



HARNESS THE POWER
OF KNOWLEDGE

**Treatment and Interpretation of
Amplitudes in Seismic Reflection
- AVO Analysis: Principles and
Application on Station**

TRAIN



Course Overview

Amplitude-versus-offset (AVO) analysis is a powerful technique used to extract valuable information about subsurface lithology and fluid content from seismic reflection data

By analyzing the variation in seismic amplitude with offset, AVO analysis can provide insights into the presence of hydrocarbons, reservoir properties, and stratigraphic changes

This comprehensive 5-day professional training course will equip you with the essential knowledge and skills to effectively apply AVO analysis in seismic data interpretation, particularly for station-based applications

Course Objectives

By the end of this course, you will be able to:

- Understand the fundamental principles of seismic amplitudes and their behavior with offset
- Identify and classify various AVO attributes, including intercept, gradient, and curvature
- Apply AVO analysis techniques to real-world seismic data using industry-standard software tools
- Interpret AVO anomalies to identify potential hydrocarbon reservoirs and reservoir properties
- Integrate AVO analysis with other seismic data interpretation techniques for comprehensive subsurface characterization
- Evaluate the limitations and challenges of AVO analysis in different geological settings

Course Agenda

Day 1: Introduction to Seismic Amplitudes and AVO Analysis

- Delve into the history, principles, and significance of seismic amplitudes in seismic reflection
- Explore the concept of offset and its impact on seismic amplitude behavior
- Discuss the different types of AVO anomalies and their relationship to subsurface properties
- Analyze the factors affecting AVO response, such as lithology, fluid content, and seismic survey parameters

Day 2: AVO Attributes and Seismic Data Preparation

- Understand the concept of AVO attributes and their extraction from seismic data
- Identify and classify various AVO attributes, including intercept, gradient, and curvature
- Explore the principles of seismic data preparation for AVO analysis, including noise reduction and calibration
- Apply AVO attribute extraction techniques to real-world seismic data using industry-standard software tools

Day 3: AVO Interpretation and Reservoir Characterization

- Delve into the interpretation of AVO anomalies to identify potential hydrocarbon reservoirs
- Discuss various AVO interpretation workflows and methodologies
- Analyze real-world case studies demonstrating the successful application of AVO analysis in hydrocarbon exploration
- Integrate AVO analysis with other seismic data interpretation techniques, such as seismic stratigraphy and geomorphology

Day 4: AVO Challenges and Future Trends

- Explore the challenges and limitations of AVO analysis in different geological settings and complex subsurface scenarios
- Discuss the impact of seismic noise, multiple reflections, and velocity variations on AVO interpretation
- Stay updated on the latest advancements and techniques in AVO analysis research and industry practices
- Prepare for future trends in AVO analysis and its integration with machine learning and artificial intelligence

Day 5: Advanced AVO Applications and Station-Based Interpretation

- Explore advanced AVO applications, such as AVO inversion and AVO seismic attribute mapping
- Discuss the application of AVO analysis in station-based seismic data interpretation and reservoir characterization
- Analyze real-world case studies demonstrating the successful application of AVO analysis in station-based exploration and reservoir monitoring

- Prepare for future challenges and opportunities in AVO analysis for station-based seismic data interpretation

Who Should Attend

This course is designed for:

- Geoscientists and engineers involved in seismic data processing and interpretation
- Project managers and decision-makers responsible for seismic data interpretation and reservoir characterization
- Seismic contractors seeking to enhance their AVO analysis capabilities and interpretation practices
- Students and professionals interested in pursuing a career in seismic data interpretation and AVO analysis

Course Benefits

- Develop a comprehensive understanding of seismic amplitudes, AVO attributes, and their applications in hydrocarbon exploration
- Gain hands-on experience in applying AVO analysis techniques to real-world seismic data using industry-standard software tools
- Enhance your ability to interpret AVO anomalies and identify potential hydrocarbon reservoirs
- Effectively integrate AVO analysis with other seismic data interpretation techniques for comprehensive subsurface characterization
- Stay updated on the latest advancements and techniques in AVO analysis, preparing for future trends in seismic-based exploration success