Comune di Buggiano

Provincia di Pistoia

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Adriano Magrini

GARANTE DELL'INFORMAZIONE
E DELLA PARTECIPAZIONE
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Piano Operativo

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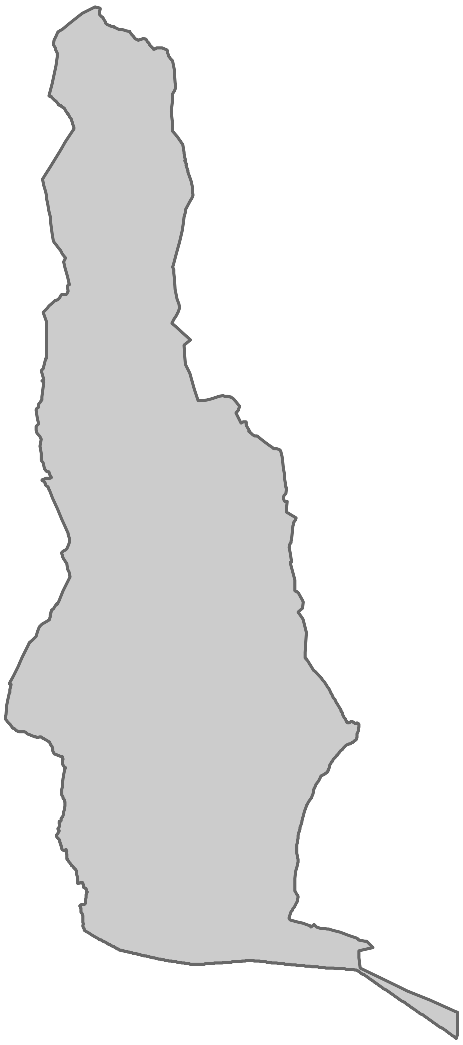

FEBBRAIO 2019

G.16

parte 2

APPENDICE 1 – INDAGINI SISMICHE

Misure H/V

Misura HVSR 1

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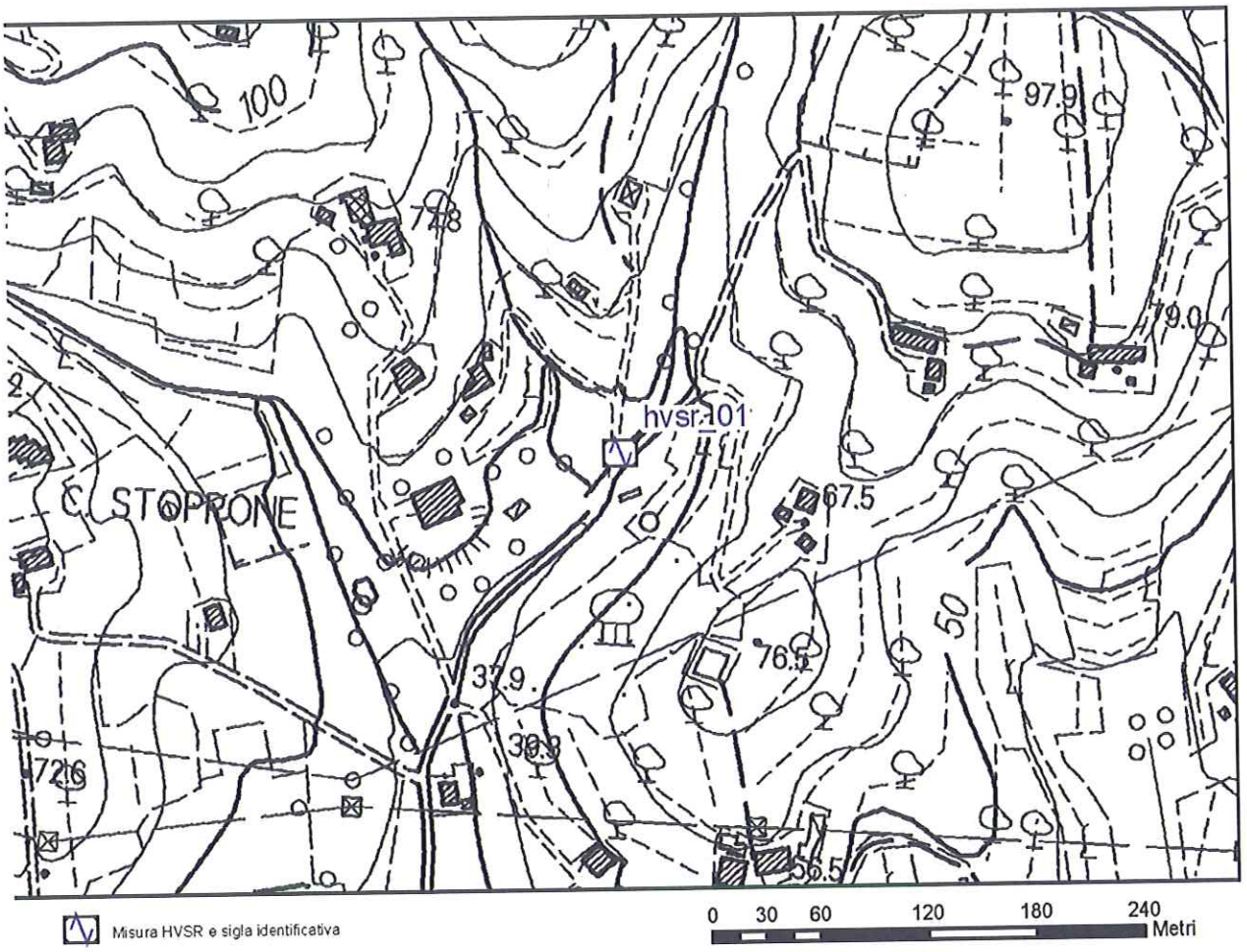


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

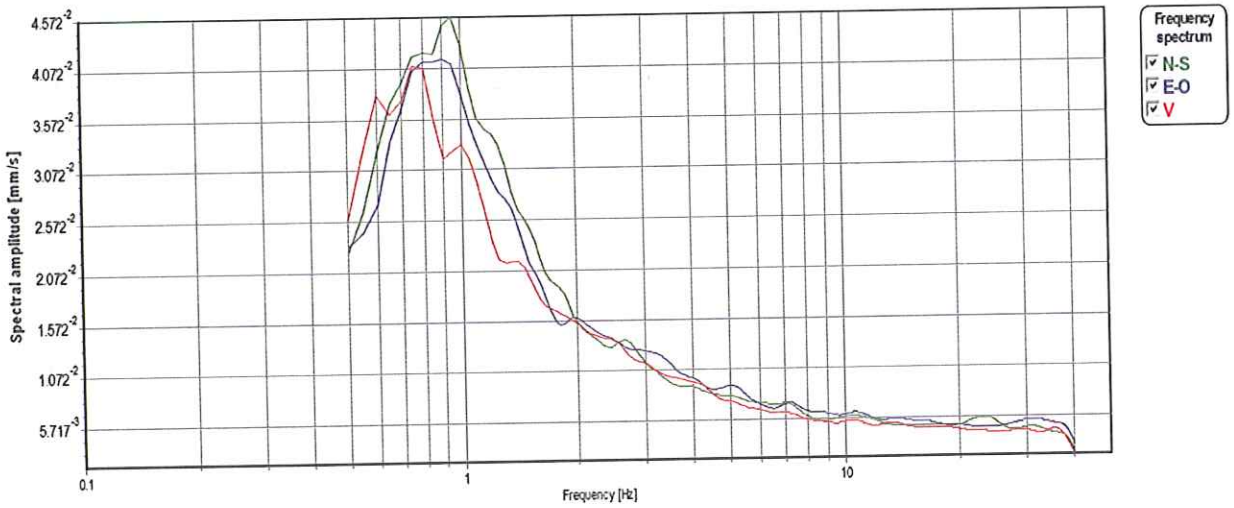
Analysis site: **Buggiano**

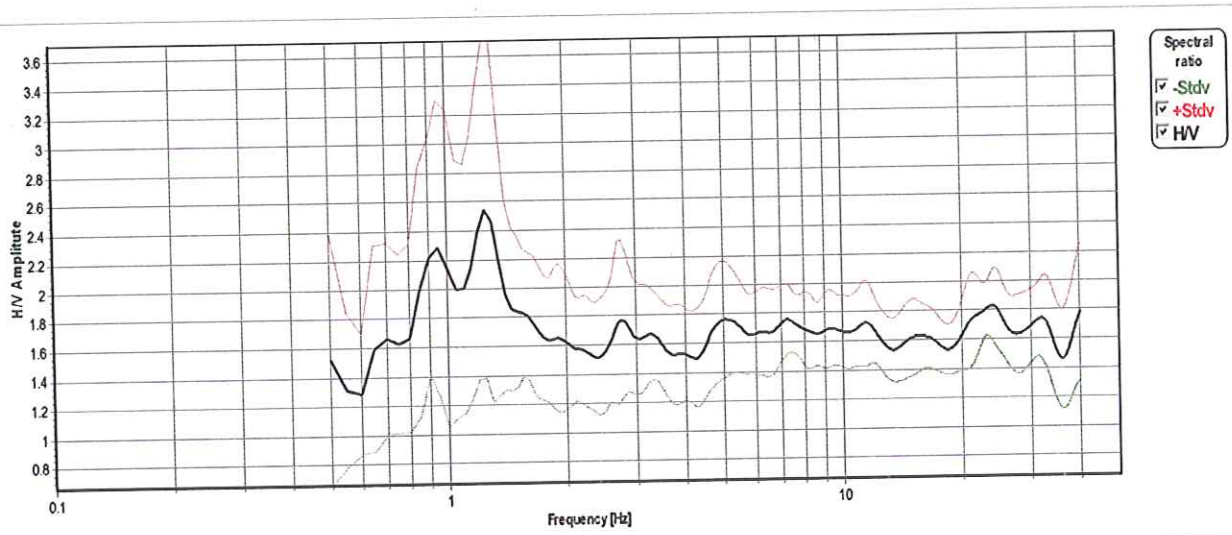
Measure point: **1 buggiano**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	31/05/2017 10:46:03
Automatic spike removal:	No	Stop recordings:	31/05/2017 11:16:03
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	32
Lw Windows [s]:	20	Recording length [s]:	2100
Overlap Windows s]:	0.0	Discarded windows:	73
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	1.123	Standard deviation [Hz]:	0.143





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **1 buggiano**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.12 >= 0.50**	**Yes**
Nc(fø) > 200	**719.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 33**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.01 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1960.60% > 5.00%**	**No**
sf < e(fø)	**0.1431 > 0.1123**	**No**
sA(fø) < ?(fø)	**0.8556 < 1.7800**	**Yes**

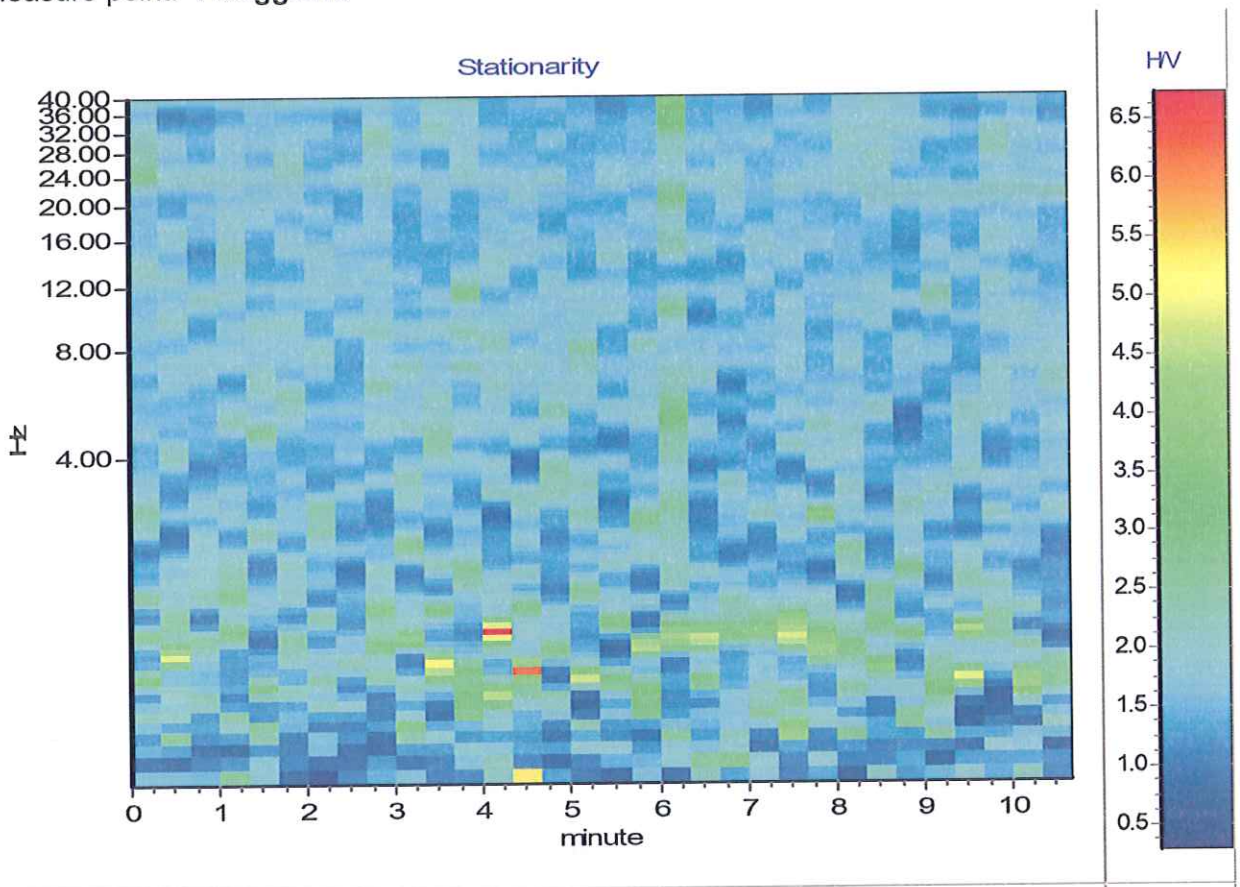
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

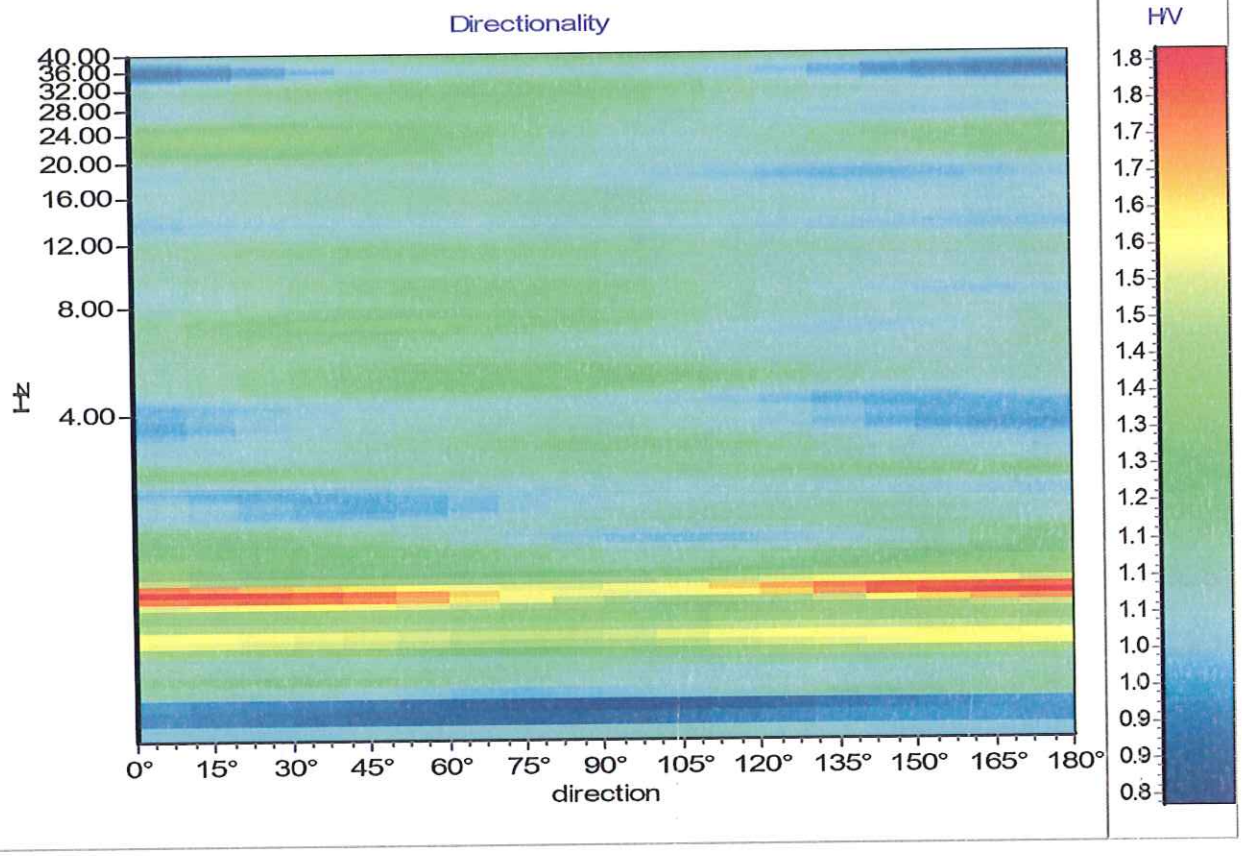
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **1 buggiano**





Misura HVSR 2

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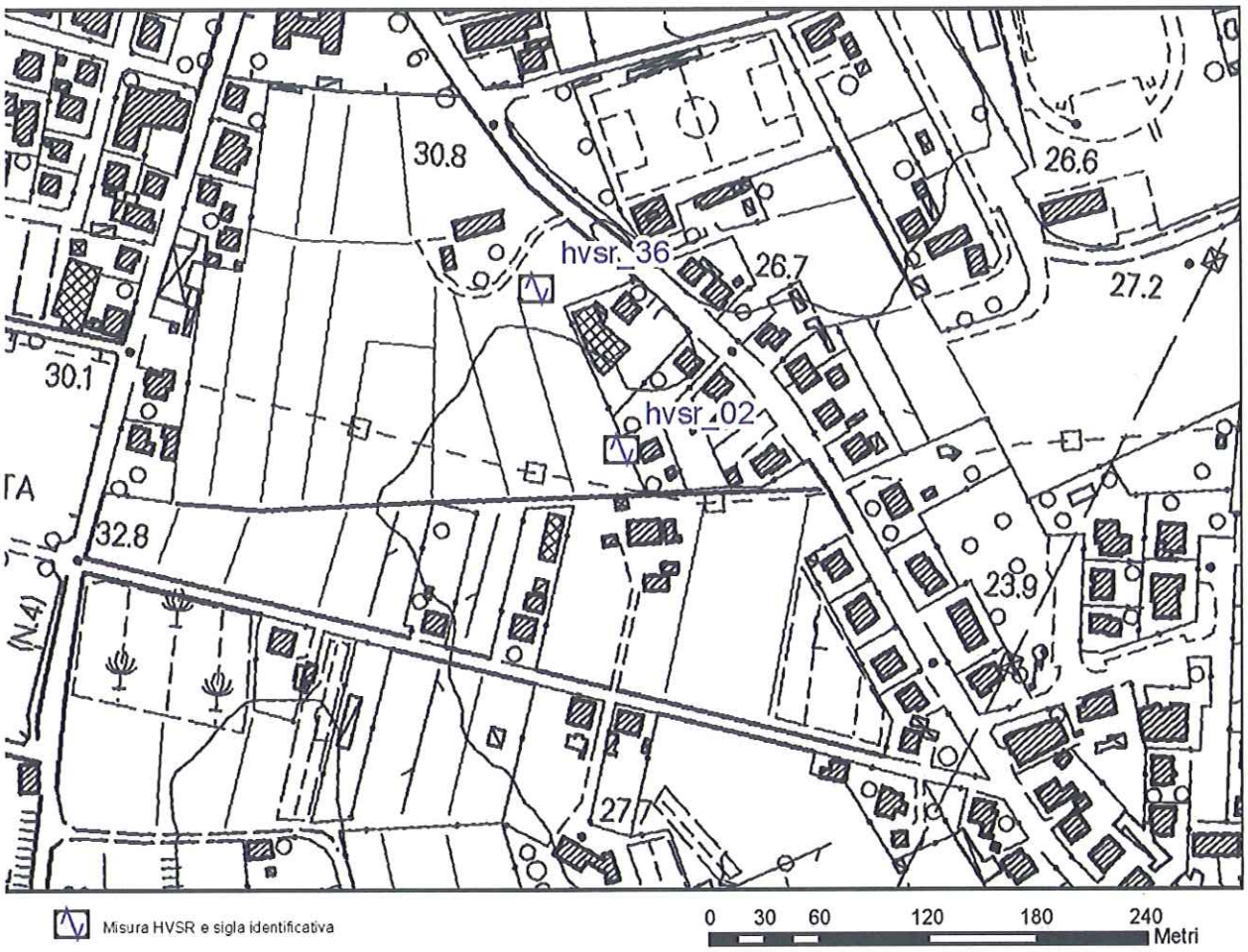


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

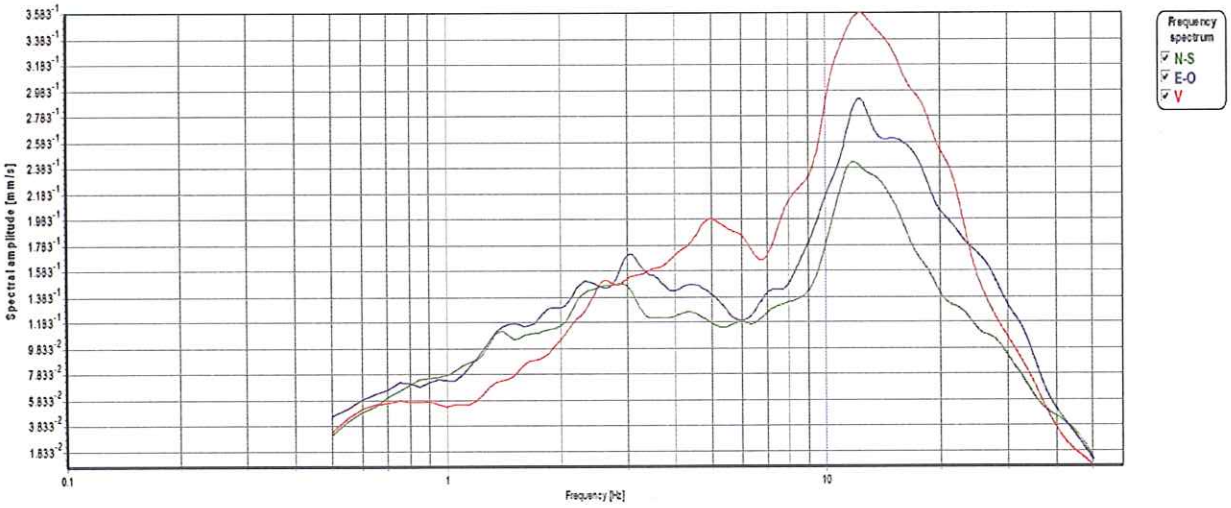
Analysis site: **Buggiano**

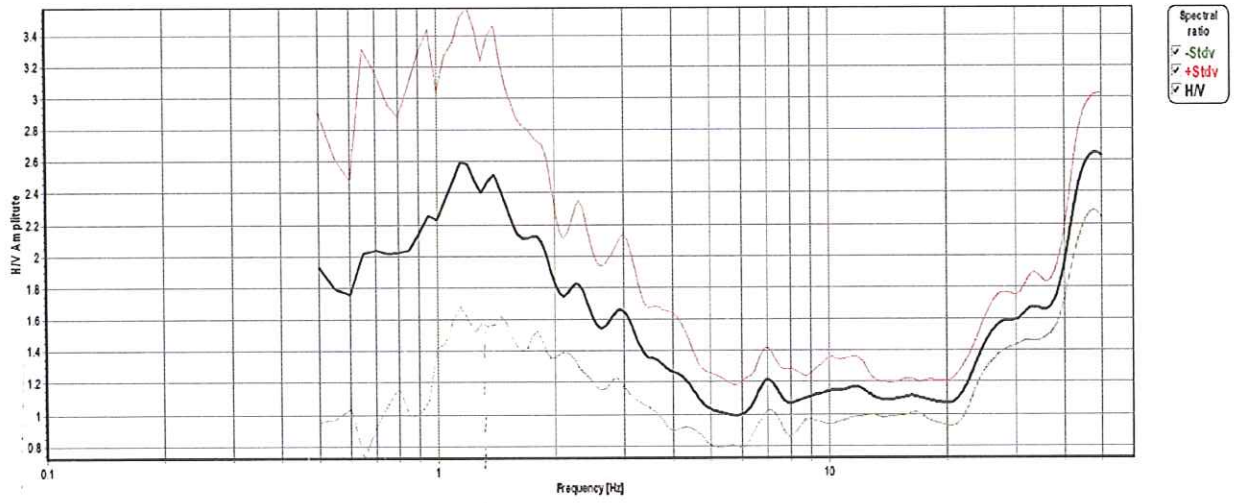
Measure point: **2**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 08:19:21**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 08:49:21**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**50.00**
Ratio:	**1.9**	Nw number of windows:	**47**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**43**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.123**	Standard deviation [Hz]:	**0.309**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **2**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.12 >= 0.50**	**Yes**
Nc(fø) > 200	**1056.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 33**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**4.250**	**Yes**
Aø > 2	**2.48 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**4172.70% > 5.00%**	**No**
sf < e(fø)	**0.3087 > 0.1123**	**No**
sA(fø) < ?(fø)	**0.8770 < 1.7800**	**Yes**

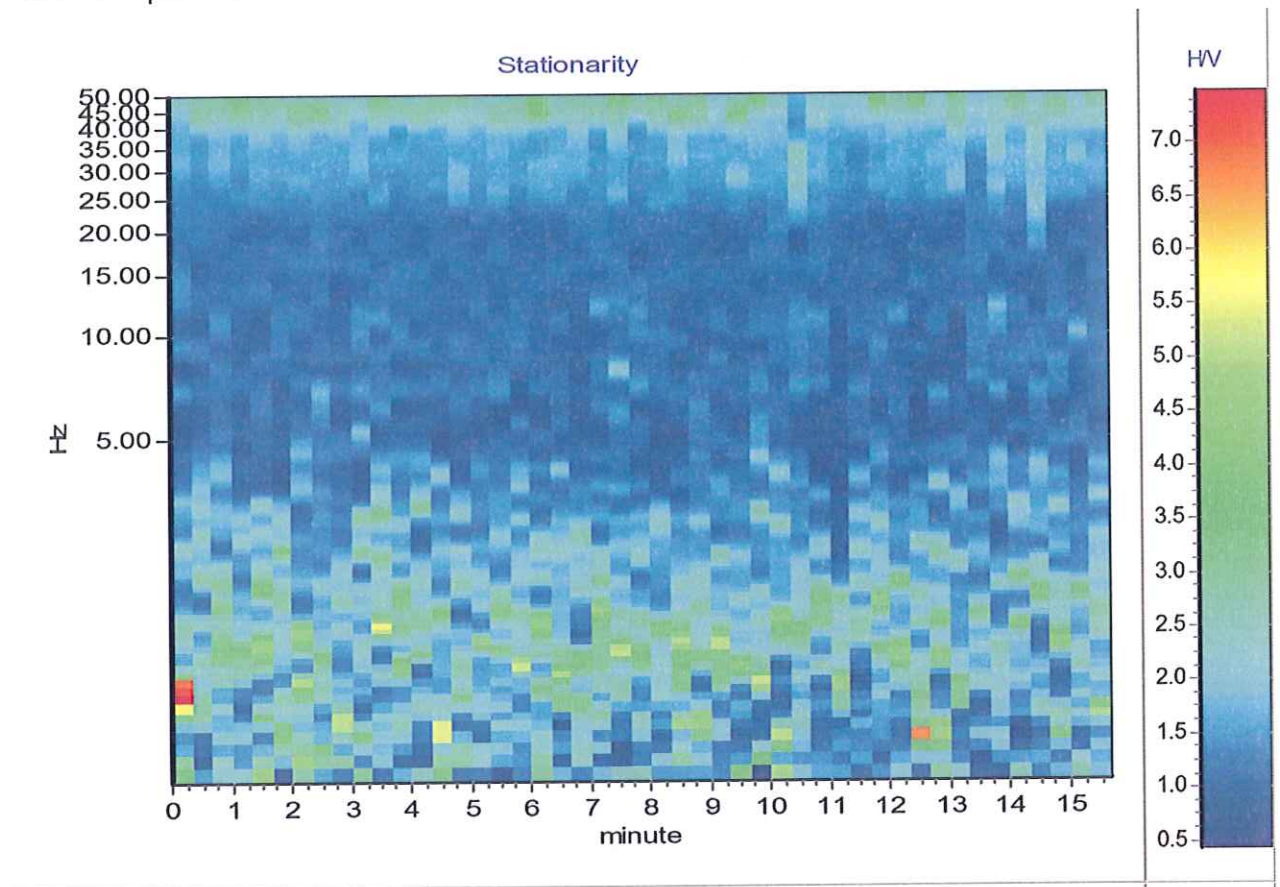
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

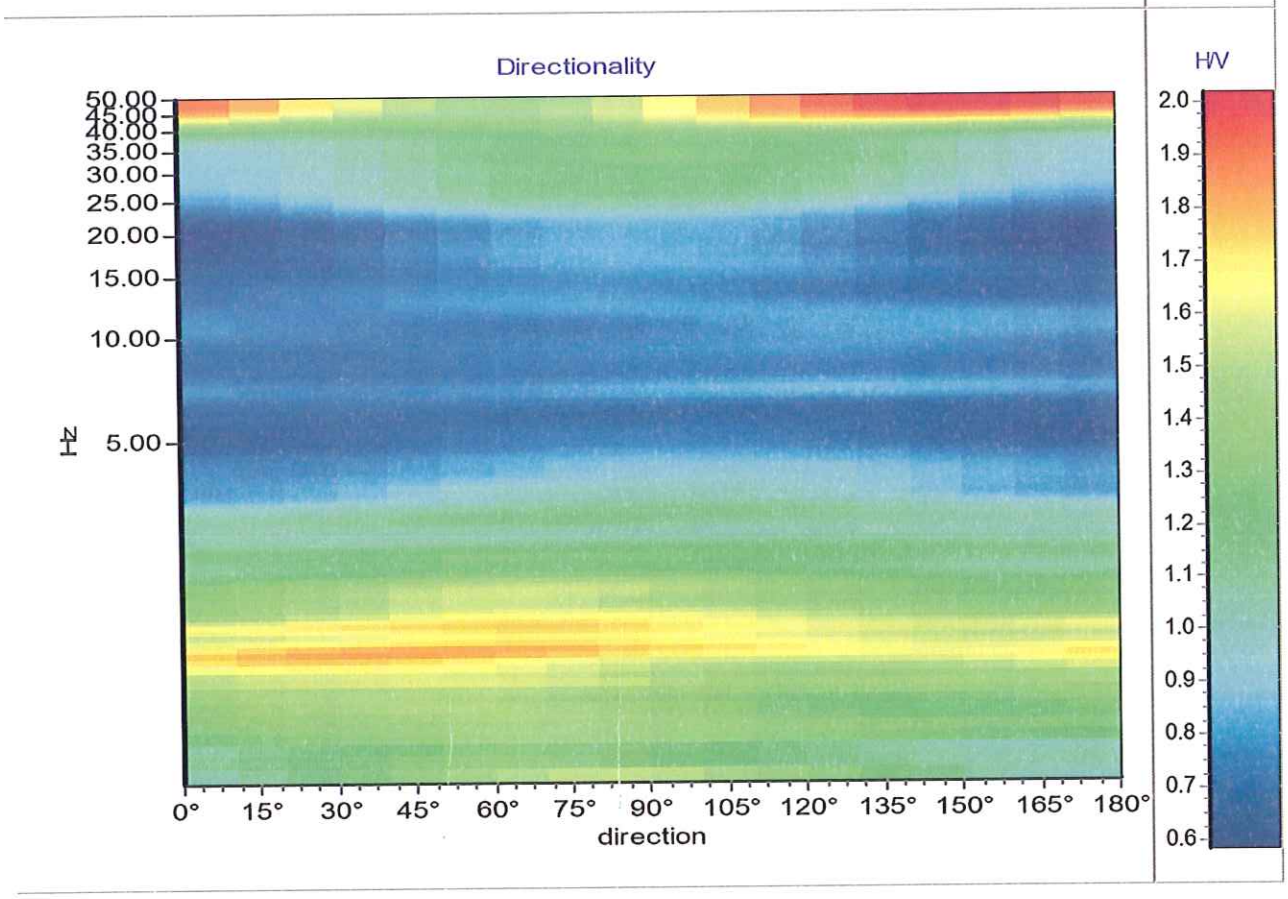
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **2**





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Misura HVSR 3

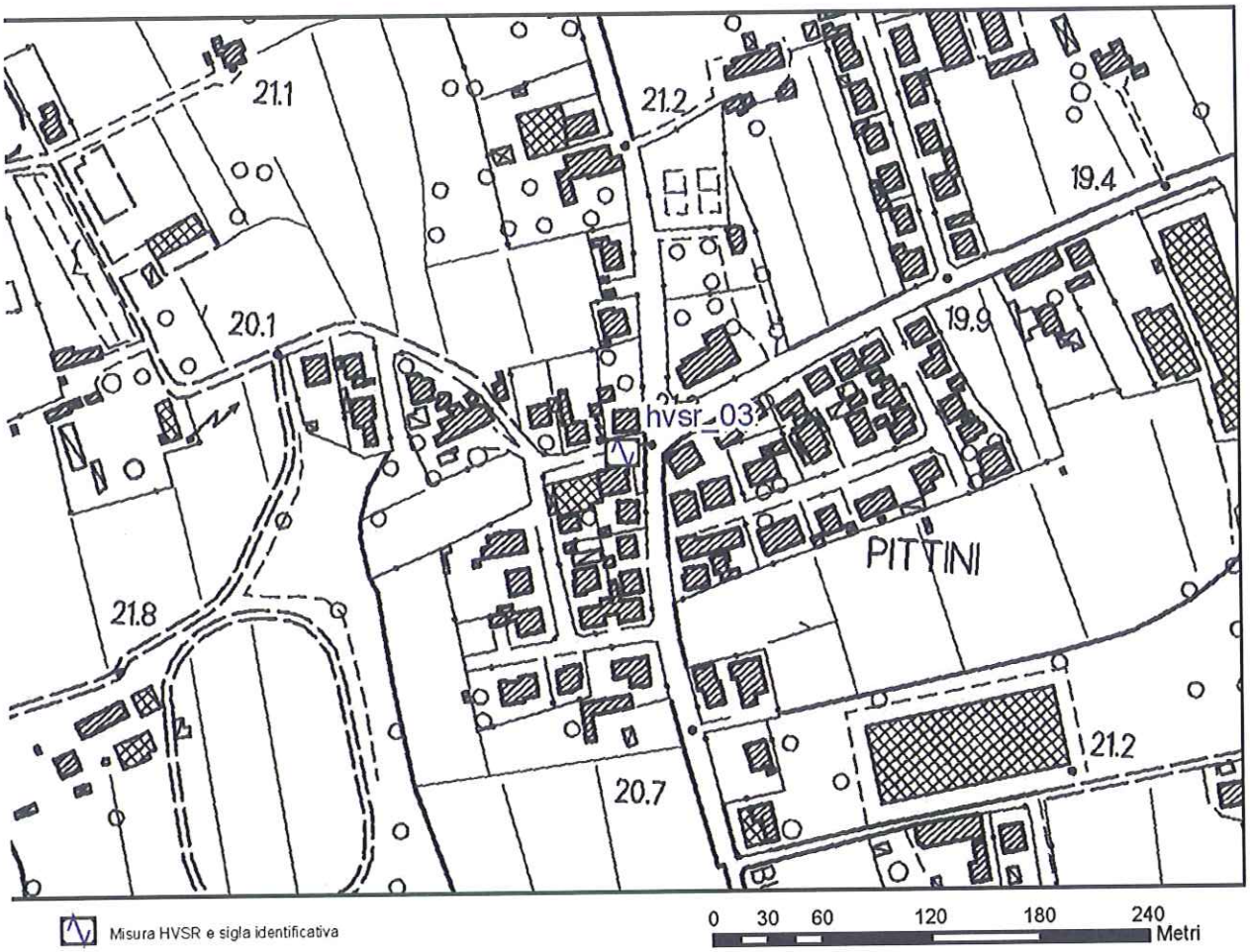


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

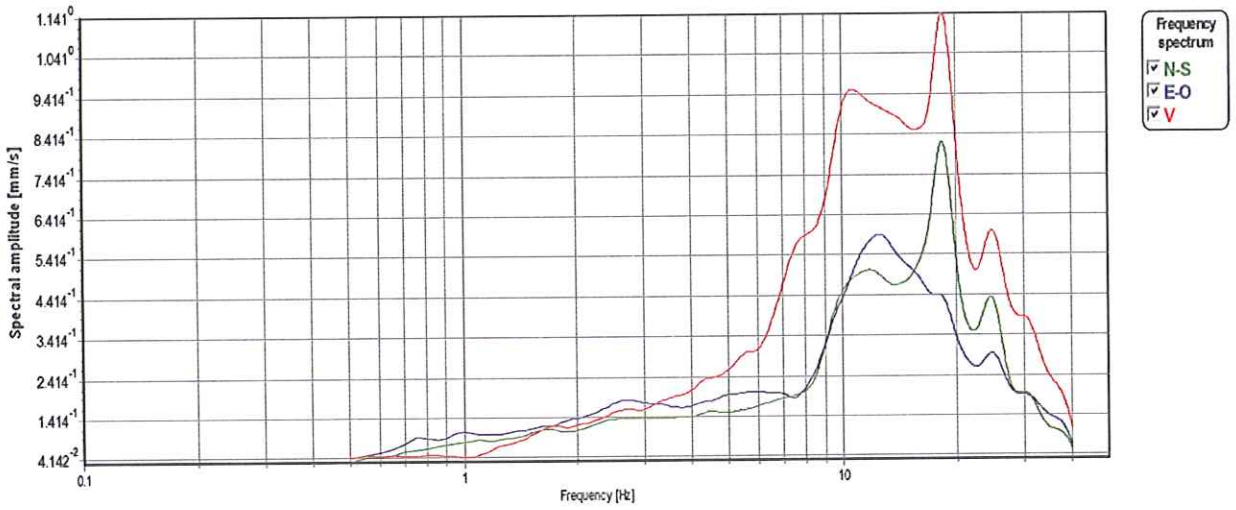
Analysis site: **Buggiano**

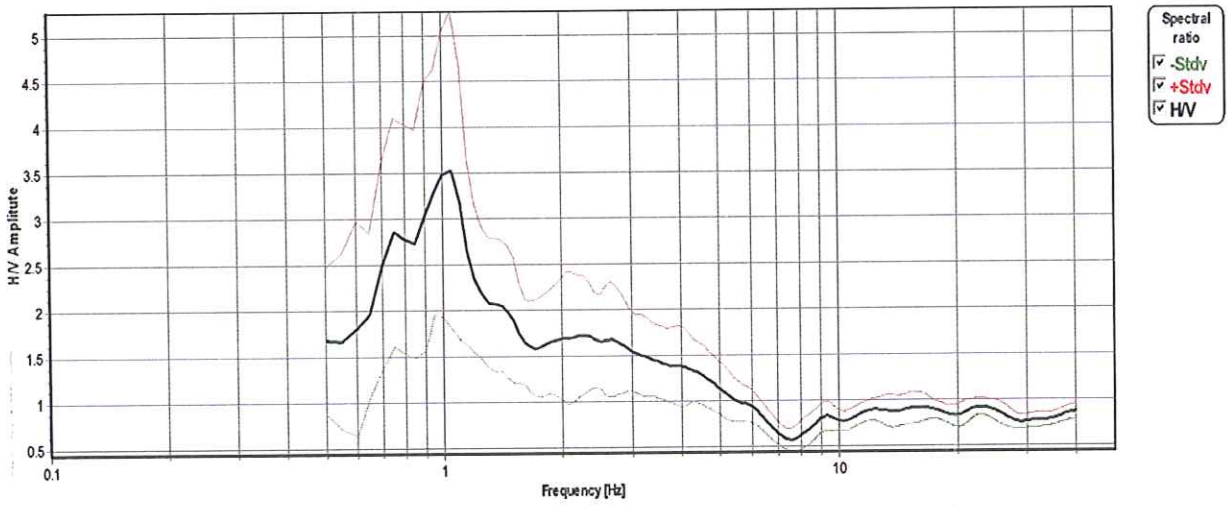
Measure point: **3 buggiano**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	31/05/2017 13:08:11
Automatic spike removal:	No	Stop recordings:	31/05/2017 13:38:11
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	64
Lw Windows [s]:	20	Recording length [s]:	2100
Overlap Windows s]:	0.0	Discarded windows:	41
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	0.920	Standard deviation [Hz]:	0.125





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **3 buggiano**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.92 >= 0.50**	**Yes**
Nc(fø) > 200	**1178.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 27**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**3.100**	**Yes**
Aø > 2	**3.03 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**14.09% > 5.00%**	**No**
sf < e(fø)	**0.1246 < 0.1380**	**Yes**
sA(fø) < ?(fø)	**1.4648 < 2.0000**	**Yes**

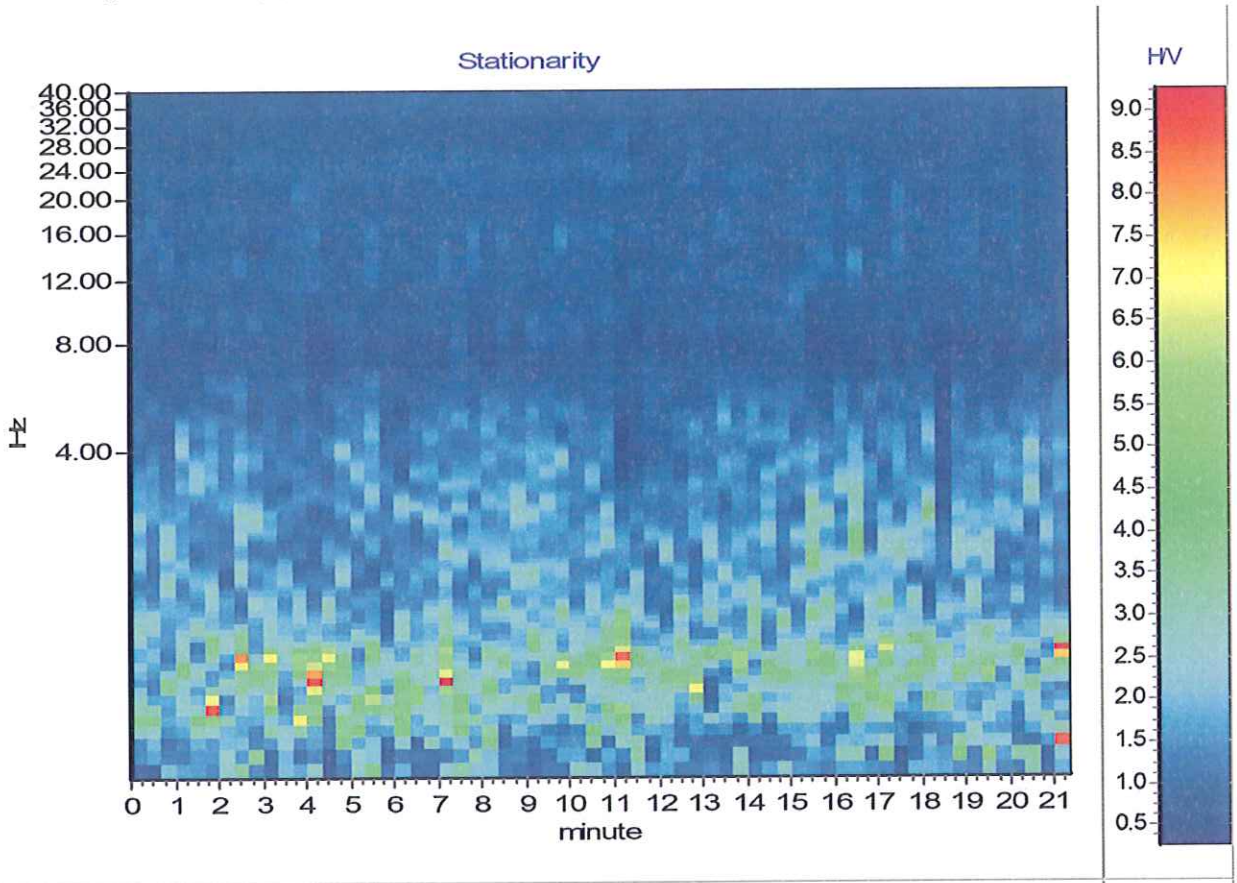
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

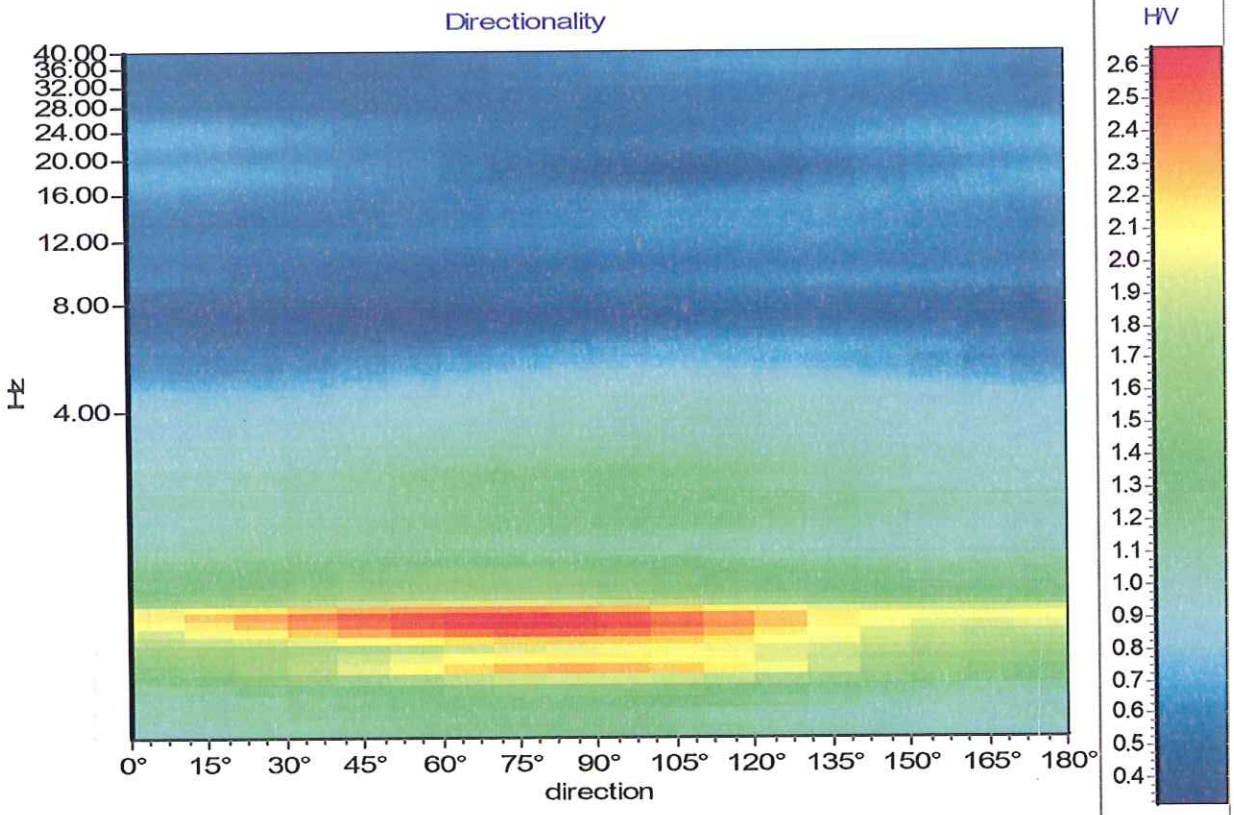
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **3 buggiano**





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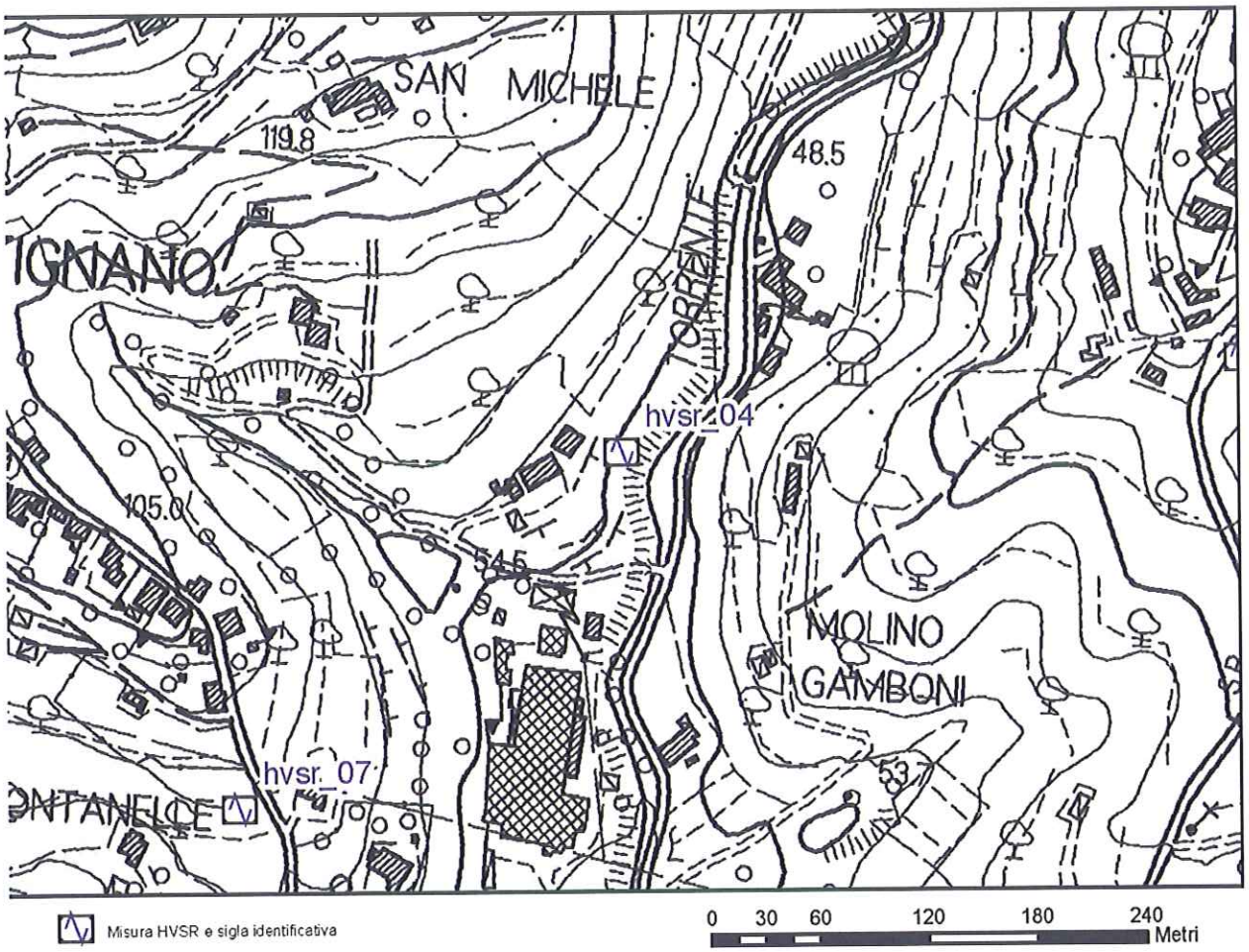


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

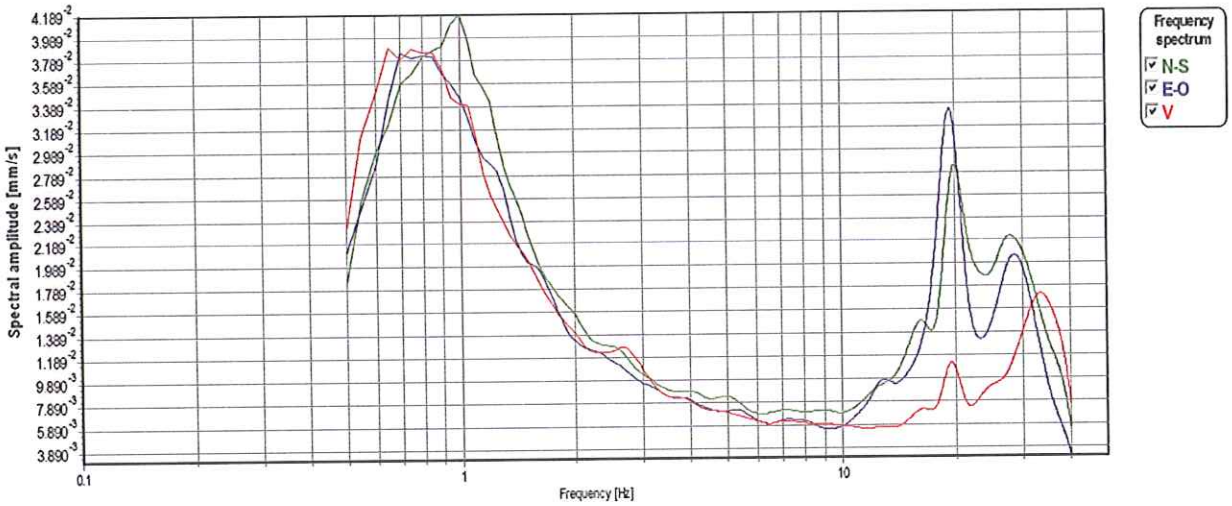
Analysis site: **Buggiano**

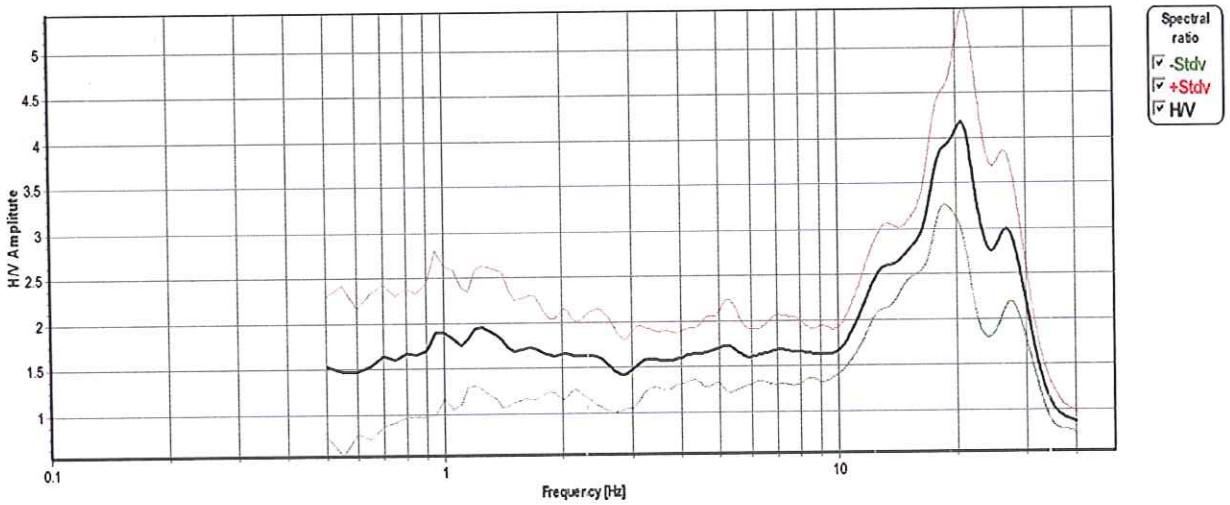
Measure point: **4 buggiano**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	31/05/2017 14:01:58
Automatic spike removal:	No	Stop recordings:	31/05/2017 14:31:58
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	50
Lw Windows [s]:	20	Recording length [s]:	2100
Overlap Windows s]:	0.0	Discarded windows:	55
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	19.952	Standard deviation [Hz]:	1.405





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **4 buggiano**

Criteria for a reliable H/V curve		
fø > 10/Lw	**19.95 >= 0.50**	**Yes**
Nc(fø) > 200	**19952.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 599**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**5.000**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**30.350**	**Yes**
Aø > 2	**4.09 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**6.28% > 5.00%**	**No**
sf < e(fø)	**1.4053 > 0.9976**	**No**
sA(fø) < ?(fø)	**0.9639 < 1.5800**	**Yes**

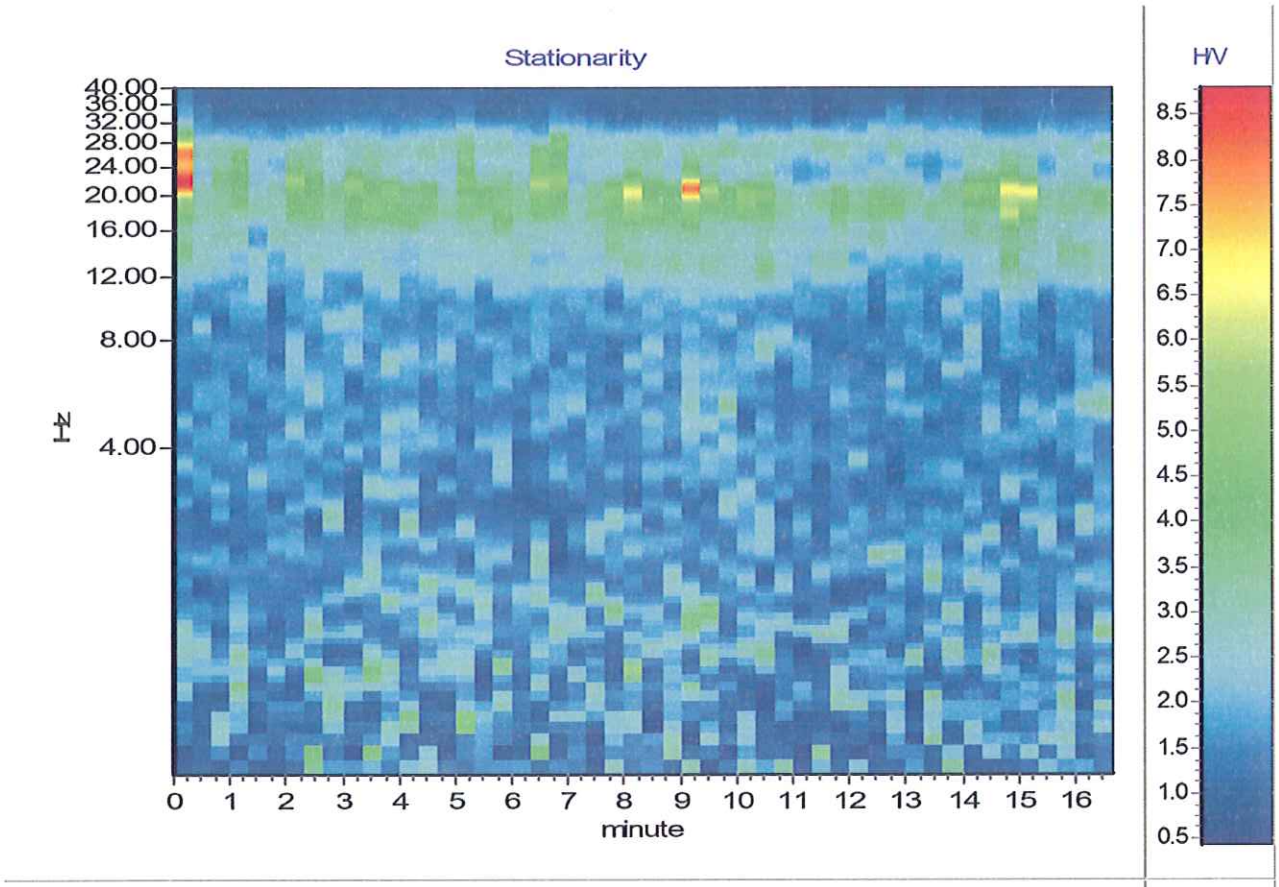
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

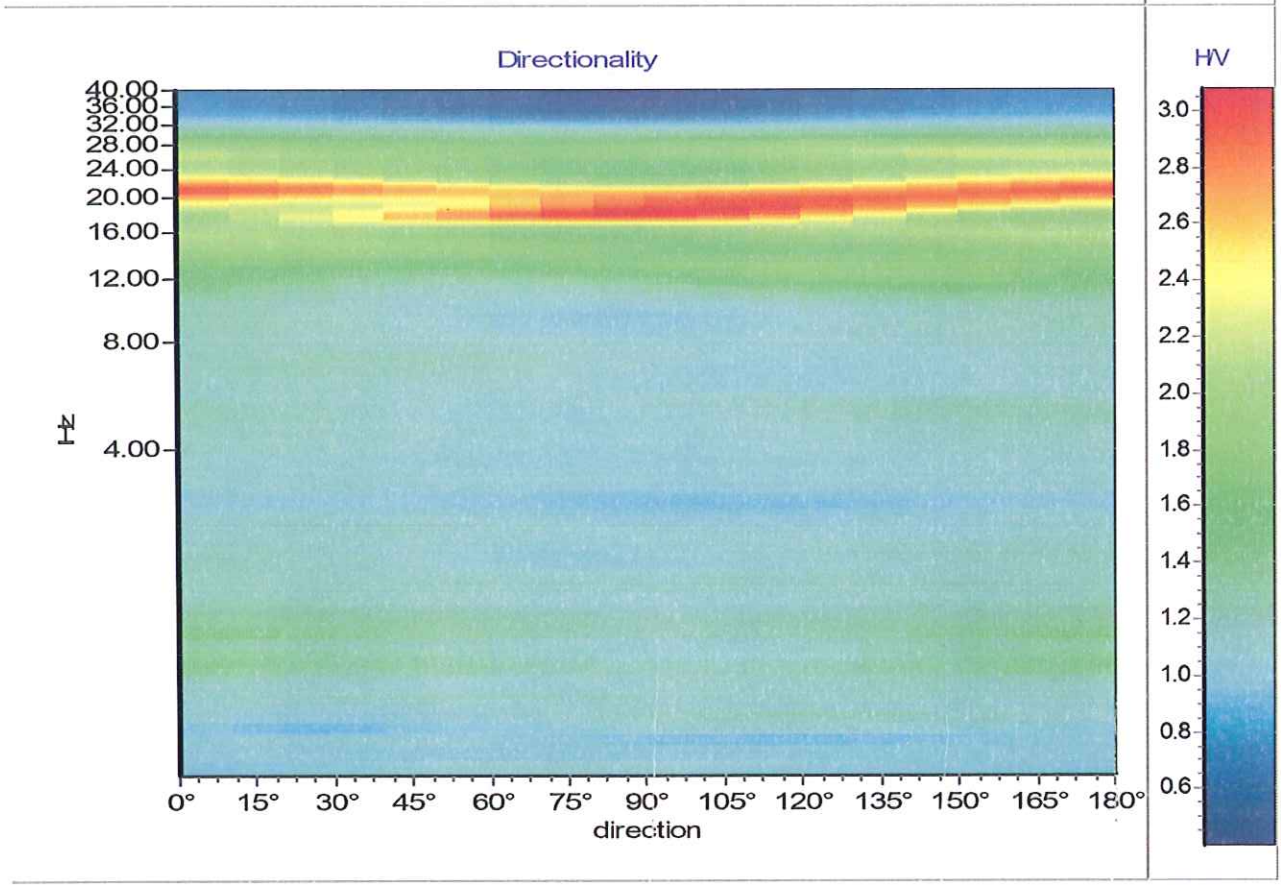
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **4 buggiano**





Misura HVSR 5

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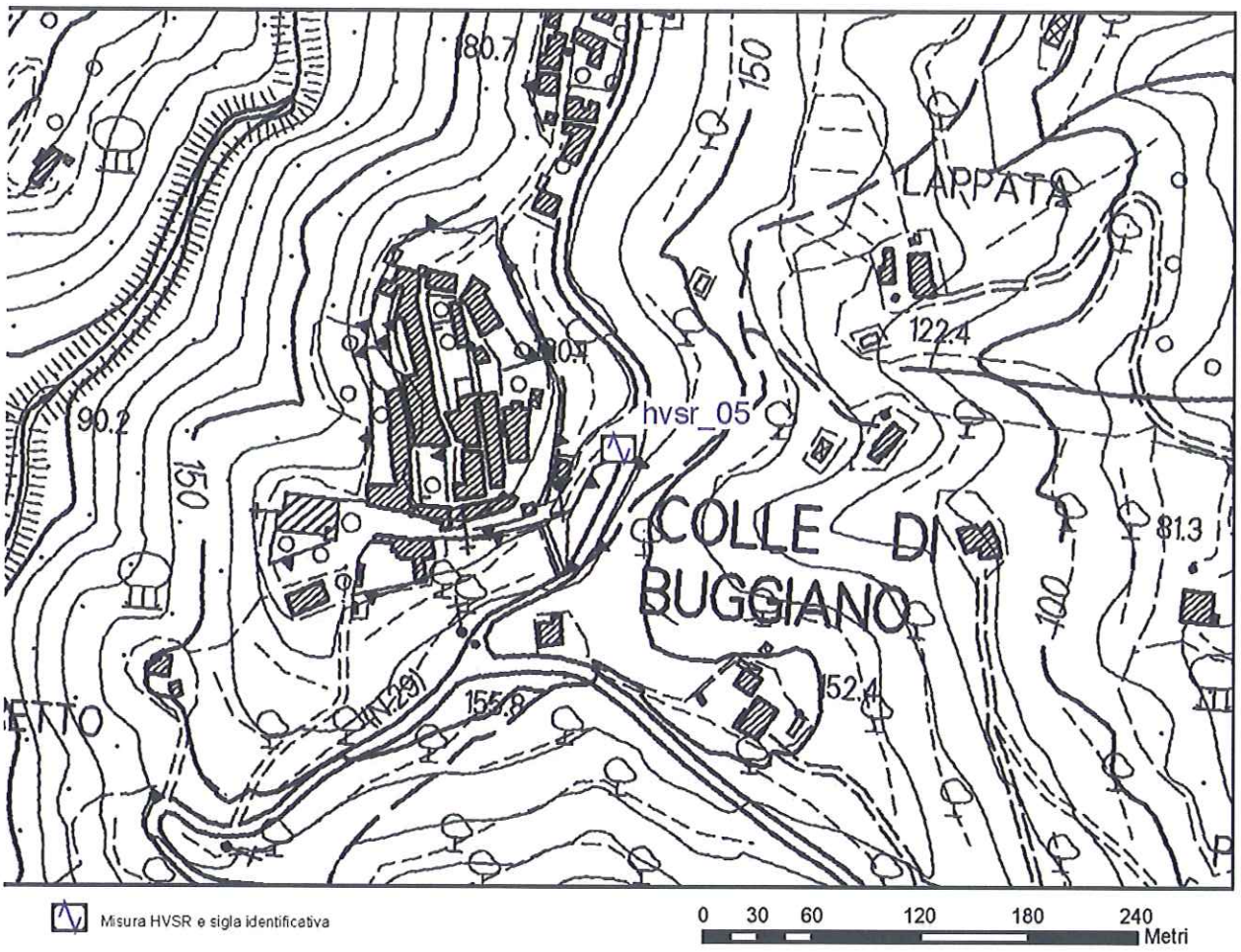


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

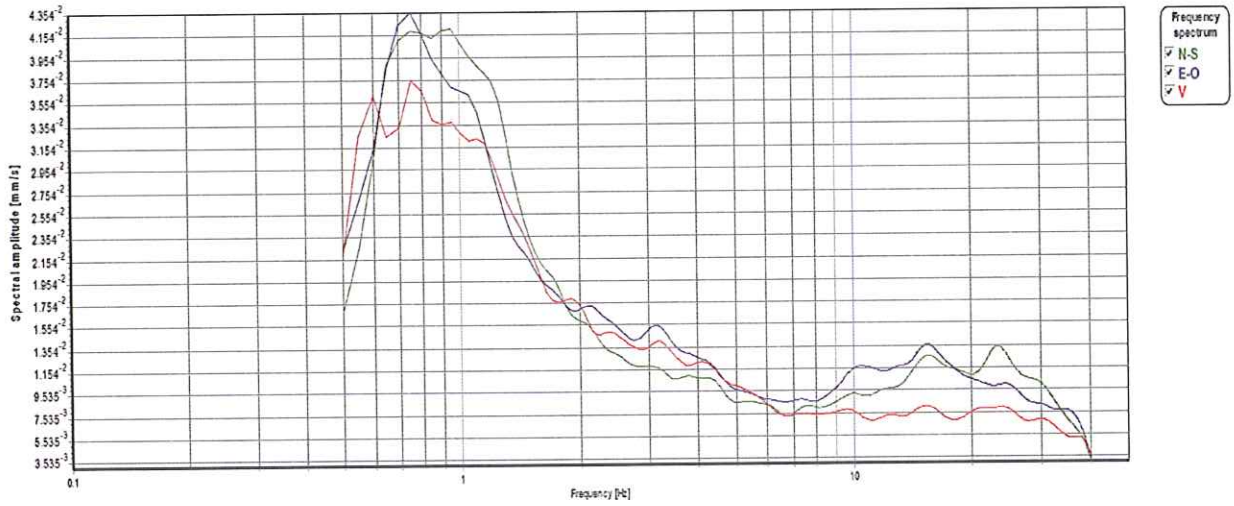
Analysis site: **Buggiano**

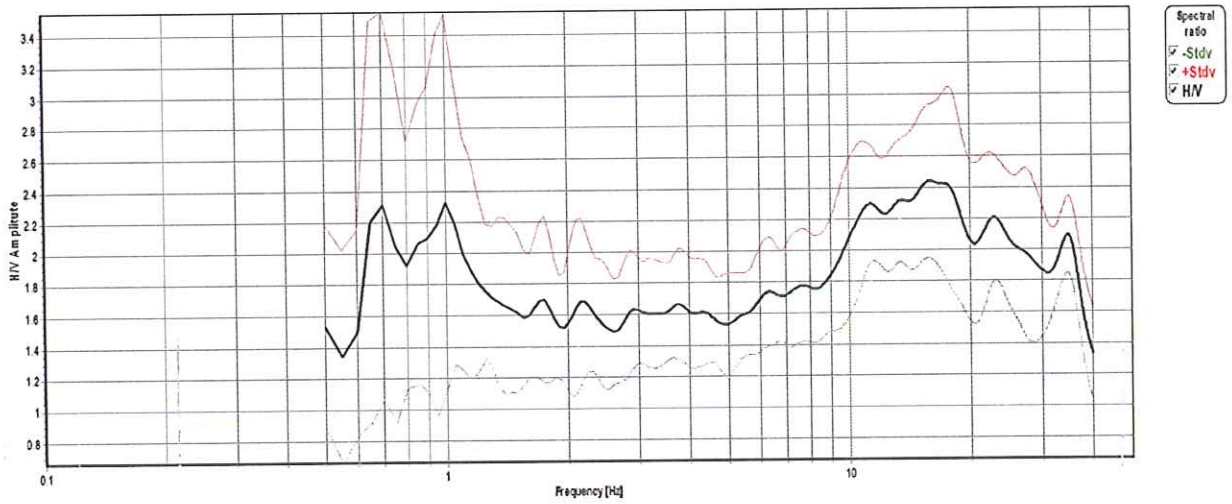
Measure point: **5**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	31/05/2017 15:42:49
Automatic spike removal:	No	Stop recordings:	31/05/2017 16:12:49
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	37
Lw Windows [s]:	20	Recording length [s]:	2100
Overlap Windows s]:	0.0	Discarded windows:	68
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	0.850	Standard deviation [Hz]:	0.148





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **5**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.85 >= 0.50**	**Yes**
Nc(fø) > 200	**629.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 25**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.06 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1770.60% > 5.00%**	**No**
sf < e(fø)	**0.1480 > 0.1275**	**No**
sA(fø) < ?(fø)	**0.8998 < 2.0000**	**Yes**

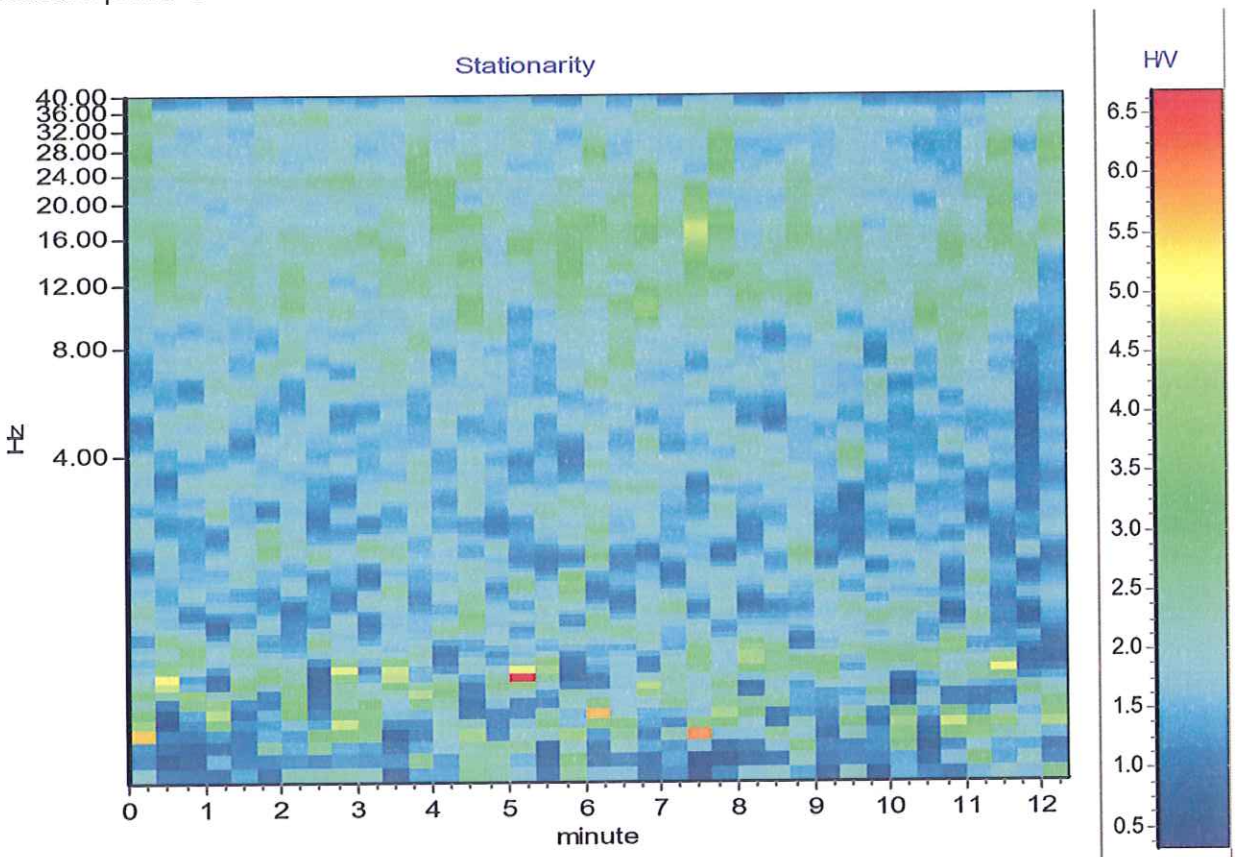
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

