



A multi-proxy record of environmental and climate changes during Oxygen Isotope Stages-3 and -5C from an unusual location: Finnish Lapland

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High-latitude areas are considered to be amongst the regions most strongly affected by climate change. However, high-latitude continental archives documenting climate change during the last glacial cycle are virtually absent on the European continent because of the former presence of the Scandinavian ice sheet. In Finnish Lapland, a remarkable long and nearly continuous sedimentary sequence spanning the last 130,000 years has been found in a small sedimentary basin (67 deg 48'N, 29 deg 18'E). In this record, fossil-rich lacustrine sediments alternate with glacial-deglacial sediments. Two lacustrine deposits, dated to Oxygen Isotope Stage (OIS)-3 and -5C respectively, have been analyzed for chironomids, pollen and macro-remains and the results illustrate the dynamic response of natural ecosystems to environmental and climatic changes. Whereas the interval dated back to OIS-5C (or Brørup) consists of sediments that were deposited in a floodplain environment and were thus prone to river inundations, the sediments dated to OIS-3 were deposited in a lake isolated from riverine influence, but which might have been situated in the proximity of the Scandinavian ice sheet. Palaeotemperature estimates inferred from the chironomid remains suggest surprisingly high summer temperatures, equaling the current summer temperature of

^{13}C at the study site.