39.3	15.56
[2] - Substrato alterato	27.93	4.40	51.12	93.84	92.34	61.33
[3] - Formazione di Monghidoro	59.78	5.00	69.33	100	100	89.8

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.09	4.00	3.09	27.88	20.88	28.87	29.25	30.85	0	<30	21.81	27.93	27.6	22.86
[2] - Substrato alterato	27.93	4.40	27.93	34.98	27.98	35.82	31.17	39.2	41.14	32-35	35.47	35.38	45.41	38.63
[3] - Formazione di Monghidoro	59.78	5.00	59.78	44.08	37.08	44.74	32.07	42.67	42	>38	44.94	44.93	51.61	49.58

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.09	4.00	3.09	---	24.72	---	---	---
[2] - Substrato alterato	27.93	4.40	27.93	377.23	223.44	330.27	389.48	214.65
[3] - Formazione di Monghidoro	59.78	5.00	59.78	551.88	478.24	706.10	628.35	373.90

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.09	4.00	3.09	---	33.81	21.94	51.78
[2] - Substrato alterato	27.93	4.40	27.93	167.58	84.83	198.30	162.57
[3] - Formazione di Monghidoro	59.78	5.00	59.78	358.68	150.25	424.44	304.62

Prova n. 30

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.09	4.00	3.09	Classificazione A.G.I	SCIOLTO
[2] - Substrato alterato	27.93	4.40	27.93	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	59.78	5.00	59.78	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.09	4.00	3.09	Meyerhof et al.	1.45
[2] - Substrato alterato	27.93	4.40	27.93	Meyerhof et al.	2.11
[3] - Formazione di Monghidoro	59.78	5.00	59.78	Meyerhof et al.	2.29

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.09	4.00	3.09	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	27.93	4.40	27.93	Terzaghi-Peck 1948-1967	2.03
[3] - Formazione di Monghidoro	59.78	5.00	59.78	Terzaghi-Peck 1948-1967	2.17

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.09	4.00	3.09	(A.G.I.)	0.35
[2] - Substrato alterato	27.93	4.40	27.93	(A.G.I.)	0.3
[3] - Formazione di Monghidoro	59.78	5.00	59.78	(A.G.I.)	0.23

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.09	4.00	3.09	187.70	249.04
[2] - Substrato alterato	27.93	4.40	27.93	1486.69	956.00
[3] - Formazione di Monghidoro	59.78	5.00	59.78	3040.02	1521.90

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.09	4.00	3.09	Ohta & Goto (1978) Limi	95.06
[2] - Substrato alterato	27.93	4.40	27.93	Ohta & Goto (1978) Limi	160.54
[3] - Formazione di Monghidoro	59.78	5.00	59.78	Ohta & Goto (1978) Limi	187.15

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.09	4.00	3.09	Seed e Idriss (1971)	--
[2] - Substrato alterato	27.93	4.40	27.93	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	59.78	5.00	59.78	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.09	4.00	3.09		---
[2] - Substrato alterato	27.93	4.40	27.93		---
[3] - Formazione di Monghidoro	59.78	5.00	59.78		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.09	4.00	3.09		---
[2] - Substrato alterato	27.93	4.40	27.93		---
[3] - Formazione di Monghidoro	59.78	5.00	59.78		---

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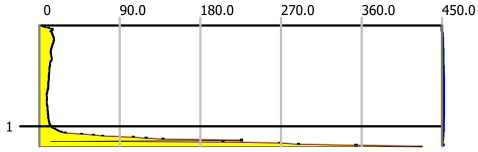
CPTU11_ms3

Probe CPTU - Piezocone Nr.11
Strumento utilizzato PAGANI 200 kN (CPTU)

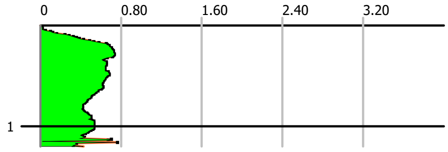
Committente: Unione dei Comuni Savena Idice
Cantiere: Prove penetrometriche per Microzonazione sismica III° livello
Località: Monterenzio (BO)

Data: 17/03/2021

Resistenza punta Qc (Kg/cm²)



Resistenza laterale Fs (Kg/cm²)

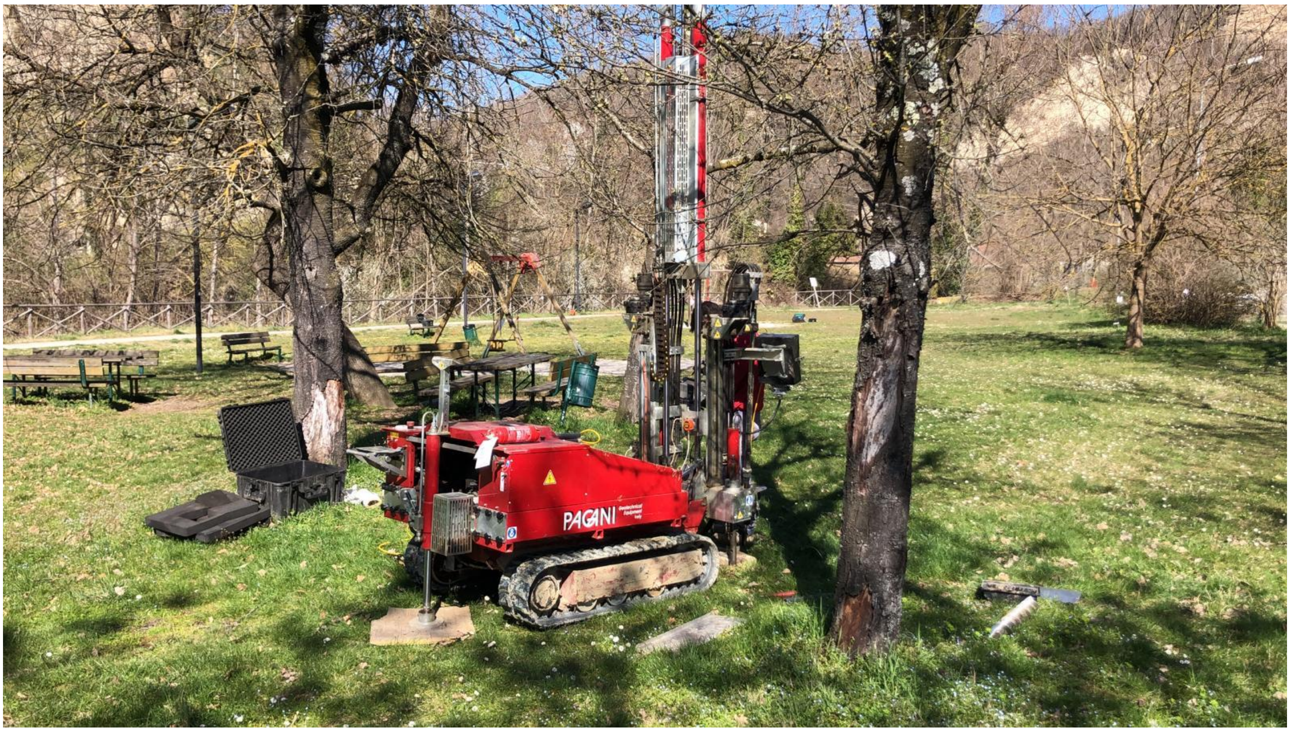


Interpretazione Stratigrafica

Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

Prova CPTU n. 11

PROVA CPTU Nr.11



Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 17/03/2021
Profondità prova: 1.20 mt
Località: Monterenzio (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	2.753	0.01	0.04	0.3	275.3	0.363	0.0	0.0	0.0	0
0.02	5.506	0.02	0.06	0.2	275.3	0.363	0.0	0.0	0.0	0
0.03	10.503	0.02	0.07	0.3	525.15	0.19	0.0	0.0	0.0	0
0.04	14.174	0.02	0.06	0.3	708.7	0.141	0.0	0.0	0.0	0
0.05	11.93	0.051	0.05	0.4	233.922	0.427	0.0	0.0	0.0	0
0.06	11.727	0.102	0.01	0.4	114.971	0.87	0.0	0.0	0.0	0
0.07	13.154	0.122	-0.01	0.5	107.82	0.927	0.0	0.0	0.0	0
0.08	13.46	0.163	-0.04	0.5	82.577	1.211	0.0	0.0	0.0	0
0.09	13.766	0.245	-0.06	0.5	56.188	1.78	0.0	0.0	0.0	0
0.10	14.276	0.286	-0.06	0.5	49.916	2.003	0.0	0.0	0.0	0
0.11	14.684	0.326	-0.06	0.6	45.043	2.22	0.0	0.0	0.0	0
0.12	15.194	0.357	-0.09	0.6	42.56	2.35	0.0	0.0	0.0	0
0.13	15.397	0.387	-0.10	0.6	39.786	2.513	0.0	0.0	0.0	0
0.14	15.703	0.428	-0.09	0.6	36.689	2.726	0.0	0.0	0.0	0
0.15	15.194	0.489	-0.09	0.6	31.072	3.218	0.0	0.0	0.0	0
0.16	15.092	0.53	-0.09	0.6	28.475	3.512	0.0	0.0	0.0	0
0.17	14.99	0.581	-0.09	0.6	25.8	3.876	0.0	0.0	0.0	0
0.18	14.174	0.653	-0.09	0.6	21.706	4.607	0.0	0.0	0.0	0
0.19	13.766	0.663	-0.08	0.6	20.763	4.816	0.0	0.0	0.0	0
0.20	13.46	0.683	-0.08	0.6	19.707	5.074	0.0	0.0	0.0	0

Prova CPTU n. 11

0.21	13.154	0.683	-0.09	0.6	19.259	5.192	0.0	0.0	0.0	0
0.22	13.052	0.704	-0.09	0.6	18.54	5.394	0.0	0.0	0.0	0
0.23	12.44	0.704	-0.12	0.6	17.67	5.659	0.0	0.0	0.0	0
0.24	12.338	0.714	-0.12	0.6	17.28	5.787	0.0	0.0	0.0	0
0.25	12.134	0.724	-0.12	0.6	16.76	5.967	0.0	0.0	0.0	0
0.26	12.032	0.724	-0.12	0.7	16.619	6.017	0.0	0.0	0.0	0
0.27	11.93	0.724	-0.12	0.7	16.478	6.069	0.0	0.0	0.0	0
0.28	11.93	0.734	-0.12	0.7	16.253	6.153	0.0	0.0	0.0	0
0.29	12.44	0.734	-0.12	0.7	16.948	5.9	0.0	0.0	0.0	0
0.30	12.542	0.724	-0.12	0.7	17.323	5.773	0.0	0.0	0.0	0
0.31	12.542	0.714	-0.12	0.7	17.566	5.693	0.0	0.0	0.0	0
0.32	12.95	0.663	-0.11	0.7	19.532	5.12	0.0	0.0	0.0	0
0.33	13.256	0.632	-0.11	0.7	20.975	4.768	0.0	0.0	0.0	0
0.34	12.95	0.612	-0.11	0.7	21.16	4.726	0.0	0.0	0.0	0
0.35	12.134	0.622	-0.11	0.7	19.508	5.126	0.0	0.0	0.0	0
0.36	11.523	0.653	-0.12	0.7	17.646	5.667	0.0	0.0	0.0	0
0.37	11.421	0.653	-0.12	0.7	17.49	5.718	0.0	0.0	0.0	0
0.38	11.217	0.653	-0.12	0.7	17.178	5.822	0.0	0.0	0.0	0
0.39	11.319	0.653	-0.13	0.7	17.334	5.769	0.0	0.0	0.0	0
0.40	11.013	0.642	-0.17	0.7	17.154	5.829	0.0	0.0	0.0	0
0.41	10.605	0.642	-0.17	0.7	16.519	6.054	0.0	0.0	0.0	0
0.42	10.503	0.642	-0.17	0.7	16.36	6.113	0.0	0.0	0.0	0
0.43	10.503	0.642	-0.17	0.7	16.36	6.113	0.0	0.0	0.0	0
0.44	10.503	0.642	-0.17	0.7	16.36	6.113	0.0	0.0	0.0	0
0.45	10.503	0.642	-0.17	0.7	16.36	6.113	0.0	0.0	0.0	0
0.46	10.401	0.673	-0.17	0.7	15.455	6.471	0.0	0.0	0.0	0
0.47	10.299	0.673	-0.17	0.7	15.303	6.535	0.0	0.0	0.0	0
0.48	10.095	0.683	-0.17	0.7	14.78	6.766	0.0	0.0	0.0	0
0.49	9.891	0.683	-0.17	0.7	14.482	6.905	0.0	0.0	0.0	0
0.50	9.891	0.663	-0.18	0.7	14.919	6.703	0.0	0.0	0.0	0
0.51	9.993	0.653	-0.18	0.7	15.303	6.535	0.0	0.0	0.0	0
0.52	9.891	0.642	-0.18	0.7	15.407	6.491	0.0	0.0	0.0	0
0.53	9.789	0.642	-0.18	0.7	15.248	6.558	0.0	0.0	0.0	0
0.54	9.993	0.632	-0.18	0.7	15.812	6.324	0.0	0.0	0.0	0
0.55	9.483	0.622	-0.18	0.7	15.246	6.559	0.0	0.0	0.0	0
0.56	9.381	0.622	-0.18	0.8	15.082	6.63	0.0	0.0	0.0	0
0.57	9.279	0.612	-0.18	0.7	15.162	6.596	0.0	0.0	0.0	0
0.58	9.279	0.612	-0.18	0.8	15.162	6.596	0.0	0.0	0.0	0
0.59	9.381	0.612	-0.18	0.8	15.328	6.524	0.0	0.0	0.0	0
0.60	9.279	0.612	-0.19	0.8	15.162	6.596	0.0	0.0	0.0	0
0.61	9.075	0.622	-0.19	0.8	14.59	6.854	0.0	0.0	0.0	0
0.62	9.075	0.612	-0.19	0.8	14.828	6.744	0.0	0.0	0.0	0
0.63	8.769	0.602	-0.19	0.8	14.566	6.865	0.0	0.0	0.0	0
0.64	8.26	0.571	-0.18	0.8	14.466	6.913	0.0	0.0	0.0	0
0.65	8.056	0.571	-0.19	0.8	14.109	7.088	0.0	0.0	0.0	0
0.66	8.056	0.551	-0.19	0.8	14.621	6.84	0.0	0.0	0.0	0
0.67	7.75	0.54	-0.19	0.8	14.352	6.968	0.0	0.0	0.0	0
0.68	7.444	0.53	-0.19	0.8	14.045	7.12	0.0	0.0	0.0	0
0.69	7.546	0.51	-0.19	0.8	14.796	6.759	0.0	0.0	0.0	0
0.70	7.546	0.5	-0.18	0.8	15.092	6.626	0.0	0.0	0.0	0
0.71	7.648	0.5	-0.18	0.8	15.296	6.538	0.0	0.0	0.0	0
0.72	7.954	0.489	-0.18	0.8	16.266	6.148	0.0	0.0	0.0	0
0.73	7.852	0.469	-0.18	0.8	16.742	5.973	0.0	0.0	0.0	0
0.74	7.648	0.459	-0.18	0.8	16.662	6.002	0.0	0.0	0.0	0
0.75	7.648	0.459	-0.18	0.8	16.662	6.002	0.0	0.0	0.0	0
0.76	7.546	0.449	-0.18	0.8	16.806	5.95	0.0	0.0	0.0	0
0.77	7.546	0.438	-0.18	0.8	17.228	5.804	0.0	0.0	0.0	0
0.78	7.546	0.418	-0.18	0.8	18.053	5.539	0.0	0.0	0.0	0
0.79	7.75	0.418	-0.18	0.8	18.541	5.394	0.0	0.0	0.0	0
0.80	8.056	0.418	-0.18	0.8	19.273	5.189	0.0	0.0	0.0	0
0.81	8.362	0.418	-0.18	0.8	20.005	4.999	0.0	0.0	0.0	0
0.82	8.667	0.418	-0.18	0.8	20.734	4.823	0.0	0.0	0.0	0
0.83	8.362	0.408	-0.18	0.8	20.495	4.879	0.0	0.0	0.0	0
0.84	8.464	0.418	-0.18	0.8	20.249	4.939	0.0	0.0	0.0	0
0.85	8.667	0.428	-0.18	0.8	20.25	4.938	0.0	0.0	0.0	0
0.86	8.871	0.438	-0.18	0.8	20.253	4.937	0.0	0.0	0.0	0
0.87	8.667	0.459	-0.18	0.8	18.882	5.296	0.0	0.0	0.0	0
0.88	8.769	0.469	-0.18	0.8	18.697	5.348	0.0	0.0	0.0	0
0.89	9.075	0.479	-0.18	0.8	18.946	5.278	0.0	0.0	0.0	0
0.90	9.177	0.5	-0.18	0.8	18.354	5.448	0.0	0.0	0.0	0
0.91	9.177	0.5	-0.18	0.8	18.354	5.448	0.0	0.0	0.0	0
0.92	9.177	0.5	-0.18	0.8	18.354	5.448	0.0	0.0	0.0	0
0.93	9.687	0.479	-0.16	0.8	20.223	4.945	0.0	0.0	0.0	0
0.94	9.687	0.51	-0.15	0.8	18.994	5.265	0.0	0.0	0.0	0
0.95	9.891	0.53	-0.15	0.8	18.662	5.358	0.0	0.0	0.0	0

Prova CPTU n. 11

0.96	10.299	0.53	-0.15	0.8	19.432	5.146	0.0	0.0	0.0	0
0.97	10.503	0.53	-0.15	0.8	19.817	5.046	0.0	0.0	0.0	0
0.98	10.707	0.53	-0.15	0.8	20.202	4.95	0.0	0.0	0.0	0
0.99	11.523	0.53	-0.15	0.8	21.742	4.599	0.0	0.0	0.0	0
1.00	12.338	0.53	-0.15	0.8	23.279	4.296	0.0	0.0	0.0	0
1.01	13.256	0.53	-0.15	0.8	25.011	3.998	0.0	0.0	0.0	0
1.02	14.174	0.53	-0.15	0.8	26.743	3.739	0.0	0.0	0.0	0
1.03	16.825	0.52	-0.15	0.8	32.356	3.091	0.0	0.0	0.0	0
1.04	18.762	0.5	-0.15	0.8	37.524	2.665	0.0	0.0	0.0	0
1.05	21.21	0.479	-0.15	0.8	44.28	2.258	0.0	0.0	0.0	0
1.06	24.269	0.469	-0.14	0.8	51.746	1.933	0.0	0.0	0.0	0
1.07	28.756	0.449	-0.14	0.8	64.045	1.561	0.0	0.0	0.0	0
1.08	47.314	0.418	-0.13	0.8	113.191	0.883	0.0	0.0	0.0	0
1.09	60.366	0.398	-0.12	0.9	151.673	0.659	0.0	0.0	0.0	0
1.10	70.869	0.418	-0.12	1.0	169.543	0.59	0.0	0.0	0.0	0
1.11	105.131	0.438	-0.10	1.1	240.025	0.417	0.0	0.0	0.0	0
1.12	119.407	0.398	-0.10	1.3	300.018	0.333	0.0	0.0	0.0	0
1.13	138.373	0.704	-0.09	1.3	196.553	0.509	0.0	0.0	0.0	0
1.14	225.966	0.673	-0.07	1.5	335.759	0.298	0.0	0.0	0.0	0
1.15	12.542	0.02	-0.05	1.6	627.1	0.159	0.0	0.0	0.0	0
1.16	205.062	0.765	-0.03	1.8	268.055	0.373	0.0	0.0	0.0	0
1.17	268.385	0.347	-0.03	1.8	773.444	0.129	0.0	0.0	0.0	0
1.18	289.493	0.357	-0.15	1.8	810.905	0.123	0.0	0.0	0.0	0
1.19	353.734	0.326	-0.15	1.8	1085.074	0.092	0.0	0.0	0.0	0
1.20	427.662	0.428	-0.14	1.8	999.21	0.1	0.0	0.0	0.0	0

STIMA PARAMETRI GEOTECNICI Nr.11

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.- Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	1.00	10.51	0.524	0.50	0.77	0.69	0.61	0.55	0.53
Strato 2	1.20	123.078	0.458	5.94	4.03	8.19	7.23	6.47	6.15

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	1.00	10.51	0.524	52.55	44.56	63.06	31.53
Strato 2	1.20	123.078	0.458	307.70	246.15	369.23	184.62

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	1.00	10.51	0.524	390.56	15.90
Strato 2	1.20	123.078	0.458	4607.48	184.50

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	1.00	10.51	0.524	Imai & Tomauchi	117.86
Strato 2	1.20	123.078	0.458	Imai & Tomauchi	529.98

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	1.00	10.51	0.524	2.57
Strato 2	1.20	123.078	0.458	>9

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	1.00	10.51	0.524	Meyerhof	1.86
Strato 2	1.20	123.078	0.458	Meyerhof	2.28

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	1.00	10.51	0.524	Meyerhof	1.94
Strato 2	1.20	123.078	0.458	Meyerhof	2.36

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TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	1.00	10.51	0.524	35.31	51.61	51.21	35.88	70.18
Strato 2	1.20	123.078	0.458	93.84	100	100	94.9	100

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	1.00	10.51	0.524	36.28	33.14	30.32	28.3	35.23	41.24	27.97	21.72
Strato 2	1.20	123.078	0.458	44.48	41.37	38.96	36.19	42	45	42.64	45

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	1.00	10.51	0.524	26.28	21.02	103.07
Strato 2	1.20	123.078	0.458	307.70	246.16	492.31

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	1.00	10.51	0.524	42.20	41.23	77.67	21.02	52.55
Strato 2	1.20	123.078	0.458	85.17	261.40	1005.39	184.62	184.62

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	1.00	10.51	0.524	Imai & Tomauchi	117.86
Strato 2	1.20	123.078	0.458	Imai & Tomauchi	529.98

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	1.00	10.51	0.524	2.57	>9	1.3	>9
Strato 2	1.20	123.078	0.458	>9	<0.5	<0.5	>9

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	1.00	10.51	0.524	Kulhawy & Mayne (1990)	0.65
Strato 2	1.20	123.078	0.458	Kulhawy & Mayne (1990)	0.00

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	1.00	10.51	0.524	0.19355	0.02516
Strato 2	1.20	123.078	0.458	0.0939	0.01221

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	1.00	10.51	0.524	Meyerhof	1.80
Strato 2	1.20	123.078	0.458	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	1.00	10.51	0.524	Meyerhof	2.10
Strato 2	1.20	123.078	0.458	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	1.00	10.51	0.524	Robertson & Wride 1997	0
Strato 2	1.20	123.078	0.458	Robertson & Wride 1997	0

Prova CPTU n. 11

Permeabilità

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	1.00	10.51	0.524	Piacentini-Righi 1988	2.033326E-09
Strato 2	1.20	123.078	0.458	Piacentini-Righi 1988	0.001

Coefficiente di consolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	1.00	10.51	0.524	Piacentini-Righi 1988	6.411077E-05
Strato 2	1.20	123.078	0.458	Piacentini-Righi 1988	0

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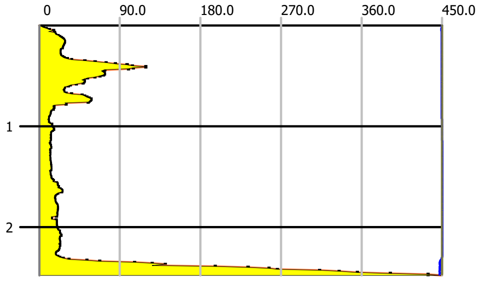
CPTU12_ms3

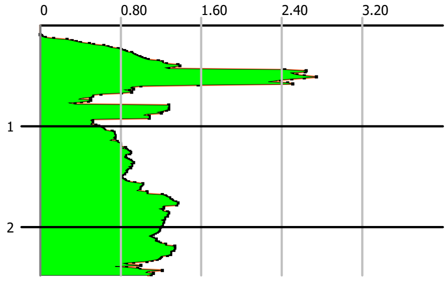
Probe CPTU - Piezocone Nr.12
Strumento utilizzato PAGANI 200 kN (CPTU)

Committente:	Unione dei Comuni Savena Idice	Data: 17/03/2021
Cantiere:	Prove penetrometriche per Microzonazione sismica III° livello	
Località:	Monterenzio (BO)	

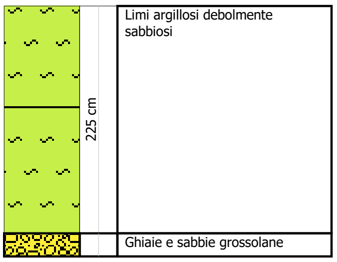
Resistenza punta Qc (Kg/cm²)



Resistenza laterale Fs (Kg/cm²)



Interpretazione Stratigrafica



Scala profondità 1:75 - Qc: 1 cm=84.44 Kg/cm² - Fs: 1 cm=0.75 Kg/cm² - U: 1 cm=8.444 Kg/cm²

PROVA CPTU Nr.12

Committente: Unione dei Comuni Savena Idice
Strumento utilizzato: PAGANI 200 kN (CPTU)
Prova eseguita in data: 17/03/2021
Profondità prova: 2.48 mt
Località: Monterenzio (BO)

RESISTENZE / LITOLOGIE

Profondità	
qc	Resistenza punta (Kg/cm²);
fs	Resistenza laterale (Kg/cm²);
Tilt	Inclinazione (°)
Fr	fs/qcx100 (Schmertmann)
qcn	qc normalizzata (Kg/cm²);
fsn	fs normalizzato (Kg/cm²);
U2	Pressione neutrale intorno al cono (Kg/cm²);
Uo	Pressione neutrale rilevata (Kg/cm²);
Fc	Contenuto in materiale fine(%)

Profondità	qc	fs	U2	Tilt	qc/fs	Fr	Uo	qcn	fsn	FC%
0.01	2.243	0.0	0.04	0.3	0.0	0.0	0.0	0.0	0.0	0
0.02	4.487	0.0	0.07	0.3	0.0	0.0	0.0	0.0	0.0	0
0.03	7.954	0.0	0.09	0.4	0.0	0.0	0.0	0.0	0.0	0
0.04	11.421	0.0	0.09	0.4	0.0	0.0	0.0	0.0	0.0	0
0.05	16.213	0.0	0.08	0.4	0.0	0.0	0.0	0.0	0.0	0
0.06	11.013	0.0	0.07	0.5	0.0	0.0	0.0	0.0	0.0	0
0.07	17.131	0.0	0.07	0.5	0.0	0.0	0.0	0.0	0.0	0
0.08	17.539	0.0	0.07	0.5	0.0	0.0	0.0	0.0	0.0	0
0.09	18.355	0.0	0.07	0.6	0.0	0.0	0.0	0.0	0.0	0
0.10	21.21	0.01	0.07	0.6	2121.0	0.047	0.0	0.0	0.0	0
0.11	22.637	0.02	0.07	0.6	1131.85	0.088	0.0	0.0	0.0	0

Prova CPTU n. 12

0.12	24.575	0.051	0.07	0.6	481.863	0.208	0.0	0.0	0.0	0
0.13	25.9	0.133	0.07	0.6	194.737	0.514	0.0	0.0	0.0	0
0.14	27.328	0.265	0.07	0.6	103.125	0.97	0.0	0.0	0.0	0
0.15	27.94	0.316	0.07	0.6	88.418	1.131	0.0	0.0	0.0	0
0.16	28.246	0.357	0.07	0.7	79.12	1.264	0.0	0.0	0.0	0
0.17	27.838	0.398	0.07	0.7	69.945	1.43	0.0	0.0	0.0	0
0.18	27.124	0.489	0.07	0.7	55.468	1.803	0.0	0.0	0.0	0
0.19	26.716	0.53	0.07	0.7	50.408	1.984	0.0	0.0	0.0	0
0.20	26.002	0.632	0.07	0.7	41.142	2.431	0.0	0.0	0.0	0
0.21	25.594	0.673	0.06	0.7	38.03	2.63	0.0	0.0	0.0	0
0.22	25.696	0.704	0.06	0.7	36.5	2.74	0.0	0.0	0.0	0
0.23	23.555	0.775	0.06	0.7	30.394	3.29	0.0	0.0	0.0	0
0.24	23.147	0.806	0.06	0.7	28.718	3.482	0.0	0.0	0.0	0
0.25	22.943	0.836	0.06	0.7	27.444	3.644	0.0	0.0	0.0	0
0.26	22.943	0.857	0.06	0.7	26.771	3.735	0.0	0.0	0.0	0
0.27	23.147	0.908	0.05	0.7	25.492	3.923	0.0	0.0	0.0	0
0.28	23.147	0.918	0.05	0.7	25.215	3.966	0.0	0.0	0.0	0
0.29	23.555	0.938	0.05	0.7	25.112	3.982	0.0	0.0	0.0	0
0.30	23.963	0.959	0.05	0.7	24.987	4.002	0.0	0.0	0.0	0
0.31	25.9	0.989	0.04	0.7	26.188	3.819	0.0	0.0	0.0	0
0.32	27.736	1.01	0.05	0.7	27.461	3.641	0.0	0.0	0.0	0
0.33	31.305	1.04	0.05	0.8	30.101	3.322	0.0	0.0	0.0	0
0.34	36.301	1.071	0.05	0.8	33.894	2.95	0.0	0.0	0.0	0
0.35	50.985	1.173	0.05	0.8	43.465	2.301	0.0	0.0	0.0	0
0.36	62.406	1.213	0.06	0.8	51.448	1.944	0.0	0.0	0.0	0
0.37	74.54	1.213	0.06	0.8	61.451	1.627	0.0	0.0	0.0	0
0.38	85.145	1.254	0.06	0.8	67.899	1.473	0.0	0.0	0.0	0
0.39	98.197	1.366	0.06	0.8	71.887	1.391	0.0	0.0	0.0	0
0.40	104.009	1.387	0.06	0.9	74.988	1.334	0.0	0.0	0.0	0
0.41	119.101	1.326	0.07	1.0	89.82	1.113	0.0	0.0	0.0	0
0.42	104.927	1.244	0.07	1.1	84.346	1.186	0.0	0.0	0.0	0
0.43	99.727	1.275	0.07	1.2	78.217	1.278	0.0	0.0	0.0	0
0.44	73.214	2.427	0.07	1.3	30.166	3.315	0.0	0.0	0.0	0
0.45	69.544	2.641	0.07	1.3	26.332	3.798	0.0	0.0	0.0	0
0.46	70.971	2.631	0.06	1.3	26.975	3.707	0.0	0.0	0.0	0
0.47	72.399	2.488	0.06	1.3	29.099	3.437	0.0	0.0	0.0	0
0.48	72.807	2.508	0.06	1.3	29.03	3.445	0.0	0.0	0.0	0
0.49	71.685	2.549	0.06	1.3	28.123	3.556	0.0	0.0	0.0	0
0.50	68.014	2.621	0.06	1.3	25.95	3.854	0.0	0.0	0.0	0
0.51	62.202	2.743	0.06	1.4	22.677	4.41	0.0	0.0	0.0	0
0.52	53.84	2.621	0.05	1.4	20.542	4.868	0.0	0.0	0.0	0
0.53	50.169	2.498	0.05	1.4	20.084	4.979	0.0	0.0	0.0	0
0.54	47.62	2.386	0.05	1.4	19.958	5.01	0.0	0.0	0.0	0
0.55	50.577	2.335	0.05	1.4	21.66	4.617	0.0	0.0	0.0	0
0.56	49.659	2.264	0.05	1.4	21.934	4.559	0.0	0.0	0.0	0
0.57	48.844	2.457	0.05	1.5	19.88	5.03	0.0	0.0	0.0	0
0.58	41.604	2.508	0.05	1.5	16.589	6.028	0.0	0.0	0.0	0
0.59	34.772	1.57	0.05	1.5	22.148	4.515	0.0	0.0	0.0	0
0.60	32.426	0.999	0.05	1.5	32.458	3.081	0.0	0.0	0.0	0
0.61	28.144	0.908	0.04	1.5	30.996	3.226	0.0	0.0	0.0	0
0.62	27.634	0.897	0.04	1.5	30.807	3.246	0.0	0.0	0.0	0
0.63	26.92	0.928	0.04	1.5	29.009	3.447	0.0	0.0	0.0	0
0.64	26.308	0.836	0.04	1.5	31.469	3.178	0.0	0.0	0.0	0
0.65	27.226	0.887	0.04	1.5	30.694	3.258	0.0	0.0	0.0	0
0.66	27.532	0.908	0.04	1.5	30.322	3.298	0.0	0.0	0.0	0
0.67	29.979	0.806	0.04	1.4	37.195	2.689	0.0	0.0	0.0	0
0.68	35.995	0.602	0.04	1.4	59.792	1.672	0.0	0.0	0.0	0
0.69	48.028	0.52	0.05	1.3	92.362	1.083	0.0	0.0	0.0	0
0.70	50.679	0.52	0.05	1.5	97.46	1.026	0.0	0.0	0.0	0
0.71	53.126	0.5	0.05	1.5	106.252	0.941	0.0	0.0	0.0	0
0.72	55.982	0.418	0.05	1.6	133.928	0.747	0.0	0.0	0.0	0
0.73	57.817	0.387	0.04	1.5	149.398	0.669	0.0	0.0	0.0	0
0.74	57.205	0.5	0.04	1.6	114.41	0.874	0.0	0.0	0.0	0
0.75	55.982	0.479	0.04	1.7	116.873	0.856	0.0	0.0	0.0	0
0.76	54.758	0.408	0.04	1.9	134.211	0.745	0.0	0.0	0.0	0
0.77	28.654	0.286	0.04	1.7	100.189	0.998	0.0	0.0	0.0	0
0.78	29.877	0.347	0.04	1.7	86.101	1.161	0.0	0.0	0.0	0
0.79	16.417	1.275	0.03	1.7	12.876	7.766	0.0	0.0	0.0	0
0.80	14.786	1.275	0.03	1.7	11.597	8.623	0.0	0.0	0.0	0
0.81	16.315	1.275	0.03	1.7	12.796	7.815	0.0	0.0	0.0	0
0.82	14.786	1.264	0.03	1.8	11.698	8.549	0.0	0.0	0.0	0
0.83	15.601	1.275	0.03	1.8	12.236	8.173	0.0	0.0	0.0	0
0.84	12.95	1.254	0.03	1.8	10.327	9.683	0.0	0.0	0.0	0
0.85	12.236	1.213	0.03	1.8	10.087	9.913	0.0	0.0	0.0	0
0.86	12.032	1.162	0.03	1.9	10.355	9.658	0.0	0.0	0.0	0

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0.87	11.93	1.203	0.03	1.9	9.917	10.084	0.0	0.0	0.0	0
0.88	11.523	1.06	0.03	1.9	10.871	9.199	0.0	0.0	0.0	0
0.89	11.115	1.03	0.03	1.9	10.791	9.267	0.0	0.0	0.0	0
0.90	10.095	1.081	0.03	1.9	9.339	10.708	0.0	0.0	0.0	0
0.91	10.095	1.081	0.03	1.9	9.339	10.708	0.0	0.0	0.0	0
0.92	10.095	1.081	0.03	1.9	9.339	10.708	0.0	0.0	0.0	0
0.93	9.585	0.52	0.00	1.8	18.433	5.425	0.0	0.0	0.0	0
0.94	9.993	0.5	0.00	1.7	19.986	5.004	0.0	0.0	0.0	0
0.95	10.095	0.51	0.00	1.8	19.794	5.052	0.0	0.0	0.0	0
0.96	9.891	0.52	0.00	1.8	19.021	5.257	0.0	0.0	0.0	0
0.97	10.911	0.51	0.00	1.8	21.394	4.674	0.0	0.0	0.0	0
0.98	13.766	0.5	0.00	1.8	27.532	3.632	0.0	0.0	0.0	0
0.99	13.46	0.551	0.00	1.8	24.428	4.094	0.0	0.0	0.0	0
1.00	13.664	0.581	0.00	1.8	23.518	4.252	0.0	0.0	0.0	0
1.01	14.582	0.602	0.00	1.8	24.223	4.128	0.0	0.0	0.0	0
1.02	15.194	0.622	0.00	1.8	24.428	4.094	0.0	0.0	0.0	0
1.03	16.009	0.632	0.00	1.8	25.331	3.948	0.0	0.0	0.0	0
1.04	14.582	0.642	0.00	1.8	22.713	4.403	0.0	0.0	0.0	0
1.05	12.746	0.714	0.00	1.8	17.852	5.602	0.0	0.0	0.0	0
1.06	12.236	0.734	0.00	1.8	16.67	5.999	0.0	0.0	0.0	0
1.07	12.542	0.734	0.00	1.8	17.087	5.852	0.0	0.0	0.0	0
1.08	12.134	0.734	0.00	1.9	16.531	6.049	0.0	0.0	0.0	0
1.09	11.829	0.744	0.00	1.9	15.899	6.29	0.0	0.0	0.0	0
1.10	12.44	0.744	0.00	1.9	16.72	5.981	0.0	0.0	0.0	0
1.11	12.134	0.724	0.00	1.9	16.76	5.967	0.0	0.0	0.0	0
1.12	11.93	0.744	0.00	1.9	16.035	6.236	0.0	0.0	0.0	0
1.13	12.542	0.714	0.00	1.9	17.566	5.693	0.0	0.0	0.0	0
1.14	11.523	0.693	0.00	1.9	16.628	6.014	0.0	0.0	0.0	0
1.15	11.829	0.765	-0.01	1.9	15.463	6.467	0.0	0.0	0.0	0
1.16	10.911	0.765	-0.01	1.9	14.263	7.011	0.0	0.0	0.0	0
1.17	11.013	0.795	-0.01	1.9	13.853	7.219	0.0	0.0	0.0	0
1.18	11.727	0.795	-0.01	1.9	14.751	6.779	0.0	0.0	0.0	0
1.19	12.44	0.795	-0.01	1.9	15.648	6.391	0.0	0.0	0.0	0
1.20	12.338	0.795	-0.01	1.9	15.519	6.444	0.0	0.0	0.0	0
1.21	13.052	0.846	-0.01	1.9	15.428	6.482	0.0	0.0	0.0	0
1.22	11.625	0.816	-0.01	1.9	14.246	7.019	0.0	0.0	0.0	0
1.23	11.217	0.857	-0.01	2.0	13.089	7.64	0.0	0.0	0.0	0
1.24	11.319	0.867	-0.01	2.0	13.055	7.66	0.0	0.0	0.0	0
1.25	11.727	0.887	-0.01	2.0	13.221	7.564	0.0	0.0	0.0	0
1.26	11.421	0.897	-0.01	1.9	12.732	7.854	0.0	0.0	0.0	0
1.27	11.727	0.887	-0.01	1.9	13.221	7.564	0.0	0.0	0.0	0
1.28	11.523	0.846	-0.01	1.9	13.621	7.342	0.0	0.0	0.0	0
1.29	11.421	0.846	-0.01	1.9	13.5	7.407	0.0	0.0	0.0	0
1.30	11.523	0.836	-0.01	1.9	13.783	7.255	0.0	0.0	0.0	0
1.31	11.523	0.836	-0.01	1.9	13.783	7.255	0.0	0.0	0.0	0
1.32	11.727	0.857	-0.01	2.0	13.684	7.308	0.0	0.0	0.0	0
1.33	11.625	0.877	-0.01	2.0	13.255	7.544	0.0	0.0	0.0	0
1.34	11.727	0.897	-0.01	2.0	13.074	7.649	0.0	0.0	0.0	0
1.35	12.236	0.908	-0.01	2.0	13.476	7.421	0.0	0.0	0.0	0
1.36	12.338	0.928	-0.01	2.0	13.295	7.521	0.0	0.0	0.0	0
1.37	12.44	0.897	-0.01	2.0	13.868	7.211	0.0	0.0	0.0	0
1.38	12.44	0.908	-0.01	2.0	13.7	7.299	0.0	0.0	0.0	0
1.39	12.644	0.908	-0.01	2.0	13.925	7.181	0.0	0.0	0.0	0
1.40	12.542	0.877	-0.01	2.1	14.301	6.993	0.0	0.0	0.0	0
1.41	13.052	0.897	-0.01	2.1	14.551	6.873	0.0	0.0	0.0	0
1.42	12.95	0.867	-0.01	2.1	14.937	6.695	0.0	0.0	0.0	0
1.43	12.746	0.857	-0.01	2.1	14.873	6.724	0.0	0.0	0.0	0
1.44	11.421	0.846	-0.02	2.1	13.5	7.407	0.0	0.0	0.0	0
1.45	11.625	0.857	-0.02	2.2	13.565	7.372	0.0	0.0	0.0	0
1.46	11.829	0.836	-0.02	2.2	14.15	7.067	0.0	0.0	0.0	0
1.47	11.829	0.836	-0.02	2.2	14.15	7.067	0.0	0.0	0.0	0
1.48	12.032	0.816	-0.02	2.2	14.745	6.782	0.0	0.0	0.0	0
1.49	12.338	0.806	-0.02	2.2	15.308	6.533	0.0	0.0	0.0	0
1.50	12.644	0.795	-0.02	2.2	15.904	6.288	0.0	0.0	0.0	0
1.51	12.746	0.806	-0.02	2.2	15.814	6.324	0.0	0.0	0.0	0
1.52	13.256	0.816	-0.02	2.2	16.245	6.156	0.0	0.0	0.0	0
1.53	14.48	0.836	-0.02	2.2	17.321	5.773	0.0	0.0	0.0	0
1.54	15.499	0.846	-0.02	2.2	18.32	5.458	0.0	0.0	0.0	0
1.55	15.295	0.877	-0.02	2.2	17.44	5.734	0.0	0.0	0.0	0
1.56	19.374	0.938	-0.02	2.3	20.655	4.842	0.0	0.0	0.0	0
1.57	19.986	1.02	-0.02	2.3	19.594	5.104	0.0	0.0	0.0	0
1.58	19.884	1.01	-0.02	2.3	19.687	5.079	0.0	0.0	0.0	0
1.59	20.19	0.999	-0.02	2.3	20.21	4.948	0.0	0.0	0.0	0
1.60	21.414	0.989	-0.02	2.2	21.652	4.618	0.0	0.0	0.0	0
1.61	20.7	0.989	-0.02	2.2	20.93	4.778	0.0	0.0	0.0	0

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1.62	23.351	0.989	-0.02	2.3	23.611	4.235	0.0	0.0	0.0	0
1.63	24.575	0.979	-0.02	2.3	25.102	3.984	0.0	0.0	0.0	0
1.64	25.594	0.959	-0.02	2.3	26.688	3.747	0.0	0.0	0.0	0
1.65	24.881	1.06	-0.02	2.3	23.473	4.26	0.0	0.0	0.0	0
1.66	20.802	1.06	-0.02	2.3	19.625	5.096	0.0	0.0	0.0	0
1.67	19.068	1.06	-0.02	2.3	17.989	5.559	0.0	0.0	0.0	0
1.68	17.743	1.213	-0.02	2.3	14.627	6.836	0.0	0.0	0.0	0
1.69	17.029	1.244	-0.02	2.3	13.689	7.305	0.0	0.0	0.0	0
1.70	16.927	1.254	-0.02	2.3	13.498	7.408	0.0	0.0	0.0	0
1.71	16.723	1.285	-0.02	2.3	13.014	7.684	0.0	0.0	0.0	0
1.72	17.131	1.285	-0.02	2.3	13.332	7.501	0.0	0.0	0.0	0
1.73	17.335	1.305	-0.02	2.3	13.284	7.528	0.0	0.0	0.0	0
1.74	17.437	1.315	-0.02	2.3	13.26	7.541	0.0	0.0	0.0	0
1.75	17.641	1.346	-0.02	2.3	13.106	7.63	0.0	0.0	0.0	0
1.76	18.151	1.366	-0.02	2.3	13.288	7.526	0.0	0.0	0.0	0
1.77	18.966	1.356	-0.02	2.3	13.987	7.15	0.0	0.0	0.0	0
1.78	19.782	1.356	-0.02	2.3	14.588	6.855	0.0	0.0	0.0	0
1.79	20.19	1.224	-0.02	2.3	16.495	6.062	0.0	0.0	0.0	0
1.80	19.884	1.213	-0.02	2.3	16.392	6.1	0.0	0.0	0.0	0
1.81	20.394	1.224	-0.02	2.3	16.662	6.002	0.0	0.0	0.0	0
1.82	19.884	1.183	-0.02	2.3	16.808	5.95	0.0	0.0	0.0	0
1.83	19.986	1.213	-0.02	2.3	16.477	6.069	0.0	0.0	0.0	0
1.84	19.782	1.213	-0.02	2.3	16.308	6.132	0.0	0.0	0.0	0
1.85	19.476	1.264	-0.02	2.3	15.408	6.49	0.0	0.0	0.0	0
1.86	19.068	1.275	-0.02	2.3	14.955	6.687	0.0	0.0	0.0	0
1.87	19.578	1.264	-0.02	2.3	15.489	6.456	0.0	0.0	0.0	0
1.88	19.476	1.254	-0.02	2.3	15.531	6.439	0.0	0.0	0.0	0
1.89	19.374	1.264	-0.02	2.3	15.328	6.524	0.0	0.0	0.0	0
1.90	13.562	1.234	-0.02	2.3	10.99	9.099	0.0	0.0	0.0	0
1.91	13.562	1.234	-0.02	2.3	10.99	9.099	0.0	0.0	0.0	0
1.92	13.562	1.234	-0.02	2.3	10.99	9.099	0.0	0.0	0.0	0
1.93	18.966	1.203	-0.02	2.3	15.766	6.343	0.0	0.0	0.0	0
1.94	18.762	1.224	-0.02	2.3	15.328	6.524	0.0	0.0	0.0	0
1.95	18.864	1.224	-0.02	2.3	15.412	6.489	0.0	0.0	0.0	0
1.96	18.864	1.213	-0.02	2.3	15.552	6.43	0.0	0.0	0.0	0
1.97	18.966	1.213	-0.02	2.3	15.636	6.396	0.0	0.0	0.0	0
1.98	18.966	1.213	-0.02	2.3	15.636	6.396	0.0	0.0	0.0	0
1.99	19.17	1.193	-0.02	2.3	16.069	6.223	0.0	0.0	0.0	0
2.00	19.272	1.193	-0.02	2.3	16.154	6.19	0.0	0.0	0.0	0
2.01	19.578	1.183	-0.02	2.3	16.549	6.042	0.0	0.0	0.0	0
2.02	20.088	1.183	-0.02	2.3	16.981	5.889	0.0	0.0	0.0	0
2.03	20.7	1.183	-0.02	2.3	17.498	5.715	0.0	0.0	0.0	0
2.04	22.535	1.173	-0.02	2.3	19.211	5.205	0.0	0.0	0.0	0
2.05	22.331	1.162	-0.02	2.3	19.218	5.204	0.0	0.0	0.0	0
2.06	22.331	1.142	-0.02	2.3	19.554	5.114	0.0	0.0	0.0	0
2.07	23.147	1.122	-0.02	2.3	20.63	4.847	0.0	0.0	0.0	0
2.08	24.269	1.101	-0.02	2.3	22.043	4.537	0.0	0.0	0.0	0
2.09	22.331	1.081	-0.02	2.3	20.658	4.841	0.0	0.0	0.0	0
2.10	22.229	1.101	-0.02	2.3	20.19	4.953	0.0	0.0	0.0	0
2.11	22.127	1.122	-0.02	2.3	19.721	5.071	0.0	0.0	0.0	0
2.12	22.127	1.152	-0.02	2.3	19.207	5.206	0.0	0.0	0.0	0
2.13	22.229	1.142	-0.02	2.3	19.465	5.137	0.0	0.0	0.0	0
2.14	22.535	1.142	-0.02	2.3	19.733	5.068	0.0	0.0	0.0	0
2.15	22.943	1.173	-0.02	2.3	19.559	5.113	0.0	0.0	0.0	0
2.16	22.026	1.193	-0.02	2.4	18.463	5.416	0.0	0.0	0.0	0
2.17	21.516	1.244	-0.02	2.4	17.296	5.782	0.0	0.0	0.0	0
2.18	22.841	1.244	-0.02	2.4	18.361	5.446	0.0	0.0	0.0	0
2.19	21.924	1.336	-0.02	2.4	16.41	6.094	0.0	0.0	0.0	0
2.20	22.229	1.326	-0.02	2.4	16.764	5.965	0.0	0.0	0.0	0
2.21	21.822	1.336	-0.02	2.4	16.334	6.122	0.0	0.0	0.0	0
2.22	21.414	1.326	-0.02	2.4	16.149	6.192	0.0	0.0	0.0	0
2.23	20.292	1.326	-0.02	2.4	15.303	6.535	0.0	0.0	0.0	0
2.24	18.457	1.295	-0.02	2.4	14.253	7.016	0.0	0.0	0.0	0
2.25	17.845	1.295	-0.02	2.4	13.78	7.257	0.0	0.0	0.0	0
2.26	17.539	1.295	-0.02	2.4	13.544	7.384	0.0	0.0	0.0	0
2.27	17.641	1.295	-0.02	2.4	13.622	7.341	0.0	0.0	0.0	0
2.28	18.253	1.264	-0.01	2.4	14.441	6.925	0.0	0.0	0.0	0
2.29	20.598	1.203	-0.01	2.4	17.122	5.84	0.0	0.0	0.0	0
2.30	22.841	1.193	0.00	2.4	19.146	5.223	0.0	0.0	0.0	0
2.31	26.716	1.183	0.03	2.4	22.583	4.428	0.0	0.0	0.0	0
2.32	33.242	1.162	0.08	2.4	28.608	3.496	0.0	0.0	0.0	0
2.33	53.432	1.111	0.20	2.4	48.094	2.079	0.0	0.0	0.0	0
2.34	67.402	1.06	0.21	2.3	63.587	1.573	0.0	0.0	0.0	0
2.35	106.457	0.928	0.26	2.2	114.717	0.872	0.0	0.0	0.0	0
2.36	126.239	0.826	0.27	1.9	152.832	0.654	0.0	0.0	0.0	0

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2.37	140.821	0.857	0.27	1.6	164.319	0.609	0.0	0.0	0.0	0
2.38	126.137	0.999	0.25	1.5	126.263	0.792	0.0	0.0	0.0	0
2.39	196.598	0.744	0.26	1.2	264.245	0.378	0.0	0.0	0.0	0
2.40	233.307	0.857	0.26	1.2	272.237	0.367	0.0	0.0	0.0	0
2.41	256.557	0.969	0.27	1.1	264.765	0.378	0.0	0.0	0.0	0
2.42	265.938	0.989	0.27	0.9	268.896	0.372	0.0	0.0	0.0	0
2.43	313.252	1.213	0.28	0.8	258.246	0.387	0.0	0.0	0.0	0
2.44	334.869	1.071	0.29	0.8	312.669	0.32	0.0	0.0	0.0	0
2.45	355.467	1.05	0.28	0.8	338.54	0.295	0.0	0.0	0.0	0
2.46	392.177	1.122	0.28	0.8	349.534	0.286	0.0	0.0	0.0	0
2.47	434.29	1.101	0.29	0.8	394.45	0.254	0.0	0.0	0.0	0
2.48	461.822	1.071	0.29	0.9	431.206	0.232	0.0	0.0	0.0	0

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TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Lunne & Eide	Sunda Relazione Sperimentale	Lunne T.-Kleven A. 1981	Kjekstad. 1978 - Lunne, Robertson and Powell 1977	Lunne, Robertson and Powell 1977	Terzaghi
Strato 1	2.25	24.906	1.01	1.19	1.57	1.65	1.45	1.30	1.25
Strato 2	2.48	174.852	1.068	8.42	4.56	11.63	10.26	9.18	8.74

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Mitchell & Gardner (1975)	Metodo generale del modulo edometrico	Buismann	Buismann Sanglerat
Strato 1	2.25	24.906	1.01	62.27	49.81	74.72	74.72
Strato 2	2.48	174.852	1.068	437.13	349.70	524.56	262.28

Modulo di deformazione non drenato Eu (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Cancelli 1980	Ladd 1977 (30)
Strato 1	2.25	24.906	1.01	925.54	37.50
Strato 2	2.48	174.852	1.068	6539.13	262.20

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Modulo di deformazione a taglio (Kg/cm²)
Strato 1	2.25	24.906	1.01	Imai & Tomauchi	199.66
Strato 2	2.48	174.852	1.068	Imai & Tomauchi	656.79

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History
Strato 1	2.25	24.906	1.01	2.57
Strato 2	2.48	174.852	1.068	8.56

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	2.25	24.906	1.01	Meyerhof	2.01
Strato 2	2.48	174.852	1.068	Meyerhof	2.34

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	2.25	24.906	1.01	Meyerhof	2.09
Strato 2	2.48	174.852	1.068	Meyerhof	2.42

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TERRENI INCOERENTI

Densità relativa (%)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Baldi 1978 - Schmertmann 1976	Schmertmann	Harman	Lancellotta 1983	Jamiolkowski 1985
Strato 1	2.25	24.906	1.01	47.58	60	60.12	48.25	70.19
Strato 2	2.48	174.852	1.068	92.34	100	100	93.4	100

Angolo di resistenza al taglio (°)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Durgunoglu-Mitchell 1973	Caquot	Koppejan	De Beer	Schmertmann	Robertson & Campanella 1983	Herminier	Meyerhof 1951
Strato 1	2.25	24.906	1.01	36.54	33.15	30.32	28.3	36.4	41.24	28.35	28.18
Strato 2	2.48	174.852	1.068	42.53	39.1	36.58	34.02	42	45	39.86	45

Modulo di Young (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Schmertmann	Robertson & Campanella (1983)	ISOPT-1 1988 Ey(50)
Strato 1	2.25	24.906	1.01	62.27	49.81	219.17
Strato 2	2.48	174.852	1.068	437.13	349.70	699.41

Modulo Edometrico (Kg/cm²)

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Robertson & Campanella da Schmertmann	Lunne-Christoffersen 1983 - Robertson and Powell 1997	Kulhawy-Mayne 1990	Mitchell & Gardner 1975	Buisman - Sanglerat
Strato 1	2.25	24.906	1.01	50.78	97.70	195.37	49.81	124.53
Strato 2	2.48	174.852	1.068	89.81	362.94	1430.36	262.28	262.28

Modulo di deformazione a taglio

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	G (Kg/cm²)
Strato 1	2.25	24.906	1.01	Imai & Tomauchi	199.66
Strato 2	2.48	174.852	1.068	Imai & Tomauchi	656.79

Grado di sovraconsolidazione

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Stress-History	Piacentini Righi 1978	Larsson 1991 S.G.I.	Ladd e Foot 1977
Strato 1	2.25	24.906	1.01	2.57	>9	1.24	>9
Strato 2	2.48	174.852	1.068	8.56	>9	<0.5	>9

Modulo di reazione Ko

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Ko
Strato 1	2.25	24.906	1.01	Kulhawy & Mayne (1990)	0.65
Strato 2	2.48	174.852	1.068	Kulhawy & Mayne (1990)	1.41

Fattori di compressibilità C Crm

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	C	Crm
Strato 1	2.25	24.906	1.01	0.1204	0.01565
Strato 2	2.48	174.852	1.068	0.10073	0.01309

Peso unità di volume

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume (t/m³)
Strato 1	2.25	24.906	1.01	Meyerhof	1.80
Strato 2	2.48	174.852	1.068	Meyerhof	1.90

Peso unità di volume saturo

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Peso unità di volume saturo (t/m³)
Strato 1	2.25	24.906	1.01	Meyerhof	2.10
Strato 2	2.48	174.852	1.068	Meyerhof	2.20

Liquefazione - **Accelerazione sismica massima (g)=0**

	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Fattore di sicurezza a liquefazione
Strato 1	2.25	24.906	1.01	Robertson & Wride 1997	0
Strato 2	2.48	174.852	1.068	Robertson & Wride 1997	0

