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Holocene humidity changes in southern Iberia inferred from the geochemical signature of marine sediments

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The Mediterranean region is particularly sensitive to global climate variability that critically reflects on its hydrological conditions. A recently published high resolution reconstruction of Holocene Sea Surface Temperature (SST) based on *Globigerina bulloides* Mg/Ca ratios, set the basis to explore, within a warm climatic period, the impact of North Atlantic oceanographic conditions shaping the properties of the inflowing waters into the Mediterranean Sea. Here we go a step further in establishing the potential links between these oceanographical changes with the hydrological conditions on the southern Iberian Peninsula.

This study combines XRF-core-scanner analyses with the radiogenic isotopes characterization (Sr, Nd and Pb) of the terrigenous fraction in core ALB-2 from the Alboran Sea. Results indicate that the most humid conditions developed during the early to middle Holocene with a transition towards drier conditions and colder SST that occurred by the late Holocene. The radiogenic Sr, Nd and Pb records do not show any covariance with the millennial scale oscillations shown in the Zr and K XRF records interpreted as humidity changes. This could suggest that inputs of African dust are not the main controlling factor in the XRF records. In contrast, the Sr isotope record shows a significant transition around the middle Holocene while SSTs show a cooling trend. For an accurate interpretation of that feature, this study also targets a novel approach by characterizing the radiogenic isotope composition of settling particles recovered by moored sediment traps under well characterized meteorological conditions.