

Slope stability and georisk in the Paleozoic part of the Eastern Alps, Austria.

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The Paleozoic of the Eastern Alps, especially the Tyrolean and Salzburg part of Northern Greywacke Zone, is dominated by siliciclastic rocks, that underwent a very low grade to low grade metamorphism. This lithology, characterised by alternations of metagreywackes, siltstones and slates, crosscut by several cleavage generations, yields the basic condition for the development of instable slopes, mass flows and land slips.

The Quaternary glaciation produced U-shaped valleys that were in some cases exarated even under sea-level. Contemporary with the retreat of glaciers almost every slope within the Paleozoic realms of Greywacke Zone started to rearrange for a new stable mechanical equilibrium. This process is persisting till now.

The tremendous touristic development of the European Alps, with mountaineering activities in summer and the construction of large winter skiing resorts resulted in a scarcity of settlement areas. Disregarding the geogene risk, habitations and hotels were built into the influence zones of mud flows and rock avalanches.

Although big efforts are made to construct protection dams and retentional basins, even main European traffic routes are influenced by the land slips every year. The ongoing discussion about the causes and responsibilities for the yearly reappearing 'catastrophies' shows a clear lack of geological experience within the common society and the authorities.

Recent mapping in collaboration with the Geological Survey of Austria provides basic informations about slope instabilities from the past 20k years, the recent situation and for the prediction of future geological hazards. It is the one of the main challenges for geosciences to provide clear information about locality and time of geological risks, in this example caused by slope instabilities. It will be a long lasting effort for the field geologists to reach a complete data coverage at a convenient map scale. The new digital maps of Austria include a geotechnical layer and thus yield a first important step for an integrated and sustainable development of touristic and densely populated areas aware of natural risks.