

## Current MSc-Project within the Paleoecology section

### **Tracking Holocene population dynamics of trees in the Alps using ancient DNA (aDNA)**

Climate change is forcing tree species to either move, adapt or die. Large-scale range shifts are expected to drastically alter important ecosystem services as well as the genetic diversity of key forest species due to population genetic processes such as the loss of rear edge populations and founder events at the expansion front. The analysis of aDNA from macrofossils preserved in lake sediment archives will allow us to study changes in the genetic diversity of trees through time. This cutting-edge MSc-project will identify the impact of past climatic changes and disturbances on the gene pool of a species and check if and how tree populations were able to adapt to environmental changes in the past.

Methods: ancient DNA analysis, population genetics, phylogeography, macrofossil analysis

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Sulsseewli, a small lake in the Bernese Alps just below the treeline (1921 m a.s.l.). The lake has recently been cored by our group for a joint project with the University of Tromsø to reconstruct past vegetation changes using environmental DNA. The lake would also be an ideal study site to look at intraspecific changes in genetic diversity through time using aDNA.