



Paleoproductivity at the NW Iberian Continental Slope during the last 31.5 kyr

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In order to investigate the productivity conditions at the Galicia continental slope during the last 31.5 kyr, was studied the OMEX (Ocean Margin Exchange Project) core PE 109-13 (540 cm of length) recovered at 42.572° N, 9.690° W, and 2000 m water depth. Today hydrographic conditions at this site are characterized by recurrent seasonal upwelling and by the southward cold Portugal Coastal Current during April to October, and by the poleward warm Portugal Coastal Countercurrent during remaining year. The cold and nutrient rich Eastern North Atlantic Central Water upwelled is the most important phenomena to enhance the oceanic productivity in this region.

The age model of the studied core is based in five AMS ^{14}C ages and in the synchronization of the planktonic $\delta^{18}\text{O}$ (*G. bulloides*) record from the PE 109-13 sediment core with the $\delta^{18}\text{O}$ record from the GISP2 ice core. In the proximity of the Heinrich Events (HE) the age model was improved using the relative abundance of polar species, *N. pachyderma* (sinistral), and sea surface temperature (SST). Planktonic foraminifera assemblages are used to estimate SST with the modern analogue technique SIMMAX 28, as described in Pflaumann et al. (1996), using as reference the Portuguese margin database added to the North Atlantic surface samples used by the MARGO project (Salgueiro et al., in prep.).

The bottom paleoproductivity was assessed by benthic foraminifera high productivity (BFHP) proxy, considering that deep sea benthic foraminifera assemblages are con-

trolled mainly by variations in oceanic primary productivity and dissolved-oxygen levels in the water/sediments.

Heavy (2.94-3.3 ‰, VPBD) planktonic foraminifera $\delta^{18}\text{O}$, the high (41-89 %) relative abundance of polar species, and low summer SST (5-8 °C) allow the identification of the three youngest HE and some others cold Dansgaard-Oeschger (D-O) events. The BFHP suggests a higher deposition of organic matter, related probably with an increase in the productivity or in the exportation of organic matter, during the HE3, HE2, and HE1, between the Last Glacial Maximum (LGM) and the early Holocene, and probably during some (1-7) D-O interstadials. The low productivity during the LGM is also suggested by the drop in foraminiferal abundance (200-900/g of bulk sediment; with no significant signals of dissolution) in spite of the expected high productivity during the LGM due the westerlies strengthening. Sediments deposited during this period are also characterized by an increasing in fine fraction and detrital minerals. But between the LGM and 5 Kyr sand fraction, foraminiferal abundance and calcite content increased significantly whereas detrital minerals decreased. These results agree with a strong influence of sea level changes in the sedimentation and probably in the upwelling pattern in the NW Iberian Margin since the last 31.5 kyr.

References

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