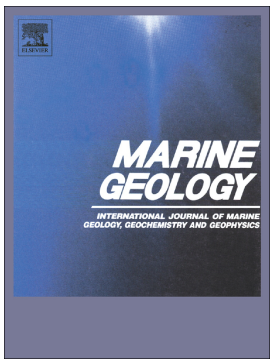

Reconstruction of ice sheet retreat after the Last Glacial maximum in Storfjorden, southern Svalbard

Tove Nielsen, Tine L. Rasmussen

PII: S0025-3227(17)30200-1
DOI: https://doi.org/10.1016/j.margeo.2017.12.003
Reference: MARGO 5734

To appear in: *Marine Geology*

Received date: 1 May 2017
Revised date: 8 December 2017
Accepted date: 9 December 2017

Please cite this article as: Tove Nielsen, Tine L. Rasmussen , Reconstruction of ice sheet retreat after the Last Glacial maximum in Storfjorden, southern Svalbard. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Margo(2017), https://doi.org/10.1016/j.margeo.2017.12.003

Reconstruction of ice sheet retreat after the Last Glacial Maximum in Storfjorden, southern Svalbard

Tove Nielsen[a*] and Tine L. Rasmussen[b]

[a] *Geological Survey of Denmark and Greenland (GEUS), Geophysical Department, Øster Voldgade 10, DK-1350 Copenhagen, Denmark (tni@geus.dk)*
[b] *Centre for Arctic Gas Hydrate, Environment and Climate, Department of Geoscience, UiT – The Arctic University of Norway, N-9037 Tromsø, Norway*

* Corresponding author. *E-mail address*: tni@geus.dk (T. Nielsen)

ABSTRACT

Storfjorden is a large north-south trending sound located in the southern part of Svalbard in the northwestern Barents Sea. Presently, several glaciers drain into the northern and western part of Storfjorden. Our study area covers the southern part of the sound, which is divided by a north-south striking basement ridge (the 'Mid-ridge') into a narrow western trough ('Little-Storfjorden') and a broader eastern trough ('Storfjorden'). In the latter, three grounding-zone wedges (GZWs) were discovered in 2005 showing evidence of former grounded ice. Here we confirm the existence and map the extent of the GZWs and reconstruct the pattern and timing of ice retreat in Storfjorden during the deglaciation. The study is based on high-resolution seismic and shallow-acoustic profiles and swath bathymetry, combined with information of lithology and radiocarbon dates from sediment cores. The results show that the three GZWs stretch across the fjord, and that all three are located south of higher basement areas that were upstream of the GZWs and which acted as pinning points during ice retreat. The Mid-ridge imposed a lateral drag to the ice, resulting in an uneven ice