New plays offshore Sabah: low stand stratigraphic traps in the Champion Delta

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The sedimentary succession of the Champion Delta offshore Brunei-Sabah consists of Lower Miocene and younger (Stages IVA-G) deltaic, shelf and slope sediments forming an overall regressive sequence that expands basinwards to the NW. The main structural element in this province is the Champion-Samarang megastructural trend. This consists of an *en echelon* alignment of major growth fault-related rollovers that have been subjected to some degree of basement-controlled wrenching and associated uplift periodically during the last 8 million years. The outboard part of this trend is a greatly expanded flank dominated by extensional growth faulting within the Kinabalu-Nosong-Tapir trend. The distal part of the province is outboard of the Frigate counter regional fault system and includes the outer shelf, delta slope and delta toe thrust domains.

Substantial oil and gas reserves have been encountered in sandstone reservoirs throughout the Miocene stratigraphic column. Most discoveries to date have been made within structural traps many coincident with densely faulted anticlinal culminations associated with growth fault-related rollovers. However, the **stratigraphic trapping potential** of this delta sequence is underevaluated largely because the structural complexity has traditionally provided ample work scope for evaluation teams.

Warta Geologi (Newsletter of the Geological Society of Malaysia), Vol. 25, No. 6, November-December 1999

Shallow marine topset environments are classic hunting grounds for stratigraphically enhanced traps. Offshore Sabah, eustacy and tectonics combine to provide a tantalising array of potential stratigraphic plays. In this presentation conceptual models of stratigraphic traps will be developed and applied to the subsurface seismic expression of the stratigraphy surrounding the TB3.4 sequence boundary. Seismic examples of complex truncation and detached shoreface traps will be described. The use of high density seismic in combination with AvO analysis will be shown as the best means of evaluating the hydrocarbon potential of these plays, but the key to prospect identification and ranking is understanding the complex geology inherent in low-stand and transgressive system tracts.