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Network

UnILiON BROKERAGE EVENT

5th December 2025, 10:00-12:00 CET

HORIZON EUROPE Cluster 5

Climate, Energy and Mobility

Universidad Rey Juan Carlos
Universidad de Alcalá

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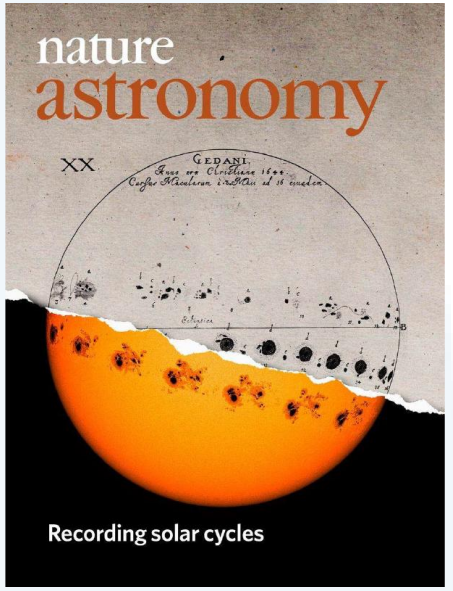
Università Liedia de Bulsan

CLUSTER 5: CLIMATE, ENERGY AND MOBILITY

José M. Vaquero
Space & Earth Sciences Group (SpES), University of Extremadura, Spain

UnILiON Brokerage Event under Horizon Europe Cluster 5 calls on Climate, Energy and Mobility I 5th December 2025

Space & Earth Sciences Group (SpES)
Universidad de Extremadura



We are the main public training and research institution in Extremadura region (SW Spain) with **4 university campuses**. It has over **24,000 students** and **2,405 Researchers and Professors**.

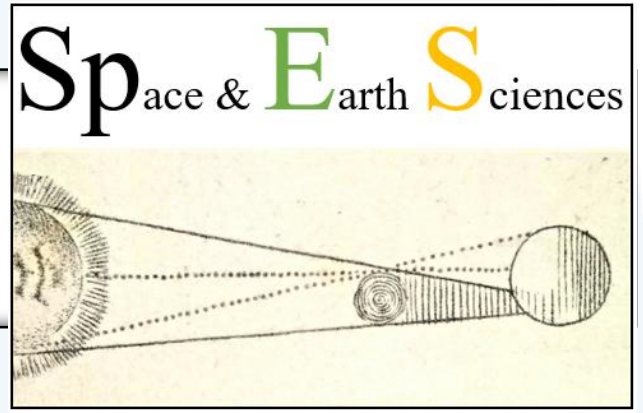
According to **Shanghai's ranking**, it is **ranked 593th** amongst universities all over the world (Scimago Institutions Ranking, SIR 2022); and has been awarded

Campus of International Excellence since 2011

in association with two Portuguese universities

It's international well-position is shown in its **coordination of the European University Alliance EU GREEN**, participation in **international networks** such as UNILION, or its coordination and participation in projects within **Horizon Europe** or **Erasmus+**.

