

## TORRI DEL BENACO 023086P1

Instrument: TEP-0124/01-10

Data format: 16 bit

Full scale [mV]: 51

Start recording: 19/11/2020 13:40:09 End recording: 19/11/2020 13:56:09

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down

GPS data not available

Trace length: 0h16'00". Analyzed 88% trace (manual window selection)

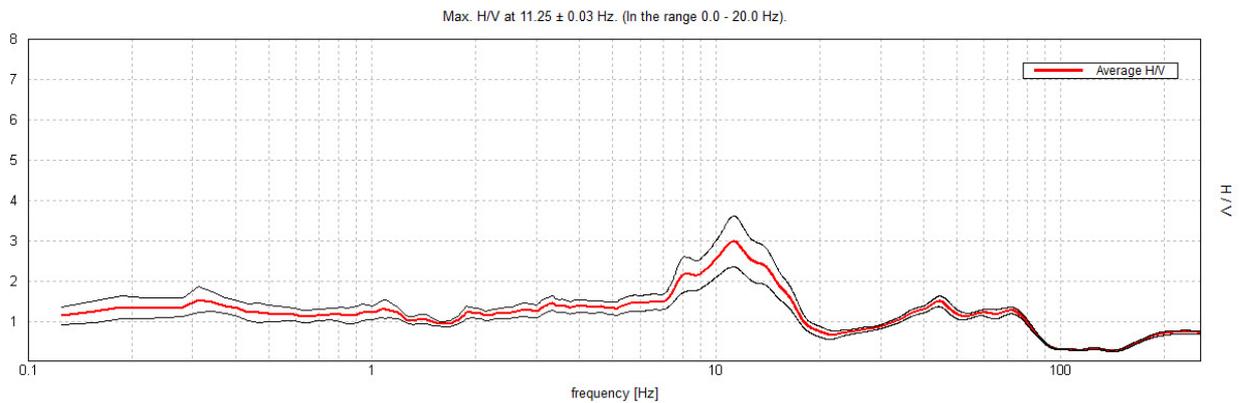
Sampling rate: 512 Hz

Window size: 20 s

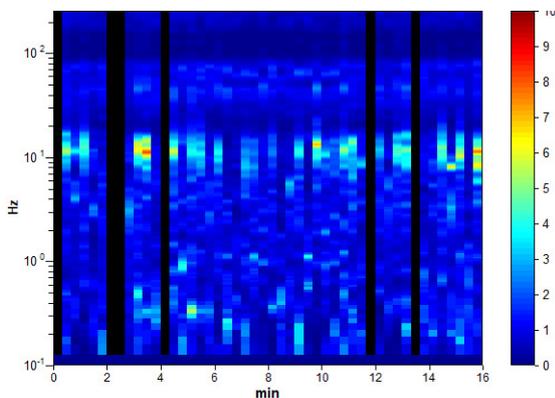
Smoothing type: Triangular window

Smoothing: 10%

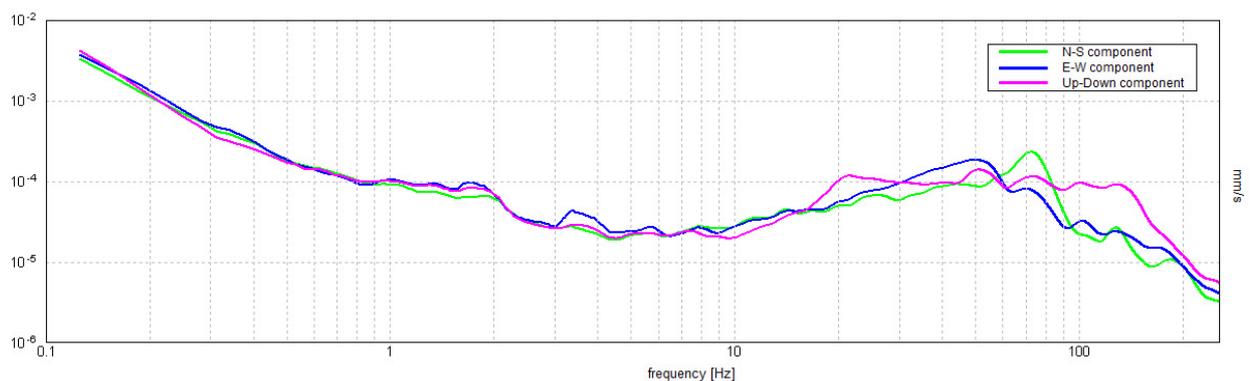
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



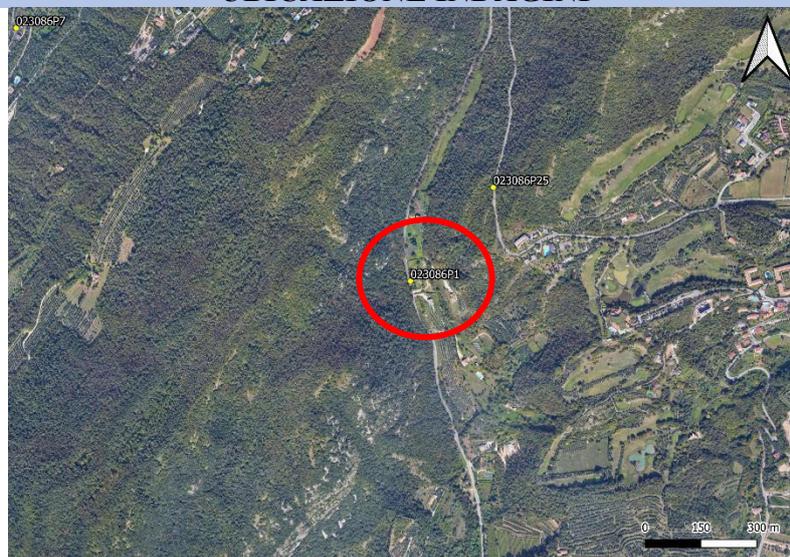
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 11.25 ± 0.03 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		11.25 > 0.50		OK	
$n_c(f_0) > 200$		9450.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 541 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		7.031 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		16.656 Hz		OK	
$A_0 > 2$		2.98 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.00227  < 0.05$		OK	
$\sigma_f < \varepsilon(f_0)$		$0.02552 < 0.5625$		OK	
$\sigma_A(f_0) < \theta(f_0)$		$0.6349 < 1.58$		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	$0.25 f_0$	$0.2 f_0$	$0.15 f_0$	$0.10 f_0$	$0.05 f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

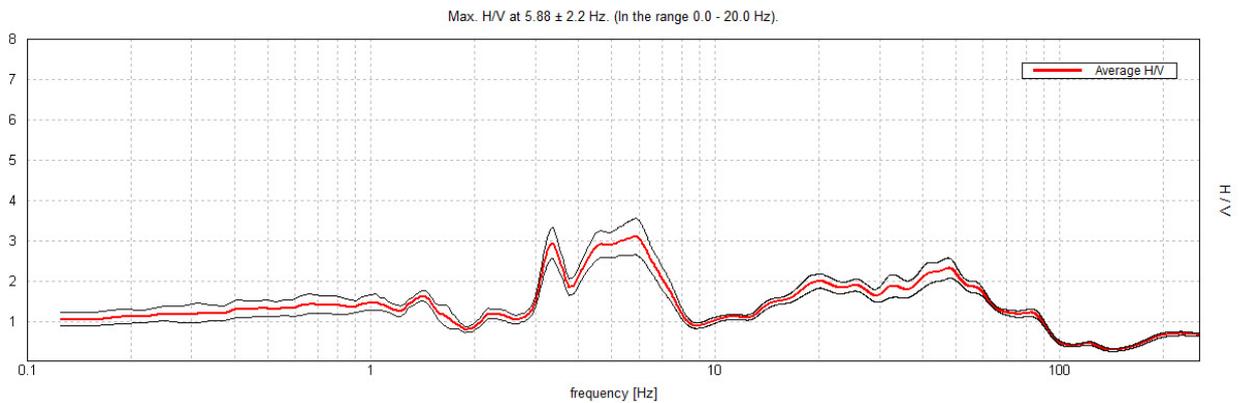
### UBICAZIONE INDAGINI



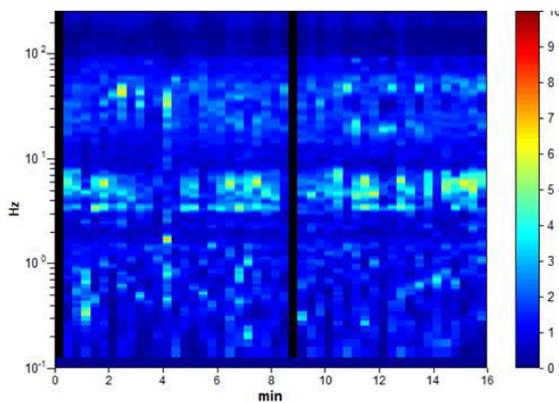
**TORRI DEL BENACO 023086P2**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 19/11/2020 14:17:10 End recording: 19/11/2020 14:33:11  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h16'00". Analyzed 96% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

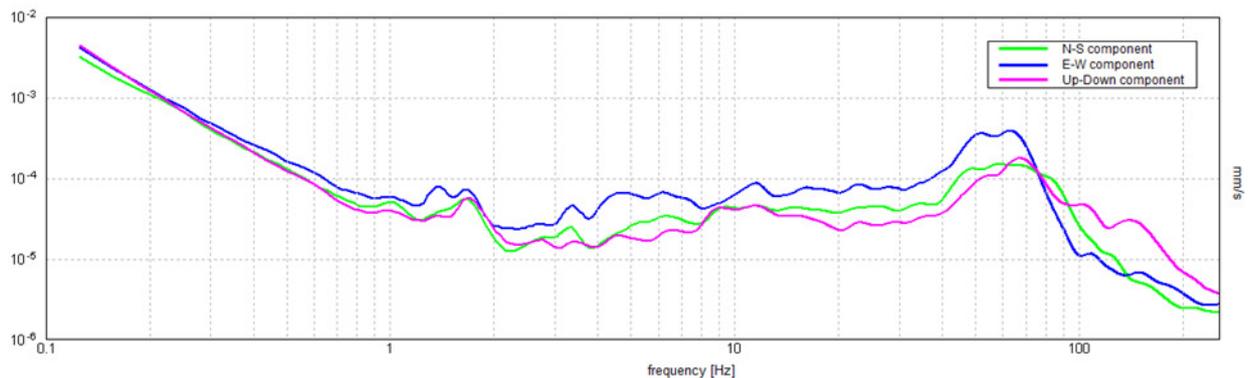
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



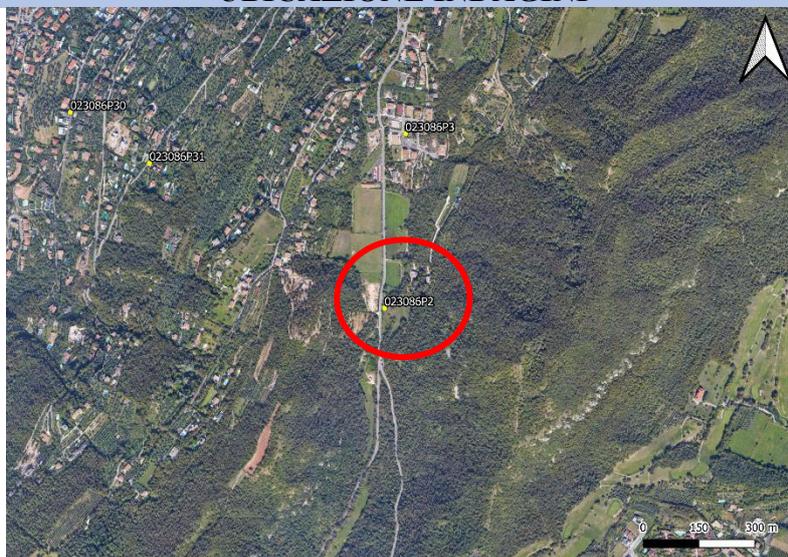
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 5.88 ± 2.2 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		5.88 > 0.50		OK	
$n_c(f_0) > 200$		5405.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 283 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.0 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		7.625 Hz		OK	
$A_0 > 2$		3.10 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.37452  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		2.20029 < 0.29375			NO
$\sigma_A(f_0) < \theta(f_0)$		0.4524 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

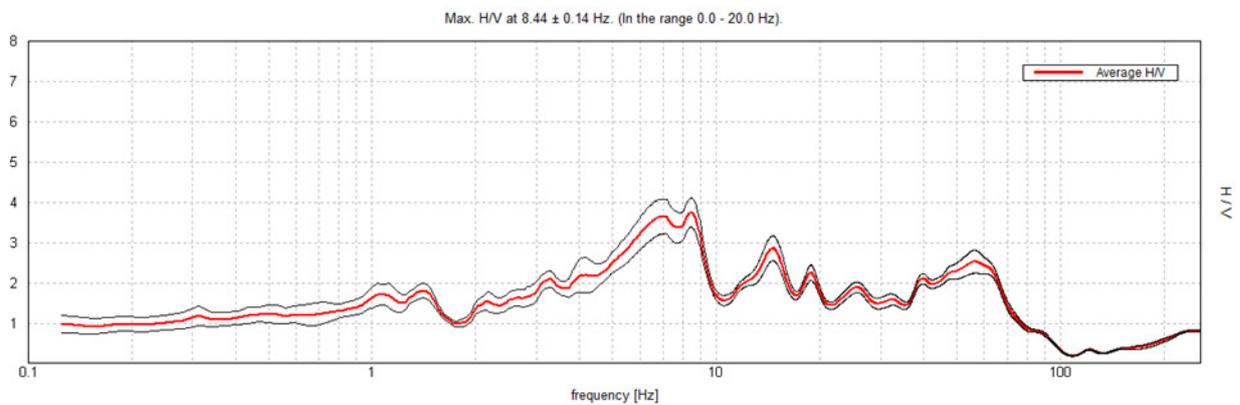
## UBICAZIONE INDAGINI



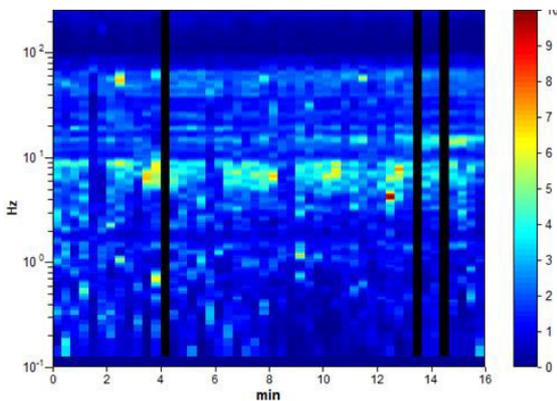
## TORRI DEL BENACO 023086P3

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 19/11/2020 14:51:58 End recording: 19/11/2020 15:07:58  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h16'00". Analyzed 94% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

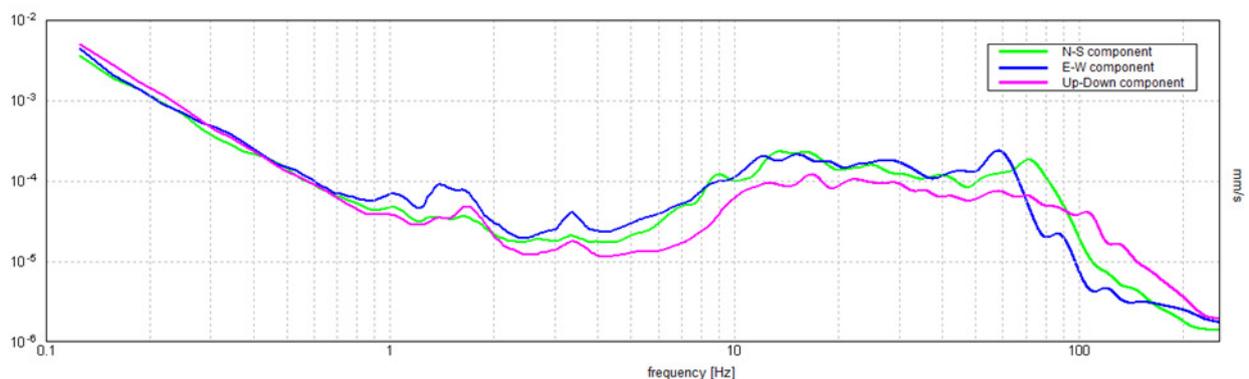
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



### SINGLE COMPONENT SPECTRA



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

Max. H/V at 8.44 ± 0.14 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		8.44 > 0.50		OK	
$n_c(f_0) > 200$		7593.8 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 406 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.719 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		9.75 Hz		OK	
$A_0 > 2$		3.75 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.01706  < 0.05$		OK	
$\sigma_f < \varepsilon(f_0)$		0.14396 < 0.42188		OK	
$\sigma_A(f_0) < \theta(f_0)$		0.3592 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

## UBICAZIONE INDAGINI



## TORRI DEL BENACO 023086P4

Instrument: TEP-0124/01-10

Data format: 16 bit

Full scale [mV]: 51

Start recording: 19/11/2020 15:28:12 End recording: 19/11/2020 15:44:12

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down

GPS data not available

Trace length: 0h16'00". Analyzed 81% trace (manual window selection)

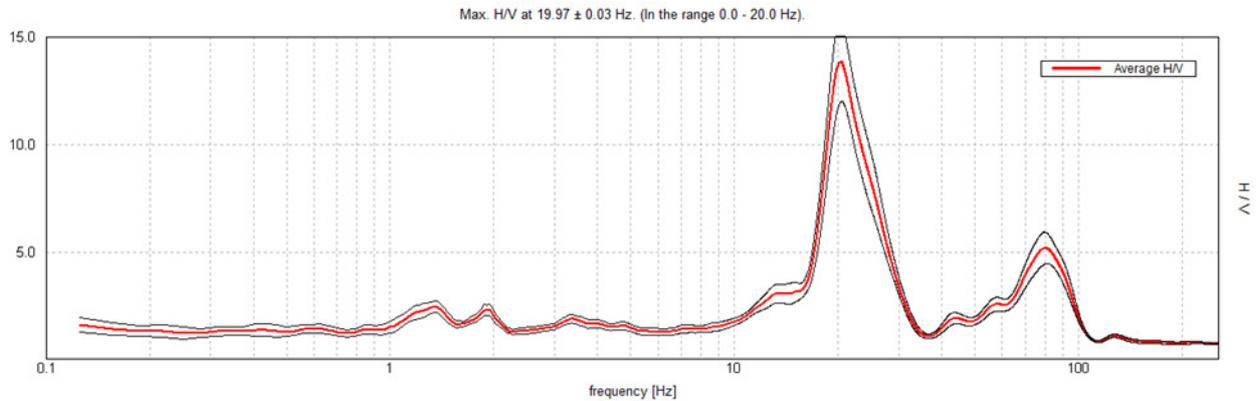
Sampling rate: 512 Hz

Window size: 20 s

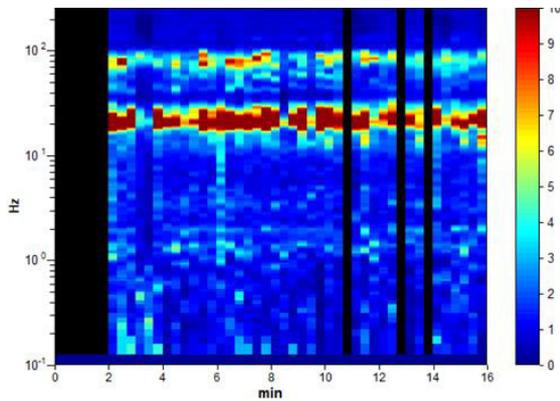
Smoothing type: Triangular window

Smoothing: 10%

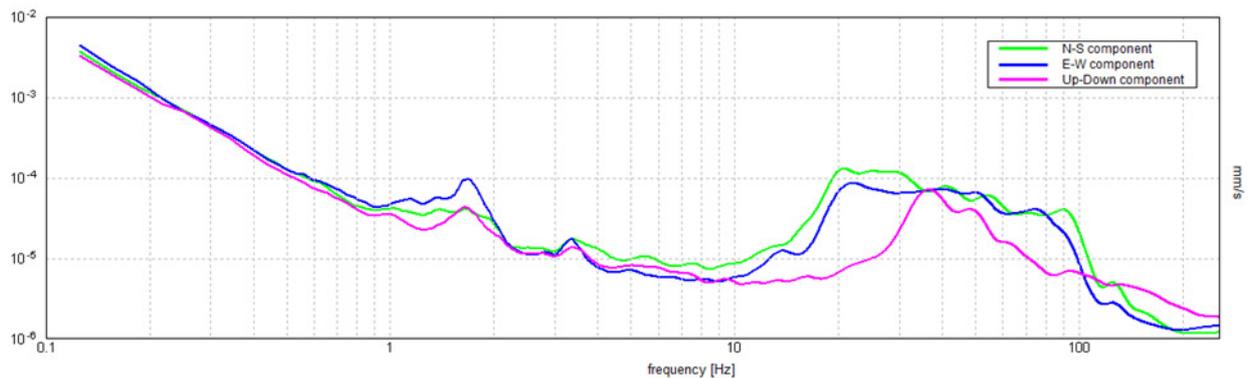
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



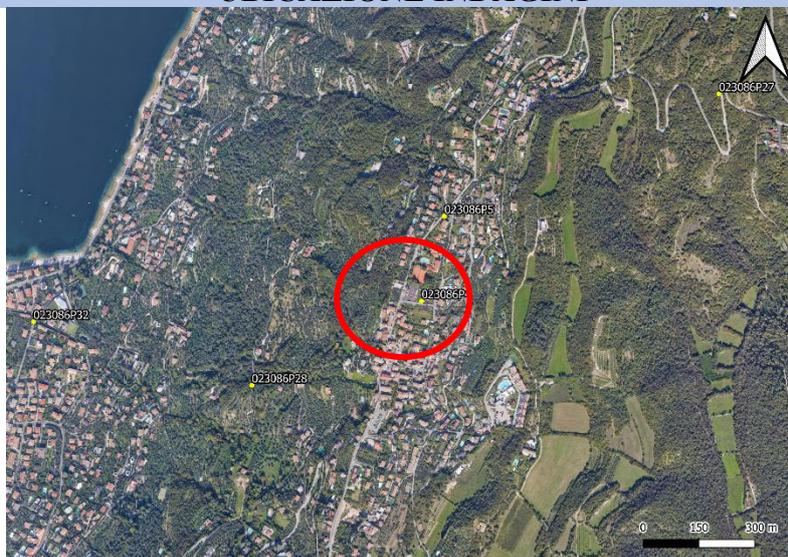
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 19.97 ± 0.03 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	19.97 > 0.50	OK			
$n_c(f_0) > 200$	15575.6 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 960 times	OK			
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$	17.719 Hz	OK			
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	26.438 Hz	OK			
$A_0 > 2$	13.61 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.00156  < 0.05$	OK			
$\sigma_f < \varepsilon(f_0)$	0.03125 < 0.99844	OK			
$\sigma_A(f_0) < \theta(f_0)$	1.9516 < 1.58				NO
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

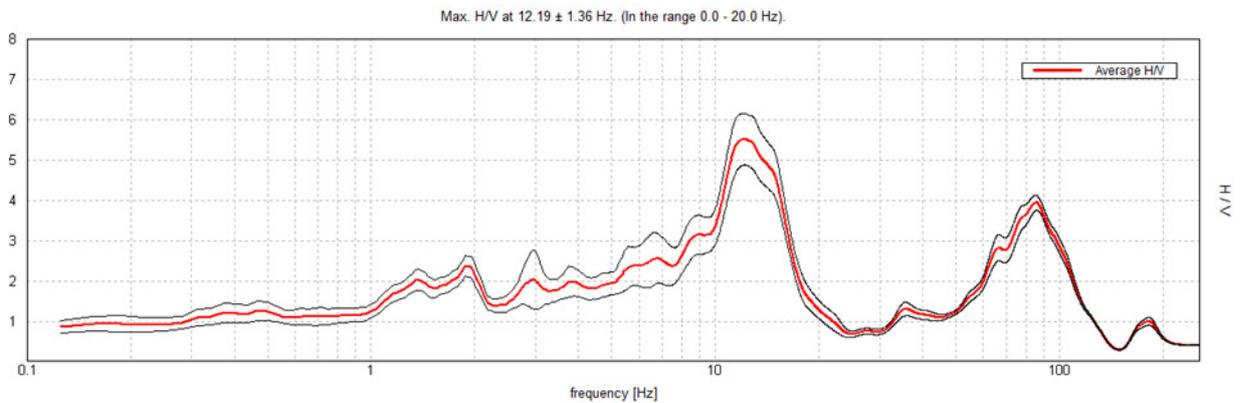
## UBICAZIONE INDAGINI



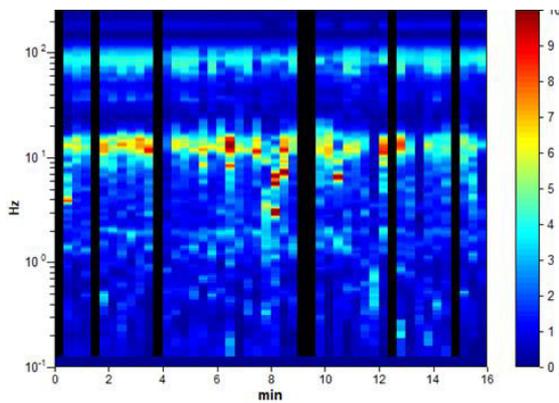
**TORRI DEL BENACO 023086P5**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 19/11/2020 16:02:26 End recording: 19/11/2020 16:18:26  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h16'00". Analyzed 85% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

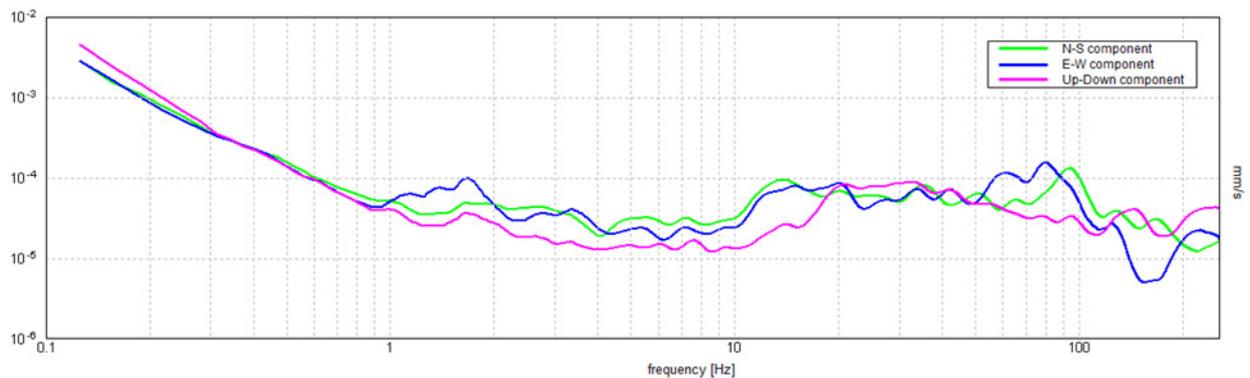
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



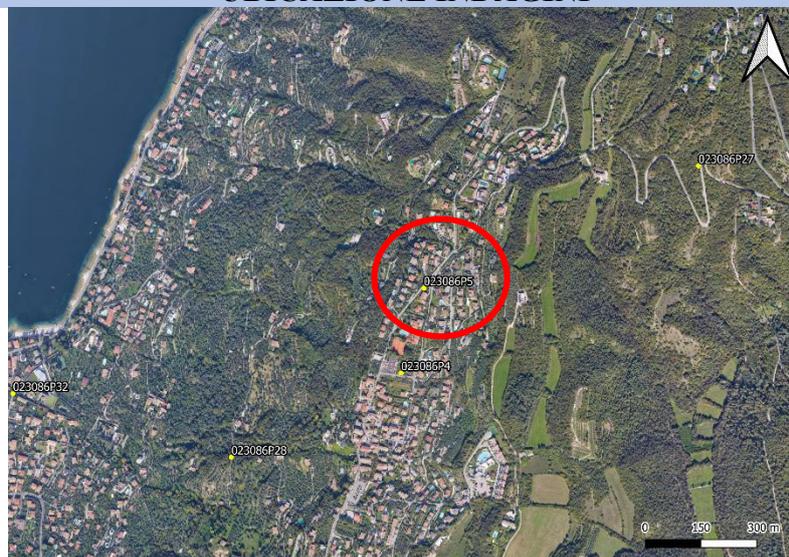
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 12.19 ± 1.36 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		12.19 > 0.50		OK	
$n_c(f_0) > 200$		9993.8 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 586 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		8.125 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		16.656 Hz		OK	
$A_0 > 2$		5.51 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.11172  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.3616 < 0.60938			NO
$\sigma_A(f_0) < \theta(f_0)$		0.6347 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

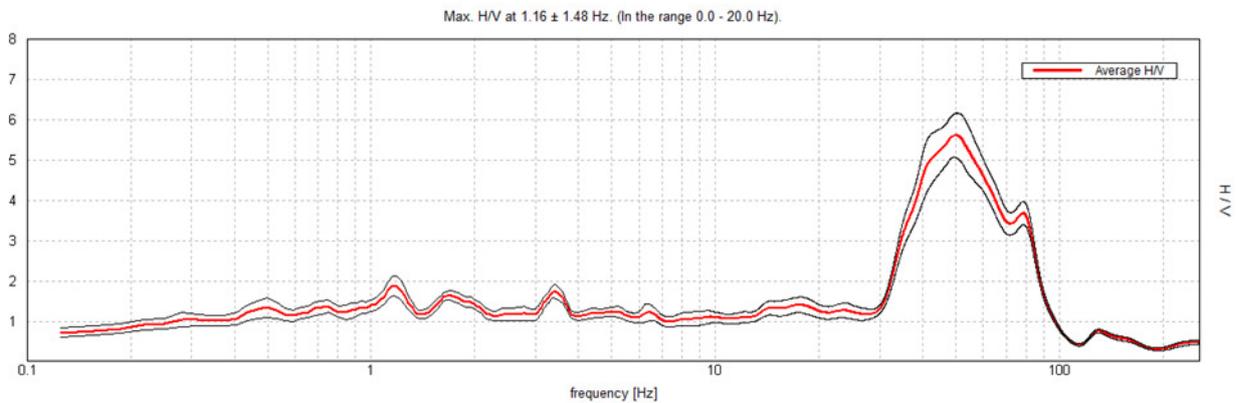
### UBICAZIONE INDAGINI



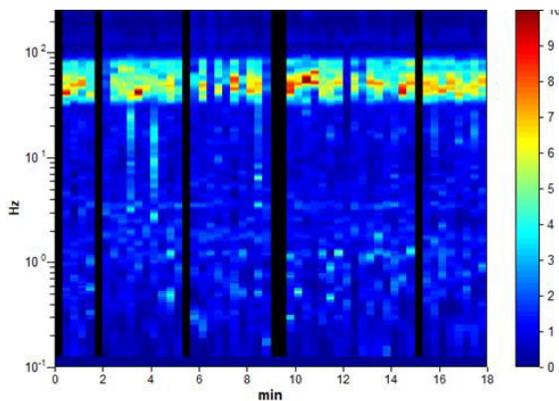
## TORRI DEL BENACO 023086P6

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 10:16:16 End recording: 01/12/2020 10:34:16  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 89% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

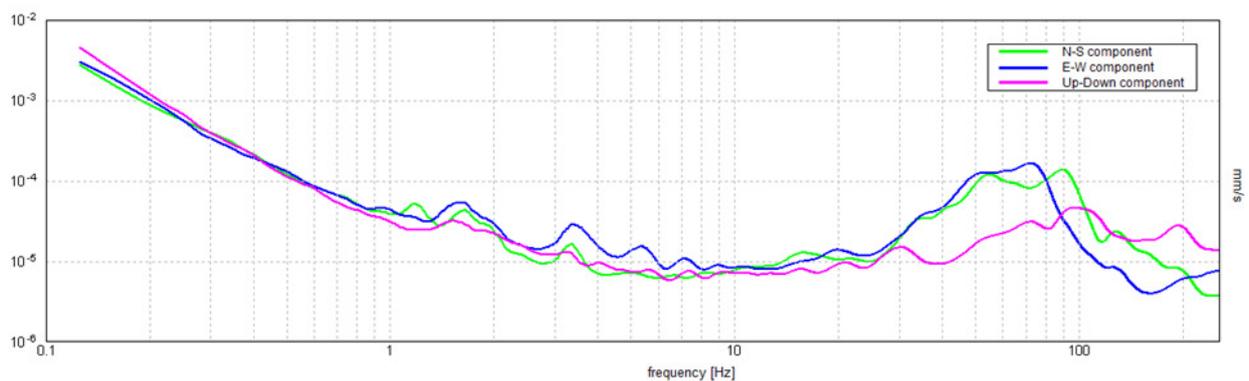
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



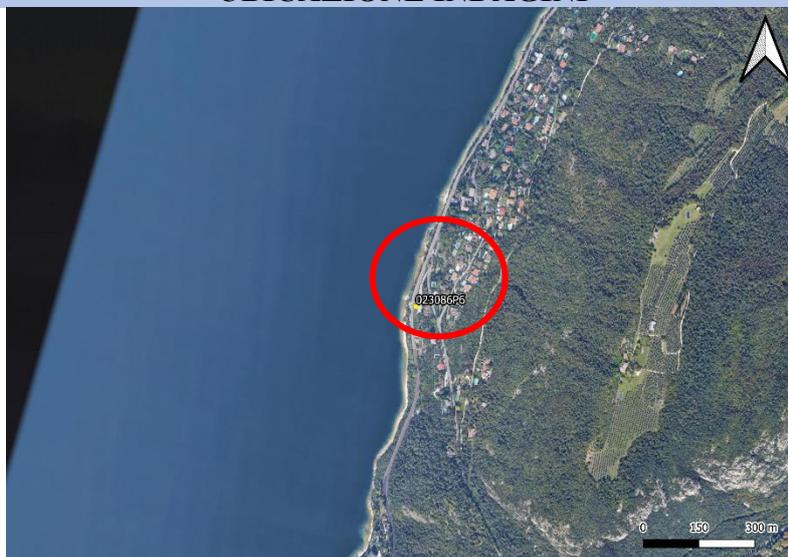
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 1.16 ± 1.48 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		1.16 > 0.50		OK	
$n_c(f_0) > 200$		1110.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 56 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		1.88 > 2			NO
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 1.28174  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.48202 < 0.11563			NO
$\sigma_A(f_0) < \theta(f_0)$		0.2493 < 1.78		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

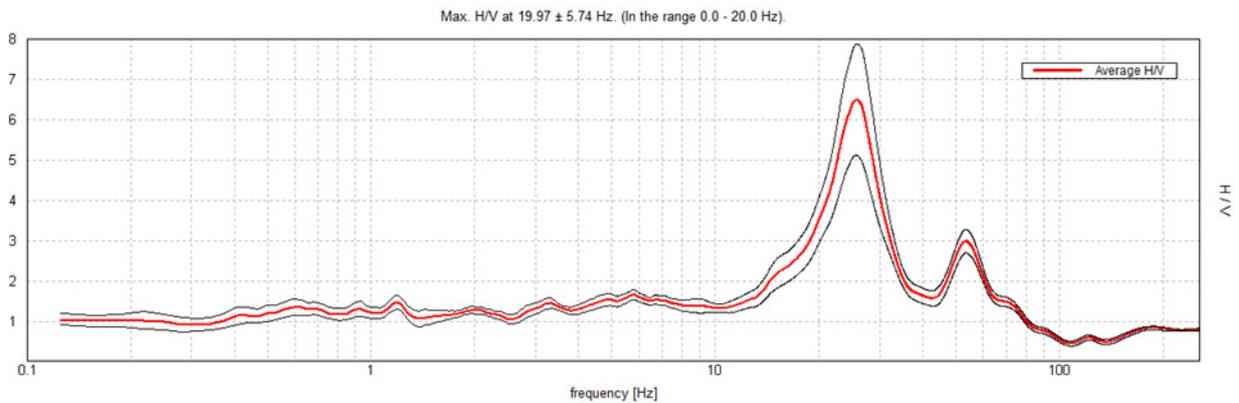
### UBICAZIONE INDAGINI



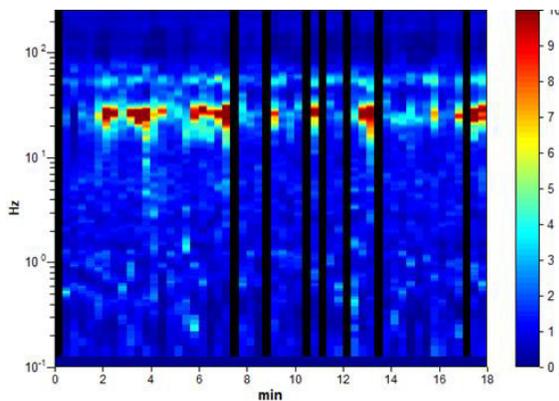
## TORRI DEL BENACO 023086P7

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 10:50:27 End recording: 01/12/2020 11:08:27  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 85% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

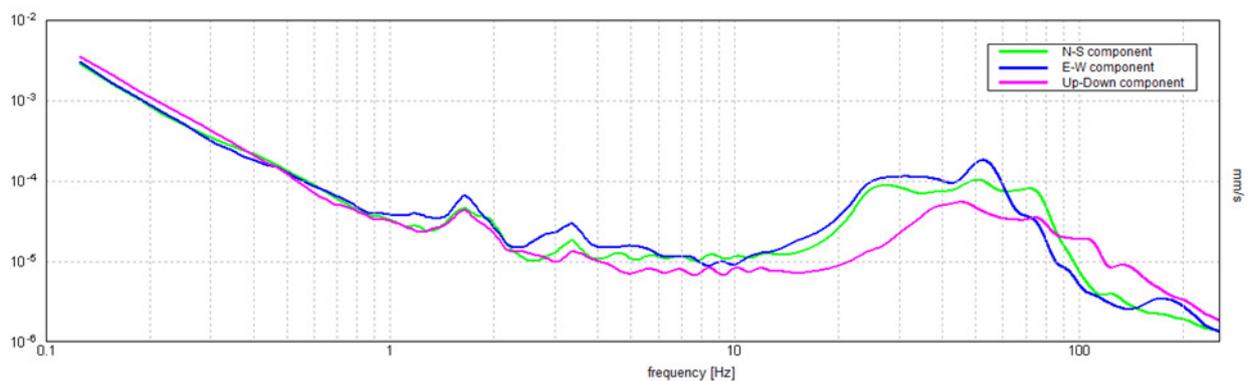
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



