

# Monthly Weather Bulletin

No. 192  
APRIL 2002



## INSIDE

Wind & Elements .....	4
Marine & Pressure .....	5
Agmet /Lab.....	6
Diary .....	8
Rainfall .....	10

**Very wet in southeast**

Temperature ...	12
Sunshine .....	14
World Weather..	15
Feature .....	16



**Climate change and desertification**

Produced by Met Éireann,  
Glasnevin Hill, Dublin 9.  
Annual subscription €60



For more information-  
tel: +353-1-8064260  
fax: +353-1-8064216  
climat.enquiries@met.ie  
www.met.ie/climate

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



*Quiet, settled weather dominated the first half of the month, with long clear spells and light winds.  
(picture MacMonagle Killarney)*

## **DRY AND SUNNY AT FIRST, BECOMING WET AND WINDY; TEMPERATURES ABOVE NORMAL**

**Summary:** After relatively dry and sunny conditions during the first half of the month, the weather became very unsettled during the second half, with falls of heavy rain and strong winds at times. Most stations recorded less than 10mm of rain up to the 15th, but by the end of the month rainfall totals were above normal almost everywhere and were well above normal in the south and southeast. Rosslare's total of 113mm was its highest for April since 1966. On the 17th, many stations in the eastern half of the country measured their highest daily fall for April for

between 6 and 15 years. Like every other month so far this year, mean air temperatures were above normal everywhere, by around one degree generally on this occasion. Temperatures fluctuated quite widely during the month, with very mild conditions for much of the time but there were spells of much cooler weather around the middle and again towards the end of the month. There were between two and five air frosts recorded at inland stations during the month, around normal for April, but there was no air frost recorded at coastal stations. It was a relatively

**sunny month generally, with between 10% and 20% more sunshine than normal for April in many places. Clones' monthly total of 176 hours was its highest for April since 1974.**

**1st to 3rd:** Slow-moving frontal systems over Ireland gave spells of rain or showers, heaviest in southern areas. South to southwesterly winds were moderate to strong with gale gusts.

**4th to 15th:** Areas of high pressure near the country were the dominant influence, giving generally dry and sunny conditions. Winds were mostly from an easterly direction and were strong at times early in the period; these winds kept daytime temperatures close to normal near eastern coasts, while western areas were warmer. Clear skies allowed ground frost to develop on several nights, severe in places on the 8th and in the period 13th to 15th.

**16th to 21st:** High pressure retreated southwards, allowing frontal systems to bring heavy rain or showers, with a fall of over 30mm in the Dublin area on the 17th. Cool at first but becoming milder as winds turned southerly.

**22nd to 24th:** A return to dry, settled weather with light winds. Warm

everywhere.

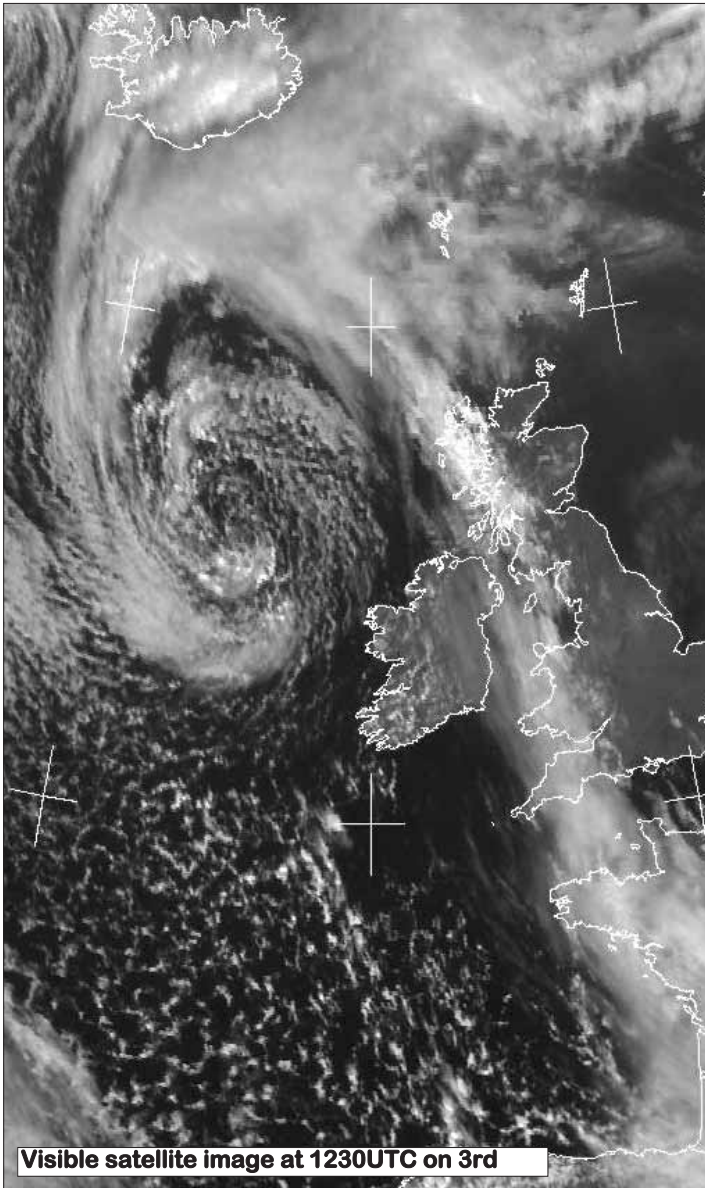
**22nd to 24th:** Deep Atlantic depressions moving to the north of the country brought wet and windy weather, with spells of rain or showers; some of the showers were thundery with widespread hail. Temperatures fell below normal as winds turned westerly and reached gale force at times.

