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Monthly Weather Bulletin January 2001

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Monthly Weather Bulletin

No. 177

JANUARY 2001

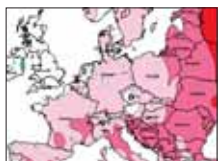


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Sunniest January for 42 years at Malin Head

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Unusually mild January in eastern Europe

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Notes on the tables and map showing location of stations appear in each January issue



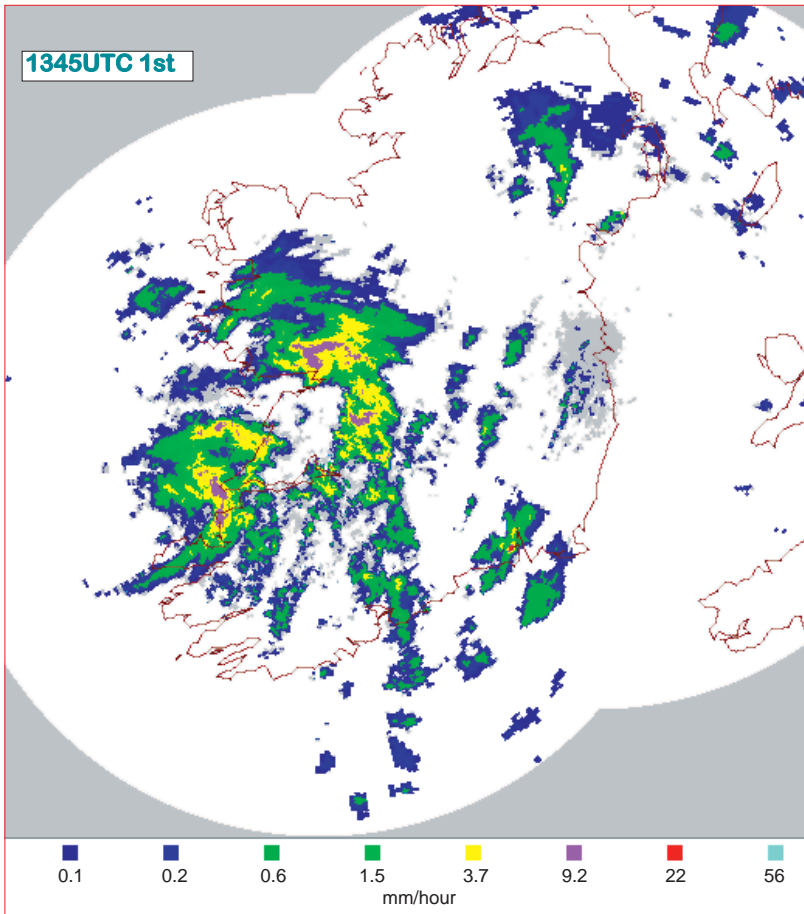
Fair weather during the Ploughing Match held on the last weekend of the month at Inishannon, Co. Cork (picture The Irish Examiner)

DRY AND SUNNY EVERYWHERE; COLDEST JANUARY SINCE MID-1980s

Summary: January was drier and sunnier than normal everywhere, but it was also colder than normal except in the extreme southeast. Little snow was reported, but frost was frequent at inland stations, where ground frosts were recorded on 25 or more days during the month. It was the coldest January since the mid-1980s generally and at some stations it was the fourth successive month with mean temperatures below normal. Much of the month was dry, but there were short spells of wet weather, especially in the period 20th to 25th. Sunshine totals were well above normal, with over twice the average January sunshine recorded at Malin Head.

New look Monthly Weather Bulletin

This is the first edition of the new format of the Monthly Weather Bulletin. Presentation has been improved by the introduction of colour images in the weather pages at the front and in both the world weather and feature pages which have moved to the back pages (notes on the tables appear on this month's regular Feature page). Although the Bulletin has gone from 20 to 16 pages, almost all of the content in the old format has been retained. Monthly tables are now included alongside the text for each of the main elements.



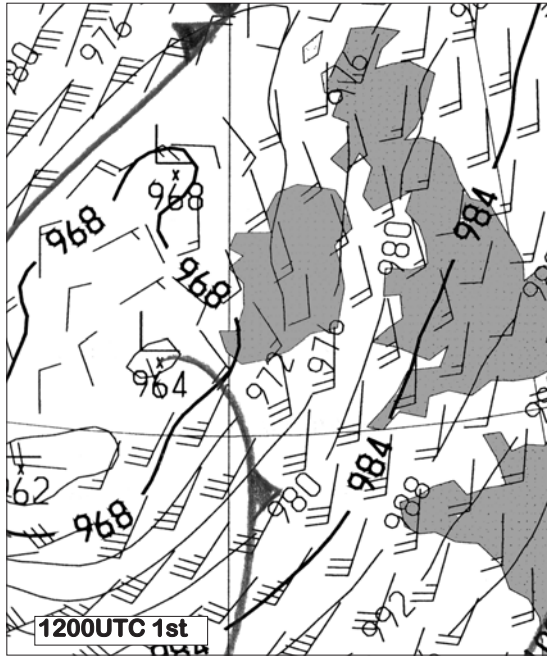
Above
A radar rainfall image showing bands of heavy rain over the west and southwest on New Year's Day as low pressure lay close to the Kerry coast.

1st to 9th: Unlike most of the month that followed, the early part of January was unsettled. Low pressure near the southwest coast on the 1st moved slowly across the country to lie over Scotland by the 5th. Showers were heaviest in the southwest on the 1st, where some were accompanied by thunder, but all areas received some showers between the 1st and 3rd and they became increasingly wintry as temperatures fell. After a mostly dry and cloudy day on the 4th, very light winds allowed widespread fog to develop on the 5th, with some freezing fog inland. Frontal systems gave some heavy rain locally on the 5th and 6th, but many places were dry. Rain moved over the northern half of the country on the 7th but became light and patchy as pressure rose to the south. A weak frontal system off the west coast on the 8th gave some light rain in the south as it moved over Munster on the 9th, but most areas remained dry.

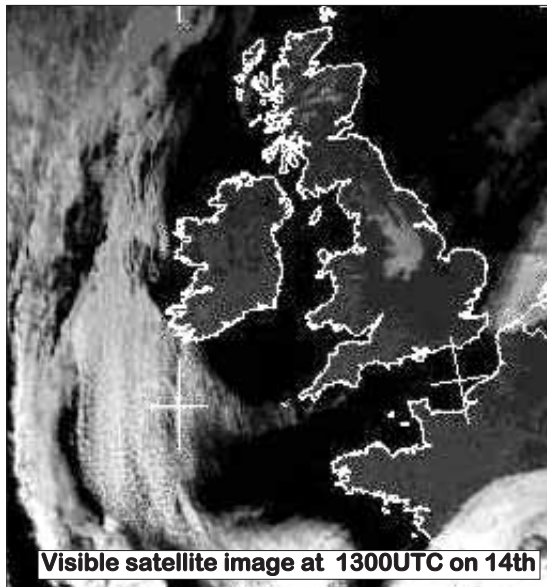
Right
Lenticular cloud over the mountains of Connemara during the spell of anticyclonic weather in the middle of the month. These clouds formed as southeasterly winds were forced over the mountains, causing cloud to form in a regular wave pattern. (digital image courtesy Trevor Northage)



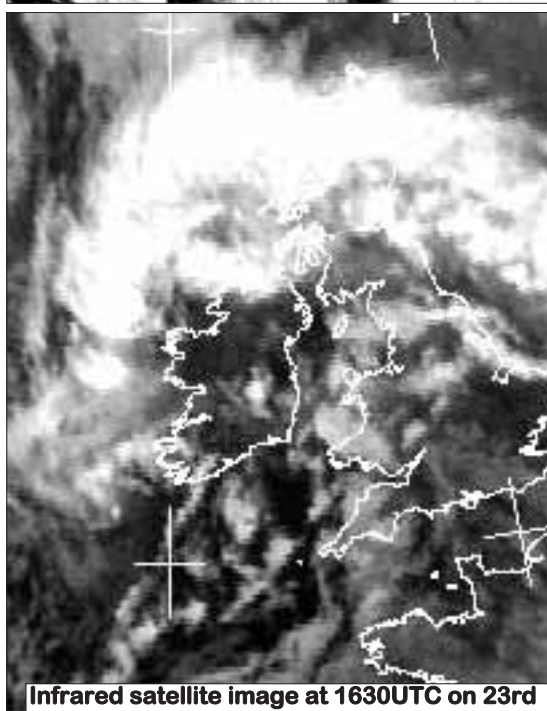
1st - 5th:
 Low pressure dominated, bringing mild and wet weather



10th - 19th:
 An anticyclone to the south of Ireland gave mostly dry, settled weather



20th - 26th:
 Mild, wet and windy; heavy falls in the south and southeast



10th to 19th: Anticyclonic weather became the dominant influence on the 10th as a large area of high pressure to the north intensified and drifted eastwards over subsequent days. Light winds, along with mostly clear skies, allowed frost to become widespread and severe in places between the 14th and 19th. Most stations were dry apart from some coastal showers.

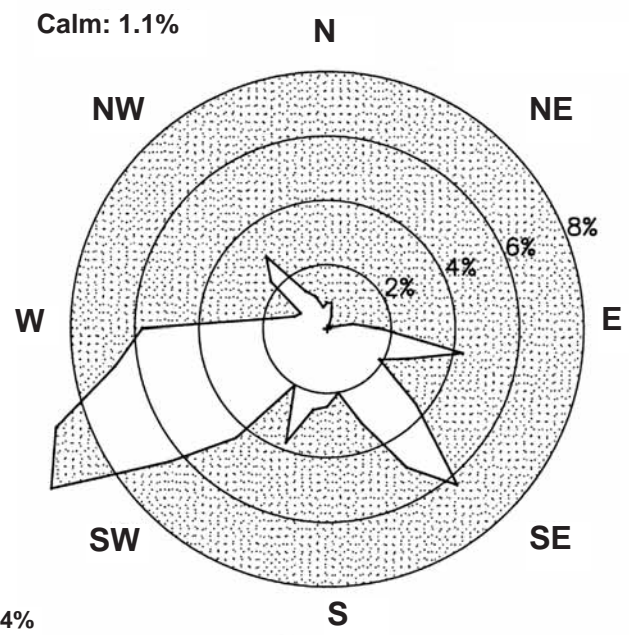
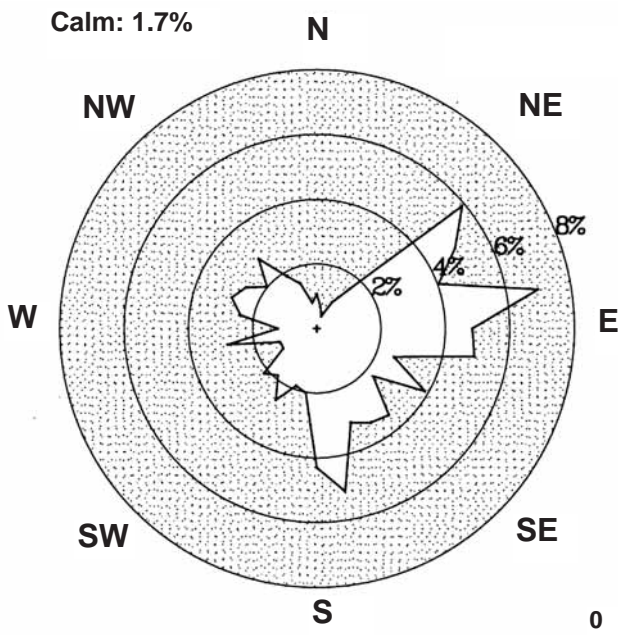
20th to 31st: Heavy rain moved into the southwest on the 20th and spread quickly eastwards, with strengthening southerly winds bringing temperatures above normal for the first time since the first week of the month. This mild, wet and windy weather continued up to the 24th as a deep depression moved close to the northwest coast. Low pressure remained close to the north coast between the 24th and 26th, giving a cold and showery westerly flow over the country; some of these showers were thundery with hail or snow. Winds eased between the 27th and 29th, allowing frost to develop inland; showers continued near Atlantic coasts but other areas were mainly dry. Later on the 29th, a band of rain moved eastwards across all areas, clearing to milder weather with just scattered showers on the 30th and 31st.

