8. ALLEGATO – RAPPORTI INDAGINI GEOGNOSTICHE E GEOFISICHE

PROVA PENETROMETRICA STATICA CPT 1
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
0.20	13.0	18.0	13.0	0.67	19.0	10.20	82.0	97.0	82.0	5.20	16.0
0.40	15.0	25.0	15.0	0.87	17.0	10.40	48.0	126.0	48.0	1.47	33.0
0.60	15.0	28.0	15.0	1.20	12.0	10.60	108.0	130.0	108.0	1.93	56.0
0.80	20.0	38.0	20.0	0.93	21.0	10.80	73.0	102.0	73.0	1.60	46.0
1.00	36.0	50.0	36.0	1.67	22.0	**11.00**	86.0	110.0	86.0	1.20	72.0
1.20	34.0	59.0	34.0	1.20	28.0	11.20	90.0	108.0	90.0	3.13	29.0
1.40	28.0	46.0	28.0	1.53	18.0	11.40	78.0	125.0	78.0	2.33	33.0
1.60	22.0	45.0	22.0	1.13	19.0	11.60	148.0	183.0	148.0	3.07	48.0
1.80	25.0	42.0	25.0	1.27	20.0	11.80	120.0	166.0	120.0	2.60	46.0
2.00	18.0	37.0	18.0	1.20	15.0	**12.00**	128.0	167.0	128.0	2.60	49.0
2.20	15.0	33.0	15.0	1.40	11.0	12.20	146.0	185.0	146.0	4.07	36.0
2.40	16.0	37.0	16.0	1.13	14.0	12.40	127.0	188.0	127.0	2.27	56.0
2.60	16.0	33.0	16.0	0.73	22.0	12.60	138.0	172.0	138.0	2.87	48.0
2.80	13.0	24.0	13.0	0.53	24.0	12.80	134.0	177.0	134.0	3.00	45.0
3.00	12.0	20.0	12.0	0.47	26.0	**13.00**	111.0	156.0	111.0	2.73	41.0
3.20	27.0	34.0	27.0	0.27	101.0	13.20	113.0	154.0	113.0	2.13	53.0
3.40	31.0	35.0	31.0	0.73	42.0	13.40	97.0	129.0	97.0	2.33	42.0
3.60	14.0	25.0	14.0	1.07	13.0	13.60	89.0	124.0	89.0	2.47	36.0
3.80	14.0	30.0	14.0	0.80	17.0	13.80	106.0	143.0	106.0	3.33	32.0
4.00	11.0	23.0	11.0	0.67	16.0	**14.00**	144.0	194.0	144.0	2.13	67.0
4.20	13.0	23.0	13.0	0.60	22.0	14.20	132.0	164.0	132.0	3.13	42.0
4.40	15.0	24.0	15.0	0.60	25.0	14.40	128.0	175.0	128.0	1.53	83.0
4.60	23.0	32.0	23.0	1.20	19.0	14.60	119.0	142.0	119.0	2.07	58.0
4.80	19.0	37.0	19.0	1.20	16.0	14.80	112.0	143.0	112.0	2.93	38.0
5.00	18.0	36.0	18.0	0.93	19.0	**15.00**	133.0	177.0	133.0	3.40	39.0
5.20	20.0	34.0	20.0	0.87	23.0	15.20	172.0	223.0	172.0	2.60	66.0
5.40	18.0	31.0	18.0	1.00	18.0	15.40	158.0	197.0	158.0	2.80	56.0
5.60	14.0	29.0	14.0	0.67	21.0	15.60	109.0	151.0	109.0	2.47	44.0
5.80	14.0	24.0	14.0	0.73	19.0	15.80	111.0	148.0	111.0	2.47	45.0
6.00	9.0	20.0	9.0	0.80	11.0	**16.00**	149.0	186.0	149.0	3.33	45.0
6.20	10.0	22.0	10.0	0.47	21.0	16.20	140.0	190.0	140.0	2.93	48.0
6.40	43.0	50.0	43.0	1.07	40.0	16.40	138.0	182.0	138.0	2.33	59.0
6.60	37.0	53.0	37.0	0.33	111.0	16.60	135.0	170.0	135.0	2.67	51.0
6.80	18.0	23.0	18.0	1.00	18.0	16.80	165.0	205.0	165.0	3.73	44.0
7.00	10.0	25.0	10.0	0.60	17.0	**17.00**	185.0	241.0	185.0	3.13	59.0
7.20	14.0	23.0	14.0	0.73	19.0	17.20	147.0	194.0	147.0	3.73	39.0
7.40	18.0	29.0	18.0	0.87	21.0	17.40	117.0	173.0	117.0	3.47	34.0
7.60	20.0	33.0	20.0	0.93	21.0	17.60	136.0	188.0	136.0	2.47	55.0
7.80	19.0	33.0	19.0	1.27	15.0	17.80	154.0	191.0	154.0	3.20	48.0
8.00	19.0	38.0	19.0	1.13	17.0	**18.00**	136.0	184.0	136.0	2.33	58.0
8.20	17.0	34.0	17.0	0.93	18.0	18.20	113.0	148.0	113.0	2.47	46.0
8.40	19.0	33.0	19.0	1.20	16.0	18.40	102.0	139.0	102.0	1.80	57.0
8.60	28.0	46.0	28.0	1.47	19.0	18.60	102.0	129.0	102.0	2.87	36.0
8.80	28.0	50.0	28.0	1.20	23.0	18.80	88.0	131.0	88.0	2.07	43.0
9.00	28.0	46.0	28.0	2.40	12.0	**19.00**	128.0	159.0	128.0	2.60	49.0
9.20	46.0	82.0	46.0	1.20	38.0	19.20	127.0	166.0	127.0	3.33	38.0
9.40	63.0	81.0	63.0	1.87	34.0	19.40	136.0	186.0	136.0	3.00	45.0
9.60	113.0	141.0	113.0	1.67	68.0	19.60	146.0	191.0	146.0	2.87	51.0
9.80	86.0	111.0	86.0	3.87	22.0	19.80	171.0	214.0	171.0	3.27	52.0
10.00	119.0	177.0	119.0	1.00	119.0	**20.00**	136.0	185.0	136.0	3.87	35.0

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA CPT 1
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
20.20	131.0	189.0	131.0	4.20	31.0	25.20	195.0	269.0	195.0	4.13	47.0
20.40	164.0	227.0	164.0	0.67	246.0	25.40	176.0	238.0	176.0	2.80	63.0
20.60	173.0	183.0	173.0	2.87	60.0	25.60	190.0	232.0	190.0	2.60	73.0
20.80	112.0	155.0	112.0	2.87	39.0	25.80	186.0	225.0	186.0	4.53	41.0
21.00	110.0	153.0	110.0	4.00	28.0	**26.00**	234.0	302.0	234.0	5.40	43.0
21.20	143.0	203.0	143.0	9.80	15.0	26.20	218.0	299.0	218.0	4.20	52.0
21.40	124.0	271.0	124.0	3.93	32.0	26.40	91.0	154.0	91.0	1.60	57.0
21.60	160.0	219.0	160.0	4.47	36.0	26.60	206.0	230.0	206.0	5.80	36.0
21.80	160.0	227.0	160.0	3.80	42.0	26.80	132.0	219.0	132.0	3.13	42.0
22.00	199.0	256.0	199.0	5.13	39.0	**27.00**	127.0	174.0	127.0	5.87	22.0
22.20	276.0	353.0	276.0	6.80	41.0	27.20	248.0	336.0	248.0	8.87	28.0
22.40	157.0	259.0	157.0	4.73	33.0	27.40	170.0	303.0	170.0	4.60	37.0
22.60	195.0	266.0	195.0	4.00	49.0	27.60	143.0	212.0	143.0	3.73	38.0
22.80	171.0	231.0	171.0	4.07	42.0	27.80	151.0	207.0	151.0	4.00	38.0
23.00	147.0	208.0	147.0	2.60	57.0	**28.00**	145.0	205.0	145.0	3.67	40.0
23.20	93.0	132.0	93.0	1.93	48.0	28.20	228.0	283.0	228.0	4.80	47.0
23.40	16.0	45.0	16.0	2.13	7.0	28.40	233.0	305.0	233.0	4.93	47.0
23.60	85.0	117.0	85.0	3.67	23.0	28.60	167.0	241.0	167.0	4.60	36.0
23.80	168.0	223.0	168.0	4.40	38.0	28.80	151.0	220.0	151.0	4.20	36.0
24.00	193.0	259.0	193.0	4.00	48.0	**29.00**	175.0	238.0	175.0	3.53	50.0
24.20	157.0	217.0	157.0	3.27	48.0	29.20	197.0	250.0	197.0	9.40	21.0
24.40	175.0	224.0	175.0	1.60	109.0	29.40	254.0	395.0	254.0	6.47	39.0
24.60	183.0	207.0	183.0	8.67	21.0	29.60	295.0	392.0	295.0	5.40	55.0
24.80	146.0	276.0	146.0	5.40	27.0	29.80	293.0	374.0	293.0	7.27	40.0
25.00	220.0	301.0	220.0	4.93	45.0	**30.00**	153.0	262.0	153.0	-----	----

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 1

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

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- quota inizio : Piano Campagna
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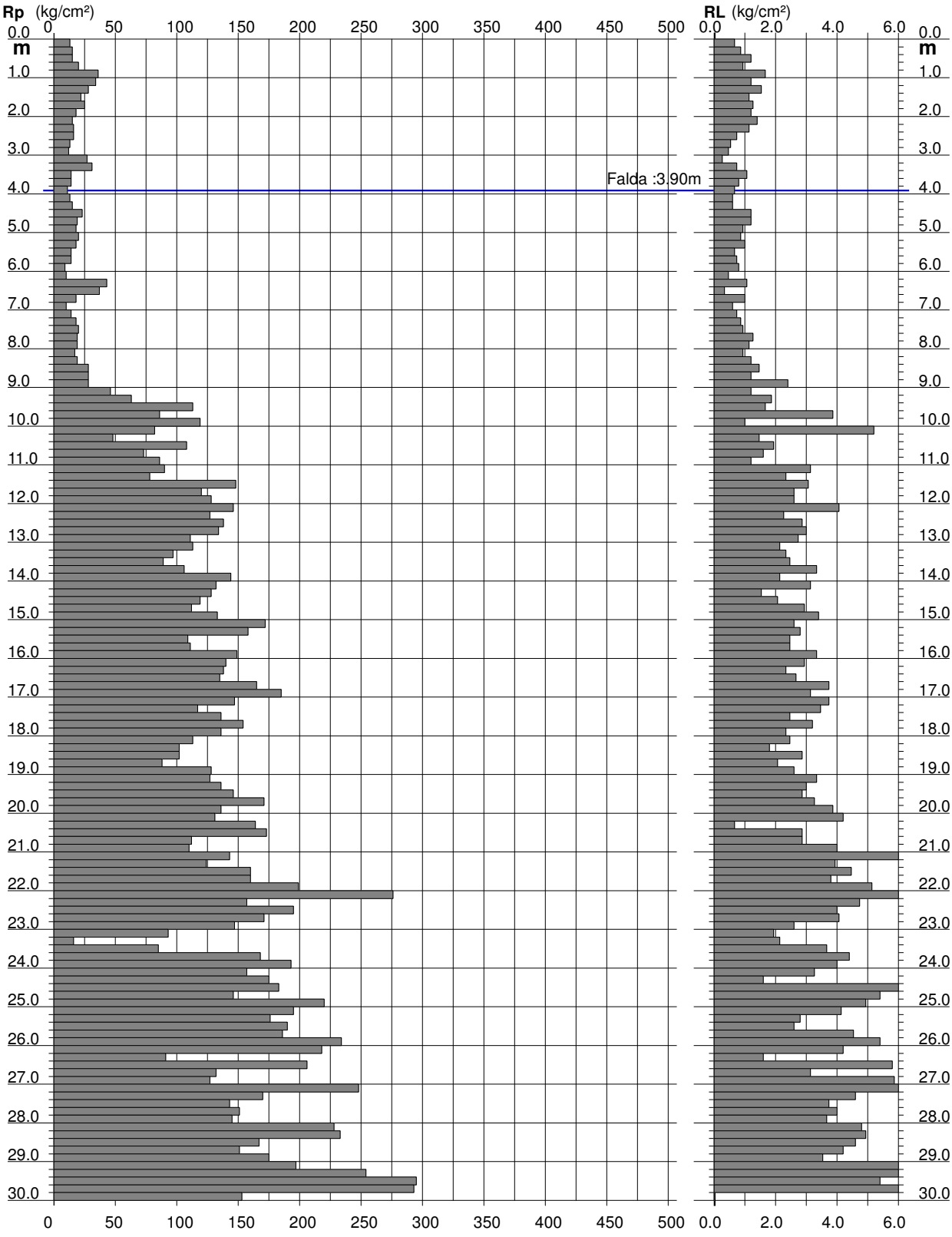


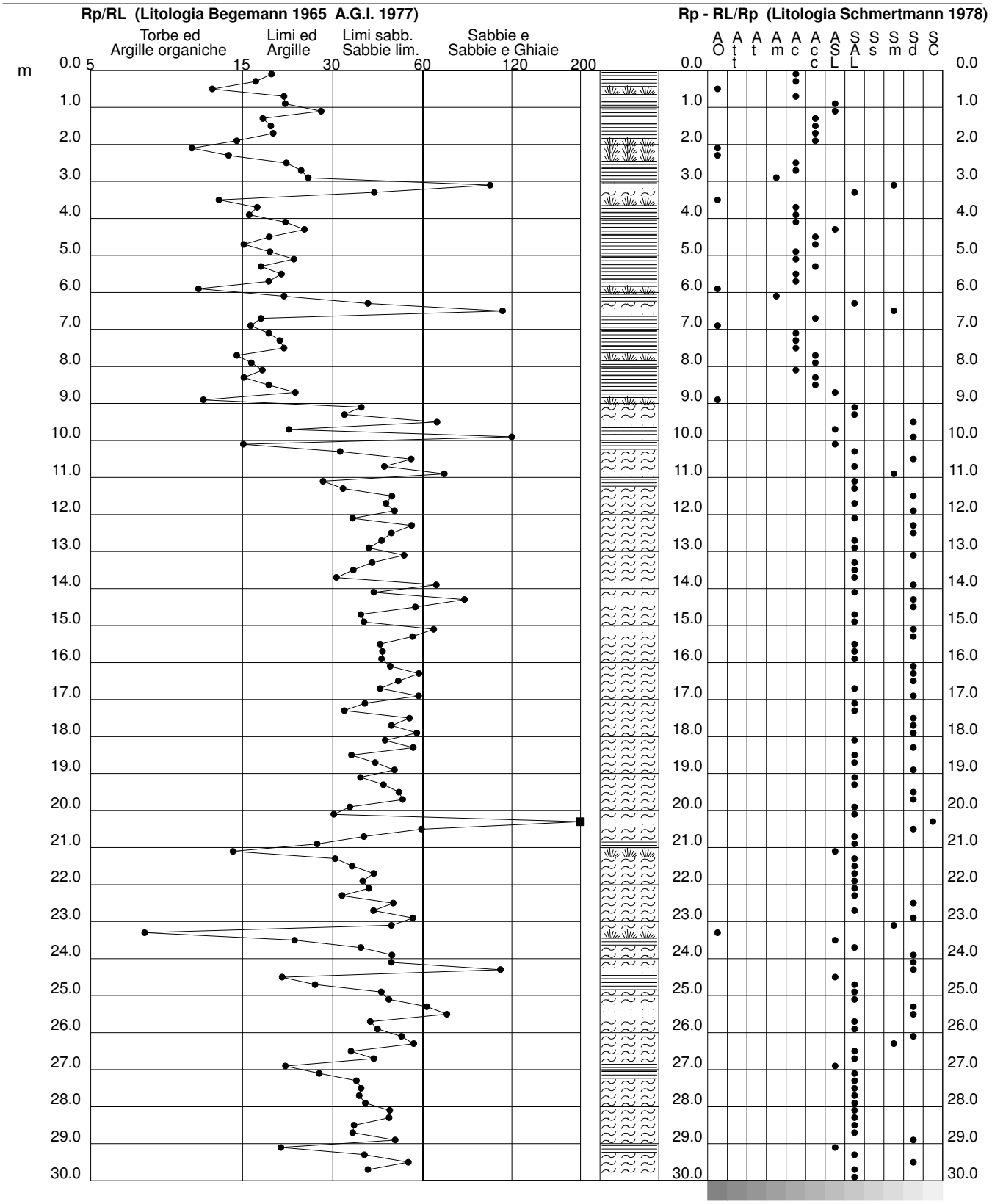
PROVA PENETROMETRICA STATICA
VALUTAZIONI LITOLOGICHE

CPT 1

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio



PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 1

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
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	NATURA COESIVA										NATURA GRANULARE										
Prof. m	Rp kg/cm²	Rp/Rl (-)	Natura Litol.	Y' t/m³	p'vo kg/cm²	Cu kg/cm²	OCR (-)	Eu50 kg/cm²	Eu25 kg/cm²	Mo kg/cm²	Dr %	ø1s (°)	ø2s (°)	ø3s (°)	ø4s (°)	ødm (°)	ømy (°)	Amax/g (-)	E'50 kg/cm²	E'25 kg/cm²	Mo kg/cm²
0.20	13	19	2////	1.85	0.04	0.60	99.9	103	154	47	--	--	--	--	--	--	--	--	--	--	--
0.40	15	17	2////	1.85	0.07	0.67	98.0	113	170	50	--	--	--	--	--	--	--	--	--	--	--
0.60	15	12	2////	1.85	0.11	0.67	59.0	113	170	50	--	--	--	--	--	--	--	--	--	--	--
0.80	20	21	4/:/:	1.85	0.15	0.80	51.7	136	204	60	63	37	39	41	43	38	27	0.140	33	50	60
1.00	36	22	4/:/:	1.85	0.19	1.20	65.0	204	306	108	78	39	41	42	44	40	30	0.184	60	90	108
1.20	34	28	4/:/:	1.85	0.22	1.13	48.2	193	289	102	72	38	40	42	44	39	29	0.164	57	85	102
1.40	28	18	4/:/:	1.85	0.26	0.97	32.5	164	246	84	61	37	39	41	43	37	28	0.134	47	70	84
1.60	22	19	4/:/:	1.85	0.30	0.85	23.3	144	216	66	50	35	37	40	42	35	28	0.103	37	55	66
1.80	25	20	4/:/:	1.85	0.33	0.91	22.0	155	232	75	51	35	37	40	42	35	28	0.107	42	63	75
2.00	18	15	2////	1.85	0.37	0.75	15.2	128	191	56	--	--	--	--	--	--	--	--	--	--	--
2.20	15	11	2////	1.85	0.41	0.67	11.6	113	170	50	--	--	--	--	--	--	--	--	--	--	--
2.40	16	14	2////	1.85	0.44	0.70	11.0	118	177	52	--	--	--	--	--	--	--	--	--	--	--
2.60	16	22	2////	1.85	0.48	0.70	10.0	118	177	52	--	--	--	--	--	--	--	--	--	--	--
2.80	13	24	2////	1.85	0.52	0.60	7.6	126	189	47	--	--	--	--	--	--	--	--	--	--	--
3.00	12	26	2////	1.85	0.55	0.57	6.5	143	214	45	--	--	--	--	--	--	--	--	--	--	--
3.20	27	101	3::::	1.85	0.59	--	--	--	--	--	40	34	36	39	41	33	28	0.079	45	68	81
3.40	31	42	3::::	1.85	0.63	--	--	--	--	--	43	34	36	39	41	33	29	0.087	52	78	93
3.60	14	13	2////	1.85	0.67	0.64	5.9	177	265	48	--	--	--	--	--	--	--	--	--	--	--
3.80	14	17	2////	1.85	0.70	0.64	5.5	190	285	48	--	--	--	--	--	--	--	--	--	--	--
4.00	11	16	2////	0.91	0.72	0.54	4.3	201	302	42	--	--	--	--	--	--	--	--	--	--	--
4.20	13	22	2////	0.93	0.74	0.60	4.9	205	307	47	--	--	--	--	--	--	--	--	--	--	--
4.40	15	25	2////	0.95	0.76	0.67	5.3	207	310	50	--	--	--	--	--	--	--	--	--	--	--
4.60	23	19	4/:/:	0.94	0.78	0.87	7.2	193	290	69	28	32	35	37	40	30	28	0.053	38	58	69
4.80	19	16	2////	0.99	0.80	0.78	6.1	210	315	58	--	--	--	--	--	--	--	--	--	--	--
5.00	18	19	2////	0.98	0.82	0.75	5.6	220	330	56	--	--	--	--	--	--	--	--	--	--	--
5.20	20	23	4/:/:	0.93	0.84	0.80	5.9	222	333	60	21	31	34	37	40	29	27	0.040	33	50	60
5.40	18	18	2////	0.98	0.86	0.75	5.3	233	350	56	--	--	--	--	--	--	--	--	--	--	--
5.60	14	21	2////	0.94	0.87	0.64	4.2	244	366	48	--	--	--	--	--	--	--	--	--	--	--
5.80	14	19	2////	0.94	0.89	0.64	4.1	249	374	48	--	--	--	--	--	--	--	--	--	--	--
6.00	9	11	2////	0.88	0.91	0.45	2.6	235	353	38	--	--	--	--	--	--	--	--	--	--	--
6.20	10	21	2////	0.90	0.93	0.50	2.9	251	376	40	--	--	--	--	--	--	--	--	--	--	--
6.40	43	40	3::::	0.91	0.95	--	--	--	--	--	44	34	37	39	42	33	30	0.090	72	108	129
6.60	37	111	3::::	0.89	0.96	--	--	--	--	--	39	33	36	38	41	32	30	0.077	62	93	111
6.80	18	18	2////	0.98	0.98	0.75	4.5	274	412	56	--	--	--	--	--	--	--	--	--	--	--
7.00	10	17	2////	0.90	1.00	0.50	2.6	260	391	40	--	--	--	--	--	--	--	--	--	--	--
7.20	14	19	2////	0.94	1.02	0.64	3.5	288	431	48	--	--	--	--	--	--	--	--	--	--	--
7.40	18	21	2////	0.98	1.04	0.75	4.2	290	436	56	--	--	--	--	--	--	--	--	--	--	--
7.60	20	21	4/:/:	0.93	1.06	0.80	4.4	295	443	60	15	30	33	36	39	28	27	0.029	33	50	60
7.80	19	15	2////	0.99	1.08	0.78	4.2	301	452	58	--	--	--	--	--	--	--	--	--	--	--
8.00	19	17	2////	0.99	1.10	0.78	4.1	307	460	58	--	--	--	--	--	--	--	--	--	--	--
8.20	17	18	2////	0.97	1.12	0.72	3.6	316	473	54	--	--	--	--	--	--	--	--	--	--	--
8.40	19	16	2////	0.99	1.14	0.78	3.9	319	479	58	--	--	--	--	--	--	--	--	--	--	--
8.60	28	19	4/:/:	0.96	1.16	0.97	5.0	319	479	84	25	31	34	37	40	29	28	0.047	47	70	84
8.80	28	23	4/:/:	0.96	1.18	0.97	4.9	325	488	84	24	31	34	37	40	29	28	0.046	47	70	84
9.00	28	12	4/:/:	0.96	1.19	0.97	4.8	331	497	84	24	31	34	37	40	29	28	0.045	47	70	84
9.20	46	38	3::::	0.91	1.21	--	--	--	--	--	41	34	36	39	41	32	31	0.081	77	115	138
9.40	63	34	3::::	0.94	1.23	--	--	--	--	--	51	35	37	40	42	33	32	0.107	105	158	189
9.60	113	68	3::::	1.02	1.25	--	--	--	--	--	71	38	40	42	44	36	34	0.161	188	283	339
9.80	86	22	4/:/:	1.04	1.27	2.87	17.3	487	731	258	61	37	39	41	43	35	33	0.133	143	215	258
10.00	119	119	3::::	1.03	1.29	--	--	--	--	--	72	38	40	42	44	37	35	0.164	198	298	357
10.20	82	16	4/:/:	1.04	1.31	2.73	15.7	465	697	246	58	36	38	40	43	34	33	0.126	137	205	246
10.40	48	33	3::::	0.91	1.33	--	--	--	--	--	40	34	36	39	41	31	31	0.079	80	120	144
10.60	108	56	3::::	1.01	1.35	--	--	--	--	--	67	37	39	41	43	36	34	0.151	180	270	324
10.80	73	46	3::::	0.96	1.37	--	--	--	--	--	53	35	38	40	42	33	32	0.113	122	183	219
11.00	86	72	3::::	0.98	1.39	--	--	--	--	--	59	36	38	40	43	34	33	0.127	143	215	258
11.20	90	29	4/:/:	1.04	1.41	3.00	16.1	510	765	270	60	36	38	41	43	34	33	0.130	150	225	270
11.40	78	33	3::::	0.96	1.43	--	--	--	--	--	55	36	38	40	42	34	33	0.116	130	195	234
11.60	148	48	3::::	1.07	1.45	--	--	--	--	--	76	39	40	42	44	37	36	0.178	247	370	444
11.80	120	46	3::::	1.03	1.47	--	--	--	--	--	69	38	40	41	44	36	35	0.156	200	300	360
12.00	128	49	3::::	1.04	1.49	--	--	--	--	--	71	38	40	42	44	36	35	0.161	213	320	384
12.20	146	36	3::::	1.07	1.52	--	--	--	--	--	75	38	40	42	44	37	36	0.174	243	365	438
12.40	127	56	3::::	1.04	1.54	--	--	--	--	--	70	38	40	42	44	36	35	0.158	212	318	381
12.60	138	48	3::::	1.06	1.56	--	--	--	--	--	72	38	40	42	44	36	36	0.166	230	345	414
12.80	134	45	3::::	1.05	1.58	--	--	--	--	--	71	38	40	42	44	36	35	0.162	223	335	402
13.00	111	41	3::::	1.02	1.60	--	--	--	--	--	64	37	39	41	43	35	34	0.142	185	278	333
13.20	113	53	3::::	1.02	1.62	--	--	--	--	--	64	37	39	41	43	35	34	0.143	188	283	339
13.40	97	42	3::::	1.00	1.64	--	--	--	--	--	59	36	38	40	43	34	34	0.127	162	243	291
13.60	89	36	3::::	0.98	1.66	--	--	--	--	--	56	36	38	40	42	34	33	0.119	148	223	267
13.80	106	32	3::::	1.01	1.68	--	--	--	--	--	61	37	39	41	43	34	34	0.134	177	265	318
14.00	144	67	3::::	1.07	1.70	--	--	--	--	--	72	38	40	42	44	36	36	0.164	240	360	432
14.20	132	42	3::::	1.05	1.72	--	--	--	--	--	68	38	39	41	43	35	35	0.154	220	330	396
14.40	128	83	3::::	1.04	1.74	--	--	--	--	--	67	37	39	41	43	35	35	0.150	213	320	384
14.60	119	58	3::::	1.03	1.76	--	--	--	--	--	64	37	39	41	43	35	35	0.142	198	298	357
14.80	112	38	3::::	1.02	1.78	--	--	--	--	--	62	37	39	41	43	34	34	0.135	187	280	336
15.00	133	39	3::::	1.05	1.80	--	--	--	--	--	67	37	39	41	43	35	35	0.151	222	333	399
15.20	172	66	3::::	1.11	1.83	--	--	--	--	--	76	39	40	42	44	37	37	0.177	287	430	516
15.40	158	56	3::::	1.09	1.85	--	--	--	--	--	73	38	40	42	44	36	36	0.167	263	395	474
15.60	109	44	3::::	1.01	1.87	--	--	--	--	--	60	36	38	41	43	34	34	0.130	182	273	327
15.80	111	45	3::::	1.02	1.89	--	--	--	--	--	60	36	38	41	43	34	34	0.131	185	278	333
16.00	149	45	3::::	1.07	1.91	--	--	--	--	--	70	38	40	42	44	36	36	0.159	248	373	447
16.20	140	48	3::::	1.06	1.93	--	--	--	--	--	67	37	39	41	43	35	36	0.152	233	350	420
16.40	138	59	3::::	1.06	1.95	--	--	--	--	--	67	37	39	41	43	35	36	0.149	230	345	414
16.60	135	51	3::::	1.05	1.97	--	--	--	--	--	66	37	39	41	43	35	35	0.147	225	338	405
16.80	165	44	3::::	1.10	2.00	--	--	--	--	--	72	38	40	42	44	36	37	0.166	275	413	495
17.00	185	59	3::::	1.13	2.02	--	--	--	--	--	76	39	40	42	44	36	37	0.177	308	463	555
17.20	147	39	3::::	1.07	2.04	--	--	--	--	--	68	37	39	41	43	35	36	0.153	245	368	441
17.40	117	34	3::::	1.03	2.06	--	--	--	--	--	60	36	38	41	43	34	35	0.130	195	293	351
17.60	136	55	3::::	1.05	2.08	--	--	--	--	--	65	37	39	41	43	35	35	0.144	227	340	408
17.80	154	48	3::::	1.08	2.10	--	--	--	--	--	69	38	39	41	43	35	36	0.155	257	385	462
18.00	136	58	3::::	1.05	2.12	--	--	--	--	--	64	37	39	41	43	34	35	0.142	227	340	408
18.20	113	46	3::::	1.02	2.14	--	--	--	--	--	58	36	38	40	43	33	34	0.124	188	283	339
18.40	102	57	3::::	1.00	2.16	--	--	--	--	--	54	36	38	40	42	33	34	0.114	170	255	306
18.60	102	36	3::::	1.00	2.18	--	--	--	--	--	54	36	38	40	42	33	34	0.113	170	255	306
18.80	88	43	3::::	0.98	2.20	--	--	--	--	--	48	35	37	39	42	32	33	0.100	147	220	264
19.00	128	49	3::::	1.04	2.22	--	--	--	--	--	61	37	39	41	43	34	35	0.133	213	320	384
19.20	127	38	3::::	1.04	2.25	--	--	--	--	--	60	36	39	41	43	34	35	0.132	212	318	381
19.40	136	45	3::::	1.05	2.27	--	--	--	--	--	63	37	39	41	43	34	35	0.138	227	340	408
19.60	146	51	3::::	1.07	2.29	--	--	--	--	--	65	37	39	41	43	34	36	0.144	243	365	438
19.80	171	52	3::::	1.11	2.31	--	--	--	--	--	70	38	40	42	44	35	37	0.159	285	428	513
20.00	136	35	3::::	1.05	2.33	--	--	--	--	--	62	37	39	41	43	34	35	0.136	227	340	408

PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 1

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

								NATURA COESIVA										NATURA GRANULARE				
Prof.	Rp	Rp/Rl	Natura	Y'	p'vo	Cu	OCR	Eu50	Eu25	Mo	Dr	ø1s	ø2s	ø3s	ø4s	ødm	ømy	Amax/g	E'50	E'25	Mo	
m	kg/cm²	(-)	Litol.	t/m³	kg/cm²	kg/cm²	(-)	kg/cm²		kg/cm²	%	(°)	(°)	(°)	(°)	(°)	(°)	(-)	kg/cm²		kg/cm²	
20.20	131	31	3::::	1.05	2.35	--	--	--	--	--	60	36	38	41	43	34	35	0.132	218	328	393	
20.40	164	246	3::::	1.10	2.37	--	--	--	--	--	68	38	39	41	43	35	37	0.153	273	410	492	
20.60	173	60	3::::	1.11	2.40	--	--	--	--	--	69	38	40	42	44	35	37	0.158	288	433	519	
20.80	112	39	3::::	1.02	2.42	--	--	--	--	--	54	36	38	40	42	33	34	0.115	187	280	336	
21.00	110	28	4/:/:	1.06	2.44	3.67	10.5	623	935	330	54	35	38	40	42	33	34	0.113	183	275	330	
21.20	143	15	4/:/:	1.08	2.46	4.77	14.4	810	1216	429	62	37	39	41	43	34	36	0.137	238	358	429	
21.40	124	32	3::::	1.04	2.48	--	--	--	--	--	57	36	38	40	43	33	35	0.123	207	310	372	
21.60	160	36	3::::	1.09	2.50	--	--	--	--	--	66	37	39	41	43	34	36	0.147	267	400	480	
21.80	160	42	3::::	1.09	2.52	--	--	--	--	--	66	37	39	41	43	34	36	0.146	267	400	480	
22.00	199	39	3::::	1.15	2.55	--	--	--	--	--	73	38	40	42	44	36	38	0.168	332	498	597	
22.20	276	41	3::::	1.15	2.57	--	--	--	--	--	84	40	41	43	45	37	40	0.202	460	690	828	
22.40	157	33	3::::	1.09	2.59	--	--	--	--	--	64	37	39	41	43	34	36	0.142	262	393	471	
22.60	195	49	3::::	1.14	2.61	--	--	--	--	--	71	38	40	42	44	35	38	0.164	325	488	585	
22.80	171	42	3::::	1.11	2.64	--	--	--	--	--	67	37	39	41	43	35	37	0.150	285	428	513	
23.00	147	57	3::::	1.07	2.66	--	--	--	--	--	61	37	39	41	43	34	36	0.134	245	368	441	
23.20	93	48	3::::	0.99	2.68	--	--	--	--	--	45	34	37	39	42	31	33	0.093	155	233	279	
23.40	16	7	2////	0.96	2.70	0.70	1.2	414	621	52	--	--	--	--	--	--	--	--	--	--	--	
23.60	85	23	4/:/:	1.04	2.72	2.83	6.6	696	1044	255	42	34	36	39	41	30	33	0.084	142	213	255	
23.80	168	38	3::::	1.10	2.74	--	--	--	--	--	65	37	39	41	43	34	37	0.145	280	420	504	
24.00	193	48	3::::	1.14	2.76	--	--	--	--	--	70	38	40	42	44	35	38	0.158	322	483	579	
24.20	157	48	3::::	1.09	2.78	--	--	--	--	--	63	37	39	41	43	34	36	0.137	262	393	471	
24.40	175	109	3::::	1.11	2.81	--	--	--	--	--	66	37	39	41	43	34	37	0.147	292	438	525	
24.60	183	21	4/:/:	1.11	2.83	6.10	16.4	1037	1556	549	67	37	39	41	43	35	37	0.151	305	458	549	
24.80	146	27	4/:/:	1.08	2.85	4.87	12.3	827	1241	438	59	36	38	41	43	33	36	0.129	243	365	438	
25.00	220	45	3::::	1.15	2.87	--	--	--	--	--	73	38	40	42	44	35	38	0.169	367	550	660	
25.20	195	47	3::::	1.14	2.90	--	--	--	--	--	69	38	40	41	44	35	38	0.156	325	488	585	
25.40	176	63	3::::	1.11	2.92	--	--	--	--	--	65	37	39	41	43	34	37	0.145	293	440	528	
25.60	190	73	3::::	1.14	2.94	--	--	--	--	--	68	37	39	41	43	35	37	0.152	317	475	570	
25.80	186	41	3::::	1.13	2.96	--	--	--	--	--	67	37	39	41	43	34	37	0.150	310	465	558	
26.00	234	43	3::::	1.15	2.99	--	--	--	--	--	75	38	40	42	44	36	39	0.173	390	585	702	
26.20	218	52	3::::	1.15	3.01	--	--	--	--	--	72	38	40	42	44	35	38	0.165	363	545	654	
26.40	91	57	3::::	0.99	3.03	--	--	--	--	--	42	34	36	39	41	30	33	0.084	152	228	273	
26.60	206	36	3::::	1.15	3.05	--	--	--	--	--	70	38	40	42	44	35	38	0.158	343	515	618	
26.80	132	42	3::::	1.05	3.07	--	--	--	--	--	54	36	38	40	42	32	35	0.115	220	330	396	
27.00	127	22	4/:/:	1.07	3.09	4.23	9.3	738	1107	381	53	35	38	40	42	32	35	0.111	212	318	381	
27.20	248	28	4/:/:	1.13	3.12	8.27	21.2	1405	2108	744	75	39	40	42	44	36	39	0.176	413	620	744	
27.40	170	37	3::::	1.11	3.14	--	--	--	--	--	62	37	39	41	43	34	37	0.137	283	425	510	
27.60	143	38	3::::	1.06	3.16	--	--	--	--	--	56	36	38	40	42	33	36	0.120	238	358	429	
27.80	151	38	3::::	1.08	3.18	--	--	--	--	--	58	36	38	40	43	33	36	0.125	252	378	453	
28.00	145	40	3::::	1.07	3.20	--	--	--	--	--	56	36	38	40	43	33	36	0.121	242	363	435	
28.20	228	47	3::::	1.15	3.23	--	--	--	--	--	72	38	40	42	44	35	39	0.164	380	570	684	
28.40	233	47	3::::	1.15	3.25	--	--	--	--	--	72	38	40	42	44	35	39	0.166	388	583	699	
28.60	167	36	3::::	1.10	3.27	--	--	--	--	--	61	36	39	41	43	33	37	0.132	278	418	501	
28.80	151	36	3::::	1.08	3.29	--	--	--	--	--	57	36	38	40	43	33	36	0.122	252	378	453	
29.00	175	50	3::::	1.11	3.32	--	--	--	--	--	62	37	39	41	43	33	37	0.136	292	438	525	
29.20	197	21	4/:/:	1.12	3.34	6.57	14.6	1116	1675	591	66	37	39	41	43	34	38	0.147	328	493	591	
29.40	254	39	3::::	1.15	3.36	--	--	--	--	--	74	38	40	42	44	35	39	0.173	423	635	762	
29.60	295	55	3::::	1.15	3.38	--	--	--	--	--	79	39	41	43	44	36	40	0.188	492	738	885	
29.80	293	40	3::::	1.15	3.41	--	--	--	--	--	79	39	41	42	44	36	40	0.187	488	733	879	
30.00	153	--	3::::	1.08	3.43	--	--	--	--	--	57	36	38	40	43	32	36	0.121	255	383	459	

PROVA PENETROMETRICA STATICA CPT 2
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
0.20	13.0	20.0	13.0	1.00	13.0	10.20	5.0	10.0	5.0	0.33	15.0
0.40	16.0	31.0	16.0	1.87	9.0	10.40	5.0	10.0	5.0	0.40	12.0
0.60	26.0	54.0	26.0	1.93	13.0	10.60	6.0	12.0	6.0	0.47	13.0
0.80	33.0	62.0	33.0	3.13	11.0	10.80	12.0	19.0	12.0	0.60	20.0
1.00	31.0	78.0	31.0	2.07	15.0	**11.00**	16.0	25.0	16.0	0.87	18.0
1.20	35.0	66.0	35.0	2.27	15.0	11.20	18.0	31.0	18.0	1.20	15.0
1.40	29.0	63.0	29.0	2.07	14.0	11.40	24.0	42.0	24.0	1.13	21.0
1.60	27.0	58.0	27.0	1.80	15.0	11.60	22.0	39.0	22.0	1.20	18.0
1.80	22.0	49.0	22.0	1.60	14.0	11.80	20.0	38.0	20.0	1.07	19.0
2.00	18.0	42.0	18.0	1.13	16.0	**12.00**	16.0	32.0	16.0	0.93	17.0
2.20	18.0	35.0	18.0	0.73	25.0	12.20	11.0	25.0	11.0	0.60	18.0
2.40	20.0	31.0	20.0	1.00	20.0	12.40	11.0	20.0	11.0	0.53	21.0
2.60	21.0	36.0	21.0	0.53	39.0	12.60	9.0	17.0	9.0	0.53	17.0
2.80	24.0	32.0	24.0	0.80	30.0	12.80	15.0	23.0	15.0	0.73	20.0
3.00	14.0	26.0	14.0	0.53	26.0	**13.00**	16.0	27.0	16.0	1.00	16.0
3.20	16.0	24.0	16.0	0.67	24.0	13.20	19.0	34.0	19.0	0.93	20.0
3.40	15.0	25.0	15.0	0.67	22.0	13.40	22.0	36.0	22.0	1.40	16.0
3.60	17.0	27.0	17.0	0.73	23.0	13.60	30.0	51.0	30.0	1.00	30.0
3.80	18.0	29.0	18.0	0.80	22.0	13.80	22.0	37.0	22.0	0.80	27.0
4.00	18.0	30.0	18.0	1.00	18.0	**14.00**	20.0	32.0	20.0	0.87	23.0
4.20	18.0	33.0	18.0	0.80	22.0	14.20	8.0	21.0	8.0	2.13	4.0
4.40	16.0	28.0	16.0	0.87	18.0	14.40	9.0	41.0	9.0	1.00	9.0
4.60	19.0	32.0	19.0	0.80	24.0	14.60	89.0	104.0	89.0	2.07	43.0
4.80	17.0	29.0	17.0	0.73	23.0	14.80	104.0	135.0	104.0	2.40	43.0
5.00	17.0	28.0	17.0	0.87	20.0	**15.00**	117.0	153.0	117.0	2.60	45.0
5.20	15.0	28.0	15.0	0.80	19.0	15.20	133.0	172.0	133.0	2.47	54.0
5.40	15.0	27.0	15.0	0.73	20.0	15.40	132.0	169.0	132.0	2.60	51.0
5.60	13.0	24.0	13.0	0.67	19.0	15.60	93.0	132.0	93.0	2.80	33.0
5.80	10.0	20.0	10.0	0.53	19.0	15.80	104.0	146.0	104.0	2.40	43.0
6.00	9.0	17.0	9.0	0.47	19.0	**16.00**	154.0	190.0	154.0	2.40	64.0
6.20	8.0	15.0	8.0	0.47	17.0	16.20	116.0	152.0	116.0	2.53	46.0
6.40	9.0	16.0	9.0	0.47	19.0	16.40	124.0	162.0	124.0	1.20	103.0
6.60	10.0	17.0	10.0	0.47	21.0	16.60	165.0	183.0	165.0	3.80	43.0
6.80	6.0	13.0	6.0	0.40	15.0	16.80	113.0	170.0	113.0	3.13	36.0
7.00	6.0	12.0	6.0	0.33	18.0	**17.00**	119.0	166.0	119.0	2.67	45.0
7.20	9.0	14.0	9.0	0.53	17.0	17.20	161.0	201.0	161.0	3.13	51.0
7.40	11.0	19.0	11.0	0.60	18.0	17.40	191.0	238.0	191.0	2.73	70.0
7.60	11.0	20.0	11.0	0.67	16.0	17.60	150.0	191.0	150.0	3.73	40.0
7.80	13.0	23.0	13.0	0.80	16.0	17.80	156.0	212.0	156.0	2.60	60.0
8.00	15.0	27.0	15.0	0.80	19.0	**18.00**	178.0	217.0	178.0	4.27	42.0
8.20	12.0	24.0	12.0	0.73	16.0	18.20	183.0	247.0	183.0	3.80	48.0
8.40	8.0	19.0	8.0	0.60	13.0	18.40	207.0	264.0	207.0	3.80	54.0
8.60	8.0	17.0	8.0	0.47	17.0	18.60	163.0	220.0	163.0	3.33	49.0
8.80	9.0	16.0	9.0	0.60	15.0	18.80	133.0	183.0	133.0	3.07	43.0
9.00	8.0	17.0	8.0	0.33	24.0	**19.00**	122.0	168.0	122.0	2.80	44.0
9.20	14.0	19.0	14.0	0.73	19.0	19.20	122.0	164.0	122.0	3.60	34.0
9.40	15.0	26.0	15.0	1.00	15.0	19.40	134.0	188.0	134.0	4.73	28.0
9.60	8.0	23.0	8.0	0.93	9.0	19.60	193.0	264.0	193.0	3.53	55.0
9.80	8.0	22.0	8.0	0.53	15.0	19.80	194.0	247.0	194.0	3.67	53.0
10.00	7.0	15.0	7.0	0.33	21.0	**20.00**	188.0	243.0	188.0	4.80	39.0

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA CPT 2
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
20.20	172.0	244.0	172.0	4.07	42.0	25.20	109.0	163.0	109.0	4.87	22.0
20.40	190.0	251.0	190.0	3.13	61.0	25.40	228.0	301.0	228.0	5.80	39.0
20.60	181.0	228.0	181.0	3.40	53.0	25.60	226.0	313.0	226.0	4.60	49.0
20.80	185.0	236.0	185.0	3.73	50.0	25.80	204.0	273.0	204.0	3.40	60.0
21.00	148.0	204.0	148.0	5.07	29.0	**26.00**	207.0	258.0	207.0	4.40	47.0
21.20	153.0	229.0	153.0	3.60	43.0	26.20	203.0	269.0	203.0	4.87	42.0
21.40	219.0	273.0	219.0	3.67	60.0	26.40	215.0	288.0	215.0	3.67	59.0
21.60	240.0	295.0	240.0	4.67	51.0	26.60	184.0	239.0	184.0	4.53	41.0
21.80	256.0	326.0	256.0	2.80	91.0	26.80	162.0	230.0	162.0	4.47	36.0
22.00	191.0	233.0	191.0	4.80	40.0	**27.00**	177.0	244.0	177.0	4.33	41.0
22.20	165.0	237.0	165.0	3.80	43.0	27.20	153.0	218.0	153.0	3.53	43.0
22.40	188.0	245.0	188.0	3.87	49.0	27.40	229.0	282.0	229.0	4.87	47.0
22.60	231.0	289.0	231.0	4.20	55.0	27.60	161.0	234.0	161.0	4.20	38.0
22.80	221.0	284.0	221.0	3.40	65.0	27.80	199.0	262.0	199.0	4.13	48.0
23.00	213.0	264.0	213.0	3.40	63.0	**28.00**	230.0	292.0	230.0	4.13	56.0
23.20	180.0	231.0	180.0	3.87	47.0	28.20	205.0	267.0	205.0	3.87	53.0
23.40	146.0	204.0	146.0	4.60	32.0	28.40	196.0	254.0	196.0	3.73	52.0
23.60	246.0	315.0	246.0	4.20	59.0	28.60	200.0	256.0	200.0	3.80	53.0
23.80	263.0	326.0	263.0	5.47	48.0	28.80	199.0	256.0	199.0	4.07	49.0
24.00	236.0	318.0	236.0	5.20	45.0	**29.00**	195.0	256.0	195.0	4.00	49.0
24.20	231.0	309.0	231.0	4.00	58.0	29.20	197.0	257.0	197.0	3.67	54.0
24.40	241.0	301.0	241.0	4.73	51.0	29.40	194.0	249.0	194.0	3.87	50.0
24.60	214.0	285.0	214.0	4.73	45.0	29.60	203.0	261.0	203.0	4.13	49.0
24.80	258.0	329.0	258.0	4.53	57.0	29.80	237.0	299.0	237.0	5.53	43.0
25.00	215.0	283.0	215.0	3.60	60.0	**30.00**	290.0	373.0	290.0	-----	----

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

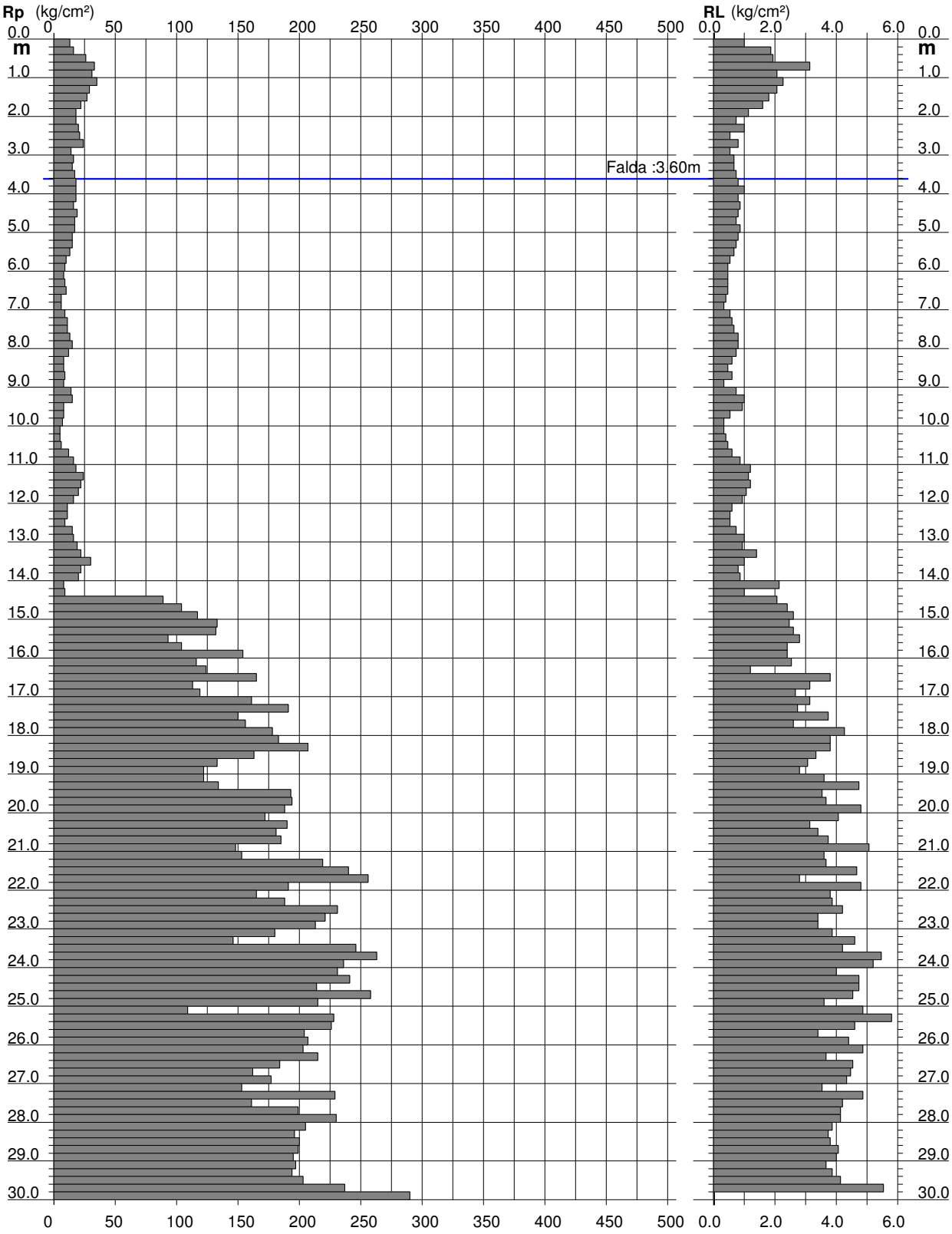
PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 2

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio



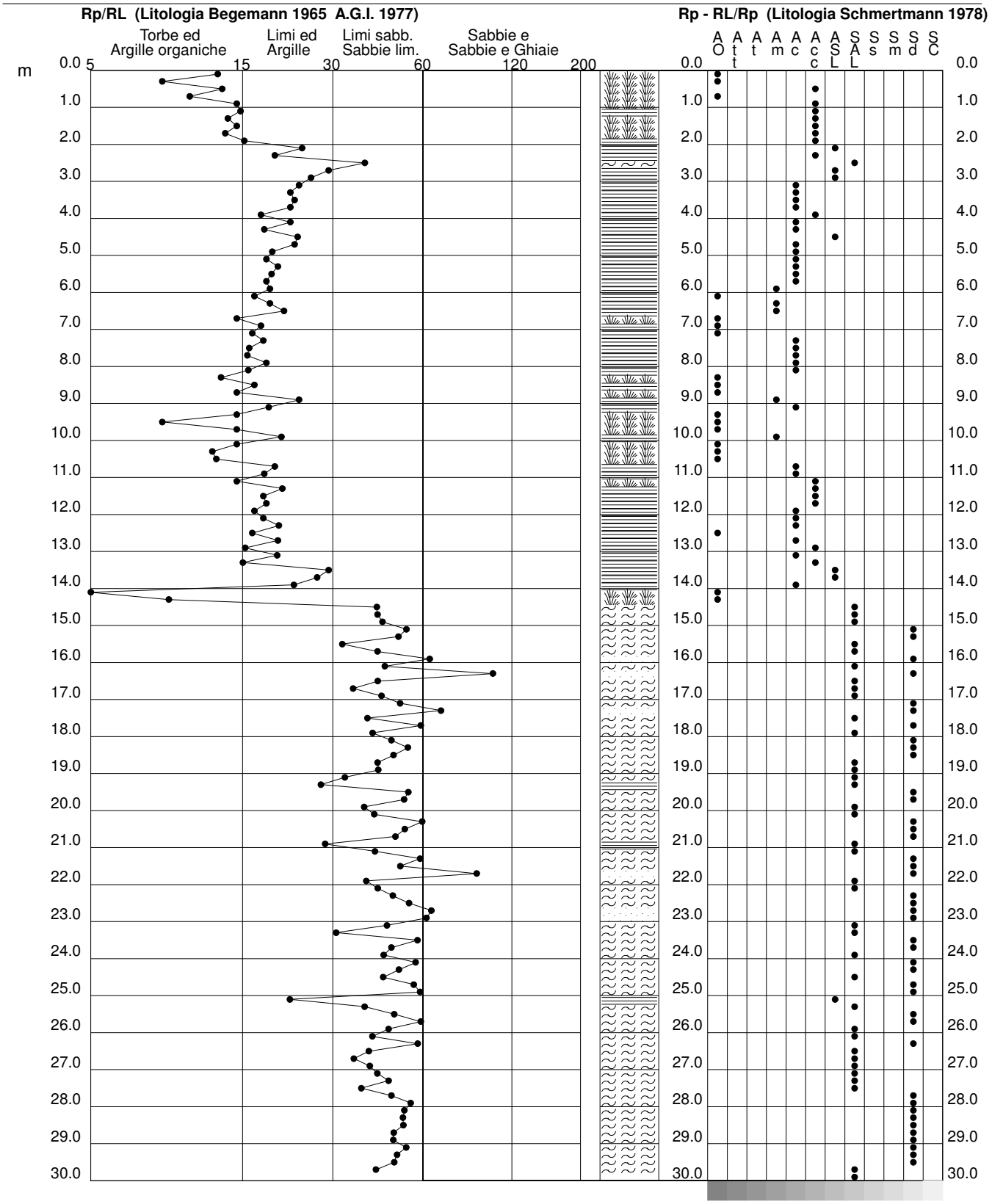
PROVA PENETROMETRICA STATICA
VALUTAZIONI LITOLOGICHE

CPT 2

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio



PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 2

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio

	NATURA COESIVA										NATURA GRANULARE										
Prof. m	Rp kg/cm²	Rp/Rl (-)	Natura Litol.	Y' t/m³	p'vo kg/cm²	Cu kg/cm²	OCR (-)	Eu50 kg/cm²	Eu25 kg/cm²	Mo kg/cm²	Dr %	ø1s (°)	ø2s (°)	ø3s (°)	ø4s (°)	ødm (°)	ømy (°)	Amax/g (-)	E'50 kg/cm²	E'25 kg/cm²	Mo kg/cm²
0.20	13	13	2////	1.85	0.04	0.60	99.9	103	154	47	--	--	--	--	--	--	--	--	--	--	--
0.40	16	9	2////	1.85	0.07	0.70	99.9	118	177	52	--	--	--	--	--	--	--	--	--	--	--
0.60	26	13	4/:/:	1.85	0.11	0.93	89.3	158	237	78	79	39	41	43	44	41	28	0.188	43	65	78
0.80	33	11	4/:/:	1.85	0.15	1.10	77.0	187	281	99	81	39	41	43	44	41	29	0.192	55	83	99
1.00	31	15	4/:/:	1.85	0.19	1.03	53.9	176	264	93	73	38	40	42	44	39	29	0.168	52	78	93
1.20	35	15	4/:/:	1.85	0.22	1.17	50.0	198	298	105	73	38	40	42	44	39	29	0.167	58	88	105
1.40	29	14	4/:/:	1.85	0.26	0.98	33.3	167	251	87	62	37	39	41	43	38	29	0.137	48	73	87
1.60	27	15	4/:/:	1.85	0.30	0.95	26.9	161	242	81	57	36	38	40	43	36	28	0.121	45	68	81
1.80	22	14	4/:/:	1.85	0.33	0.85	20.1	144	216	66	47	35	37	39	42	35	28	0.096	37	55	66
2.00	18	16	2////	1.85	0.37	0.75	15.2	128	191	56	--	--	--	--	--	--	--	--	--	--	--
2.20	18	25	2////	1.85	0.41	0.75	13.5	128	191	56	--	--	--	--	--	--	--	--	--	--	--
2.40	20	20	4/:/:	1.85	0.44	0.80	13.1	136	204	60	36	33	36	38	41	33	27	0.072	33	50	60
2.60	21	39	3::::	1.85	0.48	--	--	--	--	--	36	33	36	38	41	32	27	0.071	35	53	63
2.80	24	30	4/:/:	1.85	0.52	0.89	12.3	151	227	72	39	33	36	38	41	33	28	0.077	40	60	72
3.00	14	26	2////	1.85	0.55	0.64	7.4	136	204	48	--	--	--	--	--	--	--	--	--	--	--
3.20	16	24	2////	1.85	0.59	0.70	7.7	144	216	52	--	--	--	--	--	--	--	--	--	--	--
3.40	15	22	2////	1.85	0.63	0.67	6.8	160	240	50	--	--	--	--	--	--	--	--	--	--	--
3.60	17	23	2////	0.97	0.65	0.72	7.2	161	242	54	--	--	--	--	--	--	--	--	--	--	--
3.80	18	22	2////	0.98	0.67	0.75	7.3	165	248	56	--	--	--	--	--	--	--	--	--	--	--
4.00	18	18	2////	0.98	0.69	0.75	7.0	173	259	56	--	--	--	--	--	--	--	--	--	--	--
4.20	18	22	2////	0.98	0.71	0.75	6.8	180	270	56	--	--	--	--	--	--	--	--	--	--	--
4.40	16	18	2////	0.96	0.73	0.70	5.9	193	289	52	--	--	--	--	--	--	--	--	--	--	--
4.60	19	24	2////	0.99	0.75	0.78	6.6	191	287	58	--	--	--	--	--	--	--	--	--	--	--
4.80	17	23	2////	0.97	0.77	0.72	5.8	204	306	54	--	--	--	--	--	--	--	--	--	--	--
5.00	17	20	2////	0.97	0.78	0.72	5.7	211	317	54	--	--	--	--	--	--	--	--	--	--	--
5.20	15	19	2////	0.95	0.80	0.67	5.0	222	333	50	--	--	--	--	--	--	--	--	--	--	--
5.40	15	20	2////	0.95	0.82	0.67	4.8	228	342	50	--	--	--	--	--	--	--	--	--	--	--
5.60	13	19	2////	0.93	0.84	0.60	4.2	235	353	47	--	--	--	--	--	--	--	--	--	--	--
5.80	10	19	2////	0.90	0.86	0.50	3.2	239	358	40	--	--	--	--	--	--	--	--	--	--	--
6.00	9	19	2////	0.88	0.88	0.45	2.7	231	347	38	--	--	--	--	--	--	--	--	--	--	--
6.20	8	17	2////	0.86	0.89	0.40	2.3	217	326	35	--	--	--	--	--	--	--	--	--	--	--
6.40	9	19	2////	0.88	0.91	0.45	2.6	236	353	38	--	--	--	--	--	--	--	--	--	--	--
6.60	10	21	2////	0.90	0.93	0.50	2.9	251	376	40	--	--	--	--	--	--	--	--	--	--	--
6.80	6	15	1***	0.46	0.94	0.30	1.5	38	57	9	--	--	--	--	--	--	--	--	--	--	--
7.00	6	18	2////	0.82	0.96	0.30	1.5	175	263	29	--	--	--	--	--	--	--	--	--	--	--
7.20	9	17	2////	0.88	0.97	0.45	2.4	242	362	38	--	--	--	--	--	--	--	--	--	--	--
7.40	11	18	2////	0.91	0.99	0.54	2.9	268	402	42	--	--	--	--	--	--	--	--	--	--	--
7.60	11	16	2////	0.91	1.01	0.54	2.8	271	407	42	--	--	--	--	--	--	--	--	--	--	--
7.80	13	16	2////	0.93	1.03	0.60	3.2	287	430	47	--	--	--	--	--	--	--	--	--	--	--
8.00	15	19	2////	0.95	1.05	0.67	3.6	296	443	50	--	--	--	--	--	--	--	--	--	--	--
8.20	12	16	2////	0.92	1.07	0.57	2.9	287	431	45	--	--	--	--	--	--	--	--	--	--	--
8.40	8	13	2////	0.86	1.08	0.40	1.8	228	342	35	--	--	--	--	--	--	--	--	--	--	--
8.60	8	17	2////	0.86	1.10	0.40	1.8	229	343	35	--	--	--	--	--	--	--	--	--	--	--
8.80	9	15	2////	0.88	1.12	0.45	2.0	252	378	38	--	--	--	--	--	--	--	--	--	--	--
9.00	8	24	2////	0.86	1.13	0.40	1.7	230	345	35	--	--	--	--	--	--	--	--	--	--	--
9.20	14	19	2////	0.94	1.15	0.64	3.0	315	472	48	--	--	--	--	--	--	--	--	--	--	--
9.40	15	15	2////	0.95	1.17	0.67	3.1	323	485	50	--	--	--	--	--	--	--	--	--	--	--
9.60	8	9	2////	0.86	1.19	0.40	1.6	232	347	35	--	--	--	--	--	--	--	--	--	--	--
9.80	8	15	2////	0.86	1.21	0.40	1.6	232	348	35	--	--	--	--	--	--	--	--	--	--	--
10.00	7	21	2////	0.84	1.22	0.35	1.3	207	310	32	--	--	--	--	--	--	--	--	--	--	--
10.20	5	15	1***	0.46	1.23	0.25	0.9	33	49	8	--	--	--	--	--	--	--	--	--	--	--
10.40	5	12	1***	0.46	1.24	0.25	0.8	33	49	8	--	--	--	--	--	--	--	--	--	--	--
10.60	6	13	1***	0.46	1.25	0.30	1.1	39	58	9	--	--	--	--	--	--	--	--	--	--	--
10.80	12	20	2////	0.92	1.27	0.57	2.3	310	465	45	--	--	--	--	--	--	--	--	--	--	--
11.00	16	18	2////	0.96	1.29	0.70	2.9	348	523	52	--	--	--	--	--	--	--	--	--	--	--
11.20	18	15	2////	0.98	1.31	0.75	3.1	362	543	56	--	--	--	--	--	--	--	--	--	--	--
11.40	24	21	4/:/:	0.94	1.33	0.89	3.8	374	561	72	16	30	33	36	39	27	28	0.031	40	60	72
11.60	22	18	4/:/:	0.93	1.35	0.85	3.5	380	569	66	13	30	33	36	39	27	28	0.025	37	55	66
11.80	20	19	4/:/:	0.93	1.36	0.80	3.2	380	570	60	9	29	32	35	39	26	27	0.019	33	50	60
12.00	16	17	2////	0.96	1.38	0.70	2.7	361	542	52	--	--	--	--	--	--	--	--	--	--	--
12.20	11	18	2////	0.91	1.40	0.54	1.9	304	455	42	--	--	--	--	--	--	--	--	--	--	--
12.40	11	21	2////	0.91	1.42	0.54	1.9	304	457	42	--	--	--	--	--	--	--	--	--	--	--
12.60	9	17	2////	0.88	1.44	0.45	1.5	263	395	38	--	--	--	--	--	--	--	--	--	--	--
12.80	15	20	2////	0.95	1.46	0.67	2.4	359	539	50	--	--	--	--	--	--	--	--	--	--	--
13.00	16	16	2////	0.96	1.48	0.70	2.5	371	556	52	--	--	--	--	--	--	--	--	--	--	--
13.20	19	20	2////	0.99	1.50	0.78	2.8	397	595	58	--	--	--	--	--	--	--	--	--	--	--
13.40	22	16	4/:/:	0.93	1.51	0.85	3.0	415	623	66	10	29	32	35	39	26	28	0.020	37	55	66
13.60	30	30	4/:/:	0.96	1.53	1.00	3.7	433	649	90	20	31	34	37	40	28	29	0.038	50	75	90
13.80	22	27	4/:/:	0.93	1.55	0.85	2.9	421	632	66	9	29	32	35	39	26	28	0.019	37	55	66
14.00	20	23	4/:/:	0.93	1.57	0.80	2.7	413	619	60	6	29	32	35	38	25	27	0.014	33	50	60
14.20	8	4	2////	0.86	1.59	0.40	1.1	239	358	35	--	--	--	--	--	--	--	--	--	--	--
14.40	9	9	2////	0.88	1.61	0.45	1.3	266	399	38	--	--	--	--	--	--	--	--	--	--	--
14.60	89	43	3::::	0.98	1.63	--	--	--	--	--	56	36	38	40	42	34	33	0.120	148	223	267
14.80	104	43	3::::	1.01	1.65	--	--	--	--	--	61	37	39	41	43	34	34	0.134	173	260	312
15.00	117	45	3::::	1.03	1.67	--	--	--	--	--	65	37	39	41	43	35	35	0.144	195	293	351
15.20	133	54	3::::	1.05	1.69	--	--	--	--	--	69	38	40	41	44	36	35	0.156	222	333	399
15.40	132	51	3::::	1.05	1.71	--	--	--	--	--	68	38	39	41	43	36	35	0.155	220	330	396
15.60	93	33	3::::	0.99	1.73	--	--	--	--	--	56	36	38	40	42	34	33	0.120	155	233	279
15.80	104	43	3::::	1.01	1.75	--	--	--	--	--	60	36	38	41	43	34	34	0.130	173	260	312
16.00	154	64	3::::	1.08	1.77	--	--	--	--	--	73	38	40	42	44	36	36	0.168	257	385	462
16.20	116	46	3::::	1.02	1.79	--	--	--	--	--	63	37	39	41	43	35	35	0.138	193	290	348
16.40	124	103	3::::	1.04	1.81	--	--	--	--	--	65	37	39	41	43	35	35	0.144	207	310	372
16.60	165	43	3::::	1.10	1.83	--	--	--	--	--	74	38	40	42	44	36	37	0.172	275	413	495
16.80	113	36	3::::	1.02	1.85	--	--	--	--	--	61	37	39	41	43	34	34	0.134	188	283	339
17.00	119	45	3::::	1.03	1.87	--	--	--	--	--	63	37	39	41	43	34	35	0.138	198	298	357
17.20	161	51	3::::	1.09	1.90	--	--	--	--	--	73	38	40	42	44	36	36	0.167	268	403	483
17.40	191	70	3::::	1.14	1.92	--	--	--	--	--	78	39	41	42	44	37	37	0.185	318	478	573
17.60	150	40	3::::	1.08	1.94	--	--	--	--	--	70	38	40	42	44	36	36	0.158	250	375	450
17.80	156	60	3::::	1.08	1.96	--	--	--	--	--	71	38	40	42	44	36	36	0.162	260	390	468
18.00	178	42	3::::	1.12	1.98	--	--	--	--	--	75	39	40	42	44	36	37	0.175	297	445	534
18.20	183	48	3::::	1.12	2.01	--	--	--	--	--	76	39	40	42	44	36	37	0.177	305	458	549
18.40	207	54	3::::	1.15	2.03	--	--	--	--	--	80	39	41	43	44	37	38	0.189	345	518	621
18.60	163	49	3::::	1.09	2.05	--	--	--	--	--	71	38	40	42	44	36	36	0.163	272	408	489
18.80	133	43	3::::	1.05	2.07	--	--	--	--	--	64	37	39	41	43	35	35	0.142	222	333	399
19.00	122	44	3::::	1.03	2.09	--	--	--	--	--	61	37	39	41	43	34	35	0.133	203	305	366
19.20	122	34	3::::	1.03	2.11	--	--	--	--	--	61	36	39	41	43	34	35	0.132	203	305	366
19.40	134	28	4/:/:	1.08	2.13	4.47	15.8	759	1139	402	64	37	39	41	43	34	35	0.140	223	335	402
19.60	193	55	3::::	1.14	2.16	--	--	--	--	--	76	39	40	42	44	36	38	0.177	322	483	579
19.80	194	53	3::::	1.14	2.18	--	--	--	--	--	76	39	40	42	44	36	38	0.177	323	485	582
20.00	188	39	3::::	1.13	2.20	--	--	--	--	--	74	38	40	42	44	36	37	0.172	313	470	564

PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 2

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.60 m da quota inizio

								NATURA COESIVA				NATURA GRANULARE										
Prof.	Rp	Rp/Rl	Natura	Y'	p'vo	Cu	OCR	Eu50	Eu25	Mo	Dr	ø1s	ø2s	ø3s	ø4s	ødm	ømy	Amax/g	E'50	E'25	Mo	
m	kg/cm²	(-)	Litol.	t/m³	kg/cm²	kg/cm²	(-)	kg/cm²		kg/cm²	%	(°)	(°)	(°)	(°)	(°)	(°)	(-)	kg/cm²		kg/cm²	
20.20	172	42	3::::	1.11	2.23	--	--	--	--	--	71	38	40	42	44	36	37	0.162	287	430	516	
20.40	190	61	3::::	1.14	2.25	--	--	--	--	--	74	38	40	42	44	36	37	0.172	317	475	570	
20.60	181	53	3::::	1.12	2.27	--	--	--	--	--	72	38	40	42	44	36	37	0.166	302	453	543	
20.80	185	50	3::::	1.13	2.29	--	--	--	--	--	73	38	40	42	44	36	37	0.168	308	463	555	
21.00	148	29	4/:/:	1.09	2.31	4.93	16.2	839	1258	444	65	37	39	41	43	34	36	0.144	247	370	444	
21.20	153	43	3::::	1.08	2.34	--	--	--	--	--	66	37	39	41	43	35	36	0.147	255	383	459	
21.40	219	60	3::::	1.15	2.36	--	--	--	--	--	78	39	41	42	44	37	38	0.184	365	548	657	
21.60	240	51	3::::	1.15	2.38	--	--	--	--	--	81	39	41	43	44	37	39	0.193	400	600	720	
21.80	256	91	3::::	1.15	2.41	--	--	--	--	--	83	40	41	43	45	37	39	0.199	427	640	768	
22.00	191	40	3::::	1.14	2.43	--	--	--	--	--	73	38	40	42	44	36	37	0.167	318	478	573	
22.20	165	43	3::::	1.10	2.45	--	--	--	--	--	67	37	39	41	43	35	37	0.151	275	413	495	
22.40	188	49	3::::	1.13	2.47	--	--	--	--	--	72	38	40	42	44	35	37	0.164	313	470	564	
22.60	231	55	3::::	1.15	2.50	--	--	--	--	--	78	39	41	42	44	37	39	0.185	385	578	693	
22.80	221	65	3::::	1.15	2.52	--	--	--	--	--	77	39	40	42	44	36	38	0.180	368	553	663	
23.00	213	63	3::::	1.15	2.54	--	--	--	--	--	75	39	40	42	44	36	38	0.175	355	533	639	
23.20	180	47	3::::	1.12	2.56	--	--	--	--	--	69	38	40	41	44	35	37	0.157	300	450	540	
23.40	146	32	3::::	1.07	2.59	--	--	--	--	--	62	37	39	41	43	34	36	0.135	243	365	438	
23.60	246	59	3::::	1.15	2.61	--	--	--	--	--	80	39	41	43	44	37	39	0.188	410	615	738	
23.80	263	48	3::::	1.15	2.63	--	--	--	--	--	82	39	41	43	45	37	40	0.195	438	658	789	
24.00	236	45	3::::	1.15	2.65	--	--	--	--	--	78	39	41	42	44	36	39	0.183	393	590	708	
24.20	231	58	3::::	1.15	2.68	--	--	--	--	--	77	39	40	42	44	36	39	0.180	385	578	693	
24.40	241	51	3::::	1.15	2.70	--	--	--	--	--	78	39	41	42	44	36	39	0.184	402	603	723	
24.60	214	45	3::::	1.15	2.72	--	--	--	--	--	74	38	40	42	44	36	38	0.170	357	535	642	
24.80	258	57	3::::	1.15	2.75	--	--	--	--	--	80	39	41	43	44	37	39	0.190	430	645	774	
25.00	215	60	3::::	1.15	2.77	--	--	--	--	--	73	38	40	42	44	36	38	0.169	358	538	645	
25.20	109	22	4/:/:	1.06	2.79	3.63	8.7	661	991	327	50	35	37	40	42	32	34	0.104	182	273	327	
25.40	228	39	3::::	1.15	2.81	--	--	--	--	--	75	39	40	42	44	36	39	0.174	380	570	684	
25.60	226	49	3::::	1.15	2.84	--	--	--	--	--	75	38	40	42	44	36	39	0.173	377	565	678	
25.80	204	60	3::::	1.15	2.86	--	--	--	--	--	71	38	40	42	44	35	38	0.162	340	510	612	
26.00	207	47	3::::	1.15	2.88	--	--	--	--	--	71	38	40	42	44	35	38	0.163	345	518	621	
26.20	203	42	3::::	1.15	2.91	--	--	--	--	--	70	38	40	42	44	35	38	0.160	338	508	609	
26.40	215	59	3::::	1.15	2.93	--	--	--	--	--	72	38	40	42	44	35	38	0.165	358	538	645	
26.60	184	41	3::::	1.13	2.95	--	--	--	--	--	67	37	39	41	43	34	37	0.149	307	460	552	
26.80	162	36	3::::	1.09	2.97	--	--	--	--	--	62	37	39	41	43	34	36	0.136	270	405	486	
27.00	177	41	3::::	1.12	3.00	--	--	--	--	--	65	37	39	41	43	34	37	0.144	295	443	531	
27.20	153	43	3::::	1.08	3.02	--	--	--	--	--	60	36	38	41	43	33	36	0.130	255	383	459	
27.40	229	47	3::::	1.15	3.04	--	--	--	--	--	73	38	40	42	44	35	39	0.169	382	573	687	
27.60	161	38	3::::	1.09	3.06	--	--	--	--	--	61	37	39	41	43	33	36	0.133	268	403	483	
27.80	199	48	3::::	1.15	3.08	--	--	--	--	--	68	38	39	41	43	35	38	0.154	332	498	597	
28.00	230	56	3::::	1.15	3.11	--	--	--	--	--	73	38	40	42	44	35	39	0.168	383	575	690	
28.20	205	53	3::::	1.15	3.13	--	--	--	--	--	69	38	40	41	44	35	38	0.156	342	513	615	
28.40	196	52	3::::	1.14	3.15	--	--	--	--	--	67	37	39	41	43	34	38	0.151	327	490	588	
28.60	200	53	3::::	1.15	3.18	--	--	--	--	--	68	37	39	41	43	34	38	0.152	333	500	600	
28.80	199	49	3::::	1.15	3.20	--	--	--	--	--	67	37	39	41	43	34	38	0.151	332	498	597	
29.00	195	49	3::::	1.14	3.22	--	--	--	--	--	66	37	39	41	43	34	38	0.148	325	488	585	
29.20	197	54	3::::	1.15	3.25	--	--	--	--	--	67	37	39	41	43	34	38	0.149	328	493	591	
29.40	194	50	3::::	1.14	3.27	--	--	--	--	--	66	37	39	41	43	34	38	0.147	323	485	582	
29.60	203	49	3::::	1.15	3.29	--	--	--	--	--	67	37	39	41	43	34	38	0.151	338	508	609	
29.80	237	43	3::::	1.15	3.31	--	--	--	--	--	72	38	40	42	44	35	39	0.166	395	593	711	
30.00	290	--	3::::	1.15	3.34	--	--	--	--	--	79	39	41	42	44	36	40	0.187	483	725	870	

PROVA PENETROMETRICA STATICA CPT 3
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
0.20	144.0	174.0	144.0	1.07	135.0	10.20	34.0	57.0	34.0	1.80	19.0
0.40	49.0	65.0	49.0	2.40	20.0	10.40	23.0	50.0	23.0	1.33	17.0
0.60	21.0	57.0	21.0	1.20	17.0	10.60	22.0	42.0	22.0	1.00	22.0
0.80	26.0	44.0	26.0	1.27	21.0	10.80	19.0	34.0	19.0	1.00	19.0
1.00	27.0	46.0	27.0	2.20	12.0	**11.00**	25.0	40.0	25.0	1.00	25.0
1.20	26.0	59.0	26.0	1.20	22.0	11.20	17.0	32.0	17.0	1.13	15.0
1.40	26.0	44.0	26.0	1.33	19.0	11.40	21.0	38.0	21.0	1.00	21.0
1.60	23.0	43.0	23.0	1.60	14.0	11.60	27.0	42.0	27.0	1.80	15.0
1.80	20.0	44.0	20.0	1.53	13.0	11.80	18.0	45.0	18.0	1.13	16.0
2.00	17.0	40.0	17.0	1.20	14.0	**12.00**	23.0	40.0	23.0	1.20	19.0
2.20	19.0	37.0	19.0	1.00	19.0	12.20	22.0	40.0	22.0	1.27	17.0
2.40	13.0	28.0	13.0	0.53	24.0	12.40	39.0	58.0	39.0	1.20	32.0
2.60	11.0	19.0	11.0	0.47	24.0	12.60	36.0	54.0	36.0	0.67	54.0
2.80	14.0	21.0	14.0	0.33	42.0	12.80	32.0	42.0	32.0	0.73	44.0
3.00	9.0	14.0	9.0	0.47	19.0	**13.00**	29.0	40.0	29.0	0.80	36.0
3.20	6.0	13.0	6.0	0.67	9.0	13.20	28.0	40.0	28.0	0.67	42.0
3.40	10.0	20.0	10.0	0.87	12.0	13.40	34.0	44.0	34.0	0.53	64.0
3.60	21.0	34.0	21.0	0.47	45.0	13.60	40.0	48.0	40.0	0.20	200.0
3.80	10.0	17.0	10.0	0.73	14.0	13.80	40.0	43.0	40.0	0.47	86.0
4.00	9.0	20.0	9.0	0.73	12.0	**14.00**	43.0	50.0	43.0	0.47	92.0
4.20	14.0	25.0	14.0	1.07	13.0	14.20	43.0	50.0	43.0	0.93	46.0
4.40	13.0	29.0	13.0	0.53	24.0	14.40	49.0	63.0	49.0	0.67	73.0
4.60	24.0	32.0	24.0	0.60	40.0	14.60	40.0	50.0	40.0	0.80	50.0
4.80	10.0	19.0	10.0	1.00	10.0	14.80	38.0	50.0	38.0	0.73	52.0
5.00	13.0	28.0	13.0	0.67	19.0	**15.00**	36.0	47.0	36.0	0.67	54.0
5.20	13.0	23.0	13.0	0.67	19.0	15.20	46.0	56.0	46.0	0.93	49.0
5.40	8.0	18.0	8.0	0.47	17.0	15.40	46.0	60.0	46.0	0.93	49.0
5.60	10.0	17.0	10.0	0.40	25.0	15.60	40.0	54.0	40.0	0.40	100.0
5.80	9.0	15.0	9.0	0.47	19.0	15.80	40.0	46.0	40.0	0.47	86.0
6.00	10.0	17.0	10.0	0.33	30.0	**16.00**	42.0	49.0	42.0	0.87	48.0
6.20	17.0	22.0	17.0	0.87	20.0	16.20	48.0	61.0	48.0	0.73	65.0
6.40	13.0	26.0	13.0	0.73	18.0	16.40	56.0	67.0	56.0	0.93	60.0
6.60	12.0	23.0	12.0	0.67	18.0	16.60	51.0	65.0	51.0	0.13	382.0
6.80	12.0	22.0	12.0	0.87	14.0	16.80	52.0	54.0	52.0	0.47	111.0
7.00	10.0	23.0	10.0	0.87	12.0	**17.00**	50.0	57.0	50.0	0.53	94.0
7.20	13.0	26.0	13.0	1.07	12.0	17.20	48.0	56.0	48.0	0.60	80.0
7.40	18.0	34.0	18.0	1.07	17.0	17.40	47.0	56.0	47.0	0.40	117.0
7.60	20.0	36.0	20.0	1.33	15.0	17.60	26.0	32.0	26.0	1.67	16.0
7.80	19.0	39.0	19.0	1.20	16.0	17.80	13.0	38.0	13.0	0.67	19.0
8.00	19.0	37.0	19.0	1.13	17.0	**18.00**	23.0	33.0	23.0	1.33	17.0
8.20	19.0	36.0	19.0	1.60	12.0	18.20	21.0	41.0	21.0	1.40	15.0
8.40	19.0	43.0	19.0	1.07	18.0	18.40	36.0	57.0	36.0	1.53	23.0
8.60	23.0	39.0	23.0	1.27	18.0	18.60	32.0	55.0	32.0	1.67	19.0
8.80	24.0	43.0	24.0	1.20	20.0	18.80	28.0	53.0	28.0	1.67	17.0
9.00	24.0	42.0	24.0	1.60	15.0	**19.00**	25.0	50.0	25.0	1.80	14.0
9.20	24.0	48.0	24.0	1.80	13.0	19.20	26.0	53.0	26.0	1.87	14.0
9.40	26.0	53.0	26.0	1.47	18.0	19.40	43.0	71.0	43.0	48.13	1.0
9.60	23.0	45.0	23.0	1.60	14.0	19.60	39.0	761.0	39.0	2.53	15.0
9.80	25.0	49.0	25.0	1.33	19.0	19.80	25.0	63.0	25.0	1.80	14.0
10.00	29.0	49.0	29.0	1.53	19.0	**20.00**	21.0	48.0	21.0	1.33	16.0

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA CPT 3
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
20.20	25.0	45.0	25.0	1.93	13.0	24.40	25.0	47.0	25.0	1.13	22.0
20.40	32.0	61.0	32.0	1.73	18.0	24.60	19.0	36.0	19.0	1.07	18.0
20.60	21.0	47.0	21.0	1.47	14.0	24.80	20.0	36.0	20.0	1.13	18.0
20.80	20.0	42.0	20.0	1.13	18.0	**25.00**	22.0	39.0	22.0	1.40	16.0
21.00	24.0	41.0	24.0	1.40	17.0	25.20	21.0	42.0	21.0	1.93	11.0
21.20	44.0	65.0	44.0	3.07	14.0	25.40	30.0	59.0	30.0	1.27	24.0
21.40	43.0	89.0	43.0	2.27	19.0	25.60	24.0	43.0	24.0	1.33	18.0
21.60	30.0	64.0	30.0	2.13	14.0	25.80	21.0	41.0	21.0	1.27	17.0
21.80	35.0	67.0	35.0	1.67	21.0	**26.00**	22.0	41.0	22.0	1.47	15.0
22.00	29.0	54.0	29.0	1.73	17.0	26.20	21.0	43.0	21.0	2.00	10.0
22.20	26.0	52.0	26.0	1.93	13.0	26.40	26.0	56.0	26.0	1.27	21.0
22.40	28.0	57.0	28.0	1.80	16.0	26.60	48.0	67.0	48.0	2.20	22.0
22.60	34.0	61.0	34.0	1.80	19.0	26.80	51.0	84.0	51.0	2.07	25.0
22.80	38.0	65.0	38.0	2.07	18.0	**27.00**	37.0	68.0	37.0	1.73	21.0
23.00	26.0	57.0	26.0	1.87	14.0	27.20	45.0	71.0	45.0	2.67	17.0
23.20	27.0	55.0	27.0	2.07	13.0	27.40	32.0	72.0	32.0	1.40	23.0
23.40	27.0	58.0	27.0	1.47	18.0	27.60	41.0	62.0	41.0	4.53	9.0
23.60	22.0	44.0	22.0	1.27	17.0	27.80	248.0	316.0	248.0	1.60	155.0
23.80	23.0	42.0	23.0	1.40	16.0	**28.00**	420.0	444.0	420.0	3.80	111.0
24.00	21.0	42.0	21.0	1.40	15.0	28.20	410.0	467.0	410.0	-----	----
24.20	22.0	43.0	22.0	1.47	15.0						

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

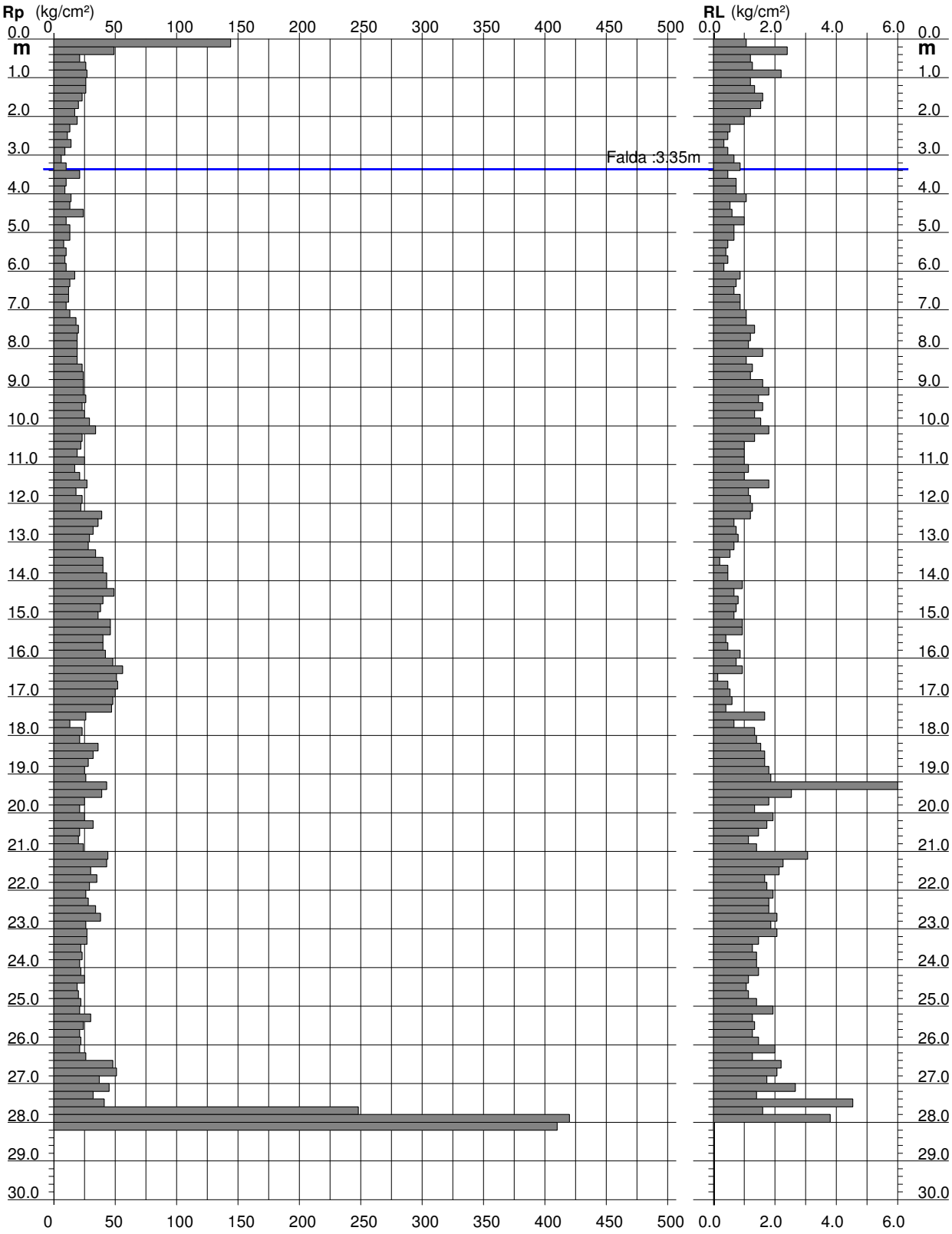
PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 3

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio



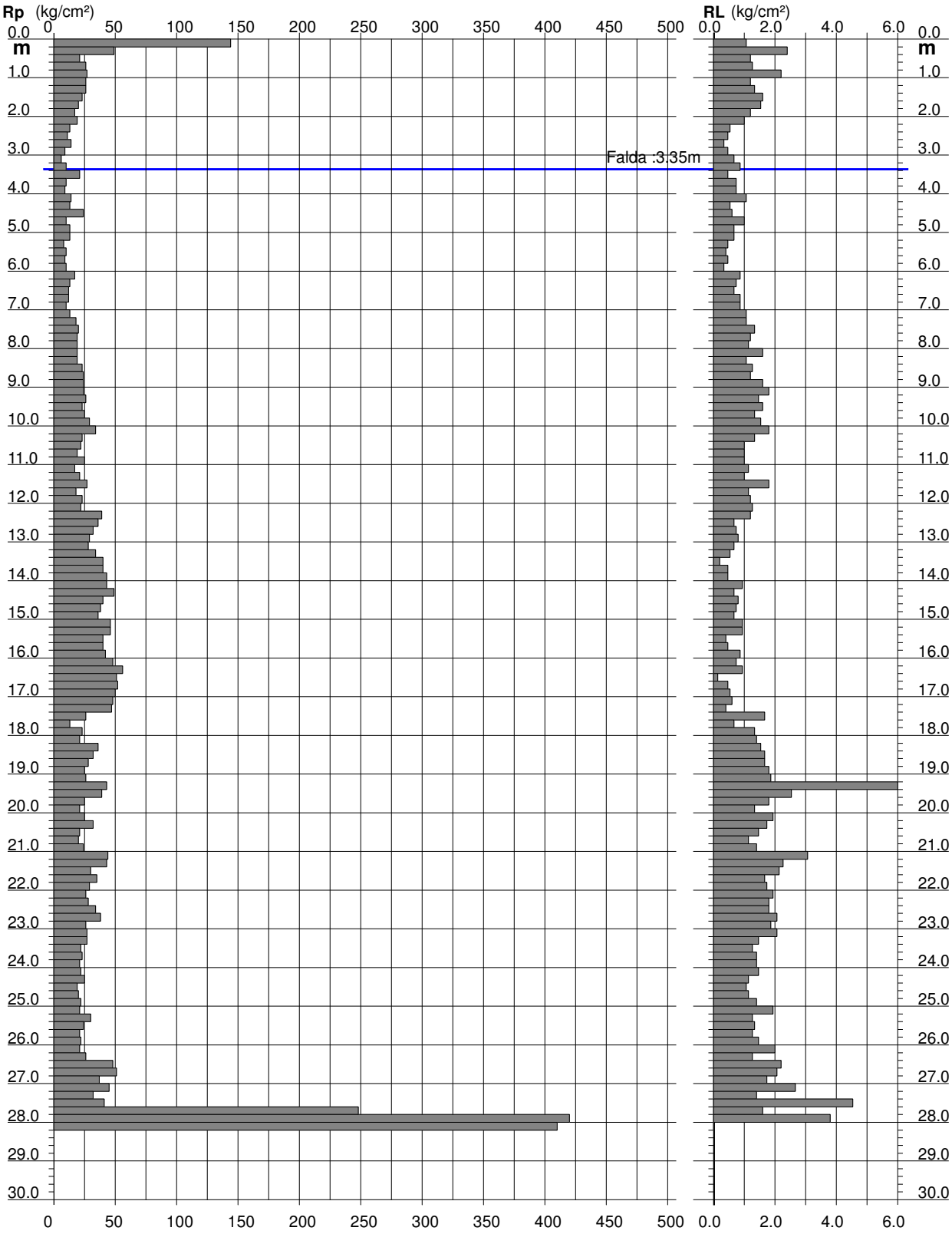
PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 3

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio



PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 3

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio

												NATURA COESIVA									NATURA GRANULARE		
Prof. m	Rp kg/cm²	Rp/Rl (-)	Natura Litol.	Y' t/m³	p'vo kg/cm²	Cu kg/cm²	OCR (-)	Eu50 kg/cm²	Eu25 kg/cm²	Mo kg/cm²	Dr %	ø1s (°)	ø2s (°)	ø3s (°)	ø4s (°)	ødm (°)	ømy (°)	Amax/g (-)	E'50 kg/cm²	E'25 kg/cm²	Mo kg/cm²
0.20	144	135	3::::	1.85	0.04	--	--	--	--	--	100	42	43	45	46	45	36	0.258	240	360	432
0.40	49	20	4/:/:	1.85	0.07	1.63	99.9	278	417	147	100	42	43	45	46	45	31	0.258	82	123	147
0.60	21	17	4/:/:	1.85	0.11	0.82	76.9	140	210	63	72	38	40	42	44	40	27	0.165	35	53	63
0.80	26	21	4/:/:	1.85	0.15	0.93	62.3	158	237	78	72	38	40	42	44	40	28	0.166	43	65	78
1.00	27	12	4/:/:	1.85	0.19	0.95	48.4	161	242	81	68	38	39	41	43	39	28	0.154	45	68	81
1.20	26	22	4/:/:	1.85	0.22	0.93	37.6	158	237	78	62	37	39	41	43	38	28	0.137	43	65	78
1.40	26	19	4/:/:	1.85	0.26	0.93	31.0	158	237	78	59	36	38	40	43	37	28	0.127	43	65	78
1.60	23	14	4/:/:	1.85	0.30	0.87	24.1	148	221	69	51	35	37	40	42	36	28	0.107	38	58	69
1.80	20	13	4/:/:	1.85	0.33	0.80	18.8	136	204	60	44	34	36	39	41	34	27	0.088	33	50	60
2.00	17	14	2////	1.85	0.37	0.72	14.5	123	184	54	--	--	--	--	--	--	--	--	--	--	--
2.20	19	19	2////	1.85	0.41	0.78	14.1	132	198	58	--	--	--	--	--	--	--	--	--	--	--
2.40	13	24	2////	1.85	0.44	0.60	9.2	106	159	47	--	--	--	--	--	--	--	--	--	--	--
2.60	11	24	2////	1.85	0.48	0.54	7.2	119	179	42	--	--	--	--	--	--	--	--	--	--	--
2.80	14	42	4/:/:	1.85	0.52	0.64	8.1	124	186	48	20	31	34	37	40	30	26	0.039	23	35	42
3.00	9	19	2////	1.85	0.55	0.45	4.8	154	231	38	--	--	--	--	--	--	--	--	--	--	--
3.20	6	9	1***	1.85	0.59	0.30	2.7	32	48	9	--	--	--	--	--	--	--	--	--	--	--
3.40	10	12	2////	0.90	0.61	0.50	4.9	169	253	40	--	--	--	--	--	--	--	--	--	--	--
3.60	21	45	3::::	0.85	0.63	--	--	--	--	--	30	32	35	38	40	31	27	0.057	35	53	63
3.80	10	14	2////	0.90	0.65	0.50	4.6	180	270	40	--	--	--	--	--	--	--	--	--	--	--
4.00	9	12	2////	0.88	0.66	0.45	3.9	186	279	38	--	--	--	--	--	--	--	--	--	--	--
4.20	14	13	2////	0.94	0.68	0.64	5.8	182	274	48	--	--	--	--	--	--	--	--	--	--	--
4.40	13	24	2////	0.93	0.70	0.60	5.2	192	288	47	--	--	--	--	--	--	--	--	--	--	--
4.60	24	40	3::::	0.86	0.72	--	--	--	--	--	31	32	35	38	40	31	28	0.060	40	60	72
4.80	10	10	2////	0.90	0.74	0.50	3.9	206	310	40	--	--	--	--	--	--	--	--	--	--	--
5.00	13	19	2////	0.93	0.75	0.60	4.8	209	314	47	--	--	--	--	--	--	--	--	--	--	--
5.20	13	19	2////	0.93	0.77	0.60	4.6	215	323	47	--	--	--	--	--	--	--	--	--	--	--
5.40	8	17	2////	0.86	0.79	0.40	2.7	207	310	35	--	--	--	--	--	--	--	--	--	--	--
5.60	10	25	2////	0.90	0.81	0.50	3.4	227	341	40	--	--	--	--	--	--	--	--	--	--	--
5.80	9	19	2////	0.88	0.83	0.45	2.9	224	336	38	--	--	--	--	--	--	--	--	--	--	--
6.00	10	30	4/:/:	0.86	0.84	0.50	3.3	235	353	40	--	28	31	35	38	25	26	--	17	25	30
6.20	17	20	2////	0.97	0.86	0.72	5.0	238	356	54	--	--	--	--	--	--	--	--	--	--	--
6.40	13	18	2////	0.93	0.88	0.60	3.9	247	370	47	--	--	--	--	--	--	--	--	--	--	--
6.60	12	18	2////	0.92	0.90	0.57	3.6	254	381	45	--	--	--	--	--	--	--	--	--	--	--
6.80	12	14	2////	0.92	0.92	0.57	3.5	258	388	45	--	--	--	--	--	--	--	--	--	--	--
7.00	10	12	2////	0.90	0.94	0.50	2.9	252	378	40	--	--	--	--	--	--	--	--	--	--	--
7.20	13	12	2////	0.93	0.95	0.60	3.6	269	404	47	--	--	--	--	--	--	--	--	--	--	--
7.40	18	17	2////	0.98	0.97	0.75	4.5	271	407	56	--	--	--	--	--	--	--	--	--	--	--
7.60	20	15	4/:/:	0.93	0.99	0.80	4.8	275	413	60	17	30	33	36	39	28	27	0.032	33	50	60
7.80	19	16	2////	0.99	1.01	0.78	4.5	282	423	58	--	--	--	--	--	--	--	--	--	--	--
8.00	19	17	2////	0.99	1.03	0.78	4.4	288	432	58	--	--	--	--	--	--	--	--	--	--	--
8.20	19	12	2////	0.99	1.05	0.78	4.3	294	440	58	--	--	--	--	--	--	--	--	--	--	--
8.40	19	18	2////	0.99	1.07	0.78	4.2	299	449	58	--	--	--	--	--	--	--	--	--	--	--
8.60	23	18	4/:/:	0.94	1.09	0.87	4.7	303	454	69	19	31	34	36	40	28	28	0.037	38	58	69
8.80	24	20	4/:/:	0.94	1.11	0.89	4.8	308	462	72	20	31	34	37	40	28	28	0.039	40	60	72
9.00	24	15	4/:/:	0.94	1.13	0.89	4.7	314	471	72	20	31	34	37	40	28	28	0.038	40	60	72
9.20	24	13	4/:/:	0.94	1.15	0.89	4.6	319	479	72	20	31	34	36	40	28	28	0.037	40	60	72
9.40	26	18	4/:/:	0.95	1.17	0.93	4.7	324	486	78	22	31	34	37	40	29	28	0.042	43	65	78
9.60	23	14	4/:/:	0.94	1.18	0.87	4.3	331	496	69	17	30	33	36	39	28	28	0.033	38	58	69
9.80	25	19	4/:/:	0.94	1.20	0.91	4.4	336	504	75	20	31	34	37	40	28	28	0.038	42	63	75
10.00	29	19	4/:/:	0.96	1.22	0.98	4.8	339	509	87	25	31	34	37	40	29	29	0.047	48	73	87
10.20	34	19	4/:/:	0.98	1.24	1.13	5.6	335	502	102	30	32	35	37	40	30	29	0.057	57	85	102
10.40	23	17	4/:/:	0.94	1.26	0.87	3.9	353	529	69	16	30	33	36	39	27	28	0.030	38	58	69
10.60	22	22	4/:/:	0.93	1.28	0.85	3.7	361	541	66	14	30	33	36	39	27	28	0.027	37	55	66
10.80	19	19	2////	0.99	1.30	0.78	3.3	363	545	58	--	--	--	--	--	--	--	--	--	--	--
11.00	25	25	4/:/:	0.94	1.32	0.91	3.9	369	553	75	18	30	33	36	39	28	28	0.034	42	63	75
11.20	17	15	2////	0.97	1.34	0.72	2.9	362	543	54	--	--	--	--	--	--	--	--	--	--	--
11.40	21	21	4/:/:	0.93	1.36	0.82	3.4	381	571	63	11	30	33	36	39	27	27	0.022	35	53	63
11.60	27	15	4/:/:	0.95	1.37	0.95	3.9	385	577	81	19	31	34	36	40	28	28	0.037	45	68	81
11.80	18	16	2////	0.98	1.39	0.75	2.9	376	565	56	--	--	--	--	--	--	--	--	--	--	--
12.00	23	19	4/:/:	0.94	1.41	0.87	3.4	397	596	69	13	30	33	36	39	27	28	0.026	38	58	69
12.20	22	17	4/:/:	0.93	1.43	0.85	3.3	400	599	66	11	30	33	36	39	27	28	0.022	37	55	66
12.40	39	32	3::::	0.90	1.45	--	--	--	--	--	31	32	35	38	40	30	30	0.059	65	98	117
12.60	36	54	3::::	0.89	1.47	--	--	--	--	--	28	32	35	37	40	29	30	0.053	60	90	108
12.80	32	44	3::::	0.88	1.48	--	--	--	--	--	23	31	34	37	40	28	29	0.044	53	80	96
13.00	29	36	3::::	0.87	1.50	--	--	--	--	--	20	31	34	36	40	28	29	0.037	48	73	87
13.20	28	42	3::::	0.87	1.52	--	--	--	--	--	18	31	33	36	39	28	28	0.034	47	70	84
13.40	34	64	3::::	0.89	1.54	--	--	--	--	--	24	31	34	37	40	29	29	0.046	57	85	102
13.60	40	200	3::::	0.90	1.56	--	--	--	--	--	30	32	35	38	40	29	30	0.057	67	100	120
13.80	40	86	3::::	0.90	1.57	--	--	--	--	--	29	32	35	37	40	29	30	0.057	67	100	120
14.00	43	92	3::::	0.91	1.59	--	--	--	--	--	32	32	35	38	41	30	30	0.061	72	108	129
14.20	43	46	3::::	0.91	1.61	--	--	--	--	--	31	32	35	38	41	30	30	0.061	72	108	129
14.40	49	73	3::::	0.92	1.63	--	--	--	--	--	36	33	36	38	41	30	31	0.070	82	123	147
14.60	40	50	3::::	0.90	1.65	--	--	--	--	--	28	32	35	37	40	29	30	0.054	67	100	120
14.80	38	52	3::::	0.90	1.66	--	--	--	--	--	26	32	34	37	40	29	30	0.050	63	95	114
15.00	36	54	3::::	0.89	1.68	--	--	--	--	--	24	31	34	37	40	28	30	0.046	60	90	108
15.20	46	49	3::::	0.91	1.70	--	--	--	--	--	32	33	35	38	41	30	31	0.063	77	115	138
15.40	46	49	3::::	0.91	1.72	--	--	--	--	--	32	32	35	38	41	30	31	0.062	77	115	138
15.60	40	100	3::::	0.90	1.74	--	--	--	--	--	27	32	34	37	40	29	30	0.052	67	100	120
15.80	40	86	3::::	0.90	1.75	--	--	--	--	--	27	32	34	37	40	29	30	0.051	67	100	120
16.00	42	48	3::::	0.90	1.77	--	--	--	--	--	28	32	35	37	40	29	30	0.054	70	105	126
16.20	48	65	3::::	0.91	1.79	--	--	--	--	--	33	33	35	38	41	30	31	0.063	80	120	144
16.40	56	60	3::::	0.93	1.81	--	--	--	--	--	38	33	36	38	41	30	31	0.074	93	140	168
16.60	51	382	3::::	0.92	1.83	--	--	--	--	--	34	33	35	38	41	30	31	0.067	85	128	153
16.80	52	111	3::::	0.92	1.85	--	--	--	--	--	35	33	35	38	41	30	31	0.068	87	130	156
17.00	50	94	3::::	0.92	1.86	--	--	--	--	--	33	33	35	38	41	30	31	0.064	83	125	150
17.20	48	80	3::::	0.91	1.88	--	--	--	--	--	31	32	35	38	41	29	31	0.061	80	120	144
17.40	47	117	3::::	0.91	1.90	--	--	--	--	--	30	32	35	38	40	29	31	0.059	78	118	141
17.60	26	16	4/:/:	0.95	1.92	0.93	2.5	490	735	78	10	29	32	35	39	26	28	0.020	43	65	78
17.80	13	19	2////	0.93	1.94	0.60	1.5	354	530	47	--	--	--	--	--	--	--	--	--	--	--
18.00	23	17	4/:/:	0.94	1.96	0.87	2.3	473	709	69	5	29	32	35	38	25	28	0.013	38	58	69
18.20	21	15	4/:/:	0.93	1.98	0.82	2.1	457	685	63	2	28	31	35	38	25	27	0.004	35	53	63
18.40	36	23	4/:/:	0.99	2.00	1.20	3.3	559	839	108	20	31	34	37	40	27	30	0.038	60	90	108
18.60	32	19	4/:/:	0.97	2.01	1.07	2.8	540	810	96	16	30	33	36	39	27	29	0.030	53	80	96
18.80	28	17	4/:/:	0.96	2.03	0.97	2.5	513	770	84	11	30	33	36	39	26	28	0.022	47	70	84
19.00	25	14	4/:/:	0.94	2.05	0.91	2.3	495	743	75	7	29	32	35	39	25	28	0.015	42	63	75
19.20	26	14	4/:/:	0.95	2.07	0.93	2.3	504	756	78	8	29	32	35	39	25	28	0.017	43	65	78
19.40	43	1	4/:/:	1.00	2.09	1.43	3.9	586	879	129	25	31	34	37	40	28	30	0.048	72	108	129
19.60	39	15	4/:/:	1.00	2.11	1.30	3.4	594	891	117	21	31	34	37	40	28	30	0.041	65	98	117
19.80	25	14	4/:/:	0.94	2.13	0.91	2.2	501	751	75	6	29	32	35	38	25	28	0.014	42	63	75
20.00	21	16	4/:/:	0.93	2.15	0.82	1.9	466	699	63	--	28	31	35	38	25	27	--	35	53	63

PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 3

3.010496-117

- committente: Comune di Mirandola
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- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 15/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.35 m da quota inizio

								NATURA COESIVA										NATURA GRANULARE										
Prof.	Rp	Rp/Rl	Natura	Y'	p'vo	Cu	OCR	Eu50	Eu25	Mo	Dr	ø1s	ø2s	ø3s	ø4s	ødm	ømy	Amax/g	E'50	E'25	Mo							
m	kg/cm²	(-)	Litol.	t/m³	kg/cm²	kg/cm²	(-)	kg/cm²		kg/cm²	%	(°)	(°)	(°)	(°)	(°)	(°)	(-)	kg/cm²		kg/cm²							
20.20	25	13	4/:/:	0.94	2.17	0.91	2.1	503	755	75	5	29	32	35	38	25	28	0.013	42	63	75							
20.40	32	18	4/:/:	0.97	2.19	1.07	2.6	561	842	96	14	30	33	36	39	26	29	0.027	53	80	96							
20.60	21	14	4/:/:	0.93	2.21	0.82	1.8	468	702	63	--	28	31	35	38	25	27	--	35	53	63							
20.80	20	18	4/:/:	0.93	2.22	0.80	1.7	458	687	60	--	28	31	35	38	25	27	--	33	50	60							
21.00	24	17	4/:/:	0.94	2.24	0.89	2.0	499	749	72	3	28	32	35	38	25	28	0.008	40	60	72							
21.20	44	14	4/:/:	1.00	2.26	1.47	3.7	639	958	132	24	31	34	37	40	28	31	0.045	73	110	132							
21.40	43	19	4/:/:	1.00	2.28	1.43	3.5	644	966	129	23	31	34	37	40	28	30	0.043	72	108	129							
21.60	30	14	4/:/:	0.96	2.30	1.00	2.2	548	822	90	10	29	32	36	39	26	29	0.021	50	75	90							
21.80	35	21	4/:/:	0.98	2.32	1.17	2.7	606	909	105	15	30	33	36	39	26	29	0.030	58	88	105							
22.00	29	17	4/:/:	0.96	2.34	0.98	2.1	544	816	87	9	29	32	35	39	25	29	0.018	48	73	87							
22.20	26	13	4/:/:	0.95	2.36	0.93	2.0	522	783	78	5	29	32	35	38	25	28	0.012	43	65	78							
22.40	28	16	4/:/:	0.96	2.38	0.97	2.0	539	808	84	7	29	32	35	39	25	28	0.016	47	70	84							
22.60	34	19	4/:/:	0.98	2.40	1.13	2.5	604	906	102	14	30	33	36	39	26	29	0.026	57	85	102							
22.80	38	18	4/:/:	0.99	2.42	1.27	2.8	645	967	114	17	30	33	36	39	27	30	0.033	63	95	114							
23.00	26	14	4/:/:	0.95	2.44	0.93	1.9	526	789	78	4	29	32	35	38	25	28	0.010	43	65	78							
23.20	27	13	4/:/:	0.95	2.46	0.95	1.9	535	803	81	5	29	32	35	38	25	28	0.013	45	68	81							
23.40	27	18	4/:/:	0.95	2.48	0.95	1.9	536	804	81	5	29	32	35	38	25	28	0.012	45	68	81							
23.60	22	17	4/:/:	0.93	2.49	0.85	1.6	489	734	66	--	28	31	35	38	25	28	--	37	55	66							
23.80	23	16	4/:/:	0.94	2.51	0.87	1.7	500	751	69	--	28	31	35	38	25	28	--	38	58	69							
24.00	21	15	4/:/:	0.93	2.53	0.82	1.5	479	718	63	--	28	31	35	38	25	27	--	35	53	63							
24.20	22	15	4/:/:	0.93	2.55	0.85	1.6	491	736	66	--	28	31	35	38	25	28	--	37	55	66							
24.40	25	22	4/:/:	0.94	2.57	0.91	1.7	522	783	75	1	28	31	35	38	25	28	0.003	42	63	75							
24.60	19	18	2////	0.99	2.59	0.78	1.4	456	683	58	--	--	--	--	--	--	--	--	--	--	--							
24.80	20	18	4/:/:	0.93	2.61	0.80	1.4	469	703	60	--	28	31	35	38	25	27	--	33	50	60							
25.00	22	16	4/:/:	0.93	2.63	0.85	1.5	493	739	66	--	28	31	35	38	25	28	--	37	55	66							
25.20	21	11	4/:/:	0.93	2.64	0.82	1.5	482	723	63	--	28	31	35	38	25	27	--	35	53	63							
25.40	30	24	4/:/:	0.96	2.66	1.00	1.8	568	852	90	7	29	32	35	39	25	29	0.015	50	75	90							
25.60	24	18	4/:/:	0.94	2.68	0.89	1.6	516	773	72	--	28	31	35	38	25	28	--	40	60	72							
25.80	21	17	4/:/:	0.93	2.70	0.82	1.4	483	724	63	--	28	31	35	38	25	27	--	35	53	63							
26.00	22	15	4/:/:	0.93	2.72	0.85	1.5	495	742	66	--	28	31	35	38	25	28	--	37	55	66							
26.20	21	10	4/:/:	0.93	2.74	0.82	1.4	484	725	63	--	28	31	35	38	25	27	--	35	53	63							
26.40	26	21	4/:/:	0.95	2.76	0.93	1.6	537	806	78	1	28	31	35	38	25	28	0.002	43	65	78							
26.60	48	22	4/:/:	1.01	2.78	1.60	3.2	770	1154	144	22	31	34	37	40	27	31	0.041	80	120	144							
26.80	51	25	4/:/:	1.01	2.80	1.70	3.4	786	1178	153	24	31	34	37	40	27	31	0.045	85	128	153							
27.00	37	21	4/:/:	0.99	2.82	1.23	2.2	674	1011	111	13	30	33	36	39	26	30	0.025	62	93	111							
27.20	45	17	4/:/:	1.00	2.84	1.50	2.8	760	1140	135	19	31	34	36	40	27	31	0.036	75	113	135							
27.40	32	23	4/:/:	0.97	2.86	1.07	1.8	606	910	96	7	29	32	35	39	25	29	0.016	53	80	96							
27.60	41	9	4/:/:	1.00	2.88	1.37	2.5	727	1090	123	16	30	33	36	39	26	30	0.030	68	103	123							
27.80	248	155	3::::	1.15	2.90	--	--	--	--	--	77	39	41	42	44	36	39	0.181	413	620	744							
28.00	420	111	3::::	1.15	2.92	--	--	--	--	--	95	41	43	44	46	39	40	0.241	700	1050	1260							
28.20	410	--	3::::	1.15	2.95	--	--	--	--	--	94	41	43	44	46	39	40	0.237	683	1025	1230							

PROVA PENETROMETRICA STATICA CPT 4
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
0.20	17.0	25.0	17.0	1.67	10.0	10.20	186.0	234.0	186.0	3.40	55.0
0.40	13.0	38.0	13.0	0.93	14.0	10.40	187.0	238.0	187.0	3.67	51.0
0.60	39.0	53.0	39.0	1.40	28.0	10.60	201.0	256.0	201.0	3.47	58.0
0.80	63.0	84.0	63.0	4.13	15.0	10.80	229.0	281.0	229.0	3.53	65.0
1.00	47.0	109.0	47.0	2.93	16.0	**11.00**	213.0	266.0	213.0	4.20	51.0
1.20	33.0	77.0	33.0	2.13	15.0	11.20	177.0	240.0	177.0	4.13	43.0
1.40	22.0	54.0	22.0	1.67	13.0	11.40	188.0	250.0	188.0	2.60	72.0
1.60	14.0	39.0	14.0	1.00	14.0	11.60	198.0	237.0	198.0	2.93	67.0
1.80	17.0	32.0	17.0	0.73	23.0	11.80	167.0	211.0	167.0	3.27	51.0
2.00	11.0	22.0	11.0	0.53	21.0	**12.00**	148.0	197.0	148.0	3.07	48.0
2.20	16.0	24.0	16.0	0.47	34.0	12.20	161.0	207.0	161.0	3.33	48.0
2.40	19.0	26.0	19.0	0.53	36.0	12.40	166.0	216.0	166.0	3.33	50.0
2.60	17.0	25.0	17.0	0.73	23.0	12.60	211.0	261.0	211.0	3.33	63.0
2.80	17.0	28.0	17.0	0.80	21.0	12.80	205.0	255.0	205.0	3.40	60.0
3.00	16.0	28.0	16.0	0.80	20.0	**13.00**	177.0	228.0	177.0	3.33	53.0
3.20	18.0	30.0	18.0	0.80	22.0	13.20	122.0	172.0	122.0	2.53	48.0
3.40	17.0	29.0	17.0	0.80	21.0	13.40	89.0	127.0	89.0	2.60	34.0
3.60	17.0	29.0	17.0	0.80	21.0	13.60	145.0	184.0	145.0	3.40	43.0
3.80	17.0	29.0	17.0	1.00	17.0	13.80	167.0	218.0	167.0	3.47	48.0
4.00	14.0	29.0	14.0	0.80	17.0	**14.00**	167.0	219.0	167.0	2.33	72.0
4.20	14.0	26.0	14.0	0.67	21.0	14.20	175.0	210.0	175.0	3.47	50.0
4.40	19.0	29.0	19.0	0.67	28.0	14.40	196.0	248.0	196.0	4.00	49.0
4.60	18.0	28.0	18.0	0.73	25.0	14.60	213.0	273.0	213.0	3.87	55.0
4.80	11.0	22.0	11.0	0.53	21.0	14.80	205.0	263.0	205.0	4.13	50.0
5.00	8.0	16.0	8.0	0.40	20.0	**15.00**	243.0	305.0	243.0	3.47	70.0
5.20	12.0	18.0	12.0	0.53	22.0	15.20	181.0	233.0	181.0	3.33	54.0
5.40	16.0	24.0	16.0	1.07	15.0	15.40	161.0	211.0	161.0	2.80	58.0
5.60	17.0	33.0	17.0	0.87	20.0	15.60	237.0	279.0	237.0	3.00	79.0
5.80	19.0	32.0	19.0	1.07	18.0	15.80	216.0	261.0	216.0	4.47	48.0
6.00	21.0	37.0	21.0	1.00	21.0	**16.00**	159.0	226.0	159.0	3.53	45.0
6.20	19.0	34.0	19.0	1.20	16.0	16.20	141.0	194.0	141.0	4.60	31.0
6.40	19.0	37.0	19.0	1.07	18.0	16.40	213.0	282.0	213.0	3.33	64.0
6.60	22.0	38.0	22.0	1.07	21.0	16.60	186.0	236.0	186.0	4.20	44.0
6.80	25.0	41.0	25.0	1.27	20.0	16.80	163.0	226.0	163.0	3.47	47.0
7.00	19.0	38.0	19.0	1.27	15.0	**17.00**	182.0	234.0	182.0	4.73	38.0
7.20	49.0	68.0	49.0	1.67	29.0	17.20	177.0	248.0	177.0	4.33	41.0
7.40	35.0	60.0	35.0	1.80	19.0	17.40	130.0	195.0	130.0	2.67	49.0
7.60	27.0	54.0	27.0	1.33	20.0	17.60	121.0	161.0	121.0	3.20	38.0
7.80	35.0	55.0	35.0	1.33	26.0	17.80	139.0	187.0	139.0	2.53	55.0
8.00	63.0	83.0	63.0	1.07	59.0	**18.00**	56.0	94.0	56.0	2.33	24.0
8.20	67.0	83.0	67.0	1.13	59.0	18.20	29.0	64.0	29.0	1.60	18.0
8.40	107.0	124.0	107.0	2.13	50.0	18.40	28.0	52.0	28.0	1.33	21.0
8.60	90.0	122.0	90.0	1.20	75.0	18.60	28.0	48.0	28.0	1.60	17.0
8.80	84.0	102.0	84.0	1.87	45.0	18.80	27.0	51.0	27.0	1.80	15.0
9.00	83.0	111.0	83.0	1.40	59.0	**19.00**	24.0	51.0	24.0	1.73	14.0
9.20	116.0	137.0	116.0	1.87	62.0	19.20	28.0	54.0	28.0	2.07	14.0
9.40	122.0	150.0	122.0	2.13	57.0	19.40	24.0	55.0	24.0	2.00	12.0
9.60	132.0	164.0	132.0	2.13	62.0	19.60	31.0	61.0	31.0	2.07	15.0
9.80	145.0	177.0	145.0	2.67	54.0	19.80	34.0	65.0	34.0	2.67	13.0
10.00	174.0	214.0	174.0	3.20	54.0	**20.00**	35.0	75.0	35.0	2.27	15.0

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA CPT 4
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
20.20	51.0	85.0	51.0	2.40	21.0	25.20	18.0	38.0	18.0	1.33	13.0
20.40	33.0	69.0	33.0	2.47	13.0	25.40	19.0	39.0	19.0	1.13	17.0
20.60	31.0	68.0	31.0	2.53	12.0	25.60	17.0	34.0	17.0	1.07	16.0
20.80	27.0	65.0	27.0	1.93	14.0	25.80	16.0	32.0	16.0	1.00	16.0
21.00	28.0	57.0	28.0	2.07	14.0	**26.00**	15.0	30.0	15.0	0.93	16.0
21.20	30.0	61.0	30.0	2.00	15.0	26.20	14.0	28.0	14.0	0.87	16.0
21.40	32.0	62.0	32.0	2.07	15.0	26.40	16.0	29.0	16.0	0.87	18.0
21.60	29.0	60.0	29.0	2.13	14.0	26.60	15.0	28.0	15.0	0.87	17.0
21.80	28.0	60.0	28.0	2.00	14.0	26.80	15.0	28.0	15.0	0.93	16.0
22.00	32.0	62.0	32.0	1.93	17.0	**27.00**	15.0	29.0	15.0	0.93	16.0
22.20	33.0	62.0	33.0	2.27	15.0	27.20	17.0	31.0	17.0	1.07	16.0
22.40	40.0	74.0	40.0	2.53	16.0	27.40	19.0	35.0	19.0	1.20	16.0
22.60	31.0	69.0	31.0	2.20	14.0	27.60	24.0	42.0	24.0	1.40	17.0
22.80	29.0	62.0	29.0	1.60	18.0	27.80	21.0	42.0	21.0	1.67	13.0
23.00	21.0	45.0	21.0	1.47	14.0	**28.00**	27.0	52.0	27.0	1.80	15.0
23.20	29.0	51.0	29.0	1.33	22.0	28.20	27.0	54.0	27.0	2.20	12.0
23.40	23.0	43.0	23.0	1.40	16.0	28.40	37.0	70.0	37.0	2.13	17.0
23.60	18.0	39.0	18.0	1.47	12.0	28.60	41.0	73.0	41.0	2.80	15.0
23.80	33.0	55.0	33.0	1.67	20.0	28.80	34.0	76.0	34.0	1.53	22.0
24.00	46.0	71.0	46.0	1.60	29.0	**29.00**	32.0	55.0	32.0	5.73	6.0
24.20	38.0	62.0	38.0	1.33	28.0	29.20	106.0	192.0	106.0	3.60	29.0
24.40	25.0	45.0	25.0	1.53	16.0	29.40	220.0	274.0	220.0	0.73	300.0
24.60	21.0	44.0	21.0	1.60	13.0	29.60	297.0	308.0	297.0	2.53	117.0
24.80	20.0	44.0	20.0	1.53	13.0	29.80	210.0	248.0	210.0	6.00	35.0
25.00	20.0	43.0	20.0	1.33	15.0	**30.00**	173.0	263.0	173.0	-----	----

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

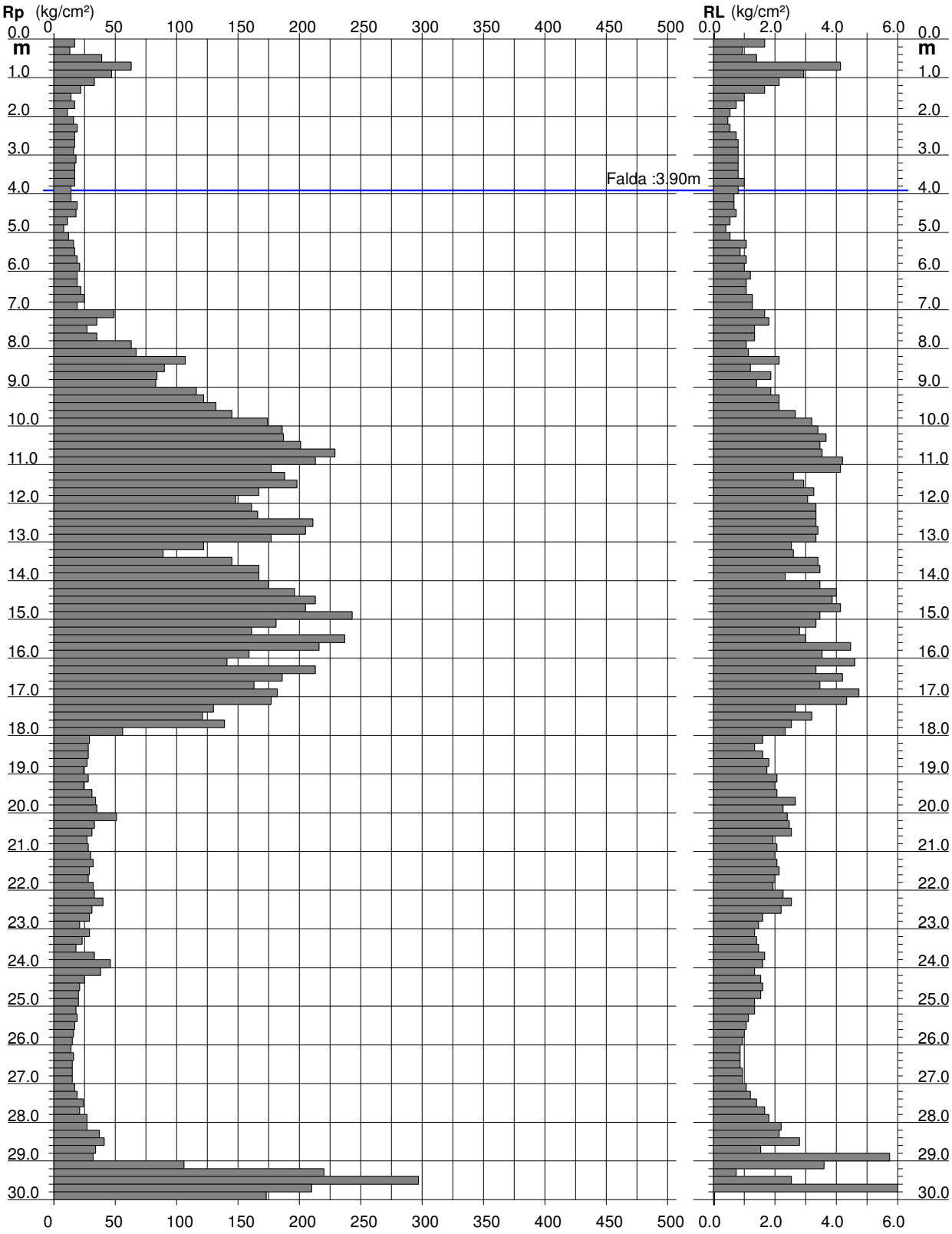
PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 4