**Wind and elements:** Mean windspeeds for the month of between 8 and 15 knots (*9 and 17m.p.h.*) were near normal at most stations. Winds were below normal for much of the first half of the month, especially between the 7th and 14th, while the second half brought strong winds at times. Several stations measured their highest April gusts for between 6 and 9 years during the period 26th to 29th; Belmullet recorded the highest gust of the month, 62 knots (*71m.p.h.*) on the 29th. Thunder affected mainly western and northern areas during the month; it was recorded on the 2nd, 5th, 21st, 27th, 28th and 30th. Snow was observed at Valentia Observatory on the 17th, while hail showers were infrequent for most of the month, but became widespread between the 26th and 30th. Fog was most widespread on the 5th, 17th and 23rd.

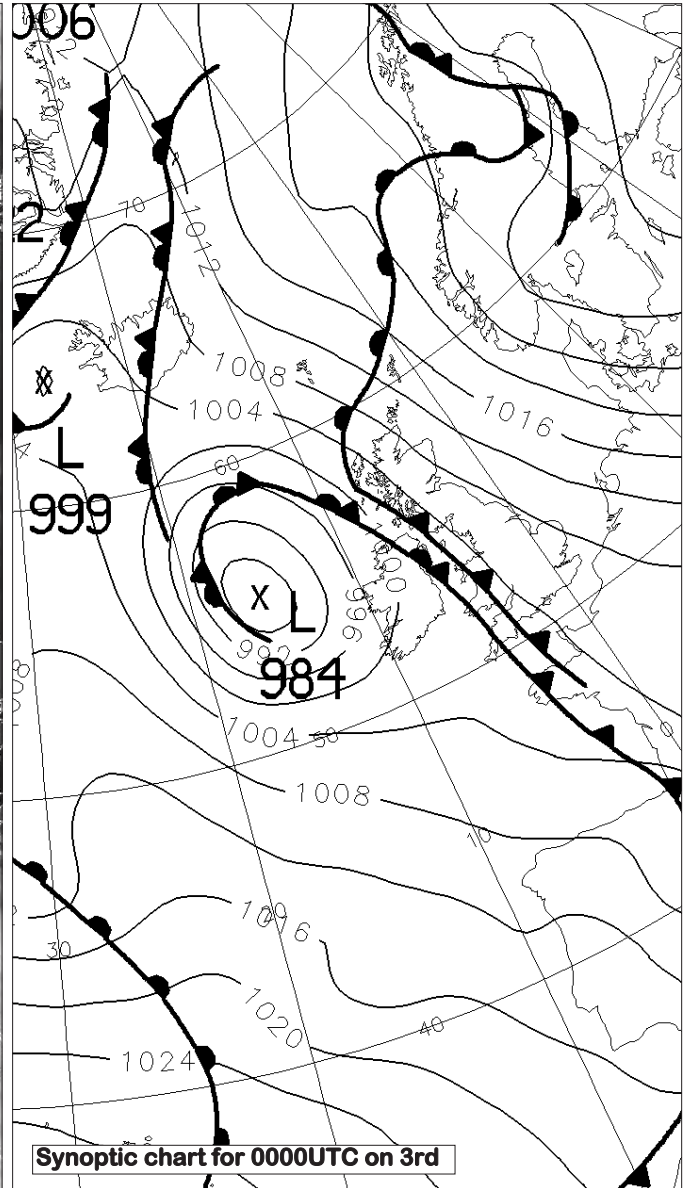
