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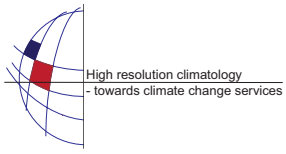

Comparison and homogenization of three different data sources available for spatial and temporal variability of air temperature in Brno region (Czech Republic)

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Spatial and temporal temperature variability within urban environment can be studied on different levels using different data sources such as early instrumental measurements, standard meteorological measurements or special-purpose measurements using automatic meteorological stations. Those data sources can be complementary, but their proper use for any analysis requires careful comparison and homogenization.

We provide basic information about unique early instrumental temperature measurements that are available in archives of Czech Hydrometeorological Institute in Brno (Czech Republic) since 1799. We discuss quality of those early measurements and provide their basic statistics. Further on we inform on network of automatic meteorological stations that was set up in Brno region as a part of the project “Multilevel analysis of the urban and suburban climate” during 2009. Factors like different frequency of temperature measurements, measurements in a different terms and also different used instruments rise a question to what extend those data can be compared and combined in homogeneous series.

Several statistical and homogeneity tests were used to test differences between three data sources. Results of data comparison for mean daily temperatures and minimum/maximum daily temperatures are summarized and basic features of spatial and temporal temperature variability in Brno region are provided.