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FLOOD AND LANDSLIDE FATALITIES AND EVALUATION OF GEO-HYDROLOGICAL RISK IN ITALY

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A database of floods which occurred in Italy between 1900 and 2002 and caused deaths, missing people, injuries and homelessness was compiled from a variety of different sources. These included the archive of the National Research Council's AVI (Damaged Urban Areas) project, which collected together information on foods and landslides in the 20th century in Italy. The existing database of landslides with human consequences in Italy was updated with information on recent landslide events that caused dead, missing, injuries and homeless people. Joint analysis of the two databases indicates that in Italy a total of 9,195 people have been killed or are missing due to floods or landslides between 1900 and 2002. In the 103-years period, floods have caused 3,382 deaths or missing people in a total of 969 flooding events, corresponding to a frequency of 9.5 flood events with fatalities each year. In the same period, analysis of the landslide database indicates that 5,813 people died in a total of 1882 landslide events, corresponding to a frequency of 18.4 landslide events with fatalities every year. The average number of fatalities caused by flood or landslide events is 3.5, and 3.1, respectively. Problems encountered in collecting the historical information and in building the catalogues of flood and landslide events with human consequences are discussed. Completeness of the two databases is ascertained by analyzing the trend of the cumulative number of landslide and flood fatalities. The temporal pattern of flood and landslide events with human consequences is investigated. The frequencies of flood and landslide events are plotted against their consequences (i.e., number of deaths and missing people caused by floods or landslides), and an attempt to ascertain geo-hydrological risk to people in Italy is shown. Mortality rates for landslide and flood events are estimated, and compared to mortality rates for other natural, medical, and human-induced hazards in Italy.