



Compilation and homogenization of long temperature and precipitation series for Brno (Czech Republic)

Petr Dobrovolný (1), Rudolf Brázdil (1), Ladislava Řezníčková (1), Marie Doleželová (1), and Petr Štěpánek (2)

(1) Masaryk University, Department of Geography, Brno, Czech Republic (dobre@sci.muni.cz), (2) Czech Hydrometeorological Institute, Brno, Czech Republic

The longest continuous temperature measurements from the territory of the Czech Republic (CR) come from Prague, Klementinum observatory since 1775. At several places of CR early instrumental observations were done even before that time and such non-systematic measurements can be utilized for a compilation of long time series. Air temperature and precipitation were measured at several places in Brno already at the turn of 18th/19th centuries.

Known early measurements from Brno were digitized, quality controlled and compiled to final temperature (since 1800) and precipitation (since 1803) series. We discuss a quality of early measurements and provide basic steps of data compilation. This compilation was carefully done with respect to metadata of early measurements. New temperature and precipitation series are related to the present position of the Brno, Tuřany (airport) station. Using measurements from neighborhood stations of Prague and Vienna as a reference, relative homogeneity of both new series was tested using several tests (Standard Normal Homogeneity Test, Easterling and Peterson test, Maronna-Yohai bivariate test) and corrected for detected inhomogeneities.

We present more than 200-years long homogeneous temperature and precipitation series and provide basic information on long-term climate variability in the Brno region. Results of trend analysis are provided with respect to seasonality and possible influences of urban environment are discussed. Positive trend in air temperatures and negative tendency in precipitation totals are typical features of climate variability in the region in recent decades.