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Rapid changes in temperature and hydrology in the western Mediterranean during the last climatic cycle from the high resolution record ODP Site 976 (Alboran Sea)

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High-resolution pollen record, pollen-inferred climate reconstructions and clay mineralogy records were performed over the last climatic cycle from the ODP Site 976 located in the Alboran Sea Continental paleoenvironment proxies were provided on the same samples to depict the short and long term variability of Mediterranean vegetation and climate during the two last terminations and the last two interglacials. Pollen record highlights the vegetation changes associated to climate variability while clay mineralogy informs about the terrigenous inputs related to wind and/or river transport.

During the last cycle, both vegetation and clay minerals data have recorded the response of continental ecosystems to all the climate events which characterized the last 135000 years. The Dansgaard/Oeschger oscillations and the rapid cold events evidenced in the North Atlantic (Bond et al., 1993; McManus et al., 1994) are well evidenced in the ODP sequence. Thus, warm interstadials show a strong colonisation of temperate Mediterranean forest while cold events are particularly well expressed by correlative increases in dry steppic to semi-desert formation with enhanced input from African desert dust (Bout-Roumazeilles et al, 2007 and in progress).

A special attention has been paid on the two last glacial/interglacial transitions 1 and 2 that occurred before the interglacial inception in order to better understand what happened during these key-periods in continental areas and also better understand how reacts the Mediterranean climate regime through these two periods. The two high resolution records from the Terminaison 2/ Stage 5 and Terminaison 1/ Holocene are compared especially with regards to the wind regime modifications through atmospheric supply, and to hydrological and temperature changes reconstructed from pollen data. Therefore for these two key-periods, we aim to produce a robust climate reconstruction pollen-inferred precipitation and temperature from the 0DP 976 marine Mediterranean core which also can be compared to climate estimates based on other marine cores (Peyron et al., in progress).