

Seismic Amplitude Interpretation (Estimating Lithology and Pore Fluid Content):

This course will focus on the seismic expression of hydrocarbons and lithology estimation using Amplitude Variation with Offset (AVO). At the end of the course, the student will be able to recognize and verify the 3 major classes of AVO behavior, be able to perform simple fluid substitutions, and better tie seismic response to well logs.

Course Outline

1. Review of rock properties, wave, and ray theory.
2. Reservoir properties and well-log measurements
3. Seismic amplitude variation as a function of offset.
4. Principles of fluid substitution.
5. Parameterization of the AVO response for fluid product estimation.
6. Recognition of hydrocarbon signatures and interpretive "rules-of-thumb".
7. AVO inversion for rock-properties, impedances and reflectivities.
8. The information content & complications in long offset and post critical data.
9. Fizz gas, anisotropy, and other challenges facing the exploration industry.