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio



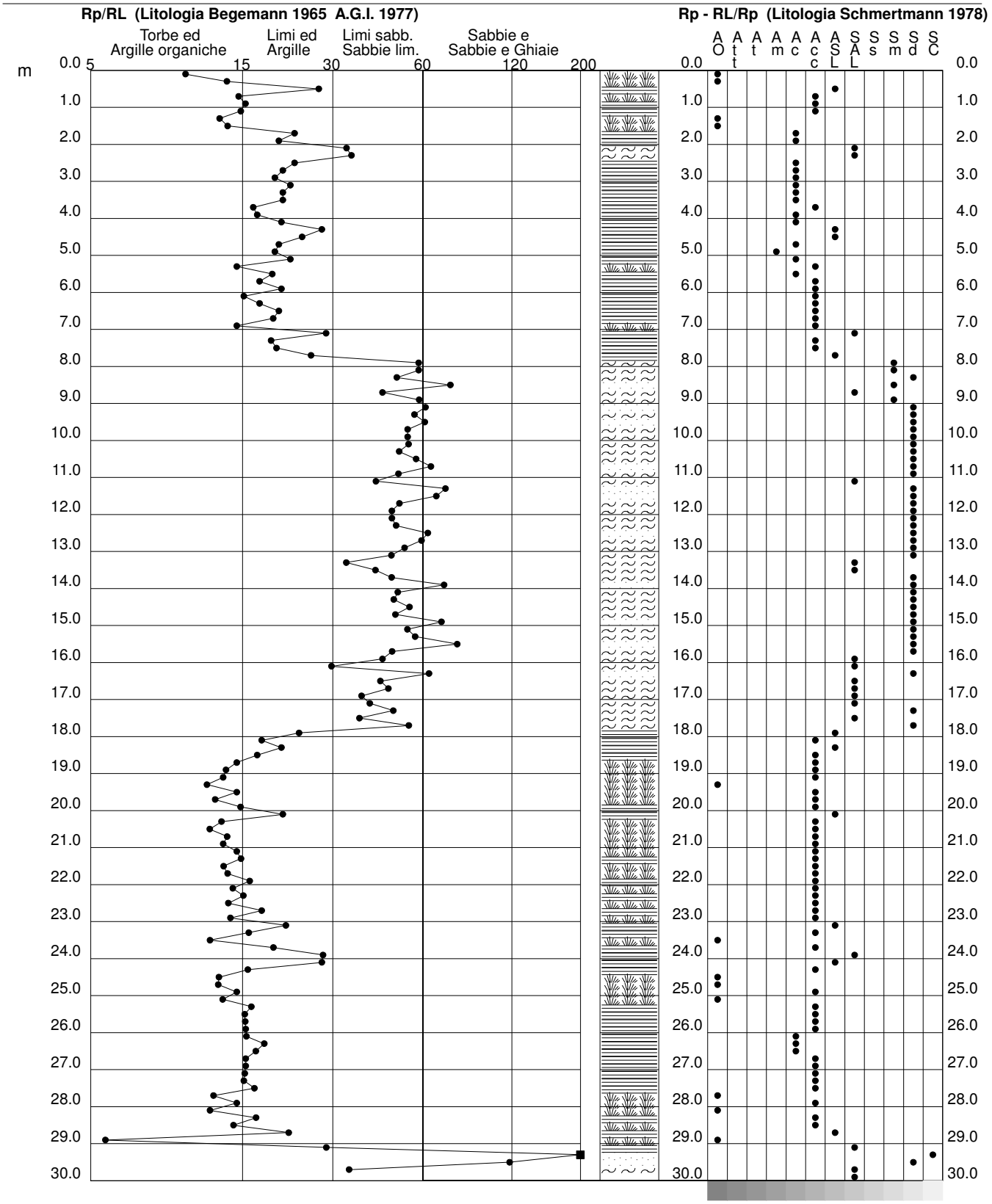
PROVA PENETROMETRICA STATICA
VALUTAZIONI LITOLOGICHE

CPT 4

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio



PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 4

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

	NATURA COESIVA										NATURA GRANULARE										
Prof. m	Rp kg/cm²	Rp/Rl (-)	Natura Litol.	Y' t/m³	p'vo kg/cm²	Cu kg/cm²	OCR (-)	Eu50 kg/cm²	Eu25	Mo kg/cm²	Dr %	ø1s (°)	ø2s (°)	ø3s (°)	ø4s (°)	ødm (°)	ømy (°)	Amax/g (-)	E'50 kg/cm²	E'25	Mo kg/cm²
0.20	17	10	2////	1.85	0.04	0.72	99.9	123	184	54	--	--	--	--	--	--	--	--	--	--	--
0.40	13	14	2////	1.85	0.07	0.60	86.7	103	154	47	--	--	--	--	--	--	--	--	--	--	--
0.60	39	28	4/:/:	1.85	0.11	1.30	99.9	221	332	117	93	41	42	44	45	42	30	0.234	65	98	117
0.80	63	15	4/:/:	1.85	0.15	2.10	99.9	357	536	189	100	42	43	45	46	43	32	0.258	105	158	189
1.00	47	16	4/:/:	1.85	0.19	1.57	90.7	266	400	141	87	40	42	43	45	41	31	0.214	78	118	141
1.20	33	15	4/:/:	1.85	0.22	1.10	46.4	187	281	99	71	38	40	42	44	39	29	0.161	55	83	99
1.40	22	13	4/:/:	1.85	0.26	0.85	27.6	144	216	66	53	35	38	40	42	36	28	0.111	37	55	66
1.60	14	14	2////	1.85	0.30	0.64	16.3	108	162	48	--	--	--	--	--	--	--	--	--	--	--
1.80	17	23	2////	1.85	0.33	0.72	16.6	123	184	54	--	--	--	--	--	--	--	--	--	--	--
2.00	11	21	2////	1.85	0.37	0.54	10.0	91	137	42	--	--	--	--	--	--	--	--	--	--	--
2.20	16	34	4/:/:	1.85	0.41	0.70	12.3	118	177	52	31	32	35	38	40	32	27	0.060	27	40	48
2.40	19	36	4/:/:	1.85	0.44	0.78	12.6	132	198	58	35	33	35	38	41	32	27	0.068	32	48	57
2.60	17	23	2////	1.85	0.48	0.72	10.5	123	184	54	--	--	--	--	--	--	--	--	--	--	--
2.80	17	21	2////	1.85	0.52	0.72	9.5	125	187	54	--	--	--	--	--	--	--	--	--	--	--
3.00	16	20	2////	1.85	0.55	0.70	8.3	132	198	52	--	--	--	--	--	--	--	--	--	--	--
3.20	18	22	2////	1.85	0.59	0.75	8.4	141	211	56	--	--	--	--	--	--	--	--	--	--	--
3.40	17	21	2////	1.85	0.63	0.72	7.5	154	231	54	--	--	--	--	--	--	--	--	--	--	--
3.60	17	21	2////	1.85	0.67	0.72	7.0	167	251	54	--	--	--	--	--	--	--	--	--	--	--
3.80	17	17	2////	1.85	0.70	0.72	6.5	181	272	54	--	--	--	--	--	--	--	--	--	--	--
4.00	14	17	2////	0.94	0.72	0.64	5.4	197	295	48	--	--	--	--	--	--	--	--	--	--	--
4.20	14	21	2////	0.94	0.74	0.64	5.2	203	305	48	--	--	--	--	--	--	--	--	--	--	--
4.40	19	28	2////	0.99	0.76	0.78	6.4	197	295	58	--	--	--	--	--	--	--	--	--	--	--
4.60	18	25	2////	0.98	0.78	0.75	6.0	207	310	56	--	--	--	--	--	--	--	--	--	--	--
4.80	11	21	2////	0.91	0.80	0.54	3.8	225	337	42	--	--	--	--	--	--	--	--	--	--	--
5.00	8	20	2////	0.86	0.82	0.40	2.6	210	315	35	--	--	--	--	--	--	--	--	--	--	--
5.20	12	22	2////	0.92	0.83	0.57	3.9	234	351	45	--	--	--	--	--	--	--	--	--	--	--
5.40	16	15	2////	0.96	0.85	0.70	4.9	236	354	52	--	--	--	--	--	--	--	--	--	--	--
5.60	17	20	2////	0.97	0.87	0.72	5.0	241	361	54	--	--	--	--	--	--	--	--	--	--	--
5.80	19	18	2////	0.99	0.89	0.78	5.3	244	366	58	--	--	--	--	--	--	--	--	--	--	--
6.00	21	21	4/:/:	0.93	0.91	0.82	5.5	246	370	63	21	31	34	37	40	29	27	0.039	35	53	63
6.20	19	16	2////	0.99	0.93	0.78	5.0	257	385	58	--	--	--	--	--	--	--	--	--	--	--
6.40	19	18	2////	0.99	0.95	0.78	4.9	263	395	58	--	--	--	--	--	--	--	--	--	--	--
6.60	22	21	4/:/:	0.93	0.97	0.85	5.3	265	397	66	21	31	34	37	40	29	28	0.039	37	55	66
6.80	25	20	4/:/:	0.94	0.99	0.91	5.7	266	399	75	25	31	34	37	40	29	28	0.047	42	63	75
7.00	19	15	2////	0.99	1.01	0.78	4.5	281	421	58	--	--	--	--	--	--	--	--	--	--	--
7.20	49	29	4/:/:	1.01	1.03	1.63	11.2	278	417	147	47	35	37	39	42	33	31	0.096	82	123	147
7.40	35	19	4/:/:	0.98	1.05	1.17	7.2	260	391	105	35	33	35	38	41	31	29	0.068	58	88	105
7.60	27	20	4/:/:	0.95	1.07	0.95	5.4	290	435	81	25	32	34	37	40	29	28	0.048	45	68	81
7.80	35	26	4/:/:	0.98	1.09	1.17	6.9	274	412	105	34	33	35	38	41	31	29	0.066	58	88	105
8.00	63	59	3::::	0.94	1.10	--	--	--	--	--	54	36	38	40	42	34	32	0.113	105	158	189
8.20	67	59	3::::	0.95	1.12	--	--	--	--	--	55	36	38	40	42	34	32	0.118	112	168	201
8.40	107	50	3::::	1.01	1.14	--	--	--	--	--	71	38	40	42	44	37	34	0.162	178	268	321
8.60	90	75	3::::	0.98	1.16	--	--	--	--	--	65	37	39	41	43	36	33	0.144	150	225	270
8.80	84	45	3::::	0.97	1.18	--	--	--	--	--	62	37	39	41	43	35	33	0.136	140	210	252
9.00	83	59	3::::	0.97	1.20	--	--	--	--	--	61	37	39	41	43	35	33	0.133	138	208	249
9.20	116	62	3::::	1.02	1.22	--	--	--	--	--	72	38	40	42	44	37	35	0.166	193	290	348
9.40	122	57	3::::	1.03	1.24	--	--	--	--	--	73	38	40	42	44	37	35	0.170	203	305	366
9.60	132	62	3::::	1.05	1.26	--	--	--	--	--	76	39	40	42	44	37	35	0.177	220	330	396
9.80	145	54	3::::	1.07	1.29	--	--	--	--	--	79	39	41	42	44	38	36	0.186	242	363	435
10.00	174	54	3::::	1.11	1.31	--	--	--	--	--	84	40	41	43	45	38	37	0.205	290	435	522
10.20	186	55	3::::	1.13	1.33	--	--	--	--	--	86	40	42	43	45	39	37	0.211	310	465	558
10.40	187	51	3::::	1.13	1.35	--	--	--	--	--	86	40	42	43	45	39	37	0.210	312	468	561
10.60	201	58	3::::	1.15	1.38	--	--	--	--	--	88	40	42	43	45	39	38	0.217	335	503	603
10.80	229	65	3::::	1.15	1.40	--	--	--	--	--	92	41	42	44	45	39	39	0.231	382	573	687
11.00	213	51	3::::	1.15	1.42	--	--	--	--	--	89	41	42	44	45	39	38	0.221	355	533	639
11.20	177	43	3::::	1.12	1.44	--	--	--	--	--	83	40	41	43	45	38	37	0.198	295	443	531
11.40	188	72	3::::	1.13	1.47	--	--	--	--	--	84	40	41	43	45	38	37	0.204	313	470	564
11.60	198	67	3::::	1.15	1.49	--	--	--	--	--	86	40	42	43	45	38	38	0.209	330	495	594
11.80	167	51	3::::	1.10	1.51	--	--	--	--	--	80	39	41	43	44	38	37	0.188	278	418	501
12.00	148	48	3::::	1.07	1.53	--	--	--	--	--	75	39	40	42	44	37	36	0.174	247	370	444
12.20	161	48	3::::	1.09	1.56	--	--	--	--	--	78	39	41	42	44	37	36	0.182	268	403	483
12.40	166	50	3::::	1.10	1.58	--	--	--	--	--	78	39	41	42	44	37	37	0.185	277	415	498
12.60	211	63	3::::	1.15	1.60	--	--	--	--	--	86	40	42	43	45	38	38	0.210	352	528	633
12.80	205	60	3::::	1.15	1.62	--	--	--	--	--	85	40	41	43	45	38	38	0.206	342	513	615
13.00	177	53	3::::	1.12	1.65	--	--	--	--	--	79	39	41	43	44	37	37	0.188	295	443	531
13.20	122	48	3::::	1.03	1.67	--	--	--	--	--	66	37	39	41	43	35	35	0.148	203	305	366
13.40	89	34	3::::	0.98	1.69	--	--	--	--	--	55	36	38	40	42	33	33	0.118	148	223	267
13.60	145	43	3::::	1.07	1.71	--	--	--	--	--	72	38	40	42	44	36	36	0.164	242	363	435
13.80	167	48	3::::	1.10	1.73	--	--	--	--	--	76	39	40	42	44	37	37	0.178	278	418	501
14.00	167	72	3::::	1.10	1.75	--	--	--	--	--	76	39	40	42	44	37	37	0.177	278	418	501
14.20	175	50	3::::	1.11	1.77	--	--	--	--	--	77	39	41	42	44	37	37	0.181	292	438	525
14.40	196	49	3::::	1.14	1.80	--	--	--	--	--	81	39	41	43	44	37	38	0.193	327	490	588
14.60	213	55	3::::	1.15	1.82	--	--	--	--	--	83	40	41	43	45	38	38	0.201	355	533	639
14.80	205	50	3::::	1.15	1.84	--	--	--	--	--	82	39	41	43	45	38	38	0.196	342	513	615
15.00	243	70	3::::	1.15	1.87	--	--	--	--	--	87	40	42	43	45	38	39	0.214	405	608	729
15.20	181	54	3::::	1.12	1.89	--	--	--	--	--	77	39	40	42	44	37	37	0.180	302	453	543
15.40	161	58	3::::	1.09	1.91	--	--	--	--	--	73	38	40	42	44	36	36	0.167	268	403	483
15.60	237	79	3::::	1.15	1.93	--	--	--	--	--	86	40	42	43	45	38	39	0.208	395	593	711
15.80	216	48	3::::	1.15	1.96	--	--	--	--	--	82	39	41	43	45	38	38	0.197	360	540	648
16.00	159	45	3::::	1.09	1.98	--	--	--	--	--	71	38	40	42	44	36	36	0.163	265	398	477
16.20	141	31	3::::	1.06	2.00	--	--	--	--	--	67	37	39	41	43	35	36	0.150	235	353	423
16.40	213	64	3::::	1.15	2.02	--	--	--	--	--	81	39	41	43	44	37	38	0.193	355	533	639
16.60	186	44	3::::	1.13	2.04	--	--	--	--	--	76	39	40	42	44	36	37	0.177	310	465	558
16.80	163	47	3::::	1.09	2.07	--	--	--	--	--	71	38	40	42	44	36	36	0.162	272	408	489
17.00	182	38	3::::	1.12	2.09	--	--	--	--	--	75	38	40	42	44	36	37	0.173	303	455	546
17.20	177	41	3::::	1.12	2.11	--	--	--	--	--	73	38	40	42	44	36	37	0.169	295	443	531
17.40	130	49	3::::	1.05	2.13	--	--	--	--	--	63	37	39	41	43	34	35	0.137	217	325	390
17.60	121	38	3::::	1.03	2.15	--	--	--	--	--	60	36	38	41	43	34	35	0.130	202	303	363
17.80	139	55	3::::	1.06	2.17	--	--	--	--	--	64	37	39	41	43	34	36	0.143	232	348	417
18.00	56	24	4/:/:	1.01	2.19	1.87	5.1	603	905	168	33	33	35	38	41	29	31	0.064	93	140	168
18.20	29	18	4/:/:	0.96	2.21	0.98	2.3	535	803	87	10	29	32	36	39	26	29	0.021	48	73	87
18.40	28	21	4/:/:	0.96	2.23	0.97	2.2	530	795	84	9	29	32	35	39	25	28	0.018	47	70	84
18.60	28	17	4/:/:	0.96	2.25	0.97	2.2	531	797	84	8	29	32	35	39	25	28	0.018	47	70	84
18.80	27	15	4/:/:	0.95	2.27	0.95	2.1	525	788	81	7	29	32	35	39	25	28	0.016	45	68	81
19.00	24	14	4/:/:	0.94	2.29	0.89	1.9	501	752	72	3	28	32	35	38	25	28	0.007	40	60	72
19.20	28	14	4/:/:	0.96	2.31	0.97	2.1	535	802	84	8	29	32	35	39	25	28	0.017	47	70	84
19.40	24	12	4/:/:	0.94	2.33	0.89	1.9	503	755	72	2	28	32	35	38	25	28	0.006	40	60	72
19.60	31	15	4/:/:	0.97	2.35	1.03	2.3	564	846	93	11	30	33	36	39	26	29	0.022	52	78	93
19.80	34	13	4/:/:	0.98	2.37	1.13	2.5	601	901	102	14	30	33	36	39	26	29	0.027	57	85	102
20.00	35	15	4/:/:	0.98	2.39	1.17	2.6	613	920	105	15	30	33	36	39	26	29	0.028	58	88	105

PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 4

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 3.90 m da quota inizio

								NATURA COESIVA										NATURA GRANULARE										
Prof.	Rp	Rp/Rl	Natura	Y'	p'vo	Cu	OCR	Eu50	Eu25	Mo	Dr	ø1s	ø2s	ø3s	ø4s	ødm	ømy	Amax/g	E'50	E'25	Mo	
m	kg/cm²	(-)	Litol.	t/m³	kg/cm²	kg/cm²	(-)	kg/cm²		kg/cm²	%	(°)	(°)	(°)	(°)	(°)	(°)	(-)	kg/cm²		kg/cm²	
20.20	51	21	4/:/:	1.01	2.41	1.70	4.1	671	1007	153	27	32	35	37	40	28	31	0.052	85	128	153	
20.40	33	13	4/:/:	0.97	2.43	1.10	2.3	595	892	99	12	30	33	36	39	26	29	0.024	55	83	99	
20.60	31	12	4/:/:	0.97	2.44	1.03	2.1	571	856	93	10	29	32	36	39	25	29	0.020	52	78	93	
20.80	27	14	4/:/:	0.95	2.46	0.95	1.9	535	803	81	5	29	32	35	38	25	28	0.012	45	68	81	
21.00	28	14	4/:/:	0.96	2.48	0.97	1.9	544	816	84	6	29	32	35	38	25	28	0.014	47	70	84	
21.20	30	15	4/:/:	0.96	2.50	1.00	2.0	560	840	90	8	29	32	35	39	25	29	0.018	50	75	90	
21.40	32	15	4/:/:	0.97	2.52	1.07	2.1	589	883	96	10	29	32	36	39	25	29	0.021	53	80	96	
21.60	29	14	4/:/:	0.96	2.54	0.98	1.9	555	832	87	7	29	32	35	39	25	29	0.015	48	73	87	
21.80	28	14	4/:/:	0.96	2.56	0.97	1.9	548	822	84	5	29	32	35	38	25	28	0.013	47	70	84	
22.00	32	17	4/:/:	0.97	2.58	1.07	2.1	593	889	96	10	29	32	35	39	25	29	0.020	53	80	96	
22.20	33	15	4/:/:	0.97	2.60	1.10	2.1	607	911	99	11	29	33	36	39	25	29	0.021	55	83	99	
22.40	40	16	4/:/:	1.00	2.62	1.33	2.7	688	1032	120	17	30	33	36	39	26	30	0.033	67	100	120	
22.60	31	14	4/:/:	0.97	2.64	1.03	1.9	582	872	93	8	29	32	35	39	25	29	0.017	52	78	93	
22.80	29	18	4/:/:	0.96	2.66	0.98	1.8	560	840	87	6	29	32	35	38	25	29	0.013	48	73	87	
23.00	21	14	4/:/:	0.93	2.68	0.82	1.4	482	724	63	--	28	31	35	38	25	27	--	35	53	63	
23.20	29	22	4/:/:	0.96	2.69	0.98	1.8	561	842	87	5	29	32	35	38	25	29	0.013	48	73	87	
23.40	23	16	4/:/:	0.94	2.71	0.87	1.5	506	759	69	--	28	31	35	38	25	28	--	38	58	69	
23.60	18	12	2////	0.98	2.73	0.75	1.2	444	667	56	--	--	--	--	--	--	--	--	--	--	--	
23.80	33	20	4/:/:	0.97	2.75	1.10	2.0	616	924	99	9	29	32	35	39	25	29	0.019	55	83	99	
24.00	46	29	4/:/:	1.01	2.77	1.53	3.0	757	1136	138	20	31	34	37	40	27	31	0.039	77	115	138	
24.20	38	28	4/:/:	0.99	2.79	1.27	2.3	685	1027	114	14	30	33	36	39	26	30	0.027	63	95	114	
24.40	25	16	4/:/:	0.94	2.81	0.91	1.5	529	794	75	--	28	31	35	38	25	28	--	42	63	75	
24.60	21	13	4/:/:	0.93	2.83	0.82	1.3	485	728	63	--	28	31	35	38	25	27	--	35	53	63	
24.80	20	13	4/:/:	0.93	2.85	0.80	1.3	473	710	60	--	28	31	35	38	25	27	--	33	50	60	
25.00	20	15	4/:/:	0.93	2.87	0.80	1.3	473	710	60	--	28	31	35	38	25	27	--	33	50	60	
25.20	18	13	2////	0.98	2.89	0.75	1.2	446	670	56	--	--	--	--	--	--	--	--	--	--	--	
25.40	19	17	2////	0.99	2.91	0.78	1.2	461	691	58	--	--	--	--	--	--	--	--	--	--	--	
25.60	17	16	2////	0.97	2.93	0.72	1.1	432	648	54	--	--	--	--	--	--	--	--	--	--	--	
25.80	16	16	2////	0.96	2.95	0.70	1.0	417	625	52	--	--	--	--	--	--	--	--	--	--	--	
26.00	15	16	2////	0.95	2.96	0.67	1.0	400	600	50	--	--	--	--	--	--	--	--	--	--	--	
26.20	14	16	2////	0.94	2.98	0.64	0.9	382	573	48	--	--	--	--	--	--	--	--	--	--	--	
26.40	16	18	2////	0.96	3.00	0.70	1.0	417	626	52	--	--	--	--	--	--	--	--	--	--	--	
26.60	15	17	2////	0.95	3.02	0.67	0.9	400	600	50	--	--	--	--	--	--	--	--	--	--	--	
26.80	15	16	2////	0.95	3.04	0.67	0.9	400	600	50	--	--	--	--	--	--	--	--	--	--	--	
27.00	15	16	2////	0.95	3.06	0.67	0.9	400	600	50	--	--	--	--	--	--	--	--	--	--	--	
27.20	17	16	2////	0.97	3.08	0.72	1.0	434	650	54	--	--	--	--	--	--	--	--	--	--	--	
27.40	19	16	2////	0.99	3.10	0.78	1.1	463	694	58	--	--	--	--	--	--	--	--	--	--	--	
27.60	24	17	4/:/:	0.94	3.12	0.89	1.3	525	787	72	--	28	31	35	38	25	28	--	40	60	72	
27.80	21	13	4/:/:	0.93	3.14	0.82	1.2	490	735	63	--	28	31	35	38	25	27	--	35	53	63	
28.00	27	15	4/:/:	0.95	3.15	0.95	1.4	556	835	81	--	28	31	35	38	25	28	--	45	68	81	
28.20	27	12	4/:/:	0.95	3.17	0.95	1.4	557	835	81	--	28	31	35	38	25	28	--	45	68	81	
28.40	37	17	4/:/:	0.99	3.19	1.23	1.9	696	1045	111	9	29	32	35	39	25	30	0.020	62	93	111	
28.60	41	15	4/:/:	1.00	3.21	1.37	2.2	754	1130	123	13	30	33	36	39	25	30	0.025	68	103	123	
28.80	34	22	4/:/:	0.98	3.23	1.13	1.7	652	978	102	6	29	32	35	39	25	29	0.014	57	85	102	
29.00	32	6	4/:/:	0.97	3.25	1.07	1.6	620	930	96	4	29	32	35	38	25	29	0.010	53	80	96	
29.20	106	29	4/:/:	1.05	3.27	3.53	6.9	825	1238	318	45	34	37	39	42	31	34	0.092	177	265	318	
29.40	220	300	3::::	1.15	3.30	--	--	--	--	--	70	38	40	42	44	35	38	0.159	367	550	660	
29.60	297	117	3::::	1.15	3.32	--	--	--	--	--	80	39	41	43	44	36	40	0.190	495	743	891	
29.80	210	35	3::::	1.15	3.34	--	--	--	--	--	68	38	39	41	43	34	38	0.153	350	525	630	
30.00	173	--	3::::	1.11	3.36	--	--	--	--	--	61	37	39	41	43	33	37	0.134	288	433	519	

PROVA PENETROMETRICA STATICA CPT 5
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
0.20	12.0	16.0	12.0	1.27	9.0	10.20	14.0	26.0	14.0	0.60	23.0
0.40	16.0	35.0	16.0	1.67	10.0	10.40	37.0	46.0	37.0	0.87	43.0
0.60	15.0	40.0	15.0	1.53	10.0	10.60	36.0	49.0	36.0	0.73	49.0
0.80	18.0	41.0	18.0	1.13	16.0	10.80	48.0	59.0	48.0	0.47	103.0
1.00	35.0	52.0	35.0	0.13	262.0	**11.00**	57.0	64.0	57.0	0.80	71.0
1.20	15.0	17.0	15.0	1.87	8.0	11.20	45.0	57.0	45.0	0.93	48.0
1.40	10.0	38.0	10.0	1.20	8.0	11.40	88.0	102.0	88.0	0.67	132.0
1.60	8.0	26.0	8.0	0.87	9.0	11.60	114.0	124.0	114.0	1.27	90.0
1.80	7.0	20.0	7.0	0.60	12.0	11.80	91.0	110.0	91.0	2.00	46.0
2.00	6.0	15.0	6.0	0.47	13.0	**12.00**	110.0	140.0	110.0	2.00	55.0
2.20	5.0	12.0	5.0	0.47	11.0	12.20	72.0	102.0	72.0	0.93	77.0
2.40	5.0	12.0	5.0	0.53	9.0	12.40	66.0	80.0	66.0	1.13	58.0
2.60	12.0	20.0	12.0	0.80	15.0	12.60	94.0	111.0	94.0	1.80	52.0
2.80	12.0	24.0	12.0	0.80	15.0	12.80	114.0	141.0	114.0	2.33	49.0
3.00	15.0	27.0	15.0	0.93	16.0	**13.00**	187.0	222.0	187.0	1.40	134.0
3.20	14.0	28.0	14.0	0.80	17.0	13.20	180.0	201.0	180.0	2.67	67.0
3.40	12.0	24.0	12.0	0.67	18.0	13.40	70.0	110.0	70.0	1.67	42.0
3.60	10.0	20.0	10.0	0.73	14.0	13.60	176.0	201.0	176.0	4.20	42.0
3.80	14.0	25.0	14.0	0.80	17.0	13.80	181.0	244.0	181.0	3.40	53.0
4.00	18.0	30.0	18.0	0.47	39.0	**14.00**	185.0	236.0	185.0	3.80	49.0
4.20	13.0	20.0	13.0	1.13	11.0	14.20	207.0	264.0	207.0	3.80	54.0
4.40	9.0	26.0	9.0	0.67	13.0	14.40	163.0	220.0	163.0	3.00	54.0
4.60	8.0	18.0	8.0	0.33	24.0	14.60	167.0	212.0	167.0	2.73	61.0
4.80	7.0	12.0	7.0	0.27	26.0	14.80	197.0	238.0	197.0	3.27	60.0
5.00	8.0	12.0	8.0	0.40	20.0	**15.00**	179.0	228.0	179.0	2.80	64.0
5.20	5.0	11.0	5.0	0.20	25.0	15.20	196.0	238.0	196.0	2.80	70.0
5.40	36.0	39.0	36.0	0.80	45.0	15.40	233.0	275.0	233.0	3.40	69.0
5.60	13.0	25.0	13.0	0.53	24.0	15.60	237.0	288.0	237.0	3.27	73.0
5.80	14.0	22.0	14.0	0.40	35.0	15.80	262.0	311.0	262.0	4.73	55.0
6.00	19.0	25.0	19.0	0.53	36.0	**16.00**	241.0	312.0	241.0	2.60	93.0
6.20	19.0	27.0	19.0	0.80	24.0	16.20	255.0	294.0	255.0	3.40	75.0
6.40	8.0	20.0	8.0	0.53	15.0	16.40	172.0	223.0	172.0	2.87	60.0
6.60	15.0	23.0	15.0	0.73	20.0	16.60	223.0	266.0	223.0	4.47	50.0
6.80	14.0	25.0	14.0	0.53	26.0	16.80	167.0	234.0	167.0	3.93	42.0
7.00	38.0	46.0	38.0	0.33	114.0	**17.00**	206.0	265.0	206.0	3.00	69.0
7.20	37.0	42.0	37.0	1.40	26.0	17.20	211.0	256.0	211.0	3.93	54.0
7.40	16.0	37.0	16.0	0.60	27.0	17.40	219.0	278.0	219.0	4.60	48.0
7.60	11.0	20.0	11.0	0.93	12.0	17.60	248.0	317.0	248.0	5.13	48.0
7.80	11.0	25.0	11.0	0.13	82.0	17.80	181.0	258.0	181.0	4.07	45.0
8.00	19.0	21.0	19.0	0.40	47.0	**18.00**	179.0	240.0	179.0	4.07	44.0
8.20	5.0	11.0	5.0	0.27	19.0	18.20	204.0	265.0	204.0	4.53	45.0
8.40	6.0	10.0	6.0	0.33	18.0	18.40	208.0	276.0	208.0	3.33	62.0
8.60	6.0	11.0	6.0	0.40	15.0	18.60	240.0	290.0	240.0	3.20	75.0
8.80	9.0	15.0	9.0	0.53	17.0	18.80	226.0	274.0	226.0	3.93	57.0
9.00	11.0	19.0	11.0	0.60	18.0	**19.00**	228.0	287.0	228.0	4.33	53.0
9.20	15.0	24.0	15.0	0.87	17.0	19.20	196.0	261.0	196.0	3.60	54.0
9.40	21.0	34.0	21.0	1.13	19.0	19.40	189.0	243.0	189.0	3.93	48.0
9.60	22.0	39.0	22.0	1.00	22.0	19.60	132.0	191.0	132.0	3.07	43.0
9.80	11.0	26.0	11.0	0.73	15.0	19.80	173.0	219.0	173.0	3.47	50.0
10.00	18.0	29.0	18.0	0.80	22.0	**20.00**	176.0	228.0	176.0	3.87	46.0

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

PROVA PENETROMETRICA STATICA CPT 5
LETTURE DI CAMPAGNA / VALORI DI RESISTENZA

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012
- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio

prf	LP	LL	Rp	RL	Rp/Rl	prf	LP	LL	Rp	RL	Rp/Rl
m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-	m	Kg/cm²	Kg/cm²	Kg/cm²	Kg/cm²	-
20.20	193.0	251.0	193.0	4.13	47.0	25.20	62.0	91.0	62.0	1.20	52.0
20.40	176.0	238.0	176.0	3.13	56.0	25.40	54.0	72.0	54.0	3.87	14.0
20.60	87.0	134.0	87.0	1.93	45.0	25.60	71.0	129.0	71.0	3.33	21.0
20.80	145.0	174.0	145.0	4.20	35.0	25.80	59.0	109.0	59.0	1.67	35.0
21.00	125.0	188.0	125.0	3.33	38.0	**26.00**	58.0	83.0	58.0	2.20	26.0
21.20	127.0	177.0	127.0	2.93	43.0	26.20	137.0	170.0	137.0	2.47	56.0
21.40	134.0	178.0	134.0	2.60	52.0	26.40	92.0	129.0	92.0	0.60	153.0
21.60	128.0	167.0	128.0	2.60	49.0	26.60	38.0	47.0	38.0	2.33	16.0
21.80	124.0	163.0	124.0	3.00	41.0	26.80	55.0	90.0	55.0	1.33	41.0
22.00	193.0	238.0	193.0	3.27	59.0	**27.00**	74.0	94.0	74.0	1.93	38.0
22.20	217.0	266.0	217.0	4.13	53.0	27.20	40.0	69.0	40.0	2.07	19.0
22.40	204.0	266.0	204.0	4.40	46.0	27.40	140.0	171.0	140.0	2.67	52.0
22.60	177.0	243.0	177.0	3.53	50.0	27.60	239.0	279.0	239.0	2.73	87.0
22.80	162.0	215.0	162.0	4.27	38.0	27.80	263.0	304.0	263.0	3.20	82.0
23.00	149.0	213.0	149.0	2.60	57.0	**28.00**	229.0	277.0	229.0	5.33	43.0
23.20	152.0	191.0	152.0	2.73	56.0	28.20	231.0	311.0	231.0	5.27	44.0
23.40	180.0	221.0	180.0	3.47	52.0	28.40	205.0	284.0	205.0	3.33	62.0
23.60	196.0	248.0	196.0	3.67	53.0	28.60	209.0	259.0	209.0	3.13	67.0
23.80	201.0	256.0	201.0	3.87	52.0	28.80	241.0	288.0	241.0	4.60	52.0
24.00	208.0	266.0	208.0	3.60	58.0	**29.00**	169.0	238.0	169.0	4.00	42.0
24.20	184.0	238.0	184.0	4.47	41.0	29.20	217.0	277.0	217.0	1.73	125.0
24.40	207.0	274.0	207.0	3.67	56.0	29.40	295.0	321.0	295.0	4.73	62.0
24.60	194.0	249.0	194.0	2.20	88.0	29.60	315.0	386.0	315.0	6.13	51.0
24.80	135.0	168.0	135.0	2.33	58.0	29.80	319.0	411.0	319.0	5.13	62.0
25.00	72.0	107.0	72.0	1.93	37.0	**30.00**	289.0	366.0	289.0	-----	----

- PENETROMETRO STATICO tipo TG63-200 PAGANI SEMOVENTE da 20 t - (con anello allargatore) -
- COSTANTE DI TRASFORMAZIONE Ct = 10 - Velocità Avanzamento punta 2 cm/s
- punta meccanica tipo Begemann ø = 35.7 mm (area punta 10 cm² - apertura 60°)
- manicotto laterale (superficie 150 cm²)

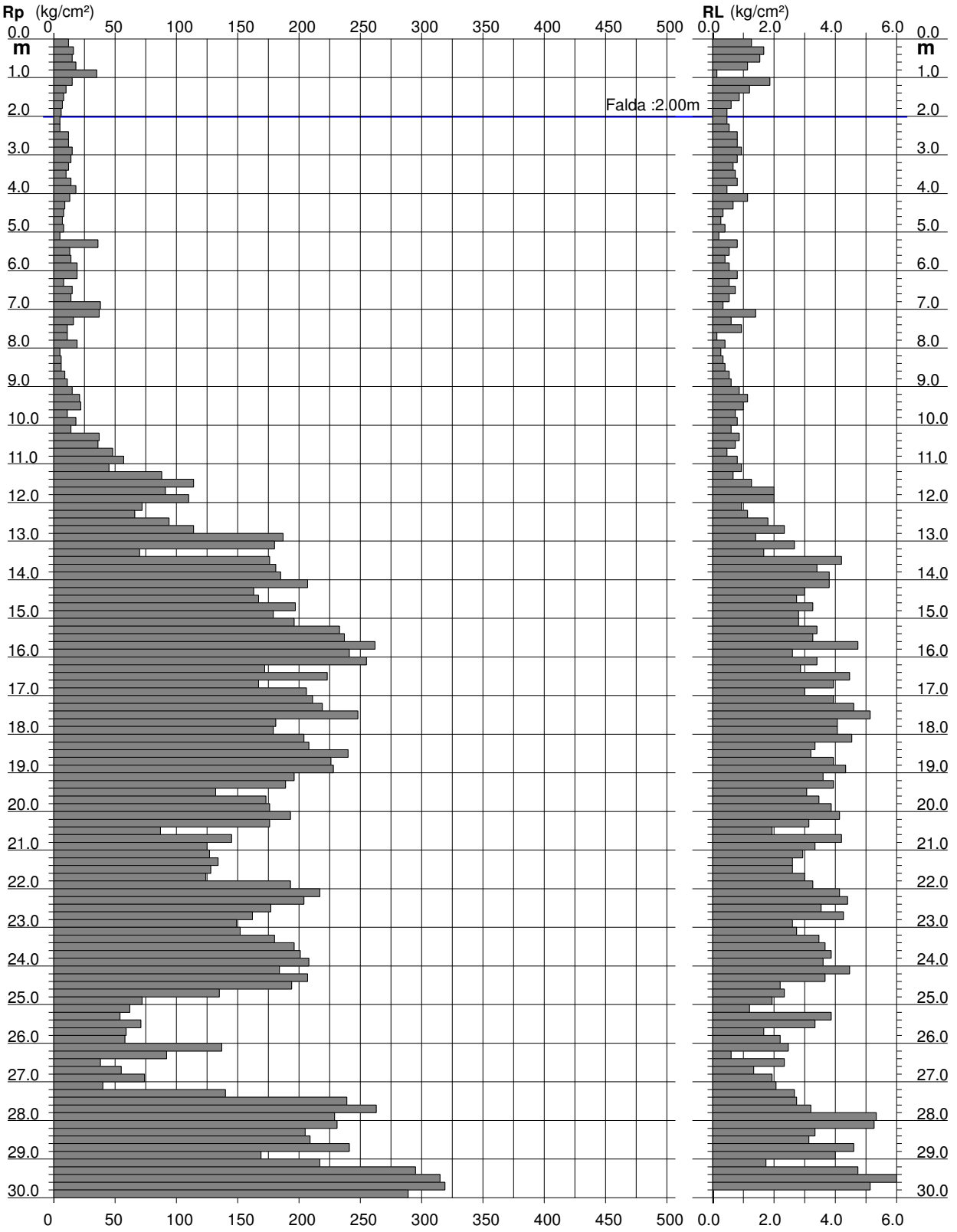
PROVA PENETROMETRICA STATICA
DIAGRAMMA DI RESISTENZA

CPT 5

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio



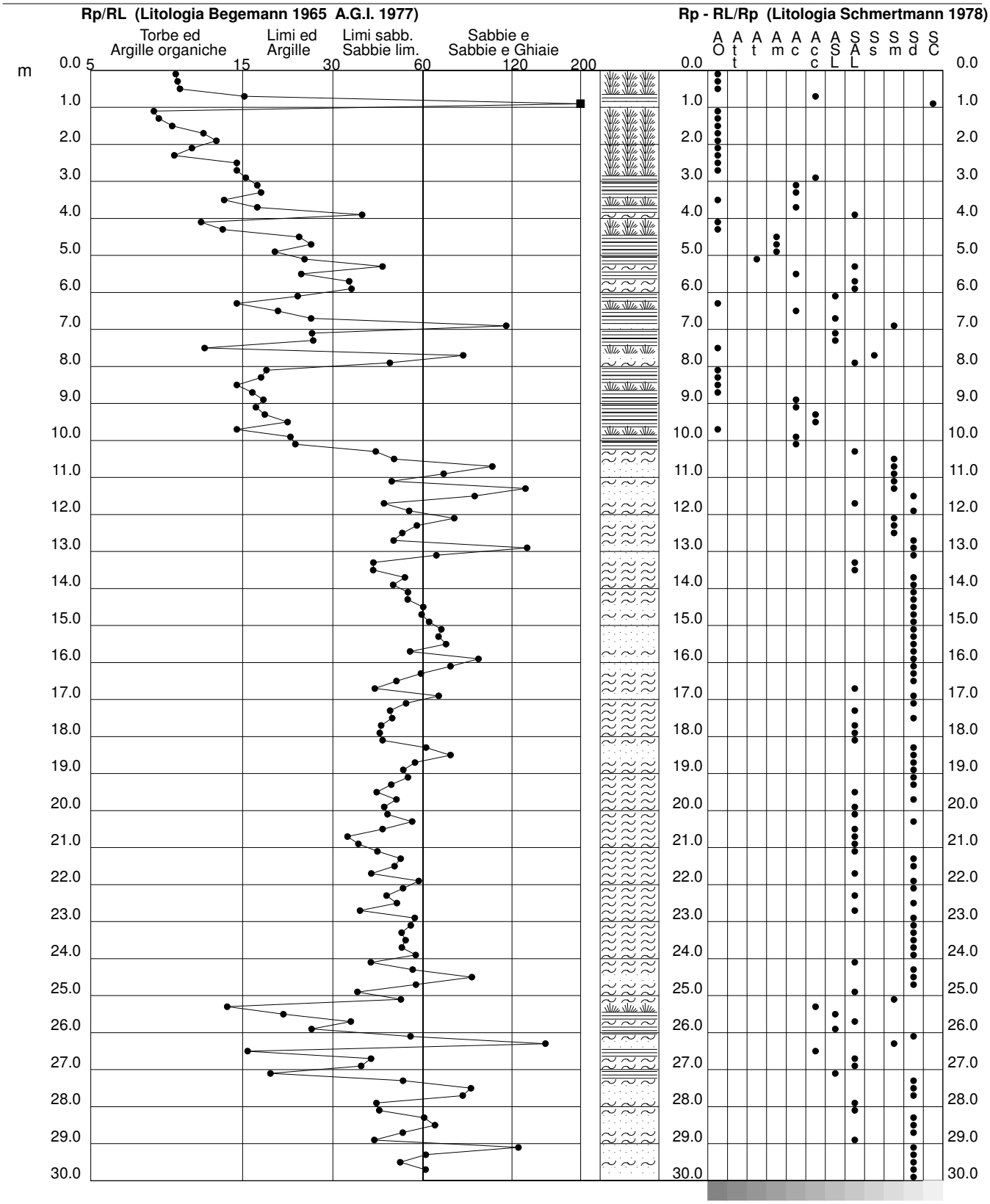
PROVA PENETROMETRICA STATICA
VALUTAZIONI LITOLOGICHE

CPT 5

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio



PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 5

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio

	NATURA COESIVA										NATURA GRANULARE										
Prof. m	Rp kg/cm²	Rp/Rl (-)	Natura Litol.	Y' t/m³	p'vo kg/cm²	Cu kg/cm²	OCR (-)	Eu50 kg/cm²	Eu25	Mo kg/cm²	Dr %	ø1s (°)	ø2s (°)	ø3s (°)	ø4s (°)	ødm (°)	ømy (°)	Amax/g (-)	E'50 kg/cm²	E'25	Mo kg/cm²
0.20	12	9	2////	1.85	0.04	0.57	99.9	97	146	45	--	--	--	--	--	--	--	--	--	--	--
0.40	16	10	2////	1.85	0.07	0.70	99.9	118	177	52	--	--	--	--	--	--	--	--	--	--	--
0.60	15	10	2////	1.85	0.11	0.67	59.0	113	170	50	--	--	--	--	--	--	--	--	--	--	--
0.80	18	16	2////	1.85	0.15	0.75	47.7	128	191	56	--	--	--	--	--	--	--	--	--	--	--
1.00	35	262	3::::	1.85	0.19	--	--	--	--	--	77	39	40	42	44	40	29	0.181	58	88	105
1.20	15	8	2////	1.85	0.22	0.67	24.8	113	170	50	--	--	--	--	--	--	--	--	--	--	--
1.40	10	8	2////	1.85	0.26	0.50	14.3	85	128	40	--	--	--	--	--	--	--	--	--	--	--
1.60	8	9	2////	1.85	0.30	0.40	9.1	70	106	35	--	--	--	--	--	--	--	--	--	--	--
1.80	7	12	1***	1.85	0.33	0.35	6.7	18	27	11	--	--	--	--	--	--	--	--	--	--	--
2.00	6	13	1***	0.46	0.34	0.30	5.3	18	27	9	--	--	--	--	--	--	--	--	--	--	--
2.20	5	11	1***	0.46	0.35	0.25	4.1	17	26	8	--	--	--	--	--	--	--	--	--	--	--
2.40	5	9	1***	0.46	0.36	0.25	4.0	18	27	8	--	--	--	--	--	--	--	--	--	--	--
2.60	12	15	2////	0.92	0.38	0.57	10.5	97	146	45	--	--	--	--	--	--	--	--	--	--	--
2.80	12	15	2////	0.92	0.40	0.57	9.9	97	146	45	--	--	--	--	--	--	--	--	--	--	--
3.00	15	16	2////	0.95	0.42	0.67	11.3	113	170	50	--	--	--	--	--	--	--	--	--	--	--
3.20	14	17	2////	0.94	0.44	0.64	10.1	108	162	48	--	--	--	--	--	--	--	--	--	--	--
3.40	12	18	2////	0.92	0.45	0.57	8.4	108	162	45	--	--	--	--	--	--	--	--	--	--	--
3.60	10	14	2////	0.90	0.47	0.50	6.8	120	180	40	--	--	--	--	--	--	--	--	--	--	--
3.80	14	17	2////	0.94	0.49	0.64	8.7	116	174	48	--	--	--	--	--	--	--	--	--	--	--
4.00	18	39	4/:/:	0.91	0.51	0.75	10.2	128	191	56	30	32	35	37	40	31	27	0.057	30	45	54
4.20	13	11	2////	0.93	0.53	0.60	7.5	129	194	47	--	--	--	--	--	--	--	--	--	--	--
4.40	9	13	2////	0.88	0.54	0.45	4.9	151	226	38	--	--	--	--	--	--	--	--	--	--	--
4.60	8	24	2////	0.86	0.56	0.40	4.1	157	235	35	--	--	--	--	--	--	--	--	--	--	--
4.80	7	26	2////	0.84	0.58	0.35	3.3	162	244	32	--	--	--	--	--	--	--	--	--	--	--
5.00	8	20	2////	0.86	0.60	0.40	3.8	168	252	35	--	--	--	--	--	--	--	--	--	--	--
5.20	5	25	2////	0.80	0.61	0.25	2.1	139	209	25	--	--	--	--	--	--	--	--	--	--	--
5.40	36	45	3::::	0.89	0.63	--	--	--	--	--	48	35	37	39	42	34	30	0.099	60	90	108
5.60	13	24	2////	0.93	0.65	0.60	5.8	174	261	47	--	--	--	--	--	--	--	--	--	--	--
5.80	14	35	4/:/:	0.89	0.67	0.64	5.9	177	265	48	14	30	33	36	39	28	26	0.028	23	35	42
6.00	19	36	4/:/:	0.92	0.68	0.78	7.3	169	253	58	24	31	34	37	40	30	27	0.046	32	48	57
6.20	19	24	2////	0.99	0.70	0.78	7.1	176	264	58	--	--	--	--	--	--	--	--	--	--	--
6.40	8	15	2////	0.86	0.72	0.40	3.0	197	296	35	--	--	--	--	--	--	--	--	--	--	--
6.60	15	20	2////	0.95	0.74	0.67	5.5	201	301	50	--	--	--	--	--	--	--	--	--	--	--
6.80	14	26	2////	0.94	0.76	0.64	5.0	209	314	48	--	--	--	--	--	--	--	--	--	--	--
7.00	38	114	3::::	0.90	0.78	--	--	--	--	--	45	34	37	39	42	33	30	0.091	63	95	114
7.20	37	26	4/:/:	0.99	0.80	1.23	10.8	210	315	111	43	34	36	39	41	33	30	0.088	62	93	111
7.40	16	27	2////	0.96	0.82	0.70	5.1	224	336	52	--	--	--	--	--	--	--	--	--	--	--
7.60	11	12	2////	0.91	0.83	0.54	3.6	236	353	42	--	--	--	--	--	--	--	--	--	--	--
7.80	11	82	4/:/:	0.87	0.85	0.54	3.5	240	360	42	--	28	31	35	38	26	26	--	18	28	33
8.00	19	47	4/:/:	0.92	0.87	0.78	5.4	236	355	58	18	31	33	36	39	28	27	0.035	32	48	57
8.20	5	19	2////	0.80	0.89	0.25	1.3	148	222	25	--	--	--	--	--	--	--	--	--	--	--
8.40	6	18	2////	0.82	0.90	0.30	1.6	174	261	29	--	--	--	--	--	--	--	--	--	--	--
8.60	6	15	1***	0.46	0.91	0.30	1.6	38	57	9	--	--	--	--	--	--	--	--	--	--	--
8.80	9	17	2////	0.88	0.93	0.45	2.5	237	356	38	--	--	--	--	--	--	--	--	--	--	--
9.00	11	18	2////	0.91	0.95	0.54	3.1	261	392	42	--	--	--	--	--	--	--	--	--	--	--
9.20	15	17	2////	0.95	0.97	0.67	3.9	270	406	50	--	--	--	--	--	--	--	--	--	--	--
9.40	21	19	4/:/:	0.93	0.99	0.82	5.0	272	408	63	19	31	33	36	39	28	27	0.036	35	53	63
9.60	22	22	4/:/:	0.93	1.00	0.85	5.1	276	415	66	20	31	34	37	40	29	28	0.038	37	55	66
9.80	11	15	2////	0.91	1.02	0.54	2.8	273	409	42	--	--	--	--	--	--	--	--	--	--	--
10.00	18	22	2////	0.98	1.04	0.75	4.2	291	436	56	--	--	--	--	--	--	--	--	--	--	--
10.20	14	23	2////	0.94	1.06	0.64	3.3	297	446	48	--	--	--	--	--	--	--	--	--	--	--
10.40	37	43	3::::	0.89	1.08	--	--	--	--	--	36	33	36	38	41	31	30	0.071	62	93	111
10.60	36	49	3::::	0.89	1.10	--	--	--	--	--	35	33	35	38	41	31	30	0.068	60	90	108
10.80	48	103	3::::	0.91	1.11	--	--	--	--	--	44	34	37	39	42	32	31	0.089	80	120	144
11.00	57	71	3::::	0.93	1.13	--	--	--	--	--	50	35	37	40	42	33	31	0.103	95	143	171
11.20	45	48	3::::	0.91	1.15	--	--	--	--	--	41	34	36	39	41	32	31	0.082	75	113	135
11.40	88	132	3::::	0.98	1.17	--	--	--	--	--	64	37	39	41	43	35	33	0.141	147	220	264
11.60	114	90	3::::	1.02	1.19	--	--	--	--	--	72	38	40	42	44	37	34	0.166	190	285	342
11.80	91	46	3::::	0.99	1.21	--	--	--	--	--	64	37	39	41	43	35	33	0.142	152	228	273
12.00	110	55	3::::	1.02	1.23	--	--	--	--	--	70	38	40	42	44	36	34	0.160	183	275	330
12.20	72	77	3::::	0.95	1.25	--	--	--	--	--	55	36	38	40	42	34	32	0.118	120	180	216
12.40	66	58	3::::	0.94	1.27	--	--	--	--	--	52	35	37	40	42	33	32	0.109	110	165	198
12.60	94	52	3::::	0.99	1.29	--	--	--	--	--	64	37	39	41	43	35	34	0.141	157	235	282
12.80	114	49	3::::	1.02	1.31	--	--	--	--	--	70	38	40	42	44	36	34	0.159	190	285	342
13.00	187	134	3::::	1.13	1.33	--	--	--	--	--	87	40	42	43	45	39	37	0.211	312	468	561
13.20	180	67	3::::	1.12	1.35	--	--	--	--	--	85	40	41	43	45	38	37	0.206	300	450	540
13.40	70	42	3::::	0.95	1.37	--	--	--	--	--	52	35	37	40	42	33	32	0.109	117	175	210
13.60	176	42	3::::	1.11	1.40	--	--	--	--	--	83	40	41	43	45	38	37	0.201	293	440	528
13.80	181	53	3::::	1.12	1.42	--	--	--	--	--	84	40	41	43	45	38	37	0.202	302	453	543
14.00	185	49	3::::	1.13	1.44	--	--	--	--	--	84	40	41	43	45	38	37	0.204	308	463	555
14.20	207	54	3::::	1.15	1.46	--	--	--	--	--	88	40	42	43	45	39	38	0.215	345	518	621
14.40	163	54	3::::	1.09	1.49	--	--	--	--	--	79	39	41	42	44	38	36	0.187	272	408	489
14.60	167	61	3::::	1.10	1.51	--	--	--	--	--	80	39	41	43	44	38	37	0.189	278	418	501
14.80	197	60	3::::	1.15	1.53	--	--	--	--	--	85	40	41	43	45	38	38	0.206	328	493	591
15.00	179	64	3::::	1.12	1.55	--	--	--	--	--	81	39	41	43	45	38	37	0.194	298	448	537
15.20	196	70	3::::	1.14	1.58	--	--	--	--	--	84	40	41	43	45	38	38	0.203	327	490	588
15.40	233	69	3::::	1.15	1.60	--	--	--	--	--	90	41	42	44	45	39	39	0.222	388	583	699
15.60	237	73	3::::	1.15	1.62	--	--	--	--	--	90	41	42	44	45	39	39	0.223	395	593	711
15.80	262	55	3::::	1.15	1.64	--	--	--	--	--	93	41	42	44	45	39	40	0.233	437	655	786
16.00	241	93	3::::	1.15	1.67	--	--	--	--	--	90	41	42	44	45	39	39	0.222	402	603	723
16.20	255	75	3::::	1.15	1.69	--	--	--	--	--	91	41	42	44	45	39	39	0.228	425	638	765
16.40	172	60	3::::	1.11	1.71	--	--	--	--	--	77	39	41	42	44	37	37	0.182	287	430	516
16.60	223	50	3::::	1.15	1.74	--	--	--	--	--	86	40	42	43	45	38	38	0.210	372	558	669
16.80	167	42	3::::	1.10	1.76	--	--	--	--	--	76	39	40	42	44	37	37	0.177	278	418	501
17.00	206	69	3::::	1.15	1.78	--	--	--	--	--	83	40	41	43	45	38	38	0.199	343	515	618
17.20	211	54	3::::	1.15	1.80	--	--	--	--	--	83	40	41	43	45	38	38	0.201	352	528	633
17.40	219	48	3::::	1.15	1.83	--	--	--	--	--	84	40	41	43	45	38	38	0.204	365	548	657
17.60	248	48	3::::	1.15	1.85	--	--	--	--	--	88	40	42	43	45	38	39	0.217	413	620	744
17.80	181	45	3::::	1.12	1.87	--	--	--	--	--	77	39	40	42	44	37	37	0.181	302	453	543
18.00	179	44	3::::	1.12	1.89	--	--	--	--	--	76	39	40	42	44	37	37	0.179	298	448	537
18.20	204	45	3::::	1.15	1.92	--	--	--	--	--	81	39	41	43	44	37	38	0.192	340	510	612
18.40	208	62	3::::	1.15	1.94	--	--	--	--	--	81	39	41	43	44	37	38	0.193	347	520	624
18.60	240	75	3::::	1.15	1.96	--	--	--	--	--	86	40	42	43	45	38	39	0.208	400	600	720
18.80	226	57	3::::	1.15	1.99	--	--	--	--	--	83	40	41	43	45	38	39	0.201	377	565	678
19.00	228	53	3::::	1.15	2.01	--	--	--	--	--	83	40	41	43	45	38	39	0.201	380	570	684
19.20	196	54	3::::	1.14	2.03	--	--	--	--	--	78	39	41	42	44	37	38	0.183	327	490	588
19.40	189	48	3::::	1.13	2.06	--	--	--	--	--	76	39	40	42	44	37	37	0.178	315	473	567
19.60	132	43	3::::	1.05	2.08	--	--	--	--	--	64	37	39	41	43	34	35	0.141	220	330	396
19.80	173	50	3::::	1.11	2.10	--	--	--	--	--	73	38	40	42	44	36	37	0.167	288	433	519
20.00	176	46	3::::	1.11	2.12	--	--	--	--	--	73	38	40	42	44	36	37	0.168	293	440	528

PROVA PENETROMETRICA STATICA
TABELLA PARAMETRI GEOTECNICI

CPT 5

3.010496-117

- committente: Comune di Mirandola
- lavoro: Microzonazione sismica
- località: Gavello - Mirandola (MO)
- data emiss. : 19/01/2012

- data prova : 16/12/2011
- quota inizio : Piano Campagna
- prof. falda : 2.00 m da quota inizio

								NATURA COESIVA									NATURA GRANULARE									
Prof.	Rp	Rp/Rl	Natura	Y'	p'vo	Cu	OCR	Eu50	Eu25	Mo		Dr	ø1s	ø2s	ø3s	ø4s	ødm	ømy	Amax/g	E'50	E'25	Mo	
m	kg/cm²	(-)	Litol.	t/m³	kg/cm²	kg/cm²	(-)	kg/cm²		kg/cm²		%	(°)	(°)	(°)	(°)	(°)	(°)	(-)	kg/cm²		kg/cm²	
20.20	193	47	3::::	1.14	2.14	--	--	--	--	--		76	39	40	42	44	36	38	0.177	322	483	579	
20.40	176	56	3::::	1.11	2.17	--	--	--	--	--		73	38	40	42	44	36	37	0.167	293	440	528	
20.60	87	45	3::::	0.98	2.19	--	--	--	--	--		48	35	37	39	42	32	33	0.099	145	218	261	
20.80	145	35	3::::	1.07	2.21	--	--	--	--	--		65	37	39	41	43	35	36	0.146	242	363	435	
21.00	125	38	3::::	1.04	2.23	--	--	--	--	--		60	36	38	41	43	34	35	0.131	208	313	375	
21.20	127	43	3::::	1.04	2.25	--	--	--	--	--		60	36	39	41	43	34	35	0.132	212	318	381	
21.40	134	52	3::::	1.05	2.27	--	--	--	--	--		62	37	39	41	43	34	35	0.136	223	335	402	
21.60	128	49	3::::	1.04	2.29	--	--	--	--	--		60	36	38	41	43	34	35	0.131	213	320	384	
21.80	124	41	3::::	1.04	2.31	--	--	--	--	--		59	36	38	40	43	34	35	0.128	207	310	372	
22.00	193	59	3::::	1.14	2.33	--	--	--	--	--		74	38	40	42	44	36	38	0.171	322	483	579	
22.20	217	53	3::::	1.15	2.36	--	--	--	--	--		78	39	41	42	44	37	38	0.183	362	543	651	
22.40	204	46	3::::	1.15	2.38	--	--	--	--	--		75	39	40	42	44	36	38	0.175	340	510	612	
22.60	177	50	3::::	1.12	2.40	--	--	--	--	--		70	38	40	42	44	35	37	0.160	295	443	531	
22.80	162	38	3::::	1.09	2.42	--	--	--	--	--		67	37	39	41	43	35	36	0.150	270	405	486	
23.00	149	57	3::::	1.07	2.45	--	--	--	--	--		64	37	39	41	43	34	36	0.141	248	373	447	
23.20	152	56	3::::	1.08	2.47	--	--	--	--	--		64	37	39	41	43	34	36	0.143	253	380	456	
23.40	180	52	3::::	1.12	2.49	--	--	--	--	--		70	38	40	42	44	35	37	0.159	300	450	540	
23.60	196	53	3::::	1.14	2.51	--	--	--	--	--		73	38	40	42	44	36	38	0.167	327	490	588	
23.80	201	52	3::::	1.15	2.53	--	--	--	--	--		73	38	40	42	44	36	38	0.169	335	503	603	
24.00	208	58	3::::	1.15	2.56	--	--	--	--	--		74	38	40	42	44	36	38	0.172	347	520	624	
24.20	184	41	3::::	1.13	2.58	--	--	--	--	--		70	38	40	42	44	35	37	0.159	307	460	552	
24.40	207	56	3::::	1.15	2.60	--	--	--	--	--		74	38	40	42	44	36	38	0.170	345	518	621	
24.60	194	88	3::::	1.14	2.63	--	--	--	--	--		71	38	40	42	44	35	38	0.163	323	485	582	
24.80	135	58	3::::	1.05	2.65	--	--	--	--	--		59	36	38	40	43	33	35	0.126	225	338	405	
25.00	72	37	3::::	0.95	2.67	--	--	--	--	--		37	33	36	38	41	30	32	0.072	120	180	216	
25.20	62	52	3::::	0.94	2.69	--	--	--	--	--		31	32	35	38	41	29	32	0.061	103	155	186	
25.40	54	14	4/:/:	1.01	2.71	1.80	3.8	762	1144	162		27	32	34	37	40	28	31	0.051	90	135	162	
25.60	71	21	4/:/:	1.03	2.73	2.37	5.3	746	1119	213		36	33	36	38	41	29	32	0.070	118	178	213	
25.80	59	35	3::::	0.93	2.74	--	--	--	--	--		29	32	35	37	40	28	32	0.056	98	148	177	
26.00	58	26	4/:/:	1.02	2.76	1.93	4.0	771	1157	174		28	32	35	37	40	28	31	0.055	97	145	174	
26.20	137	56	3::::	1.06	2.79	--	--	--	--	--		58	36	38	40	43	33	35	0.124	228	343	411	
26.40	92	153	3::::	0.99	2.81	--	--	--	--	--		44	34	37	39	42	31	33	0.089	153	230	276	
26.60	38	16	4/:/:	0.99	2.83	1.27	2.3	687	1031	114		13	30	33	36	39	26	30	0.026	63	95	114	
26.80	55	41	3::::	0.93	2.84	--	--	--	--	--		26	32	34	37	40	28	31	0.049	92	138	165	
27.00	74	38	3::::	0.96	2.86	--	--	--	--	--		36	33	36	38	41	29	32	0.071	123	185	222	
27.20	40	19	4/:/:	1.00	2.88	1.33	2.4	716	1074	120		15	30	33	36	39	26	30	0.028	67	100	120	
27.40	140	52	3::::	1.06	2.90	--	--	--	--	--		58	36	38	40	43	33	36	0.124	233	350	420	
27.60	239	87	3::::	1.15	2.93	--	--	--	--	--		76	39	40	42	44	36	39	0.177	398	598	717	
27.80	263	82	3::::	1.15	2.95	--	--	--	--	--		79	39	41	42	44	36	40	0.186	438	658	789	
28.00	229	43	3::::	1.15	2.97	--	--	--	--	--		74	38	40	42	44	36	39	0.171	382	573	687	
28.20	231	44	3::::	1.15	3.00	--	--	--	--	--		74	38	40	42	44	36	39	0.171	385	578	693	
28.40	205	62	3::::	1.15	3.02	--	--	--	--	--		70	38	40	42	44	35	38	0.158	342	513	615	
28.60	209	67	3::::	1.15	3.04	--	--	--	--	--		70	38	40	42	44	35	38	0.160	348	523	627	
28.80	241	52	3::::	1.15	3.07	--	--	--	--	--		75	38	40	42	44	36	39	0.174	402	603	723	
29.00	169	42	3::::	1.10	3.09	--	--	--	--	--		63	37	39	41	43	34	37	0.137	282	423	507	
29.20	217	125	3::::	1.15	3.11	--	--	--	--	--		71	38	40	42	44	35	38	0.162	362	543	651	
29.40	295	62	3::::	1.15	3.13	--	--	--	--	--		81	39	41	43	45	37	40	0.194	492	738	885	
29.60	315	51	3::::	1.15	3.16	--	--	--	--	--		83	40	41	43	45	37	40	0.201	525	788	945	
29.80	319	62	3::::	1.15	3.18	--	--	--	--	--		84	40	41	43	45	37	40	0.202	532	798	957	
30.00	289	--	3::::	1.15	3.20	--	--	--	--	--		80	39	41	43	44	36	40	0.190	482	723	867	

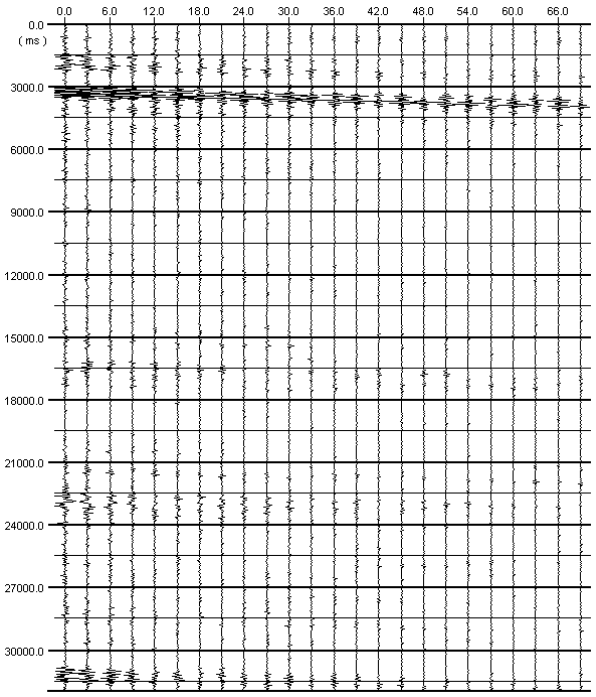
PROSPEZIONE SISMICA DI SUPERFICIE CON METODOLOGIA MASW

MASW1

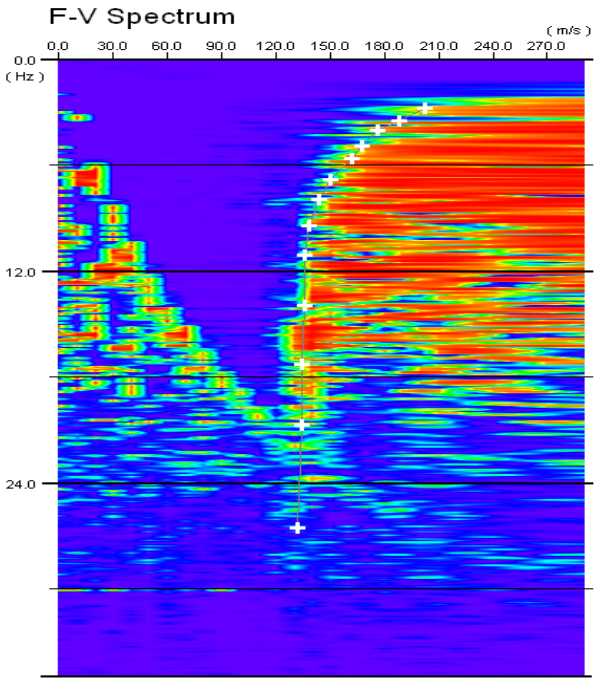
Data di esecuzione: 13/12/2011 Località: Mirandola (MO) Committente: Studio Tarabusi

Profilo	Direzione	n° tracce	Δx (m)	Δt (ms)	T (s)	L (m)	Coordinate geografiche WGS 84
MASW 1	N 15° E	31	3,0	2,0	32,0	69,0	44.89063° / 11.05979°

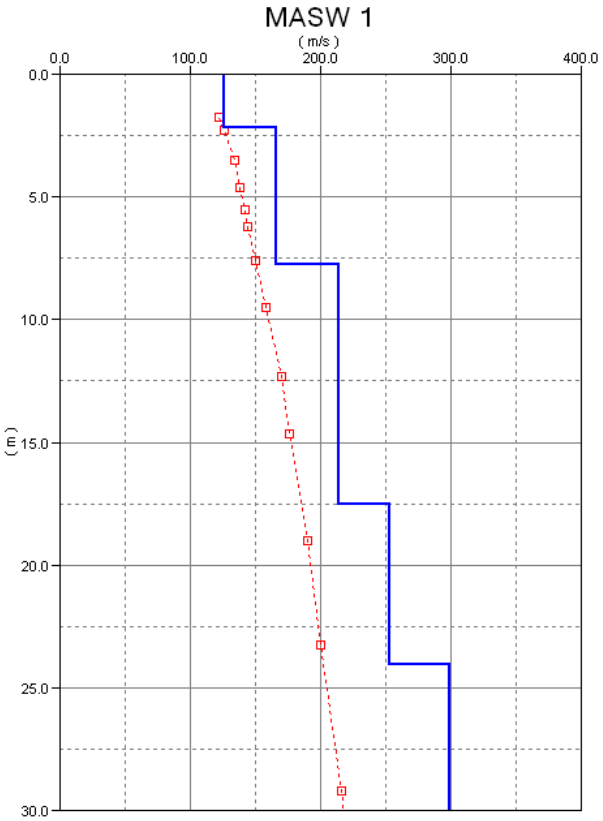
Δx: interdistanza geofonica; Δt: passo di campionamento; T: durata registrazione; L tot: lunghezza totale dello stendimento



Sismogramma registrato durante le acquisizioni di microtremore sismico. In ascissa la distanza fra i geofoni (m), in ordinata il tempo (ms).



Spettro di potenza nel dominio f-v e Picking della curva sperimentale delle onde R (croci bianche).



Modello di sottosuolo (1D) descritto in termini di Vs e spessore dei sismostrati (spezzata blu) e curva di dispersione sperimentale delle onde R (curva rossa)

n. Strato	Profondità letto (m dal p.c.)	Spessore (m)	V_S (m/s)
1	2.2	2.2	125.8
2	7.8	5.6	166.4
3	17.5	9.7	214.0
4	24.0	6.5	252.8
5	30.0	5.9	298.8

V_{S30} = 211 ± 17 [m/s]

Sintesi dei parametri del modello di sottosuolo ottenuto e valore di Vs30 calcolato

Esecuzione ed elaborazione: dott. geol. Luca Bianconi e dott. geol. Samuel Sangiorgi

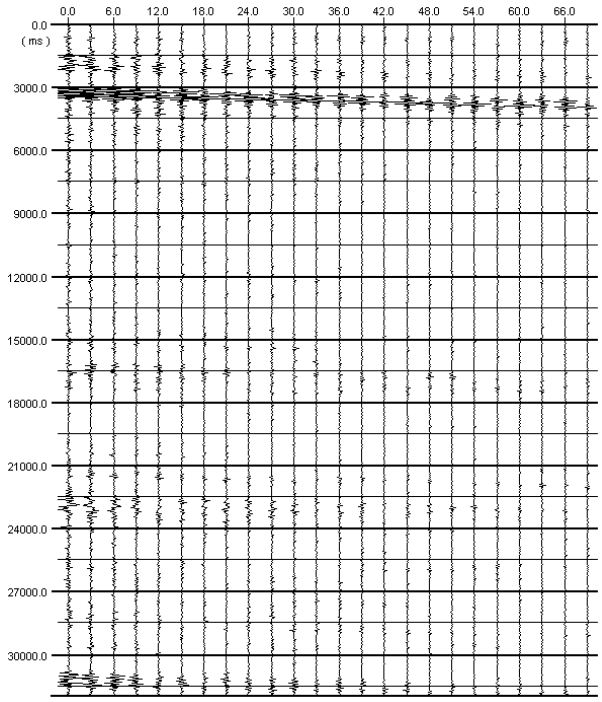
PROSPEZIONE SISMICA DI SUPERFICIE CON METODOLOGIA MASW

MASW2

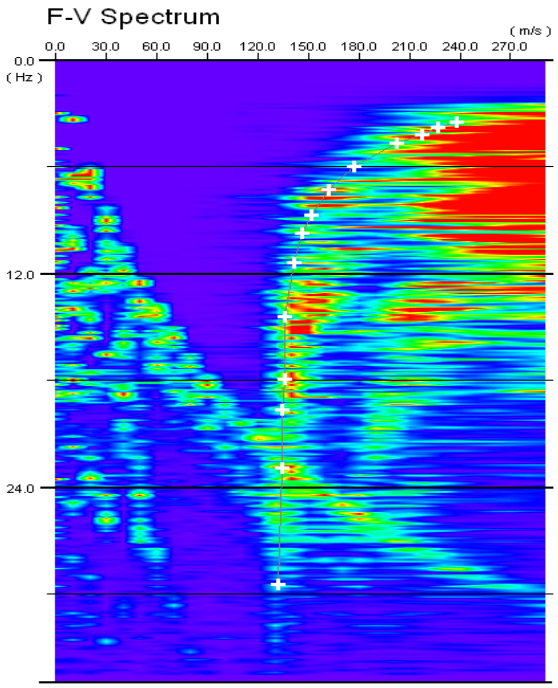
Data di esecuzione: 13/12/2011 Località: Mirandola (MO) Committente: Studio Tarabusi

Profilo	Direzione	n° tracce	Δx (m)	Δt (ms)	T (s)	L (m)	Coordinate geografiche WGS 84
MASW 2	N 10° E	26	3,0	2,0	32,0	69,0	44.89205° / 11.07531°

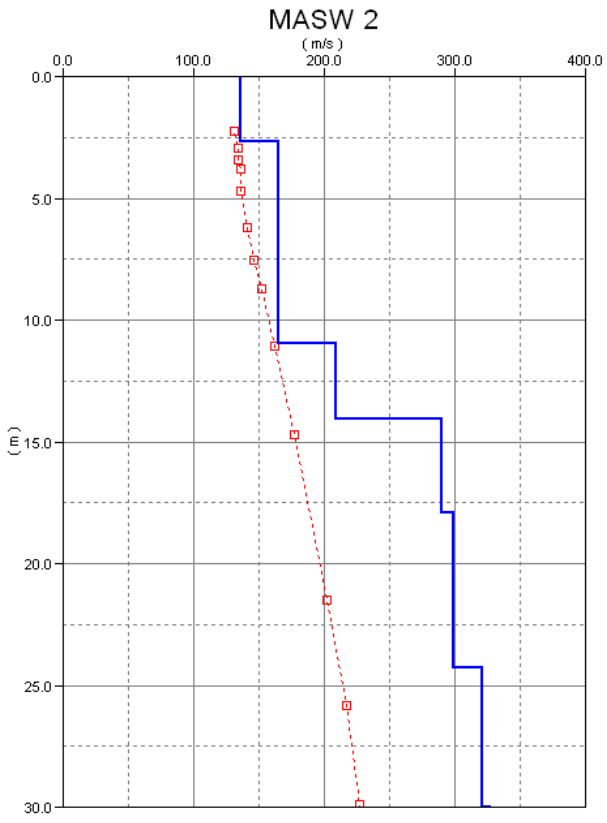
Δx: interdistanza geofonica; Δt: passo di campionamento; T: durata registrazione; L: lunghezza totale dello stendimento



Sismogramma registrato durante le acquisizioni di microtremore sismico. In ascissa la distanza fra i geofoni (m), in ordinata il tempo (ms).



Spettro di potenza nel dominio f-v e Picking della curva sperimentale delle onde R (croci bianche).



Modello di sottosuolo (1D) descritto in termini di Vs e spessore dei sismostrati (spezzata blu) e curva di dispersione sperimentale delle onde R (curva rossa)

n. Strato	Profondità letto (m dal p.c.)	Spessore (m)	V_S (m/s)
1	2.7	2.7	136.4
2	10.9	8.3	165.5
3	14.0	3.1	208.8
4	17.9	3.9	289.6
5	24.3	6.4	299.2
6	30.0	5.7	321.4

V_{S30} = 219 ± 17 [m/s]

Sintesi dei parametri del modello di sottosuolo ottenuto e valore di Vs30 calcolato

Esecuzione ed elaborazione: dott. geol. Luca Bianconi e dott. geol. Samuel Sangiorgi

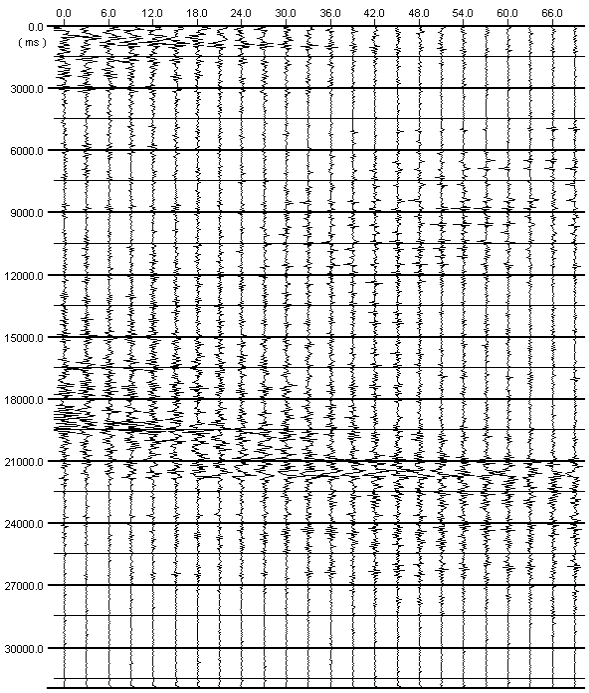
PROSPEZIONE SISMICA DI SUPERFICIE CON METODOLOGIA MASW

MASW3

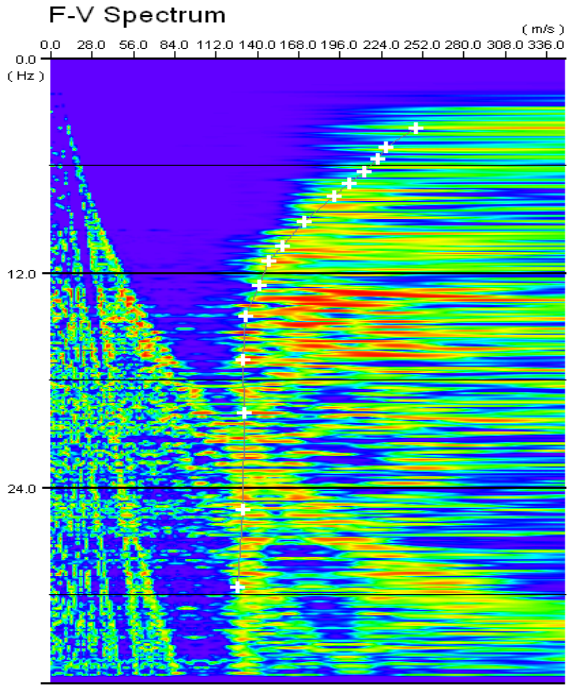
Data di esecuzione: 13/12/2011 Località: Mirandola (MO) Committente: Studio Tarabusi

Profilo	Direzione	n° tracce	Δx (m)	Δt (ms)	T (s)	L (m)	Coordinate geografiche WGS 84
MASW 3	N 5° E	32	3,0	2,0	32,0	69,0	44.88075° / 11.05531°

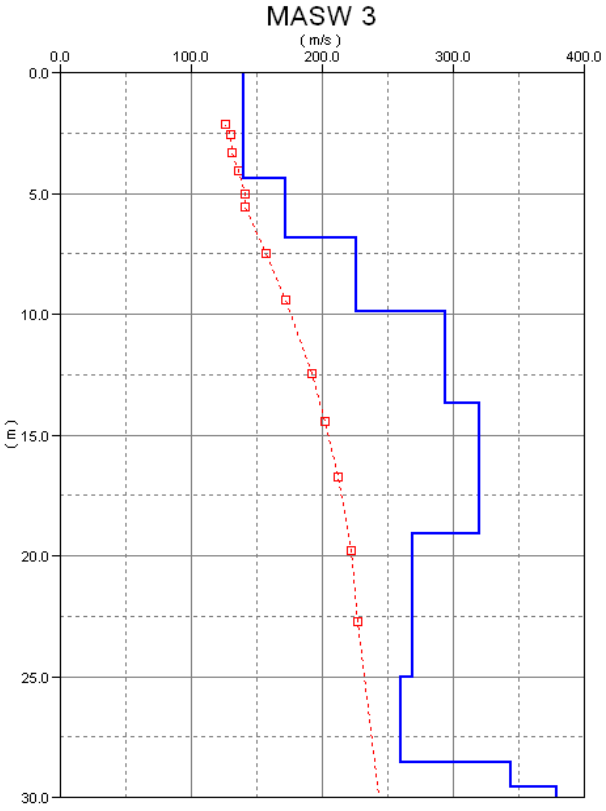
Δx: interdistanza geofonica; Δt: passo di campionamento; T: durata registrazione; L tot: lunghezza totale dello stendimento



Sismogramma registrato durante le acquisizioni di microtremore sismico. In ascissa la distanza fra i geofoni (m), in ordinata il tempo (ms).



Spettro di potenza nel dominio f-v e Picking della curva sperimentale delle onde R (croci bianche).



Modello di sottosuolo (1D) descritto in termini di Vs e spessore dei sismostrati (spezzata blu) e curva di dispersione sperimentale delle onde R (curva rossa)

n. Strato	Profondità letto (m dal p.c.)	Spessore (m)	V_S (m/s)
1	4.4	4.4	139.8
2	6.8	2.4	172.1
3	9.9	3.0	225.6
4	13.7	3.8	294.3
5	19.1	5.4	319.5
6	25.1	6.0	268.9
7	28.6	3.5	260.4
8	29.6	1.0	344.0
9	30.0	0.4	378.5

V_{S30} = 233 ± 19 [m/s]

Sintesi dei parametri del modello di sottosuolo ottenuto e valore di Vs30 calcolato

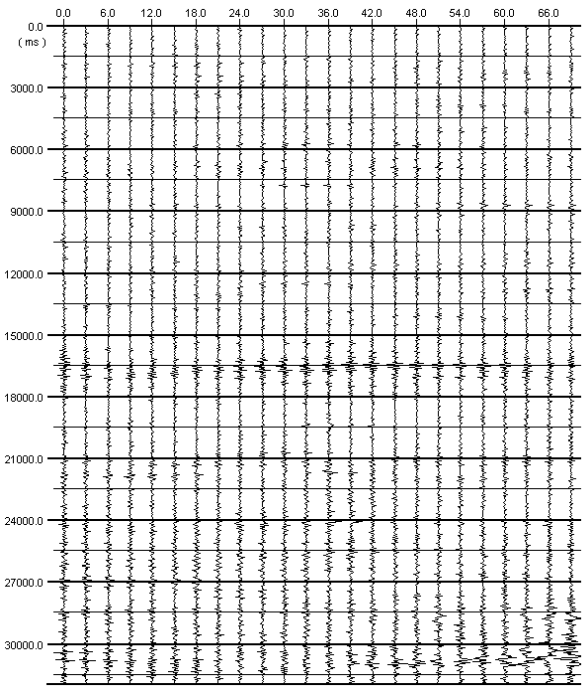
Esecuzione ed elaborazione: dott. geol. Luca Bianconi e dott. geol. Samuel Sangiorgi

PROSPEZIONE SISMICA DI SUPERFICIE CON METODOLOGIA MASW **MASW4**

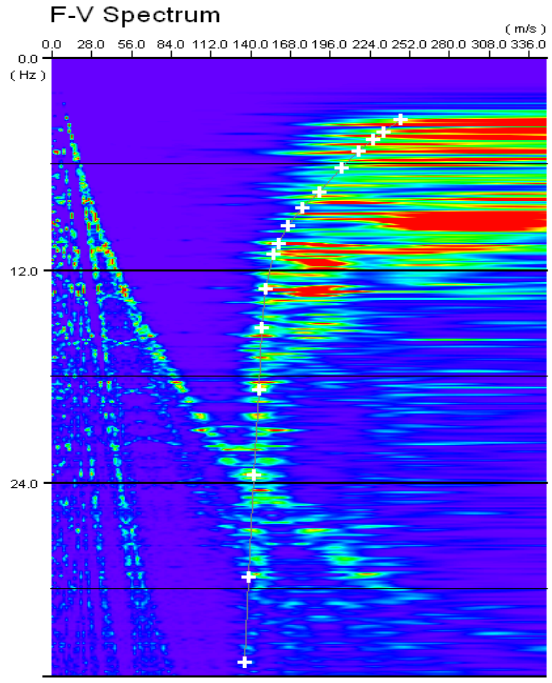
Data di esecuzione: 13/12/2011 Località: Mirandola (MO) Committente: Studio Tarabusi

Profilo	Direzione	n° tracce	Δx (m)	Δt (ms)	T (s)	L (m)	Coordinate geografiche WGS 84
MASW 4	N 18° E	36	3,0	2,0	32,0	69,0	44.87668° / 11.07299°

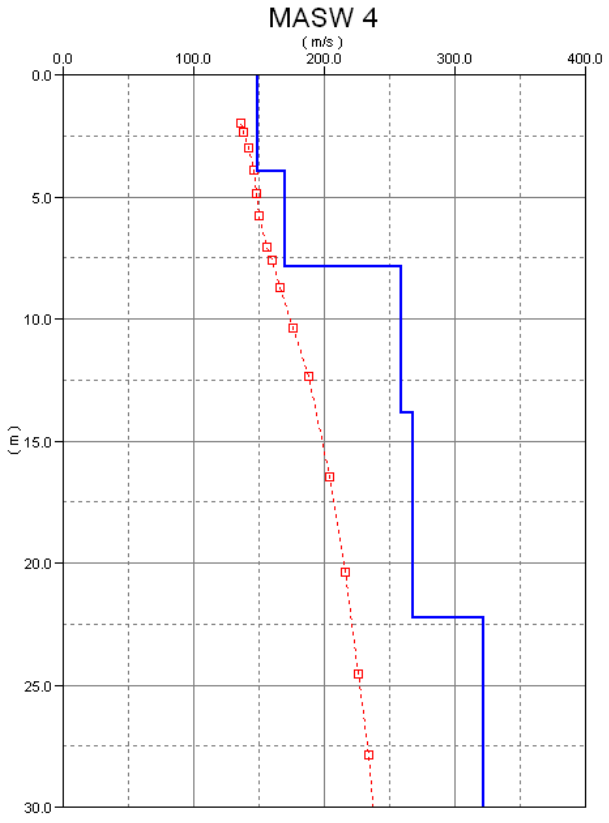
Δx: interdistanza geofonica; Δt: passo di campionamento; T: durata registrazione; L tot: lunghezza totale dello stendimento



Sismogramma registrato durante le acquisizioni di microtremore sismico. In ascissa la distanza fra i geofoni (m), in ordinata il tempo (ms).



Spettro di potenza nel dominio f-v e Picking della curva sperimentale delle onde R (croci bianche).



Modello di sottosuolo (1D) descritto in termini di Vs e spessore dei sismostrati (spezzata blu) e curva di dispersione sperimentale delle onde R (curva rossa)

n. Strato	Profondità letto (m dal p.c.)	Spessore (m)	V_S (m/s)
1	3.9	3.9	148.8
2	7.9	3.9	169.8
3	13.9	6.0	259.5
4	22.2	8.4	267.9
5	30.0	7.8	322.2

V_{S30} = 234 ± 19 [m/s]

Sintesi dei parametri del modello di sottosuolo ottenuto e valore di Vs30 calcolato

Esecuzione ed elaborazione: dott. geol. Luca Bianconi e dott. geol. Samuel Sangiorgi

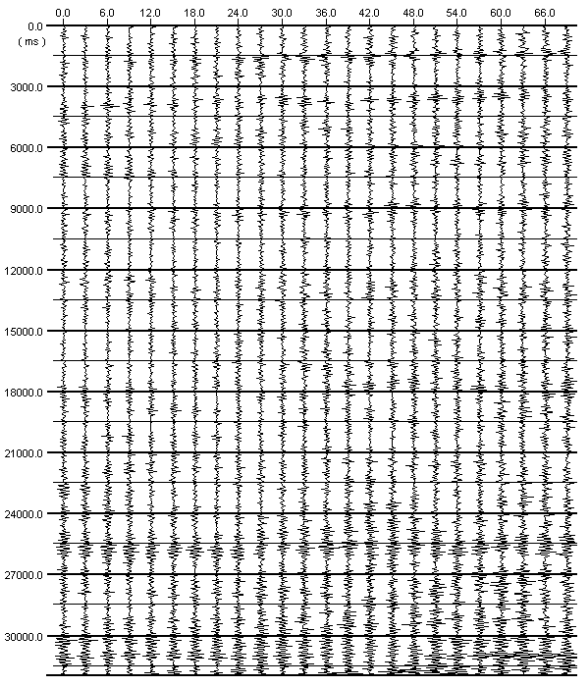
PROSPEZIONE SISMICA DI SUPERFICIE CON METODOLOGIA MASW

MASW5

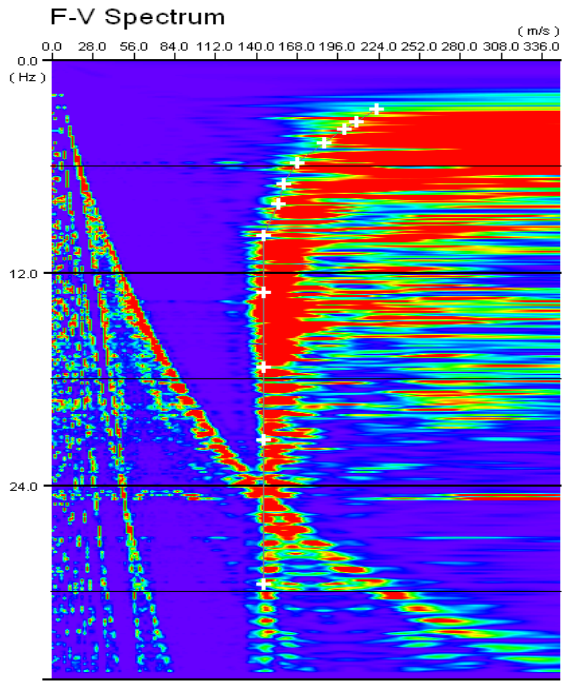
Data di esecuzione: 15/12/2011 Località: Mirandola (MO) Committente: Comune di Mirandola

Profilo	Direzione	n° tracce	Δx (m)	Δt (ms)	T (s)	L (m)	Coordinate geografiche WGS 84
MASW 5	N 50° E	43	3,0	2,0	32,0	69,0	44.8696° / 11.06539°

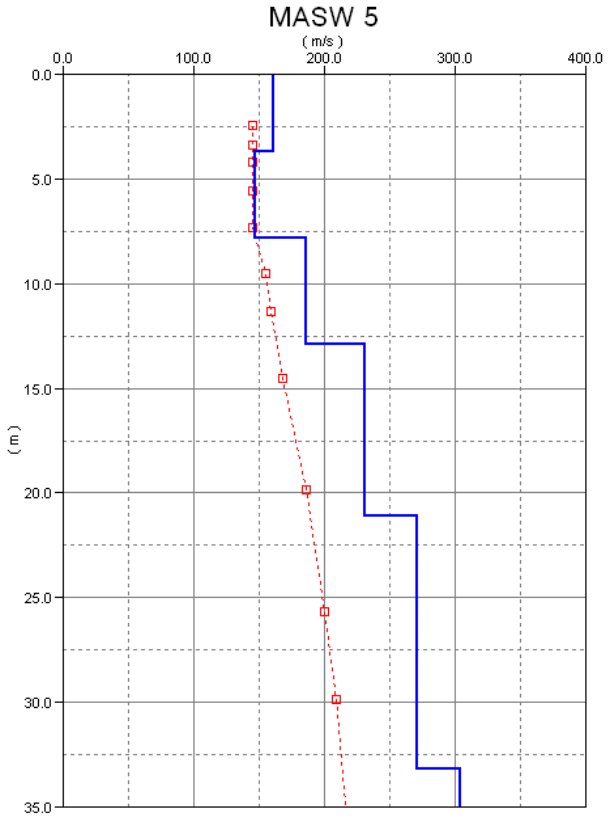
Δx: interdistanza geofonica; Δt: passo di campionamento; T: durata registrazione; L tot: lunghezza totale dello stendimento



Sismogramma registrato durante le acquisizioni di microtremore sismico. In ascissa la distanza fra i geofoni (m), in ordinata il tempo (ms).



Spettro di potenza nel dominio f-v e Picking della curva sperimentale delle onde R (croci bianche).



Modello di sottosuolo (1D) descritto in termini di Vs e spessore dei sismostrati (spezzata blu) e curva di dispersione sperimentale delle onde R (curva rossa)

n. Strato	Profondità letto (m dal p.c.)	Spessore (m)	V_S (m/s)
1	3.7	3.7	161.1
2	7.8	4.1	147.1
3	12.9	5.1	185.7
4	21.1	8.2	231.3
5	30.0	8.9	271.5

V_{S30} = 204 ± 16 [m/s]

Sintesi dei parametri del modello di sottosuolo ottenuto e valore di Vs30 calcolato

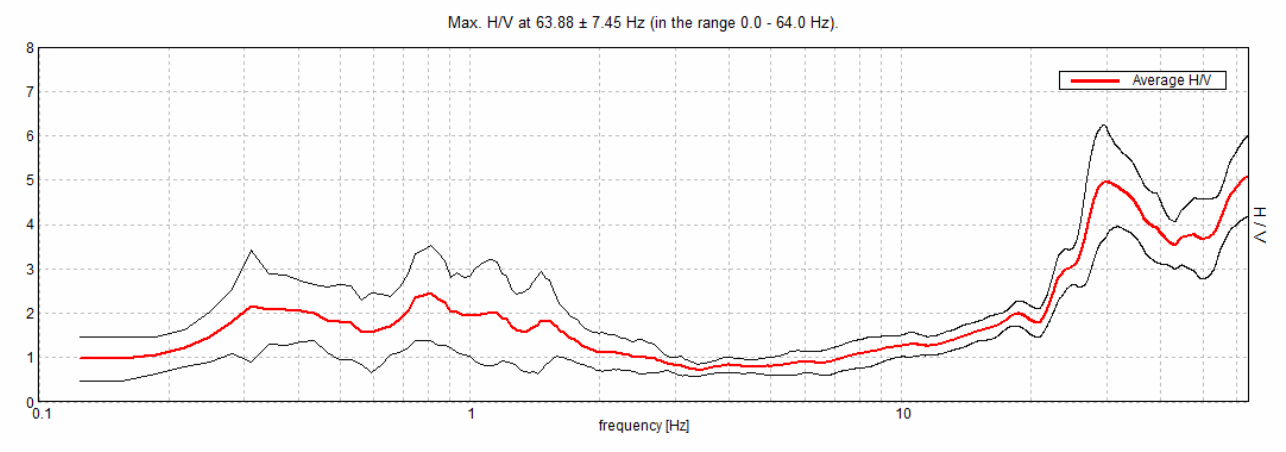
Esecuzione ed elaborazione: dott. geol. Luca Bianconi e dott. geol. Samuel Sangiorgi

MICROZONAZIONE MIRANDOLA, R001

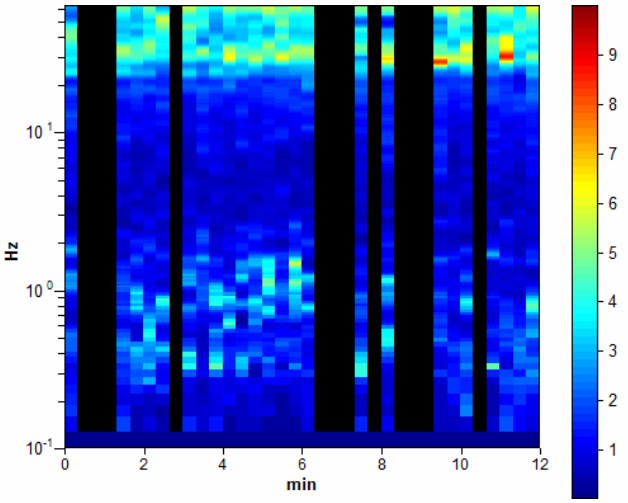
Start recording: 14/10/11 11:32:57 End recording: 14/10/11 11:44:57
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

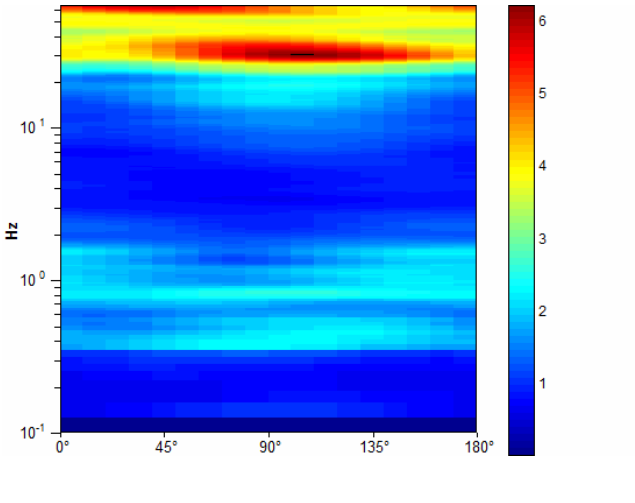
HORIZONTAL TO VERTICAL SPECTRAL RATIO



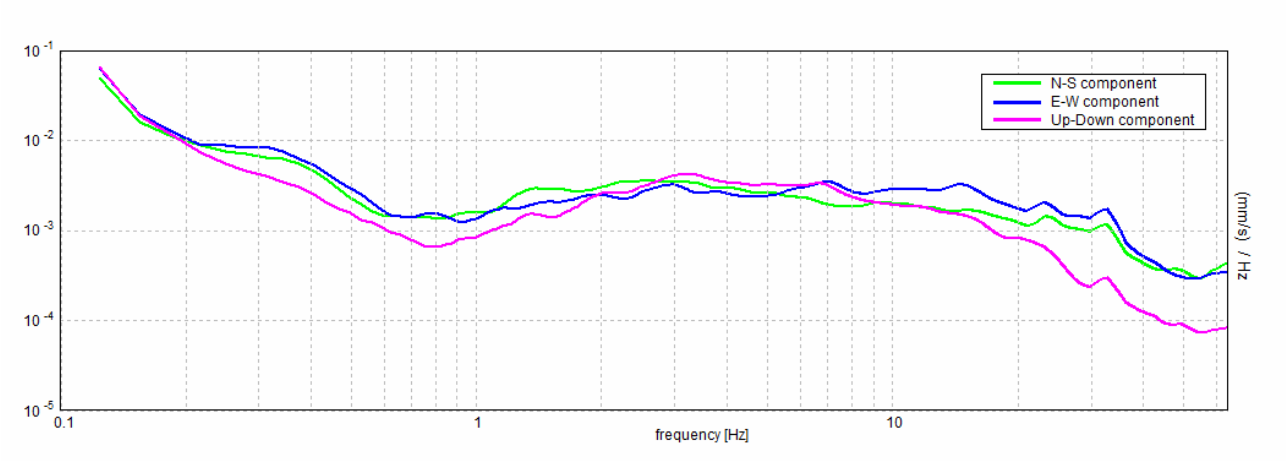
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

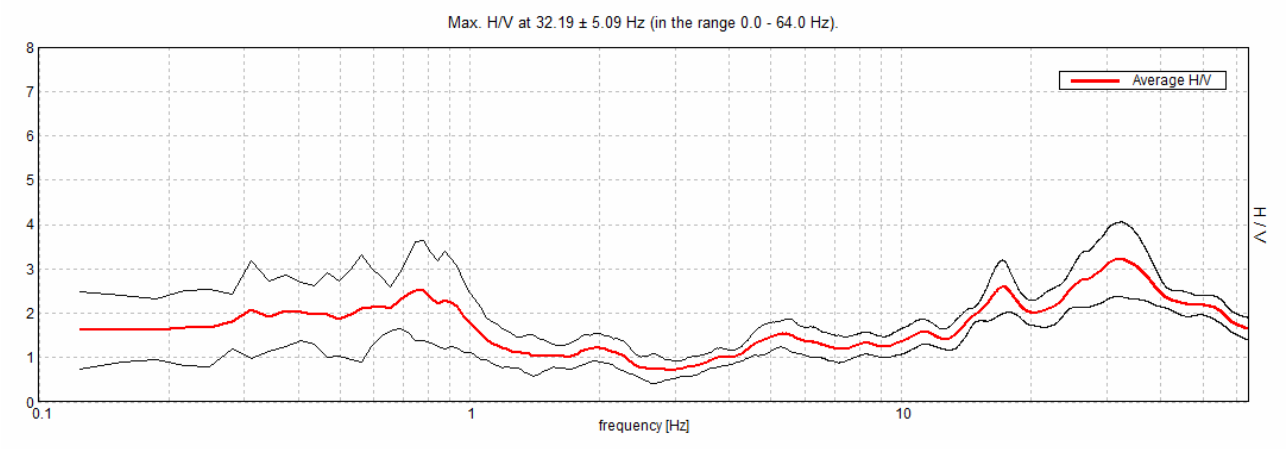


MICROZONAZIONE MIRANDOLA, R003

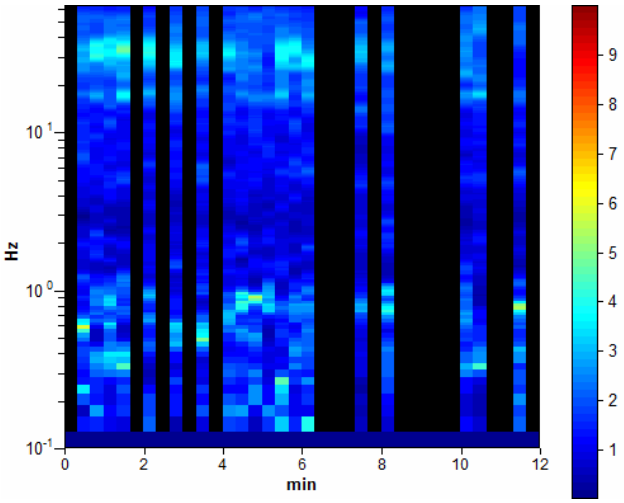
Start recording: 14/10/11 12:18:03 End recording: 14/10/11 12:30:04
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 53% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

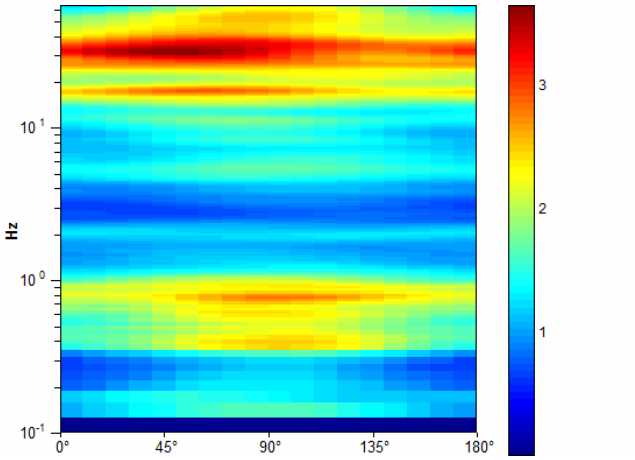
HORIZONTAL TO VERTICAL SPECTRAL RATIO



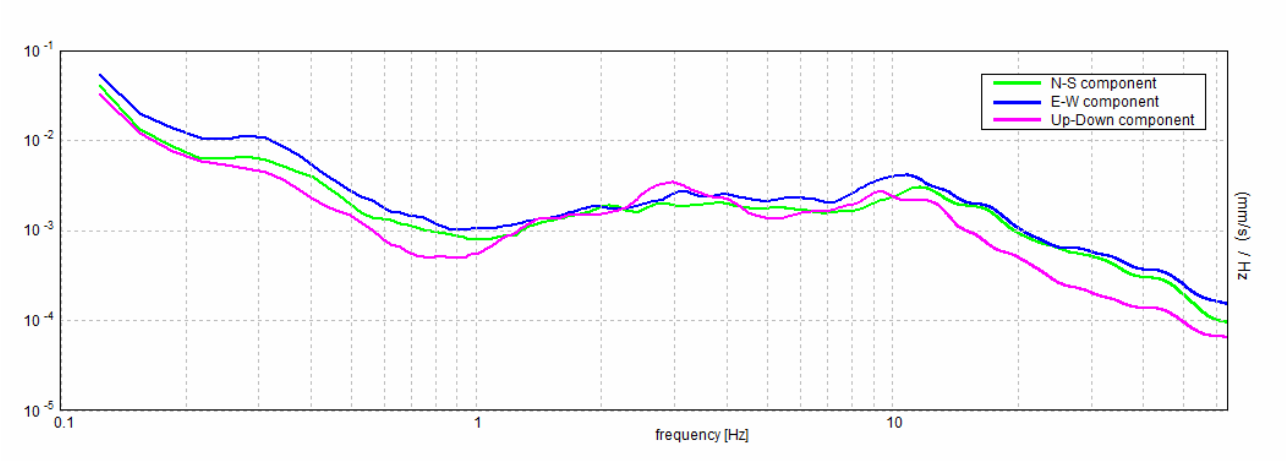
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

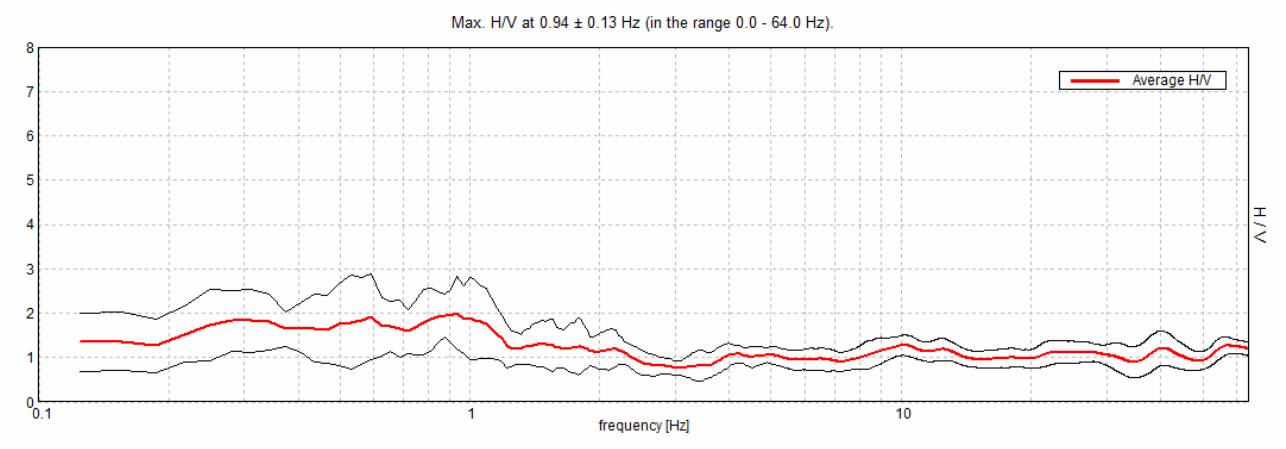


MICROZONAZIONE MIRANDOLA, R004

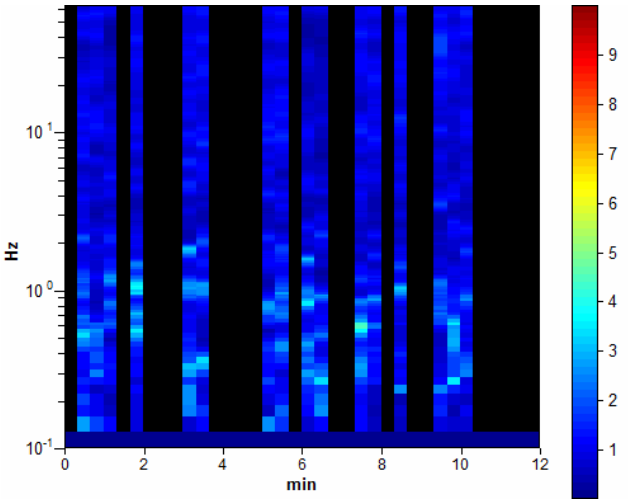
Start recording: 14/10/11 12:39:40 End recording: 14/10/11 12:51:40
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 44% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

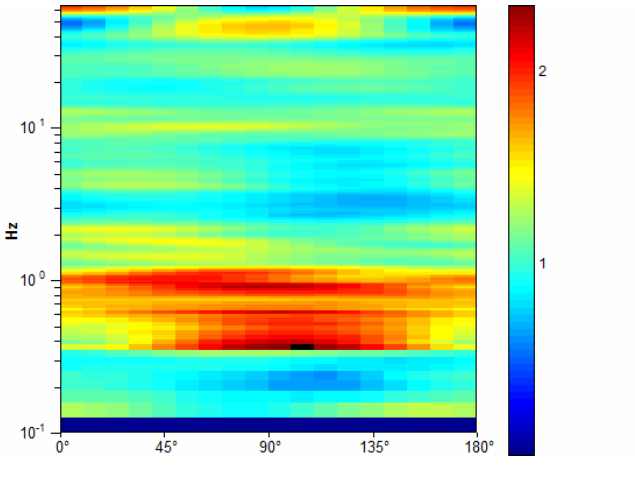
HORIZONTAL TO VERTICAL SPECTRAL RATIO



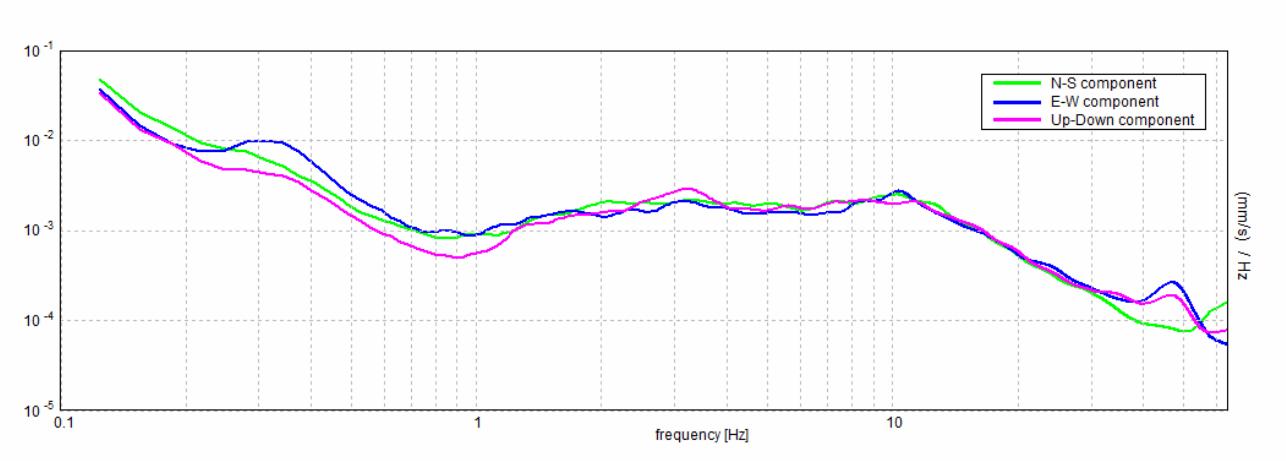
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

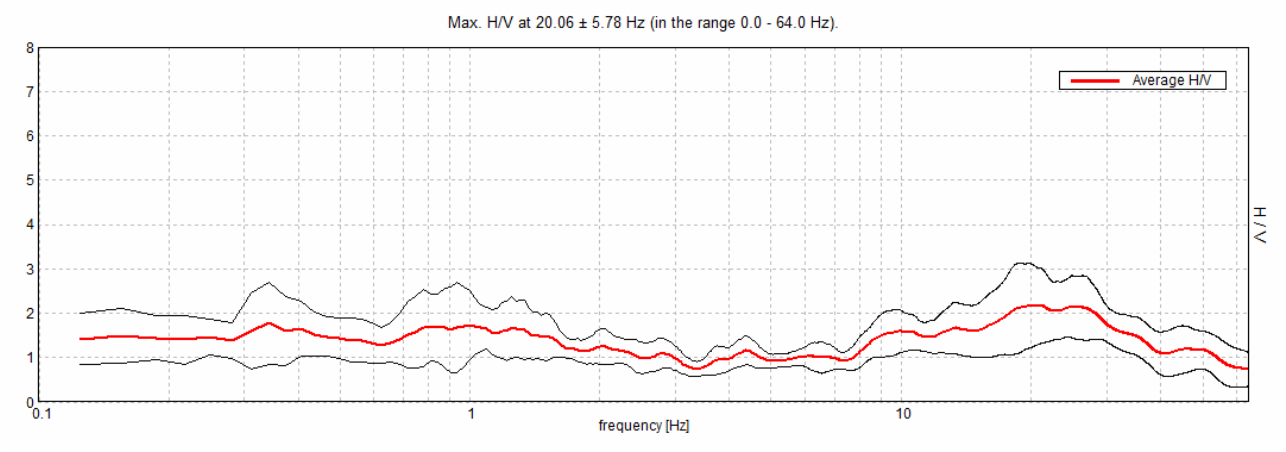


MICROZONAZIONE MIRANDOLA, R005

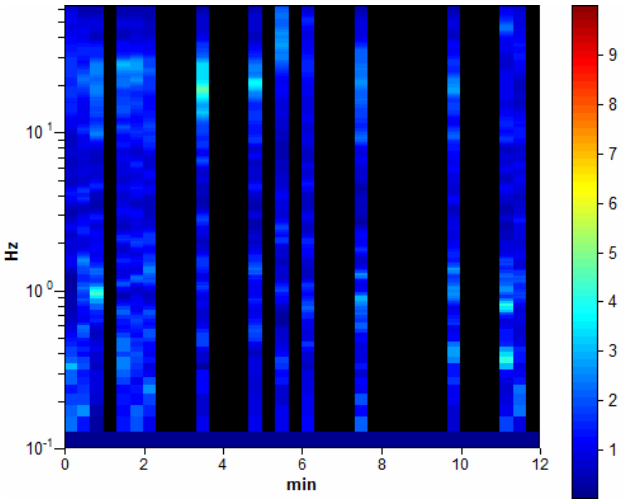
Start recording: 02/11/11 10:12:13 End recording: 02/11/11 10:24:14
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 39% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

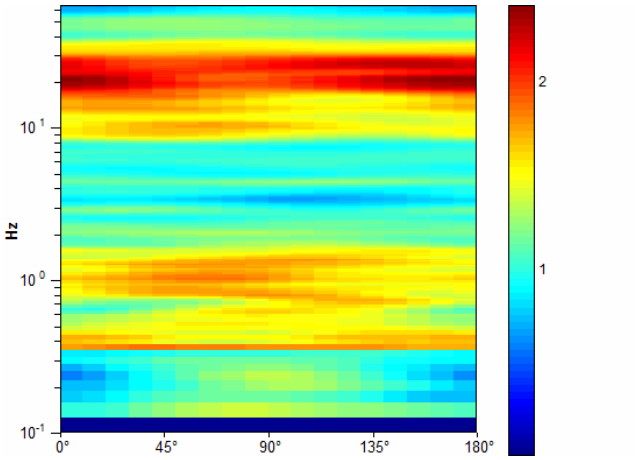
HORIZONTAL TO VERTICAL SPECTRAL RATIO



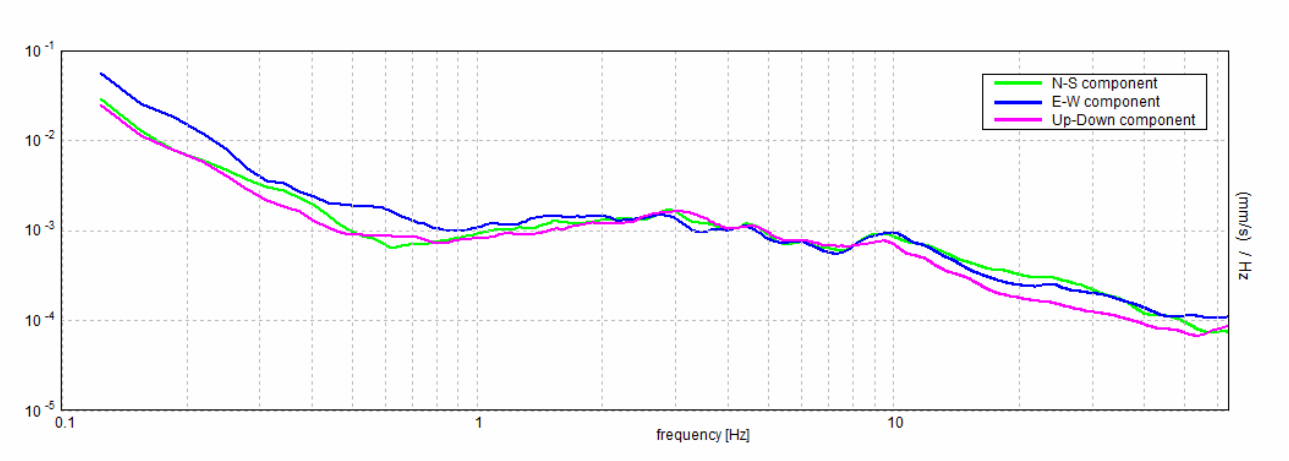
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

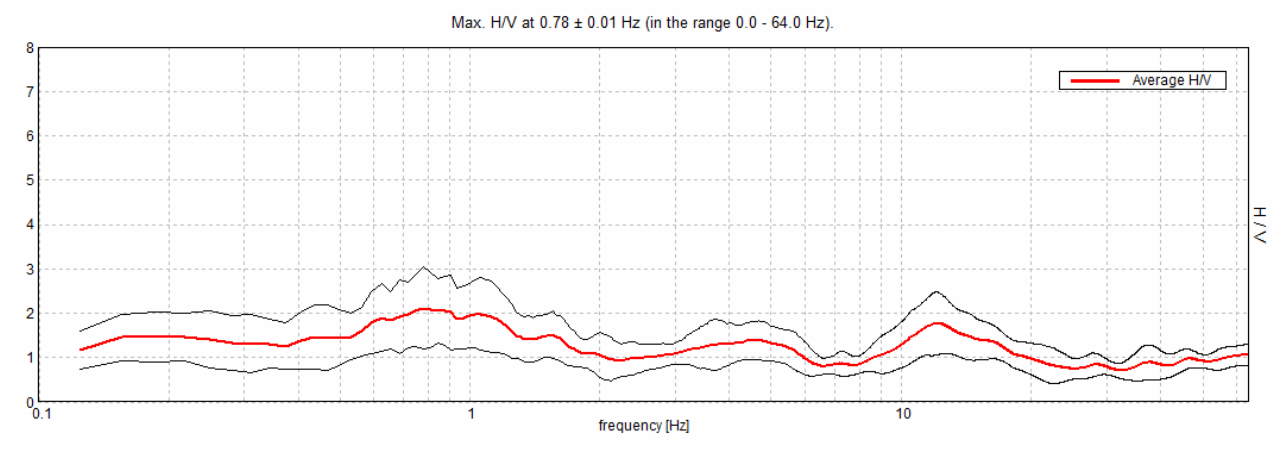


MICROZONAZIONE MIRANDOLA, R006

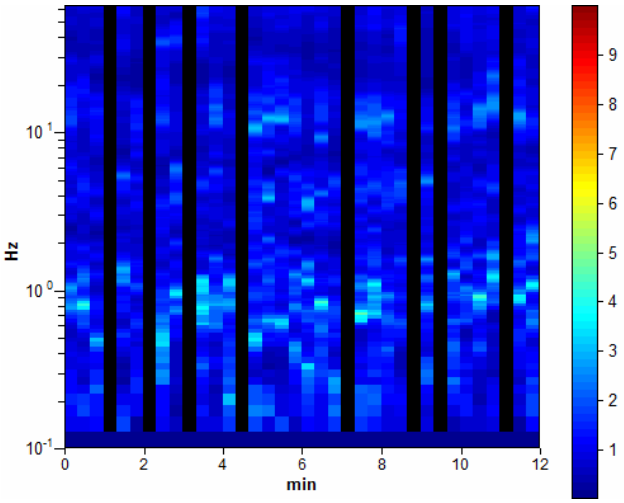
Start recording: 02/11/11 11:10:27 End recording: 02/11/11 11:22:28
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

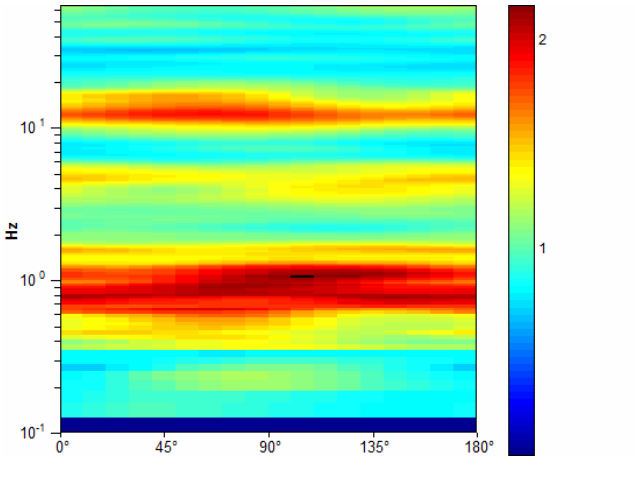
HORIZONTAL TO VERTICAL SPECTRAL RATIO



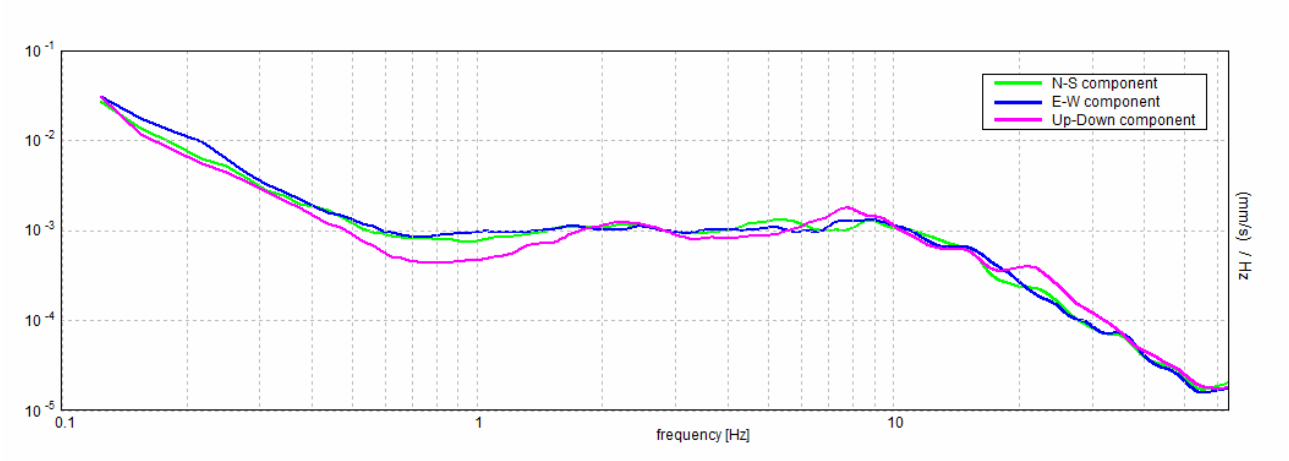
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

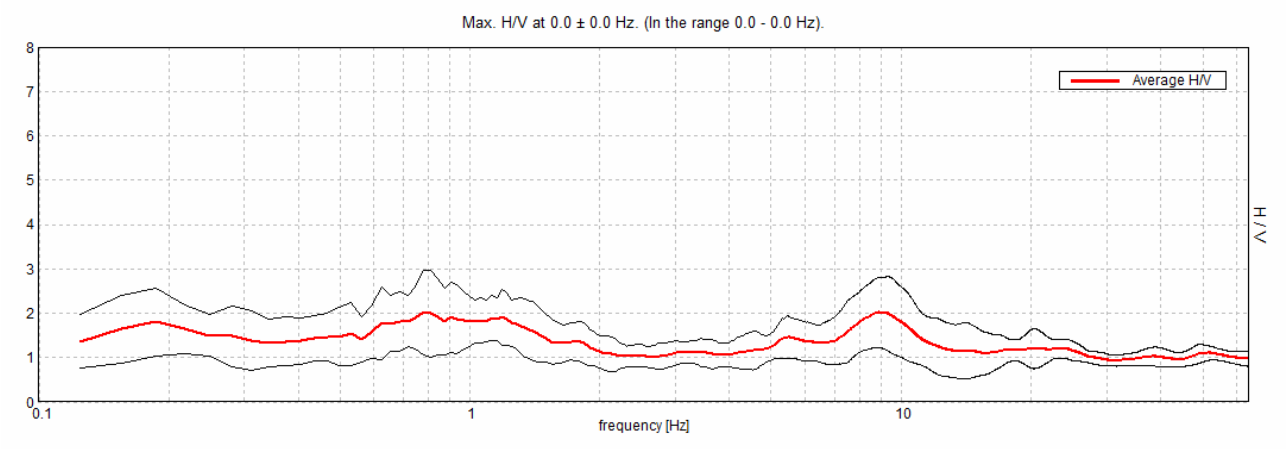


MICROZONAZIONE MIRANDOLA, R007

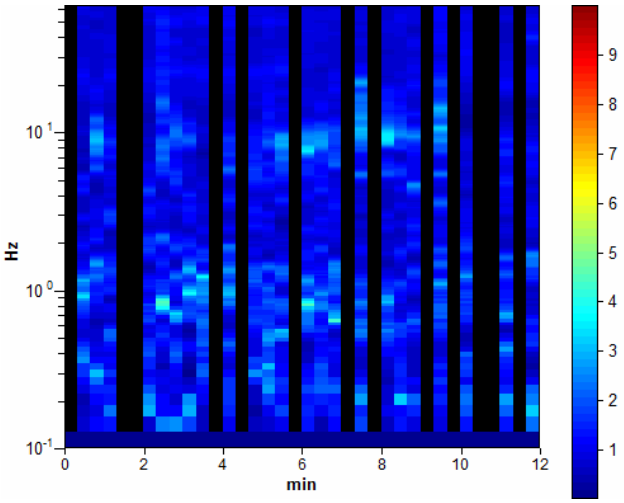
Start recording: 02/11/11 11:52:04 End recording: 02/11/11 12:04:05
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

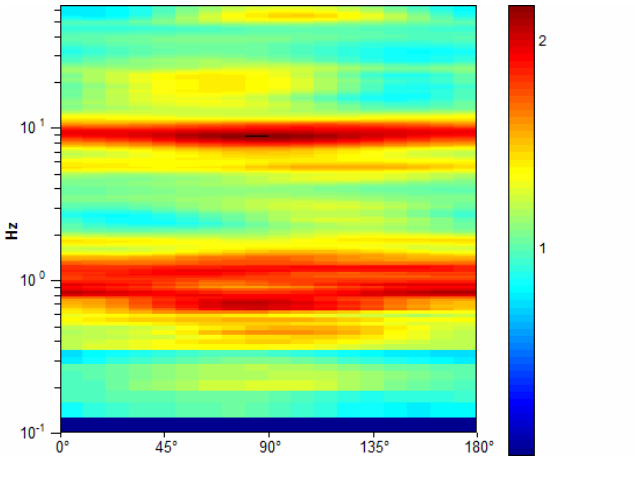
HORIZONTAL TO VERTICAL SPECTRAL RATIO



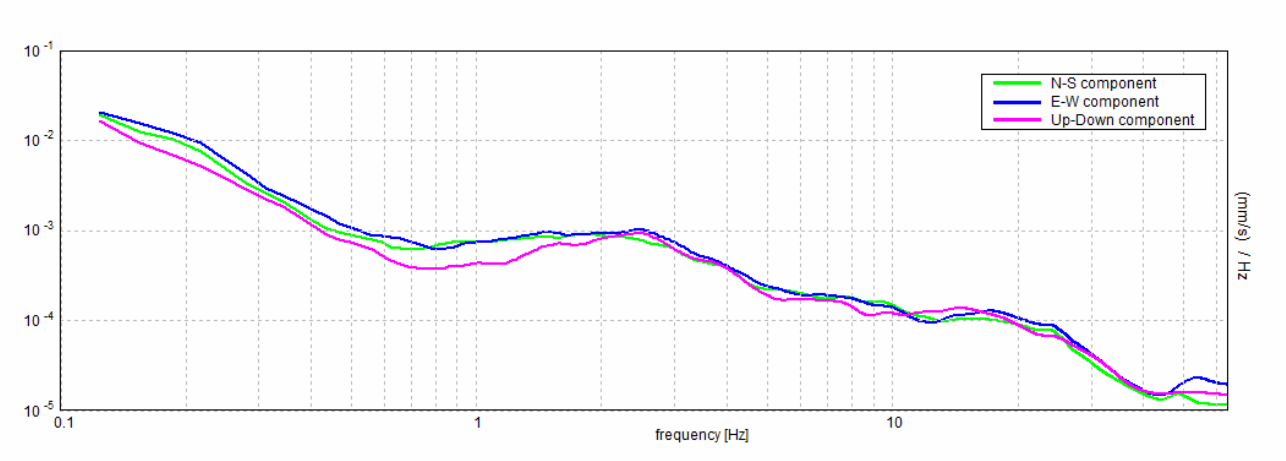
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

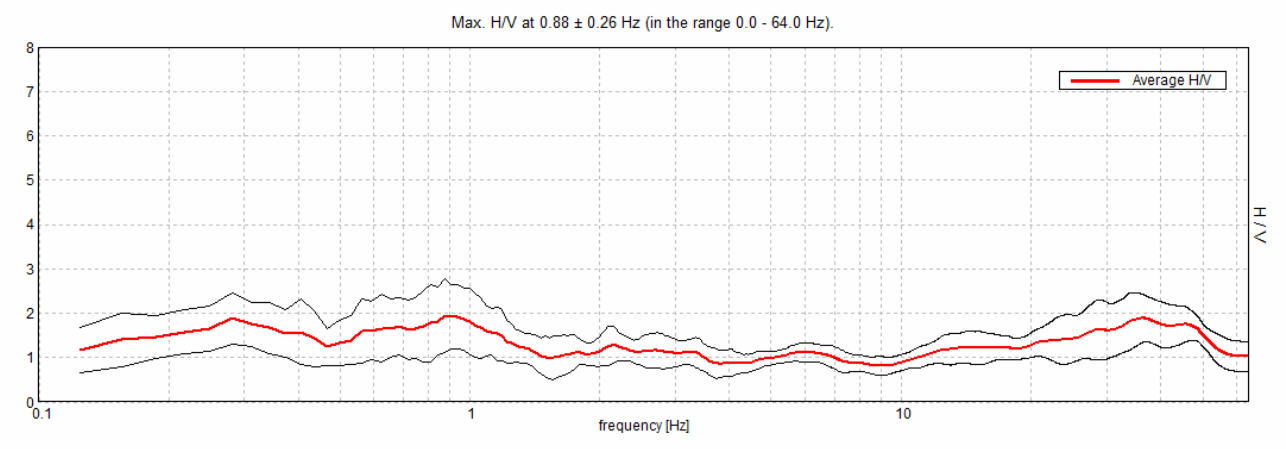


MICROZONAZIONE MIRANDOLA, R008

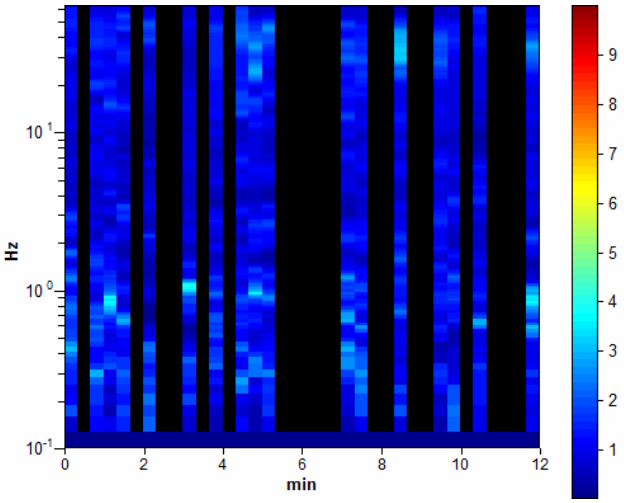
Start recording: 02/11/11 12:25:56 End recording: 02/11/11 12:37:57
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 47% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

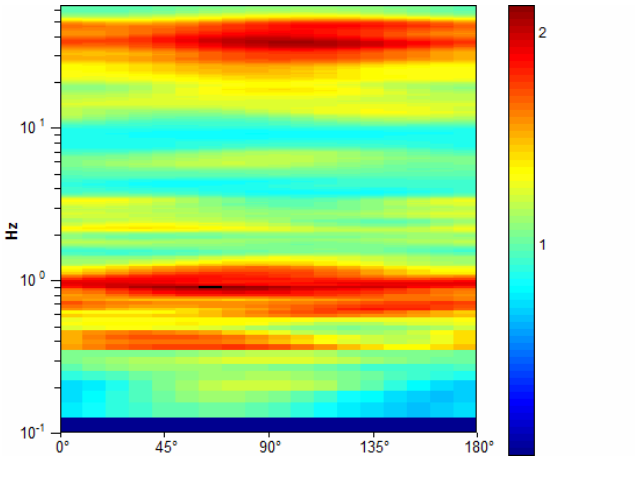
HORIZONTAL TO VERTICAL SPECTRAL RATIO



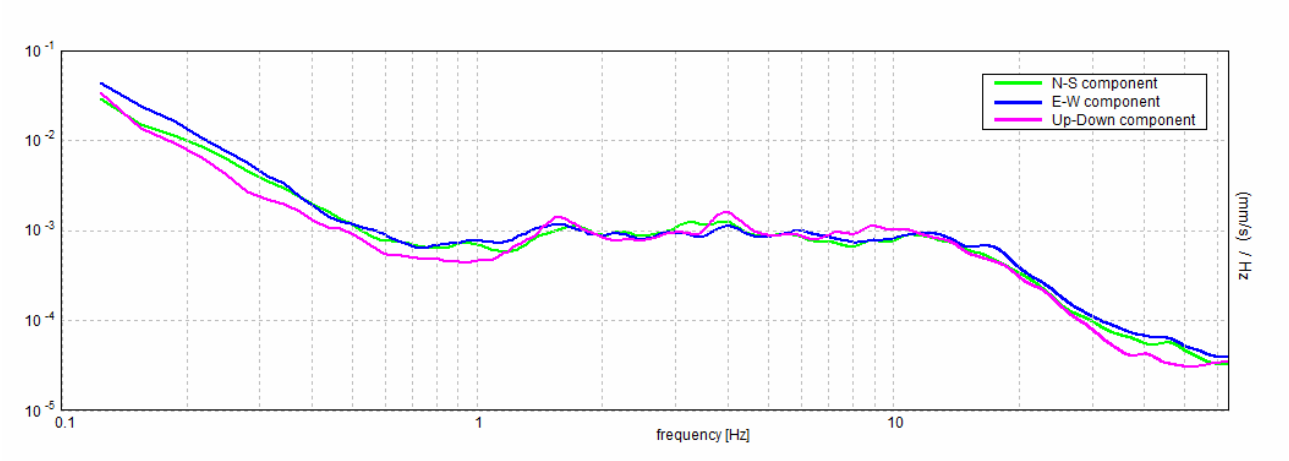
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

