



Generalitat  
de Catalunya



Servei  
Meteorològic  
de Catalunya



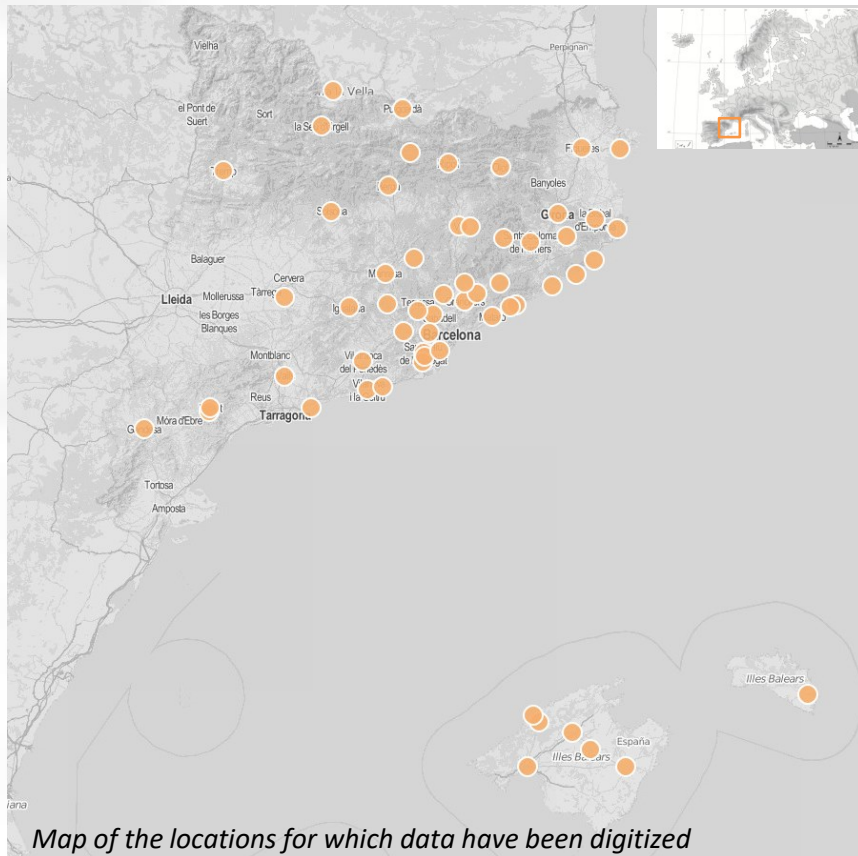
# **A new source of instrumental and phenological data for Catalonia and the Balearics (1894-1908)**

**Marc Prohom and Mònica Herrero**

EMS Annual Meeting 2021 – Online – September 9, 2021



SCREEN CAPTURE  
WELCOME



## Digitization and cataloguing strategy

- **6,448 documents** have been digitized: 6,236 (met. observation sheets) + 212 (letters)
- ARTYDOC, SMC digital cataloguing tool, have been used, and... **88% is already catalogued**

## Historical background

- A meteorological and phenological station network was established by the *Granja Experimental de Barcelona* in 1894.
- In less than three years 60 sites were created observing most of the ECV **twice a day**: air temperature, air pressure, precipitation, clouds coverage, wind direction and force (qualitative)... and main phenophases
- Extreme years: 1894-1908 (for most of the network)
- Although short-lived, many observatories continued in later decades.
- Original documents were lost during many years, by finally identified and catalogued by the SMC in 2003.

# RED METEOROLÓGICA DE LA PROVINCIA DE BARCELONA

Estación de Barcelona

Longitud  
Latitud  
Altitud

Cita de 1886

Cita de 1886

OBSERVACIONES METEOROLÓGICAS	DÍA	PREDICCIÓN BAROMÉTRICA	DÍA	TEMPERATURA	DÍA	OBSERVACIONES FENOLÓGICAS	DÍA	OBSERVACIONES FENOLÓGICAS	DÍA	OBSERVACIONES FENOLÓGICAS	DÍA	OBSERVACIONES FENOLÓGICAS	DÍA
Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.	Bar. Red.	Bar. Particular.
1	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
2	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
3	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
6	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
11	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
12	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
13	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
14	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
15	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
16	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
17	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
18	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
19	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
20	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
21	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
22	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
23	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
26	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
28	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
29	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
30	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
31	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
1	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
2	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
3	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
6	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
7	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
11	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
12	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
13	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
14	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
15	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
16	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
17	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
18	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
19	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
20	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
21	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
22	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
23	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
26	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
28	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
29	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
30	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
31	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5

Tem.  
Bar.  
Hum.  
Viento.

