EMS Annual Meeting Abstracts
Vol. 15, EMS2018-413, 2018

Homogenization of daily Essential Climatic Variables with Climatol 3.1 within the INDECIS project

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After the successful inter-comparison of methods for the homogenization of climate series carried out in the COST Action ES0601 (HOME), many of them kept improving their algorithms and new ones emerged, suggesting the need of performing new benchmarking exercises. The Spanish MULTITEST project provided updated results for those methods that could be run in a completely automatic way, but the focus was still placed on monthly series of temperature and precipitation. However, a growing interest is being directed to the homogenization of daily series, which is more challenging due to their lower signal/noise ratio. After some first attempts by the end of the HOME Action, Killick (2016) coordinated some blind inter-comparisons on simulated daily temperature series.

The European project INDECIS* (Integrated approach for the development across Europe of user oriented climate indicators for GFCS high-priority sectors: agriculture, disaster risk reduction, energy, health, water and tourism) needs quality controlled and homogenized daily series of extreme temperatures, precipitation, relative humidity, wind speed and solar radiation to produce climate indices for their target economical sectors. Therefore, the Work Package 3 team of the project is devoted to provide these high quality series from their raw versions stored at the European Climate Assessment and Dataset (ECA&D).

As a first step, a benchmarking exercise was designed in order to test available methodologies on two target areas: Southern Sweden and Slovenia (see Pérez-Zanón et al. in this EMS meeting). This communication will be focused in presenting the results obtained with the Climatol R package (version 3.1), both in the benchmarking stage and in its application to real series from ECA&D, discussing the problems derived from the different statistical characteristics of the studied climatic variables.

References:

Killick RE (2016): Benchmarking the Performance of Homogenisation Algorithms on Daily Temperature Data. PhD Thesis, University of Exeter, 249 pp.

Pérez-Zanón N, Sigró J, Aguilar E, Guijarro JA, van der Schrier G, Stepanek P, Zahradnicek P, Coscarelli R, Engström E, Curley M, Caloiero T, Lledó L, Ramon J, Valente MA and Carvalho S (2018): First Steps towards a Benchmarking Experiment in Quality Control and Homogenization of Observed Data. EMS2018, 3–7 September 2018, Budapest, Hungary.

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* Project INDECIS is part of ERA4CS, an ERA-NET initiated by JPI Climate, and funded by FORMAS (SE), DLR (DE), BMWFW (AT), IFD (DK), MINECO (ES), ANR (FR) with co-funding by the European Union (Grant 690462).