



An INTIMATE Example: Into and out of the Younger Dryas at Lake Hämelsee, NW-Germany

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Lake Hämelsee is a classical site with an excellent high-resolution record of Pleniglacial to Holocene climate and environment, contained in 18m of lacustrine sediments. At the centre of the lake, the Late Glacial interval consists of 2.7m of sapropelic and silty muds, that are mostly laminated (Merkt and Müller, QI 1999). In the framework of a summer school – 'An INTIMATE Example' – the lake was cored again, with the purpose of applying the latest techniques in palaeoclimatology and -ecology. Twenty international students and Early Stage Researchers (ESR's) from a wide range of backgrounds participated in lectures and field work and gained hands-on-experience with several proxies and techniques.

Ongoing research by participants of the training school is focused on the timing and nature of the Allerød – Younger Dryas (YD) and YD – Preboreal transitions. Five short-term international exchange visits have provided opportunities for participants to learn and apply new techniques to the Hämelsee record, supervised by members of the INTIMATE network.

A new age model will be constructed for the Late Glacial core section based on a combination of 14C-dates on macro-remains, varve chronology and tephrochronology. Tephrostratigraphic correlations will allow direct correlation of the record to both marine and ice core records from the North Atlantic region, as well as other European archives. Palaeoclimatic and -ecological research will include pollen-, chironomid-, LOI-, XRF-, lipid biomarker, stable isotope and GDGT-analysis. Temperature reconstructions will be made based on several of these proxies, providing a unique opportunity to compare independent reconstructions using material from a single record.

Not only did the training school and subsequent research provide an excellent opportunity for ESR's to learn and work with international experts in the field – the collected data will also provide a high-resolution multi-proxy record of palaeoclimatology, -ecology and landscape development during the Allerød – YD and YD – Preboreal transitions, in a region where few other high-resolution records are available. This presentation will showcase the initial results of the project which are providing valuable insights as to the nature and timing of these transitions in Western Europe and the climatic and environmental changes that define them.

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