



## **A simple methodology for flood scenario simulations and flood vulnerability analysis**

Francesco Dottori and Mario L. V. Martina

Università di Bologna, Dipartimento di Scienze Biologiche, Geologiche e Ambientali, Bologna, Italy  
(francesco.dottori@unibo.it)

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. In this work, we propose a simple methodology for large-scale analysis of flood vulnerability. A gis-based index is used to simulate a series of flood scenarios and obtain information in term of flooded areas and expected water depth. Using index results and damage curves in each flood scenario, the expected direct and indirect damages 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, to evaluate the index performance and test the methodology.