



Marine sediments in Disko Trough reveal meltwater-influenced sedimentation during ice-stream retreat

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Marine geophysical data from middle and outer Disko Trough, West Greenland reveal thick (more than ten metres) acoustically-laminated, fine-grained sediments between subglacial tills at their base and post-glacial marine sediments at the seafloor. These sediments are interpreted as a transitional facies deposited as ice retreated from the trough during deglaciation. New sediment-core records indicate that these units were likely deposited by meltwater plumes emanating from a nearby grounded-ice margin, probably during stillstands in ice retreat. The retreat of ice in the trough may have been stabilised at a narrowing in DiskoTrough on the mid-shelf, as well as at the basalt escarpment south of Disko Island. Such thicknesses of deglacial or “transitional” glacimarine sediments are relatively unusual on high-latitude continental shelves and indicate a significant meltwater production in central West Greenland during deglaciation. This is consistent with the seafloor landforms in the inner and middle parts of the trough that include channels and moats around bedrock protrusions that look to have been eroded by water. IRD counts from the cores indicate that iceberg rafting also occurred during this transitional phase but that this signal was diluted by the fine-grained transitional sediments. Once ice had withdrawn from the area and sedimentation was hemipelagic in nature the IRD signal was less diluted.