



## **Exploring the impact of changes in observation times on the homogeneity of temperature series: rainfall day vs. calendar day**

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Station relocation and instrumental changes are often considered as the prime source of inhomogeneities on air temperature series, causing severe impacts on climate datasets and climate trends. Nevertheless, other circumstances can introduce potential breaks, but they are less detectable by the existing methods of homogeneity analysis.

This research explores the impact of changes in the consideration of the meteorological day, on the homogeneity of daily air temperature series in Catalonia. This is an interesting issue as many temperature series used for monitoring present climate change and variability have been generated by joining classical manned stations and Automatic Weather Stations (AWS). Although for rainfall, AWS generate both rainfall day (08-08h) and calendar day (00-24h) data, this is less general for temperature.

Among other approaches, the ability of ACMANTv4 relative homogenization method to eliminate such inhomogeneities will be examined. The data source will be the daily maximum (TX) and minimum (TN) temperature series, obtained from the AWS network managed by the Meteorological Service of Catalonia. Two kinds of TX and TN series will be calculated for each AWS: (a) encompassing the 08-08h period and (b) the 00-24h period. Then, additional series will be composed by joining segments under (a) and (b) conditions, keeping the date when the change is introduced. Finally, ACMANTv4 will be applied. The focus will be on winter and autumn months, and for minimum temperature series, as the lowest daily temperature tends to occur near the time of the morning observation. In addition, several climate regimes will be considered to detect different behaviours.