



PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile



REGIONE VENETO



CONFERENZA DELLE REGIONI E
DELLE PROVINCE AUTONOME

Attuazione dell'articolo 11 dalla legge 24 giugno 2009, n.77

MICROZONAZIONE SISMICA

Indagini

Regione Veneto
Comune di Solagna (VI)

Regione del Veneto	Soggetto realizzatore	Marzo 2014
		

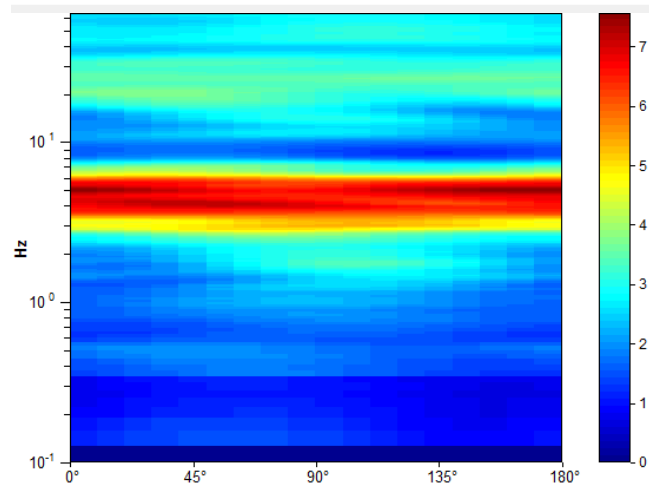
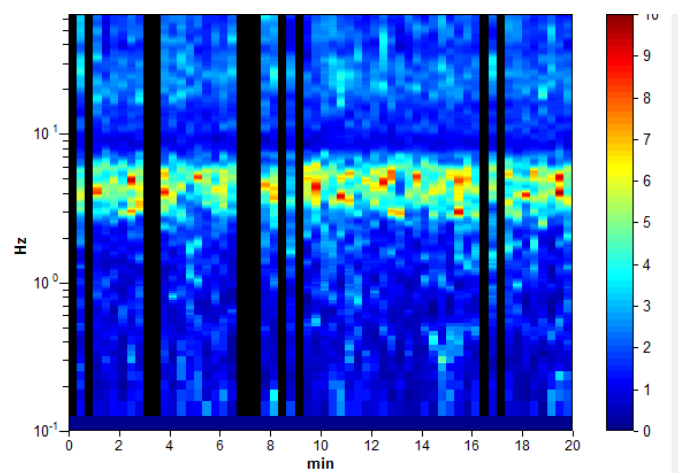
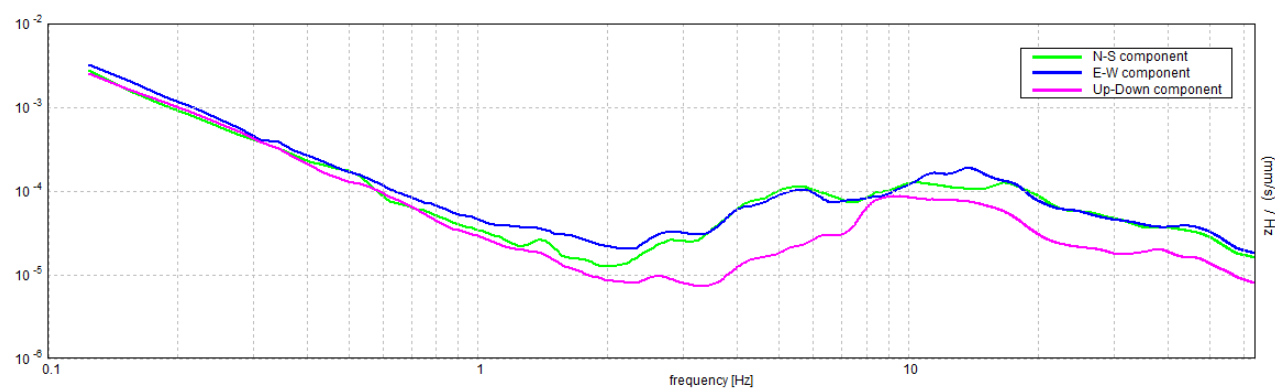
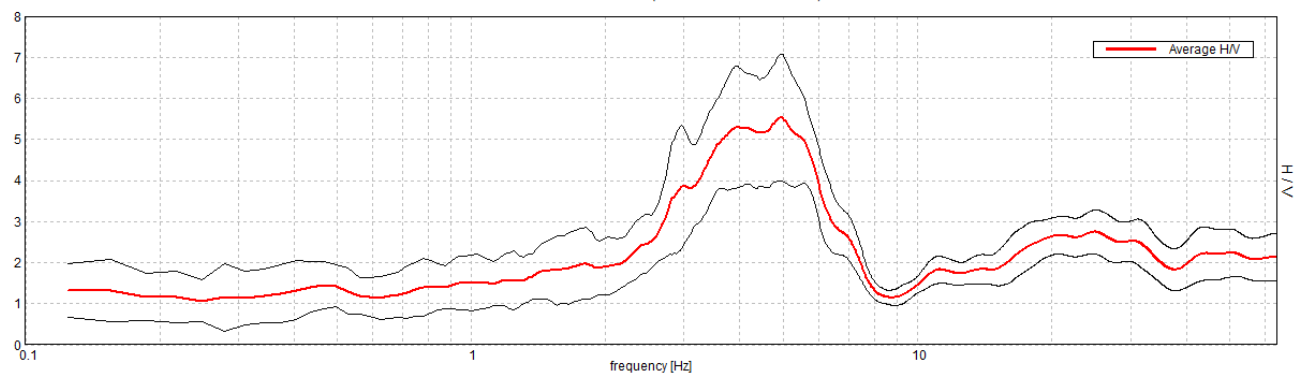
1. ALLEGATI

- **ALLEGATO n. 1 : Stazione microtremore a stazione singola (HVSR)**
- **ALLEGATO n. 2 : MASW**
- **ALLEGATO n. 3 : Prove REfraction Microtremors (REMI)**
- **ALLEGATO n. 4 : Trincee esplorative**
- **ALLEGATO n. 5 : Prove penetrometriche statiche a punta meccanica**
- **ALLEGATO n. 6 : Prove penetrometriche dinamiche leggere**
- **ALLEGATO n. 7 : Pozzi per acqua**

- **ALLEGATO n. 1 : Stazione microtremore a stazione singola (HVSR)**

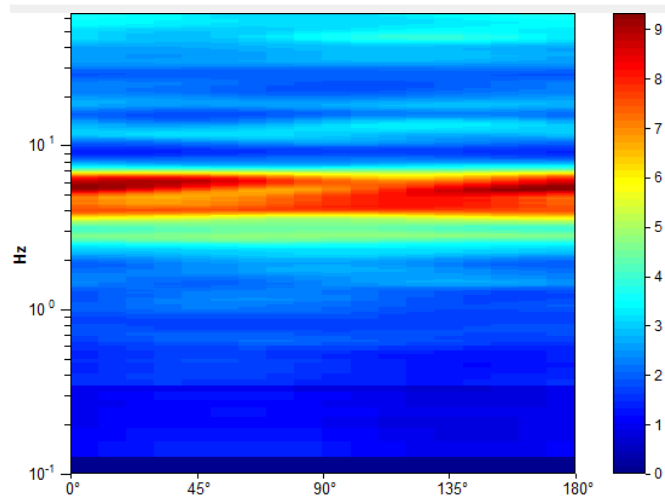
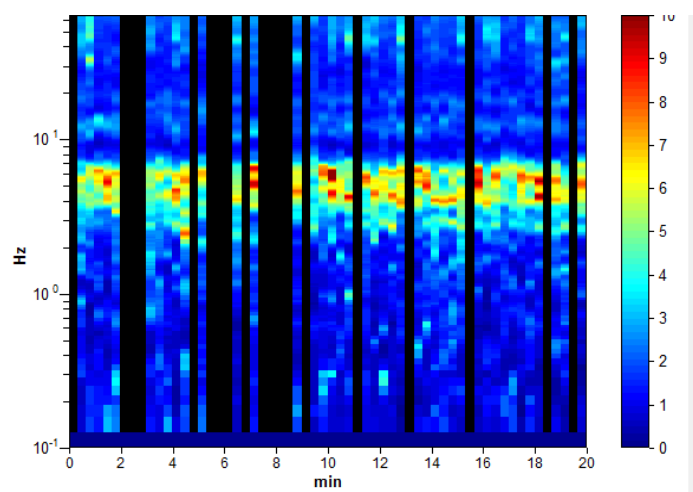
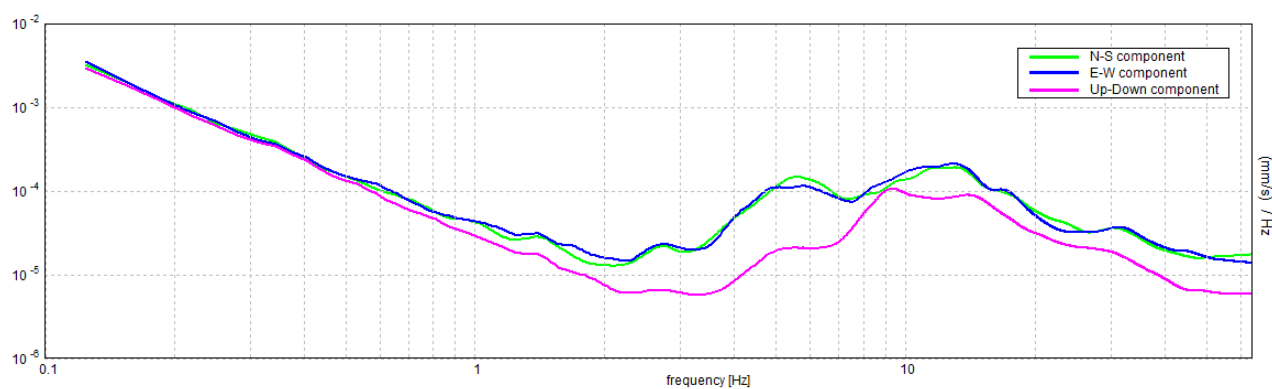
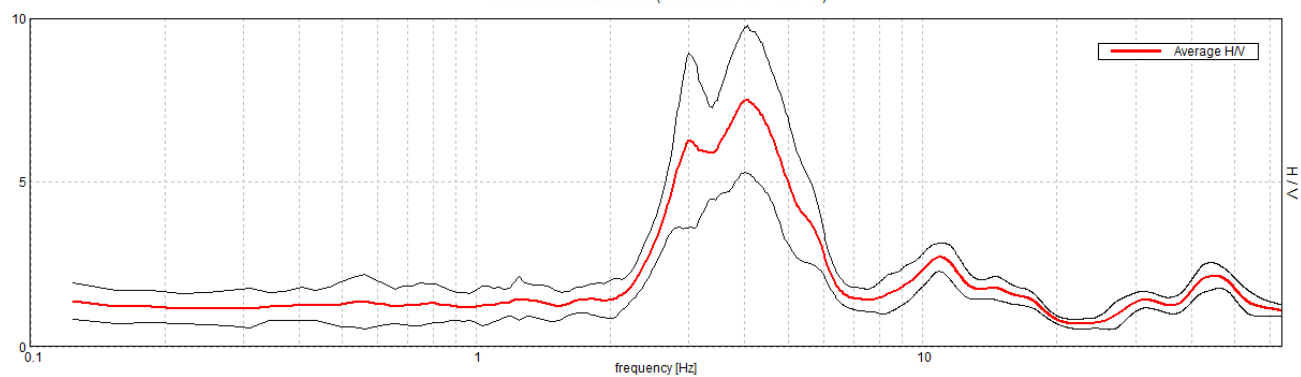
HVSR 1

Picco H/V a 4.94 ± 0.63 Hz (nell'intervallo 0.0 - 64.0 Hz).

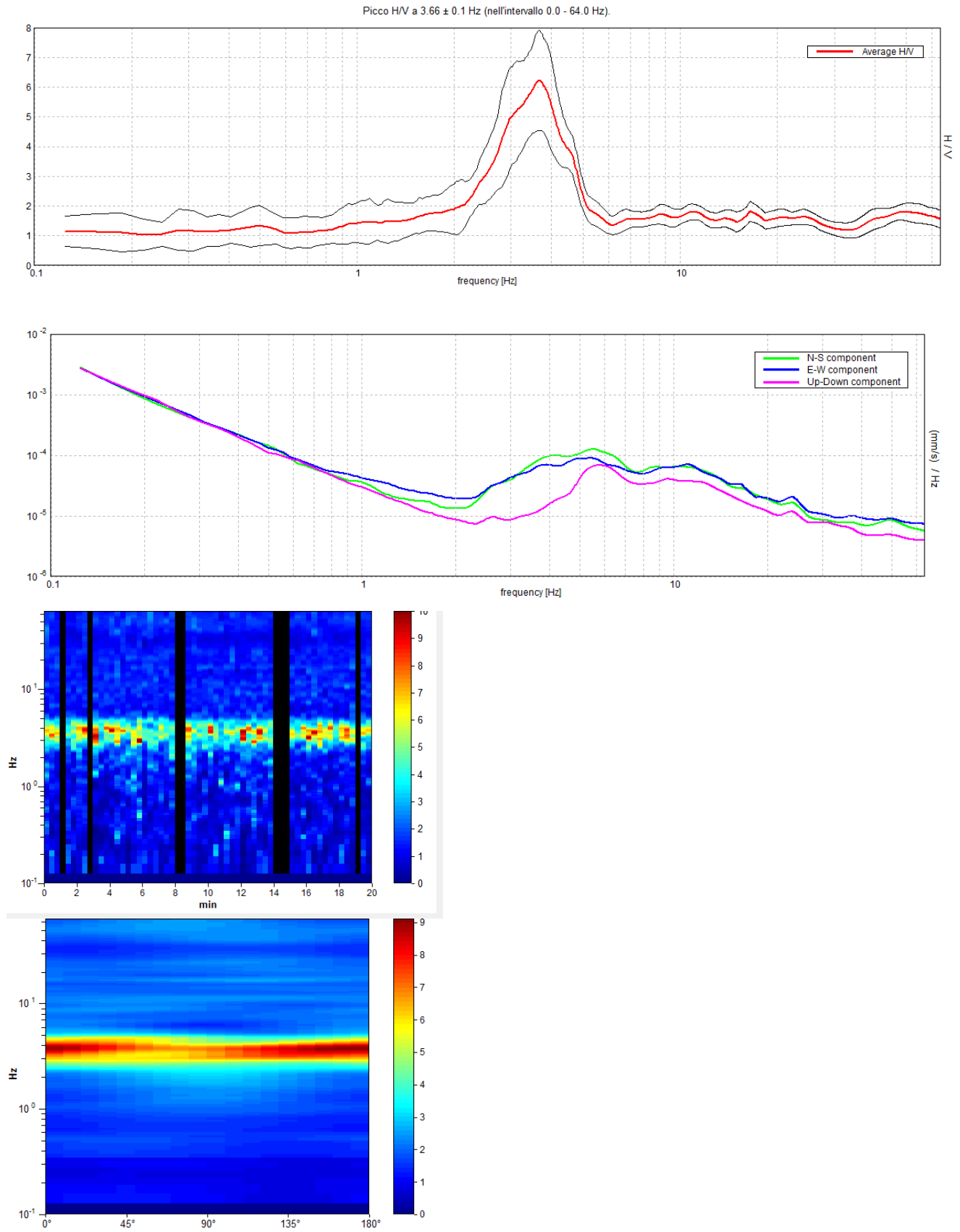


HVSR 2

Picco H/V a 4.06 ± 0.19 Hz (nell'intervallo 0.0 - 64.0 Hz).

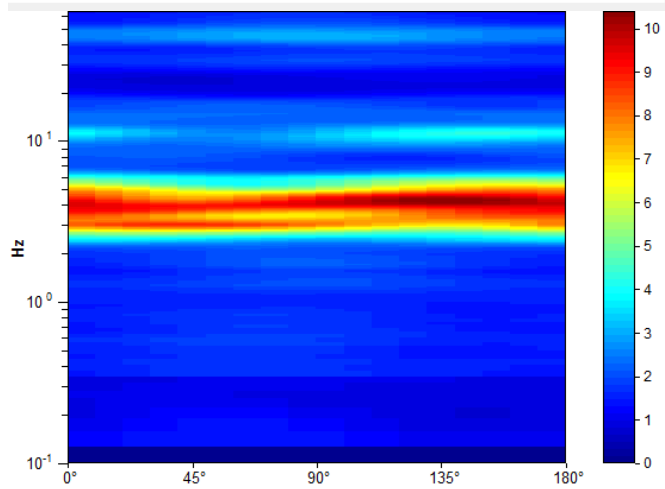
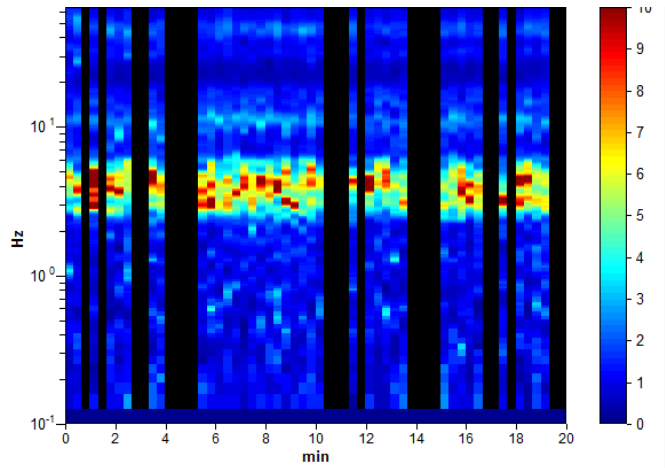
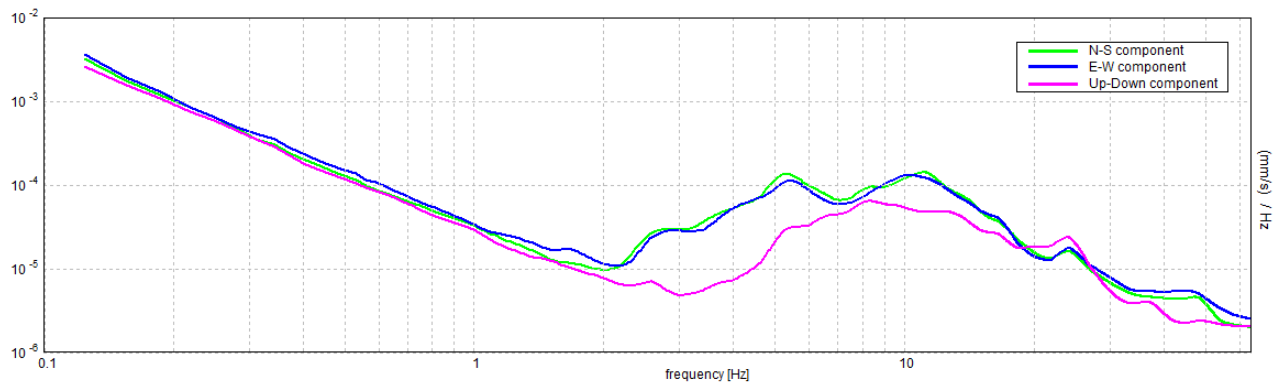
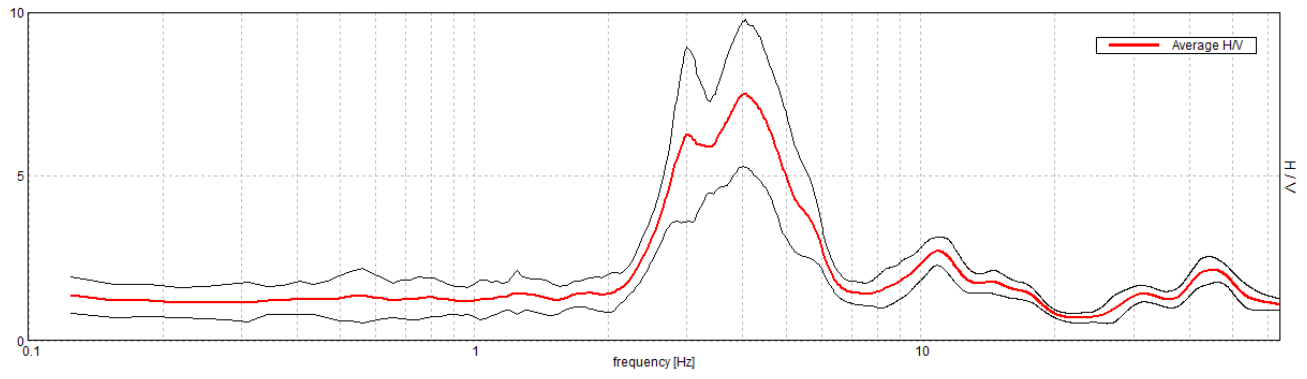


