

# Monthly Weather Bulletin

No. 191  
MARCH 2002

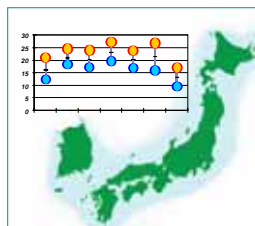


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**Another very mild month over eastern Europe**

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**World Cup weather in Japan & Korea**

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



The trawler *Celestial Dawn*, which ran aground near the entrance to Dingle harbour during the storms of early February, was removed during a spell of relatively calm weather early this month.  
(picture Irish Examiner)

## MILD AND DRY; SUNNY IN MOST PLACES

**Summary:** Mean air temperatures were well above normal for the third successive month, by between one and two degrees almost everywhere. At no station was it as warm as the very mild March of 1998, however. Typically for March, there was a general increase in maximum temperatures during the month, with values of over 15°C in places between the 21st and 23rd; Belmullet's maximum of 17.2°C on the 23rd was its highest for March since 1965. The

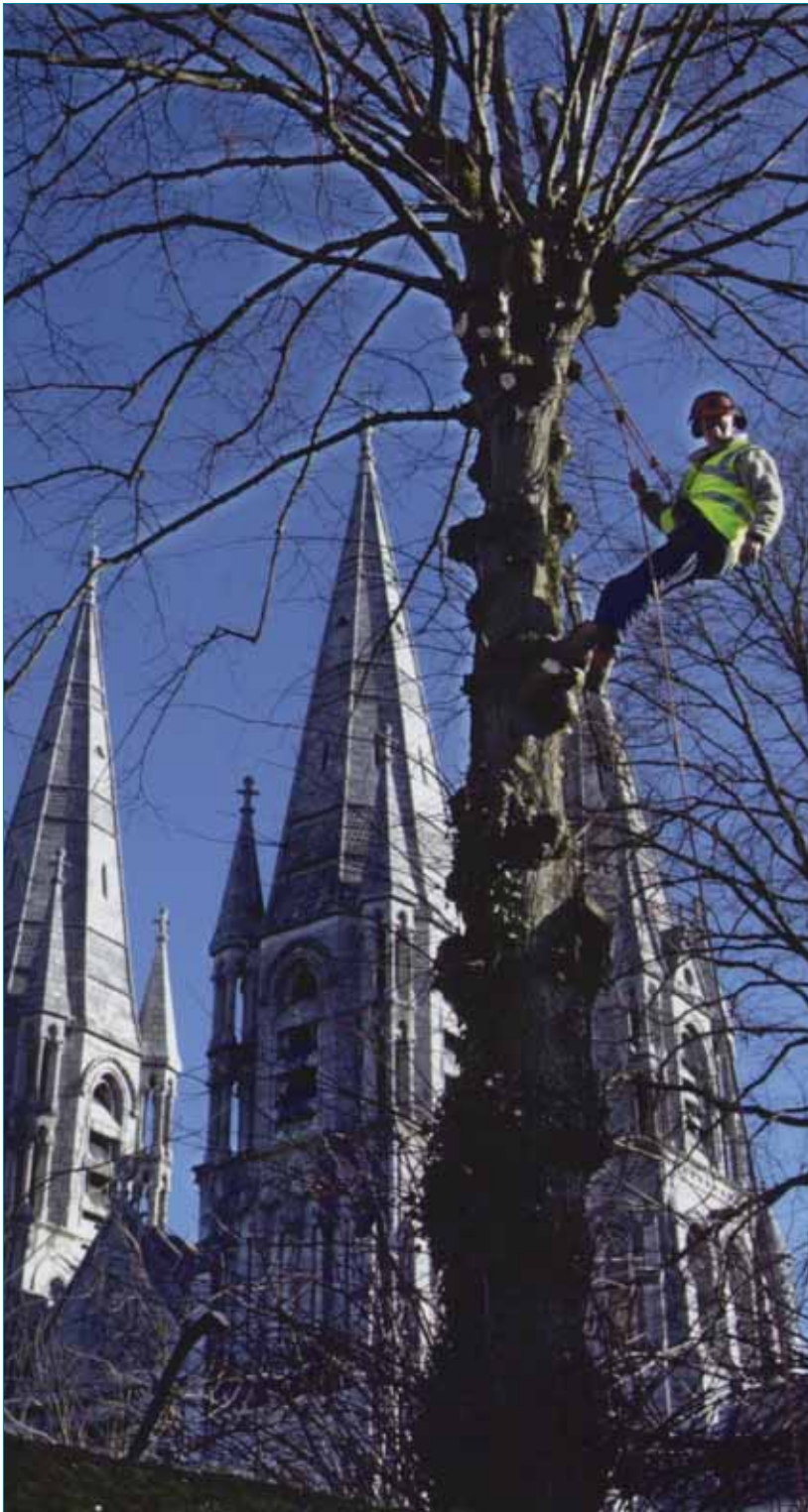
number of air frosts at inland stations during the month of between 7 and 9 was a little higher than normal, but there was very little air frost recorded at coastal stations of the south, west and north. Rainfall totals were below normal everywhere, with only between half and three quarters of normal rainfall at stations in the south and east. It was also a sunny month at most stations, especially in the east and north of the country; sunshine totals in the Dublin area were the

**highest for March since 1986. Over 10 hours daily sunshine were measured in places on the 13th and on each day during the period 26th to 29th.**

**1st to 5th:** Under the influence of an anticyclone to the southwest of the country, there was mostly dry and cool weather over Ireland. After mostly fine weather at first, leading to severe ground frost in places, increased cloud brought much duller conditions for the second half

**Below**

*A Coillte tree surgeon taking advantage of fine weather early in the month at Cobh, Co. Cork (picture Evening Echo)*



of the period. Moderate northeasterly winds at first gradually backed westerly.

**6th to 10th:** Unsettled, as Atlantic frontal systems brought spells of rain, sleet or snow. Mild at first but turning colder, while southwest to westerly winds were strong at times, especially on the 10th.

**11th to 14th:** High pressure to the north of the country brought dry, sunny conditions with low humidity, but temperatures were below normal in a moderate northeasterly airstream, strongest in eastern and northern areas with gale gusts.

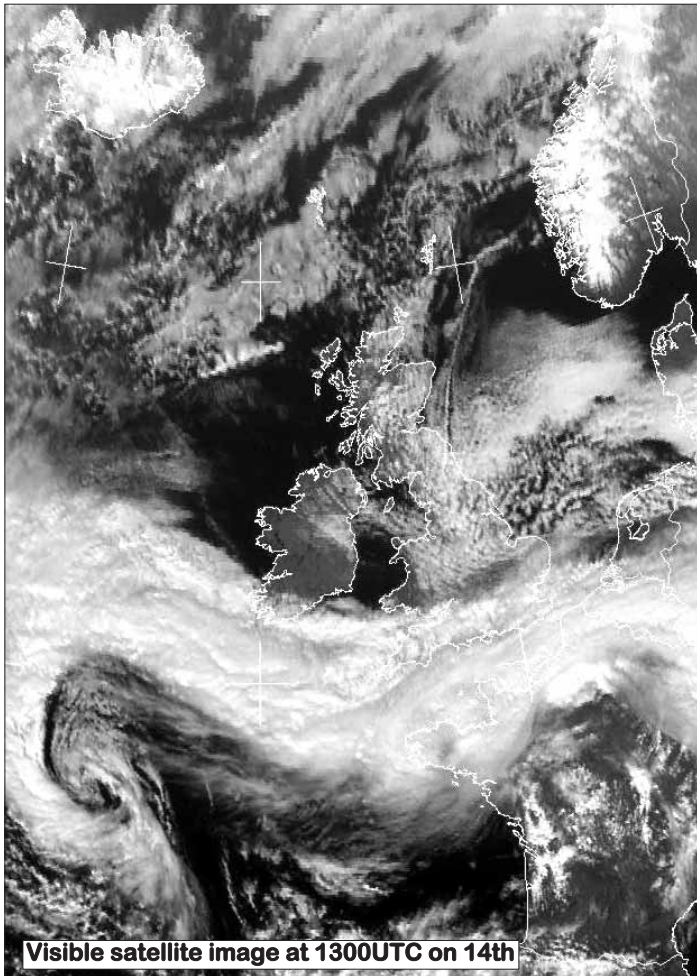
**15th to 20th:** A return to more unsettled weather with rain or showers each day, but rainfall amounts were generally small. Generally dull but mild with light variable or southerly winds.

**21st to 29th:** Pressure rose as an anticyclone became centred over Ireland by the 26th, giving dry and sunny weather with light winds. Warm at first, but clear skies allowed frost to develop between the 25th and 29th.

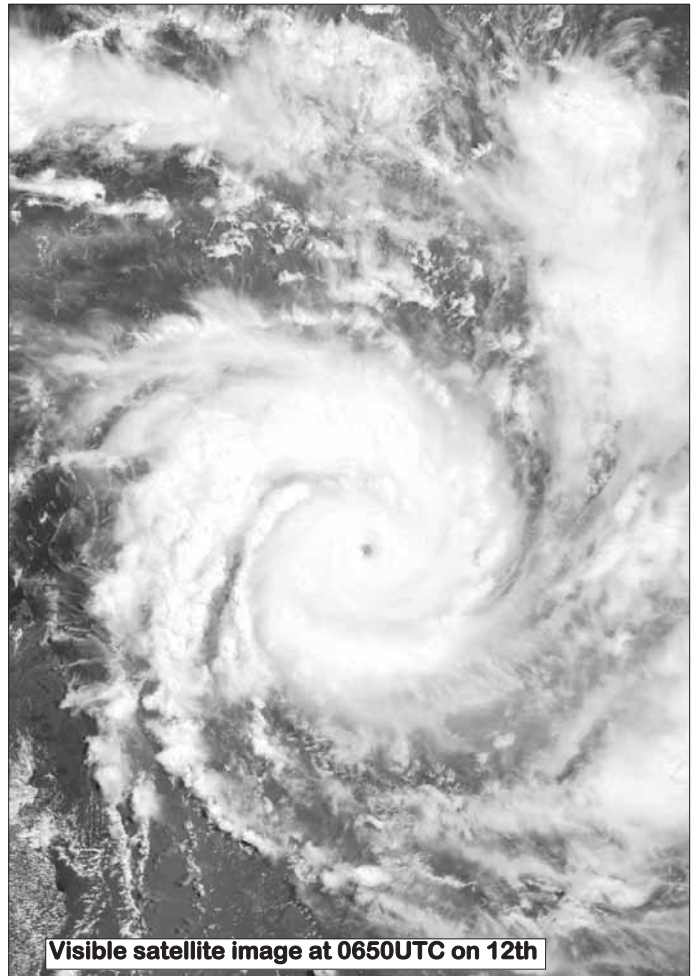
**30th to 31st:** Increasing cloud brought outbreaks of rain and drizzle, heaviest in the southwest.

**Wind and elements:** Mean windspeeds for the month were above normal everywhere and were the highest for March for seven or eight years at several stations. They varied between 8 and 12 knots (*9 and 14m.p.h.*) at most stations, but between 15 and 17 knots (*17 and 20m.p.h.*) at coastal stations in the north and northwest. Belmullet recorded the highest gust of the month, 74 knots (*85m.p.h.*) on the 10th. Thunder affected mainly western and northern areas during the month; it was recorded on the 3rd, in the period 8th to 11th, on the 15th, 18th and on the 21st, when a tornado was reported near Omagh, Co. Tyrone. Hail and snow were recorded on the 1st and in the period 9th to 11th, with hail showers also on the 8th. Fog was most widespread between the 19th and 22nd.





Visible satellite image at 1300UTC on 14th



Visible satellite image at 0650UTC on 12th

**Above**

Much of the first half of the month was dry and fairly sunny over Ireland; there was warm weather over western areas, but it was cooler in the east due to the east to northeasterly winds.


