Seismic Reservoir Characterization
Multidisciplinary services to optimize exploration and development

WHAT WE CAN DO FOR YOU
- Enhance drilling efficiency
- Select best completion type
- Improve productivity
- Reduce risk
- Harvest bypassed hydrocarbons
- Reduce nonproductive time (NPT)
- Improve well placement

MULTIDISCIPLINARY EXPERTS AT YOUR SERVICE
- Petrophysics
- Geology
- Geophysics
- Rock physics

OFFERINGS
- Seismic inversion and reservoir property prediction
- Fracture characterization
- Advanced data processing optimization
- Seismic interpretation
- Well log analyses and rock properties modeling
- Geohazard analysis
- Gas hydrate evaluation and quantification

SUPPORTING TECHNOLOGIES
- Q* point-receiver seismic acquisition and processing technologies
- Omega* seismic data processing platform
- Sonic Scanner* acoustic scanning platform
- Flow Scanner* horizontal and deviated well production logging system
- FMI* fullbore formation microimager
- Techlog* petrophysical platform

The Schlumberger Seismic Reservoir Characterization (SRC) team helps you learn about your reservoir properties in time to reduce risk and NPT—and to optimize production.

The SRC team extracts valuable information from seismic and log data that enables excellent well and field development planning. Advanced technology and expert knowledge provide accurate reservoir analysis and answers that simplify development decisions.

Our experts use proprietary algorithms and workflows as well as state-of-the-art technologies. These include
- ISIS* simultaneous inversion
- Ant Tracking seismic discontinuity detection
- Petrel* seismic-to-simulation software.

Our technologies and expertise help meet your challenges in reservoir environments such as shales, fractured carbonates, and sands.

Reservoir quality
Using seismic attribute analysis, inversion of seismic traces, and integration with log data, the SRC team can derive the acoustic and elastic parameters needed to discriminate hydrocarbons. The data can also be used to estimate properties like porosity, lithology, saturation, and pressure.

SRC’s proprietary seismic inversion methodology enables estimating changes in properties beyond the wellbore without being driven solely by the seismic input model. During prestack inversion, the ISIS simultaneous algorithm calculates a more-accurate P-impedance at the same time as creating an S-impedance and density volume. Our simultaneous inversion uses a simulated annealing algorithm in a global optimization process to provide the most geologically meaningful prestack AVO, post-stack, azimuthally anisotropic, multicomponent, and time-lapse inversion data.

SRC reservoir quality workflows predict elastic and reservoir properties from seismic.
Seismic Reservoir Characterization

Using proprietary technologies and algorithms including LithoCube, joint porosity-saturation inversion, stochastic inversion, and ISIS Rock Physics, the SRC team produces volumes of petrophysical properties and their probabilities from seismic data available at a range of scales—from seismic to log to core.

**Fracture characterization**

SRC has industry-leading expertise in defining the orientation and concentration of fractures. These are key factors for production in carbonate, shale oil, and shale gas plays. Not only are they natural conduits for production, they are also vulnerable to the influx of unwanted fluids.

The SRC group applies a rigorous workflow of fracture characterization techniques dealing with macroscale through microscale fractures. Petrel® Ant Tracking algorithm, FractureMAP® fracture mapping analysis, Fracture Corridor Mapping, and ISIS azimuthal AVO inversion techniques locate fracture clusters, open fracture trends, fracture orientation, and fault systems. They also provide volumes indicating the density and azimuths of microfractures and stress anisotropy. These techniques are combined in a fracture characterization workflow integrating Sonic Scanner platform, FMI formation microimager, and Flow Scanner production logging system.

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