Training Title
ADVANCED SEISMIC IMAGINING OF SUBSURFACE GEOLOGY

Training Duration
5 days

Training Venue and Dates

DE084	Advanced Seismic Imagining of Subsurface Geology	5	21 – 25 July 2025	$5,750	Dubai, UAE

In any of the 4 or 5-star hotels. The exact venue will be informed once finalized.

Training Fees
- **5,750 US$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch.**

Training Certificate
Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION
Advanced Seismic Imaging of Subsurface Geology is a course focused on using seismic data and advanced imaging techniques to explore and understand subsurface geological structures. It covers topics such as seismic wave propagation, data acquisition, processing, and interpretation methods, with an emphasis on high-resolution imaging and modeling of geological formations. Students will learn to apply these techniques for oil and gas exploration, earthquake studies, and environmental monitoring. The course combines theoretical knowledge with practical skills in seismic data analysis and computational modeling

TRAINING OBJECTIVES

- **Understand seismic wave propagation** and its application in subsurface exploration.
- **Learn data acquisition and processing techniques** for high-resolution seismic imaging.
- **Develop expertise in advanced seismic interpretation** methods for geological modeling.
- **Apply seismic imaging** in practical scenarios, including oil and gas exploration, earthquake studies, and environmental monitoring.
- **Integrate theoretical concepts** with hands-on experience in computational modeling and seismic data analysis tools.

WHO SHOULD ATTEND?

- **Geologists and Earth Scientists**

- **Energy Sector Professionals**
- **Environmental Engineers**
- **Seismic Data Analysts**
- **Research Scholars in Geophysical Studies**
- **Oil and Gas Exploration Teams**
- **Academic and Industry Practitioners in Subsurface Geology**

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

DAILY OUTLINE

Day 1: Introduction to Seismic Imaging and Seismic Wave Propagation

- Overview of Seismic Imaging Techniques
- Fundamentals of Seismic Waves (P-waves, S-waves, surface waves)
- Seismic Wave Propagation Theory and Models
- Geological Structures and the Role of Seismic Imaging in Exploration
- Practical Examples: Applications in Subsurface Geology (Oil & Gas, Environmental Monitoring)
- Introduction to Seismic Data Acquisition

Day 2: Seismic Data Acquisition and Processing Techniques

- Types of Seismic Surveys: Land, Marine, Urban
- Seismic Sensor Technologies and Data Collection Methods
- Field Survey Design and Setup
- Introduction to Seismic Data Processing
- Data Quality Control: Filtering, Noise Reduction, and Corrections
- Hands-On Practice with Basic Data Processing Techniques

DMCT/OL/9/18(Rev3Dt:23/9/18)

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Day 3: Advanced Seismic Imaging Techniques

- Reflection and Refraction Seismology
- Advanced Imaging Techniques: Migration, Tomography, and Inversion
- 3D Seismic Imaging: Processing and Visualization
- Time-Lapse (4D) Seismic Imaging and Monitoring Subsurface Changes
- Practical Examples of Imaging Complex Geological Structures

Day 4: Seismic Data Interpretation and Applications

- Structural Interpretation: Faults, Folds, and Stratigraphy
- Lithological Interpretation and Reservoir Characterization
- Integration with Geological Models
- Seismic Applications in Oil and Gas Exploration
- Environmental Monitoring and Earthquake Studies Using Seismic Data
- Case Study: Seismic Hazard Assessment and Risk Analysis

Day 5: Recent Advancements, Case Studies, and Course Review

- Recent Advancements in Seismic Imaging Technology
- Emerging Trends: AI, Machine Learning, and Computational Methods in Seismology
- Use of Drones and Remote Sensing in Seismic Surveys
- Case Studies in Industry (Oil, Gas, Environmental)

NOTE:
Pre & Post Tests will be conducted
Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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