

Fractured Reservoir Characterization with Emphasis on Carbonates

Course Duration : 5 days

Date : December 21, 2025 to December 25, 2025

Location : Abu Dhabi

Type of Participant : The course is recommended for all geosciences professionals and reservoir engineers responsible for evaluating fractured reservoir quality and its development.

Summary:

This course has been developed to show petroleum engineers and geoscientists the procedures used in evaluating natural fractured reservoir quality. The integration of geological, seismic, petrophysical, geomechanical and production engineering data within a quantitative description of the architecture of the reservoir and the properties of the rock where the hydrocarbon is stored, facilitates its understanding and they are related with recovery processes.

Objective:

Upon completion of this course, participants will learn:

- Classification of fractured reservoir, learn how to recognize and evaluate natural fractured reservoir.
- Predicting the overall effect of natural fractures on subsurface fluid-flow.
- Techniques that employ outcrop and subsurface rock data.
- Geological controls: lithological, structural, and diagenetic in the intensity and quality of fractures.
- Fracture modeling from a geological driver.
- Integration of natural fracture information to static models, property upscaling.



- Mechanical Stratigraphy/Facies.
- Fault Analysis. Fault Analysis using Borehole Image (FMI).
- Aspects to consider in the characterization of a NFR. Flowchart for an integral characterization and 3D modeling of a NFR.
- Characteristics of a NFR for Reservoir Engineering.
- Integration of fracture properties to dynamic simulation models.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

Daily Program:

Day 1

- Location of carbonate reservoir in the world, general characteristics of their formation and associated productivity
- Geology and Properties of Carbonate Reservoirs
- Sedimentology and Stratigraphy of Carbonate Reservoirs
- Diagenesis of Carbonates
- Petrophysical Aspects of Fractured Reservoirs

Day 2

- Classification of Naturally Fracture Reservoirs (NFR)
- Fracture detection methods. Use of the Seismic Reflection Method
- Application of Seismic Attributes for the detection of Faults and Fractures. Automatic Extraction of Faults and Fractures (Fault and Fracture patches)
- Characterization of Fractures and Faults
- Reservoir compartmentalization analysis

Day 3

- Determination of Discrete Networks and Fracture Corridors
- Modeling of Naturally Fractured Reservoirs (NFR)



- Discrete Fracture Networks Model (DFN)
- Continuous Fracture Model (CFM)
- Dual Porosity Model (Dual Porosity)

Day 4

- NFP model (Natural Fractures Prediction)
- Geological controls: lithological, structural, diagenetic in the intensity and quality of fractures
- Fracture modeling from a geological driver
- Integration of natural fracture information to static models, property upscaling
- Mechanical Stratigraphy/Facies

Day 5

- Fault Analysis. Fault Analysis using Borehole Image (FMI)
- Aspects to consider in the characterization of a NFR. Flowchart for an integral characterization and 3D modeling of a NFR
- Characteristics of a NFR for Reservoir Engineering
- Integration of fracture properties to dynamic simulation models

PRACTICE:

- Construction of NFR Models (NFP, DFN)
- Fault Analysis (Mohr's Circle, Juxtaposition Diagrams, Application of Predictive Algorithms)
- Application of Seismic Attributes for Faults and Fractures Characterization
- Fracture modeling from a geological driver
- Construction of a Simple Simulation Model with a Simulation Fault and TM
- Petrophysical Analysis of YNF Borehole Image (FMI)

