

# Data rescue of early historical meteorological observations from Ireland

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15th EUMETNET Data Management Workshop



**Maynooth  
University**  
National University  
of Ireland Maynooth

Jan 13	20	29,30	47	50	Rain & li
14	0	29,35	48	51	Rain & li
	10	29,63	42	40	Clear
15	20	29,58	42	43	Cloudy
	0	29,53	43	45	Cloudy (w)
	20	29,94	34	35	Clear
16	10	29,54	40	45	Cloudy
17	20	28,91	42	42	Cloudy (w)
	0	28,83	42	45	Cloudy (w)
	10	29,08	37	36	Clear
18	20	29,39	35	34	Clear
	0	29,46	38	38	Cloudy
	10	29,59	35	33	Clear
19	20	29,51	35	34	Cloudy
	0	29,40	39	43	Cloudy
	10	29,32	36	34	Clear
20	20	29,29	32	30	Clear
	0	29,20	38	36	Clear
	10	29,02	36	35	Clear
21	20	29,16	33	32	Clear
	0	29,21	37	36	Clear
	10	29,20	35	34	Clear
22	0	28,71	42	45	Cloudy (rain)
	10	28,88	34	32	Clear
23	20	29,00	35	35	Clear
	0	29,11	39	39	Clear
24	20	29,02	33	31	Clear
	0	29,08	36	35	Clear
	10	29,16	35	33	Clear
27	20	29,15	36	36	Rain
	0	29,15	33	40	Rain
28	20	29,08	39	40	Rain
	0	29,05	39	44	Rain
	10	29,00	39	40	Rain

# Contents

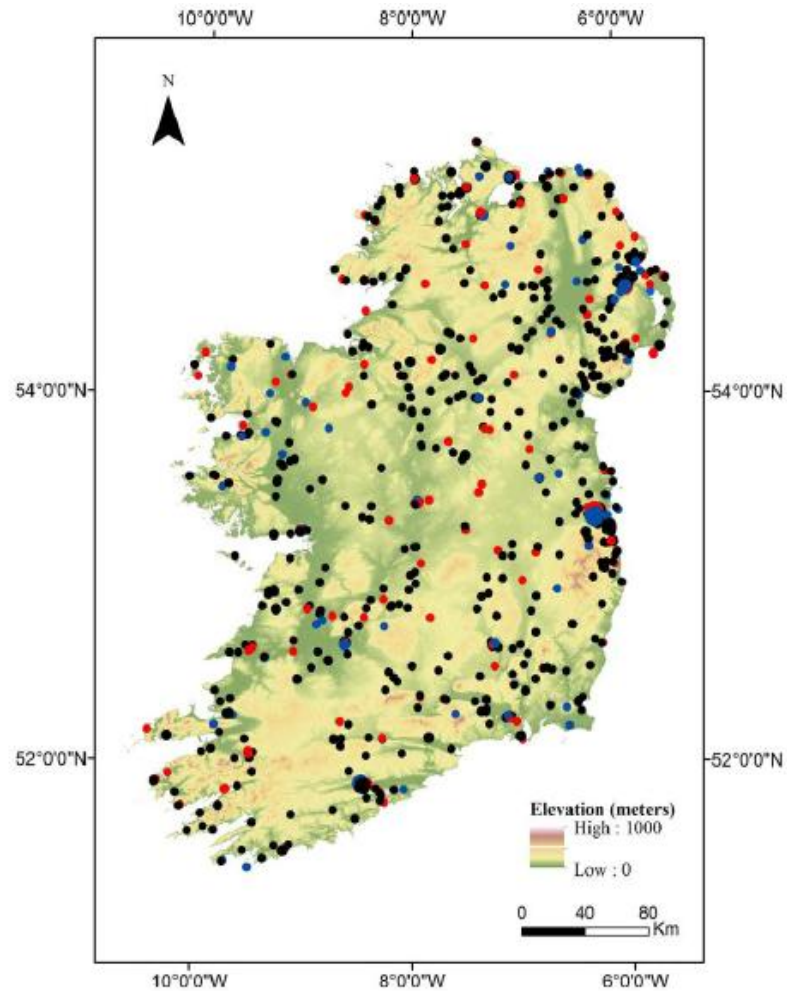
1. Heritage of historical meteorological observations in Ireland.
2. Data rescue of long-term daily maximum and minimum air temperature series (1831-1968).
  - i. Applications.
3. Data rescue of meteorological observations in the archives of the Royal Irish Academy (1783 – 1854).
4. Data rescue of meteorological observations published in newspapers (1808 – 1939).
5. Data rescue of meteorological observations taken at Dunsink Observatory (1818-1850).
6. Data rescue of meteorological observations taken in Ulster (1796 – 1919).
7. Applications.

1825	1/4	Bar.	Ther.	8/1	8/1	
1825	10	29.73	47	40	Clear	
1825	19	29.72	44	40	Clear	
1825	19	0	29.92	51	52	Clear
1825	21	0	29.41	54	54	rain wind
1825	11	29.30	49	46	Clear	
1825	21	29.31	49	49	Clear	
1825	22	0	29.31	53	53	Clear
1825	10	29.30	49	43	Cloudy	
1825	20	29.27	45	43	Cloudy	
1825	10	29.25	46	43	Rain	
1825	10	29.25	46	41	Rain	
1825	0	29.22	45	44	rain	
1825	10	29.34	44	42	Cloudy rain	
1825	21	29.42	44	45	Cloudy	
1825	20	0	29.42	45	45	Cloudy
1825	10	29.36	46	44	Cloudy	
1825	21	29.29	48	52	Cloudy	
1825	26	0	29.28	50	54	Cloudy
1825	10	29.24	49	47	Cloudy	
1825	20	29.10	47	48	Cloudy	
1825	27	0	29.04	51	53	Cloudy
1825	10	28.99	47	43	Cloudy	
1825	20	28.72	46	46	Rain wind East	
1825	0	28.92	48	51	Cloudy	
1825	10	29.02	47	50	Cloudy	
1825	20	29.10	48	50	Cloudy	

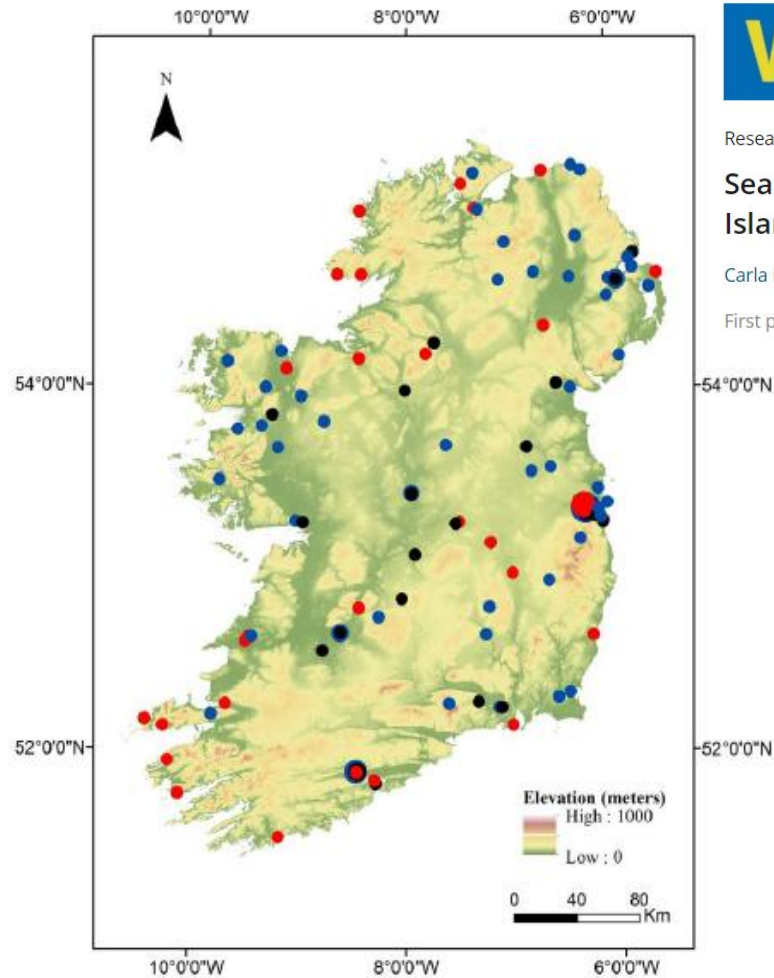
1825	1/4	Bar.	Ther.	8/1	8/1	
1825	10	29.12	51	51	Clear	
1825	11	29.20	48	43	Cloudy	
1825	20	29.30	48	54	Cloudy	
1825	30	0	29.34	55	54	Clear
1825	10	29.38	51	48	Rain	
1825	20	29.33	50	57	Cloudy	
1825	11	29.32	48	43	Cloudy	
1825	21	29.27	51	55	Cloudy	
1825	2	0	29.24	53	52	Rain
1825	20	29.16	49	52	Cloudy	
1825	3	0	29.14	51	54	Cloudy
1825	5	a great shower of rain & hail				
1825		Wind S.W.				
1825	10	29.30	46	44	Clear wind	
1825	20	29.44	50	55	Cloudy	
1825	4	0	29.47	53	56	Cloudy rain
1825	10	29.50	51	49	Cloudy	
1825	20	29.47	51	57	Cloudy	
1825	2	5	29.47	56	60	Cloudy
1825	10	29.49	53	51	Cloudy	
1825	20	29.45	53	55	Cloudy	
1825	6	1	29.44	55	60	Cloudy
1825	9	1	29.39	54	53	Rain
1825	20	29.39	52	50	Cloudy	



# 1. Heritage of historical meteorological observations



Location of 750 instrumental meteorological records pre-1900 inclusive.



