



Project acronym: WSibTemp

Project title: High-resolution multi-proxy temperature reconstruction using lake sediments in West Siberia

Project leader: Maarten Van Hardenbroek, Newcastle University, UK

Discipline: Earth Sciences & Environment: Global change & Climate observation

Station(s): Kajbasovo Research Station (Russia), Mukhrino Field Station - Nymto Park (Russia)

Our goal is to create a chironomid-based paleotemperature and $\delta^{18}\text{O}$ records for the past 2000 years using lake sediment records in the vicinity of the Mukhrino and Kajbasovo field stations. This requires not only the collection and analysis of suitable lake sediment records near these two INTERACT stations, but should also include an expansion of the existing calibration dataset (in which Van Hardenbroek is involved). This will be done by collecting and analysing chironomid remains in the surface sediments from 10 lakes near the Mukhrino station and 10 lakes near the Kajbasovo field station.

We plan to conduct a study with a high time-resolution (at least 50 years per sample) in order to obtain detailed information on changes in the paleoclimate and environmental conditions during the past 2000 years. We will use a combination of traditional proxies (pollen, loss-on-ignition) and new approaches (chironomid assemblages, invertebrate $\delta^{18}\text{O}$) to compare multiple independent lines of evidence for changes in temperature and moisture, thus providing more robust paleoclimate reconstructions than previously possible. Our approach would provide quantitative estimates of temperature fluctuations for climatic anomalies like the Medieval Warm Period and the Little Ice Age.