Abstract

We studied the spatial distribution and textural characteristics of 234 surface sediment samples from the Bay of Cartagena, Colombia, to understand sedimentation processes over the last few decades. We used three discriminant functions to characterize depositional environments and to differentiate among: (i) beach deposits and sediments of high-energy, shallow marine environments, (ii) fluvial deposits and sediments of shallow marine environments, and (iii) fluvial deposits influenced by turbidity currents. The predominant sediment type is a medium-size (5.35 ± 1.2), poorly sorted (= 1.63 ± 0.8) mud, with a noticeable asymmetry (Sk = -0.052 ± 0.2) and kurtosis (k) of 0.84 ± 0.4. There were two main superficial sediments types in the Bay of Cartagena: (1) sediments of high-energy, shallow marine environments with high fluvial influence, and (2) turbidity current deposits with high fluvial influence. Sediments with the lowest sand content (<5%) are located along a latitudinal axis running from the Dike Channel prodelta to the western end of Tierrabomba Island. The CaCO3 content of the sediments is <10%. Autogenous calcareous sediments are covered by fine terrigenous sediment transported through the Dike Canal, which has a more active and dominant role in the Bay’s sediment deposition than previously reported.

Keywords

Surface sediment, textural analysis, sedimentary environments, Cartagena Bay, Dike Channel, Colombia.