

**Climate Center Proposal: Participation in Danish cruise to Nuuk, Greenland—
Characterization of Trough Mouth Fan Deposits around the North Atlantic**

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Abstract

The history of the Northern Hemisphere ice sheets is an important aspect of the paleoclimate system. Published work on land and at the glacial marine margins has mapped the margins of important ice sheets, including the locations where glacial ice extended to the shelf-slope break. At these shelf-slope break locations, large glacial marine fans, termed trough mouth fans (TMF), are known to occur in about 25 locations around the North Atlantic/Nordic/Arctic Oceans. By characterizing the sediment sources in these TMFs, the major IRD components for deposition in deep-sea sediment cores are documented. The layered record of IRD and other climate indicators, preserved in deep-sea sediment cores, provides the potential to unravel the sequences of events surrounding important intervals during the last glacial cycle. The results obtained from TMFs, combined with high-resolution records in the North Atlantic, will yield information on the relative timing of iceberg discharges from the major iceberg sources. I have been studying the sources of IRD for the past 8 years using a variety of isotopic tracer methods. The proposed cruise is an opportunity to extend the research. It will not only provide the means to characterize one of the potentially important iceberg sources, but it will additionally give me the opportunity for cruise experience (I have never participated in a cruise) as well as the opportunity to forge collaborations with European colleagues.