

Geological Modeling Workshop for Integrated Reservoir Studies

The Objective is the Field – The Software is a Tool

5 days

GEOMOD-EN-P

Overview

LEVEL

Awareness

PURPOSE

This course provides participants with an understanding of all data types needed to build a reservoir model (seismic, geological, petrophysical and dynamic) and a clear understanding of the techniques related to reservoir modeling.

LEARNING OBJECTIVES

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

recognize the techniques and challenges related to reservoir modeling (focus on reservoir properties),

build required competencies for reservoir geoscientists to analyze a specific dataset and construct a reliable static model,

apply the workflow for building a reservoir model using dedicated software,

identify the uncertainties and assess them in order to reduce the risk and optimize the investments.

WAYS AND MEANS

Interactive presentations and hands-on activities using software dedicated for reservoir modeling (EasyTrace™ and Petrel™).

Software used during workshops: with courtesy of Beicip-Franlab and Schlumberger.

LEARNING ASSESSMENT

Knowledge assessment with multiple-choice questions.

PREREQUISITES

Degree in geology, geophysics or reservoir engineering, or equivalent experience.

Agenda

BASIC PRINCIPLES - RESERVOIR CHARACTERIZATION WORKFLOW

0.5 d

Introduction and objectives.

Case study: field presentation.

PROJECT ORGANIZATION

0.5 d

Project definition.

Data QC and summary table.

Data management.

Well data loading.

Manipulating scripts and Excel™ macros.

STRUCTURAL MODELING

1.5 d

Structural context.

Well correlation and stratigraphic data analysis.

Constraining static model with dynamic data.
Generating surfaces.
Picking horizons and faults on seismic.
Reservoir layering.
Structural modeling.
Mapping reservoir structures.
Modeling results QC.

ROCK-TYPING & PROPERTY MODELING

1.5 d

Scaling up logs. Comparison with rock-types.
Geostatistical tools.
Facies modeling. Rock-typing (EasyTrace™).
Petrophysical modeling.
Mapping result for QC: gross thickness, N-t-G, reservoir properties.

VOLUME CALCULATION

1 d

Volumetrics: quantification of accumulation for selected parameters.
Sensitivity study on parameters.
Key parameters determination for risk assessment.

SUMMARY, SYNTHESIS & WRAP-UP