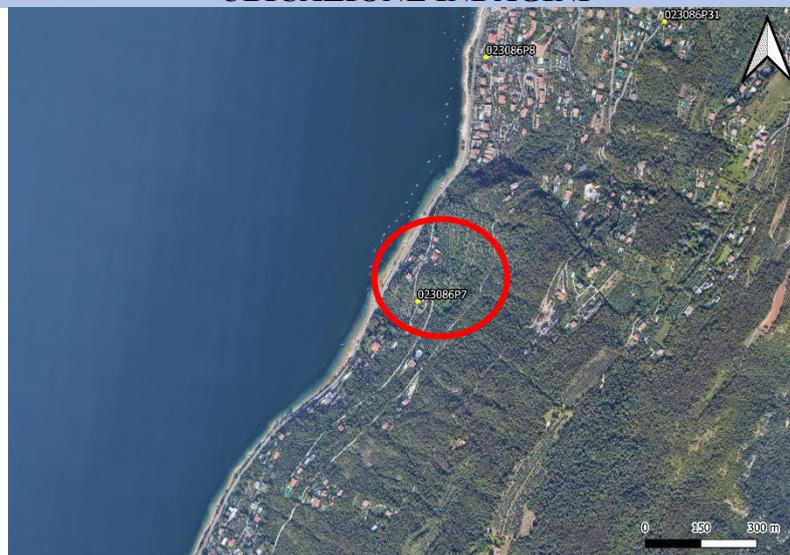
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 19.97 ± 5.74 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		19.97 > 0.50		OK	
$n_c(f_0) > 200$		18371.3 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 960 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		13.719 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		37.438 Hz		OK	
$A_0 > 2$		3.49 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.2875  < 0.05			NO
$\sigma_f < \varepsilon(f_0)$		5.7411 < 0.99844			NO
$\sigma_A(f_0) < \theta(f_0)$		0.5652 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI



## TORRI DEL BENACO 023086P8

Instrument: TEP-0124/01-10

Data format: 16 bit

Full scale [mV]: 51

Start recording: 01/12/2020 11:24:44 End recording: 01/12/2020 11:42:44

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down

GPS data not available

Trace length: 0h18'00". Analyzed 83% trace (manual window selection)

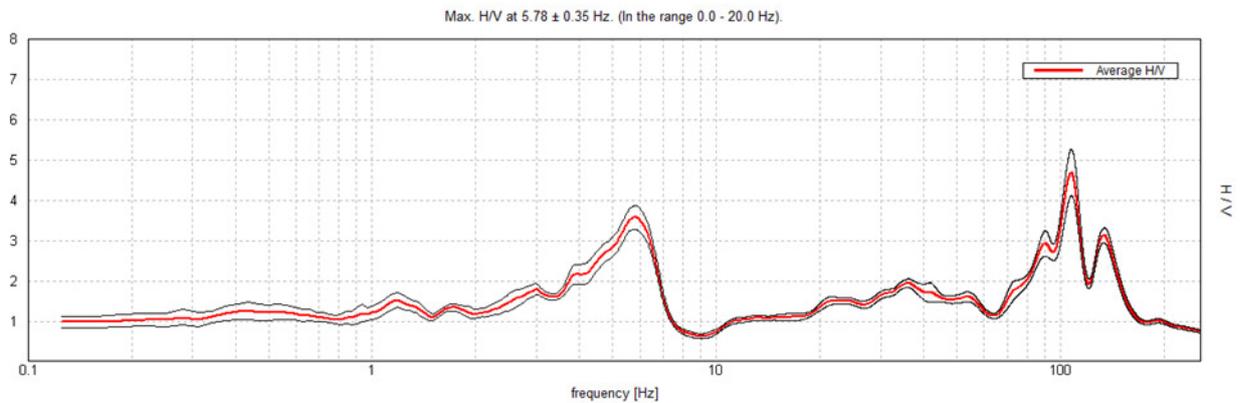
Sampling rate: 512 Hz

Window size: 20 s

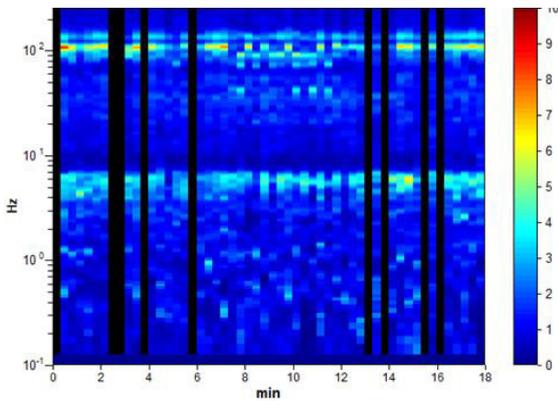
Smoothing type: Triangular window

Smoothing: 10%

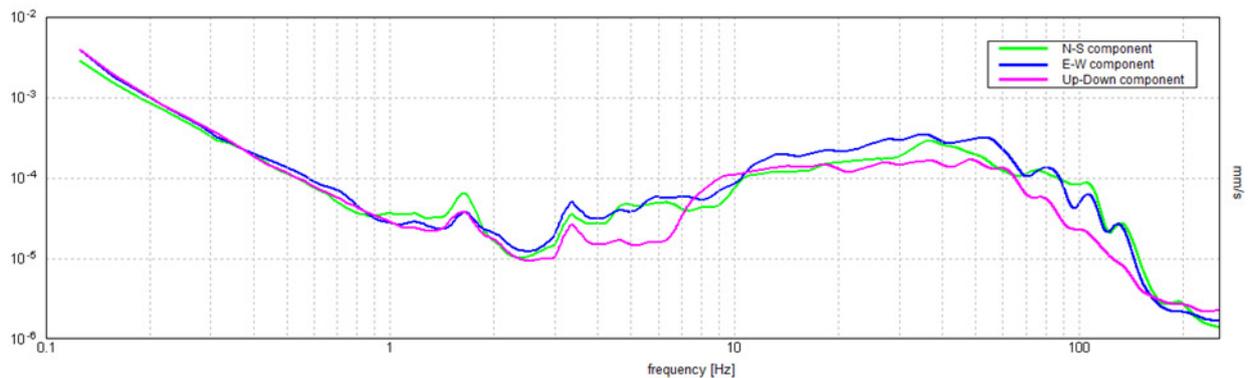
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



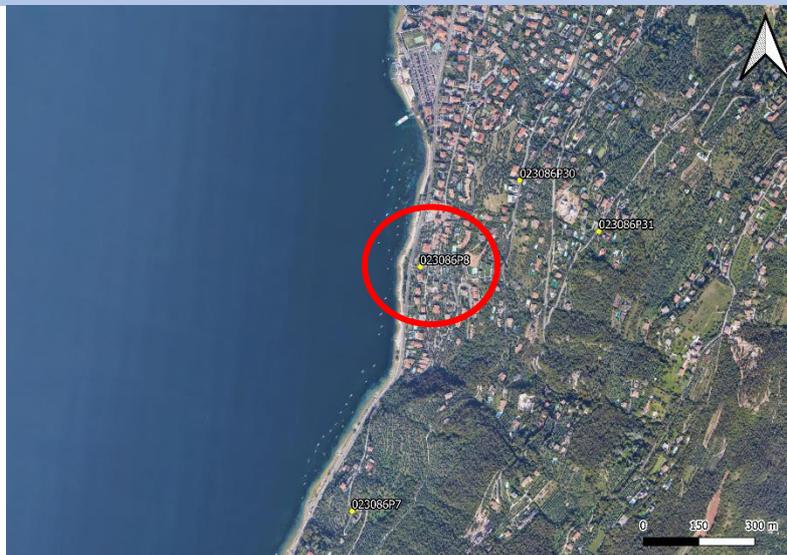
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 5.78 ± 0.35 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		5.78 > 0.50		OK	
$n_c(f_0) > 200$		5203.1 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 278 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.594 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		6.938 Hz		OK	
$A_0 > 2$		3.57 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.06008  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		$0.34733 < 0.28906$			NO
$\sigma_A(f_0) < \theta(f_0)$		$0.2925 < 1.58$		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

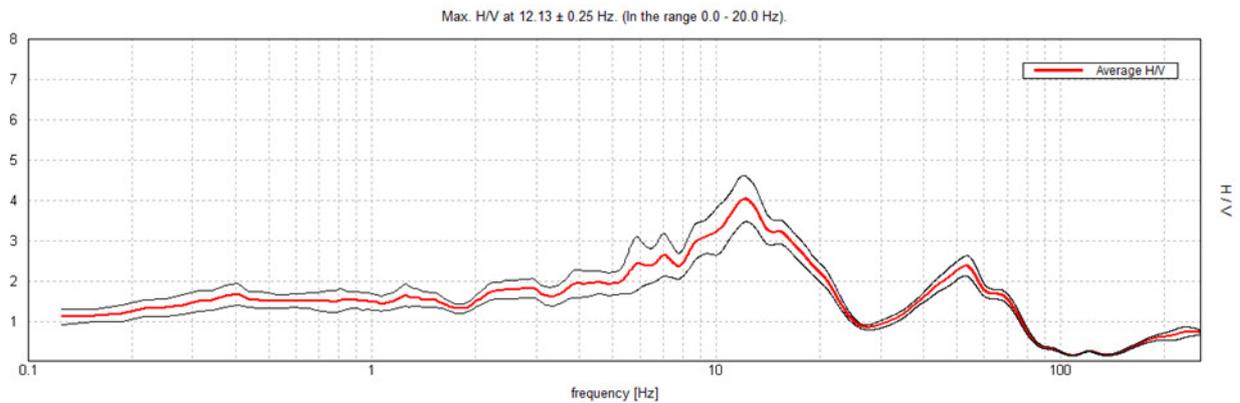
### UBICAZIONE INDAGINI



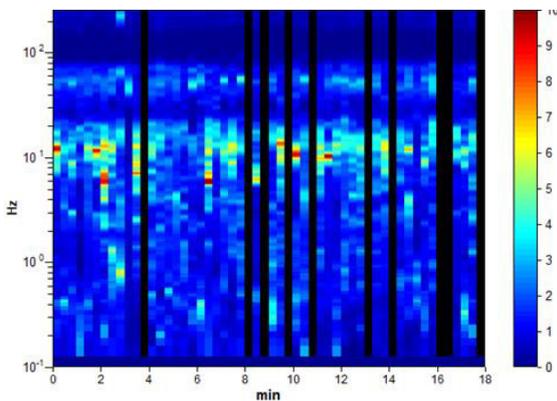
## TORRI DEL BENACO 023086P9

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 12:23:13 End recording: 01/12/2020 12:41:13  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 81% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

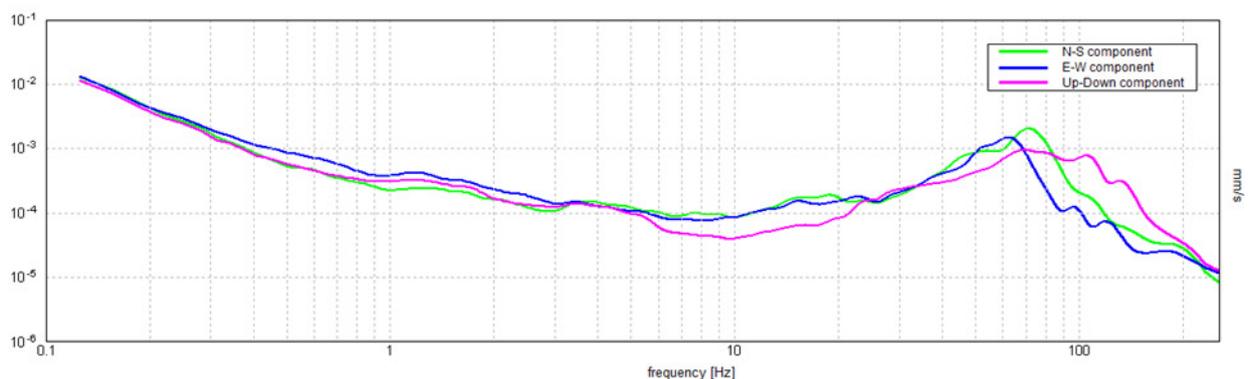
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



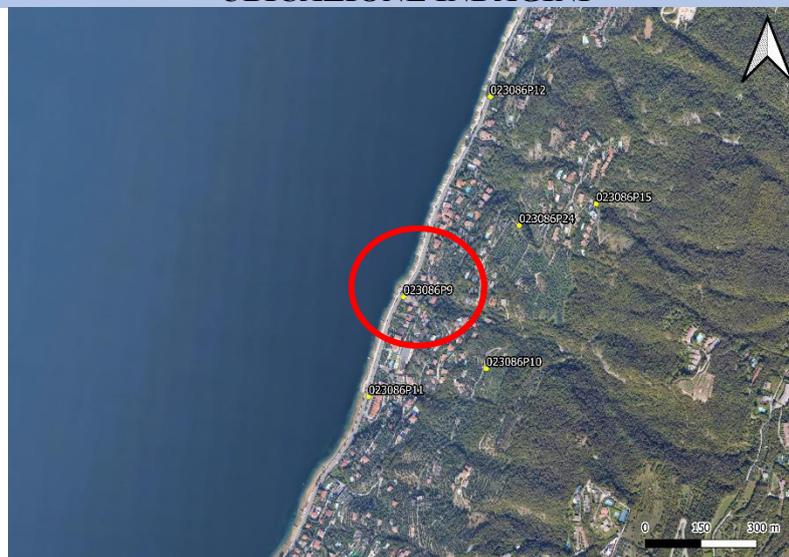
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 12.13 ± 0.25 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		12.13 > 0.50		OK	
$n_c(f_0) > 200$		10670.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 583 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		5.313 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		20.969 Hz		OK	
$A_0 > 2$		4.03 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.02059  < 0.05		OK	
$\sigma_f < \varepsilon(f_0)$		0.24964 < 0.60625		OK	
$\sigma_A(f_0) < \theta(f_0)$		0.5684 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

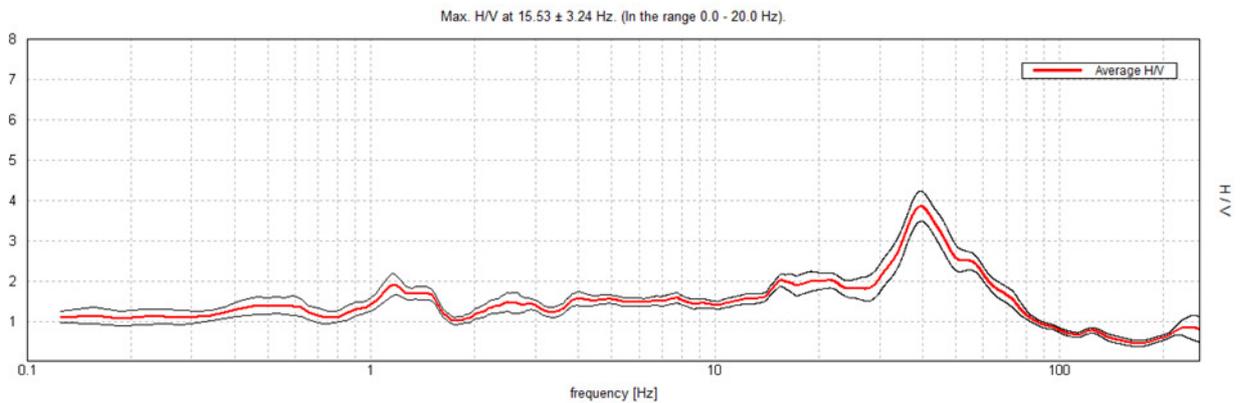
## UBICAZIONE INDAGINI



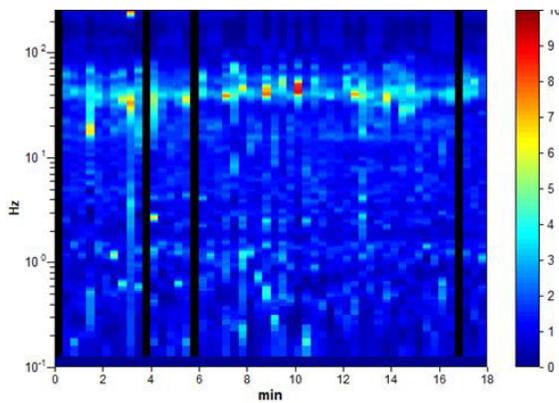
**TORRI DEL BENACO 023086P10**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 12:54:29 End recording: 01/12/2020 13:12:29  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 93% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

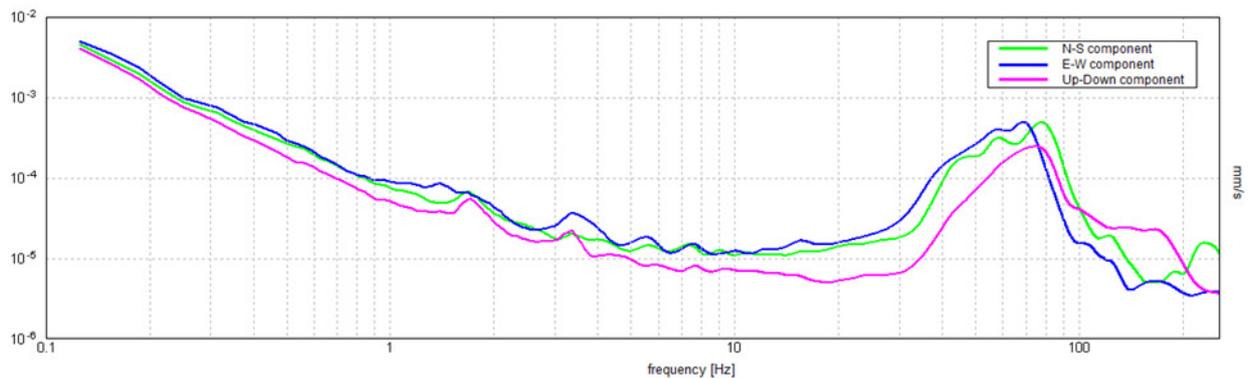
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



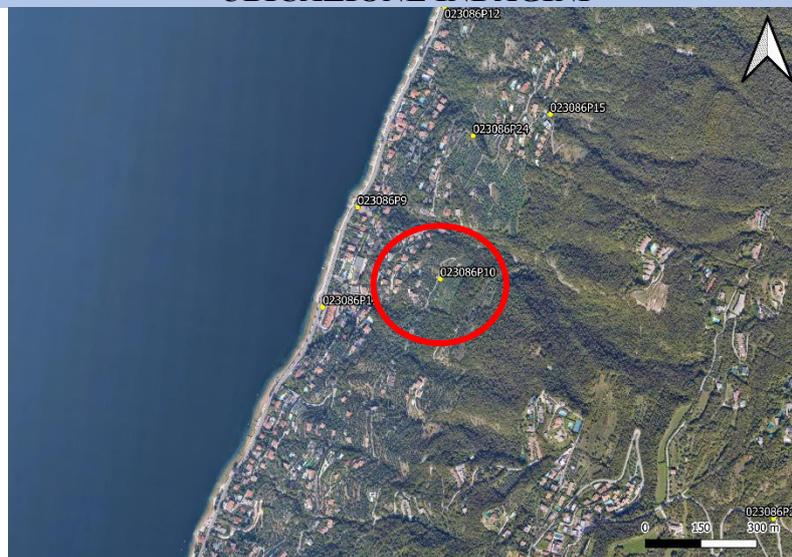
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 15.53 ± 3.24 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		15.53 > 0.50		OK	
$n_c(f_0) > 200$		15531.3 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 746 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		2.02 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.20848  < 0.05			NO
$\sigma_f < \varepsilon(f_0)$		3.2379 < 0.77656			NO
$\sigma_A(f_0) < \theta(f_0)$		0.1509 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

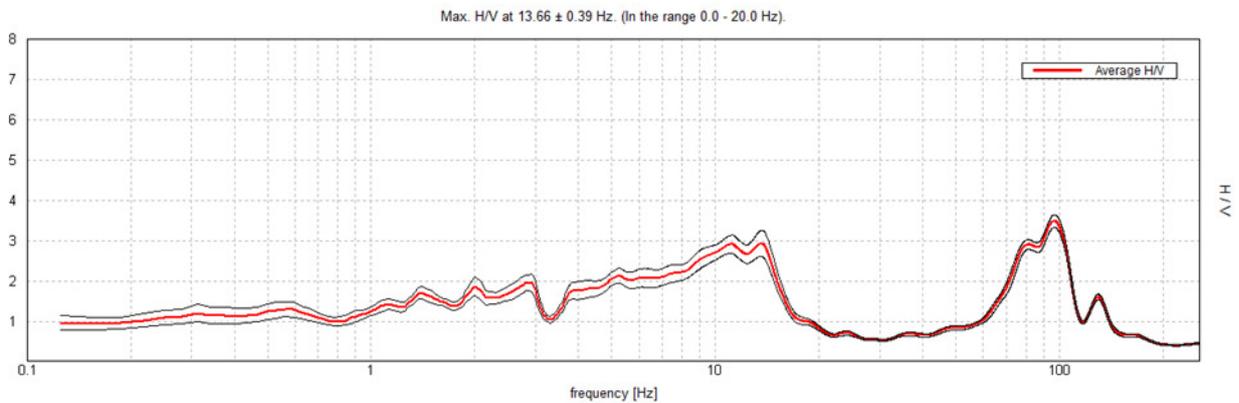
### UBICAZIONE INDAGINI



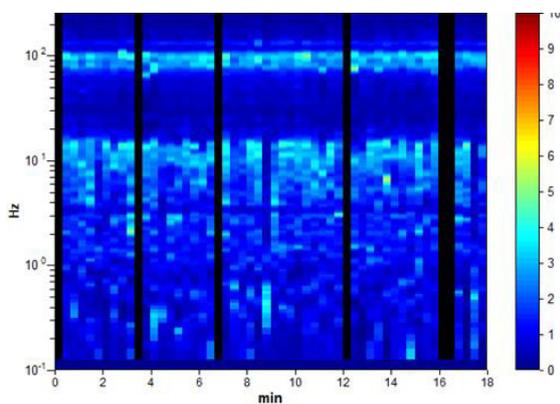
## TORRI DEL BENACO 023086P11

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 13:23:57 End recording: 01/12/2020 13:41:57  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 89% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

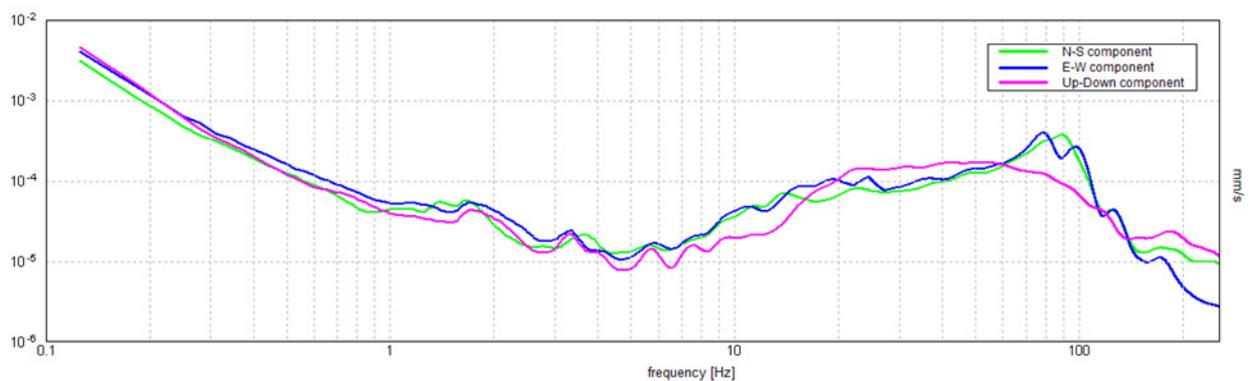
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



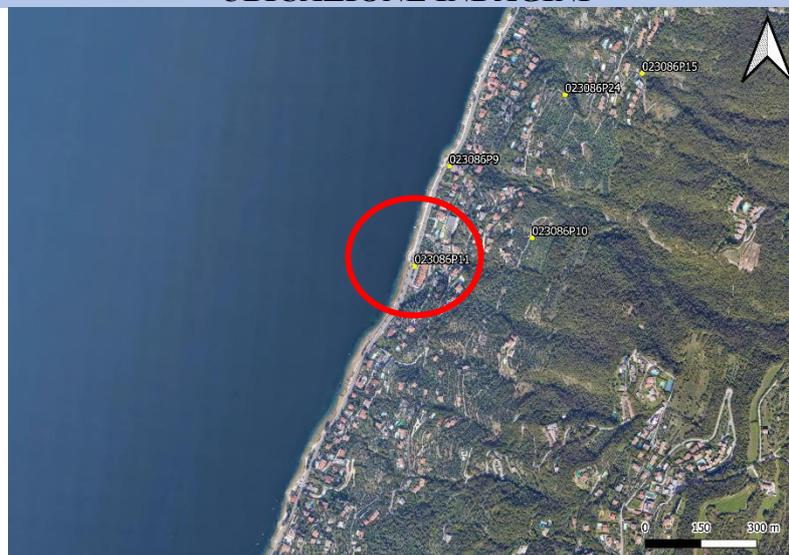
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 13.66 ± 0.39 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		13.66 > 0.50		OK	
$n_c(f_0) > 200$		13110.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 656 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.625 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		16.063 Hz		OK	
$A_0 > 2$		2.92 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.02882  < 0.05		OK	
$\sigma_f < \varepsilon(f_0)$		0.39361 < 0.68281		OK	
$\sigma_A(f_0) < \theta(f_0)$		0.3268 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

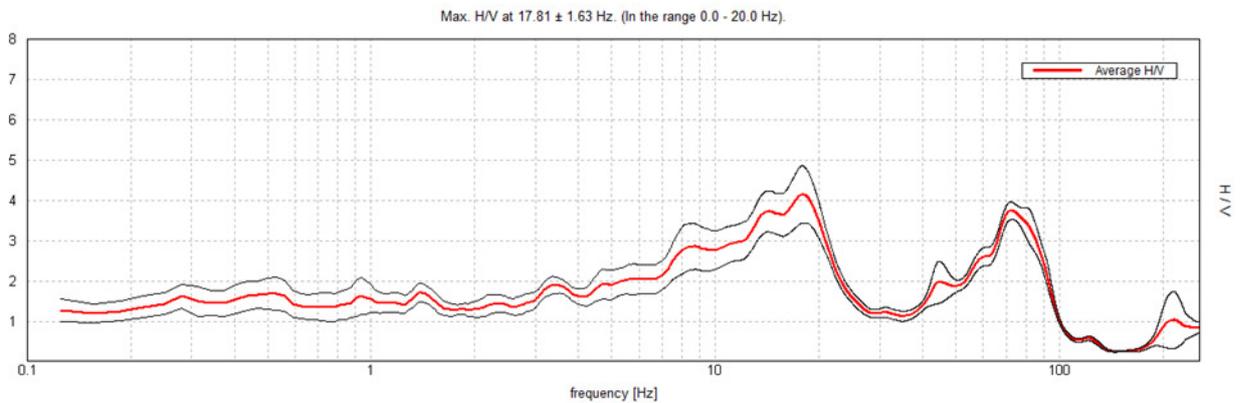
### UBICAZIONE INDAGINI



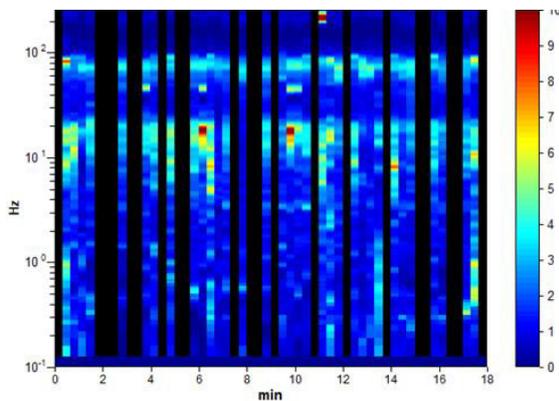
**TORRI DEL BENACO 023086P12**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 14:01:10 End recording: 01/12/2020 14:19:10  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 61% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

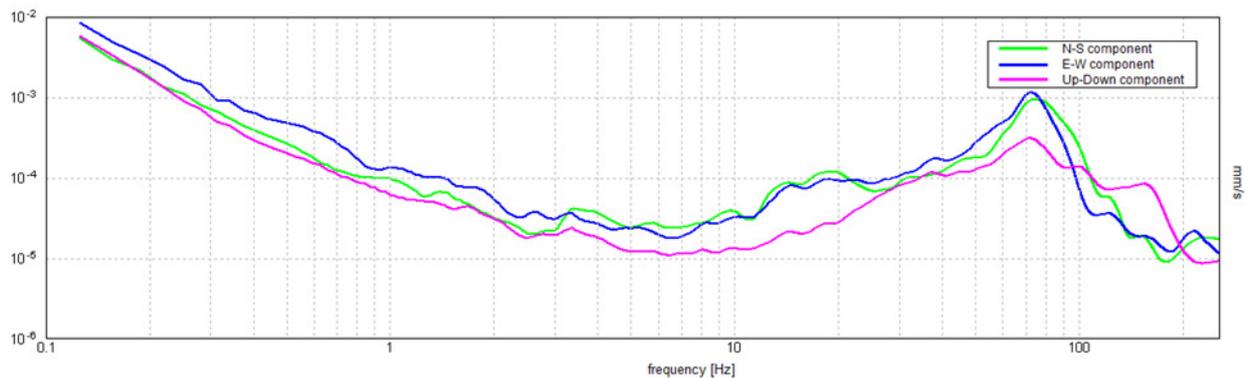
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



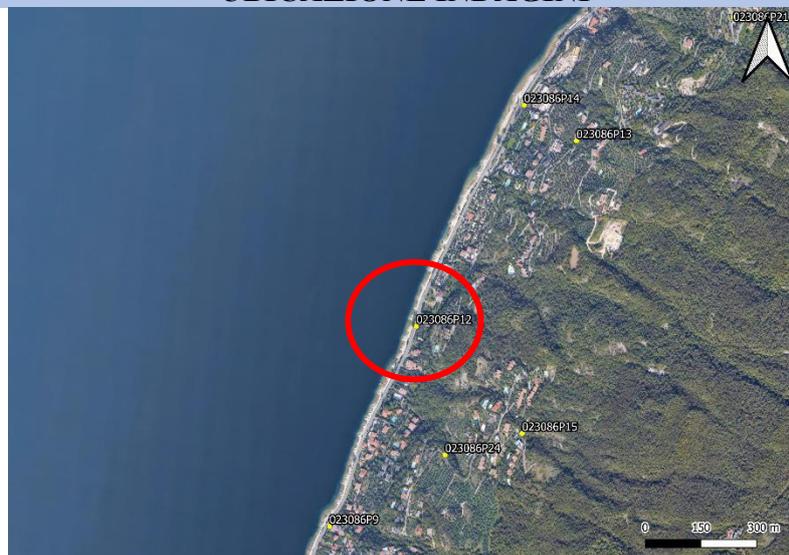
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 17.81 ± 1.63 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		17.81 > 0.50		OK	
$n_c(f_0) > 200$		11756.3 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 856 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		6.781 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		23.0 Hz		OK	
$A_0 > 2$		4.14 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.09165  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.63258 < 0.89063			NO
$\sigma_A(f_0) < \theta(f_0)$		0.7175 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

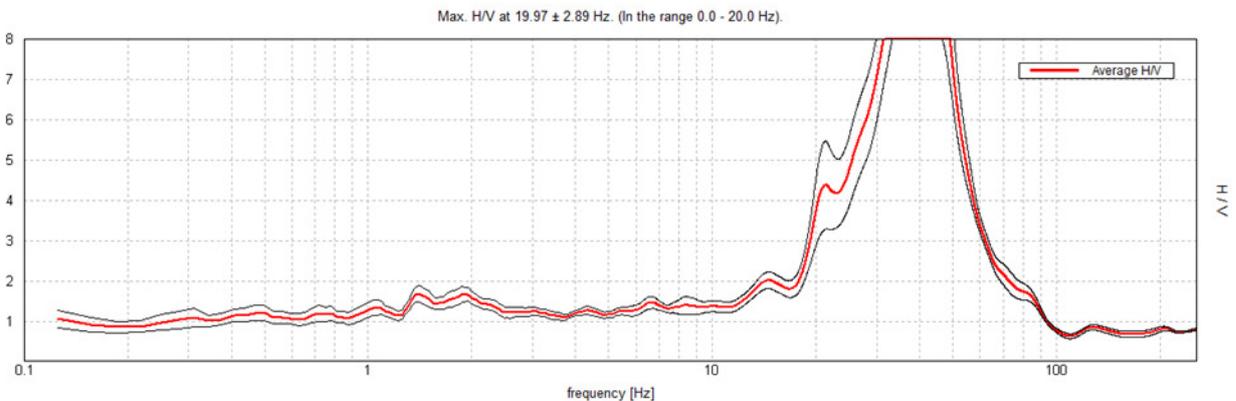
## UBICAZIONE INDAGINI



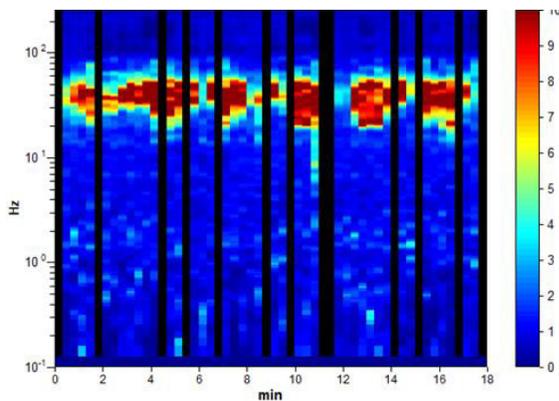
## TORRI DEL BENACO 023086P13

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 14:35:47 End recording: 01/12/2020 14:53:47  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 76% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

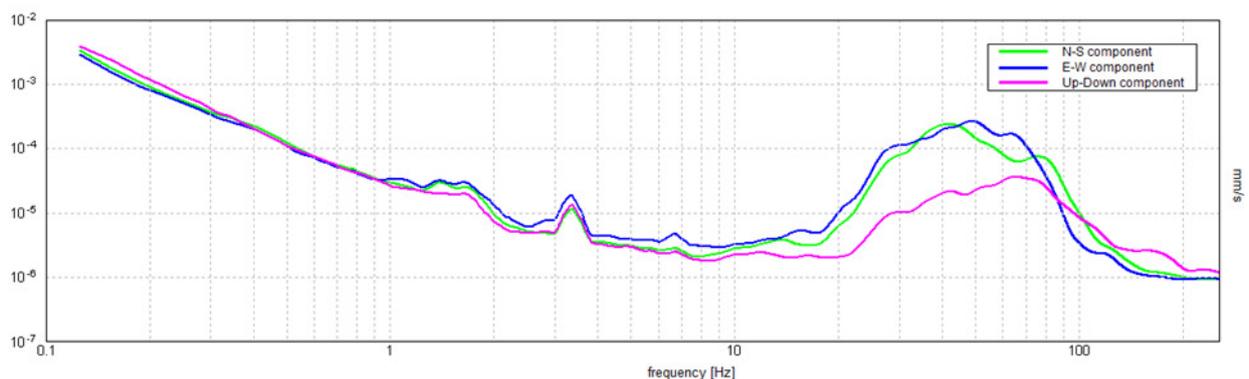
### HORIZONTAL TO VERTICAL SPECTRAL RATIO



### H/V TIME HISTORY



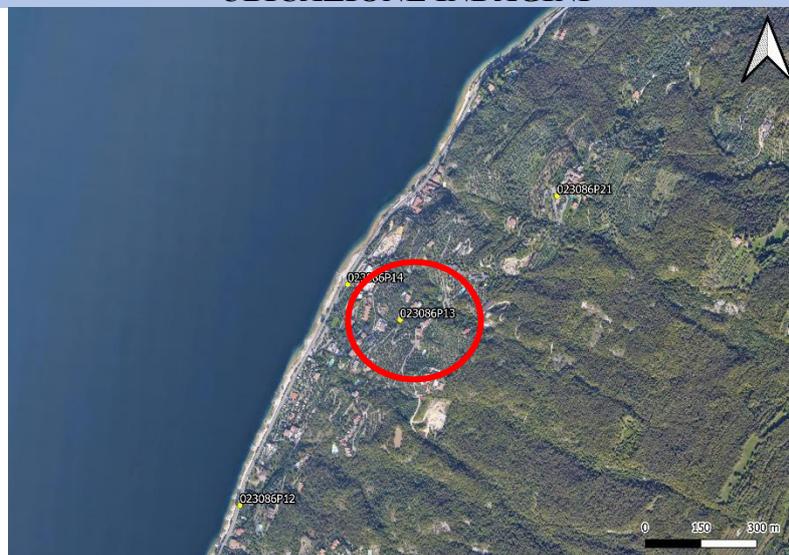
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 19.97 ± 2.89 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		19.97 > 0.50		OK	
$n_c(f_0) > 200$		16374.4 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 960 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		17.188 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		75.906 Hz		OK	
$A_0 > 2$		3.66 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.14452  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		2.88598 < 0.99844			NO
$\sigma_A(f_0) < \theta(f_0)$		0.8091 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

