Metal distribution in Sediment Cores from São Paulo State Coast, Brazil

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Abstract

Sediments may accumulate a relatively high concentration of contaminants, which can persist for long periods of time. The presence of these pollutants represents a threat to the environment and the ecological system. The southeastern coast of São Paulo State is comprised of a densely urbanized area, the largest industrial complex of the country, with a predominance of petrochemical and fertilizer plants and it is also home to Brazil's most important port. The objective of this study is to determine the basal levels of the elements: As, Br, Ce, Cs, Co, Cr, Eu, Fe, Hf, La, Lu, Nd, Rb, Sb, Sc, Se, Sm, Ta, Tb, Yb and Zn using neutron activation analysis in sediment cores. Ten core samples with depths varying from 50 to 100 cm were collected and analyzed. It was concluded that the As, La, Sm, Ne, Ce, Eu, Hf, Ta, Th, and U elements were found to have a high background in the region and Fe and Zn were the main indicators of anthropogenic contribution in the sediments. Moreover, some of the analyzed cores were affected by human activity throughout their extension.