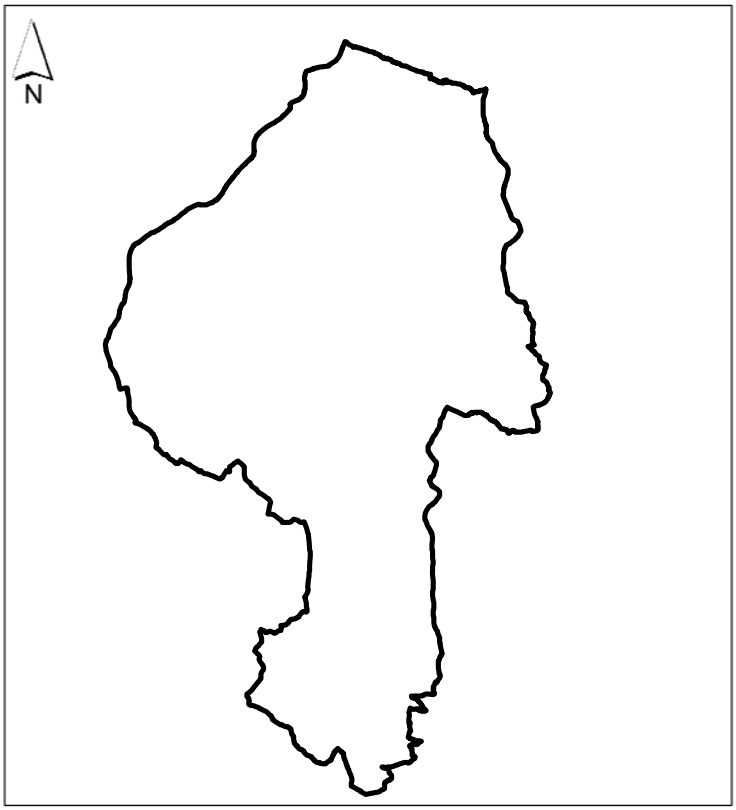
REGIONE EMILIA ROMAGNA
PROVINCIA DI BOLOGNA

COMUNE DI CASTEL DI CASIO

V A R I A N T E

PSC PIANO STRUTTURALE COMUNALE



Il Sindaco
Mauro Brunetti

Il Responsabile del Procedimento
geom. Stefano Vitali

l'Ass. alla Pian. e Progr. Territoriale
Marco Aldrovandi

Il Segr. Gen.le: dott.
dott. Giorgio Cigna

Responsabile del Piano:
arch. Giulia Brunini

Gruppo di Lavoro:
geom. Pierantonio Gozzoli
arch. Valentina Martoni

Studio geologico:
dott. Luca Monti

Studio archeologico:
Wunderkammer s.n.c.
dott. Fabrizio Finotelli,
dott.ssa Paola Poli

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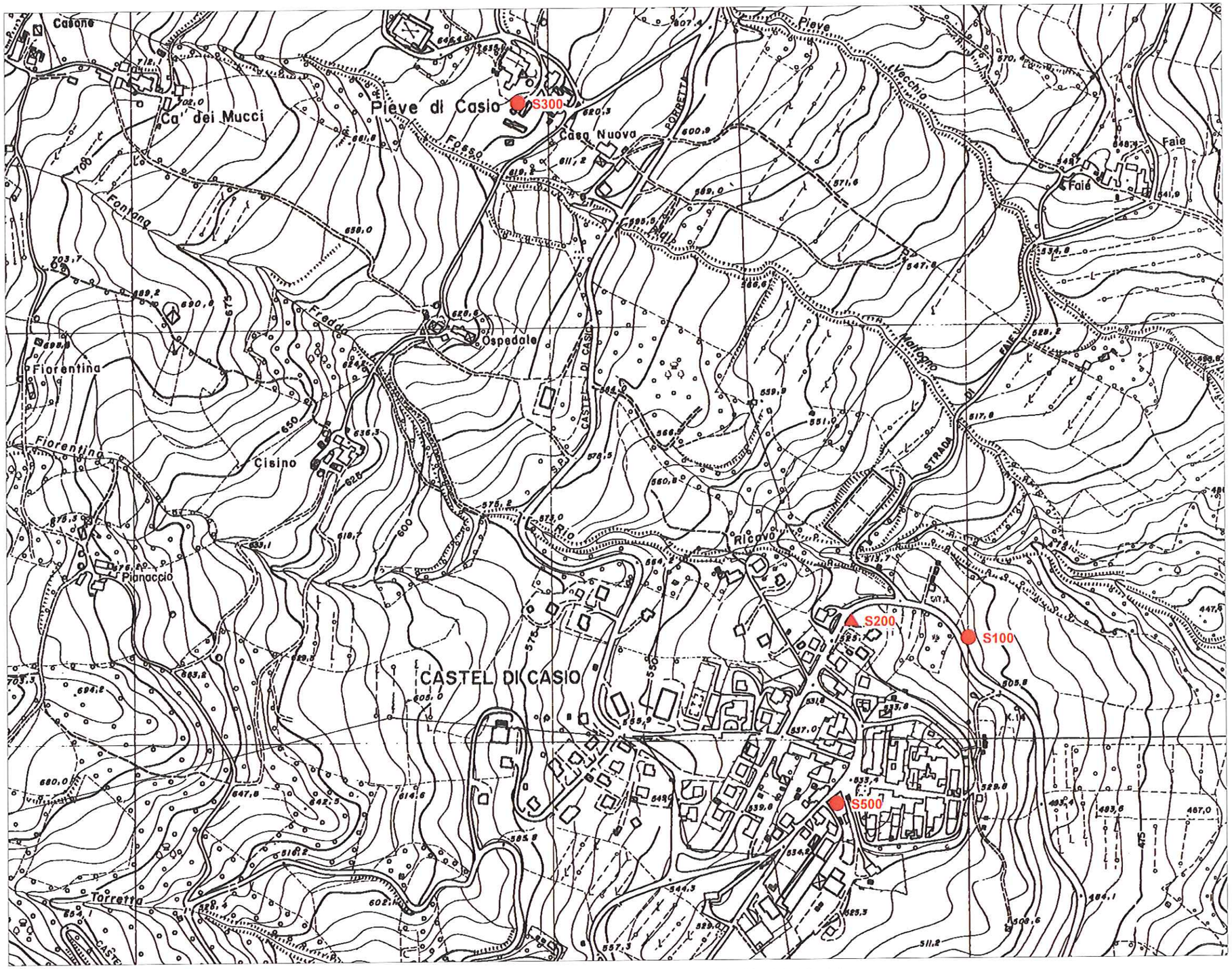
ARCHIVIO PROVE

Adottata con D.C.C. n°19 del 02/04/2014

Approvata con D.C.C. n° 37 del 07/07/2015



Stralcio Elementi C.T.R. n° 252012 "Castrola" e n° 252013 "Castel di Casio"

UBICAZIONE INDAGINI GEOGNOSTICHE

Scala 1:5.000

Legenda:

S100-S300-S500	Sondaggi a carotaggio continuo strumentati con inclinometro
S200	Sondaggio a distruzione strumentato con inclinometro

SOGEO s.r.l.	COMMITTENTE: Comune di Castel di Casio		SOND.N. S 100
	CANTIERE: Castel di Casio		PROF. (m): 28.00
	PERFORATRICE: ELLETTARI EK200/STR		QUOTA (m): p.d.c.
	METODO PERFORAZ.: Carotaggio continuo	METODO DI PROVA:	COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Carotiere Ø 101 mm		DATA INIZ-FINE: 11/05/2007 - 11/05/2007
PIEZOMETRO:			SCALA: 1:100
N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 1	EMENDAMENTO/AGGIUNTA A:

Scala 1:100	P.P. I (kg/cmq)	Vane Test [Kg/cmq]	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
1			0.50		Sabbia fine di colore nocciola - marrone, con radici						
2					Sabbia fine di colore nocciola - marrone, con trovanti arenacei						
3	1.3		2.30		Argilla debolmente limosa di colore grigio e grigio - marrone, con piccoli inclusi lapidei, plastica			3.00 3/4/6 3.45			
4	1.5 1.3										
5	1.6 1.5		4.00								
6	1.2 1.5							6.00 4/5/5 6.45			
7	1.2 1.5										
8	1.8 1.3										
9	1.3 1.2							9.00 2/5/3 9.45			
10	2.0 1.5										
11	1.8 2.6										
12	2.0							12.00 3/5/6 12.45			
13	3.0 2.4				Argilla debolmente limosa, a tratti debolmente sabbiosa, di colore grigio con venature marroni, con abbondanti inclusi lapidei e frustoli vegetali; plastica. Da -13.5 a -14.5 m presenti livelli decimetrici di sabbia di colore marrone. Da -17.0 a -19.0 m colore grigio - nocciola e con livelli di sabbia grossolana (probabilmente inclusi arenacei sbriciolati). Da -19.0 a -19.9 m serie di trovanti lapidei. Da -20.0 a -21.5 m presenti abbondanti trovanti						
14	2.3 1.8										
15	1.5 1.5										
16	2.1										
17	2.0 2.0										
18	3.4										
19											
20	2.7										
21	2.5										
22											
23	5.5 >6.0		22.70								
24								23.50 50 (*1) 23.62			
25	>6.0				Argillite di colore grigio scuro, con venature verdastre e nerastre, molto compatta, scagliettata, con piccoli inclusi lapidei. Da -24.0 a -24.4 m presente trovante arenaceo. Da -25.3 a -25.8 m e da -26.5 a -27.0 m presenti serie di trovanti						
26	>6.0										
27											
28	>6.0		28.00								

Note:
(*1) Prova S.P.T. da -23.50 a -23.62 m: rifiuto = 12 cm.

SOGEO S.R.L.	COMMITTENTE: Comune di Castel di Casio		SOND.N. S 200
	CANTIERE: Castel di Casio		PROF. (m): 40.00
	PERFORATRICE: ELLETTARI EK200/STR		QUOTA (m): p.d.c.
	METODO PERFORAZ.: Distruzione di nucleo	METODO DI PROVA:	COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Scalpello tricono		DATA INIZ-FINE: 09/05/2007 - 10/05/2007
PIEZOMETRO.			SCALA: 1:100

N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 2	EMENDAMENTO/AGGIUNTA A:

Scala 1:100	P.P. I (kg/cmq)	Vane Test [Kg/cmq]	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
1					Perforazione a distruzione di nucleo						
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

SOGEO S.r.l.	COMMITTENTE: Comune di Castel di Casio		SOND.N. S 200
	CANTIERE: Castel di Casio		PROF. (m): 40.00
	PERFORATRICE: ELLETTARI EK200/STR		QUOTA (m): p.d.c.
	METODO PERFORAZ.: Distruzione di nucleo	METODO DI PROVA:	COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Scalpello trilama		DATA INIZ-FINE: 09/05/2007 - 10/05/2007
PIEZOMETRO:			SCALA: 1:100
N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 2	EMENDAMENTO/AGGIUNTA A:

Scala 1:100	P.P. I (kg/cmq)	Vane Test [Kg/cmq]	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50			40.00		Perforazione a distruzione di nucleo						

Note:

SOGEO s.r.l.	COMMITTENTE: Comune di Castel di Casio		SOND.N. S 300
	CANTIERE: Castel di Casio		PROF. (m): 20.50
	PERFORATRICE: ELLETTARI EK200/STR		QUOTA (m): p.d.c.
	METODO PERFORAZ.: Carotaggio continuo	METODO DI PROVA:	COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Carotiere Ø 101 mm		DATA INIZ-FINE: 15/05/2007 - 17/05/2007
PIEZOMETRO:			SCALA: 1:100
N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 1	EMENDAMENTO/AGGIUNTA A:

Scala 1:100	P.P. I (kg/cmq)	Vane Test (Kg/cmq)	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
1	2.1		0.30		Limo sabbioso di colore bruno, con radici						
	3.1				Limo debolmente sabbioso di colore nocciola con venature grigie, passante, da -0.7 m, a limo argilloso . Presenti frustoli vegetali e piccoli inclusi lapidei						
2	2.0		1.60								
	2.9				Argilla limosa di colore grigio - marrone variegata, , con venature brune e con piccoli inclusi lapidei			3.00			
3	2.8							2/3/5			
	2.2							3.45			
4	2.7										
	2.2										
5	2.6		4.60		Arenaria di colore grigio - marrone						
			5.00								
6	2.7				Argilla limosa di colore grigio - marrone variegata, con venature brune, con piccoli inclusi lapidei e con abbondanti trovanti arenacei						
	3.2										
7	2.3										
	3.3		7.50						7.60		
8	3.0										
	4.3				Argilla di colore grigio e grigio scuro con venature marroni, con abbondanti inclusi lapidei			8.40			
9								34/27/31			
			9.10					8.45			
10	>6.0										
	>6.0										
11	>6.0										
	>6.0				Argilite di colore grigio e grigio scuro, scagliettata, molto consistente, con livelli, al massimo decimetrici, di sabbia fine grigia ben addensata			11.00			
12								50 (*1)			
	>6.0							11.12			
13			12.50								
	>6.0										
14											
	>6.0										
15								15.00			
								42/100 (*2)			
16	>6.0							15.25			
					Alternanza di livelli di argilite di colore grigio e grigio scuro, con venature verdastre, scagliettata, e sabbia fine e media di colore grigio, talora cementata. Da -16.0 m circa passa ad una alternanza argilite (o argilla debolmente marnosa) / arenaria medio - fine						
17											
	>6.0										
18											
	>6.0										
19											
20											
21			20.50								
22											
23											
24											
25											
26											
27											
28											

Note:
(*1) Prova S.P.T. da -6.00 a -6.40 m: rifiuto = 10 cm.
(*2) Prova S.P.T. da -15.60 a -16.00 m: rifiuto = 10 cm.
(*3) Prova S.P.T. da -23.00 a -23.11 m: rifiuto = 11 cm.

Livello falda non rilevabile il 15/05/07, ore 8 con fondo foro a -39.0 m: rivestimento pieno.

SOGEO s.r.l.	COMMITTENTE: Comune di Castel di Casio		SOND.N. S 500
	CANTIERE: Castel di Casio		PROF. (m): 40.00
	PERFORATRICE: ELLETTARI EK200/STR		QUOTA (m): p.d.c.
	METODO PERFORAZ.: Carotaggio continuo	METODO DI PROVA:	COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Carotiere Ø 101 mm		DATA INIZ-FINE: 14/05/2007 - 15/05/2007
PIEZOMETRO:			SCALA: 1:100
N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 2	EMENDAMENTO/AGGIUNTA A:

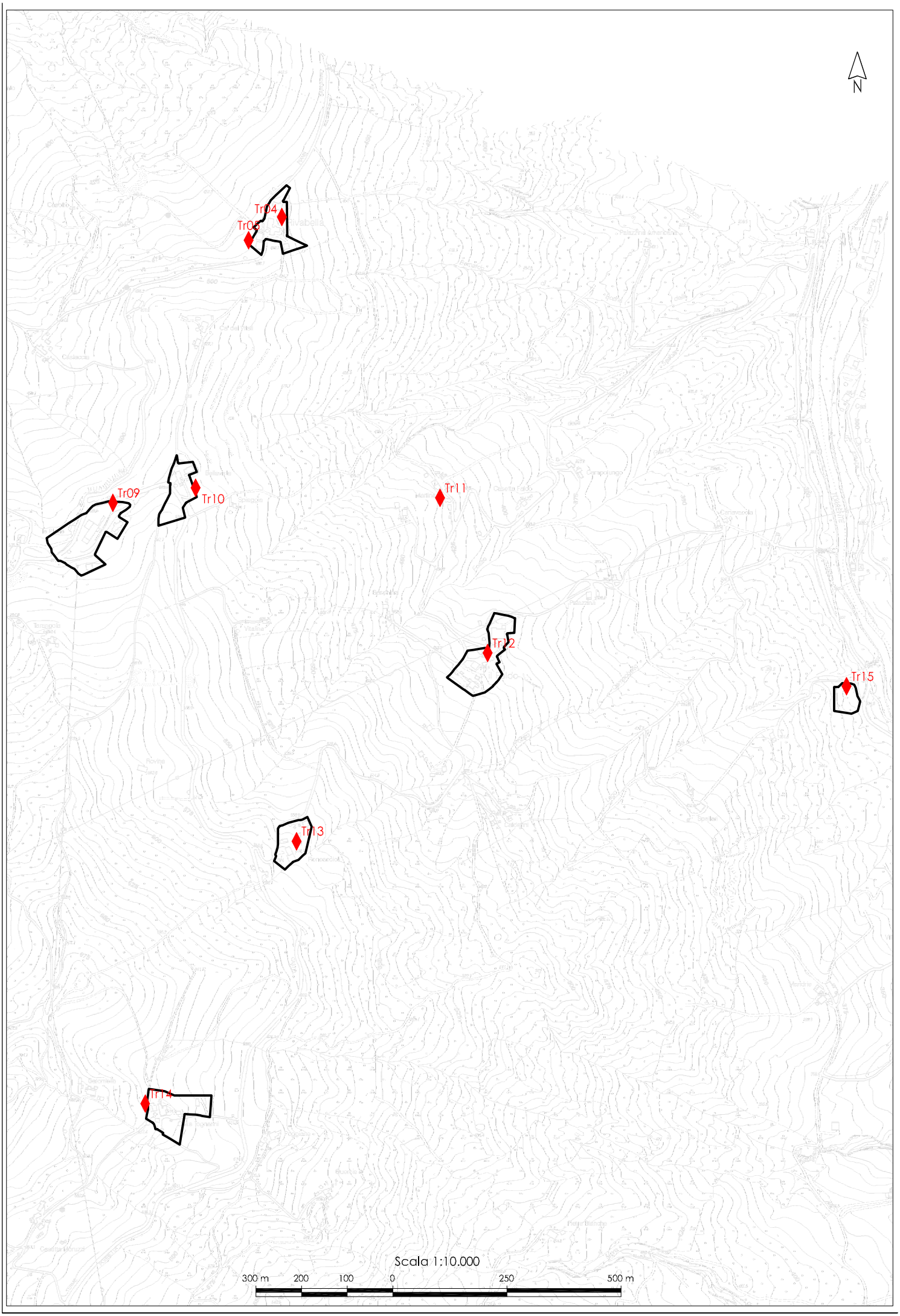
Scala 1:100	P.P. I (kg/cmq)	Vane Test [Kg/cmq]	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
1			0.40		Pavimentazione piazza						
					Sabbia limosa di colore marrone, con frammenti lapidei e con radici						
2			1.70		Limo sabbioso di colore nocciola con venature ocra e nerastre, con piccoli inclusi lapidei e con frammenti di laterizi da -2.7 a -3.0 m						
3			2.90		Sabbia fine di colore giallo - ocra, con inclusi lapidei			3.00 1/2/2 3.45			
4	1.2 1.8		3.70		Limo argilloso con livelli debolmente sabbiosi, di colore grigio - nocciola con venature ocra e con inclusi lapidei						
5	1.6 1.2										
6	0.7		5.40		Frammenti arenacei in matrice sabbiosa di colore nocciola - ocra			6.00 5/12/88 (*1) 6.40			
7			6.40		Arenaria di colore grigio, fratturata, con superfici ossidate						
8	3.6 3.2		7.00		Argilla limosa di colore grigio e grigio - verdastro con venature nocciola, con livelli limo - sabbiosi, plastica. Presenti piccoli inclusi lapidei			10.00 10/21/24 10.45			
9	2.0 1.3										
10	1.3 3.5										
11	2.1 2.0										
12	2.7 3.0										
13	2.7 2.5										
14	1.7 2.8		13.80		Alternanaza da millimetrica a centimetrica di argilla debolmente limosa di colore grigio - verdastro e sabbia medio - fine di colore grigio. Consistenza disomogenea. A -14.5 m livello (S = 10 cm) di arenaria di colore grigio						
15	4.2										
16	1.8							15.60 8/14/86 (*1) 16.00			
			16.00		Areanaria di colore grigio						
17	4.0 3.1		16.50		Argilla limosa di colore grigio - verdastro con venature brune, con abbondanti inclusi arenacei e livelli centimetrici sabbiosi, plastica						
18	3.1 5.5										
19	5.0 5.5		18.80		Argilla di colore grigio, debolmente plastica, con frequenti livelli centimetrici sabbiosi e con piccoli inclusi arenacei; consistente. Presenti trovanti (Lmax = 20 cm). Presenti piccole zone di colore marrone chiaro. Da -27.0 a -27.5 m arenaria di colore grigio, molto fratturata. Da -35.0 m circa colore grigio scuro e grigio - marrone						
20	>6.0 >6.0										
21	>6.0										
22	4.8										
23	5.2 5.5							23.00 50 (*1) 23.11			
24	3.8 4.1										
25	4.0 5.1										
26	5.0 3.2										
27	5.5 3.3										
28	5.0 3.2										
29											
30	2.8										

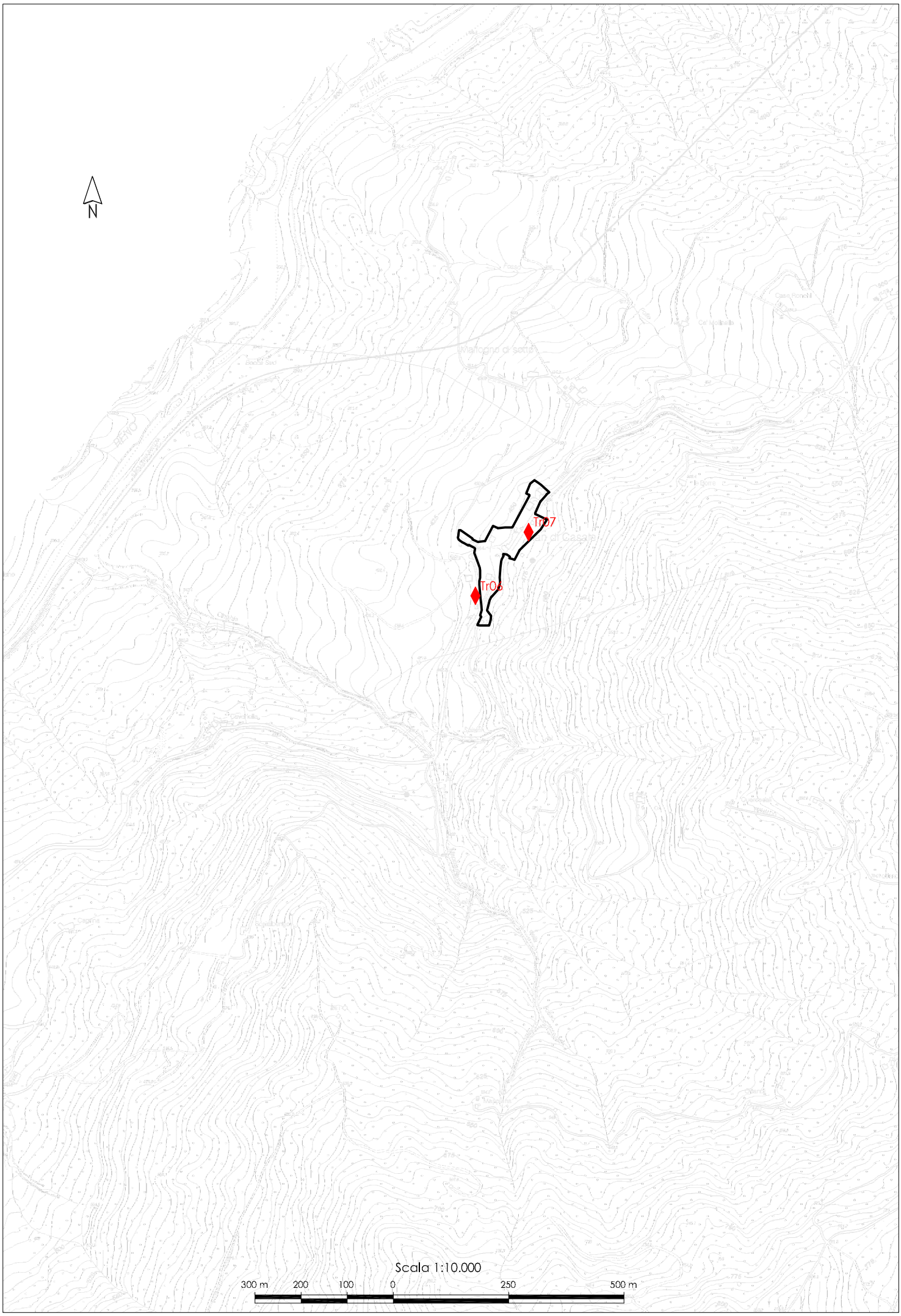
SOGEO	COMMITTENTE: Comune di Castel di Casio			SOND.N. S 500
	CANTIERE: Castel di Casio			PROF. (m): 40.00
	PERFORATRICE: ELLETTARI EK200/STR			QUOTA (m): p.d.c.
	METODO PERFORAZ.: Carotaggio continuo	METODO DI PROVA:		COORDINATE U.T.M:
RIVESTIMENTO: Ø 127 mm	ATTREZZO PERFORAZ.: Carotiere Ø 101 mm			DATA INIZ-FINE: 14/05/2007 - 15/05/2007
PIEZOMETRO:				SCALA: 1:100
N.COMMESSA: 190-1-06	N.PROGRESSIVO:	DATA DI EMISSIONE: 21/05/2007	PAGINA N°: 1 di 2	EMENDAMENTO/AGGIUNTA A:

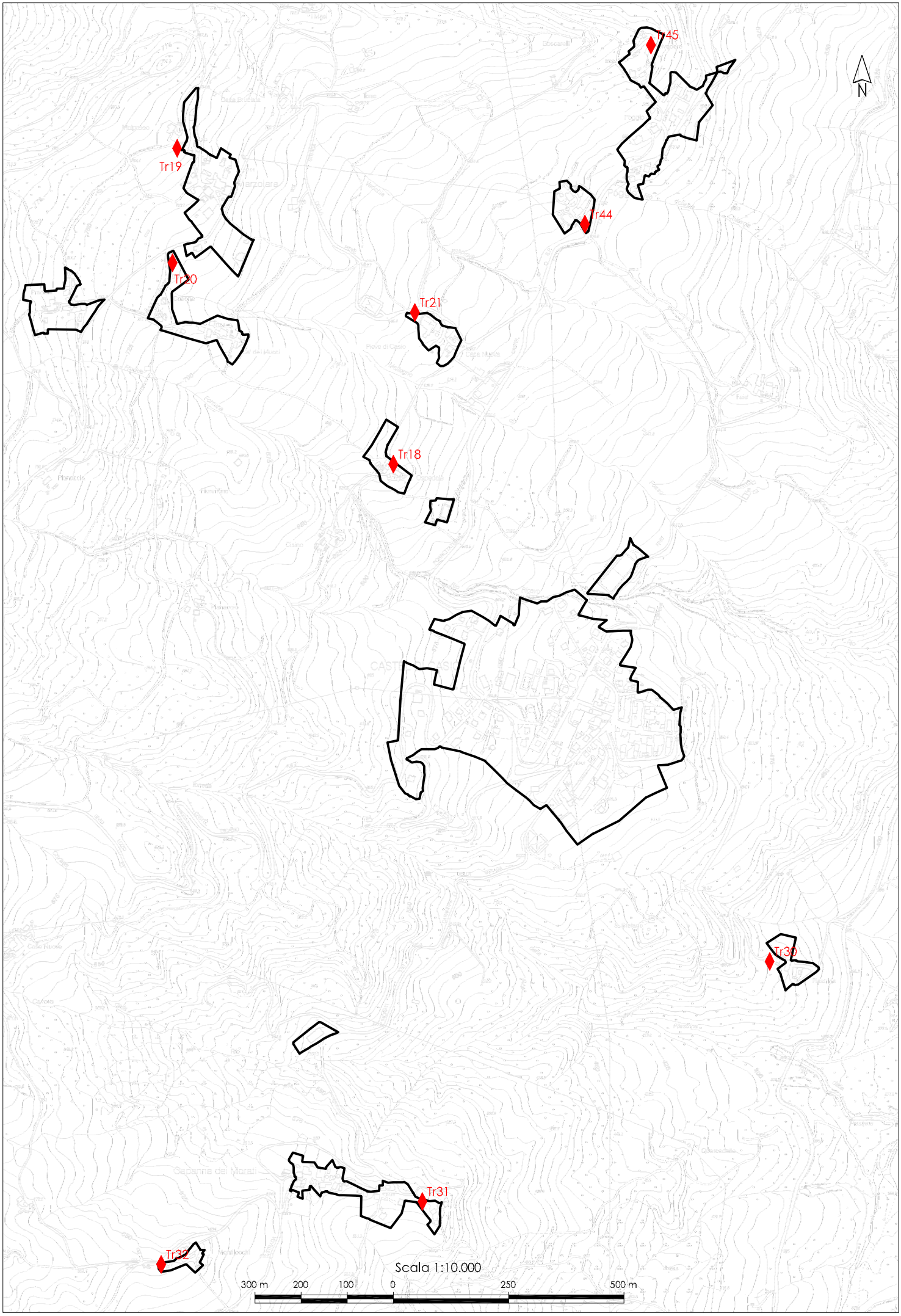
Scala 1:100	P.P. 1 (kg/cmq)	Vane Test (Kg/cmq)	Profondita' [m]	Stratigrafia	Descrizione	Campioni	Campioni Rim.	S.P.T. (n.colpi)	Falda	Pz.Norton	Inclinometro
31	4.2				Argilla di colore grigio, debolmente plastica, con frequenti livelli centimetrici sabbiosi e con piccoli inclusi arenacei; consistente. Presenti trovanti (Lmax = 20 cm). Presenti piccole zone di colore marrone chiaro. Da -27.0 a -27.5 m arenaria di colore grigio, molto fratturata. Da -35.0 m circa colore grigio scuro e grigio - marrone			33.00 35/42/49 33.45			
32	>6.0										
33	4.1										
34	3.5										
35	4.5										
36	4.1										
37	5.5										
38	3.7										
39	>6.0										
40	5.5										
41	5.8										
42	5.2										
43	3.0										
44	5.5										
45	4.1										
46	>6.0		40.00								
47											
48											
49											
50											

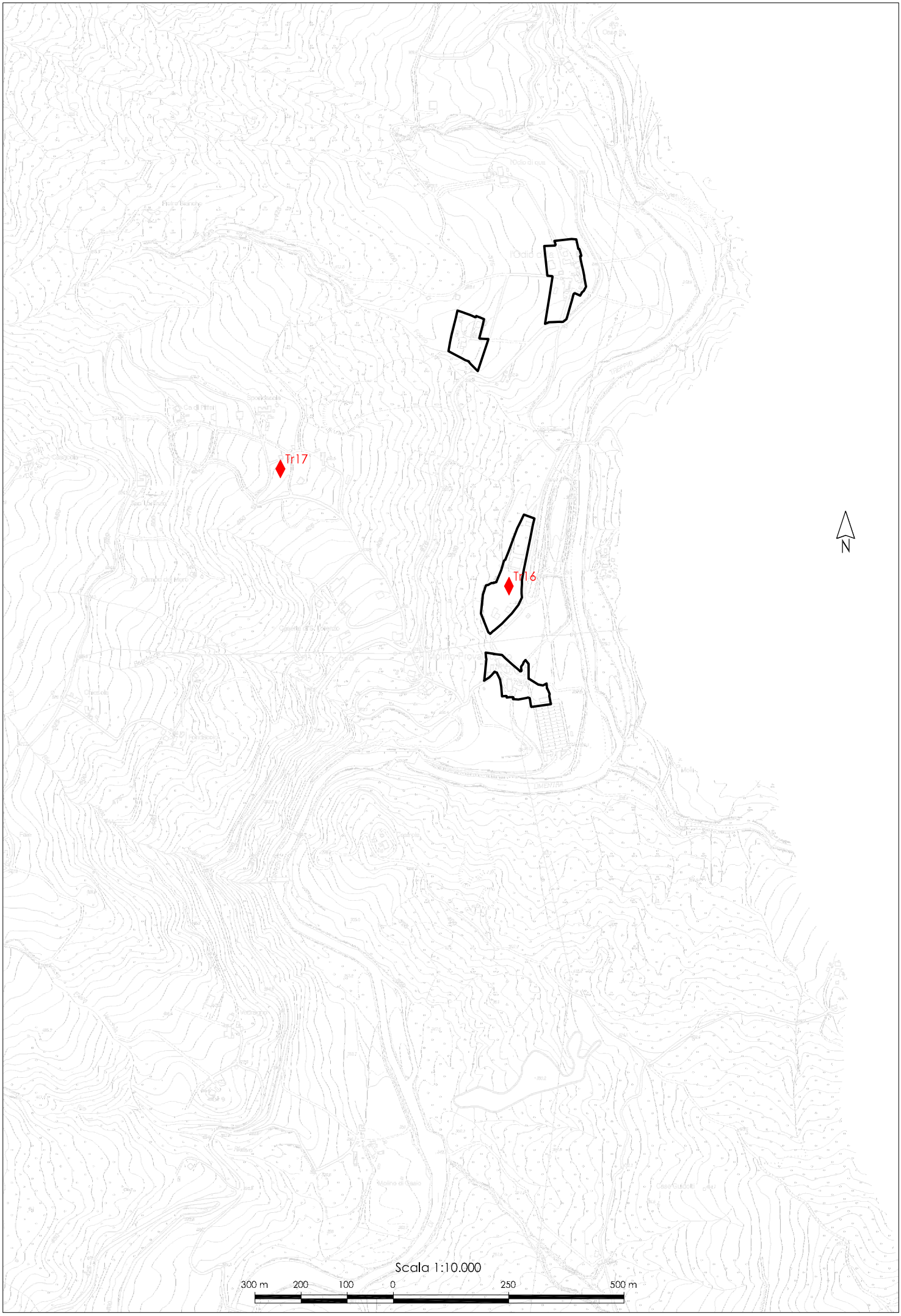
Note:
(*1) Prova S.P.T. da -6.00 a -6.40 m: rifiuto = 10 cm.
(*2) Prova S.P.T. da -15.60 a -16.00 m: rifiuto = 10 cm.
(*3) Prova S.P.T. da -23.00 a -23.11 m: rifiuto = 11 cm.

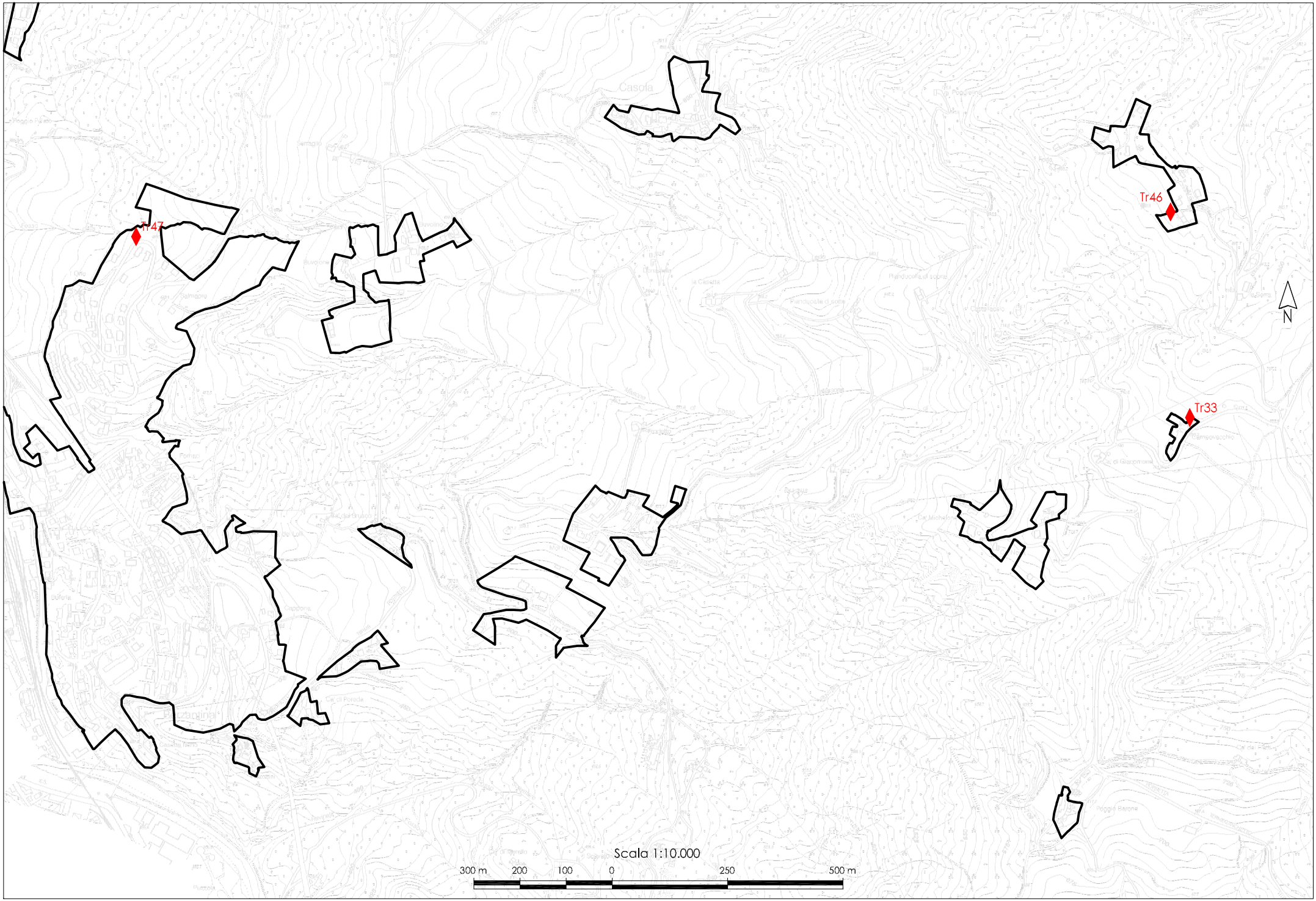
Livello falda non rilevabile il 15/05/07, ore 8 con fondo foro a -39.0 m: rivestimento pieno.

