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Deglaciation of the Wijdefjorden-Austfjorden area, north Spitsbergen

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Swath-bathymetry, high-resolution seismics and lithological data from the Wijdefjorden-Austfjorden fjord system, the largest fjord system on northern Spitsbergen, have been analysed. The data indicate that multiple halts and/or readvances during the deglaciation of the study area at the end of the last glacial occurred. However, even though the study area and several west Spitsbergen fjords are fed by the same glacier source (the ice field Lomonosovfonna), the final deglaciation of Wijdefjorden-Austfjorden took place after 9300 cal. years BP, i.e. at least approx. 2000 years later than in the west. It is suggested that the retarded deglaciation of the study area is mainly related to the fjord bathymetry, i.e. a more than 35 km wide and up to 60 m high plateau in the central parts of the study area (approx. 45 km beyond the present fjord head). Multiple, relatively large and partly stacked moraine ridges and sediment wedges are suggested to reflect that the ice front retreated slowly across this shallow area and that repeated readvances occurred. The absence of larger sediment wedges in the deeper parts between the shallow area and the fjord head may indicate that the final retreat occurred rapidly.