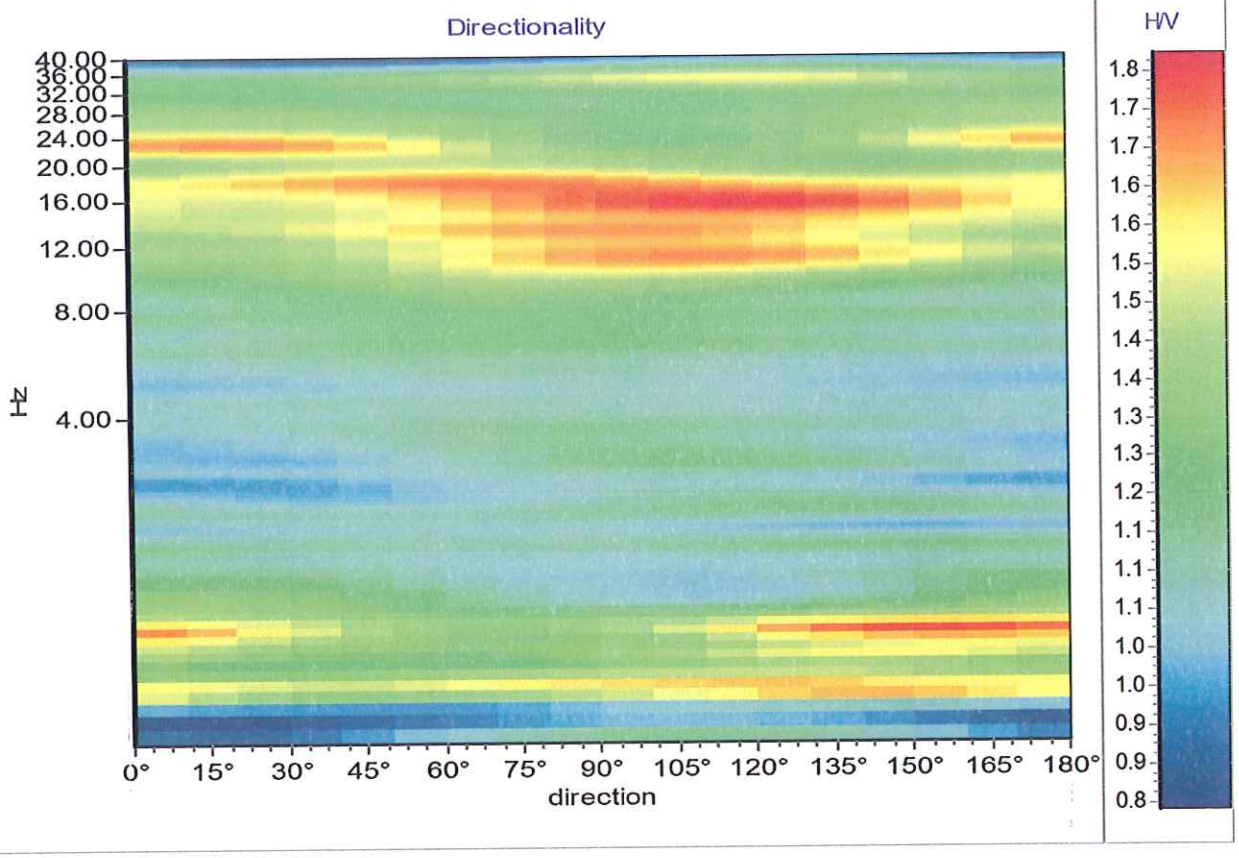
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **5**





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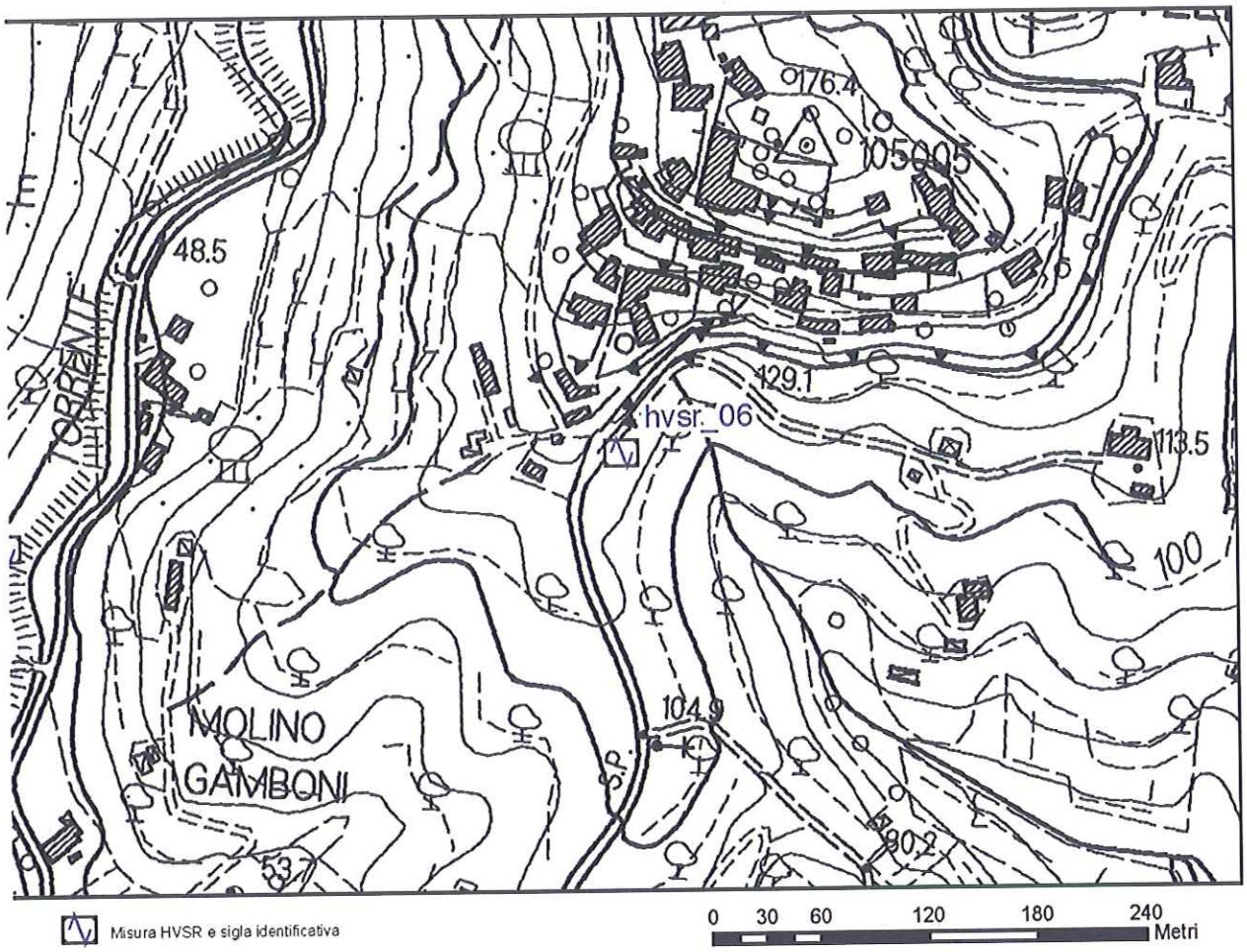


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

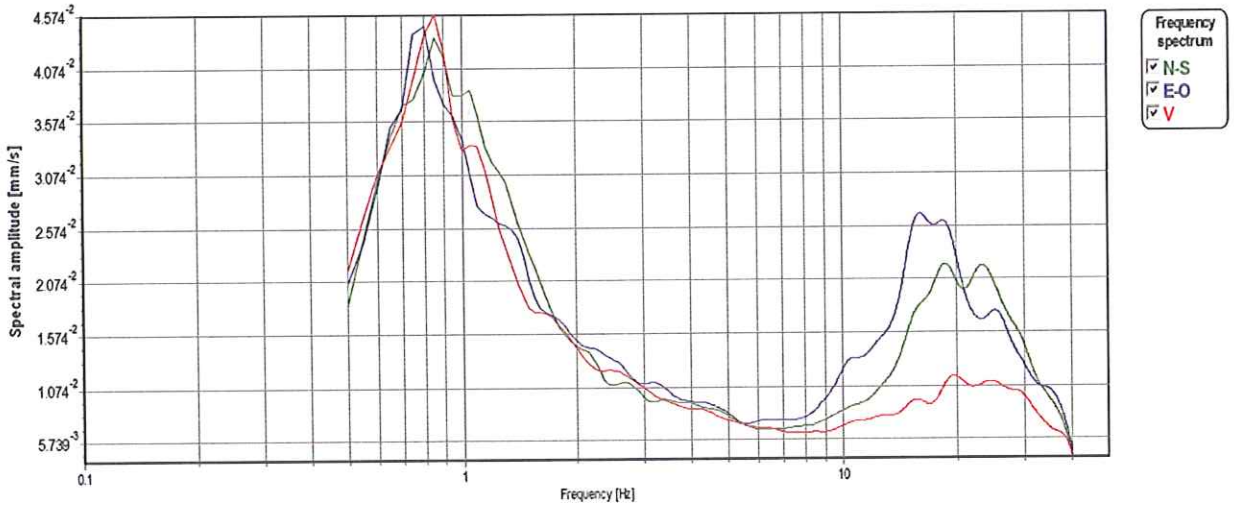
Analysis site: **Buggiano**

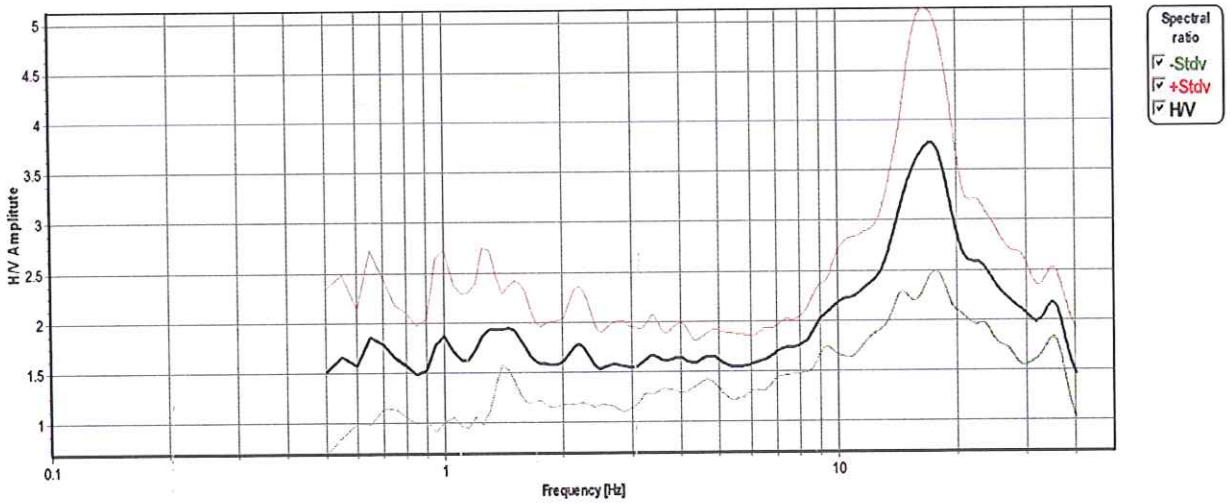
Measure point: **6 buggiano**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	31/05/2017 15:42:49
Automatic spike removal:	No	Stop recordings:	31/05/2017 16:12:49
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	24
Lw Windows [s]:	20	Recording length [s]:	2100
Overlap Windows s]:	0.0	Discarded windows:	81
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	17.354	Standard deviation [Hz]:	2.142





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **6 buggiano**

Criteria for a reliable H/V curve		
fø > 10/Lw	**17.35 >= 0.50**	**Yes**
Nc(fø) > 200	**8330.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 521**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**4.350**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**37.300**	**Yes**
Aø > 2	**3.77 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**4.35% < 5.00%**	**Yes**
sf < e(fø)	**2.1417 > 0.8677**	**No**
sA(fø) < ?(fø)	**1.2935 < 1.5800**	**Yes**

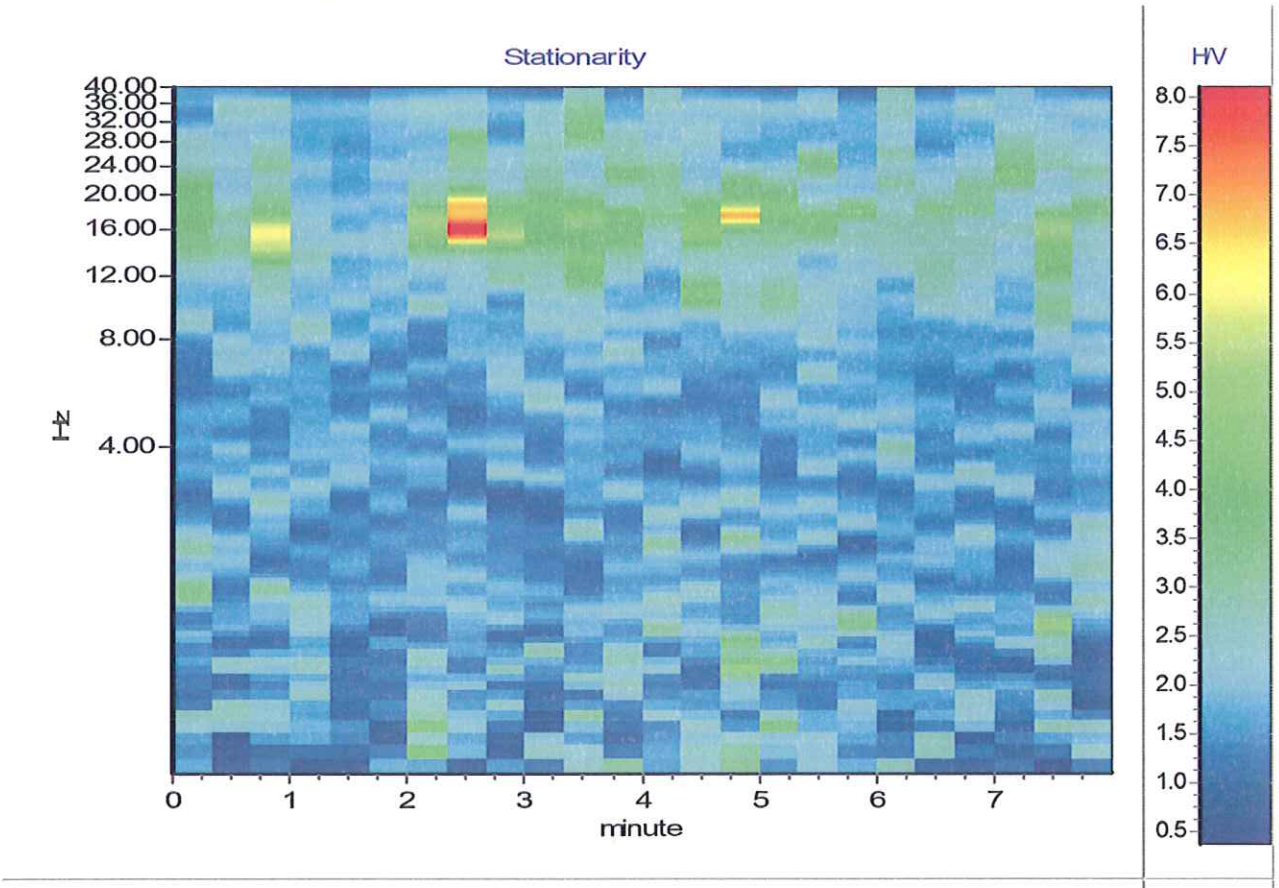
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

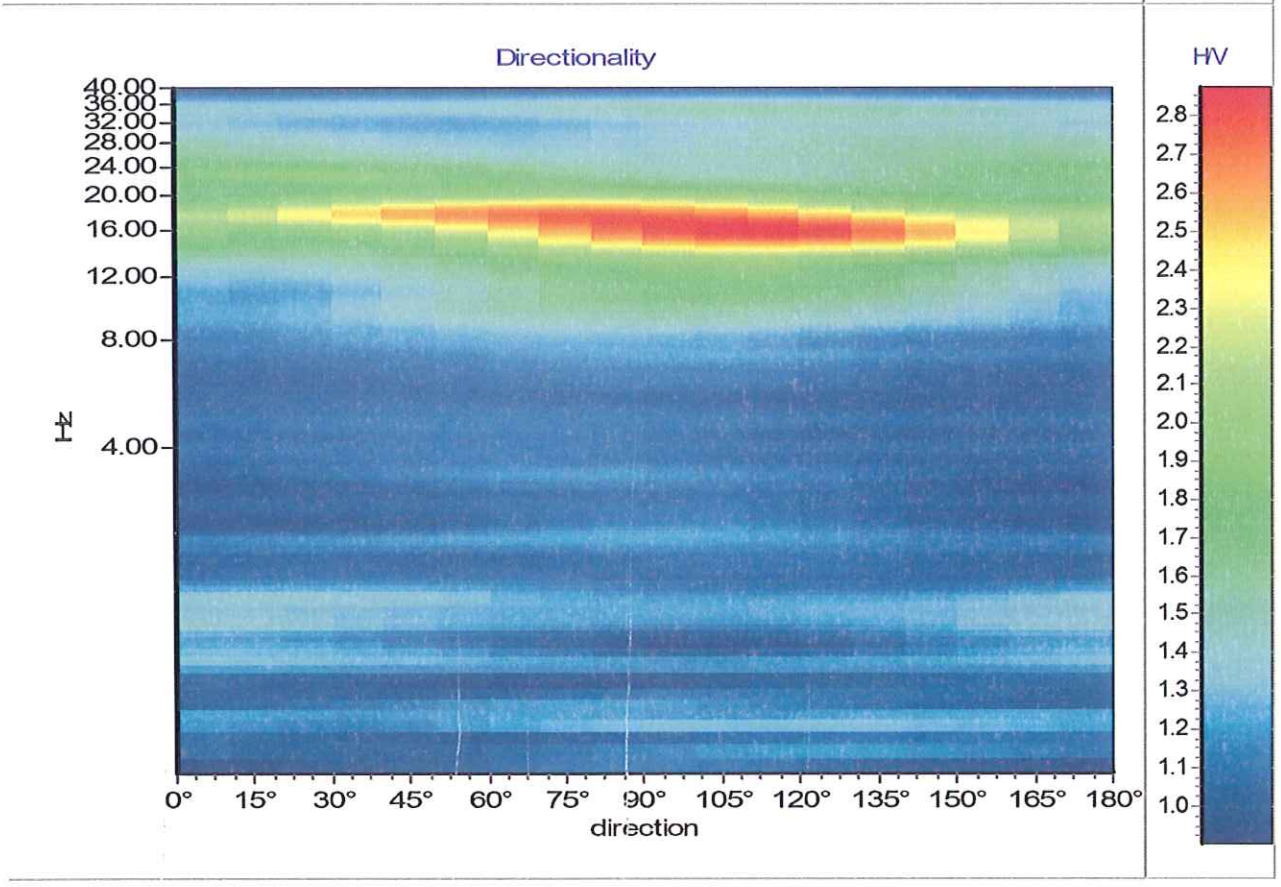
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **6 buggiano**





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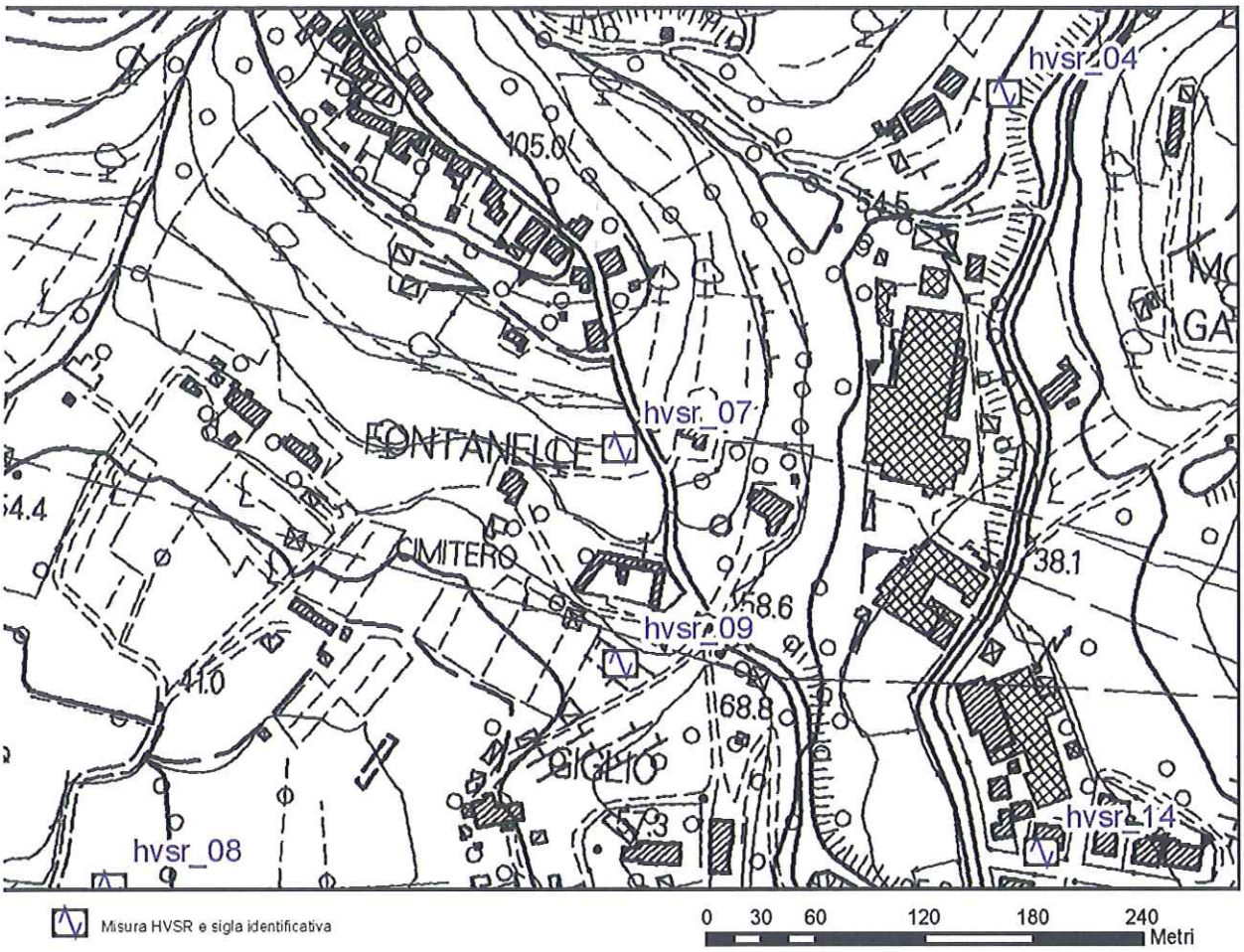


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

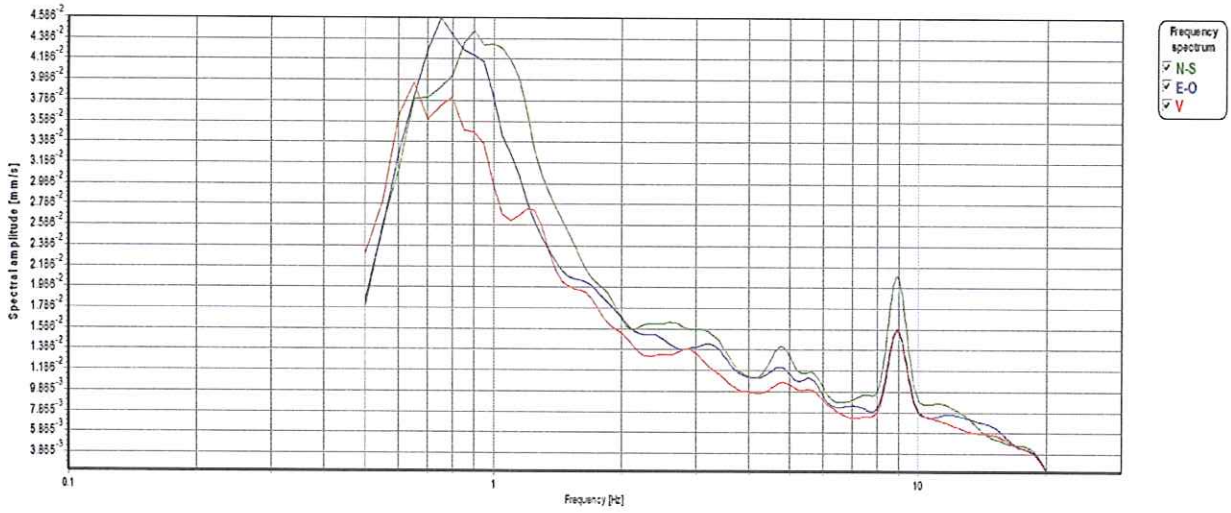
Analysis site: **Buggiano** Date: **15/08/2017**

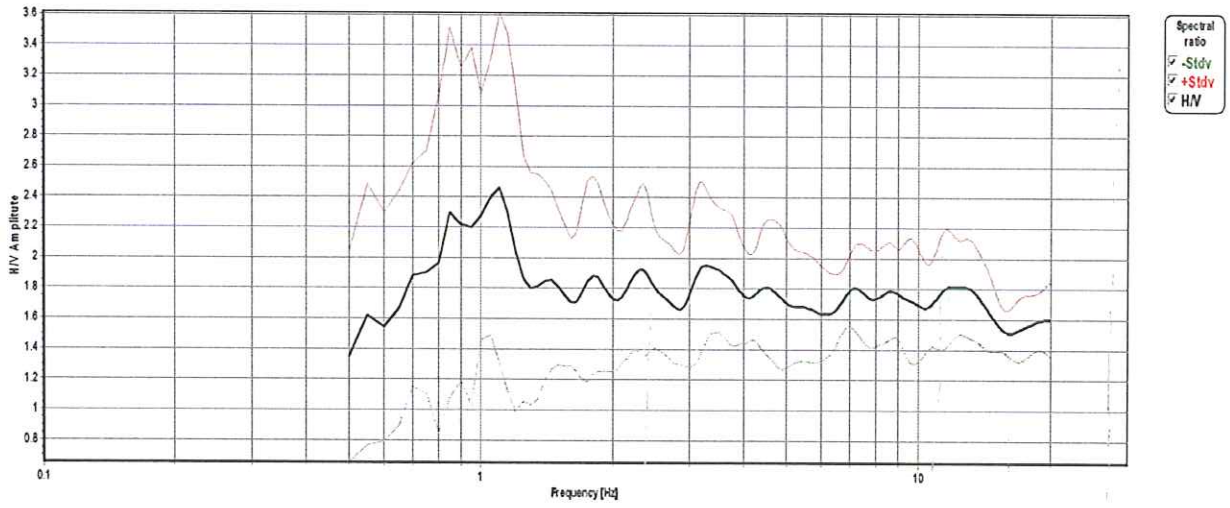
Measure point: **7**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 09:15:55**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 09:45:55**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**20.00**
Ratio:	**1.9**	Nw number of windows:	**34**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**56**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.975**	Standard deviation [Hz]:	**0.132**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **7**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.98 >= 0.50**	**Yes**
Nc(fø) > 200	**663.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 30**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.27 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**612.82% > 5.00%**	**No**
sf < e(fø)	**0.1324 < 0.1463**	**Yes**
sA(fø) < ?(fø)	**0.8098 < 2.0000**	**Yes**

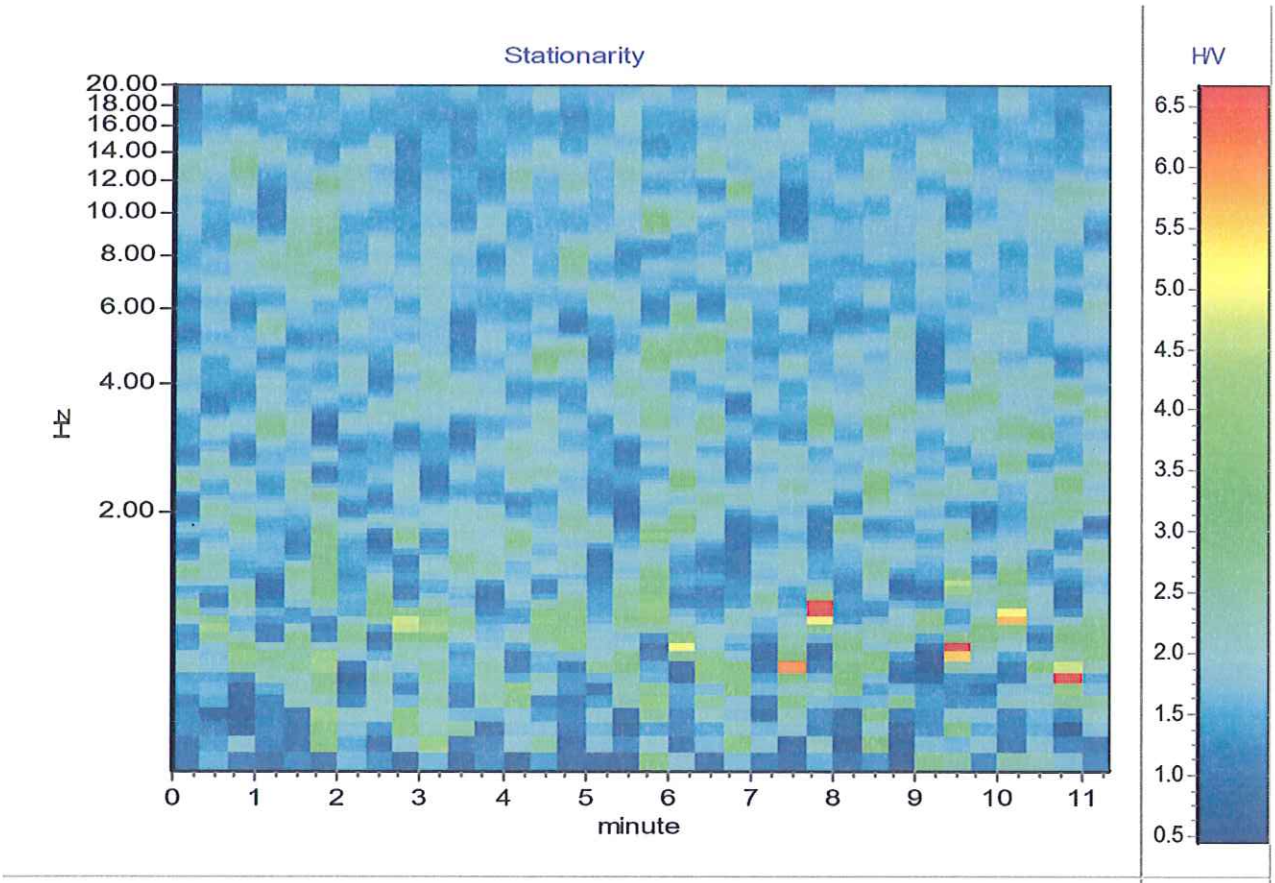
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

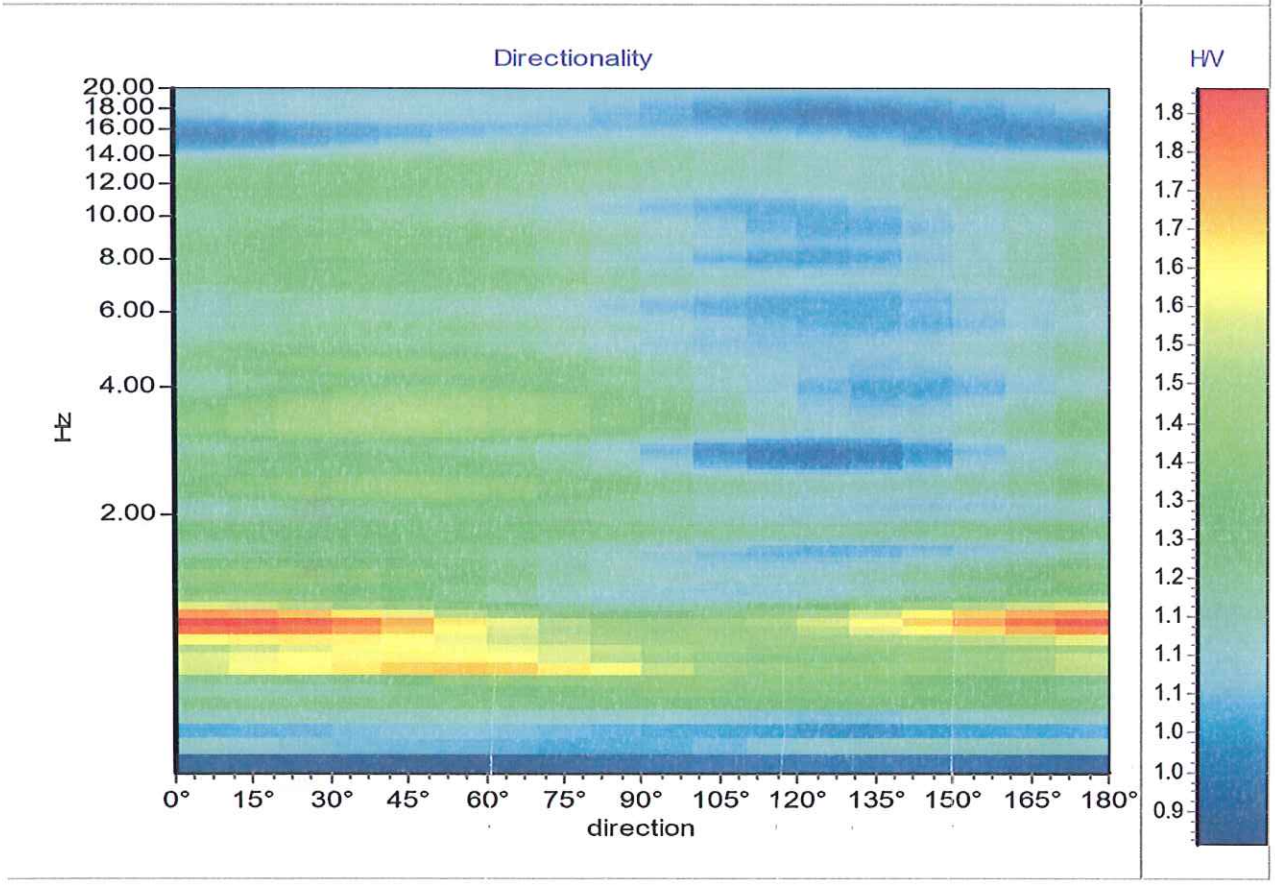
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **7**





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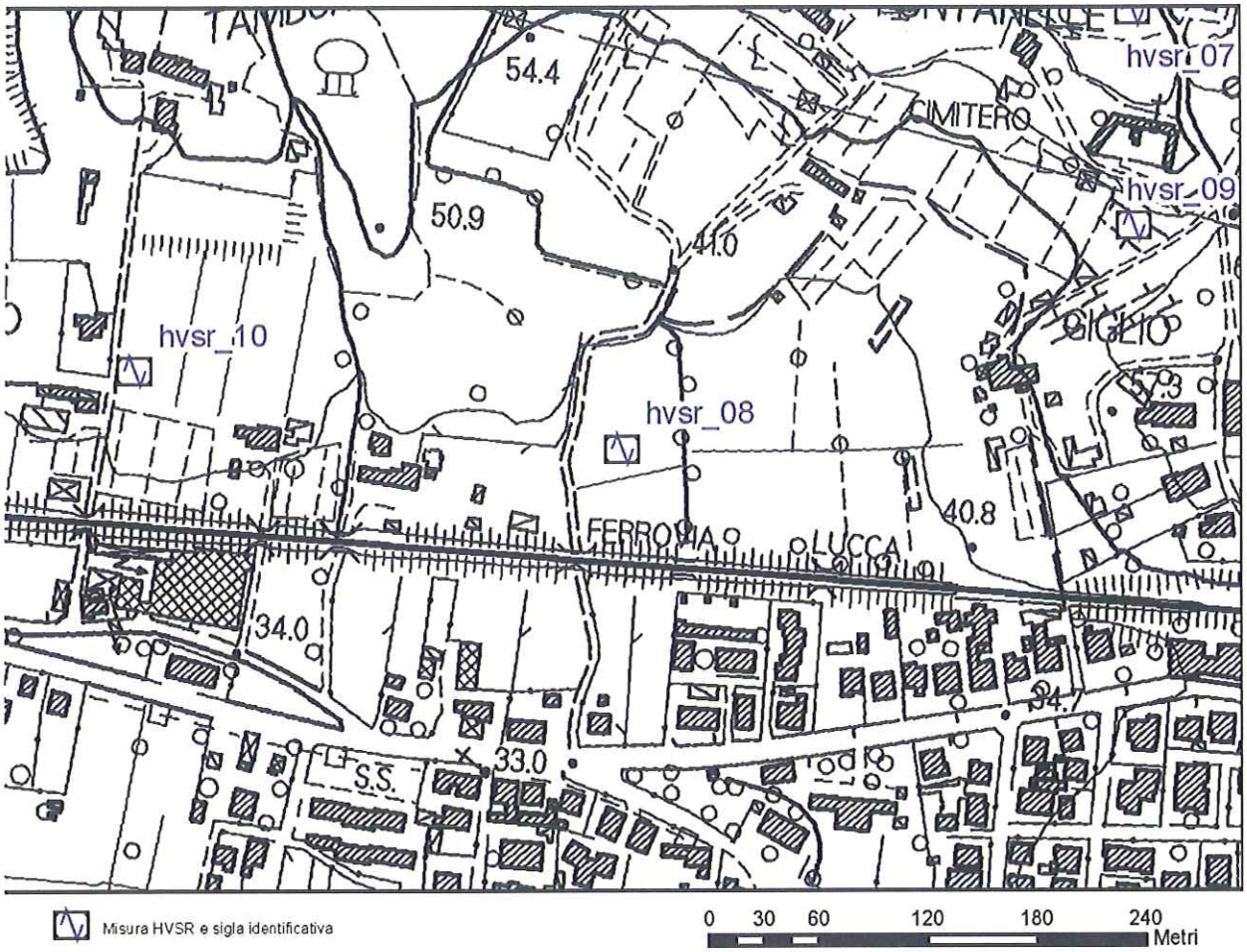


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

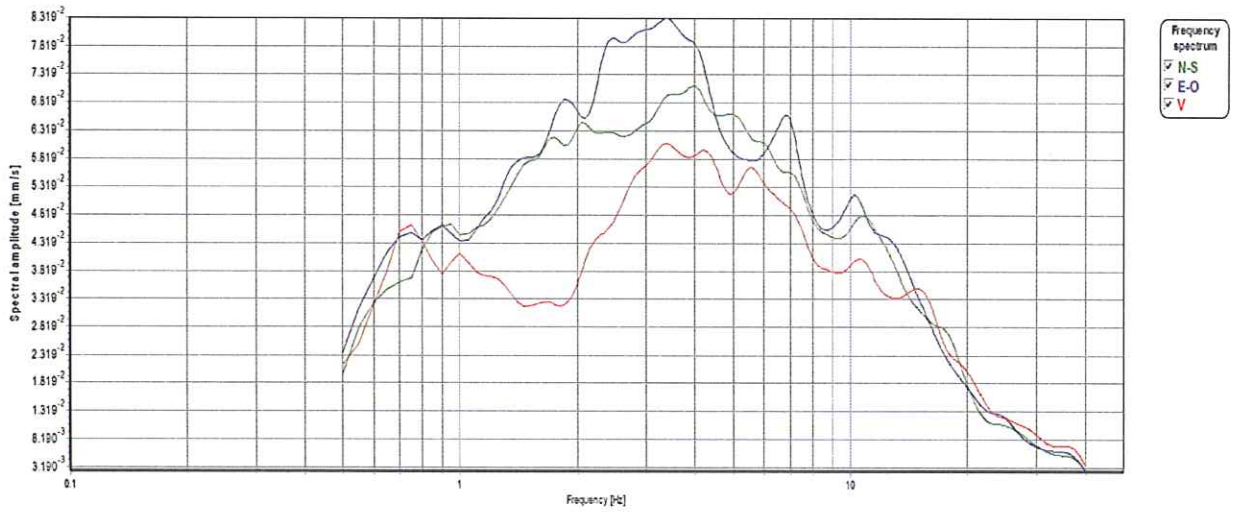
Analysis site: **Buggiano**

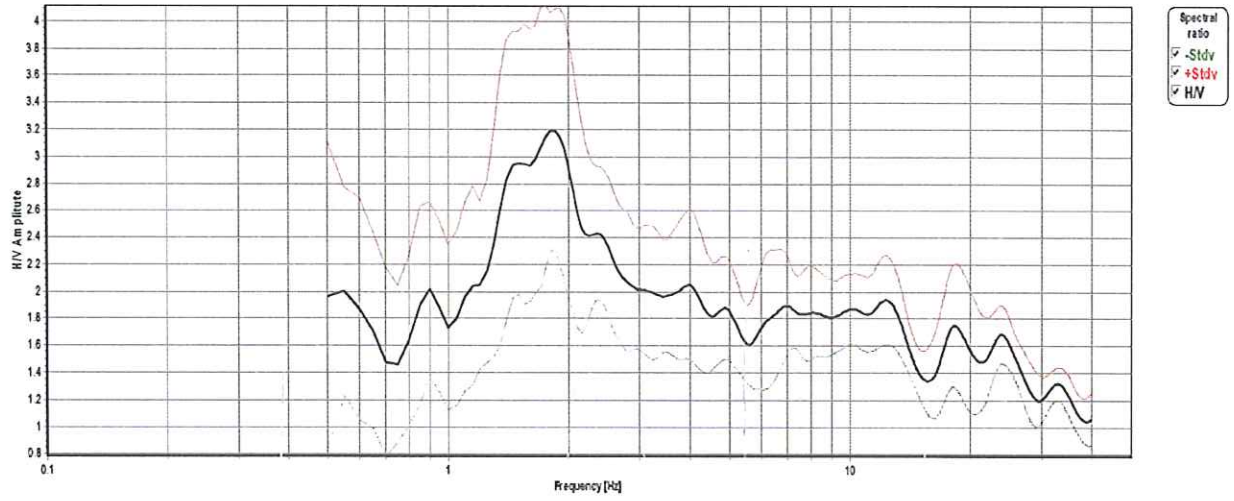
Measure point: **8**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 10:20:52**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 10:50:52**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**46**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**44**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.696**	Standard deviation [Hz]:	**0.206**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **8**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.70 >= 0.50**	**Yes**
Nc(fø) > 200	**1560.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 51**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.700**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**3.07 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**9.10% > 5.00%**	**No**
sf < e(fø)	**0.2058 > 0.1696**	**No**
sA(fø) < ?(fø)	**1.0309 < 1.7800**	**Yes**

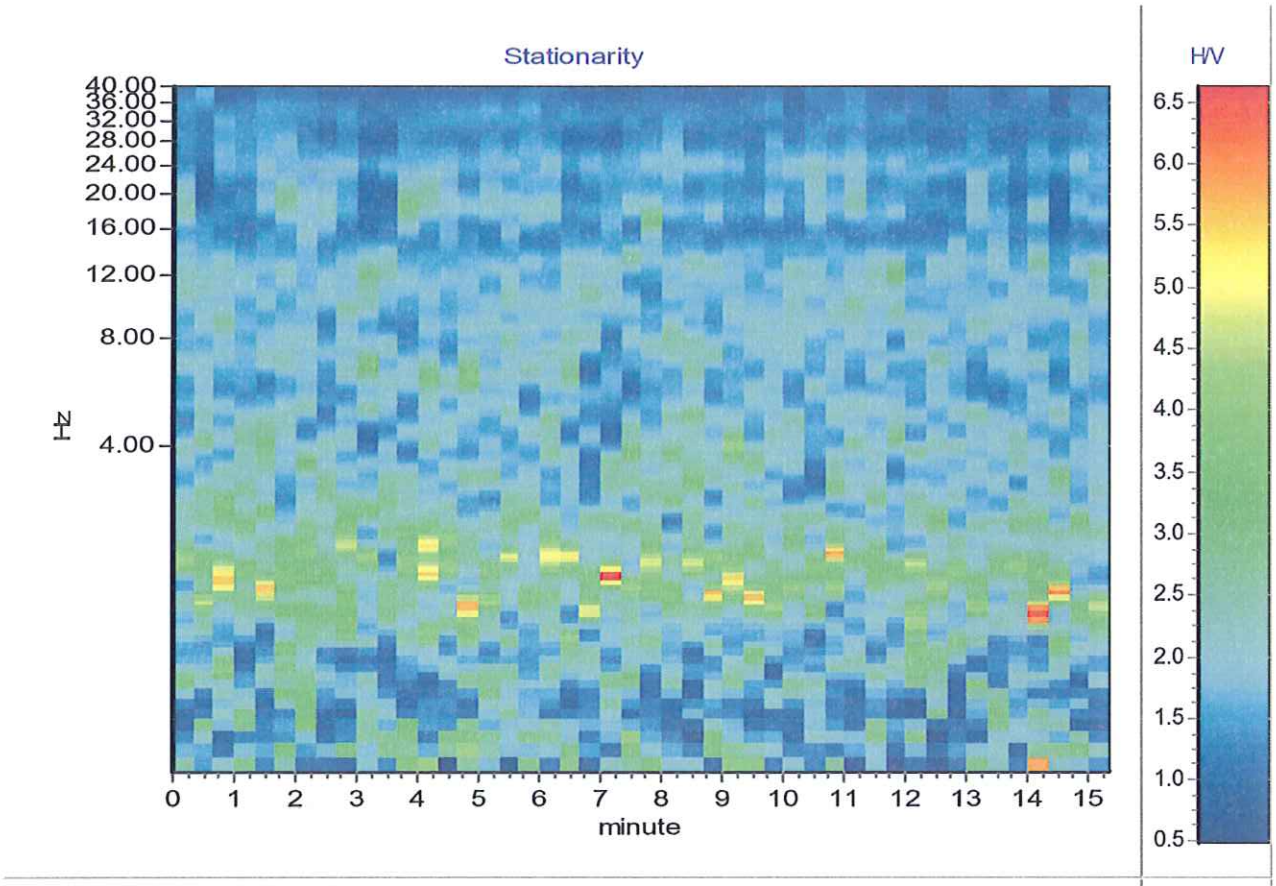
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

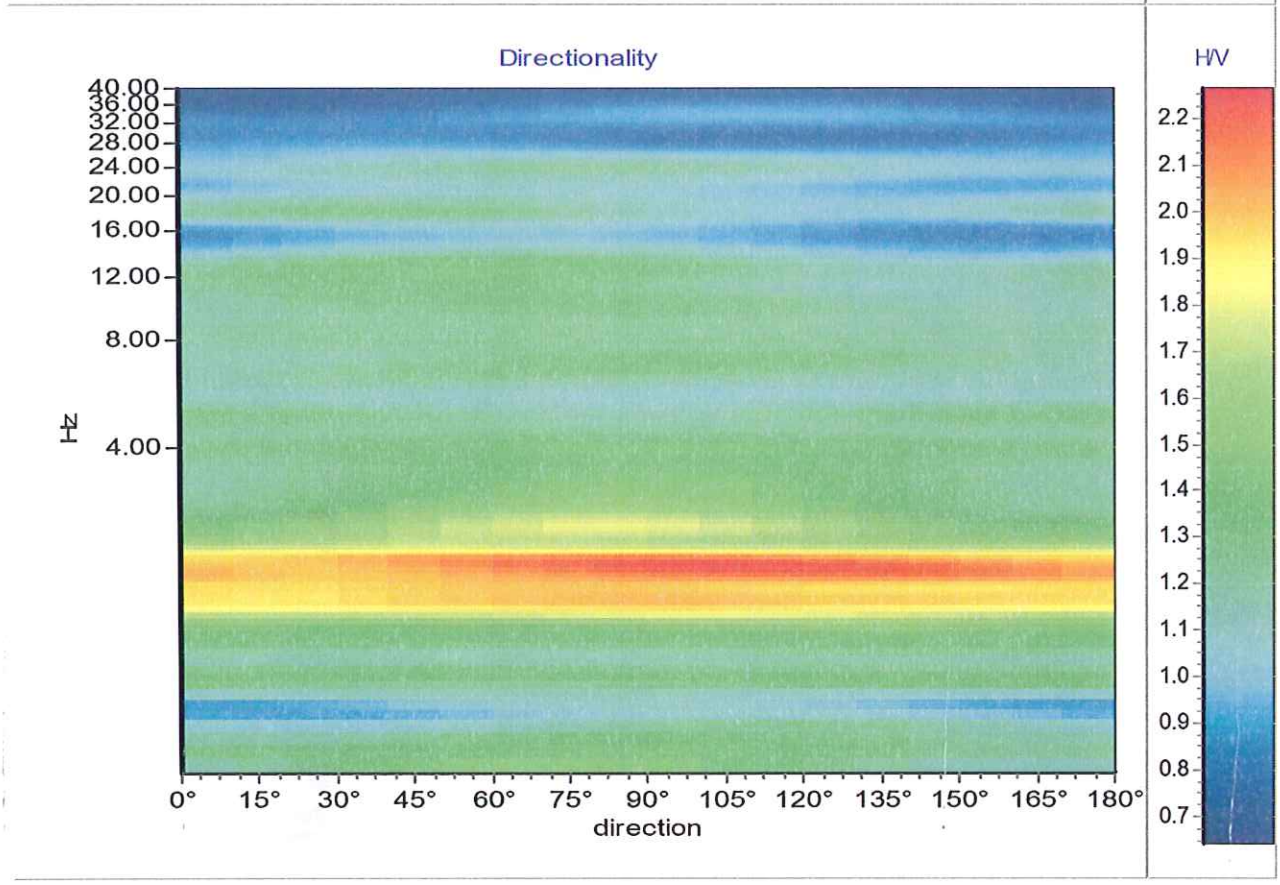
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **8**





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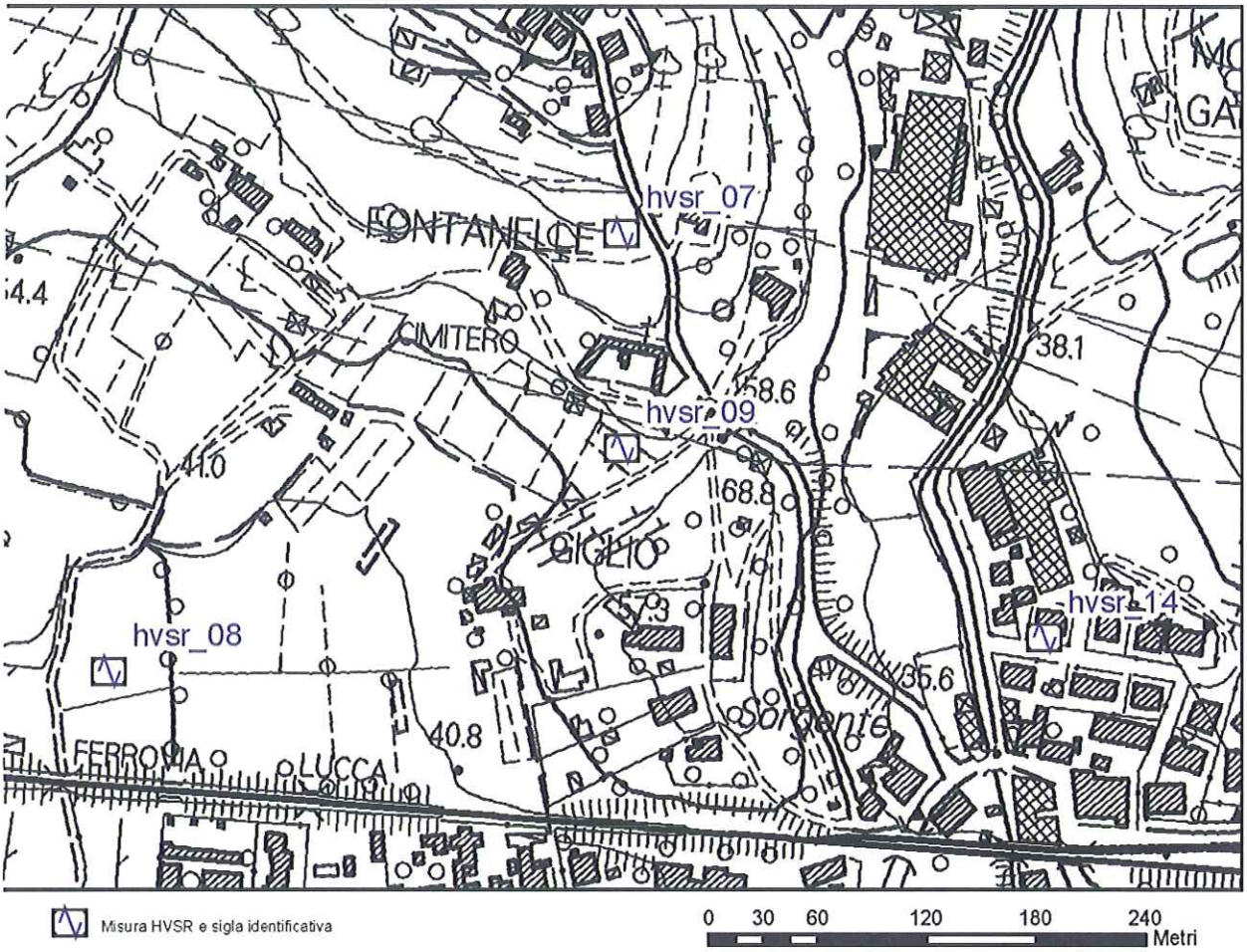


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

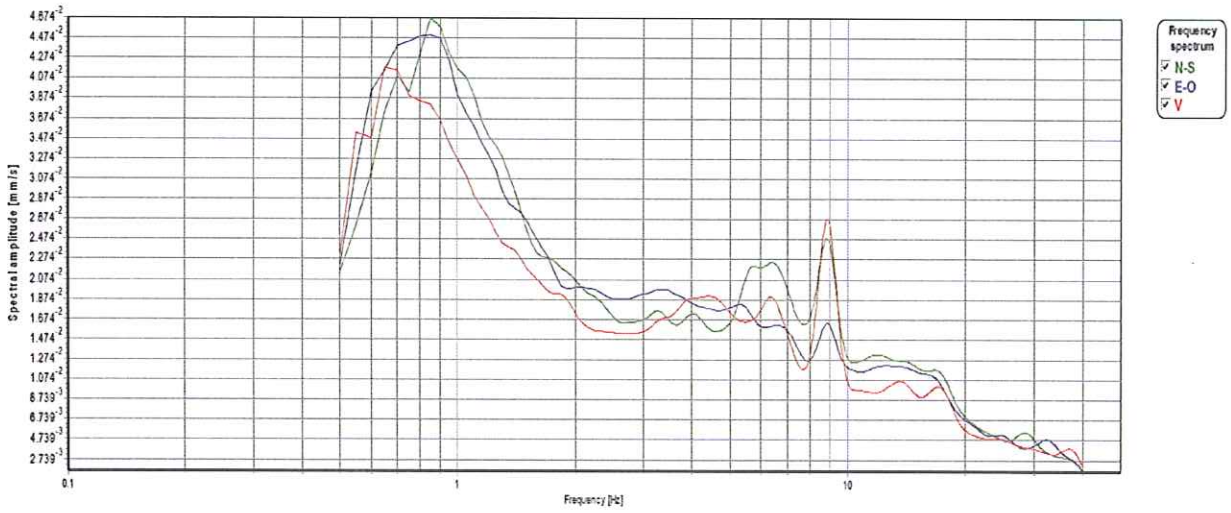
Analysis site: **Buggiano**

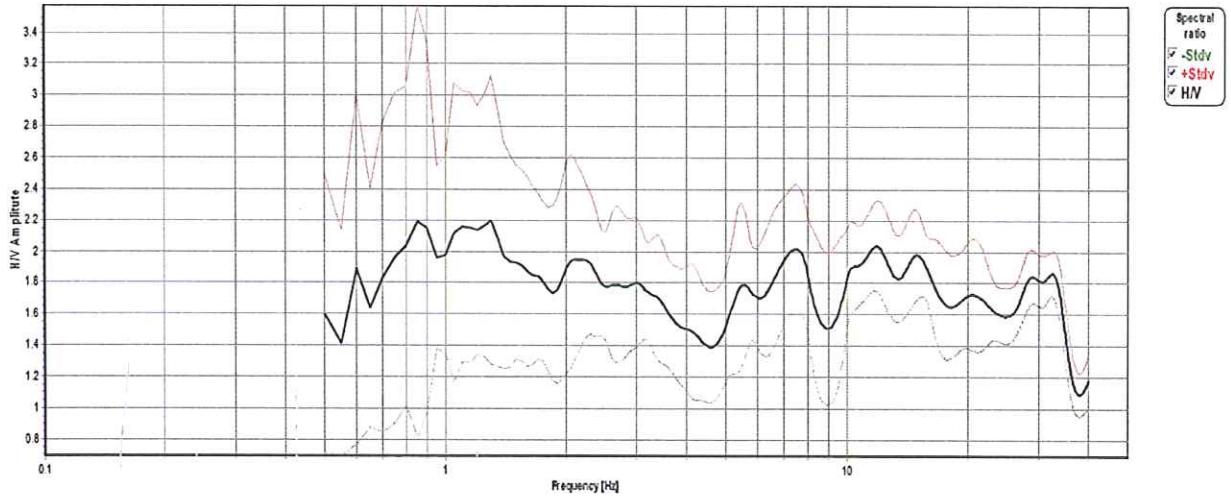
Measure point: **9**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 11:54:26**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 12:24:26**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**37**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**53**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.034**	Standard deviation [Hz]:	**0.249**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **9**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.03 >= 0.50**	**Yes**
Nc(fø) > 200	**765.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 31**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.12 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1031.80% > 5.00%**	**No**
sf < e(fø)	**0.2488 > 0.1034**	**No**
sA(fø) < ?(fø)	**0.9542 < 1.7800**	**Yes**

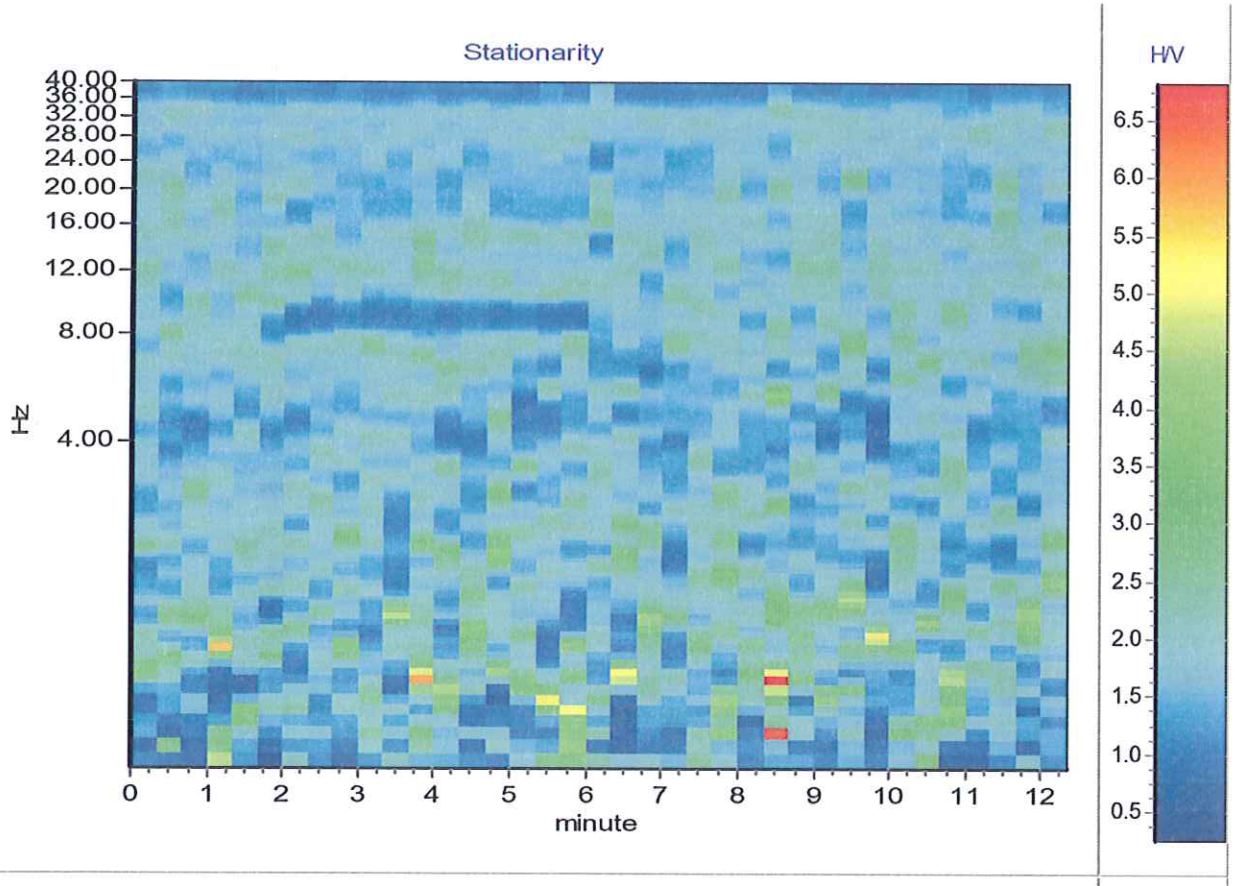
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

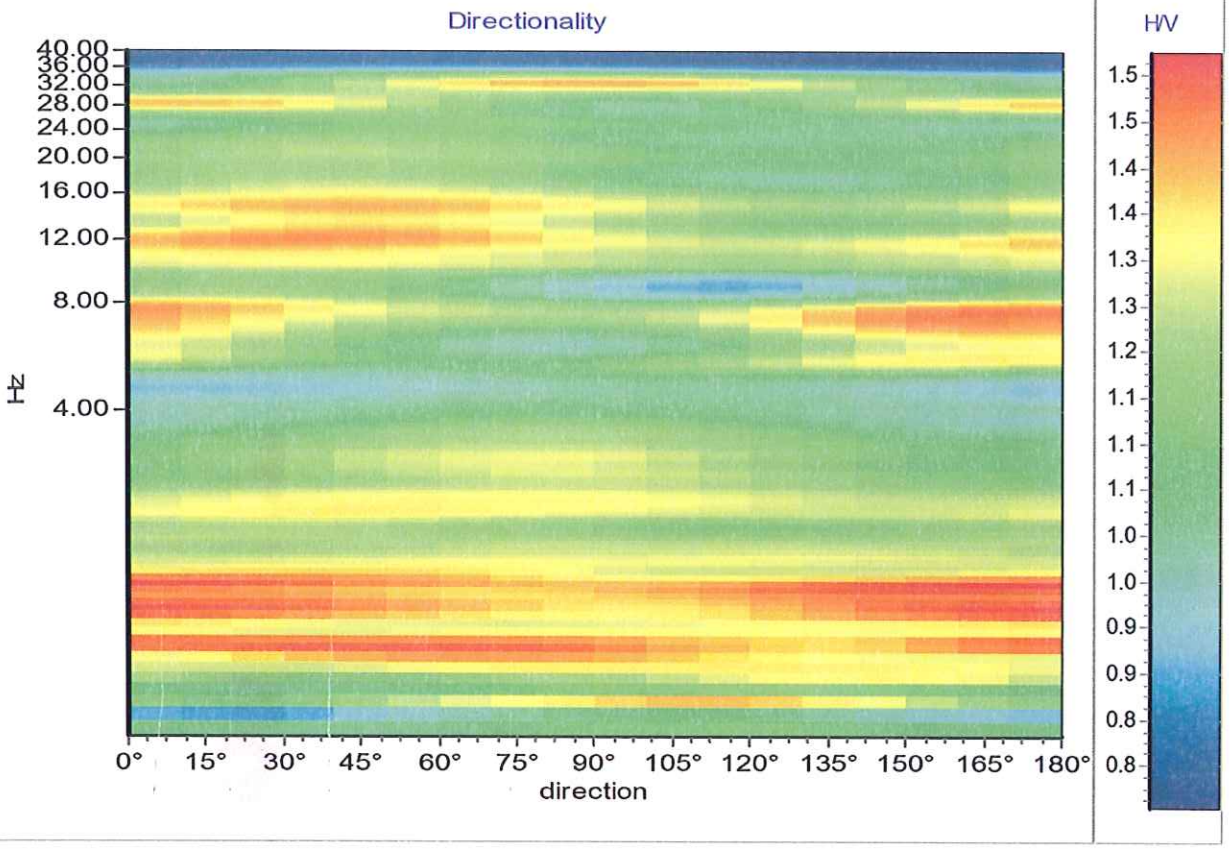
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **9**





Misura HVSR 10

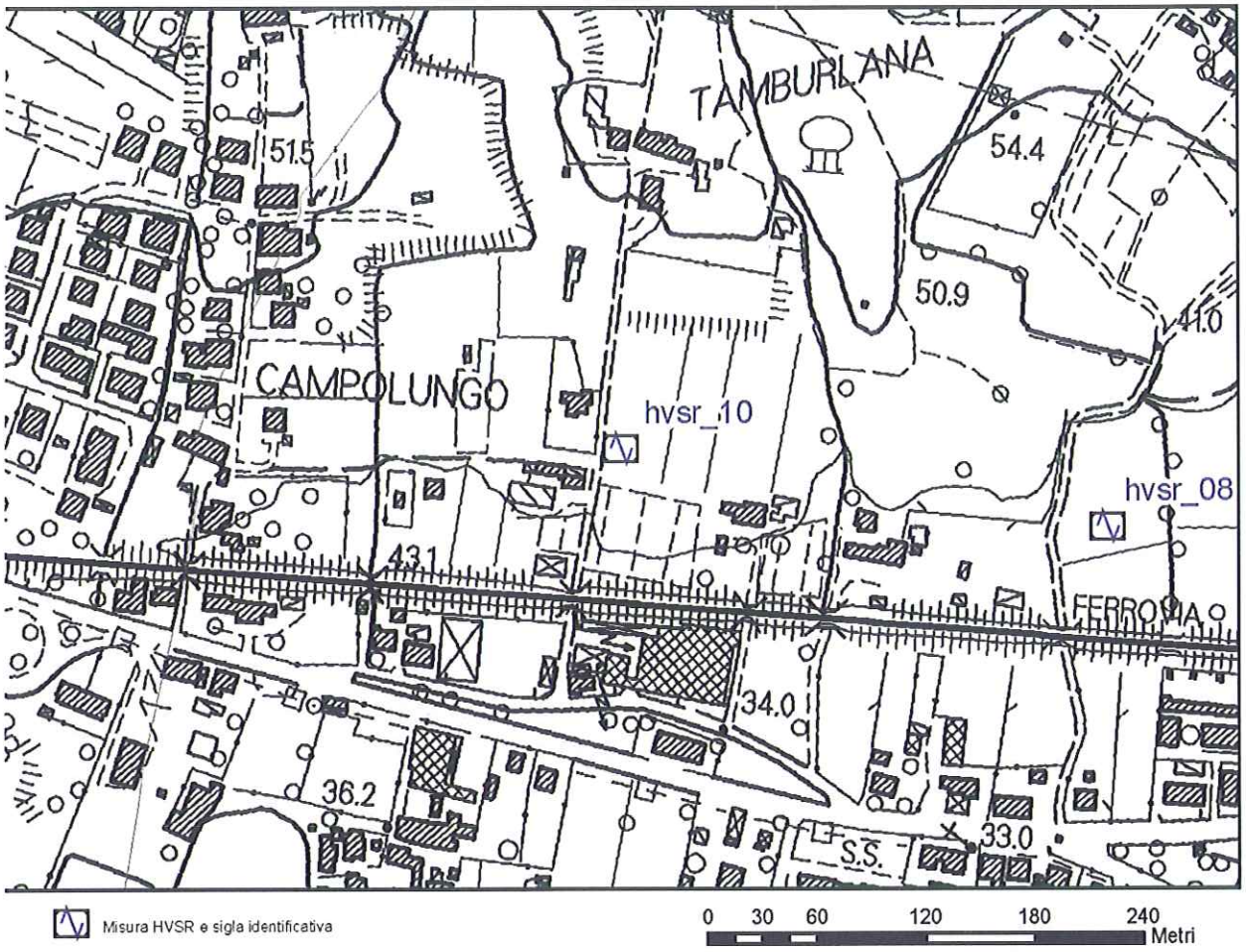


Figura 1 – Individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

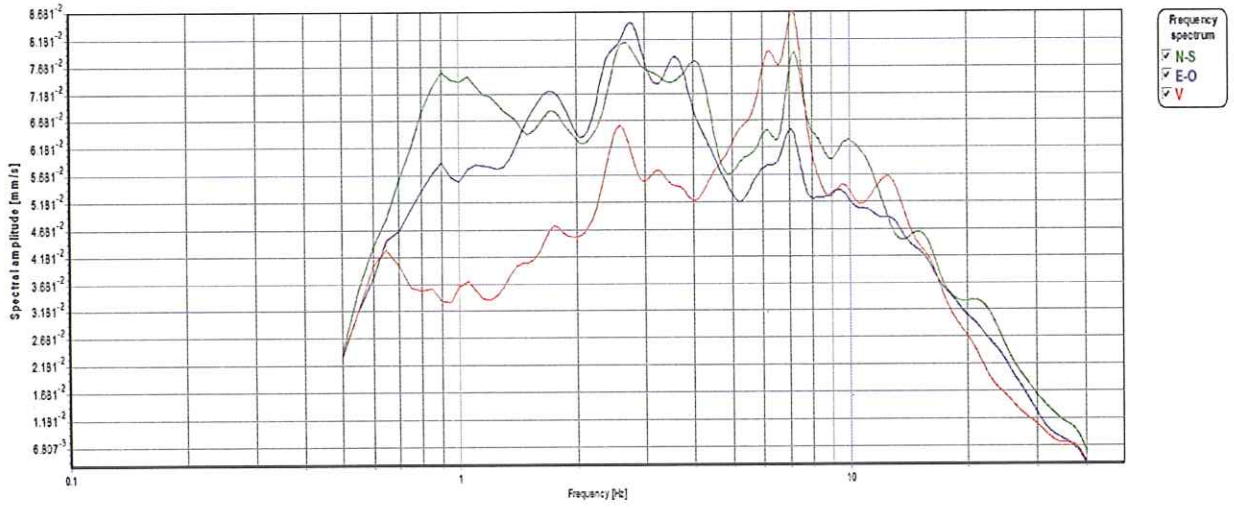
Analysis site: **Buggiano**

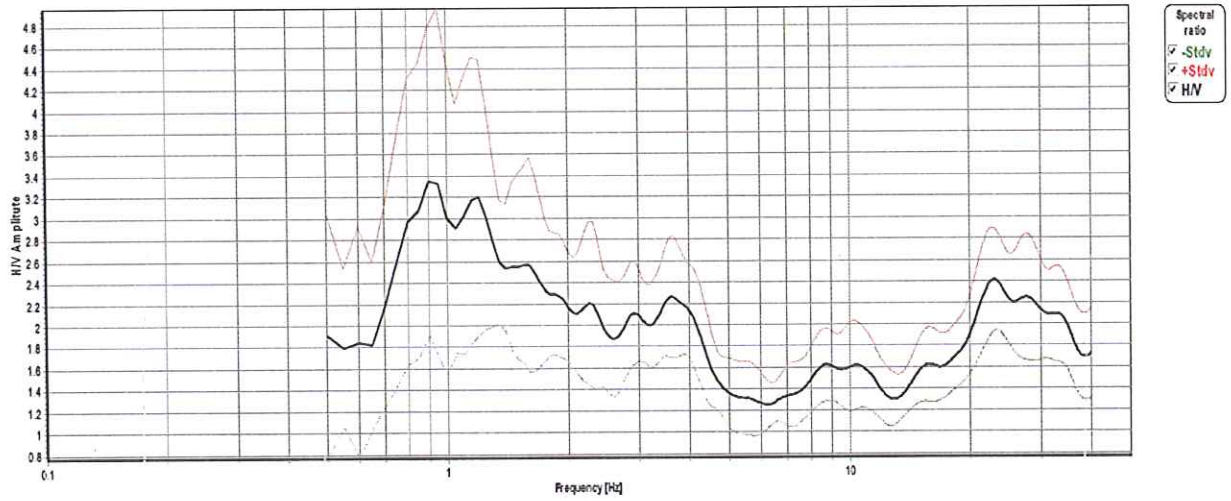
Measure point: **10**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**03/07/2017 13:44:56**
Automatic spike removal:	**No**	Stop recordings:	**03/07/2017 14:14:56**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**35**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**55**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.993**	Standard deviation [Hz]:	**0.134**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **10**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.99 >= 0.50**	**Yes**
Nc(fø) > 200	**695.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 30**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**3.00 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**35.97% > 5.00%**	**No**
sf < e(fø)	**0.1337 < 0.1489**	**Yes**
sA(fø) < ?(fø)	**1.4633 < 2.0000**	**Yes**

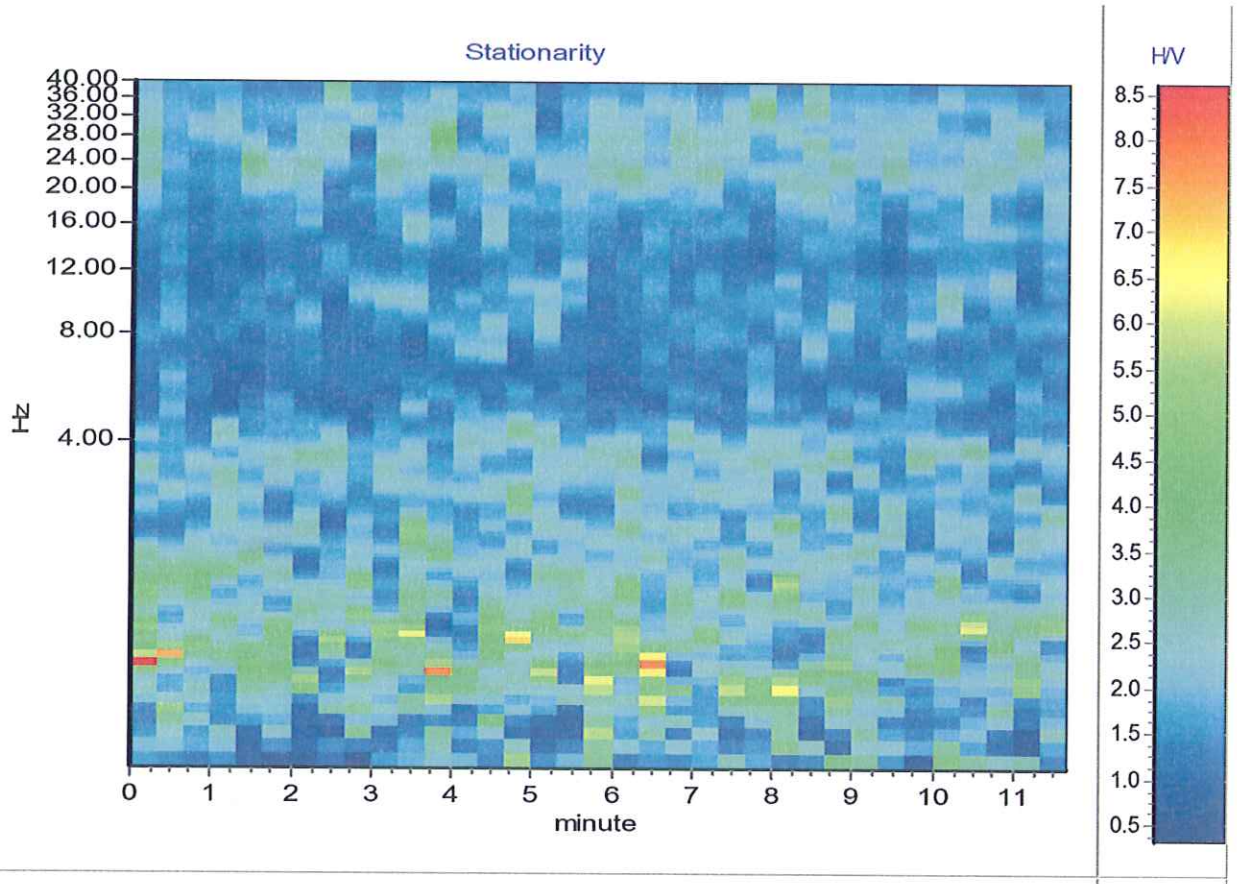
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