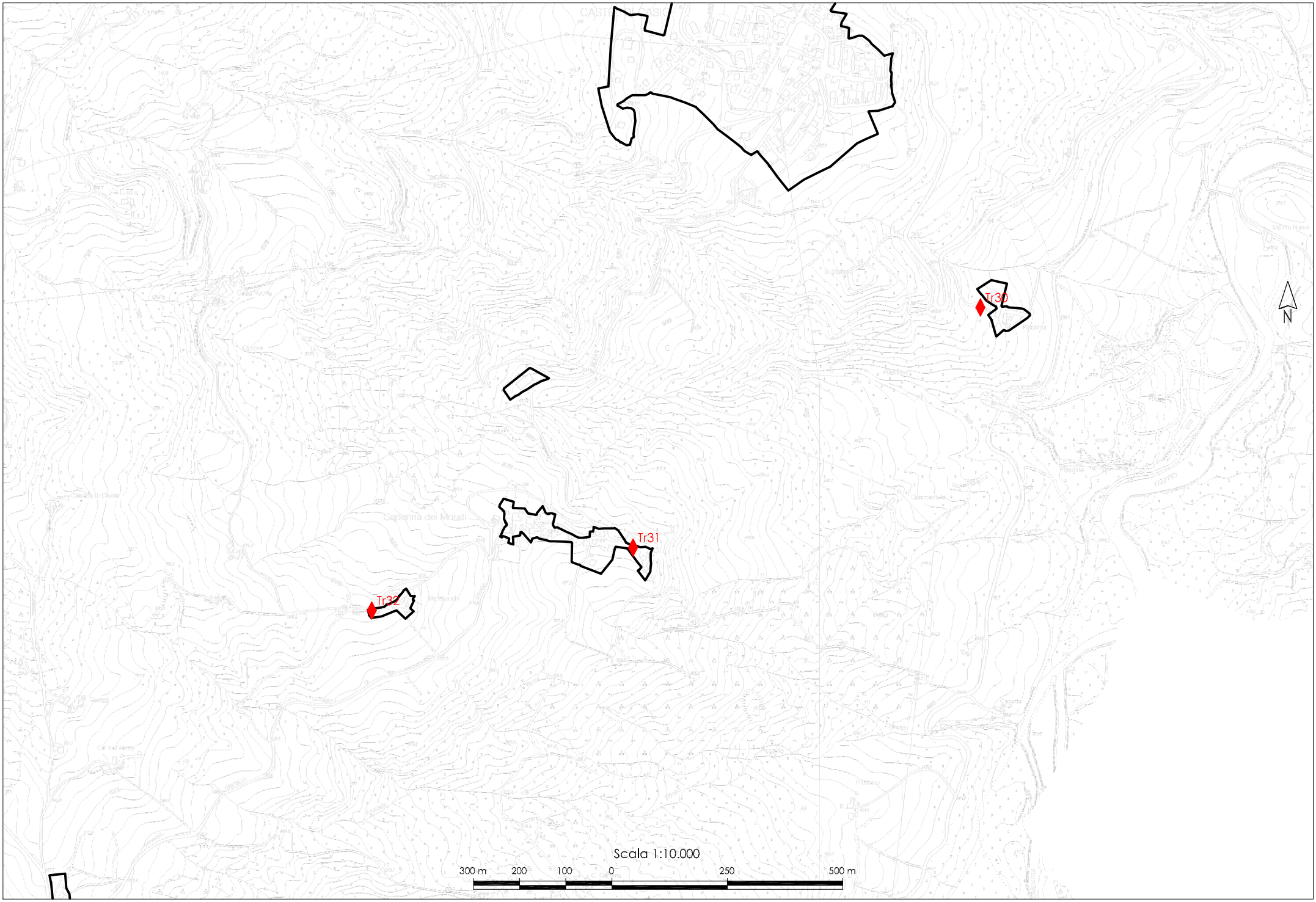

N
Tr04
Tr08
Tr09
Tr10
Tr11
Tr12
Tr15
Tr13
Tr14
Scala 1:10.000
300 m
200
100
0
250
500 m

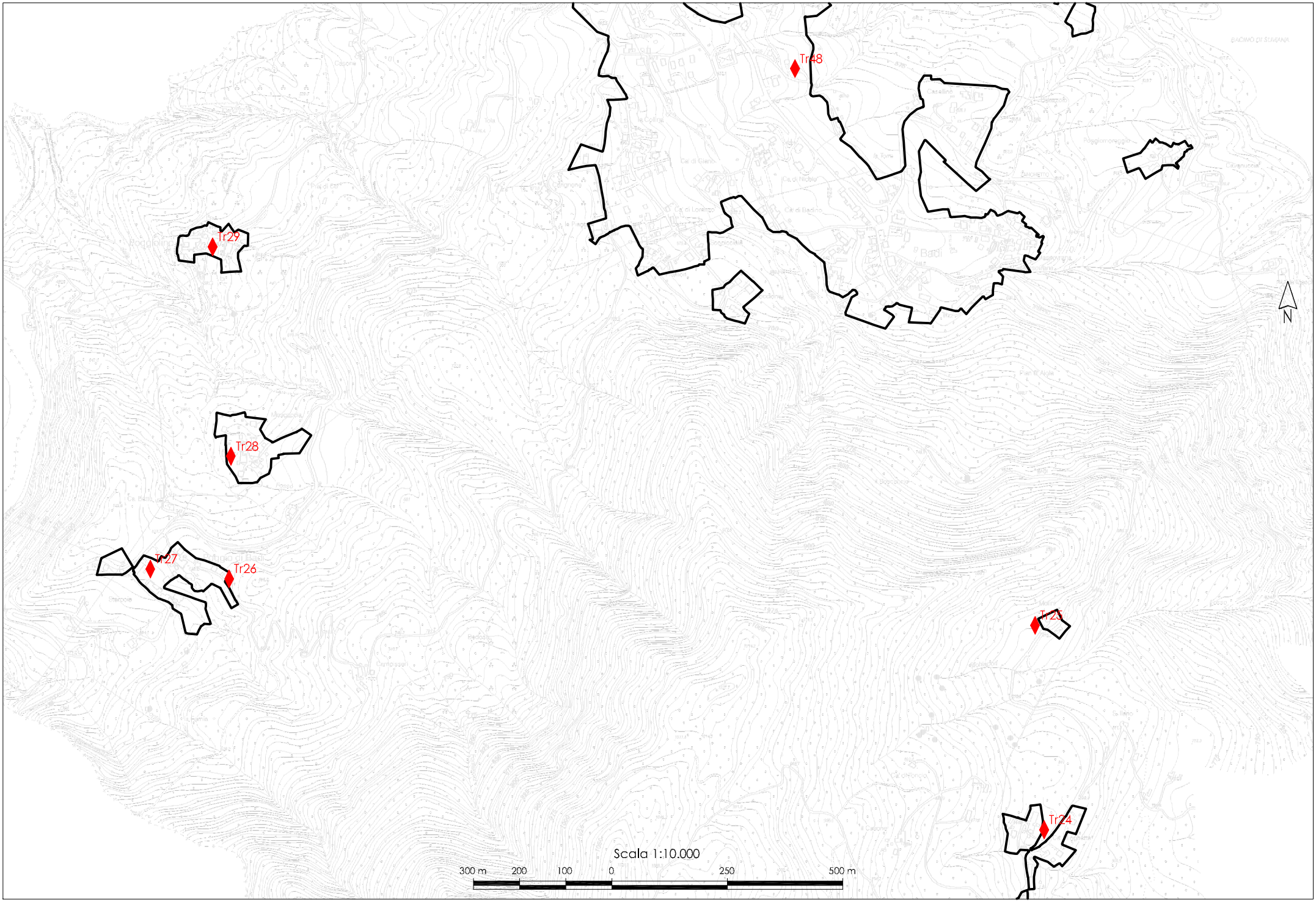

N
Tr07
Tr06
Scala 1:10.000
300 m
200
100
0
250
500 m


Tr45
N
Tr19
Tr44
Tr20
Tr21
Tr18
Tr30
Tr31
Tr32
Scala 1:10.000
300 m
200
100
0
250
500 m


Tr17
Tr16
N
Scala 1:10.000
300 m
200
100
0
250
500 m


Tr47
Tr46
Tr33
N
Scala 1:10.000
300 m
200
100
0
250
500 m

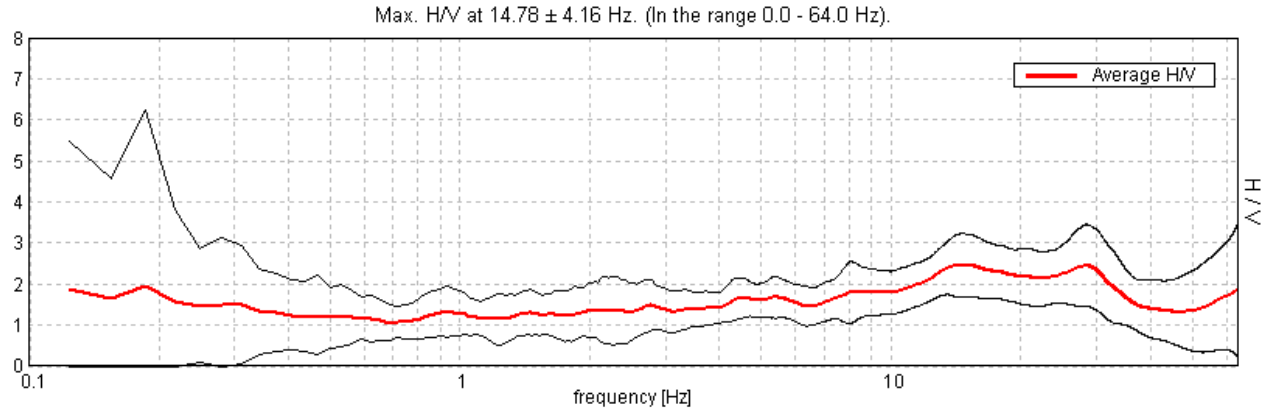

Tr30
Tr31
Tr32
N
Scala 1:10.000
300 m
200
100
0
250
500 m


Tr48
Tr29
Tr28
Tr27
Tr26
Tr25
Tr24
N
Scala 1:10.000
300 m
200
100
0
250
500 m

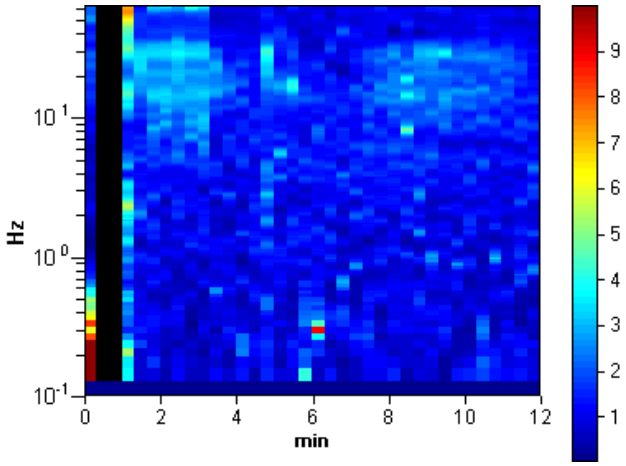
CASTEL DI CASIO_PSC, TR04 RIVABELLA

Start recording: 25/03/14 09:52:18 End recording: 25/03/14 10:04:19
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

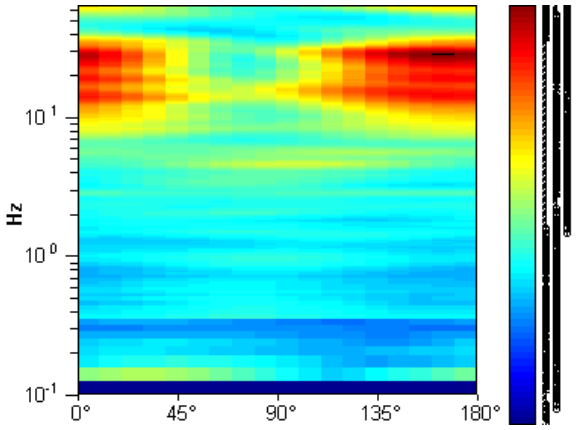
HORIZONTAL TO VERTICAL SPECTRAL RATIO



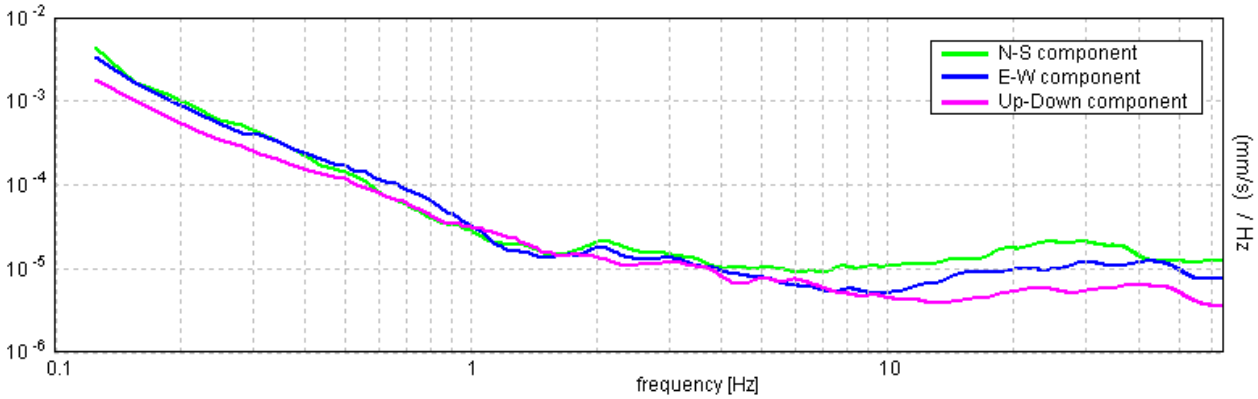
H/V TIME HISTORY



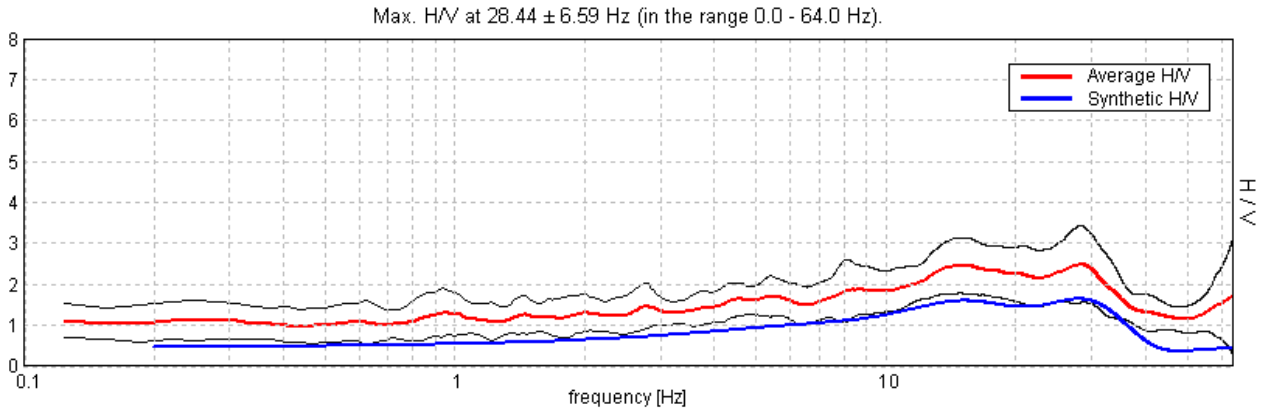
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

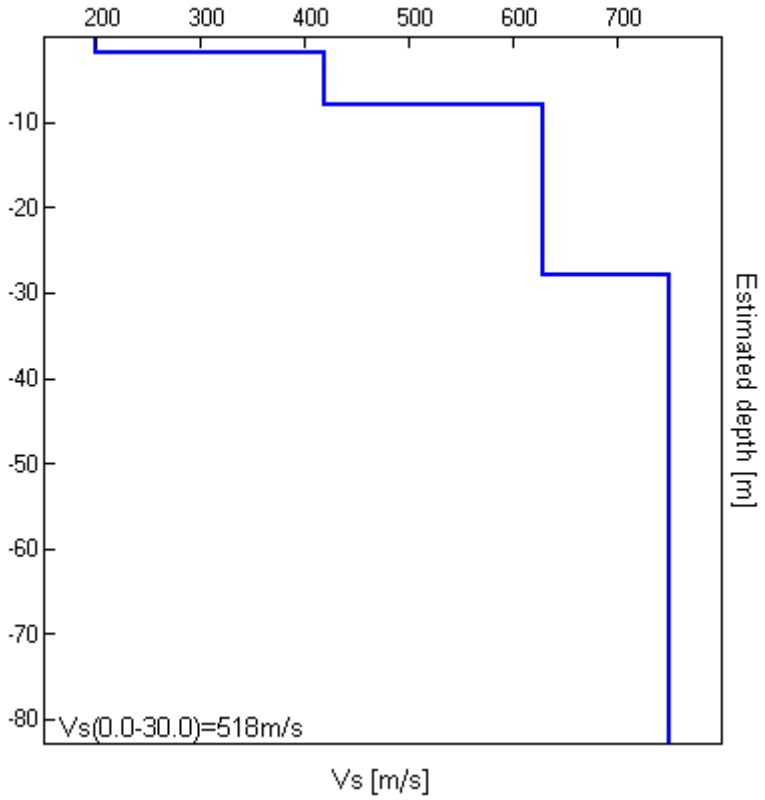


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.80	1.80	200	0.35
7.80	6.00	420	0.35
27.80	20.00	630	0.35
77.80	50.00	750	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=518m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 14.78 ± 4.16 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	14.78 > 0.50	**OK**	
$n_c(f_0) > 200$	10051.3 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 710 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			**NO**
$A_0 > 2$	2.47 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.13621| < 0.05		**NO**
$\sigma_f < \varepsilon(f_0)$	2.01333 < 0.73906		**NO**
$\sigma_A(f_0) < \theta(f_0)$	0.3685 < 1.58	**OK**	

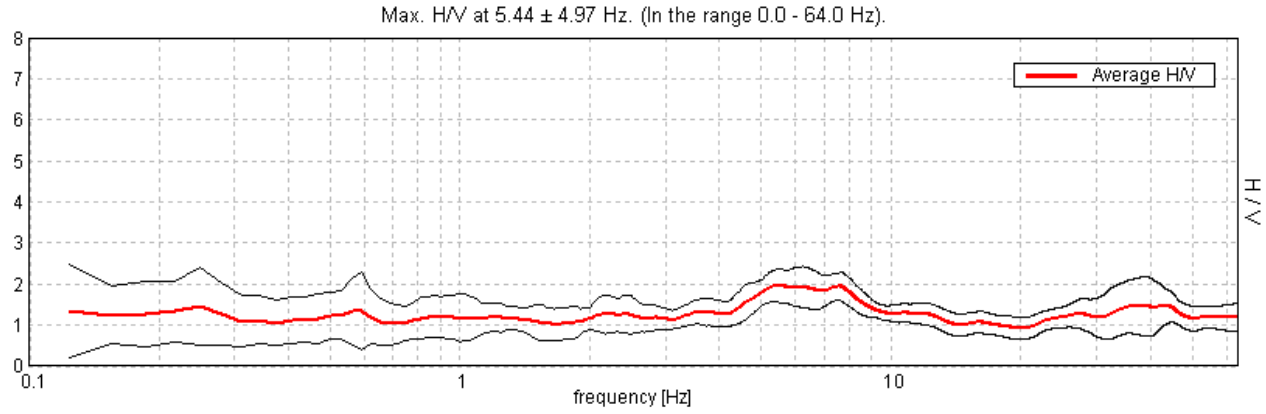
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

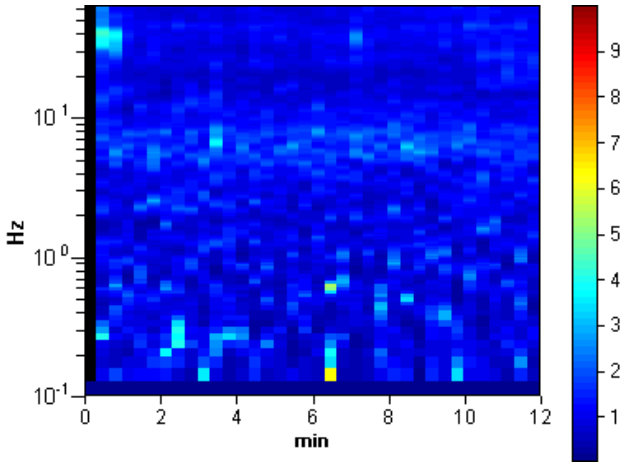
CASTEL DI CASIO_PSC, TR05 RIVABELLA_SUD

Start recording: 25/03/14 10:13:55 End recording: 25/03/14 10:25:56
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

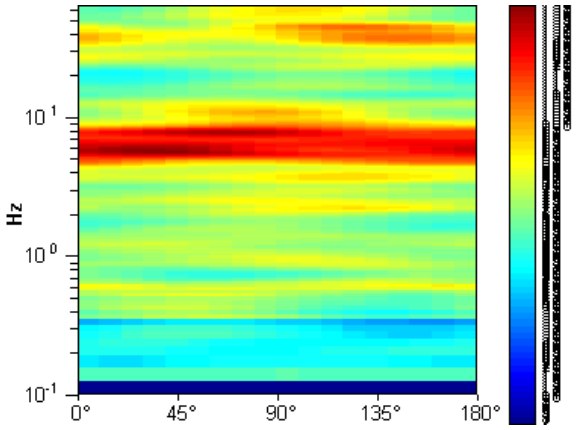
HORIZONTAL TO VERTICAL SPECTRAL RATIO



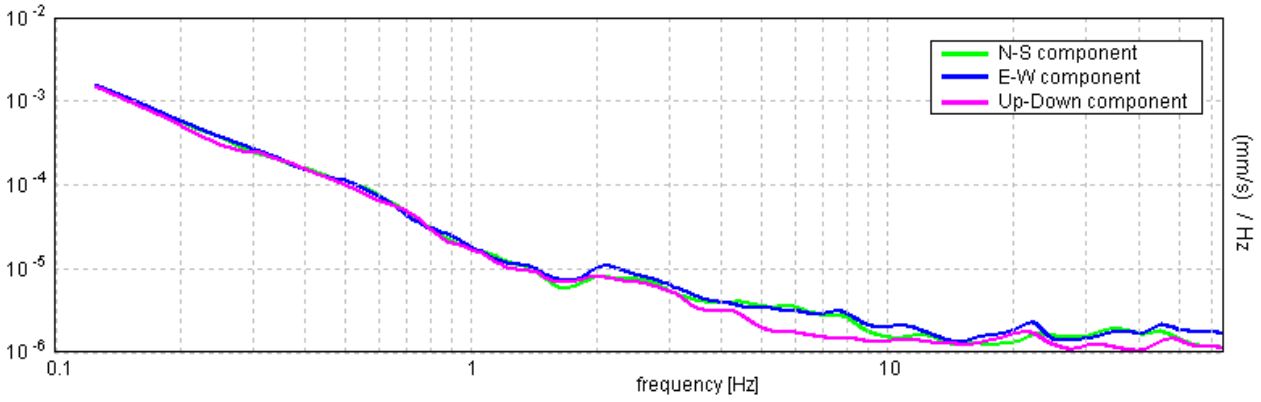
H/V TIME HISTORY



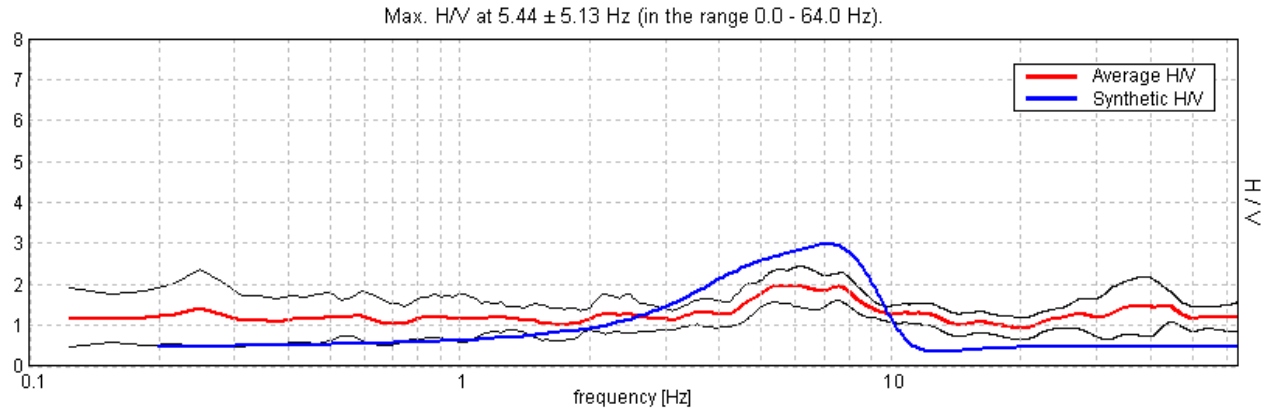
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

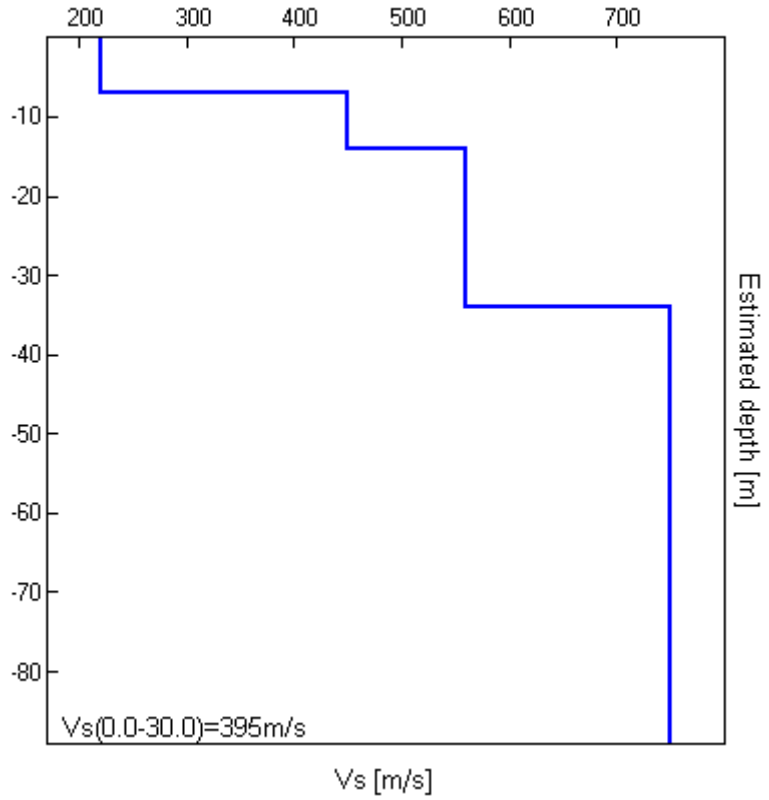


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
7.00	7.00	220	0.35
14.00	7.00	450	0.35
34.00	20.00	560	0.35
84.00	50.00	750	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=395m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 5.44 ± 4.97 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	5.44 > 0.50	OK	
$n_c(f_0) > 200$	3806.3 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 262 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	17.938 Hz	OK	
$A_0 > 2$	1.97 > 2		NO
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.44343| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	2.41117 < 0.27188		NO
$\sigma_A(f_0) < \theta(f_0)$	0.1916 < 1.58	OK	

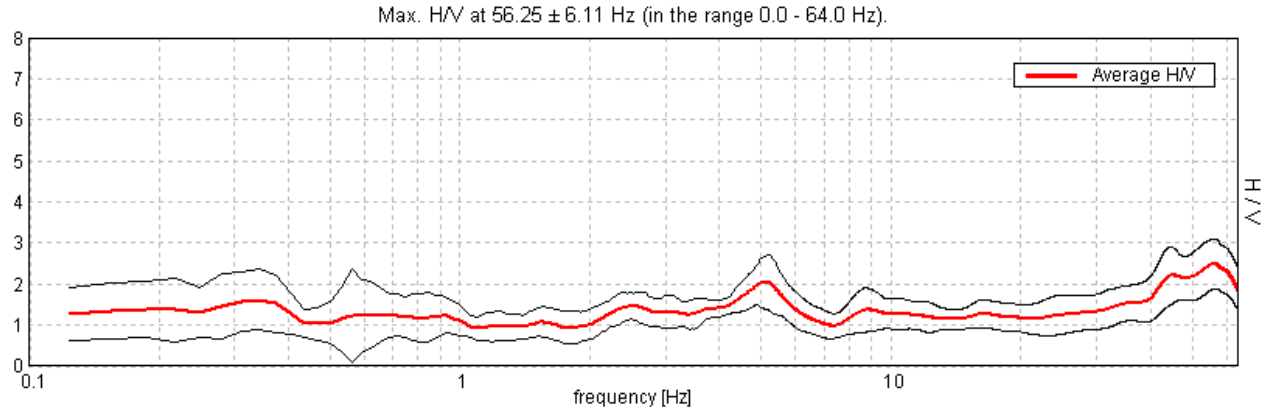
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

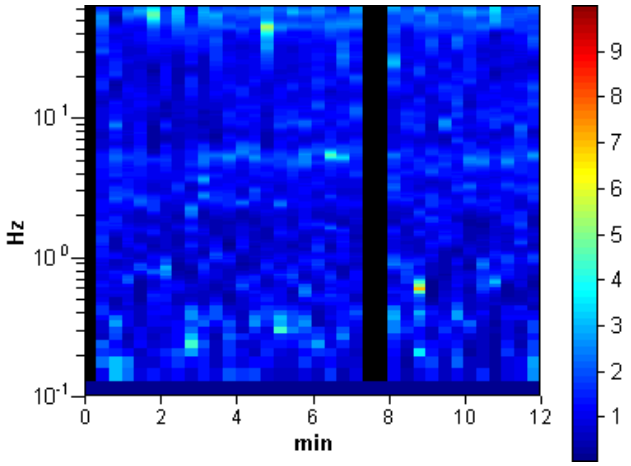
CASTEL DI CASIO_PSC, TR06 PIAN DI CASALE_SUD

Start recording: 25/03/14 10:50:44 End recording: 25/03/14 11:02:45
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 92% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

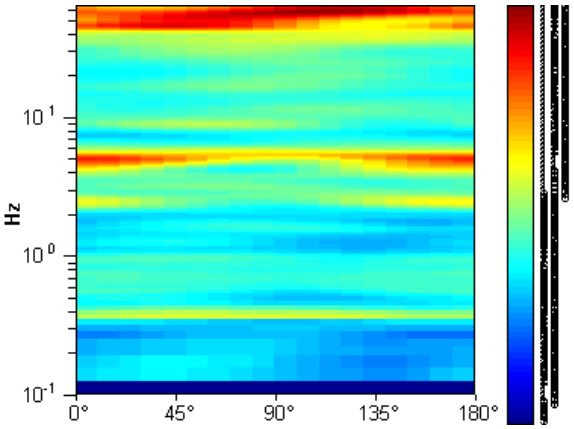
HORIZONTAL TO VERTICAL SPECTRAL RATIO



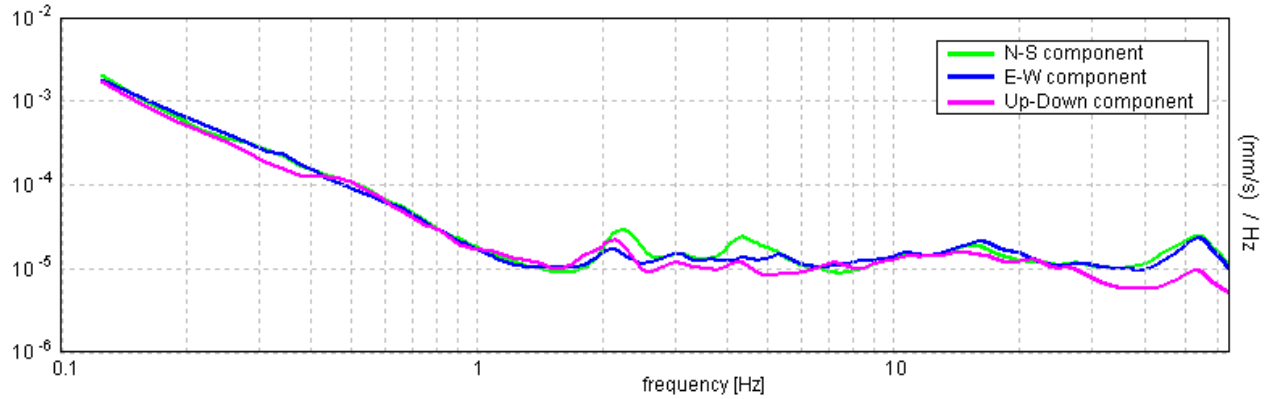
H/V TIME HISTORY



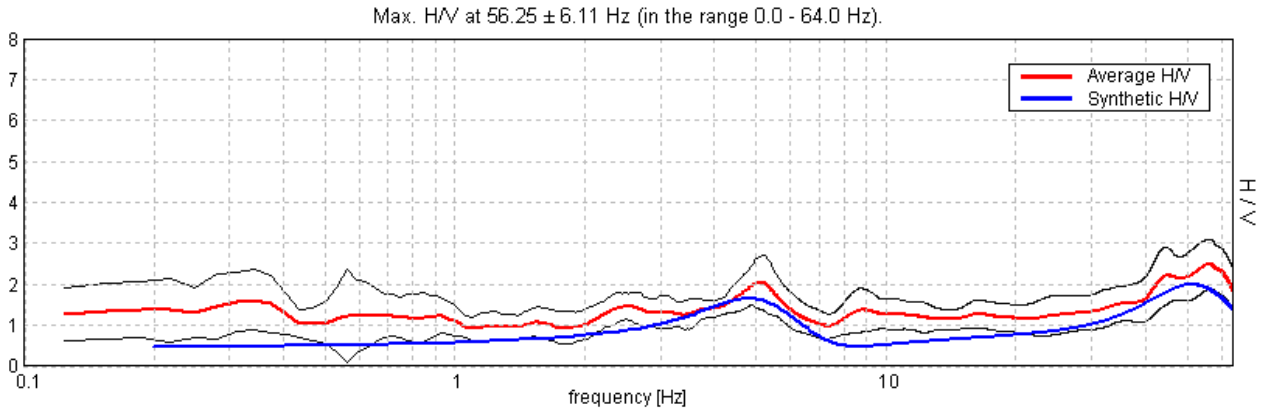
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

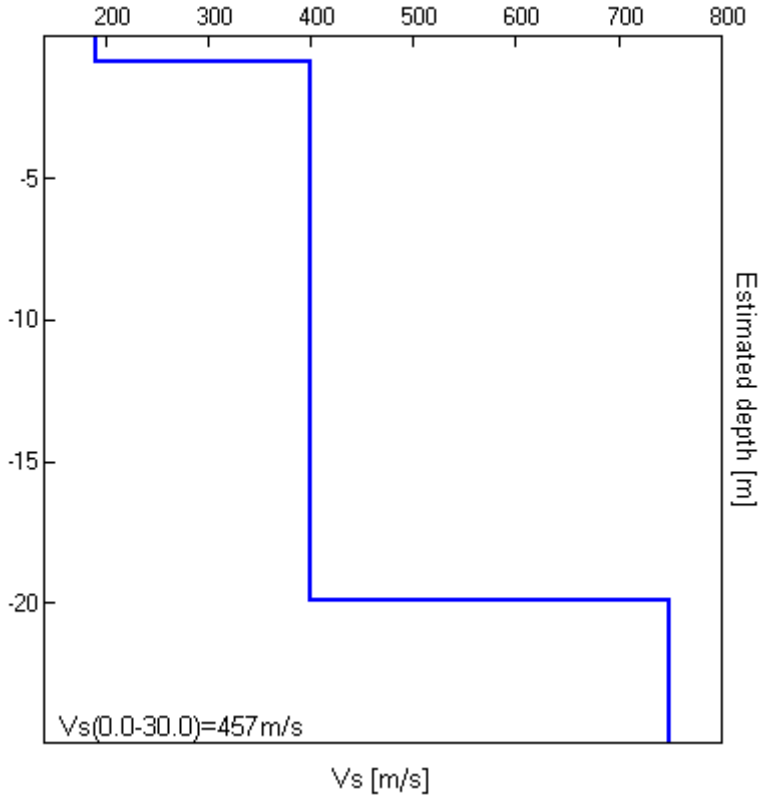


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.90	0.90	190	0.35
19.90	19.00	400	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=457m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 56.25 ± 6.11 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	56.25 > 0.50	OK	
$n_c(f_0) > 200$	37125.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1149 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	24.719 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.49 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.0525| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	2.95311 < 2.8125		NO
$\sigma_A(f_0) < \theta(f_0)$	0.2944 < 1.58	OK	

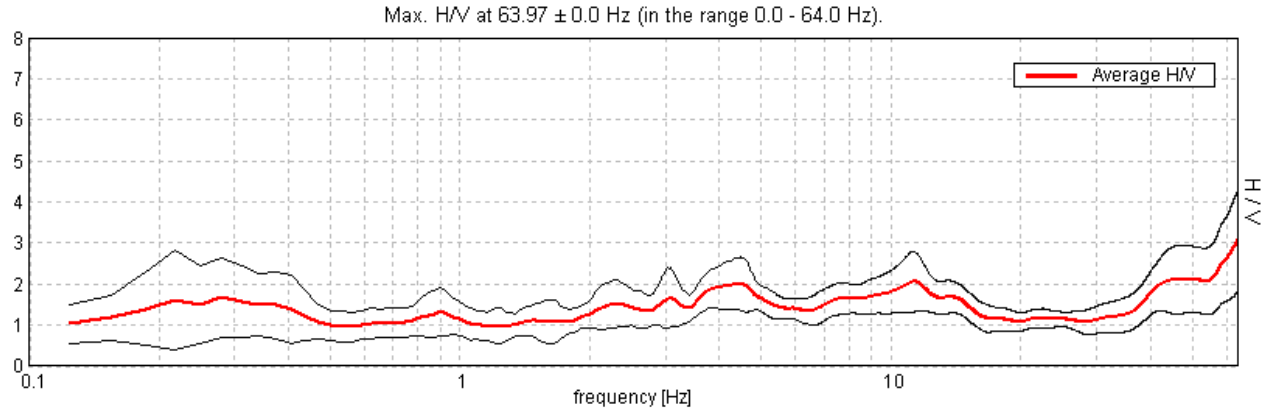
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

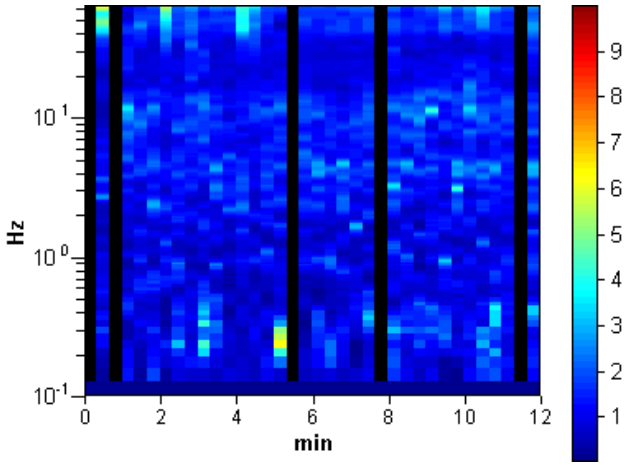
CASTEL DI CASIO_PSC, TR07 PIAN DI CASALE NORD

Start recording: 25/03/14 11:18:54 End recording: 25/03/14 11:30:55
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 86% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

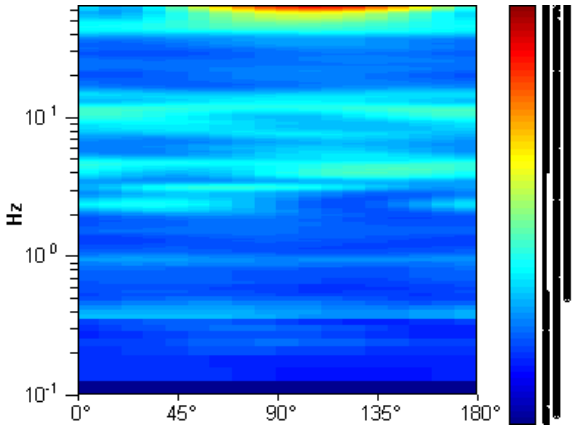
HORIZONTAL TO VERTICAL SPECTRAL RATIO



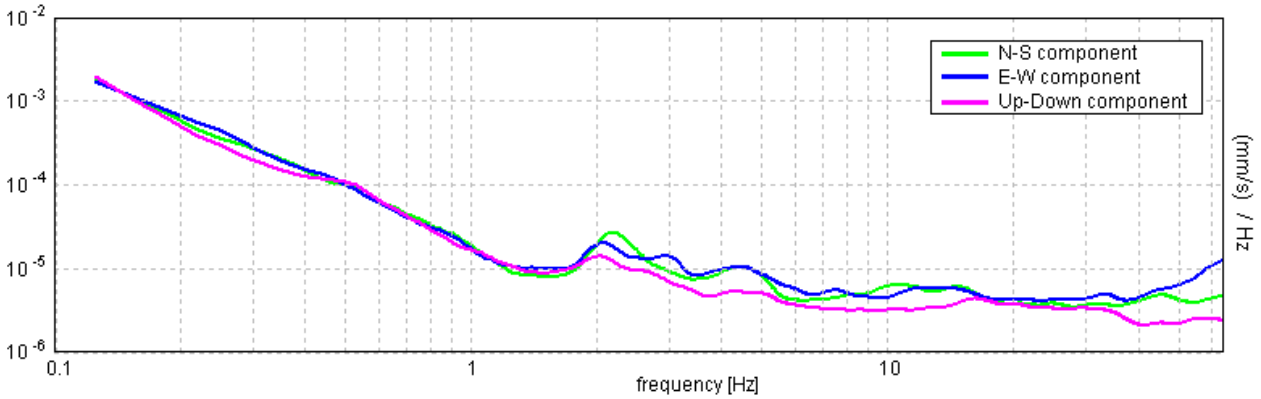
H/V TIME HISTORY



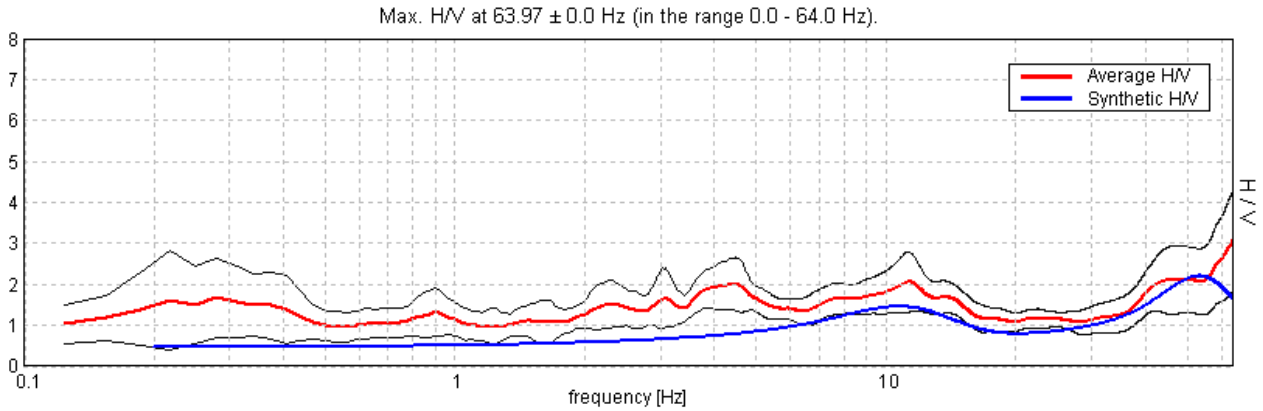
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

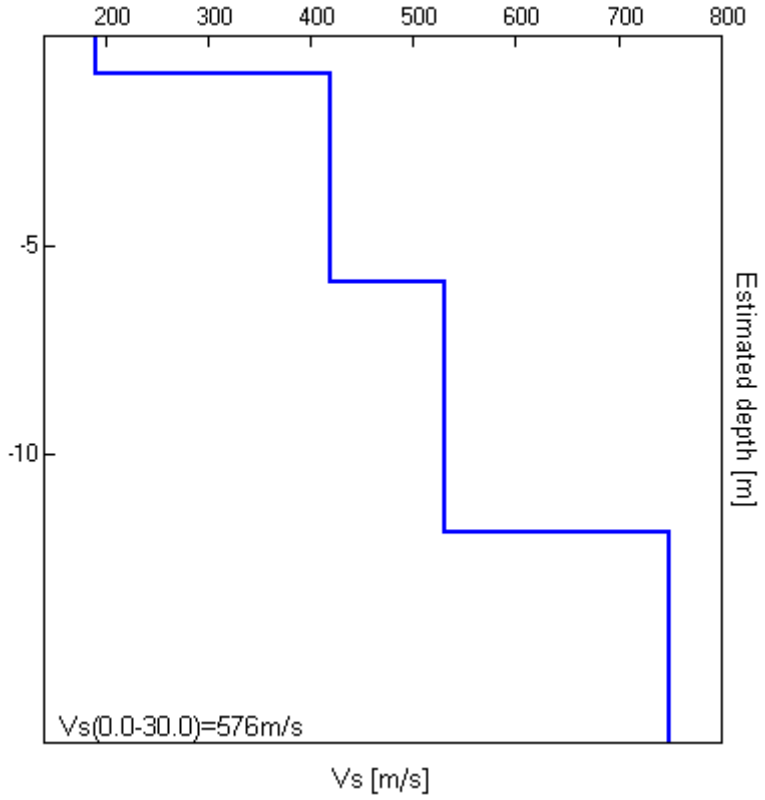


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.90	0.90	190	0.35
5.90	5.00	420	0.35
11.90	6.00	530	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=576m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the *Grilla* manual before interpreting the following tables**.]

