

North Atlantic Deep Water influenced the intensification of Northern Hemisphere glaciation?

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A role of North Atlantic Deep Water in the intensification of Northern Hemisphere glaciation and the subsequent development of early glacial and interglacial cycles is as yet not well known. To evaluate their relationships, we reconstructed high-resolution records of ice rafted debris (IRD) and isothermal remanent magnetization (IRM) from Pliocene sediments recovered at IODP Site U1314 in the Gardar Drift (North Atlantic). Our IRD record demonstrates that the circum-North Atlantic ice sheets experienced the most drastic collapse during the MIS G4 glaciation with a subsequent large deglacial warming. On the other hand, the record of the IRM acquisition curve suggests the formation of North Atlantic Deep Water was strengthened after the MIS G4 glaciation. These suggest the possibility that North Atlantic Deep Water played an important role in the intensification of Northern Hemisphere glaciation through the development of Atlantic meridional overturning circulation.