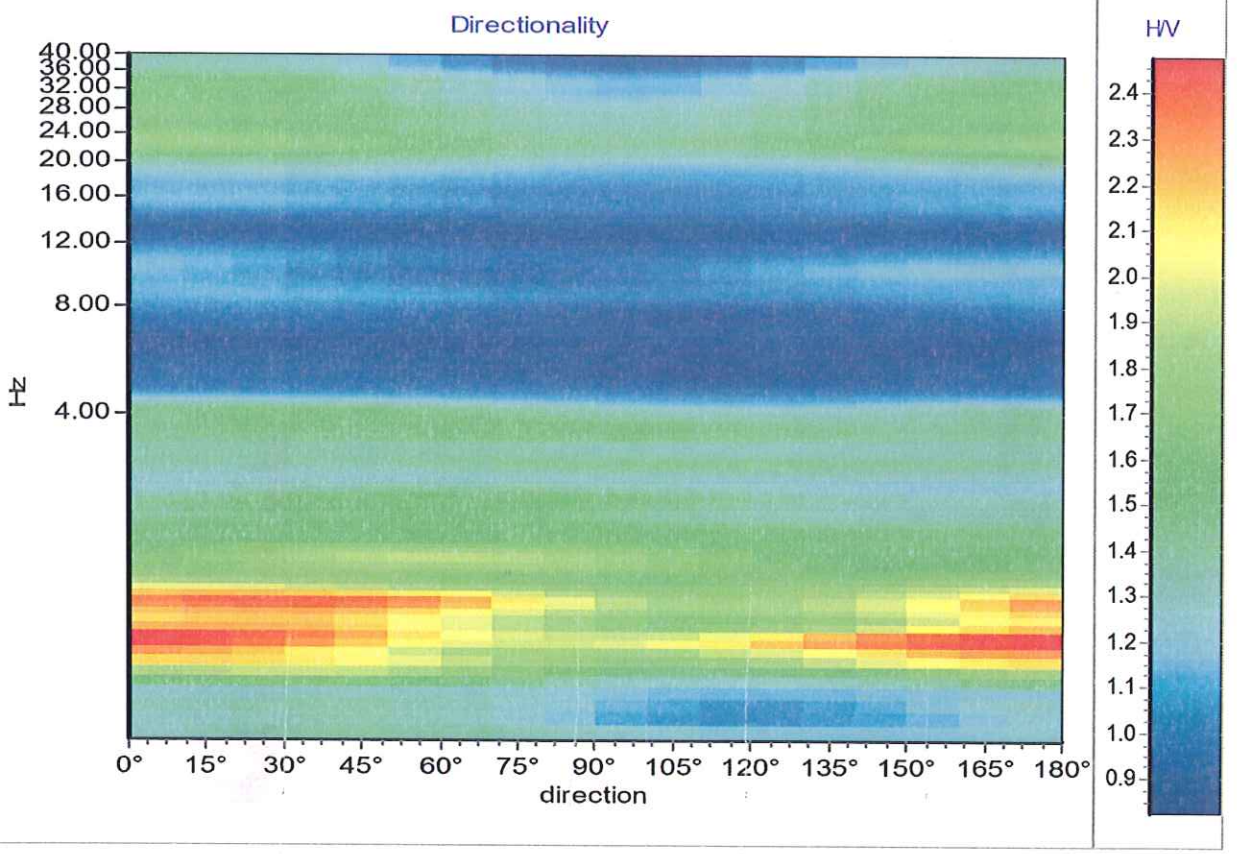
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **10**





Misura HVSR 11

047003P12

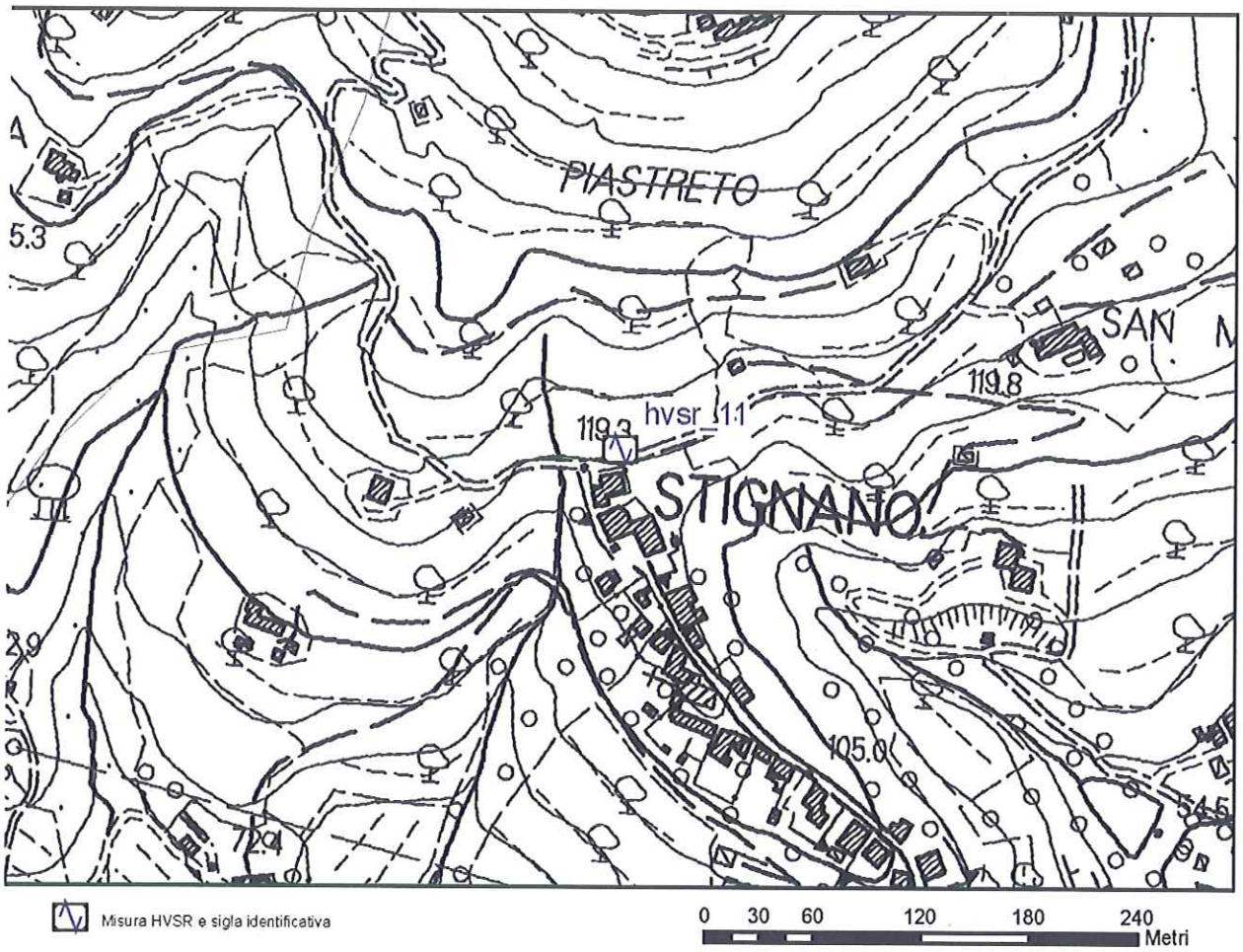


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

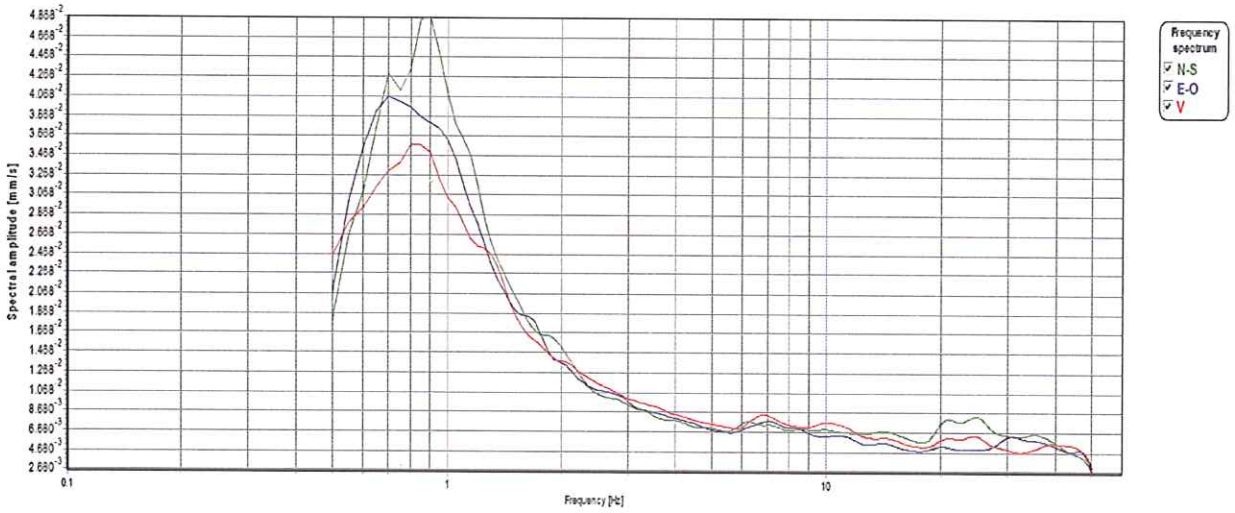
Analysis site: **Buggiano**

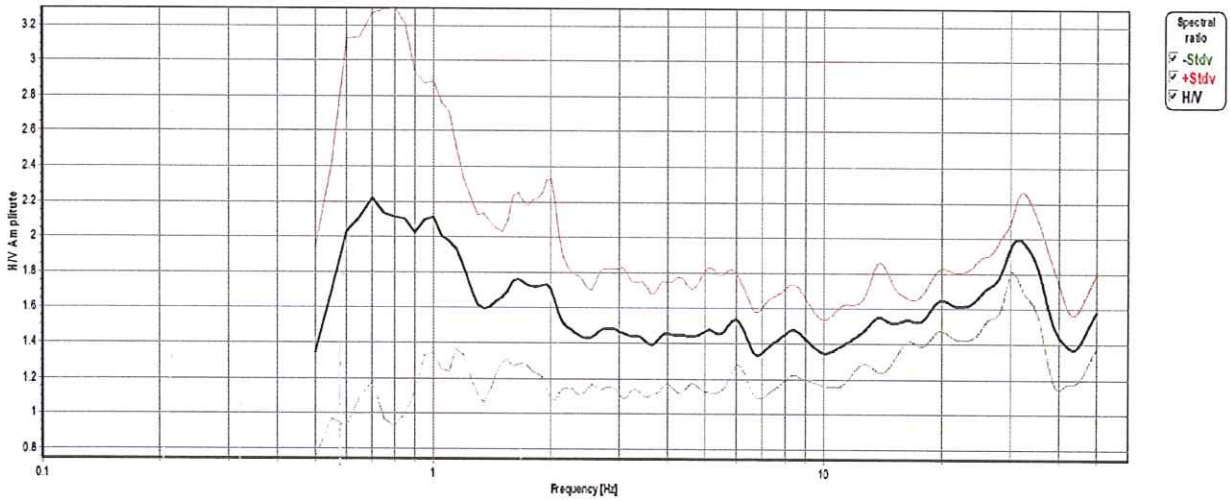
Measure point: **11**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 12:53:47**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 13:23:47**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**50.00**
Ratio:	**1.9**	Nw number of windows:	**36**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**54**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.750**	Standard deviation [Hz]:	**0.125**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **11**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.75 >= 0.50**	**Yes**
Nc(fø) > 200	**540.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 20**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.13 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**3946.70% > 5.00%**	**No**
sf < e(fø)	**0.1247 > 0.1125**	**No**
sA(fø) < ?(fø)	**1.1636 < 2.0000**	**Yes**

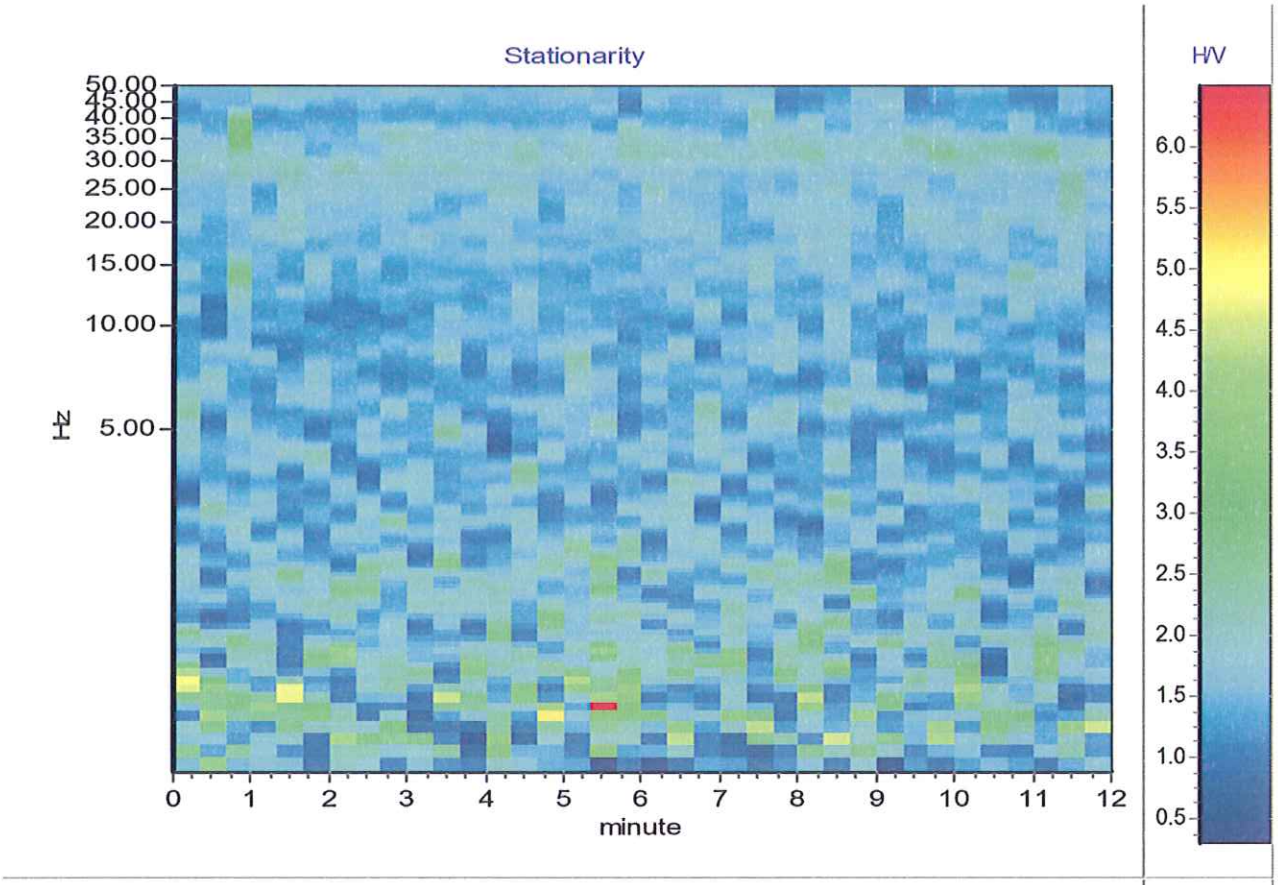
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

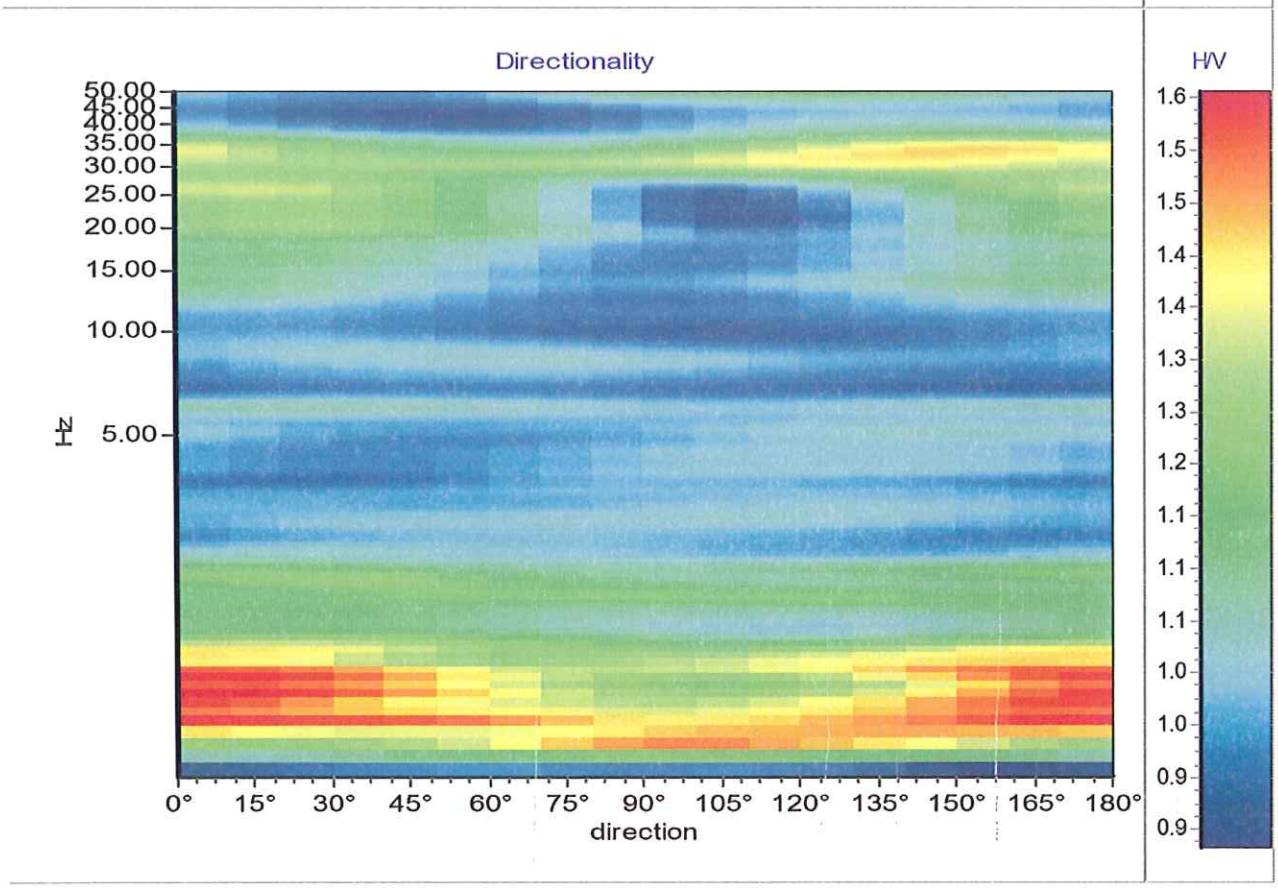
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **11**





Misura HVSR 12

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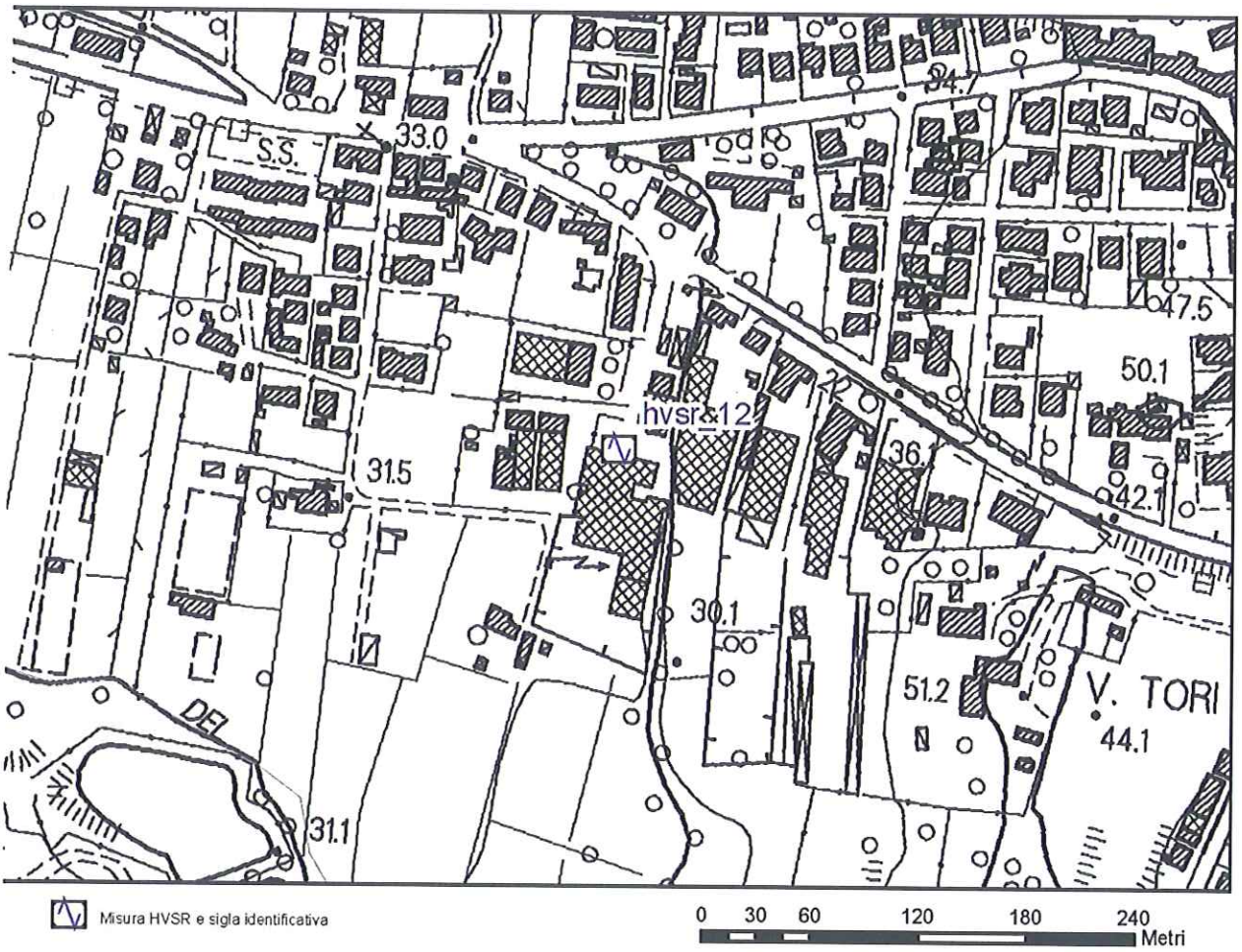


Figura 1 – Individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

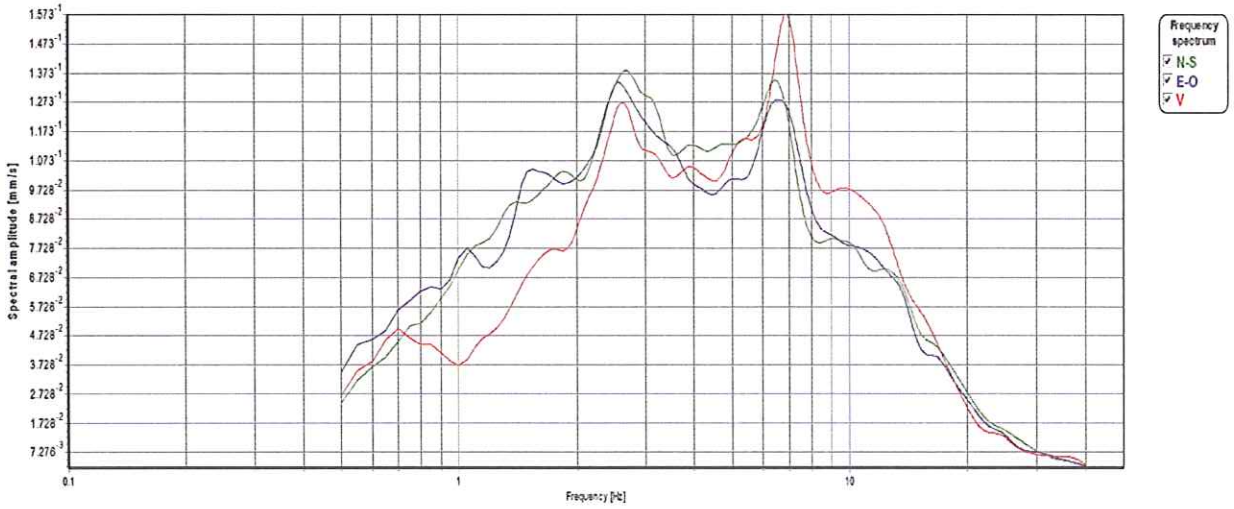
Analysis site: **Buggiano**

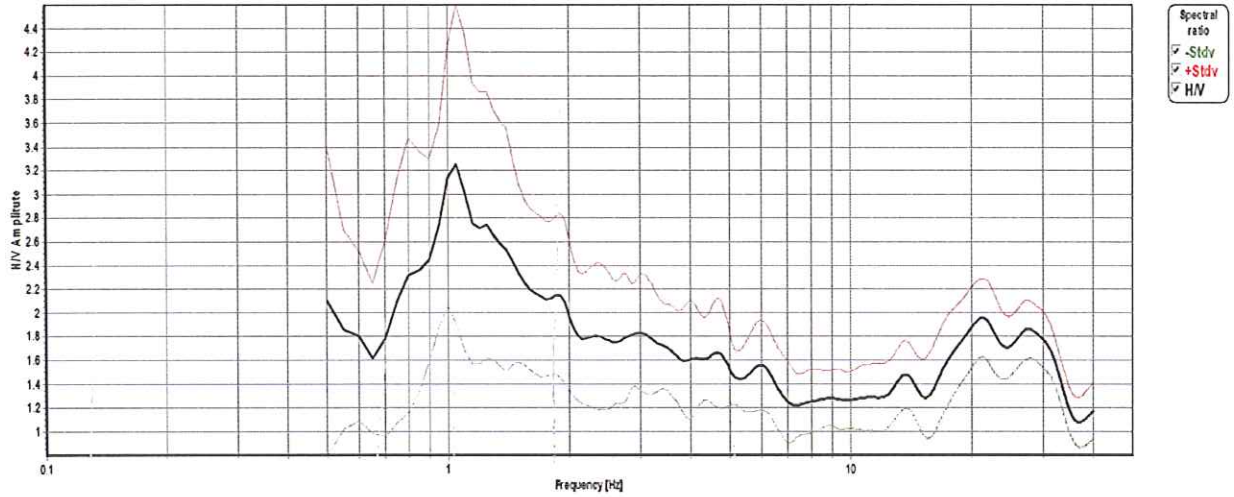
Measure point: **12**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 14:39:53**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 15:09:53**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**40**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**50**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.046**	Standard deviation [Hz]:	**0.172**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **12**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.05 >= 0.50**	**Yes**
Nc(fø) > 200	**837.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 31**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.650**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**3.750**	**Yes**
Aø > 2	**3.25 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**4.42% < 5.00%**	**Yes**
sf < e(fø)	**0.1715 > 0.1046**	**No**
sA(fø) < ?(fø)	**1.3490 < 1.7800**	**Yes**

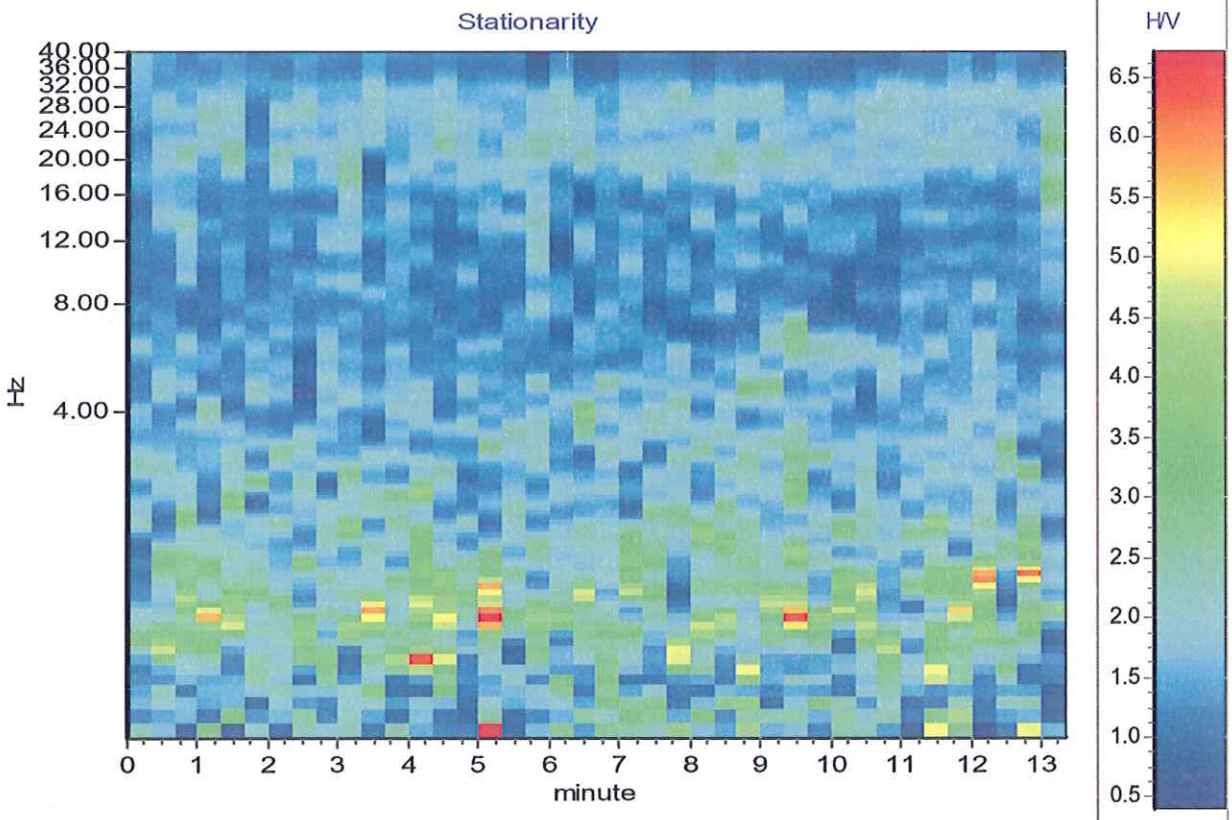
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

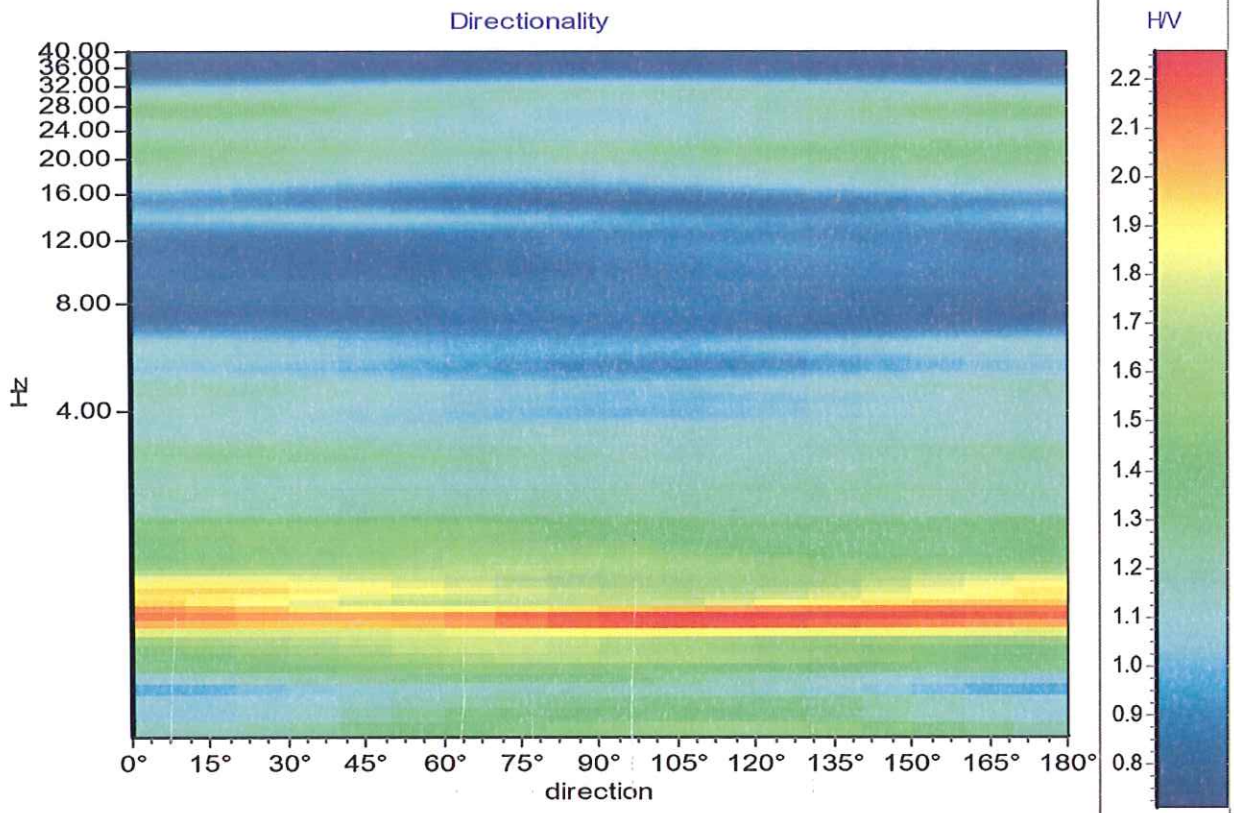
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **12**





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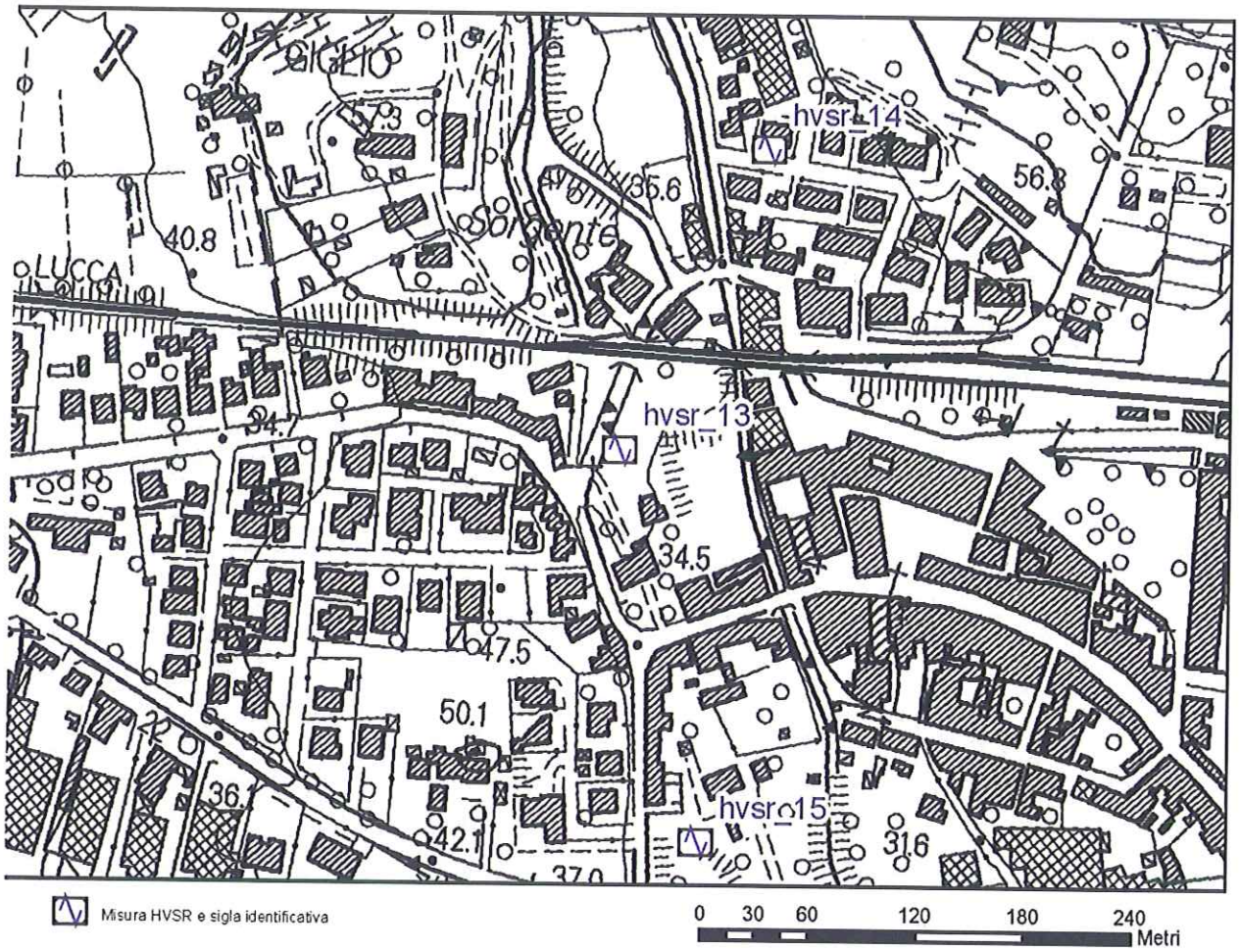


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

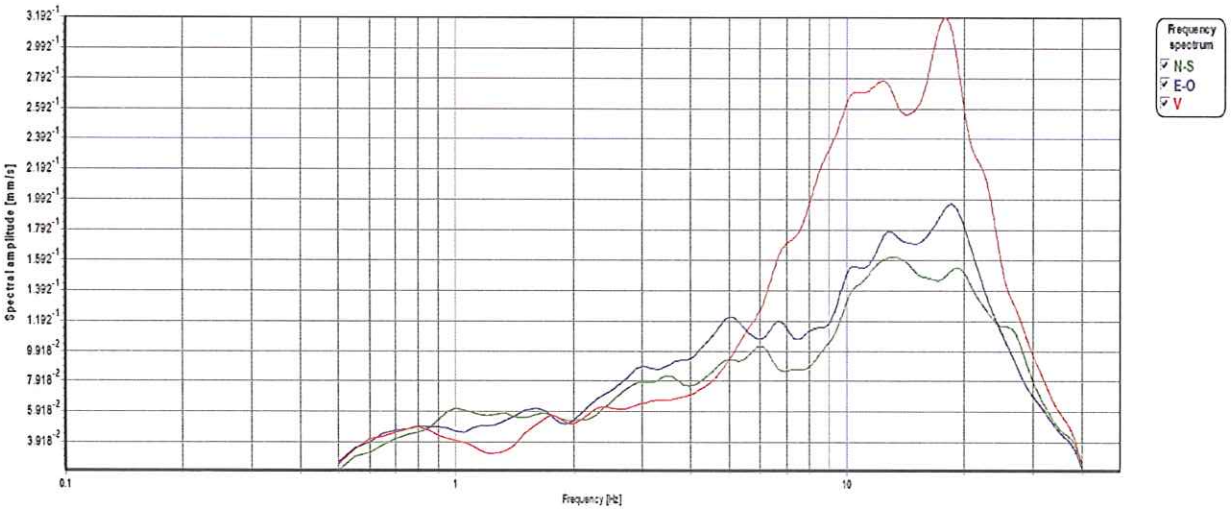
Analysis site: **Buggiano**

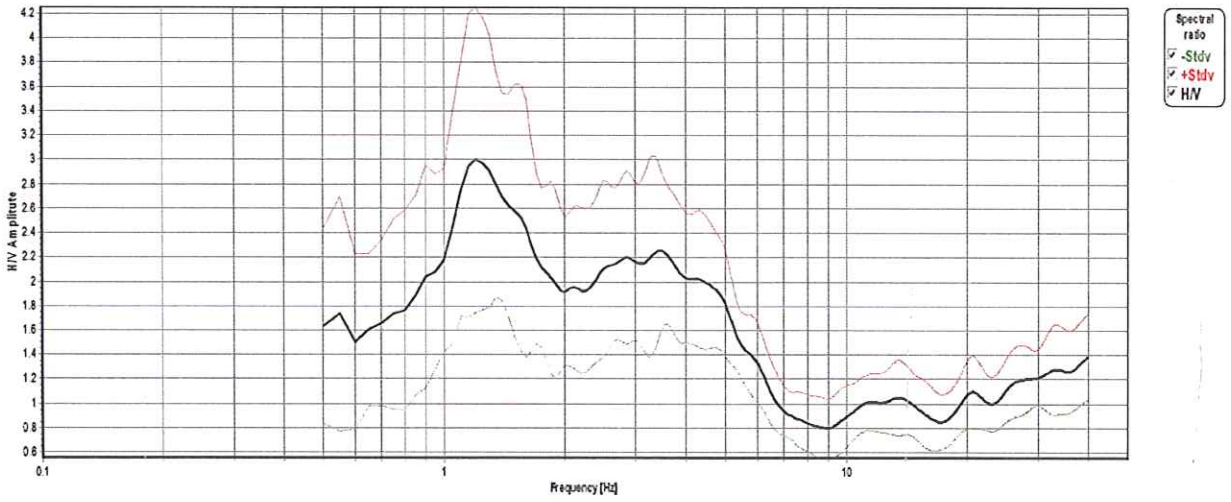
Measure point: **13**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 16:27:50**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 16:57:50**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**37**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**53**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.286**	Standard deviation [Hz]:	**0.173**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **13**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.29 >= 0.50**	**Yes**
Nc(fø) > 200	**952.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 39**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.91 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**6.72% > 5.00%**	**No**
sf < e(fø)	**0.1731 > 0.1286**	**No**
sA(fø) < ?(fø)	**1.1186 < 1.7800**	**Yes**

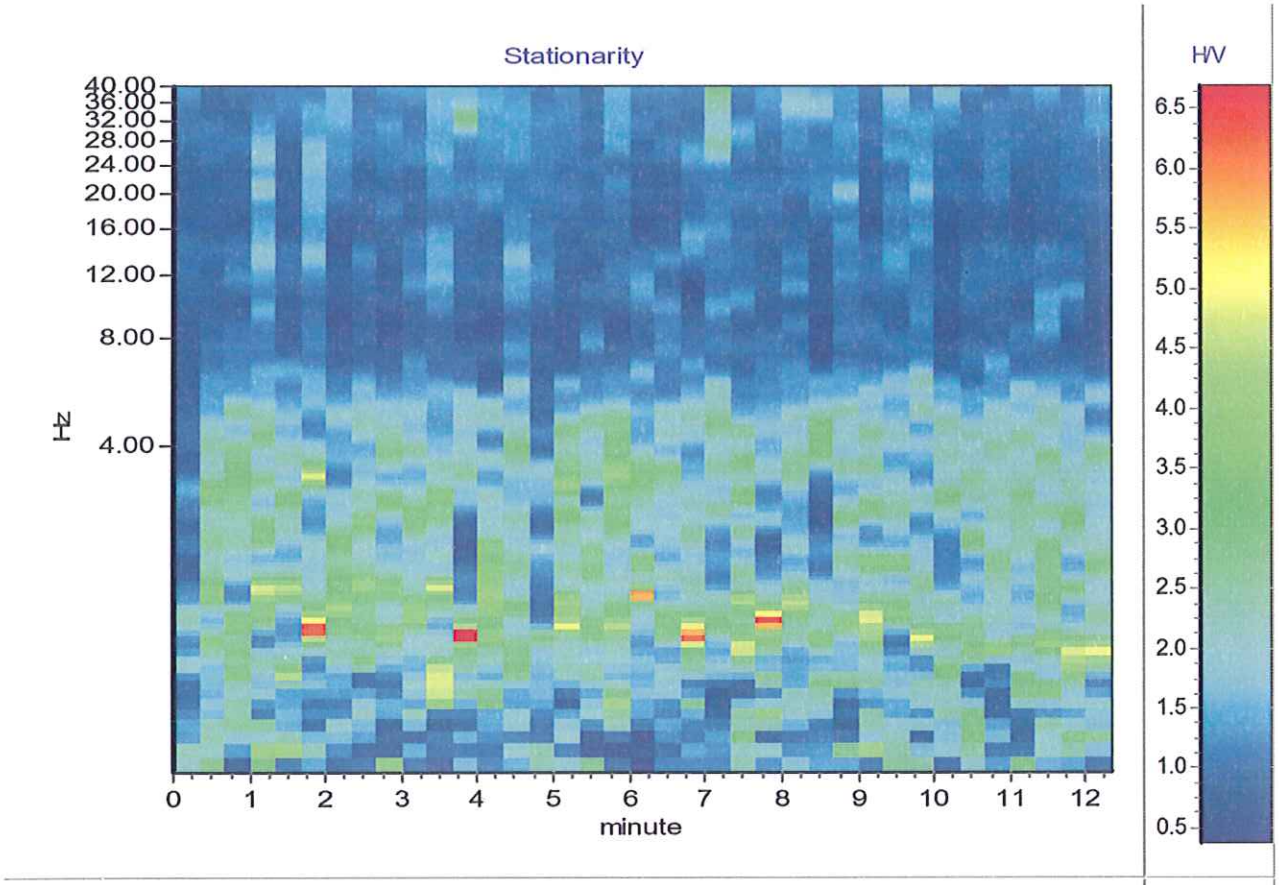
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

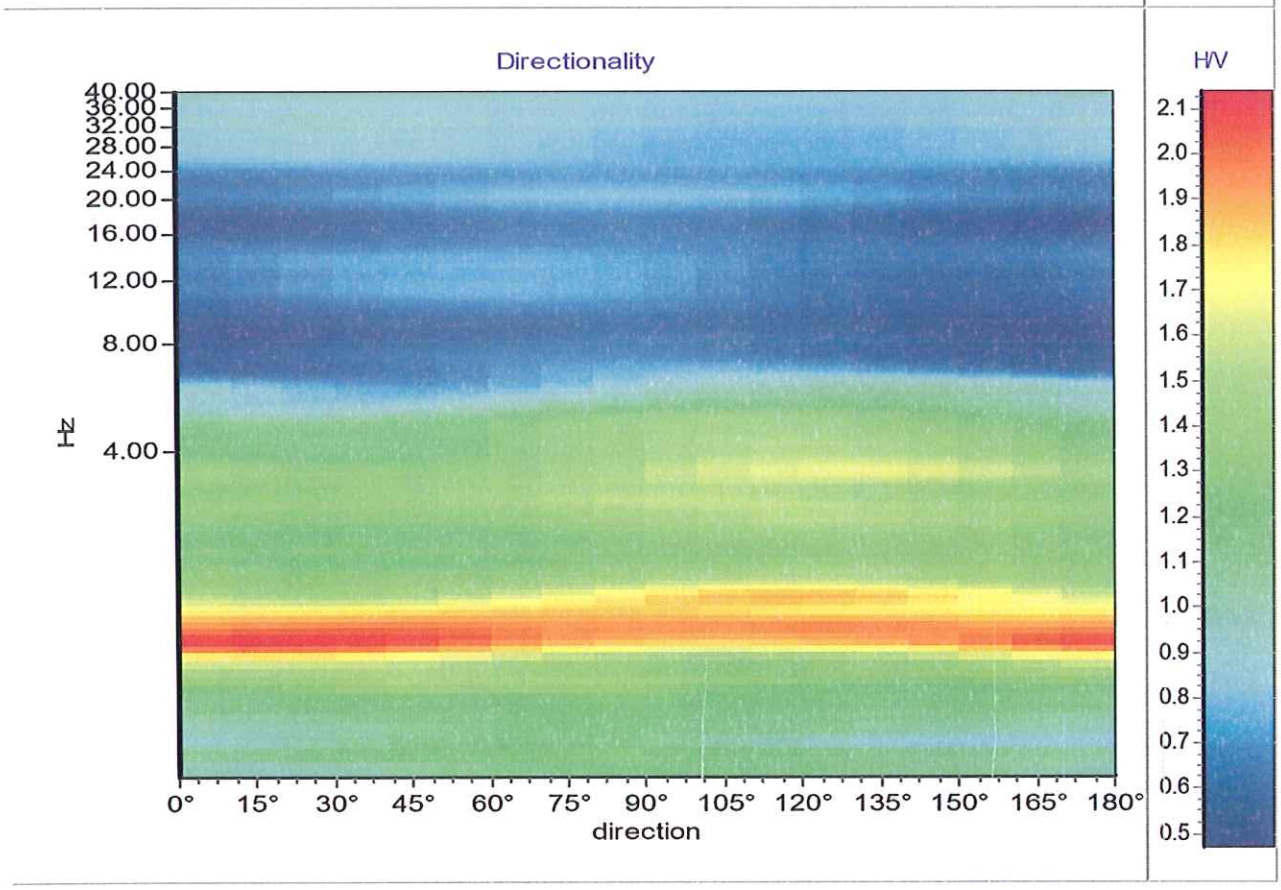
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **13**





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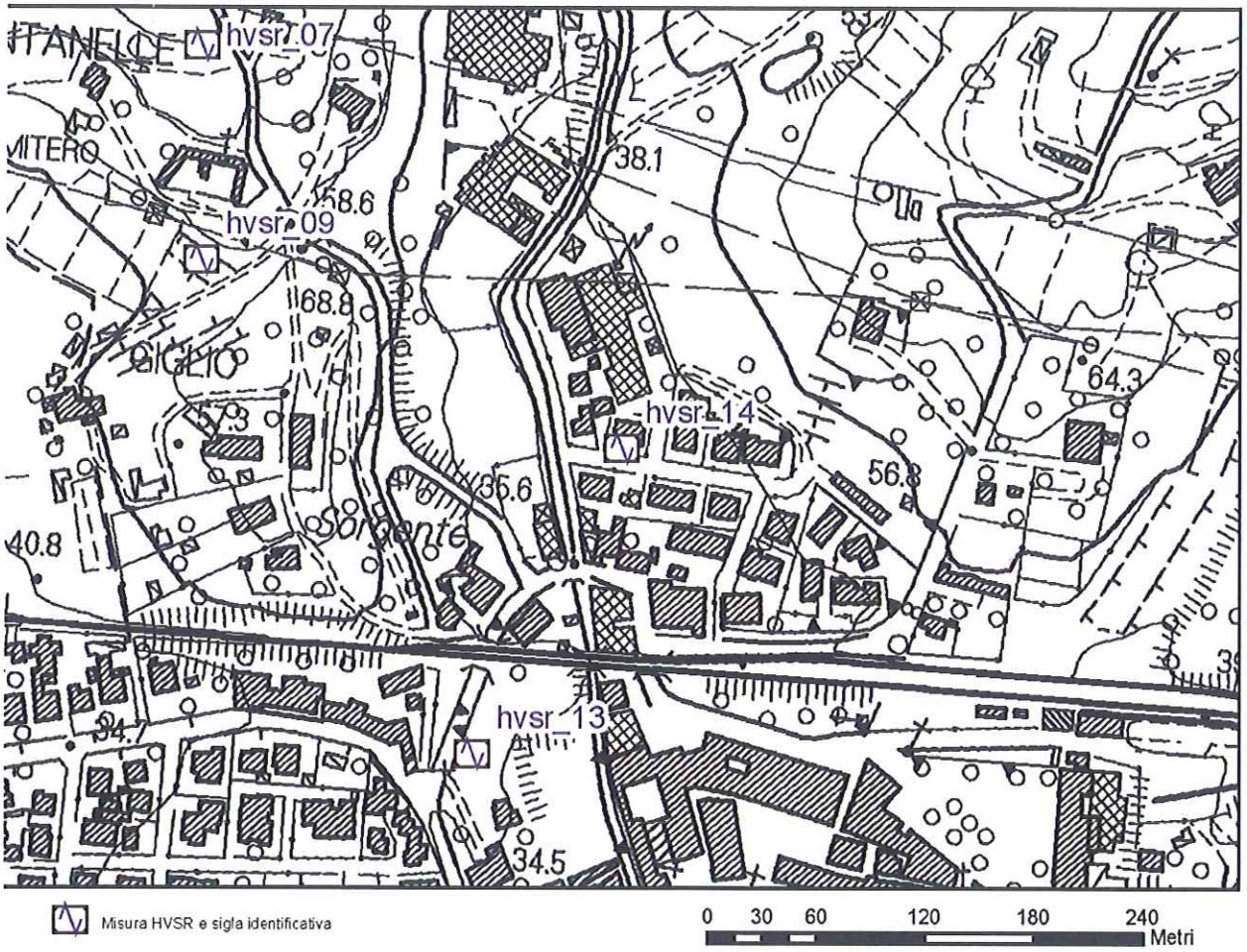


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

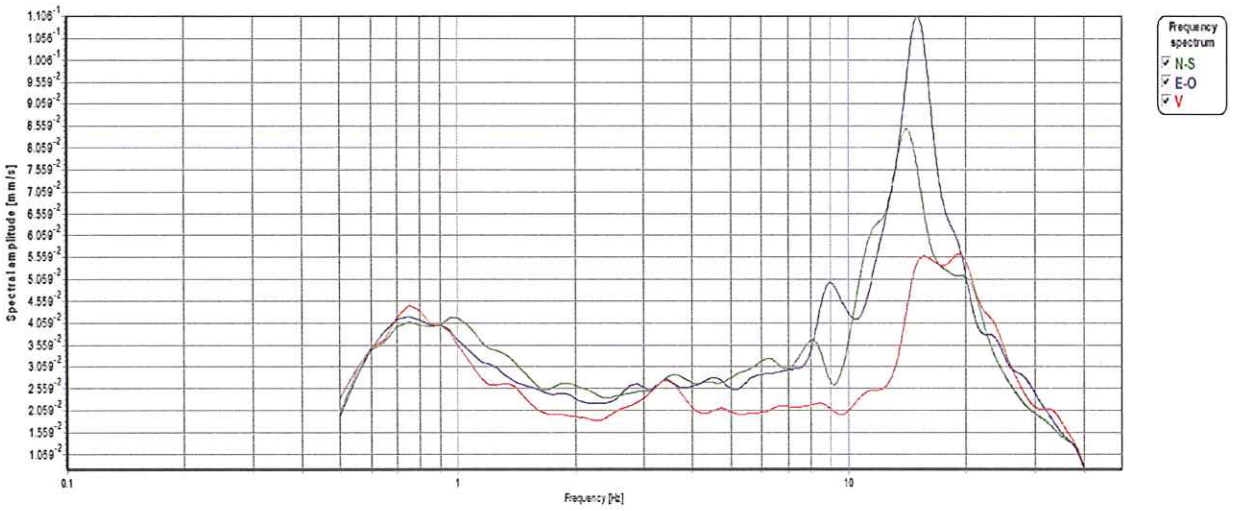
Analysis site: **Buggiano** Date: **15/08/2017**

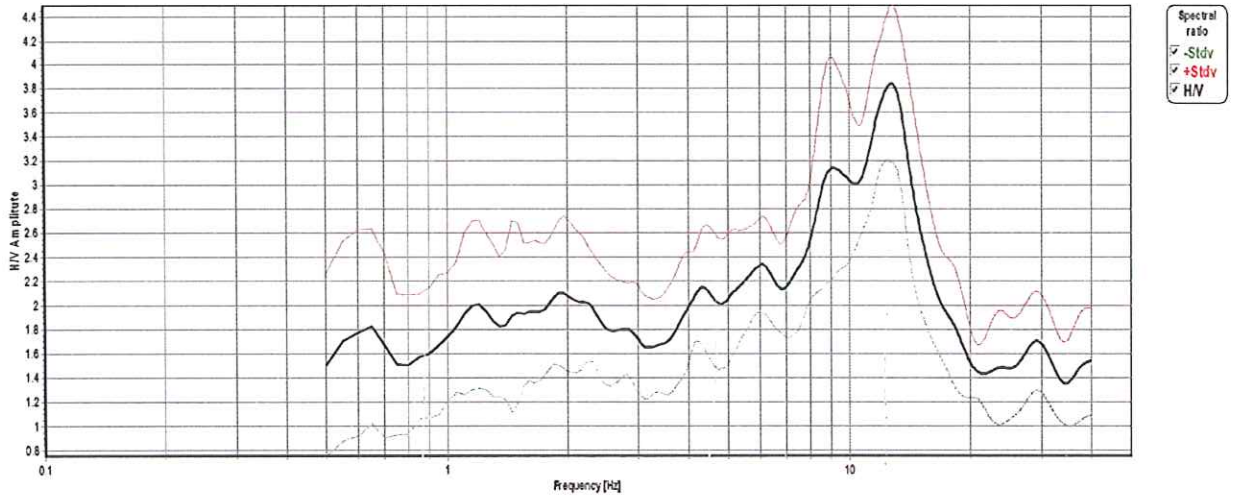
Measure point: **14**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 15:36:50**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 16:06:50**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**40**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**50**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**12.060**	Standard deviation [Hz]:	**1.374**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **14**

Criteria for a reliable H/V curve		
fø > 10/Lw	**12.06 >= 0.50**	**Yes**
Nc(fø) > 200	**9648.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 362**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**3.050**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**18.100**	**Yes**
Aø > 2	**3.71 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**6.14% > 5.00%**	**No**
sf < e(fø)	**1.3735 > 0.6030**	**No**
sA(fø) < ?(fø)	**0.5445 < 1.5800**	**Yes**

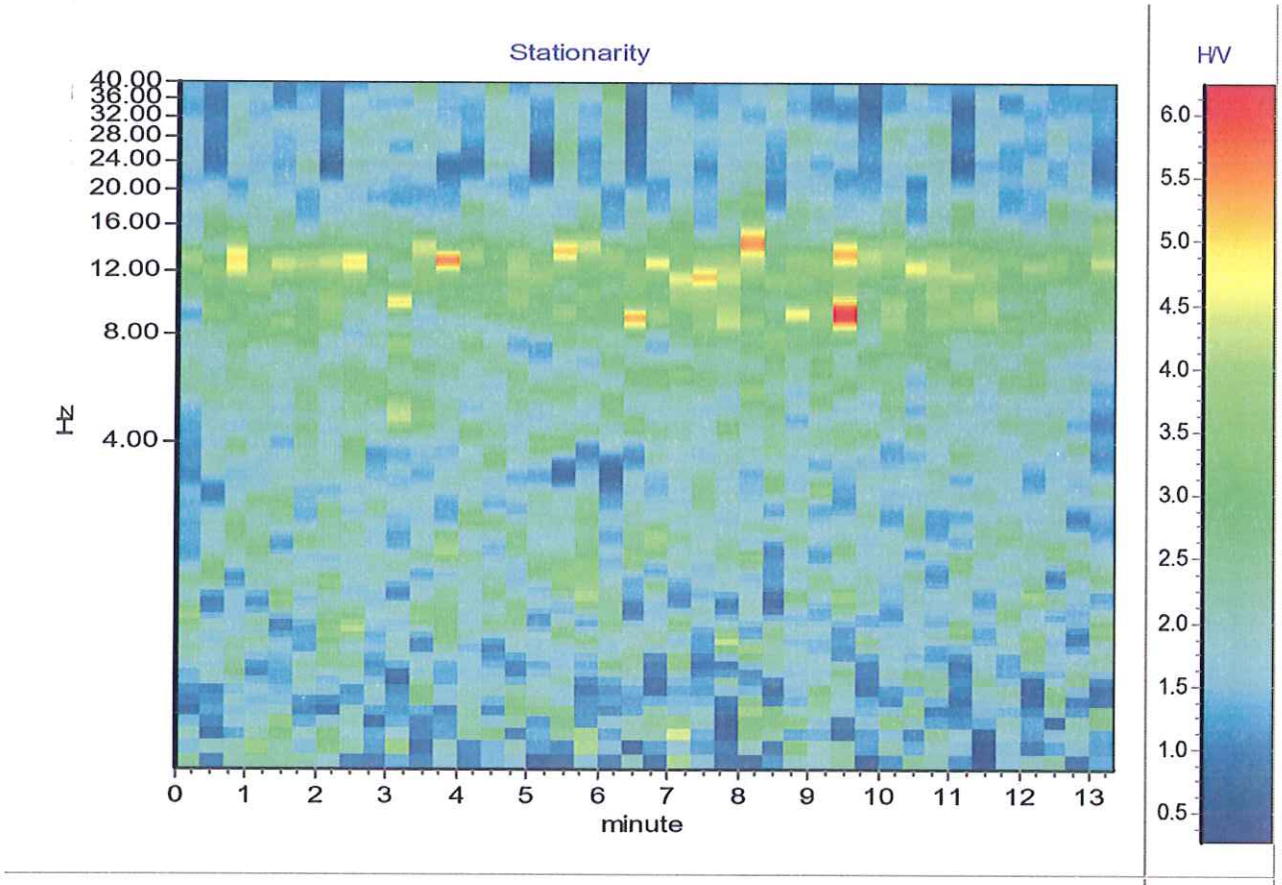
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

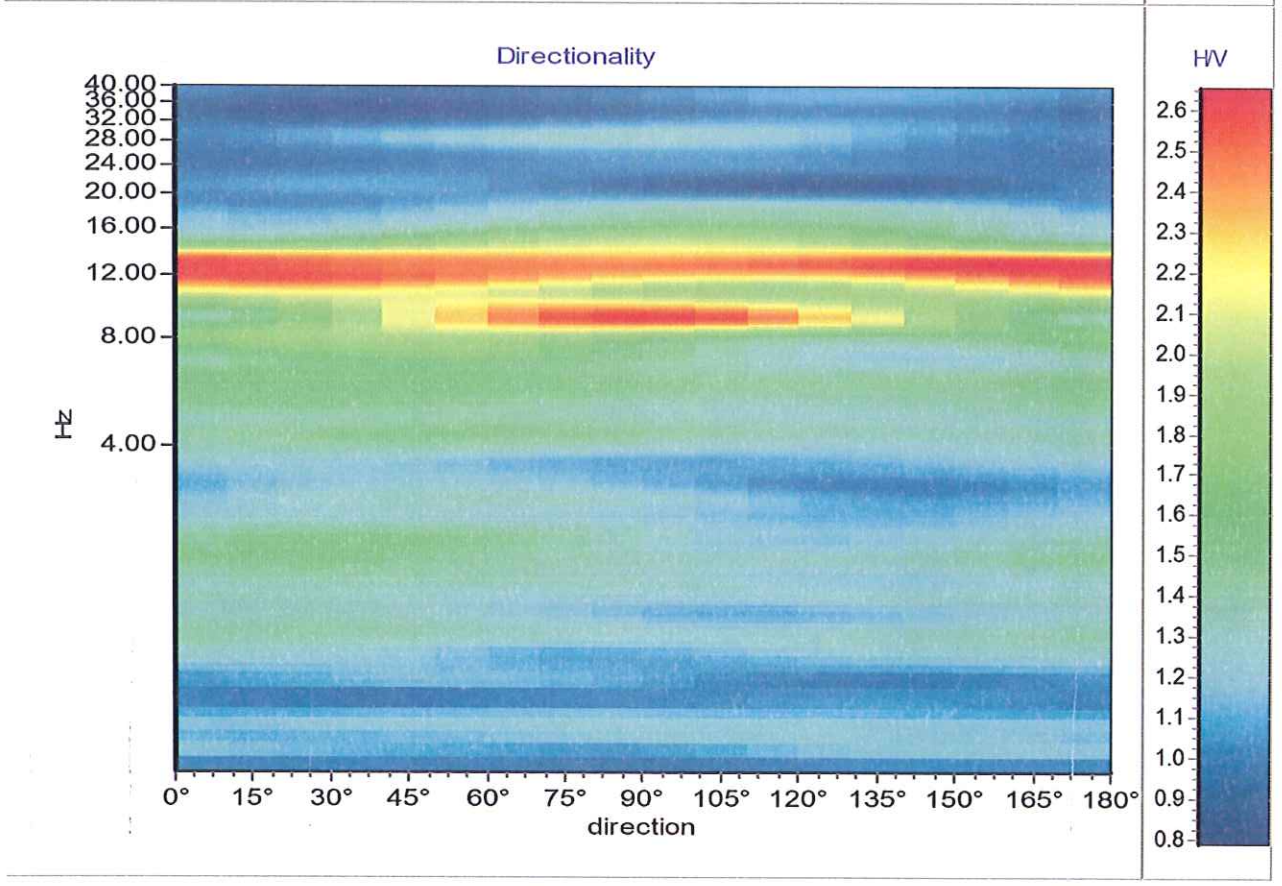
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **14**





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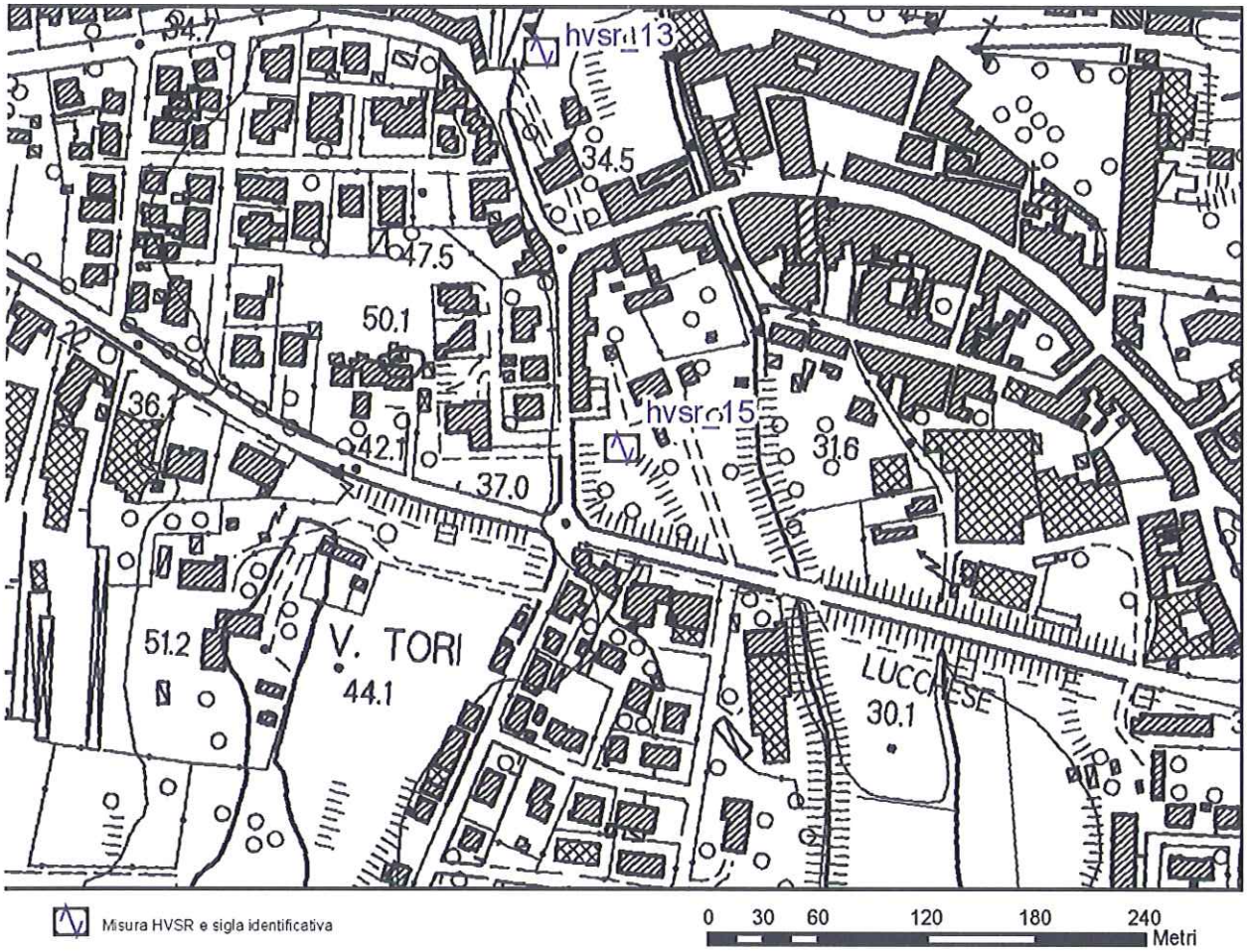


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

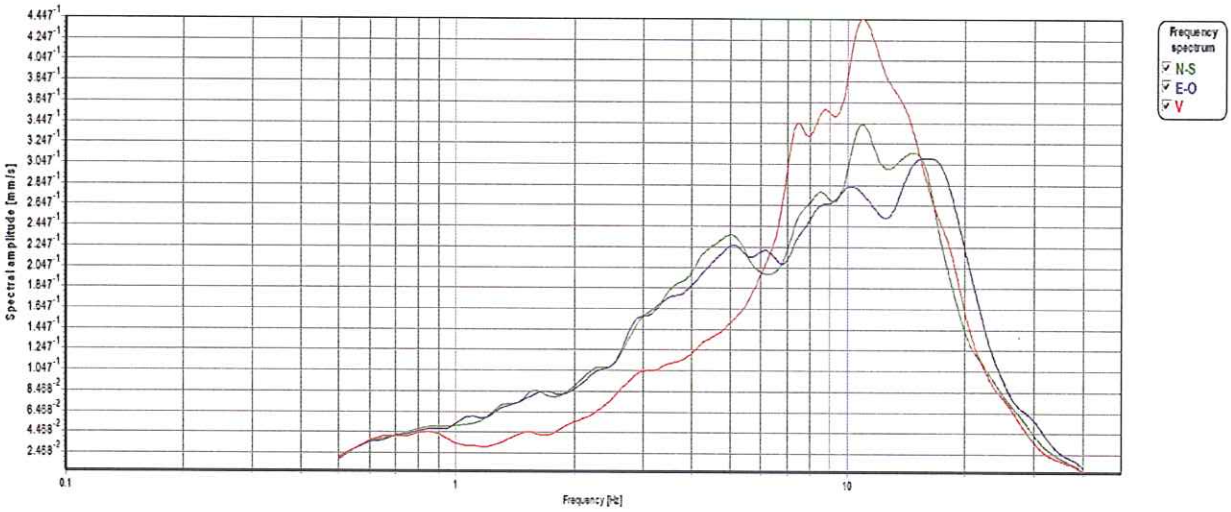
Analysis site: **Buggiano**

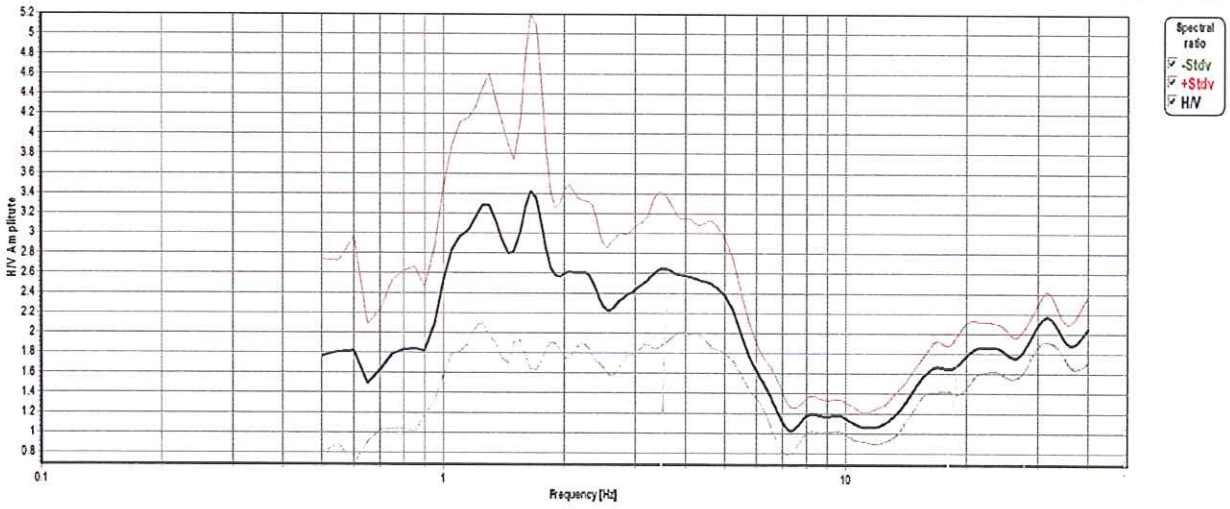
Measure point: **15**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 17:29:53**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 17:59:53**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**35**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**55**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.360**	Standard deviation [Hz]:	**0.216**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **15**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.36 >= 0.50**	**Yes**
Nc(fø) > 200	**952.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 41**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.650**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**3.12 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**21.32% > 5.00%**	**No**
sf < e(fø)	**0.2161 > 0.1360**	**No**
sA(fø) < ?(fø)	**1.2202 < 1.7800**	**Yes**

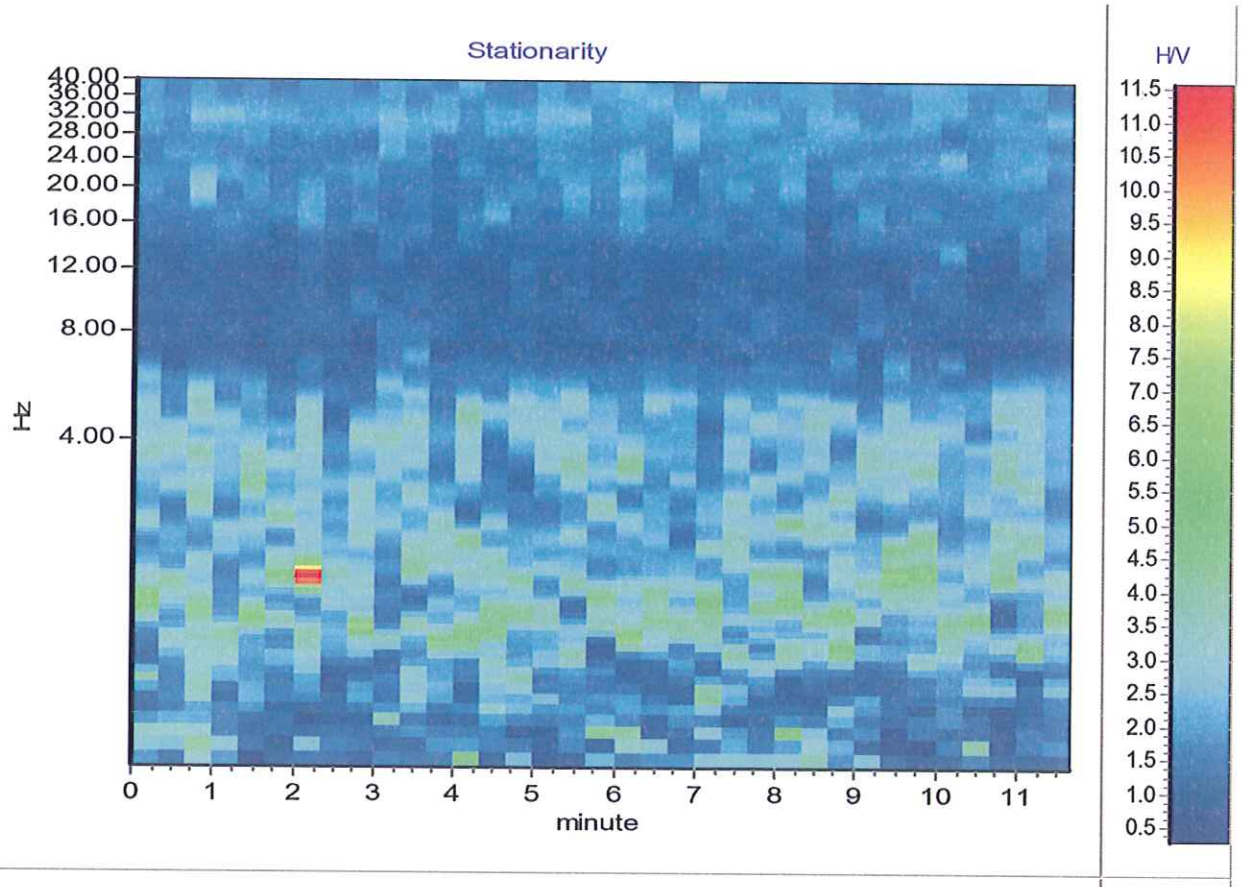
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

