Seismic Data Processing: Overview of Methods and Practicalities

Course Price

£3050

Course Description

The overall objective is to introduce to seismic interpreters and geophysicists the key concepts, principles and practicalities that form the technical basis for value added seismic applications in exploration, field appraisal and reservoir management. Learning objectives are a practical understanding of present day processing methods and their implementation. Emphasis is on practical understanding of seismic acquisition, processing, imaging and technical requirements for extraction of geological and petrophysical information. Data examples, exercises and workshops are used to illustrate key concepts, practical issues and pitfalls as they affect seismic data quality and interpretation. The modular course design allows ready adaptation to shorter or longer versions and direct linkage to advanced treatment of specific topics.

Course Objectives

Classify types of seismic methods used in E&P
Understand the role of seismic in the business of the reservoir cycle
Explain the basic principles of seismic wave propagation
Understand vertical and horizontal resolution of seismic data and factors that affect seismic amplitudes
Understand the principles of marine and land seismic acquisition
Explain the difference between seismic data and noise
Determine the basic parameters that are used in the design of 3D seismic surveys
Identify and understand the basic steps required to process seismic data
Understand critical issues to be addressed in seismic processing
Understand how seismic data is transformed into 3D time or depth images
Understand the principles and role of special seismic techniques such as inversion, attributes, AVO, multi-component seismic and 4D methods.

Who Should Attend

Geophysicists, geologists, petrophysicists, and reservoir engineers who want an introduction to and overview of the seismic method, i.e., of wave phenomena, seismic data acquisition geometries and principles and practicalities of seismic data processing and interpretation.
Course Content

Introduction to Seismic Acquisition
Seismic Wave Propagation
Signal Analysis
Seismic Acquisition Principles
Processing workflows
Prestack Analysis and Signal CorrectionS
Velocity and Velocity Analysis
Statics and Near Surface Corrections
Migration and Imaging
Pitfalls and Quality Assurance
Inversion, Attributes, AVO, Multi-component Seismic
Wavelet Processing

CPD Unit

Continuing Professional Development

35 HOURS CPD