Petrogenium. Academy

Upstream (Exploration)

Depositional Systems and Reservoir Distribution in Exploration

Consultant / Trainer

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The **Petrogenium (in collaboration with EPTS) Depositional Systems and Reservoir Distribution in Exploration** course will allow Participants to gain applied geological and predictive skills that directly enhance exploration and prospect evaluation work. Participants leave with enhanced capability to evaluate plays and prospects more confidently and effectively, bridging geological understanding with exploration business decisions.

Participants

This **Petrogenium.** course is geared towards geoscientists working on play-based exploration and prospect generation / maturation projects as well as near-field exploration / appraisal.

Learning Objectives

- The course objectives are designed to equip participants with the geological knowledge and predictive tools needed for effective play-based exploration and prospect maturation.
- Improve the ability to recognize and predict reservoir types, distribution, and quality in various depositional settings such as deltaic, alluvial, deep water, and carbonate systems.
- Understand the fundamental principles of seismic and sequence stratigraphy, including how stratigraphic geometries and accommodation space changes affect reservoir distribution.
- Learn how the interplay between stratigraphic geometries and structural deformation influences reservoir occurrence and connectivity.
- Develop practical skills through industry case histories and exercises to apply geological concepts to real-world exploration and prospect evaluation projects.

Course content

- This course is designed to teach about depositional systems and reservoir distribution in the context of Prospect Maturation and Play-based Exploration scale reservoir evaluation.
- Course subjects include basic seismic / sequence stratigraphy ground rules and will discuss stratigraphic geometries in terms of accommodation space changes and systems tracts.
- The interplay of stratigraphic geometries and structural deformation is a key theme.
- A key focus of the course is on patterns of reservoir distribution and controls in different depositional settings such as deltaic, alluvial, deep water and carbonates.
- Industry case histories in the form of examples and exercises are an integral part of the course.

Programme

DAY 1

General introductions

1. **Introduction.**
2. **Geological Data:Discussion** on the nature of data used in subsurface geological evaluation. Data resolution and dimensionality. Exercise on the seismic response of an unconformity surface.
3. **Stratigraphic Surfaces and Geometries:Discussion** of stratigraphic surfaces from lamination to sequence boundaries. Regional seismic line discussion. Seismic stratigraphic nomenclature and analysis, including exercises on regional lines. Interpretational pitfalls.
4. :**Depositional Sequences and Systems Tracts:** Short discussion of definitions followed by discussion of accommodation space (relative sea level) and sediment supply and their controls. Systems Tract analysis including exercises, both conceptual and seismic line based. Discussion on parasequences including a log and seismic based correlation exercise.

Programme

DAY 2

Recap Day 1

1. **Stratigraphic Diagrams:** Discussion of stratigraphic diagrams and what they intend to convey. Difference between litho- chrono- and tectonostratigraphy, including exercise. Discuss Wheeler diagrams including an exercise on how to construct such from a seismic line.
2. **PoroPerm Systems:** The PoroPerm module discusses the nature of, and the controls on, reservoir porosity and permeability. Depositional texture, burial diagenesis, regional setting controls are discussed. Understanding is tested on an actual dataset. A basin-centred gas example is discussed.
3. **Deltaic Depositional Systems and Reservoirs:** The next four modules (7-10) discuss the major depositional reservoir settings: deltaics, alluvial, deep water and carbonates. The Deltaics module includes learning items on delta processes and classification, reservoir body geometries and stacking trends. Exercises based on datasets including satellite images, seismic, log, core and outcrop.

DAY 3

Recap Day 2

1. **Alluvial Depositional Systems and Reservoirs:** The Alluvial module includes learning items on processes resulting in different alluvial systems, reservoir body geometries and stacking trends. Meandering, braided, dry fan and fan delta systems are discussed. Exercises on architectural elements and their origin / controls, including outcrop, core, log and seismic data.
2. **Deep Water Depositional Systems and Reservoirs:** The Deep Water module includes learning items on recognition of DW depositional systems, processes, reservoir facies types and architectural elements. Case history-based exercises / examples based on outcrop, core, log and seismic data.

DAY 4

Recap Day 3

1. **Carbonate Depositional Systems and Reservoirs:** Basic discussion of carbonate factories and their process / products incl. a seismic stratigraphic exercise. Carbonate classification and pore type exercises. Carbonate settings, architectural elements, diagenesis. Carbonate sequence stratigraphical log-based exercise. Seismic recognition of carbonates.
2. **Stratigraphic Traps:** Stratigraphic Trap definition, examples, exercises and case histories.

Programme

DAY 5

Recap Day 4

1. **Seismic Regional Line and Case History Analysis:** The last module focusses on applying course learnings on a regional line interpretation exercise aiming at applying seismic stratigraphic interpretation skills in combination with scanty well data to arrive at a PBE scale reservoir distribution interpretation. Pending time and delegate interests a selection of case histories will be discussed. Alternatively, delegates can bring in examples from their own projects for discussion.

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.:

Email: training@petrogenium.com
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Because Experience Matters