

# **Unraveling riverine and eolian supplies for a high-resolution Holocene sapropel S1 record in the central Mediterranean**

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Hydroclimate variability exerts a fundamental control on the rhythmic depositions of sapropel in the eastern Mediterranean Sea (EMS), while the exact mechanisms with respect to the freshwater sources and related hydroclimate changes remain elusive. Here, strontium (Sr) and neodymium (Nd) radiogenic isotopes accompanied by high-resolution elemental geochemistry from a well-dated boxcore CP10BC are analyzed to unravel and constrain different riverine and eolian supplies to the Central Mediterranean over the past 9.8 ka.

By ruling out the potential influence of the Nile-derived particulates to this site, the detrital sediments in core CP10BC are described by a three-endmember mixing system comprising the eolian supply from North Africa (I), the riverine inputs from Libya (II) and from the northern EMS borderlands (III), in terms of Sr and Nd isotopic and elemental compositions. Further more, changes in these three endmembers are linked to aridity/humidity variations as inferred from the high-resolution elemental ratios of Ti/Al (I), Mg/Al (II), and K/Al (III), which are primarily dominated by (I) the extension of open water bodies in North Africa, (II) the African monsoon precipitation, and (III) the winter precipitation over the northern EMS borderlands, respectively.