

Sediment distribution and transport at the nearshore zone of the Red River delta, Northern Vietnam

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Abstract: The coast between Ngason and Haiphong is largely formed by accretion of the Red River system. In the region, five main surface sediment types (sand, sandy silt, silt, mud and sand at shoals) could be defined, which differ from one another in their sedimentary characteristics. Sand dominates along the shoreline between 0 and 15 m water depth. Down to a water depth of about 25-30 m, the sediment is dominantly silt. Further offshore the surface sediments are mainly sandy silt and sand of older units (Early-Middle Holocene, Late Pleistocene). Net sediment transport directions are defined by grain-size analysis according to the method of Gao and Collins [Gao, S., Collins, M., 1992. Net sediment transport patterns inferred from grain-size trends, based upon definition of transport vectors. *Sedimen. Geol.* 80, 47-60, 1992]. At river mouths, directions of sediment transport are variable where the depths are shallower than 5 m. From 5 to 10 m water depth, sediments are mainly transported southeastward at the Ba Lat, Lach and Day mouths, northeastward at the Tra Ly mouth and eastward at the Thai Binh mouth. Recently, the Hai Hau erosional shoreline is not supplied with sediment from the Ba Lat mouth and sediments are transported southwestward alongshore in the region shallower than 5 m. The region of depths from 10 to 30 m is specified by southward sediment transport. © 2007 Elsevier Ltd. All rights reserved.

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