



Paleoclimatic and paleoenvironmental evolution during the Late Glacial and the Holocene recorded in lacustrine sediments from the Amburnex Valley, Jura, Switzerland.

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The Amburnex Valley (Western Swiss Jura) was occupied by a glacial paleolake linked to the retreat of a Würm local ice sheet, which evolved later in well-developed peatland. This humid zone ecosystem is particularly vulnerable to current climate change. The endemism of the *Saxifraga hirculus*, a flower present at least since the Holocene, is of significant ecological interest. During the Late Glacial period, this peatland was a glacial lake characterized by a significant accumulation of lacustrine sediment deposits.

Using a multiproxy approach, this project aims to reconstruct the paleoclimatic and the paleoenvironmental evolution recorded in lacustrine sediments and peatbog deposits since the last 13'000 years, and to investigate if major volcanic episodes have been recorded throughout this period.

High resolution analyses have been performed at cm-scale on a 7 m-thick sedimentary core. Starting with a morainic deposit from the Würm period, this core shows three meters of lacustrine deposits overlain by four meters of peatland deposits.

A multiproxy approach based on palynological analyses, grain-size analyses, mineralogical analyses (XRD) and geochemical analyses (TOC, Nitrogen, Phosphorus and Mercury contents; major and trace elements; organic carbon isotopes) have been used to characterise the hydrological and climatic fluctuations, the trophic level and the origin of organic matter in order to reconstruct the paleoenvironmental and paleoclimatic evolution in this area. Mercury anomalies recorded in the sediment can be a robust tracer of volcanic activity in absence of tephra layers. The latter are indeed not always well preserved in sediments due to mineralogical transformation, Hg anomalies could therefore be a reliable tool to characterise atmospheric volcanism fallouts such as the Laacher See Tephra event (Eifel, Germany), the Icelandic tephra (Iceland), the Italian Volcanic Province tephra (Italy) and the Puy de la Nugère tephra (Massif Central, France).