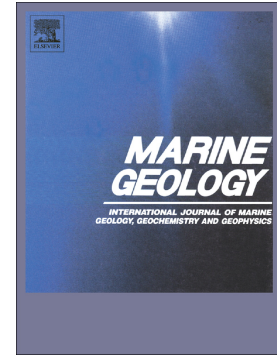


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Reconstruction of ice sheet retreat after the Last Glacial Maximum in Storfjorden, southern Svalbard

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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

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