Location of 161 instrumental meteorological records pre-1850 inclusive.

Mateus (2021)

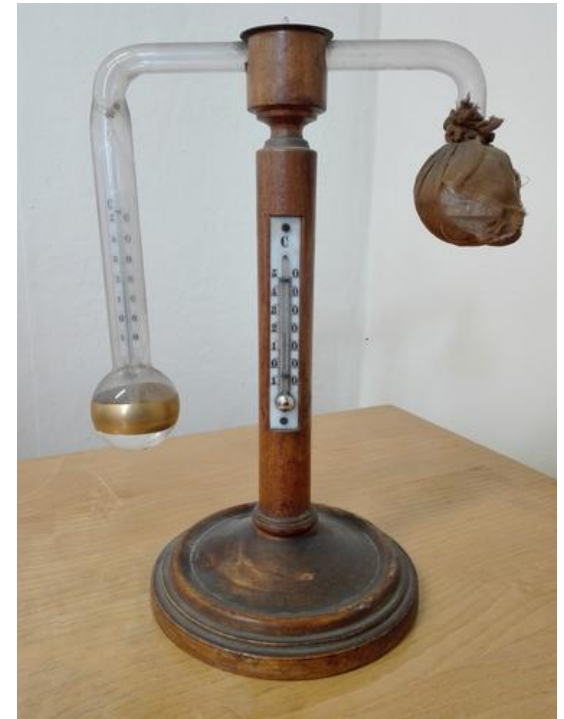
**Weather** 

Research Article |  Open Access |    

Searching for historical meteorological observations on the Island of Ireland

Carla Mateus 

First published: 08 January 2021 | <https://doi.org/10.1002/wea.3887>





# 2. Data rescue of long-term daily maximum and minimum air temperature series (1831-1968)

1838	Hour	Bar	Thermom.			Weather
			New	Ex.	Bot.	
4 Aug. 7	22	29.52	60.5	60	66	Cloudy
8	20	29.58	61.5	60.5	59.5	Cloudy
9	19	29.57	60.0	59.5	60	
9	20	29.57	59.5	59	52.5	Cloudy
	22	29.56	58.5	58	57	Cloudy
11	21	29.57	58.5	58	59.5	Wind S. (much rain)
	22	29.52	57.5	56.5	57	Cloudy
12	22	29.54	57.5	56.5	57	Cloudy, wind
	22	29.65	56.5	55.5	54.5	Cloudy
13	20	29.68	57	56	50.5	Cloudy
	22	29.76	55	54.2	58.5	Cloudy
14	20	29.78	58	56.5	59	Cloudy
	22	29.65	57.5	56.5	57.5	Cloudy
15	20	29.79	59	58	53	Cloudy
16	20	29.79	60.5	60.5	63	Clear
	22	29.63	60.5	60.5	60	Cloudy
18	20	29.61	62.3	61.3	54	Cloudy, Lightning
	22	29.83	60	59	54	Clear
19	20	29.66	60	59	48.5	Clear
	22	29.74	58	57.4	55	Cloudy
20	20	29.78	62	60.5	55	Cloudy
	22	29.66	60	59	60	Cloudy
21	10	29.77	60.5	59	56	Cloudy
	22	29.75	60	58.2	59	Cloudy
22 Sept. 1	0	29.76	60.8	59	59	Cloudy
	10	29.85	59	57.5	57	Clear
2	22	29.85	57.8	57	56.5	Cloudy
3	10	29.70	58	57	53	Cloudy
	22	29.60	57	56	57	Cloudy
4	10	29.41	57	53	54	Cloudy
	22	29.68	58	57	58.5	Clear

Day	Hour	Bar	Thermom.	Wind	Remarks
1	23 54.1	56	60	56	1 3 8 51 45 24
2	23 57.2	57	52	49	5 8 51 45 24
3	23 57.4	55	53	51	5 8 51 45 24
4	23 57.5	54	53	52	5 8 51 45 24
5	23 57.5	56	58	55	5 8 51 45 24
6	23 57.5	57	59	54	5 8 51 45 24
7	23 57.5	56	54	52	5 8 51 45 24
8	23 57.12	57	62	57	5 8 51 45 24
9	23 57.3	57	56	54	5 8 51 45 24
10	23 57.18	57	52	53	5 8 51 45 24
11	23 57.5	57	54	57	5 8 51 45 24
12	23 57.6	57	51	47	5 8 51 45 24
13	23 57.3	57	51	48	5 8 51 45 24
14	23 57.6	57	51	45	5 8 51 45 24
15	23 57.2	57	51	47	5 8 51 45 24
16	23 57.2	57	53	50	5 8 51 45 24
17	23 57.3	57	56	51	5 8 51 45 24
18	23 57.4	57	57	52	5 8 51 45 24
19	23 57.1	57	57	55	5 8 51 45 24
20	23 57.5	56	55	54	5 8 51 45 24
21	23 57.5	57	57	56	5 8 51 45 24
22	23 57.1	58	62	57	5 8 51 45 24
23	23 57.2	58	62	57	5 8 51 45 24
24	23 57.2	58	62	57	5 8 51 45 24
25	23 57.2	58	62	57	5 8 51 45 24
26	23 57.2	58	62	57	5 8 51 45 24
27	23 57.2	58	62	57	5 8 51 45 24
28	23 57.2	58	62	57	5 8 51 45 24
29	23 57.2	58	62	57	5 8 51 45 24
30	23 57.2	58	62	57	5 8 51 45 24

Form 3807. AIR MINISTRY, METEOROLOGICAL OFFICE.

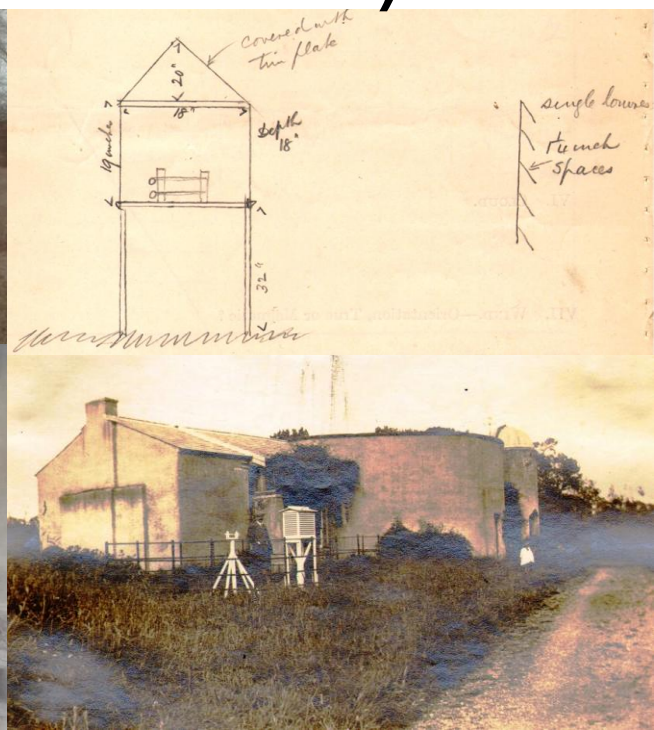
METEOROLOGICAL REGISTER—Weather of the Day

Records of Temperature, Rainfall, Sunshine, Wind and Weather.

OBSERVATIONS AT Rochester County York Month February 1926

Latitude 54° 17' N Longitude 8° 15' W

Day	Month	Thermometers	Rainfall	Sunshine	Wind	Mean Cloud Amount	Weather
1	50	50	43	45	5	0	1-3 1-9
2	49	51	46	47	7	0	0.1
3	48	46	44	42	3	0	10.4 0-1
4	47	47	36	38	1	2	0.3 8-6
5	50	50	45	48	2	0	0.4 0-1
6	48	51	45	46	6	0	- 0-1
7	47	47	45	45	3	2	0-2 0-5
8	47	44	46	47	4	3	0-3 4-3
9	47	44	46	45	4	3	0-3 4-3
10	45	44	42	43	4	3	0-3 4-3
11	44	44	43	43	4	3	0-3 4-3
12	46	45	43	43	4	3	0-3 4-3
13	45	47	36	40	4	3	0-3 4-3
14	44	51	46	49	4	3	0-3 4-3
15	50	53	48	47	4	3	0-3 4-3
16	48	48	42	41	4	3	0-3 4-3
17	43	45	38	39	4	3	0-3 4-3
18	44	49	38	40	4	3	0-3 4-3
19	53	53	47	51	4	3	0-3 4-3
20	51	44	49	46	4	3	0-3 4-3
21	51	54	48	49	4	3	0-3 4-3
22	49	50	44	48	4	3	0-3 4-3
23	50	52	48	49	4	3	0-3 4-3
24	51	50	47	49	4	3	0-3 4-3
25	50	50	49	49	4	3	0-3 4-3
26	50	51	48	50	4	3	0-3 4-3
27	51	54	50	49	4	3	0-3 4-3
28	49	50	40	41	4	3	0-3 4-3
29					4	3	0-3 4-3
30					4	3	0-3 4-3
31					4	3	0-3 4-3





## 2. Data rescue of long-term daily maximum and minimum air temperature series (1831-1968)



Research Article | [Open Access](#) |

### Engaging secondary school students in climate data rescue through service-learning partnerships

Carla Mateus Aaron Potito, Mary Curley

First published: 21 September 2020 | <https://doi.org/10.1002/wea.3841> | Citations: 9



DATA PAPER | [Open Access](#) |

### Reconstruction of a long-term historical daily maximum and minimum air temperature network dataset for Ireland (1831-1968)

Carla Mateus Aaron Potito, Mary Curley

First published: 13 May 2020 | <https://doi.org/10.1002/gdj3.92> | Citations: 15

#### **145 secondary school students:**

- 127 students from 7 schools hosted at the University.
- 18 students from 1 school received training as part of the Green Schools module.

