



## **Statistical methodology and implementation of gridded climatological database within CARPATCLIM project**

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CARPATCLIM project is a consortium of ten organizations founded for a tender published by Joint Research Centre. The objective of the project is to investigate the detailed temporal and spatial structure of the climate of Carpathian Region using unified methods.

The main aim is to produce gridded climatological database for this region. The grids cover the area between latitudes 44°N and 50°N, and longitudes 17°E and 27°E. Daily values of more than ten meteorological variables are calculated on a 0.1° spatial resolution grid for the period 1961-2010. Climate statistics (monthly and annual values) and different climate indices are also determined from the daily grids.

For ensuring the usage of largest possible station density the necessary work phases are implemented on national level but by the same methods and software. The commonly used methods and software are the method MASH (Multiple Analysis of Series for Homogenization; Szentimrey) for homogenization, quality control, completion of the observed daily data series; and the method MISH (Meteorological Interpolation based on Surface Homogenized Data Basis; Szentimrey and Bihari) for gridding of homogenized daily data series. Besides the common software, the harmonization of the results across country borders is promoted also by near border data exchange. The main steps of homogenization, harmonization and gridding are as follows.

1. Near border data exchange before homogenization.
2. Homogenization, quality control, completion of the daily data series on national level by using near border data series.
3. Near border data exchange after homogenization.
4. Control procedure for harmonization after homogenization by using near border homogenized data series.
5. Interpolation or gridding of the daily data series on national level by using near border data series.