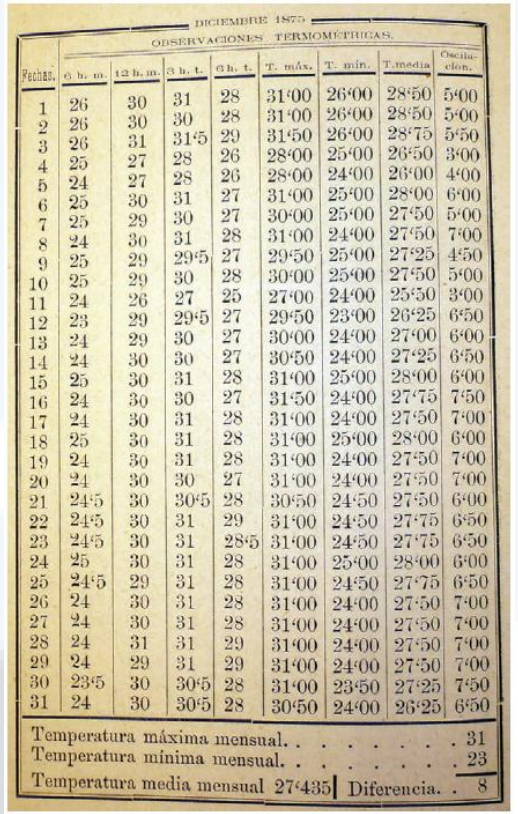
Expertise of SpES Group



- **Non-recent climate:** index construction from historical records, case studies, natural hazard, and data recovery.
- **Solar activity of the last centuries:** use of historical records to obtain solar activity indexes, including the "Sunspot Number".
- **Other topics:** very general overview of the various problems of Earth and Space Sciences, including remote sensing, solar radiation, ozone, and water vapor, generalized distribution of extreme values, ...
- **Coordinator:** Prof. José M. Vaquero Dpt. Physics
- **Members:** Dr. María Cruz Gallego Dpt. Physics
  Dr. Javier Acero Dpt. Physics
  Dr. Javier Vaquero-Martínez Dpt. Science Education
  Dr. Manuel Antón Dpt. Physics
  Dr. Víctor M.S. Carrasco Dpt. Physics
  Dr. Alejandro J.P. Aparicio Dpt. Physics

Topic HORIZON-CL5-2026-07-D1-05: Improving climate and weather models for Africa

- We have a lot of experience in geophysical/meteorological data recovery.
- These data are crucial to improve climate and weather models for Africa.
- Some examples (out of Africa):
  - F. Domínguez-Castro, J.M. Vaquero et al. (2017) "Early Meteorological Records from Latin-America and Caribbean during the 18th and 19th centuries" *Scientific Data* 4, 170169..
- Some examples (on Africa):
  - J.M. Vaquero and R.M. Trigo (2006) "Results of Geomagnetic Observations in Central Africa by Portuguese Explorers during 1877-1885" *Physics of the Earth and Planetary Interiors* 157, 8-15.
  - M.C. Gallego, F. Domínguez-Castro, J.M. Vaquero, R. García-Herrera (2011) "The Hidden Role of Women in Monitoring Nineteenth-Century African Weather: Instrumental Observations in Equatorial Guinea" *Bulletin of the American Meteorological Society* 92, 315-324.



DICIEMBRE 1875.

OBSERVACIONES TERMOMÉTRICAS.

Fechas.	6 h. m.	12 h. m.	3 h. t.	6 h. t.	T. máx.	T. mín.	T. media	Oscilacion.
1	26	30	31	28	31°00	26°00	28°50	5°00
2	26	30	30	28	31°00	26°00	28°50	5°00
3	26	31	31°5	29	31°50	26°00	28°75	5°50
4	25	27	28	26	28°00	25°00	26°50	3°00
5	24	27	28	26	28°00	24°00	26°00	4°00
6	25	30	31	27	31°00	25°00	28°00	6°00
7	25	29	30	27	30°00	25°00	27°50	5°00
8	24	30	31	28	31°00	24°00	27°50	7°00
9	25	29	29°5	27	29°50	25°00	27°25	4°50
10	25	29	30	28	30°00	25°00	27°50	5°00
11	24	26	27	25	27°00	24°00	25°50	3°00
12	23	29	29°5	27	29°50	23°00	26°25	6°50
13	24	29	30	27	30°00	24°00	27°00	6°00
14	24	30	30	27	30°50	24°00	27°25	6°50
15	25	30	31	28	31°00	25°00	28°00	6°00
16	24	30	30	27	31°50	24°00	27°75	7°50
17	24	30	31	28	31°00	24°00	27°50	7°00
18	25	30	31	28	31°00	25°00	28°00	6°00
19	24	30	31	28	31°00	24°00	27°50	7°00
20	24	30	30	27	31°00	24°00	27°50	7°00
21	24°5	30	30°5	28	30°50	24°50	27°50	6°00
22	24°5	30	31	29	31°00	24°50	27°75	6°50
23	24°5	30	31	28°5	31°00	24°50	27°75	6°50
24	25	30	31	28	31°00	25°00	28°00	6°00
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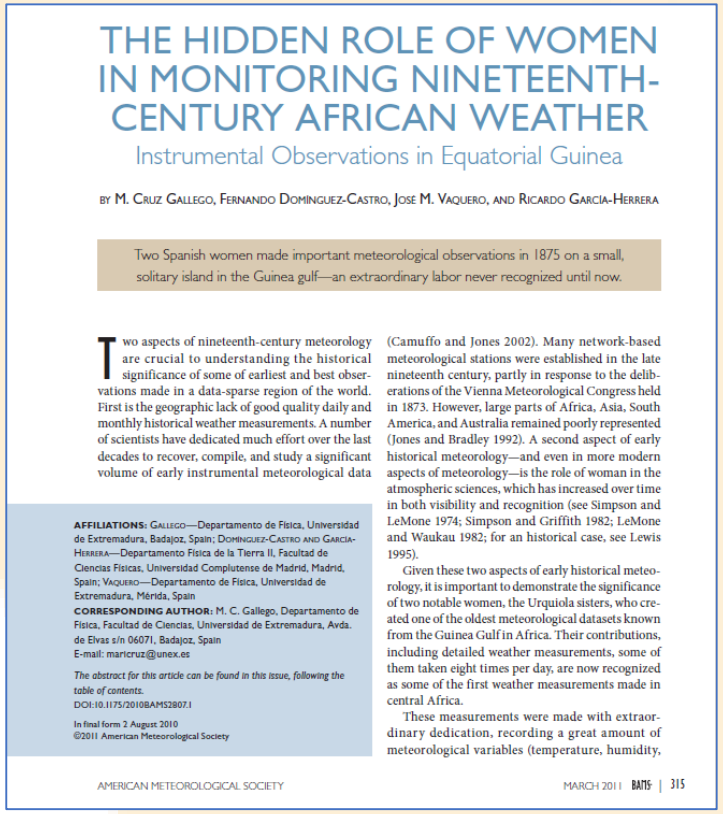
26	24	30	31	28	31°00	24°00	27°50	7°00
27	24	30	31	28	31°00	24°00	27°50	7°00
28	24	31	31	29	31°00	24°00	27°50	7°00
29	24	29	31	29	31°00	24°00	27°50	7°00
30	23°5	30	30°5	28	31°00	23°50	27°25	7°50
31	24	30	30°5	28	30°50	24°00	26°25	6°50

