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A regional overview of the last glacial period in the temperate NE Atlantic: varying paleoproductivity centers over the last 50 ka BP

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Recent palynological investigations carried out in the eastern Gulf of Cadiz (MD99-2339 core) over MIS 3 enable to consider dinoflagellate cyst assemblage patterns over the last 50 ka BP through a compilation of 6 cores from the NE subtropical Atlantic to the Northern Bay of Biscay (also including cores MD95-2042, MD95-2043, MD04-2805CQ, VK03-58bis). Dinocyst signals depict hydrological front latitudinal shifts over the last glacial and associated sea-surface consequences regarding past regimes of primary productivity. We show here new data clearly evidencing subtropical latitudes of Cadiz as being as productive areas over the last glacial as recorded today in the septentrional part of the Bay of Biscay, especially between GI 8 and GI 12. We especially focus on dinocyst-species Lingulodinium machaerophorum relative abundances and absolute concentrations that we first evidence as a powerful tool to reconstruct and discuss productivity shifts through time in the temperate North Atlantic. This spatio-temporal synthesis bring important evidences of fast migrating paleoproductiviy centers from the last glacial period to present, implying also large consequences on the biological pump through time.

Regarding this specific session, 5 of the 6 cores discussed here were retrieved by the R/V Marion Dufresne through 3 different cruises:
Core MD99-2339 (35.89°N, 7.53°W, 1170m water depth, 18.54m long) was retrieved in a contouritic field in the oriental part of the Gulf of Cadiz by the oceanographic R/V Marion Dufresne during the 1999 International Marine Global Change Studies V (IMAGES V) cruise (Labeyrie, Jansen and Cortijo, 2003).
Cores MD95-2042 (37°48'N, 10°10'W, 3146m water depth, 39.56m long) and MD95-2043 (36°8.6'N, 2°37.3'W, 1841m water depth, 36m long) were retrieved from the SW Iberian margin and the central Alboran Sea, respectively, by the oceanographic R/V Marion Dufresne during the 1995 IMAGES I cruise (Bassinot and Labeyrie, 1996).
Core MD04-2805 CQ (34.52°N, 7.02°W, 859m water depth, 7.72m long) was retrieved 40 km off the Moroccan coast by the oceanographic R/V Marion Dufresne during the 2004 PRIVILEGE cruise.