



Late Holocene aeolian dust and coccolith stable isotope records from the Mediterranean Sea: does aerosol fertilization affect biological productivity?

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The Mediterranean Sea is a semi-enclosed basin where the oceanic, atmospheric, and riverine activities interact and influence the environmental conditions in the basin today and in the past. Today the basin is an oligotrophic area where nutrients are limited, particularly in the east. A spatial gradient in biological productivity shows control by nutrient input and seasonal circulation in the basin. Aeolian and riverine inputs might be the source of nutrients in the Mediterranean Sea.

Here we present the first results from a series of Late Holocene surface samples, collected across the basin, which have been used for grain size analysis in order to determine the distribution of aeolian and riverine sediments in the basin. The reconstructed aeolian dust spatial distribution pattern is compared with modern dust dispersal patterns inferred from satellite data (TOMS, SeaWiFS). From the same samples we also compare the sedimentological data with the stable oxygen and carbon isotope compositions of coccolithophores, which reflect environmental parameters in the basin, to have a first impression of if and how aeolian input might have played a role in export production and marine fertilization. This work is part of the EUROCORES-EUROCLIMATE Project 'Quaternary Marine Ecosystem Response to Fertilization' (MERF).

Keywords: Mediterranean Sea, aeolian dust, riverine input, nutrients, fertilization, productivity.