**Above right**

Tropical cyclone *Hary*, with mean windspeeds of 65 knots (75m.p.h.) passed close to the eastern coast of Madagascar during the middle of the month, but fortunately missed any populated areas. (picture NOAA-MODIS)


**Right**

Met Éireann staff member Willemien Van Hoeve, who is taking part in the round-the-world Volvo Ocean Race on board *Nautor Challenge*, was in Dublin for the Boat Show at the beginning of the month during a break in the race. (picture David Brannigan)





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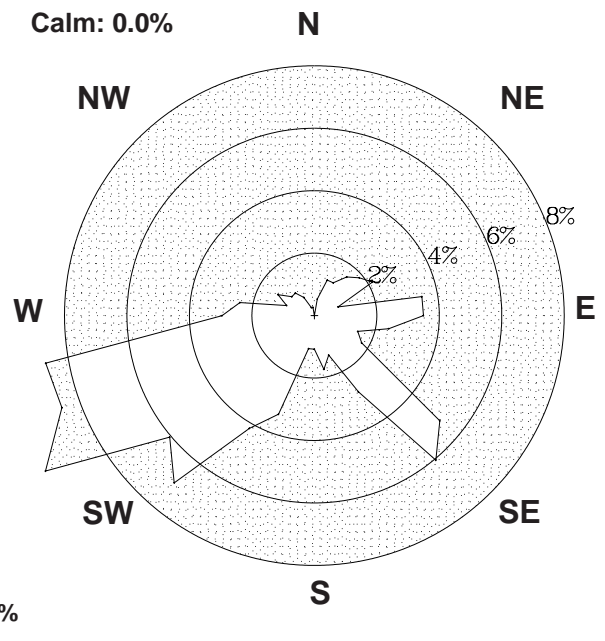
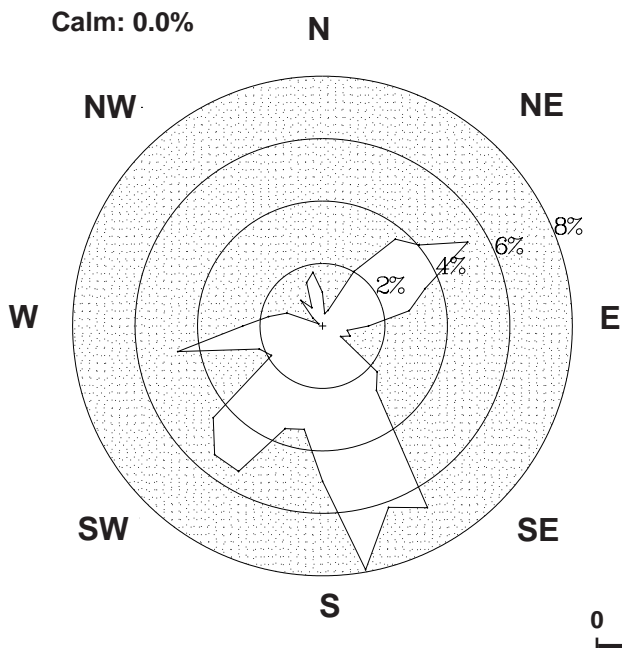
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County / Station	WIND (KNOTS)						ELEMENTS								
	Mean speed	Max. 10-min. mean dir.	10-min. mean speed	date/hour	Max. Gust dir.	Gust speed	date/time	Days with gales	gale gusts	Hours with gale gusts	Snow	No. of Days with Snow Lying	Hail	Thunder	Fog
<b>CO. CLARE</b> SHANNON AIRPORT	9.7	240°	33	10/12	220°	50	10/0918	0	4	19	1	0	1	0	1
<b>CO. CORK</b> CORK AIRPORT	10.3	250°	36	9/06	230°	54	10/1028	2	9	55	2	0	0	0	9
<b>CO. DONEGAL</b> MALIN HEAD	17.1	200°	46	10/13	200°	66	10/1223	8	23	210	2	0	4	1	0
<b>CO. DUBLIN</b> CASEMENT AERODROME	11.4	220°	35	10/13	220°	51	10/1134	1	8	63	1	0	1	0	0
DUBLIN AIRPORT	12.0	240°	36	10/14	250°	56	10/1330	1	9	70	2	0	1	0	3
<b>CO. KERRY</b> VALENTIA OBSERVATORY	9.8	230°	38	10/10	230°	56	10/0859	2	5	38	1	0	1	0	0
<b>CO. KILKENNY</b> KILKENNY	8.4	220°	35	10/12	220°	52	10/1333	1	3	15	n/a	0	---	n/a	---
<b>CO. MAYO</b> BELMULLET	15.0	200°	48	10/11	200°	74	10/0925	2	16	162	4	0	5	2	0
CONNAUGHT AIRPORT	10.6	200°	33	10/11	200°	53	10/1025	0	9	59	3	1	5	0	18
<b>CO. MONAGHAN</b> CLONES	9.2	210°	30	10/11	220°	53	10/1001	0	5	23	n/a	0	---	n/a	---
<b>CO. OFFALY</b> BIRR	8.5	240°	29	10/13	240°	48	10/1218	0	3	13	n/a	1	---	n/a	---
<b>CO. WESTMEATH</b> MULLINGAR II	8.4	220°	28	10/11	230°	47	10/1045	0	3	13	n/a	1	---	n/a	---
<b>CO. WEXFORD</b> ROSSLARE	11.1	260°	33	9/09	230°	57	10/1215	0	11	122	0	0	2	1	6

Valentia Observatory

Dublin Airport

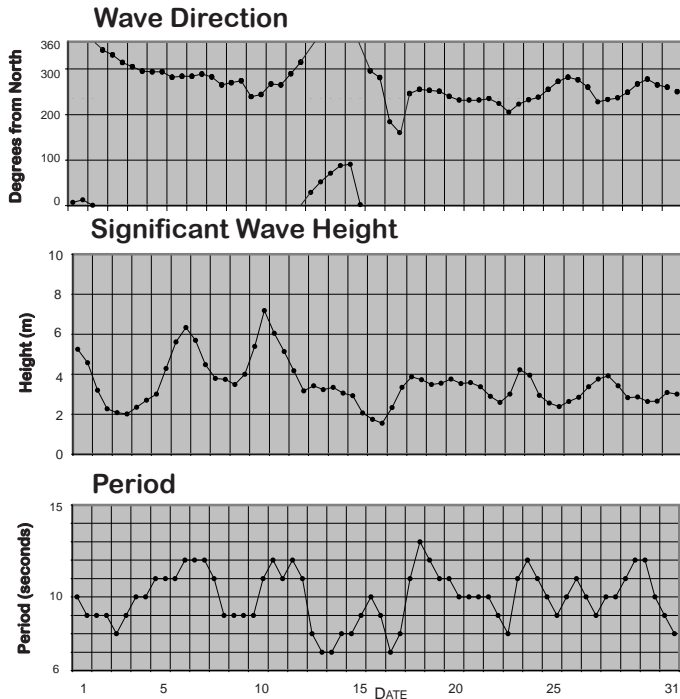


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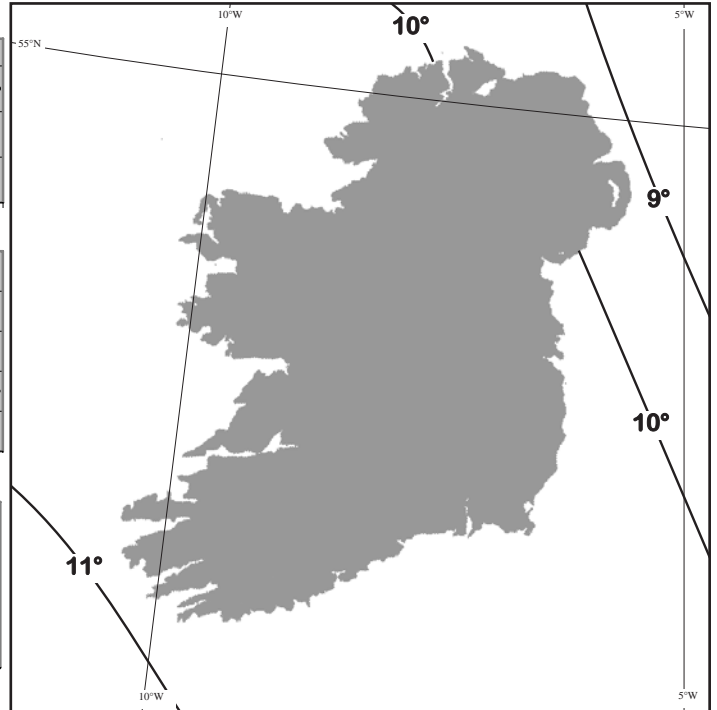
FREQUENCY OF WIND DIRECTION

### SEA TEMPERATURES

Sea temperatures remained largely unchanged for the third successive month. March normally sees the lowest sea temperatures of the year, but values of between 9°C and 11°C were between one and two degrees above normal this month. At Malin Head, where the measured sea temperature is a little lower at this time of year compared with the open sea, the monthly mean of 8.2°C was over a degree above normal.



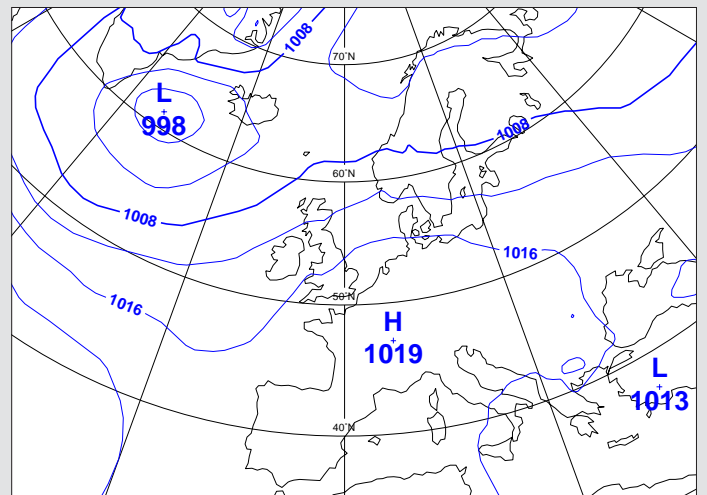
Wave conditions at 52.5°N, 12°W based on WAM model



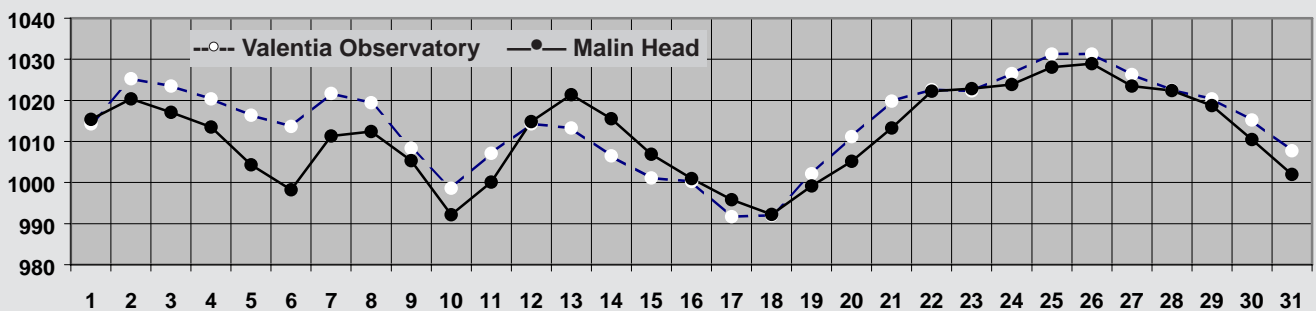
Sea Temperatures (°C) around mid-month

### MEAN ATMOSPHERIC PRESSURE

Mean sea level pressure values for the month, which varied between just over 1012hPa in the northwest and 1015hPa in the southeast, were a little higher than normal for March. The first half of the month brought alternating periods of high and low pressure, but anticyclonic weather dominated most of the second half of the month. A deep depression close to the northwest coast on the 10th brought the lowest pressure value of the month, 981.5hPa at Malin Head. Pressure was at its highest between the 24th and 27th, with the highest value, 1034.4hPa, measured at Mullingar on the 25th.



