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Comparison of the correction methods for daily air temperature and precipitation datasets

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The homogenization of climate data is of major importance because non-climatic factors make data unrepresentative of the actual climate variation and the conclusions of climatic studies are potentially biased. Instrumental daily series of temperature are often affected by inhomogeneities. Several methods are available for their correction at monthly and annual scales, whereas few exist for daily data.
In this work we focused especially on comparison of methods for daily data inhomogeneities correction. Two basic approaches for inhomogeneity adjustments were adopted and compared: projection of estimated smoothed monthly adjustments into annual variation of daily adjustments (Vincent et al. 2002) and "variable" correction of daily values according to the corresponding percentiles, e.g. HOM (Della-Marta and Wanner, 2006), SPLIDHOM (Mestre et al., 2011), DAP (Stepanek 2009) and Quantile Matching (Wang 2009 and 2010). These methods emerged only in recent years. They were applied in this work to the COST ESO601 daily benchmark dataset composed of daily temperature and precipitation data (base on the data from the Czech Republic).and their results were mutually compared and investigated. The results were processed in the software ProClimDB (Štěpánek, 2010, http://www.climahom.eu).

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