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A new source of instrumental and phenological data for Catalonia and the Balearics (1895-1908)

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Data rescue of instrumental meteorological measurements plays an important role in climate research, as it allows daily-to-decadal variability and changes, including extremes, to be addressed. In this context, long and high-quality series are the most valuable tool, but attention to short series is also needed for extremes evaluation and reanalysis of historical episodes. This need is even more relevant in those geographical areas with a great spatial and temporal variability, like the Mediterranean basin.

Here, we describe a new data source of instrumental and phenological observations for Catalonia (northeast of Iberia) and the Balearics, covering a period from 1894 to 1908 (until 1917 for the city of Barcelona), and known as the “Meteorological Network of Catalonia and the Balearics”. This observational network was the first successful coordinated initiative in Spain and was conducted by the *Granja Experimental de Barcelona*, an institution created by the Barcelona Provincial Council with the objective of collecting meteorological and phenological data for agronomic studies. The *Granja* created a network of 51 weather stations, supplying instrumentation and rules of observation to the volunteer observers. Most of the stations provided air temperature, rainfall, and air pressure data, and more detailed information was added since 1898, including sky conditions, or evaporation, with daily and sub-daily reports (twice a day). Regarding phenology, several stations reported various phenophases, such as first leaves, first fruits, fruit ripening and defoliation for plants and trees, and the passage, arrival, and departure of certain birds. The network, although short-lived, marked the beginning of many observatories that continued in later decades, and was the laid the first stone of the Meteorological Service of Catalonia, established in 1921.

Original observations are kept in paper sheets and have been recently digitized (scanned) and catalogued by the current SMC, jointly with additional documentation, such as written correspondence between the observers and the *Granja* (i.e., a valuable source for metadata) or special reports on intensity and duration of thunderstorms. The digitized documents (4,100 images) will be soon fully available throughout the public website “Digital Memory of Catalonia”, while daily maximum and minimum air temperature and rainfall data has already been extracted and recorded at the SMC database.