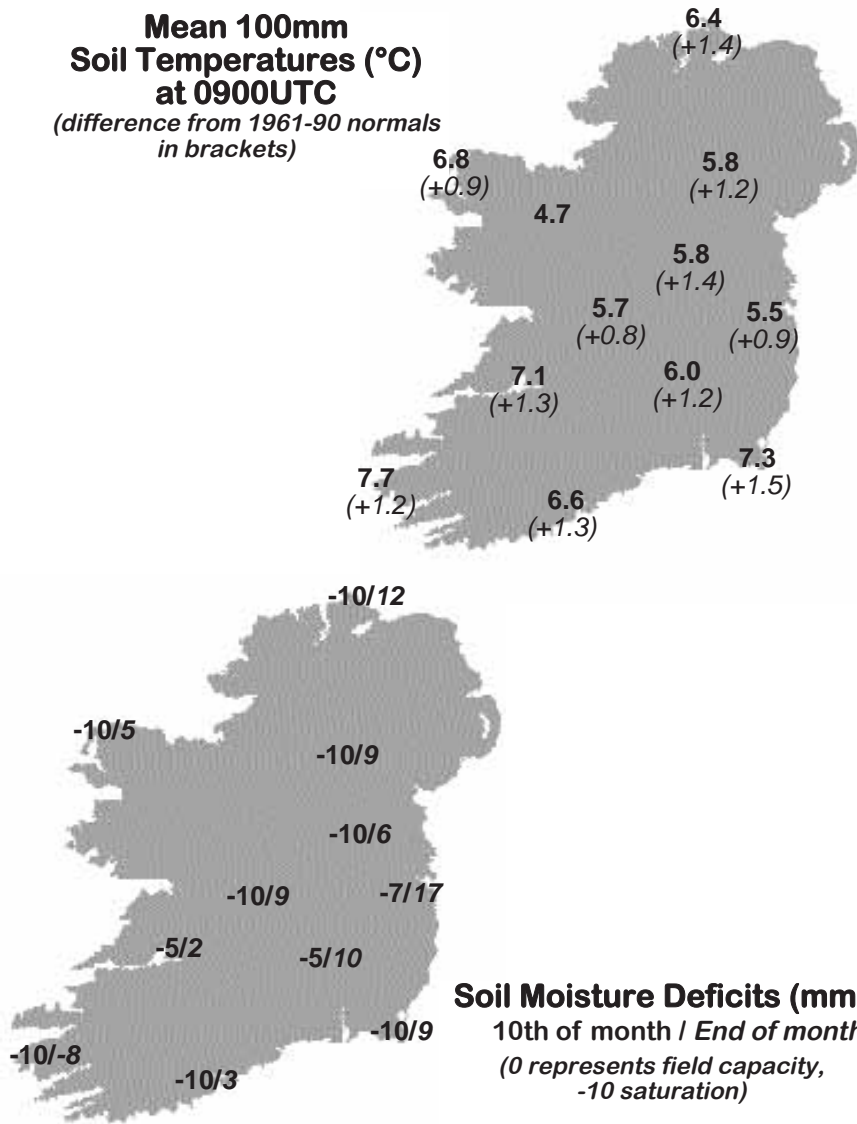
The above map is based on monthly means of 1200 UTC values



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



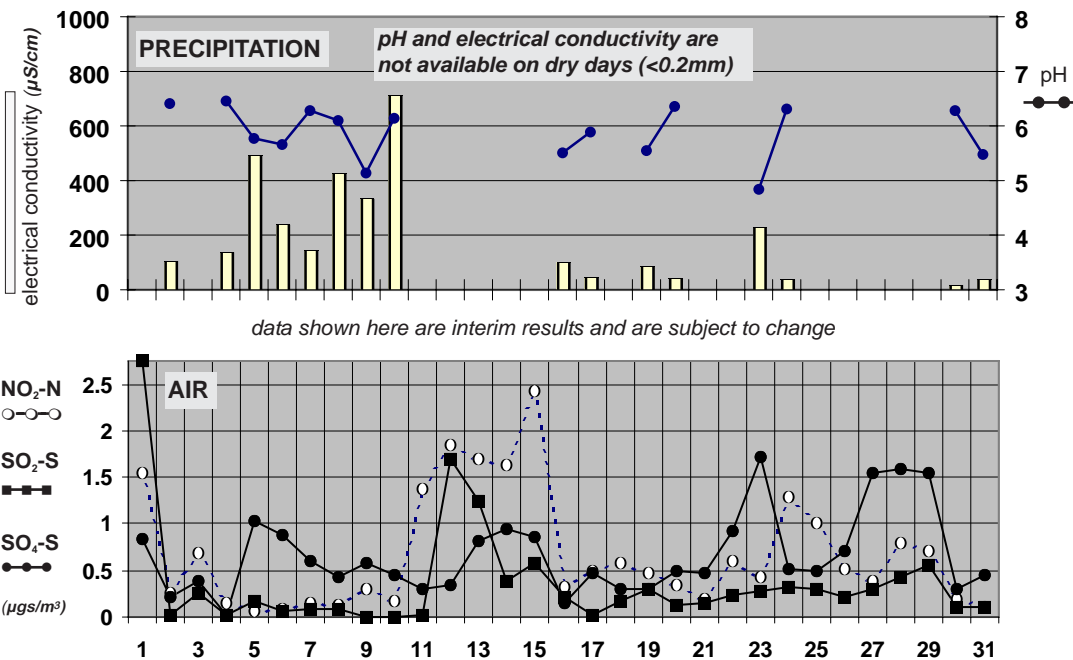
**Mean 100mm Soil Temperatures (°C) at 0900UTC**  
(difference from 1961-90 normals in brackets)



**Soil Temperatures at 0900UTC**

County/ Station	°C		
	100mm	200mm	300mm
<b>CO. CLARE</b>			
SHANNON AIRPORT	7.1	7.6	8.1
CARRON	6.4		7.1
<b>CO. CORK</b>			
PERMOY (MOORE PARK)	7.1	7.3	7.8
CORK AIRPORT	6.6	7.2	8.5
SHERKIN ISLAND	8.6		9.4
BALLINCURRIG (PEAFIELD)	6.1	6.6	7.1
<b>CO. DONEGAL</b>			
MALIN HEAD	6.4	6.9	7.8
<b>CO. DUBLIN</b>			
DUBLIN AIRPORT	5.8	6.2	6.9
CASEMENT AERODROME	5.5	6.4	7.1
<b>CO. KERRY</b>			
VALENTIA OBSERVATORY	7.7	8.3	9.2
<b>CO. KILKENNY</b>			
KILKENNY	6.0	6.8	7.5
<b>CO. LEITRIM</b>			
BALLINAMORE	5.7	6.3	7.0
<b>CO. LIMERICK</b>			
MOUNT RUSSELL	5.9	6.5	
<b>CO. LOUTH</b>			
ARDEE (BOHARNAMOE)	6.5	6.5	6.9
<b>CO. MAYO</b>			
BELMULLET	6.8	7.3	8.5
STRAIDE	6.1		
CONNAUGHT AIRPORT	4.7	5.2	6.0
<b>CO. MEATH</b>			
WARRENSTOWN	5.8	6.3	7.0
<b>CO. MONAGHAN</b>			
CLONES	5.8	6.2	6.8
<b>CO. OFFALY</b>			
BIRR	5.7	6.6	7.7
<b>CO. TIPPERARY</b>			
FETHARD (PARSONSHILL)	6.1	6.3	
<b>CO. WATERFORD</b>			
DUNGARVAN (CARRIGLEA)		7.6	8.1
<b>CO. WESTMEATH</b>			
MULLINGAR II	5.8	6.3	7.1
<b>CO. WEXFORD</b>			
JOHNSTOWN CASTLE	7.1	7.3	7.5
ROSSLARE	7.3	7.7	9.0
CLONROCHE		7.1	7.9
JOHN F. KENNEDY PARK	7.0	7.4	8.6

**Chemical Analysis of Precipitation and Air Samples at Valentia Observatory**



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.

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 a.g.l.	P.E. (Penman) (mm)
Fermoy	11-20	25.1	-	6	4	11.3	3.0	7.2	-	-1.5	12	2	33	4	-3.9	11	4	6.3	7.1	-	-	3.1	-
	21-end	5.7	-	6	2	12.6	4.3	8.5	-	-2.8	29	2	50	8	-5.4	26	3	8.4	8.9	-	-	2.4	-
	month	55.4	70	15	9	11.5	3.5	7.5	1.1	-2.8	29	6	113	16	-5.4	26	11	7.1	7.8	-	-	3.1	29
<b>Co. Donegal</b>	1-10	48.8	-	10	8	10.7	3.3	7.0	-	-1.0	1	3	32	2	-6.2	1	4	-	-	-	-	-	-
Glenties	11-20	25.7	-	6	6	10.5	1.8	6.2	-	-3.8	13	2	26	3	-8.1	13	8	-	-	-	-	-	-
	21-end	9.0	-	5	4	13.8	5.7	9.8	-	-2.0	26	1	61	15	-6.1	26	4	-	-	-	-	-	-
	month	83.5	64	21	18	11.7	3.7	7.7	1.9	-3.8	13	6	119	20	-8.1	13	16	-	-	-	-	-	-
<b>Co. Kerry</b>	1-10	34.4	-	8	6	10.9	3.9	7.4	-	-2.7	2	1	35	4	-5.5	2	5	-	-	27.5	-	-	-
Ardfert	11-20	6.8	-	6	1	11.4	2.9	7.2	-	-1.1	13	2	33	5	-4.7	13	7	-	-	27.8	-	-	-
	21-end	12.0	-	4	3	14.9	6.1	10.5	-	-0.1	26	1	70	21	-3.5	29	3	-	-	58.1	-	-	-
	month	53.2	-	18	10	12.5	4.3	8.4	1.3	-2.7	2	4	137	30	-5.5	2	15	-	-	113.4	-	-	-
<b>Co. Leitrim</b>	1-10	60.8	-	10	5	10.0	3.0	6.5	-	-0.8	2	2	28	2	-1.6	2	3	5.2	6.2	30.6	-	-	-
Ballinamore	11-20	38.8	-	8	7	9.4	2.1	5.8	-	-2.2	13	2	21	1	-4.6	12	4	4.4	6.2	36.7	-	-	-
	21-end	15.3	-	6	4	12.9	4.6	8.8	-	-2.0	29	2	52	9	-3.9	29	2	7.4	8.5	37.1	-	-	-
	month	114.9	110	24	16	10.8	3.3	7.1	1.4	-2.2	13	6	100	12	-4.6	12	9	5.7	7.0	104.4	112	-	-
<b>Co. Louth</b>	1-10	28.0	-	8	3	11.2	3.1	7.2	-	-1.2	2	1	34	4	-4.1	2	6	6.0	6.3	-	-	-	-
Ardee	11-20	22.6	-	8	6	10.3	2.5	6.4	-	-1.6	11	3	27	3	-4.1	12	6	5.6	6.1	-	-	-	-
	21-end	2.9	-	4	1	13.6	3.5	8.6	-	-3.7	29	3	52	12	-3.5	26	5	7.9	8.2	-	-	-	-
	month	53.5	85	20	10	11.8	3.1	7.5	1.7	-3.7	29	7	113	19	-4.1	12	17	6.5	6.9	-	-	-	-
<b>Co. Waterford</b>	1-10	20.3	-	4	3	11.0	3.9	7.5	-	-1.4	2	1	36	5	-3.6	2	4	-	7.3	29.0	-	2.2	-
Dungarvan	11-20	29.4	-	7	5	11.3	4.2	7.8	-	0.5	11	0	36	4	-1.0	11	2	-	7.5	32.4	-	2.6	-
	21-end	15.6	-	5	4	12.6	4.9	8.8	-	-1.9	29	3	52	9	-3.5	29	3	-	9.4	39.6	-	1.9	-
	month	65.3	-	16	12	11.7	4.3	8.0	1.2	-1.9	29	4	124	18	-3.6	2	9	-	8.1	101.0	107	2.3	20
<b>Co. Wexford</b>	1-10	8.5	-	3	3	10.4	3.9	7.2	-	-0.3	2	1	32	3	-2.7	2	5	6.2	6.8	n/a	-	1.0	-
Johnstown Castle	11-20	20.4	-	7	4	9.9	4.7	7.3	-	2.4	11	0	31	1	0.0	11	0	6.4	6.9	n/a	-	1.5	-
	21-end	13.8	-	6	3	12.0	5.7	8.9	-	0.2	30	0	52	7	-3.2	30	5	8.4	8.7	n/a	-	0.9	-
	month	42.7	54	16	10	10.8	4.8	7.8	1.4	-0.3	2	1	114	11	-3.2	30	10	7.1	7.5	n/a	-	1.1	20

