

Naturally-Fractured Reservoirs: Static & Dynamic Modeling

in collaboration with GoGeo Engineering

5 days

RCM/FRACMOD

Overview

LEVEL

Proficiency

PURPOSE

This course provides a clear and relevant workflow integrating geophysical, geological and engineering data to develop reservoir models for Naturally-Fractured Reservoirs (NFR). The course covers the geological aspects of natural fractures and their impact on the reservoir performance.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
build a predictive 3D fracture model, constraining the model with the dynamic data,
use neural network in order to recognize what controls the fractures density,
identify sweet spots,
generate porosity and permeability models for dynamic reservoir simulation,
practice reservoir simulation and apply history matching techniques.

WAYS AND MEANS

Short lectures alternating with hands-on practice on a real case study dataset, using a dedicated software tool for fractured reservoir modeling: FRACPREDICTOR™.

Software used during workshops: with courtesy of GoGeo Engineering.

LEARNING ASSESSMENT

Knowledge assessment with multiple choice questions.

PREREQUISITES

No prerequisites for this course.

Agenda

INTRODUCTION TO FRACTURED RESERVOIR

0.5 d

Introduction.
Types of fracture and their effects.
Fractured anticlines and fractures on cores.
Fractures effect on reservoir quality.

MODELING FRACTURED RESERVOIRS TECHNIQUES

1 d

Discrete Fracture Network (DFN).
Continuous Fracture Model (CFM).
Fracture model calibration.

INTEGRATED WORKFLOW FOR MODELING NFR

1.5 d

Seismic attributes for fracture modeling.

3D application on the Tensleep data.

NATURALLY FRACTURED RESERVOIR ENGINEERING

2 d

Production problems.

Well testing in fractured reservoirs.

Reservoir simulation in fractured reservoirs.