



Eastern Mediterranean sapropel S1: Isochronous Selective Formation and Preservation

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Sediments in the Eastern Mediterranean appear to be ideal recorders of Global paleoclimatic signals. Distinct dark-green organic-rich intervals (sapropels) occur in eastern Mediterranean sediments at an astronomically determined cyclicity alternating with organic-lean sediments. Their occurrence is related to relatively humid climatic periods, resulting in enhanced organic fluxes arriving at the seafloor, whereas the intervening, arid periods are characterized by the deposition of rather high dust fluxes. The most recent of such events occurred isochronously for all water-depths and regions from 9.8 to 5.7 kyr, simultaneously with the sustained wet period in the circum Mediterranean area and was followed by a rapid increase in aridity (Ti/Al) coinciding with a peak of high Mn-oxide content. The latter peak occurs in response to an abrupt re-ventilation event of the deep basin, and is confirmed by micropaleontological and organic geochemical proxies. Following the ventilation event, excess oxygen has continued to progressively move downward into the sediment oxidizing e.g. organic C. From the organic geochemical data it is clear that although siliceous microfossils have entirely disappeared, their 'signature' is still there. Clearly, marine biomarkers are enriched in the remaining S1 interval, whereas these are completely removed upon oxidation in the upper part. Proper recognition of initial versus secondary signals is therefore vital in the interpretation of sedimentary proxies.