



Last glacial cycle paleoenvironments in the Balearic basin: linking western and eastern climate responses in the Mediterranean.

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The South Balearic basin is located in a key position to understand relationships between eastern and western Mediterranean sea (WMS). With this aim a marine pelagic record at ODP site 975 has been selected for a high resolution geochemical and mineralogical study. The resulting data have been used as proxies to establish the sedimentary regime, primary marine productivity, oxygen conditions and the preservation of the proxies. The age model based on five ^{14}C -AMS dates, stable isotope stratigraphy and comparisons with other WMS records. Sedimentation rates range for 4.4 to 7.8 cm/ky during the last 20 ky, implying a sample resolution of 175 to aprox. 400 yr. Semiquantitative relative abundances of clay minerals, calcite, quartz, and feldspars evidence an almost uniform supply of detrital clays during this period. Fluctuations in detrital element concentrations correlate with changes in climate and/or with wet/arid oscillations. Marine productivity has been established using Baexcess, and has a strong link with climatic/oceanographic oscillations, with greatest values during cold events such as H1 and YD. Baexcess correlate with redox-sensitive trace element enrichments, linking increases in productivity with lower-oxygenated environments. Redox-sensitive trace elements have been related to bottom oxygen conditions, and had been strongly affected by the last relevant redox event (LRE) described and dated between 7.5 and 7.0 ky. cal BP. Coetaneous to the LRE abrupt changes in detrital proxies has been described. Such changes could indicate variations in atmo-

spheric conditions synchronous to this oceanographic event. The origin of the LRE relates with an intensification in thermohaline circulation in the WMS and/or a major paleoceanographic changes. Eolian and fluvial proxies reveal variations in catchment areas and significant changes in climatic/atmospheric/oceanographic conditions during analyzed time interval. During the last glacial period they follows a complex pattern, with changing correlations between different element/Al ratios, which indicates a complicate evolution in moisture and catchment areas. During the Holocene, these proxies variations coincide to some extent with other Mediterranean records, specially with aridification phases defined in Jalut et al. (2000). Zr/Al ratio relates with heavy minerals and has been used as eolian input proxy. This ratio record the last transition from humid to increasing arid conditions in the WMS during last 5.5 ky BP. The obtained results suggest that major changes took place during Holocene in the Balearic basin. This basin was highly sensitive to the Gulf of Lion, Atlantic, and river/runoff inflows. Comparisons with other Mediterranean basins suggest that different basins have particular responses to climate forcing mechanism.