Max. H/V at 63.97 ± 0.0 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	63.97 > 0.50	OK	
$n_c(f_0) > 200$	39660.6 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1026 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	38.281 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	3.08 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.0| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.0 < 3.19844	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.5939 < 1.58	OK	

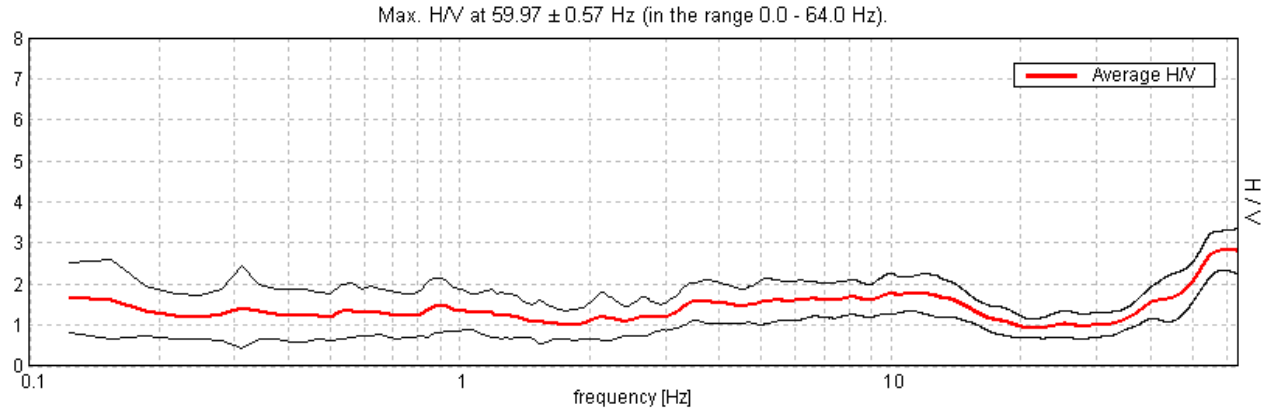
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

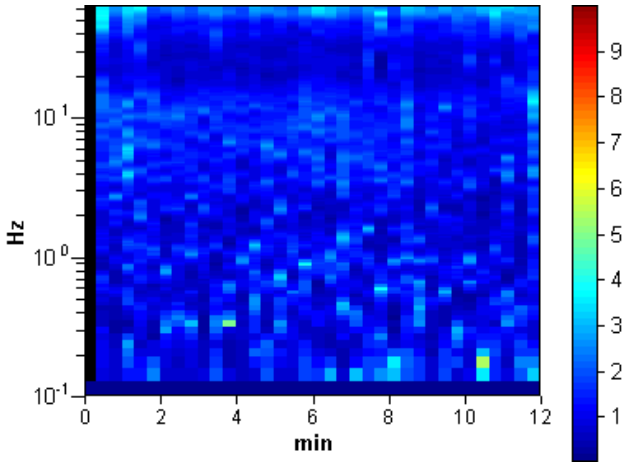
CASTEL DI CASIO_PSC, TR08 BUVOLO

Start recording: 25/03/14 11:51:26 End recording: 25/03/14 12:03:27
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

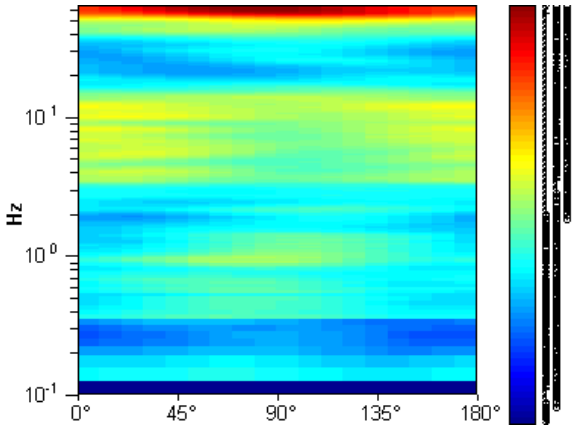
HORIZONTAL TO VERTICAL SPECTRAL RATIO



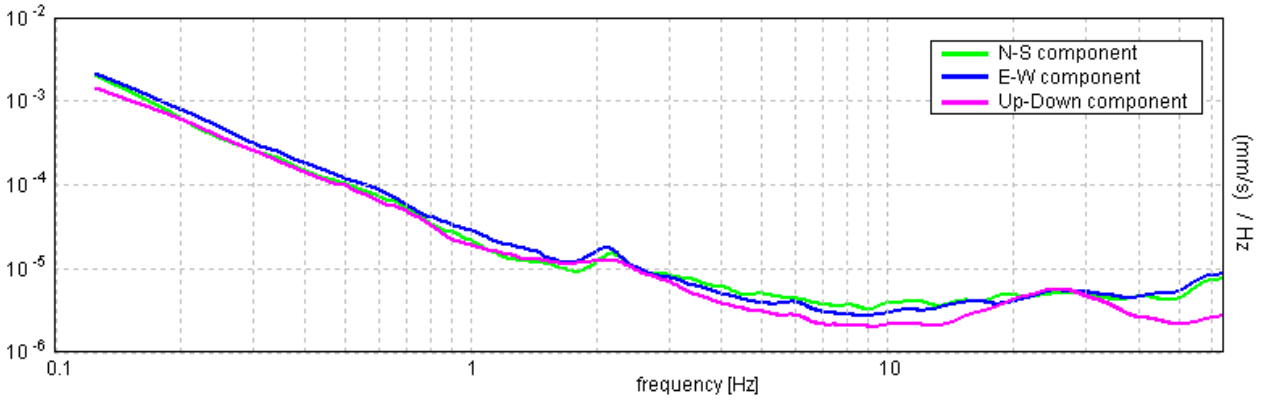
H/V TIME HISTORY



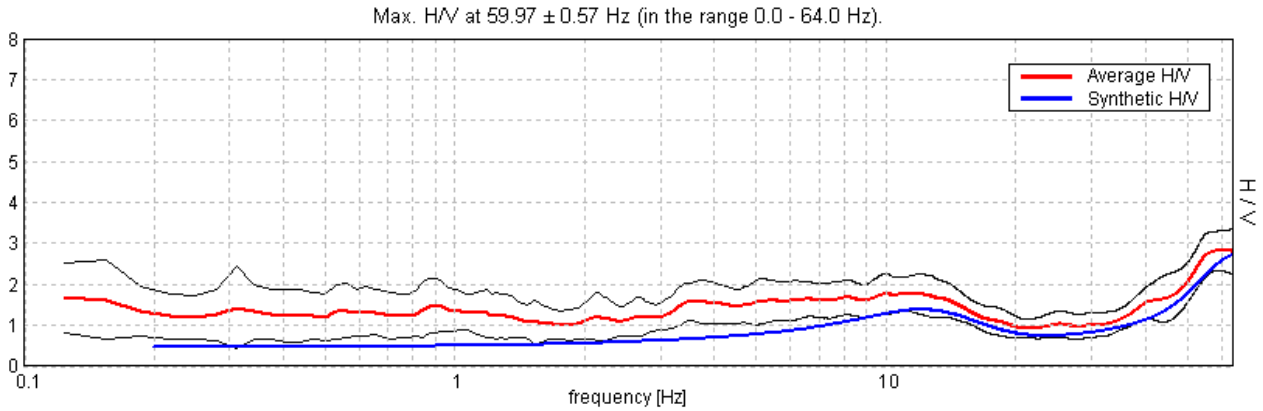
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

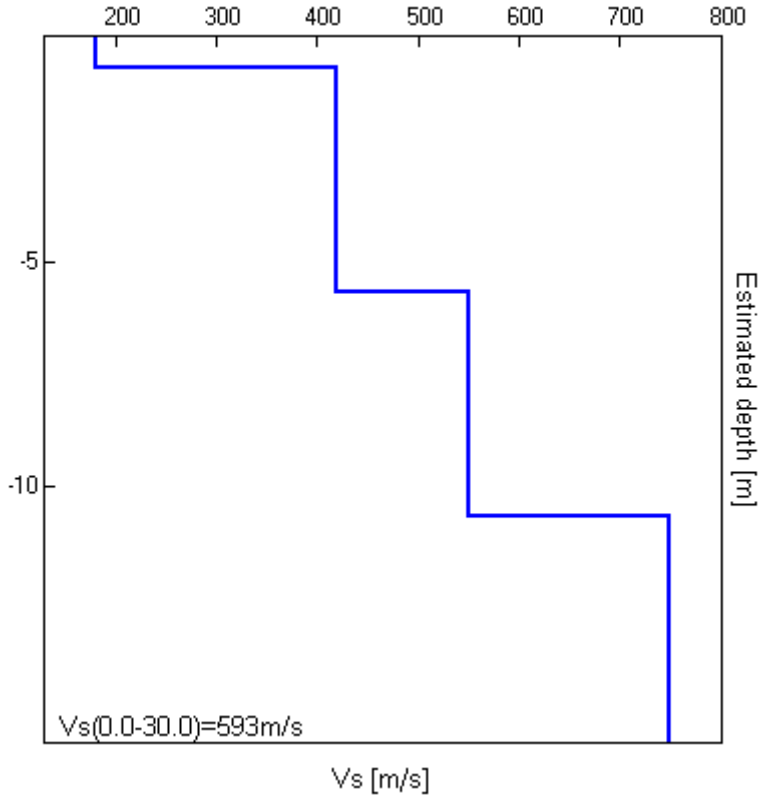


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.70	0.70	180	0.35
5.70	5.00	420	0.35
10.70	5.00	550	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=593m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 59.97 ± 0.57 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	59.97 > 0.50	OK	
$n_c(f_0) > 200$	41978.1 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1090 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	38.313 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.82 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.00462| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.2772 < 2.99844	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.2389 < 1.58	OK	

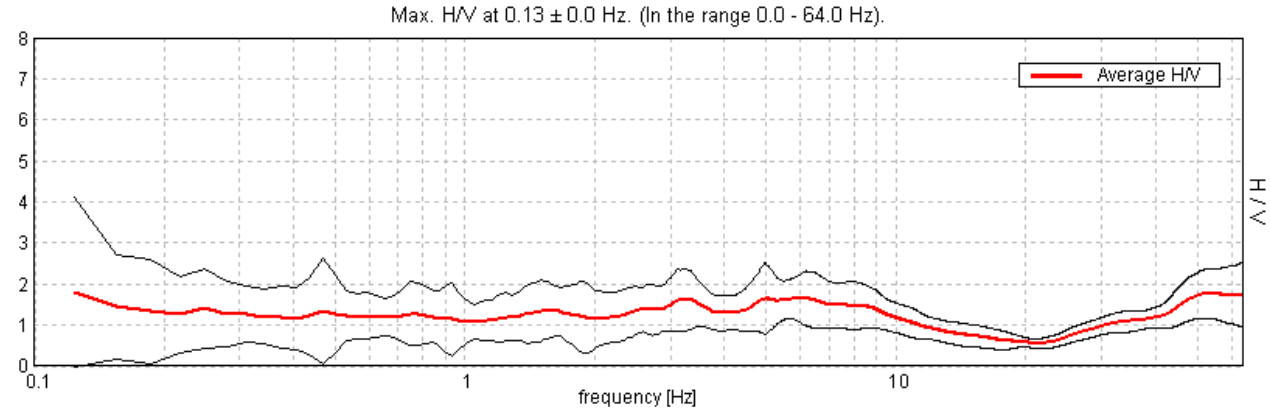
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

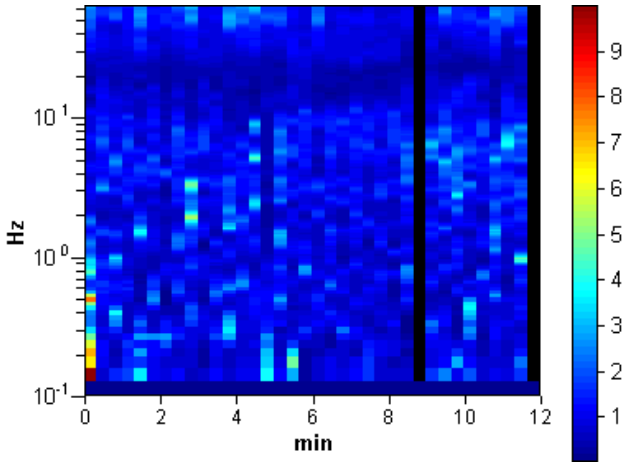
CASTEL DI CASIO_PSC, TR09 PIANE

Start recording: 25/03/14 12:23:43 End recording: 25/03/14 12:35:44
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

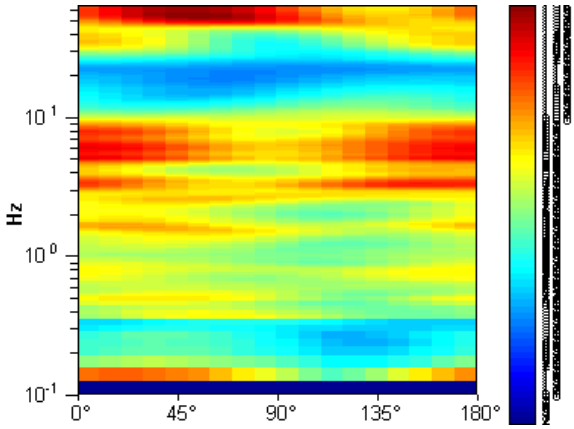
HORIZONTAL TO VERTICAL SPECTRAL RATIO



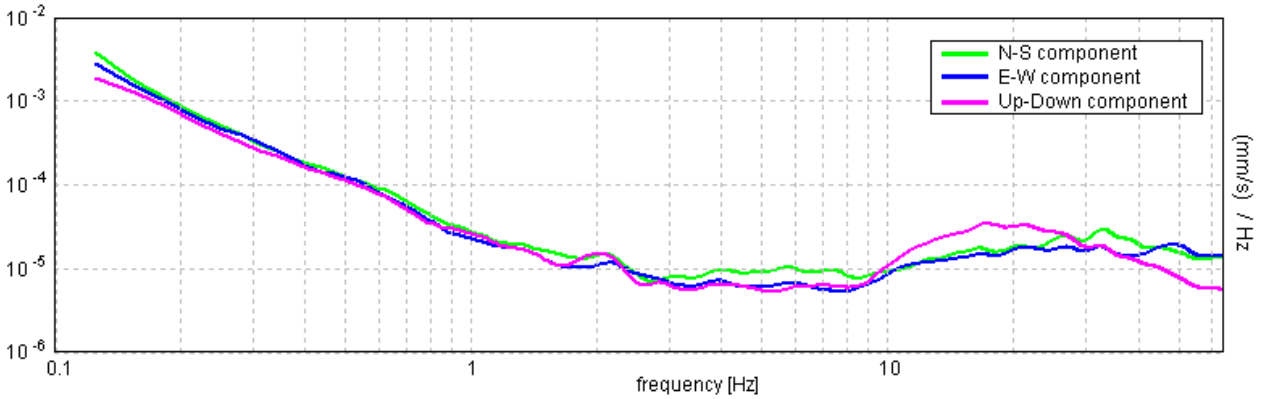
H/V TIME HISTORY



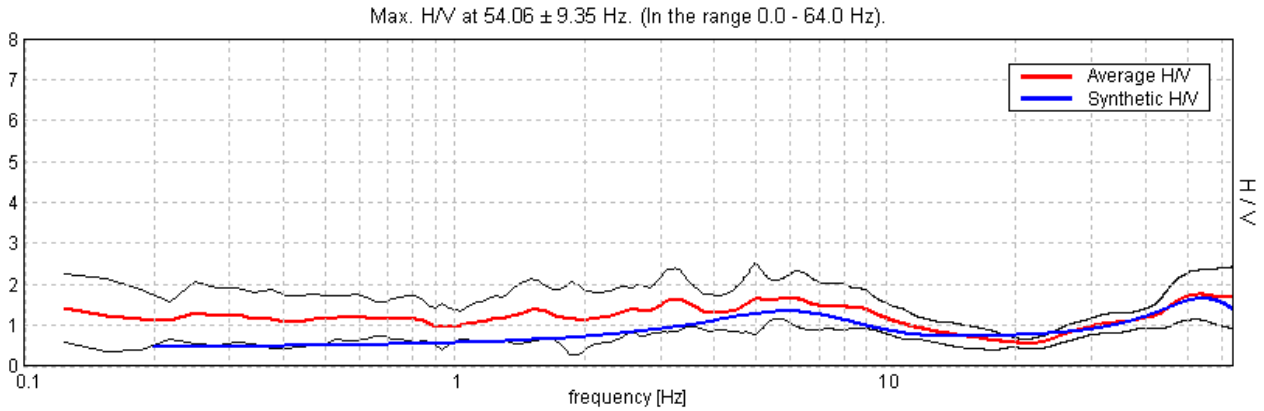
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

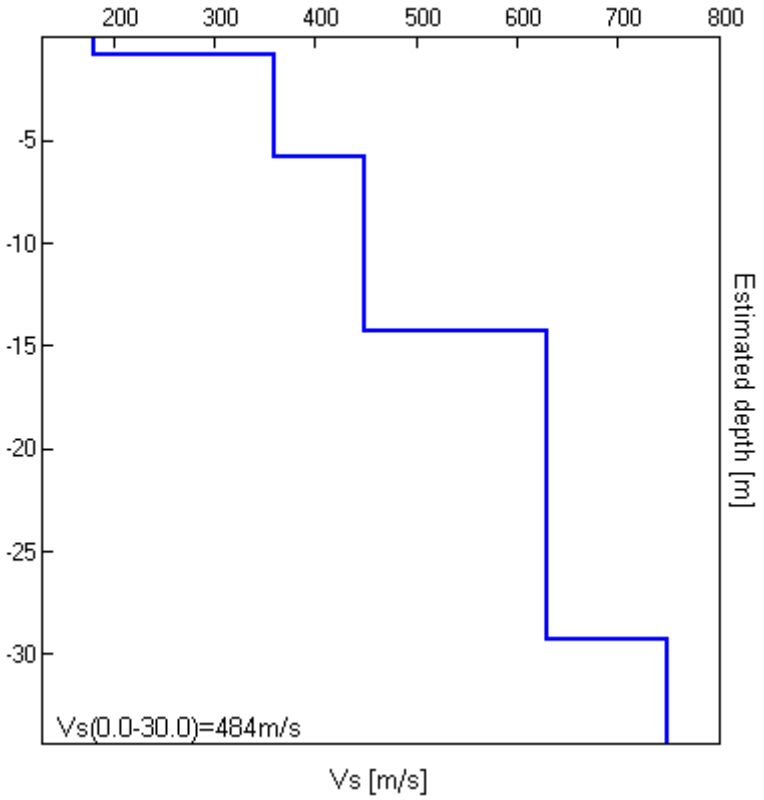


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.80	0.80	180	0.35
5.80	5.00	360	0.35
14.30	8.50	450	0.35
29.30	15.00	630	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=484m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 0.13 ± 0.0 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	0.13 > 0.50		**NO**
$n_c(f_0) > 200$	85.0 > 200		**NO**
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 7 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	0.094 Hz	**OK**	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			**NO**
$A_0 > 2$	1.81 > 2		**NO**
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.0| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	0.0 < 0.03125	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	1.1161 < 3.0	**OK**	

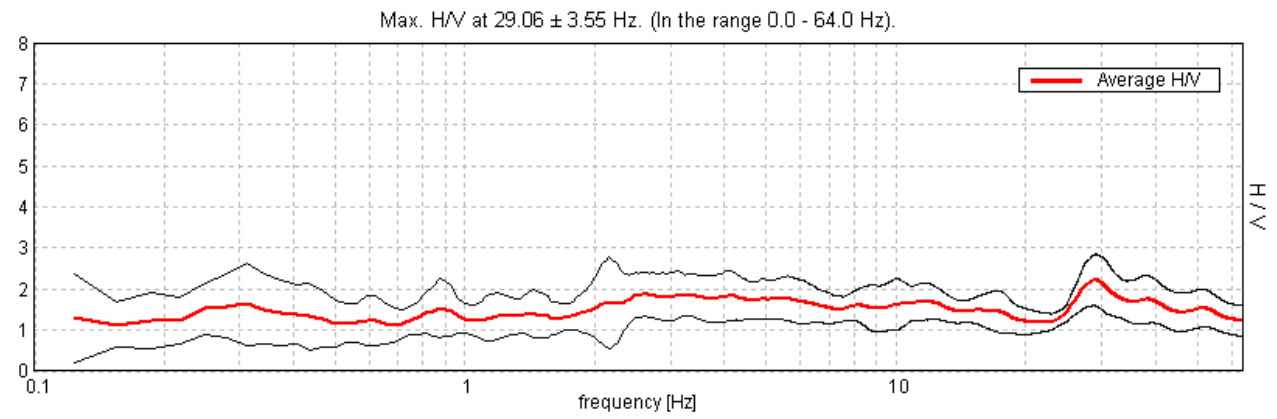
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

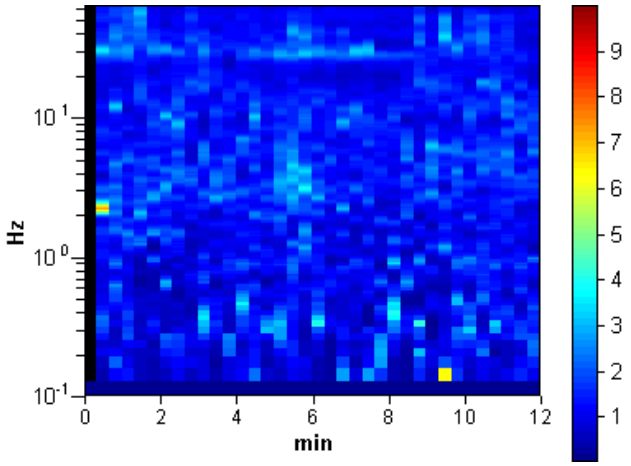
CASTEL DI CASIO_PSC, TR10 BELLA VISTA

Start recording: 25/03/14 12:48:52 End recording: 25/03/14 13:00:53
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

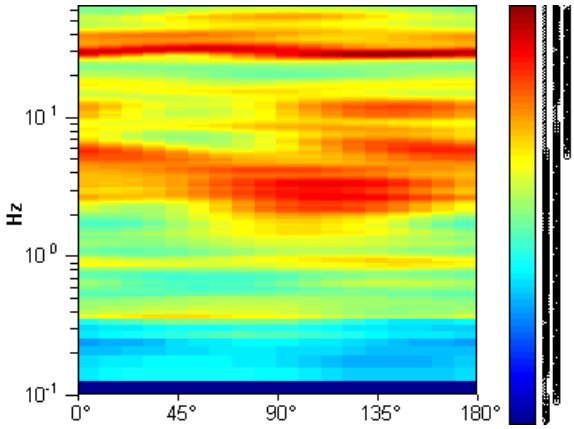
HORIZONTAL TO VERTICAL SPECTRAL RATIO



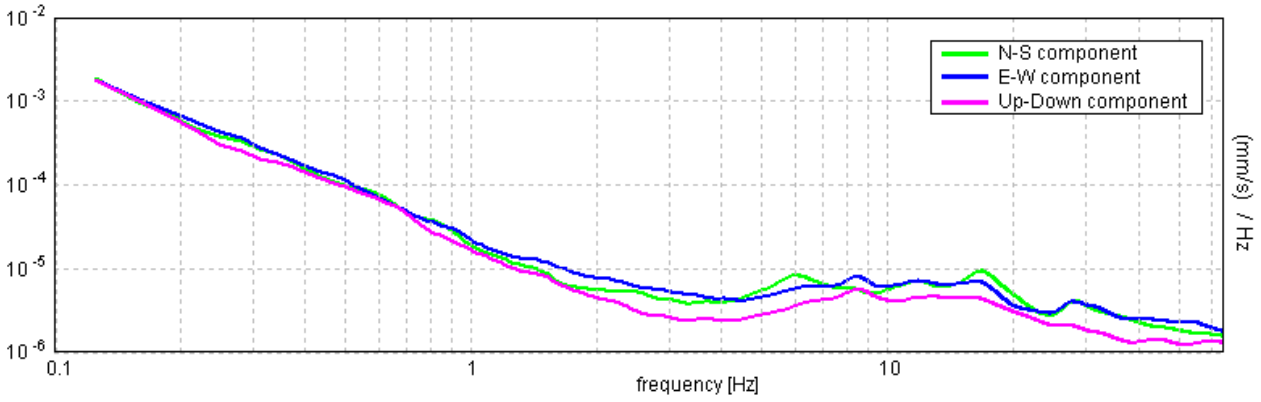
H/V TIME HISTORY



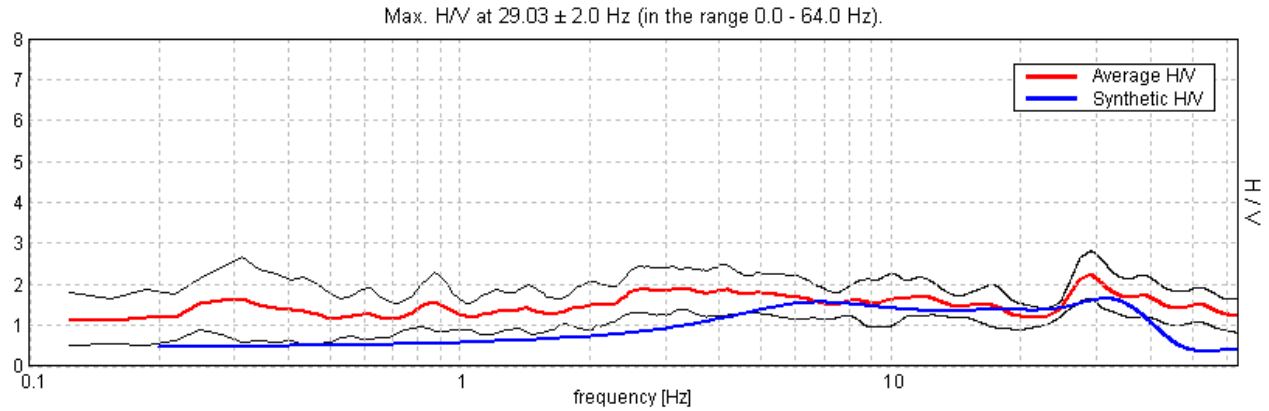
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

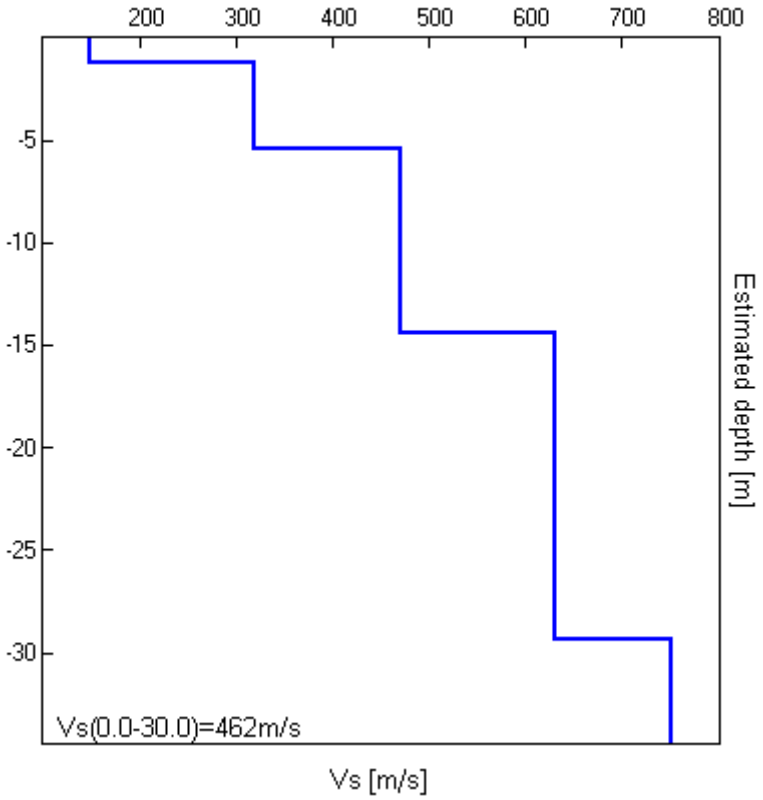


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.20	1.20	150	0.35
5.40	4.20	320	0.35
14.40	9.00	470	0.35
29.40	15.00	630	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=462m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 29.06 ± 3.55 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	29.06 > 0.50	**OK**	
$n_c(f_0) > 200$	20343.8 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1396 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			**NO**
$A_0 > 2$	2.22 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.05918| < 0.05		**NO**
$\sigma_f < \varepsilon(f_0)$	1.72006 < 1.45313		**NO**
$\sigma_A(f_0) < \theta(f_0)$	0.3054 < 1.58	**OK**	

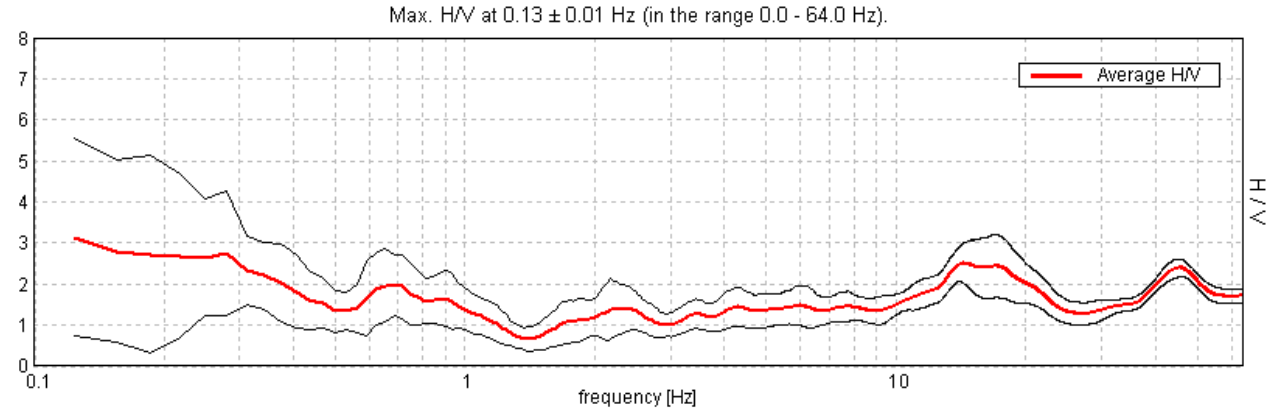
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

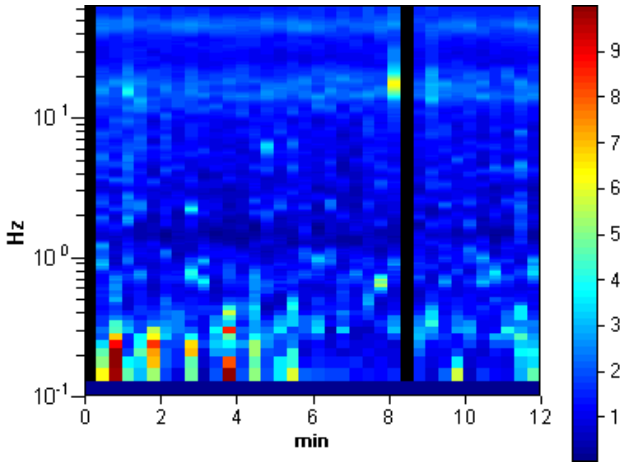
CASTEL DI CASIO_PSC, TR11 MARTINA

Start recording: 25/03/14 15:15:16 End recording: 25/03/14 15:27:17
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

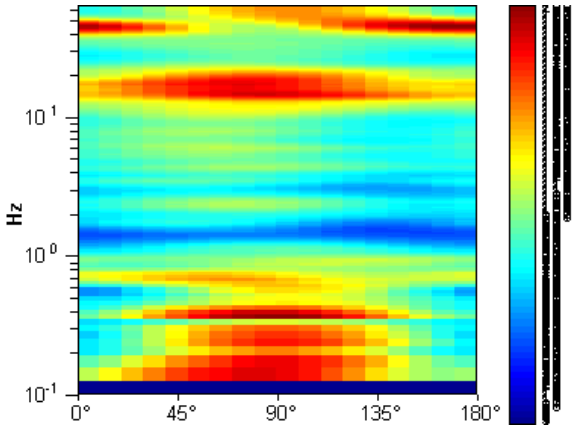
HORIZONTAL TO VERTICAL SPECTRAL RATIO



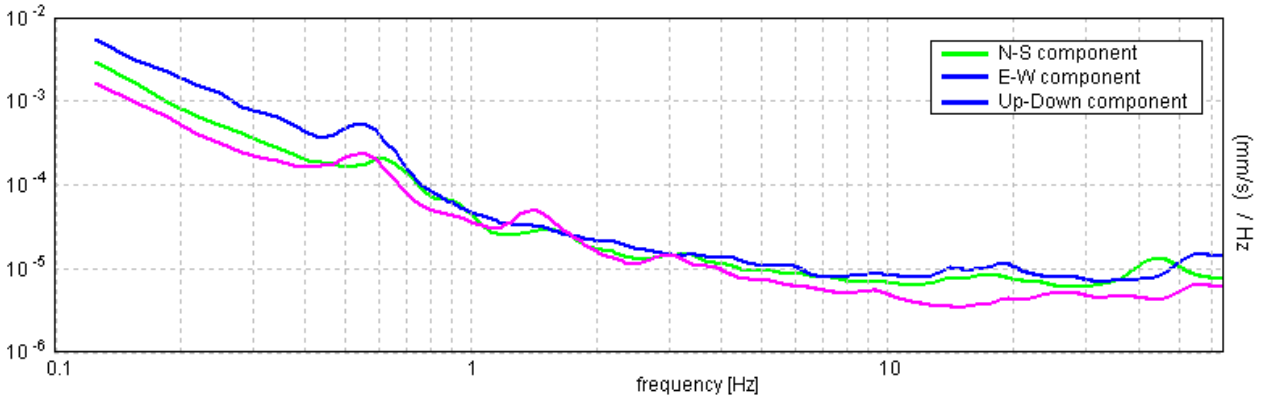
H/V TIME HISTORY



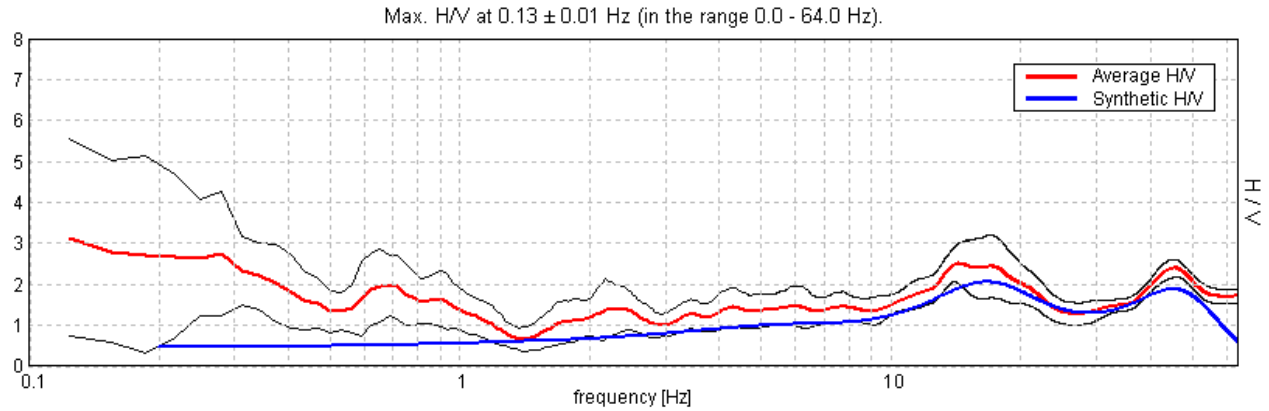
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

