

SIGNATURE OF THE LAST ICE AGE DETECTED IN THE SUBSURFACE TEMPERATURES

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Ground surface temperature (GST) history can be evaluated by analysing the present-day temperature-depth profiles measured in boreholes. Due to the diffusive character of the process, however, the resolution of the method decreases quickly for the more remote events. The reconstructed GST at a given moment in the past is a weighted average of temperature over a certain period of time. In reconstructing GST history, e.g. at 3 ka ago, the averaging interval stretches approximately over the period of 4-2 ka ago, at 10 ka it is 15-5 ka and at 30 ka ago already 50-10 ka. Because the cold climate of the last (Weichselian) glacial prevailed in the period of 80-10 ka B.P., there is a chance to obtain its mean GST, despite the large averaging intervals, from temperature profiles measured in deep boreholes. The present study focuses on the GST inversions of carefully selected profiles, 4 from the Czech Republic and 2 from Slovenia, the depth of which ranges between 1.5 and 2.4 km. They yield GST histories with a minimum between 20-9 ka ago followed by a warming of 5-14 K. In order to suppress the non-climatic noise and to extract the common signal, the joint inversions were carried out for the Czech and Slovenian boreholes, respectively. The Czech data show the minimum at 13 ka ago and the warming of 5K. The Slovenian data have the minimum at 14 ka ago and the warming amounts to 8K. These results agree well with information extracted earlier from German KTB superdeep hole, where the inversion of the temperature log indicated 10K warming since the last glacial minimum, and represent an independent estimate of the difference between glacial and interglacial conditions in Central Europe.