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About Weichselian Ice-Marginal Positions South of the Baltic Sea – Stratigraphy and Critical Discussion of Age Estimates

Margot Boese and Jacob Hardt

Freie Universität Berlin, Institute of Geographical Sciences, Department of Earth Sciences, Berlin, Germany (m.boese@fu-berlin.de)

In the classical research area of glacial morphology south of the Baltic Sea, the supposed main ice-marginal positions of the Weichselian glaciation have been documented on various maps. The lines in the maps suggest a similar timing of the ice margin along these hypothetical lines and represent a traditional morphostratigraphical approach. Nevertheless, more recent research resulting in stratigraphical interpretations of the related sediments give controversial results about the connectivity of ice-marginal features in the landscape. In addition, the development of new dating techniques reveals more diversified ice dynamics of the Scandinavian ice sheet as well as a time transgressiveness of the formation of major end moraine belts. On the other hand, age estimates generated by various methods don't give an unambiguous pattern of ice advances and retreat phases. The interpretation of geochronological data is a highly sensitive challenge in respect to the methods themselves and in respect to landscape processes induced by Late Glacial climatic phases, the relief, and by human impact during the Holocene. The Pomeranian ice margin will be taken as an example for the diverse interpretations of data obtained by Surface Exposure Dating, Optically Stimulated Luminescence, and Radiocarbon data. The dating methods require material of different origin, such as boulders at the surface, fine grained sediment, and organic material. All methods have been applied for dating the same ice marginal position. The remaining question is to which extent the reactions of the ice margins of the Scandinavian Ice Sheet can be brought into accordance with the general climatic record of long term climate archives or whether local weather conditions linked to changes in the atmospheric flow pattern influenced small scale ice advances or retreat along the fringe of the Scandinavian Ice Sheet.