



## **Weichselian Late Pleniglacial surface winds over Northwest and Central Europe: a model-data comparison**

H. Renssen (1), C. Kasse (1), J. Vandenberghe (1) S.J. Lorenz (2)

(1) Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, The Netherlands, (2)  
Max Planck Institut für Meteorologie, Modelle & Daten, Hamburg, Germany  
(hans.rensen@falw.vu.nl)

Reconstructions of the Weichselian Late Pleniglacial wind direction in Northwest and Central Europe are reviewed and compared with palaeoclimate simulations performed with an atmospheric general circulation model. These reconstructions are based on proxy data containing information on former wind directions, such as relic dune forms, sediments and windpolished rock surfaces. The objective is to investigate whether 1) the proxy information is internally consistent and 2) in agreement with the model simulations. We find a general consensus in the proxy-based reconstructions, indicating a dominant westerly to northwesterly wind in winter during the Late Pleniglacial. The model results indicate over the study area an atmospheric circulation in winter that is dominated by southwesterly to west-northwesterly winds, which are stronger than the southwesterly winds in the present-day climate. The main driving factors behind the anomalous atmospheric circulation in the Late Pleniglacial are the Laurentide Ice-sheet and a colder North Atlantic Ocean with a relatively extensive sea-ice cover, leading to an eastward relocation of the Icelandic Low and an enhanced pressure gradient over Northwest Europe. The minor difference in Late Pleniglacial wind direction between the reconstructions and model can be explained by a combination of uncertainties in the proxy data and the relatively low spatial resolution of the applied climate model.