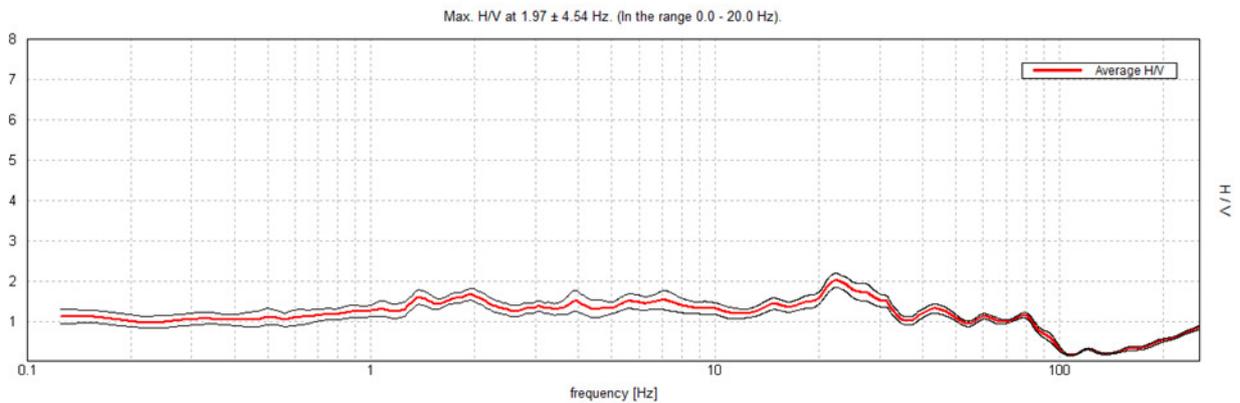
## UBICAZIONE INDAGINI



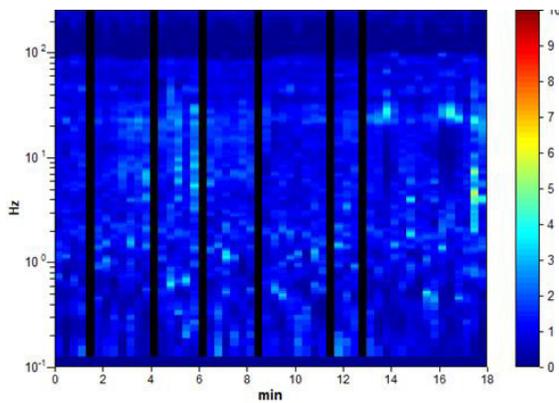
**TORRI DEL BENACO 023086P14**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 15:13:40 End recording: 01/12/2020 15:31:40  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 89% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

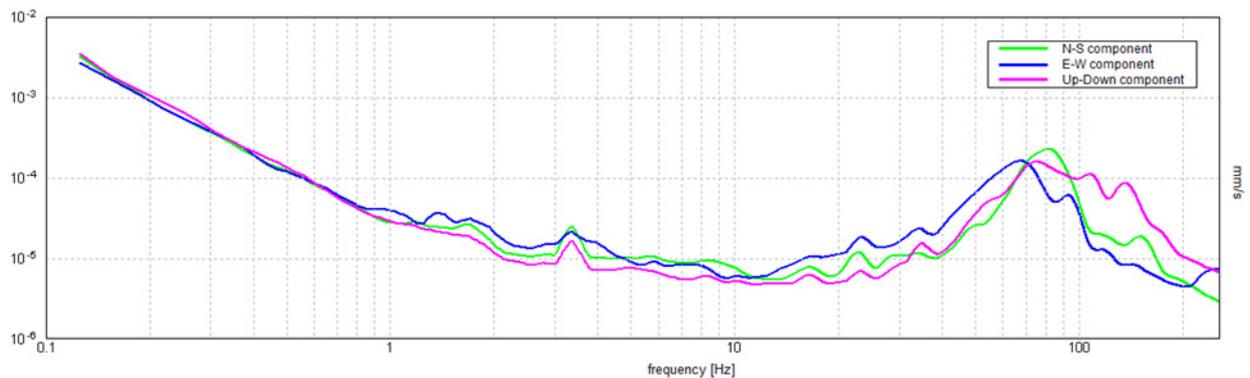
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



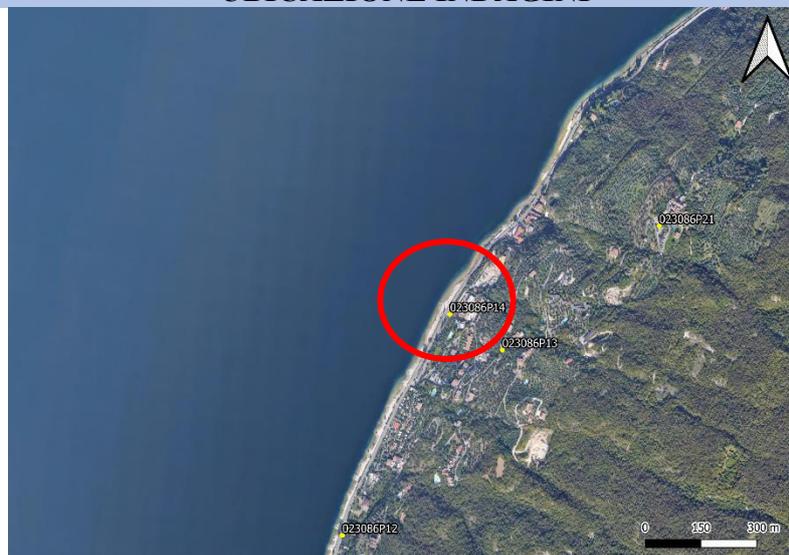
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at $1.97 \pm 4.54$ Hz (in the range 0.0 - 20.0 Hz).					
<b>Criteria for a reliable H/V curve</b> [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	$1.97 > 0.50$	OK			
$n_c(f_0) > 200$	$1890.0 > 200$	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 96 times	OK			
<b>Criteria for a clear H/V peak</b> [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$	$1.67 > 2$				NO
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 2.3041  < 0.05$				NO
$\sigma_f < \varepsilon(f_0)$	$4.5362 < 0.19688$				NO
$\sigma_A(f_0) < \theta(f_0)$	$0.1546 < 1.78$	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	$0.25 f_0$	$0.2 f_0$	$0.15 f_0$	$0.10 f_0$	$0.05 f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

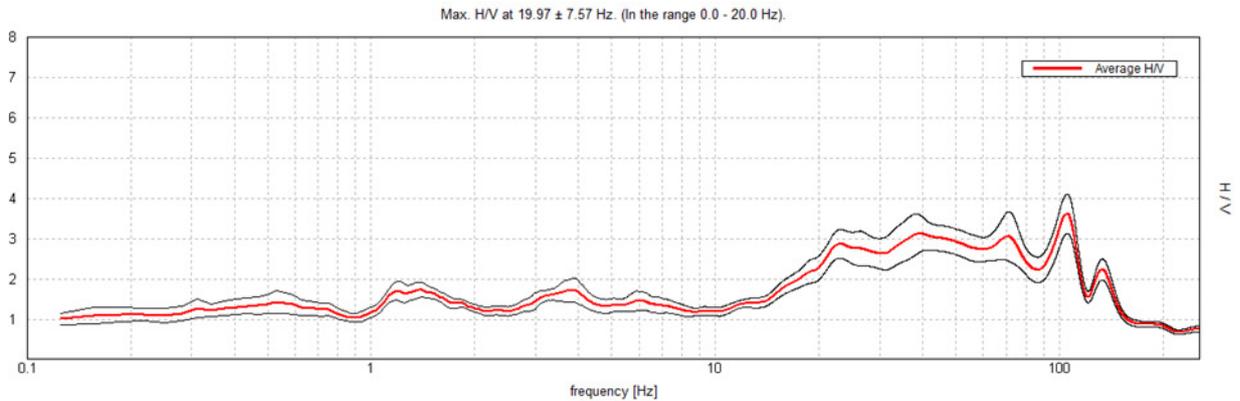
### UBICAZIONE INDAGINI



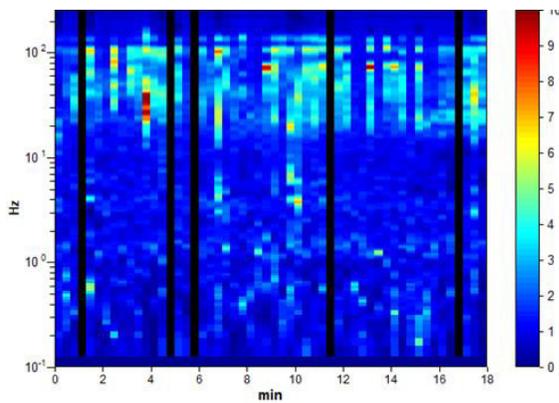
**TORRI DEL BENACO 023086P15**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 15:57:36 End recording: 01/12/2020 16:15:36  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 91% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

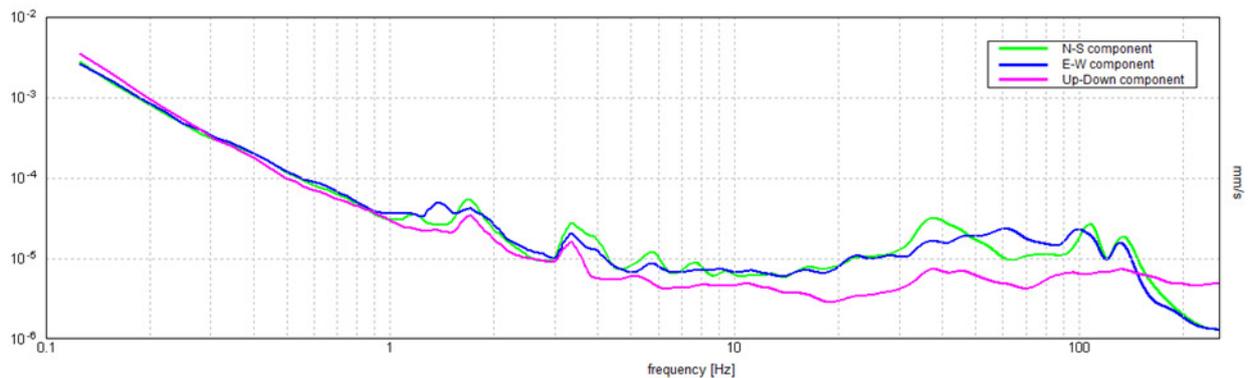
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



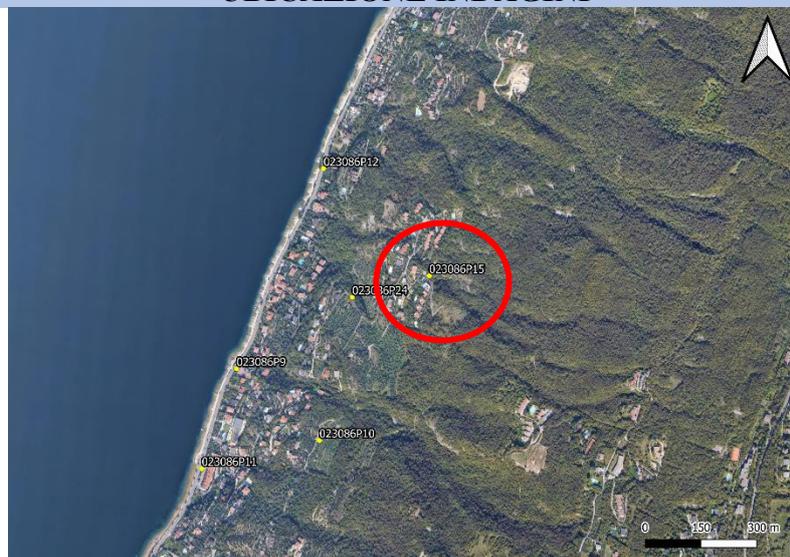
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 19.97 ± 7.57 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		19.97 > 0.50		OK	
$n_c(f_0) > 200$		19569.4 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 960 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		2.27 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.37925  < 0.05			NO
$\sigma_f < \varepsilon(f_0)$		7.5731 < 0.99844			NO
$\sigma_A(f_0) < \theta(f_0)$		0.2984 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

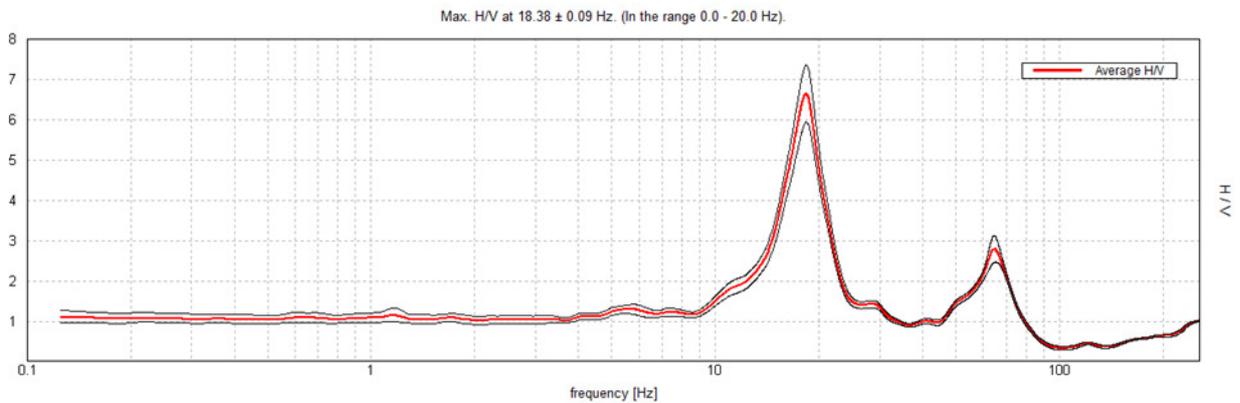
### UBICAZIONE INDAGINI



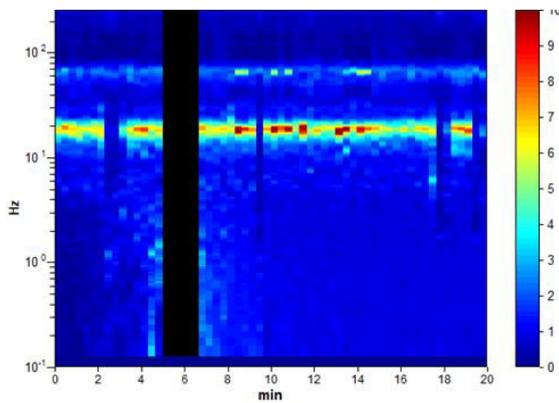
**TORRI DEL BENACO 023086P16**

Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 09:43:42 End recording: 01/12/2020 10:03:42  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 92% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

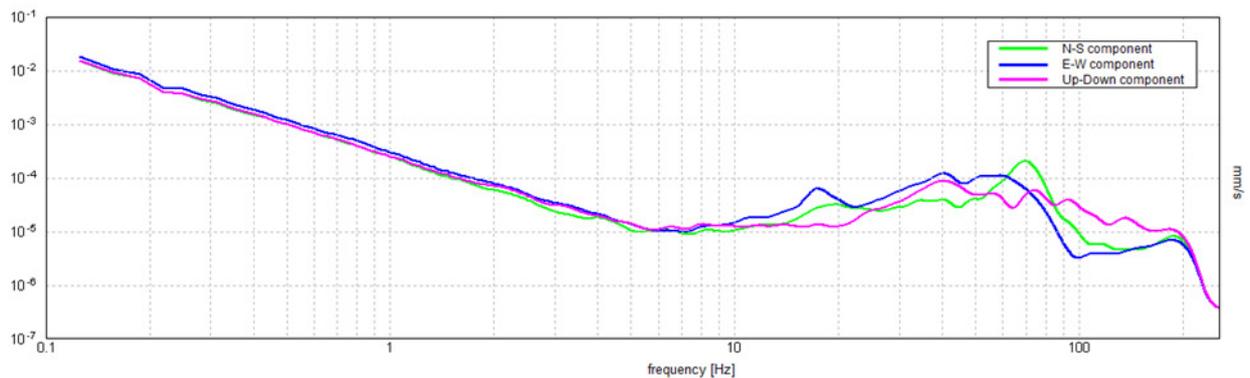
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



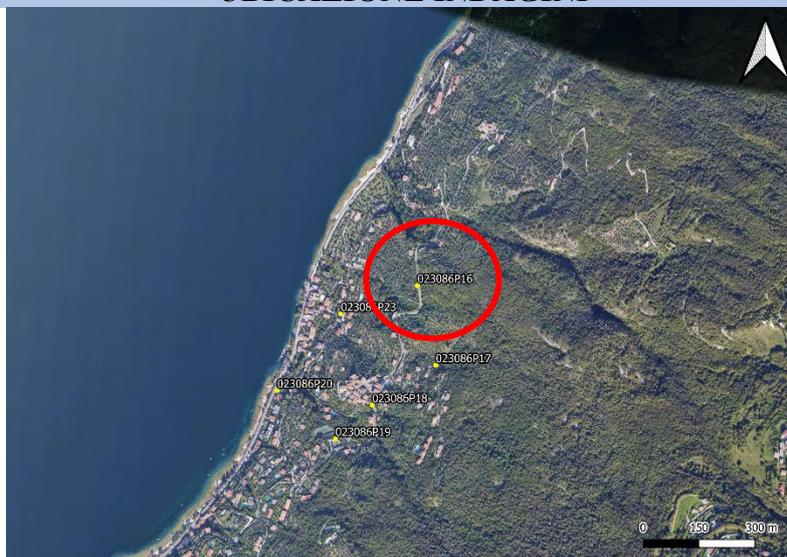
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 18.38 ± 0.09 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	18.38 > 0.50	OK			
$n_c(f_0) > 200$	20212.5 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 883 times	OK			
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$	15.0 Hz	OK			
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	21.531 Hz	OK			
$A_0 > 2$	6.64 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.00481  < 0.05$	OK			
$\sigma_f < \varepsilon(f_0)$	0.08839 < 0.91875	OK			
$\sigma_A(f_0) < \theta(f_0)$	0.7074 < 1.58	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

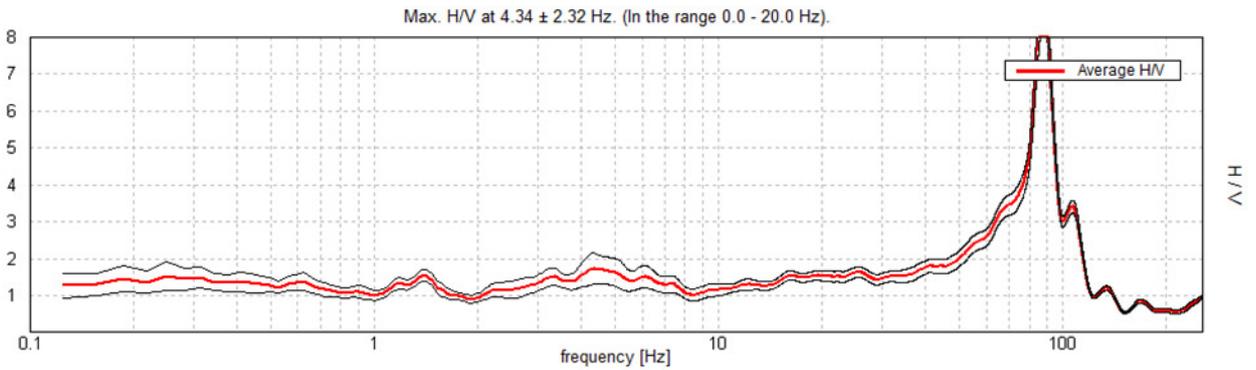
### UBICAZIONE INDAGINI



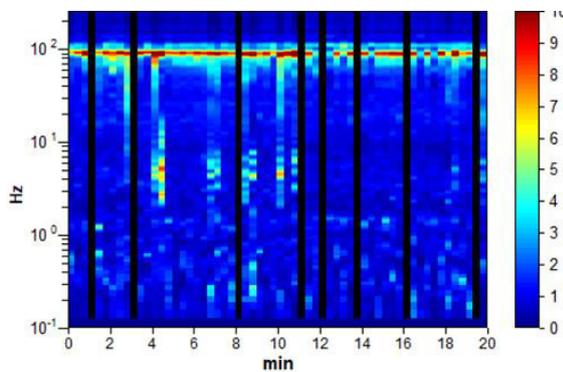
**TORRI DEL BENACO 023086P17**

Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 10:32:31 End recording: 01/12/2020 10:52:31  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 87% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

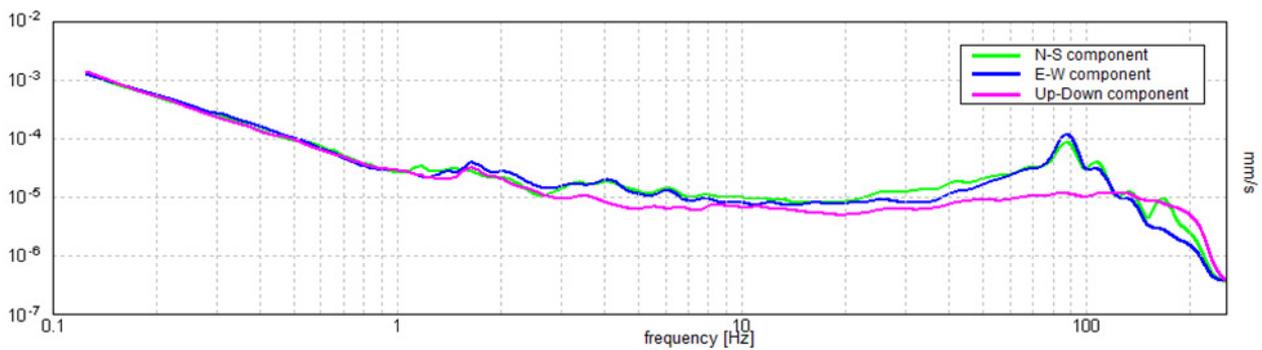
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



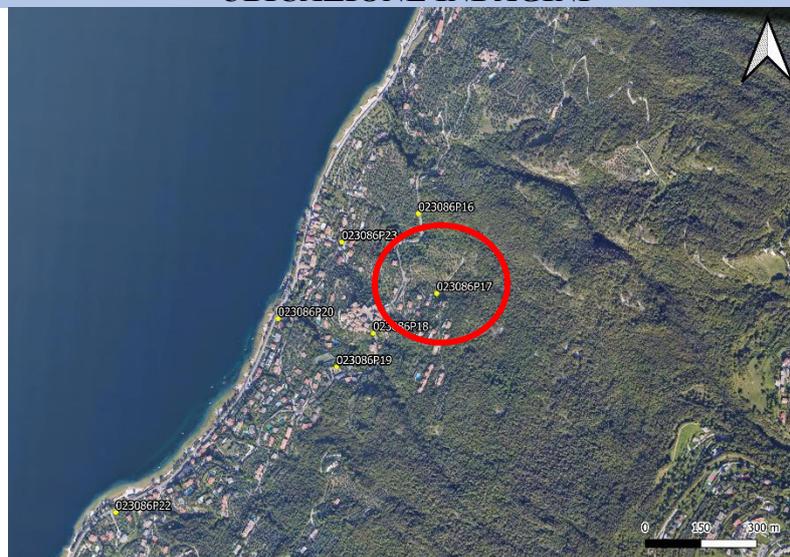
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 4.34 ± 3.1 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		4.34 > 0.50		OK	
$n_c(f_0) > 200$		4517.5 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 210 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		1.72 > 2			NO
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.71438  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		3.1031 < 0.21719			NO
$\sigma_A(f_0) < \theta(f_0)$		0.4383 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

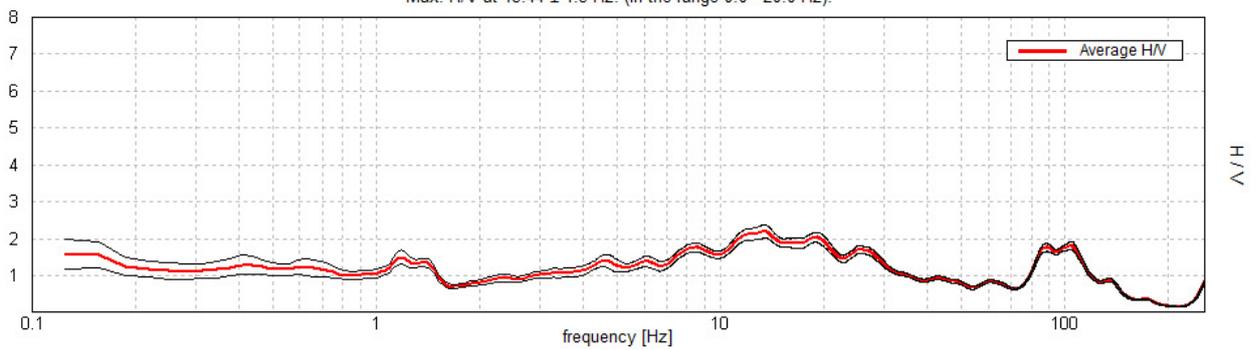


**TORRI DEL BENACO 023086P18**

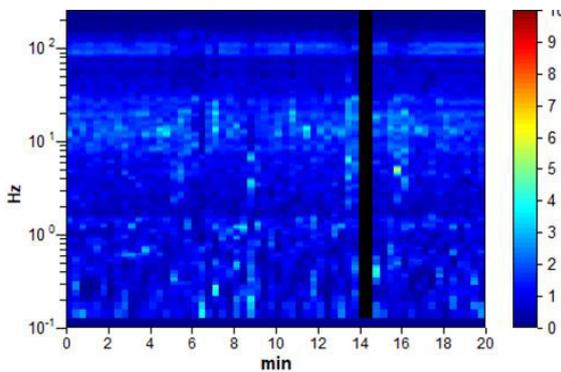
Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 11:33:03 End recording: 01/12/2020 11:53:03  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 97% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

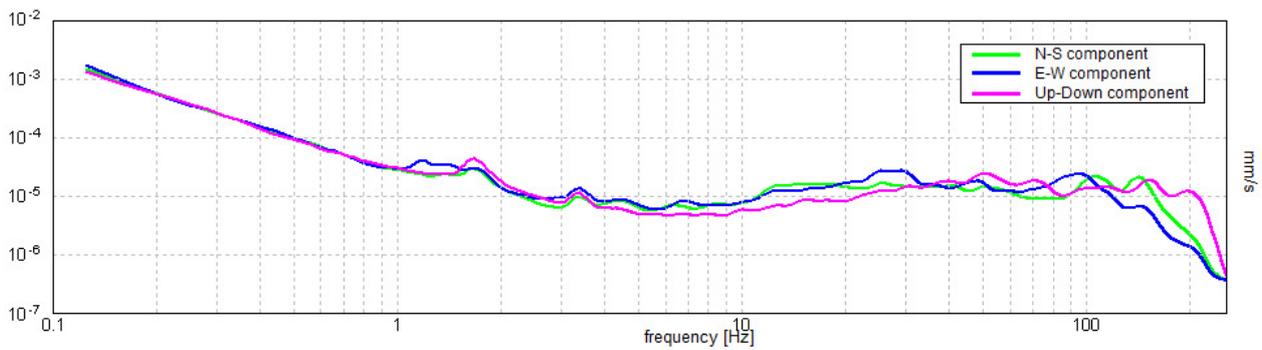
Max. H/V at 13.44 ± 1.5 Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



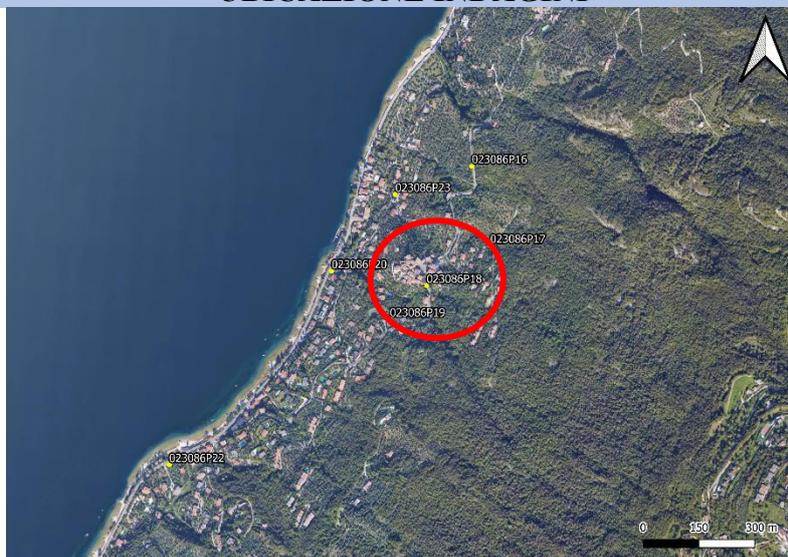
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 13.44 ± 1.52 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		13.44 > 0.50		OK	
$n_c(f_0) > 200$		15587.5 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 646 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.813 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		32.031 Hz		OK	
$A_0 > 2$		2.23 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.11323  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.52149 < 0.67188			NO
$\sigma_A(f_0) < \theta(f_0)$		0.1765 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI



## TORRI DEL BENACO 023086P19

Instrument: TE3-0005/01-13

Data format: 16 bit

Full scale [mV]: 51

Start recording: 01/12/2020 12:38:18 End recording: 01/12/2020 12:58:18

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down

GPS data not available

Trace length: 0h20'00". Analyzed 95% trace (manual window selection)

Sampling rate: 512 Hz

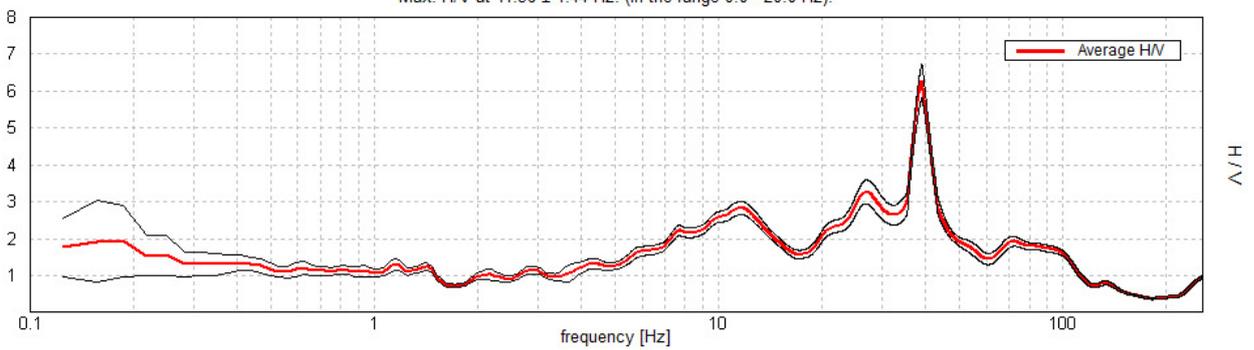
Window size: 20 s

Smoothing type: Triangular window

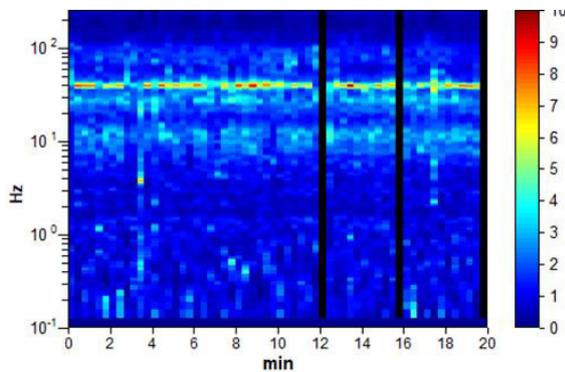
Smoothing: 10%

### HORIZONTAL TO VERTICAL SPECTRAL RATIO

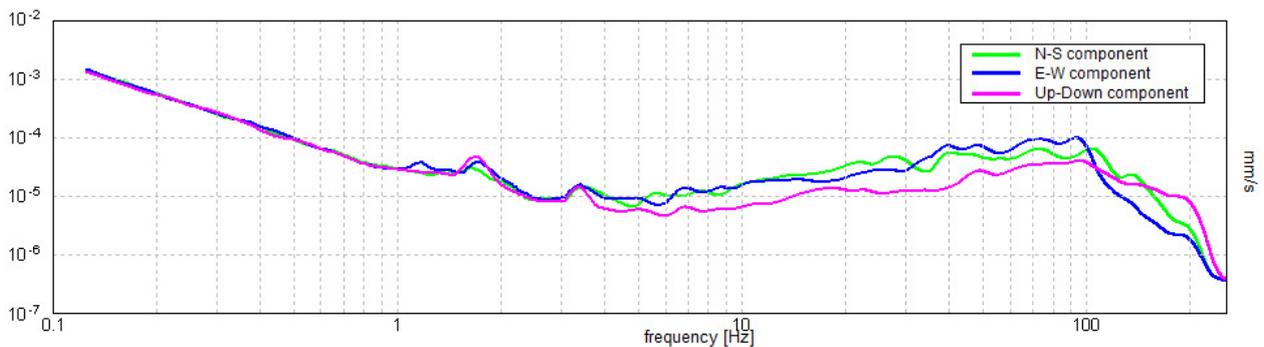
Max. H/V at 11.56 ± 1.44 Hz. (In the range 0.0 - 20.0 Hz).



