



## Procedure for spatiotemporal analysis of extreme climate indices

M. Lakatos, T. Szentimrey, Z. Bihari, S. Szalai

Hungarian Meteorological Service, Budapest, Hungary (lakatos.m@met.hu)

The ECA indices and some other special own developed temperature and precipitation indices are realized at Climate Database of the Hungarian Meteorological Service. Climate indices calculations require at least daily resolution of good quality, homogeneous time series. Long time daily maximum, minimum, daily mean temperature data series were homogenized by method MASH (Multiple Analysis of Series for Homogenization; *Szentimrey*) at meteorological stations covering Hungary. In the case of daily precipitation sums a complementation process were performed to fill the gaps through missing data. The period we examined is 1901-2005. We performed the interpolation of daily data series by method MISH (Meteorological Interpolation based on Surface Homogenized Data Basis, *Szentimrey, Bihari*) on  $0.1^\circ \times 0.1^\circ$  grid.

Afterward preparing database we calculated the indices values at stations and at grid points also. In this paper we report the experiences of comparison the climate indices calculation results based on original and homogenized data and we present the preliminary result of climate indices calculations on gridded (interpolated) daily database.

To detect changes in the time series of extreme climate indices the common method is linear trend analysis. Besides the linear trend fitting we calculated the rank statistics of indices series also. The advantage of using rank statistics is that the numerous indices series could be analyzed jointly. The lots of diverse climate indices have variant probability distribution. Rank statistics could be compared regardless of different underlying probability. Hereby the changes of temperature and precipitation extreme indices series could be examined together.