

Did Iceberg-Discharge Events Influence the Climate and Circulation of the Central North Atlantic Ocean during the Last Glaciation?

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The repeated occurrence of episodic iceberg events and abrupt climate change in the North Atlantic Ocean is now well-documented for the late Quaternary period. Much of this evidence comes from the subpolar region, where deposition can be dominated by ice-rafted debris (IRD) and overwhelm other oceanographic and climatic indicators. The following analysis of coarse sediment from Integrated Ocean Drilling Program (IODP) Core Site U1313 (41°0.0'N, 32°57.42'W) therefore focuses on evidence of ice-rafting and climate change during the last ice age near the North Atlantic Ocean's subpolar-subtropical gyre boundary to potentially enhance the resolution of the existing record of iceberg discharge events both temporally and spatially. IODP Site U1313 is situated on the western flank of the Mid-Atlantic Ridge (3413 m) at a climatically sensitive location that is currently bathed at depth by the North Atlantic Deep Water (NADW). It is a reoccupation of Deep Sea Drilling Project (DSDP) Site 607, which has already proved to be a useful site for reconstructing deep and surface ocean circulation during Pleistocene glacial cycles. Initial investigation into the core's coarse sediment (>150µm fraction) detected the presence of polar planktonic foraminifera species *N. pachyderma*, sub-Arctic species *T. quinqueloba*, and IRD, indicating the possible past extension of colder waters into the central North Atlantic Ocean. Further research may allow for the addition of a reconstructed regional signal into the complex history of iceberg-discharge events in the North Atlantic. This study aims to expand existing research on past climate variability in the North Atlantic and potentially provide new insight into the role of the cryosphere and deep ocean circulation during periods of abrupt climate change in the last glaciation.