**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 Deficit	Surplus
<b>Co. Dublin</b>	1-10	11.0	-	0	1
Kinsealy	11-20	6.1	-	0	5
	21-end	13.3	12	12	-
	month	30.4			
<b>Co. Kerry</b>	1-10	11.6	-	0	19
Valentia Obs.	11-20	5.8	-	0	9
	21-end	24.7	3	3	-
	month	42.1			
<b>Co. Leitrim</b>	1-10	20.7	-	0	40
Ballinamore	11-20	7.7	-	0	31
	21-end	10.1	-	0	5
	month	38.5			
<b>Co. Wexford</b>	1-10	0.0	-	0	17
Johnstown Castle	11-20	11.4	-	0	9
	21-end	10.3	-	0	3
	month	21.7			

County/Station	GLOBAL SOLAR RADIATION (MJ/sq. m)			total for month	P.E. (Penman) total for month(mm)
	10-day totals 1-10	11-20	21-end		
<b>Co. Donegal</b>					
Malin Head	62.39	89.81	112.08	264.28	44
<b>Co. Dublin</b>					
Dublin Airport	68.36	84.14	124.16	276.66	33
<b>Co. Kerry</b>					
Valentia Obs.	57.98	77.58	124.70	260.26	38
<b>Co. Kilkenny</b>					
Kilkenny	62.43	76.49	107.06	245.98	32
<b>Co. Mayo</b>					
Belmullet	68.83	85.49	114.83	269.15	38
<b>Co. Monaghan</b>					
Clones	67.22	78.22	112.10	257.54	35
<b>Co. Offaly</b>					
Birr	63.90	79.42	111.46	254.78	32

**Friday 1st:** A strong, cold, northeasterly airflow covered Ireland. A ridge of high pressure to the north moved over the country during the evening. Rain over Munster during the morning turned to sleet for a time, but other areas were dry with sunny spells. Frost early and late in northern areas. Moderate north to northeasterly winds, strongest in the south.

**Rainfall:** nil generally, 3 to 8mm in parts of south, northwest and north  
**Temperature:** max. 6°C to 9°C, min. -2°C to 3°C, ground temperatures down to -7°C in Birr

**Sunshine:** 3 to 10 hours, sunniest in northwest

**Saturday 2nd:** An anticyclone to the west placed Ireland in a northwesterly airflow. Frost in many areas at first, especially the midlands and south, but daytime temperatures were near normal with variable amounts of sunshine. Rain and drizzle later in the evening in places. Light variable or northwesterly winds.

**Rainfall:** nil generally, 1 to 2mm in parts of west and north  
**Temperature:** max. 9°C to 11°C, min. 0°C to -2°C generally, ground temperatures -4°C to -9°C inland

**Sunshine:** 1 to 5 hours

**Sunday 3rd:** A westerly airflow covered Ireland, with a ridge of high pressure persisting off the southwest coast. Patchy rain and drizzle along the west coast, but generally a dry and cloudy day with light winds.

**Rainfall:** nil to 1mm  
**Temperature:** max. 9°C to 11°C, min. 4°C to 8°C, ground temperatures down to -2°C in Kilkenny

**Sunshine:** nil to 3 hours

**Monday 4th:** A moderate to fresh west to southwesterly airflow covered the area, as a weakening cold front approached from the northwest. Another mainly dry and cloudy day with some patchy rain or drizzle, mainly in midland areas. Winds were mainly light westerly, turning northwesterly later and freshening a little.

**Rainfall:** nil to 1mm  
**Temperature:** max. 9°C to 11°C, min. 2°C to 7°C, ground temperatures near freezing inland

**Sunshine:** nil to 3 hours

**Tuesday 5th:** A westerly airflow covered Ireland, with a ridge of high pressure situated off the southwest coast. A dry start everywhere with ground frost in places. Patchy rain and drizzle developed in the north and northwest, becoming persistent by late afternoon and spreading slowly southeastwards during the evening. Near normal temperatures.

**Rainfall:** nil generally, 5 or 6mm in northwest and north  
**Temperature:** max. 8°C to 11°C, min. -1°C to 7°C, mildest in northwest, ground temperatures -1°C to -3°C inland

**Sunshine:** nil to 2 hours many areas, 4 to 6 hours in east and southeast

**Wednesday 6th:** A mild westerly airflow covered Ireland as frontal systems crossed the country. Rain and drizzle became widespread during the morning, heaviest in the north and northwest. Rain cleared during the afternoon but it remained dull. Milder than recent days. Strong and gusty westerly winds.

**Rainfall:** nil to 2mm generally, 4 to 9mm in parts of west and north  
**Temperature:** max. 10°C to 14°C, highest in south, min. 6°C to 10°C, ground temperatures over 4°C

**Sunshine:** nil to 2 hours

**Thursday 7th:** A westerly airflow covered Ireland. A weak warm front over southern areas moved northeastwards, followed a moist southwesterly airflow. Rain over southern areas for much of the morning, but elsewhere it was a mostly dry, mild and sunny day. Strong and gusty westerly winds backed southwesterly and eased by evening, allowing some mist or fog to develop.

**Rainfall:** nil generally, up to 5mm at Valentia Observatory  
**Temperature:** max. 11°C to 15°C, min. 6°C to 10°C everywhere, ground temperatures over 3°C

**Sunshine:** nil at Valentia Observatory, 2 to 7 hours generally

**Friday 8th:** A cold front moved southeastwards over the country during the afternoon. Mild at first with some fog patches and spots of light rain or drizzle. The cold front brought colder, wet weather to all parts in the afternoon, with some heavy falls in places. Clearer weather with wintry showers reached the northwest by evening. Light to moderate winds at first became fresh to strong northwesterly with the passage of the front.

**Rainfall:** 1 to 4mm at most stations, up to 10mm at Belmullet  
**Temperature:** max. 10°C to 13°C, min. 1°C to 6°C, ground temperatures down to -4°C in Kilkenny  
**Sunshine:** less than 2 hours

**Saturday 9th:** A deepening depression moved across the country, spreading rain and sleet northeastwards overnight and during the morning, with snow on high ground. A clearance to sunny spells and wintry showers, some thundery, during the afternoon, but further rain moved into western areas later. Very strong southeast to southwesterly winds at first, with severe gusts, became lighter for a period before strengthening again by late evening.

**Rainfall:** 1mm at Malin Head, 4 to 8mm generally, 11 to 13mm at some midland stations  
**Temperature:** max. 5°C to 10°C, min. 0°C to 4°C, ground temperatures -1°C to -4°C inland  
**Sunshine:** 3 to 9 hours, sunniest in southeast

**Sunday 10th:** A deep depression near the northwest coast moved steadily northeastwards during the period. Heavy rain in many areas at first cleared to showers during the evening, some heavy and thundery. Strong to gale force south to southwesterly winds, easing by evening.

**Rainfall:** 3 to 8mm many stations, 13 to 20mm in north and northwest  
**Temperature:** max. 8°C to 11°C, mildest in southwest, min. 0°C to 4°C, ground temperature down to -4°C in Kilkenny  
**Sunshine:** 2 to 6 hours, highest in south

**Monday 11th:** Wintry showers with some thunder affected northern and western areas but most places were dry with long sunny spells. Cold at first and again after dark, leading to a sharp frost inland. Gale force southwesterly winds in the west and north at first became light to moderate everywhere by evening.

**Rainfall:** nil generally, 6 to 9mm in north and northwest  
**Temperature:** max. 8°C to 12°C, min. 0°C to 3°C, ground temperatures -4°C to -8°C inland  
**Sunshine:** 5 to 10 hours

**Tuesday 12th:** A ridge of high pressure lay to the northwest, while a warm front was slow-moving off the south coast. After a frosty start in many places, the day was generally dry with some spots of rain in the south and scattered showers in the northwest. Sunny spells also, especially in northern areas. Light southwest or variable winds at first, gradually becoming north to northeasterly, light to moderate generally but strong in the southeast.

**Rainfall:** nil generally, 3mm at Belmullet  
**Temperature:** max. 8°C to 10°C, min. -1°C to 5°C, ground temperatures -5°C to -7°C inland  
**Sunshine:** 1 to 3 hours in south, 5 to 9 hours in northern half

**Wednesday 13th:** A strong, cold, east to northeasterly airflow became established as a ridge of high pressure was replaced by slow-moving frontal systems off the south coast. Dry and clear at first with widespread frost, followed by a cool, dry day with long sunny spells. Winds freshened by mid-morning and continued moderate to fresh and gusty for most of the day.

**Rainfall:** nil or trace  
**Temperature:** max. 8°C to 11°C, min. -2°C to 5°C, highest in north, ground temperatures down to -8°C in Birr  
**Sunshine:** 3 to 5 hours in south, 9 to 11 hours generally

**Thursday 14th:** A strong easterly airflow over the country. It was another dry day everywhere with long sunny spells except in the south and southwest. Temperatures were below normal with ground frost inland, despite the strong east or northeasterly wind, which reached gale to strong gale force in places.

**Rainfall:** nil or trace  
**Temperature:** max. 7°C to 10°C, min. -1°C to 5°C, ground temperatures -1°C to -3°C inland  
**Sunshine:** less than 1 hour in south, 6 to 10 hours generally

**Friday 15th:** A cold east to northeasterly airflow persisted, while frontal troughs moved northwestwards over the area. Light and patchy rain in the southeast and east at first spread to all but southwestern areas during the day and became heavier. Strong and gusty winds in the extreme north of the country, but generally light elsewhere.

**Rainfall:** 2 to 5mm generally, 9mm at Dublin Airport  
**Temperature:** max. 6°C to 9°C, min. 2°C to 6°C, ground temperatures 0°C to 4°C, lowest in northwest  
**Sunshine:** nil or trace



**Saturday 16th:** A mild southerly airflow covered Ireland. Patchy rain and drizzle in places during the early morning, becoming mainly dry everywhere during the day apart from the odd shower. Much milder than recent days.

**Rainfall:** 1 to 6mm, heaviest in north

**Temperature:** max. 10°C to 15°C, min. 4°C to 8°C, ground temperatures near freezing inland

**Sunshine:** 1 to 4 hours most places, 6 to 10 hours in east and southeast

**Sunday 17th:** A mild south to southeasterly airflow over Ireland as a depression lay off the west coast. Rainbelts moved northwards during the day as winds increased in strength, bringing heaviest falls in the south and southwest. Rain turned to showers during the later afternoon and evening.

