Geophysical Research Abstracts
Vol. 16, EGU2014-11511, 2014
EGU General Assembly 2014

Description and adjustment of the the bias introduced by the introduction of AWS in temperature stations in Spain.

Enric Aguilar (1), José Antonio López (2), Marc Prohom (3), Yolanda Luna (2), and Alba Gilabert (1)

(1) Center for Climate Change, C3, Universitat Rovira i Virgili, Tarragona (Spain), (2) Agencia Estatal de Meteorología, AEMET, Madird (Spain), (3) Servei Meteorològic de Catalunya, SMC, Barcelona.

The change from conventional (CON) stations to automatic weather stations (AWS) is happening routinely in many station networks across the world. One may expect more AWS-CON substitutions in the near future. These changes may be a source of inhomogeneity. The study of parallel measurements provides insights on the size, shapes and the suitability off different correction methods. In this work, we introduce the network prepared for this purpose under the Spanish Grant CGL2012-32193. It contains roughly 134.000 parallel observations of daily maximum and daily minimum temperature from 47 stations distributed across Spain and provided by the Agencia Estatal de Meteorología (AEMET) and the Servei Metorològic de Catalunya (SMC). After quality controlling the series and identifying inhomogeneities in the difference series AWS-CON, we provide general statistics on the differences between both measurements. We also apply and evaluate different versions (original and modified) of the Percentile Match Algorithm (PMA, Trewin 2012) and different regression models to adjust the series. The PMA clearly outperforms the regression models, providing much better adjustments.