Temperatura máxima mensual. 31
Temperatura mínima mensual. 23
Temperatura media mensual 27°435 | Diferencia. . 8

Profile you are seeking and why

We are looking for a consortium where our work on data recovery can be recognized and useful for the improvement (or for checking) of meteorological and climate models.



THE HIDDEN ROLE OF WOMEN IN MONITORING NINETEENTH-CENTURY AFRICAN WEATHER

Instrumental Observations in Equatorial Guinea

BY M. CRUZ GALLEGO, FERNANDO DOMÍNGUEZ-CASTRO, JOSE M. VAQUERO, AND RICARDO GARCÍA-HERRERA

Two Spanish women made important meteorological observations in 1875 on a small, solitary island in the Guinea gulf—an extraordinary labor never recognized until now.

Two aspects of nineteenth-century meteorology are crucial to understanding the historical significance of some of earliest and best observations made in a data-sparse region of the world. First is the geographic lack of good quality daily and monthly historical weather measurements. A number of scientists have dedicated much effort over the last decades to recover, compile, and study a significant volume of early instrumental meteorological data (Camuffo and Jones 2002). Many network-based meteorological stations were established in the late nineteenth century, partly in response to the deliberations of the Vienna Meteorological Congress held in 1873. However, large parts of Africa, Asia, South America, and Australia remained poorly represented (Jones and Bradley 1992). A second aspect of early historical meteorology—and even in more modern aspects of meteorology—is the role of woman in the atmospheric sciences, which has increased over time in both visibility and recognition (see Simpson and LeMone 1974; Simpson and Griffith 1982; LeMone and Waukau 1982; for an historical case, see Lewis 1995).

Given these two aspects of early historical meteorology, it is important to demonstrate the significance of two notable women, the Urquiola sisters, who created one of the oldest meteorological datasets known from the Guinea Gulf in Africa. Their contributions, including detailed weather measurements, some of them taken eight times per day, are now recognized as some of the first weather measurements made in central Africa.

These measurements were made with extraordinary dedication, recording a great amount of meteorological variables (temperature, humidity,

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In final form 2 August 2010

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DOI: 10.1002/gdj3.131

DATA PAPER

Geoscience Data Journal | RMetS | WILEY

Recovery of early meteorological records from Extremadura region (SW Iberia): The 'CliPastExtrem' (v1.0) database

