Geophysical Research Abstracts
Vol. 15, EGU2013-8890, 2013
EGU General Assembly 2013

Monitoring European averaged temperature based on the E-OBS gridded dataset

Gerard van der Schrier, Else van den Besselaar, Albert Klein Tank, and Ge Verver
Royal Netherlands Meteorological Institute, Climate Analysis, De Bilt, Netherlands (schrier@knmi.nl)

A European averaged temperature with monthly resolution is constructed based on the E-OBS dataset with near real-time updates for monitoring. The gridded daily maps of surface temperature from the E-OBS dataset provide a record of European climate variability since 1950 and is based on validated station data provided by the European National Meteorological and Hydrological Services.

A quantitative analysis of the uncertainty sources to the European averaged temperature indicates that the uncertainties due to urbanization, statistical interpolation and the potential inhomogeneities in the input records to E-OBS dominate the total uncertainty estimate. In the aggregation of the interpolation uncertainty from the daily to the monthly level and then to a European averaged value, the effective sample size and the effective spatial degrees of freedom are estimated to account for spatial and temporal coherency in the uncertainty estimates.

The European averaged temperature shows that seven years in the top-10 of warmest years are from the period starting as recent as the year 2000 and a clear upward trend in annual averaged temperatures over the last few decades is visible. The most recent year in the top-10 of coldest years is 1987. It also shows that warming in Europe is accelerating compared to the warming over the global land masses and to a lesser extent compared to the Northern Hemisphere land masses over the period 1980-2010.