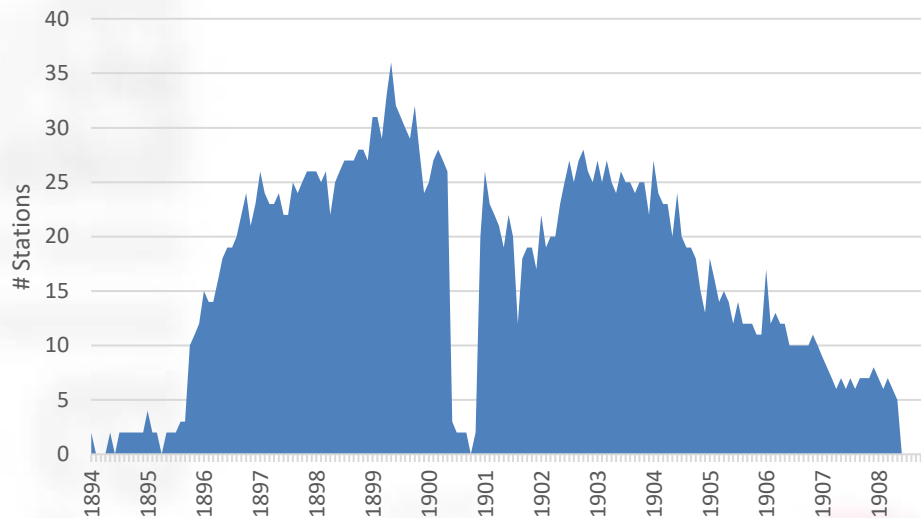
Tem.  
Bar.  
Hum.  
Viento.

En Barcelona el 1 de Junio.

1886

Format of a meteorological observation sheet (1894-1896)

Availability of stations per month



## Already available...

- Daily TX/TN and PPT data have been already manual typed

## What's next...

- Manual typing of remaining variables... phenological data
- Uploading of digitized and catalogued documents to "Digital Memory of Catalonia" portal

## Potentialities

- Unknown meteorological and phenological observations are now available.
- Extension back in time of coverage of already identified stations.
- Valuable metadata information throughout handwritten letters from observers
- Special reports on extreme events (thunderstorms)
- Historical heritage preservation

HORA		NUBES, SU		Fuerza del viento		Relámpagos, etc.		Truenos, etc.		LLUVIA		GRANIZO			
en que precede la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta	del momento de la tormenta
(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)	(15)
21	11/10	11/10	22	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10
21	11/10	11/10	22	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10	11/10

Nombres de las plantas		Fase		Temporada		Peces		Insectos		Observaciones	
(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)
Acacia...	...	...	...	...	...	...	...	...	...	...	...
Almendro...	...	...	...	...	...	...	...	...	...	...	...
Algarrobo...	...	...	...	...	...	...	...	...	...	...	...
Abeto...	...	...	...	...	...	...	...	...	...	...	...
Avellano...	...	...	...	...	...	...	...	...	...	...	...
Avena...	...	...	...	...	...	...	...	...	...	...	...
Castaño...	...	...	...	...	...	...	...	...	...	...	...
Cebada...	...	...	...	...	...	...	...	...	...	...	...
Centeno...	...	...	...	...	...	...	...	...	...	...	...
Cirolero...	...	...	...	...	...	...	...	...	...	...	...
Encina...	...	...	...	...	...	...	...	...	...	...	...
Granado...	...	...	...	...	...	...	...	...	...	...	...
Higuera...	...	...	...	...	...	...	...	...	...	...	...
Haya...	...	...	...	...	...	...	...	...	...	...	...
Limonero...	...	...	...	...	...	...	...	...	...	...	...
Manzano...	...	...	...	...	...	...	...	...	...	...	...
Membrillo...	...	...	...	...	...	...	...	...	...	...	...
Madroño...	...	...	...	...	...	...	...	...	...	...	...
Maíz...	...	...	...	...	...	...	...	...	...	...	...
Miel...	...	...	...	...	...	...	...	...	...	...	...
Malacotenero...	...	...	...	...	...	...	...	...	...	...	...
Nispero...	...	...	...	...	...	...	...	...	...	...	...
Nogal...	...	...	...	...	...	...	...	...	...	...	...
Olmo...	...	...	...	...	...	...	...	...	...	...	...
Olivo...	...	...	...	...	...	...	...	...	...	...	...
Peral...	...	...	...	...	...	...	...	...	...	...	...
Pino...	...	...	...	...	...	...	...	...	...	...	...
Tilo...	...	...	...	...	...	...	...	...	...	...	...
Trigo...	...	...	...	...	...	...	...	...	...	...	...
Vid...	...	...	...	...	...	...	...	...	...	...	...

Special reports on  
heavy thunderstorms  
(above) and  
phenological obs.  
(below)  
Terrassa, May 1904