Geophysical Research Abstracts
Vol. 19, EGU2017-14799, 2017
EGU General Assembly 2017

Analyzing interaction between landslide occurrence and river bed and banks erosion in the Ialomita Subcarpathians, Romania

Zenaida Chitu (1) and Thom Bogaard (2)

(1) National Institute of Hydrology and Water Management, Department of Experimental Hydrology, Bucharest, Romania (zenaidachitu@yahoo.com), (2) Faculty of Civil Engineering and Geosciences, Technical University of Delft, Netherlands

Landslides and flash floods are one of the most widespread natural hazards that cause casualties and millions of property damages every few years. As extreme weather events increase and the society become more complex, the economic and social costs induced by these natural hazards will continue to rise. Only in 2014, the numerous flash floods and landslides occurred in the Ialomita Subcarpathians resulted to severe economic losses estimated to 8 million euros. The numerous landslide events that took place in this area were triggered by rainfalls that reached more than 100 mm in few days. Even if the main major rainfall events were characterized by medium and low intensity, the cumulative precipitation conducted to high peak discharges, followed in a few hours by numerous landslides. In this context we propose to analyse the interaction between landslide occurrence and rainfalls for 2014 storm events taking into consideration the river bed and banks erosion. The river bed erosion changes and water surface elevations is estimated using 1D hydraulic modelling technique implemented in HEC-RAS software, while the banks erosion is quantified based on limit equilibrium methods implemented in the BSTEM application. Despite the limited number of landslide events, this approach could allow a detailed insight of understanding the influence of rainfall in landslide occurrence in this specific area.