

A deglaciation reconstruction of the Fennoscandian ice sheet

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To provide a new reconstruction of the deglaciation of the Fennoscandian Ice Sheet, in the form of calendar-year time-slices, which are particularly useful for ice sheet modelling, we have compiled and synthesized published geomorphological data for eskers, ice-marginal formations, lineations, marginal meltwater channels, striae, ice-dammed lakes, and geochronological data from radiocarbon, varve, optically-stimulated luminescence, and cosmogenic nuclide dating. This is summarized as a deglaciation map of the Fennoscandian Ice Sheet with isochrons marking every 1000 years between 22 and 13 cal kyr BP and every hundred years between 11.6 and final ice decay after 9.7 cal kyr BP. Our reconstruction is consistent with much of the published research. However, the synthesis of a large amount of existing and new data support refined reconstructions in some areas. Deglaciation patterns vary across the Fennoscandian Ice Sheet domain, reflecting differences in climatic and geomorphic settings as well as ice sheet basal thermal conditions and terrestrial versus marine margins. Retreat rates vary by as much as an order of magnitude in different sectors of the ice sheet, with the lowest rates on the high-elevation and maritime Norwegian margin. Retreat rates compared to the climatic information provided by the Greenland ice core record show a general correspondence between retreat rate and climatic forcing, although a close match between retreat rate and climate is unlikely because of other controls, such as topography and marine versus terrestrial margins.