HVSR 3



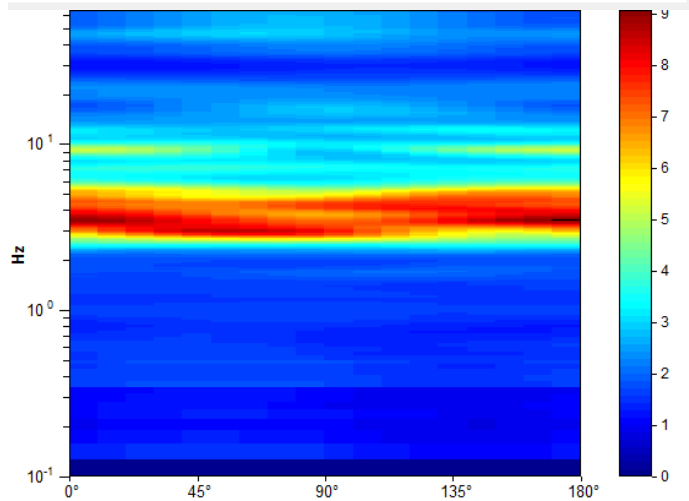
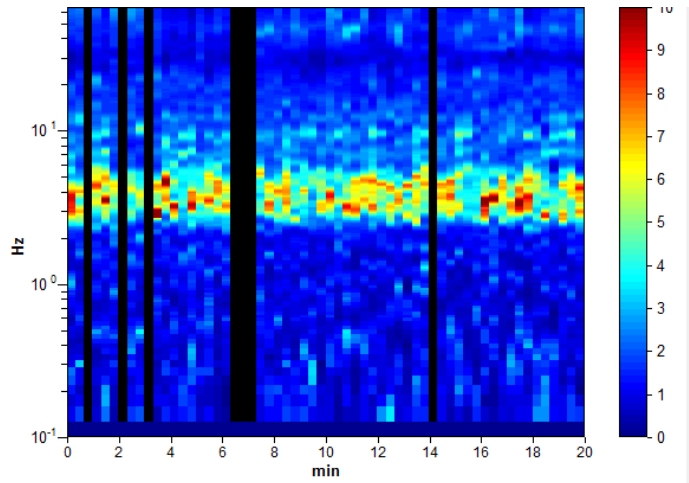
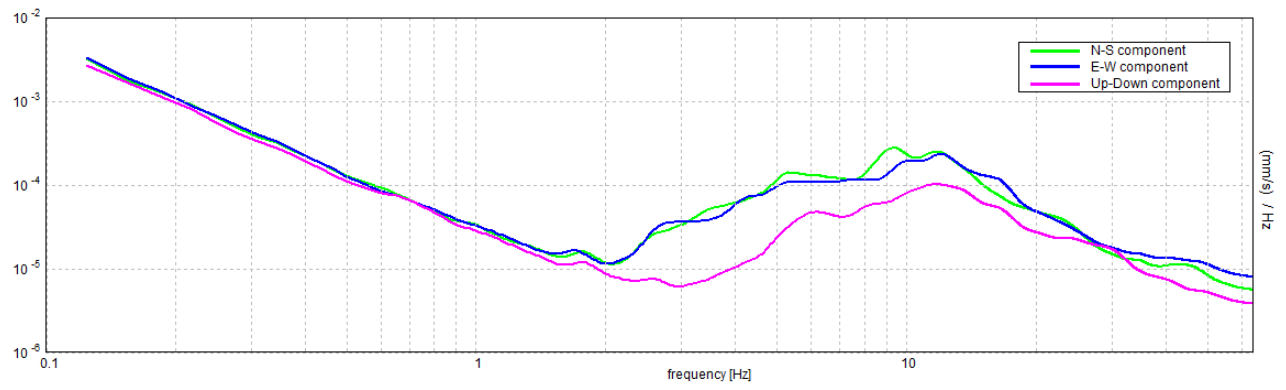
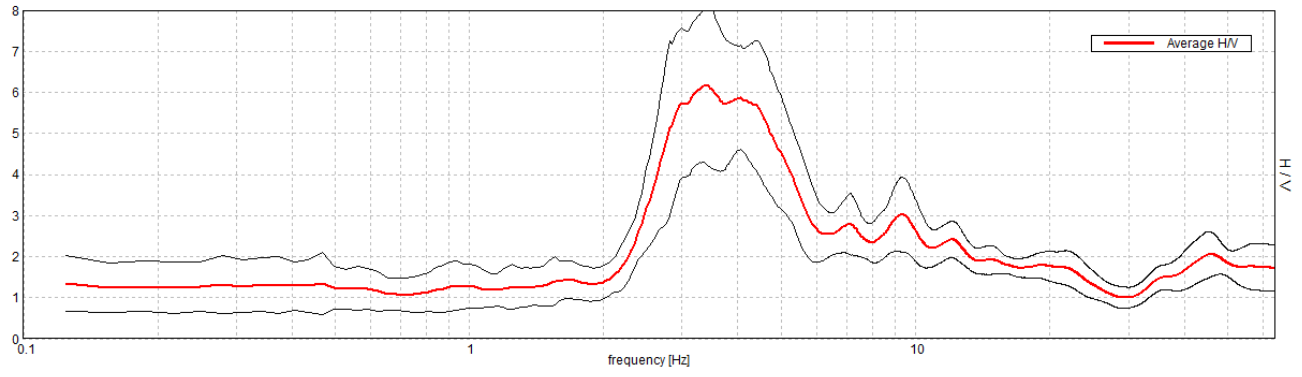
HVSR 4

Picco H/V a 4.06 ± 0.19 Hz (nell'intervallo 0.0 - 64.0 Hz).



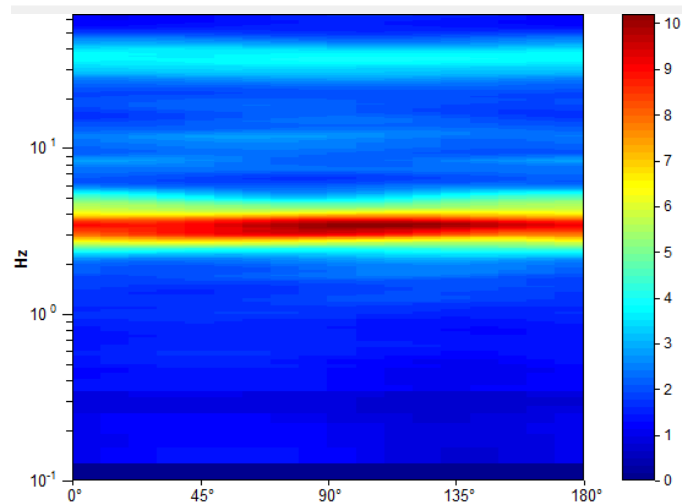
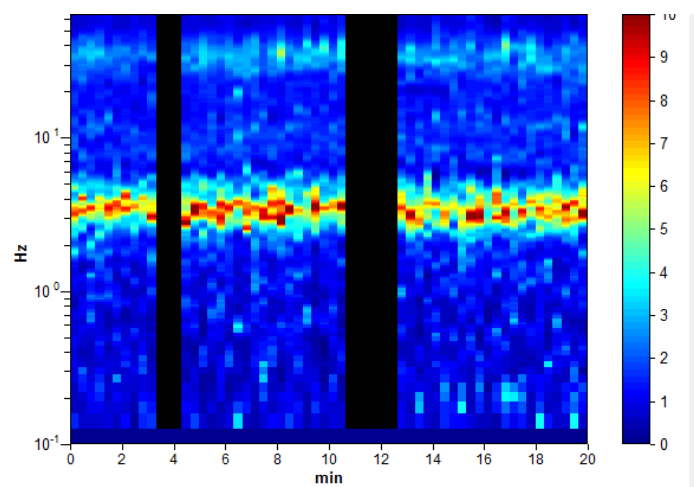
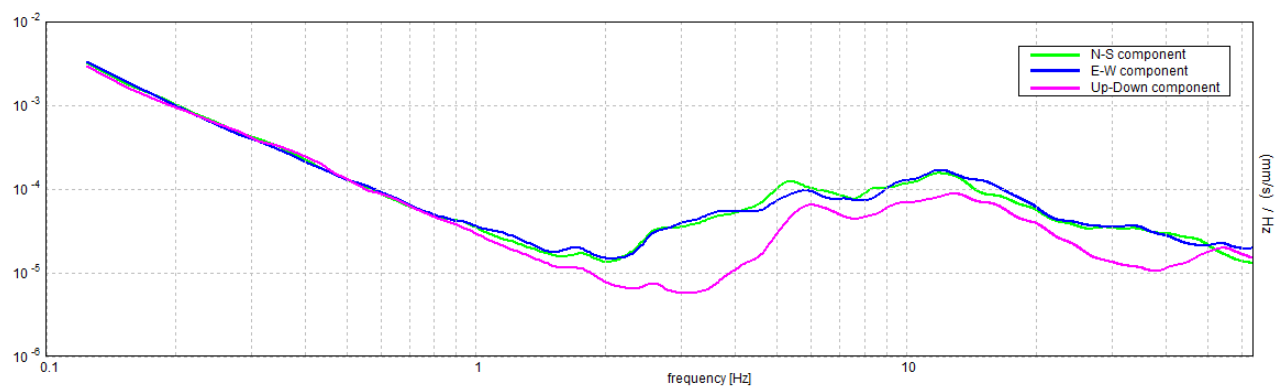
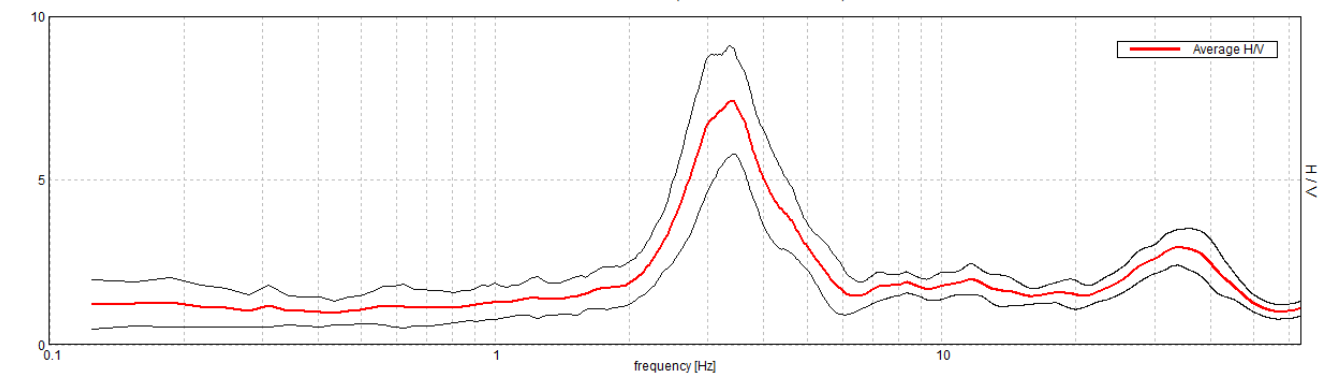
HVSR 5

Picco H/V a 3.41 ± 0.3 Hz (nell'intervallo 0.0 - 64.0 Hz).



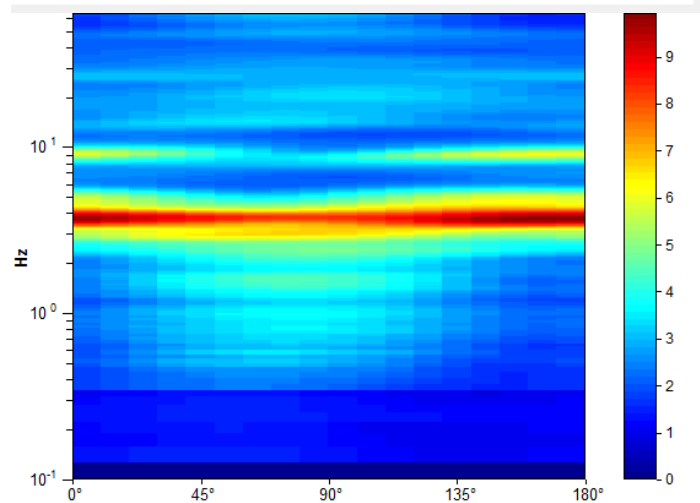
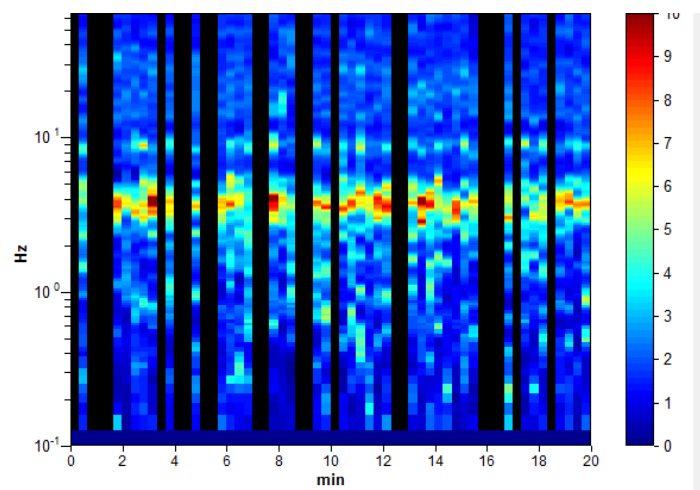
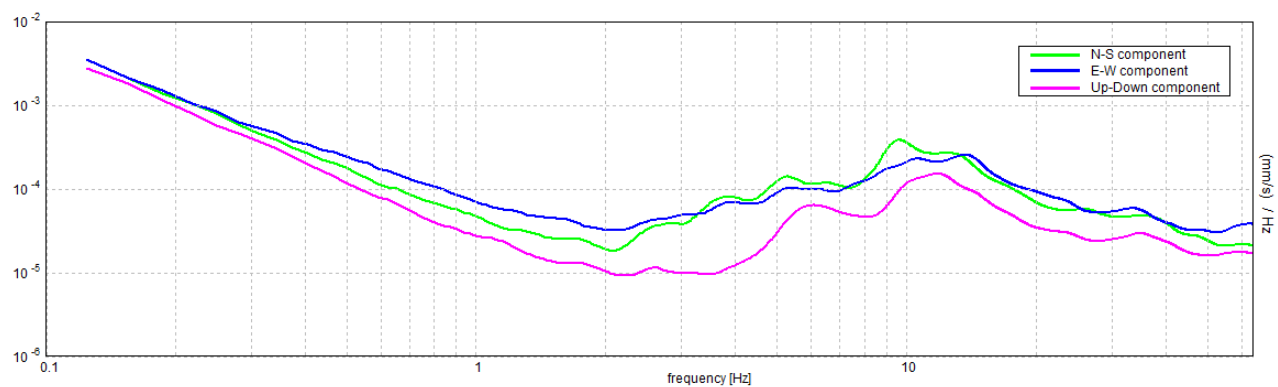
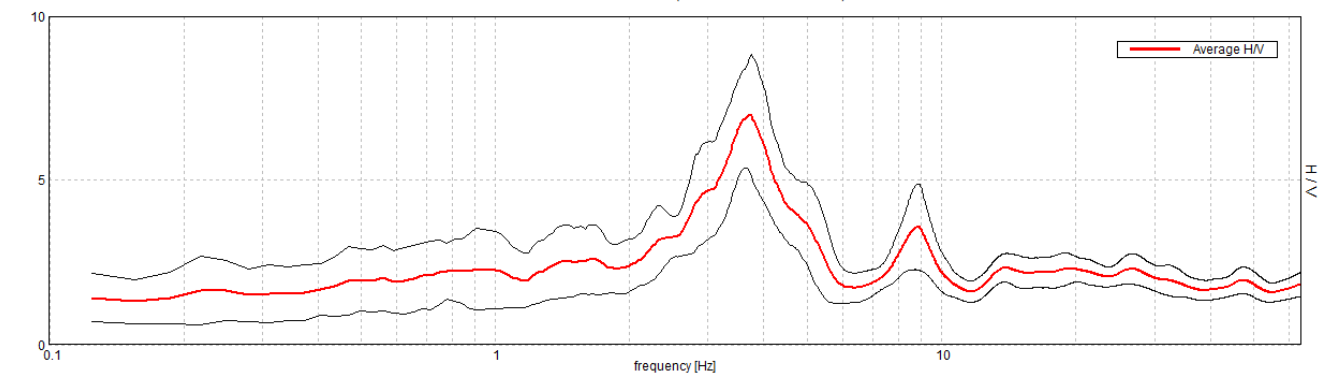
HVSR 6

Picco H/V a 3.41 ± 0.05 Hz (nell'intervallo 0.0 - 64.0 Hz).

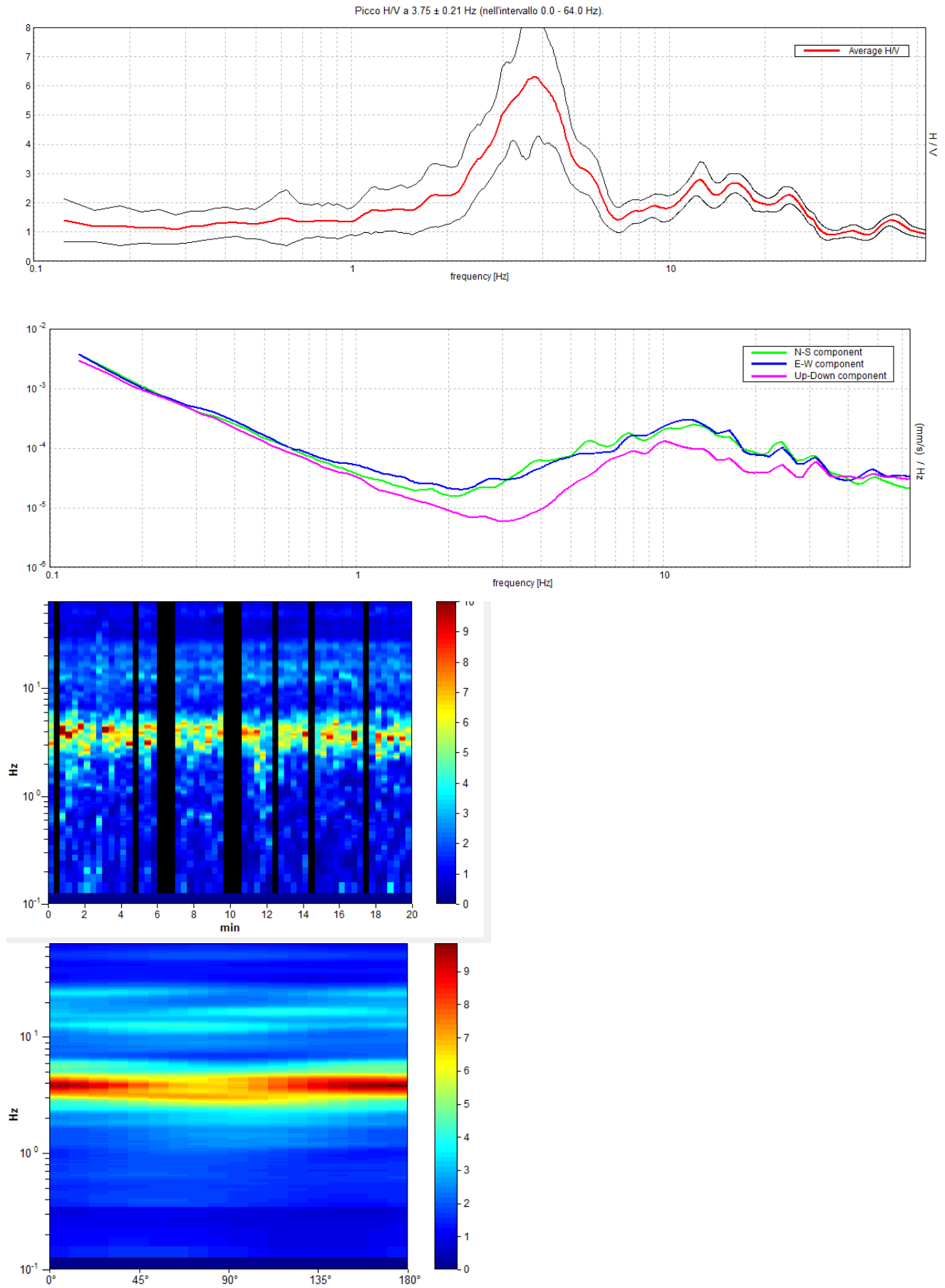


HVSR 7

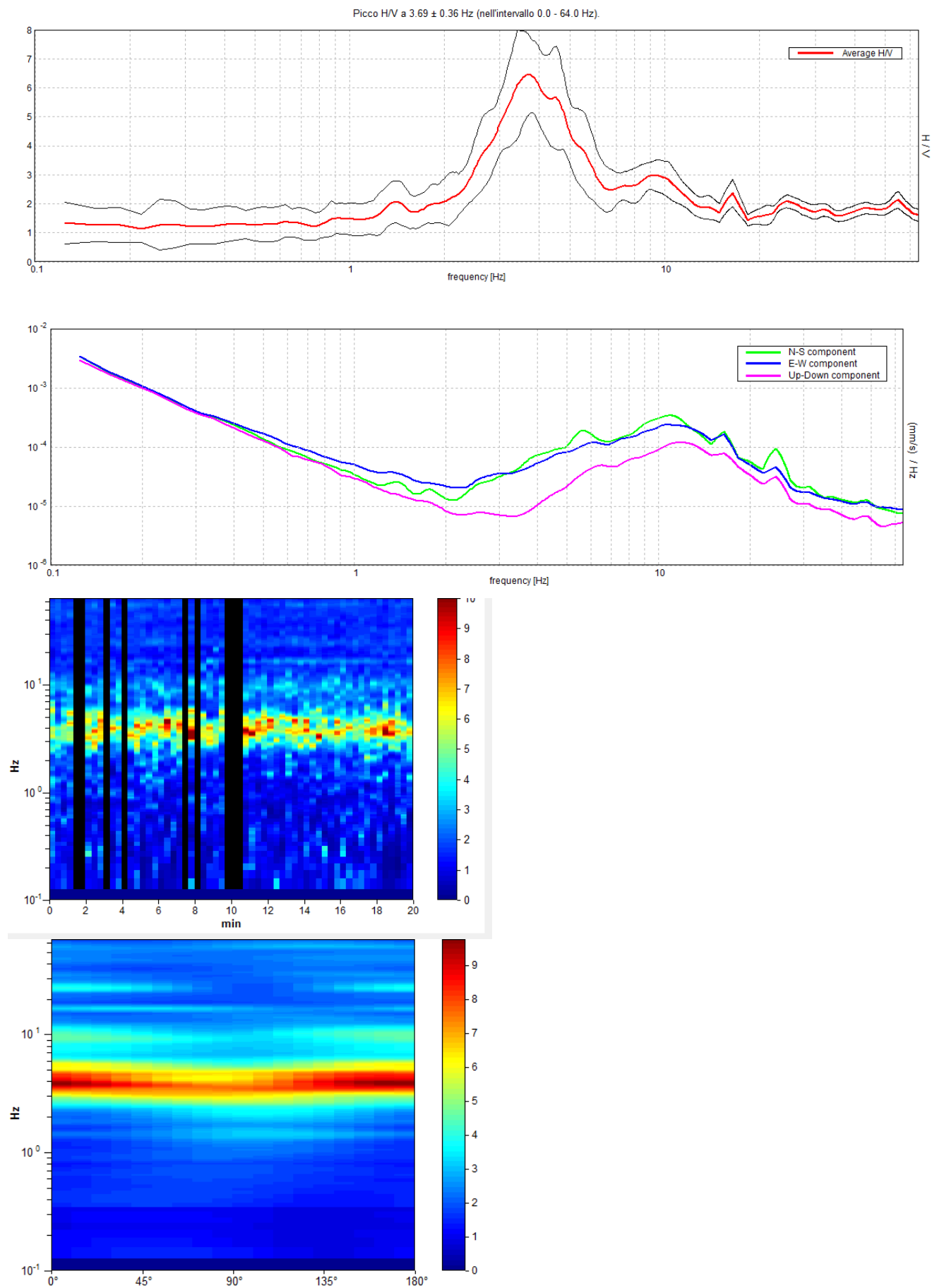
Picco H/V a 3.72 ± 0.15 Hz (nell'intervallo 0.0 - 64.0 Hz).



