



Extreme climate analysis using extreme index time series for the Central/Eastern European region

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Since human and natural systems may be especially affected by changes of extreme climate events, the main objective of our research is to detect the possible changes of intensity and frequency of these extreme events. Several climate extreme indices have been analysed and compared for Central/Eastern Europe (focusing on Hungary) for the 20th century based on the guidelines suggested by the joint WMO-CCI/CLIVAR Working Group on climate change detection. These climate extreme indices include the numbers of severe cold days, winter days, frost days, cold days, warm days, summer days, hot days, extremely hot days, cold nights, warm nights, the intra-annual extreme temperature range, the heat wave duration, the growing season length, the number of wet days (using several threshold values defining extremes), the maximum number of consecutive dry days, the highest 1-day precipitation amount, the greatest 5-day rainfall total, the annual fraction due to extreme precipitation events, etc. Therefore, daily maximum, minimum and mean temperature observations and daily precipitation amounts have been used in the present statistical analysis. Our results suggest that similarly to the global and continental trends, regional temperature of Central/Eastern Europe has become warmer during the second half of the 20th century. Furthermore, regional intensity and frequency of extreme precipitation has increased, while the total precipitation has decreased in the region and the mean climate has become drier.