

CONTAMINATION IN TSUNAMI SEDIMENTS: A CASE STUDY FROM THE SOUTH CHENNAI COAST, SOUTH INDIA

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ABSTRACT

The sediments deposited by the 26th December 2004 Tsunami along the Tamil Nadu coast, India from Injambakkam to Kadalore were sampled within a few weeks of the tsunami. The surface sediment in the tsunami inundated zone revealed significant salinity at that time. The sediment types varies from medium sand to fine sand, contained significantly elevated contents of salts (Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Cl^- and HCO_3^{2-}) in water soluble fraction and of Cu, Pb and Zn in bioavailable fractions. The salts and metals reveal high correlation to each other. For various metals, the geoaccumulation index has been calculated as a criterion to assess if their concentrations represent contamination levels or can be considered as background levels. The results show that metal concentrations in sediments can be considered near the background levels found in the study area. Using statistical analysis evaluation of contaminated sediments has been made with reference to their geographical position. This study clearly indicates a serious environmental hazard exists in this region and there is a risk of migration of contaminants into groundwater and food chain.
