

**AAPG European Region Annual Conference  
Paris-Malmaison, France  
23-24 November 2009**

**STRUCTURAL and STRATIGRAPHIC EVOLUTION  
of the OFFSHORE SIRT BASIN, LIBYA**

Mike Bourne, Khari Benjamin, Tim Bevan, Richard Dixon, Al Fraser, James Iliffe,  
Moataz Kamel, Tom Mason, Chris Simmons, Jo Slack, Kate Widden  
BP Libya Exploration, Building C, Chertsey Road, Sunbury-on-Thames, Middlesex, TW16 7BP, UK

The Onshore Sirt basin is a prolific, rift basin with an estimated 50 Bboe of resources discovered to date. Marine seismic data has demonstrated that the onshore Early Cretaceous rift continues into the Gulf of Sirt where comparatively little exploration activity has occurred. In advance of drilling deepwater exploration wells in the basin, this study has been undertaken to understand the resource potential of the Mesozoic and Tertiary section.

In this paper we will examine the stratigraphic and structural history of the Sirt basin. An extensive onshore wells database has been used to define gross depositional environments for 15 intervals throughout the Mesozoic and Tertiary. Subsequent seismic stratigraphic mapping has been used to extend these maps into the offshore environment. The structural setting to the basin has been determined from regional 2D and recently acquired 3D data offshore. Onshore, where there is limited seismic data, the structural has been determined by regional well correlation. The main plays of the basin will be illustrated using key maps and sections.

Combining our understanding of stratigraphy and structural has enabled us to make predictions as to the likely palaeobathymetry of the offshore area and thus the potential occurrence of shallow-water carbonates. In addition, 3D Temis modeling has been undertaken to predict the likely hydrocarbon phase of any future discovery.