



Impacts of the Last Glacial Cycle on Ground Surface Temperature Reconstructions over the Last Millennium

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Borehole temperature profiles provide robust estimates of past ground surface temperature changes, in agreement with meteorological data. Nevertheless, past climatic changes such as the Last Glacial Cycle (LGC) generated thermal effects in the subsurface that affect estimates of recent climatic change from geothermal data. We use an ensemble of ice sheet simulations spanning the last 120ka to assess the impact of the Laurentide ice sheet on recent ground surface temperature histories reconstructed from borehole temperature profiles over North America. When the thermal remnants of the LGC are removed, we find larger amounts of subsurface heat storage [2.8 times] and an increased warming of the ground surface over North America by 0.75 K, both relative to uncorrected borehole estimates.