Mean windspeeds for the month were between 7 and 11 knots (*8 and 13m.p.h.*) at most stations, below normal for January. They were light for much of the month, especially between the 15th and 19th when high pressure was the dominant influence. The strongest winds at most stations were in the period 21st to 23rd, with the highest gust, 57 knots (*66m.p.h.*), measured at Malin Head on the 22nd. Hail showers were frequent in the west and north during the first week of the month and again between the 24th and 28th, while thunder was recorded on the 1st and between the 24th and 26th. Snow was infrequent but Connaught Airport observed snow on 6 days during the month, mainly between the 24th and 28th. Fog, with some freezing fog, was widespread in the periods 2nd to 5th, 18th to 21st and 28th to 30th.

County / Station	WIND (KNOTS)						ELEMENTS						
	Mean speed	Max. 10-min. mean dir. speed	date/hour	Max. Gust dir. speed	date/time	Days with gales	gale gusts	Hours with gale gusts	Snow	Snow Lying	Hail	Thunder	Fog
CO. CLARE SHANNON AIRPORT	8.4	140°	27 22/05	260°	42 23/2133	0	3	4	0	0	1	0	5
CO. CORK CORK AIRPORT	9.0	150°	31 22/03	150°	49 22/0317	0	6	22	2	0	1	0	10
CO. DONEGAL MALIN HEAD	15.7	120°	41 22/05	120°	57 22/0431	6	20	187	2	0	6	1	1
CO. DUBLIN CASEMENT AERODROME	10.1	160°	31 22/10	160°	43 22/0917	0	8	30	0	0	1	0	2
DUBLIN AIRPORT	9.8	140°	30 22/09	150°	43 22/0826	0	5	24	0	0	1	0	4
CO. KERRY VALENTIA OBSERVATORY	8.4	090°	30 12/04	090°	43 12/0347	0	10	34	0	0	5	3	1
CO. KILKENNY KILKENNY	6.2	150°	24 22/06	150°	39 22/0728	0	2	8	0	0	0	0	0
CO. MAYO BELMULLET	10.6	200°	36 25/08	200°	53 25/0756	1	11	109	0	0	7	0	0
CONNAUGHT AIRPORT	9.2	180°	28 23/17	180°	46 23/1622	0	4	12	6	0	3	0	16
CO. MONAGHAN CLONES	7.6	120°	26 22/06	130°	38 21/0039	0	3	7	0	0	0	0	0
CO. OFFALY BIRR	6.9	140°	26 22/04	140°	41 22/0253	0	1	5	0	0	0	0	0
CO. WESTMEATH MULLINGAR II	6.7	160°	21 22/08	140°	35 22/0543	0	1	2	0	0	0	0	0
CO. WEXFORD ROSSLARE	11.2	070°	34 11/22	070°	49 11/2115	1	10	94	0	0	0	0	3

Valentia Observatory

Dublin Airport

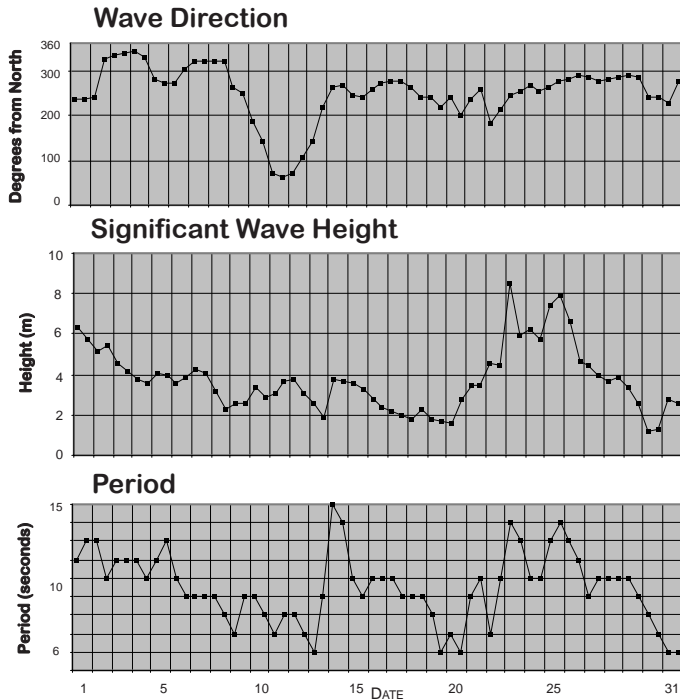


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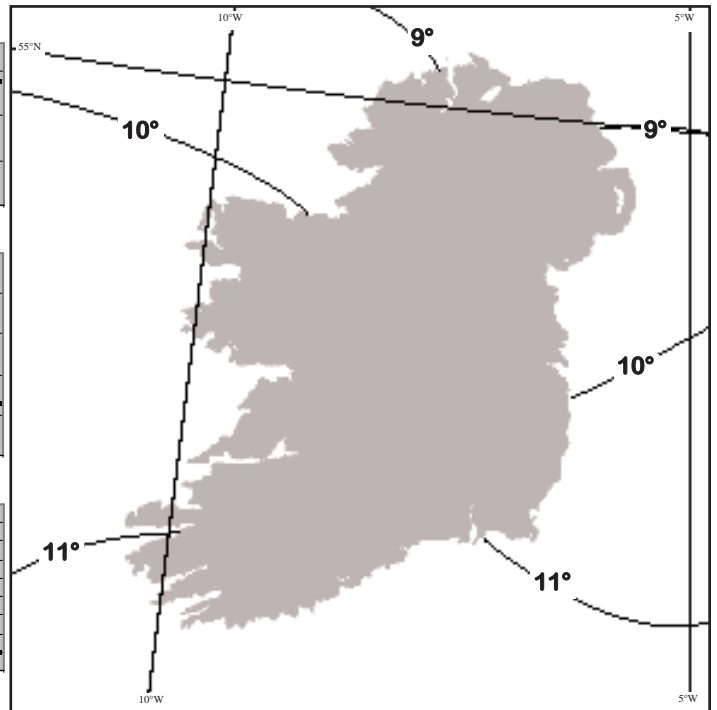
FREQUENCY OF WIND DIRECTION

SEA TEMPERATURES

Sea temperatures fell by around a degree during the month; they were close to the January normal values of between 7°C and 9°C in the north, but values of over 11°C off the south coast were a little higher than normal. At Malin Head the mean sea temperature for the month was 7.1°C compared with the normal sea temperature for January of 7.3°C.



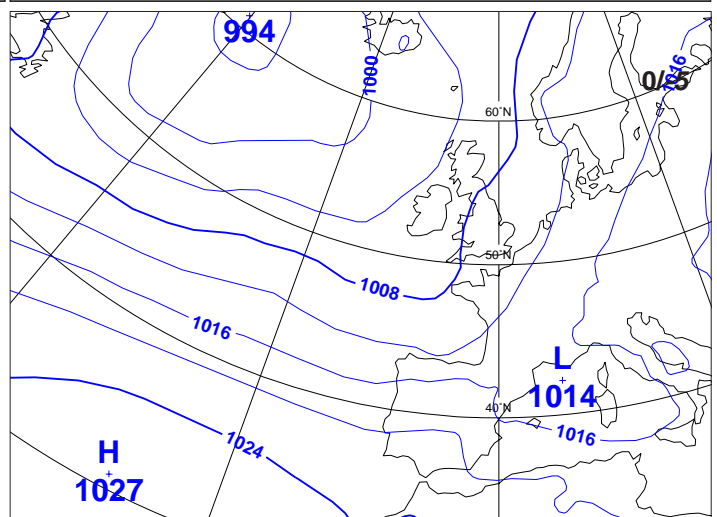
Wave conditions at 52.5°N, 12°W based on WAM model



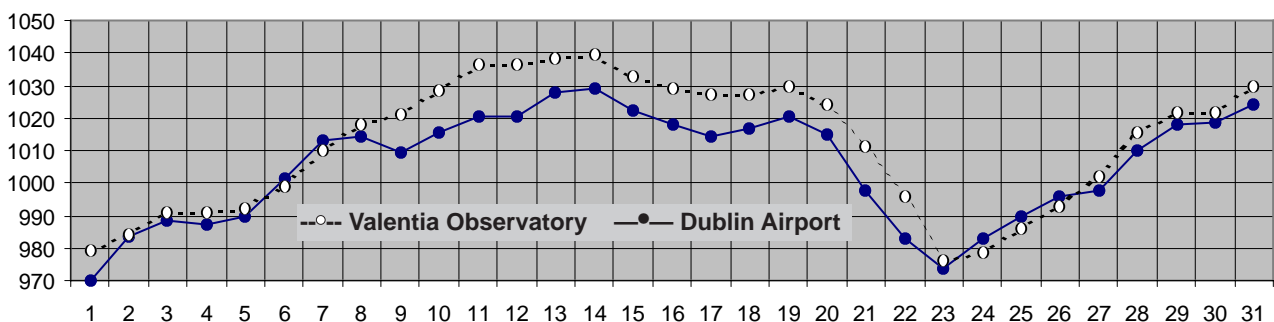
Sea Temperatures (°C) around mid-month

MEAN ATMOSPHERIC PRESSURE

Mean sea level pressure values for the month were between 5 and 7hPa below normal for January, varying between 1004hPa in the northwest and almost 1007hpa in the southeast. The chart of daily values below shows that while pressure was close to or above normal for over half the days of the month, there were spells of very low pressure during the first week and again between the 22nd and 25th. Belmullet measured the lowest pressure value of the month on the 23rd, 957.5hPa, the lowest value for any month at the station since January 1995. Clones recorded the highest pressure of the month, 1036.0hPa on the 14th.

