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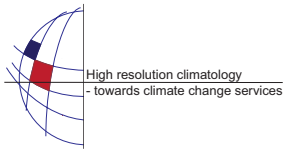

Quality control procedures in MISH-MASH systems

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The automatic quality control (QC) procedures in order to indicate or filter out the wrong data are indispensable in the databases. However the development of such software systems is impossible without adequate and advanced mathematical fundament. During the last years we developed some software systems that are MASH (Multiple Analysis of Series for Homogenization) and MISH (Meteorological Interpolation based on Surface Homogenized Data Basis), with special attention for the strong mathematical basis.

The MASH system can be used for homogenization of daily and monthly series, furthermore in the system also a quality control (QC) unit has been built for the daily data. Such QC can be an essential part of the homogenization methods which are examined nowadays within the COSTES0601 HOME action. The principle of the QC procedure built in MASH is certain multiple comparisons of the data by spatial interpolation technique and the analysis of interpolation errors for detection of wrong data is based on confidence intervals. In MASH system the necessary climate statistical parameters, such as expected values, spatial and temporal covariance structure, are estimated on the basis of examined data series by classic statistical way.

The reason of development of the newer MISH system was that the usual applied interpolation methods built in GIS are able to use only a single realization in time for modelling the climate statistical parameters, while in meteorology we have long data series which form a sample in time and space as well. Nowadays we plan to implement the MASH QC procedure in MISH system as well. The main modification in MISH will be that modelled statistical parameters will be used during the QC procedure but in this case the quality control can be operated also for arbitrary single observation realization in time without long data series.