A simplified numerical model for debris-flow hazard assessment:
DEFLIMO

M.A. Lenzi, V. D’Agostino, C. Gregoretti & D. Sonda

University of Padova, Department of Land and Agro-forest Environment, Legnaro, Padova, Italy

Abstract

The estimation of fan areas subjected to debris flow deposition is approached by using a 1-D routing model linked to a 2-D scheme for prediction of runout areas. Both models originate from simplified representations of the high slopes which characterize debris flow fans located in the north-eastern Italian Alps. Such hypotheses allow to couple a practical employ of the model (end-user oriented) with the physical basis maintenance of the debris phenomenon. Application facilities of the debris flow impact model (DEFLIMO) also come from its integration with the ArcView GIS framework. Example study cases of DEFLIMO for two debris fans (Rio Lenzi and Rio Lazer, Trento Province, Italy) offer reliable mapping of hazard areas, if compared to historical observed events.

Keywords: debris flow, field studies, hazard assessment, models, end-users, Italian Alps.