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Landslide mapping in the Swabian Alb using aerial photography and Digital Terrain Models

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Landslides in different types and sizes occur frequently in the region of the Swabian Alb (Germany). Parameters promoting the susceptibility to landslides include the geology (Cuesta landscape) and heavy rainfall events. Although small magnitude earthquakes occur regularly in the Swabian Alb, landslide initiations are rarely known. However, it is assumed that earthquakes predisposition the whole area for landsliding through weaking the sediments.

Interpretation of aerial photography has proved to be an effective technique for recognizing and delineating historic landslides. The knowledge of historic landslides is important to indentify unstable regions. This study presents the benefit of interpreting aerial photographs in combination with Digital Terrain Models (DTM) including LIDAR imagery for detecting historic landslides.

The aim of this study is the compilation of a landslide inventory map for a selected area. This inventory map will be based on at minimum three sets sequential photography. Such information will expand the already existing landslide inventory and partially increase the accuracy of the entries. This inventory will form the basis for detailed spatial susceptibility analysis and shall be used for a landslide hazard assessment. In addition, the inventory will contribute to further advanced studies in this area. This study is part of the DFG funded project Integrative landslide risk analysis and risk evaluation on the Swabian Alb, Germany (InterRISK).