Prova CPTU n. 12

Permeabilità

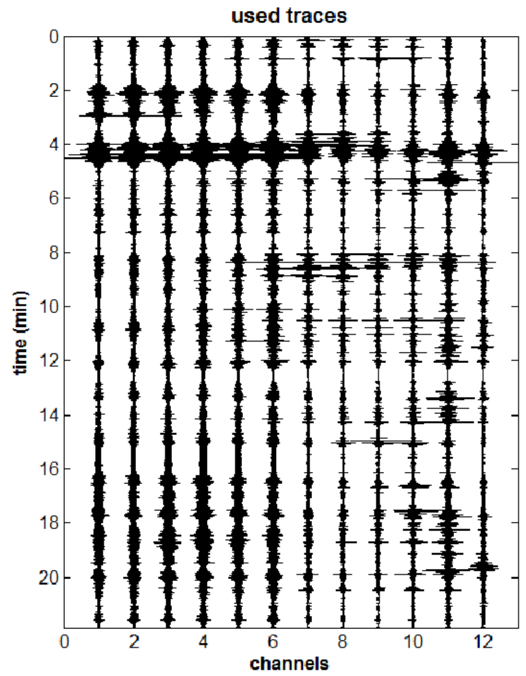
	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Permeabilità (cm/s)
Strato 1	2.25	24.906	1.01	Piacentini-Righi 1988	5.938545E-08
Strato 2	2.48	174.852	1.068	Piacentini-Righi 1988	0.001

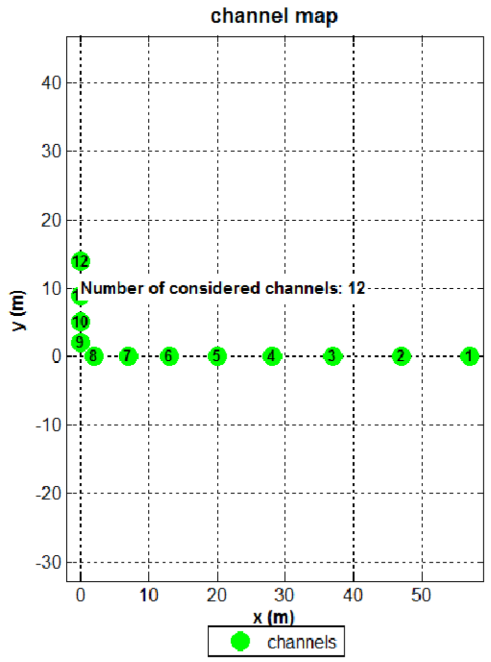
Coefficiente di consolidazione

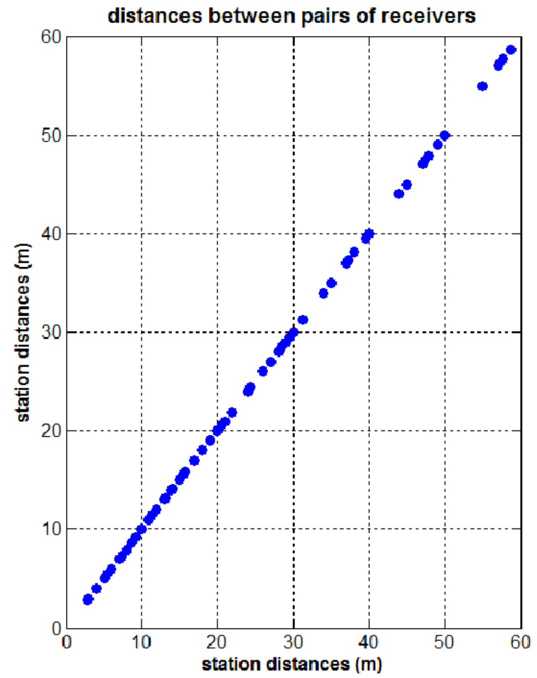
	Prof. Strato (m)	qc (Kg/cm²)	fs (Kg/cm²)	Correlazione	Coefficiente di consolidazione (cm²/s)
Strato 1	2.25	24.906	1.01	Piacentini-Righi 1988	4.437162E-03
Strato 2	2.48	174.852	1.068	Piacentini-Righi 1988	0

ACQUISIZIONE ESAC

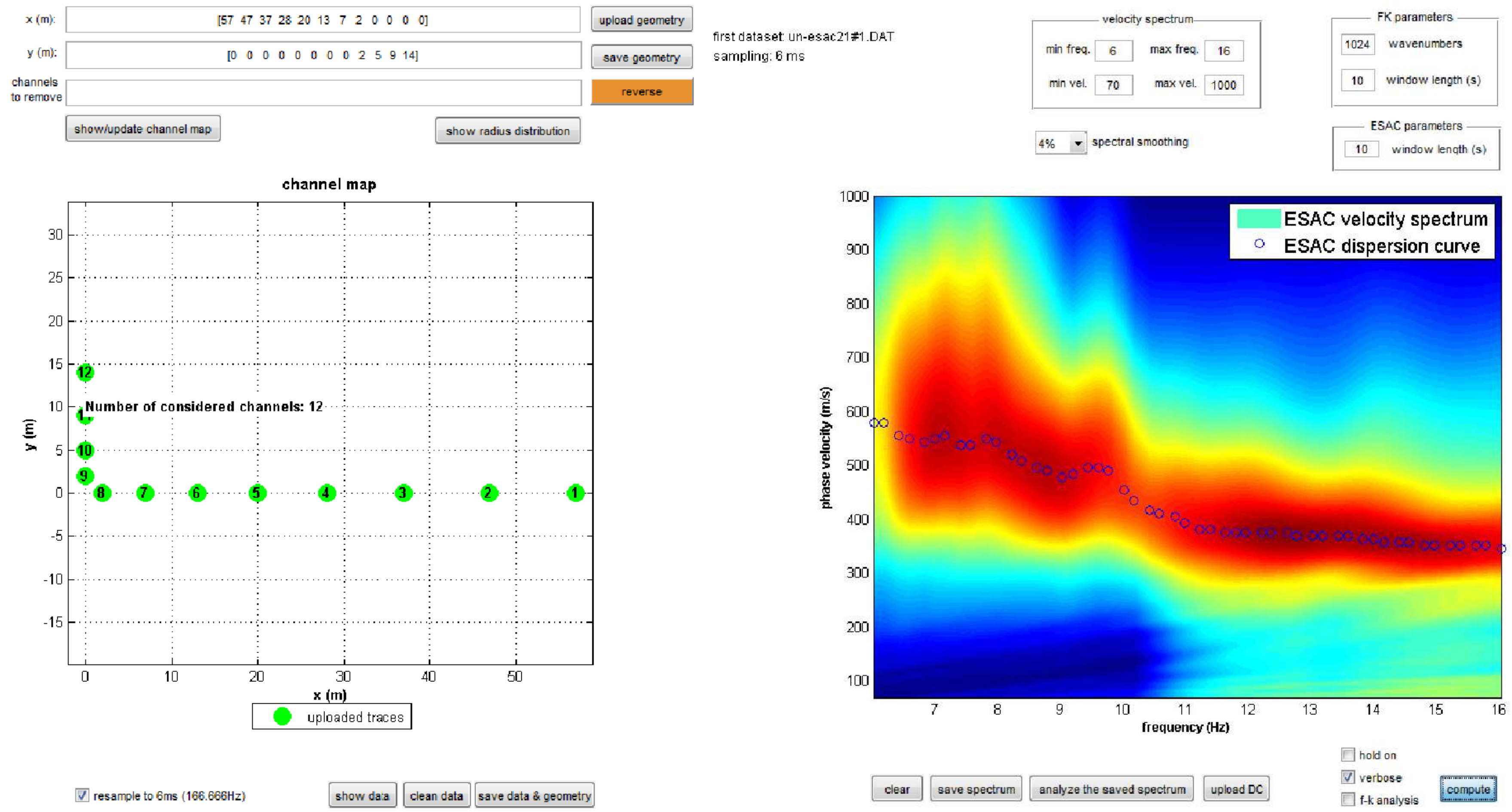
MASW21_MS3 - ESAC21_MS3







SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

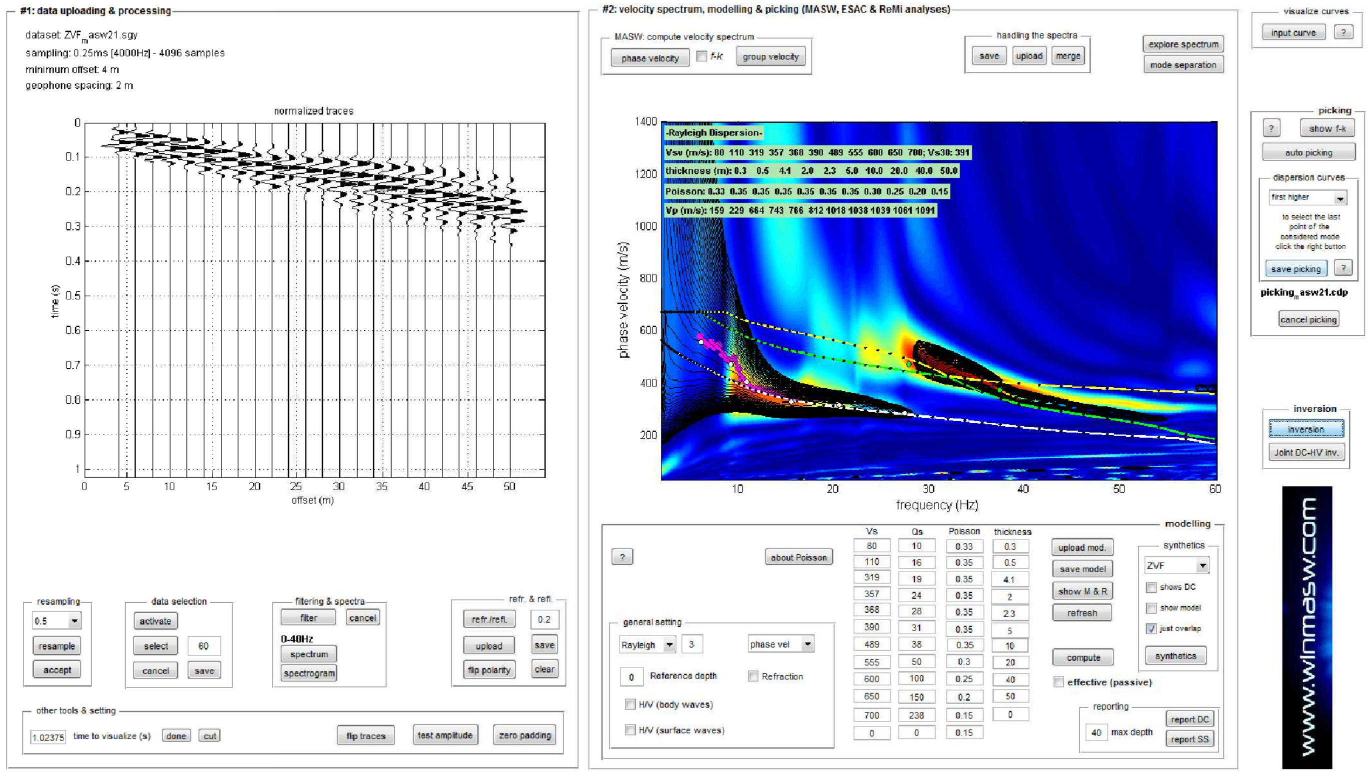


Stendimento ESAC21

GEOLOGICA TOSCANA s.n.c.

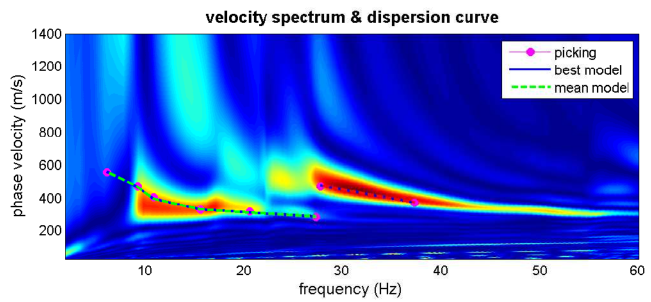
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 21 - ESAC 21

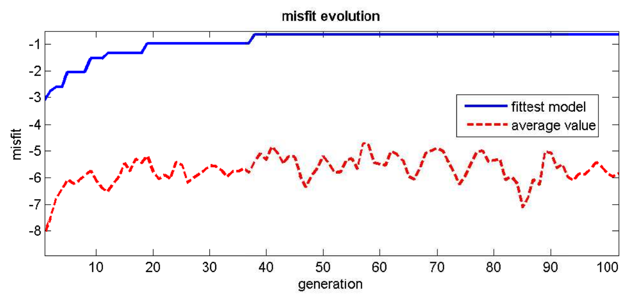
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

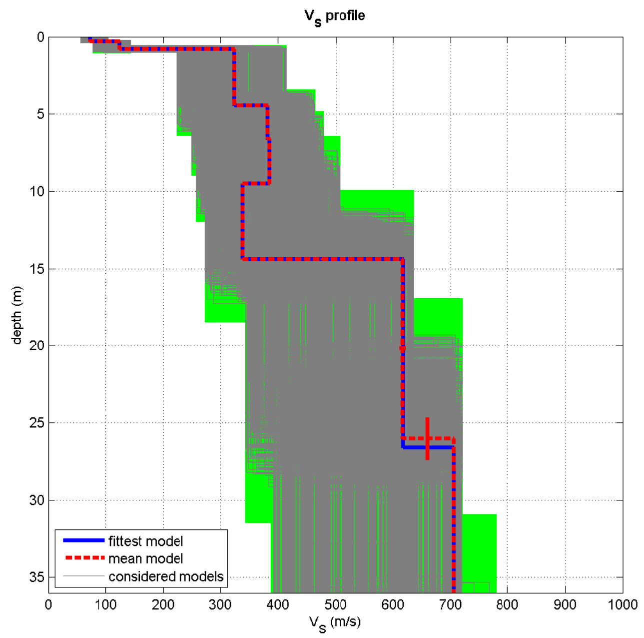


Stendimento MASW 21

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







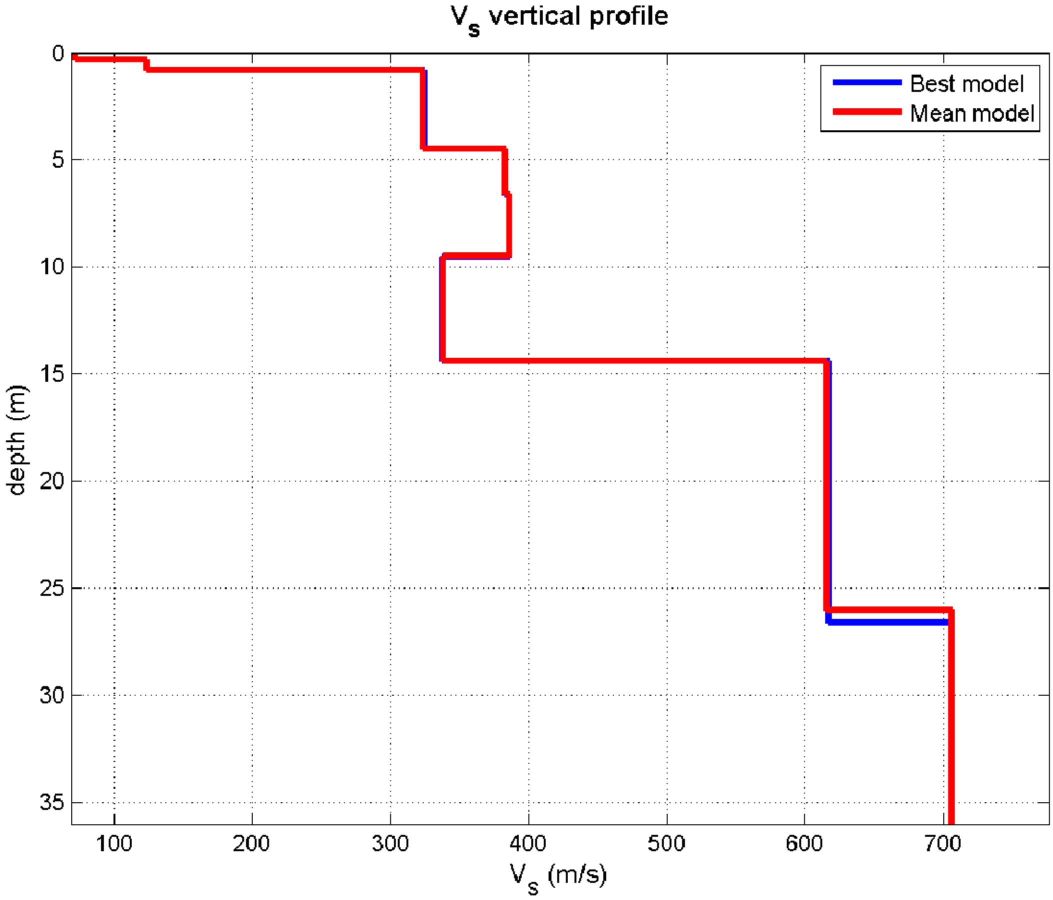
www.winmasw.com

dataset: ZVF_masw21.sgy
dispersion curve: picking_masw21.cdp
Vs30 (best model): 418 m/s
Vs30 (mean model): 418 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 21 - ESAC 21

PROFILO DI VELOCITA' MASW 21 – ESAC 21



Vs (m/s):72, 124, 324, 383, 386, 338, 616, 706, 653, 568, 726
Standard deviations (m/s):0, 0, 0, 0, 0, 0, 5, 1, 26, 62, 31

Thickness (m):0.3, 0.5, 3.7, 2.1, 2.9, 4.9, 11.6, 22.3, 34.4, 53.8
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.0, 0.0, 1.4, 0.7, 3.8, 1.5

Density (gr/cm3) (approximate values):1.581.711.932.062.031.962.202.122.072.032.08
Seismic/Dynamic Shear modulus (MPa) (approximate values):826202303302223836105788165610977

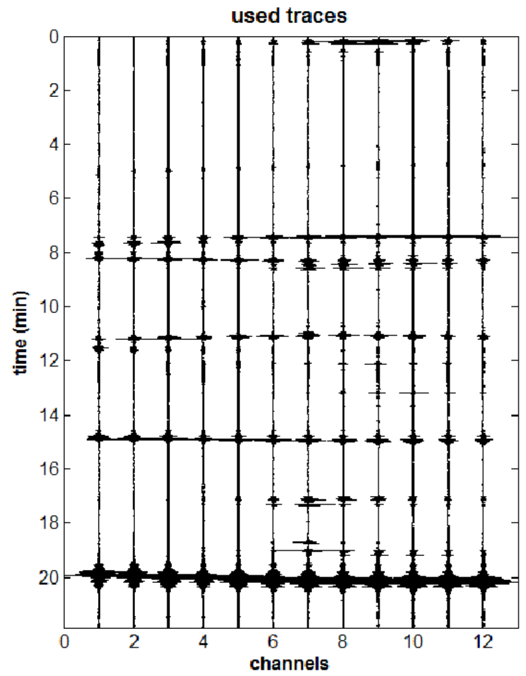
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):142241591104390166518441312105691311120
Poisson:0.330.320.290.420.390.330.440.300.190.180.14

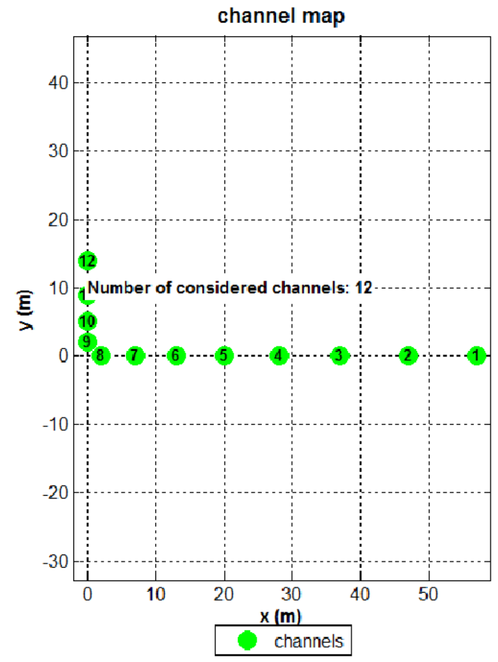
Vs30 (m/s): 418

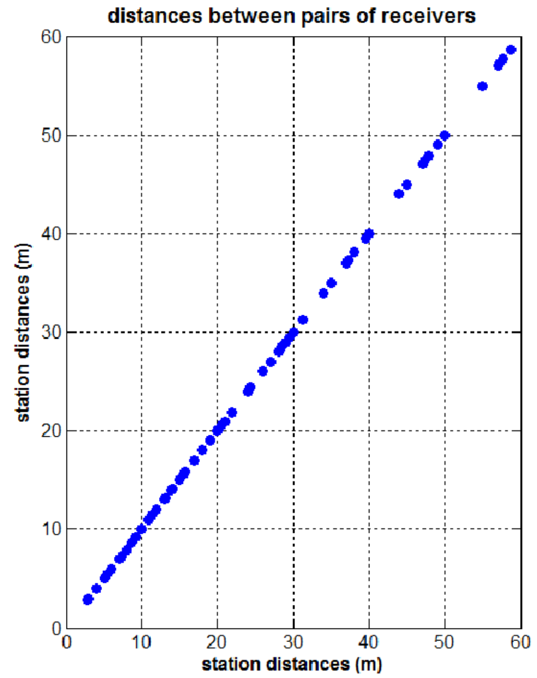
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW22_MS3 - ESAC22_MS3

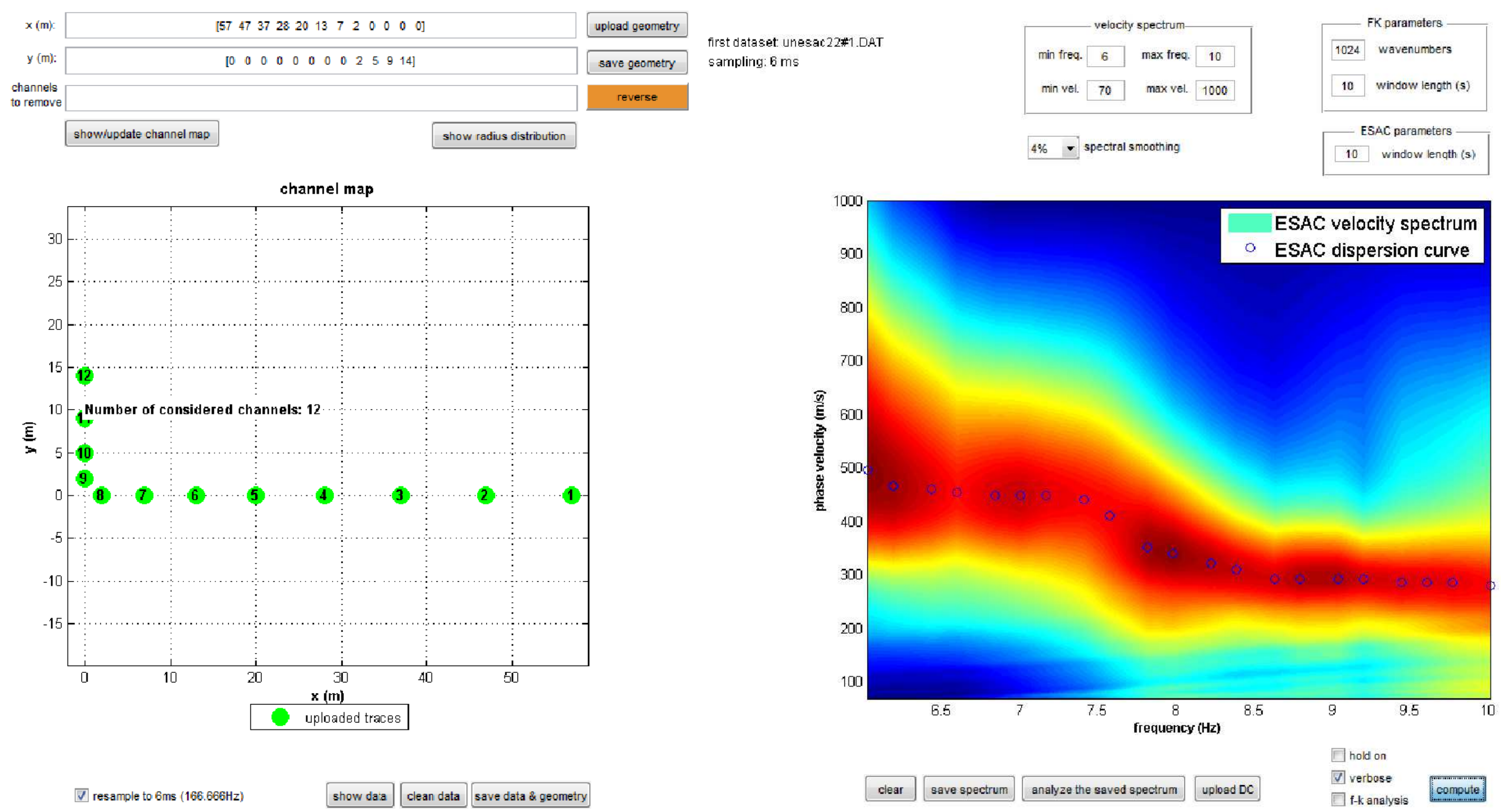






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

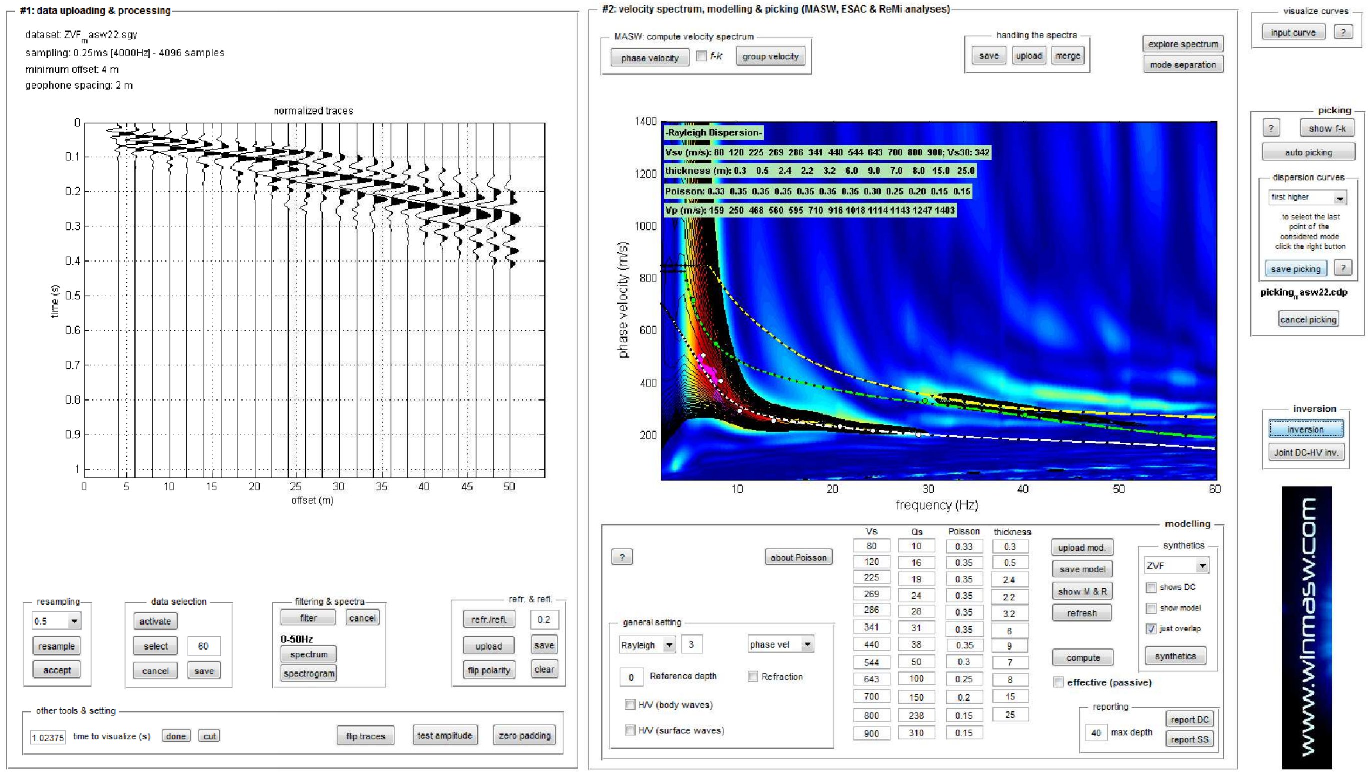
Stendimento ESAC22



GEOLOGICA TOSCANA s.n.c.

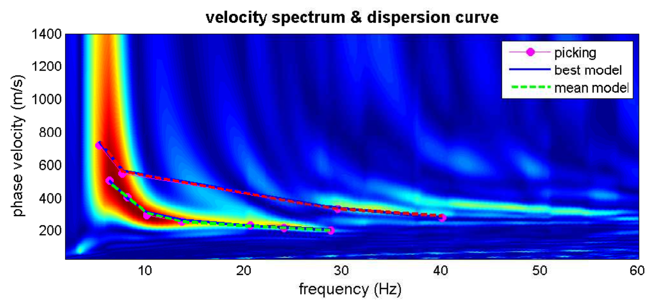
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 22 - ESAC 22

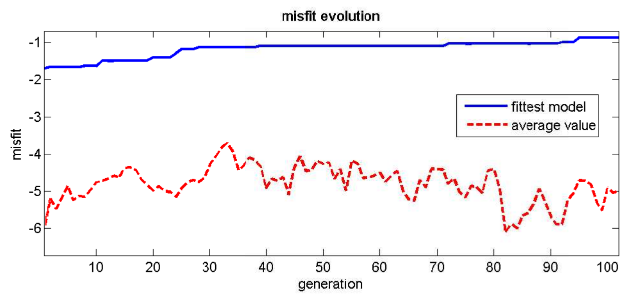
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

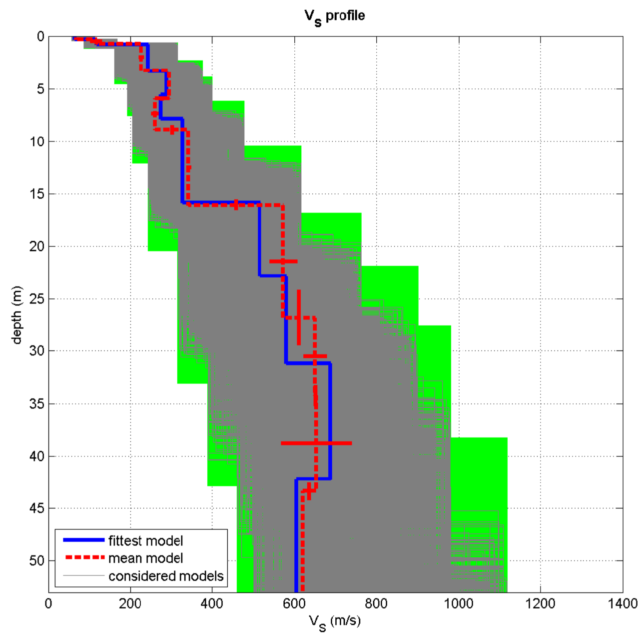


Stendimento MASW 22

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







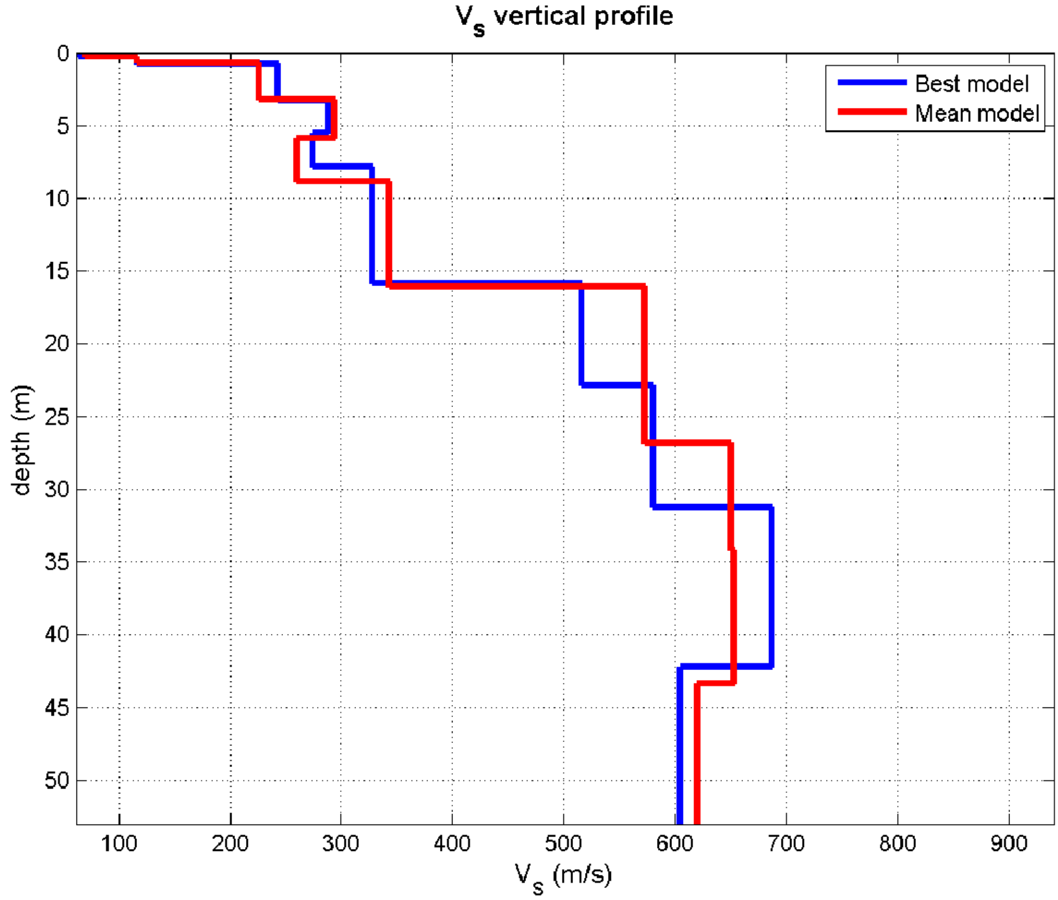
www.winmasw.com

dataset: ZVF_masw22.sgy
dispersion curve: $picking_m$asw22.cdp
Vs30 (best model): 353 m/s
Vs30 (mean model): 358 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 22 - ESAC 22

PROFILO DI VELOCITA' MASW 22 – ESAC 22



Vs (m/s):70, 116, 226, 294, 260, 343, 573, 650, 653, 620, 867, 765
Standard deviations (m/s):7, 15, 6, 2, 9, 6, 33, 28, 86, 49, 72, 161

Thickness (m):0.2, 0.4, 2.6, 2.6, 3.0, 7.2, 10.8, 7.4, 9.2, 19.5, 28.7
Standard deviations (m/s):0.0, 0.1, 0.1, 0.2, 0.4, 0.5, 2.6, 1.0, 0.8, 2.5, 3.4

Density (gr/cm3) (approximate values):1.591.671.842.051.862.042.072.112.082.052.132.10
Seismic/Dynamic Shear modulus (MPa) (approximate values):823941771262406788908897891604 1227

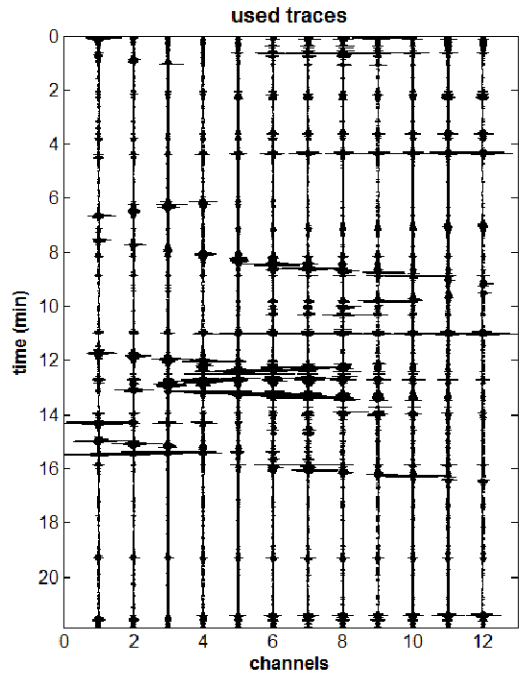
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):148208408997456929105312411135998138811 96
Poisson:0.360.270.280.450.260.420.290.310.250.190.180.15

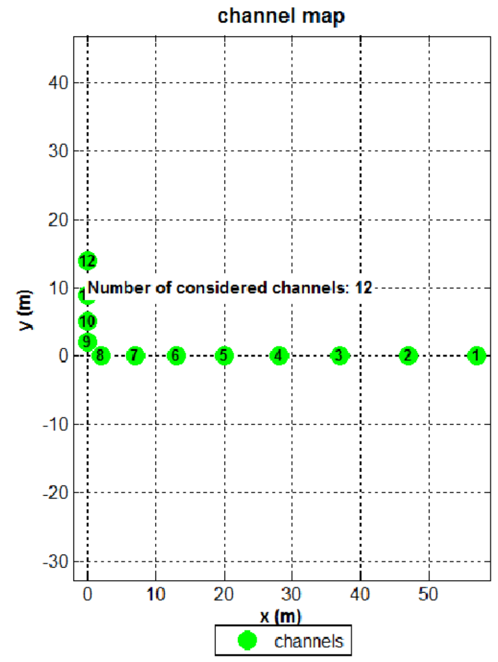
Vs30 (m/s): 358

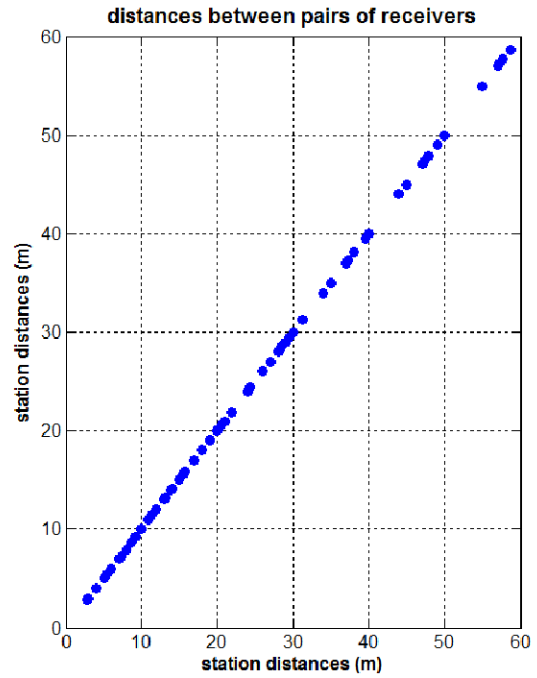
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW23_MS3 - ESAC23_MS3

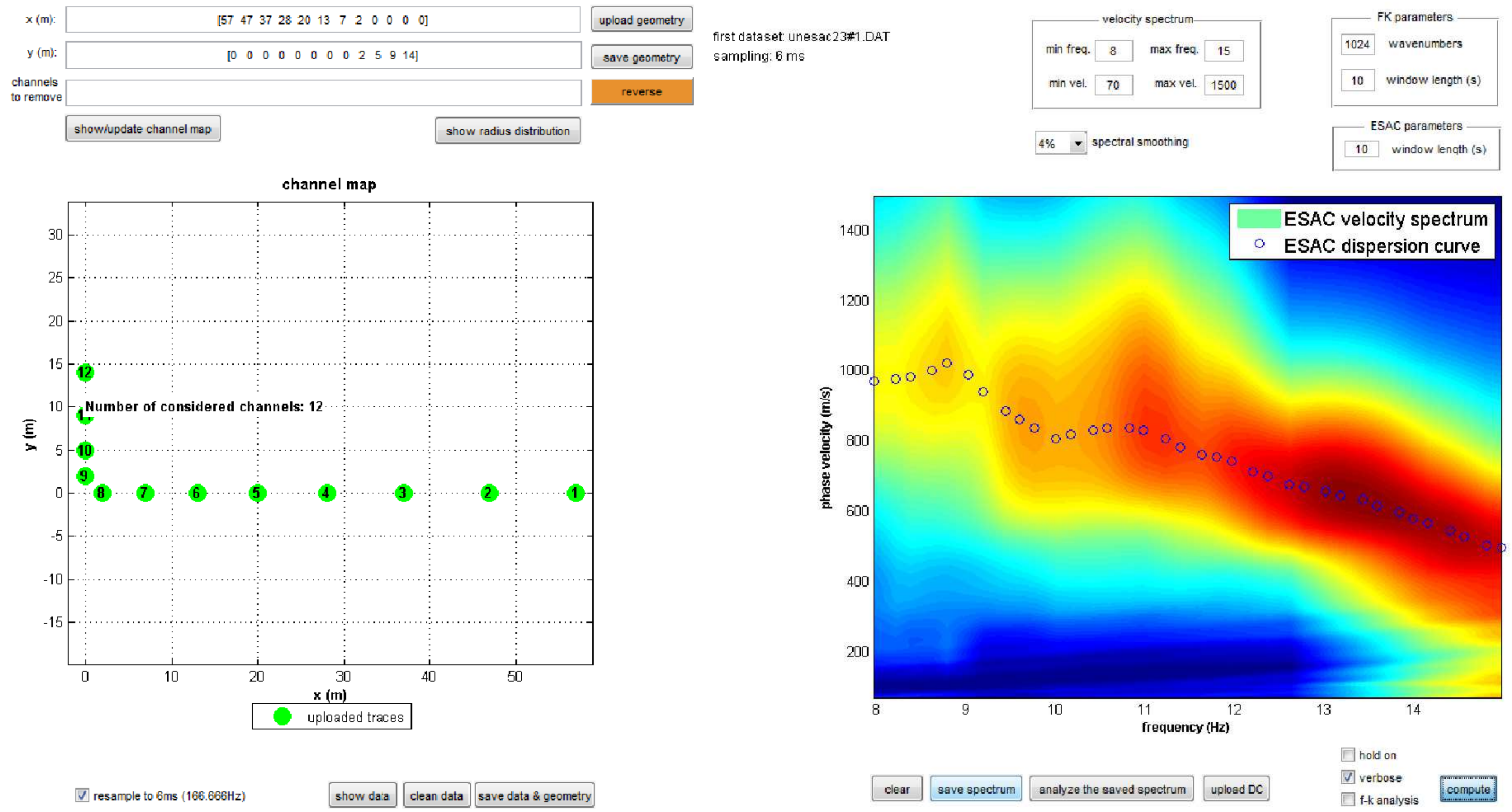






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

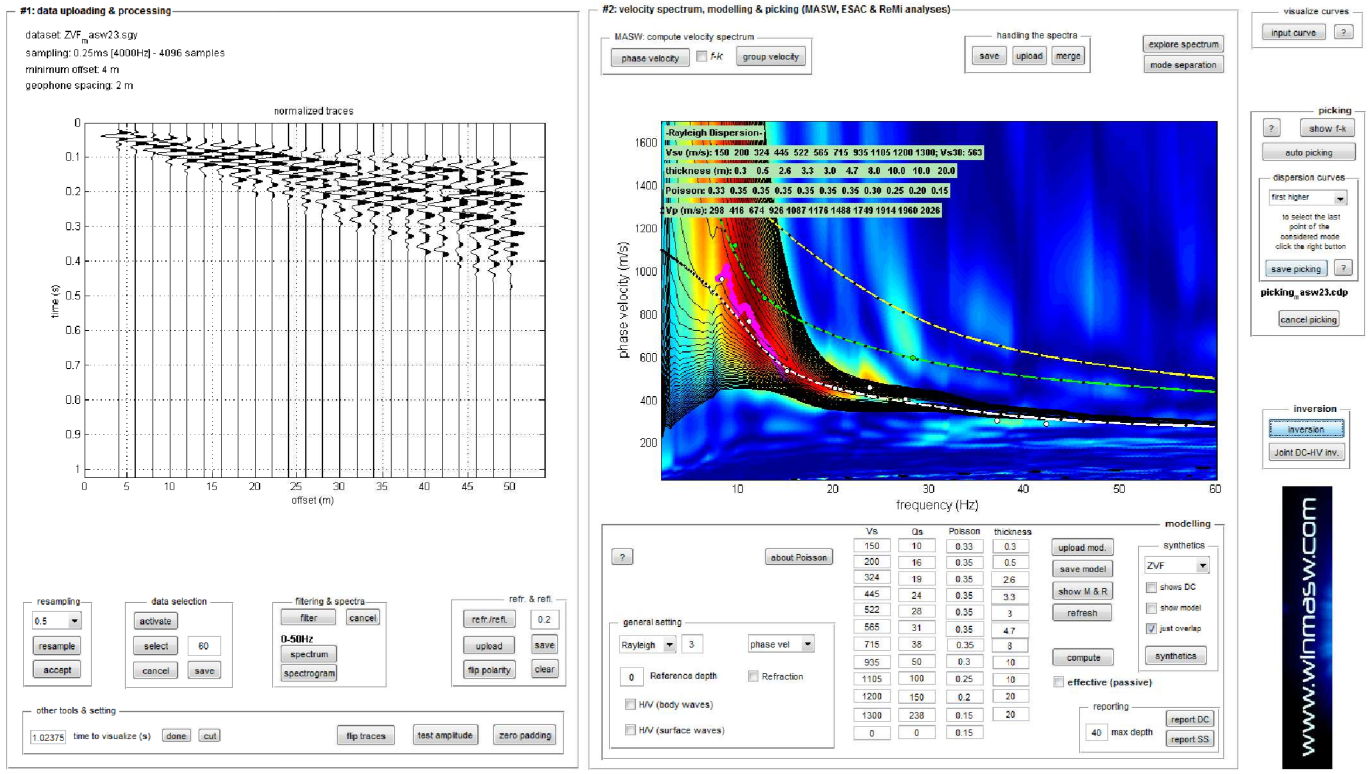
Stendimento ESAC23



GEOLOGICA TOSCANA s.n.c.

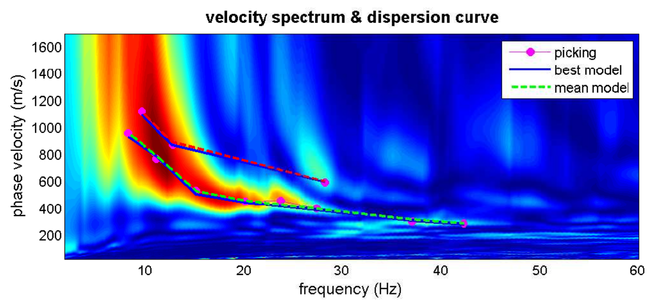
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 23 - ESAC 23

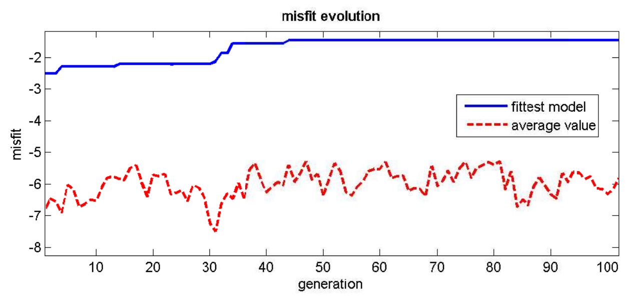
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

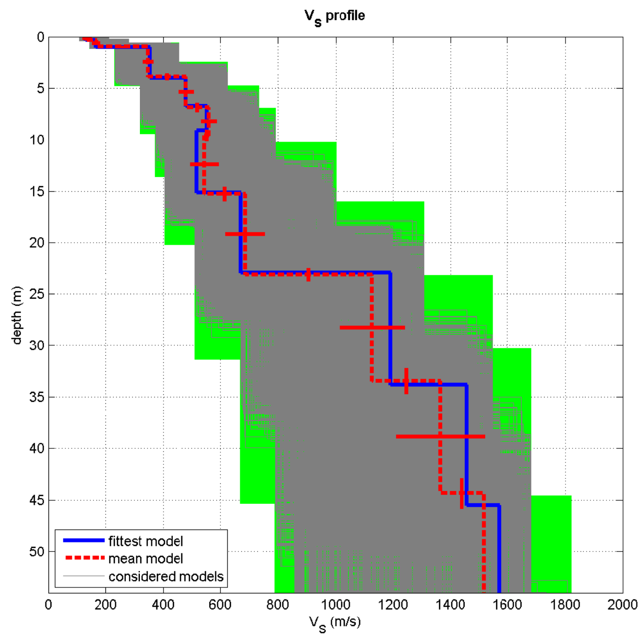


Stendimento MASW 23

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







dataset: ZVF$_{m}$asw23.sgy
dispersion curve: picking$_{m}$asw23.cdp
Vs30 (best model): 552 m/s
Vs30 (mean model): 558 m/s

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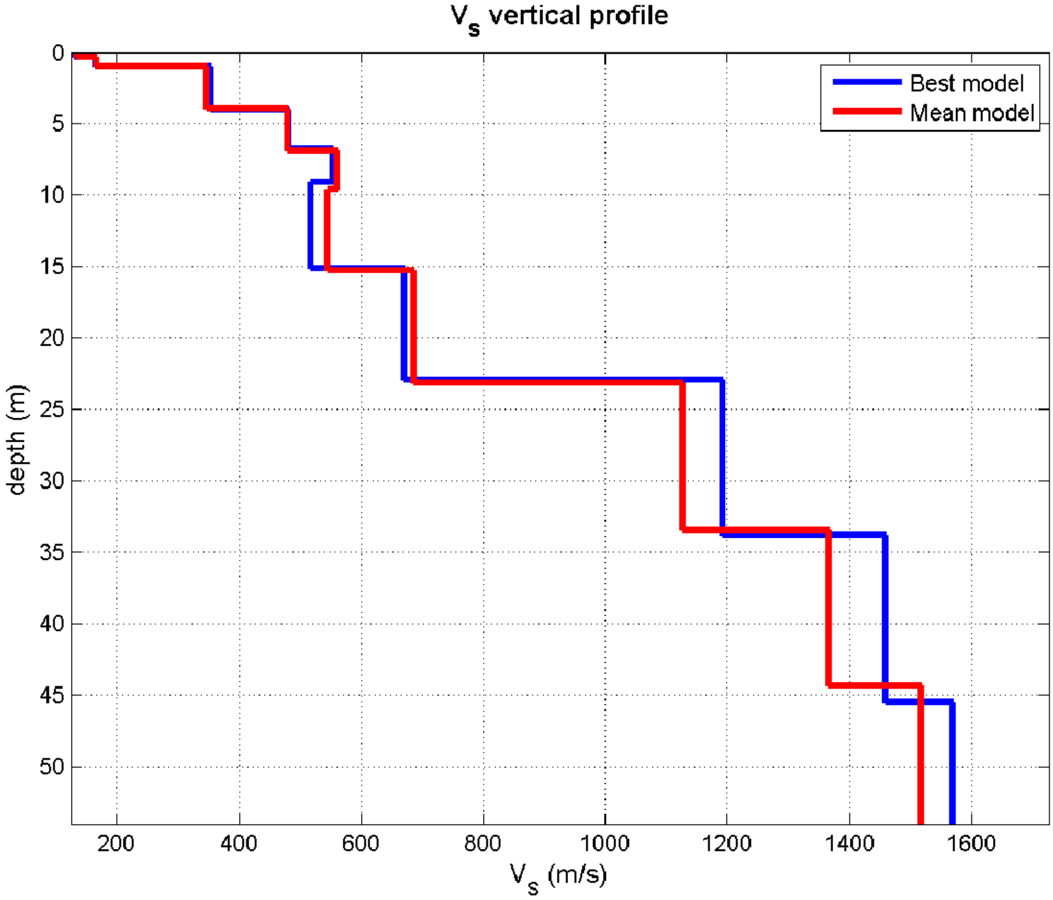
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 23 - ESAC 23

PROFILO DI VELOCITA' MASW 23 – ESAC 23



Vs (m/s):134, 166, 348, 480, 560, 545, 686, 1127, 1366, 1517, 1120
Standard deviations (m/s):16, 14, 17, 26, 27, 49, 69, 112, 155, 125, 247

Thickness (m):0.3, 0.6, 3.0, 2.9, 2.7, 5.7, 7.8, 10.3, 10.9, 19.4
Standard deviations (m/s):0.0, 0.1, 0.3, 0.4, 0.6, 0.7, 0.7, 1.3, 1.5, 3.4

Density (gr/cm3) (approximate values):1.721.742.002.062.062.082.172.242.272.272.19
Seismic/Dynamic Shear modulus (MPa) (approximate values):3148242476645616101928464242522127 49

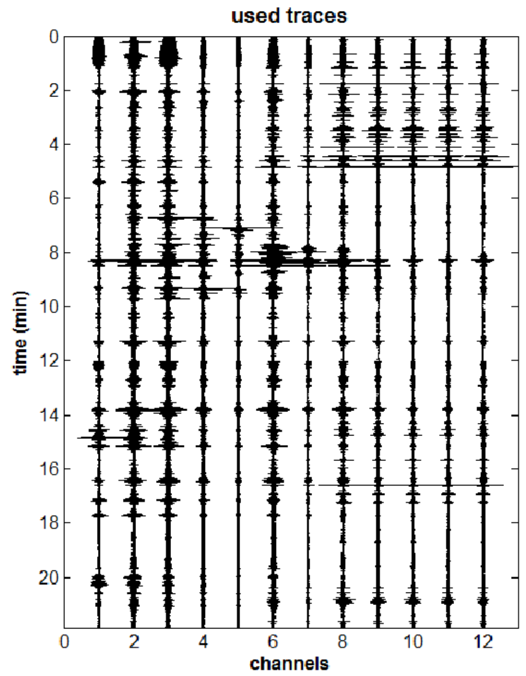
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):249278792104710151092158121572464241917 60
Poisson:0.300.220.380.370.280.330.380.310.280.180.16

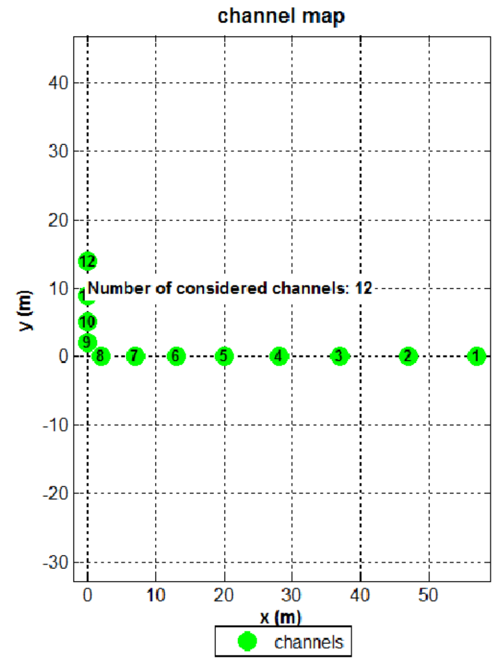
Vs30 (m/s): 558

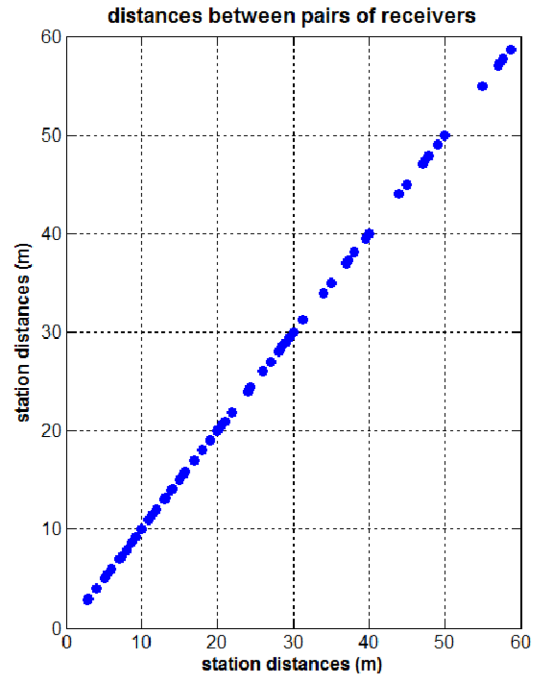
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW24_MS3 - ESAC24_MS3

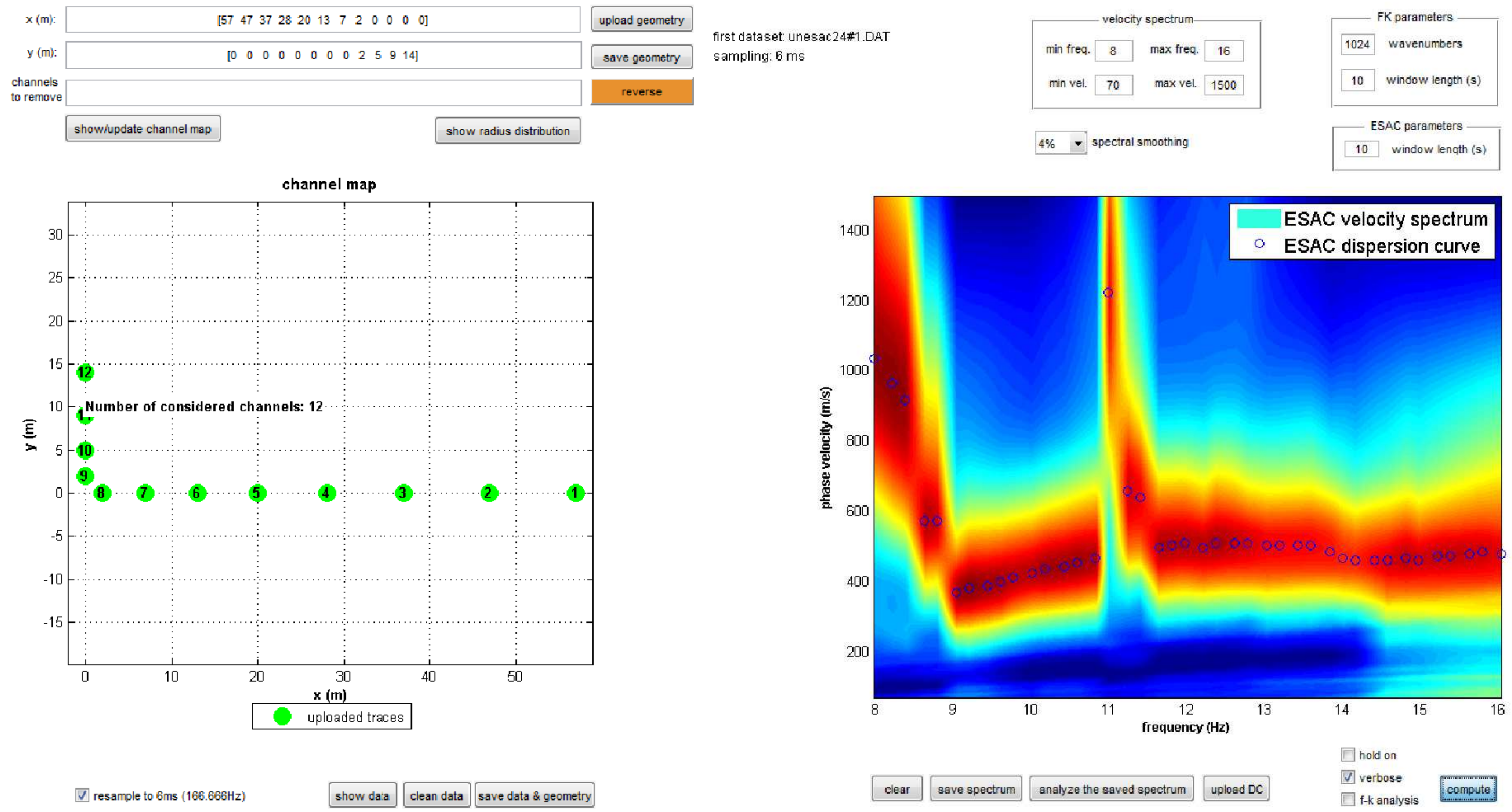






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

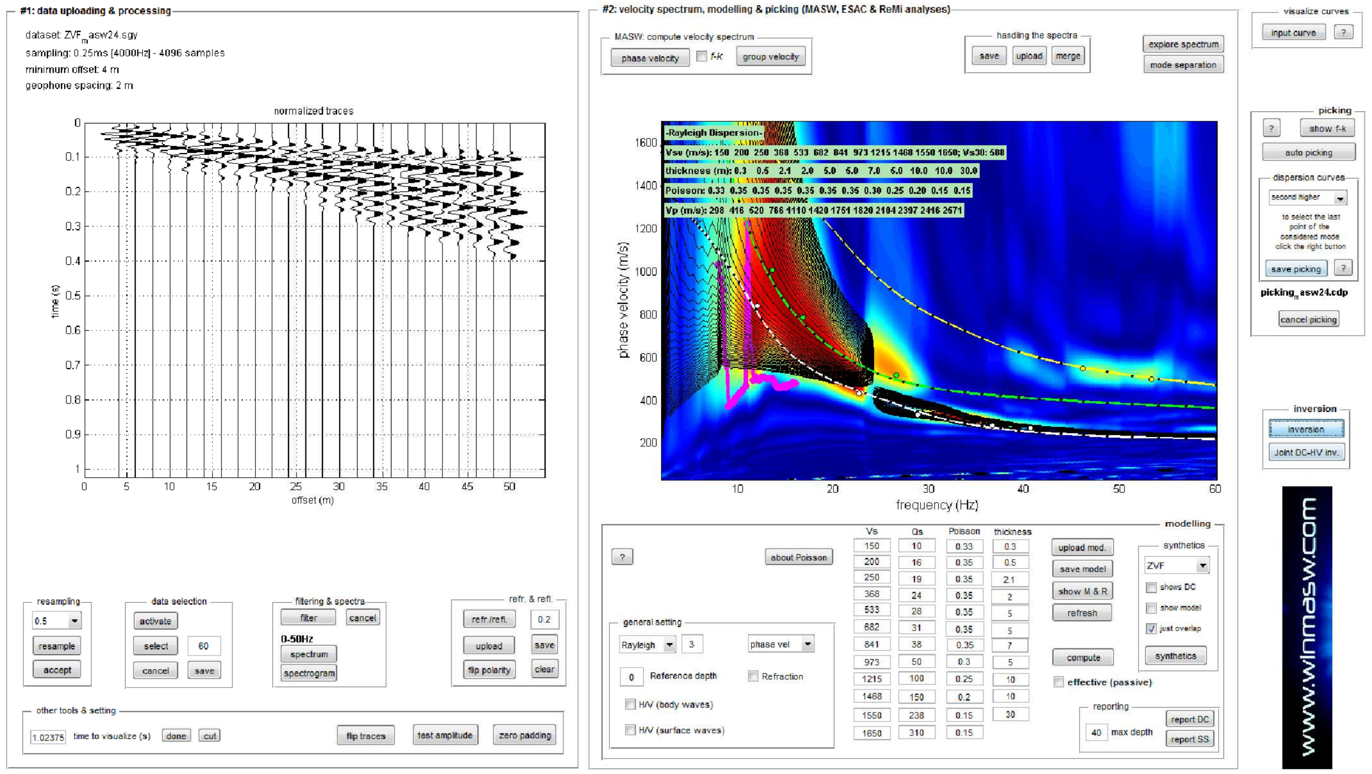
Stendimento ESAC24



GEOLOGICA TOSCANA s.n.c.

