



Debris flows susceptibility mapping under tropical rain conditions in Rwanda.

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Rwanda is a densely populated country. It means that all the space is exploited, including sometimes areas with very steep slopes. This has as for consequences that during the rainy season slopes with human activities are affected by gravitational processes, mostly debris and mud flows and shallow landslides. The events of early May 2016 (May 8 and 9), with more than 50 deaths, are an illustration of these frequent landslides and inundations.

The goal of this work is to produce a susceptibility map for debris/mud flows at regional/national scale. Main available pieces of data are a national digital terrain model at 10m resolution, bedrock and soil maps, and information collected during field visits on some specific localities. The first step is the characterization of the slope angle distribution for the different types of bedrock or soils (decomposition in Gaussian populations). Then, the combination of this information with other geomorphic and hydrologic parameters is used to define potential source areas of debris flows. Finally, propagation maps of debris flows are produced using FLOW-R (Horton et al. 2013).

Horton, P., Jaboyedoff, M., Rudaz, B., and Zimmermann, M.: Flow-R, a model for susceptibility mapping of debris flows and other gravitational hazards at a regional scale, *Nat. Hazards Earth Syst. Sci.*, 13, 869-885, doi:10.5194/nhess-13-869-2013, 2013. The paper is in open access.