

Sedimentation in the tropical, mesotidal, wave dominated Pahang River delta complex

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The sedimentary development of a delta complex involves an interplay between wave, tide, longshore current and river processes. Although several models have been proposed and provided a coherent framework for deltaic sedimentary studies, they still await testing from a variety of environmental setting. Pahang river delta complex is another unique delta. The delta situated in a humid tropical climate with high rainfall

intensity throughout the year is subjected to a strong wave during the monsoon season.

The aim of this paper is to document patterns of sedimentation and characteristics of sedimentary environments that present in the delta complex.

The Pahang river delta complex is located in the east coast of Malay Peninsula. The main river which is the Pahang river is debauching water and mainly coarse-grained sediment eastward into the South China Sea. The delta is unique in the sense that it is developing in a monsoonal tropical setting where the river discharge is continuous and high, a medium ranges tides (~ 2 m) and seasonally strong winds and storms. The storms and winds produce high wave amplitudes that strike in the coast obliquely from the northeast and significantly affect the development of the delta. The Pahang delta complex shows a series of geomorphological and sedimentary changes that include considerable reworking and obliteration of certain facies and marked partial imbrication of fluvial, lagoonal and wave deposits. These changes are due to hydrodynamic conditions such as the interaction between longshore drift, stream flows and storm wave.

The sediments on the delta plain comprising continental and marine deposits of poorly consolidated clastic sand, clays and gravelly sands. These sediments form a 1-30 m high coastal plain bounded by outcrops of older rock formations in its western, northern and southern margin that originally formed a funnel-shaped depression and embayment. The lower Pahang river valley is barred seawards by a series of beach ridge-strandplain deposits standing 1-2 meter above the present mean sea-level. These series of beachridge-strandplain deposits were brought about by the late Pleistocene and Holocene sea-level fluctuations. These fluctuation have resulted in the erosion and deposition of various coastal plain deposits. Remnants of paleobeaches/shorelines can be seen outcropping some kilometers landward of the present day shoreline and at different elevations attesting to the time that they were deposited (The, 1982; Bosch, 1988; Tjia, 1992). The present proper Pahang River delta is probably the result of progradational of different lobes in response to the stabilisation of the relative sea-level around 2,000 years ago.

By studying the delta we can increase our knowledge and hopefully use it as an analogs for the deltaic system in the older deposits.
