



## **Detailed geomorphic mapping in a high mountain/periglacial environment, Mattertal and Turtmanntal, Valais, Switzerland**

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Geomorphic mapping is an important method of research to understand individual landforms, as well as whole landscape units. Information about historical system development and active processes acting upon them can be obtained. Geomorphic maps should support both, scientific analysis and presentation of research results.

The poster presents two detailed mapping projects (1:5.000 and 1:10.000) which were accomplished in the Turtmanntal/Mattertal in elevations between 2200 and 3100m a.s.l.

The study applied the German mapping systems “GMK 25” and “GMK Hochgebirge” (high mountains) to analyse the areas and to present the results. Beside field work in summer 2006, a HRSC-A (High Resolution Stereo Camera-Airborne) dataset from 2001 and aerial photographs were used to map the sites.

The first map shows the study site “Rinderalpji” is located in the western part of the Mattertal and has a size of 1.5km<sup>2</sup>. It is best described as a recently deglaciated small glacier forefield and spans from 2700m - 3100m a.s.l. Steep slopes, large moraines ridges and rock glaciers are characteristic. Breach-lobe moraines could be identified which were developed probably during the Little Ice Age. Large moraines are created as a result of the restricted fluvial transport capacity. Presently, glacier-derived rockglaciers, coupling glacial and periglacial processes can be found, while talus-derived rockglaciers are common at the slopes. Typical recent processes are solifluction, linear erosion and rockfalls. A small lake has developed due to melting of dead ice from the Little Ice Age glacier which was dammed by an older moraine. In a

recently deglaciated area new rockglaciers seem to evolve.

The second map shows the forefield of the Turtmann glacier which is situated in the southern part of the Turtmann valley. The glacier tongue has an elevation of about 2200m a.s.l. As a result of an artificial sediment trap dam, the forefield is decoupled from the fluvial system. Debris flows, linear erosion and solifluction are the main processes in this area. Changes in the glacio-fluvial system are represented. They are caused by the rapid glacier retreat of the last years.