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Sand-Rich, Tide-Dominated Deltaic Systems of the Lower Miocene, Central Sumatran Basin, Indonesia

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The Central Sumatran Basin is a Neogene foreland basin that hosts over 100 known hydrocarbon fields. Most are in the Miocene Sihapas Group, which consists of sand-rich, tide-dominated deltaic systems and updip fluvial equivalents. Operations such as the Duri steamflood, with nearly 8,000 wells within an area of 200 km^2, provide a unique opportunity to study the stratigraphic architecture of tropical tidal deltas in a low accommodation-space setting. The preserved depositional systems tracts extend from up-dip deposits dominated by fluviotidal channels, into down-dip delta-front deposits dominated by inclined tidal marine sands and muds. These in turn transition into shelf systems, in which delta front deposits intertongue with open marine mudstones, sandy foraminiferal grainstones, and cross-bedded glauconitic sands. Individual sequences record deltaic progradation followed by delta abandonment, but the entire interval is grossly transgressive and capped by marine shales of Middle Miocene age. Geometries and facies proportions vary laterally and vertically, reflecting complex relationships between sediment supply, fluviotidal energy, accommodation space generation, sea-level change, and location in the systems tracts.