

Ice sheet thinning and final decay in central south Norway

Anders Romundset^a, Naki Akçar^b, Ola Fredin^c, Jane L. Andersen^d, Fredrik Høgaas^a, Marcus Christl^e, Serdar Yesilyurt^f and Christian Schlüchter^b

^aNGU, Trondheim, Norway, anders.romundset@ngu.no; ^bInstitute of Geological Sciences, University of Bern, Bern, Switzerland;

^cDepartment of Geoscience and Petroleum, Norwegian University of Science and Technology (NTNU), Trondheim, Norway;

^dDepartment of Geoscience, Aarhus University, Denmark; ^eLaboratory of Ion Beam Physics, ETH Zurich, Switzerland; ^fAnkara

University, Department of Geography, Ankara, Turkey

In a new paper we describe the development of the Scandinavian Ice Sheet during the last deglaciation in the Gudbrandsdalen area, central south Norway (Romundset et al., 2023). The study combines three independent datasets; (1) radiocarbon-dated lake records, (2) cosmogenic ¹⁰Be-dated, glacially transported boulders, and (3) shoreline gradients of former ice-dammed lakes. We conclude that the ice sheet lowered below the ~2000 m high mountains surrounding northern Gudbrandsdalen in the Early Holocene and disappeared by ca. 10.0 ka BP. The ice-sheet thinning rate through this period is estimated at ca. 2 – 6 m yr⁻¹. The final phase of deglaciation involved formation of large proglacial lakes which were dammed between the ice sheet remnants and topographic saddle points. We mapped several such lakes, most notably the Store Dølasjø (480 km² and 80 km³) which was formed after 10.4 ka BP and finally drained around 10.0 ka BP. The ice-marginal landforms that characterize the mountain region of northern Gudbrandsdalen, i.e., moraine ridges, lateral meltwater channels, as well as deposits and shorelines from ice-dammed lakes, thus collectively originate from a period of rapid ice sheet downwasting over ca. 1600 years.

Reference

Romundset et al. "Early Holocene thinning and final demise of the Scandinavian Ice Sheet across the main drainage divide of southern Norway." *Quaternary Science Reviews* 317 (2023): 108274. <https://doi.org/10.1016/j.quascirev.2023.108274>