

Sources of uncertainty as a basis to fill the information gap in a response to flood

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Taking into account uncertainties in flood risk management remains a challenge due to difficulties in choosing adequate structural and/or non-structural risk management options. Despite stated measures wrong decisions are often being made when flood occurs. Parameter and structural uncertainties which include model and observation errors as well as lack of knowledge about system characteristics are the main considerations. Real time flood risk assessment methods are predominantly based on measured water level values and vulnerability as well as other relevant characteristics of flood affected area. The goal of this research is to identify sources of uncertainties and to minimize information gap between the point where the water level is measured and the affected area, taking into consideration main uncertainties that can affect risk value at the observed point or section of the river. Sources of uncertainties are identified and determined using system analysis approach and relevant uncertainties are included in the risk assessment model. With such methodological approach it is possible to increase response time with more effective risk assessment which includes uncertainty propagation model. Response phase could be better planned with adequate early warning systems resulting in more time and less costs to help affected areas and save human lives. Reliable and precise information is necessary to raise emergency operability level in order to enhance safety of citizens and reducing possible damage.

The results of the EPISECC (EU funded FP7) project are used to validate potential benefits of this research in order to improve flood risk management and response methods. EPISECC aims at developing a concept of a common European Information Space for disaster response which, among other disasters, considers the floods.