

Quantifying the erosional mechanisms of steep headwalls: The case of the Eiger (Central Swiss Alps).

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

To achieve this, we benefit from the unique situation of a railway tunnel that was drilled through the mountain and that has several connections to the surface. This enables us to collect depth-profile samples at three to 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. The sampling sites are situated above and beneath the LGM trim line, which allows us to reconstruct a comprehensive picture of the erosional history. We present the experimental setup together with the morphometric data of this mountain.