# Quality control and homogenisation

Open Access Editor's Choice Article

## Development of a Quality-Controlled and Homogenised Long-Term Daily Maximum and Minimum Air Temperature Network Dataset for Ireland

by Carla Mateus \* and Aaron Potito

School of Geography, Archaeology and Irish Studies, Ryan Institute, National University of Ireland Galway, H91 TK33 Galway, Ireland

\* Author to whom correspondence should be addressed.

*Climate* **2021**, *9*(11), 158; <https://doi.org/10.3390/cli9110158>

Submission received: 29 September 2021 / Revised: 21 October 2021 / Accepted: 25 October 2021 /

Published: 29 October 2021

Table 3. Quality control tests.

Flags	Definition
Flag 1	Lower daily MIN threshold exceedance.
Flag 2	Upper daily MIN threshold exceedance.
Flag 3	Lower daily MAX threshold exceedance.
Flag 4	Upper daily MAX threshold exceedance.
Flag 5	Daily MAX lower than the MIN.
Flag 6	Step-change in daily MIN higher than 4.5 standard deviations from the mean.
Flag 7	Step-change in daily MAX higher than 4.5 standard deviations from the mean.
Flag 8	Step-change in daily MIN and MAX higher than 4.5 standard deviations from the mean.
Flag 9	Three or more consecutive days with the same daily MIN.
Flag 10	Three or more consecutive days with the same daily MAX.
Flag 11	Three or more consecutive days with the same daily MIN and MAX.



Figure 2. Newspaper consulted during the manual assessment of flagged data [31].

**Homogenisation software:**

MASH (Multiple Analysis of Series for Homogenisation).



# Trends in maximum and minimum air temperatures and daily extreme air temperature indices

Table 1

Extreme air temperature indices recommended by the ETCCDI. TX (daily maximum air temperature), TN (daily minimum air temperature), TM (daily mean air temperature).

Type	Acronym	Name	Definition	Units
Percentile	TX10p	Cool days	Percentage of days when TX < 10th percentile of 1961–1990.	Days
Percentile	TX90p	Warm days	Percentage of days when TX > 90th percentile of 1961–1990.	Days
Percentile	TN10p	Cool nights	Percentage of days when TN < 10th percentile of 1961–1990.	Days
Percentile	TN90p	Warm nights	Percentage of days when TN > 90th percentile of 1961–1990.	Days
Threshold	FD	Frost days	Annual count when TN < 0 °C.	Days
Threshold	ID	Ice days	Annual count when TX < 0 °C.	Days
Threshold	SU	Summer days	Annual count when TX > 25 °C.	Days
Threshold	TR	Tropical nights	Annual count when TN > 20 °C.	Days
Absolute	TXx	Max TX (hottest day)	Monthly maximum value of TX.	°C
Absolute	TNx	Max TN (hottest night)	Monthly maximum value of TN.	°C
Absolute	TXn	Min TX (coldest day)	Monthly minimum value of TX.	°C
Absolute	TNn	Min TN (coldest night)	Monthly minimum value of TN.	°C
Absolute	DTR	Diurnal temperature range	Monthly mean difference between TX and TN.	°C
Duration	WSDI	Warm spell duration indicator	Annual count of days with at least 6 consecutive days when TX > 90th percentile of 1961–1990.	Days
Duration	CSDI	Cold spell duration indicator	Annual count of days with at least 6 consecutive days when TN < 10th percentile of 1961–1990.	Days
Duration	GSL	Growing season length	Annual count between the first span of at least 6 days with TM > 5 °C and first span after July 1st of 6 days with TM < 5 °C.	Days