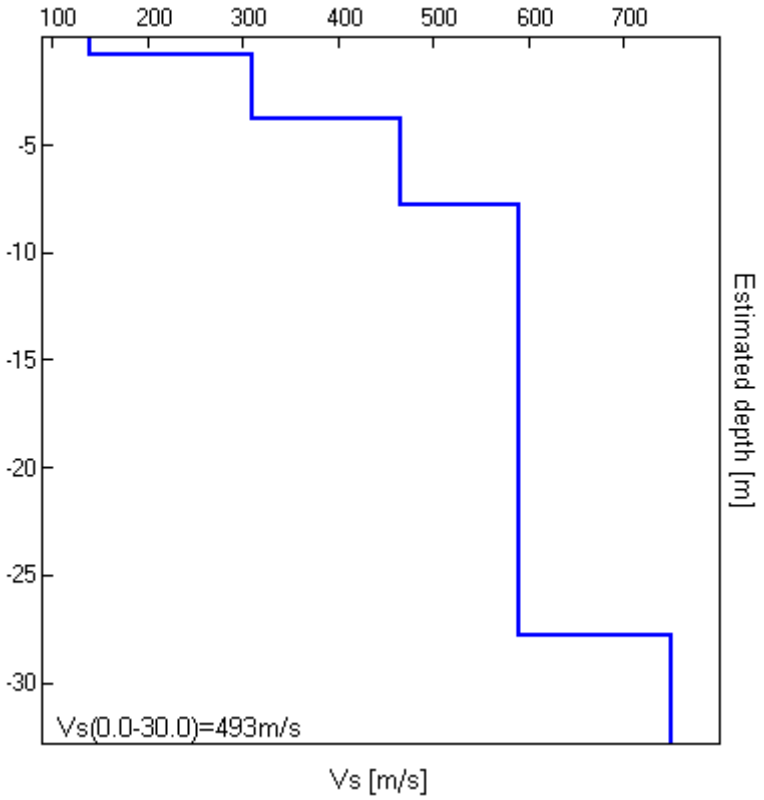


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.80	0.80	140	0.35
3.80	3.00	310	0.35
7.80	4.00	465	0.35
27.80	20.00	590	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=493m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 0.13 ± 0.01 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	0.13 > 0.50		**NO**
$n_c(f_0) > 200$	85.0 > 200		**NO**
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 7 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	0.094 Hz	**OK**	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	0.469 Hz	**OK**	
$A_0 > 2$	3.14 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.03891| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	0.00486 < 0.03125	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	1.1609 < 3.0	**OK**	

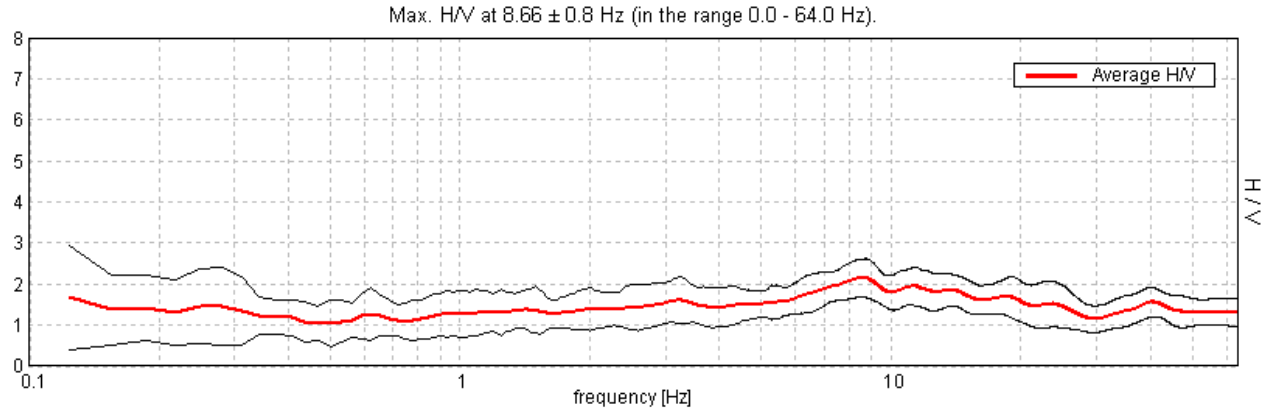
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

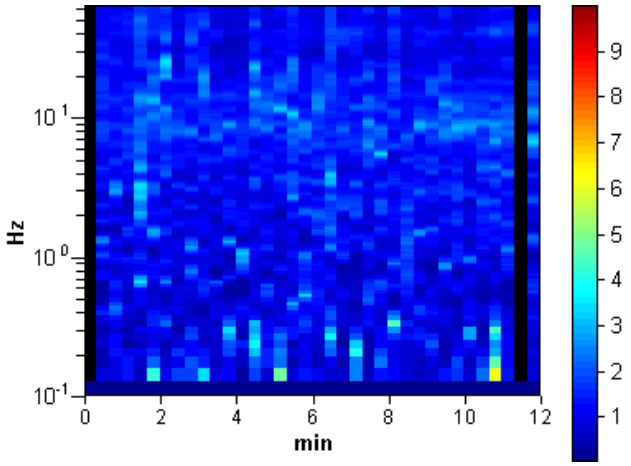
CASTEL DI CASIO_PSC, TR13 RONCACCIOLI

Start recording: 25/03/14 16:17:11 End recording: 25/03/14 16:29:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

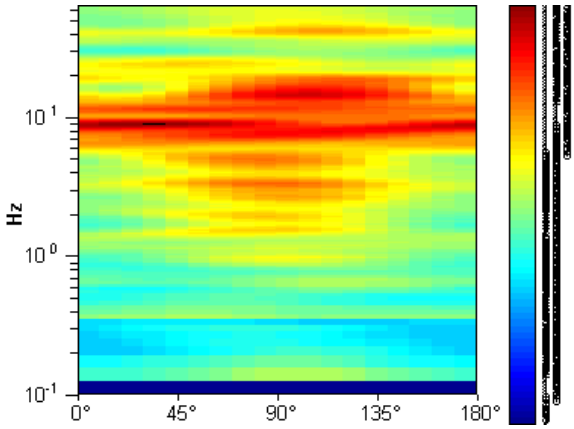
HORIZONTAL TO VERTICAL SPECTRAL RATIO



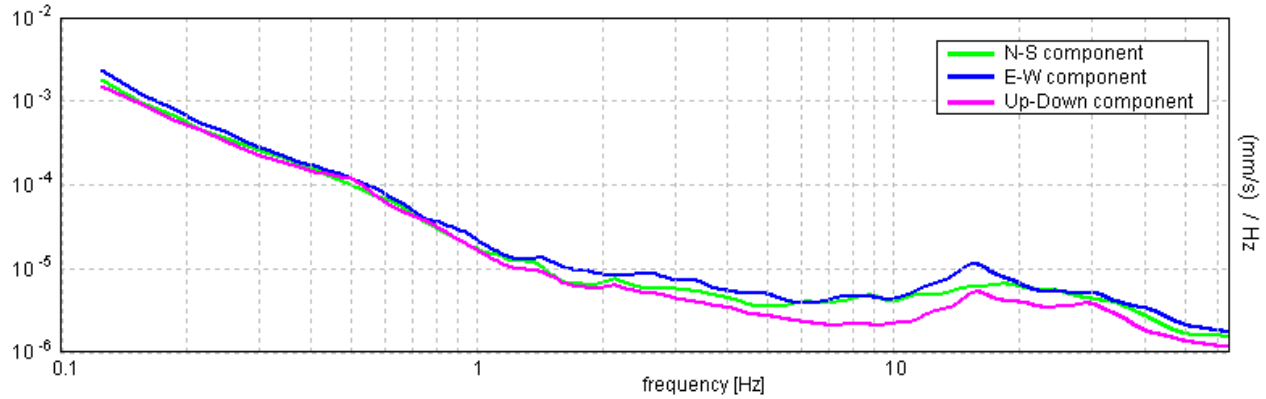
H/V TIME HISTORY



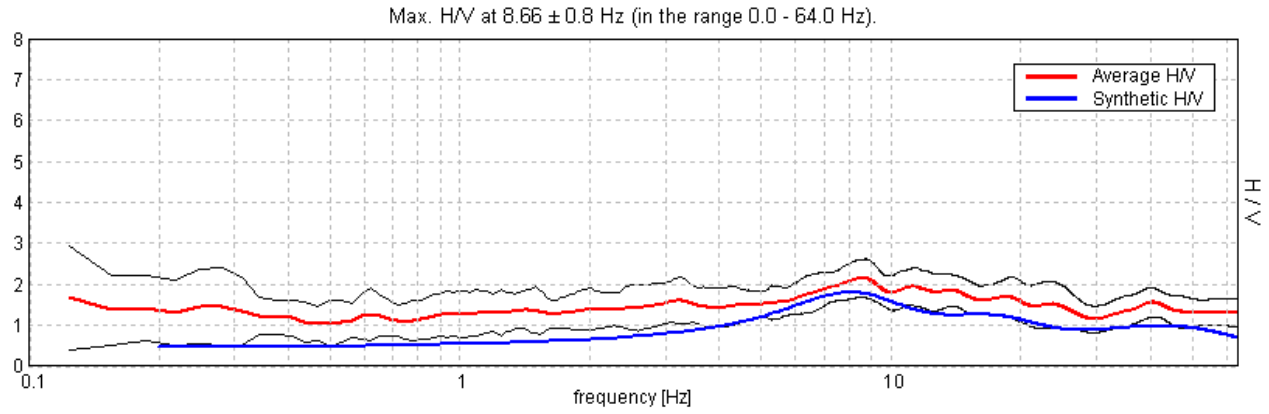
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

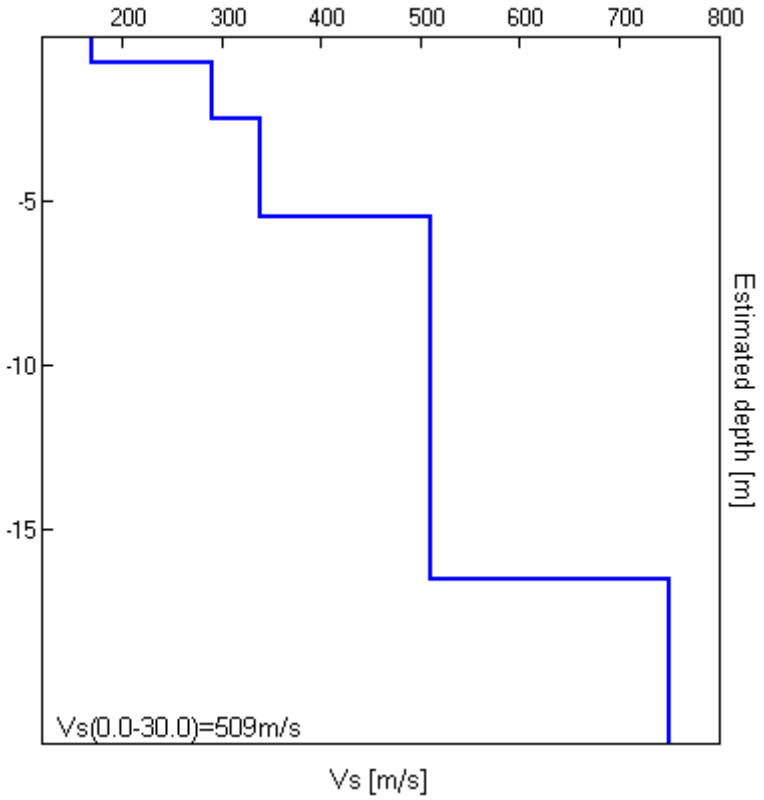


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.80	0.80	170	0.35
2.50	1.70	290	0.35
5.50	3.00	340	0.35
16.50	11.00	510	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=509m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 8.66 ± 0.8 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	8.66 > 0.50	OK	
$n_c(f_0) > 200$	5886.3 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 416 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.15 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.04485| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.38824 < 0.43281	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.2204 < 1.58	OK	

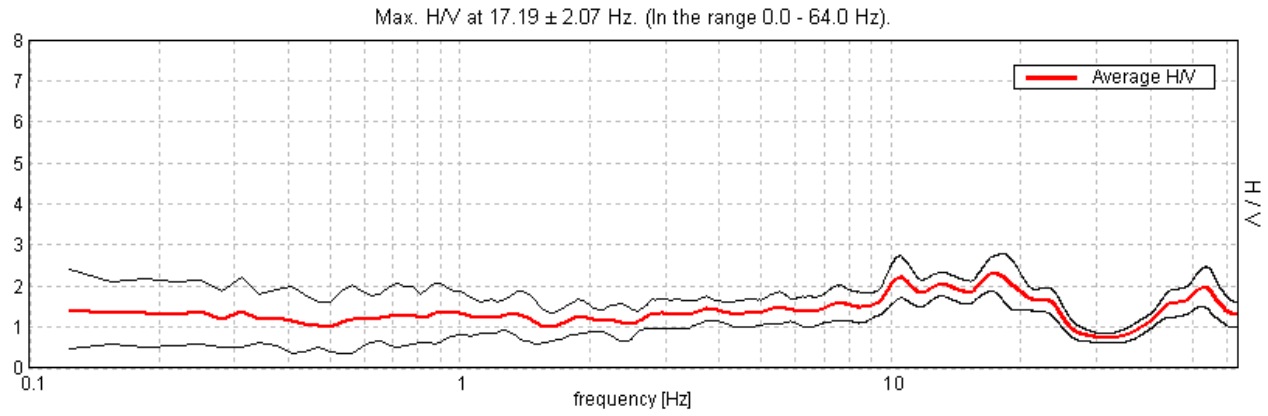
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

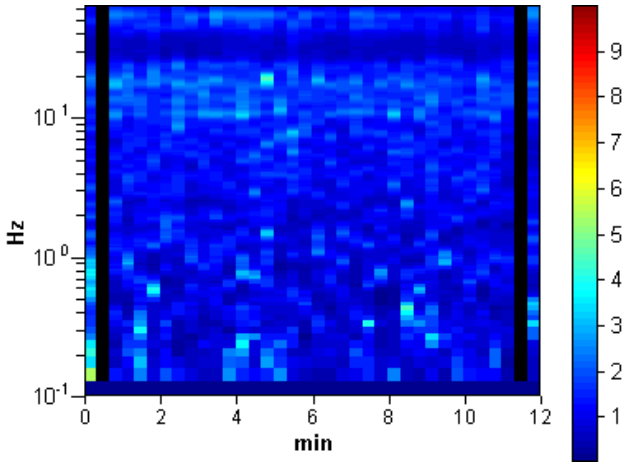
CASTEL DI CASIO_PSC, TR14 CASE TOGNARINI

Start recording: 25/03/14 16:52:44 End recording: 25/03/14 17:04:45
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

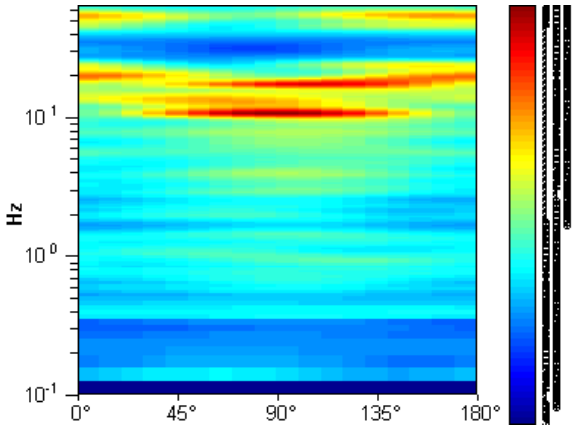
HORIZONTAL TO VERTICAL SPECTRAL RATIO



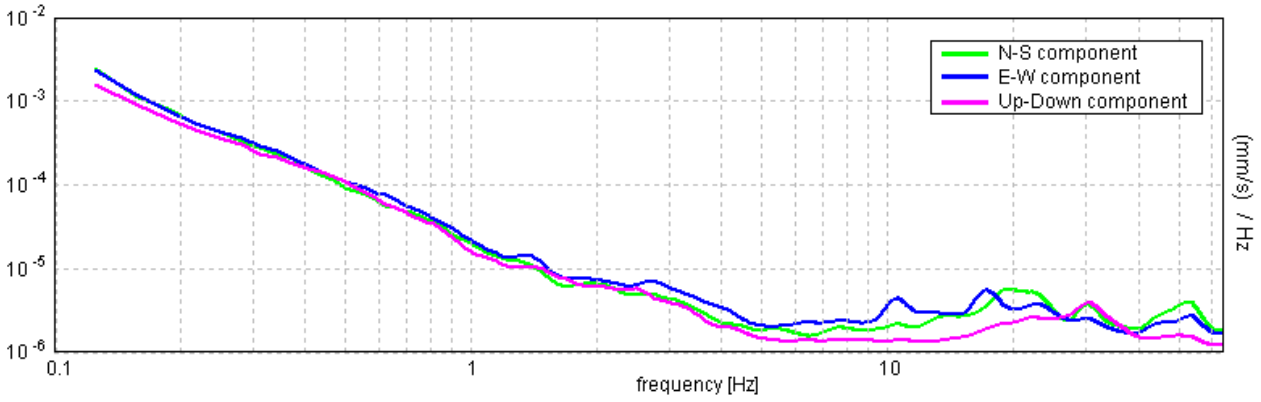
H/V TIME HISTORY



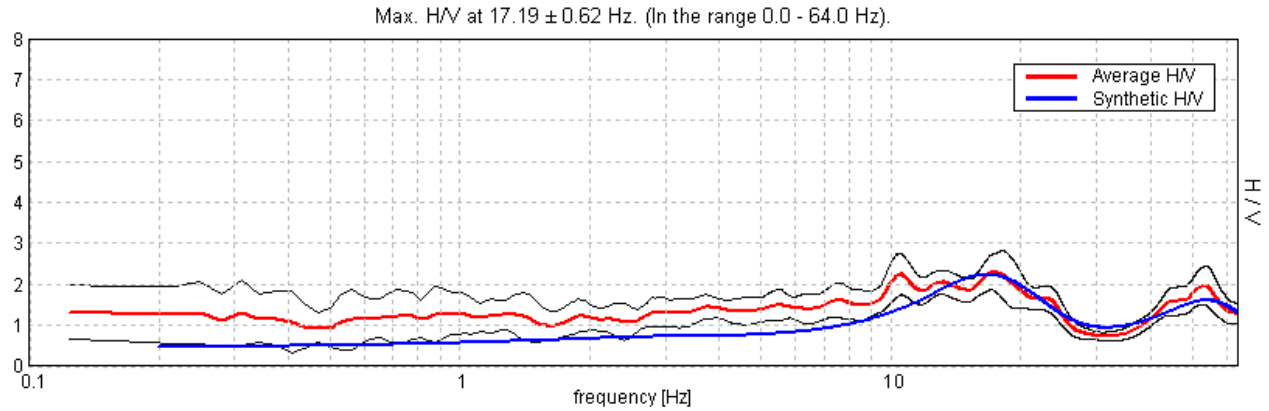
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

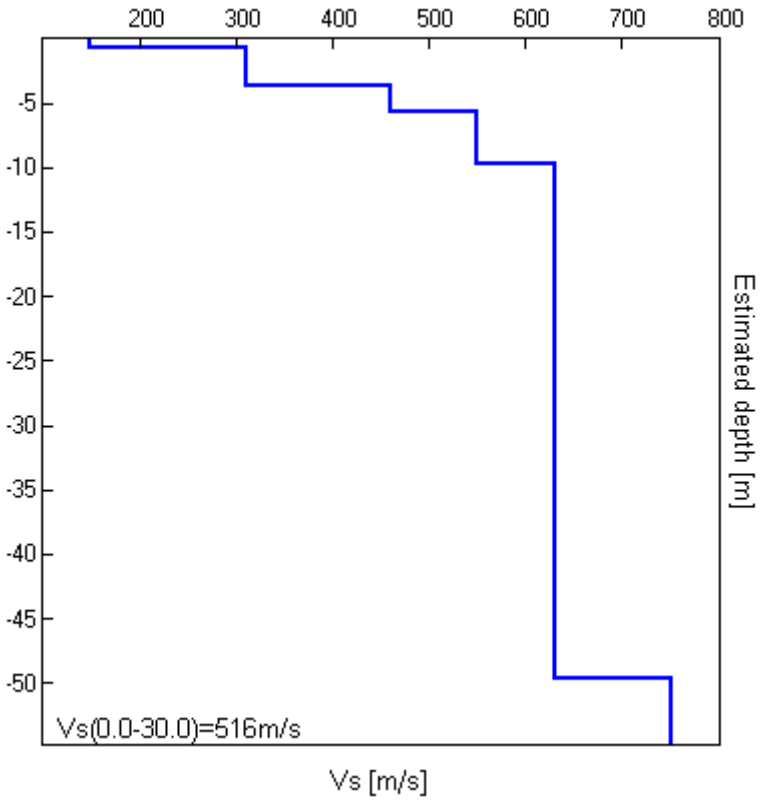


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.70	0.70	150	0.35
3.70	3.00	310	0.35
5.70	2.00	460	0.35
9.70	4.00	550	0.35
49.70	40.00	630	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=516m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 17.19 ± 2.07 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	17.19 > 0.50	**OK**	
$n_c(f_0) > 200$	11687.5 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 826 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	25.406 Hz	**OK**	
$A_0 > 2$	2.31 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.05843| < 0.05		**NO**
$\sigma_f < \varepsilon(f_0)$	1.00419 < 0.85938		**NO**
$\sigma_A(f_0) < \theta(f_0)$	0.2039 < 1.58	**OK**	

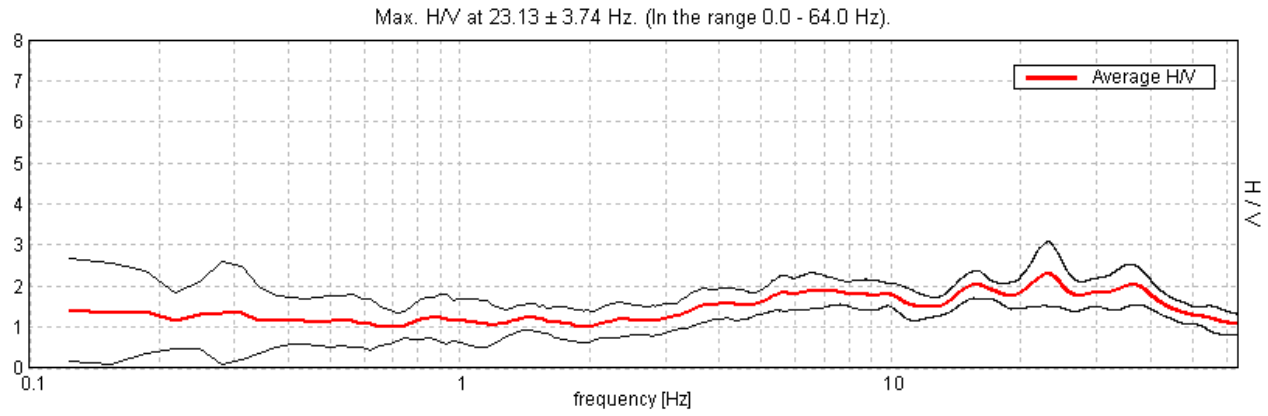
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

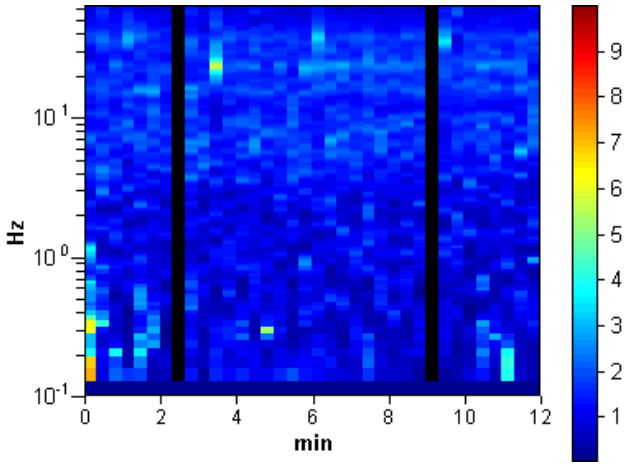
CASTEL DI CASIO_PSC, TR15 SENZA NOME

Start recording: 25/03/14 17:31:50 End recording: 25/03/14 17:43:51
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

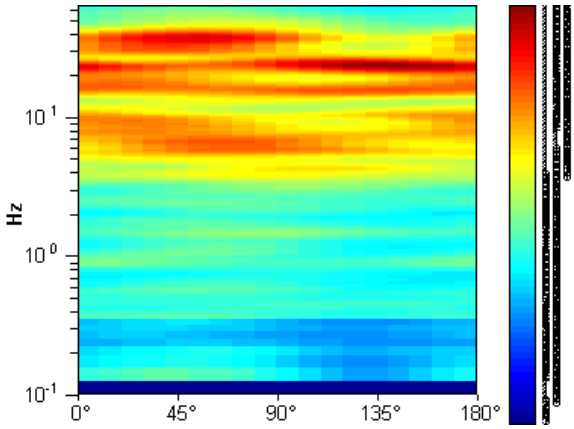
HORIZONTAL TO VERTICAL SPECTRAL RATIO



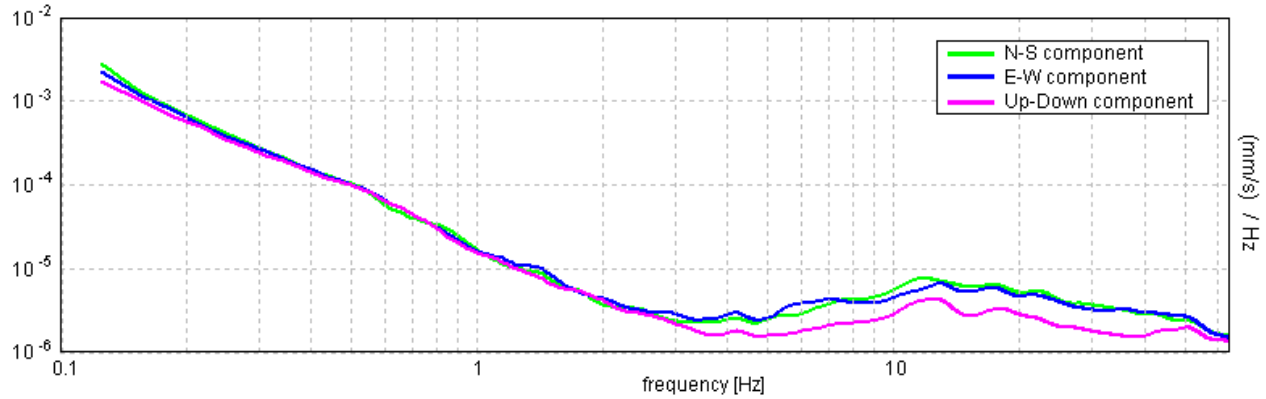
H/V TIME HISTORY



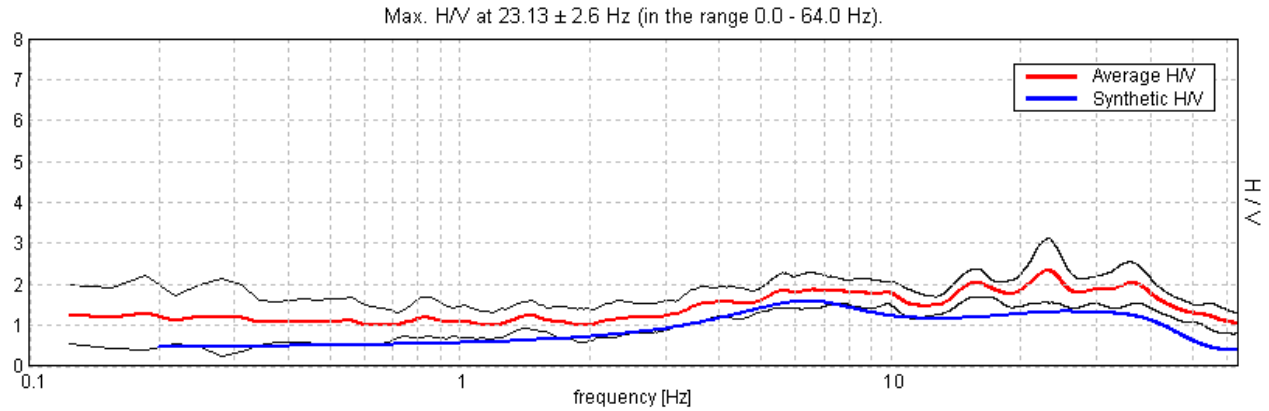
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

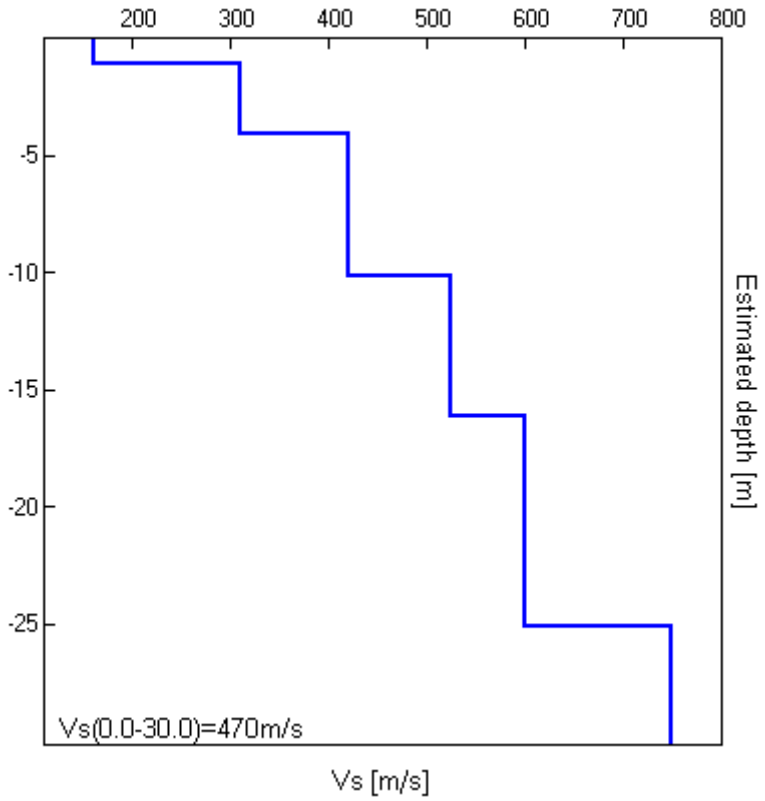


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.10	1.10	160	0.35
4.10	3.00	310	0.35
10.10	6.00	420	0.35
16.10	6.00	525	0.35
25.10	9.00	600	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=470m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 23.13 ± 3.74 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	23.13 > 0.50	OK	
$n_c(f_0) > 200$	15725.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1111 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	57.719 Hz	OK	
$A_0 > 2$	2.30 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.07823| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	1.80901 < 1.15625		NO
$\sigma_A(f_0) < \theta(f_0)$	0.3807 < 1.58	OK	

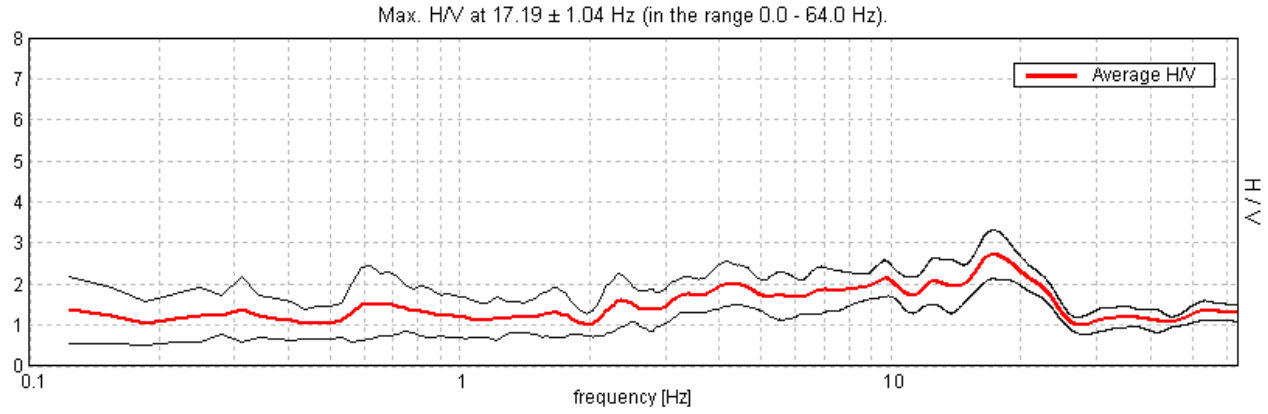
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

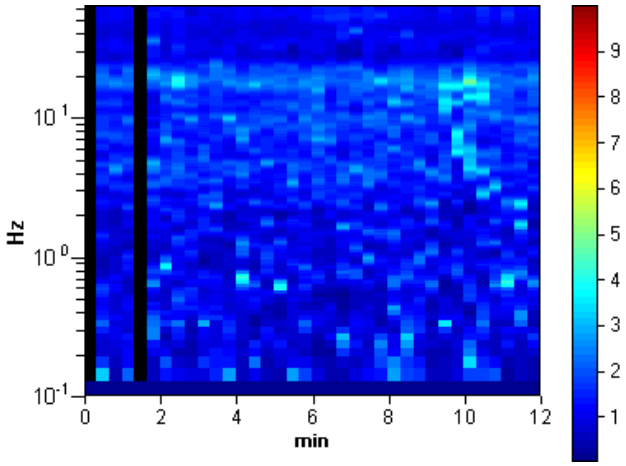
CASTEL DI CASIO_PSC, TR16 MOLINO PROVALECCHIO

Start recording: 28/03/14 09:56:19 End recording: 28/03/14 10:08:20
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

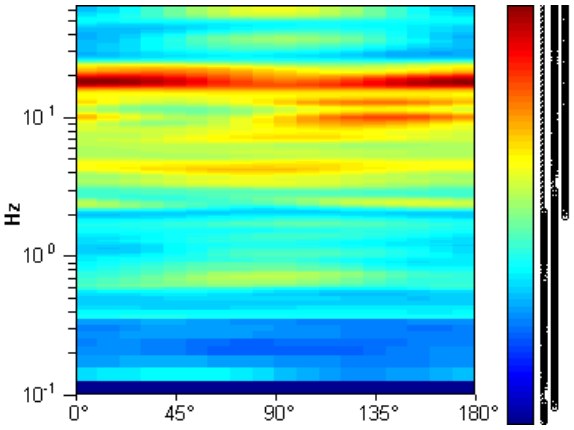
HORIZONTAL TO VERTICAL SPECTRAL RATIO



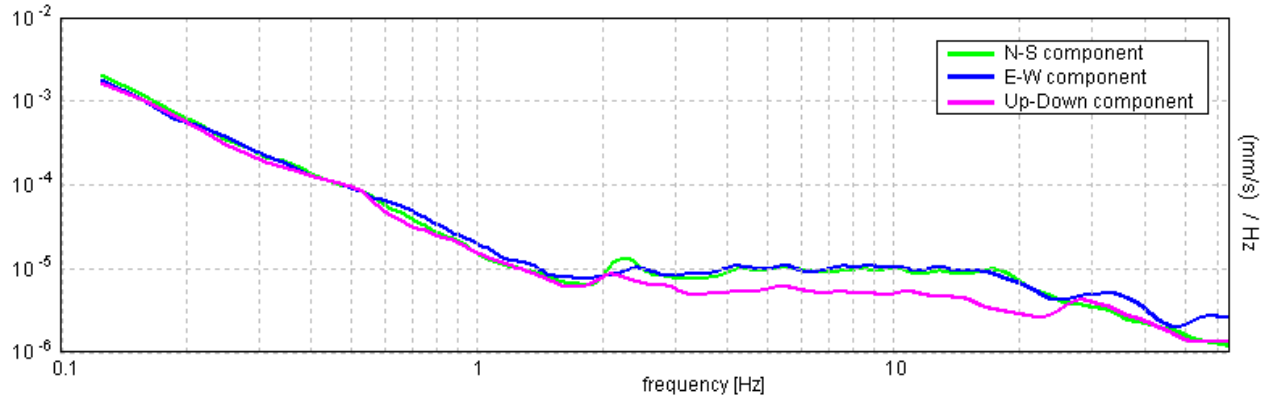
H/V TIME HISTORY



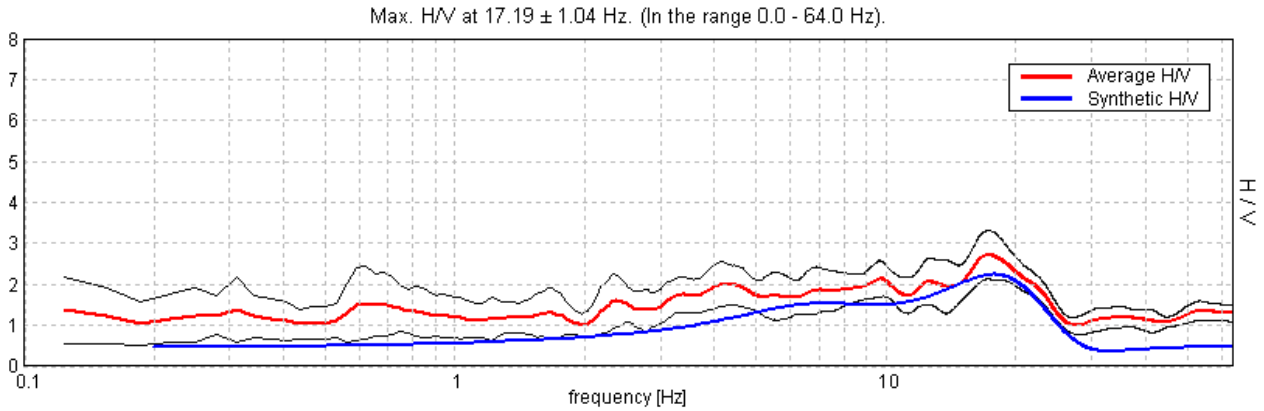
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

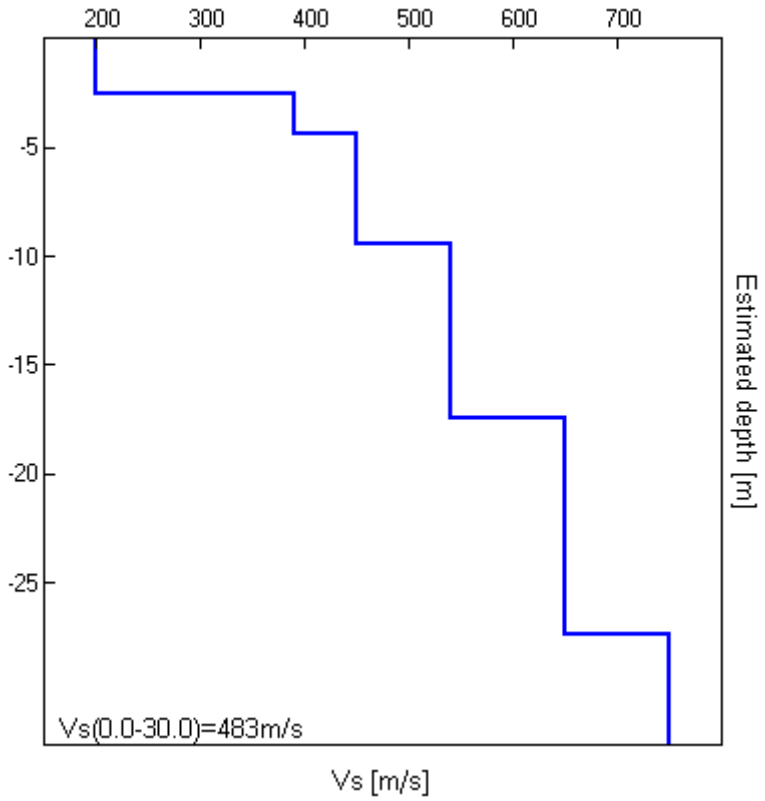


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
2.50	2.50	200	0.35
4.40	1.90	390	0.35
9.40	5.00	450	0.35
17.40	8.00	540	0.35
27.40	10.00	650	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=483m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 17.19 ± 1.04 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	17.19 > 0.50	**OK**	
$n_c(f_0) > 200$	11687.5 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 826 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	24.75 Hz	**OK**	
$A_0 > 2$	2.72 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.02943| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	0.50587 < 0.85938	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	0.2858 < 1.58	**OK**	

