



Magnetic anisotropy and bottom-current strength during the last glacial period in the North West Iberian Margin

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We have studied the magnetic properties and the magnetic anisotropy of low field magnetic susceptibility (AMS) of core CI12PC3 from the Galicia Interior Basin (North West Iberian Margin). The core spans over the last 80 kyrs and comprise the last six Heinrich Stadials (HS). We have found systematically lower ARM/ χ values during the stadials than during interstadials, indicating coarsening of the magnetic fraction during the cold periods. The record also show the typical increase in magnetic susceptibility (χ) that characterize the occurrence of Heinrich events (HE) during stadials in the North Atlantic, facilitating their detection.

AMS analysis showed the majority of the ellipsoid minimum axes (K3) are close to vertical ($I_{\text{mean}}=80^\circ$), almost perpendicular to the bedding plane. AMS ellipsoid maximum axes (K1) are well-grouped marking two main magnetic lineations. These orientations are consistent with the main flow directions reported in the area and attributed to the action of regional bottom currents flowing along the continental margin.

Down-core variations in the degree of anisotropy (P_j) showed significantly higher values during HS than during interstadials. We have noted that P_j down-core changes are independent of magnetic grain size, and interpreted them as the result of differences in the degree of grain alignment. These changes can be attributed to the variability in the strength of the bottom currents, indicating that they are stronger during stadials.

We have concluded that the magnetic properties and AMS of core CI12PC3 are climatically modulated on a millennial time scale.