

Composition change from fluvial to estuarine environment: Mahaweli River, Sri Lanka

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The sediments from the Mahaweli River is brought and deposited at the Trincomalee bay a natural deep submarine canyon. In the river most elemental concentrations increase with a decrease in particle size. Regional differences reflect the mass transfer process from terrestrial areas to coastal seas and the influence of the local marine geology. The mean chemical compositions of coastal sea sediments are not similar to those of stream sediments in adjacent terrestrial areas. This observation supports the fact that coastal sea sediments have certainly originated from a mixture of terrestrial and marine materials. The low concentrations of all elements except Sr and Ca in the bay area attribute to the dilution effect due to quartz. However, the spatial distributions of elemental concentrations are not always continuous between the land and coastal seas. The estuary circulation causes the heavy minerals to deposit in the west side of the Trincomalee bay and Th/Sc-Zr/Sc shows that the sediments are of andesite to rhyolite in composition.

Keywords: Mahaweli River, Trincomalee bay, heavy minerals, terrestrial, marine