



Simple scaling of extreme short-term rainfall for flood risk estimation in Slovakia

M. Bara, L. Gaal, S. Kohnova, J. Szolgay, and K. Hlavcova

Slovak University of Technology, Dept. of Land and Water Resources Management, Bratislava, Slovakia (bara@svf.stuba.sk, ladislav.gaal@stuba.sk, silvia.kohnova@stuba.sk, jan.szolgay@stuba.sk, kamila.hlavcova@stuba.sk)

In the poster the possibility of using wide sense simple scaling of rainfall in Slovakia was demonstrated. It presents a case study, which focuses on application of the simple scaling theory of rainfall in the Western Carpathians, where complex rainfall generation mechanisms (intensive rainfall caused by diverse atmospheric circulation patterns, orographic effects and convection) are observed over a relatively complex mountainous terrain. The rainfall data for the analysis consists of rainfall intensities of 8 durations ranging from 5 minutes to 180 minutes and daily rainfall amounts from 55 raingauges from the whole territory of Slovakia, taken from the historical dataset of and from the database of the Slovak Hydrometeorological Institute. The scaling behaviour of rainfall intensities was examined and the scaling exponent in analysed stations was derived. Comparison of IDF curves using scaling of moments and scaling of parameters of the theoretical General extreme value distribution(GEV) was performed. Finally the spatial variability of the scaling exponent was examined and relationships between precipitation and climate regime characteristics and scaling exponent were tested.