

MAPPING SUBSURFACE STRUCTURES

GEO012

COURSE DESCRIPTION

This course covers the fundamental concepts and techniques required to accurately construct structure maps in 3D so that you will get the most out of your data. Principles and techniques are illustrated by solving numerous exercises by hand - with drafting tools and a calculator- using strategies and work-flows analogous to those that participants will use back at the office using computers. The course gives a very good basic understanding of structured geology as a whole and helps a lot to clarify concepts, terms for my general career development.

COURSE GOAL

To enhance the participants' knowledge, skills and abilities necessary to develop more accurate structural models of reservoirs, avoid dry holes, find new traps in old fields, extract the maximum information from exploration wells, and validate or recognize errors in existing interpretations.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Recognize common contouring pitfalls.
- Find thickness in deviated wells.
- Use thickness maps to interpret structure.
- Construct predictive cross sections.
- Apply the best techniques for projecting data.
- Make fault maps and integrate them with horizon maps.
- Build a complete 3D interpretation.
- Recognize valid and invalid fault surfaces.
- Interpret folds and faults from dip-meters.
- Construct juxtaposition (Allan) diagrams for fault trap and seal analysis.
- Map structures with multiple overlapping faults.

WHO SHOULD ATTEND

- Geoscientists and those exploring mature areas.
- Early-career Geoscientists and technologists who make structure maps.
- Those who need to judge the validity of maps and cross sections.

COURSE DURATION

5 Working Days

COURSE OUTLINES

- Contouring Techniques.
- Triangulation.
- Using Dip in Mapping.
- Different Measures of Thickness.
- Thickness in Deviated Wells.
- Isopach and Isocore Maps.
- Dip-domain Cross Sections.
- Data Projection.
- Trend and Plunge of Folds on Tangent Diagrams.
- Composite-surface Maps.
- Fault Shapes and Displacement Distributions.
- Heave and Throw from Stratigraphic Separation.
- Stratigraphic Separation from Structure Contour Map.
- Constructing Fault-plane Maps.
- Faults on Isopach Maps.
- Combining Fault and Horizon Maps.
- Contouring Across Faults.
- Structural Quality-control Techniques.
- Multiple-surface Map Compatibility.
- Map Validation Using Implied Fault Contours.
- Finding Faults and Fault Orientations with SCAT Analysis of Dip-meters.
- Juxtaposition Diagrams for Trap and Seal Analysis.
- Fault-cutoff Lines in Computer Mapping.
- Soft Linked and Hard Linked Faults.
- Relay and Branching Fault Patterns.
- Mapping Sequential Cross-cutting Faults.

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