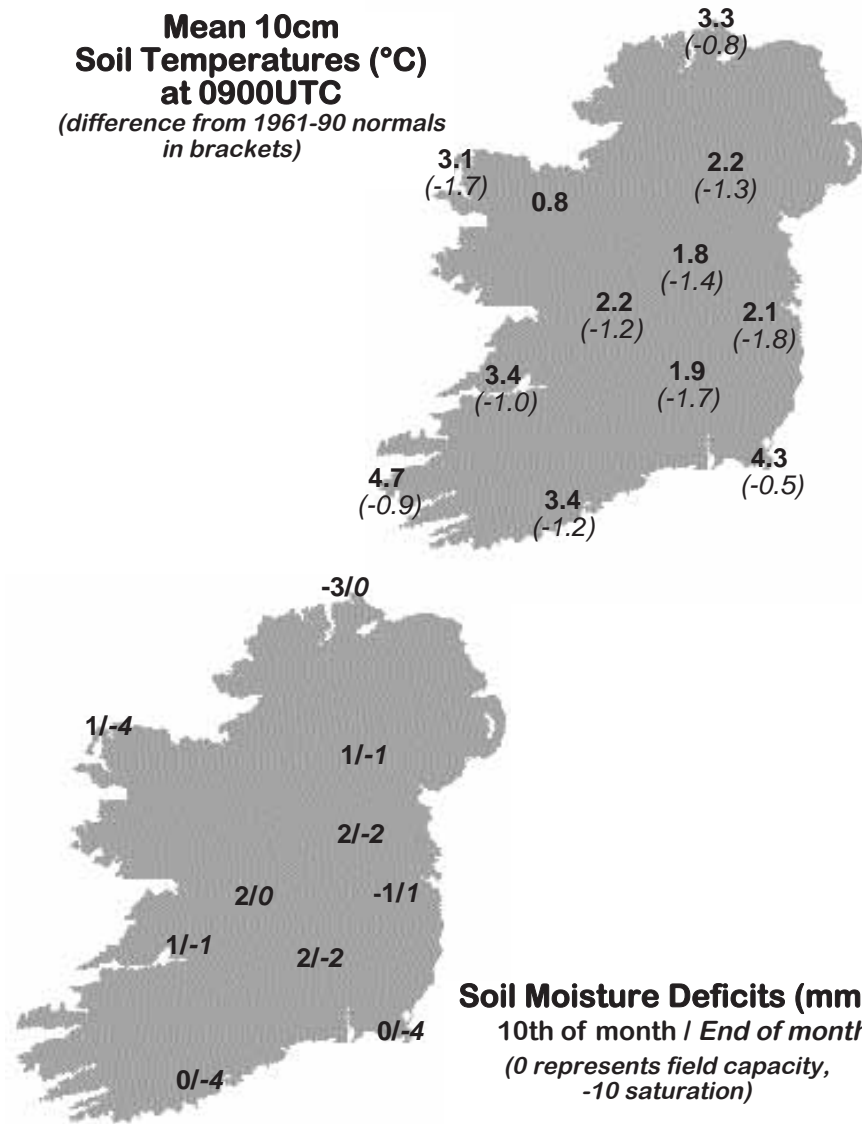


The above map is based on monthly means of 1200 UTC values



Mean daily M.S.L. pressure (hPa)

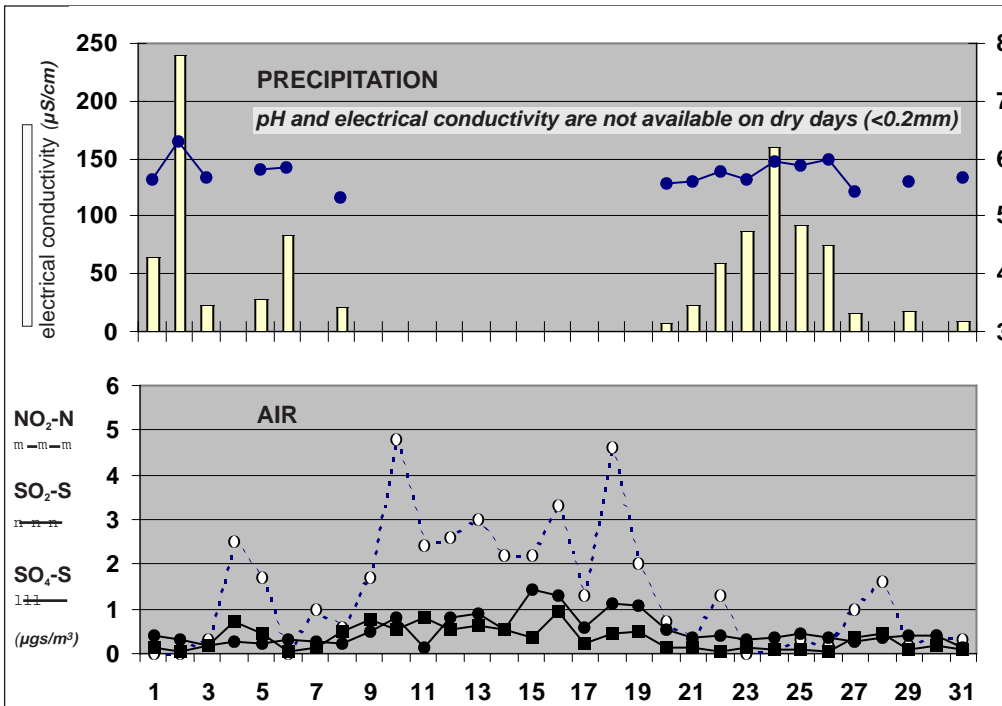
Mean 10cm Soil Temperatures (°C) at 0900UTC
(difference from 1961-90 normals in brackets)



Soil Temperatures at 0900UTC

County/ Station	°C		
	10cm	20cm	30cm
CO. CLARE			
SHANNON AIRPORT	3.4	4.3	4.9
CARRON	2.8		3.6
CO. CORK			
FERMOY (MOORE PARK)	3.3	3.9	4.5
CORK AIRPORT	3.4	4.4	5.5
SHERKIN ISLAND	5.8		6.6
BALLINCURRIG (PEAFIELD)	3.0	3.9	4.5
CO. DONEGAL			
MALIN HEAD	3.3	3.9	5.3
CO. DUBLIN			
DUBLIN AIRPORT	2.5	3.1	4.0
CASEMENT AERODROME	2.1	2.8	3.7
CO. KERRY			
VALENTIA OBSERVATORY	4.7	5.1	6.0
CO. KILKENNY			
KILKENNY	1.9	2.6	3.0
CO. LEITRIM			
BALLINAMORE	2.2	3.1	3.7
CO. LIMERICK			
MOUNT RUSSELL	2.7	3.4	
CO. LOUTH			
ARDEE (BOHARNAMOE)	2.6	3.2	3.3
CO. MAYO			
BELMULLET	3.1	3.6	4.7
STRAIDE	2.1		
CONNACHT AIRPORT	0.8	1.8	2.5
CO. MEATH			
WARRENSTOWN	2.2	2.6	2.9
CO. MONAGHAN			
CLONES	2.2	3.1	3.6
CO. OFFALY			
BIRR	2.2	3.0	3.8
CO. TIPPERARY			
FETHARD (PARSONSHILL)	2.6	3.2	
CO. WATERFORD			
DUNGARVAN (CARRIGLEA)	3.9	4.9	
CO. WESTMEATH			
MULLINGAR II	1.8	2.4	3.3
CO. WEXFORD			
JOHNSTOWN CASTLE	3.3	3.8	4.4
ROSSLARE	4.3	4.9	6.4
CLONROCHE	2.8	3.3	4.5
JOHN F. KENNEDY PARK	3.2	3.9	5.3

Soil Moisture Deficits (mm)
10th of month / End of month
(0 represents field capacity, -10 saturation)



Acid rain occurs when pollutants combine with moisture in the air to form sulphuric or nitric acid. pH is the simplest way of measuring the acidity of precipitation. Usually pH of 7.00 is considered neutral but this is not the case in rainfall samples. Pure water in the atmosphere has an equilibrium pH value of 5.65 at 20°C owing to carbon dioxide in the air dissolving to form carbonic acid. Any value below pH 5.65 is considered acid while any value above is considered alkaline.

Sulphur dioxide and sulphate in air contribute to the formation of sulphuric acid; nitrate in air contributes to the formation of nitric acid.

Conductivity measures the total ion activity in the rainfall, i.e. the higher the conductivity the greater the number of ions present.

Chemical Analysis of Precipitation and Air Samples at Valentia Observatory

10-DAY VALUES FOR SELECTED AGROMETEOROLOGICAL STATIONS		RAINFALL				TEMPERATURE										SUNSHINE		P.E. (Penman) (mm)					
Station	period	amount	% of average	rain days	wet days	mean max.	mean min.	mean daily	diff. from average	lowest min.	date	days with air frost	degree days > 4.4°C	degree days > 10.0°C	lowest "grass-min."	date	days with ground frost	mean 10cm at 0900h	mean 30cm at 0900h	total no. of hours	% of average	mean wind speed (m/s) 2m agl.	P.E. (Penman) (mm)
Fermoy	11-20	14.1	-	4	3	6.1	-1.3	2.4	-	-5.2	19	7	4	0	-6.7	14	9	2.4	3.7	-	-	1.9	-
	21-end	42.4	-	7	7	8.9	0.9	4.9	-	-4.2	29	5	20	1	-6.6	29	7	3.9	4.8	-	-	2.3	-
	month	75.7	65	17	14	7.4	0.0	3.7	-1.3	-5.2	19	18	35	1	-6.7	14	24	3.3	4.5	-	-	2.2	-
Co. Donegal	1-10	29.4	-	7	5	7.6	1.7	4.7	-	-1.3	4	4	13	0	-	-	-	-	-	-	-	-	-
Letterkenny	11-20	1.6	-	1	1	4.5	-3.3	0.6	-	-6.7	18	10	2	0	-	-	-	-	-	-	-	-	-
	21-end	50.2	-	11	8	8.2	1.5	4.9	-	-2.4	28	4	16	0	-	-	-	-	-	-	-	-	-
	month	81.2	62	19	14	6.8	0.0	3.4	-0.9	-6.7	18	18	31	0	-	-	-	-	-	-	-	-	-
Co. Kerry	1-10	39.5	-	5	5	7.3	1.8	4.6	-	-1.2	10	3	12	0	-4.1	5	7	-	-	17.5	-	-	-
Ardfert	11-20	7.2	-	3	2	6.5	-0.1	3.2	-	-2.2	17	7	6	0	-5.5	15	8	-	-	23.0	-	-	-
	21-end	47.7	-	10	9	9.2	3.2	6.2	-	-0.4	29	1	25	1	-3.0	29	5	-	-	26.6	-	-	-
	month	94.4	-	18	16	7.7	1.7	4.7	-1.0	-2.2	17	11	44	1	-5.5	15	20	-	-	67.1	-	-	-
Co. Leitrim	1-10	31.7	-	7	5	5.6	0.4	3.0	-	-1.4	4	6	5	0	-5.5	1	7	3.2	4.4	16.1	-	1.7	-
Ballinamore	11-20	8.6	-	2	1	4.2	-2.0	1.1	-	-5.0	14	7	2	0	-6.1	16	10	0.8	3.0	22.5	-	1.1	-
	21-end	47.3	-	9	9	7.3	0.3	3.8	-	-3.6	28	5	11	0	-3.6	21	8	2.5	3.7	15.2	-	2.2	-
	month	87.6	68	18	15	5.7	-0.4	2.7	-1.2	-5.0	14	18	17	0	-6.1	16	25	2.2	3.7	53.8	112	1.6	0
Co. Louth	1-10	5.6	-	7	3	6.4	0.6	3.5	-	-3.2	9	3	9	0	-5.4	10	9	3.0	3.9	-	-	-	-
Ardee	11-20	4.2	-	2	1	5.3	-2.2	1.6	-	-6.5	20	7	4	0	-9.9	18	10	1.9	2.7	-	-	-	-
	21-end	20.5	-	8	4	8.7	0.6	4.7	-	-4.9	21	5	17	1	-8.1	21	9	2.8	3.4	-	-	-	-
	month	30.3	35	17	8	6.8	-0.3	3.3	-0.9	-6.5	20	15	30	1	-9.9	18	28	2.6	3.3	-	-	-	-
Co. Waterford	1-10	24.2	-	5	4	8.0	2.0	5.0	-	-1.5	8	3	15	0	-3.4	8	5	-	5.2	21.5	-	1.9	-
Dungarvan	11-20	35.4	-	4	4	7.0	1.2	4.1	-	-3.5	19	3	8	0	-4.7	19	4	-	4.2	15.8	-	2.0	-
	21-end	49.9	-	8	7	9.2	2.3	5.8	-	-3.4	29	2	24	1	-4.9	29	4	-	5.3	24.4	-	2.4	-
	month	109.5	-	17	15	8.1	1.8	5.0	-0.4	-3.5	19	8	47	1	-4.9	29	13	-	4.9	61.7	-	2.1	0
Co. Wexford	1-10	10.9	-	6	2	8.3	2.8	5.6	-	-0.3	8	1	17	0	-3.1	8	4	3.7	4.8	20.0	-	0.8	-
Johnstown Castle	11-20	13.7	-	2	1	6.8	1.6	4.2	-	-0.3	20	3	8	0	-4.3	20	6	2.0	3.5	23.8	-	0.9	-
	21-end	42.3	-	6	6	9.5	2.6	6.1	-	-1.3	29	1	25	2	-3.5	29	6	4.0	4.8	28.7	-	1.2	-
	month	66.9	62	14	9	8.2	2.3	5.3	0.0	-1.3	29	5	49	2	-4.3	20	16	3.3	4.4	72.5	126	1.0	0

