

Glacial sequence stratigraphy reveal the Weichselian glacial history of the SE sector of the Eurasian Ice Sheet

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Reconstructions of the last Weichselian glacial cycle 117,000-11,700 years (kyr) ago propose that S Finland, adjacent Russia and the Baltic countries in the SE sector of the Eurasian Ice Sheet (EIS), were glaciated during the Middle Weichselian time [marine isotope stage (MIS) 4, 71-57 kyr ago] and that this glaciation was preceded in S Finland by an Early Weichselian interstadial (MIS 5c, 105-93 kyr ago) with pine forest.

Here glacial sequence stratigraphy (Powell and Cooper 2002) is applied to isolated Late Pleistocene on-shore outcrop sections in S Finland. The analysed sedimentary records have traditionally been investigated, interpreted and published separately by different authors without an attempt to a methodologically more systematic survey. By putting new field data and old observations into a regional sequence stratigraphic framework it is shown how previously unnoticed regularities can be found in the lithofacies and fossil successions.

It is shown that the proposed Middle Weichselian glaciation or the pine dominated interstadial did not take place at all (Räsänen et al. 2015). The one Late Weichselian glaciation (MIS 2, 29-11 kyr ago) at the SE sector of EIS was preceded in S Finland by a nearly 90 kyr long still poorly known non-glacial period, featuring tundra with permafrost and probably birch forest. The new Middle Weichselian paleoenvironmental scenario revises the configuration and hydrology of the S part of EIS and gives new setting for the evolution of Scandinavian biota.

References

Powell, R. D., and Cooper, J. M., 2002, A glacial sequence stratigraphic model for temperate, glaciated continental shelves, in Dowdeswell, J. A., and Cofaig, C. Ó. eds., *Glacier-Influenced Sedimentation on High-Latitude Continental Margins: The Geological Society of London, London, Geological Society London, Special Publication v. 203, p. 215-244.*

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