

ORAL PRESENTATION

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## **Influence of natural weathering on the behavior of contaminants in a dredged marine sediment**

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When dredged from water, marine sediments are highly reactive, thus their bio-geochemical behavior has to be appreciated so as to limit spreading of polluted leachates in the surrounding ecosystems. In this context, it is essential to assess the main the impact of bio-physicochemical factors [1, 2, 3].

In this research, two marine sediments were considered. They come from a harbor in the south of France, submitted to extensive industrial activities during several centuries. These sediments are mainly contaminated by organic contaminants, as well as inorganic contaminants, and organometallics (organotins). A high concentration of sulfides was also detected before and after natural weathering, and in particular framboidal pyrite which shows significant signs of oxidation.

Within an experimental methodology, based on multidisciplinary investigations [4, 5], this study was dedicated to the environmental assessment of marine sediments. The main objective was to focus on the influence of the weathering, under natural conditions, on the behavior of contaminants in these matrices.

It was notably observed that the weathering under natural conditions led to an evolution and a degradation in the organic matter content, a decrease in the PAHs (mainly due to anthropogenic activities) and organotins concentrations, whereas the PCBs seem to be preserved, probably due to their persistence.

In the weathered sediment, the pyrite seems also to be preserved in the agglomerates composed of aluminosilicate minerals. The quantity of inorganic species appeared high, in particular for copper, lead, and zinc in the raw and naturally-weathered sediments.

The assessment, origin and the apportionment of the contaminants could thus lead us to improve the management of dredged harbor sediments.

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