

***Coupling between Climate & Tectonics?
Insights from Low Temperature Thermochronology and Structural
Geology applied to the Pro-Wedge of the European Alps***

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This PhD project is part of the ThermoEurope initiative, which investigates coupled climatic/tectonic forcing of European topography through thermochronology. Several hypotheses for the driving mechanism(s) behind late Neogene erosion in the Alpine region have been argued for in literature, in particular climate, tectonic and geodynamic forcing. The aim of this study is to investigate the significance of Pliocene tectonic forcing on the thrust part of the North Alpine Foreland Basin (NAFB). We apply thermochronology and structural geology to constrain the timing, location and magnitude of tectonic reactivation and erosion in the thrust part of the basin.

Kilometre-scale erosion and thrust reactivation in the NAFB during the Pliocene is argued for based on apatite fission-track (AFT) data from the Swiss part of the basin (Cederbom. et al., 2004; Cederbom et al., in review). A pilot study was carried out in the Rigi area, which is in the thrust part of the Molasse Basin (Lindow et al, 2009). The collected apatite (U-Th/He) data partly confirm the AFT results.

In this new, comprehensive study both (U-Th)/He and AFT dating are applied to several horizontal transects and complementary well transects across the Swiss, German and Austrian parts of the thrust Molasse. In the poster we will present our first, preliminary apatite (U-Th)/He data from the westernmost horizontal sampling profile in the Entlebuch area.

References:

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