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A HIGH-RESOLUTION MAGNETIC RECORD OF DRIFT SEDIMENTS IN THE NEIGHBOURHOOD OF MOUND PROVINCES IN THE PORCUPINE SEABIGHT

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The Porcupine Seabight forms a deep embayment in the Atlantic margin, off the south-western coast of Ireland. Very-high resolution seismic profiling, acquired since 1997, revealed the presence of large (carbonate) mounds.
In general, the mounds are surrounded by bottom-current related deposits. The changes of seismic characteristics within the uppermost unit are interpreted as phases in a slope parallel drift under changing oceanographic conditions.
The magnetic susceptibility records of two giant piston cores (MD01-2450 and MD01-2452), taken respectively in the drift sediments at the SE-flank of a Belgica mound (eastern flank of the basin) and above a Magellan mound (northern flank of the basin), were analysed in order to provide a relative time frame and to investigate possible changes in paleoceanography and paleoclimatology.
Core MD01-2450 enabled us to propose a relative dating of over 74 ka, which has been confirmed by comparing the intensity of the NRM (Natural Remanent Magnetization) to ARM (Anhysteretic Remanent Magnetization) ratio with known intensity data. Another very remarkable observation in this core is the presence of iron sulfides between 630 and 1080 cm depth. This local iron sulfide enrichment could be the result of an anaerobic process with sulfate reduction during a period of non-steady-state diagenesis.
Core MD01-2452, located in the sediments on top of the buried Magellan mounds, shows more pronounced paleoclimatological changes than the core located at the SE-flank of the Belgica mound. Moreover, typical HL can be recognized very clearly

from magnetic susceptibility and P-wave velocity data during the latest glacial. The influence of European HE in the northern part of the basin could be less than on the eastern flank. However, we should be bear in mind that currents seem to be much weaker in the Magellan province than in the Belgica province. These weaker currents can be responsible for better preserved and thus more pronounced paleoclimatological and paleoceanographic changes in the uppermost quaternary sediment layers.