

EGU23-12624, updated on 12 Jun 2023

<https://doi.org/10.5194/egusphere-egu23-12624>

EGU General Assembly 2023

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Multi-parameter flood risk assessment towards efficient flood management in highly dense urban river basins in the Region of Attica, Greece

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Flood risk assessment in vulnerable areas is crucial for efficient flood risk management, including the analysis and design of civil protection measures and the implementation of studies with proper interventions towards mitigating flood risk. This is even more crucial in highly dense urban river basins such as the ones in the region of Attica, which is hosting Athens, the capital of Greece, as well as critical infrastructures and important social economic activities. In the framework of the Programming Agreement with the Prefecture of Attica, the Operational Unit BEYOND Centre of EO Research and Satellite Remote Sensing of the Institute of Astronomy, Astrophysics, Space Applications & Remote Sensing (IAASARS) of the National Observatory of Athens (NOA), in cooperation with the Research Group ITIA of the Department of Water Resources and Environmental Engineering of the School of Civil Engineering of the National Technical University of Athens (NTUA), study five flood-stricken river basins in the region of Attica, which affect 23 Municipalities. The research teams collect all available data, conduct detailed field visits, run hydrological and hydraulic models, and assess flood hazard, flood vulnerability and eventually flood risk in every area of interest. Furthermore, high-risk critical points are identified, and mitigation measures are proposed, both structural and non-structural, in order to achieve effective crisis management for the protection of the population, the properties and the infrastructures. In addition, the BEYOND Centre has developed a web GIS platform where all the collected and produced data, the flood hazard, vulnerability and risk maps, as well as the identified critical points, the refuge areas and escape routes are stored and made available. All the relevant stakeholders and the competent authorities, who are directly or indirectly involved in civil protection, participate in dedicated workshops designed for their needs, and moreover, the studies' general outcomes are disseminated to the wider public for raising awareness purposes. The response of the end users is very positive, and their feedback very constructive. The methodology and the outputs of the project are in line with the requirements for the implementation of the EU Floods Directive 2007/60/EC, the Sendai Framework for Disaster Risk Reduction, the UN SDGs, as well as the GEO's Societal Benefit Areas.