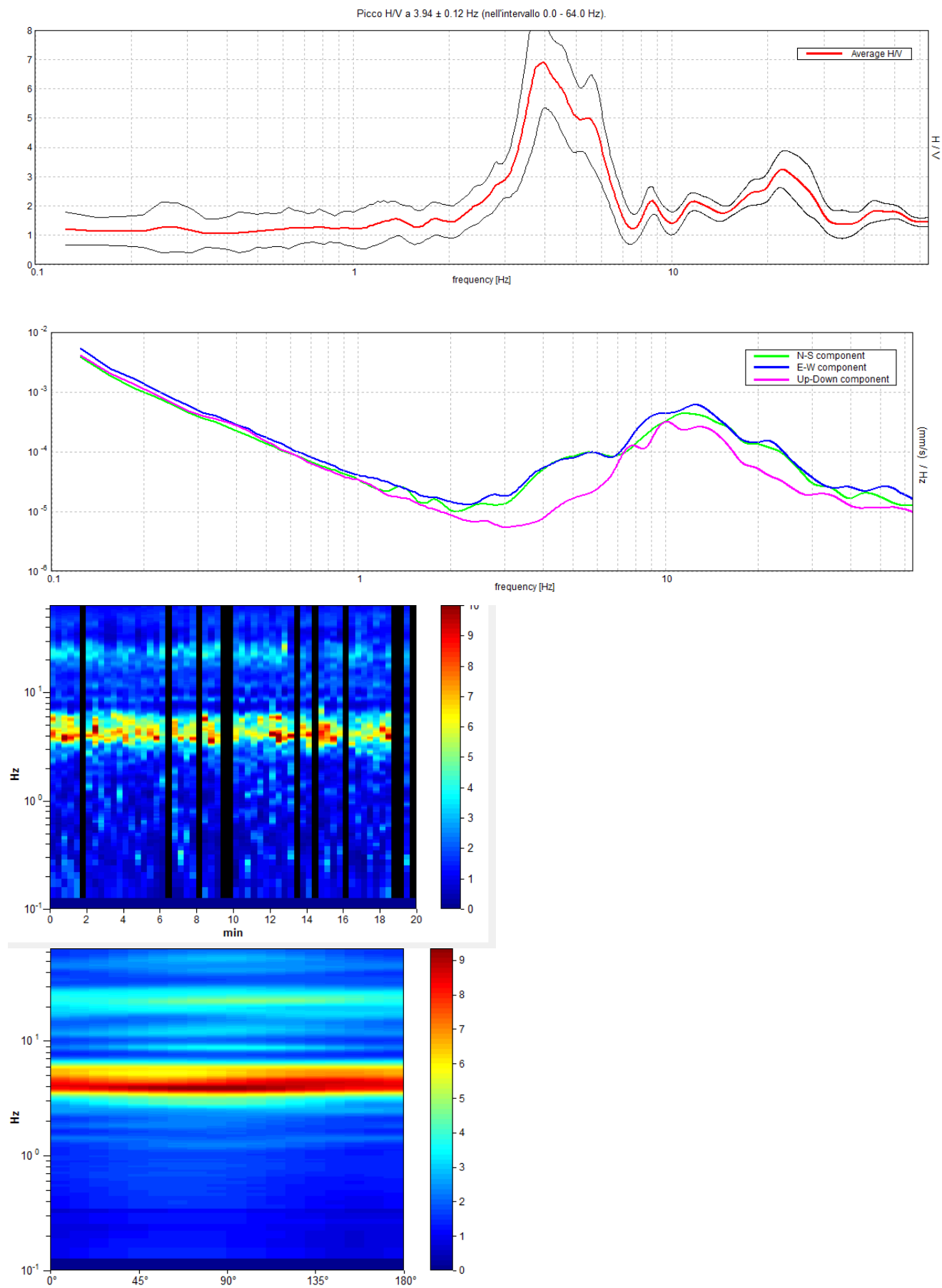
HVSR 8



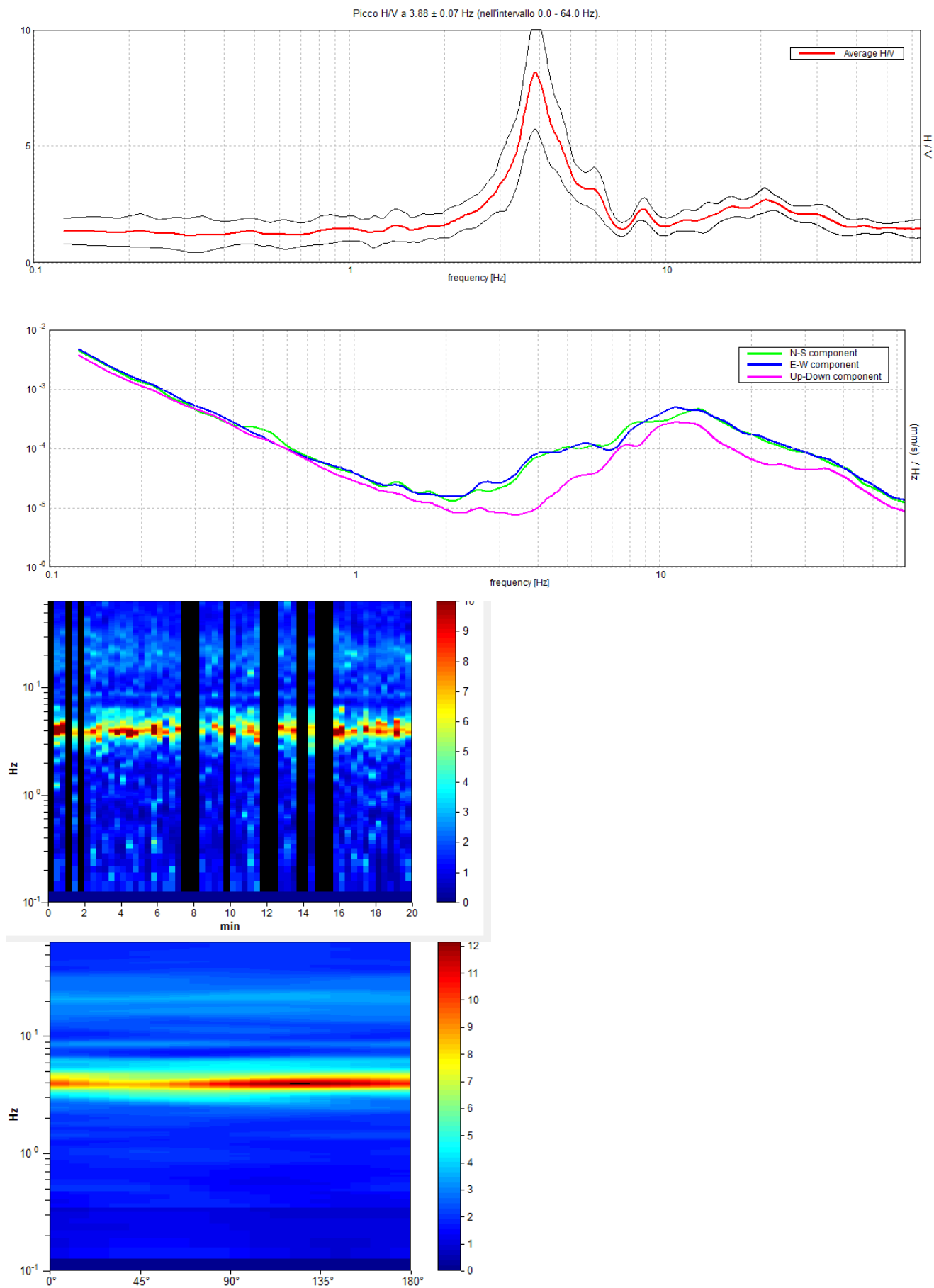
HVSR 9



HVSR 10

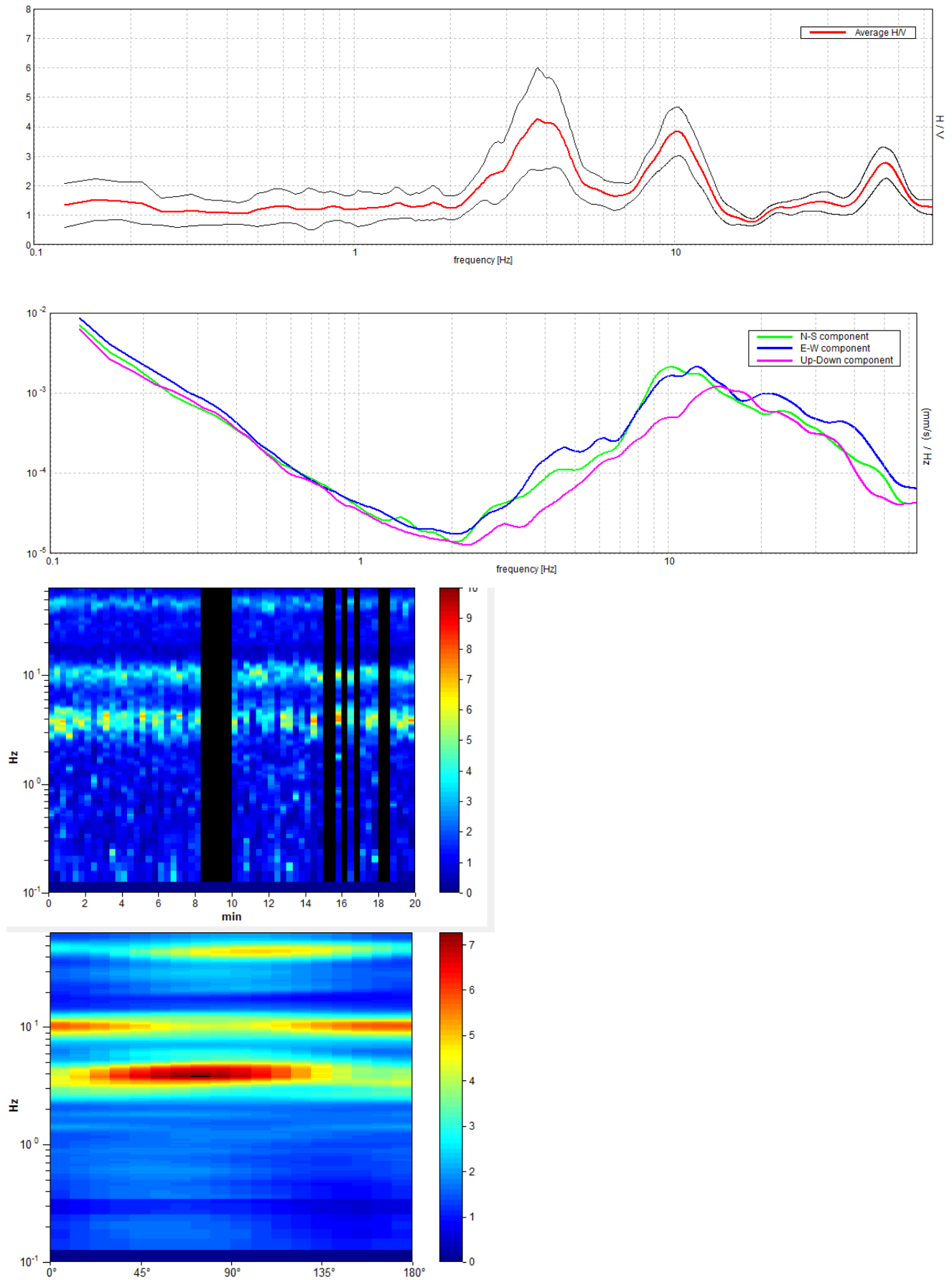


HVSR 11

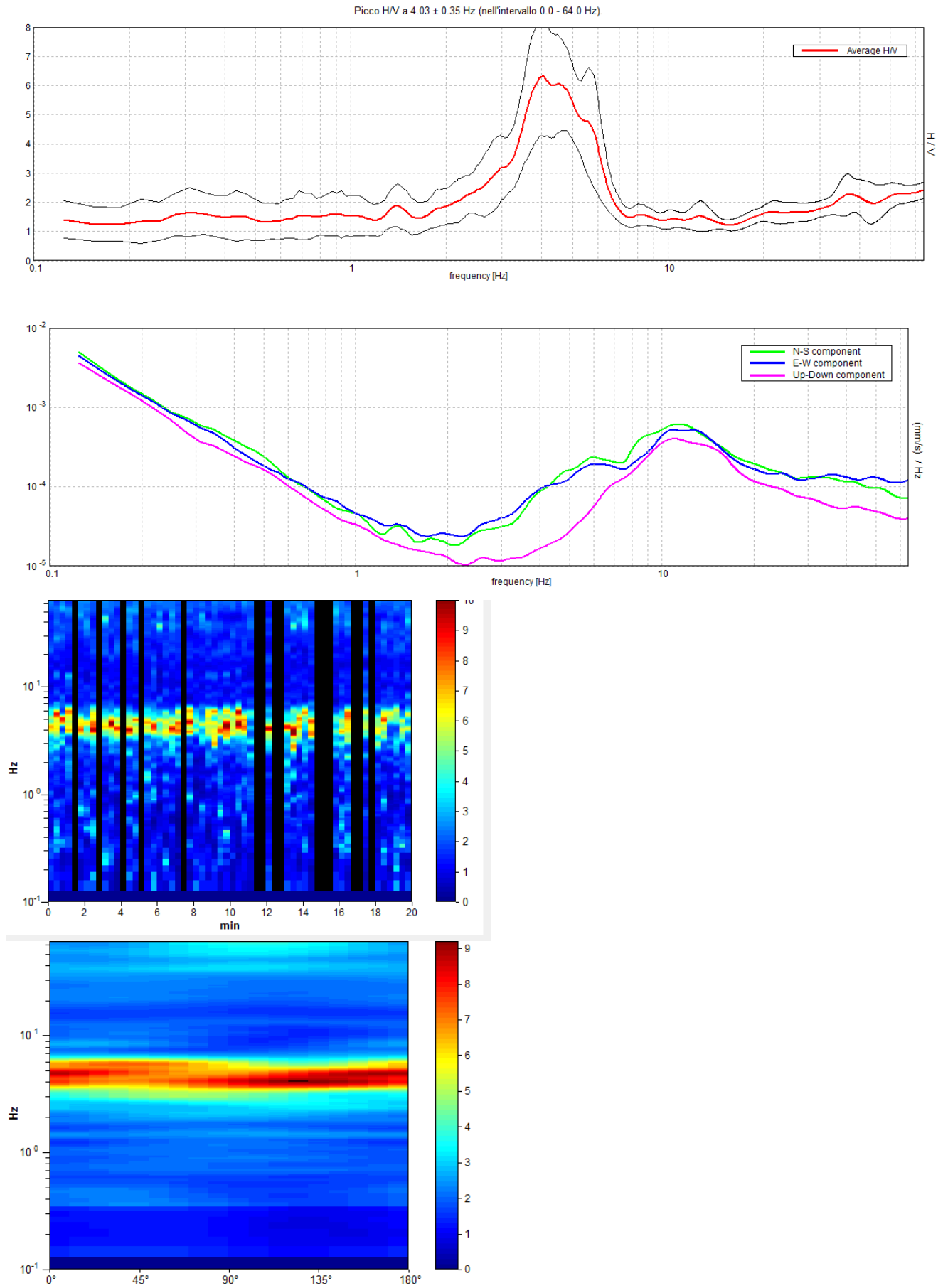


HVSR 12

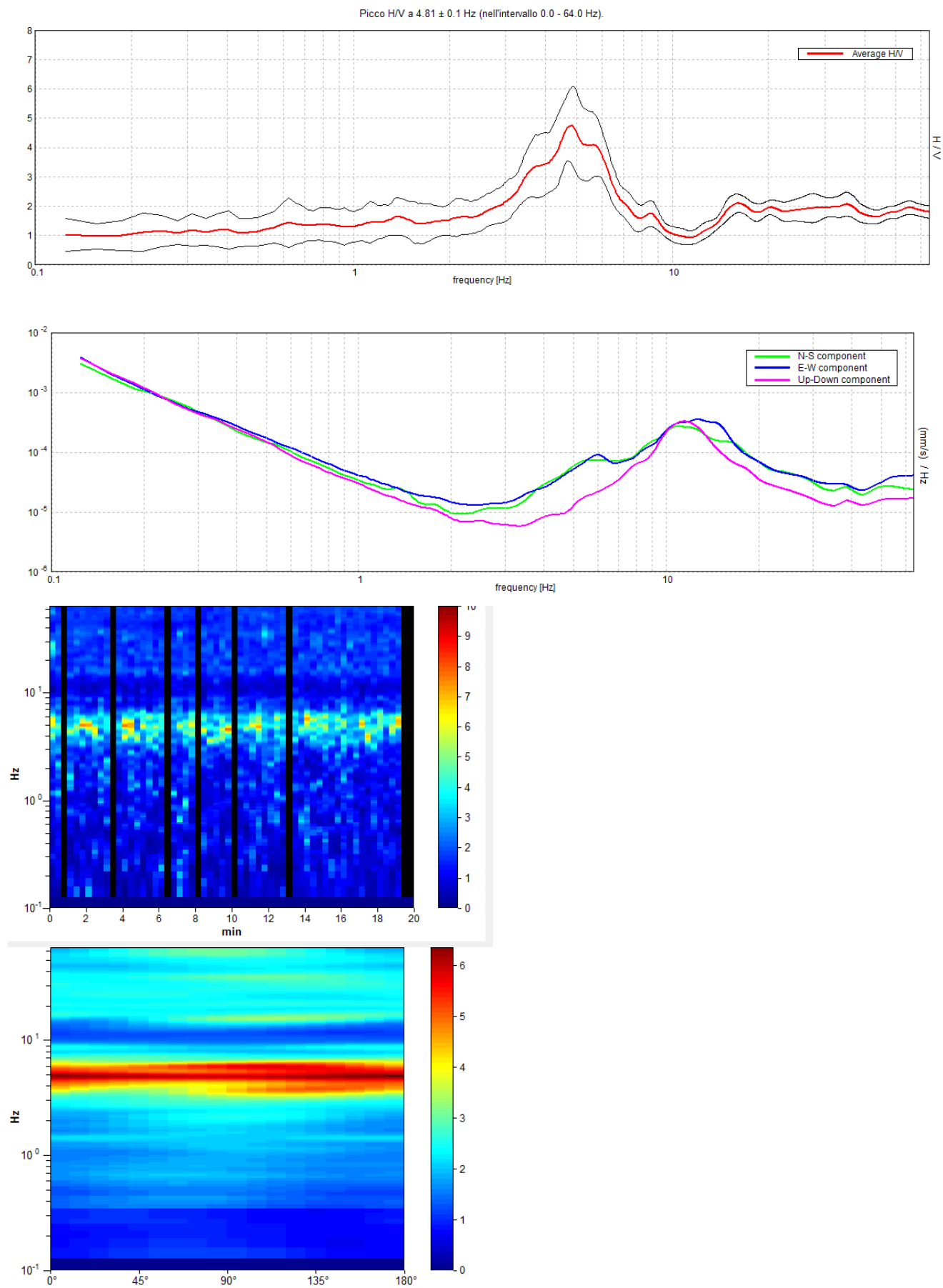
Picco H/V a 3.75 ± 0.06 Hz (nell'intervallo 0.0 - 64.0 Hz).



HVSR 13

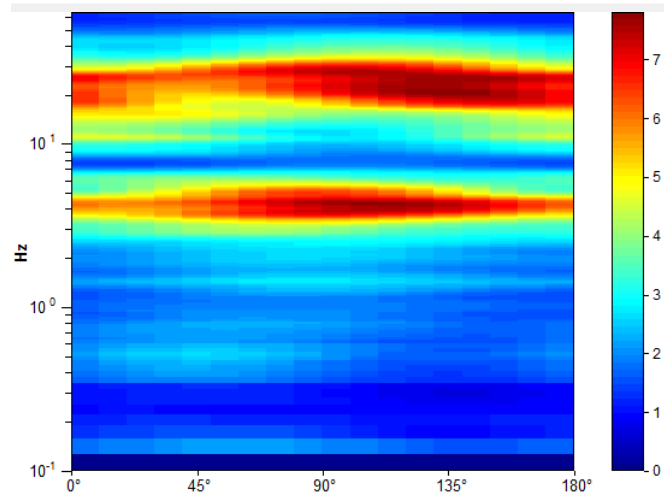
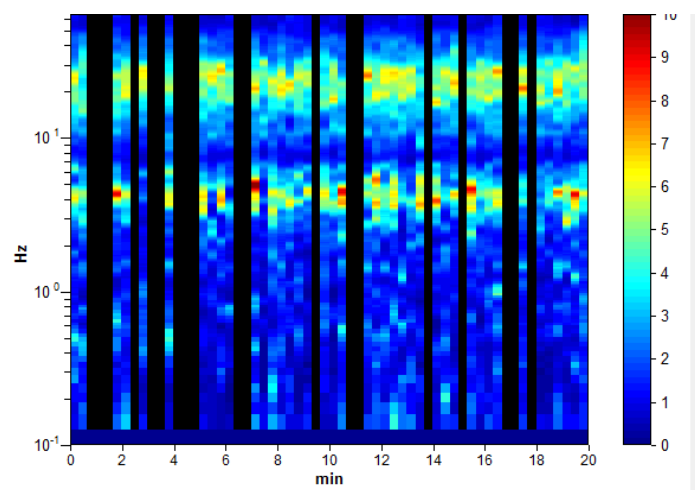
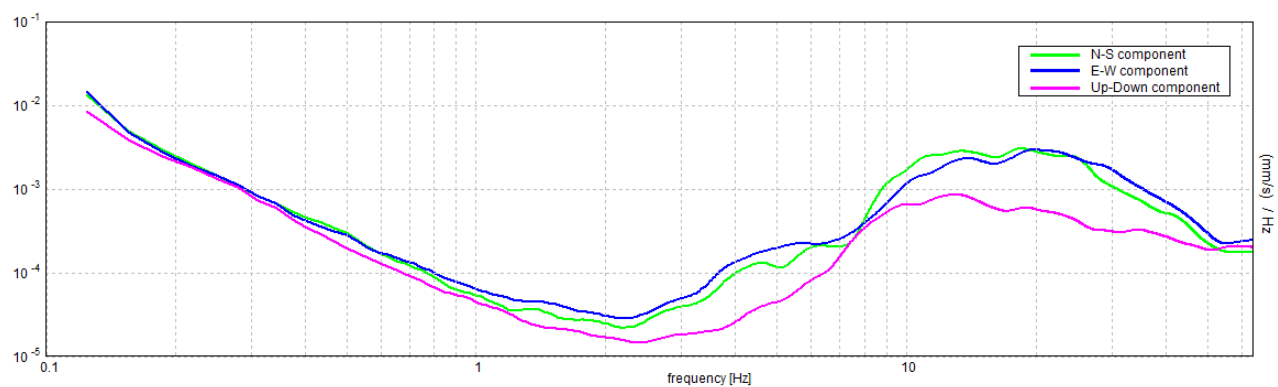
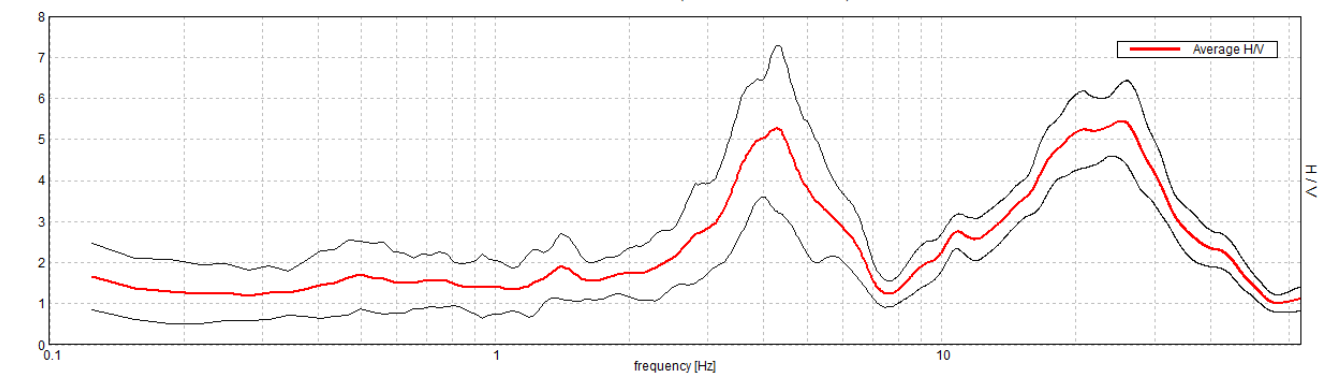