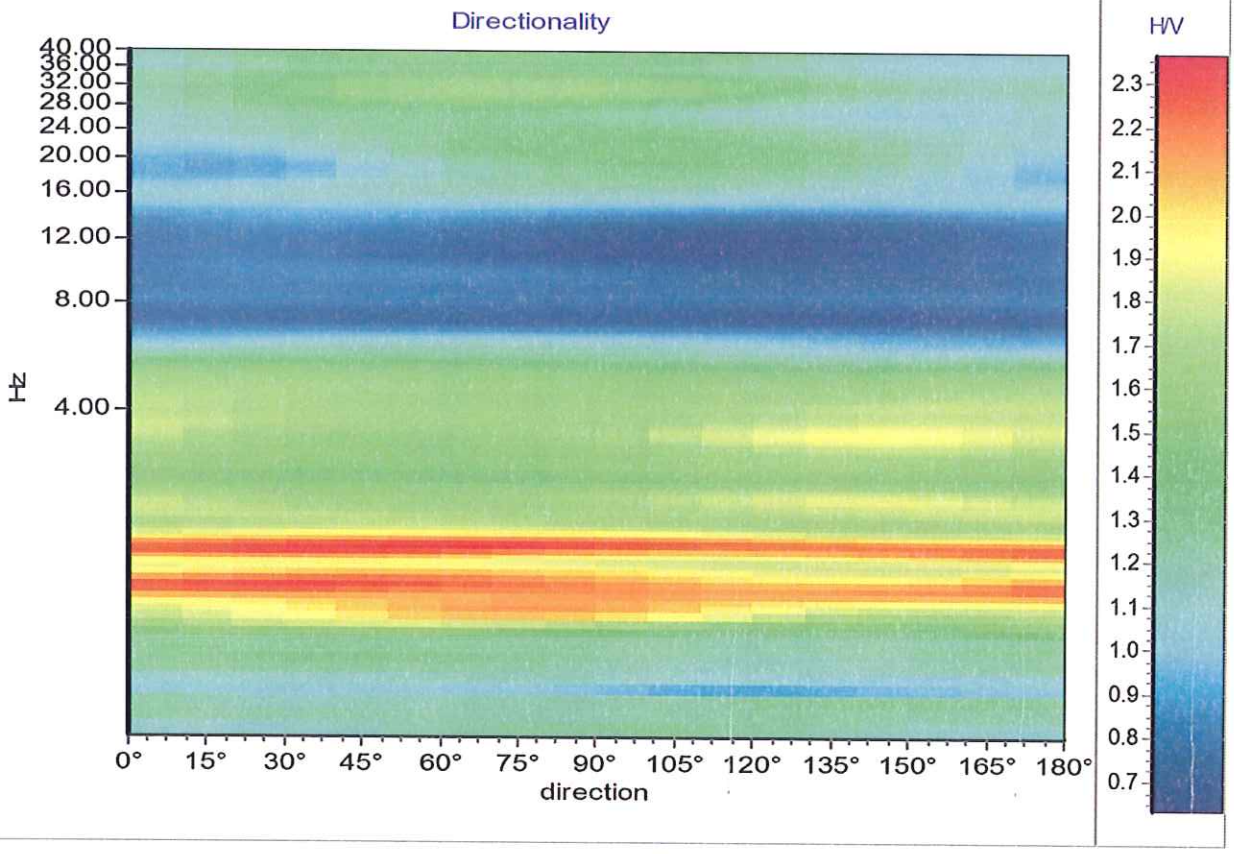
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **15**





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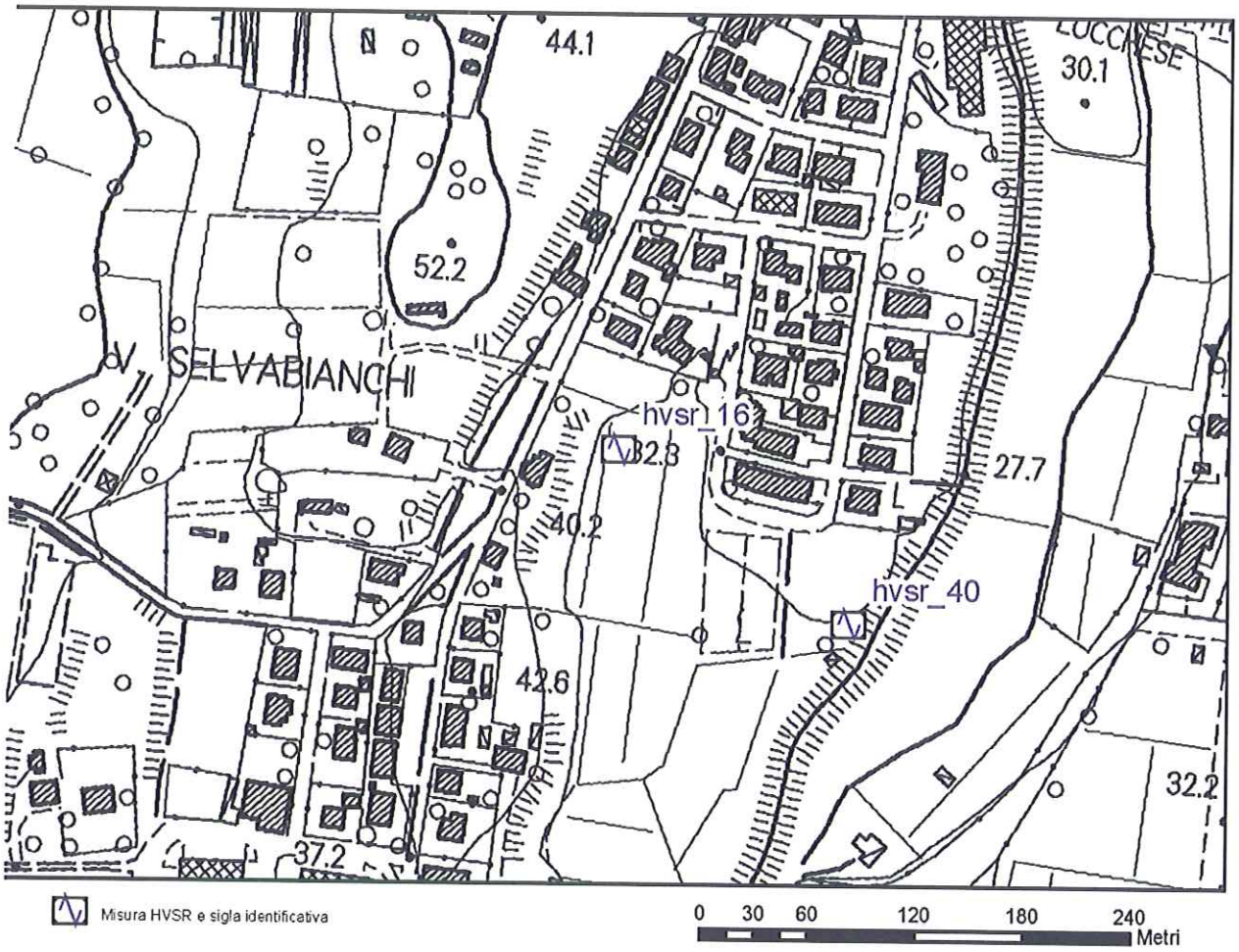


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

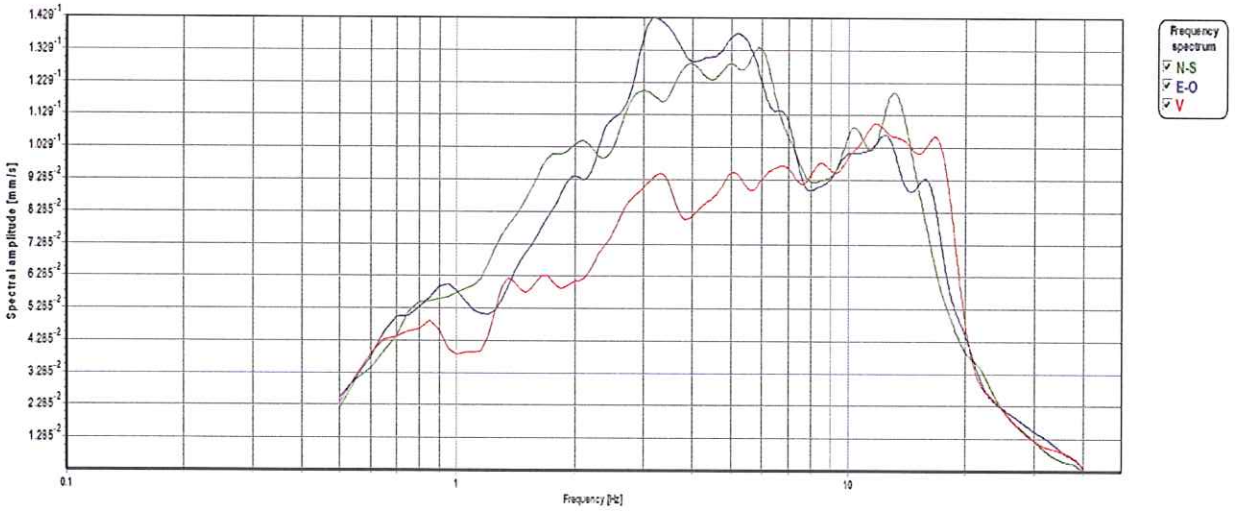
Analysis site: **Buggiano**

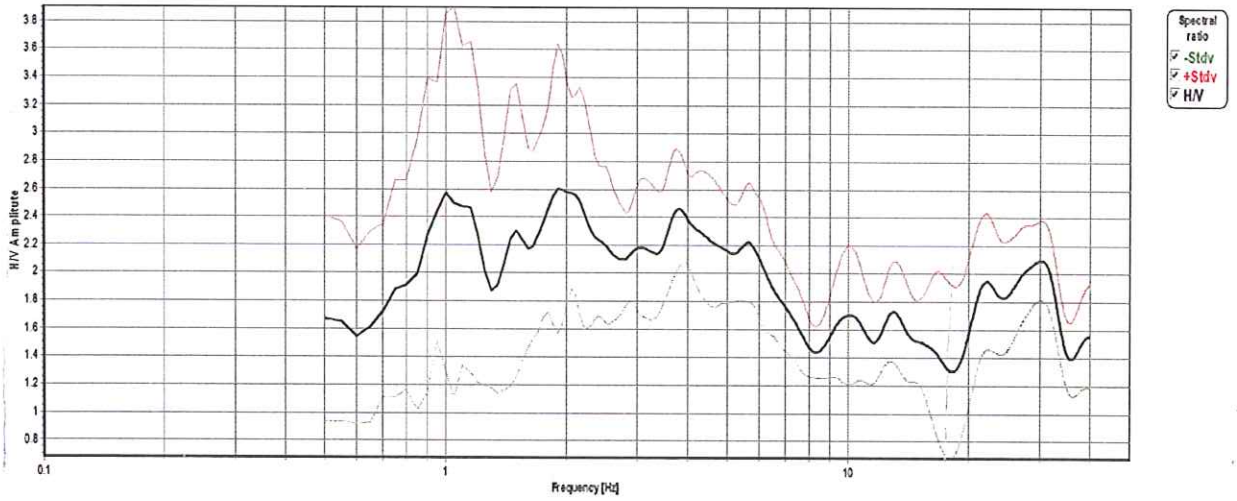
Measure point: **16**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 18:25:39**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 18:55:39**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**32**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**58**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.473**	Standard deviation [Hz]:	**0.427**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **16**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.47 >= 0.50**	**Yes**
Nc(fø) > 200	**943.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 44**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.25 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**164.69% > 5.00%**	**No**
sf < e(fø)	**0.4266 > 0.1473**	**No**
sA(fø) < ?(fø)	**1.0641 < 1.7800**	**Yes**

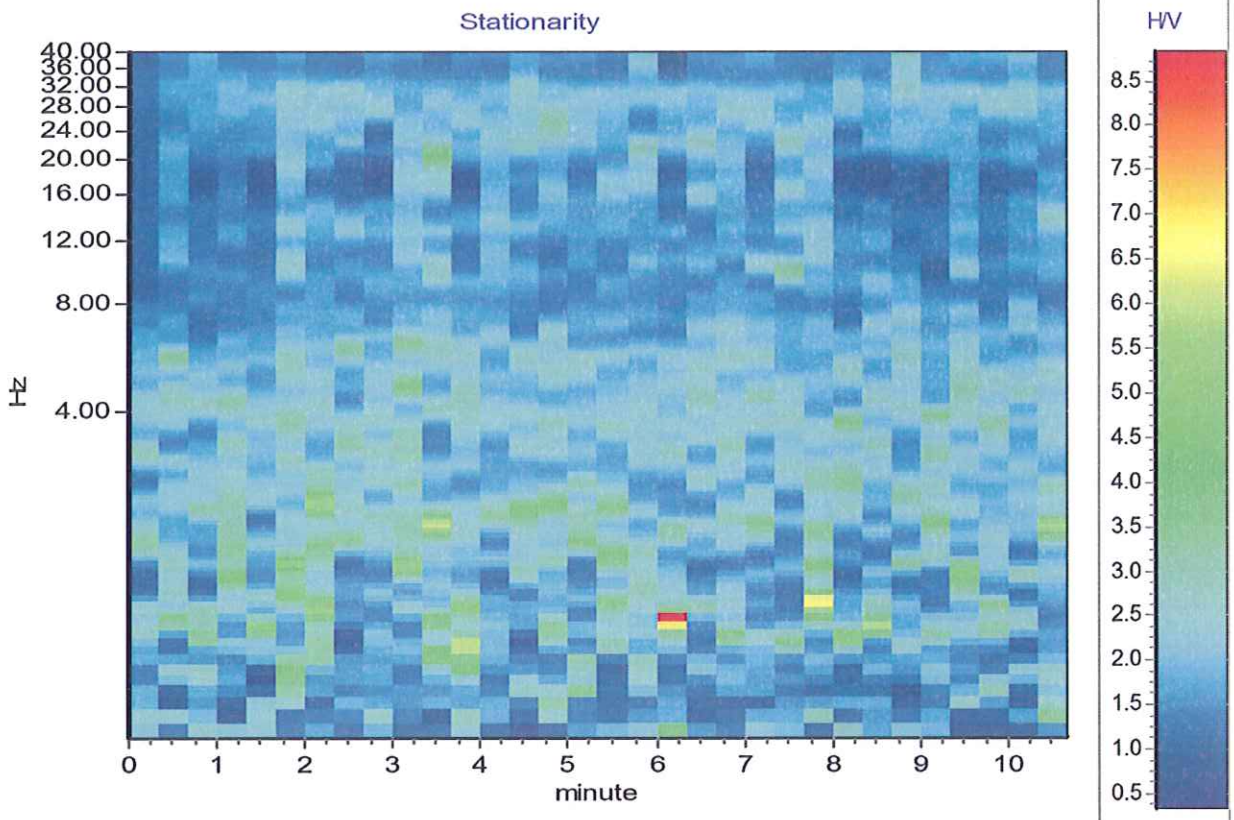
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

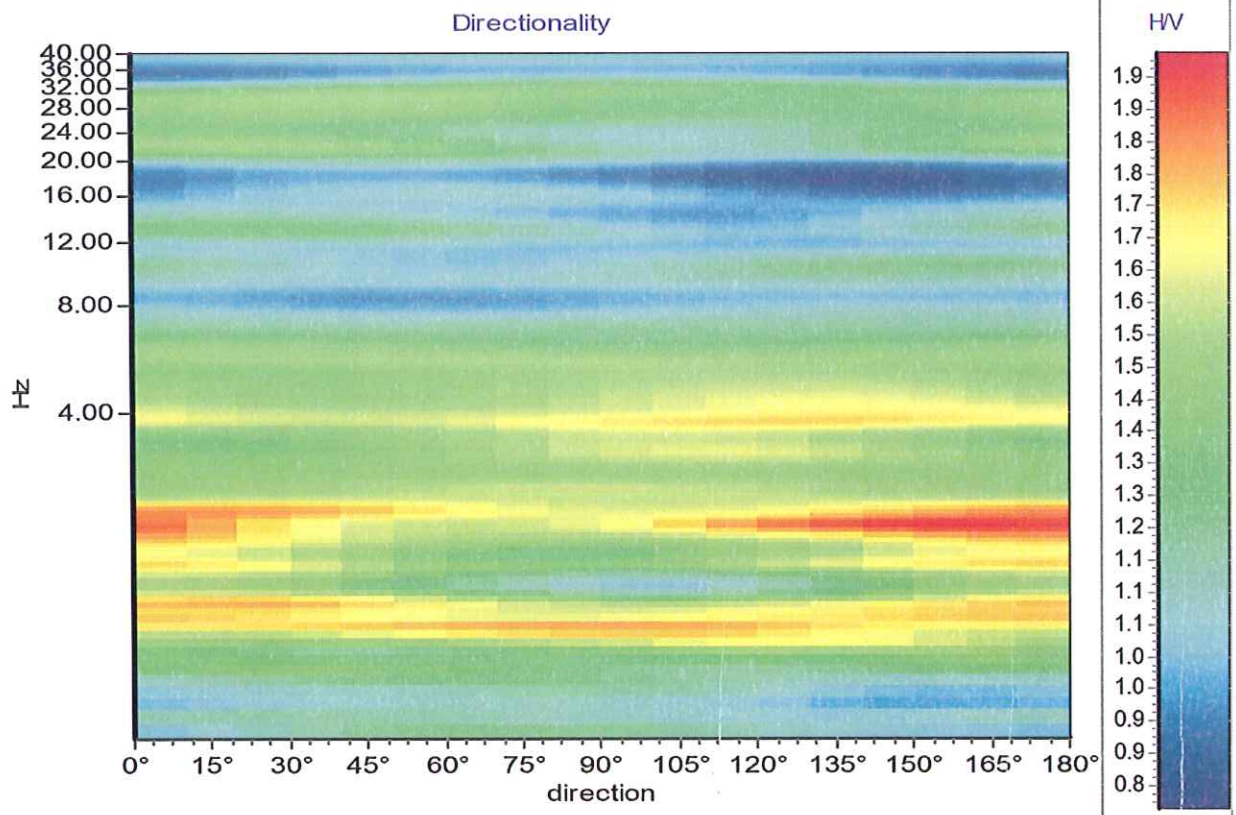
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **16**





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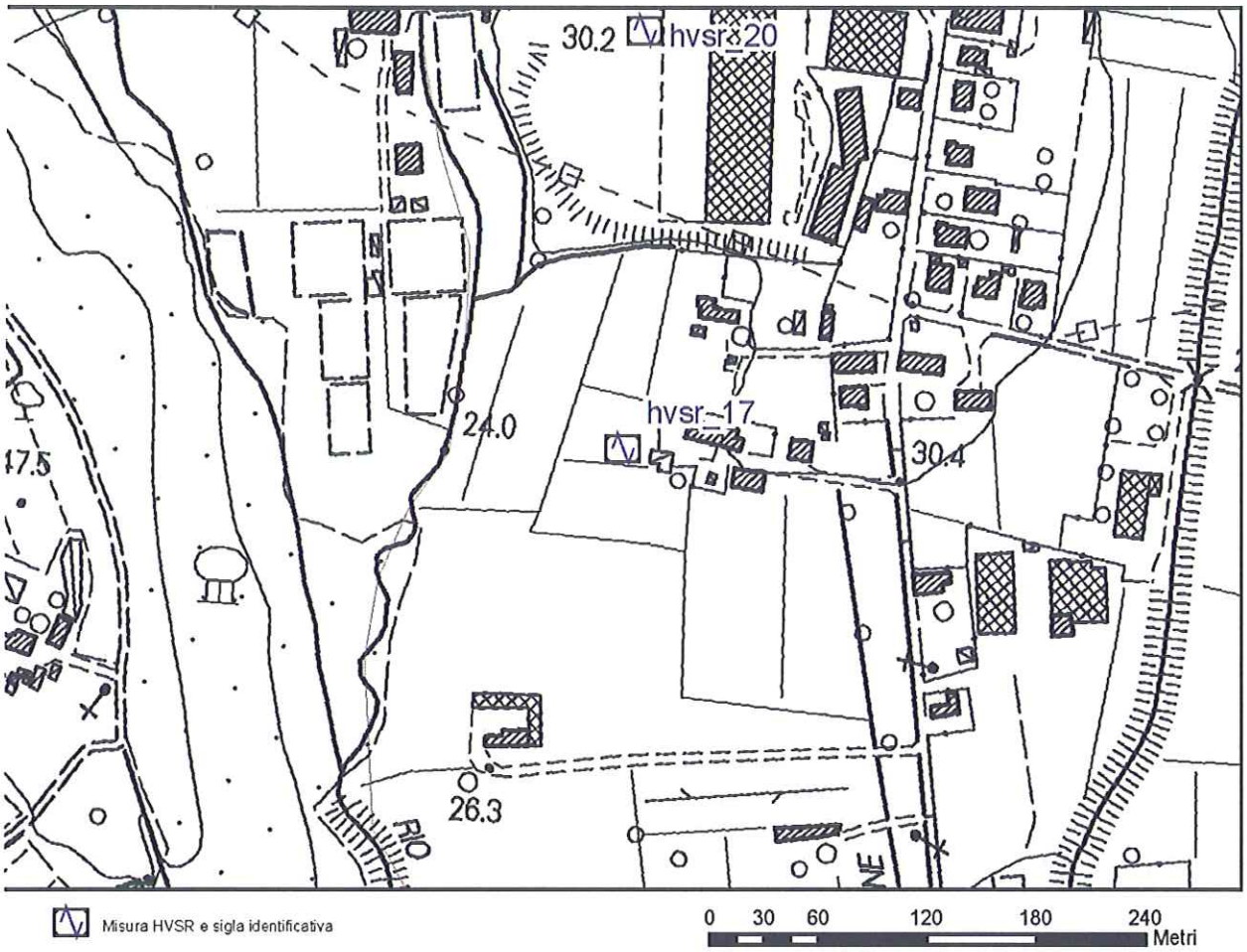


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

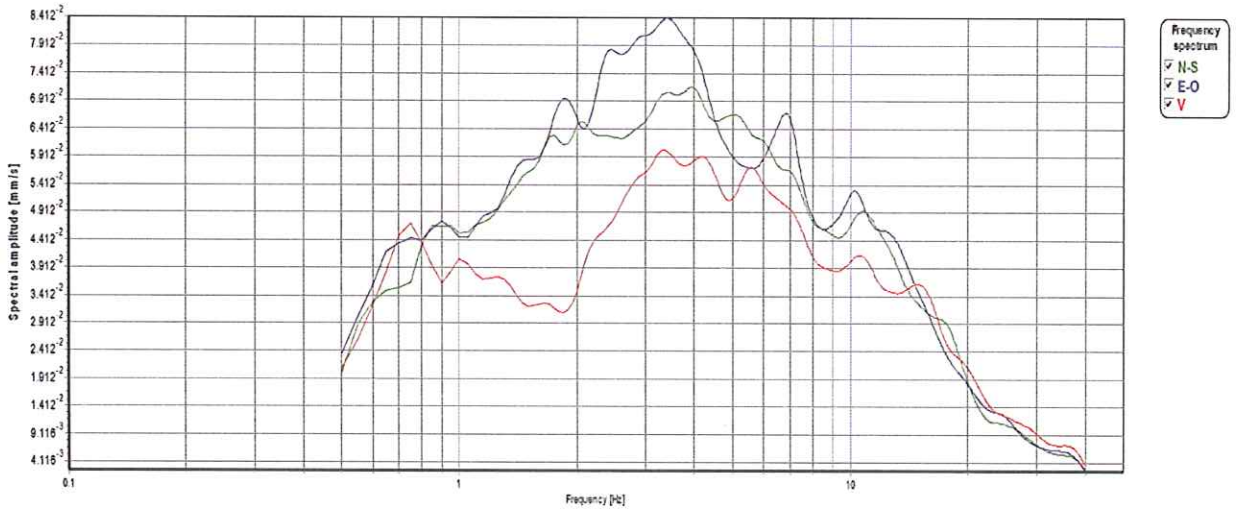
Analysis site: **Buggiano**

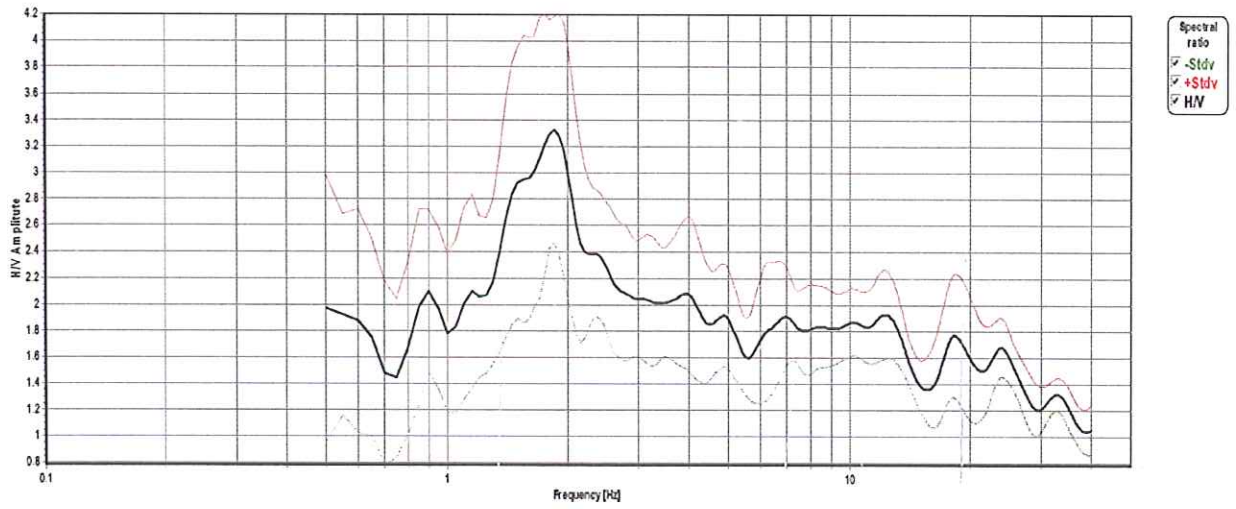
Measure point: **17**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**26/06/2017 10:20:52**
Automatic spike removal:	**No**	Stop recordings:	**26/06/2017 10:30:52**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**40**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**50**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.726**	Standard deviation [Hz]:	**0.174**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **17**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.73 >= 0.50**	**Yes**
Nc(fø) > 200	**1381.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 52**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.700**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**5.550**	**Yes**
Aø > 2	**3.22 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**7.17% > 5.00%**	**No**
sf < e(fø)	**0.1743 > 0.1726**	**No**
sA(fø) < ?(fø)	**0.9833 < 1.7800**	**Yes**

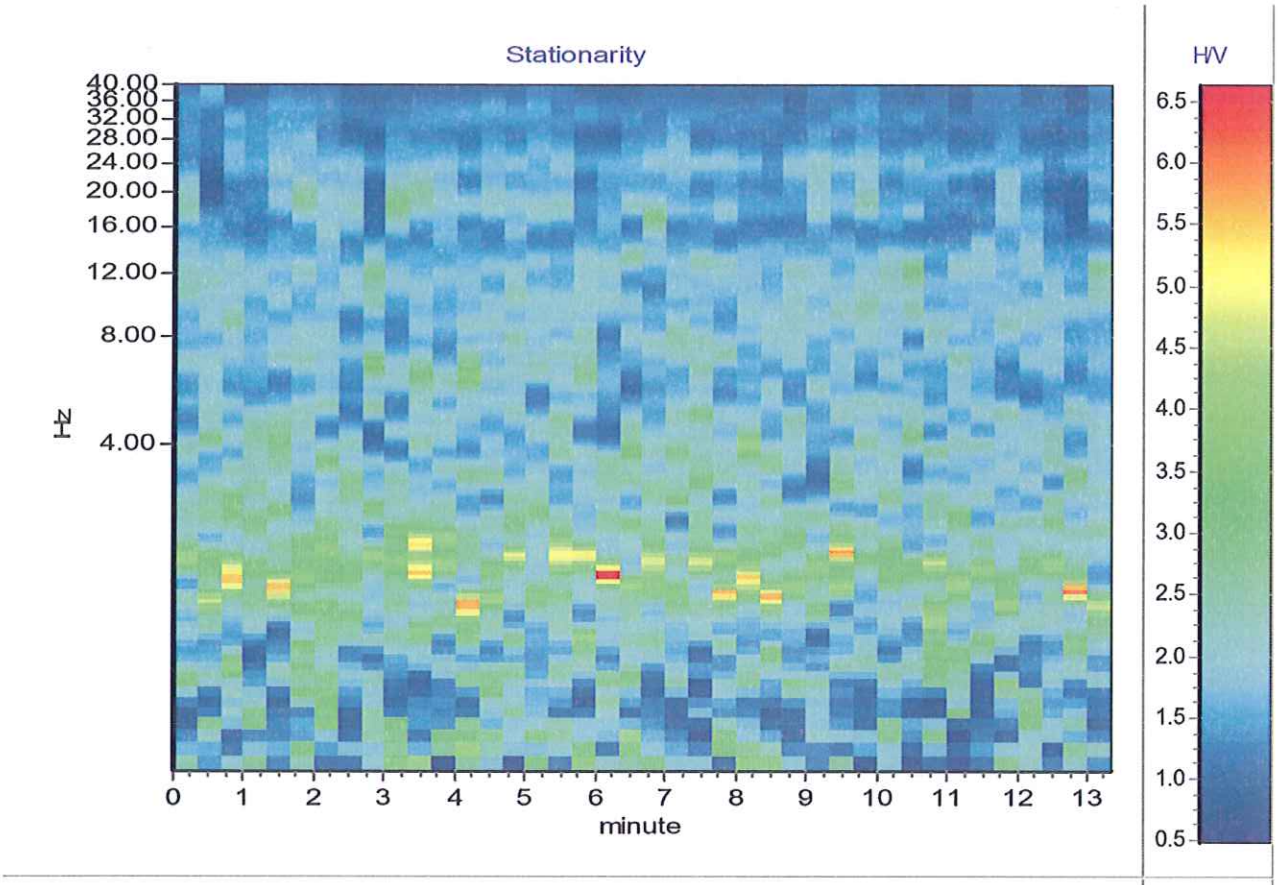
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

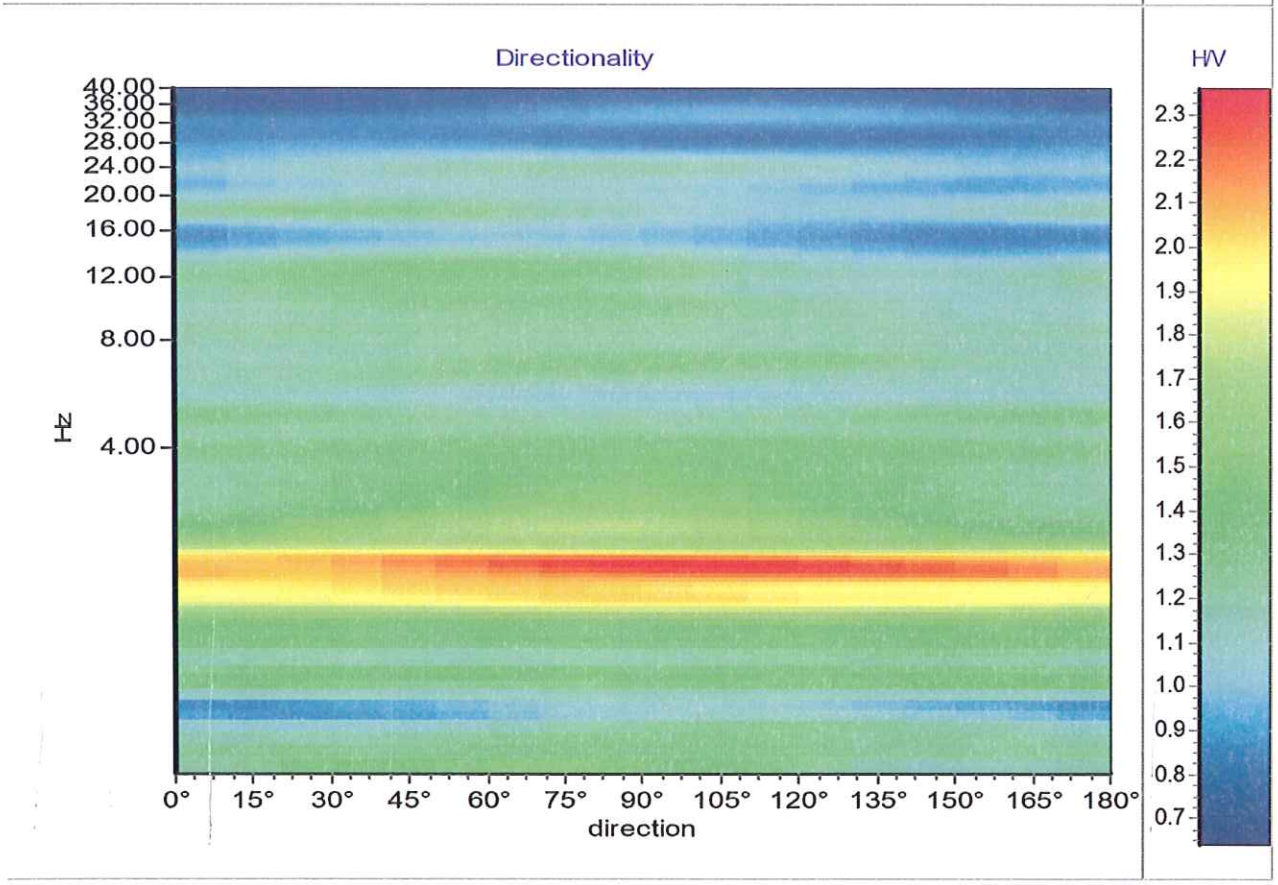
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **17**





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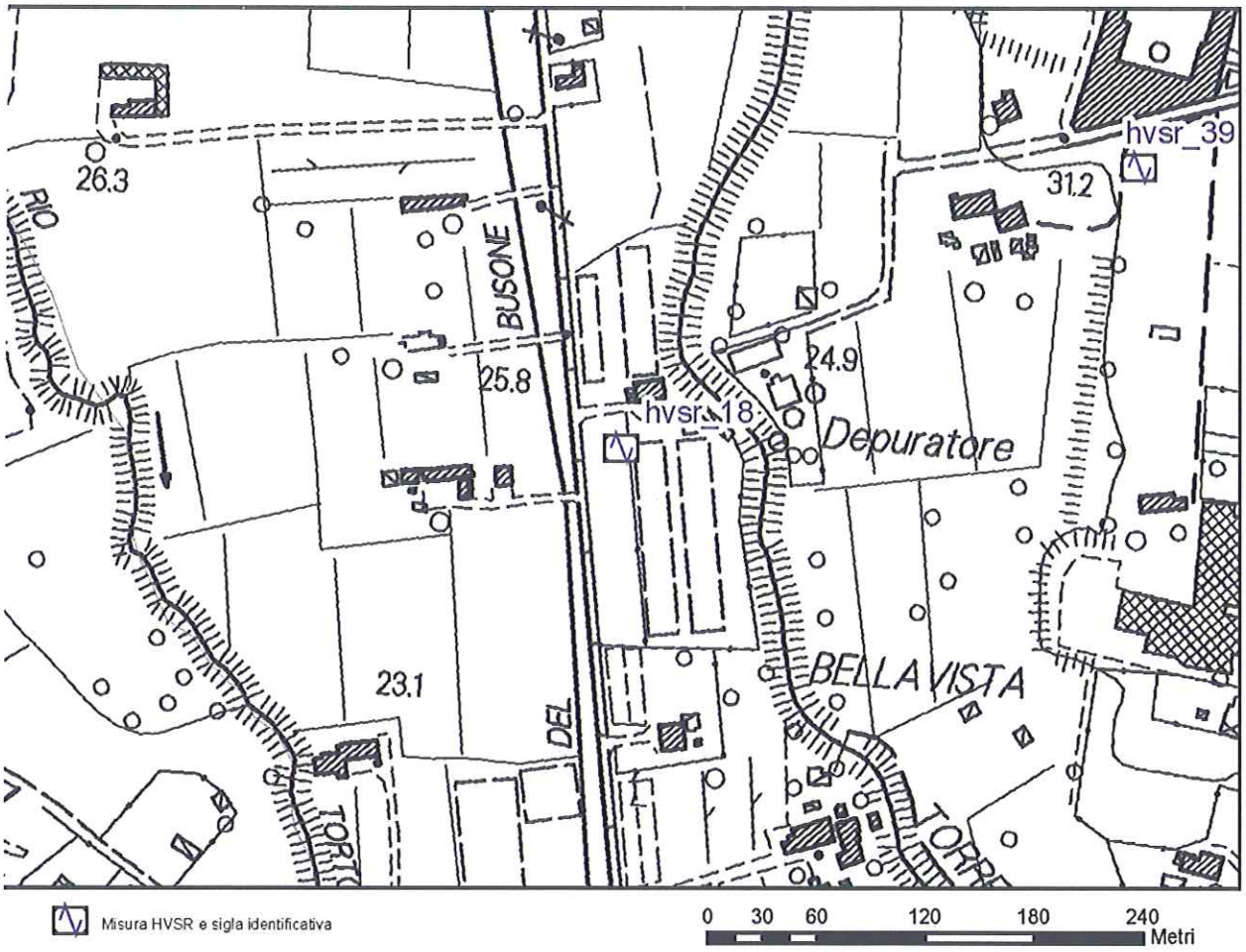


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

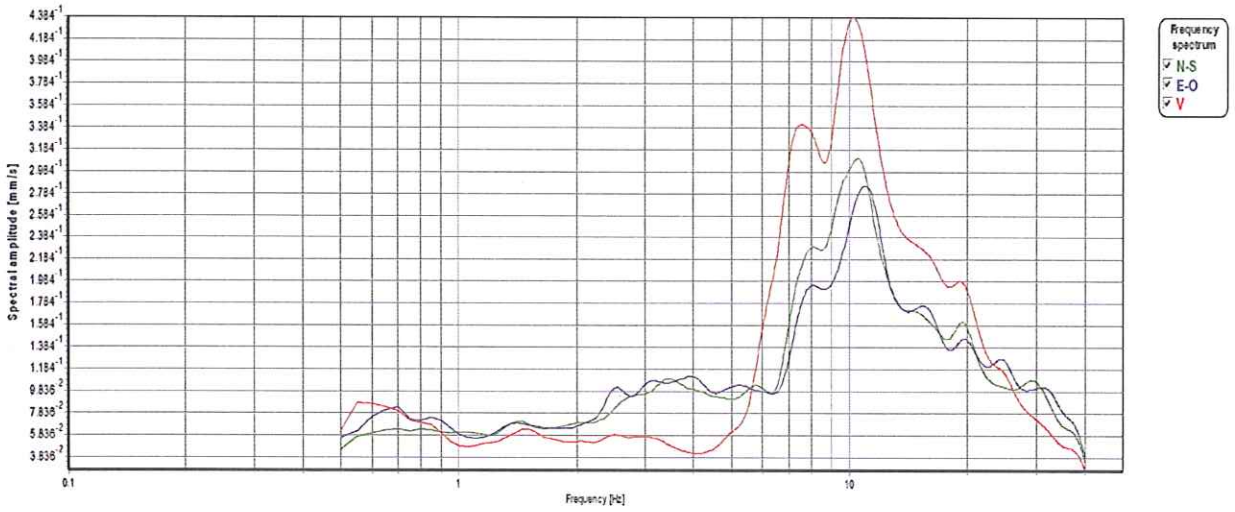
Analysis site: **Buggiano**

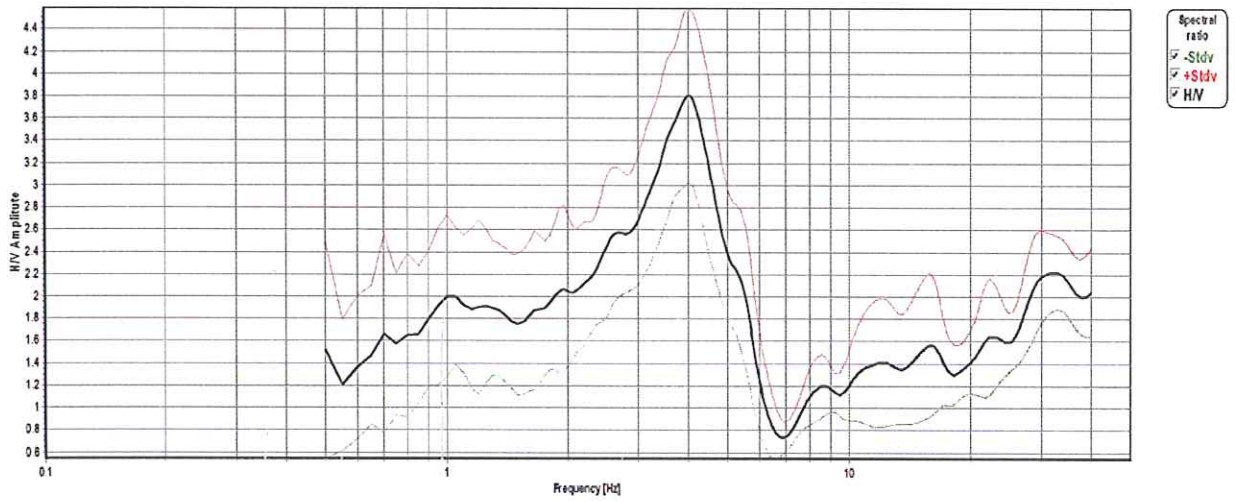
Measure point: **18**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**27/06/2017 09:25:57**
Automatic spike removal:	**No**	Stop recordings:	**27/06/2017 09:55:57**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**53**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**37**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**3.933**	Standard deviation [Hz]:	**0.320**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **18**

Criteria for a reliable H/V curve		
fø > 10/Lw	**3.93 >= 0.50**	**Yes**
Nc(fø) > 200	**4169.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 118**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**1.150**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**5.600**	**Yes**
Aø > 2	**3.80 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1.70% < 5.00%**	**Yes**
sf < e(fø)	**0.3196 > 0.1967**	**No**
sA(fø) < ?(fø)	**0.7890 < 1.5800**	**Yes**

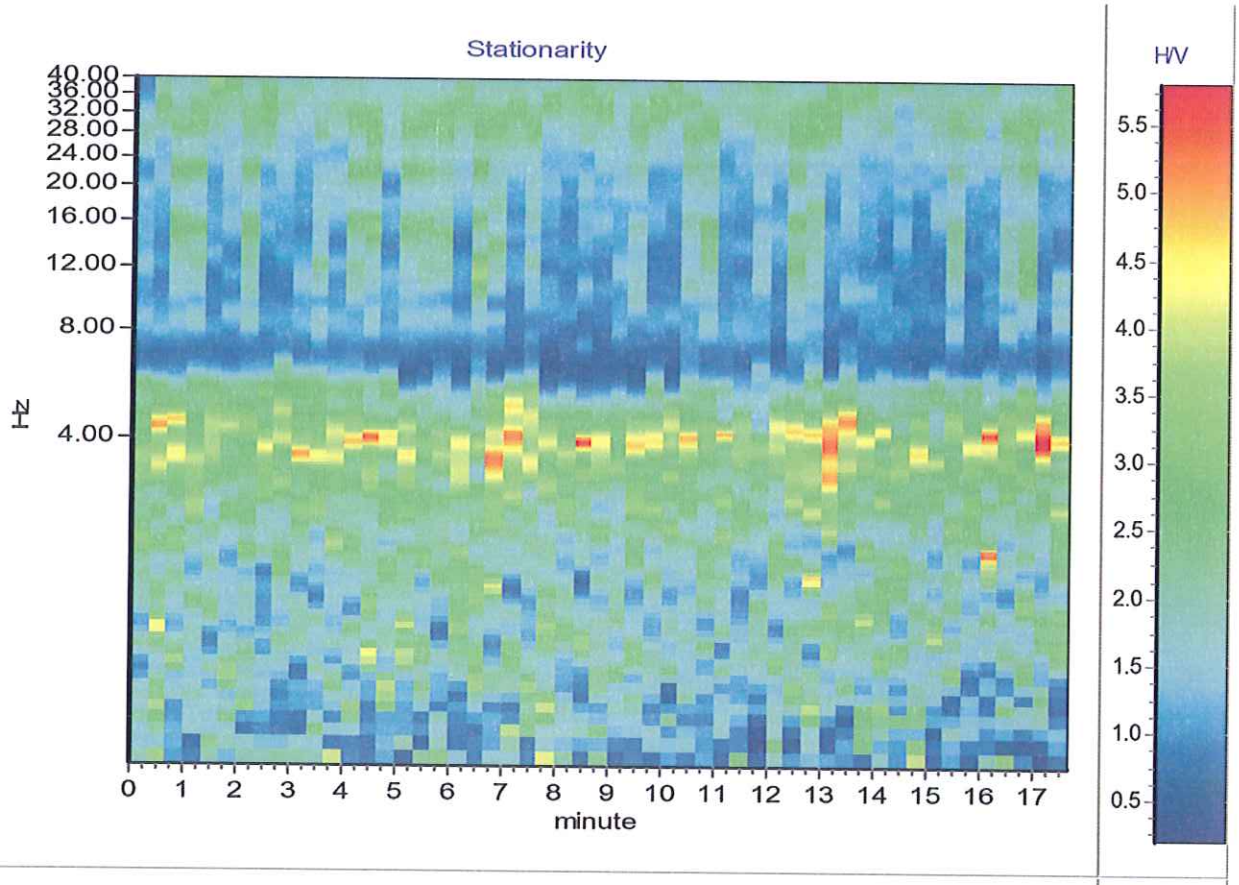
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

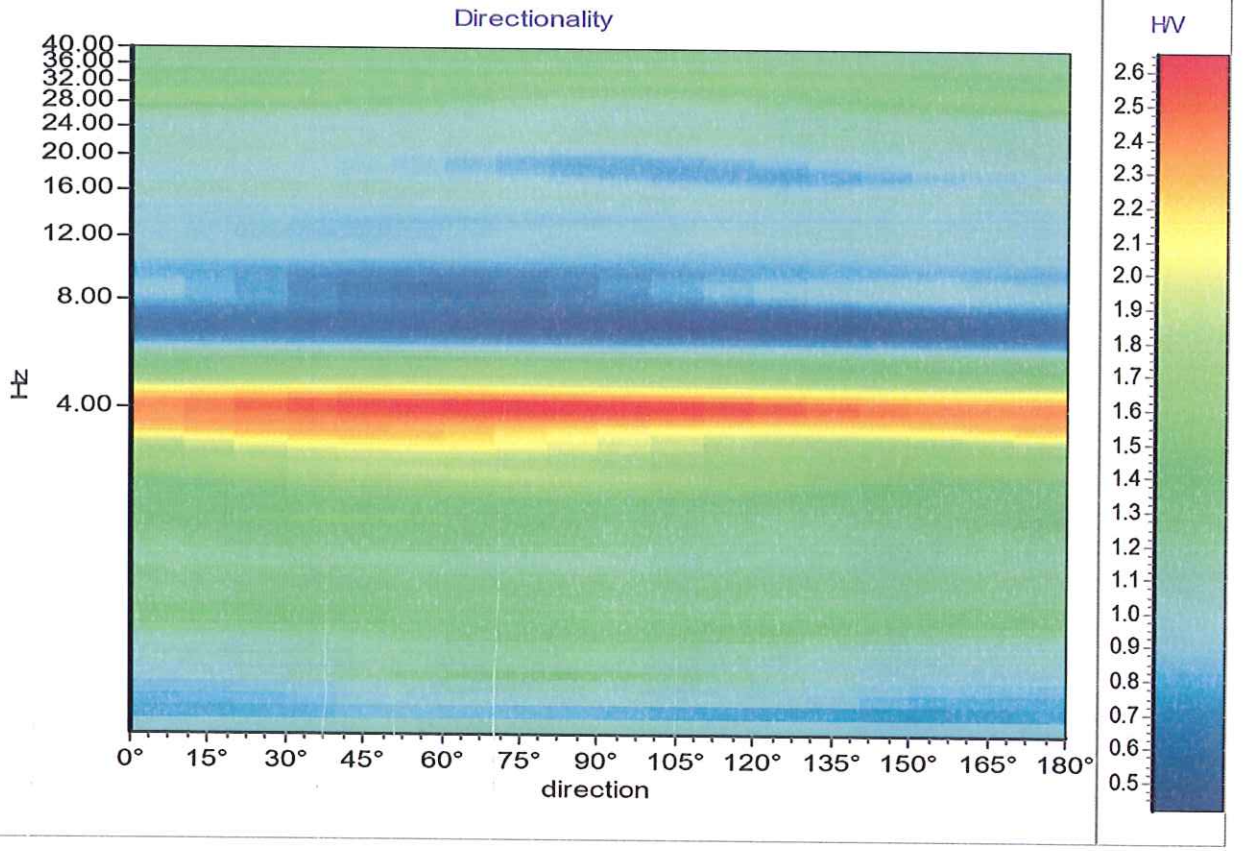
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **18**





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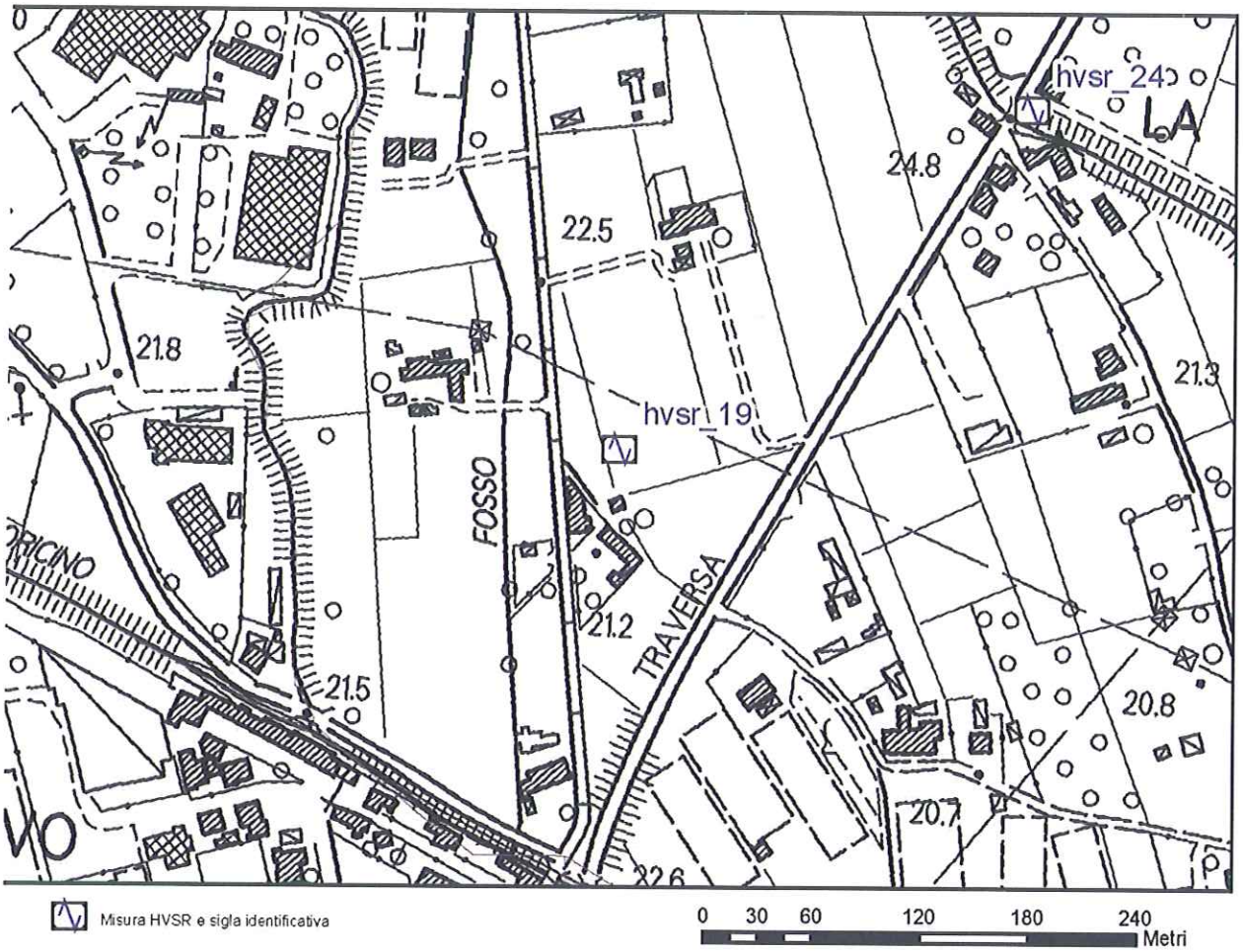


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

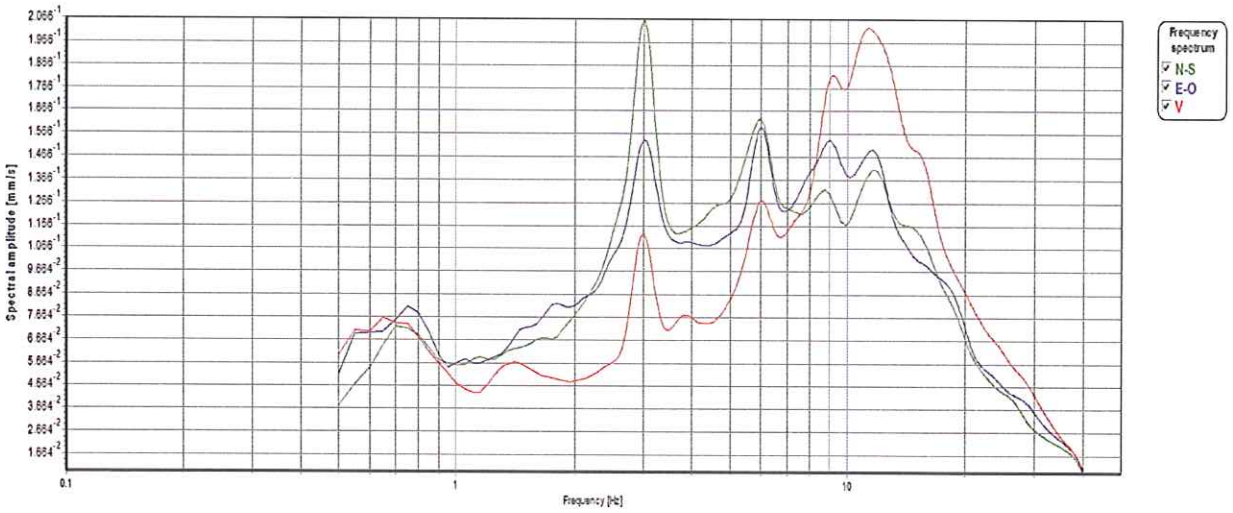
Analysis site: **Buggiano**

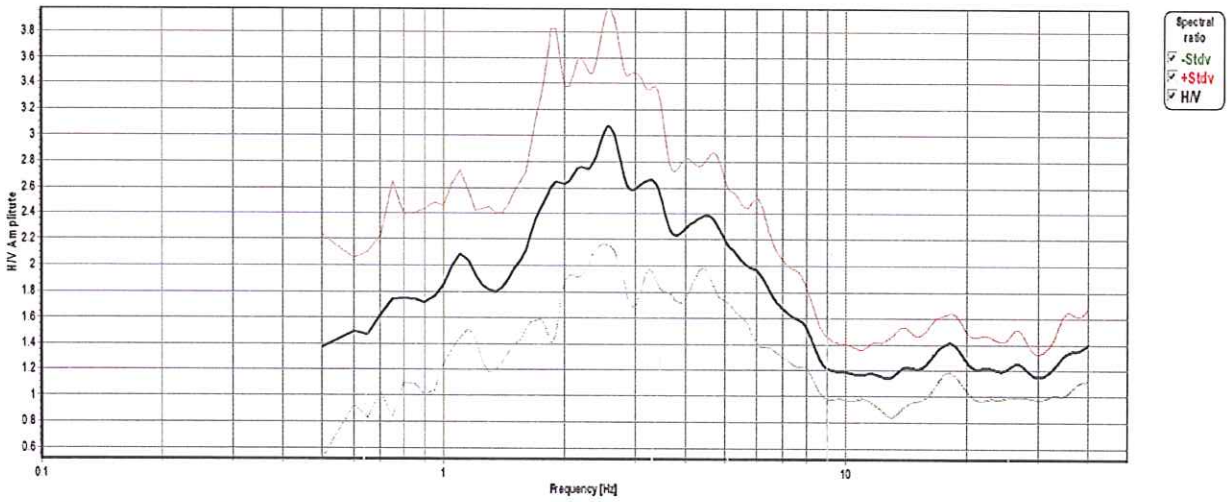
Measure point: **19**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**27/06/2017 08:34:01**
Automatic spike removal:	**No**	Stop recordings:	**27/06/2017 09:04:01**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**50**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**40**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**2.550**	Standard deviation [Hz]:	**0.568**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **19**

Criteria for a reliable H/V curve		
fø > 10/Lw	**2.55 >= 0.50**	**Yes**
Nc(fø) > 200	**2550.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 77**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.650**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**8.000**	**Yes**
Aø > 2	**3.07 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1.96% < 5.00%**	**Yes**
sf < e(fø)	**0.5677 > 0.1275**	**No**
sA(fø) < ?(fø)	**0.9050 < 1.5800**	**Yes**

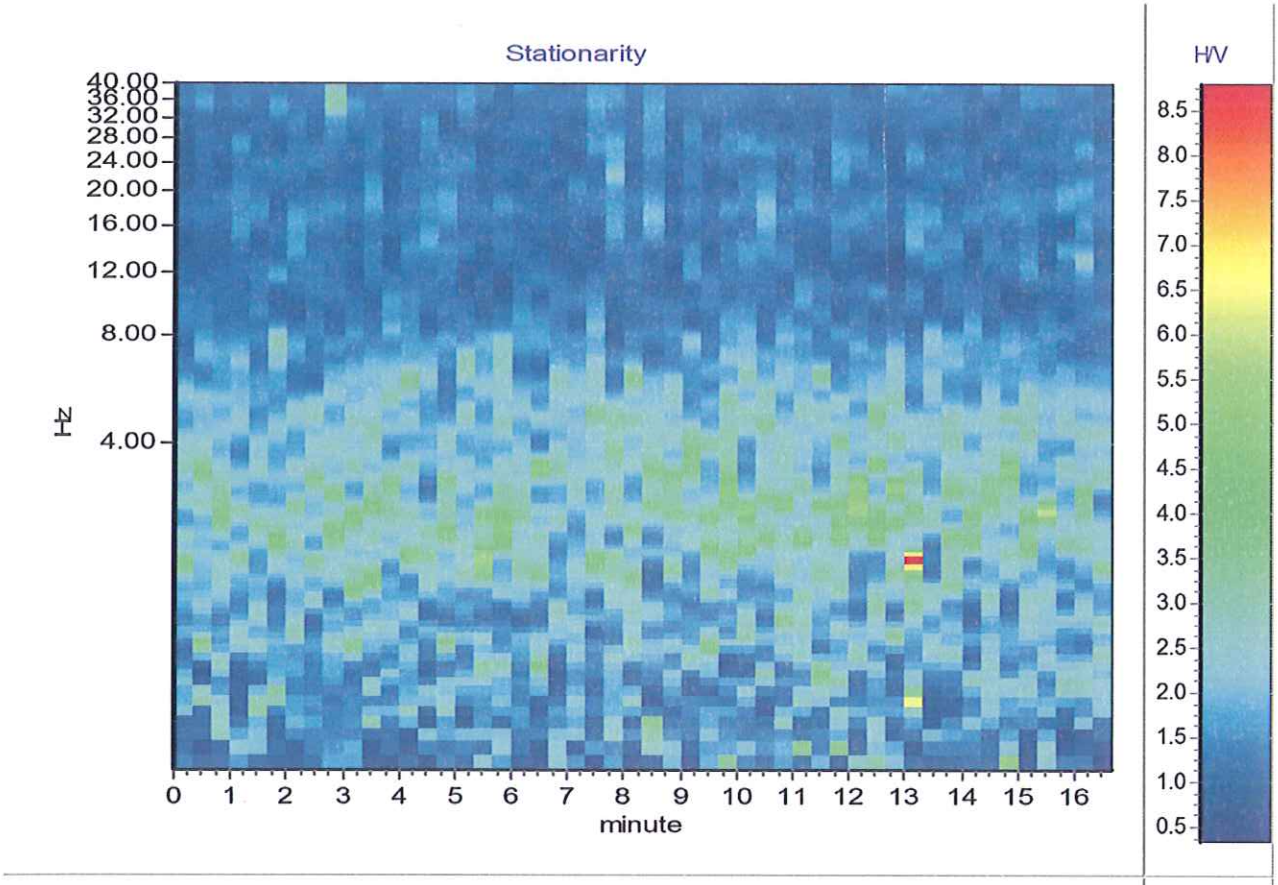
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

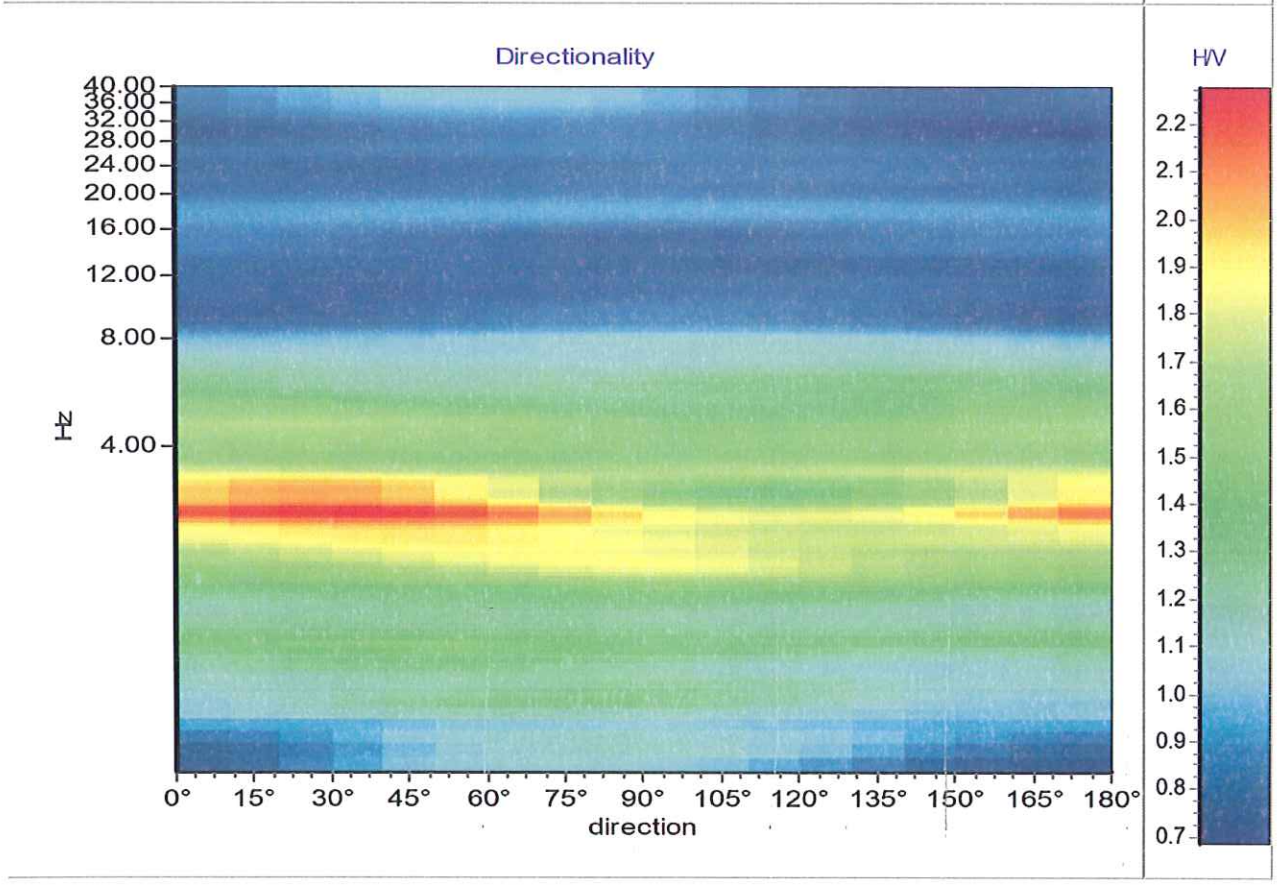
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **19**





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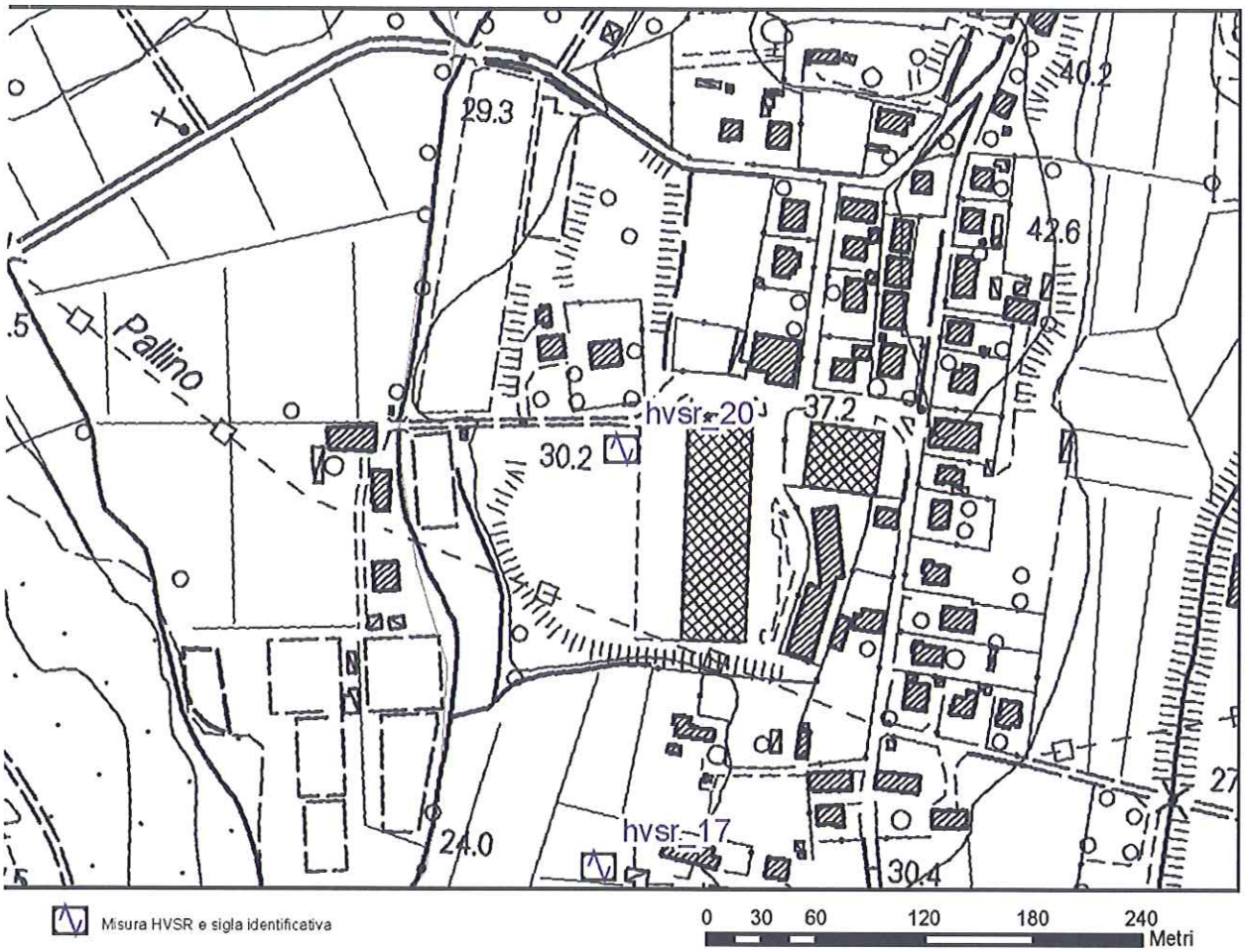


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

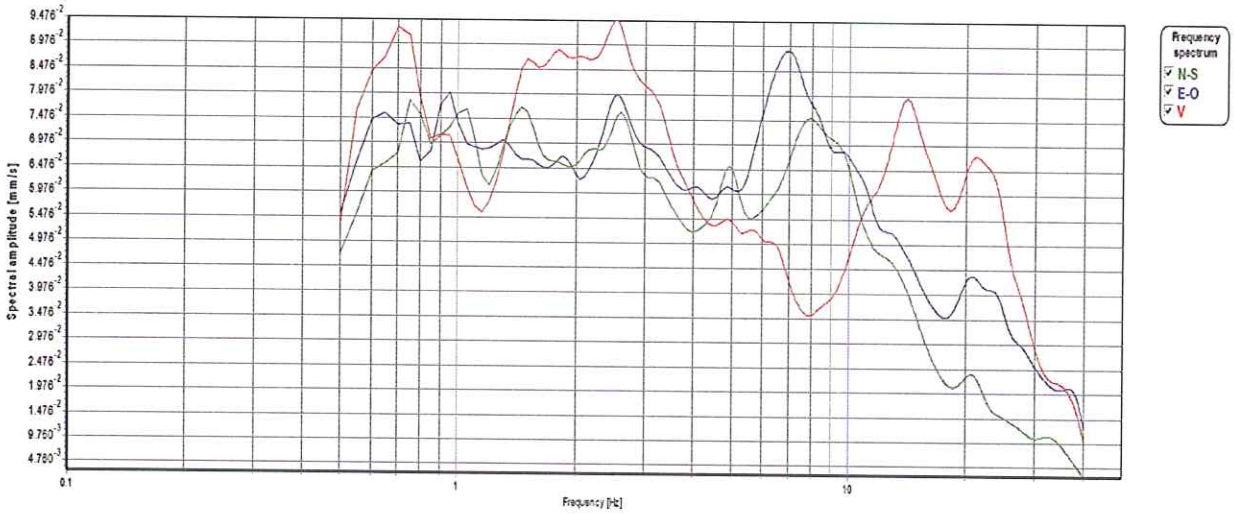
Analysis site: **Buggiano**

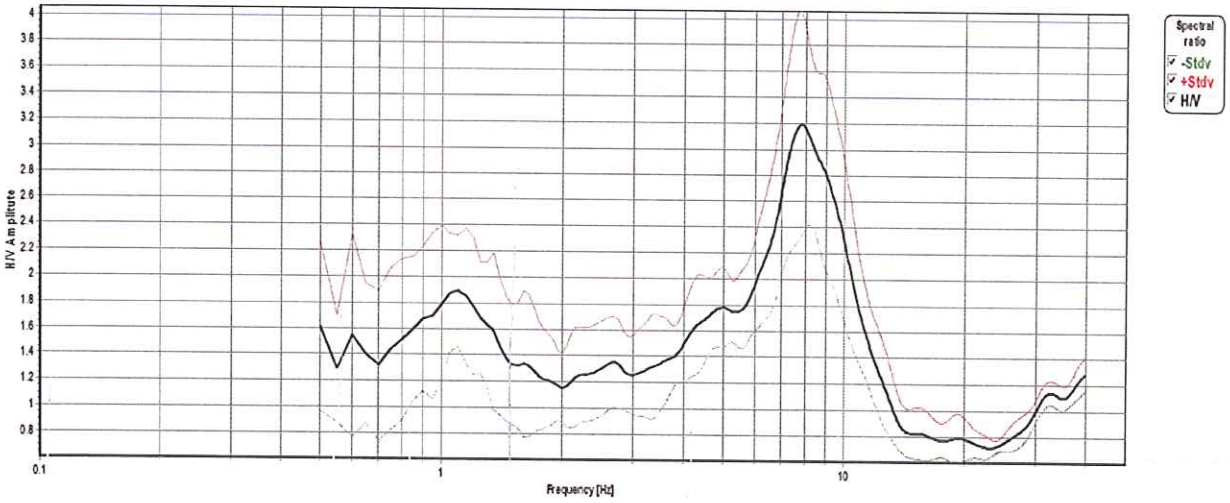
Measure point: **20**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	27/06/2017 11:15:28
Automatic spike removal:	No	Stop recordings:	27/06/2017 11:45:28
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	28
Lw Windows [s]:	20	Recording length [s]:	1800
Overlap Windows s]:	0.0	Discarded windows:	62
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	8.182	Standard deviation [Hz]:	0.837





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **20**

Criteria for a reliable H/V curve		
fø > 10/Lw	**8.18 >= 0.50**	**Yes**
Nc(fø) > 200	**4582.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 246**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**2.050**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**11.450**	**Yes**
Aø > 2	**3.09 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**5.28% > 5.00%**	**No**
sf < e(fø)	**0.8366 > 0.4091**	**No**
sA(fø) < ?(fø)	**0.6691 < 1.5800**	**Yes**

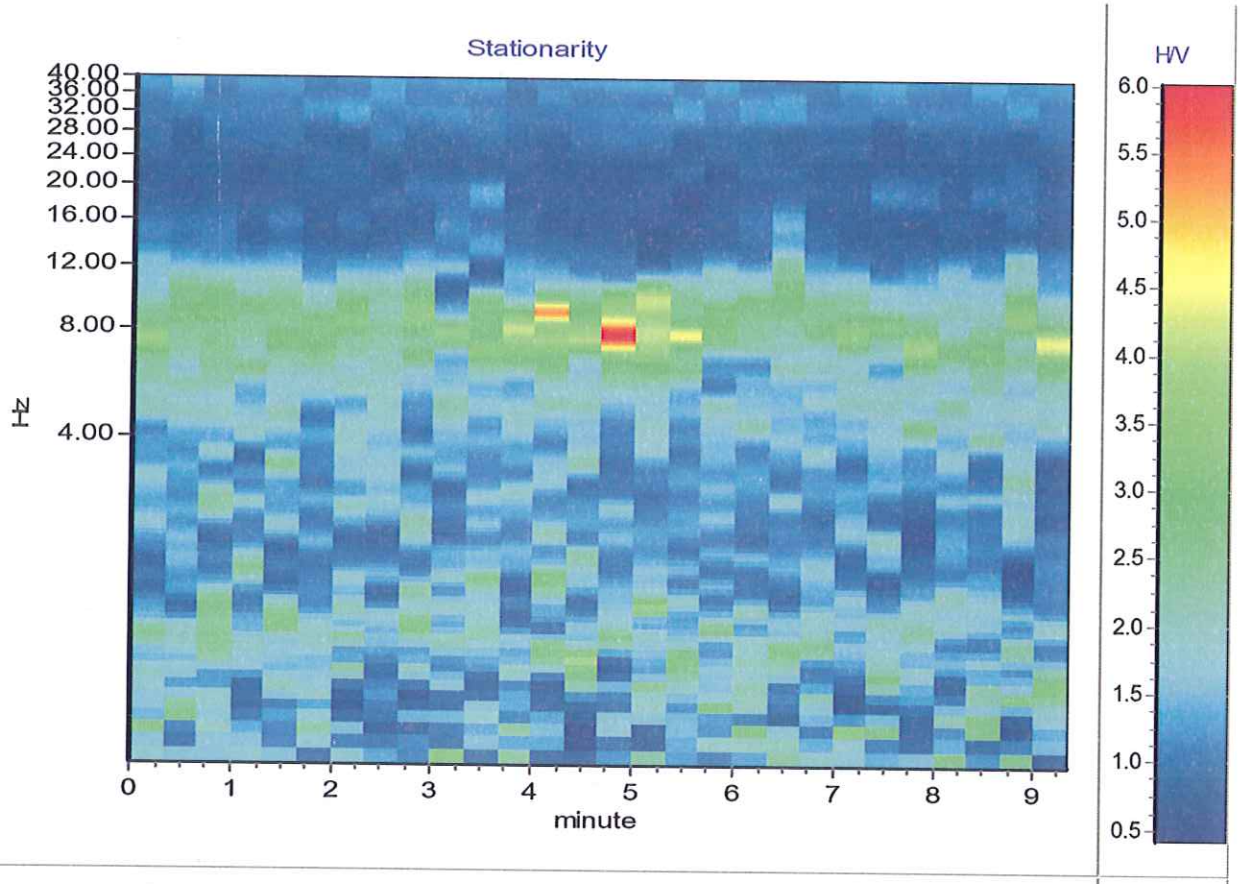
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

