
Using Digital Rock Technology for Multi-Scale Reservoir Characterization

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EXTENDED ABSTRACT

Introduction

Properly constrained predictions of reservoir performance depend on understanding the processes that created (depositional) and altered (diagenesis) the rock, and therefore on characterizing rock properties at multiple scales. Traditionally, routine and special core analyses (RCA and SCAL) are crucial for reservoir description and simulation; however, traditional methodologies are inadequate for sample sizes below the core plug scale. Digital Rock is a new discipline that utilizes digital imagers (whole core–CT [computed tomography], micro–CT, plugs, drill cuttings, and outcrops) as the foundation for detailed textural interpretations, and qualitative and quantitative assessment of physical properties and flow dynamics.

Unlike conventional analysis that typically offer only descriptions and measurements digital rock provides insight on the ‘*why*’ behind the numbers offering correlations and visual information linking geological context with production processes. By understanding the pore-scale microstructure and the impact of reservoir heterogeneity, asset teams gain valuable insight into reservoir characterization and performance with faster results and greater certainty than traditional methods.

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