### H/V TIME HISTORY



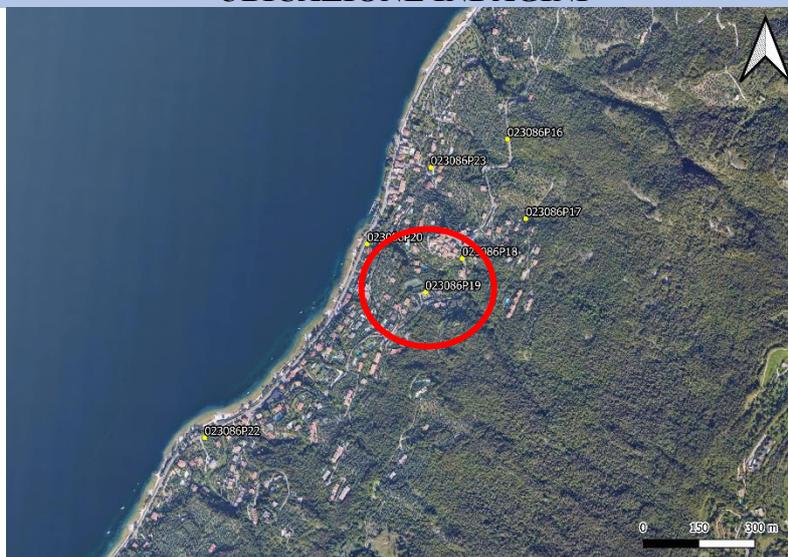
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 11.75 ± 1.5 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		11.75 > 0.50		OK	
$n_c(f_0) > 200$		13395.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 565 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		5.375 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		2.85 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.12779  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.5015 < 0.5875			NO
$\sigma_A(f_0) < \theta(f_0)$		0.169 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

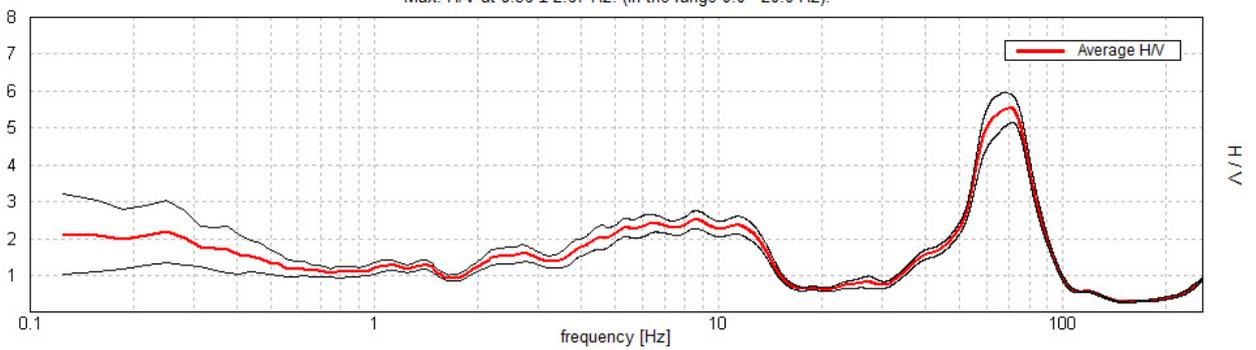


**TORRI DEL BENACO 023086P20**

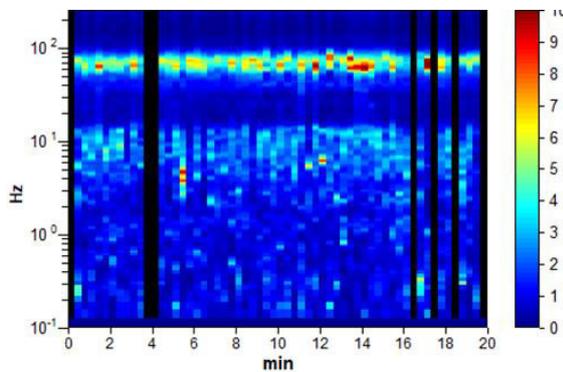
Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 13:37:50 End recording: 01/12/2020 13:57:50  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 88% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

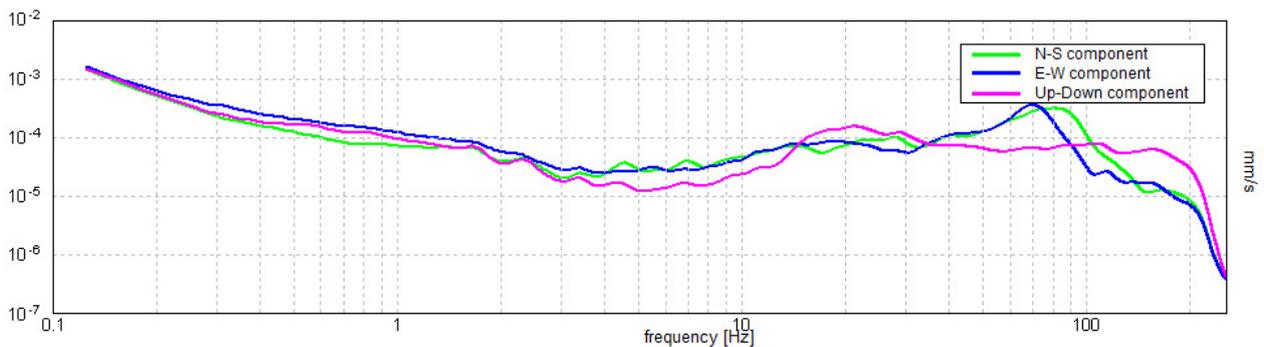
Max. H/V at  $8.56 \pm 2.67$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



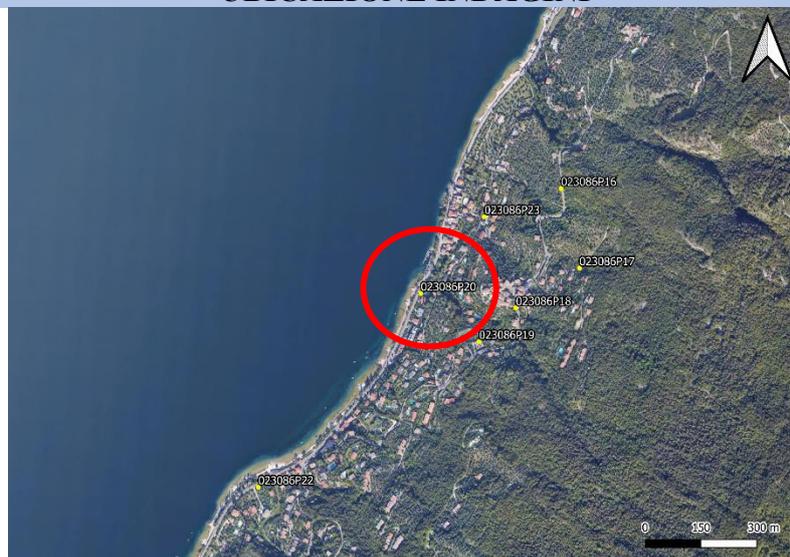
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 8.44 ± 1.36 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$	8.44 > 0.50	OK			
$n_c(f_0) > 200$	8943.8 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 406 times	OK			
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	14.563 Hz	OK			
$A_0 > 2$	2.58 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.16144  < 0.05$				NO
$\sigma_f < \varepsilon(f_0)$	1.36218 < 0.42188				NO
$\sigma_A(f_0) < \theta(f_0)$	0.2424 < 1.58	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

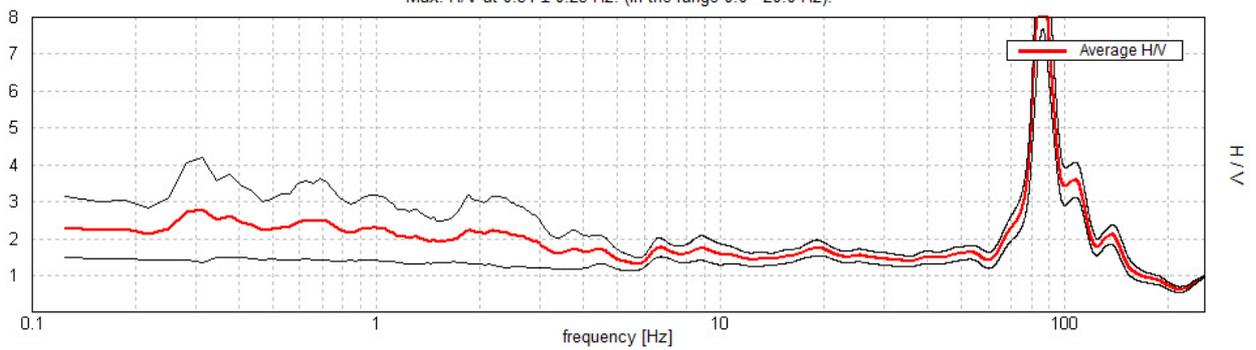


**TORRI DEL BENACO 023086P21**

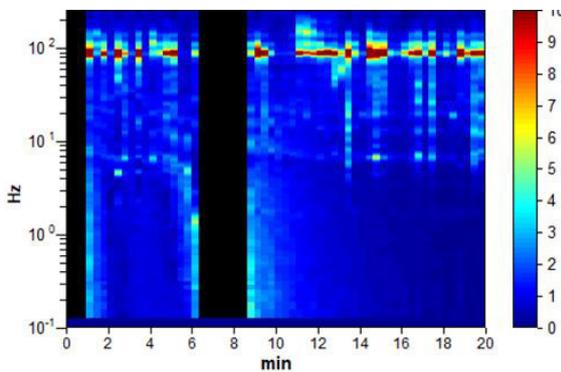
Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 13:37:50 End recording: 01/12/2020 13:57:50  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 88% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

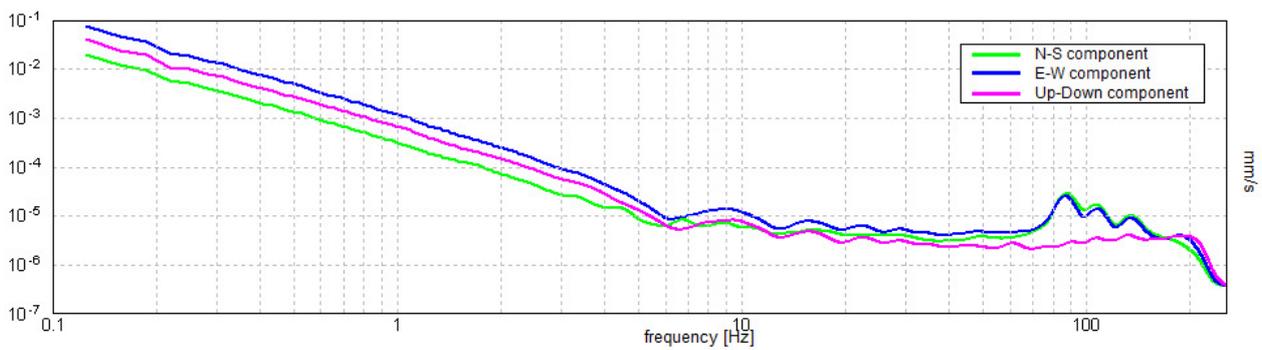
Max. H/V at  $0.31 \pm 0.25$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



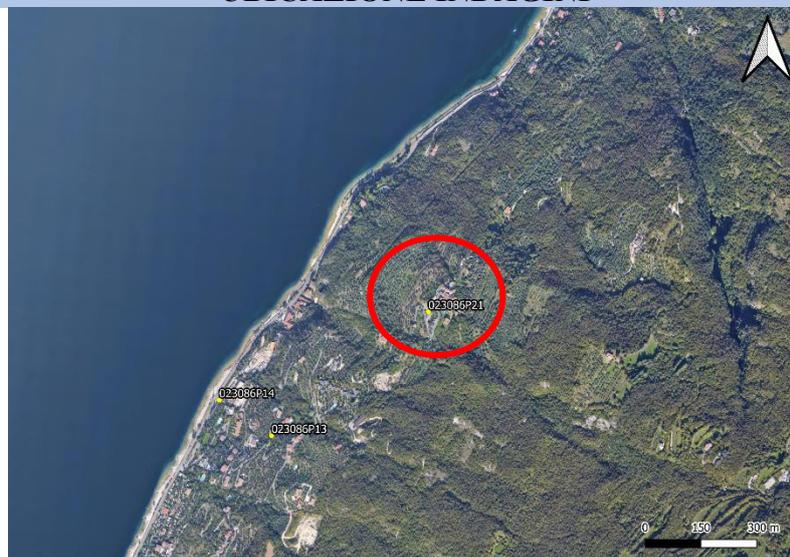
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 6.56 ± 2.83 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$	6.56 > 0.50				OK
$n_c(f_0) > 200$	6562.5 > 200				OK
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 316 times				OK
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$	1.75 > 2				NO
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.43064  < 0.05$				NO
$\sigma_f < \varepsilon(f_0)$	2.8261 < 0.32813				NO
$\sigma_A(f_0) < \theta(f_0)$	0.2827 < 1.58				OK
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

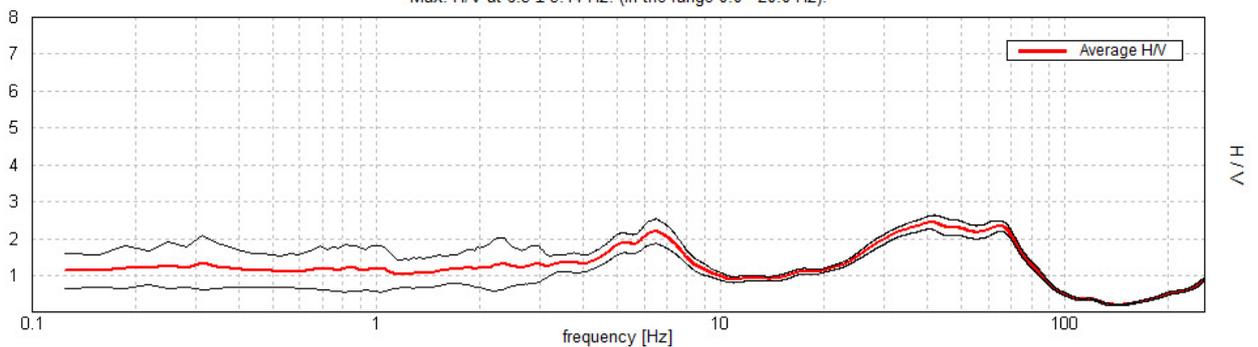


**TORRI DEL BENACO 023086P22**

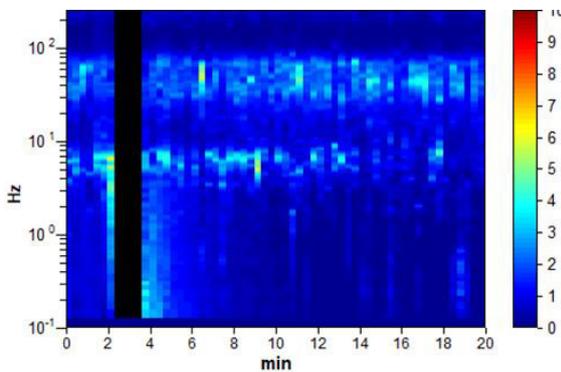
Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 15:49:50 End recording: 01/12/2020 16:09:50  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h20'00". Analyzed 93% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

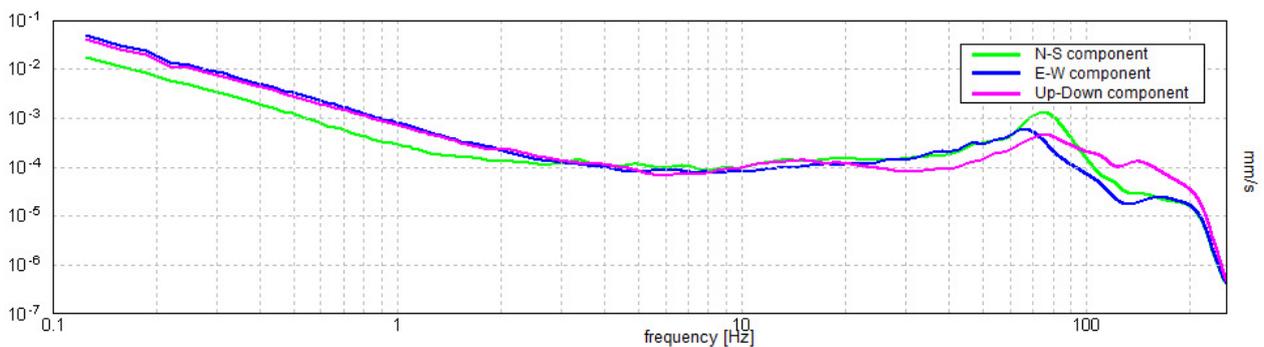
Max. H/V at  $6.5 \pm 3.14$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



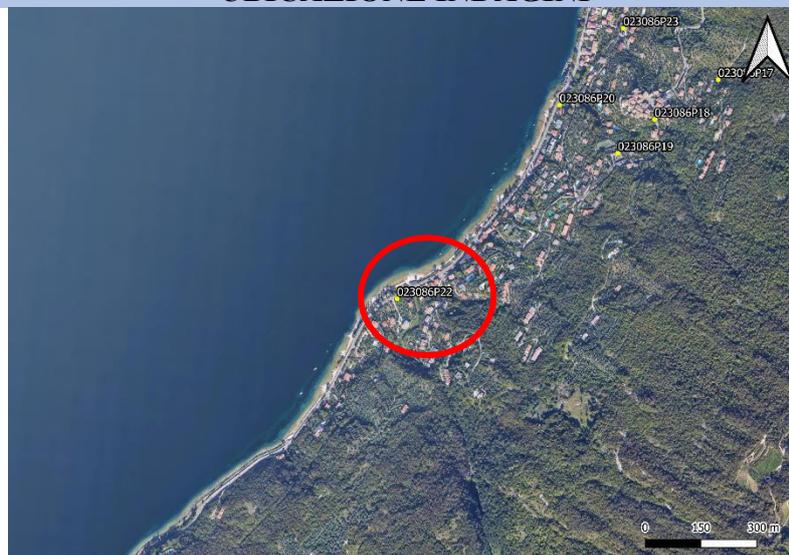
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at $6.5 \pm 0.14$ Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		6.50 > 0.50		OK	
$n_c(f_0) > 200$		7280.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 313 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		3.188 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		9.344 Hz		OK	
$A_0 > 2$		2.15 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.02161  < 0.05$		OK	
$\sigma_f < \varepsilon(f_0)$		0.14044 < 0.325		OK	
$\sigma_A(f_0) < \theta(f_0)$		0.3427 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

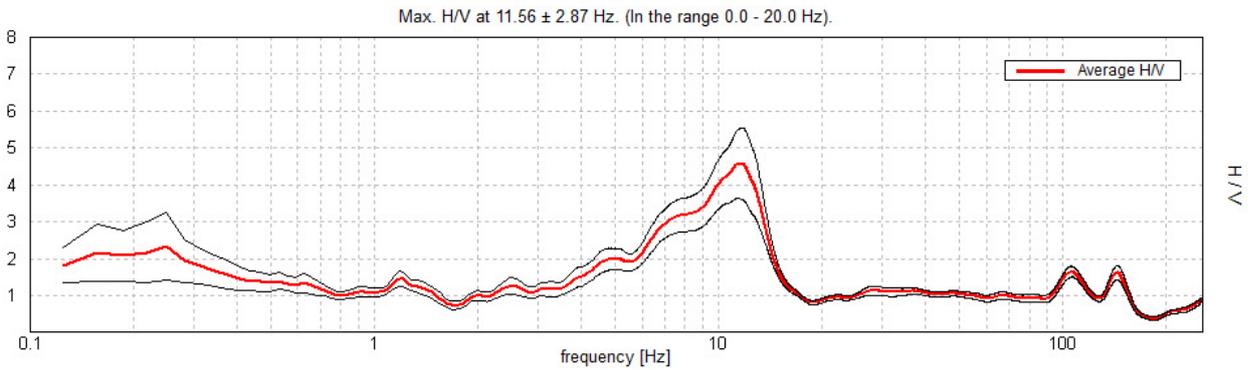
### UBICAZIONE INDAGINI



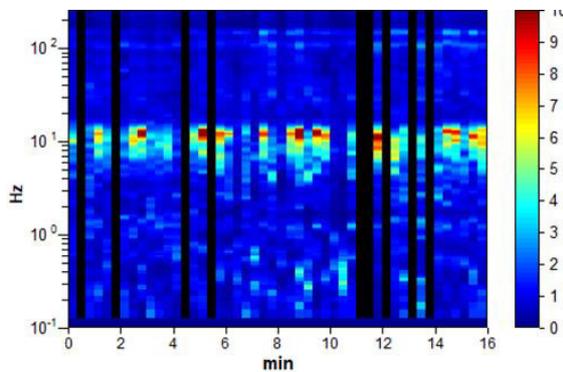
**TORRI DEL BENACO 023086P23**

Instrument: TE3-0005/01-13  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 16:35:05 End recording: 01/12/2020 16:51:05  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h16'00". Analyzed 81% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

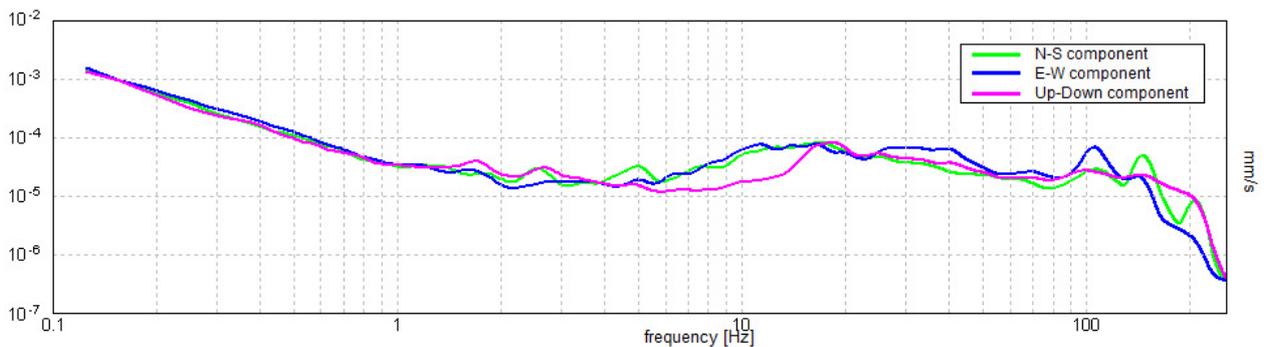
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



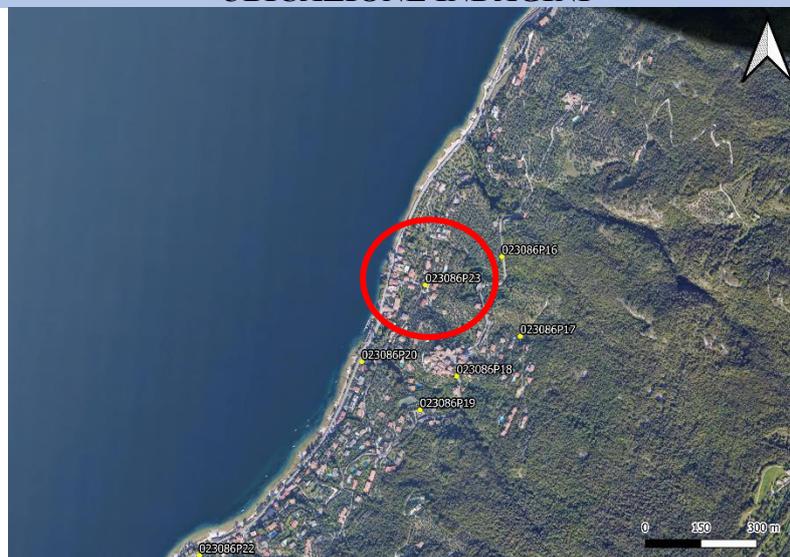
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 11.56 ± 0.65 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		11.56 > 0.50		OK	
$n_c(f_0) > 200$		9018.8 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 556 times		OK	
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		6.219 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		14.094 Hz		OK	
$A_0 > 2$		5.13 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.05618  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		$0.64958 < 0.57813$			NO
$\sigma_A(f_0) < \theta(f_0)$		$1.0658 < 1.58$		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	$0.25 f_0$	$0.2 f_0$	$0.15 f_0$	$0.10 f_0$	$0.05 f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

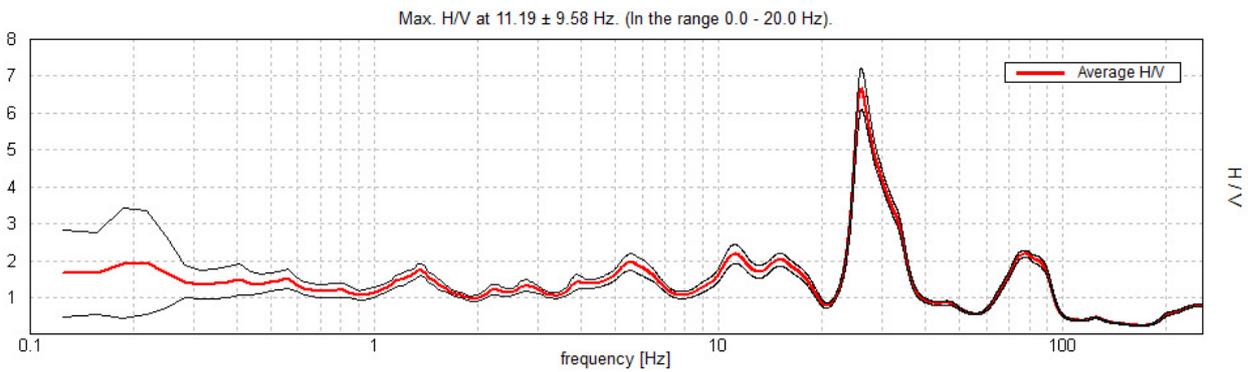
### UBICAZIONE INDAGINI



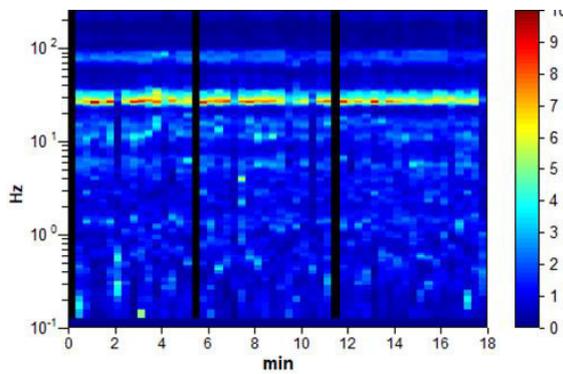
**TORRI DEL BENACO 023086P24**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 16:36:57 End recording: 01/12/2020 16:54:57  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 94% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

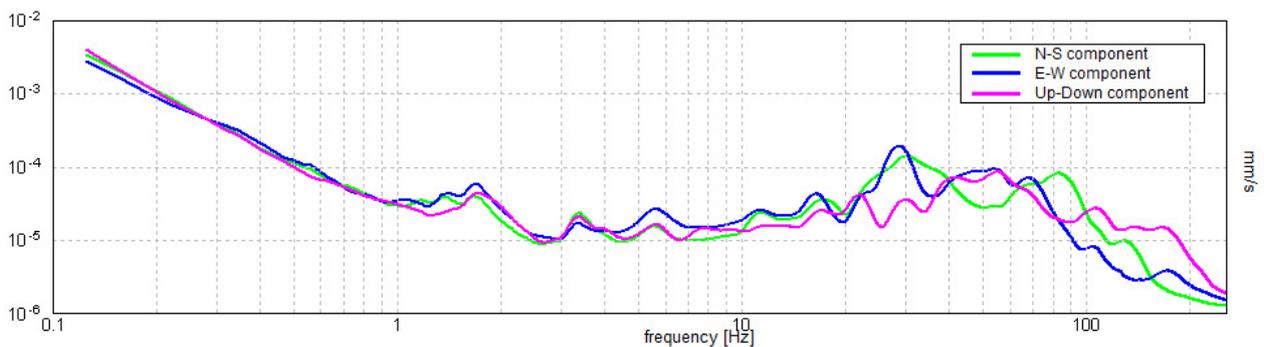
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



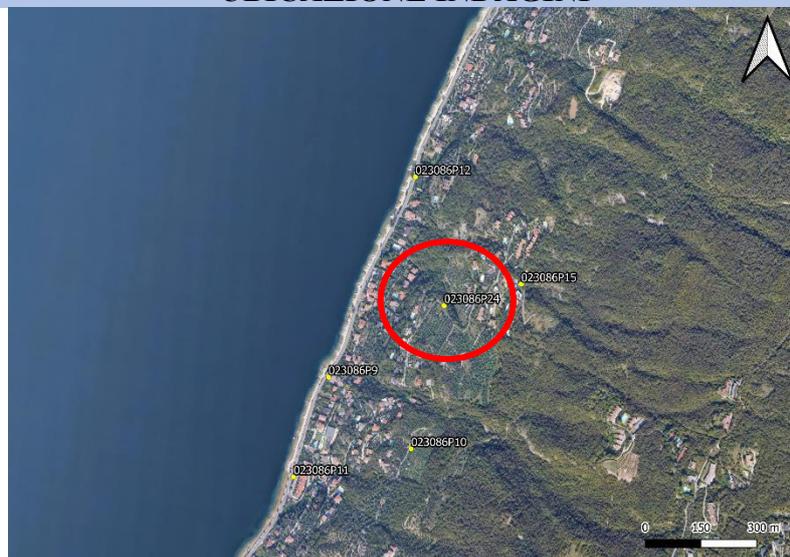
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 11.19 ± 1.55 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		11.19 > 0.50		OK	
$n_c(f_0) > 200$		11411.3 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 538 times		OK	
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		8.313 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		19.125 Hz		OK	
$A_0 > 2$		2.23 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.13883  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		1.55316 < 0.55938			NO
$\sigma_A(f_0) < \theta(f_0)$		0.2614 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

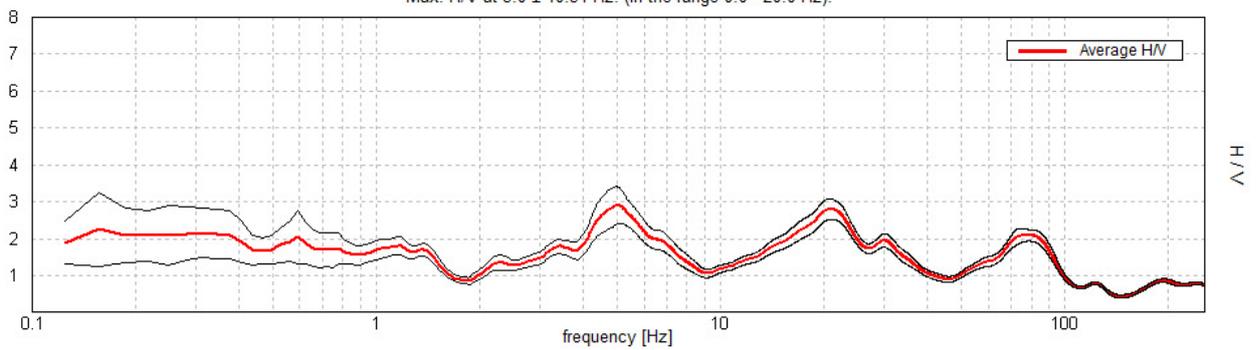


**TORRI DEL BENACO 023086P25**

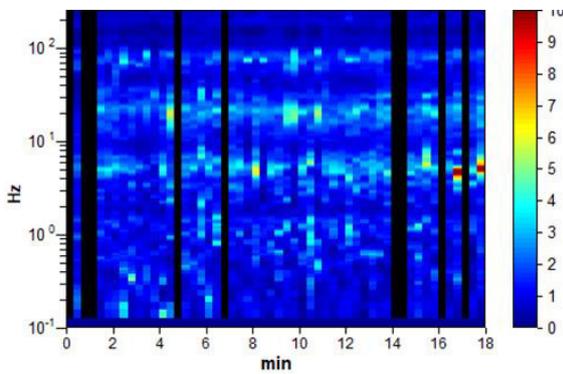
Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 01/12/2020 17:28:11 End recording: 01/12/2020 17:46:11  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 83% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

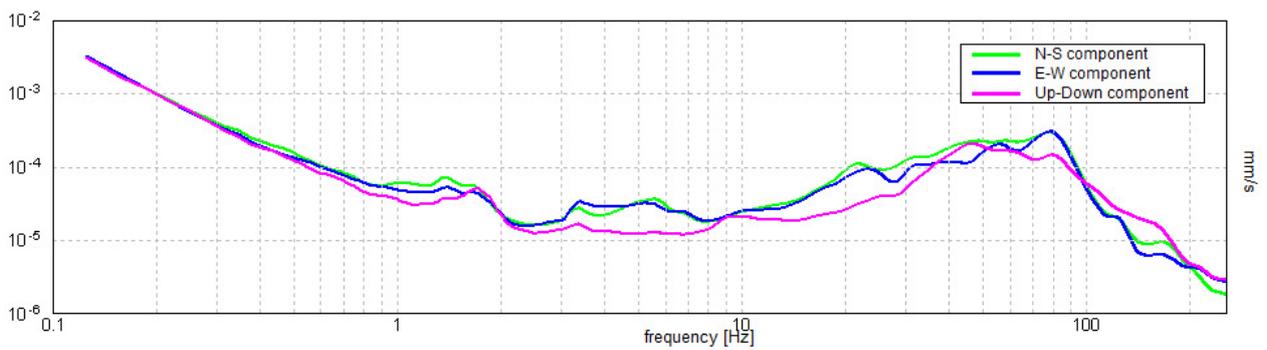
Max. H/V at  $5.0 \pm 10.31$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



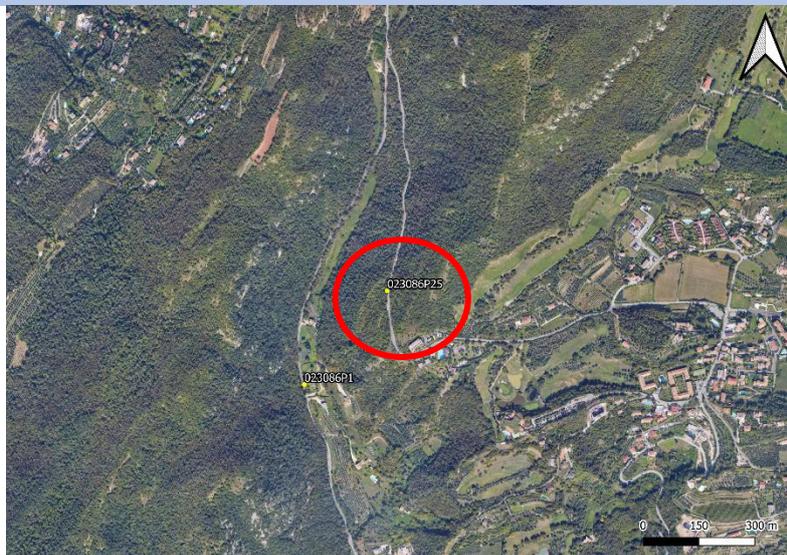
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 5.0 ± 6.71 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	5.00 > 0.50	OK			
$n_c(f_0) > 200$	4500.0 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 241 times	OK			
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$	3.063 Hz	OK			
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	7.625 Hz	OK			
$A_0 > 2$	3.24 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 1.34174  < 0.05$				NO
$\sigma_f < \varepsilon(f_0)$	6.70871 < 0.25				NO
$\sigma_A(f_0) < \theta(f_0)$	0.5558 < 1.58	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

## UBICAZIONE INDAGINI



## TORRI DEL BENACO 023086P26

Instrument: TEP-0124/01-10

Data format: 16 bit

Full scale [mV]: 51

Start recording: 16/12/2020 11:27:32 End recording: 16/12/2020 11:45:32

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down

GPS data not available

Trace length: 0h18'00". Analyzed 78% trace (manual window selection)

Sampling rate: 512 Hz

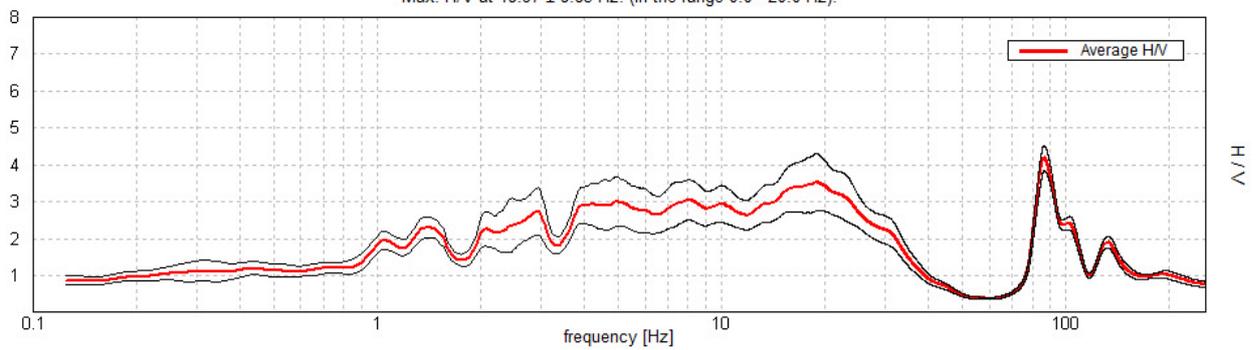
Window size: 20 s

Smoothing type: Triangular window

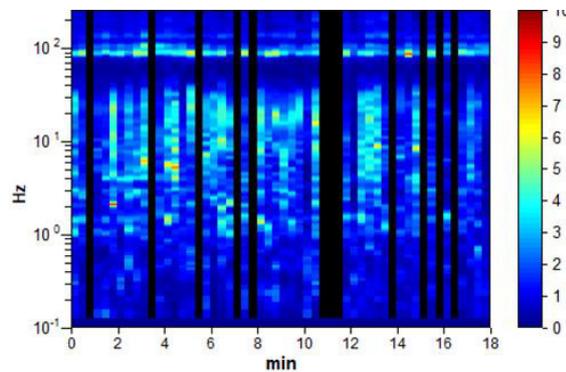
Smoothing: 10%

### HORIZONTAL TO VERTICAL SPECTRAL RATIO

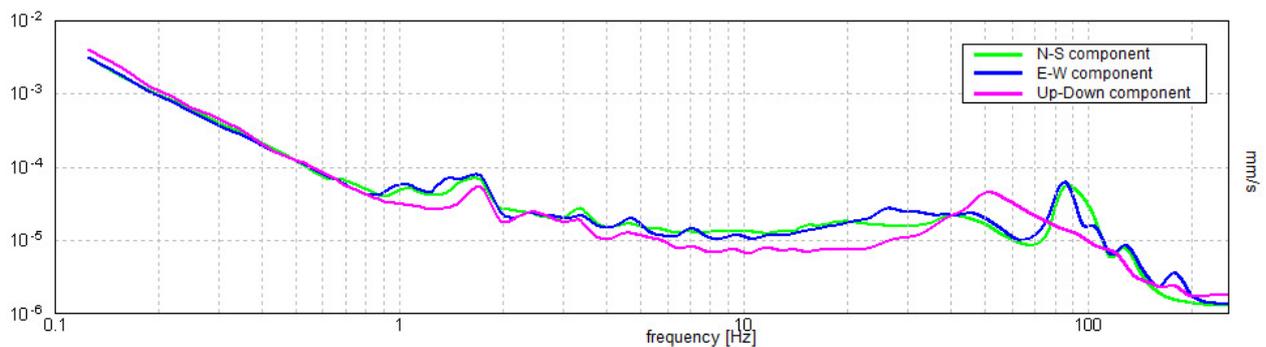
Max. H/V at  $18.97 \pm 8.85$  Hz. (In the range 0.0 - 20.0 Hz).



