



Vegetation response to rapid climatic variability in the Alboran Sea region (W. Mediterranean) from 50 ka to present

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Extensive multi-proxy investigations of the marine sediment core MD95-2043 (Alboran Sea, W. Mediterranean; 36°8'6"N, 2°37'3"W; 1841m water depth; total length 36m) provide a detailed record of climatic variability in the Mediterranean-Atlantic linkage region during the last 50 kyr. The influence of rapid centennial to millennial scale (Dansgaard-Oeschger) climate instabilities and North Atlantic cooling events (Heinrich events) on W. Mediterranean oceanographic conditions is well-documented in this high-sedimentation-rate core through the analysis of physical, geochemical and biological proxies (stable isotopes, alkenones, TOC, coarse fraction analysis, major and trace element content, planktic and benthic foraminifera, coccolithophores). The study of diverse and well-preserved pollen in the marine sediments permits the direct correlation of a detailed, continuous and chronologically accurate record of vegetation history in the semi-arid regions of SE Spain and N Africa with the record from marine proxy data.

Here, the results of high-resolution pollen analysis from core MD95-2043 are presented to show the impact of changing temperature and precipitation regimes on terrestrial ecosystems during the last glacial period, the glacial-interglacial transition, and the Holocene (Marine Isotope Stages 3, 2 and 1). Notably, we observe expansion of Mediterranean forest under warm, humid conditions during all Dansgaard-Oeschger (D/O) interstadials, the Last Glacial Interstadial and the Holocene, while forest declines and expansion of steppe vegetation occurred under dry, cold conditions during D/O stadials, Heinrich events 5 through 1, and the Younger Dryas. The Last Glacial Maximum (LGM) is characterized by the maximum development of ericaceous heath-

land vegetation, and emerges as relatively humid cold period. This Alboran Sea record is interpreted within the perspective of a growing wealth of pollen and other multi-proxy data resulting from the study of marine cores of the Iberian margin.

This research forms a part of the EuroCLIMATE project RESOLuTION (Rapid climatic and environmental shifts during Oxygen Isotope Stages (OIS) 2 and 3 – linking high-resolution terrestrial, ice core and marine archives).