STEP-TRAMM – A modeling interface for simulating localized rainfall induced shallow landslides and debris flow runout pathways

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Landslides and subsequent debris-flows initiated by rainfall represent a ubiquitous natural hazard in steep mountainous regions. We integrated a landslide hydro-mechanical triggering model and associated debris flow runout pathways with a graphical user interface (GUI) to represent these natural hazards in a wide range of catchments over the globe. The STEP-TRAMM GUI provides process-based locations and sizes of landslides patterns using digital elevation models (DEM) from SRTM database (30 m resolution) linked with soil maps from global database SoilGrids (250 m resolution) and satellite based information on rainfall statistics for the selected region. In a preprocessing step STEP-TRAMM models soil depth distribution and complements soil information that jointly capture key hydrological and mechanical properties relevant to local soil failure representation. In the presentation we will discuss feature of this publicly available platform and compare landslide and debris flow patterns for different regions considering representative intense rainfall events. Model outcomes will be compared for different spatial and temporal resolutions to test applicability of web-based information on elevation and rainfall for hazard assessment.