



New high resolution gridded regional daily precipitation data set: first results from STAMMEX project

Olga Zolina (1,2,3), Clemens Simmer (1), Pavel Shabanov (2,3), Sergey Gulev (2,3)

(1) Meteorological Institute, University of Bonn, Bonn, Germany (ozolina@uni-bonn.de), (2) P.P.Shirshov Institute of Oceanology, RAS, Moscow, Russia, (3) Moscow State University, Moscow, Russia

This talk presents the first results from the DFG-funded project STAMMEX (Spatial and Temporal Scales and Mechanisms of Extreme Precipitation Events over Central Europe). Using daily data from nearly 6000 rain gauges from the DWD collection over Germany we developed daily grids at 0.1 degree spatial resolution covering the period from 1960 onwards. Companion daily data sets with coarser resolution were developed for the period starting from 1950 and from 1930. Daily grids were designed using sampling homogenization for each observational period. The strategy of the development of gridded data sets included different methods for estimation of the background fields of precipitation and daily anomalies (kriging, local procedures, distance weighting). Furthermore, we applied the moving over time local precipitation averages for estimation of the background fields and daily precipitation anomalies. Sensitivity of the methodology to the use of different objective analysis algorithms and to the choice of the background window is considered. The designed data sets were used for estimation of mean precipitation intensity, absolute precipitation extremes, relative extremeness and duration of wet spells for different seasons. We will demonstrate how the characteristics of interannual variability of extreme precipitation (linear trends and variability patterns) depend on the methodology of the design of high resolution grids. The designed new grids provide the ground for the validation of regional experiments with high resolution regional climate models.