Weather and Climate Extremes

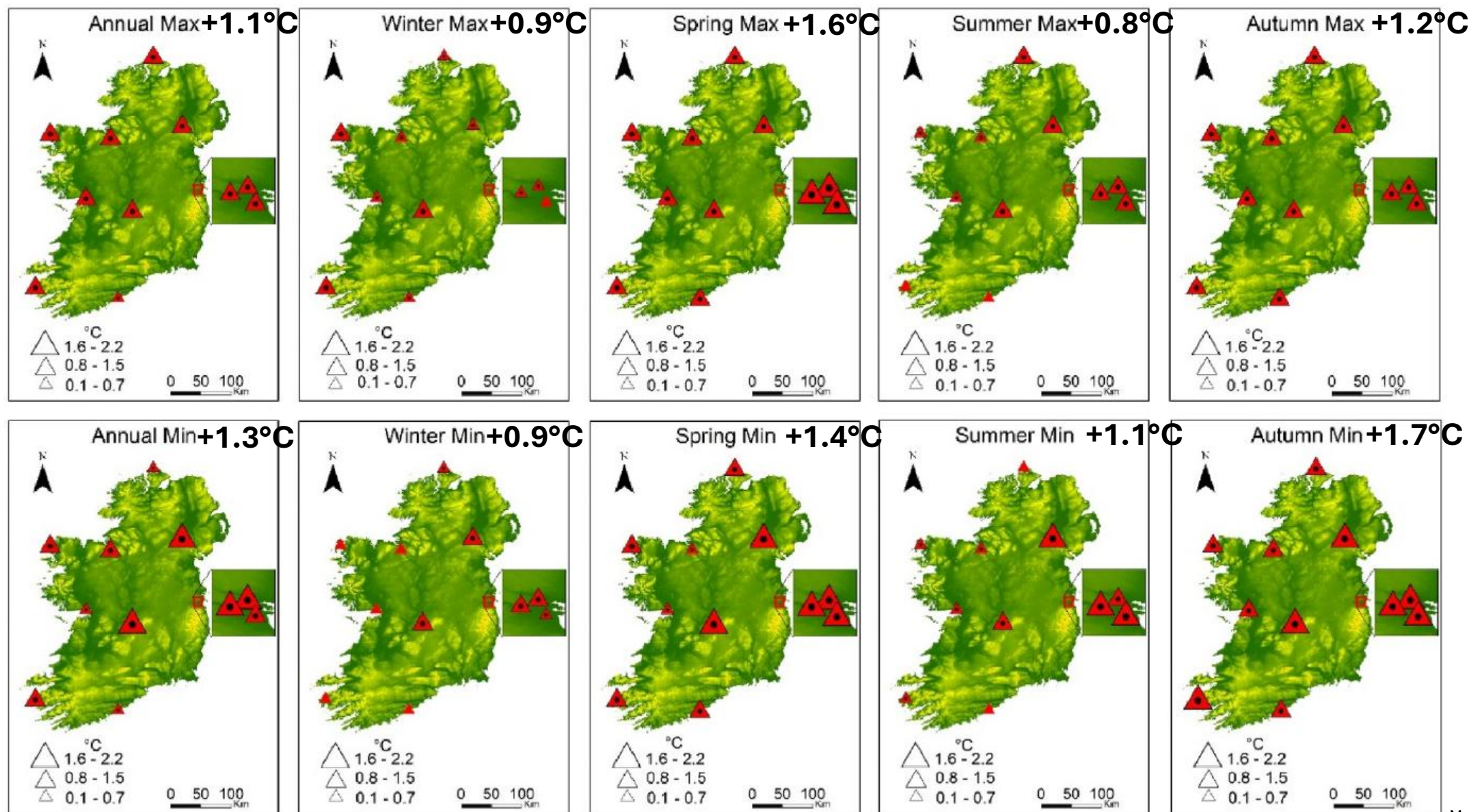
Volume 36, June 2022, 100464



## Long-term trends in daily extreme air temperature indices in Ireland from 1885 to 2018

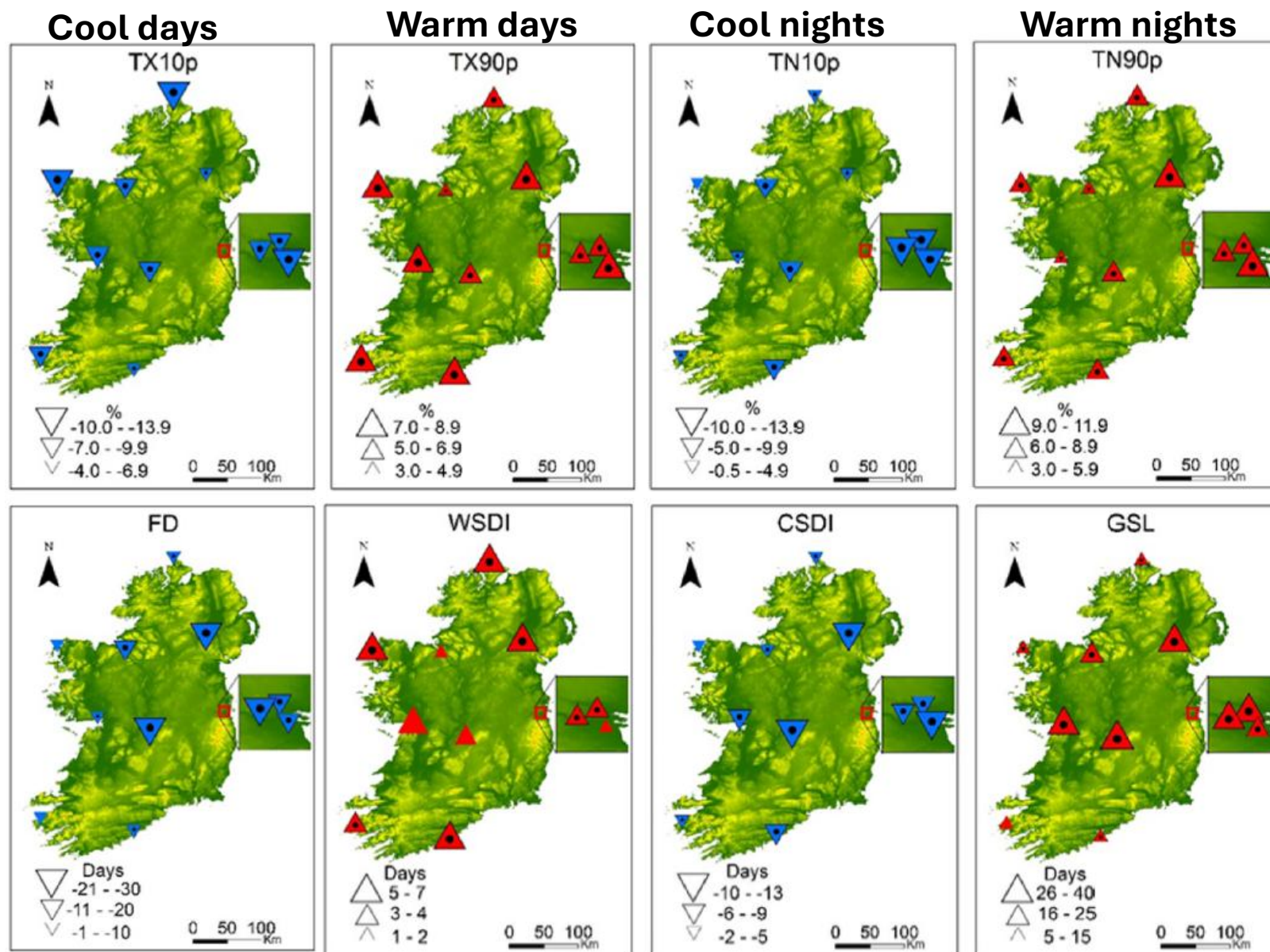
Carla Mateus<sup>1</sup> , Aaron Potito

# Trends in maximum and minimum air temperatures





# Trends in daily extreme air temperature indices



# Long-term trends in heat wave and cold wave indices

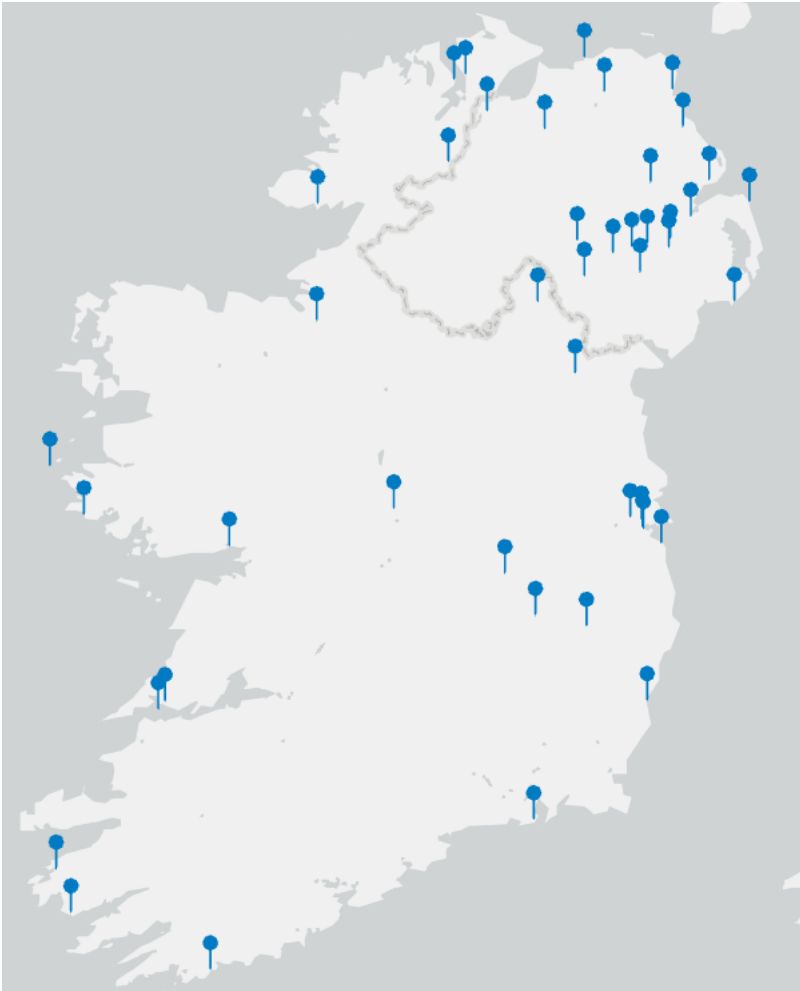
Diverse definitions of heat waves and cold waves.

Indices covering:

- Number
- Frequency
- Duration
- Magnitude
- Amplitude



### 3. Data rescue of meteorological observations in the Royal Irish Academy archives from 1783 to 1854



Location of the records.

The **meteorological records** include observations of air temperature, maximum and minimum air temperatures, dry and wet bulbs, sea temperature, rainfall, pressure, wind direction and speed, cloud cover, cloud form, tension of vapour and weather remarks.

The collections include meteorological records registered between 1783 and 1854. The meteorological observations have been digitised from the manuscripts into Excel files and will be available as open-access as part of a peer-reviewed paper.


# First attempt by the RIA in organising meteorological observations in Ireland in the 1780s

 JOURNAL ARTICLE  OPEN ACCESS

A Comparative View of Meteorological Observations Made in Ireland since the Year 1788, with Some Hints towards Forming Prognostics of the Weather

Richard Kirwan

*The Transactions of the Royal Irish Academy*, Vol. 5 (1793/1794), pp. 3-29 (27 pages)

<https://www.jstor.org/stable/30078685> 

THE Royal Irish Academy has not been wanting in its duty to the public and to science in this respect ; it has already provided at its own cost, and dispersed through the kingdom, some of the most useful and best constructed instruments ; yet its wishes have not hitherto been completely answered, few observations having been communicated. Of these, and of my own made in Dublin, I shall now give a summary view.

