



## **Overland flow generation at flysch slopes**

Ladislav Holko, Michal Danko, Zdeněk Kostka, Pavel Krajčí, and Jozef Hlavčo

Institute of Hydrology, Slovak Academy of Sciences, Department of Surface Water Hydrology, Liptovský Mikuláš, Slovakia  
(holko@uh.savba.sk)

We used portable rainfall simulator Wageningen to measure beginning and amount of overland flow in the foothill part of the mountain valley in northern Slovakia. One hundred experiments with three different rainfall intensities were conducted at five plots in 2015 and 2016. Rainfall intensities in the study area rarely exceed 0.3 mm/10 min. We applied much higher intensities (2.4, 4 and 5.3 mm/min) to see the response of the soil surface. Durations of simulated rainfalls were 5 and 10 minutes. Overland flow was not generated only in seven experiments. ANOVA showed that measured variances of time of the overland flow onset at different sites were from the same population. Percentage of applied rainfall which run off as the overland flow was different at the plot with higher grass cover. About 20-40% of simulated rainfall appeared in the overland flow for the two higher rainfall intensities. Overland flow during rainfall intensity 2.4 mm/min which is still extreme in the study area represented mostly not more than 10% of the applied rainfall. While soil moisture before the experiment which varied approximately between 20 and 35 volumetric per cent affected time of the overland flow onset or overland flow amount at some sites, slope of the site (mostly 6-13 degrees) did not have a significant influence.