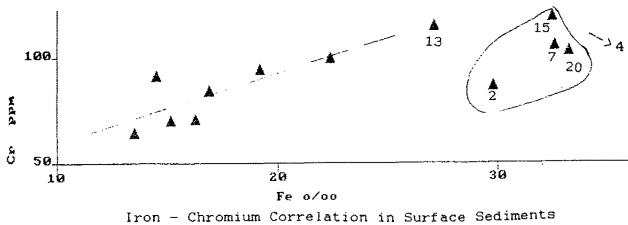
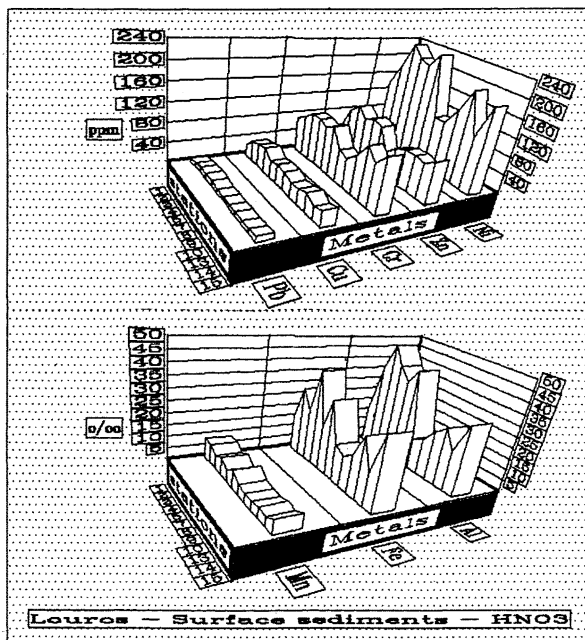


General Trends in Trace Metal Distributions of Louros Estuary Sediments

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The estuary of the river Louros is located within the semienclosed Amvrakikos Gulf which is connected to the Ionian sea, in the north-western coast of Greece. Previous works on metals in the estuary are scarce. (Scoullou et al. 1986, 1988) The present paper summarises our results on trace metal studies in the Louros river estuary from a trench of 15 stations extended from a site within the river located approximately 30 Km upstream from the river mouth to a station placed 4 Km offshore. Station 1 is clearly a riverine one and no traces of saline water were determined during the sampling. Station 16 could be considered as a marine one, whereas at station 2 in a distance of 5.5 Km a very thin layer of saline water $S_{\text{‰}}=25.6\%$ was observed near the river bed.



Sediment samples were collected by using a Mackereth (1969) microrer. All chemical treatments were performed on the $<61 \mu\text{m}$ sediment fraction. The samples were treated with conc. HNO_3 in PTFE beakers and for the extraction of the labile metal the samples were leached for 12 hours with 0.5 N HCl (Agemian and Chau, 1976). The carbonate content was determined as a weight difference before and after the HCl leaching. Organic carbon was determined by using the Gaudette et al (1974), method. The carbonate content of the sediment is relatively stable and high fluctuating around 30%, whereas the carbon content in the upper part of the river (st 1) is around 0.6% and in the intermixing zone around 2.3%. The relative invariability in the concentrations of several metals (Fe, Cr, Ni) extracted by diluted HCl could be attributed to a significant contribution of the Fe, Cr and Ni connected with carbonates in their HCl extracted fraction throughout the estuary. This is not the case for a series of other metals such as Pb, Cu, Mn, Cd and Zn which show an important variability and in general higher values in the riverine stations and the upper limits of the intermixing zone and a relative decrease in the area around the sill and the mouth of the river. The concentrations tend to increase again offshore, a tendency also followed by Cd. This indicates that considerable percentage of extractable forms in the river mouth area, is not related with carbonates but are coprecipitated and trapped with organics etc. The HNO_3 extractable Mn, Cu and Pb follows the same distribution as their HCl extractable fractions. The even distribution of the difference $\text{M}_{\text{HNO}_3} - \text{M}_{\text{HCl}}$ might reflect a relative homogeneity of the mineralogy of the sediment, for the above mentioned metals, within certain limits. It is noteworthy that the HNO_3 extractable fraction of Fe, Cr and Ni varies considerably from station to station. Considering the interelemental ratios one could identify good linear correlations between Cr, Ni and Fe a feature rather common in many estuaries. This correlation is not followed, in a group of stations where Fe has particularly high concentrations ($\text{Fe} > 25\%$). In the same envelope, station 20, (Tsopeli lagoon) is included indicating that the given sediments (st. 2, 4, 7, 13, 15) are most likely influenced by sediments rich in FeS , formed in the adjacent lagoons and finding their way to the river. The good correlation with Fe is also followed by Zn and Cu.

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