



Evaluation of precipitation data of the CARPATCLIM observational climate database

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The importance of knowledge of past and present climate conditions cannot be overestimated. Being fully aware of observed tendencies of different meteorological parameters is essential for both studying past climate patterns and carrying out successful forecasts on any time scale. Several observational datasets and reanalysis fields are available to provide background for responsible awareness; however, it can often be confusing to decide what source to rely on. Given the differences in measurement and data management of individual countries, an optimal system is constructed using quality controlled data and applying unified methodology.

Precipitation has high temporal and spatial variability, thus the creation of a high quality long term precipitation dataset is particularly hard, especially for an area shared by multiple countries, each having its own slight differences in measurement techniques and data handling methods. In this work we review the homogenizing and gridding methods applied in the CARPATCLIM project, hold by JRC and lead by the Hungarian Meteorological Service. The high quality climate database was produced in daily temporal resolution for the period 1961-2010 and in 0.1° spatial resolution for the $50^\circ\text{N} - 44^\circ\text{N}$, $17^\circ\text{E} - 27^\circ\text{E}$ area for many basic meteorological variables.

After introducing the spatial and temporal trends of precipitation in the Carpathian region using the high resolution homogenized and gridded database of the CARPATCLIM project we carry out the statistical evaluation of the precipitation data through the analysis of variance on different time scales, and overview the advantages of such an observational precipitation dataset compared to the analysis results calculated from reanalysis precipitation data.