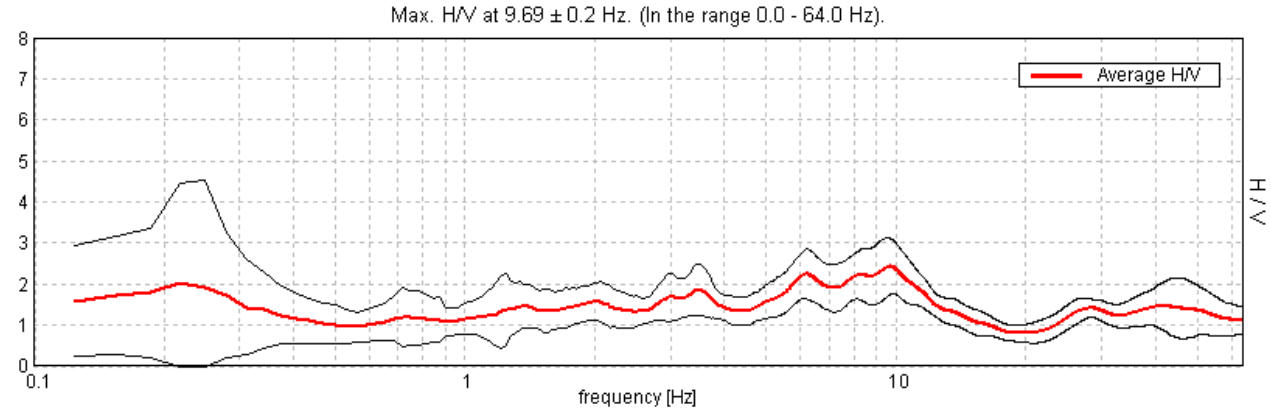
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

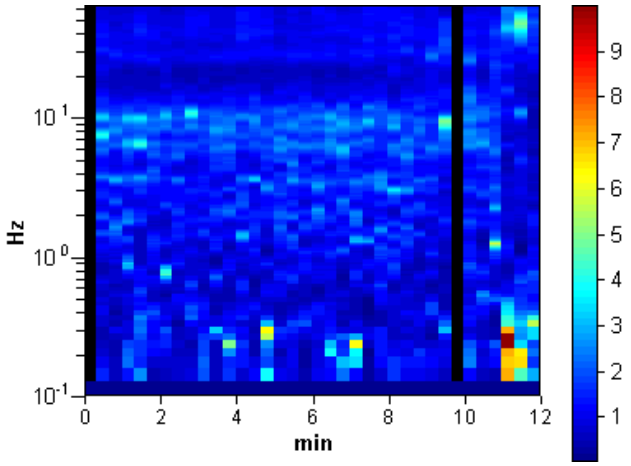
CASTEL DI CASIO_PSC, TR17 SPONDACCIA

Start recording: 28/03/14 10:28:17 End recording: 28/03/14 10:40:18
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

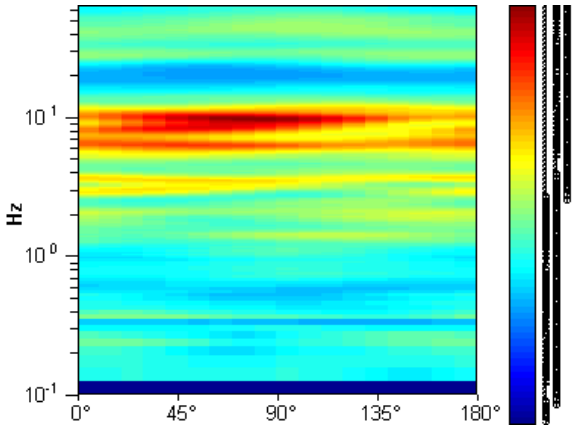
HORIZONTAL TO VERTICAL SPECTRAL RATIO



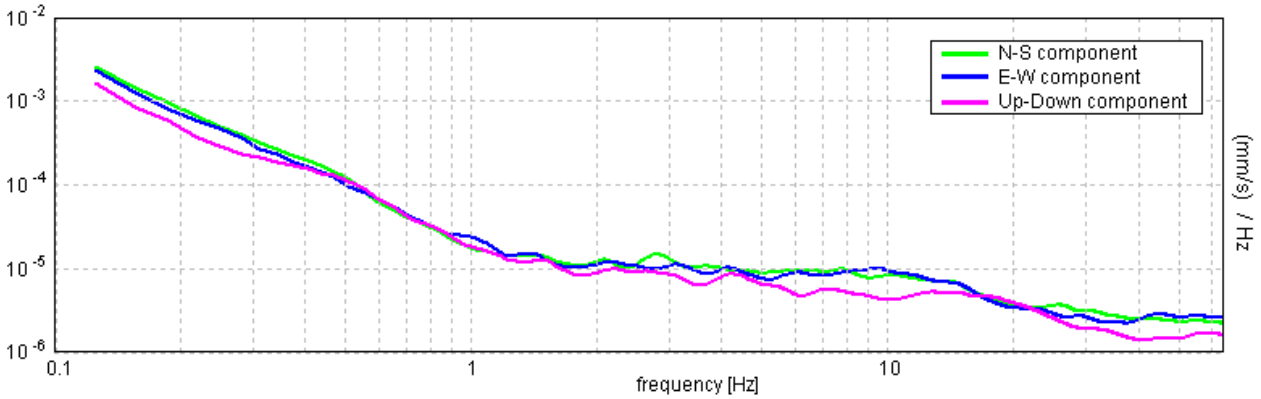
H/V TIME HISTORY



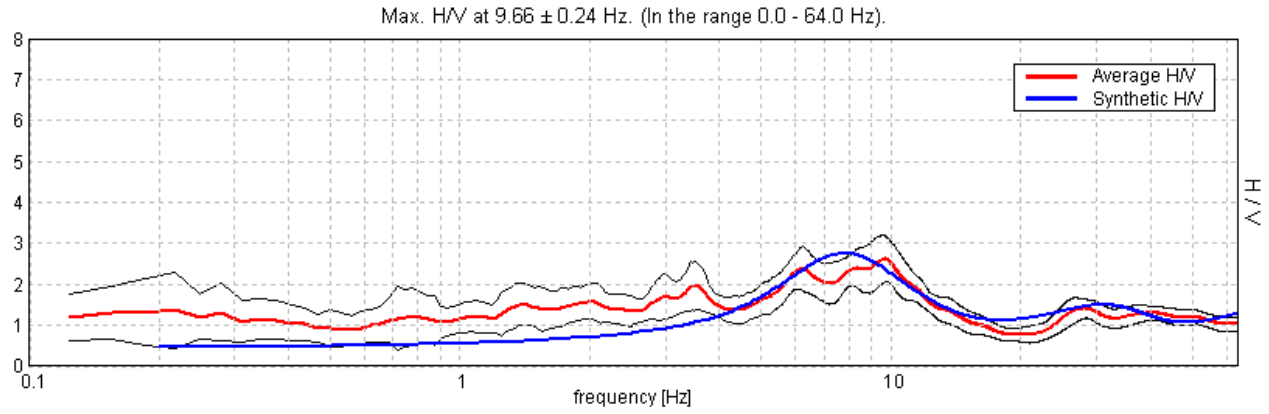
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

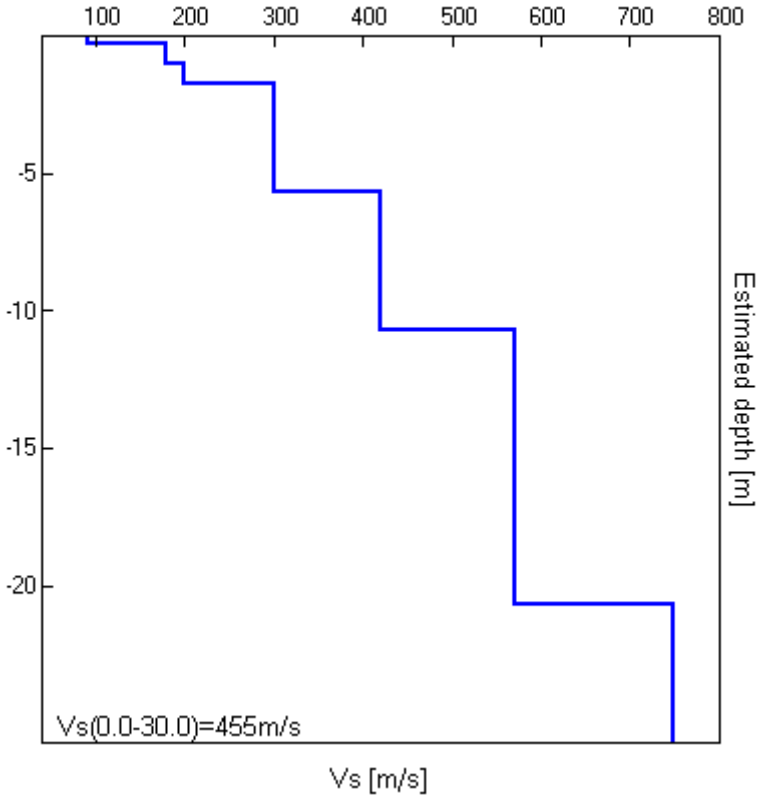


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.30	0.30	90	0.35
1.00	0.70	180	0.35
1.70	0.70	200	0.35
5.70	4.00	300	0.35
10.70	5.00	420	0.35
20.70	10.00	570	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=455m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 9.69 ± 0.2 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	9.69 > 0.50	OK	
$n_c(f_0) > 200$	6587.5 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 466 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	14.313 Hz	OK	
$A_0 > 2$	2.43 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.00989| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.09582 < 0.48438	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.3361 < 1.58	OK	

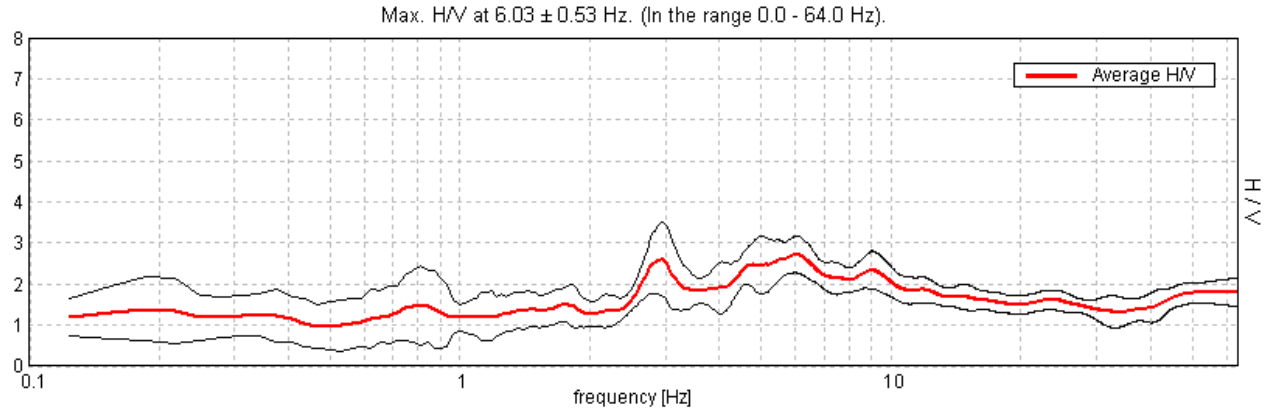
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

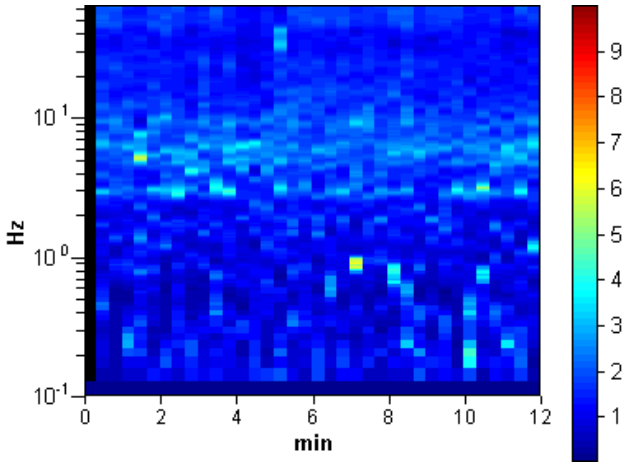
CASTEL DI CASIO_PSC, TR19 MARZOLARA-MALPASSO

Start recording: 28/03/14 11:42:32 End recording: 28/03/14 11:54:33
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

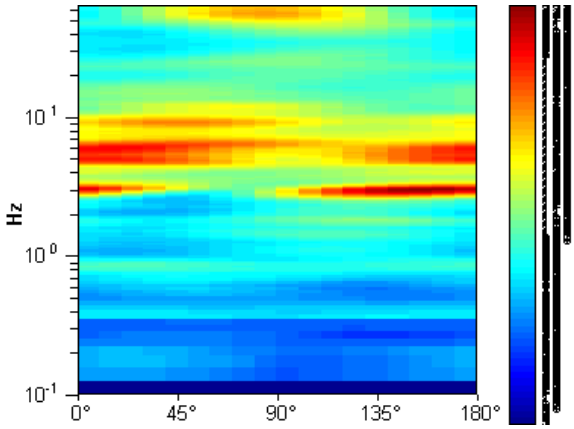
HORIZONTAL TO VERTICAL SPECTRAL RATIO



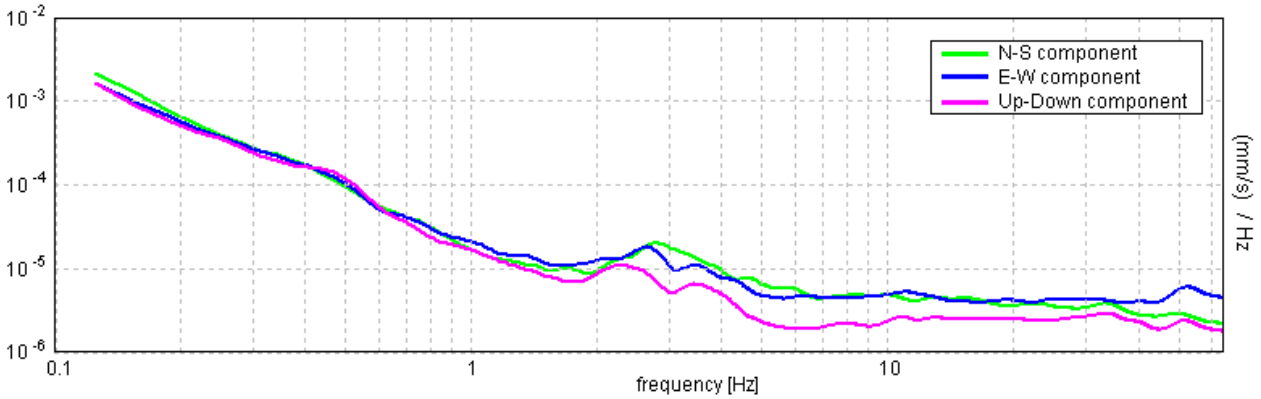
H/V TIME HISTORY



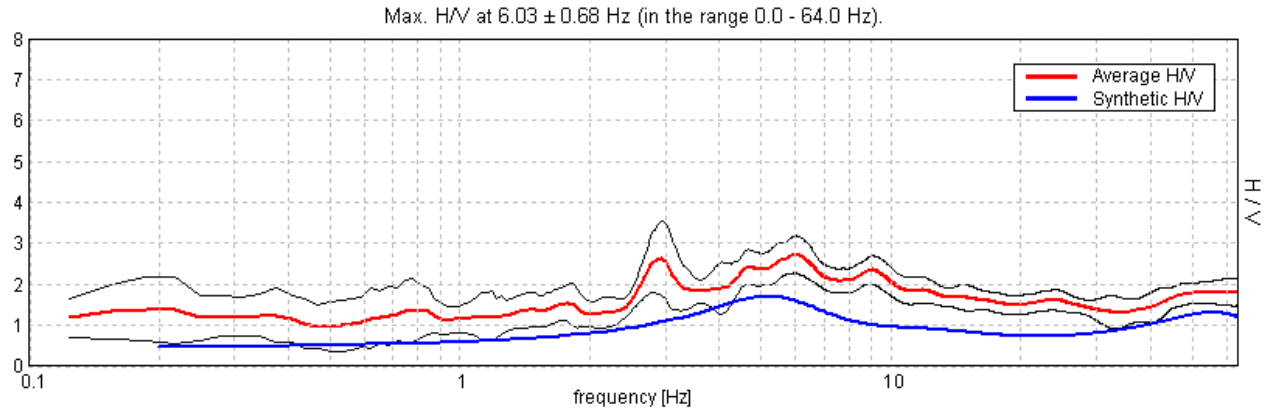
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

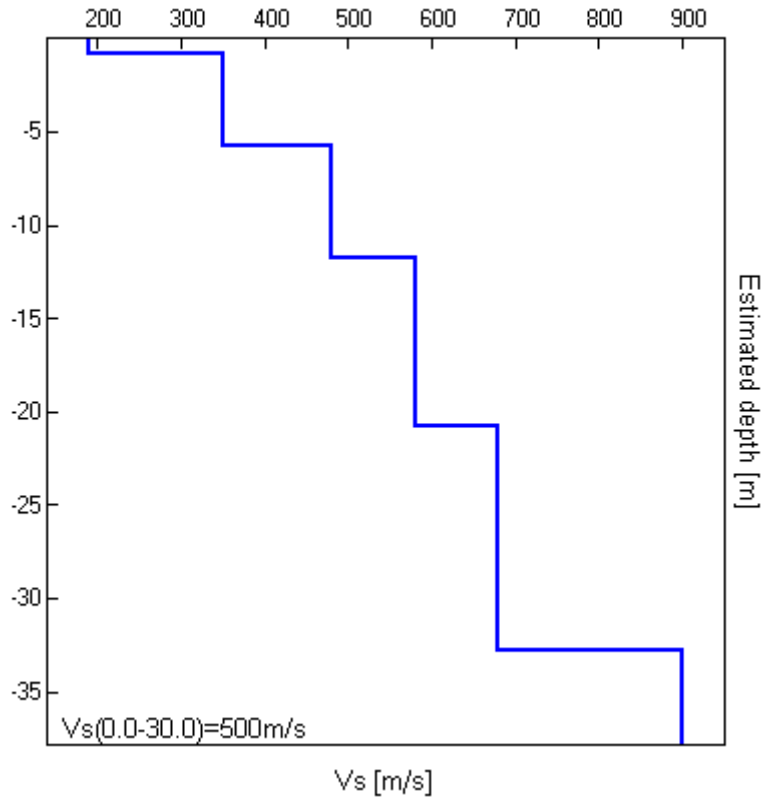


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.80	0.80	190	0.35
5.80	5.00	350	0.35
11.80	6.00	480	0.35
20.80	9.00	580	0.35
32.80	12.00	680	0.35
inf.	inf.	900	0.35

Vs(0.0-30.0)=500m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 6.03 ± 0.53 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	6.03 > 0.50	OK	
$n_c(f_0) > 200$	4221.9 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 290 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	2.313 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.72 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.04264| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.25719 < 0.30156	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.2154 < 1.58	OK	

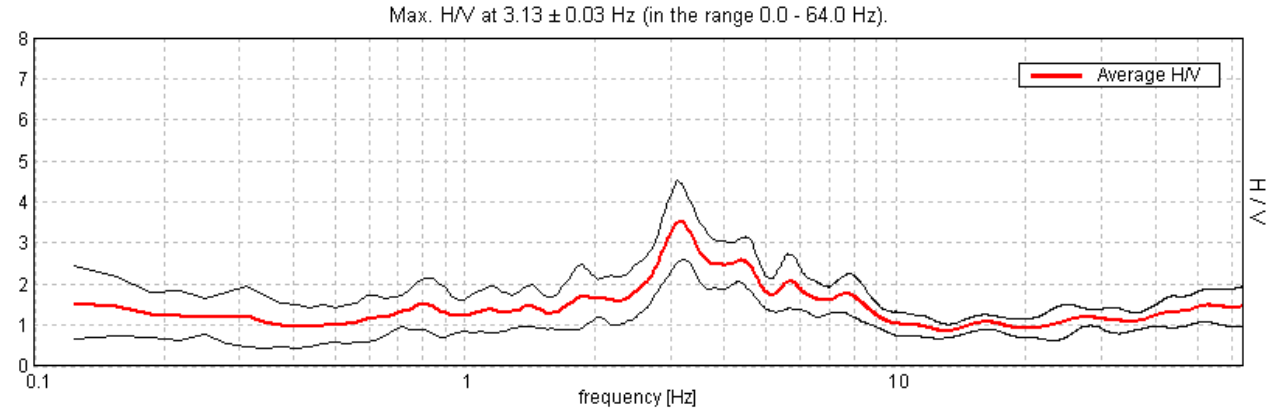
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

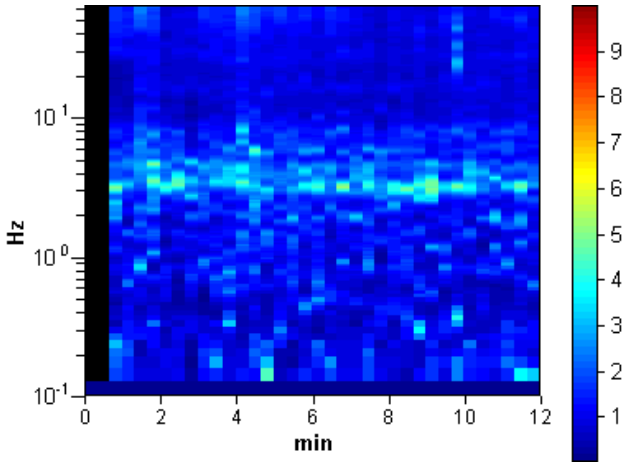
CASTEL DI CASIO_PSC, TR20 CASONE-MARZOLARA

Start recording: 28/03/14 12:13:22 End recording: 28/03/14 12:25:23
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

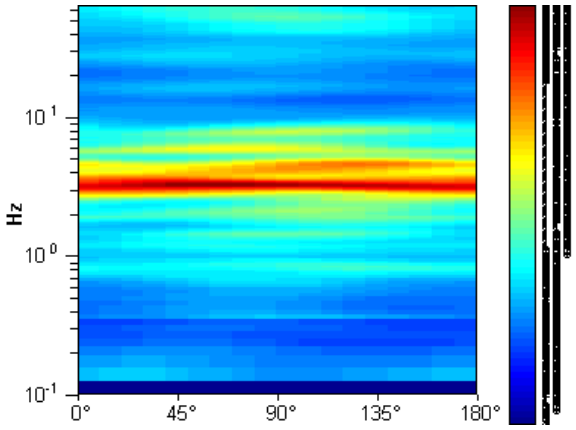
HORIZONTAL TO VERTICAL SPECTRAL RATIO



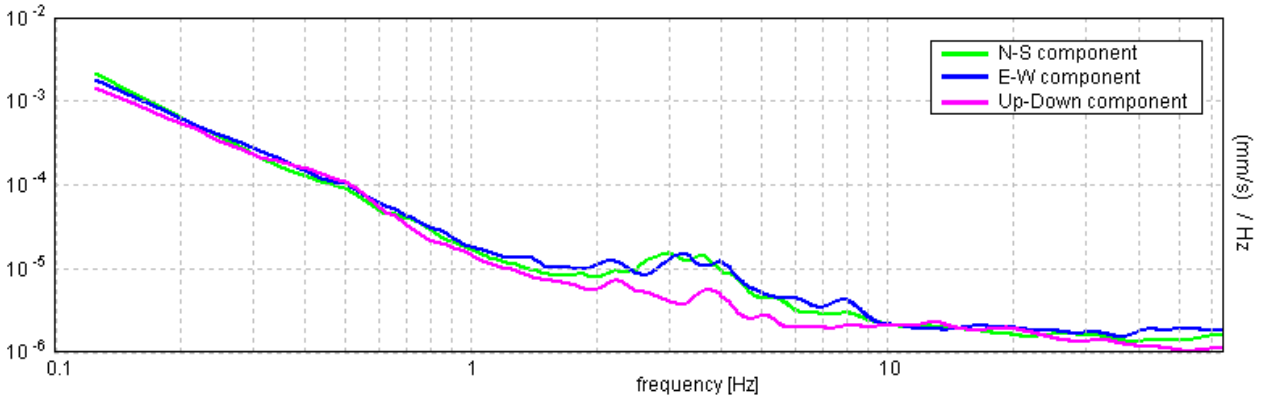
H/V TIME HISTORY



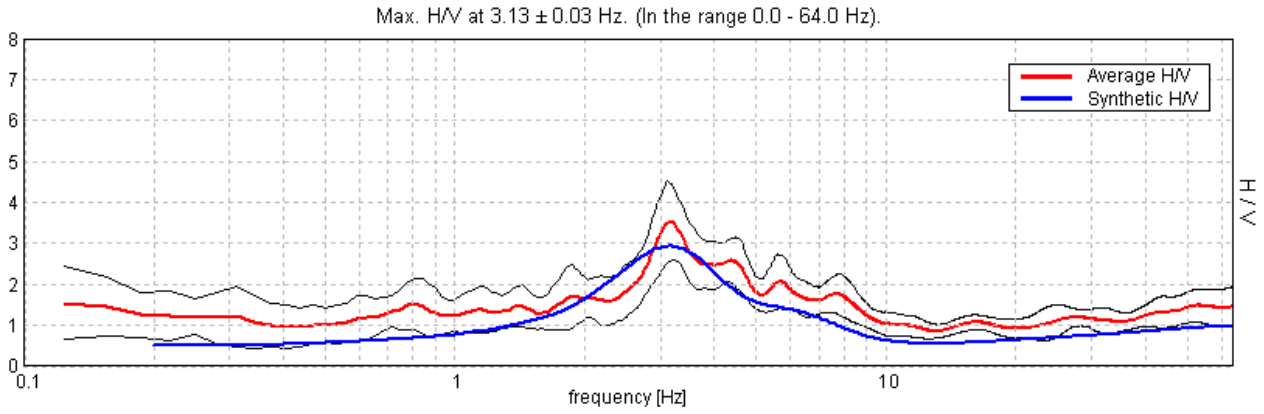
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

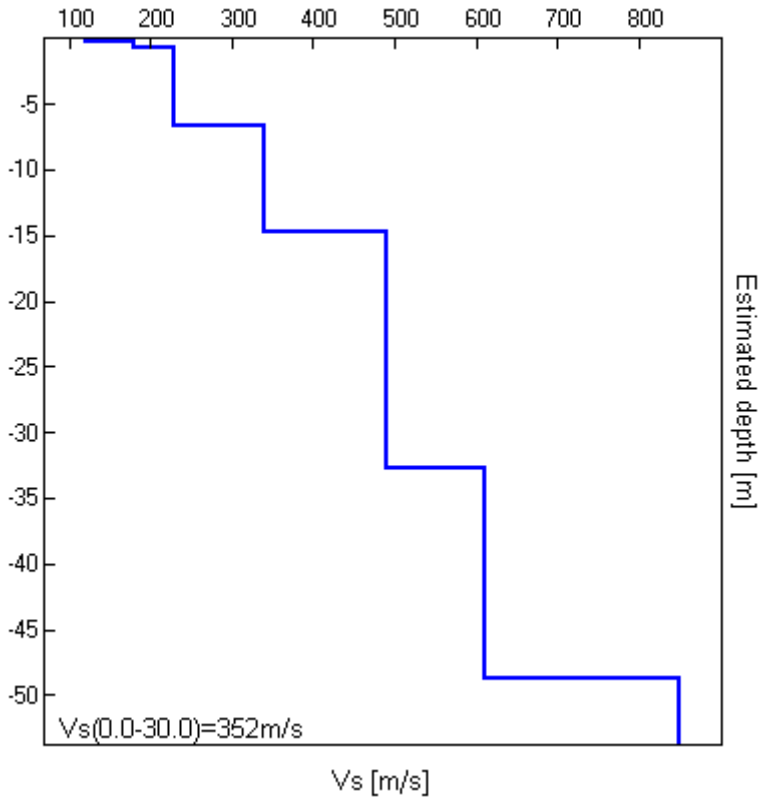


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.20	0.20	120	0.35
0.70	0.50	180	0.35
6.70	6.00	230	0.35
14.70	8.00	340	0.35
32.70	18.00	490	0.35
48.70	16.00	610	0.35
inf.	inf.	850	0.35

Vs(0.0-30.0)=352m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 3.13 ± 0.03 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	3.13 > 0.50	OK	
$n_c(f_0) > 200$	2125.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 151 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	2.438 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	5.094 Hz	OK	
$A_0 > 2$	3.52 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.00465| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.01453 < 0.15625	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.4781 < 1.58	OK	

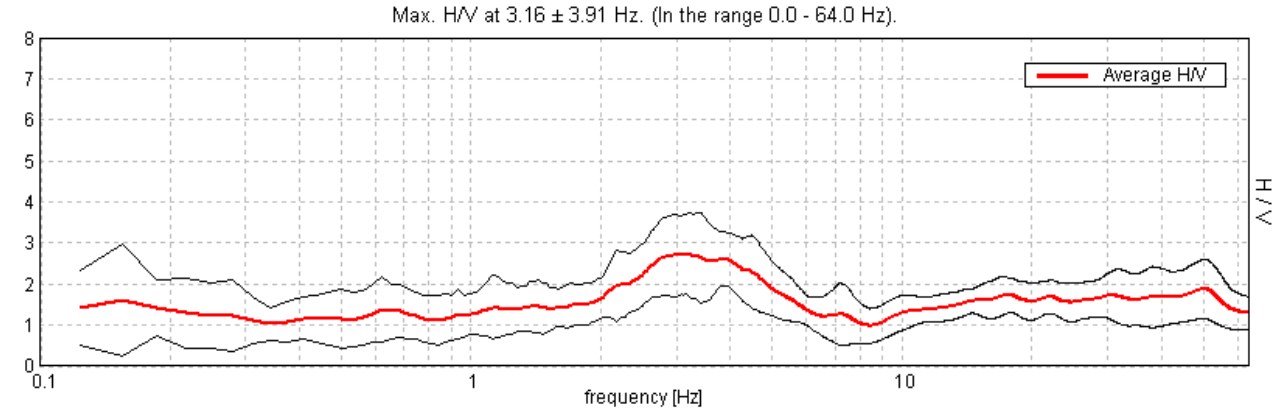
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

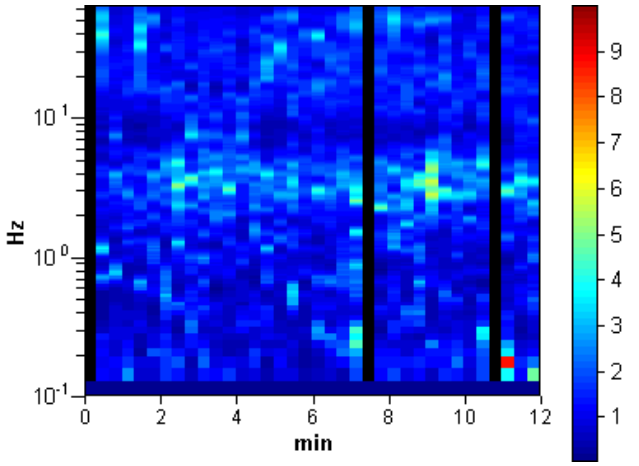
CASTEL DI CASIO_PSC, TR21 PIEVE DI CASIO-CHIESA

Start recording: 28/03/14 12:43:39 End recording: 28/03/14 12:55:40
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 92% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

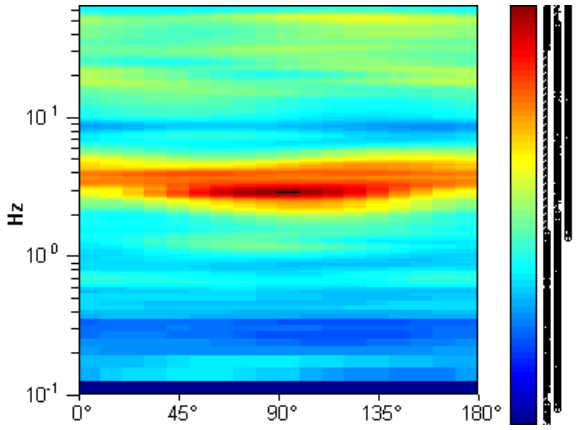
HORIZONTAL TO VERTICAL SPECTRAL RATIO



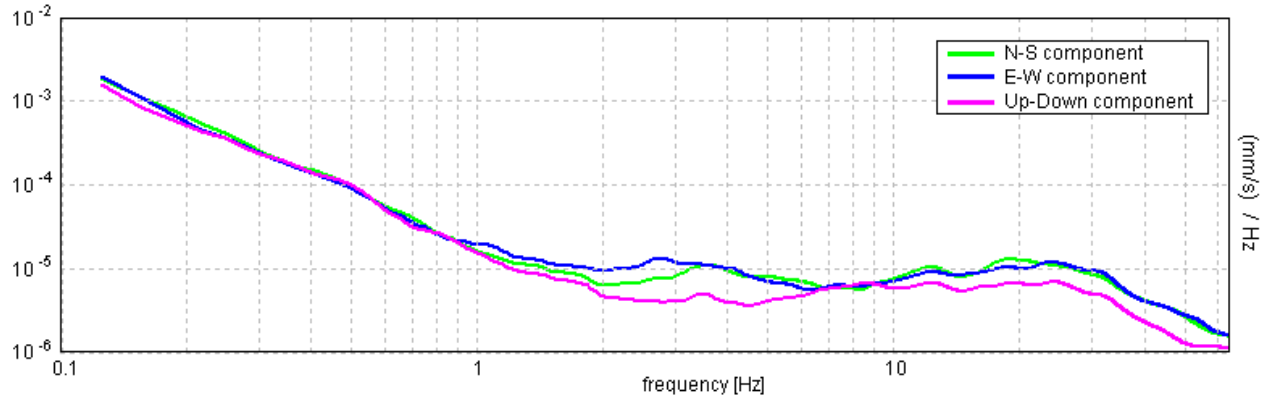
H/V TIME HISTORY



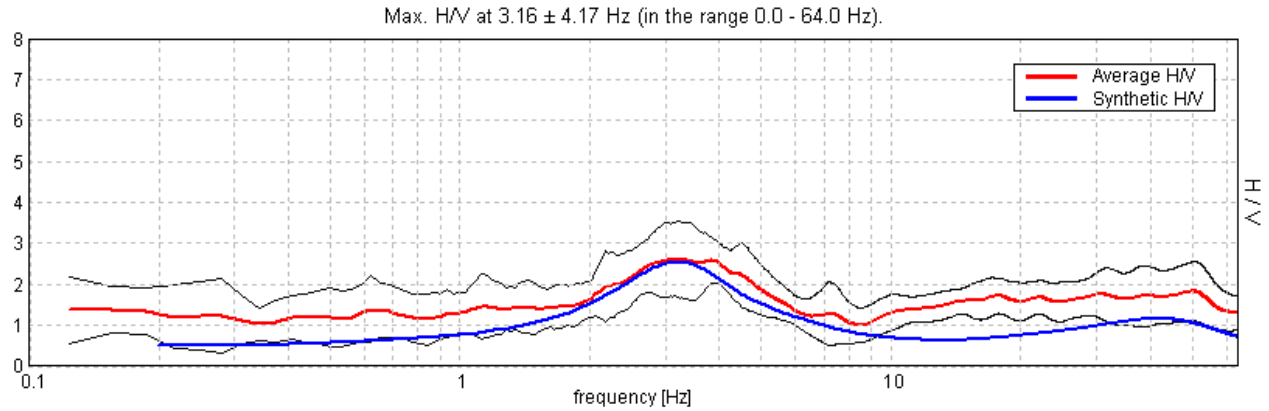
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

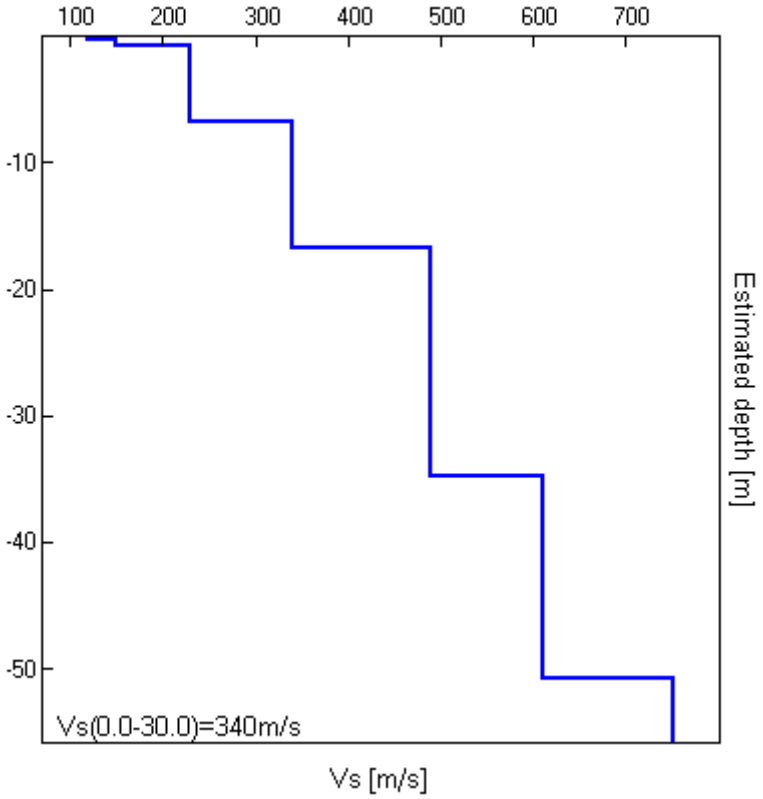


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.30	0.30	120	0.35
0.80	0.50	150	0.35
6.80	6.00	230	0.35
16.80	10.00	340	0.35
34.80	18.00	490	0.35
50.80	16.00	610	0.35
inf.	inf.	750	0.35

Vs(0.0-30.0)=340m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 3.16 ± 3.91 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	3.16 > 0.50	OK	
$n_c(f_0) > 200$	2083.1 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 152 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	1.063 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	6.031 Hz	OK	
$A_0 > 2$	2.72 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.59833| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	1.88847 < 0.15781		NO
$\sigma_A(f_0) < \theta(f_0)$	0.4709 < 1.58	OK	

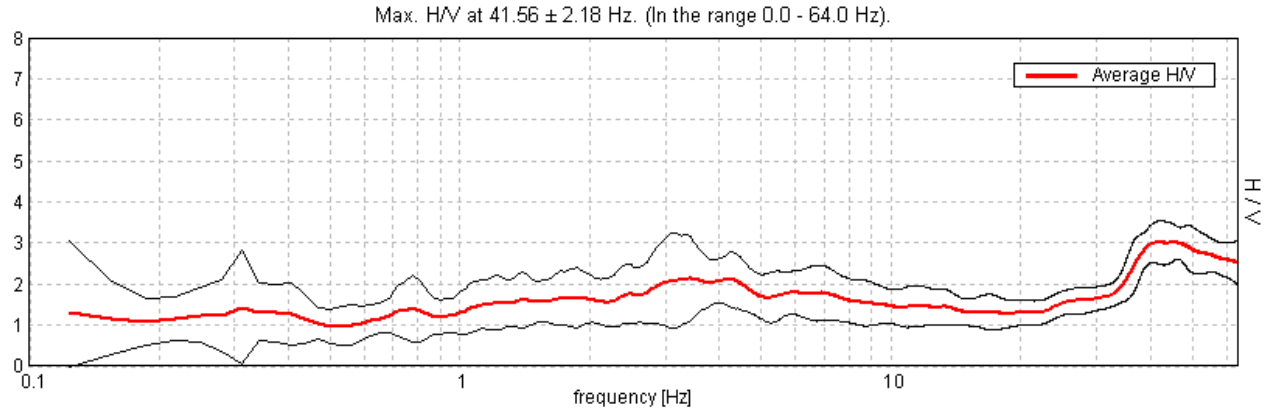
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

