



DATA_SISMA, FUGAZZOLO HVSR 5

Instrument: TEP-0059/01-10

Start recording: 18/07/12 10:30:25 End recording: 18/07/12 10:40:26

Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN

GPS data not available

Trace length: 0h10'00". Analyzed 63% trace (manual window selection)

Sampling frequency: 128 Hz

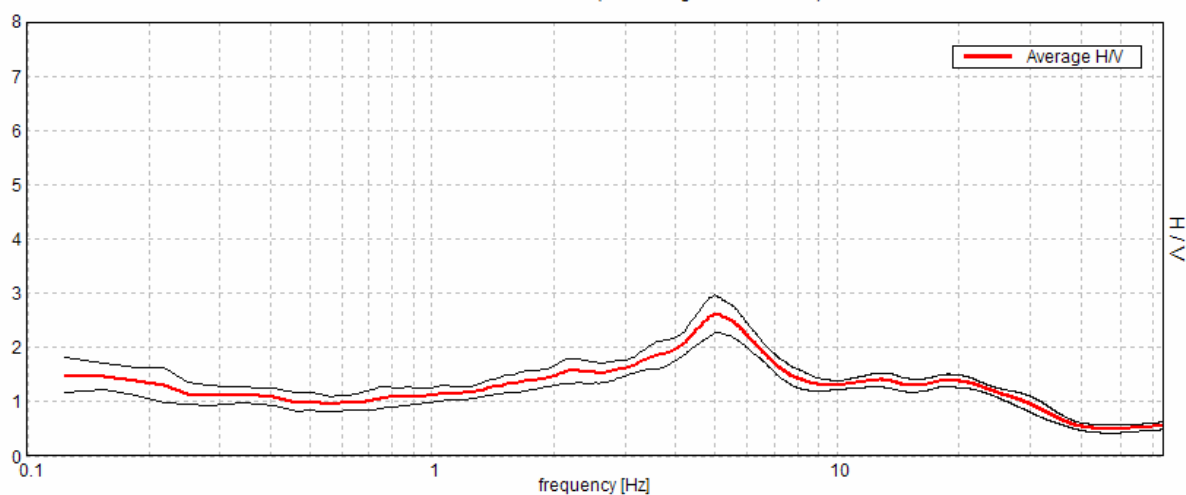
Window size: 20 s

Smoothing window: Triangular window

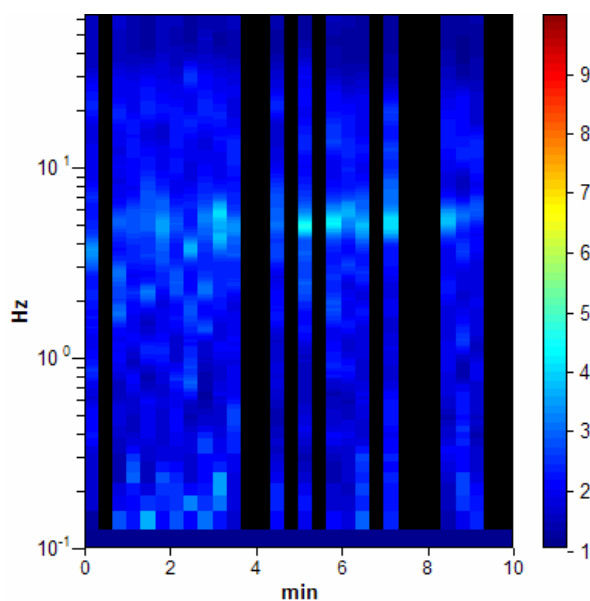
Smoothing: 20%

HORIZONTAL TO VERTICAL SPECTRAL RATIO

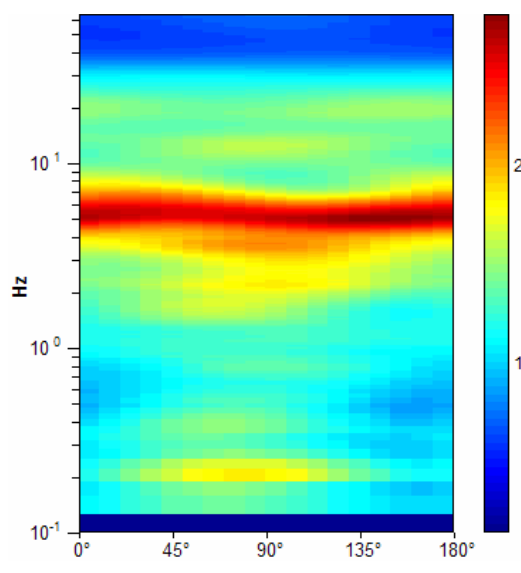
Max. H/V at 5.0 ± 0.28 Hz. (In the range 0.0 - 64.0 Hz).



