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Thermal modelling of a low-angle detachment fault: The Katschberg normal fault (Eastern Alps)

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In this study we investigate a low-angle detachment fault of the European Alps, the Katschberg normal fault. This major structure developed during Miocene lateral extrusion and is largely responsible for the exhumation of the eastern Tauern Window. An extensive set of already published and new thermochronological data provides the basis for 2- and 3-D thermokinematic models. Already published zircon (ZFT)- and apatite fission track ages (AFT) range from 17.5 to 16.7 and 15.2 to 7.4 Ma, respectively.
We investigate two E-W profiles that extend 25 km in the footwall and 15 km into the hanging wall. The new apatite (U-Th)/He (AHE) ages from these profiles range between 9.6 and 3.9 Ma. Previous models suggest a main activity along the Katschberg detachment between 22 and 12 Ma . The unexpected young AHE ages (9.6 to 3.9 Ma) challenge the termination of fault activity at around 12 Ma or are the result of topographic effects.
Together with forthcoming ZFT and AFT data and thermokinematic modelling (Pecube) we will investigate the timing and amount of faulting, the cooling- and exhumation rates, the effect of topography and the relative displacement between footwall and hanging wall.