



A procedure for global flood hazard mapping – the Africa case study

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River floods are recognized as one of the major causes of economic damages and loss of human lives worldwide, and their impact in the next decades could be dramatically increased by socio-economic and climatic changes. In Africa, the availability of tools and models for predicting, mapping and analysing flood hazard and risk is still limited. Consistent, high-resolution (1km or less), continental-scale hazard maps are extremely valuable for local authorities and water managers to mitigate flood risk and to reduce catastrophic impacts on population and assets. The present work describes the development of a procedure for global flood hazard mapping, which is tested and applied over Africa to derive continental flood hazard maps. We derive a long-term dataset of daily river discharges from global hydrological simulations to design flood hydrographs for different return periods for the major African river network. We then apply a hydrodynamic model to identify flood-prone areas in major river catchments, which are merged to create pan-African flood hazard maps at 900m resolution. The flood map designed for a return period of 20 years is compared with a mosaic of satellite images showing all flooded areas in the period 2000-2014. We discuss strengths and limitations emerging from the comparison and present potential future applications and developments of the methodology.