

RECENT FAULTS IN THE EASTERN SWISS ALPS IN RELATION TO LITHOLOGY

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The present tectonic activity of the Alps is expressed by recent (post-glacial) faulting, seismic activity and recent uplift. The study area in Graubünden, eastern Switzerland is a region with relatively high seismicity uplift rates are high in the internal parts of the Alps in the South but decrease towards the Molasse basin in the North. Despite the dense vegetation cover (meadows, forests) faults can be mapped on aerial photos and many of them can subsequently be verified in the field. The orientation and morphological appearance of the faults vary with the predominant lithology of the region.

Areas dominated by schists and sandstones with shallowly dipping Alpine foliation, display faults which manifest themselves by slight variations in the micromorphology or small fault scarps. The micromorphological features include aligned sink-holes, variations in slope angle, incisions within otherwise flat surfaces and mountain ridges or slight irregularities in the soil surface. Offsets in an active scree and in post-glacial rock fall areas prove the faults' young age. The fault map shows that, in this area, there are two prominent fault systems, a more or less N-S striking system and an E-W striking

one. The observed directions of the faults agree with the directions for strike-slip faults as predicted by focal mechanism data.

In limestone-dominated regions, the faults mainly reactivate old Alpine joints. These reactivated joints are wider than the original joints because reactivation facilitated weathering processes. A few faults in this region trend obliquely to the Alpine joint system and can be recognised by offsets of up to 1 m in the rock surface.

In the crystalline basement, the faults trend ENE-WSW, parallel to the main vertical foliation of the rock. These faults seemingly reactivate old ductile shear zones. Narrow bands of fault gauges that crosscut ductile shear zones are evidence for the reactivation. The faults in the granitoid rocks are the most conspicuous in the study area and often exhibit visible fault scarps.

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