

**Publication**

Late-Glacial climatic changes in Eastern France (Lake Lautrey) from pollen, lake-levels, and chironomids

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High-temporal resolution analyses of pollen, chironomid, and lake-level records from Lake Lautrey provide multi-proxy, quantitative estimates of climatic change during the Late-Glacial period in eastern France. Past temperature and moisture parameters were estimated using modern analogues and 'plant functional types' transfer-function methods for three pollen records obtained from different localities within the paleolake basin. The comparison of these methods shows that they provide generally similar climate signals, with the exception of the Bolling. Comparison of pollen- and chironomid-based temperature of the warmest month reconstructions generally agree, except during the Bolling. Major abrupt changes associated with the Oldest Dryas/Bolling, Allerod/Younger Dryas, and the Younger Dryas/Preboreal transitions were quantified as well as other minor fluctuations related to the cold events (e.g., Preboreal oscillation). The temperature of the warmest month increased by similar to 5 degrees C at the start of Bolling, and by 1.5 degrees-3 degrees C at the onset of the Holocene, while it fell by ca. 3 degrees to 4 degrees C at the beginning of Younger Dryas. The comparative analysis of the results based on the three Lautrey cores have highlighted significant differences in the climate reconstructions related to the location of each core, underlining the caution that is needed when studying single cores not taken from the deepest part of lake basins.

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