HVSR 14

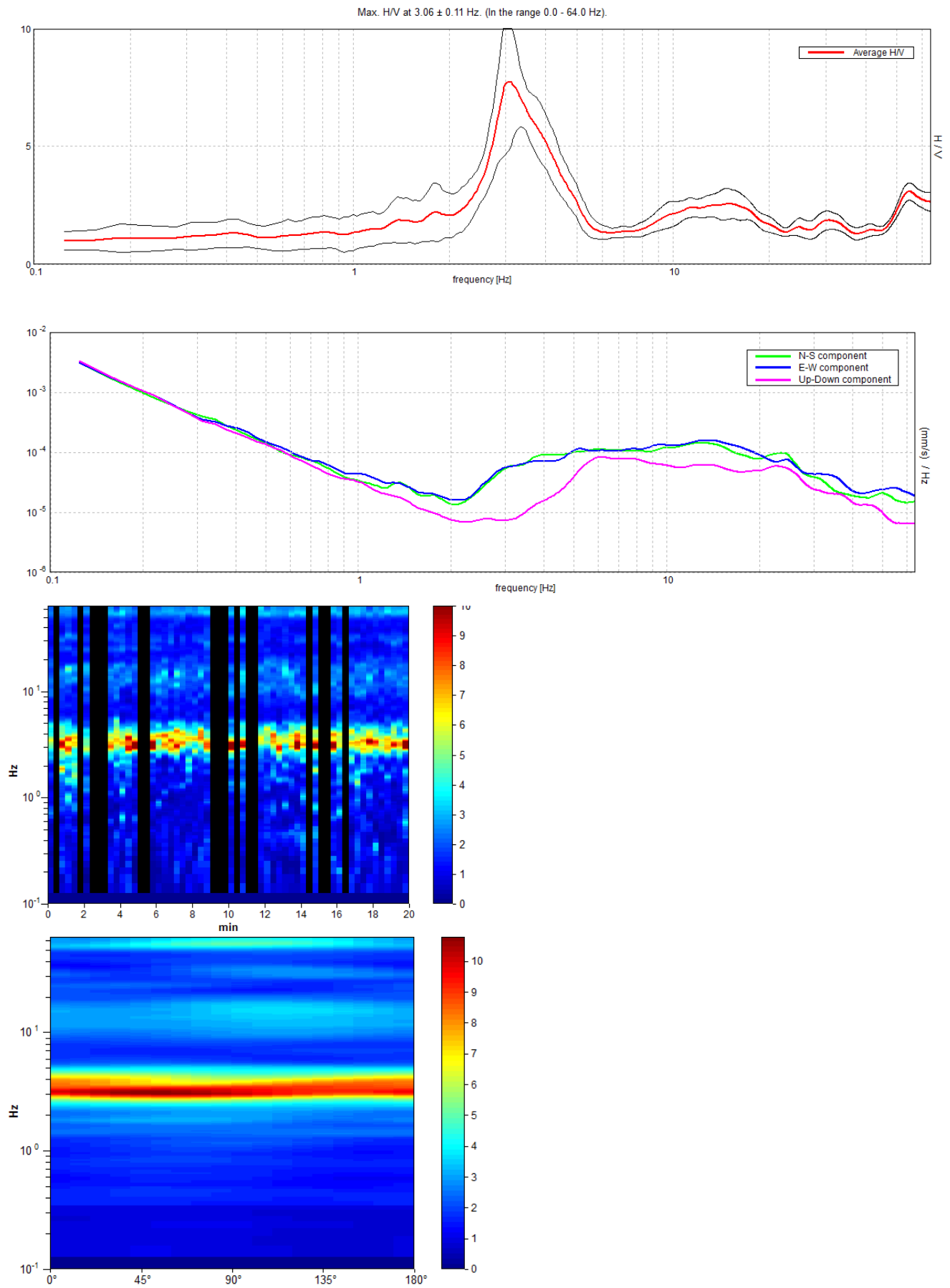


HVSR 15

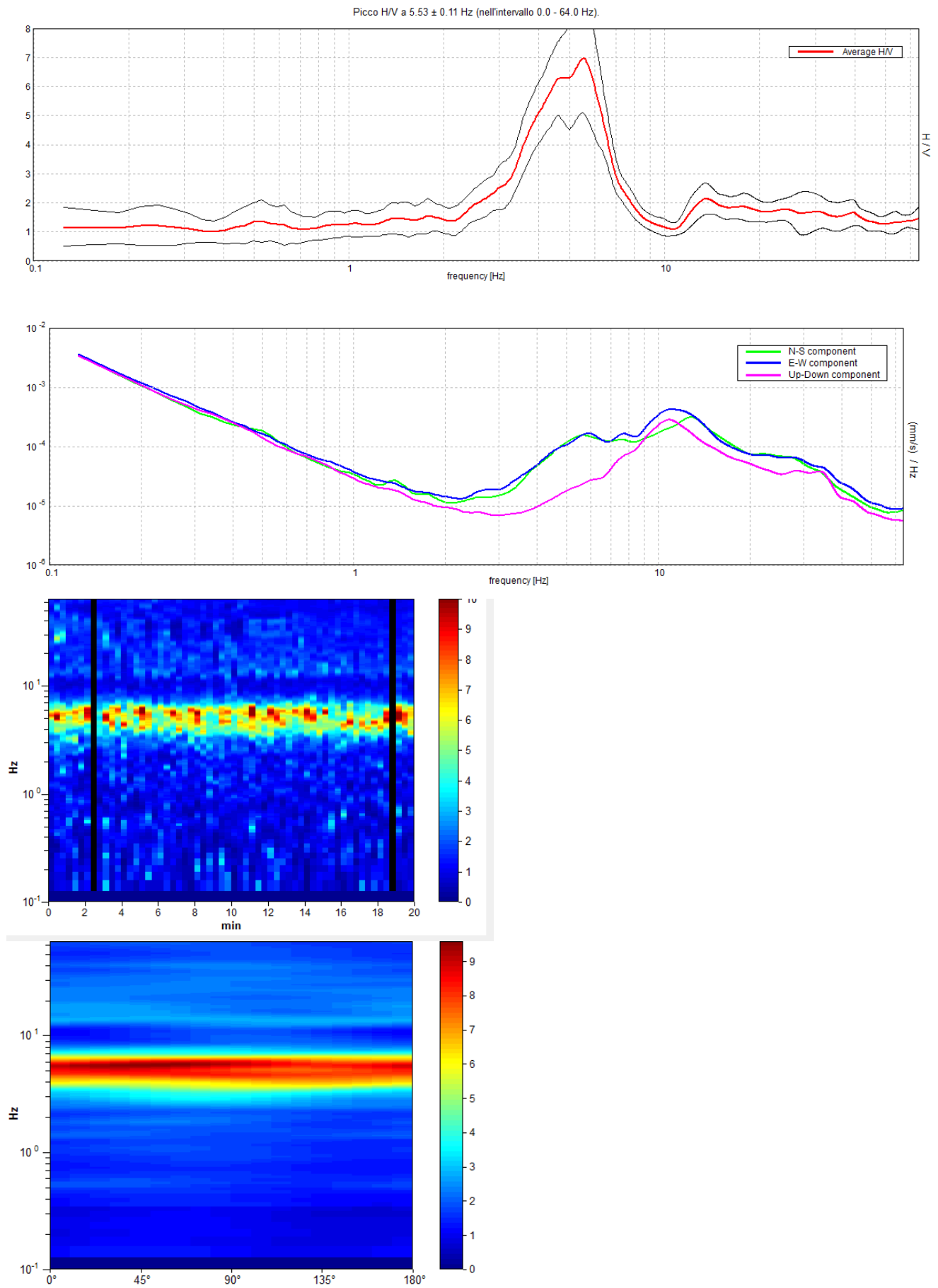
Picco H/V a 25.31 ± 8.08 Hz (nell'intervallo 0.0 - 64.0 Hz).



HVSR 16

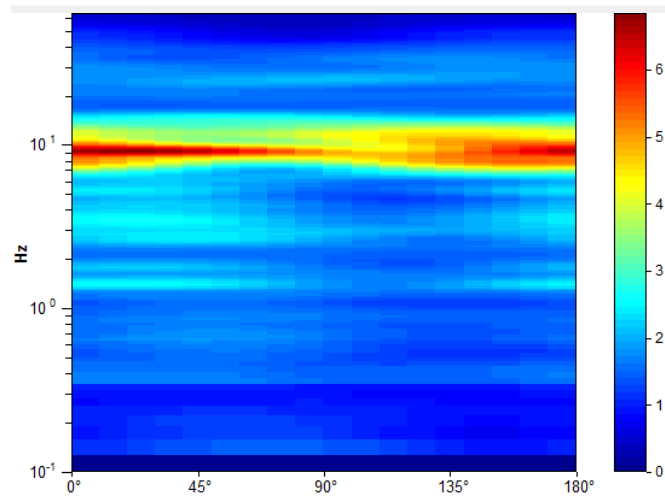
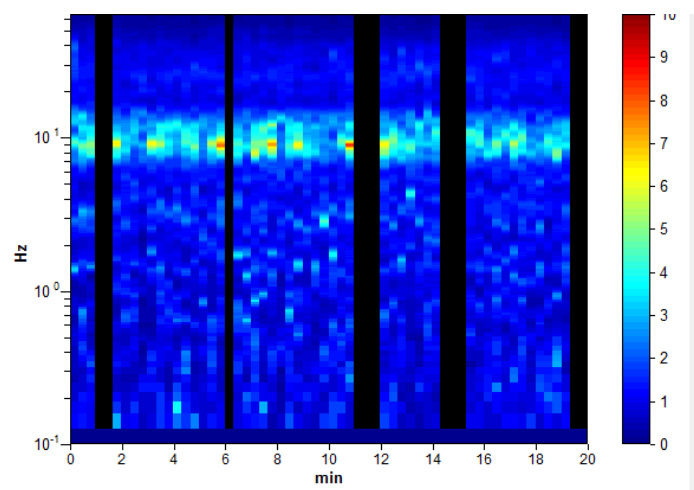
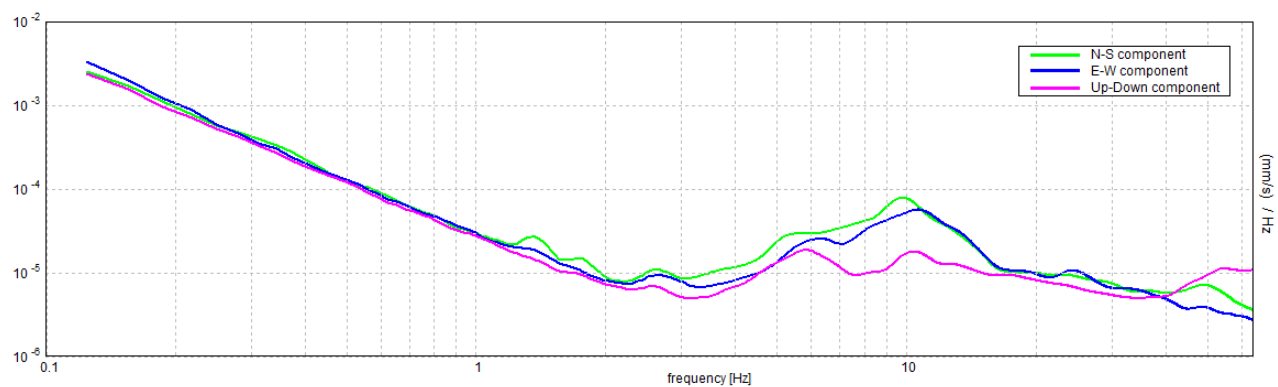
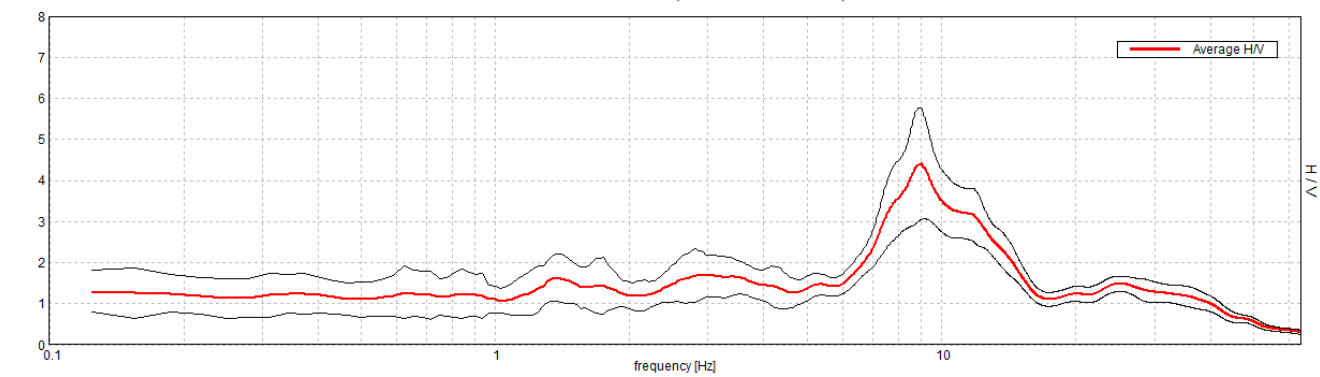


HVSR 17



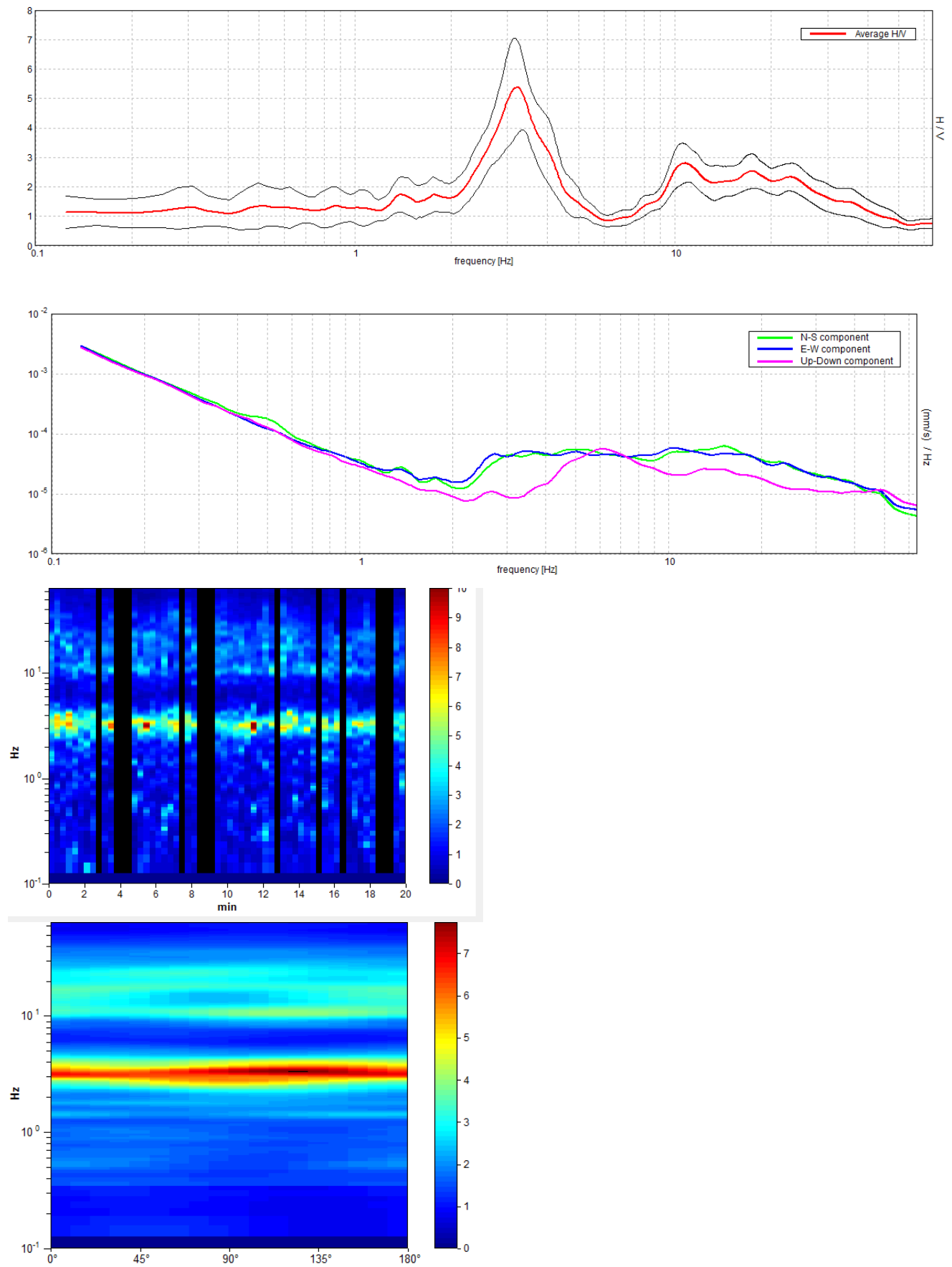
HVSR 18

Picco H/V a 8.97 ± 0.06 Hz (nell'intervallo 0.0 - 64.0 Hz).



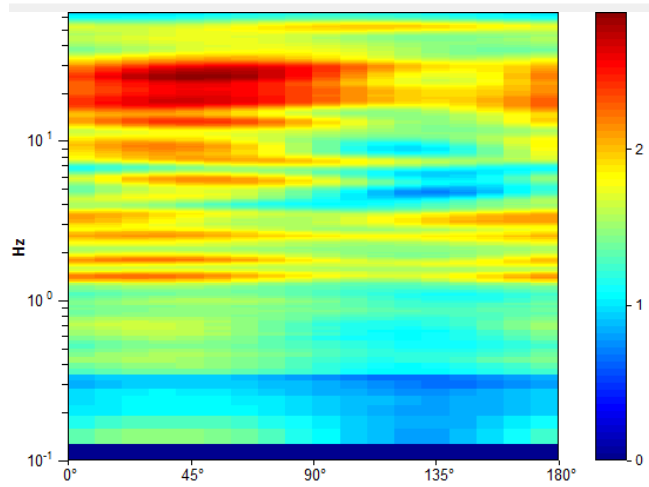
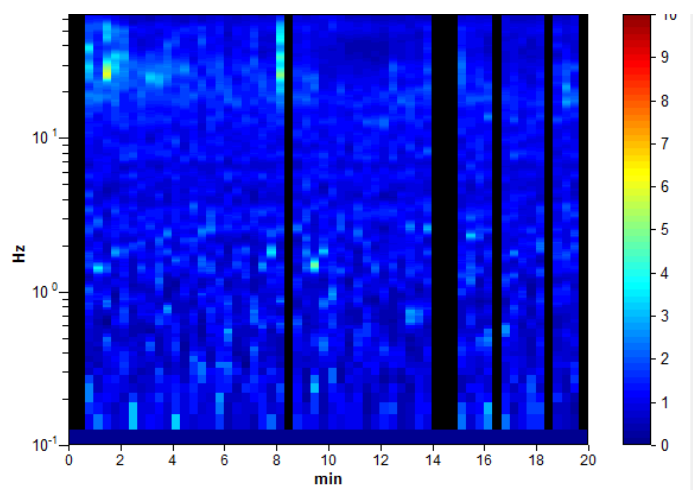
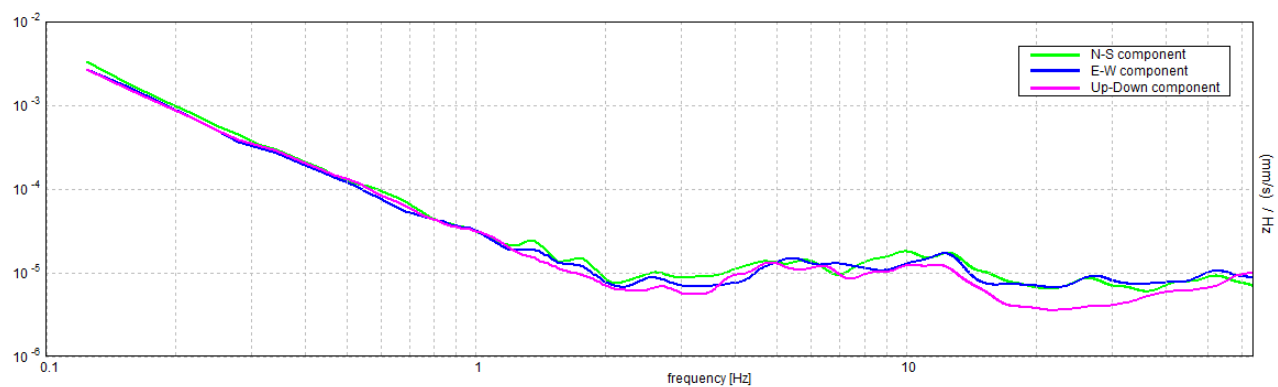
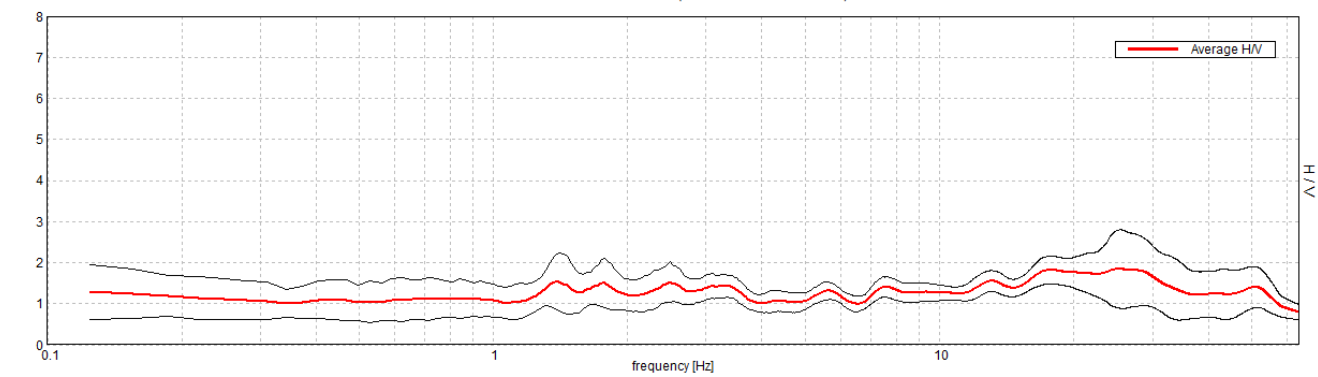
HVSR 19

Picco H/V a 3.22 ± 0.07 Hz (nell'intervallo 0.0 - 64.0 Hz).



