



Use of Full Azimuth Seismic and Microseismic for Unconventional Plays - FAMS

COURSE

About the Course

For surface seismic, participants will learn to evaluate azimuthal seismic in fractured reservoirs or resource intervals needing hydro-fracturing. The course presents reflection seismic and microseismic acquisition-design, processing, interpretation, and integrating support data narrow-azimuth seismic, well logs, production tests, VSPs, and core work. For microseismic, participants will learn the strengths, weaknesses, limitations, and benefits of microseismic imaging of hydraulic fractures.

"All young/old earth scientists in unconventional need this course. I enjoyed thinking about the more complex levels of how to model AVO, and the azimuthal cases." - Geophysicist

"Amazing, very knowledgeable and great instructor." - Geophysicist

Target Audience

For surface seismic, experienced geoscientists working seismic to evaluate unconventional resources, and/or fractured reservoirs that require hydraulic stimulation. For microseismic, all professionals using microseismicity to plan, monitor, evaluate, and diagnose stimulations will find this course useful.

You Will Learn

Participants will learn how to:

- Specify what geologic and/or engineering questions need to be asked about your reservoir and your play
- Specify the geophysical data that need to be acquired; design acquisition; specify the processing sequence
- Interpret the final processed data and test different interpretations
- Identify the support data required for the successful fracture and in-situ horizontal stress characterization
- Extract engineering benefits and meaning from microseismic data
- Appraise the utilities, capabilities, and limitations of microseismic imaging
- Develop insights and fundamental questions for microseismic projects
- Identify the support data needed to give a complete picture of the results
- Weigh field deployment options
- Assess stimulation designs

Course Content

- Fundamentals of reflection seismology; seismic anisotropy - its causes and uses
- Issues, goals, and pitfalls in seismic full-azimuth acquisition
- Seismic data processing - nonazimuthal and azimuthal
- Interpretation of azimuthal interval velocities and azimuthal amplitudes for in-situ stress and natural fractures; evaluation
- Fundamentals of seismic modeling for anisotropy, especially common assumptions in different modeling packages
- Microseismic: opening statements and discussion, historical background, Yeoman science 101
- Hydraulic fracture technology, in-situ and other studies of hydraulic fracture geometries
- Earthquake seismology and hydraulic-fracture-induced microseismology
- The means and the methods of microseismic imaging
- Examples I: results - the dots
- Examples II: interpretation and integration
- Pitfalls, benefits, FAQs
- Wrap-up discussion

Product Details

Categories: [Upstream](#)

Disciplines: [Geophysics](#) [Unconventional Resources](#)

Levels: [Specialized](#)

Product Type: [Course](#)

Formats Available: [In-Classroom](#)

Instructors: [Heloise Lynn](#)