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Abstract title

TOWARDS A NATIONAL CLASSIFICATION OF LANDSLIDE AND FLOOD HAZARDS AND RISK IN ITALY

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Abstract

In Italy, information is available to attempt a quantitative, nationwide assessment of landslide and flood hazards and of the associated risk. We have prepared a preliminary map showing estimated levels of landslide and flood hazards for each of the 8102 municipalities in Italy. Levels of landslide and flood hazards are portrayed in 5 classes, from very low to very high. To evaluate the hazards we used an historical catalogue listing 22,547 landslide events and 27,801 flood events in the period between 1900 and 2001. We obtained the average recurrence of landslide and flood events in each municipality dividing the total number of events listed in the historical catalogue by the time span of the investigated period (102 years). Assuming that the recurrence of landslides and floods will remain the same for the future, we determined for different time intervals the probability of having one or more damaging landslide or flood event in each municipality. We obtained the spatial assessment of landslide and flood hazard by multivariate analysis of morphological variables obtained from a 90x90 meter digital elevation model (DEM) acquired by the Shuttle Radar Topography Mission (SRTM) in February of 2000. Lastly, we obtained an estimate of the magnitude of the expected damaging landslide or flood event in each municipality by analyzing the frequency statistics of historical events with human consequences. For this purpose we used a catalogue of landslides and floods that occurred in Italy between 1279 and 2002 and caused deaths, missing persons, injuries and homelessness. To determine levels of landslide and flood risk we intersected the maps of landslide and flood hazards with maps showing the number and the density of the population in Italy. The result is a preliminary, quantitative estimate of landslide and flood risk in Italy. The obtained maps can be used by national and regional civil protection authorities, by national and regional environmental agencies, and by insurance and re-insurance companies.

ACCEPTED as Poster Presentation

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