



Benchmarking an operational procedure for rapid flood mapping and risk assessment in Europe

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The development of real-time methods for rapid flood mapping and risk assessment is crucial to improve emergency response and mitigate flood impacts. This work describes the benchmarking of an operational procedure for rapid flood risk assessment based on the flood predictions issued by the European Flood Awareness System (EFAS). The daily forecasts produced for the major European river networks are translated into event-based flood hazard maps using a large map catalogue derived from high-resolution hydrodynamic simulations, based on the hydro-meteorological dataset of EFAS. Flood hazard maps are then combined with exposure and vulnerability information, and the impacts of the forecasted flood events are evaluated in near real-time in terms of flood prone areas, potential economic damage, affected population, infrastructures and cities. An extensive testing of the operational procedure is carried out using the catastrophic floods of May 2014 in Bosnia-Herzegovina, Croatia and Serbia. The reliability of the flood mapping methodology is tested against satellite-derived flood footprints, while ground-based estimations of economic damage and affected population is compared against modelled estimates. We evaluated the skill of flood hazard and risk estimations derived from EFAS flood forecasts with different lead times and combinations. The assessment includes a comparison of several alternative approaches to produce and present the information content, in order to meet the requests of EFAS users. The tests provided good results and showed the potential of the developed real-time operational procedure in helping emergency response and management.