



Heat waves in the changing climate, based on HadRM3-PRECIS results

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During July and August 2003, significantly above-average temperatures were observed throughout Europe. Heat waves affected large areas of western Europe, Scandinavia and western Russia. For example, the period between 4 and 12 August was unique in the meteorological history of Paris, average (over 35°C), minimum and maximum daily temperatures being the highest ever measured.

There is evidence that high and prolonged period of raised temperature may have dramatic impact on different fields on human activity, in particular on human health. Studies have shown that a significant rise in heat-related health problems happens when excessive heat lasts more than two days. In consequence, heat waves have large impact on mortality. For instance, several thousand Parisians are estimated to have died from heat in August 2003.

The current projections of climate change 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 scenario in three model experiments over the European continent, were compared for the periods of 1961-1990 and 2070-2099. Changes in high temperature extremes were analyzed using statistical tests. From human health point of view, it is important how heat is felt to the body. That's why statistics of heat index in changing climate were studied additionally. The simulations show that the increase in longer hot spells is particularly visible for Southern Europe. The study can be of interest when identifying cost-effective interventions, including heat wave warning system that will save lives.