

Combing Geostatistical Reservoir Modeling With Classical Basin Modeling Techniques to Identify Sweet-Spots in Unconventional Reservoirs

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Abstract

Exploration and development of unconventional hydrocarbon reservoirs is one of the major future demands in oil and gas industry.

Generally unconventional resources require different strategies for exploration, characterization, and development. In most cases, they involve special core measurement methods, different log interpretation techniques, and special development methods (e.g., hydraulic fracturing). Considering the high costs of non-standard development methods, it is important to find efficient ways to identify and develop sweet-spots in unconventional resources.

Traditionally, geomodeling methods focused on present-day description of static rock properties in the subsurface in a localized area. Such models could be stochastic or deterministic, but these techniques have no capability to describe the means by which the reservoir arrived at this current state, nor the predictive condition of the petroleum fluid properties residing within.

The objective of this paper is to demonstrate how geostatistical reservoir models can be used along with classical basin modeling techniques to identify the source-reservoir sweet-spots in unconventional plays.