Tuesday, December 15, 2009

Crowne Plaza Hotel - Greenspoint (former Sofitel)
425 North Sam Houston Pkwy E

Social 11:15 AM, Luncheon 11:30 AM

Cost: $31 pre-registered members; $35 for non-members & walk-ups.

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

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Salt Movement in the South-Central Walker Ridge Area, Gulf of Mexico

Over the past 15 years a number of models for the thin-skinned evolution of the Gulf of Mexico (GoM) have been put forward to describe the relationship of the present-day Sigsbee allochthon to its precursor Louann authochthonous salt basins. Models involve intermediate stage allochthonous sheet development (notably in the late Paleogene and early Neogene) and early salt nappe or para-autochthonous sheet extrusion (through the Mesozoic and into the early Paleogene). Models have focused on the western and eastern GoM where seismically identified foldbelts mark the compressional distal end of the thin-skinned deformation systems. Here the compressional foldbelts are linked through translational domains to time equivalent updip extensional domains, providing a "balanced" structural picture of thin-skinned salt movements across the basin margin. Less attention has been paid to the central GoM (central Keathley Canyon to central Walker Ridge areas), where although shelfal and shelf edge extension is recognizable, the equivalent distal portion of the thin-skinned deformation system is characterized by a more enigmatic and not clearly compressive, tectonic style.

In the central Gulf structural style varies with salt-cored folds (which form as a result of both compression and salt withdrawal) found in conjunction with diapirs and salt walls (which are either vertical or verge towards the basin) and other salt styles such as counter-regional fault systems and bowl weld systems. Salt-cored folds tend to be periclinal, have low fold axes length ratios and are less well organized than those seen in the Alaminos Canyon and Atwater Valley areas. Salt wall trend is variable with early counter-regional style geometries forming along walls orientated WNW-ESE and salt stock canopy development more often associated with diapir-salt wall systems that trend nearer N-S. Based on the observed structural styles, it is difficult to characterize this part of the deepwater margin as solely compressional.

...salt-related structural geometries in this area vary from the well-defined compressional zones seen further to the west and east.

Salt movements in the south-central Walker Ridge area are described using Mesozoic to early Neogene isochore and depth structure maps. The observations made are used to suggest why salt-related structural geometries in this area vary from the well-defined compressional zones seen further to the west and east. ■

Biographical Sketch

Born in Northern Ireland Rob was educated at Regent House Grammar School before studying geology at Queens University Belfast 1982-86 where he received a B.Sc. Hons degree. In 1986 he moved to the University of Natal, Durban, South Africa where he studied for a M.Sc. after which he joined Consolidated Goldfields and worked in minerals exploration for the next 6 years. In 1993 he returned to academia and in 1996 graduated from Southampton Oceanography Centre with a Ph.D. in Structural Geology. In 1996 he joined Alastair Beach Associates in Glasgow and worked as a structural geologist before joining Phillips Petroleum Company Norway in 1998 where he worked as both an explorationist and structural geologists serving the Norwegian and UK offices. In 2002 Rob joined Statoil AS in Stavanger as a structural specialist in their Tecnhology division. He joined their Global Exploration group in 2005 and moved to Houston where he worked as part of a Joint Venture team at ExxonMobil. Earlier this year Rob moved back to the Global Exploration Technology division where he has take up the position as Lead Advisor Salt Tectonics. He is currently based in Houston.