

Current MSc-Project within the Paleoecology section

Treeline dynamics in the Alps

Future climate warming is expected to lead to a dramatic upward shift of the present-day treeline in the Alps. However, the rate and extent as well as the impact of possible mitigating factors such as grazing by livestock are still a matter of debate. Recent studies involving several MSc-students in our group reconstructed past treeline changes since the last Ice Age in the Bernese Alps. The research showed that mountain forests are in equilibrium with climate and react very sensitive to small changes in temperature. However, several millennia of human impact have shaped current mountain ecosystems. People already started to clear treeline forests using fire since the Neolithic (ca. 6800 cal. BP) and drastically altered the species composition of mountain forests. The planned MSc-project would investigate treeline dynamics in the Central Swiss Alps, an understudied region of Switzerland. The results of the project will help to assess the impact of future climate change on alpine ecosystems and provide a baseline for the natural vegetation in the area.

Methods: Lake sediment coring, pollen, macrofossil and charcoal analysis, numerical techniques

Contact persons: Christoph Schwörer, Willy Tinner



Lauenensee, an iconic lake in the Bernese Alps at 1380 m a.s.l. A recent MSc thesis provided clear evidence that agricultural activity since the late Neolithic (ca. 5700 cal. BP) caused significant change in the species composition of subalpine forests in the area (Rey et al., 2013).