

SRC: Seismic Reservoir Characterization

E-learning with Remote Personal Coaching

24 hours

RCM/BSRC

Overview

LEVEL

Foundation

PURPOSE

This course provides a comprehensive, practical understanding of how seismic data is used to characterize, model and rank reservoirs.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
understand the relationship between physical properties of rocks and geophysics,
master the main steps of seismic reservoir characterization workflow, to perform QC and to assess data to be interpreted and related uncertainties,
interpret major results of petro-elastic analysis and modeling, AVO-AVA and inversion studies and to understand methodological issues in seismic inversion, attributes classification and reservoir properties prediction.

WAYS AND MEANS

The first 2 hours are dedicated to introducing agenda, methods and tools.
Specific needs and expectations of each participant are also assessed and discussed (MCQ and phone interview with the tutor).

PREREQUISITES

No prerequisites for this course.

MORE INFO

Total training duration is 24 hours, spread over a 6-week period.

Agenda

SEISMIC RESERVOIR CHARACTERIZATION

What is seismic reservoir characterization, how is it integrated.
Methods used and scale issues.

3

ROCK PHYSICS

Introduction to rock physics.
Rock physics theory. Basic concepts.
Practical rock physics. Main influent factors.
Practical rock physics. Rock physics model: place in seismic reservoir characterization.

2.5

PHYSICS & AVO PRINCIPLES

Why AVO?
Wave propagation.
Seismic data prerequisites.

5

CALIBRATION

2

Well-to-seismic calibration: objectives and workflows.
Review of recommended wavelet extraction techniques.
Real case example: multi-well calibration.
Wavelet deconvolution.

AVO IN PRACTICE

3

Introduction to AVO interpretation.
AVO class.
AVO facies volume.

INVERSION

4

Introduction to inversion of seismic data. Required input data. Inversion techniques and their limits.
Post-stack and pre-stack inversion.
Validation and interpretation of inversion results.

RESERVOIR PROPERTIES PREDICTION

4.5

Lithology/fluid classification.
Techniques of prediction.
Validation of characterization results.