



**THE 4<sup>TH</sup> GEOLOGICAL CONFERENCE  
OF  
THE GEOLOGICAL SOCIETY OF TRINIDAD AND TOBAGO**

**June 17-22, 2007, Hilton Trinidad & Conference Center,  
Port-of-Spain, Trinidad and Tobago**

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

**ABSTRACT**

**The Trinidad Ultradeep area**

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In December 2006, 8 blocks were offered for bid in the ultra-deep water Trinidad. This paper is based on a Shell evaluation of this area. The ultra-deep area is basinward of the prolific Columbus Basin and proximal to the Orinoco delta sediment source area that supplied the region through much of the Cenozoic. Abundant folds and thrusts are observed on seismic profiles that also manifest themselves at the seabed. They are the result of large toe-thrust structures related to the up dip gravity induced extension of the Orinoco delta. To the north-east there is a gradual transition into the compressional regime of the Barbados accretionary prism where the Atlantic Plate is subducted under the Caribbean Plate.

Exploration in the deepwater province has until now been disappointing. Eight wells were drilled respectively by ExxonMobil (4), Shell (3) and BP (1) but only a limited amount (0.5 TCF total) of dry gas has been found. However, piston cores images and the onshore Woodbourne Field to the north in Barbados confirm the existence of an active hydrocarbon system, and suggest the extension of the prolific Cretaceous source rock into this area. The presence of Eocene coarse-grained sandstones in Barbados at outcrop and in the Woodbourne field, 200 km off the mouth of the Orinoco, indicates that coarse clastics have reached this remote domain and thus can be present in the offshore as well. Furthermore, ConocoPhillips has documented excellent quality Cenozoic reservoirs in the in Sandy Lane-1 drilled in deepwater near the Trinidad-Barbados border. Present-day canyons seen on high-resolution seafloor bathymetry offer a powerful analogue for long distant sediments transported onto the abyssal plain.

New insights into the ultradeep water hydrocarbon system have been gained from new, deep-reaching seismic acquired by GXT in this area in 2003. In addition comparison with deepwater analogs, from the Niger Delta and other deepwater foldbelts further aid the understanding of sedimentation and tectonics in these play belts.

Traditional interpretation of the Niger Delta suggests extensional tectonics updip (present day shelf area) that is accommodated by both volume changes at depth (associated with shale) and within the toe-thrust area. With the use of deep-reaching seismic, alternative interpretations suggest that downdip compression accommodates the extension in the present day shelf because the entire system is detached and brittle. Thus, a previously interpreted mobile shale core is now interpreted as pre-kinematic detached blocks associated with the prograding delta. The question of whether the same tectonostratigraphic model can be applied to the ultra-deep of Trinidad or the Barbados Accretionary Prism (BAP) is explored in this talk.