FLOOD SIMULATION MODELS FOR THE TERRITORY OF REPUBLIC OF BULGARIA

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A B S T R A C T

In a period of only six years, between 1998 and 2004, Europe was rocked by more than 100 large and devastating floods. They caused death of 700 people, displacement of about half a million people, and at least € 25 billion in economic losses. This led to the need for common measures at European level.

Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007. This Directive requires member states to assess if all water courses and coast lines are at risk from flooding, to map flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. With this Directive also reinforce the rights of the public to access this information and to have a say in the planning process. Directive 2007/60/EC considers different types of floods, including plain floods and flash floods. It requires member states to perform flood risk management in three steps: 1) Preparation of a preliminary assessment of flood risk; 2) Development of flood hazard maps and flood risk maps; 3) Development of flood risk management plans.

ReSAC is actively engaged in the process of flood risk management and damage assessment in Bulgaria. ReSAC takes part in many projects, local and international, related to flood risk management. In the last two years ReSAC is a partner in SAFER project, in which it participates with two work packages: “Plain Flood Risk Management” and “Assets Mapping”. The elaborated products are in full compliance with Directive 2007/60/EC.

The major research resource of ReSAC is pointed to flood management in urban areas. The center developed a methodology for estimation of flood extent, based on digital elevation model. Analysis is performed with ArcGIS 9x software, Spatial Analyst Extension.

The final result is 158 flood simulation models for several of the largest rivers in Bulgaria, within its urban territories. Data were organized in GIS database with horizontal accuracy of 5 m. These models estimated flood extent, as well as flood depth. The results were presented in thematic maps.