

# Microseismic monitoring



Microseismic allows real-time monitoring of structures, providing continuous medium information.



## Microseismic Applied to Geotechnics

Tetra Tech South America, in partnership with the Institute of Mine Seismology (IMS), offers microseismic monitoring services, through conventional and ambient noise seismic interferometry approaches, for vibration assessment and monitoring in geotechnical and natural structures, in as a non- invasive method.

The sensors employed in this technique are highly sensitivity. The technology used by the conventional approach evaluates the vibrations to which the monitored structures are subject, performing characterization of the registered vibration.

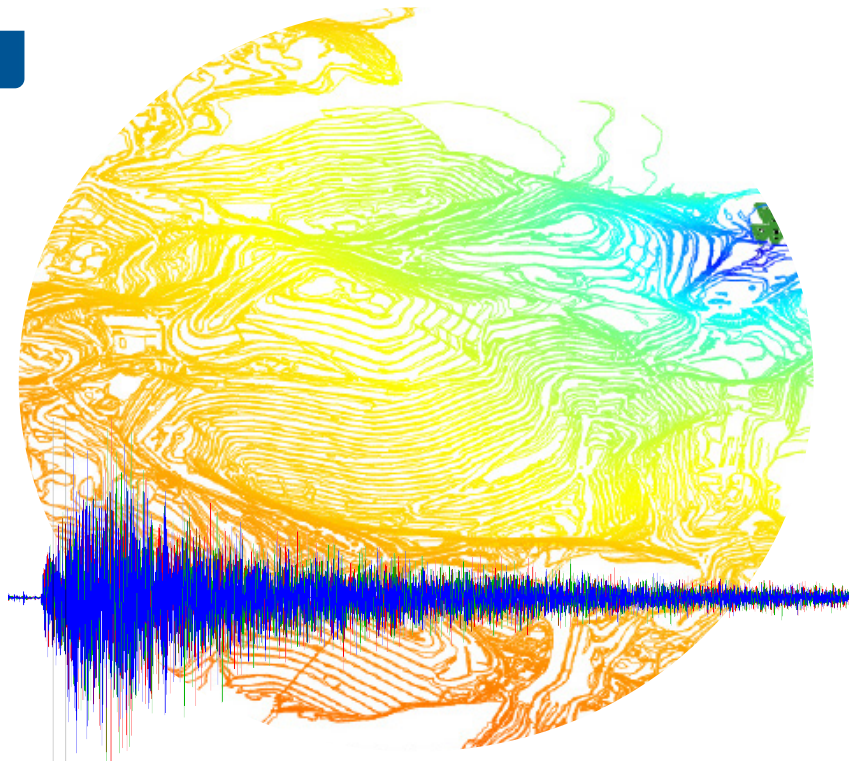
The ambient noise seismic interferometry approach promotes continuous monitoring of the variation in the seismic waves' propagation velocity in the medium, allowing the spatial distribution of the record over time.

The Tetra Tech team, leader in microseismic monitoring, offers support in all stages of the project, from the conception of the survey and installation of sensors to the monitoring of results and data interpretation.

## Our Differential

The microseismic monitoring technique allows the proposition of services with different applicability and levels of analysis.

- Monitoring of geotechnical structures
- Identification of medium rigidity variation
- Monitoring the rock mass integrity
- Vibrations analysis of induced ground motions from equipment operation in mines, such as blasting, drilling and vehicle traffic.



## One Array, Multiple Possibilities

The applications of the technique may vary according to:

### Arrays

#### Installing the sensors

Evaluated in order to guarantee the best system sensitivity and designed according to the project's goal. Tetra Tech also offers support in the installation of network structures and data transmission systems.

### Integration

#### Correlation of surveyed data

Tetra Tech monitors and interprets data from the microseismic system. Our differential is the integration of several resources such as data science, geological-environmental context and operations close to monitored site for data interpretation and correlation.

### Training

#### Provision of training

Tetra Tech is able to provide theoretical and practical courses on the applications and resources of the performed microseismic monitoring.

### Data

#### Confidentiality and reliability

The collected data is stored by both Tetra Tech and IMS, which ensures the confidentiality and authenticity of the information collected, granting safety and reliability of interpretations to our clients.



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