



Glacial history of the Polar Urals inferred from terrestrial and lacustrine data

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A lake coring campaign in the Polar Urals is carried out within the framework of the Russian-Norwegian IPY-project 'The Ice Age Development and Human Settlement in Northern Eurasia' (ICEHUS). The purpose is to improve the description and understanding of the Late Quaternary glacial and climate changes in this part of the Russian Arctic. Sediment cores are being obtained from selected mountain lakes that according to our hypothesis were not reached by local glaciers during the Last Glacial Maximum (LGM) some 25-20,000 years ago. The results are compared with other terrestrial data used to constrain the timing and extent of the former glaciers. This includes moraines, ice-dammed lakes, outwash sediments and other observations. The chronology is based on radiocarbon dating, cosmogenic isotope dating of erratics, and a large number of optically stimulated luminescence (OSL) dating of sediments.

Judged from geomorphologic as well as stratigraphic observations it seems clear that the last major glaciation that affected the northern part of the Ural Mountains was a shelf-centred ice sheet that inundated the mountain valleys during the Early Weichselian. The OSL-dates of this event cluster around 75-80 ka. Following this glaciation the local glaciers appear to have been rather small and there is nothing to suggest that extensive valley glaciers existed, not even during the LGM. Coring results from the eastern foothills of the Polar Urals indicate that this area was affected by a major ice sheet advance during the Early Weichselian, but that the final deglaciation took place more than 70,000 yrs ago.

This summer we will equip another field expedition aiming at retrieving long sediment cores from a 140 m deep lake (Bol. Schuchye) in the central part of the Polar Urals. Seismic profiles show that this basin contains more than a hundred meters of soft lacustrine sediments above bedrock. Radiocarbon dates from a short core that was collected in 2007 indicate that the upper 3 meters of the sediment sequence were laid down during the Holocene and there is all reason to believe that the basal strata dates back to the Early Weichselian deglaciation.