**Rainfall:** 1 to 10mm, highest in southwest

**Temperature:** max. 9°C to 12°C, min. 5°C to 8°C, ground temperatures 1°C to 6°C

**Sunshine:** 0 to 3 hours

**Monday 18th:** A depression of 983hPa in the Bristol Channel moved eastwards as the prevailing easterly airflow became cyclonic variable during the afternoon. Rain in the southeast spread northwards during the afternoon and was heavy in places. Mist in some areas for a time. Cloudy in the east and southeast but sunny spells elsewhere.

**Rainfall:** 1 to 3mm generally, 8 to 10mm in southeast

**Temperature:** max. 8°C to 12°C, min. 3°C to 6°C, ground temperatures -2°C to -3°C inland

**Sunshine:** 0 to 2 hours generally, 4 to 6 hours in some stations

**Tuesday 19th:** An occluded frontal system moved northwards over the country. Some frost and fog at first, but rain and drizzle reached the south coast during the late morning and spread to all areas later. A clearance followed into the southwest by early afternoon and spread northwards during the evening. A mild day with southeast to southwesterly winds.

**Rainfall:** nil to 4mm

**Temperature:** max. 8°C to 13°C, min. 1°C to 6°C, ground temperatures 0°C to -3°C most stations

**Sunshine:** 0 to 2 hours generally, 5 hours at Malin Head

**Wednesday 20th:** A mild south to southwesterly airflow covered the country. Mild, cloudy, wet weather moved over the country during the day, with some heavy rain in places. A clearance spread from the southwest during the evening.

**Rainfall:** 1 to 4mm generally, 9mm at Malin Head

**Temperature:** max. 11°C to 14°C, min. 4°C to 10°C, highest in northwest, ground temperatures near freezing inland

**Sunshine:** nil to 2 hours

**Thursday 21st:** High pressure to the south of the country maintained a mild southwesterly airflow over Ireland. Mist or fog during the night, dense in places and slow to clear during the morning. Showers developed in places during the afternoon but most areas had a dry, warm day with sunny periods. Light to moderate southwesterly winds were a little fresher in coastal areas.

**Rainfall:** nil generally, up to 5mm at Clones

**Temperature:** max. 12°C to 16°C, min. 7°C to 10°C, ground temperatures down to -2°C in Kilkenny

**Sunshine:** 2 to 5 hours generally, 8 or 9 hours in south and southeast

**Friday 22nd:** Continuing high pressure to the south of Ireland, giving a mild south to southeasterly airflow. Mild with fog in many places early and late, lingering all day in some southern areas. Some showers at first, becoming generally dry during the afternoon but remaining dull.

**Rainfall:** nil to 1mm

**Temperature:** max. 11°C to 16°C, min. 8°C to 11°C, ground temperatures above 5°C everywhere

**Sunshine:** nil to 3 hours

**Saturday 23rd:** A southeasterly airflow covered Ireland. Overnight fog cleared to give a dry day. Dull in the east but some sunny spells elsewhere. Very mild. Light southeasterly winds, increasing to moderate at times.

**Rainfall:** nil or trace

**Temperature:** max. 10°C to 17°C, warmest in northwest, min. 6°C to 10°C, ground temperatures over 4°C

**Sunshine:** 0 to 3 hours generally, 8 hours at Valentia Observatory

**Sunday 24th:** A cold front moved slowly eastwards over Ireland, bringing a spell of light rain to all areas. Mild, cloudy and humid at first, clearing to give good sunny spells in the western half of the country by afternoon. Moderate

southerly winds veered southwesterly following the front and eased slightly.

**Rainfall:** nil to 2mm

**Temperature:** max. 11°C to 14°C, min. 6°C to 9°C, ground temperatures near freezing inland

**Sunshine:** less than 1 hour most stations, up to 9 hours at Belmullet

**Monday 25th:** A weak cold front moved quickly eastwards as a ridge developed to the southwest. Some rain or showers associated with the front, but amounts were small and it was generally sunny. Ground frost early and late. Light southerly or variable winds, veering westerly and strengthening a little.

**Rainfall:** nil to 1mm

**Temperature:** max. 10°C to 13°C, min. 0°C to 7°C, mildest in southeast, ground temperatures -4°C to -7°C inland

**Sunshine:** 2 to 5 hours most stations, 6 to 8 hours near northern and western coasts

**Tuesday 26th:** An anticyclone of 1033hPa centred over Britain drifted slowly eastwards. A dry, clear day after a frosty start in all but southeastern areas. Light southerly winds, moderate in northern areas during the afternoon.

**Rainfall:** nil

**Temperature:** max. 11°C to 13°C, min. -3°C to 3°C, ground temperatures -5°C to -9°C inland

**Sunshine:** 4 to 11 hours, highest in southeast

**Wednesday 27th:** A large anticyclone over northern Europe kept Ireland in a south to southwesterly airflow. Dry and settled weather everywhere, with long sunny spells except in the extreme south where it remained mostly cloudy. Light southerly winds, increasing in strength as the day progressed.

**Rainfall:** nil

**Temperature:** max. 12°C to 14°C, min. 2°C to 8°C, ground temperatures down to -5°C at Dublin Airport

**Sunshine:** 2 hours in south, 5 to 9 hours generally

**Thursday 28th:** An anticyclone over Europe maintained a moderate to fresh southeast to southerly airflow over Ireland. A dry day everywhere with long spells of hazy sunshine. Ground frost in many places early and late.

**Rainfall:** nil

**Temperature:** max. 11°C to 14°C, warmest in east, min. down to -2°C in east, ground temperatures -3°C to -7°C in midlands and east

**Sunshine:** 5 to 10 hours

**Friday 29th:** An anticyclone of 1033hPa still centred over northern Europe. Clear skies overnight giving sharp to severe ground frost in most places, with extensive mist with fog patches also. A dry day with long spells of hazy sunshine, becoming cloudier later in the western half of the country. Eastern areas remained clear, allowing a return of the frost.

**Rainfall:** nil

**Temperature:** max. 11°C to 14°C, min. -3°C to 9°C, lowest in southeast, ground temperatures -6°C to -9°C in midlands and east

**Sunshine:** 7 to 10 hours

**Saturday 30th:** A south to southwesterly airflow became established across Ireland as a ridge of high pressure retreated eastwards, allowing frontal troughs to approach from the Atlantic. A clear start in the east, but cloudy in the west with outbreaks of rain arriving here by dawn. The rain moved steadily eastwards and by nightfall it had reached all parts. Winds freshened with the rainfall and there were gale gusts in exposed western and northern areas.

**Rainfall:** nil to 3mm generally, 4 to 7mm in parts of south and west, 12mm at Valentia Observatory

**Temperature:** max. 9°C to 13°C, min. 0°C to 7°C, lowest in southeast, ground temperatures down to -6°C in Kilkenny

**Sunshine:** less than 2 hours generally, 5 hours at Rosslare

**Sunday 31st:** Frontal troughs moved across Ireland overnight and a cold front approached from the Atlantic in the evening. Mild and humid throughout, with mist and fog patches and spells of rain or drizzle. The rain was persistent in the southwest at times but the eastern half of the country had only small amounts. Generally dull with very little sunshine but afternoon temperatures were slightly above normal. The approaching front brought more rain along the western seaboard in the evening. Moderate southwesterly winds became fresh and gusty in the afternoon and evening.

**Rainfall:** nil to 3mm generally, 11mm at Valentia Observatory

**Temperature:** max. 11°C to 15°C, min. 8°C to 10°C, ground temperatures above 6°C everywhere

**Sunshine:** 0 to 2 hours

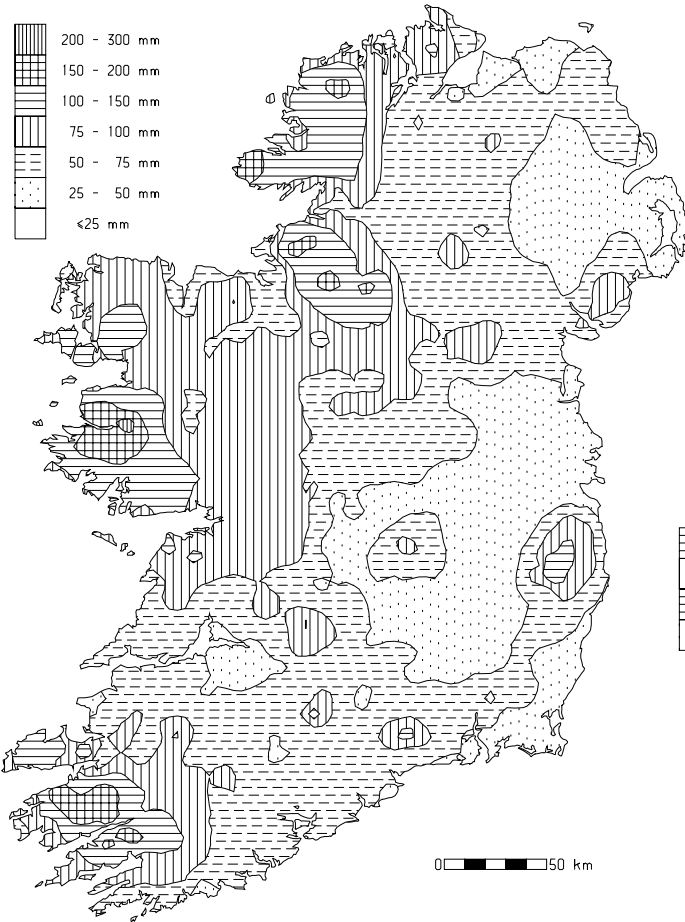
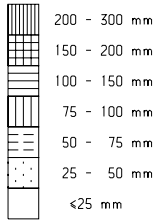
## Drier than normal almost everywhere

Apart from a few stations in the west and northwest of the country, rainfall totals for the month were below normal everywhere and were well below normal in parts of the east. They ranged from 28mm at Casement Aerodrome to 165mm at Maam Valley, Co. Galway. Although just over half the normal March rainfall was measured in the Dublin area, it was not as dry as March 2000 when only around 20mm was measured in the area.

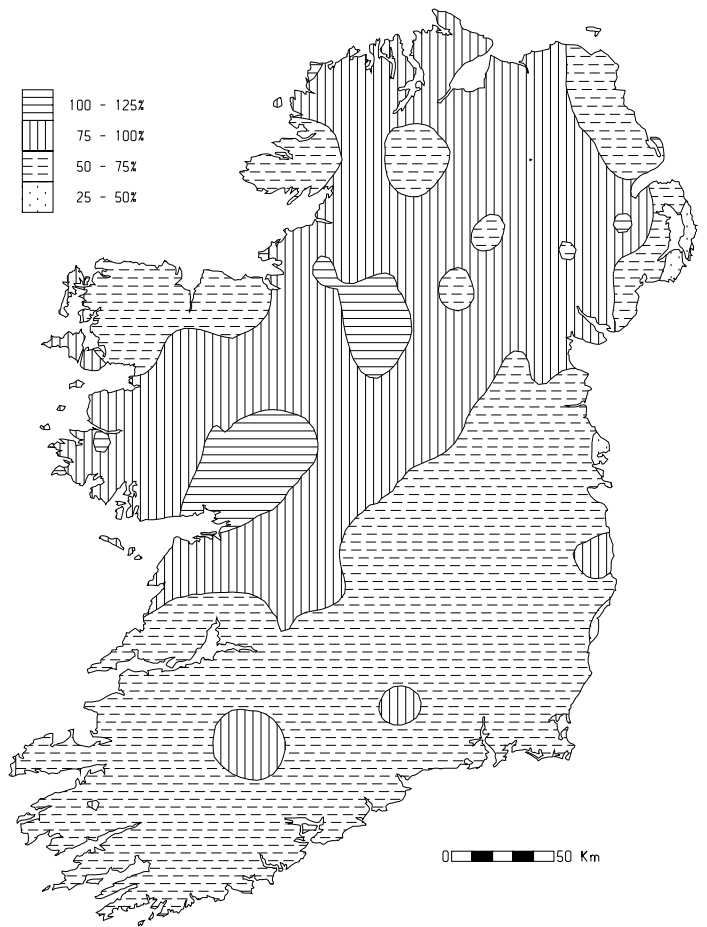
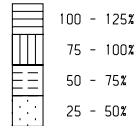
Most of the month's rainfall was concentrated into the periods 8th to 10th, 15th to 20th and 30th to 31st. Outside of these periods amounts were very small, especially in the east and southeast. As a consequence, the number of wetdays during the month (*days with 1.0mm or more of rainfall*) were below normal everywhere; they ranged from around 8 in eastern areas to between 16 and 18 wetdays in parts of the west and northwest. Most stations had their highest daily falls on either the 9th or 10th, with some locally heavy falls also on the 30th and 31st. The highest daily value, 36.1mm, was recorded at Maam Valley on the 30th.

