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## **Growth Architecture, Faulting and Karstification of a Middle Miocene Carbonate Platform, Luconia Province, Offshore Sarawak, Malaysia**

The Mega Platform is a 30 km x 50 km large and 1.2 km thick Middle Miocene carbonate platform located in the Luconia Province, offshore Sarawak, Borneo. The platform originated in the latest Early Miocene on a fault high, first aggraded and then back-stepped during Middle Miocene sealevel fluctuations. The Jintan termination (8 km x 12 km) is one of the Mega-Platform backsteps. Three-D seismic indicates that growth of Jintan ceased earlier compared to adjacent terminations. The internal architecture is characterized by several transgressive, aggradational and progradational cycles overprinted by repeated karst events. Dissolution features and bank-margin collapse are aligned to deep-seated regional faults, which periodically became reactivated during carbonate growth. A large triangular shaped graben formed syn-depositionally, but was partially healed by prograding reef-margin sequences. Deposition ceased at the end of the Middle Miocene. Following a hiatus of about 5 million years the platform was buried by deep marine clastics prograding from the large delta systems of NW Borneo. Drowning may have been preceded by a prolonged period of exposure. The recognition of growth architecture, faulting and karstification is a key to exploit the reservoirs of the Mega Platform. A 30-m thick low poroperm layer provides a shield from the underlying aquifer. Penetrated by one well only breaching due to faulting and karstification are only revealed on seismic. This information plays a key role in assessing the impact of the underlying aquifer during reservoir depletion. With ground truth provided by cores and logs from 3 wells reservoir architecture, karst features and faulting derived from reflection and inversion seismic have been imported into static and dynamic 3D models to constrain reservoir properties and predict dynamic behavior.