Structural and Stratigraphic Interpretation of Dipmeters and Borehole-Imaging Logs - SSI

COURSE

About the Course

Dipmeters are micro-resistivity logs that detect the orientations of bed boundaries and borehole elongations. Borehole-imaging logs provide video, density, gamma-ray, acoustic, and/or electrical images of the borehole face. Dipmeters and borehole images can be run in water-based or oil-based mud; on wireline or LWD. They are used structurally to detect, orient, and quantify natural and induced fractures, faults, fold axes, unconformities, and in situ stress. Stratigraphically, dipmeters and borehole images are used to identify paleocurrent directions, bounding surfaces, facies, thin beds, net-sand, and secondary porosity. The key objective of dipmeter and borehole-image interpretation is to describe structural and stratigraphic features encountered by a wellbore, commonly in the absence of core.

This course provides numerous hands-on exercises and case studies that emphasize sedimentologic, stratigraphic, and structural applications of these widely run, but generally underutilized logging tools.

"Liked all of the FMI/image log analysis." - Geologist, United States

"Great hands-on examples." - Petrophysicist, United States

Target Audience

Petrophysicists, geologists, geophysicists, and team members involved in reservoir characterization.

You Will Learn

Participants will learn how to:

- Interpret dipmeters and borehole-imaging logs and understand the physical principles behind them
- Detect and quantify faults and fractures, determine in situ stress orientations, improve horizontal well placement, provide input into flow simulations
- Determine paleocurrent orientations, define stratigraphic compartments, quantify vuggy porosity, detect thin beds, analyze depositional characteristics, interpret image facies
- Apply image data in reservoir characterization

Course Content

- Applications and types of dipmeters and borehole images

- Data acquisition and processing
- Quality control and artifacts
- Generation and use of stereonets and rose diagrams
- Quantitative analysis using cumulative dip plots, vector plots, and SCAT plots
- In situ stress from borehole breakout and drilling induced fractures
- Horizontal wells
- Identification and classification of fractures, faults, sub-seismic scale faults, micro-faults, and unconformities
- Fracture spacing and wellbore bias correction
- Thin bed analysis and net-sand counts
- Carbonate porosity and facies interpretation
- Sedimentology from borehole images: burrows, cross beds, scoured surfaces, slumps
- Determination of paleocurrent directions
- Interpretation of borehole images in various depositional settings
- Application of image data in geocellular modeling and reservoir characterization
- Integration of image data with core, mapping, seismic, petrophysical, and production data

Product Details

Categories: Upstream

Disciplines: Petrophysics

Levels: Intermediate

Product Type: Course

Formats Available: In-Classroom

Instructors: