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**“Caribbean Exploration – Planning for the Future”**

**ABSTRACT**

**SEISMIC FACIES IN A SHELF EDGE DELTA SYSTEM: EXAMPLE FROM THE  
COLUMBUS BASIN SHELF, S.E. TRINIDAD.**

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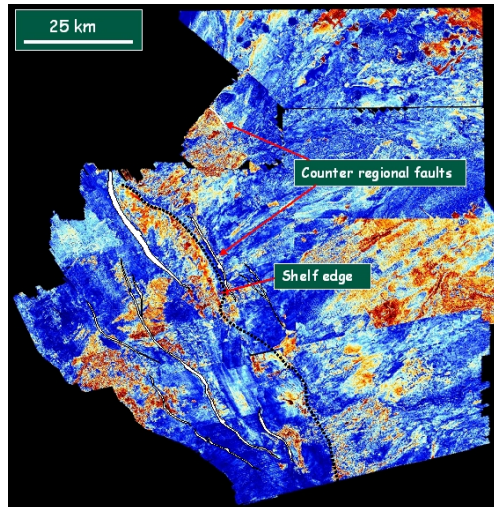
High resolution seismic imaging below the present day shelf margin of the Columbus Basin and Plataforma Deltana, provides new understandings of the interaction of active tectonics, fluvial process, and the accommodation space fluctuations that influence deltaic and shelfal architecture.

The most recent (18k – 12k year) shelf edge deltaic system across the entire Columbus Basin Shelf is imaged, in great detail by a mega-merged 3D seismic dataset. This is seen as a prograding sigmoid oblique clinoform bundle and represents the most significant period of sediment accumulation of the recent Orinoco delta. The package highlights the syn-depositional tectonic influence on the deltaic architecture in terms of accommodation space creation.

Detailed analysis of the spatial distribution of varying seismic facies paints a very detailed picture of what the delta system looked like during its last major progradational cycle.

The use of narrow window seismic attribute analysis was incorporated to differentiate the different depositional environments, based on their seismic character, both on vertical profile and map sections. Facies were described from the delta plain, all the way down to the depositional slope.

The different attribute extractions used include RMS amplitude, coherency and spectral decomposition. In each of these, sub facies were used to describe in more detail differing depositional processes and potential petroleum reservoir facies from the coastal plain, across the shelf margin and into the depositional slope.



The outer shelf is imaged as a high amplitude area, with an abrupt termination at the corresponding shelf edge. This is indicative of a sand prone outer shelf regime, with an abrupt termination of reservoir at the shelf edge; its position being controlled the counter-regional fault. This is a fundamental aspect of exploration in the shelf margin plays of the Columbus Basin Shelf, and is reciprocated in our GDE and CRS maps which go along with each individual exploration prospect..

