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Geochemical Treasures and Petrogenetic Processes

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Abstract

Sediment components, major and trace elements, and radionuclide (^{210}Pb) of estuarine mudflat sediment cores collected from the Mandovi, Kalinadi, and Aghanashini estuaries, along the central western coast of India, were investigated to understand the source, processes, and depositional environments. The distribution and abundance of parameters studied reveal that they were controlled largely by the catchment area geology, geomorphology, and estuarine processes together with a contribution from anthropogenic activities. The variations in sediment proxies of mudflat cores reveal changing environmental conditions with time. The sedimentation rate in the study area varied in two phases, the relatively low rate in the lower part and the high rate in the upper part of the cores in Mandovi and Aghanashini estuaries. The increased deposition of finer sediments and metals in the recent past regulated by natural and enhanced anthropogenic input was responsible for higher sedimentation rates. In the Kalinadi estuary, however, sedimentation was uniform with a single phase.