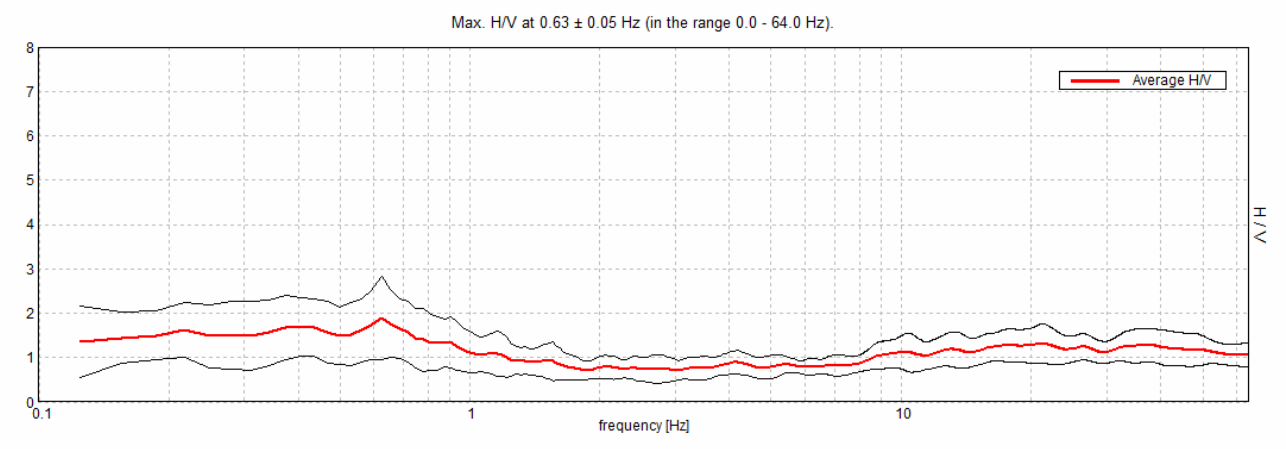


MICROZONAZIONE MIRANDOLA, R009

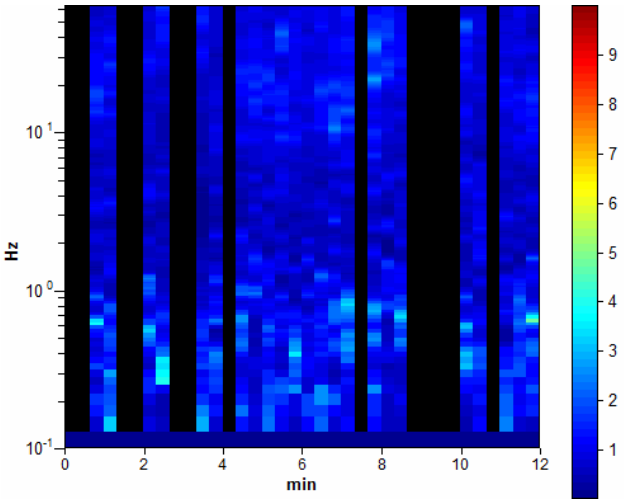
Start recording: 02/11/11 12:49:55 End recording: 02/11/11 13:01:56
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

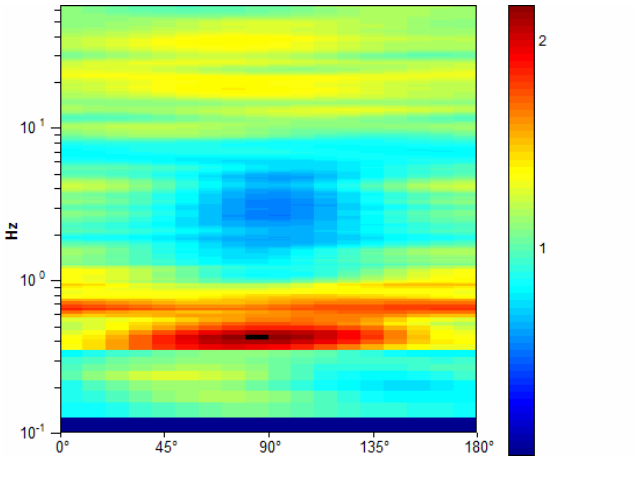
HORIZONTAL TO VERTICAL SPECTRAL RATIO



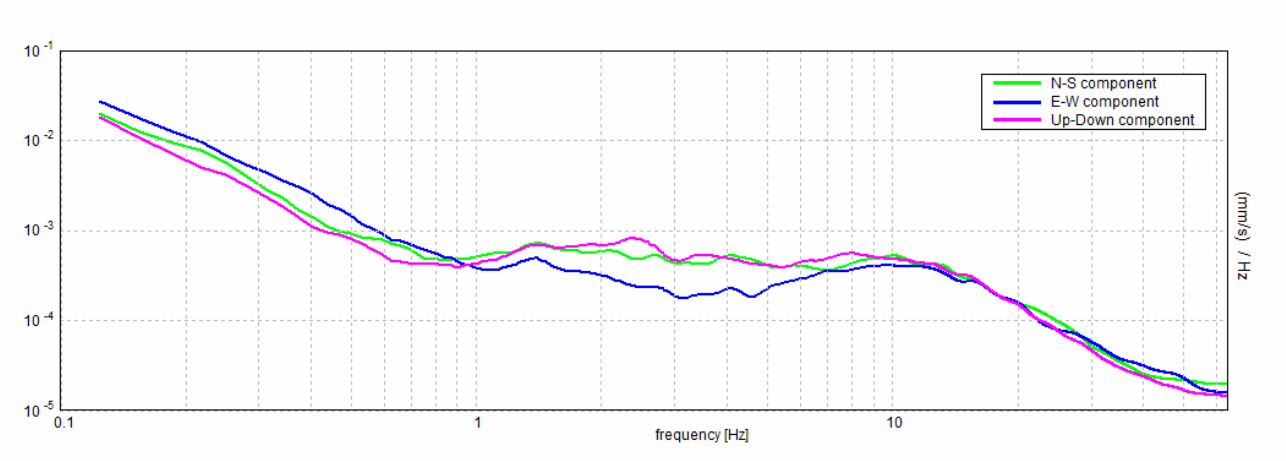
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

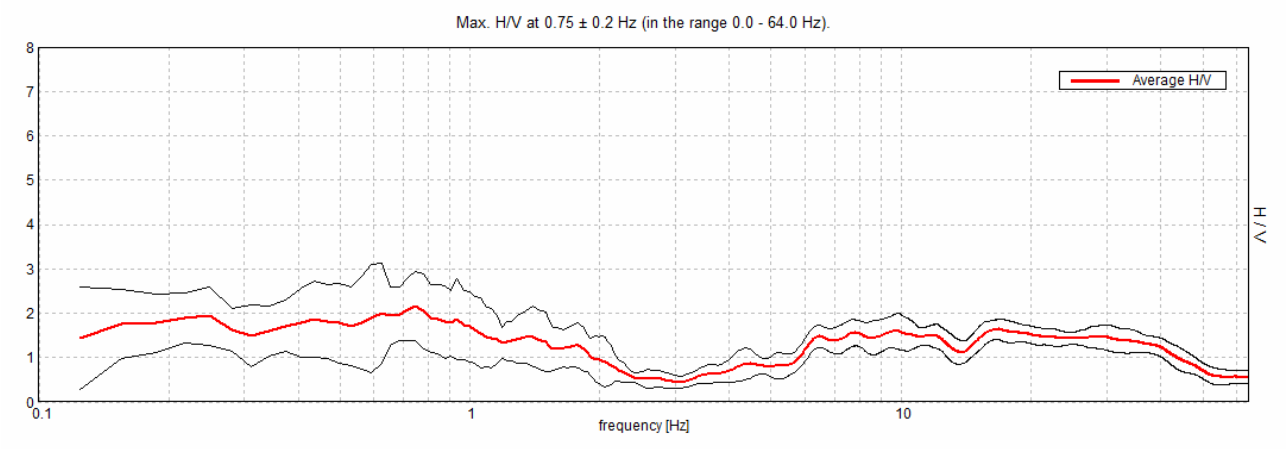


MICROZONAZIONE MIRANDOLA, R011

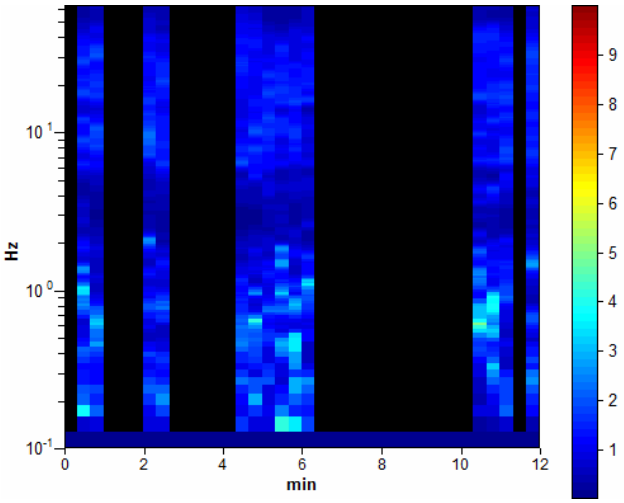
Start recording: 02/11/11 14:53:48 End recording: 02/11/11 15:05:49
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 39% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

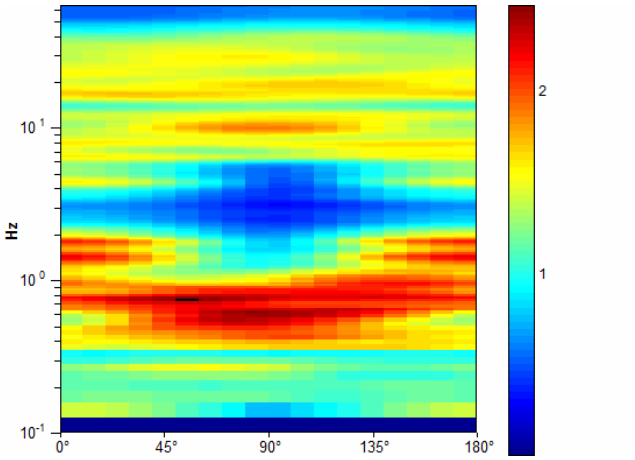
HORIZONTAL TO VERTICAL SPECTRAL RATIO



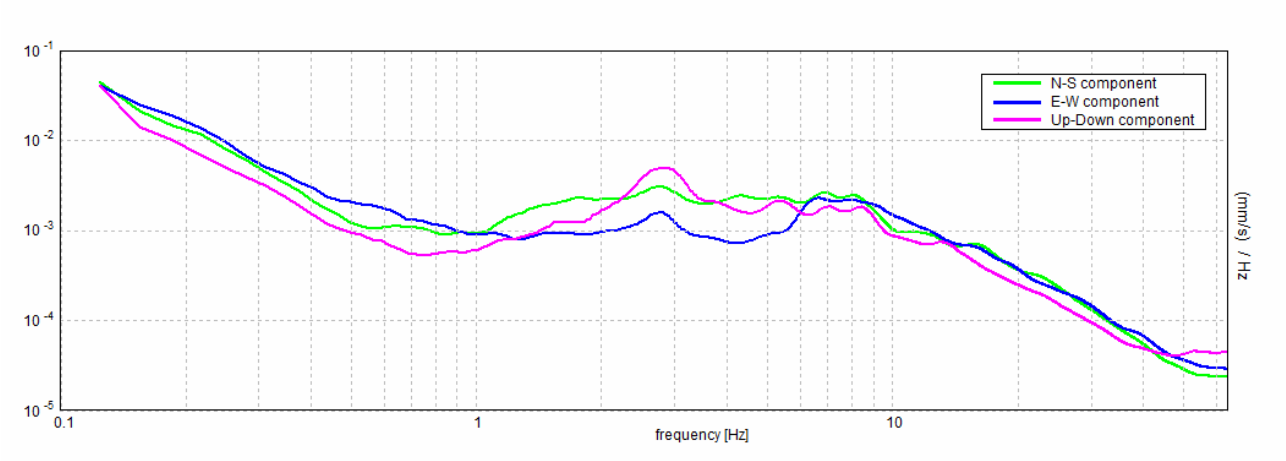
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

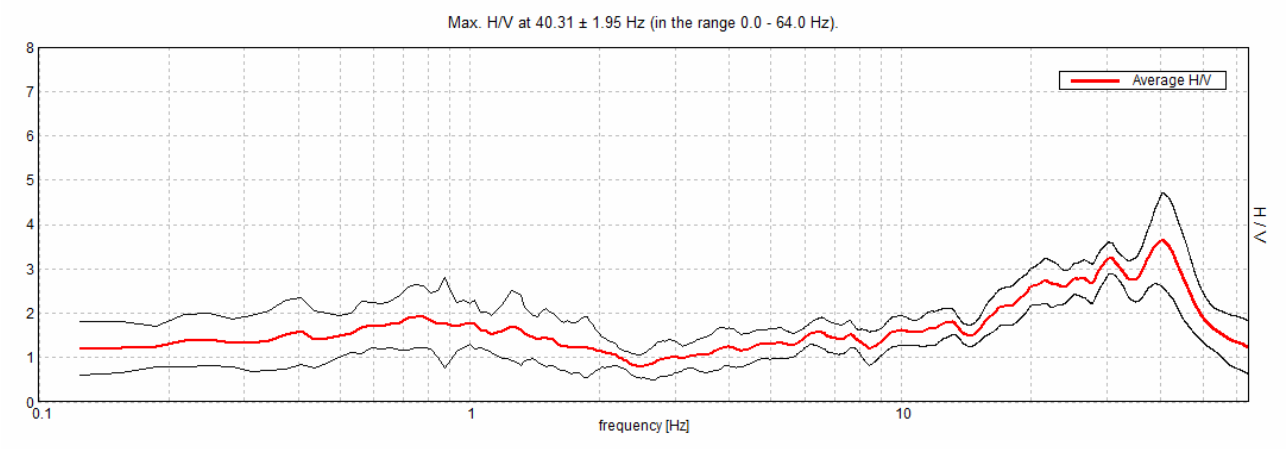


MICROZONAZIONE MIRANDOLA, R012

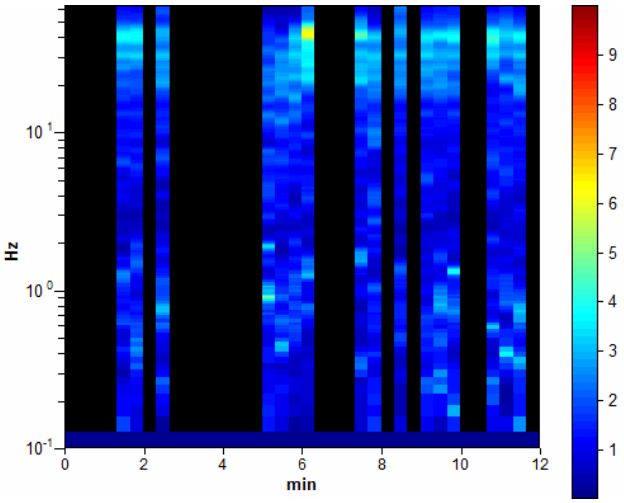
Start recording: 02/11/11 15:28:43 End recording: 02/11/11 15:40:44
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 44% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

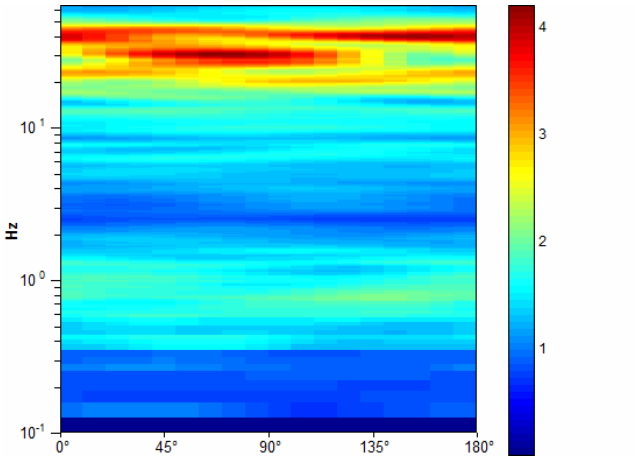
HORIZONTAL TO VERTICAL SPECTRAL RATIO



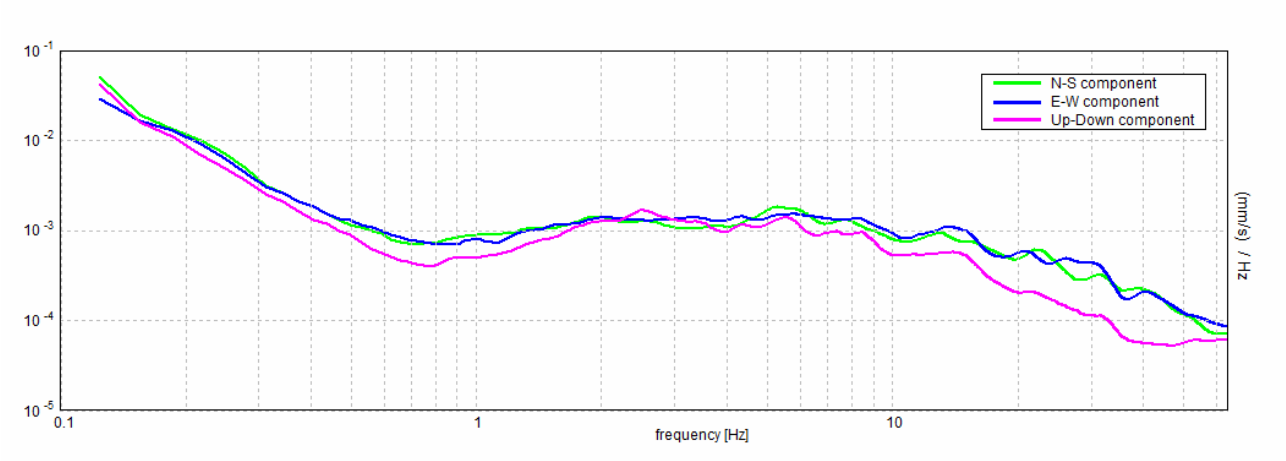
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

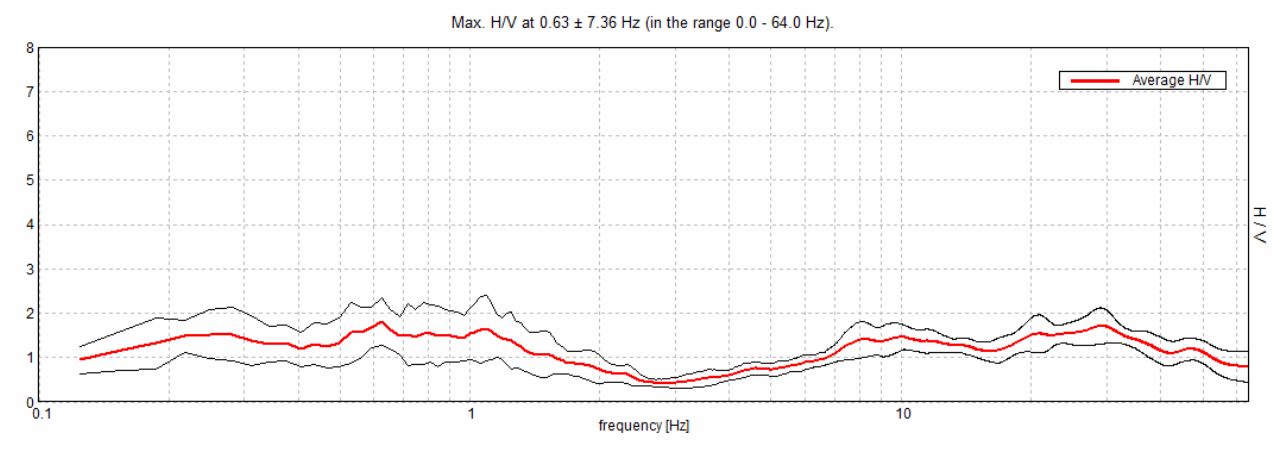


MICROZONAZIONE MIRANDOLA, R013

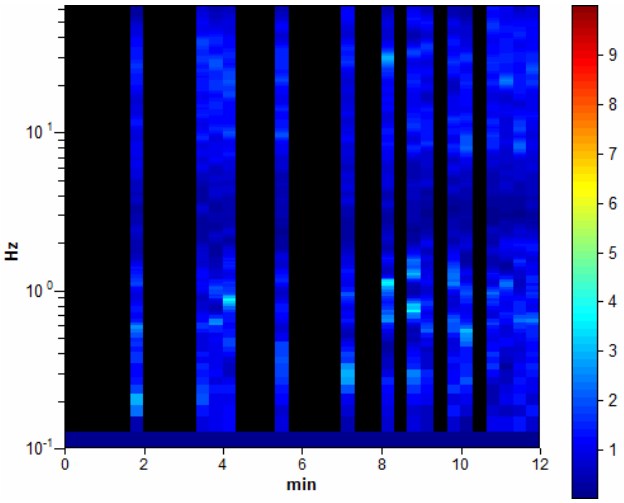
Start recording: 02/11/11 15:57:55 End recording: 02/11/11 16:09:56
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 42% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

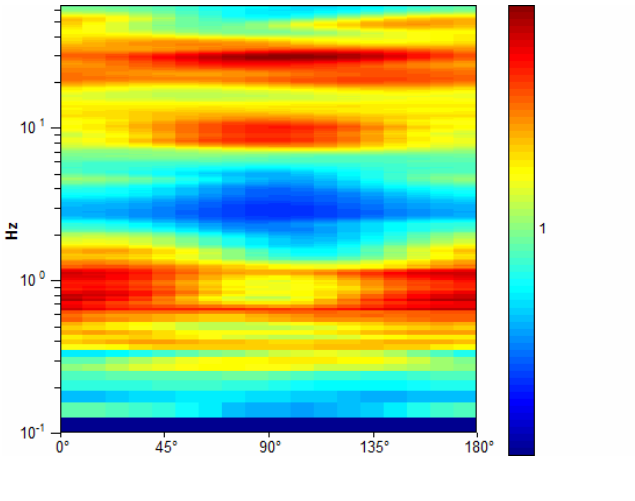
HORIZONTAL TO VERTICAL SPECTRAL RATIO



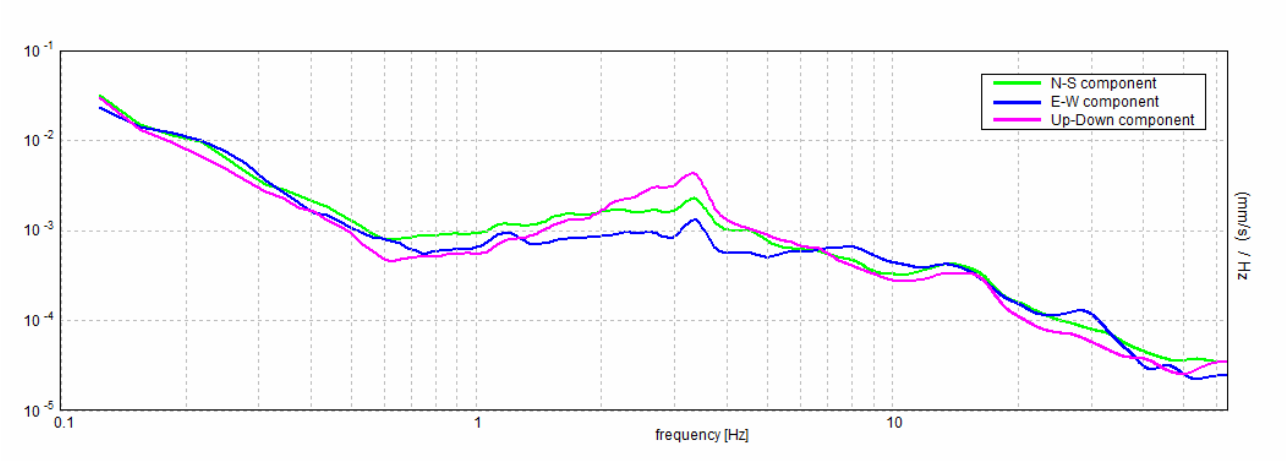
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

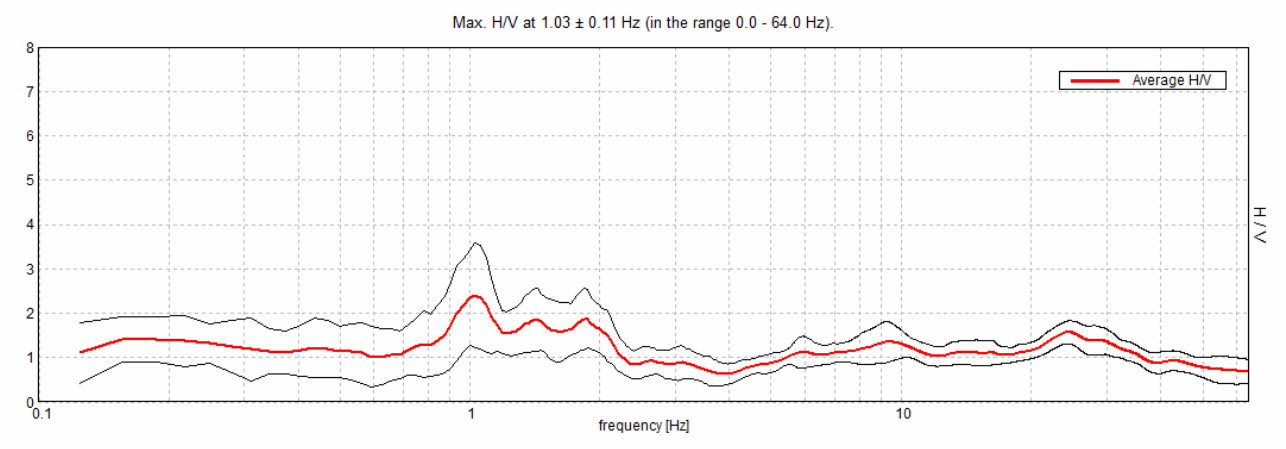


MICROZONAZIONE MIRANDOLA, R014

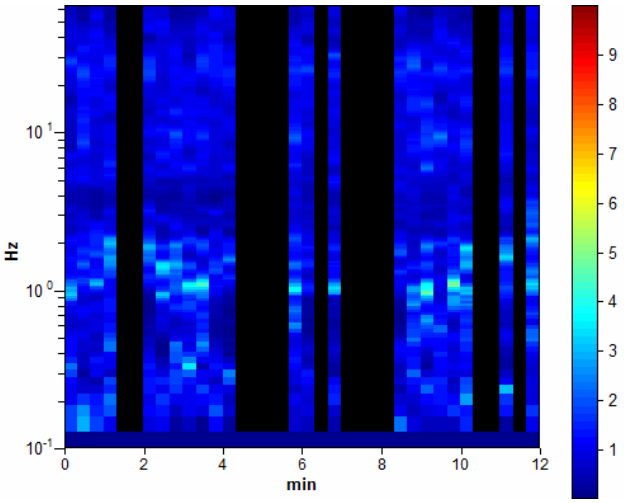
Start recording: 02/11/11 16:27:12 End recording: 02/11/11 16:39:13
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 61% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

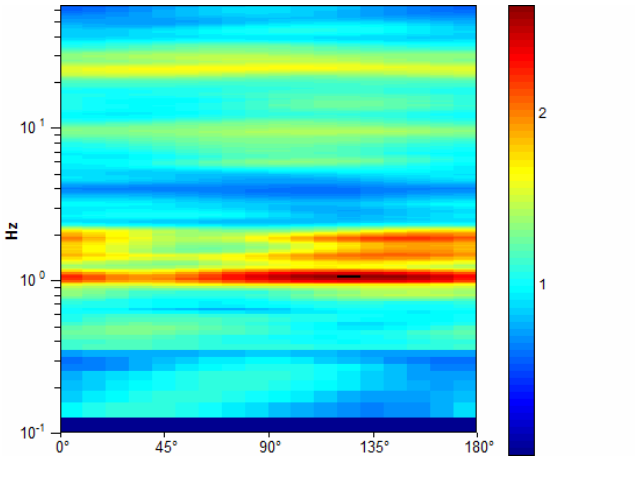
HORIZONTAL TO VERTICAL SPECTRAL RATIO



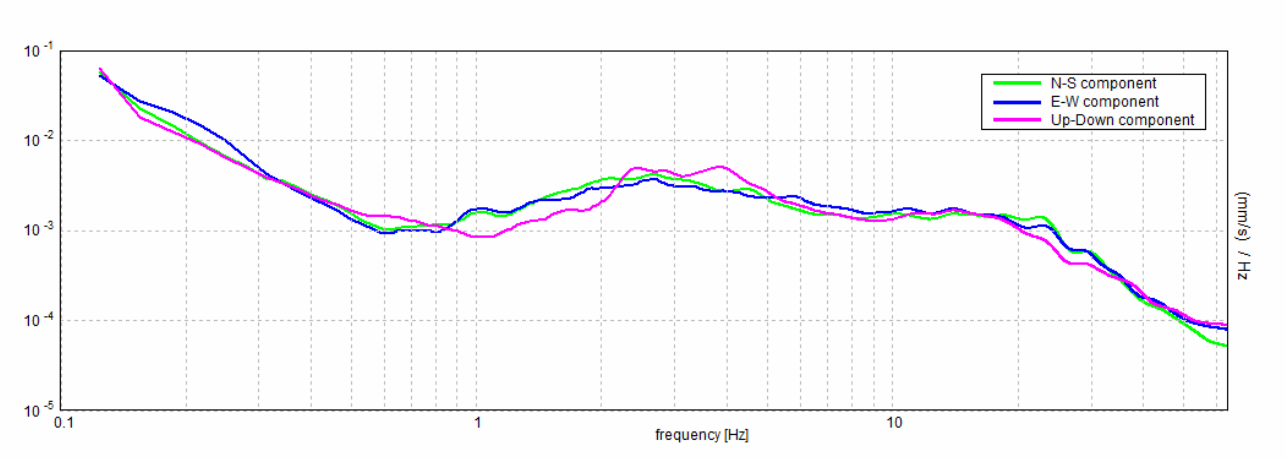
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

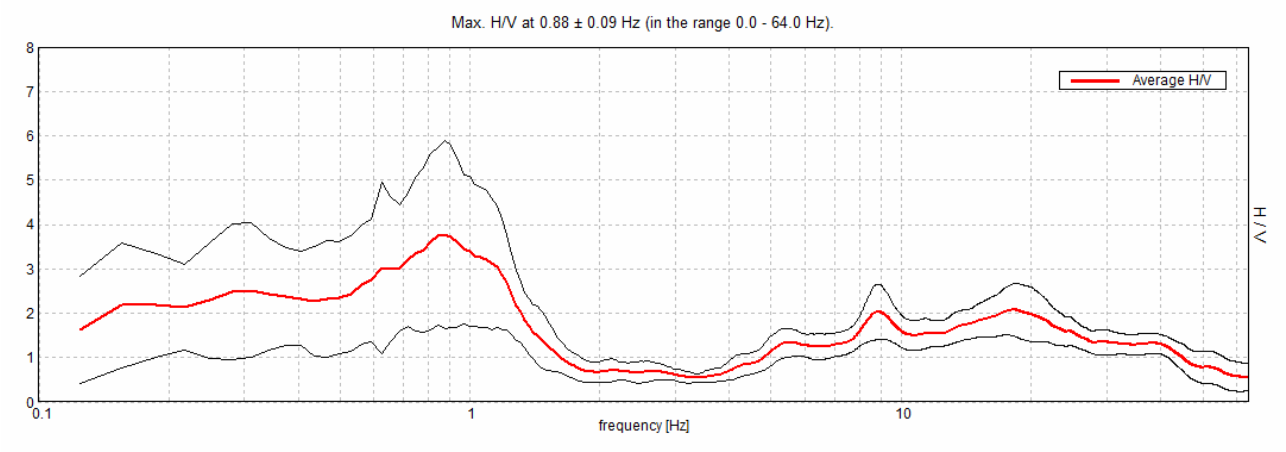


MICROZONAZIONE MIRANDOLA, R015

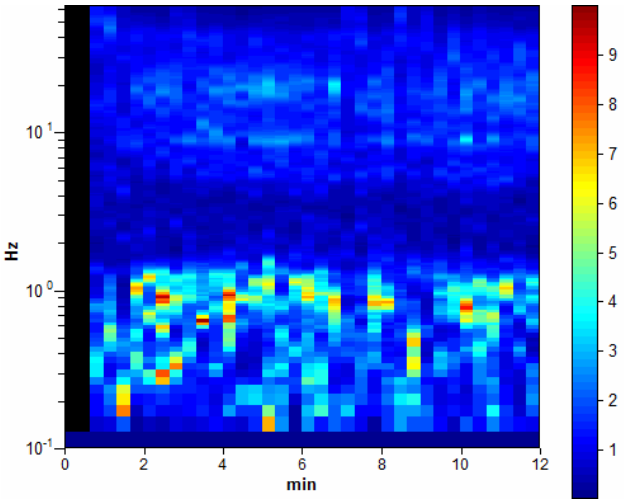
Start recording: 03/11/11 09:27:34 End recording: 03/11/11 09:39:35
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 94% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

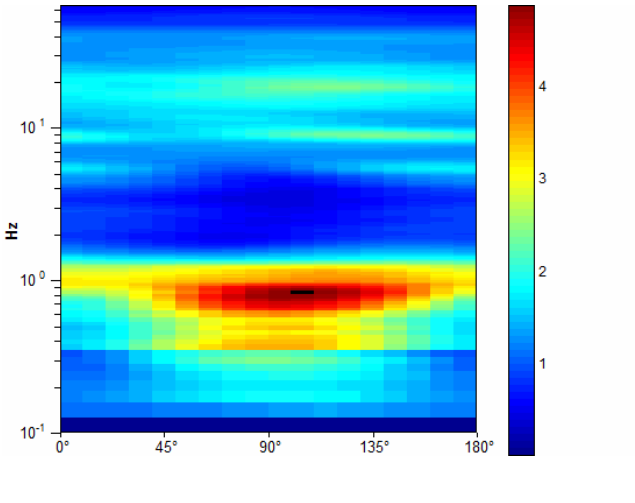
HORIZONTAL TO VERTICAL SPECTRAL RATIO



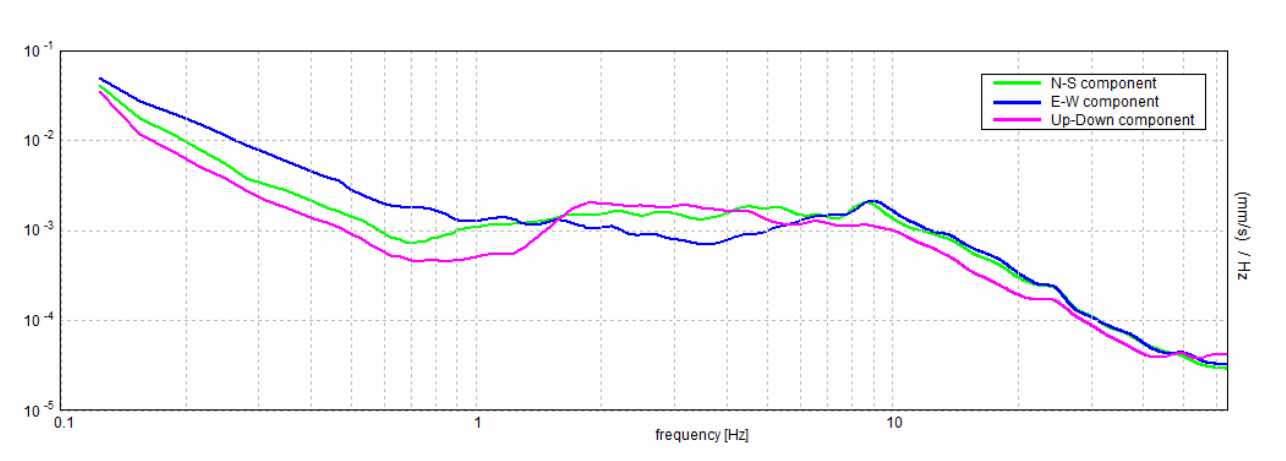
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

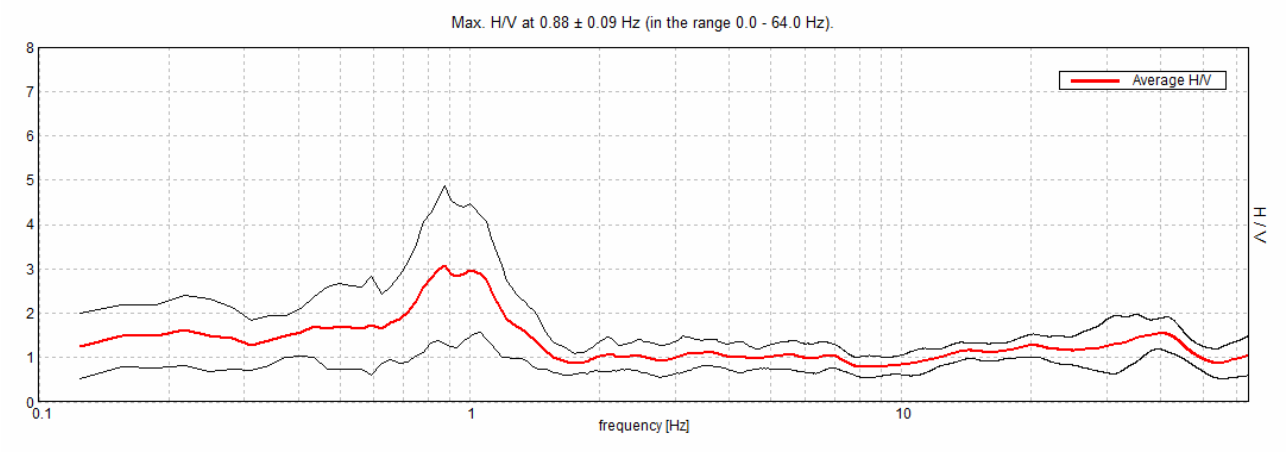


MICROZONAZIONE MIRANDOLA, R016

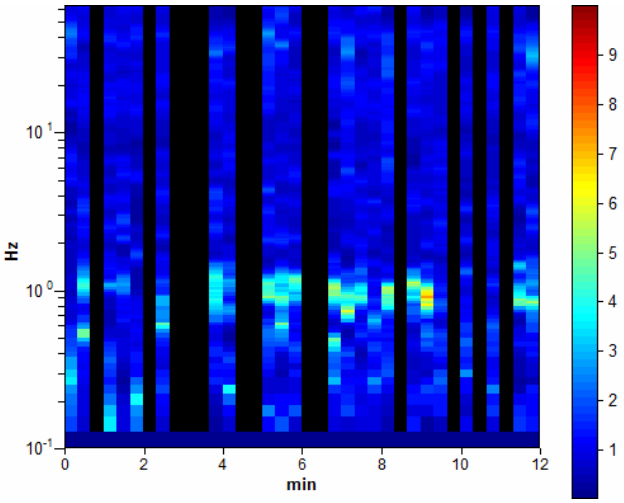
Start recording: 03/11/11 09:53:28 End recording: 03/11/11 10:05:29
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

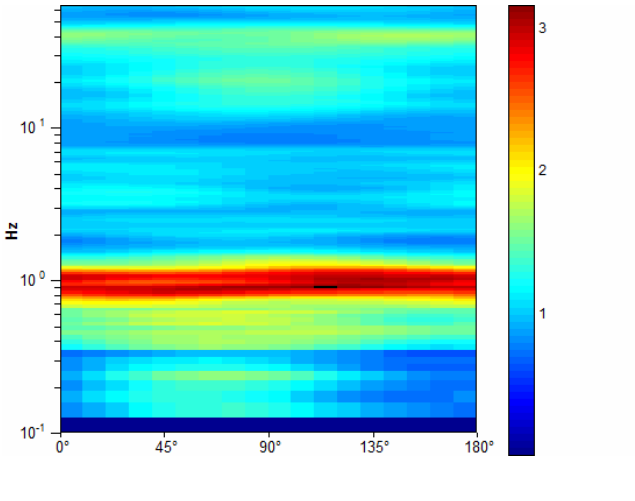
HORIZONTAL TO VERTICAL SPECTRAL RATIO



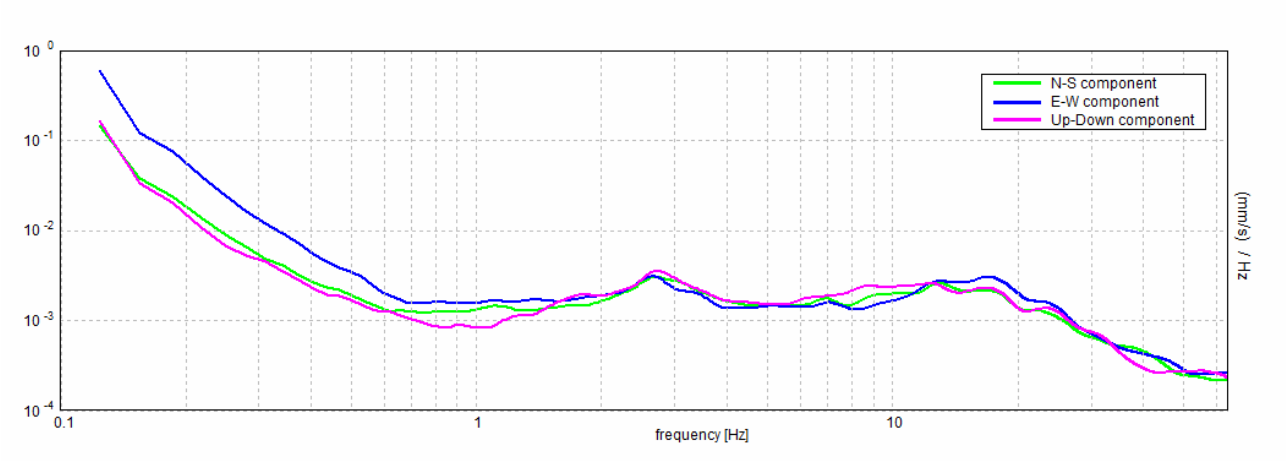
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

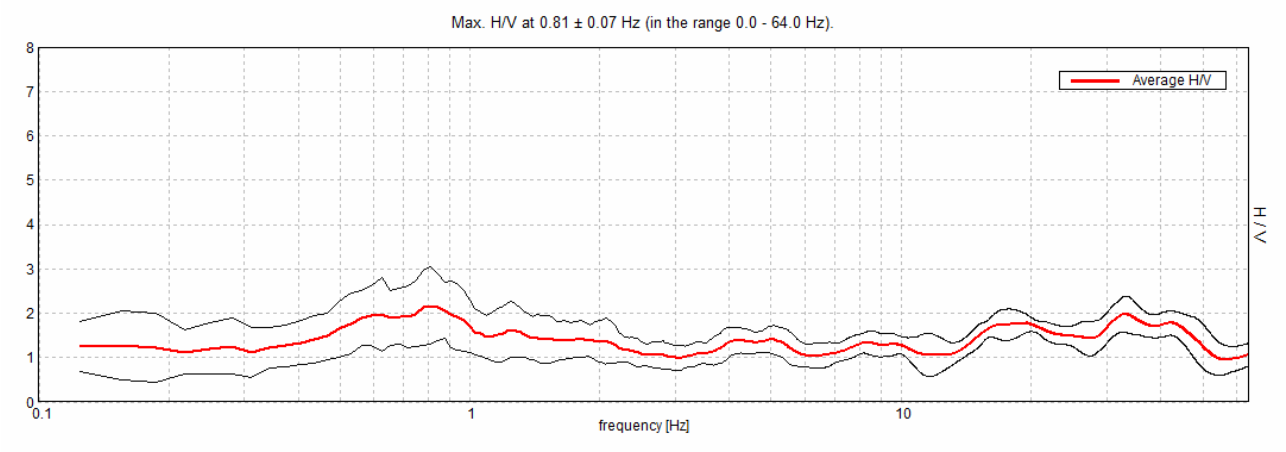


MICROZONAZIONE MIRANDOLA, R017

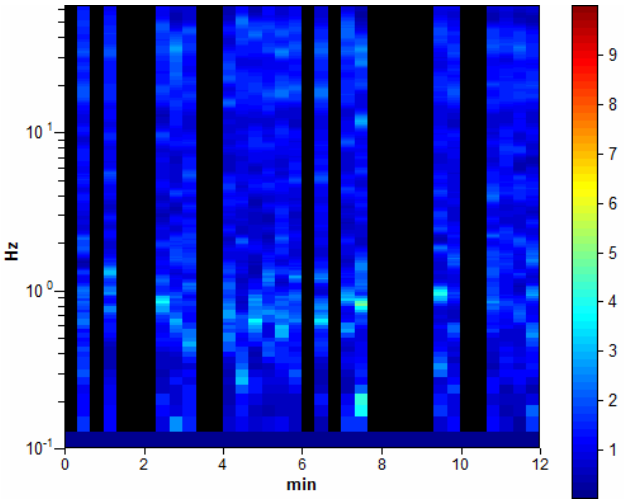
Start recording: 03/11/11 10:17:47 End recording: 03/11/11 10:29:48
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 56% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

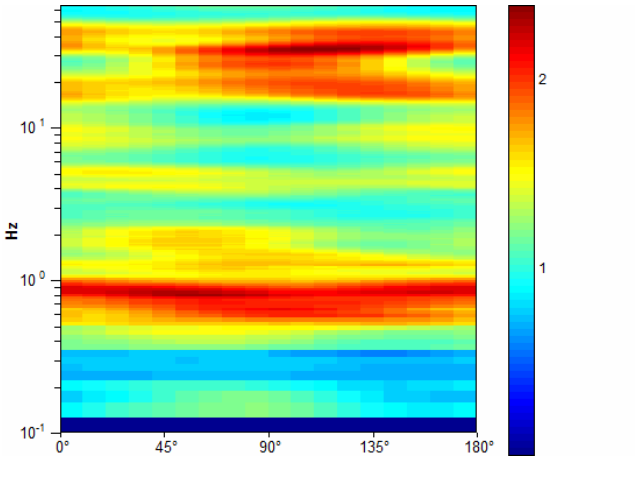
HORIZONTAL TO VERTICAL SPECTRAL RATIO



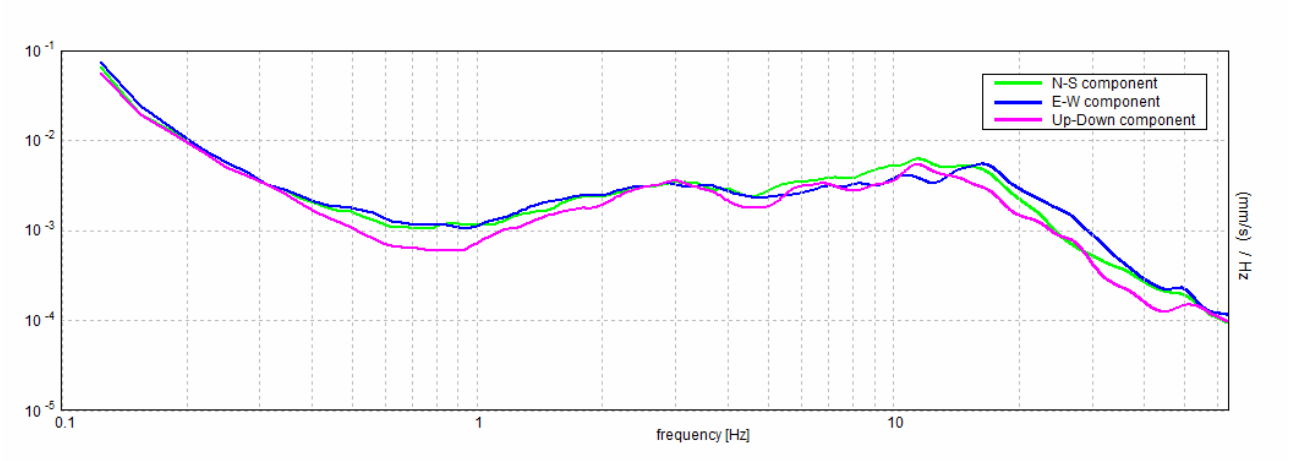
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

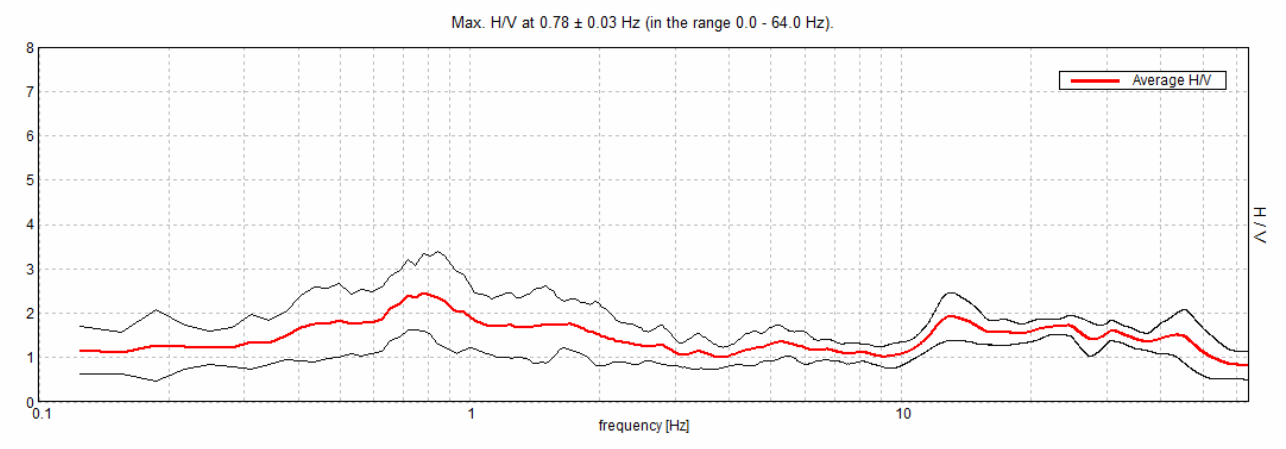


MICROZONAZIONE MIRANDOLA, R018

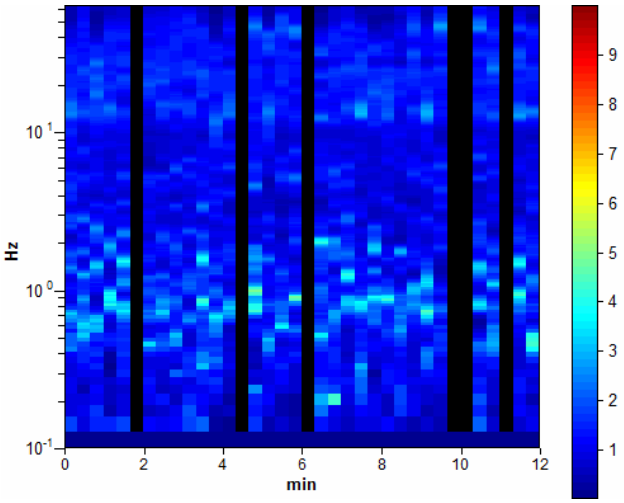
Start recording: 03/11/11 10:34:55 End recording: 03/11/11 10:46:55
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

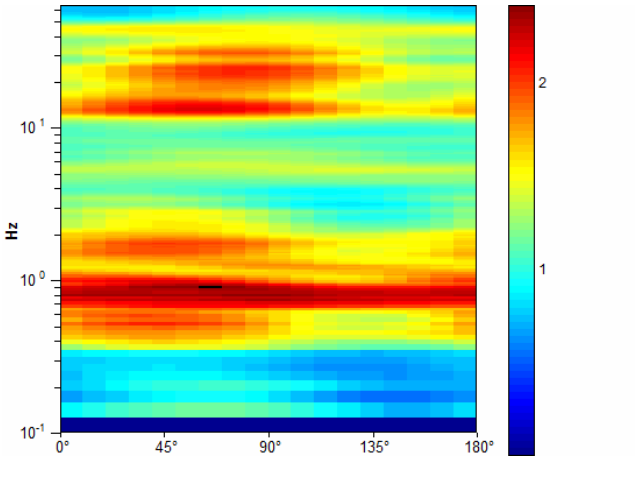
HORIZONTAL TO VERTICAL SPECTRAL RATIO



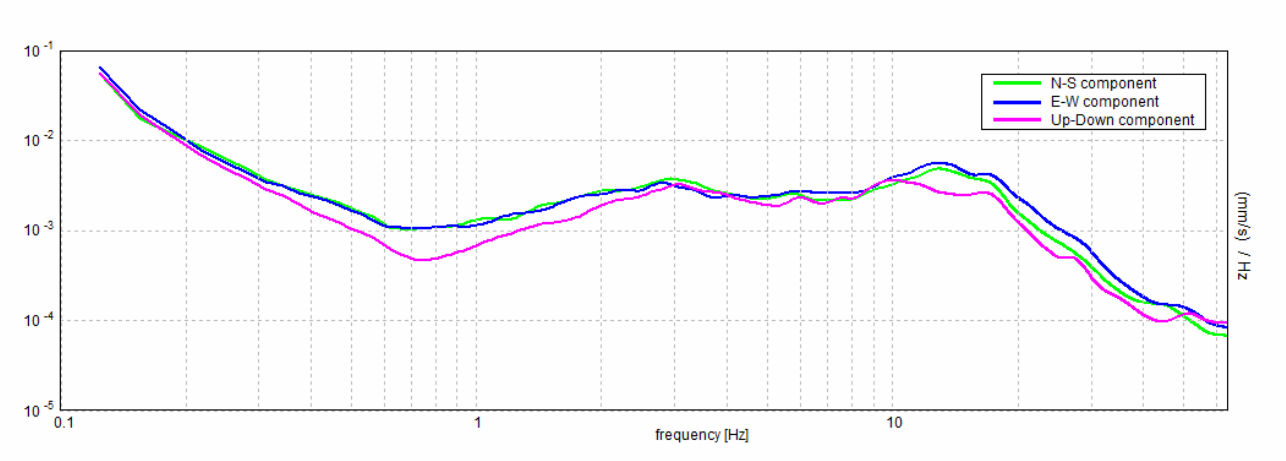
H/V TIME HISTORY



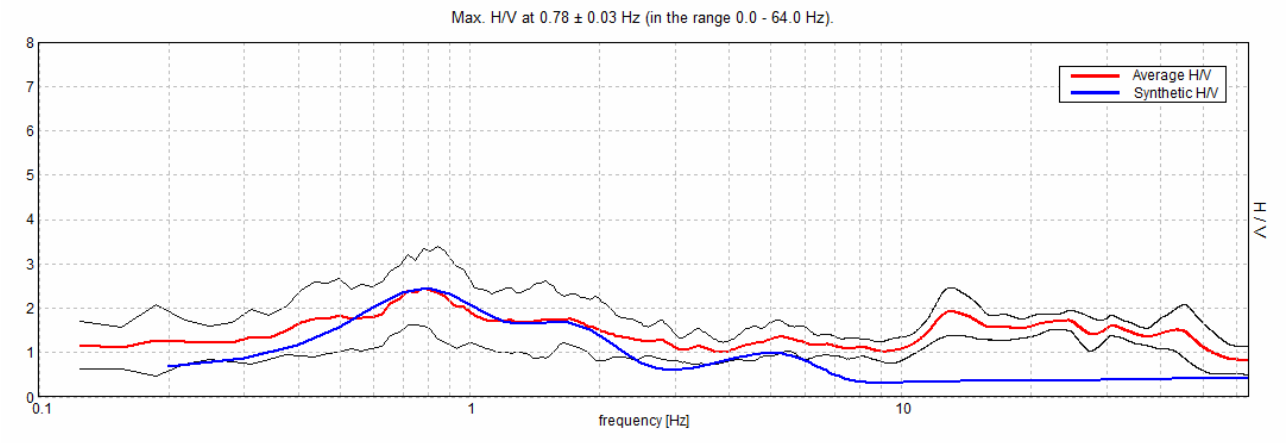
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

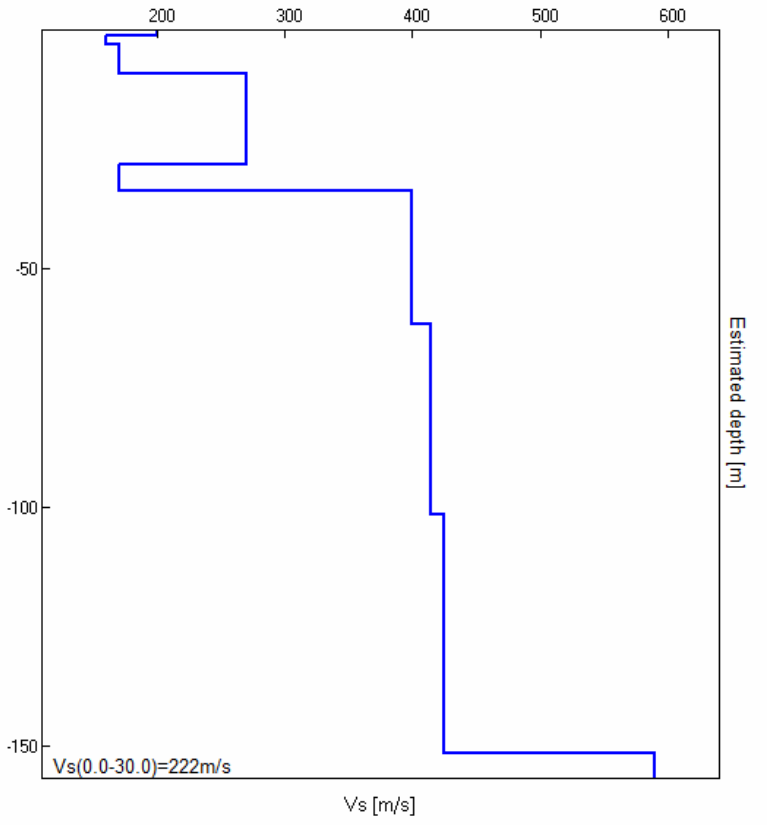


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
1.00	1.00	200
3.00	2.00	160
9.00	6.00	170
28.00	19.00	270
33.50	5.50	170
61.50	28.00	400
101.50	40.00	415
151.50	50.00	425
inf.	inf.	590

Vs30 = 222 m/s

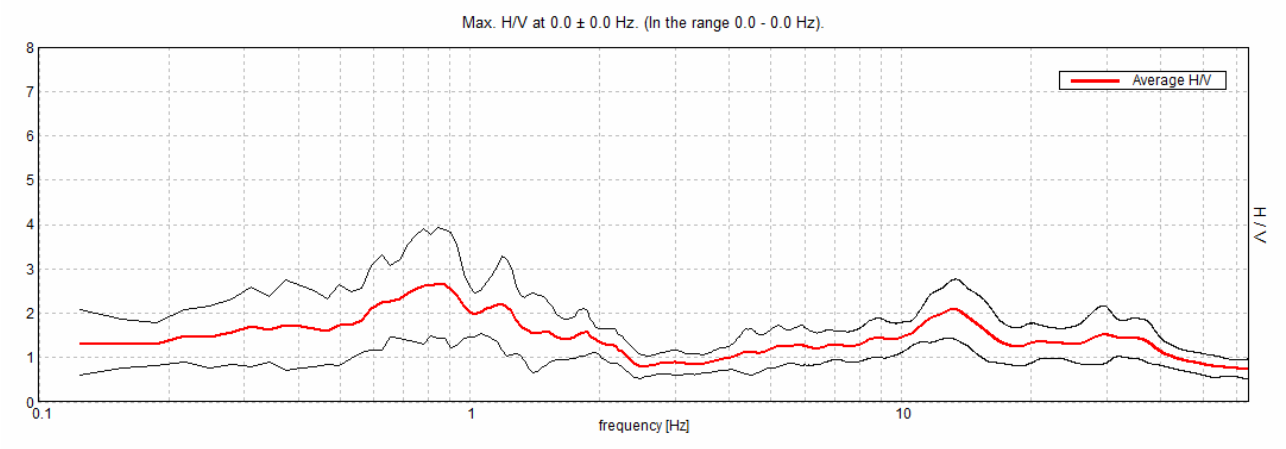


MICROZONAZIONE MIRANDOLA, R020

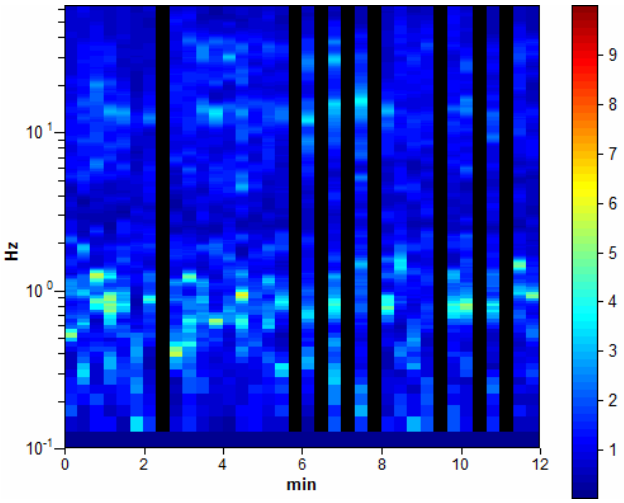
Start recording: 03/11/11 11:25:46 End recording: 03/11/11 11:37:47
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

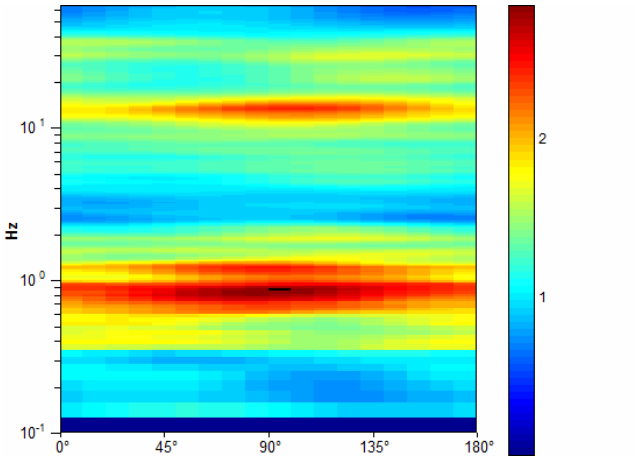
HORIZONTAL TO VERTICAL SPECTRAL RATIO



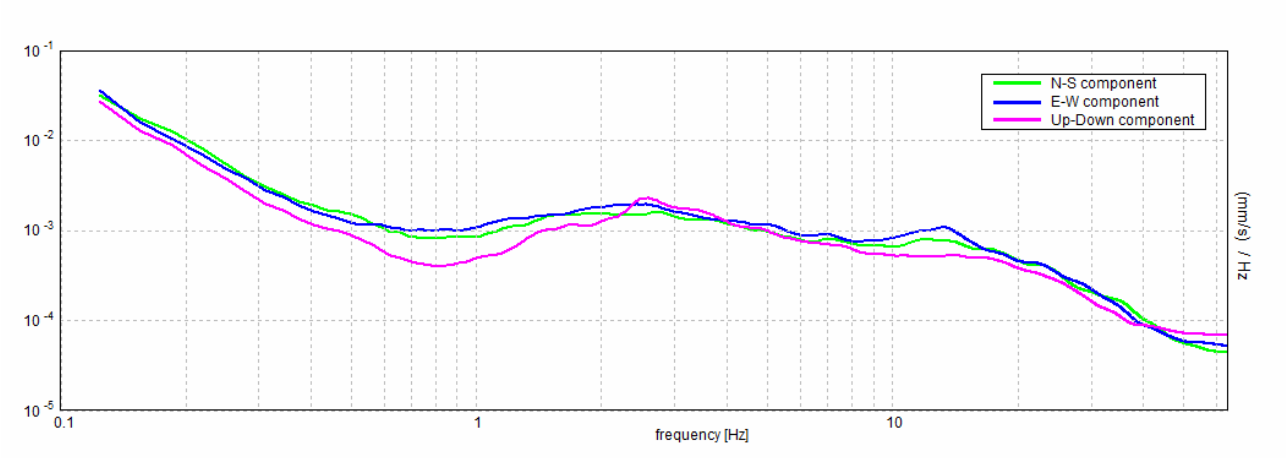
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

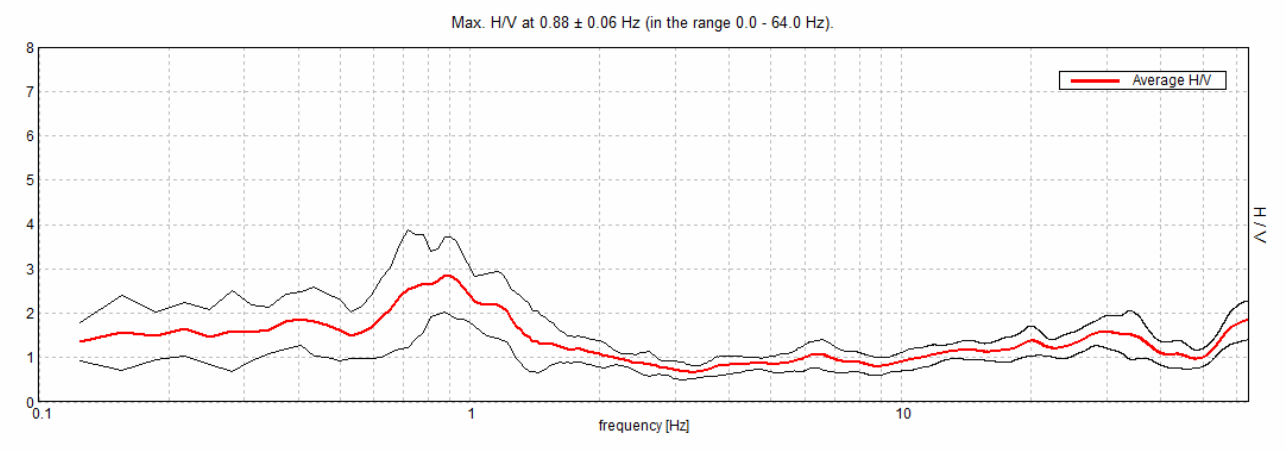


MICROZONAZIONE MIRANDOLA, R021

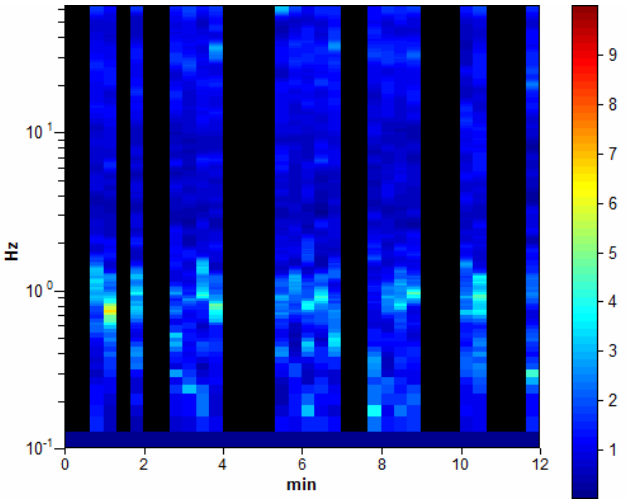
Start recording: 03/11/11 11:46:25 End recording: 03/11/11 11:58:26
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 53% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

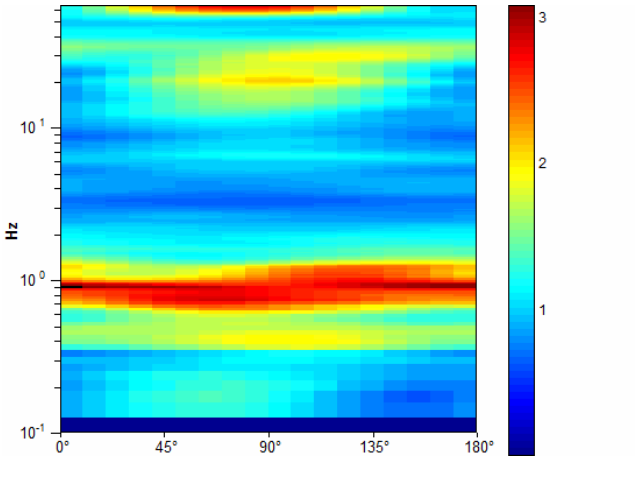
HORIZONTAL TO VERTICAL SPECTRAL RATIO



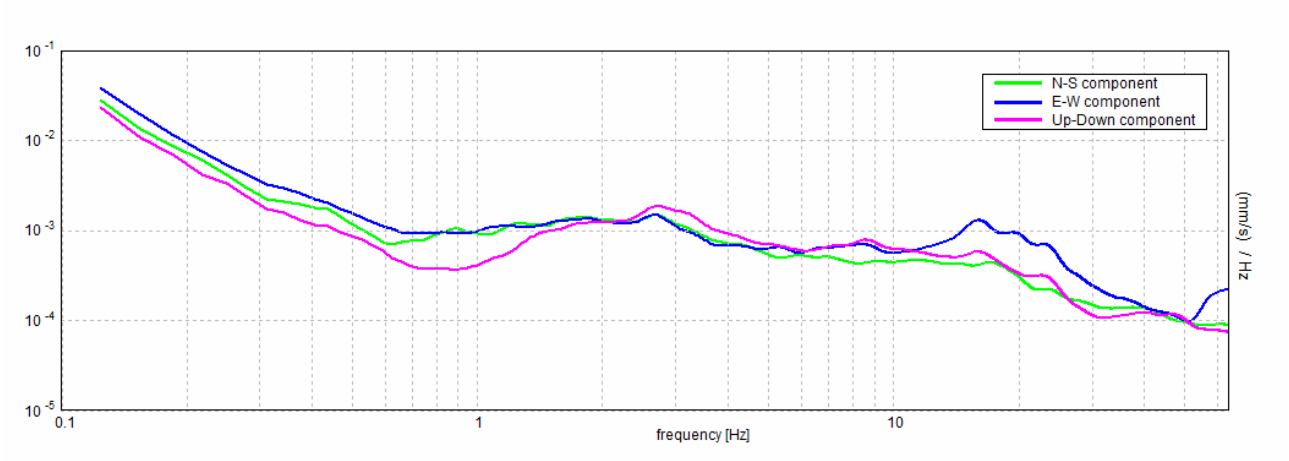
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

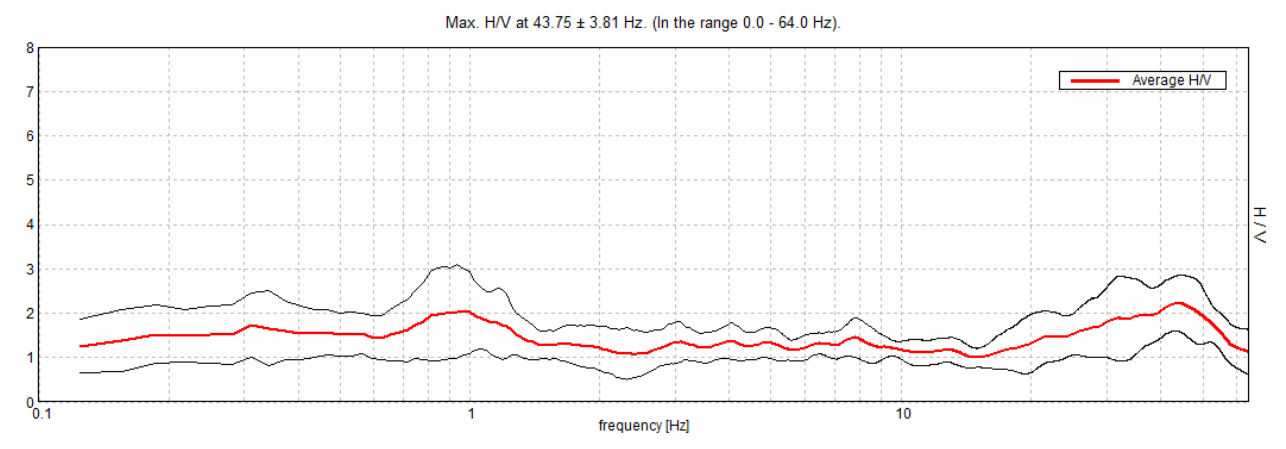


MICROZONAZIONE MIRANDOLA, R022

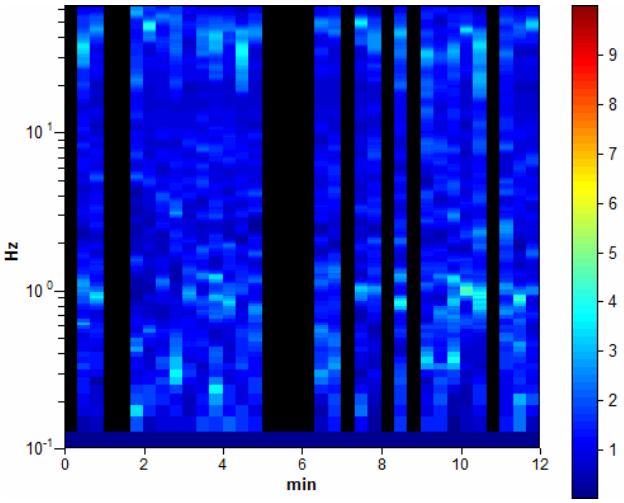
Start recording: 03/11/11 12:20:34 End recording: 03/11/11 12:32:35
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 69% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

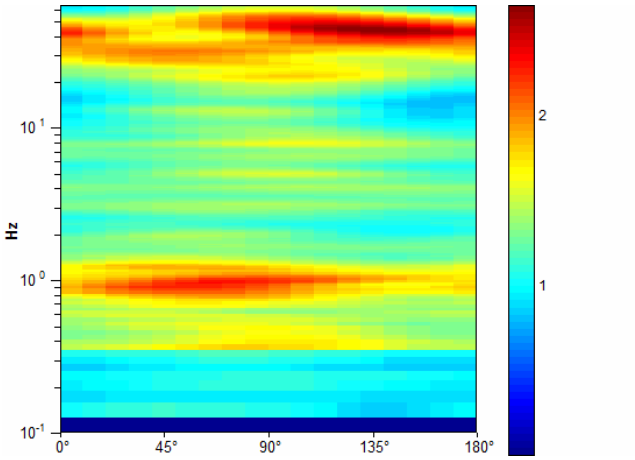
HORIZONTAL TO VERTICAL SPECTRAL RATIO



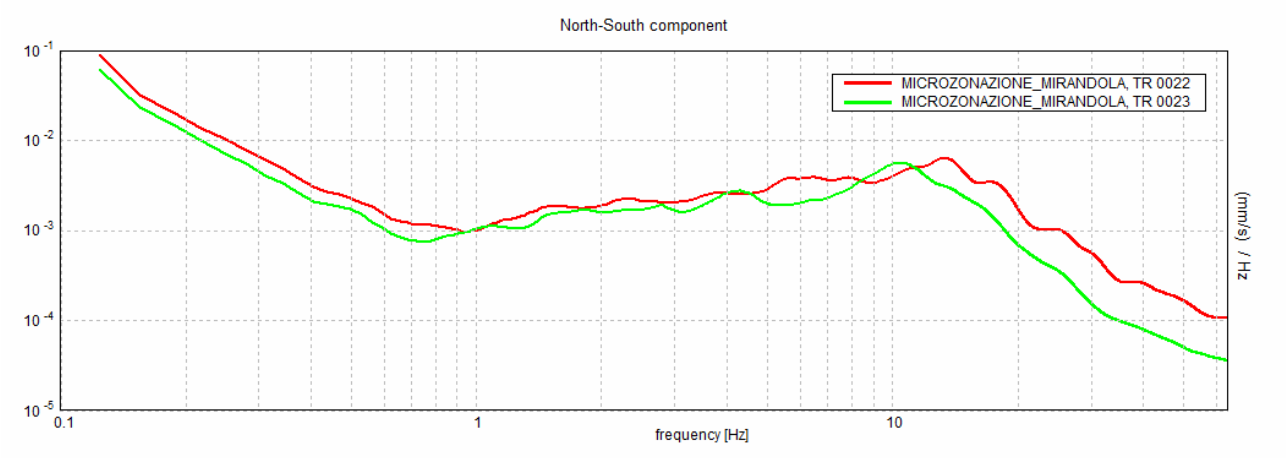
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

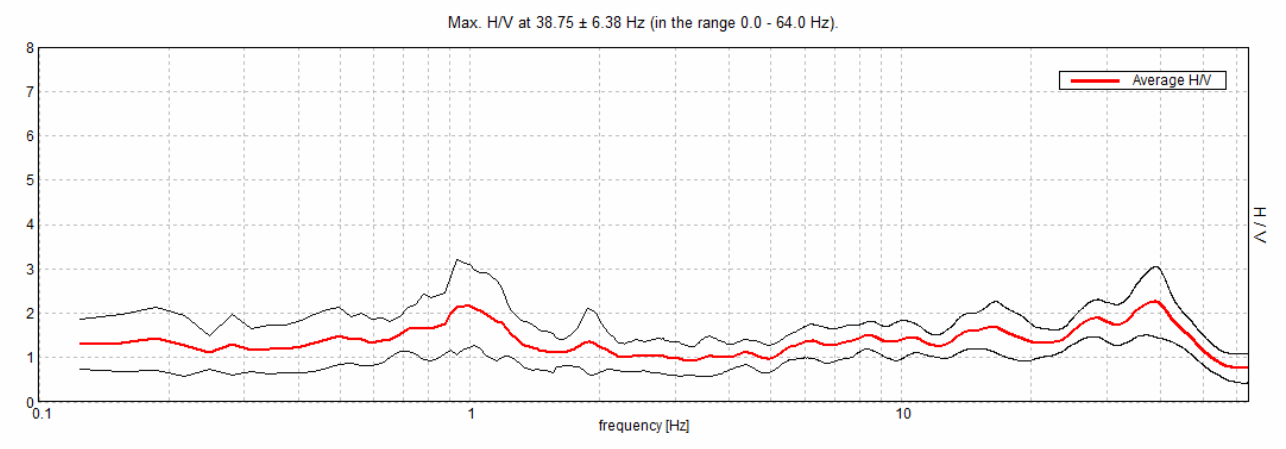


MICROZONAZIONE MIRANDOLA, R023

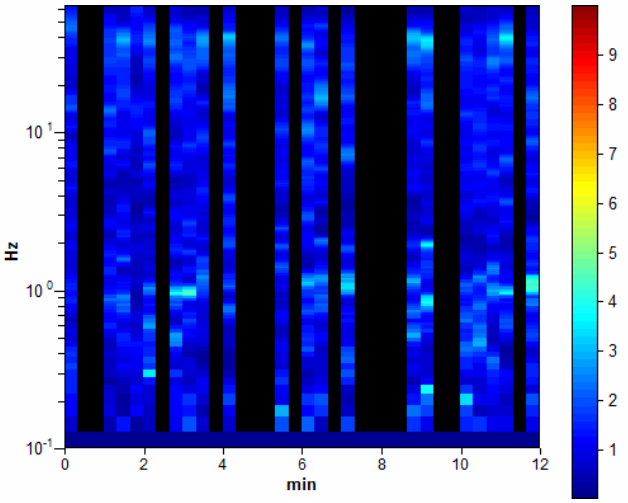
Start recording: 03/11/11 12:39:19 End recording: 03/11/11 12:51:20
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 56% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

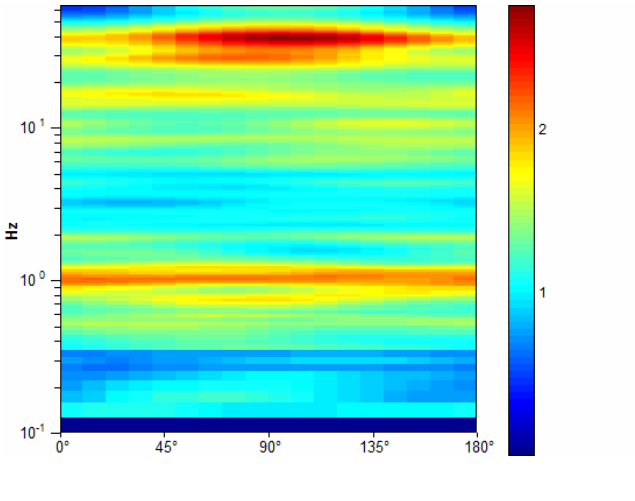
HORIZONTAL TO VERTICAL SPECTRAL RATIO



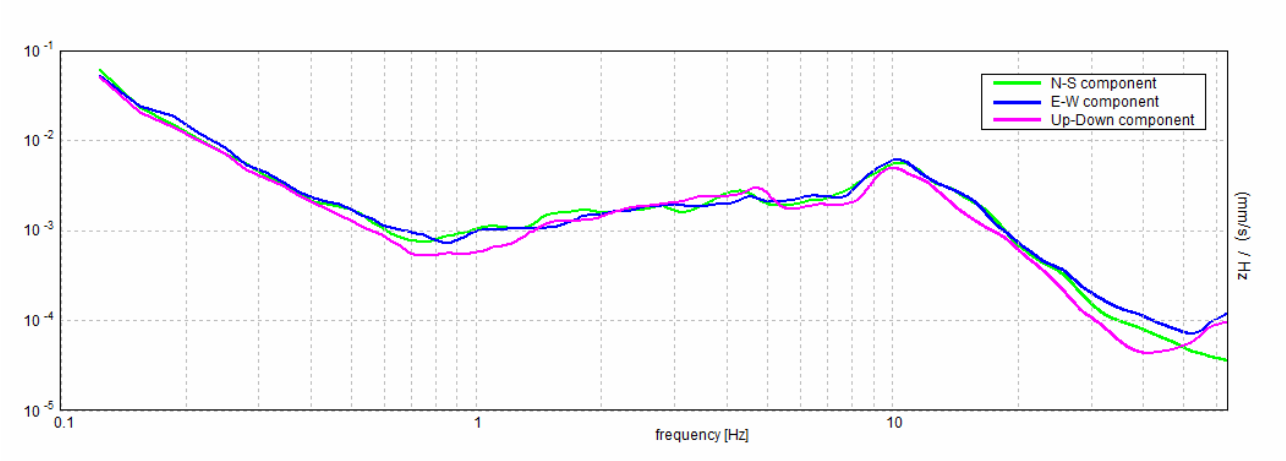
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

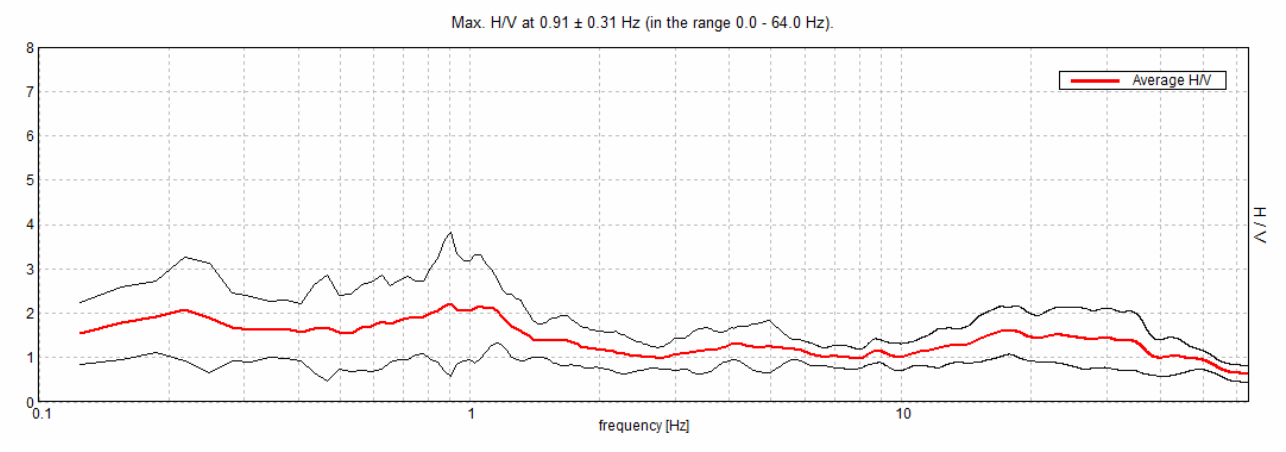


MICROZONAZIONE MIRANDOLA, R024

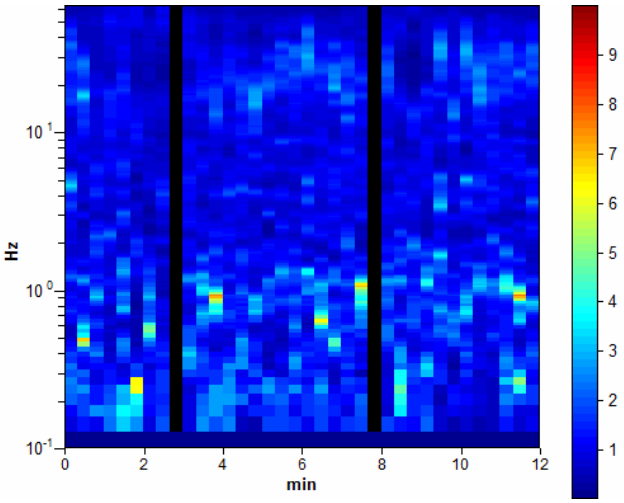
Start recording: 03/11/11 13:01:36 End recording: 03/11/11 13:13:37
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 94% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

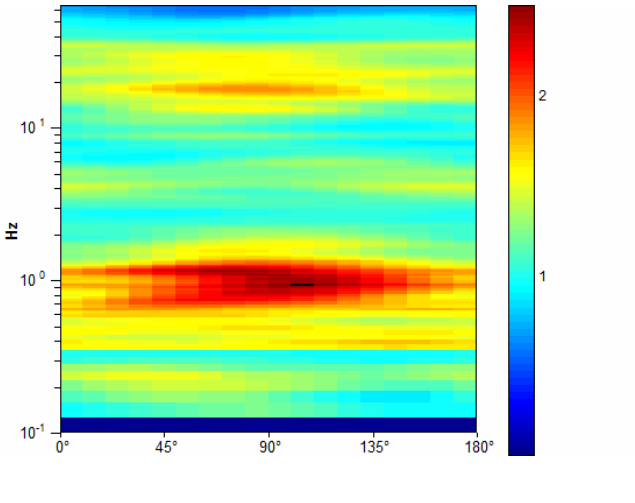
HORIZONTAL TO VERTICAL SPECTRAL RATIO



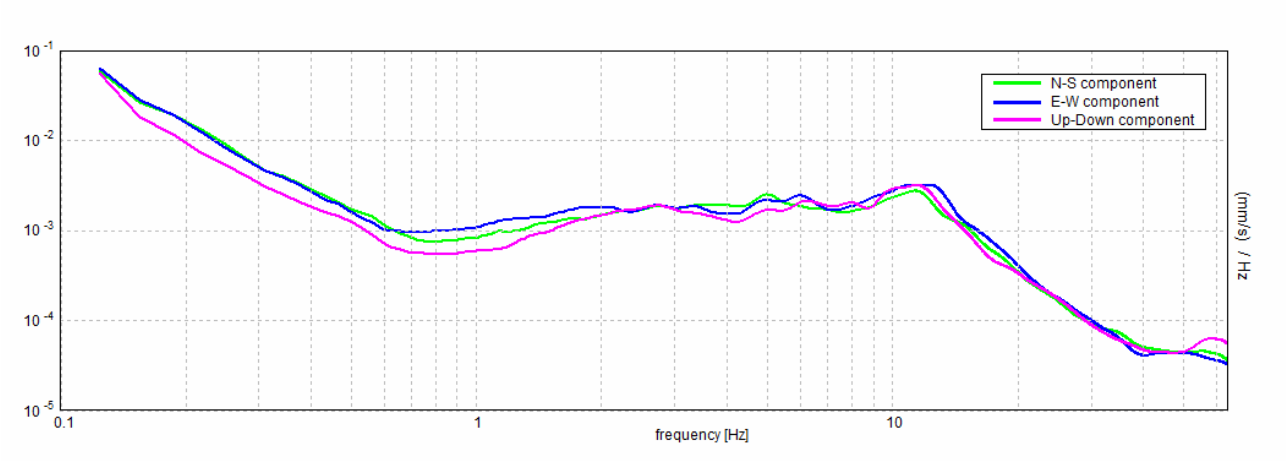
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

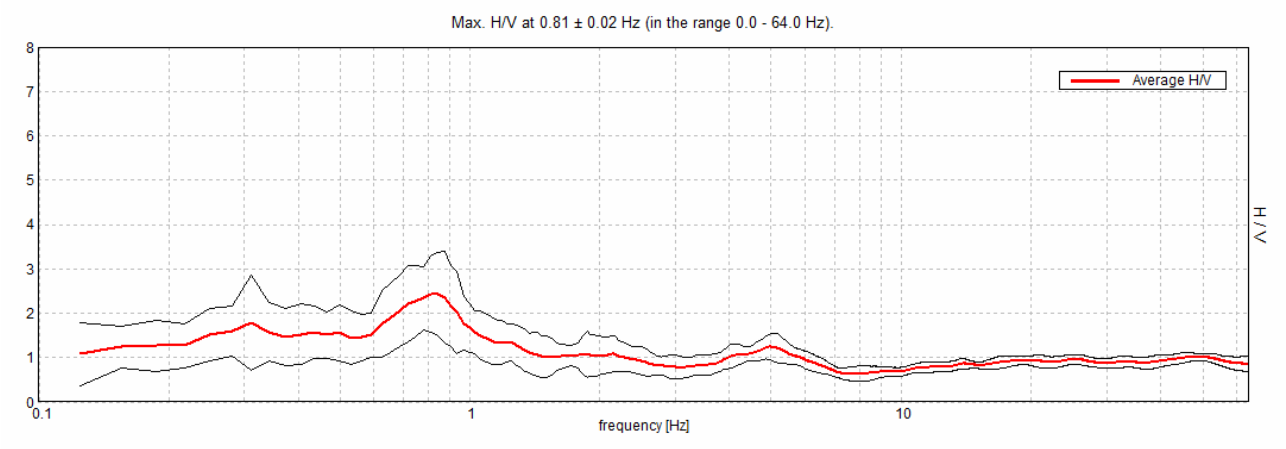


MICROZONAZIONE MIRANDOLA, R025

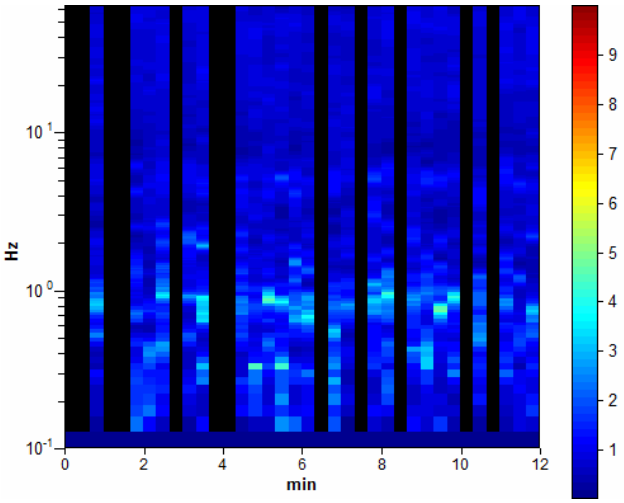
Start recording: 03/11/11 14:09:35 End recording: 03/11/11 14:21:36
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

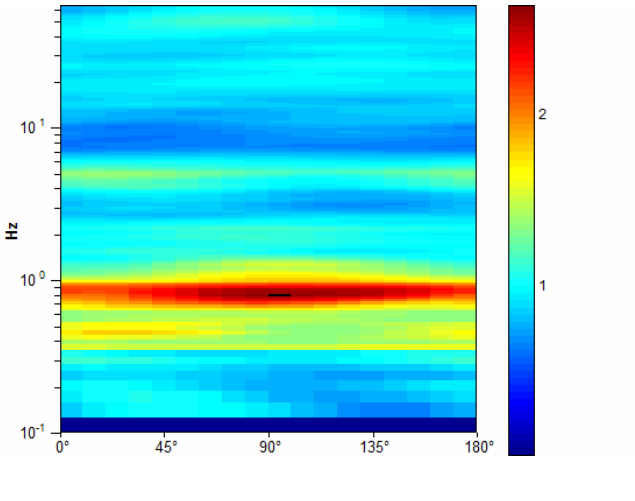
HORIZONTAL TO VERTICAL SPECTRAL RATIO



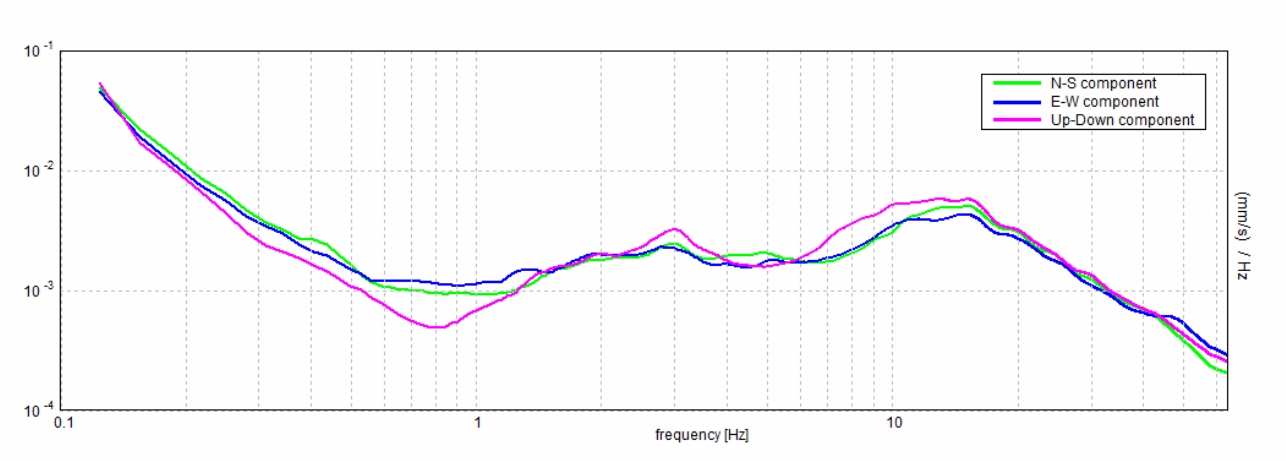
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

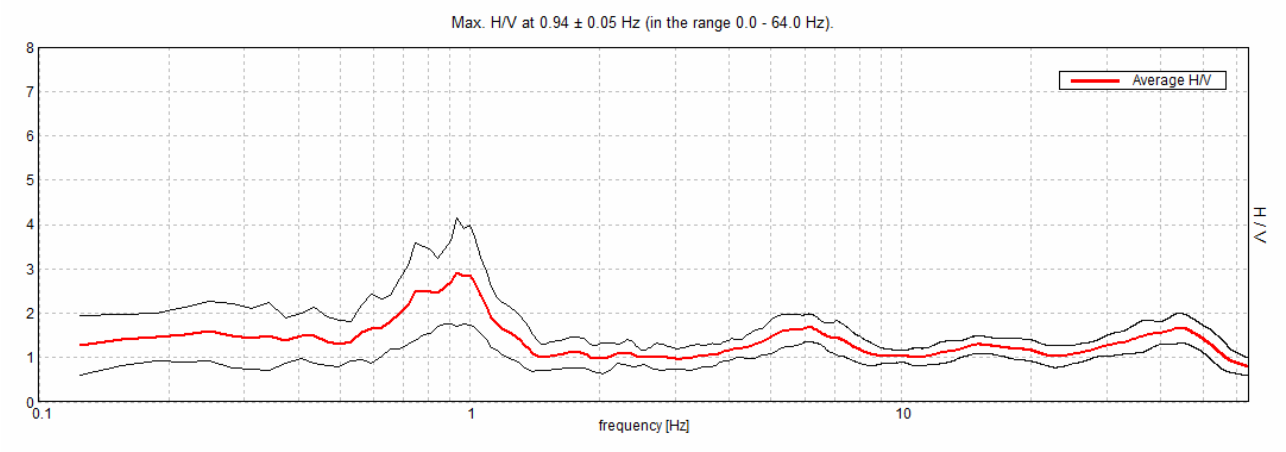


MICROZONAZIONE MIRANDOLA, R026

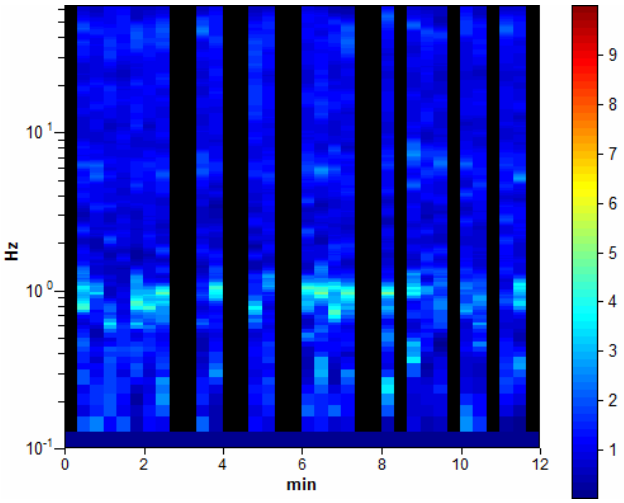
Start recording: 03/11/11 14:28:42 End recording: 03/11/11 14:40:43
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

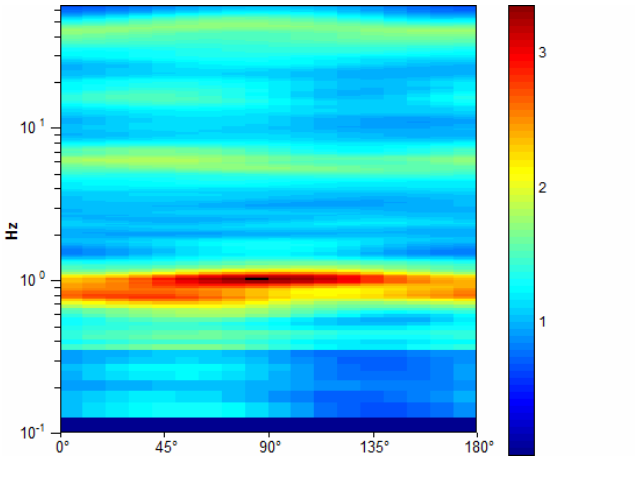
HORIZONTAL TO VERTICAL SPECTRAL RATIO



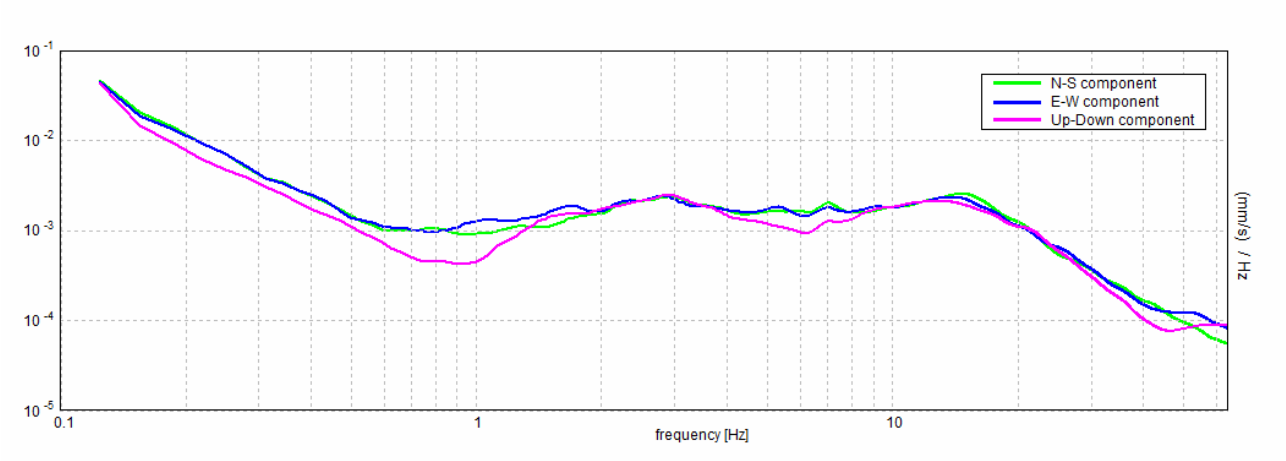
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

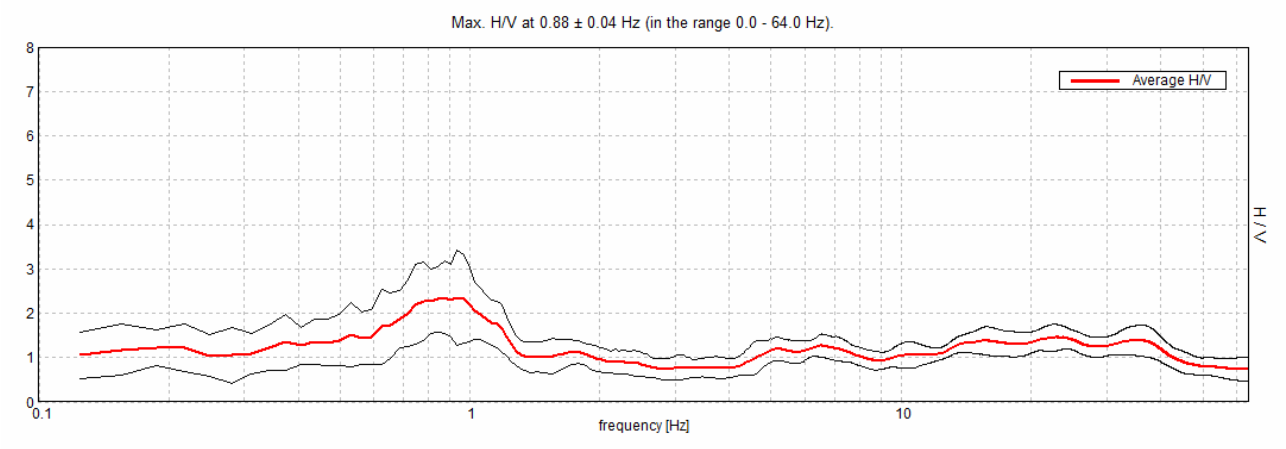


MICROZONAZIONE MIRANDOLA, R027

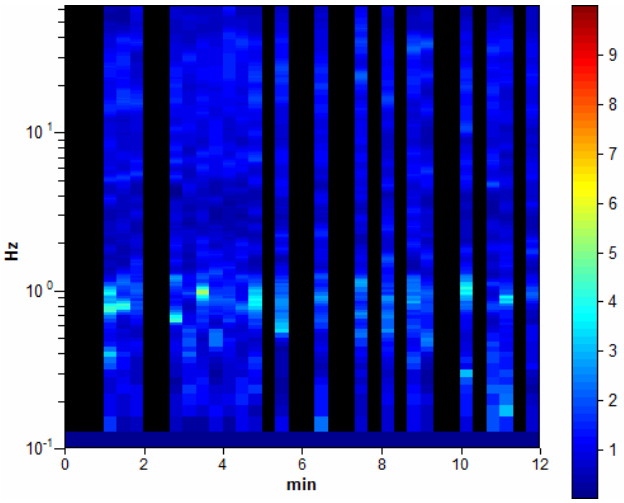
Start recording: 03/11/11 14:48:41 End recording: 03/11/11 15:00:42
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 56% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

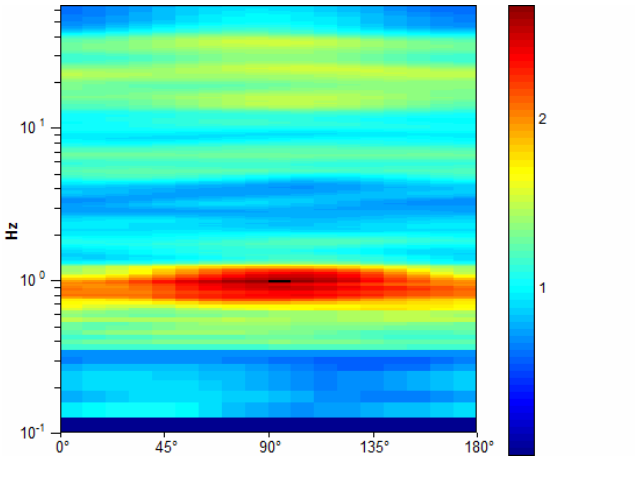
HORIZONTAL TO VERTICAL SPECTRAL RATIO



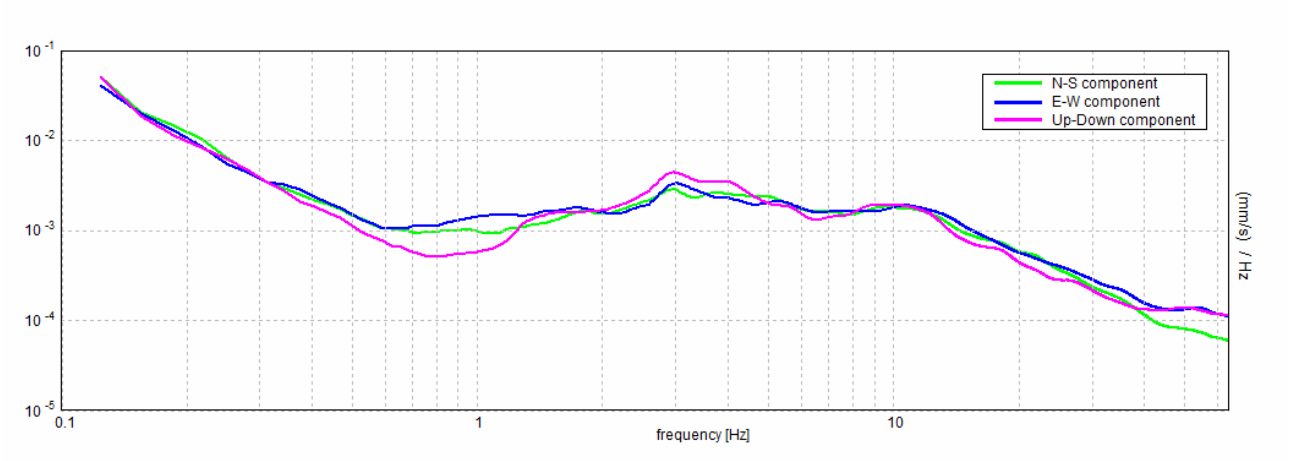
H/V TIME HISTORY



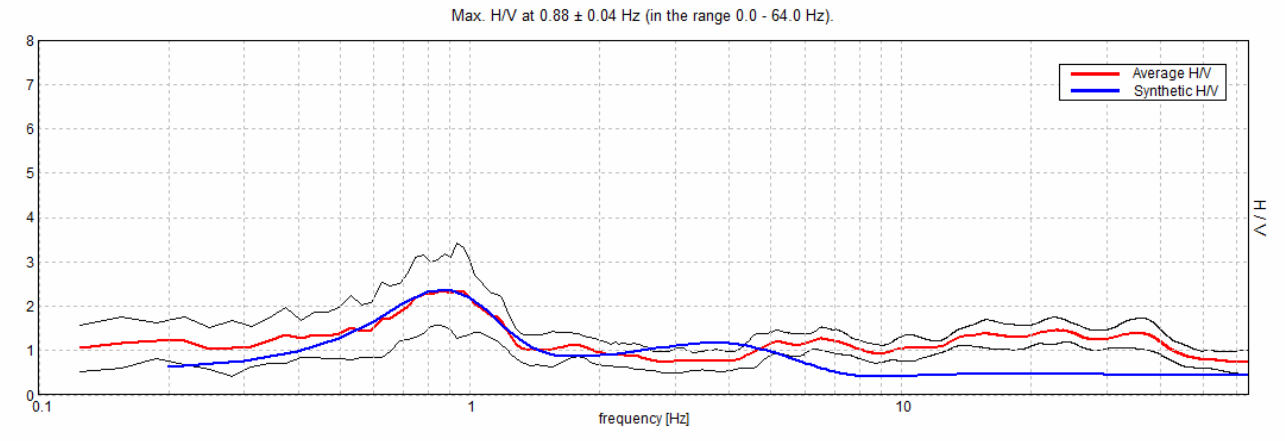
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

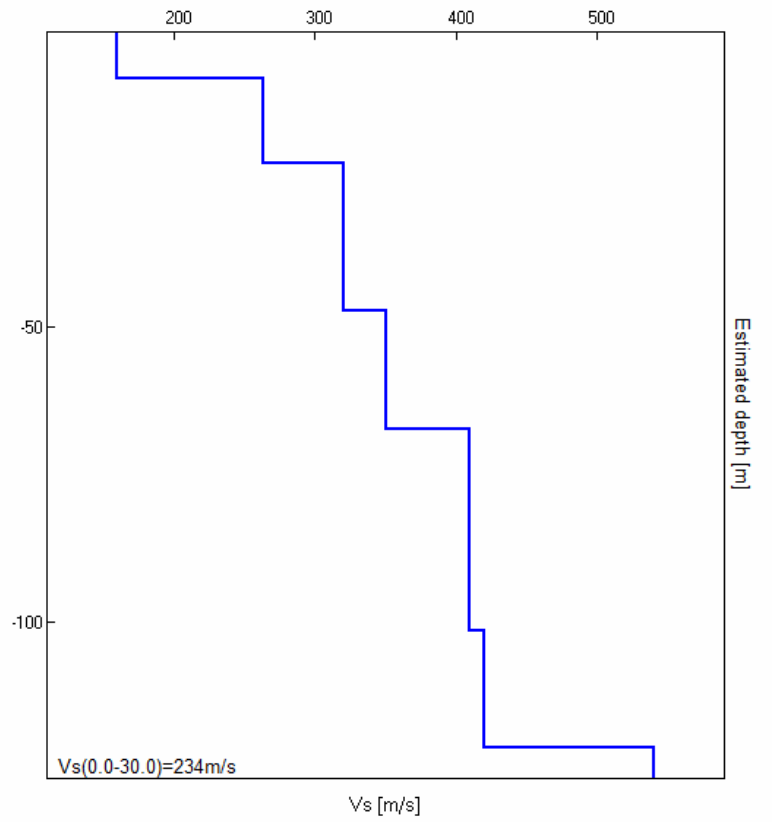


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
7.90	7.90	160
22.30	14.40	263
47.30	25.00	320
67.30	20.00	350
101.30	34.00	410
121.30	20.00	420
inf.	inf.	540

Vs30 = 234 m/s



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

Max. H/V at 0.88 ± 0.04 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable HVSR curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	0.88 > 0.50	OK	
$n_c(f_0) > 200$	350.0 > 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 652115712 out of 1071141694 times		NO
Criteria for a clear HVSR peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	2.044 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	0.313 Hz	OK	
$A_0 > 2$	-98544320000000.00 > 2		NO
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.02202| < 0.05	OK	
$\sigma_f < \varepsilon(f_0)$	0.01926 < 0.13125	OK	
$\sigma_A(f_0) < \theta(f_0)$	1.2813 < 2.0	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 $\sigma_A(f) < \theta(f_0)$

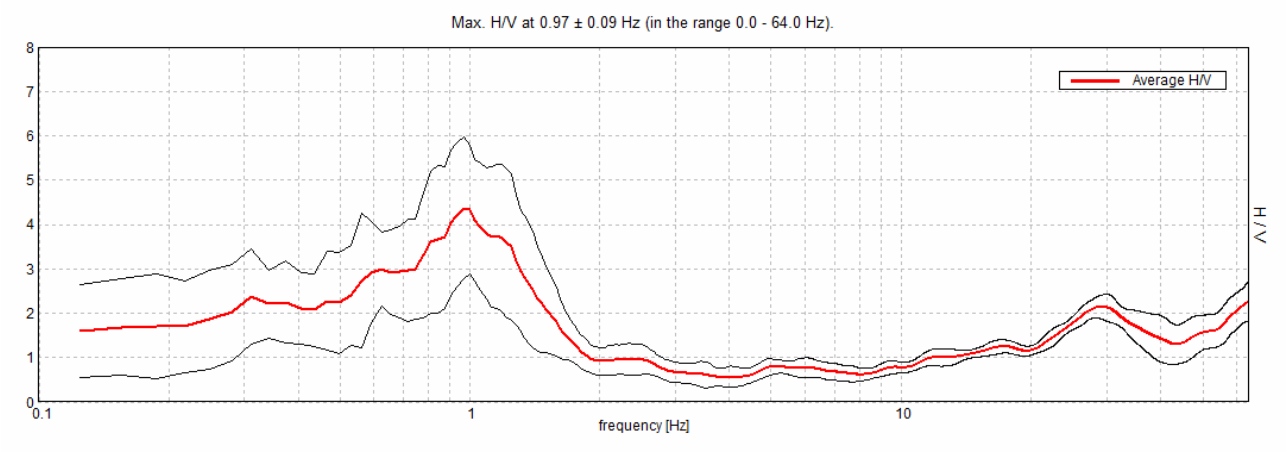
Threshold values for σ_f and $\sigma_A(f_0)$					
Freq.range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
Log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

MICROZONAZIONE MIRANDOLA, R028

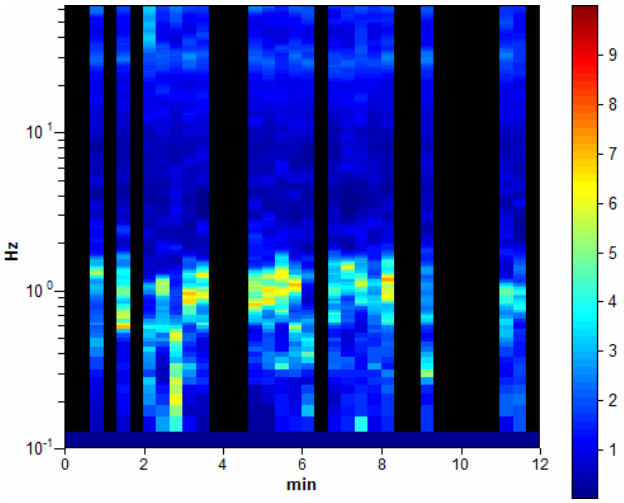
Start recording: 03/11/11 15:17:36 End recording: 03/11/11 15:29:37
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 56% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

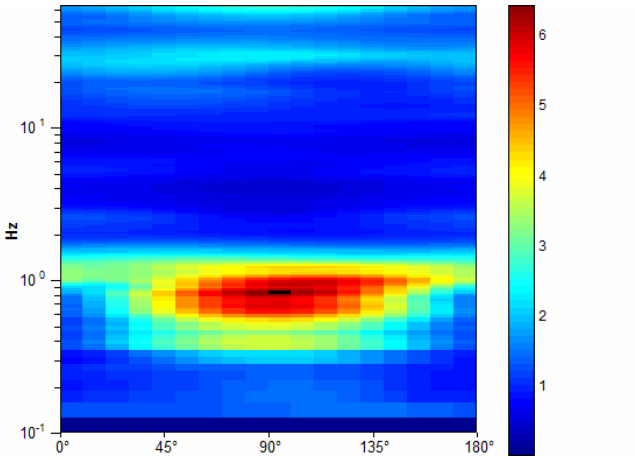
HORIZONTAL TO VERTICAL SPECTRAL RATIO



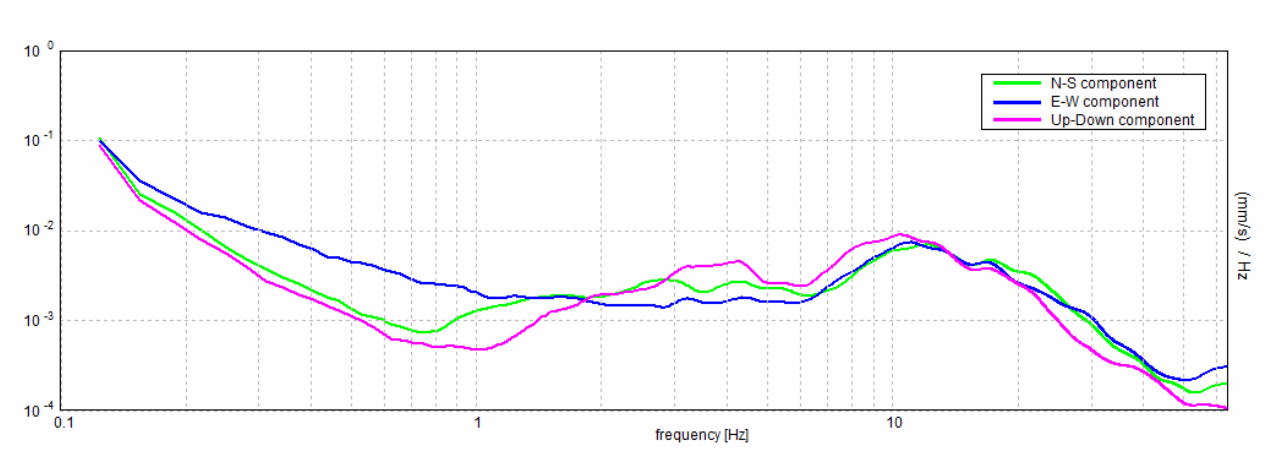
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

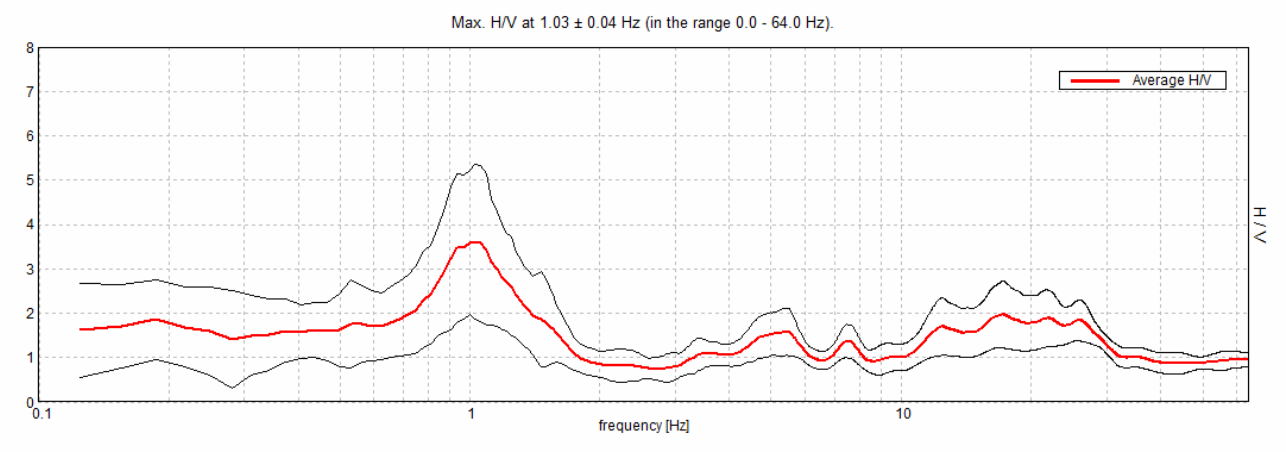


MICROZONAZIONE MIRANDOLA, R030

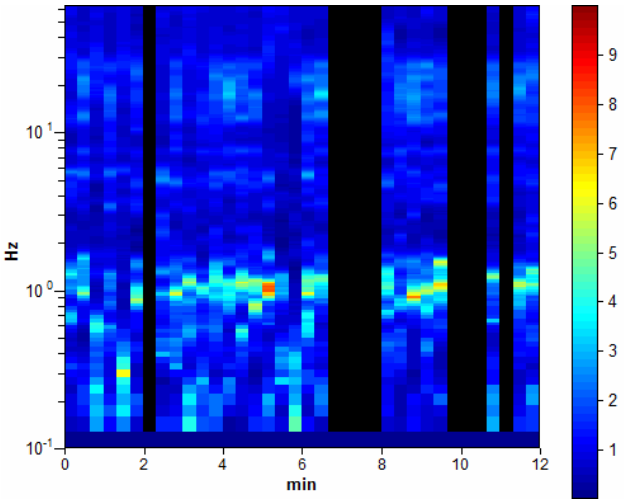
Start recording: 03/11/11 16:09:13 End recording: 03/11/11 16:21:14
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 75% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

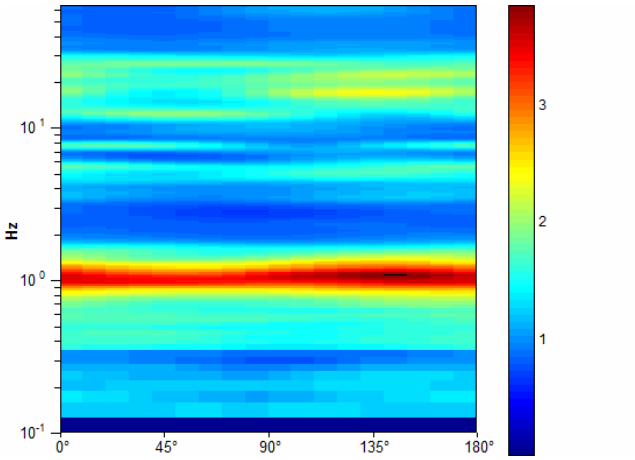
HORIZONTAL TO VERTICAL SPECTRAL RATIO



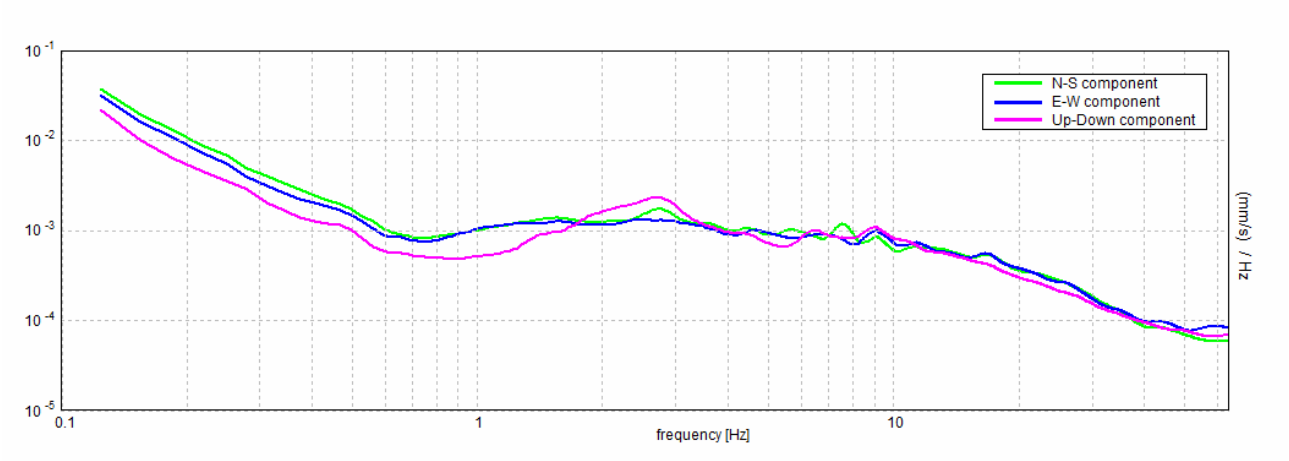
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

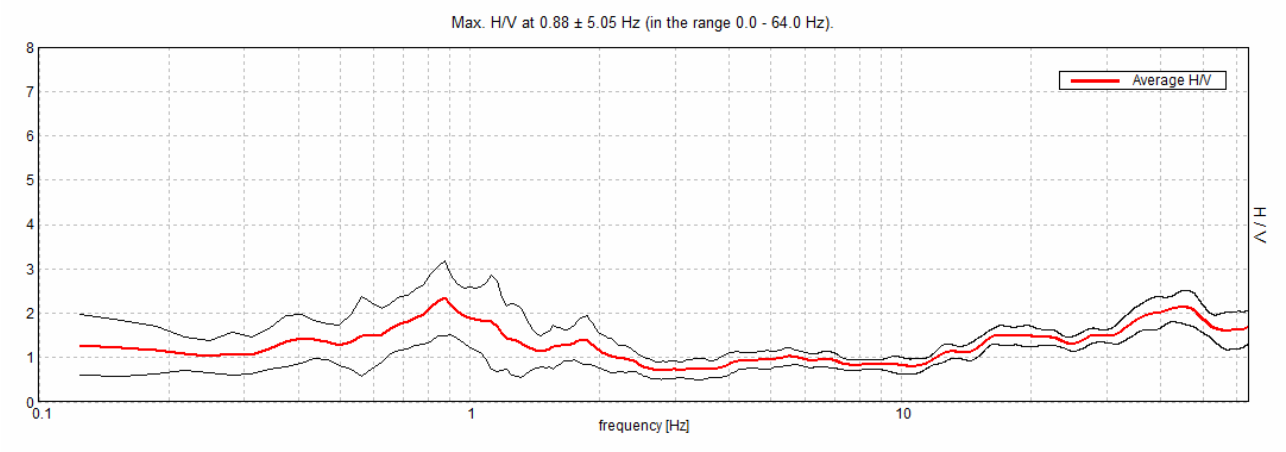


MICROZONAZIONE MIRANDOLA, R032

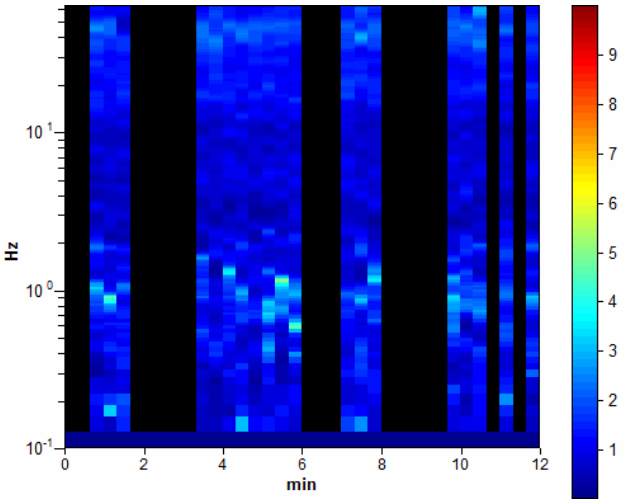
Start recording: 02/11/11 10:50:09 End recording: 02/11/11 11:02:10
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 53% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

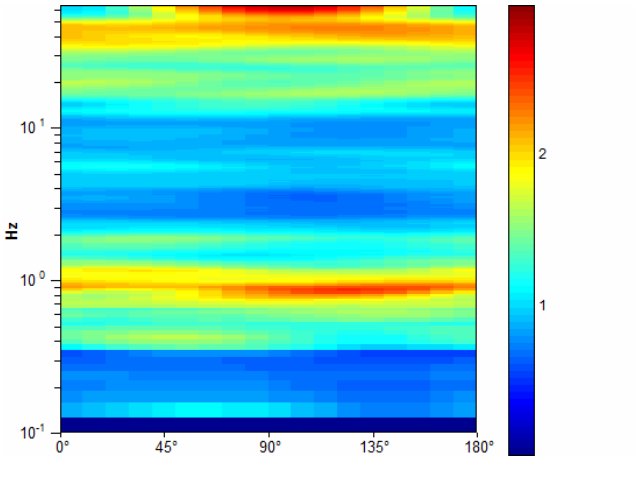
HORIZONTAL TO VERTICAL SPECTRAL RATIO



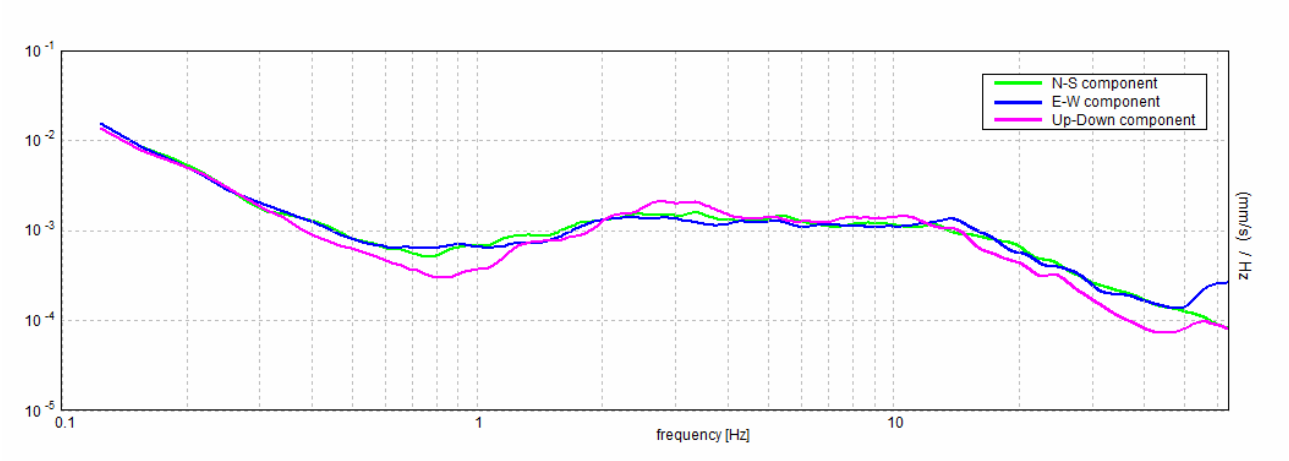
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

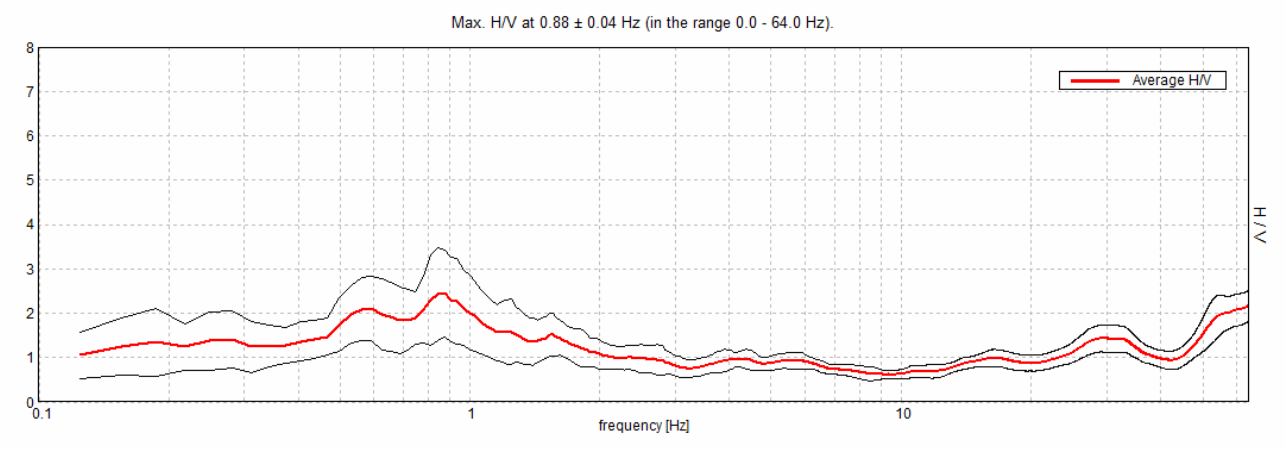


MICROZONAZIONE MIRANDOLA, R033

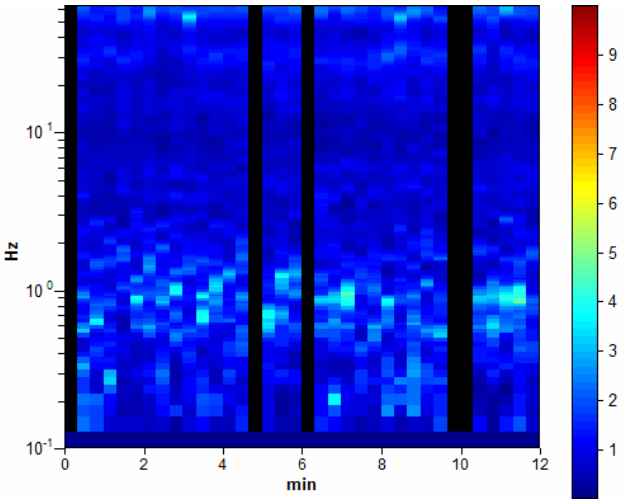
Start recording: 02/11/11 11:18:48 End recording: 02/11/11 11:30:49
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

