

## MSc. Project in Ecology and Evolution or Climate Sciences

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### *Validation of a quantitative fire-reconstruction with annually laminated lake sediments and historical data from Ticino, Switzerland*

Fire is an important ecological factor, affecting plant community structure and composition. Since the last ice age, fire regimes have changed through various influences of climate and human land use practices, making the reconstruction of past fire activity during this period particularly interesting for palaeoecological studies.



Figure 2 Dead tree in fire-prone forest

The here presented master thesis topic is embedded within an SNF-financed project aimed at developing a method to quantitatively reconstruct past fire history. Through the combination of surface sediment samples and satellite products detecting present fires, we aim to calibrate the microscopic charcoal signal arriving to lakes after a fire. This knowledge will in turn be used to statistically reconstruct fire history in Europe during the Holocene using lake sediment sequences.

To test our calibration dataset and our reconstructions, we are looking for a student who will take a surface core from an annually laminated lake in the South of Switzerland (canton Ticino) and compare our reconstruction results to historical data available on fires since the year 1900. The methods to be used will include the counting of micro and macroscopic charcoal as well as palynological analysis for the upper part of the core. Work with GIS-software and satellite data can also be included if wished by the student. In case of interest, please contact: [carole.adolf@ips.unibe.ch](mailto:carole.adolf@ips.unibe.ch) or [willy.tinner@ips.unibe.ch](mailto:willy.tinner@ips.unibe.ch)



Figure 1 Example of laminated lake sediments (Sarsjön, Sweden)