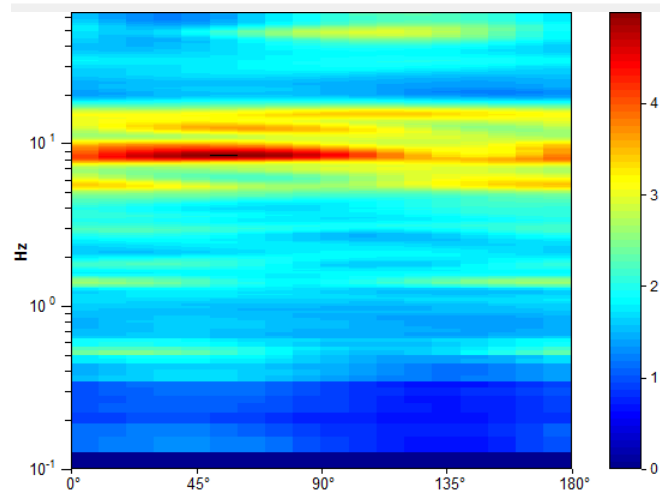
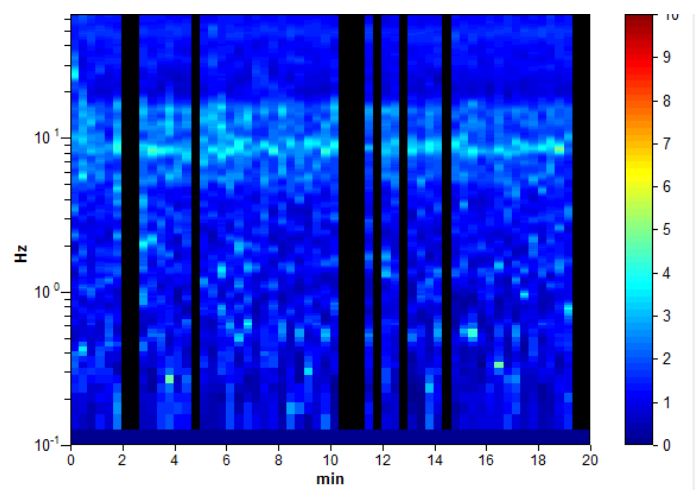
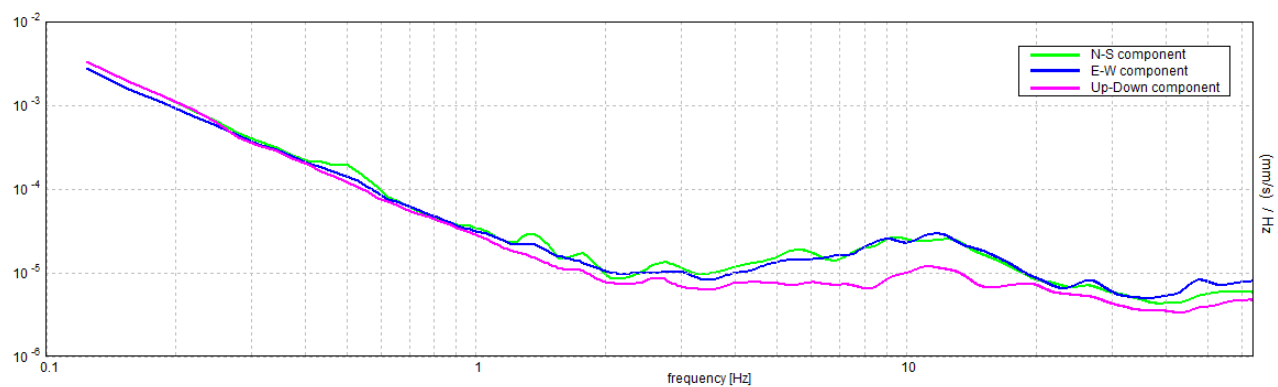
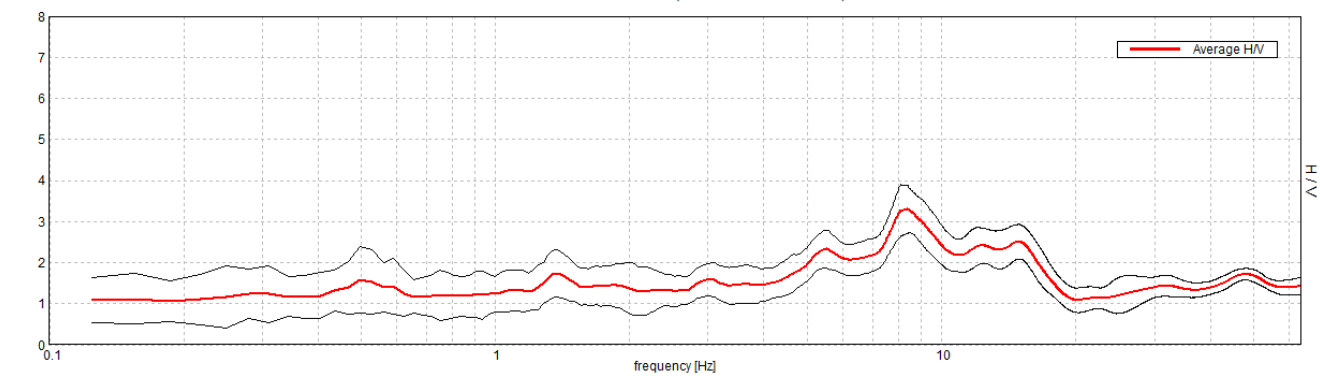
HVSR 20

Picco H/V a 25.31 ± 2.09 Hz (nell'intervallo 0.0 - 64.0 Hz).



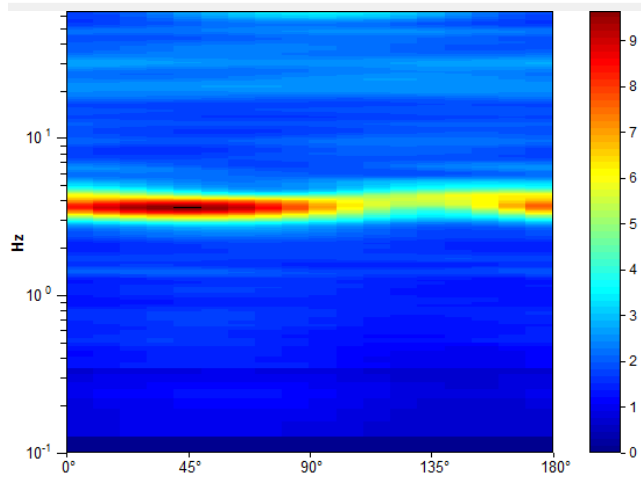
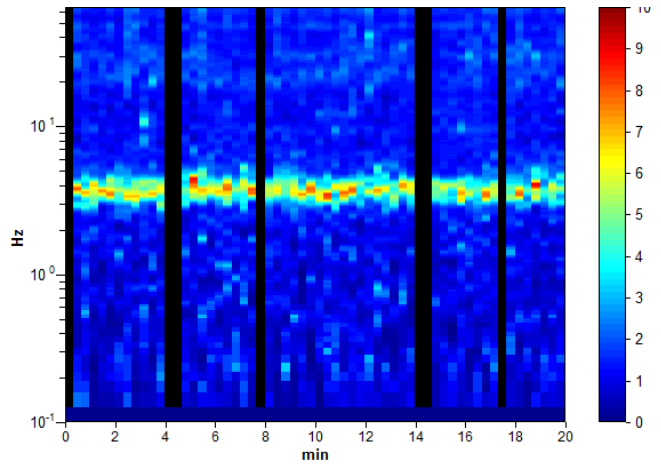
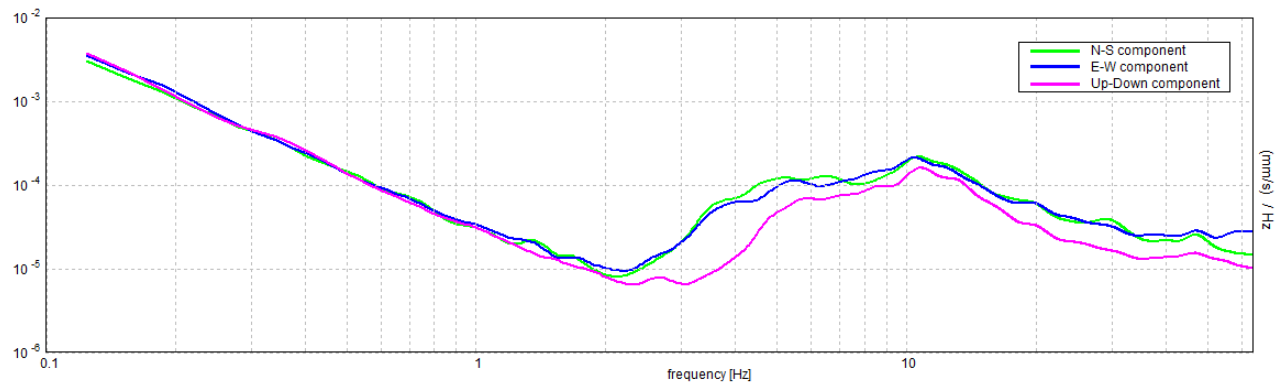
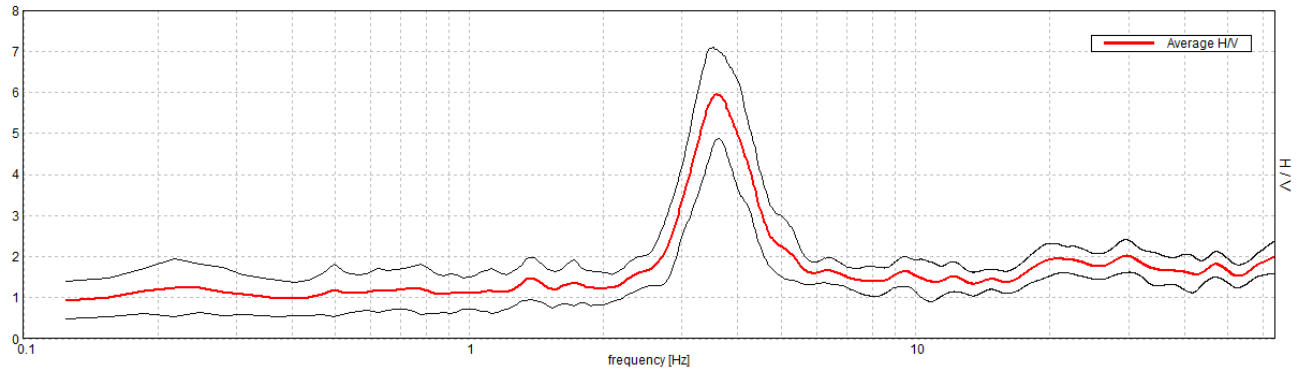
HVSR 21

Picco H/V a 8.34 ± 2.49 Hz (nell'intervallo 0.0 - 64.0 Hz).



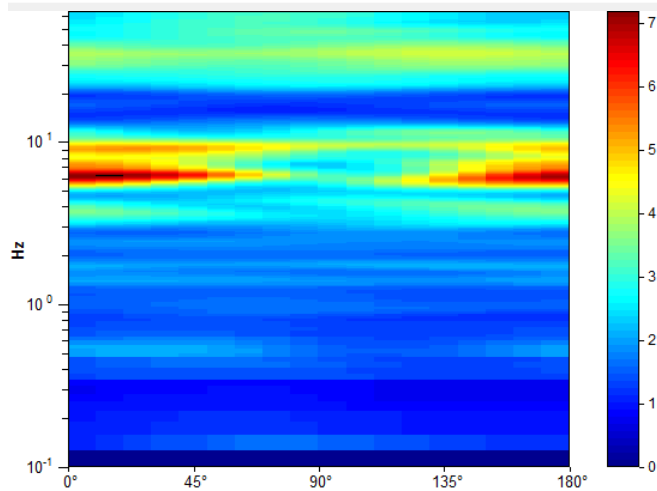
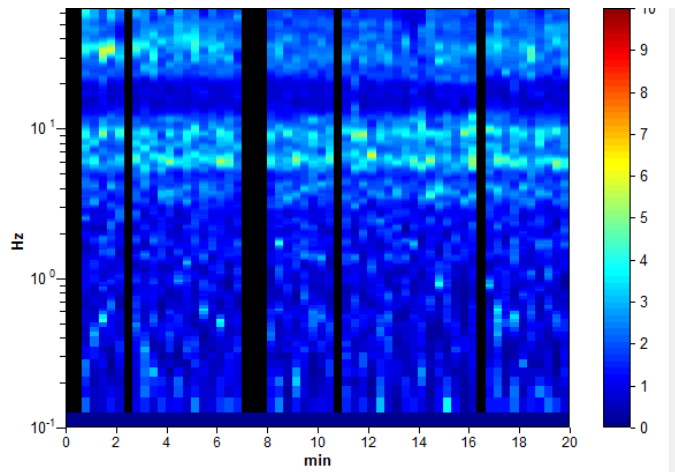
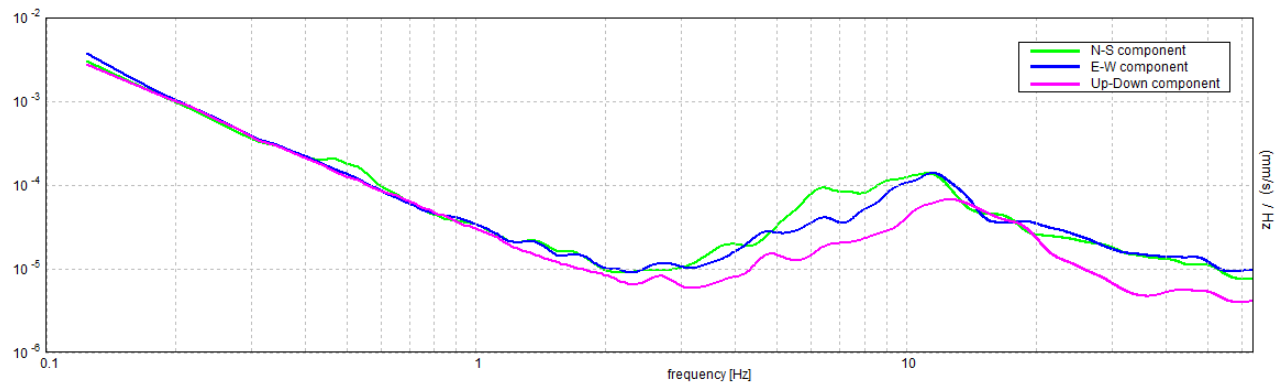
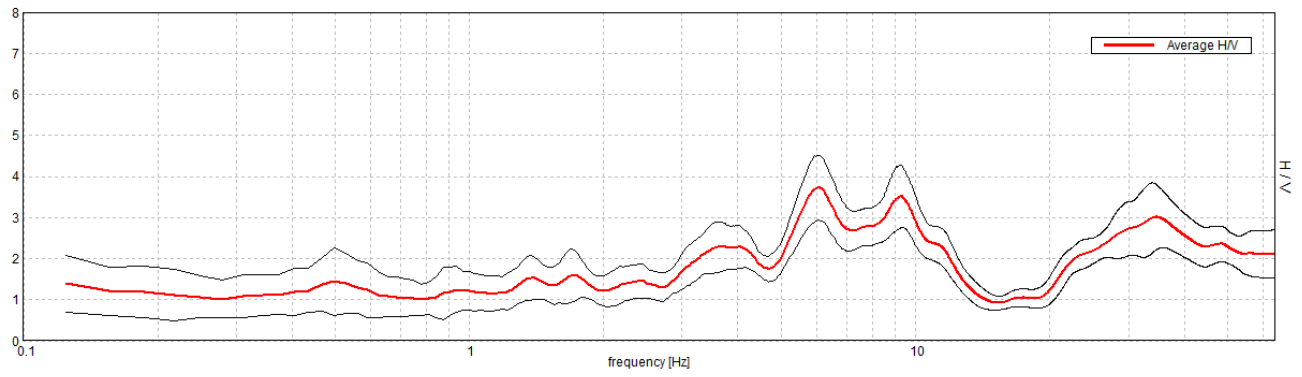
HVSR 22

Picco H/V a 3.59 ± 0.03 Hz (nell'intervallo 0.0 - 64.0 Hz).



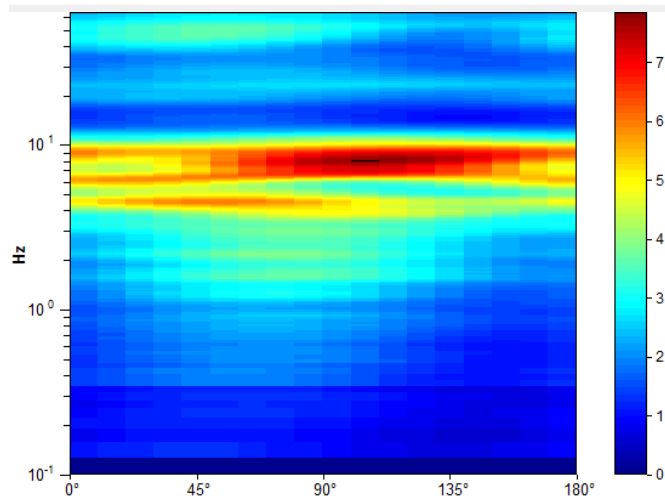
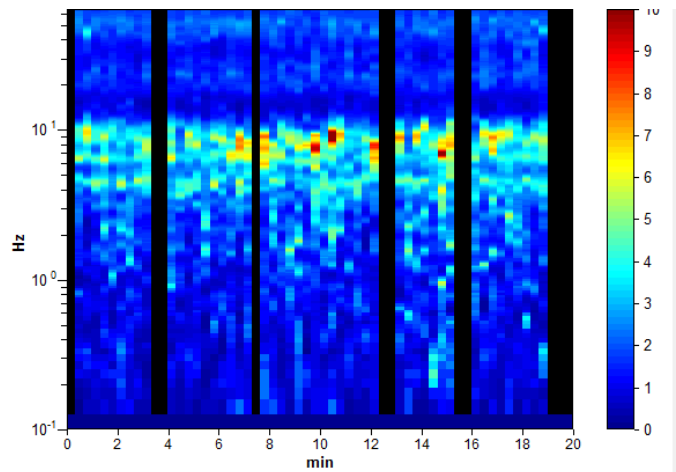
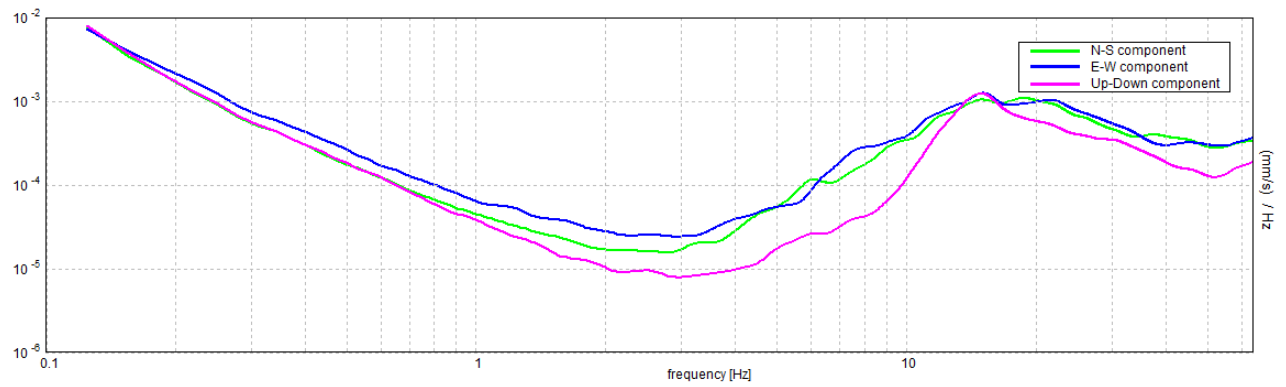
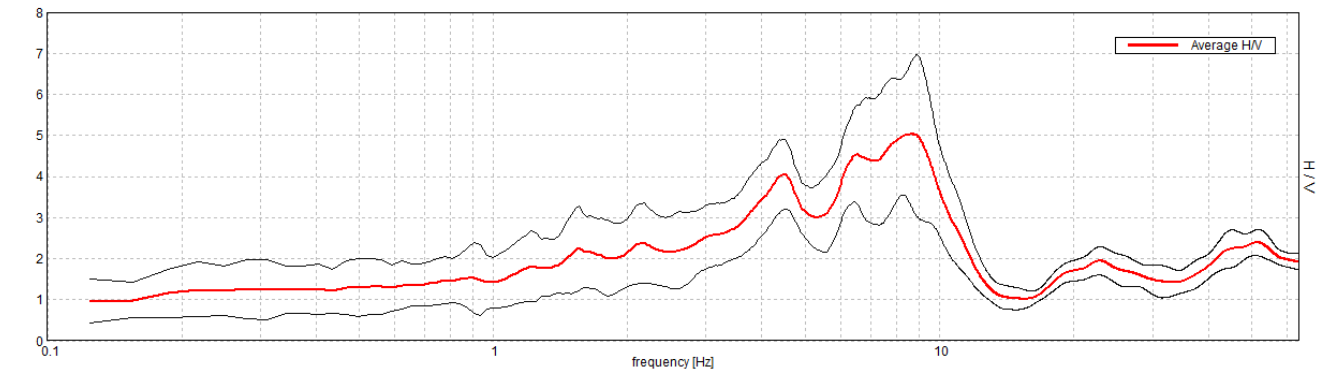
HVSR 23

Picco H/V a 6.06 ± 15.51 Hz (nell'intervallo 0.0 - 64.0 Hz).