## Observations:

- Thermometer
- Barometer
- Wind direction
- Weather remarks

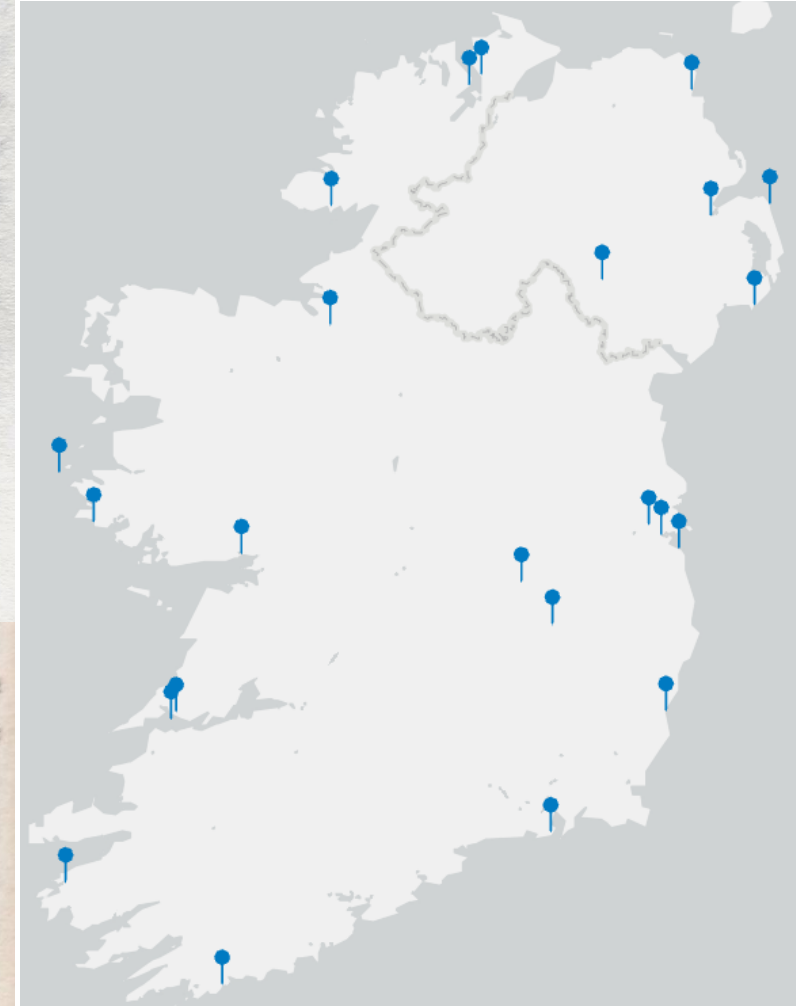
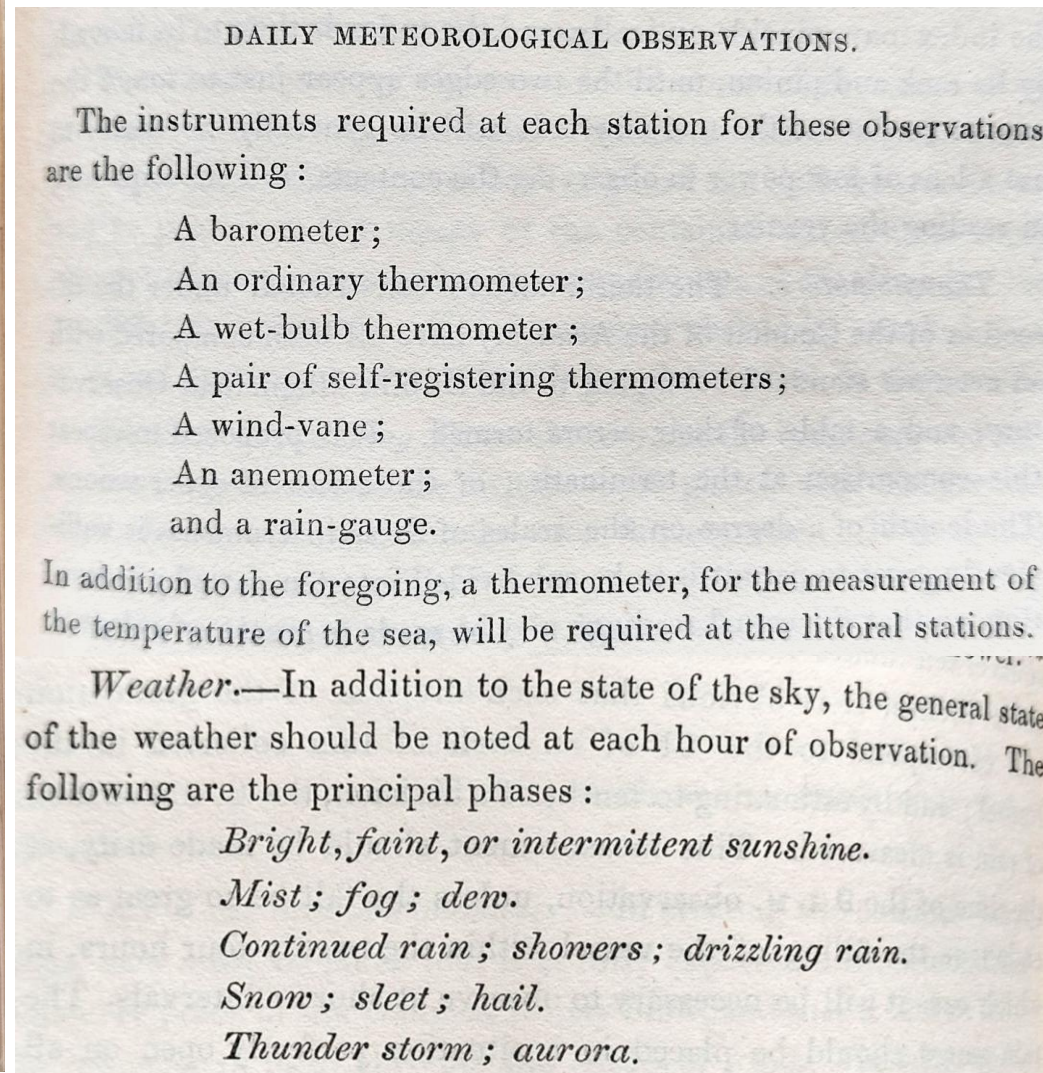
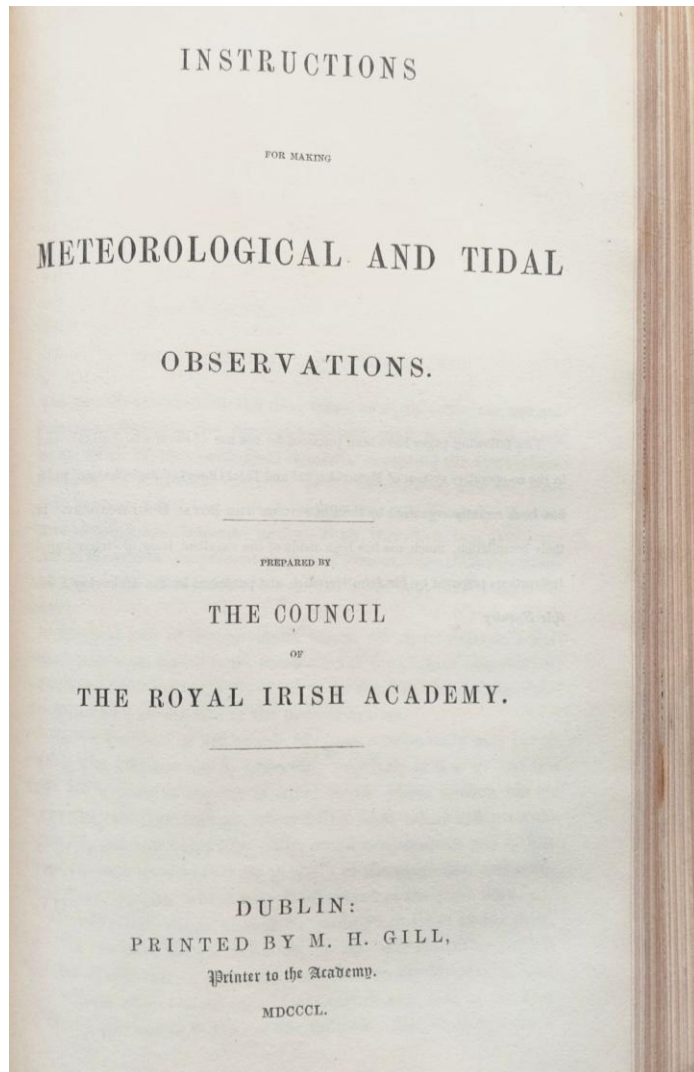


### 3. Data rescue of meteorological observations in the Royal Irish Academy archives from 1783 to 1854

Barometer				Wind	Therm.	Remarks
Barometer	Therm.	Wind	Remarks	Barometer	Therm.	Remarks
29.77	50.6	50.75	Very cool winds blowing very high from NW	29.80	62	W 10 m. Breeze clear, sunny bright, the raining heavily
29.75	50.9	50.75	Very cool winds blowing very high from NW	29.82	62	W 10 m. Storm increased - fair some
29.75	50.68	50.75	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.77	50.75	50.75	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.85	50.3	50.85	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.89	50.70	50.89	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.9	50.45	50.9	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.85	60.3	50.375	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.69	50.45	50.445	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.69	50.45	50.445	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.72	50.8	45.615	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
29.75	50.43	45.615	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.25	40.68	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.36	40.1	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.55	40.44	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.57	40.11	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.52	40.33	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.46	40.39	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.38	40.75	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.33	40.2	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.33	40.8	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.31	40.72	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.3	40.97	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.3	40.45	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.29	40.78	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.24	40.25	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.15	40.65	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some
30.15	40.2	45.39	Very cool winds blowing very high from NW	29.82	61	W 10 m. Storm increased - fair some



# RIA provided instructions for taking meteorological and tidal observations from 1850 to 1852 in Ireland





# Meteorological observations taken under the direction of the RIA

*Castle Townsend*

24L50/CAS/SEP 50

	DATE.		BAROMETER.		THERMOMETER.				WIND.		CLOUD.		Rain.	WEATHER AND GENERAL REMARKS.
	Day.	Hour.	Height.	Temp.	Dry.	Wet.	Max.	Min.	Direction.	Force.	Amount.	Form.		
September 1850	16 <sup>th</sup>	9 Am	30.412	63.72	58.30	55.0	58.30	50.0	NE	Light	1	K	Nil	Bright and clear weather
"	"	9 PM	30.410	58.10	56.0	52.30	63.0	55.0	NE	Light	9	"	Nil	Cloudy weather
"	17 <sup>th</sup>	9 Am	30.386	57.10	56.0	52.0	63.0	48.72	E. N.E.	Light	0	"	Nil	Bright and clear, fine weather
"	17 <sup>th</sup>	9 PM	30.252	59.0	57.0	54.0	62.30	56.0	S.E.	moderate	3	K	Nil	fine, but Wind very variable shifting to the southward
"	18 <sup>th</sup>	9 am	29.988	59.10	60.0	56.0	60.0	56.30	S 1/2 N. Strong	10	"	"	Nil	at 11.30 Am clouds 10, rain commenced, wind turning round to the West
"	"	9 PM	29.740	58.0	57.0	56.0	62.0	55.0	South Strong	10	"	"	46.72	Strong Gale, with heavy rain
"	19 <sup>th</sup>	9 am	29.670	58.0	59.0	56.0	59.0	54.0	N.W. S. moderate	10	"	"	47.72	Strong Gale and cloudy, Gale moderating
"	"	9 PM	29.648	58.30	57.0	54.0	64.0	56.72	N.W. light	10	"	"	Nil	Dark cloudy weather
"	20 <sup>th</sup>	9 Am	29.650	57.0	57.0	52.0	58.0	48.0	N.W. light	2	C.P.	"	Nil	Intermittent sunshine
"	"	9 PM	29.620	57.0	57.0	57.72	63.0	54.0	West. light	10	"	"	Nil	Dark and cloudy weather
<u>Hourly observations</u>														
September 1850	21 <sup>st</sup>	6 Am	29.574	54.0	49.30	47.0	56.0	47.0	N.W. light	1	"	"	Nil	
"	"	7 "	29.584	54.40	52.0	49.0	52.0	49.0	"	"	"	"	"	
"	"	8 "	29.596	56.0	55.0	52.0	55.0	51.30	"	"	"	"	"	
"	"	9 "	29.610	57.0	58.0	53.0	58.0	54.0	"	"	"	"	"	Clear bright weather
"	"	10 "	29.640	57.72	58.072	53.0	60.072	57.0	"	"	"	"	"	
"	"	11 "	29.634	58.0	60.0	52.72	60.0	57.0	"	"	"	"	"	
"	"	12 noon	29.642	59.0	61.0	53.72	58.0	59.0	"	"	"	"	"	
"	"	1 PM	29.650	58.0	59.0	53.0	61.72	57.72	"	"	"	"	"	
"	"	2 "	29.650	58.0	59.30	53.0	59.30	57.0	S.W. Strong	6	K	"	Nil	Intermittent sunshine