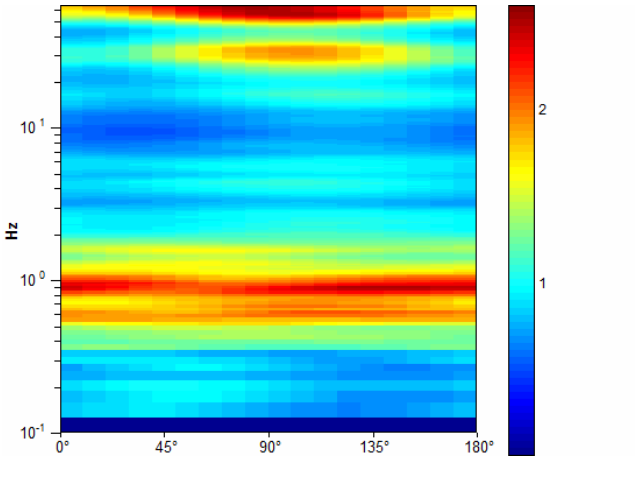
HORIZONTAL TO VERTICAL SPECTRAL RATIO



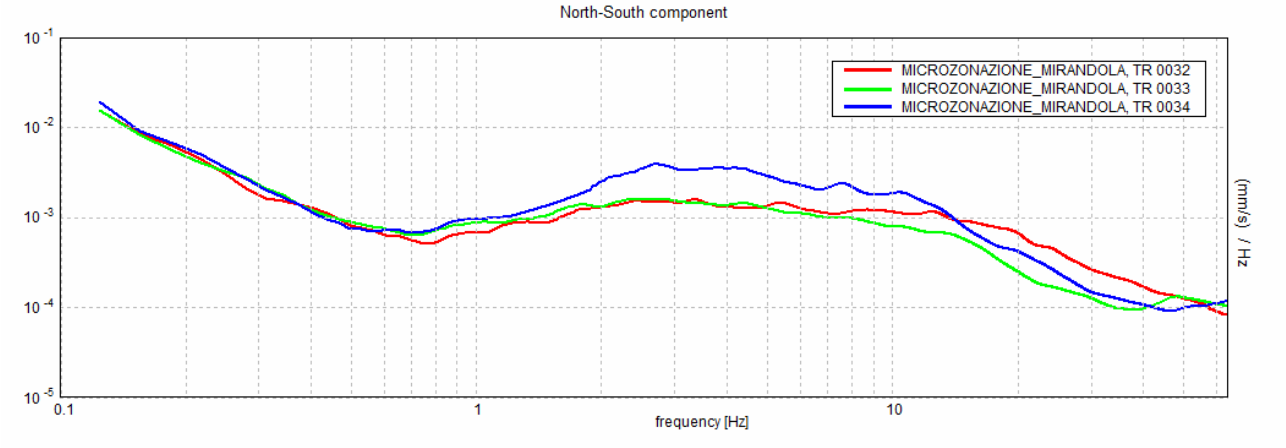
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

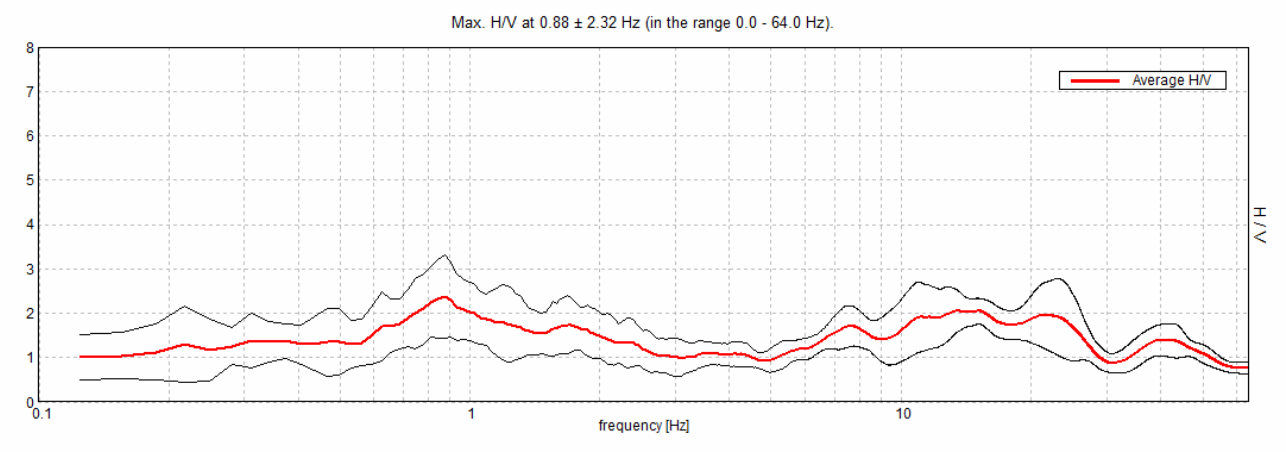


MICROZONAZIONE MIRANDOLA, R034

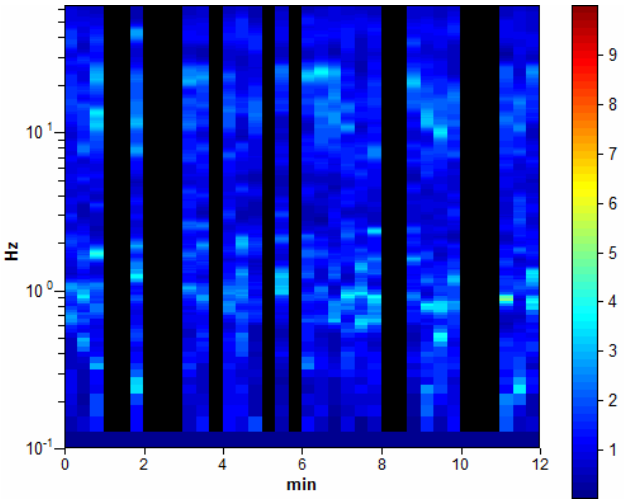
Start recording: 02/11/11 11:47:08 End recording: 02/11/11 11:59:09
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

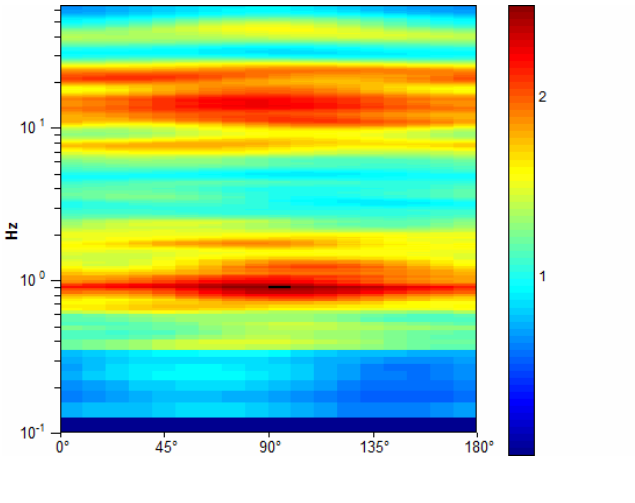
HORIZONTAL TO VERTICAL SPECTRAL RATIO



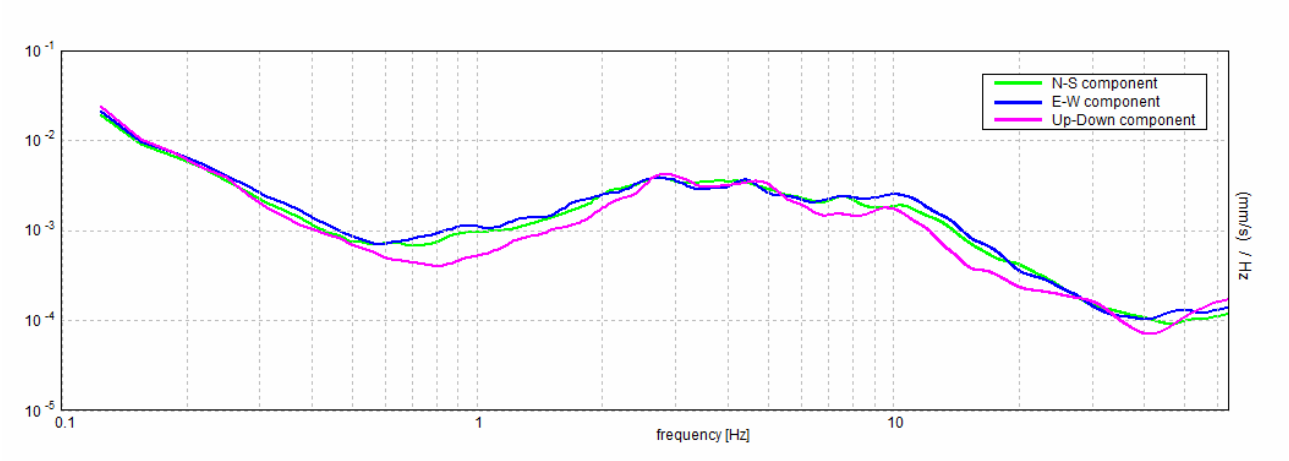
H/V TIME HISTORY



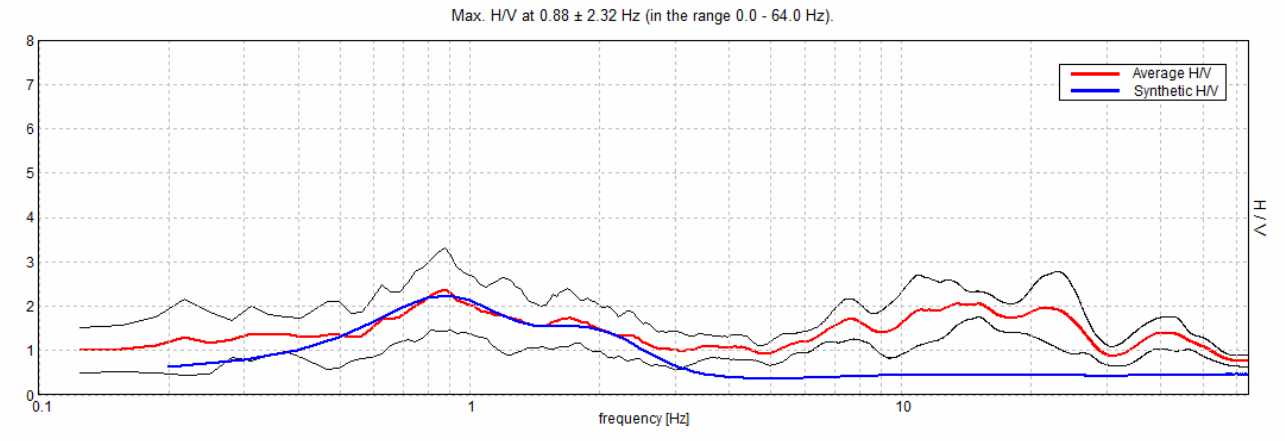
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

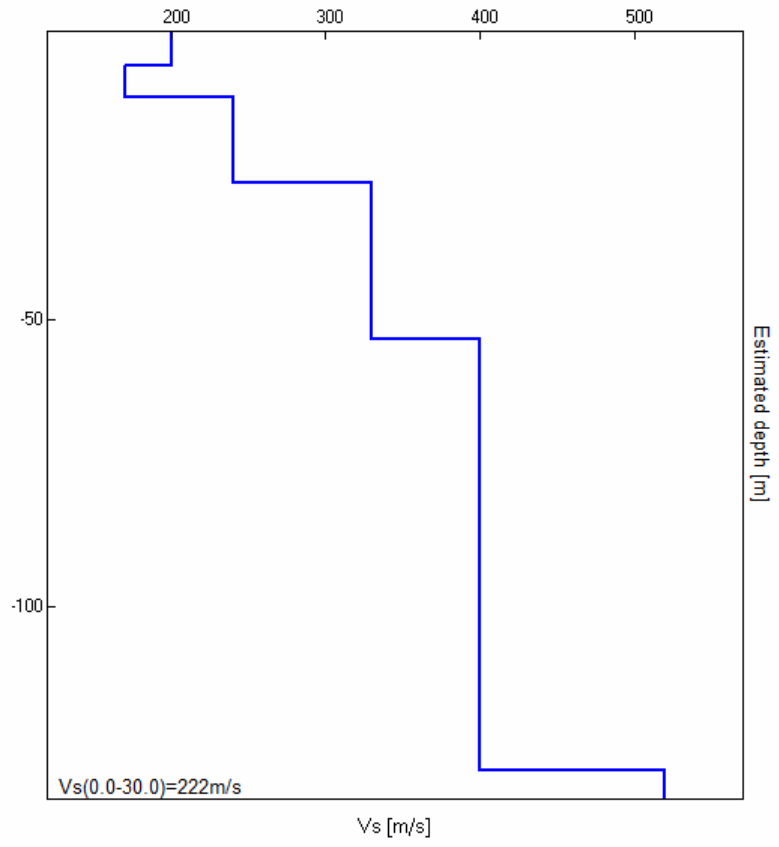


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
6.00	6.00	200
11.40	5.40	170
26.40	15.00	240
53.40	27.00	330
128.40	75.00	400
inf.	inf.	520

Vs30 = 222 m/s

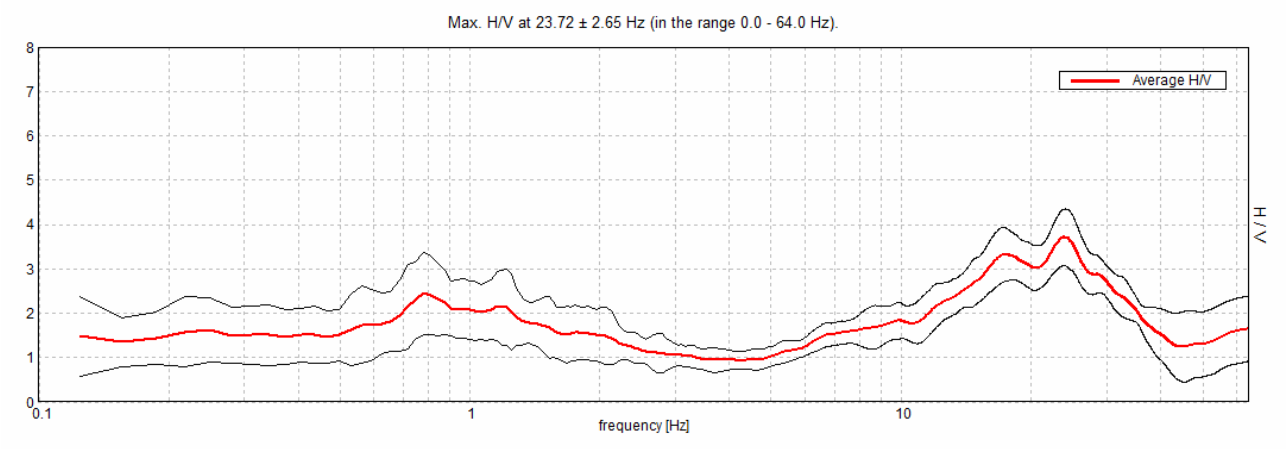


MICROZONAZIONE MIRANDOLA, R035

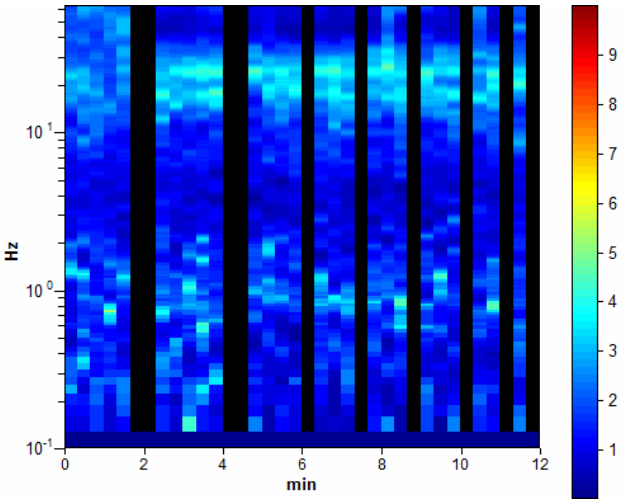
Start recording: 02/11/11 12:11:08 End recording: 02/11/11 12:23:09
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 72% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

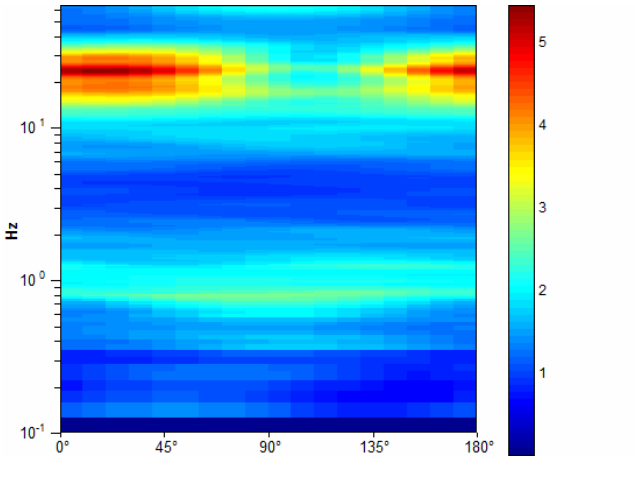
HORIZONTAL TO VERTICAL SPECTRAL RATIO



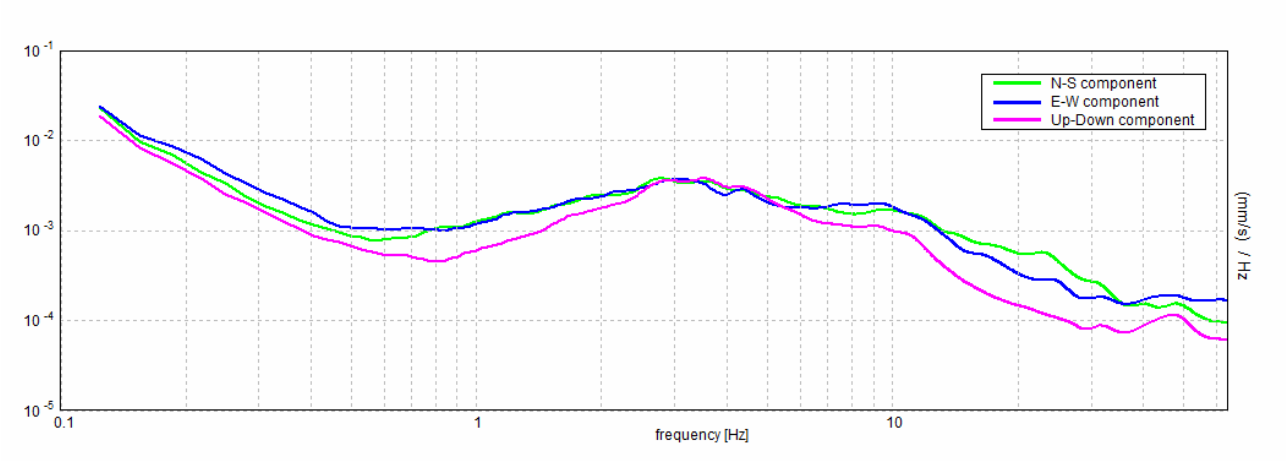
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

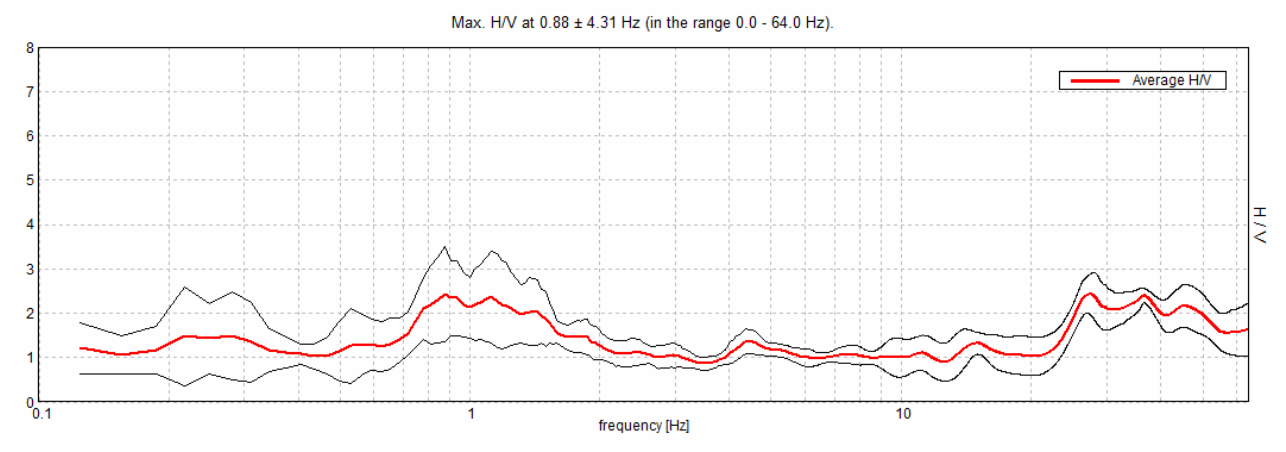


MICROZONAZIONE MIRANDOLA, R036

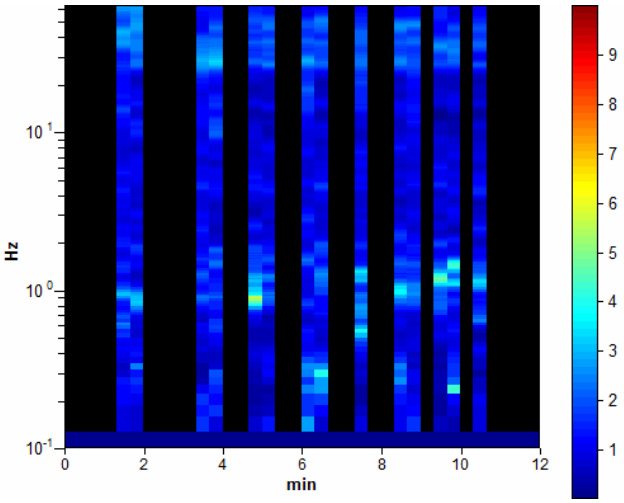
Start recording: 02/11/11 12:40:11 End recording: 02/11/11 12:52:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 39% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

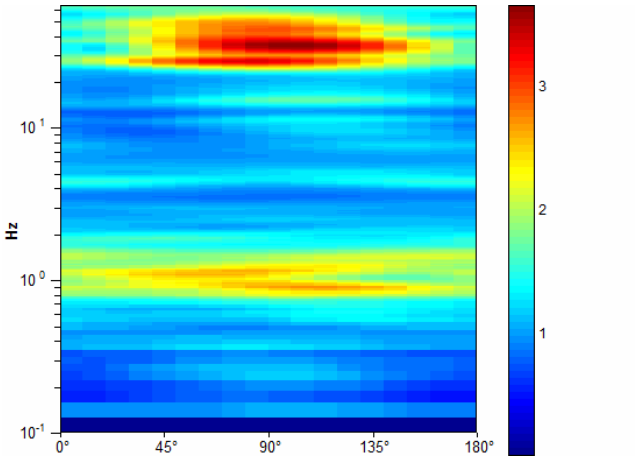
HORIZONTAL TO VERTICAL SPECTRAL RATIO



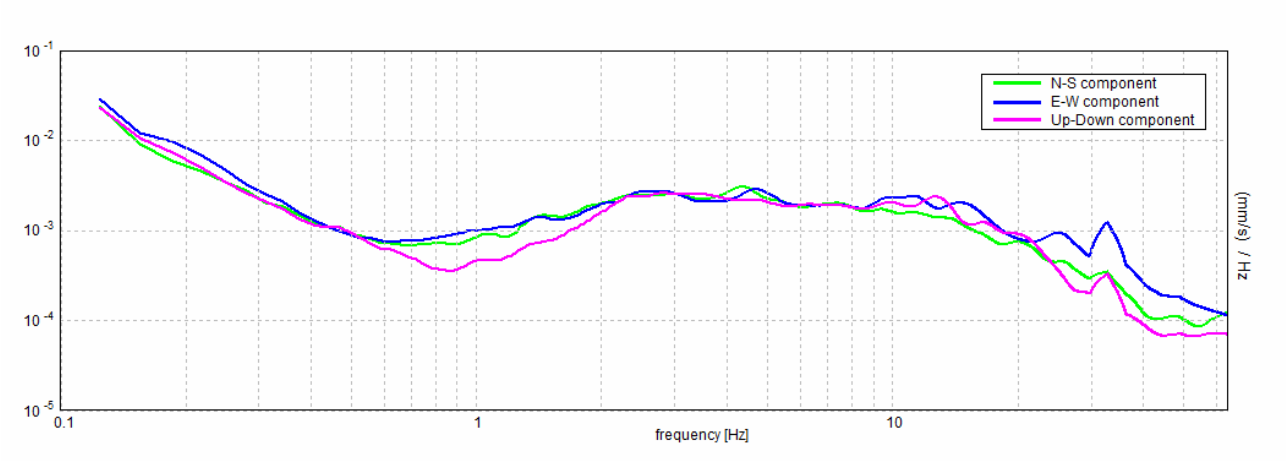
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

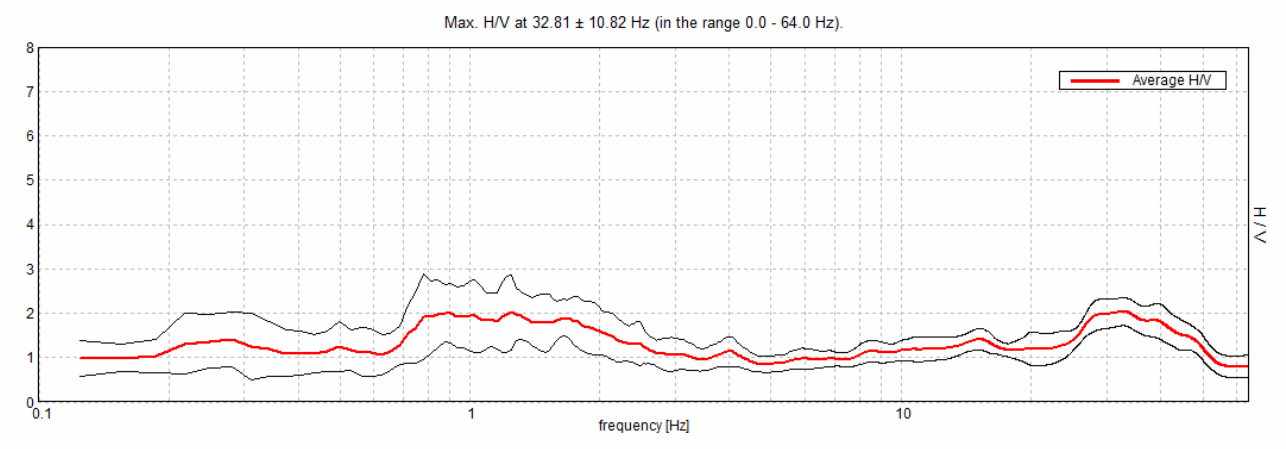


MICROZONAZIONE MIRANDOLA, R037

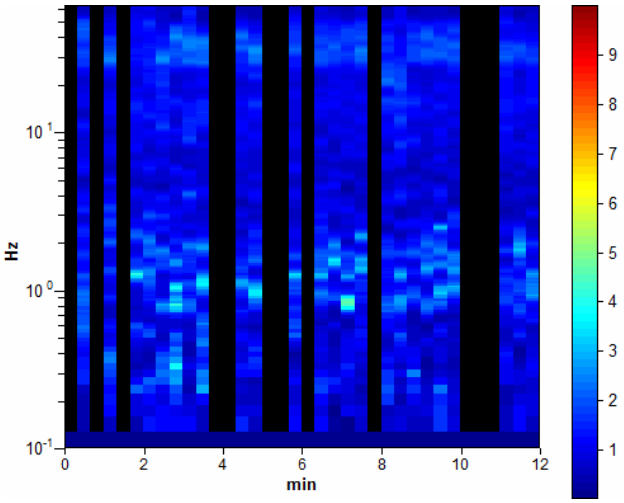
Start recording: 02/11/11 13:05:08 End recording: 02/11/11 13:17:09
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

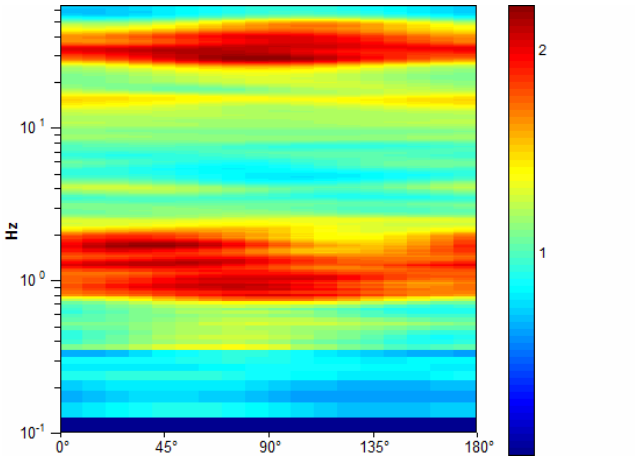
HORIZONTAL TO VERTICAL SPECTRAL RATIO



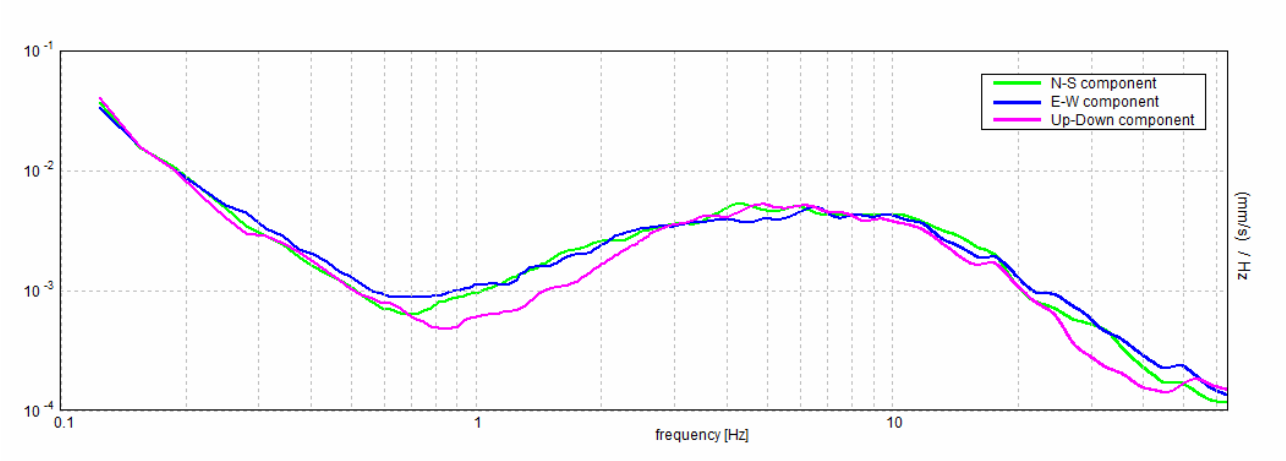
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

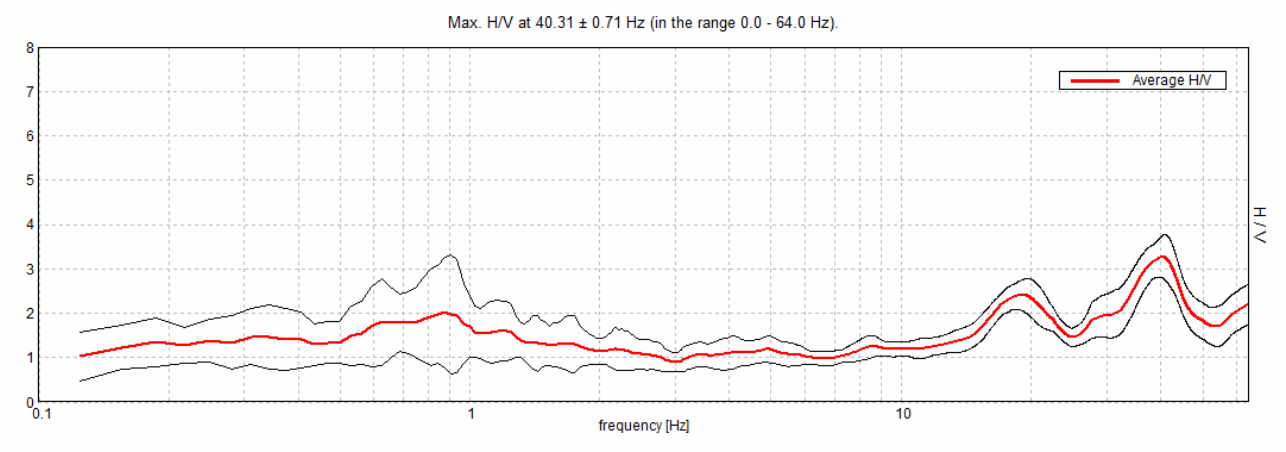


MICROZONAZIONE MIRANDOLA, R038

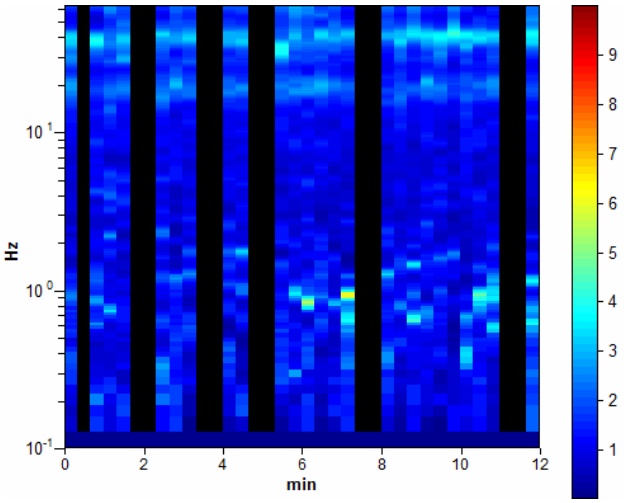
Start recording: 02/11/11 13:26:22 End recording: 02/11/11 13:38:23
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 69% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

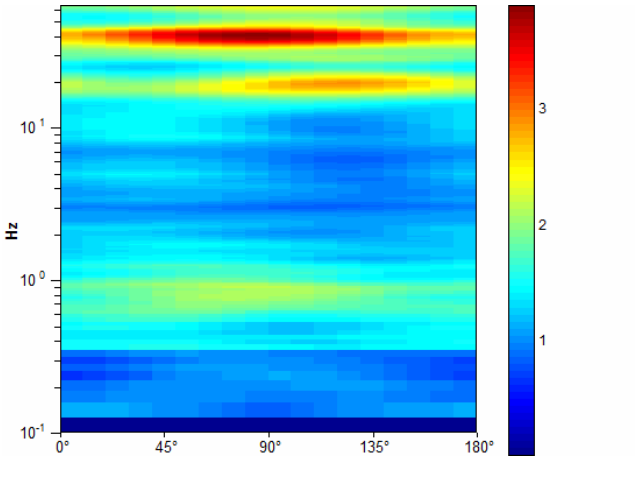
HORIZONTAL TO VERTICAL SPECTRAL RATIO



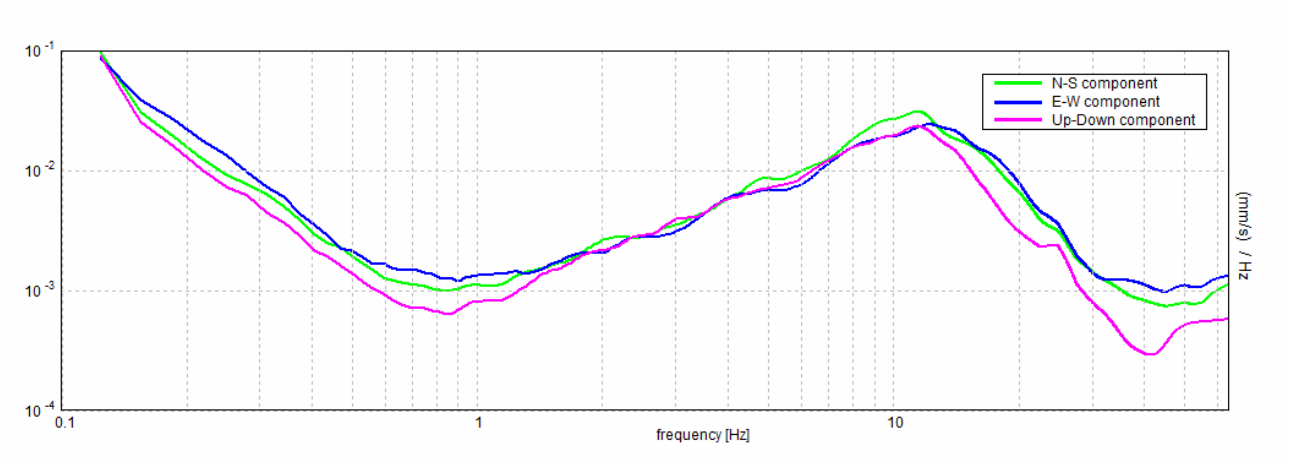
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

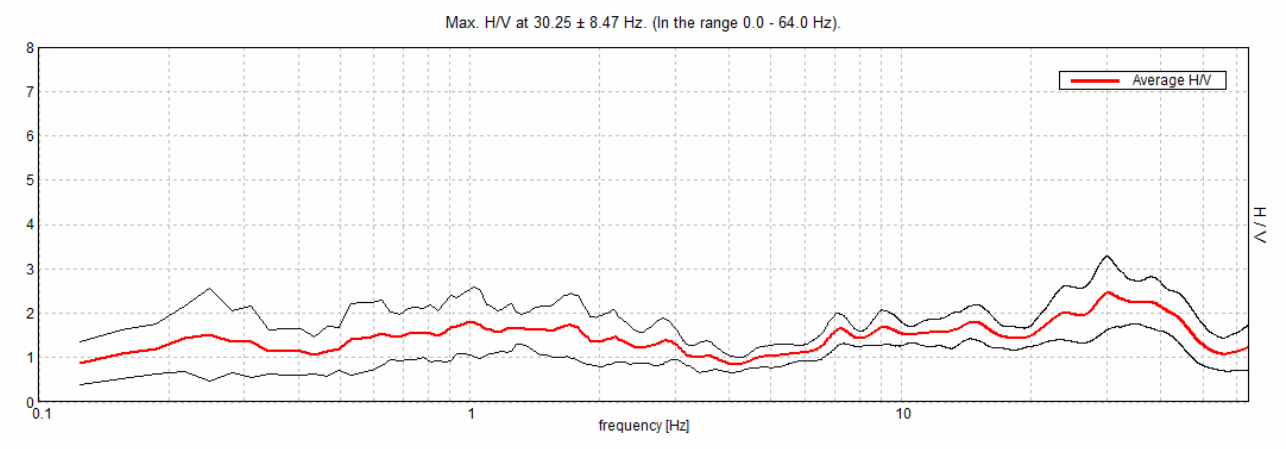


MICROZONAZIONE MIRANDOLA, R040

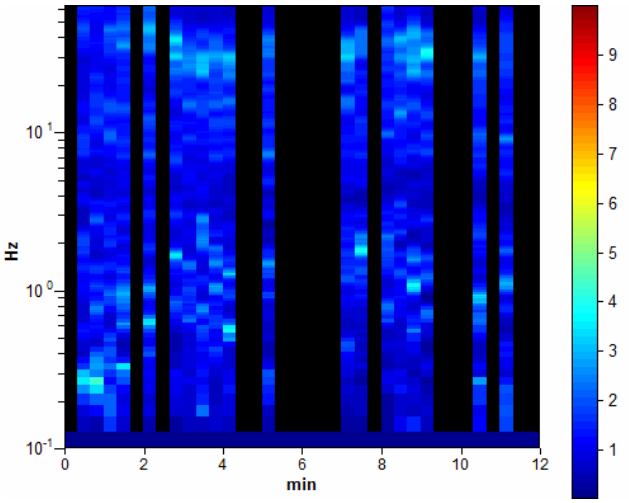
Start recording: 02/11/11 14:23:34 End recording: 02/11/11 14:35:35
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 53% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

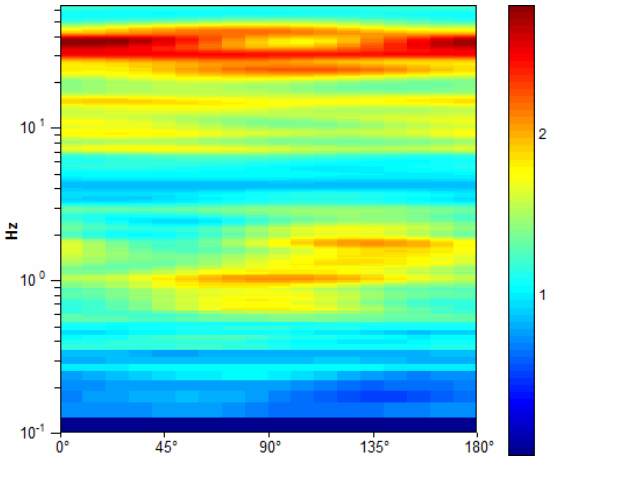
HORIZONTAL TO VERTICAL SPECTRAL RATIO



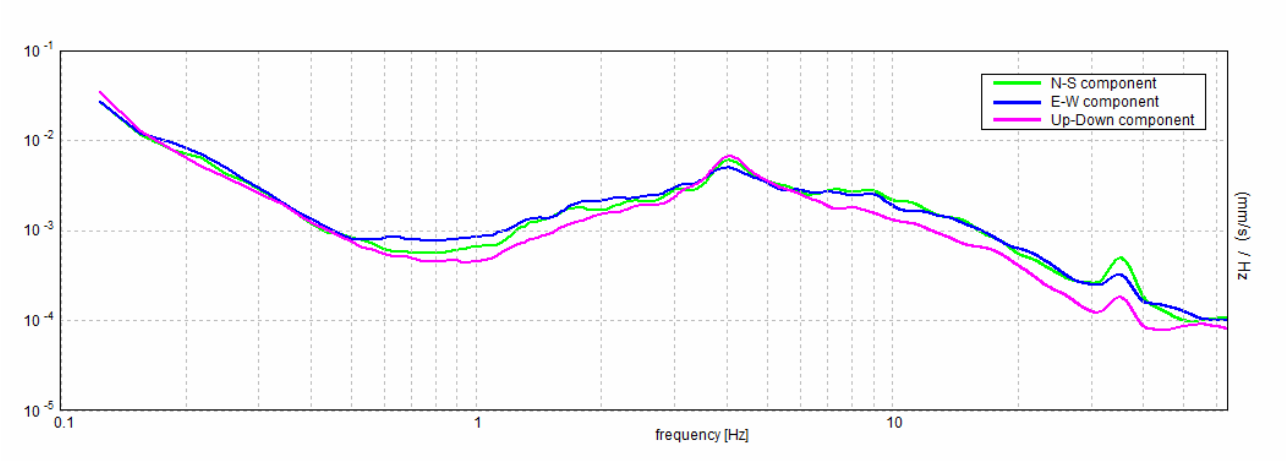
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

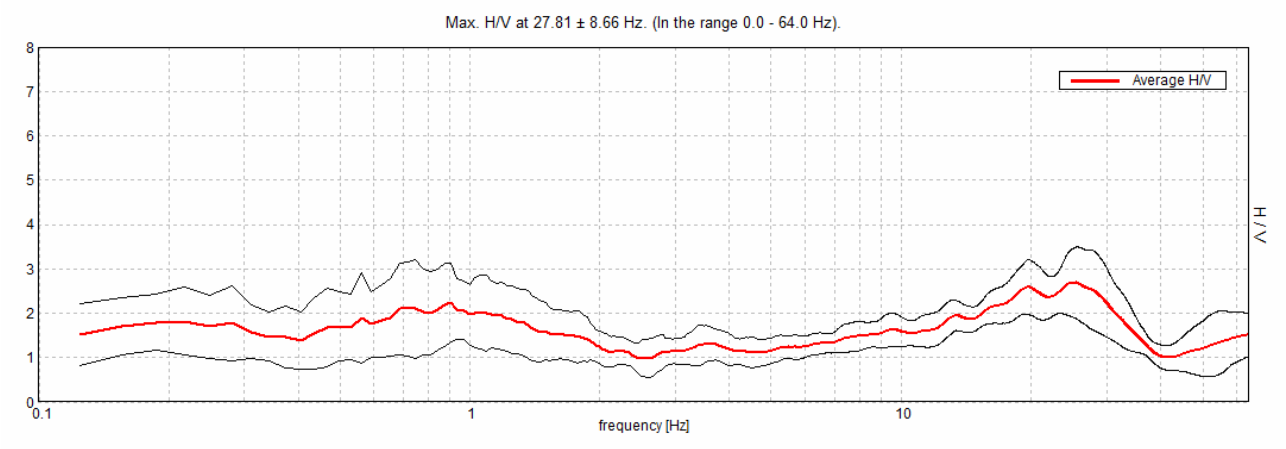


MICROZONAZIONE MIRANDOLA, R041

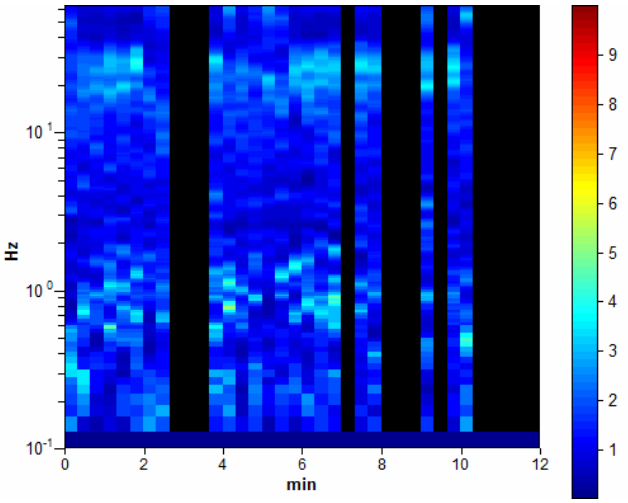
Start recording: 02/11/11 15:43:21 End recording: 02/11/11 15:55:22
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

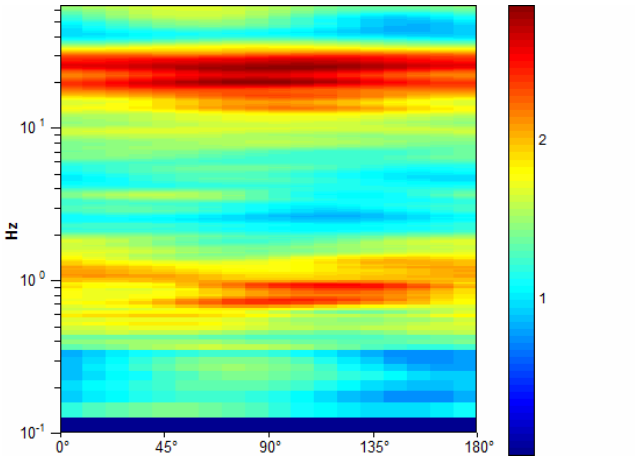
HORIZONTAL TO VERTICAL SPECTRAL RATIO



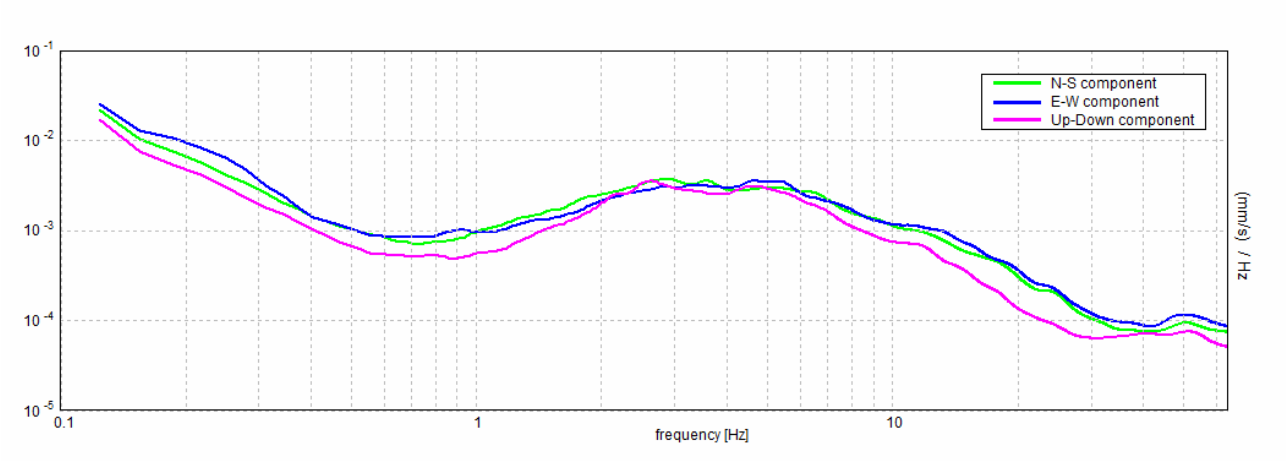
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

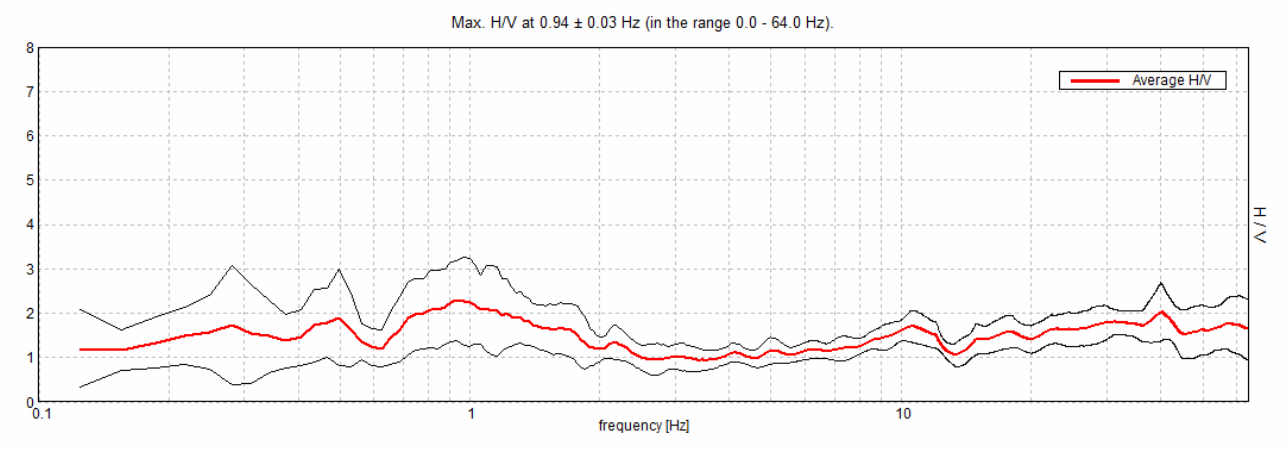


MICROZONAZIONE MIRANDOLA, R042

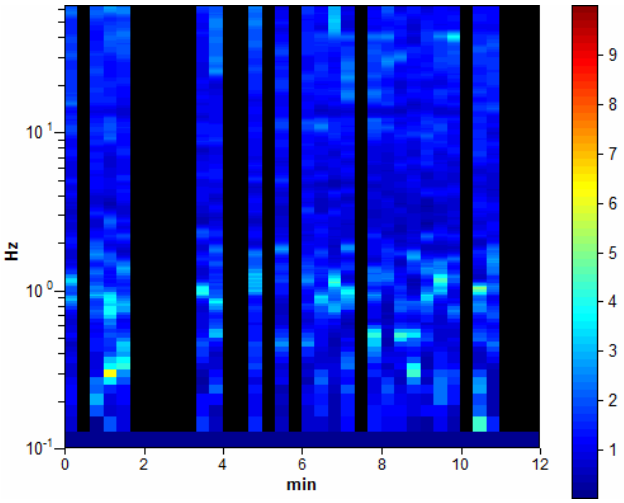
Start recording: 02/11/11 16:02:15 End recording: 02/11/11 16:14:16
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 58% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

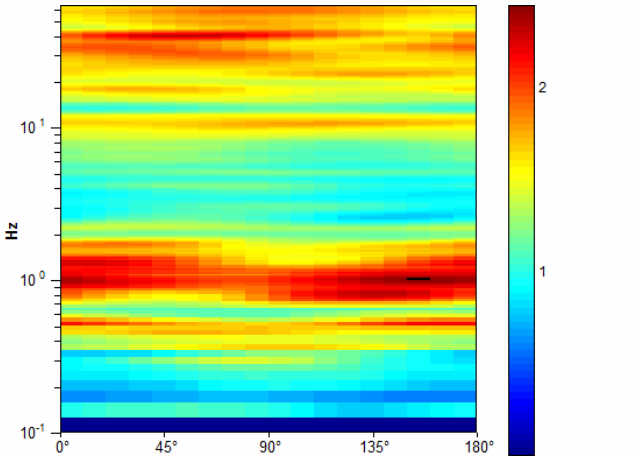
HORIZONTAL TO VERTICAL SPECTRAL RATIO



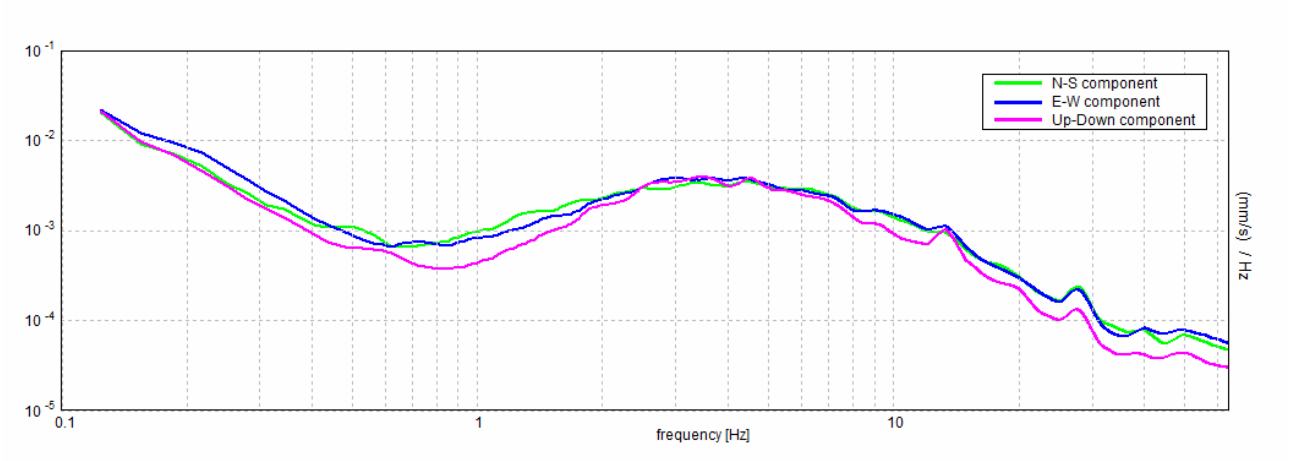
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

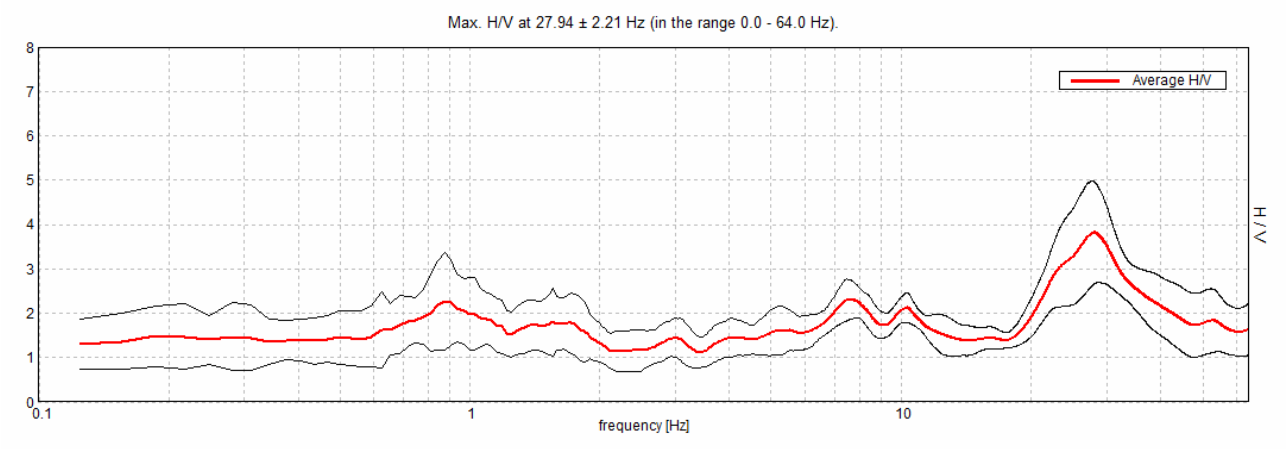


MICROZONAZIONE MIRANDOLA, R043

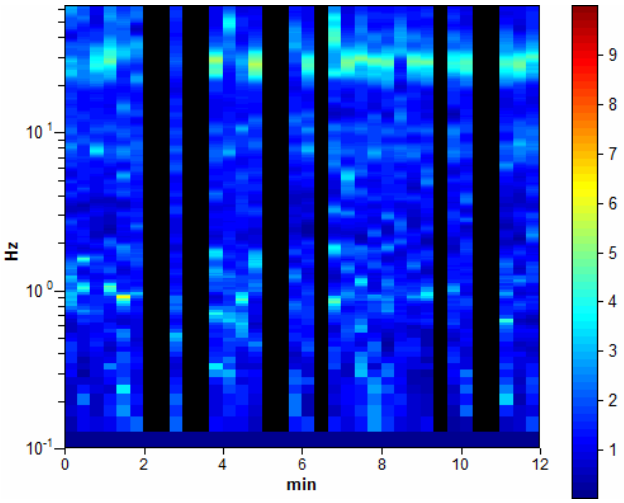
Start recording: 02/11/11 16:22:50 End recording: 02/11/11 16:34:51
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 72% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

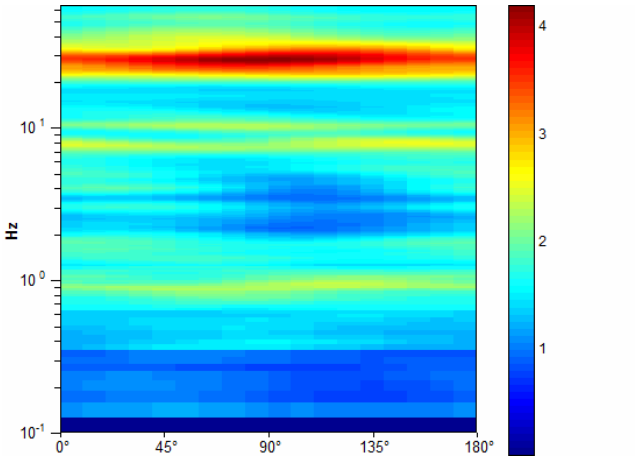
HORIZONTAL TO VERTICAL SPECTRAL RATIO



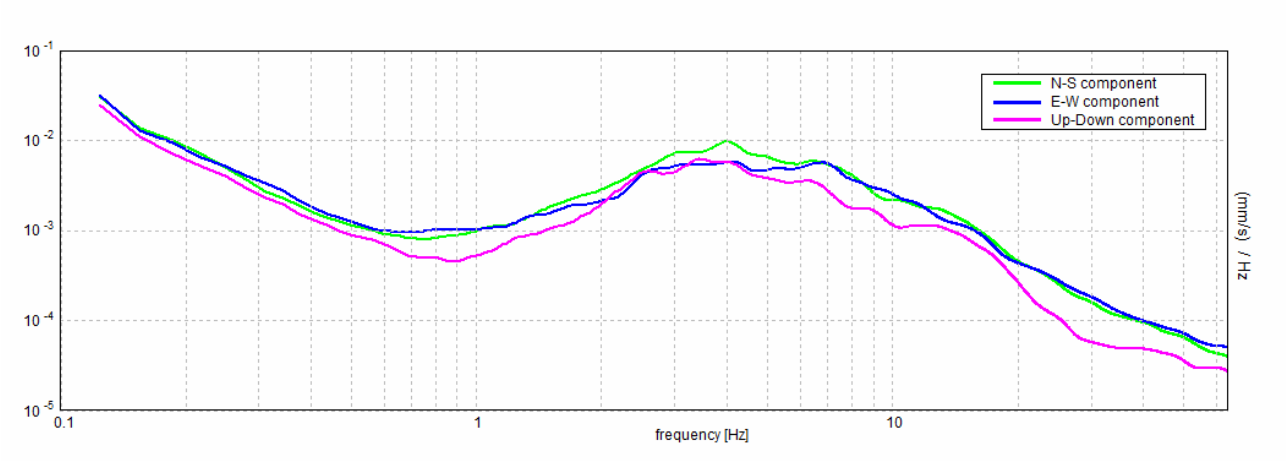
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

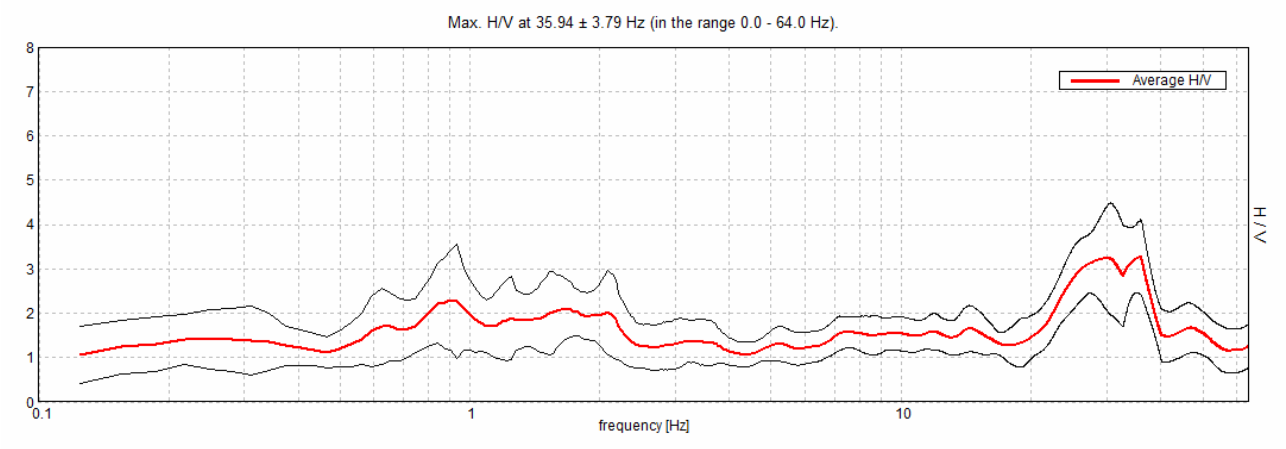


MICROZONAZIONE MIRANDOLA, R045

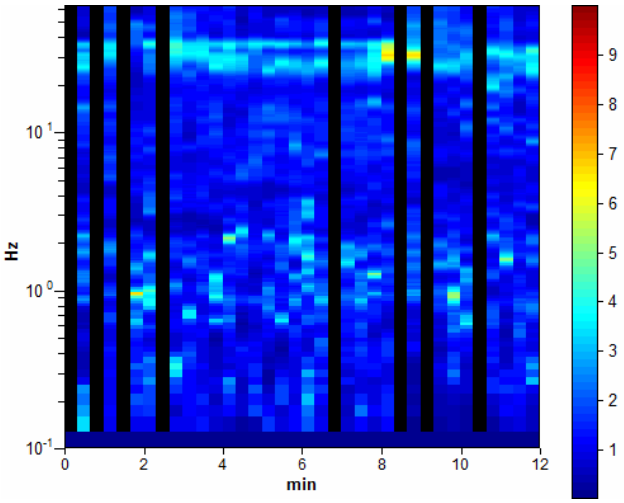
Start recording: 02/11/11 17:03:42 End recording: 02/11/11 17:15:43
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

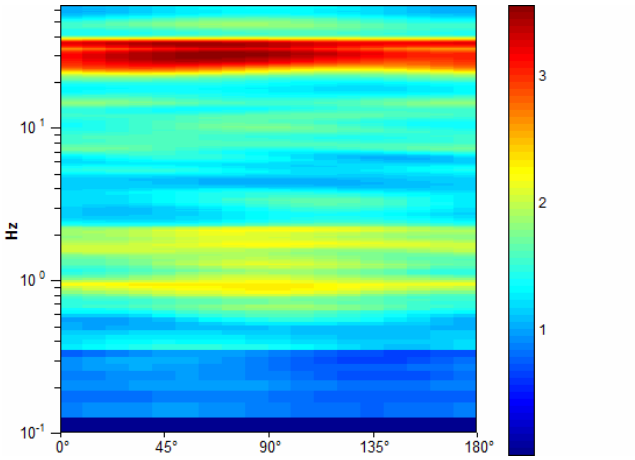
HORIZONTAL TO VERTICAL SPECTRAL RATIO



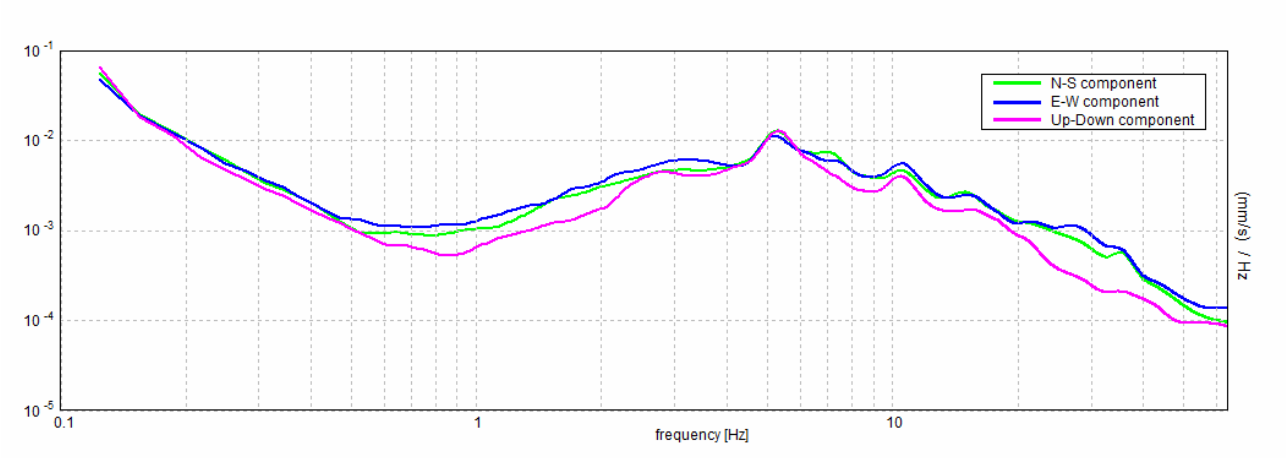
H/V TIME HISTORY



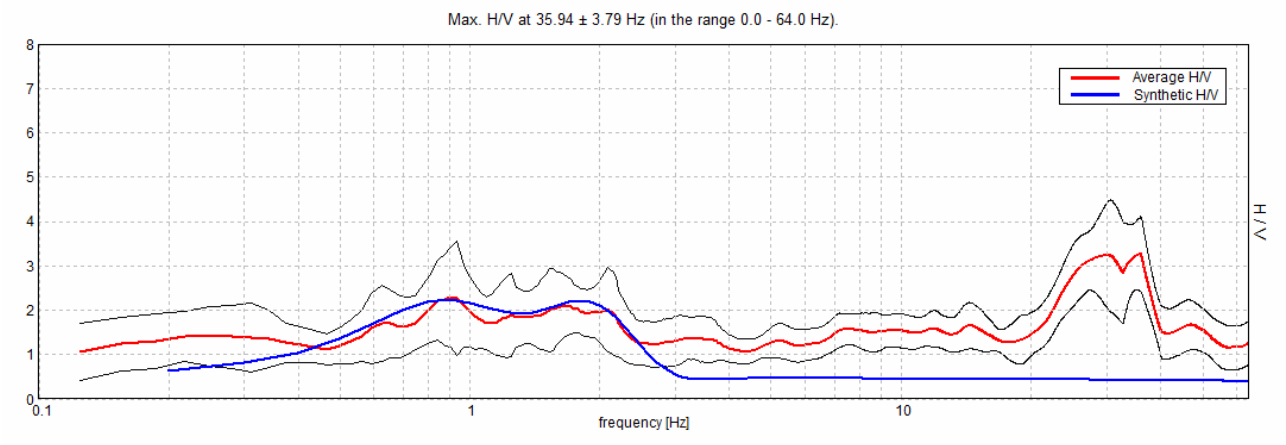
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

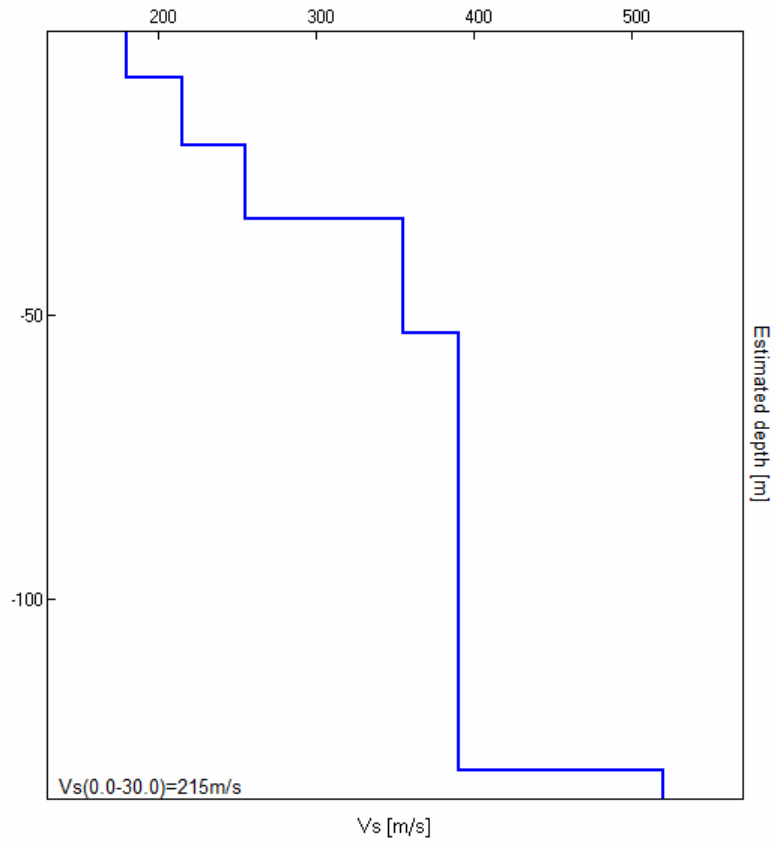


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
8.00	8.00	180
20.00	12.00	215
33.00	13.00	255
53.00	20.00	355
130.00	77.00	390
inf.	inf.	520

Vs30 = 215 m/s

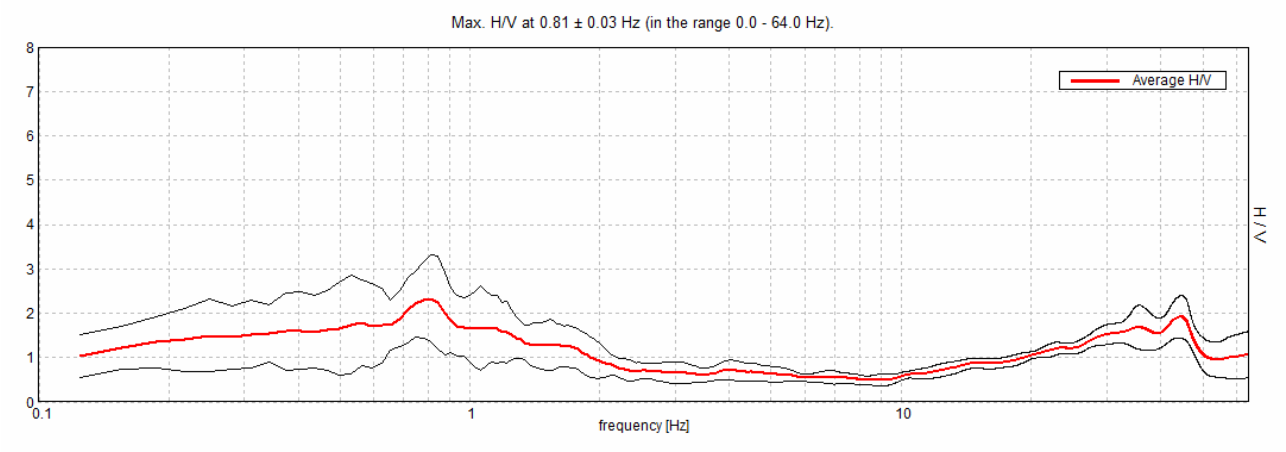


MICROZONAZIONE MIRANDOLA, R046

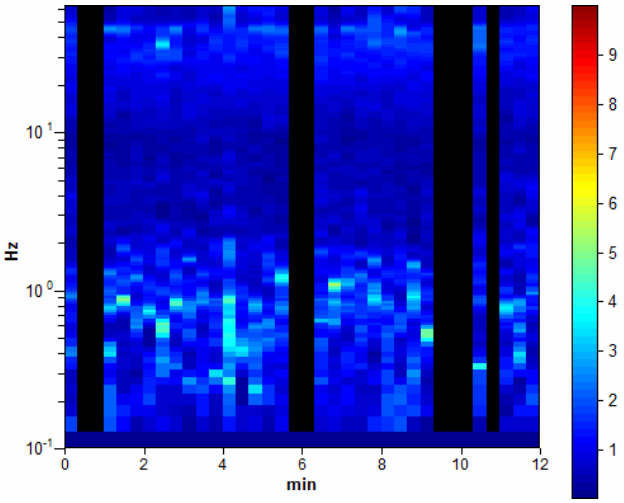
Start recording: 02/11/11 17:38:21 End recording: 02/11/11 17:50:22
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

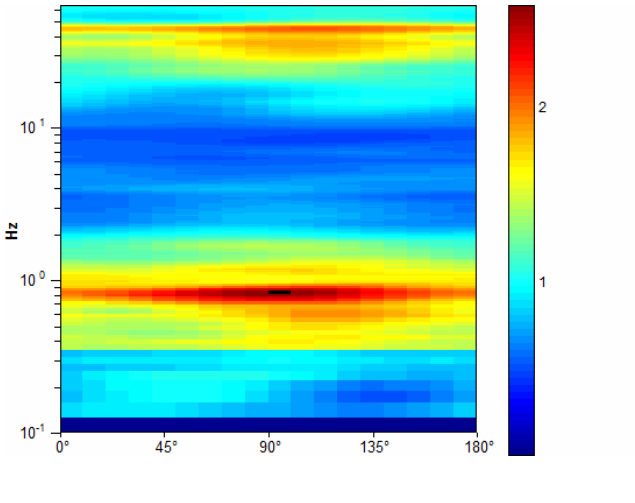
HORIZONTAL TO VERTICAL SPECTRAL RATIO



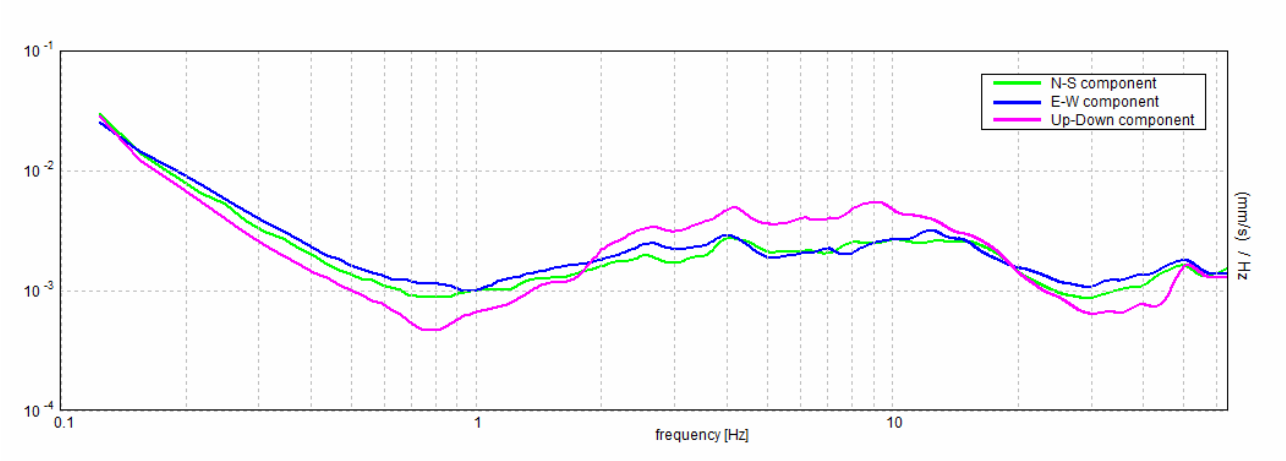
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

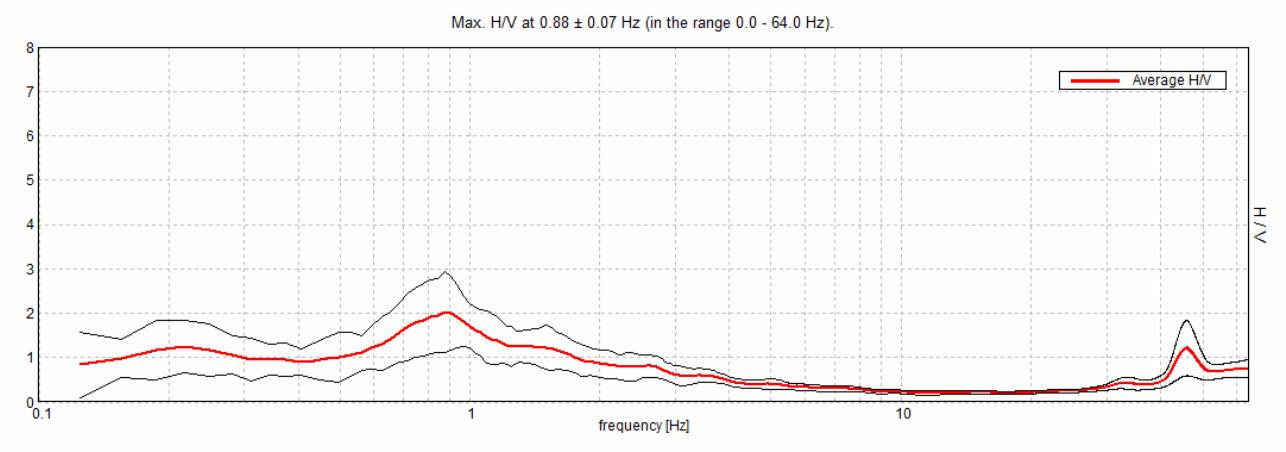


MICROZONAZIONE MIRANDOLA, R047

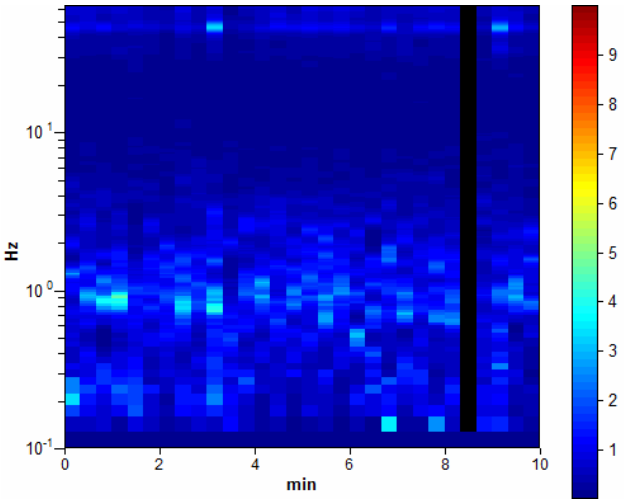
Start recording: 02/11/11 18:00:42 End recording: 02/11/11 18:10:43
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h10'00''. Analyzed 97% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

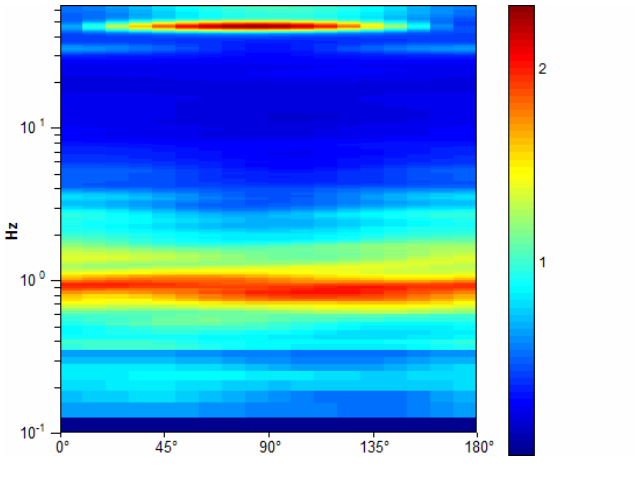
HORIZONTAL TO VERTICAL SPECTRAL RATIO



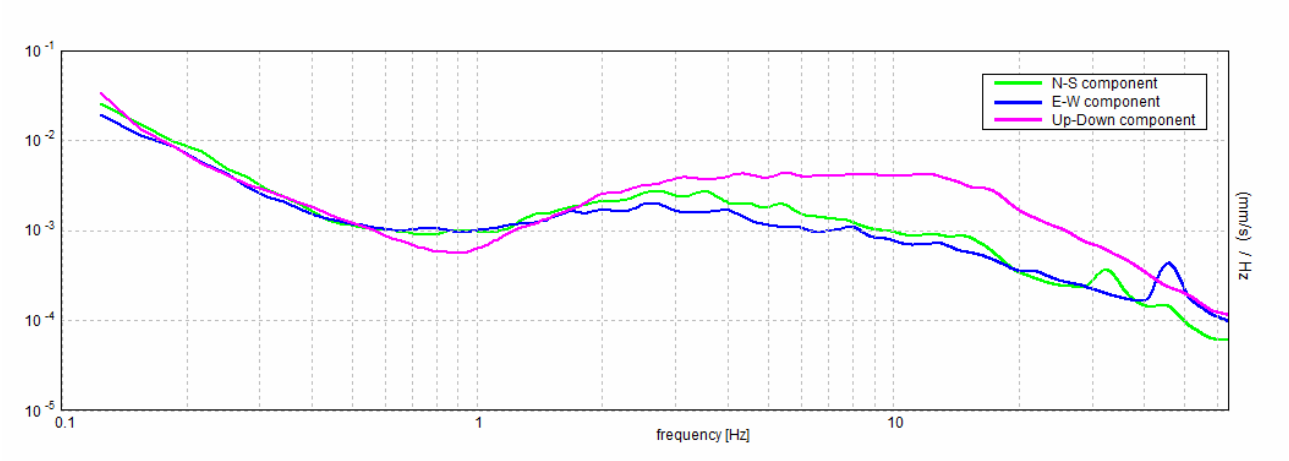
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

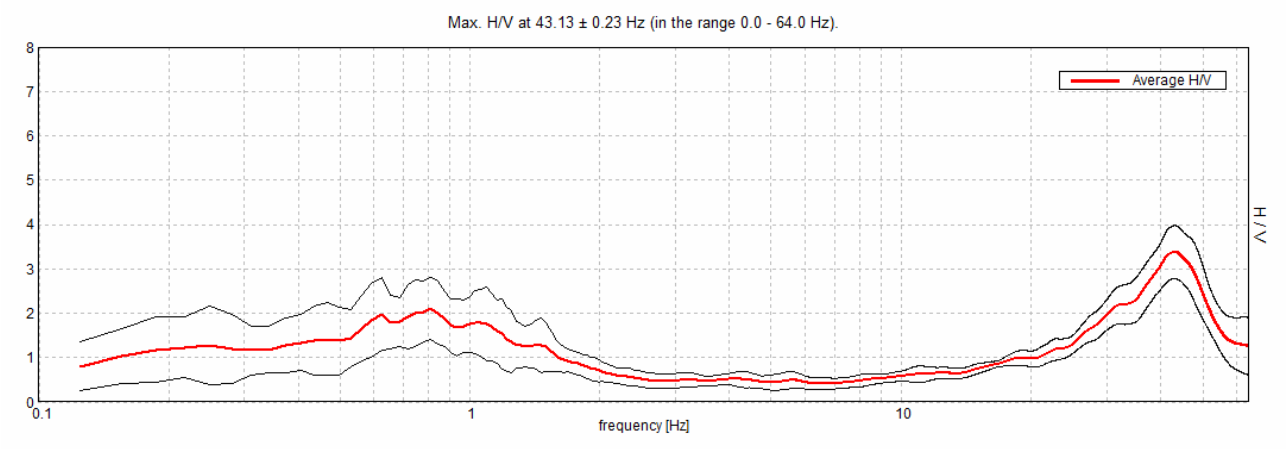


MICROZONAZIONE MIRANDOLA, R048

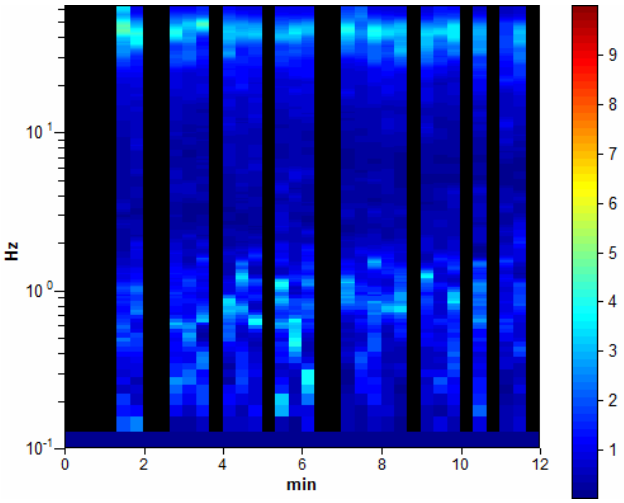
Start recording: 18/11/11 10:48:45 End recording: 18/11/11 11:00:46
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 61% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

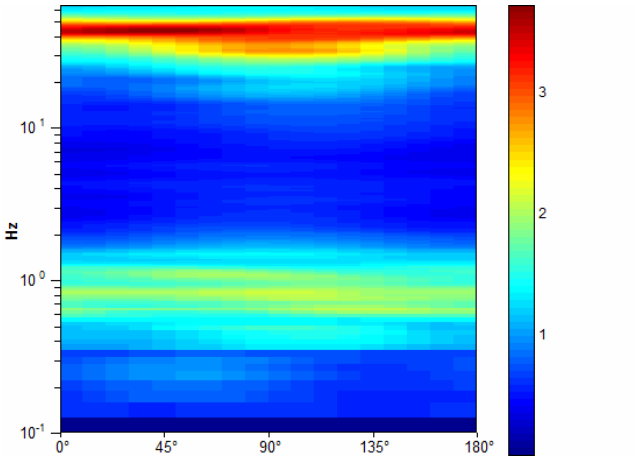
HORIZONTAL TO VERTICAL SPECTRAL RATIO



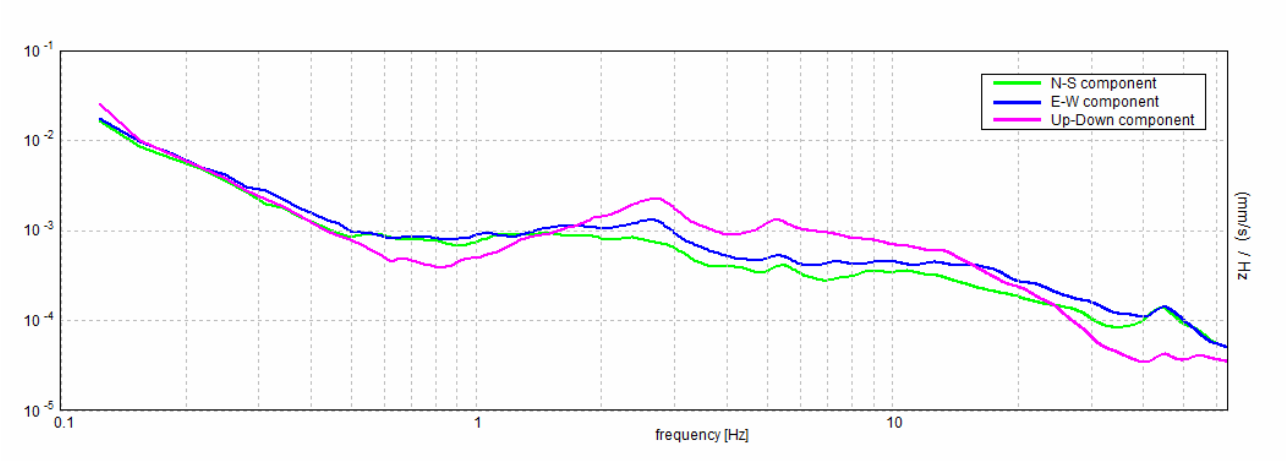
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

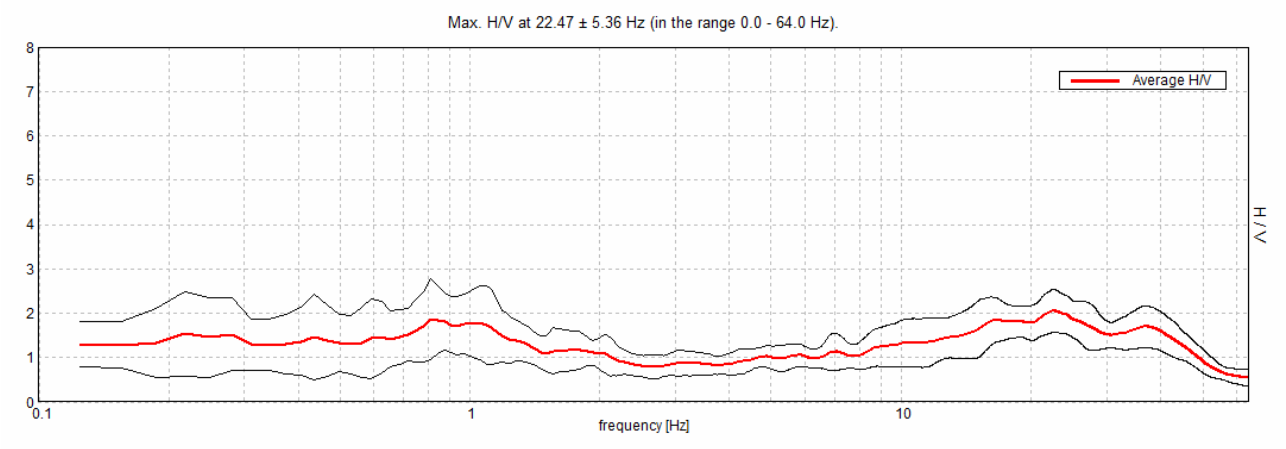


MICROZONAZIONE MIRANDOLA, R050

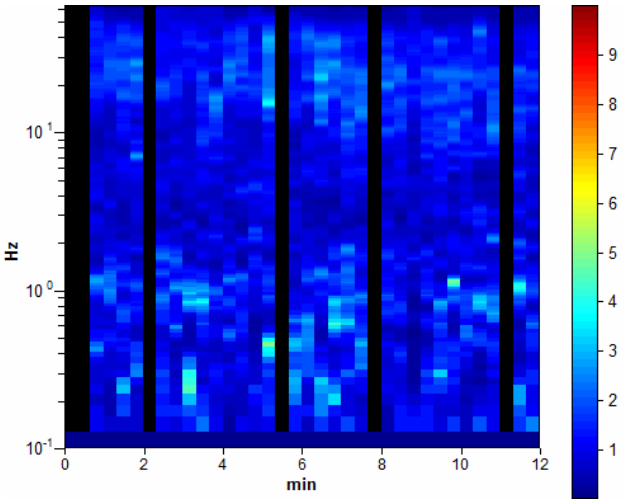
Start recording: 18/11/11 12:11:29 End recording: 18/11/11 12:23:30
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

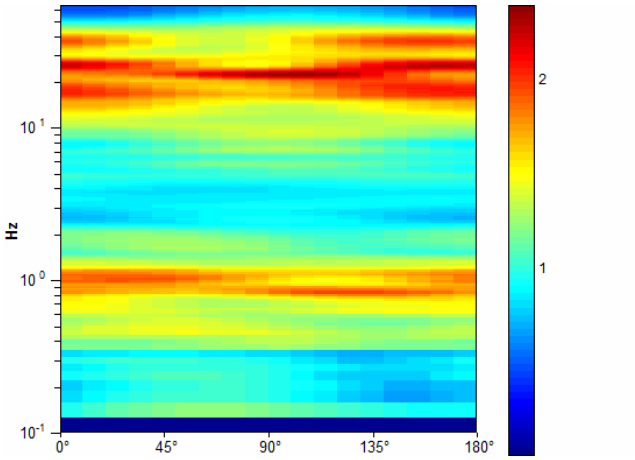
HORIZONTAL TO VERTICAL SPECTRAL RATIO



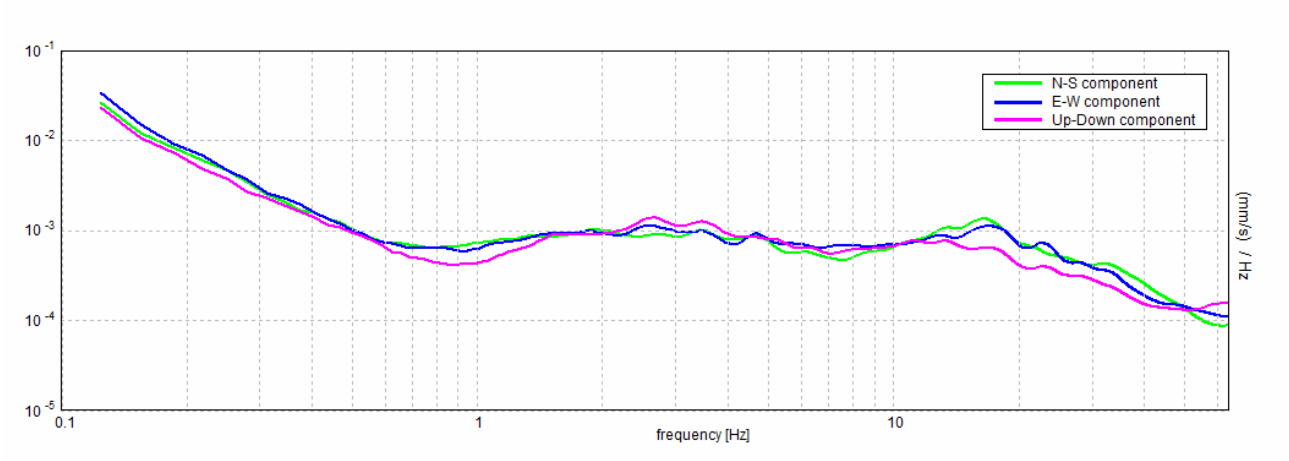
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

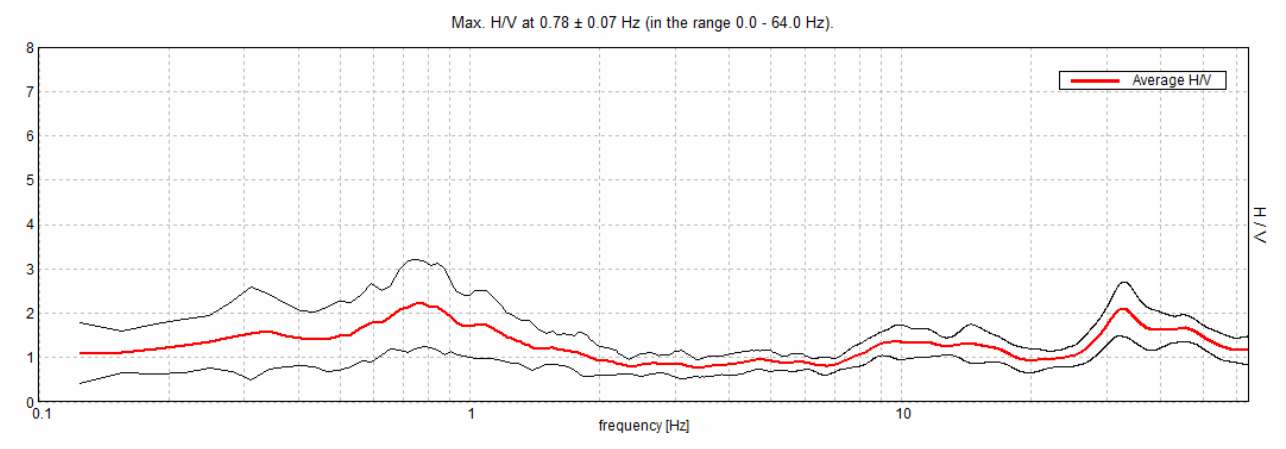


MICROZONAZIONE MIRANDOLA, R051

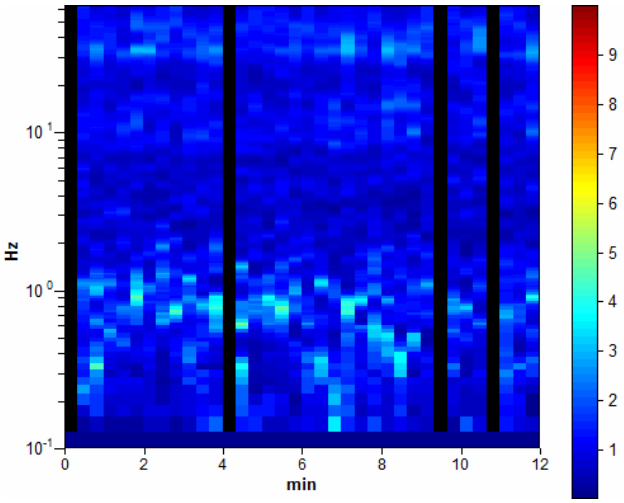
Start recording: 18/11/11 12:34:36 End recording: 18/11/11 12:46:37
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

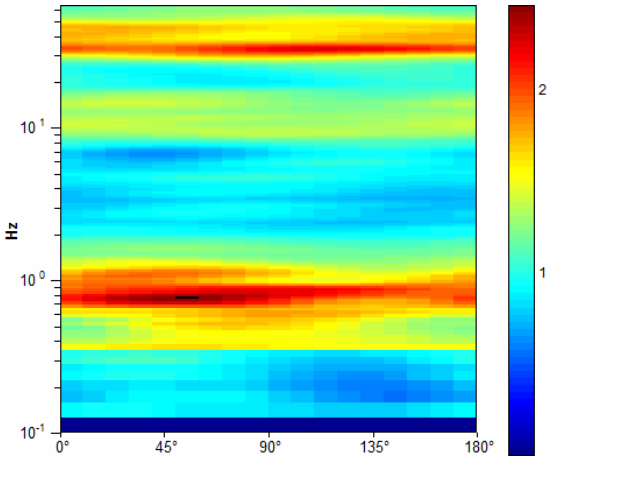
HORIZONTAL TO VERTICAL SPECTRAL RATIO



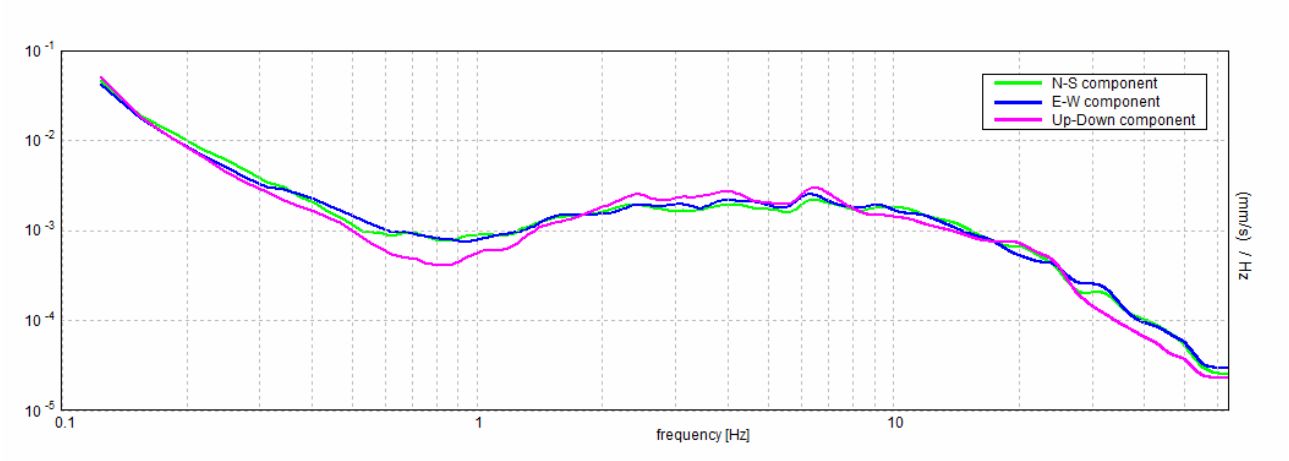
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

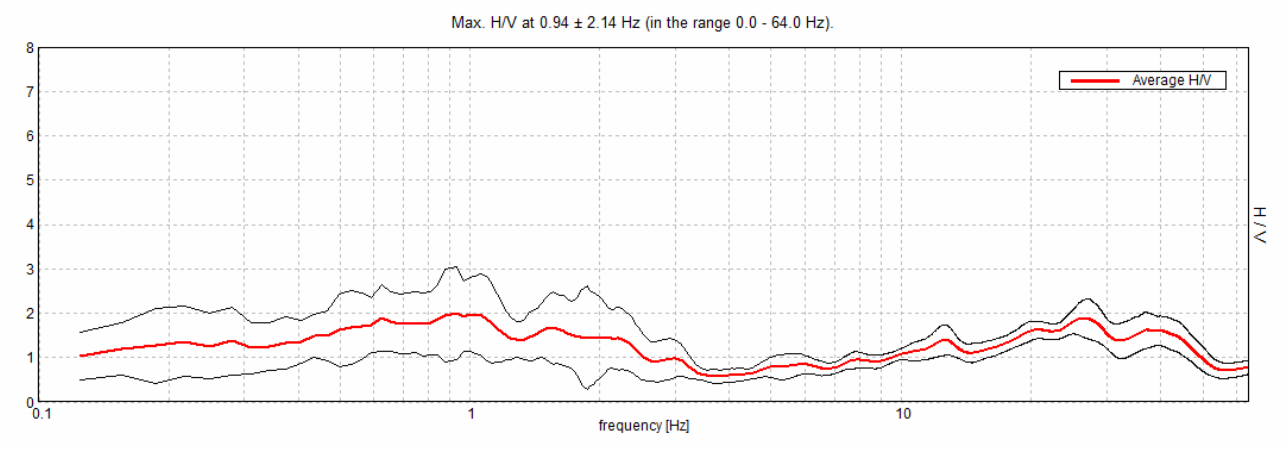


MICROZONAZIONE MIRANDOLA, R052

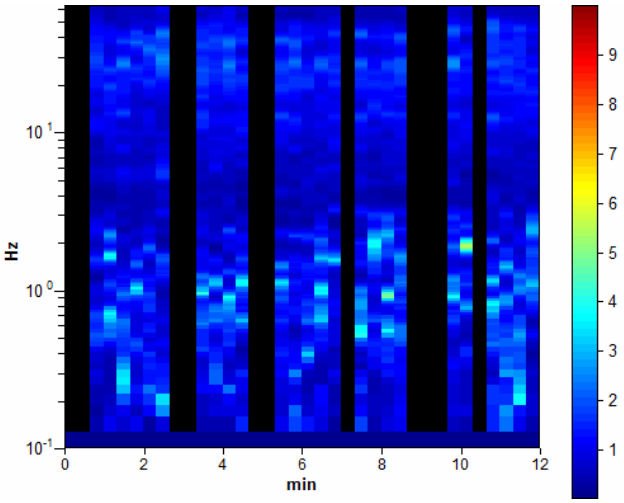
Start recording: 18/11/11 13:05:18 End recording: 18/11/11 13:17:19
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 69% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

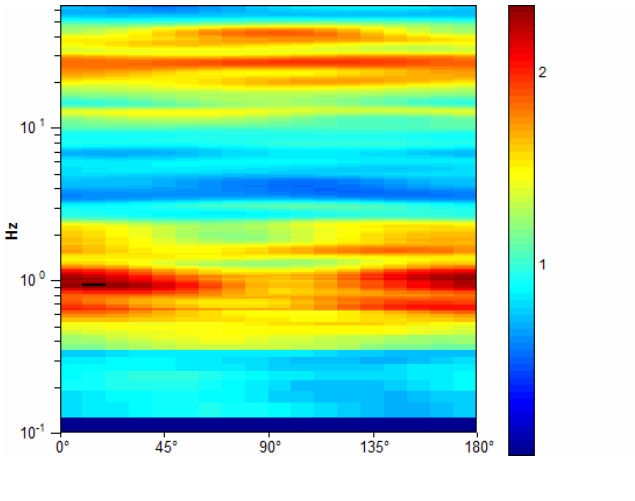
HORIZONTAL TO VERTICAL SPECTRAL RATIO



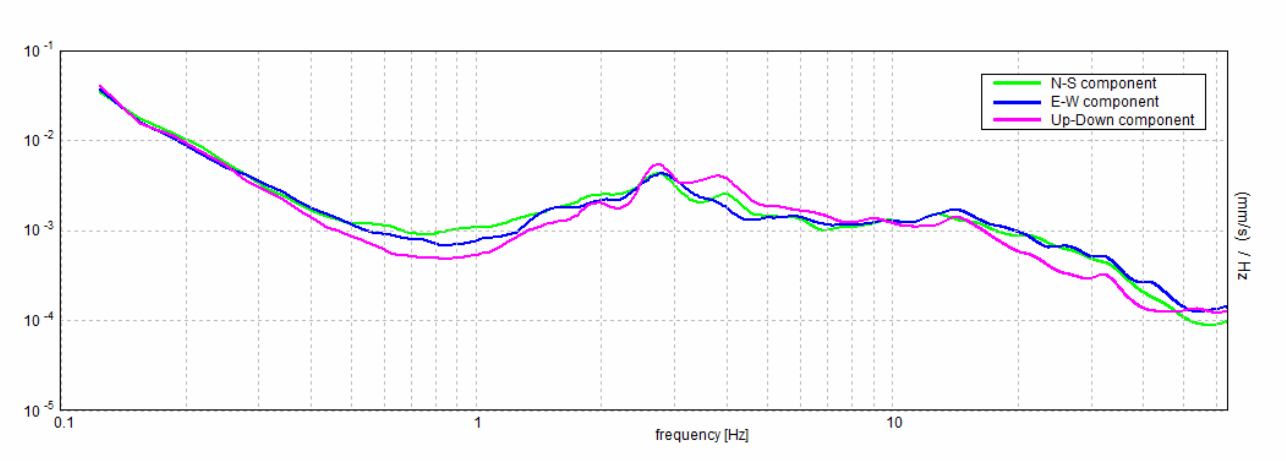
H/V TIME HISTORY



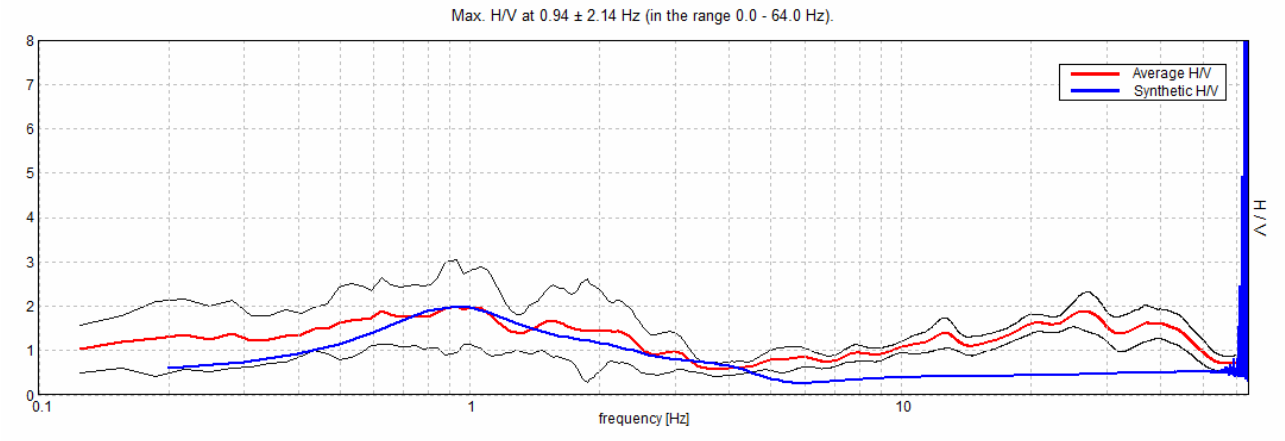
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

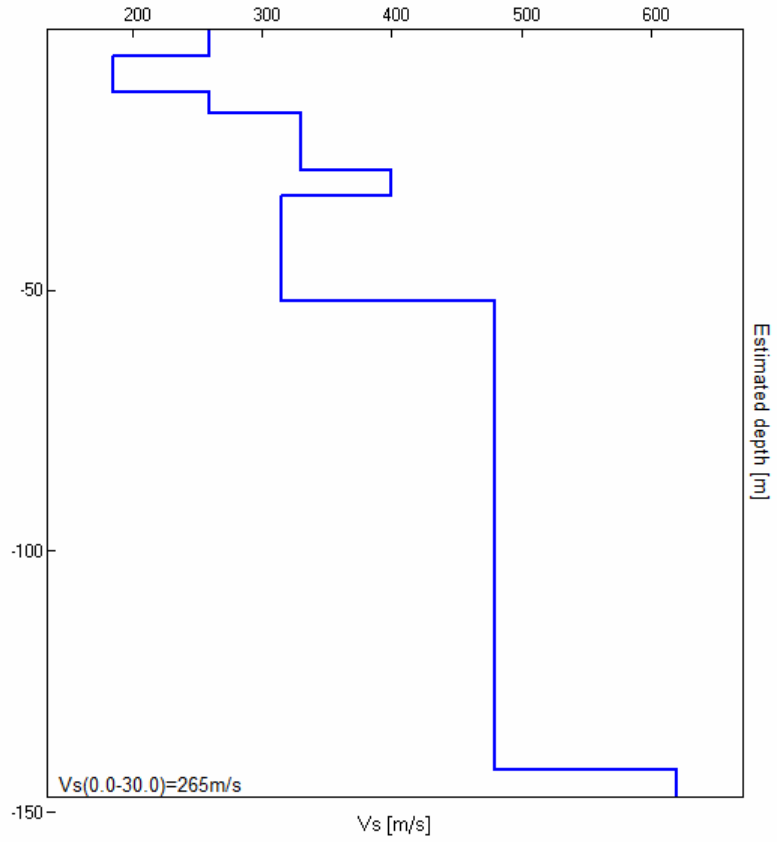


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
5.00	5.00	260
12.00	7.00	185
16.00	4.00	260
27.00	11.00	330
32.00	5.00	400
52.00	20.00	315
142.00	90.00	480
inf.	inf.	620

Vs30 = 265 m/s

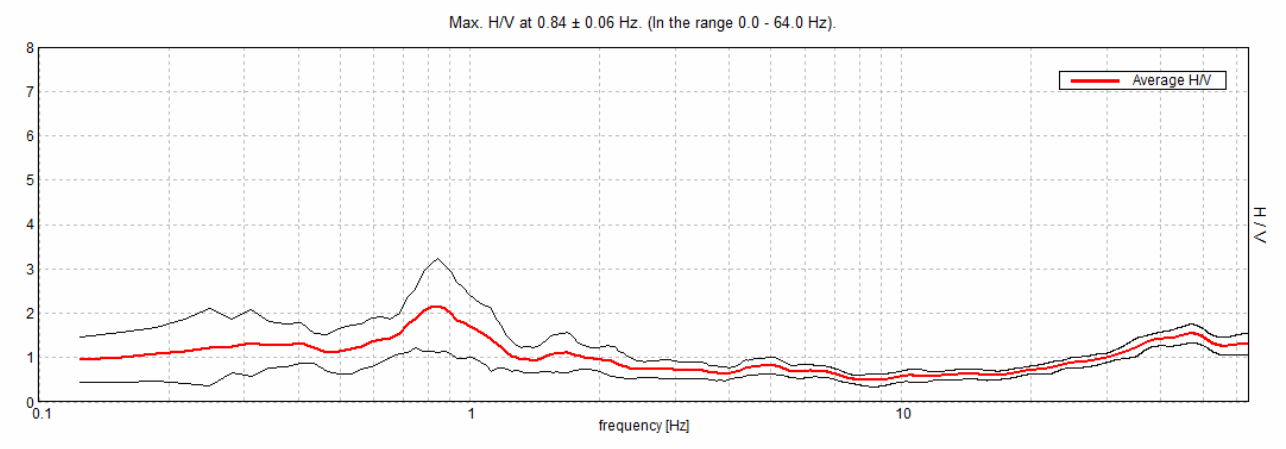


MICROZONAZIONE MIRANDOLA, R053

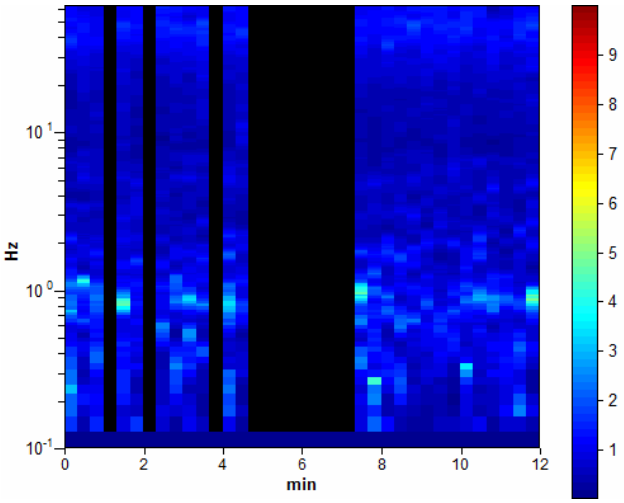
Start recording: 18/11/11 14:13:11 End recording: 18/11/11 14:25:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 69% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

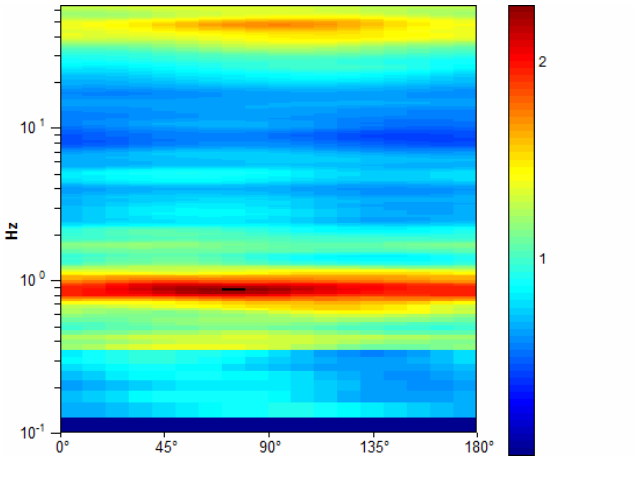
HORIZONTAL TO VERTICAL SPECTRAL RATIO



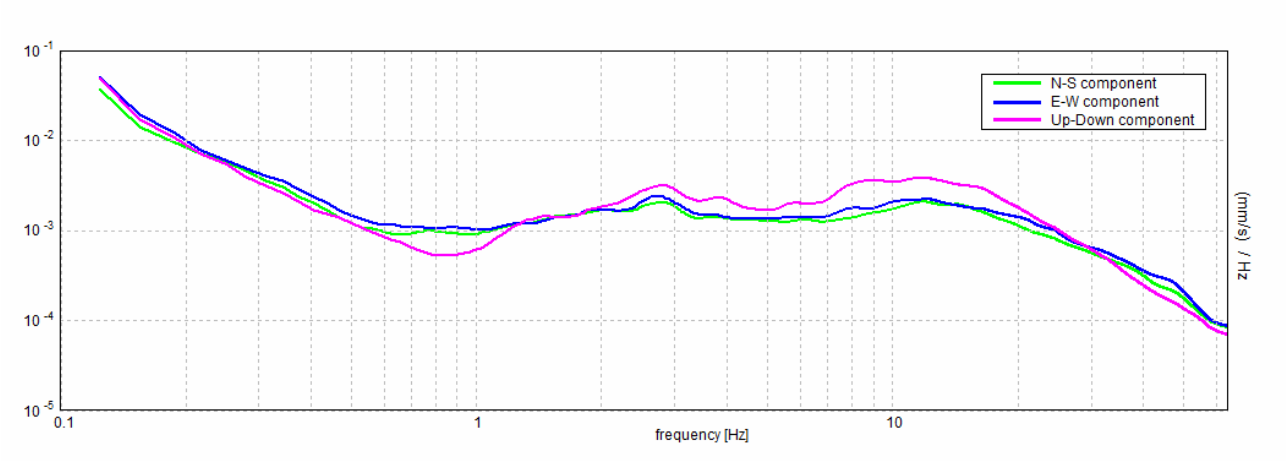
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

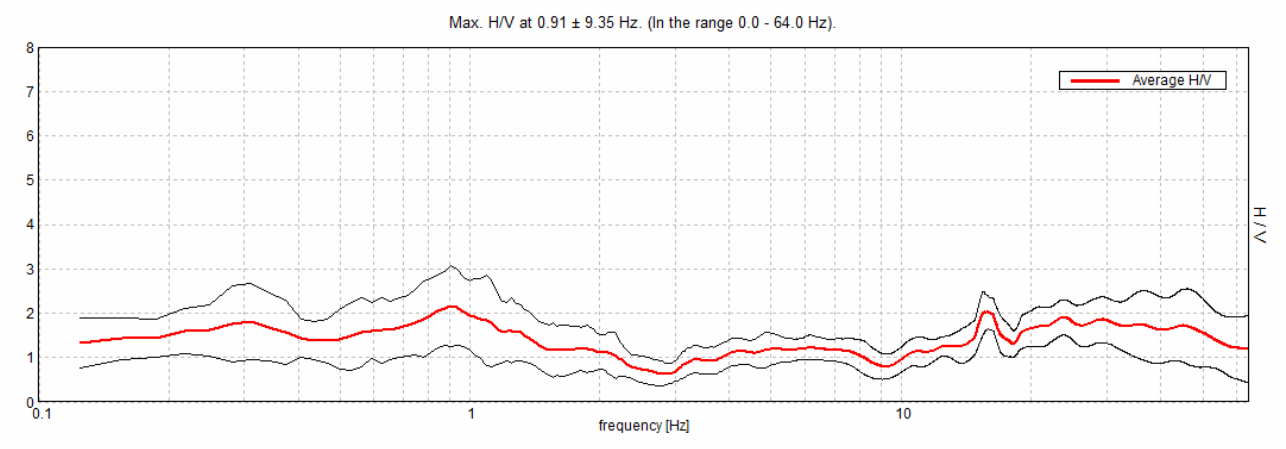


MICROZONAZIONE MIRANDOLA, R054

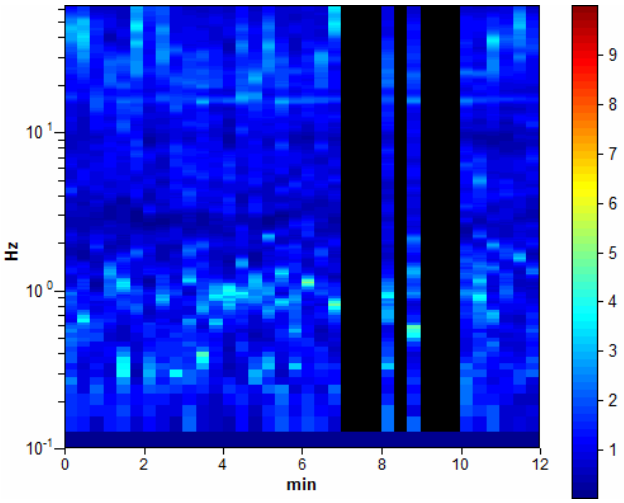
Start recording: 18/11/11 15:26:18 End recording: 18/11/11 15:38:18
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 81% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

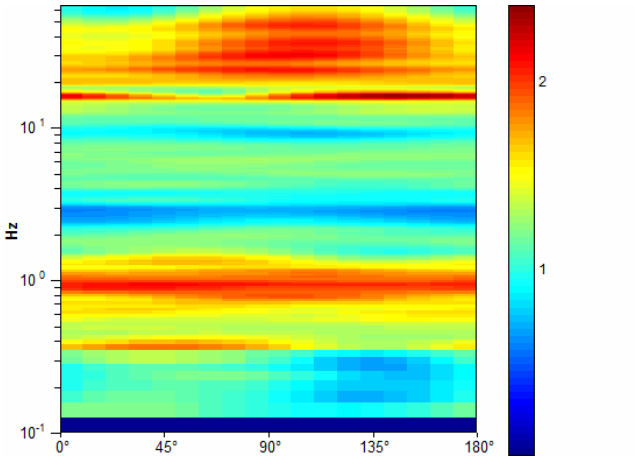
HORIZONTAL TO VERTICAL SPECTRAL RATIO



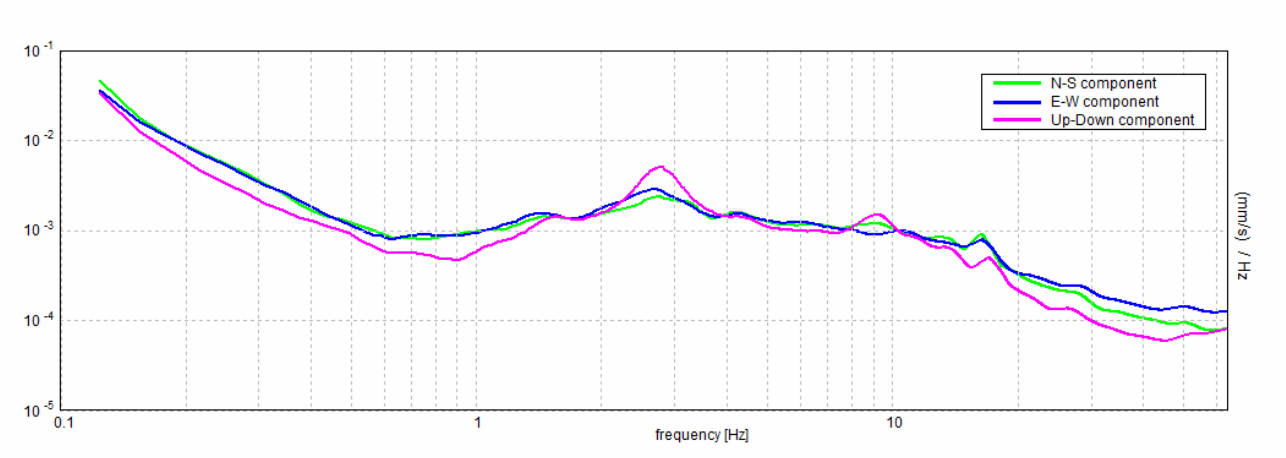
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

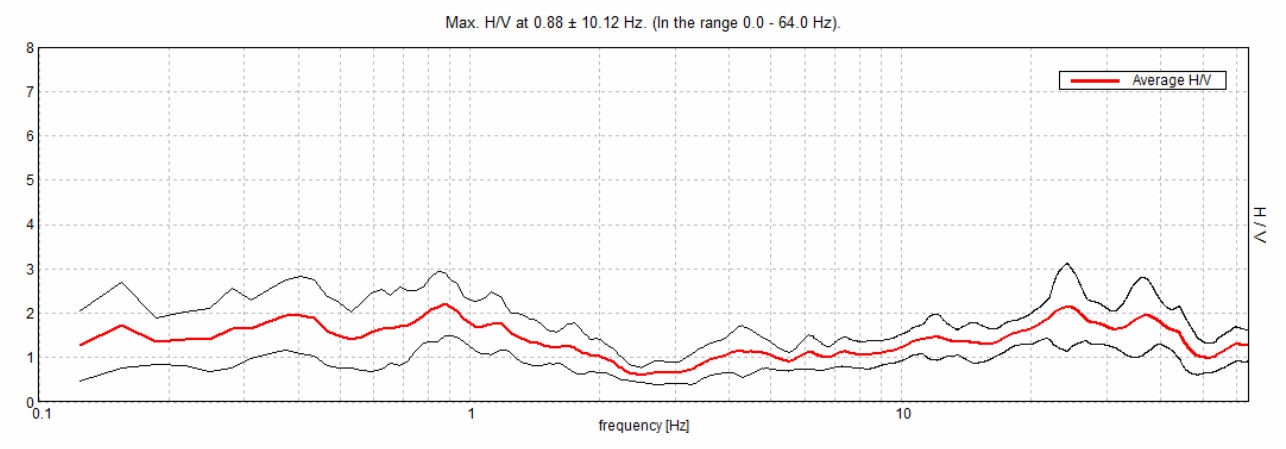


MICROZONAZIONE MIRANDOLA, R055

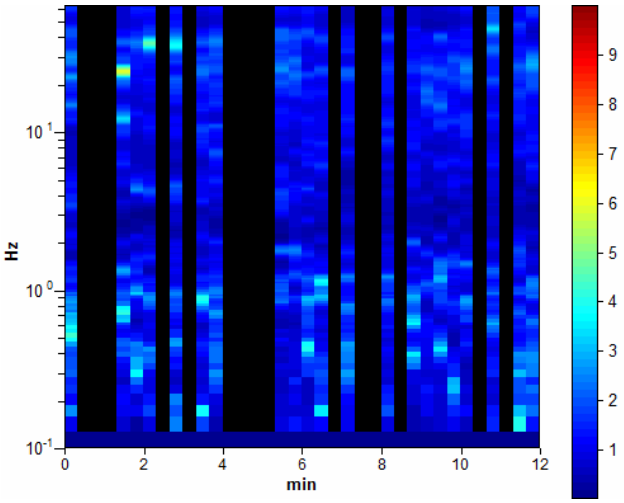
Start recording: 18/11/11 15:49:28 End recording: 18/11/11 16:01:29
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 58% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

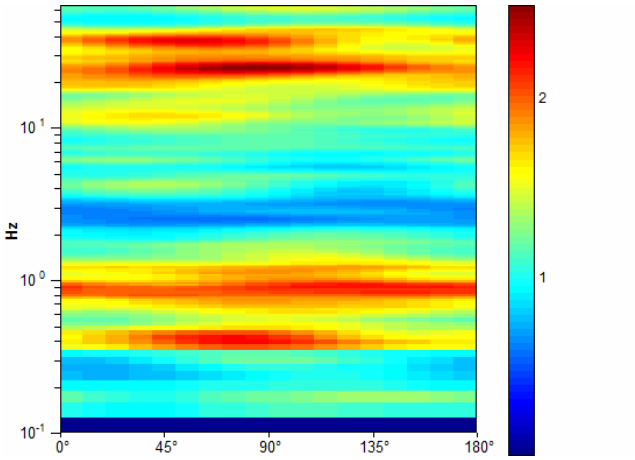
HORIZONTAL TO VERTICAL SPECTRAL RATIO



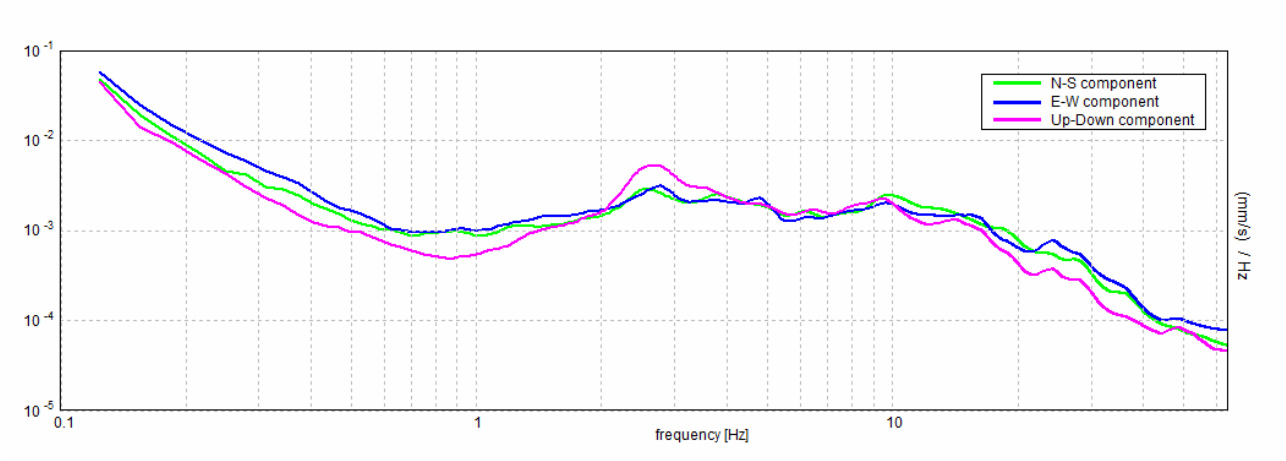
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