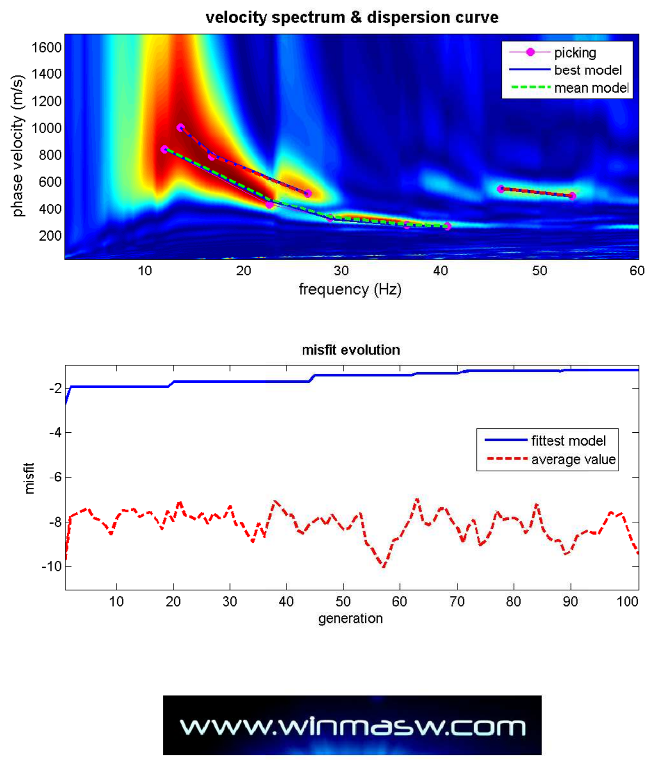
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 24 - ESAC 24

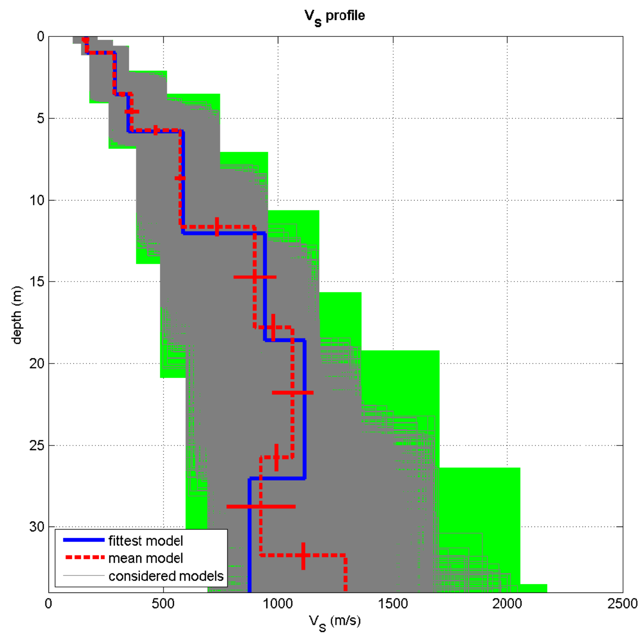
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC



Stendimento MASW 24

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'



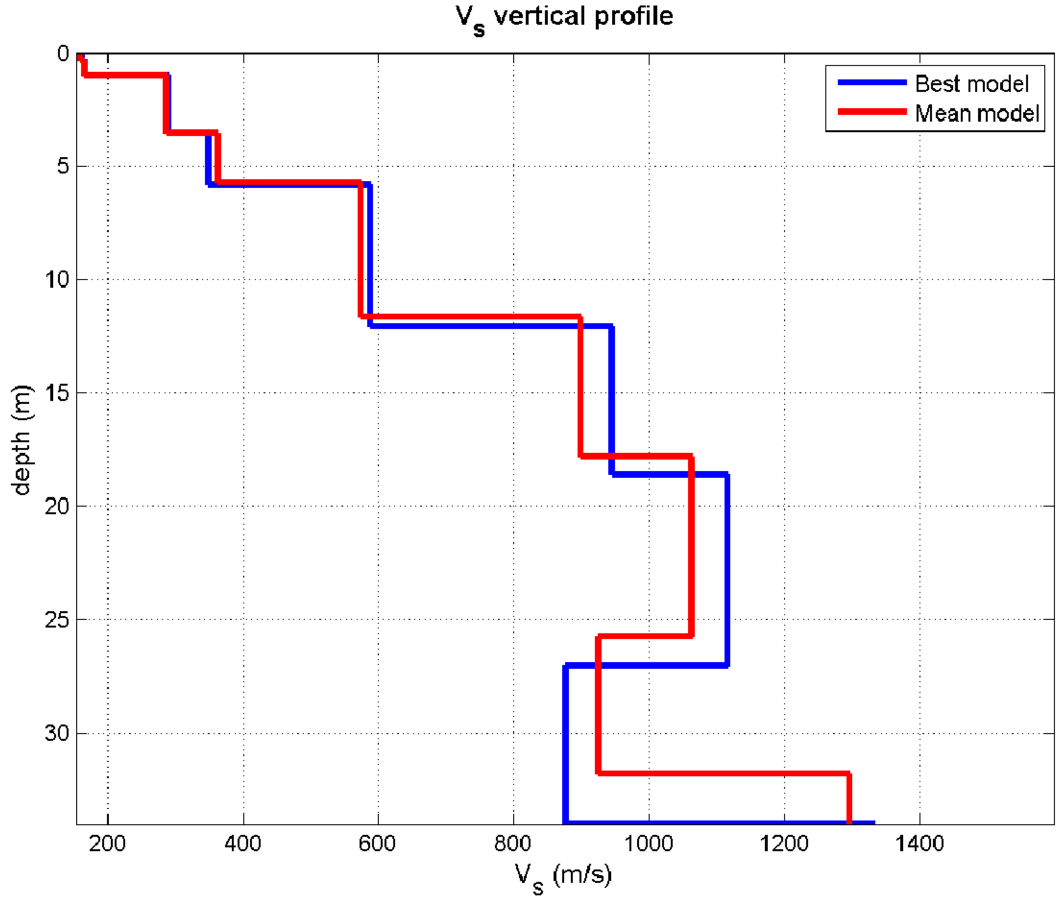


dataset: ZVF_m_asw24.sgy
dispersion curve: picking_m_asw24.cdp
Vs30 (best model): 603 m/s
Vs30 (mean model): 599 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 24 - ESAC 24

PROFILO DI VELOCITA' MASW 24 – ESAC 24



Vs (m/s):160, 167, 288, 363, 574, 899, 1064, 926, 1296, 1482, 1395, 1870
Standard deviations (m/s):15, 7, 4, 30, 25, 92, 88, 148, 156, 143, 111, 183

Thickness (m):0.3, 0.7, 2.5, 2.2, 5.9, 6.2, 7.9, 6.0, 11.0, 10.0, 28.6
Standard deviations (m/s):0.0, 0.1, 0.1, 0.3, 0.6, 0.8, 0.8, 0.8, 1.9, 1.6, 4.3

Density (gr/cm3) (approximate values):1.821.851.981.982.152.212.242.192.262.272.242.32
Seismic/Dynamic Shear modulus (MPa) (approximate values):47521642617091782253218753800498743588105

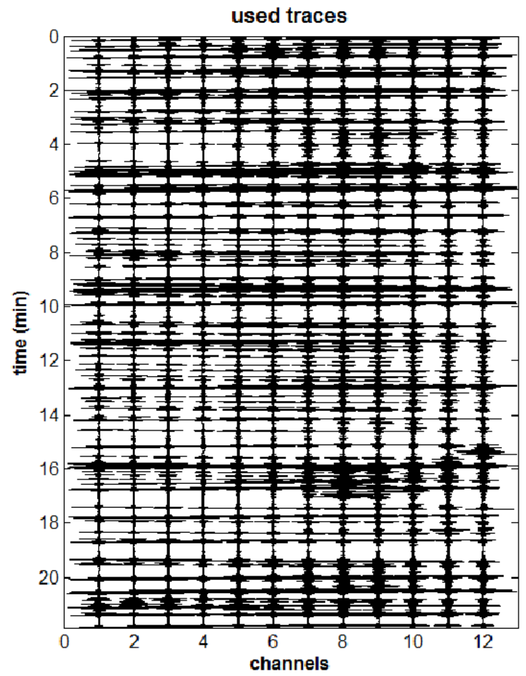
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):38343773674314911864211617262356243721452956
Poisson:0.390.410.410.340.410.350.330.300.280.210.130.17

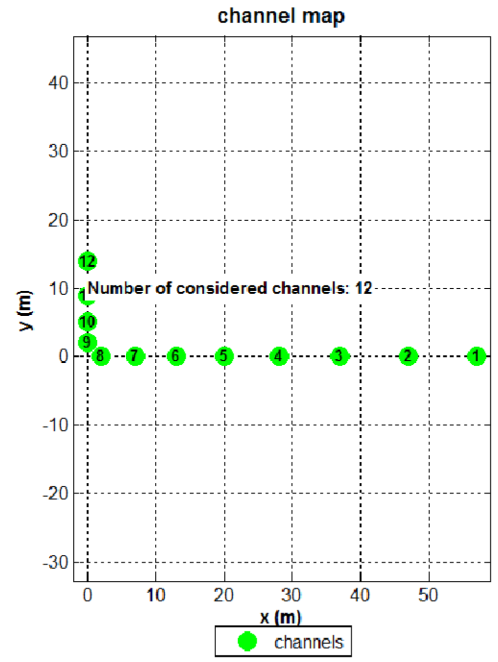
Vs30 (m/s): 599

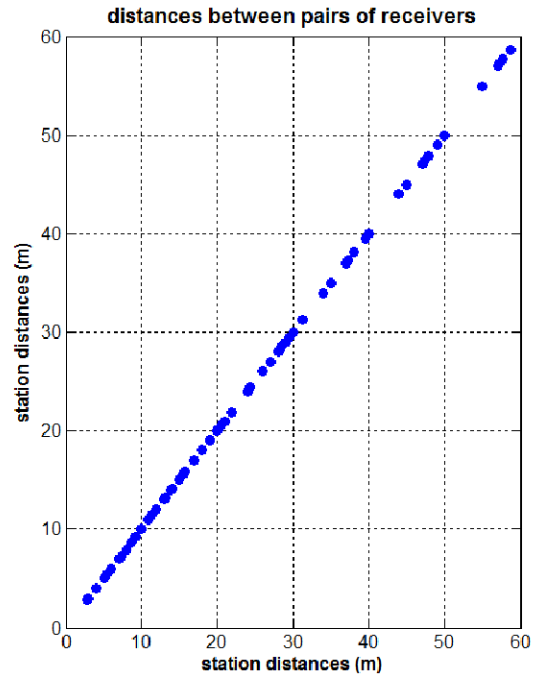
GEOLOGICA TOSCANA s.n.c.

ACQUISIZIONE ESAC

MASW25_MS3 - ESAC25_MS3

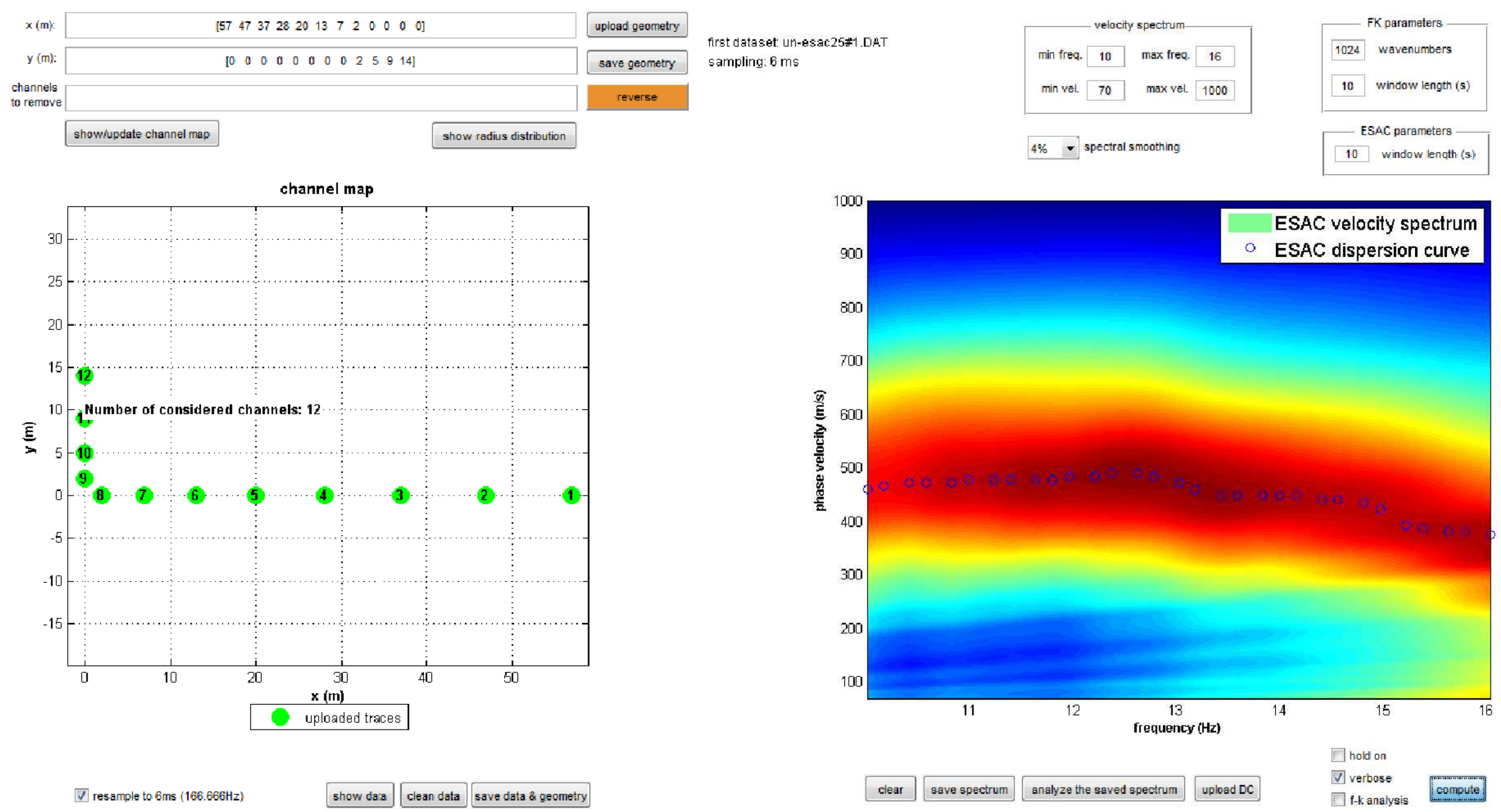






SPETTRO DI VELOCITA' ESAC E CURVA DI DISPERSIONE EFFETTIVA

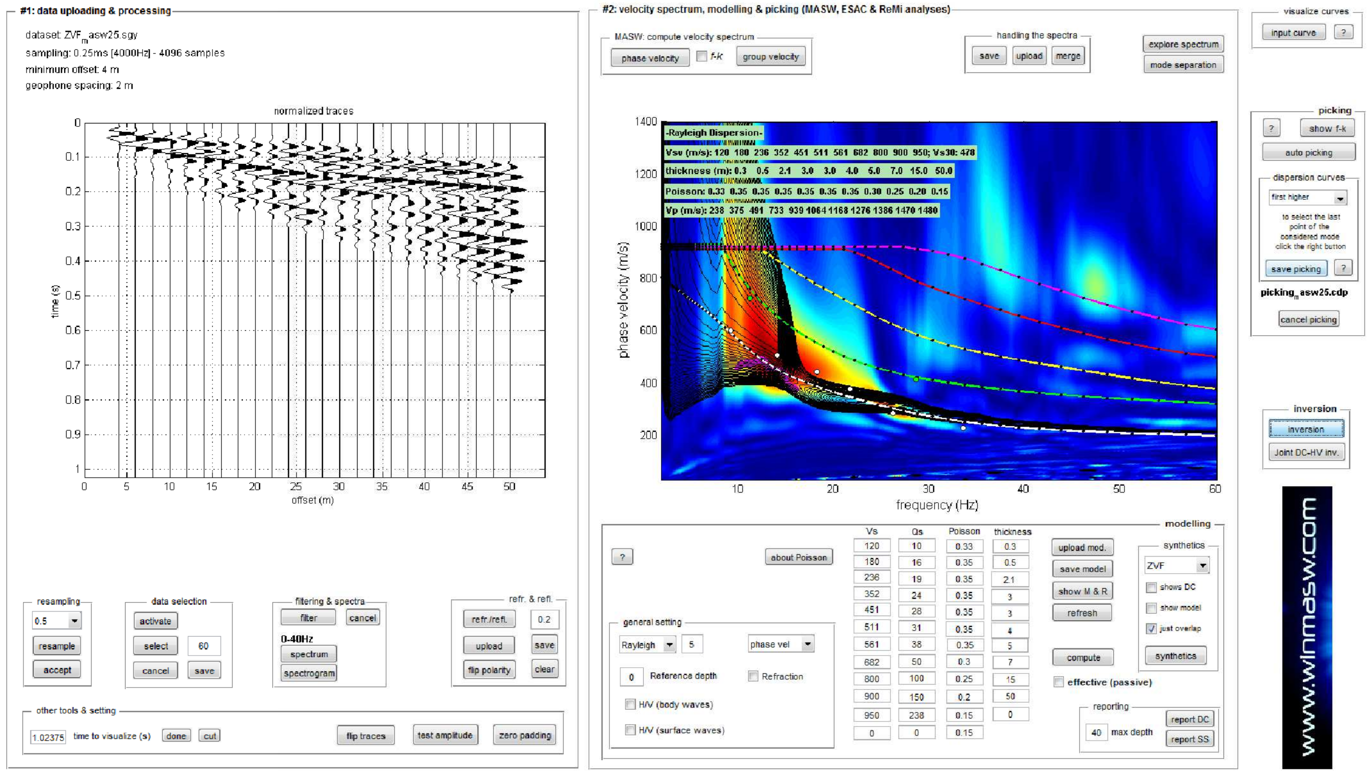
Stendimento ESAC25



GEOLOGICA TOSCANA s.n.c.

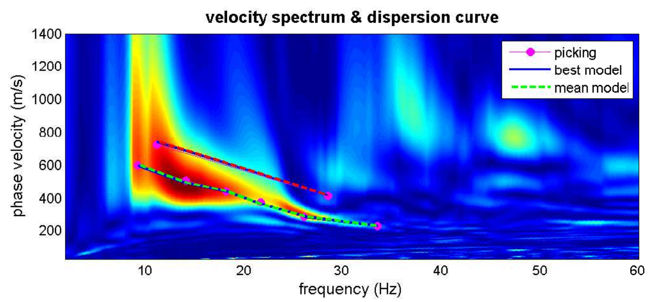
RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 25 - ESAC 25

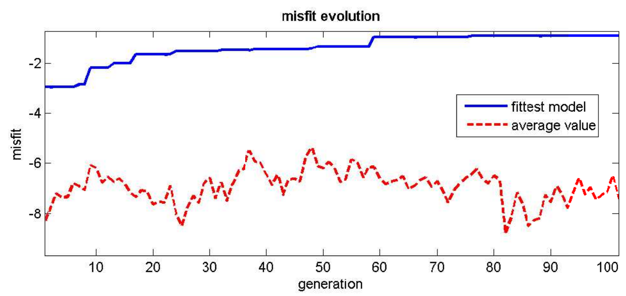
SPETTRO DI VELOCITA' MASW + CURVA DI DISPERSIONE EFFETTIVA ESAC

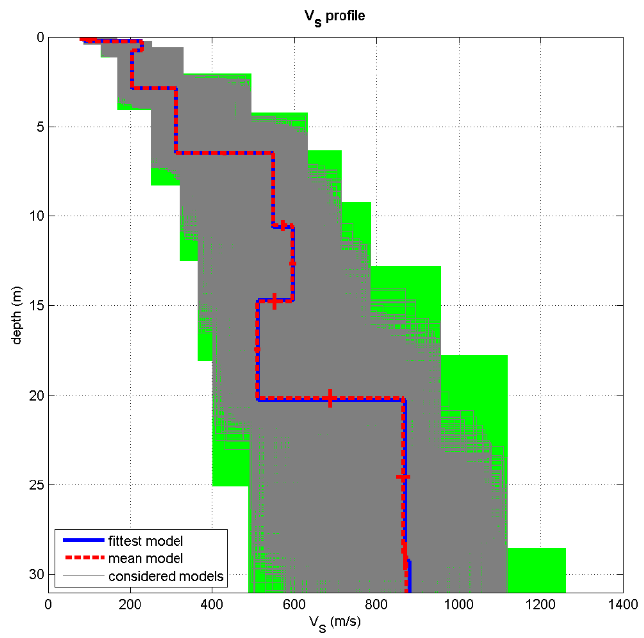


Stendimento MASW 25

INVERSIONE CONGIUNTA MASW – ESAC E PROFILO DI VELOCITA'







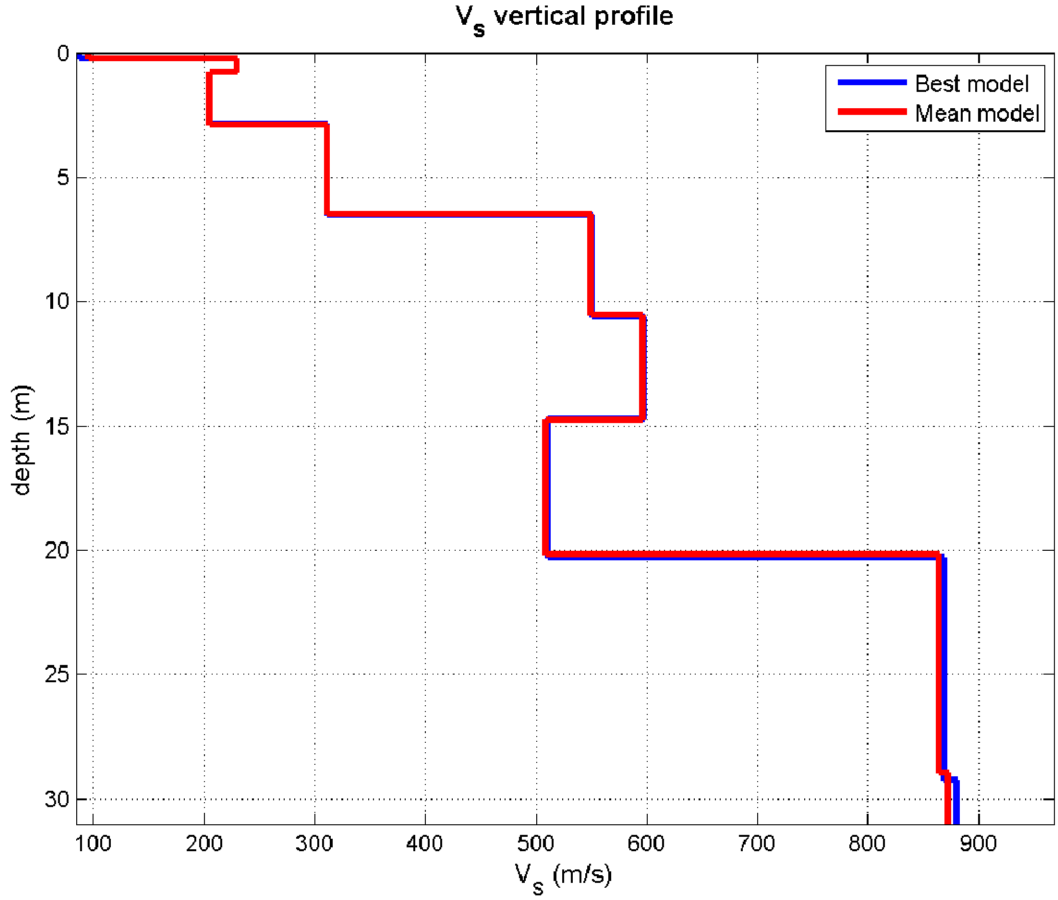
www.winmasw.com

dataset: ZVF_masw25.sgy
dispersion curve: $picking_m$asw25.cdp
Vs30 (best model): 473 m/s
Vs30 (mean model): 475 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA CONGIUNTA MASW 25 - ESAC 25

PROFILO DI VELOCITA' MASW 25 – ESAC 25



Vs (m/s):96, 230, 205, 311, 550, 596, 509, 864, 873, 767, 963
Standard deviations (m/s):20, 0, 0, 0, 0, 8, 8, 16, 29, 48, 73

Thickness (m):0.3, 0.5, 2.1, 3.6, 4.0, 4.2, 5.4, 8.8, 18.0, 49.8
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.3, 0.4, 0.5, 0.8, 2.4, 9.3

Density (gr/cm3) (approximate values):1.651.911.972.232.052.102.042.172.152.112.16
Seismic/Dynamic Shear modulus (MPa) (approximate values):15101832156197465281622163812402004

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):190543711202196912109341630147712511552
Poisson:0.330.390.450.490.260.340.290.300.230.200.19

Vs30 (m/s): 475

GEOLOGICA TOSCANA s.n.c.

HVSR21

DATE 03.02.2021	HOUR 16:00	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4913987	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 213117	ALTITUDE 228 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR21.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
WIND: none / ● weak (5m/s) / medium / strong — Measurement (if any):
RAIN: ● none / weak / medium / strong — Measurement (if any):
Temperature (approx): 9 Remarks

GROUND TYPE: earth (hard / soft) / gravel / sand / rock / grass = (short / tall)
● asphalt / cement / concrete / paved / other
● dry soil / wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ● no / yes, type

BUILDING DENSITY none / ● scattered / dense / other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ● no / yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

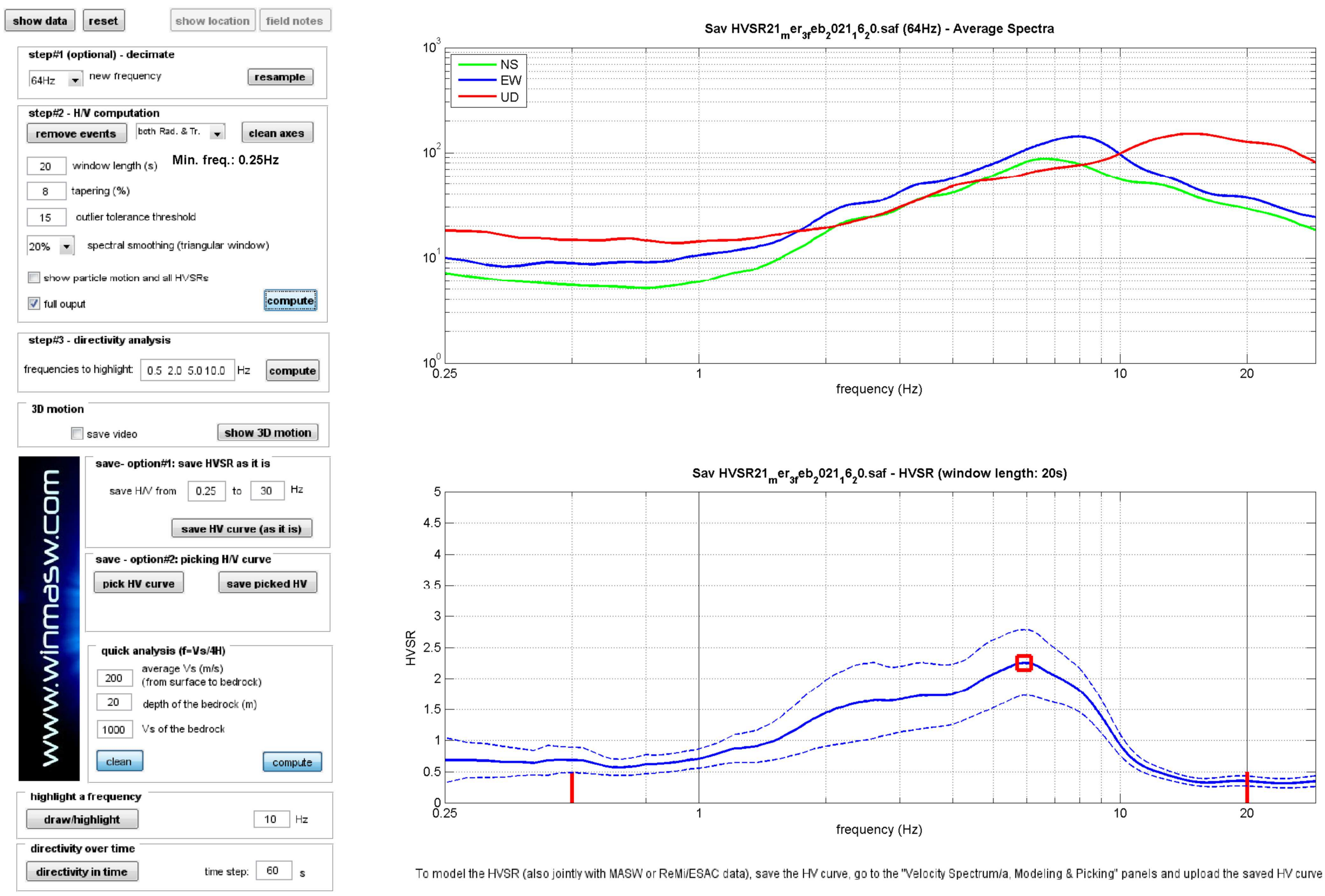
HVSR21

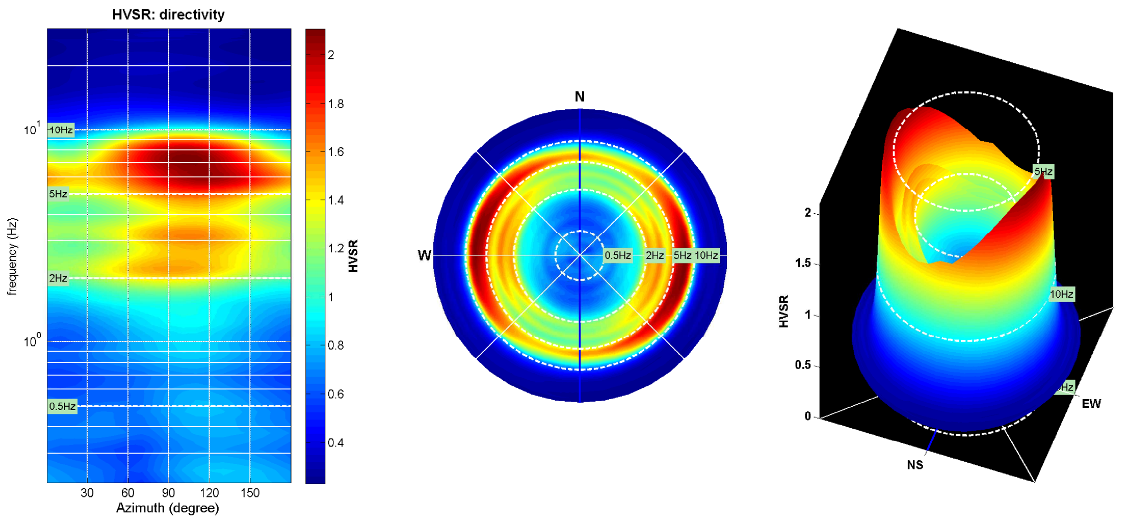
MISURA TIPO A1

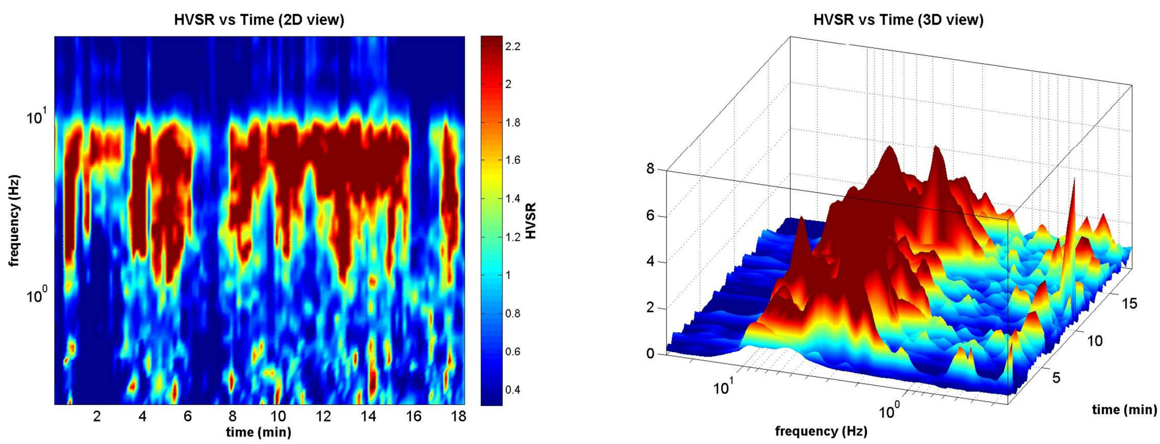
Peak frequency (Hz): 5.9 (±2.0)
Peak HVSR value: 2.3 (±0.5)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 5.912 > 0.5 (OK)
#2. [nc > 200]: 13006 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.5Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 9.6Hz (OK)
#3. [A0 > 2]: 2.3 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 2.016 > 0.296 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.529 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20 window length (s)
Min. freq.: 0.25Hz
8 tapering (%)
15 outlier tolerance threshold
20% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Sav HVSR21_mer_3feb_2021_16_20.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR21_mer_3feb_2021_16_20.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
10Hz
5Hz
2Hz
0.5Hz
N
W
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR22

DATE 05.02.2021	HOUR 15:57	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4914247	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 213133	ALTITUDE 240 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR22.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: [x] none [ ] weak (5m/s) [ ] medium [ ] strong Measurement (if any): ______
- RAIN: [x] none [ ] weak [ ] medium [ ] strong Measurement (if any): ______
- Temperature (approx): 8 Remarks ______

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [ ] gravel [ ] sand [ ] rock [ ] grass = ([ ] short [ ] tall)
- [x] asphalt [ ] cement [ ] concrete [ ] paved [ ] other ______
- [x] dry soil [ ] wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type ______

BUILDING DENSITY [ ] none [x] scattered [ ] dense [ ] other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		X				
trucks	X					
pedestrians	X					
other	X					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
[x] no [ ] yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

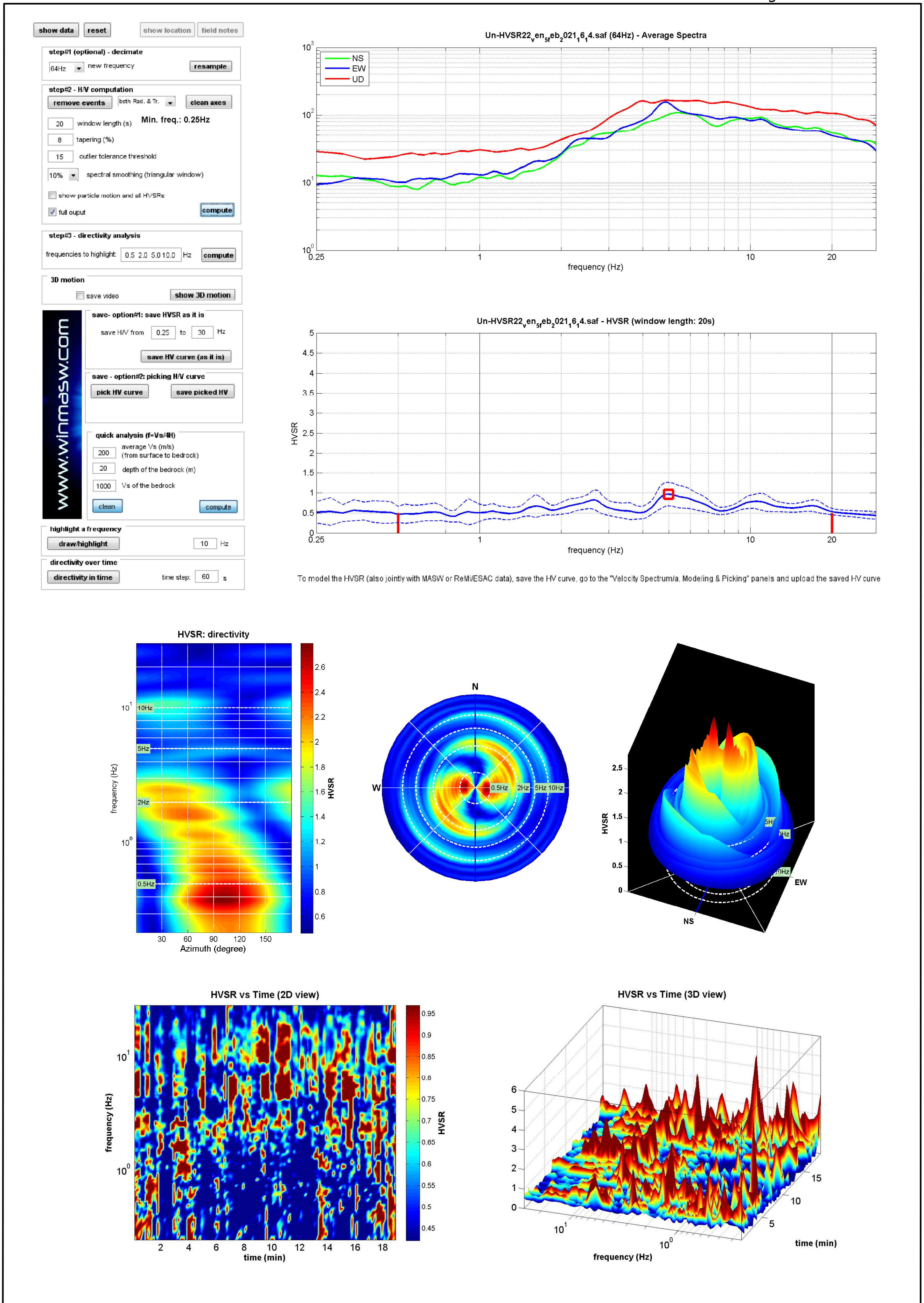
MISURA TIPO A2

HVSR22

Peak frequency (Hz): 5.0 (±3.7)
Peak HVSR value: 1.0 (±0.3)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 4.974 > 0.5 (OK)
#2. [nc > 200]: 11340 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 1.3Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes (considering standard deviations), at frequency Hz (OK)
#3. [A0 > 2]: 1.0 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 3.680 > 0.249 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.293 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
10%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Un-HVSR22_ven_5feb_2021_6_14.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un-HVSR22_ven_5feb_2021_6_14.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR23

DATE 03.02.2021	HOUR 16:53	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4914364	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 212992	ALTITUDE 263 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR23.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND [ ] none [x] weak (5m/s) [ ] medium [ ] strong Measurement (if any): ______
- RAIN [x] none [ ] weak [ ] medium [ ] strong Measurement (if any): ______
- Temperature (approx): 9 Remarks ______

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [x] gravel [ ] sand [ ] rock [ ] grass = ([ ] short [ ] tall)
- [ ] asphalt [ ] cement [ ] concrete [ ] paved [ ] other ______
- [x] dry soil [ ] wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type ______

BUILDING DENSITY [ ] none [x] scattered [ ] dense [ ] other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars	x					
trucks	x					
pedestrians	x					
other	x					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) [x] no [ ] yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

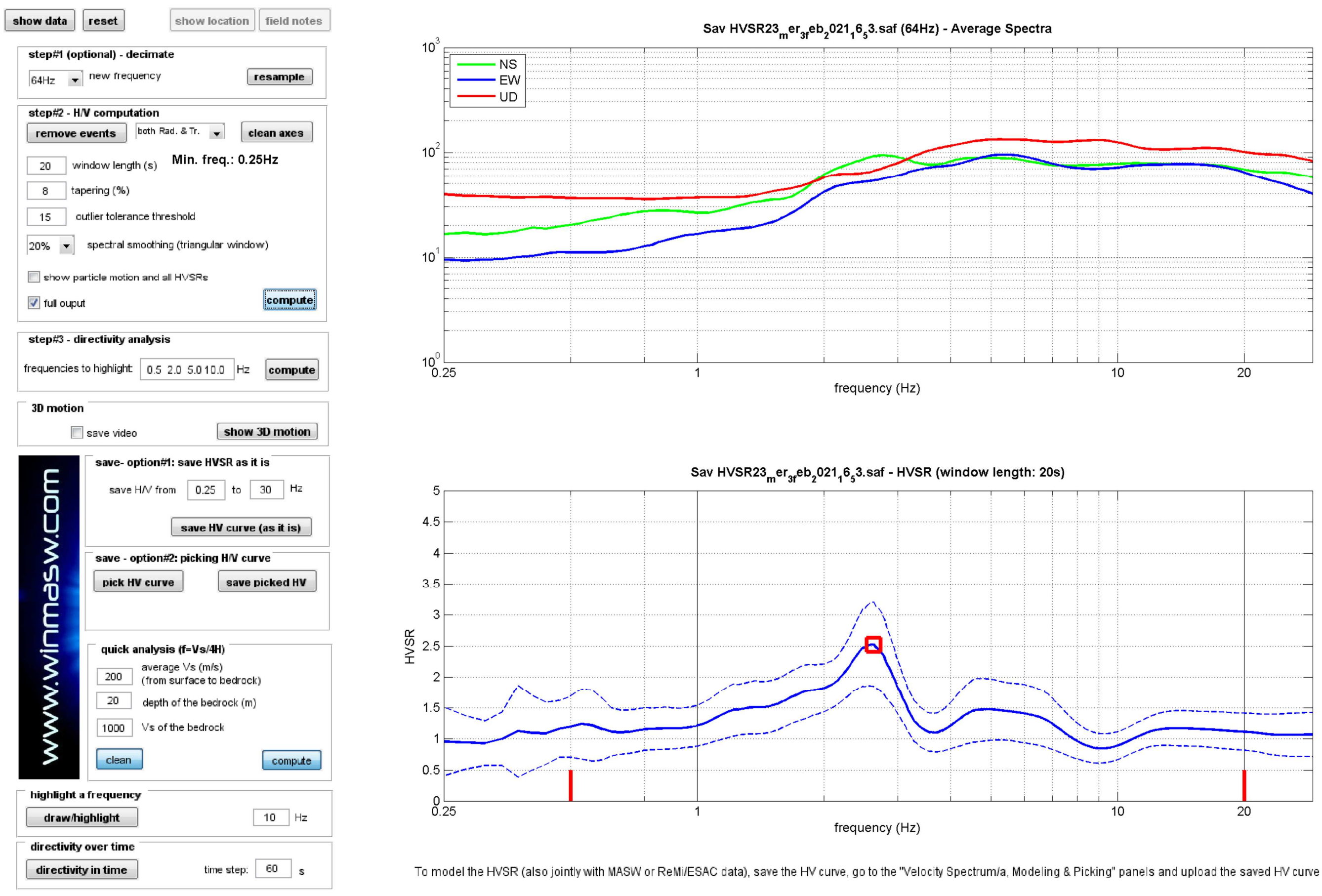
HVSR23

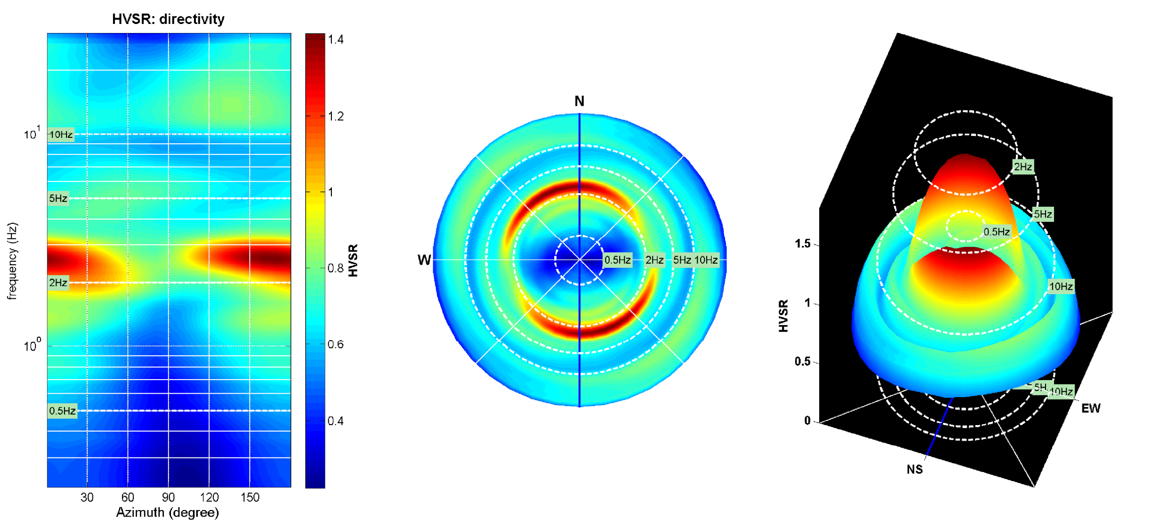
MISURA TIPO A1

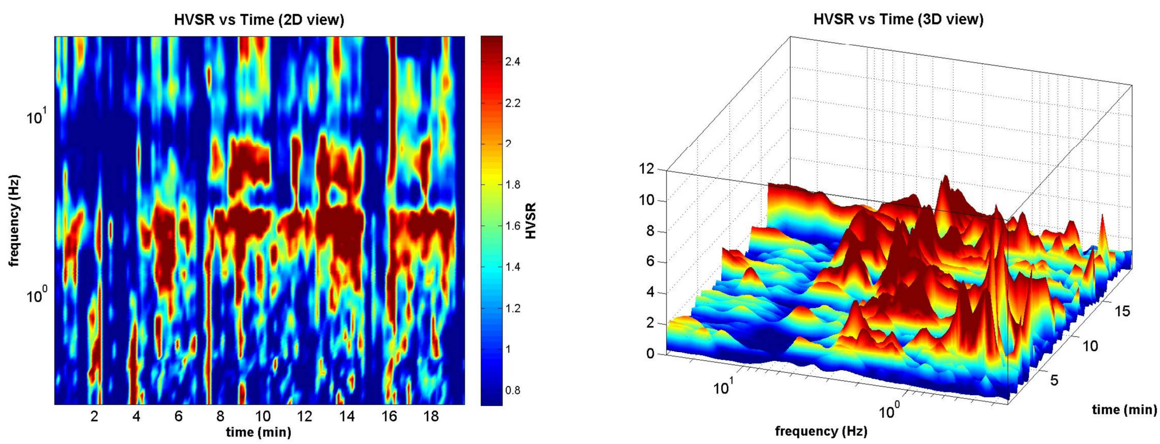
Peak frequency (Hz): 2.6 (±2.6)
Peak HVSR value: 2.5 (±0.7)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 2.628 > 0.5 (OK)
#2. [nc > 200]: 6201 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 0.7Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 3.3Hz (OK)
#3. [A0 > 2]: 2.5 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 2.568 > 0.131 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.675 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20 window length (s)
Min. freq.: 0.25Hz
8 tapering (%)
15 outlier tolerance threshold
20% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Sav HVSR23_m er_3r eb_2 021_1 6_5 3.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR23_m er_3r eb_2 021_1 6_5 3.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR24

DATE 05.02.2021	HOUR 15:32	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4914365	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 213320	ALTITUDE 208 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR24.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 8 Remarks

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ☒ asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ☒ dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☐ scattered ☒ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

