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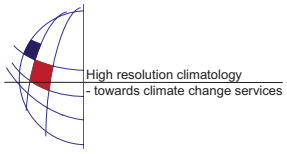

Detection of the signs of climate change in the meteorological data series of Keszthely, Hungary

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The aim of our research was to analyse the long term data series of the meteorological measurements at Keszthely, Hungary from the point of view of climate and statistics. Possible evidences of the local signs of global climate change were detected. The extents of the changes that have occurred in the values of the temperature (homogenized) and precipitation since the beginning of the observations (1871) were determined on the basis of the yearly, seasonal and monthly data. The detailed analysis of the history of meteorological measurements at Keszthely provided important background information to the determination of the weather changes.

Results:
1. The decrease of precipitation, which is regarded as one of the consequences of global warming cannot be detected in the annual data of Keszthely (according to linear regression between 1871 and 2000), but seasonal changes (Spring) can be determined. Modifications of the annual precipitation in the second part of the 20th century are shown by the detailed analysis. The precipitation amount in October shows a significant decrease. When examining the number of periods without precipitation we concluded that farmers have to face at least one 15-day long or two 10-14-day long precipitation free periods during one growing season.

2. It can be proved statistically that temperature increase (0.49°C/100 years, between 1901 and 2000) is lower in case of Keszthely than in the other stations in Transdanubia (0.72-0.85°C/100 years in the same period). On the one hand in summer detected warming up can have a favourable influence on tourism, on the other hand intensified transpiration can have an unfavourable influence on the changes of the water supply of Lake Balaton and the water utilization of the plants. A decrease can be detected in the variability of summer and autumn mean temperatures. In the monthly data significant change cannot be detected.

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