



## **Ice wedges and lacustrine sediment records – Palaeoclimate archives of the late Quaternary in Central Yakutia (NE Siberia)**

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The DFG project "Late Quaternary development of climate and environment of the Verkhoyansk Mountains and the central lowland of Yakutia" has been established in cooperation with German and Russian partners. Various archives and methods are used to reconstruct the chronology of mountain glaciations (remote sensing data, geomorphological features, luminescence dating: F. Lehmkuhl, G. Stauch, RWTH Aachen) as well as the palaeoenvironment and palaeoclimate in a high continental region of East Siberia (pedology: W. Zech, University of Bayreuth; sedimentology, geocryology, limnogeology, pollen data: AWI Potsdam, Yakutsk Permafrost-Institute, Yakutsk State University).

The isotopic composition of ice wedges enclosed in the permafrost deposits in the Verkhoyansk Mountain Range and its foreland documents the development of winter temperatures through time. Coldest temperatures are indicated by very "light" values of stable oxygen and hydrogen isotopes for the Weichselian interval between 30 and 40 ka BP. Warmer winter temperatures are reflected in the isotopic composition of lower Holocene ice wedges around 8.5 ka BP, while young ice wedges of upper Holocene age indicate climate deterioration around 2.3 ka BP to Recent conditions.

In the adjacent area of Vilyuy lowland, a lacustrine sediment record of Lake Satagay documents in high resolution the Late Holocene environmental development. Pollen data exhibit changes in vegetation and associated climate deterioration between 7.0 and 4.0 ka BP. During the same period, cyclic variations of organic carbon contents

and C/N ratios indicate cyclic lake-level fluctuations, possibly linked to short-term climate perturbations.