

### GEO-STRUCTURAL MONITORING service

- Realization and installation of monitoring system
- 2 Monitoring during of all phases of construction
- 3 Supply and maintenance of instrumentation
- 4 Automatic data acquisition systems
- 5 Geophysical monitoring
- 6 Hydrogeologic survey and tracers tests
  - Inclinometric, Spiralometric
  - F Topographic and GPS survey
- 9 <sup>L</sup> Geophysical Well Log

### Hydrogeologic monitoring

Hydrogeologic monitoring concerns with the detection of the piezometric levels, groundwater pore pressure and the physical-chemical fluid parameters. The main application fields are the construction of bridges, embankments, dams and hydrologic studies.

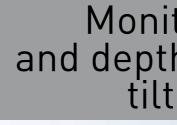
- Manual and automated measurement of open pipe and Casagrande piezometers also during pump tests
- Electric and pneumatic piezometers
- Multiparametric probes, turbidimeters
- Fluorimeters for tracer tests in borehole and channels

## Geophysical monitoring

Measurement of vibrations at the surface and inside boreholes induced on natural elements and structures during specific works. For the purpose are used triaxial geophones and accelerometers with the possibility of an additional channel for the air-blast detection. The most common fields of application are working in quarries, tunnels, demolition of structures and dynamic measurements.



Amplitudes and Frequencies Radiale: 0.09in/s 2.286mm/s @ 102.4Hz Verticale: 0.215in/s 5.461mm/s @ 102.4Hz Transersale: 0.125n/s 3.048em/s @ 102.4Hz Vetrore sources (VS): 0.2275in/s 5.7785mm/s	Graph Information Durana.0,000s To: 8,500s Foundowards aismics: 0,22in/s (0,055in/s/div) 5,59mm/s (1,397mm/s/div) Livee marcarempo ad intervatili di: 1,00 s
<sup>8</sup> <b>≱∳∉⊧-⊦↓↓ ₩₽ ↓ ↓</b>	+ + + + Cal0.51
· }###}**** #}* * **	- # -+ + -# -+
vs bold here the a su	hh

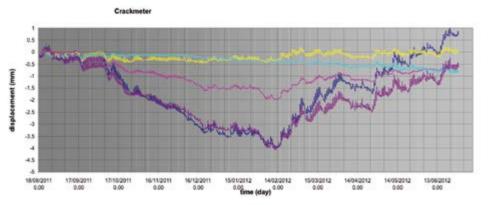












# Monitoring surface and depth movements, tilt and rotations

The measurements concern slopes, soils, rock blocks, landslides, roads and railway tracks, tunnels and structural elements such as dams and bridges. Waterstones s.r.l. uses both manual and fully automated systems with remote control and warning systems with different options.

The authenticated costumer can access via web to the real-time data and graphs analysis. For geo-structural monitoring are utilized:

- Tape extensometer for convergences
- Wire, magnetic and multibase extensometer
- Mono and triaxial crackmeter
- Electro-hydraulic settlement gauges
- Vertical and horizontal inclinometers with in-place or removable probes, spiralometric probes; TDR
- Surface clinometers
- Strain gauges for concrete and steel structures
- Pressure and load cells
- Topographic measurements and GPS
- Trivec and Increx system



Contact www.waterstones-srl.it info@waterstones-srl.it tel/fax: +39 0461 245167 Address Main office: via Bolzano 40, 39044 Egna (BZ) ITALY Operative office: via Cembra 20, 38015 Lavis (TN) ITALY P.iva\_02622700215

#### Company profile

Waterstones S.r.l offers a wide range of services for geothecnical, structural and hydrogeological monitoring. Waterstones S.r.l. design and install monitoring systems through the choice of appropriate instruments and using, during the installation, even rope techniques to work on problematic sites.

### Our main activities

Geologic monitoring of Badia landslide, BZ, Italy.

- Geologic monitoring of the Palù del Fersina village, TN, Italy.

- Geophysical monitoring during tunnel excavation activity, Val Sarentino, BZ, Italy.

- Geologic monitoring of the rock slopes underlie Castelroncolo Castle, BZ, Italy.

- Rock slopes monitoring for potential landslides Aldeno, TN, Italy.

- Geophysical monitoring during tunnel excavation activity, Fiè allo Sciliar, BZ, Italy.

- Rock slopes monitoring for potential landslides Celva, TN, Italy.

- Rock slopes monitoring for potential landslides above SS 64, Salorno, BZ, Italy.

- Hydrologic and geophysical monitoring during tunnel excavation activity, Laives, BZ, Italy.

- Rock slope monitoring for potential landslide Val Senales, BZ, Italy.

- Structural monitoring of rock barriers above A22, Chiusa, BZ, Italy.

- Rock slope monitoring for potential landslide, Tappeiner, Merano, BZ, Italy.

- Rock slope monitoring for potential landslide, Val di Nova, Merano, BZ, Italy.

- Rock slope monitoring for potential landslide, Stulles, BZ, Italy.

- Structural monitoring during the consolidation of Brunico Castle, BZ, Italy.

- Rock slopes monitoring overhanging Monteleone Roccadoria Dam, SS, Italy.

- Rock slope monitoring for potential landslide Singo, BZ, Italy.