SEISMIC SOLUTIONS TAILORED TO YOUR MONITORING OBJECTIVES

- DISTINGUISH natural from induced seismicity
- EXCEED regulatory detection limits to manage risk and avoid shutdowns
- MEASURE the impact of detected seismicity via real-time ground motion measurements and reports
- DELINEATE faults and gain insight into geomechanical properties of target reservoirs
Custom solutions tailored to your monitoring objectives.

Building on over 30 years of seismic instrumentation development, Nanometrics has evolved into a market leader in turnkey seismic monitoring for the energy production sector. As one of the world’s largest seismic network operators, we offer proven network design methodology, station deployment and network maintenance capabilities and extensive in-house data processing and analysis experience... everything to expertly and cost-effectively meet all your monitoring needs, including compliance with the latest regulatory requirements, so you can focus on your core business.

- 15 of our regional and national turnkey seismic networks are in operation around the world

- 300+ real-time seismic stations currently under our management in North America and the Middle East

- 99+% average annual data availability in networks under our operation
Nanometrics provides customizable seismic monitoring solutions that are tailored to your monitoring objectives. With decades of experience in the study of seismicity, we are able to provide fast, accurate and complete seismic information for passive and induced applications.

Nanometrics’ turnkey monitoring solutions use our proprietary broadband arrays with the latest state-of-the-art event detection, communication and advanced AI data processing technology.

We manage all aspects of the network design, permitting, installation, commissioning, data acquisition and processing to enable you to focus on managing risk and business continuity.

Our decades-long pedigree in earthquake seismology means we’re on the leading edge of technical innovation and evolving industry demands.

1st to introduce regional traffic light protocol monitoring in Canada
Our stations

Our seismic stations provide continuous operation and uninterrupted data streaming, via a cellular data connection to our cloud-based data center, year-round in any weather condition. Through the use of network performance modeling we maximize the cost effectiveness by ensuring the minimum number of stations are used to meet your monitoring criteria.

Our scientific and operational experience in seismology means we work closely with industry groups, academia and researchers to stay abreast of regulatory discussions and ensure our systems are ready for any potential changes in regulations.

› 3-4 hours to install one of our autonomous ISM stations

› 0 hours lost time by our field crews due to an HSE incident
Data you can trust to make operational decisions

Our 24/7 cloud-based data center offers data recording, transmission, advanced processing, analysis and customizable notification services.

Nanometrics industry-leading, supervised Machine Learning algorithm, AI Analyst, can now match the accuracy of a live analyst for well constrained events. AI Analyst greatly reduces pick time, increases accuracy and limits analyst bias which enables complete, accurate and consistent assessment of target region seismicity in near real-time. This advanced processing is now included as a standard feature with all Nanometrics monitoring services.

Automatic data processing results from all of our networks undergo additional manual verification by staff at our data centre. Our staffed data center is also ready to provide data analysis at a moment’s notice for consultation during operational activities.
CRITICAL INFORMATION AT YOUR FINGERTIPS

Our software

As part of our seismic monitoring solution, you will receive access to a secure, customized Athena interface. This easy-to-use data management, event cataloging and notification system can be accessed via any web browser, anytime from anywhere. Browse the up-to-date event catalogue, view all recorded event source parameters and waveforms, select and download sections of the catalogue, plot frequency/magnitude relationships for event clusters, examine maps showing distribution of ground motions from each recorded event and track network seismicity rate to manage risks associated with induced seismicity in real time. Notification alerts are available within minutes of an event and can be customized for specific criteria and event thresholds.

Athena also allows you to keep your team up-to-date, with the distribution of near real-time and fully processed earthquake data via a wide range of channels or routes including email, SMS, RSS, Twitter, web pages, and Google Earth or GMT screen display.

- Ground motions
- Waveforms
- Magnitudes
- Locations
- Rates of seismicity
- b-values
- Moment tensors
PASSIVE FRAC IMAGING (PFI)

PFI, or passive frac imaging, is a cost-effective hydraulic fracturing monitoring service that tells you the when, where and how big of a microseismic event. Typically monitoring these tiny earthquakes means a big expenditure, but with our PFI service, you’ll get the information you need at a fraction of the price of costly downhole monitoring.

Our PFI service includes:

- Network performance modeling and design
- Turnkey field deployment and decommissioning
- Autonomous high-quality (low self-noise and high dynamic range) 3-channel recorders
- Off-line recording and data playback following station retrieval
- Industry standard microseismic deliverables
- Complete data processing (4 to 5-week processing time) with fully explained processing workflow and deliverables

And because our PFI solution is highly scalable, it’s easy to integrate ISM or include additional services to suit your needs.

The depth and breadth of our expertise means that we can design a customized solution that meets or exceeds your regulatory and technical requirements... and works with your budget.
Our subscription arrays are the most cost-effective way to monitor seismicity and manage risk. In fact, the performance of our subscriber arrays exceed current regulatory requirements.

Why subscribe?

- Higher station density and higher monitoring resolution than public arrays
- Flexible subscription term
- No installation or decommissioning costs
- No array expansion costs
- Best-in-class instrumentation
- The same level of service as private arrays

We were the first to introduce the subscriber array concept. We own the equipment and take care of its installation and maintenance. We pay for new stations as needed to cover new subscriber land holdings.

Higher monitoring resolution is the key to using seismic data to assist with real-time risk management.
Each subscriber receives:

- High-quality baseline, frac and post completion data, supplemented by data from public stations in the area
- 24/7 central site data acquisition, processing and notifications, including event source parameters and ground motions
- Access to your own private web portal (Athena) for an unlimited number of users. And only you will have access to the data about smaller events on your holdings.

Optional add-ons:

- Shake maps
- Raw waveforms
- Advanced seismic processing:
  - Subspace catalogue enhancement
  - Double difference relocation
  - Moment tensor inversion
  - Deployment of additional subscriber-specific temporary stations

Our subscription array is located in the Duvernay region. Ask us about our subscription array options in the U.S.
Strategic Intelligence Fueled by Science

Custom solutions tailored to your monitoring objectives

Advanced signal processing

Passive seismic

Manage induced seismicity risk in real-time

Surface microseismic

Seismic hazard analysis studies