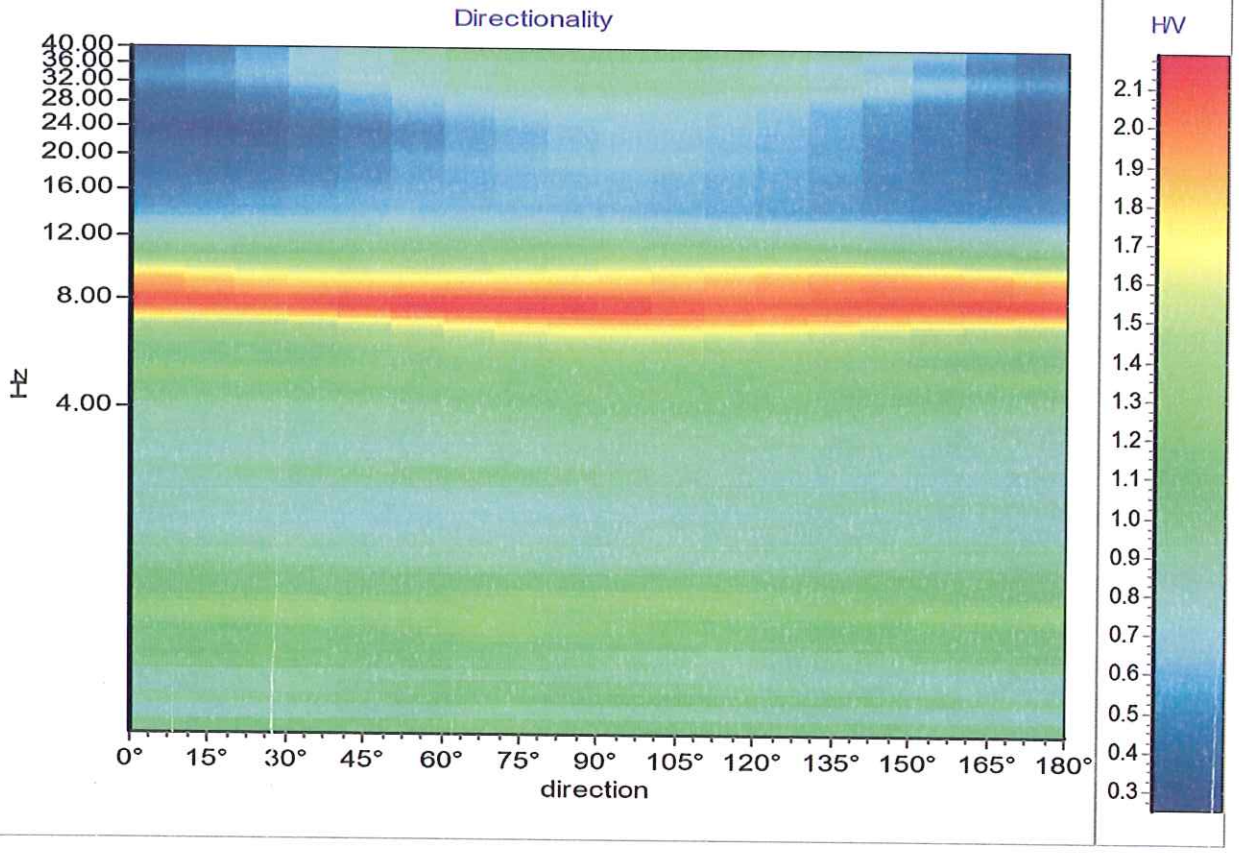
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **20**





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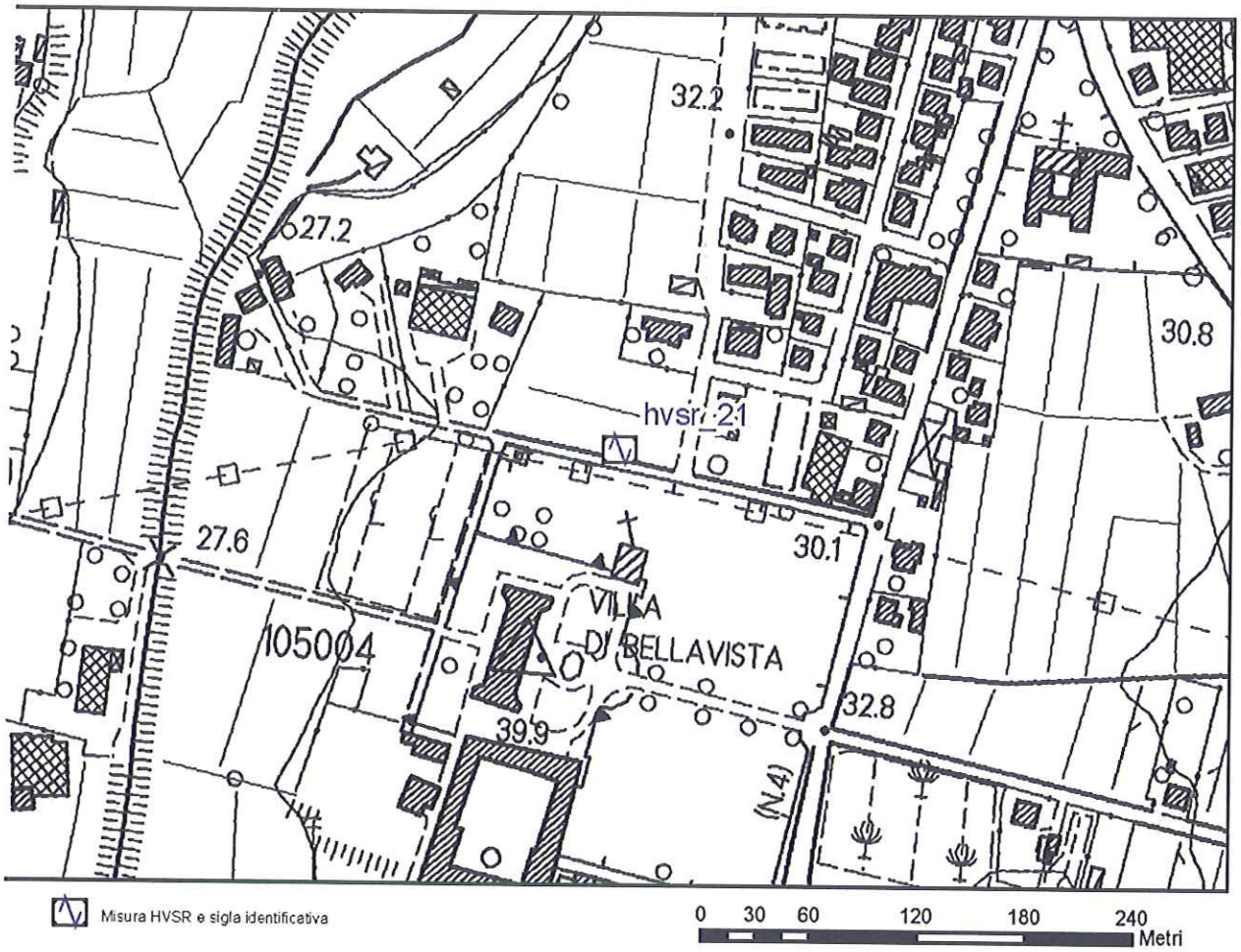


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

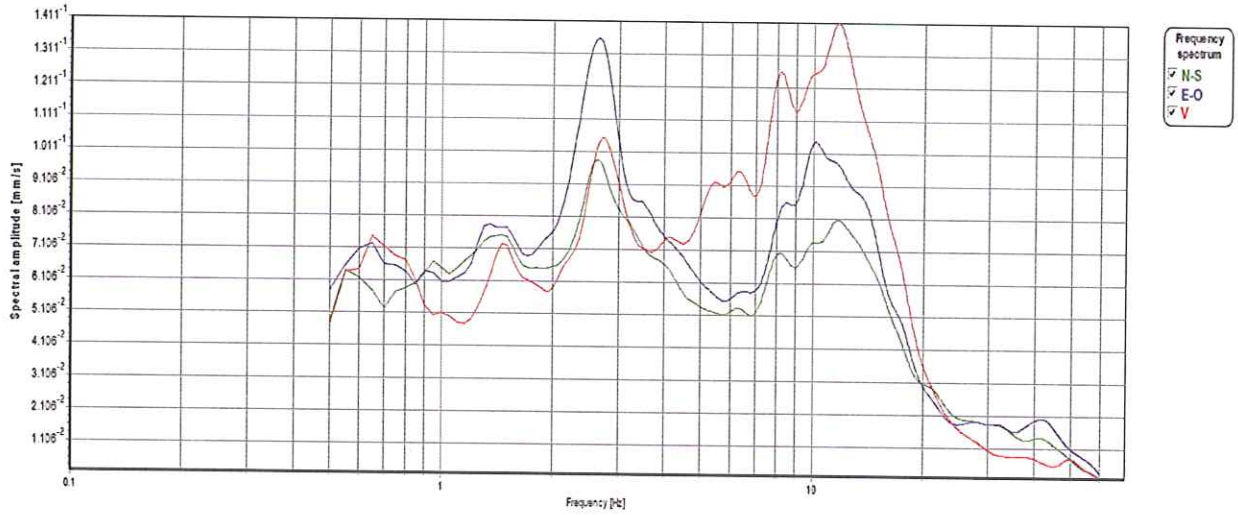
Analysis site: **Buggiano**

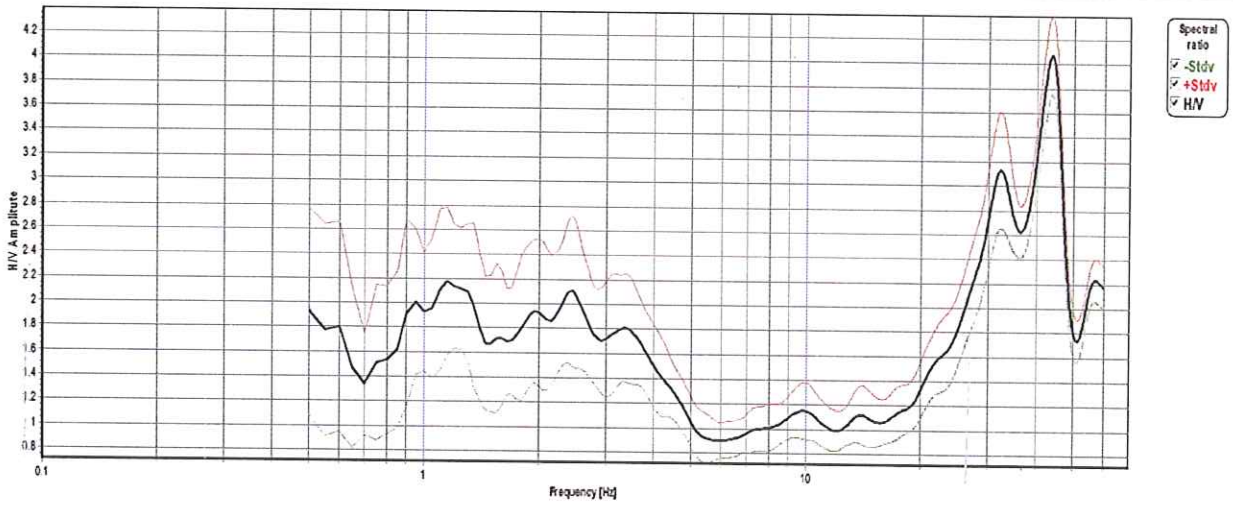
Measure point: **21**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	27/06/2017 14:29:39
Automatic spike removal:	No	Stop recordings:	27/06/2017 14:59:39
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	60.00
Ratio:	1.9	Nw number of windows:	31
Lw Windows [s]:	20	Recording length [s]:	1800
Overlap Windows s]:	0.0	Discarded windows:	59
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	43.839	Standard deviation [Hz]:	0.393





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **21**

Criteria for a reliable H/V curve		
fø > 10/Lw	**43.84 >= 0.50**	**Yes**
Nc(fø) > 200	**27180.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 762**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**11.000**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**48.950**	**Yes**
Aø > 2	**4.07 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**0.14% < 5.00%**	**Yes**
sf < e(fø)	**0.3928 < 2.1919**	**Yes**
sA(fø) < ?(fø)	**0.3170 < 1.5800**	**Yes**

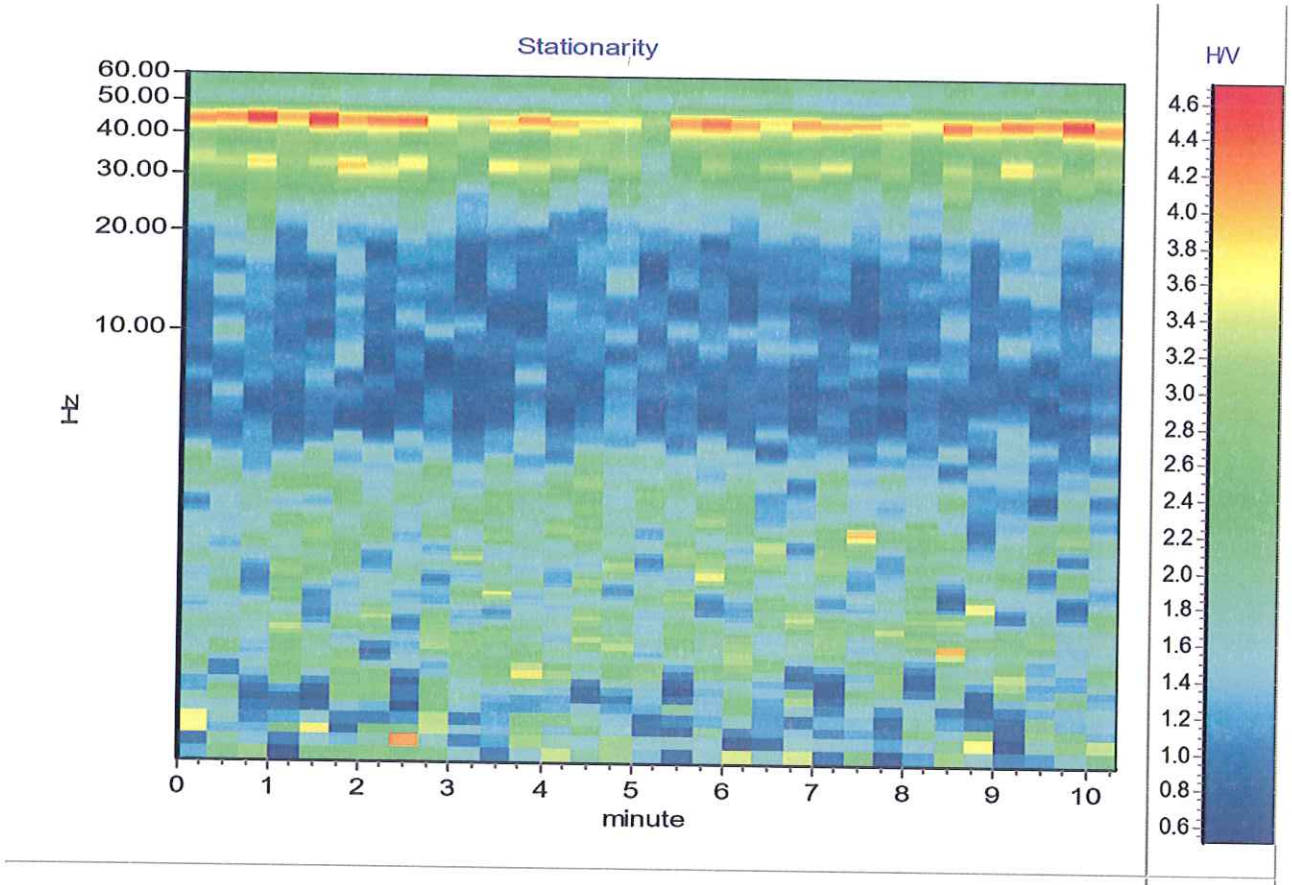
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

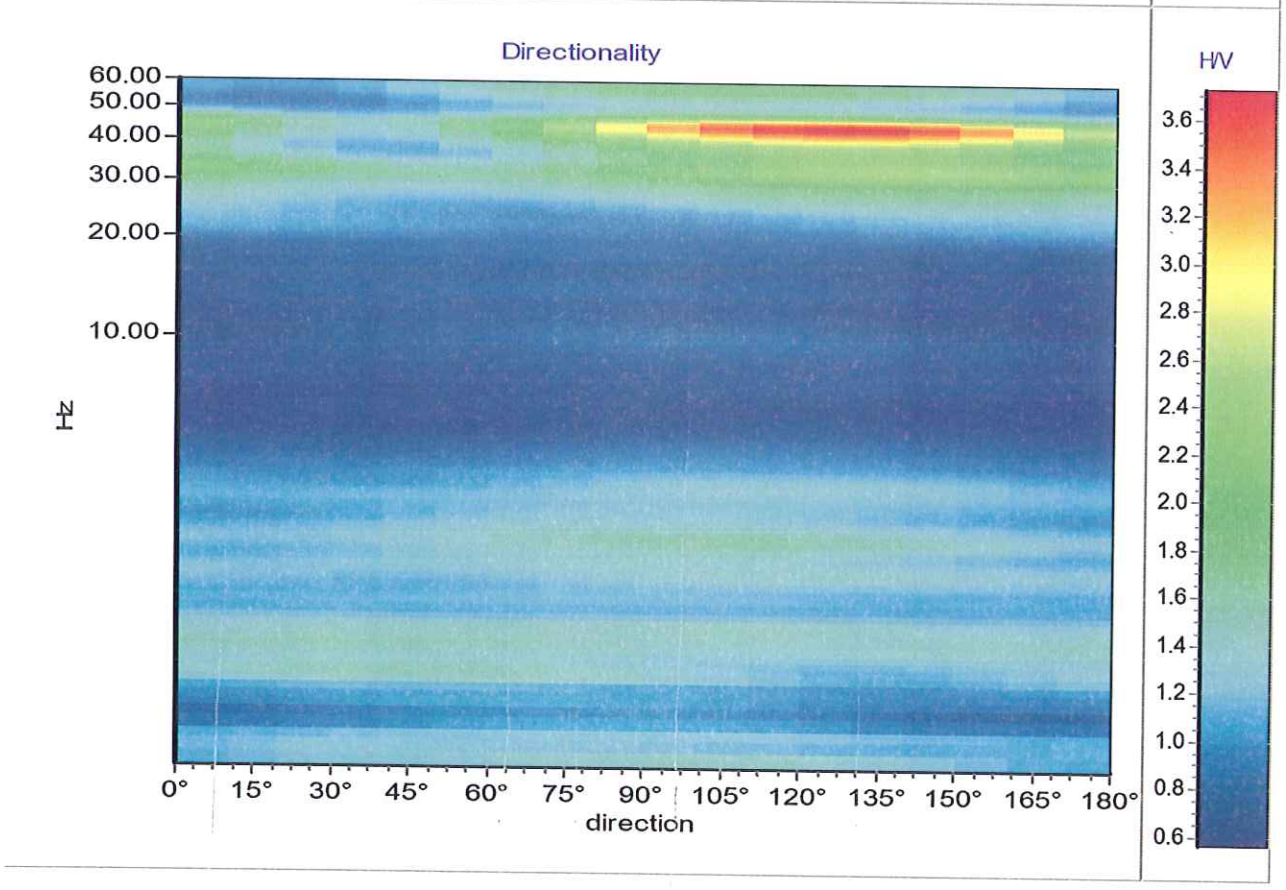
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **21**





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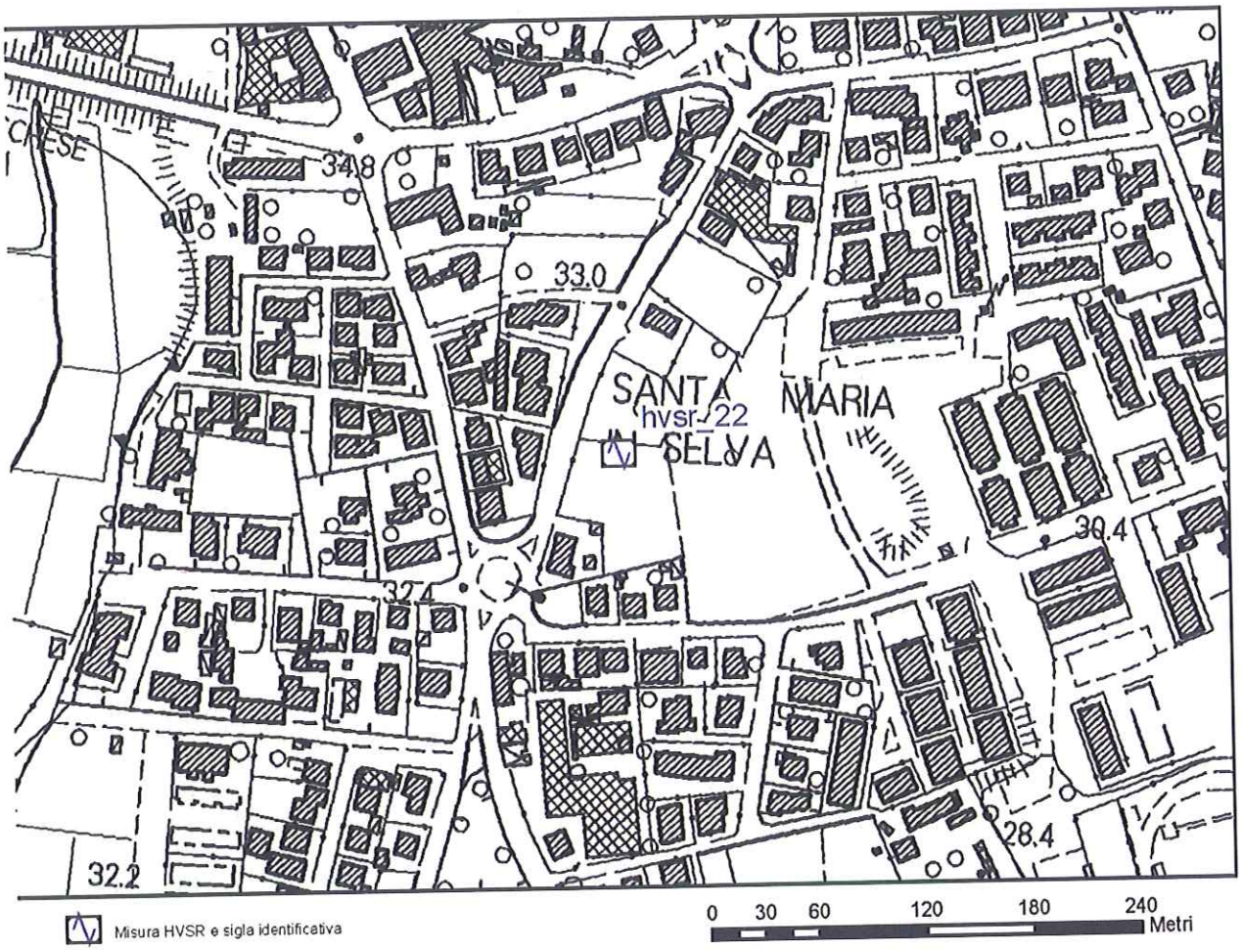


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

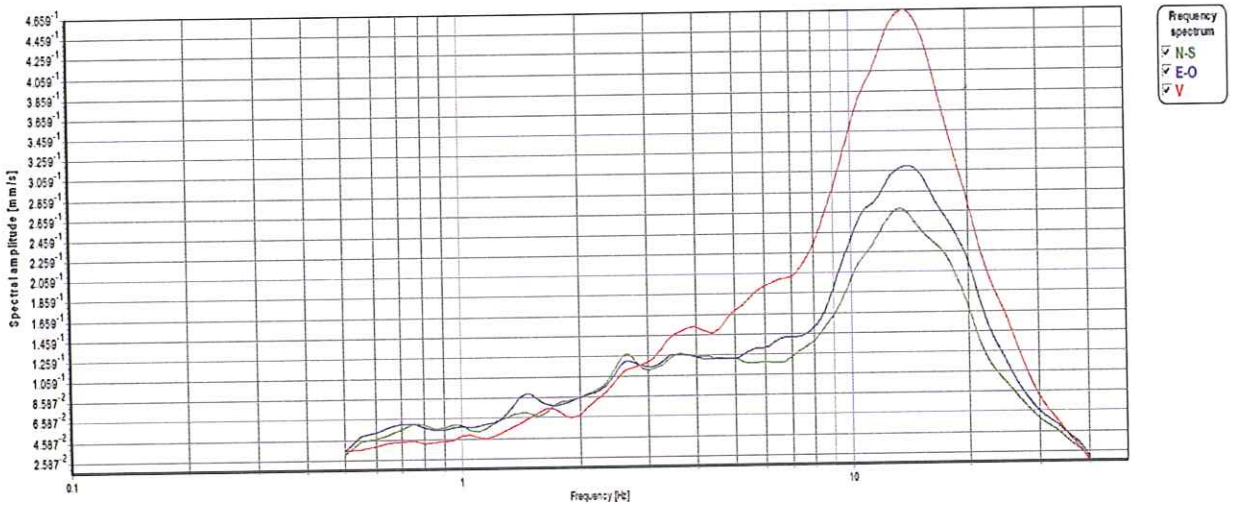
Analysis site: **Buggiano**

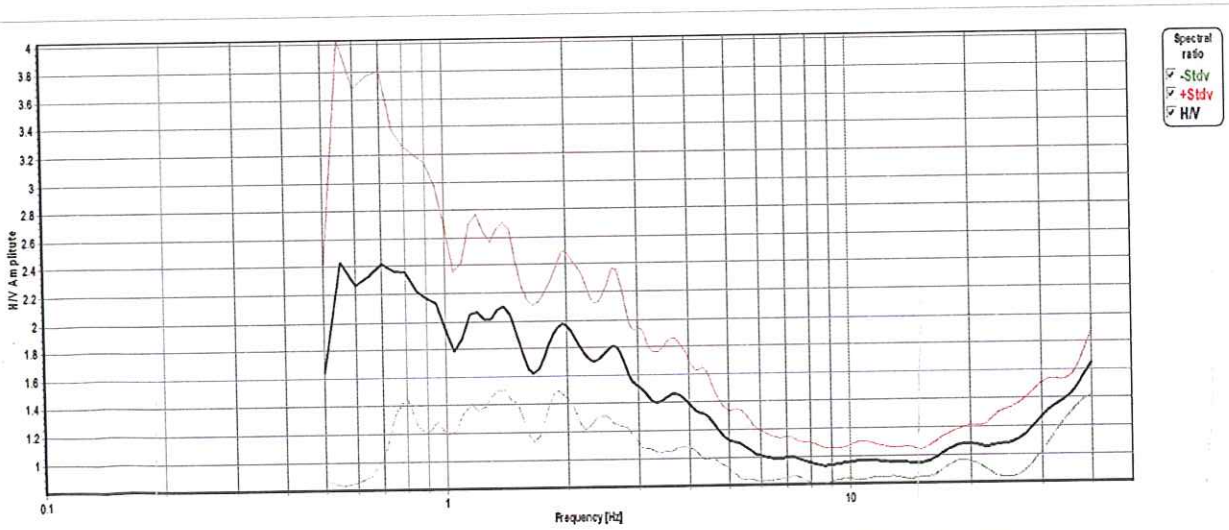
Measure point: **22**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	27/06/2017 12:35:49
Automatic spike removal:	No	Stop recordings:	27/06/2017 13:05:49
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	46
Lw Windows [s]:	20	Recording length [s]:	1800
Overlap Windows s]:	0.0	Discarded windows:	44
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	0.713	Standard deviation [Hz]:	0.136





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **22**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.71 >= 0.50**	**Yes**
Nc(fø) > 200	**656.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 19**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.42 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**89.33% > 5.00%**	**No**
sf < e(fø)	**0.1357 > 0.1070**	**No**
sA(fø) < ?(fø)	**1.3832 < 2.0000**	**Yes**

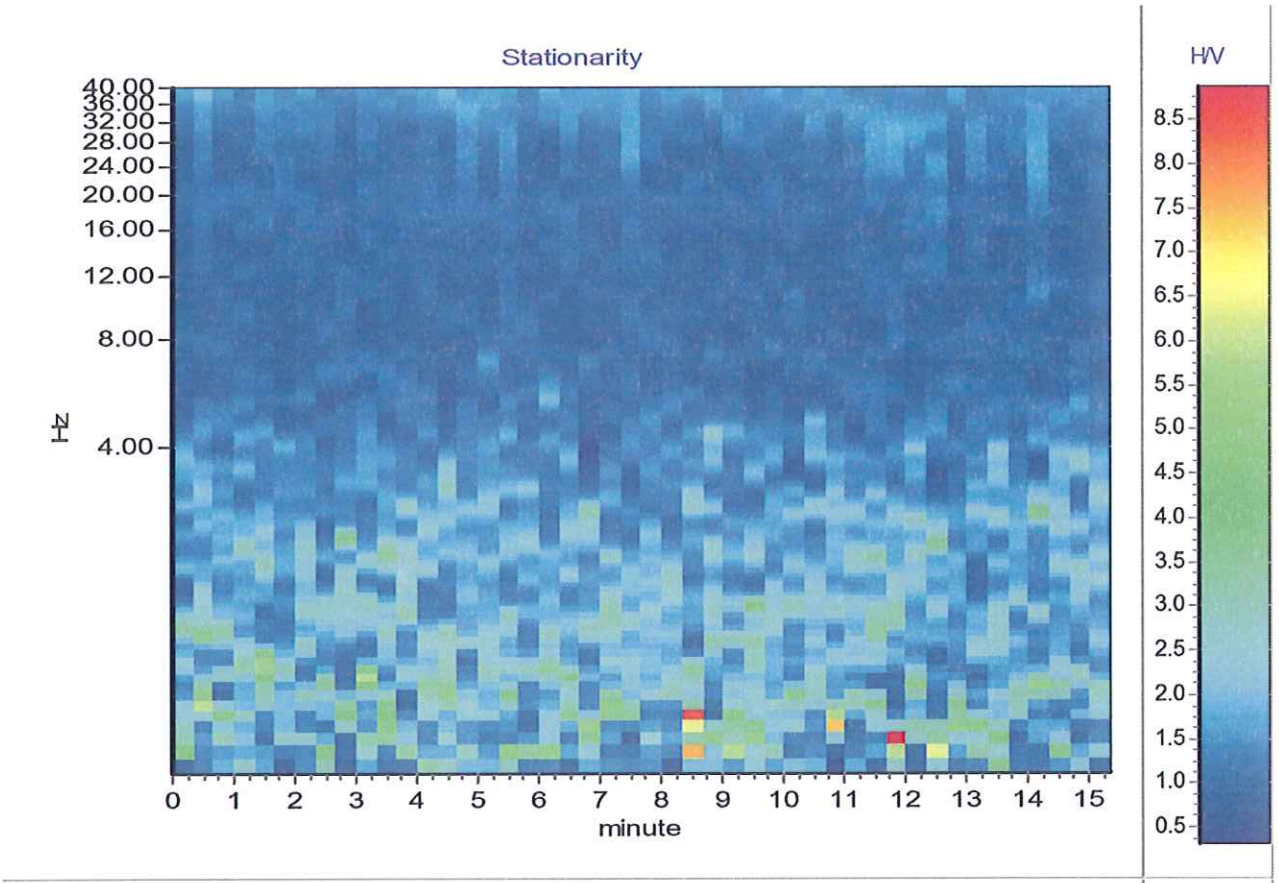
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

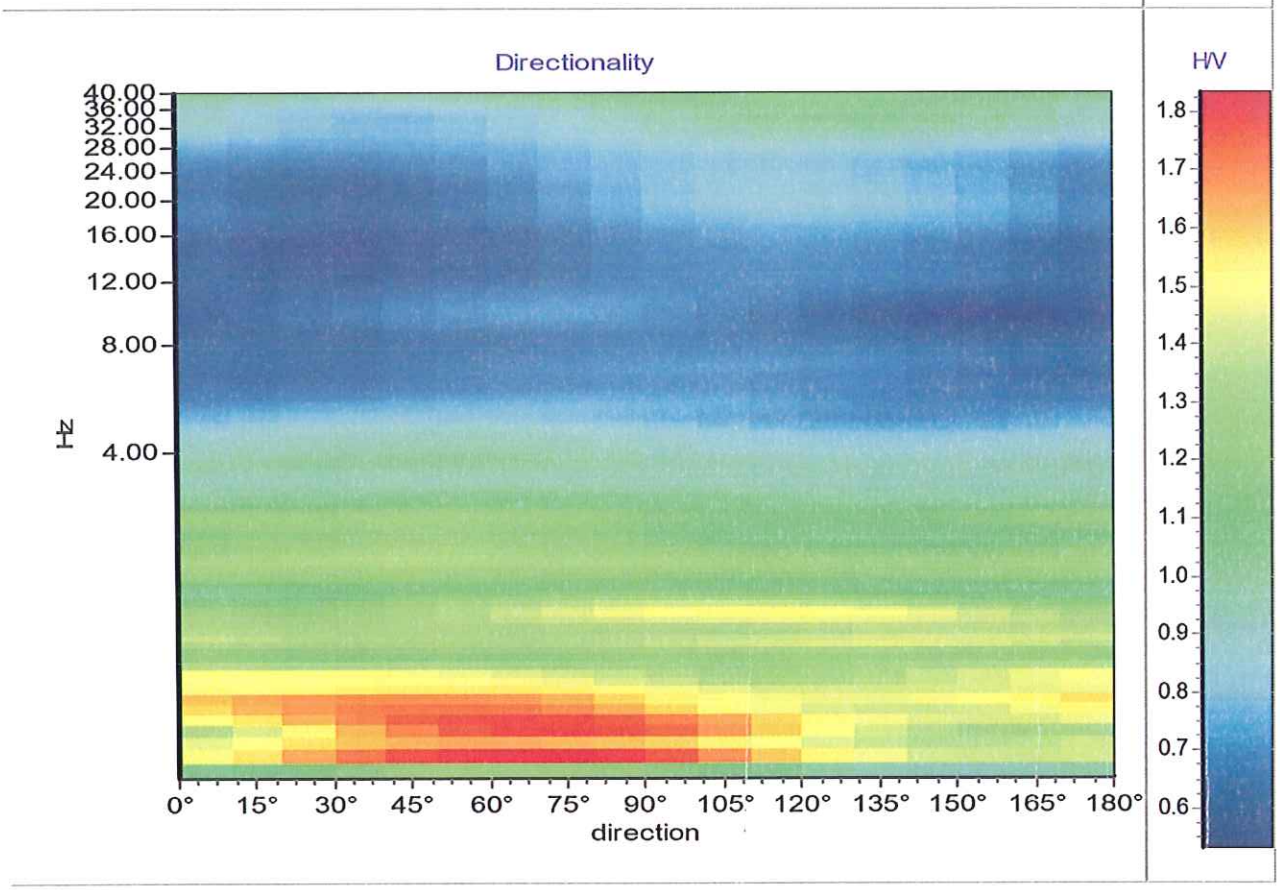
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **22**





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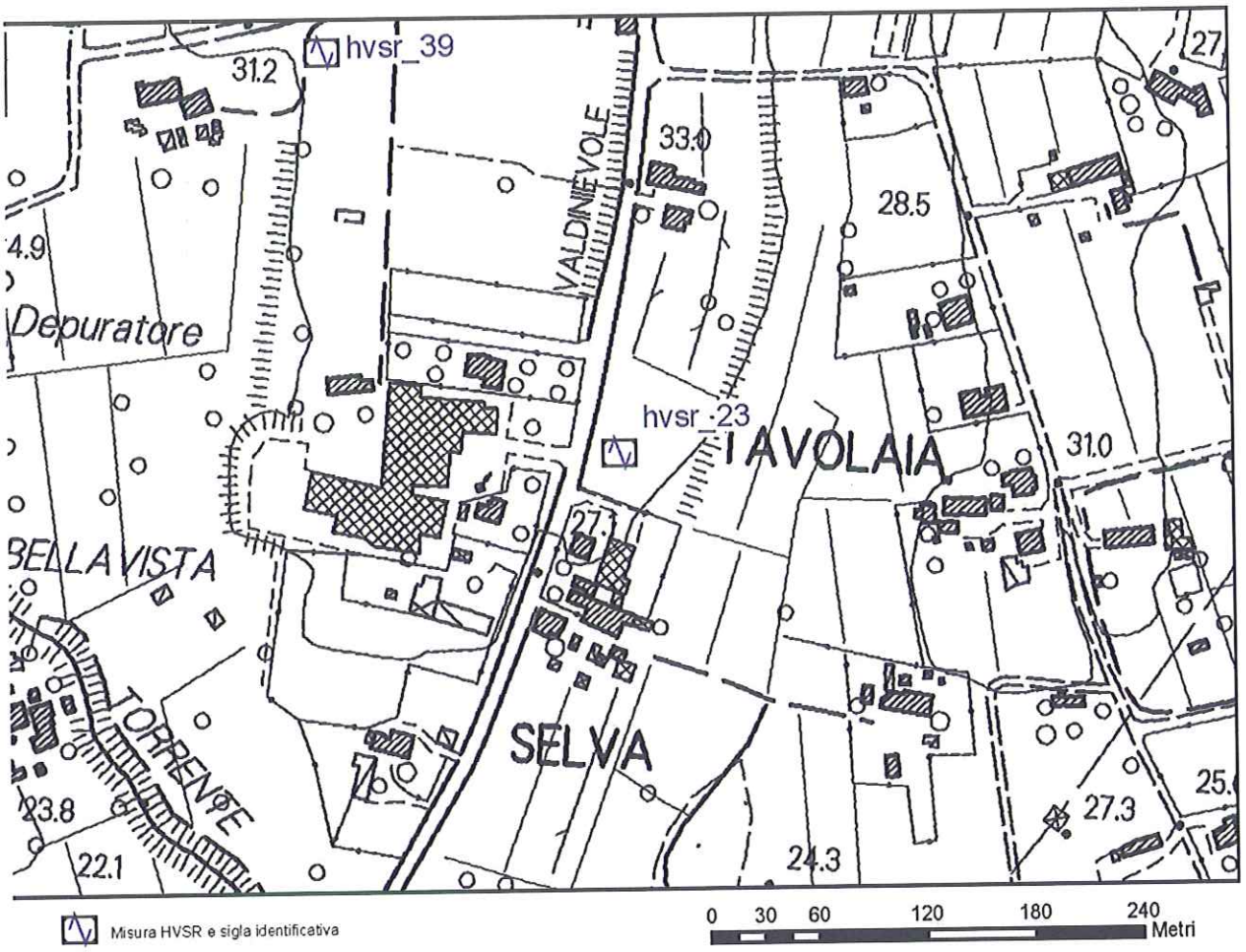


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

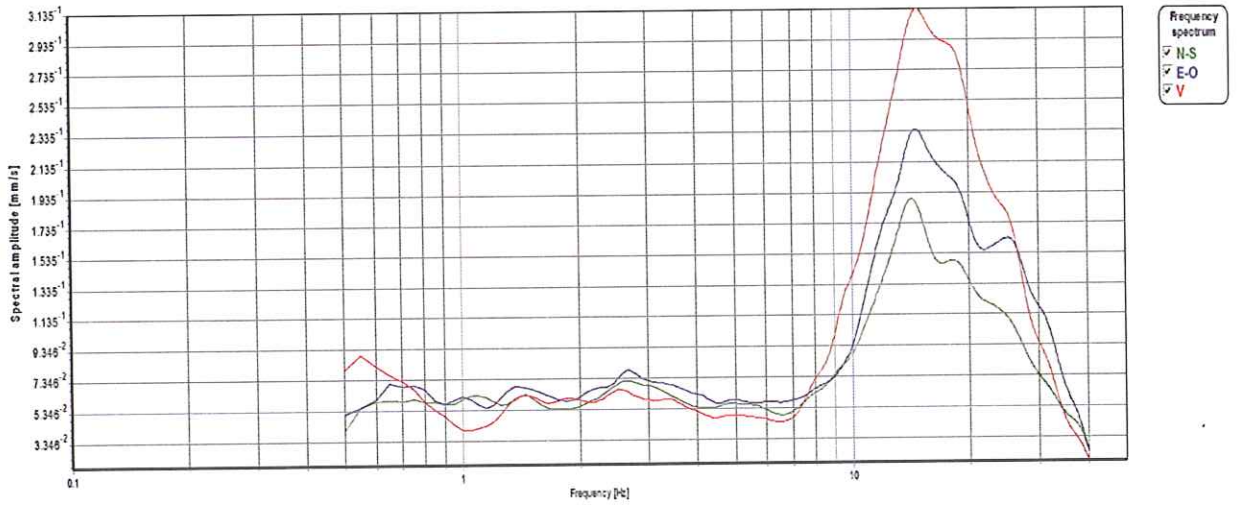
Analysis site: **Buggiano**

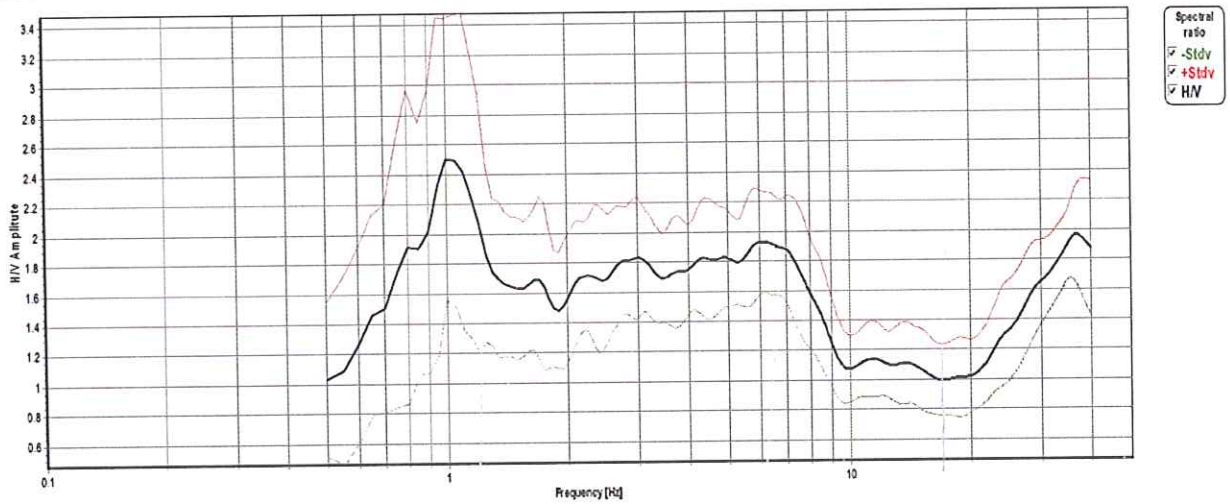
Measure point: **23**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**27/06/2017 15:27:00**
Automatic spike removal:	**No**	Stop recordings:	**27/06/2017 15:57:00**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**48**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**42**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.977**	Standard deviation [Hz]:	**0.168**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **23**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.98 >= 0.50**	**Yes**
Nc(fø) > 200	**938.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 30**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.500**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.50 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**3533.30% > 5.00%**	**No**
sf < e(fø)	**0.1680 > 0.1466**	**No**
sA(fø) < ?(fø)	**0.9445 < 2.0000**	**Yes**

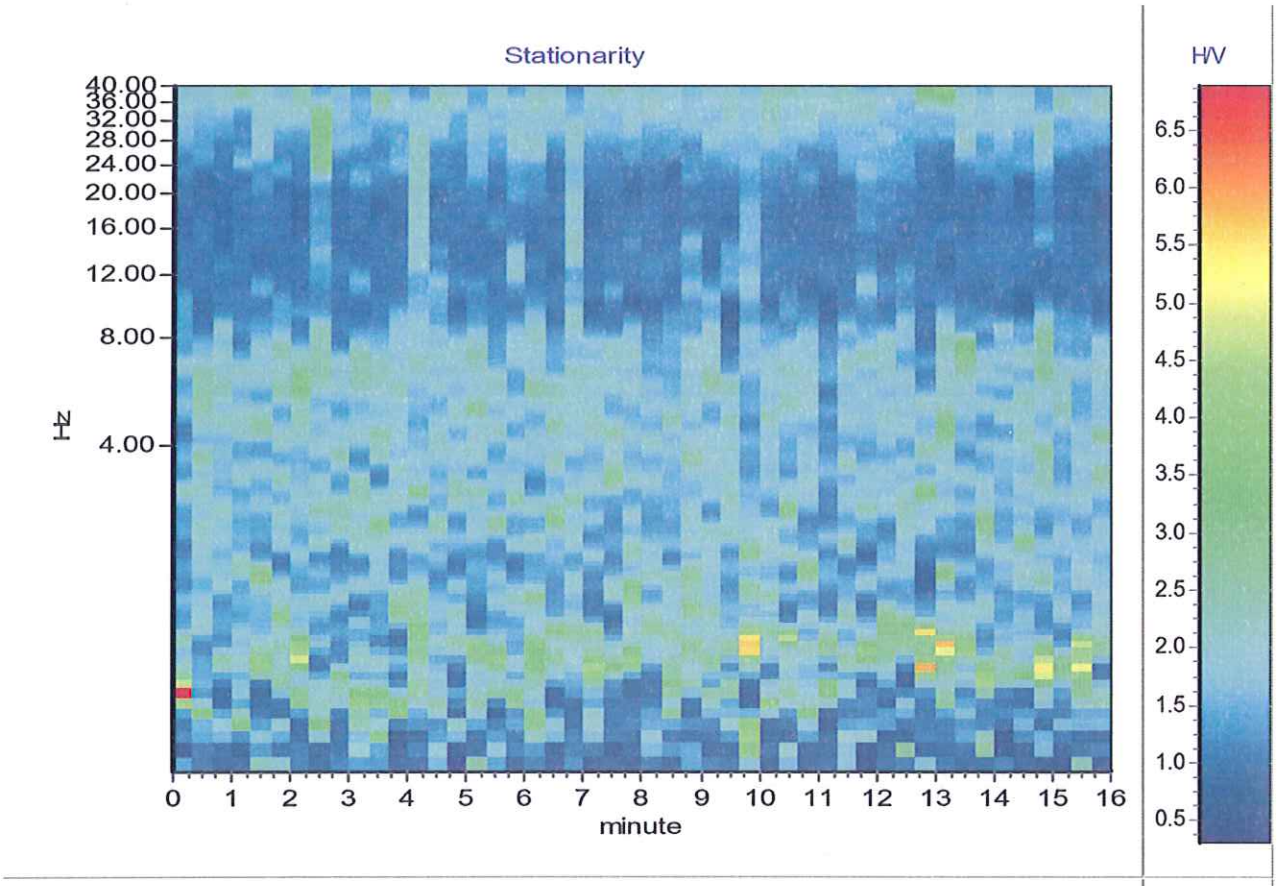
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

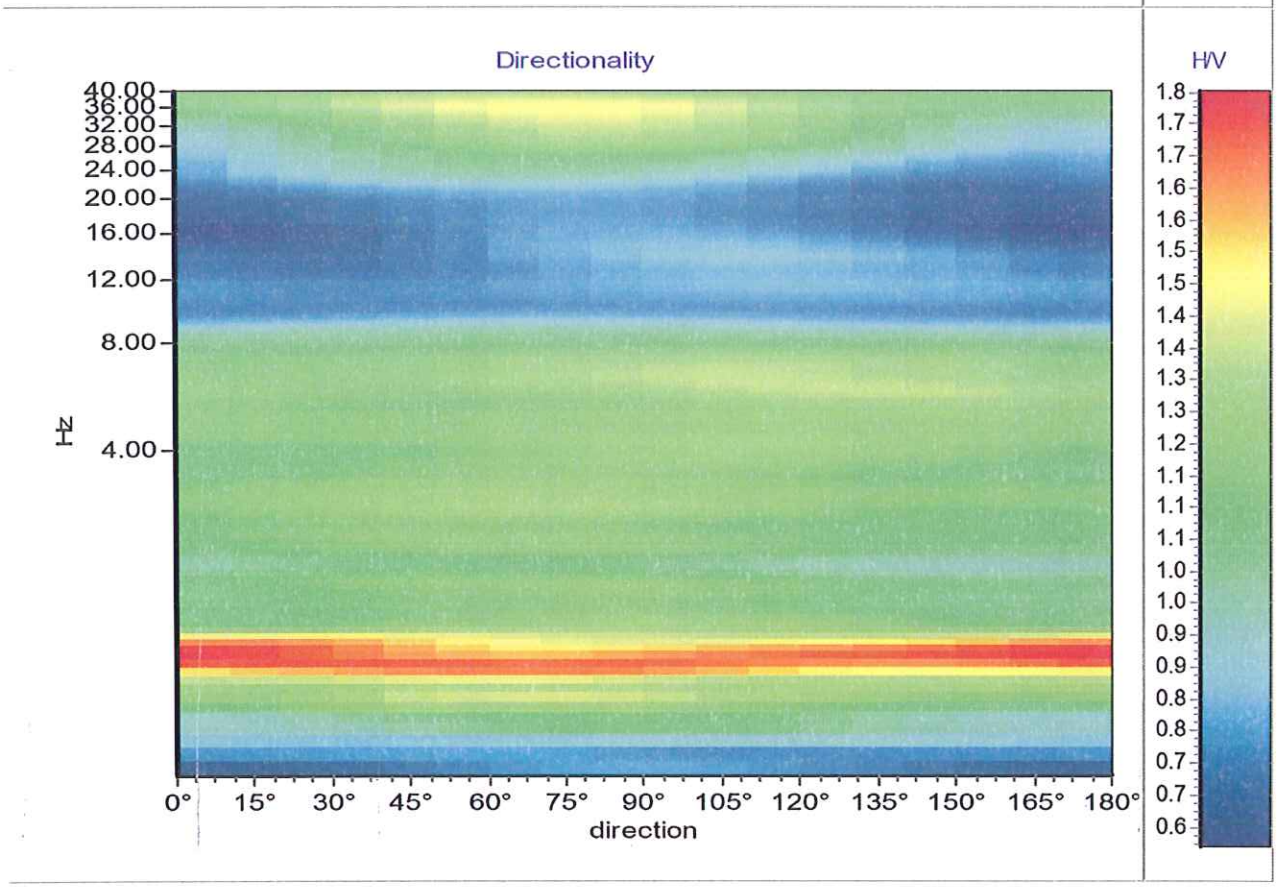
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **23**





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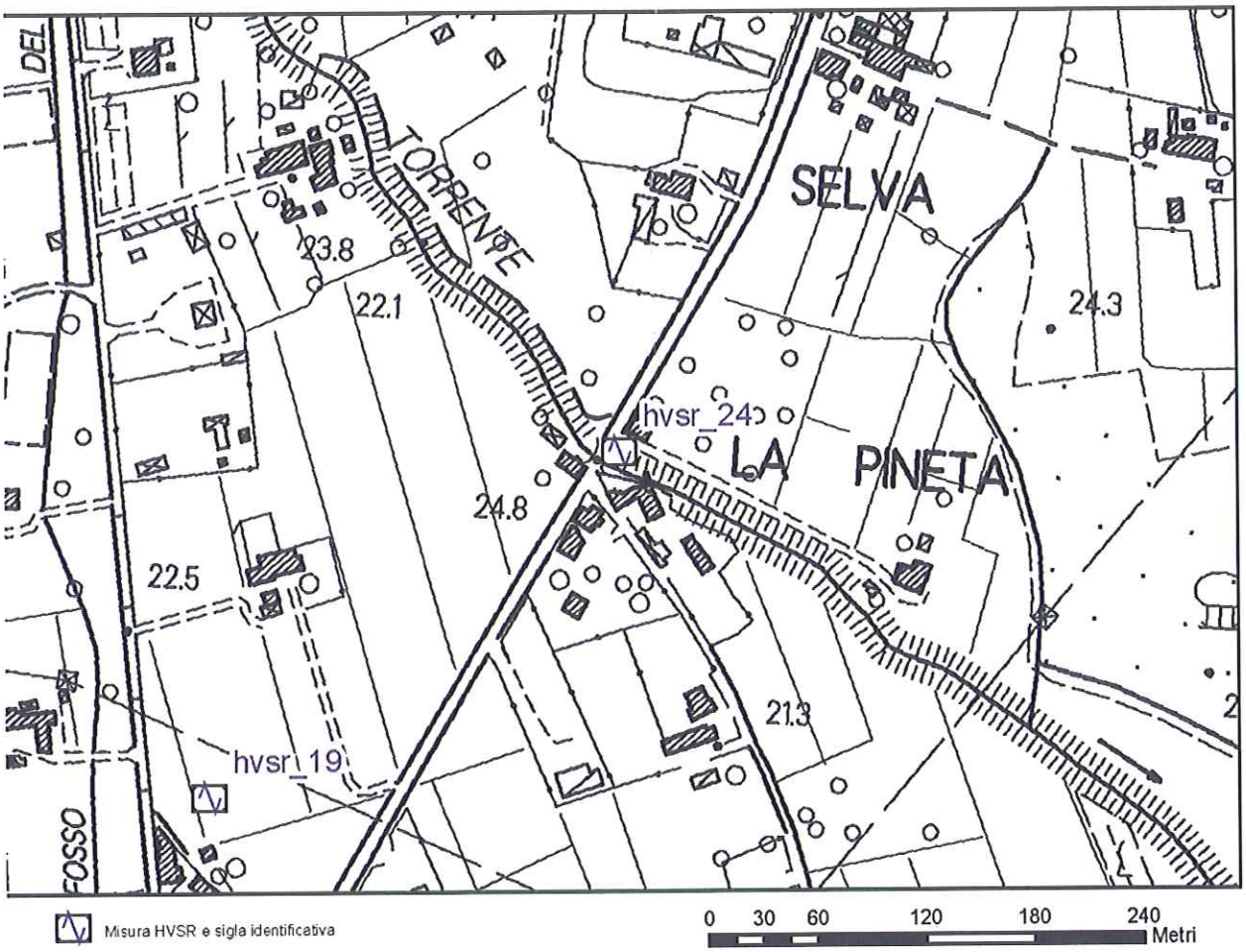


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

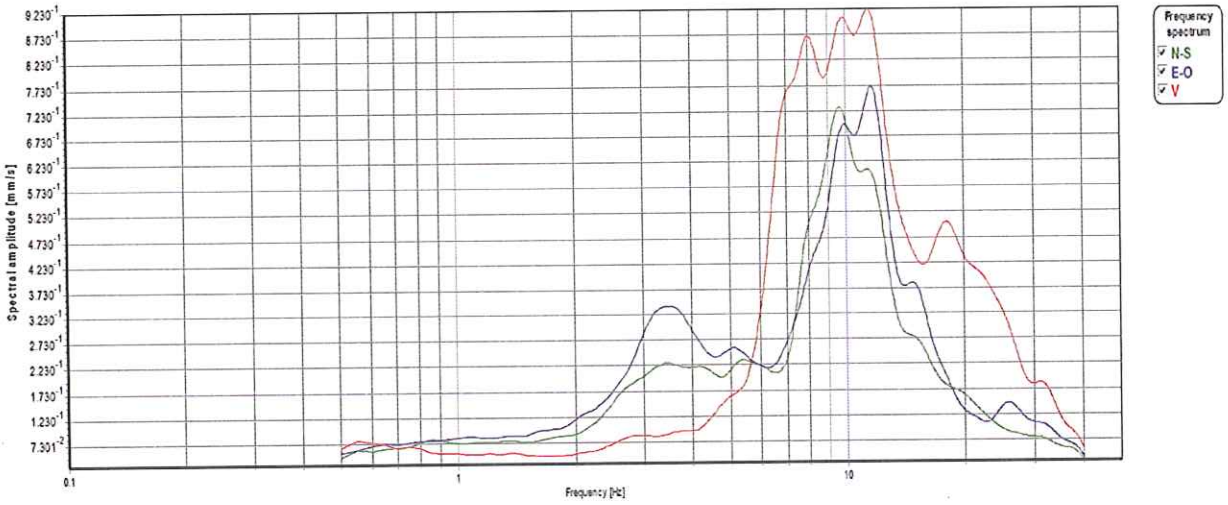
Analysis site: **Buggiano**

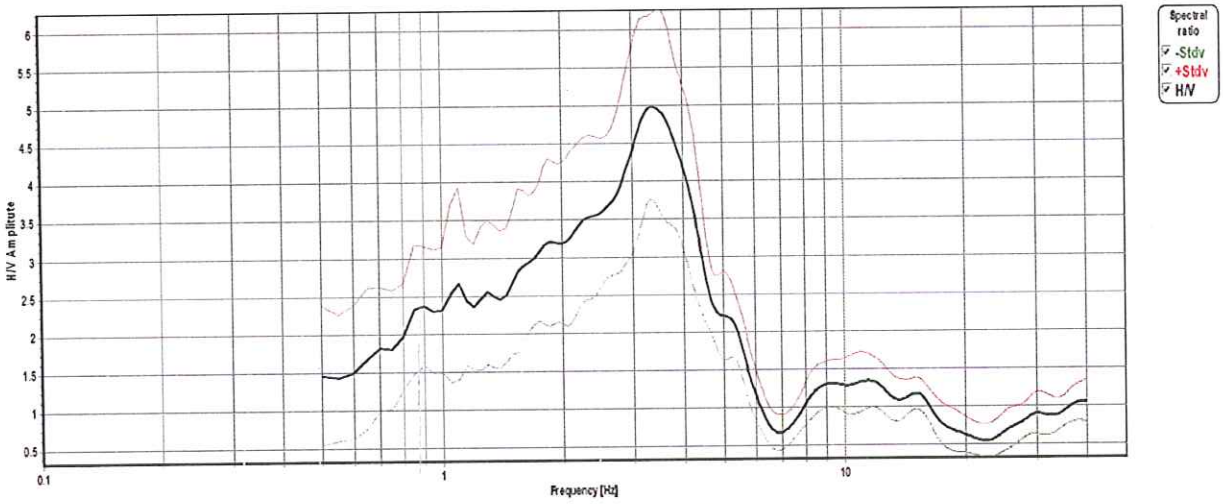
Measure point: **24**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	27/06/2017 16:29:12
Automatic spike removal:	No	Stop recordings:	27/06/2017 16:59:12
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	54
Lw Windows [s]:	20	Recording length [s]:	1800
Overlap Windows s]:	0.0	Discarded windows:	36
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	3.396	Standard deviation [Hz]:	0.354





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **24**

Criteria for a reliable H/V curve		
fø > 10/Lw	**3.40 >= 0.50**	**Yes**
Nc(fø) > 200	**3668.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 102**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.850**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**4.650**	**Yes**
Aø > 2	**4.97 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**3.05% < 5.00%**	**Yes**
sf < e(fø)	**0.3538 > 0.1698**	**No**
sA(fø) < ?(fø)	**1.2589 < 1.5800**	**Yes**

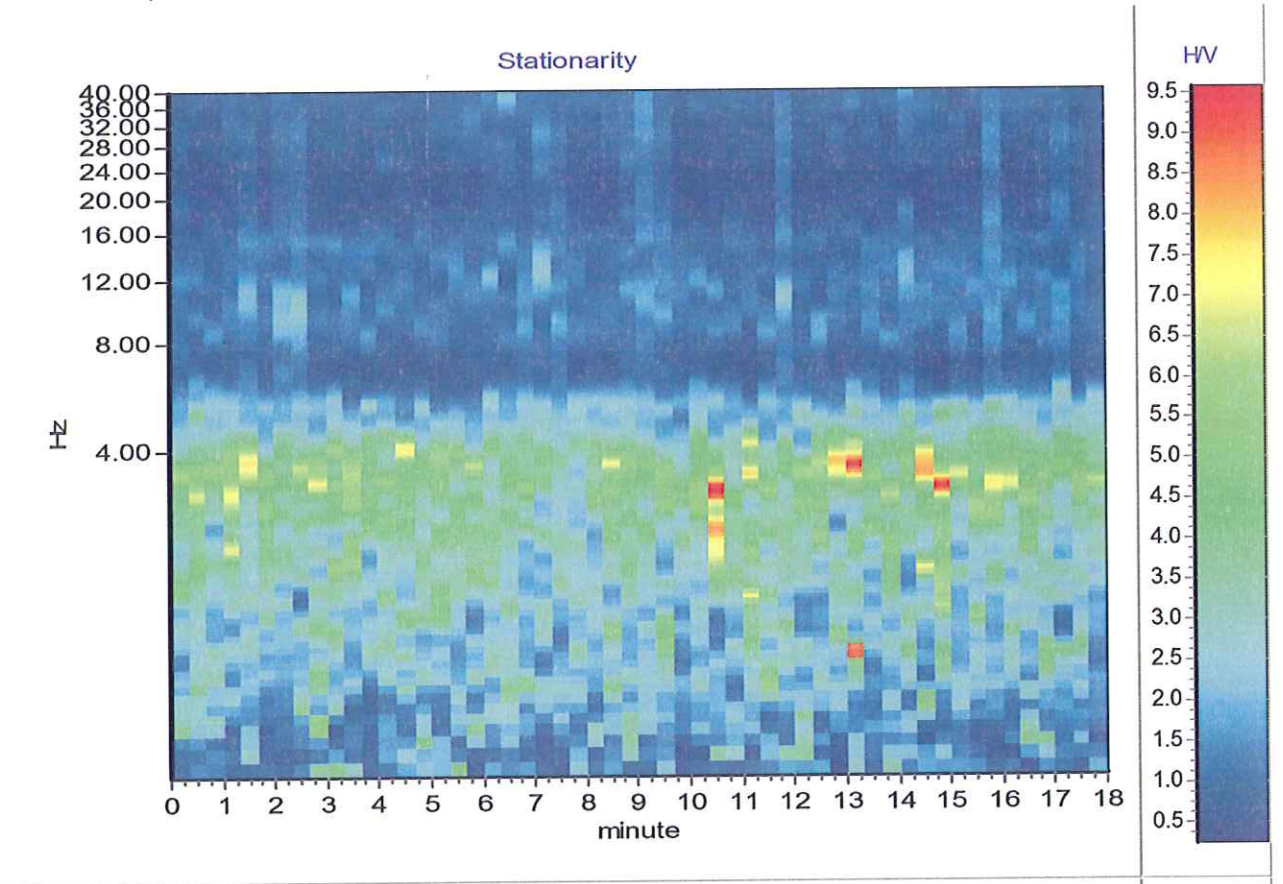
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

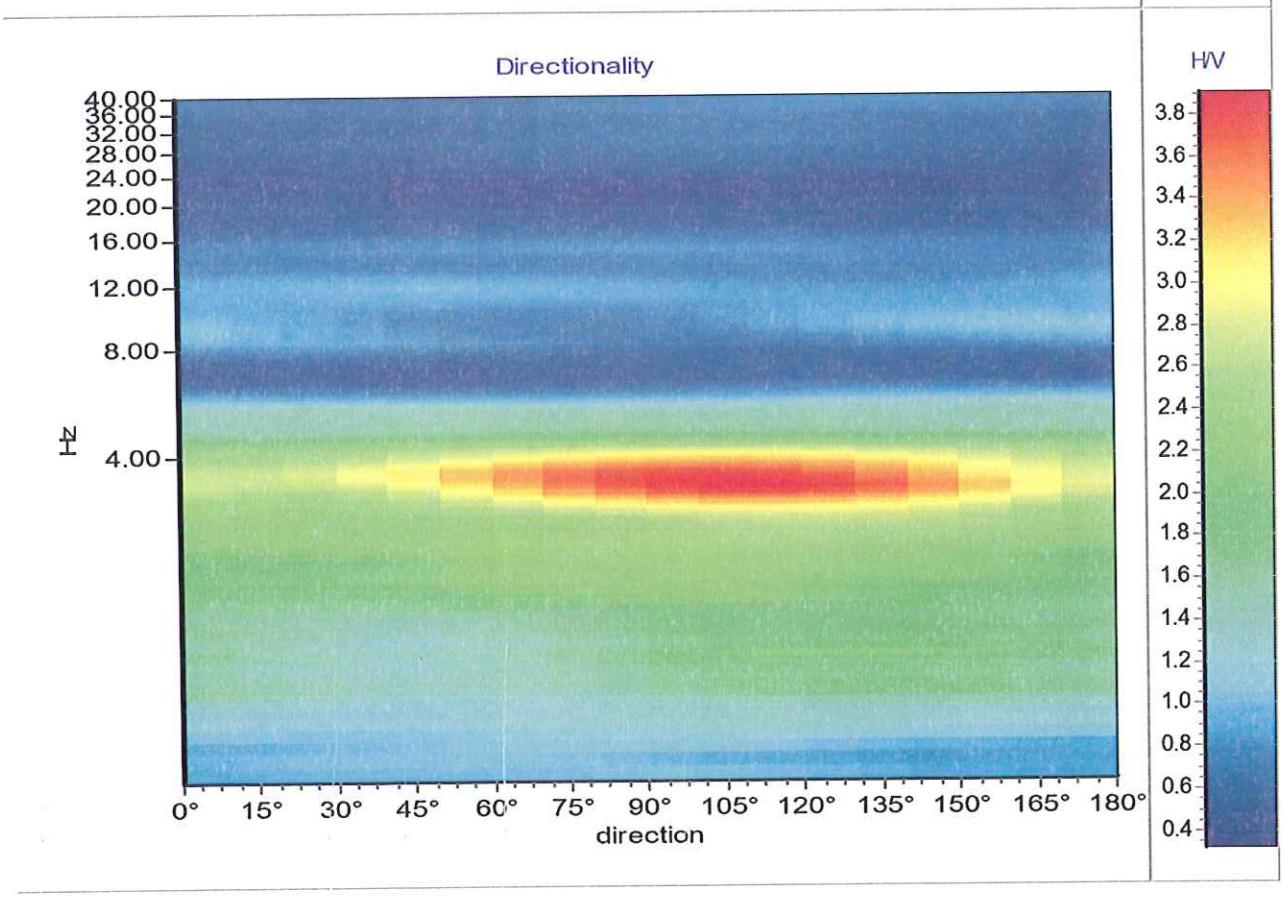
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **24**





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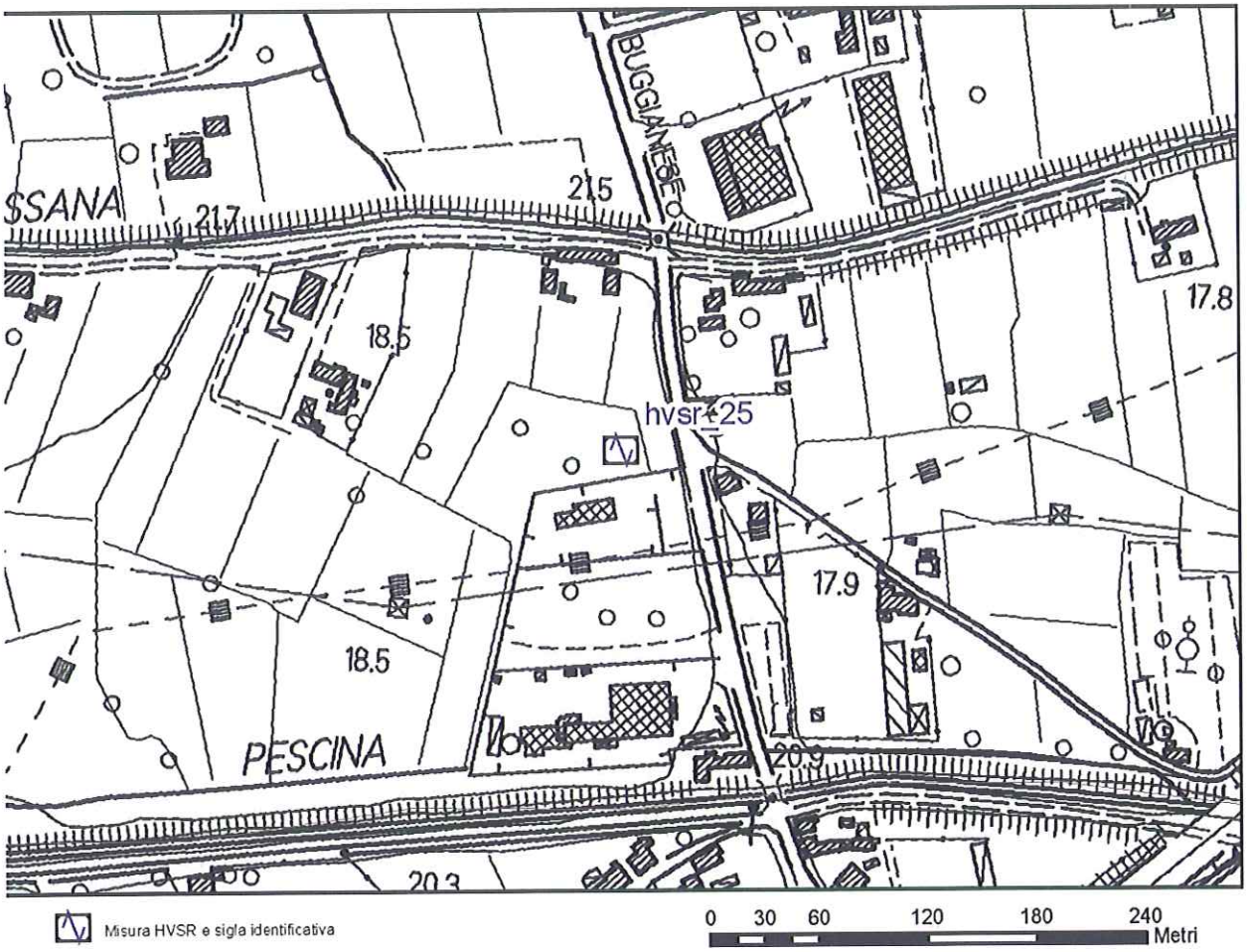


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

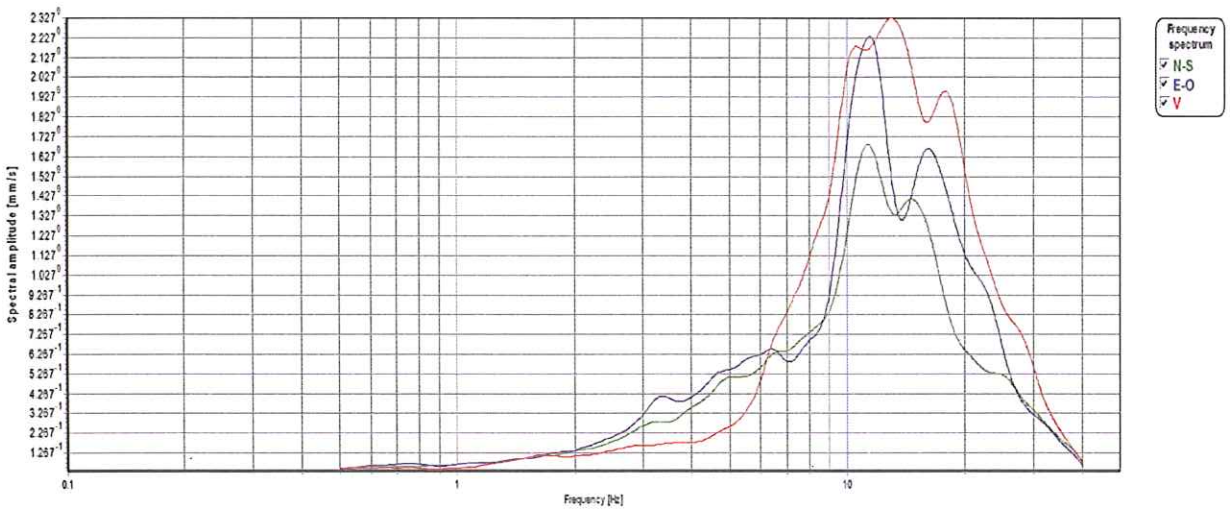
Analysis site: **Buggiano**

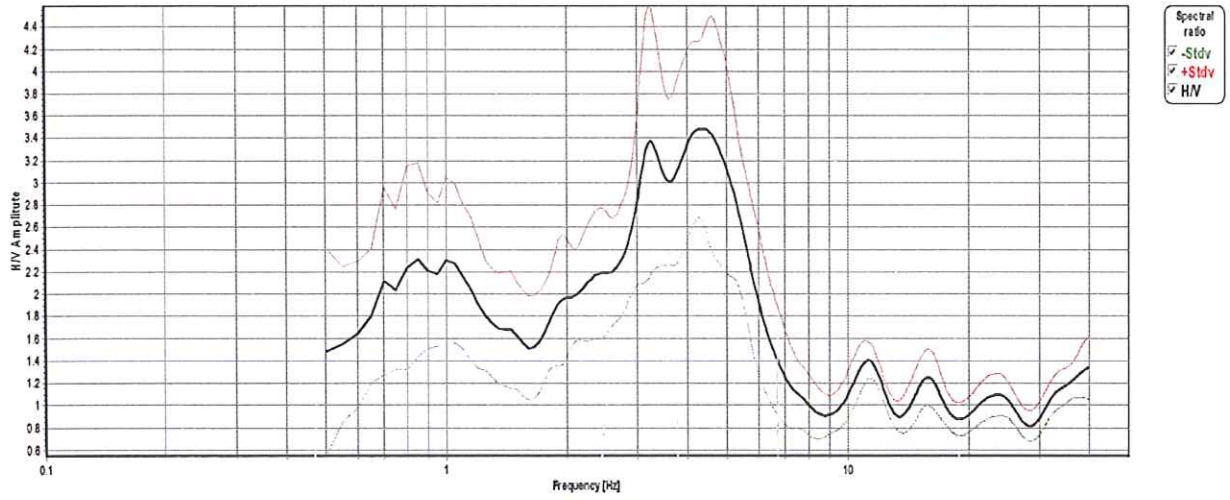
Measure point: **25**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 10:12:01**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 10:42:01**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**43**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**47**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**4.036**	Standard deviation [Hz]:	**0.629**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **25**

Criteria for a reliable H/V curve		
fø > 10/Lw	**4.04 >= 0.50**	**Yes**
Nc(fø) > 200	**3471.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 121**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**1.350**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**6.250**	**Yes**
Aø > 2	**3.39 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**20.71% > 5.00%**	**No**
sf < e(fø)	**0.6293 > 0.2018**	**No**
sA(fø) < ?(fø)	**0.8429 < 1.5800**	**Yes**

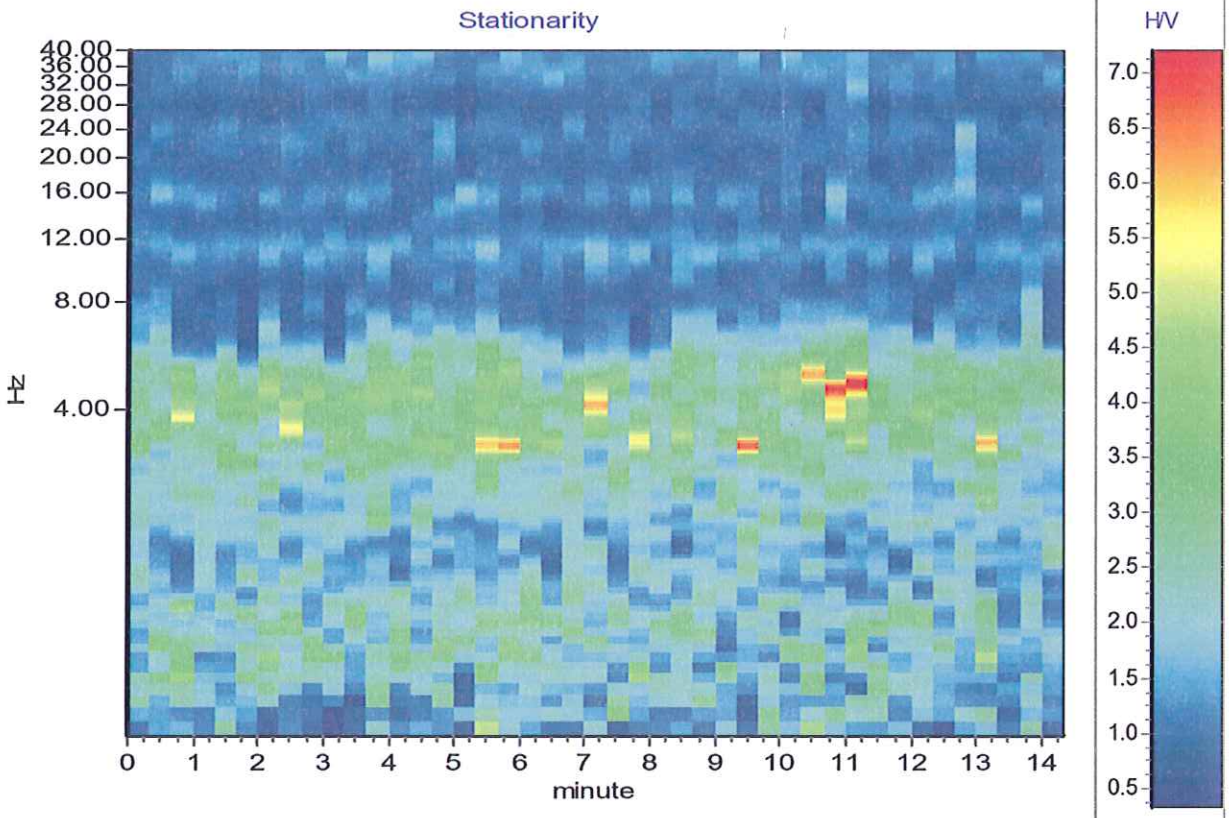
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

