



Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

## PhD position ETH Zurich

We seek a talented, enthusiastic, energetic and motivated PhD student with an MSc degree in Earth Science (Geology, Physical Geography, etc.) for a highly interdisciplinary project involving researchers from Italy, Austria and Switzerland.

The student will be integrated into the research group at Ion Beam Physics ETH <http://www.ams.ethz.ch> where all cosmogenic laboratory work and accelerator mass spectrometry measurements will be done. The PhD title will be awarded by the Earth Science Department (ERDW) ETH. Close collaboration with VAW (Laboratory of Hydraulics, Hydrology and Glaciology) is planned.

One of the great unknowns in paleoclimate research today is to decipher how massive changes in atmospheric circulation affected the spatial and temporal patterns of glacier growth in the Alps during the Last Glacial Maximum (LGM). Is climate the main driving force or do differences in glacier catchment hypsometry and flow path length outweigh precipitation changes in controlling glacier extent? The aim of this project is to address these questions with a broad-based, integrated approach that combines basic geological techniques (field mapping, sedimentology, petrography), GIS methodologies to augment and refine field interpretations, cosmogenic nuclide dating and glacier modelling through collaboration with glaciologists. The project output, precisely dated LGM ice margins for the specific study lobes N and S of the Alps, will serve as point of comparison for validation of ice lobe extents obtained with glacier modelling and for assessing the implications for climate input parameters.

The PhD student will:

- (1) set-up and populate an open-access database of all numerical dating results for LGM sites in the Alps,
- (2) do detailed ice-margin field mapping supported by remote imagery landform analysis (ArcGIS) for LGM ice extents of specific glacier lobes N and S of the Alps,
- (3) implement cosmogenic nuclide exposure dating with  $^{10}\text{Be}$ ,  $^{36}\text{Cl}$  and in situ  $^{14}\text{C}$ , and
- (4) work together with glaciologists of the VAW to compare state-of-the-art paleo-ice flow model results with field evidence.

Be ready for lots of fieldwork!

The 4-year project is fully funded by the SNF Swiss National Science Foundation. Starting date: as soon as possible.

For questions about the project and to apply please contact PD Dr. Susan Ivy-Ochs [ivy@phys.ethz.ch](mailto:ivy@phys.ethz.ch).