

Assessment of Integrated Formation in Clastic and Carbonate Reservoirs

Make Sense of Your Reservoir with Drill and Wireline Data

Introduction

Participants in this training program will get a sophisticated grasp of well log analysis applications and integrated formation evaluation procedures. The physical underpinnings of the logging instruments and the entire advanced interpretation workflow for reservoir characterization will be covered in this training session on integrated formation evaluation in clastic and carbonate reservoirs.

At the end of the training program, participants will have a better understanding of the characteristics of both rocks and reservoir fluids, as well as how to analyse and integrate core analysis datasets, evaluate NMR logs, perform the entire NMR interpretation workflow, run pressure plots, identify free water level and oil-water contact, and perform saturation height modelling.

The sophisticated log interpretation process with the quantitative methodologies for the quality control and quality assurance procedures for the raw datasets will be covered in this training course on integrated formation evaluation in clastic and carbonate reservoirs. Throughout the training session, many real-world examples from across the globe will be presented to aid in the attendees' comprehension of the integrated analysis in either clastic or carbonate reservoirs as well as the notion of reservoir characterization.

This training session on Course N Carry will emphasize:

- Log interpretation using conventional tools: concepts and applications
- Logs normalization, splicing, depth matching, and quality assurance
- Analysis of core data and integration with both traditional and sophisticated E-Logs
- Principles of NMR tools: interpretation and modeling of saturation height
- Advanced modeling of the permeability and facies of the reservoir
- Real-world training examples with several wells

Objectives

Following this training session, attendees will understand the following:

- Theories of tools and petrophysical uses of tools
- Conducting comprehensive petrophysical analysis for clastic reservoirs
- Combining the core analysis with sophisticated or traditional log processes
- Producing electrified and modeling permeability for reservoirs
- Characterization of pore volume and reservoir fluid

Training Methodology

In order to guarantee comprehensive learning and comprehension of the advanced petrophysical evaluation methodologies, this training course will make use of a range of examples. The regular training sessions will involve a lot of participation and interaction. This entails having frequent conversations about applications in addition to practical problems that may be handled manually or with the aid of Microsoft Excel.

A power point presentation will be used to provide this training session. A laptop is required for each attendee to use the practical examples. Both the written training course materials and the examples will be available to the participants throughout the training session. Challenging well logs from various nations will be utilized as examples to assist learners in fully comprehending the entire operation.

Organizational impacts

The participants' understanding of reservoir characterization and log interpretation will be enhanced by this training session. Following this training session, the participants will have discussed the following topics:

- Recognizing the need for enhanced reservoir characterization for field evaluation
- Learn about the sophisticated procedures and approaches for formation evaluation.
- Before integrating the log analysis data into the static and dynamic modeling, quality control and quality assurance
- Characterizing reservoir fluid with NMR data and integrating it with the outcomes of well tests
- Finalize the exploration petrophysics assessment for new blocks and frontier areas.

Personal Impact

The participants will get in-depth understanding of sophisticated formation evaluation methods. Advanced petrophysical procedures, NMR interpretation, saturation height

modelling, and facies and permeability modelling will all be fully functional for them. The participants' expertise of core dataset analysis, core data statistics, identifying the nature and changes of reservoirs, and integrating core data with conventional and advanced logs will all be enhanced by this training course.

Who should attend?

This Course N Carry training program will be very helpful for a variety of professionals and will benefit:

- Log analysts / Petrophysicists
- Geologists
- Engineers for reservoirs
- Geophysicists
- Geomodelers

Course Outline

Day 1

Overview of Logging Instruments and Formation Assessment

- Tools for lithology
- Tools for porosity
- Tools for resistivity
- Profile of invasion
- Clastic and carbonate reservoir differences
- Geosteering reservoirs and developing reservoirs

Day 2

Petrophysical Assessment

- Depth matching, splicing, log normalization, and QC/QA logs
- Identifying lithology, porosity, and mineralogy using cross plots
- Shale volume computation
- Evaluation of porosity in clear and shale formations
- Calculating water resistivity
- Calculating saturation in clear and murky ponds

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- Calculating the saturation exponent and cementation factor using the core analysis

- Conducting petrophysical investigations in carbonates and classics
- Petrophysical analysis in horizontal and significantly deviated wells

Day 3

Fundamental Evaluation

- Examination of core data
- Statistics from core data; identifying reservoir heterogeneity
- Indicators of flow zone and rock quality
- Various facies models
- Electrofacies of reservoirs and modelling of permeability
- Real-world core data for sophisticated reservoir assessment
- Wireline and LWD logs integrated with the core
- Investigation and advancement in petrophysics

Day 4

Magnetic Resonance in the Nuclear Environment

- Theory of NMR tools
- Comprehending the NMR log
- Advanced Applications of NMR
- Workflow for NMR interpretation
- Integration of NMR with well-testing
- NMR core incorporation
- Integration of NMR interpretation with traditional logging
- Aspects from NMR records

Day 5

Modelling Saturation Height

- Concept of capillary pressure
- Contrary to the capillary pressure curves, fakes
- Analysis of reservoir pressure
- Recognizing the ideas of free water level and oil-water interaction
- Modelling of saturation height
- Modelling saturation height in carbonate and clastic reservoirs