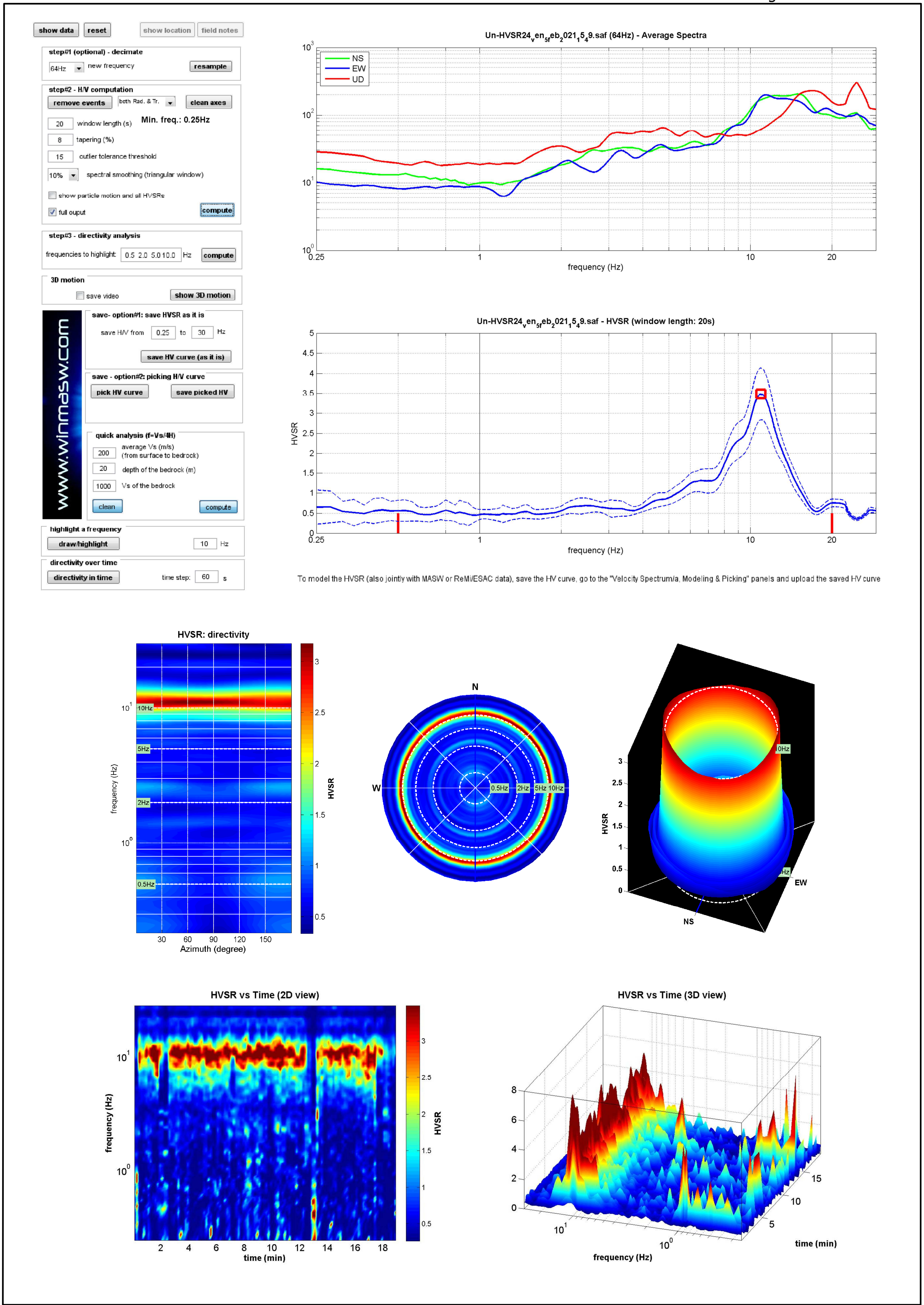
HVSR24

MISURA TIPO A1

Peak frequency (Hz): 10.9 (±2.9)
Peak HVSR value: 3.5 (±0.6)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 10.917 > 0.5 (OK)
#2. [nc > 200]: 24891 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 2.8Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 13.7Hz (OK)
#3. [A0 > 2]: 3.5 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 2.939 > 0.546 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.650 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
Min. freq.: 0.25Hz
20 window length (s)
8 tapering (%)
15 outlier tolerance threshold
10% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.25 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Un-HVSR24_v en_5f eb_2 021_1 5_4 9.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un-HVSR24_v en_5f eb_2 021_1 5_4 9.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR25

DATE 25.03.2021	HOUR 15:01	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4906569	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 210577	ALTITUDE 369 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR25.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any):
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 14 Remarks

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ☐ asphalt ☒ cement ☐ concrete ☐ paved ☐ other
- ☒ dry soil ☐ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians		●				
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

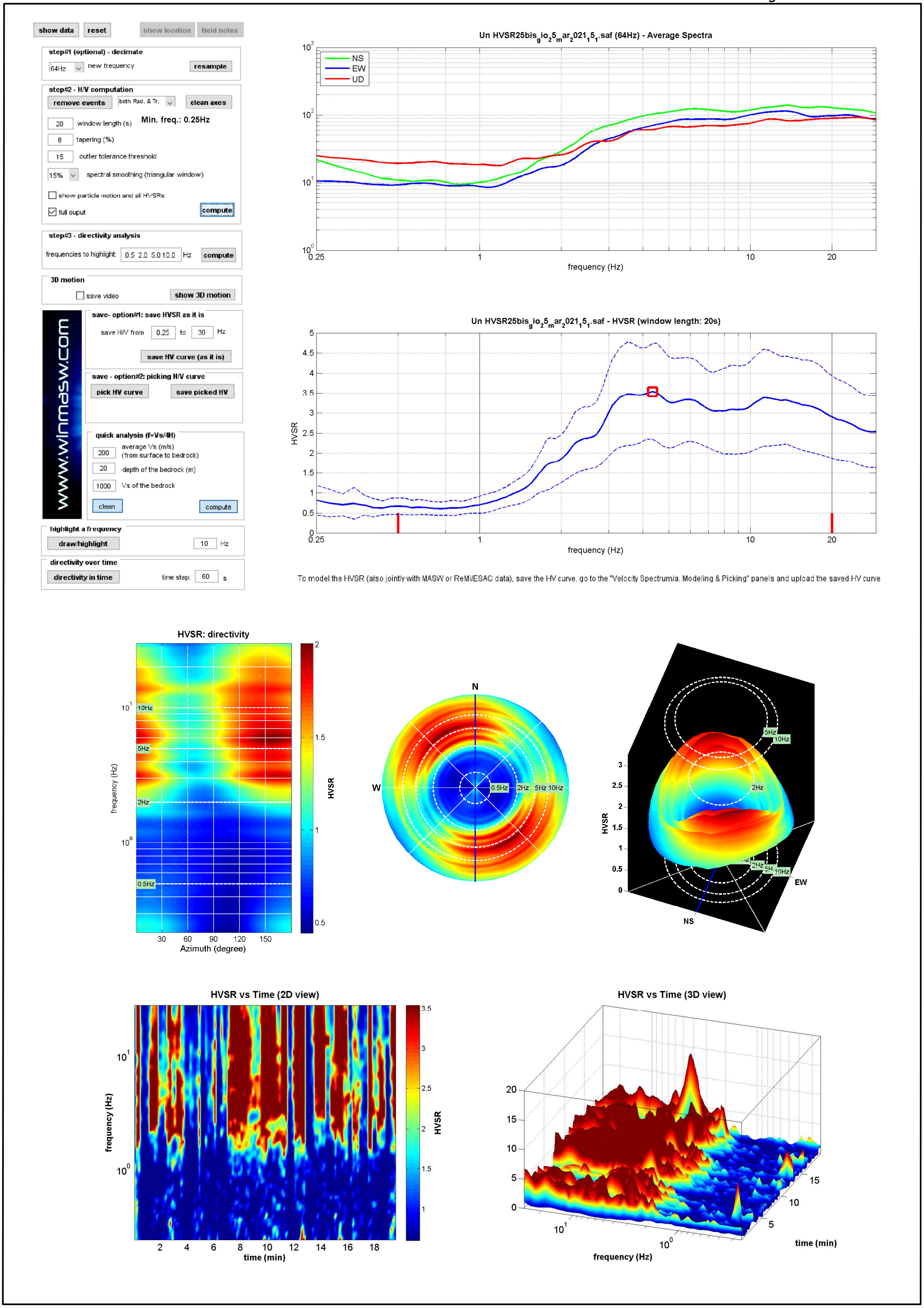
MISURA TIPO B1

HVSR25

Peak frequency (Hz): 4.3 (±4.8)
Peak HVSR value: 3.5 (±1.2)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 4.348 > 0.5 (OK)
#2. [nc > 200]: 10261 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.1Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 3.5 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 4.784 > 0.217 (NO)
#6. [sigmaA(f0) < theta(f0)]: 1.200 < 1.58 (OK)


Un HVSR25bis_g io_2 5_m ar_2 021_1 5_1.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un HVSR25bis_g io_2 5_m ar_2 021_1 5_1.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
step#1 (optional) - decimate
step#2 - H/V computation
Min. freq.: 0.25Hz
step#3 - directivity analysis
3D motion
save- option#1: save HVSR as it is
save - option#2: picking H/V curve
quick analysis (f=Vs/4H)
highlight a frequency
directivity over time
www.winmasw.com
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR26

DATE 25.03.2021	HOUR 15:30	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4906646	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 210450	ALTITUDE 392 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR26.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: [x] none [ ] weak (5m/s) [ ] medium [ ] strong Measurement (if any):
- RAIN: [x] none [ ] weak [ ] medium [ ] strong Measurement (if any):
- Temperature (approx): 13 Remarks

GROUND TYPE
- [ ] earth ([ ] hard [ ] soft) [ ] gravel [ ] sand [ ] rock [ ] grass = ([ ] short [ ] tall)
- [ ] asphalt [x] cement [ ] concrete [ ] paved [ ] other
- [x] dry soil [ ] wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING [x] no [ ] yes, type

BUILDING DENSITY [x] none [ ] scattered [ ] dense [ ] other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
[x] no [ ] yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

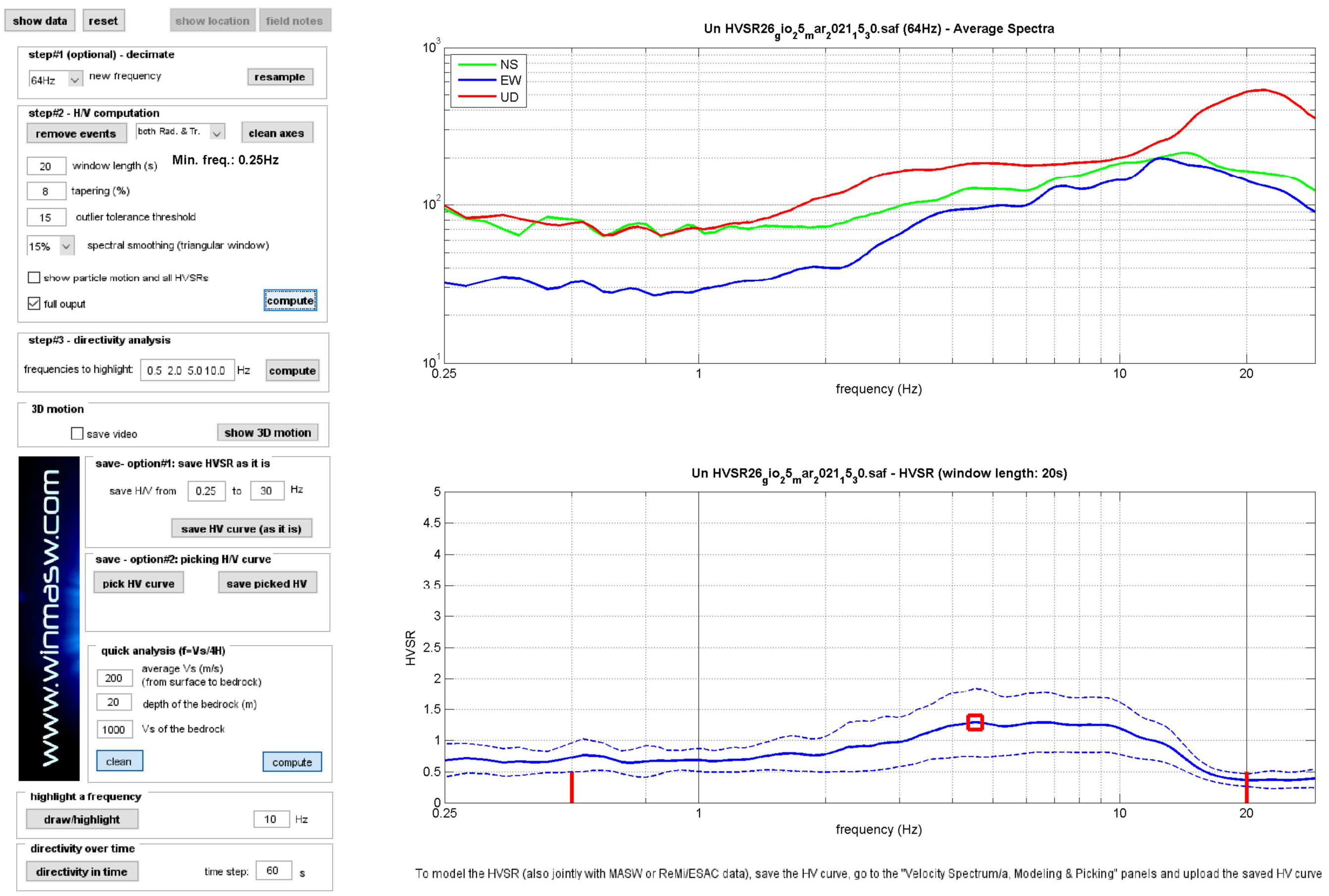
MISURA TIPO A2

HVSR26

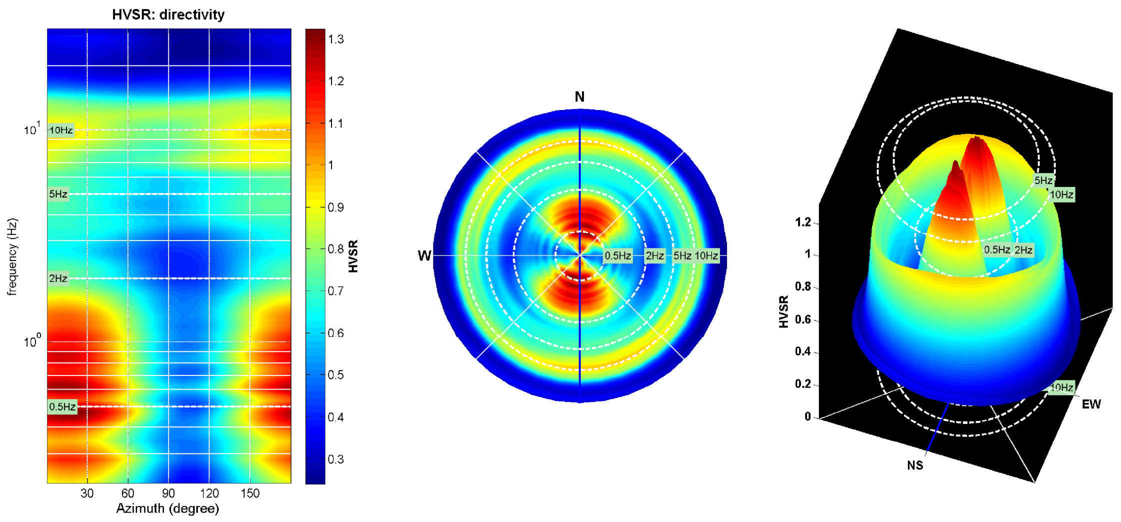
Peak frequency (Hz): 4.5 (±3.4)
Peak HVSR value: 1.3 (±0.6)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 4.536 > 0.5 (OK)
#2. [nc > 200]: 10704 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

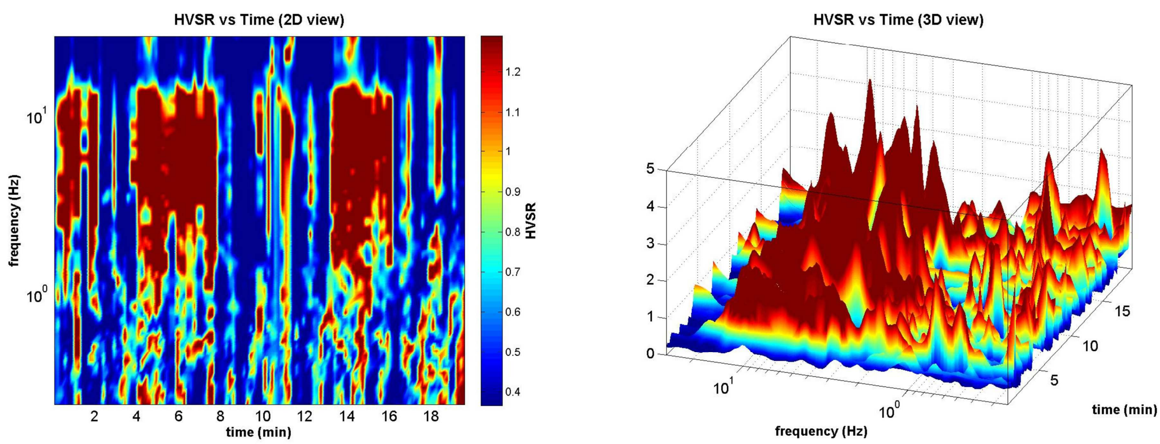
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 1.2Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 14.7Hz (OK)
#3. [A0 > 2]: 1.3 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 3.429 > 0.227 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.551 < 1.58 (OK)



show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
Min. freq.: 0.25Hz
20
window length (s)
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight:
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Un HVSR26_g io_2 5_m ar_2 021_1 5_3 0.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un HVSR26_g io_2 5_m ar_2 021_1 5_3 0.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve



HVSR: directivity
frequency (Hz)
Azimuth (degree)
10Hz
5Hz
2Hz
0.5Hz
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
5Hz
10Hz
0.5Hz
2Hz
NS
EW



HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR27

DATE 25.03.2021	HOUR 13:44	PLACE Monterenzio (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4906651	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 210879	ALTITUDE 337 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR27.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND ☒ none ☐ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 15 Remarks ______

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ☐ asphalt ☐ cement ☐ concrete ☒ paved ☐ other ______
- ☒ dry soil ☐ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ______

BUILDING DENSITY ☒ none ☐ scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars			●			
trucks		●				
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
☒ no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

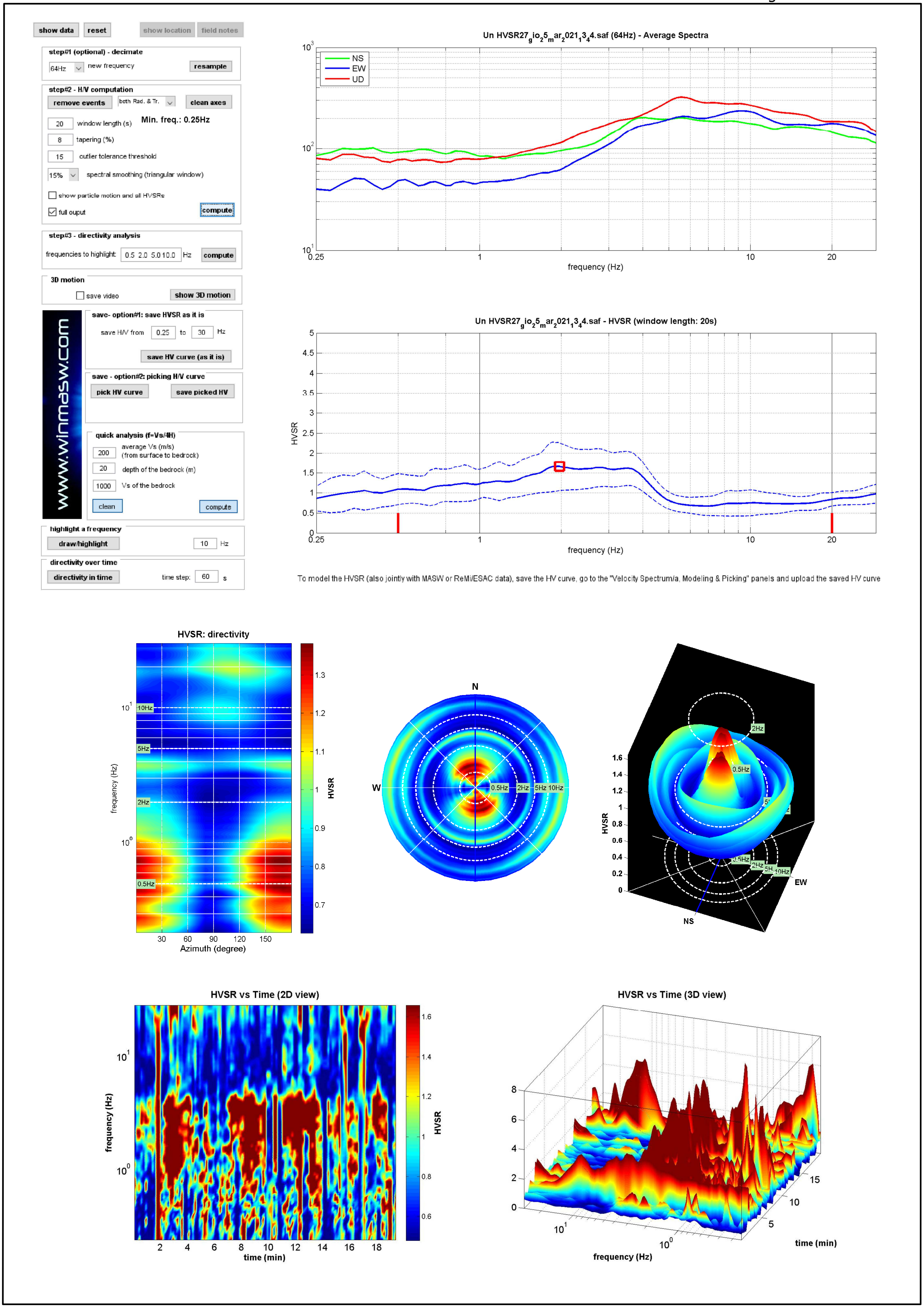
MISURA TIPO A2

HVSR27

Peak frequency (Hz): 2.0 (±3.7)
Peak HVSR value: 1.7 (±0.6)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 1.971 > 0.5 (OK)
#2. [nc > 200]: 4611 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

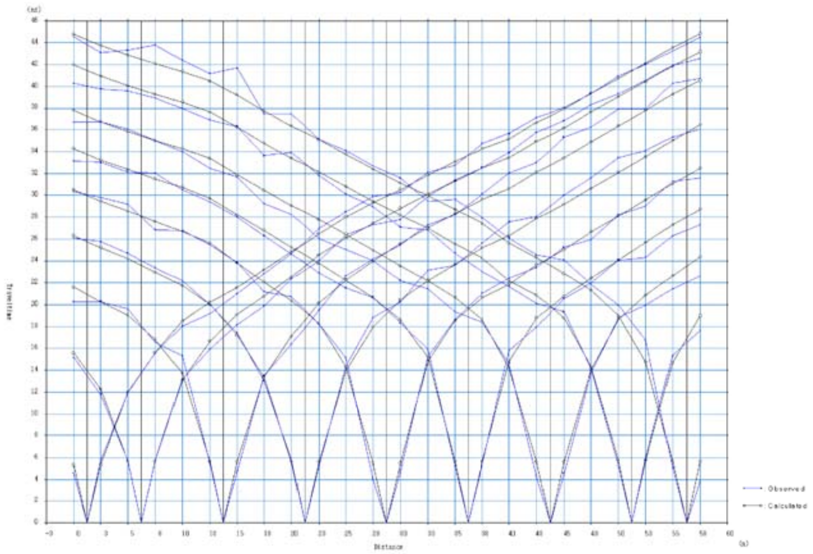
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 0.5Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 5.0Hz (OK)
#3. [A0 > 2]: 1.7 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 3.727 > 0.197 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.601 < 1.78 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
15%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s) (from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Un HVSR27_g io_2 5_m ar_2 021_1 3_4 4.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Un HVSR27_g io_2 5_m ar_2 021_1 3_4 4.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

TOMO6_ms3

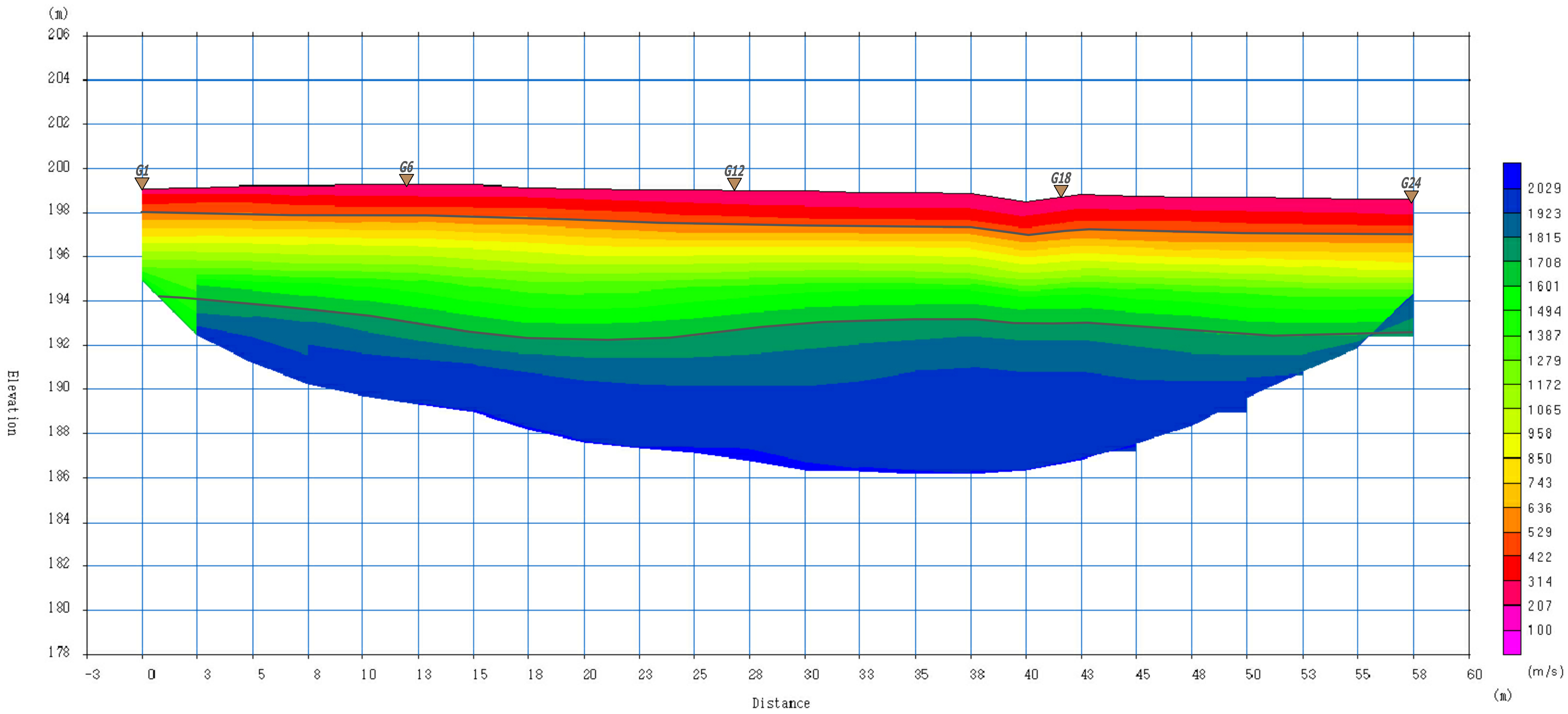
Committente: UNIONE DEI COMUNI SAVENA IDICE
Cimitero - Comune di Monterenzio (BO)

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



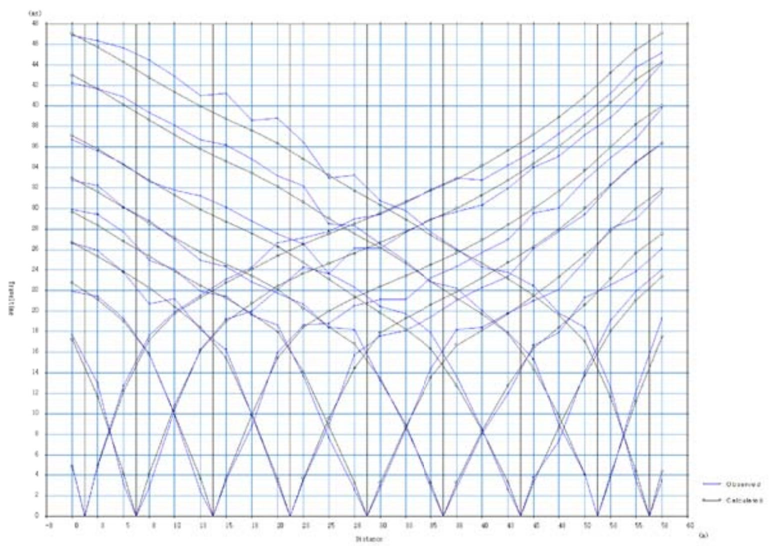
Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO6

GEOLOGICA TOSCANA s.n.c.

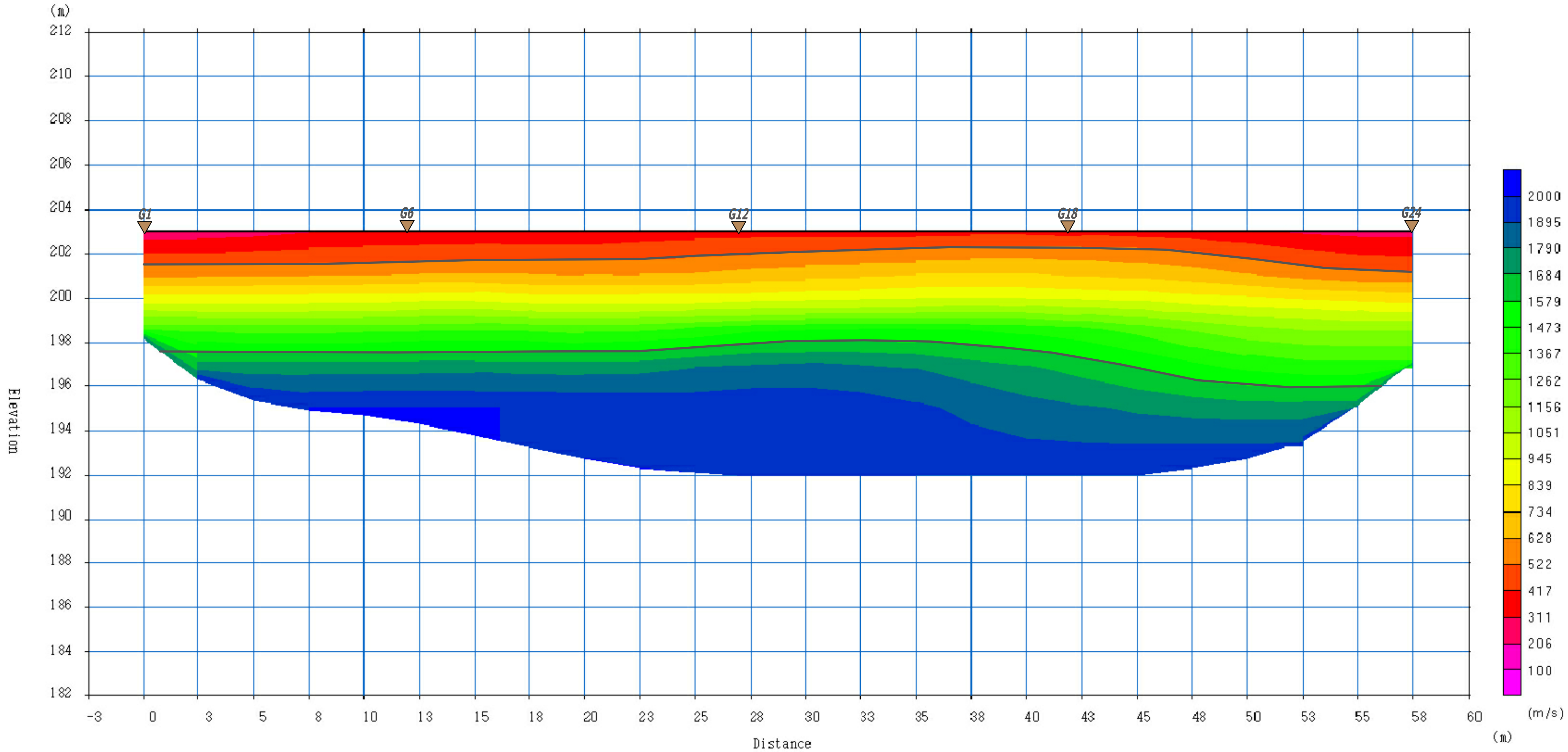
Committente: UNIONE DEI COMUNI SAVENA IDICE
Via del Museo - Comune di Monterenzio (BO)

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



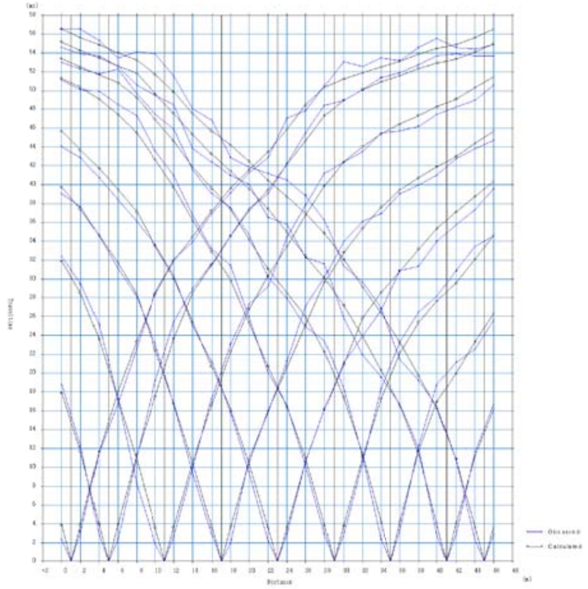
Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA -
TOMO7

GEOLOGICA TOSCANA s.n.c.

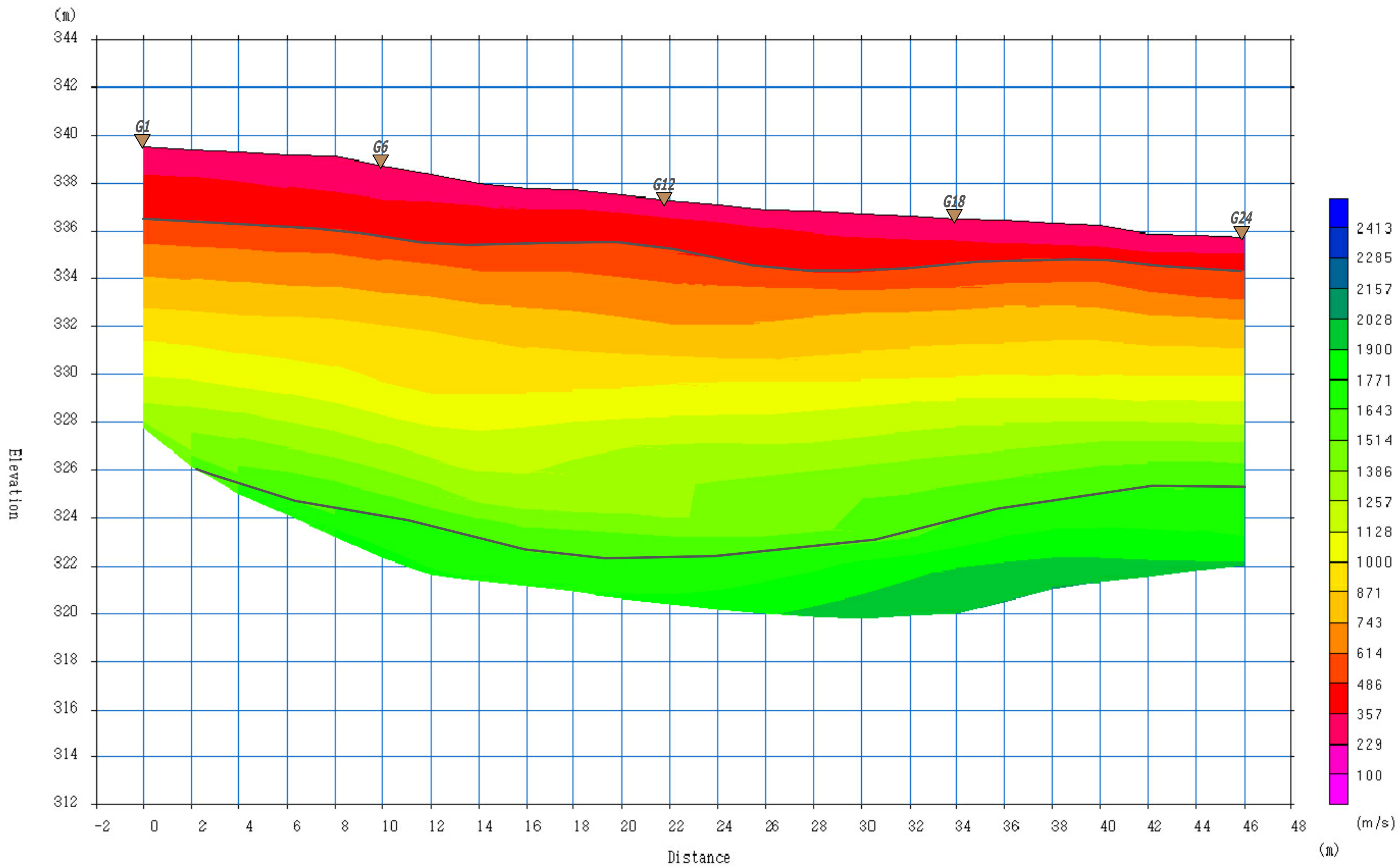
Committente: UNIONE DEI COMUNI SAVENA IDICE
Strada Provinciale 22 - Loc. San Benedetto del Querceto
Comune di Monterenzio (BO)

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



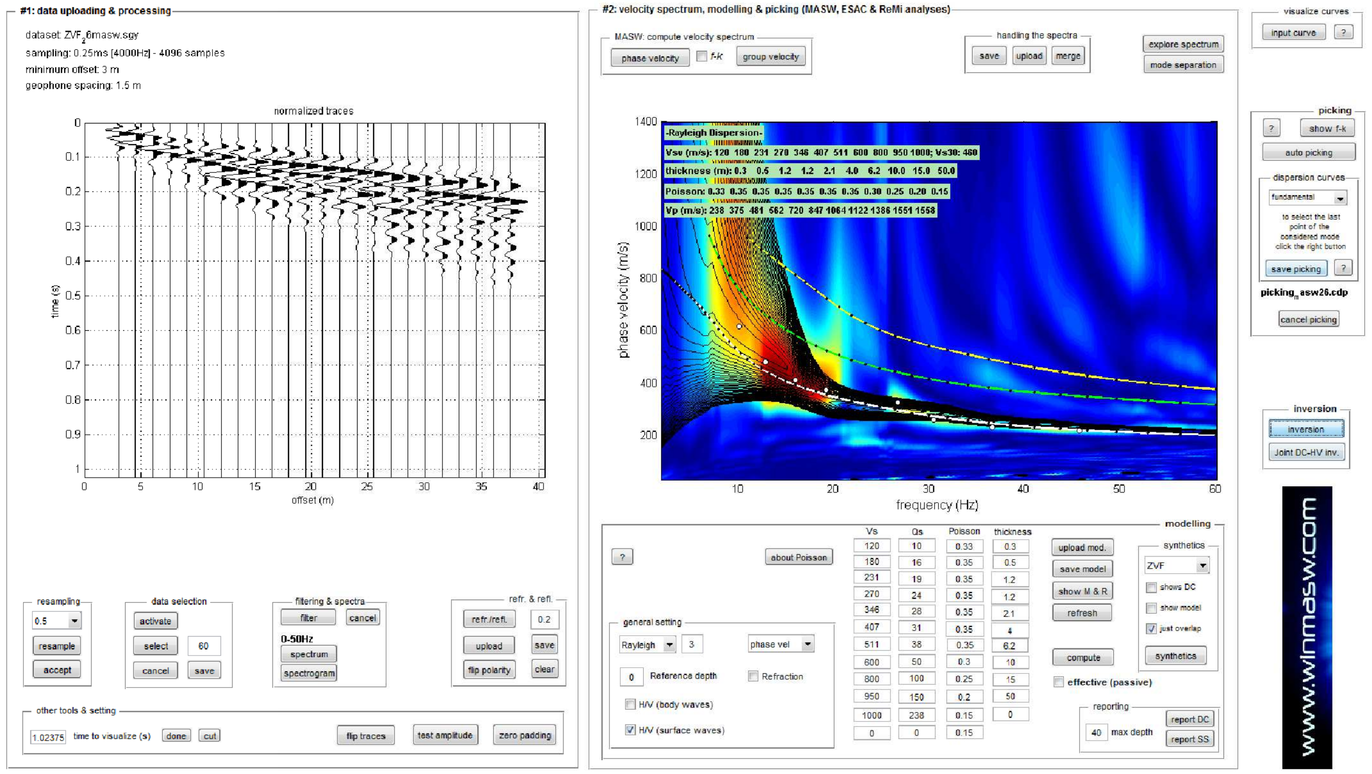
Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO8

GEOLOGICA TOSCANA s.n.c.

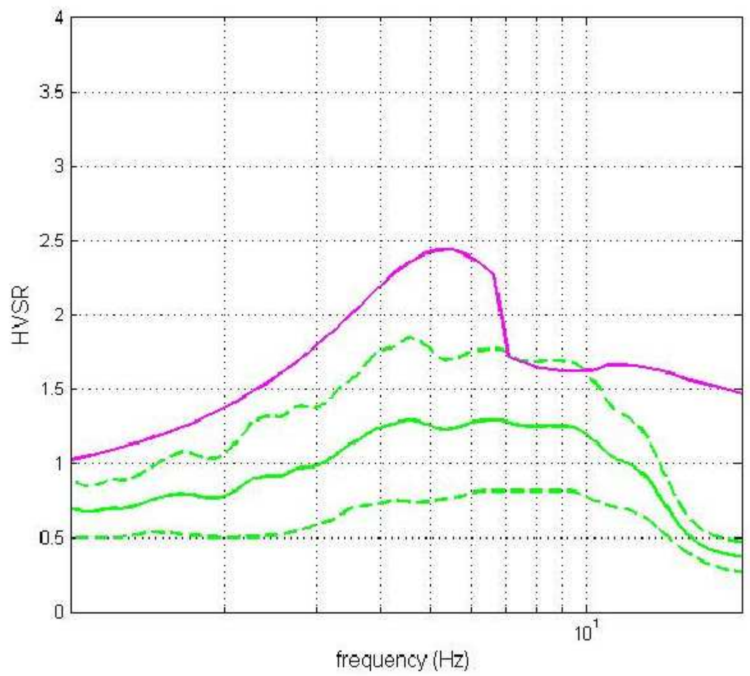
SPETTRO DI VELOCITA' MASW

MASW26_MS3

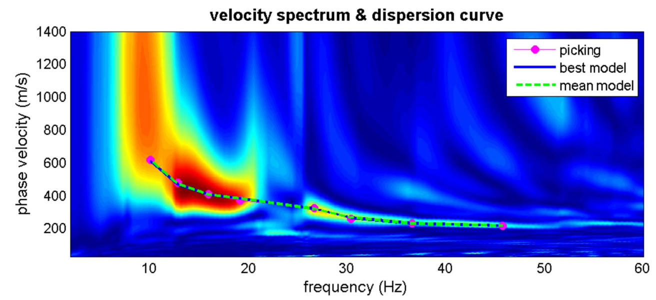


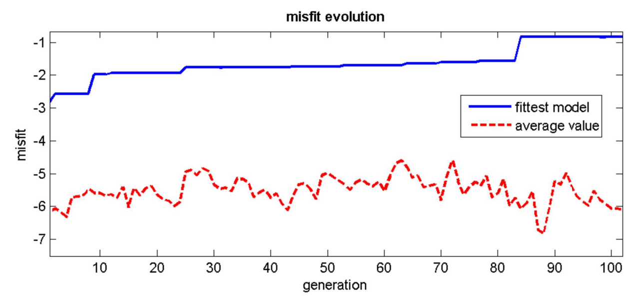
Stendimento MASW 26

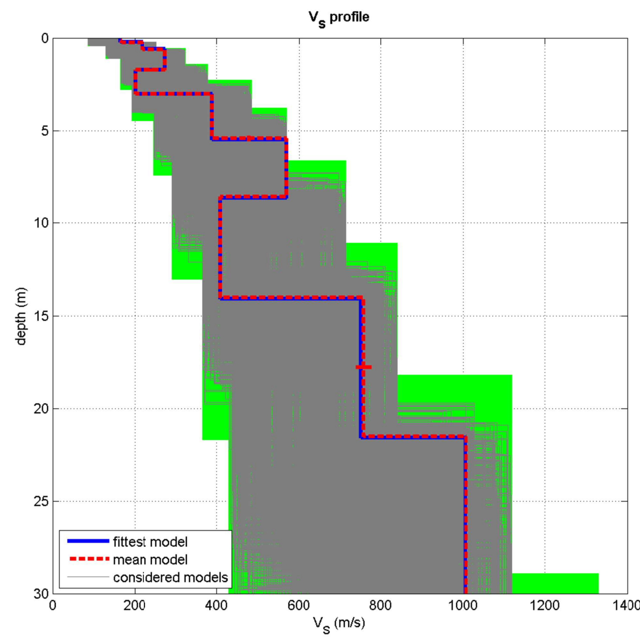
INVERSIONE CONGIUNTA HVSR26 – MASW26



INVERSIONE MASW E PROFILO DI VELOCITA'







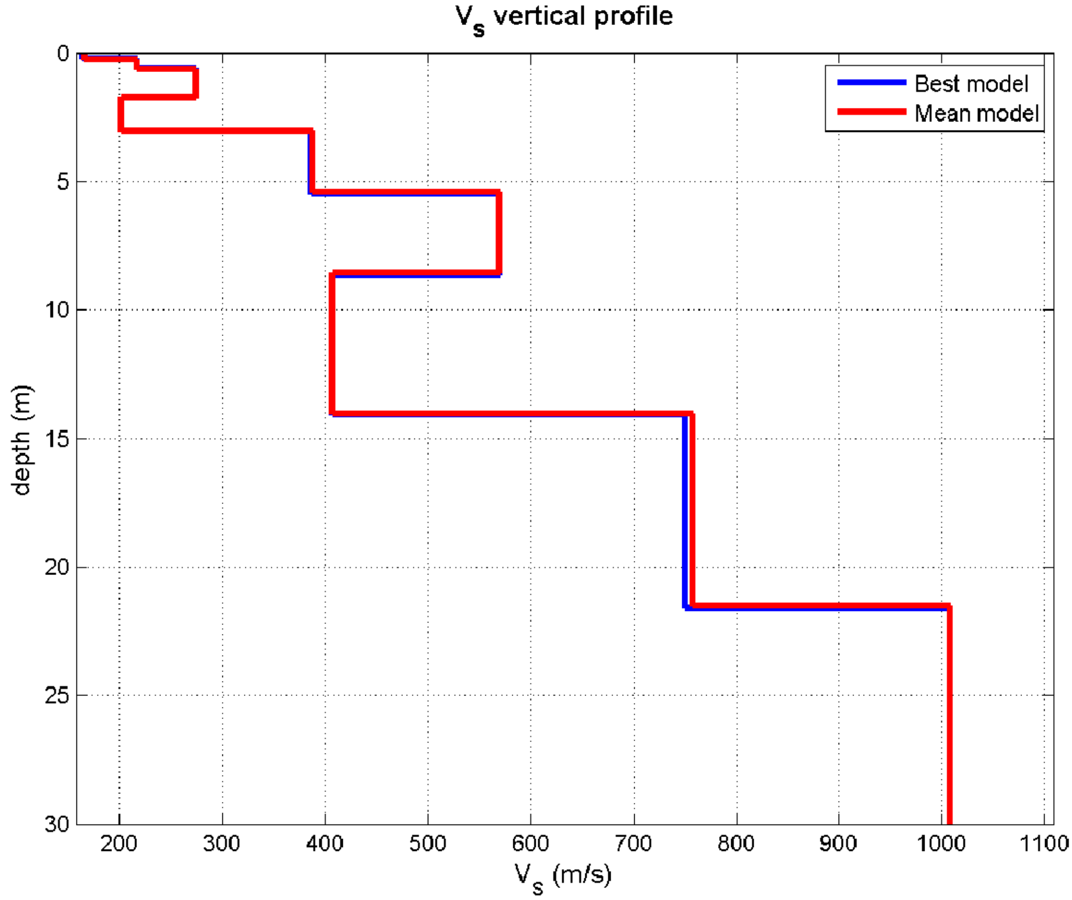
www.winmasw.com

dataset: ZVF_6masw.sgy
dispersion curve: picking_asw26.cdp
Vs30 (best model): 524 m/s
Vs30 (mean model): 526 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 26

PROFILO DI VELOCITA' MASW 26



Vs (m/s):167, 218, 275, 202, 388, 570, 408, 758, 1008, 808, 1400
Standard deviations (m/s):1, 0, 0, 0, 0, 0, 0, 19, 0, 80, 0

Thickness (m):0.3, 0.4, 1.1, 1.3, 2.4, 3.1, 5.5, 7.5, 15.7, 40.8
Standard deviations (m/s):0.1, 0.0, 0.1, 0.0, 0.1, 0.0, 0.0, 0.0, 0.3, 2.8

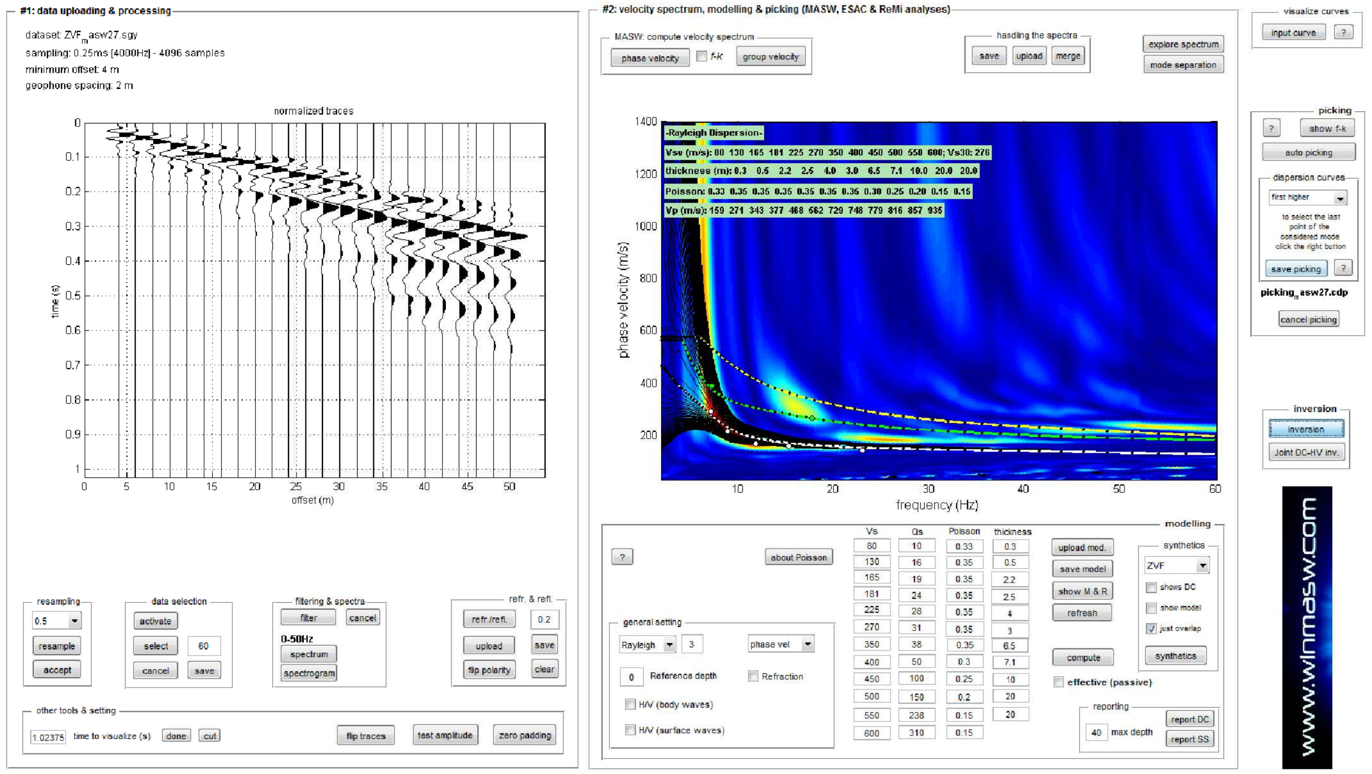
Density (gr/cm3) (approximate values):1.741.821.861.891.992.081.982.122.212.132.24
Seismic/Dynamic Shear modulus (MPa) (approximate values):49861417729967733012212246138943 98

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):277379454498753113675013381906135521 82
Poisson:0.210.250.210.400.320.330.290.260.310.220.15

Vs30 (m/s): 526

GEOLOGICA TOSCANA s.n.c.