### H/V TIME HISTORY



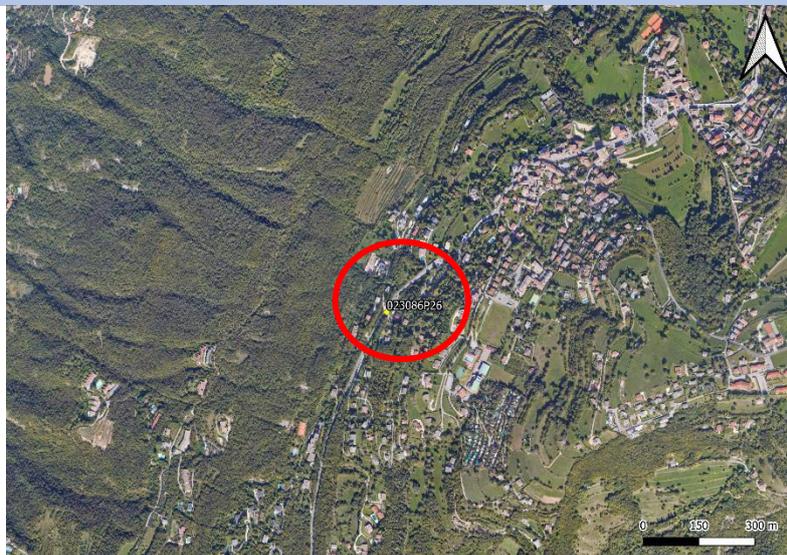
### SINGLE COMPONENT SPECTRA



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

Max. H/V at 19.97 ± 11.04 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	19.97 > 0.50	OK			
$n_c(f_0) > 200$	16773.8 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 960 times	OK			
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	35.125 Hz	OK			
$A_0 > 2$	2.66 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.55267  < 0.05$				NO
$\sigma_f < \varepsilon(f_0)$	11.03622 < 0.99844				NO
$\sigma_A(f_0) < \theta(f_0)$	0.4052 < 1.58	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

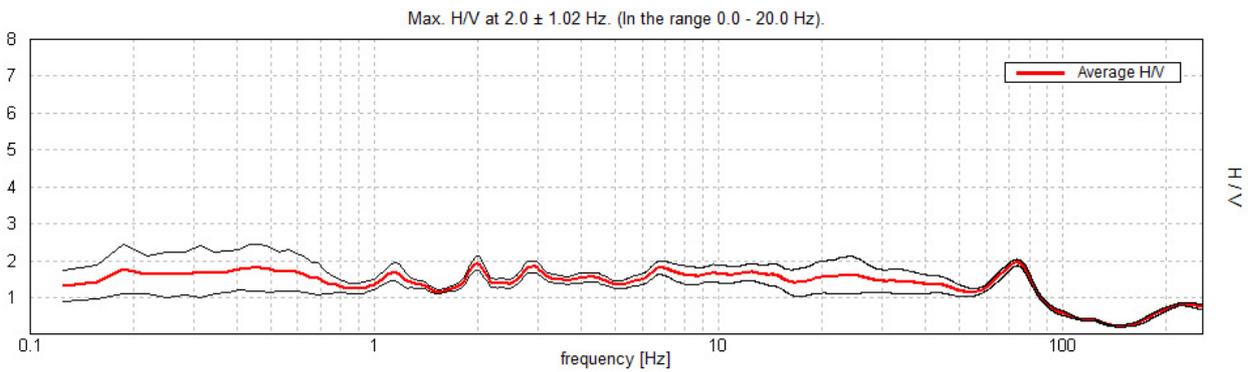
### UBICAZIONE INDAGINI



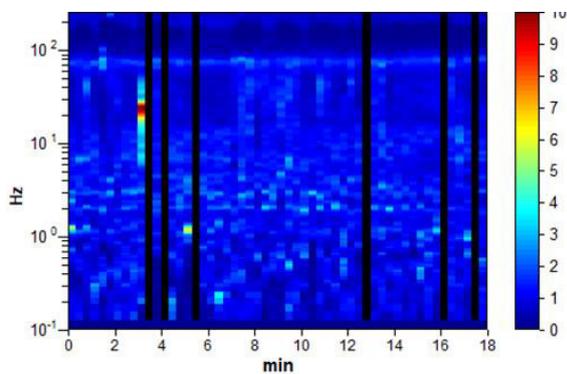
**TORRI DEL BENACO 023086P27**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 11:27:32 End recording: 16/12/2020 11:45:32  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 78% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

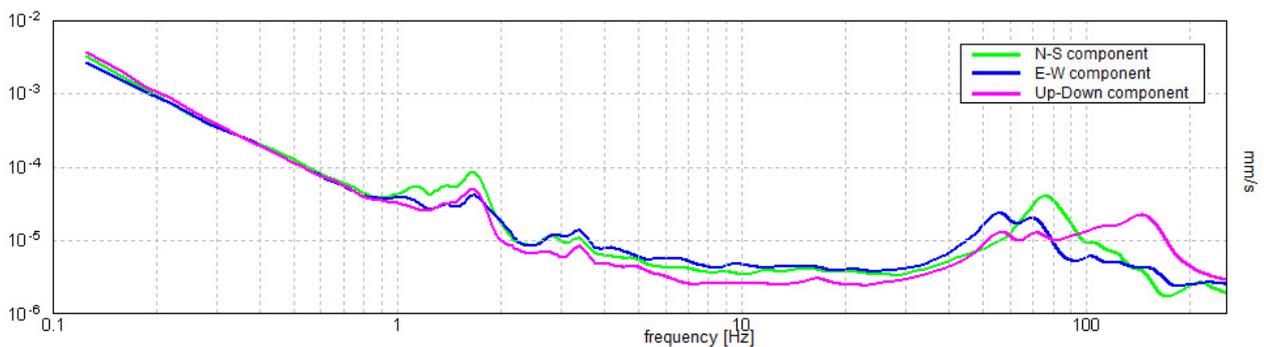
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



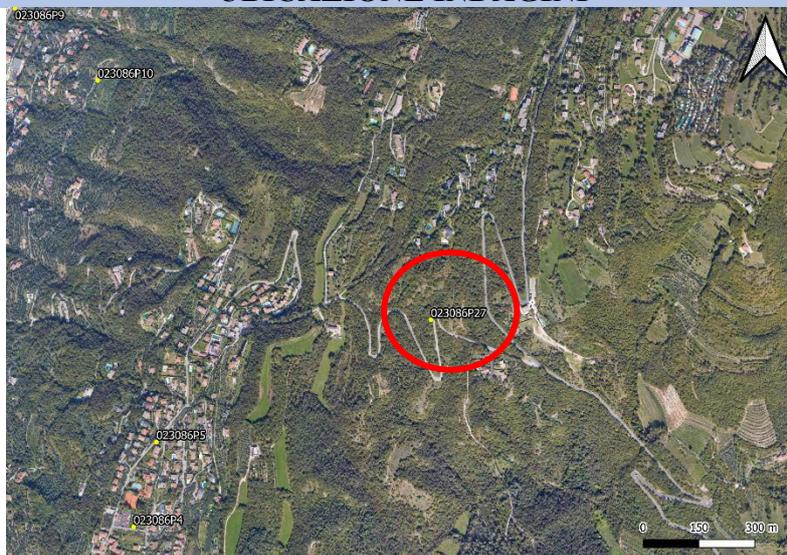
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 1.97 ± 0.7 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		1.97 > 0.50		OK	
$n_c(f_0) > 200$		1890.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 96 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$					NO
$A_0 > 2$		1.96 > 2			NO
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.35577  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		0.70041 < 0.19688			NO
$\sigma_A(f_0) < \theta(f_0)$		0.1868 < 1.78		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

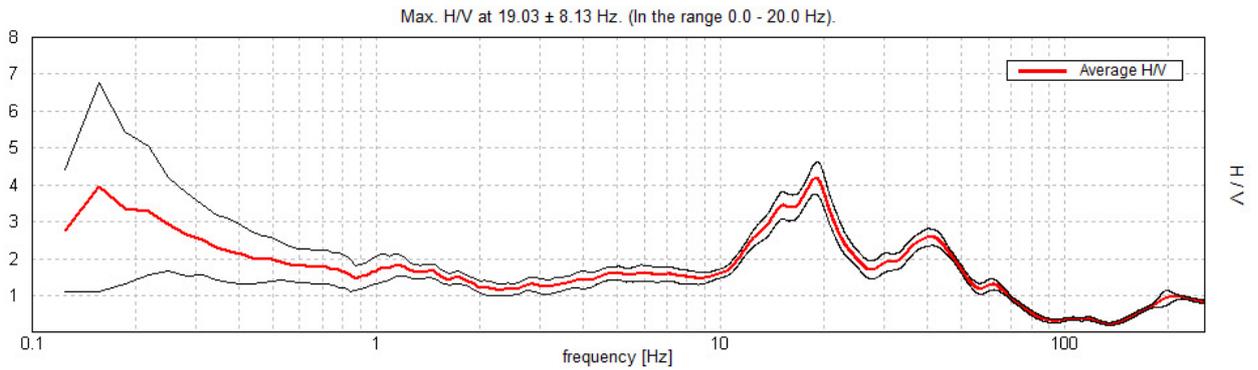
## UBICAZIONE INDAGINI



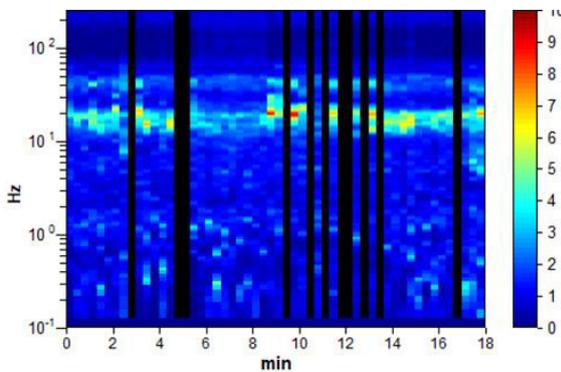
**TORRI DEL BENACO 023086P28**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 12:51:10 End recording: 16/12/2020 13:09:10  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 80% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

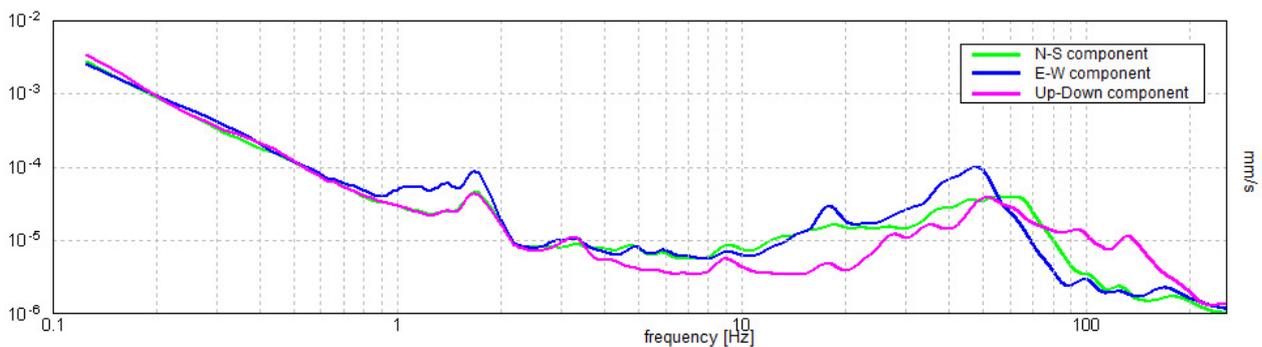
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



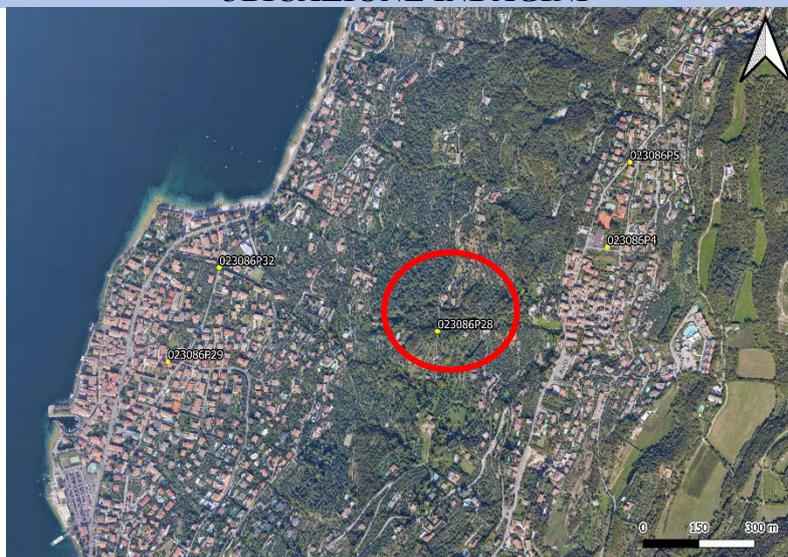
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 18.75 ± 0.18 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	18.75 > 0.50	OK			
$n_c(f_0) > 200$	16125.0 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 901 times	OK			
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$	11.688 Hz	OK			
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$	23.344 Hz	OK			
$A_0 > 2$	4.50 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.00969  < 0.05$	OK			
$\sigma_f < \varepsilon(f_0)$	0.18178 < 0.9375	OK			
$\sigma_A(f_0) < \theta(f_0)$	0.4186 < 1.58	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

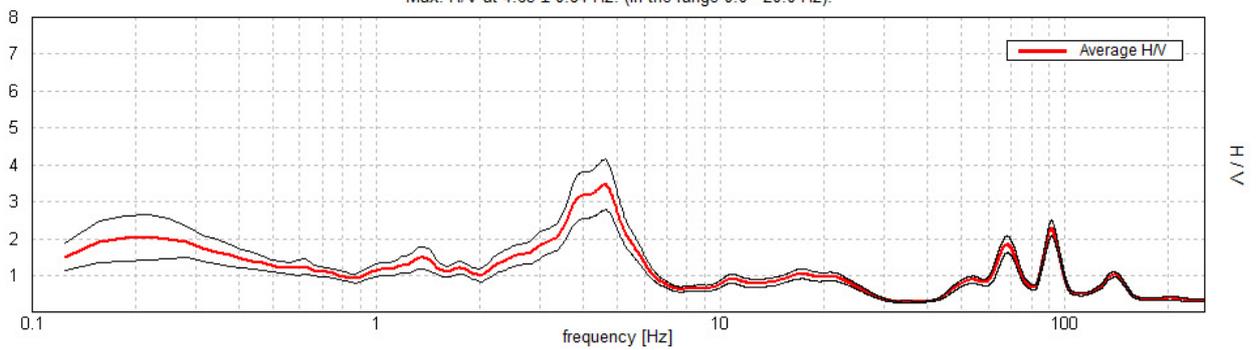


**TORRI DEL BENACO 023086P29**

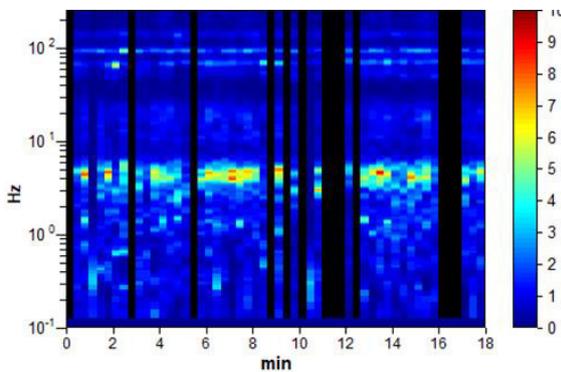
Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 13:34:14 End recording: 16/12/2020 13:52:14  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 76% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

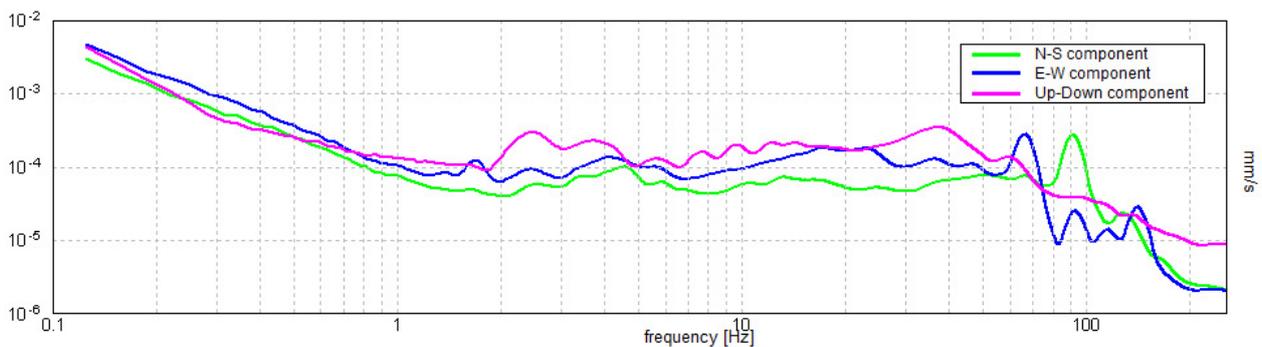
Max. H/V at  $4.63 \pm 0.84$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



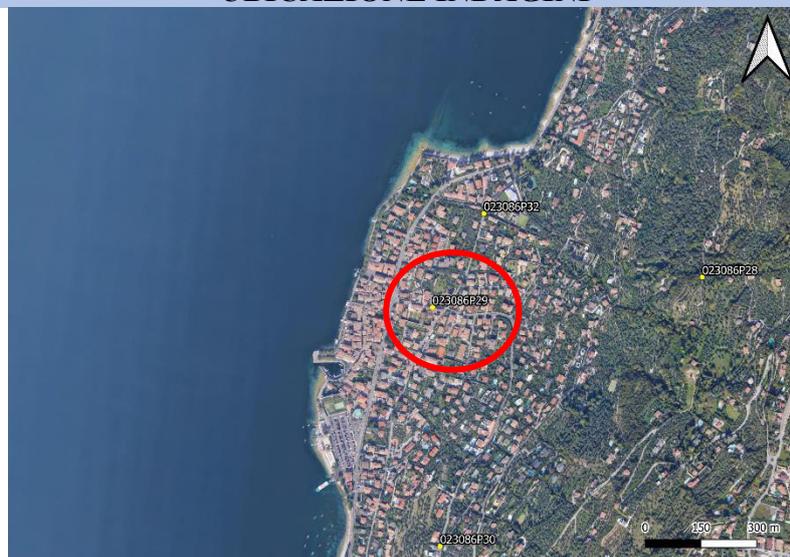
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 4.63 ± 0.05 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		4.63 > 0.50		OK	
$n_c(f_0) > 200$		3792.5 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 223 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		2.906 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		5.656 Hz		OK	
$A_0 > 2$		4.37 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.01018  < 0.05$		OK	
$\sigma_f < \varepsilon(f_0)$		0.04707 < 0.23125		OK	
$\sigma_A(f_0) < \theta(f_0)$		0.6701 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

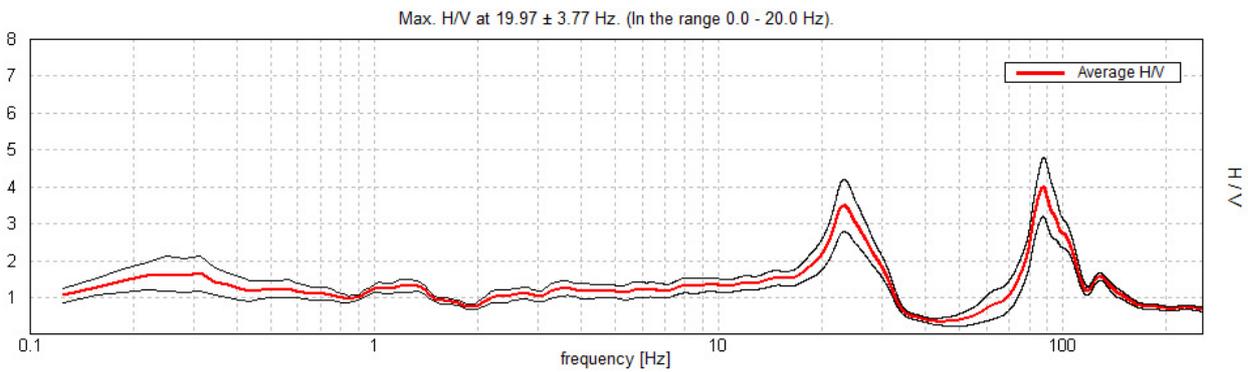
## UBICAZIONE INDAGINI



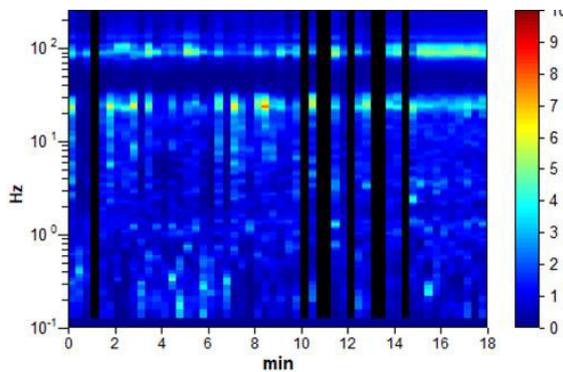
**TORRI DEL BENACO 023086P30**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 14:11:33 End recording: 16/12/2020 14:29:33  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 85% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

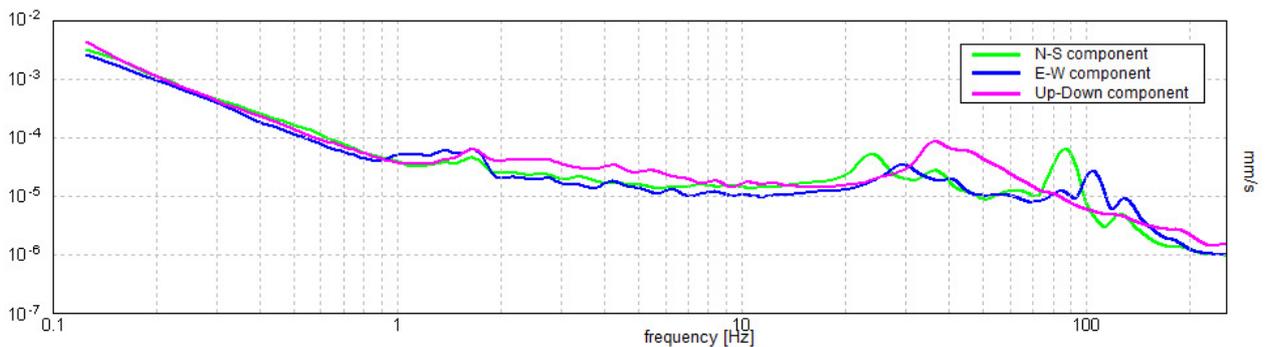
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



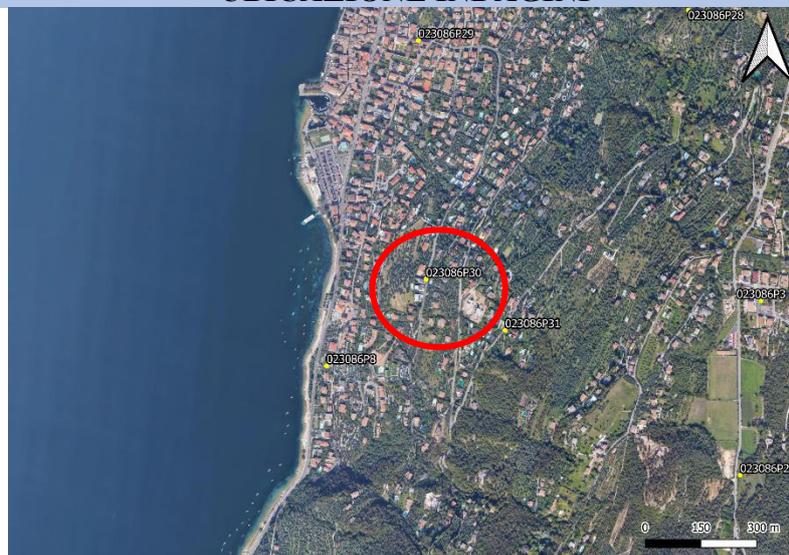
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 19.97 ± 5.0 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		19.97 > 0.50		OK	
$n_c(f_0) > 200$		18371.3 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 960 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$					NO
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		32.594 Hz		OK	
$A_0 > 2$		2.10 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		0.25059  < 0.05			NO
$\sigma_f < \varepsilon(f_0)$		5.00388 < 0.99844			NO
$\sigma_A(f_0) < \theta(f_0)$		0.2794 < 1.58		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

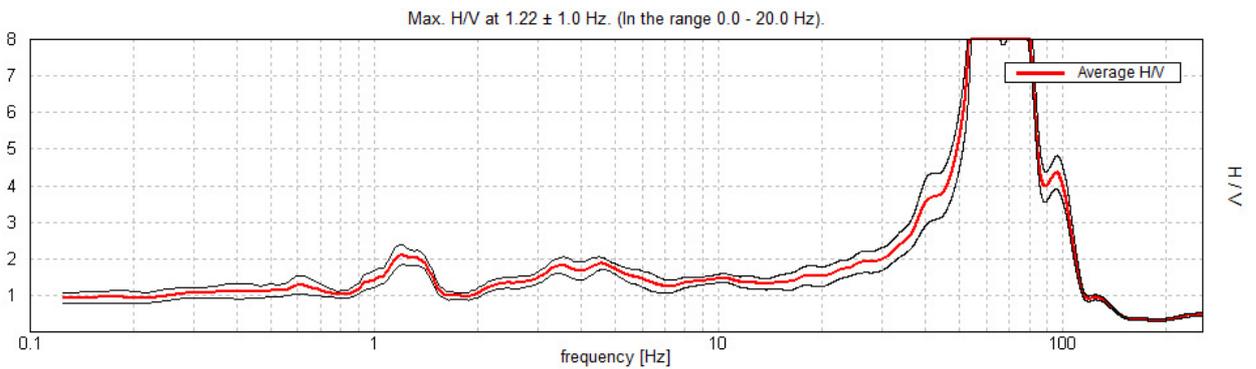
### UBICAZIONE INDAGINI



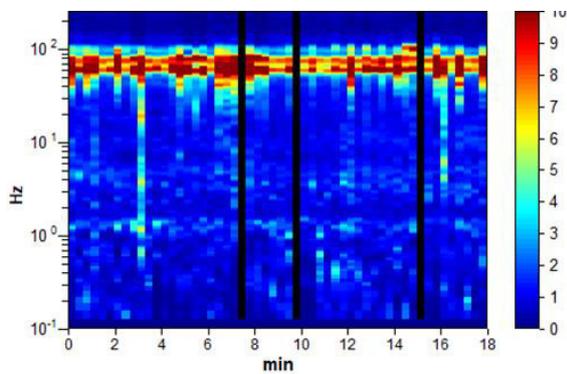
**TORRI DEL BENACO 023086P31**

Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 14:42:03 End recording: 16/12/2020 15:00:03  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analyzed 94% trace (manual window selection)  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

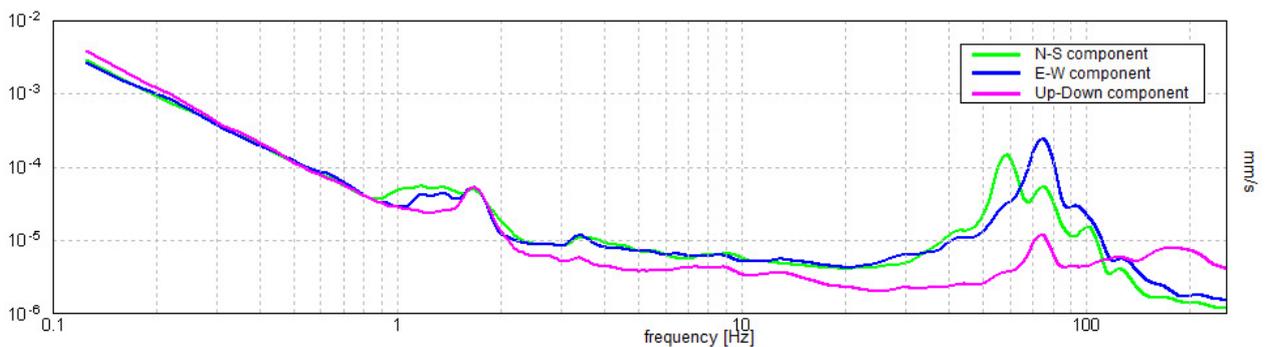
**HORIZONTAL TO VERTICAL SPECTRAL RATIO**



**H/V TIME HISTORY**



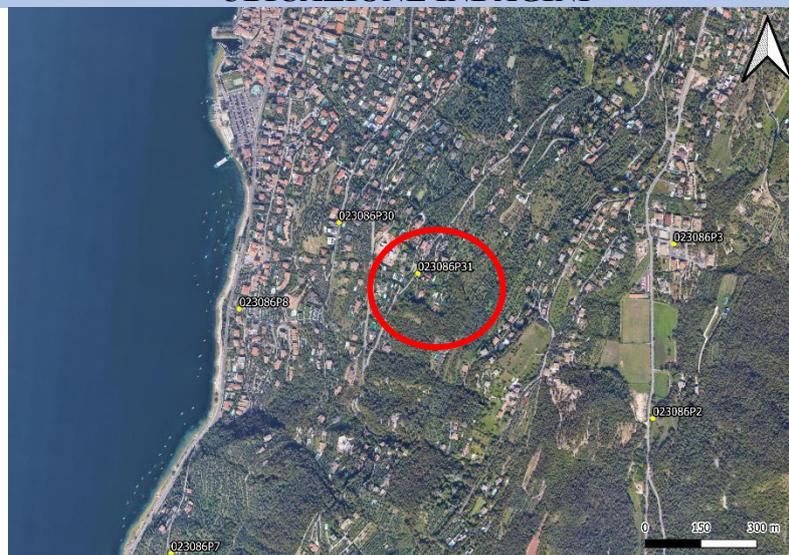
**SINGLE COMPONENT SPECTRA**



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

Max. H/V at 1.22 ± 1.0 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve [All 3 should be fulfilled]					
$f_0 > 10 / L_w$		1.22 > 0.50		OK	
$n_c(f_0) > 200$		1243.1 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$		Exceeded 0 out of 60 times		OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		0.844 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		1.594 Hz		OK	
$A_0 > 2$		2.12 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.81929  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		$0.99851 < 0.12188$			NO
$\sigma_A(f_0) < \theta(f_0)$		$0.2623 < 1.78$		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

### UBICAZIONE INDAGINI

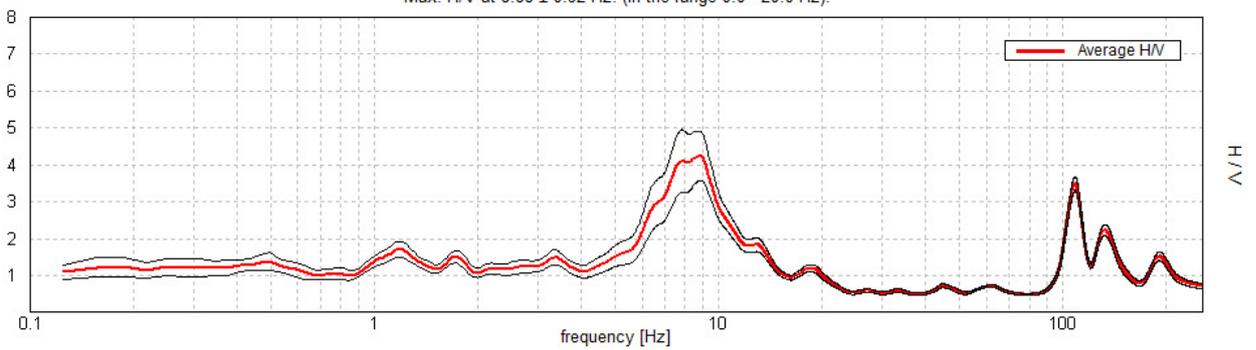


**TORRI DEL BENACO 023086P32**

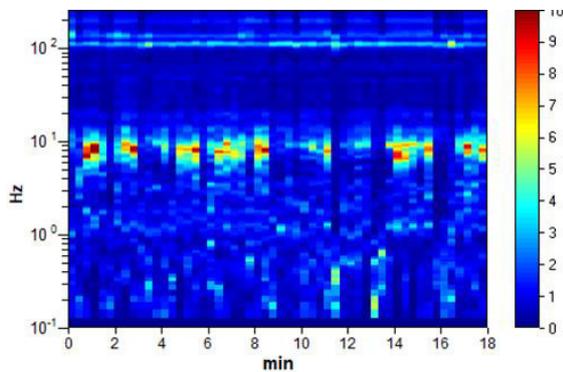
Instrument: TEP-0124/01-10  
 Data format: 16 bit  
 Full scale [mV]: 51  
 Start recording: 16/12/2020 15:10:28 End recording: 16/12/2020 15:28:28  
 Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN ; north south; east west ; up down  
 GPS data not available  
 Trace length: 0h18'00". Analysis performed on the entire trace.  
 Sampling rate: 512 Hz  
 Window size: 20 s  
 Smoothing type: Triangular window  
 Smoothing: 10%

**HORIZONTAL TO VERTICAL SPECTRAL RATIO**

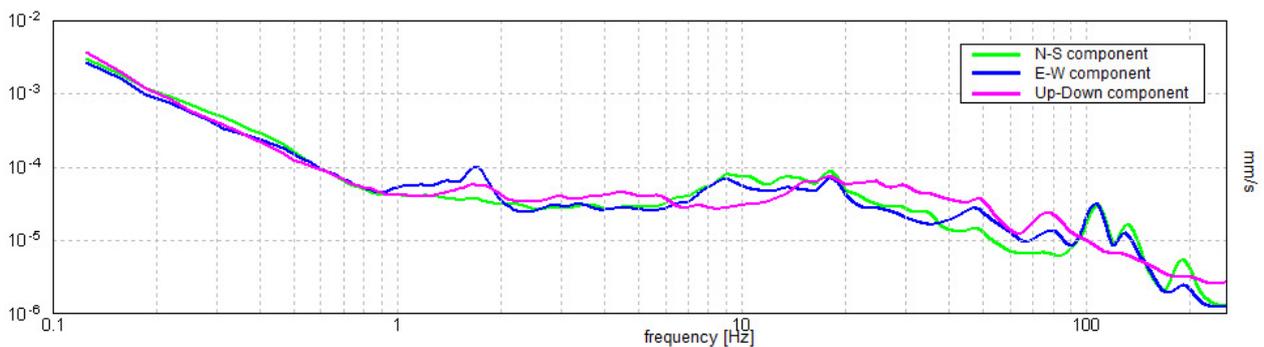
Max. H/V at  $8.88 \pm 0.92$  Hz. (In the range 0.0 - 20.0 Hz).



**H/V TIME HISTORY**



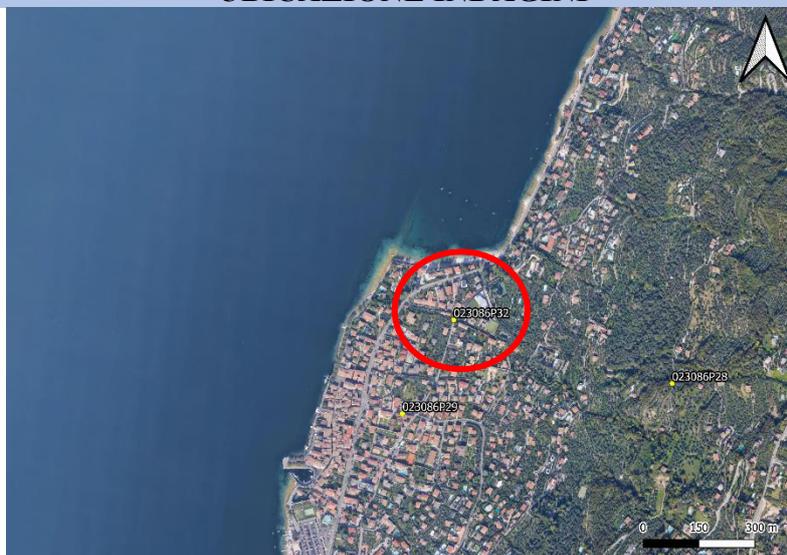
**SINGLE COMPONENT SPECTRA**



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

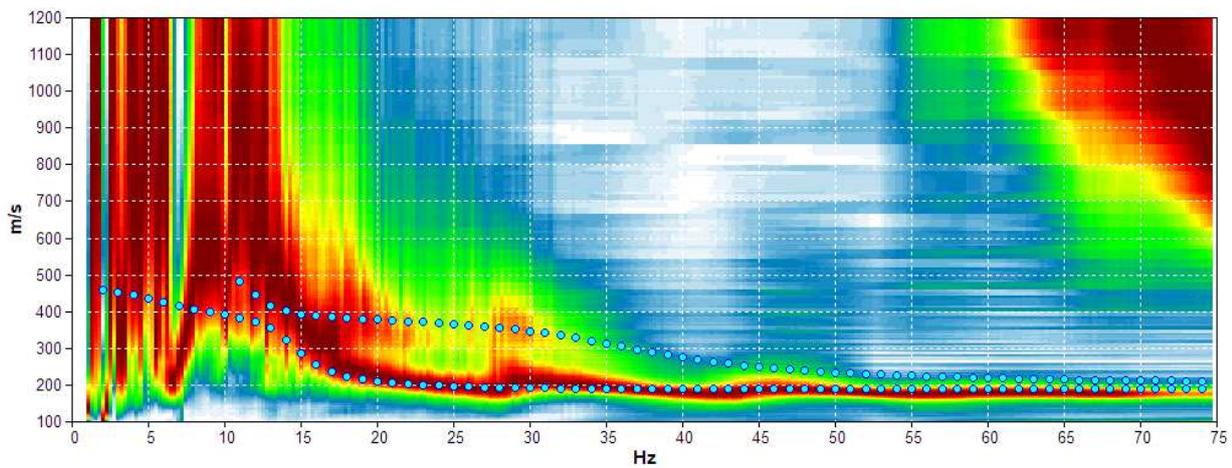
Max. H/V at 8.88 ± 0.92 Hz (in the range 0.0 - 20.0 Hz).					
Criteria for a reliable H/V curve					
[All 3 should be fulfilled]					
$f_0 > 10 / L_w$		8.88 > 0.50		OK	
$n_c(f_0) > 200$		9585.0 > 200		OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$		Exceeded 0 out of 427 times		OK	
$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$					
Criteria for a clear H/V peak					
[At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$		5.969 Hz		OK	
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$		11.281 Hz		OK	
$A_0 > 2$		4.23 > 2		OK	
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$		$ 0.10422  < 0.05$			NO
$\sigma_f < \varepsilon(f_0)$		$0.92496 < 0.44375$			NO
$\sigma_A(f_0) < \theta(f_0)$		$0.6603 < 1.58$		OK	
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

## UBICAZIONE INDAGINI



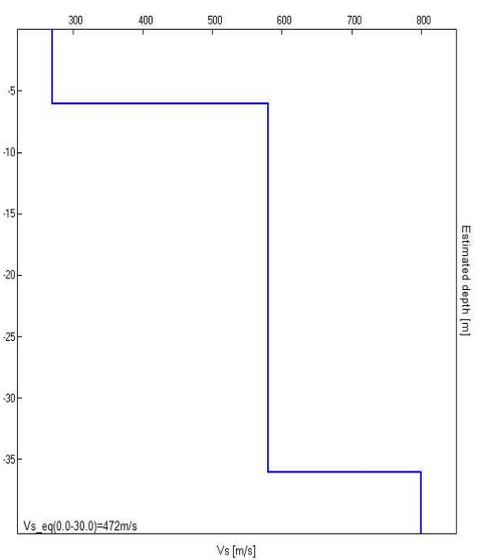
Misura sismica REMI L1 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5057518	Latitudine: 5057567
Longitudine: 164444	Longitudine: 164434
Start recording: 19/11/2020 13:40:09    End recording: 19/11/2020 13:56:09	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 m	

MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
6.00	6.00	270
36.00	30.00	580
inf.	inf.	800

