

Architecture of Recent Reefs in the South China and Celebes Seas – the Perfect Analogue

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Submarine mapping of reefal architecture and carbonate facies carried out on several recent reefs in the South China and Celebes Seas, offshore Borneo has revealed new data that can be used to improve understanding of Miocene gas-bearing carbonate build-ups in the Central Luconia basin. In this respect, a wide range of recent coral reefs, ranging from proximal low relief mounds to distal isolated atolls and incipiently drowned reef complexes in water depths of up to 60 meters were investigated. The results are particularly interesting with regard to flank geometries and preferential progradational directions influenced by submarine currents. Mapping of flanks revealed the rate of reefal accretion since the last sea level lowstand. Furthermore, it was shown that the depth of submerged open caves in the flanks of recent reefs can be correlated with an uncertainty of ± 2 meters from one side of Borneo to the other, over a distance of 650 km.