



A seven year coccolith carbonate flux record from the NW Mediterranean Sea

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Although biogenic carbonate production is largely dominated by coccolithophores, there is only limited information on seasonal patterns of coccolithophore production in the Mediterranean Sea. In order to investigate the influence of seasonal and interannual environmental changes on coccolithophore production and carbonate fluxes, we investigated two seven year (1993-2000) sediment trap series from the NW Mediterranean Sea located at 500 m water depth and about 500 m above bottom of the shelf break south of Marseille (43°02'N, 5°11'E) and east of Perpignan (42°25'N, 3°32'E). This region is characterised by seasonal variations in temperature, salinity, nutrient availability, river input, wind stress, surface currents and deep mixing. Thirteen coccolith species were distinguished using the SYRACO automatic recognition system. *Emiliana huxleyi* largely dominates the assemblages. Morphometric measurements of selected species were done by an image analysis software in order to determine the weight of the coccoliths. Seasonal changes in the average weight of the coccoliths as well as a strong variability in coccolith production are observed. By taking into account transportation and preservation, we are able to determine species specific carbonate production in relation to oceanographic changes. The response of coccolithophore production to environmental changes are used to determine species specific environmental preferences that will be applied in future climatic reconstructions. This work is part of the EUROCORES-EUROCLIMATE Project MERF (Quaternary Marine Ecosystem Response to Fertilization).