



## **Exposure age patterns of the Eiger north and south faces (Central Swiss Alps)**

David Mair (1), Alessandro Lechmann (1), Serdar Yesilyurt (1), Naki Akçar (1), Christof Vockenhuber (2), and Fritz Schlunegger (1)

(1) Institute of Geological Sciences, University of Bern, Switzerland, (2) Laboratory of Ion Beam Physics, ETH Zurich, Switzerland

In situ terrestrial cosmogenic nuclides (TCN) have been widely used over the past decades to (1) determine exposure ages of various landforms such as moraines, fluvial terraces or previously ice covered bedrock surfaces and (2) to infer erosion rates thereof. We applied this method to a steep and vertical headwall (the Eiger north face) by measuring  $^{36}\text{Cl}$  and  $^{10}\text{Be}$  concentrations on depth profiles within the limestone and chert suites.

To achieve this, we benefited from the unique situation of a railway tunnel that was drilled through the mountain and that has several connections to the surface. This enabled us to collect depth-profile samples at six sites surrounding the Eiger. The mountain itself displays distinctive differences in morphology with a step-like, over-steepened and very rough north face compared to a steep and comparatively smoother southern flank.

We present first AMS results and invert these into minimum exposure ages. The results show higher concentrations in the central, upper part of the north facing headwall, implying relatively high exposure ages. Contrariwise, the footwall and the south flank have much lower nuclide concentrations. Accordingly, exposure times will be much shorter. We use these variations in relative exposure ages to infer a different erosional history, which in turn will allow us to explain the mentioned morphological differences.