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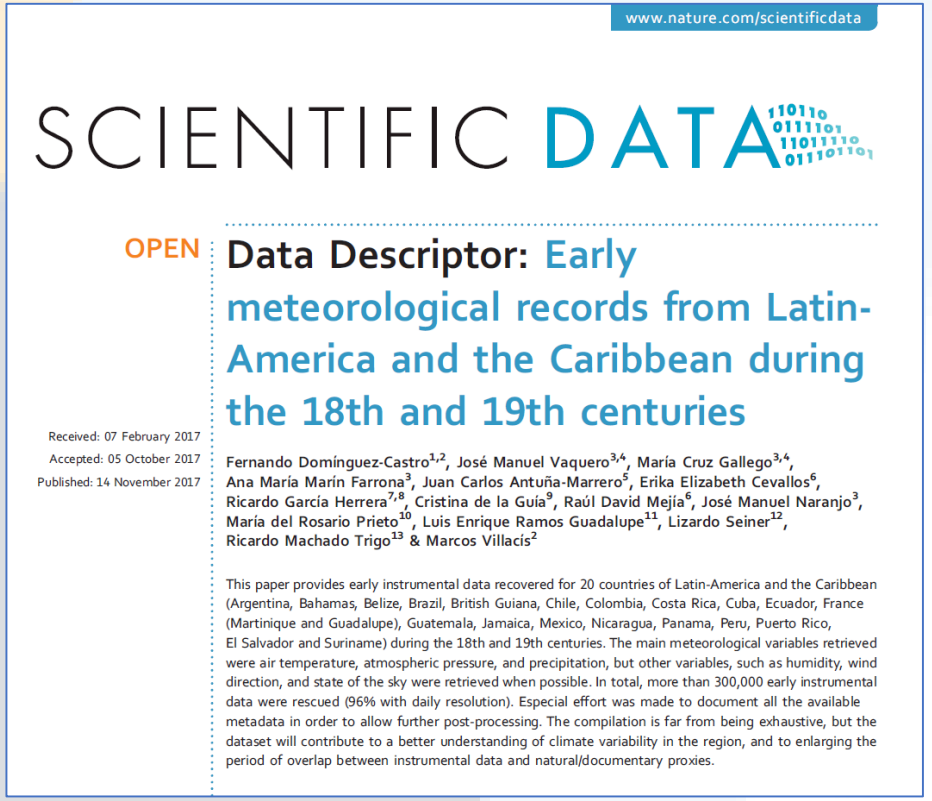
Abstract

In this work, we provide instrumental meteorological data recovered for the Extremadura region (interior SW Iberia), from 1826 to mid-20th century. Meteorological variables such as air temperature, atmospheric pressure, precipitation, wind direction and humidity, among others, were retrieved. In total, more than 750 000 instrumental data in 157 meteorological series belonging to 131 different locations throughout Extremadura were rescued. It must be noted that daily resolution data constitutes 80% of the database. This great effort of digitization and data collection has been carried out with the aim of contributing to a significant expansion of the length of the databases with meteorological information in this region. Therefore, this database will provide a better understanding of climate variability, trends and extreme events of the Extremadura region.



www.nature.com/scientificdata

SCIENTIFIC DATA

OPEN

Data Descriptor: Early meteorological records from Latin-America and the Caribbean during the 18th and 19th centuries

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Accepted: 05 October 2017
Published: 14 November 2017

Fernando Domínguez-Castro[1,2], José Manuel Vaquero[3,4], María Cruz Gallego[3,4], Ana María Marín Farrona[3], Juan Carlos Antuña-Marrero[5], Erika Elizabeth Cevallos[6], Ricardo García Herrera[7,8], Cristina de la Guía[9], Raúl David Mejía[6], José Manuel Naranjo[3], María del Rosario Prieto[10], Luis Enrique Ramos Guadalupe[11], Lizardo Seiner[12], Ricardo Machado Trigo[13] & Marcos Villacís[2]

This paper provides early instrumental data recovered for 20 countries of Latin-America and the Caribbean (Argentina, Bahamas, Belize, Brazil, British Guiana, Chile, Colombia, Costa Rica, Cuba, Ecuador, France (Martinique and Guadalupe), Guatemala, Jamaica, Mexico, Nicaragua, Panama, Peru, Puerto Rico, El Salvador and Suriname) during the 18th and 19th centuries. The main meteorological variables retrieved were air temperature, atmospheric pressure, and precipitation, but other variables, such as humidity, wind direction, and state of the sky were retrieved when possible. In total, more than 300,000 early instrumental data were rescued (96% with daily resolution). Especial effort was made to document all the available metadata in order to allow further post-processing. The compilation is far from being exhaustive, but the dataset will contribute to a better understanding of climate variability in the region, and to enlarging the period of overlap between instrumental data and natural/documentary proxies.

CONTACT DETAILS

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