

Applied Geopressure and Risk Assessment:

From Play, Prospect to the Well head. (3 days)

This is the most comprehensive course in predicting and appraising subsurface geopressure compartmentalization and, consequently, evaluating prospect's risk pre- and post-drilling. Basic models of geology, rock-mechanics and hydrodynamics are used as the foundation of prediction and analysis, rather than numerical formulas.

The course covers the process of QC input – output data, and establishment of prediction models before and during drilling. Before drilling exploration and drilling risk assessments and post drilling appraisal methods will be clarified. The distribution of geological basins (in particular Salt basins) world wide and their impact on geopressure profiles and hydrocarbon entrapment are discussed in case history forms.

The course also includes a special section on seismic attributes and their behavior due to the geopressure environment. AVO assessment, strat-geopressure method and bypass pay zones on 2D/3D will be explained.

Learning outcomes

1. Understanding the causes, concepts and graphic representations of the geopressured and hydrodynamic systems especially in Deep Water.
2. QC and qualifying data for pore pressure prediction and evaluating methods of predict / calibrate pore pressure including their limitations and pitfalls
3. Evaluating and risking prospect before drilling and assessing expected reserves.
4. Calibrating the geopressure model based on seismic velocity in association with offset wells and adjust casing and mud programs accordingly especially in Deep Water Salt Basins.
5. Assessing post drilling results: AVO assessments, tracking the bypass pay zone as secondary objectives and challenges during drilling.

Who should attend?

Geologists, geophysicists, drilling and reservoir engineers, well log analysts, managers, and support staff involved in exploration, development and drilling.

Course outline

- ✓ New approach to geopressure definitions, causes and concepts
- ✓ Graphical representations (PSI and PPG MWE), including some of their pitfalls
- ✓ Method used to predict pore pressure before drilling, with emphasis on Effective Stress
- ✓ Calibration and analysis during and post drilling: their limitations and pitfalls
- ✓ Compartmentalization, seal effectiveness and hydrocarbon retention capacity
- ✓ Causes of disparity between measured pressure in reservoirs and predicted pressure in seals

- ✓ Supra and Sub Salt geopressure models and their applications
- ✓ Dirty vs. clean salt and their impact on success and failure in frontier area
- ✓ Faults and their rock mechanics as sealers vs. leakers
- ✓ Strat-Geopressure Fairways and their mapping methods
- ✓ Seismic velocities crossover due to geopressure and their impact on AVO assessments
- ✓ Identification of the bypass pay zones on 2D / 3D seismic
- ✓ Proposed borehole drilling tolerance window, casings design and mud programs
- ✓ The impact of deep water on the pressure profile and relevant drilling process
- ✓ Borehole stability and anticipated drilling challenges
- ✓ Post drilling assessment of success or failure to find hydrocarbons
- ✓ Global case histories and their implications: Gulf of Mexico, North America, North Sea, Mediterranean and Far East

A 5 day course (expanded version of the 3 day course) is available. “Geopressure: Prediction, Analysis, and Risk Assessment for E&P” focuses on *know how and in depth exercises and analyses*. Hands-on experience will be provided by several case history data. Microsoft Excel is used for the 5 day course (pore pressure prediction software is not required).

Pore pressure software is not a “one size fits all” product. These courses will give you the knowledge to tailor your interpretations to the geological and hydrodynamic setting.

“The applied geopressure course that you taught to the members of the HGS will provide wide-range of benefits to the future of our industry “.

HGS and the Continuing Education Committee, 2005