

Training - Structural Geology, Basin Development and Associated Traps



STRUCT-EN-P



Face-to-face only



5 days

This course provides an in-depth knowledge of key elements which characterize the structural style of a sedimentary basin

Level

Awareness

Public

Petroleum exploration geoscientists, multidisciplinary team managers

Objectives

Attendees will be able to implement the following skills:

- Get familiar with both brittle and ductile deformations identification and analysis, in various types of sedimentary basins, at different scales and under different stress regimes: at lithosphere scale: plate tectonics and basin formation (rifts, passive margins, active margins and thrust belts); at basin scale: subsidence and inversion, structural traps (tilted blocks, horsts, shale and salt domes, folds), at field and reservoir scales: behavior of faults (seal or drain), fracturing, cap rock integrity...
- Be able to identify the specific structural style of a petroleum area, on outcrop pictures and on seismic profiles
- Be able to grasp issues linked to tectonic evolution versus petroleum system evolution (in different structural contexts)

Pedagogical & technical resources

Interactive course: lectures illustrated by practical exercises and personal work

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsible

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PLATE TECTONICS & STRUCTURAL STYLES

1.5 days

Earth structure, global dynamics and time scales.

Structure of continental and oceanic lithospheres: thermicity, rheology, stress and strain.

Fundamentals of structural analysis:

- Extensional regimes: geodynamics and architecture of related basins (rift basins, passive margins).
- Compressional regimes: geodynamics and architecture of related basins (foreland basins, active margins, thrust belts).
- Intra-plate basins and tectonic inversion.

EXTENSIONAL & COMPRESSIONAL DEFORMATIONS - STRUCTURAL TRAPS

1.5 days

Structural traps in extensional context.

Structural traps in compressional context.

Wrench faulting and related traps.

Salt tectonics and related traps.

Relationship between tectonic and sedimentary processes.

Case study: the Arabian plate and margins, relations with petroleum systems.

EXPLORATION & DEVELOPMENT PROBLEMS ASSOCIATED WITH STRUCTURAL STYLES

1.5 days

Folding mechanisms and styles, impact on fractures distribution.

Conductive and sealing faults.

Migration pathways and petroleum systems timing.

Seal efficiency and time of residence of hydrocarbons in structural traps.

SUMMARY, SYNTHESIS & WRAP-UP

0.5 day

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.

Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com