

The 'Glaustracod' Geological and Geophysical Exploration Story

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Introduction

This case study describes both the Geological and Geophysical stratigraphic and structural interpretive evolution of a Cretaceous channel play in the Western Canadian Sedimentary Basin.

Interpretation Evolution

A previously undefined exploration channel trend was identified and mapped regionally over 150 km in central Alberta. The channel trend is described as a coastal plain incised valley whose sediments are estuarine in nature, with the extent of the marine influence seen throughout the valley trend. An inversion structure was interpreted in a pool development scenario from geological mapping and that concept was then applied to regional exploration of the channel trend. Through the interpretation of reprocessed higher resolution 3d seismic an exploration opportunity materialized that integrated the inversion model. A reevaluation of the significance of seismic amplitudes relative to reservoir quality was done by closely tying all the well data to the seismic along the trend. This produced a better methodology for mapping reservoir potential. The final drilling results suggested that reservoir characteristics were enhanced and hydrocarbon traps were created by the process of syn-extension sedimentation followed by folding and faulting in the compression phase.

Conclusion

An underexplored channel was exploited by applying Geological and Geophysical stratigraphic and structural interpretations that resulted in a successful exploration model for the trend. The project demonstrates that sediments and hydrocarbon traps can be strongly influenced by structural events occurring on the plains far east of the disturbed belt.

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