*Forecasting the weather
- ensemble techniques
in probabilistic weather prediction*

Reconstruction of long temperature series of Barcelona

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Barcelona is a city with a long history in the field of science and research activity. Meteorological observation is a good example. Thanks to activity of doctors and their sensitivity for environmental and public health aspects, official series from mid 19th and 20th Century can be extended to late decades of 18th Century.

After a work of data collection on documentary sources, meteorological series at daily resolution can be completed for periods of 230 years. Reconstruction of temperature series is not easy because of difficulty working with series generated with different instruments, methods and locations. On the other hand, observation previous to official measurements offer long periods of data with no apparent changes, but absence of metadata doesn't help to know more about conditions of observation.

Temperature series into a city with evident problems of recent urban heat island but also historical problems like industrialization, walled perimeters, etc., are a problematic variable to be considered for a homogenization.

This work is a contribution in this aspect of treatment of long instrumental series to produce useful data for present climatic and meteorological research. Daily data starts on January 1780. Continuity of data records is good with 2-3 records per day.

Reconstruction of a continuous series is no easy by two factors. One is change of location recorded several times, more frequent during 20th Century. Changes also affecting methods and instruments. Second problem is valoration of heat island effect during second half of 20th Century, to correct this effect on complete temperature series.