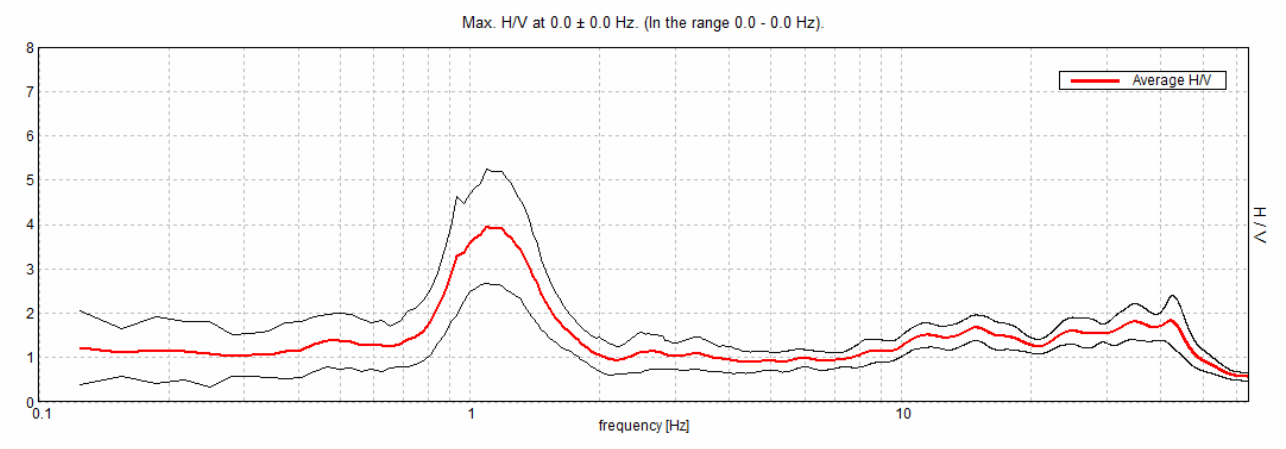


MICROZONAZIONE MIRANDOLA, R056

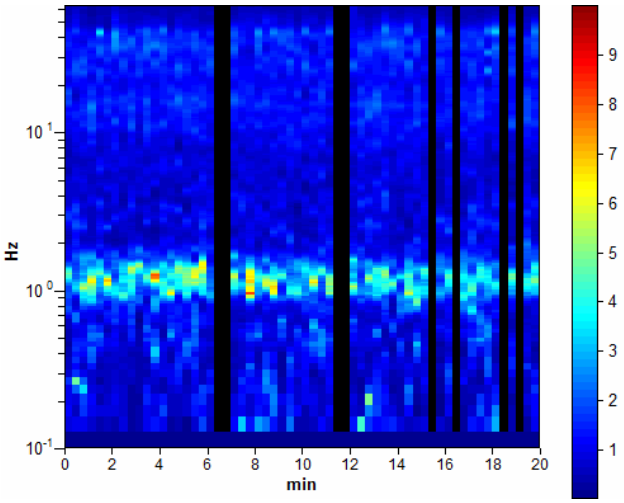
Start recording: 25/11/11 11:25:02 End recording: 25/11/11 11:45:03
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 87% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

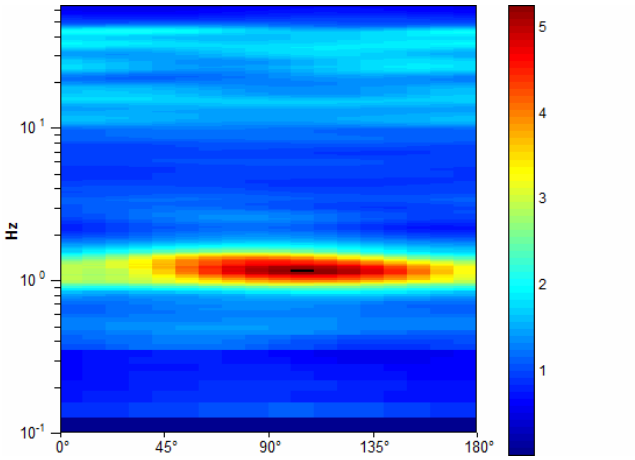
HORIZONTAL TO VERTICAL SPECTRAL RATIO



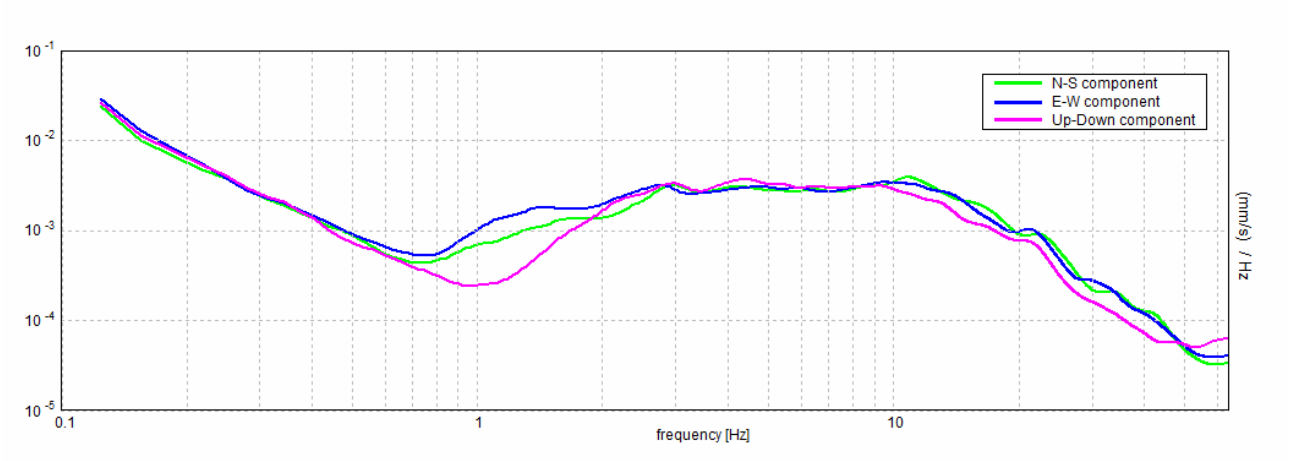
H/V TIME HISTORY



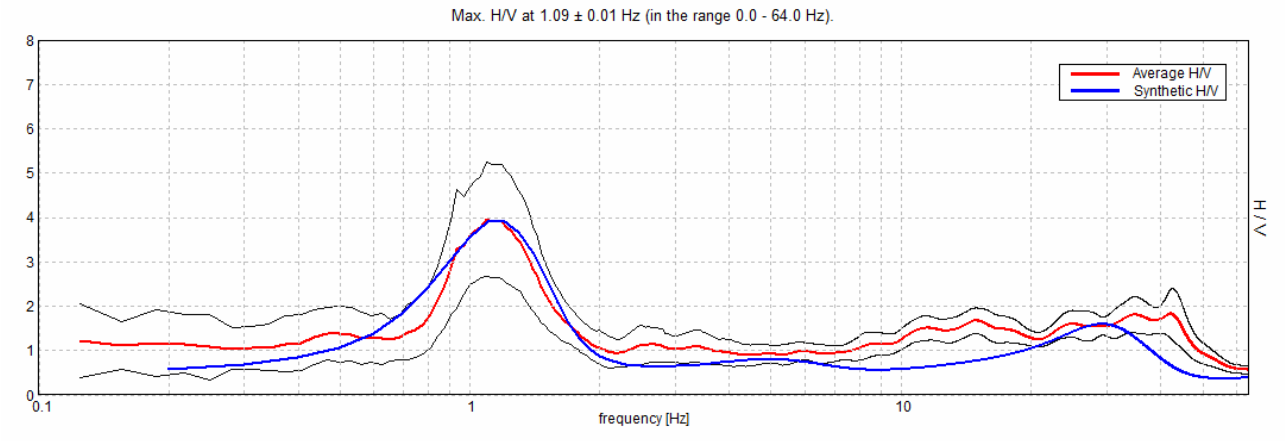
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

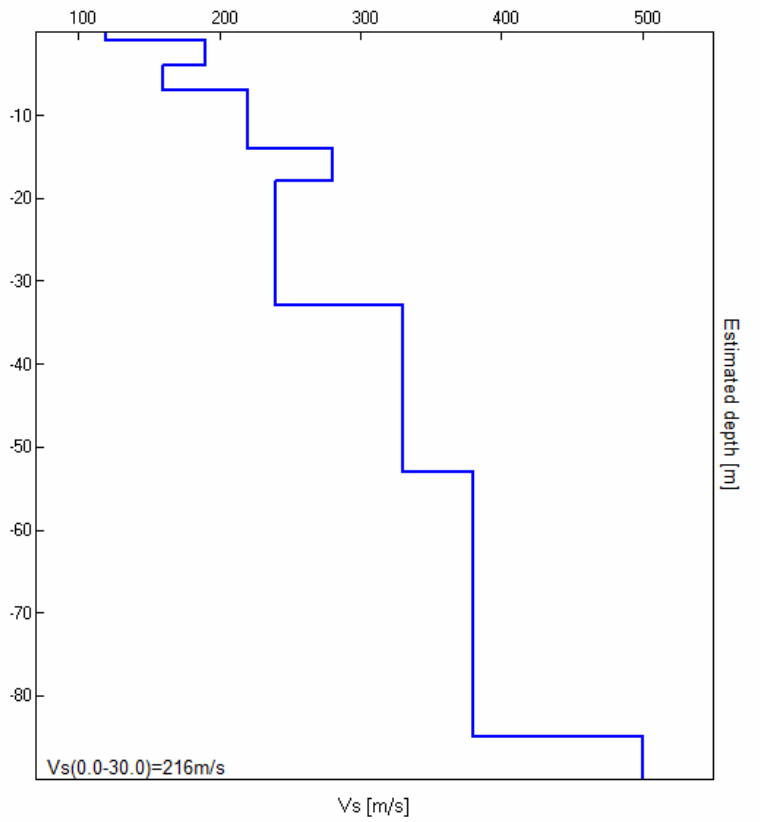


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
1.00	1.00	120
4.00	3.00	190
7.00	3.00	160
14.00	7.00	220
18.00	4.00	280
33.00	15.00	240
53.00	20.00	330
85.00	32.00	380
inf.	inf.	500

Vs30 = 216 m/s



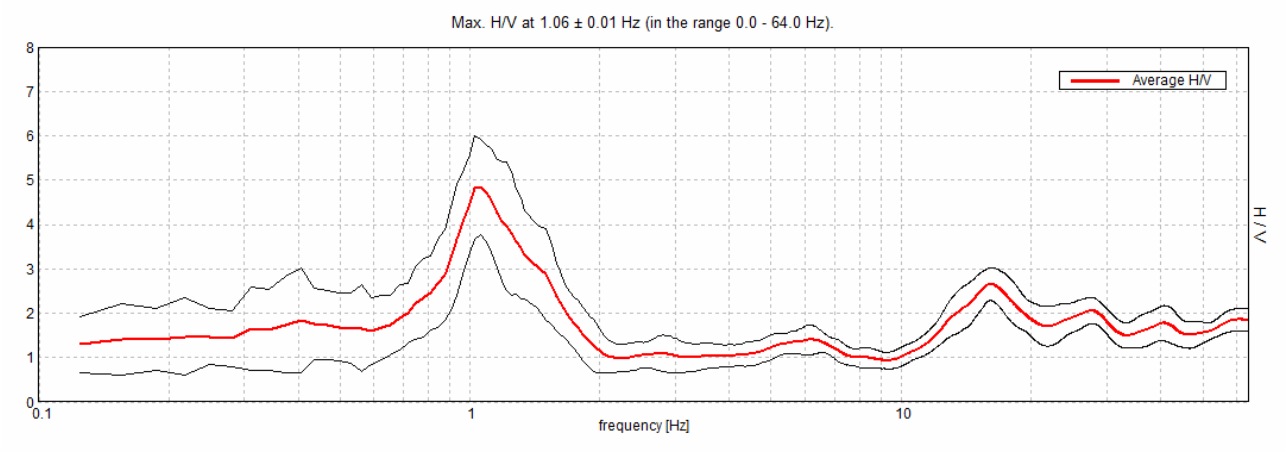
R056

MICROZONAZIONE MIRANDOLA, R057

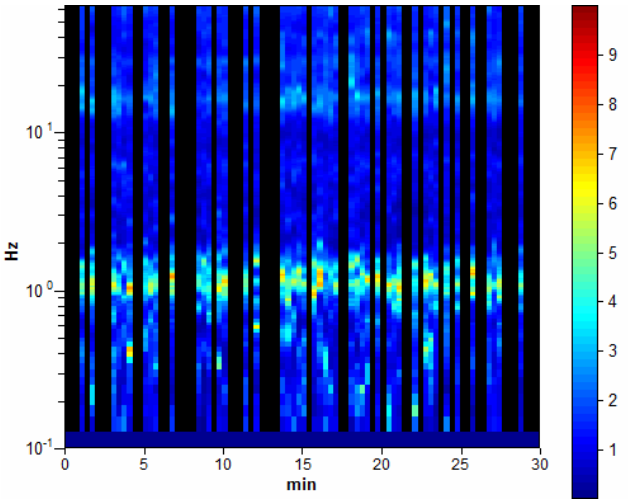
Start recording: 25/11/11 10:39:27 End recording: 25/11/11 11:09:28
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 51% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

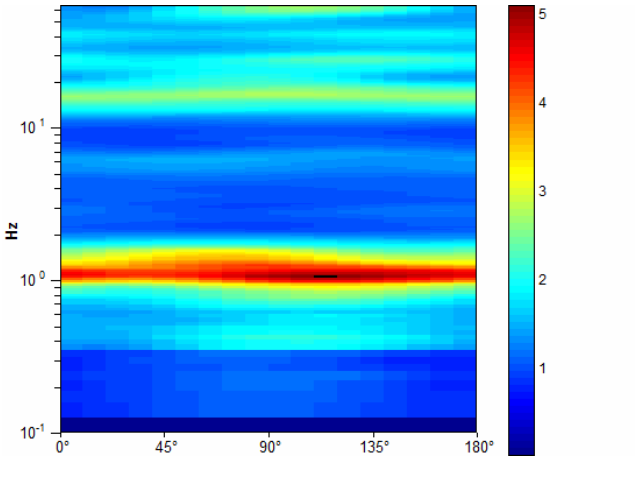
HORIZONTAL TO VERTICAL SPECTRAL RATIO



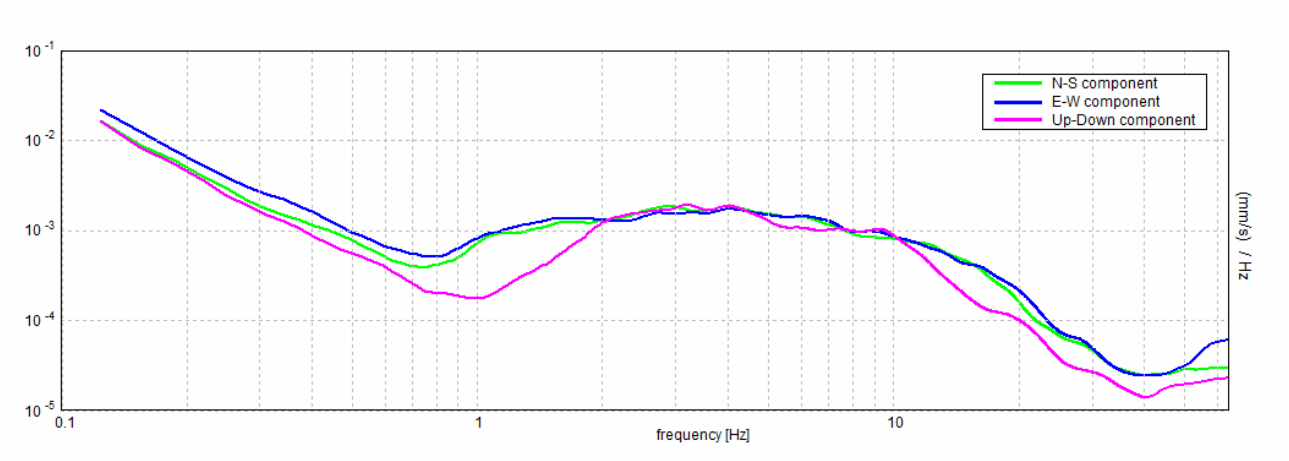
H/V TIME HISTORY



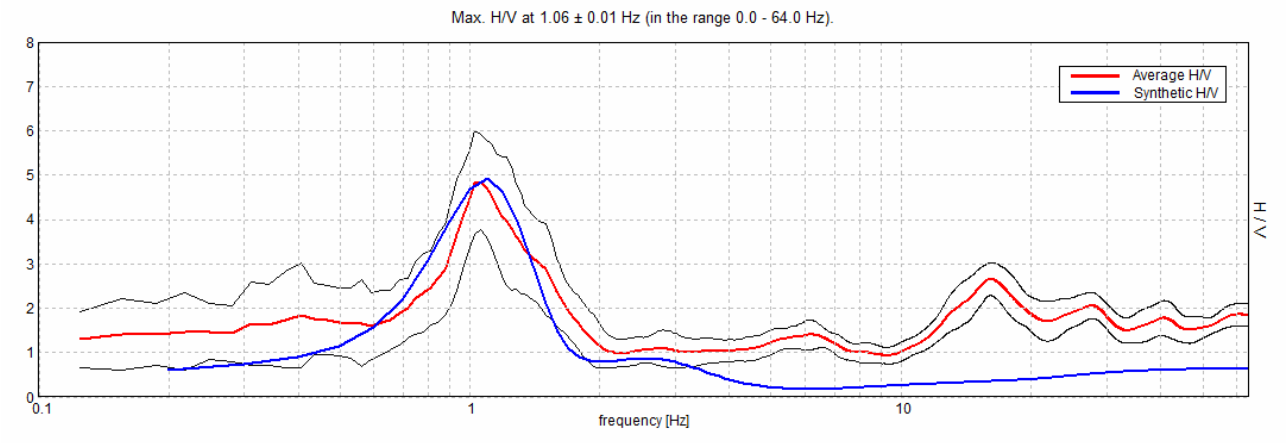
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

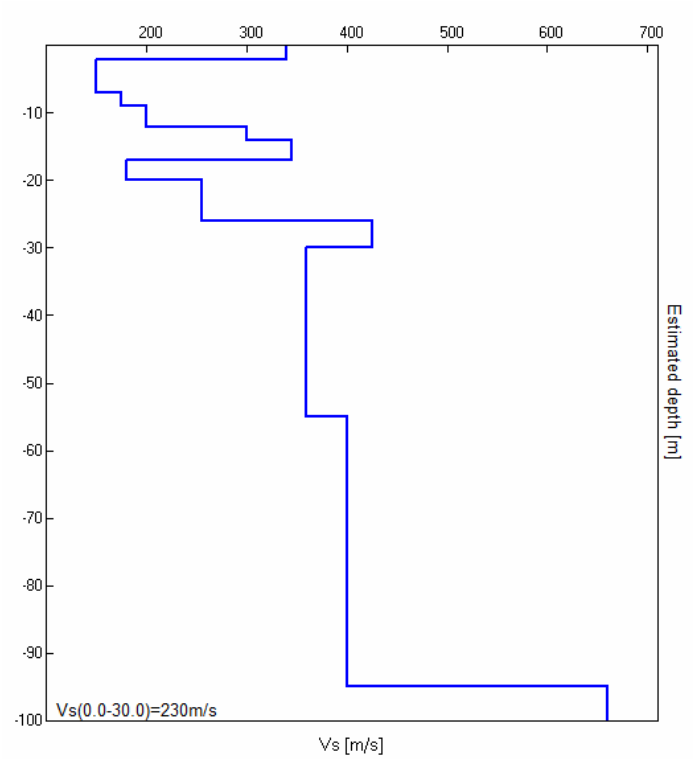


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	340
7.00	5.00	150
9.00	2.00	175
12.00	3.00	200
14.00	2.00	300
17.00	3.00	345
20.00	3.00	180
26.00	6.00	255
30.00	4.00	425
55.00	25.00	360
95.00	40.00	400
inf.	inf.	660

Vs30 = 230 m/s

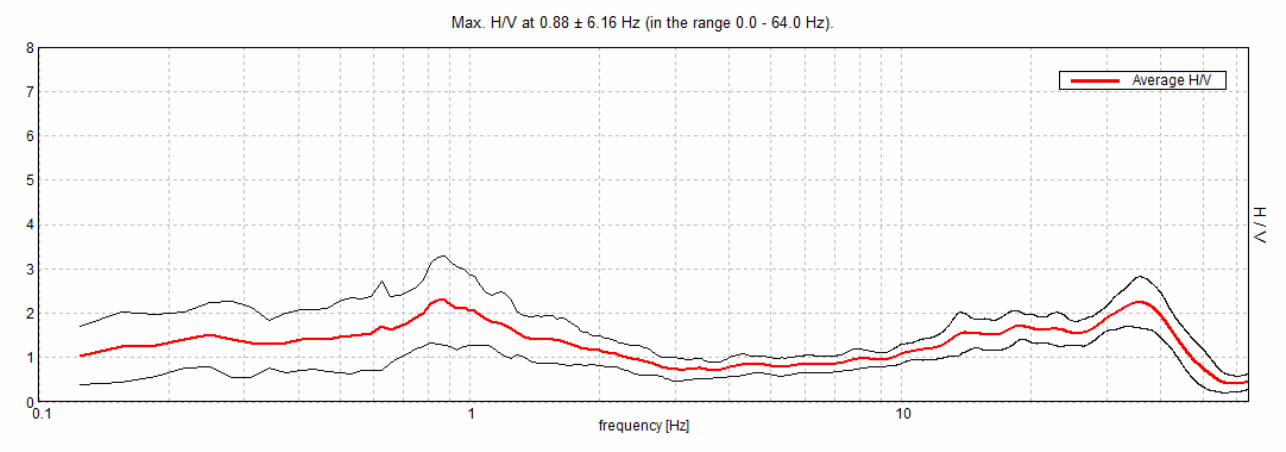


MICROZONAZIONE MIRANDOLA, R058

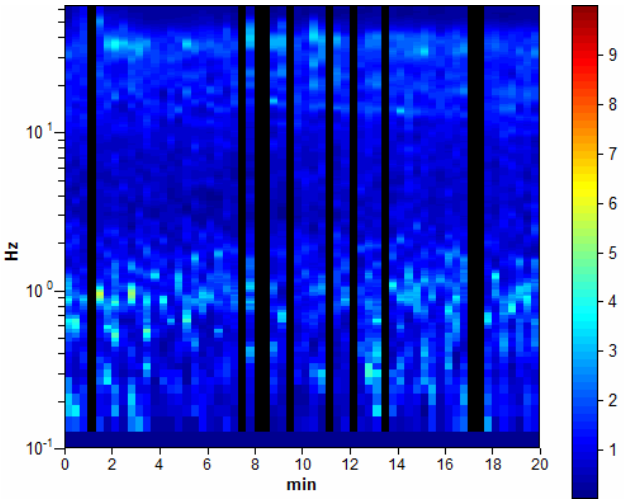
Start recording: 25/11/11 11:50:31 End recording: 25/11/11 12:10:32
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

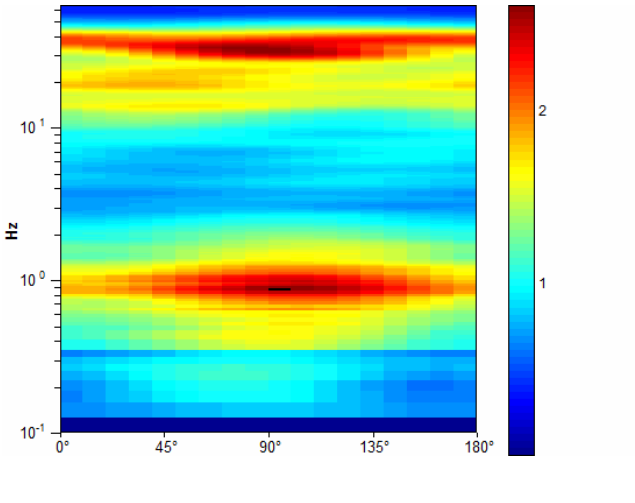
HORIZONTAL TO VERTICAL SPECTRAL RATIO



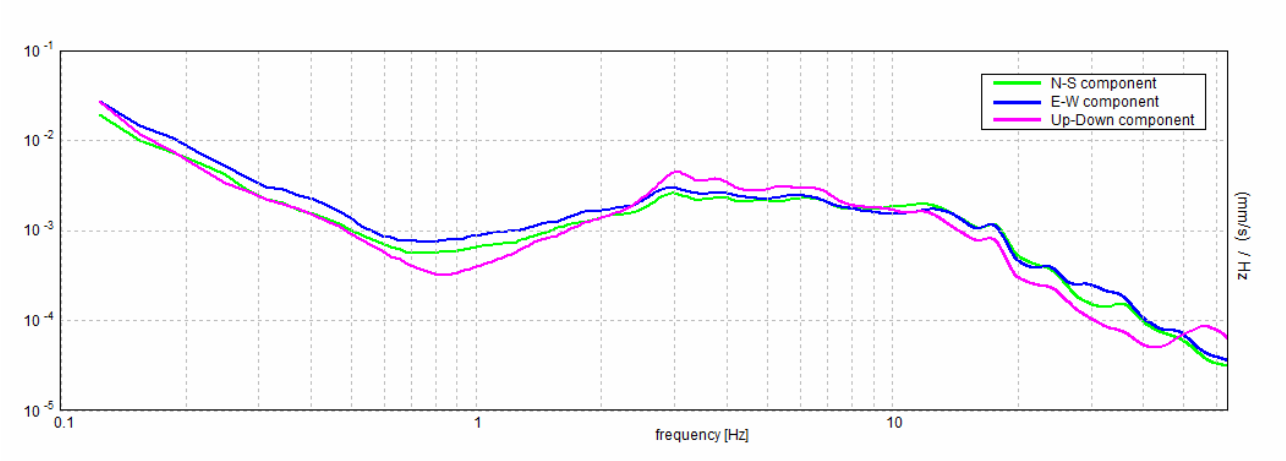
H/V TIME HISTORY



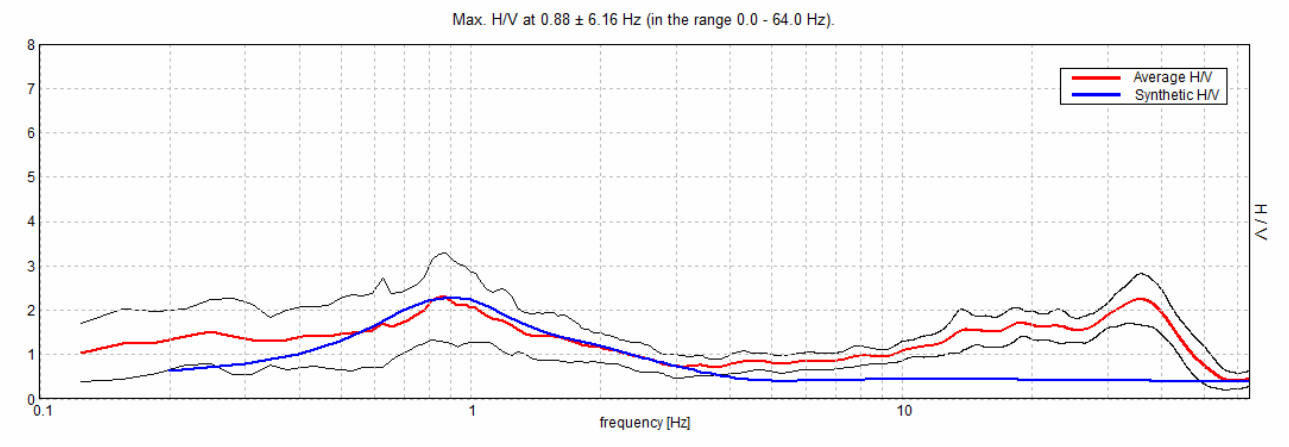
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

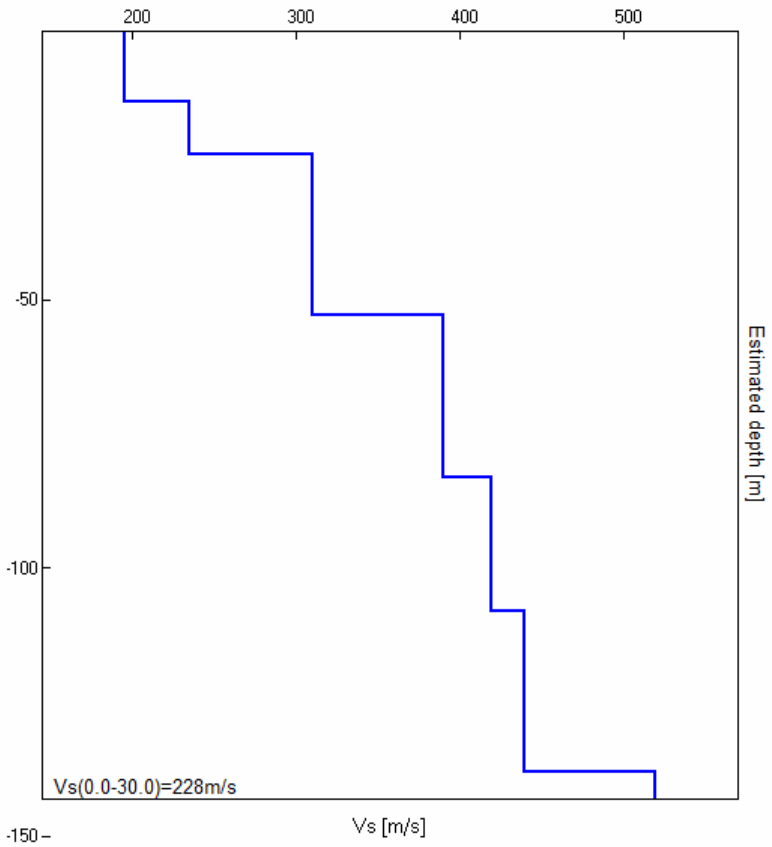


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
13.00	13.00	195
23.00	10.00	235
53.00	30.00	310
83.00	30.00	390
108.00	25.00	420
138.00	30.00	440
inf.	inf.	520

Vs30 = 228 m/s

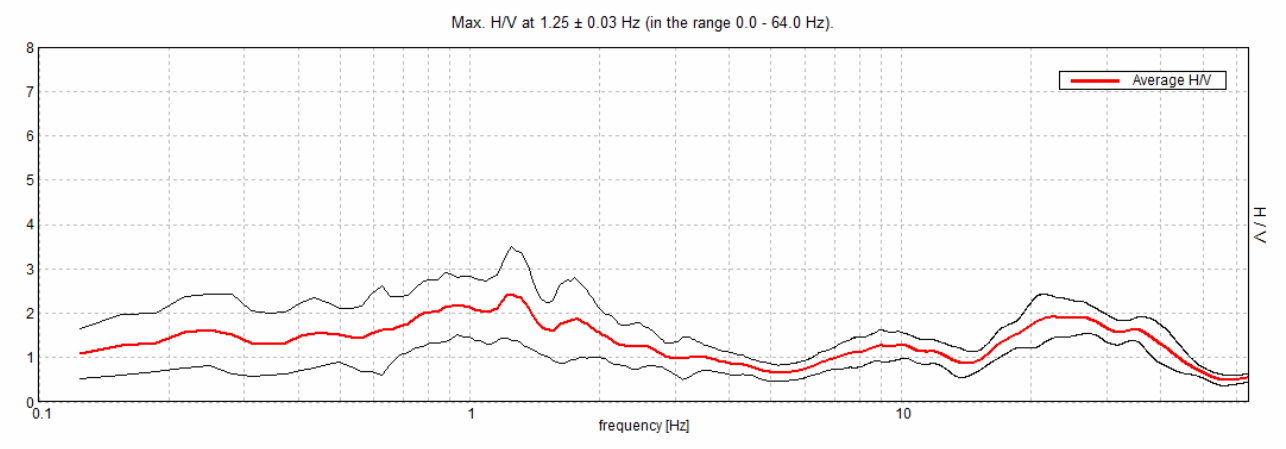


MICROZONAZIONE MIRANDOLA, R059

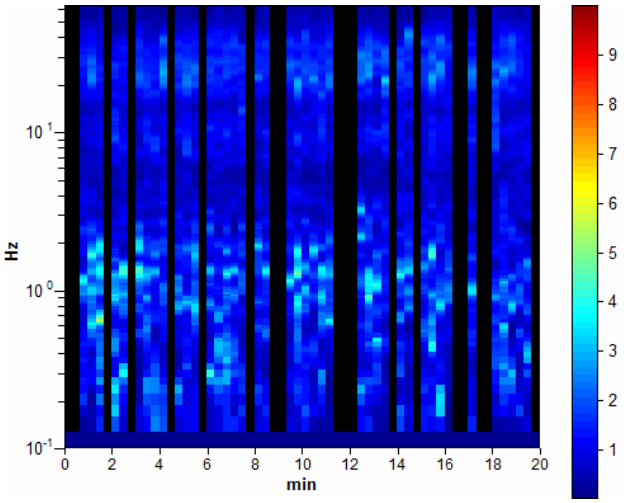
Start recording: 25/11/11 14:09:39 End recording: 25/11/11 14:29:40
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 68% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

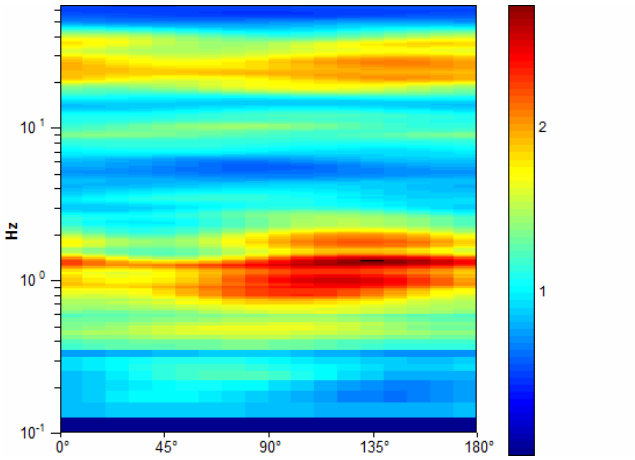
HORIZONTAL TO VERTICAL SPECTRAL RATIO



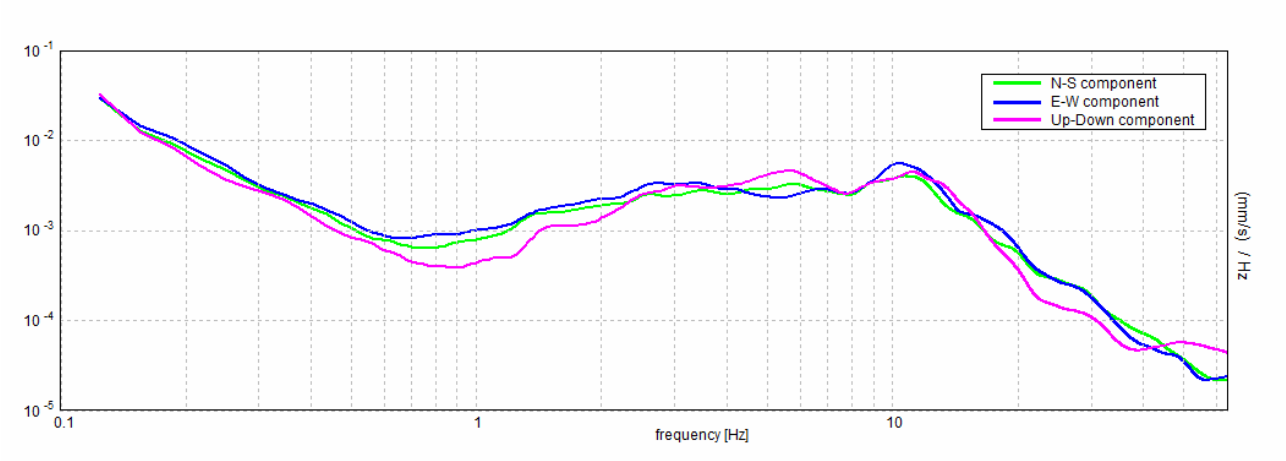
H/V TIME HISTORY



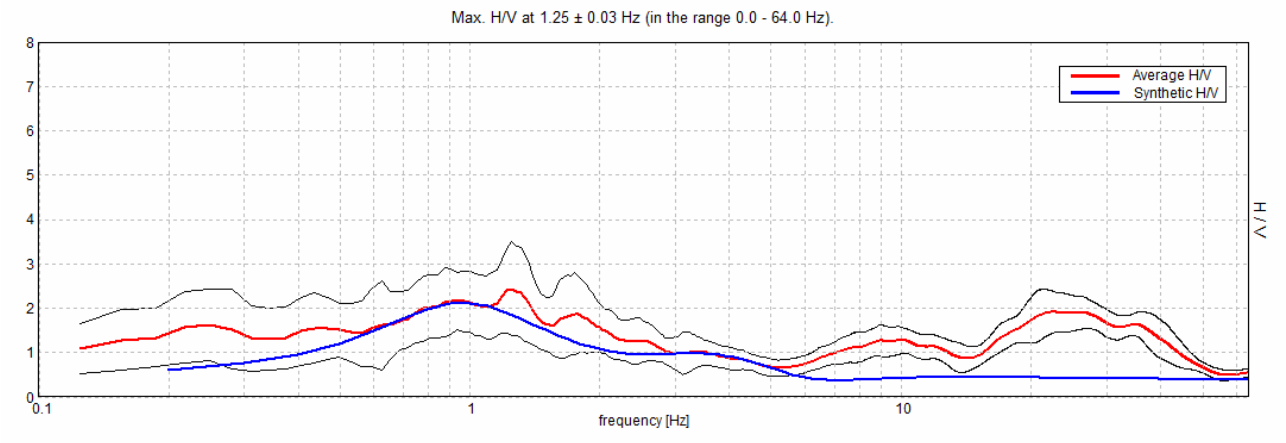
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

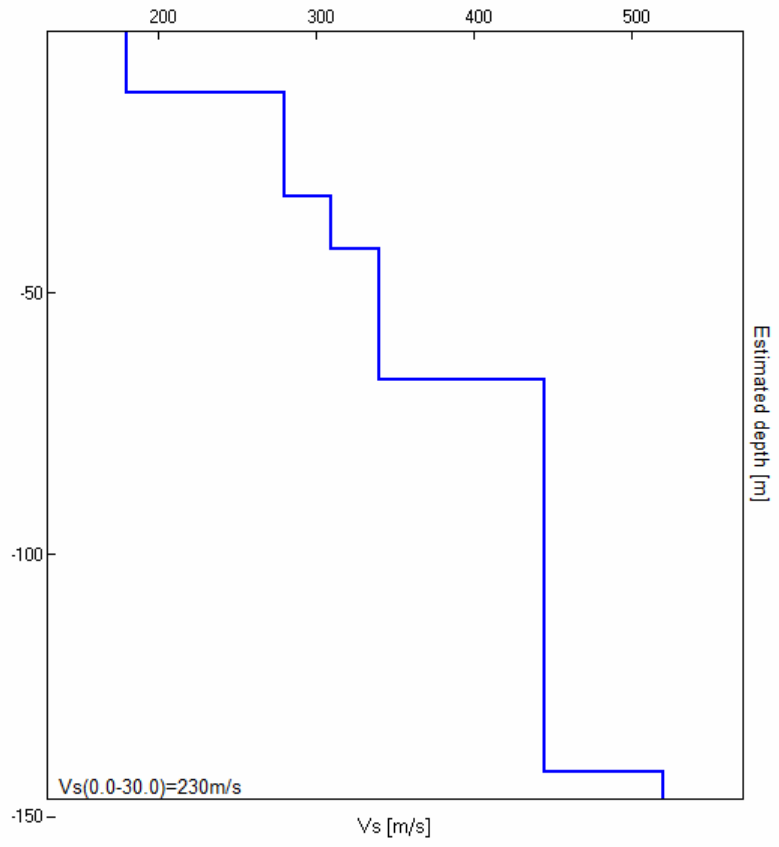


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
11.60	11.60	180
31.60	20.00	280
41.60	10.00	310
66.60	25.00	340
141.60	75.00	445
inf.	inf.	520

Vs30 = 230 m/s

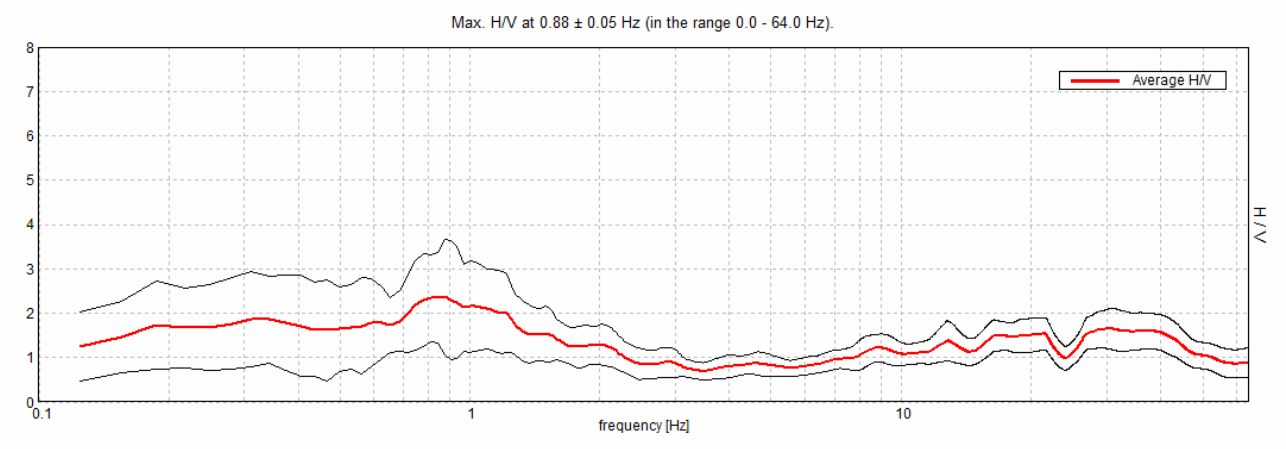


MICROZONAZIONE MIRANDOLA, R060

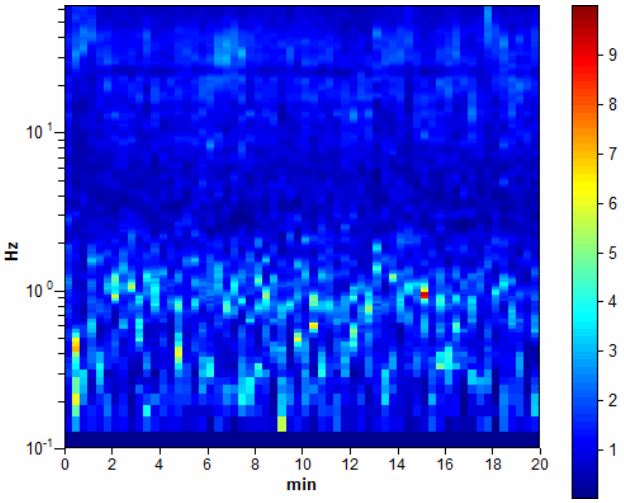
Start recording: 25/11/11 15:02:21 End recording: 25/11/11 15:22:22
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analysis performed on the entire trace.
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

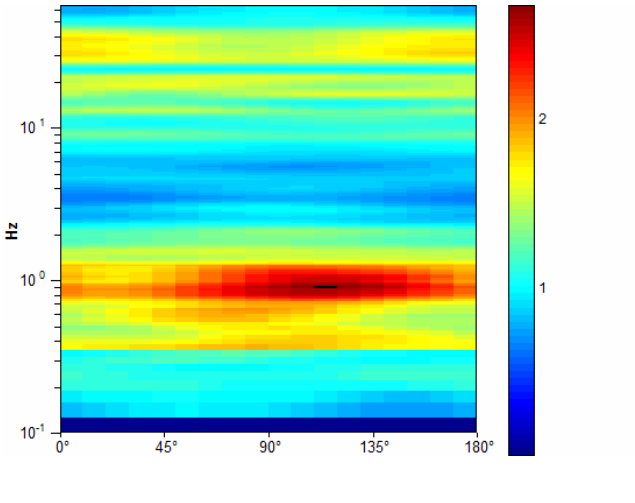
HORIZONTAL TO VERTICAL SPECTRAL RATIO



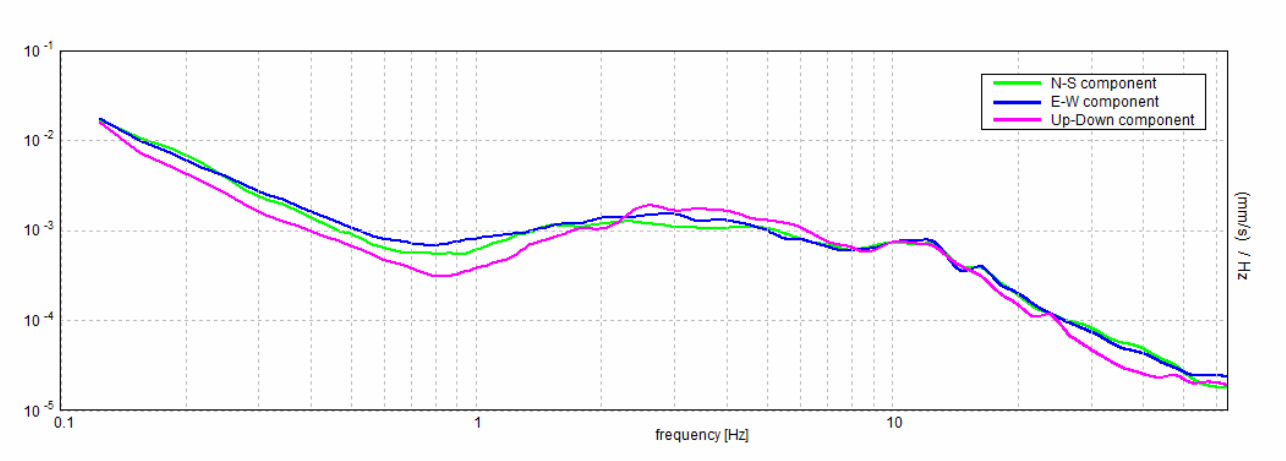
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

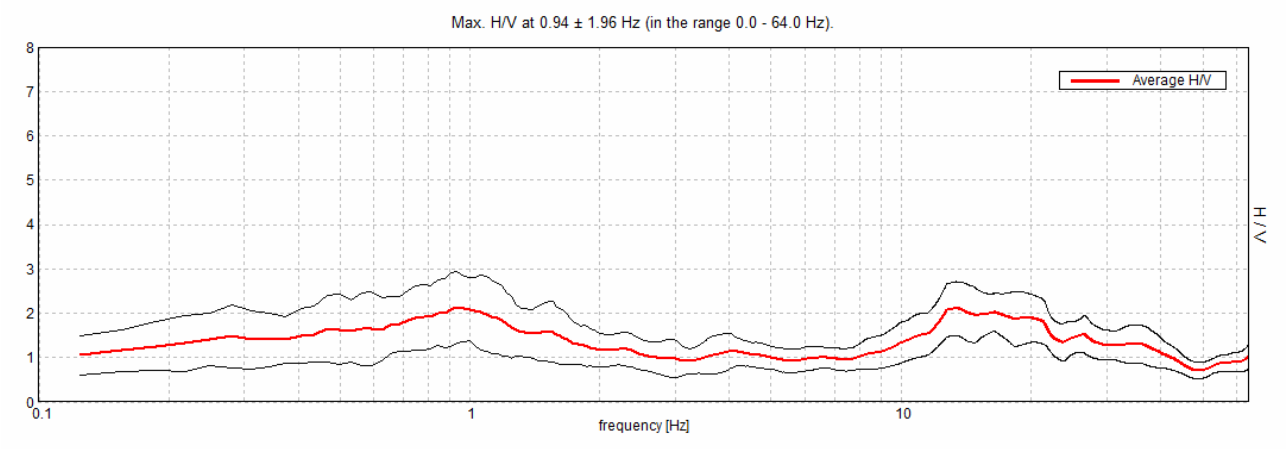


MICROZONAZIONE MIRANDOLA, R061

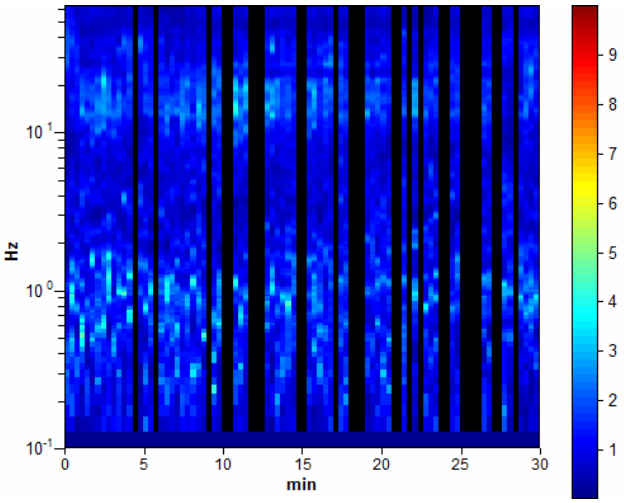
Start recording: 25/11/11 15:27:53 End recording: 25/11/11 15:57:53
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 70% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

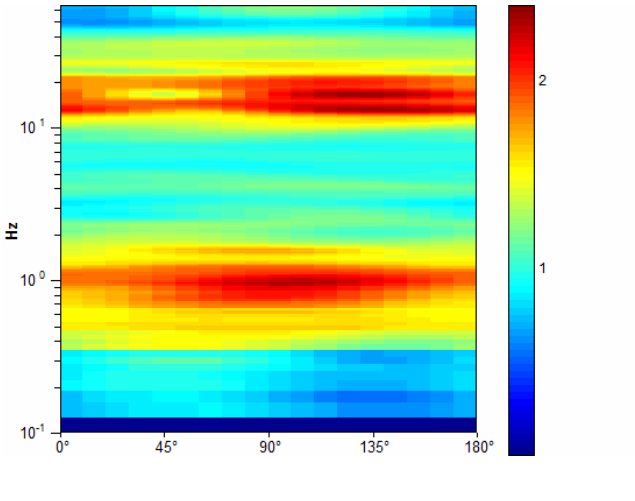
HORIZONTAL TO VERTICAL SPECTRAL RATIO



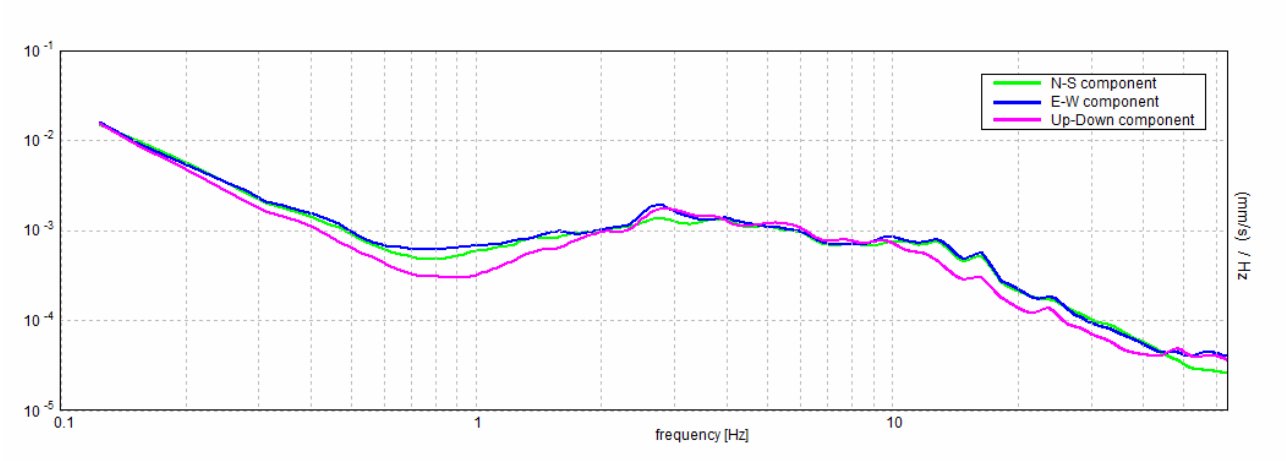
H/V TIME HISTORY



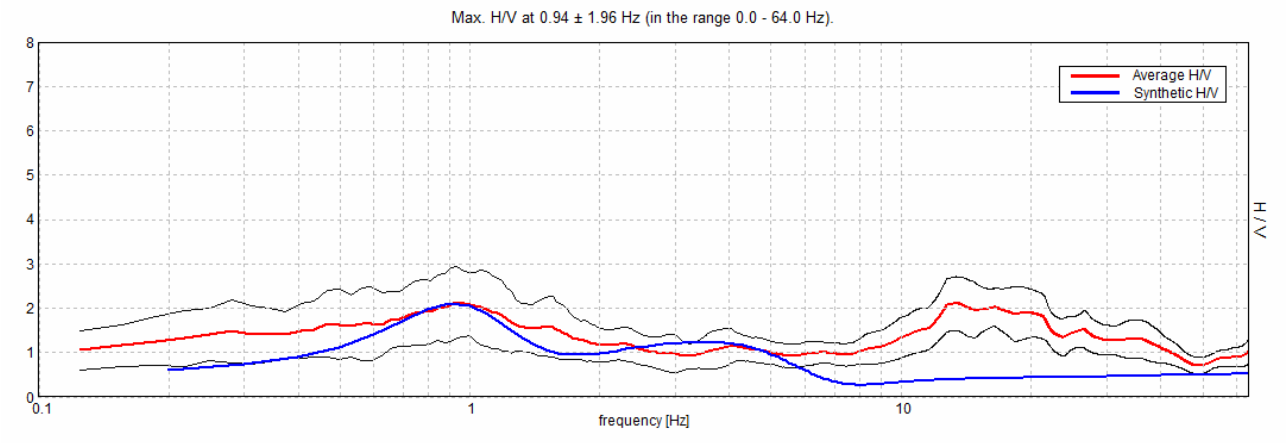
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

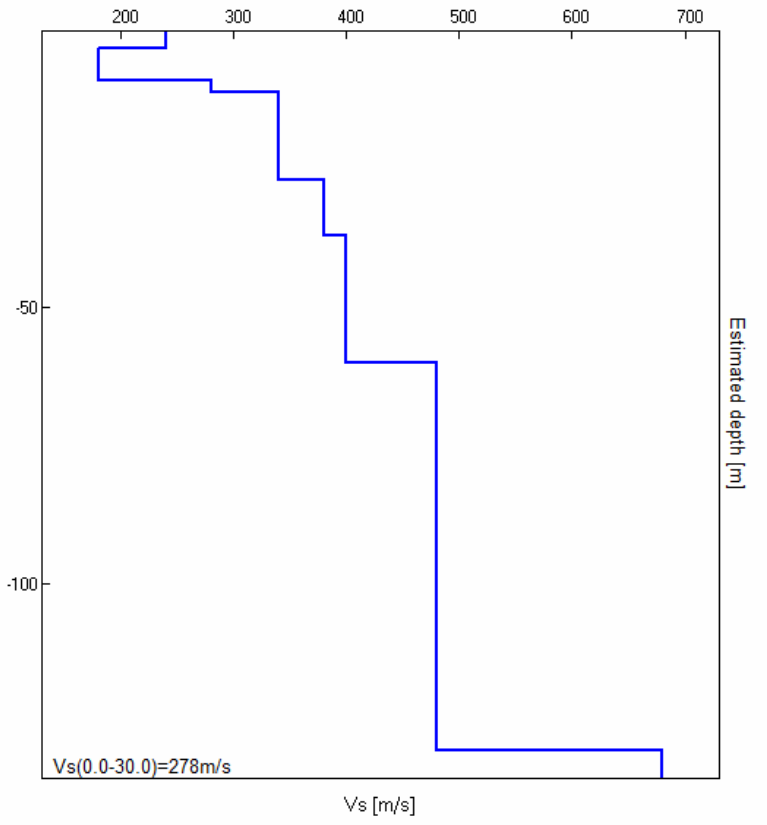


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	240
9.00	6.00	180
11.00	2.00	280
27.00	16.00	340
37.00	10.00	380
60.00	23.00	400
130.00	70.00	480
inf.	inf.	680

Vs30 = 278 m/s

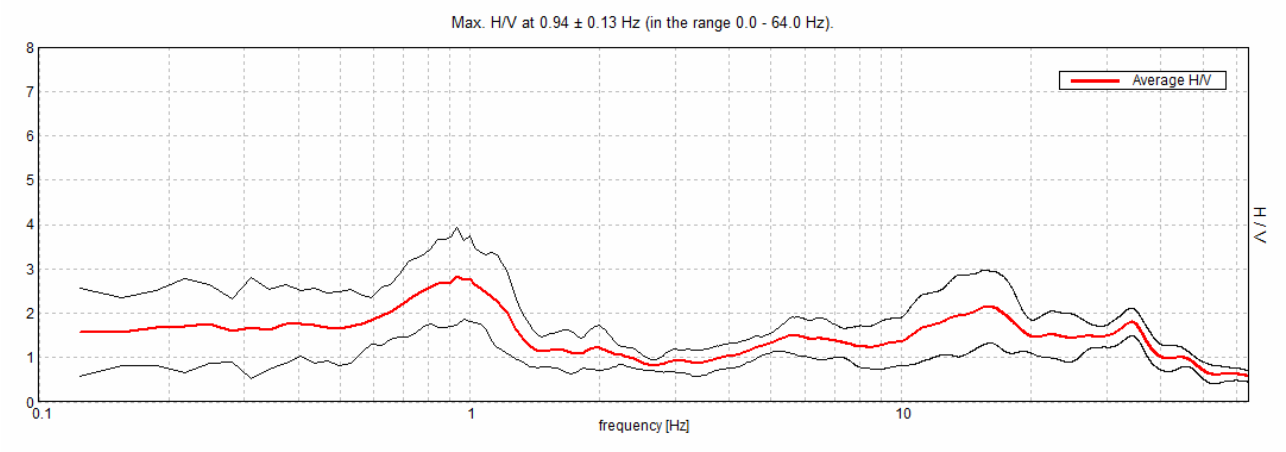


MICROZONAZIONE MIRANDOLA, R062

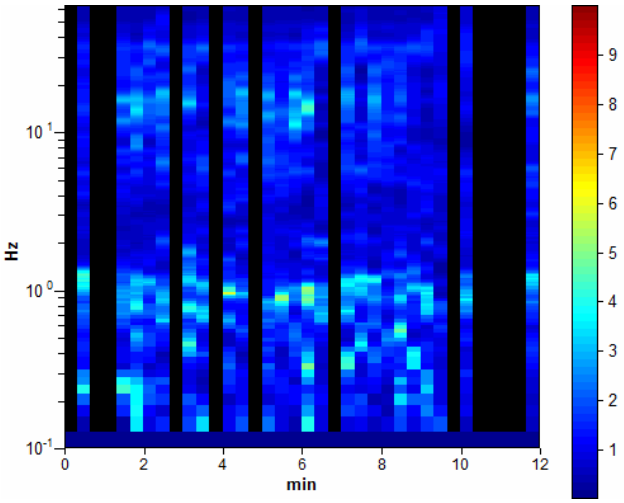
Start recording: 07/12/11 09:53:58 End recording: 07/12/00 10:05:59
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

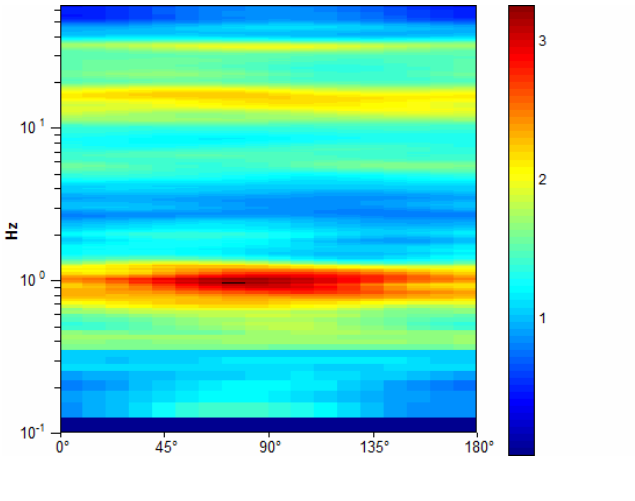
HORIZONTAL TO VERTICAL SPECTRAL RATIO



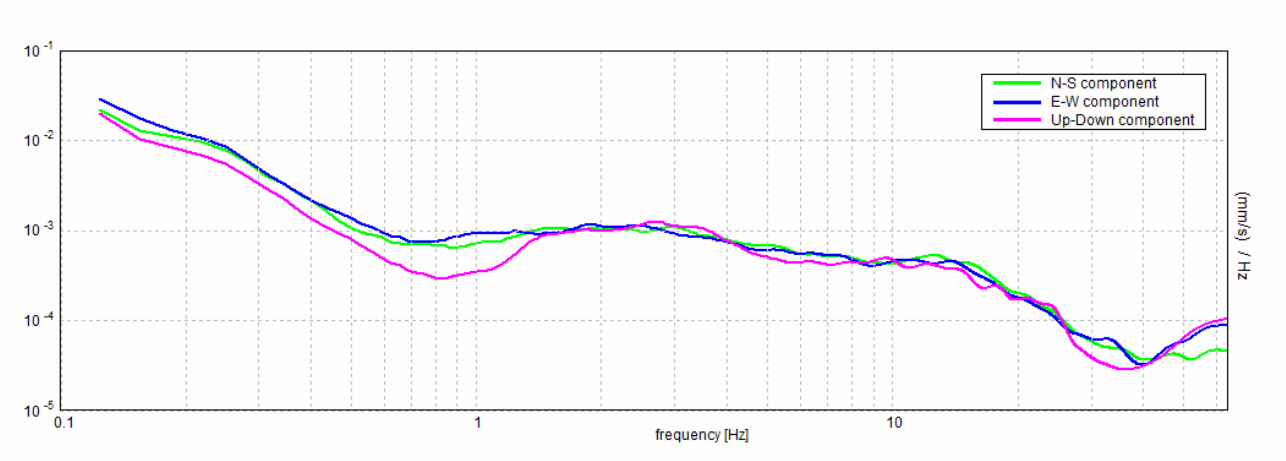
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

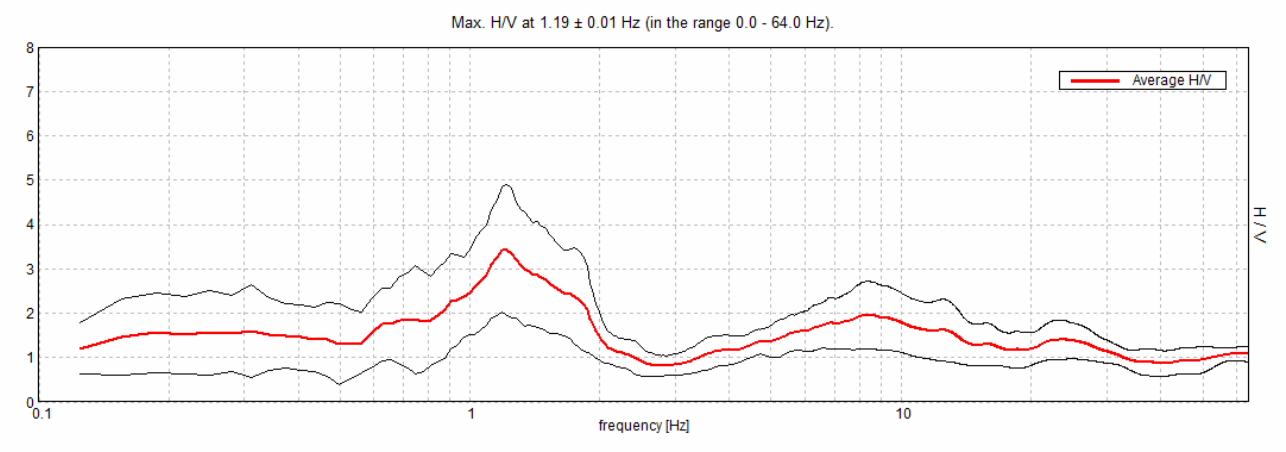


MICROZONAZIONE MIRANDOLA, R063

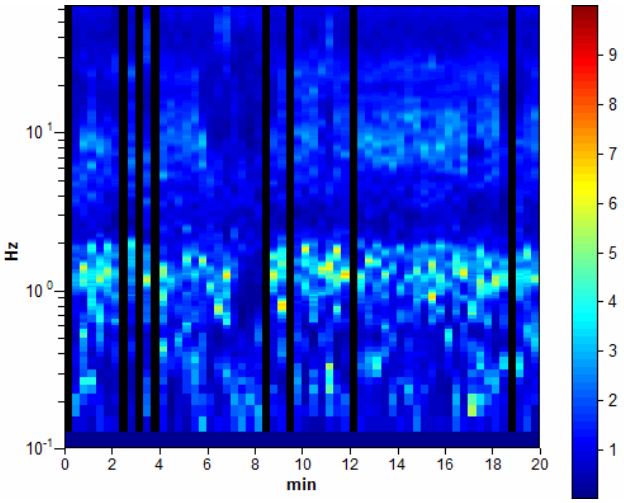
Start recording: 07/12/11 10:27:11 End recording: 07/12/00 10:47:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 87% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

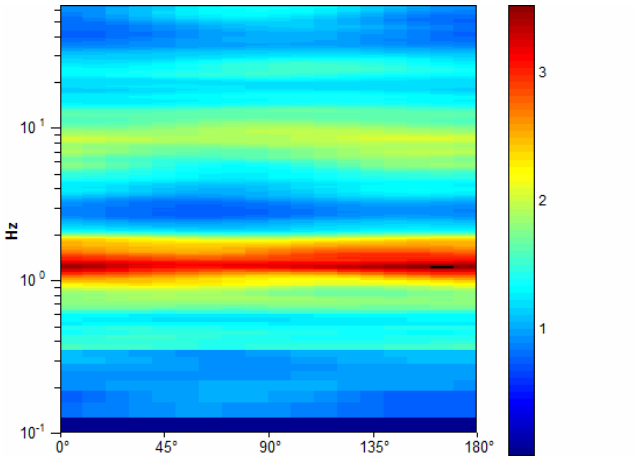
HORIZONTAL TO VERTICAL SPECTRAL RATIO



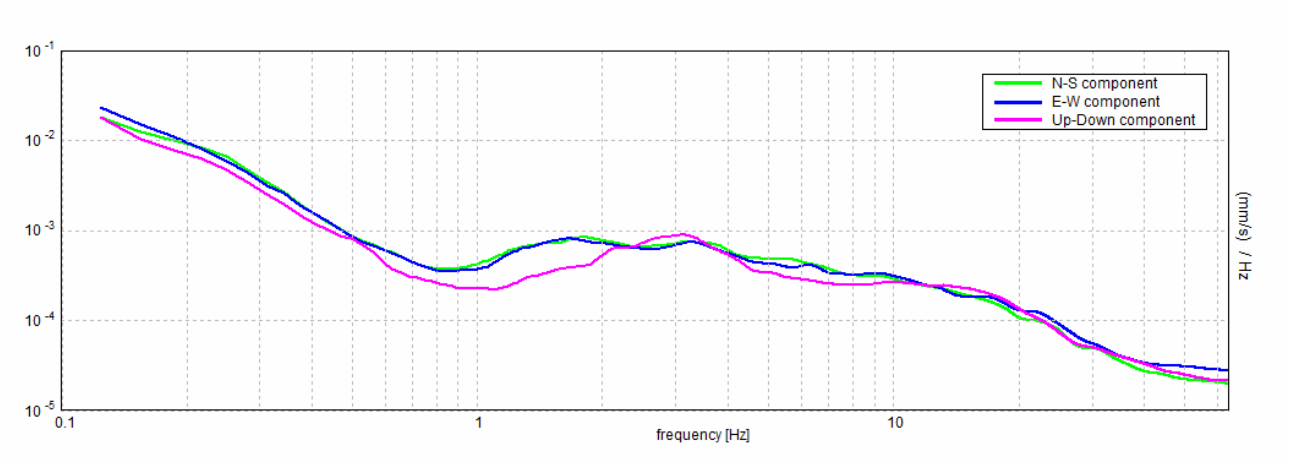
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

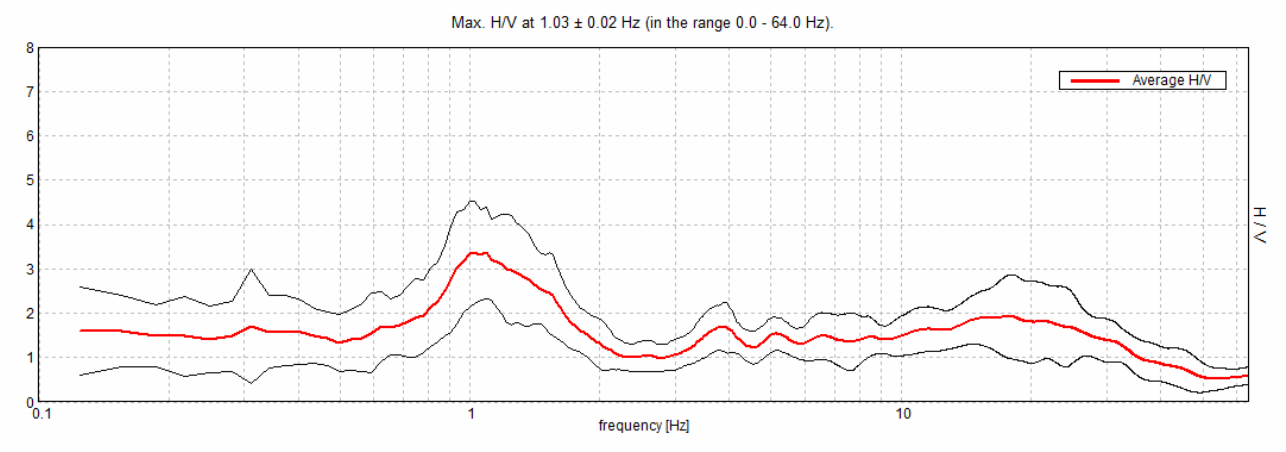


MICROZONAZIONE MIRANDOLA, R064

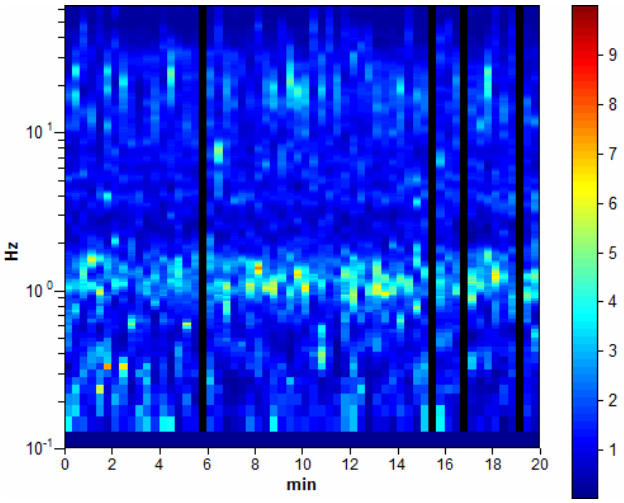
Start recording: 07/12/11 10:59:11 End recording: 07/12/00 11:19:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 93% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

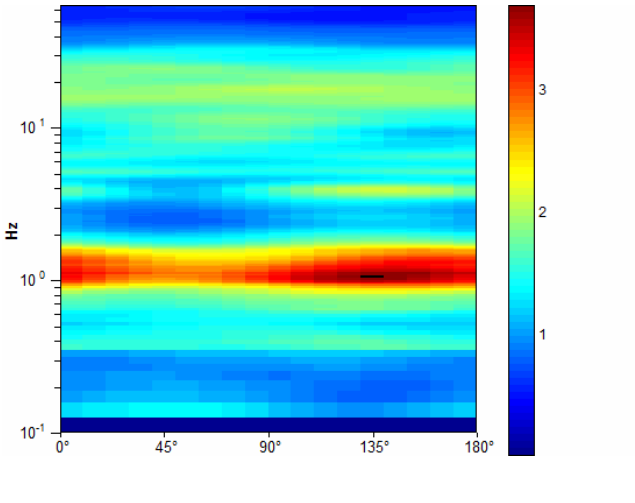
HORIZONTAL TO VERTICAL SPECTRAL RATIO



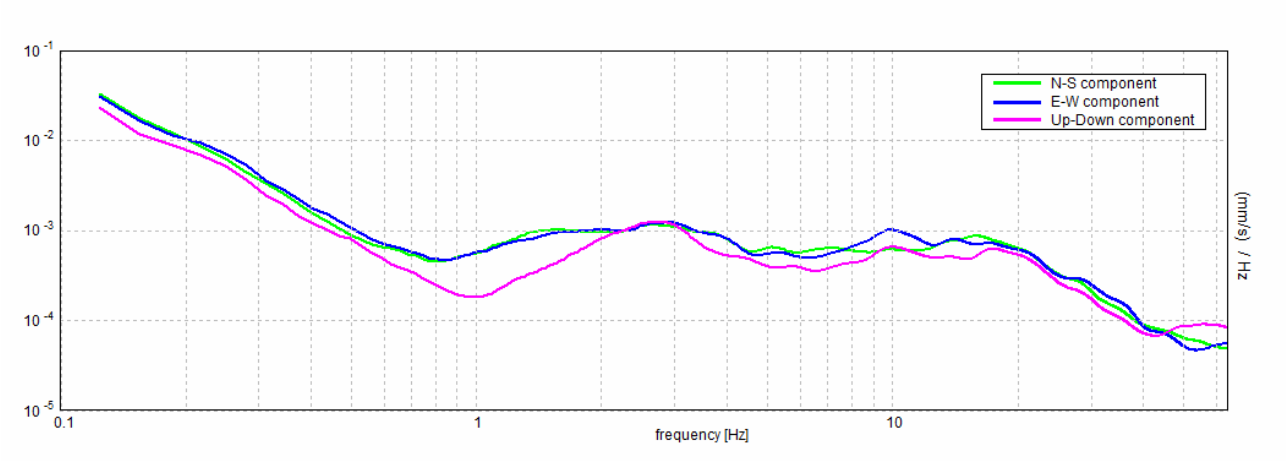
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

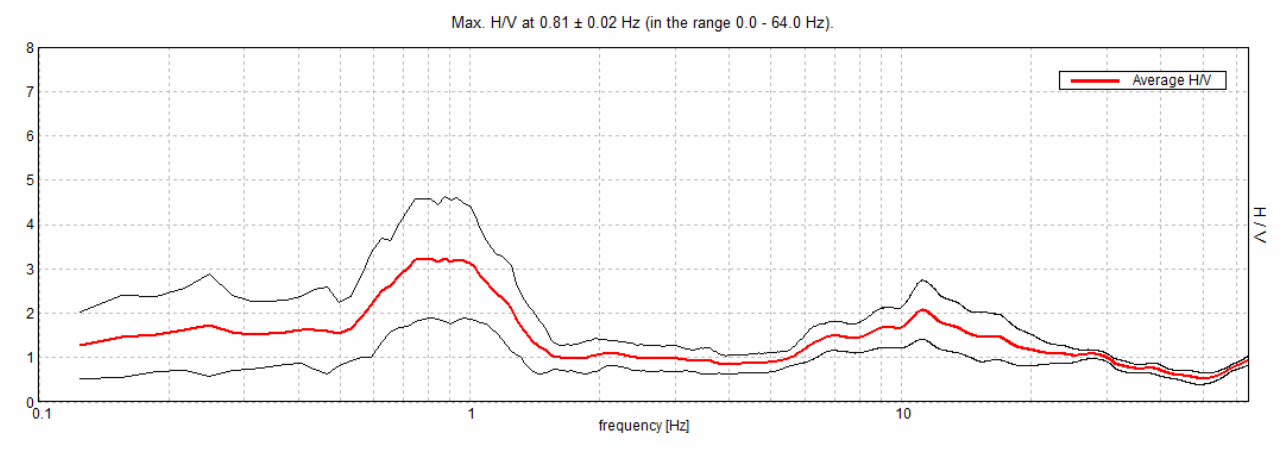


MICROZONAZIONE MIRANDOLA, R065

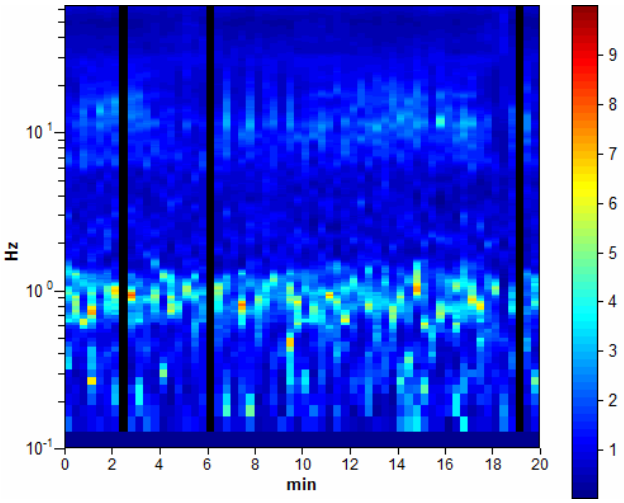
Start recording: 07/12/11 11:49:47 End recording: 07/12/00 12:09:48
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 95% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

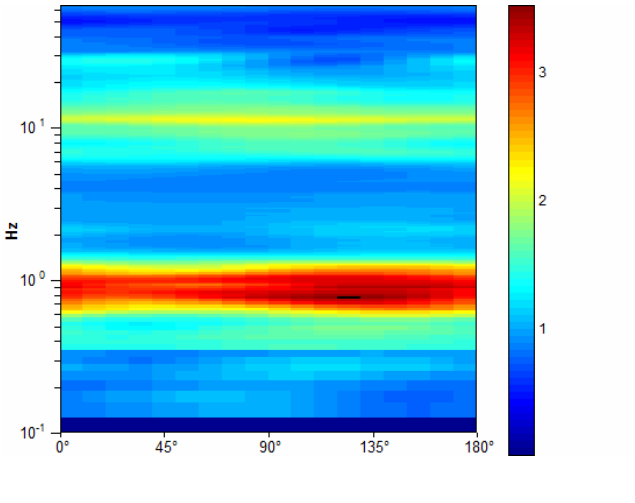
HORIZONTAL TO VERTICAL SPECTRAL RATIO



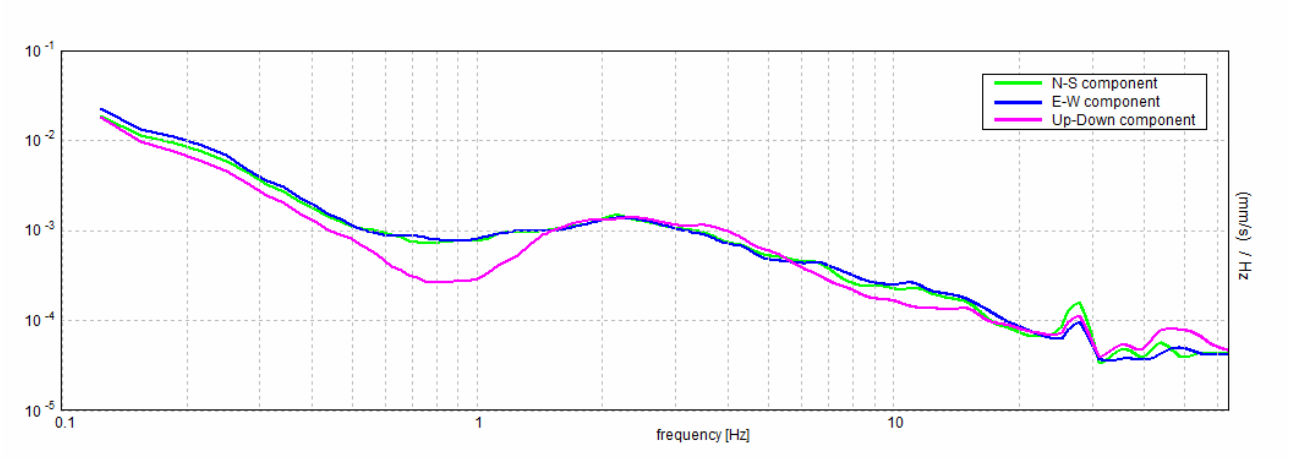
H/V TIME HISTORY



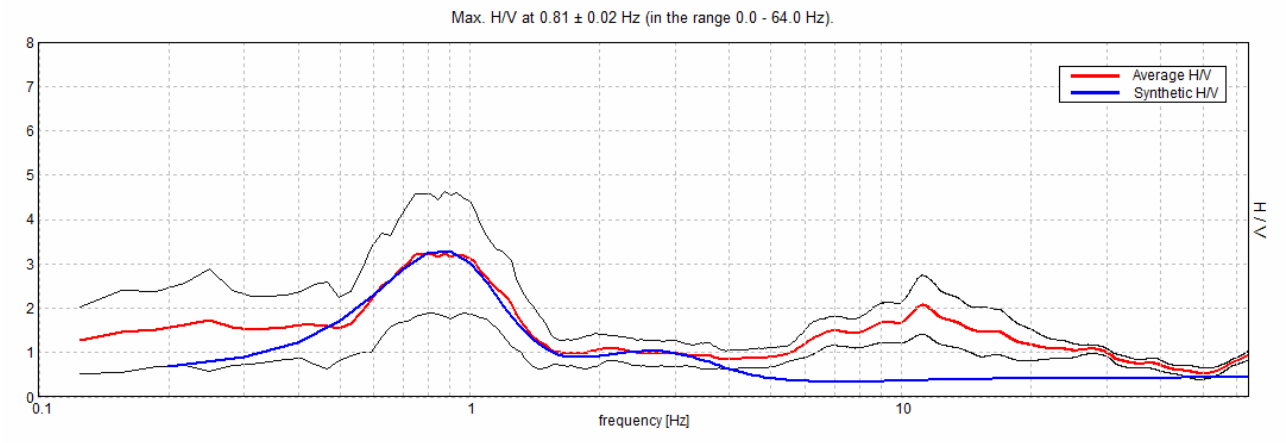
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

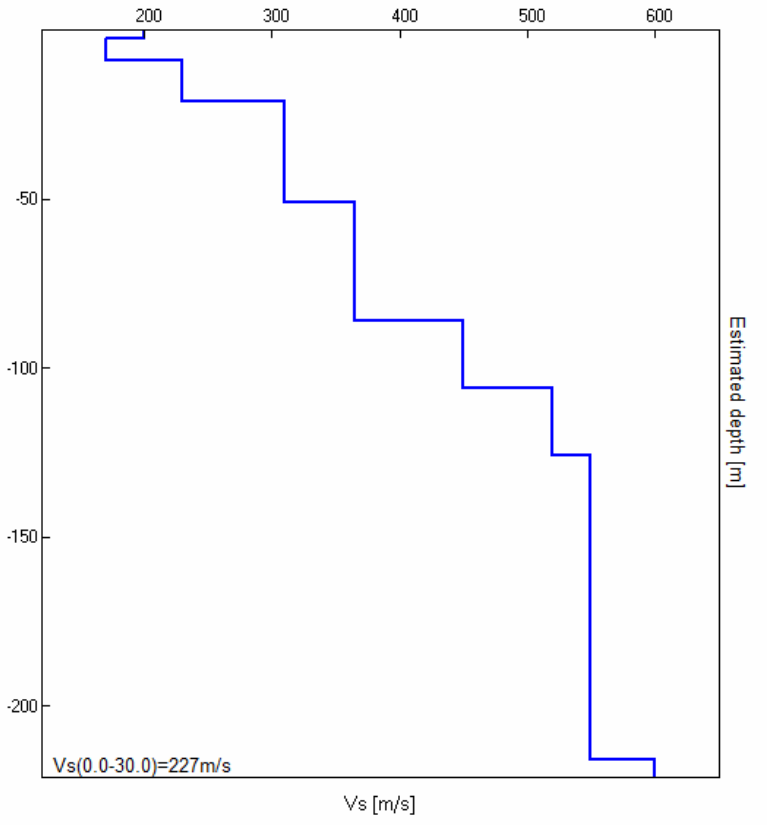


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.50	2.50	200
9.00	6.50	170
21.00	12.00	230
51.00	30.00	310
86.00	35.00	365
106.00	20.00	450
126.00	20.00	520
216.00	90.00	550
inf.	inf.	600

Vs30 = 227 m/s

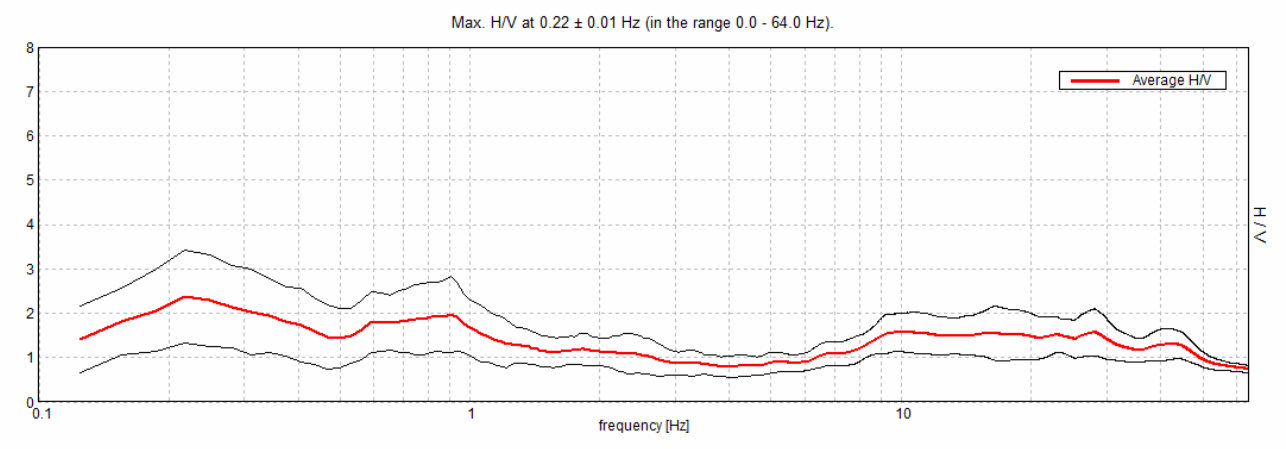


MICROZONAZIONE MIRANDOLA, R066

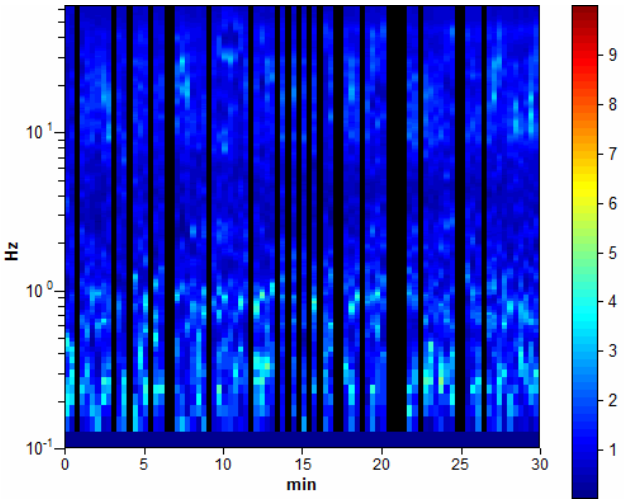
Start recording: 07/12/11 13:17:46 End recording: 07/12/00 13:47:47
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 73% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

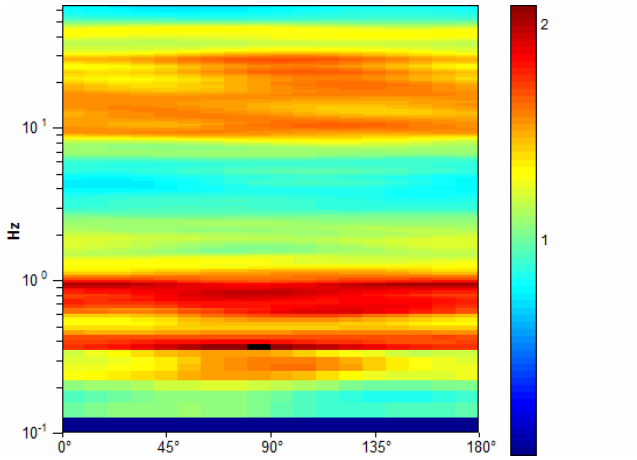
HORIZONTAL TO VERTICAL SPECTRAL RATIO



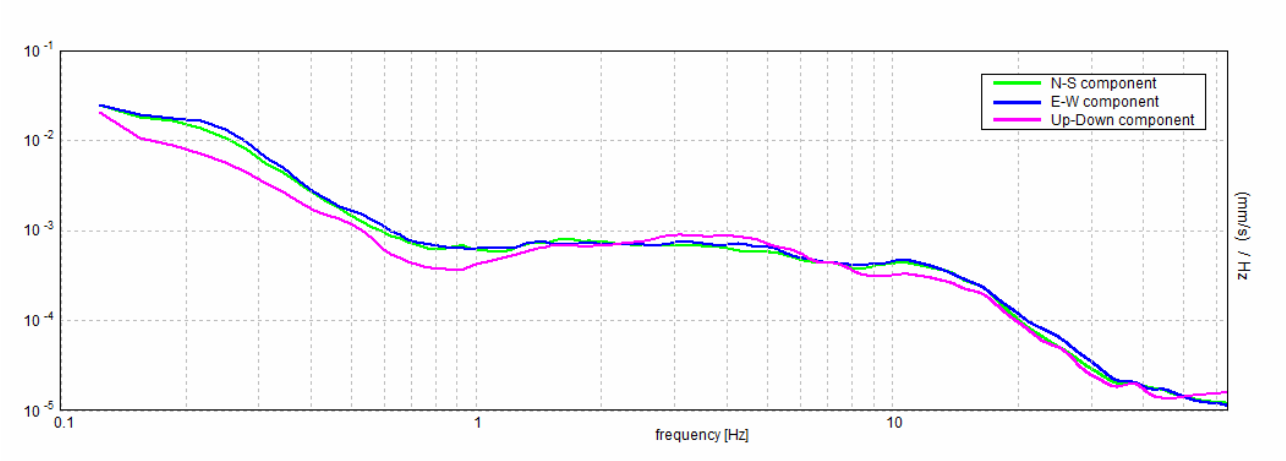
H/V TIME HISTORY



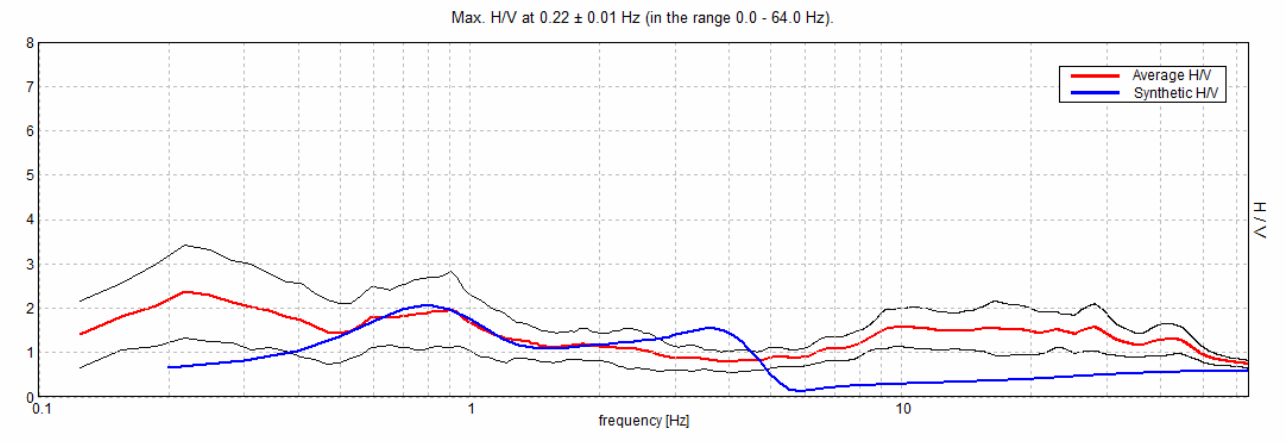
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

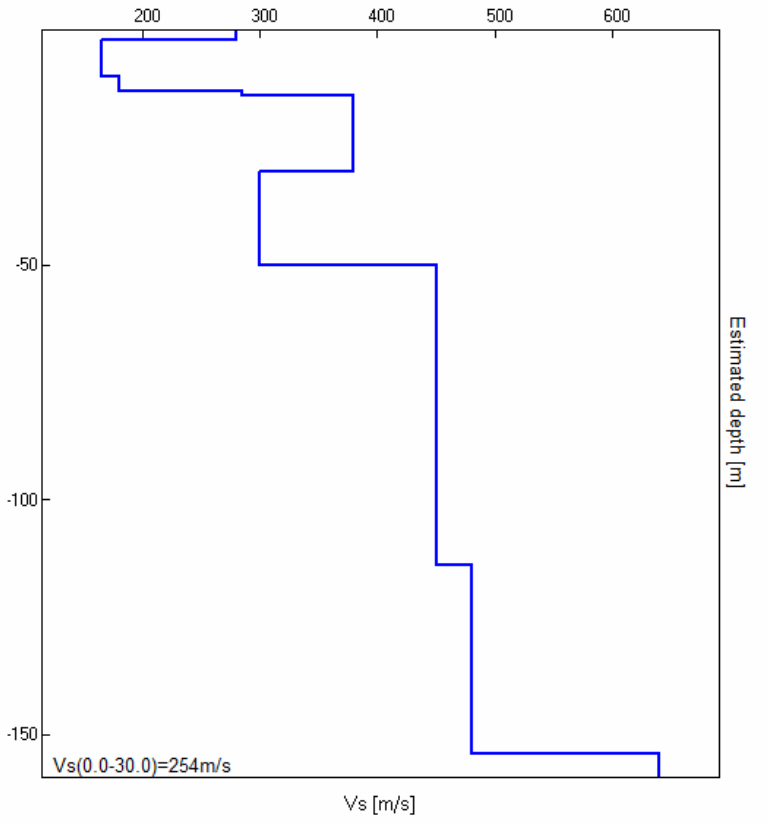


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	280
10.00	8.00	165
13.00	3.00	180
14.00	1.00	285
30.00	16.00	380
50.00	20.00	300
114.00	64.00	450
154.00	40.00	480
inf.	inf.	640

Vs30 = 254 m/s

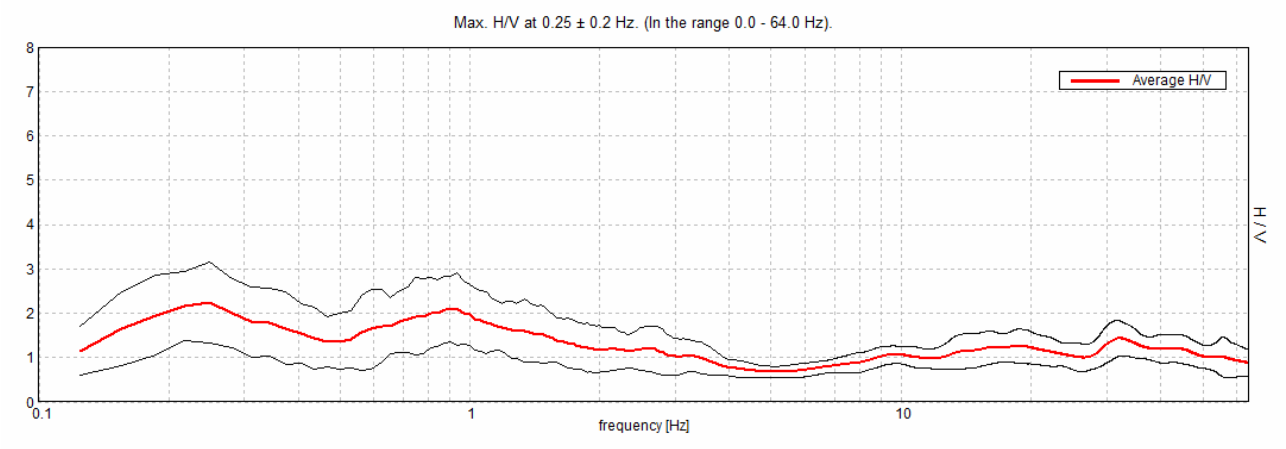


MICROZONAZIONE MIRANDOLA, R067

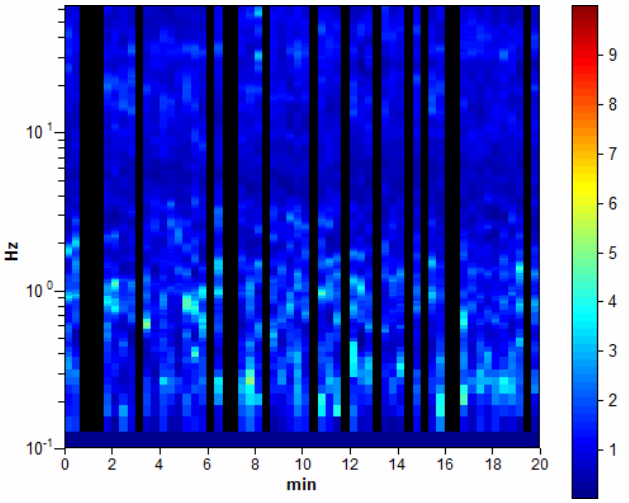
Start recording: 07/12/11 13:56:48 End recording: 07/12/00 14:16:49
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 73% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

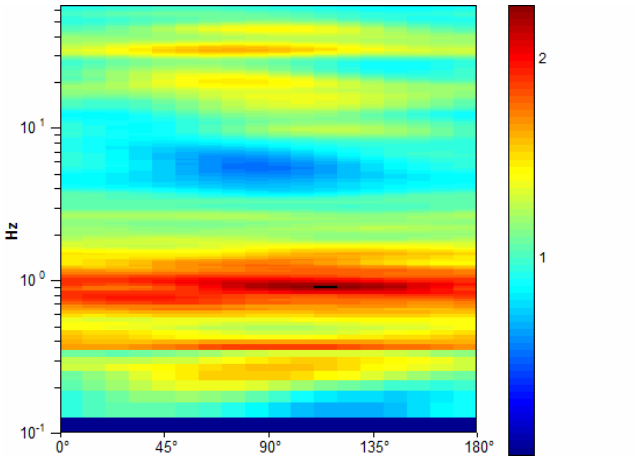
HORIZONTAL TO VERTICAL SPECTRAL RATIO



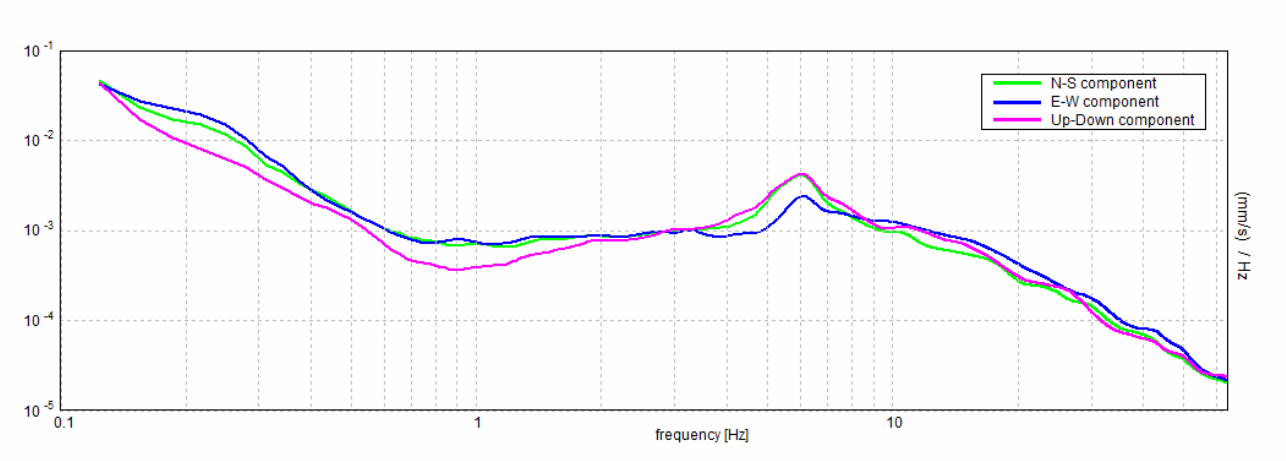
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

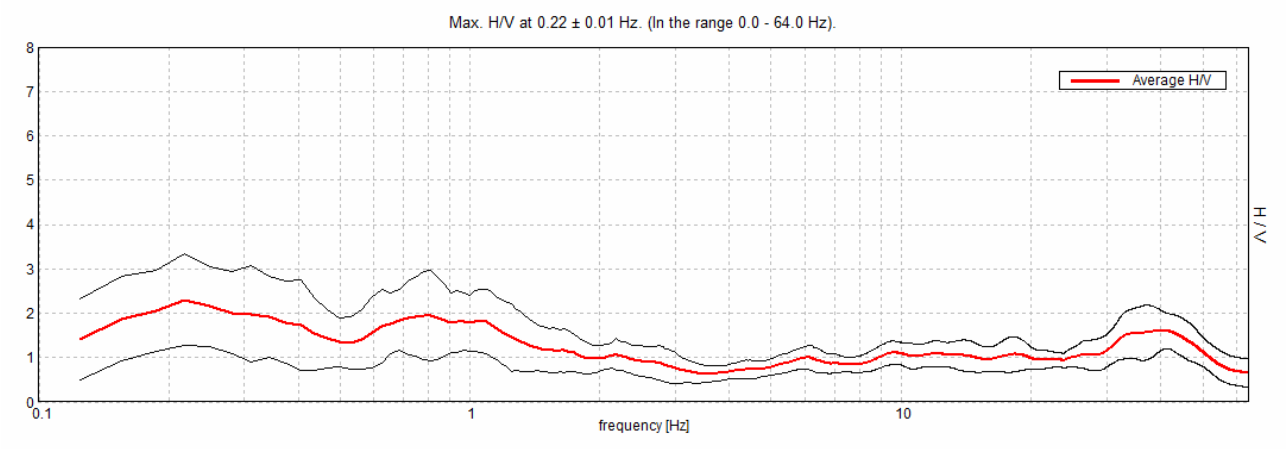


MICROZONAZIONE MIRANDOLA, R068

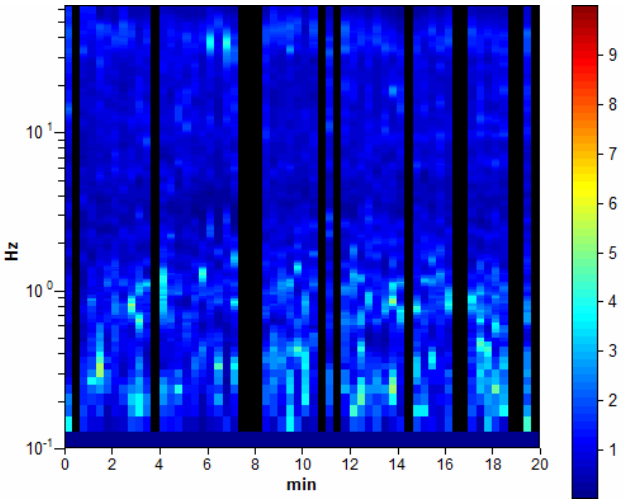
Start recording: 07/12/11 14:24:40 End recording: 07/12/00 14:44:41
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

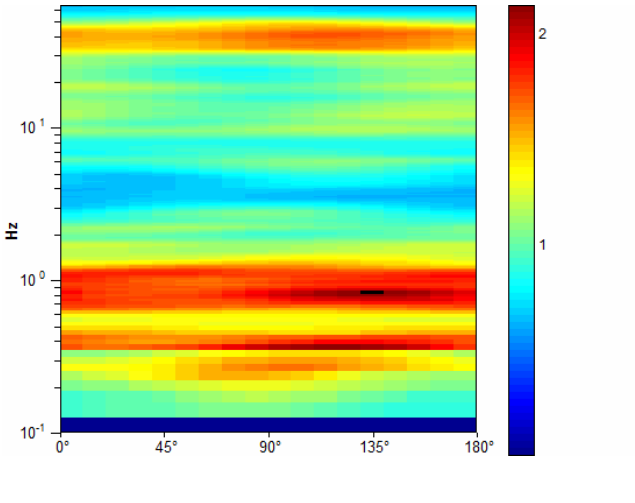
HORIZONTAL TO VERTICAL SPECTRAL RATIO



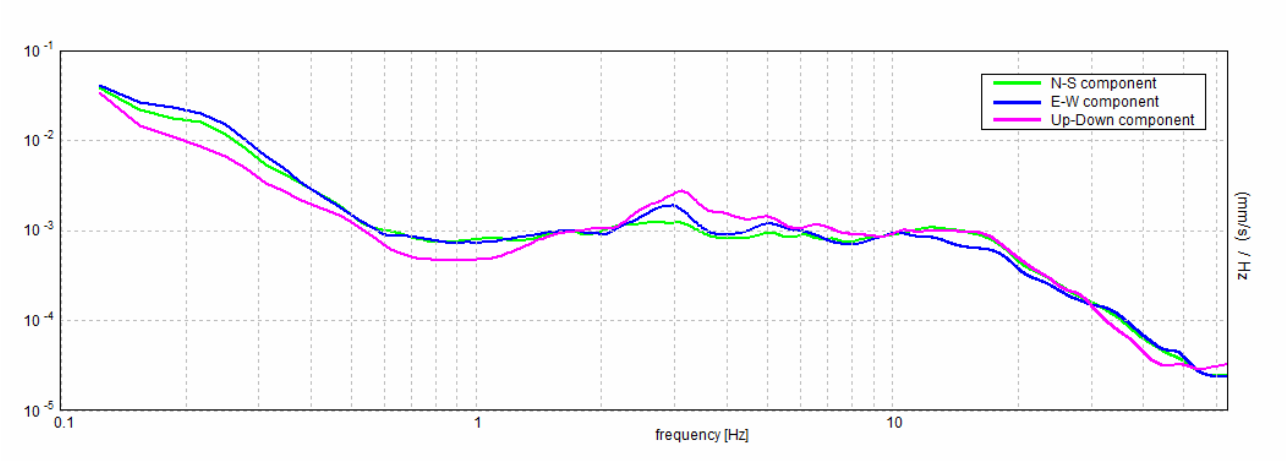
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

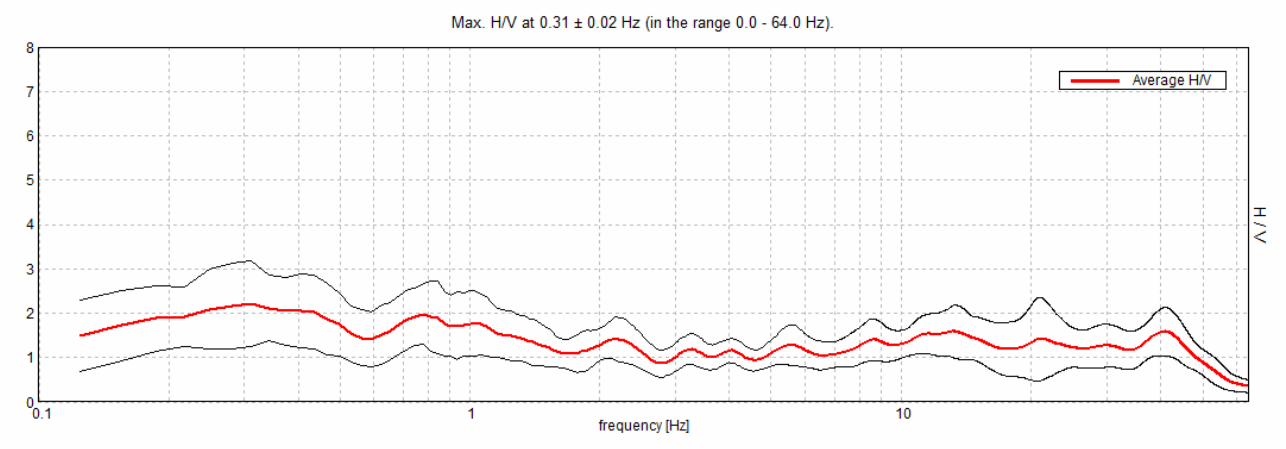


MICROZONAZIONE MIRANDOLA, R069

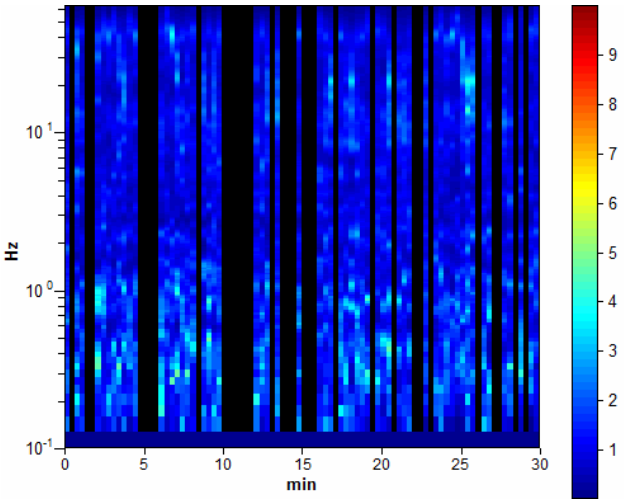
Start recording: 07/12/11 15:09:00 End recording: 07/12/00 15:39:01
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 64% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

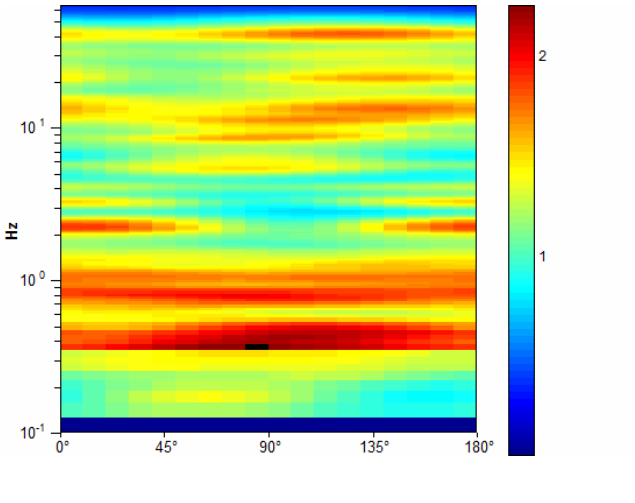
HORIZONTAL TO VERTICAL SPECTRAL RATIO



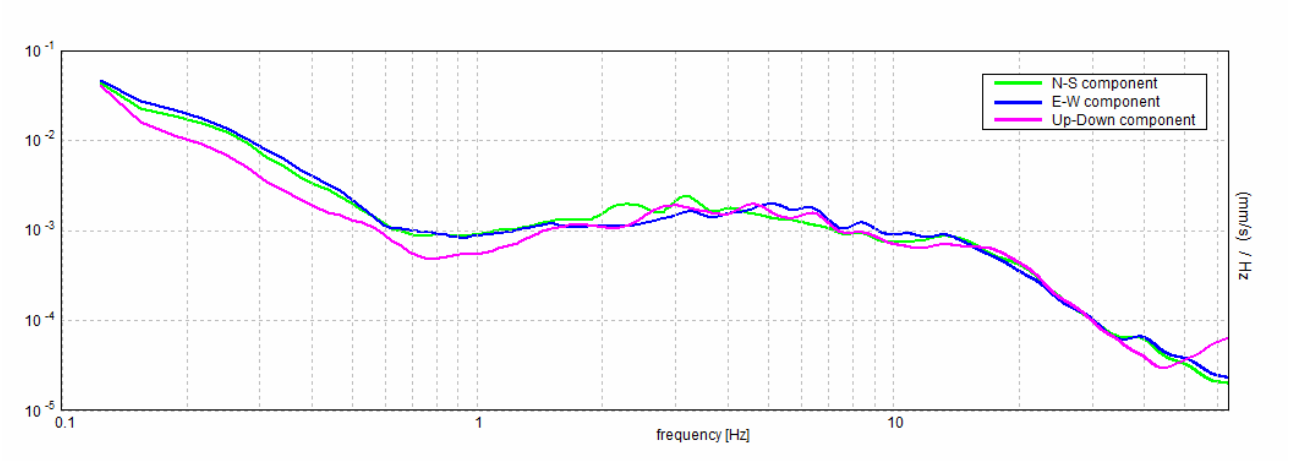
H/V TIME HISTORY



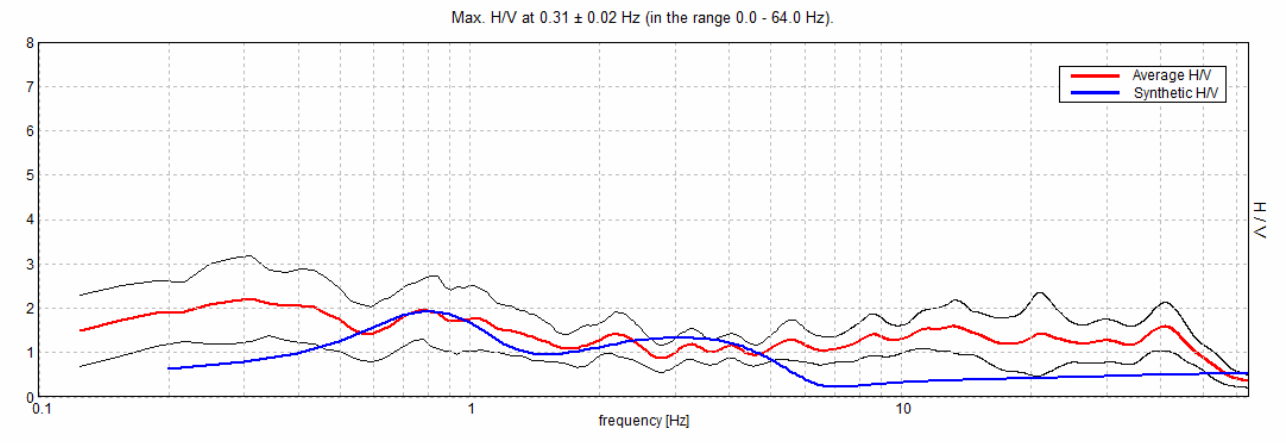
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

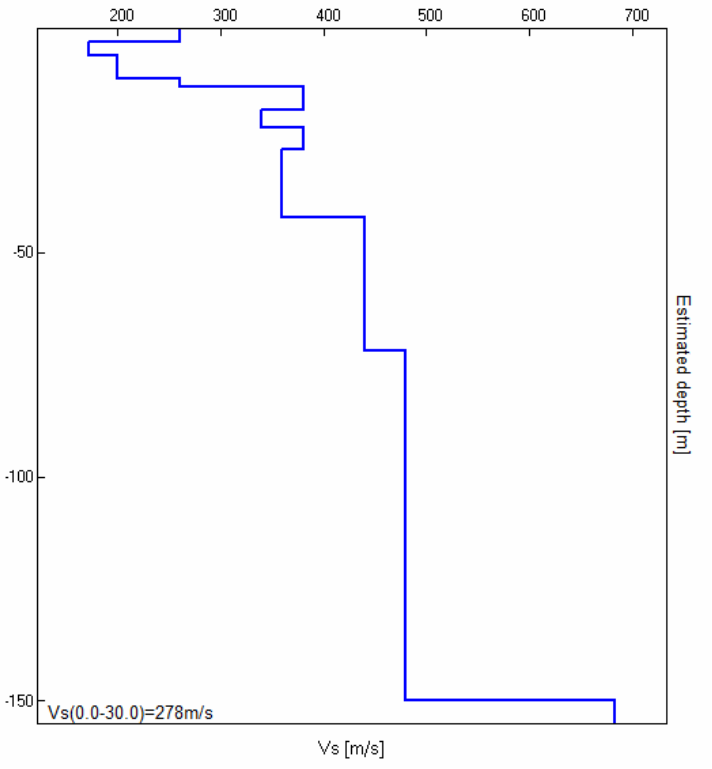


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	260
6.00	3.00	172
11.00	5.00	200
13.00	2.00	260
18.00	5.00	380
22.00	4.00	340
27.00	5.00	380
42.00	15.00	360
72.00	30.00	440
150.00	78.00	480
inf.	inf.	683

Vs30 = 278 m/s

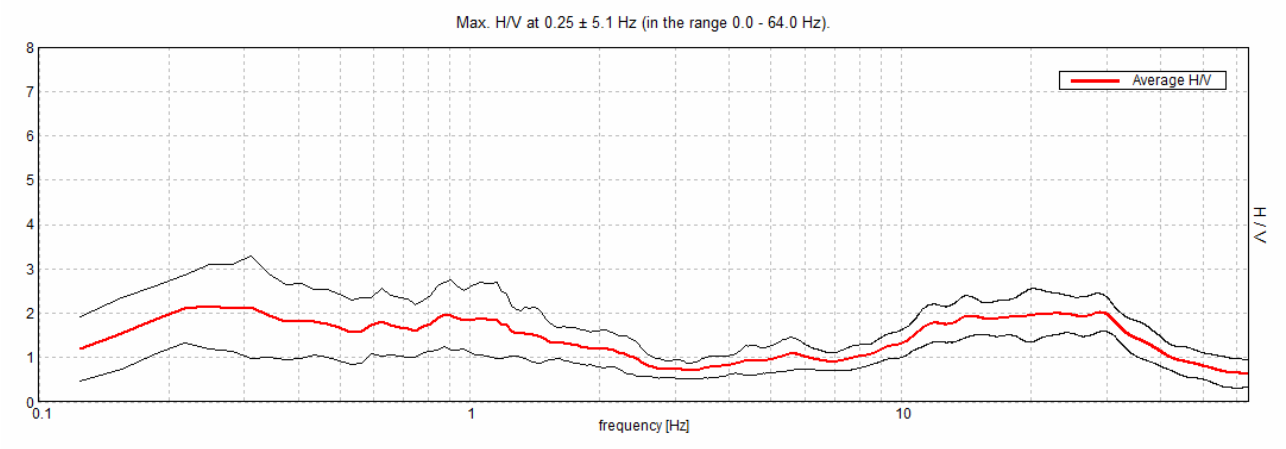


MICROZONAZIONE MIRANDOLA, R070

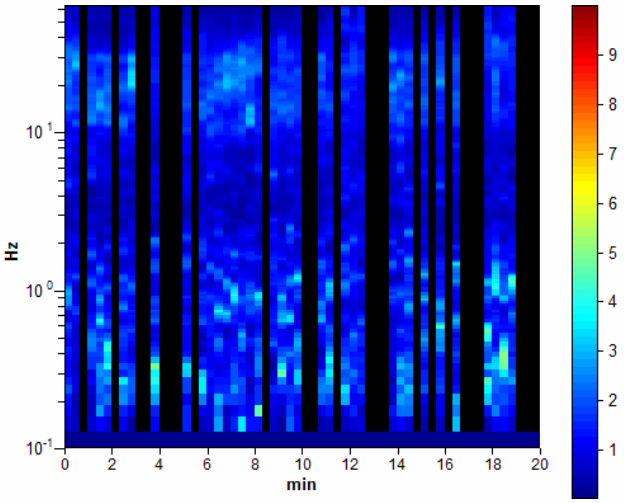
Start recording: 07/12/11 15:48:33 End recording: 07/12/00 16:28:34
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 60% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

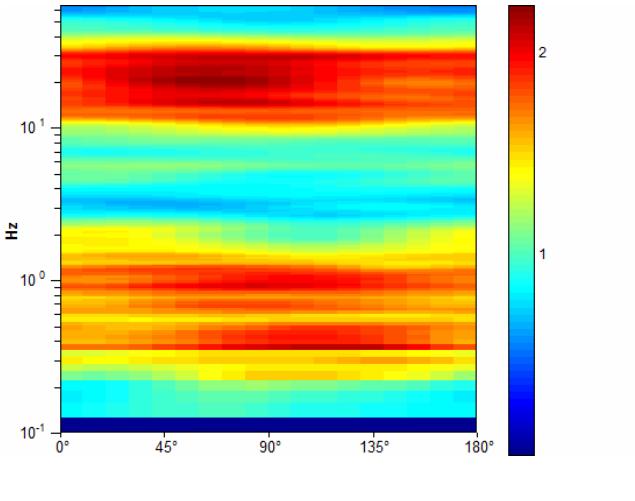
HORIZONTAL TO VERTICAL SPECTRAL RATIO



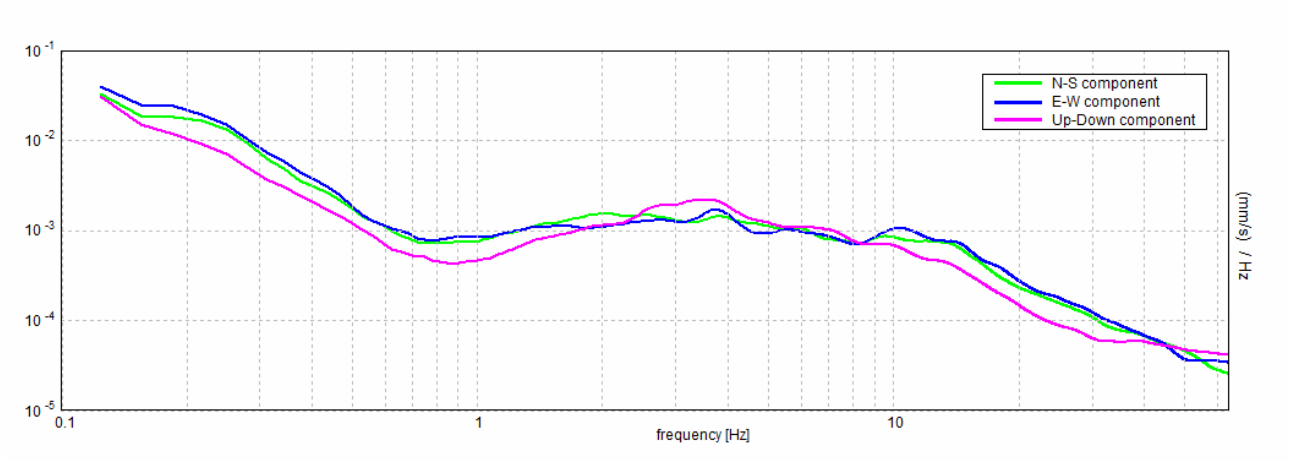
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

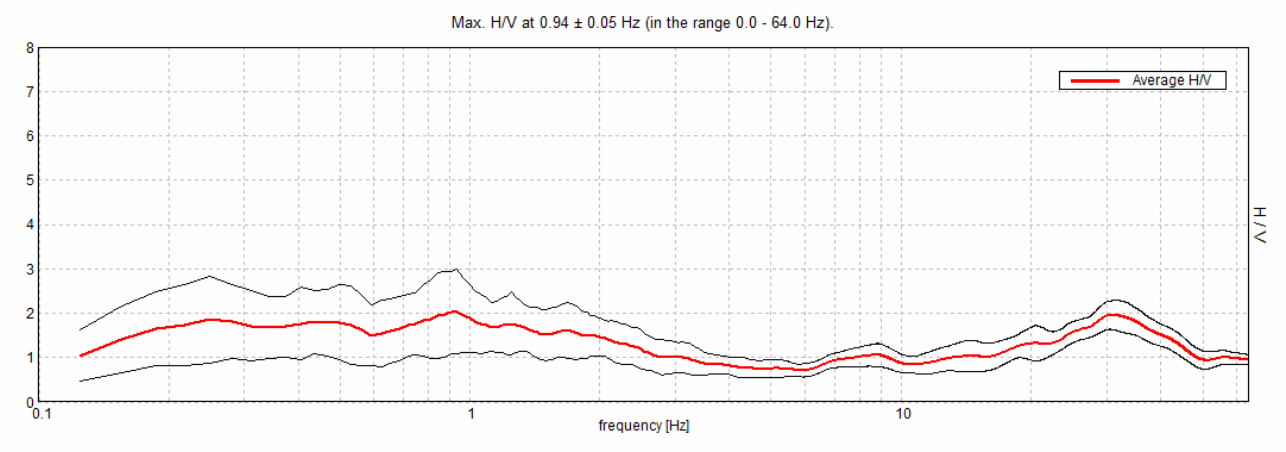


MICROZONAZIONE MIRANDOLA, R071

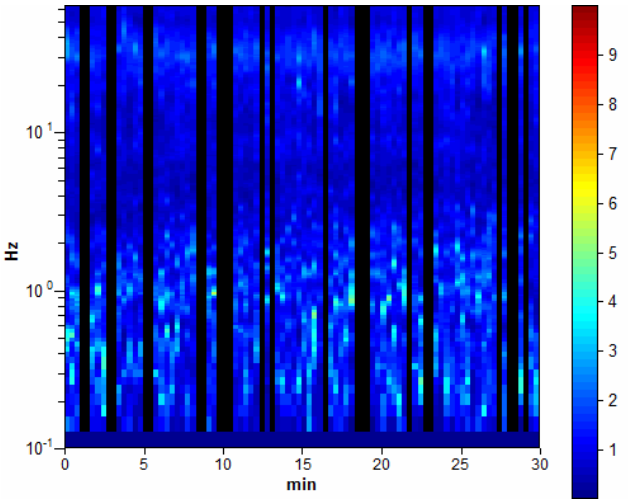
Start recording: 07/12/11 16:25:09 End recording: 07/12/00 16:55:10
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 73% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

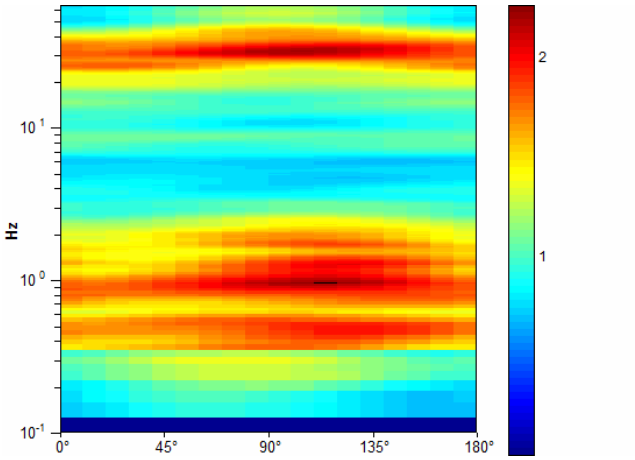
HORIZONTAL TO VERTICAL SPECTRAL RATIO



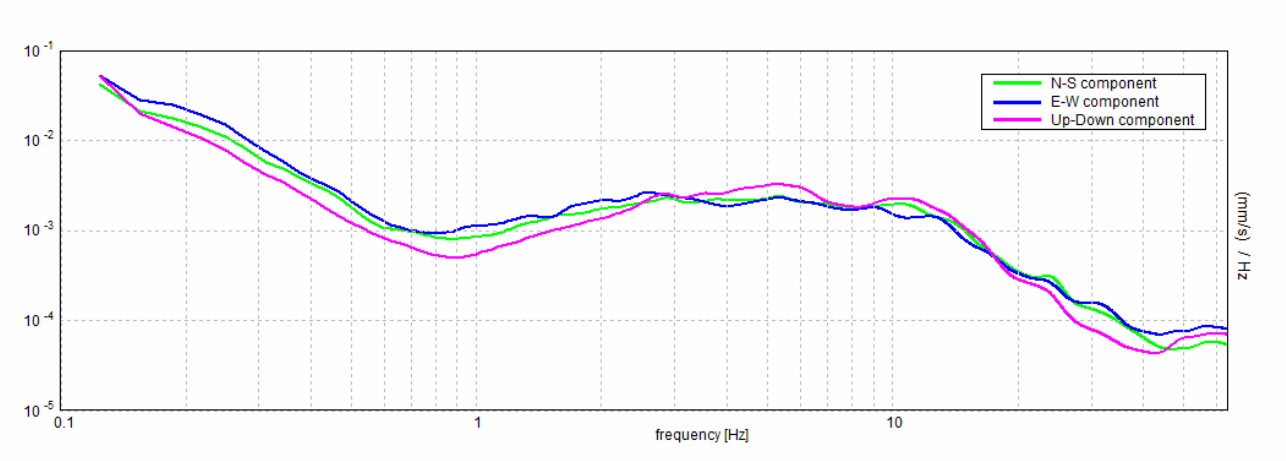
H/V TIME HISTORY



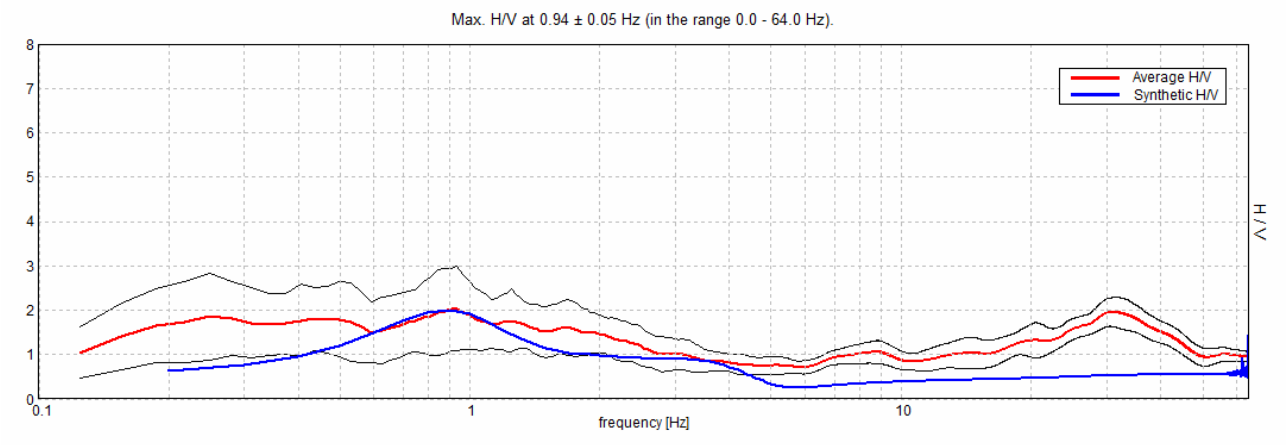
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