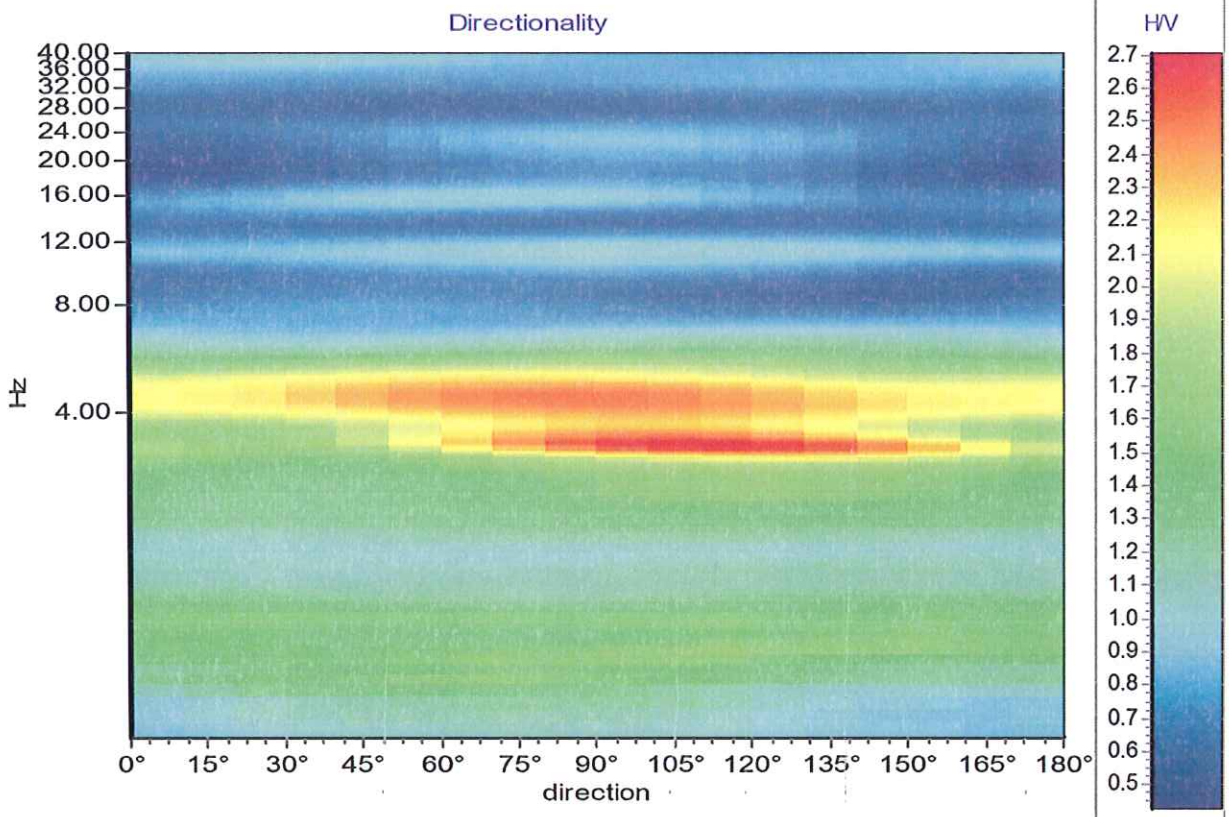
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **25**





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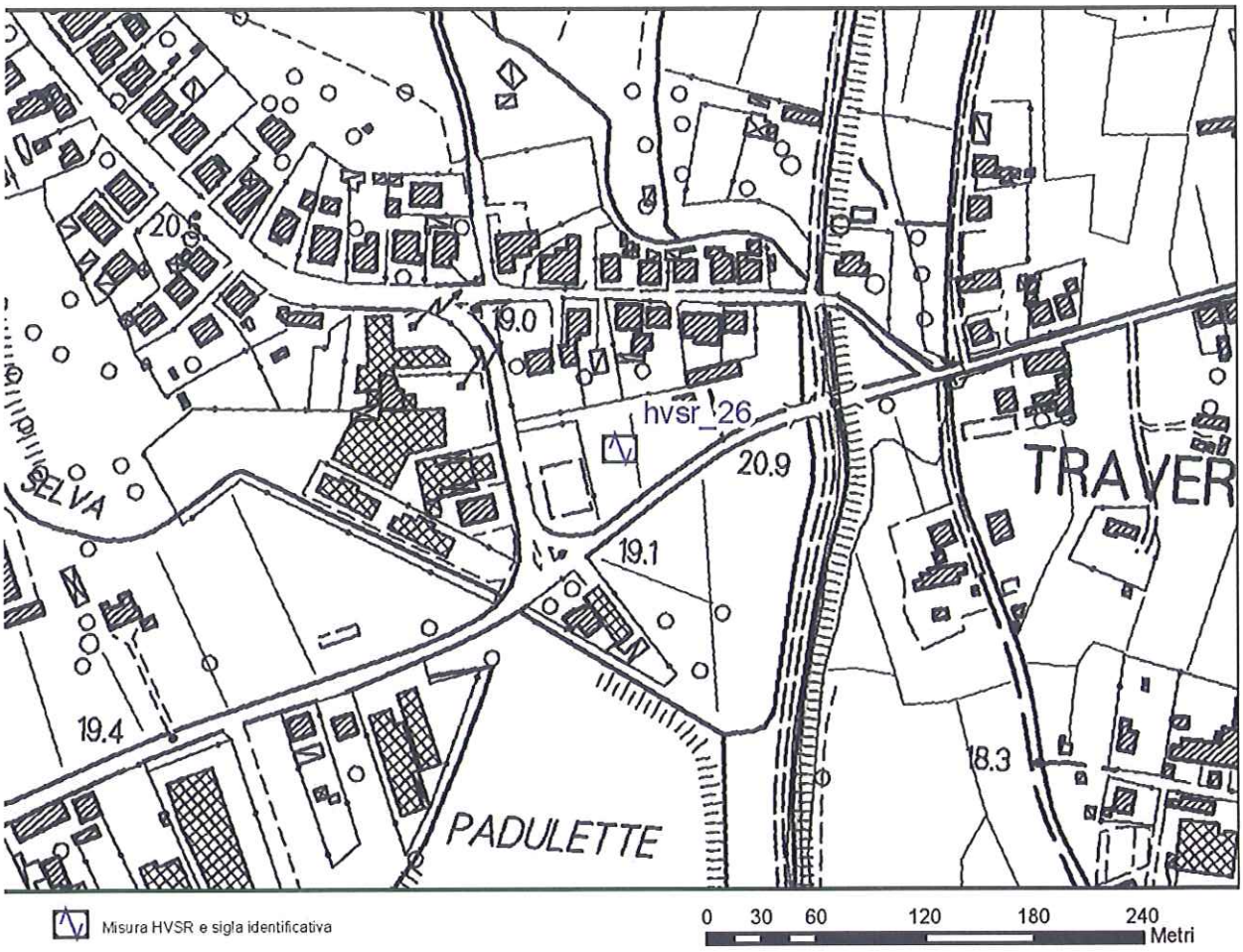


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

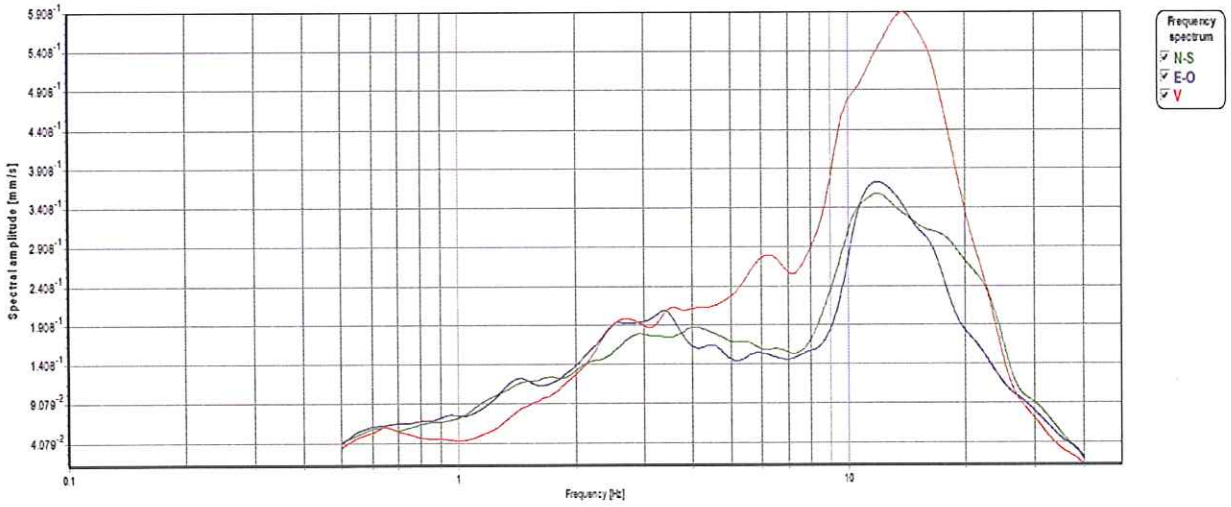
Analysis site: **Buggiano**

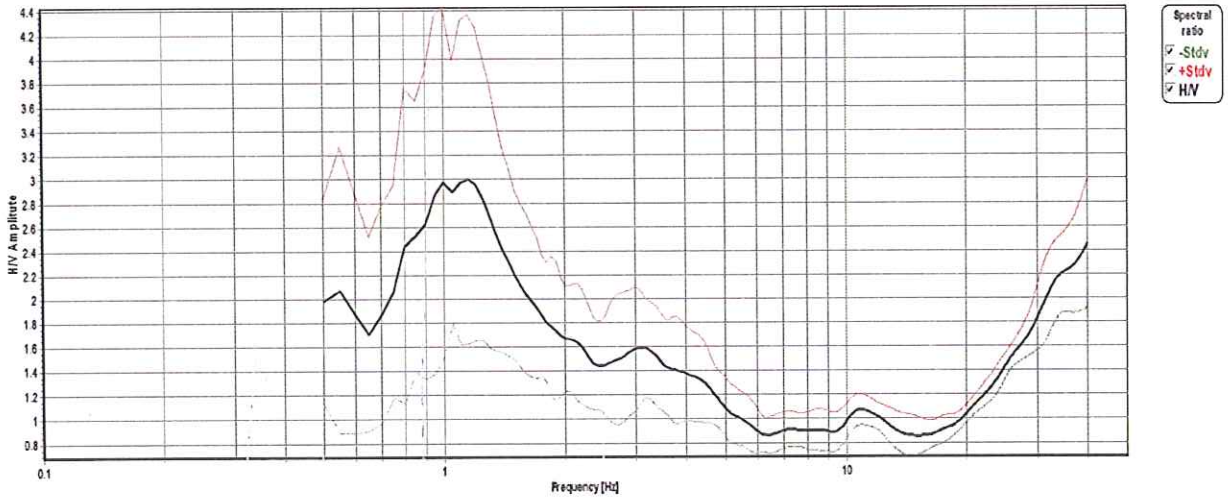
Measure point: **26**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 11:03:19**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 11:33:19**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**56**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**34**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.025**	Standard deviation [Hz]:	**0.160**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **26**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.03 >= 0.50**	**Yes**
Nc(fø) > 200	**1148.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 31**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**2.400**	**Yes**
Aø > 2	**2.90 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**3802.40% > 5.00%**	**No**
sf < e(fø)	**0.1604 > 0.1025**	**No**
sA(fø) < ?(fø)	**1.0998 < 1.7800**	**Yes**

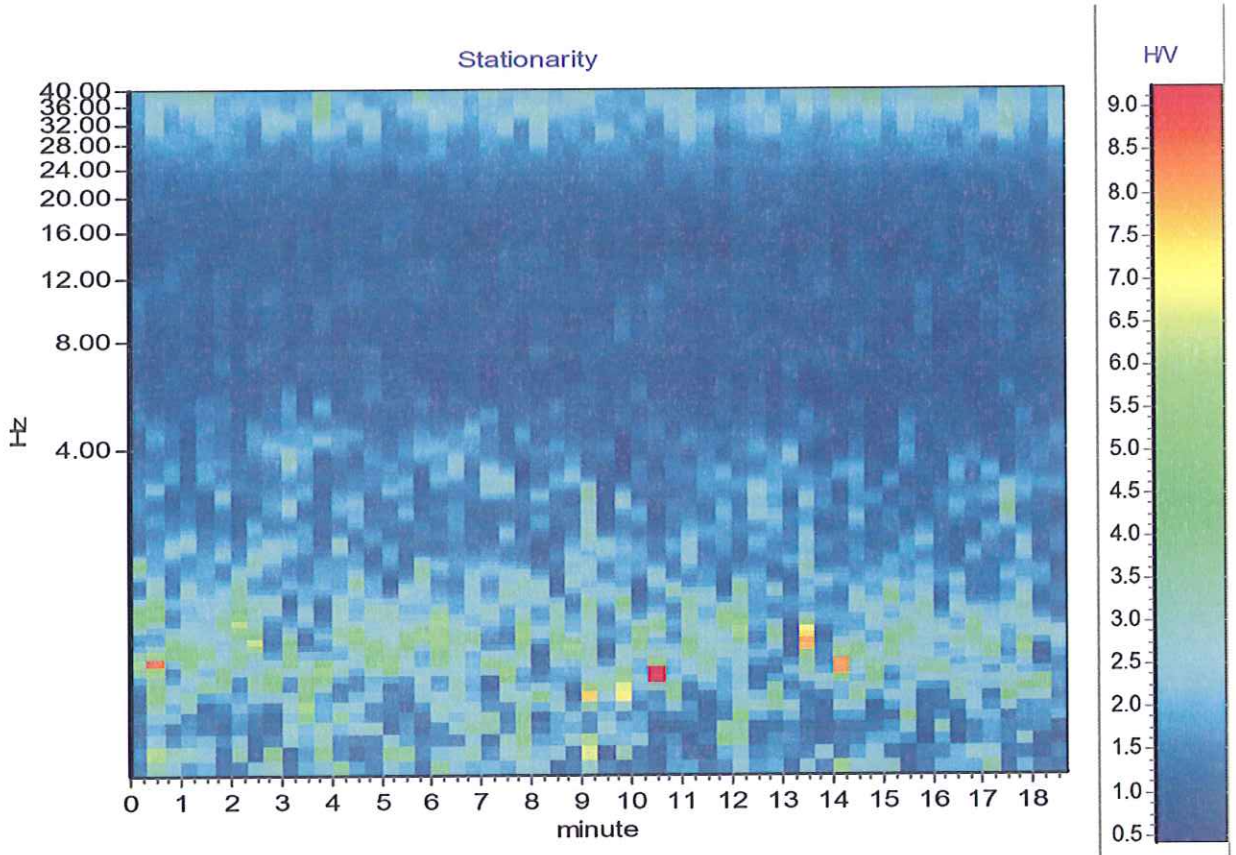
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

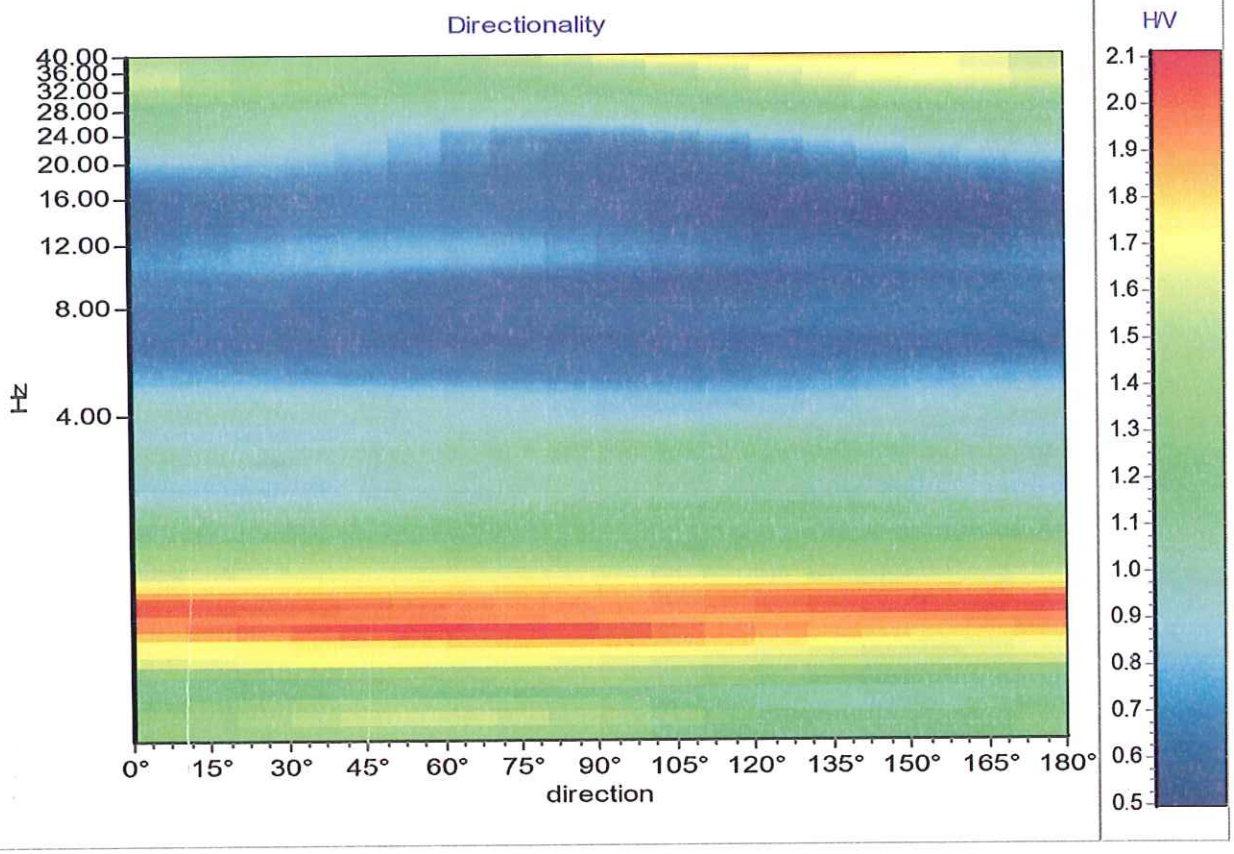
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **26**





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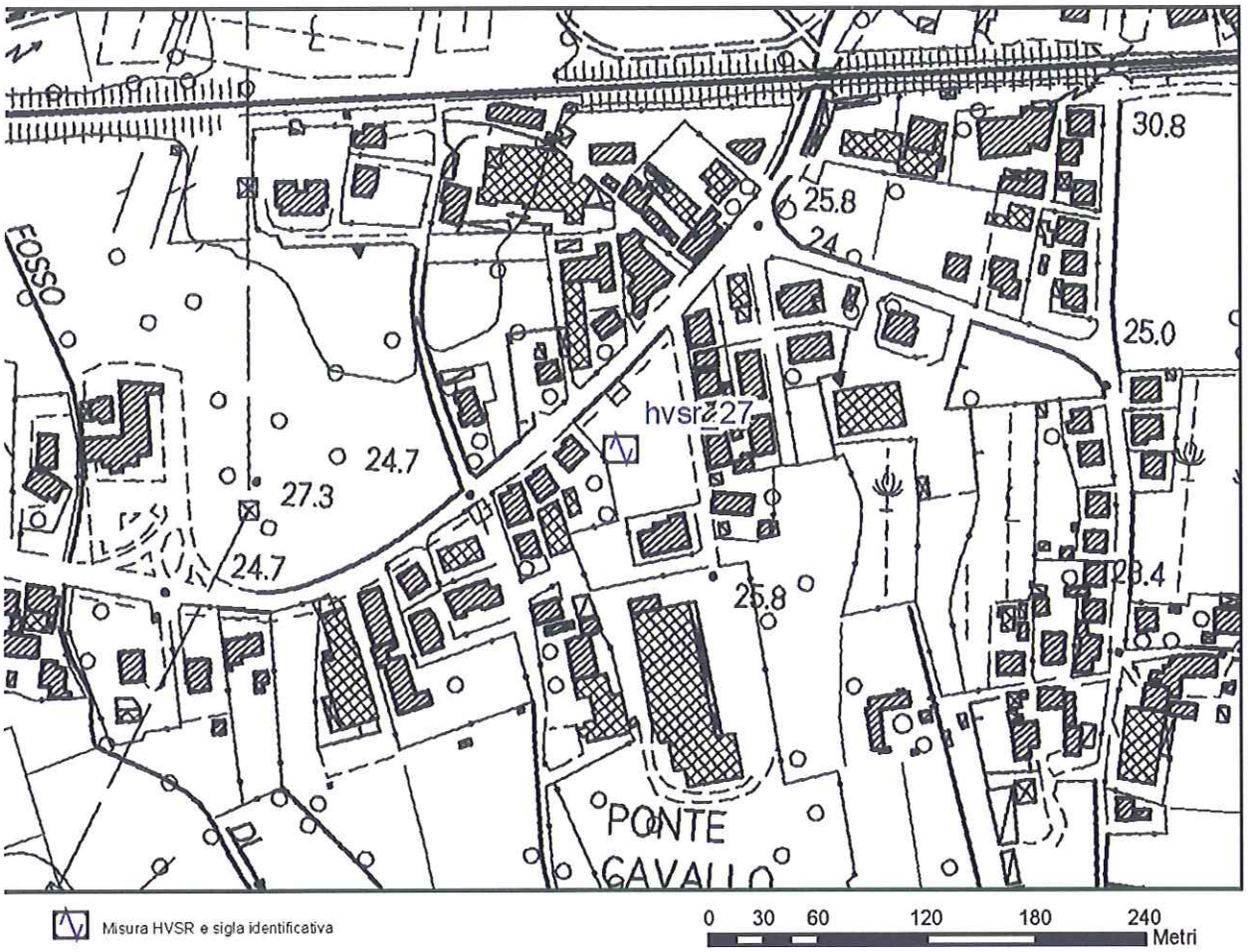


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

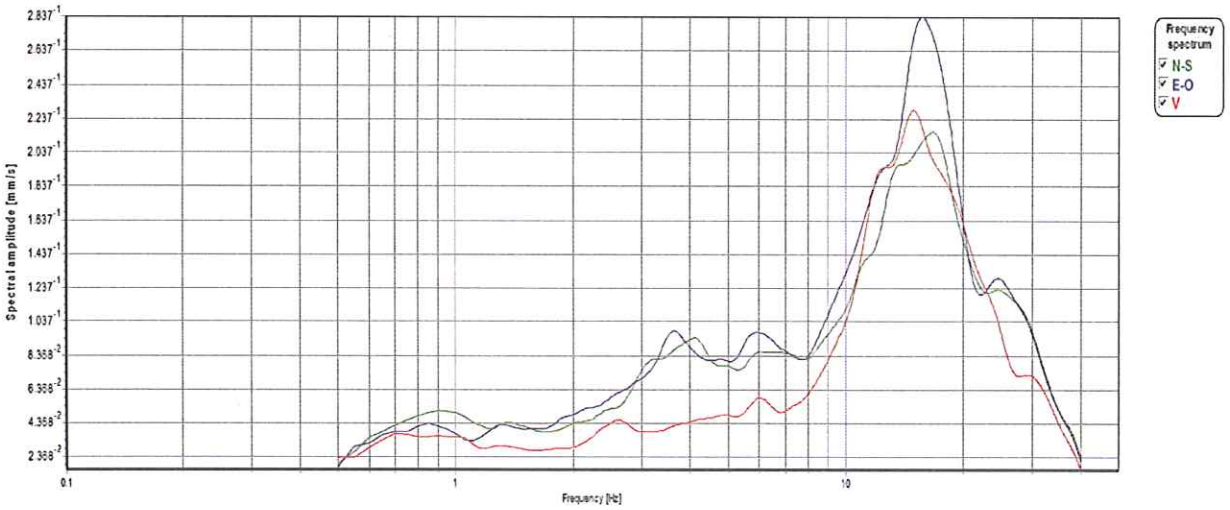
Analysis site: **Buggiano**

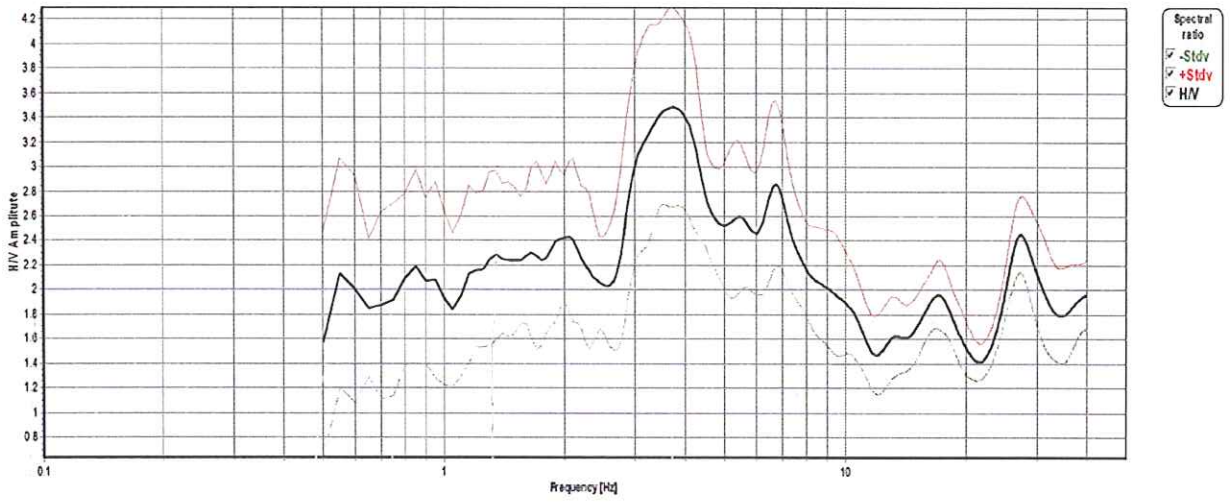
Measure point: **27**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 16:38:14**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 17:08:14**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**22**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**68**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**3.595**	Standard deviation [Hz]:	**0.345**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **27**

Criteria for a reliable H/V curve		
fø > 10/Lw	**3.60 >= 0.50**	**Yes**
Nc(fø) > 200	**1582.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 108**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**10.800**	**Yes**
Aø > 2	**3.47 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**2.91% < 5.00%**	**Yes**
sf < e(fø)	**0.3454 > 0.1798**	**No**
sA(fø) < ?(fø)	**0.7868 < 1.5800**	**Yes**

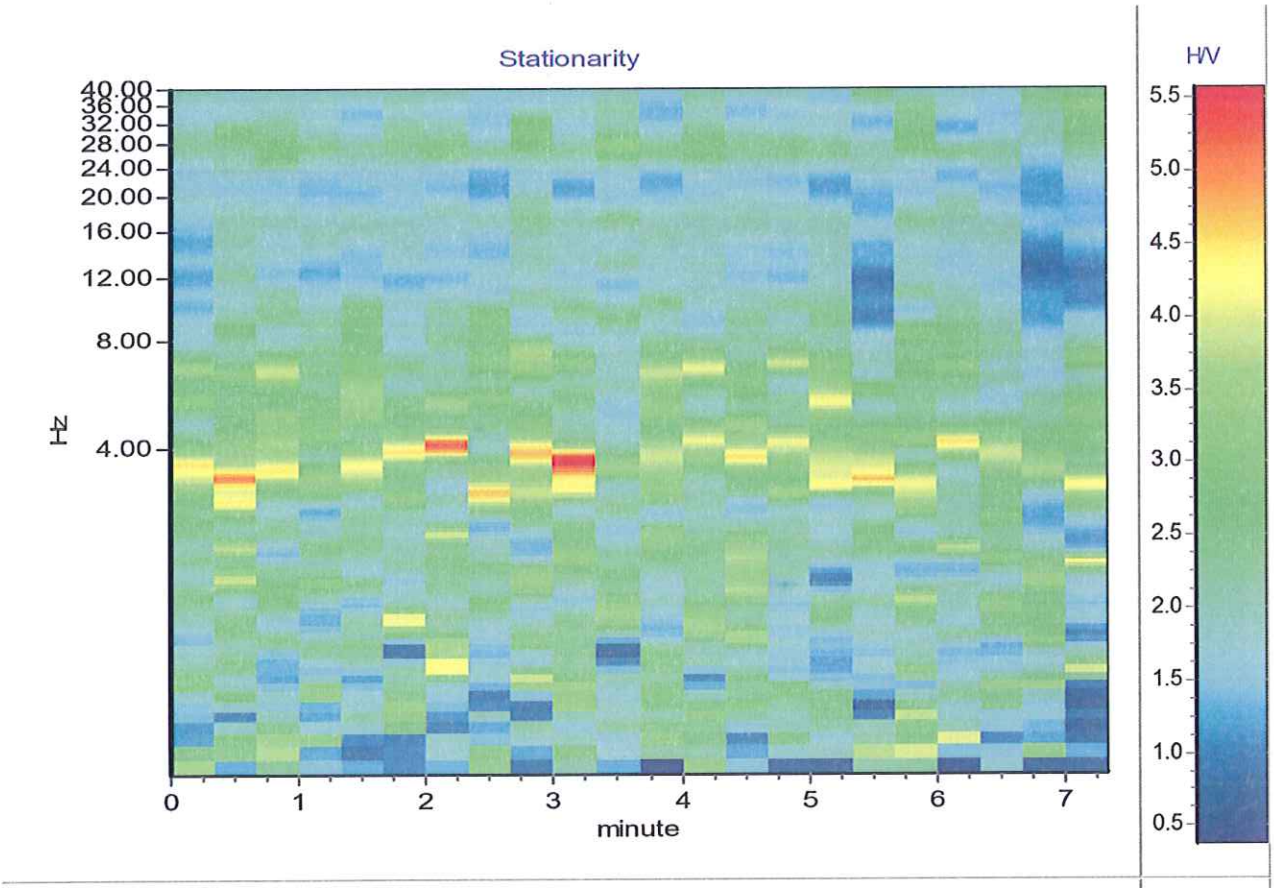
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

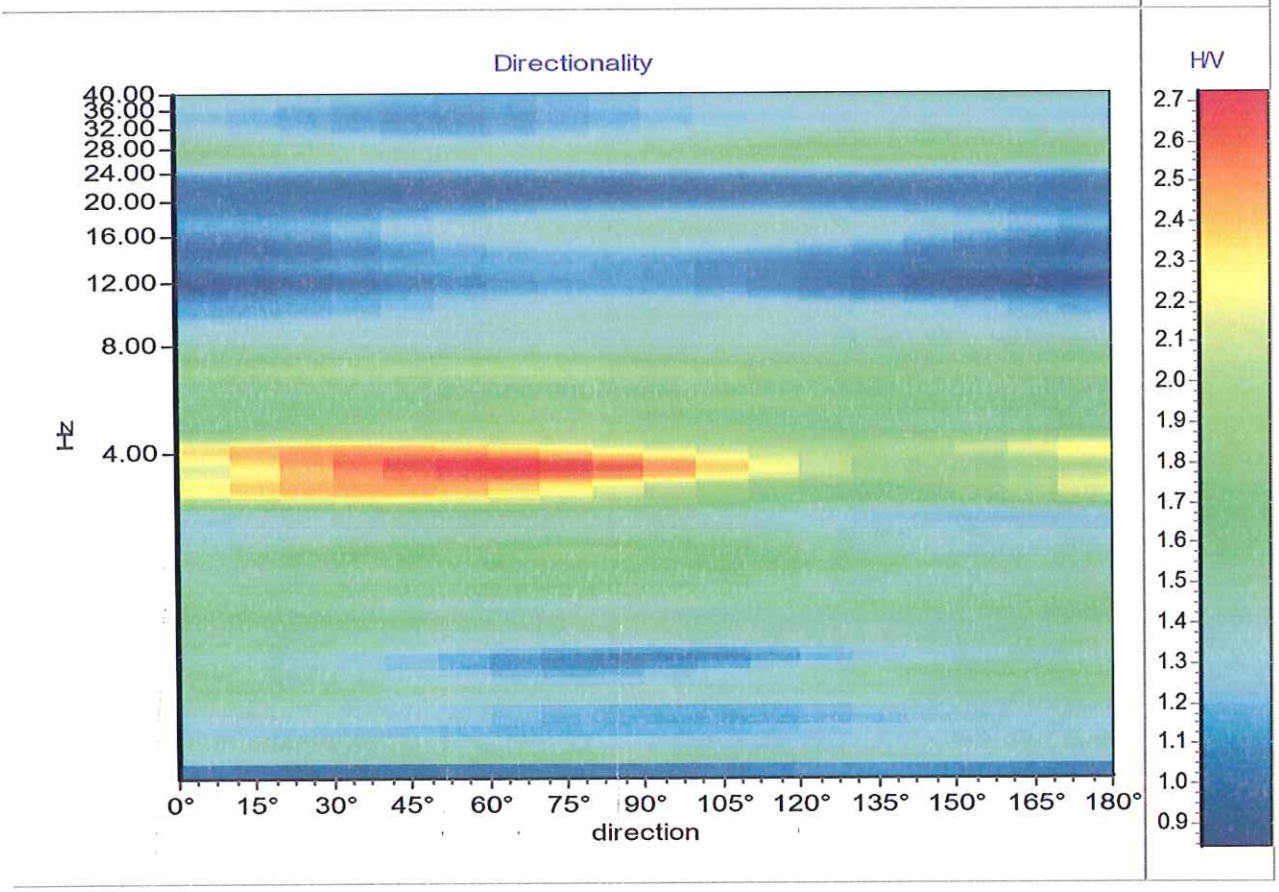
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **27**





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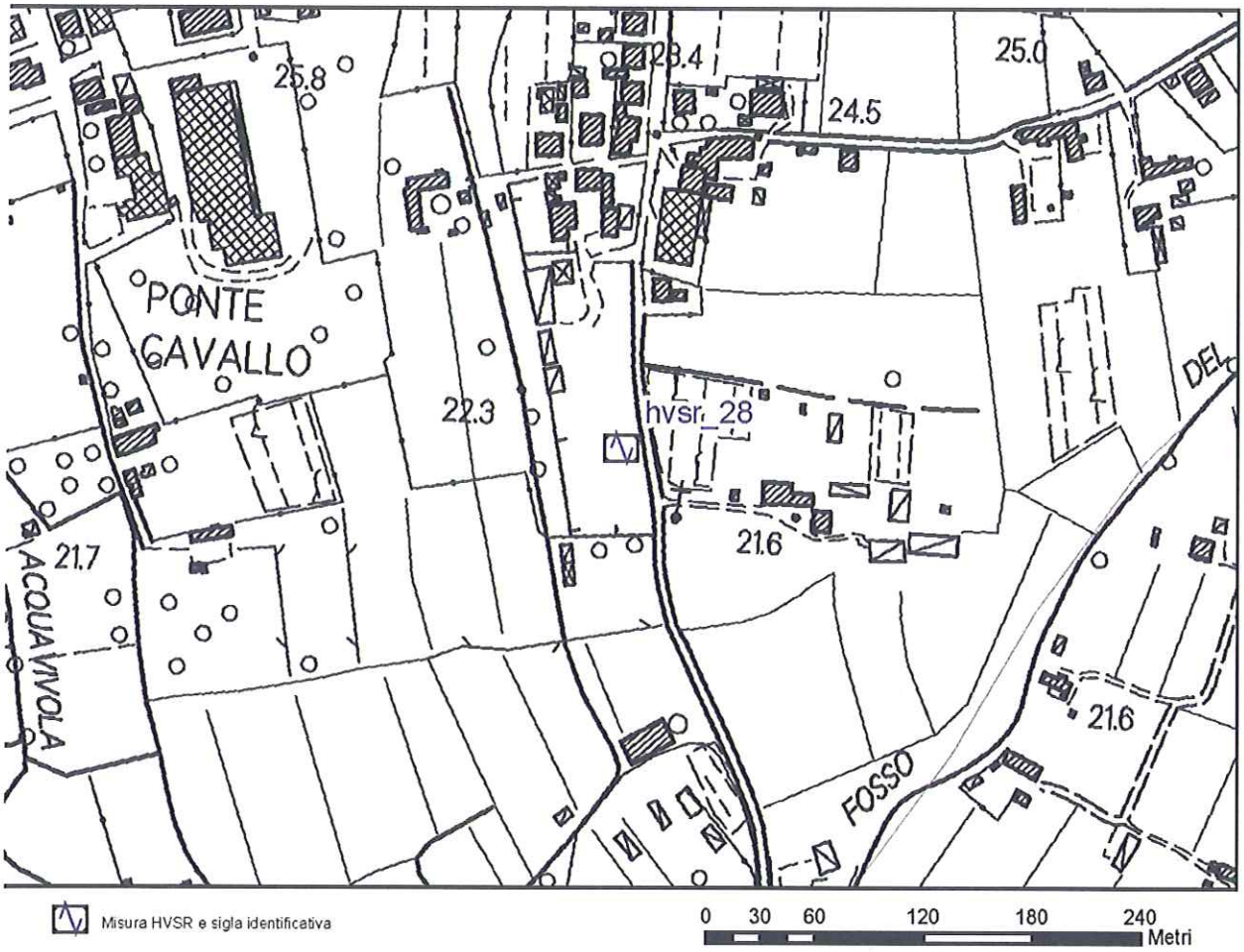


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

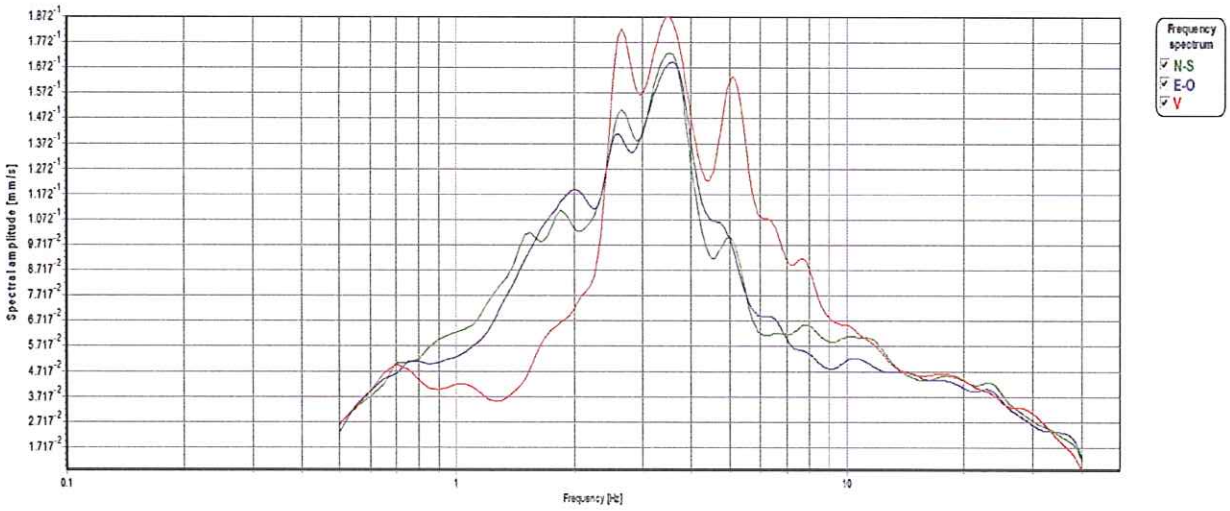
Analysis site: **Buggiano**

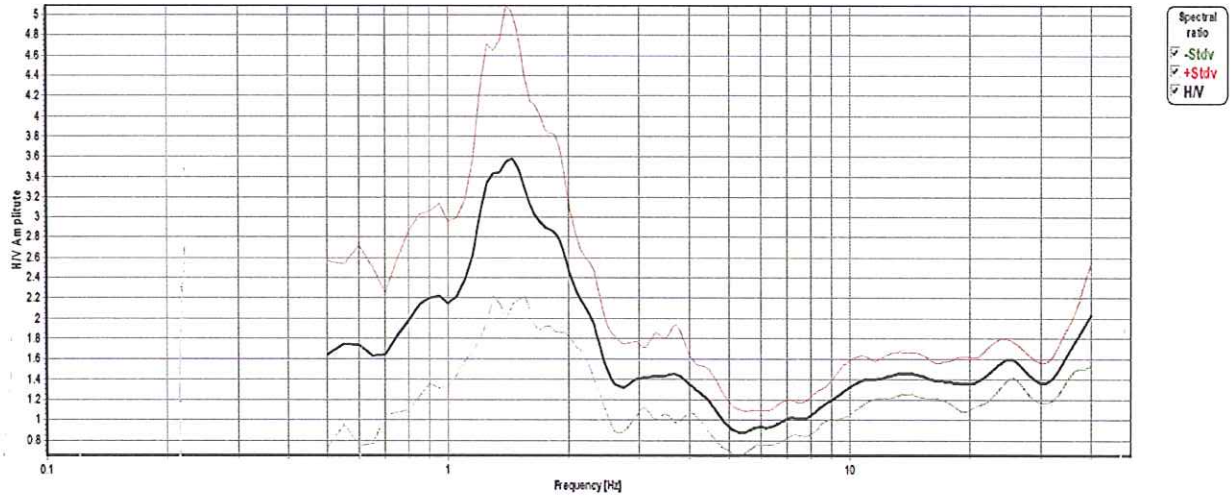
Measure point: **28**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 19:02:02**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 19:32:02**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**47**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**43**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.463**	Standard deviation [Hz]:	**0.208**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **28**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.46 >= 0.50**	**Yes**
Nc(fø) > 200	**1375.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 44**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.500**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**2.400**	**Yes**
Aø > 2	**3.58 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**11.13% > 5.00%**	**No**
sf < e(fø)	**0.2082 > 0.1463**	**No**
sA(fø) < ?(fø)	**1.4385 < 1.7800**	**Yes**

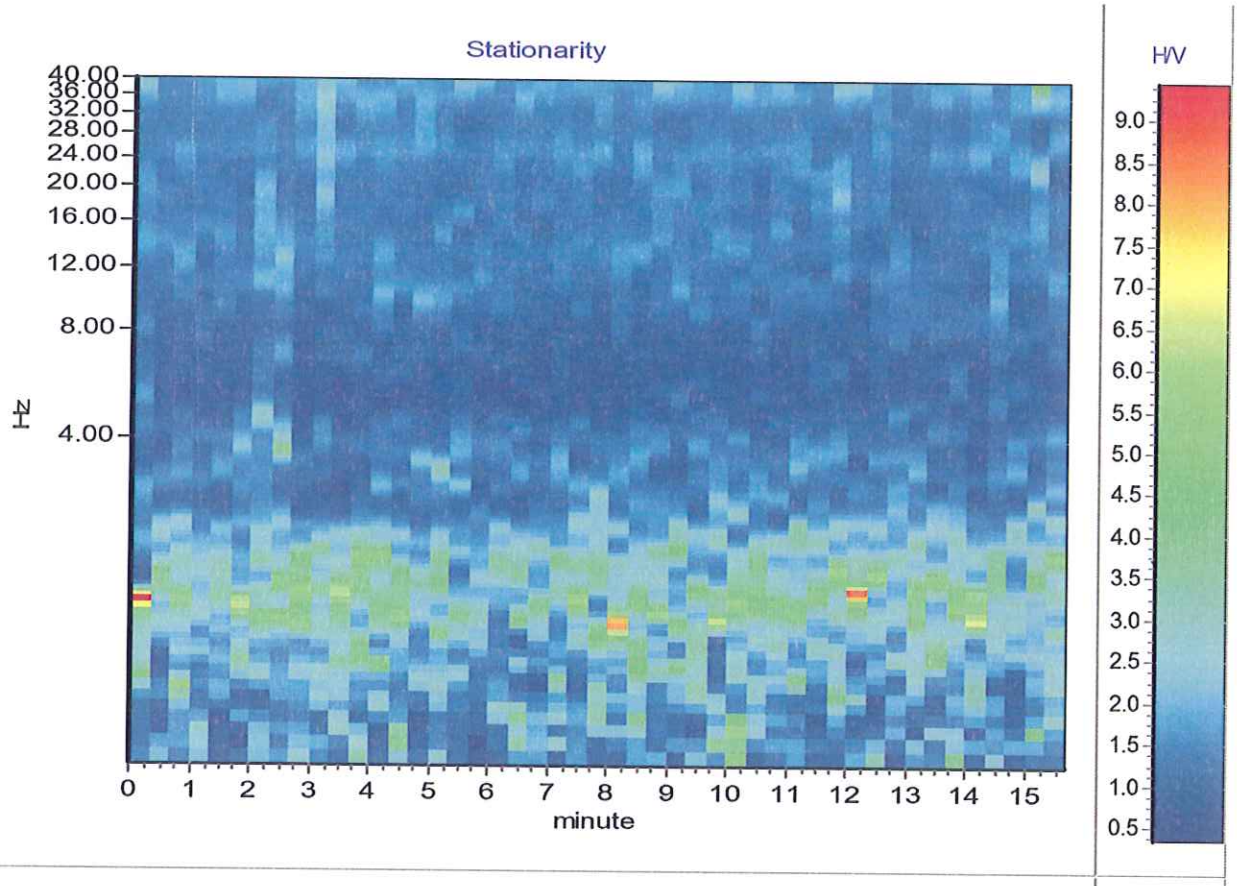
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

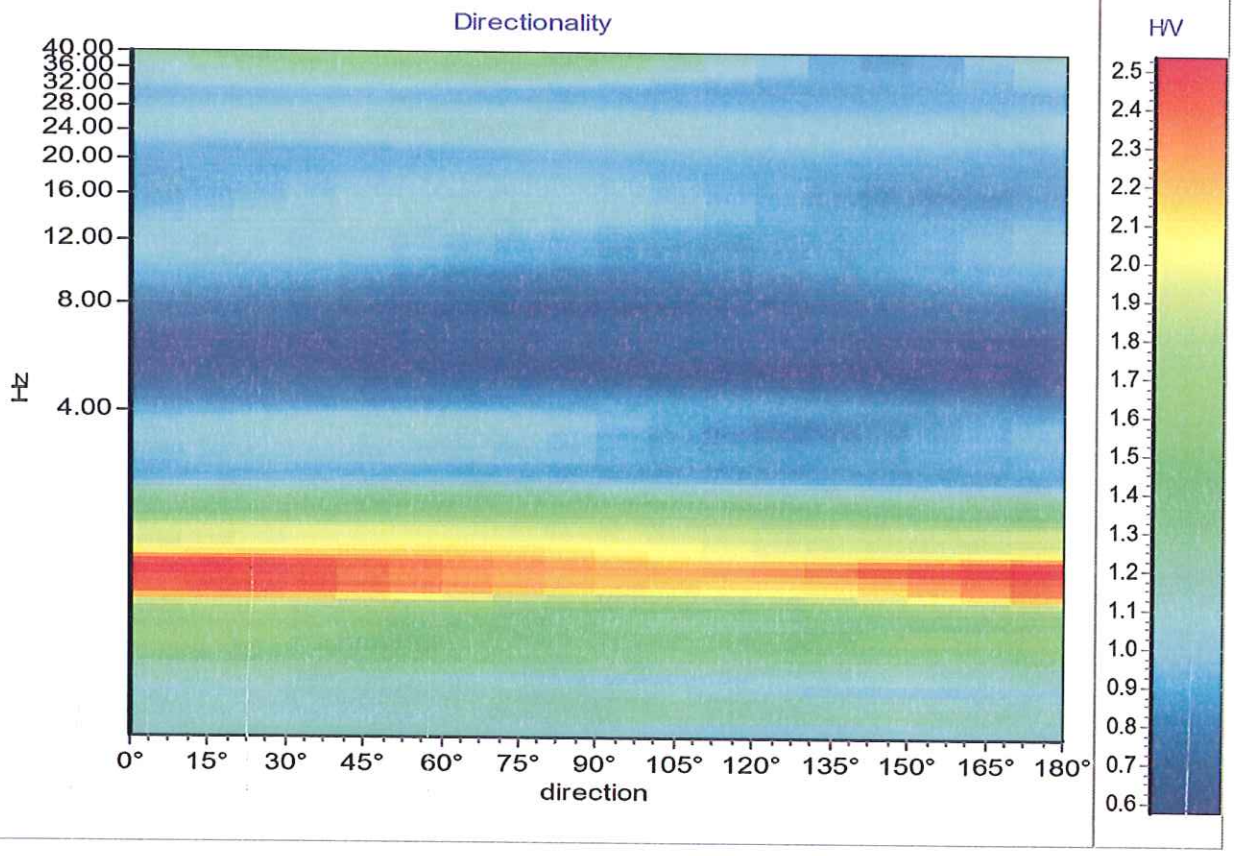
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **28**





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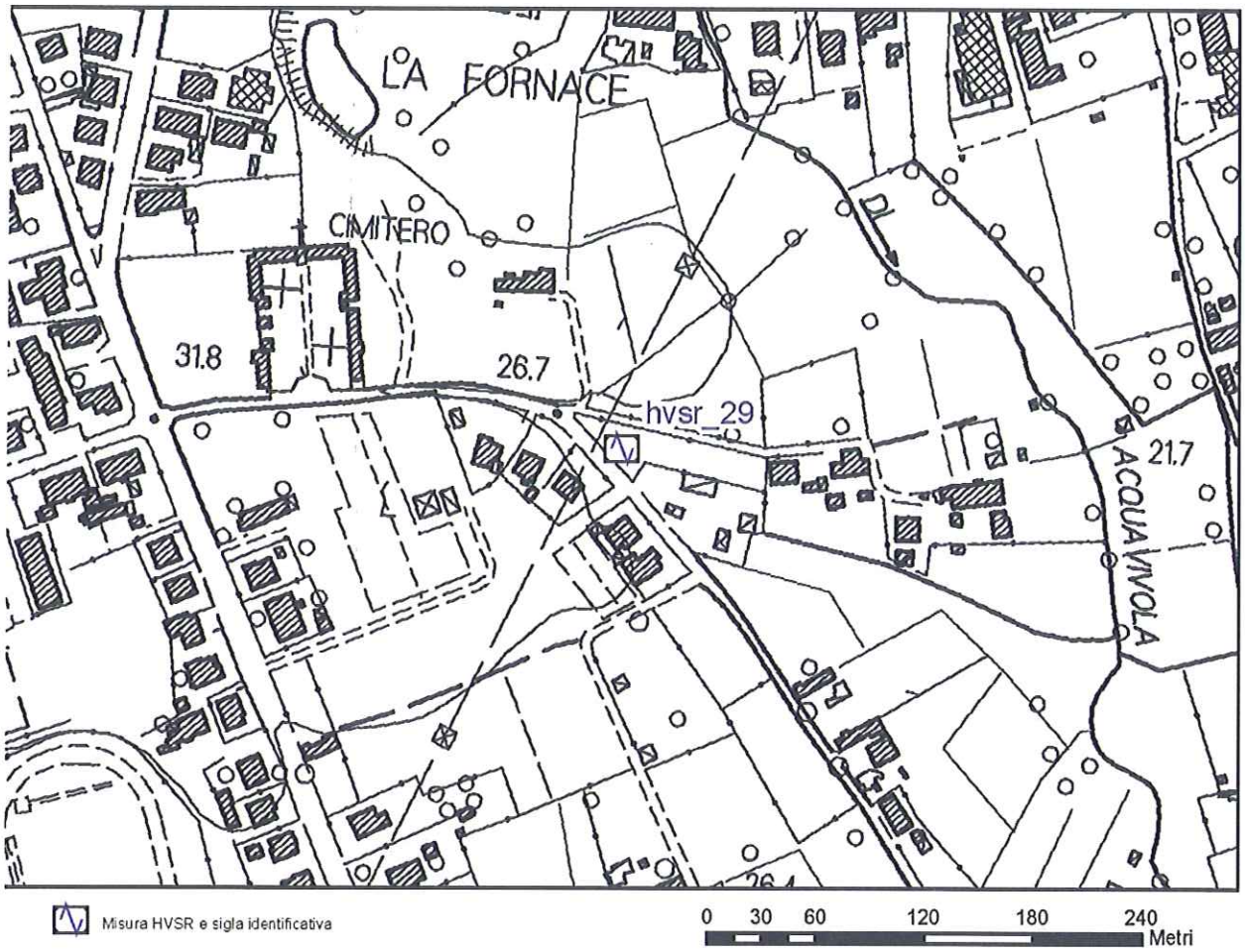


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

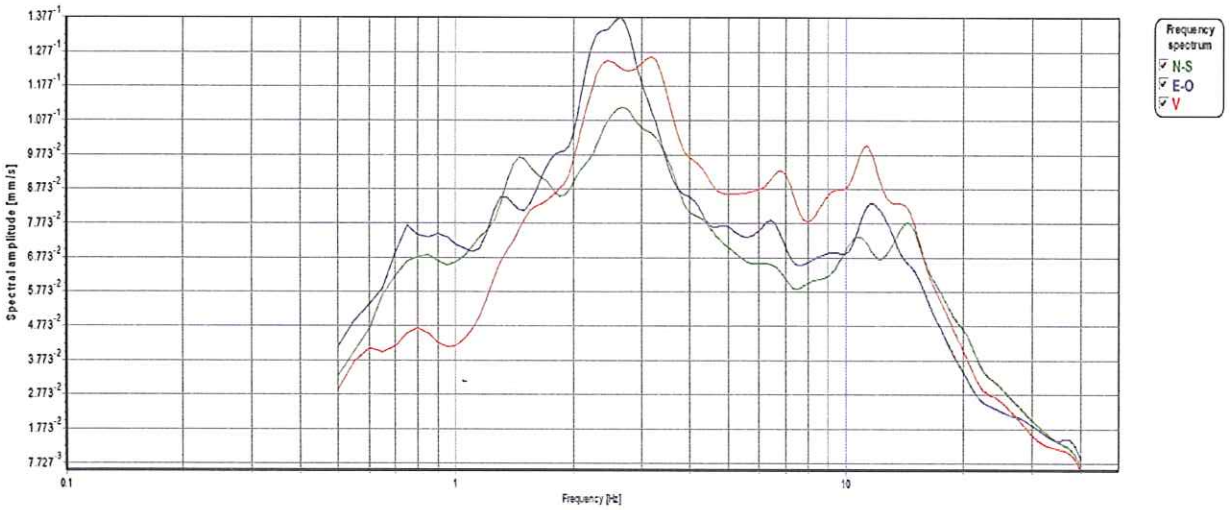
Analysis site: **Buggiano**

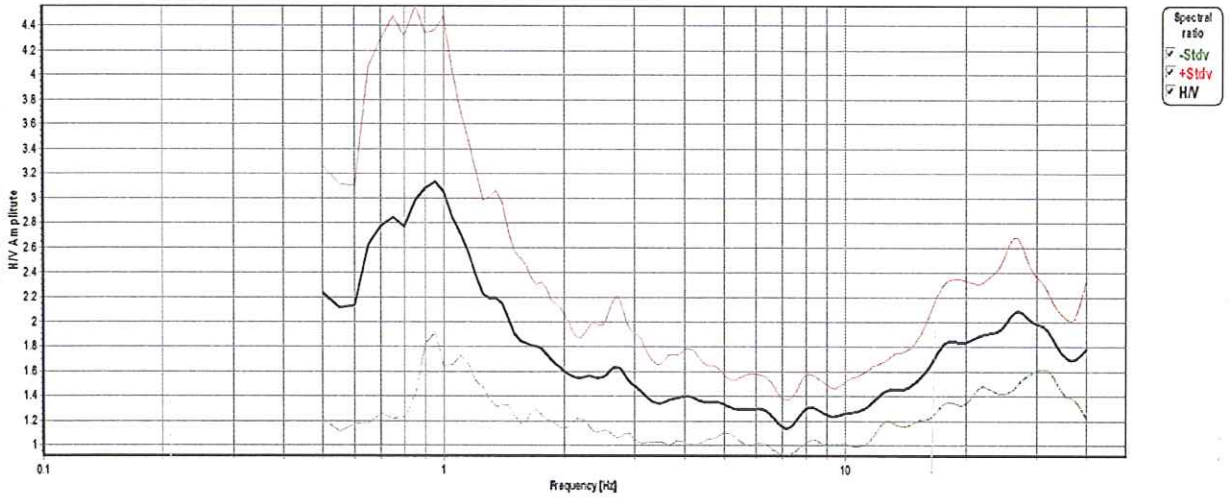
Measure point: **29**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 16:03:40**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 16:33:40**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**53**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**37**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.875**	Standard deviation [Hz]:	**0.157**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **29**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.88 >= 0.50**	**Yes**
Nc(fø) > 200	**928.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 26**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**2.150**	**Yes**
Aø > 2	**3.09 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**8.51% > 5.00%**	**No**
sf < e(fø)	**0.1565 > 0.1313**	**No**
sA(fø) < ?(fø)	**1.2578 < 2.0000**	**Yes**

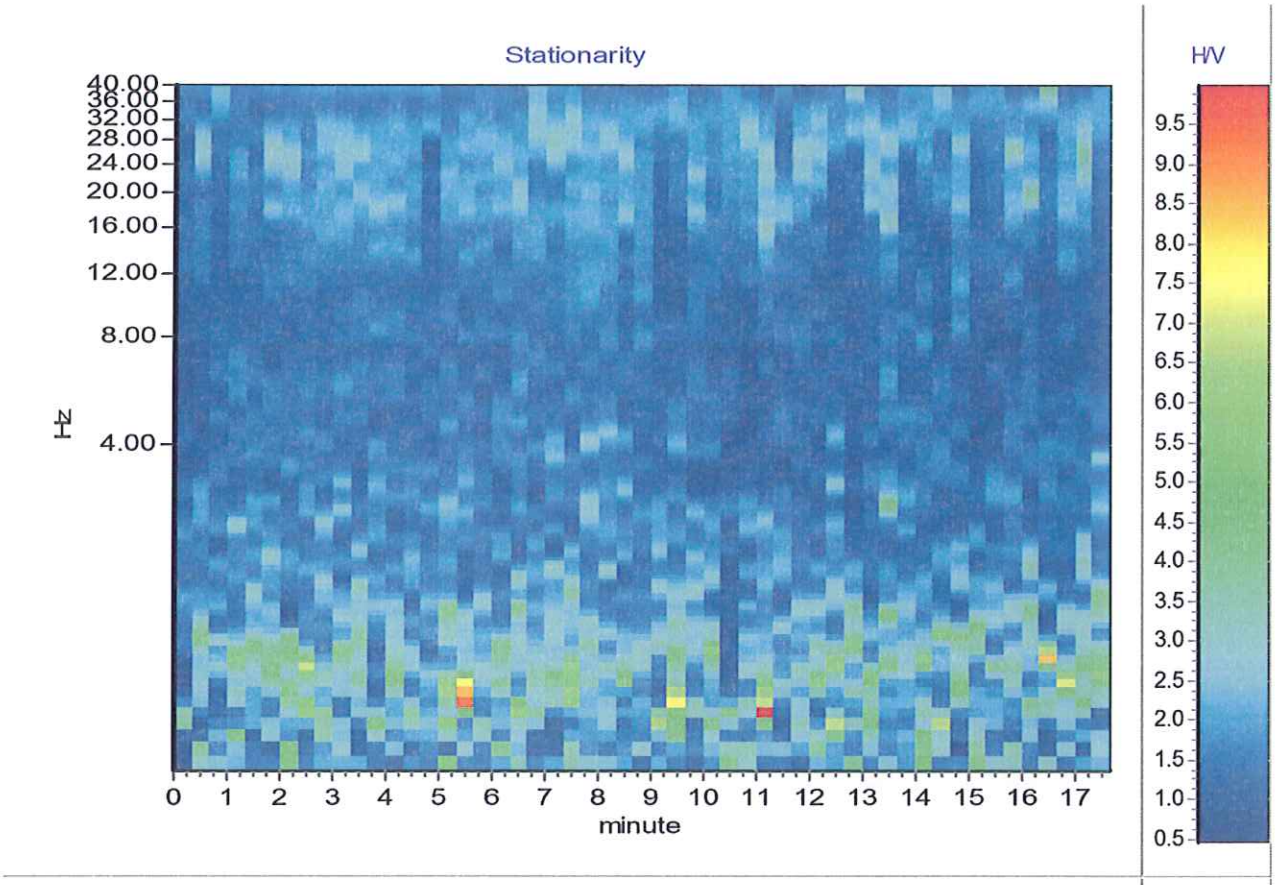
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

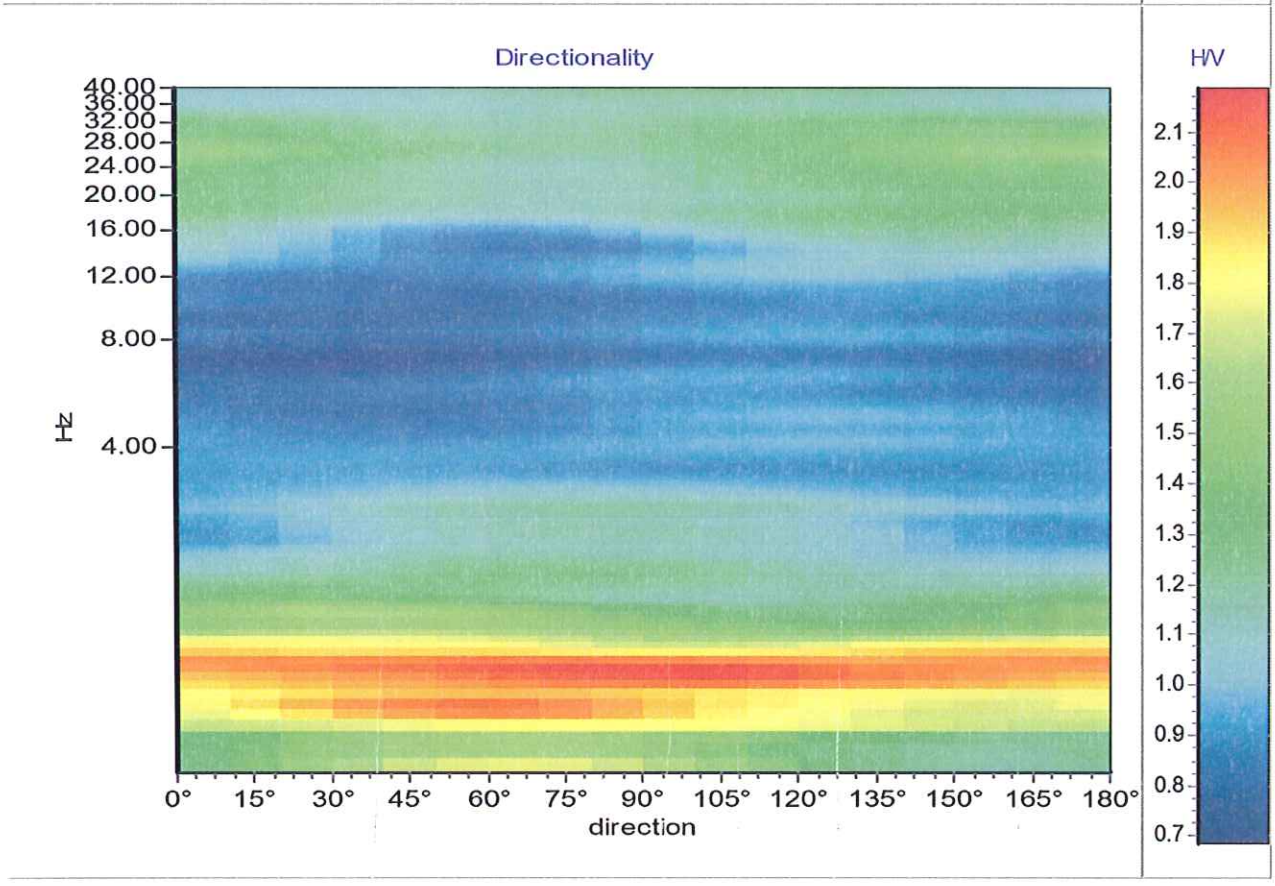
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **29**





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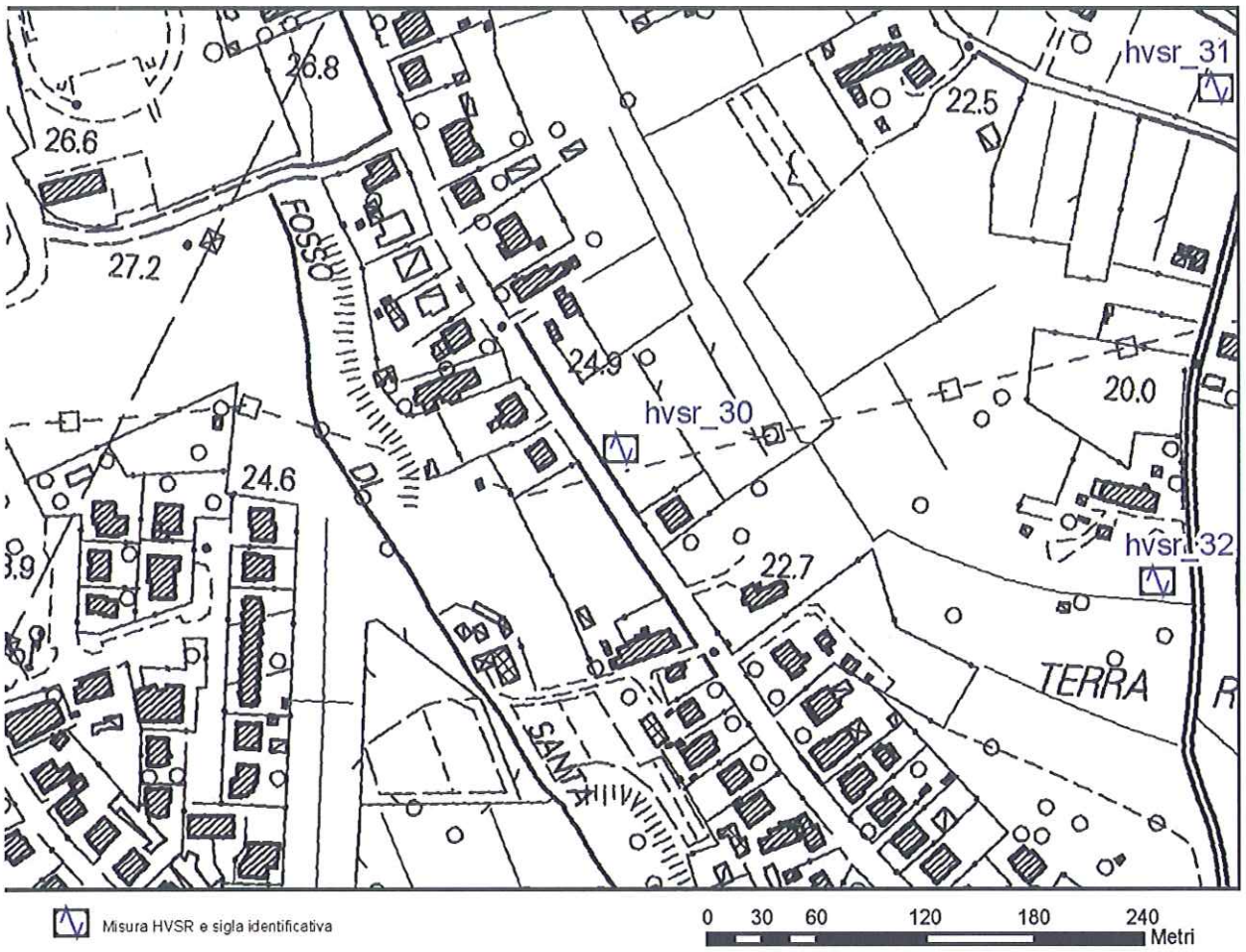


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

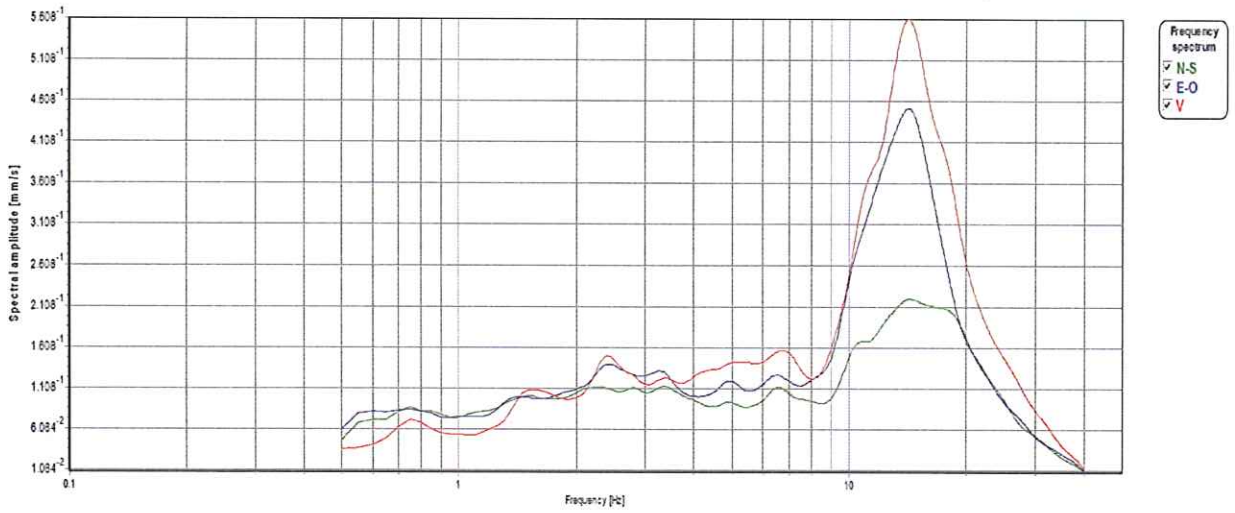
Analysis site: **Buggiano**

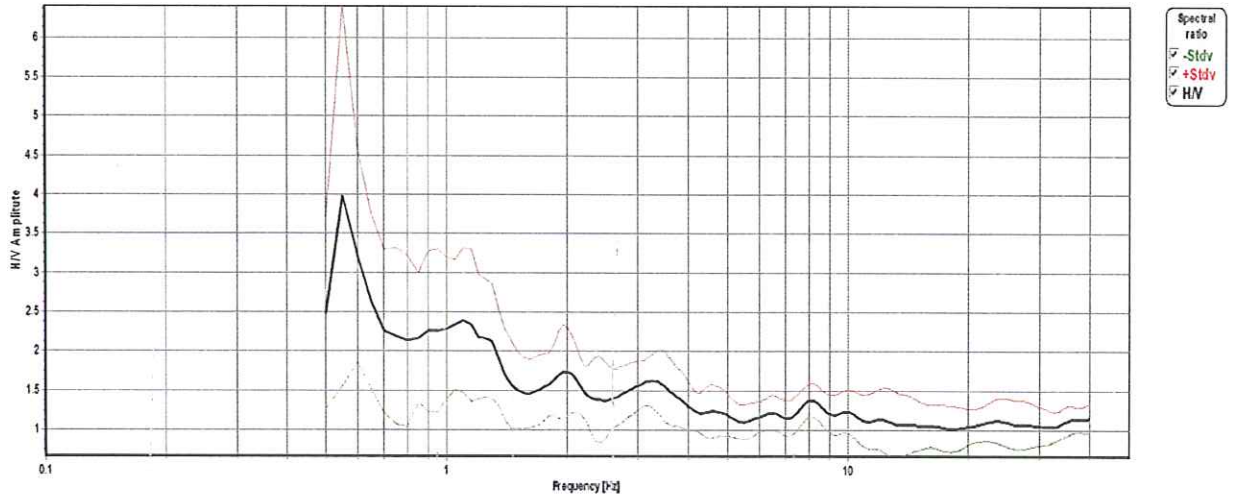
Measure point: **30**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 17:02:44**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 17:32:44**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**41**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**49**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.618**	Standard deviation [Hz]:	**0.082**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **30**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.62 >= 0.50**	**Yes**
Nc(fø) > 200	**507.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 1 out of 15**	**No**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**1.450**	**Yes**
Aø > 2	**3.21 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**11.05% > 5.00%**	**No**
sf < e(fø)	**0.0825 < 0.0927**	**Yes**
sA(fø) < ?(fø)	**1.3559 < 2.0000**	**Yes**

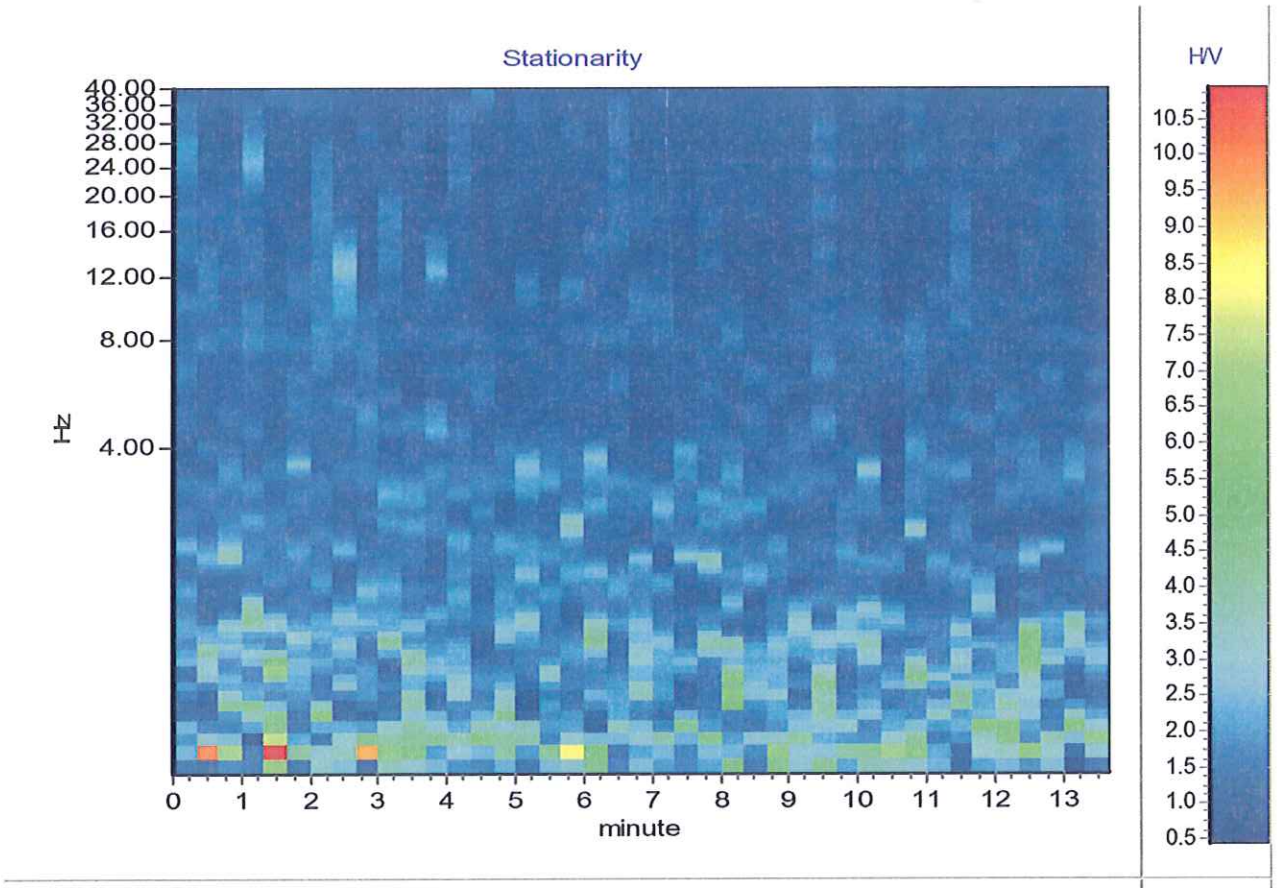
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