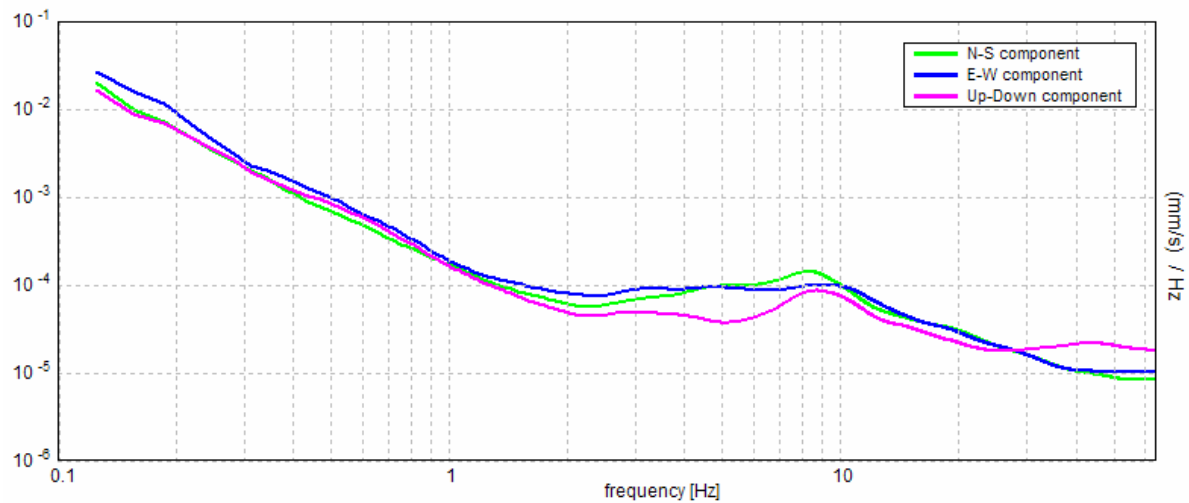
H/V TIME HISTORY



DIRECTIONAL H/V

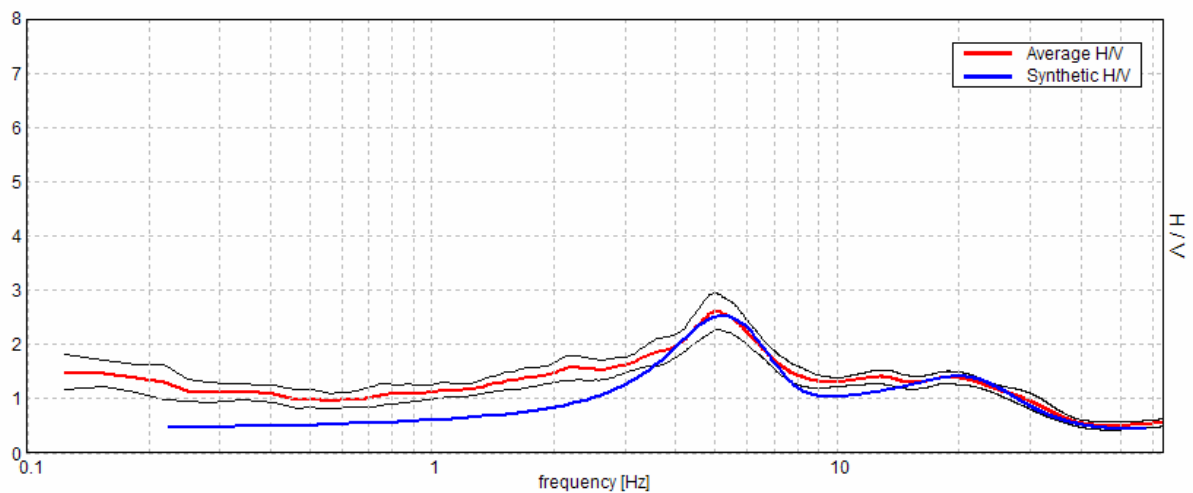


SINGLE COMPONENT SPECTRA



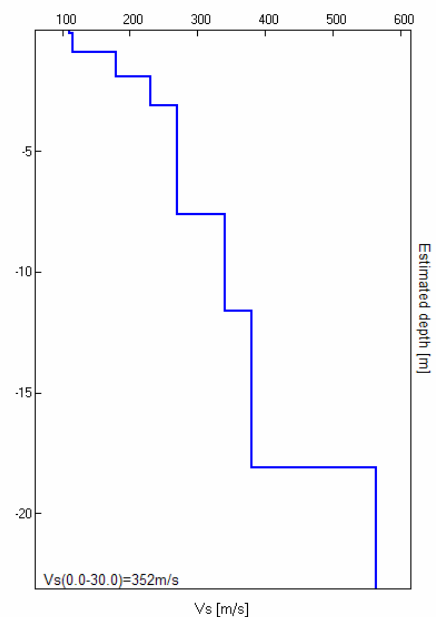
EXPERIMENTAL VS. SYNTHETIC H/V

Max. H/V at 5.0 ± 0.28 Hz. (In the range 0.0 - 64.0 Hz).



| Depth at the bottom of the layer [m] | Thickness [m] | Vs [m/s] | Poisson ratio |
|--------------------------------------|---------------|----------|---------------|
| 0.10 | 0.10 | 110 | 0.35 |
| 0.90 | 0.80 | 115 | 0.35 |
| 1.90 | 1.00 | 180 | 0.35 |
| 3.10 | 1.20 | 230 | 0.35 |
| 7.60 | 4.50 | 270 | 0.35 |
| 11.60 | 4.00 | 340 | 0.35 |
| 18.10 | 6.50 | 380 | 0.35 |
| inf. | inf. | 565 | 0.35 |

Vs(0.0-30.0)=352m/s





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

Max. H/V at 5.0 ± 0.28 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable HVSR curve

[All 3 should be fulfilled]

| | | | |
|--|-----------------------------|----|--|
| $f_0 > 10 / L_w$ | $5.00 > 0.50$ | OK | |
| $n_c(f_0) > 200$ | $1900.0 > 200$ | 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 HVSR peak

[At least 5 out of 6 should be fulfilled]

| | | | |
|---|-------------------|----|--|
| Exists f^- in $[f_0/4, f_0] \mid A_{H/V}(f^-) < A_0 / 2$ | 1.5 Hz | OK | |
| Exists f^+ in $[f_0, 4f_0] \mid A_{H/V}(f^+) < A_0 / 2$ | 9.5 Hz | OK | |
| $A_0 > 2$ | $2.61 > 2$ | OK | |
| $f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$ | $ 0.0261 < 0.05$ | OK | |
| $\sigma_f < \varepsilon(f_0)$ | $0.13052 < 0.25$ | OK | |
| $\sigma_A(f_0) < \theta(f_0)$ | $0.1615 < 1.58$ | OK | |

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

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