Overview

1. The application of structural geological concepts to the interpretation of seismic data is fundamental for correctly reconstructing sub-surface structures and for and understanding their geometric and kinematic development. This has important impacts on the exploration and generation of drilling prospects.

    The interpretation and identification of sub-surface structural targets should always be supported by a complete understanding the regional tectonic framework of the area being aware of structural variability through space and time. Principles and structural concepts from different tectonic settings (compression, extension, inversion, strike-slip, etc.) and their application in seismic interpretation will be presented through a diversity of worldwide case examples.

2. Fold-and-thrust belts represent an absolutely average sample of global hydrocarbon resources, they are oil prone because they are a very good sample of an oil-prone world" (Cooper, 2007).

    These belts contain major hydrocarbon accumulations in complex structural traps and hydrocarbon exploration in many of these belts is commonly very difficult because of rugged topography and complex structures.

    Seismic interpretation in these terrains could be arduous due to the generally poor quality of seismic data. The correct application of thrust tectonics concepts and the relationships between folding and thrusting (e.g. thrust-related folding) become a powerful tool helping the interpreter in deciphering and reconstructing the complex subsurface geometries of structural traps.

Objectives and Key Outcomes

The course provides an overview on how the use of the concepts of structural geology can be applied to make better structural interpretations. The participants will learn theoretical and technical approaches in structural interpretation of seismic data with numerous examples and by hands-on exercises.

The principles behind the construction of balanced cross-sections are also discussed. The participants will learn theoretical and technical approaches in seismic structural interpretation of compressional structures illustrated by numerous examples from around the world and experienced by hands-on exercises.

By the end of the course, delegates will get an understanding of:

❖ Structural interpretation in extensional settings
- Structural concepts
- Examples and practical cases

❖ Structural interpretation in compressional settings
- Structural concepts
- Examples and practical cases

❖ Structural interpretation in strike-slip/oblique settings
- Structural concepts
- Examples and practical cases

❖ Balancing and structural restoration
- Principles and techniques

❖ Principles of compressional tectonics and structures

❖ Seismic imaging in thrust belts: processing issues and velocity models

❖ Seismic interpretation in compressional regimes

❖ Seismic interpretation in inversion/transgressional regimes

Principles of balancing and structural restoration

Who Should Attend

The course is designed for petroleum professionals including geophysicists, geologists, geoscientists, geomodellers and subsurface/petroleum engineers working for exploration. Ideally, the components of a subsurface team would greatly benefit from participating together.

Course Duration

5 days