



## **Revisiting Lake Hämelsee: reconstructing abrupt Lateglacial climate transitions using state-of-the-art palaeoclimatological proxies**

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Lake Hämelsee (Germany) is one of the northernmost sites in NW Europe that has varved sediments throughout large parts of its Lateglacial and Early Holocene sediment sequence. Previous research on this site has shown its potential, in terms of chronological resolution and palaeoecological reconstructions, for reconstructing the abrupt transitions into and out of the Younger Dryas, the last cold period of the last glacial. The site was revisited during a 1-week summer school for Early Stage Researchers (2013), within the INTIMATE Example training and research project, supported by EU Cost Action ES0907. Two overlapping sediment sequences were retrieved from the centre of the lake during the summer school. These sediments have since formed the basis for follow-up research projects, which have sparked the collaboration of around 30 researchers in 12 laboratories across Europe.

A chronological framework for the core has been composed from a combination of varve counting, radiocarbon dating and tephrochronology. Tephrostratigraphic correlations allow direct correlation and precise comparison of the record to marine and ice core records from the North Atlantic region, and other terrestrial European archives. Furthermore, the core has been subjected to multiple sedimentological (e.g. XRF, loss-on-ignition), geochemical (e.g. lipid biomarkers, GDGTs) and palaeoecological (e.g. pollen, chironomids) proxy-based reconstructions of past environmental and climatic conditions. The results provide important insights into the nature of the abrupt climate transitions of the Lateglacial and Early Holocene, both locally and on a continental scale.

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