**Vs\_30 (0.0-30.0)=472/s**

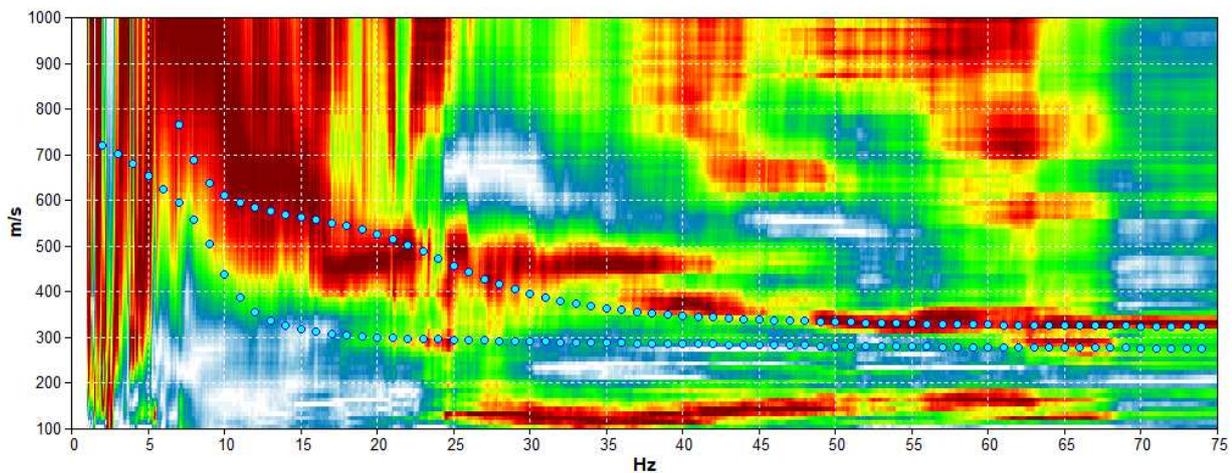


UBICAZIONE INDAGINI



Misura sismica REMI L2 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5058622	Latitudine: 5058555
Longitudine: 164676	Longitudine: 164675
Start recording: 19/11/2020 14:17:10    End recording: 19/11/2020 14:33:11	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 m	

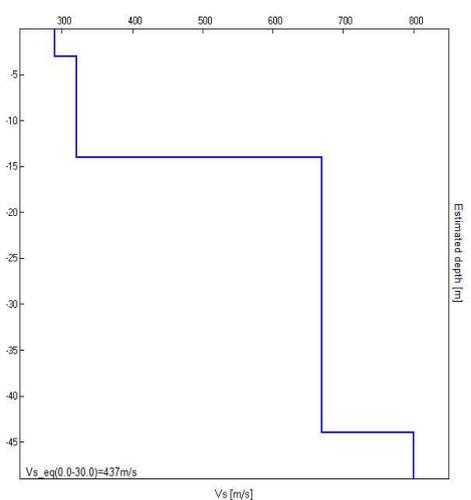
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	290
14.00	11.00	320
44.00	30.00	670
inf.	inf.	800

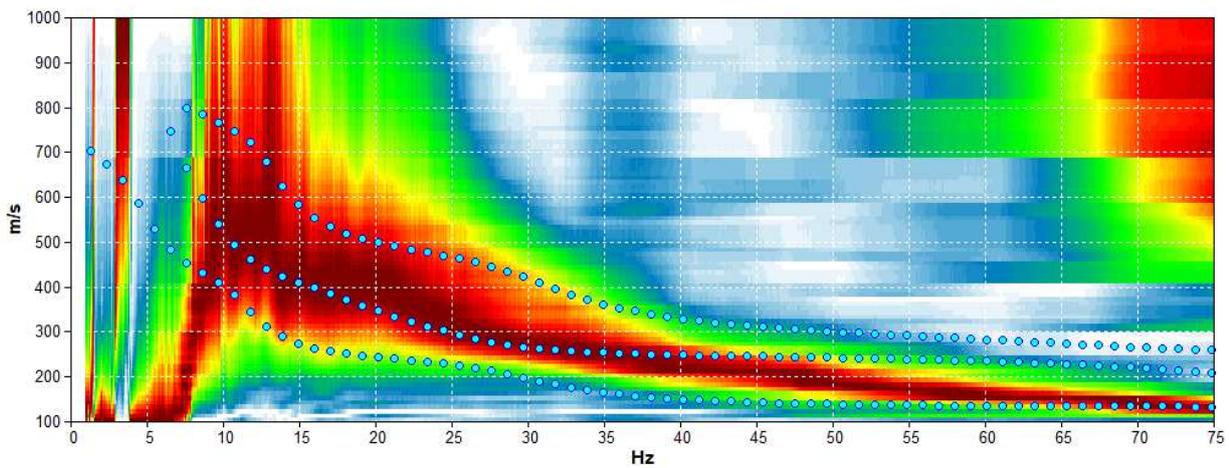
**Vs<sub>30</sub> (0.0-30.0)=437 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L3 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5059048	Latitudine: 5059078
Longitudine: 164728	Longitudine: 164730
Start recording: 19/11/2020 14:51:58    End recording: 19/11/2020 15:07:58	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 m	

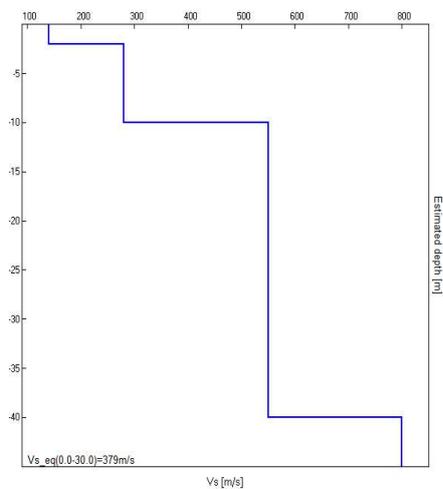
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	140
10.00	8.00	280
40.00	30.00	550
inf.	inf.	800

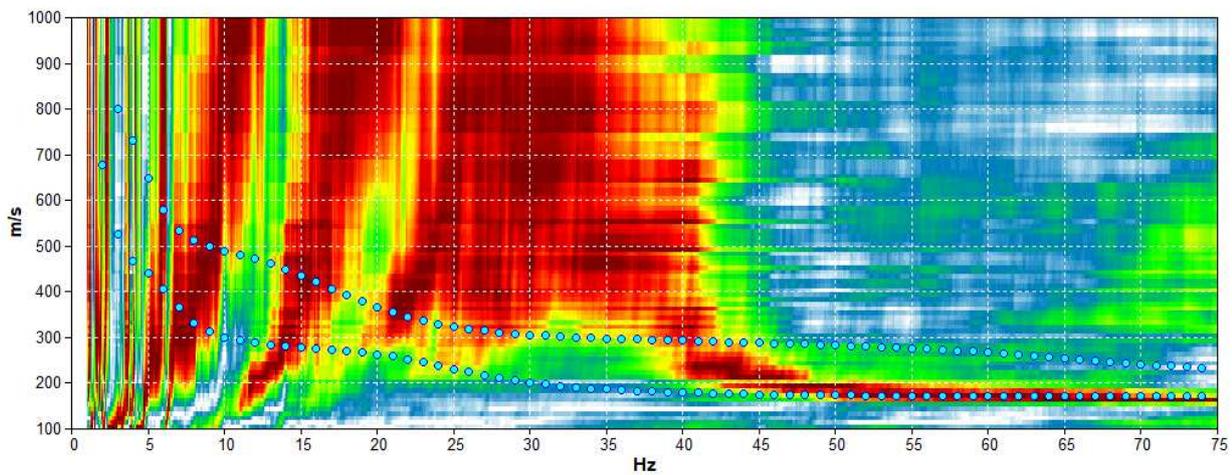
**Vs\_30 (0.0-30.0)=379 m/s**

UBICAZIONE INDAGINI



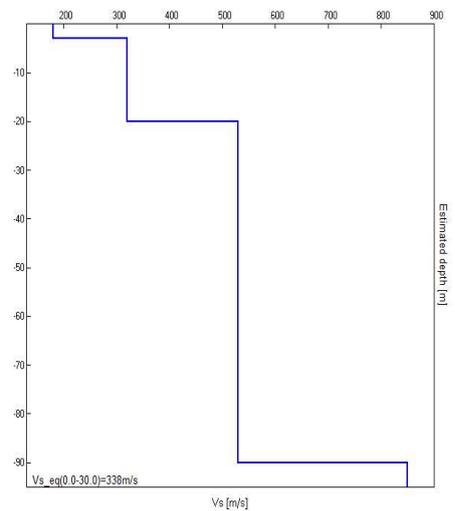
Misura sismica REMI L4 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5060072	Latitudine: 5060068
Longitudine: 164978	Longitudine: 165011
Start recording: 19/11/2020 15:28:12    End recording: 19/11/2020 15:44:12	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 m	

MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE

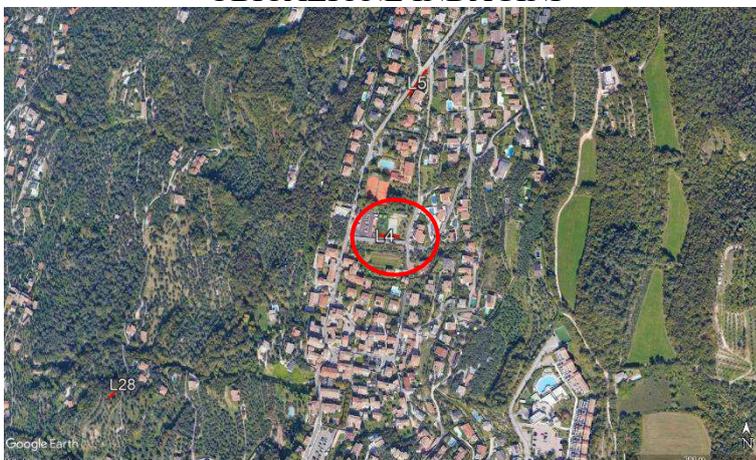


Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	180
20.00	17.00	320
90.00	70.00	530
inf.	inf.	850

**Vs<sub>30</sub> (0.0-30.0)=338/s**

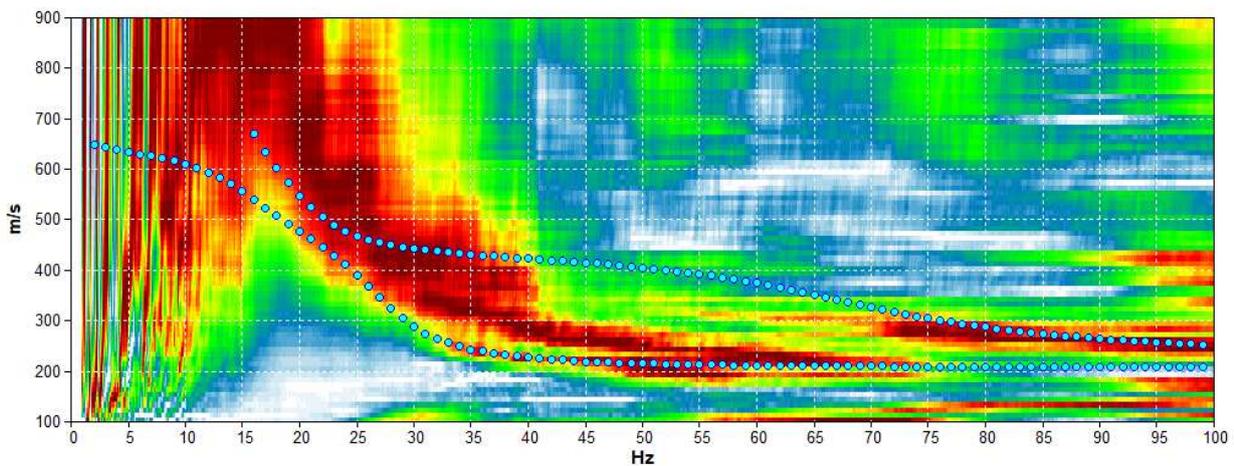


UBICAZIONE INDAGINI



Misura sismica REMI L5 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5060318	Latitudine: 5060281
Longitudine: 165065	Longitudine: 165036
Start recording: 19/11/2020 16:02:26    End recording: 19/11/2020 16:18:26	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 m	

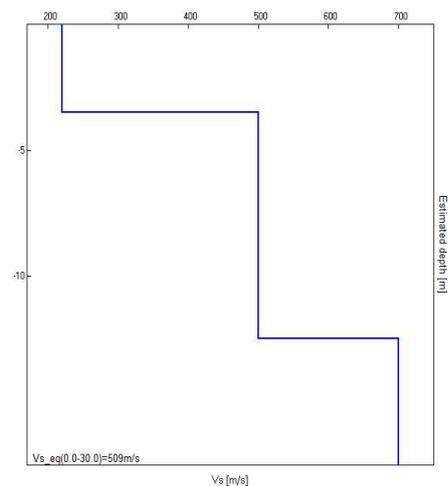
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.50	3.50	220
12.50	9.00	500
inf.	inf.	700

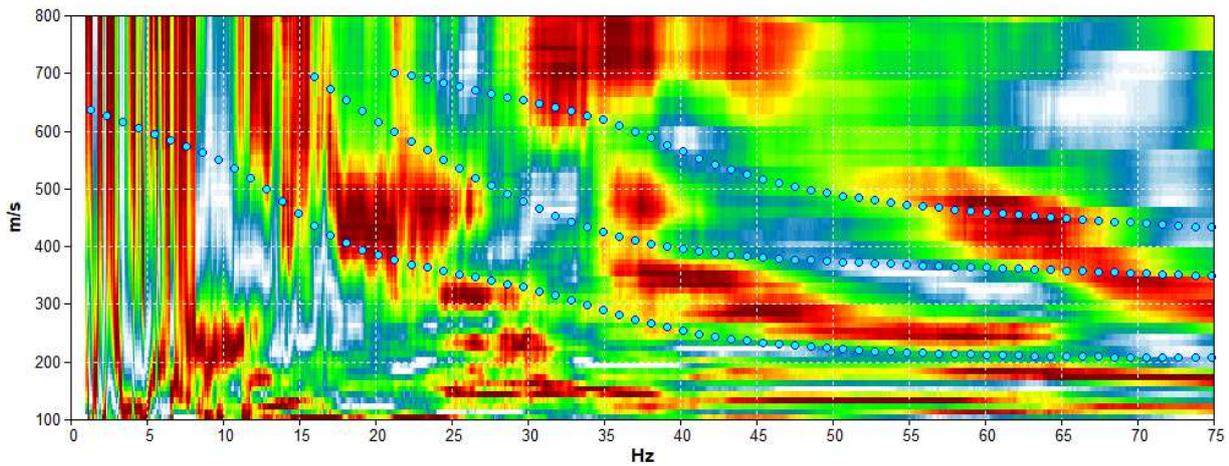
**Vs<sub>30</sub> (0.0-30.0)=509 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L6 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5056965	Latitudine: 5057016
Longitudine: 162552	Longitudine: 162560
Start recording: 01/12/2020 10:16:16    End recording: 01/12/2020 10:34:16	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m	

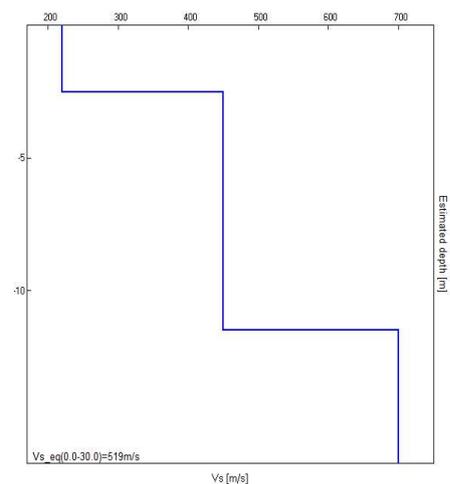
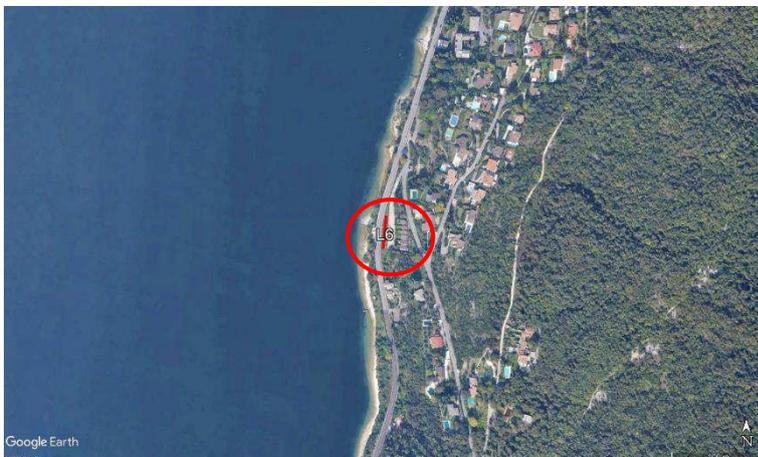
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.50	2.50	220
11.50	9.00	450
inf.	inf.	700

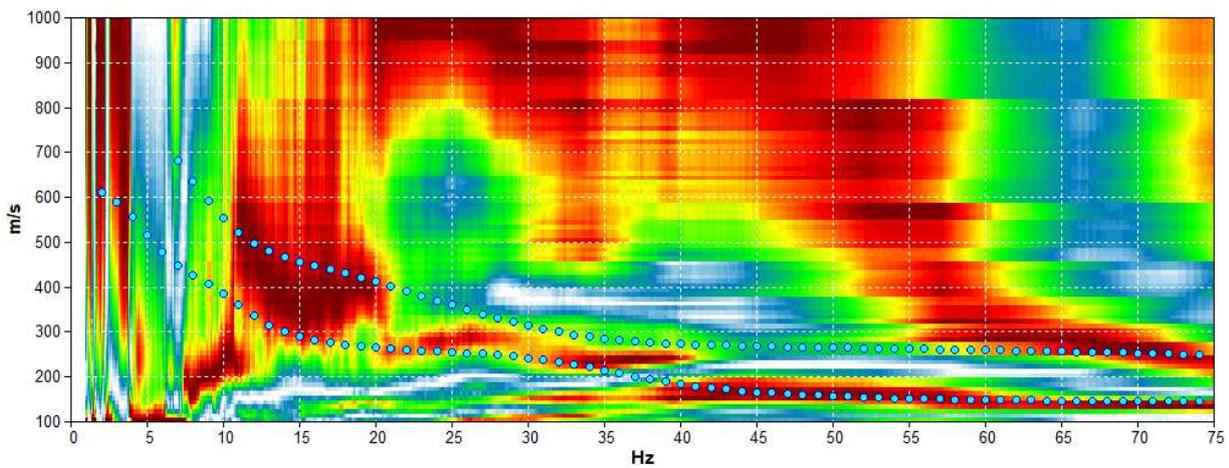
**Vs\_30 (0.0-30.0)=519/s**

UBICAZIONE INDAGINI



Misura sismica REMI L7 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5058213	Latitudine: 5058256
Longitudine: 163382	Longitudine: 163376
Start recording: 01/12/2020 10:50:27    End recording: 01/12/2020 11:08:27	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

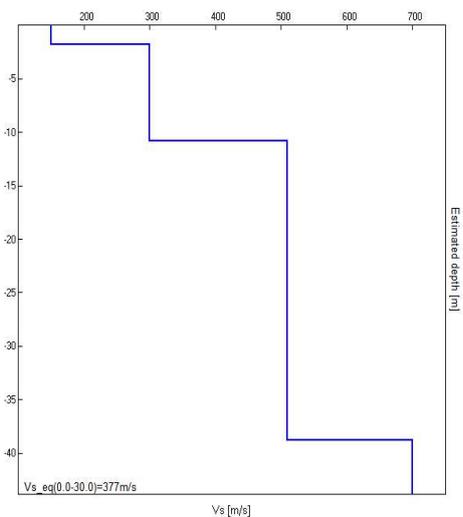
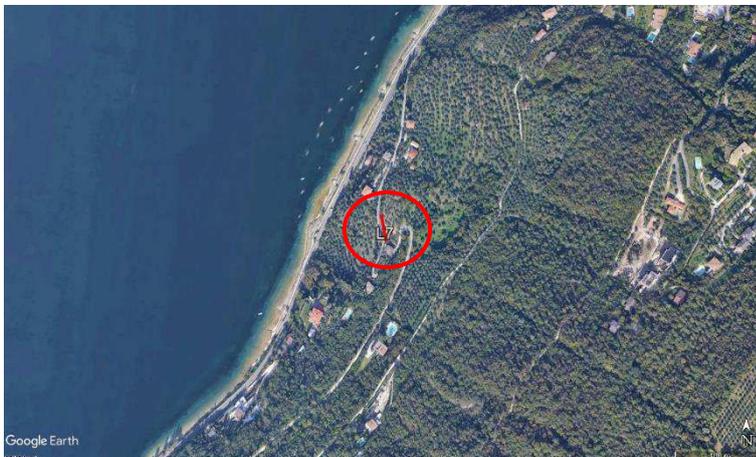
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
1.80	1.80	150
10.80	9.00	300
38.80	28.00	510
inf.	inf.	700

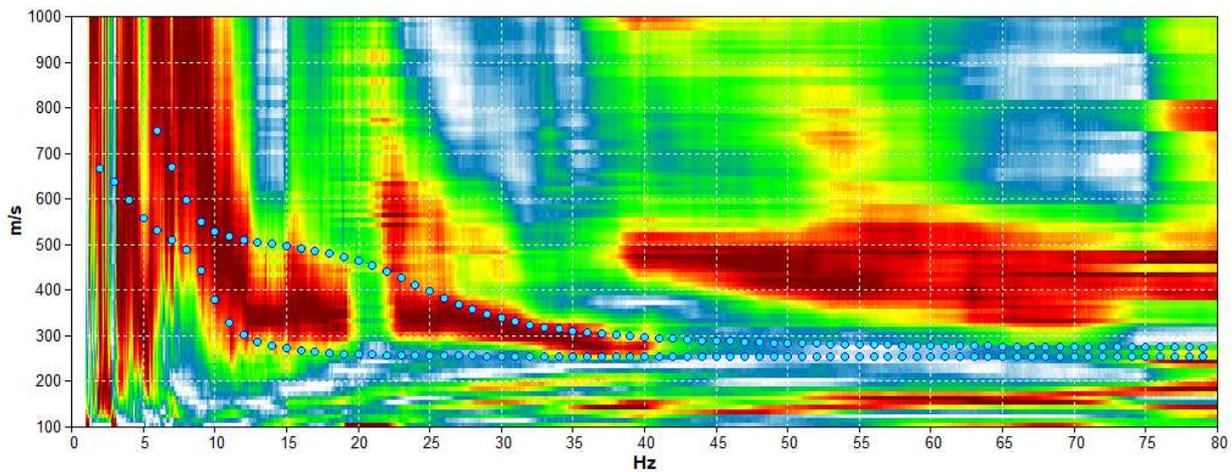
**Vs<sub>30</sub> (0.0-30.0)=377 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L8 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5058880	Latitudine: 5058890
Longitudine: 163574	Longitudine: 163545
Start recording: 01/12/2020 11:24:44    End recording: 01/12/2020 11:42:44	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m	

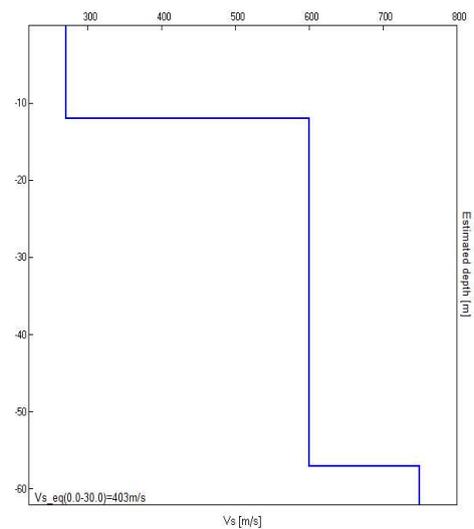
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
12.00	12.00	270
57.00	45.00	600
inf.	inf.	750

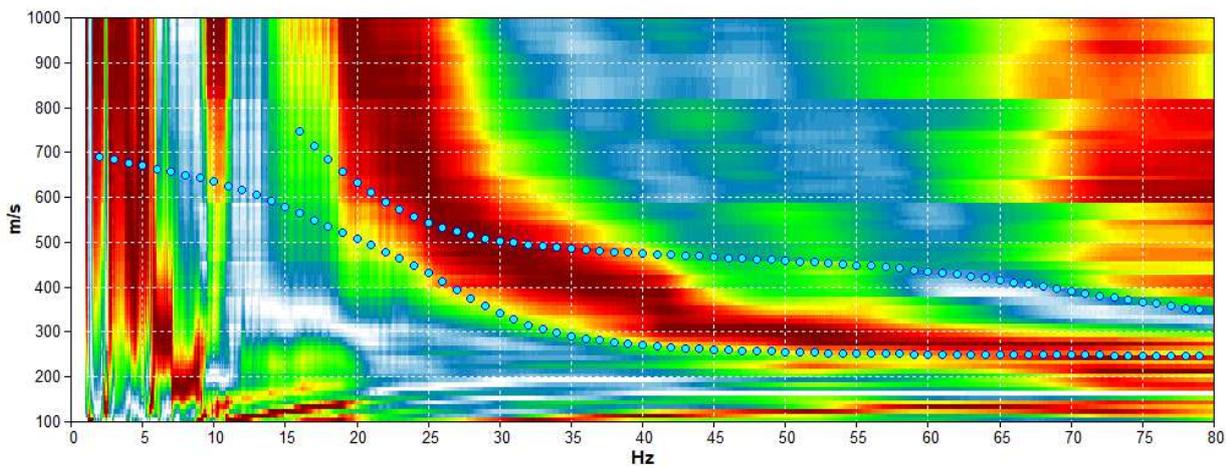
**Vs<sub>30</sub> (0.0-30.0)=403 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L9 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061473	Latitudine: 5061427
Longitudine: 164674	Longitudine: 164647
Start recording: 01/12/2020 12:23:13    End recording: 01/12/2020 12:41:13	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

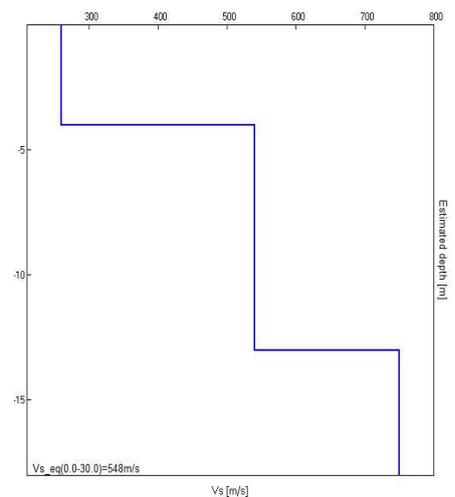
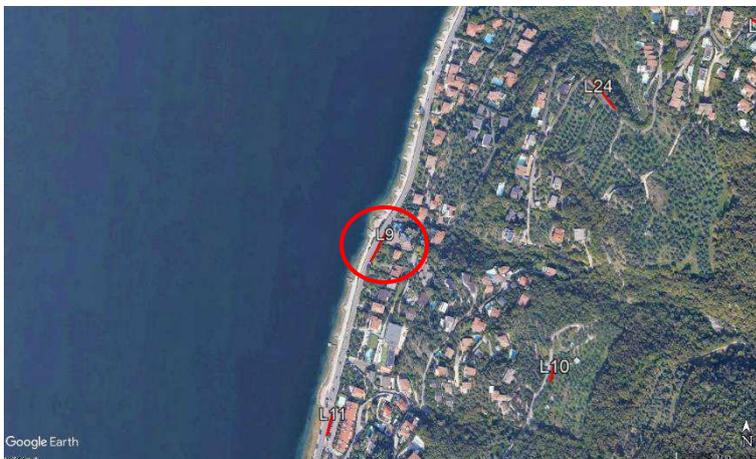
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.00	4.00	260
13.00	9.00	540
inf.	inf.	750

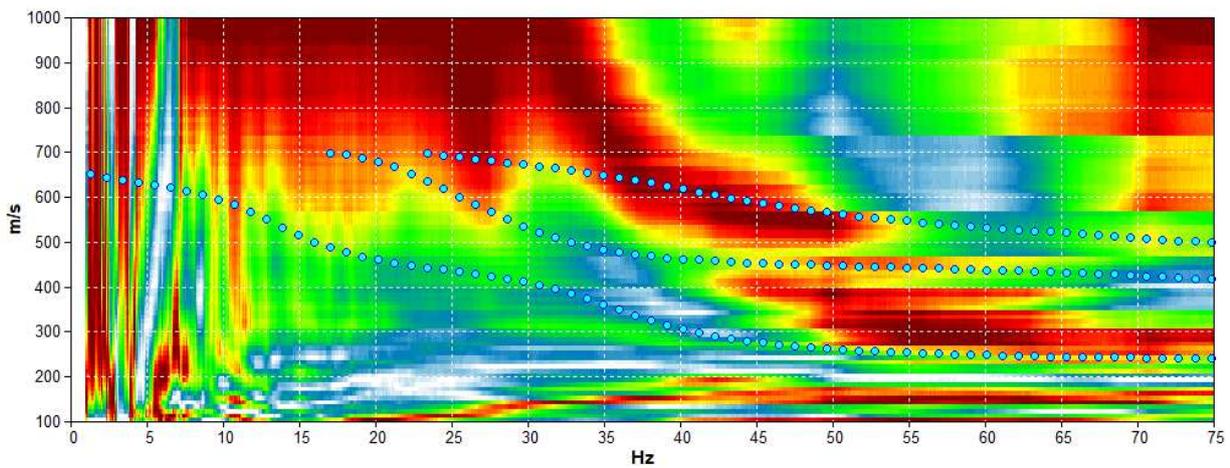
**Vs<sub>30</sub> (0.0-30.0)=548 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L10 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061285	Latitudine: 5061253
Longitudine: 164896	Longitudine: 164885
Start recording: 01/12/2020 12:54:29 End recording: 01/12/2020 13:12:29	
Trace length: 0h16'00" Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

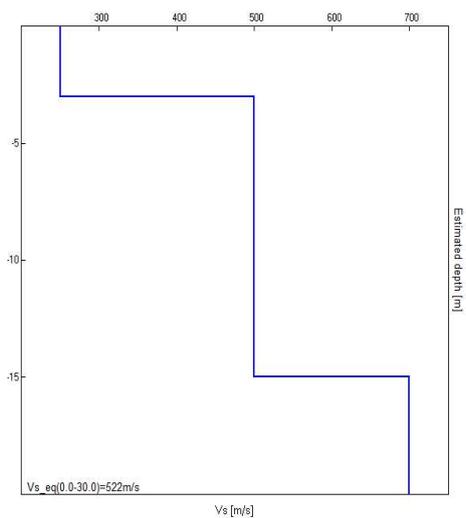
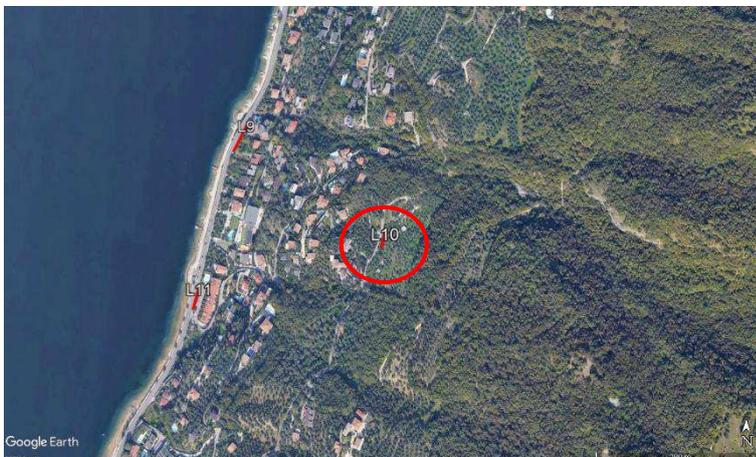
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	250
15.00	12.00	500
inf.	inf.	700

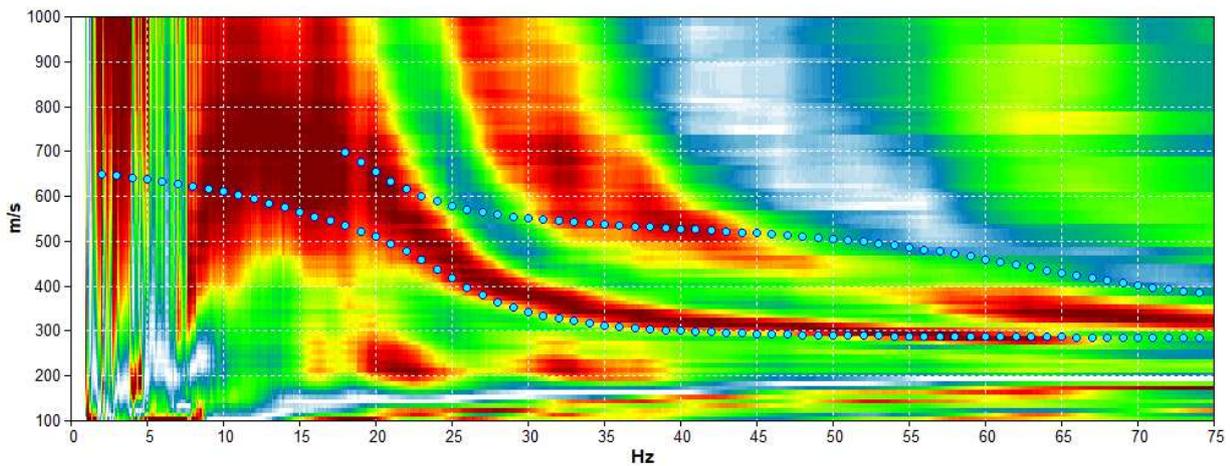
**Vs\_30 (0.0-30.0)=522 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L11 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061204	Latitudine: 5061166
Longitudine: 164578	Longitudine: 164566
Start recording: 01/12/2020 13:23:57    End recording: 01/12/2020 13:41:57	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

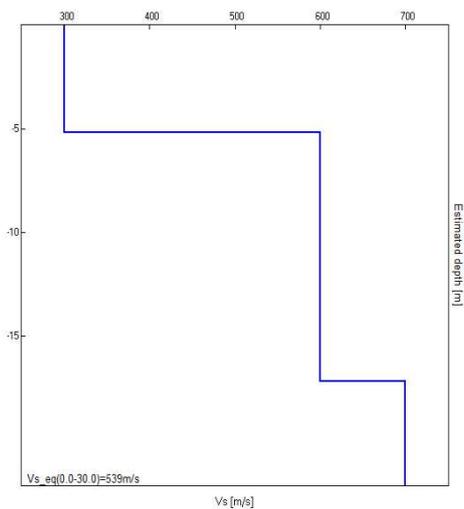
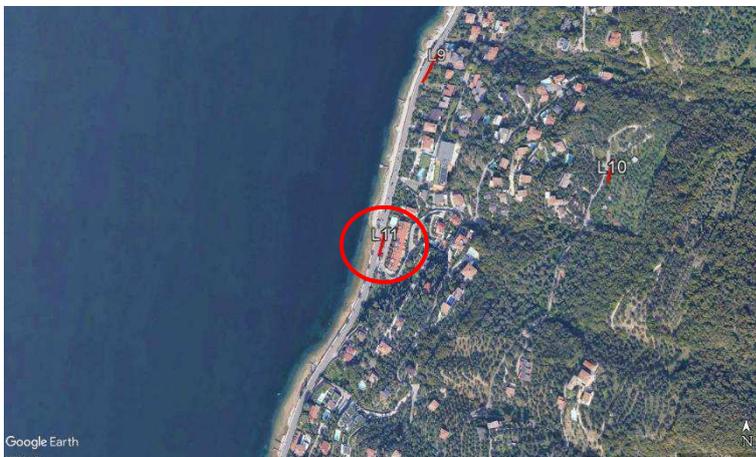
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
5.20	5.20	300
17.20	12.00	600
inf.	inf.	700

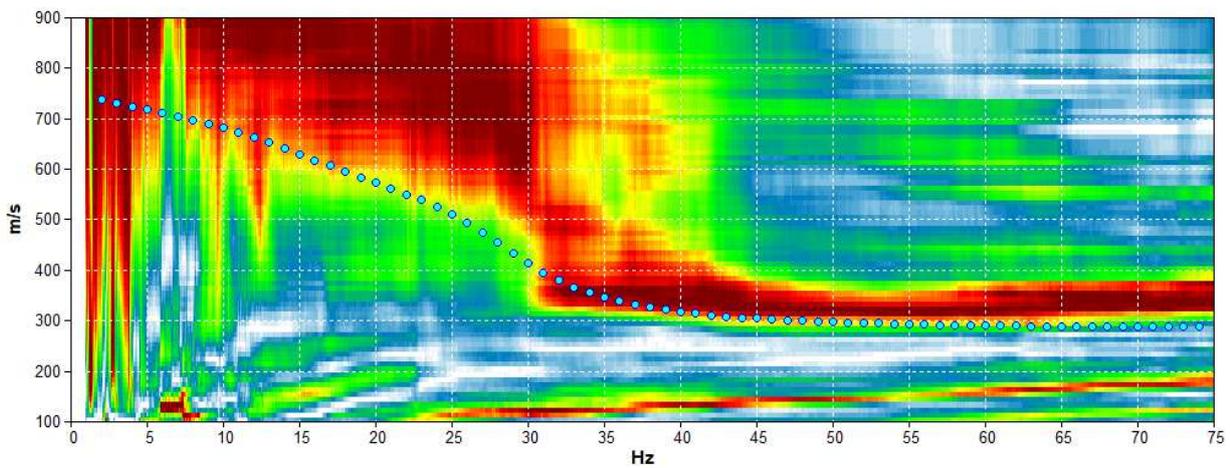
**Vs<sub>30</sub> (0.0-30.0)=539 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L12 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061983	Latitudine: 5062017
Longitudine: 164897	Longitudine: 164906
Start recording: 01/12/2020 14:01:10    End recording: 01/12/2020 14:19:10	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

