

THE INFLUENCE OF SACKUNG-TYPE SLOPE DEFORMATIONS FOR ACTUAL DENUTATION IN HIGH MOUNTAIN REGIONS.

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Along the mountain chain of the Niedere Tauern (Eastern Alps) numerous Sackungen-type slope deformations occur. They are affecting glacial steepened slopes of the main drainage system, modelled in both polymetamorphic crystalline basement units of the Middle Austro Alpine and phyllitic series of the Upper Austro Alpine. Three general types of Deep-reaching Gravitational Slope Deformations (DGSD) can be distinguished: (1) DGSD small in size generally destabilizing steep slopes influenced by local glaciers. Instability is indicated by the generation of extension gashes using local pre-existing joint systems. (2) DGSD characterized through double ridge crest structures associated with ridge top grabens, huge single scarps and uphill facing scarps on significantly convex bulging hillslope geometry. (3) DGSD facing s-shape slope surface morphology, typically are showing bulging toe geometry ("Talzuschub"), up to seven square kilometers can be enlarged.

The resemblance of characteristic surface morphological features like double crested ridges, ridge top graben structures, scarps and trenches, especially in the upper part of hillslope (Fig.1), do indicate deep reaching disturbance of pre-existing foliation sets, but also brittle deformation of rock masses involved. This means, that mountains brickwork completely is relaxed and therefore does provoke accompanying secondary mass movements like shallow landslides in the central parts of the Sackung. Plaik systems followed by deposition of large debris fans also occur in lateral extension of main scarp, large scale landslides and rock fall occur especially at the lateral transition zone to stable host rock. (Fig.1).

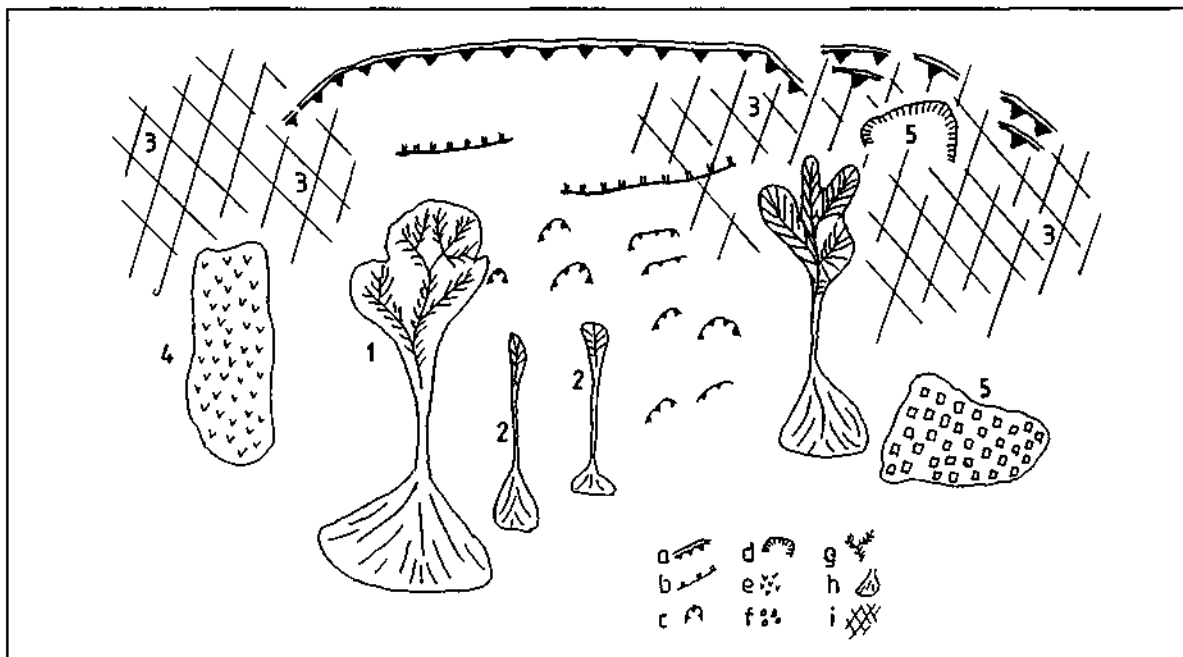


Fig. 1. Compilatoric sketch map of Sackung-type landslide and accompanying mass movements: (a) main scarp as outcropping normal fault surface, (b) uphill facing scarp as outcropping antithetic normal fault, (c) scarps of shallow rotational landslides, (d) scarp of rock fall, (e) landslide debris, (f) rock fall debris, (g) erosional gullies, (h) debris fan, (i) regions of more intense relaxed mountains brickwork. (1) Active plaik system following pre-existing drainage systems, (2) new generated plaik systems, (3) relaxed host rock of the transition zone, (4) mobile landslide, (5) sackung induced rock fall.