



HYDROLOGICAL HAZARDS 2.

Mapping of flood prone areas in the lower Timiș Basin

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The increase of natural hazards worldwide, particularly the occurrence of floods is more and more visible. Flooding can happen anywhere, but certain areas are especially prone to serious flooding. In this sense, a landmark is the 2005 floods, when, at the exit of the country, Timiș River reached a historical discharge of 1675 m³/s, compared to the multi-year average discharge of 46 m³/s. Urban sprawl and economic activities in river floodplains increase the potential impact of flooding. Absolute flood protection will never be possible, but damage can be reduced through flood risk management, which starts with understanding the flood hazard. It is difficult to estimate the probability of different flood events because complex data is required to create an accurate hydrological forecasting. This paper aims to identify flood prone areas based on geospatial data and a minimum amount of hydrological data using ArcGIS and HEC-RAS. A flood modeling is not only aimed at obtaining acceptable simulated results, but also at using these maps in the decision-making process. The lower Timiș Basin is a part of Timiș-Bega system with many interconnections between the two river basins. Our hydrological modeling is based on the data from Lugoș and Șag hydrological stations, with scenarios for 10, 50, 100 and 1000 years discharge recurrence using Gumbel distribution. The analysis revealed that once in 100 years scenarios (1480 m³/s) and millennial ones (2064 m³/s) for discharge occurrence will cause great damages for agricultural lands and settlements especially in the subsidence plain located next to Serbian border.