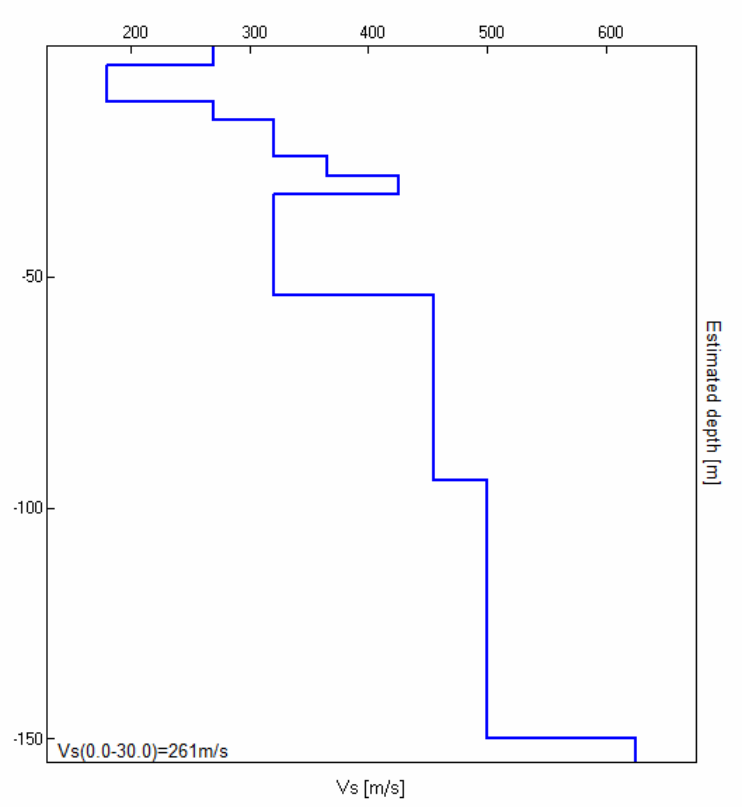


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.00	4.00	270
12.00	8.00	180
16.00	4.00	270
24.00	8.00	320
28.00	4.00	365
32.00	4.00	425
54.00	22.00	320
94.00	40.00	455
150.00	56.00	500
inf.	inf.	625

Vs30 = 261 m/s

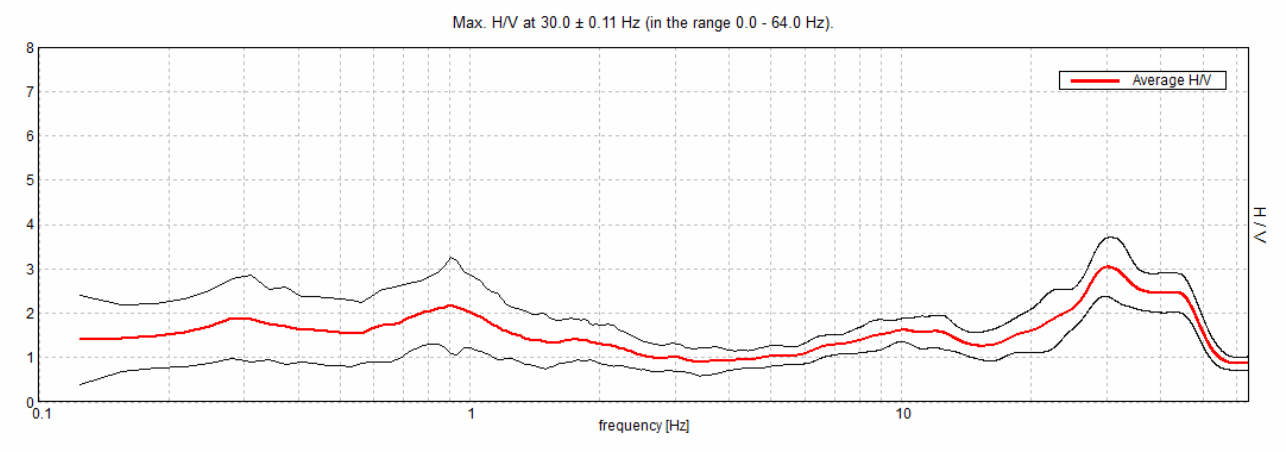


MICROZONAZIONE MIRANDOLA, R072

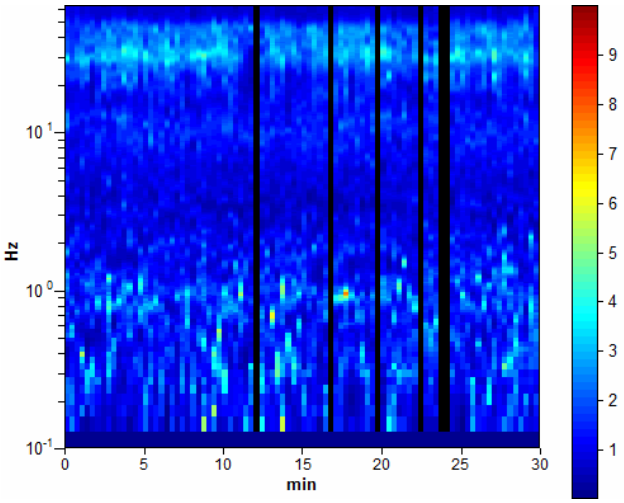
Start recording: 13/12/11 09:36:41 End recording: 13/12/11 10:06:42
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 93% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

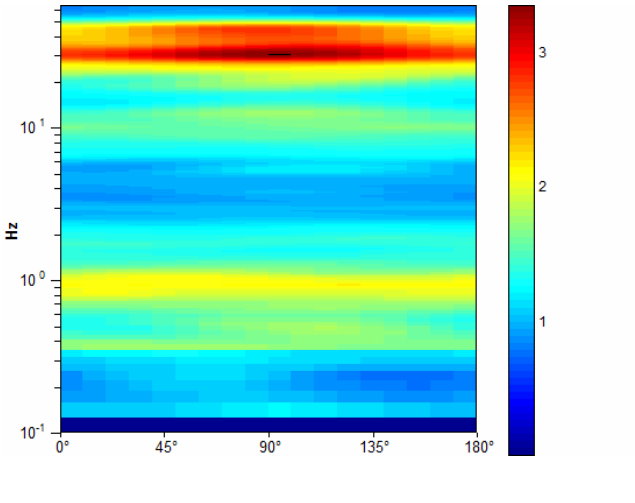
HORIZONTAL TO VERTICAL SPECTRAL RATIO



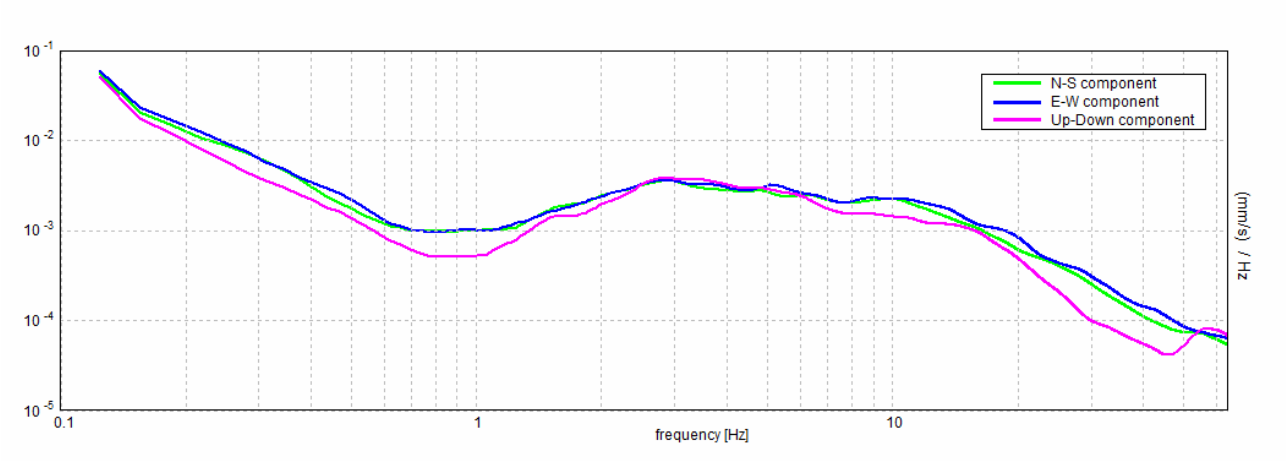
H/V TIME HISTORY



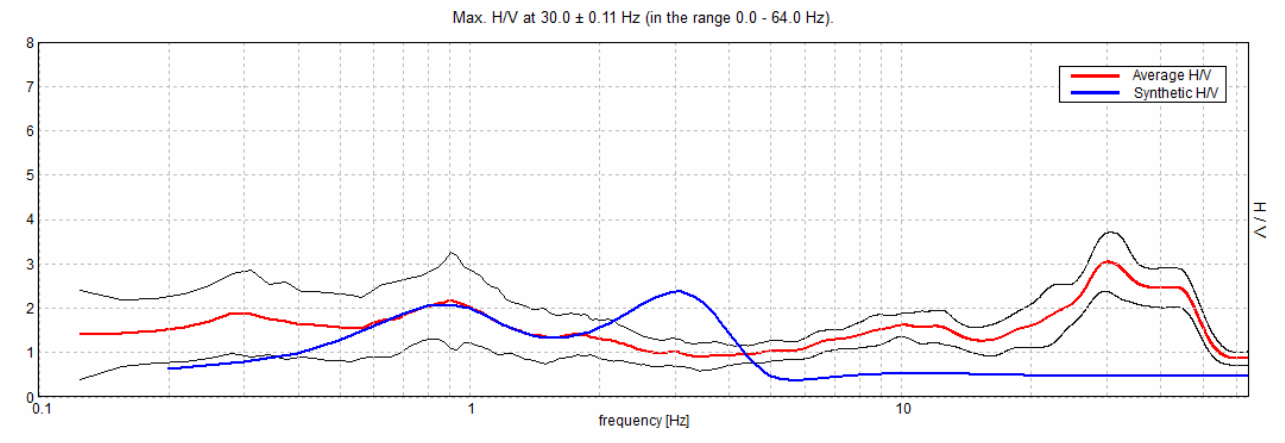
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

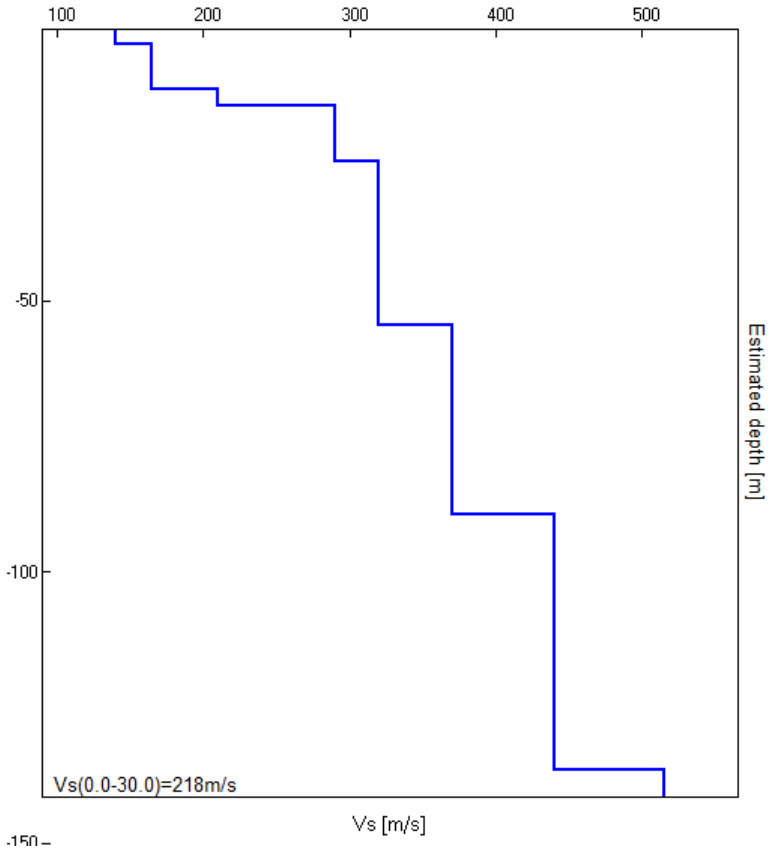


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.70	2.70	140
11.00	8.30	165
14.10	3.10	210
24.40	10.30	290
54.40	30.00	320
89.40	35.00	370
136.40	47.00	440
inf.	inf.	515

Vs30 = 218 m/s

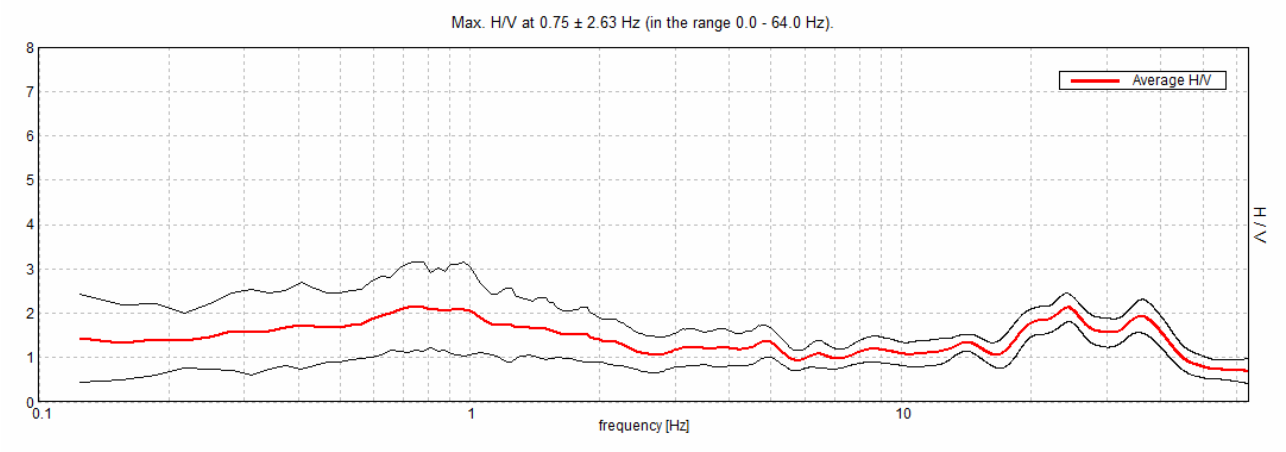


MICROZONAZIONE MIRANDOLA, R073

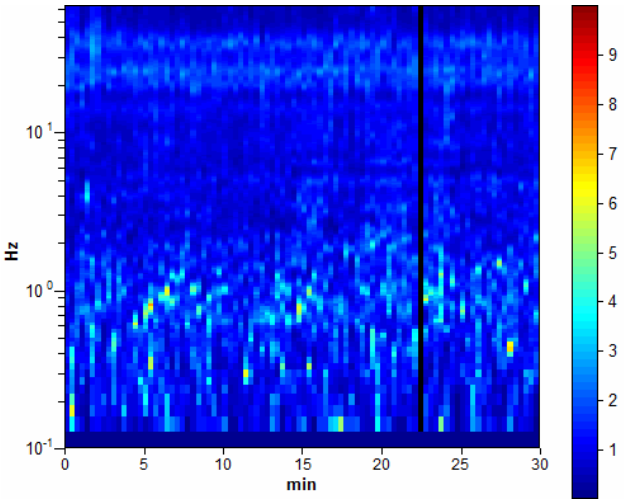
Start recording: 13/12/11 10:49:06 End recording: 13/12/11 11:19:07
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 99% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

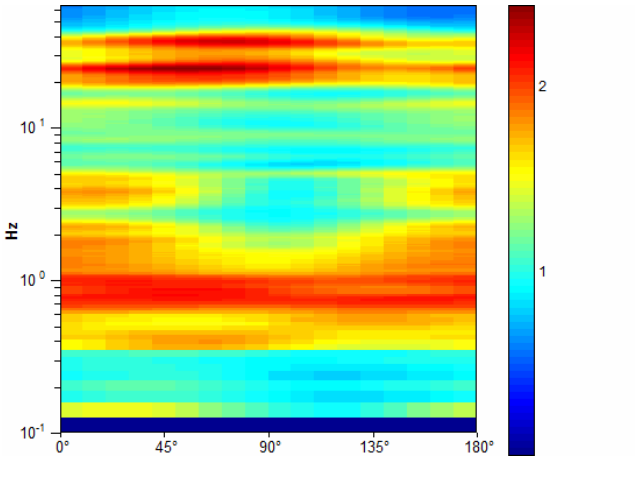
HORIZONTAL TO VERTICAL SPECTRAL RATIO



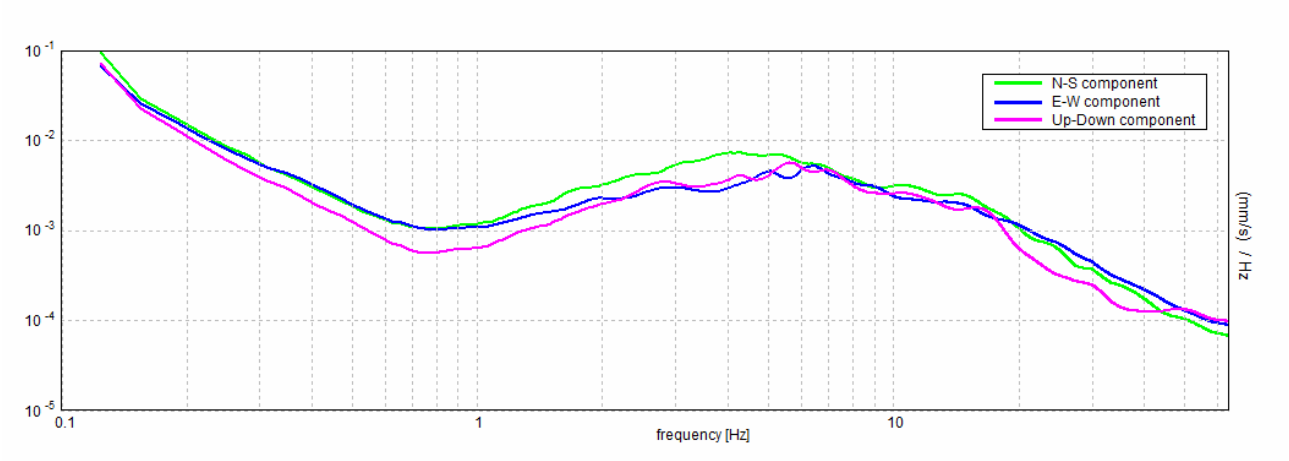
H/V TIME HISTORY



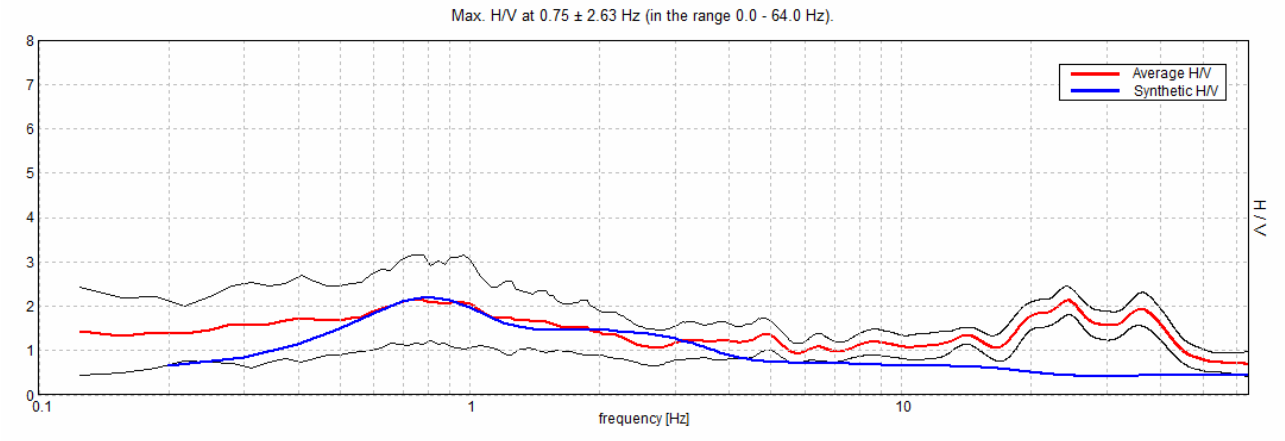
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

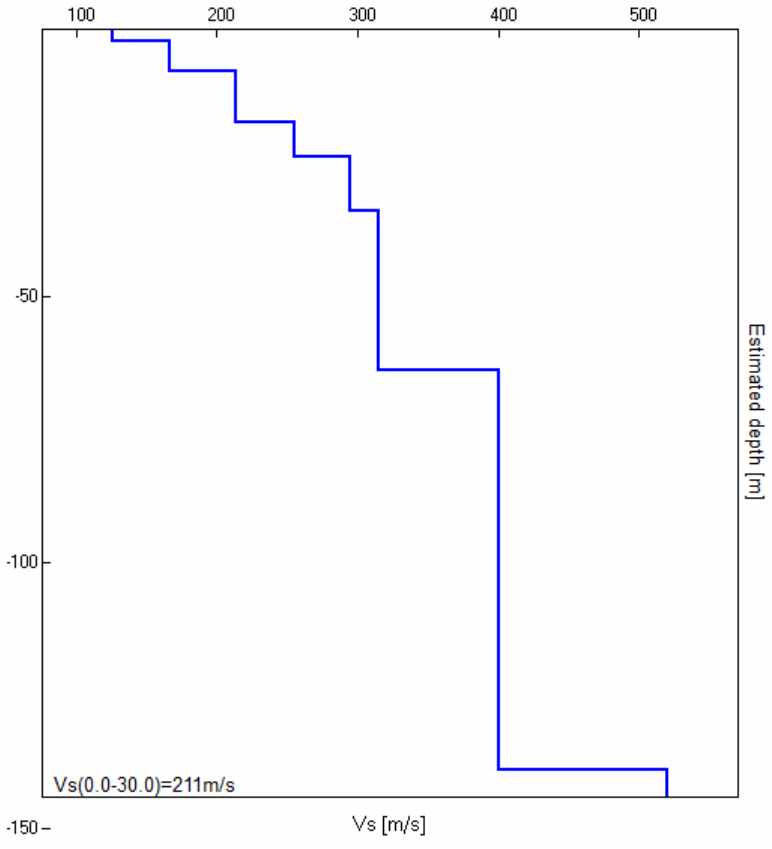


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.20	2.20	126
7.80	5.60	166
17.50	9.70	214
24.00	6.50	255
34.00	10.00	295
64.00	30.00	315
139.00	75.00	400
inf.	inf.	520

Vs30 = 211 m/s

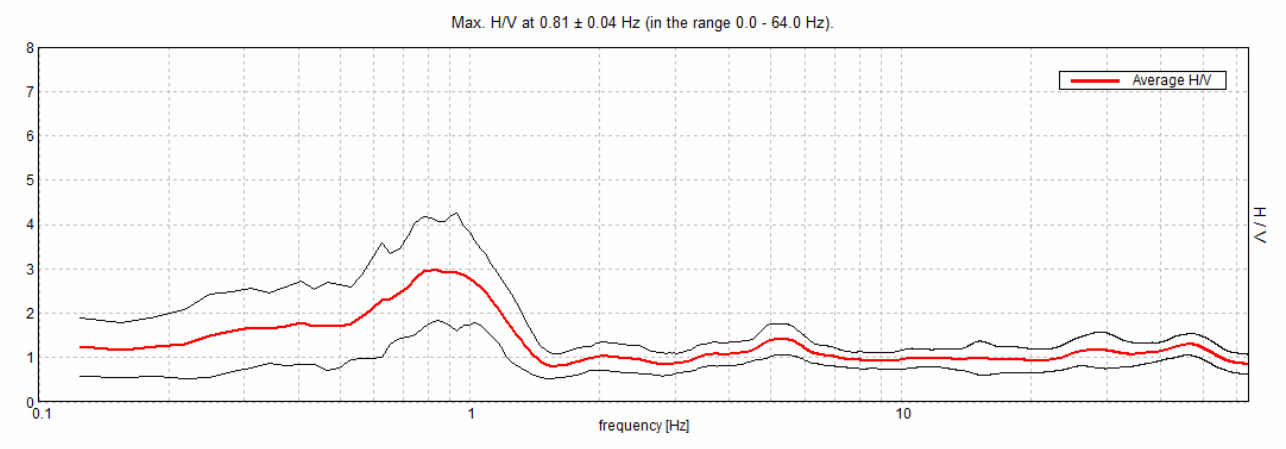


MICROZONAZIONE MIRANDOLA, R074

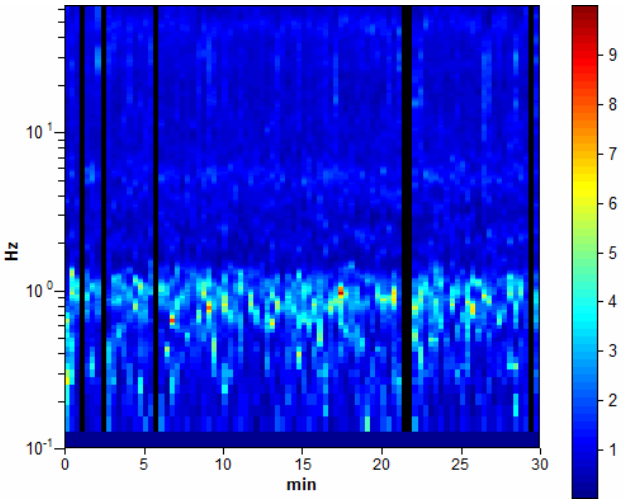
Start recording: 13/12/11 11:55:28 End recording: 13/12/11 12:25:29
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 93% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

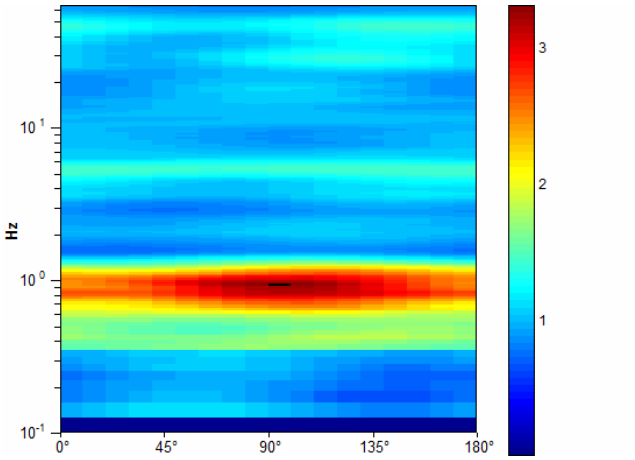
HORIZONTAL TO VERTICAL SPECTRAL RATIO



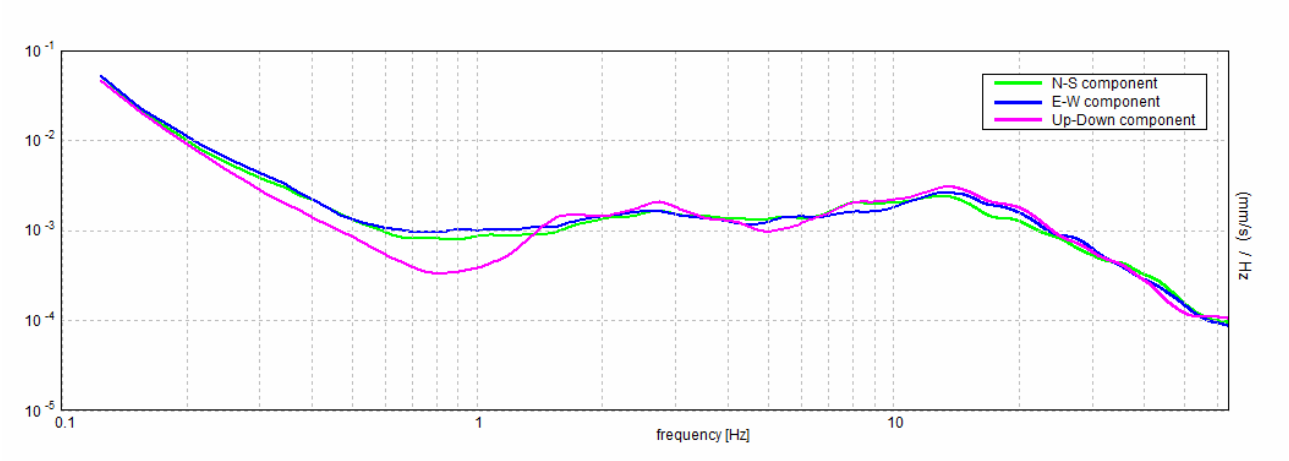
H/V TIME HISTORY



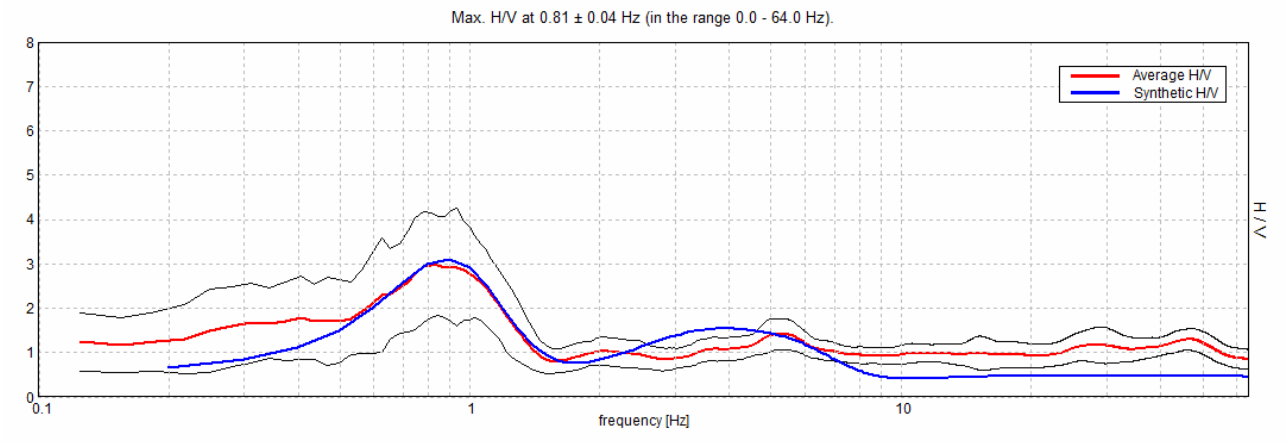
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

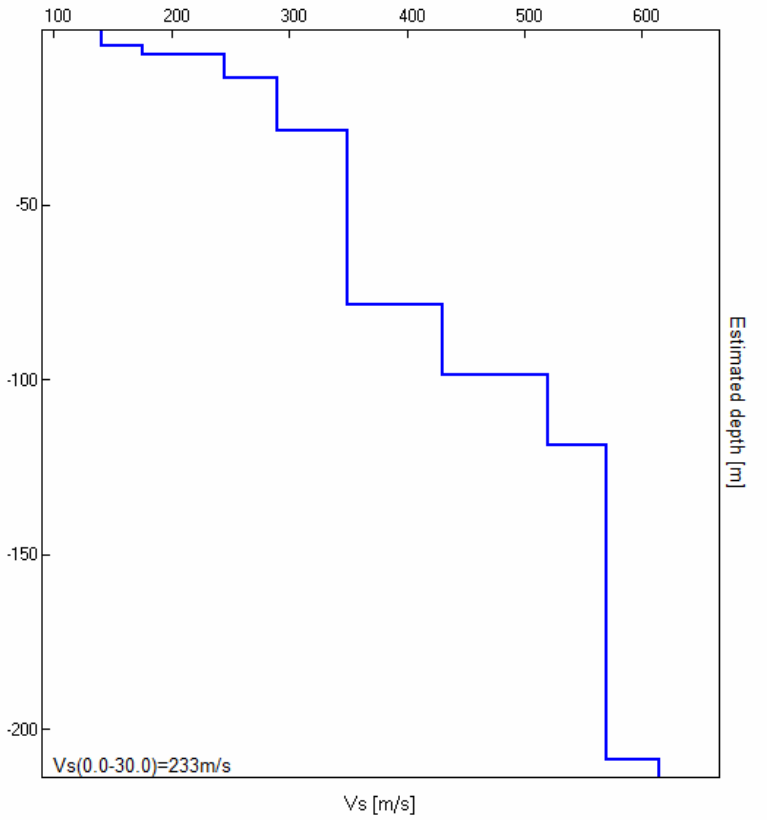


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.40	4.40	140
6.80	2.40	175
13.60	6.80	245
28.60	15.00	290
78.60	50.00	350
98.60	20.00	430
118.60	20.00	520
208.60	90.00	570
inf.	inf.	615

Vs30 = 233 m/s

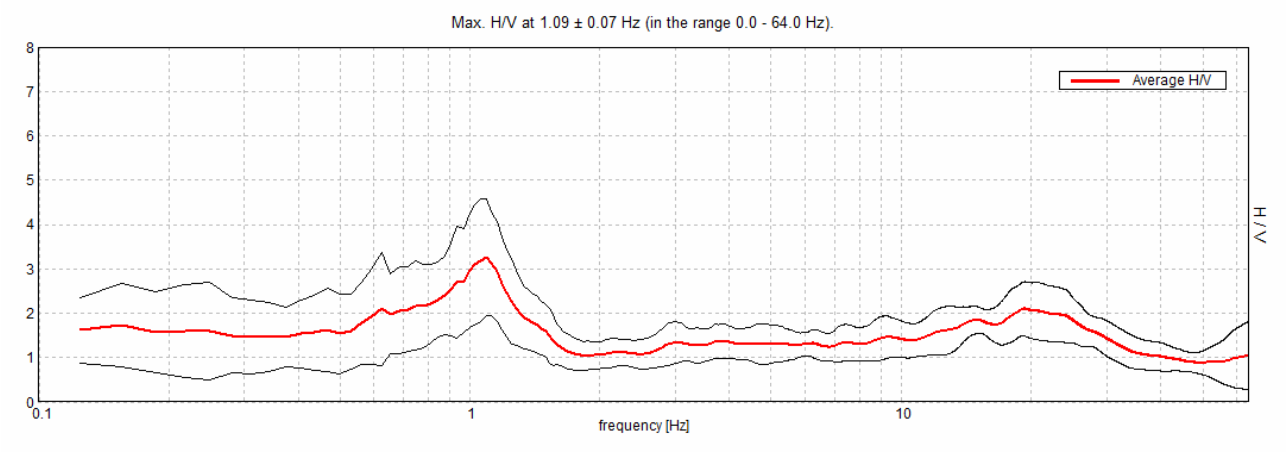


MICROZONAZIONE MIRANDOLA, R075

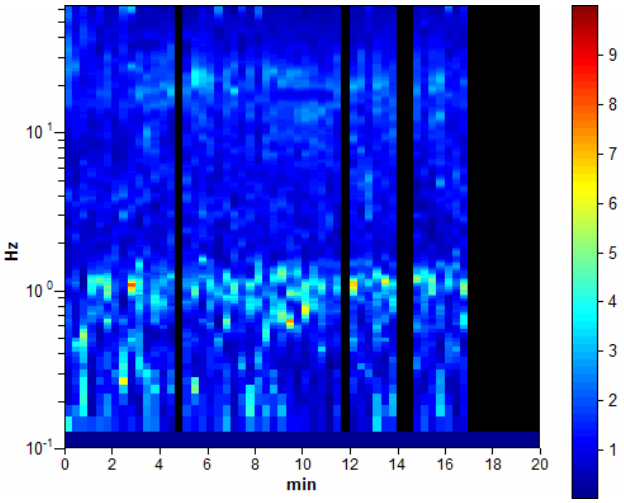
Start recording: 13/12/11 12:37:51 End recording: 13/12/11 12:57:52
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 78% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

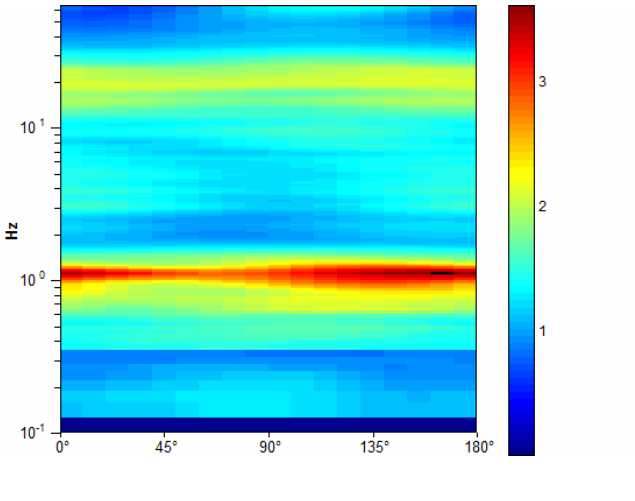
HORIZONTAL TO VERTICAL SPECTRAL RATIO



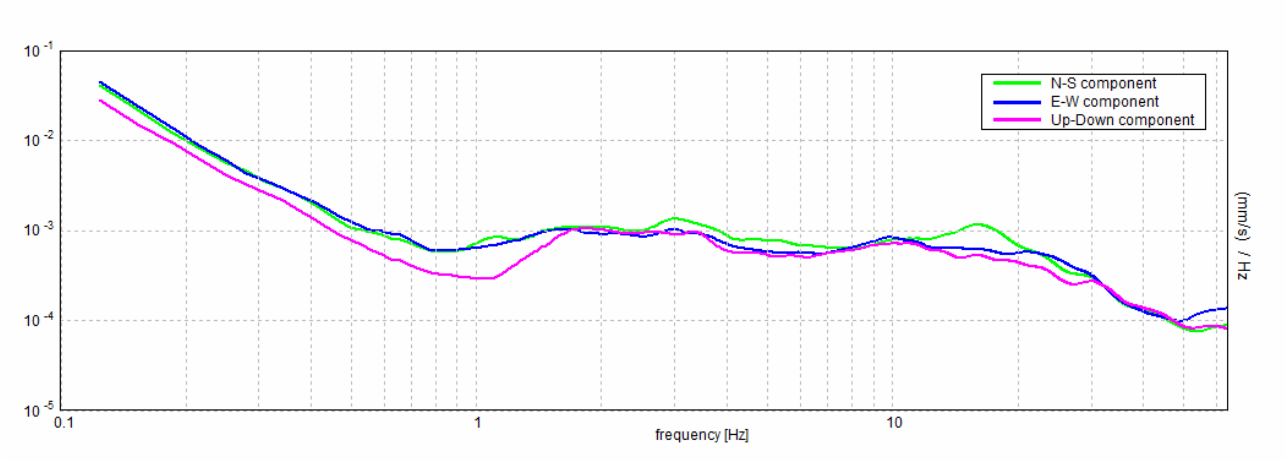
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

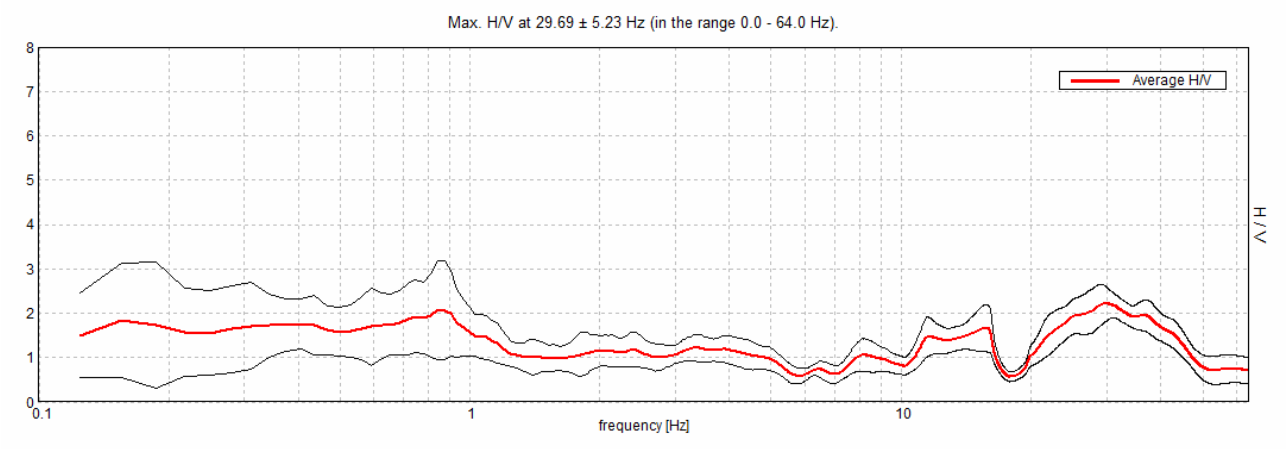


MICROZONAZIONE MIRANDOLA, R076

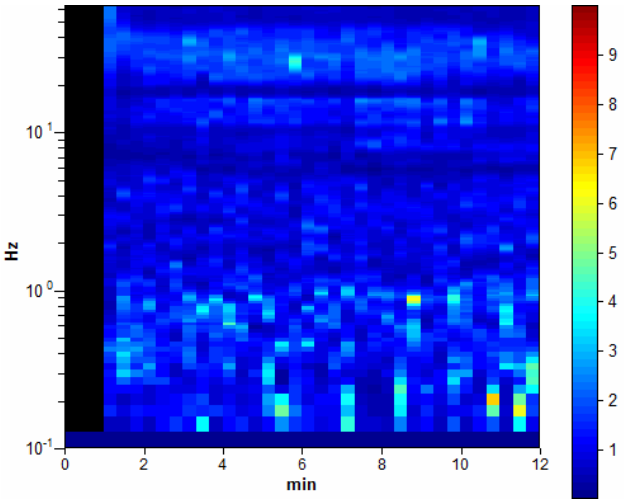
Start recording: 13/12/11 14:37:39 End recording: 13/12/11 14:49:40
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 92% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

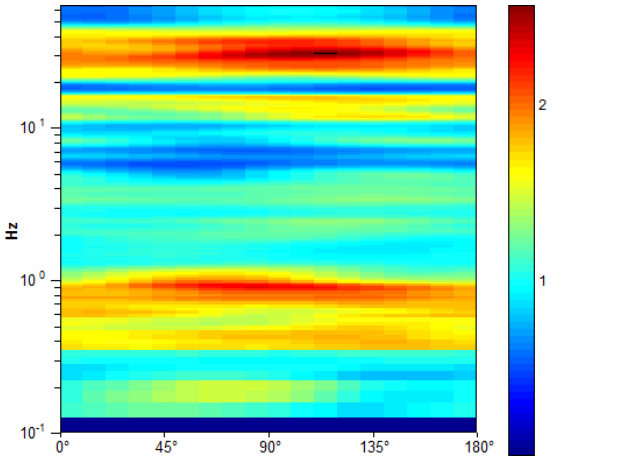
HORIZONTAL TO VERTICAL SPECTRAL RATIO



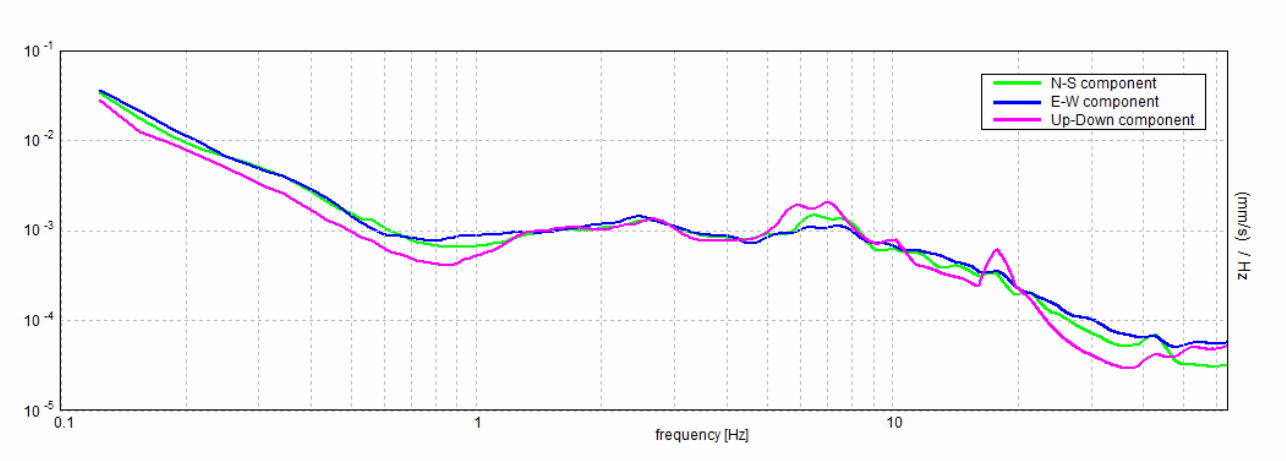
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

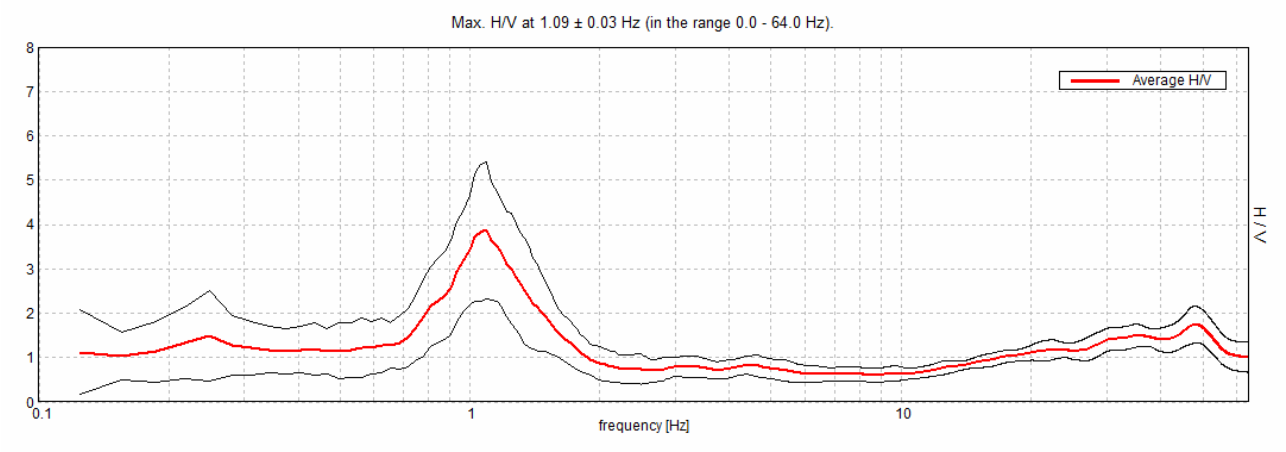


MICROZONAZIONE MIRANDOLA, R077

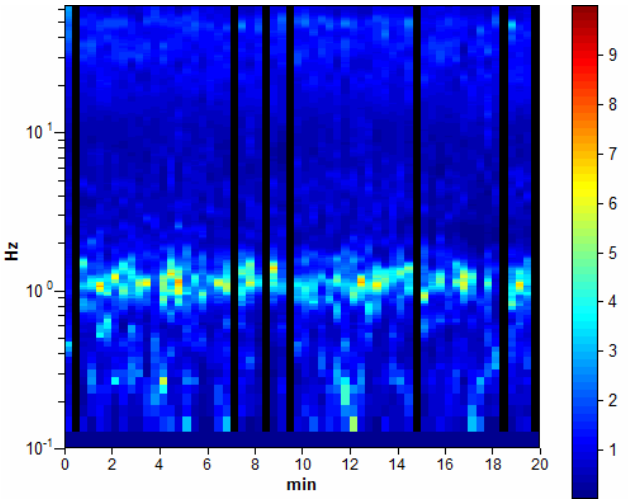
Start recording: 13/12/11 15:00:25 End recording: 13/12/11 15:20:26
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 88% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

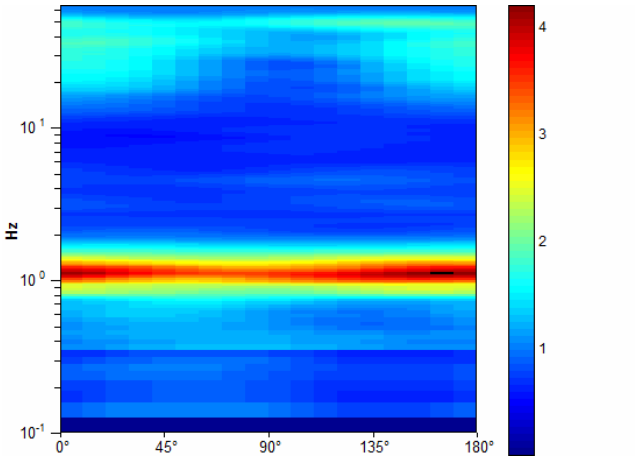
HORIZONTAL TO VERTICAL SPECTRAL RATIO



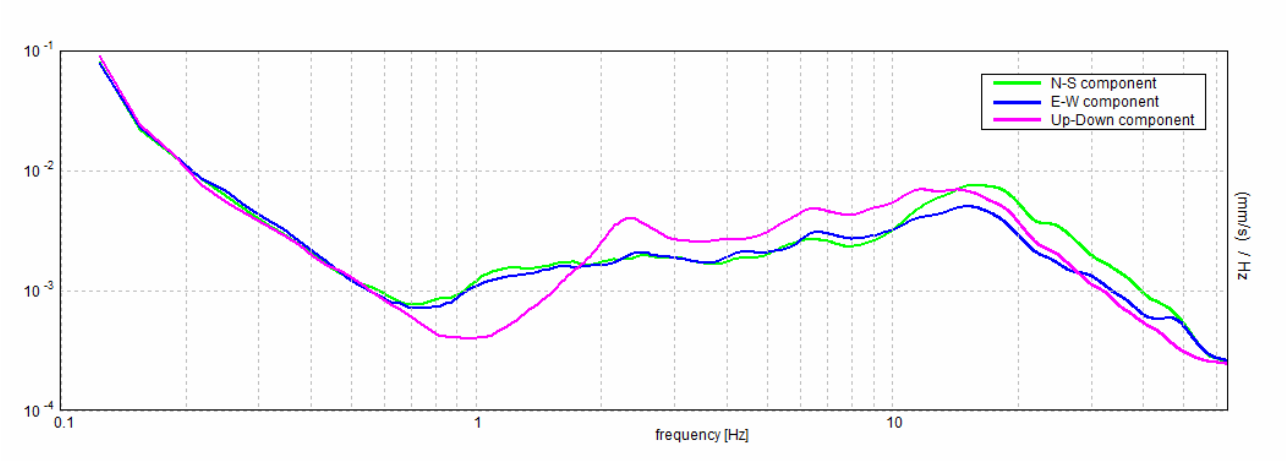
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

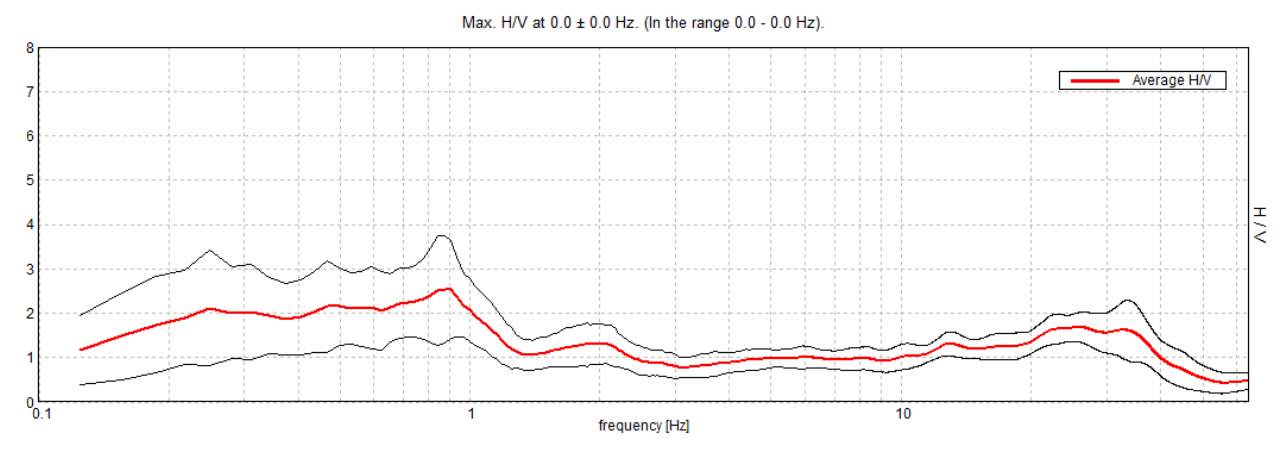


MICROZONAZIONE MIRANDOLA, R078

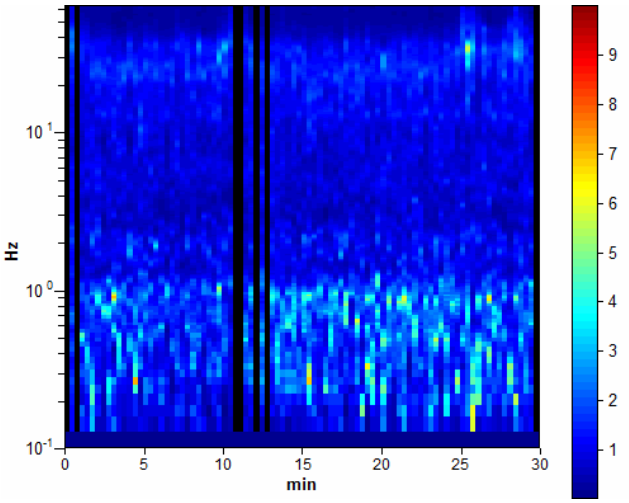
Start recording: 15/12/11 08:29:41 End recording: 15/12/11 08:59:42
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 92% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

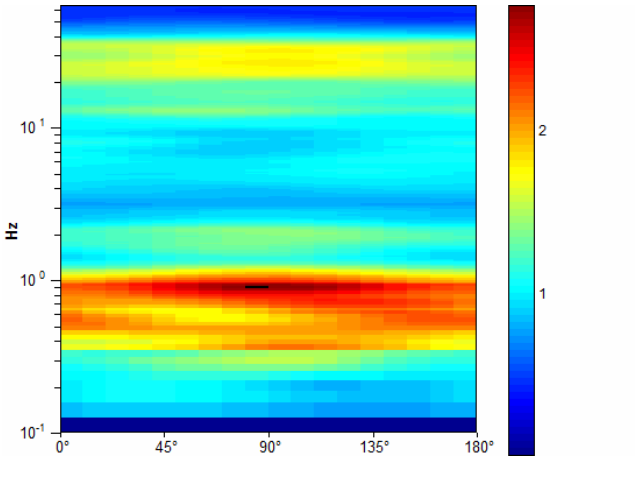
HORIZONTAL TO VERTICAL SPECTRAL RATIO



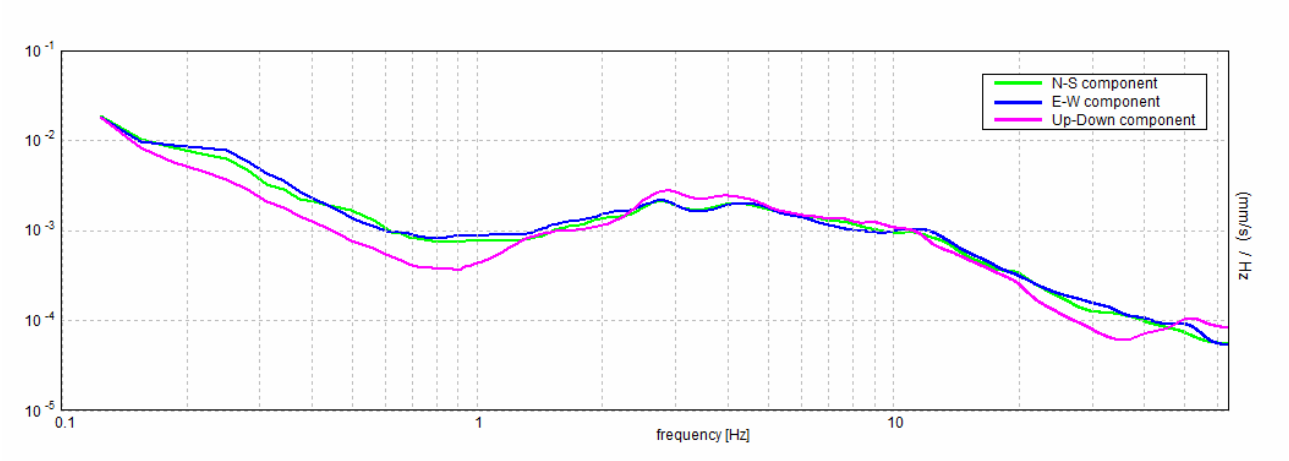
H/V TIME HISTORY



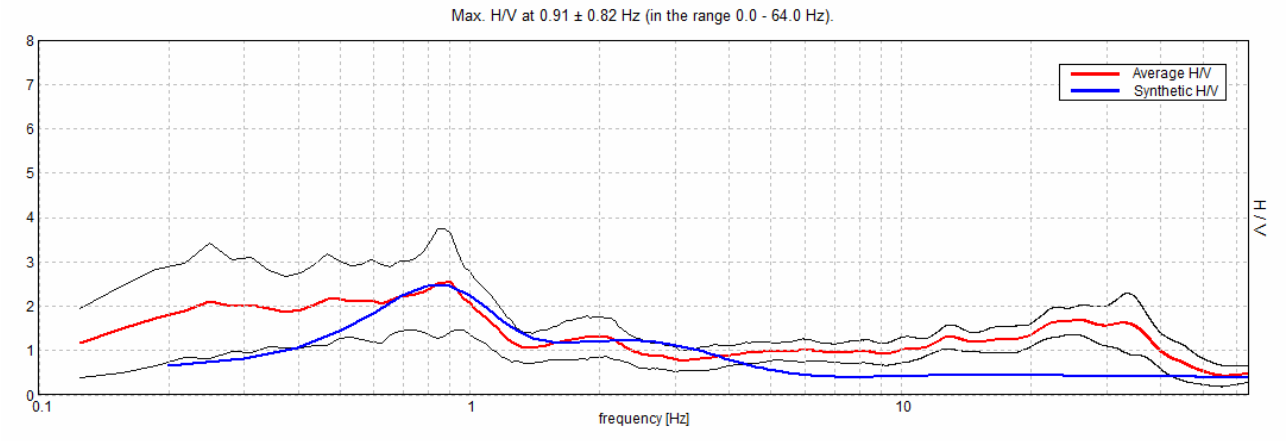
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

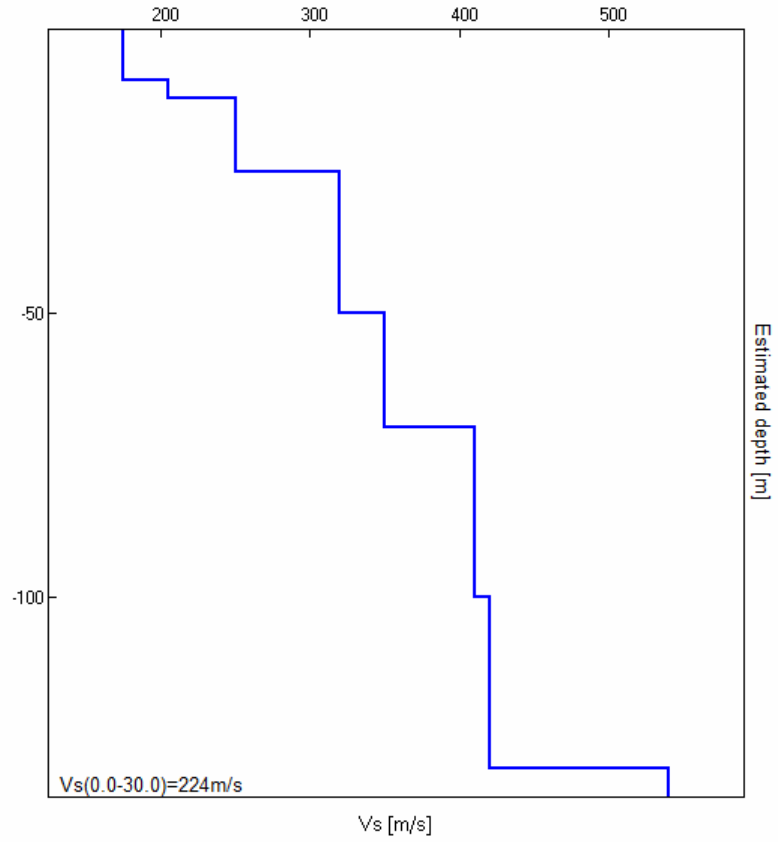


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
9.00	9.00	175
12.00	3.00	205
25.00	13.00	250
50.00	25.00	320
70.00	20.00	350
100.00	30.00	410
130.00	30.00	420
inf.	inf.	540

Vs30 = 224 m/s



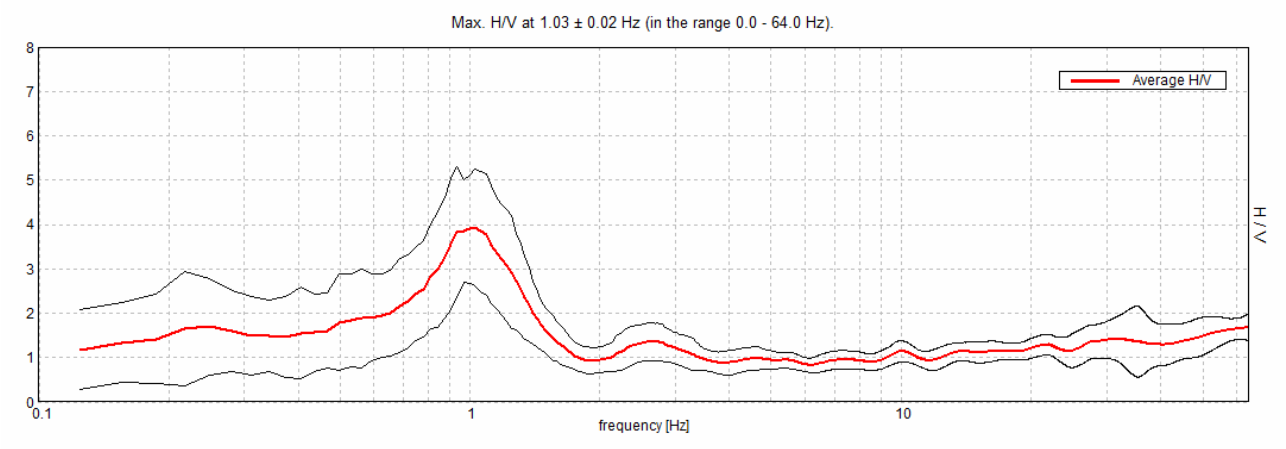
R078

MICROZONAZIONE MIRANDOLA, R079

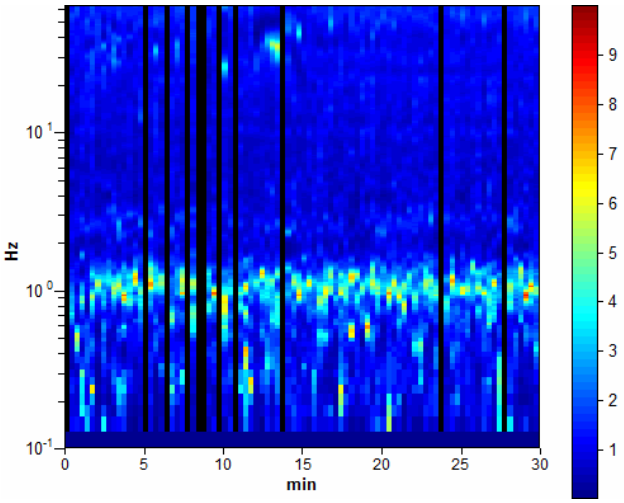
Start recording: 15/12/11 09:30:32 End recording: 15/12/11 10:00:32
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 88% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

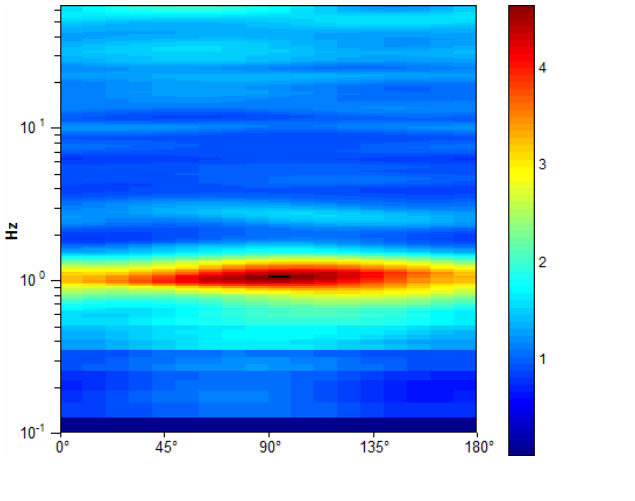
HORIZONTAL TO VERTICAL SPECTRAL RATIO



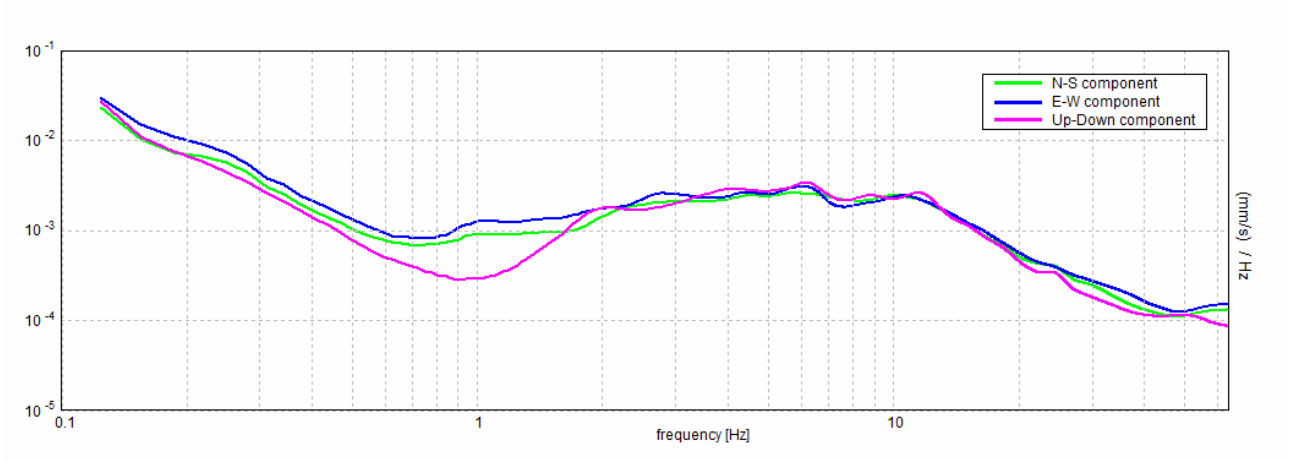
H/V TIME HISTORY



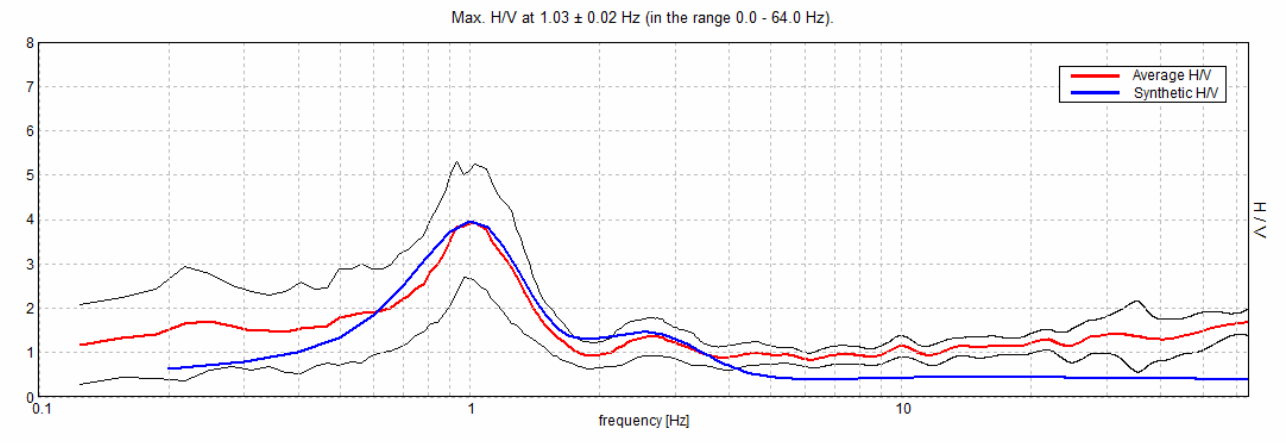
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

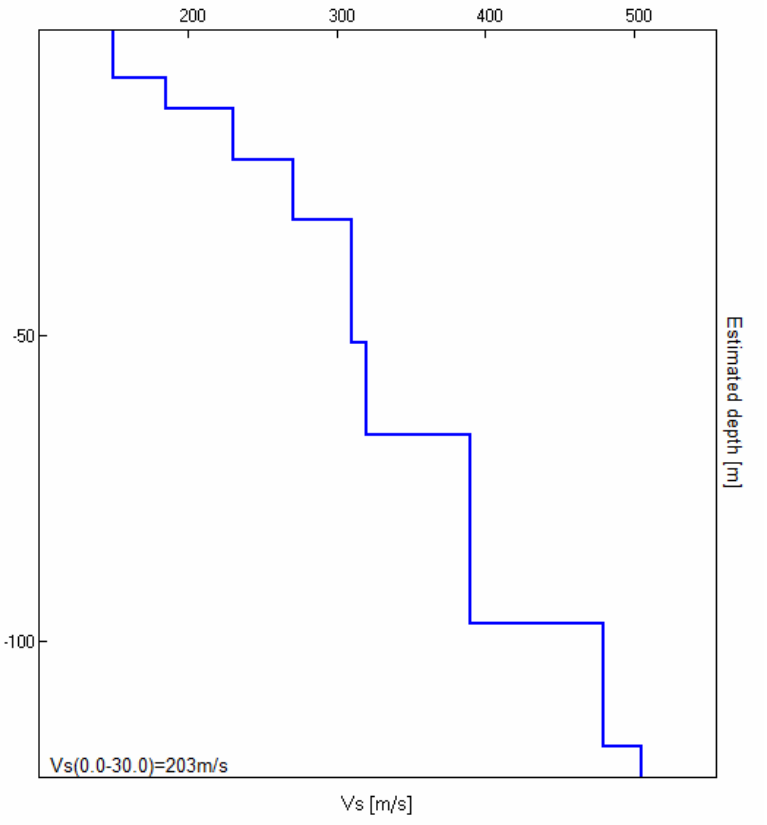


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
7.80	7.80	150
12.90	5.10	185
21.10	8.20	231
31.10	10.00	271
51.10	20.00	310
66.10	15.00	320
97.10	31.00	390
117.10	20.00	480
inf.	inf.	505

Vs30 = 203 m/s



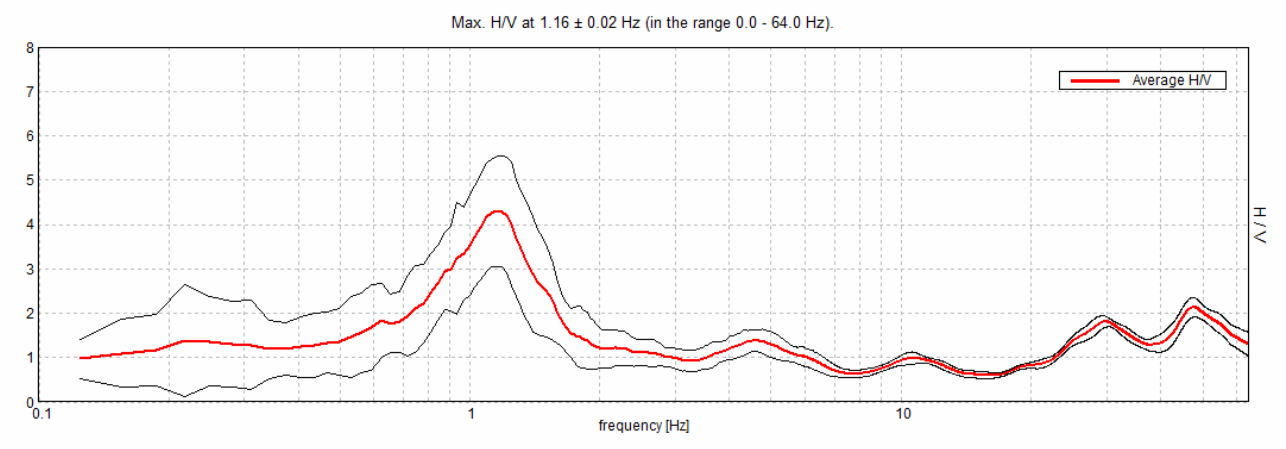
R079

MICROZONAZIONE MIRANDOLA, R080

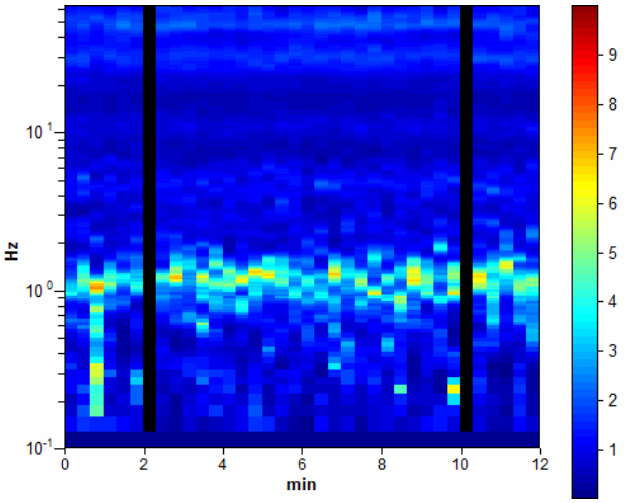
Start recording: 15/12/11 10:17:14 End recording: 15/12/11 10:29:15
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 94% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

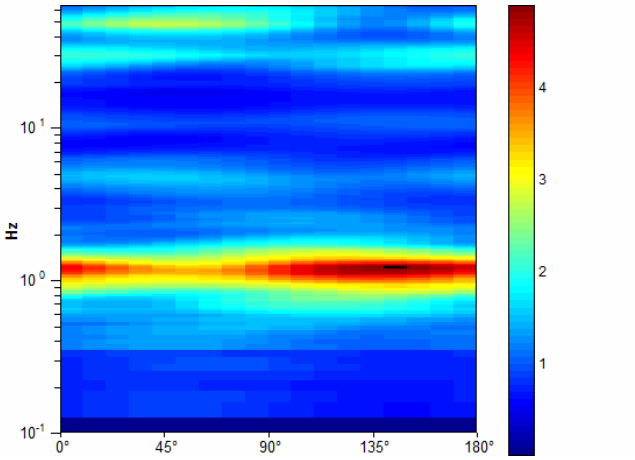
HORIZONTAL TO VERTICAL SPECTRAL RATIO



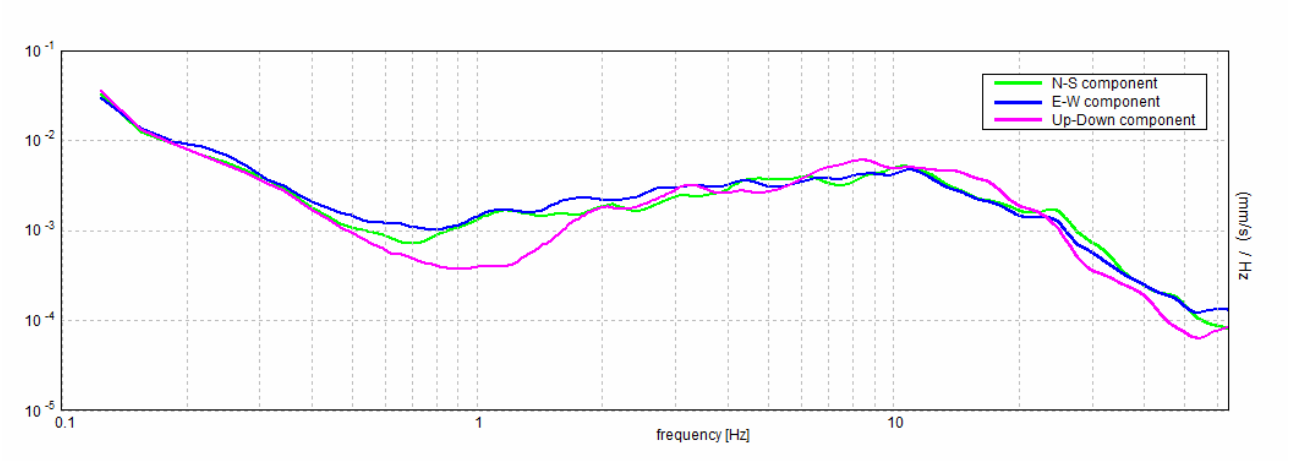
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

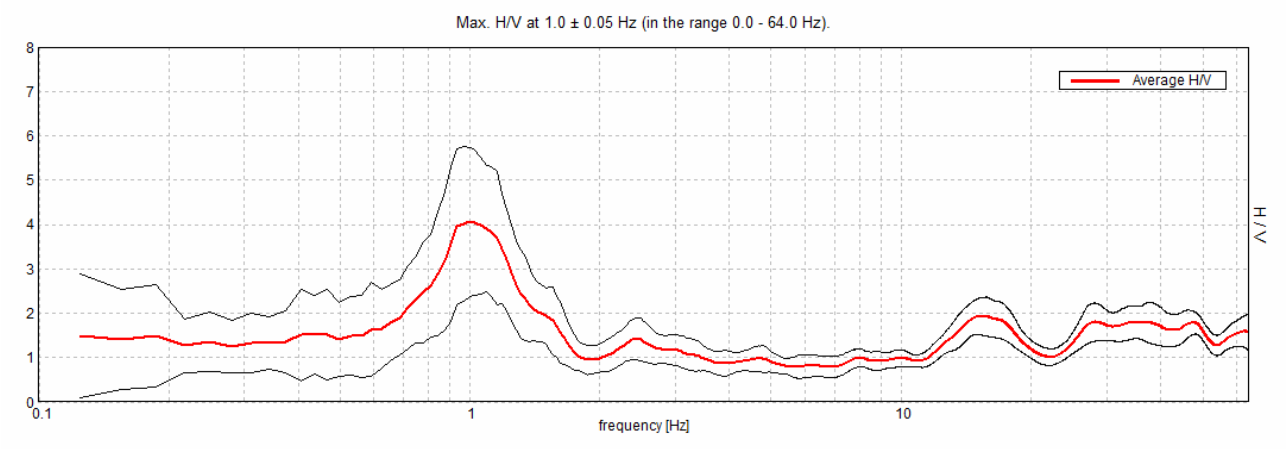


MICROZONAZIONE MIRANDOLA, R081

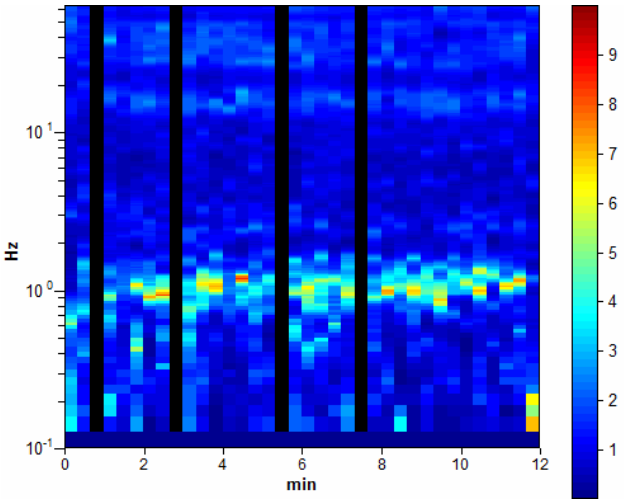
Start recording: 15/12/11 10:40:38 End recording: 15/12/11 10:52:39
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

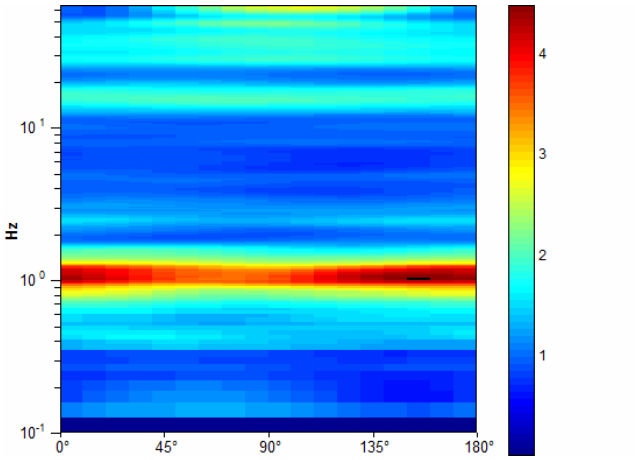
HORIZONTAL TO VERTICAL SPECTRAL RATIO



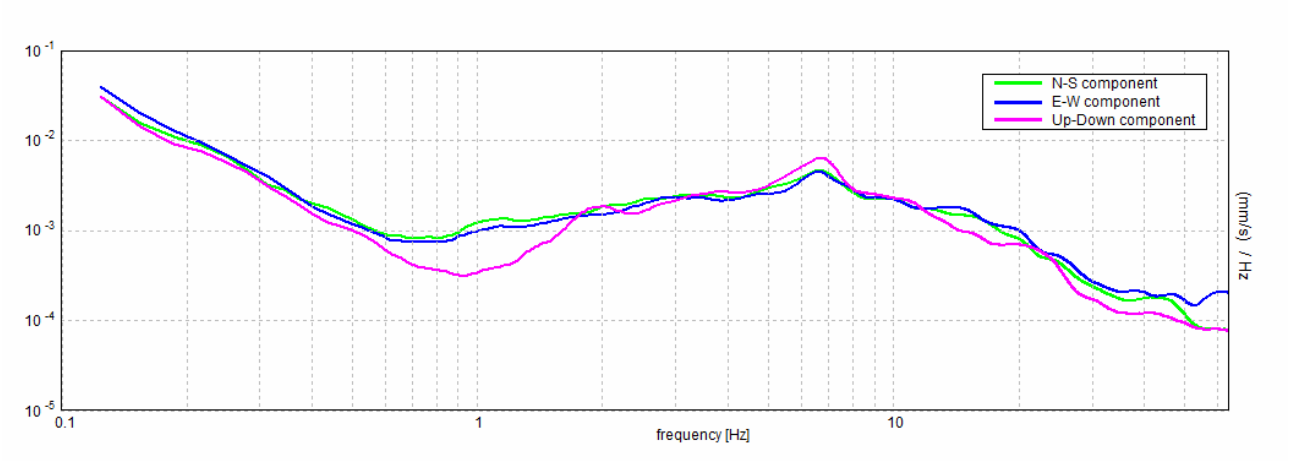
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

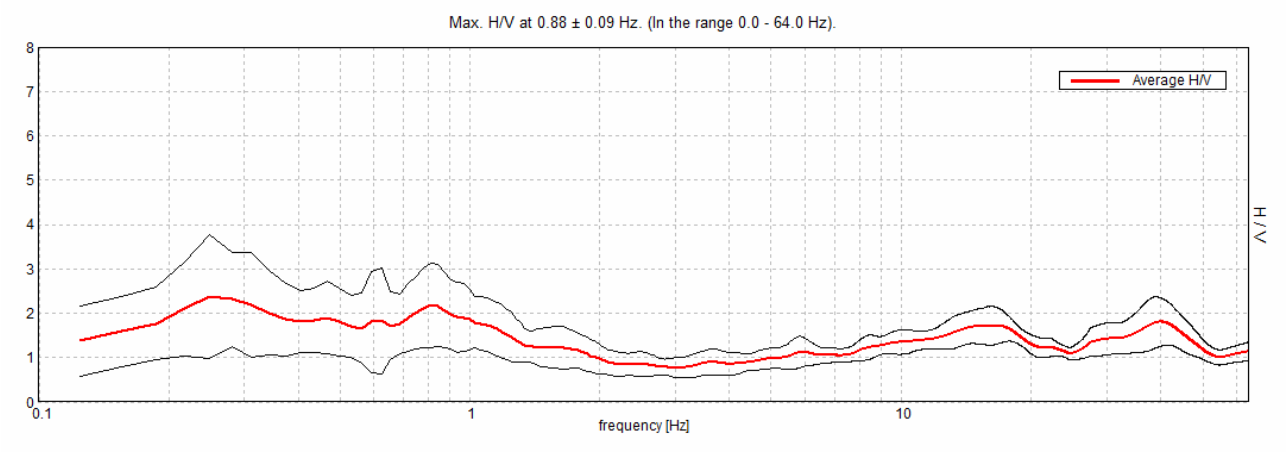


MICROZONAZIONE MIRANDOLA, R082

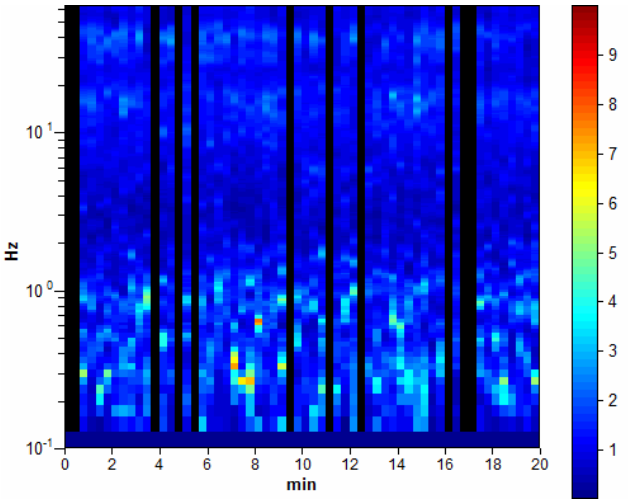
Start recording: 15/12/11 11:45:45 End recording: 15/12/11 12:05:46
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 82% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

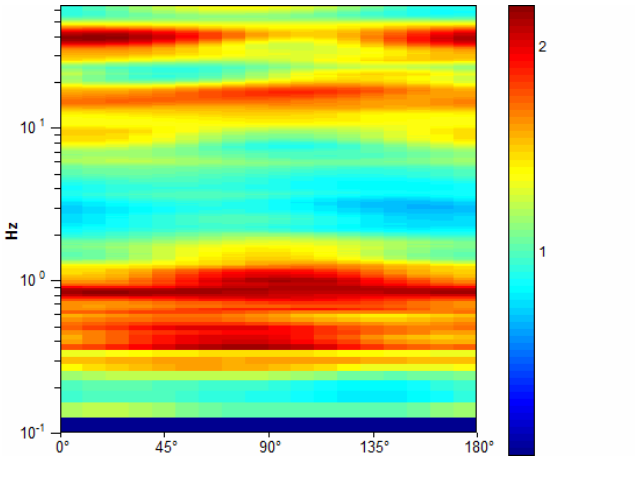
HORIZONTAL TO VERTICAL SPECTRAL RATIO



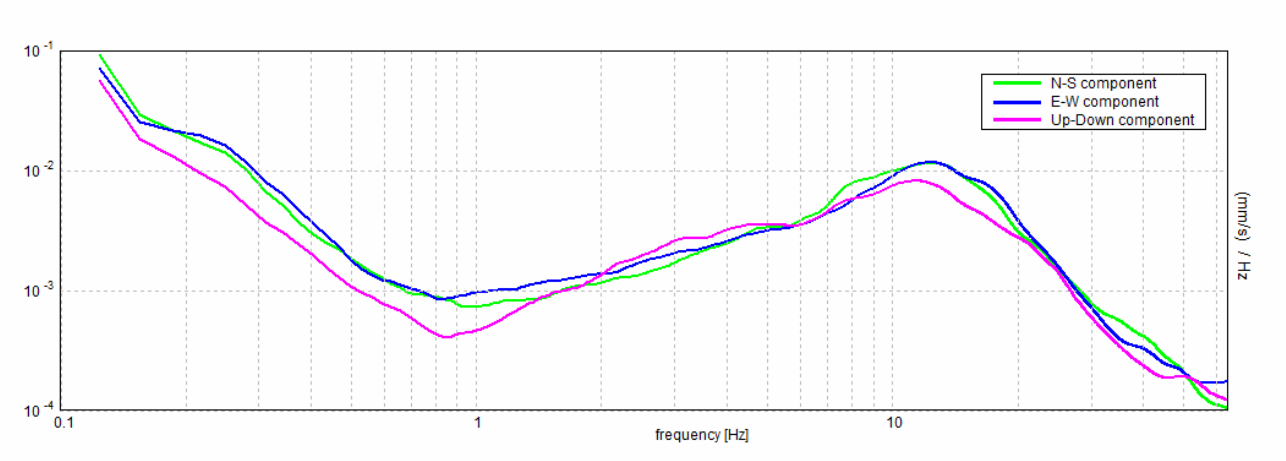
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

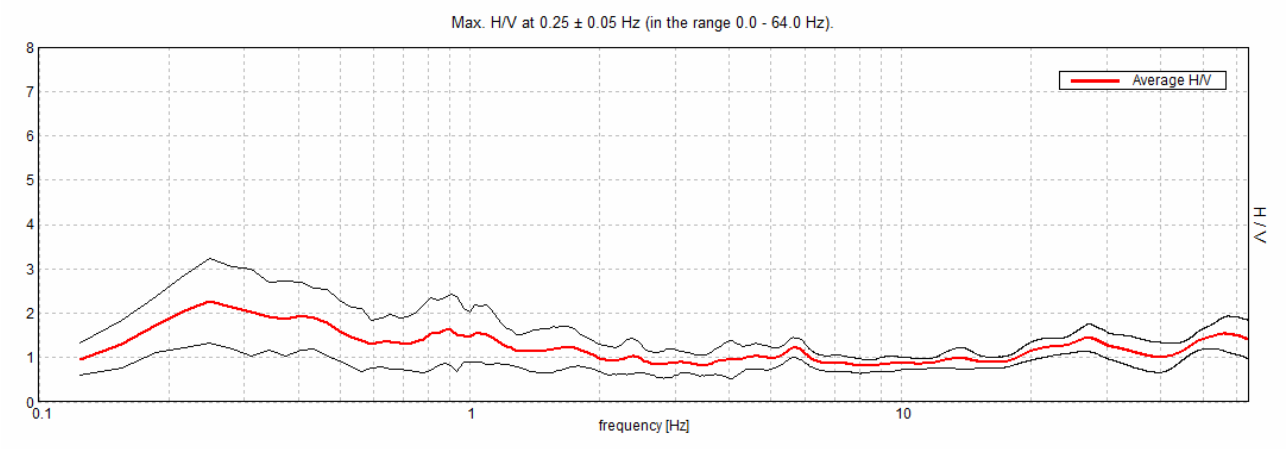


MICROZONAZIONE MIRANDOLA, R083

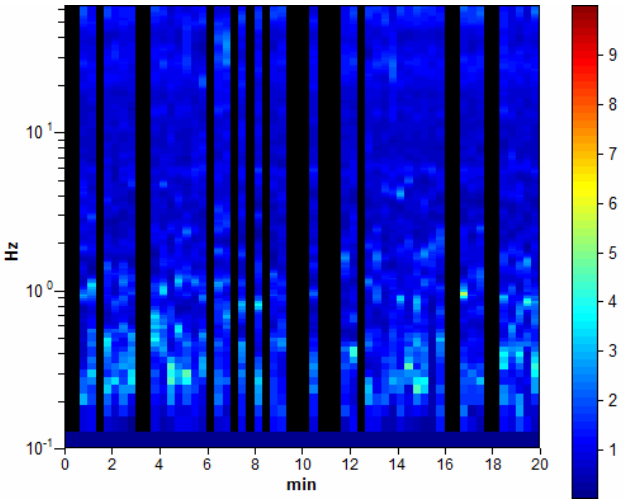
Start recording: 15/12/11 12:28:46 End recording: 15/12/11 12:48:47
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

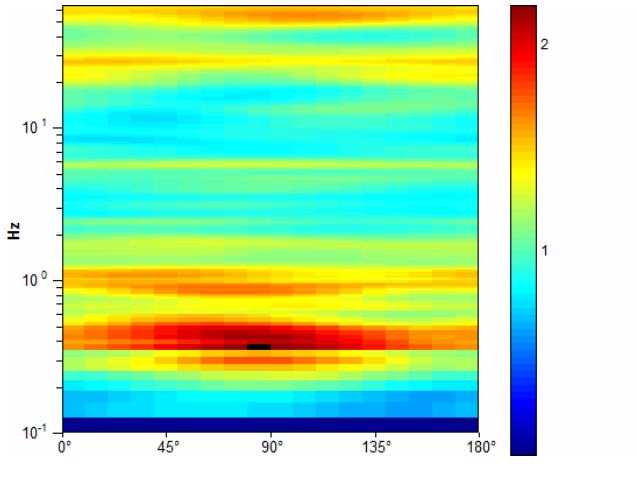
HORIZONTAL TO VERTICAL SPECTRAL RATIO



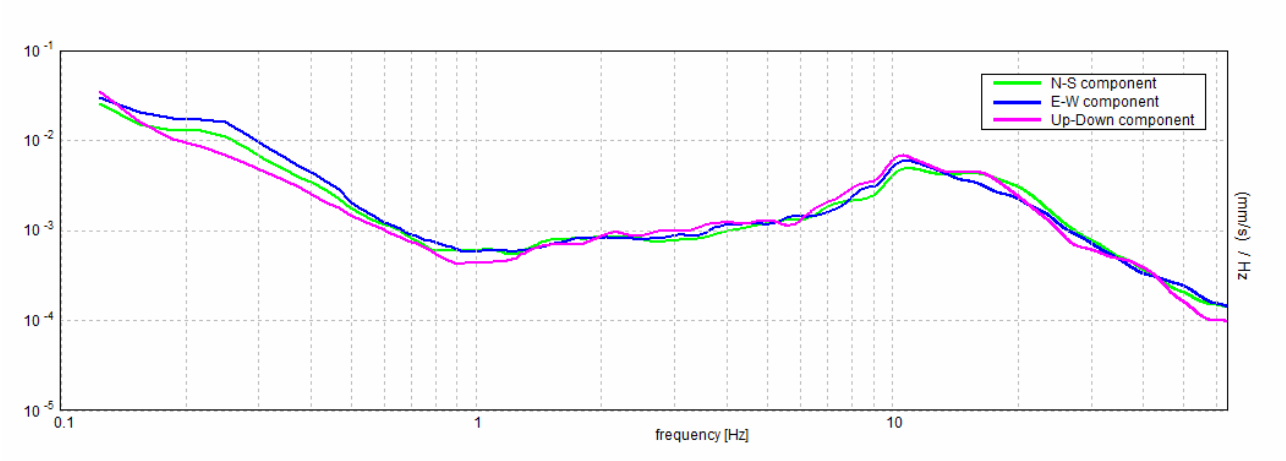
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

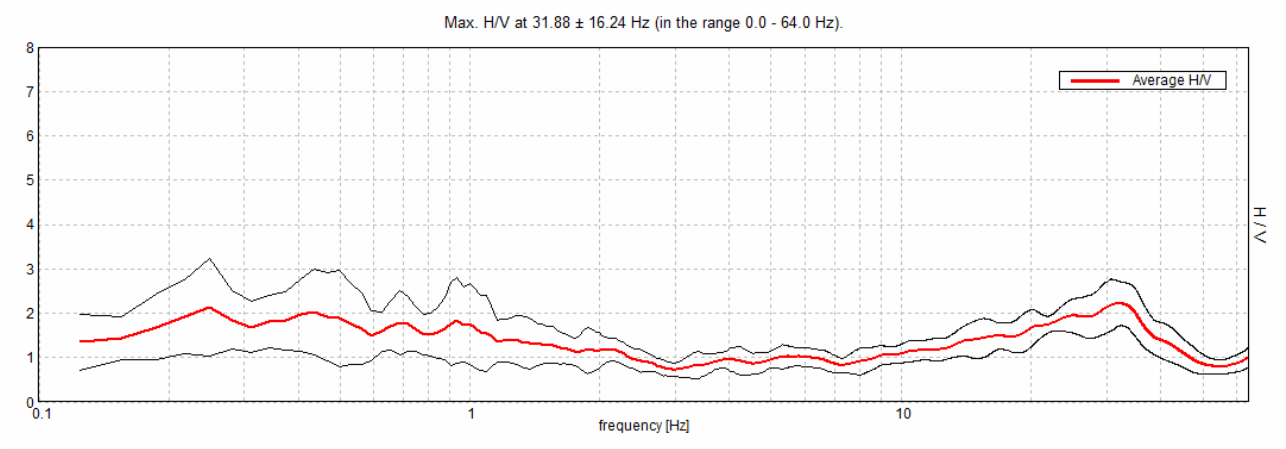


MICROZONAZIONE MIRANDOLA, R084

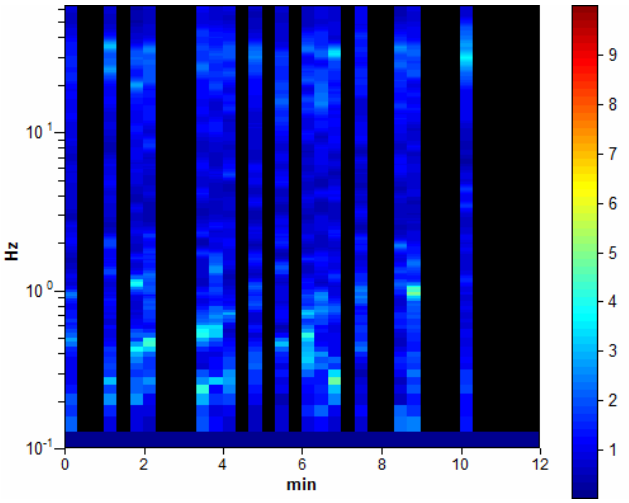
Start recording: 15/12/11 13:00:35 End recording: 15/12/11 13:12:36
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 44% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

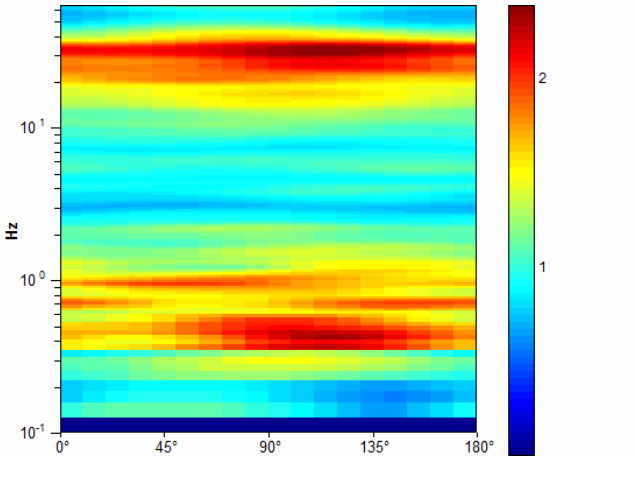
HORIZONTAL TO VERTICAL SPECTRAL RATIO



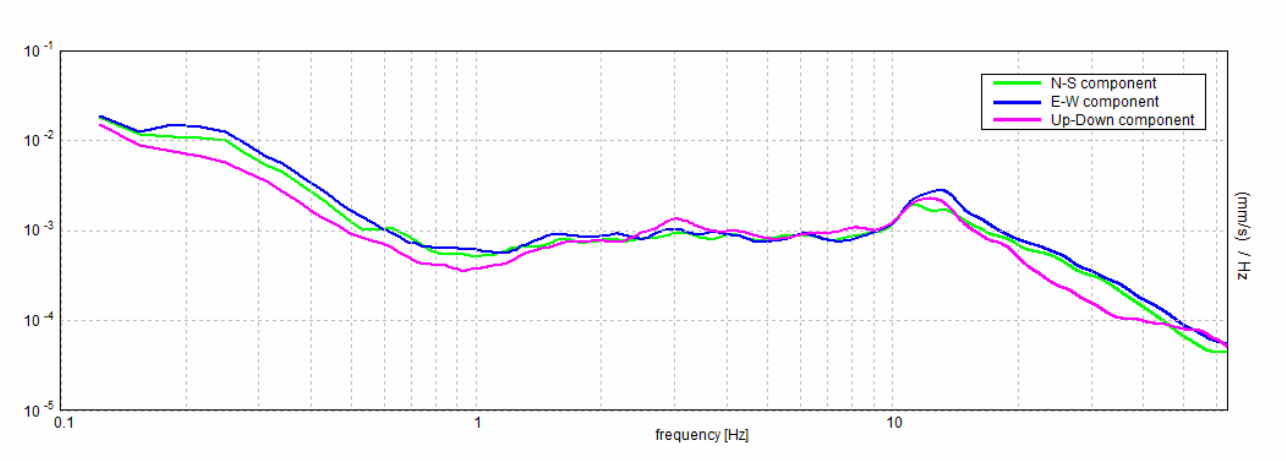
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

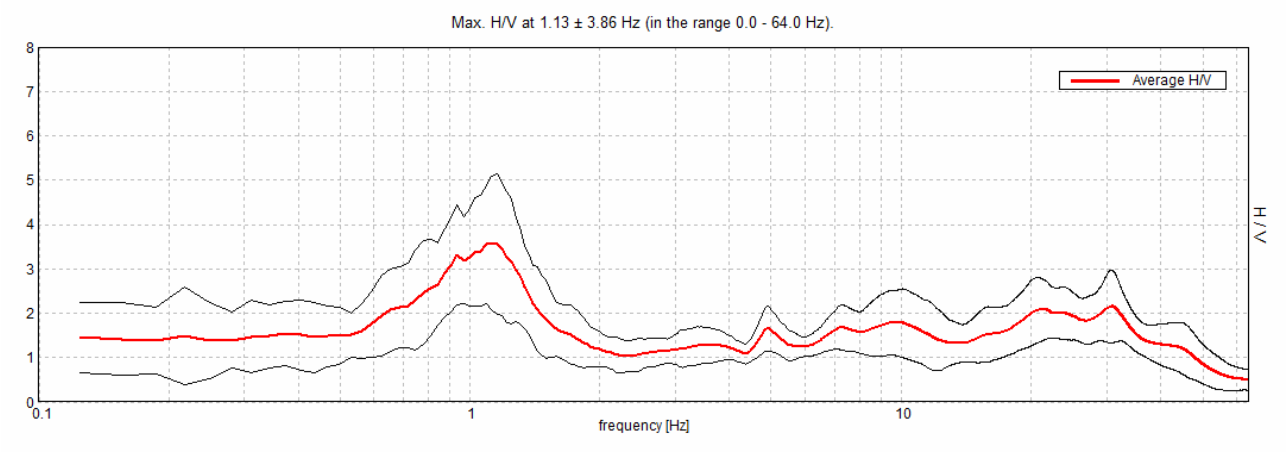


MICROZONAZIONE MIRANDOLA, R085

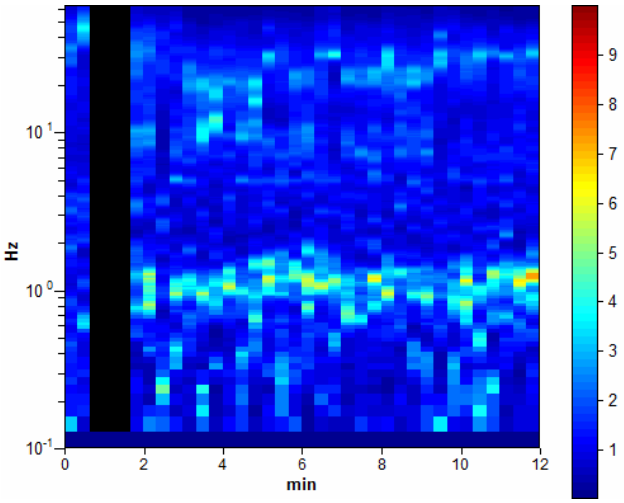
Start recording: 15/12/11 14:59:59 End recording: 15/12/11 15:12:00
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 92% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

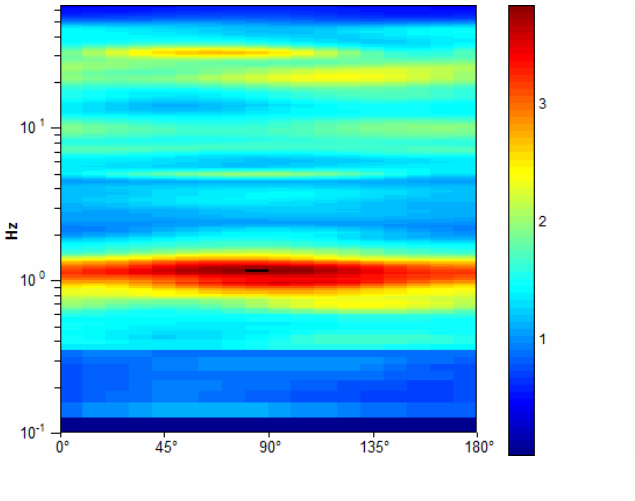
HORIZONTAL TO VERTICAL SPECTRAL RATIO



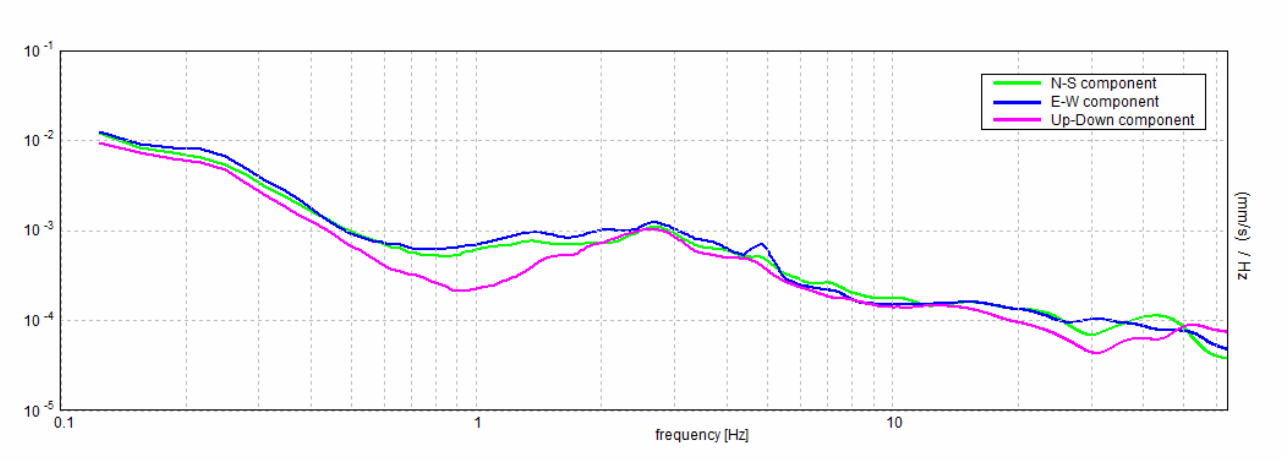
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

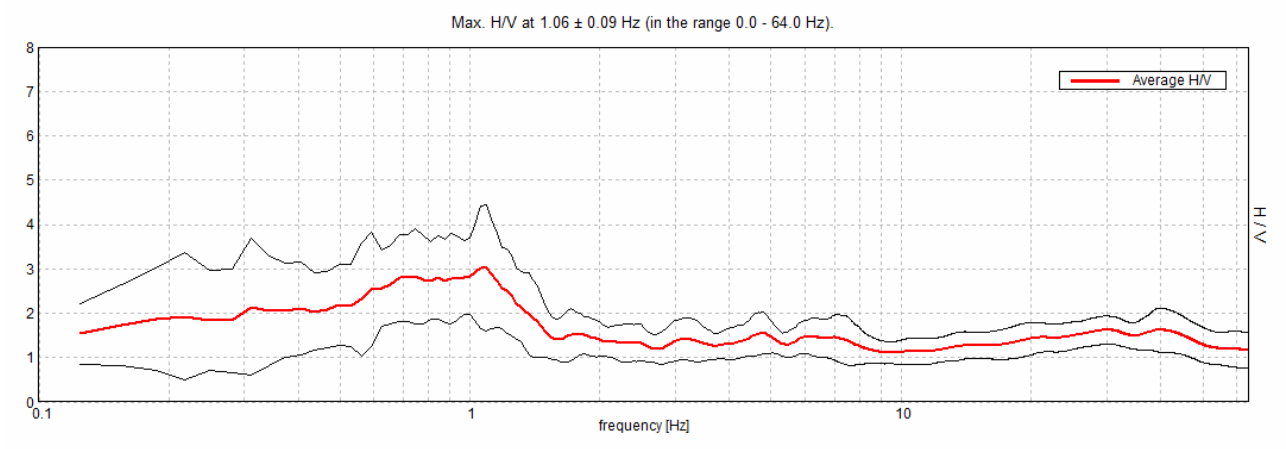


MICROZONAZIONE MIRANDOLA, R086

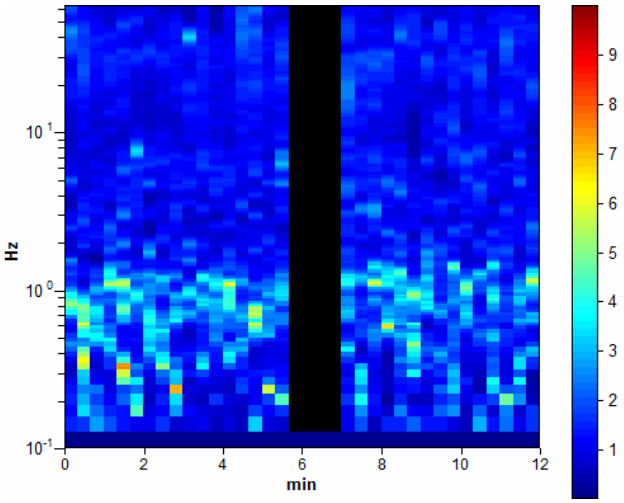
Start recording: 15/12/11 15:28:49 End recording: 15/12/11 15:40:50
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

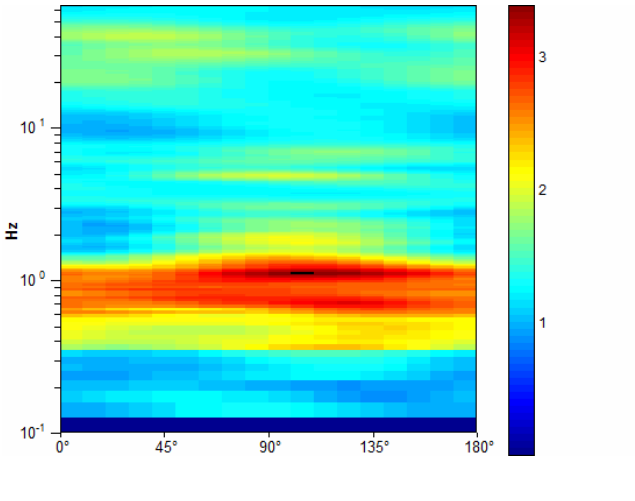
HORIZONTAL TO VERTICAL SPECTRAL RATIO



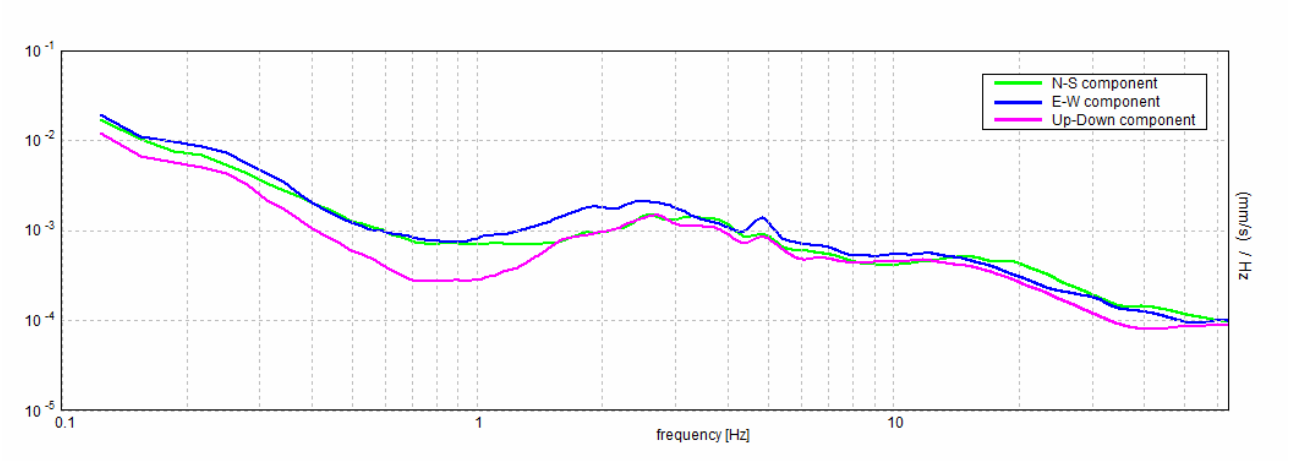
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

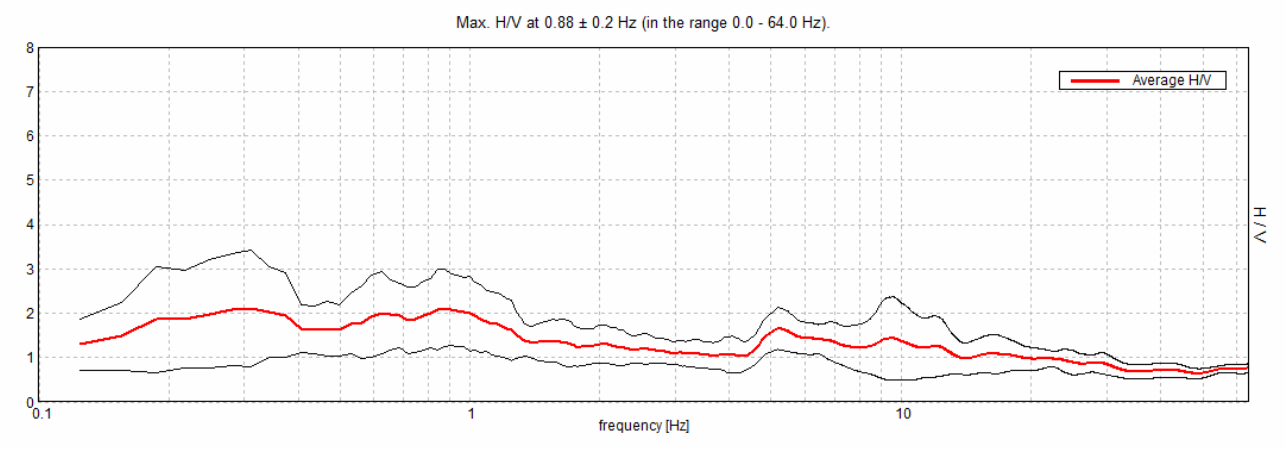


MICROZONAZIONE MIRANDOLA, R087

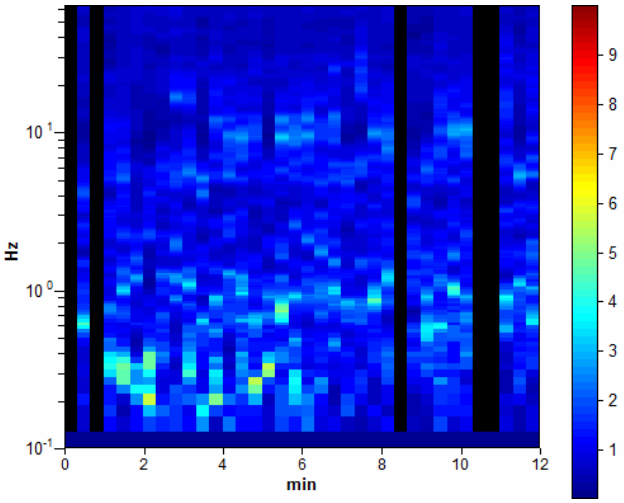
Start recording: 15/12/11 15:59:26 End recording: 15/12/11 16:11:27
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

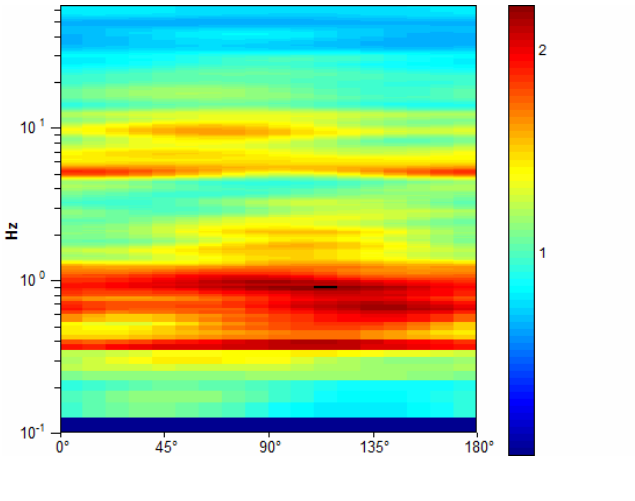
HORIZONTAL TO VERTICAL SPECTRAL RATIO



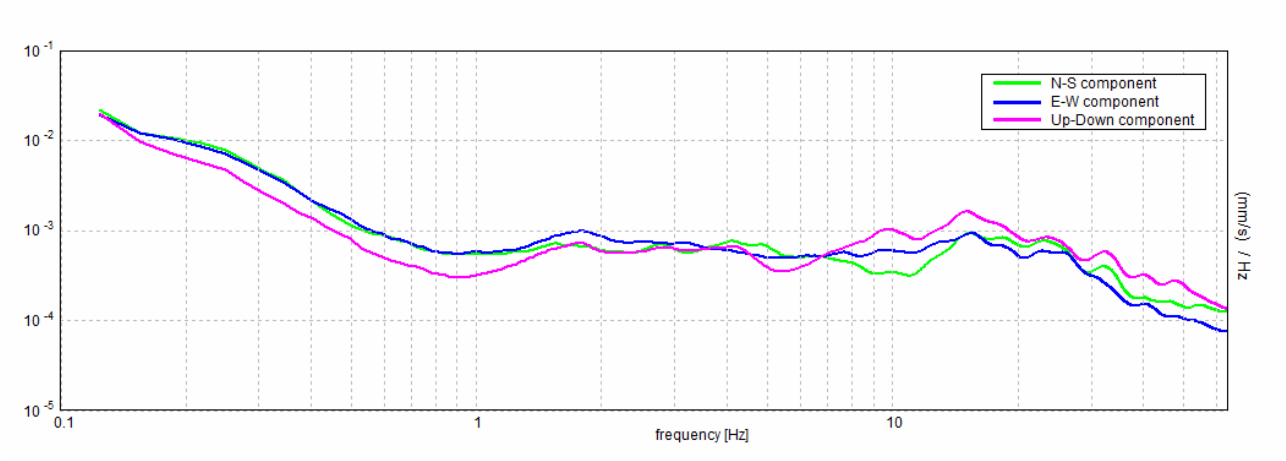
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

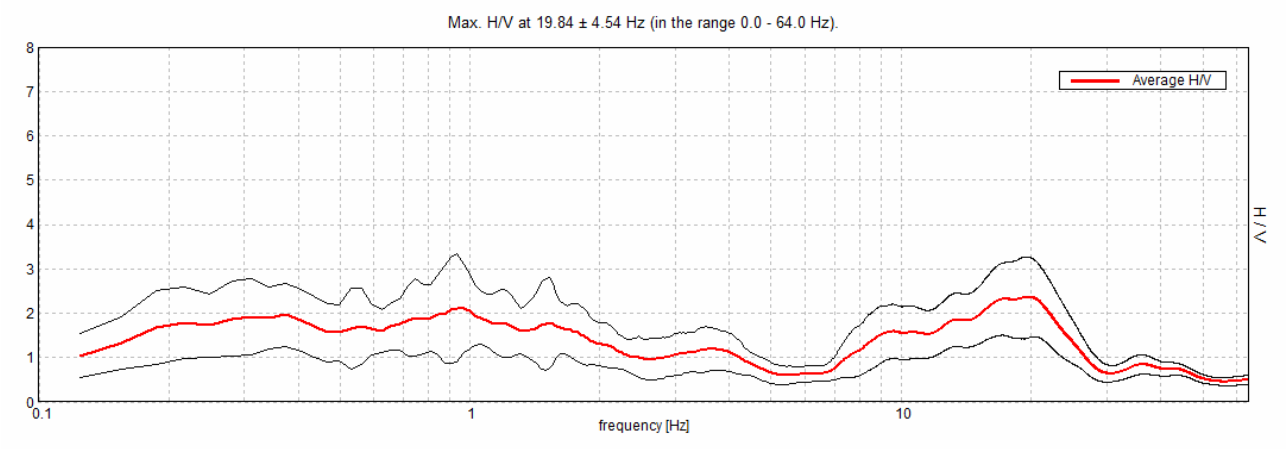


MICROZONAZIONE MIRANDOLA, R089

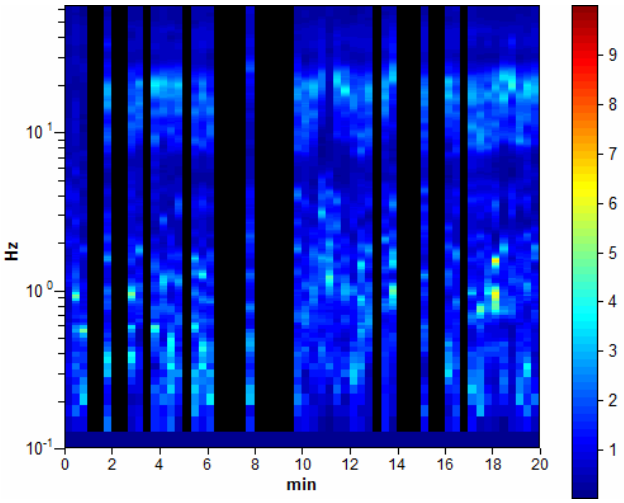
Start recording: 16/12/11 10:15:42 End recording: 16/12/11 10:35:43
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h20'00''. Analyzed 63% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

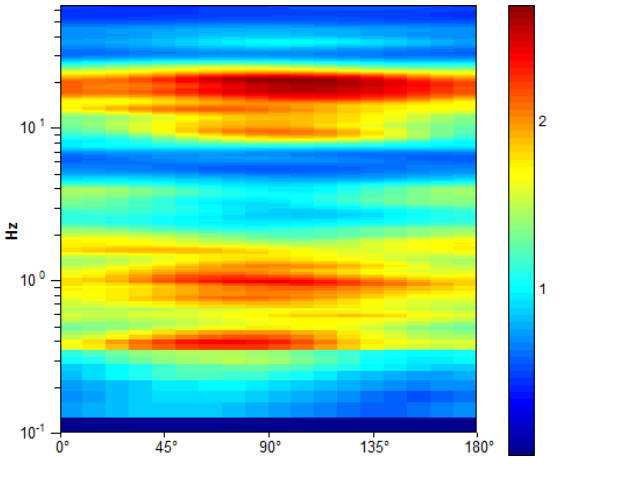
HORIZONTAL TO VERTICAL SPECTRAL RATIO



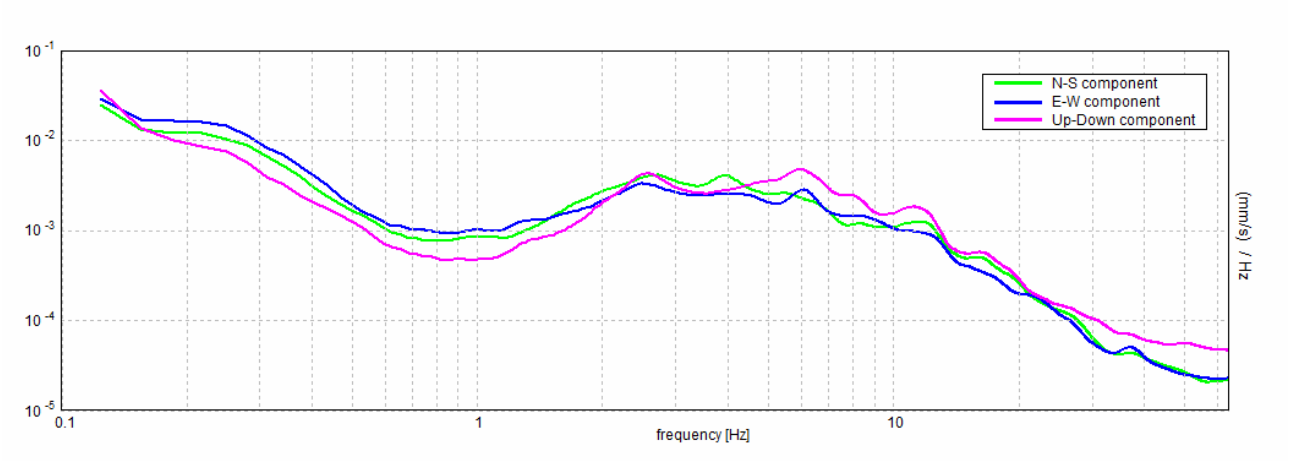
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

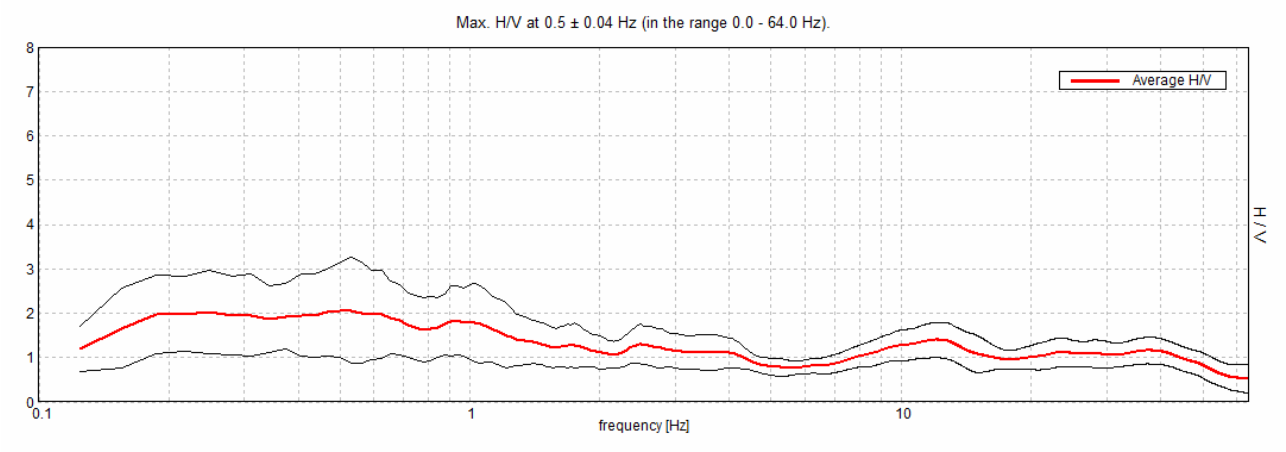


MICROZONAZIONE MIRANDOLA, R090

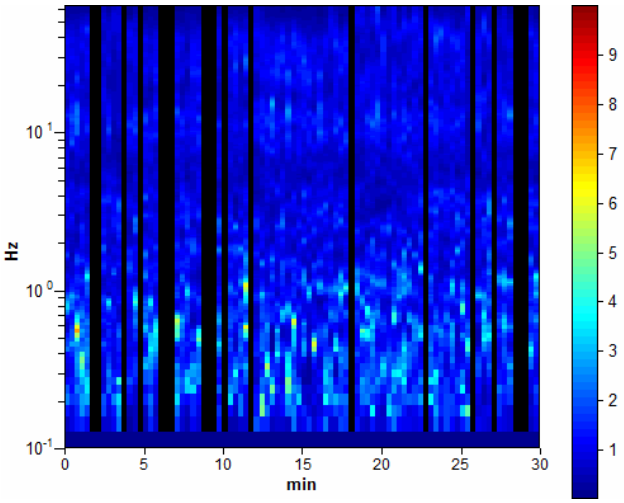
Start recording: 16/12/11 10:53:24 End recording: 16/12/11 11:23:25
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 79% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

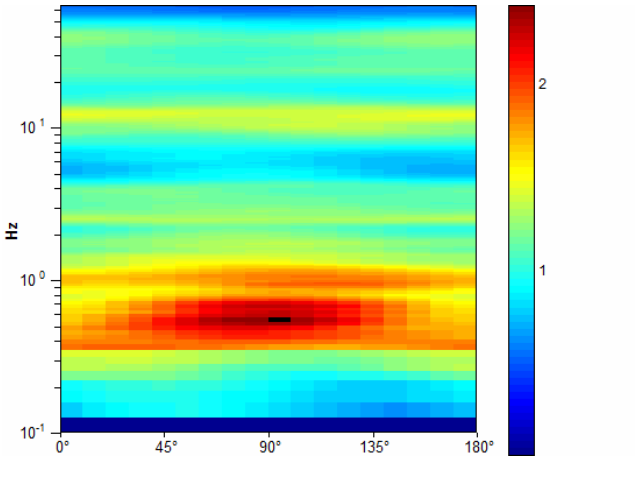
HORIZONTAL TO VERTICAL SPECTRAL RATIO



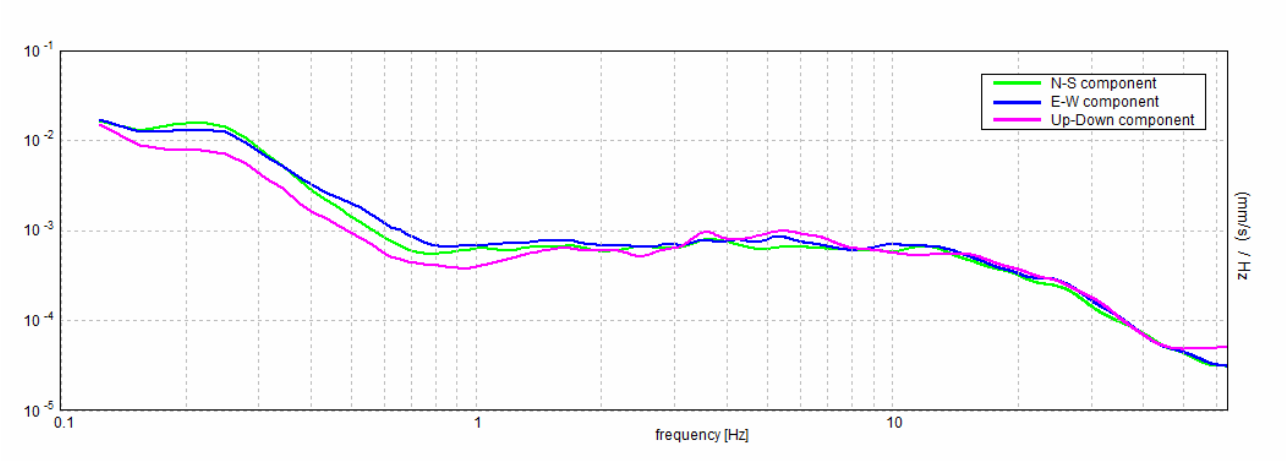
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