County/ Station	Total Amount (mm)	% of 1961-90 average	Most in		Number of		
			a day / date		Raindays (>0.2mm)	Wetdays (≥1mm)	
<b>CO. CLARE</b>							
SHANNON AIRPORT	41.2	58	10.9	30	15	11	
CARRON	112.0	94	21.2	9	22	16	
<b>CO. CORK</b>							
FERMOY (MOORE PARK)	55.4	70	15.8	9	15	9	
CORK AIRPORT	59.4	61	9.9	9	17	11	
SHERKIN ISLAND	52.8	54	11.4	17	16	10	
BALLINCURRIG (PEAFIELD)	65.9		11.6	17	17	12	
<b>CO. DONEGAL</b>							
MALIN HEAD	75.3	86	11.9	5	18	14	
BALLYSHANNON (CATHLEEN'S FALL)	72.8	83	17.2	5	23	16	
GLENTIES	83.5	64	n/a		21	18	
<b>CO. DUBLIN</b>							
DUBLIN (PHOENIX PARK)	33.4	59	9.4	8	16	8	
DUBLIN AIRPORT	30.4		8.2	8	14	8	
CASEMENT AERODROME	27.9	56	7.8	8	12	7	
DUBLIN (MERRION SQUARE)	36.4	70	9.5	15	12	8	
<b>CO. GALWAY</b>							
GALWAY (UNIV. COLL.)	97.2	109	24.5	8	20	13	
MAAM VALLEY	165.3		36.1	30	21	16	
CONNEMARA NATIONAL PARK	99.2	75	25.3	9	23	16	
BALLYGAR	88.4	107	21.1	9	21	15	
<b>CO. KERRY</b>							
VALENTIA OBSERVATORY	67.4	55	16.6	30	19	13	
ARDFERT (LISCAHANE)	53.2		12.1	8	18	10	
<b>CO. KILKENNY</b>							
KILKENNY	42.1	66	9.0	9	16	9	
<b>CO. LEITRIM</b>							
BALLINAMORE	114.9	110	25.3	9	24	16	
<b>CO. LIMERICK</b>							
MOUNT RUSSELL	68.2		11.5	17	20	16	
<b>CO. LOUTH</b>							
ARDEE (BOHARNAMOE)	53.5	85	11.0	8	20	10	
<b>CO. MAYO</b>							
BELMULLET	75.9	79	15.7	9	21	15	
STRAIDE	82.4	85	21.4	9	21	13	
CONNAUGHT AIRPORT	84.6		22.9	9	23	14	
<b>CO. MEATH</b>							
WARRENTOWN	34.3	52	11.5	8	16	6	
<b>CO. MONAGHAN</b>							
CLONES	54.0	69	16.2	9	17	13	
<b>CO. OFFALY</b>							
BIRR	42.6	70	14.8	8	18	11	
DERRYGREENAGH	42.1	63	10.9	9	16	11	
<b>CO. SLIGO</b>							
ARDTARMON	74.1		13.1	9	21	11	
<b>CO. TIPPERARY</b>							
FETHARD (PARSONSHILL)	53.1		8.7	9	19	11	
<b>CO. WATERFORD</b>							
WATERFORD (TYCOR)	50.2	62	9.6	17	17	11	
DUNGARVAN (CARRIGLEA)	65.3		12.5	9	16	12	
<b>CO. WESTMEATH</b>							
MULLINGAR II	58.8	81	15.5	8	19	14	
<b>CO. WEXFORD</b>							
JOHNSTOWN CASTLE	42.7	54	7.1	31	16	10	
ROSSLARE	39.8	59	5.9	17	13	10	
CLONROCHE	60.5	67	9.9	17	15	10	
JOHN F. KENNEDY PARK	56.6	72	9.0	17	14	11	

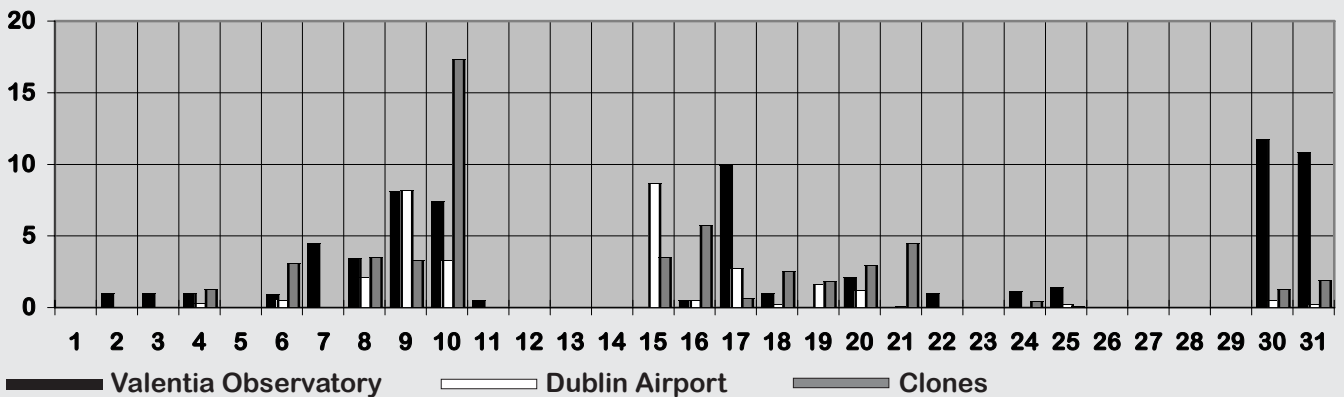
**Total rainfall (mm)**



**Percentage of normal rainfall**



**Daily 0-24h rainfall values (mm)**

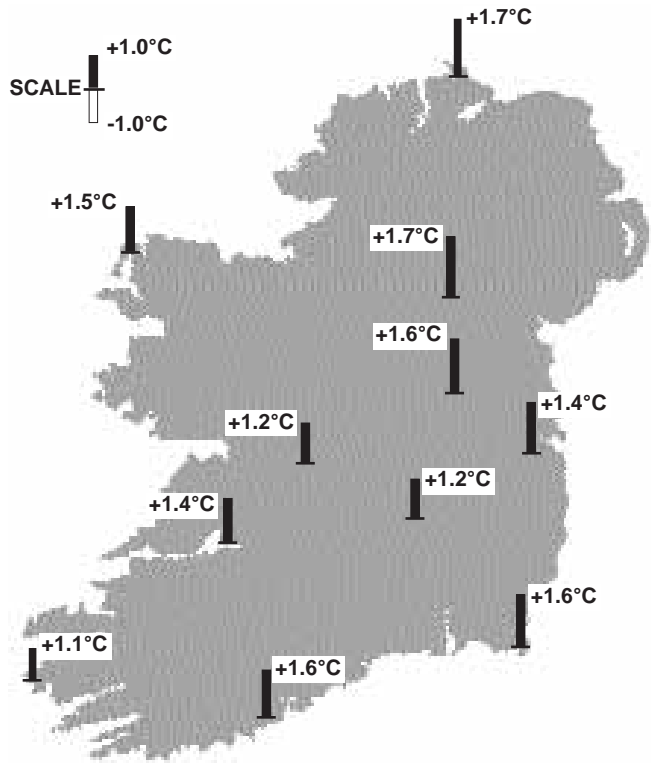




## Another milder than normal month

Like the other months so far this year, mean air temperatures for March were again well above normal, by between one and two degrees everywhere. They ranged from 9.7°C at Connaught Airport, Co. Mayo, to 12.5°C at Ardfert (Lis cahane), Co. Kerry, but at no station was it as warm as the exceptionally mild March of 1998. Maximum temperatures showed a steady rise during the month, but there was also some frosty weather at times, especially during the spell of calm, clear conditions between the 26th and 29th.

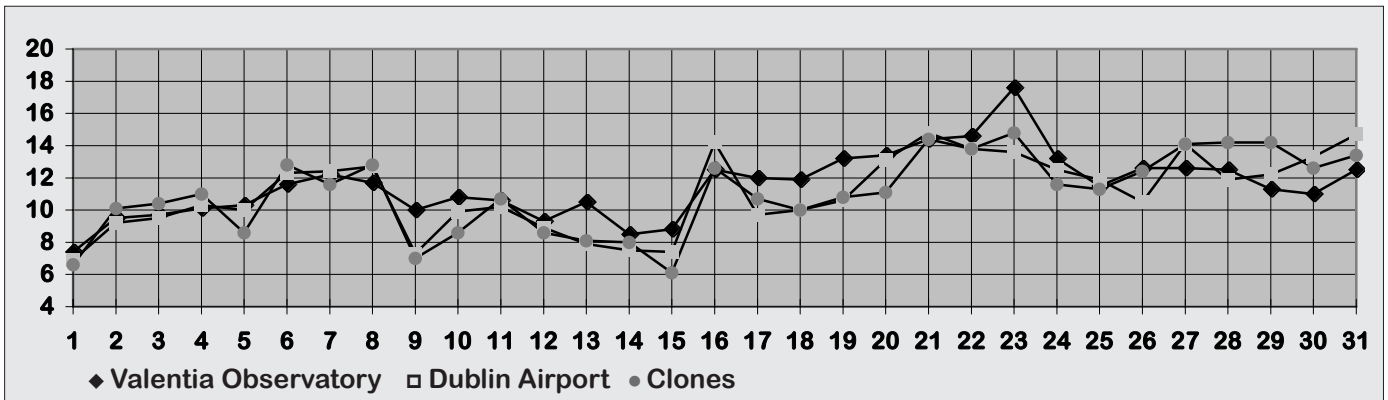
Almost all stations measured their highest temperatures of the month between the 21st and 23rd. The highest value, 19.2°C, was recorded at Ardfert (Lis cahane), Co. Kerry, on the 23rd, the second highest March temperature at the station since it opened in 1980. The number of air frosts at inland stations during the month of between 4 and 7 was around normal for March, but there was no air frost recorded at a number of coastal stations. The lowest air temperature, -3.8°C, was measured at Glenties, Co. Donegal, on the 13th, while the lowest grass



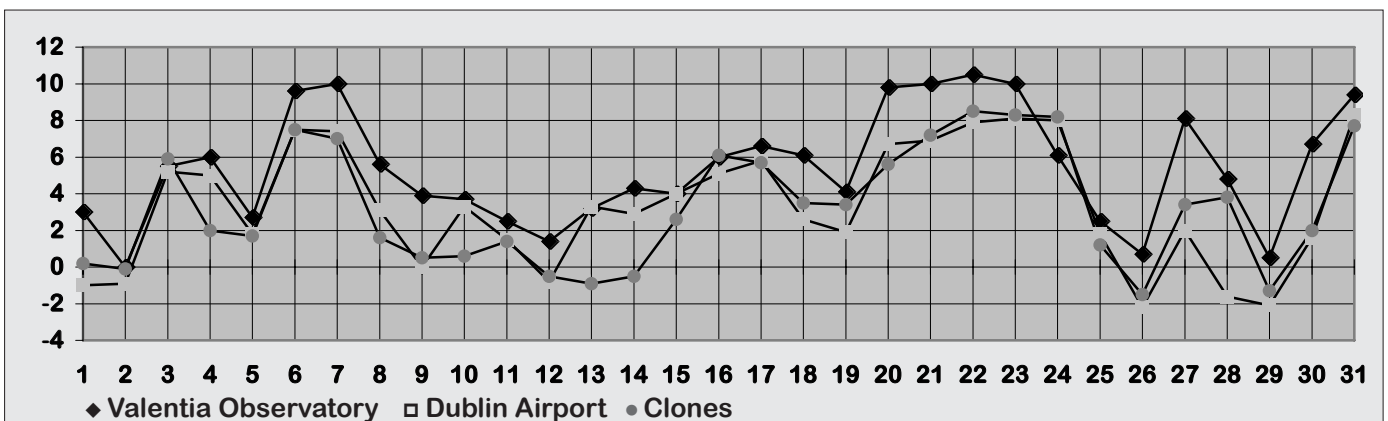
**Mean Temperature**  
(difference from 1961-90 normals)

minimum temperature, -8.7°C, was measured at Kilkenny on the 2nd.

