

The Geometry and Heterolithic Fill of Tide Influenced Channels in the Gulf of Carpentaria, Australia

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Abstract

The interaction between fluvial and tidal processes in channelized systems often results in the deposition of highly heterogeneous and complex stratigraphic architectures (e.g., inclined heterolithic strata: IHS). The objective of this ongoing research is the development and refinement of conceptual facies models for the three-dimensional distribution of IHS using a large sample of modern tide-influenced channel bodies from the Gulf of Carpentaria (n = 150), coupled with a detailed field study from a representative system within the region. Understanding the controls on the distribution of IHS has major implications for improved modeling of conventional oil and gas reservoirs, and can maximise bitumen recovery and extraction from oil sands. A new phase of this research (WAVE Phase III) will further improve our understanding of IHS facies distributions, geometry and heterogeneity in tide-influenced coastal systems.

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