SPETTRO DI VELOCITA' MASW

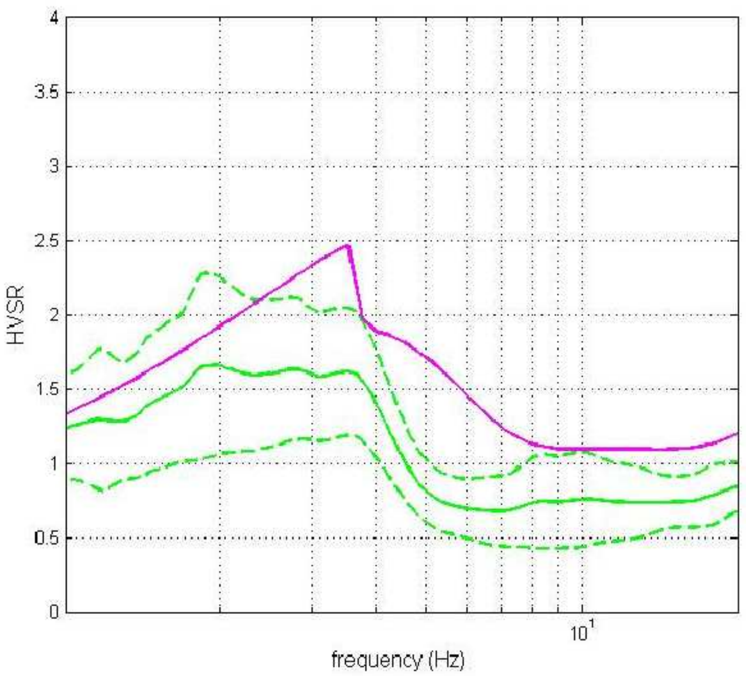


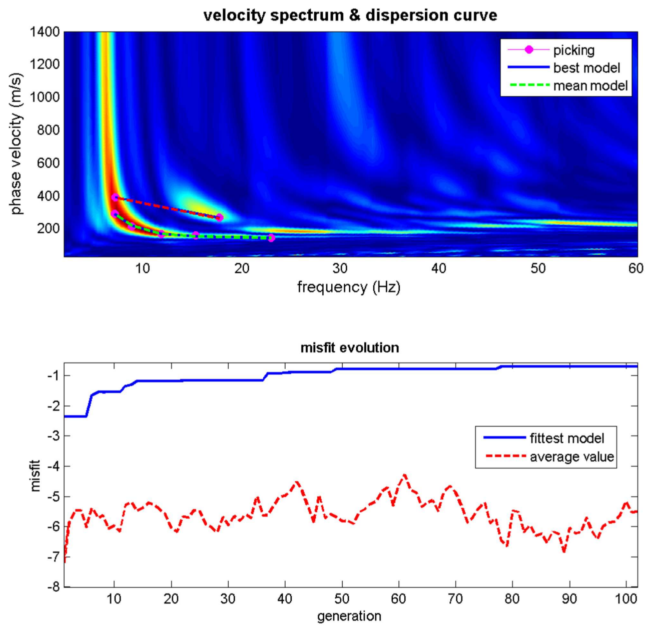
MASW27_MS3

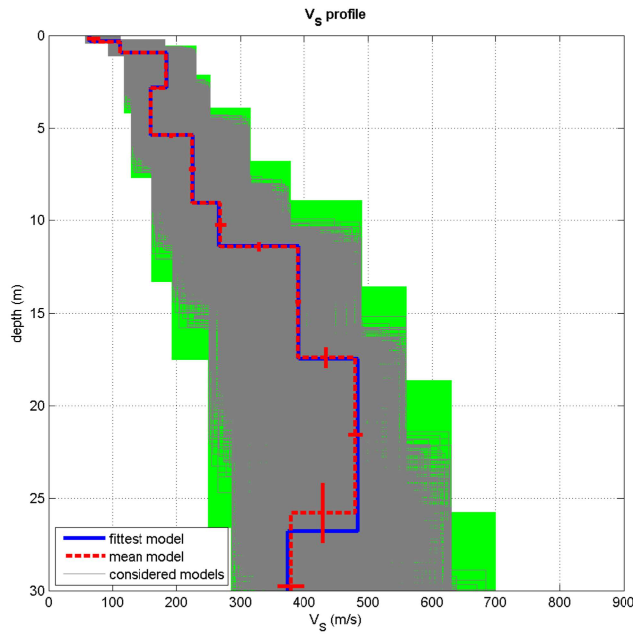
Stendimento MASW 27

INVERSIONE MASW E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR27 – MASW27







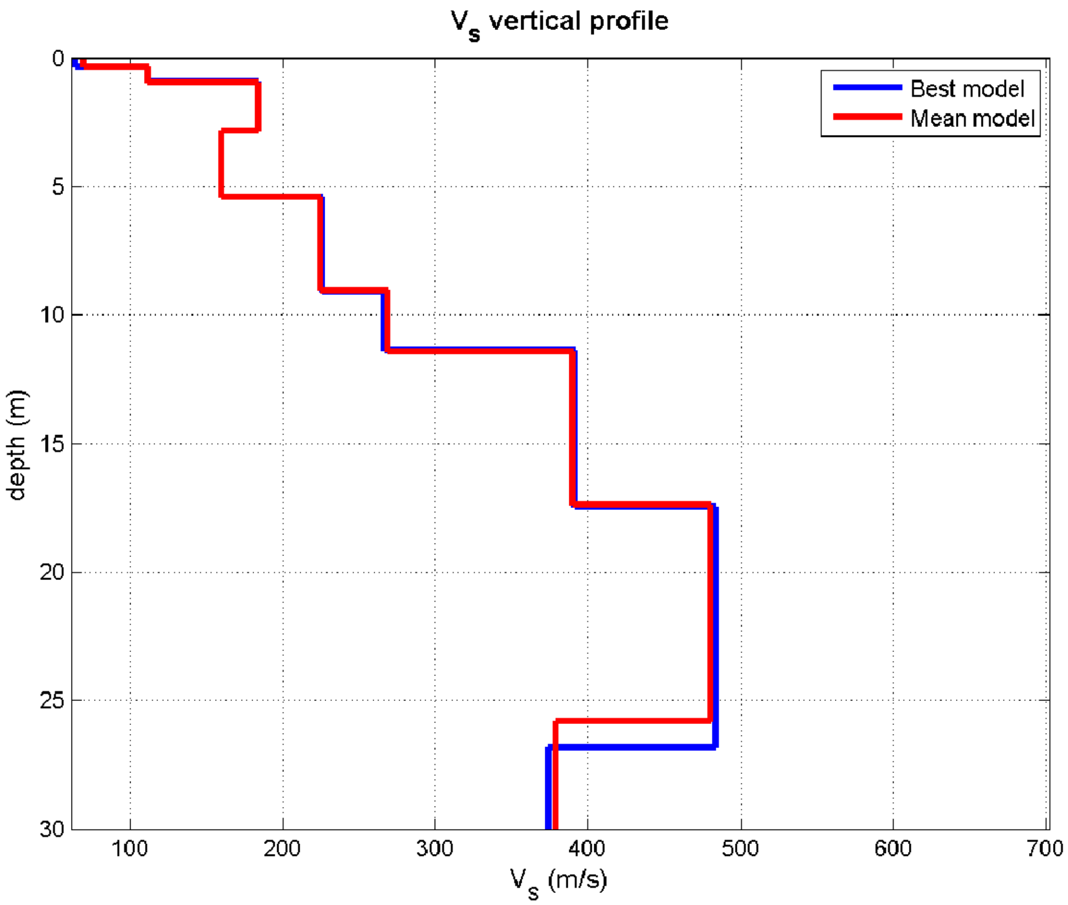
www.winmasw.com

dataset: ZVF$_m$asw27.sgy
dispersion curve: picking$_m$asw27.cdp
Vs30 (best model): 285 m/s
Vs30 (mean model): 284 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 27

PROFILO DI VELOCITA' MASW 27



Vs (m/s):70, 112, 184, 160, 225, 269, 390, 480, 379, 628, 622, 449
Standard deviations (m/s):10, 1, 1, 1, 5, 9, 4, 11, 21, 48, 46, 64

Thickness (m):0.4, 0.6, 1.9, 2.5, 3.7, 2.3, 6.0, 8.4, 7.9, 22.1, 19.0
Standard deviations (m/s):0.0, 0.0, 0.0, 0.1, 0.0, 0.2, 0.5, 1.6, 0.5, 1.3, 0.9

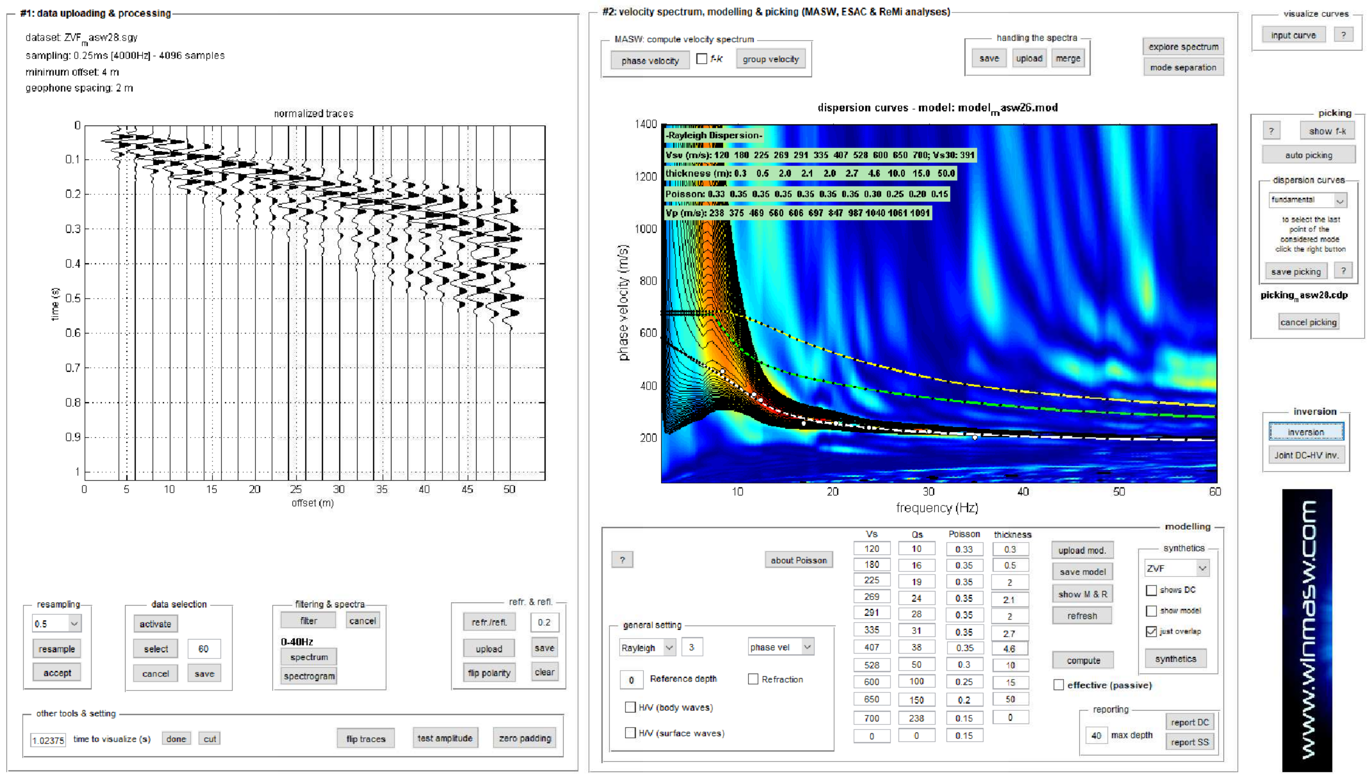
Density (gr/cm3) (approximate values):1.581.661.811.741.821.982.012.041.942.072.051.97
Seismic/Dynamic Shear modulus (MPa) (approximate values):821614492144305470279816793397

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1391963642683837488189496311069988700
Poisson:0.330.260.330.220.240.430.350.330.220.240.170.15

Vs30 (m/s): 284

GEOLOGICA TOSCANA s.n.c.

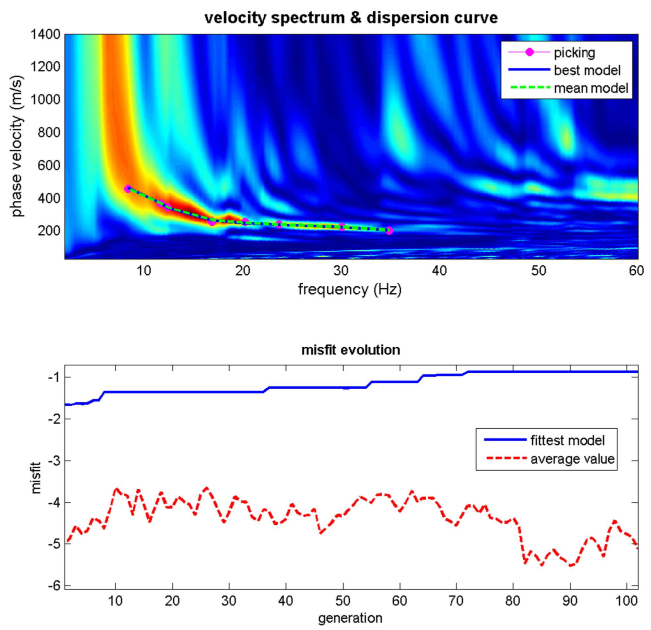
SPETTRO DI VELOCITA' MASW

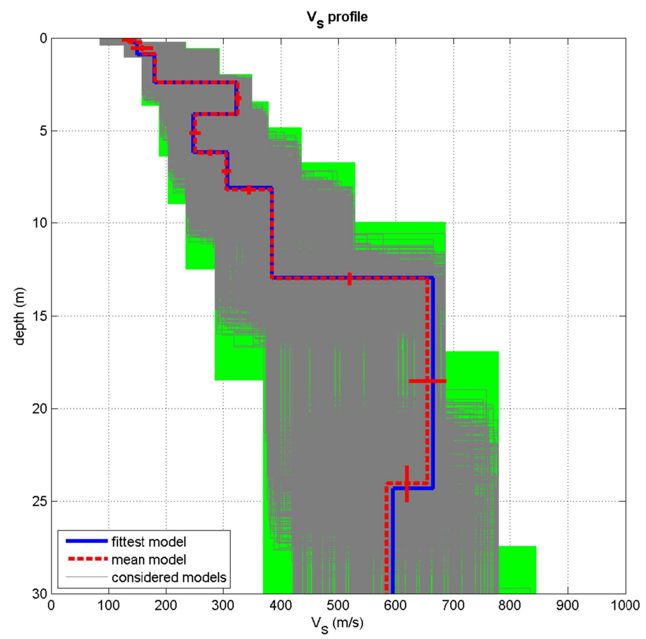


MASW28_MS3

Stendimento MASW 28

INVERSIONE MASW E PROFILO DI VELOCITA'





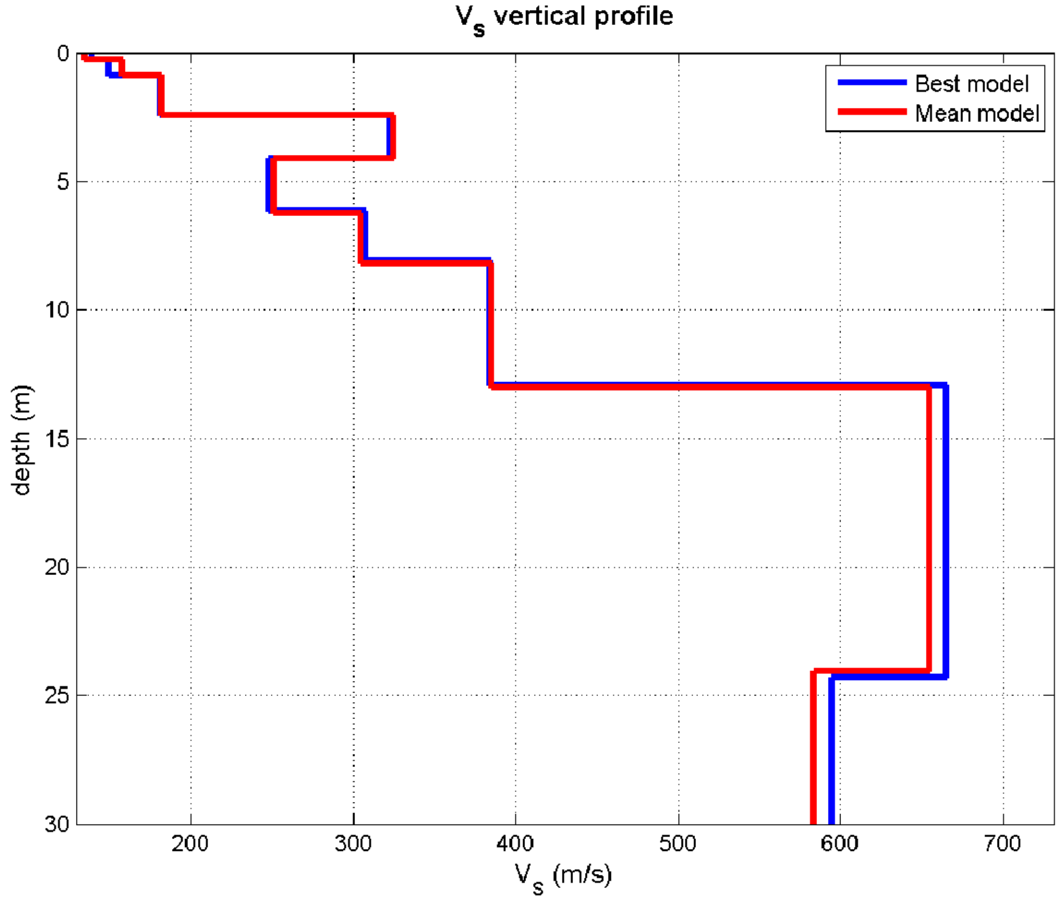
www.winmasw.com

dataset: ZVF_m asw28.sgy
dispersion curve: picking_m asw28.cdp
Vs30 (best model): 408 m/s
Vs30 (mean model): 406 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 28

PROFILO DI VELOCITA' MASW 28



Vs (m/s):135, 158, 182, 325, 251, 305, 385, 655, 584, 568, 751
Standard deviations (m/s):12, 19, 1, 6, 9, 8, 0, 32, 60, 66, 53

Thickness (m):0.3, 0.6, 1.5, 1.7, 2.1, 2.0, 4.8, 11.1, 16.4, 53.5
Standard deviations (m/s):0.0, 0.0, 0.0, 0.0, 0.2, 0.2, 0.3, 1.0, 1.5, 8.7

Density (gr/cm3) (approximate values):1.761.791.872.021.881.921.982.092.062.032.10
Seismic/Dynamic Shear modulus (MPa) (approximate values):3245622141181782938997026541183

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):295338471880483570732118310219011195
Poisson:0.370.360.410.420.320.300.310.280.260.170.17

Vs30 (m/s): 406

GEOLOGICA TOSCANA s.n.c.

REPORT DELLE INDAGINI GEOFISICHE E GEOGNOSTICHE

Comune di Monghidoro

Geologica Toscana snc
Viale Marconi 106 - 53036 - Poggibonsi (SI)
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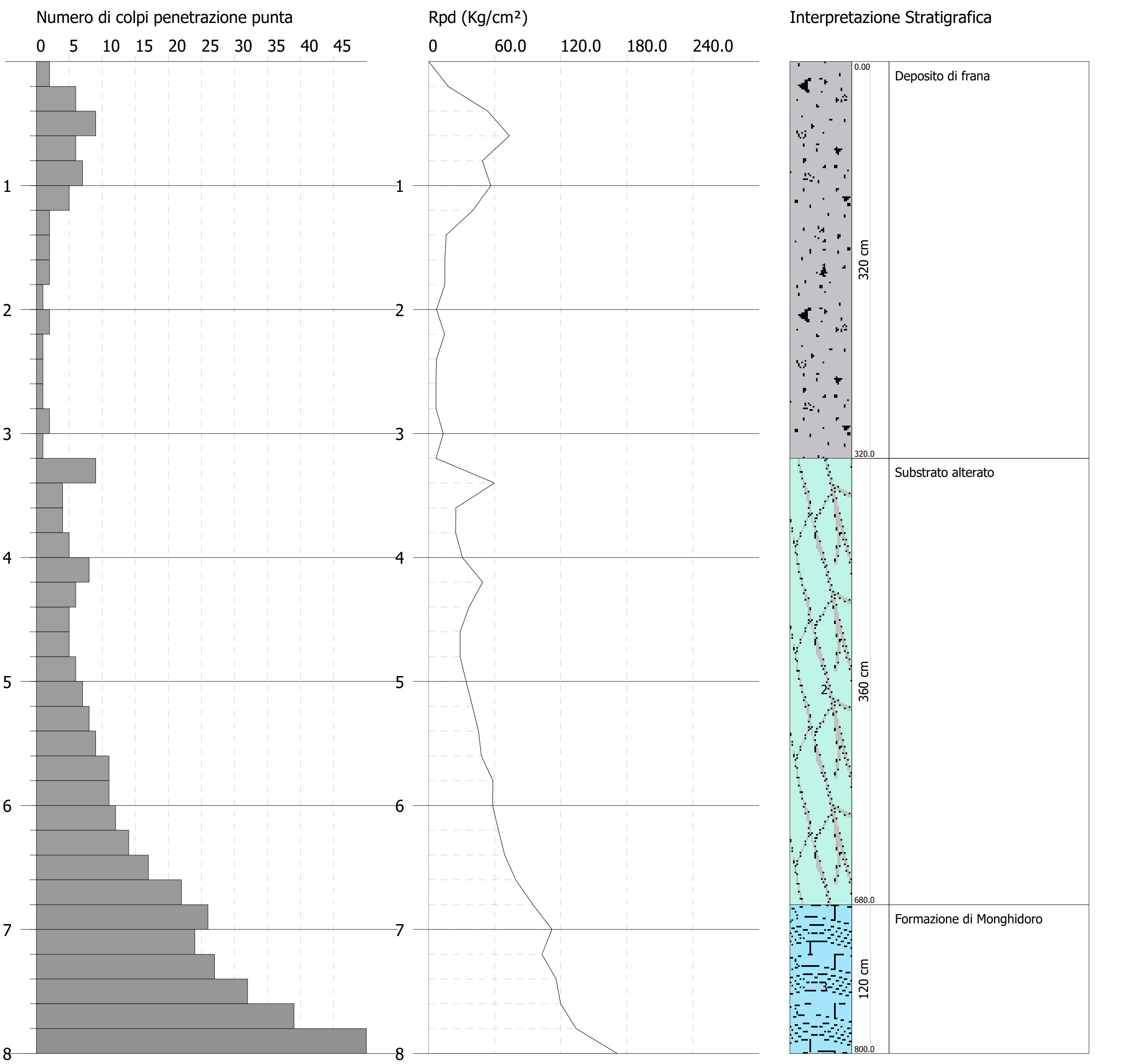
DPSH17_ms3

PROVA PENETROMETRICA DINAMICA Nr.17
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 17

PROVA DPSH Nr.17

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 8.00 mt
Falda non rilevata
Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	2	0.855	17.96	21.01	0.90	1.05
0.40	6	0.851	53.64	63.04	2.68	3.15
0.60	9	0.847	73.51	86.79	3.68	4.34
0.80	6	0.843	48.80	57.86	2.44	2.89
1.00	7	0.840	56.69	67.50	2.83	3.38
1.20	5	0.836	40.32	48.22	2.02	2.41
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	2	0.830	14.78	17.82	0.74	0.89
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	1	0.817	7.28	8.91	0.36	0.45
2.60	1	0.814	6.74	8.28	0.34	0.41
2.80	1	0.811	6.72	8.28	0.34	0.41
3.00	2	0.809	13.39	16.56	0.67	0.83
3.20	1	0.806	6.68	8.28	0.33	0.41
3.40	9	0.803	59.88	74.54	2.99	3.73
3.60	4	0.801	24.78	30.94	1.24	1.55
3.80	4	0.798	24.70	30.94	1.24	1.55
4.00	5	0.796	30.79	38.68	1.54	1.93
4.20	8	0.794	49.12	61.88	2.46	3.09
4.40	6	0.791	36.73	46.41	1.84	2.32
4.60	5	0.789	28.64	36.28	1.43	1.81
4.80	5	0.787	28.56	36.28	1.43	1.81
5.00	6	0.785	34.18	43.54	1.71	2.18
5.20	7	0.783	39.78	50.80	1.99	2.54
5.40	8	0.781	45.34	58.06	2.27	2.90
5.60	9	0.779	47.92	61.51	2.40	3.08
5.80	11	0.777	58.43	75.18	2.92	3.76
6.00	11	0.775	58.30	75.18	2.91	3.76
6.20	12	0.774	63.45	82.01	3.17	4.10

Prova n. 17

6.40	14	0.722	69.08	95.68	3.45	4.78
6.60	17	0.720	79.08	109.78	3.95	5.49
6.80	22	0.669	95.01	142.07	4.75	7.10
7.00	26	0.667	112.02	167.90	5.60	8.40
7.20	24	0.666	103.17	154.99	5.16	7.75
7.40	27	0.664	115.80	174.36	5.79	8.72
7.60	32	0.613	120.01	195.87	6.00	9.79
7.80	39	0.561	133.99	238.71	6.70	11.94
8.00	50	0.560	171.36	306.04	8.57	15.30

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.2	3.12	29.78	Incoerente - coesivo	0	1.74	1.87	0.28	1.47	4.59	Deposito di frana
6.8	9.06	63.88	Incoerente - coesivo	0	2.04	2.24	0.92	1.47	13.32	Substrato alterato
8	33	206.31	Incoerente - coesivo	0	2.5	2.5	1.44	1.47	48.51	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.17

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	4.59	3.20	0.29	0.57	0.25	0.19	0.45	0.89	0.42	0.78	0.23	0.42	0.57
[2] - Substrato alterato	13.32	6.80	0.90	1.67	0.50	0.53	1.31	1.92	1.16	1.48	0.67	1.39	1.67
[3] - Formazione di Monghidoro	48.51	8.00	3.27	6.06	0.00	1.71	4.85	6.19	3.60	5.29	2.43	7.23	6.06

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.59	3.20	Robertson (1983)	9.18
[2] - Substrato alterato	13.32	6.80	Robertson (1983)	26.64
[3] - Formazione di Monghidoro	48.51	8.00	Robertson (1983)	97.02

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	4.59	3.20	21.06	68.85	48.61	57.38
[2] - Substrato alterato	13.32	6.80	61.11	--	137.65	133.20
[3] - Formazione di Monghidoro	48.51	8.00	222.56	--	496.56	485.10

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	4.59	3.20	32.39	45.90
[2] - Substrato alterato	13.32	6.80	132.78	133.20
[3] - Formazione di Monghidoro	48.51	8.00	537.47	485.10

Prova n. 17

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	4.59	3.20	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato alterato	13.32	6.80	A.G.I. (1977)	CONSISTENTE
[3] - Formazione di Monghidoro	48.51	8.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	4.59	3.20	Meyerhof	1.74
[2] - Substrato alterato	13.32	6.80	Meyerhof	2.04
[3] - Formazione di Monghidoro	48.51	8.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	4.59	3.20	Meyerhof	1.87
[2] - Substrato alterato	13.32	6.80	Meyerhof	2.24
[3] - Formazione di Monghidoro	48.51	8.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.59	3.20		0
[2] - Substrato alterato	13.32	6.80		0
[3] - Formazione di Monghidoro	48.51	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	4.59	3.20	20.08	45.48	49.57	19.73
[2] - Substrato alterato	13.32	6.80	31.32	60.14	60.24	39.87
[3] - Formazione di Monghidoro	48.51	8.00	54.49	99.96	99.46	79.13

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	4.59	3.20	4.59	28.31	21.31	29.29	30.25	31.5	0	<30	23.3	28.38	31.25	24.58
[2] - Substrato alterato	13.32	6.80	13.32	30.81	23.81	31.73	29.37	34.89	36.42	30-32	29.14	31	38.09	31.32
[3] - Formazione di Monghidoro	48.51	8.00	48.51	40.86	33.86	41.58	30.49	42.37	41.99	35-38	41.97	41.55	47.41	46.15

Prova n. 17

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	4.59	3.20	4.59	---	36.72	---	---	---
[2] - Substrato alterato	13.32	6.80	13.32	260.51	106.56	157.88	279.90	141.60
[3] - Formazione di Monghidoro	48.51	8.00	48.51	497.15	388.08	573.12	543.83	317.55

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	4.59	3.20	4.59	---	36.89	32.59	58.47
[2] - Substrato alterato	13.32	6.80	13.32	79.92	54.82	94.57	97.41
[3] - Formazione di Monghidoro	48.51	8.00	48.51	291.06	127.11	344.42	254.35

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	4.59	3.20	4.59	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato alterato	13.32	6.80	13.32	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	48.51	8.00	48.51	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	4.59	3.20	4.59	Meyerhof et al.	1.52
[2] - Substrato alterato	13.32	6.80	13.32	Meyerhof et al.	1.83
[3] - Formazione di Monghidoro	48.51	8.00	48.51	Meyerhof et al.	2.23

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	4.59	3.20	4.59	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	13.32	6.80	13.32	Terzaghi-Peck 1948-1967	1.94
[3] - Formazione di Monghidoro	48.51	8.00	48.51	Terzaghi-Peck 1948-1967	2.16

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	4.59	3.20	4.59	(A.G.I.)	0.34
[2] - Substrato alterato	13.32	6.80	13.32	(A.G.I.)	0.33
[3] - Formazione di Monghidoro	48.51	8.00	48.51	(A.G.I.)	0.26

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	4.59	3.20	4.59	272.28	317.16
[2] - Substrato alterato	13.32	6.80	13.32	741.22	608.11
[3] - Formazione di Monghidoro	48.51	8.00	48.51	2498.01	1339.53

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.59	3.20	4.59	Ohta & Goto (1978) Limi	97.5
[2] - Substrato alterato	13.32	6.80	13.32	Ohta & Goto (1978) Limi	146.07
[3] - Formazione di Monghidoro	48.51	8.00	48.51	Ohta & Goto (1978) Limi	197.03

Prova n. 17

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	4.59	3.20	4.59	Seed e Idriss (1971)	--
[2] - Substrato alterato	13.32	6.80	13.32	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	48.51	8.00	48.51	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	4.59	3.20	4.59		---
[2] - Substrato alterato	13.32	6.80	13.32		---
[3] - Formazione di Monghidoro	48.51	8.00	48.51		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.59	3.20	4.59		---
[2] - Substrato alterato	13.32	6.80	13.32		---
[3] - Formazione di Monghidoro	48.51	8.00	48.51		---

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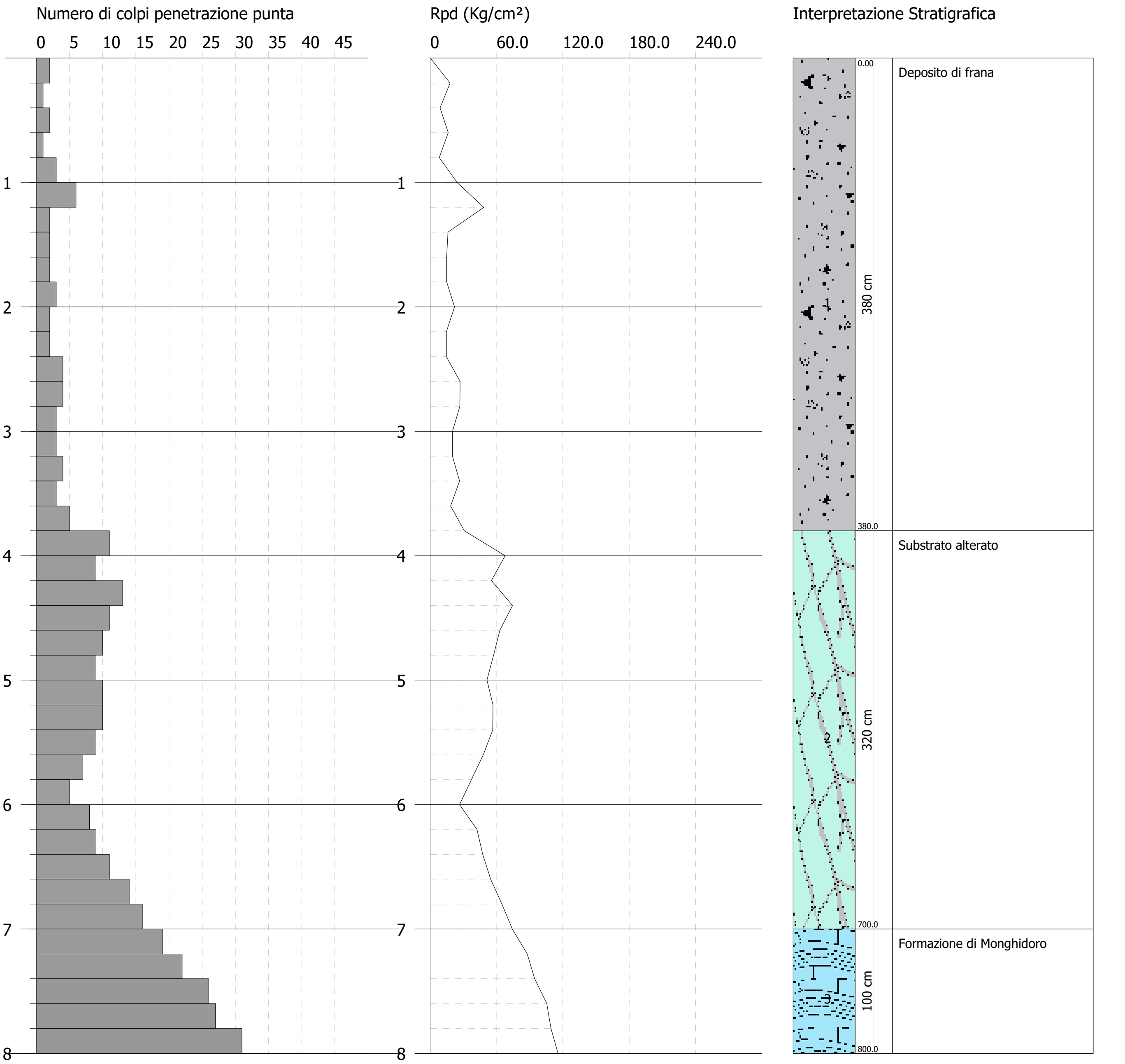
DPSH18_ms3

PROVA PENETROMETRICA DINAMICA Nr.18
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 18

PROVA DPSH Nr.18

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 8.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	2	0.855	17.96	21.01	0.90	1.05
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	6	0.836	48.39	57.86	2.42	2.89
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	2	0.830	14.78	17.82	0.74	0.89
1.80	2	0.826	14.73	17.82	0.74	0.89
2.00	3	0.823	22.01	26.73	1.10	1.34
2.20	2	0.820	14.62	17.82	0.73	0.89
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	4	0.814	26.97	33.13	1.35	1.66
2.80	4	0.811	26.88	33.13	1.34	1.66
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	3	0.806	20.03	24.85	1.00	1.24
3.40	4	0.803	26.61	33.13	1.33	1.66
3.60	3	0.801	18.59	23.21	0.93	1.16
3.80	5	0.798	30.88	38.68	1.54	1.93
4.00	11	0.796	67.73	85.09	3.39	4.25
4.20	9	0.794	55.26	69.62	2.76	3.48
4.40	13	0.741	74.56	100.56	3.73	5.03
4.60	11	0.789	63.00	79.83	3.15	3.99
4.80	10	0.787	57.12	72.57	2.86	3.63
5.00	9	0.785	51.27	65.31	2.56	3.27
5.20	10	0.783	56.82	72.57	2.84	3.63
5.40	10	0.781	56.68	72.57	2.83	3.63
5.60	9	0.779	47.92	61.51	2.40	3.08
5.80	7	0.777	37.18	47.84	1.86	2.39
6.00	5	0.775	26.50	34.17	1.32	1.71

Prova n. 18

6.20	8	0.774	42.30	54.67	2.12	2.73
6.40	9	0.772	47.48	61.51	2.37	3.08
6.60	11	0.770	54.72	71.04	2.74	3.55
6.80	14	0.719	64.98	90.41	3.25	4.52
7.00	16	0.717	74.10	103.33	3.71	5.17
7.20	19	0.716	87.81	122.70	4.39	6.13
7.40	22	0.664	94.36	142.07	4.72	7.10
7.60	26	0.663	105.46	159.14	5.27	7.96
7.80	27	0.661	109.29	165.26	5.46	8.26
8.00	31	0.610	115.73	189.75	5.79	9.49

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.8	2.84	25.03	Incoerente - coesivo	0	1.71	1.87	0.32	1.47	4.17	Deposito di frana
7	10.12	71.41	Incoerente - coesivo	0	2.06	2.27	0.98	1.47	14.88	Substrato alterato
8	25	155.78	Incoerente - coesivo	0	2.35	2.5	1.43	1.47	36.75	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.18

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	4.17	3.80	0.26	0.52	0.25	0.17	0.41	0.75	0.38	0.74	0.21	0.28	0.52
[2] - Substrato alterato	14.88	7.00	1.00	1.86	0.50	0.59	1.47	2.14	1.29	1.61	0.74	1.63	1.86
[3] - Formazione di Monghidoro	36.75	8.00	2.48	4.59	0.00	1.35	3.66	4.67	2.89	3.84	1.84	5.22	4.59

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.17	3.80	Robertson (1983)	8.34
[2] - Substrato alterato	14.88	7.00	Robertson (1983)	29.76
[3] - Formazione di Monghidoro	36.75	8.00	Robertson (1983)	73.50

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	4.17	3.80	19.13	62.55	44.32	52.13
[2] - Substrato alterato	14.88	7.00	68.27	--	153.56	148.80
[3] - Formazione di Monghidoro	36.75	8.00	168.61	--	376.62	367.50

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	4.17	3.80	27.56	41.70
[2] - Substrato alterato	14.88	7.00	150.72	148.80
[3] - Formazione di Monghidoro	36.75	8.00	402.23	367.50

Prova n. 18

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	4.17	3.80	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato alterato	14.88	7.00	A.G.I. (1977)	CONSISTENTE
[3] - Formazione di Monghidoro	36.75	8.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	4.17	3.80	Meyerhof	1.71
[2] - Substrato alterato	14.88	7.00	Meyerhof	2.06
[3] - Formazione di Monghidoro	36.75	8.00	Meyerhof	2.35

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	4.17	3.80	Meyerhof	1.87
[2] - Substrato alterato	14.88	7.00	Meyerhof	2.27
[3] - Formazione di Monghidoro	36.75	8.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.17	3.80		0
[2] - Substrato alterato	14.88	7.00		0
[3] - Formazione di Monghidoro	36.75	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	4.17	3.80	17.67	42.36	45.47	18.59
[2] - Substrato alterato	14.88	7.00	32.92	62.51	62.56	42.8
[3] - Formazione di Monghidoro	36.75	8.00	47.81	87.3	87.33	69.71

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	4.17	3.80	4.17	28.19	21.19	29.17	29.75	31.32	0	<30	22.91	28.25	30.23	24.13
[2] - Substrato alterato	14.88	7.00	14.88	31.25	24.25	32.17	29.42	35.43	36.75	30-32	29.94	31.46	38.85	32.25
[3] - Formazione di Monghidoro	36.75	8.00	36.75	37.5	30.5	38.29	30.07	40.97	40.22	32-35	38.48	38.03	45.04	42.11

Prova n. 18

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	4.17	3.80	4.17	---	33.36	---	---	---
[2] - Substrato alterato	14.88	7.00	14.88	275.34	119.04	176.28	291.60	149.40
[3] - Formazione di Monghidoro	36.75	8.00	36.75	432.71	294.00	434.35	455.62	258.75

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	4.17	3.80	4.17	---	36.03	29.61	56.60
[2] - Substrato alterato	14.88	7.00	14.88	89.28	58.03	105.65	104.36
[3] - Formazione di Monghidoro	36.75	8.00	36.75	220.50	102.95	260.92	201.90

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	4.17	3.80	4.17	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato alterato	14.88	7.00	14.88	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	36.75	8.00	36.75	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	4.17	3.80	4.17	Meyerhof et al.	1.50
[2] - Substrato alterato	14.88	7.00	14.88	Meyerhof et al.	1.88
[3] - Formazione di Monghidoro	36.75	8.00	36.75	Meyerhof et al.	2.19

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	4.17	3.80	4.17	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	14.88	7.00	14.88	Terzaghi-Peck 1948-1967	1.95
[3] - Formazione di Monghidoro	36.75	8.00	36.75	Terzaghi-Peck 1948-1967	2.08

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	4.17	3.80	4.17	(A.G.I.)	0.35
[2] - Substrato alterato	14.88	7.00	14.88	(A.G.I.)	0.32
[3] - Formazione di Monghidoro	36.75	8.00	36.75	(A.G.I.)	0.28

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	4.17	3.80	4.17	248.79	299.10
[2] - Substrato alterato	14.88	7.00	14.88	822.55	650.68
[3] - Formazione di Monghidoro	36.75	8.00	36.75	1924.22	1130.53

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.17	3.80	4.17	Ohta & Goto (1978) Limi	99.13
[2] - Substrato alterato	14.88	7.00	14.88	Ohta & Goto (1978) Limi	151.12
[3] - Formazione di Monghidoro	36.75	8.00	36.75	Ohta & Goto (1978) Limi	188.28

Prova n. 18

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	4.17	3.80	4.17	Seed e Idriss (1971)	--
[2] - Substrato alterato	14.88	7.00	14.88	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	36.75	8.00	36.75	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	4.17	3.80	4.17		---
[2] - Substrato alterato	14.88	7.00	14.88		---
[3] - Formazione di Monghidoro	36.75	8.00	36.75		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.17	3.80	4.17		---
[2] - Substrato alterato	14.88	7.00	14.88		---
[3] - Formazione di Monghidoro	36.75	8.00	36.75		---

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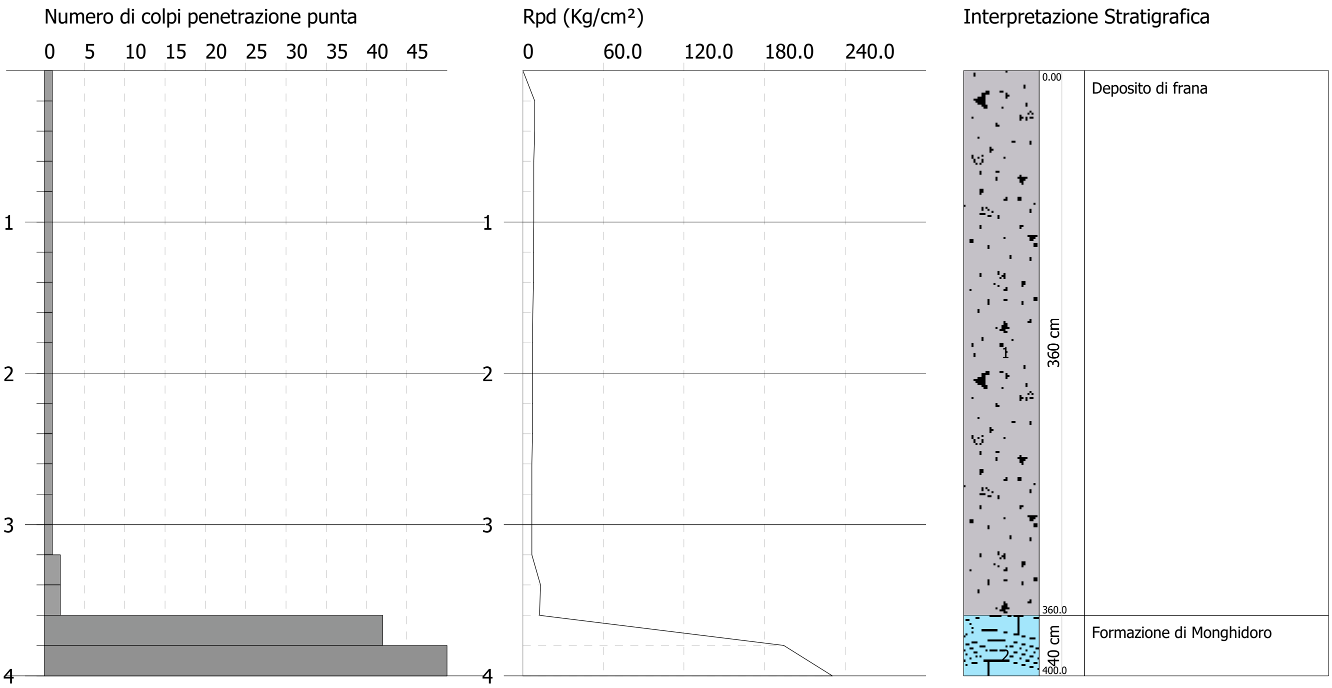
DPSH19_ms3

PROVA PENETROMETRICA DINAMICA Nr.19
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 19

PROVA DPSH Nr.19

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 4.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	1	0.840	8.10	9.64	0.40	0.48
1.20	1	0.836	8.06	9.64	0.40	0.48
1.40	1	0.833	8.03	9.64	0.40	0.48
1.60	1	0.830	7.39	8.91	0.37	0.45
1.80	1	0.826	7.36	8.91	0.37	0.45
2.00	1	0.823	7.34	8.91	0.37	0.45
2.20	1	0.820	7.31	8.91	0.37	0.45
2.40	1	0.817	7.28	8.91	0.36	0.45
2.60	1	0.814	6.74	8.28	0.34	0.41
2.80	1	0.811	6.72	8.28	0.34	0.41
3.00	1	0.809	6.70	8.28	0.33	0.41
3.20	1	0.806	6.68	8.28	0.33	0.41
3.40	2	0.803	13.31	16.56	0.67	0.83
3.60	2	0.801	12.39	15.47	0.62	0.77
3.80	42	0.598	194.42	324.89	9.72	16.24
4.00	50	0.596	230.53	386.78	11.53	19.34

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.6	1.11	9.94	Incoerente - coesivo	0	1.53	1.85	0.28	1.47	1.63	Deposito di frana
4	46	355.84	Incoerente - coesivo	0	2.5	2.5	0.6	1.47	67.62	Formazione di Monghidoro

Prova n. 19

STIMA PARAMETRI GEOTECNICI PROVA Nr.19

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	1.63	3.60	0.10	0.20	0.00	0.07	0.16	0.30	0.15	0.56	0.08	0.00	0.20
[2] - Formazione di Monghidoro	67.62	4.00	4.56	8.45	0.00	2.22	6.79	10.68	4.54	8.01	3.38	11.36	8.45

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	1.63	3.60	Robertson (1983)	3.26
[2] - Formazione di Monghidoro	67.62	4.00	Robertson (1983)	135.24

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	1.63	3.60	7.48	24.45	18.42	20.38
[2] - Formazione di Monghidoro	67.62	4.00	310.24	--	691.47	676.20

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	1.63	3.60	-1.66	16.30
[2] - Formazione di Monghidoro	67.62	4.00	757.23	676.20

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	1.63	3.60	A.G.I. (1977)	PRIVO DI CONSISTENZA
[2] - Formazione di Monghidoro	67.62	4.00	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	1.63	3.60	Meyerhof	1.53
[2] - Formazione di Monghidoro	67.62	4.00	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	1.63	3.60	Meyerhof	1.85
[2] - Formazione di Monghidoro	67.62	4.00	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	1.63	3.60		0
[2] - Formazione di Monghidoro	67.62	4.00		0

Prova n. 19

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	1.63	3.60	3.68	27.15	30.31	11.28
[2] - Formazione di Monghidoro	67.62	4.00	77.29	100	100	100

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	1.63	3.60	1.63	27.47	20.47	28.46	28.59	30.21	0	<30	19.94	27.49	22.22	20.71
[2] - Formazione di Monghidoro	67.62	4.00	67.62	46.32	39.32	46.93	32.93	42.29	42	>38	46.85	47.29	53.5	51.77

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	1.63	3.60	1.63	---	13.04	---	---	---
[2] - Formazione di Monghidoro	67.62	4.00	67.62	586.96	540.96	798.62	687.15	413.10

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	1.63	3.60	1.63	---	30.81	11.57	45.27
[2] - Formazione di Monghidoro	67.62	4.00	67.62	405.72	166.36	480.10	339.59

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	1.63	3.60	1.63	Classificazione A.G.I	SCIOLTO
[2] - Formazione di Monghidoro	67.62	4.00	67.62	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	1.63	3.60	1.63	Meyerhof et al.	1.38
[2] - Formazione di Monghidoro	67.62	4.00	67.62	Meyerhof et al.	2.37

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	1.63	3.60	1.63	Terzaghi-Peck 1948-1967	1.87
[2] - Formazione di Monghidoro	67.62	4.00	67.62	Terzaghi-Peck 1948-1967	2.19

Prova n. 19

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	1.63	3.60	1.63	(A.G.I.)	0.35
[2] - Formazione di Monghidoro	67.62	4.00	67.62	(A.G.I.)	0.22

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	1.63	3.60	1.63	102.89	168.48
[2] - Formazione di Monghidoro	67.62	4.00	67.62	3413.38	1640.91

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	1.63	3.60	1.63	Ohta & Goto (1978) Limi	83.39
[2] - Formazione di Monghidoro	67.62	4.00	67.62	Ohta & Goto (1978) Limi	183.49

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	1.63	3.60	1.63	Seed e Idriss (1971)	--
[2] - Formazione di Monghidoro	67.62	4.00	67.62	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	1.63	3.60	1.63		---
[2] - Formazione di Monghidoro	67.62	4.00	67.62		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	1.63	3.60	1.63		---
[2] - Formazione di Monghidoro	67.62	4.00	67.62		---

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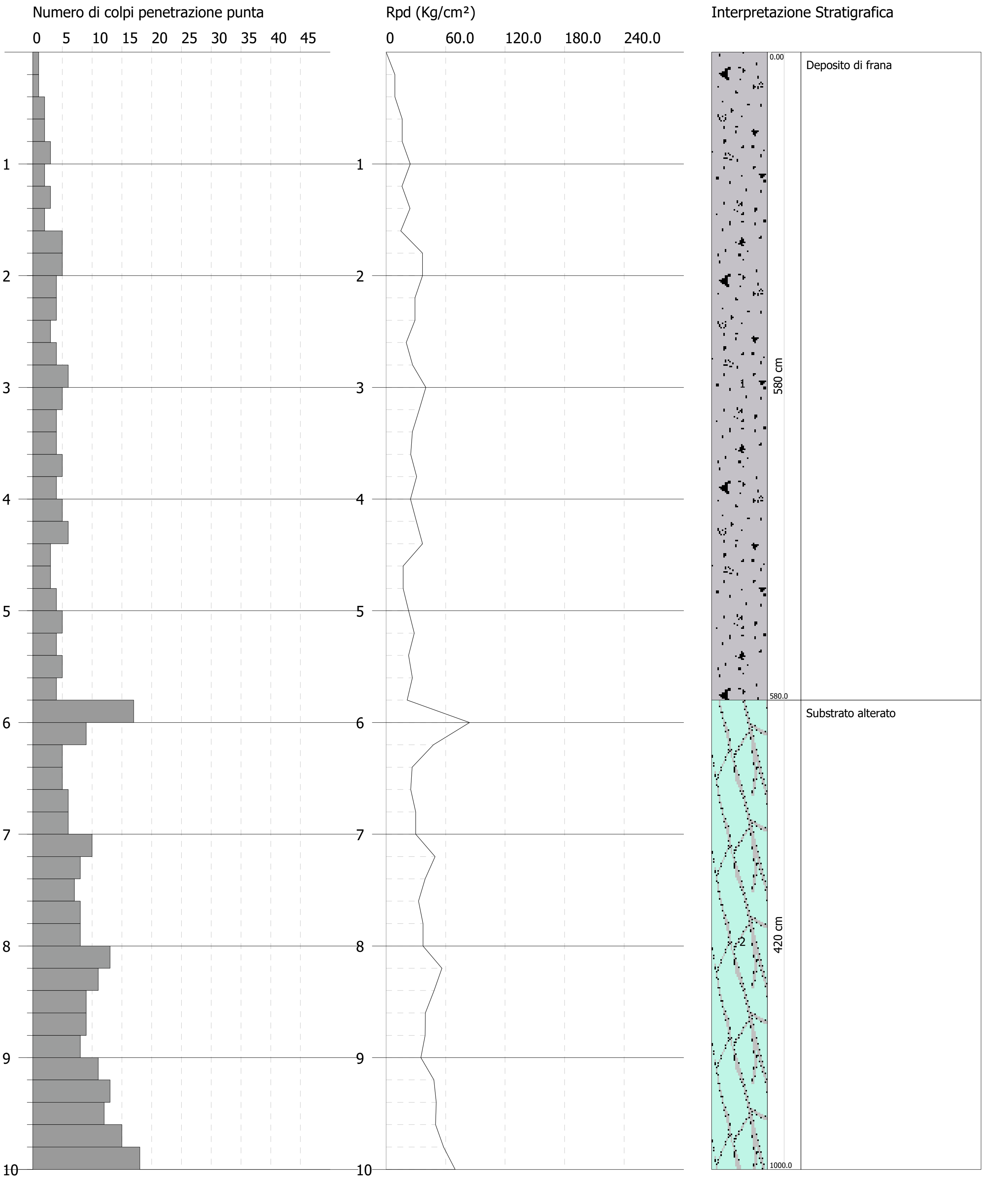
DPSH20_ms3

PROVA PENETROMETRICA DINAMICA Nr.20
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 20

PROVA DPSH Nr.20

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 10.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	2	0.830	14.78	17.82	0.74	0.89
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	5	0.823	36.68	44.55	1.83	2.23
2.20	4	0.820	29.23	35.64	1.46	1.78
2.40	4	0.817	29.13	35.64	1.46	1.78
2.60	3	0.814	20.23	24.85	1.01	1.24
2.80	4	0.811	26.88	33.13	1.34	1.66
3.00	6	0.809	40.18	49.69	2.01	2.48
3.20	5	0.806	33.38	41.41	1.67	2.07
3.40	4	0.803	26.61	33.13	1.33	1.66
3.60	4	0.801	24.78	30.94	1.24	1.55
3.80	5	0.798	30.88	38.68	1.54	1.93
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	5	0.794	30.70	38.68	1.53	1.93
4.40	6	0.791	36.73	46.41	1.84	2.32
4.60	3	0.789	17.18	21.77	0.86	1.09
4.80	3	0.787	17.14	21.77	0.86	1.09
5.00	4	0.785	22.79	29.03	1.14	1.45
5.20	5	0.783	28.41	36.28	1.42	1.81
5.40	4	0.781	22.67	29.03	1.13	1.45
5.60	5	0.779	26.62	34.17	1.33	1.71
5.80	4	0.777	21.25	27.34	1.06	1.37
6.00	17	0.725	84.29	116.18	4.21	5.81

Prova n. 20

6.20	9	0.774	47.59	61.51	2.38	3.08
6.40	5	0.772	26.38	34.17	1.32	1.71
6.60	5	0.770	24.87	32.29	1.24	1.61
6.80	6	0.769	29.79	38.75	1.49	1.94
7.00	6	0.767	29.73	38.75	1.49	1.94
7.20	10	0.766	49.44	64.58	2.47	3.23
7.40	8	0.764	39.48	51.66	1.97	2.58
7.60	7	0.763	32.68	42.85	1.63	2.14
7.80	8	0.761	37.28	48.97	1.86	2.45
8.00	8	0.760	37.21	48.97	1.86	2.45
8.20	13	0.709	56.38	79.57	2.82	3.98
8.40	11	0.757	50.99	67.33	2.55	3.37
8.60	9	0.756	39.58	52.36	1.98	2.62
8.80	9	0.755	39.51	52.36	1.98	2.62
9.00	8	0.753	35.07	46.54	1.75	2.33
9.20	11	0.752	48.14	63.99	2.41	3.20
9.40	13	0.701	53.02	75.62	2.65	3.78
9.60	12	0.750	49.88	66.51	2.49	3.33
9.80	15	0.699	58.10	83.14	2.90	4.16
10.00	18	0.698	69.60	99.76	3.48	4.99

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
5.8	3.72	30.42	Incoerente - coesivo	0	1.78	1.88	0.52	1.47	5.47	Deposito di frana
10	9.9	60.28	Incoerente - coesivo	0	2.06	2.27	1.47	1.47	14.55	Substrato alterato

STIMA PARAMETRI GEOTECNICI PROVA Nr.20

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	5.47	5.80	0.34	0.68	0.25	0.22	0.53	0.91	0.49	0.84	0.27	0.24	0.68
[2] - Substrato alterato	14.55	10.00	0.98	1.82	0.50	0.57	1.43	1.81	1.26	1.59	0.73	1.13	1.82

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.47	5.80	Robertson (1983)	10.94
[2] - Substrato alterato	14.55	10.00	Robertson (1983)	29.10

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	5.47	5.80	25.10	82.05	57.58	68.38
[2] - Substrato alterato	14.55	10.00	66.76	--	150.19	145.50

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	5.47	5.80	42.51	54.70
[2] - Substrato alterato	14.55	10.00	146.93	145.50

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	5.47	5.80	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato alterato	14.55	10.00	A.G.I. (1977)	CONSISTENTE

Prova n. 20

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	5.47	5.80	Meyerhof	1.78
[2] - Substrato alterato	14.55	10.00	Meyerhof	2.06

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	5.47	5.80	Meyerhof	1.88
[2] - Substrato alterato	14.55	10.00	Meyerhof	2.27

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.47	5.80		0
[2] - Substrato alterato	14.55	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	5.47	5.80	19.67	44.54	45.86	22.08
[2] - Substrato alterato	14.55	10.00	27.41	54.44	55.69	42.19

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	5.47	5.80	5.47	28.56	21.56	29.53	29.19	31.87	0	<30	24.06	28.64	31.87	25.46
[2] - Substrato alterato	14.55	10.00	14.55	31.16	24.16	32.07	28.51	35.32	35.62	30-32	29.77	31.36	36.81	32.06

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	5.47	5.80	5.47	---	43.76	---	---	---
[2] - Substrato alterato	14.55	10.00	14.55	272.27	116.40	172.39	289.12	147.75

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	5.47	5.80	5.47	---	38.70	38.84	62.40
[2] - Substrato alterato	14.55	10.00	14.55	87.30	57.35	103.31	102.89

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	5.47	5.80	5.47	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato alterato	14.55	10.00	14.55	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Prova n. 20

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	5.47	5.80	5.47	Meyerhof et al.	1.56
[2] - Substrato alterato	14.55	10.00	14.55	Meyerhof et al.	1.87

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	5.47	5.80	5.47	Terzaghi-Peck 1948-1967	1.89
[2] - Substrato alterato	14.55	10.00	14.55	Terzaghi-Peck 1948-1967	1.95

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	5.47	5.80	5.47	(A.G.I.)	0.34
[2] - Substrato alterato	14.55	10.00	14.55	(A.G.I.)	0.33

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	5.47	5.80	5.47	321.09	353.04
[2] - Substrato alterato	14.55	10.00	14.55	805.39	641.83

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	5.47	5.80	5.47	Ohta & Goto (1978) Limi	112.73
[2] - Substrato alterato	14.55	10.00	14.55	Ohta & Goto (1978) Limi	162.01