MEASURED POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE

SEE BACK PAGE OF JANUARY ISSUE FOR NOTES ON THE DATA

County/Station	Period	P.E. (mm) Amount	Soil Moisture (mm) Deficit	Accumulated	Surplus
Co. Dublin	1-10	0.0	-	0	14
Kinsealy	11-20	4.9	-	0	1
	21-end	0.0	-	0	26
	month	4.9			
Co. Kerry	1-10	0.0	-	0	63
Valentia Obs.	11-20	5.1	3	3	-
	21-end	9.1	-	0	80
	month	14.2			
Co. Leitrim	1-10	0.0	-	0	32
Ballinamore	11-20	2.9	-	0	6
	21-end	6.2	-	0	41
	month	9.1			
Co. Wexford	1-10	0.0	-	0	21
Johnstown Castle	11-20	13.0	-	0	1
	21-end	0.0	-	0	47
	month	13.0			

County/Station	GLOBAL SOLAR RADIATION (MJ/sq. m)			total for month	P.E. (Penman) total for
	1-10	11-20	21-end		
Co. Donegal	10-day totals				
Malin Head	19.57	24.37	27.00	70.94	10
Co. Dublin	10-day totals				
Dublin Airport	20.24	28.80	34.33	83.37	3
Co. Kerry	10-day totals				
Valentia Obs.	23.43	23.15	36.92	83.50	8
Co. Kilkenny	10-day totals				
Kilkenny	23.63	29.44	37.15	90.22	2
Co. Mayo	10-day totals				
Belmullet	21.76	28.86	30.12	80.74	3
Co. Monaghan	10-day totals				
Clones	18.42	26.12	30.28	74.82	0
Co. Offaly	10-day totals				
Birr	19.96	31.25	35.48	86.69	2

Monday 1st: A mild southerly airflow prevailed over the country. Some mist during the hours of darkness. Showers or longer spells of rain in most areas. Southeast to southerly winds, fresh to strong, up to gale force with stronger gusts at times.

Rainfall: 1 to 3mm generally, 6 to 11mm in the south & west, 25mm in Valentia
Temperature: max. 8°C to 11°C, min. 6°C to 9°C; ground temperatures down to zero in Mullingar

Sunshine: nil to 1 hour

Tuesday 2nd: A depression off the west coast moved southeastward during the period leaving Ireland in a northwesterly airflow. Mist, fog or drizzle in many areas during the night and early morning. Cloudy generally with showers, some of hail, persisting after dark in western areas. Winds initially southerly veering west to northwesterly and increasing to gale or strong gale force.

Rainfall: 1 to 5mm

Temperature: max. 6°C to 10°C min. zero to 3°C inland, up to 5°C coastal; ground temperatures down to -4°C in Kilkenny

Sunshine: nil to 3 hours

Wednesday 3rd: A mild southerly airflow prevailed over the country as an occluding frontal system approached from the south. At the start of the day there were showers of rain, hail or snow along the western seaboard. Rain associated with the approaching front began to affect the south early and spread northwards. A small low developing on the front created cyclonic wind patterns by late evening with consequent light winds and mist and fog patches.

Rainfall: trace to 5mm generally, 5 to 10mm in the southwest

Temperature: max. 5°C to 10°C, min. -1°C to 4°C; ground temperatures down to -7°C in Kilkenny

Sunshine: nil to 4 hour

Thursday 4th: A complex low pressure area to the north and west maintained a generally light variable airflow, mainly between west and southeast, over the country. Rain in eastern areas cleared overnight while remaining areas were mostly dry with mist or fog patches. Mist and fog returned to many places after dark with some air frost also

Rainfall: nil to 1mm generally, 5mm at Casement Aerodrome

Temperature: max. 5°C to 10°C, min. -1°C to 4°C; ground temperatures down to -6°C in Kilkenny

Sunshine: trace to 4 hours

Friday 5th: A slack area of low pressure covered Ireland. A freshening west to northwesterly airflow developed later in the day and evening. Fog and mist in the midlands and east persisted for much of the day.

Rainfall: nil to 2mm generally, 4 to 6mm in the northwest, 11mm in Rosslare

Temperature: max. 1°C to 9°C, min. -2°C to 2°C; ground temperatures down to -6°C in Birr

Sunshine: nil to 2 hours generally, 5 to 7 hours to the south and west

Saturday 6th: A cold, unstable westerly airflow over Ireland strengthened. An occlusion approached northern coasts during the late evening. Fog along the east coast thinned to mist. Winds were southwesterly light to moderate, but fresh to strong and gusty over north and northwest areas.

Rainfall: nil to 4mm generally, 8mm in Malin Head

Temperature: max. 5°C to 9°C, min. -1°C to 4°C inland, up to 6°C coastal; ground temperatures down to -7°C in Kilkenny

Sunshine: 1 to 3 hours generally, 4 to 7 hours in the east & southeast

Sunday 7th: Ireland remained in a strong northwesterly airflow maintained by low pressure over Scotland and high pressure to the southwest. Showers of rain, some of hail, in the west and long clear spells in the east and southeast spread to the east too by late afternoon. Winds strong and gusty northwesterly.

Rainfall: nil to 2mm generally, 4 to 7mm in the northwest

Temperature: max. 5°C to 8°C, min. -1°C to 5°C; ground temperatures down to -8°C in Kilkenny

Sunshine: nil to 2 hours generally, 4 to 7 hours in the south and southwest

Monday 8th: The strong northwesterly airflow continued bringing showers of rain or hail in Atlantic coasts but clear spells also particularly in the south. Light to moderate southwest to northwesterly winds, even calm in the southwest. Winds backing southerly by evening.

Rainfall: nil to 3mm

Temperature: max. 4°C to 8°C, min. -1°C to 1°C inland, up to 4°C coastal; ground temperatures down to -7°C in Kilkenny

Sunshine: trace to 4 hours generally, 5 to 6 hours in the east

Tuesday 9th: Ireland lay in a slack southerly airflow. Showers or outbreaks of rain in the west and south but overall a mostly dry start to the day. Cloudy in the southern half of the country but clearer in the north. Winds starting southerly veered easterly during the day and were mostly light to moderate but fresh in the extreme southeast.

Rainfall: nil to 1mm

Temperature: max. 2°C to 8°C, min. -2°C to 3°C inland, up to 5°C coastal; ground temperature down to -8°C in Kilkenny

Sunshine: nil to 3 hours generally, 5 to 6 hours in the northwest

Wednesday 10th: An anticyclone to the north moved southward towards Ireland and intensified. Overnight just the odd shower and some mist or fog patches also. A cold day with sunny spells and scattered wintry showers, some of hail. Winds generally light to moderate northeasterly but were fresh to strong and gusty in the extreme southeast.

Rainfall: nil to 2mm

Temperature: max. 3°C to 7°C, min. -2°C to 5°C inland; ground temperatures down to -5°C in the midlands

Sunshine: trace to 3 hours generally, 4 to 6 hours in the west and northwest

Thursday 11th: An intense anticyclone to the north drifted slowly eastwards. Overnight a few showers, mainly in the east. It was a cold, mostly dry, bright day with just the odd wintry shower, some of snow. Light to moderate northeasterly winds were fresh to strong and gusty at times in eastern coastal areas.

Rainfall: nil or trace

Temperature: max. 3°C to 7°C, min. -2°C to 5°C inland; ground temperatures down to -3°C in the west and midlands

Sunshine: nil to 3 hours generally, 5 to 6 hours in the west & northwest

Friday 12th: An anticyclone over Scotland drifted slowly southward and a frontal trough near the south coast moved away southward. Rain along the south coast cleared during the morning. It was a cool, bright, breezy day with good sunny spells and just the odd shower in southern coastal areas. Moderate to fresh and gusty northeasterly winds veered southeasterly and moderated.

Rainfall: nil to 3mm

Temperature: max. 5°C to 8°C, min. zero to 3°C inland, up to 5°C coastal; ground temperatures down to -5°C in Birr

Sunshine: trace to 4 hours generally, up to 7 hours in the southeast

Saturday 13th: A large anticyclone off the east coast of northern England remained almost stationary. Some mist or fog patches in inland areas. Cold mainly dry day with the odd light shower or some light rain along the west coast. Light south to southeasterly winds freshening occasionally along the south and north coast with the occasional gust along the north coast.

Rainfall: nil or trace

Temperature: max. 3°C to 9°C, min. -4°C to 5°C; ground temperatures down to -11°C in Kilkenny

Sunshine: nil to 3 hours in the west & southwest, up to 7 hours elsewhere

Sunday 14th: Anticyclone remained almost stationary over the north of England. Ireland lay in an east to southeasterly airflow. Frost lingering and some mist or fog patches also. Light south to southeasterly winds, a little fresher along the south and north coast at times with the odd gust in the north.

Rainfall: nil

Temperature: max. 3°C to 9°C, min. -4°C to 2°C inland, up to 5°C coastal; ground temperatures down to -11°C in Kilkenny

Sunshine: 6 to 8 hours

Monday 15th: An anticyclone over Scotland maintained a southeasterly airflow over Ireland. Dry and mostly clear overnight with some mist patches towards morning. Remaining cold. Winds were mostly light southeasterly but were fresh to strong and gusty in the extreme north overnight.

Rainfall: nil

Temperature: max. 1°C to 7°C, min. -4°C to 2°C inland, up to 4°C coastal; ground temperatures down to -10°C in Kilkenny

Sunshine: nil to 7 hours

Tuesday 16th: An anticyclone over eastern Europe maintained a southeasterly airflow over Ireland. Dry, clear, and misty overnight. It was a very cold, dry day with fog in places and just the odd spot of light rain in the east, with sleet in southern coastal areas. Winds were generally light east or southeasterly in direction.

Rainfall: nil to 2mm

Temperature: max. 1°C to 7°C, min. -6°C to 1°C inland, up to 3°C coastal; ground temperatures down to -11°C in the midlands

Sunshine: nil to 2 hours generally, 4 to 7 hours in the northwest

Wednesday 17th: Very cold overnight with mist and fog patches. Mainly cloudy with a few spots of light rain in the southern half of the country with more persistent rain or sleet in some southern coastal areas. After dark mist thickened to fog in places. Light, moderate at times on coasts, winds were generally east or southeasterly in direction.

Rainfall: nil to 4mm

Temperature: max. 2°C to 8°C, min. -2°C to 2°C inland, -3°C to 4°C coastal; ground temperatures down to -6°C in Belmullet

Sunshine: nil to 4 hours generally, 5 to 7 hours in the east and northwest

Thursday 18th: Pressure remained high over Ireland. Mist and fog, some freezing, persisting in places. Some drizzle along the south coast. Winds light variable or easterly.