*Hourly observations*

*The books were not completed after the first observation consequently there was only 1 cubic foot left from last observation.*

*See remarks on the other side respecting this Gale.*



# Meteorological observations taken under the direction of the RIA

Direction of Wind - January 1851 (1)

Day	Portlud	Kilcannon	Drogheda	Relfast	Killybeg	Armagh	Killybeg	Marine	Whitehead	Dublin	Day
16	S	SW	SW	W	SW	SW	SW	SW	SW	S	16
17	S	SW	SW	W	SW	SW	SW	SW	SW	S	17
18	S	SW	SW	W	SW	SW	SW	SW	SW	S	18
19	S	SW	SW	W	SW	SW	SW	SW	SW	S	19
20	S	SW	SW	W	SW	SW	SW	SW	SW	S	20
21	SW	SW	SW	W	SW	SW	SW	SW	SW	SW	21
22	SW	SW	SW	W	SW	SW	SW	SW	SW	SW	22
23	S	S	SW	SW	S	SW	SW	SW	SW	S	23
24	S	SW	SW	SW	S	S	SW	SW	SW	S	24
25	S	S	S	SW	S	S	SW	SW	SW	S	25
26	S	W	SW	SW	SW	S	S	SW	SW	S	26
27	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	27
28	S	SW	SW	SW	SW	SW	SW	SW	SW	S	28
29	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	29
30	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	30
31	S	S	S	S	S	S	S	S	S	S	31

Baconthu - January 1851 - (1)

Day	Portlud	Kilcannon	Drogheda	Relfast	Killybeg	Armagh	Killybeg	Marine	Whitehead	Dublin	Day
16	28.64	28.34	28.79		28.69	28.58	28.86	28.71		28.94	16
17	29.12	29.07	29.18		29.14	28.87	29.22	29.19	29.11	29.32	17
18	28.78	28.67	28.75		28.71	28.58	28.86	28.71		28.94	18
19	28.66	28.54	28.62		28.61	28.48	28.56	28.45		28.53	19
20	28.39	28.27	28.36		28.34	28.21	28.29	28.18		28.26	20
21	28.13	28.01	28.10		28.14	28.01	28.09	27.98		28.06	21
22	27.86	27.74	27.83		27.81	27.68	27.76	27.65		27.73	22
23	27.59	27.47	27.56		27.54	27.41	27.49	27.38		27.46	23
24	27.32	27.20	27.29		27.27	27.14	27.22	27.11		27.19	24
25	27.05	26.93	27.02		27.00	26.87	26.95	26.84		26.92	25
26	26.78	26.66	26.75		26.73	26.60	26.68	26.57		26.65	26
27	26.51	26.39	26.48		26.46	26.33	26.41	26.30		26.38	27
28	26.24	26.12	26.21		26.19	26.06	26.14	26.03		26.11	28
29	25.97	25.85	25.94		25.92	25.79	25.87	25.76		25.84	29
30	25.70	25.58	25.67		25.65	25.52	25.60	25.49		25.57	30
31	25.43	25.31	25.40		25.38	25.25	25.33	25.22		25.30	31

Portlud 1851  
Temperature of the Sea

January	February	March	April	May	June	July
1	28.0	28.0	28.0	28.0	28.0	28.0
2	28.0	28.0	28.0	28.0	28.0	28.0
3	28.0	28.0	28.0	28.0	28.0	28.0
4	28.0	28.0	28.0	28.0	28.0	28.0
5	28.0	28.0	28.0	28.0	28.0	28.0
6	28.0	28.0	28.0	28.0	28.0	28.0
7	28.0	28.0	28.0	28.0	28.0	28.0
8	28.0	28.0	28.0	28.0	28.0	28.0
9	28.0	28.0	28.0	28.0	28.0	28.0
10	28.0	28.0	28.0	28.0	28.0	28.0
11	28.0	28.0	28.0	28.0	28.0	28.0
12	28.0	28.0	28.0	28.0	28.0	28.0
13	28.0	28.0	28.0	28.0	28.0	28.0
14	28.0	28.0	28.0	28.0	28.0	28.0
15	28.0	28.0	28.0	28.0	28.0	28.0
16	28.0	28.0	28.0	28.0	28.0	28.0
17	28.0	28.0	28.0	28.0	28.0	28.0
18	28.0	28.0	28.0	28.0	28.0	28.0
19	28.0	28.0	28.0	28.0	28.0	28.0
20	28.0	28.0	28.0	28.0	28.0	28.0
21	28.0	28.0	28.0	28.0	28.0	28.0
22	28.0	28.0	28.0	28.0	28.0	28.0
23	28.0	28.0	28.0	28.0	28.0	28.0
24	28.0	28.0	28.0	28.0	28.0	28.0
25	28.0	28.0	28.0	28.0	28.0	28.0
26	28.0	28.0	28.0	28.0	28.0	28.0
27	28.0	28.0	28.0	28.0	28.0	28.0
28	28.0	28.0	28.0	28.0	28.0	28.0
29	28.0	28.0	28.0	28.0	28.0	28.0
30	28.0	28.0	28.0	28.0	28.0	28.0
31	28.0	28.0	28.0	28.0	28.0	28.0





# ‘Night of the Big Wind’ 6 -7 January 1839

John Boyle took meteorological observations at Carrickfergus for the Ordnance Survey and described the storm as:

‘On the 6<sup>th</sup> about 10 P.M. a gale commenced which rose to a perfect hurricane in a couple of hours, and continued until between 3 & 4 o’clock of the morning of the 7<sup>th</sup>. The storm will be long remembered in this country as it committed mass devastation amongst trees and caused more injury to houses than any on record’ (RIA OSM/Antrim/7/7).



Irish Times



# Meteorological observations taken by Dr Thomas Orpen in Dublin (1805 – 1841)

Meteorological Register 1805						
Jan <sup>o</sup>	Barom. 10 Am	Barom. 10 Pm	Thermometer		Wind	Weather
			10 A.M.	10 P.M.		
1	29.9	29.7	39	39	N.E. 2	Fair. frost
2	29.8	29.8	38	39	N.E. 2	frost 8' fog at noon
3	29.7	29.7	40	42	S.E. 3	Hazy
4	29.7	29.6	42	42	S. 2	8' fog. Hazy.
5	29.7	29.7	45	47	S. 2	Fair.
6	29.6	29.4	45	47	S. 2	Cloudy
7	29.7	30.1	47	47	S. 1	Fair.
8	30.1	30.0	46	48	S.E. 1	Fair.
9	30.1	30.1	47	47	S.E. 1	Fair
10	30.0	29.9	44	44	E.S.E. 1	Fair
11	29.8	29.6	42	43	S.E. 2	Fair frost
12	29.4	29.0	40	40	S.W. 3	Cloudy. very cold.
13	28.6	29.4	40	42	E.S.S.W. 4	Cloudy
14	28.6	29.8	40	41	S.E. 2 S. 3	Fair
15	29.2	29.4	41	42	S.W. 2	Fair .. slight
16	29.3	29.2	42	45	S.W. 2	Cloudy fair
17	29.3	29.4	43	43	S. 2	Fair .. fair
18	29.2	29.7	41	41	E. 2	Fair frost
19	29.2	29.0	41	42	S. 2	Cloudy .. frosty
20	28.9	28.9	42	43	N.W. 1	show. very cold. / show.
21	29.2	29.3	40	42	E.S.E. 2	Fair & show.
22	29.2	29.1	40	41	N.E. 3	Cloudy .. Mist / show
23	29.3	29.7	40	40	N.E. 3	Cloudy ..
24	29.8	29.9	40	40	N.E. 2	Fair.
25	29.9	29.9	40	41	N.E. 1	Fair
26	29.8	29.8	40	39	E. 2	Cloudy
27	29.8	29.7	39	38	E. 2	Cloudy frost.
28	29.7	29.3	38	37	E. 3	Cloudy / show.
29	29.0	29.0	36	37	E. 2	Cloudy. very cold.
30	29.0	29.2	37	38	N.E. 2	Cloudy .. fair N. M.
31	29.5	29.7	39	38	E. 2	Cloudy.
Grand Avg	30.1	30.1	47	48		
Least Hgt	28.6	28.9	37	37		
Mean	29.3	29.5	42	42.5		

6<sup>th</sup> The direction of  $\frac{1}{2}$  winds, as also their force  
the degrees of which are marked 0 a calm 1-4  
a small wind as leaves moved the leaves  
of trees by 4 a breeze 8 by 2. 3. intermediate  
forces -

