



## **A simplified risk model from the need for a balance between the different components of a catastrophe model**

Francesco Dottori (1), Mario Martina (2), and Rui Figueiredo (2)

(1) European Commission, Joint Research Centre, Ispra, Italy, (2) Istituto Universitario di Studi Superiori di Pavia, Italy

Flood disasters are recognized as one of most important sources of economic losses and casualties worldwide. Nowadays, flood risk management is gaining importance in order to mitigate and prevent flood disasters, and consequently the analysis of flood vulnerability is becoming a research topic. Many risk models have no balance between the different components: hazard component are pointlessly detailed if vulnerability component or the exposure component are drastically approximated. In this work, we propose a simple methodology for large-scale analysis of flood risk with a more rational balance between the different components. A GIS-based index is used to simulate flood hazard and obtain information in term of flooded areas and expected water depth. Using this index results, damage curves are spatially aggregated over the area of interest to obtain areal damage curves, which synthesize vulnerability in the area of interest. The method is applied in a real flood event with open source exposure data, to evaluate the index performance and test the methodology.