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Climate Variability in the Levant basin during the last deglaciation

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Climate variability of the eastern part of the Mediterranean Sea during the last deglaciation has been reconstructed from a marine sediment core MD04-2722 (33°09 N; 33°49 E, 1780 m w.d.) retrieved in the Levant basin. A multi-proxy approach provided records of surface waters conditions and of detrital inputs to the core location through chemical and mineralogical characterisation of the terrigenous fraction. Planktonic foraminifera stable isotope results able to monitor hydrological changes linked to North Atlantic climate influence (eg. Heinrich event 1 (HE1) and Younger Dryas (YD)) while elemental ratios (eg. Fe/Ti) coupled to mineralogical determination are used as indicators of Blue Nile terrigenous discharge mainly influenced by the latitudinal position of the Inter-Tropical Convergence Zone (ITCZ) and/or Ethiopian African monsoon. Hydrological conditions show the occurrence of N-S gradients in the Levant basin, during HE1. However the influence of North Atlantic type climate during YD and HE1 needs to be further explored. Terrigenous fraction component indicators document: i) the dominance of aeolian dust contribution during the last glacial period, and ii) enhanced Nile River sediment inputs during the early Holocene which started before the initiation of Sapropel 1 (about 2.5 kyr). Taken together, we will discuss how both climate systems (North Atlantic / ITCZ) interact and influence the eastern Mediterranean Sea climate at millennial scale. These results give new insights about the spatiotemporal hydrological changes in the Levant basin and allow the study of the temporal evolution of E-W hydrological gradient.