

Magnetic Resonance LWD Service Evaluates Carbonates Offshore Brazil

Deep-reading proVISION Plus LWD tool delivers real-time analysis of carbonate reservoirs in a challenging offshore trajectory

CHALLENGE

Analyze complex reservoir properties to detect and estimate carbonate producibility in a challenging offshore well.

SOLUTION

Use proVISION* Plus magnetic resonance-while-drilling service, EcoScope* multifunction logging-while-drilling service, and StethoScope* formation pressure-while-drilling service.

RESULTS

Acquired high-quality reservoir data in real time that were used to perform a textural analysis, complement an LWD analysis, and estimate reservoir producibility.

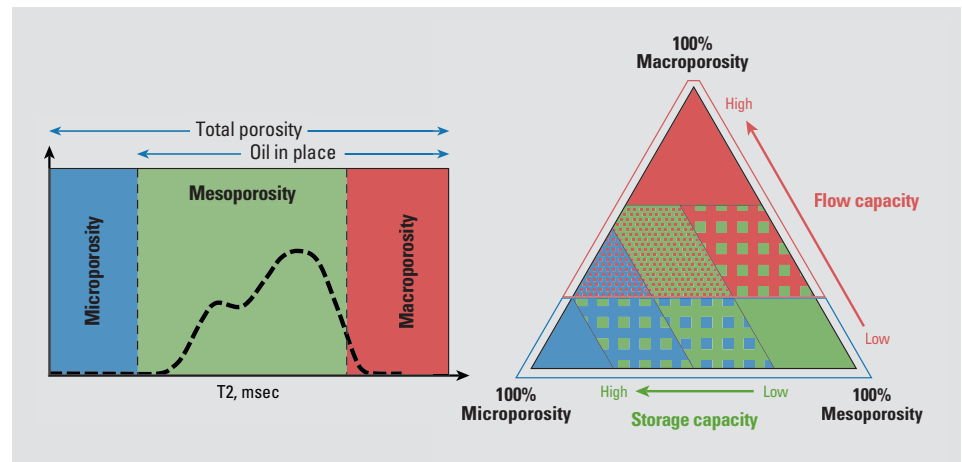


Evaluating heterogeneous carbonates

Complex carbonate reservoirs present unique challenges for measuring porosity, deriving permeability, and assessing producibility. While drilling a complex carbonate reservoir offshore Brazil, an operator required an LWD analysis to identify producible zones.

Describing pore-size distribution in real time

The operator used proVISION Plus magnetic resonance (MR) service to obtain real-time LWD measurements in a challenging trajectory. The proVISION Plus measurements evaluate pore-size distribution to estimate formation properties used for determining whether the reservoir requires testing, perforation, or acid stimulation. The MR-while-drilling service was also deployed in conjunction with the EcoScope LWD service to evaluate rock and fluid properties and obtain accurate lithology-independent porosity and continuous permeability.

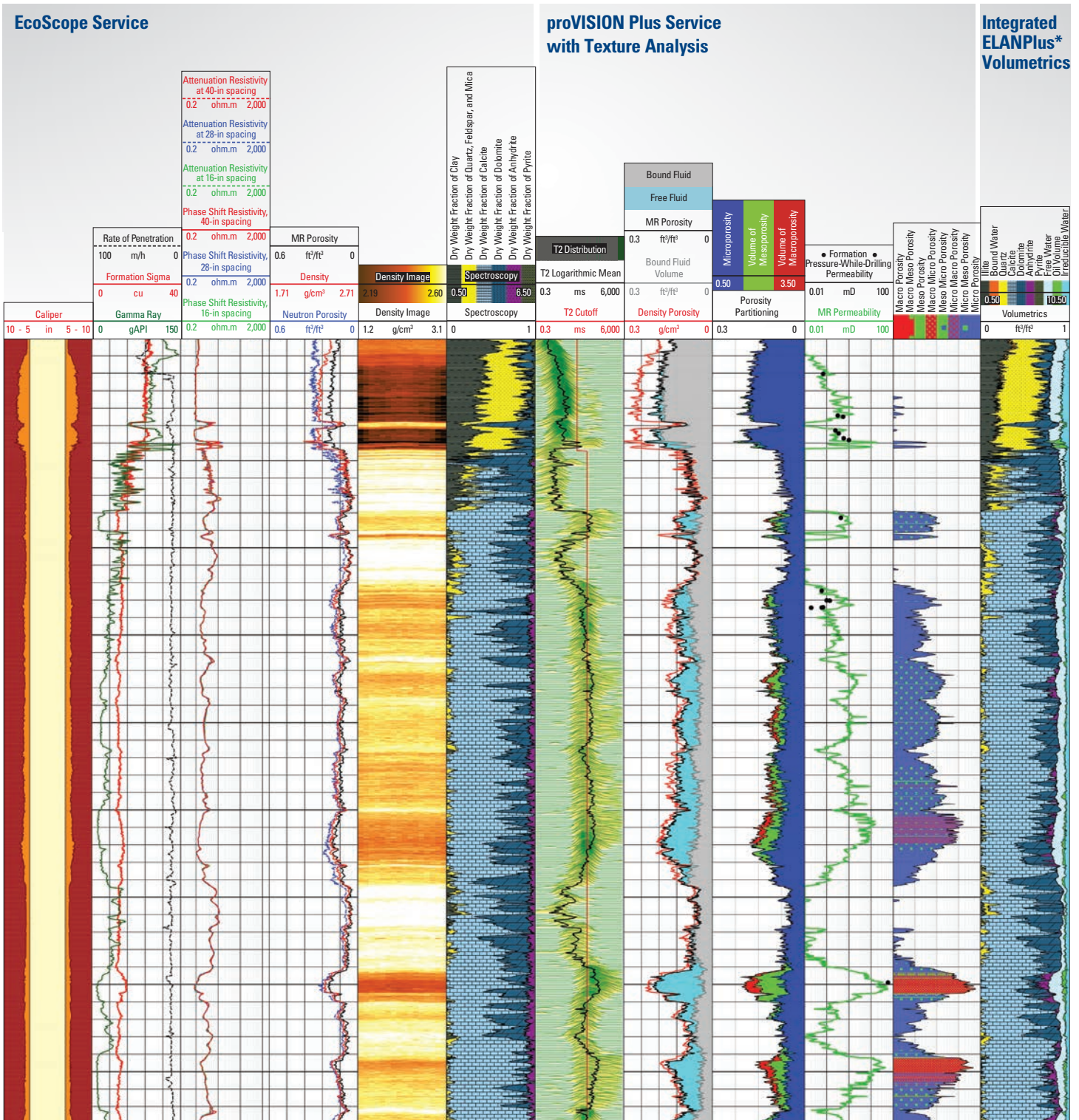


In carbonate rocks, the MR data allow textural analysis and porosity evaluation that are used to evaluate permeability and reservoir producibility.

Gaining a complete understanding of the reservoir

The high-quality, real-time MR data provided a comprehensive description of the carbonate reservoir rocks based on hydrocarbon detection to optimize placement of the wellbore. The combination of services improved testing and completion designs for this offshore application.

CASE STUDY: Real-time analysis of challenging carbonate reservoirs offshore Brazil



The log shows the petrophysical evaluation of a carbonate reservoir while drilling a well offshore Brazil with EcoScope and proVISION Plus services. The proVISION Plus MR data were critical to characterize the pore system and fluids. MR permeability, which compares favorably with the measurements from the StethoScope* formation pressure-while-drilling service, provides a continuous permeability across the entire section.

www.slb.com/ProVISIONPlus

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