**Below and opposite**

*Three people were killed and over a hundred were injured when a tornado hit the Maryland town of La Plata, pictured below, late on the 28th. The tornado was given an F5 rating, the highest on the Fujita scale, with winds reaching an estimated 260m.p.h. The tornado was part of a much larger system which affected central and eastern states over the weekend of 27th/28th (see satellite picture opposite), leaving a trail of destruction including demolished homes, buildings and cars. (pictures: NOAA, US Dept of Commerce)*



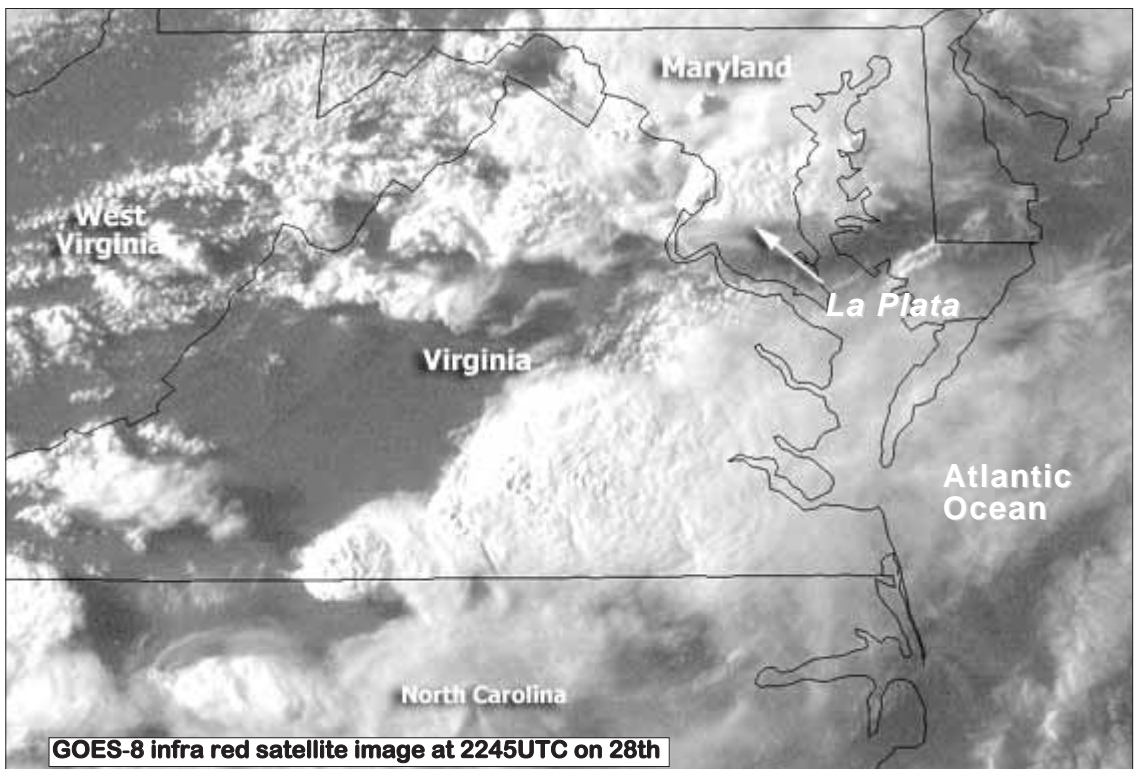


Visible satellite image at 1230UTC on 3rd



Synoptic chart for 0000UTC on 3rd

Above:  
Frontal systems associated with a depression to the northwest brought an unsettled start to the month, but pressure rose over the country after these fronts had cleared away.