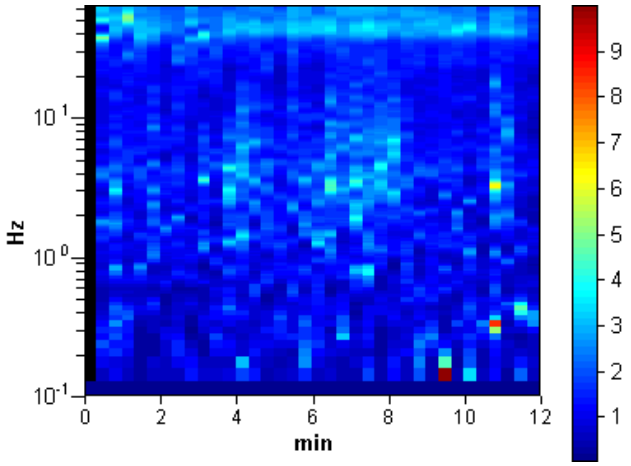
CASTEL DI CASIO_PSC, TR24 CÀ MINGHETTI

Start recording: 03/04/14 09:08:14 End recording: 03/04/14 09:20:15
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

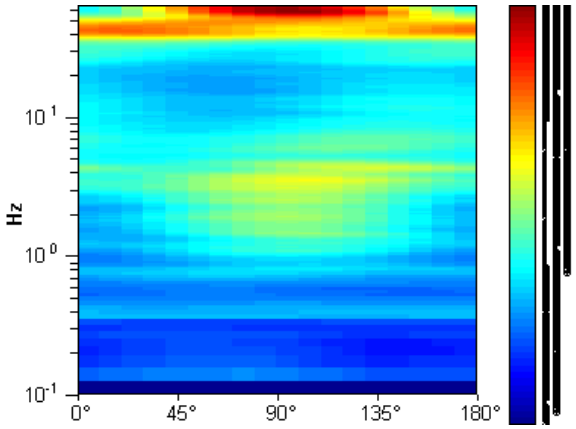
HORIZONTAL TO VERTICAL SPECTRAL RATIO



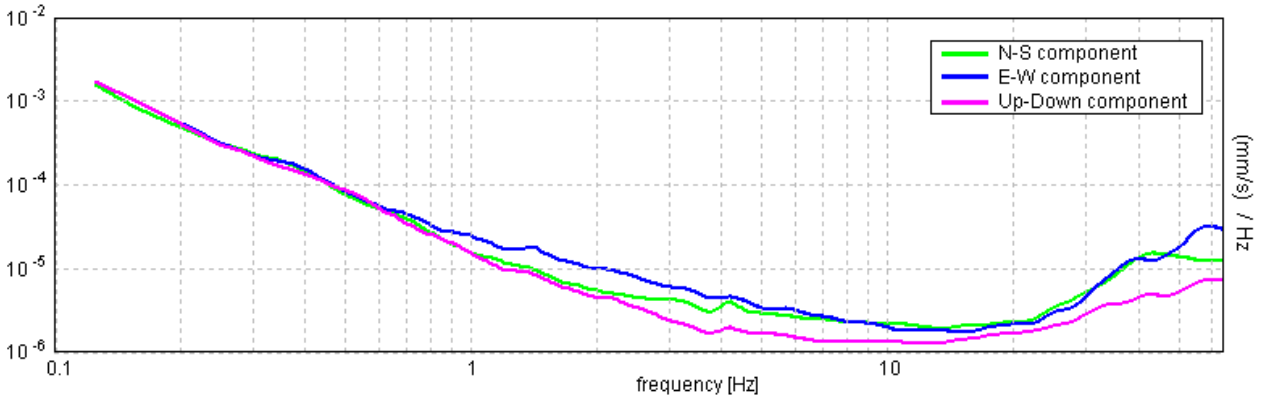
H/V TIME HISTORY



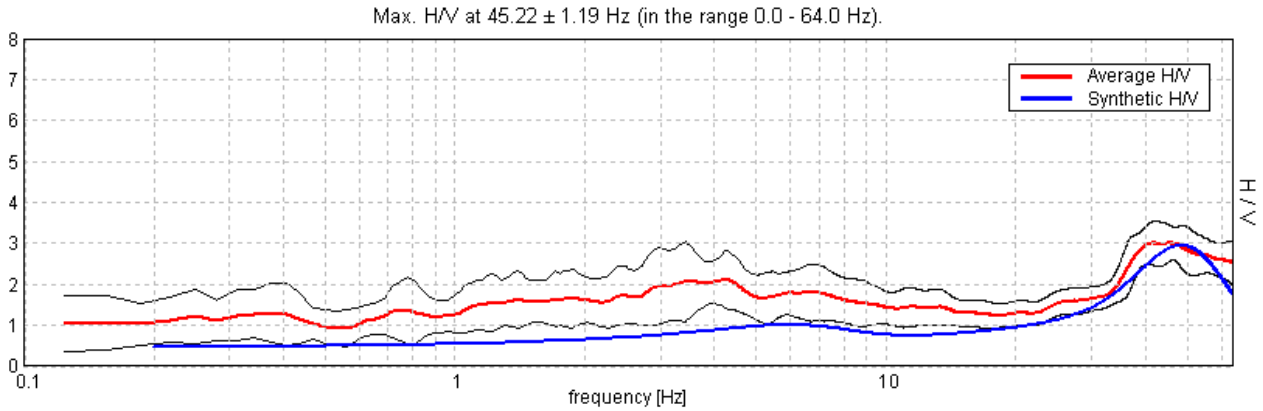
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

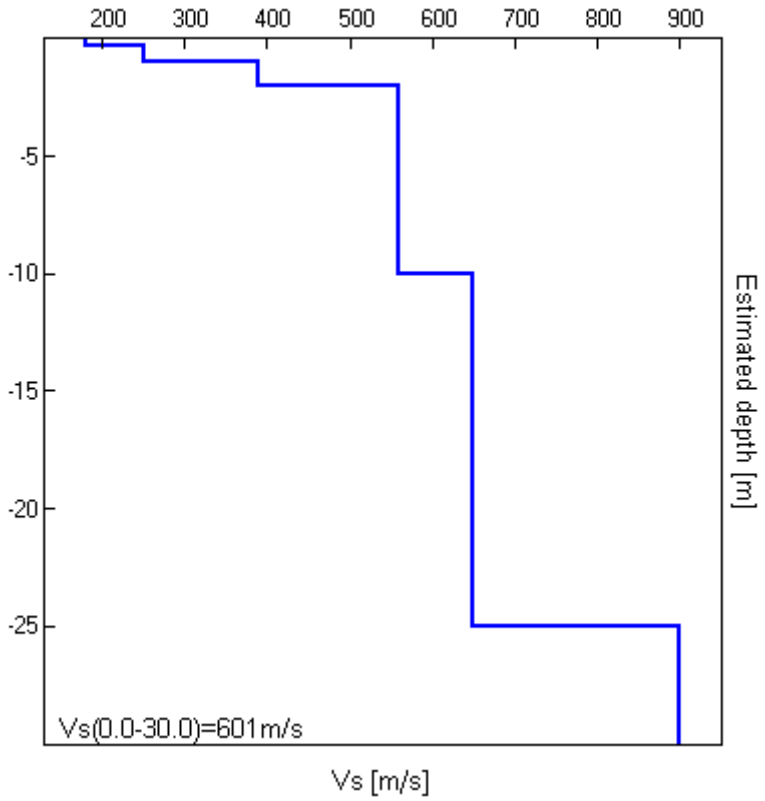


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.30	0.30	180	0.35
1.00	0.70	250	0.35
2.00	1.00	390	0.35
10.00	8.00	560	0.35
25.00	15.00	650	0.35
inf.	inf.	900	0.35

Vs(0.0-30.0)=601m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 41.56 ± 2.18 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	41.56 > 0.50	OK	
$n_c(f_0) > 200$	29093.8 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1384 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	24.625 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	3.01 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.02539| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	1.05537 < 2.07813	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.2516 < 1.58	OK	

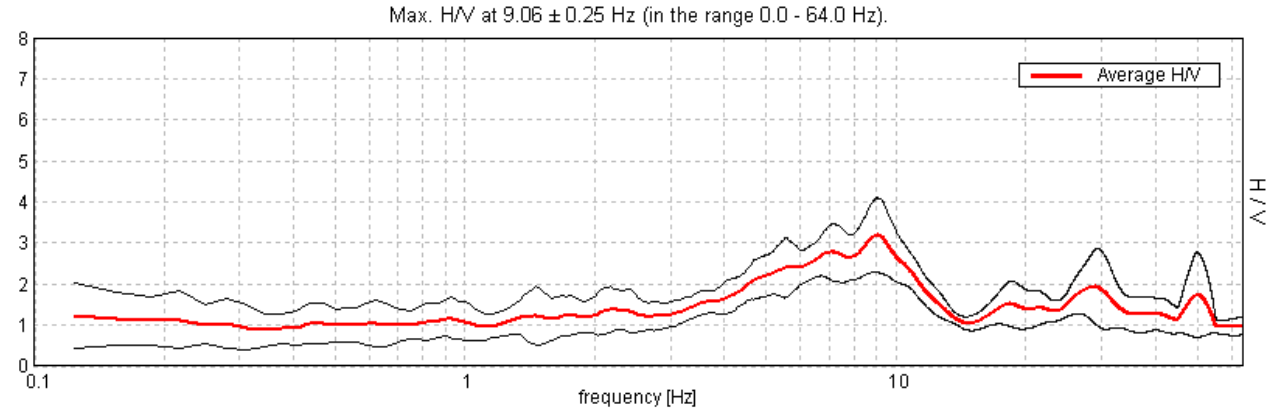
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

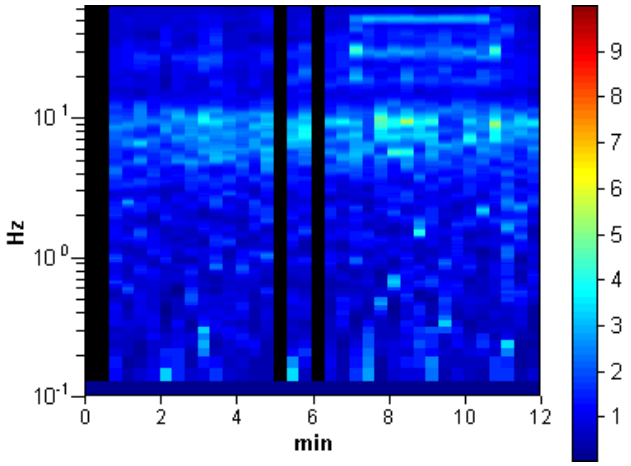
CASTEL DI CASIO_PSC, TR27 POGGIO DI BADI (OVEST)

Start recording: 03/04/14 10:48:43 End recording: 03/04/14 11:00:44
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 89% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

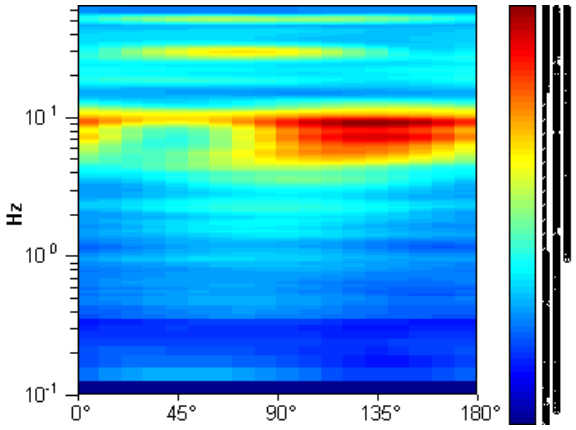
HORIZONTAL TO VERTICAL SPECTRAL RATIO



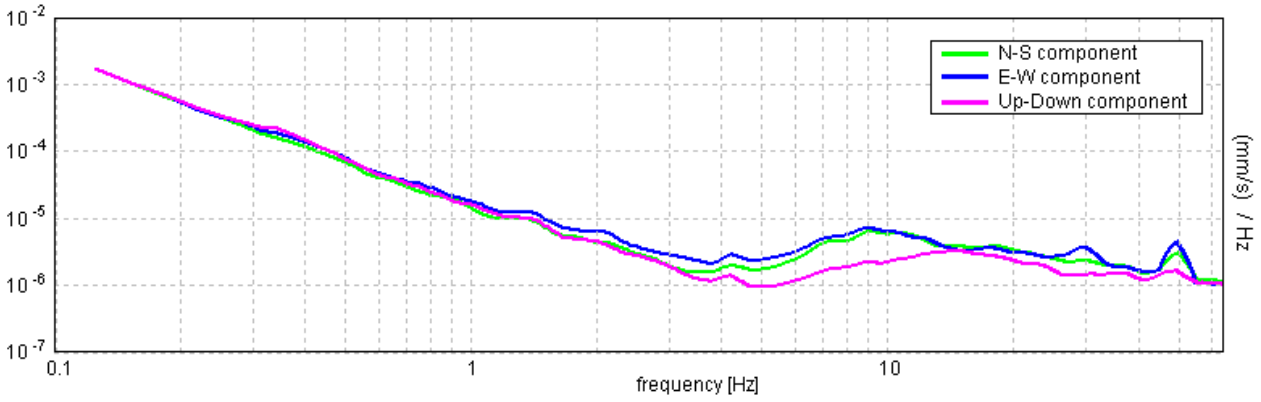
H/V TIME HISTORY



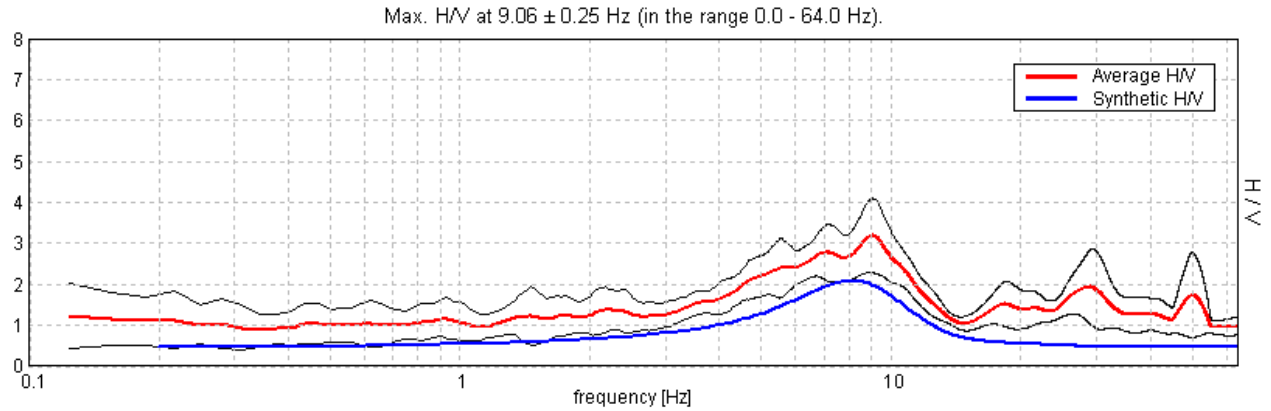
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

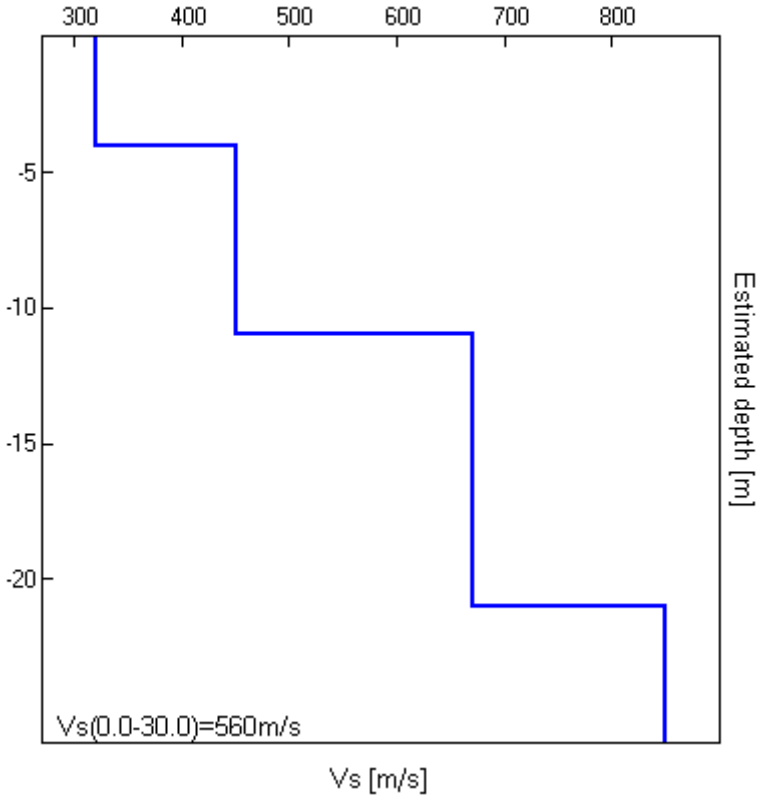


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
4.00	4.00	320	0.35
11.00	7.00	450	0.35
21.00	10.00	670	0.35
inf.	inf.	850	0.35

Vs(0.0-30.0)=560m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 9.06 ± 0.25 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	9.06 > 0.50	OK	
$n_c(f_0) > 200$	5800.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 436 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	3.906 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	12.344 Hz	OK	
$A_0 > 2$	3.19 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.01313| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.11897 < 0.45313	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.4428 < 1.58	OK	

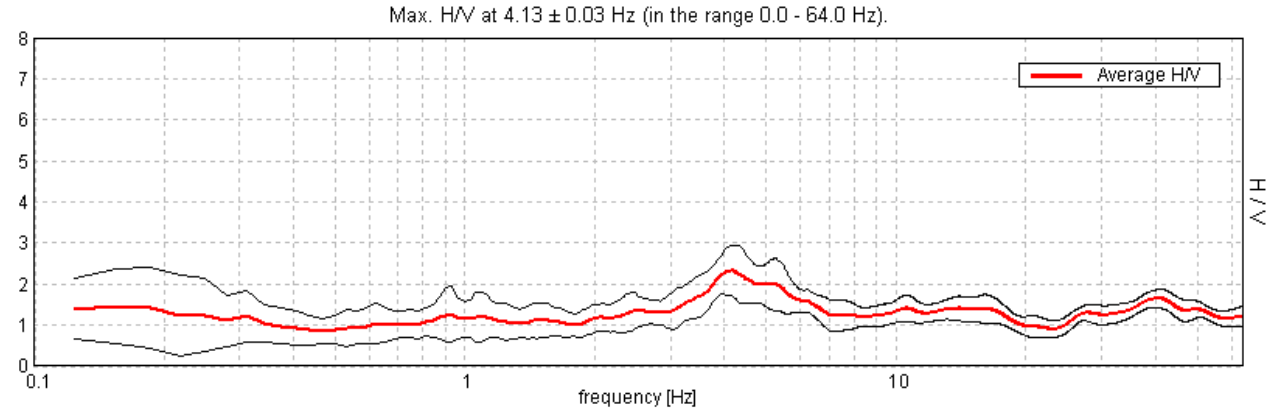
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

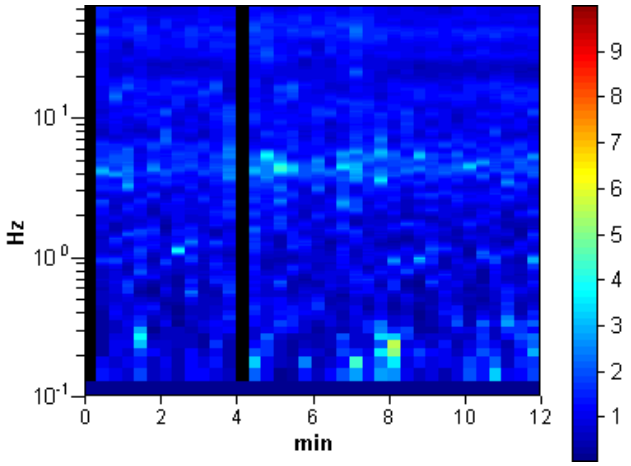
CASTEL DI CASIO_PSC, TR28 MOSCACCIA

Start recording: 03/04/14 11:16:02 End recording: 03/04/14 11:28:03
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

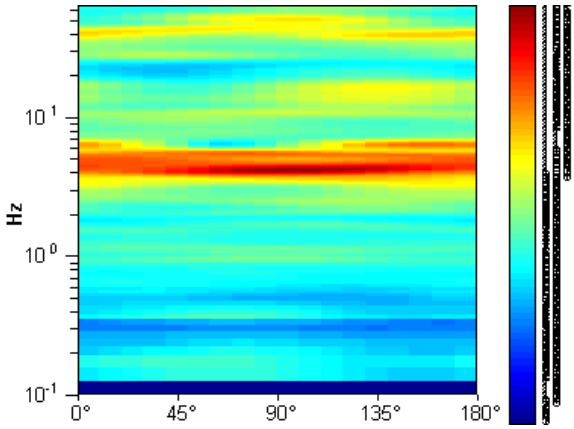
HORIZONTAL TO VERTICAL SPECTRAL RATIO



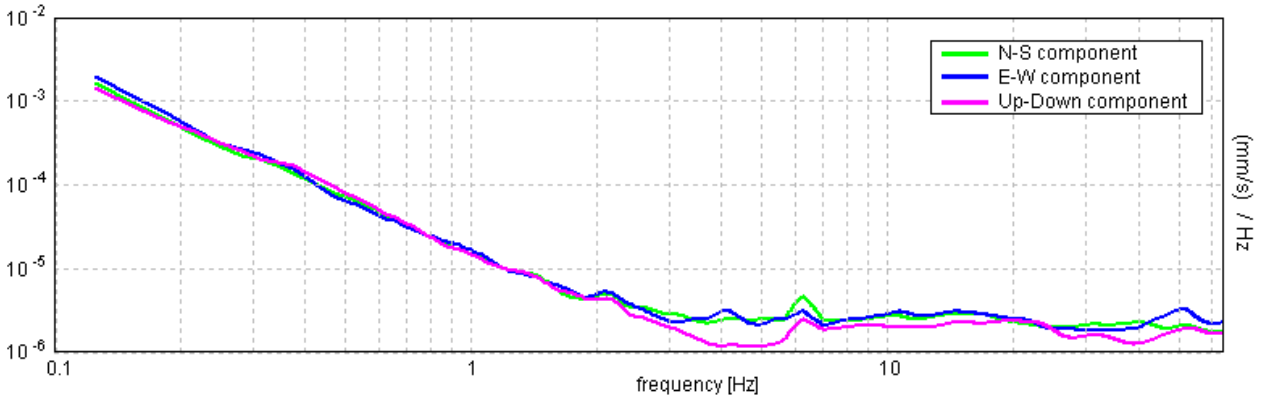
H/V TIME HISTORY



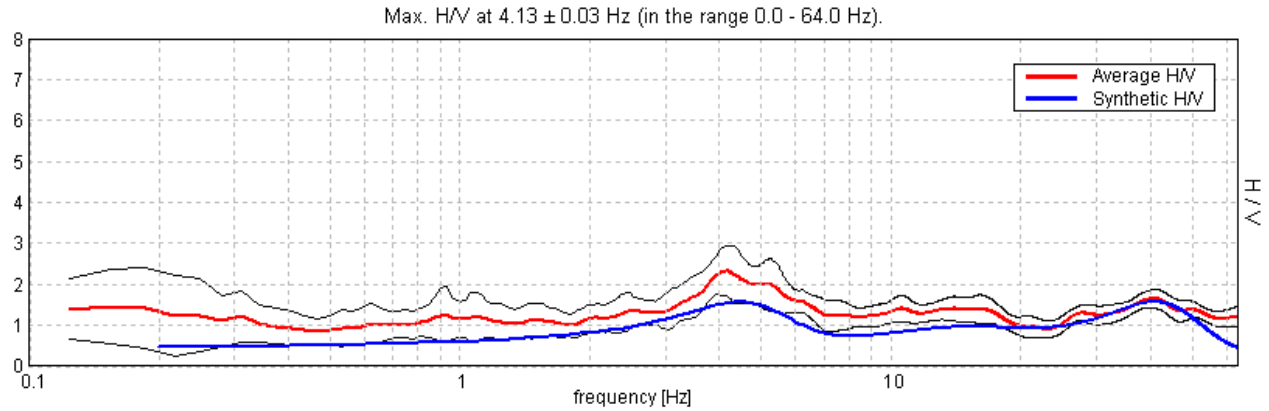
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

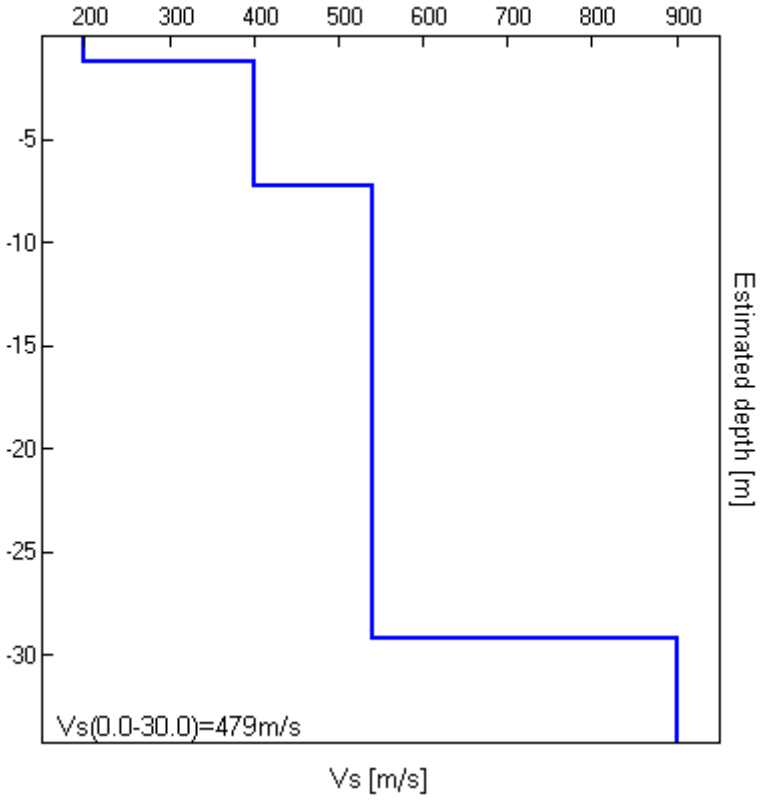


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.20	1.20	200	0.35
7.20	6.00	400	0.35
29.20	22.00	540	0.35
inf.	inf.	900	0.35

Vs(0.0-30.0)=479m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 4.13 ± 0.03 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	4.13 > 0.50	OK	
$n_c(f_0) > 200$	2805.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 199 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	2.0 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.32 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.00334| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.01379 < 0.20625	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.2955 < 1.58	OK	

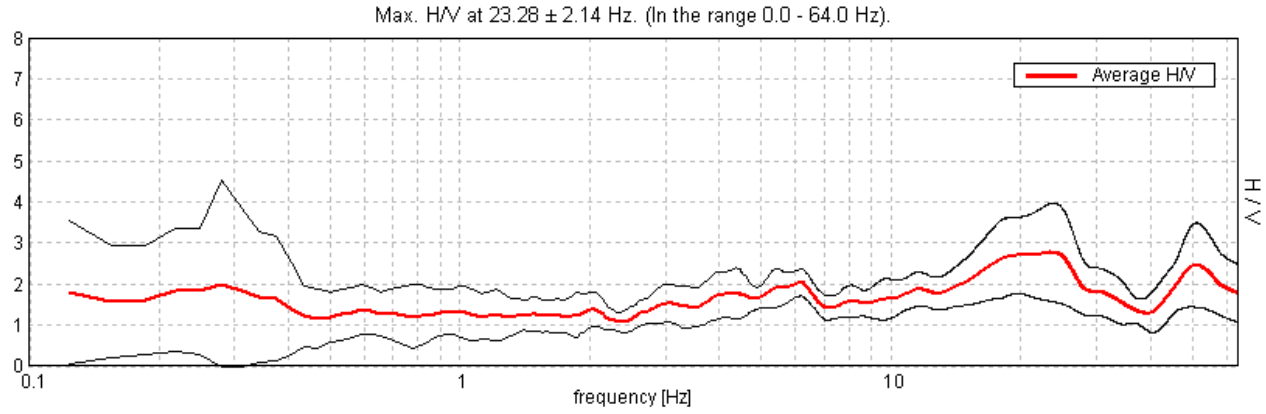
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

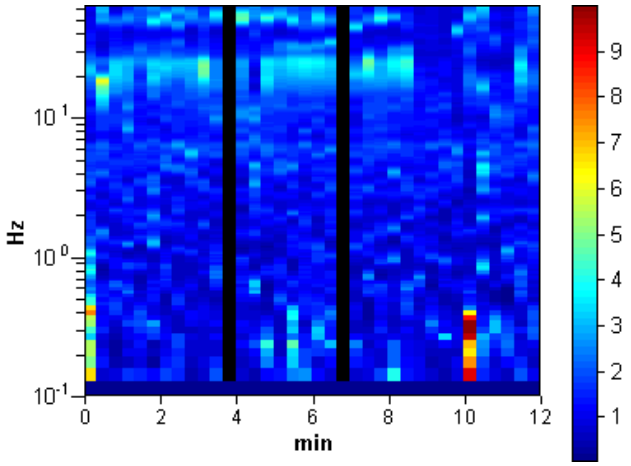
CASTEL DI CASIO_PSC, TR29 POGGIOLINO

Start recording: 03/04/14 11:47:53 End recording: 03/04/14 11:59:54
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

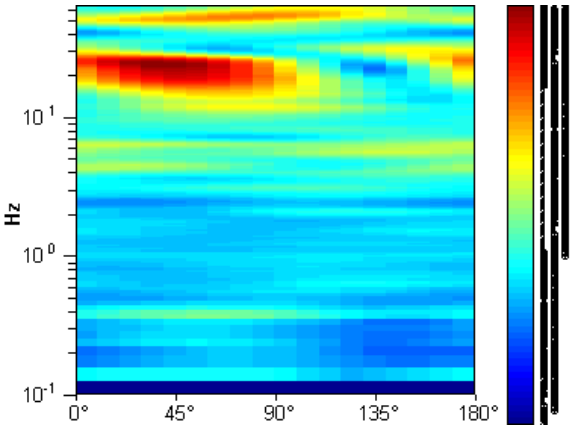
HORIZONTAL TO VERTICAL SPECTRAL RATIO



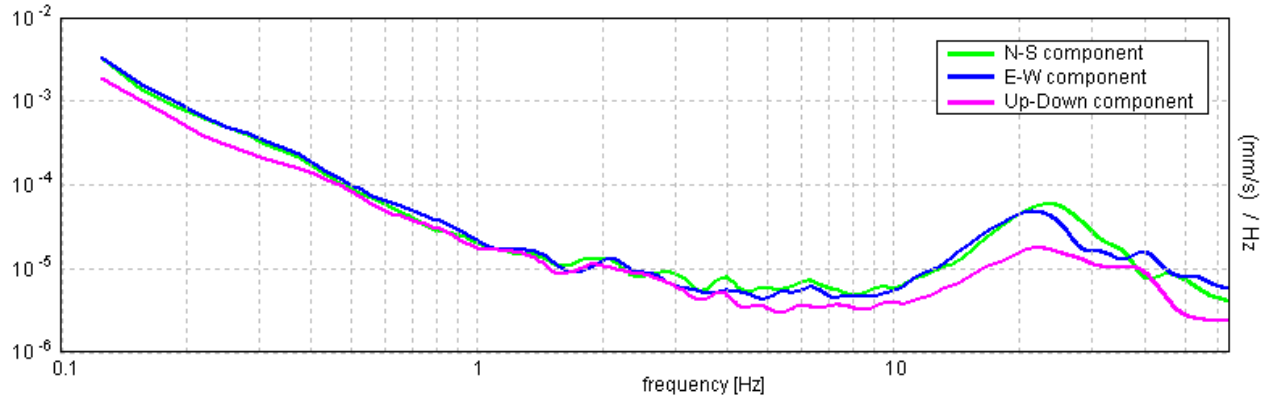
H/V TIME HISTORY



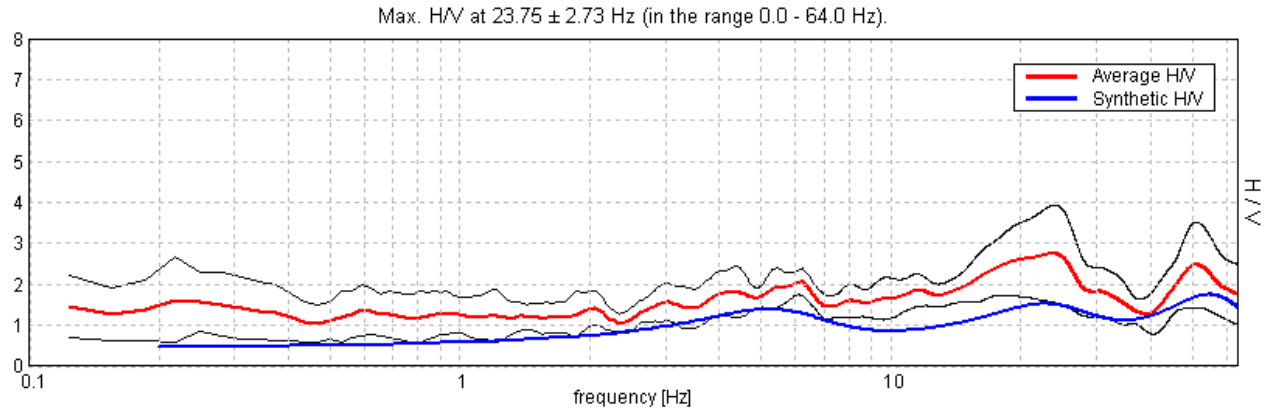
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

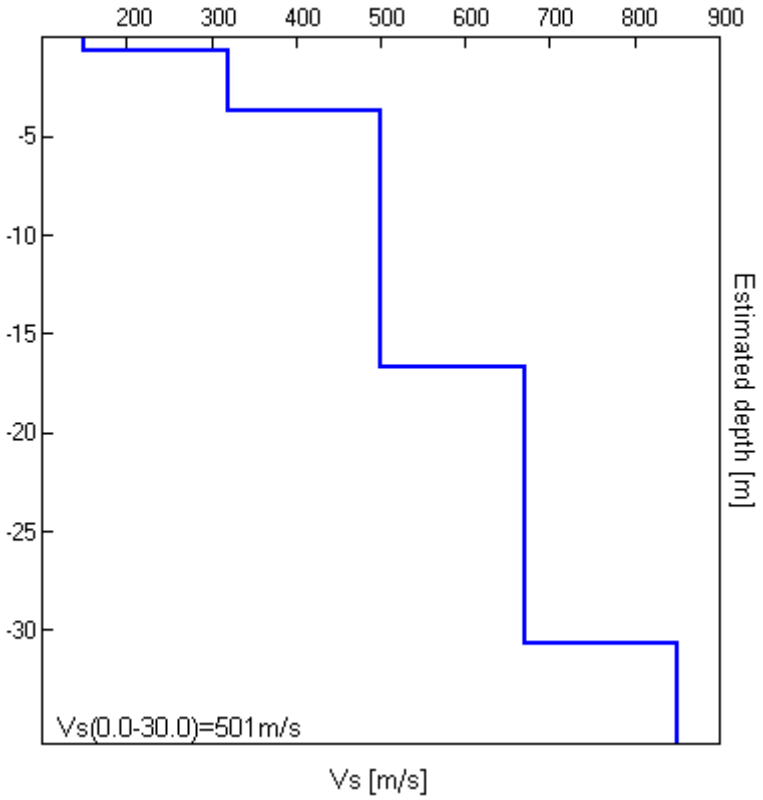


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.70	0.70	150	0.35
3.70	3.00	320	0.35
16.70	13.00	500	0.35
30.70	14.00	670	0.35
inf.	inf.	850	0.35

Vs(0.0-30.0)=501m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 23.28 ± 2.14 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	23.28 > 0.50	**OK**	
$n_c(f_0) > 200$	15831.3 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1118 times	**OK**	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	36.531 Hz	**OK**	
$A_0 > 2$	2.77 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.04445| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	1.03485 < 1.16406	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	0.571 < 1.58	**OK**	

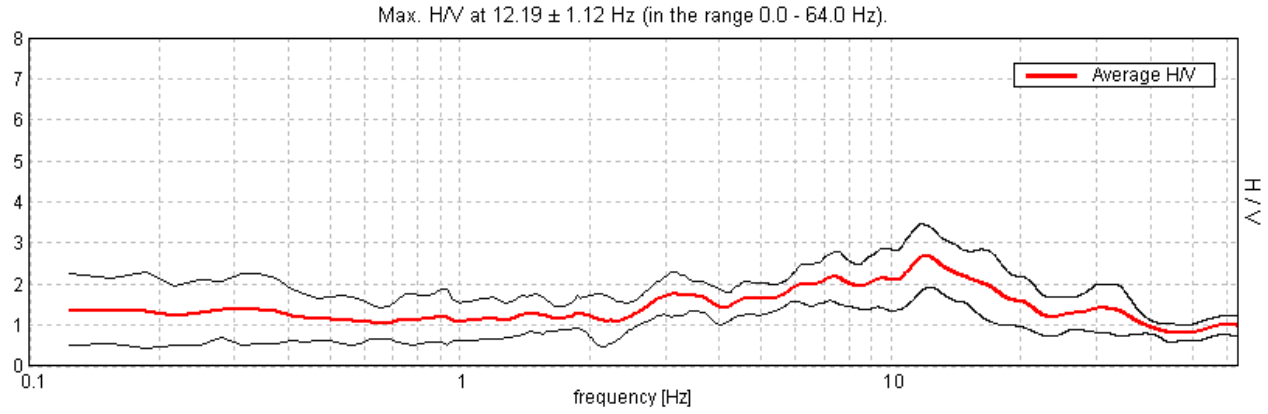
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

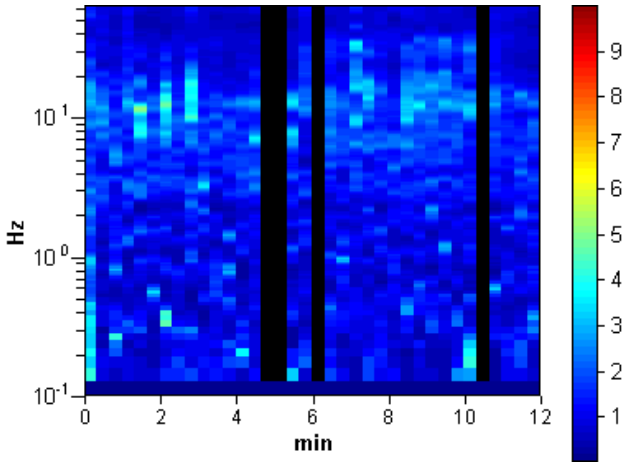
CASTEL DI CASIO_PSC, TR31 CAPANNA DEI MORATTI

Start recording: 03/04/14 14:36:38 End recording: 03/04/14 14:48:39
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

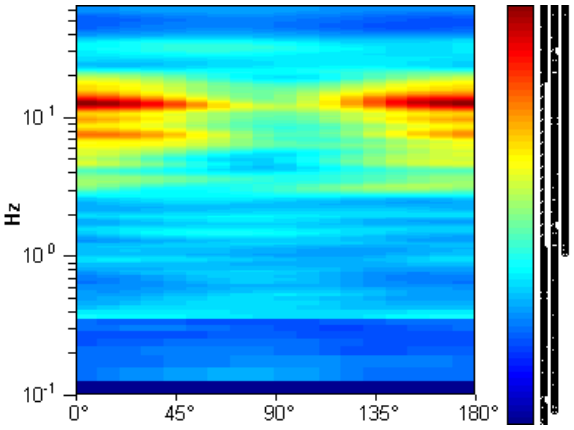
HORIZONTAL TO VERTICAL SPECTRAL RATIO



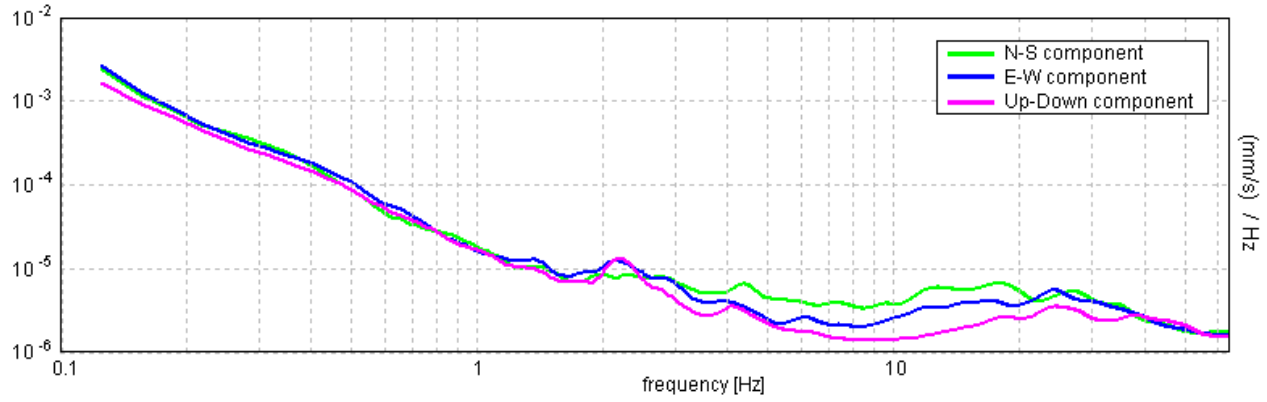
H/V TIME HISTORY



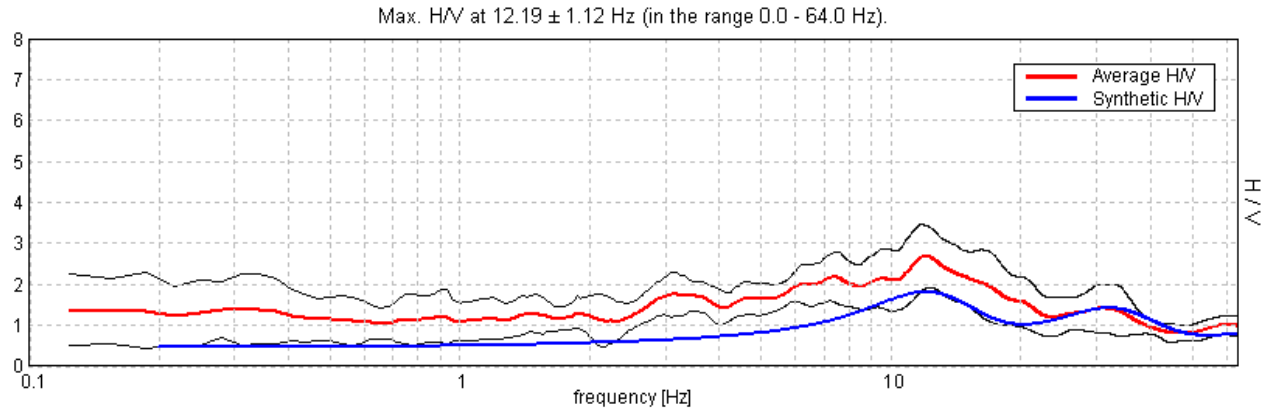
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

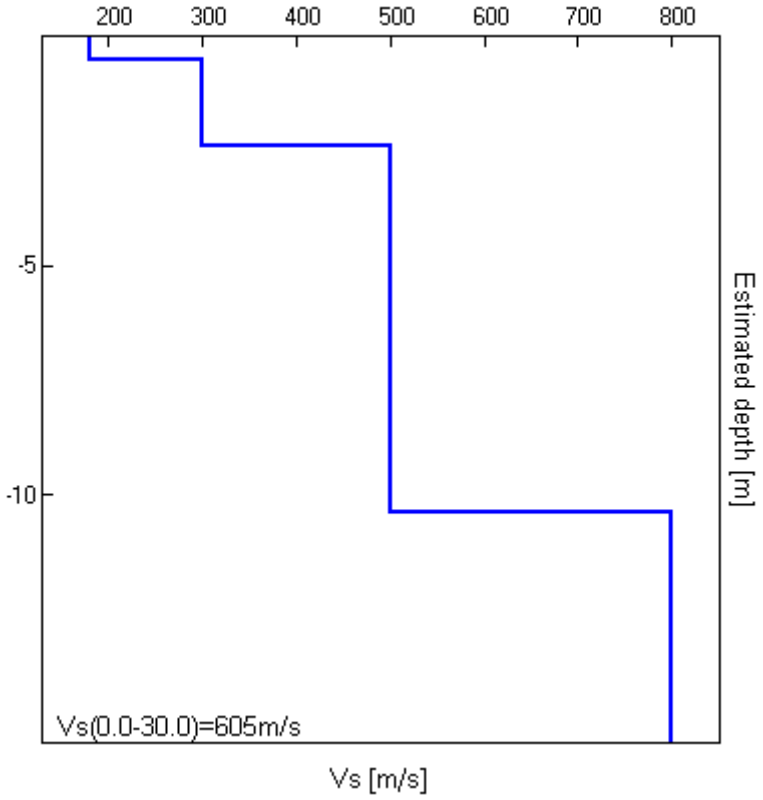


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.50	0.50	180	0.35
2.40	1.90	300	0.35
10.40	8.00	500	0.35
inf.	inf.	800	0.35

Vs(0.0-30.0)=605m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 12.19 ± 1.12 Hz (in the range 0.0 - 64.0 Hz).

