Abstract Details

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Title: Geochemical and Early Diagenetic Aspects of Sediment Cores, Ennor
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Abstract:

The transformations of iron and manganese are key processes in the biogeochemistry of marine and estuarine sediments(1). Estuarine sed by and large provide distorted evidence of redox control on the post-depositional redistribution of elements because majority of the estuar have undergone ecological equilibrium with contamination(2). Concen of major (Si, Al, Fe, Mg, Ca, Na and K), minor (Mn) and trace (Cd, Co Pb and Zn) elements as well as organic matter, carbonate and sand-s contents were determined in two sediment cores collected from a sha tropical Ennore Creek, southeast coast of India, to assess early diage effect on the distribution of minor and trace elements. Aluminum norr elemental ratios and enrichment factors (relative to crustal average) Co, Cr, Fe, Mn, Ni, Pb and Zn show the metal enriched segment betwe 37.5 and 50 cm in sand dominated, inter-tidal Core 1 suggesting the in environmental and depositional conditions. Similar metal enriched segment was also observed between 22.5 and 37.5 cm in Core 2 cons of silty sand. Enrichment factor-depth profiles of all the elements inva exhibit a sharp peak (metal-rich layer) at 42.5 cm in Core 1 and 30 c Core 2 reflecting the Mn-Fe oxyhydroxides precipitation probably at th boundary. Many investigated elements exhibit profile shapes analogou those of Mn and Fe, especially in the metal enhanced parts of the core the coprecipitation and sorptive capacities of oxyhydroxides(3). Highe enrichment factors (>1) of Cr, Cd, Pb and Zn in both the cores studie revealing an additional anthropogenic enhancement of these metals. calculated low CIA (Chemical Index of Alteration) and PIA (Plagioclase of Alteration) values with low Si and Al contents in metal enhanced la cores, however, indicate the lower terrigenous input, in turn, reduced in the source region somewhere during later half of the last century. H enrichment factors of metals such as Co, Ni, Pb and Zn in the lower p Core 1 suggest their sulphide association. Distinct and consistent beh of most of the elements in metal enhanced parts of sediment cores pr that metal enhanced layers in estuarine sediments can be used as a geochemical marker zone to infer the events such as low rainfall, eros non-deposition as well as industrial initiation, if they dated properly.
References [1] P. Van Cappellen and Y. Wang, Amer. Jour. Sci. 296, 19 (1996). [2] J.J.G. Zwolsman, G.T.M. Van Eck and G. Burger, Estu. Coa