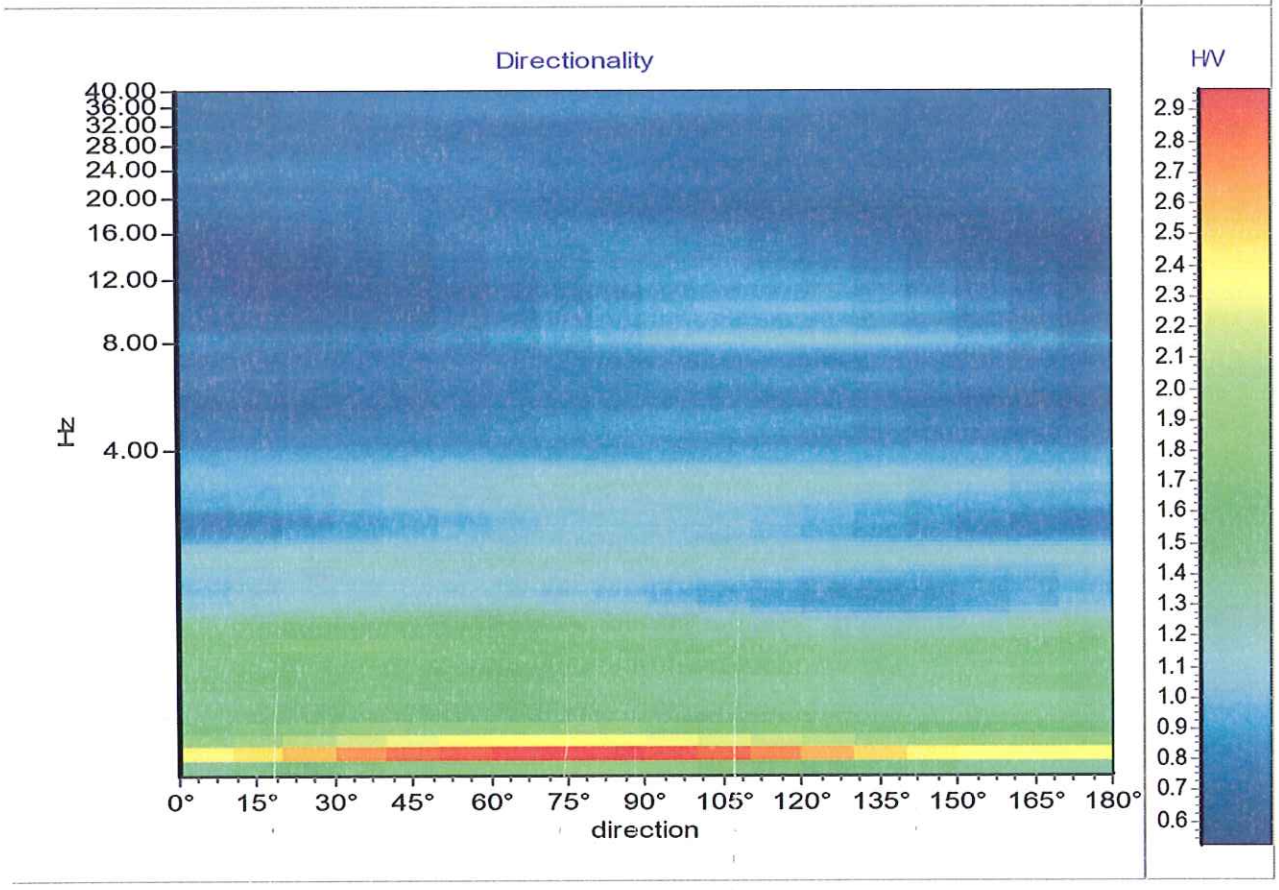
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **30**





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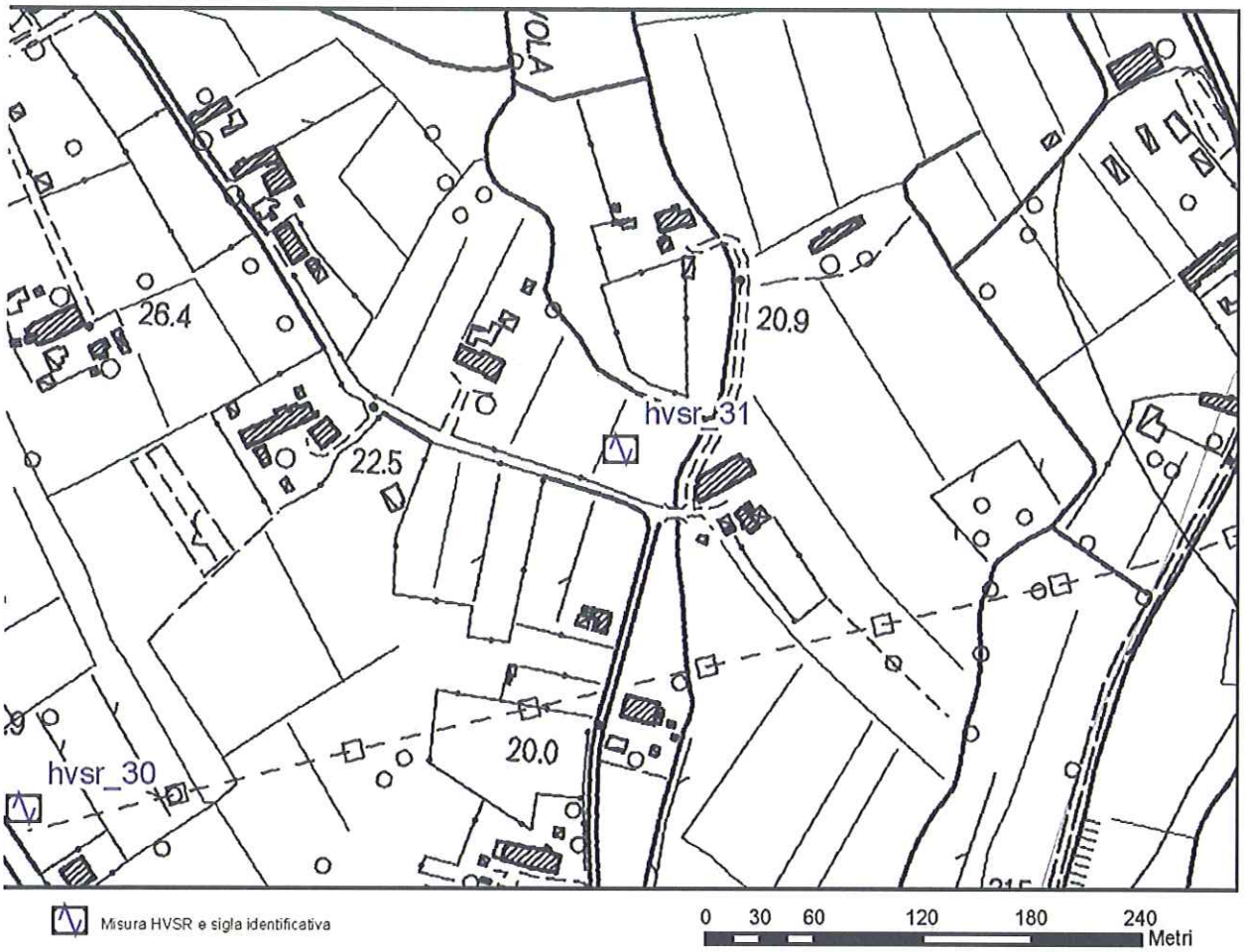


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

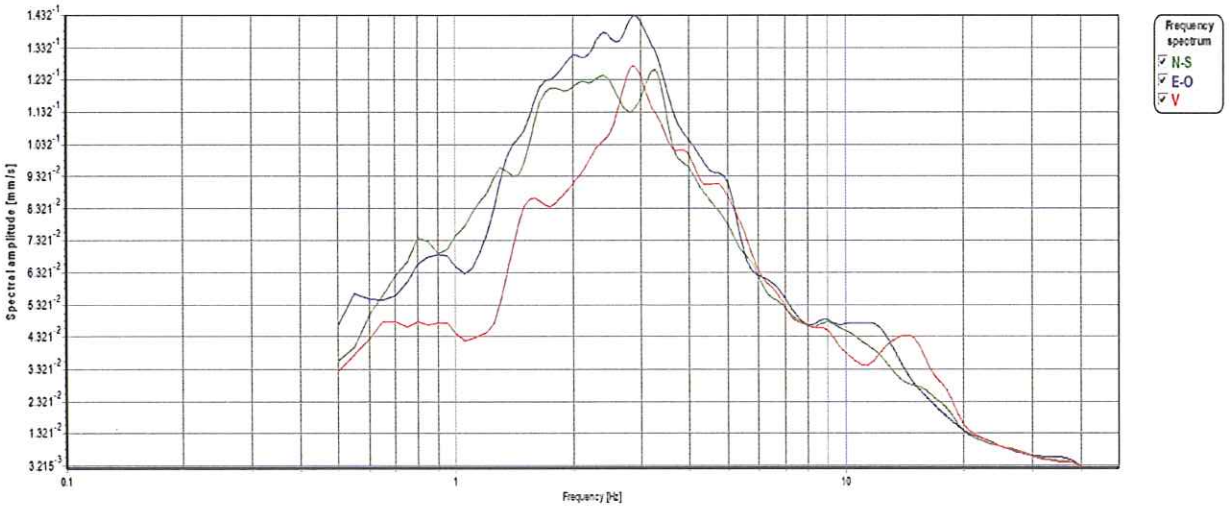
Analysis site: **Buggiano**

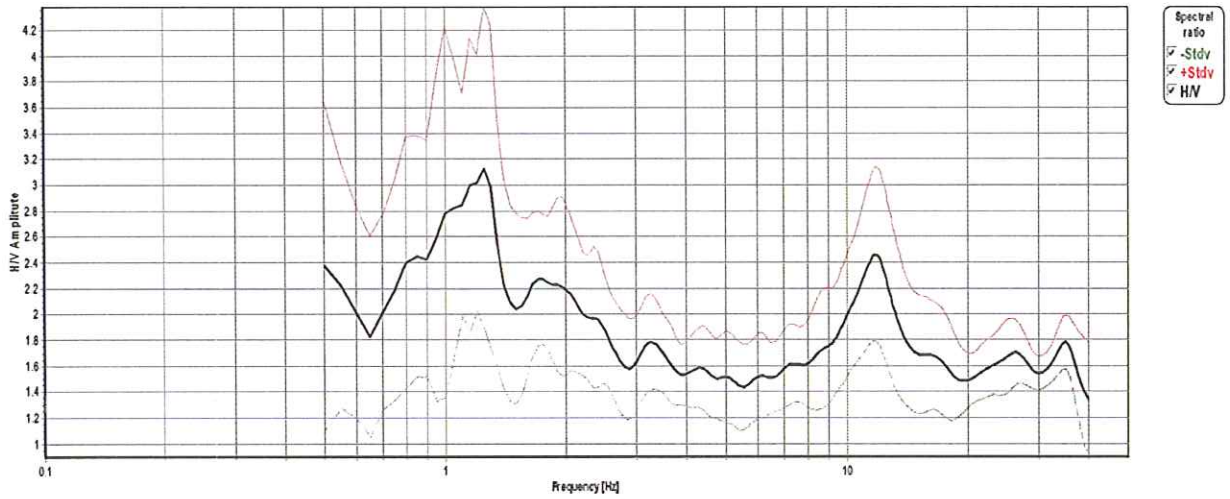
Measure point: **31**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 14:25:10**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 14:55:10**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**32**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**58**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.136**	Standard deviation [Hz]:	**0.119**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **31**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.14 >= 0.50**	**Yes**
Nc(fø) > 200	**727.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 34**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**3.00 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**10.04% > 5.00%**	**No**
sf < e(fø)	**0.1187 > 0.1136**	**No**
sA(fø) < ?(fø)	**1.1340 < 1.7800**	**Yes**

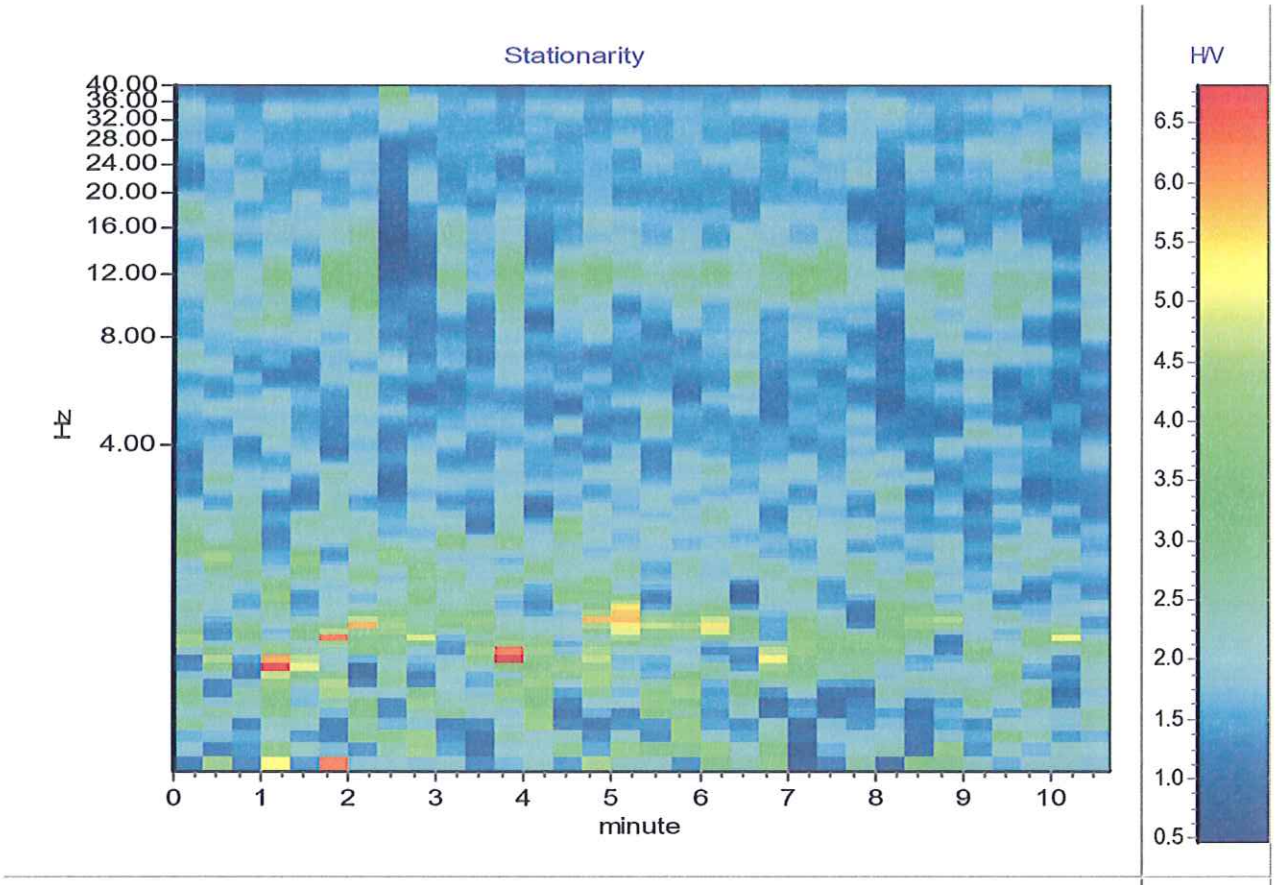
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

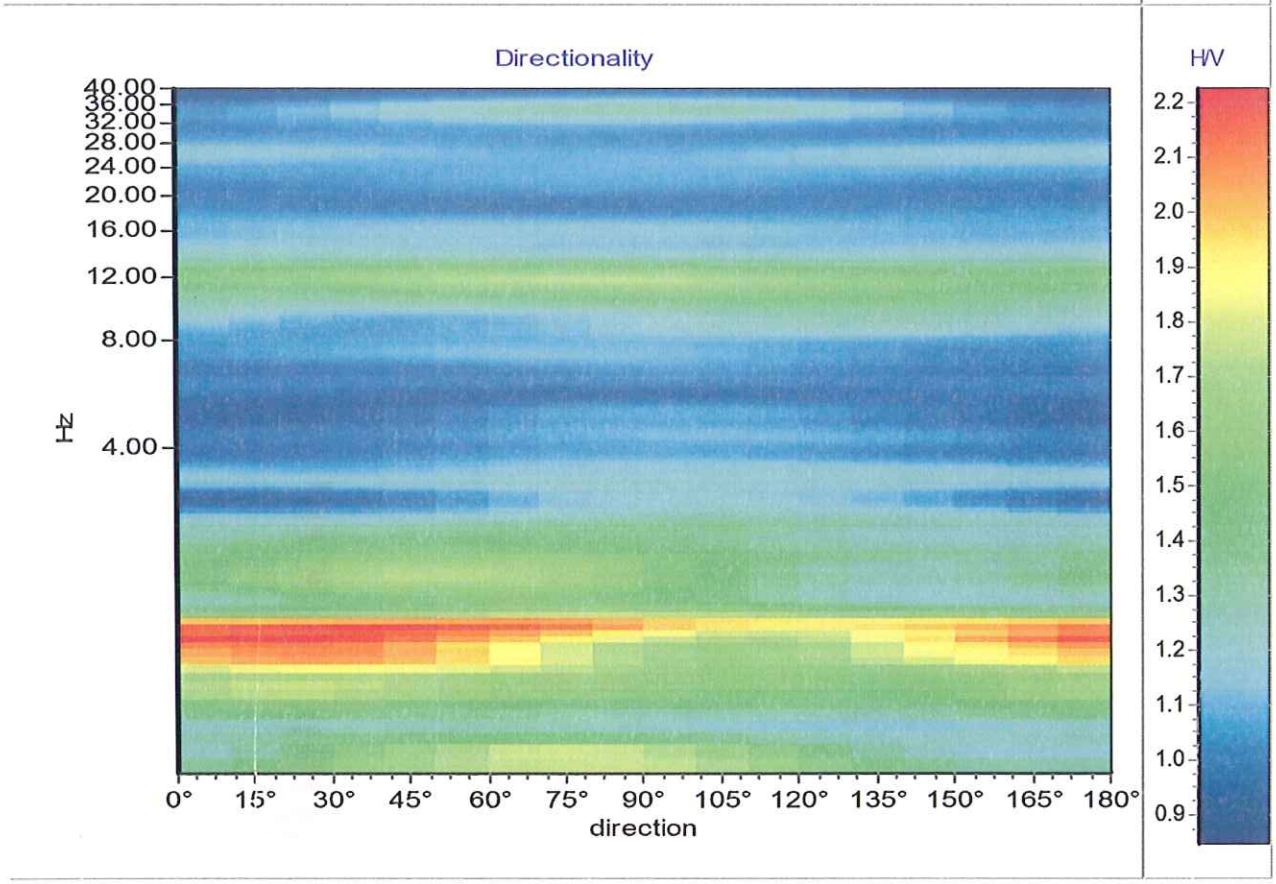
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **31**





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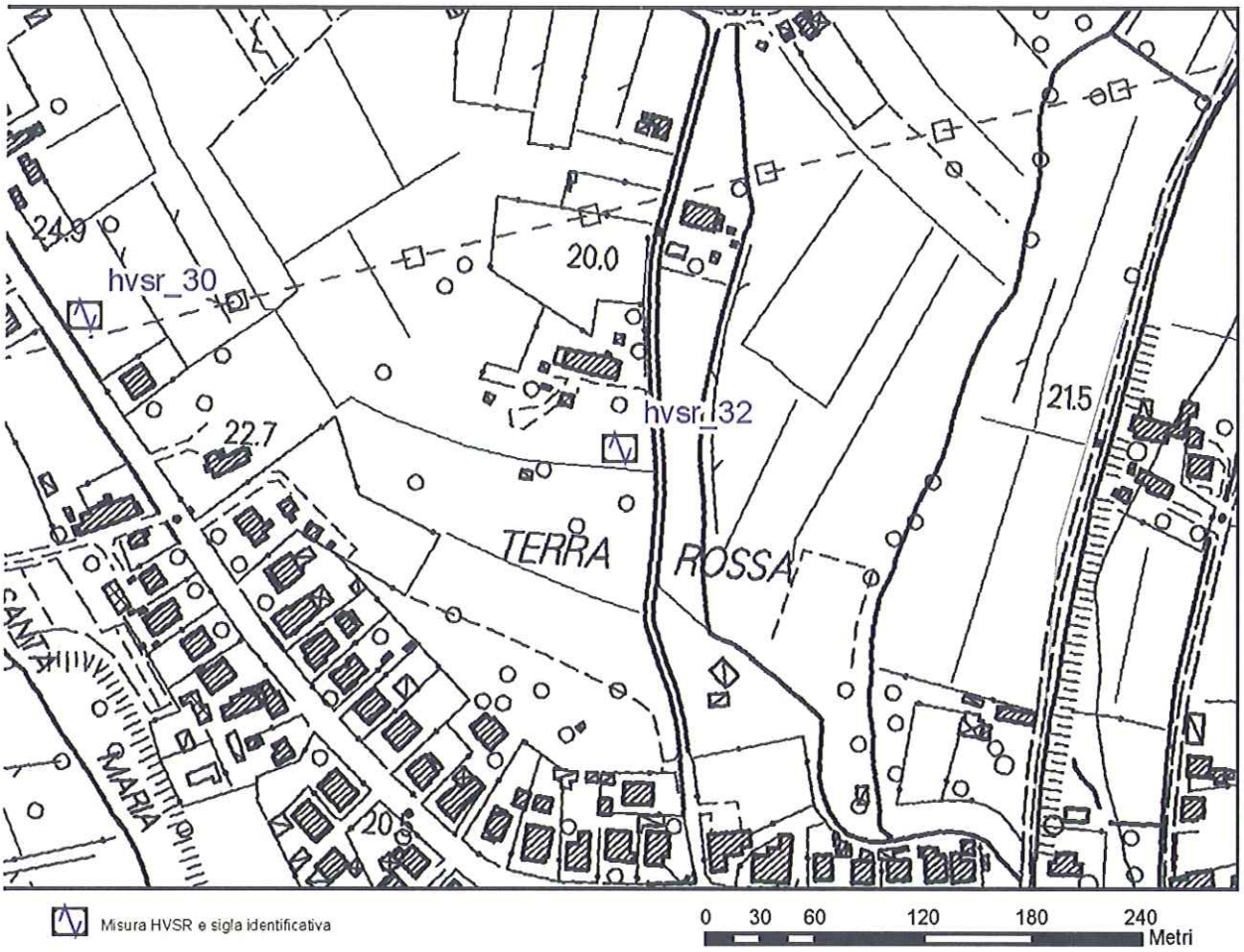


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

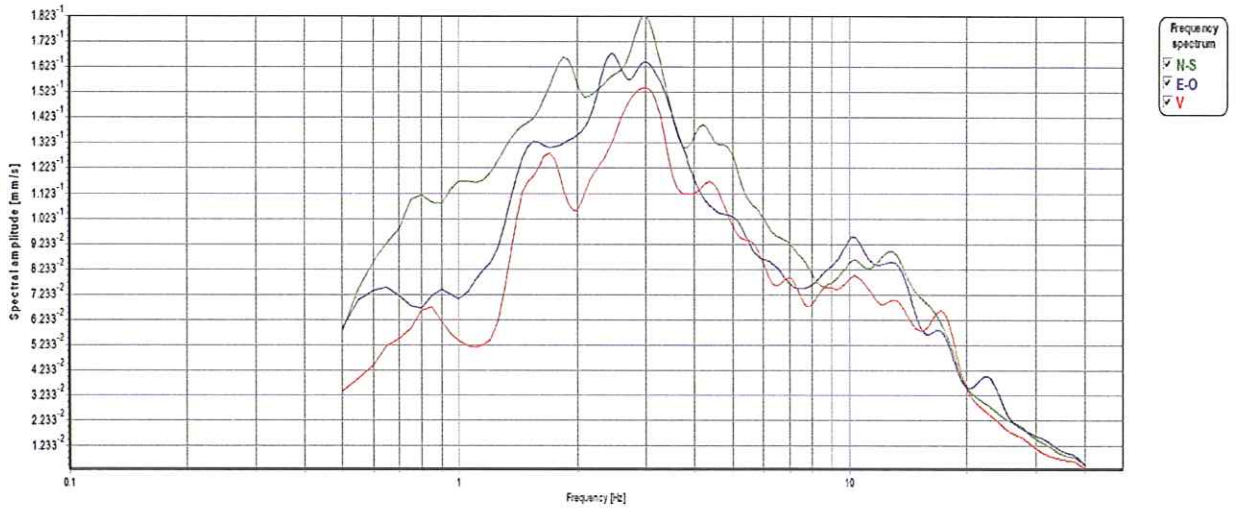
Analysis site: **Buggiano**

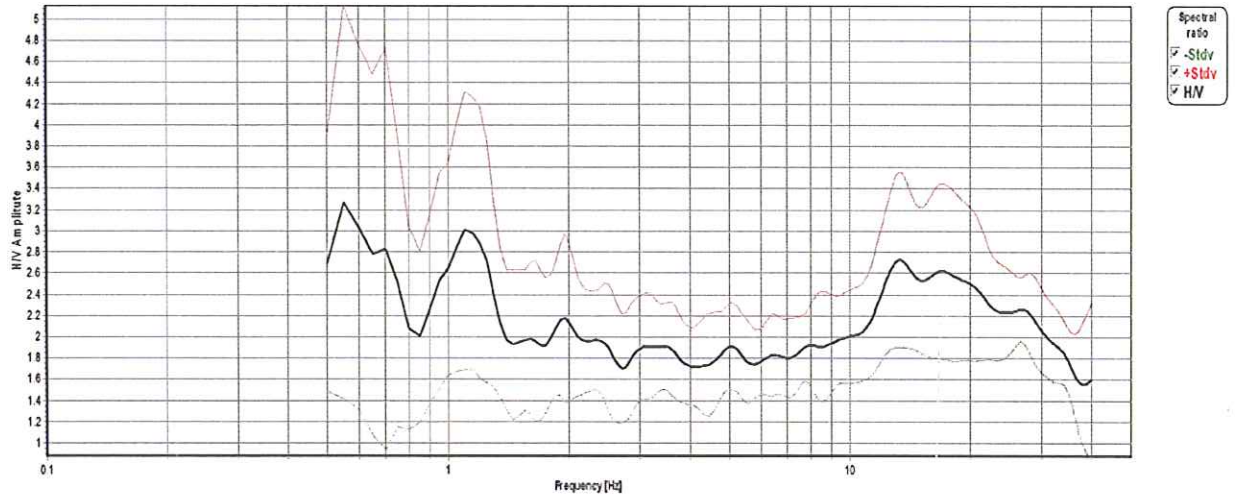
Measure point: **32**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**28/06/2017 13:37:53**
Automatic spike removal:	**No**	Stop recordings:	**28/06/2017 14:07:53**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**50**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**40**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.805**	Standard deviation [Hz]:	**0.242**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **32**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.80 >= 0.50**	**Yes**
Nc(fø) > 200	**805.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 23**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.08 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**3216.80% > 5.00%**	**No**
sf < e(fø)	**0.2415 > 0.1207**	**No**
sA(fø) < ?(fø)	**0.9506 < 2.0000**	**Yes**

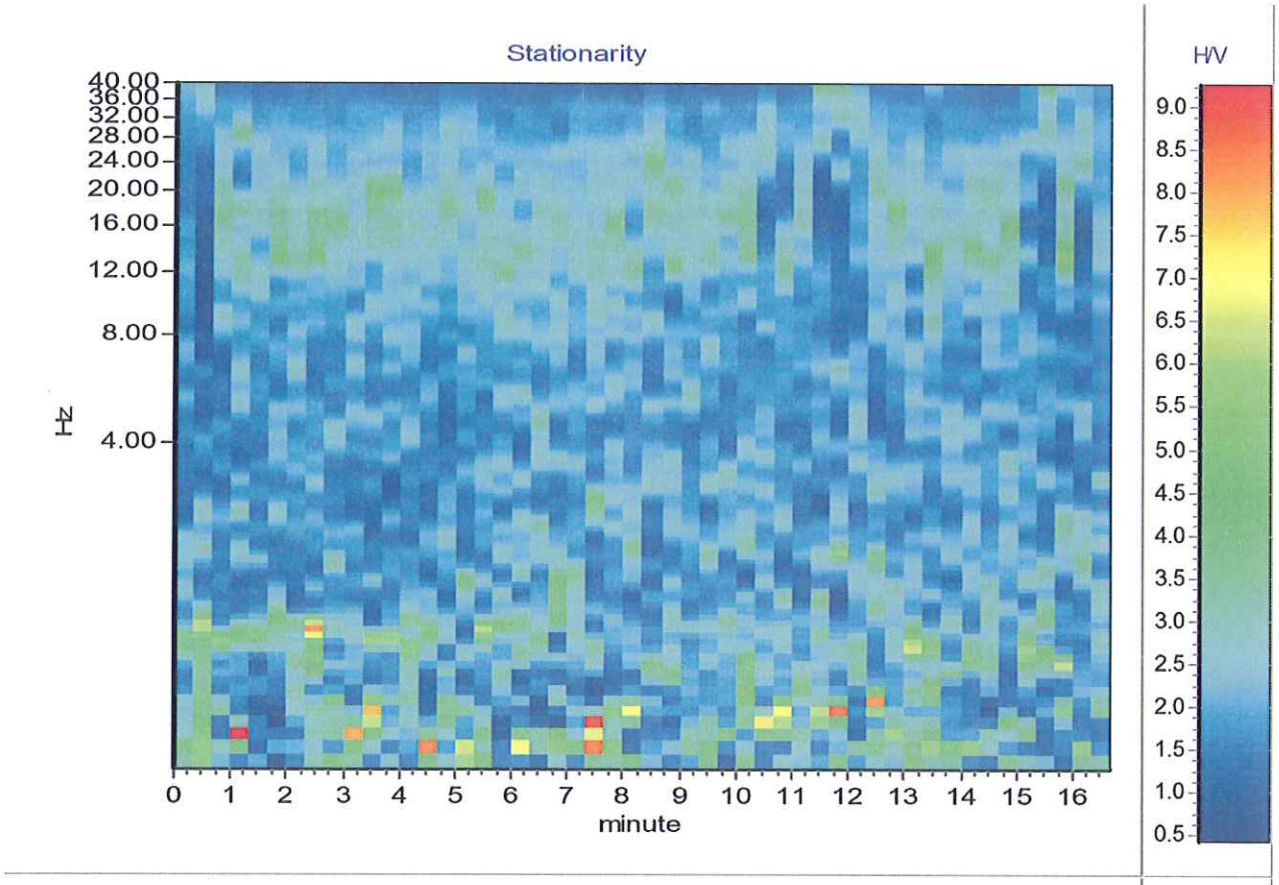
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

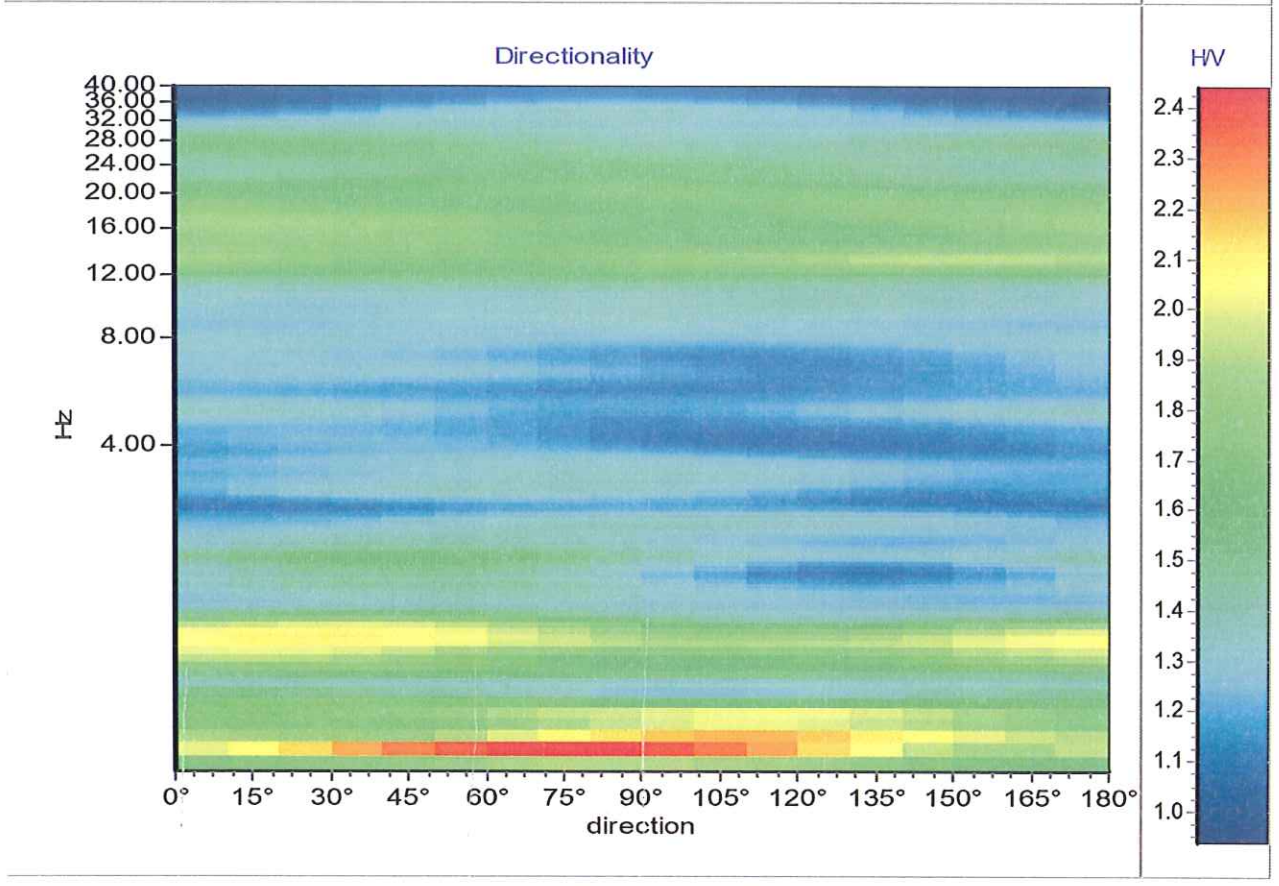
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **32**





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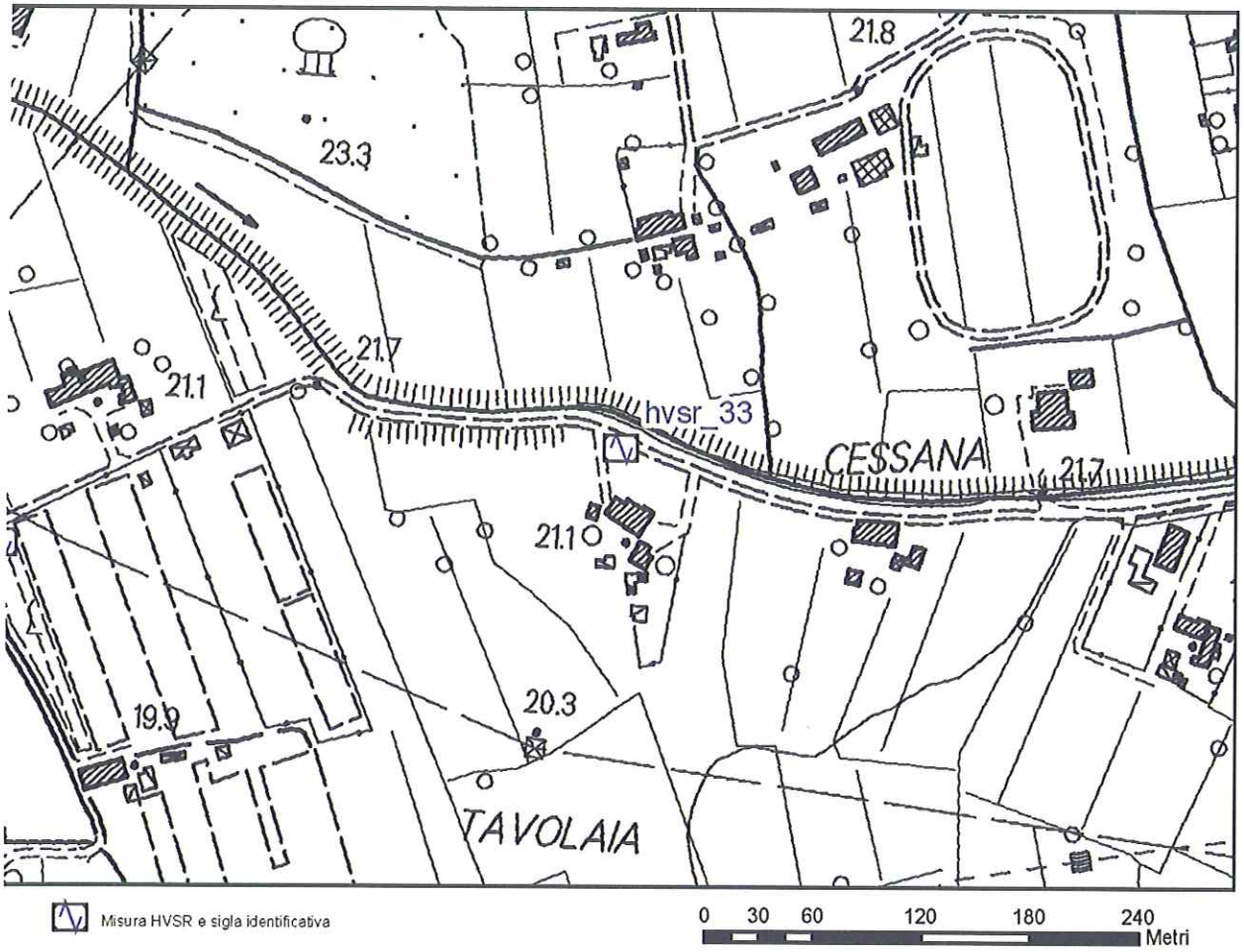


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

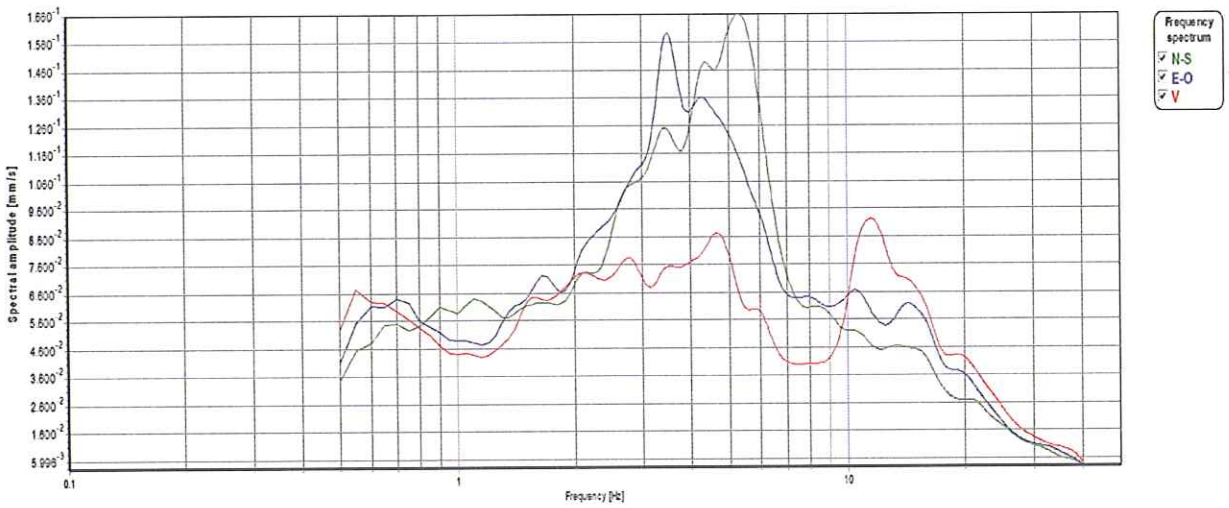
Analysis site: **Buggiano**

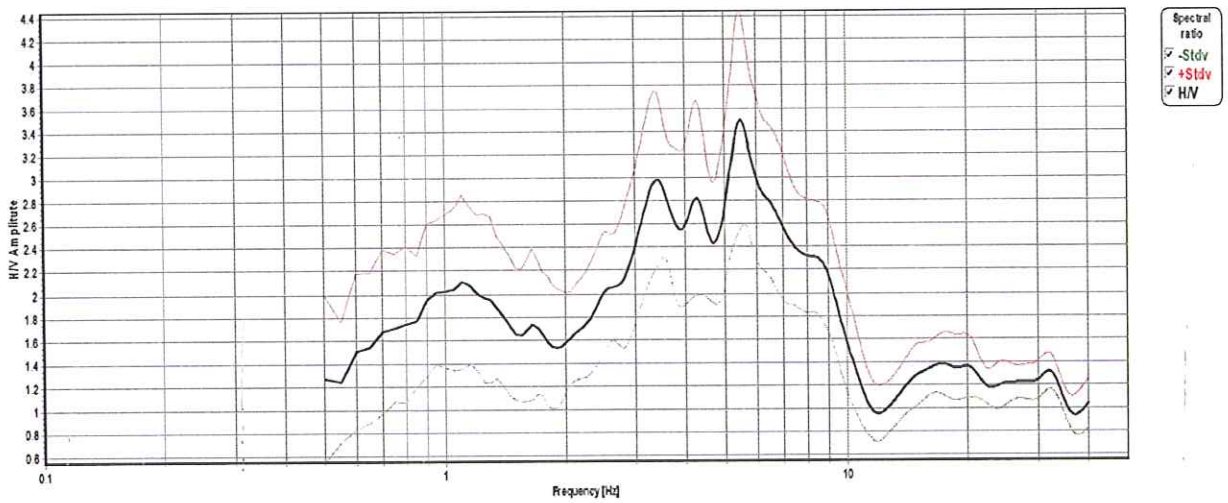
Measure point: **33**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**27/06/2017 18:57:29**
Automatic spike removal:	**No**	Stop recordings:	**27/06/2017 19:37:29**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**43**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**47**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**4.535**	Standard deviation [Hz]:	**0.967**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **33**

Criteria for a reliable H/V curve		
fø > 10/Lw	**4.53 >= 0.50**	**Yes**
Nc(fø) > 200	**3900.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 136**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**10.700**	**Yes**
Aø > 2	**2.52 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**23.49% > 5.00%**	**No**
sf < e(fø)	**0.9666 > 0.2267**	**No**
sA(fø) < ?(fø)	**0.5705 < 1.5800**	**Yes**

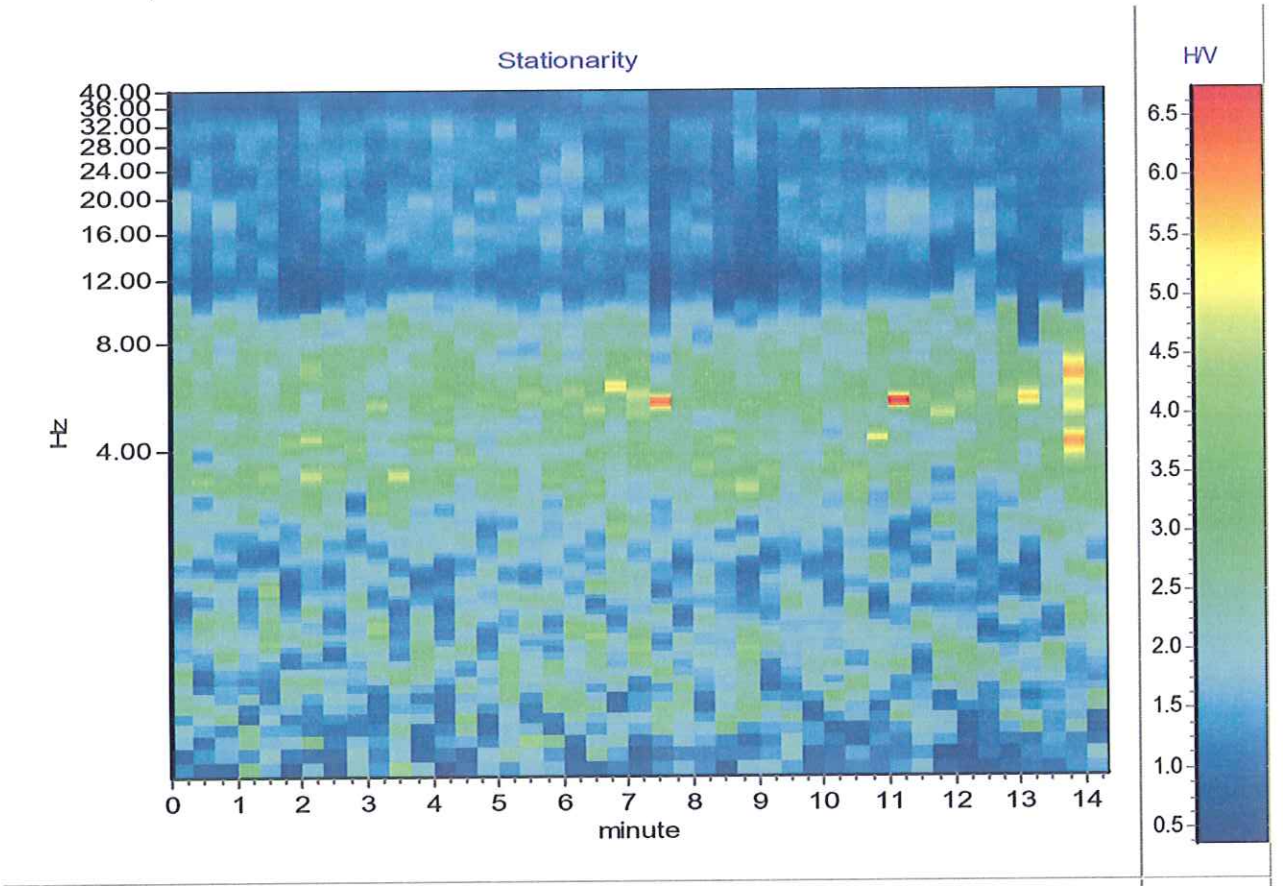
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

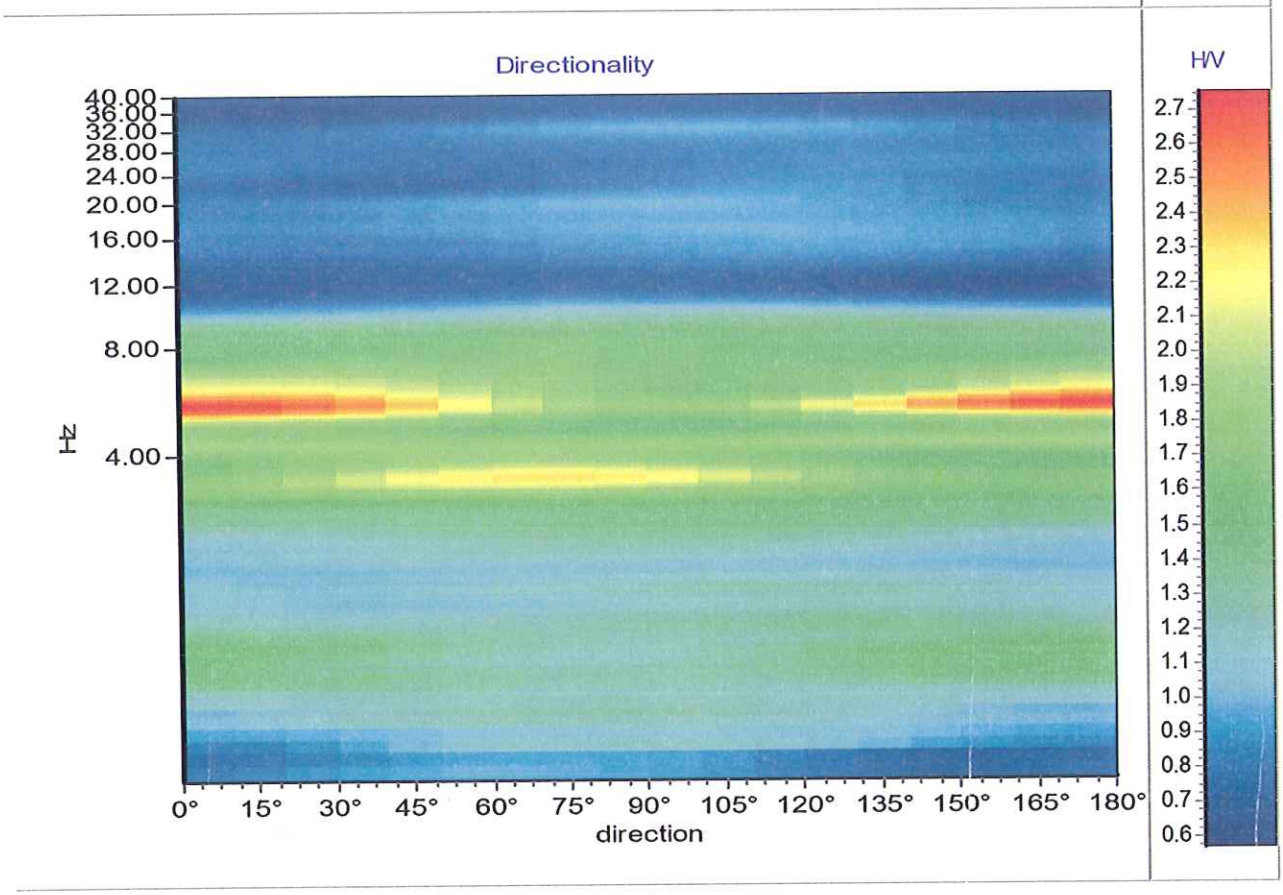
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **33**





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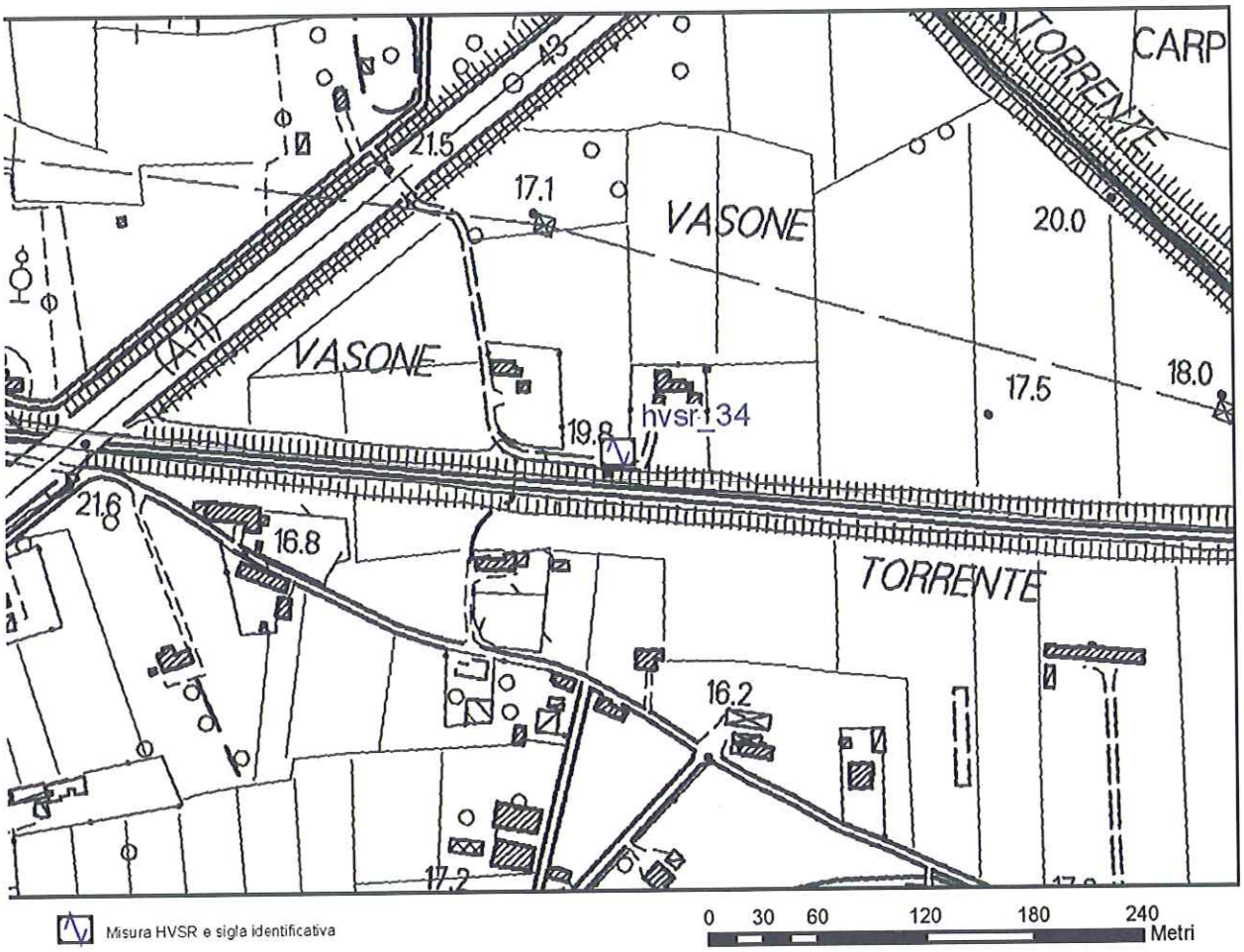


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

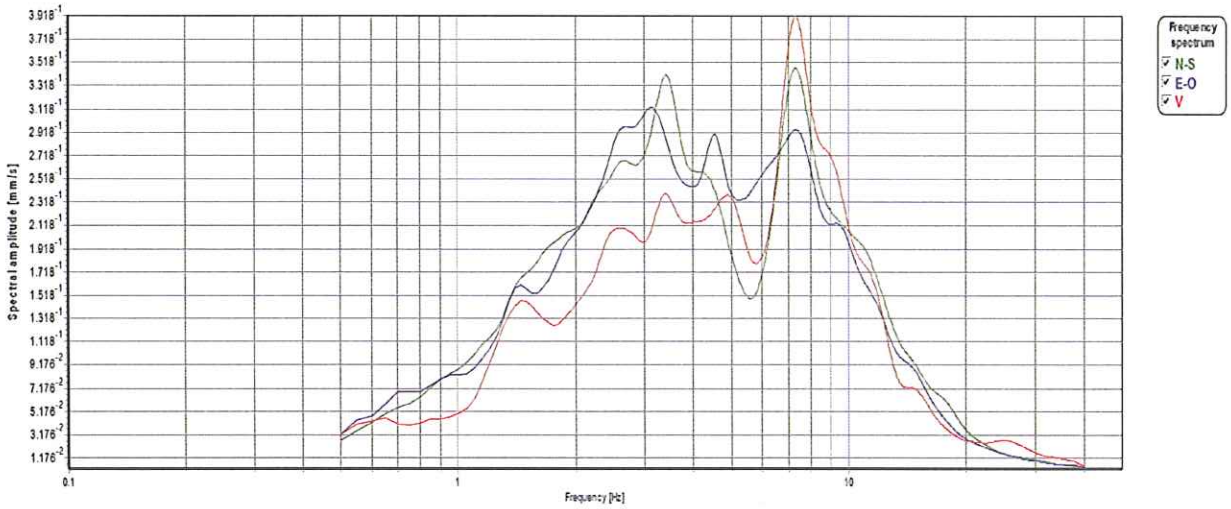
Analysis site: **Buggiano**

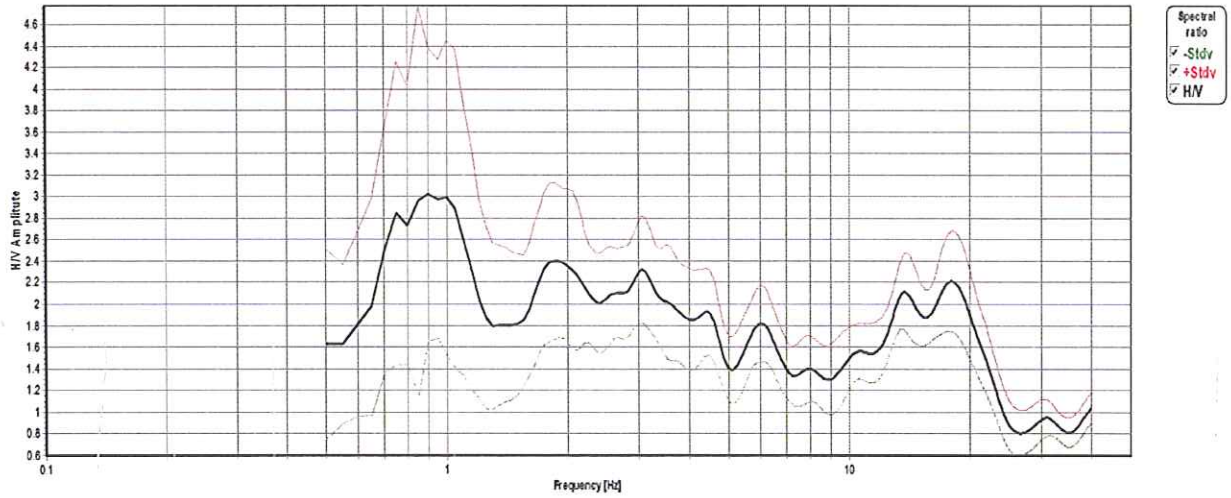
Measure point: **34**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**03/07/2017 08:13:09**
Automatic spike removal:	**No**	Stop recordings:	**03/07/2017 08:43:09**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**41**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**49**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**0.918**	Standard deviation [Hz]:	**0.125**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **34**

Criteria for a reliable H/V curve		
fø > 10/Lw	**0.92 >= 0.50**	**Yes**
Nc(fø) > 200	**753.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 27**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**3.02 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**232.14% > 5.00%**	**No**
sf < e(fø)	**0.1253 < 0.1377**	**Yes**
sA(fø) < ?(fø)	**1.3626 < 2.0000**	**Yes**

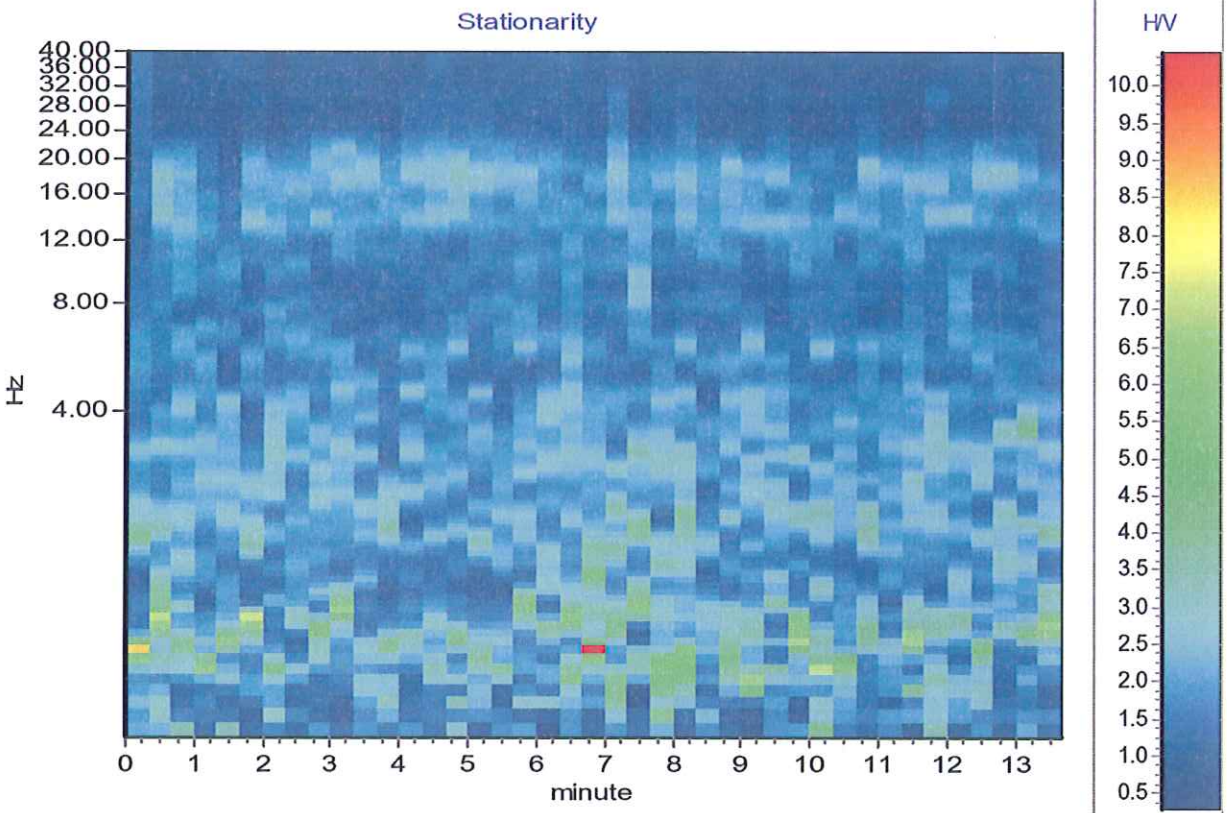
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

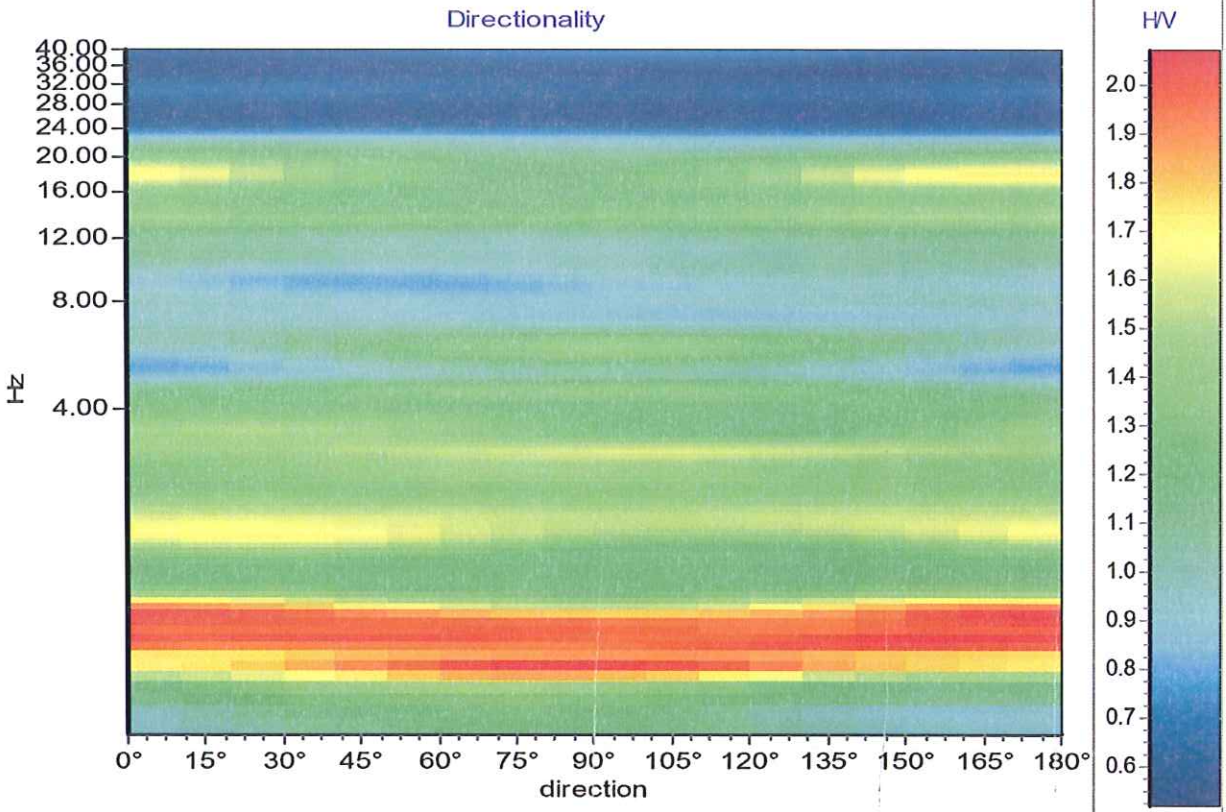
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **34**





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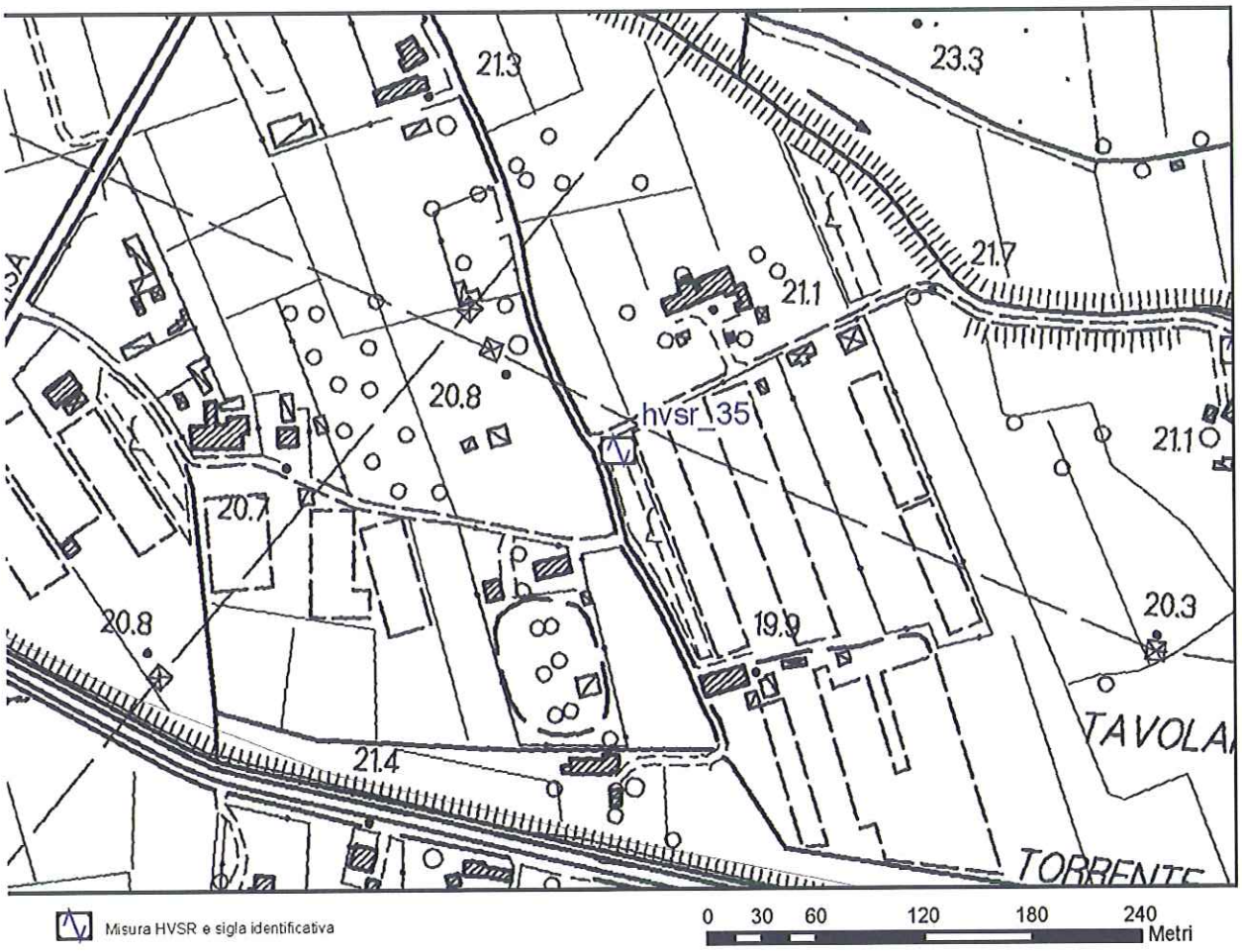


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

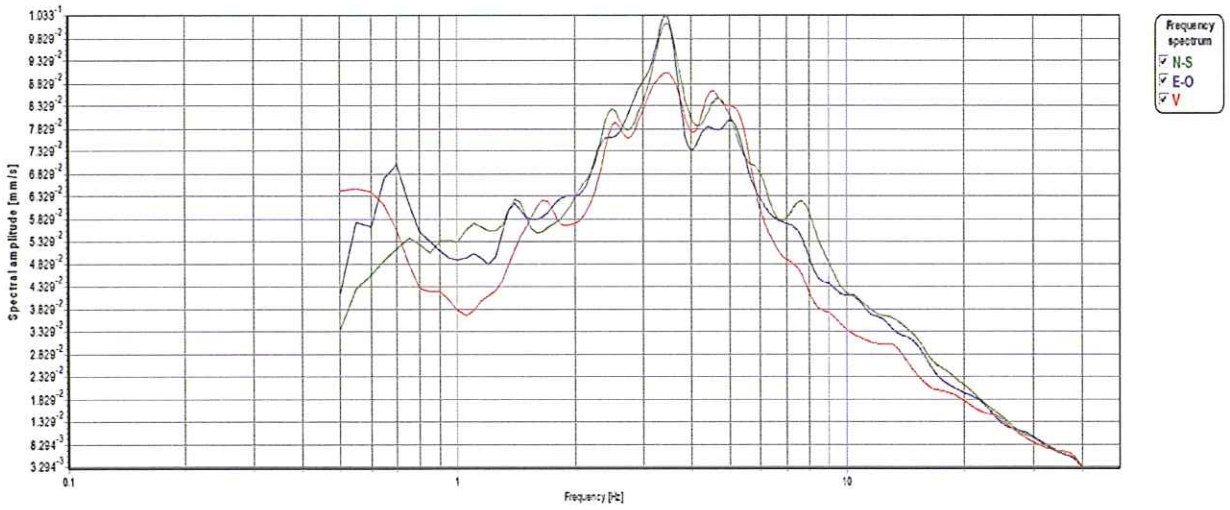
Analysis site: **Buggiano**

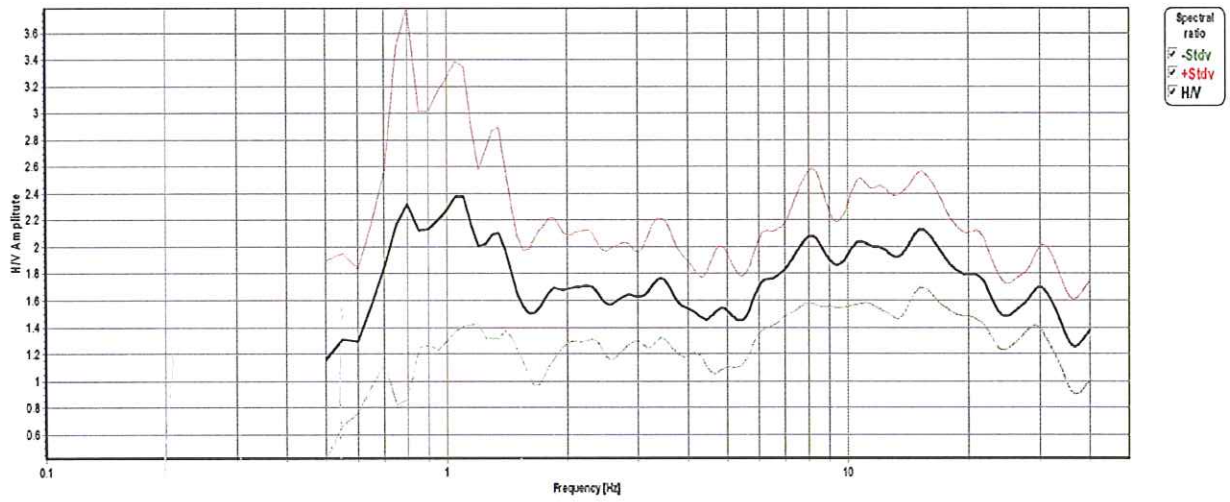
Measure point: **35**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**27/06/2017 17:29:05**
Automatic spike removal:	**No**	Stop recordings:	**27/06/2017 17:59:05**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**40**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**50**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.034**	Standard deviation [Hz]:	**0.199**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **35**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.03 >= 0.50**	**Yes**
Nc(fø) > 200	**827.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 31**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.500**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**Not exist**	**No**
Aø > 2	**2.38 > 2.00**	**No**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**1384.90% > 5.00%**	**No**
sf < e(fø)	**0.1986 > 0.1034**	**No**
sA(fø) < ?(fø)	**1.0077 < 1.7800**	**Yes**

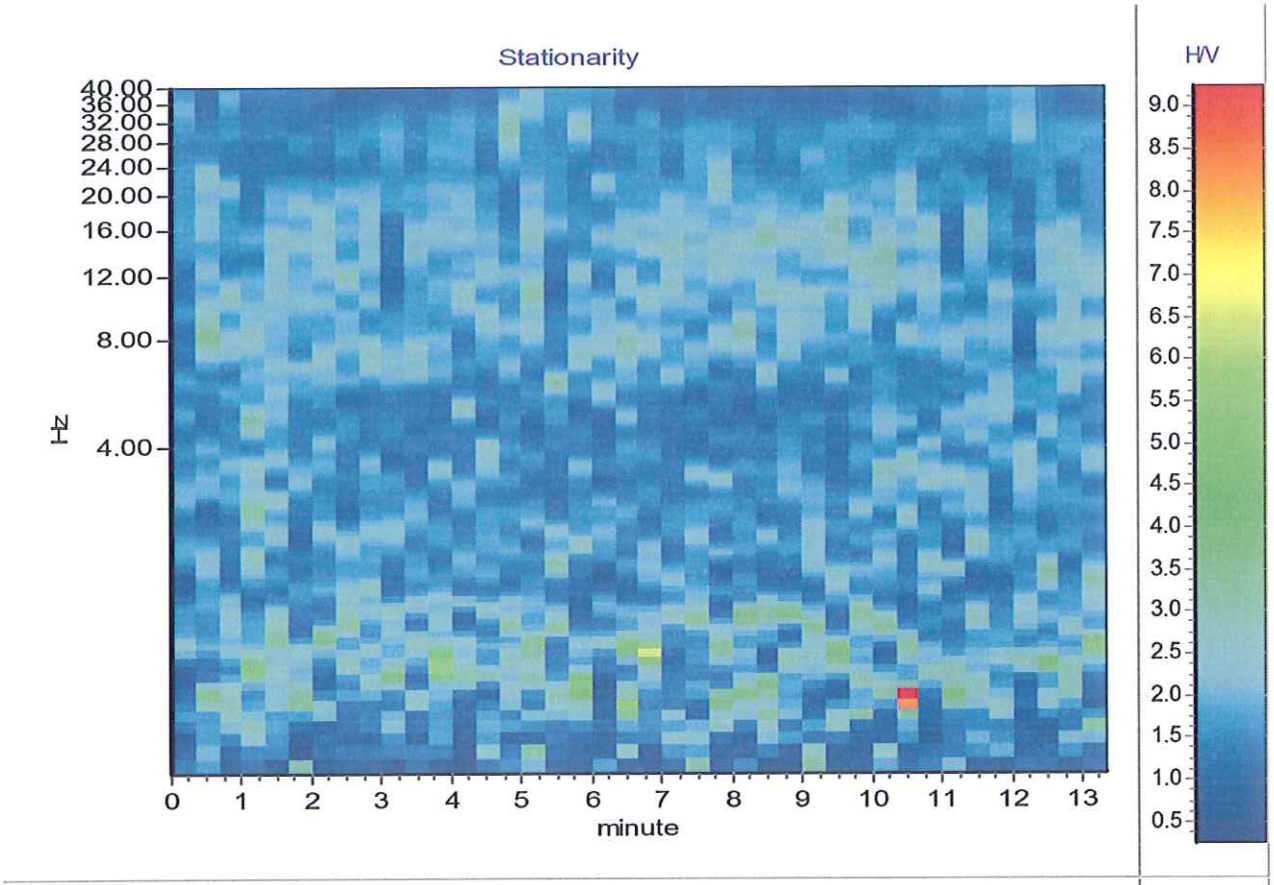
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

