



## **Brittle tectonics and external fault patterns in the southeastern part of the Tauern Window (Eastern Alps, Austria) in context to a deep seated gravitational slope deformation**

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This work is based on the exploration of the Gradenbach-landslide in the upper Möll valley (Carinthia, Austria), controlled by a fixed GPS monitoring system (Institute of Geodesy, TU-Graz). During surveying the landslide, some specific questions appeared, which could be only answered by involving the geological features of this area. The mapping of structural and lithological settings should be comprehended as an additional work and answering several questions: -Why show similar areas in the surrounding a higher morphological relief and a deeper downhill, but no movement? -Why lies the head scarp oblique to the E-W trending ridge crest and not parallel? (It strikes NW-SE) -Which distinct brittle to semi-ductile fault patterns can be observed in this area? -Is there a context between the orientation of the landslide's head scarp, the eastern and western border and the fault's trend? We approached these issues by mapping the area, collecting structural data sets (particularly faults and fractures), and the interpretation of paleostress data. Furthermore a lineament evaluation was done, assuming that all big valleys appear within tectonic zones of weakness.

The preliminary results are: All valleys in the area can be interpreted to trace major fault zones. The main fault strikes about N-S and lies within the upper Möll valley, so called Döllach-Heiligenblut-Lineament (DHL). The side valleys can be interpreted as Riedel and Antiriedel shears. An additional main direction strikes NW-SE. It appears as fault plane and as lineament direction. It is parallel oriented to the head scarp of the landslide and to the so-called "Mölltal-fault". Additionally three brittle deformation

phases were detected by the analysis of fault-plane data by distinct paleo-stress methods. These indicate three distinct phases of faulting, related to contrasting orientations of paleostresses in this region.