

INTRODUCTION TO PETROLEUM GEOPHYSICS

COURSE OBJECTIVES

To present the fundamentals of petroleum geophysics, including acoustic wave propagation, seismic reflection acquisition, processing and interpretation, well seismic and reservoir geophysics features.

Upon completion of the course, participants will be able to:

- explain theoretical principles of petroleum geophysics,
- list and understand the methodology steps of seismic reflection.

COURSE CONTENT

SEISMIC WAVES PROPAGATION AND SIGNAL PROCESSING 0.5 day

Seismic Waves, Rock Velocities and Densities, Snell-Descartes Law
Reflection Coefficient, Acoustic Impedance, Hodochrons
Seismic Signal vs Seismic Noise, Time Domain vs Frequency Domain, Spatial and Time Sampling

SEISMIC REFLECTION: PRINCIPLES, ACQUISITION, PROCESSING 1.5 days

2D and 3D Seismics, Land and Marine Seismics, Seismic Shots and Gathers
Seismic Sources (explosive, vibroseis, airguns...), Seismic Receivers (Geophons, Hydrophons...)
Streamer, Multiple Coverage, Noise Shot
Seismic Processing Steps, Static Corrections, NMO-DMO Corrections, Velocity Analysis, Stack, Migration...
3D Seismics (Principles and Advantages, Design, Acquisition)
Movies

SEISMIC INTERPRETATION: THEORY AND PRACTICE 1 day

Principles and Methodology, Major Tectonic Styles Interpretation
Seismic Interpretation Pitfalls
2D Interpretation Practice (on paper)
3D Interpretation Demonstration (on Interactive Workstation)

BOREHOLE SEISMIC 0.5 day

Theory and Principles, Synthetic Seismogram and Well Tie, Vertical Seismic Profile (VSP)
Offset Seismic Profile (OSP), Walkaway, Seismic While Drilling (SWD)
Examples and Applications

RESERVOIR GEOPHYSICS 1 day

Seismic Amplitudes, Attributes and Facies, Direct Hydrocarbon Indicators (DHI), Multi-Component Seismic
P Waves - S Waves, Q-Marine, 4 Dimension Seismics (4D), Seismic Inversion, AVO-AVA, Immersive Centers

GRAVIMETRY, MAGNETISM AND EM 0.5 day

Gravimetry Theory and Principles, Acquisition, Processing, Interpretation, Examples and Applications
Magnetism Theory and Principles, Acquisition, Processing, Interpretation, Examples and Applications

▲ Who should attend?

Exploration-Production staff with little or no previous geophysical experience, who wish to gain theoretical and practical knowledge of basic petroleum geophysics.

▲ Duration

5 days

▲ Sessions in English

September 20-24, 2010
Rueil-Malmaison (Paris)

French sessions: F-100

▲ Registration

Fees: € 2,000

Contact:

gre.rueil@ifptraining.com
Fax: (+33) 1 47 52 74 27

▲ Course Coordinator

Eric FAGOT

Ref. **GEP / GPHYSICS**