



Heat waves in Poland, based on HadRM3-PRECIS results

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The year of 2006 was the sixth warmest year worldwide since the records started to be taken in 1850s, according to a report from the UK Met Office. The year of 2006 in Poland was the year of thermal extremes. During the summer months, especially in July, most regions in Poland experienced heat waves. In Warsaw, July was the warmest since the time the first records were made in 1779.

The high and prolonged period of raised temperature may have dramatic impact on different fields of human activity, e.g. agriculture, but in particular human health. Studies have shown that a significant rise in heat-related health problems takes place when excessive heat lasts more than two days. The current projections of climate change for Poland are that more extreme heat waves are likely to occur in the future. These are likely to occur at more frequent intervals and to be more severe.

In this study, daily temperature data from the Hadley Centre HadRM3-PRECIS regional model simulations, for SRES A2 and B2 scenarios across Poland, were compared for the periods of 1961-1990 and 2070-2099. The heat waves will be described by different thermal characteristics, e.g. the duration of the hot spell (with maximum temperature T_{max} greater than 35°C), the duration of the hot-nighttime spell (with minimum temperature T_{min} greater than 25°C), the duration of the spell with both maximum temperature T_{max} greater than 35°C and minimum temperature T_{min} greater than 25°C , the duration of the spell with heat index HI greater than 36°C and more. Changes in high temperature extremes were analyzed using statistical tests.

Additionally, the different thermal variables of the summer of 2006 will be compared with projections of these variables for the future. These studies will allow answering

the question whether the thermal values presently recognized as extreme in Poland will occur more frequently in the future, in case of A2 or B2 scenarios? Will such values be normal in the future climate?