

Integrating Outcrop and Subsurface Data to Evaluate Data-Poor Shale Plays: the Canol Formation, Northwest Territories, Canada

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Abstract

Studying outcrop sections is a cost effective way to obtain datasets comparable to those that may be obtained from long, continuous drill cores. These studies have the added benefit of enabling larger scale lateral observations. In particular, critical observations can be made about lithology, depositional environments, stacking patterns and sequence stratigraphic interpretations that can be extrapolated to wireline log and seismic data for the subsurface play analysis.

The caveat of extrapolating outcrop data to the subsurface is that uplifted and exhumed outcrops may exhibit the effects of a retrograde pressure and temperature history. Mechanical and chemical surface weathering processes can dramatically alter rock properties. This means we need to be cautious when extrapolating aspects of the plays such as maturity, porosity and mechanical properties of the outcrops to the subsurface. However, within these constraints, outcrop data can add value in understanding play commodity type, reservoir quality and mechanical properties as well as general lithology, depositional setting and sequence stratigraphic interpretation.

References Cited

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