**MASW analyses the propagation velocities of surface waves and deduces shear-wave velocity (Vs) variations below the surveyed area. MASW surveys are applicable for uses including geotechnical and engineering (soil classification for seismic site effect).**

# MASW (Multichannel analysis of surface waves)

The method is based on the measurement of the time required for surface waves to travel from an artificial energy source to a linear array of receivers (geophones).

Seismic energy is provided by a an impact source like a sledgehammer.

The dispersive properties of Rayleigh type surface waves can be utilised to infer elastic properties of near-surface materials.

Each different frequency component of a surface wave has a different propagation velocity and wavelength. Longer wavelengths penetrate greater depths and are more sensitive to the elastic properties of the deeper layers. Conversely, shorter wavelengths are sensitive to the physical properties of near-surface layers.

This noninvasive method is used to produce a Vs profile through spectral analysis of surface waves.

## APPLICATIONS

The method provides key parameters for geotechnical studies such as:

- ✓ vertical profile of shear-waves velocity (Vs)
- ✓ Vs 30 for site classification

## EQUIPMENT

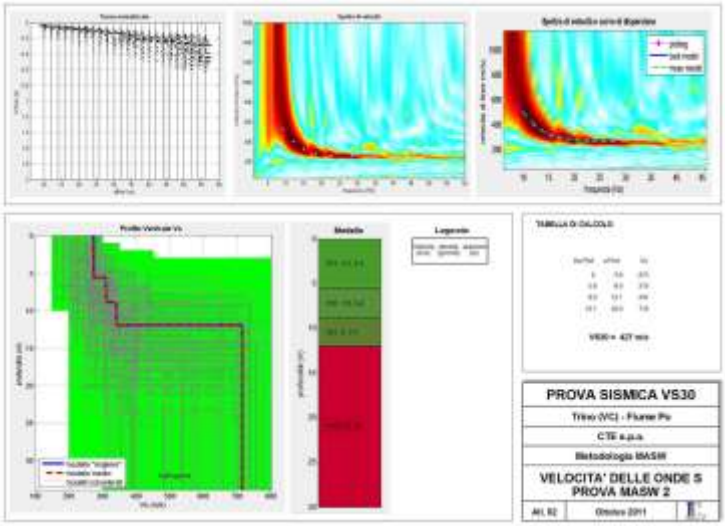
| SEISMOGRAPH | "GEODE" |
|---|---|
| Channels | 24 |
| Bandwidth | 1.75 Hz to 20 kHz |
| Dynamic range | 144 dB |
| Stacking trigger accuracy | 1/32 of sample interval |
| Distortion | 0.0005% |
| Noise floor | 0.20 µV |
| Sample interval | 0.02 ms to 16 ms |
| Power | 12 V |

| GEOPHONES |
|---|
| Vertical 4,5 Hz |

| ENERGY SOURCES |
|---|
| Hammer 8 kg and striker plate |

## DATA PROCESSING

Spectral analyses are used to determine dispersion curves generally displayed as phase velocity versus frequency. The Vs vertical profiles are calculated using an iterative inversion process.

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