### Daily 0-24h maximum temperatures (°C)



### Daily 0-24h minimum temperatures (°C)



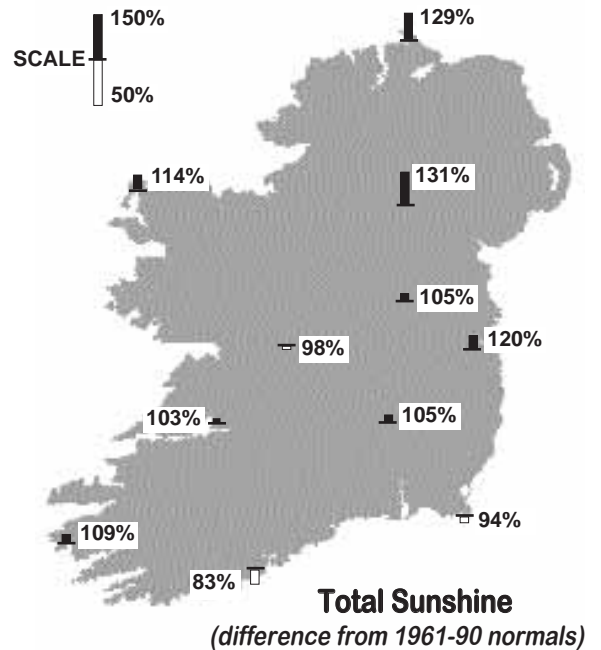
County/ Station	°C											
	Mean max.	Mean min.	Mean/ deviation from 1961-90 average		Highest max./date		Lowest min./date		Lowest grass min./date		Days with air frost ground frost	
<b>CO. CLARE</b>												
SHANNON AIRPORT	12.0	5.0	8.5	1.4	15.5	22	-0.2	2	-6.4	2	1	14
CARRON	10.5	4.1	7.3	1.5	14.1	22 23	-0.4	12	-7.6	29	1	13
<b>CO. CORK</b>												
FERMOY (MOORE PARK)	11.5	3.5	7.5	1.1	16.4	21	-2.8	26 29	-5.4	26	6	11
CORK AIRPORT	11.0	4.8	7.9	1.6	15.3	21	-0.9	2	-2.3	2	1	8
SHERKIN ISLAND	11.4	6.6	9.0	1.4	13.5	25	1.8	2	-2.9	2	0	4
BALLINCURRIG (PEAFIELD)	10.8	3.8	7.3		15.9	21	-1.5	2	-2.5	2	2	7
<b>CO. DONEGAL</b>												
MALIN HEAD	10.4	5.6	8.0	1.7	14.7	23	1.2	10	-0.5	26	0	1
BALLYSHANNON (CATHLEEN'S FALL)	11.0	3.3	7.2	1.1	16.0	23	-1.6	13			5	
GLENTIES	11.7	3.7	7.7	1.9	16.3	23	-3.8	13	-8.1	13	6	16
<b>CO. DUBLIN</b>												
DUBLIN (PHOENIX PARK)	12.1	3.7	7.9	1.7	16.2	23	-2.3	12	-8.2	29	5	18
DUBLIN AIRPORT	11.3	3.5	7.4		14.8	21	-2.2	26	-7.0	29	5	12
CASEMENT AERODROME	11.3	3.7	7.5	1.4	15.3	23	-2.4	2	-5.4	26	4	8
DUBLIN (MERRION SQUARE)	11.6	5.7	8.7	1.4	16.1	21	1.1	2			0	
<b>CO. GALWAY</b>												
GALWAY (UNIV. COLL.)	11.8	4.6	8.2	1.3	15.5	23	-1.0	12 13	-6.8	26	5	16
MAAM VALLEY	11.6	5.3	8.5		17.5	23	0.1	26	-3.9	9	0	7
CONNEMARA NATIONAL PARK	11.3	4.8	8.1	1.5	17.6	23	-0.1	9			1	
BALLYGAR	11.4	4.1	7.8		14.9	23	-1.5	26	-5.1	26	5	10
<b>CO. KERRY</b>												
VALENTIA OBSERVATORY	11.6	5.7	8.7	1.1	17.6	23	0.0	2	-5.7	2	0	6
ARDFERT (LISCAHANE)	12.5	4.3	8.4	1.3	19.2	23	-2.7	2	-5.5	2	4	15
<b>CO. KILKENNY</b>												
KILKENNY	11.5	3.3	7.4	1.2	16.4	21	-2.7	29	-8.7	2	5	21
<b>CO. LEITRIM</b>												
BALLINAMORE	10.8	3.3	7.1	1.4	14.4	29	-2.2	13	-4.6	12	6	9
<b>CO. LIMERICK</b>												
MOUNT RUSSELL	10.7	4.3	7.5		15.8	21	-1.0	2	-6.8	2	1	11
<b>CO. LOUTH</b>												
ARDEE (BOHARNAMOE)	11.8	3.1	7.5	1.7	15.4	21	-3.7	29	-4.1	2 12	7	17
<b>CO. MAYO</b>												
BELMULLET	11.3	5.5	8.4	1.5	17.2	23	1.0	14	-3.2	26	0	7
STRAIDE	11.6	4.1	7.9	1.6	17.5	23	-2.0	26	-6.3	13 26	6	12
CONNAUGHT AIRPORT	9.7	3.1	6.4		15.1	23	-1.3	1	-5.3	12	5	11
<b>CO. MEATH</b>												
WARRENTOWN	11.3	4.1	7.7	1.8	15.0	28	-1.1	26	-5.7	12	2	13
<b>CO. MONAGHAN</b>												
CLONES	11.2	3.5	7.4	1.7	14.8	23	-1.5	26	-7.4	26	6	13
<b>CO. OFFALY</b>												
BIRR	11.3	3.7	7.5	1.2	15.1	22	-2.3	26	-8.6	26	5	15
DERRYGREENAGH				not	available							
<b>CO. SLIGO</b>												
ARDTARMON	11.2	4.9	8.1		14.2	21	-0.1	1	-4.5	1	1	8
<b>CO. TIPPERARY</b>												
FETHARD (PARSONSHILL)	10.7	3.2	7.0		15.0	21	-2.1	2	-6.2	2	2	17
<b>CO. WATERFORD</b>												
WATERFORD (TYCOR)	11.8	4.5	8.2	1.4	16.1	21	-0.8	2			1	
DUNGARVAN (CARRIGLEA)	11.7	4.3	8.0	1.2	16.5	21	-1.9	29	-3.6	2	4	9
<b>CO. WESTMEATH</b>												
MULLINGAR II	10.9	3.6	7.3	1.6	14.3	29	-2.5	26	-7.8	26	4	16
<b>CO. WEXFORD</b>												
JOHNSTOWN CASTLE	10.8	4.8	7.8	1.4	14.8	21	-0.3	2	-3.2	30	1	10
ROSSLARE	10.8	6.1	8.5	1.6	14.0	21	1.2	2	-4.0	10	0	7
CLONROCHE	10.8	3.7	7.3	1.4	16.0	21	-2.0	2	-6.5	2	3	14
JOHN F. KENNEDY PARK	10.8	4.3	7.6	1.2	15.6	21	-1.4	2	-5.0	2	1	9

County/ Station	Daily mean (hours/day)	% of average	% of possible	Most in a day/date
<b>CO. CLARE</b>				
SHANNON AIRPORT	3.44	103	29	9.7 11
<b>CO. CORK</b>				
FERMOY (MOORE PARK)	3.73	116	31	8.7 11
CORK AIRPORT	2.95	83	25	9.1 11
SHERKIN ISLAND	3.19	91	27	9.7 11
BALLINCURRIG (PEAFIELD)	3.18		27	10.2 29
<b>CO. DONEGAL</b>				
MALIN HEAD	3.95	129	33	9.9 13
BALLYSHANNON (CATHLEEN'S FALL)	3.65	120	31	10.6 13
<b>CO. DUBLIN</b>				
DUBLIN AIRPORT	4.05	113	34	10.4 28
CASEMENT AERODROME	3.91	120	33	10.1 28
<b>CO. GALWAY</b>				
GALWAY (UNIV.COLL.)	3.55	105	30	10.5 14
<b>CO. KERRY</b>				
VALENTIA OBSERVATORY	3.32	109	28	8.5 29
ARDFERT (LISCAHANE)	3.66		32	9.2 27
<b>CO. KILKENNY</b>				
KILKENNY	3.48	105	29	11.1 26
<b>CO. LEITRIM</b>				
BALLINAMORE	3.37	112	29	10.5 13
<b>CO. MAYO</b>				
BELMULLET	3.75	114	32	10.8 13
STRAIDE	3.51			10.6 13
CONNAUGHT AIRPORT	3.18		27	10.8 13
<b>CO. MONAGHAN</b>				
CLONES	3.96	131	34	10.5 13
<b>CO. OFFALY</b>				
BIRR	3.12	98	26	9.9 13
<b>CO. WATERFORD</b>				
DUNGARVAN (CARRIGLEA)	3.26	107	32	9.6 26
<b>CO. WESTMEATH</b>				
MULLINGAR II	3.47	105	29	10.8 13
<b>CO. WEXFORD</b>				
JOHNSTOWN CASTLE		not available		
ROSSLARE	3.65	94	31	11.2 26
CLONROCHE	3.71	112	31	10.5 26
JOHN F. KENNEDY PARK	3.60	107	30	10.7 26

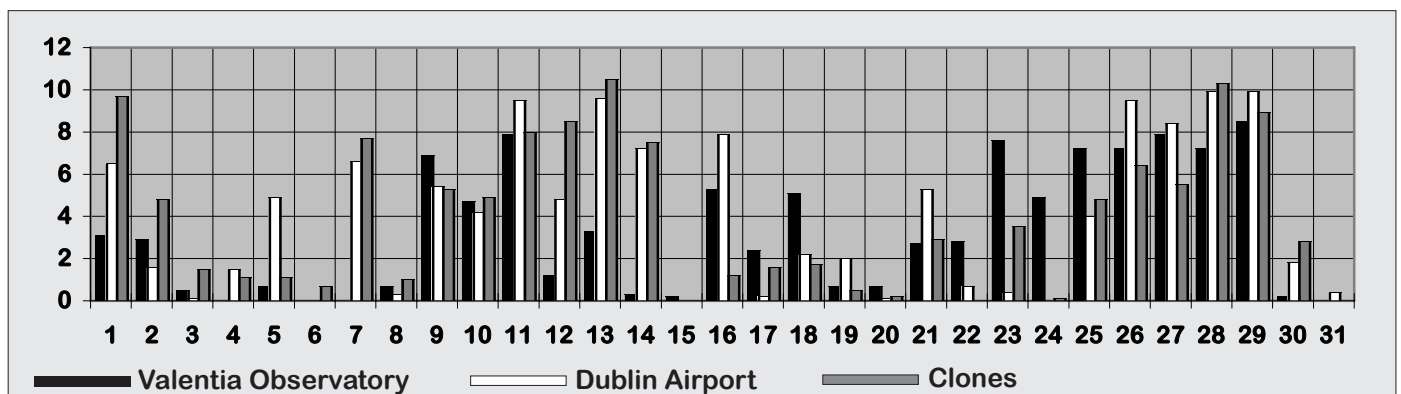
## Above normal generally, especially in north

Sunshine totals for the month were above normal in most places, but they were a little below normal in the south and southeast. The highest totals were measured in the Dublin area, where it was the sunniest March since 1986; they ranged from 91 hours at Cork Airport to 125 hours at Dublin Airport. Percentage of normal values were between 83% at Cork Airport and 131% at Clones.

