AVO Analysis and Seismic Inversion
(5-day course)

Over the last few years, newer technology and/or techniques have evolved which allow better extraction of useful information from prestack data. These include improved imaging and noise suppression, relying on less simplistic assumptions, and using more sophisticated analysis methods. Given the variability of data quality, processing streams, and analysis methods, a continuing challenge will be to properly ascertain the applicability of the method in specific localities and in quantitatively incorporating AVO results into risk assessment and probabilistic reserves assessment. This course has been designed to provide a practical knowledge and understanding of the above-mentioned techniques and concepts that are used in AVO analysis.

Learning Outcomes

After attending this course the participants will be able to:

- Understand the basics of seismic wave propagation.
- Have a good idea of the particular approximations of Zoeppritz equations and their limitations.
- Understand the factors that affect seismic amplitudes and learn how to correct them.
- Be able to devise a suitable AVO processing workflow.
- Appropriately choose AVO attributes that would help achieve the objective.
- Differentiate and ideally choose between model-based, sparse-spike, joint inversion or geostatistical inversion algorithms, or between local and global inversion solutions.
- Use elastic inversion effectively as a lithologic indicator.
- Evaluate the use of spectral information as a direct hydrocarbon indicator. .
- Exploit changes in amplitude variation with offset and azimuth to produce multiple-attribute images that illuminate different geologic features of interest.

Who should attend?

- Seismic interpreters who wish to extract meaningful information from their data.
- Seismic processors who want to find out different ways to devise AVO processing workflows to be able to extract meaningful AVO attributes.
- Stratigraphers and geologists who wish to understand how lithologic information could be extracted from seismic data..
- Students of geophysics who wish to become qualified interpreters/processors.