



Trends in heavy precipitation in Slovakia over 1951-2017

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It is well known that extreme precipitation associated with intensive rainfall could cause very significant economy damage in affected regions. Heavy precipitation and consecutive flooding have been the most serious weather-related hazards over the territory of Slovakia in the last decades. Moreover, the extreme precipitation analyses play a crucial role in many climatological and hydrological evaluations that can provide technical and engineering applications with climate change impact assessments. The paper deals with analysis of long-term variability and trends of daily extreme precipitation value exceeding particular threshold (50, 70 and 100 mm/24 hrs) from more than 500 rain gauge stations in Slovakia over the periods 1965 – 2017. Monthly, seasonal and annual number of over-threshold precipitation totals is analyzed. Precipitation totals exceeding at least 50 mm have a very specific position in climatological statistical analyses. In several regions of Slovakia they do not have to occur in many consecutive years, meaning they can occur only sporadically. Moreover, these heavy precipitation events can induce (more frequently than in history) insurance events, especially in the cases where they are recorded in the summer as intensive rainfalls. Like other characteristics of precipitation, for which significant increasing trends were recorded in the period of the last 20 years, similar long-term tendencies are being expected in the cases of above-mentioned number of extreme daily precipitation totals. In order to understand the causes of extreme precipitation events incidence in particular years and season we present either the results of circulation (synoptic) analyses using factorial component analysis.