Geophysical Research Abstracts
Vol. 14, EGU2012-8425, 2012
EGU General Assembly 2012

Monitoring and Risk Identification Caused by High Water, Floods and Erosion Processes in Urban Part of Sava Riverbed

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Riverbed erosion and bottom deepening are part of natural fluvial processes in the upper stream of Sava River. The increasing gradient of those changes is interconnected with the level of human influence in the river basin and riverbed as well. In time period of last forty years the consequences of riverbed erosion are become serious as well as dangerous and they threaten the stability of hydro technical structures. The increasing value of flow velocity in riverbed in urban part of river section during high water level, mud and debris flow during the floods as well, is especially dangerous for old bridges. This paper contains result of velocity measurements during high waters taken by Hydrological Service of Republic Croatia, load transport monitoring during such events and cross sections in some vulnerable location. In this paper is given one example of Jakuševac railway bridge in Zagreb, heavily destroyed during high water event on the 30 March 2009., recently reconstructed by “Croatian Railways” company.

Keywords: Riverbed erosion, flow velocity, mud and debris flow, risk identification, stability of bridges