



Extreme daily rainfall event in Slovakia during the summer of 2016

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The paper focuses on climatological and meteorological, as well as statistical analysis of extreme rainfall event that occurred in the evening on the 27th of July 2016 in western part of Slovakia (Dolná Poruba). Very intensive torrential rain, with daily total rainfall of 128 mm – roughly 90 mm fell within the first 30 min, was induced by quite extensive convective system moving slowly over western Carpathians from southwest. Though during the summer of 2016, numerous rainfall events with +100 mm/24h precipitation total were recorded in Slovakia, rainfall in Dolná Poruba was exceptional because of its extremely high short-term rainfall intensity (+3 mm per minute). Moreover, 30-min total precipitation significantly exceeds the historical maximum of such rainfall intensity in Slovakia (~66 mm/30 min). In any year, such an event has a probability of occurring equal to 1 in 500 (i.e. a 0,2 % chance). In terms of statistical frequency as well as probability density of such extreme high rainfall, it is reasonable to assume the value of 91 mm/30 min is statistically very remote value, and therefore T-year estimation using the state-of-art statistical methods could be quite unreliable (in respect of very short time series of rainfall available in the region of Dolná Poruba). Considering the above-mentioned facts, we also find interesting to analyze/compare the maximum daily rainfall series reconstructed from historical data-sets at rain-gauge stations in Dolná Poruba (1990 - 2016) and Horná Poruba (1951 - 2015).