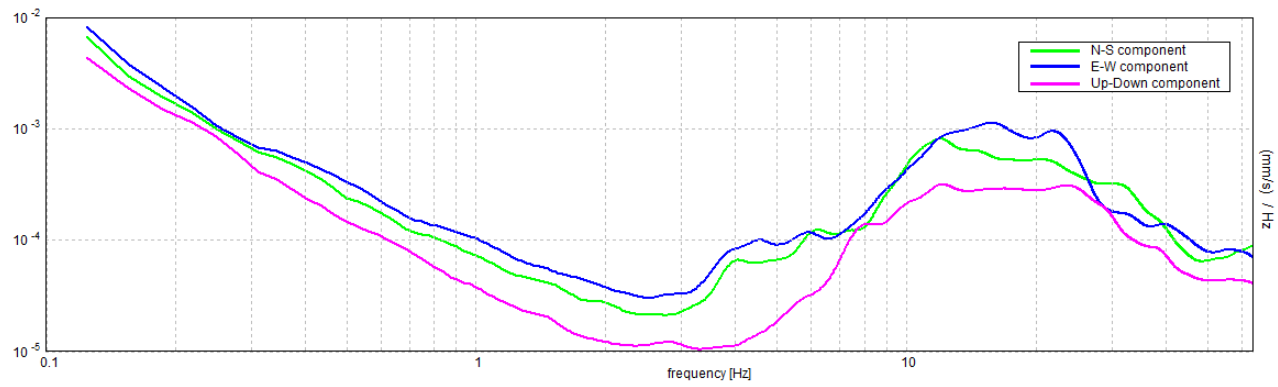


HVSR 24

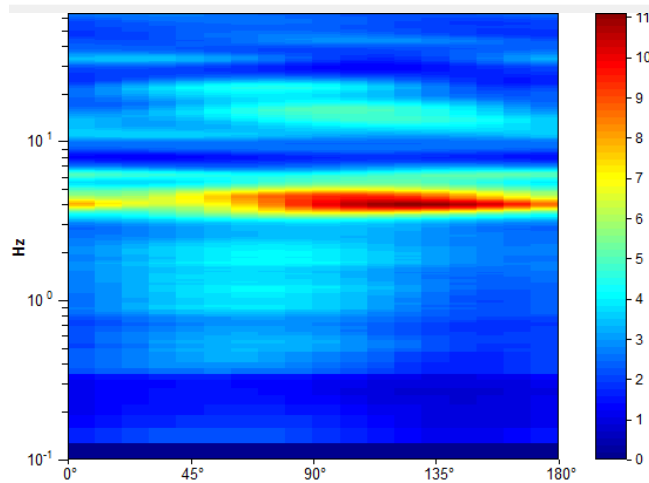
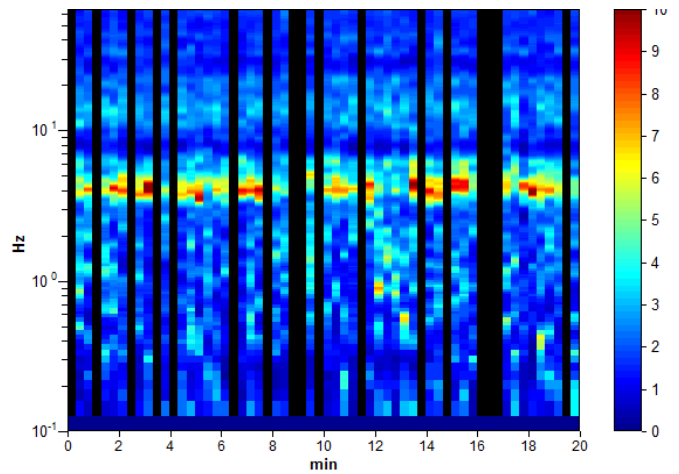
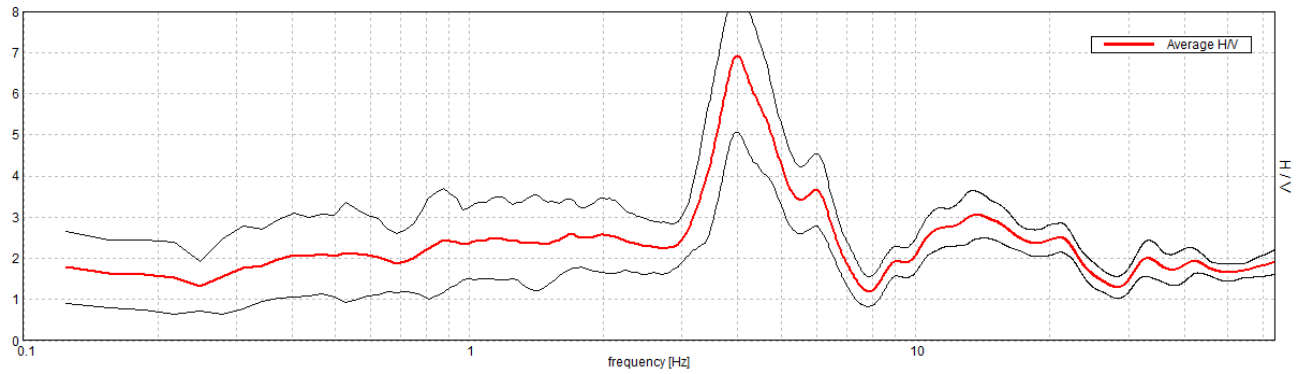
Picco H/V a 8.75 ± 1.09 Hz (nell'intervallo 0.0 - 64.0 Hz).



HVSR 25

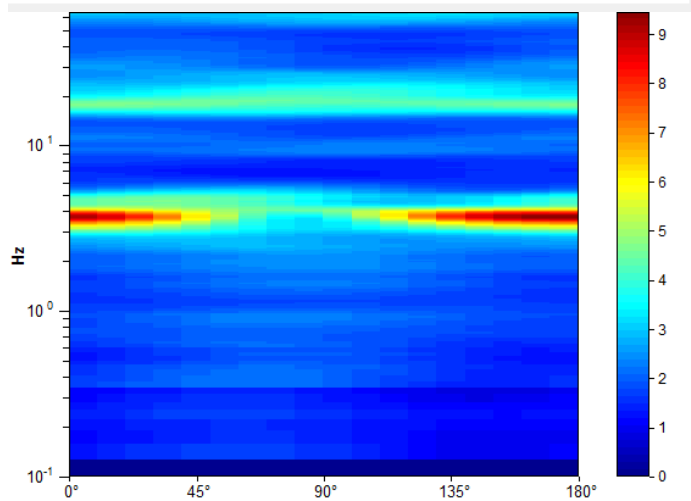
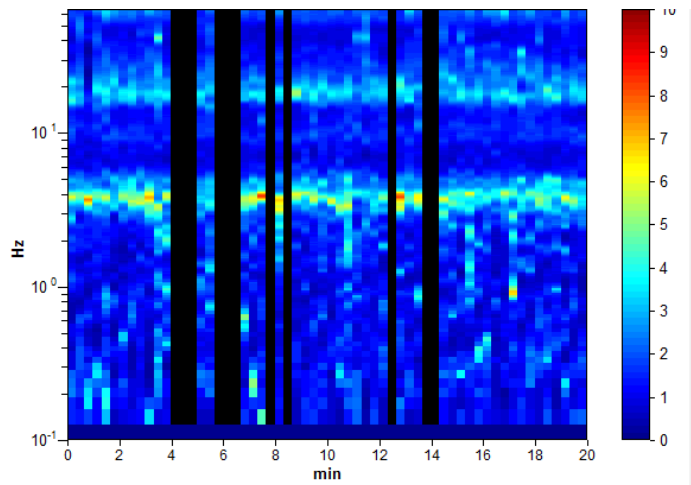
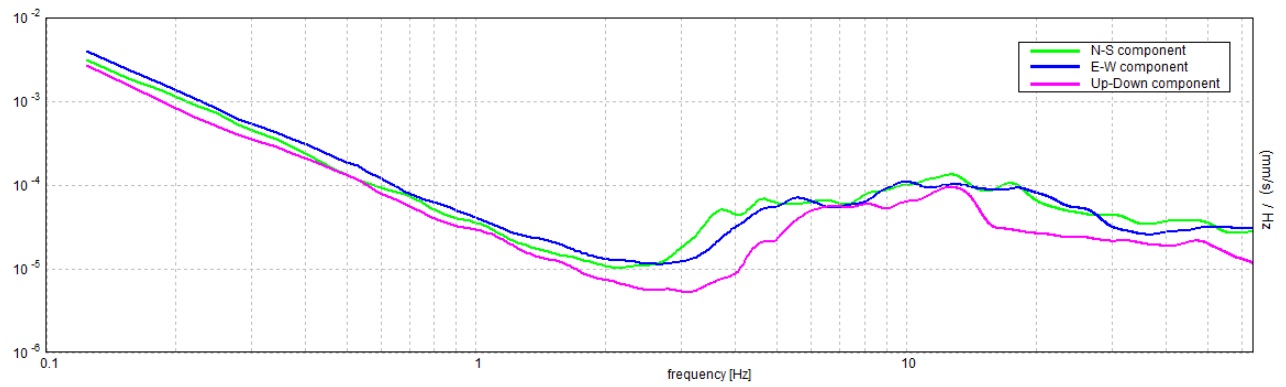
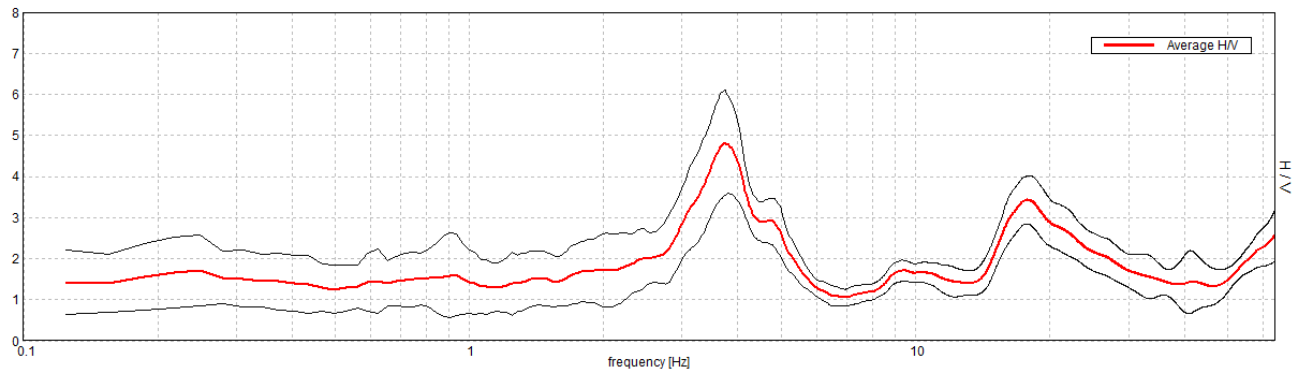


Picco H/V a 3.97 ± 0.04 Hz (nell'intervallo 0.0 - 64.0 Hz).



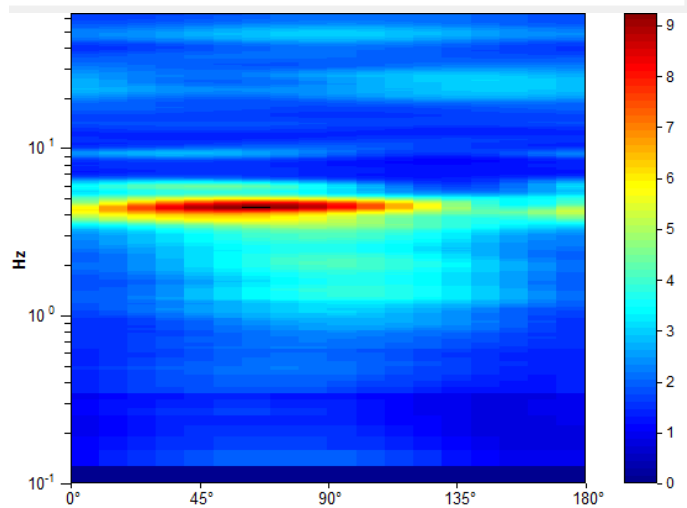
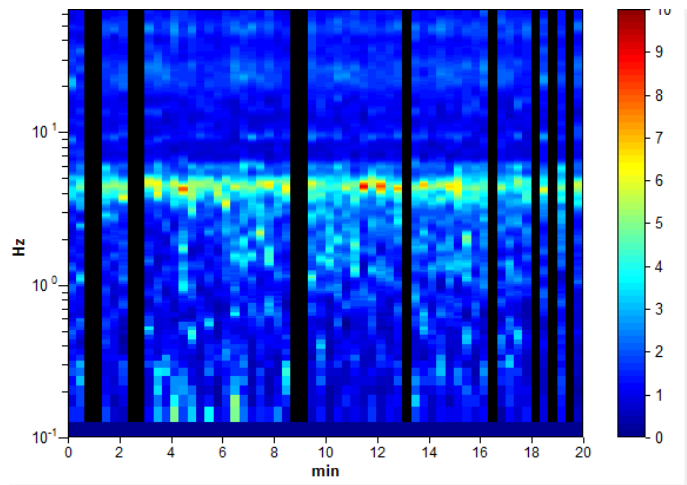
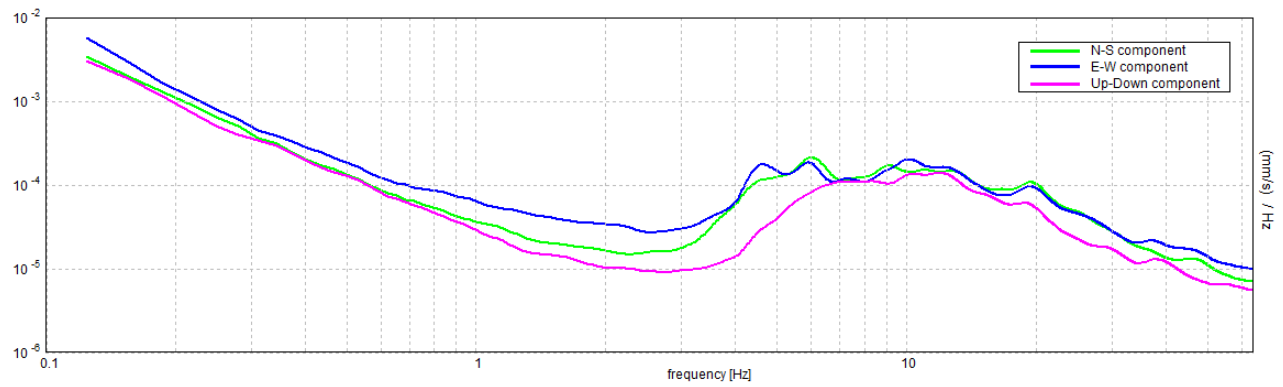
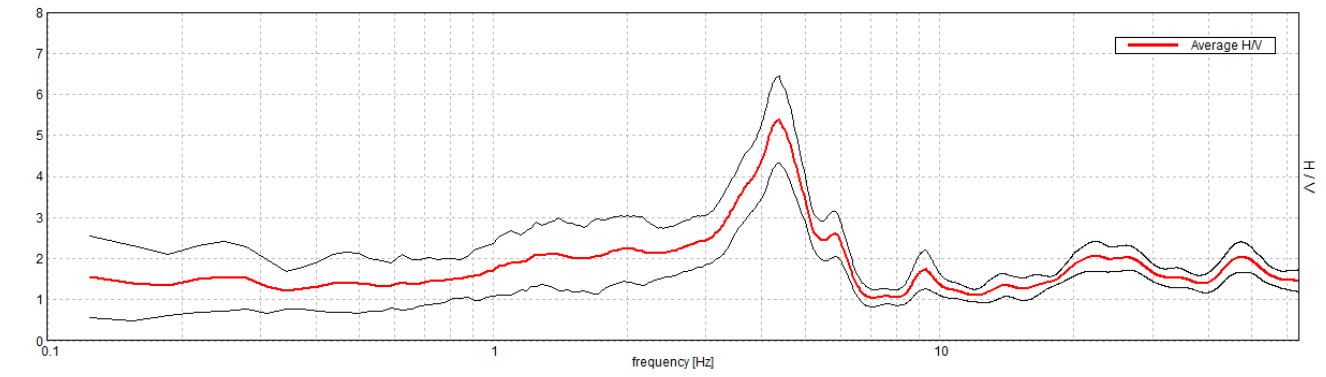
HVSR 26

Picco H/V a 3.75 ± 0.0 Hz (nell'intervallo 0.0 - 64.0 Hz).



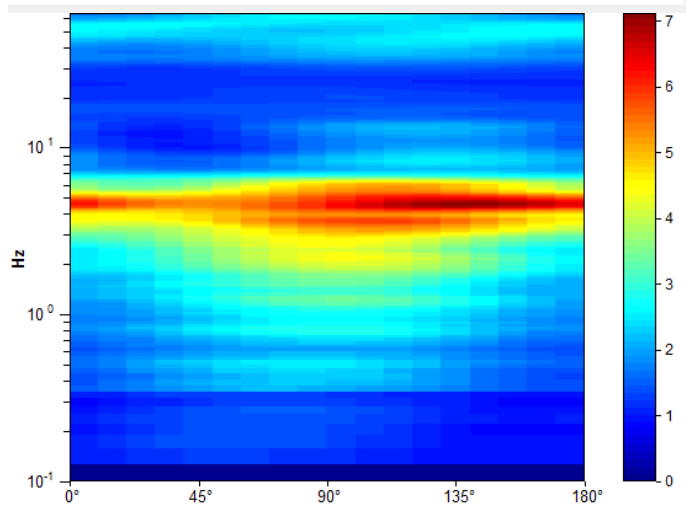
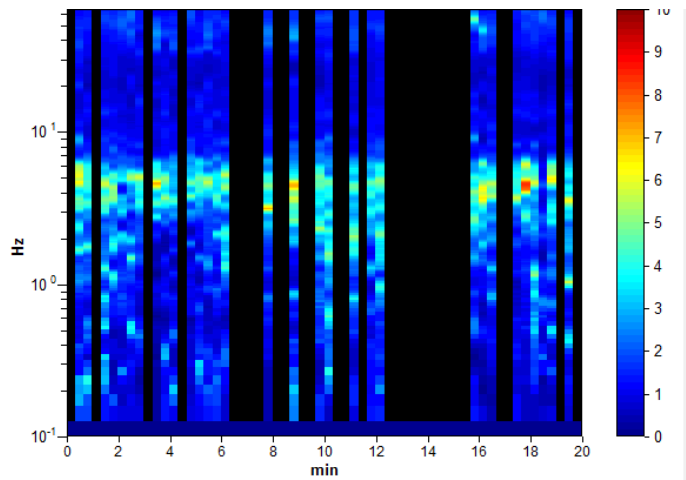
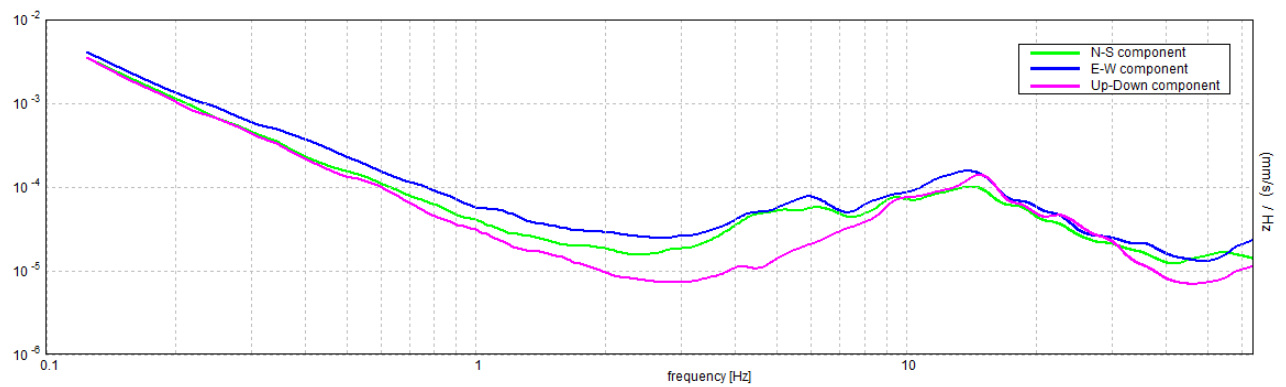
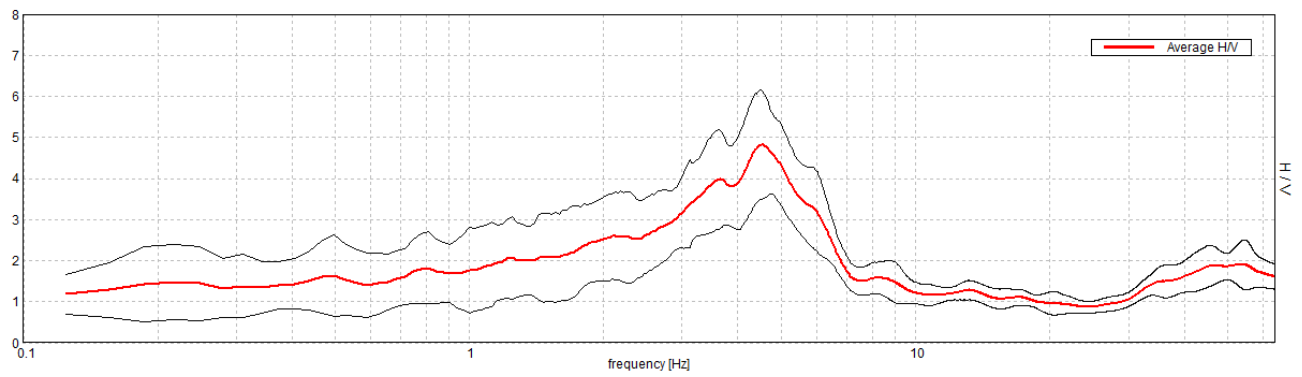
HVSR 27

Picco H/V a 4.38 ± 0.05 Hz (nell'intervallo 0.0 - 64.0 Hz).



