D517: Well Log Sequence Stratigraphy for Exploration and Production (Distance Learning)
Tutor(s): Vitor Abreu

Summary

**Business Impact:** Participants will develop an understanding of how sequence stratigraphy aids in prediction and mapping of play elements presence and quality based on well data. They will enhance value for their employers by identifying high- and low-risk areas, generating robust resource volume assessments, and providing an interpretation of connectivity that allows for more accurate prediction of production.

Sequence Stratigraphy is a method developed to support geoscientists in the geologic interpretation of subsurface data, with the objective of predicting and mapping play elements (reservoir, source/charge, seal) presence and quality before drilling. The method can be applied to cores and well logs in all depositional environments. This course will review the basic terminology and definition of surfaces, systems tracts, sequence sets, and stratigraphic hierarchy. The method will be described and applied to interpret subsurface data in non-marine, shallow marine, and deep marine depositional settings. The emphasis will be on the recognition and mapping of play elements from exploration to production scales.

**Learning Outcomes**

Participants will learn to:

1. Interpret cores and well-logs in a sequence stratigraphic context.
2. Review the basic terminology and definitions of sequence stratigraphy.
3. Apply the concept of facies, facies stacking, and shoreline trajectory to define parasequences, surfaces, and systems tracts.
4. Evaluate the main controls on depositional sequences.
5. Describe the accommodation Succession Method and Sequence Stratigraphy Hierarchy.
6. Apply the sequence stratigraphic method in non-marine, shallow marine, and deep marine environments

**Duration and Training Method**

A virtual classroom course divided into 4 webinar sessions, comprising lectures, discussion, case studies, and practical exercises to be completed by participants during and between sessions.

**Who Should Attend**

Geophysicists, geologists, explorationists and managers who are interested in an introduction or review of the theory and application of contemporary stratigraphic techniques to exploration and production.

**Prerequisites and Linking Courses**

Participants are expected to have a working knowledge of fundamental geological concepts, such as presented in Basic Application courses N155 (Introduction to Clastic Depositional Systems: a Petroleum Perspective) and D003 (Geological Interpretation of Well Logs).
Suitable follow-on courses at Skilled Application level include N349 (Practical Methods for Sequence Stratigraphic Prediction) and field courses such as N011 (High Resolution Sequence Stratigraphy: Reservoir Applications (Utah, USA)), N042 (Reservoir Sedimentology and Stratigraphy of Coastal and Shelfal Successions: Deltas, Shorelines and Origins of Isolated Sandstones (NW Colorado, USA)), N451 (Practical Oil-Finders Guide to Siliciclastic Sequence Stratigraphy (Wyoming, USA)), and D518 (Seismic Sequence Stratigraphy for Exploration and Production).

Course Content

The main topics covered in this course are:

- Sequence stratigraphic method applied to well logs
- Sequence Stratigraphy Concepts
- Lithostratigraphy vs Chronostratigraphy Correlations
- Sequence Stratigraphy Method Applied to Well-Log
- Well-Log Interpretation Correlation
- Urdanetta Exercise - Well Log interpretation and Correlation
- Well-Log Loop-Tie Interpretation and Mapping
- Well-log interpretation and correlation in a production setting