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## **Integration of geological and geophysical data to reconstruct depositional models of Miocene carbonate reservoirs from Southeast Asia**

Depositional models of Miocene carbonate reservoirs from the Walio field in Irian Jaya and the F6 field in Offshore Sarawak were reconstructed through geological and geophysical studies including detailed core descriptions. The reservoir section in the Upper Kais Formation in the eastern Walio field was subdivided into seven shallowing upward cycles. In the lower four cycles, reef cores were developed in the northern and eastern to southeastern margins, and back reef environment was developed in the central and western part. Whereas, in the upper three cycles, reef cores were present in the southern area and the Walio Reef was backstepped in the northern part. The reservoir section of the F6 field was subdivided into lower, middle and upper units. The lower unit mainly consists of a restricted back reef facies. The middle unit comprises an alternation of a shallow and deep fore reef facies with two major backsteppings of the reef complex. The upper unit is mainly composed of a relatively open marine reef facies with a minor progradation interpreted from seismic data. Seismic characteristics observed and useful in interpreting paleo-environments are the configuration of a reef complex showing backstepping on its margin and internal patterns including prograding features in the forereef, mound-like features in the reef core, and prograding features in the backreef slope, and continuous reflectors in the restricted backreef. Development histories of the Walio Reef and the F6 Reef were also reconstructed by integrating geological and geophysical interpretation.