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Heatwaves variability and long term changes in central Poland

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Contemporary warming is accompanied by strong increase of daily maximum temperature, much higher than increase of daily mean. In the result the frequency of warm and hot days as well as intensity of heat waves have increased also (IPCC 2014, BACC 2015). In developed countries heat waves are considered to constitute the main reason of weather related deaths (Thacker et al., 2008). It was assessed that heat wave in summer 2003 caused at least 20 000 deaths (Kosatsky, 2005), only in France this number was assumed as 14 800 (Confalonieri i in., 2007). Munich RE (2011) appraised that the heat wave in Eastern Europe in 2010 was responsible for death of 56 000 persons (Barriopedro i in. 2011; Dole i in. 2011). The aim of this paper is to present the changes in amount and intensity of heat waves in central Poland on the basis on data from several sites from the middle of the 20th century.
Different factors driving heat waves were also analysed, among them atmospheric circulation described by the occurrence of high or low pressure systems, different circulation types and blocking index. The dryness expressed by SPI and SPDI indices were also taken into account.
At the end the intensitication of intensity of heat waves in the city environment as compared with the rural ones was investigated on the basis of selected biometeorological indices, like heat stress (Matzarakis et al., 2009).