



Online Training: Image Log Analysis; Past, Present and New Technology

Tuesday 21st January 2024 (virtual)

Module 1: Introduction, physical measurement principles, structural and geomechanical interpretation of dipmeters and borehole image logs acquired on wireline:

- **Introduction**
 - History of dipmeter logging
 - Surface resistivity measurements
 - Inclinometry systems
 - Dip computation methods
 - Basic dipmeter interpretation rules
- **Physical measurement principle of commonly used electrical borehole image wireline logs**
 - Acquisition of electrical borehole image logs
 - Tool specs: resolution, sampling rate, coverage etc...
 - Log quality control, recognition of artefacts
 - Inspection of field data
- **Other types of Borehole Image Logging**
 - Common acoustic borehole image logs
 - Electrical imaging in Oil-Base Mud
 - Cameras, videos
 - Rock sampling and core-Log calibration
- **Structural interpretation of borehole image logs**
 - Dip set classifications
 - Structural dip determination and removal
 - Faults, micro-faults, unconformities, fractures
 - Thin bed analysis, sand count
 - Common interpretation software, demo
 - Stereographic techniques
 - Near-wellbore cross-sections, pseudo-3D displays

Tuesday 21st January 2024 (virtual) continued...

- **Geomechanical/Fracture interpretation of borehole image logs**
 - Fracture classifications
 - Fracture aperture calculation
 - Basement interpretation and fractures
 - In-situ stress analysis
 - Borehole shape anomalies
 - Discrete Fracture Network modelling

Thursday 23th January 2024 (virtual)

Module 2: Sedimentological, facies and textural interpretation of borehole image logs acquired on wireline:

- **Sedimentological interpretation of borehole image logs**
 - Common key sedimentary structures resolvable with borehole images (bedding, planar/trough x-bedding, scours, soft sediment deformation, slumps...)
 - Palaeotransport analysis
 - Clastic reservoir evaluation examples
 - Carbonate reservoir evaluation examples
- **Textural borehole image log/facies interpretation**
 - Background resistivity determination
 - Summary logs (isolated/connected vug analysis, resistivity patches etc...)
 - Electrofacies classification
 - Introduction to Reservoir Rock Typing
- **Examples of integrated analysis (image logs, core, petrophysical/production data)**

Monday 27th January 2024 (virtual)

Module 3: Physical measurement principles and applications of Logging-While-Drilling image logs:

- **LWD Physical Measurement Principles and Tools**
 - Depth Measurements
 - Measurement while Drilling
 - Realtime v Memory data
 - LWD Imaging principles and acquisition method
 - LWD Laterolog resistivity principles and sensor design
 - Common issues with LWD images

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- Quality Control of LWD images
- Downhole Compression
- Overview of available LWD imaging services
- Emerging capabilities (OBM imaging, acoustic images)
- **Geosteering with LWD images**
 - LWD Realtime applications
 - Geosteering/Well Placement challenges
 - Correlation in HA/Hz wells and Drilling Polarity
 - Practical Image interpretation while drilling
 - Steering methods (Reactive/Proactive)
 - LWD images in Horizontal holes
 - Limitations of LWD images in Geosteering
 - Keys to success in Geosteering
 - Quantifying Geosteering results
- **Non-Geosteering applications of LWD images**
 - Log assurance and Drilling decision making
 - Post drilling applications review
 - Dip analysis
 - Structural interpretation and analysis
 - Fault characterization
 - Integrated studies for Rock-typing
 - Fracture studies
 - Geomechanical analysis
 - LWD v Wireline Then and now
 - Image resolution comparison
 - Completion Optimisation
 - Invasion and time lapse analyses