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	5.47	5.80	5.47	Seed e Idriss (1971)	--
[2] - Substrato alterato	14.55	10.00	14.55	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	5.47	5.80	5.47		---
[2] - Substrato alterato	14.55	10.00	14.55		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	5.47	5.80	5.47		---
[2] - Substrato alterato	14.55	10.00	14.55		---

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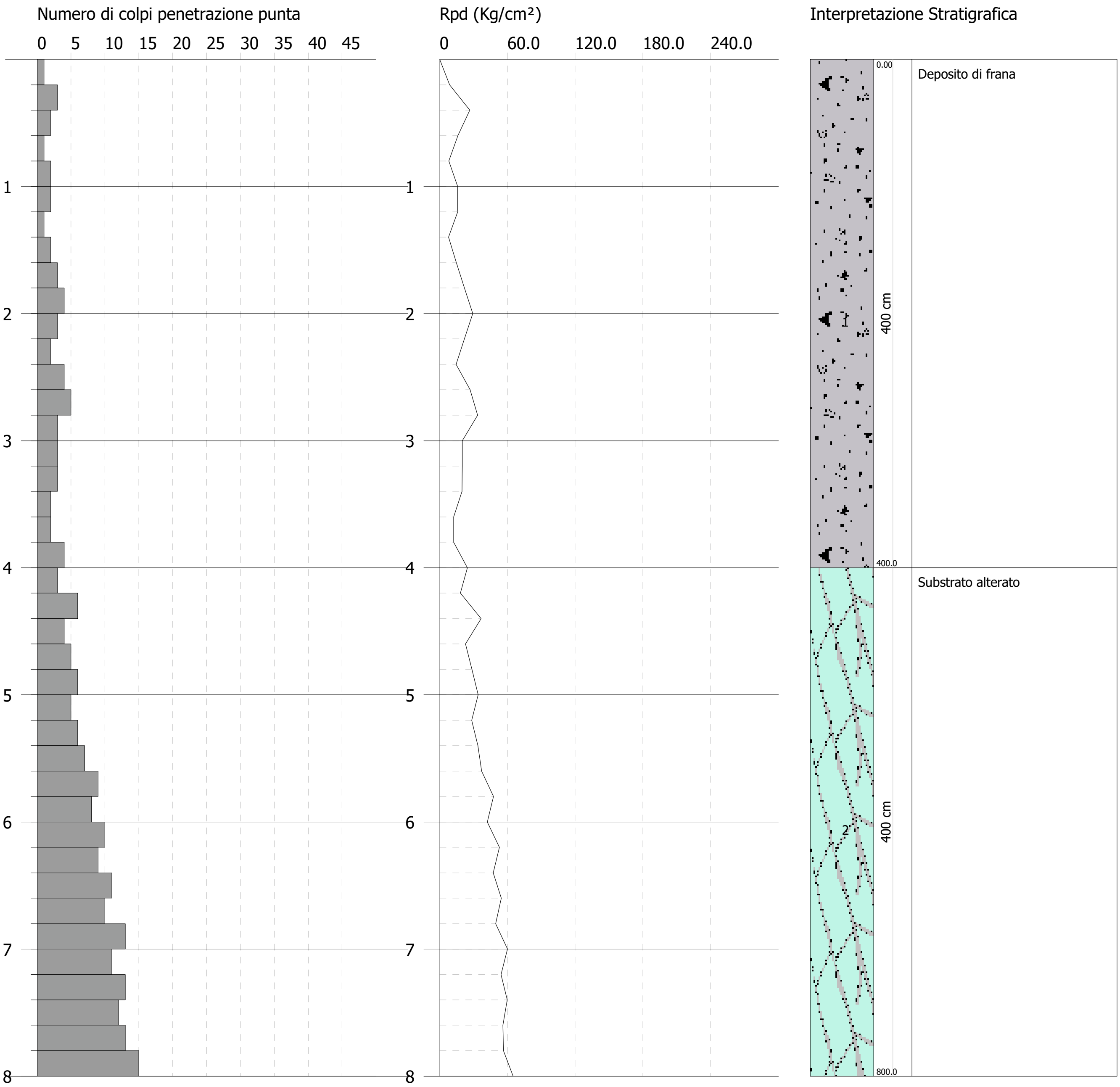
DPSH21_ms3

PROVA PENETROMETRICA DINAMICA Nr.21
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 21

PROVA DPSH Nr.21

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 8.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	3	0.851	26.82	31.52	1.34	1.58
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	1	0.843	8.13	9.64	0.41	0.48
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	1	0.833	8.03	9.64	0.40	0.48
1.60	2	0.830	14.78	17.82	0.74	0.89
1.80	3	0.826	22.09	26.73	1.10	1.34
2.00	4	0.823	29.34	35.64	1.47	1.78
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	2	0.817	14.56	17.82	0.73	0.89
2.60	4	0.814	26.97	33.13	1.35	1.66
2.80	5	0.811	33.60	41.41	1.68	2.07
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	3	0.806	20.03	24.85	1.00	1.24
3.40	3	0.803	19.96	24.85	1.00	1.24
3.60	2	0.801	12.39	15.47	0.62	0.77
3.80	2	0.798	12.35	15.47	0.62	0.77
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	3	0.794	18.42	23.21	0.92	1.16
4.40	6	0.791	36.73	46.41	1.84	2.32
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	5	0.787	28.56	36.28	1.43	1.81
5.00	6	0.785	34.18	43.54	1.71	2.18
5.20	5	0.783	28.41	36.28	1.42	1.81
5.40	6	0.781	34.01	43.54	1.70	2.18
5.60	7	0.779	37.27	47.84	1.86	2.39
5.80	9	0.777	47.81	61.51	2.39	3.08
6.00	8	0.775	42.40	54.67	2.12	2.73

Prova n. 21

6.20	10	0.774	52.88	68.34	2.64	3.42
6.40	9	0.772	47.48	61.51	2.37	3.08
6.60	11	0.770	54.72	71.04	2.74	3.55
6.80	10	0.769	49.64	64.58	2.48	3.23
7.00	13	0.717	60.21	83.95	3.01	4.20
7.20	11	0.766	54.39	71.04	2.72	3.55
7.40	13	0.714	59.95	83.95	3.00	4.20
7.60	12	0.763	56.02	73.45	2.80	3.67
7.80	13	0.711	56.60	79.57	2.83	3.98
8.00	15	0.710	65.18	91.81	3.26	4.59

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
4	2.6	22.74	Incoerente - coesivo	0	1.69	1.87	0.34	1.47	3.82	Deposito di frana
8	8.8	58.58	Incoerente - coesivo	0	2.04	2.24	1.08	1.47	12.94	Substrato alterato

STIMA PARAMETRI GEOTECNICI PROVA Nr.21

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	3.82	4.00	0.24	0.48	0.15	0.16	0.37	0.68	0.35	0.72	0.19	0.20	0.48
[2] - Substrato alterato	12.94	8.00	0.87	1.62	0.50	0.51	1.27	1.76	1.13	1.45	0.65	1.15	1.62

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.82	4.00	Robertson (1983)	7.64
[2] - Substrato alterato	12.94	8.00	Robertson (1983)	25.88

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.82	4.00	17.53	57.30	40.75	47.75
[2] - Substrato alterato	12.94	8.00	59.37	--	133.77	129.40

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.82	4.00	23.53	38.20
[2] - Substrato alterato	12.94	8.00	128.41	129.40

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.82	4.00	A.G.I. (1977)	POCO CONSISTENTE
[2] - Substrato alterato	12.94	8.00	A.G.I. (1977)	CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.82	4.00	Meyerhof	1.69
[2] - Substrato alterato	12.94	8.00	Meyerhof	2.04

Prova n. 21

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.82	4.00	Meyerhof	1.87
[2] - Substrato alterato	12.94	8.00	Meyerhof	2.24

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.82	4.00		0
[2] - Substrato alterato	12.94	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.82	4.00	15.98	40.29	43.16	17.62
[2] - Substrato alterato	12.94	8.00	28.9	56.56	56.98	39.12

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.82	4.00	3.82	28.09	21.09	29.07	29.53	31.17	0	<30	22.57	28.15	29.42	23.74
[2] - Substrato alterato	12.94	8.00	12.94	30.7	23.7	31.62	28.97	34.75	35.92	30-32	28.93	30.88	37.23	31.09

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.82	4.00	3.82	---	30.56	---	---	---
[2] - Substrato alterato	12.94	8.00	12.94	256.77	103.52	153.39	277.05	139.70

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.82	4.00	3.82	---	35.31	27.12	55.04
[2] - Substrato alterato	12.94	8.00	12.94	77.64	54.04	91.87	95.71

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.82	4.00	3.82	Classificazione A.G.I	SCIOLTO
[2] - Substrato alterato	12.94	8.00	12.94	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.82	4.00	3.82	Meyerhof et al.	1.49
[2] - Substrato alterato	12.94	8.00	12.94	Meyerhof et al.	1.82

Prova n. 21

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.82	4.00	3.82	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	12.94	8.00	12.94	Terzaghi-Peck 1948-1967	1.94

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.82	4.00	3.82	(A.G.I.)	0.35
[2] - Substrato alterato	12.94	8.00	12.94	(A.G.I.)	0.33

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.82	4.00	3.82	229.11	283.50
[2] - Substrato alterato	12.94	8.00	12.94	721.33	597.45

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.82	4.00	3.82	Ohta & Goto (1978) Limi	98.61
[2] - Substrato alterato	12.94	8.00	12.94	Ohta & Goto (1978) Limi	150.55

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.82	4.00	3.82	Seed e Idriss (1971)	--
[2] - Substrato alterato	12.94	8.00	12.94	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.82	4.00	3.82		---
[2] - Substrato alterato	12.94	8.00	12.94		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.82	4.00	3.82		---
[2] - Substrato alterato	12.94	8.00	12.94		---

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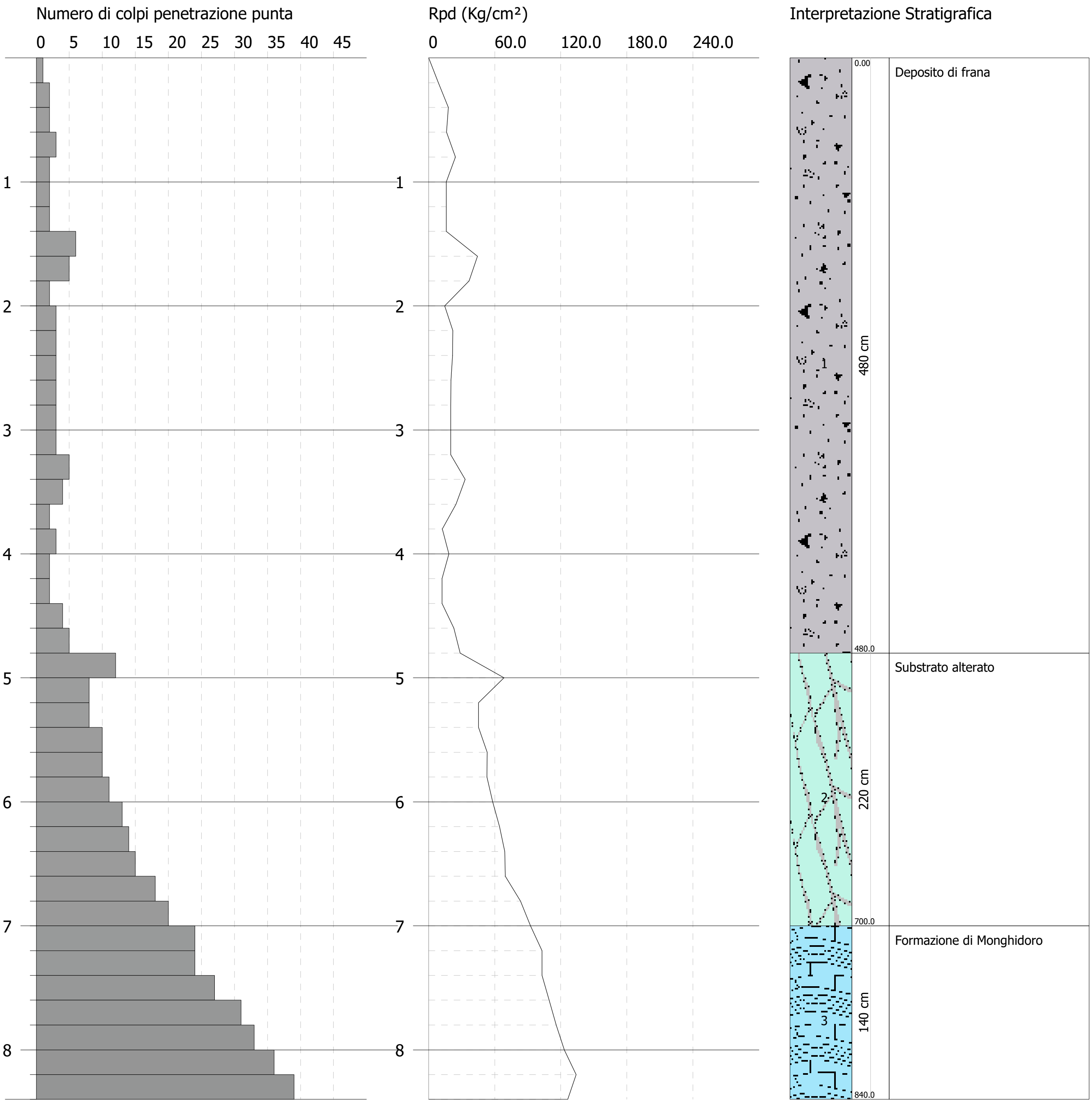
DPSH22_ms3

PROVA PENETROMETRICA DINAMICA Nr.22
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 22

PROVA DPSH Nr.22

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 8.40 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	2	0.851	17.88	21.01	0.89	1.05
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	3	0.843	24.40	28.93	1.22	1.45
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	2	0.836	16.13	19.29	0.81	0.96
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	6	0.830	44.35	53.47	2.22	2.67
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	2	0.823	14.67	17.82	0.73	0.89
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	3	0.817	21.84	26.73	1.09	1.34
2.60	3	0.814	20.23	24.85	1.01	1.24
2.80	3	0.811	20.16	24.85	1.01	1.24
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	3	0.806	20.03	24.85	1.00	1.24
3.40	5	0.803	33.27	41.41	1.66	2.07
3.60	4	0.801	24.78	30.94	1.24	1.55
3.80	2	0.798	12.35	15.47	0.62	0.77
4.00	3	0.796	18.47	23.21	0.92	1.16
4.20	2	0.794	12.28	15.47	0.61	0.77
4.40	2	0.791	12.24	15.47	0.61	0.77
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	5	0.787	28.56	36.28	1.43	1.81
5.00	12	0.785	68.36	87.08	3.42	4.35
5.20	8	0.783	45.46	58.06	2.27	2.90
5.40	8	0.781	45.34	58.06	2.27	2.90
5.60	10	0.779	53.25	68.34	2.66	3.42
5.80	10	0.777	53.12	68.34	2.66	3.42
6.00	11	0.775	58.30	75.18	2.91	3.76

Prova n. 22

6.20	13	0.724	64.30	88.84	3.21	4.44
6.40	14	0.722	69.08	95.68	3.45	4.78
6.60	15	0.720	69.78	96.87	3.49	4.84
6.80	18	0.719	83.55	116.24	4.18	5.81
7.00	20	0.717	92.63	129.16	4.63	6.46
7.20	24	0.666	103.17	154.99	5.16	7.75
7.40	24	0.664	102.94	154.99	5.15	7.75
7.60	27	0.663	109.52	165.26	5.48	8.26
7.80	31	0.611	115.99	189.75	5.80	9.49
8.00	33	0.610	123.19	201.99	6.16	10.10
8.20	36	0.609	134.10	220.35	6.70	11.02
8.40	39	0.557	133.02	238.71	6.65	11.94

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
4.8	3	25.57	Incoerente - coesivo	0	1.72	1.87	0.41	1.47	4.41	Deposito di frana
7	12.64	85.62	Incoerente - coesivo	0	2.09	2.3	1.06	1.47	18.58	Substrato alterato
8.4	30.57	189.43	Incoerente - coesivo	0	2.5	2.5	1.46	1.47	44.94	Formazione di Monghidoro

STIMA PARAMETRI GEOTECNICI PROVA Nr.22

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmert mann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begeman n	De Beer
[1] - Deposito di frana	4.41	4.80	0.28	0.55	0.25	0.18	0.43	0.77	0.40	0.76	0.22	0.20	0.55
[2] - Substrato alterato	18.58	7.00	1.25	2.32	1.00	0.72	1.84	2.57	1.59	1.95	0.93	2.27	2.32
[3] - Formazione di Monghidoro	44.94	8.40	3.03	5.62	0.00	1.60	4.49	5.68	3.40	4.83	2.25	6.53	5.62

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.41	4.80	Robertson (1983)	8.82
[2] - Substrato alterato	18.58	7.00	Robertson (1983)	37.16
[3] - Formazione di Monghidoro	44.94	8.40	Robertson (1983)	89.88

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	4.41	4.80	20.23	66.15	46.77	55.13
[2] - Substrato alterato	18.58	7.00	85.25	--	191.30	185.80
[3] - Formazione di Monghidoro	44.94	8.40	206.19	--	460.15	449.40

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	4.41	4.80	30.32	44.10
[2] - Substrato alterato	18.58	7.00	193.27	185.80
[3] - Formazione di Monghidoro	44.94	8.40	496.41	449.40

Prova n. 22

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	4.41	4.80	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Substrato alterato	18.58	7.00	A.G.I. (1977)	MOLTO CONSISTENTE
[3] - Formazione di Monghidoro	44.94	8.40	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	4.41	4.80	Meyerhof	1.72
[2] - Substrato alterato	18.58	7.00	Meyerhof	2.09
[3] - Formazione di Monghidoro	44.94	8.40	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	4.41	4.80	Meyerhof	1.87
[2] - Substrato alterato	18.58	7.00	Meyerhof	2.30
[3] - Formazione di Monghidoro	44.94	8.40	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.41	4.80		0
[2] - Substrato alterato	18.58	7.00		0
[3] - Formazione di Monghidoro	44.94	8.40		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	4.41	4.80	17.34	41.81	43.86	19.24
[2] - Substrato alterato	18.58	7.00	36.67	68.32	68.21	49.06
[3] - Formazione di Monghidoro	44.94	8.40	52.33	95.78	95.56	76.27

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	4.41	4.80	4.41	28.26	21.26	29.23	29.33	31.42	0	<30	23.13	28.32	30.39	24.39
[2] - Substrato alterato	18.58	7.00	18.58	32.31	25.31	33.2	29.62	36.64	37.56	30-32	31.69	32.57	40.5	34.28
[3] - Formazione di Monghidoro	44.94	8.40	44.94	39.84	32.84	40.58	30.34	42.06	41.41	35-38	40.96	40.48	46.67	44.98

Prova n. 22

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	4.41	4.80	4.41	---	35.28	---	---	---
[2] - Substrato alterato	18.58	7.00	18.58	307.68	148.64	219.94	319.35	167.90
[3] - Formazione di Monghidoro	44.94	8.40	44.94	478.51	359.52	530.99	517.05	299.70

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	4.41	4.80	4.41	---	36.52	31.31	57.67
[2] - Substrato alterato	18.58	7.00	18.58	111.48	65.63	131.92	120.87
[3] - Formazione di Monghidoro	44.94	8.40	44.94	269.64	119.77	319.07	238.43

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	4.41	4.80	4.41	Classificazione A.G.I	POCO ADDENSATO
[2] - Substrato alterato	18.58	7.00	18.58	Classificazione A.G.I	MODERATAMENTE ADDENSATO
[3] - Formazione di Monghidoro	44.94	8.40	44.94	Classificazione A.G.I	ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	4.41	4.80	4.41	Meyerhof et al.	1.51
[2] - Substrato alterato	18.58	7.00	18.58	Meyerhof et al.	1.96
[3] - Formazione di Monghidoro	44.94	8.40	44.94	Meyerhof et al.	2.22

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	4.41	4.80	4.41	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	18.58	7.00	18.58	Terzaghi-Peck 1948-1967	1.97
[3] - Formazione di Monghidoro	44.94	8.40	44.94	Terzaghi-Peck 1948-1967	2.13

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	4.41	4.80	4.41	(A.G.I.)	0.34
[2] - Substrato alterato	18.58	7.00	18.58	(A.G.I.)	0.32
[3] - Formazione di Monghidoro	44.94	8.40	44.94	(A.G.I.)	0.26

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	4.41	4.80	4.41	262.23	309.50
[2] - Substrato alterato	18.58	7.00	18.58	1013.48	745.24
[3] - Formazione di Monghidoro	44.94	8.40	44.94	2324.82	1278.41

Prova n. 22

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	4.41	4.80	4.41	Ohta & Goto (1978) Limi	104.71
[2] - Substrato alterato	18.58	7.00	18.58	Ohta & Goto (1978) Limi	159.75
[3] - Formazione di Monghidoro	44.94	8.40	44.94	Ohta & Goto (1978) Limi	195.94

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	4.41	4.80	4.41	Seed e Idriss (1971)	--
[2] - Substrato alterato	18.58	7.00	18.58	Seed e Idriss (1971)	--
[3] - Formazione di Monghidoro	44.94	8.40	44.94	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	4.41	4.80	4.41		---
[2] - Substrato alterato	18.58	7.00	18.58		---
[3] - Formazione di Monghidoro	44.94	8.40	44.94		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	4.41	4.80	4.41		---
[2] - Substrato alterato	18.58	7.00	18.58		---
[3] - Formazione di Monghidoro	44.94	8.40	44.94		---

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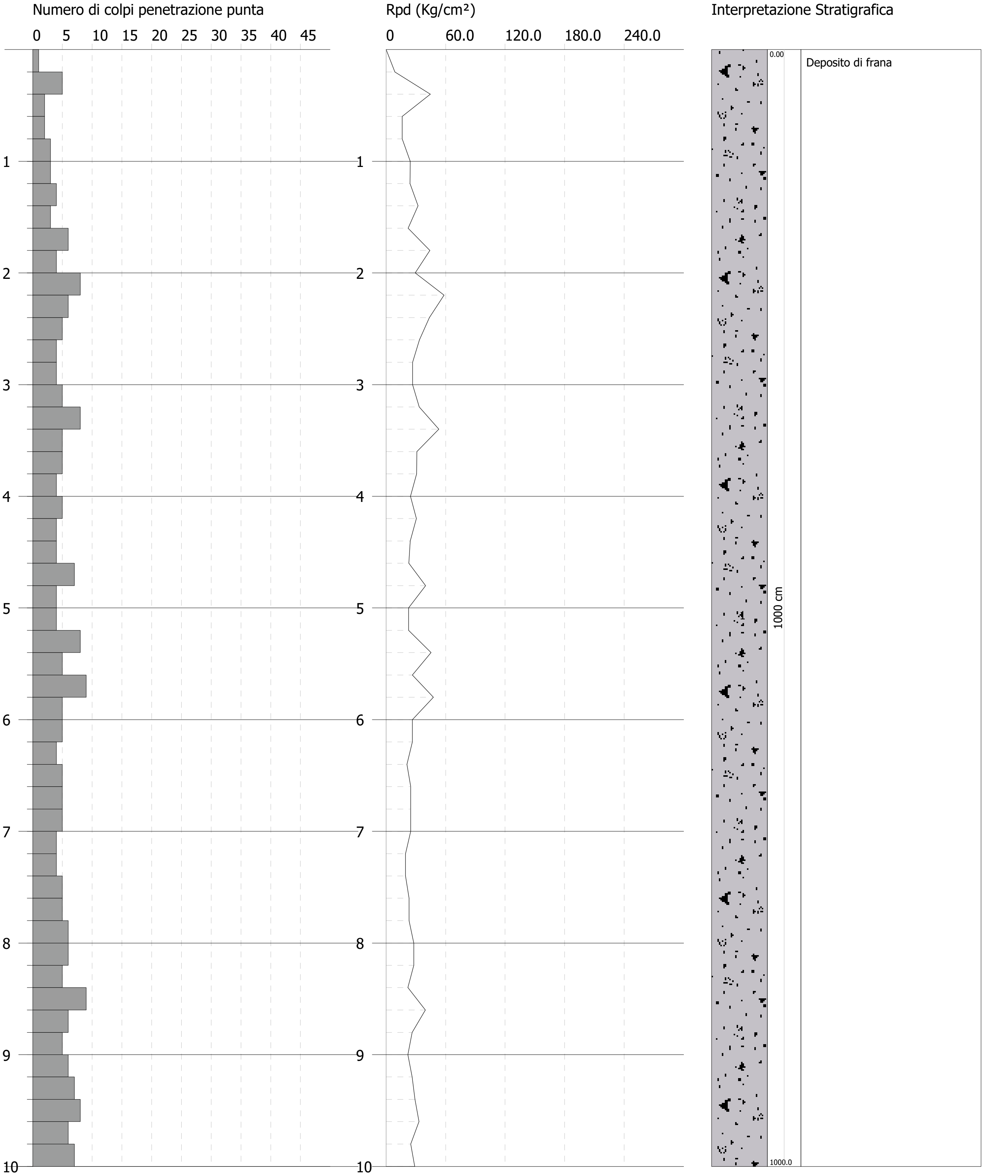
DPSH23_ms3

PROVA PENETROMETRICA DINAMICA Nr.23
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 23

PROVA DPSH Nr.23

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 10.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	5	0.851	44.70	52.54	2.23	2.63
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	3	0.840	24.29	28.93	1.21	1.45
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	4	0.833	32.13	38.57	1.61	1.93
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	6	0.826	44.18	53.47	2.21	2.67
2.00	4	0.823	29.34	35.64	1.47	1.78
2.20	8	0.820	58.46	71.29	2.92	3.56
2.40	6	0.817	43.69	53.47	2.18	2.67
2.60	5	0.814	33.72	41.41	1.69	2.07
2.80	4	0.811	26.88	33.13	1.34	1.66
3.00	4	0.809	26.79	33.13	1.34	1.66
3.20	5	0.806	33.38	41.41	1.67	2.07
3.40	8	0.803	53.23	66.25	2.66	3.31
3.60	5	0.801	30.98	38.68	1.55	1.93
3.80	5	0.798	30.88	38.68	1.54	1.93
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	5	0.794	30.70	38.68	1.53	1.93
4.40	4	0.791	24.49	30.94	1.22	1.55
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	7	0.787	39.98	50.80	2.00	2.54
5.00	4	0.785	22.79	29.03	1.14	1.45
5.20	4	0.783	22.73	29.03	1.14	1.45
5.40	8	0.781	45.34	58.06	2.27	2.90
5.60	5	0.779	26.62	34.17	1.33	1.71
5.80	9	0.777	47.81	61.51	2.39	3.08
6.00	5	0.775	26.50	34.17	1.32	1.71

Prova n. 23

6.20	5	0.774	26.44	34.17	1.32	1.71
6.40	4	0.772	21.10	27.34	1.06	1.37
6.60	5	0.770	24.87	32.29	1.24	1.61
6.80	5	0.769	24.82	32.29	1.24	1.61
7.00	5	0.767	24.77	32.29	1.24	1.61
7.20	4	0.766	19.78	25.83	0.99	1.29
7.40	4	0.764	19.74	25.83	0.99	1.29
7.60	5	0.763	23.34	30.60	1.17	1.53
7.80	5	0.761	23.30	30.60	1.16	1.53
8.00	6	0.760	27.91	36.73	1.40	1.84
8.20	6	0.759	27.86	36.73	1.39	1.84
8.40	5	0.757	23.18	30.60	1.16	1.53
8.60	9	0.756	39.58	52.36	1.98	2.62
8.80	6	0.755	26.34	34.90	1.32	1.75
9.00	5	0.753	21.92	29.09	1.10	1.45
9.20	6	0.752	26.26	34.90	1.31	1.75
9.40	7	0.751	30.59	40.72	1.53	2.04
9.60	8	0.750	33.25	44.34	1.66	2.22
9.80	6	0.749	24.90	33.25	1.25	1.66
10.00	7	0.748	29.01	38.80	1.45	1.94

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
10	5.1	36.83	Incoerente - coesivo	0	1.88	1.9	0.94	1.47	7.5	Deposito di frana

STIMA PARAMETRI GEOTECNICI PROVA Nr.23

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	7.5	10.00	0.47	0.94	0.25	0.30	0.73	1.11	0.67	1.00	0.38	0.00	0.94

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.5	10.00	Robertson (1983)	15.00

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	7.5	10.00	34.41	--	78.29	93.75

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	7.5	10.00	65.85	75.00

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	7.5	10.00	A.G.I. (1977)	MODERAT. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	7.5	10.00	Meyerhof	1.88

Prova n. 23

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	7.5	10.00	Meyerhof	1.90

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.5	10.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	7.5	10.00	20.22	44.91	45.57	27.2

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	7.5	10.00	7.5	29.14	22.14	30.1	28.4	32.69	0	<30	25.61	29.25	33.02	27.25

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	7.5	10.00	7.5	---	60.00	---	---	---

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	7.5	10.00	7.5	---	42.87	53.25	71.45

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	7.5	10.00	7.5	Classificazione A.G.I	POCO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	7.5	10.00	7.5	Meyerhof et al.	1.64

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	7.5	10.00	7.5	Terzaghi-Peck 1948-1967	1.90

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	7.5	10.00	7.5	(A.G.I.)	0.34

Prova n. 23

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	7.5	10.00	7.5	431.99	428.13

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.5	10.00	7.5	Ohta & Goto (1978) Limi	132.25

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	7.5	10.00	7.5	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	7.5	10.00	7.5		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.5	10.00	7.5		---

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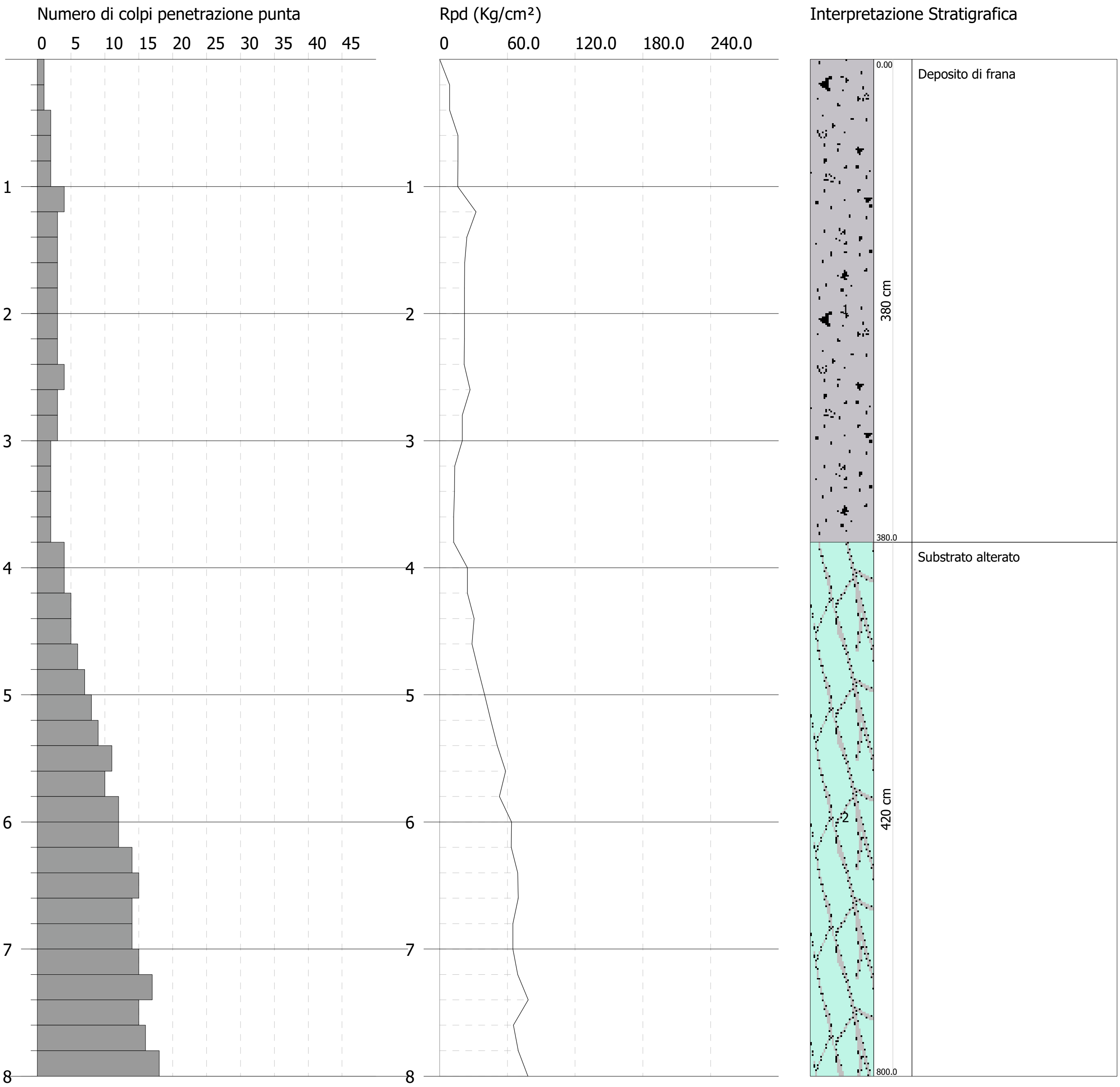
DPSH24_ms3

PROVA PENETROMETRICA DINAMICA Nr.24
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 17/02/2021

Scala 1:50



Prova n. 24

PROVA DPSH Nr.24

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 17/02/2021
Profondità prova 8.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	2	0.847	16.34	19.29	0.82	0.96
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	4	0.836	32.26	38.57	1.61	1.93
1.40	3	0.833	24.10	28.93	1.20	1.45
1.60	3	0.830	22.18	26.73	1.11	1.34
1.80	3	0.826	22.09	26.73	1.10	1.34
2.00	3	0.823	22.01	26.73	1.10	1.34
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	3	0.817	21.84	26.73	1.09	1.34
2.60	4	0.814	26.97	33.13	1.35	1.66
2.80	3	0.811	20.16	24.85	1.01	1.24
3.00	3	0.809	20.09	24.85	1.00	1.24
3.20	2	0.806	13.35	16.56	0.67	0.83
3.40	2	0.803	13.31	16.56	0.67	0.83
3.60	2	0.801	12.39	15.47	0.62	0.77
3.80	2	0.798	12.35	15.47	0.62	0.77
4.00	4	0.796	24.63	30.94	1.23	1.55
4.20	4	0.794	24.56	30.94	1.23	1.55
4.40	5	0.791	30.61	38.68	1.53	1.93
4.60	5	0.789	28.64	36.28	1.43	1.81
4.80	6	0.787	34.27	43.54	1.71	2.18
5.00	7	0.785	39.88	50.80	1.99	2.54
5.20	8	0.783	45.46	58.06	2.27	2.90
5.40	9	0.781	51.01	65.31	2.55	3.27
5.60	11	0.779	58.57	75.18	2.93	3.76
5.80	10	0.777	53.12	68.34	2.66	3.42
6.00	12	0.775	63.60	82.01	3.18	4.10

Prova n. 24

6.20	12	0.774	63.45	82.01	3.17	4.10
6.40	14	0.722	69.08	95.68	3.45	4.78
6.60	15	0.720	69.78	96.87	3.49	4.84
6.80	14	0.719	64.98	90.41	3.25	4.52
7.00	14	0.717	64.84	90.41	3.24	4.52
7.20	15	0.716	69.32	96.87	3.47	4.84
7.40	17	0.714	78.40	109.78	3.92	5.49
7.60	15	0.713	65.44	91.81	3.27	4.59
7.80	16	0.711	69.66	97.93	3.48	4.90
8.00	18	0.710	78.21	110.18	3.91	5.51

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
3.8	2.53	22.47	Incoerente - coesivo	0	1.68	1.87	0.32	1.47	3.72	Deposito di frana
8	11	73.43	Incoerente - coesivo	0	2.08	2.29	1.08	1.47	16.17	Substrato alterato

STIMA PARAMETRI GEOTECNICI PROVA Nr.24

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	3.72	3.80	0.23	0.47	0.15	0.15	0.36	0.67	0.34	0.71	0.19	0.21	0.47
[2] - Substrato alterato	16.17	8.00	1.09	2.02	1.00	0.63	1.60	2.20	1.39	1.73	0.81	1.70	2.02

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.72	3.80	Robertson (1983)	7.44
[2] - Substrato alterato	16.17	8.00	Robertson (1983)	32.34

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	3.72	3.80	17.07	55.80	39.73	46.50
[2] - Substrato alterato	16.17	8.00	74.19	--	166.72	161.70

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	3.72	3.80	22.38	37.20
[2] - Substrato alterato	16.17	8.00	165.56	161.70

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	3.72	3.80	A.G.I. (1977)	POCO CONSISTENTE
[2] - Substrato alterato	16.17	8.00	A.G.I. (1977)	MOLTO CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	3.72	3.80	Meyerhof	1.68
[2] - Substrato alterato	16.17	8.00	Meyerhof	2.08

Prova n. 24

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	3.72	3.80	Meyerhof	1.87
[2] - Substrato alterato	16.17	8.00	Meyerhof	2.29

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.72	3.80		0
[2] - Substrato alterato	16.17	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	3.72	3.80	15.81	40.12	43.26	17.34
[2] - Substrato alterato	16.17	8.00	33.51	63.38	63.52	45.09

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	3.72	3.80	3.72	28.06	21.06	29.04	29.61	31.13	0	<30	22.47	28.12	29.26	23.63
[2] - Substrato alterato	16.17	8.00	16.17	31.62	24.62	32.53	29.35	35.86	36.87	30-32	30.57	31.85	39.21	32.98

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	3.72	3.80	3.72	---	29.76	---	---	---
[2] - Substrato alterato	16.17	8.00	16.17	287.03	129.36	191.51	301.27	155.85

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	3.72	3.80	3.72	---	35.11	26.41	54.59
[2] - Substrato alterato	16.17	8.00	16.17	97.02	60.68	114.81	110.12

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	3.72	3.80	3.72	Classificazione A.G.I	SCIOLTO
[2] - Substrato alterato	16.17	8.00	16.17	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	3.72	3.80	3.72	Meyerhof et al.	1.48
[2] - Substrato alterato	16.17	8.00	16.17	Meyerhof et al.	1.91

Prova n. 24

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	3.72	3.80	3.72	Terzaghi-Peck 1948-1967	1.88
[2] - Substrato alterato	16.17	8.00	16.17	Terzaghi-Peck 1948-1967	1.96

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	3.72	3.80	3.72	(A.G.I.)	0.35
[2] - Substrato alterato	16.17	8.00	16.17	(A.G.I.)	0.32

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	3.72	3.80	3.72	223.47	278.94
[2] - Substrato alterato	16.17	8.00	16.17	889.41	684.59

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	3.72	3.80	3.72	Ohta & Goto (1978) Limi	97.19
[2] - Substrato alterato	16.17	8.00	16.17	Ohta & Goto (1978) Limi	155.96

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	3.72	3.80	3.72	Seed e Idriss (1971)	--
[2] - Substrato alterato	16.17	8.00	16.17	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	3.72	3.80	3.72		---
[2] - Substrato alterato	16.17	8.00	16.17		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	3.72	3.80	3.72		---
[2] - Substrato alterato	16.17	8.00	16.17		---

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Sito web: www.geologicatoscana.eu

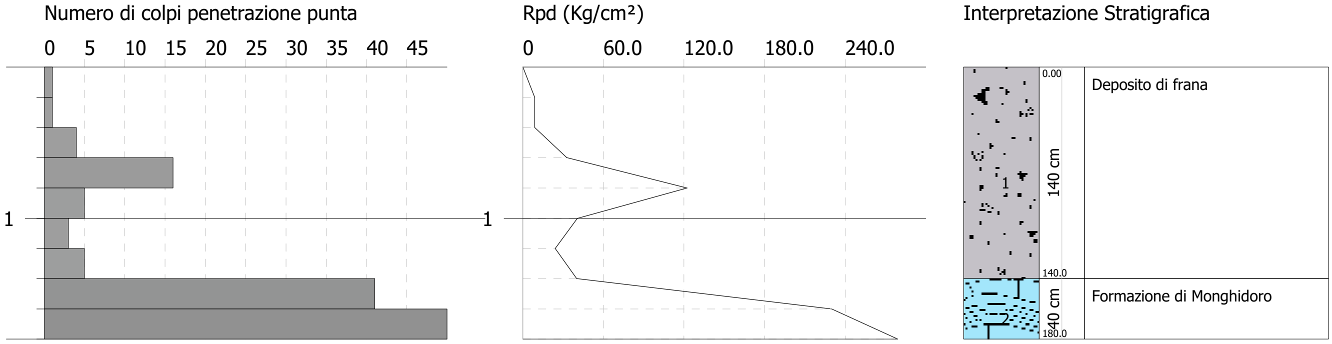
DPSH25_ms3

PROVA PENETROMETRICA DINAMICA Nr.25
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 25

PROVA DPSH Nr.25

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 1.80 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	4	0.847	32.67	38.57	1.63	1.93
0.80	16	0.793	122.41	154.30	6.12	7.71
1.00	5	0.840	40.49	48.22	2.02	2.41
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	5	0.833	40.16	48.22	2.01	2.41
1.60	41	0.630	230.00	365.34	11.50	18.27
1.80	50	0.626	279.05	445.54	13.95	22.28

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.4	5	48.47	Incoerente - coesivo	0	1.87	1.9	0.13	1.47	7.35	Deposito di frana
1.8	45.5	405.44	Incoerente - coesivo	0	2.5	2.5	0.31	1.47	66.89	Formazione di Monghidoro

Prova n. 25

STIMA PARAMETRI GEOTECNICI PROVA Nr.25

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	7.35	1.40	0.46	0.92	0.25	0.30	0.72	1.45	0.66	0.99	0.37	1.13	0.92
[2] - Formazione di Monghidoro	66.89	1.80	4.52	8.36	0.00	2.20	6.72	12.16	4.51	7.90	3.35	11.62	8.36

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.35	1.40	Robertson (1983)	14.70
[2] - Formazione di Monghidoro	66.89	1.80	Robertson (1983)	133.78

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	7.35	1.40	33.72	--	76.76	91.88
[2] - Formazione di Monghidoro	66.89	1.80	306.89	--	684.03	668.90

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	7.35	1.40	64.13	73.50
[2] - Formazione di Monghidoro	66.89	1.80	748.84	668.90

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	7.35	1.40	A.G.I. (1977)	MODERAT. CONSISTENTE
[2] - Formazione di Monghidoro	66.89	1.80	A.G.I. (1977)	ESTREM. CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	7.35	1.40	Meyerhof	1.87
[2] - Formazione di Monghidoro	66.89	1.80	Meyerhof	2.50

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	7.35	1.40	Meyerhof	1.90
[2] - Formazione di Monghidoro	66.89	1.80	Meyerhof	2.50

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.35	1.40		0
[2] - Formazione di Monghidoro	66.89	1.80		0

Prova n. 25

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	7.35	1.40	31.8	62.46	75.66	26.83
[2] - Formazione di Monghidoro	66.89	1.80	84.19	100	100	99.04

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	7.35	1.40	7.35	29.1	22.1	30.06	32.65	32.63	0	<30	25.5	29.2	35.92	27.12
[2] - Formazione di Monghidoro	66.89	1.80	66.89	46.11	39.11	46.73	34.34	42.34	42	>38	46.68	47.07	54.51	51.58

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	7.35	1.40	7.35	---	58.80	---	---	---
[2] - Formazione di Monghidoro	66.89	1.80	66.89	583.78	535.12	790.00	681.67	409.45

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	7.35	1.40	7.35	---	42.56	52.18	70.78
[2] - Formazione di Monghidoro	66.89	1.80	66.89	401.34	164.86	474.92	336.33

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	7.35	1.40	7.35	Classificazione A.G.I	POCO ADDENSATO
[2] - Formazione di Monghidoro	66.89	1.80	66.89	Classificazione A.G.I	MOLTO ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	7.35	1.40	7.35	Meyerhof et al.	1.63
[2] - Formazione di Monghidoro	66.89	1.80	66.89	Meyerhof et al.	2.36

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	7.35	1.40	7.35	Terzaghi-Peck 1948-1967	1.90
[2] - Formazione di Monghidoro	66.89	1.80	66.89	Terzaghi-Peck 1948-1967	2.18

Prova n. 25

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	7.35	1.40	7.35	(A.G.I.)	0.34
[2] - Formazione di Monghidoro	66.89	1.80	66.89	(A.G.I.)	0.22

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	7.35	1.40	7.35	423.86	422.87
[2] - Formazione di Monghidoro	66.89	1.80	66.89	3378.73	1630.07

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	7.35	1.40	7.35	Ohta & Goto (1978) Limi	90.18
[2] - Formazione di Monghidoro	66.89	1.80	66.89	Ohta & Goto (1978) Limi	154.99

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	7.35	1.40	7.35	Seed e Idriss (1971)	--
[2] - Formazione di Monghidoro	66.89	1.80	66.89	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	7.35	1.40	7.35		---
[2] - Formazione di Monghidoro	66.89	1.80	66.89		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	7.35	1.40	7.35		---
[2] - Formazione di Monghidoro	66.89	1.80	66.89		---

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tel. 0577935891 - email: info@geologicatoscana.eu
Sito web: www.geologicatoscana.eu

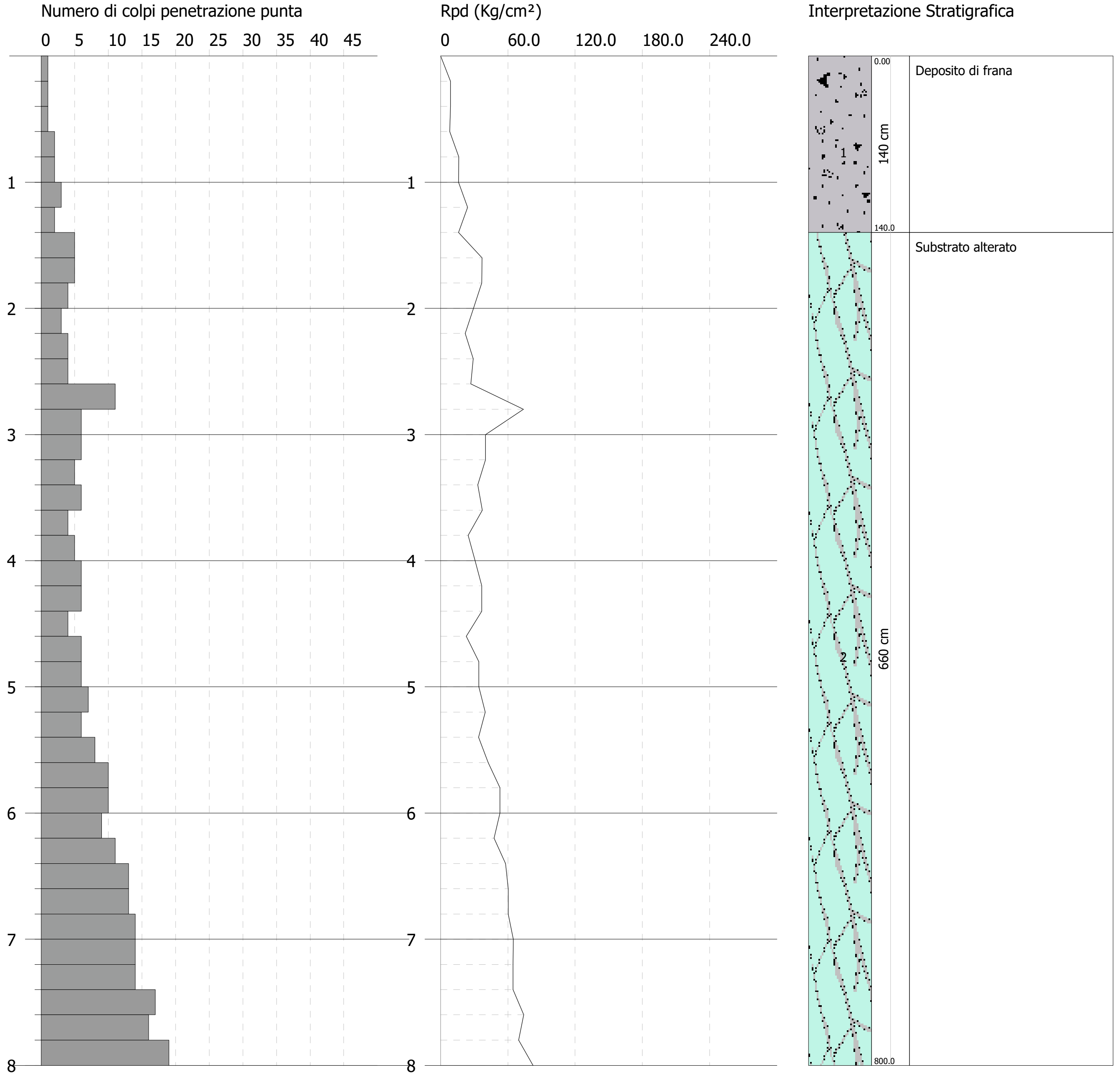
DPSH26_ms3

PROVA PENETROMETRICA DINAMICA Nr.26
Strumento utilizzato... DPSH TG 63-200 PAGANI

Committente: Unione dei Comuni Savena - Idice
Descrizione: Microzonazione Sismica di III° livello
Località: Comune di Monghidoro (BO)

Data: 19/02/2021

Scala 1:50



Prova n. 26

PROVA DPSH Nr.26

Strumento utilizzato... DPSH TG 63-200 PAGANI
Prova eseguita in data 19/02/2021
Profondità prova 8.00 mt
Falda non rilevata

Tipo elaborazione Nr. Colpi: Medio

Profondità (m)	Nr. Colpi	Calcolo coeff. riduzione sonda Chi	Res. dinamica ridotta (Kg/cm²)	Res. dinamica (Kg/cm²)	Pres. ammissibile con riduzione Herminier - Olandesi (Kg/cm²)	Pres. ammissibile Herminier - Olandesi (Kg/cm²)
0.20	1	0.855	8.98	10.51	0.45	0.53
0.40	1	0.851	8.94	10.51	0.45	0.53
0.60	1	0.847	8.17	9.64	0.41	0.48
0.80	2	0.843	16.27	19.29	0.81	0.96
1.00	2	0.840	16.20	19.29	0.81	0.96
1.20	3	0.836	24.19	28.93	1.21	1.45
1.40	2	0.833	16.06	19.29	0.80	0.96
1.60	5	0.830	36.96	44.55	1.85	2.23
1.80	5	0.826	36.82	44.55	1.84	2.23
2.00	4	0.823	29.34	35.64	1.47	1.78
2.20	3	0.820	21.92	26.73	1.10	1.34
2.40	4	0.817	29.13	35.64	1.46	1.78
2.60	4	0.814	26.97	33.13	1.35	1.66
2.80	11	0.811	73.92	91.10	3.70	4.55
3.00	6	0.809	40.18	49.69	2.01	2.48
3.20	6	0.806	40.05	49.69	2.00	2.48
3.40	5	0.803	33.27	41.41	1.66	2.07
3.60	6	0.801	37.17	46.41	1.86	2.32
3.80	4	0.798	24.70	30.94	1.24	1.55
4.00	5	0.796	30.79	38.68	1.54	1.93
4.20	6	0.794	36.84	46.41	1.84	2.32
4.40	6	0.791	36.73	46.41	1.84	2.32
4.60	4	0.789	22.91	29.03	1.15	1.45
4.80	6	0.787	34.27	43.54	1.71	2.18
5.00	6	0.785	34.18	43.54	1.71	2.18
5.20	7	0.783	39.78	50.80	1.99	2.54
5.40	6	0.781	34.01	43.54	1.70	2.18
5.60	8	0.779	42.60	54.67	2.13	2.73
5.80	10	0.777	53.12	68.34	2.66	3.42
6.00	10	0.775	53.00	68.34	2.65	3.42

Prova n. 26

6.20	9	0.774	47.59	61.51	2.38	3.08
6.40	11	0.772	58.04	75.18	2.90	3.76
6.60	13	0.720	60.48	83.95	3.02	4.20
6.80	13	0.719	60.34	83.95	3.02	4.20
7.00	14	0.717	64.84	90.41	3.24	4.52
7.20	14	0.716	64.70	90.41	3.24	4.52
7.40	14	0.714	64.57	90.41	3.23	4.52
7.60	17	0.713	74.16	104.05	3.71	5.20
7.80	16	0.711	69.66	97.93	3.48	4.90
8.00	19	0.710	82.56	116.30	4.13	5.81

Prof. Strato (m)	NPDM	Rd (Kg/cm²)	Tipo	Clay Fraction (%)	Peso unità di volume (t/m³)	Peso unità di volume saturo (t/m³)	Tensione efficace (Kg/cm²)	Coeff. di correlaz. con Nspt	NSPT	Descrizione
1.4	1.71	16.78	Incoerente - coesivo	0	1.6	1.86	0.11	1.47	2.51	Deposito di frana
8	8.39	59.3	Incoerente - coesivo	0	2.02	2.22	0.89	1.47	12.33	Substrato alterato

STIMA PARAMETRI GEOTECNICI PROVA Nr.26

TERRENI COESIVI

Coesione non drenata (Kg/cm²)

	NSPT	Prof. Strato (m)	Terzaghi -Peck	Sanglerat	Terzaghi -Peck (1948)	U.S.D.M .S.M	Schmertmann 1975	SUNDA (1983) Benassi e Vannelli	Fletcher (1965) Argilla di Chicago	Houston (1960)	Shioi - Fukui 1982	Begemann	De Beer
[1] - Deposito di frana	2.51	1.40	0.16	0.31	0.15	0.10	0.24	0.50	0.23	0.62	0.13	0.29	0.31
[2] - Substrato alterato	12.33	8.00	0.83	1.54	0.50	0.49	1.21	1.78	1.08	1.39	0.62	1.05	1.54

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	2.51	1.40	Robertson (1983)	5.02
[2] - Substrato alterato	12.33	8.00	Robertson (1983)	24.66

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Stroud e Butler (1975)	Vesic (1970)	Trofimenkov (1974), Mitchell e Gardner	Buisman-Sanglerat
[1] - Deposito di frana	2.51	1.40	11.52	37.65	27.39	31.38
[2] - Substrato alterato	12.33	8.00	56.57	--	127.55	123.30

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Schultze	Apollonia
[1] - Deposito di frana	2.51	1.40	8.47	25.10
[2] - Substrato alterato	12.33	8.00	121.40	123.30

Classificazione AGI

	NSPT	Prof. Strato (m)	Correlazione	Classificazione
[1] - Deposito di frana	2.51	1.40	A.G.I. (1977)	POCO CONSISTENTE
[2] - Substrato alterato	12.33	8.00	A.G.I. (1977)	CONSISTENTE

Peso unità di volume

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume (t/m³)
[1] - Deposito di frana	2.51	1.40	Meyerhof	1.60
[2] - Substrato alterato	12.33	8.00	Meyerhof	2.02

Prova n. 26

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Correlazione	Peso unità di volume saturo (t/m³)
[1] - Deposito di frana	2.51	1.40	Meyerhof	1.86
[2] - Substrato alterato	12.33	8.00	Meyerhof	2.22

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	2.51	1.40		0
[2] - Substrato alterato	12.33	8.00		0

TERRENI INCOERENTI

Densità relativa

	NSPT	Prof. Strato (m)	Gibbs & Holtz 1957	Meyerhof 1957	Schultze & Menzenbach (1961)	Skempton 1986
[1] - Deposito di frana	2.51	1.40	12.64	36.92	47.16	13.89
[2] - Substrato alterato	12.33	8.00	30.17	58.47	58.62	37.91

