Geophysical Research Abstracts
Vol. 14, EGU2012-959-4, 2012
EGU General Assembly 2012

Homogenization and quality control of temperature datasets for Ukrainian stations of the Carpathian region

N. Gnatiuk (1,2) and S. Krakovska (2)

(1) KYIV TARAS SHEVCHENKO NATIONAL UNIVERSITY, Faculty of Geography, Meteorology and Climatology Cathedra, Kiev, Ukraine (meteo.kiev.uni@gmail.com), (2) Ukrainian Hydrometeorological Institute, Kiev, Ukraine (krava@uhmi.org.ua)

In order to use long instrumental observation series in various climatic researches it is necessary to minimize errors in used data. These series are usually affected by inhomogeneity, due to changes in the measurement conditions with modification of the observation method, transfer the spatial location of the station, substitution of device. Appropriate to deal with this important problem it is required using methods of homogenization for detection and correction these inhomogeneities.

Ukrainian Hydrometeorological Institute is a member of the consortium of 10 organisations which maintain the ongoing tender service Climate of the Carpathian Region. The main aim of the service is to improve the basis of climate data in the Carpathian Region for applied regional climatological studies such as a Climate Atlas and drought monitoring.

The computations implemented in this work are based on long term daily data in the period of 1961-2010. Daily temperatures of 33 Ukrainian and 14 neighboring countries' observation stations were taken into account in the analysis. As a result of the execution of MASH procedure the quality control and homogenization test results e.g. detected errors, degree of inhomogeneity, number of break points, estimated corrections and certain verification results the evaluation of efficient was made.

Besides best results were found during homogenization individual values, good results were also obtained for significantly inhomogeneity data. The number of outliers had some differences during the year e.g. it was higher in winter months than in summer. The maximum was occurred in September. Similar regularity is also clearly manifested in the correction of inhomogeneities. The number of detected outliers differs considerably between the various months and seasons.

In the absence of data for the year from all stations using of this method allows to obtain statistical values that approximate critical. These results emphasize the extreme importance of rigorous homogenization in any climate data analysis, as there are statistically significant trends in the unhomogenized series for territory of Ukraine.