9TH EUROPEAN
CONFERENCE ON

9th EMS Annual Meeting
Applications of Meteorology
High resolution meteorology
- applications and services

Software solution for data quality control and homogenization of time series

P. Stepanek and P. Zahradnicek

Czech Hydrometeorological Institute, Meteorology and Climatology, Brno, Czech Republic (petr.stepanek@chmi.cz, +420-541421019)

During the last decade, software package AnClim+ProClimDB+LoadData for processing climatological data has been created (http://www.climahom.eu/). The software offers complex solution for processing of climatological time series, starting from loading data from a central database (e.g. Oracle, software LoadData), through data duality control and homogenization to time series analysis, extreme values evaluation and model outputs verification (ProClimDB and AnClim software). The AnClim software is meant for homogenization and time series analysis (correlation and regression analysis, analysis of trends, cycles), ProClimDB is database software for processing whole climatological datasets (containing tools for data quality control, creating reference series, adjusting series, filling missing data, extreme value analysis, model outputs verification, calculation series for grid points).

By means of the software, various techniques of homogenization can be evaluated and the results compared. This will be demonstrated on example of air temperature and precipitation series from COST ESO601 benchmark dataset with various networks included. First, outliers are detected in the dataset using several methods. After it, several types of reference series are calculated and results of statistical tests for inhomogeneities detection (relative homogeneity tests like Alexandersson's SNHT - various modifications, Bivariate test of Maronna and Yohai, Easterling's and Peterson's test, Vincent's MLR, and others. . . . ,), on monthly scale, are compared and evaluated. Various correction methods (applied for daily data) like HOM, SPLIDHOM, DAP are carried out and evaluated as well.