

Combining terrestrial and marine glacial archives – a geomorphological map of Nordenskiöldbreen forefield, Svalbard

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Nordenskiöldbreen is a polythermal, tidewater glacier located in inner Billefjorden, central Spitsbergen, where it terminates in Adolfbukta bay. This on-going MSc project aims to produce a high-resolution geomorphological map of the recently deglaciated area in front of Nordenskiöldbreen and a landsystem model for a polythermal tidewater glacier, with descriptions and interpretations of sediment-landform associations.

A holistic approach is taken, and the map is created in ArcGIS software based on analysis of aerial images (2009) and high-resolution swath bathymetry (2009) from the fjord. Ground-truthing was carried out through field campaigns in August 2014 and 2015. Glacier front position lines are reconstructed from historical data, aerial imagery and satellite images.

The study contributes to an improved understanding of Svalbard glaciers and their response to climate fluctuations and is a part of the larger research project: “Holocene history of Svalbard Ice Caps and Glaciers” (see Research in Svalbard (RIS) database at: <http://www.researchinsvalbard.no/project/7567>).