The Relationship Between Intraslope Basin, Seismic Facies and Sedimentary Processes in the Kaoping Slope Offshore Southwestern Taiwan

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Occurrence of intraslope basins and distinct seismic facies assemblages of the basin fills in the Kaoping Slope, offshore SW Taiwan, reflect interactions between regional convergent tectonics, local mud diapirism and sedimentary processes of fill-and-spill during slope development. Three major intraslope basins which mainly trending NNE-SSW separated by diapiric mud ridges located at west of the Kaoping Submarine Canyon. They are elongated depressions with a length ranging from 10 to 40 km and a width of about 12 km, similar to intraslope basins east of the Kaoping Canyon. Basin fills are characterized by a distinct upward change in seismic facies beginning with a basal convergent-baselapping facies, succeeded by chaotic facies and overlain by parallel and draping facies. The basal convergent-baselapping facies is the most common and the parallel and draping facies is restricted to slope areas shallower than 1000 m in water depth. Sediments from the prograding shelf and upper slope are transported and deposited mainly in the confined basal accommodation space of intraslope basins, forming convergent-baselapping seismic facies in the early stage of the basin fill history. Rates of deposition being slower than rates of basin subsidence due to local mud diapirism kept the early intraslope basins partially filled by sediment, representing a confined style of deposition. In the late stage of basin development sediments have been transported to a lower slope distal to the sediment sources, progressively filling and spilling intraslope basins in a generally southwestward direction.

KEY WORDS: Intraslope basin; Seismic facies; Sedimentation; Offshore; Taiwan