

STUDY OF ENVIRONMENTAL CONTAMINATION OVER THE HISTORICAL PERIOD: TRACE ELEMENT AND LEAD ISOTOPIC SIGNATURE IN COASTAL SEDIMENTS FROM CAP CORSICA (FRANCE)

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The Mediterranean coasts have been characterised by intense maritime commercial exchanges since Antiquity. Archeological researches reveal that Cape Corsica (France) may have been an ancient Roman harbor. The purpose of this study is first to highlight an anthropogenic contamination due to Roman activities using trace element concentration. Second we aim to identify the contamination sources through Pb isotope composition. Radiocarbon ages performed on macroremains in coastal sediments from Cala Francese (cores CF10-II and CF10-III) allow the localisation of the Roman Period in the sedimentary columns. In core CF 10-II, two major shifts of trace element concentration (such as Pb, Cu, Zn, As and Sb) have been measured at 60-80 and 140-160 cm, corresponding respectively to the Industrial Revolution and to the Roman Period. The same tendency of the Pb concentration is observed in core CF10-III. In this core, the Roman Period is localised between 80 and 140 cm. A major shift in Pb isotopic composition is observed in both core at 140 cm in CF10-II and 60 cm in CD10-III, with a decrease of $^{206}\text{Pb}/^{207}\text{Pb}$ ratios and $^{208}\text{Pb}/^{206}\text{Pb}$ ratios. All the Pb isotopic ratios match with Pb Roman time signatures from Greece and Spain. Such significant changes in trace metal content and in Pb isotopic signature of sediments are consistent with Human perturbations of the environment during the Roman and Industrial periods. The Pb isotopic signatures measured in Cala Francese are in the same range as those located in other sites of Cape Corsica, indicating a regional contamination.