

Consultant / Trainer

Jaap Mondt



The **Petrogenium** (in collaboration with EPTS) **Advanced Seismic Data Acquisition and Processing** participants gain an appreciation for how properly designed and processed seismic data underpins accurate geological interpretation and reliable reservoir modeling. The main goal of seismic acquisition is to obtain data that, after processing, provides the best possible image of the subsurface within budgetary limits. This image should reveal both structural details and variations in rock and fluid properties. Effective survey design considers parameters such as bin size, offset, azimuth distribution, and multiplicity, all of which influence data quality and subsurface illumination.



Participants

This **Petrogenium** course aims at Geophysicists and geologists involved in specifying seismic data acquisition and processing. Seismic acquisition and processing is part of an integrated effort to determine the prospectivity of the subsurface, be it in exploration, production or reservoir management.



Learning Objectives

At the end of the course participants will have a solid foundation in seismic acquisition and processing theory and practice. They will have the basic knowledge to specify the requirements for designing a seismic acquisition processing project in cooperation with experts, be it in-house or from service companies. Although mathematical equations/formulations will be mentioned, the course, however, will mainly concentrate on understanding the concepts behind correct acquisition and processing and the role that acquisition and processing play in the total sequence of activities.

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Learning Objectives

Course content

Although the role of seismic as one of the data sets to be used in obtaining a clear image of the subsurface will be highlighted, the main topic will be acquisition and processing of seismic data. As such the following topics will be dealt with:

- Acquisition strategies in view of the survey objectives
- 2D, 3D and 4D acquisition
- Basics of wave propagation
- Design of a 2D survey
- Design of a 3D survey using a Design Wizard
- Methods of comparing design parameters
- Processing Objectives
- Processing sequences
- Improving signal-to-noise, vertical and horizontal resolution
- Imaging
- Survey comparing through use of model-based resolution or point-spread functions
- Time-Depth conversion
- Anisotropy
- What to spend on a new survey (Value of Information)
- Special processing for interpretation (Spectral Decomposition)

Programme

Day 1

Fundamentals of Geophysical methods

1. Introduction, biography, course schedule, defining teams
2. Seismic & non-seismic methods
3. Seismic workflow, 2D-3D-4D seismic
4. Seismic wave propagation, exercises
5. Seismic acquisition

Day 2

Seismic Acquisition

1. Summary and quiz questions of day 1
2. Survey design, QA/QC checklist,
3. 2D survey design, exercise
4. Land seismic surveys
5. Marine seismic surveys
6. 3D survey design, resolution aspects, wide azimuth, exercise

Why select Petrogenium.?

The above support will be provided by principal consultants with 30+ years world-class experience in the technology and hands-on know-how from operation of refinery units.

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Email: training@petrogenium.com

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Programme

Day 3

Seismic Processing

1. Summary and quiz questions of day 2
2. Generic processing sequences
3. Reflection & transmission, velocities, exercises
4. Understanding the Fourier transform
5. Seismic objectives: improving S/N, vertical & horizontal resolution
6. Signal processing, deconvolution, exercises

Day 4

Seismic Processing

1. Summary and quiz questions of day 3
2. Multiple elimination, exercise
3. Imaging, migration operators, exercise
4. RTM, isotropic imaging
5. TD conversion

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Day 5

Special Topics

1. Summary and quiz questions of day 4
2. Anisotropy
3. Anisotropic imaging
4. Value of Information (VOI), exercise
5. Multiple choice quiz
6. Course evaluation

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