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**Rift Initiation and the Resultant Structural Terranes of the Southern Morocco—Georges Bank Atlantic Segment:
Controls on Reservoir Distribution**

Abstract – Our work in progress indicates that Triassic rifting in the area between the future Baltimore Trough – Georges Bank and Mauritania – Morocco margins of the Central Atlantic developed a system of orthogonal rifts, moderately oblique rifts and pull-apart basins. Boundary fault locations of these basins were mostly controlled by pre-existing Appalachian-Mauritanian faults. One of such reactivated pre-existing boundary faults contributed into the initial sinistral displacement of the Georges Bank and its Layounne Basin counterpart, now preserved on opposite sides of the Atlantic.

The rifting/drifted transition, which occurred between early Early Jurassic and early Middle Jurassic, and following early drifting period were characterized by different behavior of various basin margins. Preliminary interpretation of the regional gravity and magnetic data in the Southern Morocco shelf indicates the existence of numerous discrete rift shoulders, grabens, continental remnants of pull-apart basins and continental crustal wedges. Strike-slip faults or relay ramps of normal faults formed lateral boundaries of discrete rift shoulders and grabens. Continental remnants of pull-apart basins and continental wedges were bounded by strike-slip, oblique-slip or normal faults. All mentioned structural features result in the development of laterally variable structural grain along the continental margin associated with distinct structural terranes.

Data on the sediment supply in the Layounne Basin indicate that this variable structural grain of the basin margin influenced the reservoir distribution and seal development in the basin. Preliminary study of seismic profiles suggests that each basin of the Mauritania – Morocco system contains distinct play trends associated with separate structural terranes.