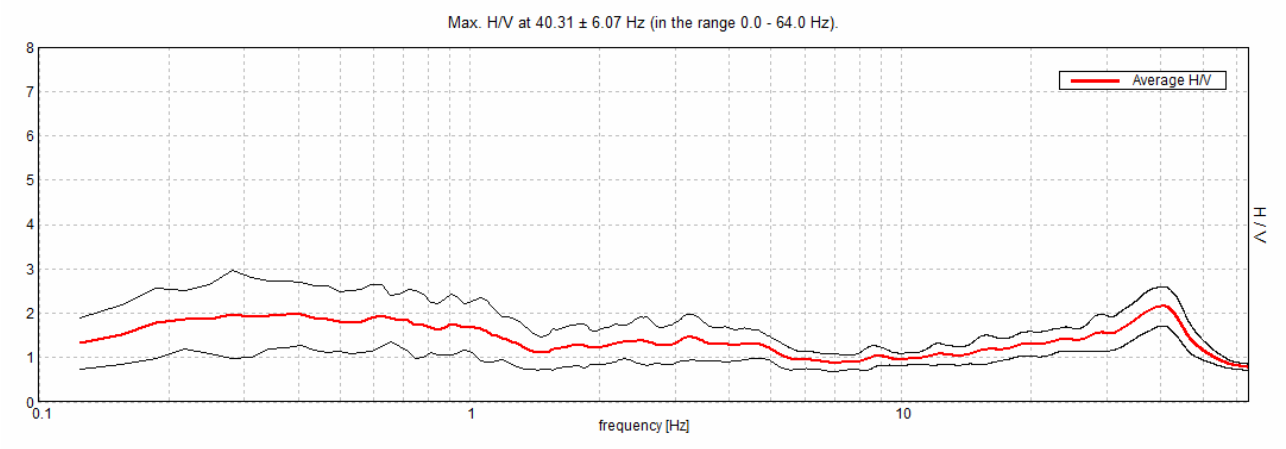


MICROZONAZIONE MIRANDOLA, R091

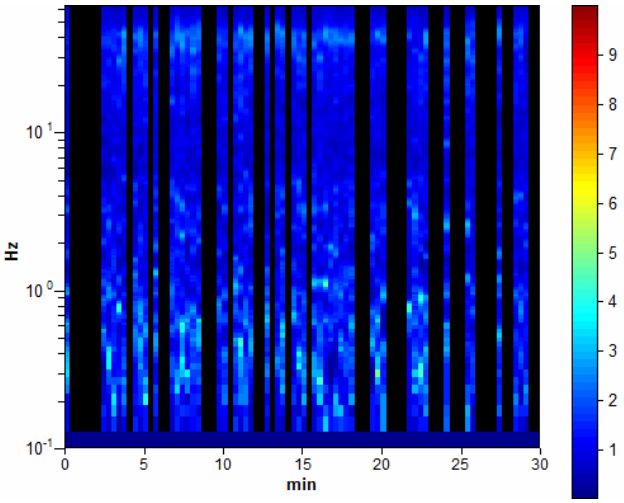
Start recording: 16/12/11 12:12:26 End recording: 16/12/11 12:42:27
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h30'00''. Analyzed 56% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

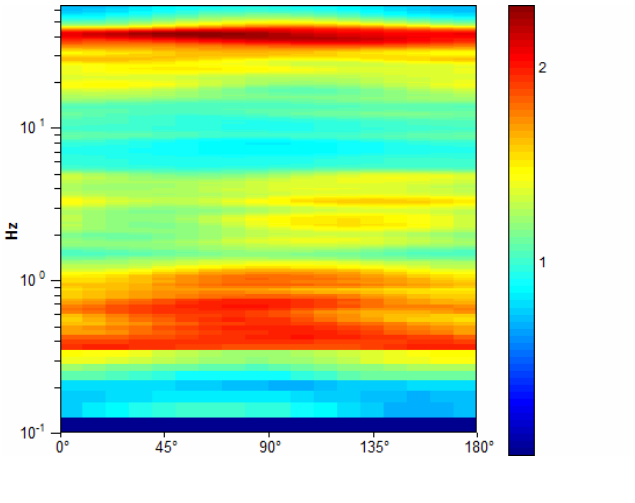
HORIZONTAL TO VERTICAL SPECTRAL RATIO



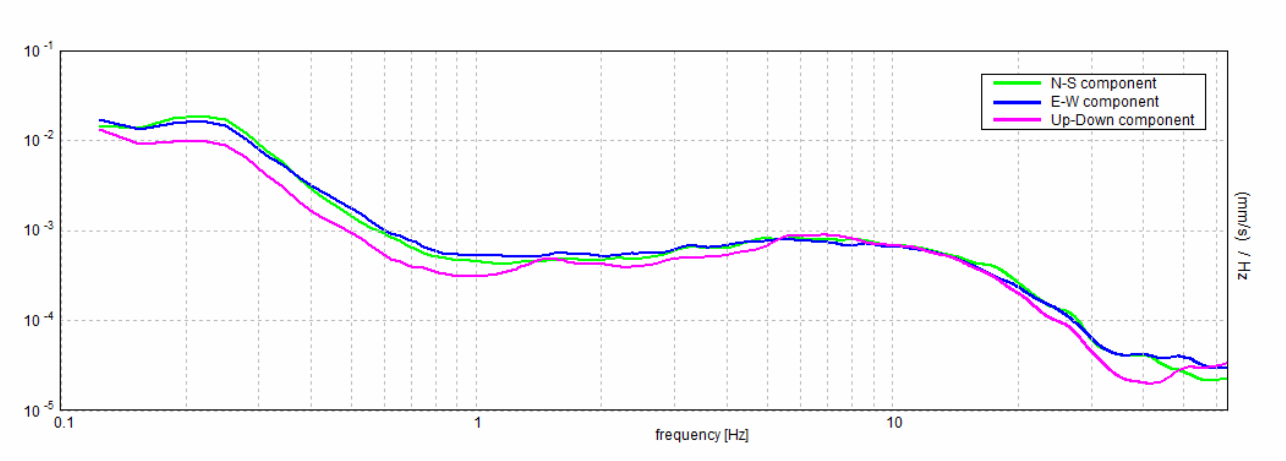
H/V TIME HISTORY



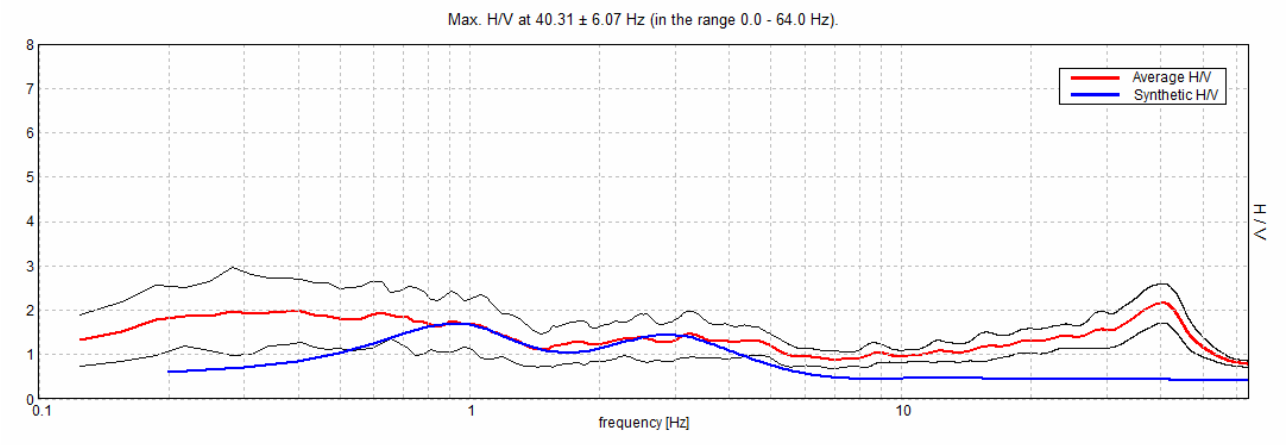
DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

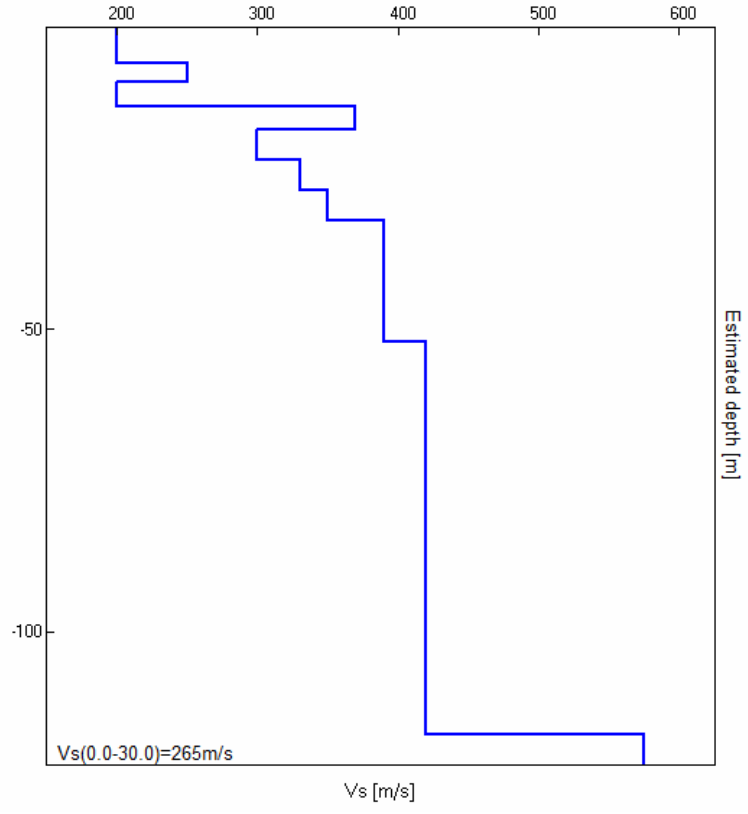


EXPERIMENTAL VS. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
6.00	6.00	200
9.00	3.00	250
13.00	4.00	200
17.00	4.00	370
22.00	5.00	300
27.00	5.00	330
32.00	5.00	350
52.00	20.00	390
117.00	65.00	420
inf.	inf.	575

Vs30 = 265 m/s



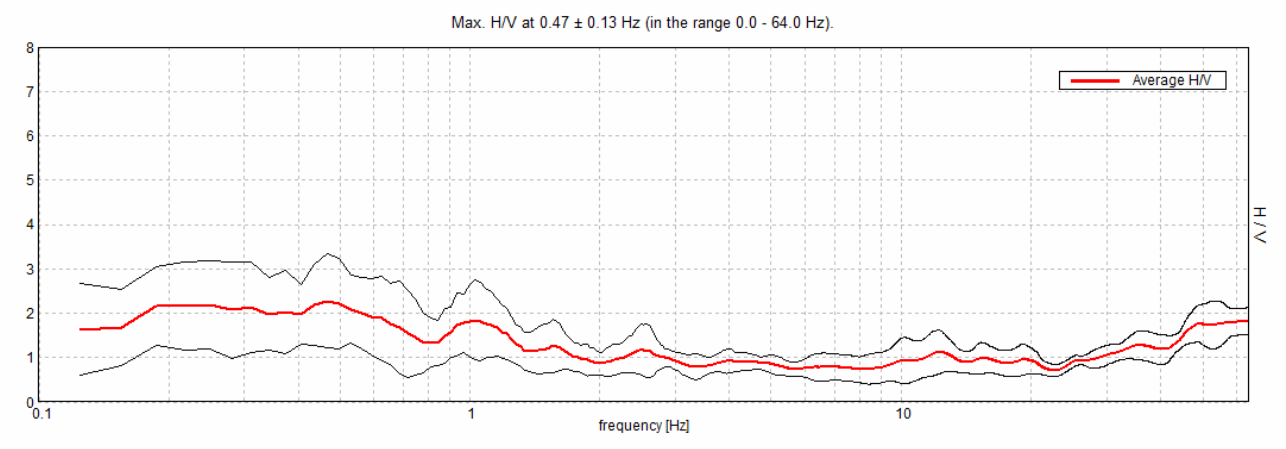
R091

MICROZONAZIONE MIRANDOLA, R092

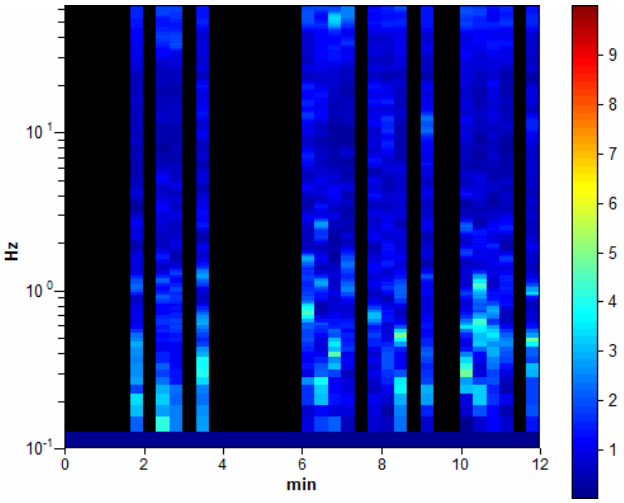
Start recording: 16/12/11 12:47:47 End recording: 16/12/11 12:59:48
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 47% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

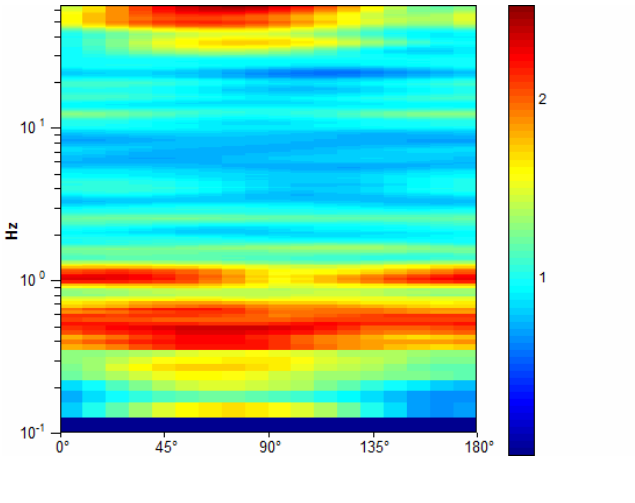
HORIZONTAL TO VERTICAL SPECTRAL RATIO



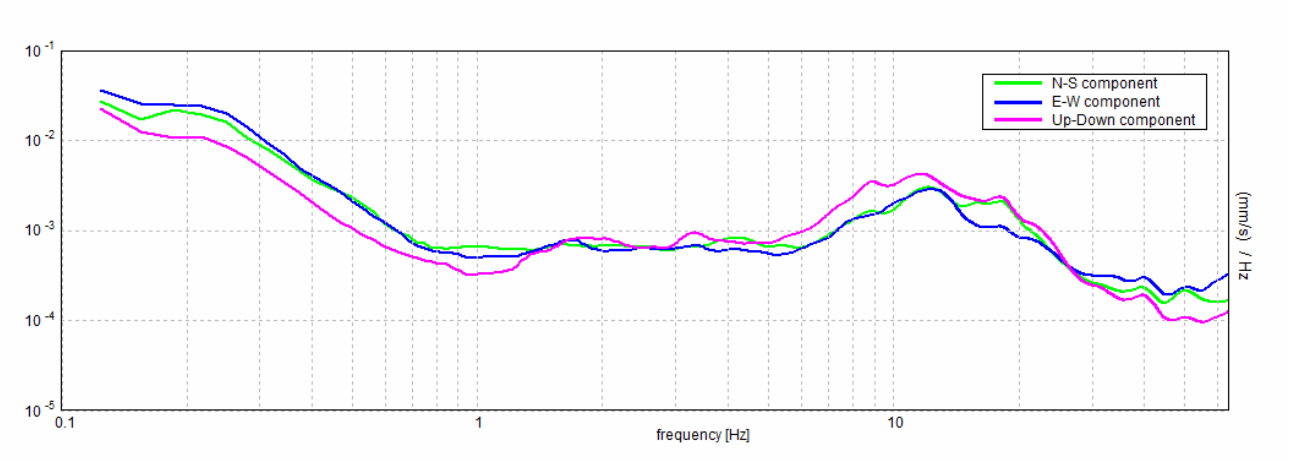
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

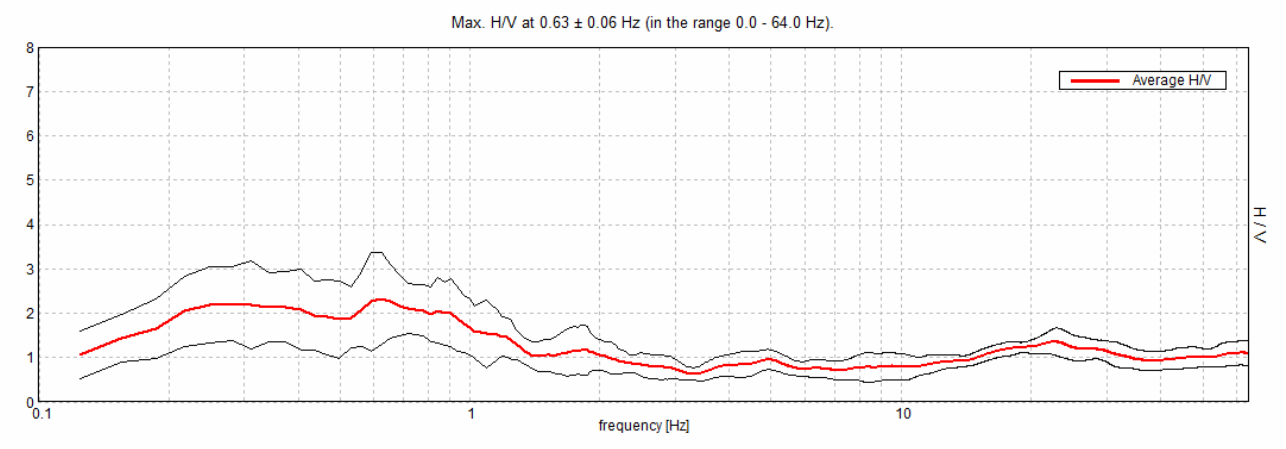


MICROZONAZIONE MIRANDOLA, R093

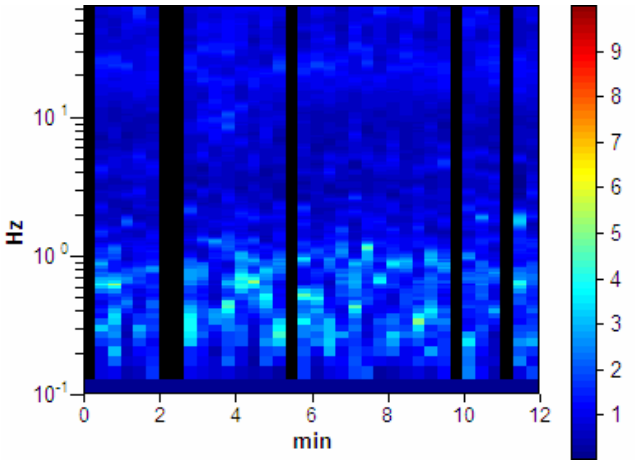
Start recording: 16/12/11 13:40:40 End recording: 16/12/11 13:52:41
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

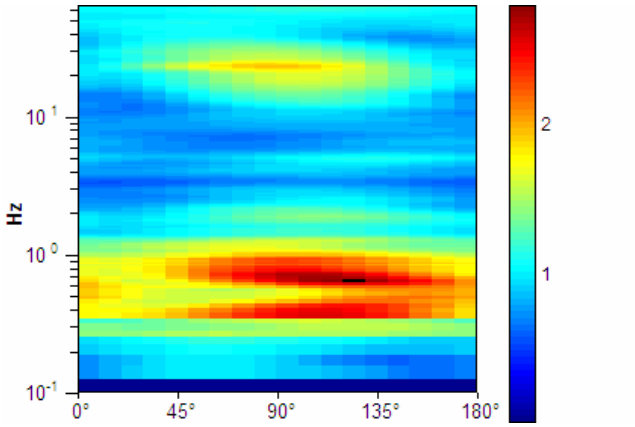
HORIZONTAL TO VERTICAL SPECTRAL RATIO



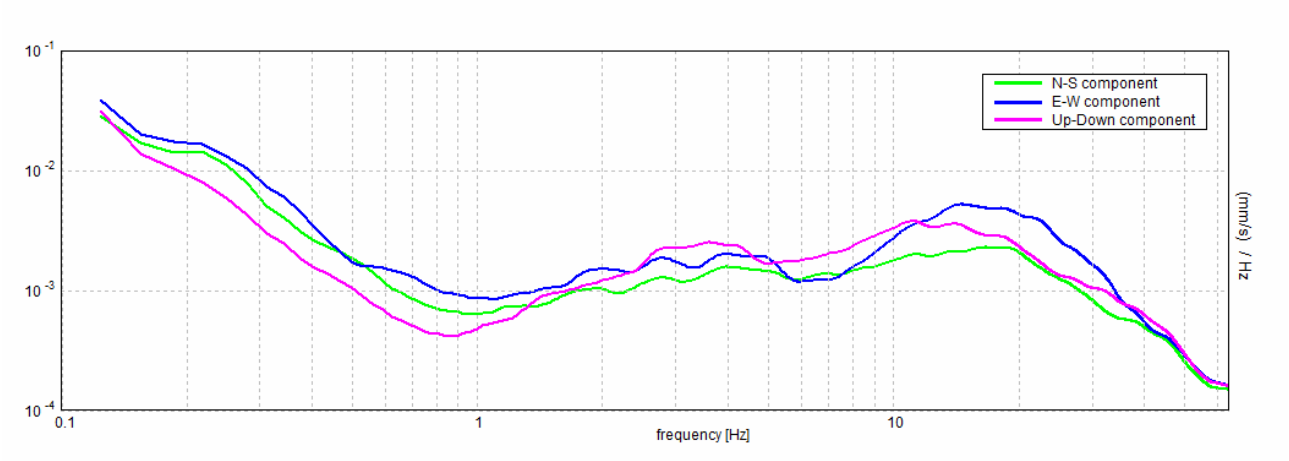
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

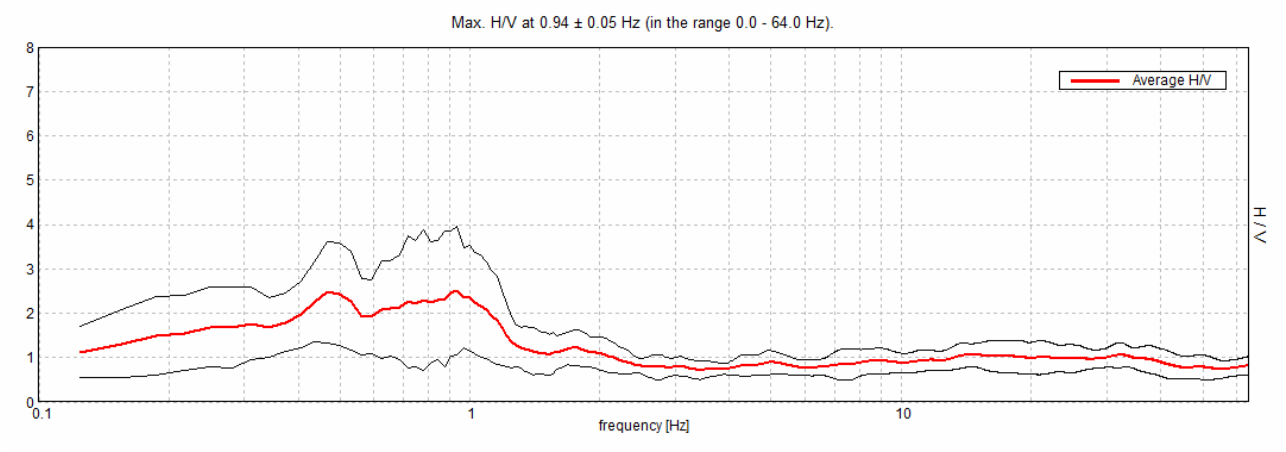


MICROZONAZIONE MIRANDOLA, R094

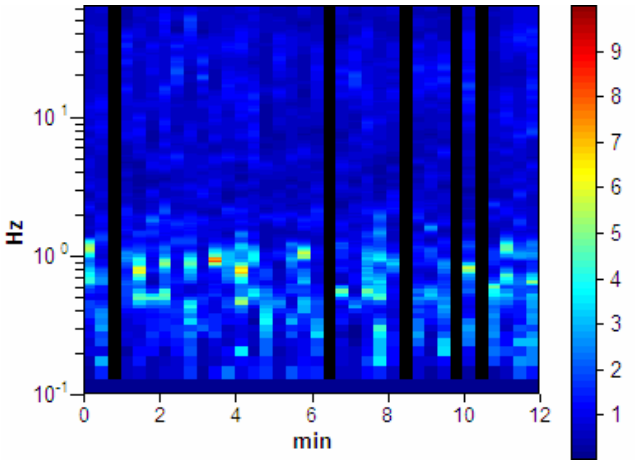
Start recording: 16/12/11 13:59:20 End recording: 16/12/11 14:11:21
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

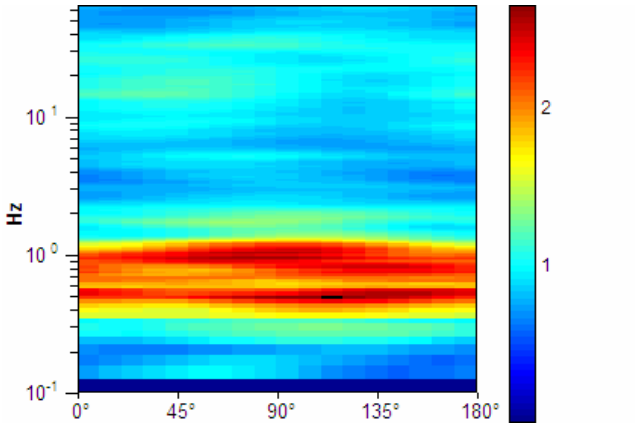
HORIZONTAL TO VERTICAL SPECTRAL RATIO



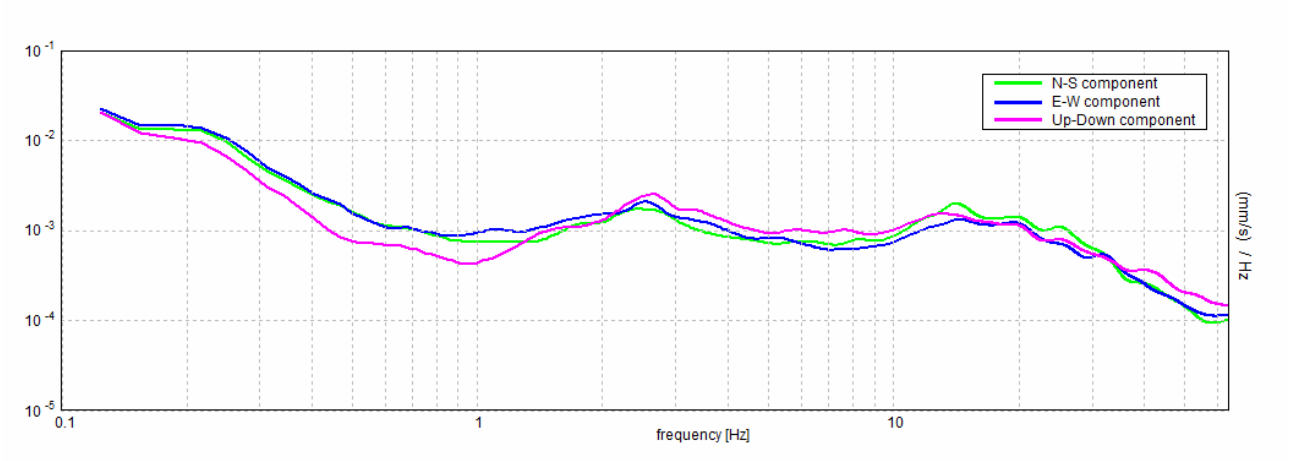
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

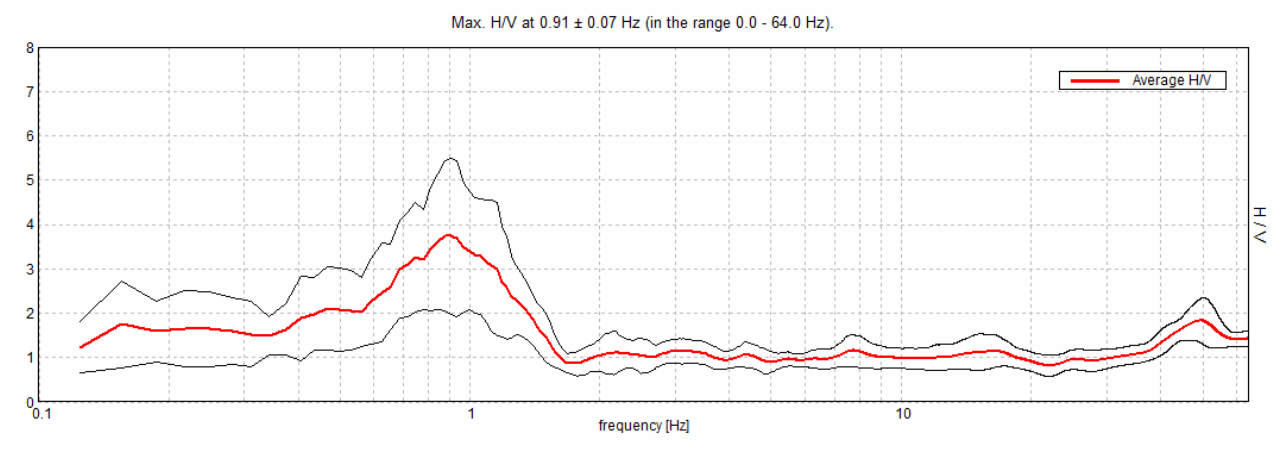


MICROZONAZIONE MIRANDOLA, R095

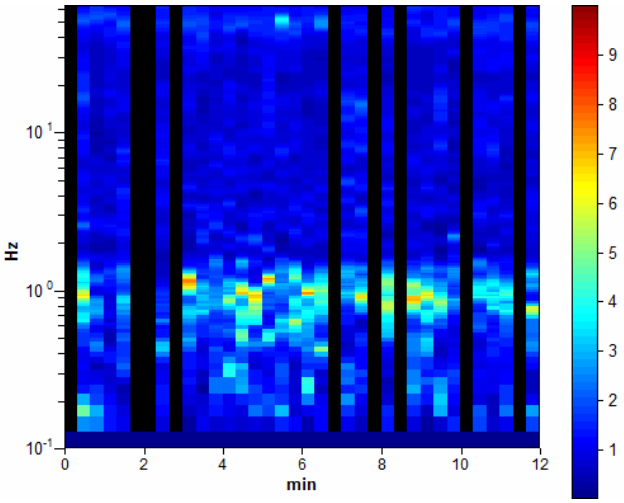
Start recording: 16/12/11 14:16:35 End recording: 16/12/11 14:28:36
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 75% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

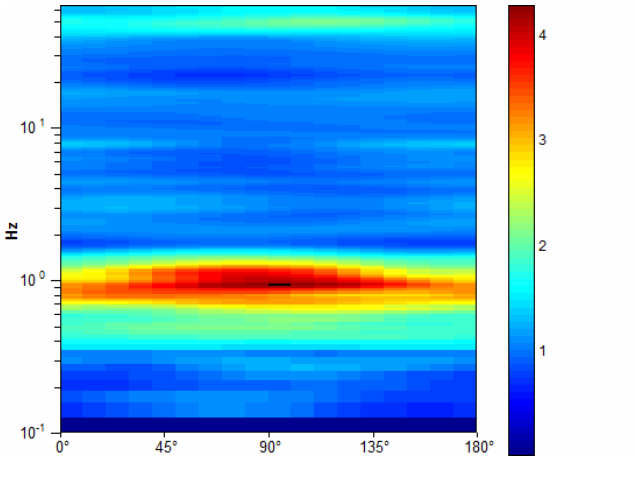
HORIZONTAL TO VERTICAL SPECTRAL RATIO



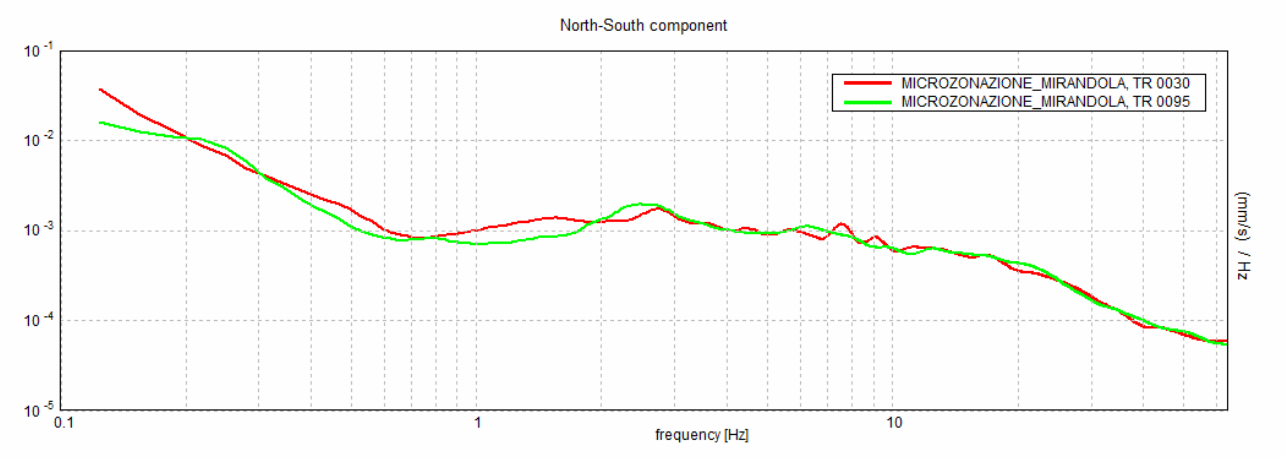
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

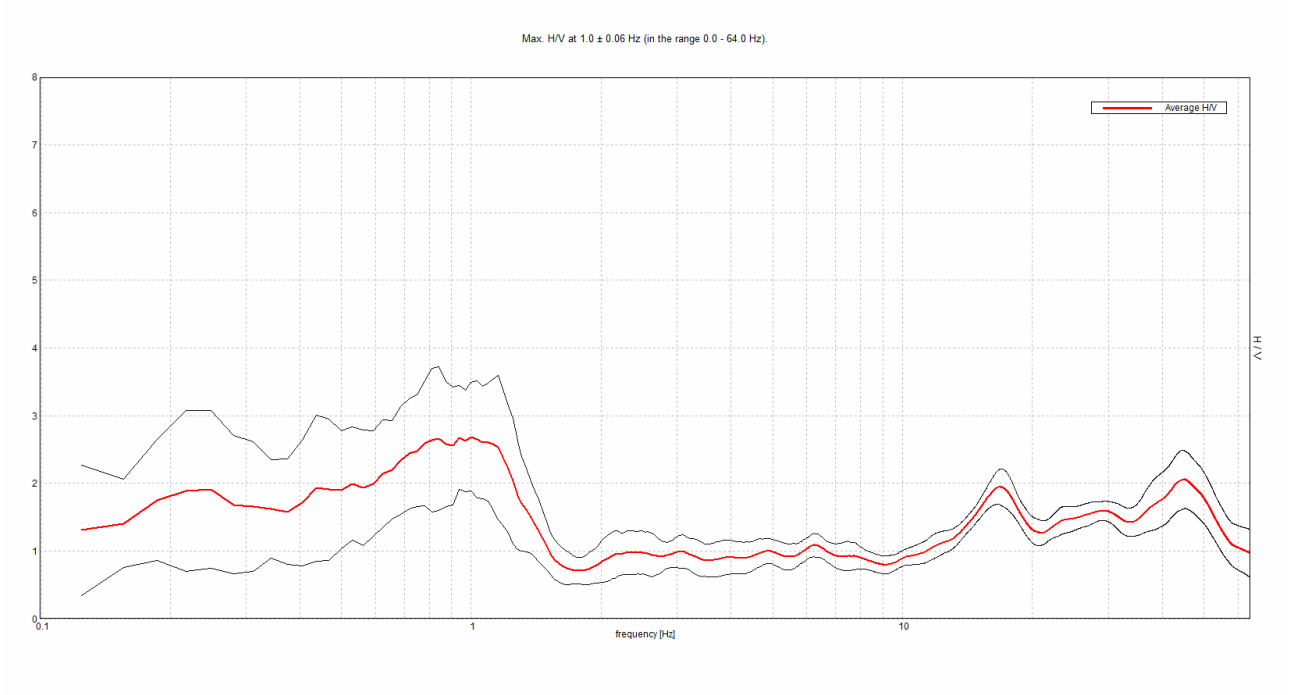


MICROZONAZIONE MIRANDOLA, R096

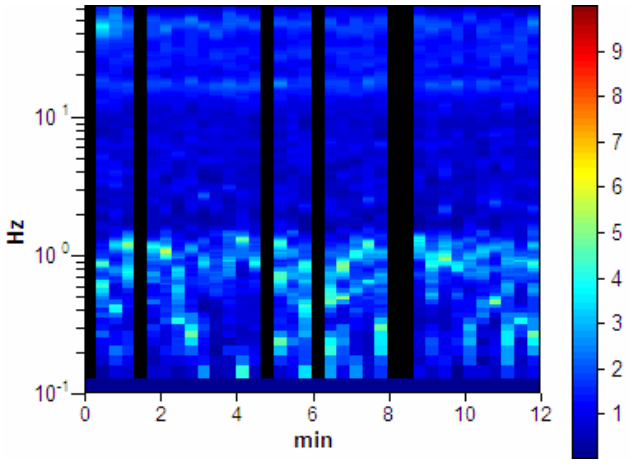
Start recording: 16/12/11 14:35:11 End recording: 16/12/11 14:47:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

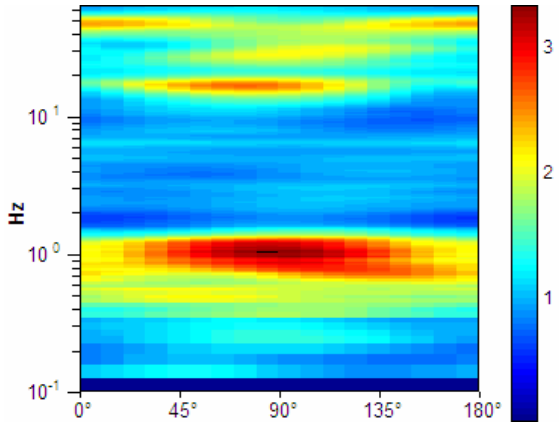
HORIZONTAL TO VERTICAL SPECTRAL RATIO



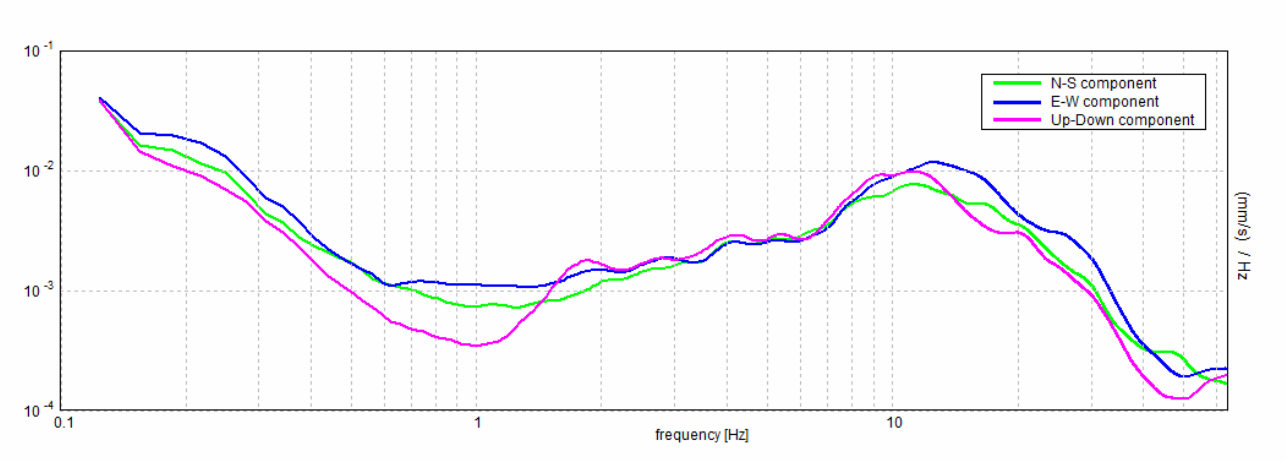
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

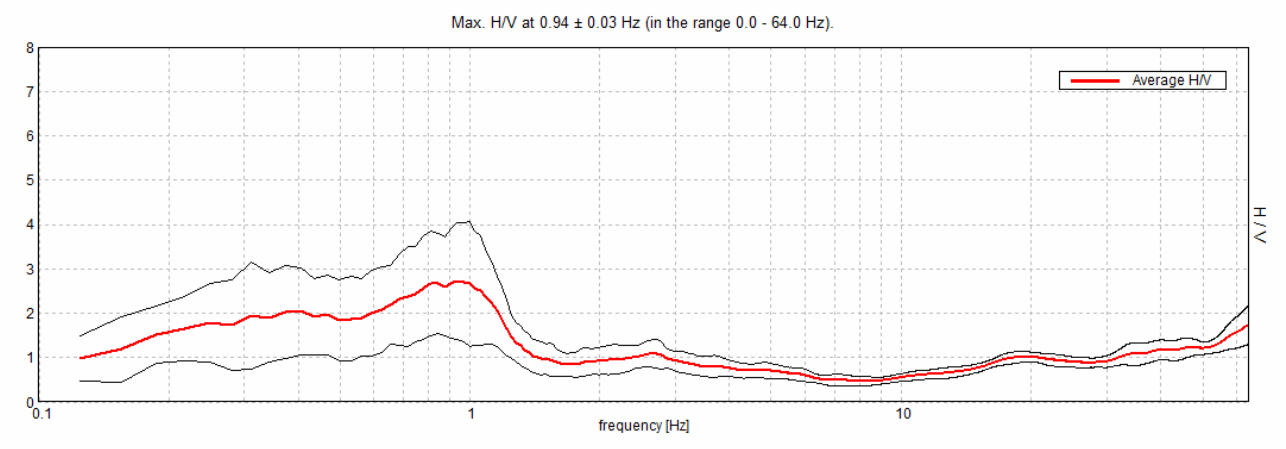


MICROZONAZIONE MIRANDOLA, R097

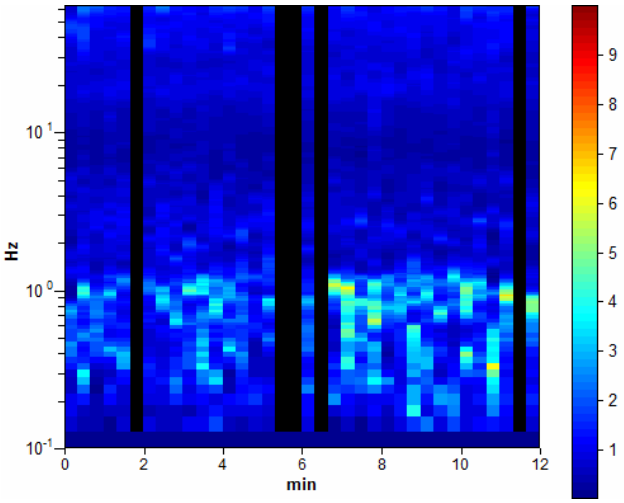
Start recording: 16/12/11 14:51:06 End recording: 16/12/11 15:03:07
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

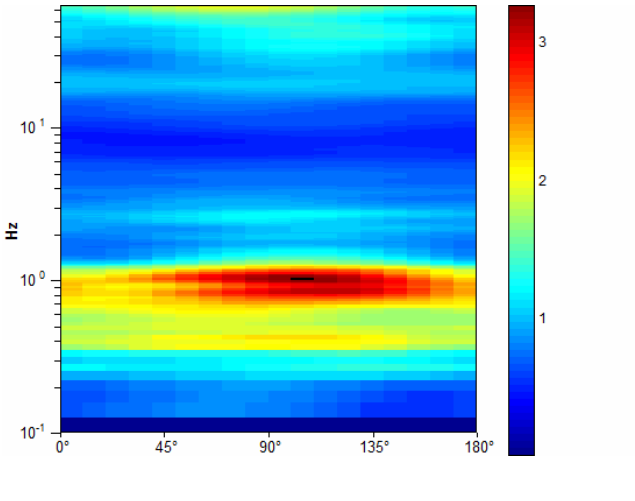
HORIZONTAL TO VERTICAL SPECTRAL RATIO



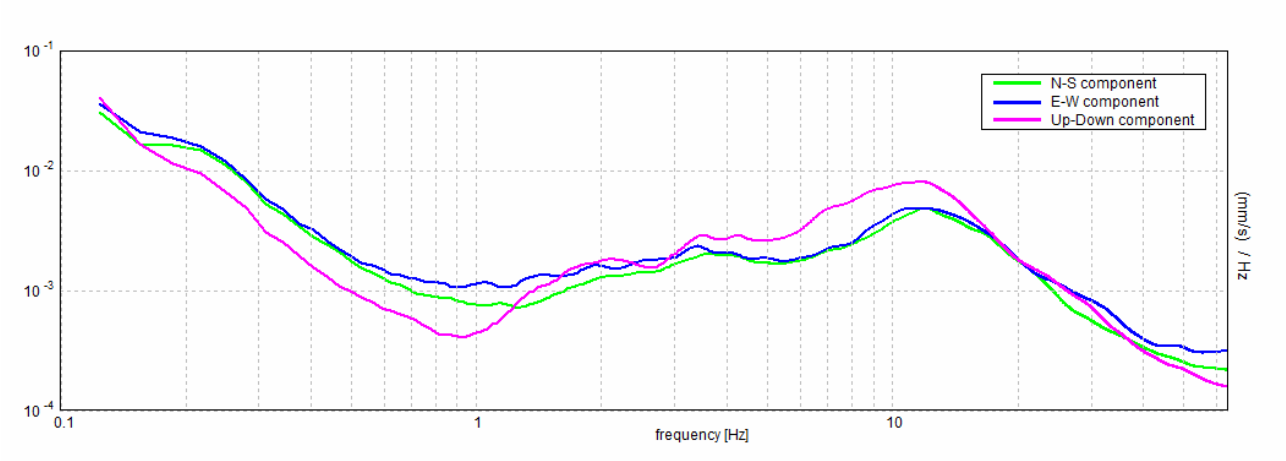
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

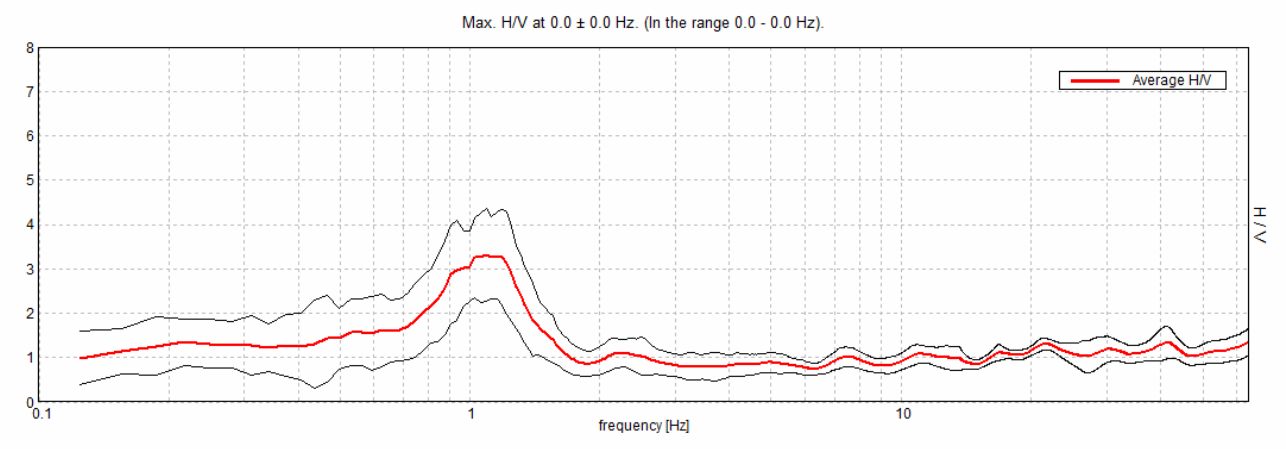


MICROZONAZIONE MIRANDOLA, R102

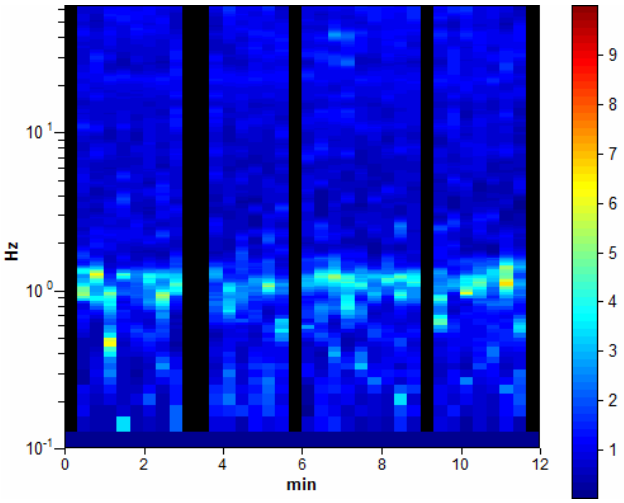
Start recording: 22/12/11 09:57:02 End recording: 22/12/11 10:09:03
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

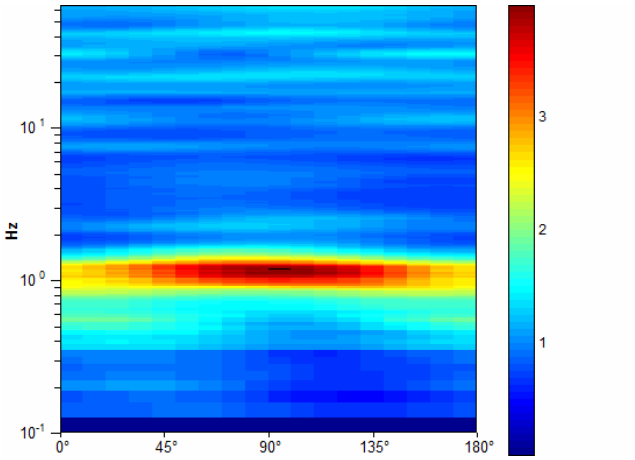
HORIZONTAL TO VERTICAL SPECTRAL RATIO



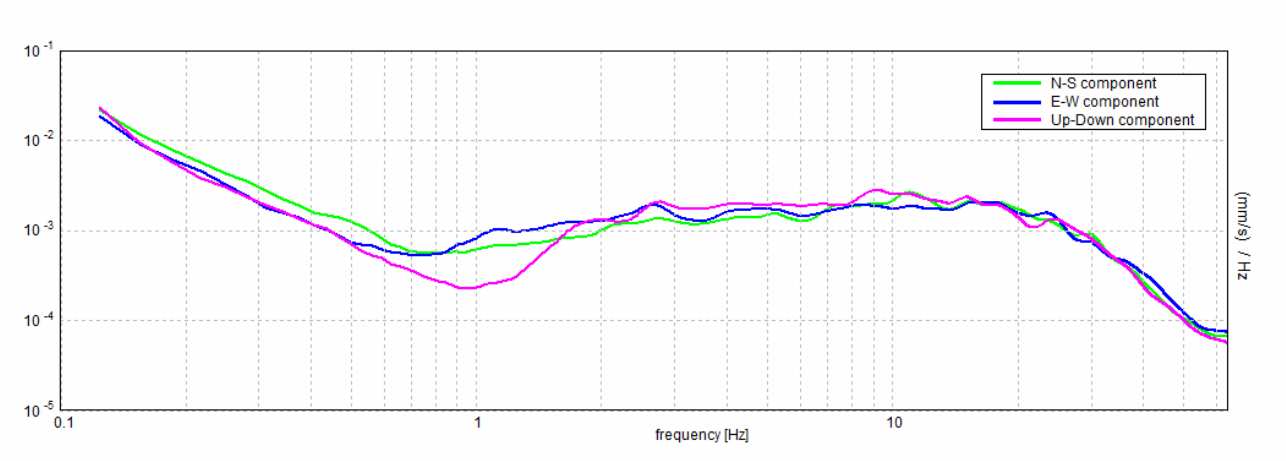
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

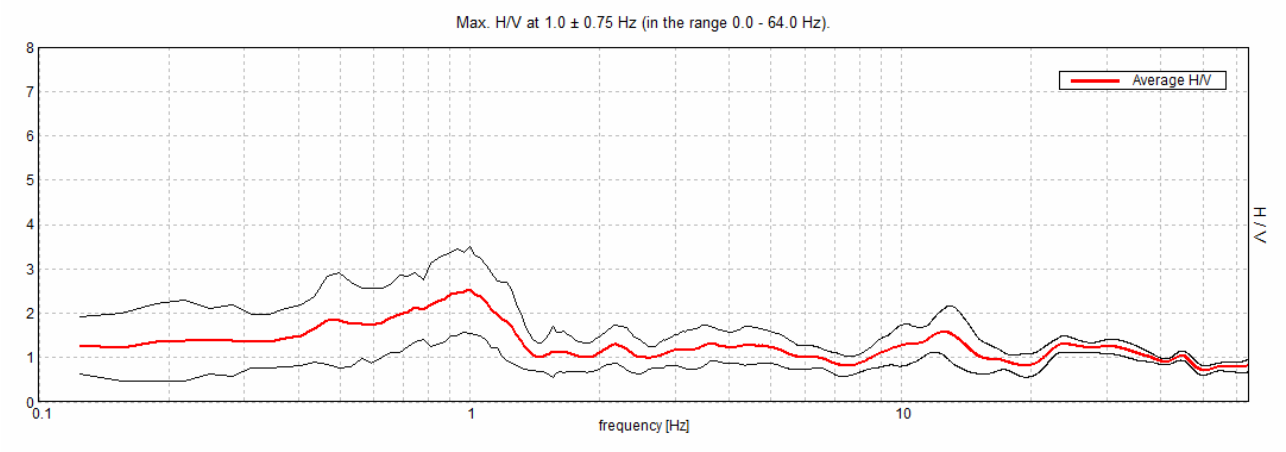


MICROZONAZIONE MIRANDOLA, R103

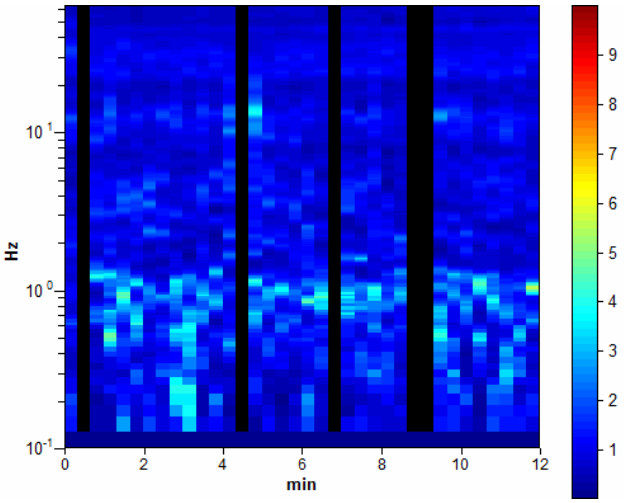
Start recording: 22/12/11 10:26:18 End recording: 22/12/11 10:38:19
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

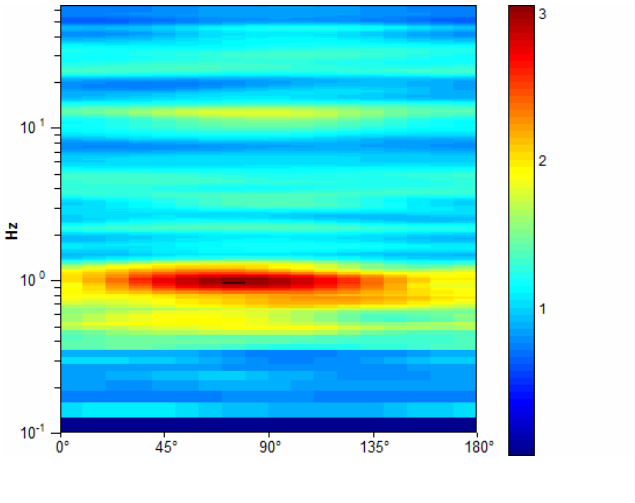
HORIZONTAL TO VERTICAL SPECTRAL RATIO



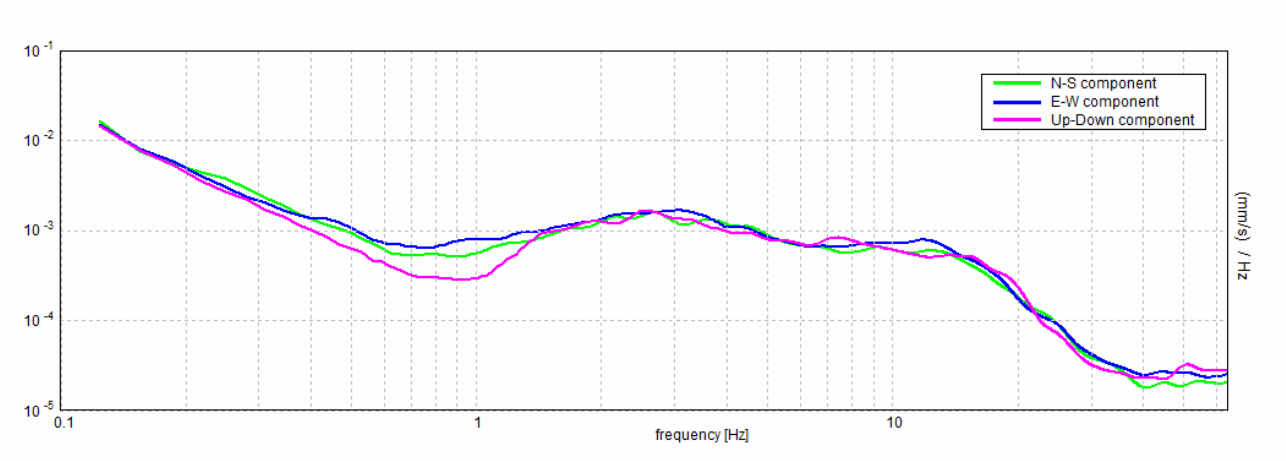
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

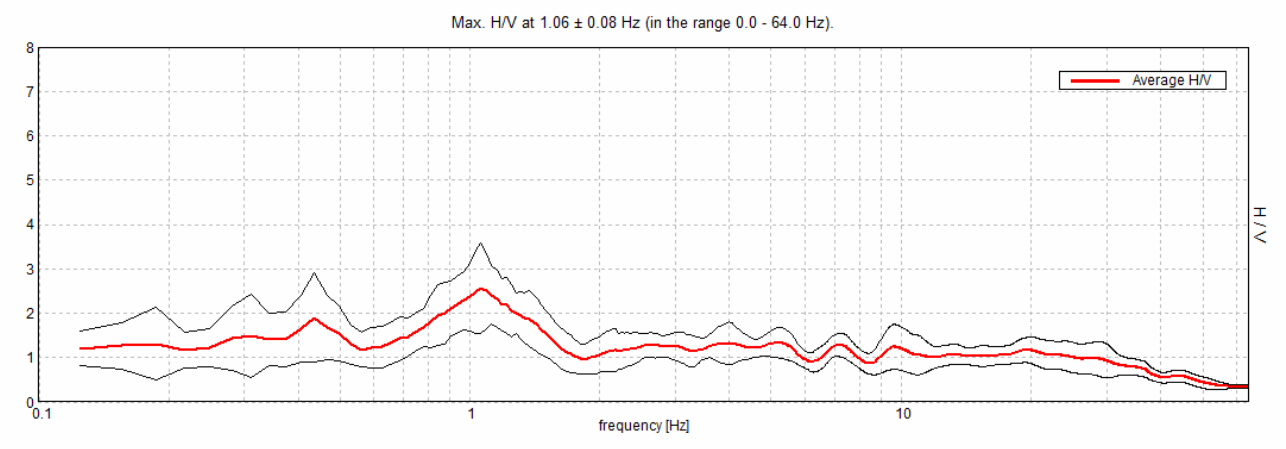


MICROZONAZIONE MIRANDOLA, R104

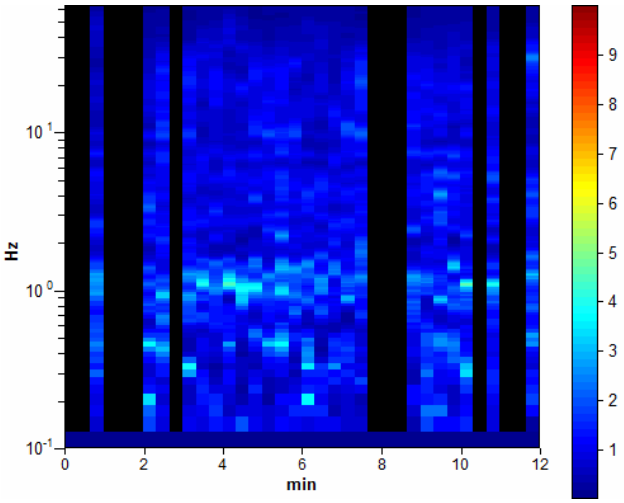
Start recording: 22/12/11 10:53:39 End recording: 22/12/11 11:05:40
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

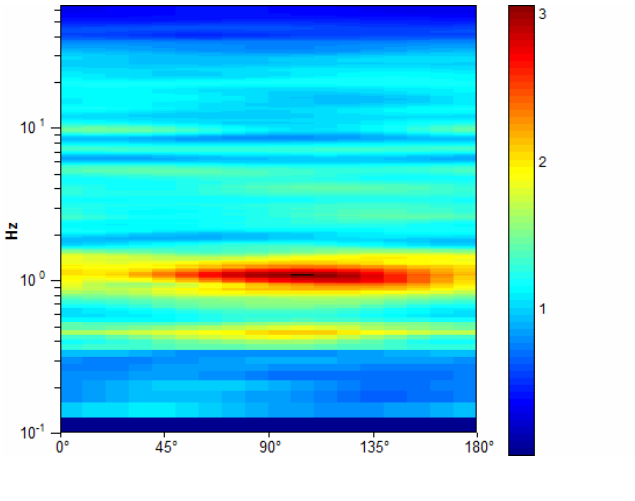
HORIZONTAL TO VERTICAL SPECTRAL RATIO



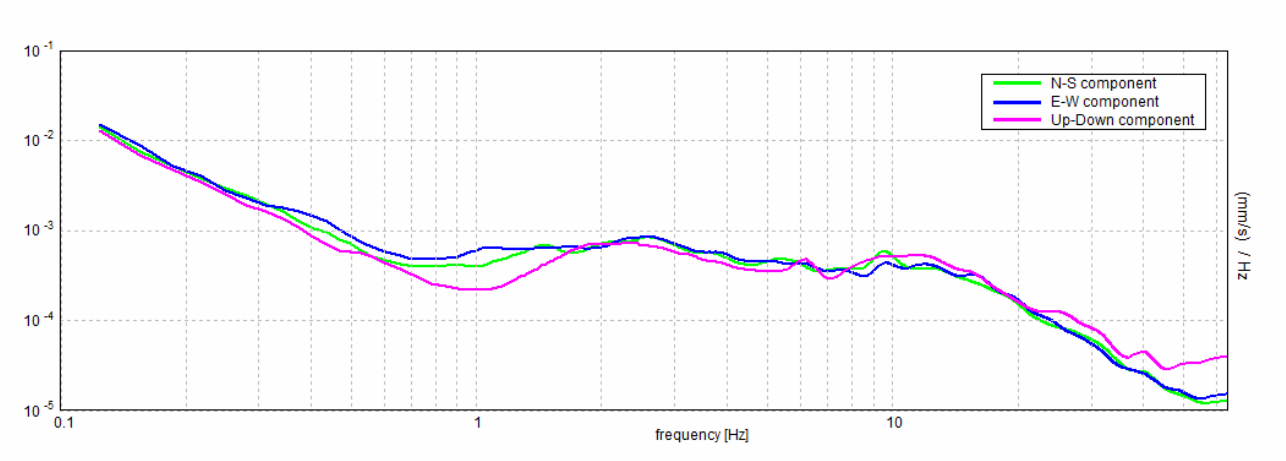
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

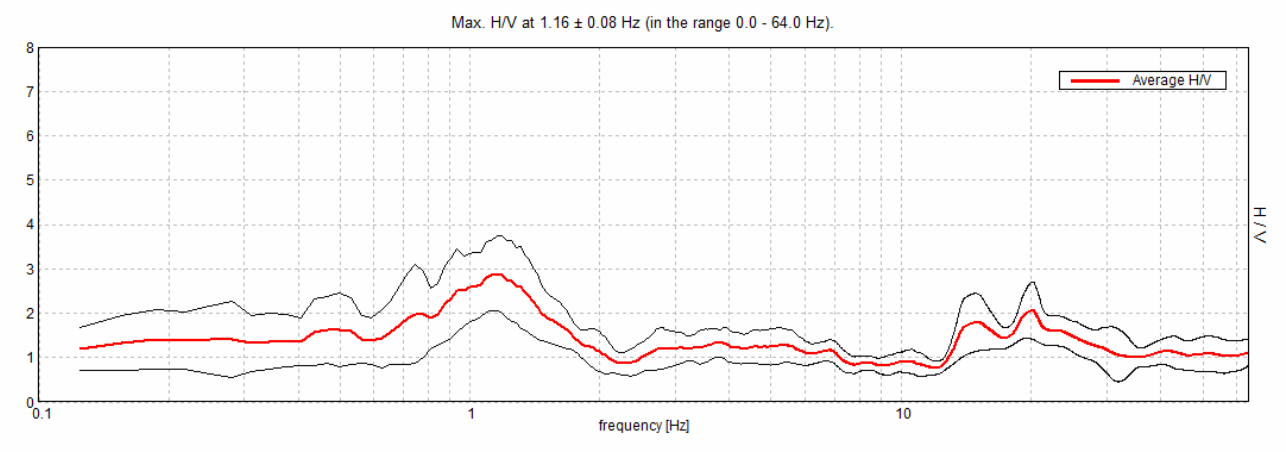


MICROZONAZIONE MIRANDOLA, R105

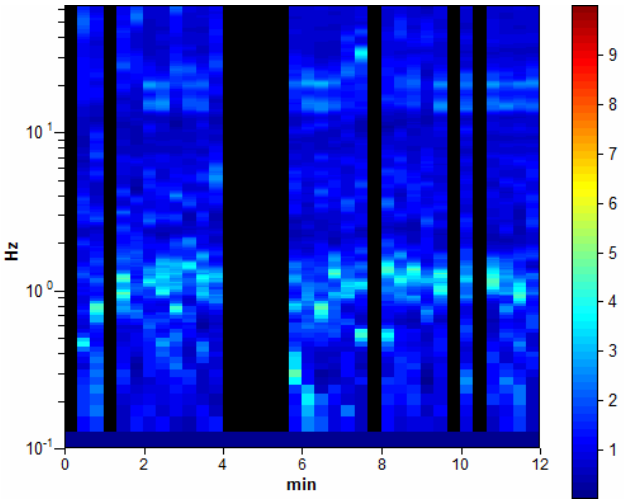
Start recording: 22/12/11 11:17:11 End recording: 22/12/11 11:29:11
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 72% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

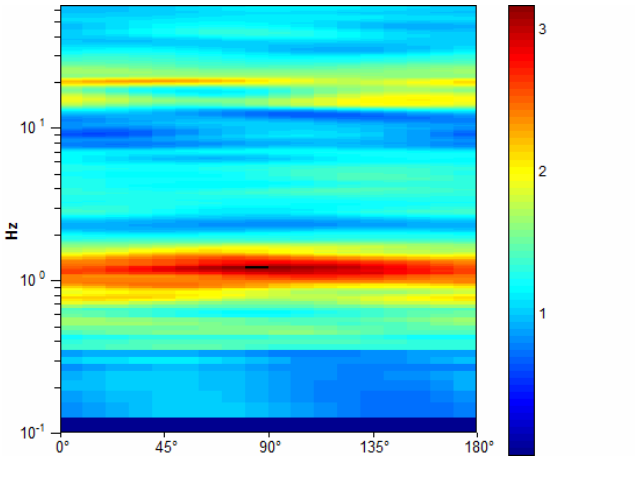
HORIZONTAL TO VERTICAL SPECTRAL RATIO



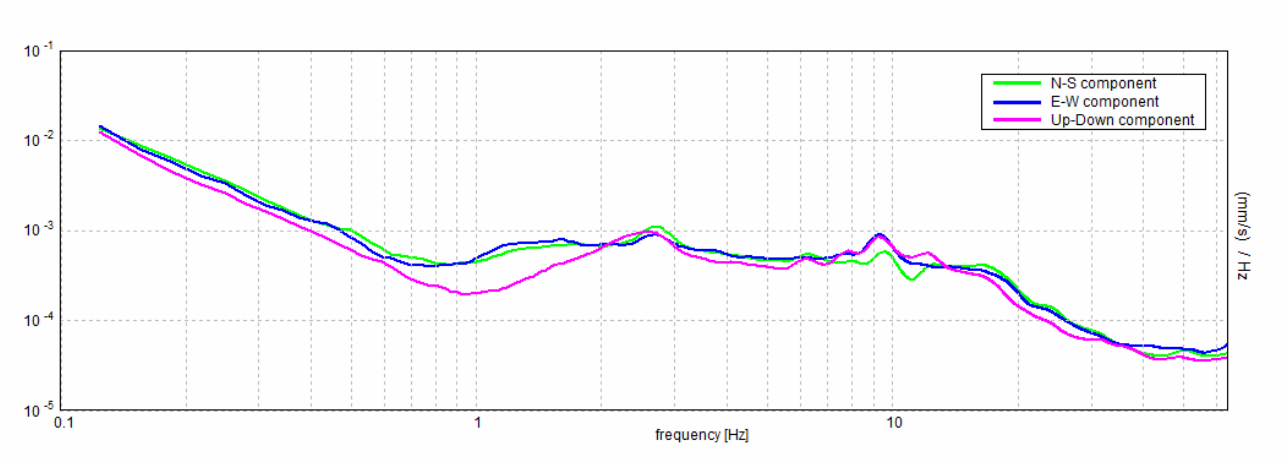
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

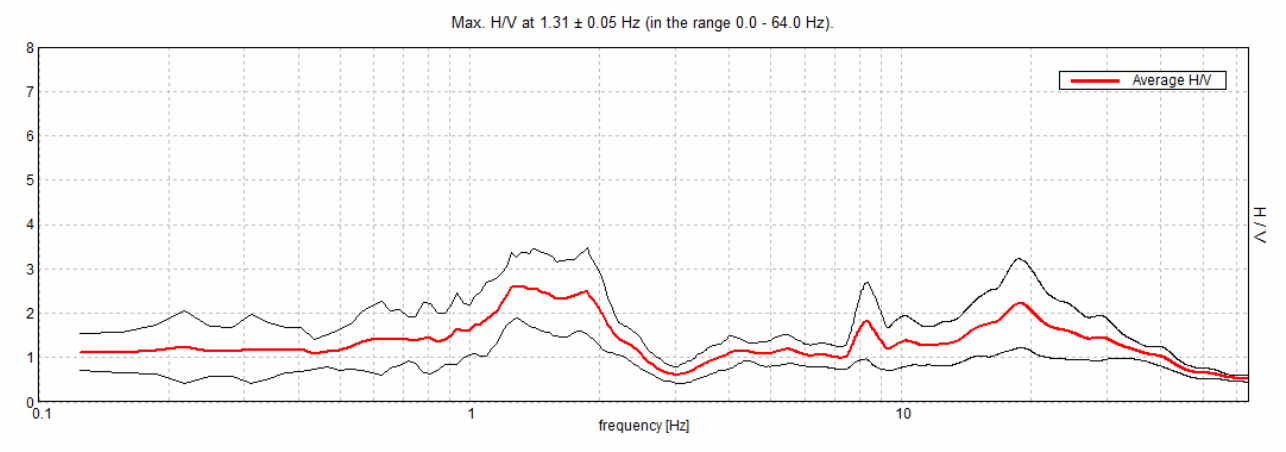


MICROZONAZIONE MIRANDOLA, R106

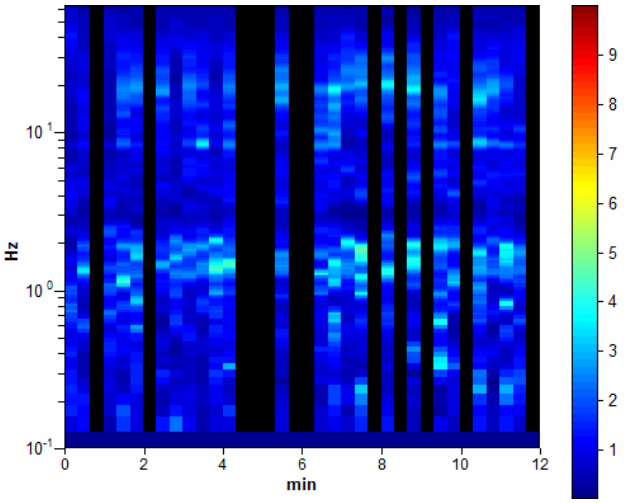
Start recording: 22/12/11 11:44:42 End recording: 22/12/11 11:56:43
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

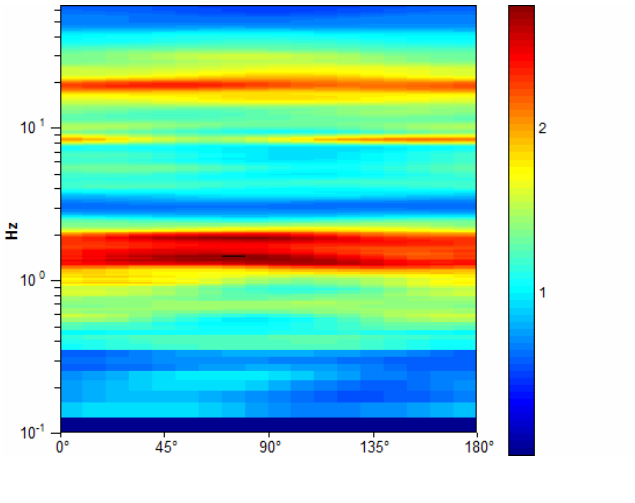
HORIZONTAL TO VERTICAL SPECTRAL RATIO



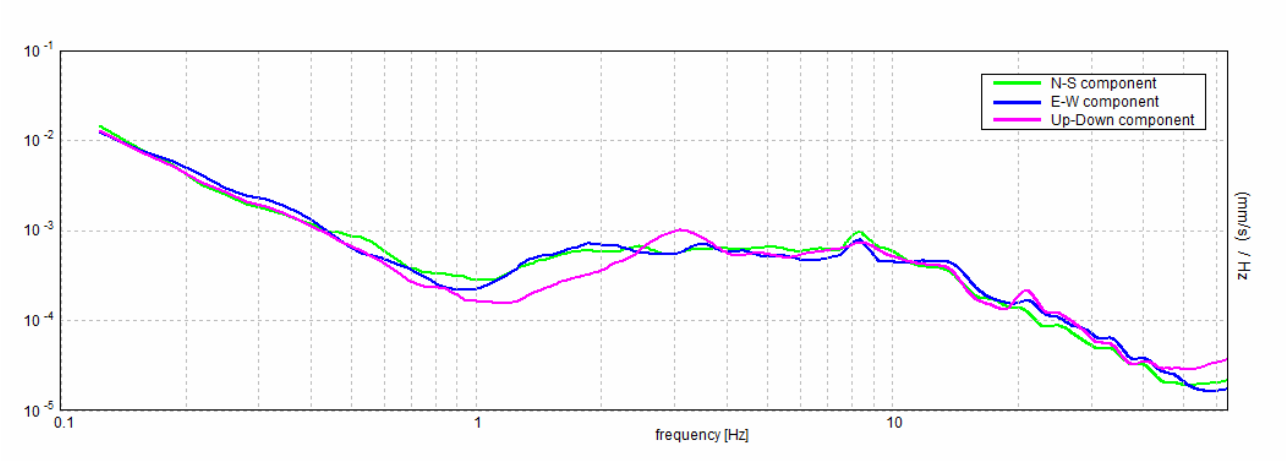
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

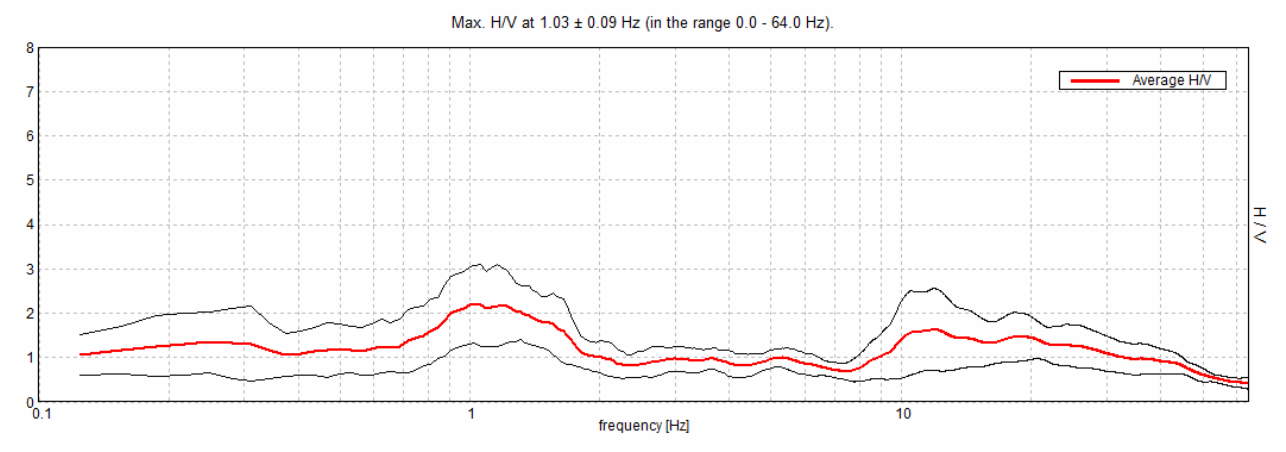


MICROZONAZIONE MIRANDOLA, R107

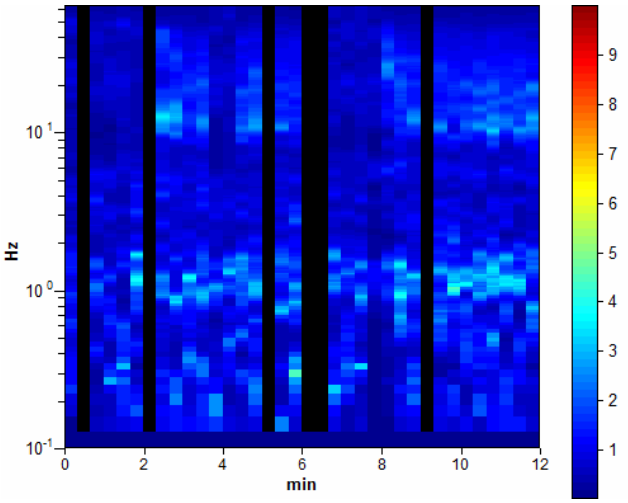
Start recording: 22/12/11 12:05:04 End recording: 22/12/11 12:17:05
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

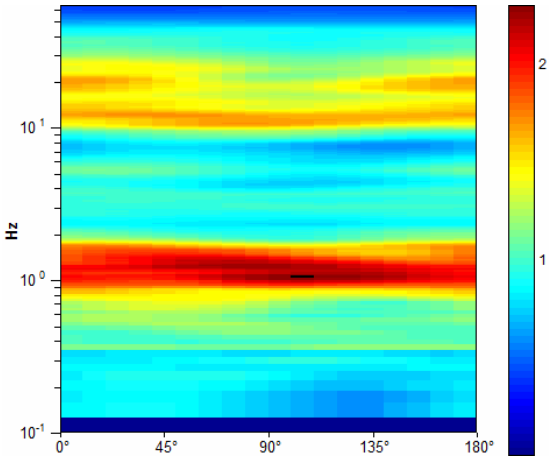
HORIZONTAL TO VERTICAL SPECTRAL RATIO



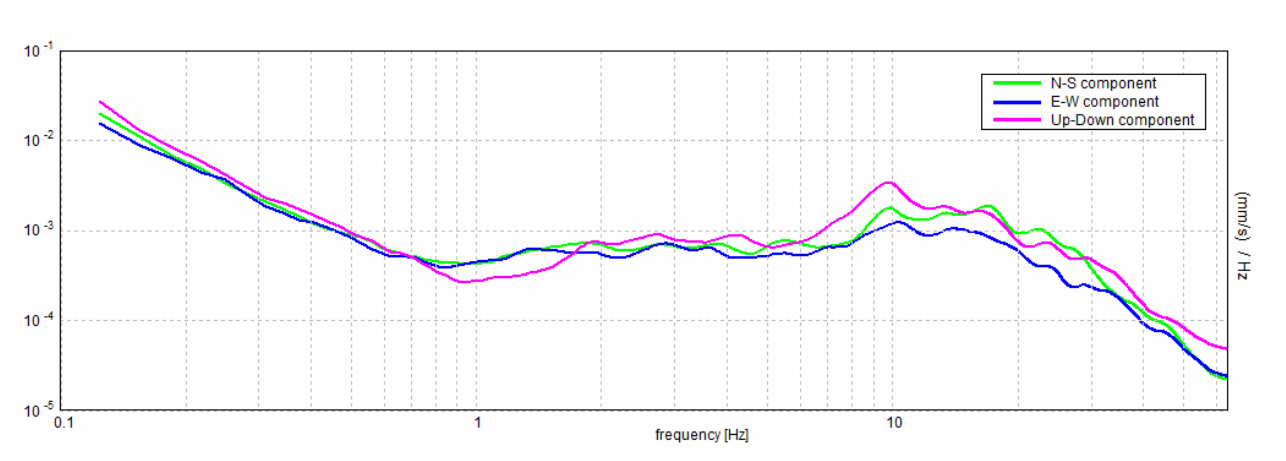
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

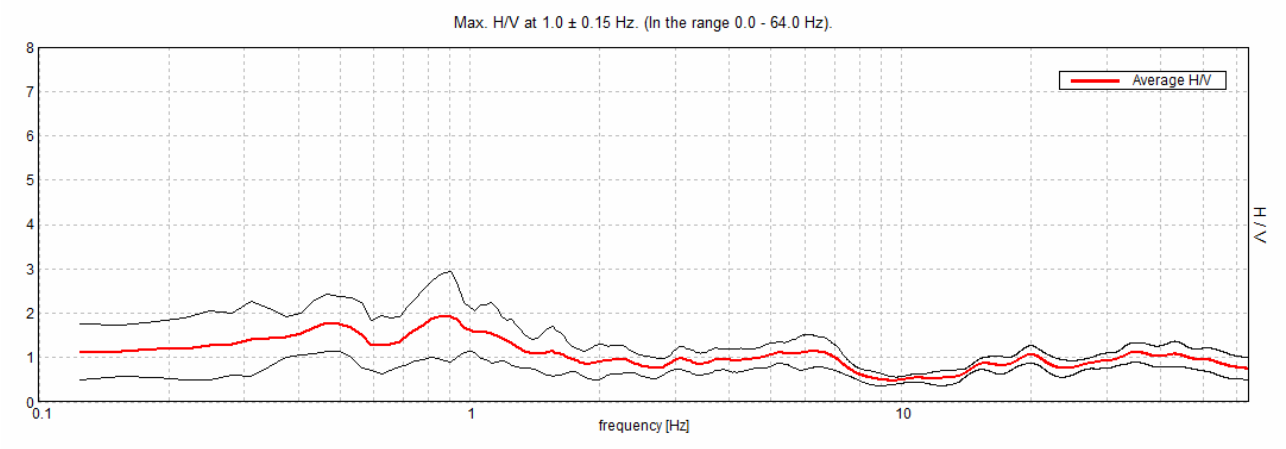


MICROZONAZIONE MIRANDOLA, R108

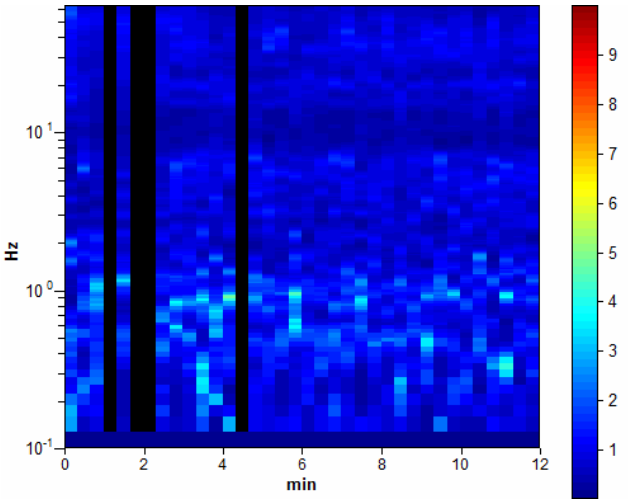
Start recording: 22/12/11 12:31:33 End recording: 22/12/11 12:43:34
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

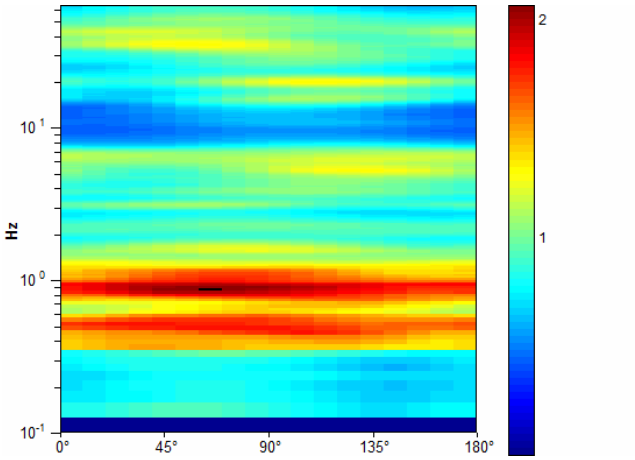
HORIZONTAL TO VERTICAL SPECTRAL RATIO



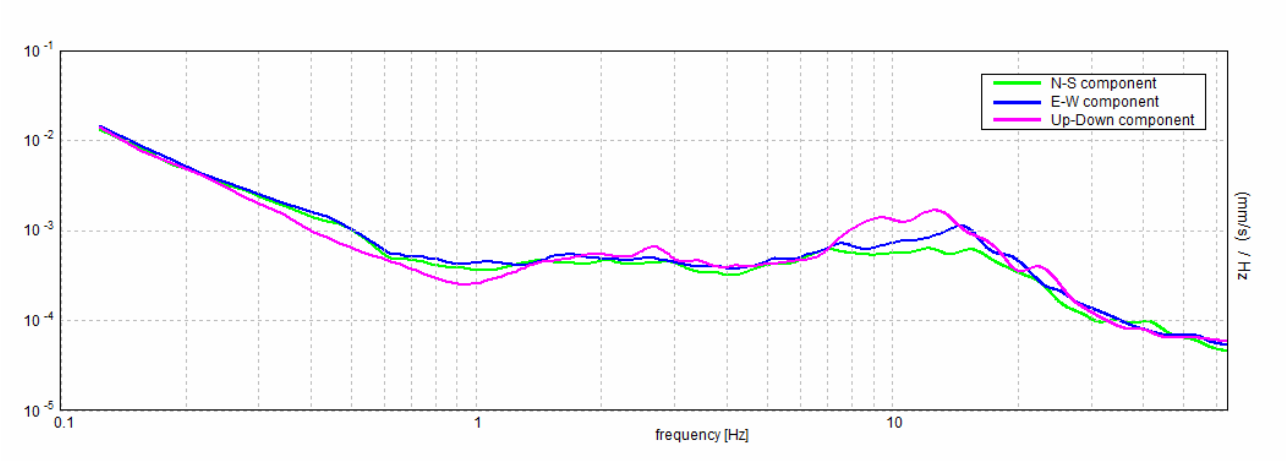
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

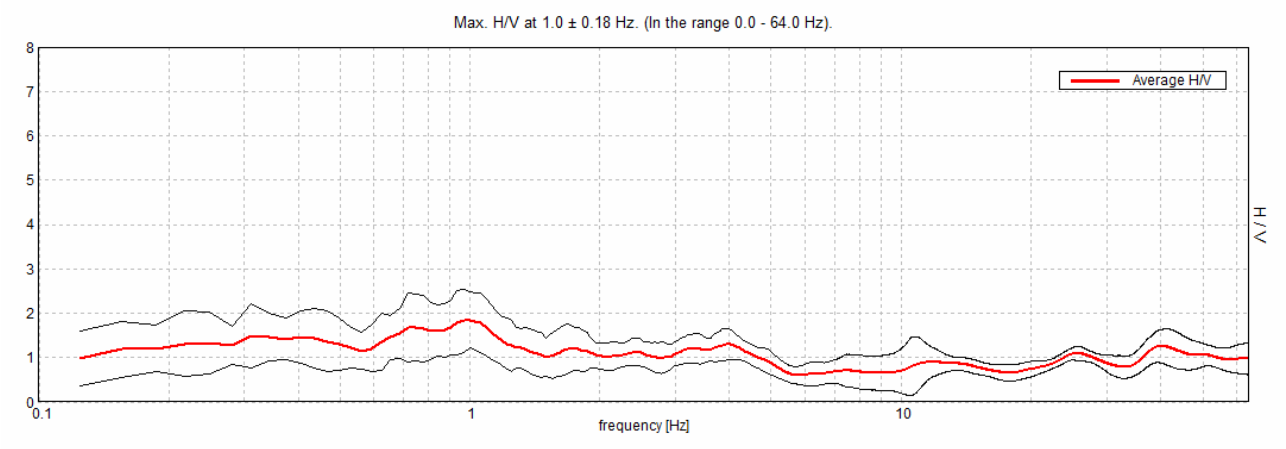


MICROZONAZIONE MIRANDOLA, R109

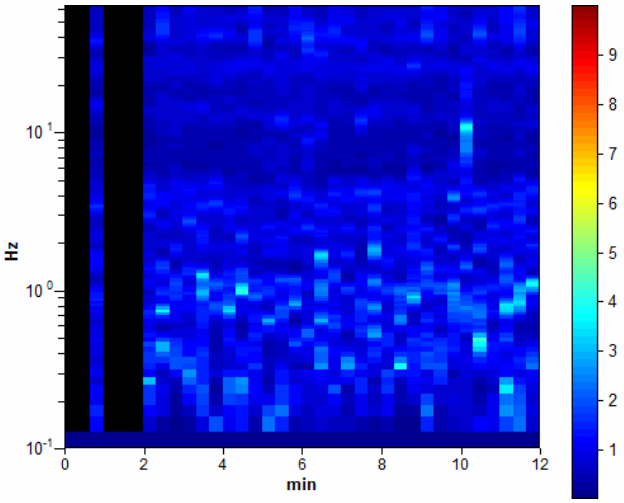
Start recording: 22/12/11 12:58:11 End recording: 22/12/11 13:10:12
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 86% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

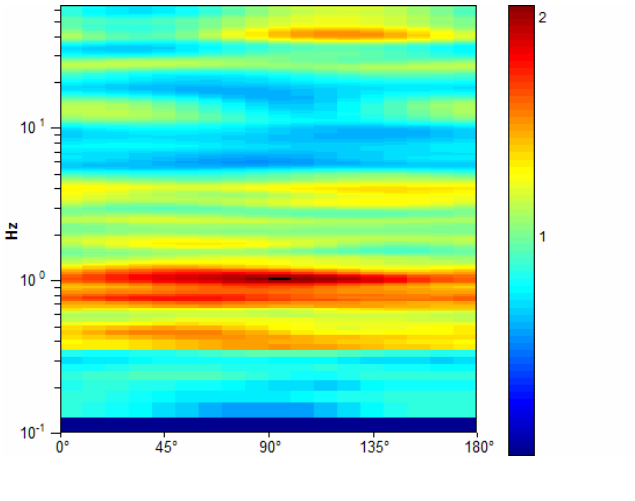
HORIZONTAL TO VERTICAL SPECTRAL RATIO



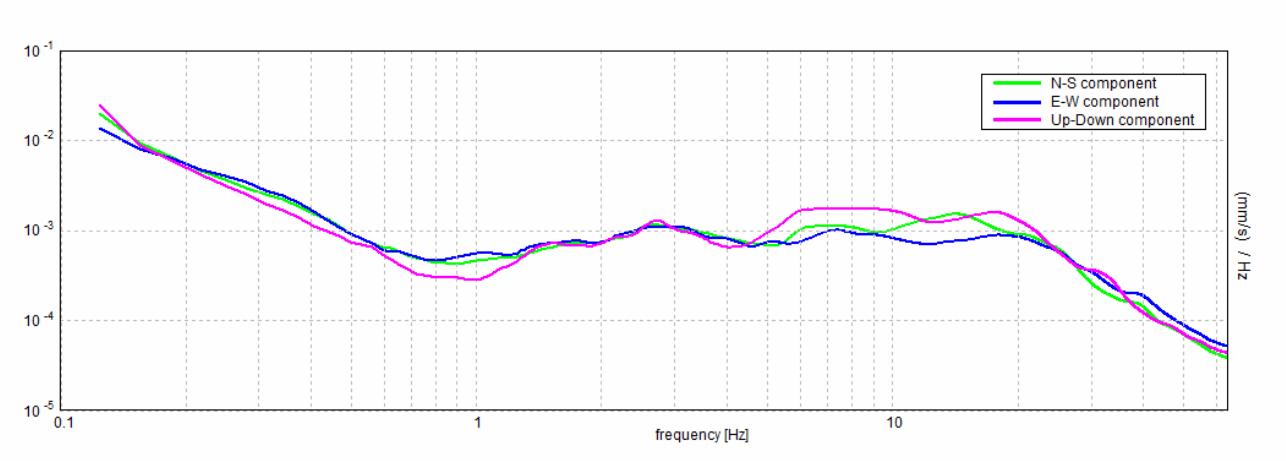
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

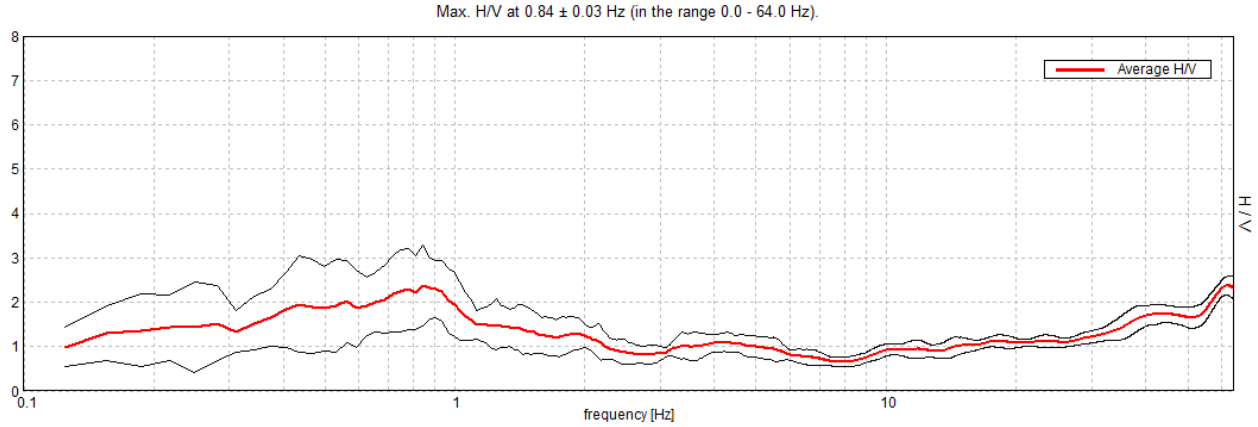


MICROZONAZIONE MIRANDOLA, R110

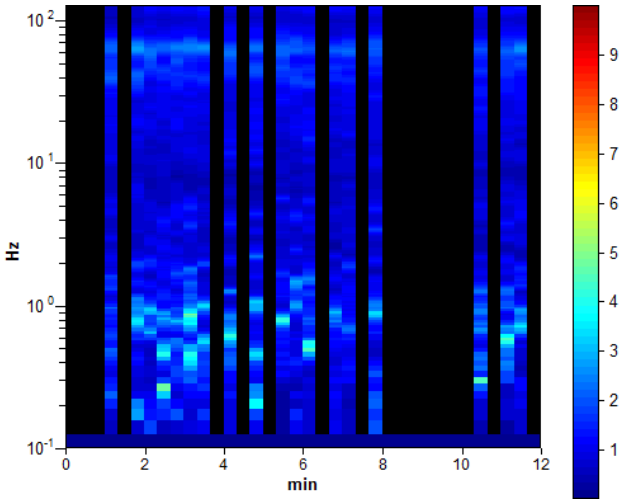
Start recording: 22/12/11 13:22:58 End recording: 22/12/11 13:34:58
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00". Analyzed 50% trace (manual window selection)
Sampling frequency: 256 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

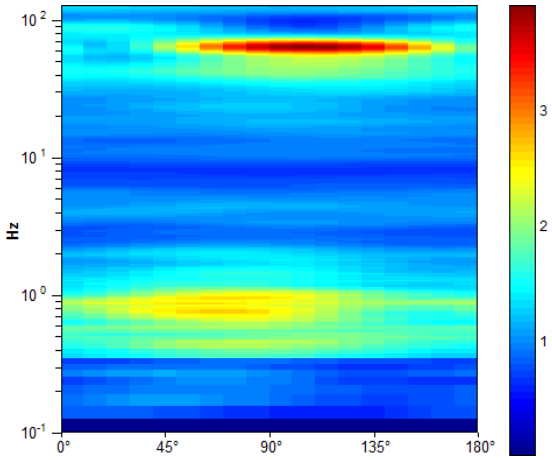
HORIZONTAL TO VERTICAL SPECTRAL RATIO



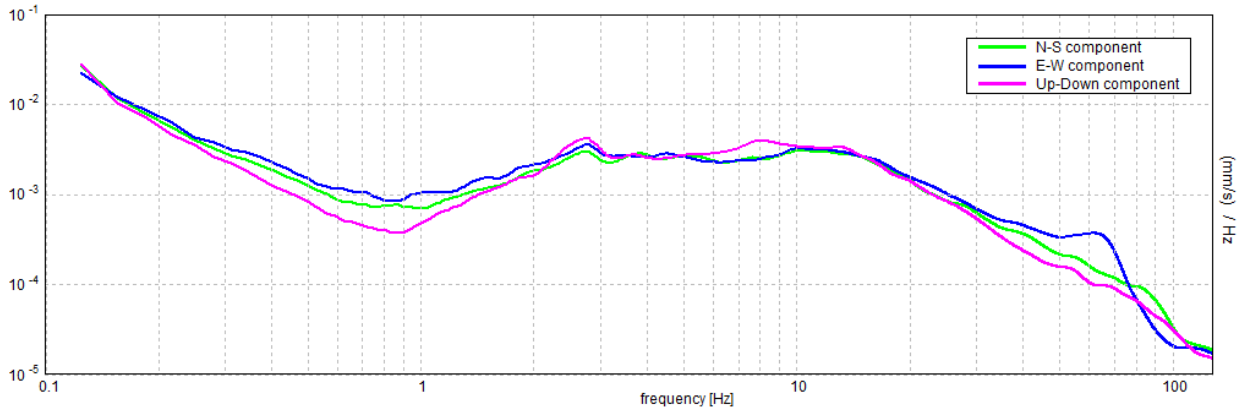
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

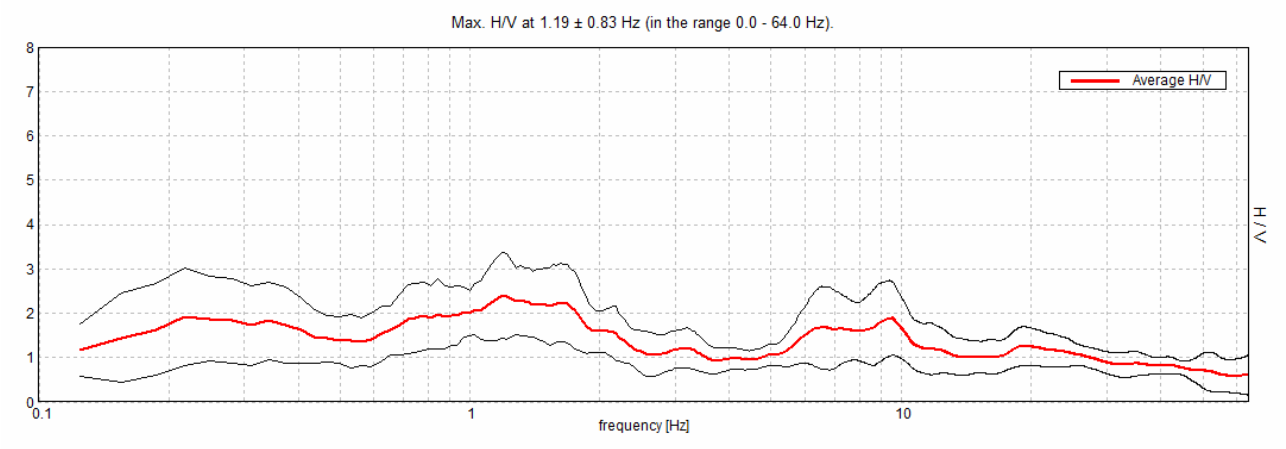


MICROZONAZIONE MIRANDOLA, R111

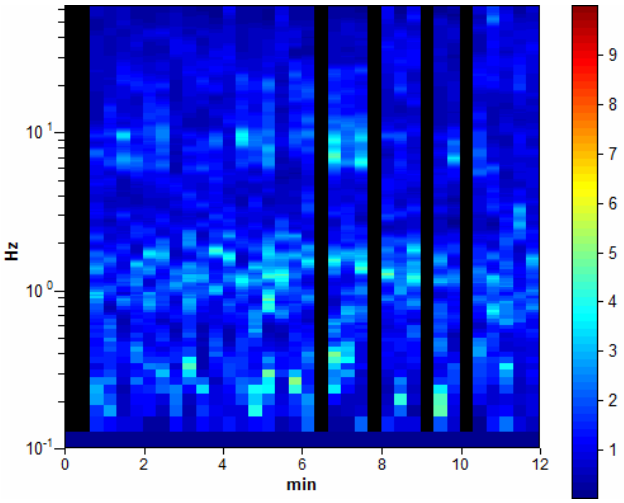
Start recording: 22/12/11 14:24:28 End recording: 22/12/11 14:36:28
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

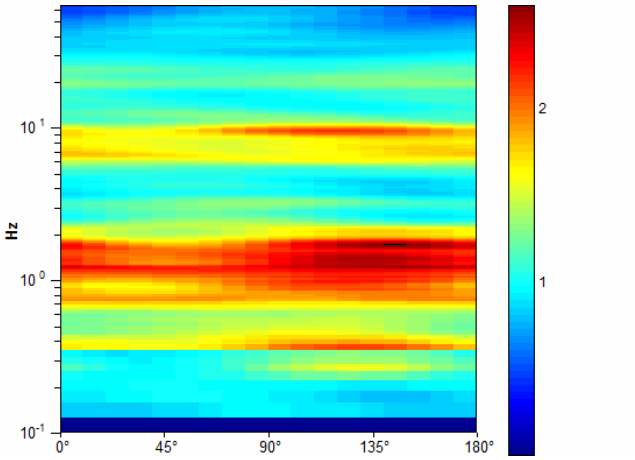
HORIZONTAL TO VERTICAL SPECTRAL RATIO



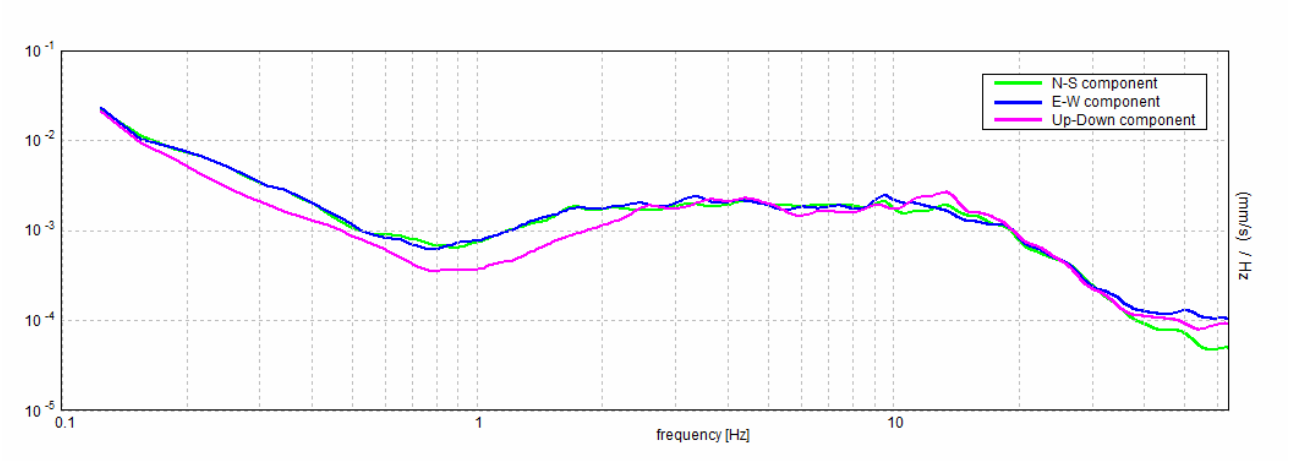
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

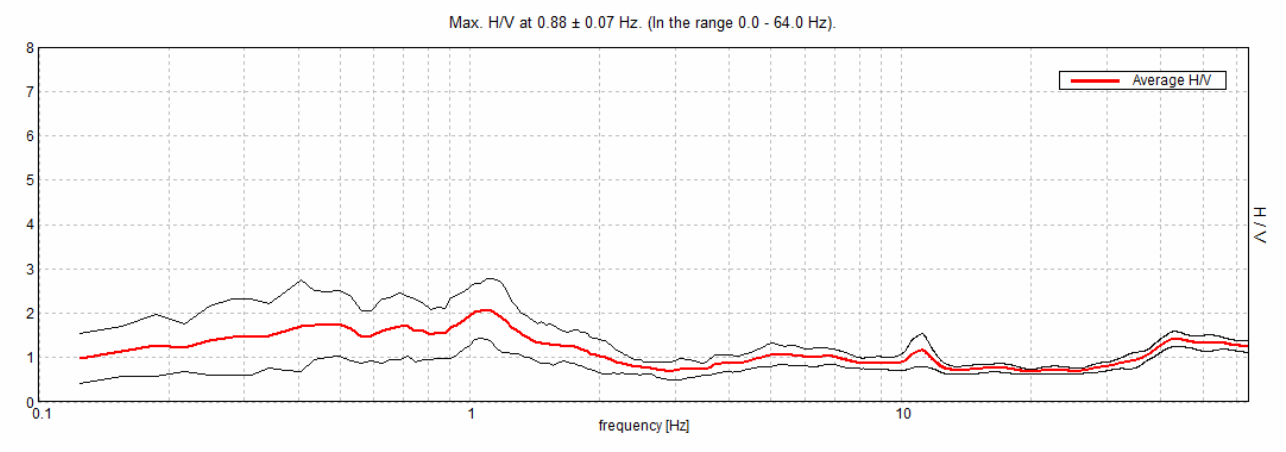


MICROZONAZIONE MIRANDOLA, R112

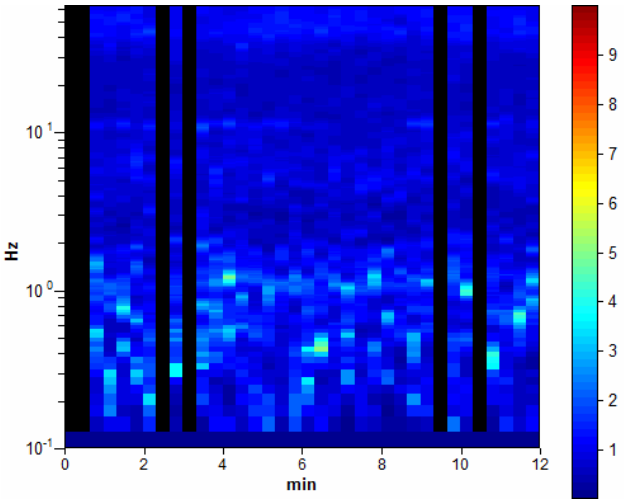
Start recording: 22/12/11 14:54:20 End recording: 22/12/11 15:06:21
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 83% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

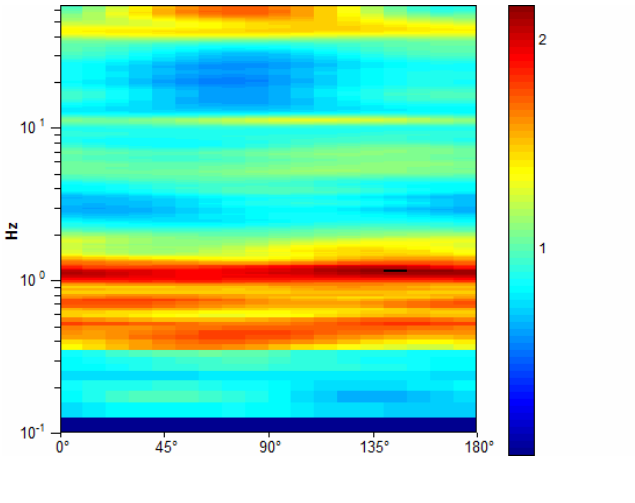
HORIZONTAL TO VERTICAL SPECTRAL RATIO



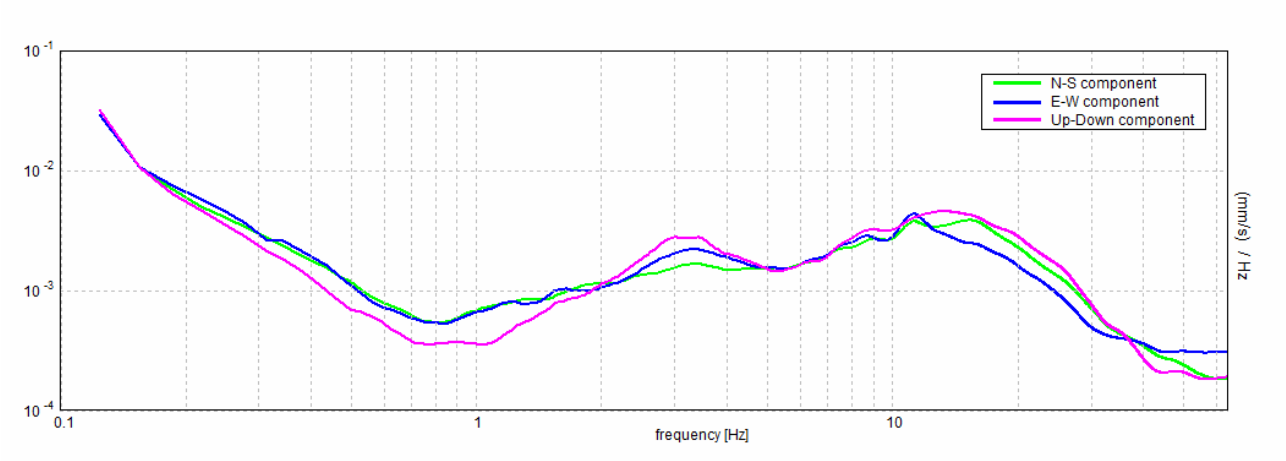
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

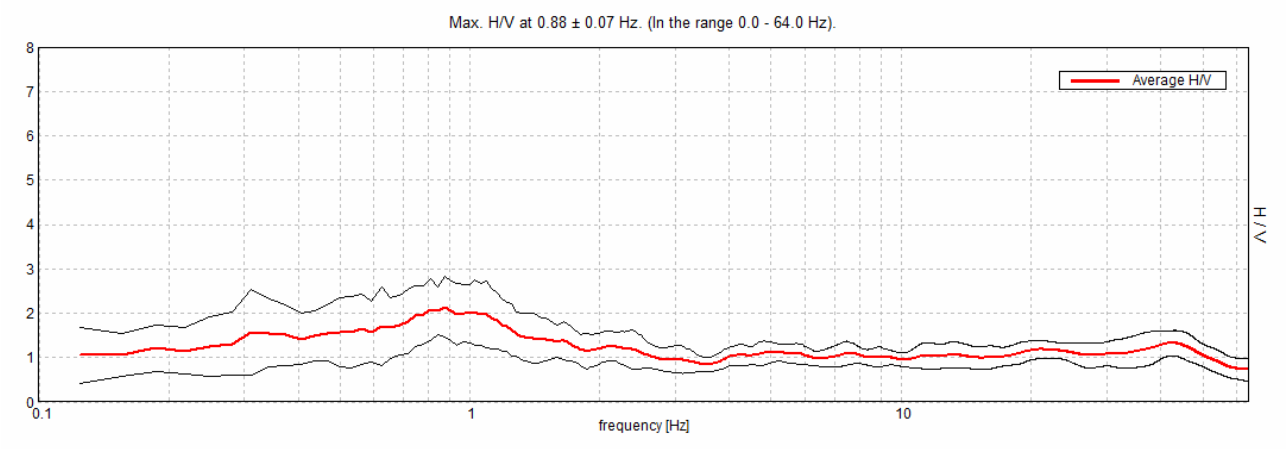


MICROZONAZIONE MIRANDOLA, R113

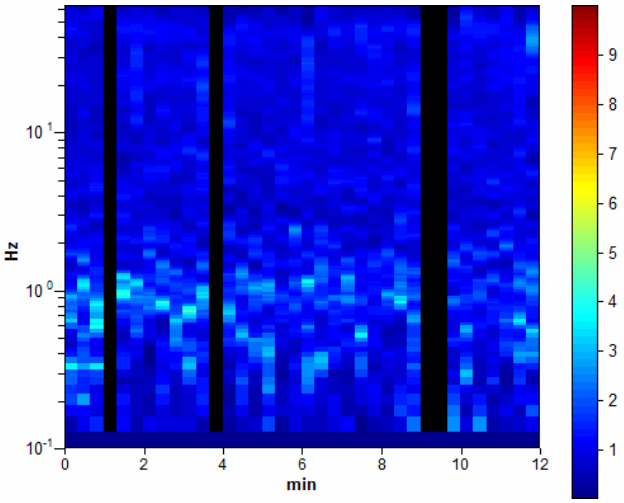
Start recording: 22/12/11 15:19:41 End recording: 22/12/11 15:31:41
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 89% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

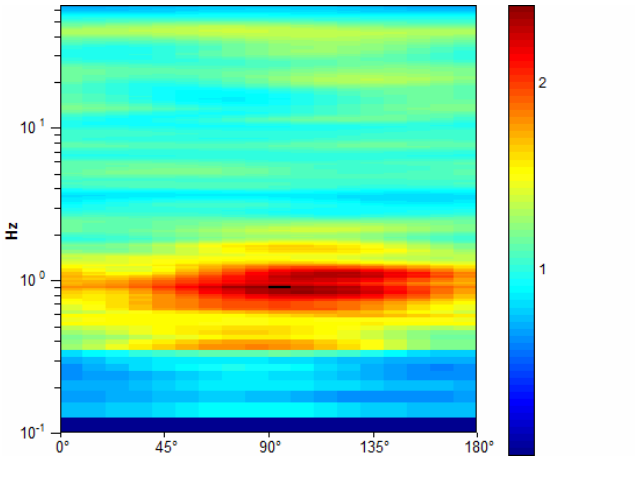
HORIZONTAL TO VERTICAL SPECTRAL RATIO



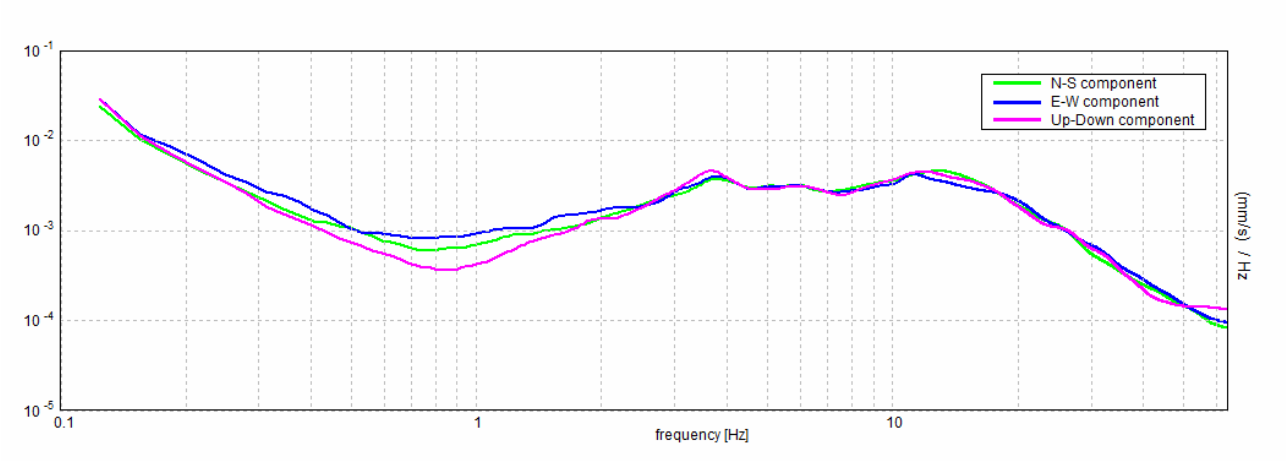
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

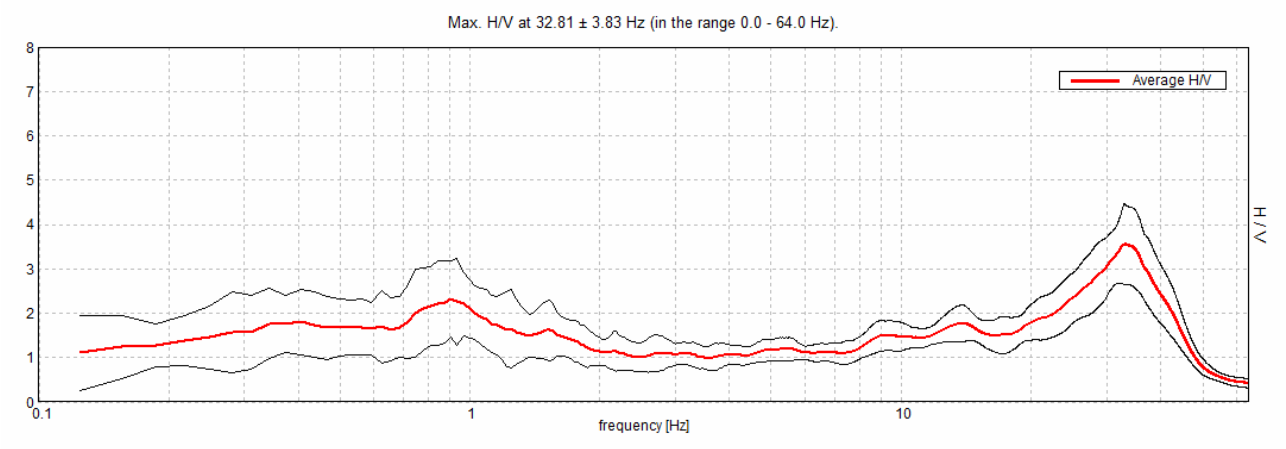


MICROZONAZIONE MIRANDOLA, R114

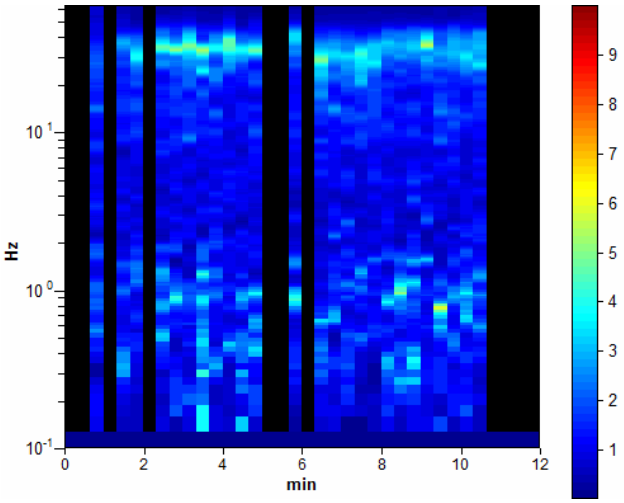
Start recording: 22/12/11 15:40:44 End recording: 22/12/11 15:52:45
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 69% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

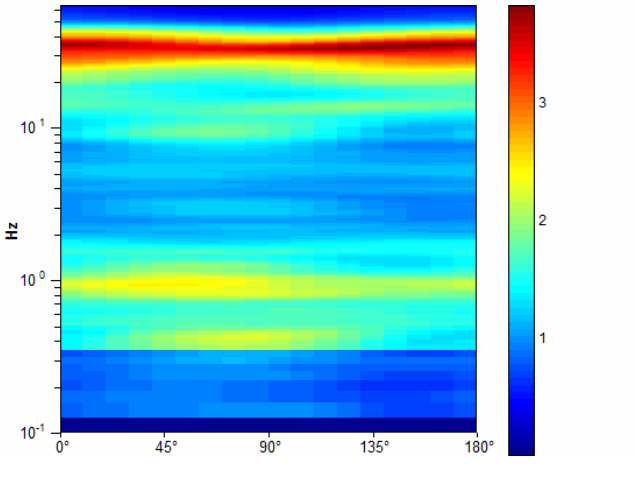
HORIZONTAL TO VERTICAL SPECTRAL RATIO



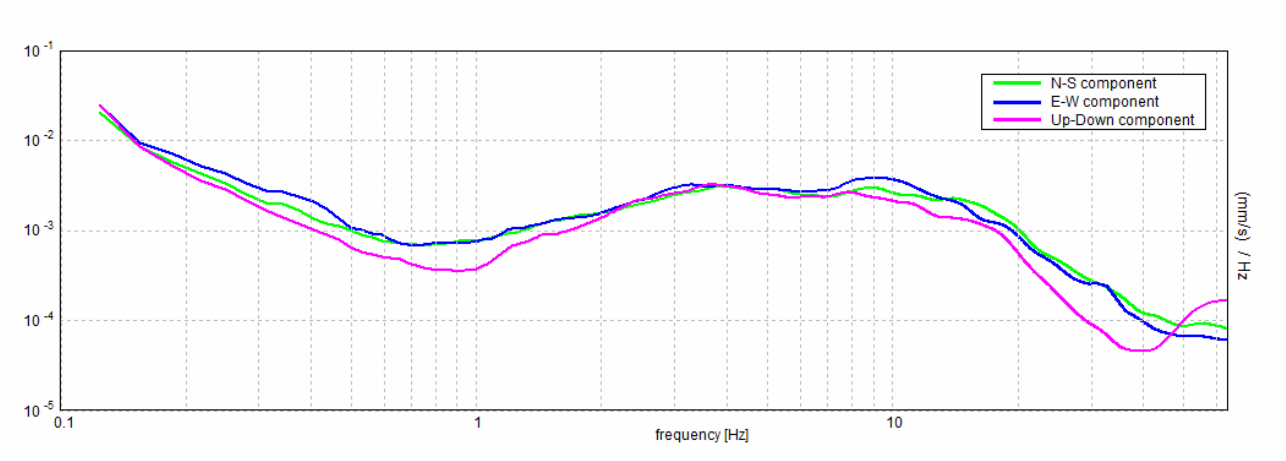
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

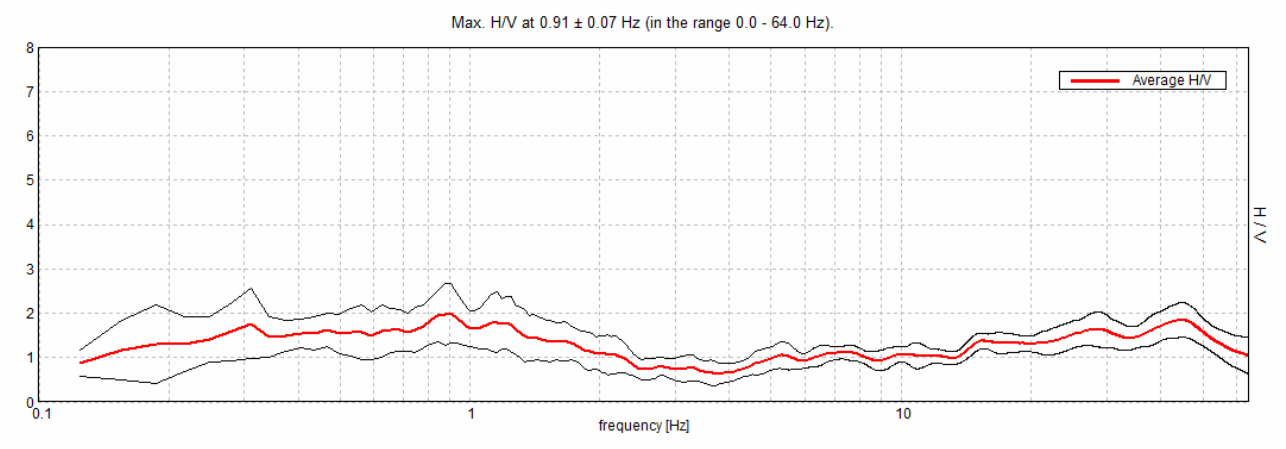


MICROZONAZIONE MIRANDOLA, R115

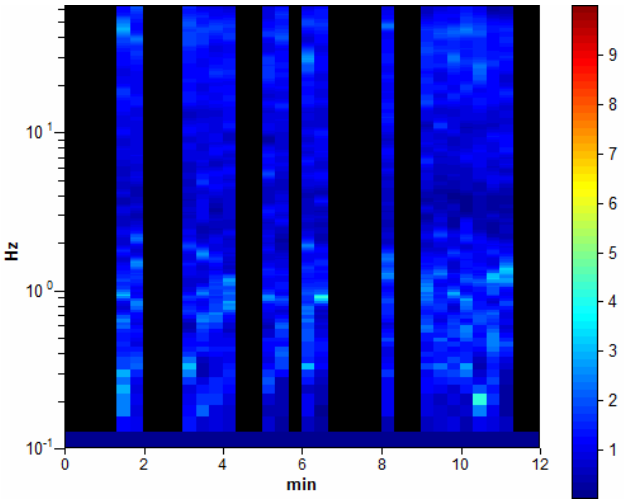
Start recording: 22/12/11 16:02:29 End recording: 22/12/11 16:14:30
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 50% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

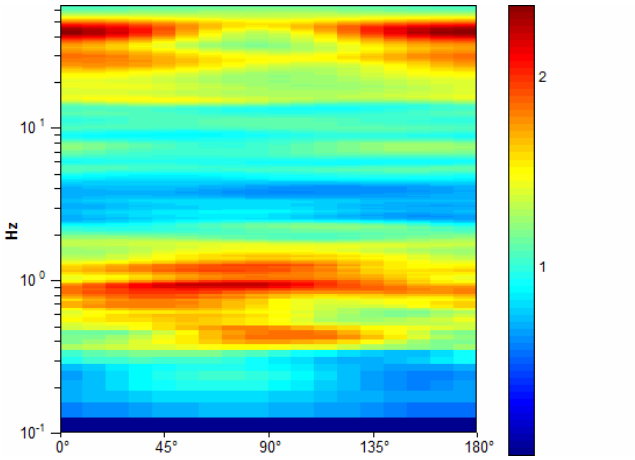
HORIZONTAL TO VERTICAL SPECTRAL RATIO



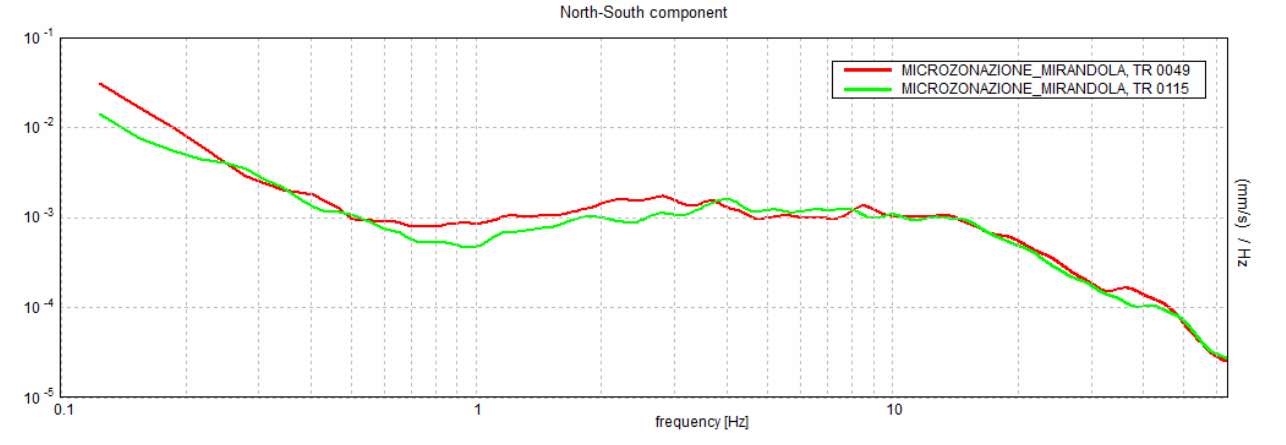
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

