SS02
A Sequence -Stratigraphic Model For The Deposition Of The Cruse Formation, Southern Basin, Trinidad

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Abstract

The process-responses during the infilling of the Southern Basin, Trinidad suggest a predictive model for the facies-association of the Cruse Formation. A qualitative response-model is proposed which is based on the application of high-resolution biostratigraphy, E-Log facies analyses and the effects of local tectonism. The Cruse Formation represents a deltaic third-order stratigraphic cycle consisting of a *Lowstand Systems Tract, a Transgressive Systems Tract and Highstand Systems Tract.* Two distinct events in the Lowstand System Tract are recognized on the basis of the dominant marine process. The basal section of the Cruse Formation is characterized by slope and basin-floor fans which are progressively overlaid by a Prograding Complex. The Prograding Complex displays progradational to aggradational stacking patterns. Stratigraphic implications are discussed for the onset of transgression and the development of estuarine facies in the Transgressive Systems Tract that overlie the prograding complex. Mixed tidal and wave-dominated processes occur in the transgressive fill.

Deposits from the overlying Highstand Systems Tract downlap on the underlying flooding surface. Transgressive deposits of the Lower Forest Formation represent major abandonment of the deltaic system.

A chronostratigraphic basis provides a practical approach to the understanding of the depositional history of the Cruse Formation and related lateral-facies to the East. Changes in intrabasinal sedimentation rates indicate extensional tectonism towards the Eastern part of the Southern Basin. The conceptual basis for this process-response model also allows for the prediction and characterization of hydrocarbon reservoirs within a sequence-stratigraphic context.

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