Integrated Rock Typing and Lithofacies Prediction for Reservoir Flow Unit Delineation

QUICK TURN
PARADIGM GEOSCIENCE SERVICES

Geoscience Insights in 30 Days

Paradigm® is committed to providing oil and gas companies with high-quality geoscience services, to help them gain deeper insight into the subsurface and maximize the value of their assets. As part of our offering, we are happy to announce the availability of "Quick Turn" services, for specialized projects where qualified, on-time delivery is critical.

Rock facies define the internal architecture of the reservoir. The ability to accurately characterize, model, and predict the distribution of facies in the reservoir results in a better understanding of reservoir quality and behavior. An accurate facies model will be a good predictor of in-place volumes and fluid flow. While facies determination is substantially improved by the use of well bore predictive methods, the process faces a number of challenges. For example, heterogeneous rock types with similar log responses limit the ability to identify and classify lithofacies.

The Paradigm Geoscience Services group uses an adaptive combination of established petrophysical rock typing methodologies and patented Multi-Resolution Graph-based Clustering (MRGC) classification to define electrofacies at well locations, and to relate those electrofacies to reservoir lithofacies. The integration of Mercury Injection Capillary Pressure (MICP) data has also been proven to aid the process of identifying rock types.

Once an internally consistent facies model has been created, it can be propagated to an unlimited number of application wells. The facies model then provides the basis for geostatistical propagation of petrophysical properties into the reservoir model, allowing accurate delineation and description of reservoir flow units on a field-wide basis.

**Paradigm Rock Typing and Lithofacies Prediction Solution Advantages**

- An integrated approach to lithofacies prediction using Mercury Injection Capillary Pressure (MICP) Curves.

- Field-wide prediction of lithofacies and reservoir classifications from wireline logs, Pc/Sw, and supervising rock types.

- Seamless integration of lithofacies models into reservoir models for increased accuracy.

This "Quick Turn" Service provides added value to:

- Petrophysicists charged with defining the distribution of productive facies within the reservoir.

- Geomodelers working to construct reservoir models that accurately delineate flow units and enable improved calculation of reserves.

- Reservoir engineers responsible for developing simulation models for reservoir performance assessment and economic forecasting.
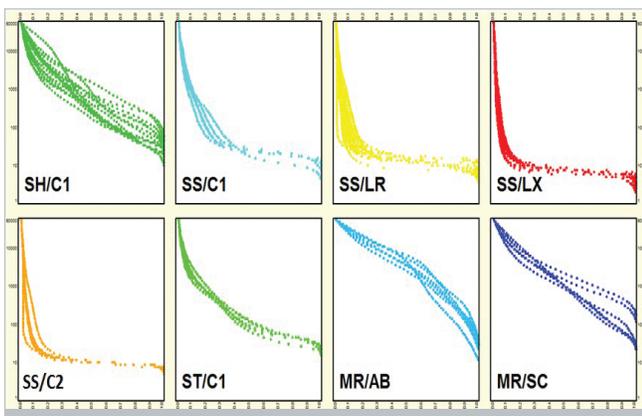
▲ Capillary pressure (Pc/Sw) curves per supervising rock type
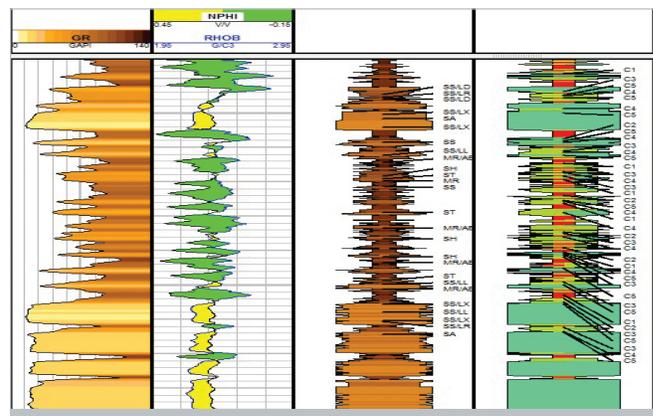
▲ Lithofacies and reservoir classifications for propagation into multiple wells

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