Impacts of Greenland freshwater discharge on fjord productivity: a long-term perspective

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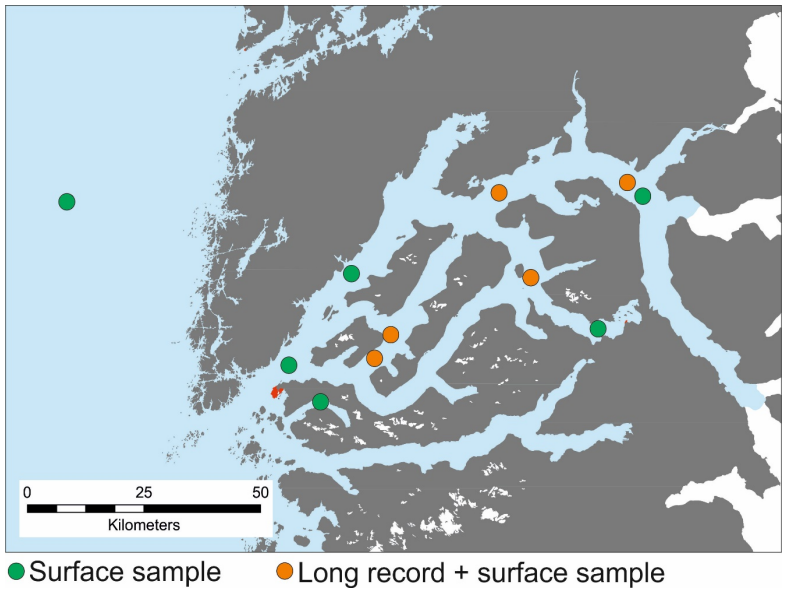
This projects aims to assess the long-term impact of GIS discharge on marine productivity (long-term records and future projections).

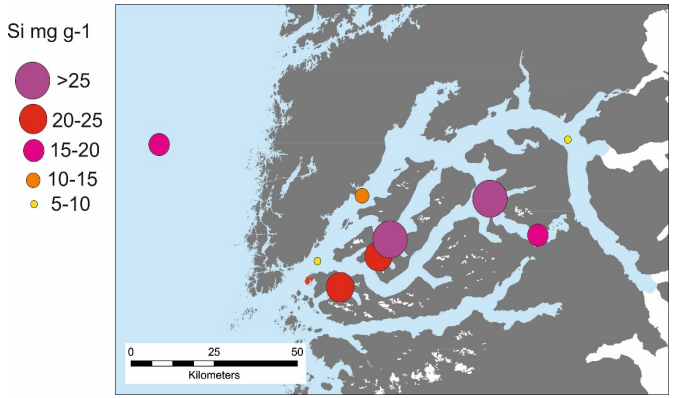
By using a spatio-temporal approach and diatom community changes, sediment geochemistry and fluxes in Godthåbsfjord.

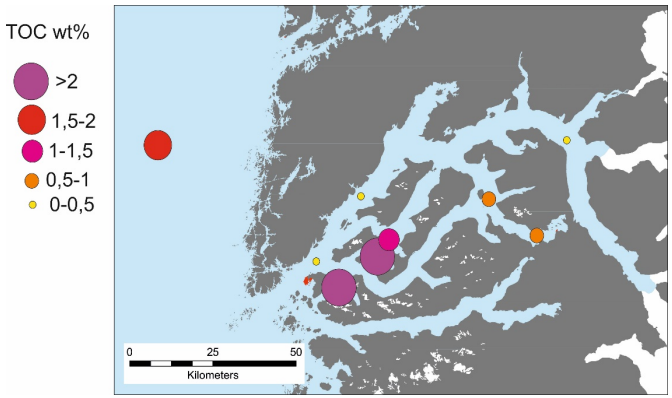
→ Elucidate interconnections between diatom assemblages, sediment geochemical composition and modern environmental parameters.

→ Reconstruct past changes in primary production, freshwater discharge and diatom assemblages in (sub-)decadal to centennial time-scales.

Study locations in Godthåbsfjord.

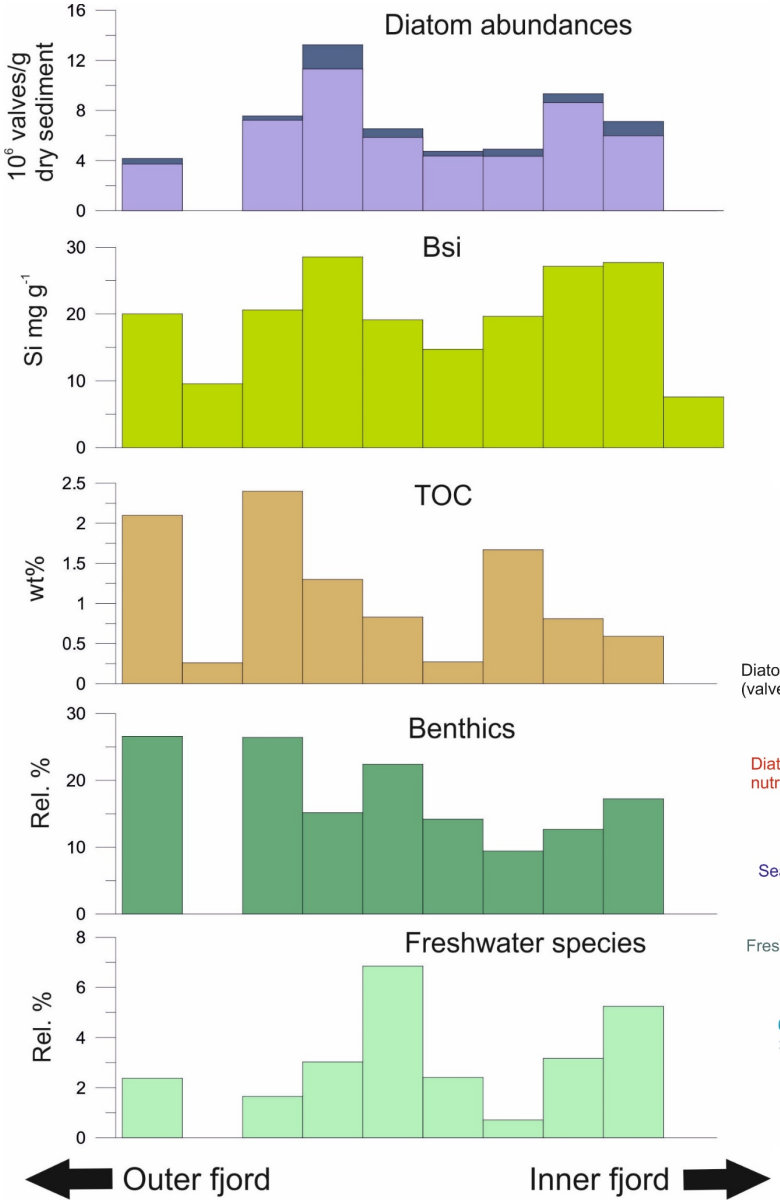






Productivity is highest in the central part of the fjord, in the non-glacier-influenced branches.

Diatom, BSi and TOC distribution in Godthåbsfjord surface sediments.



Long-term records go back to the end of the MWP.

Ca. 160 diatom species (from 46 genus) are preserved.

LIA is marked by an increase in the coarse grain fraction.

Diatom taxa are dominated by cold water (MIZ) species.

Sea-ice species increase towards 20th century.

Freshwater species suggest freshwater outbursts into the fjord.