

The last 20kyr reconstruction of the western Mediterranean Sea and north-western African margin from coccolith chemistry

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The Alboran Sea is situated within a transition zone between the Mediterranean Sea and the Atlantic Ocean; this exceptional location is particularly sensitive to record the connections between both areas. It records and amplifies the smallest climatic changes occurring at the mid-latitude regions, however, there are few data about the primary production pattern in the area and the influence of the Atlantic Ocean as the major source of nutrients.

The present work concerns the study of two high-resolution calipso piston cores obtained during *Marion Dufresne* cruises. MD95-2043 was recovered from the Alboran Sea (WM) at 36°N-2°W and 1841m water depth, and MD03-2705 DUST was recovered from 3100 m water depth at 18°N-21°W off Mauritania-Senegal (NWA).

Restricted coccolith fractions were analyzed for Sr/Ca ratio and stable isotopes to reconstruct productivity and sea surface temperature during the last 20kyr, and to assess the interactions and latitudinal gradient between the western Mediterranean Sea (WM) and the north-western African margin (NWA).

Repeated decanting and microfiltering techniques allow separation and concentration of sediment fractions dominated to high degrees by the coccolith-carbonate from a single species. The cosmopolitan *Emiliania huxleyi* and the surface dwellers *Helicosphaera carteri* and *Calcidiscus leptoporus* were isolated from every sample, even when their abundances in the original sample were low.

Different fractions from the same sample showed an offset in the isotopic ratios that is in agreement with the non-equilibrium effects obtained from previous culture experiments. The Mediterranean core shows a wider range of isotopic values related to a greater sensibility of the area to climatic and oceanographic variations.