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Uniform climate development between the subtropical and subpolar Northeast Atlantic across marine isotope stage 11

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Abstract. Proxy records from a core site off Northwest Africa were generated and compared with data from the subpolar Northeast Atlantic to unravel some main climatic features of interglacial marine isotope stage (MIS) 11 (423–362 ka). The records point to an almost 25 kyr lasting full interglacial period during stage 11 that was preceded by a considerably long glacial-interglacial transition (Termination V). Off NW Africa, a strong reduction of terrestrially derived iron input is noted after 420 ka suggesting a pronounced increase in continental humidity and vegetation cover over Northwest Africa. In analogy to the Holocene climate of the region, this early wet phase of MIS 11 was likely associated with enhanced influence of the West African monsoon system on the Saharan-Sahel region which led to both a reduction in trade wind intensity off NW Africa and the formation of sapropel S11 in the Mediterranean Sea. A detailed comparison with data from the subpolar North Atlantic indicates a remarkable coherent timing for the main environmental changes in both regions giving evidence for strong interglacial climate connection between the low and high latitude North Atlantic. Although our records of MIS 11 compare well with the Holocene in terms of some major climate characteristics there are distinct differences in the temporal evolution of each peak warm interval. This suggests that care should be taken when using MIS 11 as analogue to forecast future interglacial conditions.

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