Rainfall: nil or trace

Temperature: max. zero to 9°C, min. -4°C to 2°C inland, up to 4°C coastal; ground temperatures down to -9°C in Kilkenny

Sunshine: nil to 4 hours, 5 to 6 hours in the west

Friday 19th: A ridge of high pressure moved eastwards across the country during the day; a slow-moving weak occluded frontal trough lay off the southwest coast. Misty with fog lingering in some southern areas until evening. Mainly dry and cool, with some bright or sunny spells in places. However, rain became persistent for a time in the extreme southwest during the late afternoon. Winds were light and mostly from a southeasterly direction.

Rainfall: nil to 1mm

Temperature: max. 1°C to 9°C, min. -5°C to 1°C inland, up to 3°C coastal; ground temperatures down to -8°C at Shannon Airport and Kilkenny

Sunshine: nil to 4 hours

Saturday 20th: A ridge of high pressure over the Irish Sea continued moving eastward and declining, as a slow-moving frontal trough weakened off the west coast. Later a more active system approached with its occluded front affecting western areas during the late afternoon. Widespread mist turned to fog in places. Rain in the southwest spread slowly northeastwards to all areas during the afternoon. Light southeasterly winds became moderate to fresh and gusty in most areas during the second half of the day.

Rainfall: nil to 3mm in the east & northwest, 5 to 8mm elsewhere, except 12 to 18mm in the extreme south

Temperature: max. 4°C to 10°C, min. -5°C to 5°C inland, up to 8°C coastal; ground temperatures down to -11°C in Kilkenny

Sunshine: nil to 4 hours

Sunday 21st: A rainbelt in the Irish Sea cleared away eastwards as further Atlantic rainbelts crossed the country during the night in a very strong southeasterly airflow. Rain, drizzle, mist and fog in most areas. Winds were mainly southeasterly light to moderate, but fresh to strong and gusty also.

Rainfall: 1 to 3mm generally, 7mm in Rosslare

Temperature: max. 7°C to 11°C, min. 2°C to 6°C; ground temperatures down to -3°C at Casement Aerodrome

Sunshine: nil to 5 hours

Monday 22nd: Ireland lay in a southeasterly airflow as a cold front approached from the southwest. Rain, heavy at times, in the southwest at first moved northward to all areas, clearing to showers. Clear spells after dark but showers too. Winds strong and gusty with gale gusts everywhere.

Rainfall: 4 to 13mm generally, 17 to 30mm in the south

Temperature: max. 8°C to 11°C, min. 4°C to 7°C

Sunshine: nil to 3 hours

Tuesday 23rd: An active frontal depression off the southwest coast moved northeastwards during the day. Mild with scattered showers overnight. Wet weather pushed northeastwards during the day, clearing to brighter showery weather. Fresh to strong and gusty southeasterly winds during the morning, slowly veering southwesterly in the afternoon and easing by late evening.

Rainfall: 2 to 4mm in the east and southeast, 5 to 9mm elsewhere, except 14mm at Connacht Airport and 12 to 17mm in the extreme south

Temperature: max. 8°C to 12°C, min. 4°C to 7°C

Sunshine: nil to 2 hours

Wednesday 24th: A showery trough crossed the country during the day. Cold away from Atlantic coasts overnight with scattered wintry showers, some of hail. A bright day with scattered wintry showers of hail, sleet or snow and with thunder in places. Cold again after dark with showers continuing. Fresh to strong and gusty southwesterly winds eased only slightly during the day.

Rainfall: nil to 3mm generally, 4 to 9mm in the west

Temperature: max. 5°C to 9°C, min. 1°C to 3°C inland, up to 5°C coastal; ground temperatures down to -5°C in Kilkenny

Sunshine: 2 to 5 hours

Thursday 25th: A depression to the north of Ireland moved northeastwards. Overnight scattered wintry showers near Atlantic coasts, some of hail, sleet and snow. Widespread showers during the day, some heavy and with thunder at times. Moderate to fresh and gusty southerly winds became fresh to strong, gale force on north and west coasts.

Rainfall: trace to 4mm generally, 7 to 12mm in the west

Temperature: max. 6°C to 9°C, min zero to 3°C; ground temperatures down to -6°C in Kilkenny

Sunshine: nil to 3 hours

Friday 26th: West to southwesterly airflow over Ireland. Patches of fog overnight. Showers of rain or hail at times, some heavy and prolonged. Winds from a southwest to westerly direction, light over the southern half of the country, fresh to strong, up to gale force over the north, with stronger gusts.

Rainfall: nil to 1mm generally, 4 to 7mm in the west

Temperature: max. 5°C to 8°C, min. zero to 2°C inland, up to 4°C coastal; ground temperatures down to -5°C in Kilkenny

Sunshine: trace to 3 hours in the northwest, 4 to 7 hours elsewhere

Saturday 27th: A depression to the southwest moved away southeastward towards Biscay. Clear and very cold overnight with scattered wintry showers. Becoming cloudy during the day with well scattered showers, one or two of hail, sleet or snow. Light to moderate southwesterly winds eased gradually during the day and became light and variable by evening.

Rainfall: nil to 4mm

Temperature: max. 5°C to 9°C, min. -2°C to 3°C; ground temperatures down to -7°C at Dublin Airport

Sunshine: nil to 3 hours

Sunday 28th: A depression passed to the south of the country. Mostly dry at first with mist or fog patches and just the odd shower. Western and southwestern coastal areas had some more persistent rain towards morning. Scattered showers, continued in north, west and southwestern coastal areas where it was milder. Mostly dry after dark with most of the fog and mist disappearing. Winds were generally light and variable or westerly in direction.

Rainfall: nil to 4mm

Temperature: max. 2°C to 9°C, min. -3°C to 2°C; ground temperatures down to -9°C in Kilkenny

Sunshine: 1 to 4 hours generally, 5 to 7 hours in the west

Monday 29th: A ridge of high pressure crossed the country during the morning as an occluded front approached from the west. The front reached the west coast during the evening. Cloud thickened from the west during the morning with light intermittent rain reaching the west coast by noon and spreading slowly eastwards during the afternoon. Winds generally light south to southeasterly but freshening during the evening and veering southwesterly.

Rainfall: 1 to 7mm

Temperature: max. 5°C to 11°C, min. -4°C to 1°C inland, up to 4°C coastal; ground temperatures down to -11°C in Kilkenny

Sunshine: nil to 4 hours

Tuesday 30th: A frontal trough crossed the country during the night clearing the northeast around noon. Some light rain or drizzle with the passage of the front. Fog, extensive in many areas during the night and morning, returned again during the late evening. Some light showers during day. Light mainly westerly winds, stronger on northern coasts.

Rainfall: trace to 3mm

Temperature: max. 8°C to 11°C, min. 5°C to 7°C

Sunshine: trace to 5 hours

Wednesday 31st: A ridge of high pressure moved eastwards across the country early, followed by a weak warm front. Some outbreaks of rain or drizzle overnight and during the morning, while mist thickened to fog in many inland areas. Mainly dry but patchy light rain or drizzle on southern and western coasts. Winds slack variable or westerly gradually backing south to southeast during the morning and remaining mostly light.

Rainfall: nil to 2mm

Temperature: max. 7°C to 11°C, min. 3°C to 7°C; ground temperatures down to -1°C in the midlands

Sunshine: nil to 5 hours

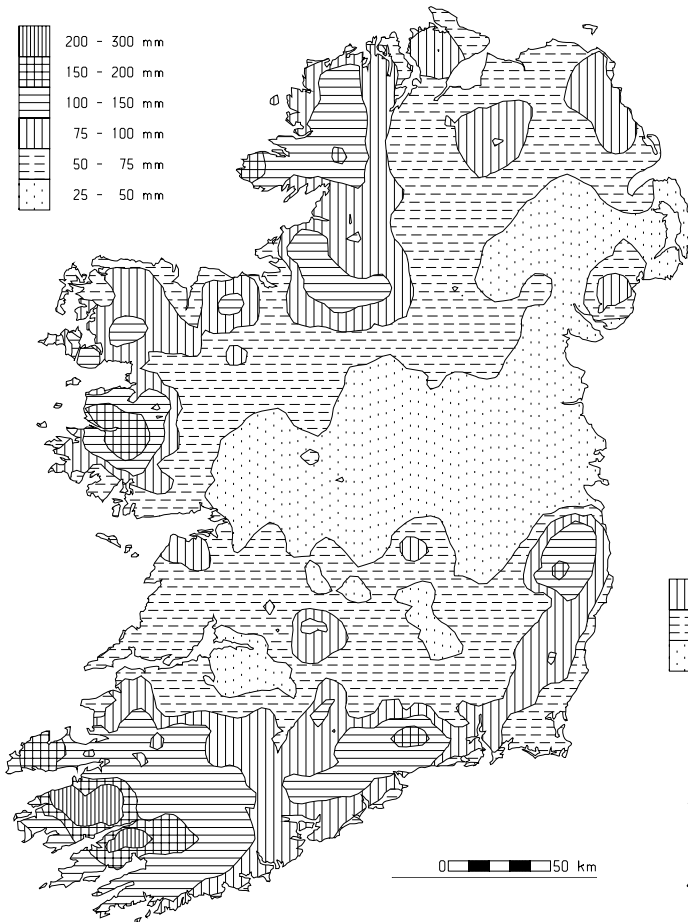
Drier than normal everywhere

Rainfall totals for the month were below normal everywhere, with less than half the January normal across many midland and eastern areas. They ranged from 28mm at Birr, Dublin (Phoenix Park) and Casement Aerodrome to 193mm at Maam Valley, Co. Galway, with percentage of normal values between 35% at Ardee (Boharnamoe), Co. Louth and 91% at Waterford (Tycor). Although a dry month, totals were not as low as the exceptionally dry January of 1997.

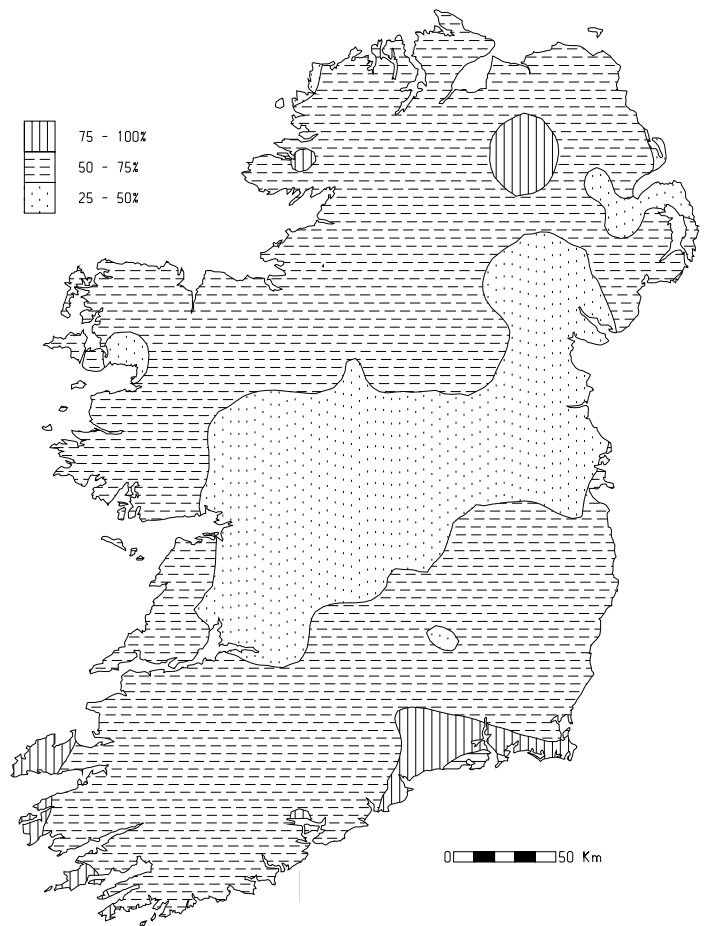
The number of wetdays during the month (*days with 1.0mm or more of rainfall*) was also below normal generally, with between 7 and 12 such days in the east and midlands compared with the normal range for January of 12 to 16. Some southern and western stations recorded close to the normal range of 16 to 18 wetdays. By far the wettest spell of weather during the month at most stations was between the 20th and 25th, when over half the monthly totals in some places was recorded. The highest daily fall was measured on the 1st of the month, however, with Maam Valley recording 34.7mm.

