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Incorporating flow velocity information in the evaluation of flood risk indices

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The proposal of flood control protection calls for the risk and vulnerability degree assessment of inundation area with the evaluation of potential damage on health and lives of population and property. The damage depends on many factors, i.e. water depth and velocity in the inundation area, flood duration. Theoretical means, which make possible objective, qualitative and quantitative forecasting of flood consequences, are mathematical models of water flow, geographical information systems (GIS) and methods for risk analysis of facilities situated in potentially endangered areas. In this paper the role of flow velocity for the evaluation of the flood risk is explored by using a 2-D flood propagation model embedded in a Geographical Information System. The results of the model simulation are used to derive flood hazard diagram incorporating information both from water depths and flow velocities.