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The heat wave of August 2012 in the Czech Republic: Evaluation using the Weather Extremity Index

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We present an analysis of the summer heat wave of August 2012 in the Czech Republic. We use and compare results of two different approaches to heat wave evaluation. The Weather Extremity Index evaluates the extremity and spatial extent of the meteorological extreme event of interest. The second method is based on the duration of daily maximum air temperature above specific thresholds. In August 2012, the high air temperature in the Czech Republic lasted from 18/8 to 24/8. It was connected with the inflow of hot air from northern Africa between the low pressure trough over the eastern Atlantic and the region of high pressure in central Europe. The heat wave culminated on 20/8 when the maximum air temperature was higher than 30°C in the whole area of the Czech Republic and the highest daily maximum air temperature on record in the Czech Republic with value of 40.4°C was observed at Dobřichovice station. Our results demonstrate that the studied heat wave was quite extraordinary, occurring so late in the summer with a relatively large areal extent and extremity of detected maximum air temperature. Furthermore, the Weather Extremity Index was found useful for identification of really extreme high air temperature events and facilitated inter-comparison in terms of extremity and spatial extent. However, it cannot be used for detection of all heat waves that could have severe impacts on both human activities and natural ecosystems.
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