<i>County/ Station</i>	Total Amount (mm)	% of 1961-90 average	Most in a day / date		Number of Raindays (>0.2mm)	Wetdays (>1mm)
CO. CLARE						
SHANNON AIRPORT	47.6	49	6.9	25	17	14
CARRON	85.7	52	8.9	22 25	20	14
CO. CORK						
FERMOY (MOORE PARK)	75.7	65	18.1	21	17	14
CORK AIRPORT	86.6	58	17.4	21	19	16
SHERKIN ISLAND	94.7	68	13.3	3	23	17
BALLINCURRIG (PEAFIELD)	111.8		18.7	21	22	14
CO. DONEGAL						
MALIN HEAD	61.8	54	15.1	23	15	11
BALLYSHANNON (CATHLEEN'S FALL)	77.9	71	16.2	23	17	14
LETTERKENNY (MAGHERENAN)	81.2	62	24.0	23	19	14
CO. DUBLIN						
DUBLIN (PHOENIX PARK)	27.8	39	4.5	3	17	11
DUBLIN AIRPORT	32.2		5.4	21	16	7
CASEMENT AERODROME	28.0	43	5.0	3	11	10
DUBLIN (MERRION SQUARE)	38.0	55	10.3	21	13	9
CO. GALWAY						
GALWAY (UNIV. COLL.)	59.4	50	7.5	3	18	12
MAAM VALLEY	192.8		34.7	1	20	16
CONNEMARA NATIONAL PARK	103.9	60	17.0	1	20	16
BALLYGAR	49.3	46	7.8	20	20	11
CO. KERRY						
VALENTIA OBSERVATORY	128.8	77	18.8	21	20	17
ARDFERT (LISCAHANE)	94.4		14.4	21	18	16
CO. KILKENNY						
KILKENNY	43.3	50	17.0	21	12	7
CO. LEITRIM						
BALLINAMORE	87.6	68	12.3	6	18	15
CO. LIMERICK						
MOUNT RUSSELL	88.2		17.6	21	24	18
CO. LOUTH						
ARDEE (BOHARNAMOE)	30.3	35	8.9	21	15	7
CO. MAYO						
BELMULLET	65.2	52	8.2	24	21	17
STRAIDE	84.1	63	23.9	1	17	13
CONNAUGHT AIRPORT	81.3		12.4	23	17	15
CO. MEATH						
WARRENTOWN	33.8	40	7.5	20	13	7
CO. MONAGHAN						
CLONES	49.2	54	8.8	22	14	10
CO. OFFALY						
BIRR	27.9	37	6.4	20	11	9
DERRYGREENAGH	41.2	47	7.3	20	11	8
CO. SLIGO						
ARDTARMON	63.4		11.3	23	17	13
CO. TIPPERARY						
FETHARD (PARSONSHILL)	60.6		12.0	21	18	12
CO. WATERFORD						
WATERFORD (TYCOR)	103.8	91	25.2	21	18	13
DUNGARVAN (CARRIGLEA)	109.5		20.0	21	17	15
CO. WESTMEATH						
MULLINGAR II	38.4	42	8.5	21	13	9
CO. WEXFORD						
JOHNSTOWN CASTLE	66.9	62	13.5	20	14	9
ROSSLARE	80.8	85	21.5	22	15	10
CLONROCHE	79.6	62	24.0	21	13	11
JOHN F. KENNEDY PARK	80.7	73	22.0	21	14	13

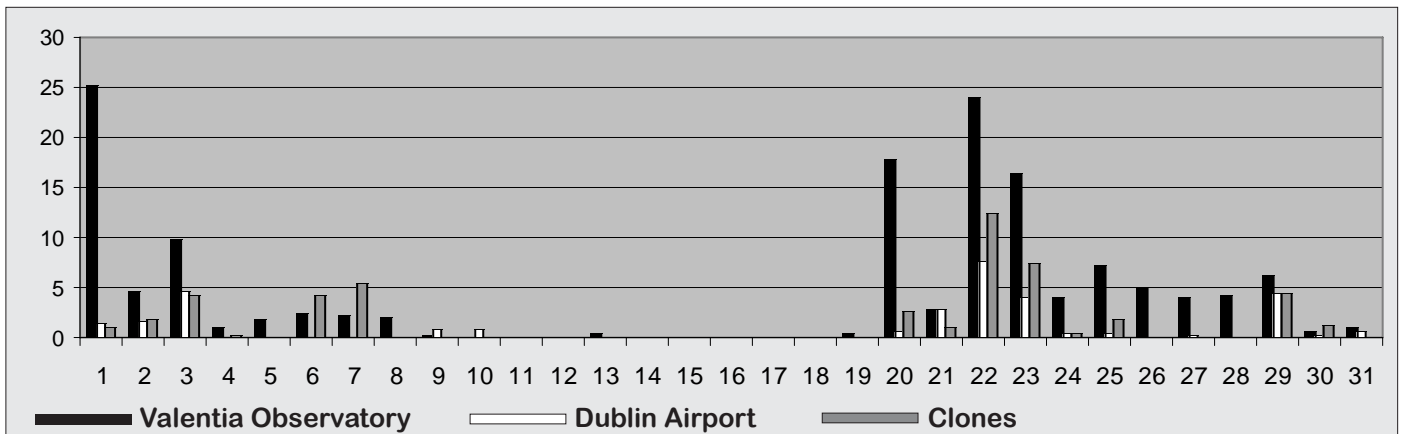
Total rainfall (mm)



Percentage of normal rainfall



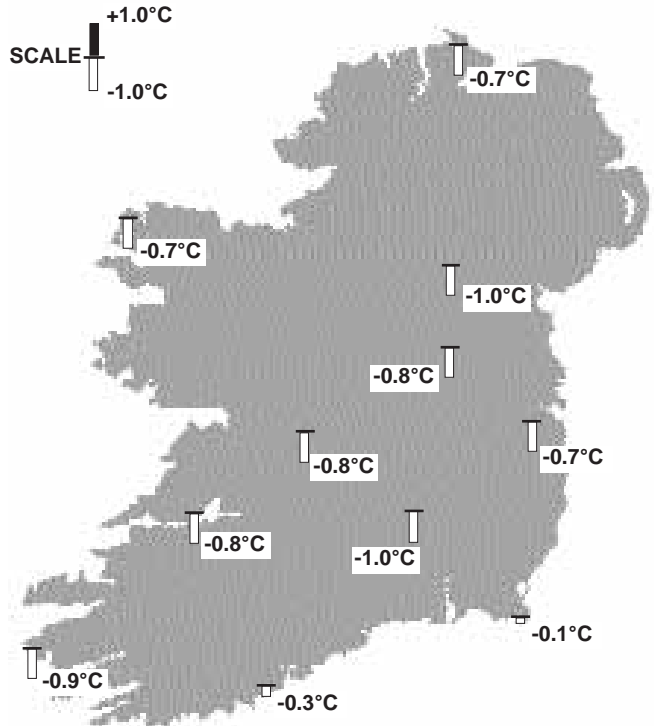
Daily rainfall (mm)



Cold with frequent frosts

Although January began and ended with some mild weather, much of the month was cold with frequent frosts, especially inland. Mean air temperatures for the month ranged from 2.4°C at Connaught Airport to 6.2°C at Sherkin Island, Co. Cork; they were between half a degree and one degree lower than normal generally, but closer to normal in parts of the west and southeast.

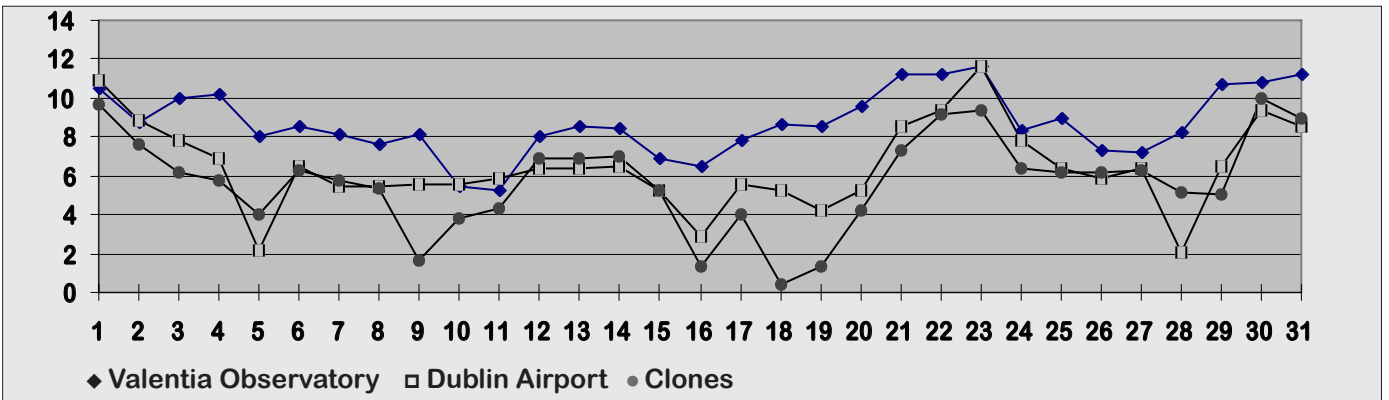
It was the first time since 1991 that January was colder than normal and it was the coldest January generally for between 14 and 16 years. There was much wider variation than normal in the number of air frosts recorded; while Rosslare escaped without any air frost, there were between 13 and 18 air frosts at inland stations compared with the normal number for January of 9 to 11. The coldest weather was around the middle of the month. Derrygreenagh, Co. Offaly, measured the lowest air temperature, -7.0°C on the 16th, while the lowest grass minimum temperature of the month, -11.4°C, was recorded at Galway (Univ. Coll.) on the 15th. The warmest day of the month at most stations was either the 22nd or



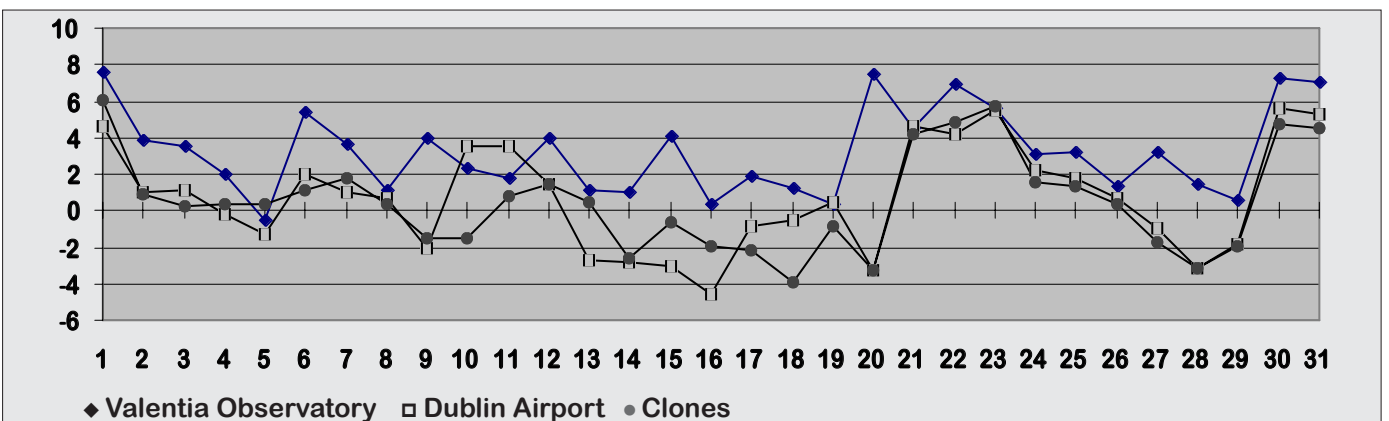
Mean Temperature
(difference from 1961-90 normals)

23rd; Johnstown Castle, Co. Wexford, measured the highest temperature, 12.7°C on the 22nd.

