



Terrestrial and marine responses to the Dansgaard-Oeschger events in and off Iberia

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The multiproxy study of two twin cores (MD95-2042 and SU81 18) retrieved off Lisbonne illustrates the impact of D-O events on vegetation and marine environments in and off south western Iberia over the last 140 ky. The comparison of the paleoclimatic record from this core and the new record of NorthGRIP shows that the twenty five D-O oscillations have had an impact on the vegetation and climate of this region. The Eemian in Iberia, defined as the last maximum forest expansion bracketed between open vegetations of the previous and succeeded glacial periods, encompasses not only the "Eem" defined in the bottom of NorthGRIP ice core but also D-O interstadial 25. Further, the direct correlation between pollen and marine proxies (alkenone-derived Sea Surface Temperatures, benthic and planktonic isotopic records, ice rafted detritus concentrations and percentages of the polar foraminifera *N. pachyderma* (s)) shows that severe forest contractions coincide with cold SSTs associated or not to local iceberg discharges. By contrast, D-O interstadials are contemporaneous with oceanic warming and forest expansion. Therefore, a dynamic equilibrium exists between vegetation and climate during short periods of forcing. Further, the value of 12°C in summer SST seems to be, as today, the minimum threshold value for forest expansion. The multiproxy study of core MD99-2331 retrieved off north western Iberia indicates that the impact of the D-O climatic variability on western European ecosystems is

spatially variable. Southern Iberia environments, alternating between semi-desert and open Mediterranean forest, were particularly affected by this climatic variability. In northernmost regions, the vegetation response was, on the contrary, almost muted.