



Abnormally cold and warm temperature events in spring and autumn seasons during 1961-2018 in the Czech Republic

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Recent climate change involves not only changes in the mean temperature, but many other aspects of the climate are also affected. Great attention is turned to the changes in extreme weather events as they could have a great impact on socio-economic sectors. Concerning the air temperature, the extremes in warm and cold parts of the year are mostly studied. However, the negative impacts (e.g. for vegetation or consumption of energy for heating) are connected to the changes in extremes of minimum and maximum temperature in spring and autumn seasons as well. In addition, strong extreme events in spring and autumn have recently been recorded in the Czech Republic (e.g. cold March 2013 and 2018, warm March 2014 and 2017, November 2014 or September 2016).

This contribution deals with detection of abnormally cold and warm air temperature events in spring and autumn seasons in the Czech Republic. The standardized data of daily minimum and maximum temperature with removed annual course are used. The distribution of daily minimum and maximum temperature is standardized for each station and each calendar day with the standard z-score using time-smoothed mean and standard deviation. The abnormal air temperature events are detected using the Weather Extremity Index (WEI) combining return periods and the extent of affected area. In addition, the extremity of the event is assessed using the WEI.

Afterwards, the temporal evolution of frequency and extremity of these events during the period of 1961-2018 is analysed. The results are compared with trends in mean seasonal temperature in order to evaluate how the changes in extreme events differ from changes in corresponding mean.