



Record of anthropogenic metal fluxes in the Tagus prodelta (Portugal)

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Three short sediment cores collected in the Tagus prodelta were investigated through the variability in grain-size parameters, major and trace elements, C_{org} , N_{tot} , $\delta^{13}C$ and ^{210}Pb dating to characterise the historical development of trace metal contamination. Historical trends indicated significant anthropogenic enrichments for Hg, Pb, Zn, Cu, Sb and Sn since the 1930s. Mercury presented the highest level of anthropogenic enrichment (ca. $EF_{Hg}=20$) in cores 3576 and 3579. Despite these elements were derived from distinct industrial sources all of them presented similar temporal trends, which reflects the importance of estuarine mixing processes originated by wind and tidal regimes and later transfer to the adjoining coastal areas. Bioturbation may also have contributed to vertical mixing of sediments. The smoothness of down-core profiles contrasts with periodic river floods, suggesting those materials were not fully deposited in the prodelta. The improvement of industrial and domestic effluents treatment together with the closing of some industrial point sources in the two last decades is not evidenced in recent sediment composition of the Tagus prodelta, presumably due to the thicker surface-mixed layer.