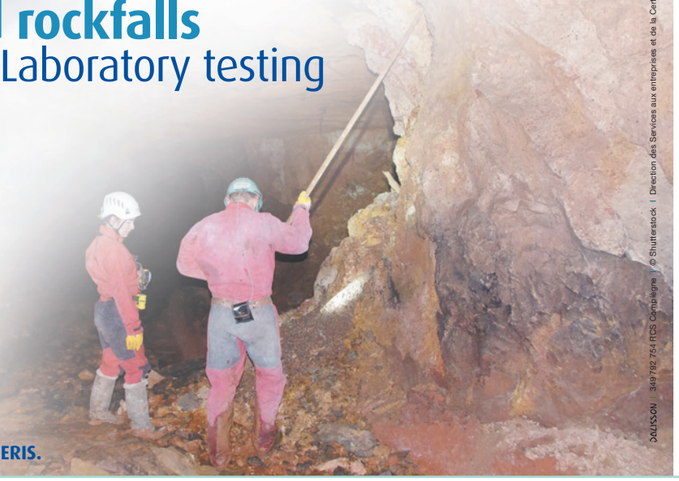
Innovative Technologies for Geotechnical and Microseismic Monitoring

FIELD OF APPLICATIONS

Mining
post-mining
Water quality
Vibration and blast monitoring
Gas emission
Geological storage
Underground waste disposals
Enhanced geothermal systems
Geostructural engineering
Embankment and waste stockpile stability
Landslides and rockfalls
Laboratory testing



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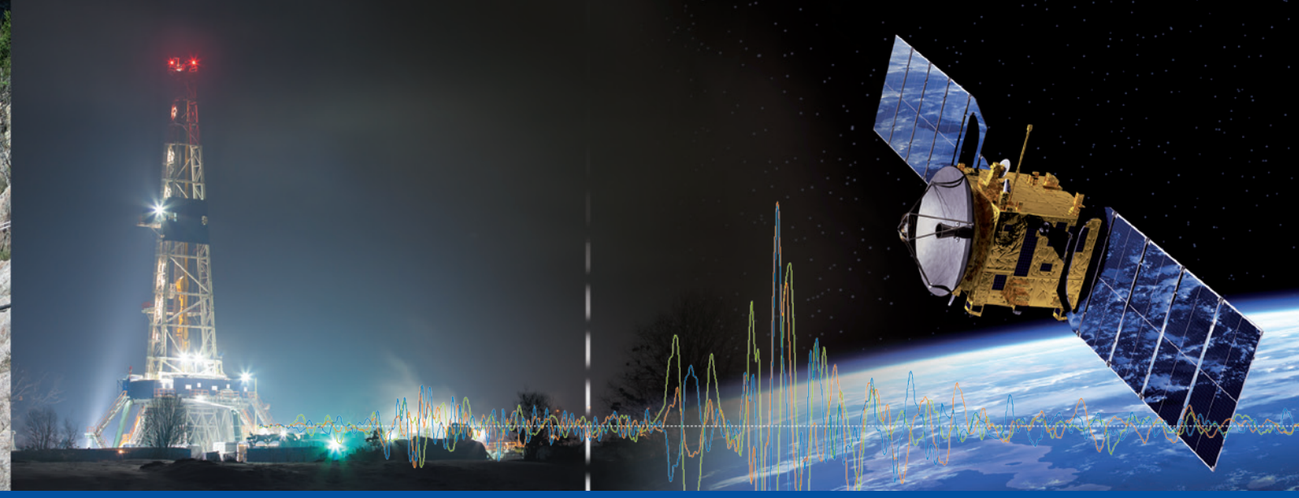
INERIS
controlling risks for sustainable development

Innovative Technologies for Geotechnical and Microseismic Monitoring



INERIS provides a range of products and end-to-end monitoring solutions to better control subsurface and underground operations.

SYTGEM®

SYTGEO®

SYTMIS®

INERIS
controlling risks for sustainable development

Innovative Technologies for Geotechnical and Microseismic Monitoring / Products

HARDWARE

SYTMIS®, SYTGEO® and **SYTGEM®**
acquisition units are field-proven monitoring units at the cutting-edge of technology including advanced features for high level flexibility and performance. These technologies are designed to provide custom-made monitoring solutions, ranging from local underground areas with stand-alone units to largely extended sites each covered by a powerful networking system. They offer advanced remote administration functions and are ready for cloud monitoring technology. /

The **SYTMIS®** unit
is a very low noise, 24 bits digital seismic system featuring high sampling rate, 8 channels, managing continuous and triggering recording modes in parallel, and easy to add-on. /

The **SYTGEO®** unit
is a field centralizer monitoring system for bus cabled and/or radio linked **SYTGEO®** and RGPS **SYTGEO®** digital receivers, for geotechnical, geodesic, hydrological and meteoric monitoring systems. **SYTGEO®** receivers are compatible with most off-the-shelf sensors with signal standard outputs. /

The **SYTGEM®** unit
combines **SYTMIS®** and **SYTGEO®** technologies in a unique multi-parameter and multi-frequency monitoring system. It offers smart data acquisition protocols to monitor both quasi static measurements and fast transient seismic signals with innovative self-triggering schemes. It enables to monitor various different physical parameters related one to each other through both transitory and long term physical interactions. /

SOFTWARE

SYTGEO® and **SYTMIS®** suites are Windows based cost effective user-friendly geotechnical and seismic software suites, to be used whether in a stand-alone mode or in multi-users office environment. **SYTGEO®** and **SYTMIS®** are used extensively in numerous operations worldwide, through research projects and operational services. They offer a unique integration level with the **e.CENARIS®** web infrastructure for remote administration of monitoring systems as well as premium management, quality control, data sharing and reporting services. **SYTGEO®** and **SYTMIS®** suites are available as components of a complete monitoring solution.

e.CENARIS® is a comprehensive secured web-based platform to remote control simultaneously numerous field monitoring systems and to browse near-to-real time rough data time series as well as relevant processed variables through customized advanced plots, catalogs and maps. **e.CENARIS®** enables automated delivery of reports on a routine basis, including built-in e.ticketing and reporting system to manage maintenance operations.

RESEARCH AND ENGINEERING SERVICES

- **Design and performance** assessment studies
- **Custom-made** monitoring system, **Field installation** and calibration
- **Database** management, **Remote** administration, maintenance and technical support
- **Near-to-real time monitoring, analysis** and reporting
- **Training**, tailor-made procedures and routine basis reports
- **Post processing and Expertise** of geotechnical and microseismic datasets

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