

**AAPG Annual Meeting  
March 10-13, 2002  
Houston, Texas**

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## **Sequence Stratigraphy and Structural Framework of the Southeast Caribbean Margin: Offshore Orinoco Delta, Venezuela**

New regional 2D seismic data in the Orinoco Delta offshore area, collected in 600-km-long sections out to the eastern limit of the southeastern Caribbean margin, reveal the region's major Mesozoic -to Recent, tectonostratigraphic features that reflect its transition from rift-, to passive-, to compressional-margin history. The Tethys Ocean opening during the Late Jurassic resulted in nonmarine to marine carbonate sedimentation in graben and half-graben structures over an extending continental to transitional crust. During the Early Cretaceous there is evidence of a transform margin in the northern Demerara Plateau, and creation of a pull-apart basin in the deep Guyana Basin area, related to the South Atlantic Ocean opening. The drift phase of the newly formed Atlantic Ocean during the late Cretaceous to the early Tertiary was controlled by changes in sea level. During the Neogene to Recent, structural deformation associated with the transpressional Caribbean margin worked in concert with sedimentation from the Orinoco Delta to dominate the basin's architecture. Tectonics along the Caribbean margin results in two primary types of deformation activities: (1) minor reactivation of basement faults that influence the nature of the Neogene shelf edge architecture, and may even result in activation of deep mobile substrates (salt?), and (2) extensional and compressional deformation of the Neogene section above a common detachment surface, resulting in the development of growth faults, shale mobilization and diapirism, and even seafloor argilokinetic volcanism (observed in the eastern Trinidad and the Barbados Accretionary Prism).