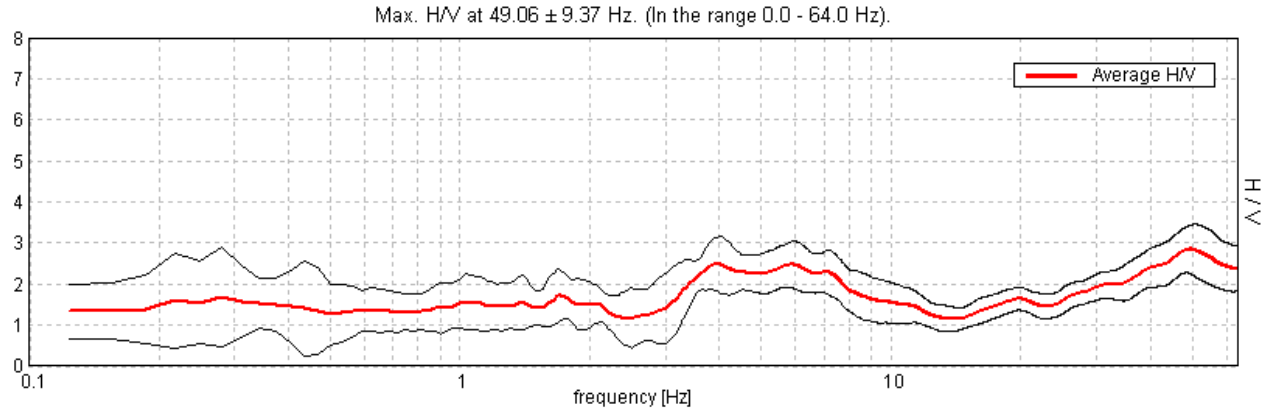
Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	12.19 > 0.50	OK	
$n_c(f_0) > 200$	7800.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 586 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	21.844 Hz	OK	
$A_0 > 2$	2.68 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.04453| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.54271 < 0.60938	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.3662 < 1.58	OK	

L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

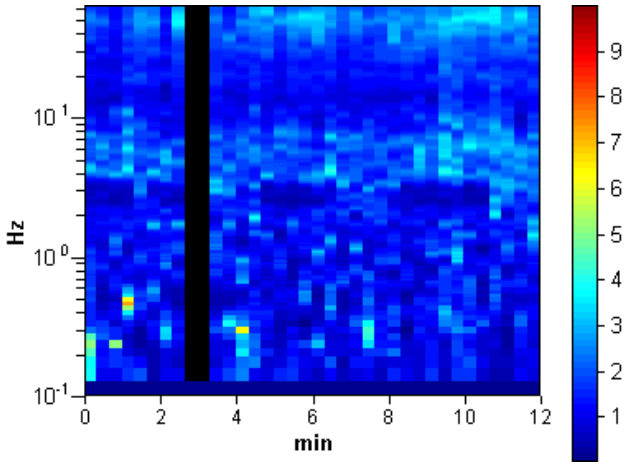
Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

CASTEL DI CASIO_PSC, TR32 MONTILOCCHI
Start recording: 03/04/14 15:03:51 End recording: 03/04/14 15:15:52
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 94% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

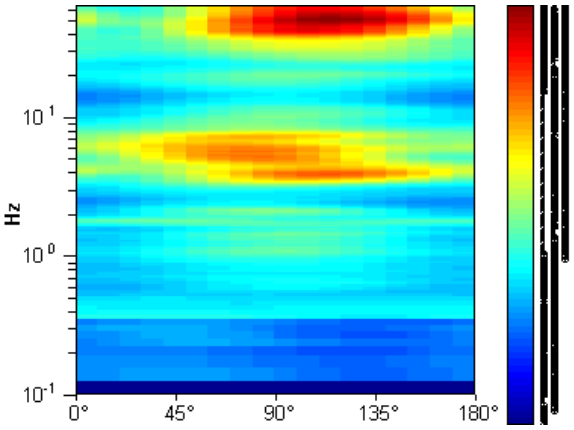
HORIZONTAL TO VERTICAL SPECTRAL RATIO



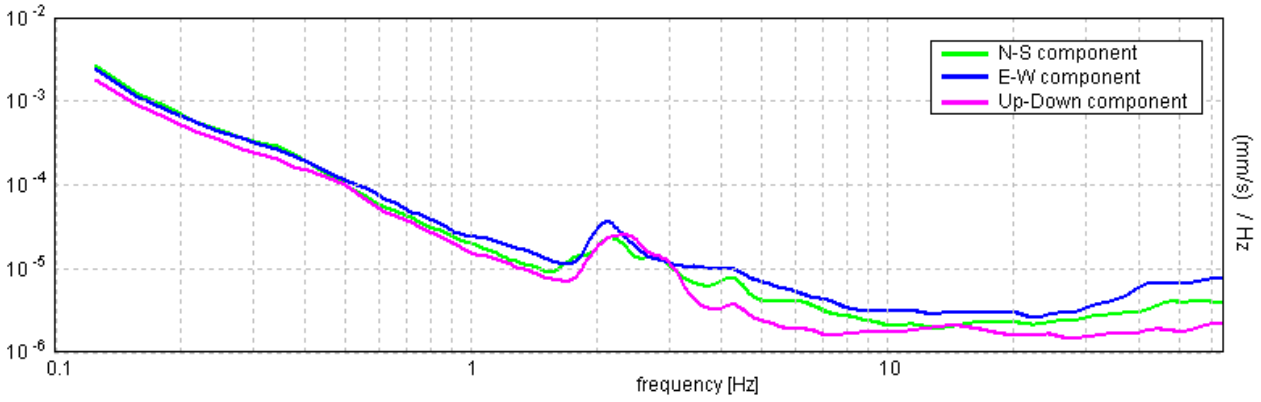
H/V TIME HISTORY



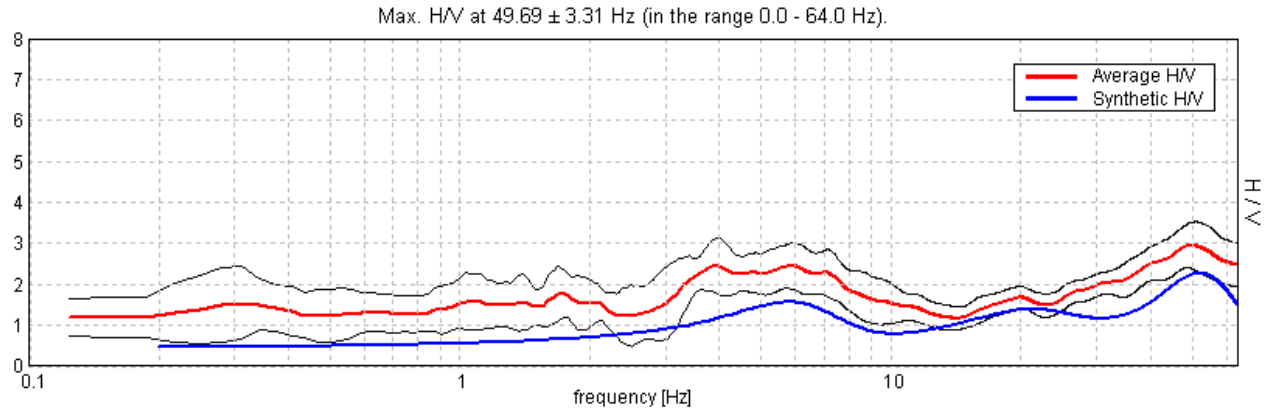
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

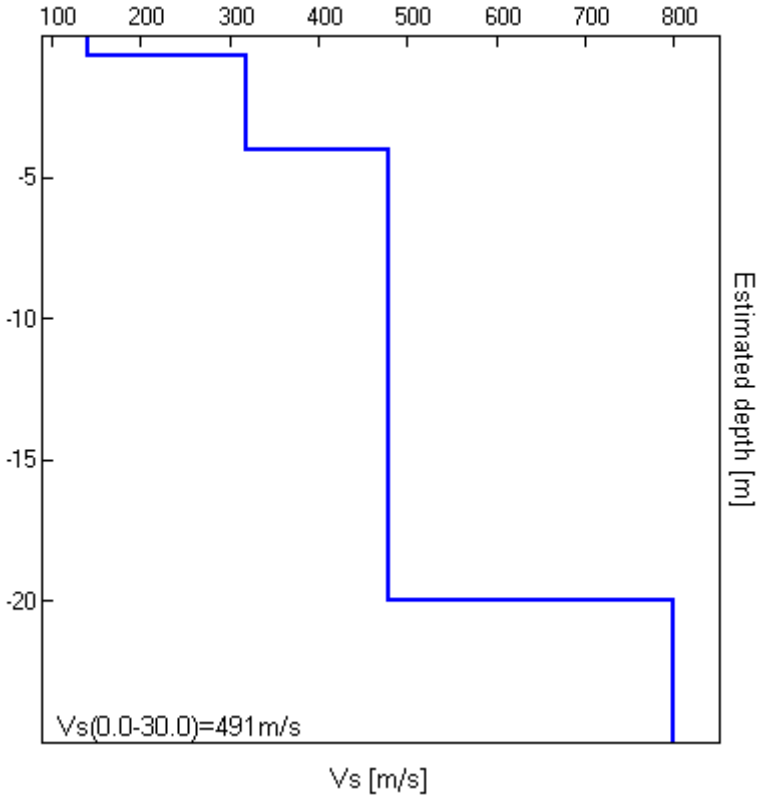


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.70	0.70	140	0.35
4.00	3.30	320	0.35
20.00	16.00	480	0.35
inf.	inf.	800	0.35

Vs(0.0-30.0)=491m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 49.06 ± 9.37 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	49.06 > 0.50	OK	
$n_c(f_0) > 200$	33362.5 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1264 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	16.938 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.85 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.09244| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	4.53537 < 2.45313		NO
$\sigma_A(f_0) < \theta(f_0)$	0.2809 < 1.58	OK	

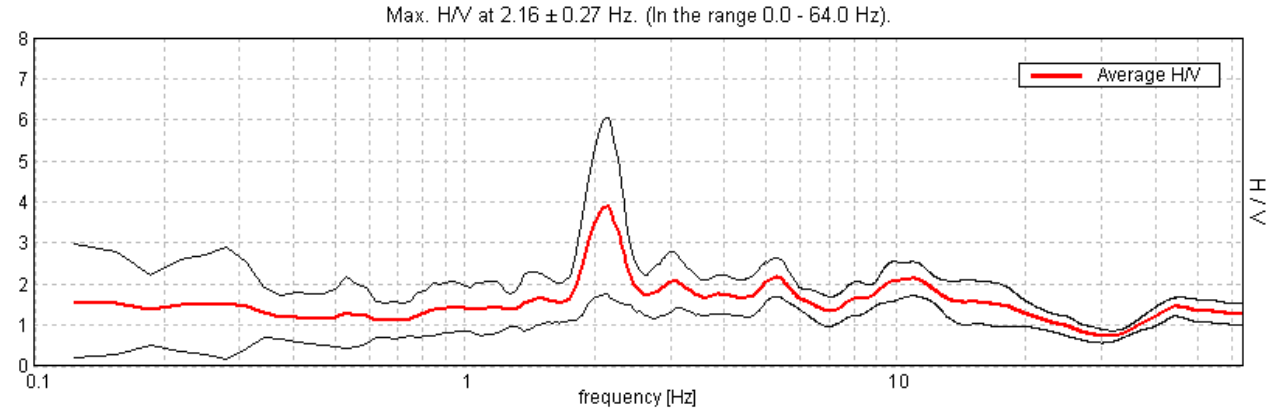
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

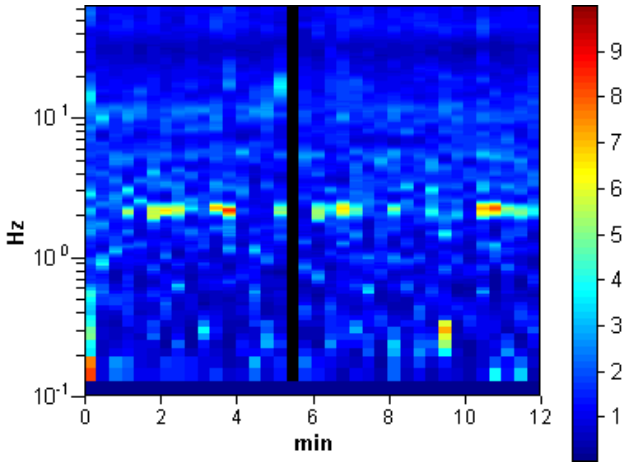
CASTEL DI CASIO_PSC, TR33 CAMPOVECCHIO

Start recording: 03/04/14 15:37:08 End recording: 03/04/14 15:49:09
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

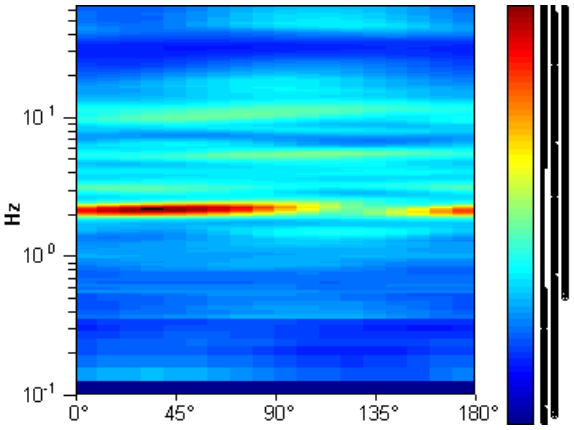
HORIZONTAL TO VERTICAL SPECTRAL RATIO



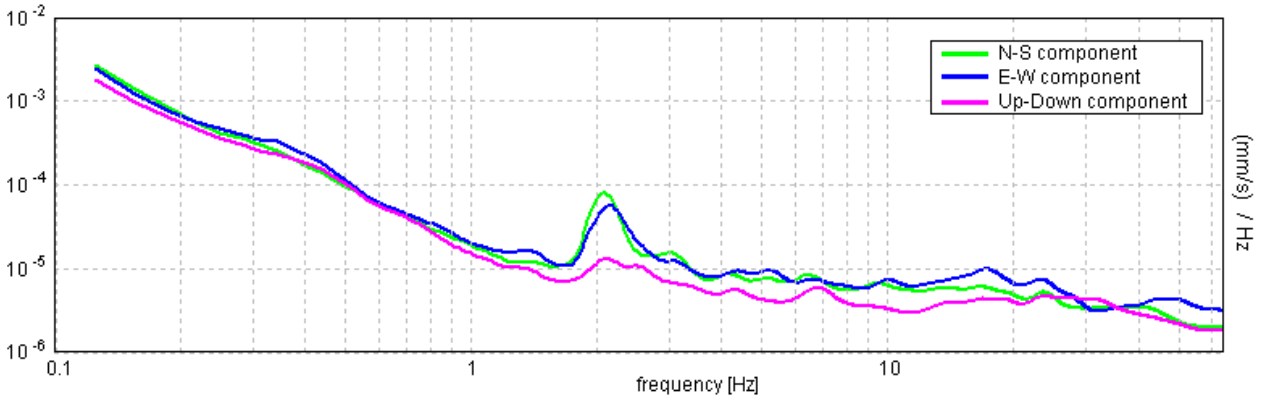
H/V TIME HISTORY



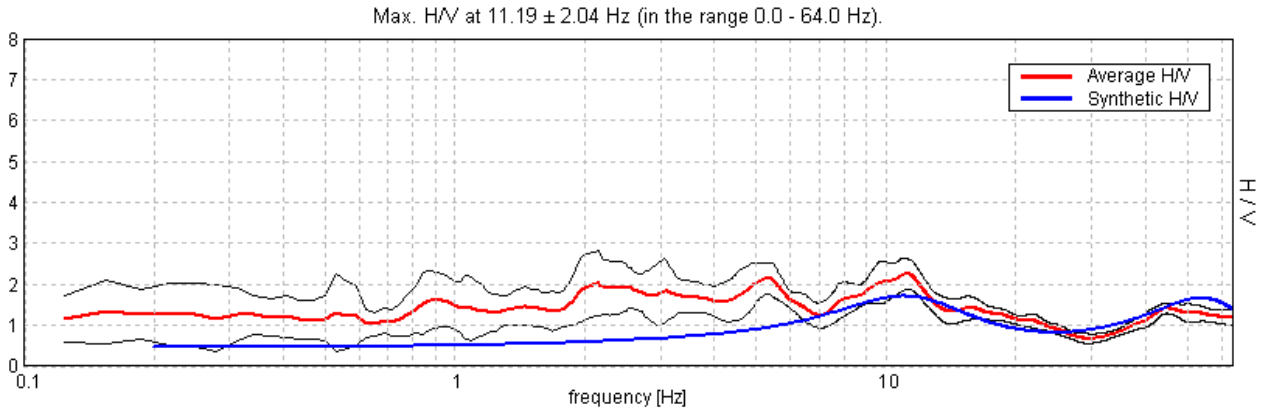
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

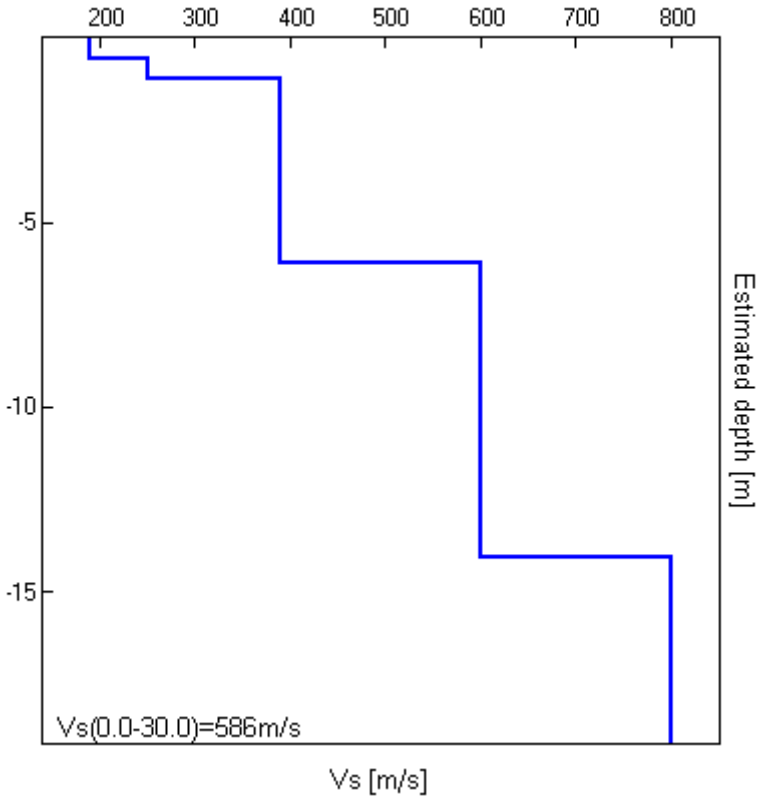


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.60	0.60	190	0.35
1.10	0.50	250	0.35
6.10	5.00	390	0.35
14.10	8.00	600	0.35
inf.	inf.	800	0.35

Vs(0.0-30.0)=586m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 2.16 ± 0.27 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	2.16 > 0.50	OK	
$n_c(f_0) > 200$	1509.4 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 5 out of 104 times		NO
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	1.781 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	2.5 Hz	OK	
$A_0 > 2$	3.89 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.06023| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	0.12987 < 0.10781		NO
$\sigma_A(f_0) < \theta(f_0)$	1.0427 < 1.58	OK	

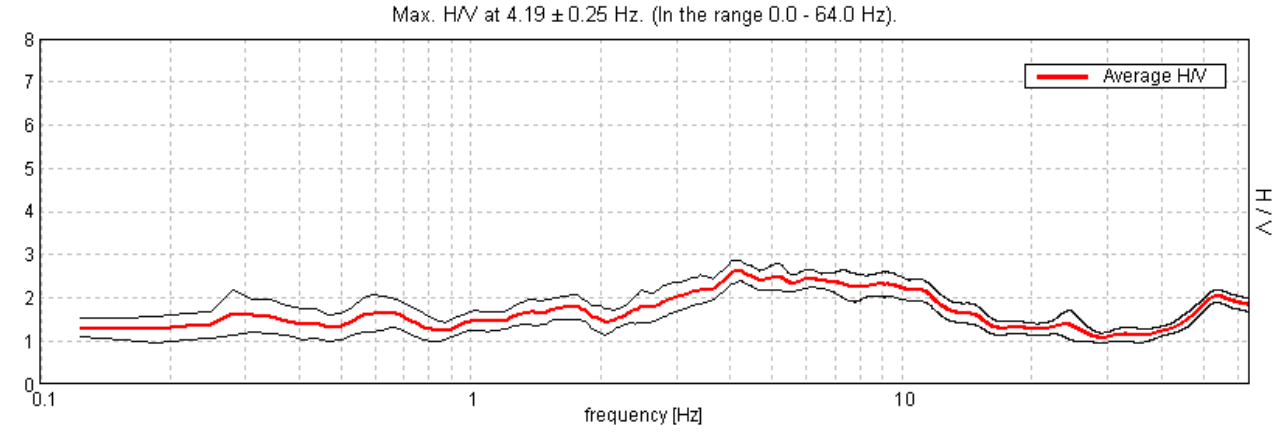
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

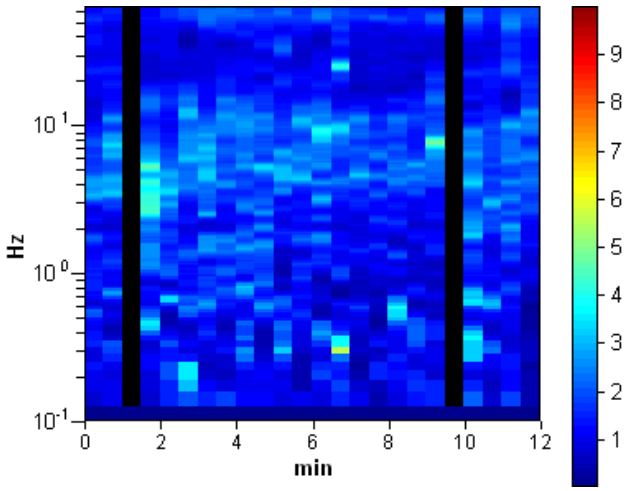
CASTEL DI CASIO_PSC, TR44 POGGIO_SUD

Start recording: 02/07/13 12:56:20 End recording: 02/07/13 13:08:21
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 96% trace (automatic window selection)
Sampling frequency: 128 Hz
Window size: 30 s
Smoothing window: Triangular window
Smoothing: 10%

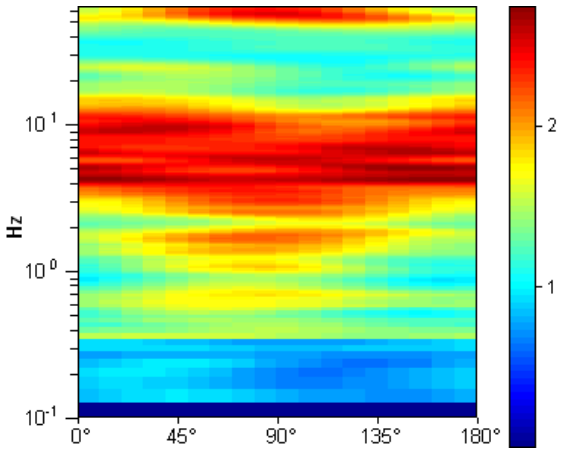
HORIZONTAL TO VERTICAL SPECTRAL RATIO



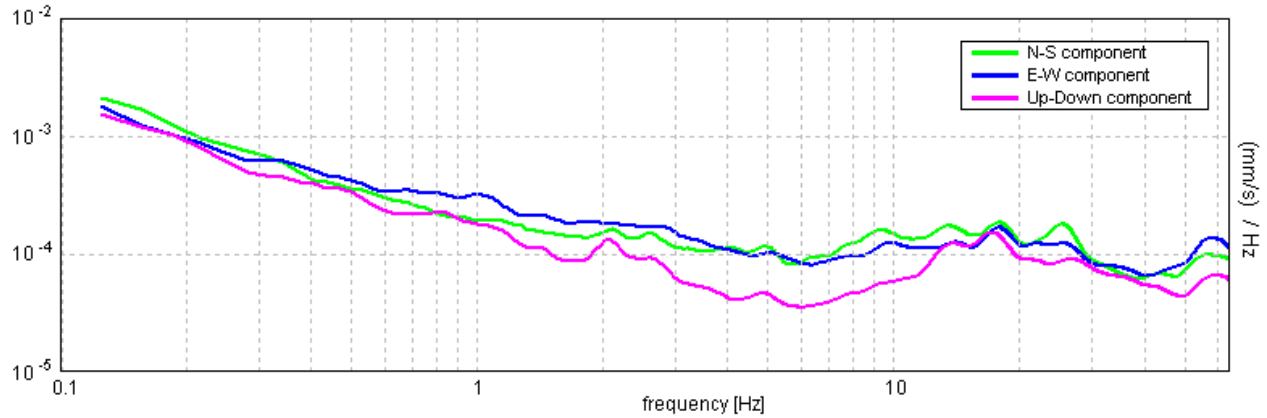
H/V TIME HISTORY



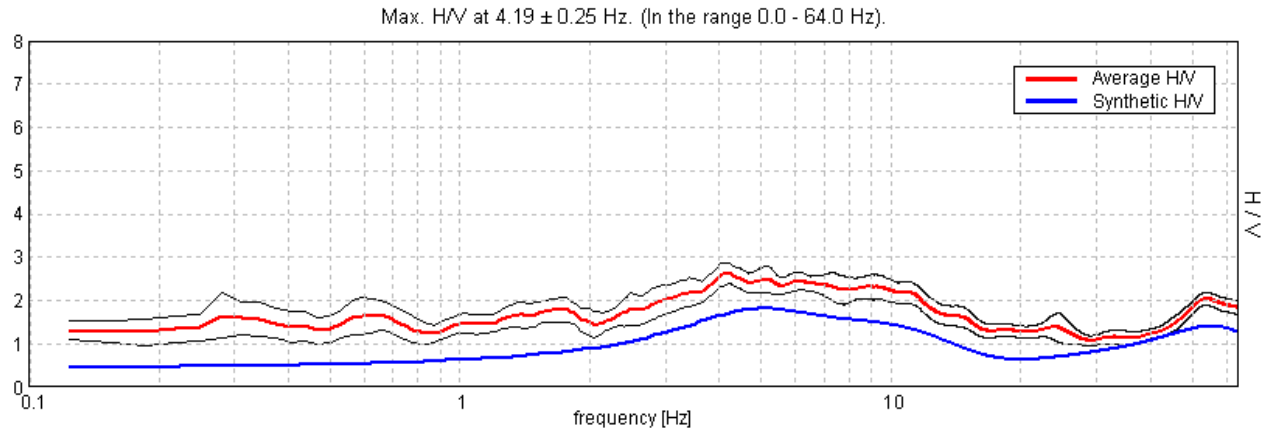
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

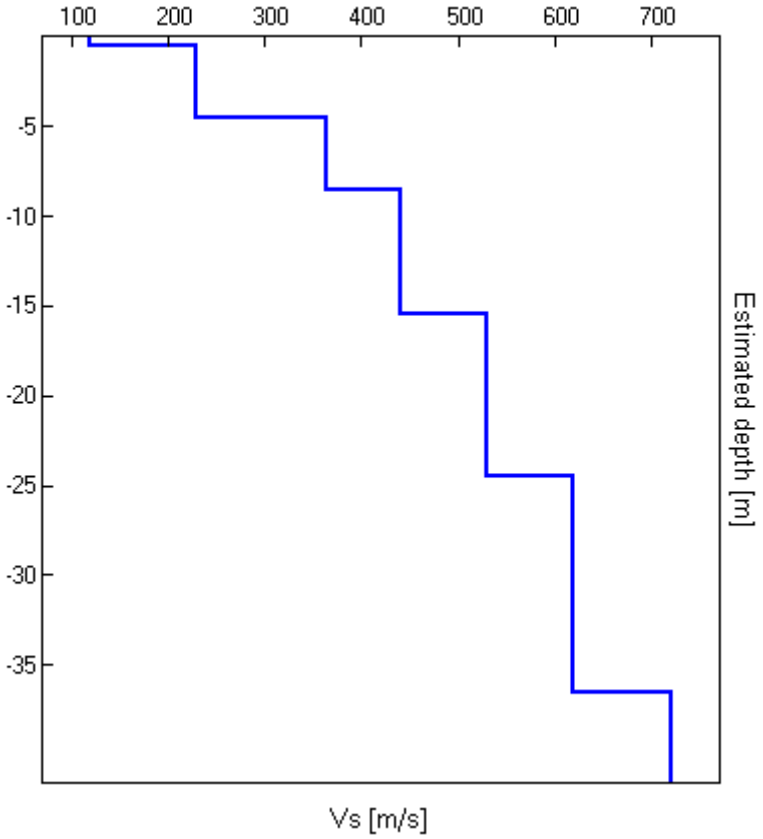


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
0.50	0.50	120
4.50	4.00	230
8.50	4.00	365
15.50	7.00	440
24.50	9.00	530
36.50	12.00	620
inf.	inf.	720

Vs30 = 404 m/s



[According to the Sesame, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 4.19 ± 0.25 Hz. (in the range 0.0 - 64.0 Hz).

