



## **Spatial and temporal variability and changes in maximum 2-days precipitation totals in Slovakia over the period 1951-2017**

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In the presented paper we focused on statistical analysis of spatial and temporal variability and long-term changes in occurrence of maximum 2-day rainfall totals (RR2d) in the selected dataset of 418 meteorological (precipitation) stations evenly distributed over the territory of Slovakia in the period 1951-2017. The analysis was performed using the complete time series of daily precipitation totals. Long-term changes in the occurrence of RR2d were evaluated over the monthly (January - December) and the seasonal time step (spring, summer, autumn and winter, cold and warm semester) using some a priori selected RR2d characteristics (e.g. annual and seasonal RR2d maximum, occurrence of over-threshold values  $RR2d \geq 75$ . percentile, changes in the probability density function of RR2d over-threshold values, change in occurrence of T-years estimations for 50 and 100 years, etc.).

The results indicate statistically significant and positive trends of above-mentioned characteristics, especially during the Warm-half-year “WHY” period (April to September), however there were significant regional differences in the spatial distribution of the changes patterns (especially for RR2d maxima and their design values, as well as the occurrence of RR2d over-threshold values in central and eastern Slovakia, probably due to the higher frequency of summer storms in continental climate conditions). In the case of standardized RR2d, using over-threshold deviations from the 75th percentile (upper quartile), the results indicate significant changes (more frequent incidence of higher RR2d over-threshold values) in the regions of the eastern and southern part of central Slovakia, especially during the summer – autumn period (more less during the WHY period), and in the regions of western and northern Slovakia in the winter – spring period (more less during the CHY period – cold-half-year).