Daily maximum temperatures (°C)



Daily minimum temperatures (°C)



TEMPERATURE

13

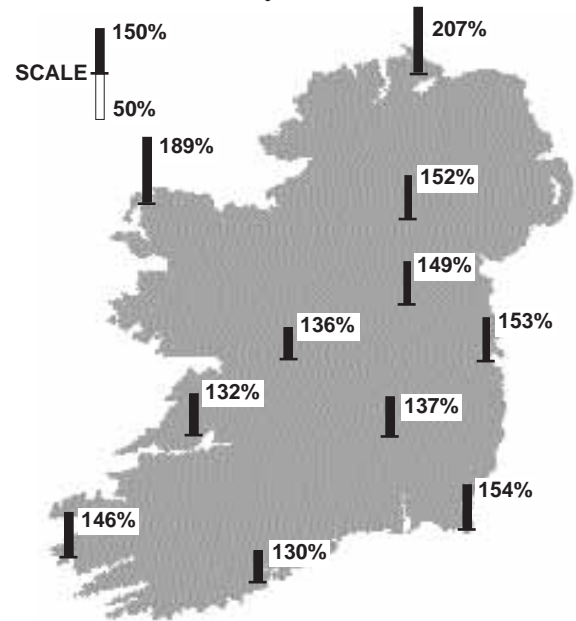
County/ Station	°C											
	Mean max.	Mean min.	Mean/ deviation from 1961-90 average		Highest max./date		Lowest min./date		Lowest grass min./date		Days with air frost ground frost	
CO. CLARE												
SHANNON AIRPORT	7.5	1.7	4.6	-0.8	11.5	23	-2.8	17	-10.4	16	8	22
CARRON	6.4	0.8	3.6	-0.7	10.3	23	-2.5	16	-8.6	16	8	28
CO. CORK												
FERMOY (MOORE PARK)	7.4	0.0	3.7	-1.3	12.0	23 24	-5.2	19	-6.7	14	18	24
CORK AIRPORT	7.3	2.3	4.8	-0.3	10.5	23	-2.7	20	-4.9	20	2	20
SHERKIN ISLAND	8.5	3.9	6.2	-0.6	11.0	23	0.3	29	-1.4	31	0	8
BALLINCURRIG (PEAFIELD)	7.3	1.0	4.2		11.2	30	-2.0	29	-4.5	29	10	22
CO. DONEGAL												
MALIN HEAD	6.7	2.7	4.7	-0.7	9.4	1 30	-1.7	16	-4.5	16	4	10
BALLYSHANNON (CATHLEEN'S FALL)	6.6	1.4	4.0	-0.7	10.2	31	-1.8	10			7	
LETTERKENNY (MAGHERENAN)	6.8	0.0	3.4	-0.9	10.6	30	-6.7	18			18	
CO. DUBLIN												
DUBLIN (PHOENIX PARK)	6.9	0.5	3.7	-0.9	12.3	1	-5.2	16	-8.4	14 16	14	28
DUBLIN AIRPORT	6.5	0.7	3.6		11.6	23	-4.6	16	-9.4	14	11	24
CASEMENT AERODROME	7.0	0.8	3.9	-0.7	11.3	23	-5.3	16	-9.2	16 20	12	22
DUBLIN (MERRION SQUARE)	7.3	2.9	5.1	-0.8	12.4	23	-0.4	21			5	
CO. GALWAY												
GALWAY (UNIV.COLL.)	---	---	not available		---		---		-11.4	15		23
MAAM VALLEY	7.4	1.8	4.6		11.1	21	-2.8	16	-7.3	5 14	6	21
CONNEMARA NATIONAL PARK	7.8	2.7	5.3	-0.1	11.1	21	-2.1	17			2	
BALLYGAR	6.2	0.1	3.2		10.0	23 30	-5.0	16	-8.2	16	16	25
CO. KERRY												
VALENTIA OBSERVATORY	8.7	3.1	5.9	-0.9	11.6	23	-0.5	5	-5.2	5	1	16
ARDFERT (LISCAHANE)	7.7	1.7	4.7	-1.0	11.7	23	-2.2	17	-5.5	15	11	20
CO. KILKENNY												
KILKENNY	7.1	-0.2	3.5	-1.0	12.1	23	-5.1	20	-10.8	13 14	18	26
CO. LEITRIM												
BALLINAMORE	5.7	-0.4	2.7	-1.2	9.5	1 21	-5.0	14	-6.1	16	18	25
CO. LIMERICK												
MOUNT RUSSELL	6.9	2.0	4.5		11.0	23	-1.7	16	-6.9	14	7	23
CO. LOUTH												
ARDEE (BOHARNAMOE)	6.8	-0.3	3.3	-0.9	11.2	1 31	-6.5	20	-9.9	18	15	28
CO. MAYO												
BELMULLET	7.7	2.2	5.0	-0.7	10.4	30	-2.5	17	-5.6	15 16	5	17
STRAIDE	6.6	0.1	3.4	-1.3	10.8	30	-3.5	16 17	-8.9	15	16	27
CONNAUGHT AIRPORT	4.8	0.0	2.4	-2.0	8.7	21 22	-2.9	17	-5.3	5	17	26
CO. MEATH												
WARRENTOWN	6.4	0.8	3.6	-0.6	10.5	1	-3.8	16	-8.2	16	12	25
CO. MONAGHAN												
CLONES	5.7	0.1	2.9	-1.0	10.0	30	-3.9	18 19	-8.4	14	15	26
CO. OFFALY												
BIRR	7.0	0.5	3.8	-0.8	11.9	23	-4.7	16 19	-10.5	16	12	25
DERRYGREENAGH	6.2	-0.7	2.8	-1.0	10.6	23	-7.0	16	-10.3	16	18	24
CO. SLIGO												
ARDTARMON	6.9	1.9	4.4		9.7	22	-1.0	16	-4.6	14	7	18
CO. TIPPERARY												
FETHARD (PARSONSHILL)	6.0	0.6	3.3		10.9	23	-4.0	19	-5.2	15	15	24
CO. WATERFORD												
WATERFORD (TYCOR)	7.7	1.3	4.5	-0.8	11.1	23 30	-2.7	29			7	
DUNGARVAN (CARRIGLEA)	8.1	1.8	5.0	-0.4	11.5	30 31	-3.5	19	-4.9	29	8	13
CO. WESTMEATH												
MULLINGAR II	6.2	-0.1	3.1	-0.8	10.2	23	-5.5	16	-10.3	16	17	27
CO. WEXFORD												
JOHNSTOWN CASTLE	8.2	2.3	5.3	0.0	12.7	22	-1.3	29	-4.3	20	5	16
ROSSLARE	8.3	3.7	6.0	-0.1	11.7	23	0.2	29	-3.6	16	0	14
CLONROCHE	7.2	1.1	4.2	-0.3	10.9	31	-1.4	14	-7.4	14	10	26
JOHN F. KENNEDY PARK	7.4	1.5	4.5	-0.5	10.5	1 23	-2.0	29	-7.5	29	7	20

Very sunny everywhere

County/ Station	Daily mean (hours/day)	% of average	% of possible	Most in a day/date
CO. CLARE				
SHANNON AIRPORT	2.09	132	25	7.3 14
CO. CORK				
CORK AIRPORT	2.24	130	27	7.1 5 7
SHERKIN ISLAND	2.18	115	26	6.6 28
BALLINCURRIG (PEAFIELD)	2.31		28	6.9 7 14
CO. DONEGAL				
MALIN HEAD	2.51	207	32	6.9 14
BALLYSHANNON (CATHLEEN'S FALL)	2.26	155	29	6.8 14
CO. DUBLIN				
DUBLIN AIRPORT	2.20	122	27	7.4 14
CASEMENT AERODROME	2.55	153	31	7.4 14 26
CO. GALWAY				
GALWAY (UNIV.COLL.)	2.04	128	25	5.3 10
CO. KERRY				
VALENTIA OBSERVATORY	2.06	146	25	6.7 28
ARDFERT (LISCAHANE)	2.16		35	6.8 28
CO. KILKENNY				
KILKENNY	2.34	137	29	7.6 14
CO. LEITRIM				
BALLINAMORE	1.74	112	22	5.8 17 26
CO. MAYO				
BELMULLET	2.77	189	35	7.0 14
STRAIDE	2.36			6.9 14
CONNAUGHT AIRPORT	2.29		28	7.4 14
CO. MONAGHAN				
CLONES	2.14	152	27	7.0 26
CO. OFFALY				
BIRR	2.18	136	27	7.1 14
CO. WATERFORD				
DUNGARVAN (CARRIGLEA)	1.99		35	6.7 14
CO. WESTMEATH				
MULLINGAR II	2.56	149	32	7.7 14
CO. WEXFORD				
JOHNSTOWN CASTLE	2.34	126	28	6.9 26
ROSSLARE	2.98	154	36	7.3 26
CLONROCHE	2.19	127	26	6.8 26
JOHN F. KENNEDY PARK	2.71	161	33	7.3 13 26

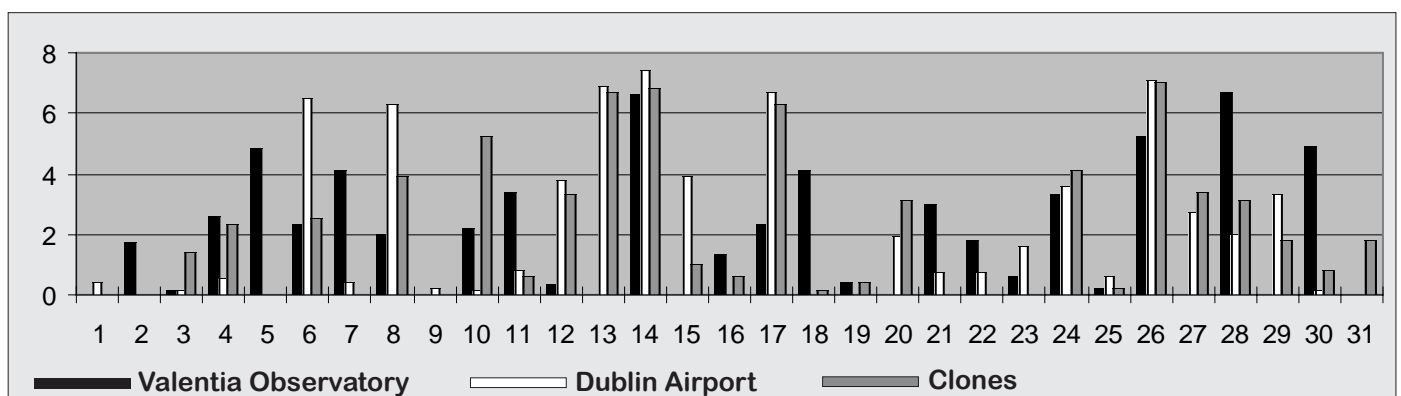
Sunshine totals for the month ranged from 54 hours at Ballinamore, Co. Leitrim, to 93 hours at Rosslare, with percentage of normal values between 112% at Ballinamore and 207% at Malin Head. Malin's total of 78 hours was more than would be expected here in a normal February and it was the sunniest January at the station since 1959. At most other stations it was the sunniest January for between 10 and 16 years.