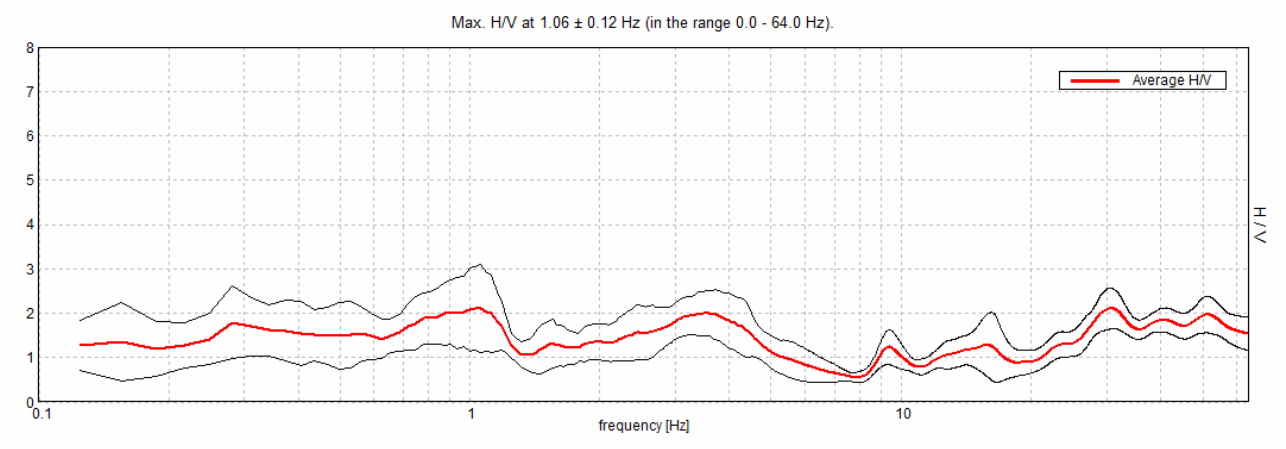


MICROZONAZIONE MIRANDOLA, R116

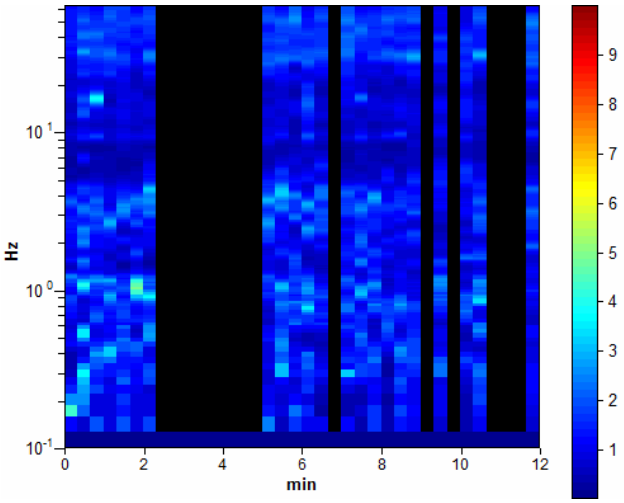
Start recording: 22/12/11 16:31:05 End recording: 22/12/11 16:43:06
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 61% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

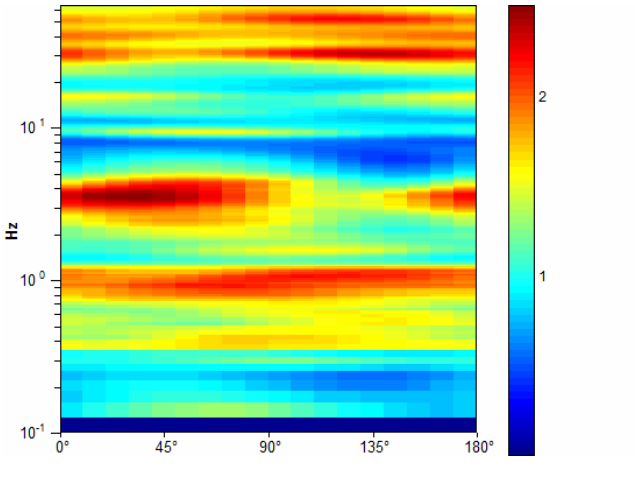
HORIZONTAL TO VERTICAL SPECTRAL RATIO



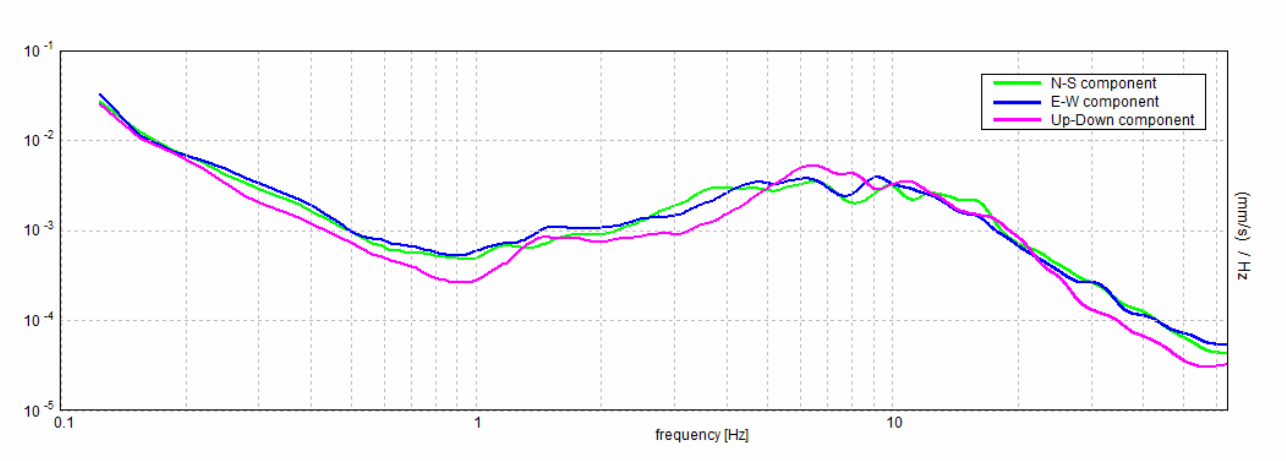
H/V TIME HISTORY



DIRECTIONAL H/V



SINGLE COMPONENT SPECTRA

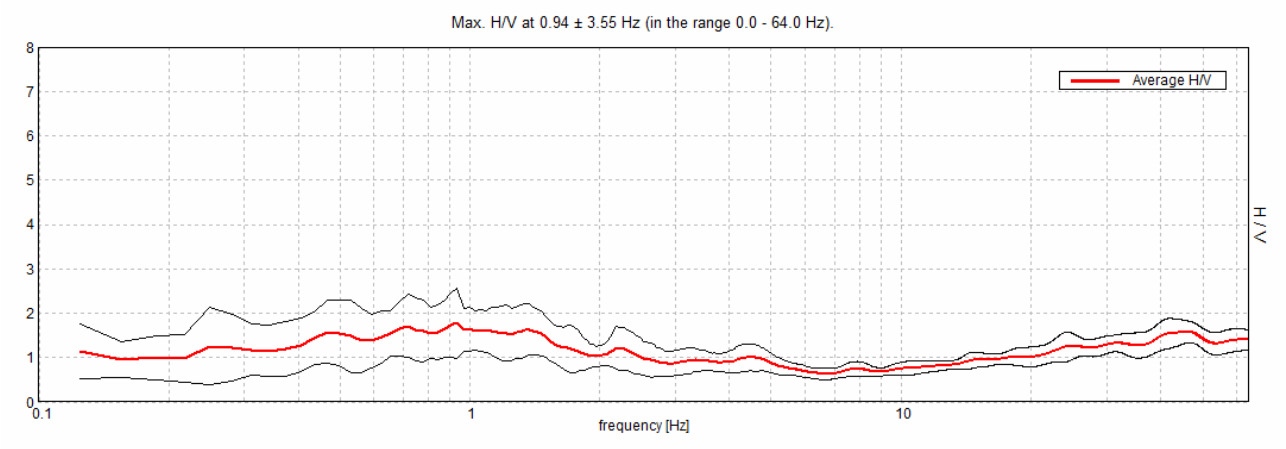


MICROZONAZIONE MIRANDOLA, R117

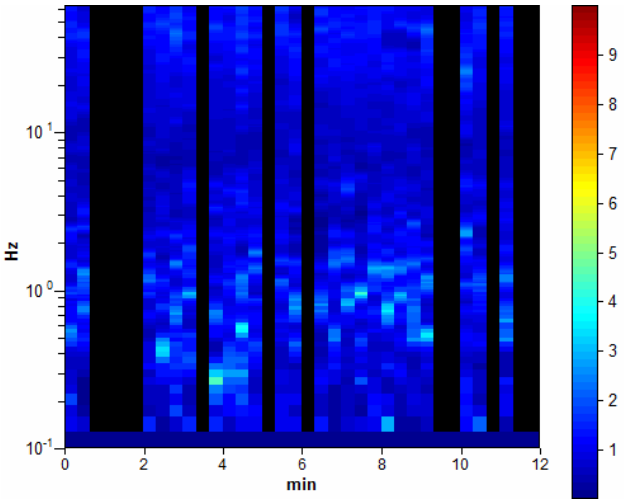
Start recording: 22/12/11 16:50:36 End recording: 22/12/11 17:02:37
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available

Trace length: 0h12'00''. Analyzed 67% trace (manual window selection)
Sampling frequency: 128 Hz
Window size: 20 s
Smoothing window: Triangular window
Smoothing: 10%

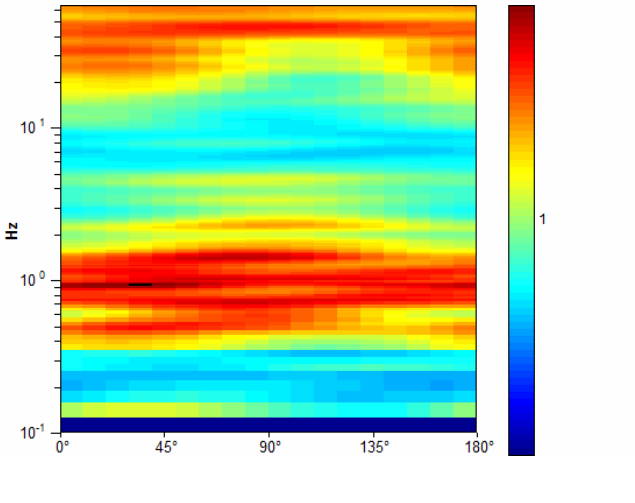
HORIZONTAL TO VERTICAL SPECTRAL RATIO



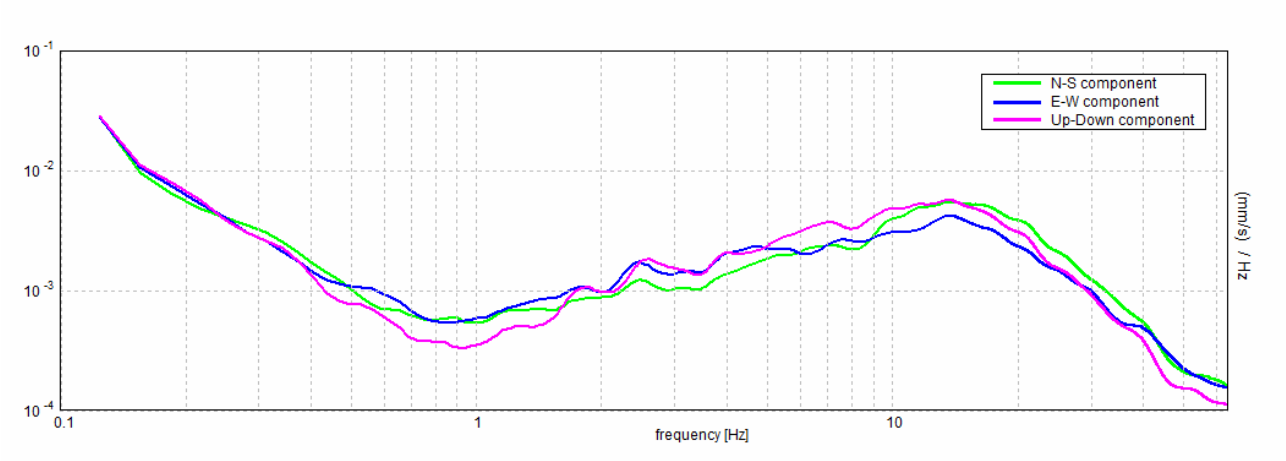
H/V TIME HISTORY



DIRECTIONAL H/V



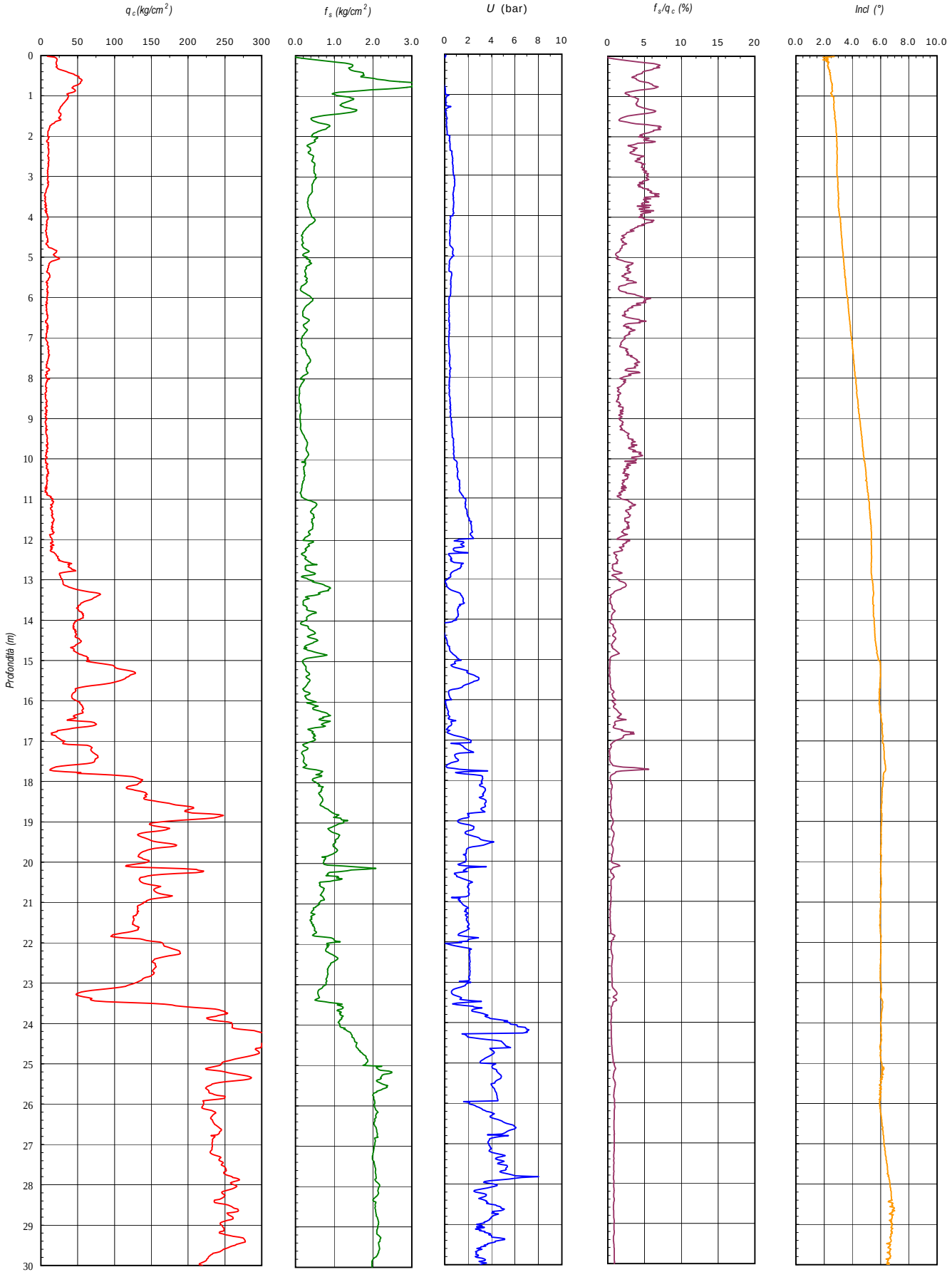
SINGLE COMPONENT SPECTRA



COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.): assente
PROF. FALDA (m da p.c.): chiuso a 1,66
TIPO PUNTA: piezocono sismico

PROVA : SCPTU1 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 17/11/2011** **Certificato di prova:**

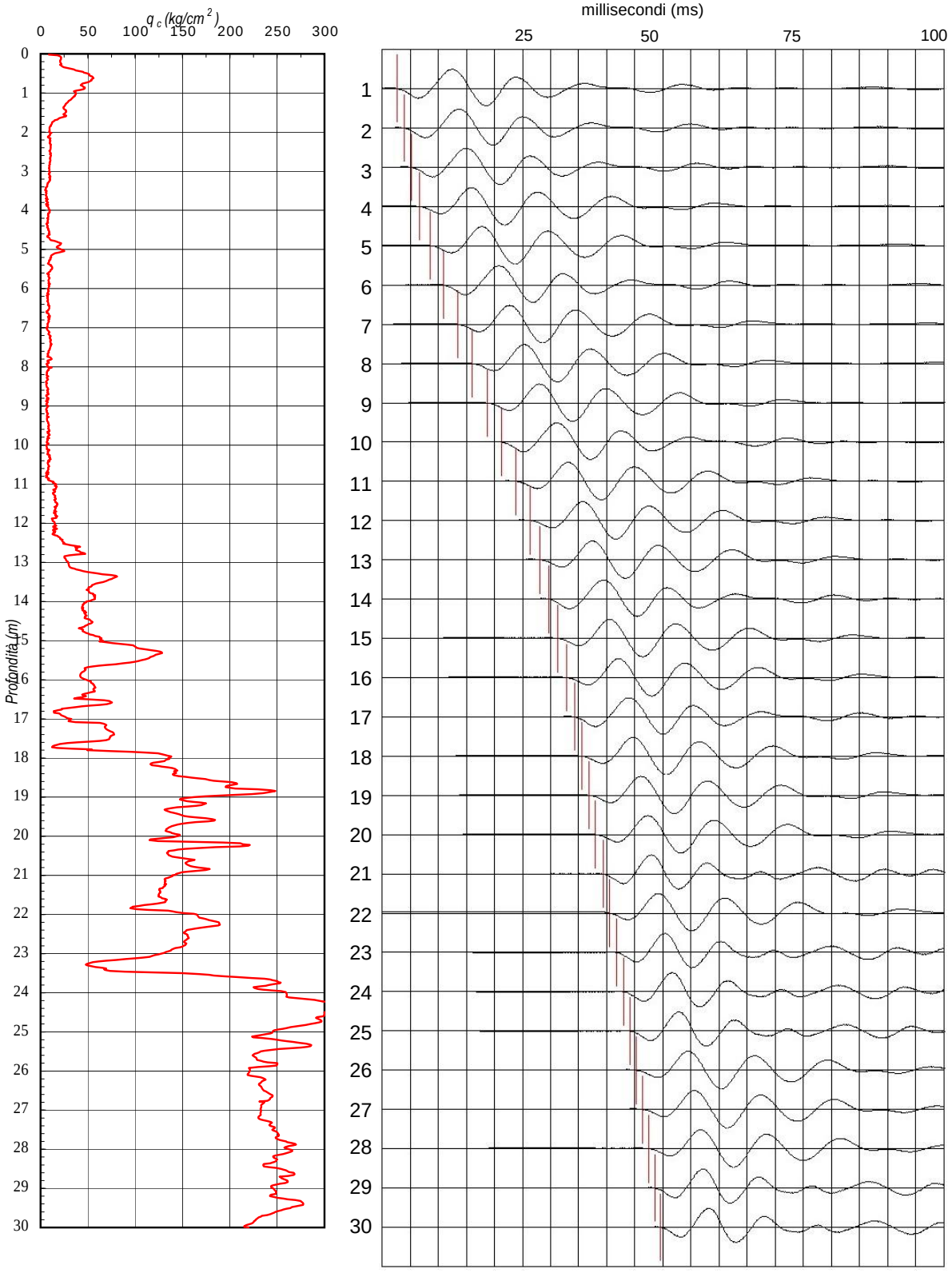


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU1	17/11/2011

SISMOGRAMMI ONDE P

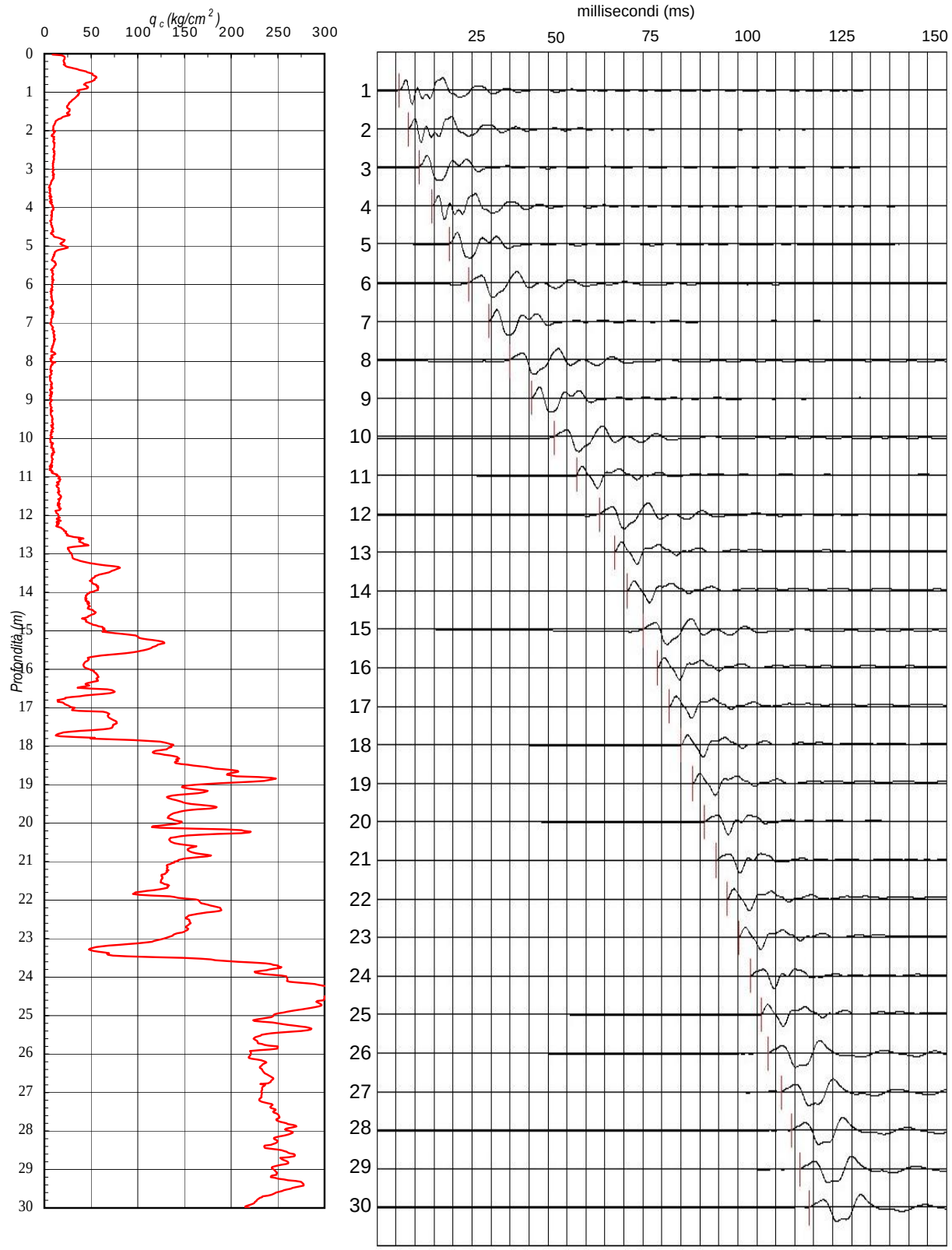


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU1	17/11/2011

SISMOGRAMMI ONDE S



Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU1	17/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	2.800	689	1.93	0.0028	689
2.00	2.59	0.004	3.900	665	0.66	0.0011	603
3.00	3.42	0.005	5.200	658	0.83	0.0013	639
4.00	4.33	0.007	6.700	646	0.90	0.0015	602
5.00	5.27	0.009	8.700	605	0.94	0.0020	469
6.00	6.22	0.011	11.000	566	0.96	0.0023	416
7.00	7.19	0.014	13.500	533	0.97	0.0025	388
8.00	8.17	0.016	16.000	511	0.98	0.0025	391
9.00	9.15	0.019	18.600	492	0.98	0.0026	378
10.00	10.14	0.021	21.200	478	0.99	0.0026	379
11.00	11.12	0.024	23.800	467	0.99	0.0026	380
12.00	12.11	0.026	26.400	459	0.99	0.0026	381
13.00	13.10	0.028	28.100	466	0.99	0.0017	583
14.00	14.10	0.030	29.600	476	0.99	0.0015	662
15.00	15.09	0.031	31.300	482	0.99	0.0017	584
16.00	16.08	0.033	32.900	489	0.99	0.0016	621
17.00	17.08	0.034	34.200	499	1.00	0.0013	765
18.00	18.08	0.036	35.500	509	1.00	0.0013	766
19.00	19.07	0.037	36.800	518	1.00	0.0013	766
20.00	20.07	0.038	38.000	528	1.00	0.0012	830
21.00	21.06	0.039	39.300	536	1.00	0.0013	767
22.00	22.06	0.041	40.500	545	1.00	0.0012	831
23.00	23.06	0.042	41.700	553	1.00	0.0012	831
24.00	24.06	0.043	43.000	559	1.00	0.0013	767
25.00	25.05	0.044	44.200	567	1.00	0.0012	831
26.00	26.05	0.045	45.300	575	1.00	0.0011	907
27.00	27.05	0.046	46.400	583	1.00	0.0011	907
28.00	28.05	0.048	47.500	590	1.00	0.0011	907
29.00	29.05	0.049	48.500	599	1.00	0.0010	998
30.00	30.05	0.050	49.500	607	1.00	0.0010	998

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU1	17/11/2011

Tabella onde S

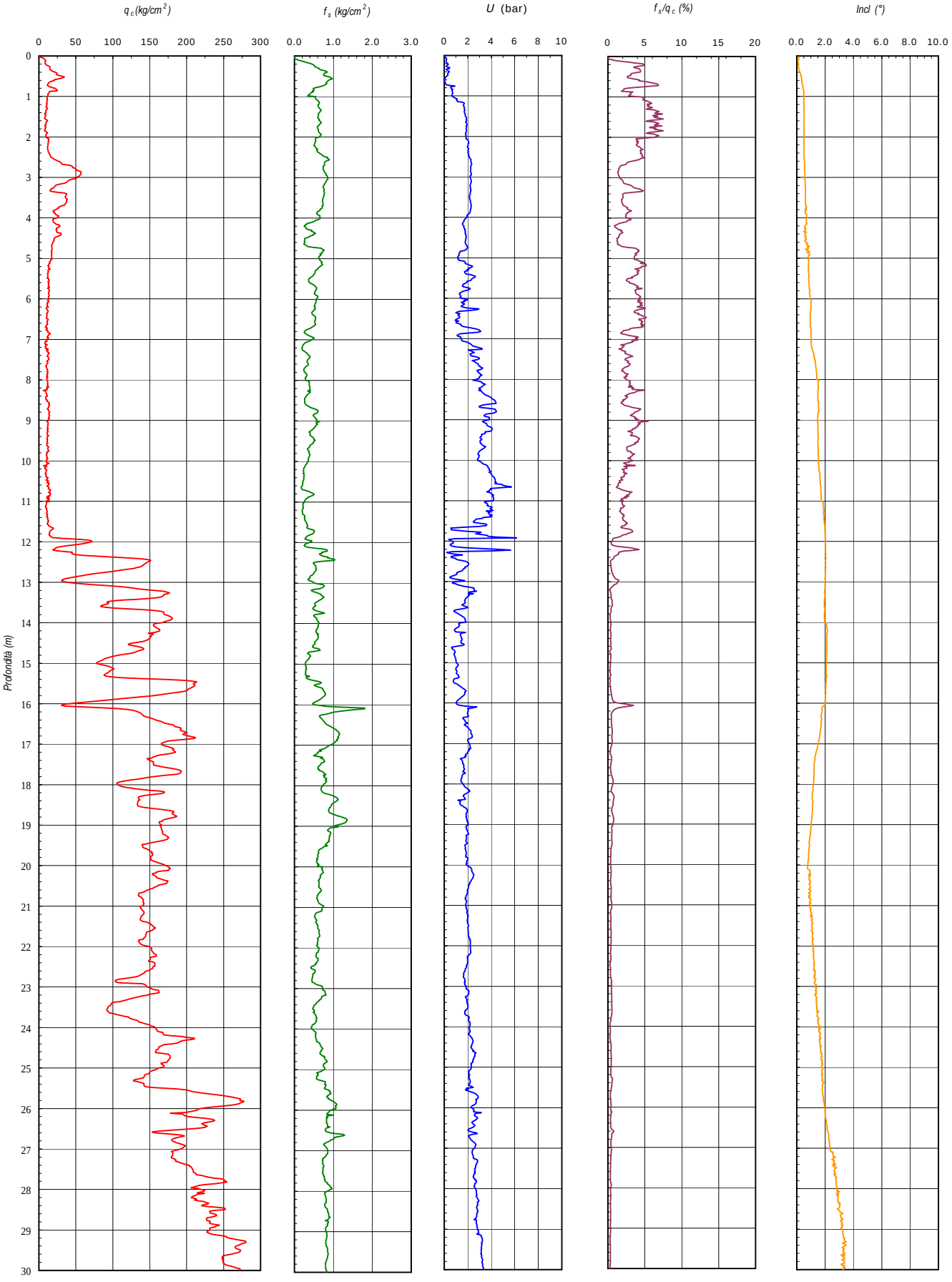
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.006	5.800	333	1.93	0.0058	333
2.00	2.59	0.008	8.200	316	0.66	0.0024	276
3.00	3.42	0.011	11.100	308	0.83	0.0029	287
4.00	4.33	0.015	14.500	298	0.90	0.0034	266
5.00	5.27	0.019	19.000	277	0.94	0.0045	209
6.00	6.22	0.024	24.100	258	0.96	0.0051	188
7.00	7.19	0.030	29.500	244	0.97	0.0054	179
8.00	8.17	0.035	35.000	233	0.98	0.0055	178
9.00	9.15	0.041	40.700	225	0.98	0.0057	172
10.00	10.14	0.047	46.600	217	0.99	0.0059	167
11.00	11.12	0.053	52.500	212	0.99	0.0059	167
12.00	12.11	0.059	58.600	207	0.99	0.0061	162
13.00	13.10	0.063	62.500	210	0.99	0.0039	254
14.00	14.10	0.066	65.900	214	0.99	0.0034	292
15.00	15.09	0.070	70.000	216	0.99	0.0041	242
16.00	16.08	0.074	73.800	218	0.99	0.0038	262
17.00	17.08	0.077	77.000	222	1.00	0.0032	311
18.00	18.08	0.080	80.100	226	1.00	0.0031	321
19.00	19.07	0.083	83.200	229	1.00	0.0031	321
20.00	20.07	0.086	86.200	233	1.00	0.0030	332
21.00	21.06	0.089	89.300	236	1.00	0.0031	322
22.00	22.06	0.092	92.200	239	1.00	0.0029	344
23.00	23.06	0.095	95.200	242	1.00	0.0030	332
24.00	24.06	0.098	98.300	245	1.00	0.0031	322
25.00	25.05	0.101	101.100	248	1.00	0.0028	356
26.00	26.05	0.104	103.800	251	1.00	0.0027	370
27.00	27.05	0.107	106.500	254	1.00	0.0027	370
28.00	28.05	0.109	109.100	257	1.00	0.0026	384
29.00	29.05	0.112	111.500	261	1.00	0.0024	416
30.00	30.05	0.114	113.800	264	1.00	0.0023	434

Vs30 = 262 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.)	assente
PROF. FALDA (m da p.c.)	2,36 m.
TIPO PUNTA	piezocono sismico

PROVA : SCPTU2 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 18/11/2011** **Certificato di prova:**

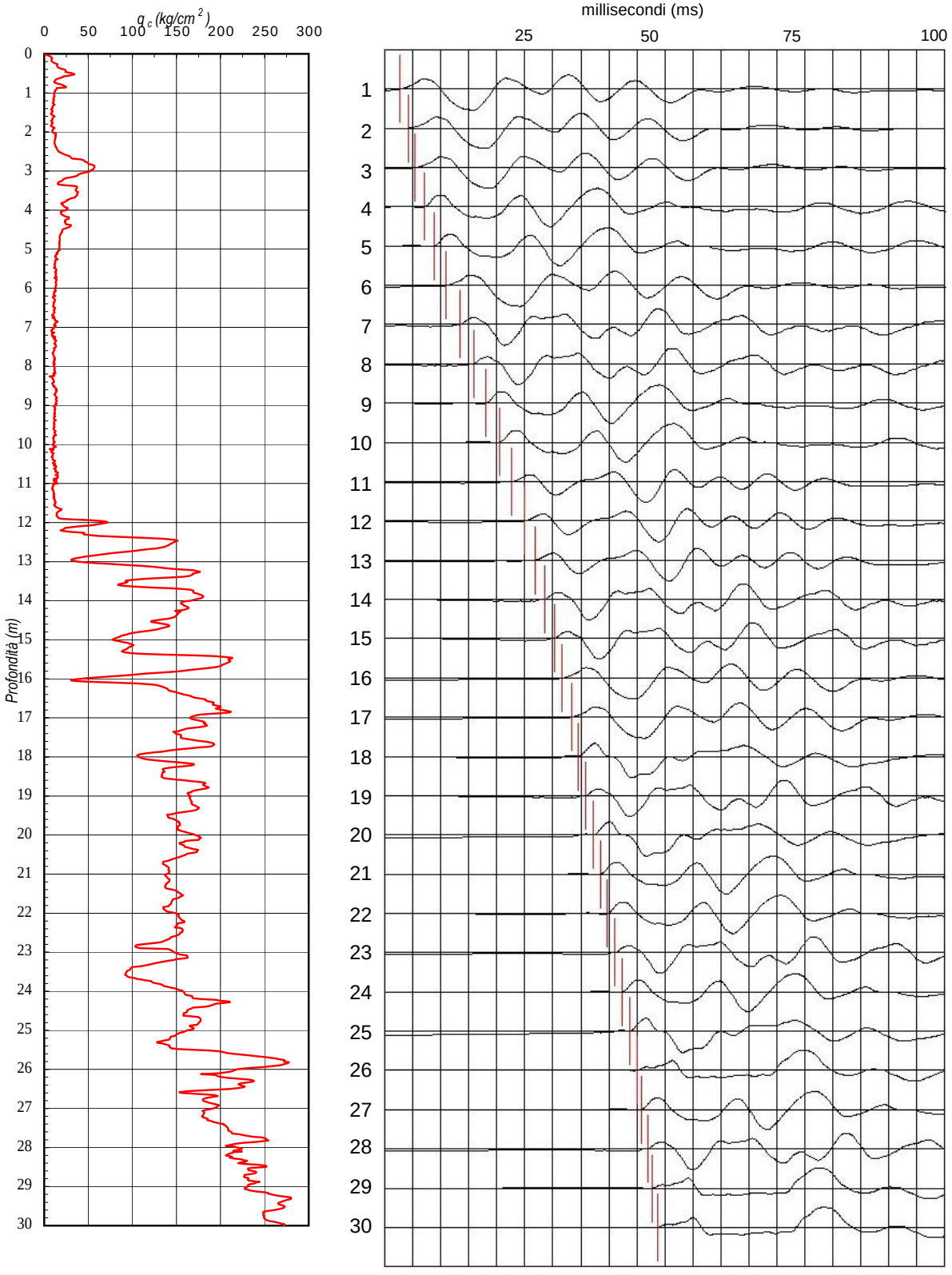


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU2	18/11/2011

SISMOGRAMMI ONDE P

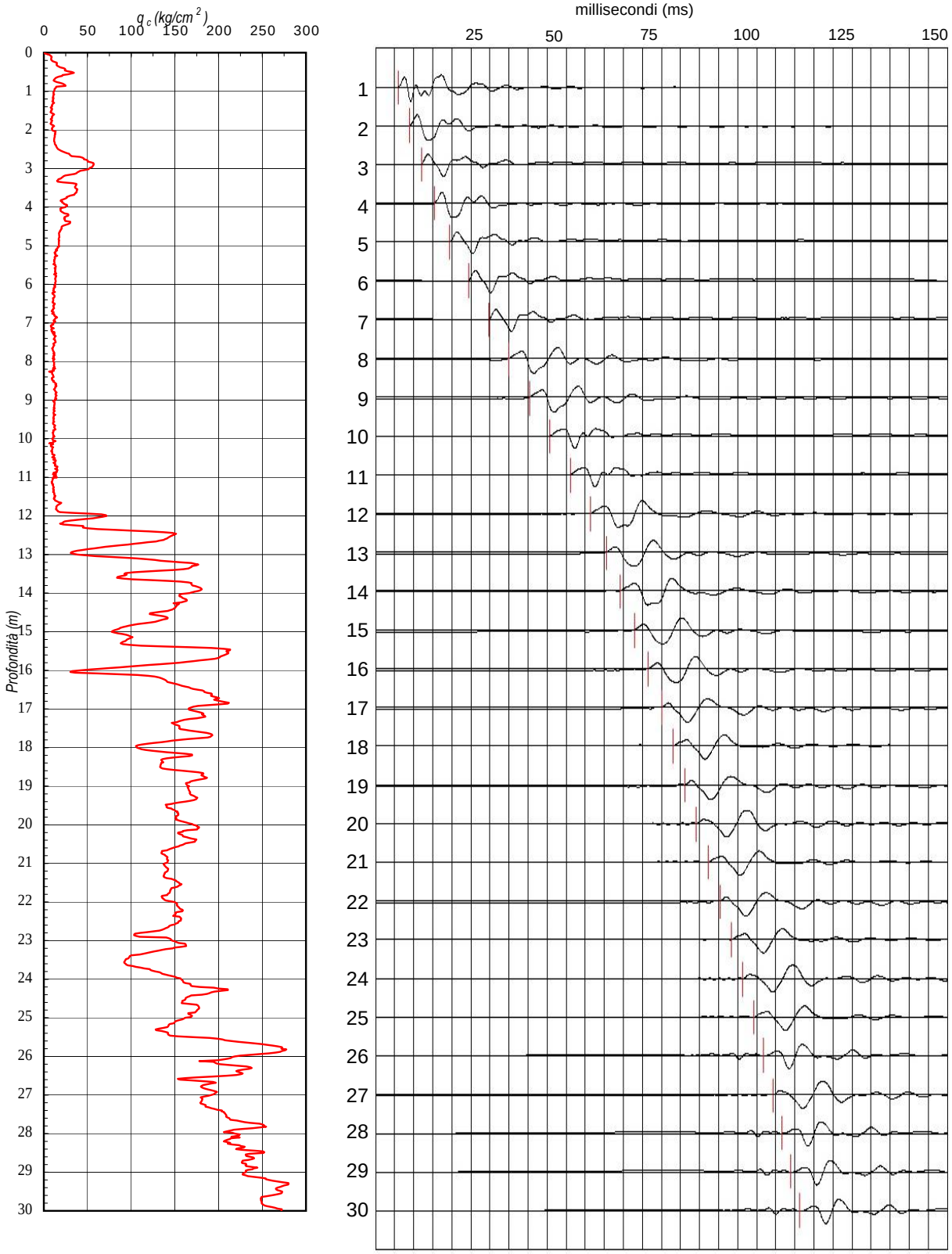


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU2	18/11/2011

SISMOGRAMMI ONDE S



Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU2	18/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	2.700	715	1.93	0.0027	715
2.00	2.59	0.004	4.100	632	0.66	0.0014	474
3.00	3.42	0.005	5.400	634	0.83	0.0013	639
4.00	4.33	0.007	7.000	618	0.90	0.0016	564
5.00	5.27	0.009	8.800	598	0.94	0.0018	521
6.00	6.22	0.011	11.000	566	0.96	0.0022	435
7.00	7.19	0.013	13.400	537	0.97	0.0024	404
8.00	8.17	0.016	15.800	517	0.98	0.0024	407
9.00	9.15	0.018	18.100	506	0.98	0.0023	427
10.00	10.14	0.020	20.400	497	0.99	0.0023	428
11.00	11.12	0.023	22.700	490	0.99	0.0023	430
12.00	12.11	0.025	25.000	485	0.99	0.0023	430
13.00	13.10	0.027	26.800	489	0.99	0.0018	551
14.00	14.10	0.029	28.500	495	0.99	0.0017	584
15.00	15.09	0.030	30.200	500	0.99	0.0017	584
16.00	16.08	0.032	31.800	506	0.99	0.0016	621
17.00	17.08	0.033	33.300	513	1.00	0.0015	663
18.00	18.08	0.035	34.600	522	1.00	0.0013	766
19.00	19.07	0.036	35.900	531	1.00	0.0013	766
20.00	20.07	0.037	37.200	539	1.00	0.0013	766
21.00	21.06	0.039	38.500	547	1.00	0.0013	767
22.00	22.06	0.040	39.800	554	1.00	0.0013	767
23.00	23.06	0.041	41.100	561	1.00	0.0013	767
24.00	24.06	0.042	42.400	567	1.00	0.0013	767
25.00	25.05	0.044	43.600	575	1.00	0.0012	831
26.00	26.05	0.045	44.700	583	1.00	0.0011	907
27.00	27.05	0.046	45.800	591	1.00	0.0011	907
28.00	28.05	0.047	46.800	599	1.00	0.0010	998
29.00	29.05	0.048	47.800	608	1.00	0.0010	998
30.00	30.05	0.049	48.700	617	1.00	0.0009	1109

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU2	18/11/2011

Tabella onde S

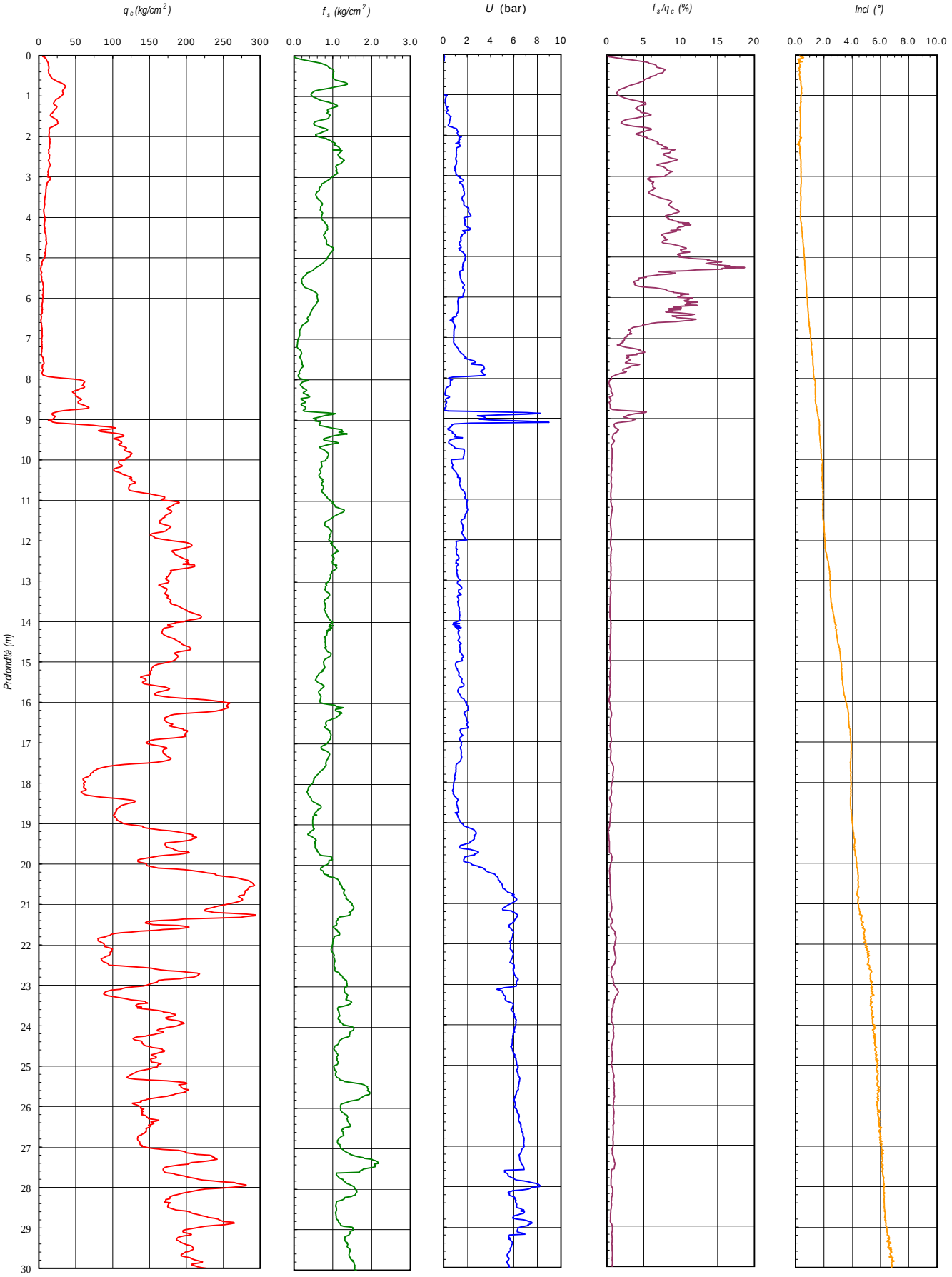
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.006	5.900	327	1.93	0.0059	327
2.00	2.59	0.009	9.000	288	0.66	0.0031	214
3.00	3.42	0.012	12.000	285	0.83	0.0030	277
4.00	4.33	0.016	15.500	279	0.90	0.0035	258
5.00	5.27	0.020	19.500	270	0.94	0.0040	235
6.00	6.22	0.024	24.400	255	0.96	0.0049	195
7.00	7.19	0.030	29.800	241	0.97	0.0054	179
8.00	8.17	0.035	35.000	233	0.98	0.0052	188
9.00	9.15	0.040	40.400	226	0.98	0.0054	182
10.00	10.14	0.046	45.800	221	0.99	0.0054	182
11.00	11.12	0.051	51.000	218	0.99	0.0052	190
12.00	12.11	0.056	56.400	215	0.99	0.0054	183
13.00	13.10	0.061	60.500	217	0.99	0.0041	242
14.00	14.10	0.064	64.200	220	0.99	0.0037	268
15.00	15.09	0.068	68.000	222	0.99	0.0038	261
16.00	16.08	0.072	71.600	225	0.99	0.0036	276
17.00	17.08	0.075	75.000	228	1.00	0.0034	293
18.00	18.08	0.078	78.100	231	1.00	0.0031	321
19.00	19.07	0.081	81.200	235	1.00	0.0031	321
20.00	20.07	0.084	84.200	238	1.00	0.0030	332
21.00	21.06	0.087	87.300	241	1.00	0.0031	322
22.00	22.06	0.090	90.400	244	1.00	0.0031	322
23.00	23.06	0.093	93.400	247	1.00	0.0030	332
24.00	24.06	0.096	96.300	250	1.00	0.0029	344
25.00	25.05	0.099	99.200	253	1.00	0.0029	344
26.00	26.05	0.102	101.700	256	1.00	0.0025	399
27.00	27.05	0.104	104.200	260	1.00	0.0025	399
28.00	28.05	0.107	106.600	263	1.00	0.0024	416
29.00	29.05	0.109	109.000	266	1.00	0.0024	416
30.00	30.05	0.111	111.300	270	1.00	0.0023	434

Vs30 = 267 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.)	assente
PROF. FALDA (m da p.c.)	3,22 m.
TIPO PUNTA	piezocono sismico

PROVA : SCPTU3 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 18/11/2011** **Certificato di prova:**

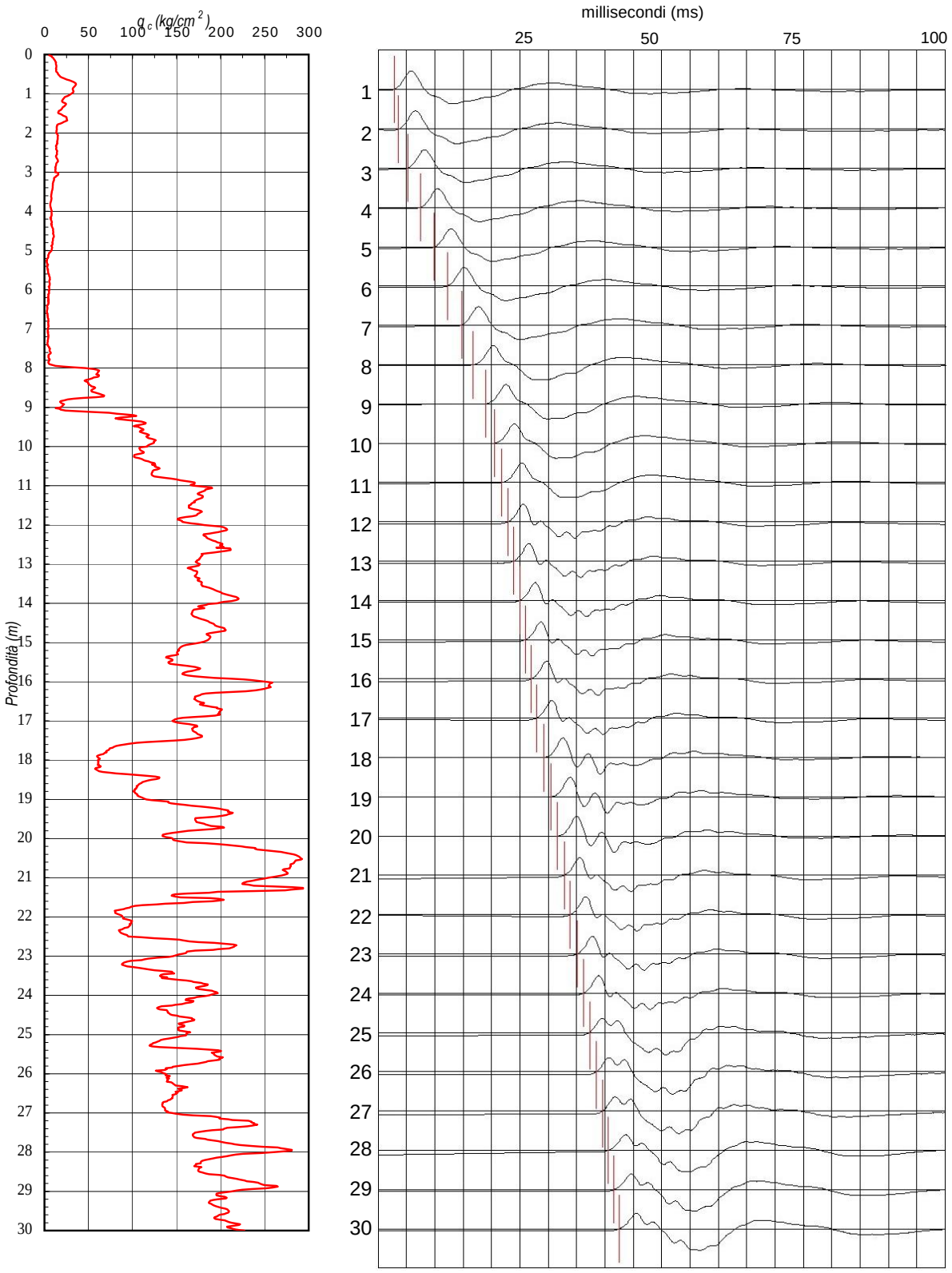


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU3	18/11/2011

SISMOGRAMMI ONDE P

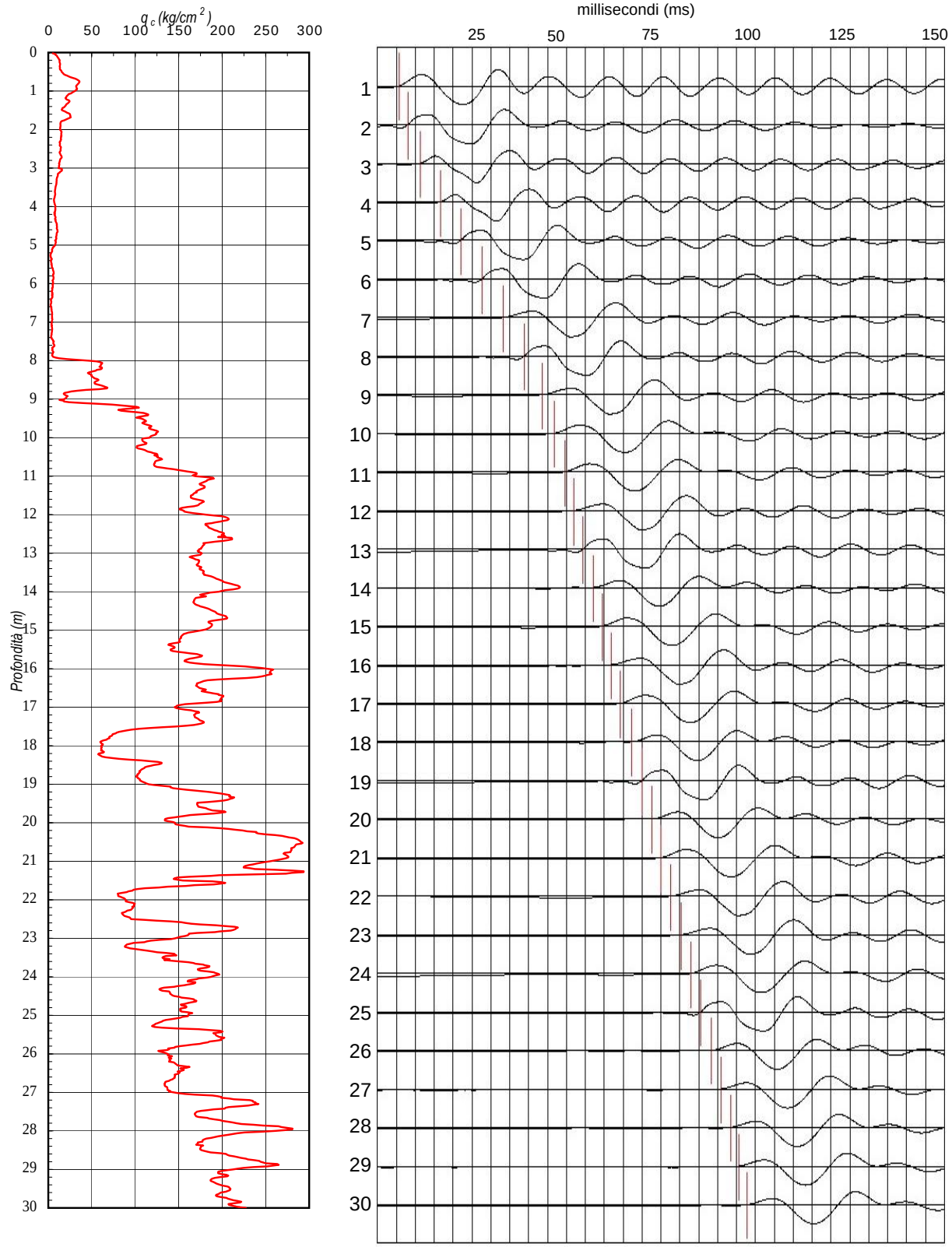


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU3	18/11/2011

SISMOGRAMMI ONDE S



Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU3	18/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	2.700	715	1.93	0.0027	715
2.00	2.59	0.004	3.700	701	0.66	0.0010	663
3.00	3.42	0.005	5.200	658	0.83	0.0015	554
4.00	4.33	0.007	7.400	585	0.90	0.0022	411
5.00	5.27	0.010	9.800	537	0.94	0.0024	391
6.00	6.22	0.012	12.200	510	0.96	0.0024	399
7.00	7.19	0.015	14.600	493	0.97	0.0024	404
8.00	8.17	0.017	16.900	483	0.98	0.0023	425
9.00	9.15	0.019	19.000	482	0.98	0.0021	467
10.00	10.14	0.021	20.500	494	0.99	0.0015	657
11.00	11.12	0.022	21.800	510	0.99	0.0013	760
12.00	12.11	0.023	22.900	529	0.99	0.0011	900
13.00	13.10	0.024	23.900	548	0.99	0.0010	991
14.00	14.10	0.025	25.000	564	0.99	0.0011	902
15.00	15.09	0.026	26.000	580	0.99	0.0010	994
16.00	16.08	0.027	27.000	596	0.99	0.0010	994
17.00	17.08	0.028	27.900	612	1.00	0.0009	1106
18.00	18.08	0.029	29.200	619	1.00	0.0013	766
19.00	19.07	0.030	30.400	627	1.00	0.0012	830
20.00	20.07	0.032	31.600	635	1.00	0.0012	830
21.00	21.06	0.033	32.800	642	1.00	0.0012	831
22.00	22.06	0.034	33.900	651	1.00	0.0011	906
23.00	23.06	0.035	35.100	657	1.00	0.0012	831
24.00	24.06	0.036	36.200	665	1.00	0.0011	907
25.00	25.05	0.037	37.300	672	1.00	0.0011	907
26.00	26.05	0.039	38.500	677	1.00	0.0012	832
27.00	27.05	0.040	39.600	683	1.00	0.0011	907
28.00	28.05	0.041	40.600	691	1.00	0.0010	998
29.00	29.05	0.042	41.600	698	1.00	0.0010	998
30.00	30.05	0.043	42.500	707	1.00	0.0009	1109

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU3	18/11/2011

Tabella onde S

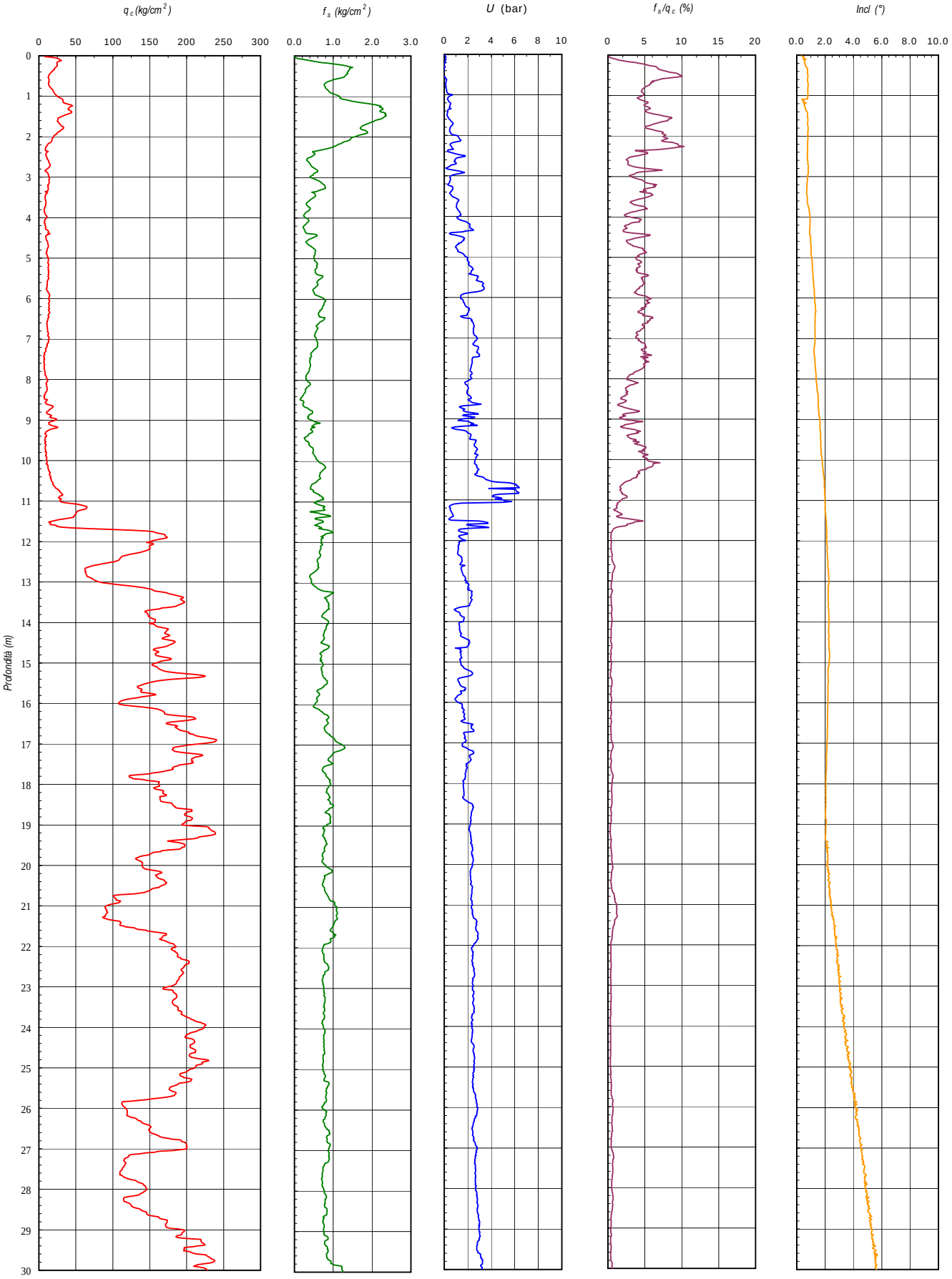
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.006	5.700	338	1.93	0.0057	338
2.00	2.59	0.008	8.000	324	0.66	0.0023	288
3.00	3.42	0.011	11.400	300	0.83	0.0034	244
4.00	4.33	0.017	16.600	261	0.90	0.0052	174
5.00	5.27	0.022	22.000	239	0.94	0.0054	174
6.00	6.22	0.028	27.600	225	0.96	0.0056	171
7.00	7.19	0.033	33.200	217	0.97	0.0056	173
8.00	8.17	0.039	38.800	211	0.98	0.0056	174
9.00	9.15	0.044	43.500	210	0.98	0.0047	209
10.00	10.14	0.047	46.700	217	0.99	0.0032	308
11.00	11.12	0.050	49.500	225	0.99	0.0028	353
12.00	12.11	0.052	52.000	233	0.99	0.0025	396
13.00	13.10	0.054	54.400	241	0.99	0.0024	413
14.00	14.10	0.057	56.900	248	0.99	0.0025	397
15.00	15.09	0.059	59.400	254	0.99	0.0025	397
16.00	16.08	0.062	61.800	260	0.99	0.0024	414
17.00	17.08	0.064	64.200	266	1.00	0.0024	415
18.00	18.08	0.067	67.100	269	1.00	0.0029	343
19.00	19.07	0.070	69.900	273	1.00	0.0028	356
20.00	20.07	0.073	72.600	276	1.00	0.0027	369
21.00	21.06	0.075	74.900	281	1.00	0.0023	433
22.00	22.06	0.078	77.600	284	1.00	0.0027	369
23.00	23.06	0.080	80.300	287	1.00	0.0027	369
24.00	24.06	0.083	82.900	290	1.00	0.0026	384
25.00	25.05	0.086	85.500	293	1.00	0.0026	384
26.00	26.05	0.088	88.200	295	1.00	0.0027	370
27.00	27.05	0.091	90.800	298	1.00	0.0026	384
28.00	28.05	0.093	93.200	301	1.00	0.0024	416
29.00	29.05	0.096	95.500	304	1.00	0.0023	434
30.00	30.05	0.098	97.700	308	1.00	0.0022	454

Vs30 = 304 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.) assente
PROF. FALDA (m da p.c.) foro chiusa a
TIPO PUNTA piezocono sismico

PROVA : SCPTU4 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 18/11/2011** **Certificato di prova:**

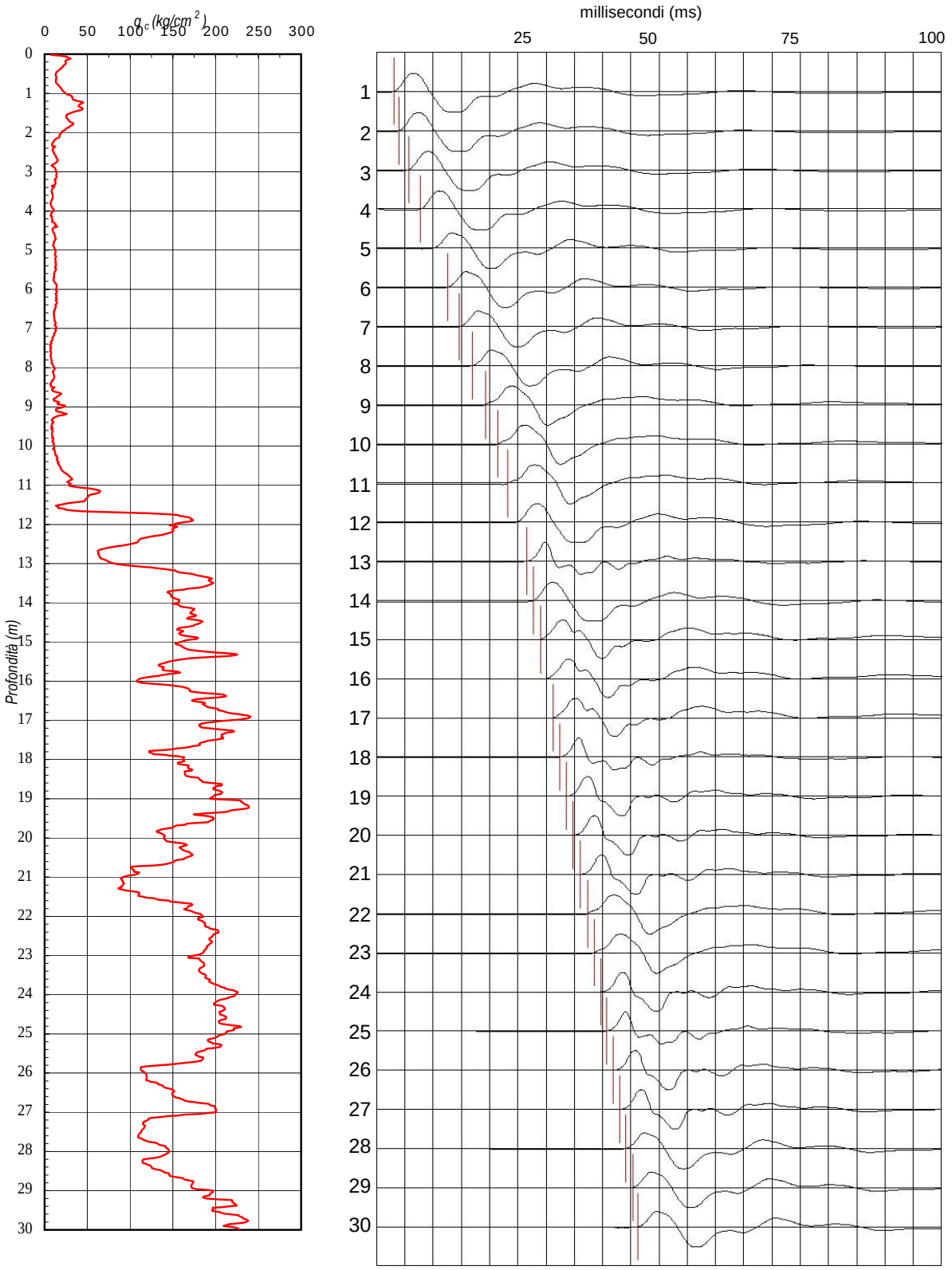


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU4	18/11/2011

SISMOGRAMMI ONDE P

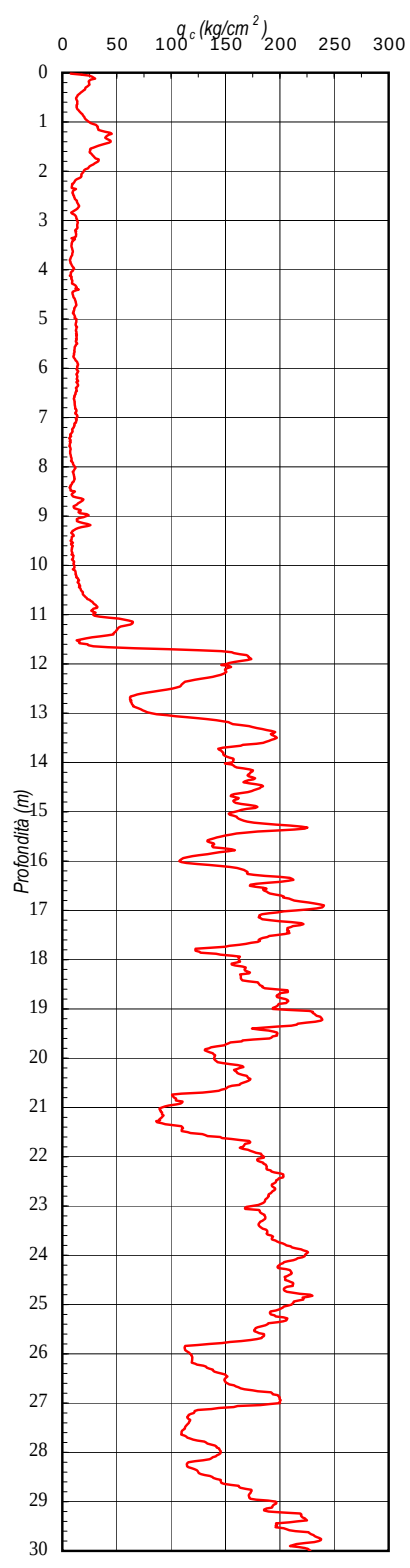


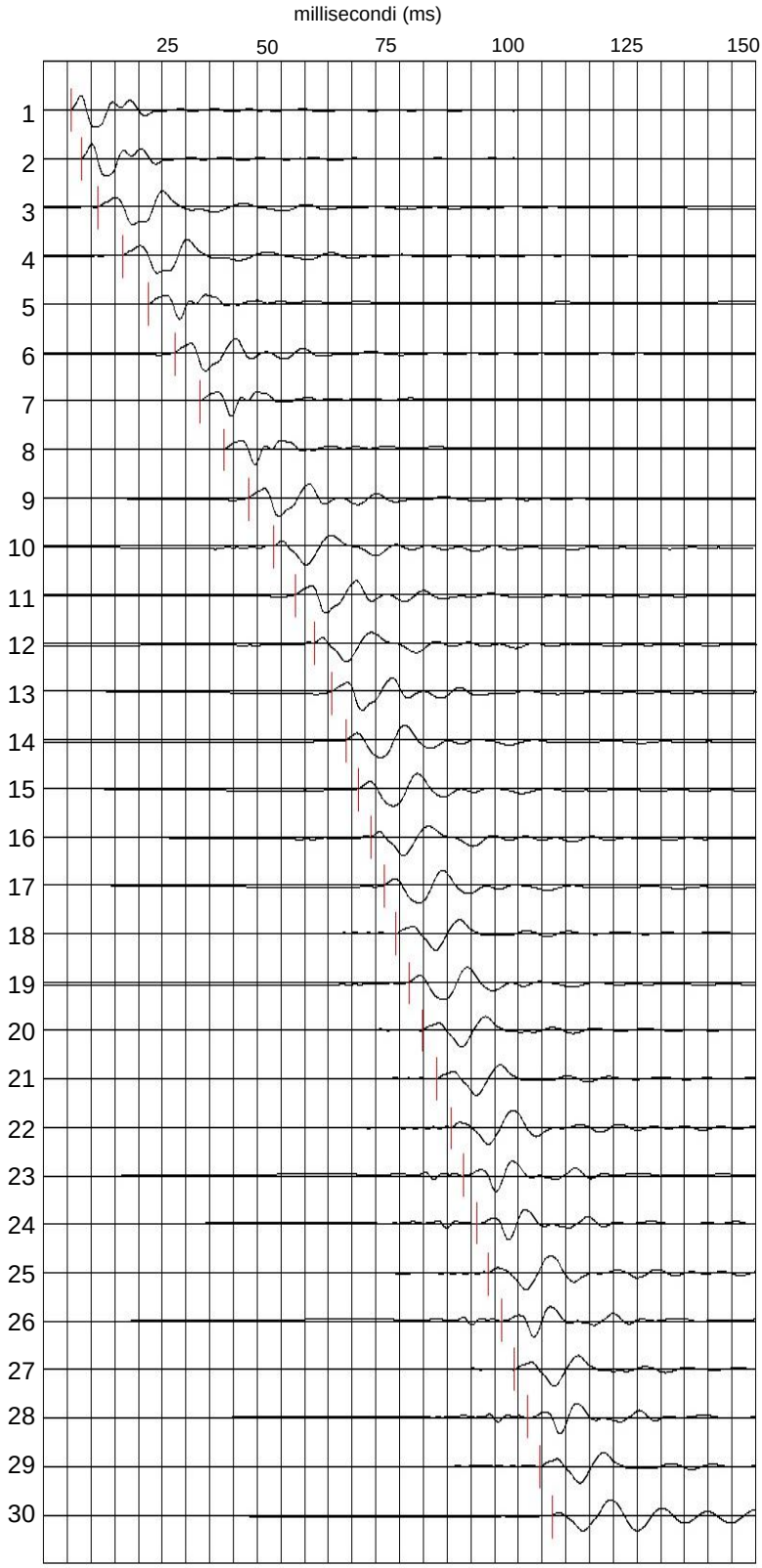
Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU4	18/11/2011

SISMOGRAMMI ONDE S





Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU4	18/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	3.000	643	1.93	0.0030	643
2.00	2.59	0.004	4.000	648	0.66	0.0010	663
3.00	3.42	0.006	5.600	611	0.83	0.0016	519
4.00	4.33	0.008	7.800	555	0.90	0.0022	411
5.00	5.27	0.010	10.100	521	0.94	0.0023	408
6.00	6.22	0.013	12.500	498	0.96	0.0024	399
7.00	7.19	0.015	14.800	486	0.97	0.0023	421
8.00	8.17	0.017	17.000	480	0.98	0.0022	444
9.00	9.15	0.019	19.200	477	0.98	0.0022	446
10.00	10.14	0.022	21.500	471	0.99	0.0023	428
11.00	11.12	0.023	23.400	475	0.99	0.0019	520
12.00	12.11	0.025	25.000	485	0.99	0.0016	619
13.00	13.10	0.027	26.500	495	0.99	0.0015	661
14.00	14.10	0.028	27.800	507	0.99	0.0013	764
15.00	15.09	0.029	29.000	520	0.99	0.0012	828
16.00	16.08	0.030	30.100	534	0.99	0.0011	904
17.00	17.08	0.031	31.300	546	1.00	0.0012	829
18.00	18.08	0.032	32.400	558	1.00	0.0011	905
19.00	19.07	0.034	33.500	569	1.00	0.0011	905
20.00	20.07	0.035	34.700	578	1.00	0.0012	830
21.00	21.06	0.036	36.000	585	1.00	0.0013	767
22.00	22.06	0.037	37.300	591	1.00	0.0013	767
23.00	23.06	0.039	38.500	599	1.00	0.0012	831
24.00	24.06	0.040	39.600	607	1.00	0.0011	907
25.00	25.05	0.041	40.700	616	1.00	0.0011	907
26.00	26.05	0.042	41.900	622	1.00	0.0012	832
27.00	27.05	0.043	43.000	629	1.00	0.0011	907
28.00	28.05	0.044	44.100	636	1.00	0.0011	907
29.00	29.05	0.045	45.200	643	1.00	0.0011	908
30.00	30.05	0.046	46.300	649	1.00	0.0011	908

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU4	18/11/2011

Tabella onde S

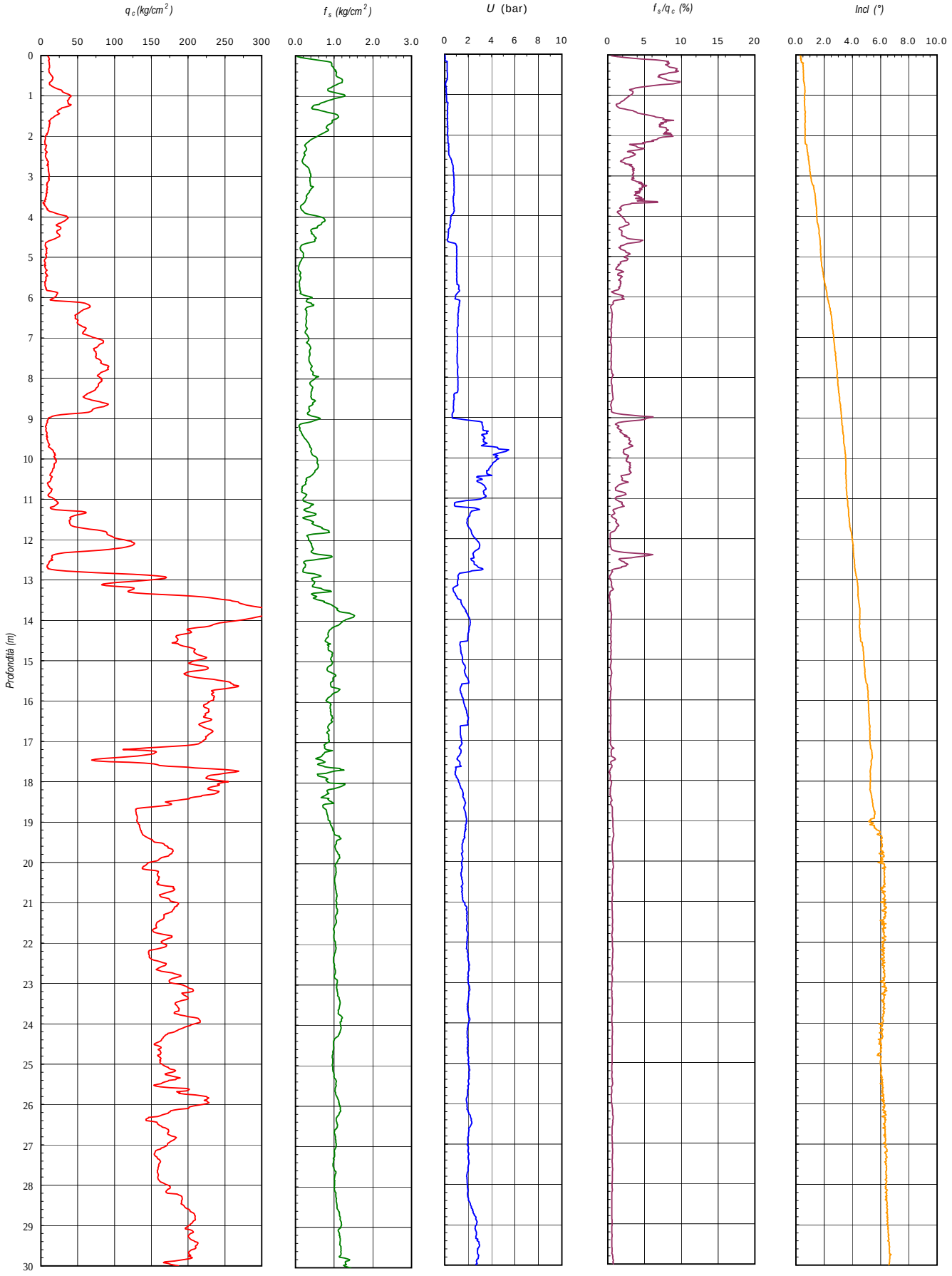
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.006	5.800	333	1.93	0.0058	333
2.00	2.59	0.008	8.100	320	0.66	0.0023	288
3.00	3.42	0.012	11.500	298	0.83	0.0034	244
4.00	4.33	0.017	16.700	259	0.90	0.0052	174
5.00	5.27	0.022	22.200	237	0.94	0.0055	171
6.00	6.22	0.028	27.700	225	0.96	0.0055	174
7.00	7.19	0.033	32.900	219	0.97	0.0052	186
8.00	8.17	0.038	38.100	214	0.98	0.0052	188
9.00	9.15	0.043	43.200	212	0.98	0.0051	192
10.00	10.14	0.049	48.500	209	0.99	0.0053	186
11.00	11.12	0.053	53.100	209	0.99	0.0046	215
12.00	12.11	0.057	57.000	213	0.99	0.0039	254
13.00	13.10	0.061	60.700	216	0.99	0.0037	268
14.00	14.10	0.064	63.700	221	0.99	0.0030	331
15.00	15.09	0.066	66.400	227	0.99	0.0027	368
16.00	16.08	0.069	69.000	233	0.99	0.0026	382
17.00	17.08	0.072	71.700	238	1.00	0.0027	369
18.00	18.08	0.074	74.300	243	1.00	0.0026	383
19.00	19.07	0.077	76.900	248	1.00	0.0026	383
20.00	20.07	0.080	79.700	252	1.00	0.0028	356
21.00	21.06	0.083	82.800	254	1.00	0.0031	322
22.00	22.06	0.086	85.800	257	1.00	0.0030	332
23.00	23.06	0.089	88.500	261	1.00	0.0027	369
24.00	24.06	0.091	91.100	264	1.00	0.0026	384
25.00	25.05	0.094	93.600	268	1.00	0.0025	399
26.00	26.05	0.097	96.500	270	1.00	0.0029	344
27.00	27.05	0.099	99.200	273	1.00	0.0027	370
28.00	28.05	0.102	102.000	275	1.00	0.0028	357
29.00	29.05	0.105	104.600	278	1.00	0.0026	384
30.00	30.05	0.107	107.100	281	1.00	0.0025	399

Vs30 = 278 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.) assente
PROF. FALDA (m da p.c.) 2,48 m.
TIPO PUNTA piezocono sismico

PROVA : SCPTU5 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 21/11/2011** **Certificato di prova:**

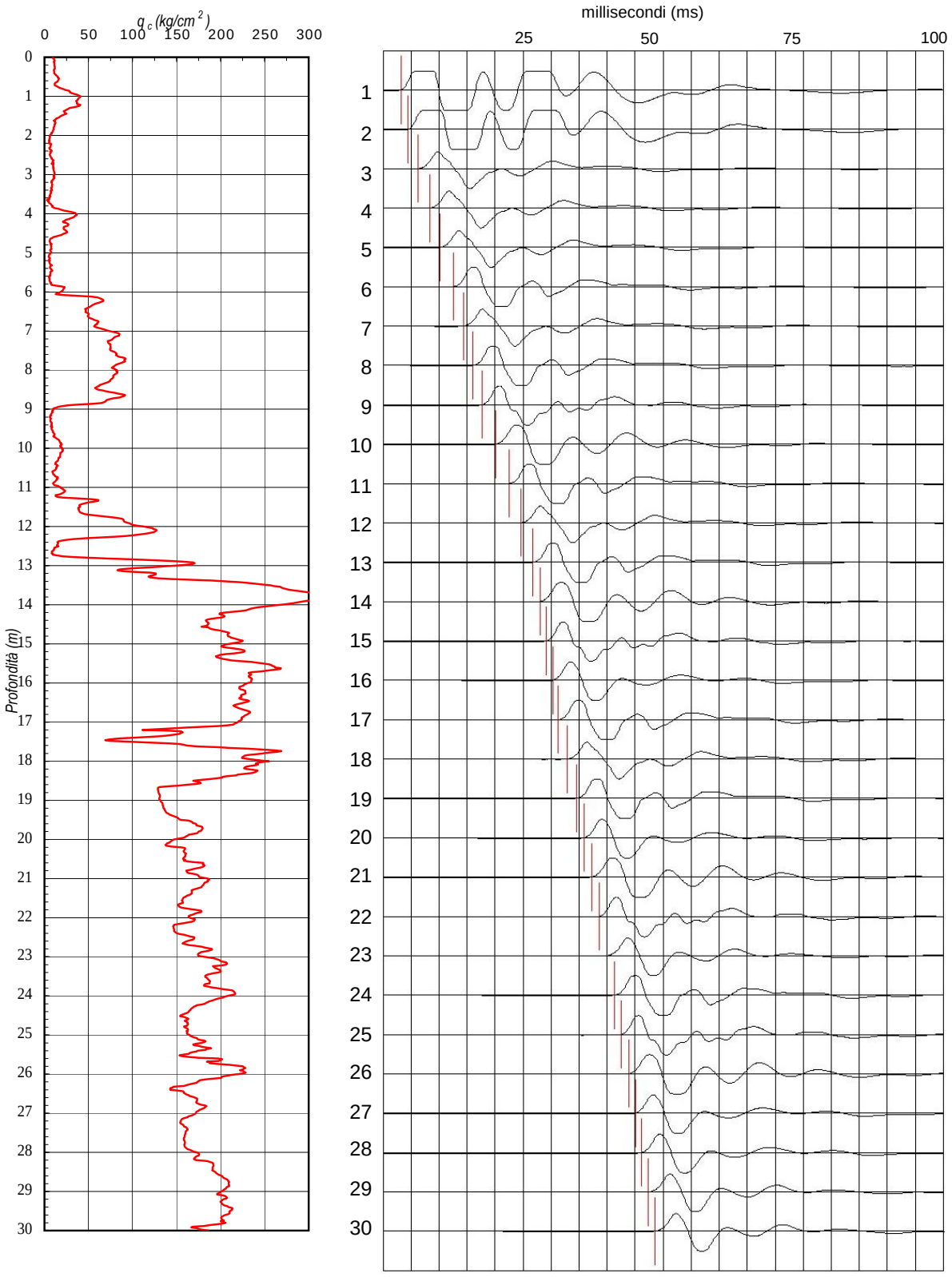


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU5	21/11/2011

SISMOGRAMMI ONDE P

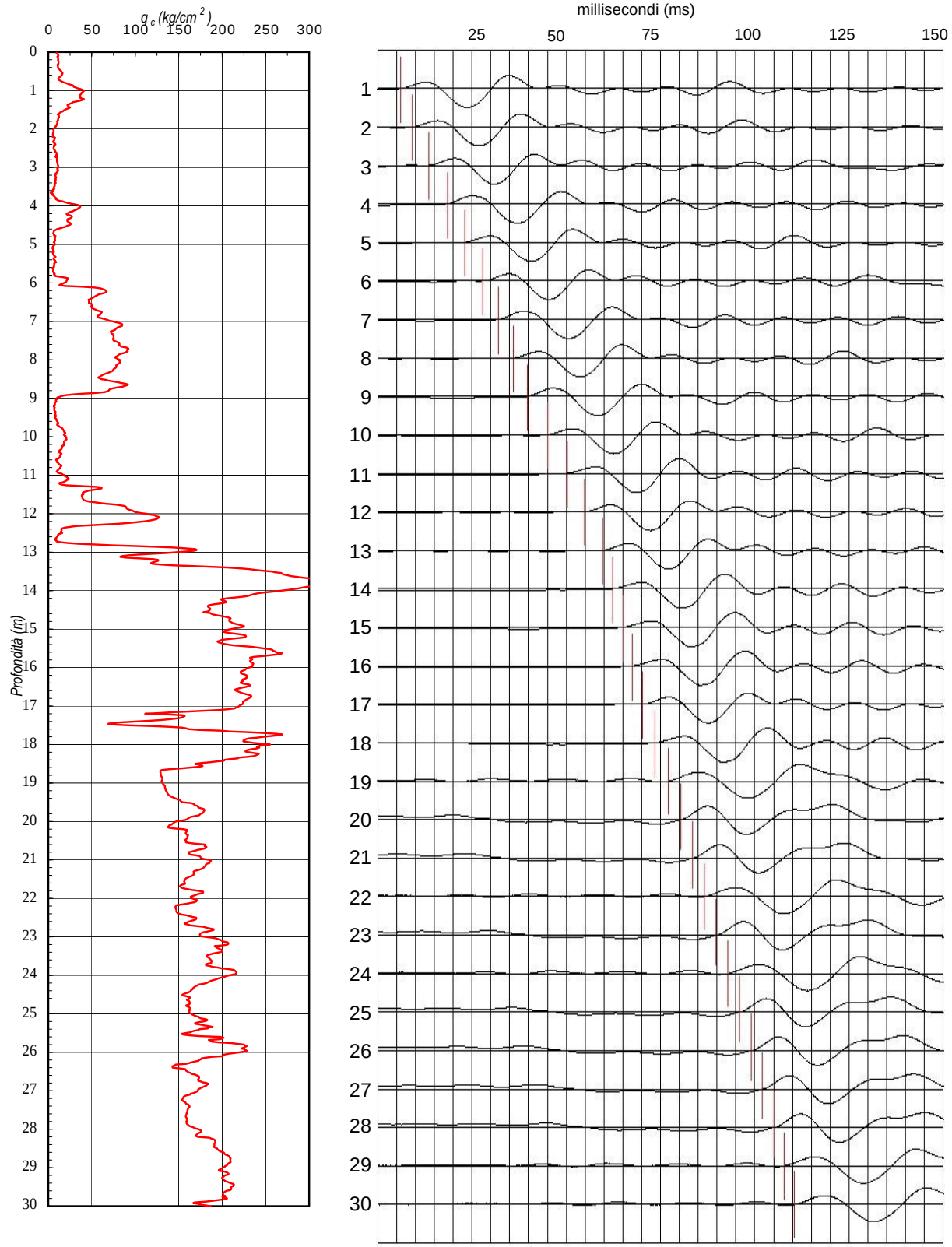


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU5	21/11/2011

SISMOGRAMMI ONDE S



Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU5	21/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	3.200	603	1.93	0.0032	603
2.00	2.59	0.005	4.500	576	0.66	0.0013	510
3.00	3.42	0.006	6.300	543	0.83	0.0018	462
4.00	4.33	0.008	8.300	521	0.90	0.0020	452
5.00	5.27	0.010	10.200	516	0.94	0.0019	494
6.00	6.22	0.013	12.500	498	0.96	0.0023	416
7.00	7.19	0.014	14.300	503	0.97	0.0018	538
8.00	8.17	0.016	16.000	511	0.98	0.0017	574
9.00	9.15	0.018	17.700	517	0.98	0.0017	577
10.00	10.14	0.020	20.100	504	0.99	0.0024	411
11.00	11.12	0.023	22.500	494	0.99	0.0024	412
12.00	12.11	0.025	24.600	492	0.99	0.0021	471
13.00	13.10	0.027	26.800	489	0.99	0.0022	451
14.00	14.10	0.028	28.000	503	0.99	0.0012	827
15.00	15.09	0.029	29.100	519	0.99	0.0011	903
16.00	16.08	0.030	30.300	531	0.99	0.0012	829
17.00	17.08	0.031	31.400	544	1.00	0.0011	905
18.00	18.08	0.033	32.900	549	1.00	0.0015	664
19.00	19.07	0.034	34.400	554	1.00	0.0015	664
20.00	20.07	0.036	35.800	561	1.00	0.0014	712
21.00	21.06	0.037	37.200	566	1.00	0.0014	712
22.00	22.06	0.039	38.600	572	1.00	0.0014	712
23.00	23.06	0.040	39.900	578	1.00	0.0013	767
24.00	24.06	0.041	41.200	584	1.00	0.0013	767
25.00	25.05	0.043	42.500	590	1.00	0.0013	767
26.00	26.05	0.044	43.800	595	1.00	0.0013	768
27.00	27.05	0.045	45.000	601	1.00	0.0012	832
28.00	28.05	0.046	46.200	607	1.00	0.0012	832
29.00	29.05	0.047	47.400	613	1.00	0.0012	832
30.00	30.05	0.049	48.500	619	1.00	0.0011	908

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU5	21/11/2011

Tabella onde S

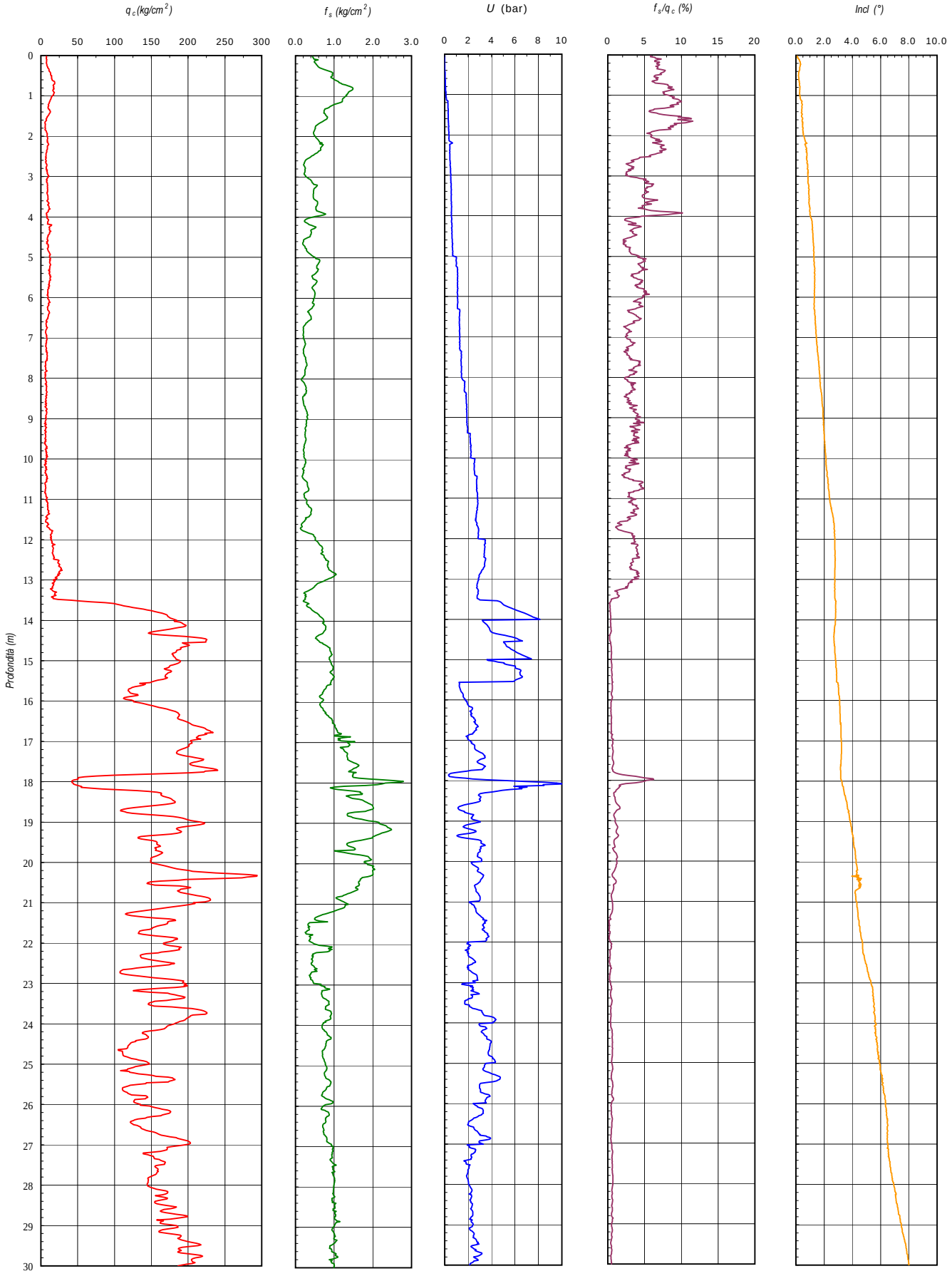
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.006	6.200	311	1.93	0.0062	311
2.00	2.59	0.009	9.200	282	0.66	0.0030	221
3.00	3.42	0.014	13.500	254	0.83	0.0043	193
4.00	4.33	0.019	18.500	234	0.90	0.0050	181
5.00	5.27	0.023	22.900	230	0.94	0.0044	213
6.00	6.22	0.028	27.900	223	0.96	0.0050	192
7.00	7.19	0.032	32.100	224	0.97	0.0042	231
8.00	8.17	0.036	36.000	227	0.98	0.0039	250
9.00	9.15	0.040	39.800	230	0.98	0.0038	258
10.00	10.14	0.045	44.900	226	0.99	0.0051	193
11.00	11.12	0.050	50.100	222	0.99	0.0052	190
12.00	12.11	0.055	54.700	221	0.99	0.0046	215
13.00	13.10	0.060	59.600	220	0.99	0.0049	202
14.00	14.10	0.062	62.300	226	0.99	0.0027	368
15.00	15.09	0.065	64.900	233	0.99	0.0026	382
16.00	16.08	0.068	67.600	238	0.99	0.0027	368
17.00	17.08	0.070	70.200	243	1.00	0.0026	383
18.00	18.08	0.074	73.600	246	1.00	0.0034	293
19.00	19.07	0.077	77.000	248	1.00	0.0034	293
20.00	20.07	0.080	80.300	250	1.00	0.0033	302
21.00	21.06	0.084	83.500	252	1.00	0.0032	311
22.00	22.06	0.087	86.700	254	1.00	0.0032	312
23.00	23.06	0.090	89.800	257	1.00	0.0031	322
24.00	24.06	0.093	92.800	259	1.00	0.0030	333
25.00	25.05	0.096	95.900	261	1.00	0.0031	322
26.00	26.05	0.099	99.000	263	1.00	0.0031	322
27.00	27.05	0.102	102.000	265	1.00	0.0030	333
28.00	28.05	0.105	104.900	267	1.00	0.0029	344
29.00	29.05	0.108	107.800	269	1.00	0.0029	344
30.00	30.05	0.111	110.600	272	1.00	0.0028	357

Vs30 = 268 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.): assente
PROF. FALDA (m da p.c.): chiuso 1,35 m
TIPO PUNTA: piezocono sismico

PROVA : SCPTU6 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 21/11/2011** **Certificato di prova:**

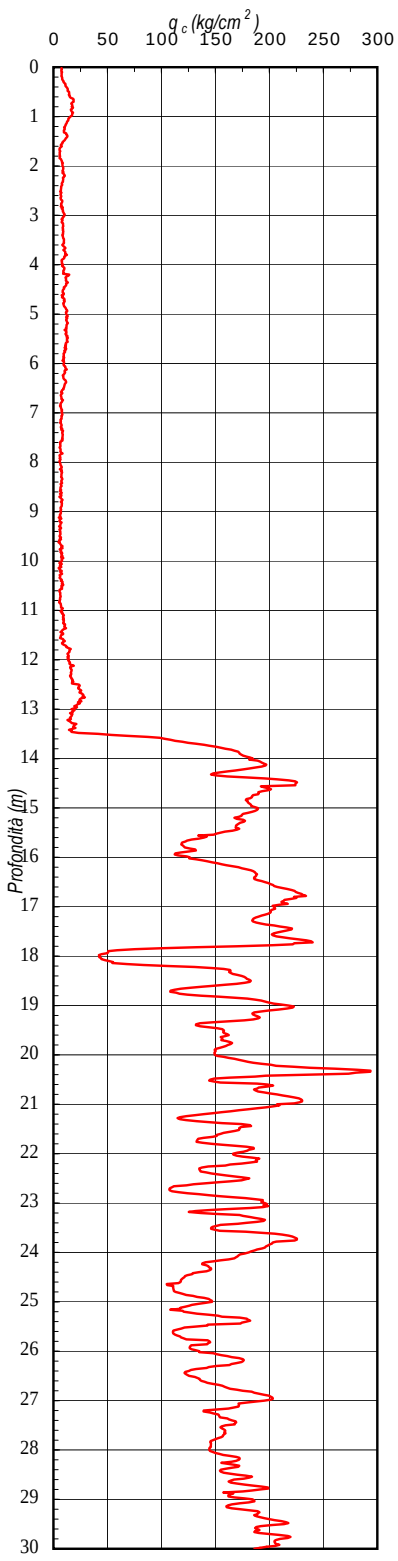


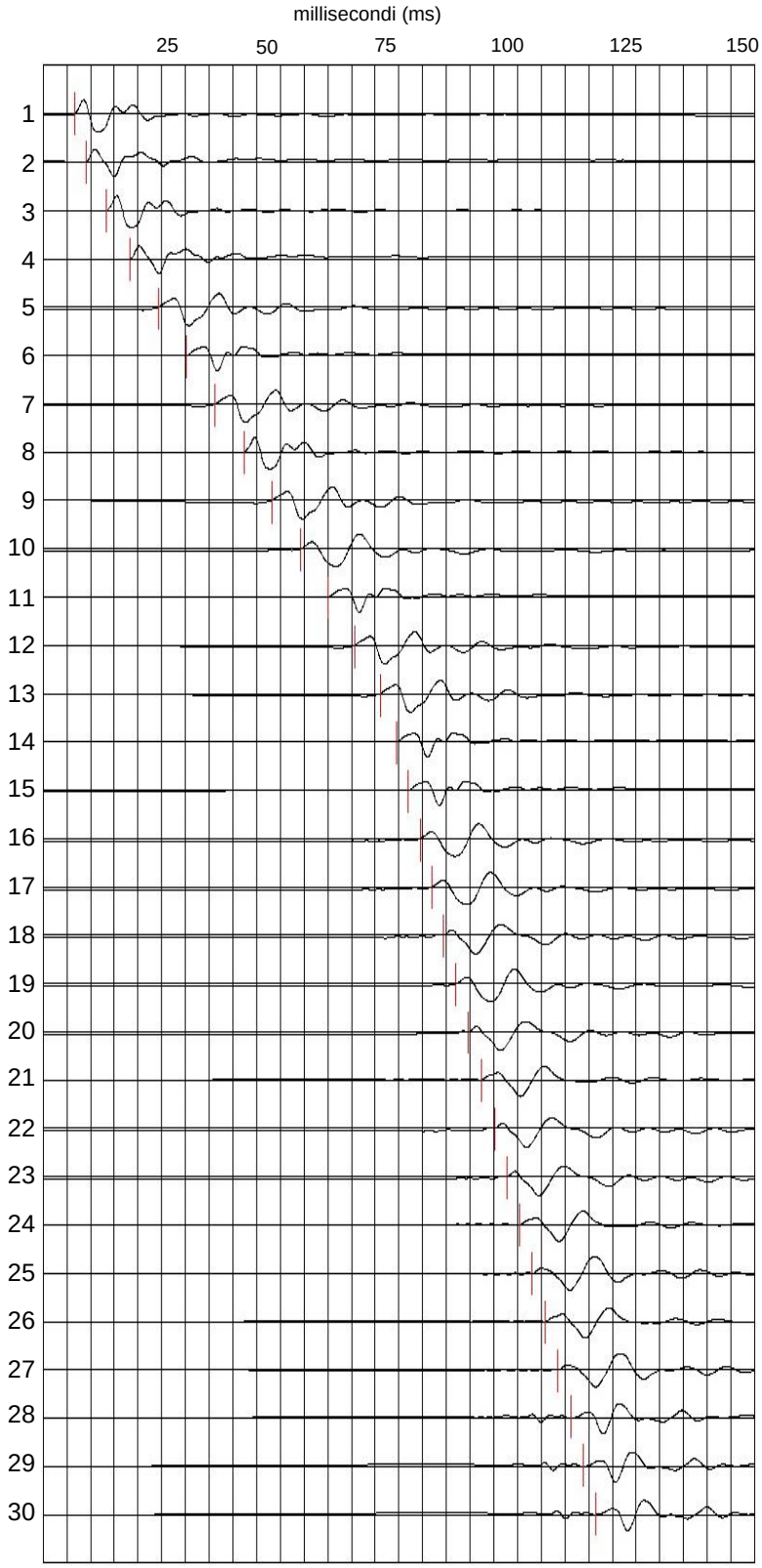
Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU6	21/11/2011

SISMOGRAMMI ONDE S



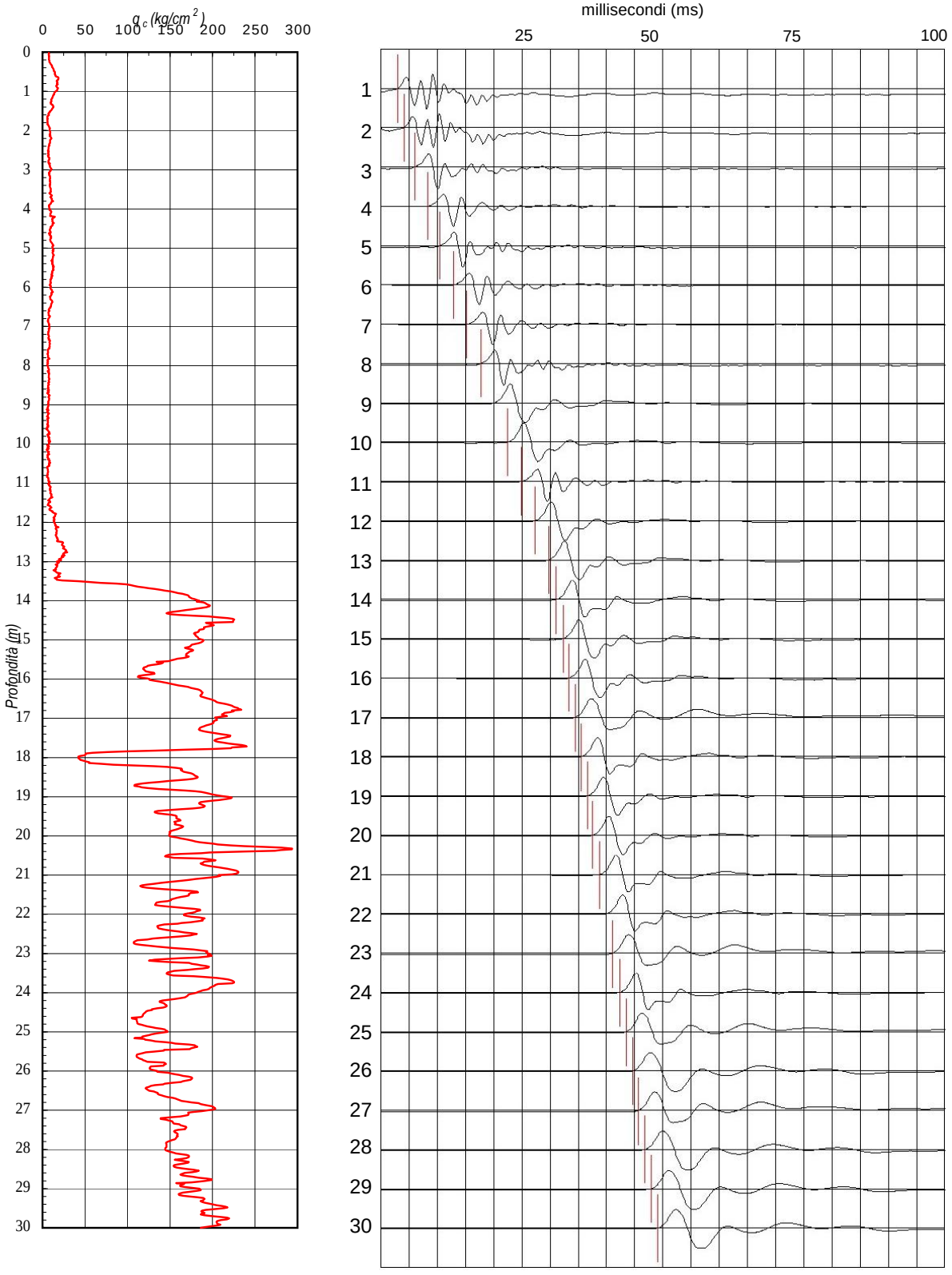


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU6	21/11/2011

SISMOGRAMMI ONDE P



Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU6	21/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	3.000	643	1.93	0.0030	643
2.00	2.59	0.004	4.100	632	0.66	0.0011	603
3.00	3.42	0.006	6.000	571	0.83	0.0019	437
4.00	4.33	0.008	8.200	528	0.90	0.0022	411
5.00	5.27	0.011	10.500	501	0.94	0.0023	408
6.00	6.22	0.013	12.900	482	0.96	0.0024	399
7.00	7.19	0.015	15.300	470	0.97	0.0024	404
8.00	8.17	0.018	17.700	461	0.98	0.0024	407
9.00	9.15	0.020	20.100	455	0.98	0.0024	409
10.00	10.14	0.023	22.500	450	0.99	0.0024	411
11.00	11.12	0.025	24.900	447	0.99	0.0024	412
12.00	12.11	0.027	27.300	444	0.99	0.0024	412
13.00	13.10	0.030	29.700	441	0.99	0.0024	413
14.00	14.10	0.031	31.200	452	0.99	0.0015	662
15.00	15.09	0.032	32.300	467	0.99	0.0011	903
16.00	16.08	0.033	33.400	482	0.99	0.0011	904
17.00	17.08	0.035	34.500	495	1.00	0.0011	905
18.00	18.08	0.036	35.500	509	1.00	0.0010	996
19.00	19.07	0.037	36.600	521	1.00	0.0011	905
20.00	20.07	0.038	37.600	534	1.00	0.0010	996
21.00	21.06	0.039	38.800	543	1.00	0.0012	831
22.00	22.06	0.040	39.900	553	1.00	0.0011	906
23.00	23.06	0.041	41.100	561	1.00	0.0012	831
24.00	24.06	0.042	42.300	569	1.00	0.0012	831
25.00	25.05	0.044	43.500	576	1.00	0.0012	831
26.00	26.05	0.045	44.600	584	1.00	0.0011	907
27.00	27.05	0.046	45.700	592	1.00	0.0011	907
28.00	28.05	0.047	46.800	599	1.00	0.0011	907
29.00	29.05	0.048	47.900	606	1.00	0.0011	908
30.00	30.05	0.049	49.000	613	1.00	0.0011	908

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU6	21/11/2011

Tabella onde S

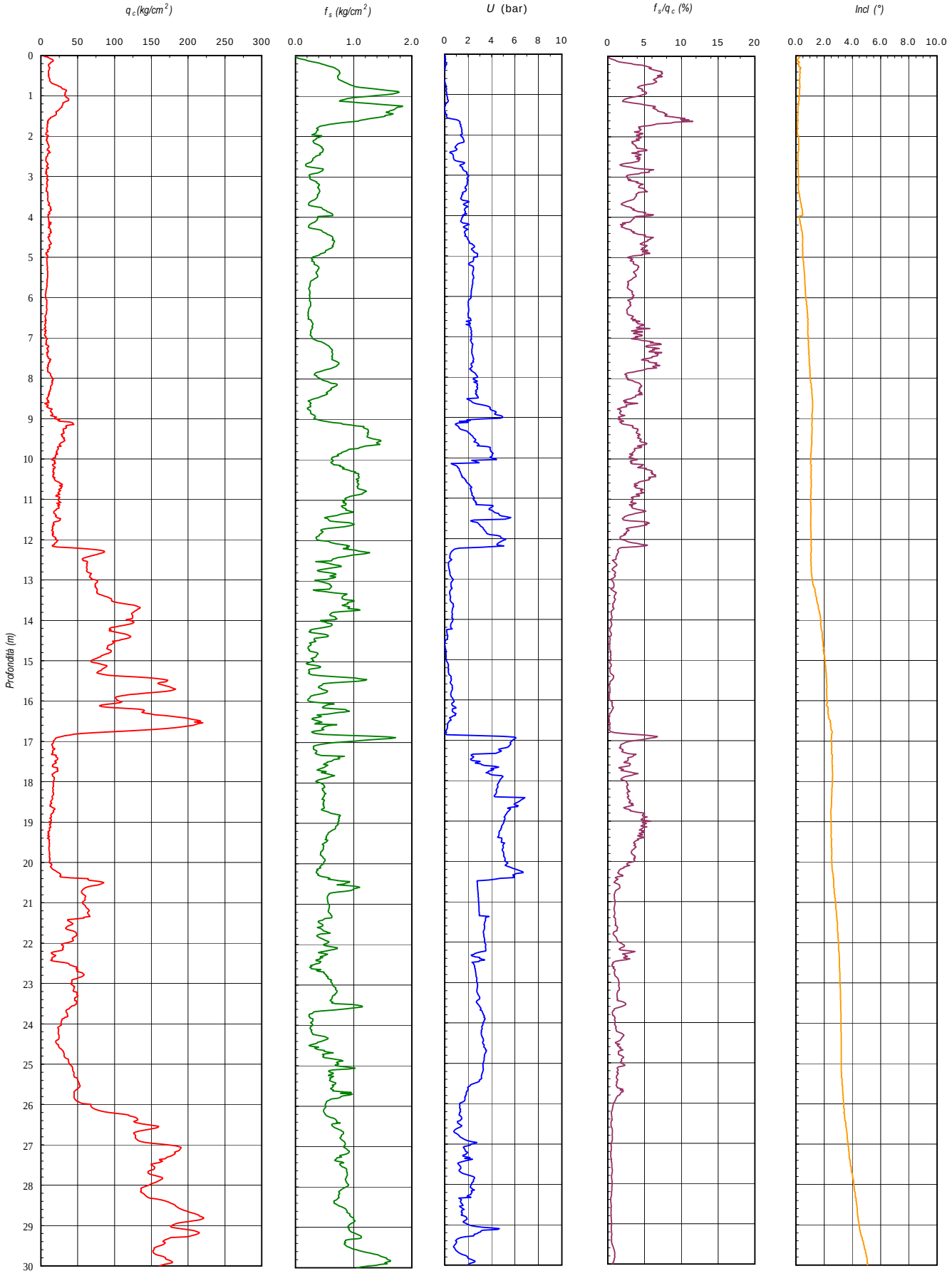
Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.007	6.600	292	1.93	0.0066	292
2.00	2.59	0.009	9.000	288	0.66	0.0024	276
3.00	3.42	0.013	13.200	259	0.83	0.0042	198
4.00	4.33	0.018	18.400	235	0.90	0.0052	174
5.00	5.27	0.024	24.300	217	0.94	0.0059	159
6.00	6.22	0.030	30.200	206	0.96	0.0059	162
7.00	7.19	0.036	36.300	198	0.97	0.0061	159
8.00	8.17	0.042	42.300	193	0.98	0.0060	163
9.00	9.15	0.048	48.200	190	0.98	0.0059	166
10.00	10.14	0.054	54.300	187	0.99	0.0061	162
11.00	11.12	0.060	60.000	185	0.99	0.0057	173
12.00	12.11	0.066	65.600	185	0.99	0.0056	177
13.00	13.10	0.071	71.000	185	0.99	0.0054	184
14.00	14.10	0.075	74.500	189	0.99	0.0035	284
15.00	15.09	0.077	76.900	196	0.99	0.0024	414
16.00	16.08	0.080	79.500	202	0.99	0.0026	382
17.00	17.08	0.082	82.000	208	1.00	0.0025	398
18.00	18.08	0.084	84.400	214	1.00	0.0024	415
19.00	19.07	0.087	87.100	219	1.00	0.0027	369
20.00	20.07	0.090	89.600	224	1.00	0.0025	399
21.00	21.06	0.092	92.300	228	1.00	0.0027	369
22.00	22.06	0.095	95.100	232	1.00	0.0028	356
23.00	23.06	0.098	97.700	236	1.00	0.0026	384
24.00	24.06	0.100	100.400	240	1.00	0.0027	369
25.00	25.05	0.103	103.100	243	1.00	0.0027	370
26.00	26.05	0.106	105.900	246	1.00	0.0028	356
27.00	27.05	0.109	108.500	249	1.00	0.0026	384
28.00	28.05	0.111	111.200	252	1.00	0.0027	370
29.00	29.05	0.114	113.800	255	1.00	0.0026	384
30.00	30.05	0.116	116.400	258	1.00	0.0026	384

Vs30 = 256 m/s

COMMITTENTE: Comune di Mirandola (Modena)
CANTIERE: PSC Mirandola
LOCALITA' : Mirandola

PREFORO (m da p.c.)	assente
PROF. FALDA (m da p.c.)	1,64 m.
TIPO PUNTA	piezocono sismico

PROVA : SCPTU7 **PROFONDITA' (m da p.c.): 30,00 m.** **DATA PROVA: 21/11/2011** **Certificato di prova:**

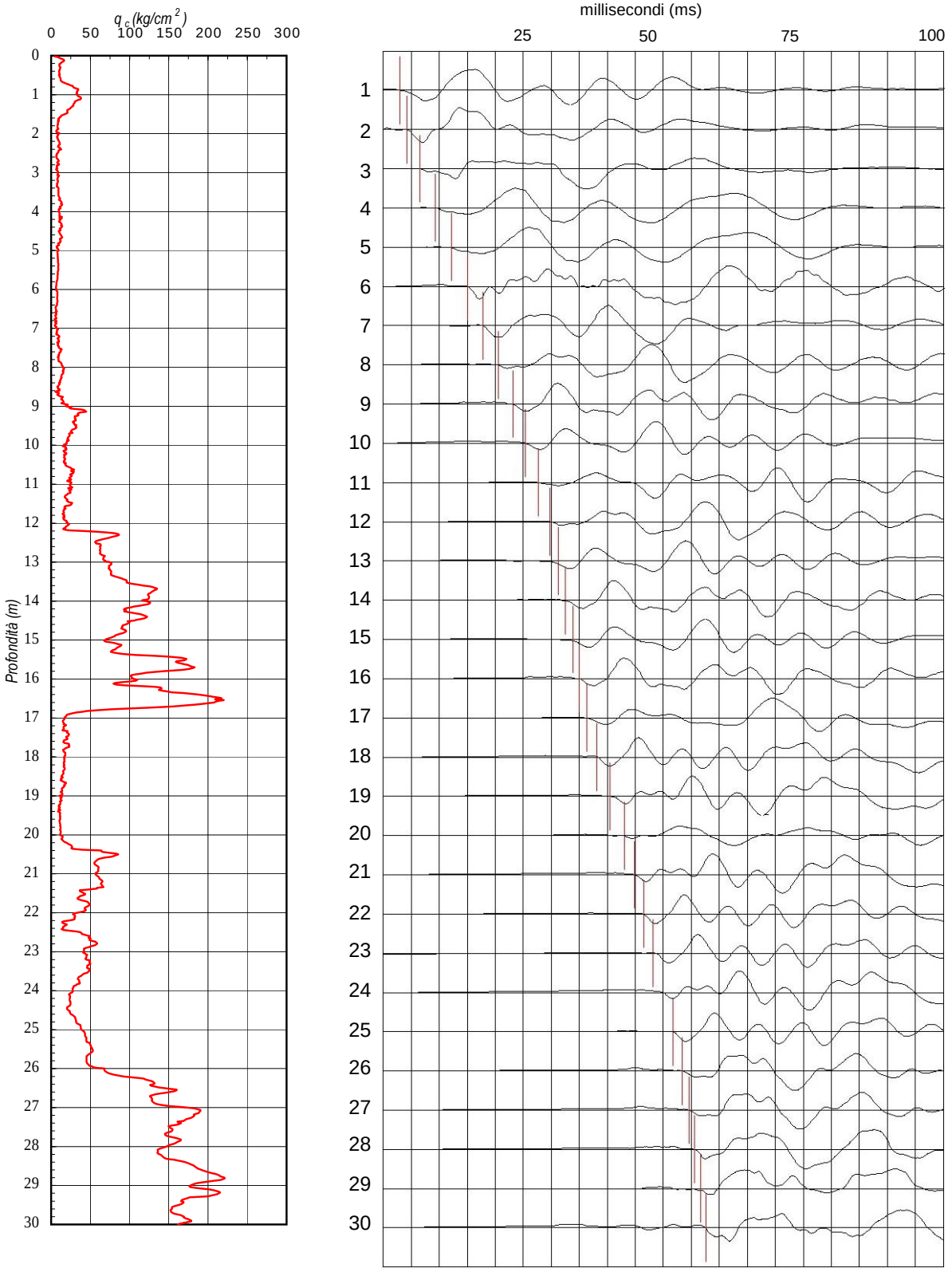


Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU7	21/11/2011

SISMOGRAMMI ONDE P

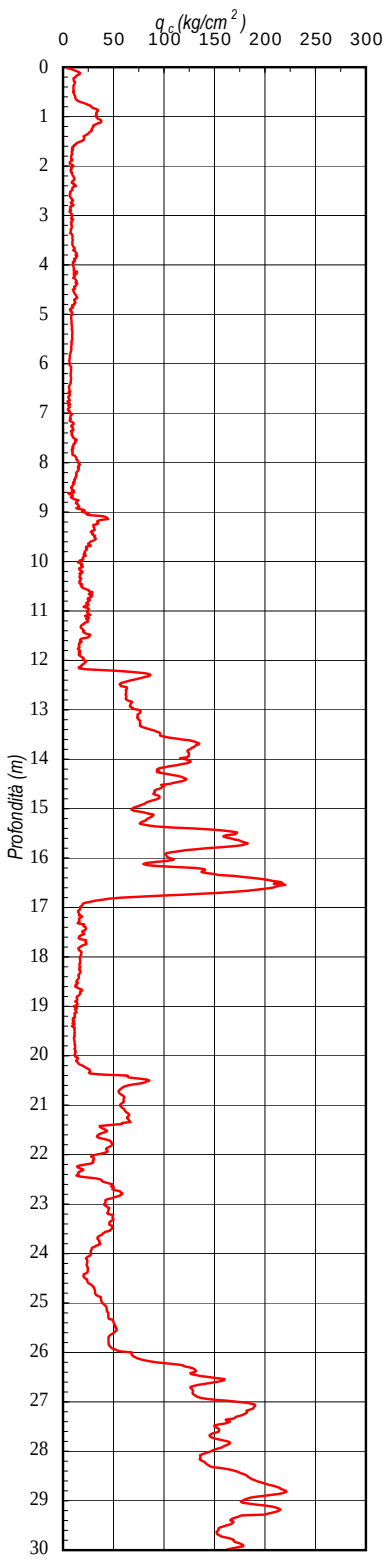


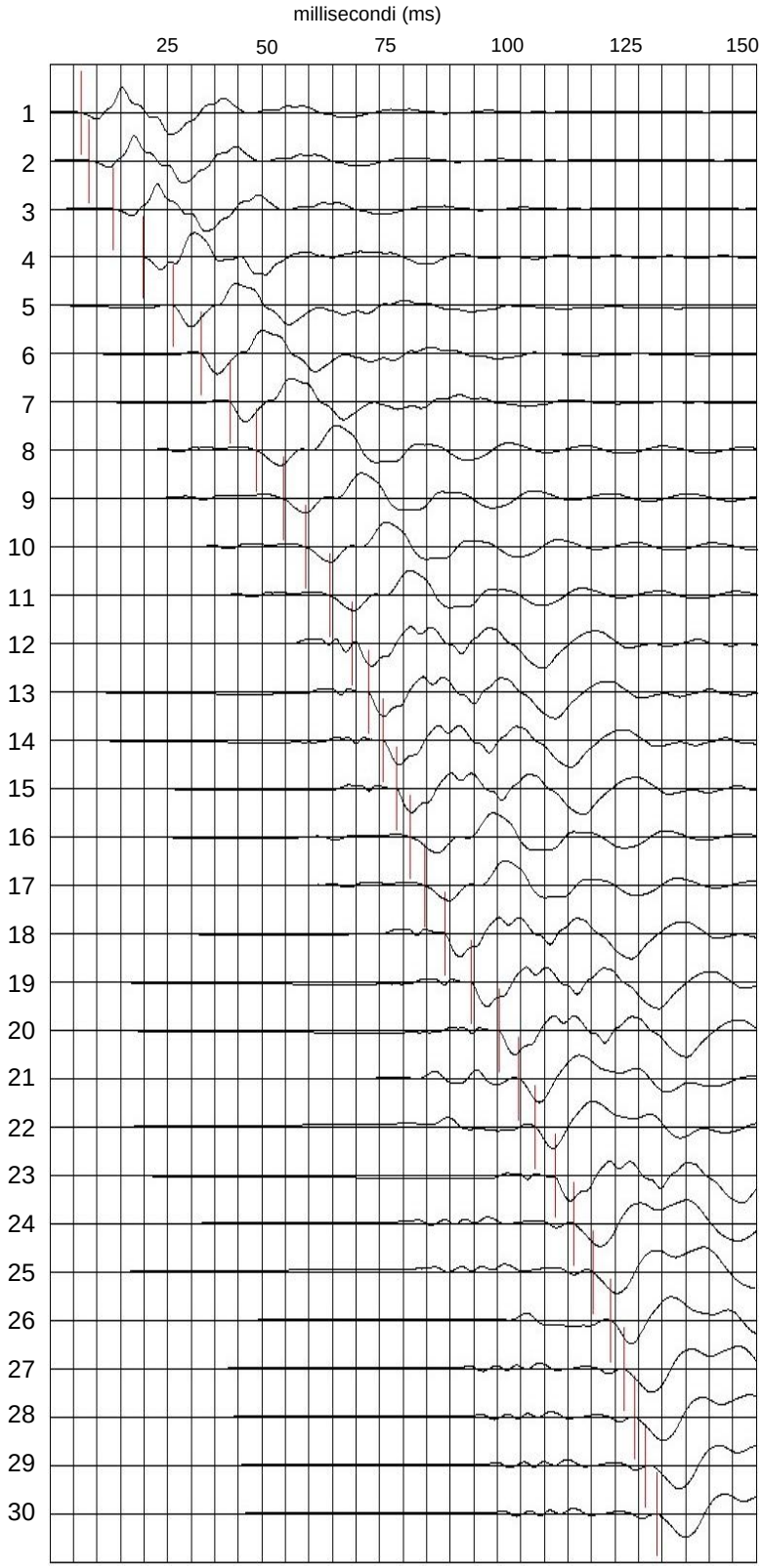
Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU7	21/11/2011

SISMOGRAMMI ONDE S





Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU7	21/11/2011

Tabella onde P

Sismic data acquisition depth	Distance source P-wave - triaxial geofone	Arrival time P-wave	Arrival time P-wave	Vp to travel L Vp = L/t	L2 - L1	t2 - t1	Vp for each level of one meter Vp = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.003	3.200	603	1.93	0.0032	603
2.00	2.59	0.004	4.200	617	0.66	0.0010	663
3.00	3.42	0.007	6.600	519	0.83	0.0024	346
4.00	4.33	0.009	9.300	465	0.90	0.0027	334
5.00	5.27	0.012	12.100	435	0.94	0.0028	335
6.00	6.22	0.015	15.000	415	0.96	0.0029	330
7.00	7.19	0.018	17.800	404	0.97	0.0028	346
8.00	8.17	0.021	20.500	398	0.98	0.0027	362
9.00	9.15	0.023	23.100	396	0.98	0.0026	378
10.00	10.14	0.025	25.400	399	0.99	0.0023	428
11.00	11.12	0.028	27.700	402	0.99	0.0023	430
12.00	12.11	0.030	29.800	406	0.99	0.0021	471
13.00	13.10	0.031	31.200	420	0.99	0.0014	708
14.00	14.10	0.033	32.500	434	0.99	0.0013	764
15.00	15.09	0.034	33.800	446	0.99	0.0013	764
16.00	16.08	0.035	35.000	460	0.99	0.0012	829
17.00	17.08	0.036	36.300	471	1.00	0.0013	765
18.00	18.08	0.038	38.100	474	1.00	0.0018	553
19.00	19.07	0.041	40.500	471	1.00	0.0024	415
20.00	20.07	0.043	43.000	467	1.00	0.0025	399
21.00	21.06	0.045	44.900	469	1.00	0.0019	525
22.00	22.06	0.047	46.500	474	1.00	0.0016	623
23.00	23.06	0.048	48.200	478	1.00	0.0017	587
24.00	24.06	0.050	49.900	482	1.00	0.0017	587
25.00	25.05	0.052	51.700	485	1.00	0.0018	554
26.00	26.05	0.053	53.400	488	1.00	0.0017	587
27.00	27.05	0.055	54.600	495	1.00	0.0012	832
28.00	28.05	0.056	55.600	504	1.00	0.0010	998
29.00	29.05	0.057	56.600	513	1.00	0.0010	998
30.00	30.05	0.058	57.600	522	1.00	0.0010	998

Comune di Mirandola (Modena)

Indagini per PSC

LOCALITA' :	CANTIERE:	PROVA :	DATA PROVA:
Mirandola	PSC Mirandola	SCPTU7	21/11/2011

Tabella onde S

Sismic data acquisition depth	Distance source S-wave - triaxial geofone	Arrival time S-wave	Arrival time S-wave	Vs to travel L Vs = L/t	L2 - L1	t2 - t1	Vs for each level of one meter Vs = (L2-L1)/(t2-t1)
(m)	L (m)	t (s)	t (ms)	(m/s)	(m)	(s)	(m/s)
1.00	1.93	0.007	6.700	288	1.93	0.0067	288
2.00	2.59	0.008	8.400	309	0.66	0.0017	390
3.00	3.42	0.013	13.400	256	0.83	0.0050	166
4.00	4.33	0.020	19.800	219	0.90	0.0064	141
5.00	5.27	0.026	26.100	202	0.94	0.0063	149
6.00	6.22	0.032	32.200	193	0.96	0.0061	157
7.00	7.19	0.038	38.300	188	0.97	0.0061	159
8.00	8.17	0.044	43.800	186	0.98	0.0055	178
9.00	9.15	0.050	49.500	185	0.98	0.0057	172
10.00	10.14	0.054	54.400	186	0.99	0.0049	201
11.00	11.12	0.059	59.400	187	0.99	0.0050	198
12.00	12.11	0.064	64.200	189	0.99	0.0048	206
13.00	13.10	0.068	67.600	194	0.99	0.0034	292
14.00	14.10	0.071	70.800	199	0.99	0.0032	310
15.00	15.09	0.074	73.700	205	0.99	0.0029	343
16.00	16.08	0.077	76.500	210	0.99	0.0028	355
17.00	17.08	0.080	79.500	215	1.00	0.0030	332
18.00	18.08	0.084	84.000	215	1.00	0.0045	221
19.00	19.07	0.089	89.400	213	1.00	0.0054	184
20.00	20.07	0.095	95.400	210	1.00	0.0060	166
21.00	21.06	0.100	99.500	212	1.00	0.0041	243
22.00	22.06	0.103	103.100	214	1.00	0.0036	277
23.00	23.06	0.107	107.300	215	1.00	0.0042	237
24.00	24.06	0.111	111.300	216	1.00	0.0040	249
25.00	25.05	0.115	115.300	217	1.00	0.0040	249
26.00	26.05	0.119	119.000	219	1.00	0.0037	270
27.00	27.05	0.122	121.800	222	1.00	0.0028	356
28.00	28.05	0.124	124.200	226	1.00	0.0024	416
29.00	29.05	0.127	126.500	230	1.00	0.0023	434
30.00	30.05	0.129	128.800	233	1.00	0.0023	434

Vs30 = 231 m/s