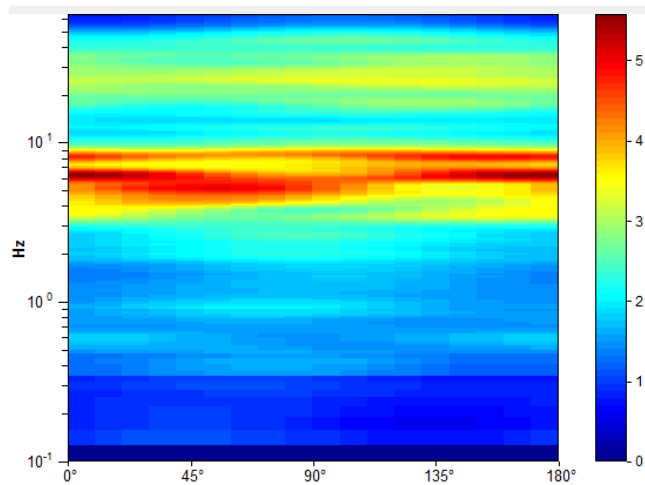
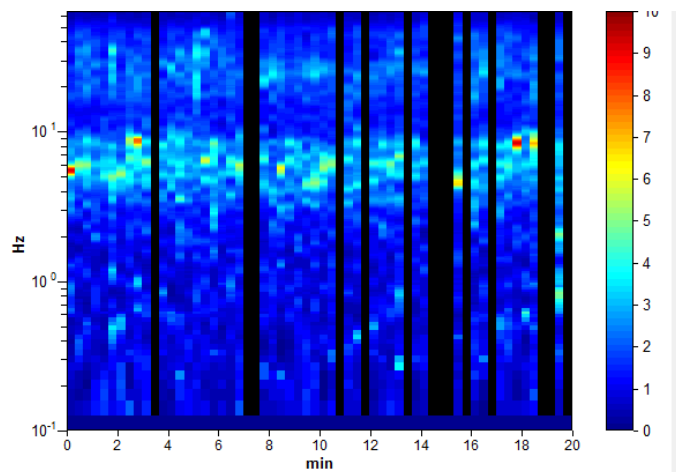
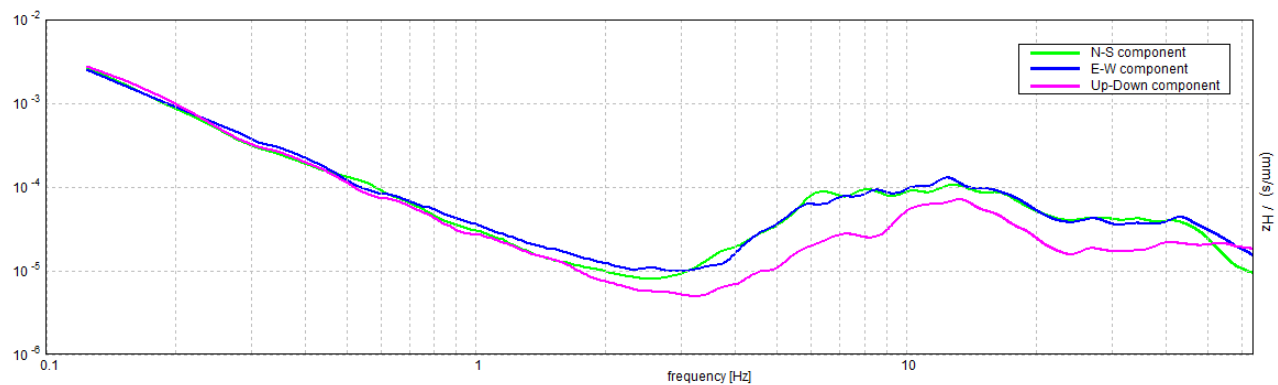
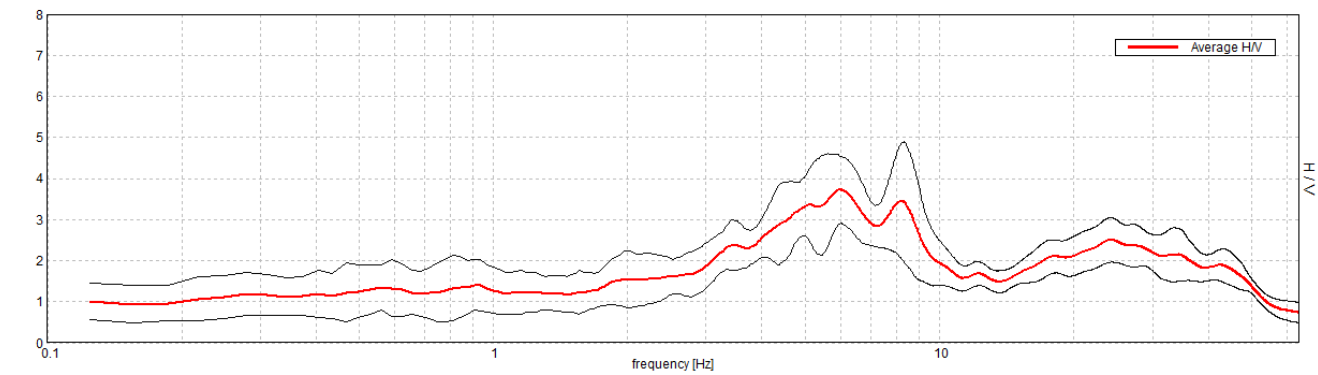
HVSR 28

Picco H/V a 4.5 ± 0.18 Hz (nell'intervallo 0.0 - 64.0 Hz).



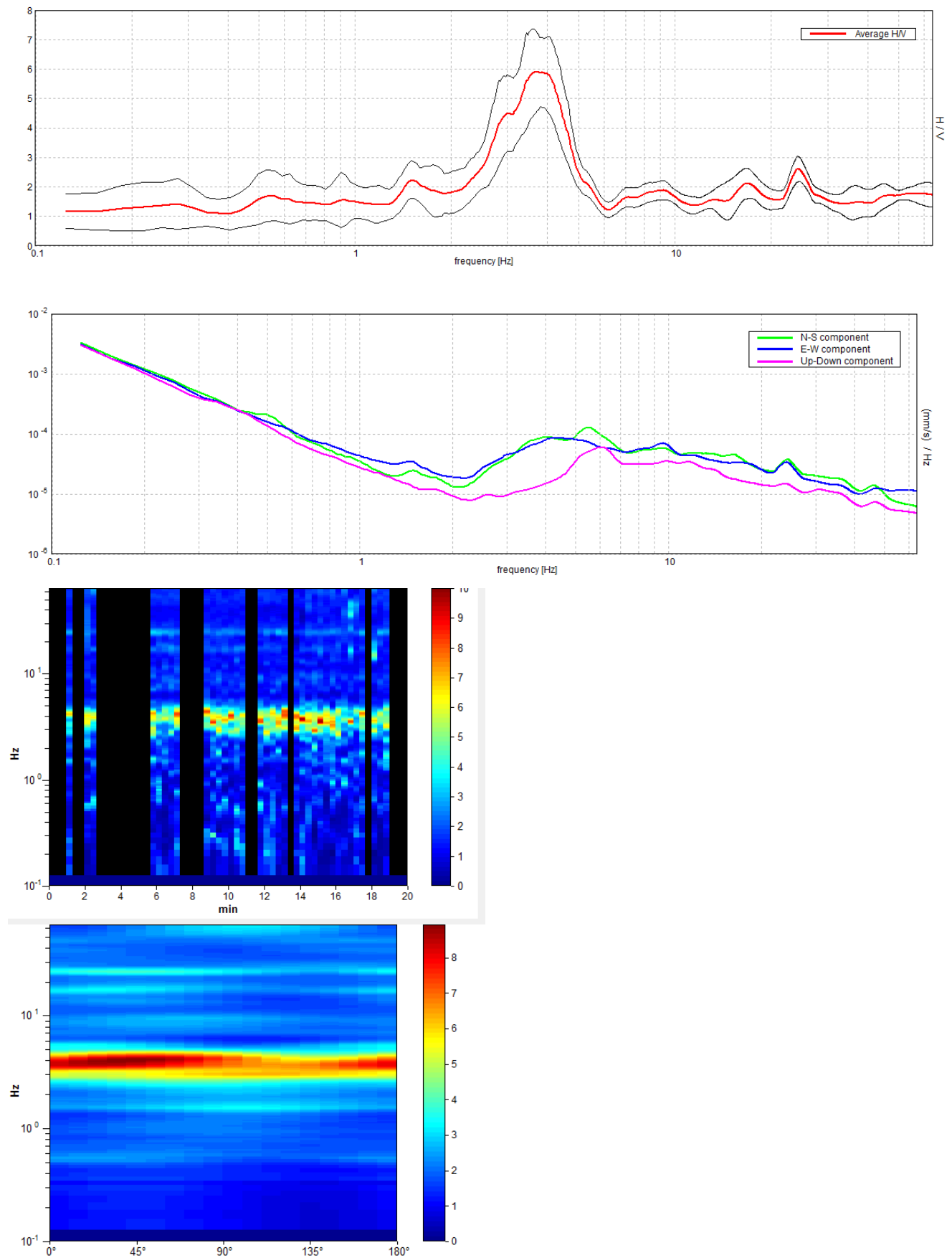
HVSR 29

Picco H/V a 5.94 ± 0.28 Hz (nell'intervallo 0.0 - 64.0 Hz).



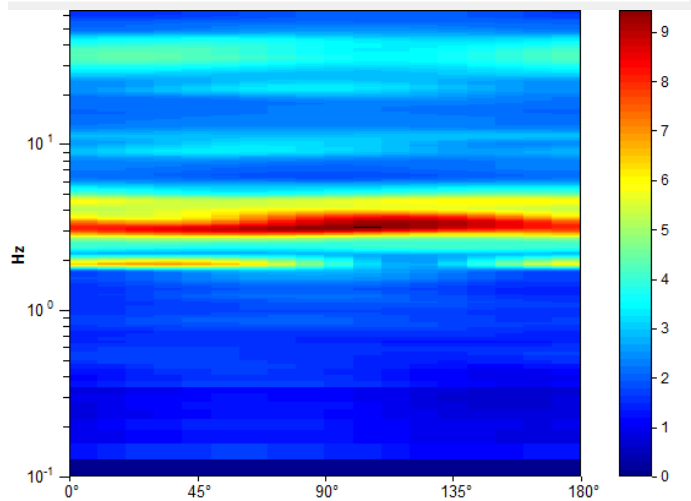
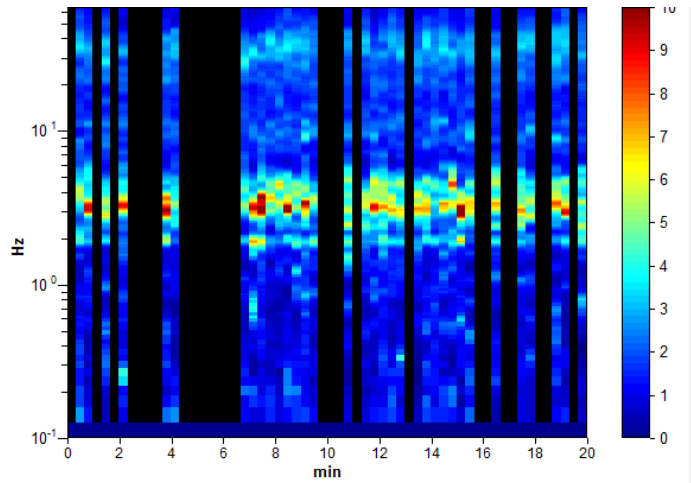
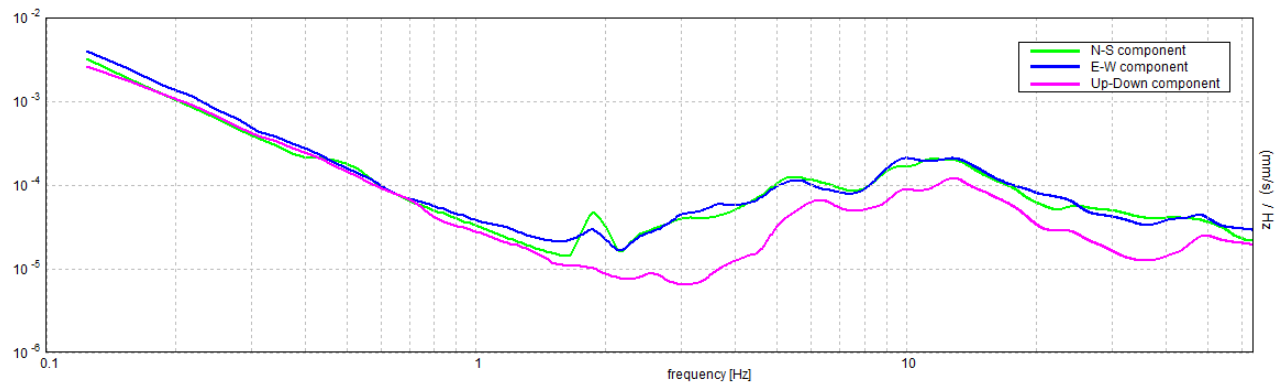
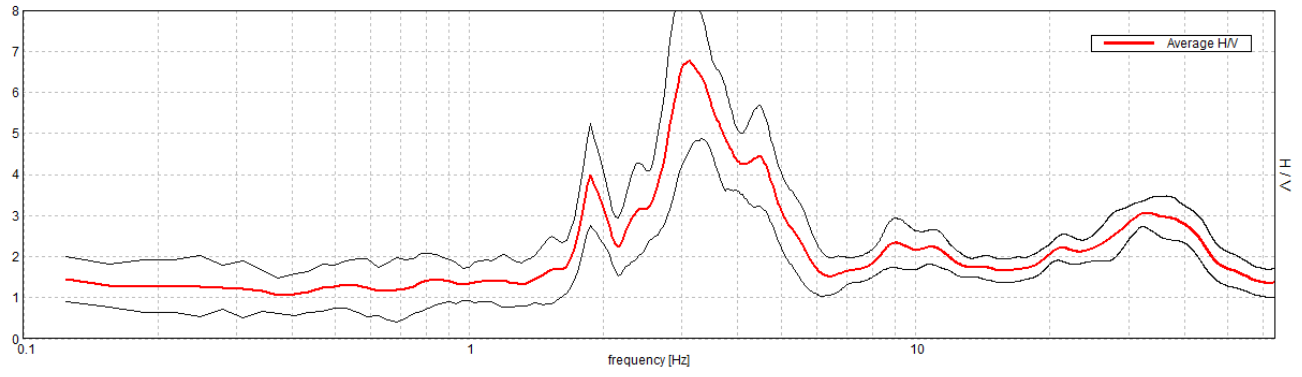
HVSR 30

Picco H/V a 3.66 ± 0.3 Hz (nell'intervallo 0.0 - 64.0 Hz).



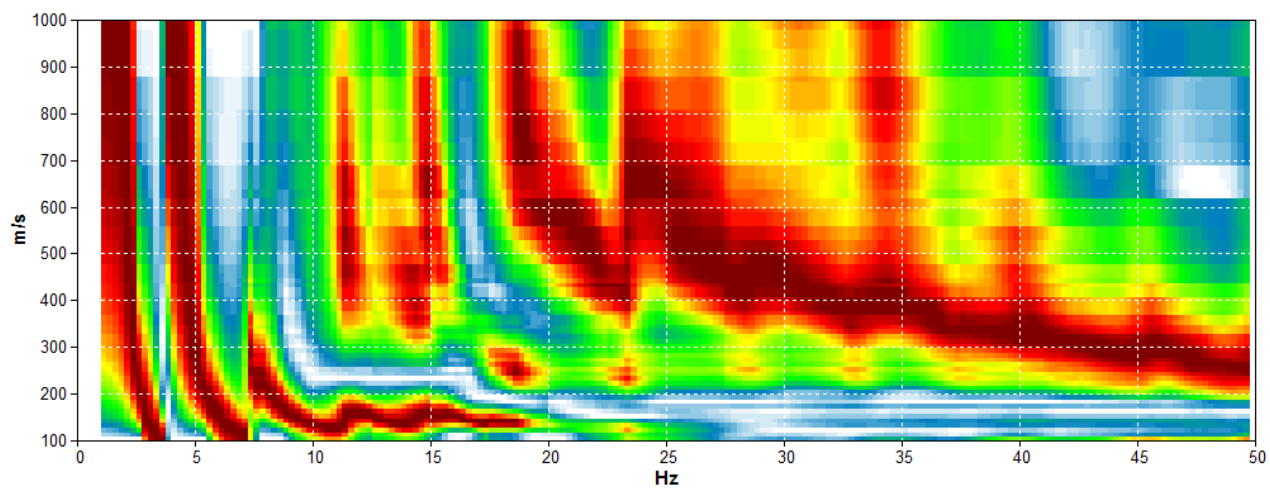
HVSR 31

Picco H/V a 3.13 ± 0.17 Hz (nell'intervallo 0.0 - 64.0 Hz).