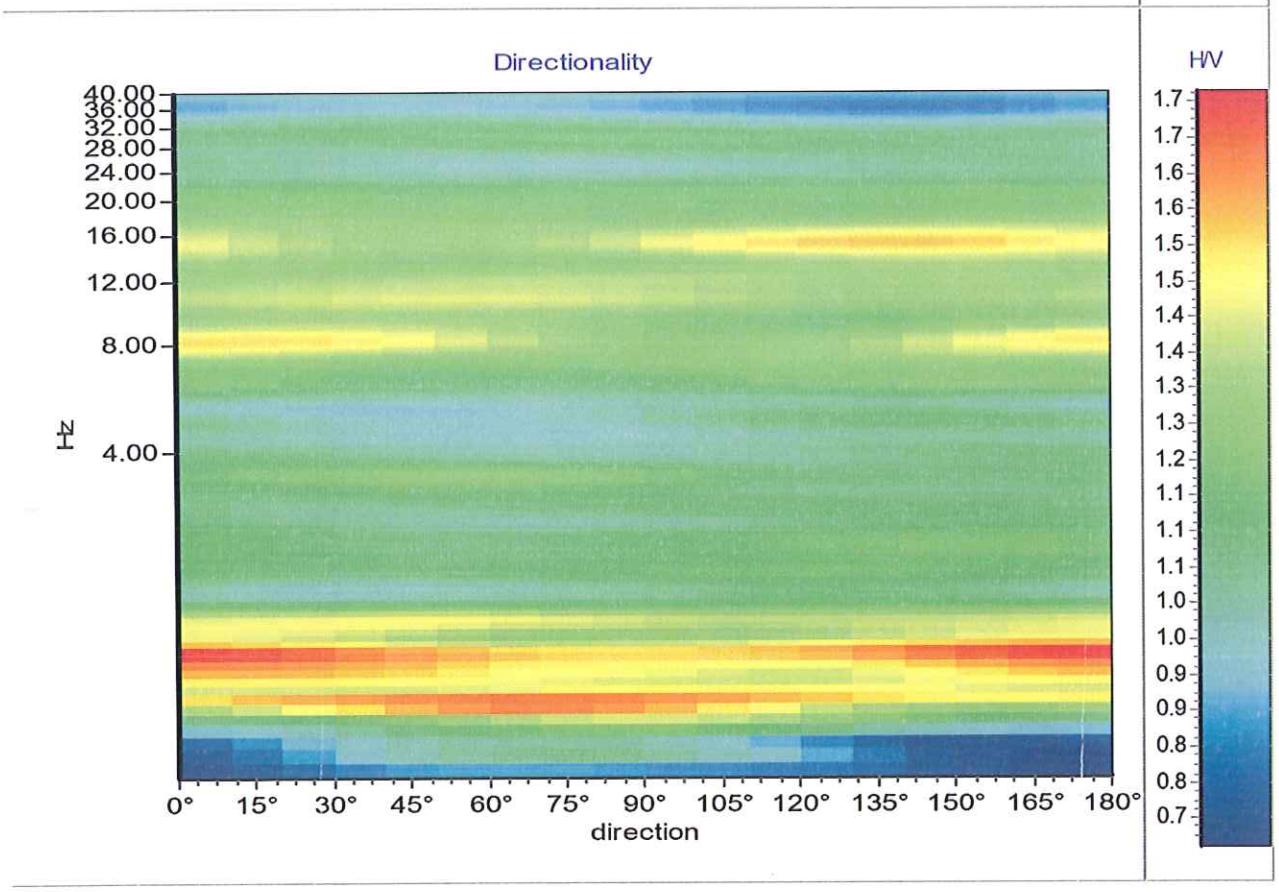
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **35**





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047003P37

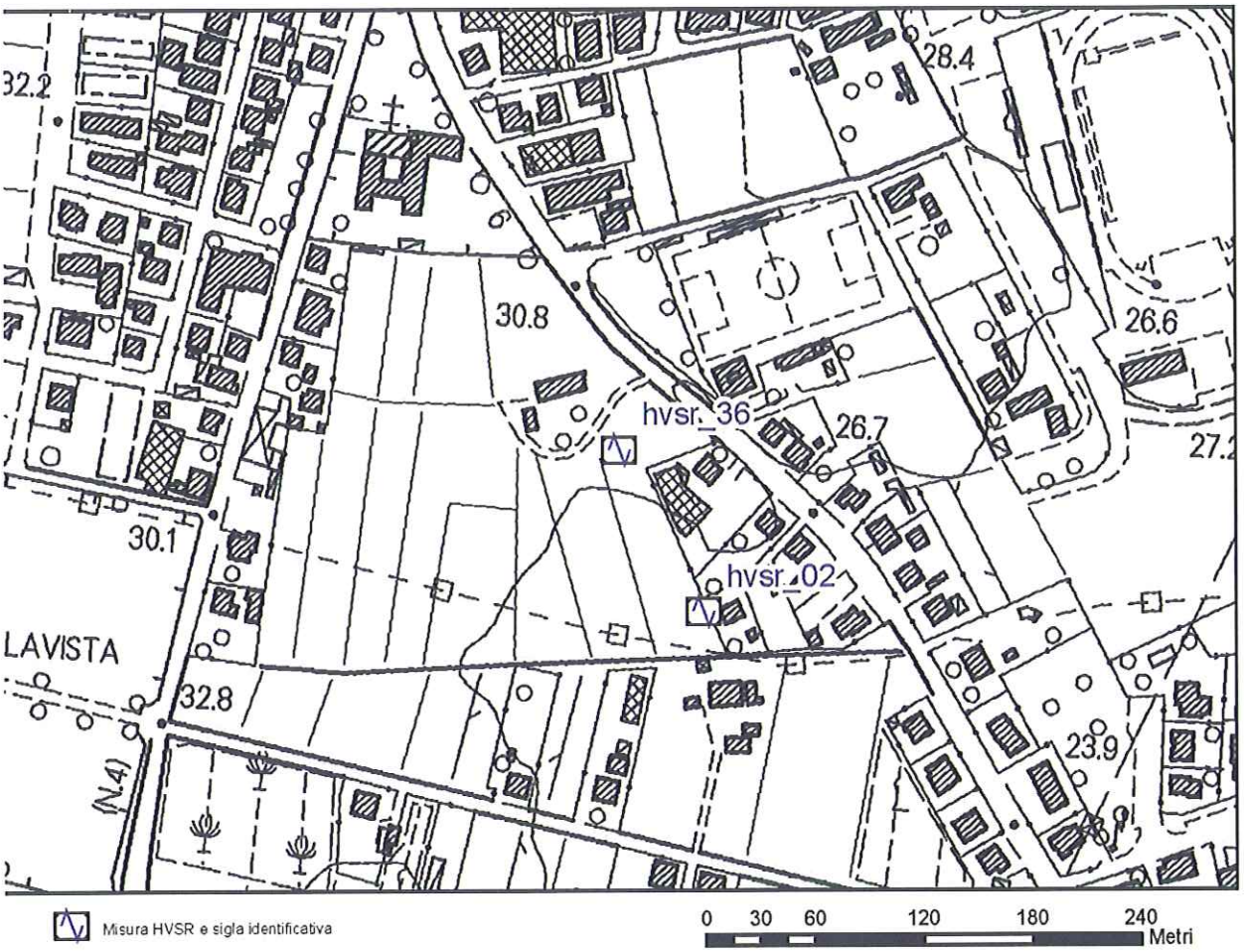


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

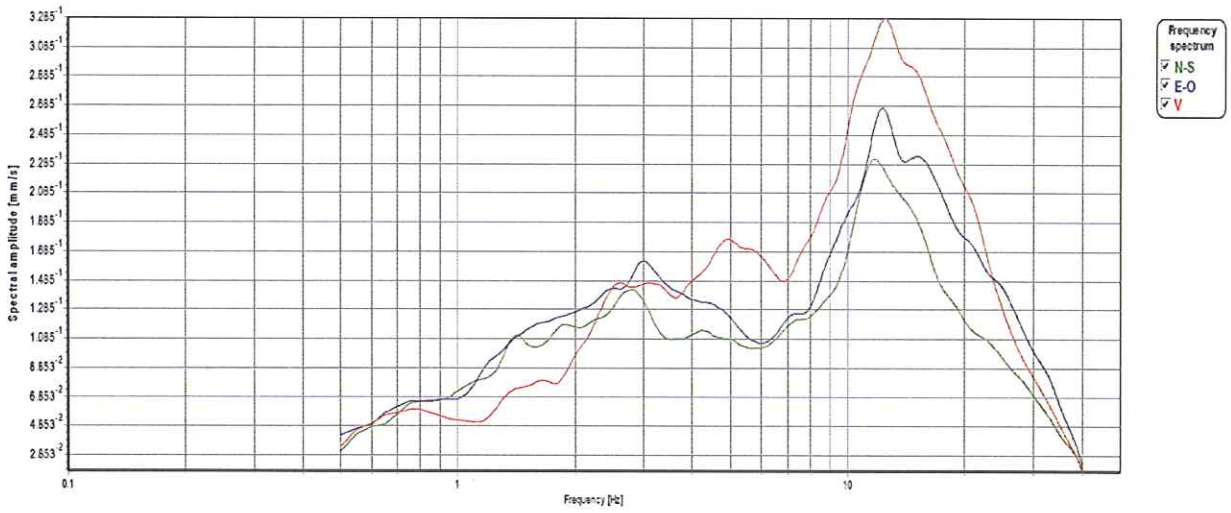
Analysis site: **Buggiano**

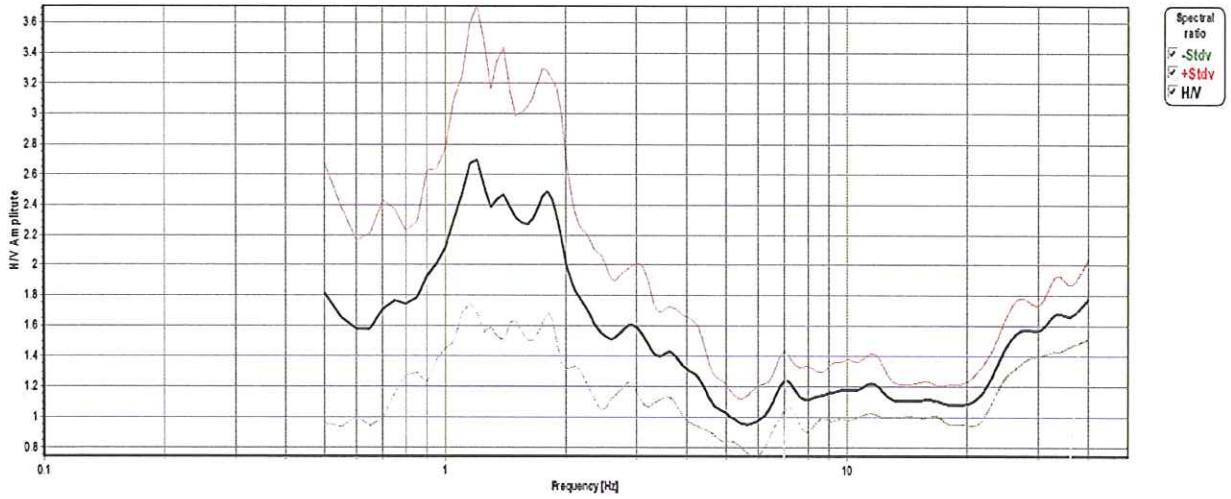
Measure point: **36**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 08:19:21**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 08:49:21**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**41**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**49**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.410**	Standard deviation [Hz]:	**0.266**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **36**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.41 >= 0.50**	**Yes**
Nc(fø) > 200	**1156.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 42**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**4.350**	**Yes**
Aø > 2	**2.47 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**18.43% > 5.00%**	**No**
sf < e(fø)	**0.2660 > 0.1410**	**No**
sA(fø) < ?(fø)	**0.9614 < 1.7800**	**Yes**

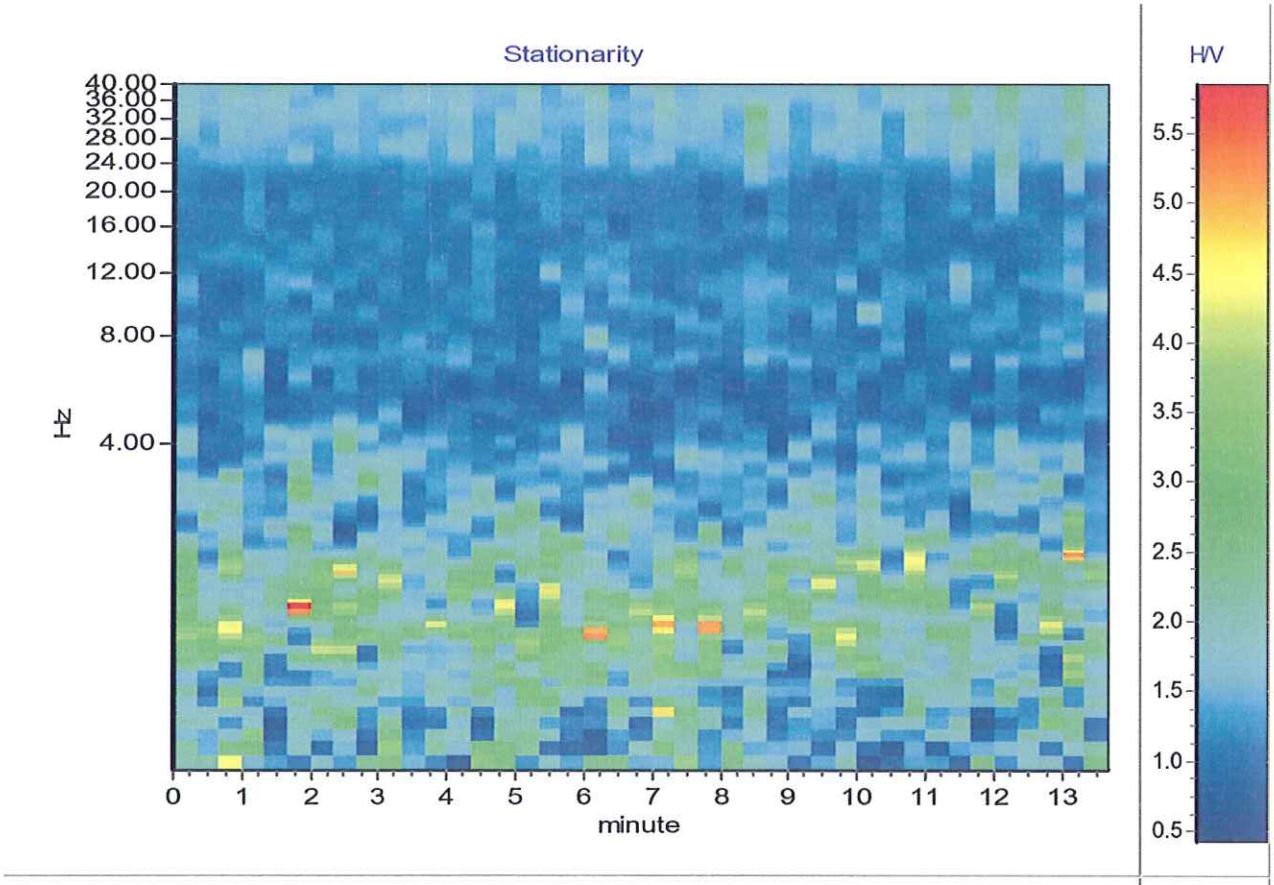
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

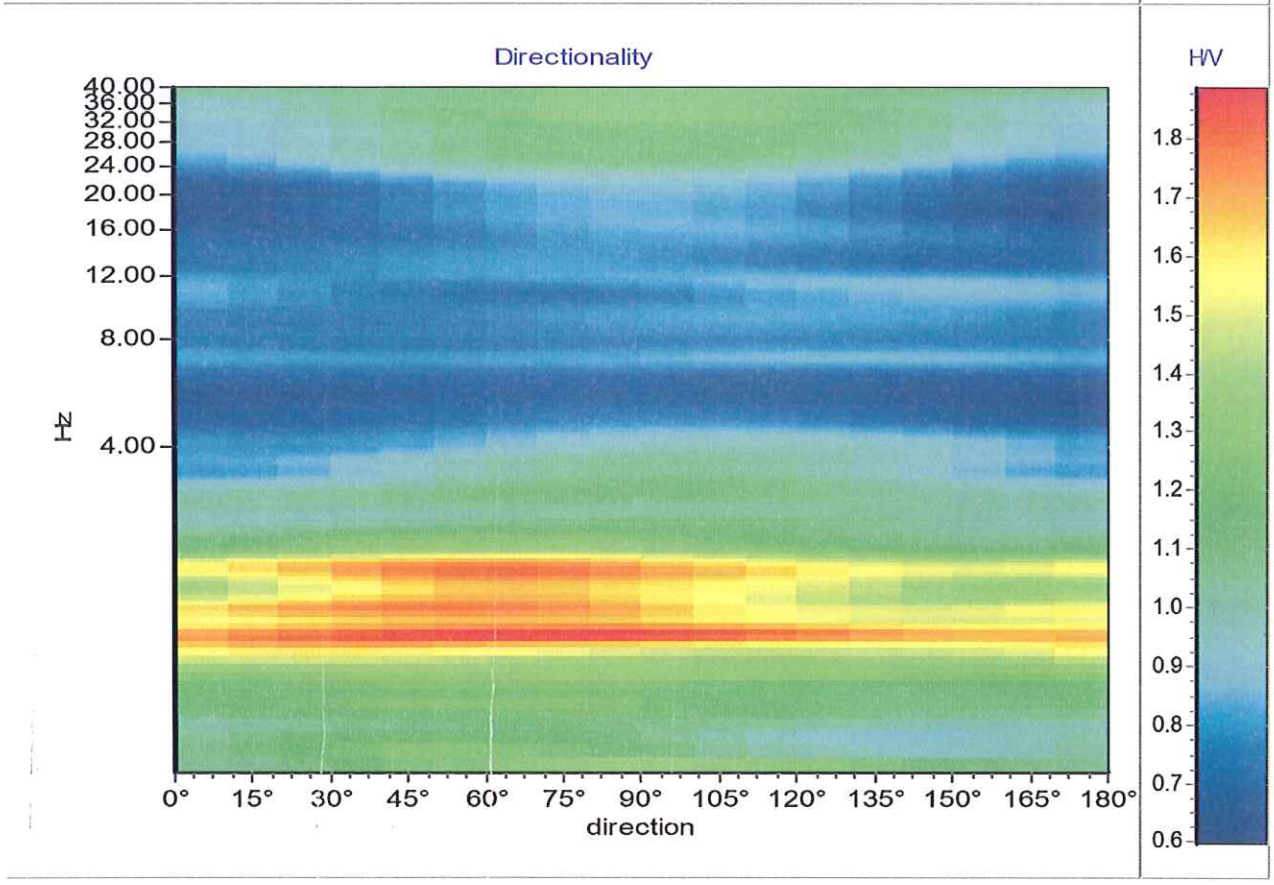
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **36**





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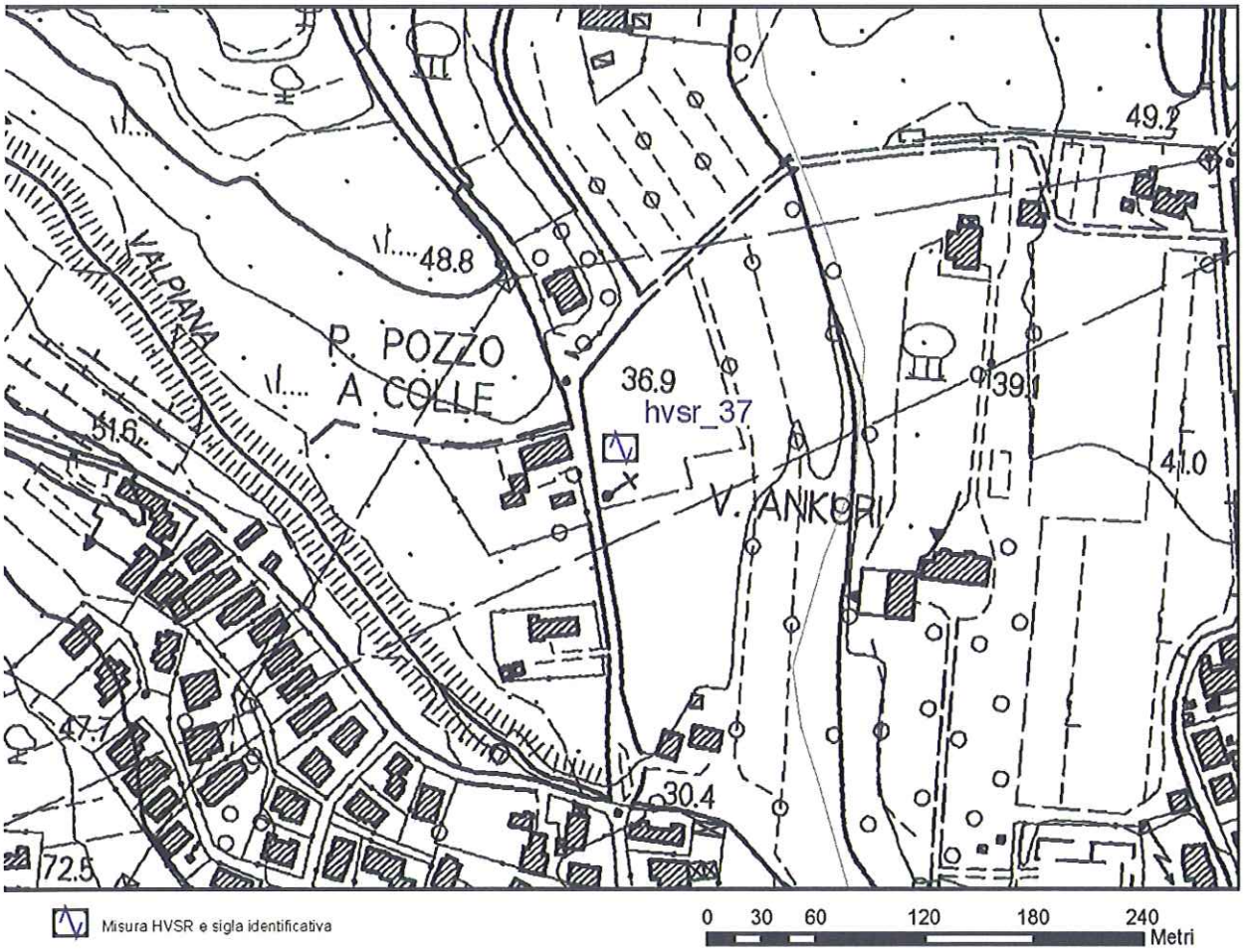


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

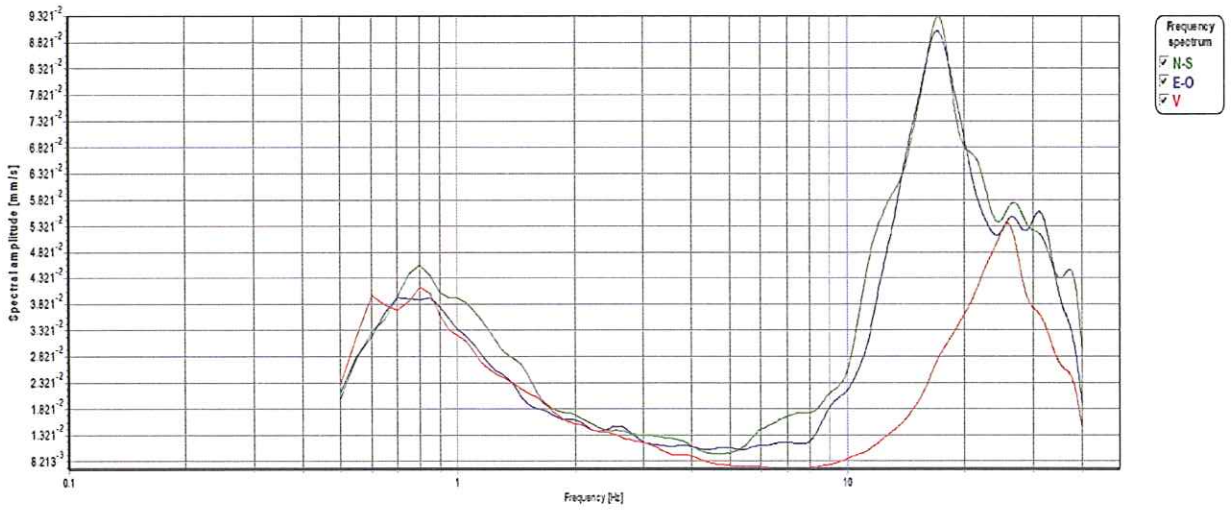
Analysis site: **Buggiano**

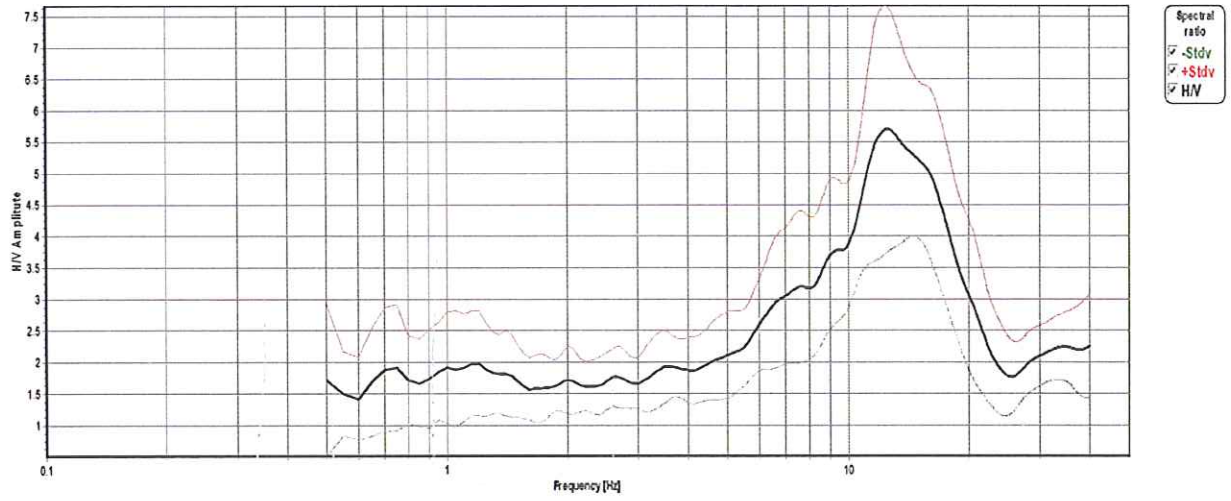
Measure point: **37**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 09:30:43**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 10:00:43**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**51**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**39**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**13.145**	Standard deviation [Hz]:	**1.526**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **37**

Criteria for a reliable H/V curve		
fø > 10/Lw	**13.15 >= 0.50**	**Yes**
Nc(fø) > 200	**13408.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 394**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**3.300**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**20.800**	**Yes**
Aø > 2	**5.60 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**10.31% > 5.00%**	**No**
sf < e(fø)	**1.5262 > 0.6573**	**No**
sA(fø) < ?(fø)	**1.7581 > 1.5800**	**No**

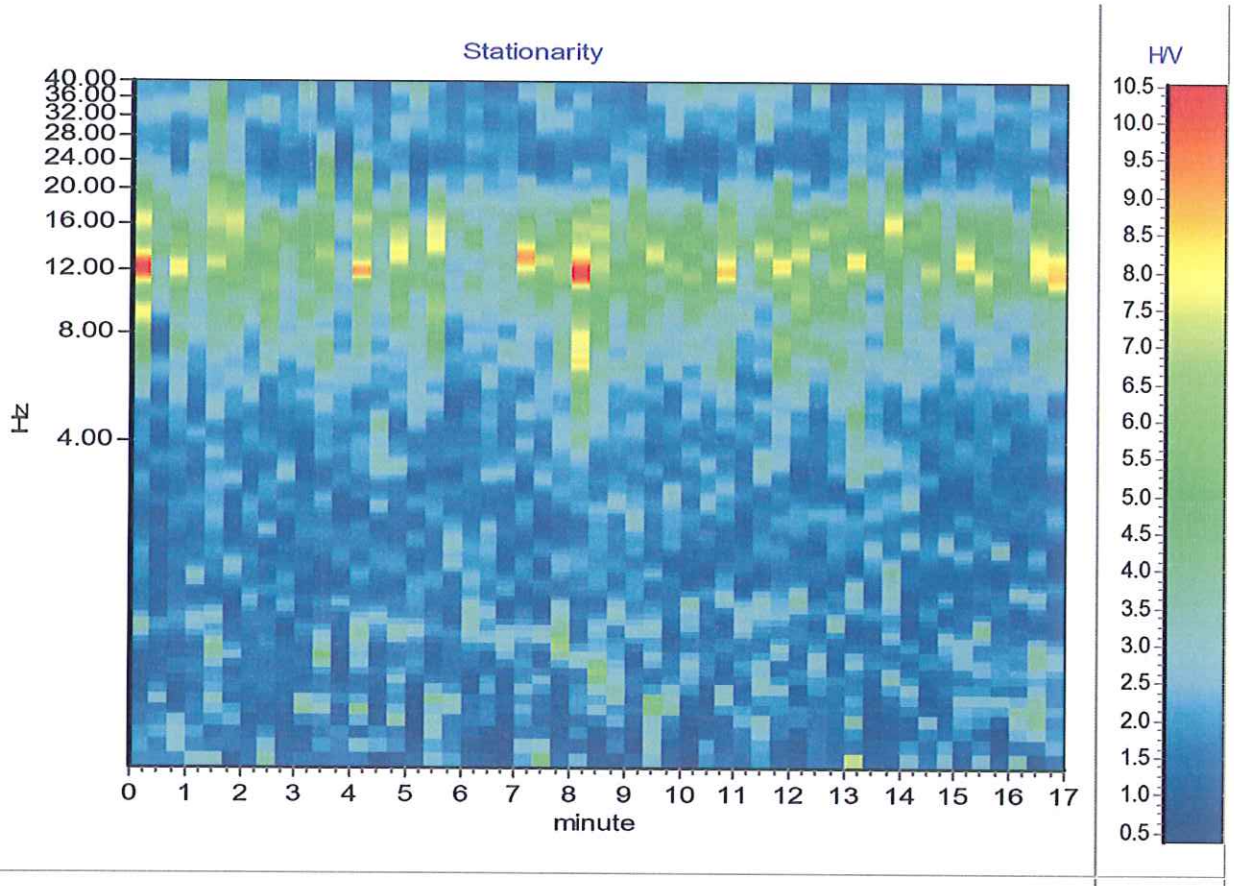
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

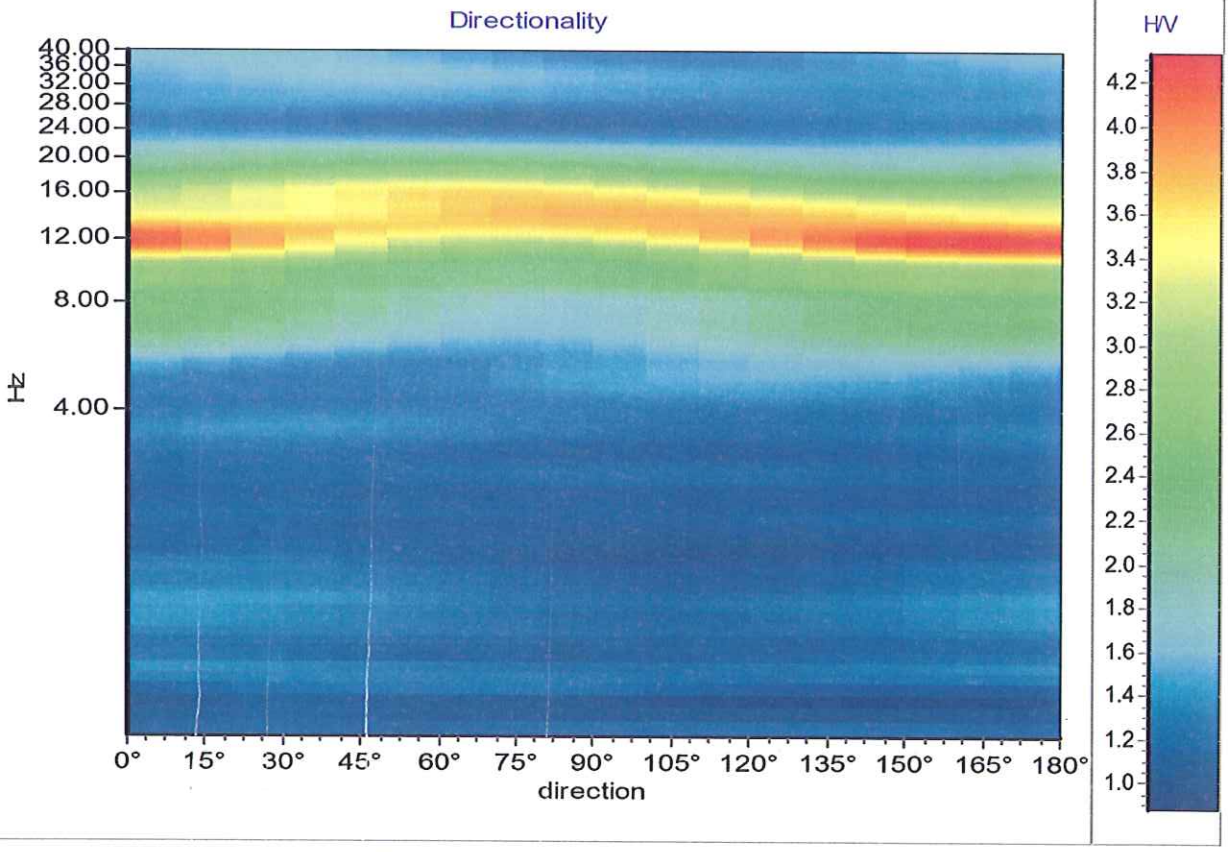
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **37**





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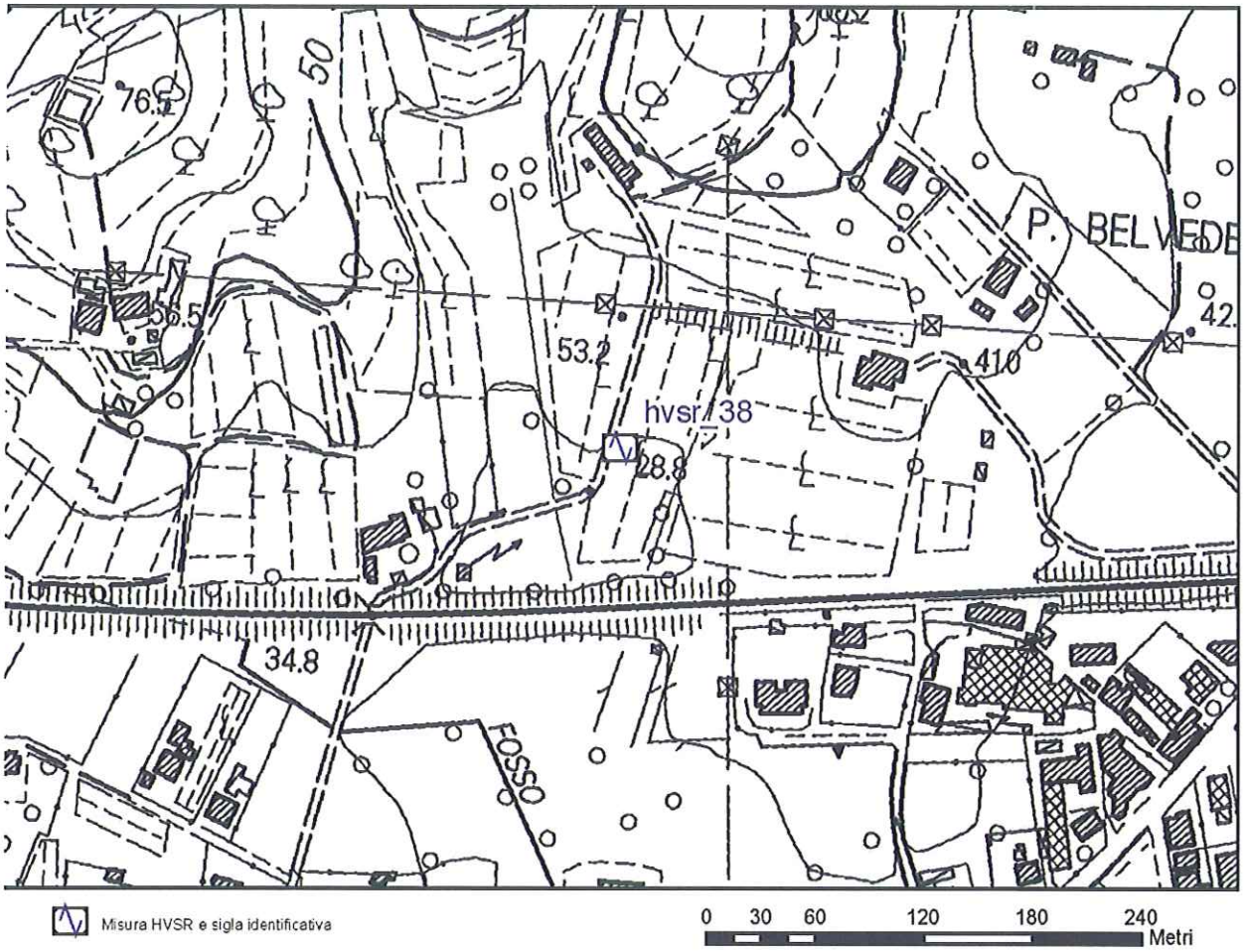


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

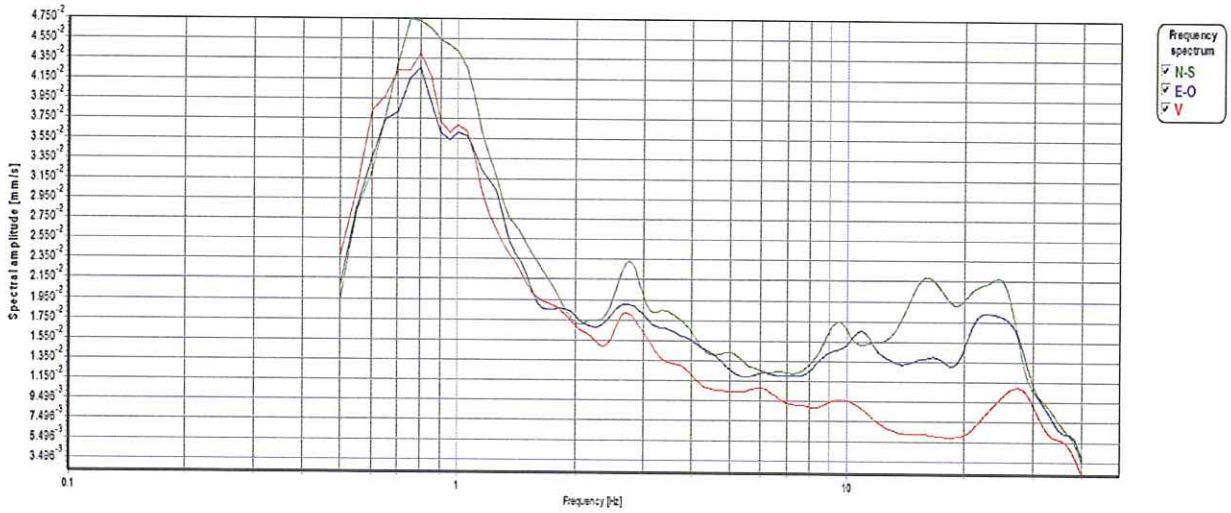
Analysis site: **Buggiano**

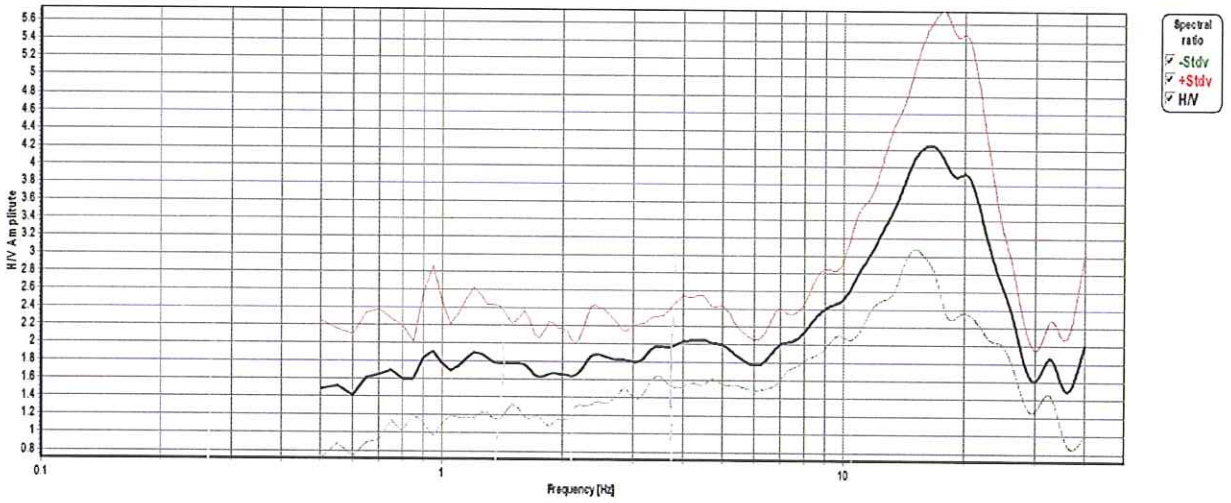
Measure point: **38**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 11:43:34**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 12:13:34**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**34**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**56**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**16.785**	Standard deviation [Hz]:	**2.283**

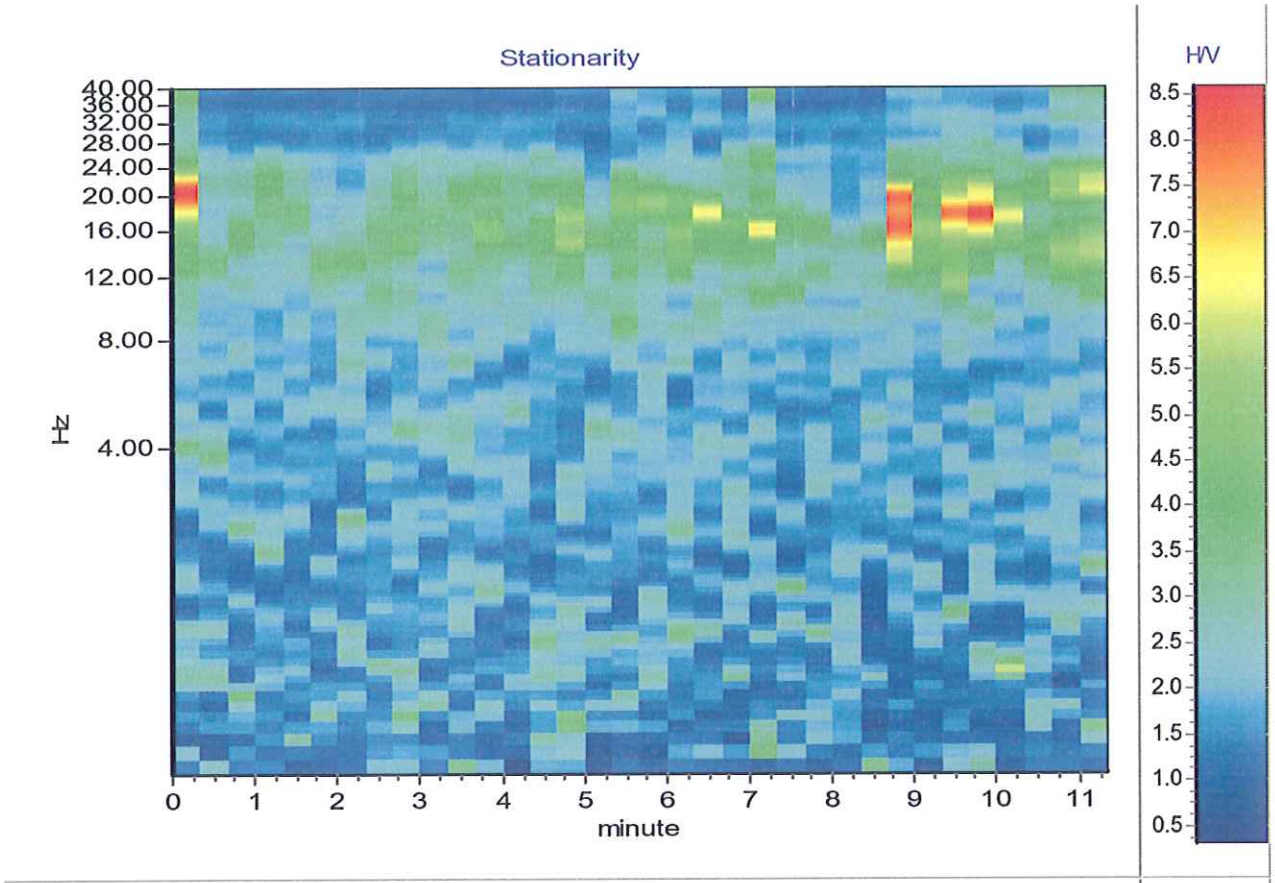


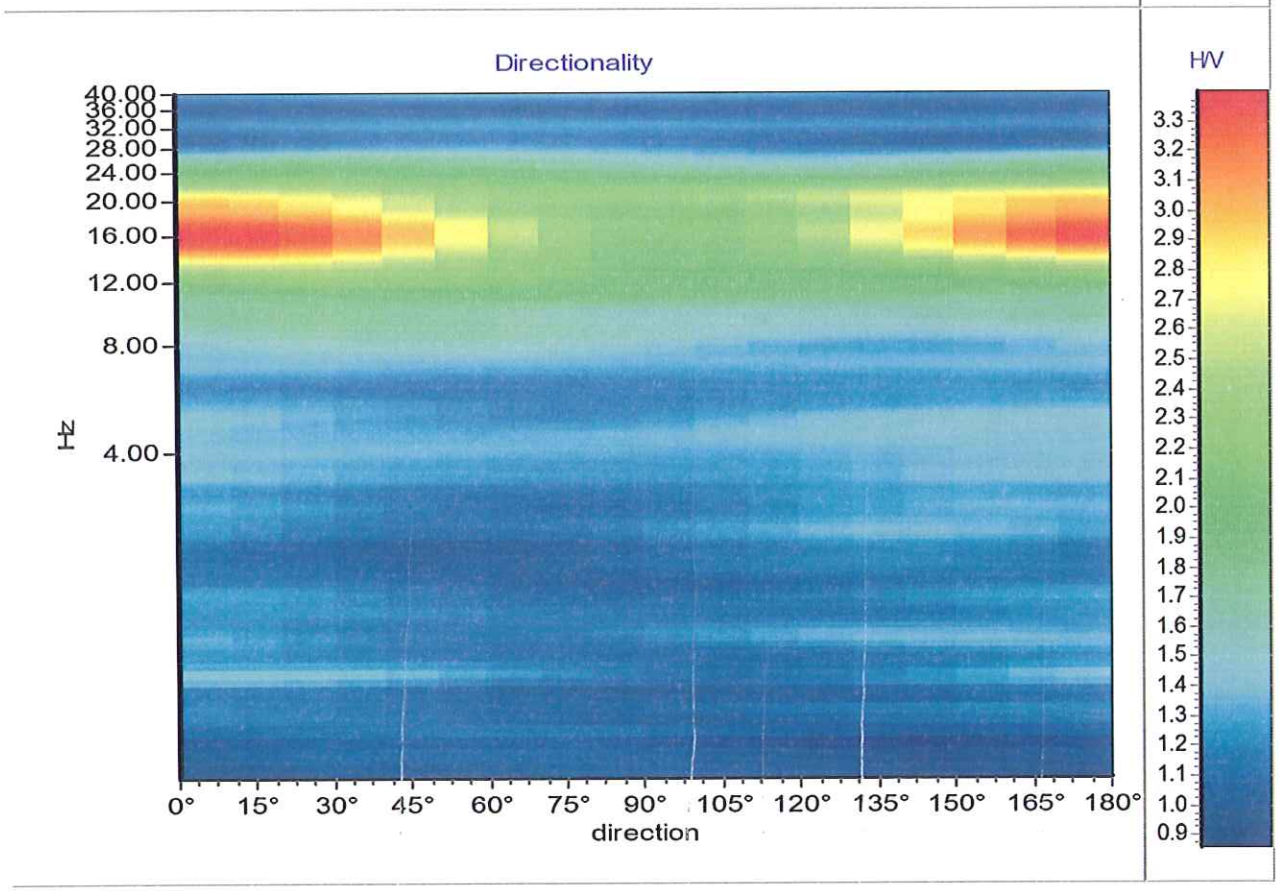


H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **38**





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047003P40

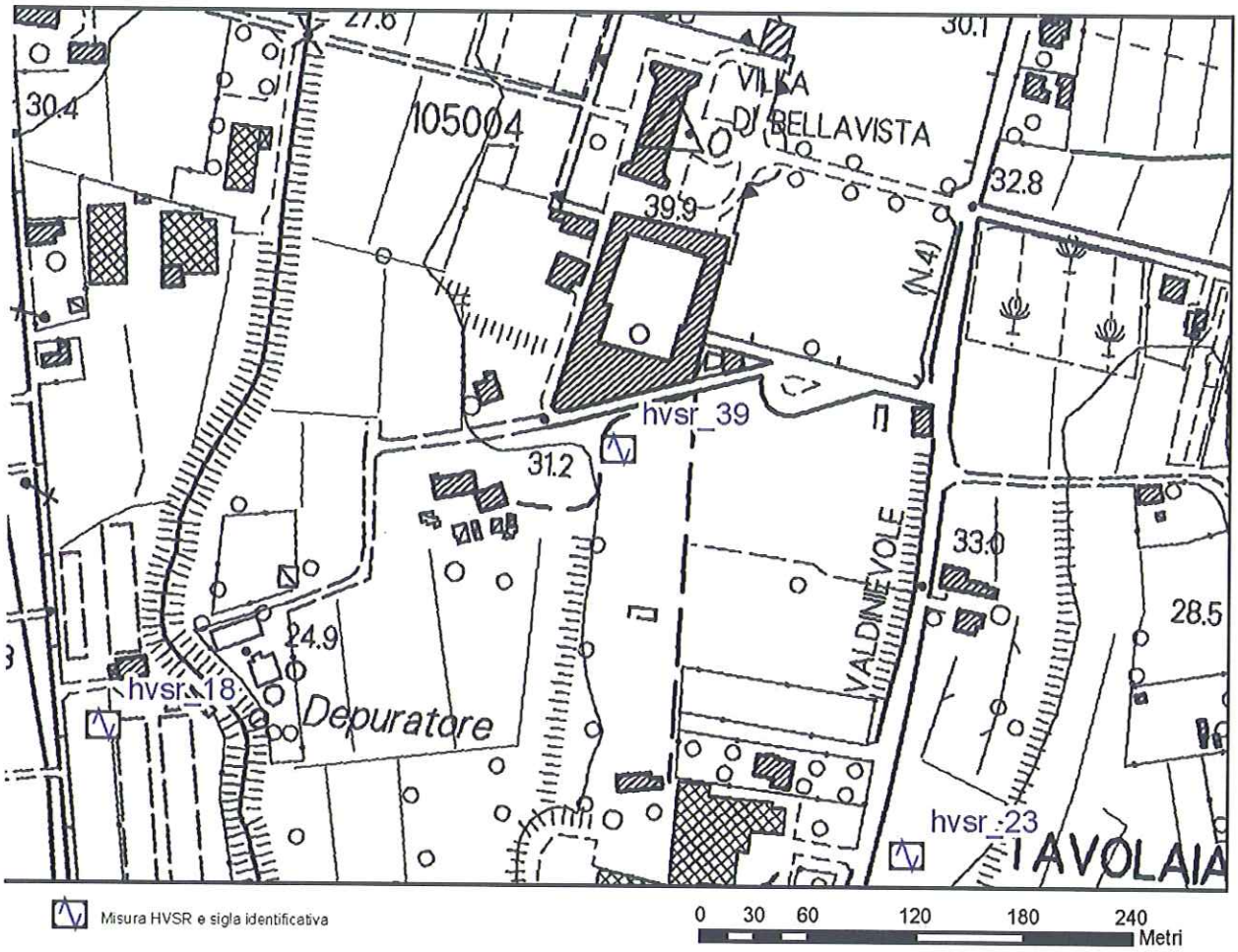


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

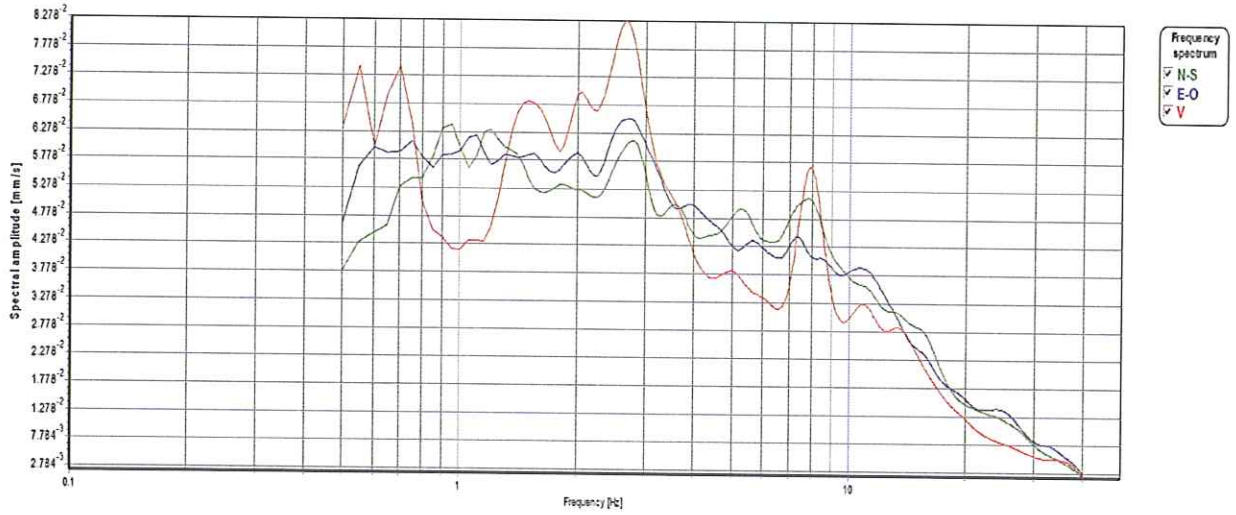
Analysis site: **Buggiano**

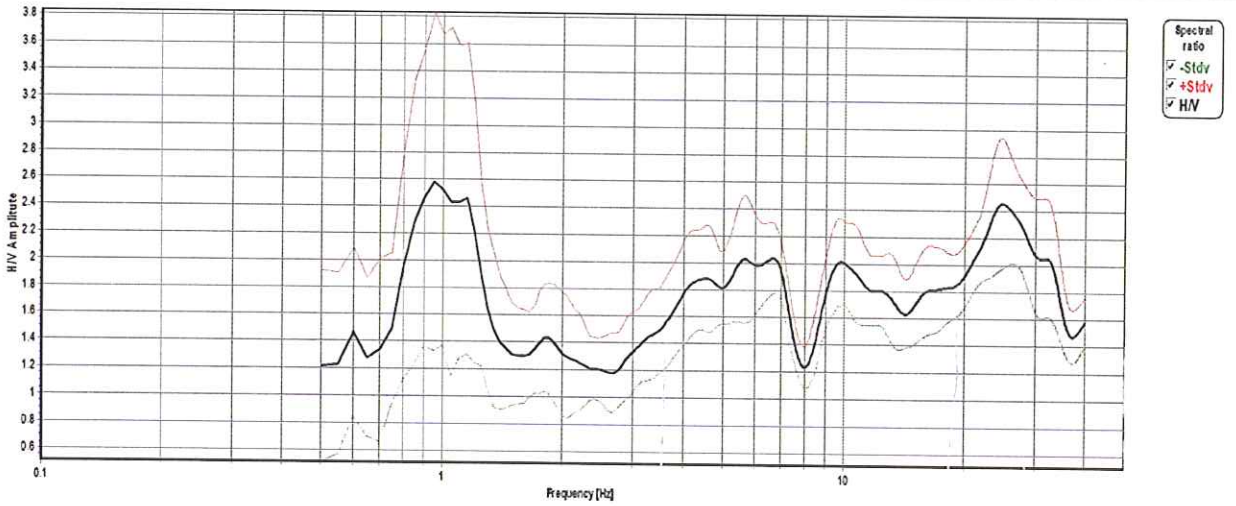
Measure point: **39**

Note:

Analysis parameters			
Sample frequency [Hz]:	200.00	Start recordings:	20/07/2017 14:56:16
Automatic spike removal:	No	Stop recordings:	20/07/2017 15:36:16
LTA [s]:	5.0	High pass frequency [Hz]:	0.50
STA [s]:	0.5	Low pass frequency [Hz]:	40.00
Ratio:	1.9	Nw number of windows:	29
Lw Windows [s]:	20	Recording length [s]:	1800
Overlap Windows s]:	0.0	Discarded windows:	61
Konno-Ohmachi parameter:	40		

Analysis results			
H/V peak frequency fø [Hz]:	1.003	Standard deviation [Hz]:	0.142





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **39**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.00 >= 0.50**	**Yes**
Nc(fø) > 200	**582.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 30**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**0.500**	**Yes**
Exists f in [fø,4fø] where A(f) < Aø/2	**2.200**	**Yes**
Aø > 2	**2.52 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**2530.90% > 5.00%**	**No**
sf < e(fø)	**0.1420 > 0.1003**	**No**
sA(fø) < ?(fø)	**1.1515 < 1.7800**	**Yes**

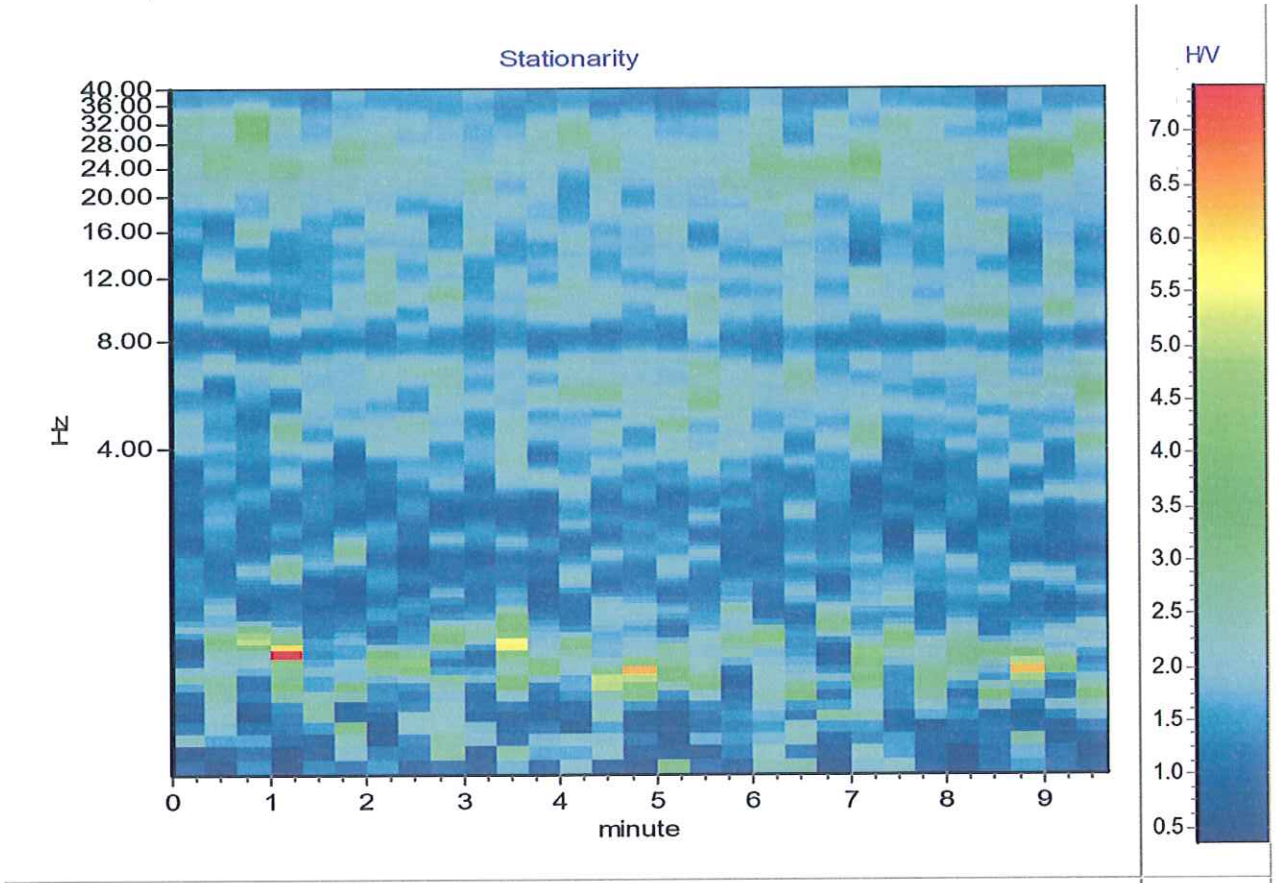
Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

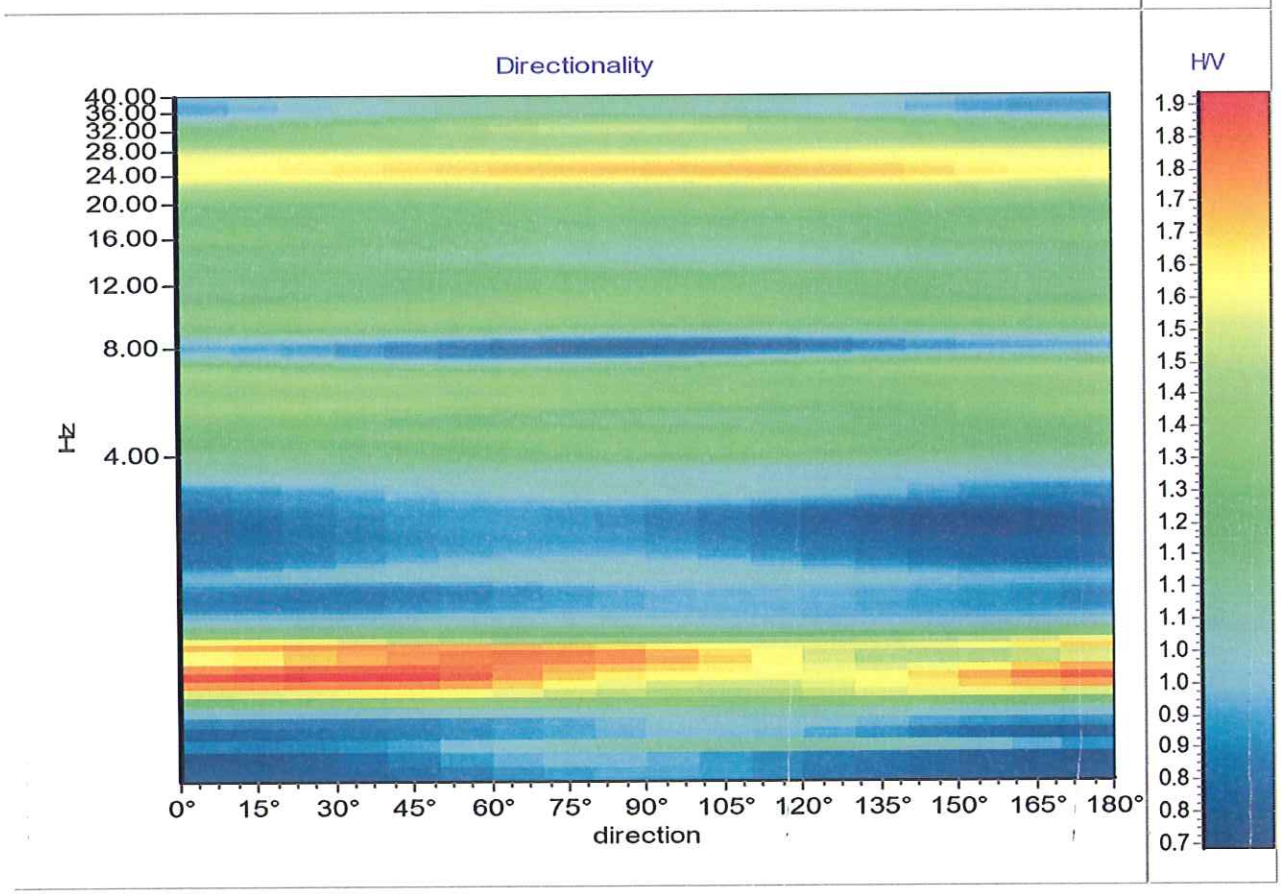
Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **39**





Misura HVSR 40

047003P41

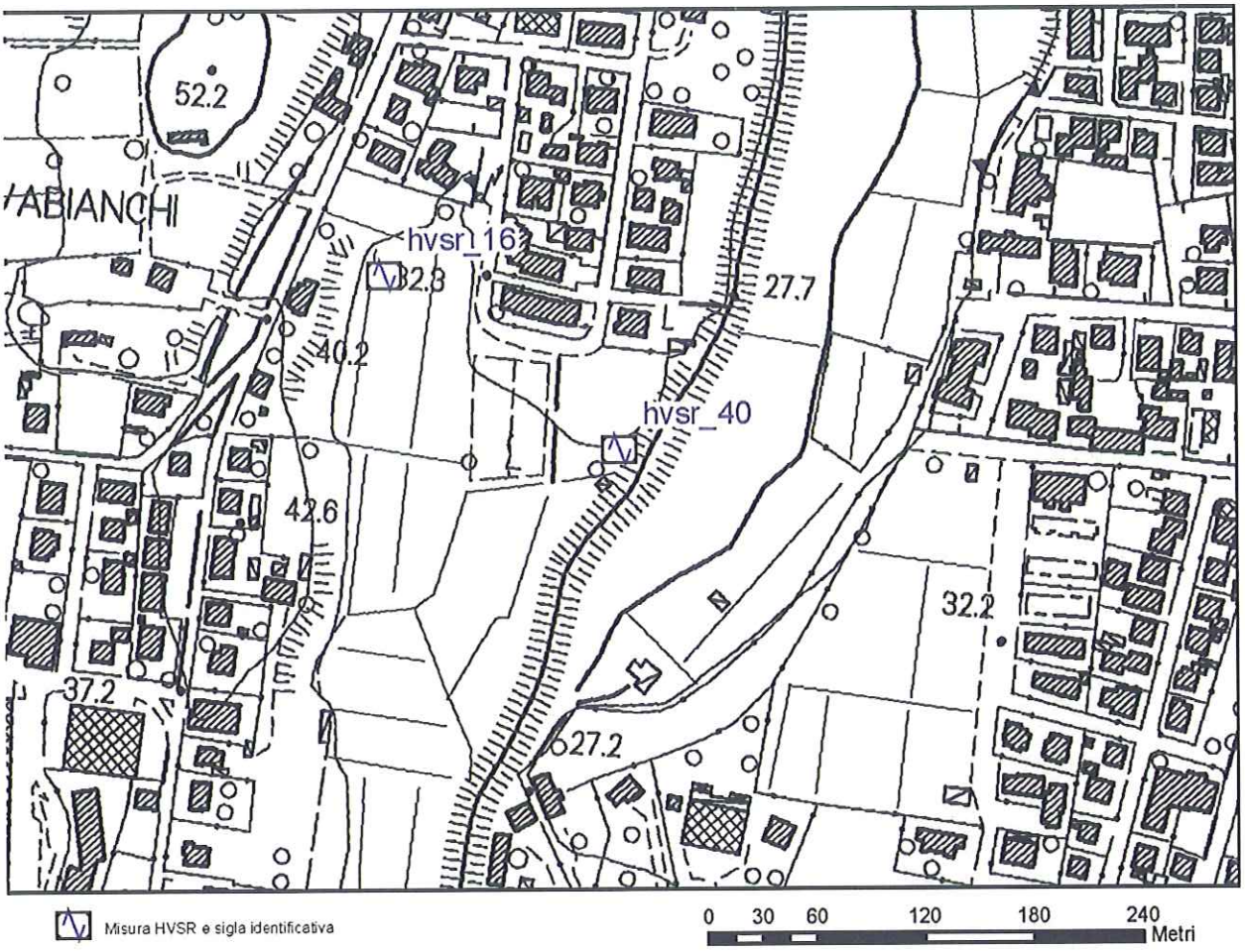


Figura 1 – individuazione del sito di studio

Figura 2: rilievo sismico

H/V Spectral ratio

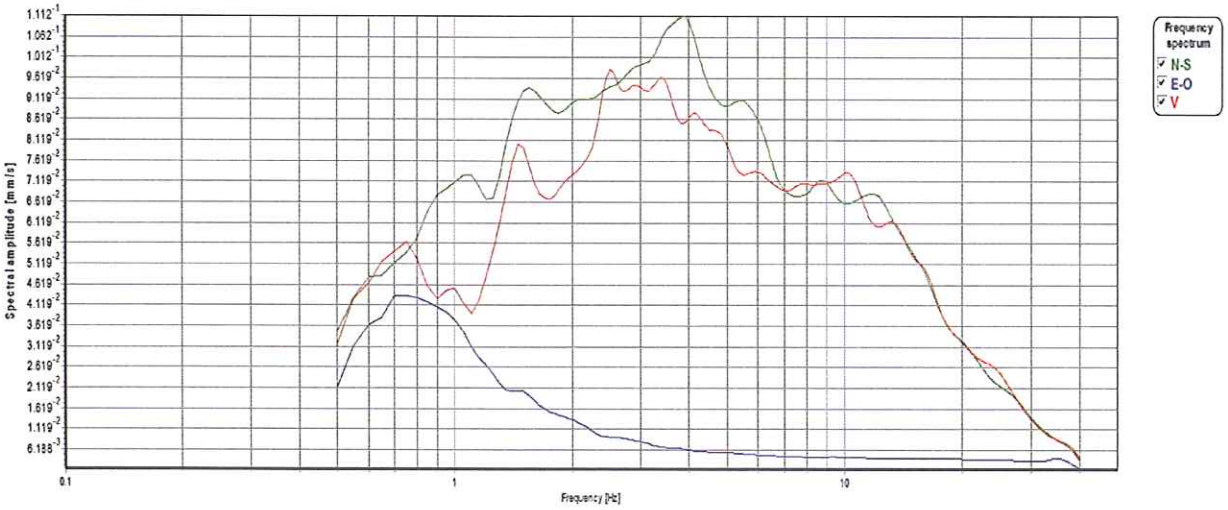
Analysis site: **Buggiano**

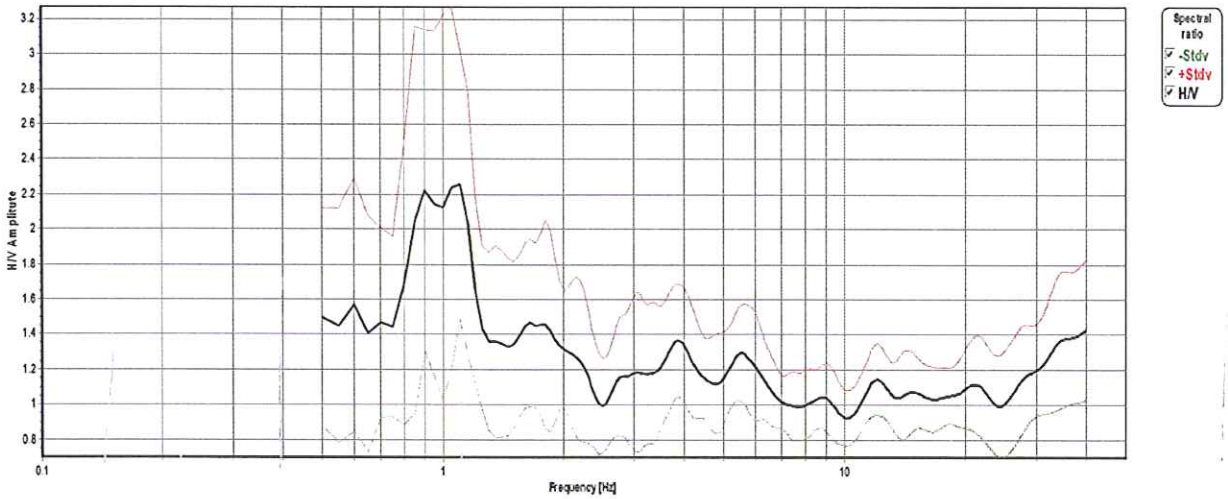
Measure point: **40**

Note:

Analysis parameters			
Sample frequency [Hz]:	**200.00**	Start recordings:	**20/07/2017 18:01:34**
Automatic spike removal:	**No**	Stop recordings:	**20/07/2017 18:31:34**
LTA [s]:	**5.0**	High pass frequency [Hz]:	**0.50**
STA [s]:	**0.5**	Low pass frequency [Hz]:	**40.00**
Ratio:	**1.9**	Nw number of windows:	**31**
Lw Windows [s]:	**20**	Recording length [s]:	**1800**
Overlap Windows s]:	**0.0**	Discarded windows:	**59**
Konno-Ohmachi parameter:	**40**		

Analysis results			
H/V peak frequency fø [Hz]:	**1.006**	Standard deviation [Hz]:	**0.105**





H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **40**

Criteria for a reliable H/V curve		
fø > 10/Lw	**1.01 >= 0.50**	**Yes**
Nc(fø) > 200	**624.00 >= 200.00**	**Yes**
sA(f)<2 for 0.5fø<f<2fø	**exceeded 0 out of 30**	**Yes**
Criteria for a clear H/V peak		
Exists f in [fø/4,fø] where A(f) < Aø/2	**Not exist**	**No**
Exists f in [fø,4fø] where A(f) < Aø/2	**2.400**	**Yes**
Aø > 2	**2.13 > 2.00**	**Yes**
Criteria for a stable H/V peak		
Fpeak[A(f)± sA(f)] = fø ± %	**9.29% > 5.00%**	**No**
sf < e(fø)	**0.1053 > 0.1006**	**No**
sA(fø) < ?(fø)	**1.0987 < 1.7800**	**Yes**

Lw	window length
Nw	number of windows used in the analysis
f	current frequency
fø	H/V peak frequency
sf	standard deviation of H/V peak frequency
Nc = fø x Lw x Nw	number of significant cycles
AH/V(f)	H/V curve amplitude at frequency f
Aø	H/V peak amplitude at frequency fø
sA(f)	standard deviation of AH/V(f)
sA(fø)	standard deviation of AH/V(f) at fø frequency
e(fø)	threshold value for the stability condition sf < e(fø)
?(fø)	threshold value for the stability condition sA(fø) < ?(fø)
Fpeak[A(f)± sA(f)] = fø ± %	maximum deviation from the fø peak, expressed as a percentage

Threshold values for sf and sA(fø)					
fø frequency range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
e(fø) [Hz]	0.25fø	0.2fø	0.15fø	0.1fø	0.05fø
?(fø) for sA(fø)	3.0	2.5	2.0	1.78	1.58

H/V Spectral ratio

Analysis site: **Buggiano**

Measure point: **40**