Angolo di resistenza al taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Peck-Hanson-Thornburn-Meyerhof 1956	Meyerhof (1956)	Sowers (1961)	Malcev (1964)	Meyerhof (1965)	Schmertmann (1977) Sabbie	Mitchell & Katti (1981)	Shioi-Fukuni 1982 (ROAD BRIDGE SPECIFICATION)	Japanese National Railway	De Mello	Owasaki & Iwasaki
[1] - Deposito di frana	2.51	1.40	2.51	27.72	20.72	28.7	31.24	30.6	0	<30	21.14	27.75	26.61	22.09
[2] - Substrato alterato	12.33	8.00	12.33	30.52	23.52	31.45	29.32	34.53	36.19	30-32	28.6	30.7	37.55	30.7

Modulo di Young (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Terzaghi	Schmertmann (1978) (Sabbie)	Schultze-Menzenbach (Sabbia ghiaiosa)	D'Appollonia ed altri 1970 (Sabbia)	Bowles (1982) Sabbia Media
[1] - Deposito di frana	2.51	1.40	2.51	---	20.08	---	---	---
[2] - Substrato alterato	12.33	8.00	12.33	250.64	98.64	146.19	272.48	136.65

Modulo Edometrico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Buisman-Sanglerat (sabbie)	Begemann 1974 (Ghiaia con sabbia)	Farrent 1963	Menzenbach e Malcev (Sabbia media)
[1] - Deposito di frana	2.51	1.40	2.51	---	32.62	17.82	49.19
[2] - Substrato alterato	12.33	8.00	12.33	73.98	52.79	87.54	92.99

Classificazione AGI

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Classificazione AGI
[1] - Deposito di frana	2.51	1.40	2.51	Classificazione A.G.I	SCIOLTO
[2] - Substrato alterato	12.33	8.00	12.33	Classificazione A.G.I	MODERATAMENTE ADDENSATO

Peso unità di volume

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità di Volume (t/m³)
[1] - Deposito di frana	2.51	1.40	2.51	Meyerhof et al.	1.43
[2] - Substrato alterato	12.33	8.00	12.33	Meyerhof et al.	1.80

Prova n. 26

Peso unità di volume saturo

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Peso Unità Volume Saturo (t/m³)
[1] - Deposito di frana	2.51	1.40	2.51	Terzaghi-Peck 1948-1967	1.87
[2] - Substrato alterato	12.33	8.00	12.33	Terzaghi-Peck 1948-1967	1.93

Modulo di Poisson

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Poisson
[1] - Deposito di frana	2.51	1.40	2.51	(A.G.I.)	0.35
[2] - Substrato alterato	12.33	8.00	12.33	(A.G.I.)	0.33

Modulo di deformazione a taglio dinamico (Kg/cm²)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Ohsaki (Sabbie pulite)	Robertson e Campanella (1983) e Imai & Tonouchi (1982)
[1] - Deposito di frana	2.51	1.40	2.51	154.39	219.34
[2] - Substrato alterato	12.33	8.00	12.33	689.32	580.08

Velocità onde di taglio

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Velocità onde di taglio (m/s)
[1] - Deposito di frana	2.51	1.40	2.51	Ohta & Goto (1978) Limi	74.88
[2] - Substrato alterato	12.33	8.00	12.33	Ohta & Goto (1978) Limi	142.42

Liquefazione

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Fs Liquefazione
[1] - Deposito di frana	2.51	1.40	2.51	Seed e Idriss (1971)	--
[2] - Substrato alterato	12.33	8.00	12.33	Seed e Idriss (1971)	--

Coefficiente spinta a Riposo K0=SigmaH/P0

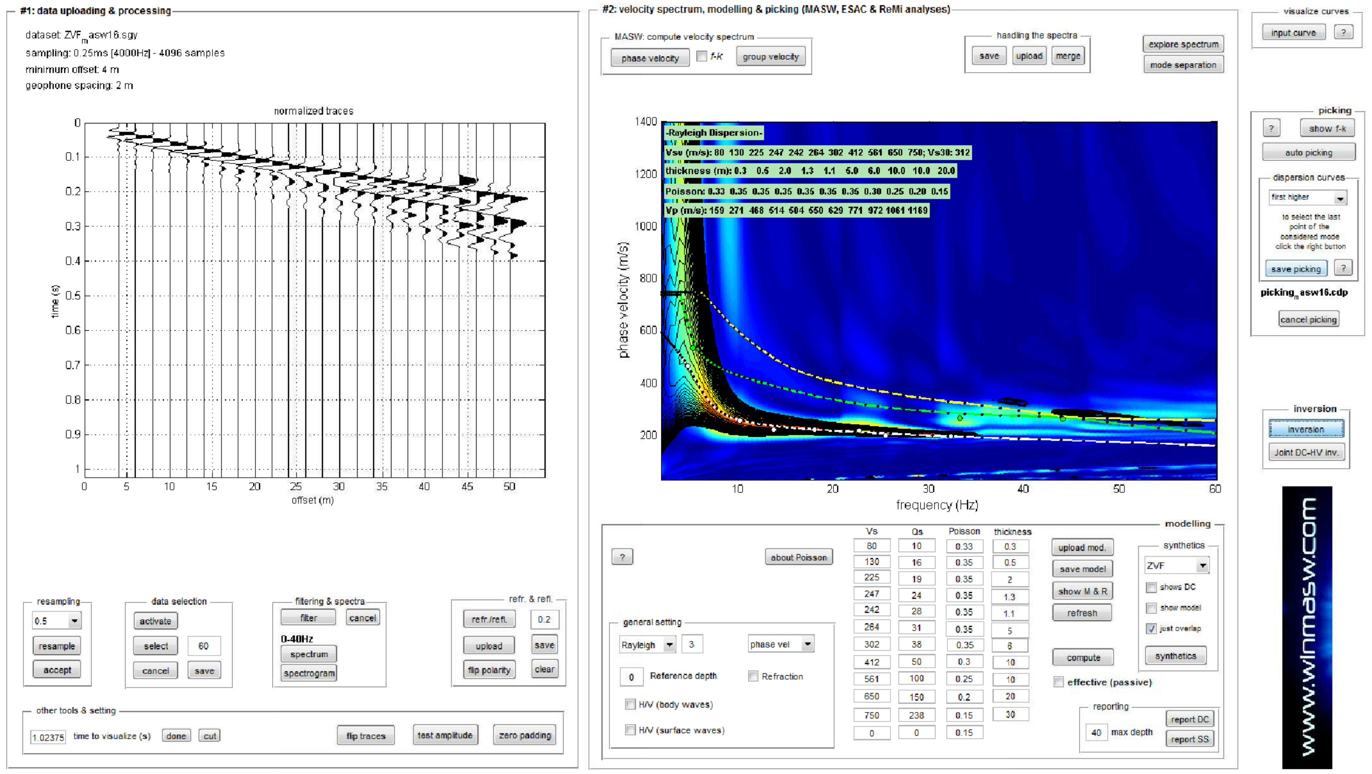
	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	K0
[1] - Deposito di frana	2.51	1.40	2.51		---
[2] - Substrato alterato	12.33	8.00	12.33		---

Qc (Resistenza punta Penetrometro Statico)

	NSPT	Prof. Strato (m)	Nspt corretto per presenza falda	Correlazione	Qc (Kg/cm²)
[1] - Deposito di frana	2.51	1.40	2.51		---
[2] - Substrato alterato	12.33	8.00	12.33		---

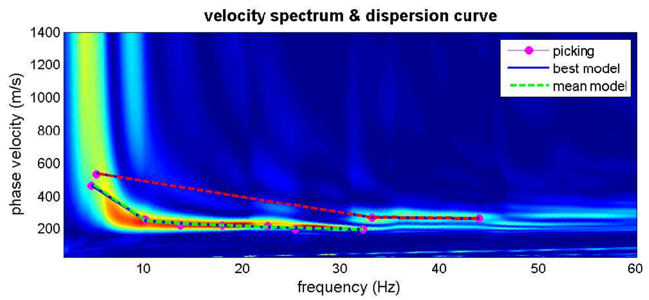
SPETTRO DI VELOCITA' MASW

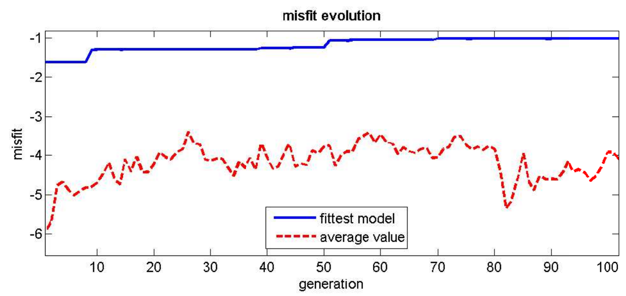
MASW16_MS3

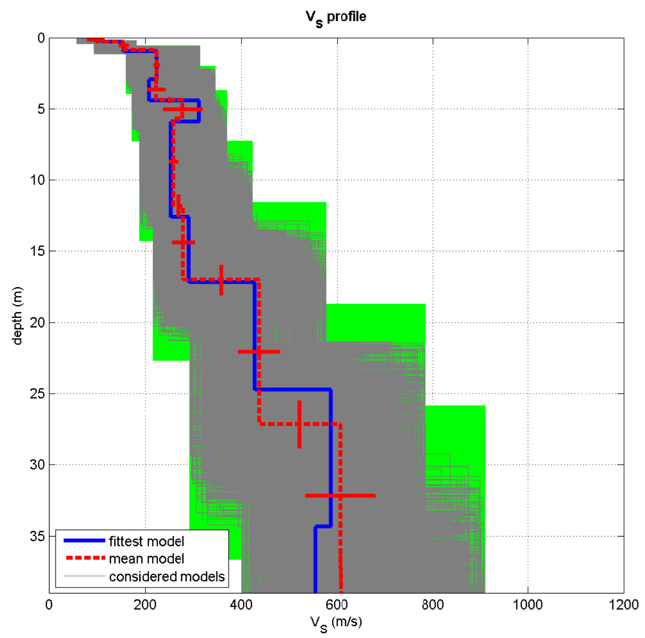


Stendimento MASW 16

INVERSIONE MASW E PROFILO DI VELOCITA'







www.winmasw.com

dataset: ZVF$_{m}$asw16.sgy
dispersion curve: picking$_{m}$asw16.cdp
Vs30 (best model): 311 m/s
Vs30 (mean model): 309 m/s

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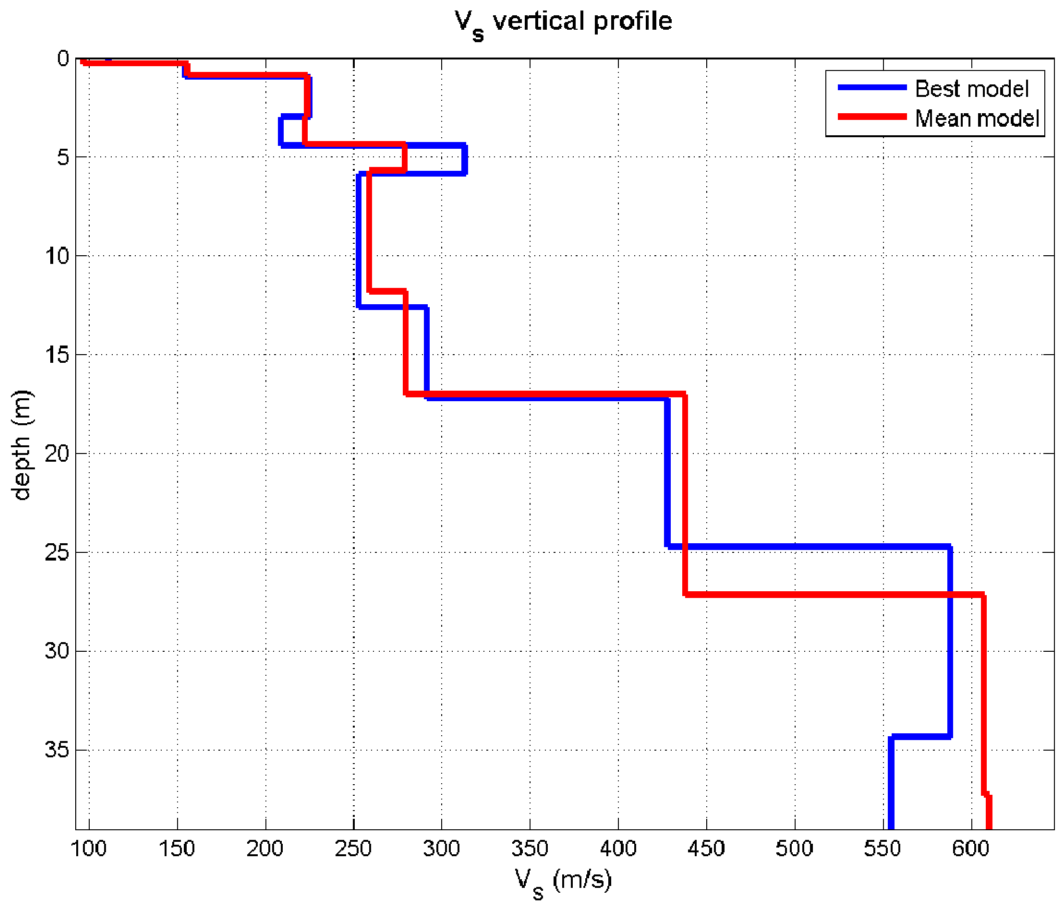
RISULTANZE DELL'ANALISI SISMICA MASW 16

PROFILO DI VELOCITA' MASW 16



Vs (m/s):97, 156, 224, 223, 279, 259, 280, 438, 607, 610, 735
Standard deviations (m/s):18, 10, 6, 19, 41, 10, 24, 44, 73, 79, 106

Thickness (m):0.3, 0.6, 2.1, 1.4, 1.3, 6.1, 5.2, 10.2, 10.1, 19.9
Standard deviations (m/s):0.0, 0.1, 0.3, 0.2, 0.2, 0.8, 1.1, 1.7, 1.4, 2.3

Density (gr/cm3) (approximate values):1.651.781.901.851.991.981.952.012.062.062.09
Seismic/Dynamic Shear modulus (MPa) (approximate values):1543959215513315338675976711129

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1843215214277587286508441022103011 62
Poisson:0.310.350.390.310.420.430.390.320.230.230.17

Vs30 (m/s): 309

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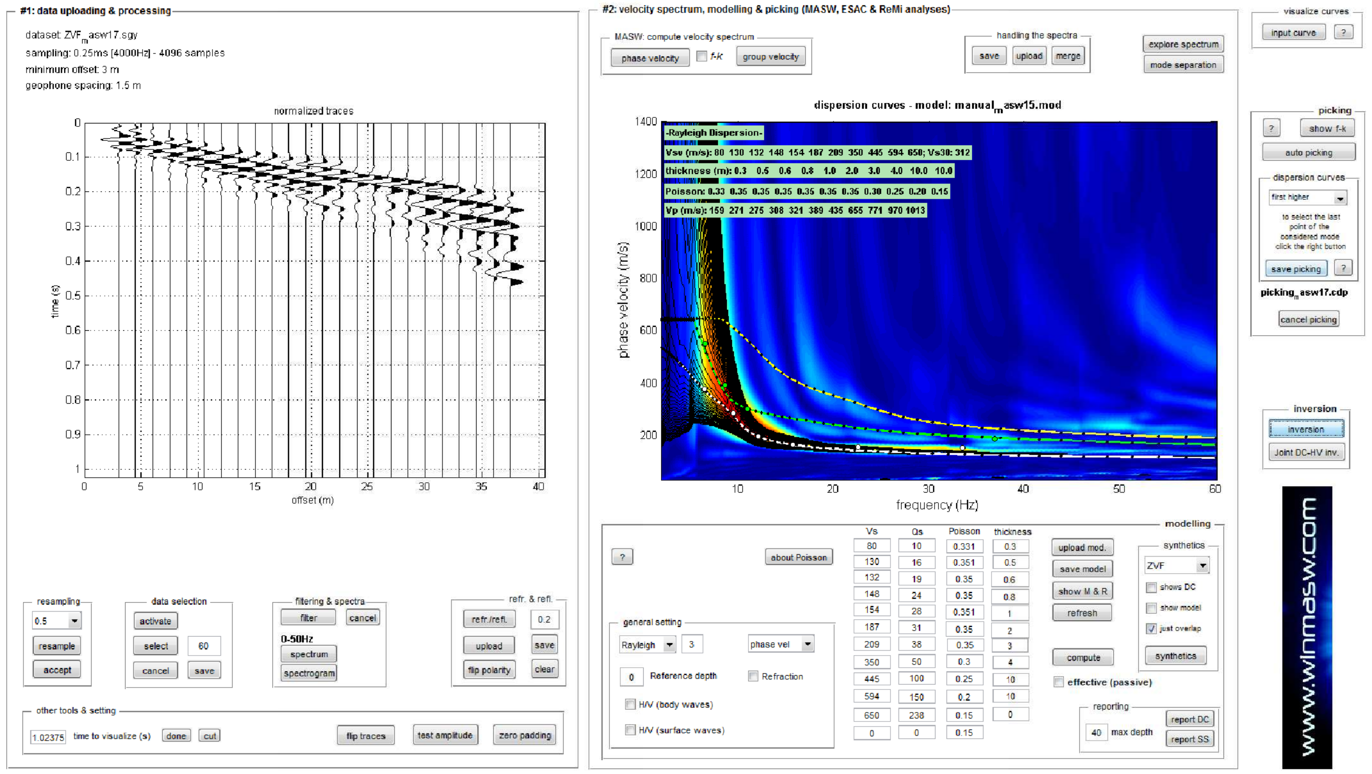
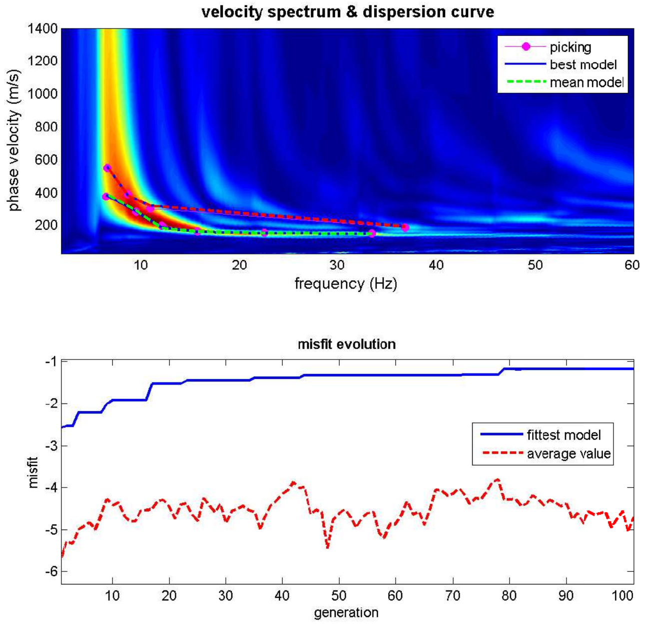
SPETTRO DI VELOCITA' MASW

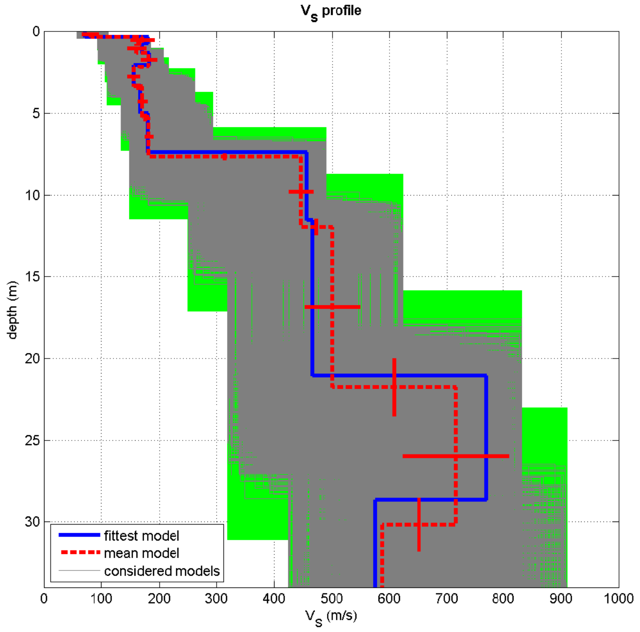
MASW17_MS3



Stendimento MASW 17

INVERSIONE MASW E PROFILO DI VELOCITA'





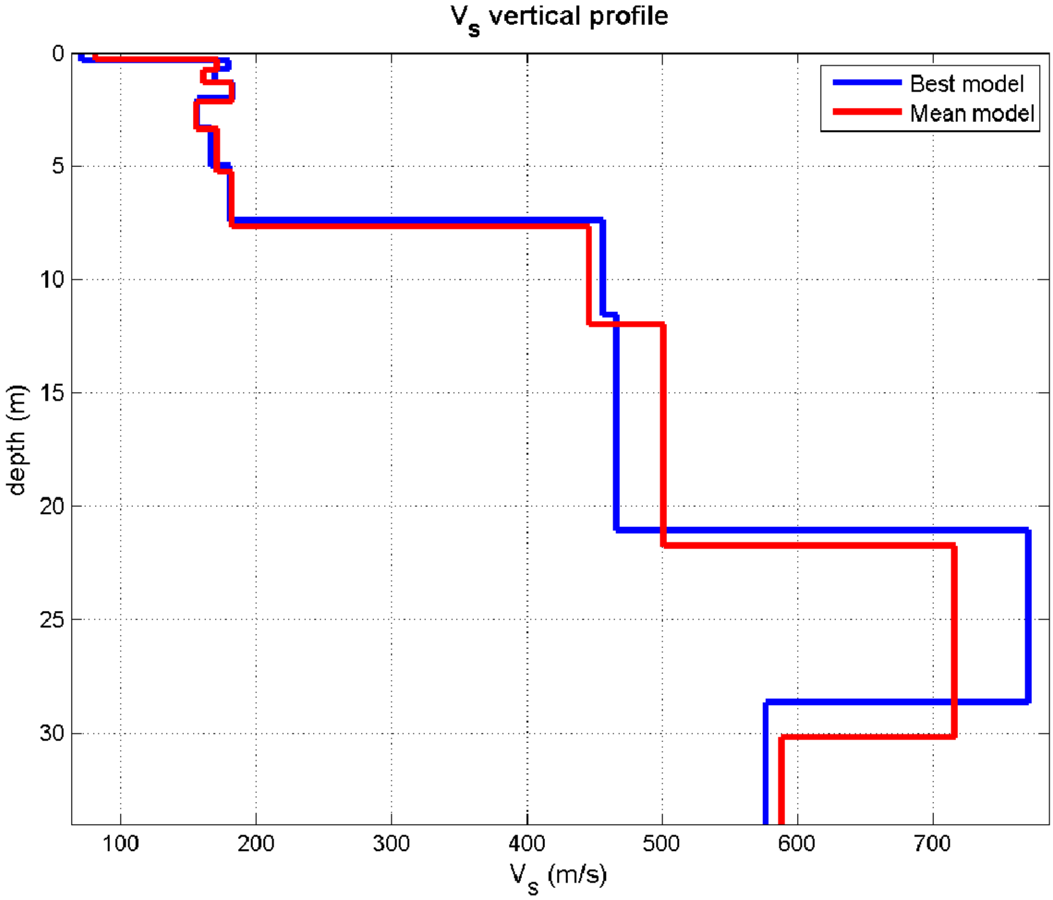
dataset: ZVF_masw17.sgy
dispersion curve: $picking_m$asw17.cdp
Vs30 (best model): 343 m/s
Vs30 (mean model): 344 m/s

half-space

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 17

PROFILO DI VELOCITA' MASW 17



Vs (m/s):81, 171, 161, 182, 156, 171, 182, 446, 501, 716, 588
Standard deviations (m/s):15, 20, 16, 13, 10, 8, 7, 21, 48, 93, 59

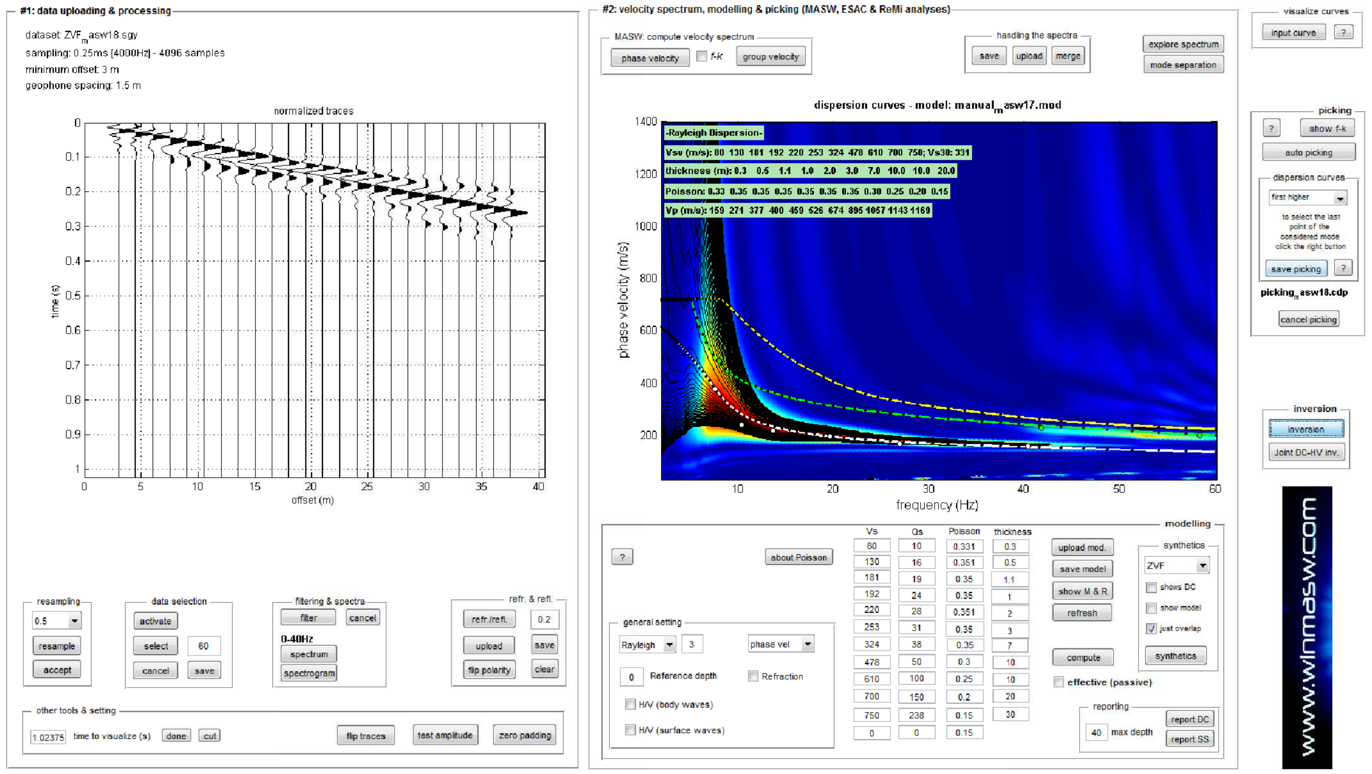
Thickness (m):0.3, 0.4, 0.6, 0.9, 1.2, 1.9, 2.4, 4.3, 9.8, 8.4
Standard deviations (m/s):0.0, 0.1, 0.1, 0.1, 0.2, 0.2, 0.2, 0.5, 1.8, 1.6

Density (gr/cm3) (approximate values):1.611.871.781.791.801.821.791.992.012.092.03
Seismic/Dynamic Shear modulus (MPa) (approximate values):115546594453593955031069703

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1584653183343453823337608201140916
Poisson:0.320.420.330.290.370.370.290.240.200.170.15

Vs30 (m/s): 344

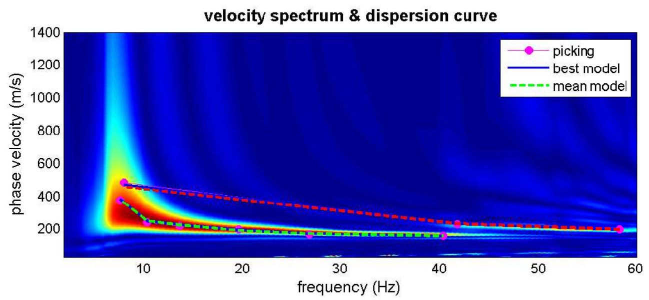
SPETTRO DI VELOCITA' MASW

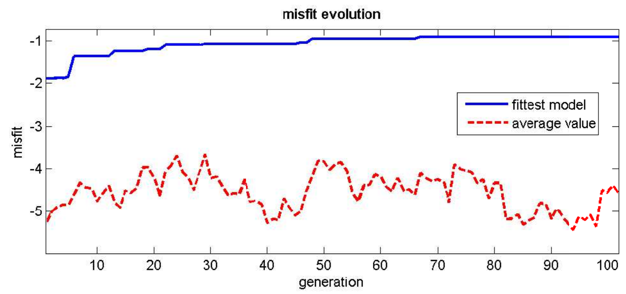


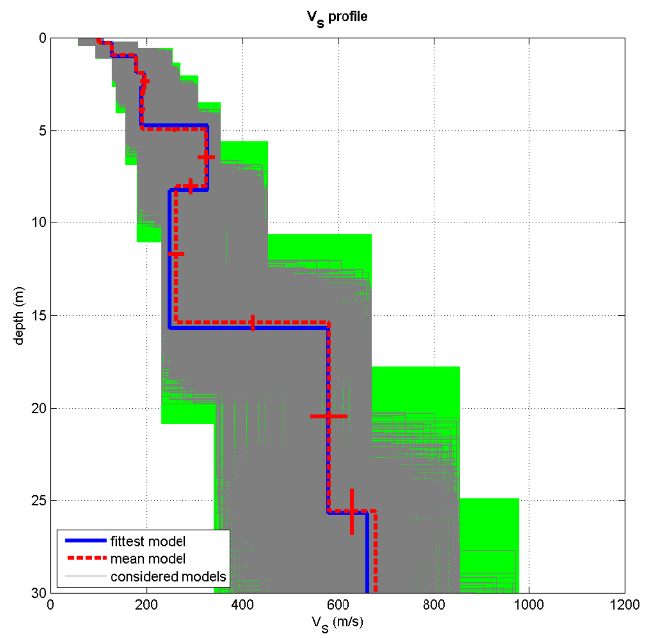
MASW18_MS3

Stendimento MASW 18

INVERSIONE MASW E PROFILO DI VELOCITA'







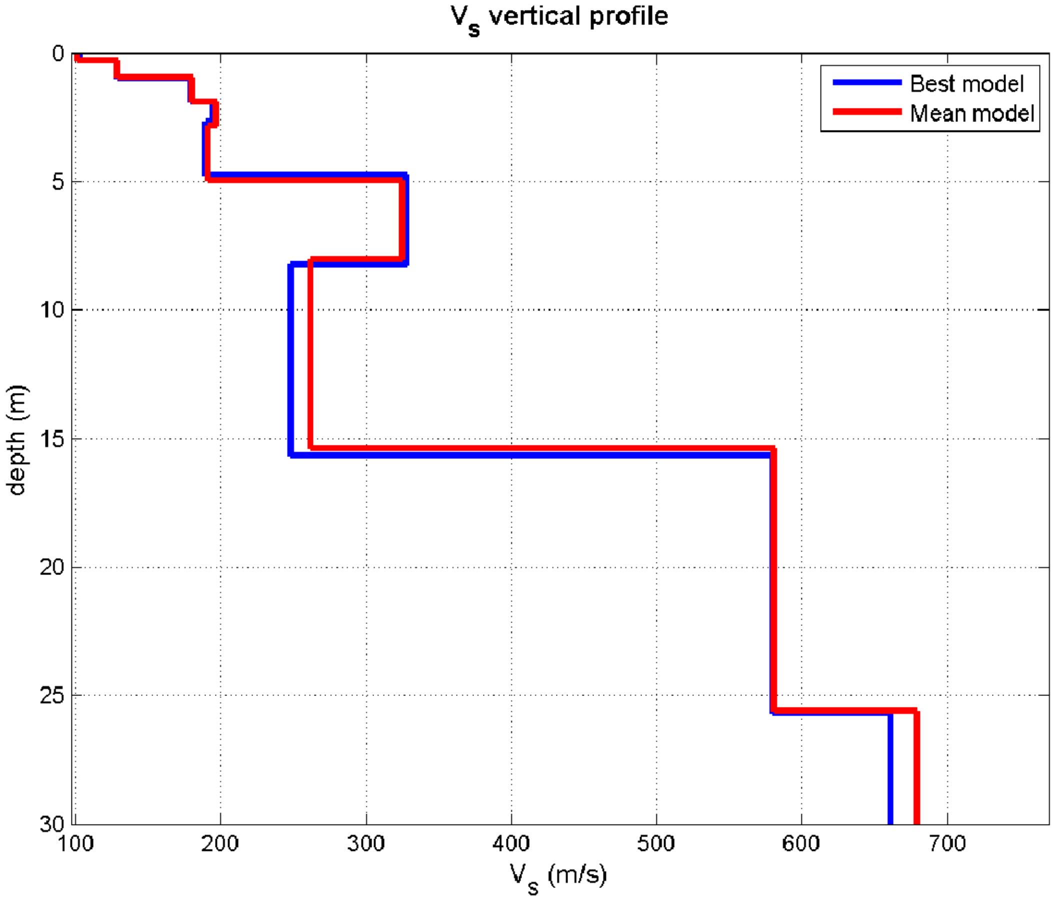
www.winmasw.com

dataset: ZVF_m asw18.sgy
dispersion curve: picking_m asw18.cdp
Vs30 (best model): 324 m/s
Vs30 (mean model): 330 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 18

PROFILO DI VELOCITA' MASW 18



Vs (m/s):101, 129, 180, 197, 191, 325, 262, 581, 679, 685, 730
Standard deviations (m/s):5, 2, 1, 10, 6, 17, 16, 38, 79, 74, 142

Thickness (m):0.3, 0.7, 0.9, 1.0, 2.1, 3.1, 7.4, 10.2, 11.9, 20.5
Standard deviations (m/s):0.0, 0.0, 0.1, 0.2, 0.1, 0.4, 0.4, 1.2, 2.4, 2.6

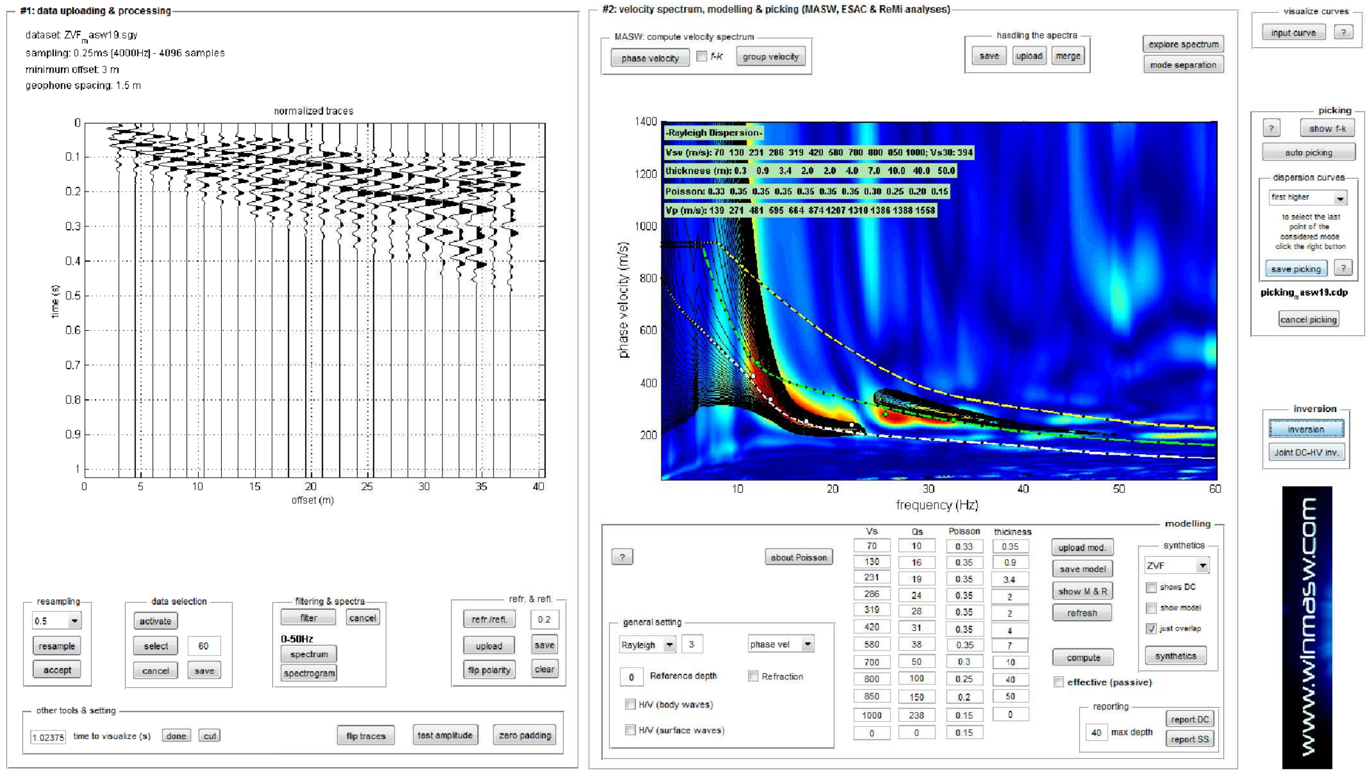
Density (gr/cm3) (approximate values):1.701.791.891.801.811.931.972.112.092.082.09
Seismic/Dynamic Shear modulus (MPa) (approximate values):17306170662041357149659741113

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):234339516343364596716128311741094 1155
Poisson:0.390.420.430.250.310.290.420.370.250.180.17

Vs30 (m/s): 330

GEOLOGICA TOSCANA s.n.c.

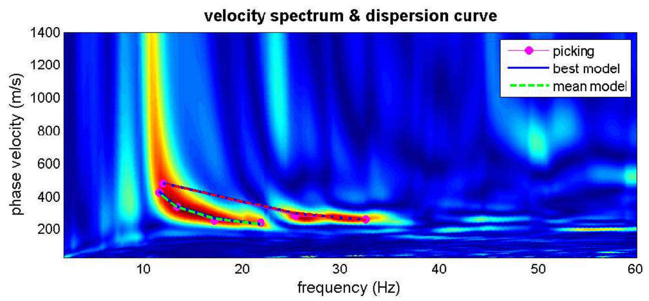
SPETTRO DI VELOCITA' MASW

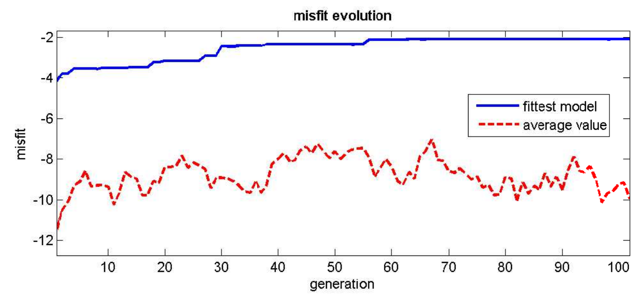


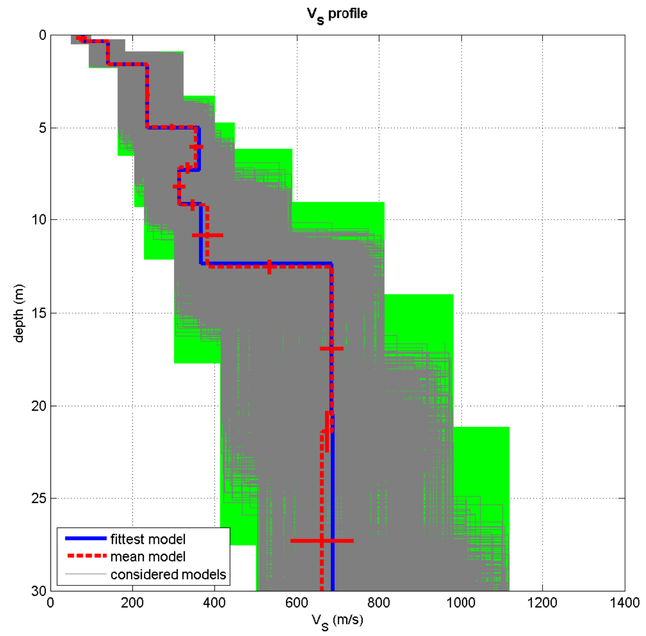
MASW19_MS3

Stendimento MASW 19

INVERSIONE MASW E PROFILO DI VELOCITA'







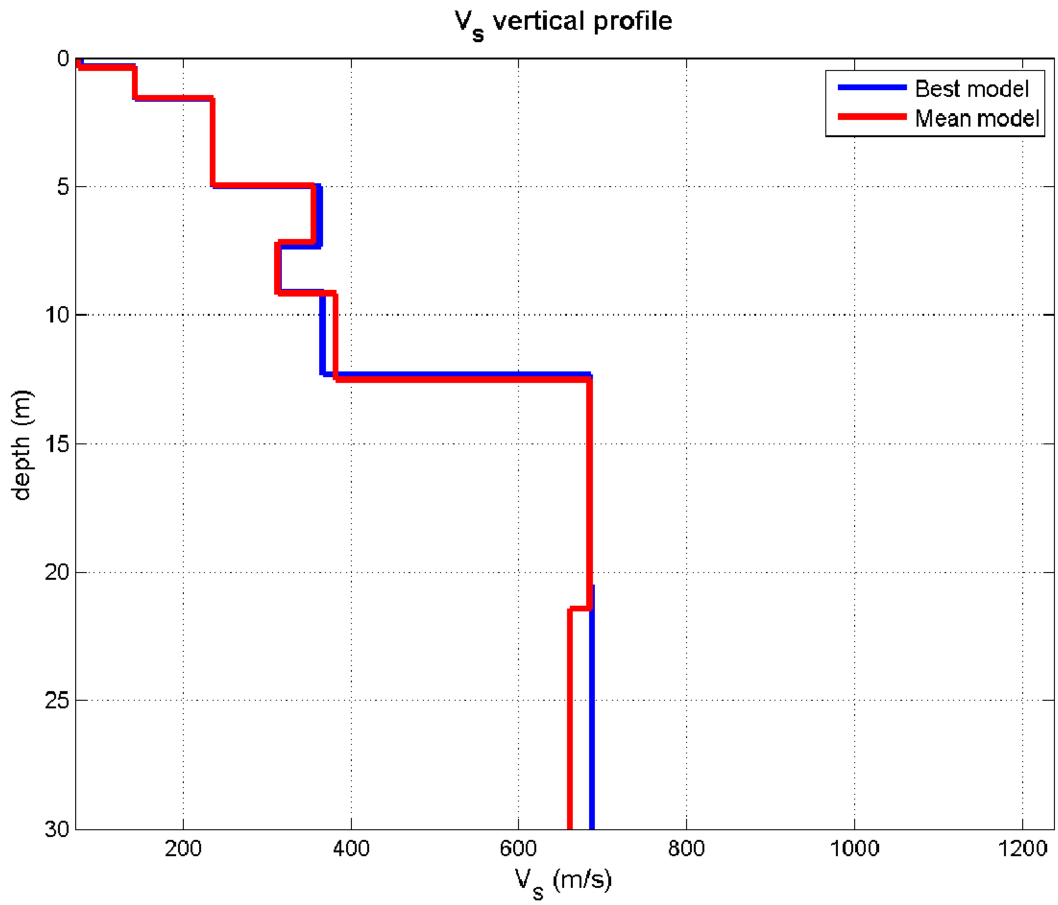
www.winmasw.com

dataset: ZVF_masw19.sgy
dispersion curve: $picking_m$asw19.cdp
Vs30 (best model): 403 m/s
Vs30 (mean model): 399 m/s

GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 19

PROFILO DI VELOCITA' MASW 19



Vs (m/s):75, 142, 235, 355, 313, 382, 685, 661, 865, 1032, 1042
Standard deviations (m/s):12, 1, 5, 17, 15, 37, 29, 77, 191, 161, 111

Thickness (m):0.4, 1.2, 3.4, 2.2, 2.0, 3.3, 8.9, 11.8, 46.1, 56.3
Standard deviations (m/s):0.0, 0.1, 0.1, 0.3, 0.3, 0.4, 1.1, 1.7, 3.4, 7.4

Density (gr/cm3) (approximate values):1.641.961.861.991.932.102.172.122.142.182.17
Seismic/Dynamic Shear modulus (MPa) (approximate values):9391032501893061020925160423222361

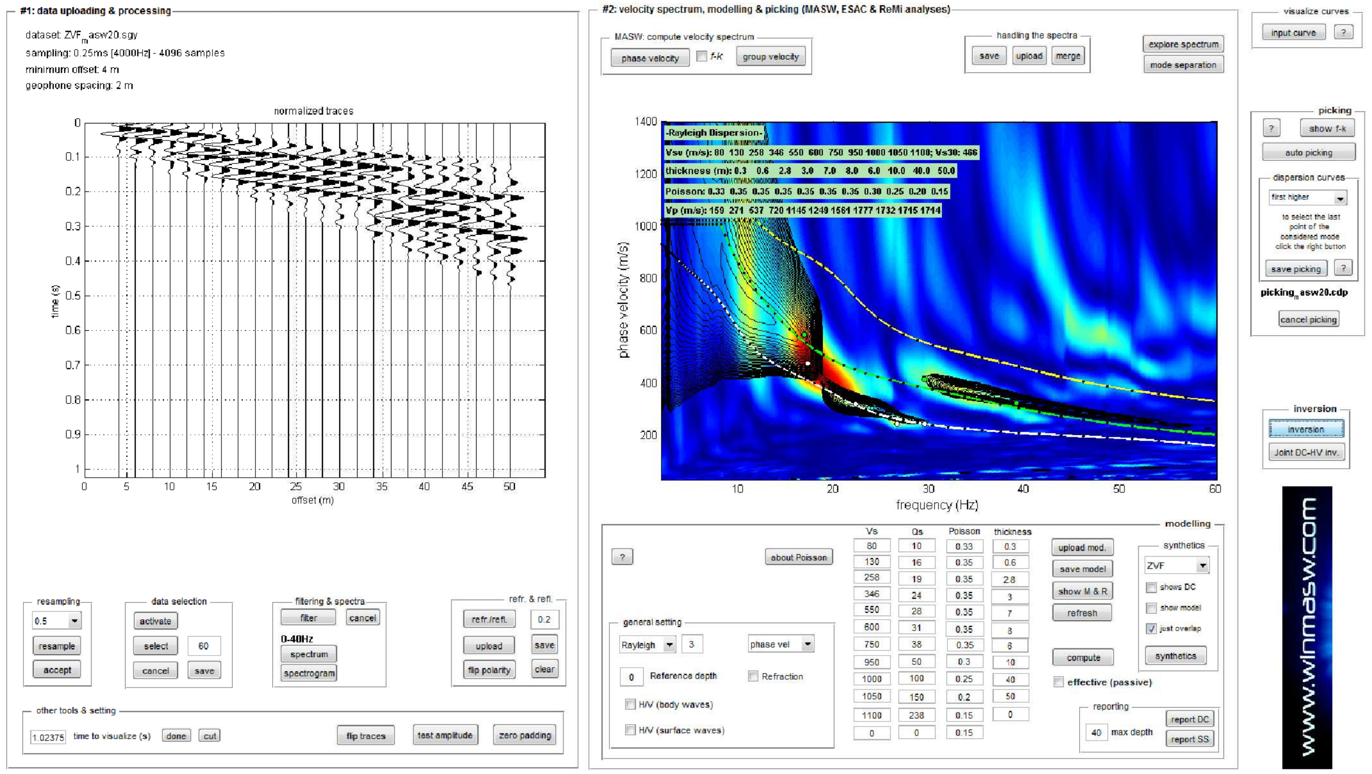
Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):177674457759591120116371298144416811640
Poisson:0.390.480.320.360.310.440.390.320.220.200.16

Vs30 (m/s): 399

GEOLOGICA TOSCANA s.n.c.

SPETTRO DI VELOCITA' MASW

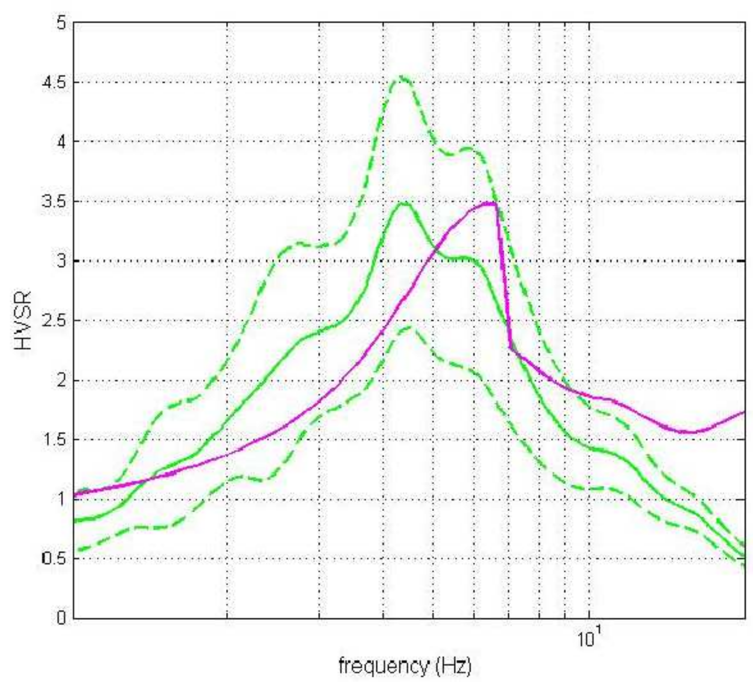
MASW20_MS3

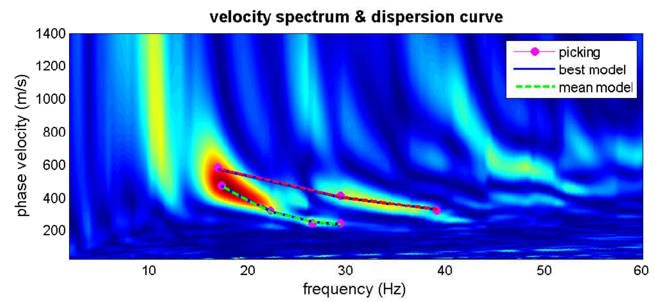


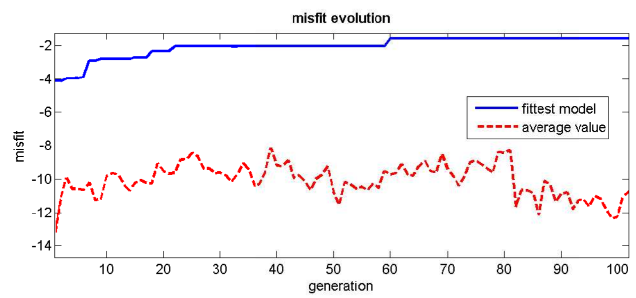
Stendimento MASW 20

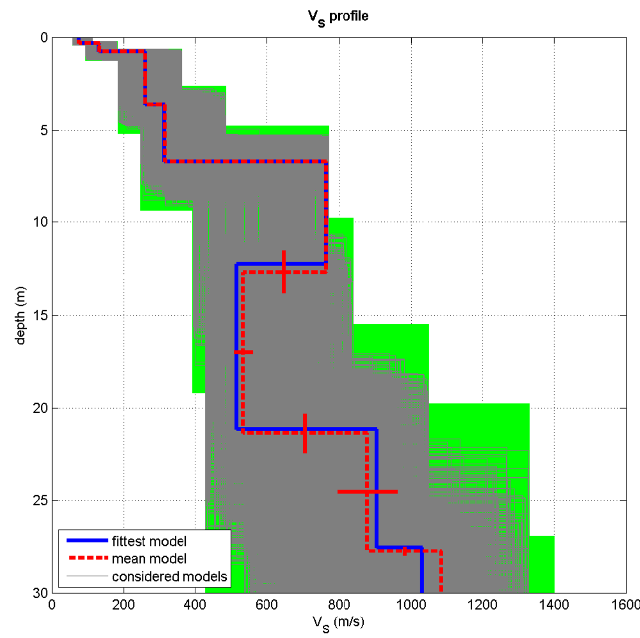
INVERSIONE MASW E PROFILO DI VELOCITA'

INVERSIONE CONGIUNTA HVSR20 – MASW20









dataset: ZVF_m_asw20.sgy
dispersion curve: picking_m_asw20.cdp
Vs30 (best model): 479 m/s
Vs30 (mean model): 484 m/s

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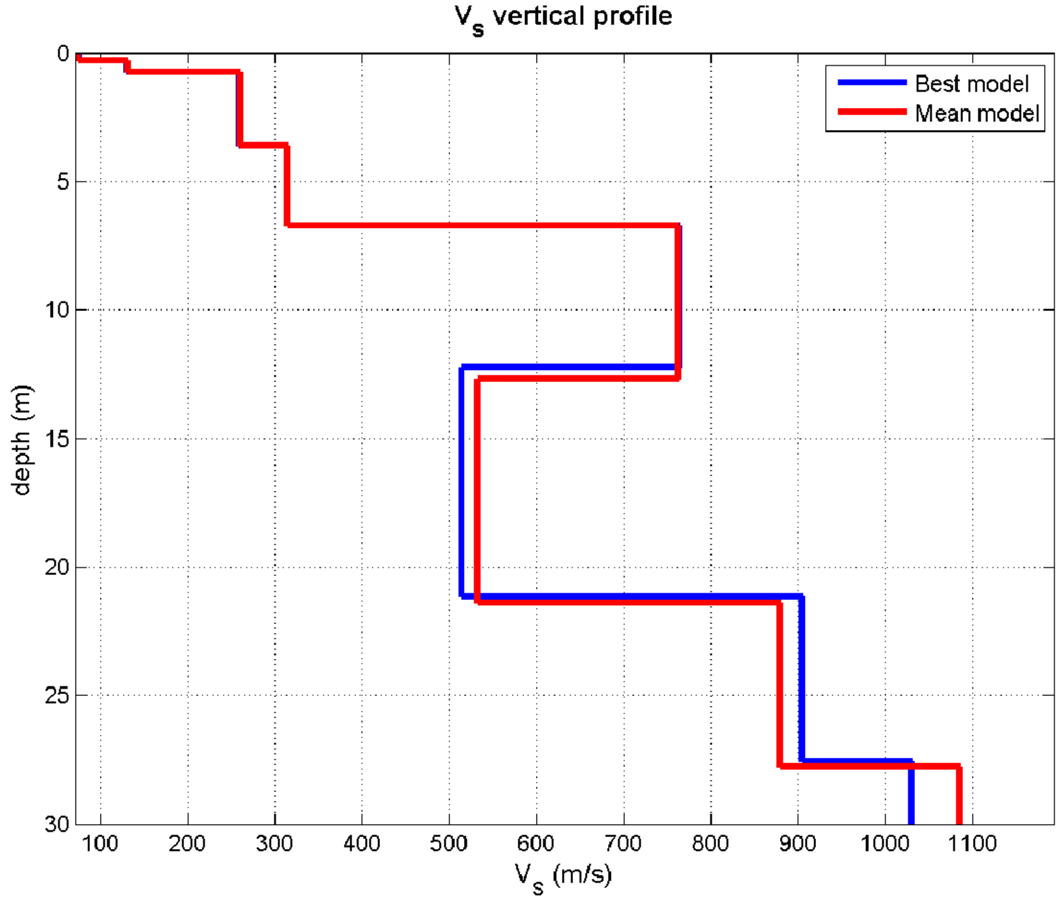
GEOLOGICA TOSCANA s.n.c.

