



The challenge of EU Flood Directive: preliminary flood risk assessment for flash floods in the catchment of Rafina, Greece

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Due to the EU Flood Directive there is a need for the establishment of preliminary flood risk maps in European countries until 2011. In order to achieve this goal, risk analyses have to be undertaken on a regional scale showing potential adverse consequences to humans and the environment. In risk analysis, risk is expressed as a function of the probability of occurrence of a hazardous process, the exposed elements at risk and their vulnerability. With respect to flash floods in Mediterranean countries, the assessment of processes has been subject to extensive research during the last decades. However, existing inventories on historic flash floods and the resulting damage to human health, the environment, cultural heritage and economic activities are not comprehensive so far. As a result, future developments of risk cannot be projected with the necessary accuracy. Moreover, studies on the vulnerability of elements at risk evolved only recently, and related quantitative information is hardly available so far due to an overall lack of systematic data collection.

The objective of this study is to close this gap by establishing a spatiotemporal preliminary flood risk assessment focussing on flash floods in the catchment of Rafina, Greece. The level of flood risk was evaluated on the river basin scale in order to provide an overview on risk and to subsequently select those areas on which detailed hazard mapping and risk assessment has to be undertaken, and to develop appropriate flood risk management plans. The model developed is based on a basin-scale approach combining loss data, data on the elements at risk exposed, and data on flash flood intensities.

The aim of this study is to provide guidelines of how to implement the first step of the European Flood Directive (preliminary flood risk assessment) and to show challenges and limitations resulting from the availability of hazard information and land use data.