

PALAEOCURRENT RECONSTRUCTION AND (TH-230EXCESS) SYSTEMATICS ON THE IBERIAN MARGIN OVER THE LAST 140 KA

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A recent (Th-230excess)₀-based study of two cores (IMAGES: MD95-2039 and -2040), recovered from the Iberian Margin in the NE Atlantic, argued that current-controlled sediment focussing (enhanced during glacial times) was the primary control on sediment composition and accumulation through time. An alternative representation requires the phenomenon known as 'boundary scavenging' to have been more intense during glacial compared with interglacial times. We present here detailed sedimentological data from core MD95-2040 (2465 m water depth) and a nearby core (OMEX: OMII-9K; 1833 m), presently under the influence of Lower North Atlantic Deep Water and Deep Intermediate Water respectively. In particular, sediment grain size is used to reconstruct past changes in the relative speed of near-bottom water flow and identify the sedimentary components responsible for changes in the accumulation flux over the past 140 ka. The palaeocurrent index indicates faster flow during the warm periods and slower in cold. The latter are generally characterised by elevated clay proportions and overall sediment accumulation fluxes (up to 32 g cm⁻² ka⁻¹). In comparison, warm periods of higher flow have lower flux and a tendency to silt dominance consistent with the higher flow speed and suppression of clay deposition. In MD95-2040 the silt palaeocurrent signal is distorted in stage 2 by very high sediment flux delivered down-slope. This suggests boundary scavenging as the principal control of high ²³⁰Th_{xs}, especially in the glacial. A model for sedimentation on the Iberian Margin accommodates both current-controlled sediment focussing and scavenging processes.