AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003

D Tim Needham[1], RWH Butler[2], SJ Matthews[3] (1) RDR/Leeds University, Leeds, United Kingdom
(2) University of Leeds, Leeds, United Kingdom (3) BP, Sunbury, United Kingdom

Oil and Gas in Compressional Belts—a Review of Current Understanding

Mechanics and Dynamics of Thrustbelts - Impact on Evolving Petroleum Systems Session 040

Oil and Gas in Compressional Belts – A Review of Current Understanding

A meeting held in September 2002 at the Geological Society, London discussed structural aspects of Oil & Gas in Compressional Belts. The wide-ranging discussion included the latest understanding of the evolution of deep water fold belts on passive margins, in tectonically active areas such as the Caspian, new looks at mature petroleum provinces such as the Zagros and northern Andes and the prospectivity of inversion structures. Passive margin fold belts attract increasing attention as new technology opens up deeper water areas. Structures are controlled by the ability of the passive margin sedimentary wedge to spread down slope and controls on this spreading have been recognised. Wedges that cannot spread are likely to experience more compression and the geometry of potentially hydrocarbon bearing structures will be modified. The influence of far-field tectonic stresses and basement control on belts thought to be detached and gravity-driven was also discussed. In mature fold and thrust belts the influence of basement reactivation remains much debated with the recognition that end-member 'thick-skin' or 'thin-skin' interpretations are less realistic than the operation of multiple detachments and basement shortening combined to varying degrees and sequences. Changing interpretations from purely thin-skinned to involve inversion related fold and fault geometries have profound implications for the volumes and compartmentalization of reservoirs. Throughout the need was recognised for the increased use of exploration 3-D seismic and enhanced processing techniques to derive the best structural interpretation from these complex hydrocarbon provinces.