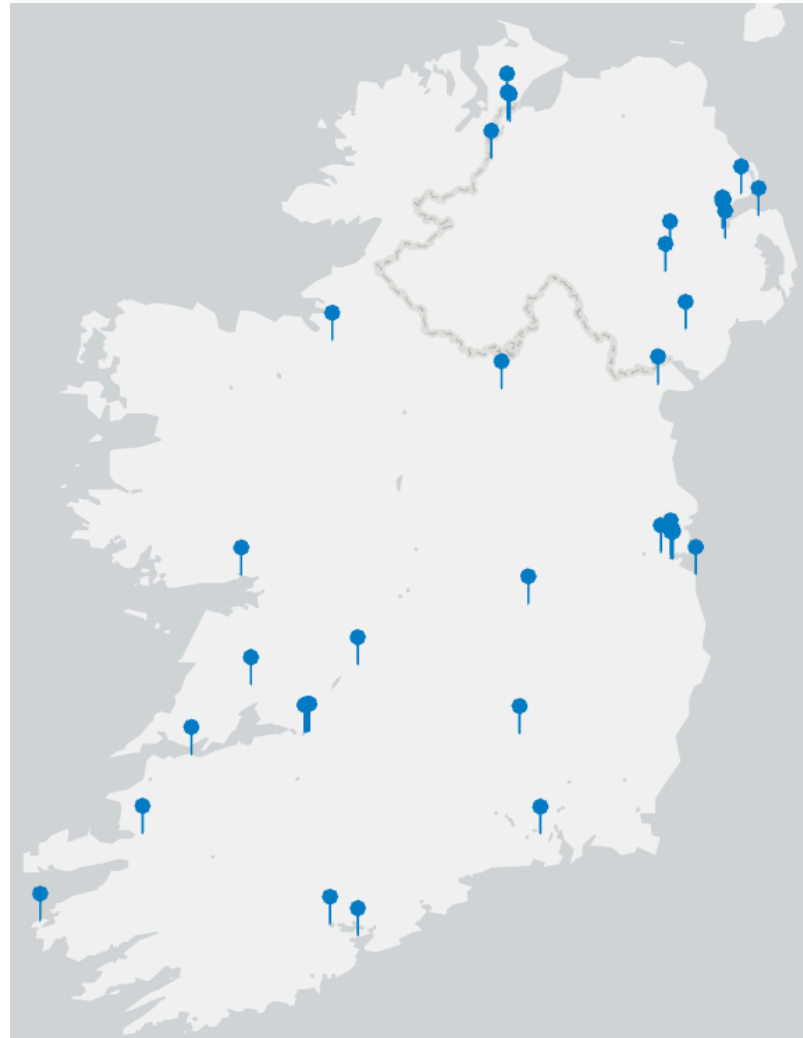
7<sup>th</sup> The state of the weather as fair, frost, showery  
clear cloudy \* light showers, \*\* greater showers  
:: heavy rain :: very heavy rain. with such  
observations as may occur -

# 4. Data rescue of meteorological observations published in newspapers (1808 – 1939)

METEOROLOGICAL TABLE.

For the week ending 31st Dec., 1864, compiled at Mountpleasant, Latitude 54. 2. 16. North, and Longitude 6. 17. West, the Barometer being placed at 32 feet above the mean level of the sea, and the rim of the rain-guage six inches above the ground.

Dec.	Barom.	Ther.	Dry.	Wet.	Max.	Min.	Velocity of Wind.	Rain
26 9 A.M.	30.344	53	26	26	36.5	21	—	—
3 P.M.	30.210	56	37.5	37	—	—	—	—
27 9 A.M.	30.270	40	37	36	38	26	—	—
3 P.M.	30.288	44	39	38.2	—	—	—	—
28 9 A.M.	30.000	42	42	42	42	35	—	.020
3 P.M.	30.260	42	44.5	43	—	—	—	—
29 9 A.M.	30.210	42	42	40	45	37	3.10	—
3 P.M.	30.000	44	44.6	41.8	—	—	2.40	—
30 9 A.M.	29.862	46	44	42	47	21	2.15	—
3 P.M.	29.876	46	44.4	42	—	—	4.10	—
31 9 A.M.	29.884	42	27	27	45	26	2.40	—
3 P.M.	29.902	46	39.5	35.8	—	—	—	—



**Observations:** maximum and minimum air temperatures, dry and wet bulb temperatures, rainfall, pressure, wind direction and force, maximum air temperature in the sun, humidity, cloud cover, and weather remarks.

The observations are being digitised and will be available as open-access as part of a peer-reviewed paper.



# 4. Data rescue of meteorological observations published in newspapers (1808 – 1939)

THE DIRECTION OF THE COUNCIL OF THE  
OF COMMERCE, FOR THE WEEK COMMENCING 30TH  
DECEMBER, 1853.

DAYS.	Thermo- meter.	Baro- meter. 10 o'clock a.m.	Attached Therm.	Baro- meter, 10 o'clock p.m.	Attached Therm.	Rain.	Wind.
	Max. Min.						
Friday .	39 ... 26	29.990	50	30.028	47	.035	N
Satur ....	39 ... 28	29.990	49	29.724	47	.....	NW
Sunday.	26 ... 23	29.744	45	29.576	44	.....	WNW
Monday.	32 ... 23	29.456	45	29.358	46	.....	NW
Tues.	34 ... 23	29.340	48	29.342	46	.....	SE
Wednes.	37 ... 29	29.292	48	29.090	48	.020	SE
Thurs...	38 ... 31	28.992	48	29.040	53	.220	SE

WEATHER DURING FEBRUARY, 1863.  
I remain, your's faithfully,  
PATRICK DUFFY.  
Kilkenny, 2nd March, 1863.

Day of the month	At 9 a.m.		For 24 hours ending at 9 a.m.		
	Barometer.	Thermometer.	Temperature.		Rainfall.
			Maximum.	Minimum.	
Feb. 1	29.66	40	45	37	.02
2	29.61	47	48	38	.17
3	29.64	36	48	35	.04
4	30.03	47	47	33	—
5	30.12	46	49	41	—
6	30.25	50	53	48	—
7	30.22	47	50	45	—
8	30.13	39	52	35	.04
9	30.18	35	45	32	—
10	30.08	47	47	36	.03
11	30.05	46	51	43	.02
12	30.38	34	50	31	.05
13	30.57	31	46	27	—
14	30.52	40	45	37	—
15	30.49	42	43	35	—
16	30.46	41	46	32	—
17	30.46	45	45	39	—
18	30.43	46	49	43	—
19	30.43	41	50	39	.19
20	30.35	43	47	39	—
21	30.24	43	47	36	—
22	30.38	39	49	33	—
23	30.43	43	47	39	—
24	30.36	44	48	42	—
25	30.34	45	48	42	—
26	30.22	49	52	45	—
27	30.12	49	51	47	—
28	30.10	47	50	45	.06

# 5. Data rescue of meteorological observations taken at Dunsink Observatory (1818-1850)

1818		Hour	Barom.	Thermom.	Humid.	Wind
June 6				In	Ex	
C	7	10	30.10	64	59	Fair
		20	30.10	61½	60	Fair
C	7	0	30.09	59	63	Fair
		10	30.07	63	57	Fair
D	8	20	30.06	60	58	Fair
		10	30.06	63	55	Fair
D	8	20	30.05	61	59	Fair
		0	30.03	65½	70	Fair
D	9	4	30.01	64	74½	Fair
		10	30.00	64	57	Fair
F	10	20	29.98	64	60	Fair
		0	29.98	67	69	Fair
F	10	10	29.95	64	57½	Fair
		20	29.90	63	63	Fair
4	11	0	29.89	68½	72½	Fair
		10	29.84	66	61	Fair
F	12	20	29.79	64	64	Fair
		0	29.78	70	74	Fair
F	12	10	29.72	66	61	Fair
		20	29.65	64	63	Fair
t	13	0	29.65	67	67½	Cloudy
		10	29.70	62	55	Cloudy
C	14	4	29.02	66	64	Fair
		10	29.80	62	57	Cloudy
D	15	20	29.72	61½	60	Fair
		0	29.72	66	67	Cloudy
D	15	10	29.72	64½	60½	
		20	29.68	63	63	Cloudy
D	16	0	29.68	68	66	Cloudy
		10	29.68	68	66	Cloudy
F	17	20	29.47	57½	55	Fair
		10	29.49	57½	49	Fair
4	18	20	29.52	55	53	Fair
		0	29.54	61½	62	Fair
4	18	10	29.58	58½	52½	Cloudy





# 6. Data rescue of meteorological observations taken in Ulster (1796-1919)

## Example: Linen Hall Library, Belfast (1796 - 1895)

*Meteorological Register,*  
11 Dec 1801, 20 Dec 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919.

Day	Barometer	Thermometer	Barometer	Thermometer	Wind	State of Sky
1	30.19	42	30.26	40	27	sw. Fair. Light rain in eve.
2	30.39	40	30.35	46	31	sw. Morning with light rain.
3	29.61	36	29.59	33	32	sw. Breeze with heavy rain. Clouds in eve.
4	29.71	30	29.81	32	30	sw. Fair. Shower in forenoon.
5	29.93	33	29.96	35		sw. Very fine. Calm in eve.
6	30.32	37	30.28	35		sw. Heavy. Thawing.
7	29.97	34	29.97	42		sw. Thawing. gloomy.
8	29.95	42	30.04	48		sw. Fine.
9	30.32	44	30.33	47		sw. Fine.
10	30.44	51	30.45	49		sw. Very fine.
11	30.48	48	30.46	50		sw. Very fine.
12	30.56	48	30.56	51		sw. Very fine.
13	30.50	50	30.59	47		sw. Cloudy. Rain in eve.
14	30.39	45	30.44	45		sw. Cloudy. Rain in eve.
15	30.01	45	29.95	48		sw. Fair. Rain in eve.
16	30.06	42	30.04	46		sw. Very fine.
17	29.75	37	29.82	38		sw. Fair. Rain in eve.
18	30.25	51	30.27	53		sw. Very fine.
19	30.24	44	30.17	46		sw. Fair. Rain in eve.
20	30.39	50	30.41	53		sw. Very fine.
21	30.42	43	30.52	48		sw. Very fine.
22	30.46	49	30.43	51		sw. Very fine.
23	30.33	44	30.19	47		sw. Very fine.
24	30.36	48	30.38	49		sw. Very fine.
25	30.46	42	30.42	44		sw. Fair. Rain in eve.
26	30.07	45	30.04	47		sw. Rainy.
27	30.00	30	30.00	30		sw. Fine.
28	29.46	45	29.47	40		sw. Fine.

