Geophysical Research Abstracts
Vol. 14, EGU2012-620, 2012
EGU General Assembly 2012

Morphological indicators of growth stages in carbonates platform evolution: comparison between present-day and Miocene platforms of Northern Borneo, Malaysia.

B. Pierson (1), D. Menier (2), K.K. Ting (3), and A. Chalabi (4)

(1) SECARL, Universiti teknologi Petronas, Tronoh, Malaysia (bernard_pierson@petronas.com.my), (2) GMGL, University of South Brittany, Vannes, France (david.menier@univ-ubs.fr), (3) Sarawak Shell Berhad, Miri, Malaysia (king-king.ting@shell.com), (4) SECARL, Universiti teknologi Petronas, Tronoh, Malaysia (aicha.chalabi@petronas.com.my)

Satellite images of present-day reefs and carbonate platforms of the Celebes Sea, east of Sabah, Malaysia, exhibit large-scale features indicative of the recent evolution of the platforms. These include: (1) multiple, sub-parallel reef rims at the windward margin, suggestive of back-stepping of the platform margin; (2) contraction of the platform, possibly as a result of recent sea level fluctuations; (3) colonization of the internal lagoons by polygonal reef structures and (4) fragmentation of the platforms and creation of deep channels separating platforms that used to be part of a single entity. These features are analogue to what has been observed on seismic attribute maps of Miocene carbonate platforms of Sarawak. An analysis of several growth stages of a large Miocene platform, referred to as the Megaplatform, shows that the platform evolves in function of syn-depositional tectonic movements and sea level fluctuations that result in back-stepping of the margin, illustrated by multiple reef rims, contraction of the platform, the development of polygonal structures currently interpreted as karstic in origin and fragmentation of the megaplatform in 3 sub-entities separated by deep channels that precedes the final demise of the whole platform. Comparing similar features on present-day to platforms and Miocene platforms leads to a better understanding of the growth history of Miocene platforms and to a refined predictability of reservoir and non-reservoir facies distribution.