



A first landslide inventory in the Rwenzori Mountains, Uganda

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Landslides have significant impacts in many equatorial regions, particularly in the East-African highlands characterized by mountainous topography, intense rainfalls, deep weathering profiles, high population density and high vulnerability to geohazards. With its exceptionally steep topography, wet climate and active faulting, landslides can be expected to occur in the Rwenzori region as well. Whether or not this region is prone to landsliding is however unclear due to a lack of scientific studies and representation of this region in global landslide databases. In order to address this question, a first landslide inventory based on archive information is built. In total, 48 landslide and flashflood events, or combinations of these, are found. They caused 56 fatalities, considerable damage to road infrastructure, buildings and cropland, and rendered over 14,000 persons homeless. These numbers indicate that the Rwenzori Mountains are landslide-prone and that the impact of these events is significant.

This archive inventory provided the basis for a thorough field inventory executed in three sub-regions of each 40-50 km² situated in the three districts of the Rwenzori Mountains and covering the main lithological units. Over 300 landslides were mapped in the field. Various contrasting mass wasting processes occur among which translational debris and soil slides, debris avalanches, debris flows and rotational soil slides. Landslides occur on almost all lithological groups present in the Rwenzori (Gneiss, Schists and Miocene to recent sediments), with the exception of Amphibolite, which does not appear to be susceptible to landslides. The majority of events are triggered by intense rainfall, although also earthquake-triggered landslides are identified, mostly related to the Mw 6.2 earthquake of 1994. The field inventory will be complemented and validated using very high resolution remotely sensed data and aerial photographs. This multi-temporal landslide inventory will be the first of this kind for the Rwenzori region and will serve as a basis for future geomorphological analysis and susceptibility and hazard mapping.