METEOROLOGICAL REGISTER, kept at the  
XLIX

Day	Barometer at 9 o'clock, A.M.	Barometer at 3 o'clock, P.M.	Atmos. Ther. at 9 o'clock, A.M.	Atmos. Ther. at 3 o'clock, P.M.	Expos. Ther. at 9 o'clock, A.M.	Expos. Ther. at 3 o'clock, P.M.	Self-Registering Thermometer, Maximum.	Self-Registering Thermometer, Minimum.	Rain Gauge.	Wind at 9 o'clock, A.M.	Wind at 3 o'clock, P.M.
1	30.07	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
2	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
3	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
4	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
5	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
6	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
7	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
8	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
9	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
10	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
11	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
12	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
13	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
14	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
15	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
16	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
17	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
18	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
19	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
20	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
21	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
22	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
23	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
24	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
25	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
26	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
27	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
28	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
29	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
30	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S
31	30.05	30.04	32.20	35.25	32.25	37.75	33.00	40.50	0.00	W	S





# 6. Data rescue of meteorological observations taken in Ulster (1796 – 1919)

## Example: Queen's College Belfast (1850 - 1919)

OBSERVATIONS taken at *Queen's College Belfast* during Month of *November* 1852.

Day	P. M.						A. M.					
	BAROMETER.		THERMOMETER.		WIND.		BAROMETER.		THERMOMETER.		WIND.	
	Height.	Temp.	Dry.	Wet.	Max.	Min.	Height.	Temp.	Dry.	Wet.	Max.	Min.
1	29.370	51.0	54.6	53.6	58.0	46.0	S.	29.374	55.0	51.5	50.4	
2	29.412	52.6	49.5	58.4	56.6	43.5	N.	29.254	55.9	52.4	50.6	
3	29.522	52.0	41.6	41.4	52.5	37.5	N.	29.560	53.5	41.4	40.0	
4	29.634	50.0	45.0	43.2	44.0	37.0	N.	29.642	52.6	46.4	45.0	
5	29.172	51.0	44.0	47.4	51.0	42.0	N.	29.214	52.0	45.4	44.6	
6	29.450	50.0	45.0	43.4	56.0	37.4	N.	29.400	51.0	45.4	45.0	
7	29.404	51.0	54.6	52.4	56.5	42.0	S.W.	29.530	53.0	55.0	52.4	
8	29.624	53.0	57.5	57.0	58.0	50.0	N.W.	30.100	55.0	47.5	45.8	
9	30.174	52.2	44.6	47.0	57.5	43.5	S.W.	30.150	55.0	44.4	45.6	
10	30.120	50.8	43.6	41.6	44.5	39.5	N.	29.984	50.4	43.6	41.4	
11	29.646	46.5	40.4	39.0	45.6	37.6	N.	29.600	44.4	41.6	39.0	
12	29.700	46.5	42.6	38.6	43.5	35.0	N.	29.700	48.0	43.0	40.0	
13	29.550	45.5	41.6	40.2	44.0	39.0	N.	29.446	46.2	40.4	37.5	
14	29.388	44.6	39.4	38.4	43.0	36.0	N.	29.262	44.0	41.3	40.2	
15	29.404	43.6	42.4	41.6	42.6	37.0	N.	29.776	47.4	47.2	46.5	
16	29.428	47.4	46.6	46.6	47.5	40.0	N.	29.884	50.0	46.4	45.2	
17	29.324	44.0	45.6	45.0	48.0	42.4	N.	29.806	51.2	45.0	43.4	
18	29.174	47.4	42.2	41.6	44.0	39.0	N.W.	29.474	49.0	36.6	36.0	
19	29.520	44.6	40.4	39.4	44.0	32.0	N.	29.312	50.1	42.0	41.3	
20	29.424	44.4	32.6	32.6	46.6	29.0	N.	29.346	46.4	40.4	40.0	
21	29.300	46.5	43.6	42.4	44.0	30.0	S.E.	29.300	44.0	33.4	32.4	
22	29.168	39.6	34.2	33.6	46.0	24.6	S.W.	29.402	44.6	34.0	37.0	
23	29.400	40.6	34.2	37.6	41.5	29.5	S.E.	29.200	45.0	42.0	40.0	
24	29.574	42.6	36.6	36.4	43.0	31.2	N.	29.746	46.5	33.4	32.4	
25	29.438	43.0	41.5	40.5	42.5	30.0	N.	29.400	47.6	42.5	42.0	
26	29.000	47.4	47.6	47.0	53.0	39.0	N.	29.322	50.4	40.0	29.5	
27	29.560	46.2	37.4	36.6	50.0	33.4	S.W.	29.446	46.4	40.2	39.4	
28	29.250	43.0	36.0	36.4	43.6	32.6	N.	29.456	41.0	36.0	34.6	
29	29.770	39.6	37.8	35.6	40.5	32.0	N.	29.920	42.0	33.4	32.2	
30	29.644	37.2	29.4	39.0	40.6	24.4	S.W.	29.400	40.2	35.6	33.4	
31												





# Impacts of heat waves and cold waves in Ireland derived from documentary sources

Analysis of:

- Weather diaries and meteorological manuscripts.
- Newspapers (1704 to the present and 268 newspaper titles for the island of Ireland).
- Publications (e.g. Annals, monographs).
- Events from AD.582 up to the present.



Rolling News

## IRELAND SHIVERS IN BITTER WEATHER

Snow and ice make roads in many places dangerous

FOLLOWING a bitterly cold 24 hours in which there was a big crop of accidents, some of them fatal, many roads became dangerous again last night as frost set in and more snow began to fall.

Worst hit by snow yesterday was the Wexford-Waterford-South Kilkenny area, according to the Automobile Association. There was also snow in the Wicklow Mountains. From six to ten inches of snow was reported on some roads in these areas and cars had to turn back.

Snow in Britain caused the diversion and cancellation of several flights from Dublin yesterday. An Aer Lingus spokesman said last night that two Vincents and a Boeing were diverted from London to Manchester, and a Vincent from London to Birmingham. Flights in Britain were cancelled, but one flight managed to land at Cardiff.

The weather picture as given by the Meteorological Service in Dublin last night was that following a night of snow showers, particularly in the east, and widespread air and ground frost, all areas had sunny periods yesterday with further showers of snow or hail, mainly near the east coast.

In many inland places, the highest temperature yesterday was only 2° F. above freezing and the highest temperature recorded was 41° F. at Malin Head. Winds were fresh, north-easterly, strong at times on the south-east coast.

**DANGEROUS ROADS**  
Roads listed as dangerous last night by the A.A., included those from Dublin to Rathfriland, Dublin to Newbridge, Dublin to Carrick, Galway-Clifden, Galway-Tralee and Sligo-Belfast. In the east, the danger was mainly hard-packed snow or ice, and in the west, by patches. Some roads at Clonsilla, Clonsilla and Ballina also were affected by ice.

Roads in the midlands associated

with the midlands associated

with the midlands associated

with the midlands associated

with the midlands associated



## TSHOMBE SAYS U.N. HAS WAR PLAN

MR. TSHOMBE alleged yesterday that the United Nations was planning to arrest him and his Katanga Ministers "as an excuse to plunge the country and plunge it into chaos if the United Nations decided to apply military measures."

In a Note to the U.N., Mr. Tshombe also promised against the Katanga Ministers and official cars at roadblocks which were set up after fighting between U.N. and Katanga forces.

Mr. Kimba, Katanga Foreign Minister, who read the present report, said that the U.N. "and behind them the United States" were working out a "last plan" to start a war in Katanga.

**"MERCILESS WAR"**  
Mr. Tshombe said in his Note that the "disappearance of the present leaders would plunge the country into a merciless war which nothing could stop."

Mr. Kimba told that the Katanga problem did not concern the United Nations, the giant Belgium mining concern. "What is wanted is to affirm American domination in Africa," he declared.

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Thank you  
very much!

carla.mateus@mu.ie

Thermometers.					
	Barom.	Thermo.	Mercury.	S. of wine.	
9. A.M.	29.65.	61.00.	61.00.	51.00.	N. 47.
12. Noon.	29.69.	69.00.	63.00.	54.00.	Rain
4. P.M.	29.70.	63.75.	64.00.	55.00.	Fine.
9. A.M.	29.73.	63.00.	64.00.	55.00.	N. 43.
12. Noon.	29.78.	70.00.	68.00.	58.00.	Fine
4. P.M.	29.79.	65.00.	69.00.	62.00.	Fine.
9. A.M.	30.00.	65.00.	65.00.	55.00.	N. 42.00.
12. Noon.	30.02.	76.00.	65.50.	56.00.	Fine
4. P.M.	30.02.	64.00.	74.00.	58.00.	Fine.
9. A.M.	29.77.	61.00.	64.00.	52.00.	N. 47.00.
12. Noon.	29.73.	61.50.	63.00.	52.50.	Fog
4. P.M.	29.71.	64.00.	72.00.	63.00.	and Rain
					Fine.
9. A.M.	29.79.	67.00.	61.00.	47.00.	N. 43.00.
12. Noon.	29.83.	71.50.	63.00.	54.00.	Showery.
4. P.M.	29.90.	64.00.	67.00.	56.00.	Fine.
9. A.M.	29.93.	63.00.	65.00.	58.00.	N. 49.00.
12. Noon.	29.90.	64.50.	68.00.	58.00.	Dry.
4. P.M.	29.88.	62.00.	65.00.	54.00.	Rain.
9. A.M.	29.80.	66.00.	66.00.	52.00.	N. 44.00.
12. Noon.	29.88.	73.00.	65.50.	56.00.	Rain.
4. P.M.	29.89.	66.50.	71.50.	56.00.	Fine