



Comparison of different approaches for the correction of inhomogeneous Spanish daily temperature series. The examples of La Coruña, Madrid and Murcia.

E. Aguilar (1), M. Brunet (1), J. Sigró (1), P.M. Della-Marta (2)

(1) Climate Change Research Group, Geography Unit, Universitat Rovira i Virgili de Tarragona, Tarragona, Spain

(2) Federal Office for Meteorology and Climatology, MeteoSwiss, Switzerland

Contact: enric.aguilar@urv.cat

In recent times, much effort is being devoted to the comparison and evaluation of homogenization methods for daily temperature data, linked to the need of developing homogeneous data to assess changes in the occurrence of extreme events. We present here some preliminary results, comparing different approaches for the correction of daily inhomogeneous temperature data. The Climate Change Research Group, CCRG, has developed in the recent years a homogenized dataset, the Spanish Daily Temperature Series, SDATS (Brunet *et al*, 2006, 2007) which contains data for 22 long Spanish stations, extending in some cases to the mid-19th century. Homogeneity breaks were detected over annual and seasonal data and adjustment factors were estimated on a monthly basis using the Standard Normal Homogeneity Test (Alexanderson *et al*, 1986, 1997) applied with the CCRG procedure (Aguilar *et al*, 2002). Monthly factors were interpolated into daily factors following Vincent and Zhang procedure (Vincent and Zhang, 2002). This method is a simple but effective procedure, which interpolates the monthly factors along the daily values, accounts for the annual cycle and maintains the monthly mean adjustments previously calculated, providing reasonably homogeneous daily values. Here we compare our results using this method for 3 stations located at the northwest (La Coruña), centre (Madrid) and southeast (Murcia) of Spain to those achieved with the application of the Higher Order Moments (HOM)

method, described by Della-Marta and Wanner (2006), which uses a nonlinear model to estimate the relationship between a candidate station and a highly correlated reference station. The model is built in a common homogeneous sub-period and then applied to estimate the effects of the inhomogeneities to produce reliable adjustments not only in the mean, but also in the variance and the skewness. The results of both methods are assessed by comparing a set of extreme indices calculated over the resulting time series. In the near future, other methods of daily homogenisation will be explored and the analysis extended to the entire SDATS dataset

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