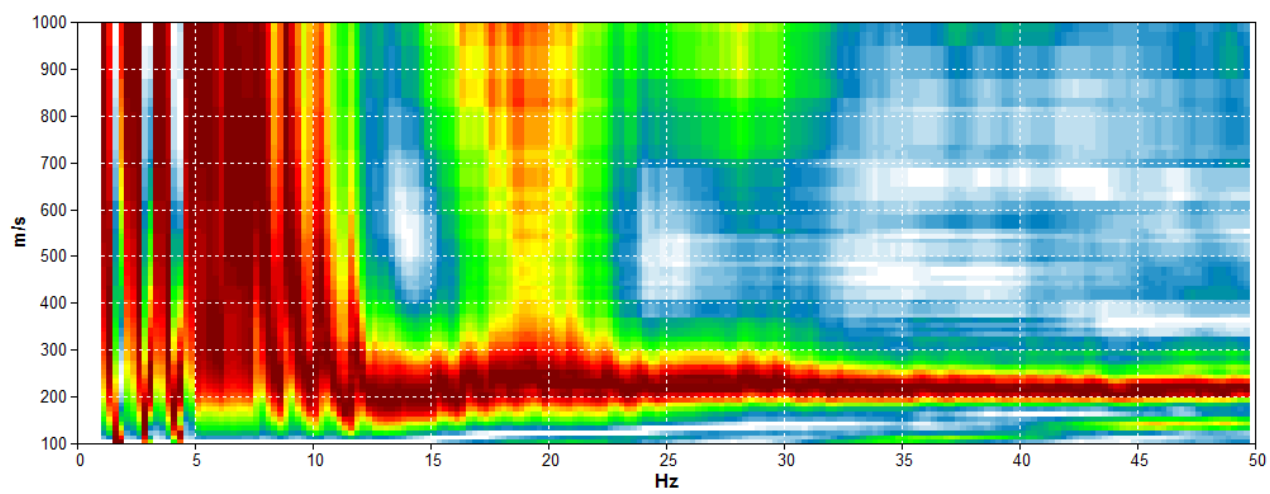


- **ALLEGATO n. 2 : MASW**

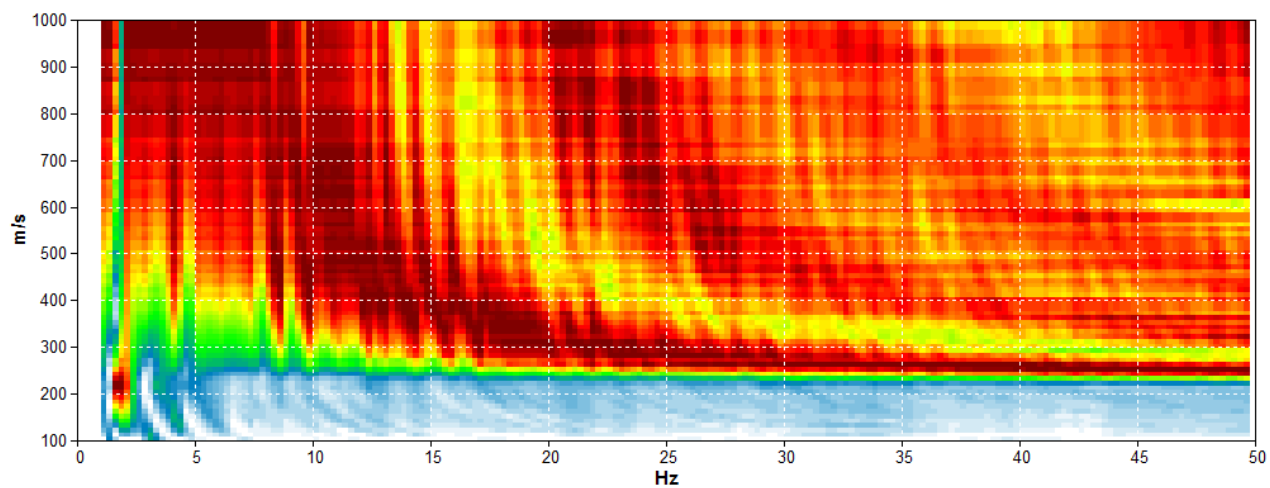
MASW 1



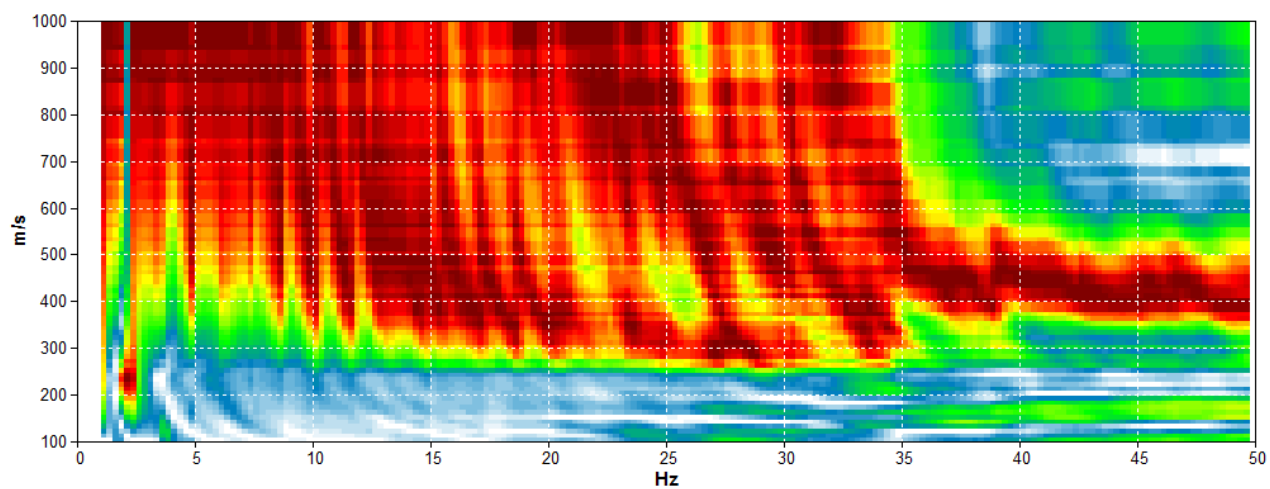
MASW 2



MASW 3

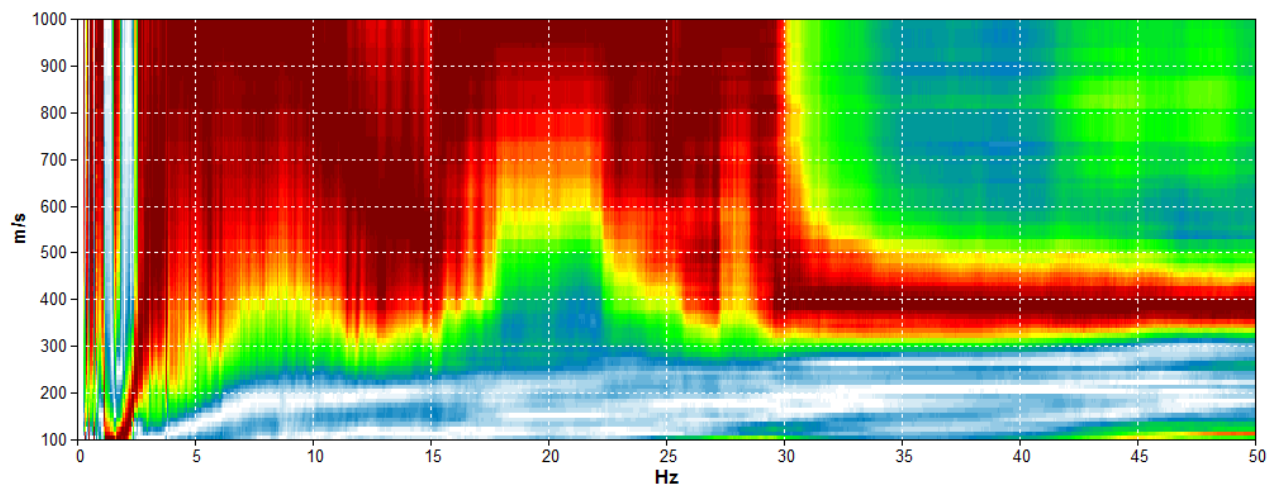


MASW 4

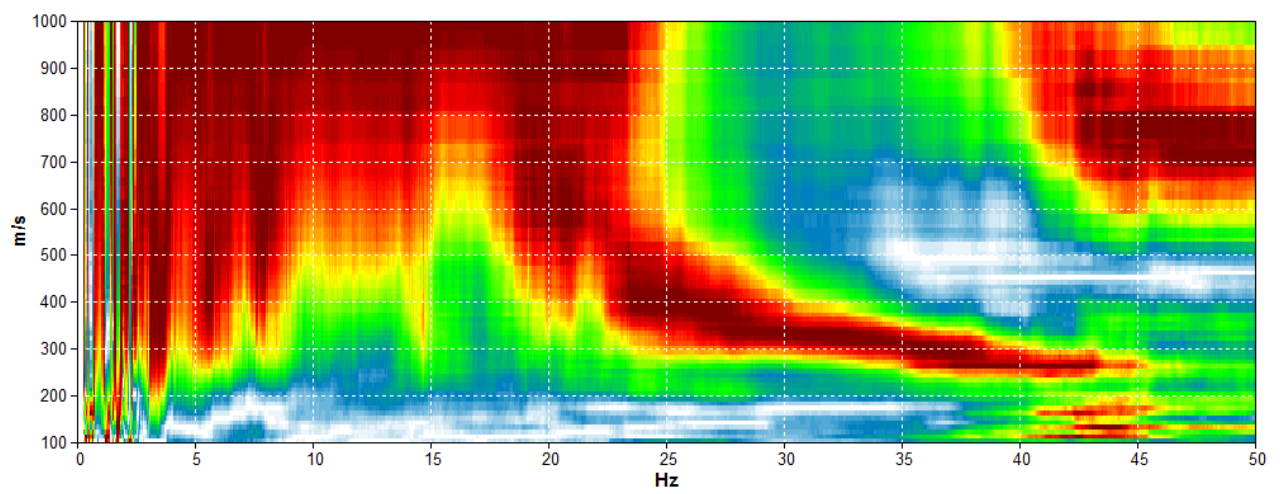


- **ALLEGATO n. 3 : Prove REfraction Microtremors (REMI)**

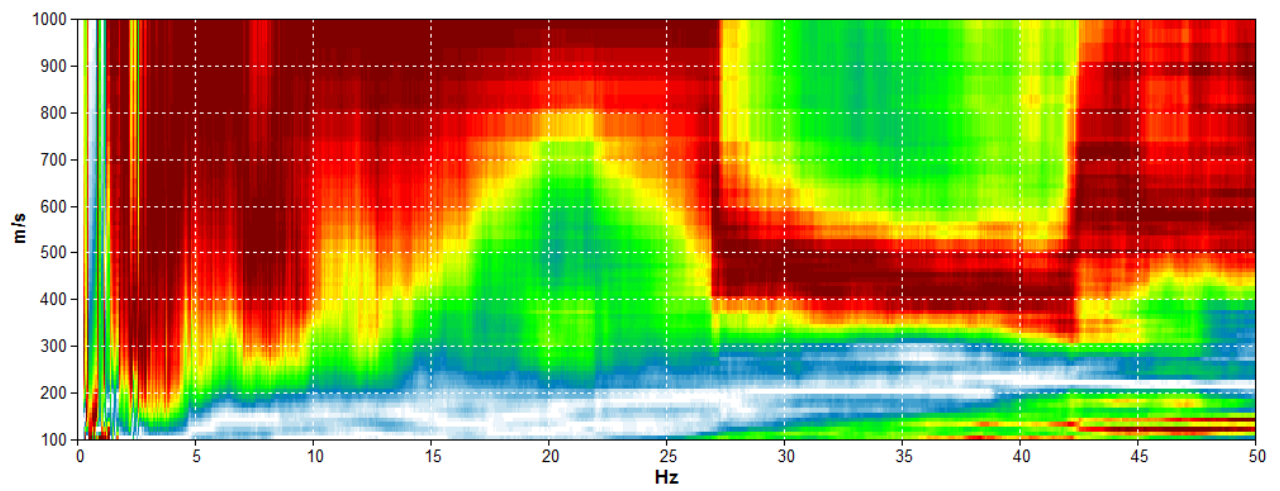
ReMi 1



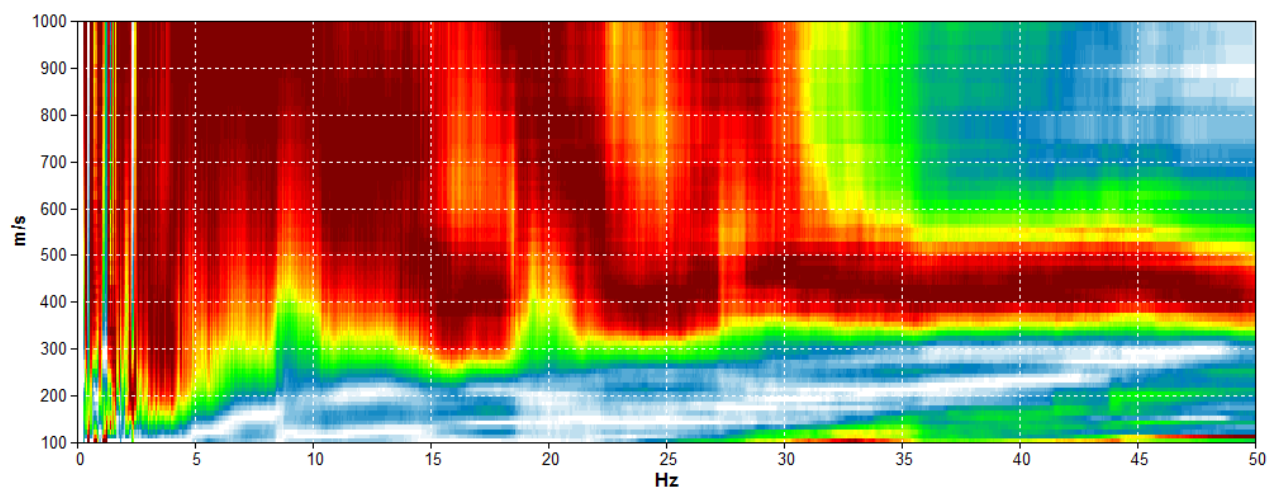
ReMi 2



ReMi 3





ReMi 4



- **ALLEGATO n. 4 : Trincee esplorative**


TRINCEA 1

Committente _____		SONDAGGIO	FOGLIO
Cantiere	via Bresagge	T1	1
Località	Solagna (VI)	Il geologo	
Data Inizio _____	Data Fine 18.11.2004		

Scala 1:100	Stratigrafia	Descrizione	Profondita'	Potenza
1		Terreno di riporto prevalentemente argilloso		1.20
		Terreno prevalentemente argilloso con trovanti rocciosi	1.20 1.70	0.50




TRINCEA 2

Committente _____		SONDAGGIO	FOGLIO
Cantiere	via Andrein	T2	1
Località	Solagna (VI)	Il geologo	
Data Inizio _____	Data Fine 07.07.2006		

Scala 1:100	Stratigrafia	Descrizione	Profondita'	Potenza
1		Terreno vegetale	0.20	0.20
		Roccia calcarea stratificata (Biancone)	1.00	0.80

TRINCEA 3

Committente		SONDAGGIO	FOGLIO
Cantiere	via Bresagge	T3	1
Località	Solagna (VI)	Il geologo	
Data Inizio			
		Data Fine	03.12.2012

Scala 1:100	Stratigrafia	Descrizione	Profondita'	Potenza
1		Terreno vegetale	0.40	0.40
2		Ghiaia con elementi spigolosi e abbondante matrice limosa di colore marrone		3.10
3			3.50	

TRINCEA 4

Committente		SONDAGGIO	FOGLIO
Cantiere	via Zarpellon	T4	1
Località	Solagna (VI)	Il geologo	
Data Inizio			
		Data Fine	20.10.2005

Scala 1:100	Stratigrafia	Descrizione	Profondita'	Potenza
1		Terreno vegetale	0.40	0.40
2		Argilla		2.80
3			3.20	
4		Ghiaia con matrice limosa	4.00	0.80

TRINCEA 5

Committente		SONDAGGIO	FOGLIO
Cantiere	via Marconi	T5	1
Località	Solagna (VI)	Il geologo	
Data Inizio			
		Data Fine	10.05.2007

Scala 1:50	Stratigrafia	Descrizione	Profondita'	Potenza
		Terreno vegetale		0.70
		Argilla bruna con qualche ciottolo e trovante decimetrico	0.70	0.40
		Ghiaia con ciottoli grossolani in matrice argilloso sabbiosa di colore rossastro	1.10	0.40
		Ghiaia media in matrice limoso sabbiosa di colore grigiastro	1.50	0.30
		Ciottoli con ghiaia in matrice limoso sabbiosa	1.80	0.40
			2.20	

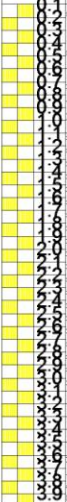






TRINCEA 6

Committente		SONDAGGIO	FOGLIO
Cantiere	via Marconi	T6	1
Località	Solagna (VI)	Il geologo	
Data Inizio			
		Data Fine	10.05.2007

Scala 1:50	Stratigrafia	Descrizione	Profondita'	Potenza
		Terreno vegetale		0.70
		Argilla limosa bruna con qualche ciottolo	0.70	0.30
		Argilla limosa bruna poco plastica	1.00	0.90
		Argilla limosa con ciottoli e trovanti	1.90	0.30
		Ghiaia media in matrice limoso argillosa grigiastra	2.20	0.40
			2.60	

TRINCEA 7

Committente		SONDAGGIO	FOGLIO
Cantiere	via Bresagge	T7	1
Località	Solagna (VI)	Il geologo	
Data Inizio			
	Data Fine	22.11.1997	

Scala 1:50	Stratigrafia	Descrizione	Profondità'	Potenza
		Terreno vegetale		0.50
		Argilla bruna con poca ghiaia fine, non plastica	0.50	0.50
		Argilla limosa bruna poco plastica	1.00	0.50
				2.00
		Argilla rossastra compatta non umida	3.00	0.30
		Argilla con ciottoli e trovanti calcarei grossolani (30-40 cm)	3.30	0.20
		Blocchi calcarei grossolani in matrice agiilosa (detrito di versante)	3.50	0.40
			3.90	

TRINCEA 8

Committente			SONDAGGIO	FOGLIO
Cantiere	via Villanova		T8	1
Località	Solagna (VI)		Il geologo	
Data Inizio		Data Fine		

Scala 1:50	Stratigrafia	Descrizione	Profondità'	Potenza
		Terreno vegetale	0.30	0.30
		Detrito di falda: clasti (diam. massimo 50 cm) di colore grigio-nocciola immersi in matrice argillosa.	3.70	3.40

- **ALLEGATO n. 5 : Prove penetrometriche statiche a punta meccanica**

PROVA PENETROMETRICA STATICA A PUNTA MECCANICA n. 1

PROVA PENETROMETRICA STATICA						CPT 1					
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA						3.010496-039					
- committente:			Serradura			- data prova :			12/10/2005		
- lavoro:			via Zarpellon			- quota inizio :			Piano Campagna		
- località:			Solagna (VI)			- prof. falda :			Falda non rilevata		
- resp. cantiere:						- data emiss. :			28/01/2014		
- assist. cantiere:											
prf	LP	LL	Rp	RL	Rp/RI	prf	LP	LL	Rp	RL	Rp/RI
m	-	-	Kg/cm ²	Kg/cm ²	-	m	-	-	Kg/cm ²	Kg/cm ²	-
0.20	---	---	---	---	---	2.00	9.0	17.0	9.0	0.60	15.0
0.40	---	---	---	0.93	---	2.20	13.0	22.0	13.0	0.53	24.0
0.60	18.0	32.0	18.0	0.40	45.0	2.40	8.0	16.0	8.0	0.27	30.0
0.80	19.0	25.0	19.0	0.93	20.0	2.60	6.0	10.0	6.0	8.20	1.0
1.00	8.0	22.0	8.0	0.33	24.0	2.80	204.0	327.0	204.0	4.53	45.0
1.20	5.0	10.0	5.0	0.27	19.0	3.00	289.0	357.0	289.0	2.07	140.0
1.40	4.0	8.0	4.0	0.80	5.0	3.20	198.0	229.0	198.0	4.20	47.0
1.60	18.0	30.0	18.0	0.53	34.0	3.40	324.0	387.0	324.0	----	----
1.80	78.0	86.0	78.0	0.53	146.0						

- **ALLEGATO n. 6 : Prove penetrometriche dinamiche leggere**

PROVA PENETROMETRICA DINAMICA LEGGERA n. 1

TECNOAMBIENTE S.a.s. di Sartor Livio & c.

Certificato: MSsolagna

PROVA PENETROMETRICA DINAMICA TABELLE VALORI DI RESISTENZA

DIN 1

- cantiere : Gheller
- lavoro : via marconi
- località : Solagna (VI)

- data prova : 28/05/2007
- quota inizio : pc
- prof. falda : Falda non rilevata
- data emiss. : 28/01/2014

- note :

Prof.(m)	N(colpi p)	Rpd(kg/cm ²)	asta	Prof.(m)	N(colpi p)	Rpd(kg/cm ²)	asta
0.00 - 0.10	---	---	1	2.00 - 2.10	43	140.2	3
0.10 - 0.20	4	14.3	1	2.10 - 2.20	41	133.7	3
0.20 - 0.30	7	25.0	1	2.20 - 2.30	37	120.7	3
0.30 - 0.40	8	28.6	1	2.30 - 2.40	42	137.0	3
0.40 - 0.50	6	21.4	1	2.40 - 2.50	88	287.0	3
0.50 - 0.60	6	21.4	1	2.50 - 2.60	63	205.4	3
0.60 - 0.70	5	17.9	1	2.60 - 2.70	48	156.5	3
0.70 - 0.80	4	14.3	1	2.70 - 2.80	47	153.3	3
0.80 - 0.90	4	14.3	1	2.80 - 2.90	45	146.7	3
0.90 - 1.00	5	17.0	2	2.90 - 3.00	46	143.8	4
1.00 - 1.10	13	44.3	2	3.00 - 3.10	43	134.4	4
1.10 - 1.20	14	47.7	2	3.10 - 3.20	41	128.1	4
1.20 - 1.30	15	51.1	2	3.20 - 3.30	43	134.4	4
1.30 - 1.40	12	40.9	2	3.30 - 3.40	46	143.8	4
1.40 - 1.50	13	44.3	2	3.40 - 3.50	53	165.6	4
1.50 - 1.60	22	75.0	2	3.50 - 3.60	57	178.1	4
1.60 - 1.70	35	119.3	2	3.60 - 3.70	69	215.6	4
1.70 - 1.80	90	306.8	2	3.70 - 3.80	75	234.4	4
1.80 - 1.90	44	150.0	2	3.80 - 3.90	82	256.3	4
1.90 - 2.00	67	218.5	3	3.90 - 4.00	64	192.0	5

Nspt - PARAMETRI GEOTECNICI

DIN 1

- cantiere : Gheller
- lavoro : via marconi
- località : Solagna (VI)

- data prova : 28/05/2007
- quota inizio : pc
- prof. falda : Falda non rilevata
- data emiss. : 28/01/2014

- note :

n°	Prof.(m)	LITOLOGIA	Nspt	NATURA GRANULARE					NATURA COESIVA			
				DR	ø'	E'	Ysat	Yd	Cu	Ysat	W	e
1	0.00 - 1.00		4	---	---	---	---	---	0.25	1.80	42	1.125
2	1.00 - 1.50		10	35.0	30.0	268	1.93	1.50	0.63	1.90	33	0.892
3	1.50 - 4.00		41	76.0	38.8	507	2.10	1.77	2.56	2.27	12	0.334

Nspt: numero di colpi prova SPT (avanzamento $\delta = 30$ cm)

DR % = densità relativa ø' (°) = angolo di attrito efficace E' (kg/cm²) = modulo di deformazione drenato W% = contenuto d'acqua
e (-) = indice dei vuoti Cu (kg/cm²) = coesione non drenata Ysat, Yd (t/m³) = peso di volume saturo e secco (rispettivamente) del terreno

- M(massa battente)= 30.00 kg - H(altezza caduta)= 0.20 m - A(area punta)= 10.00 cm² - D(diam. punta)= 35.70 mm
- Numero Colpi Punta N = N(10) [$\delta = 10$ cm] - Uso rivestimento / fanghi iniezione : NO

PROVA PENETROMETRICA DINAMICA LEGGERA n. 2

TECNOAMBIENTE S.a.s. di Sartor Livio & c.

Certificato: MSsolagna

PROVA PENETROMETRICA DINAMICA TABELLE VALORI DI RESISTENZA

DIN 1

- cantiere : Comune
- lavoro : via Bresagge
- località : Solagna (VI)

- data prova : 28/05/2007
- quota inizio : pc
- prof. falda : Falda non rilevata
- data emiss. : 28/01/2014

- note :

Prof.(m)	N(colpi p)	Rpd(kg/cm ²)	asta	Prof.(m)	N(colpi p)	Rpd(kg/cm ²)	asta
0.00 - 0.10	---	---	1	2.50 - 2.60	21	68.5	3
0.10 - 0.20	3	10.7	1	2.60 - 2.70	17	55.4	3
0.20 - 0.30	3	10.7	1	2.70 - 2.80	18	58.7	3
0.30 - 0.40	6	21.4	1	2.80 - 2.90	15	48.9	3
0.40 - 0.50	11	39.3	1	2.90 - 3.00	16	50.0	4
0.50 - 0.60	15	53.6	1	3.00 - 3.10	34	106.3	4
0.60 - 0.70	24	85.7	1	3.10 - 3.20	28	87.5	4
0.70 - 0.80	10	35.7	1	3.20 - 3.30	27	84.4	4
0.80 - 0.90	7	25.0	1	3.30 - 3.40	32	100.0	4
0.90 - 1.00	7	23.9	2	3.40 - 3.50	43	134.4	4
1.00 - 1.10	6	20.5	2	3.50 - 3.60	47	146.9	4
1.10 - 1.20	6	20.5	2	3.60 - 3.70	53	165.6	4
1.20 - 1.30	5	17.0	2	3.70 - 3.80	36	112.5	4
1.30 - 1.40	8	27.3	2	3.80 - 3.90	20	62.5	4
1.40 - 1.50	13	44.3	2	3.90 - 4.00	11	33.0	5
1.50 - 1.60	16	54.5	2	4.00 - 4.10	12	36.0	5
1.60 - 1.70	12	40.9	2	4.10 - 4.20	13	39.0	5
1.70 - 1.80	9	30.7	2	4.20 - 4.30	14	42.0	5
1.80 - 1.90	17	58.0	2	4.30 - 4.40	43	129.0	5
1.90 - 2.00	18	58.7	3	4.40 - 4.50	150	450.0	5
2.00 - 2.10	8	26.1	3	4.50 - 4.60	110	330.0	5
2.10 - 2.20	6	19.6	3	4.60 - 4.70	96	288.0	5
2.20 - 2.30	7	22.8	3	4.70 - 4.80	90	270.0	5
2.30 - 2.40	120	391.3	3	4.80 - 4.90	108	324.0	5
2.40 - 2.50	46	150.0	3	4.90 - 5.00	120	346.2	6

Nspt - PARAMETRI GEOTECNICI

DIN 1

- cantiere : Comune
- lavoro : via Bresagge
- località : Solagna (VI)

- data prova : 28/05/2007
- quota inizio : pc
- prof. falda : Falda non rilevata
- data emiss. : 28/01/2014

- note :

n°	Prof.(m)	LITOLOGIA	Nspt	NATURA GRANULARE					NATURA COESIVA			
				DR	σ'	E'	Ysat	Yd	Cu	Ysat	W	e
1	0.00 - 2.30		7	25.0	28.8	245	1.90	1.45	0.44	1.86	36	0.972
2	2.30 - 3.90		28	62.0	35.4	407	2.04	1.67	1.75	2.12	19	0.522
3	3.90 - 4.30		9	31.7	29.6	261	1.92	1.48	0.56	1.89	34	0.918
4	4.30 - 5.00		78	95.5	44.4	793	2.21	1.94	4.88	2.72	-01	-0.013

Nspt: numero di colpi prova SPT (avanzamento $\delta = 30$ cm)

DR % = densità relativa σ' (°) = angolo di attrito efficace E' (kg/cm²) = modulo di deformazione drenato $W\%$ = contenuto d'acqua
e (-) = indice dei vuoti Cu (kg/cm²) = coesione non drenata $Ysat$, Yd (t/m³) = peso di volume saturo e secco (rispettivamente) del terreno

- M (massa battente) = 30.00 kg - H (altezza caduta) = 0.20 m - A (area punta) = 10.00 cm² - D (diam. punta) = 35.70 mm
- Numero Colpi Punta N = N(10) [$\delta = 10$ cm] - Uso rivestimento / fanghi iniezione : NO

- **ALLEGATO n. 7 : Pozzi per acqua**

Committente			SONDAGGIO	FOGLIO
Cantiere	via 4 Novembre		PA1	1
Località	Solagna (VI)			
Data Inizio		Data Fine	Il geologo	

Scala 1:200	Stratigrafia	Descrizione	Profondità'	Potenza
2				
4				
6				
8				
10				
12				
14				
16				
18				
20				
			21.00	21.00

Profondità falda -13.40 metri dal p.c..	Non vi sono dati nè sulla stratigrafia, nè sulla profondità del pozzo. La pompa è posta a -21.00 metri dal piano campagna.
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