Most of the month's sunshine was recorded in the spells of anticyclonic weather between the 11th and 14th and also between the 26th and 29th. The highest daily value, 11.2 hours, was recorded on the 26th at Rosslare, its highest daily sunshine for March since 1981. Global solar radiation totals were near or above normal, ranging from 96% at Kilkenny to 120% at Malin Head.

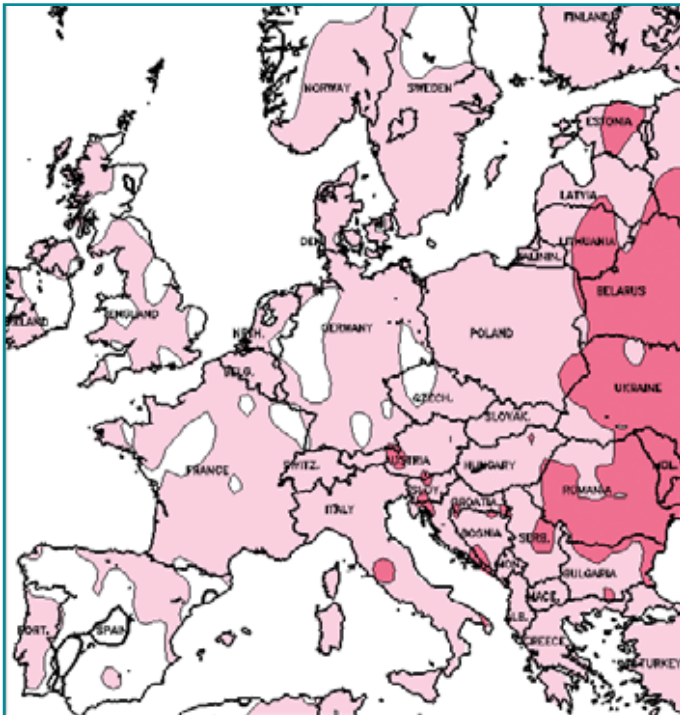
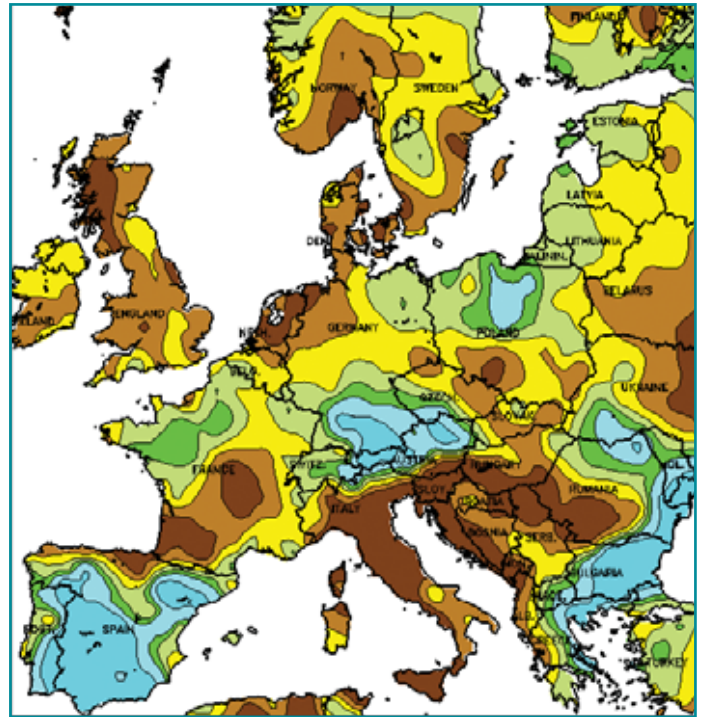
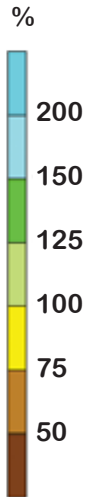


### Daily sunshine values (hours)





**MARCH RAINFALL**  
(Percentage of 1961-1990 normal)



**MARCH MEAN TEMPERATURES**  
(difference from 1961-1990 normal)

Data supplied by NOAA  
Climate Prediction Centre,  
US Department of Commerce

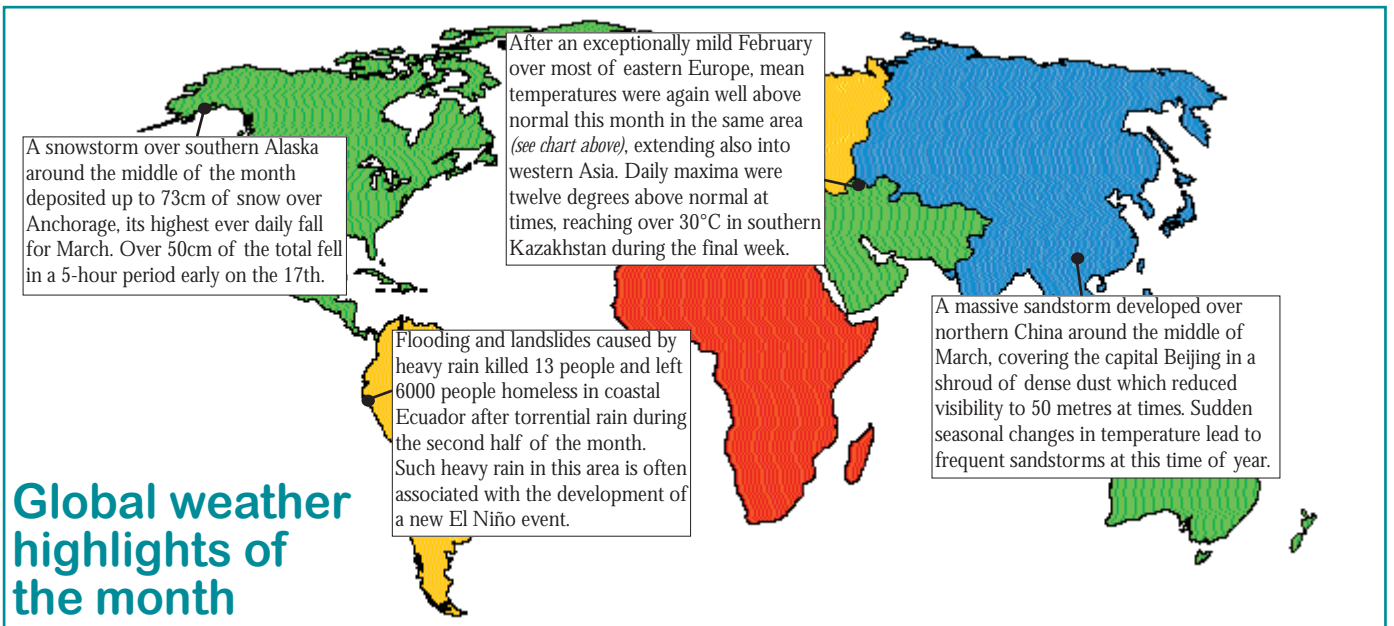
**Global weather highlights of the month**

A snowstorm over southern Alaska around the middle of the month deposited up to 73cm of snow over Anchorage, its highest ever daily fall for March. Over 50cm of the total fell in a 5-hour period early on the 17th.

After an exceptionally mild February over most of eastern Europe, mean temperatures were again well above normal this month in the same area (see chart above), extending also into western Asia. Daily maxima were twelve degrees above normal at times, reaching over 30°C in southern Kazakhstan during the final week.

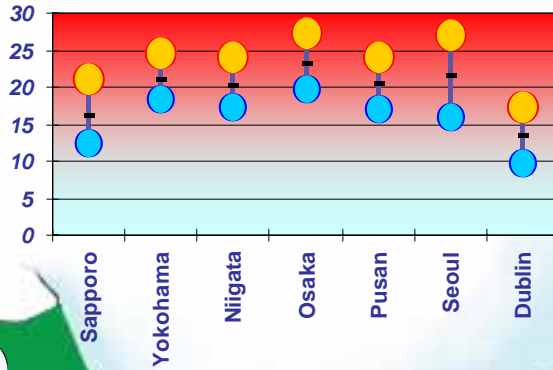
Flooding and landslides caused by heavy rain killed 13 people and left 6000 people homeless in coastal Ecuador after torrential rain during the second half of the month. Such heavy rain in this area is often associated with the development of a new El Niño event.

A massive sandstorm developed over northern China around the middle of March, covering the capital Beijing in a shroud of dense dust which reduced visibility to 50 metres at times. Sudden seasonal changes in temperature lead to frequent sandstorms at this time of year.

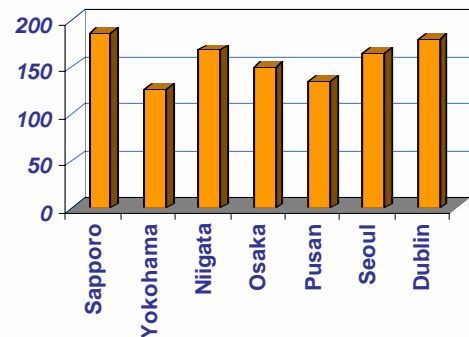


# WEATHER FOR THE WORLD CUP IN JAPAN AND KOREA

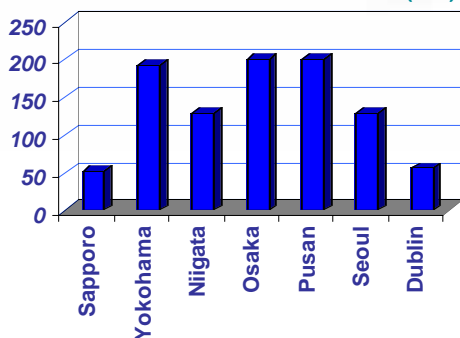
MEAN JUNE DAILY MAXIMUM AND MINIMUM TEMPERATURES (°C)



MEAN JUNE SUNSHINE TOTALS (HOURS)



MEAN JUNE RAINFALL TOTALS (MM)



June in South Korea and Japan is normally a very warm and humid month, with rainfall varying from relatively little over northern Japan to some torrential falls in the tropical south. In northern Japan, summers are short but warm; elsewhere the summers are very warm but excessively hot days are rare. Because most of

Japan and South Korea is dominated by moist maritime air at this time with frequent cloud, the summer heat is often oppressive and sultry, particularly in the cities. Southern areas in summer and early autumn normally receive a few typhoons, or tropical cyclones, which move north from the South China Sea or the region east of the Philippines. At their most extreme, these can result in spells of torrential rain and hurricane-force winds. Some coastal areas of southern Japan average over 400mm or rain during June, or over 8 times the normal June rainfall in Dublin. In some parts of central and southern Japan there is a double rainfall maximum; one in early summer (*the so-called Bai-U or plum rains*) and a second in late summer or early autumn, brought by typhoons.

In most parts of Japan and Korea, daily sunshine amounts during June are only moderate because of the abundant rain and humid atmosphere. The sunniest part of the region during a normal June is the northern area of Japan, in Hokkaido and northern Honshu, which average between five and six hours a day, or as can be seen from the graph above, about the same as would be expected in Dublin during the same month.