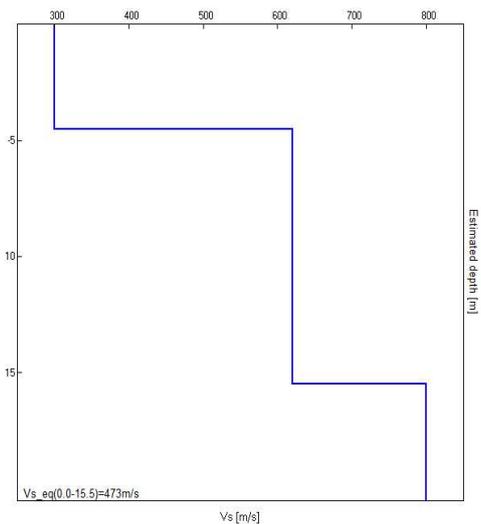
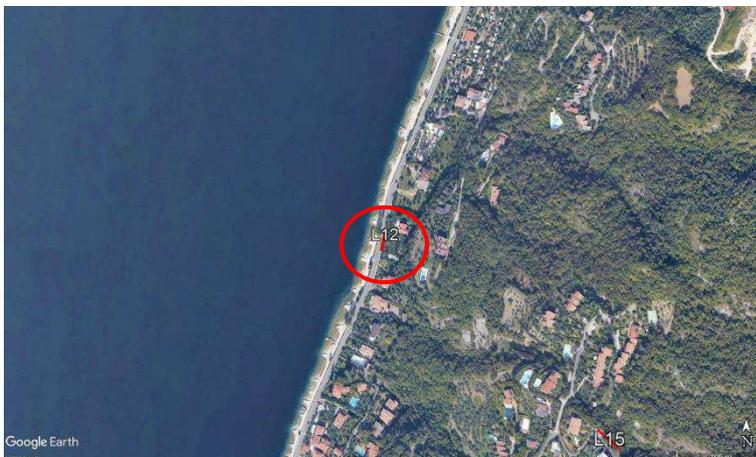
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.50	4.50	300
15.50	11.00	620
inf.	inf.	800

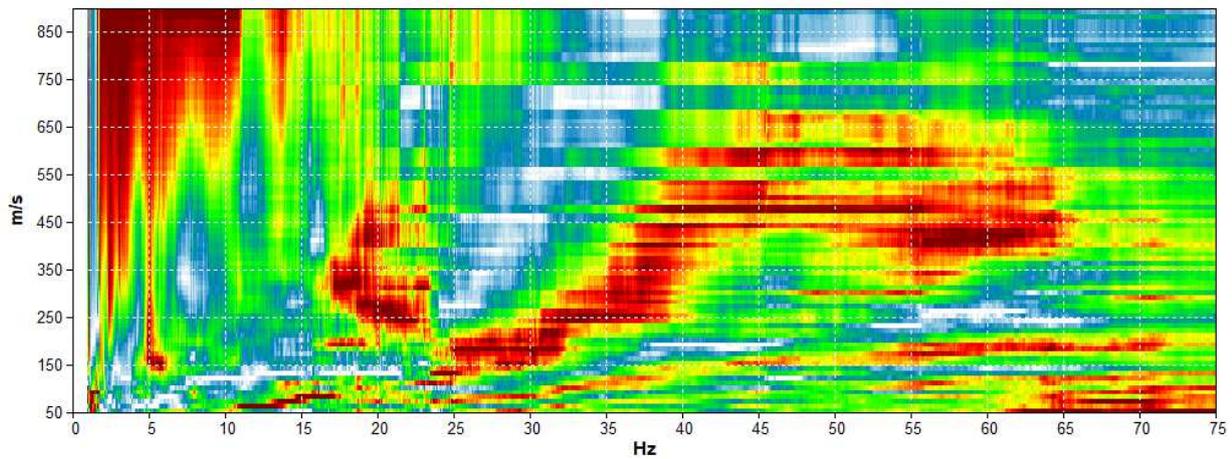
**Vs\_eq (0.0-15.5)=473 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L13 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5062511	Latitudine: 5062490
Longitudine: 165333	Longitudine: 165333
Start recording: 01/12/2020 13:13:11    End recording: 01/12/2020 13:29:11	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

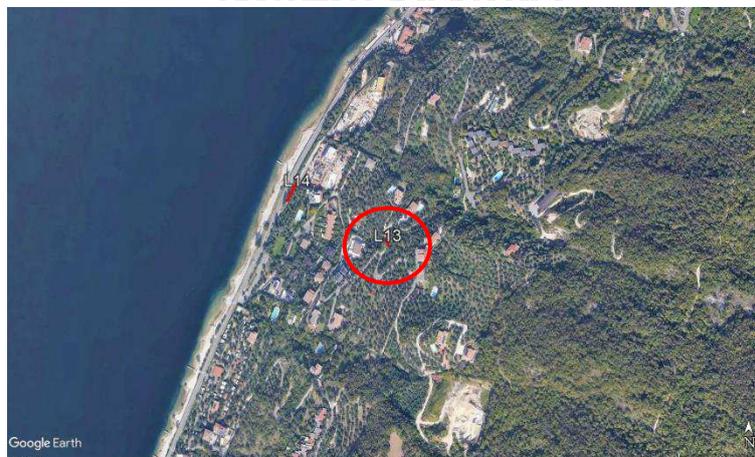
**MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE**



**MISURA DISTURBATA**

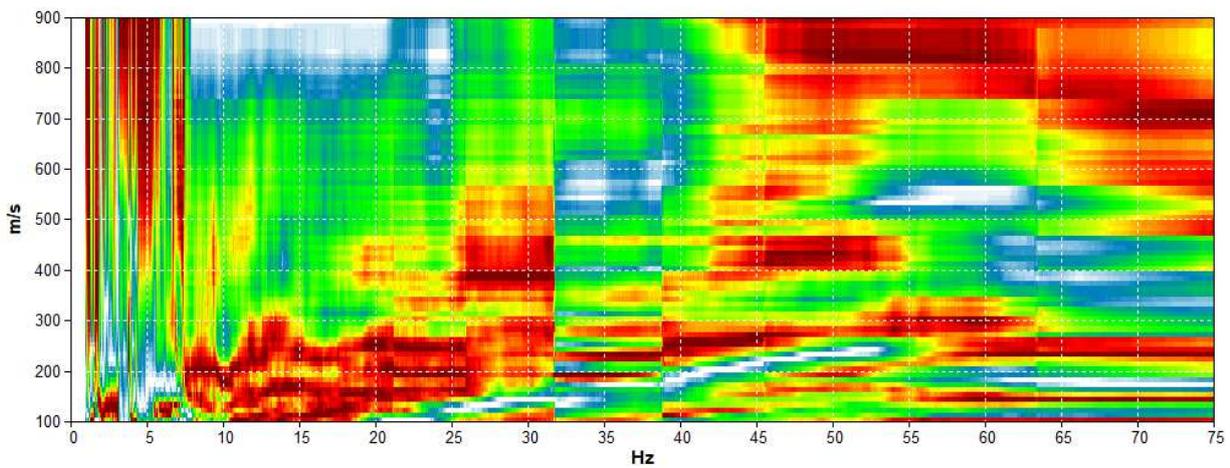
Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]

**UBICAZIONE INDAGINI**



Misura sismica REMI L14 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5062605	Latitudine: 5062570
Longitudine: 165195	Longitudine: 165174
Start recording: 01/12/2020 14:16:05    End recording: 01/12/2020 14:22:12	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m	

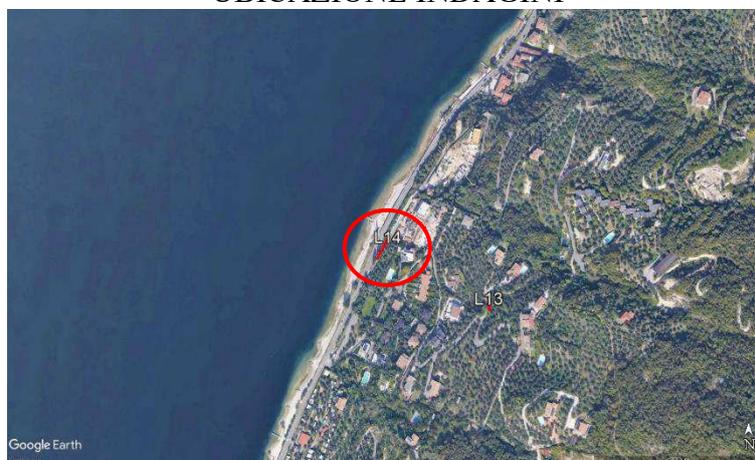
**MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE**



**Misura disturbata**

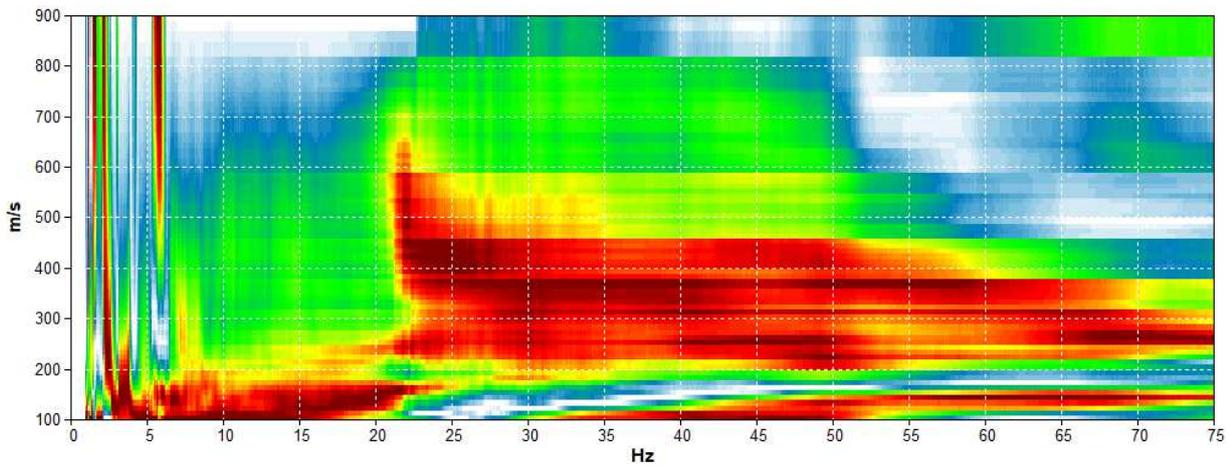
Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]

**UBICAZIONE INDAGINI**



Misura sismica REMI L15 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061730	Latitudine: 5061706
Longitudine: 165174	Longitudine: 165199
Start recording: 01/12/2020 14:58:04    End recording: 01/12/2020 15:04:22	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

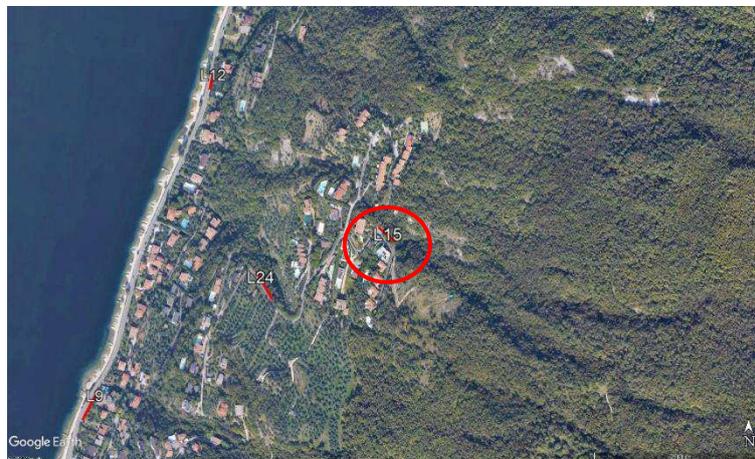
**MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE**



**MISURA DISTRUBATA**

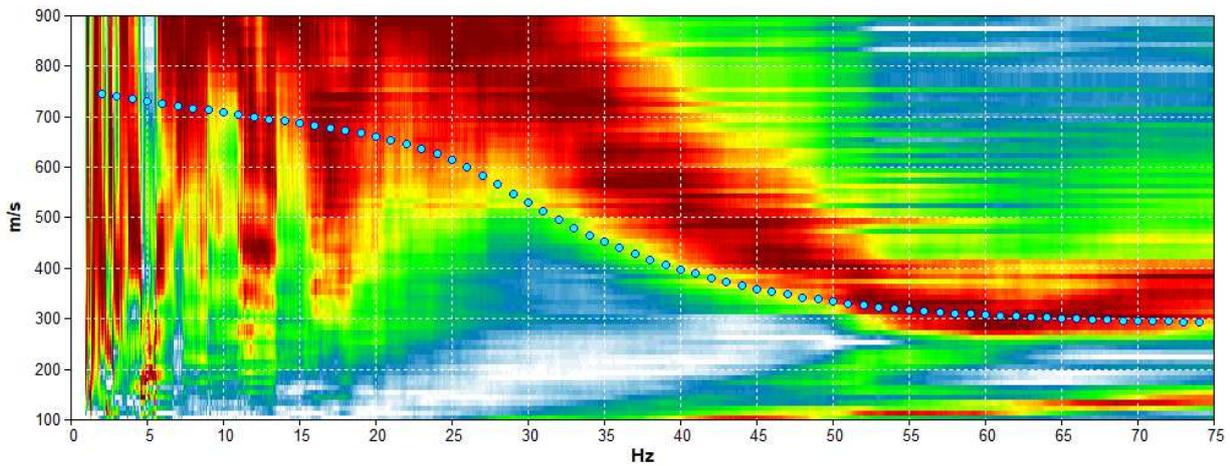
Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]

**UBICAZIONE INDAGINI**



Misura sismica REMI L16 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064718	Latitudine: 5064655
Longitudine: 167051	Longitudine: 167056
Start recording: 01/12/2020 09:43:42    End recording: 01/12/2020 10:03:42	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 m.	

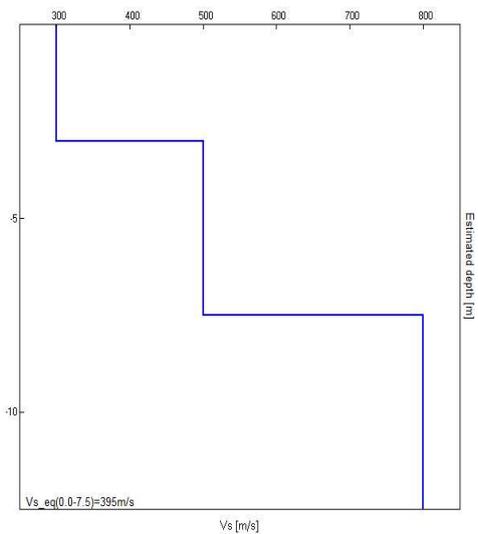
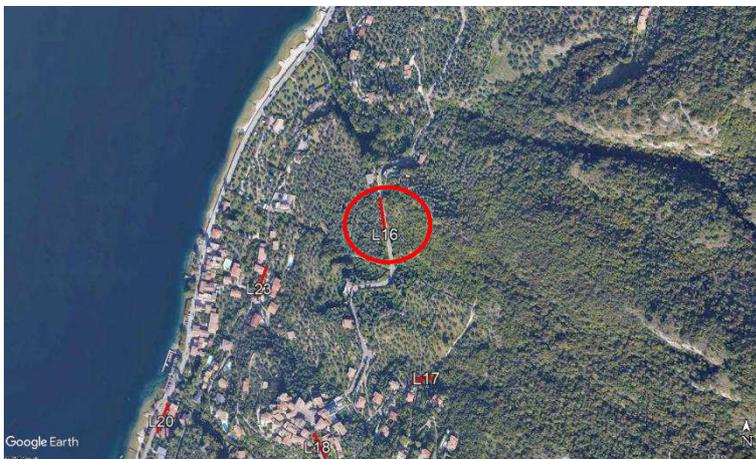
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	300
7.50	4.50	500
inf.	inf.	800

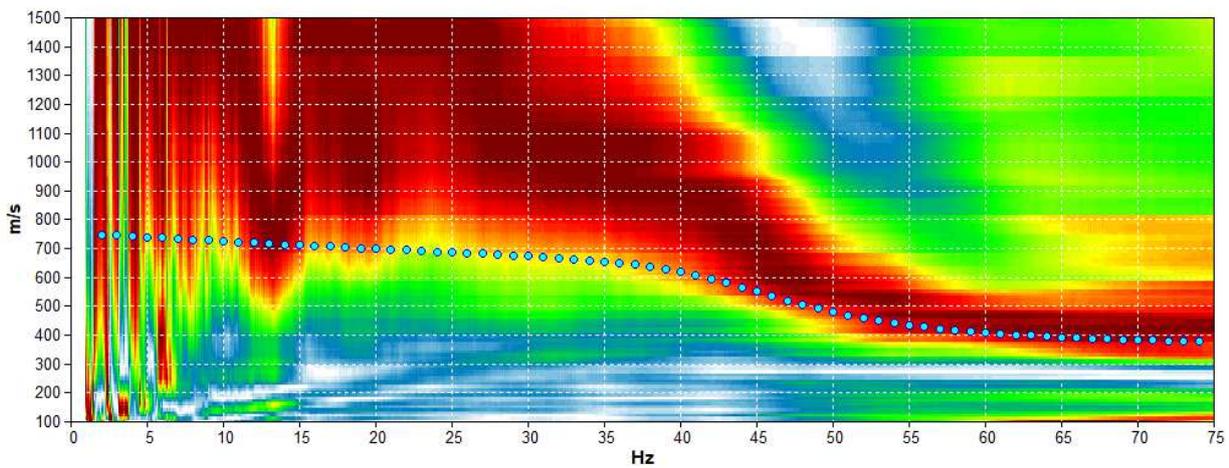
**Vs\_eq (0.0-7.5)=395 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L17 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064441	Latitudine: 5064448
Longitudine: 167083	Longitudine: 167118
Start recording: 01/12/2020 10:32:31    End recording: 01/12/2020 10:52:31	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 m.	

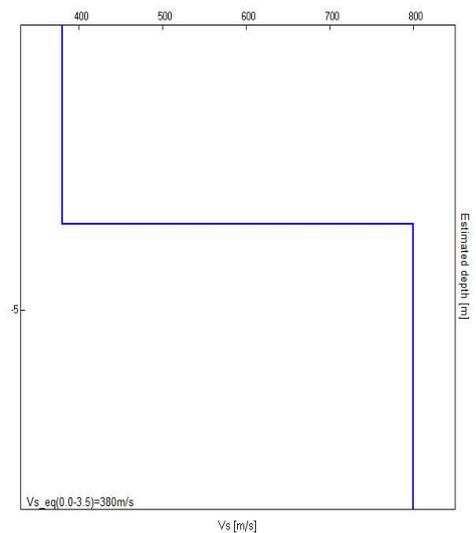
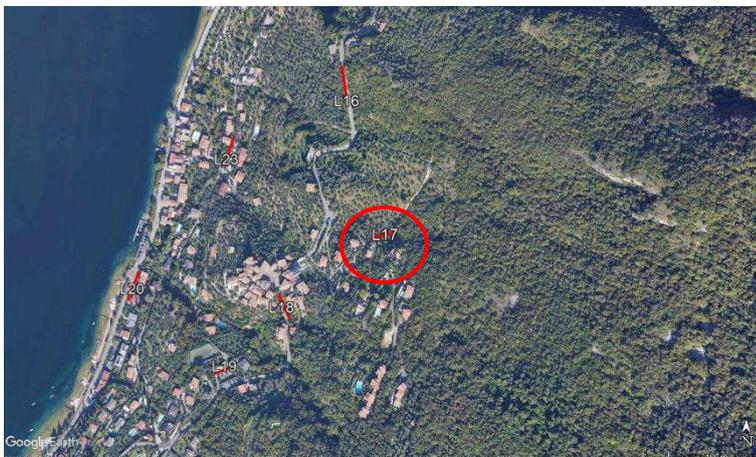
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.50	3.50	380
inf.	inf.	800

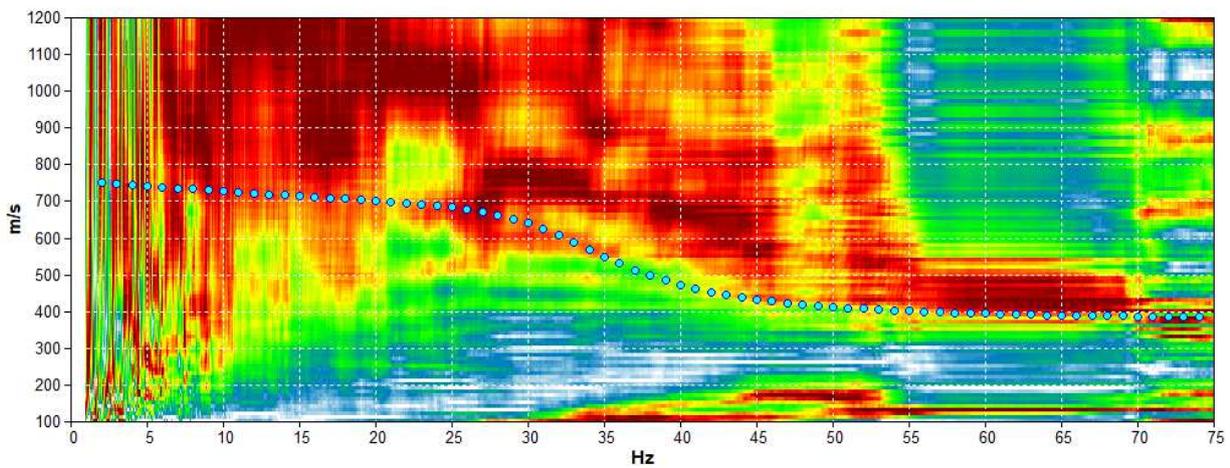
**Vs\_eq (0.0-3.5)=380 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L18 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064360	Latitudine: 5064320
Longitudine: 166931	Longitudine: 166947
Start recording: 01/12/2020 11:33:03    End recording: 01/12/2020 11:53:03	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 m.	

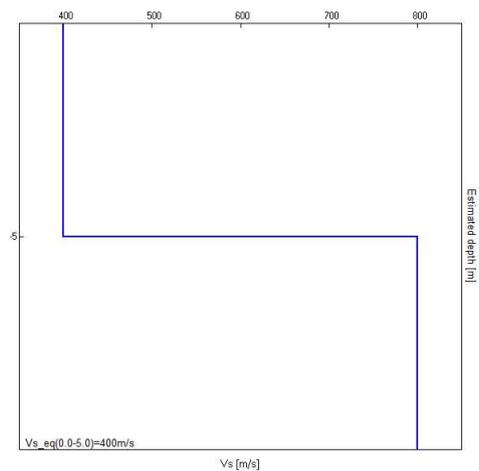
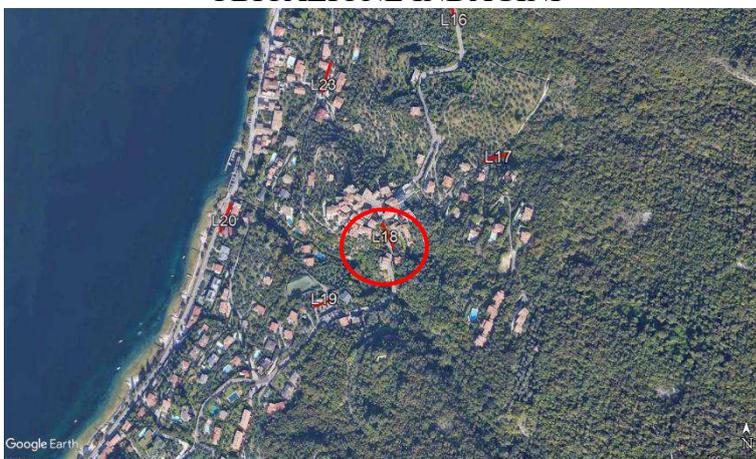
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
5.00	5.00	400
inf.	inf.	800

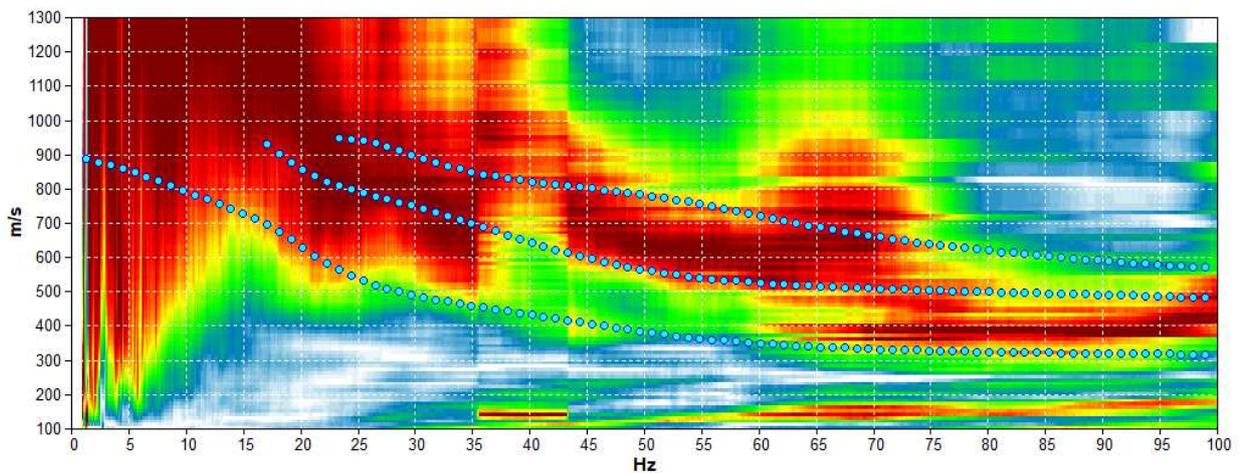
**Vs\_eq (0.0-5.0)=400 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L19 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064244	Latitudine: 5064236
Longitudine: 166844	Longitudine: 166818
Start recording: 01/12/2020 12:38:18    End recording: 01/12/2020 12:58:18	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

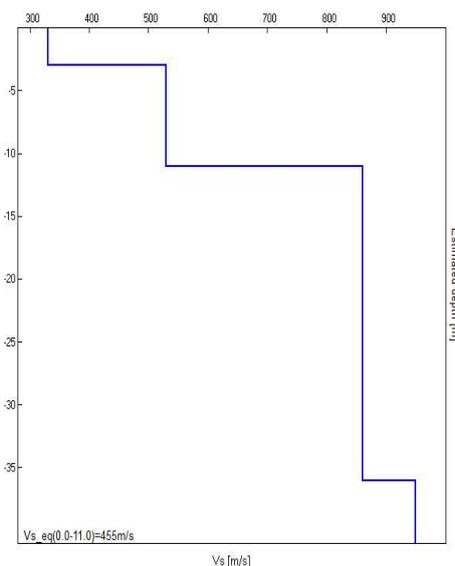
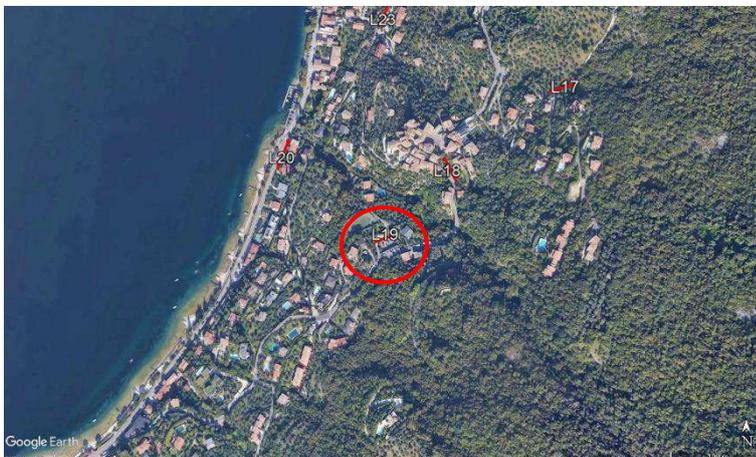
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	330
11.00	8.00	530
36.00	25.00	860
inf.	inf.	950

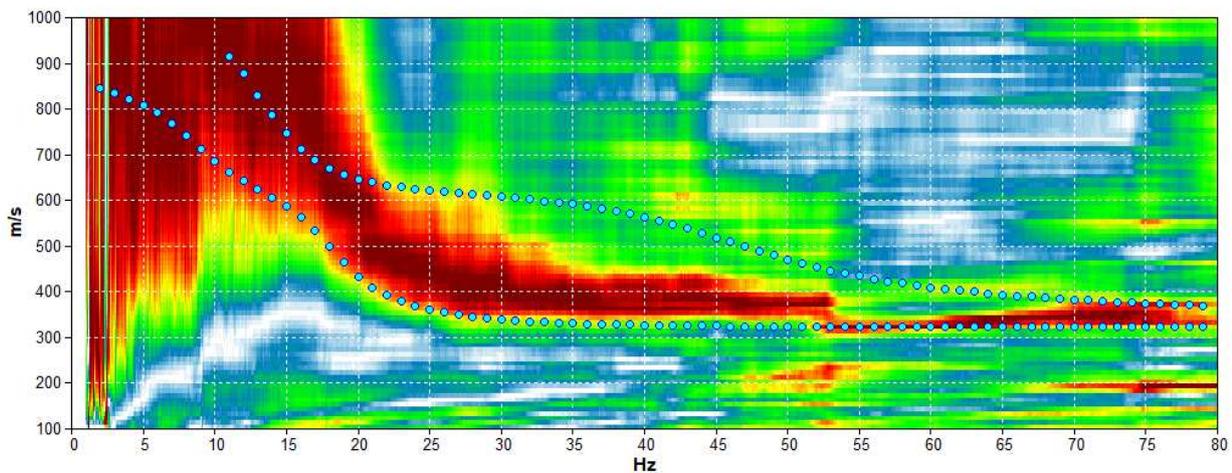
**Vs\_eq (0.0-11.0)=455 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L20 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064406	Latitudine: 5064359
Longitudine: 166692	Longitudine: 166671
Start recording: 01/12/2020 13:37:50    End recording: 01/12/2020 13:57:50	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

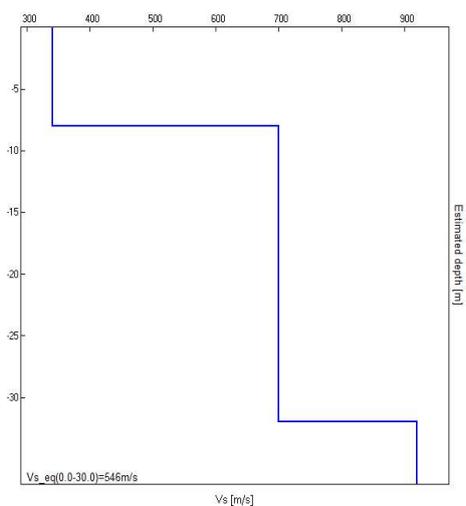
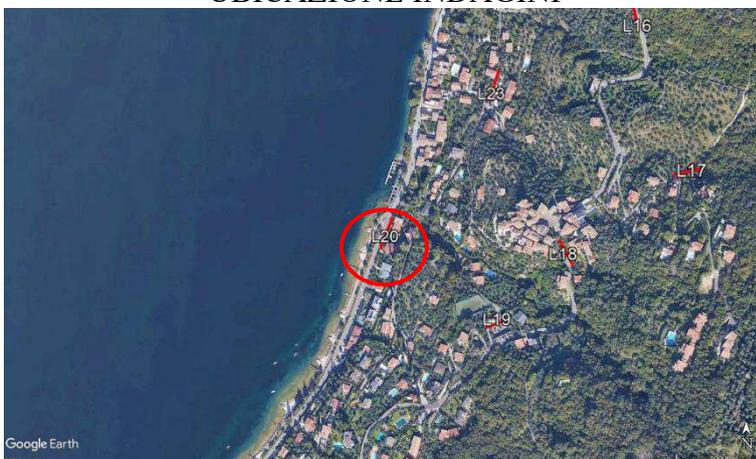
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
8.00	8.00	340
32.00	24.00	700
inf.	inf.	920

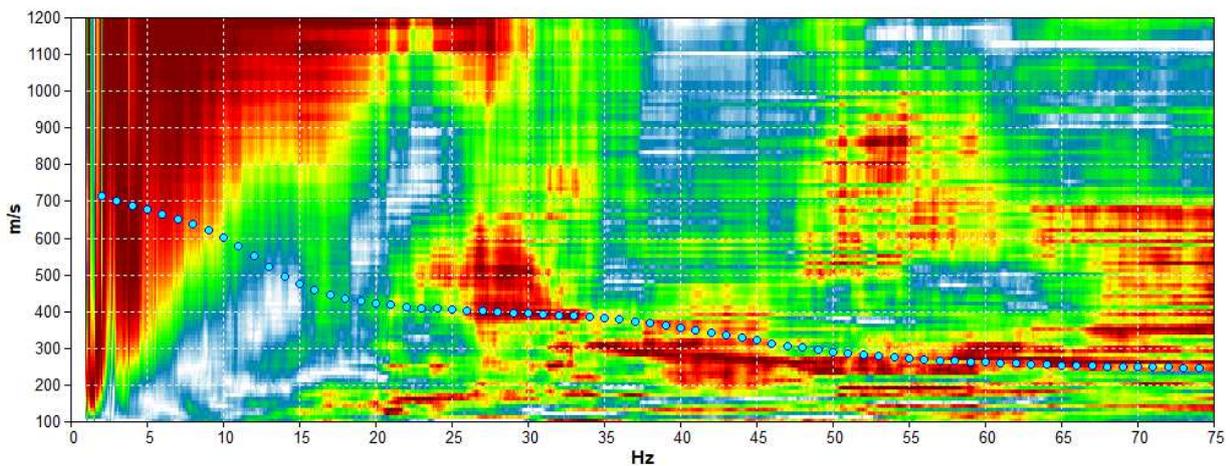
**Vs<sub>30</sub> (0.0-30.0)=546 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L21 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5062860	Latitudine: 5062827
Longitudine: 165738	Longitudine: 165760
Start recording: 01/12/2020 15:06:24    End recording: 01/12/2020 15:26:24	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

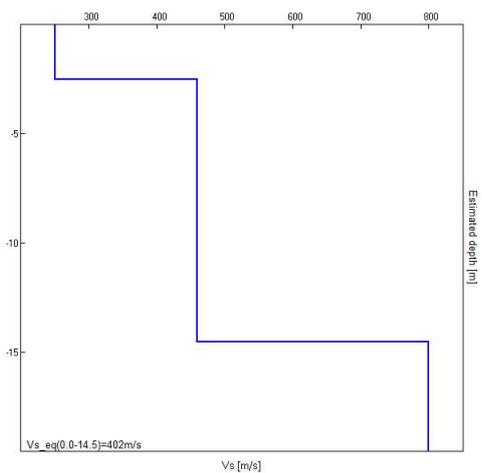
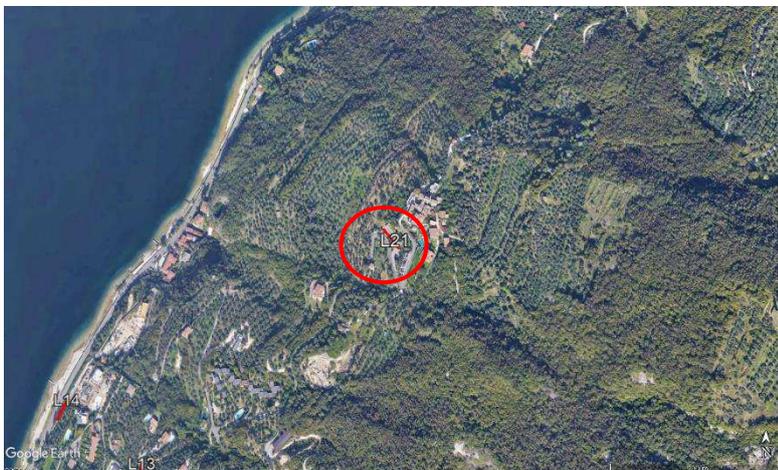
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.50	2.50	250
14.50	12.00	460
inf.	inf.	800

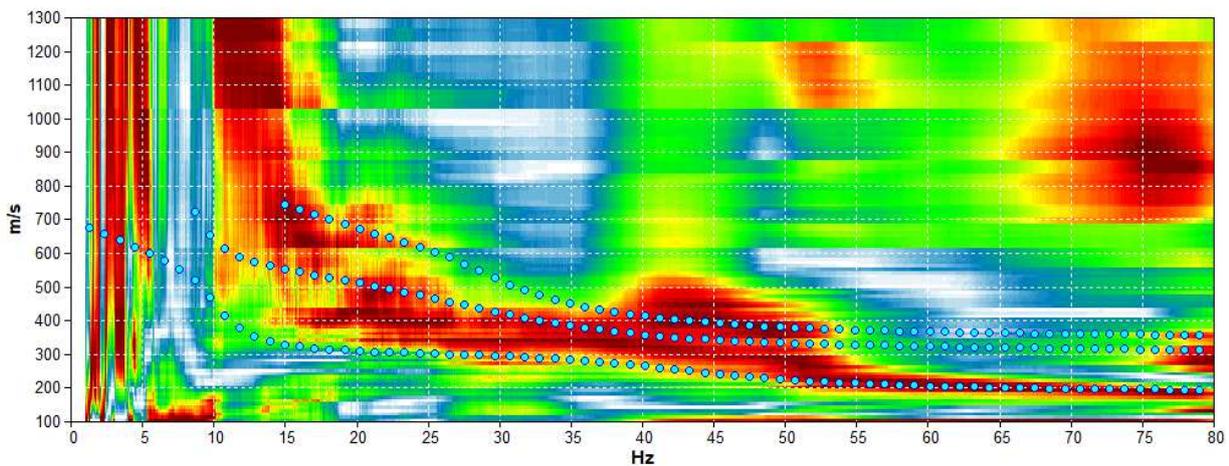
**Vs\_eq (0.0-14.5)=402 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L22 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5063853	Latitudine: 5063871
Longitudine: 166236	Longitudine: 166270
Start recording: 01/12/2020 15:49:50    End recording: 01/12/2020 16:09:50	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

