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Managing natural risks through GIS

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Abstract:

Today's society is in research of advanced methods for studying and managing natural risks and disasters. A particular place within these methods takes place GIS, which may be used to analyze and identify space where natural disasters have occurred before and how they influence natural and anthropogenic landscape. Through GIS, we can accurately predict where more natural hazards are likely to occur. By determining the place where natural disasters and risks like: flooding or landslides may occur, we can develop new and more effective methods in order to reduce the impact of these risks in the future.

Flood modeling in the case study, is done by using HEC-GeoRAS and HEC-RAS program which are part of ArcGIS and which are specifically designed for hydraulic modeling. Data served for the study case, are hydrological data and the amount of precipitation for the period of 25 years. Regarding digital relief database needed for this study, it was worked on by digitalization of topographic maps P 1:50 000.

Modeling is based on these hydrological data: the absolute maximum amount of rainfall and average annual rainfall for a period of 25 years, the maximum amount of water flow, the average amount of water flow for a 25 year period. By modeling from these data, we analyze floods for 20 years, 50 years and 100 years.