



## **Phytoplankton response to marine fertilisation during sapropel formation in the eastern Mediterranean Sea**

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The eastern Mediterranean Sea is an area where occasionally sapropel (organic-rich layers deposited under anoxic conditions) deposition took place. The area is influenced by the monsoon system involving changes in nutrient fluxes. Marine fertilisation by aeolian and riverine input might also influence nutrient fluxes today. Detailed knowledge of these processes is important to understand the marine productivity cycle in this area, playing a role in modulating CO<sub>2</sub> exchange with the atmosphere and also sequestering it into the ocean as a major reservoir in the carbon cycle. Relatively little is known about the mechanisms behind these marine productivity cycles. In our research we use the inorganic chemistry of coccolithophores, a dominant calcareous phytoplankton group in the Mediterranean Sea, from surface sediment samples and gravity cores spanning several sapropel deposition events. Stable isotope and trace element data are used to reconstruct changes in nutrient flux, marine productivity, and oceanographic conditions. Our data will be combined with organic chemistry and sedimentologic results from the same samples. Furthermore, relationships obtained from culture studies will be applied to the sediment samples. This work is part of a EUROCORES-EUROCLIMATE, Project MERF (Quaternary Marine Ecosystem Response to Fertilization).