



Disintegration of a marine-based ice stream - evidence from the Norwegian Channel, north-eastern North Sea

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The Norwegian Channel Ice Stream repeatedly drained large part of the Fennoscandian Ice Sheet through Mid and Late Pleistocene glacial stages. During parts of Marine Isotope Stages 2 and 3, glacial ice from Fennoscandia and the British Isles coalesced in the central North Sea and the Norwegian Channel Ice Stream reached the shelf edge on multiple occasions. Through the last decades a large amount of acoustic and sediment core data have been collected from the Norwegian Channel, providing a good background for studies focussing on stability- and development-controlling parameters for marine-based ice streams, the retreat rate of the Norwegian Channel Ice Stream, and the behaviour of the Fennoscandian Ice Sheet. Further, this improved understanding can be used to develop more accurate numerical climate models and models which can be used to model ice-sheet behaviour of the past as well as the future. This study presents new acoustic records and data from sediment cores which contribute to a better understanding of the retreat pattern and the retreat rate of the last ice stream that occupied the Norwegian Channel. From bathymetric and TOPAS seismic data, mega-scale glacial lineations, grounding-zone wedges, and end moraines have been mapped, thereby allowing us to reconstruct the pro- and subglacial conditions at the time of the creation of these landforms. It is concluded that the whole Norwegian Channel was deglaciated in just over 1 000 years and that for most of this time the ice margin was located at positions reflected by depositional grounding-zone wedges. Further work will explore the influence of channel shape and feeding of ice from western Norwegian fjords on this retreat pattern through numerical modelling.