Close to the maximum possible sunshine for the time of year was measured at several stations on the 14th; Mullingar measured the highest daily sunshine of the month on this day, 7.7 hours, its highest January value since 1991. Global solar radiation totals were also higher than normal, ranging from 108% at Valentia Observatory to 134% at Malin Head.

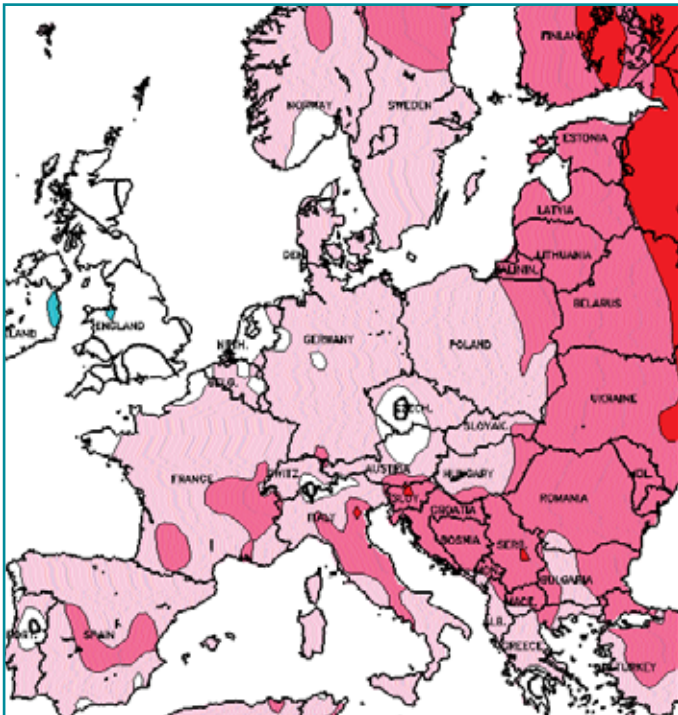
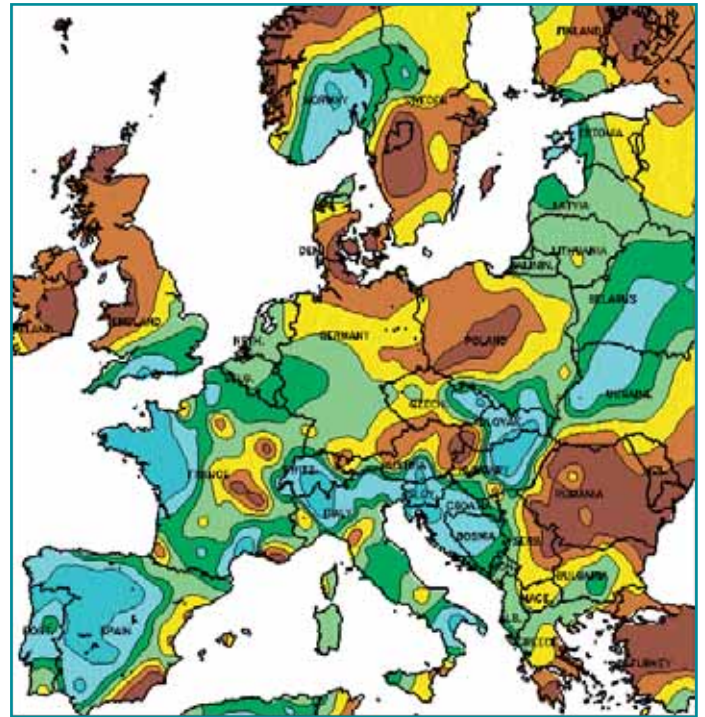
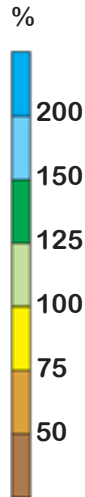


Total Sunshine
(difference from 1961-90 normals)

Daily sunshine (hours)



JANUARY RAINFALL
(Percentage of 1961-1990 normal)



JANUARY MEAN TEMPERATURES
(difference from 1961-1990 normal)

Global weather highlights of the month

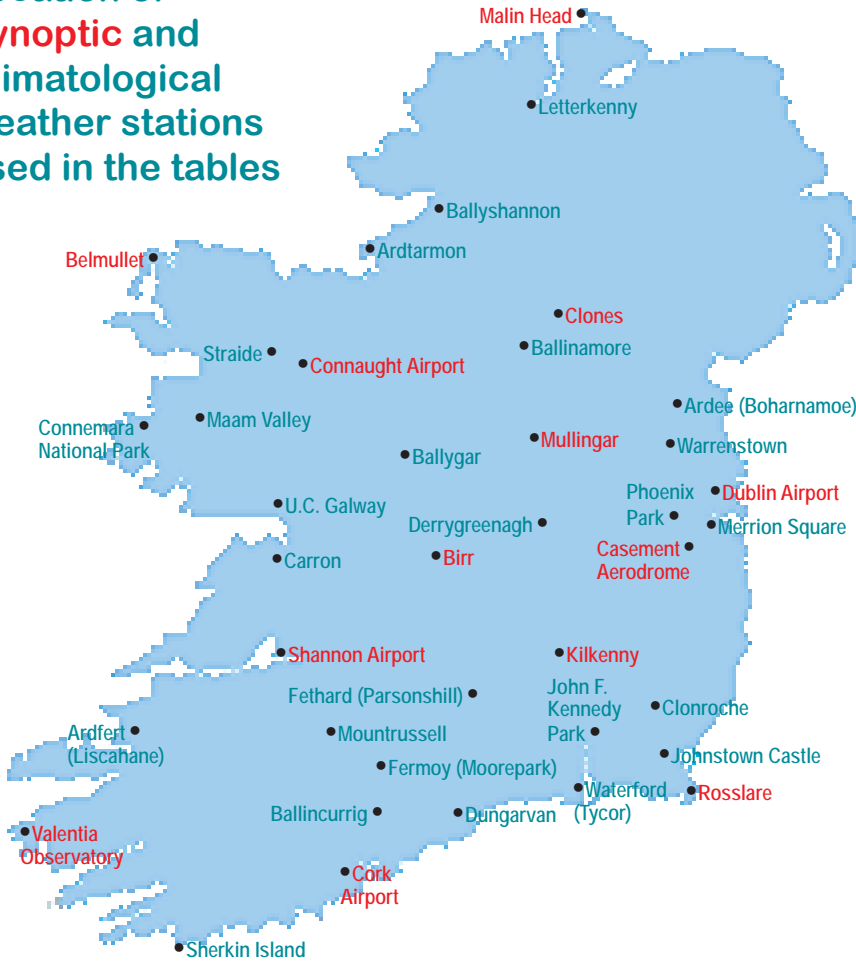
Mean temperatures for the month were considerably higher than normal over much of western Canada and Alaska, where the end of the month was particularly mild. A number of stations in Alberta had means between nine and thirteen degrees above the January average.

There was considerable flooding near Buenos Aires during the first week as severe thunderstorms brought falls of over 130mm, more than double the normal monthly total.

The bitterly cold weather for the past couple of months over Siberia continued this month and also shifted southeastwards to affect northern China and Korea. Up to 42 cm of snow fell over South Korea during the first week, with 15cm measured at Seoul, its heaviest snowfall for 20 years.

Southern and southeastern Australia had an exceptionally dry and hot month. Adelaide's mean temperature of 26°C was almost four degrees above normal, while just 2mm of rain was measured there during the month. Very different conditions were observed further north; thunderstorms on a number of days produced a monthly total of 256mm at Alice Springs, almost six times higher than normal.

Location of Synoptic and Climatological weather stations used in the tables



A. General

1. Rainfall amounts are given in millimetres, temperature in degrees Celsius, sunshine duration in hours and wind speed in knots. (1 knot=1.15m.p.h.)
2. Climatological stations (see map on left) make their daily observations at 0900UTC. At these stations, therefore, a 'day' for the purposes of this publication refers to the period from 0900UTC on a particular day to 0900UTC on the following day. Values at synoptic stations refer to the 24-hour period beginning at 0600UTC.
3. Mean soil and earth temperatures at all stations are based on readings taken at 0900UTC.
4. 'Raindays' and 'wetdays' are days during which the total rainfall is not less than 0.2mm and 1.0mm respectively. The term rainfall includes all forms of precipitation, such as snow and hail, and deposition from dew or frost, measured as equivalent rain.
5. The mean daily air temperature over a period is taken as the mean of the daily maxima and daily minima (averaged separately over the period).
6. Days with air frost are those during which the minimum air temperature was below 0°C. Similarly days with ground frost indicate days when the grass minimum temperature was below 0°C. (Grass minimum temperatures are measured by a thermometer placed horizontally on pegs just above the tips of short grass.)
7. A gale is a mean wind over a 10 minute period of 34 knots or more. A gale gust is a gust of 34 knots or more. Wind speeds refer to the wind at an effective height of 10 metres above the ground, with the exception of Malin Head, where the height is 18 metres.
8. 'e' denotes that the value is calculated using one or more estimated readings.
9. Data from Northern Ireland is kindly provided by the Belfast Weather Centre.

B. Agmet

10. Calculated Potential Evapotranspiration (P.E.) values are based on values of temperature, sunshine, wind speed and vapour pressure using the Penman formula. Because of formula limitations, negative values can occur in winter; these are replaced in the tables by zero. Measured P.E. values are those measured by means of soil-filled tanks sunk into the ground with their upper grass-covered ends at surface level.
11. Soil moisture deficits and surpluses are computed from the differences between rainfall and actual evapotranspiration (A.E.). Estimates of A.E. are derived from measured values of P.E. (See Agmet. Memo No. 1, 1968). Soil moisture surpluses are assumed to be removed by drainage and surface run-off and are not therefore carried forward from one period to the next. Soil moisture deficits are regarded as being cumulative. Where heavy rain occurs near the end of the fixed period, the date of cut-off may be adjusted to avoid error due to insufficient run-off time.
12. Degree day totals are calculated using the method set out by McVicker in the Journal of the Institution of Heating and Ventilating Engineers (Vol. 14 No. 38, Nov-Dec 1946).
13. Global solar radiation values are given in MJ/sq.m. correct to two decimal places (3.6MJ=1kWh).

C. Laboratory

14. Daily samples of air and precipitation are taken at Valentia Observatory at 1000UTC.
15. Air sample data are given in microgrammes per cubic metre, electrical conductivity in micro-Siemens per centimetre and pH in pH units.

Synoptic weather stations are staffed by Met Éireann personnel and record all the major meteorological elements on a 24-hour basis. Not all observed elements are available for the synoptic stations at Birr, Kilkenny, Mullingar and Clones, where observations are automated. Climatological stations are operated by private individuals and observations are made once a day at 0900UTC.



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