

Seismic Interpretation and Mapping

Consultant / Trainer

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The **Petrogenium** (in collaboration with EPTS) **Seismic Interpretation and Mapping** course participants will gain a deeper understanding of the geological and geophysical principles behind seismic interpretation, moving beyond automated mapping to develop more robust and conceptually sound prospect evaluations. They will learn how to integrate geological reasoning into their interpretation workflows, enabling them to identify and avoid common pitfalls that can compromise the reliability of prospect mapping



Participants

This **Petrogenium**. course is designed for senior geoscientists with (ca. 6-8 years' work experience) in geoscience fields and well-versed in seismic interpretation projects.



Learning Objectives

Participants will be exposed to hands-on extraction of geological and geophysical information from variable data types and integration of this information in order to produce a consistent subsurface model to support their work at regional, prospect or reservoir scale. "Let the data tell their story" is the key learning theme in this course.

Programme

DAY 1

Introduction

1. Course Introduction

- Introduction of course instructors and delegates.
- Course objectives and way of learning.

2. Plate Margins and Basins

- Link plate margins and sedimentary basins; tectonic activity map; Tethys reconstruction example; Exercise - Arabian Plate.

3. Team Exercise: Basin Settings and Trap Styles

- Selection of regional lines for team evaluation and discussion.

4. Petroleum Systems, Hc Plays and Prospects

- Petroleum systems definition; hc play and prospect definition; play and prospect elements; event chart; basic volume equation; prospect volumetric uncertainties; PBE; play maps.
- Exercise - prospect risk ranking.

5. Madagascar RL poster discussion

- Megasequences and link with plate tectonic phases; hc plays - what happened?

DAY 2

Recap Day 1

1. Principles of Rock Physics and DHI's

- Objectives, elastic moduli, fluid properties, Biot-Gassmann.
- Exercise on fluid replacement

2. Principles of QI: Seismic Inversion

- Application & advantages, acoustic vs elastic impedance, various approaches
- Discussion on techniques for shale exploration/exploitation

3. Seismic Stratigraphy

- Seismic reflections what do they represent; some pitfalls; seismic strat. nomenclature; depositional sequences and systems tracts; sand distribution.
- Exercise - Ebro Delta RL seismic stratigraphic interpretation and play evaluation

DAY 3

Recap Day 2

1. Divergent Margins

- Examples of extensional regimes.
- Exercise - North Sea Gullfaks: basement induced normal faulting; alternative Interpretations.
- Exercise - Niger delta growth fault setting

2. Depositional Systems in Passive Margin Deltaic & Rift-fill Settings

- Delta processes and classification; sand body geometry; structural controls; stacking patterns and seismic facies.
- Exercise - well correlation and pitfalls
- Rift Settings and basin fill; alluvial stacking patterns.
- Exercise - Nova Scotia RL; key horizons and faults; evaluate structural and stratigraphic history.
- Exercise - Madagascar Graben-fill - review core, log and seismic data.

DAY 4

Recap Day 3

1. Convergent Margins

- Compressional settings; toe-thrust settings.
- Exercise NW Borneo.
- N. Tarim (W. China) foredeep case history.
- Exercise: Pyrenees - outcrop, RG profile, wells & seismic

2. Oblique Convergent and Strike Slip Margins

- Oblique convergent settings - examples from California, Egypt Western Desert and Levant.
- Exercise - Central Atlantic.
- Exercise - Bohai Sina farm-out opportunity.

3. Inversion & Wrenching Structures

- Examples.
- Exercise - Broad Fourteens lines - plenary discussions.

Programme

DAY 5

Recap Day 4

1. Salt Basins

- Ebro Basin Cordona example; depositional environment of salt; salt basin settings; major salt basins examples; deformation styles; why is salt important in exploration.
- Exercise - North Sea Permian Salt Basin structuration.
- Exercise thermal conductivity impact.

2. L05 End of Course Interpretation Exercise

- Guided team exercise with plenary report-out per team
- North Sea L05 structure -
 - 1) Lower Cretaceous play, volume calculation,
 - 2) Triassic DHI and discussion trapping mechanism,
 - 3) Permian prospect assessment of strengths and weaknesses.

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.

Contact Petrogenium.:

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Because Experience Matters