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New GEOTRACES or GEOTRACES relevant scientific results

Nutrients, trace element in Western and Eastern Mediterranean Sea surface sediment: Environmental variability and anthropoghenic footprint

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ABSTRACT. During GEOTRACES MedBlack Sea cruise, our work was focused on physicochemical parameters measurements, water sampling and short core sediment sampling. Trace elements necessitate trace metal clean CTD system sampling. Analysis are assessing nutrient, trace element (Fe, Pb, Cd, Zn, Co, Mo, Cu and Ni) and trace element fractionation, carried out on sediment in eastern and western surface sediment. The X-ray diffraction is applied on the clay fraction. Results salinity section plot shows some clearly recognizable water masses. Clay minerals assemblages have distinctive sources and their dispersal reflects different agents of transport in the eastern Mediterranean Sea. Nutrients show more oligotrophic condition in eastern area. The most important sources of dissolved silicate in the Mediterranean Sea come from the continental fluvial system and from groundwater discharges. Electronic microscopy shows dominance of diatoms, which play an important role in organic matter export to the deep sea. Trace element fractionation differentiates five fractions the forth first fractions constitute bioavailable fraction that is compared to deep water (near sediment water interface). This comparison shows at first the impotence of surface sediment as potential pump of trace element to the water column and the deep influence of continental discharges on surface sediment trace element acumulation and the deep water mainly for Fe, Cu and Co.

Keywords: Bioavailability. Mediterranean Sea. Nutrients. Surface sediment. Trace element.

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