Criteria for a reliable HVSR curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	4.19 > 0.33	**OK**	
$n_c(f_0) > 200$	2763.8 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 202 times	**OK**	
Criteria for a clear HVSR peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			**NO**
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	16.438 Hz	**OK**	
$A_0 > 2$	2.63 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.02767| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	0.11587 < 0.20938	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	0.113 < 1.58	**OK**	

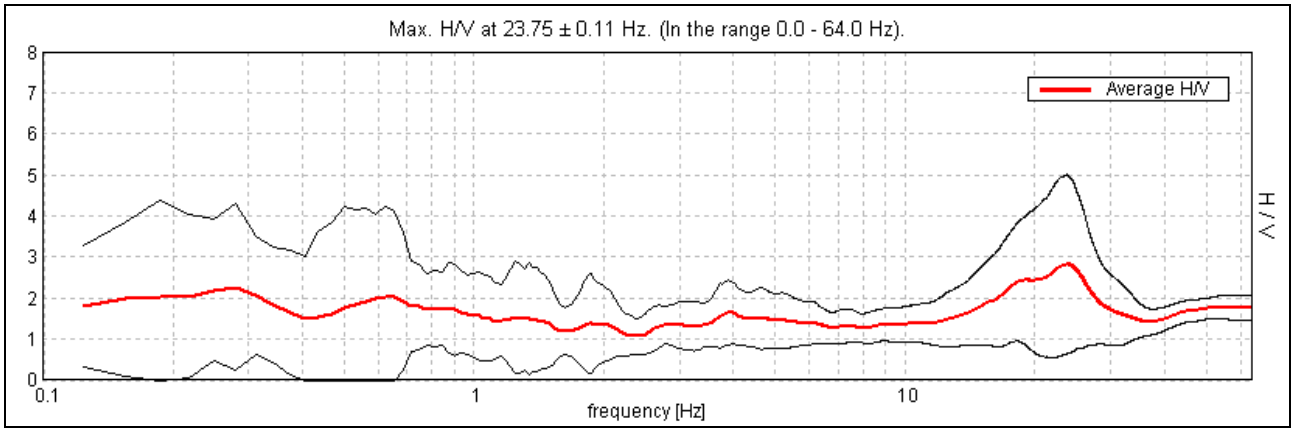
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq.range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
Log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

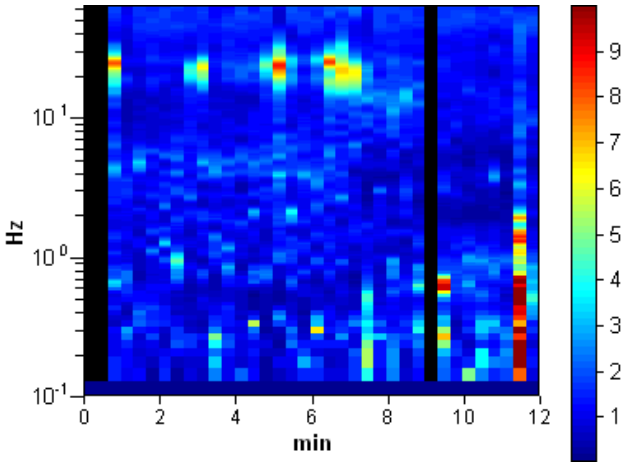
CASTEL DI CASIO, BELVEDERE TR45

Start recording: 16/02/11 09:44:20 End recording: 16/02/11 09:56:21
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00''. Analyzed 92% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

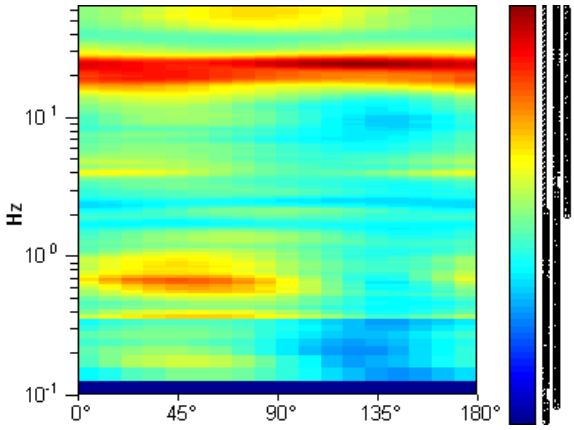
HORIZONTAL TO VERTICAL SPECTRAL RATIO



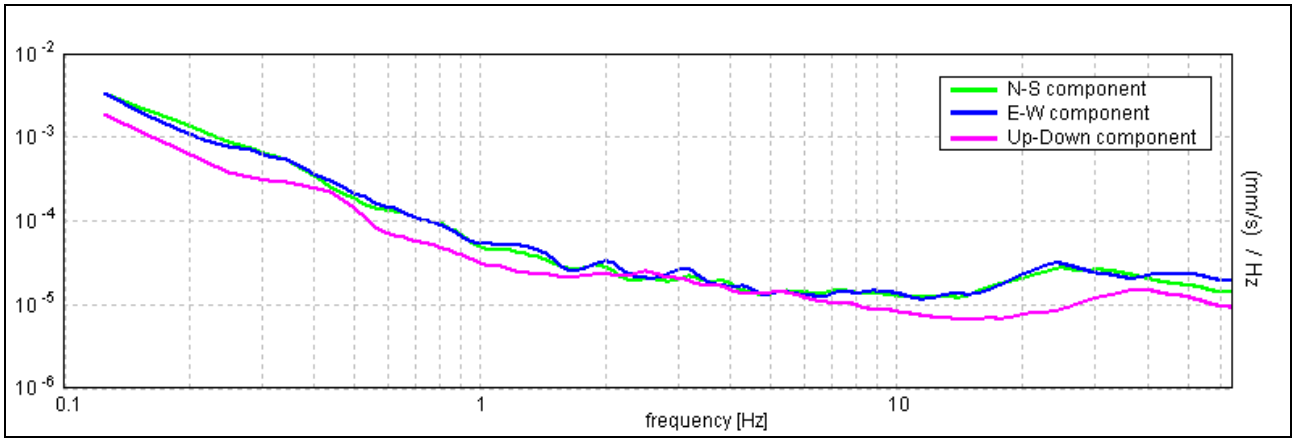
H/V TIME HISTORY



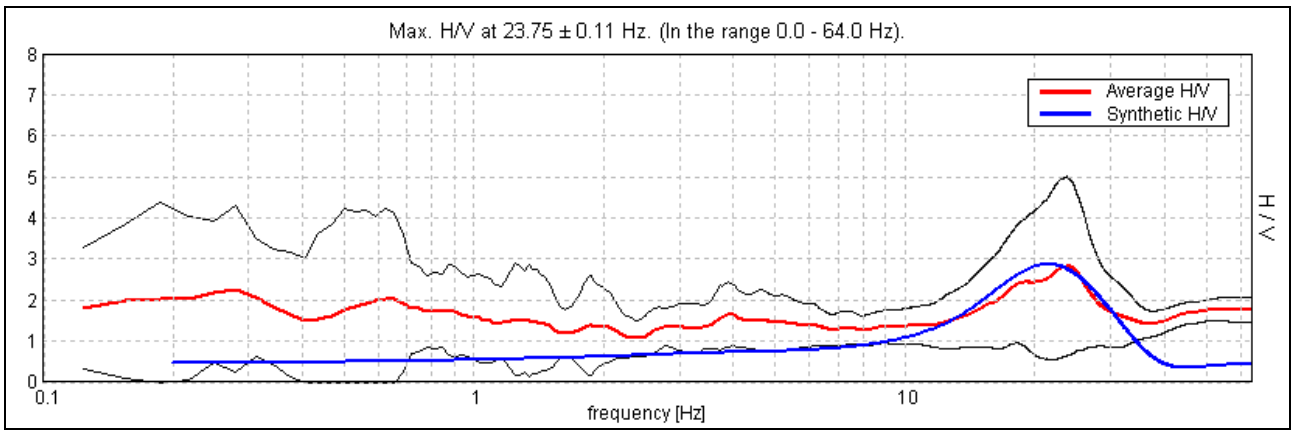
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

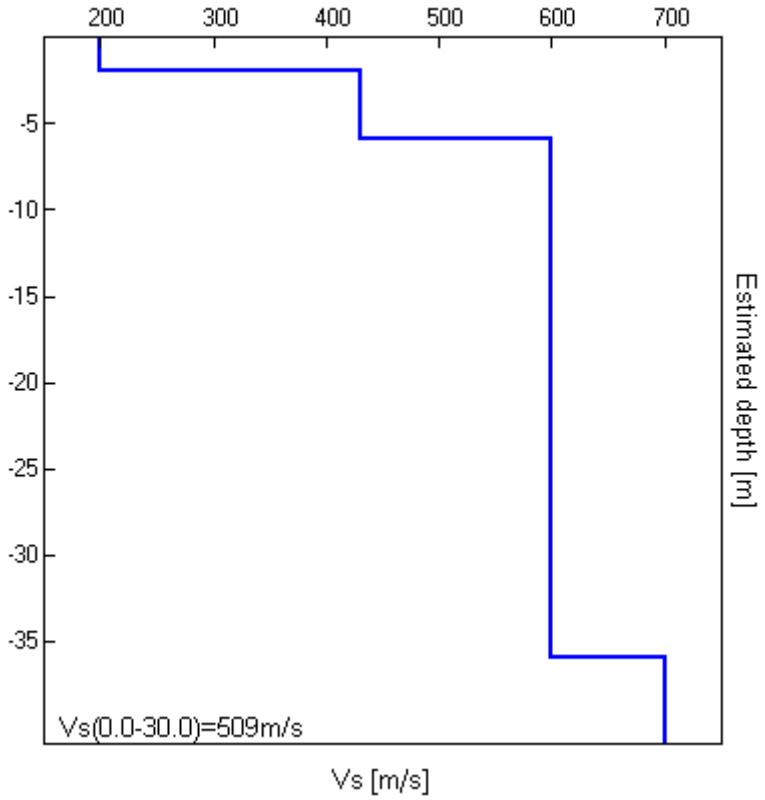


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.90	1.90	200	0.35
5.90	4.00	430	0.35
35.90	30.00	600	0.35
inf.	inf.	700	0.35

Vs(0.0-30.0)=509m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 23.75 ± 0.11 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	23.75 > 0.50	OK	
$n_c(f_0) > 200$	15675.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 99 out of 1141 times		NO
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	11.938 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$			NO
$A_0 > 2$	2.82 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.00231| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.05478 < 1.1875	OK	
$\sigma_A(f_0) < \theta(f_0)$	1.0556 < 1.58	OK	

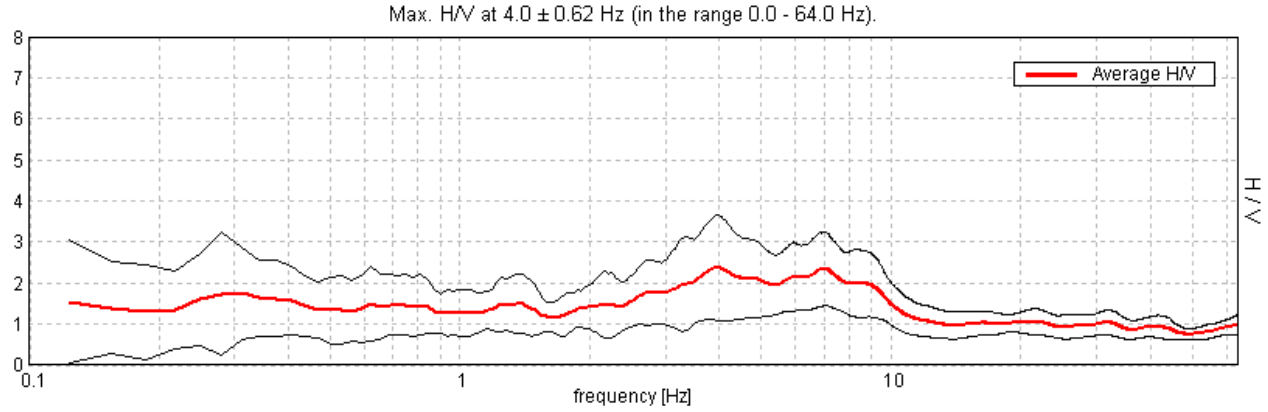
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

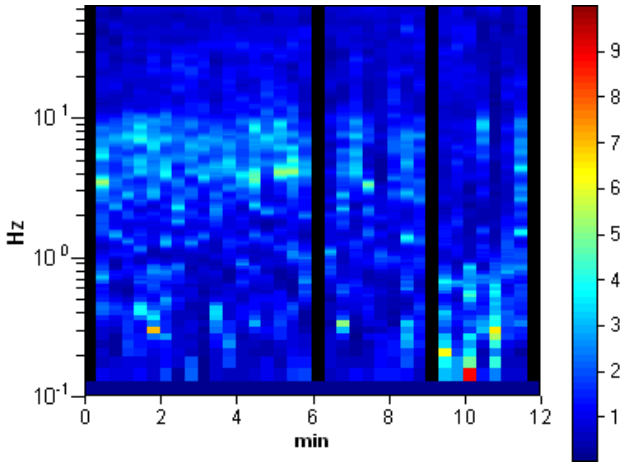
CASTEL DI CASIO, PRUNO Tr46

Start recording: 07/09/12 18:41:28 End recording: 07/09/12 18:53:29
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
Trace length: 0h12'00''. Analyzed 89% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

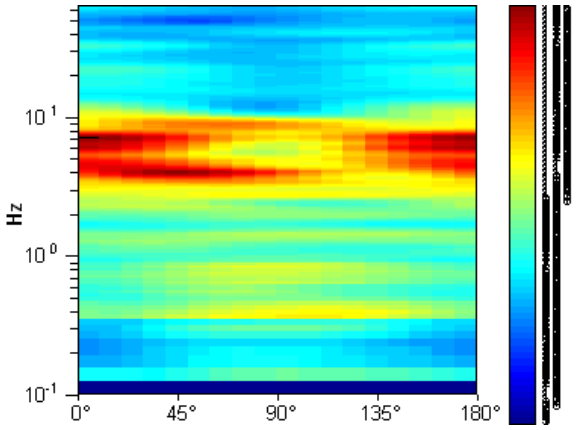
HORIZONTAL TO VERTICAL SPECTRAL RATIO



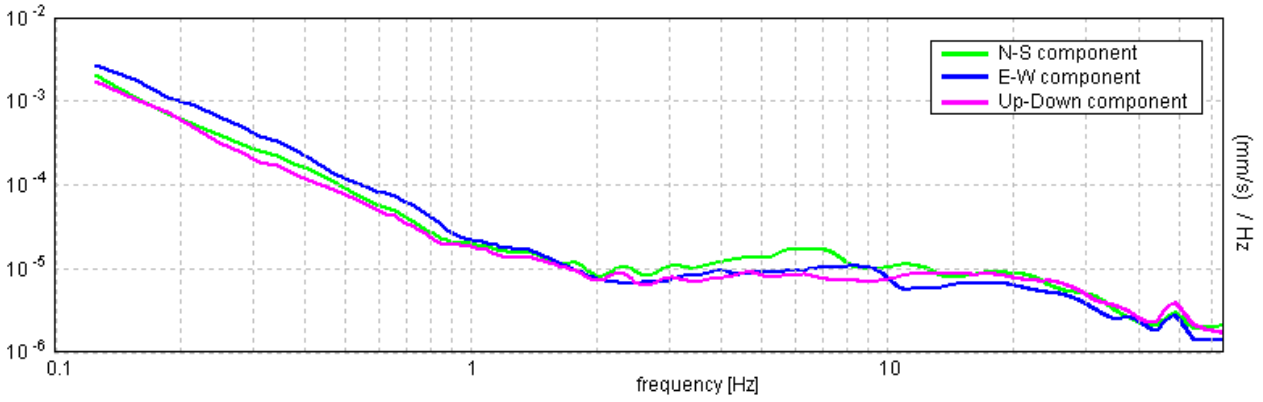
H/V TIME HISTORY



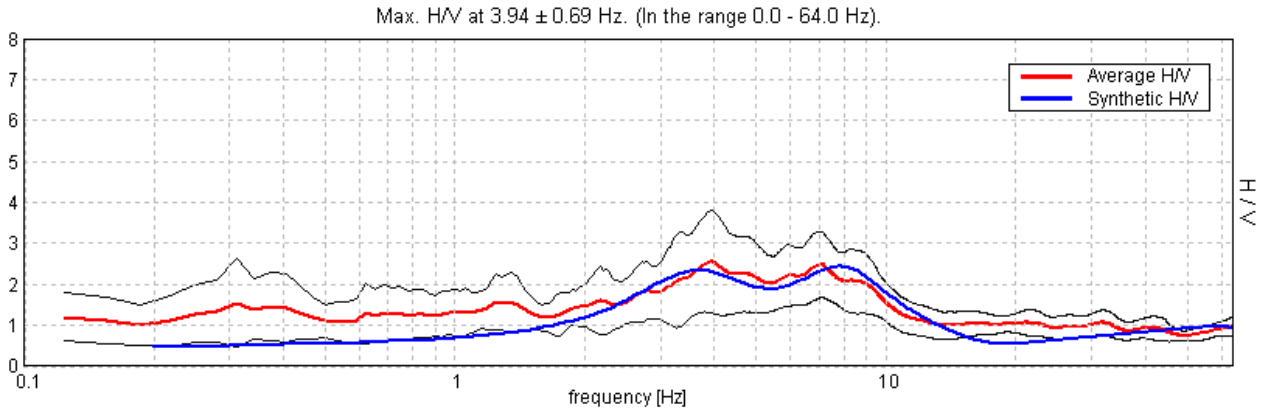
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

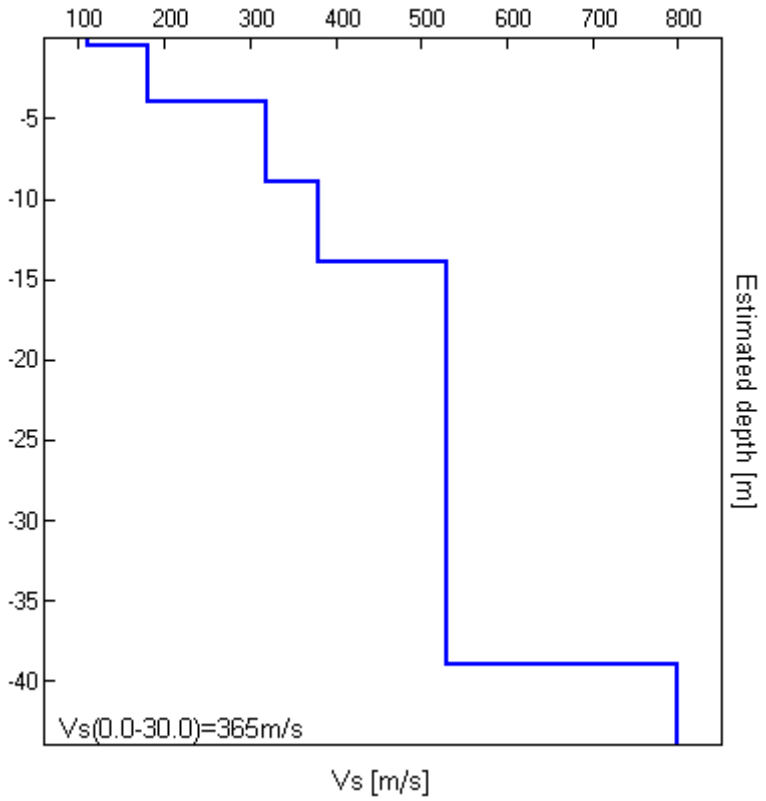


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.40	0.40	110	0.35
3.90	3.50	180	0.35
8.90	5.00	320	0.35
13.90	5.00	380	0.35
38.90	25.00	530	0.35
inf.	inf.	800	0.35

Vs(0.0-30.0)=365m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 4.0 ± 0.62 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	4.00 > 0.50	OK	
$n_c(f_0) > 200$	2560.0 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 193 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	1.688 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	11.031 Hz	OK	
$A_0 > 2$	2.38 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.07442| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	0.29768 < 0.2		NO
$\sigma_A(f_0) < \theta(f_0)$	0.6189 < 1.58	OK	

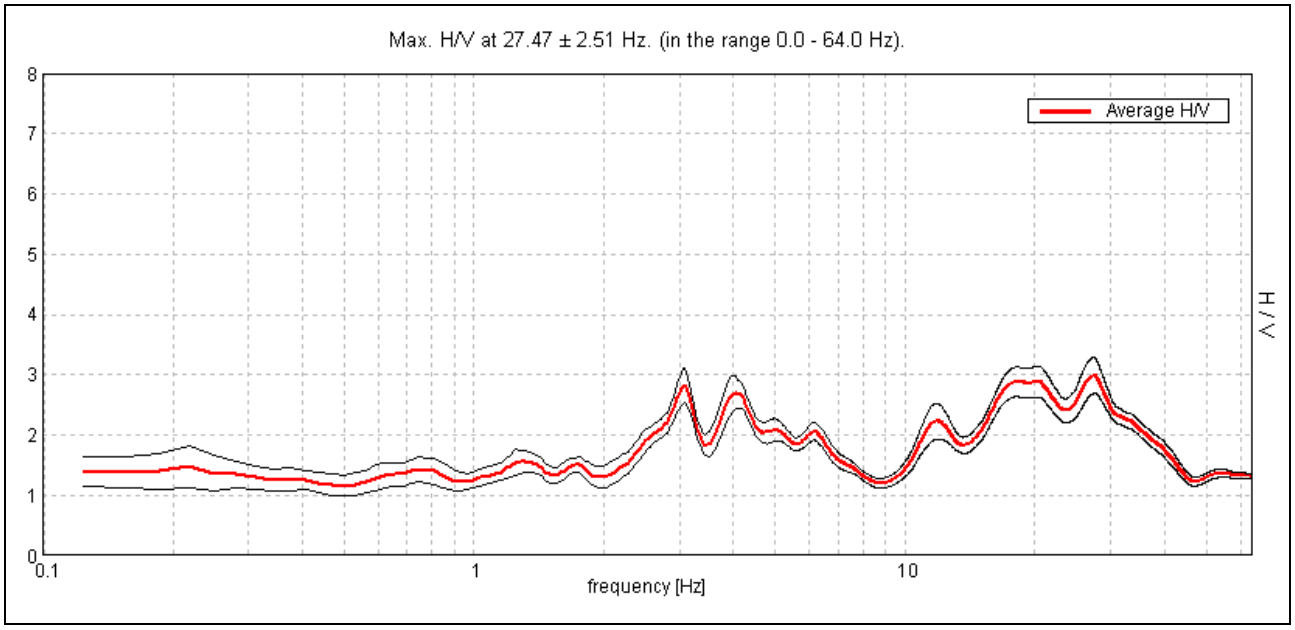
L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

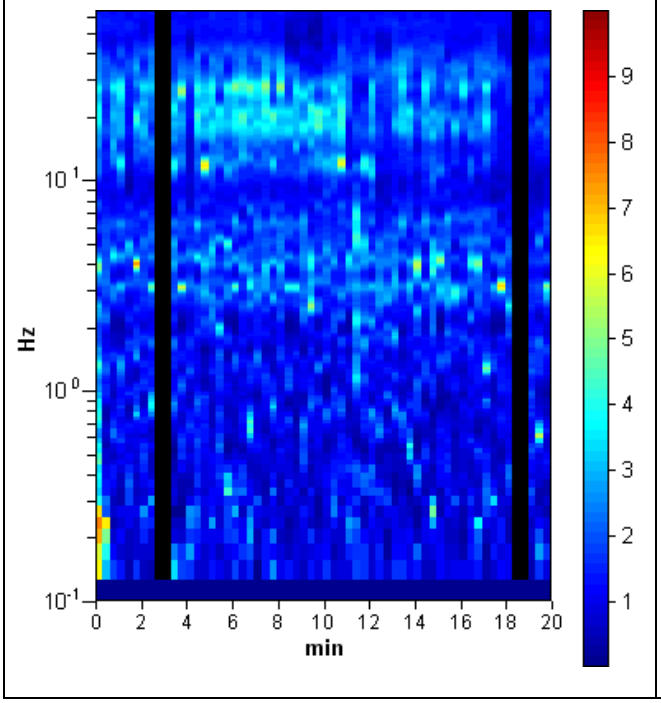
SALMAORE, TR47

Start recording: 21/06/10 14:29:07 End recording: 21/06/10 14:49:08
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h20'00''. Analyzed 95% trace (automatic window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

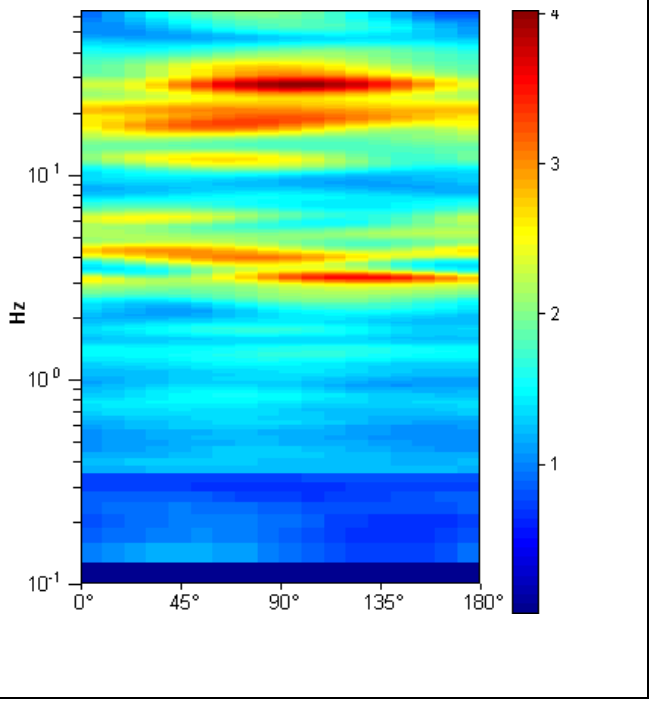
HORIZONTAL TO VERTICAL SPECTRAL RATIO



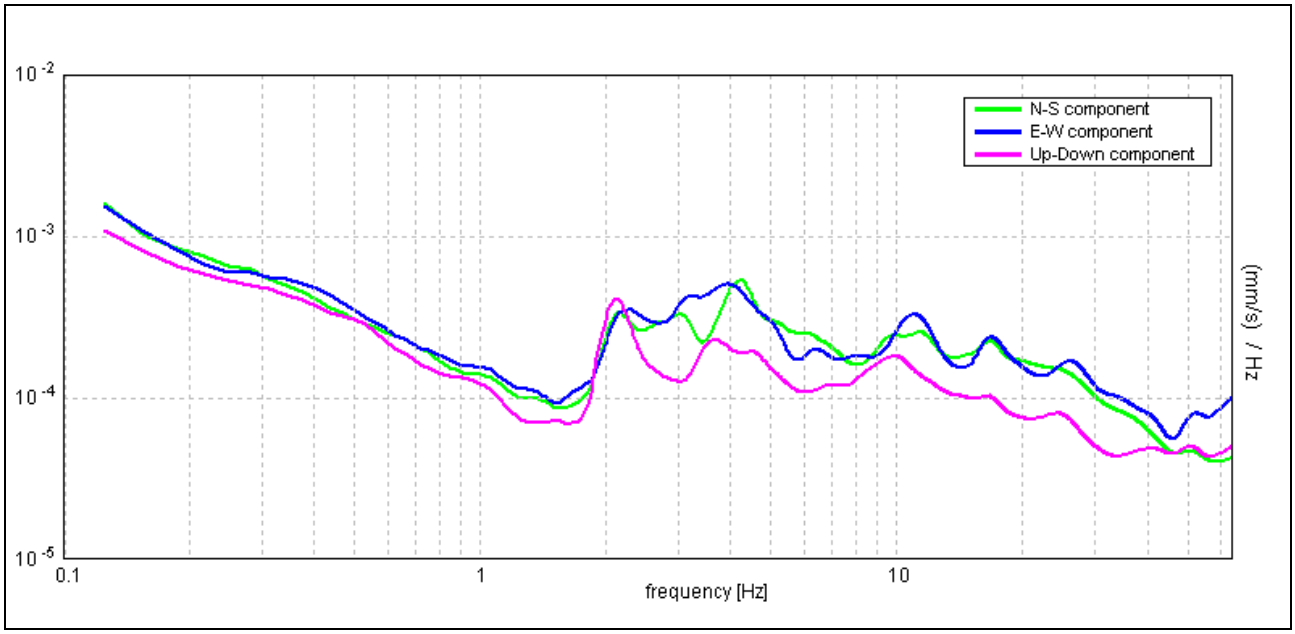
H/V TIME HISTORY



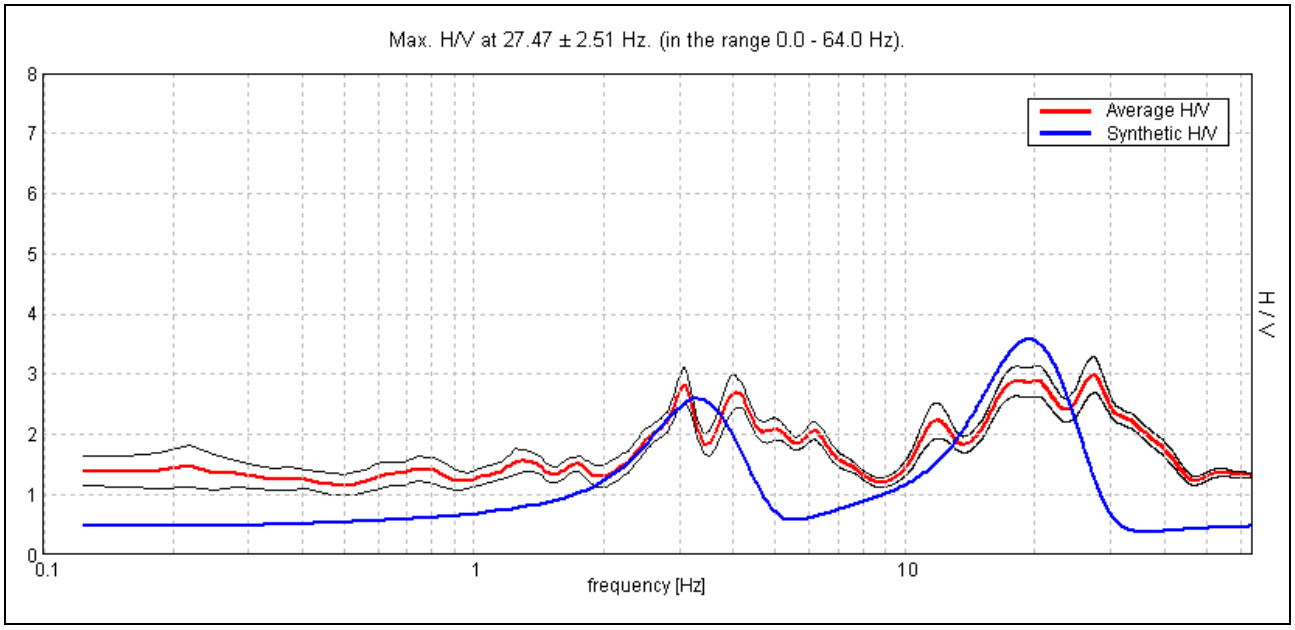
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

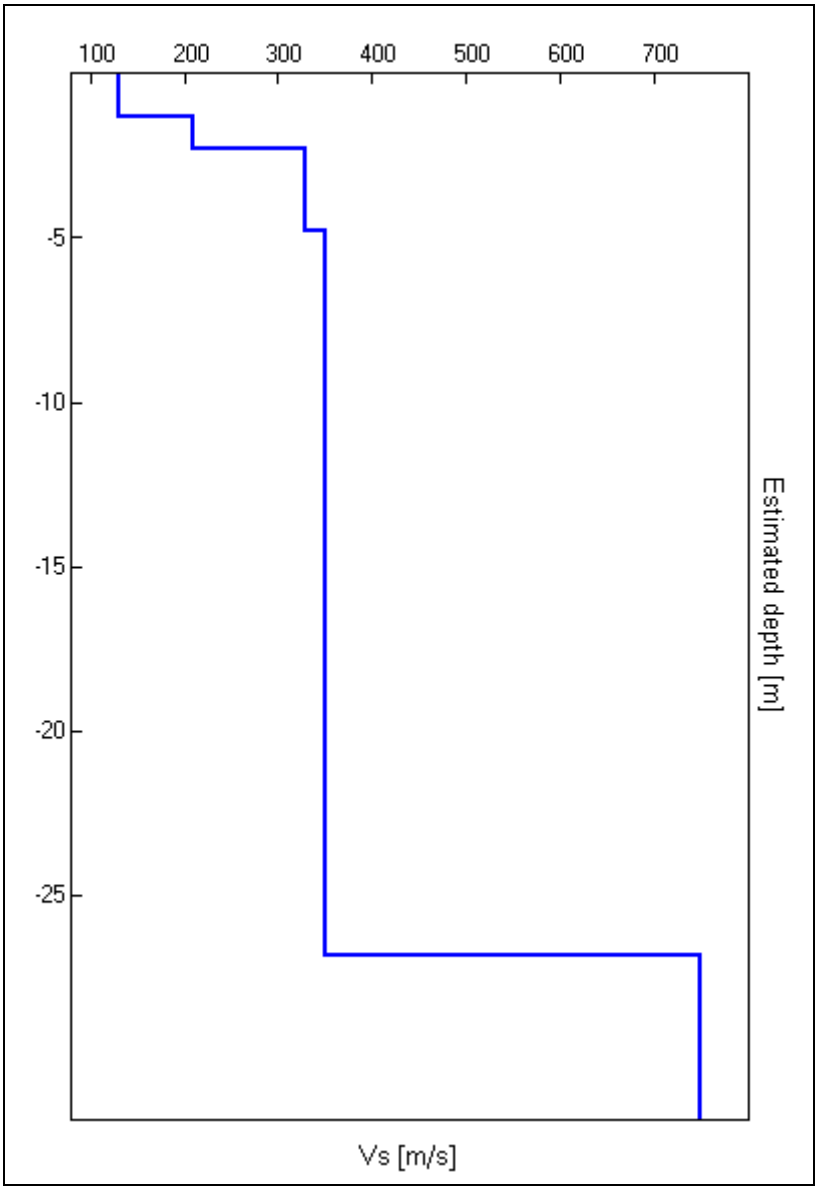


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
1.30	1.30	130
2.30	1.00	210
4.80	2.50	330
26.80	22.00	350
inf.	inf.	750

Vs30 = 335 m/s



[According to the Sesame, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 27.47 ± 2.51 Hz. (in the range 0.0 - 64.0 Hz).

Criteria for a reliable HVSR curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	27.47 > 0.50	**OK**	
$n_c(f_0) > 200$	30765.0 > 200	**OK**	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 1320 times	**OK**	
Criteria for a clear HVSR peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	10.156 Hz	**OK**	

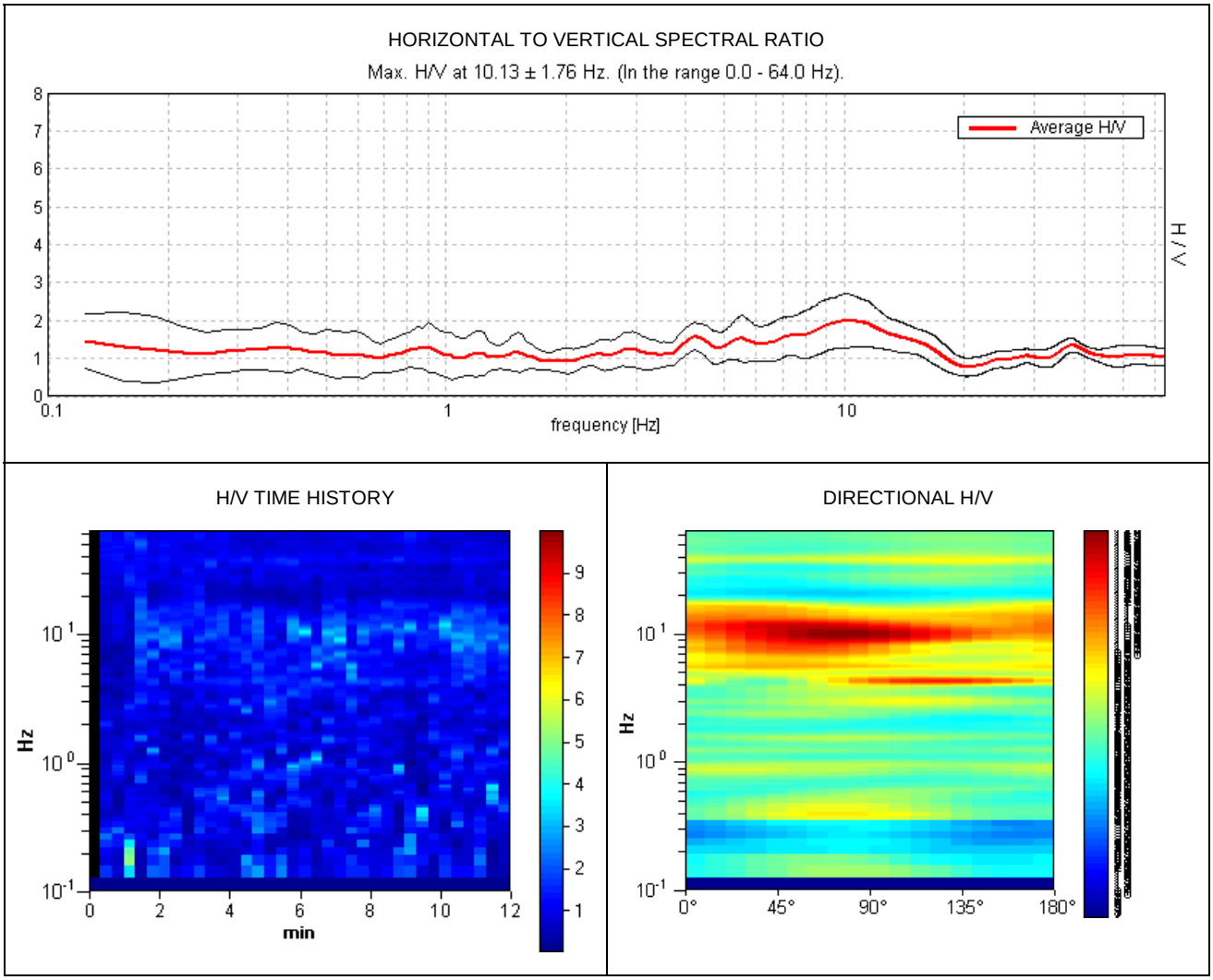
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	42.813 Hz	**OK**	
$A_0 > 2$	2.99 > 2	**OK**	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.04512| < 0.05	**OK**	
$\sigma_f < \varepsilon(f_0)$	1.2395 < 1.37344	**OK**	
$\sigma_A(f_0) < \theta(f_0)$	0.147 < 1.58	**OK**	

L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

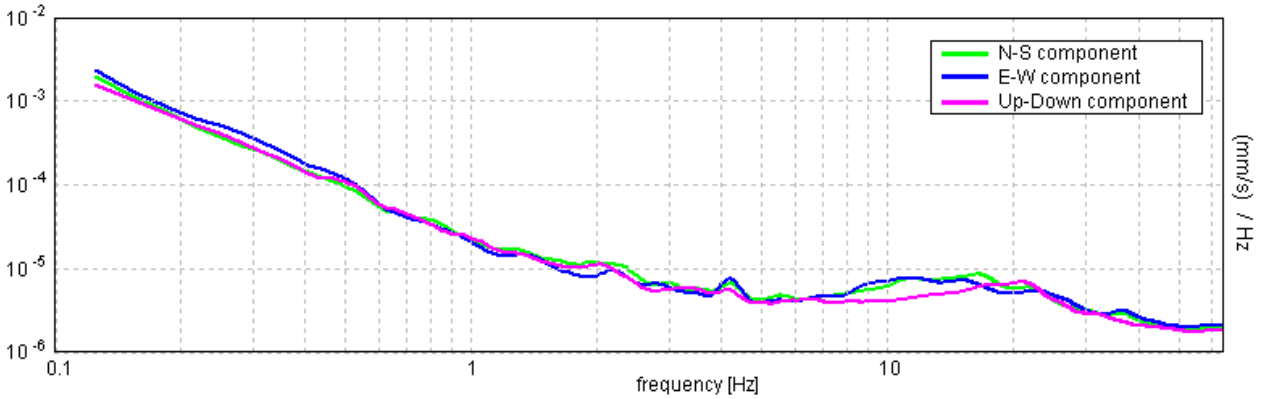
Threshold values for σ_f and $\sigma_A(f_0)$					
Freq.range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
Log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

BADI, TR 48
Start recording: 09/04/13 11:16:09 End recording: 09/04/13 11:28:10
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00". Analyzed 97% trace (automatic window selection)
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

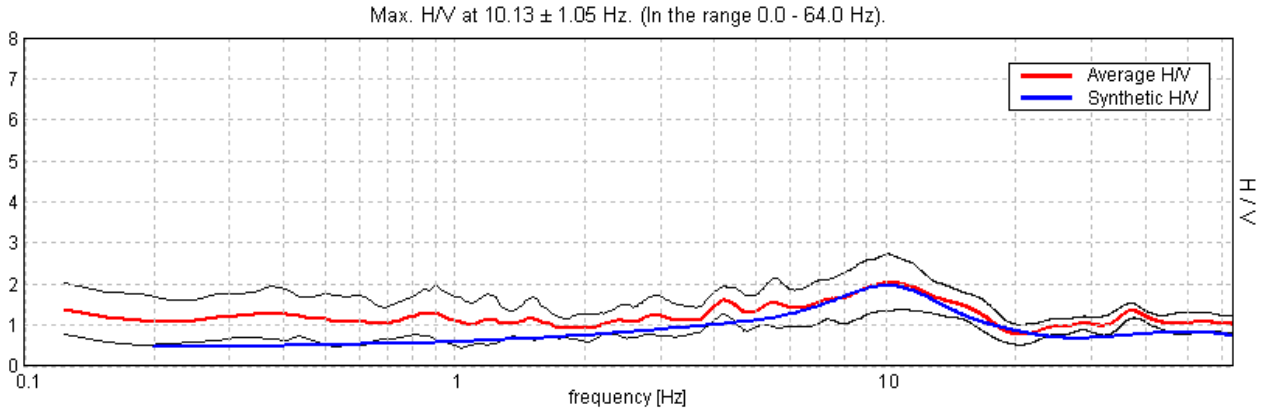
HORIZONTAL TO VERTICAL SPECTRAL RATIO



SINGLE COMPONENT SPECTRA

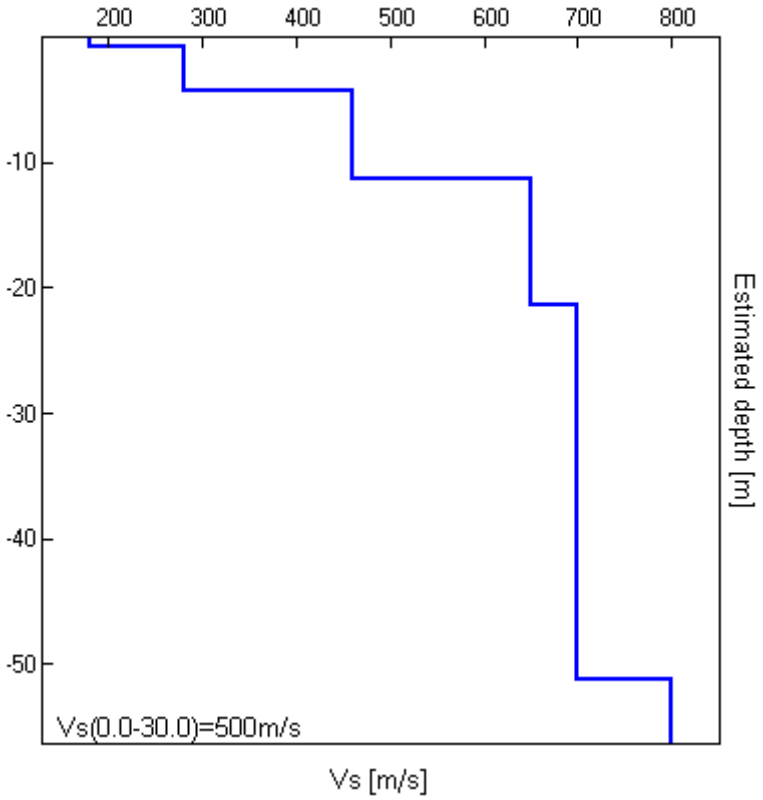


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
0.80	0.80	180	0.35
4.30	3.50	280	0.35
11.30	7.00	460	0.35
21.30	10.00	650	0.35
51.30	30.00	700	0.35
inf.	inf.	800	0.35

Vs(0.0-30.0)=500m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 10.13 ± 1.76 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	10.13 > 0.50	OK	
$n_c(f_0) > 200$	7087.5 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5$Hz **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5$Hz**	Exceeded 0 out of 487 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$			NO
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	18.063 Hz	OK	
$A_0 > 2$	2.00 > 2		NO
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.08429| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	0.8534 < 0.50625		NO
$\sigma_A(f_0) < \theta(f_0)$	0.3502 < 1.58	OK	

L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20