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Natural Hazards and Earth System Sciences

Preface

This issue of *Natural Hazards and Earth System Sciences* contains some of the contributions presented at the open session entitled "Landslide and Flood Risk" held during the EGS-AGU-EUG Joint Assembly in Nice, France, from 7 to 11 April 2003. The symposium was a good opportunity to discuss methods, techniques, tools and examples for evaluating, avoiding and/or mitigating landslide and flood risk. The meeting was aimed at comparing qualitative and quantitative hazard and risk evaluation methods in different areas and at different scales.

The issue contains nine of the twenty-nine contributions presented at the symposium. Since the scope of the session was fairly broad, the oral and poster contributions and the nine articles here presented cover a fairly large spectrum of topics. Confining the discussion on the published articles, three papers deal with fast moving landslides, such as rock falls; three papers discuss techniques for landslide hazards and risk assessment; one paper deals with the evolution of slope failures; and two papers discuss the estimate of flood damage and the modelling of flood flows.

The paper by *Budetta* describes a method for the analysis of rock fall risk along roads and motorways. The method is a modified version of the Rockfall Hazard Rating System proposed in 1990 by the Oregon State Highway Division. *Jaboyedoff* and his colleagues propose a method to estimate the density of fractures in a rock mass by means of a digital elevation model. The proposed method allows to detect and to estimate the average number of discontinuities by surface area or along a line. Results may be used in the production of rock fall hazard maps. *Gunther* presents a suite of extensions for ArcView GISTM that allows mapping of the spatial distribution of first order mechanical slope properties in hard rock terrain. The proposed system allows rapid and automated mapping of geometrical and kinematical slope properties, providing the basis for spatially distributed deterministic sliding susceptibility evaluation on a pixel base.

Chau and Lo exploit GIS technology combined with numerical simulations to identify potential debris flow hazard areas in the Leung King Estate, Hong Kong. *Bell and Glade* present a quantitative landslide risk analysis in Bildudalur (Iceland). *Zezere and his co-workers* propose a methodology for the probabilistic evaluation of landslide hazards, in the north of Lisbon; taking into account both the landslide susceptibility and the triggering factors, mainly rainfall. *Petley* examines the development of a single slope failure in Hampshire (England) based upon a detailed dataset collected as part of the Selborne Cutting Slope experiment. *Merz et al.* study a large dataset of damages to buildings in flooded areas in Germany, proposing a methodology to quantify uncertainty in flood damage estimates. *Martini et al.* present a numerical model of flood waves and sediment transport in floodplains and apply it to the analysis of a proposed risk-mitigation scheme: the diversion of the Brenta River into Venice Lagoon, Italy.

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