

# StimMAP

## Hydraulic fracture mapping service

### APPLICATIONS

- Fracture mapping for exploration or development wells
- Imaging for reservoir definition
- Fracture system orientation
- All types of formations

### BENEFITS

- Improves return on investment
- Optimizes fracture designs and costs
- Optimizes well spacing and placement

### FEATURES

- Confirms multizone fracturing success
- Calibrates fracture-modeling simulations
- Provides three-component borehole seismic data acquisition
- Offers advanced imaging technology



*Computer-generated illustration of a hydraulic fracture creating microseisms (mini-earthquakes) that are detected and located by the VSI\* versatile seismic imager tool in an observation well.*

### Direct measurement of hydraulic fracture geometry

The StimMAP\* hydraulic fracture mapping service maps hydraulic fracture systems as they are created. Microseismic events triggered by the stimulation treatment are detected and located in 3D space relative to the well treatment.

### Accurate fracture characterization

The StimMAP service is part of the hydraulic fracture monitoring suite of products and services that accurately characterize the locations, geometry, and dimensions of a hydraulic fracture system.

StimMAP service measurements can be used to ensure optimal hydraulic fracture placement and improve reservoir development. Ultimately, this service makes it possible to optimize reservoir performance by incorporating stimulation procedures with reservoir characterization.

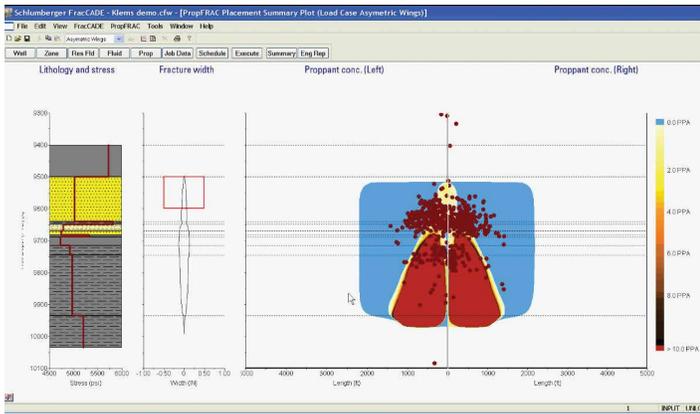
### Seismology expertise

StimMAP hydraulic fracture mapping service uses multilevel acoustic array technology to detect microseismic events.

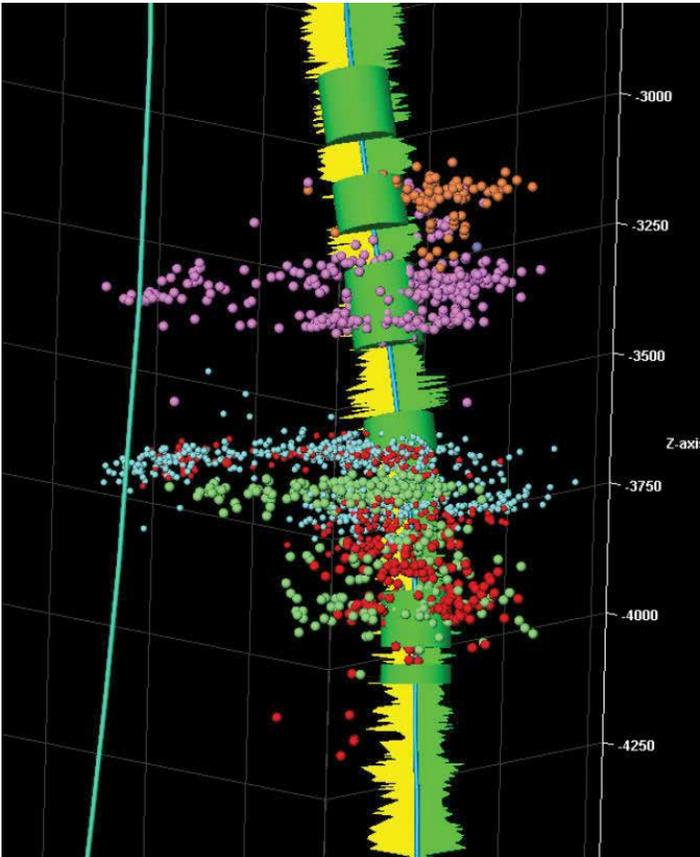
### Advanced imaging technology

The multishuttle VSI imager provides microseismic data for StimMAP services.

This tool's superior vector fidelity and high signal/noise ratio provide a high degree of certainty in event location.



Microseismic events created during the hydraulic fracture can be compared with FracCADE software hydraulic fracture predictions.



Actual microseismic events from a five-stage hydraulic fracture job. Each stage is denoted by a different color.

Processed on site, VSI data can be used to generate a 3D computer image of the fracture system, providing an opportunity to reengineer the stimulation treatment of subsequent stages.

### Real-time data sharing

Engineers at the monitoring or treatment well communicate using InterACT\* global connectivity, collaboration, and information service. Remote office locations can be included in the communication loop, which makes data instantly accessible for processing and interpretation.

### Velocity model

To reduce the uncertainty of locating the microseismic events, a velocity model for microseismic data analysis and processing is created. This seismically calibrated velocity model survey is performed in a nearby monitoring wellbore where the VSI imager is positioned for StimMAP service data acquisition. This borehole seismic survey is performed before fracturing, usually with a vibroseis truck as the surface acoustic source. The use of more advanced sonic logs such as the Sonic Scanner\* acoustic scanning platform technology can also be used to create accurate velocity models.

### Improved treatments

Comparing the actual StimMAP service fracture map with the FracCADE\* fracturing design and evaluation software model provides information to improve future treatments. Using this information, operators can optimize well stimulation costs and provide insight for new drilling opportunities.

### Stand-alone or combined service

Schlumberger provides StimMAP fracture mapping service as a stand-alone service or in combination with other stimulation, monitoring, data acquisition, and production enhancement services. This flexibility eliminates the need to use multiple service companies.