RISULTANZE DELL'ANALISI SISMICA MASW 20

PROFILO DI VELOCITA' MASW 20



Vs (m/s):75, 131, 260, 315, 763, 533, 879, 1085, 1076, 809, 1254
Standard deviations (m/s):0, 2, 4, 3, 2, 26, 83, 105, 53, 138, 124

Thickness (m):0.3, 0.4, 2.9, 3.1, 5.9, 8.7, 6.4, 11.6, 46.4, 40.0
Standard deviations (m/s):0.0, 0.1, 0.0, 0.0, 1.1, 1.0, 0.2, 1.3, 9.1, 3.6

Density (gr/cm3) (approximate values):1.651.711.901.982.212.202.192.212.202.122.22
Seismic/Dynamic Shear modulus (MPa) (approximate values):929128196128962616922606255213863492

Approximate values for Vp and Poisson (please, see manual)
Vp (m/s):1912375227351938183817491927185412971986
Poisson:0.410.280.340.390.410.450.330.270.250.180.17

Vs30 (m/s): 484

GEOLOGICA TOSCANA s.n.c.

HVSR16

DATE 03.02.2021	HOUR 10:55	PLACE Monghidoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4903317	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208229	ALTITUDE 513 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR16.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min (minutes / seconds)

WEATHER CONDITIONS
- WIND: ☒ none ☐ weak (5m/s) ☐ medium ☐ strong — Measurement (if any): ______
- RAIN: ☐ none ☒ weak ☐ medium ☐ strong — Measurement (if any): ______
- Temperature (approx): 8 — Remarks ______

GROUND TYPE
- ☐ earth (☐hard ☐soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐short ☐tall)
- ☒ asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ☒ dry soil ☐ wet soil — Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ______

BUILDING DENSITY ☒ none ☐ scattered ☐ dense ☐ other, type ______

TRANSIENTS

	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other		●				

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☐ no ☒ yes, type river

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

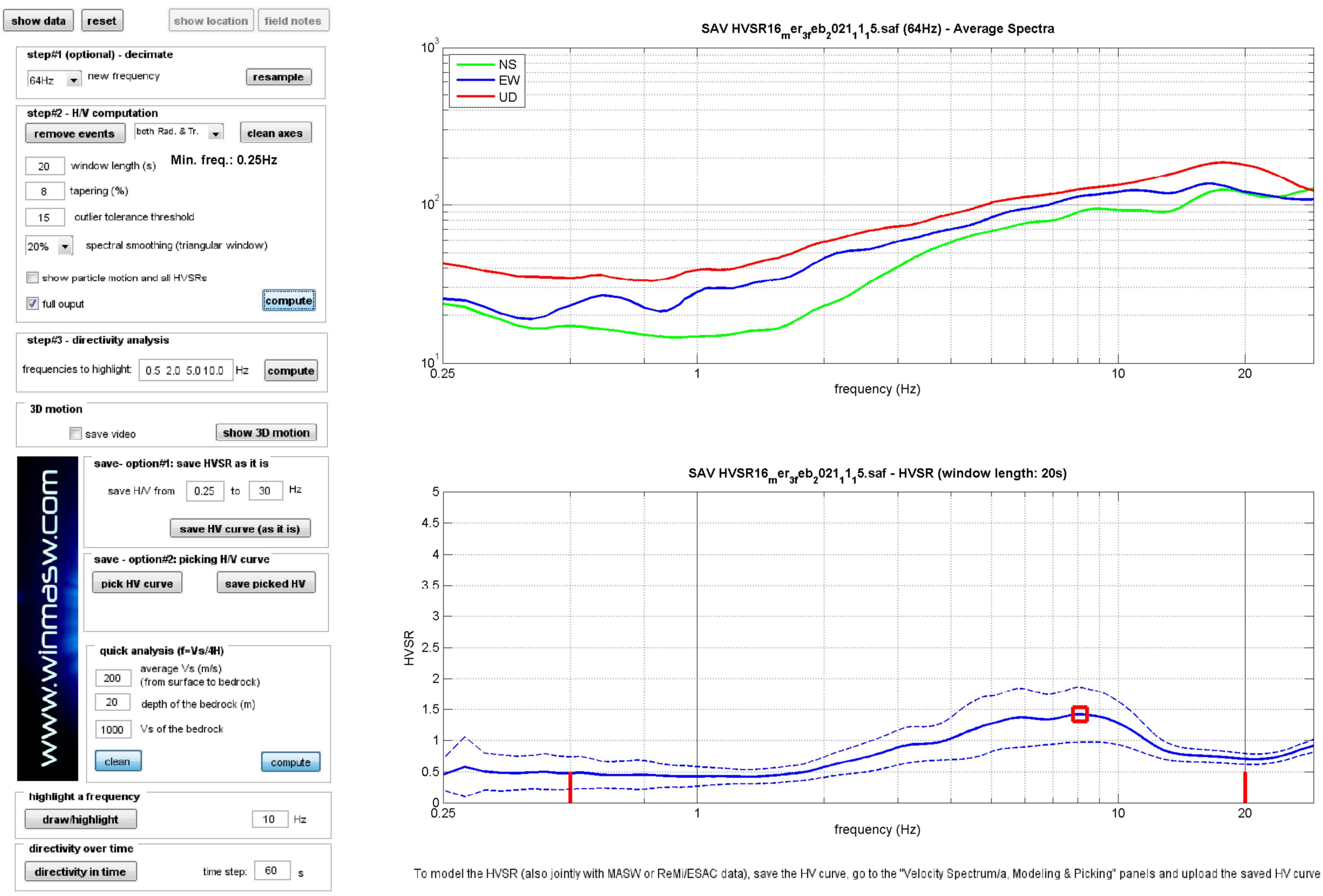
HVSR16

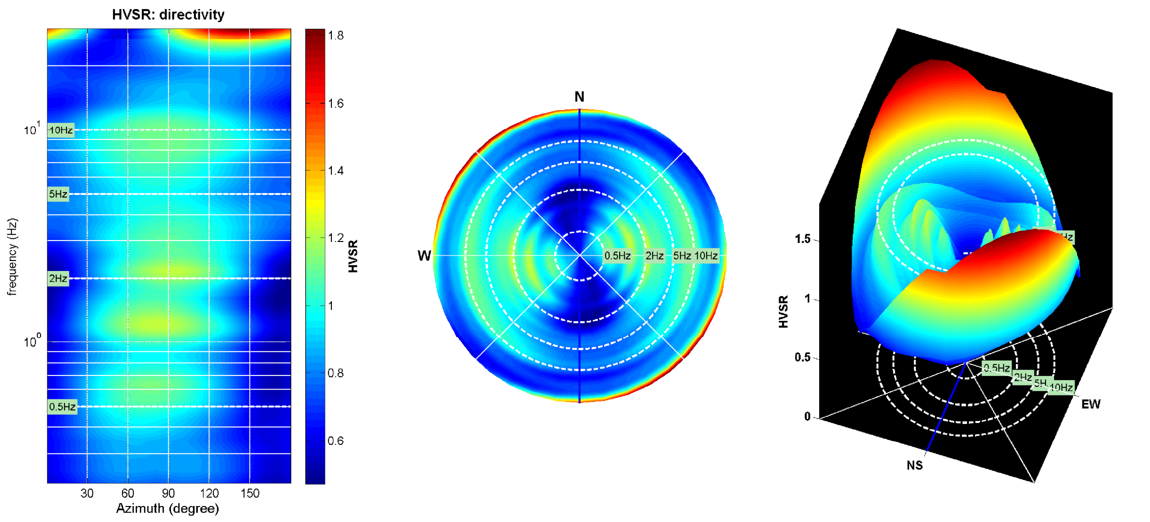
MISURA TIPO A2

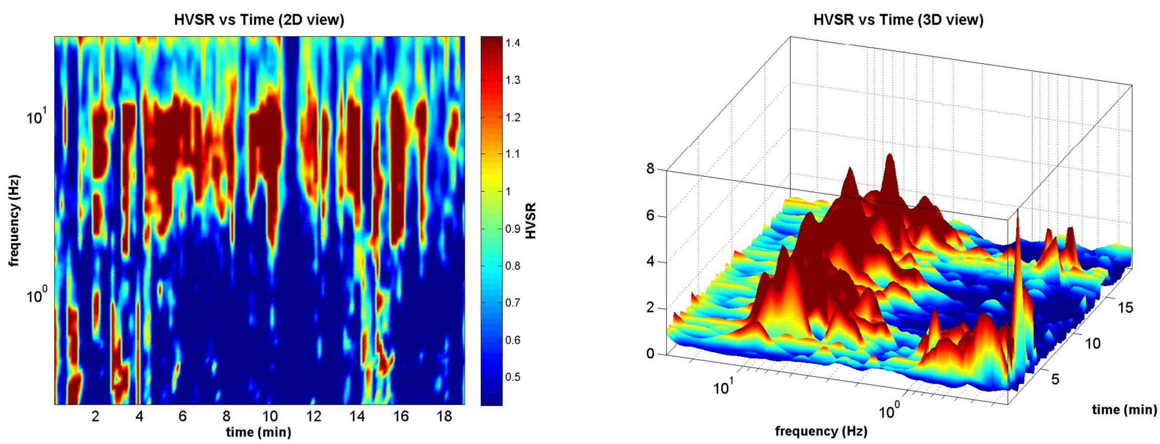
Peak frequency (Hz): 8.1 (±3.8)
Peak HVSR value: 1.4 (±0.4)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 8.102 > 0.5 (OK)
#2. [nc > 200]: 18472 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 2.1Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 19.7Hz (OK)
#3. [A0 > 2]: 1.4 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 3.779 > 0.405 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.446 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200
average Vs (m/s)
(from surface to bedrock)
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
SAV HVSR16_m er_3f eb_2 021_1 1_1 5.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
SAV HVSR16_m er_3f eb_2 021_1 1_1 5.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
10Hz
5Hz
2Hz
0.5Hz
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
0.5Hz
2Hz
10Hz
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR17_MS3

HVSR17

DATE 03.02.2021	HOUR 9:45	PLACE Monghidoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4903317	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208040	ALTITUDE 557 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR17.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND ☐ none ● weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN ● none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 7 Remarks ______

GROUND TYPE
- ☐ earth (☐ hard ☐ soft) ☐ gravel ☐ sand ☐ rock ● grass = (● short ☐ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ☐ dry soil ● wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ● no ☐ yes, type ______

BUILDING DENSITY ☐ none ● scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...)
● no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Pool

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

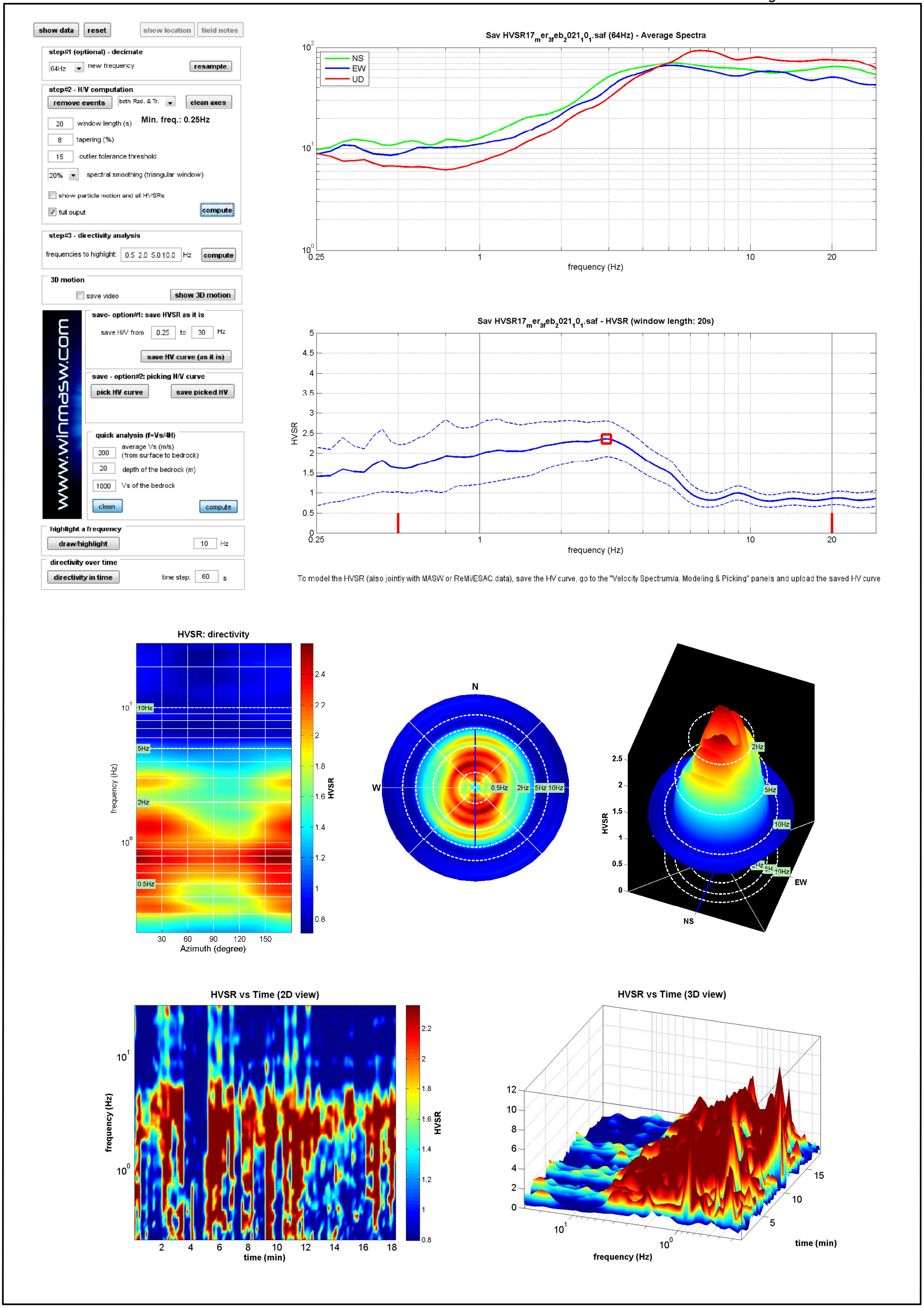
MISURA TIPO C

HVSR17

Peak frequency (Hz): 2.9 (±1.0)
Peak HVSR value: 2.4 (±0.4)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 2.940 > 0.5 (OK)
#2. [nc > 200]: 6469 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ============
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 0.8Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 5.6Hz (OK)
#3. [A0 > 2]: 2.4 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 1.030 > 0.147 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.447 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
average Vs (m/s)
(from surface to bedrock)
200
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Sav HVSR17_mer_3feb_2021_10_1.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR17_mer_3feb_2021_10_1.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR18

DATE 03.02.2021	HOUR 10:30	PLACE Monghidoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4903288	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208300	ALTITUDE 488 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR18.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☐ none ☒ weak (5m/s) ☐ medium ☐ strong Measurement (if any): ______
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any): ______
- Temperature (approx): 7 Remarks ______

GROUND TYPE
- ☐ earth (☐ hard ☐ soft) ☐ gravel ☐ sand ☐ rock ☒ grass = (☐ short ☒ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other ______
- ☐ dry soil ☒ wet soil Remarks ______

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type ______

BUILDING DENSITY ☒ none ☐ scattered ☐ dense ☐ other, type ______

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks	●					
pedestrians	●					
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type ______

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Trees

OBSERVATIONS

FREQUENCY: Hz
(if computed in the field)

Qualità della misura:

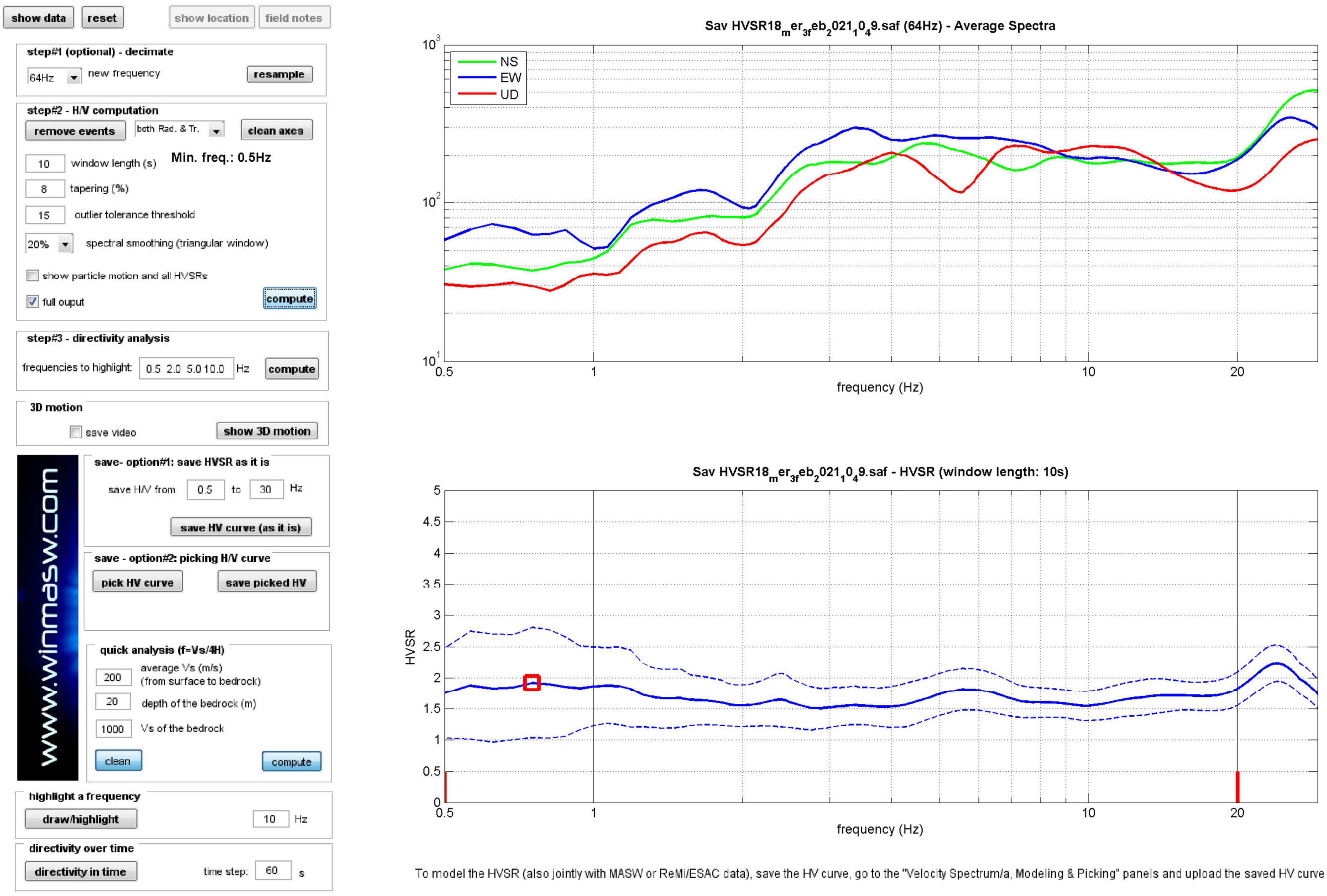
HVSR18

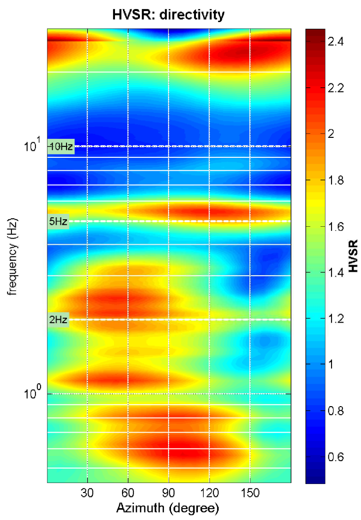
MISURA TIPO B2

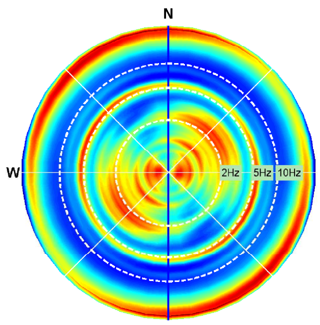
Peak frequency (Hz): 0.8 (±5.1)
Peak HVSR value: 1.9 (±0.9)

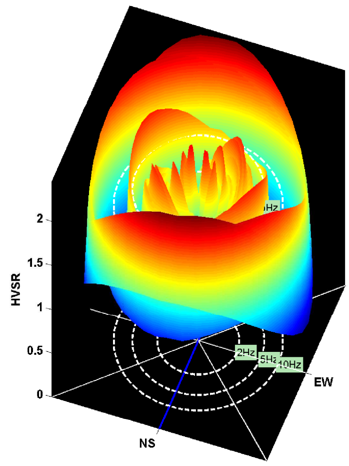
=== Criteria for a reliable H/V curve ===================================
#1. [f0 > 10/Lw]: 0.751 < 1 (NO)
#2. [nc > 200]: 1788 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

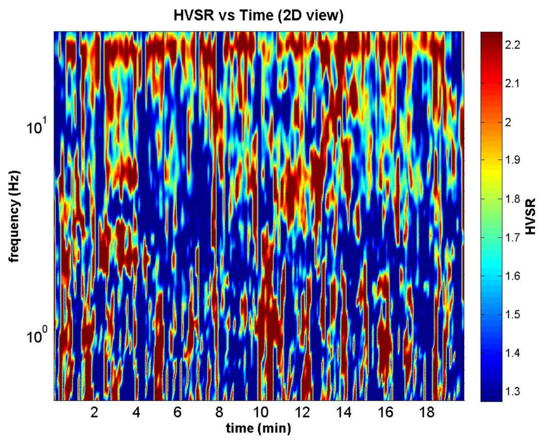
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 1.9 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 5.142 > 0.113 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.885 < 2 (OK)

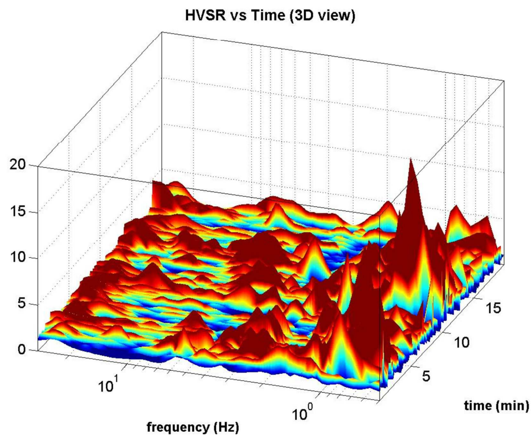

show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
10 window length (s)
Min. freq.: 0.5Hz
8 tapering (%)
15 outlier tolerance threshold
20% spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight 0.5 2.0 5.0 10.0 Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from 0.5 to 30 Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
200 average Vs (m/s) (from surface to bedrock)
20 depth of the bedrock (m)
1000 Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10 Hz
directivity over time
directivity in time
time step: 60 s
Sav HVSR18_mer_3feb_2021_10_49.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR18_mer_3feb_2021_10_49.saf - HVSR (window length: 10s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve


HVSR: directivity
frequency (Hz)
10Hz
5Hz
2Hz
Azimuth (degree)
HVSR


N
W
2Hz
5Hz
10Hz


HVSR
2Hz
5Hz
10Hz
EW
NS


HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR


HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR19

DATE 03.02.2021 | HOUR 12:00 | PLACE Monghidoro (Bo)

OPERATOR Geologica Toscana S.n.c. | GPS TYPE and #

Monte Mario Italy 1 EPSG: 3003 LATITUDE 4903134 | Monte Mario Italy 1 EPSG: 3003 LONGITUDE 208391 | ALTITUDE 486 m slm

STATION TYPE GPA Engeenering | SENSOR TYPE 3D - 4,5 Hz

STATION # | SENSOR # | DISK #

FILE NAME UN HVSR19.saf | POINT #

GAIN | SAMPL. FREQ. 300 Hz | REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☐ none ☐ weak (5m/s) ☒ medium ☐ strong — Measurement (if any):
- RAIN: ☐ none ☒ weak ☐ medium ☐ strong — Measurement (if any):
- Temperature (approx): 10 — Remarks

GROUND TYPE
- ☒ earth (☐ hard ☒ soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐ short ☐ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ☐ dry soil ☒ wet soil — Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☒ scattered ☐ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars		●				
trucks		●				
pedestrians		●				
other	●					

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures, ...)

Buildings, Trees

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

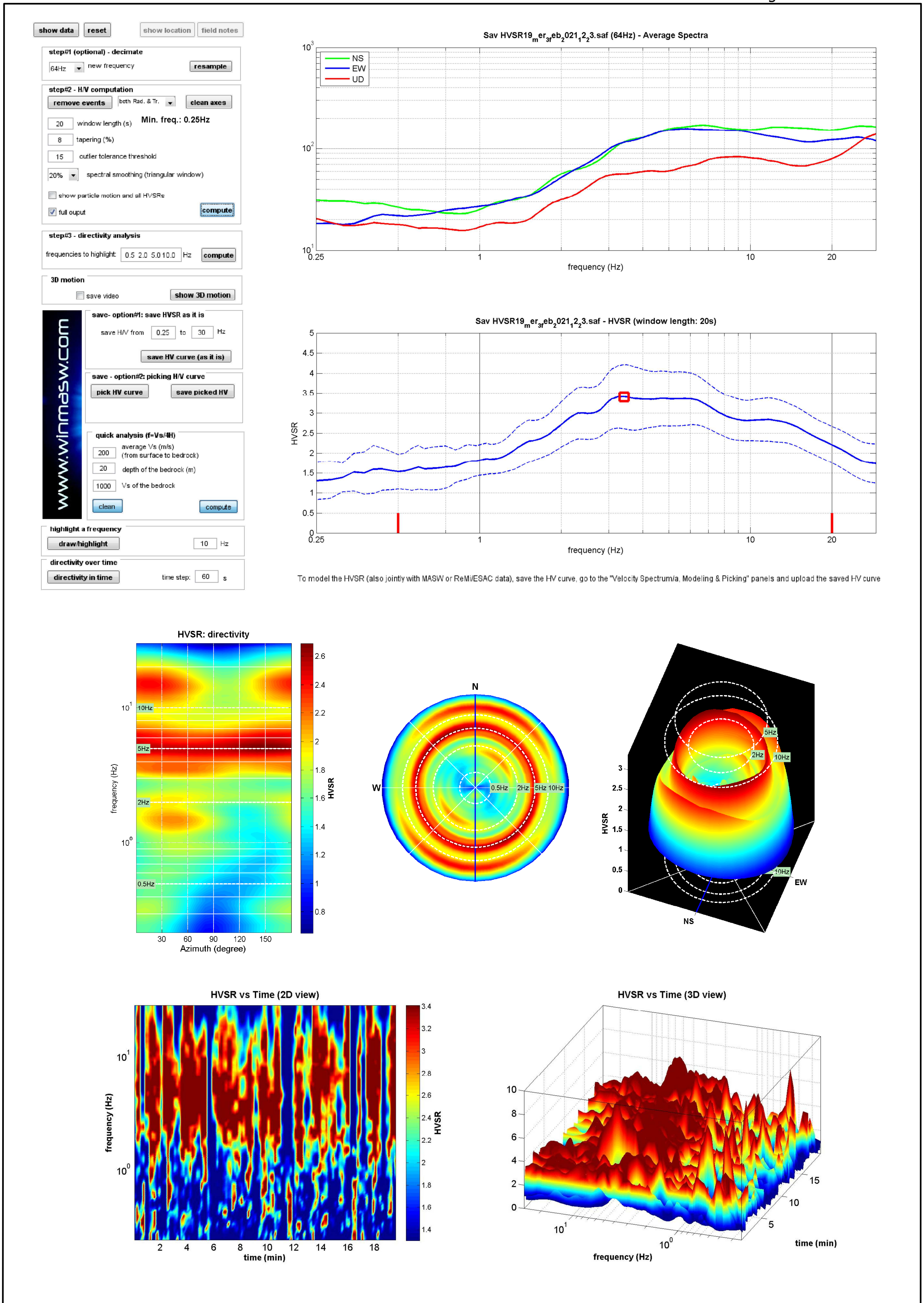
MISURA TIPO A1

HVSR19

Peak frequency (Hz): 3.4 (±3.6)
Peak HVSR value: 3.4 (±0.8)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 3.410 > 0.5 (OK)
#2. [nc > 200]: 8047 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes (considering standard deviations), at frequency 0.9Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 3.4 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 3.553 > 0.170 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.803 < 1.58 (OK)


show data
reset
show location
field notes
step#1 (optional) - decimate
64Hz
new frequency
resample
step#2 - H/V computation
remove events
both Rad. & Tr.
clean axes
20
window length (s)
Min. freq.: 0.25Hz
8
tapering (%)
15
outlier tolerance threshold
20%
spectral smoothing (triangular window)
show particle motion and all HVSRs
full ouput
compute
step#3 - directivity analysis
frequencies to highlight
0.5 2.0 5.0 10.0
Hz
compute
3D motion
save video
show 3D motion
www.winmasw.com
save- option#1: save HVSR as it is
save H/V from
0.25
to
30
Hz
save HV curve (as it is)
save - option#2: picking H/V curve
pick HV curve
save picked HV
quick analysis (f=Vs/4H)
average Vs (m/s)
(from surface to bedrock)
200
20
depth of the bedrock (m)
1000
Vs of the bedrock
clean
compute
highlight a frequency
draw/highlight
10
Hz
directivity over time
directivity in time
time step:
60
s
Sav HVSR19_m er_3r eb_2 021_1 2_2 3.saf (64Hz) - Average Spectra
NS
EW
UD
frequency (Hz)
Sav HVSR19_m er_3r eb_2 021_1 2_2 3.saf - HVSR (window length: 20s)
HVSR
frequency (Hz)
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve
HVSR: directivity
frequency (Hz)
Azimuth (degree)
HVSR
N
W
0.5Hz
2Hz
5Hz
10Hz
HVSR
EW
NS
HVSR vs Time (2D view)
frequency (Hz)
time (min)
HVSR
HVSR vs Time (3D view)
frequency (Hz)
time (min)

HVSR20

DATE 03.02.2021	HOUR 8:00	PLACE Monghidoro (Bo)
OPERATOR Geologica Toscana S.n.c.	GPS TYPE and #	
Monte Mario Italy 1 EPSG: 3003 LATITUDE 4902744	Monte Mario Italy 1 EPSG: 3003 LONGITUDE 205997	ALTITUDE 836 m slm
STATION TYPE GPA Engeenering	SENSOR TYPE 3D - 4,5 Hz	
STATION #	SENSOR #	DISK #
FILE NAME UN HVSR20.saf		POINT #
GAIN	SAMPL. FREQ. 300 Hz	REC. DURATION 20 min minutes seconds

WEATHER CONDITIONS
- WIND: ☐ none ☐ weak (5m/s) ☒ medium ☐ strong Measurement (if any):
- RAIN: ☒ none ☐ weak ☐ medium ☐ strong Measurement (if any):
- Temperature (approx): 6 Remarks

GROUND TYPE
- ☒ earth (☐ hard ☒ soft) ☐ gravel ☐ sand ☐ rock ☐ grass (☐ short ☐ tall)
- ☐ asphalt ☐ cement ☐ concrete ☐ paved ☐ other
- ☐ dry soil ☒ wet soil Remarks

ARTIFICIAL GROUND-SENSOR COUPLING ☒ no ☐ yes, type

BUILDING DENSITY ☐ none ☐ scattered ☒ dense ☐ other, type

TRANSIENTS	none	few	moderate	many	very dense	distance
cars			●			
trucks	●					
pedestrians			●			
other		●				

MONOCHROMATIC NOISE SOURCES (factories, works, pumps, rivers...) ☒ no ☐ yes, type

NEARBY STRUCTURES (description, height, distance) (trees, polls, buildings, bridges, underground structures,...)

Buildings

OBSERVATIONS

FREQUENCY: Hz (if computed in the field)

Qualità della misura:

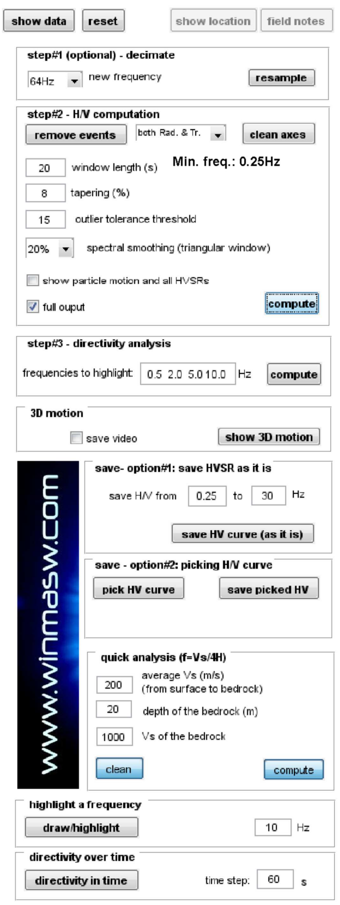
MISURA TIPO A1

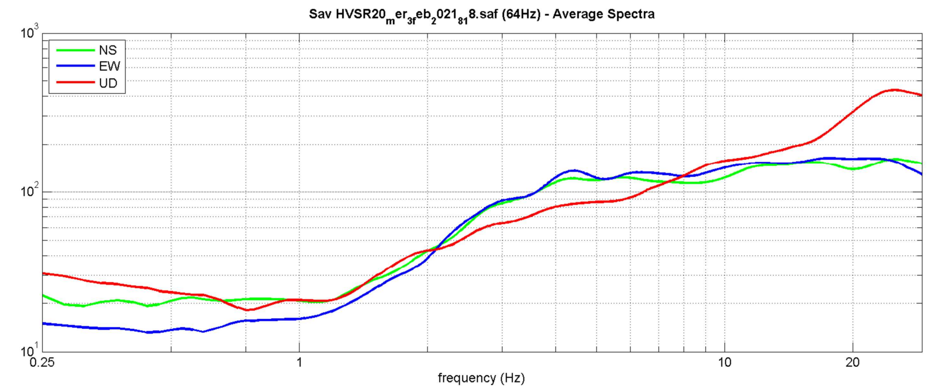
HVSR20

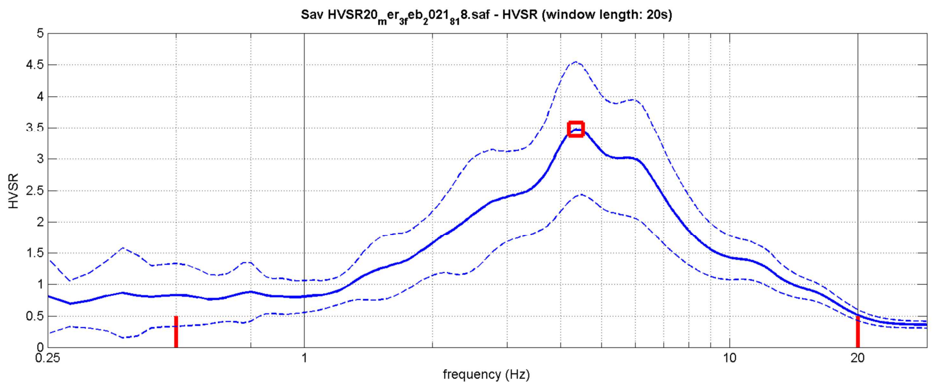
Peak frequency (Hz): 4.3 (±1.7)
Peak HVSR value: 3.5 (±1.1)

=== Criteria for a reliable H/V curve ====================================
#1. [f0 > 10/Lw]: 4.348 > 0.5 (OK)
#2. [nc > 200]: 10261 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

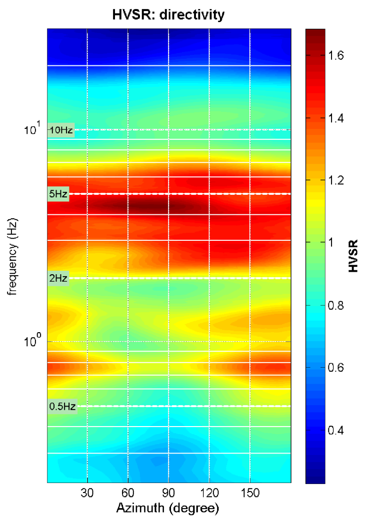
=== Criteria for a clear H/V peak (at least 5 should be fulfilled) ===========
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: yes, at frequency 1.1Hz (OK)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: yes, at frequency 8.4Hz (OK)
#3. [A0 > 2]: 3.5 > 2 (OK)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 1.732 > 0.217 (NO)
#6. [sigmaA(f0) < theta(f0)]: 1.070 < 1.58 (OK)

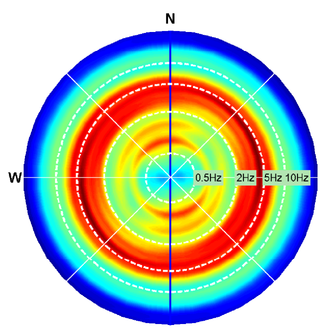


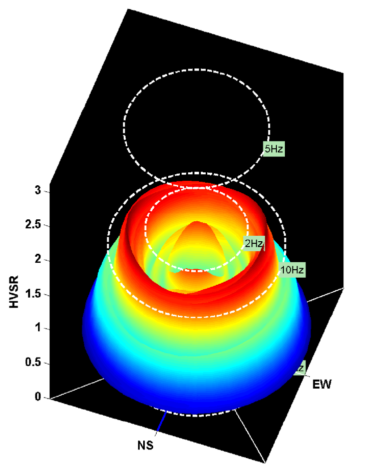


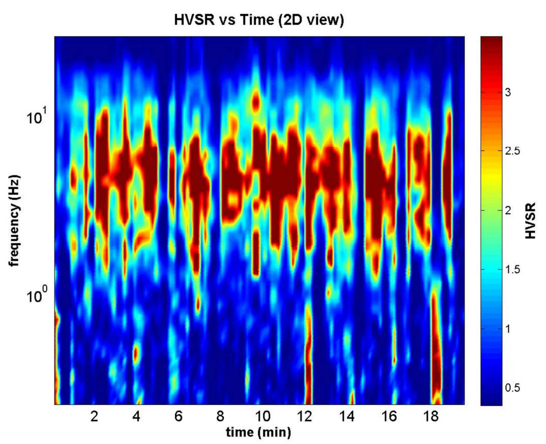


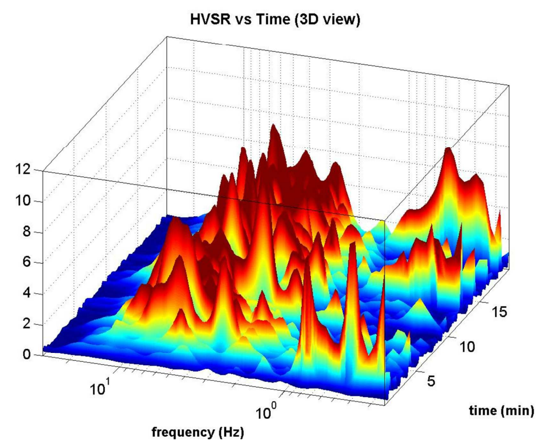
To model the HVSR (also jointly with MASW or ReMi/ESAC data), save the HV curve, go to the "Velocity Spectrum/a, Modeling & Picking" panels and upload the saved HV curve







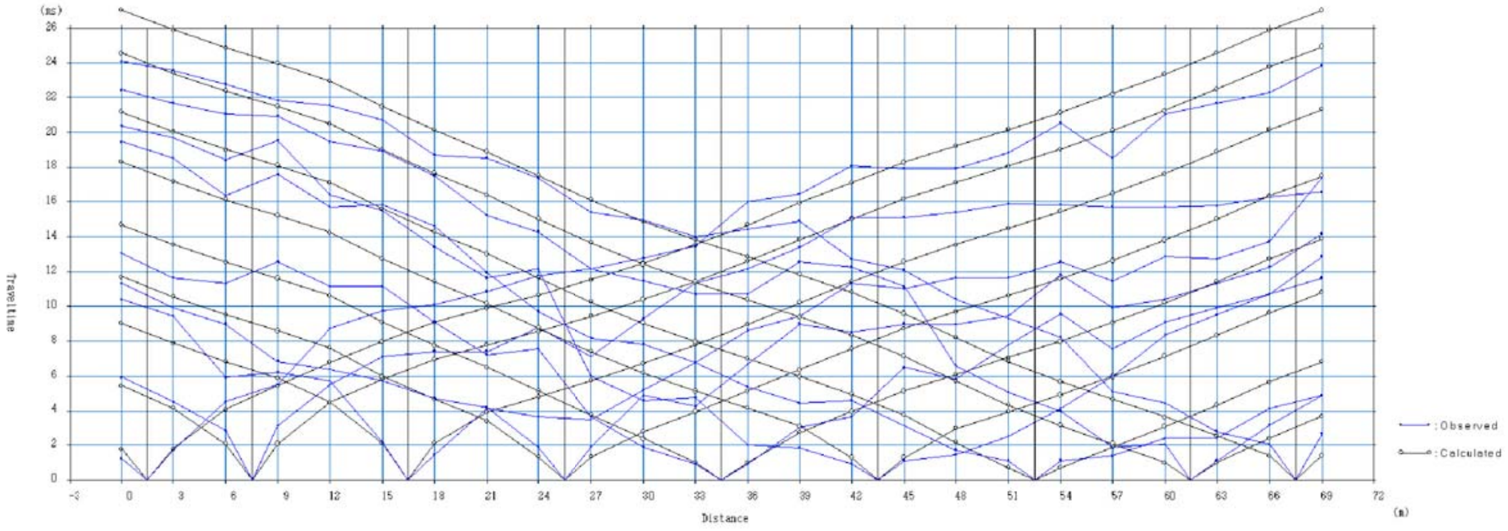




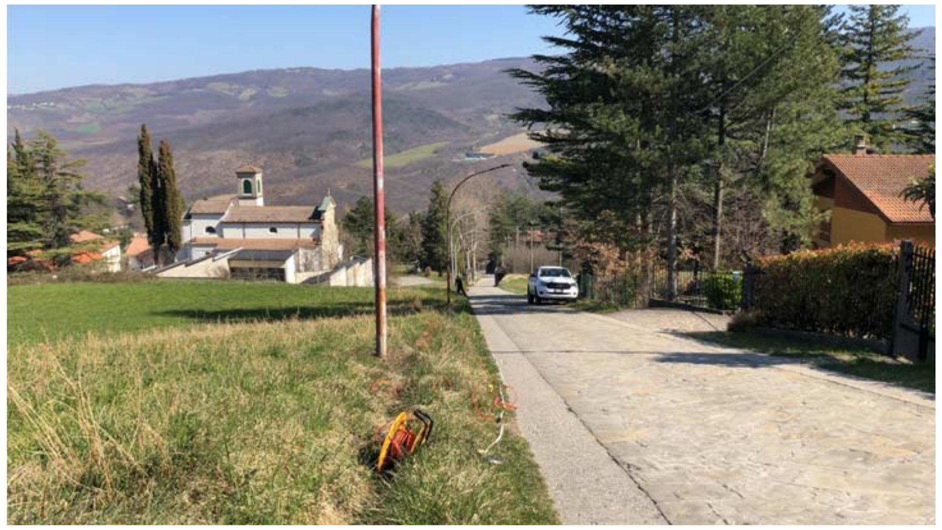
Traveltime osservate e calcolate

TOMO3_ms3

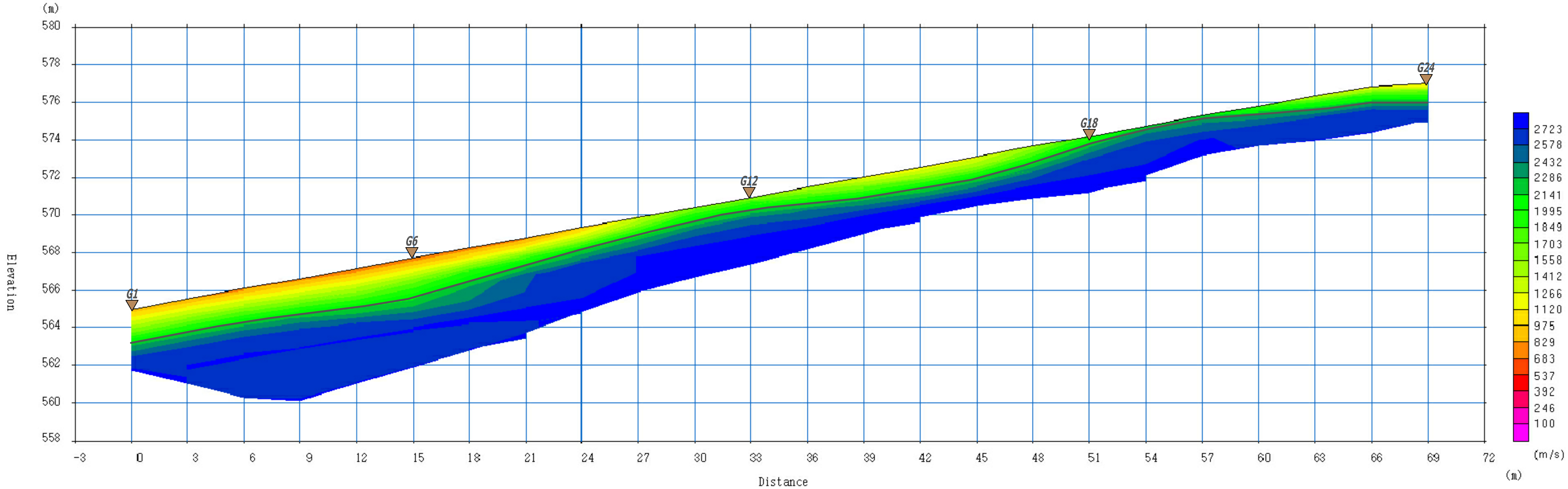
Committente: UNIONE DEI COMUNI SAVENA IDICE
Via Sumbilla - Loc. Campeggio - Comune di Monghidoro (BO)



Documentazione fotografica



Sezione sismica ricavata da elaborazione tomografica

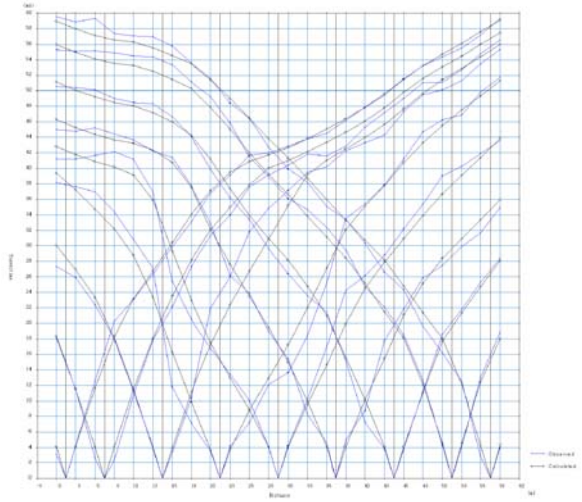


Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA -
TOMO3

GEOLOGICA TOSCANA s.n.c.

Traveltime osservate e calcolate

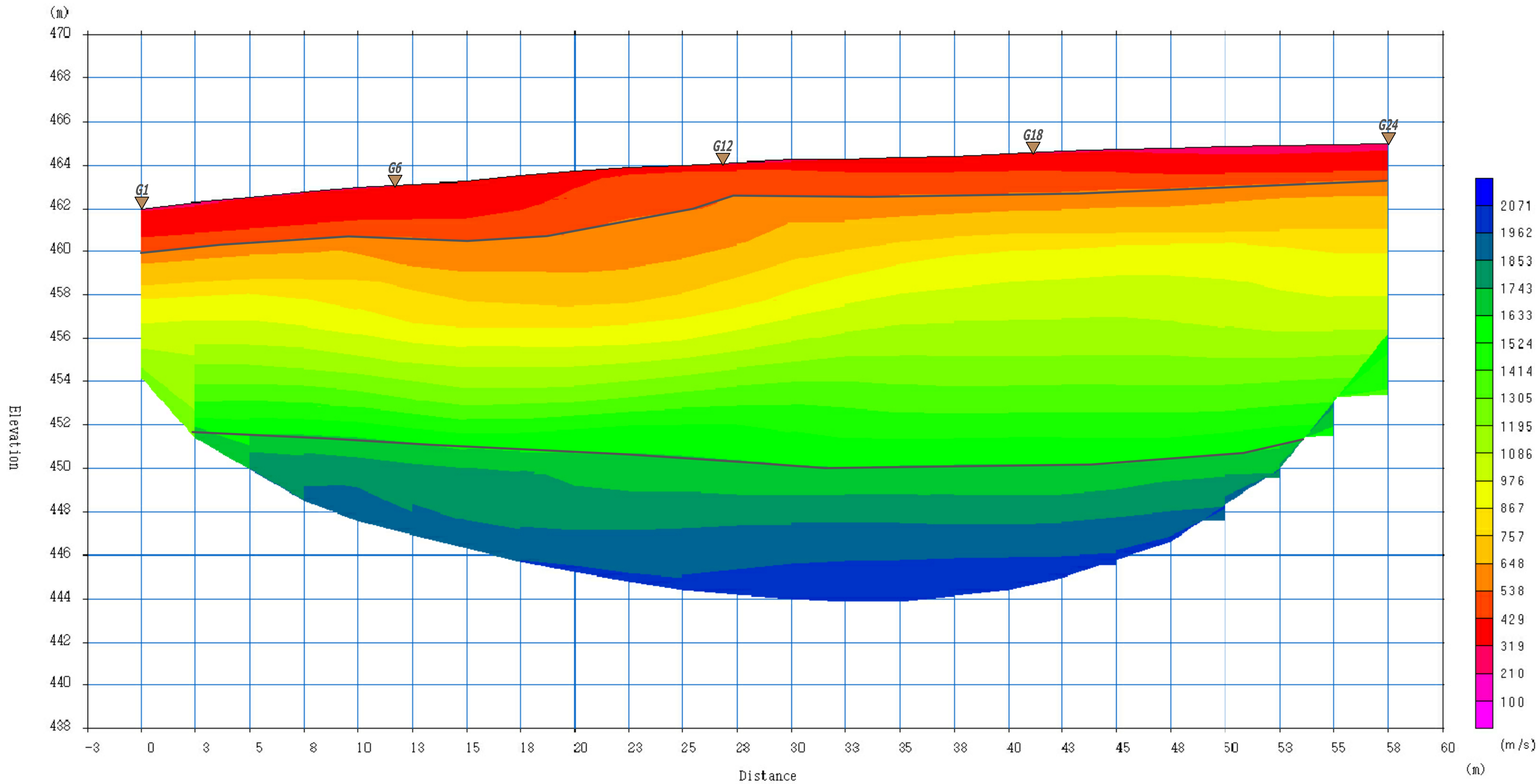


Documentazione fotografica

Committente: UNIONE DEI COMUNI SAVENA IDICE

Via Campeggio - Loc. Pergoloso - Comune di Monghidoro (BO)

Sezione sismica ricavata da elaborazione tomografica



Scala 1:250

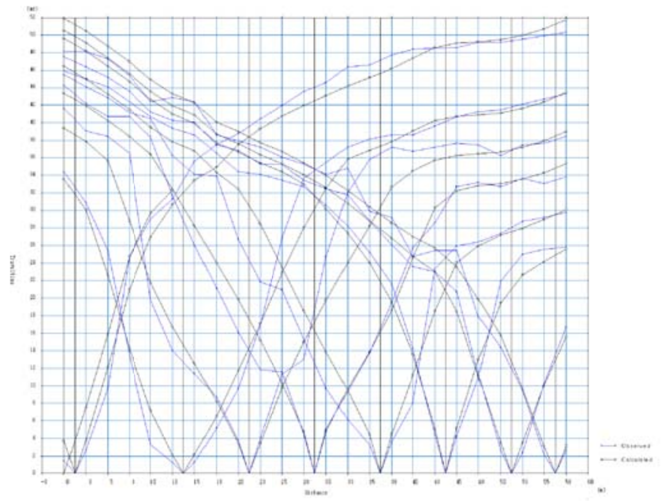
INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA -
TOMO4

GEOLOGICA TOSCANA s.n.c.

TOMO5_ms3

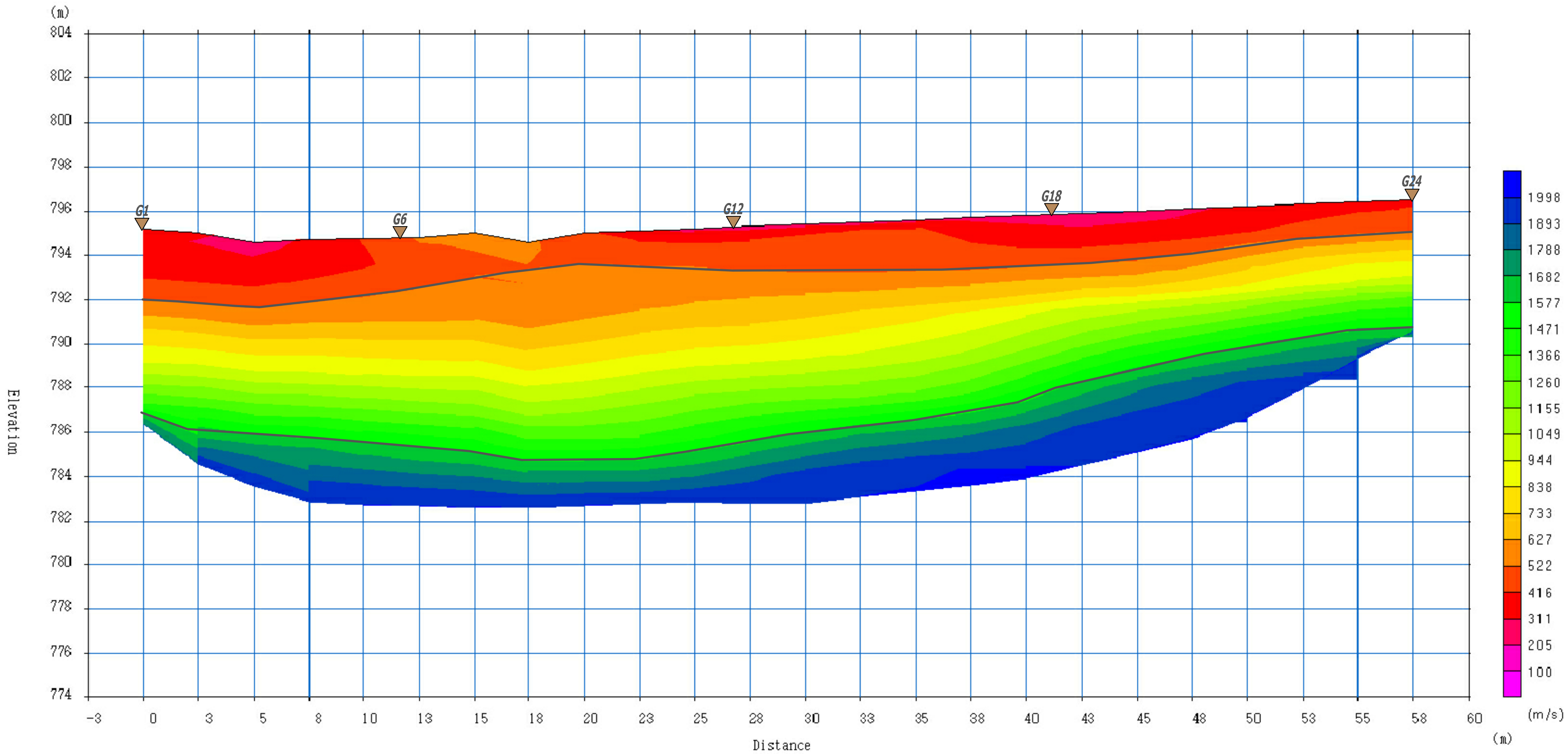
Committente: UNIONE DEI COMUNI SAVENA IDICE
Via G. Verdi - Comune di Monghidoro (BO)

Traveltime osservate e calcolate



Documentazione fotografica

Sezione sismica ricavata da elaborazione tomografica



Scala 1:250

INTEPRETAZIONE DELLA SISMICA A RIFRAZIONE CON METODOLOGIA TOMOGRAFICA - TOMO5

GEOLOGICA TOSCANA s.n.c.