

Pb ENRICHMENTS IN SHORT SEDIMENT CORES COLLECTED OFF THE PORTUGUESE MARGIN

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Radionuclide (²¹⁰Pb) analyses were performed on three ~ E-W Portuguese margin multicore transects sampled during the *Canyons 2006* cruise of RV Pelagia (Estremadura Spur ~39.2°N, Cascais Canyon ~38.4°N, off Cape Sines ~37.8°N). From each transect, one core with a well-defined exponential down core decrease of excess ²¹⁰Pb and hence a reliable radionuclide chronology was selected for geochemical analysis: stations PE252-16 (39.17670N; 10.66612W; 2084 m water depth), PE252-32 (38.36307N; 9.50690W; 2100 m water depth) and PE252-55 (37.83320N; 9.58317W; 1374 m water depth), respectively. The main goals of the present work are 1) to evaluate the level of Pb enrichments (through the calculation of

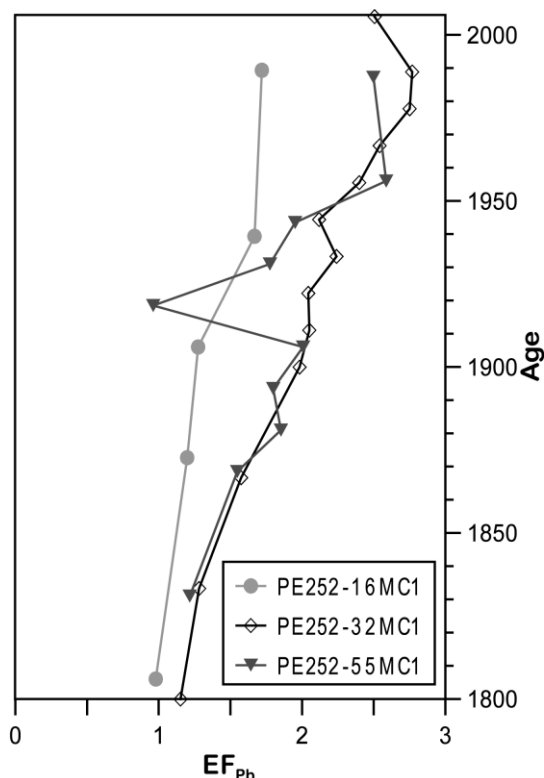


Fig. 1 – Historical trends in normalised enrichment factors for Pb. EFs are calculated by dividing the Al-normalised metal contents by the Al-normalised metal background for each core.

Enrichment Factors (EF), which are defined based on the ratio between the Pb Al-normalised values and the Pb Al-normalised background values to reduce the grain-size effects [$EF = (Pb/Al)_{sample} / (Pb/Al)_{background}$] in marine deep sediments, and 2) to help in the understanding of environmental processes responsible for those enrichments.

The EF results in the three cores indicate Pb enrichments towards the present (Fig. 1). Despite the relatively low EF values (up to 3), the homogeneous increasing trend in EF_{Pb} , might indicate an increase in anthropogenic contaminant input since ca. 1850AD. The highest Pb enrichments were observed in cores PE252-32-MC1 and PE252-55MC1 located in the Cascais Canyon and in Cape Sines, respectively. These preliminary results do not confirm the importance of canyons as preferential carriers of shelf sediment to the deeper ocean. Furthermore, contaminant dispersal may be linked to both ocean dynamics and atmospheric transport. Analytical work on other cores from the same transects is presently in progress to test our preliminary conclusions.

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