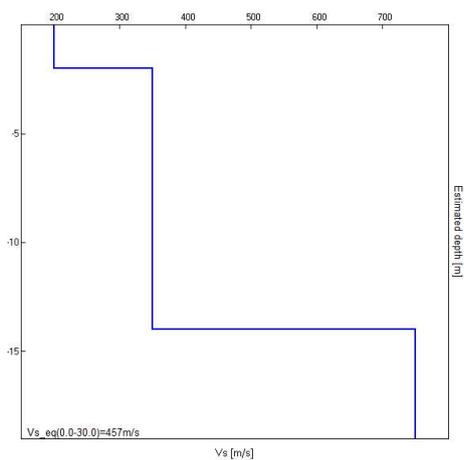
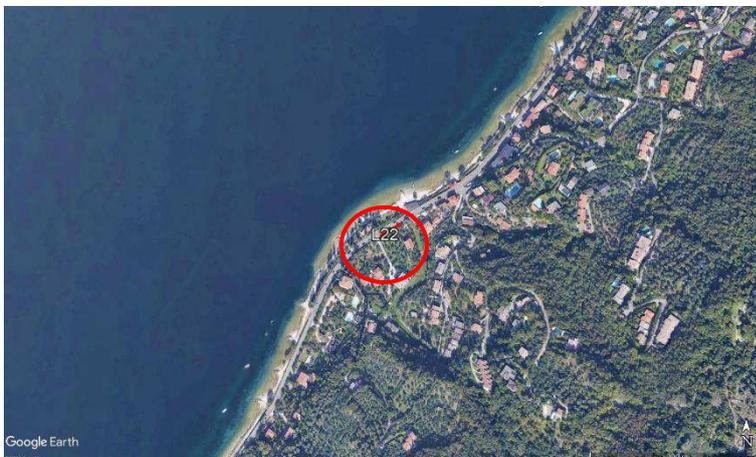
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	200
14.00	12.00	350
inf.	inf.	750

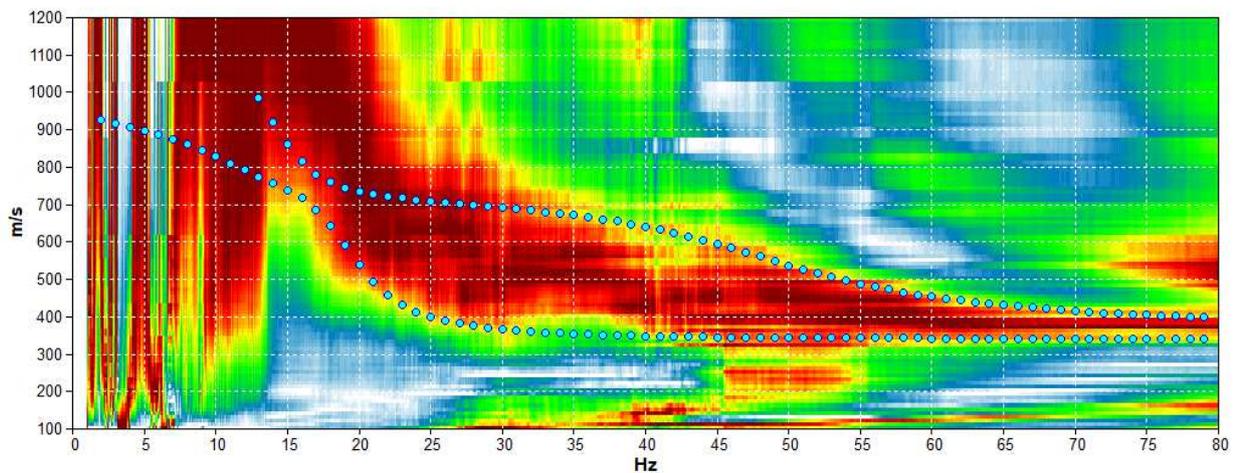
**Vs<sub>30</sub> (0.0-30.0)=457 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L23 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5064572	Latitudine: 5064620
Longitudine: 166847	Longitudine: 166864
Start recording: 01/12/2020 12:38:18    End recording: 01/12/2020 12:58:18	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

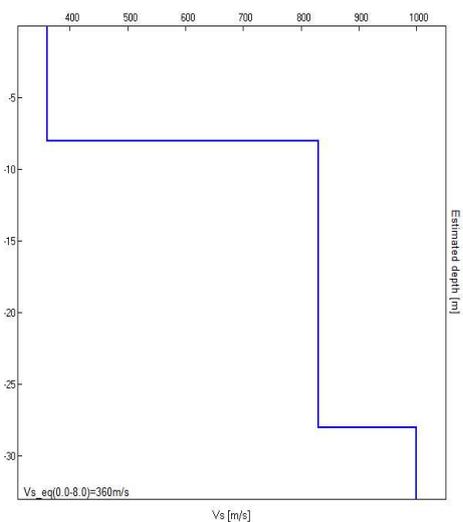
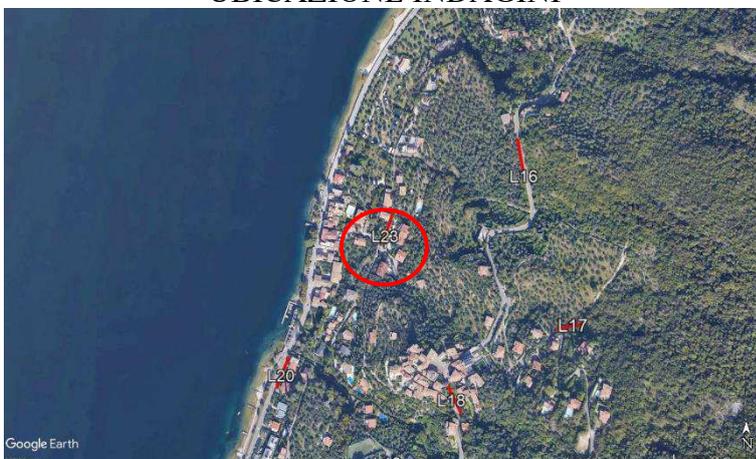
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
8.00	8.00	360
28.00	20.00	830
inf.	inf.	1000

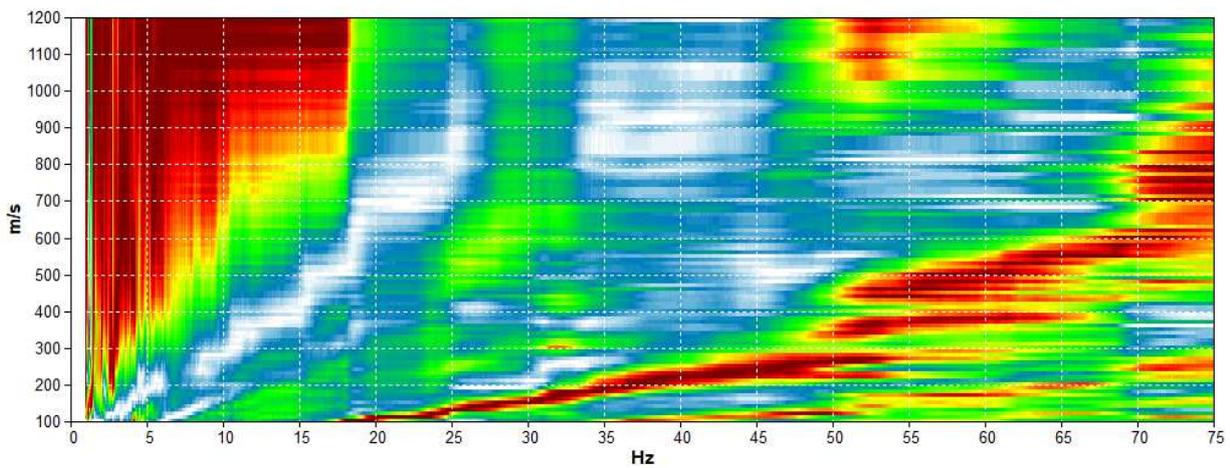
**Vs\_eq (0.0-8.0)=360 m/s**

UBICAZIONE INDAGINI



<b>Misura sismica REMI L24 – Comune di TORRI DEL BENACO (VR)</b>	
<b>Coordinate in WGS 84 – 33N</b>	
<b>Inizio Linea</b>	<b>Fine Linea</b>
Latitudine: 5061671	Latitudine: 5061625
Longitudine: 164974	Longitudine: 164999
Start recording: 01/12/2020 15:38:01    End recording: 01/12/2020 15:45:27	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

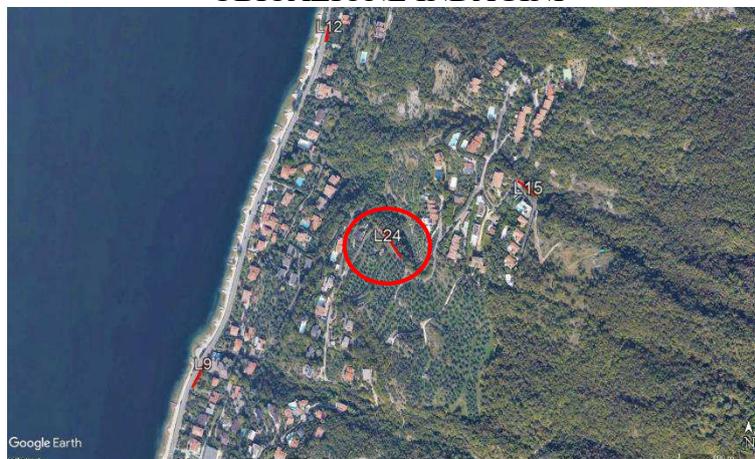
**MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE**



**MISURA DISTURBATA**

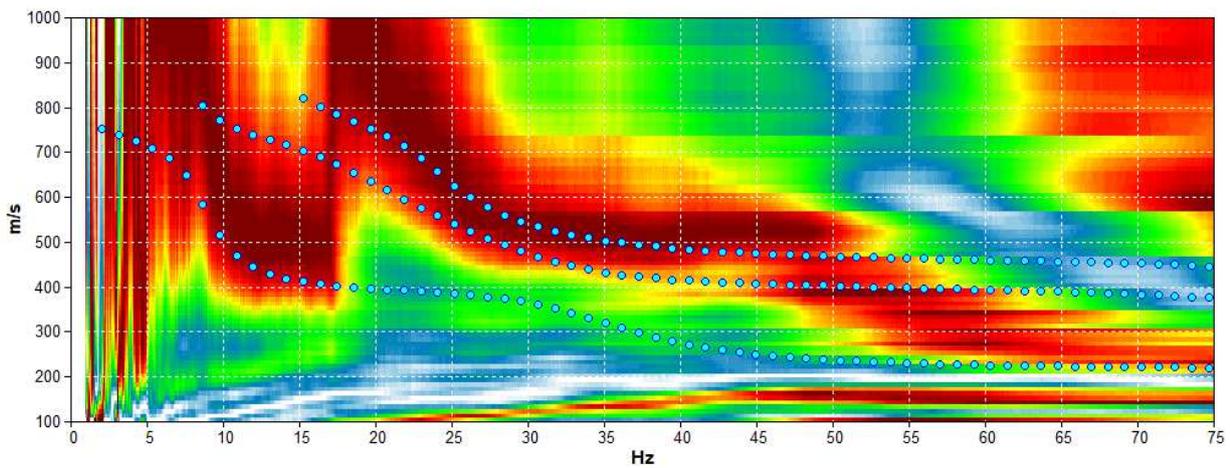
<b>Depth at the bottom of the layer [m]</b>	<b>Thickness [m]</b>	<b>Vs [m/s]</b>

**UBICAZIONE INDAGINI**



Misura sismica REMI L25 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5057760	Latitudine: 5057838
Longitudine: 164660	Longitudine: 164669
Start recording: 01/12/2020 12:38:18    End recording: 01/12/2020 12:58:18	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 3.0 6.0 9.0 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 m.	

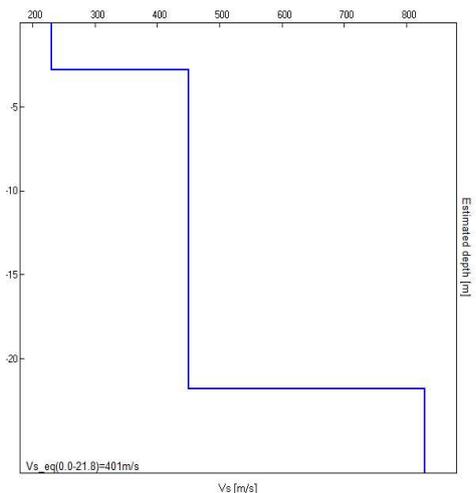
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.80	2.80	230
21.80	19.00	450
inf.	inf.	830

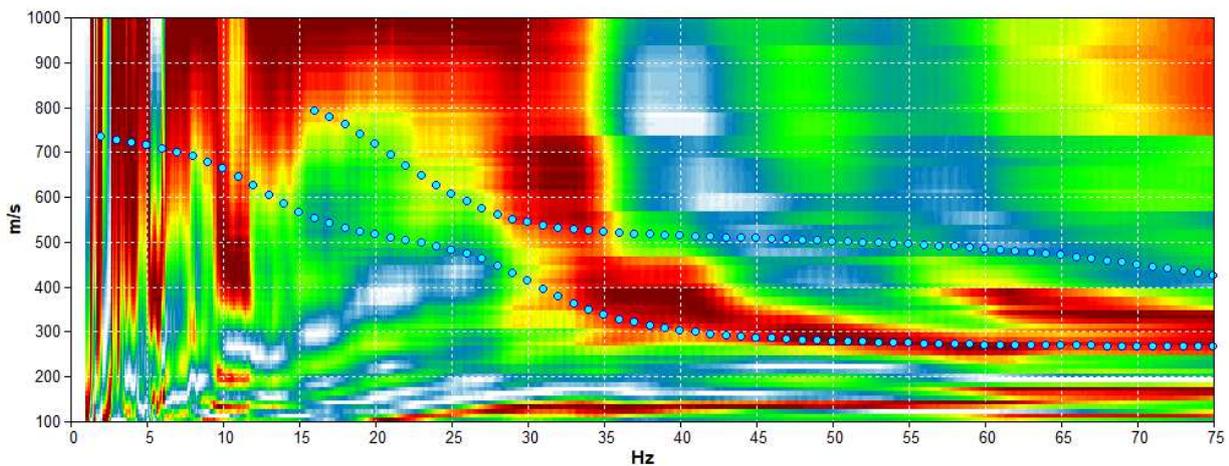
**Vs<sub>ew</sub> (0.0-21.8)=401 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L26 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5061576	Latitudine: 5061522
Longitudine: 166252	Longitudine: 166216
Start recording: 16/12/2020 11:27:32    End recording: 16/12/2020 11:45:32	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

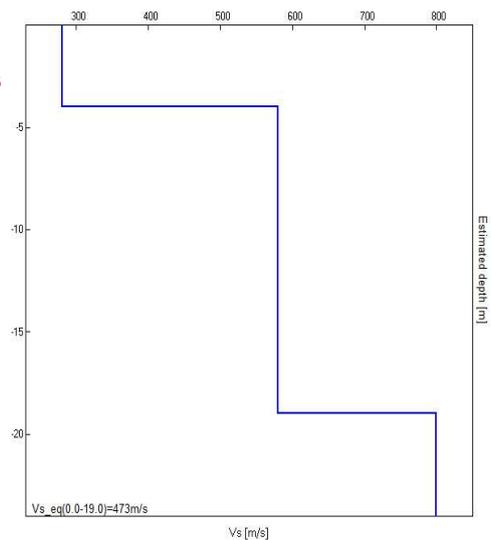
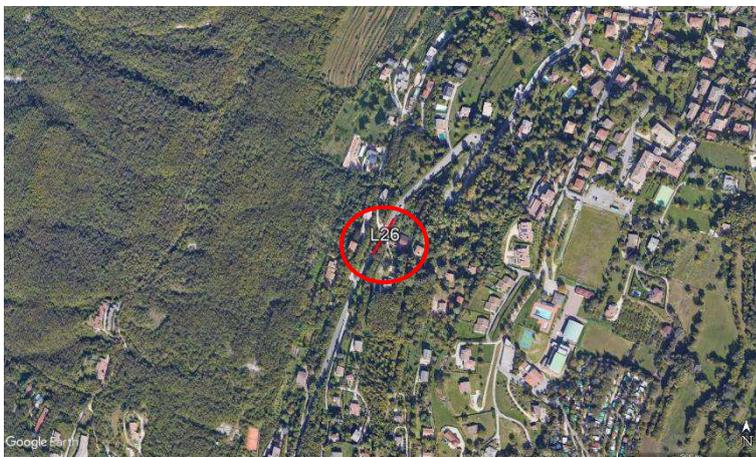
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.00	4.00	280
19.00	15.00	580
inf.	inf.	800

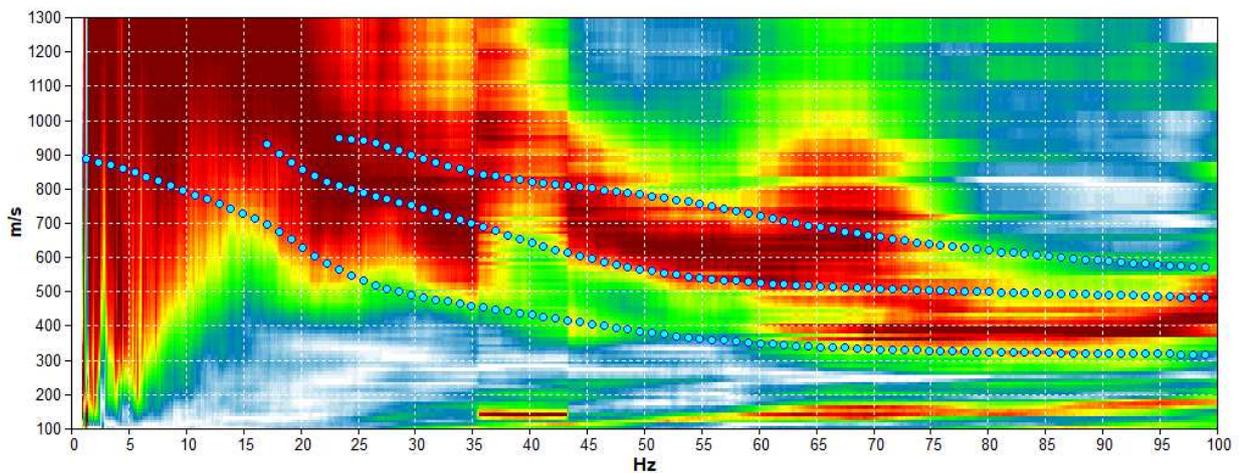
**Vs\_eq (0.0-19.0)=473 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L27 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5060640	Latitudine: 5060565
Longitudine: 165786	Longitudine: 165798
Start recording: 16/12/2020 12:09:19    End recording: 16/12/2020 12:27:19	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

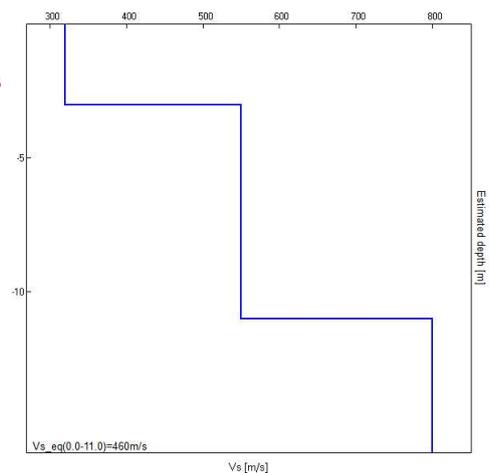
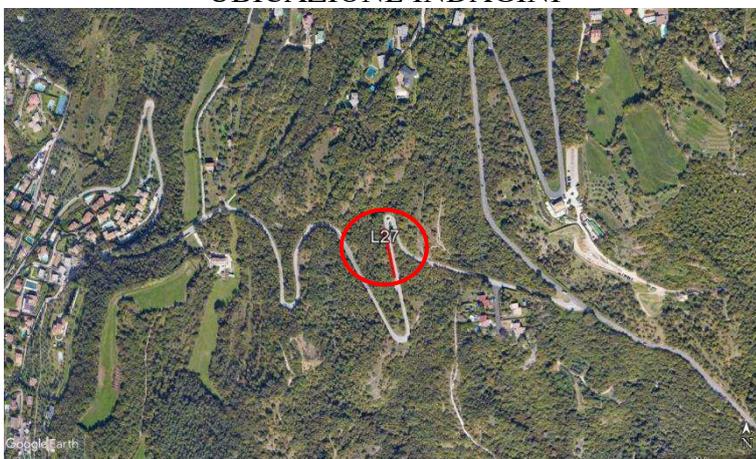
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	320
11.00	8.00	550
inf.	inf.	800

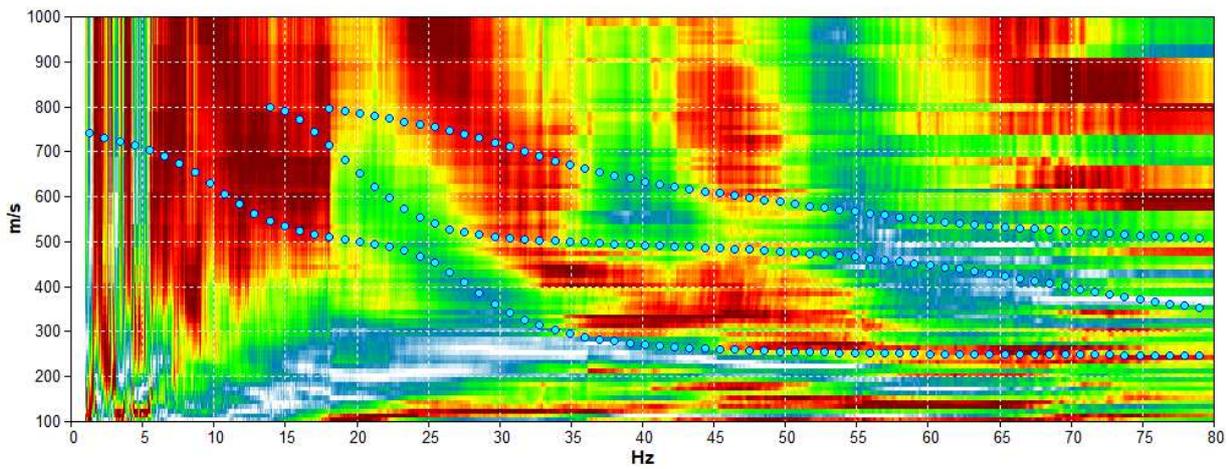
**Vs\_eq (0.0-11.0)=460 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L28 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5059845	Latitudine: 5059819
Longitudine: 164535	Longitudine: 164505
Start recording: 16/12/2020 12:51:10    End recording: 16/12/2020 13:09:10	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 m.	

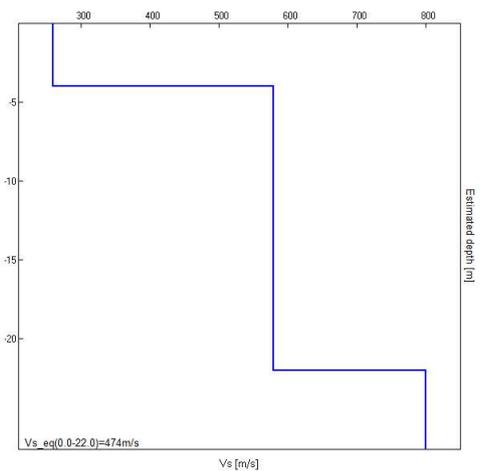
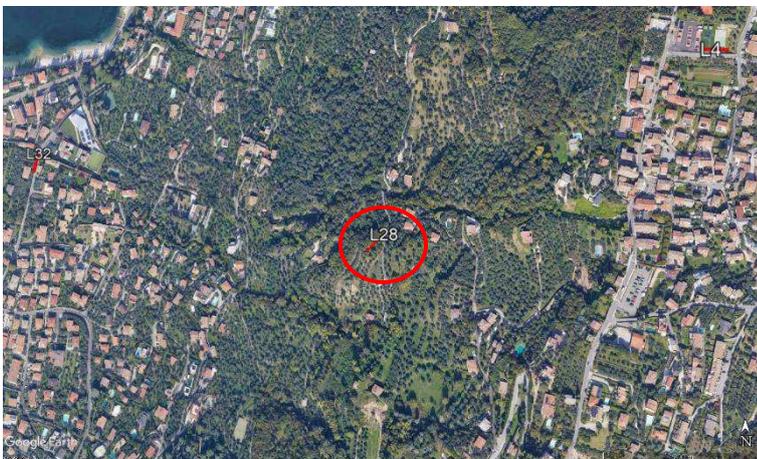
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.00	4.00	260
22.00	18.00	580
inf.	inf.	800

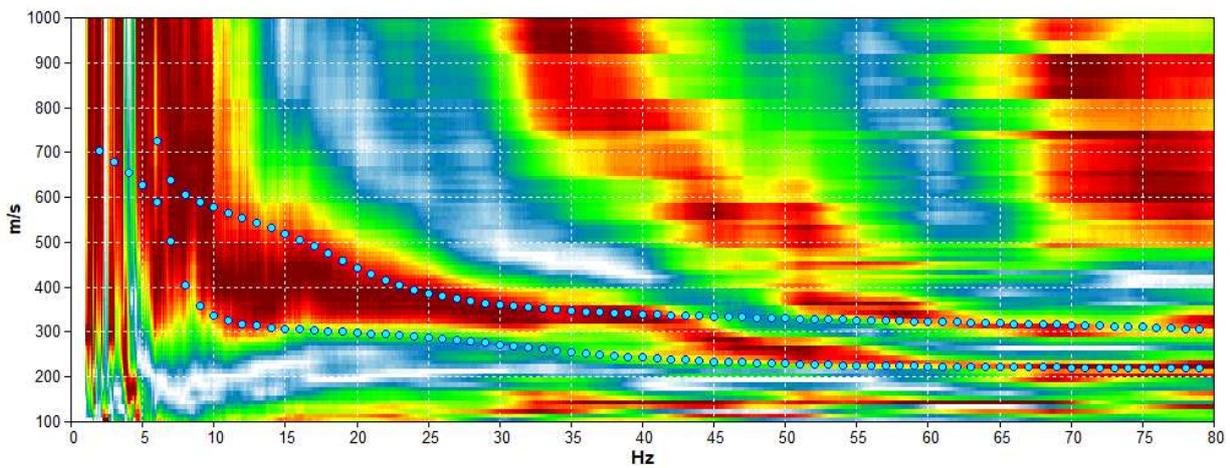
**Vs\_eq (0.0-22)=474 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L29 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5059763	Latitudine: 5059755
Longitudine: 163801	Longitudine: 163842
Start recording: 16/12/2020 13:34:14    End recording: 16/12/2020 13:52:14	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

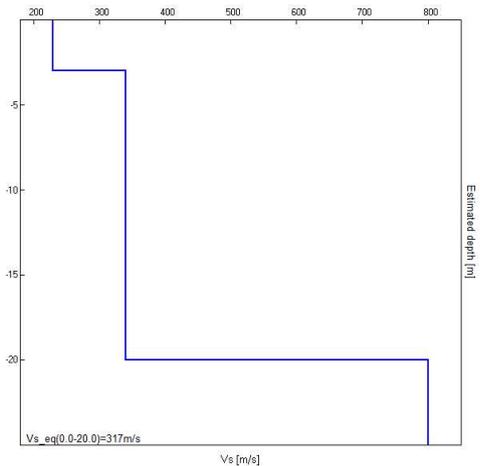
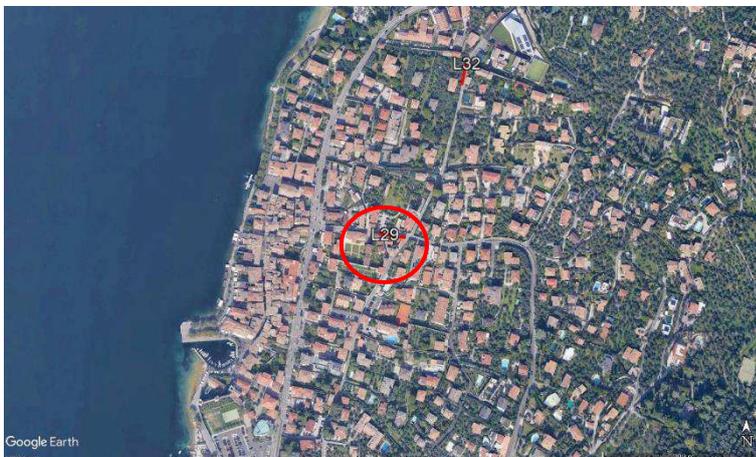
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
3.00	3.00	230
20.00	17.00	340
inf.	inf.	800

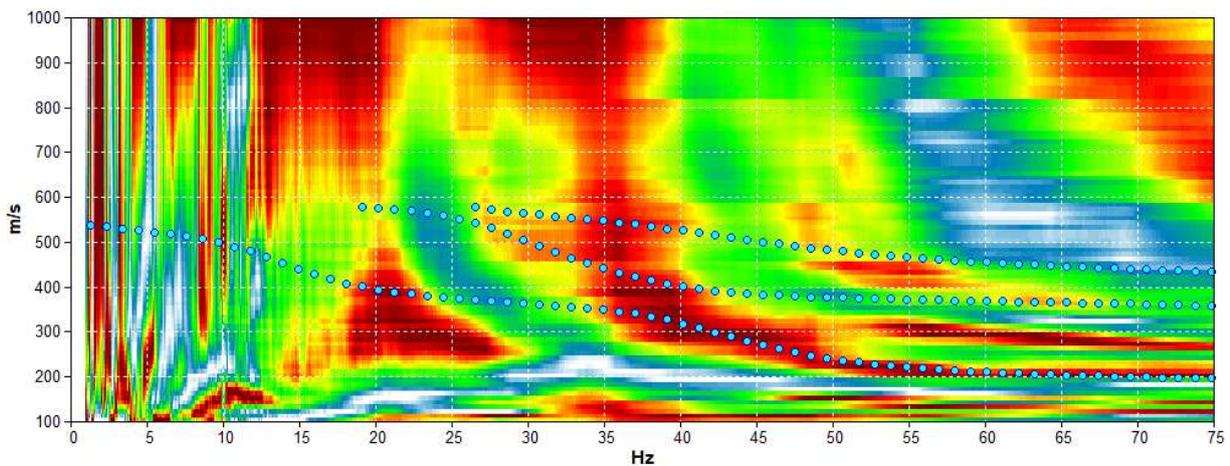
**Vs\_eq (0.0-20.0)=317 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L30 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5059125	Latitudine: 5059077
Longitudine: 163833	Longitudine: 163824
Start recording: 16/12/2020 14:11:33    End recording: 16/12/2020 14:29:33	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

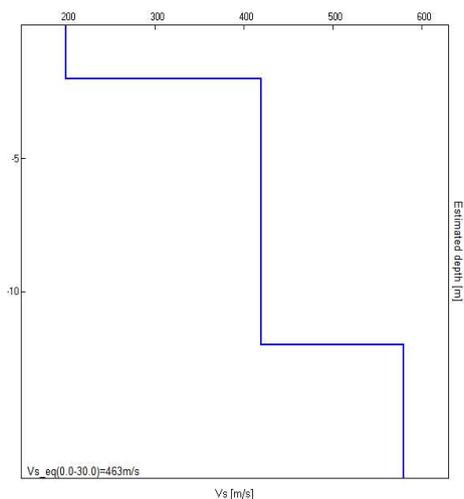
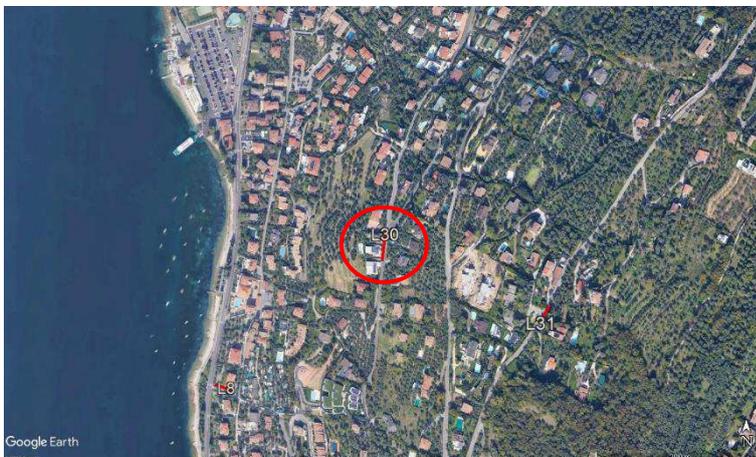
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	200
12.00	10.00	420
inf.	inf.	580

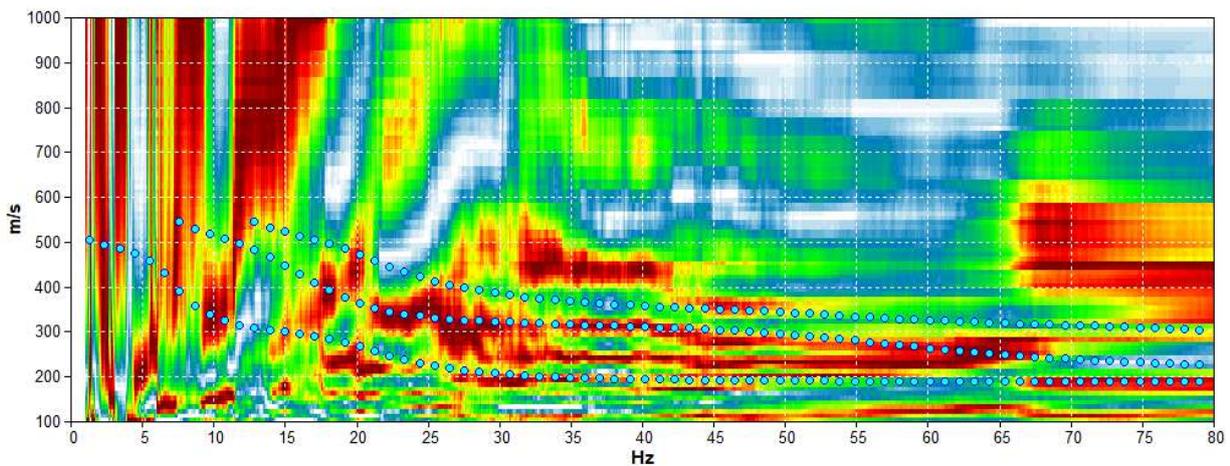
**Vs<sub>30</sub> (0.0-30.0)=463 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L31 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5058982	Latitudine: 5059005
Longitudine: 164043	Longitudine: 164055
Start recording: 16/12/2020 14:42:03    End recording: 16/12/2020 15:00:03	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

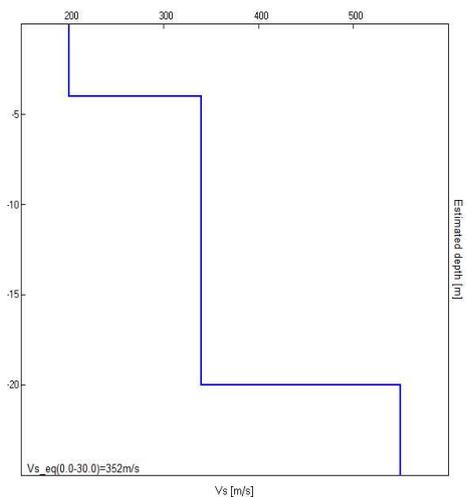
MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
4.00	4.00	200
20.00	16.00	340
inf.	inf.	550

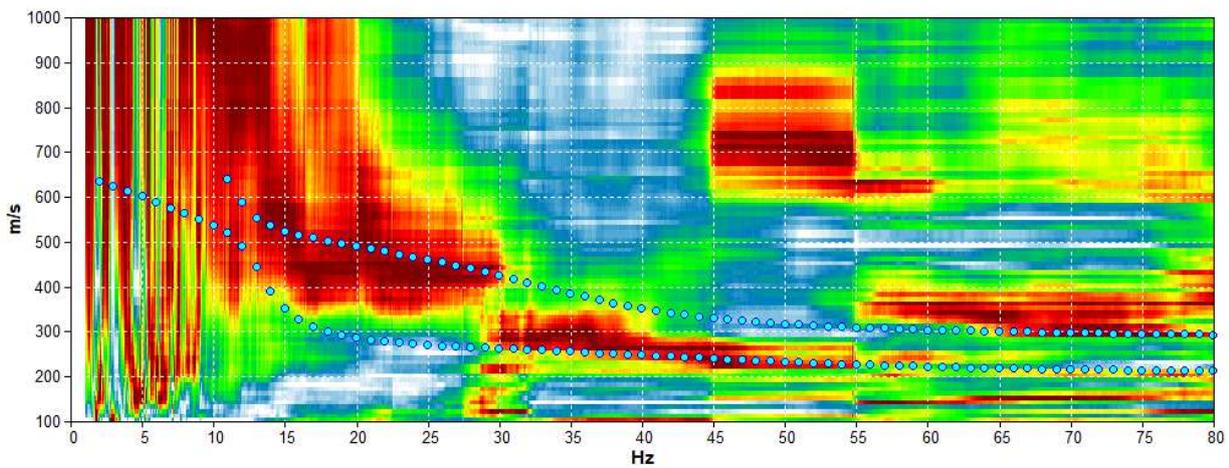
**Vs\_30 (0.0-30.0)=352 m/s**

UBICAZIONE INDAGINI



Misura sismica REMI L32 – Comune di TORRI DEL BENACO (VR)	
Coordinate in WGS 84 – 33N	
Inizio Linea	Fine Linea
Latitudine: 5060016	Latitudine: 5059982
Longitudine: 163948	Longitudine: 163939
Start recording: 16/12/2020 15:10:28    End recording: 16/12/2020 15:28:28	
Trace length: 0h16'00"    Sampling rate: 512 Hz	
Array geometry (x): 0.0 4.0 8.0 12.0 16.0 20.0 24.0 28.0 32.0 m.	

MODELLED RAYLEIGH WAVE PHASE VELOCITY DISPERSION CURVE



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]
2.00	2.00	220
9.50	7.50	300
inf.	inf.	700

**Vs\_30 (0.0-30.0)=473 m/s**

UBICAZIONE INDAGINI