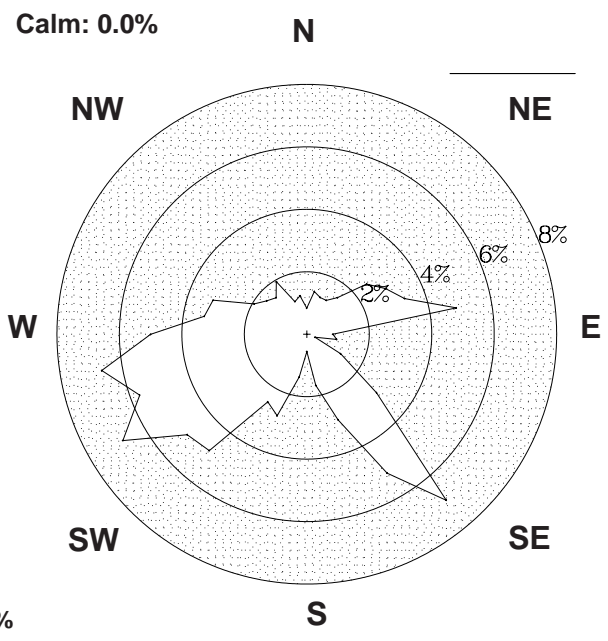
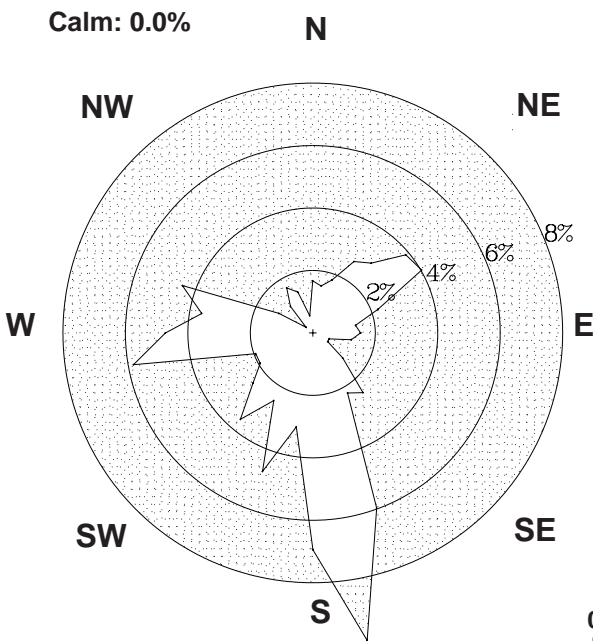


GOES-8 infra red satellite image at 2245UTC on 28th

County / Station	WIND (KNOTS)						ELEMENTS								
	Mean speed	Max. 10-min. mean dir.	Max. 10-min. mean speed	Max. Gust dir.	Max. Gust speed	Max. Gust date/time	Days with gales	Days with gale gusts	Hours with gale gusts	Snow	Snow Lying	Hail	Thunder	Fog	
<b>CO. CLARE</b> SHANNON AIRPORT	10.1	270°	35	28/22	280°	52	28/2206	1	6	39	0	0	3	0	1
<b>CO. CORK</b> CORK AIRPORT	10.3	270°	33	28/13	270°	48	28/1240	0	9	43	0	0	3	0	5
<b>CO. DONEGAL</b> MALIN HEAD	13.9	110°	38	5/11	290°	50	26/1013	4	15	130	0	0	5	0	0
<b>CO. DUBLIN</b> CASEMENT AERODROME	10.0	250°	31	28/19	240°	50	28/1457	0	7	32	0	0	2	0	1
DUBLIN AIRPORT	10.6	240°	31	28/15	270°	52	28/1252	0	7	45	0	0	3	0	1
<b>CO. KERRY</b> VALENTIA OBSERVATORY	10.2	270°	34	28/13	280°	50	28/2210	1	6	38	1	0	3	0	0
<b>CO. KILKENNY</b> KILKENNY	8.4	260°	29	28/21	250°	51	28/2047	0	4	26	n/a	0	-----	n/a	-----
<b>CO. MAYO</b> BELMULLET	14.6	310°	35	29/01	310°	62	29/0032	2	16	155	0	0	4	0	0
CONNAUGHT AIRPORT	10.7	260°	32	28/17	250°	48	28/1620	0	10	58	1	0	3	0	7
					300°	48	29/0210								
<b>CO. MONAGHAN</b> CLONES	8.6	300°	34	26/14	300°	47	26/1344	1	3	8	n/a	0	-----	n/a	-----
<b>CO. OFFALY</b> BIRR	8.0	320°	22	26/14	330°	39	26/1507	0	4	10	n/a	0	-----	n/a	-----
					280°	39	28/1820								
<b>CO. WESTMEATH</b> MULLINGAR II	8.1	300°	23	26/14	290°	43	26/1317	0	4	10	n/a	0	-----	n/a	-----
<b>CO. WEXFORD</b> ROSSLARE	12.0	60°	32	6/14	310°	48	26/1516	0	11	74	0	0	0	0	2
					250°	48	28/2118								

Valentia Observatory

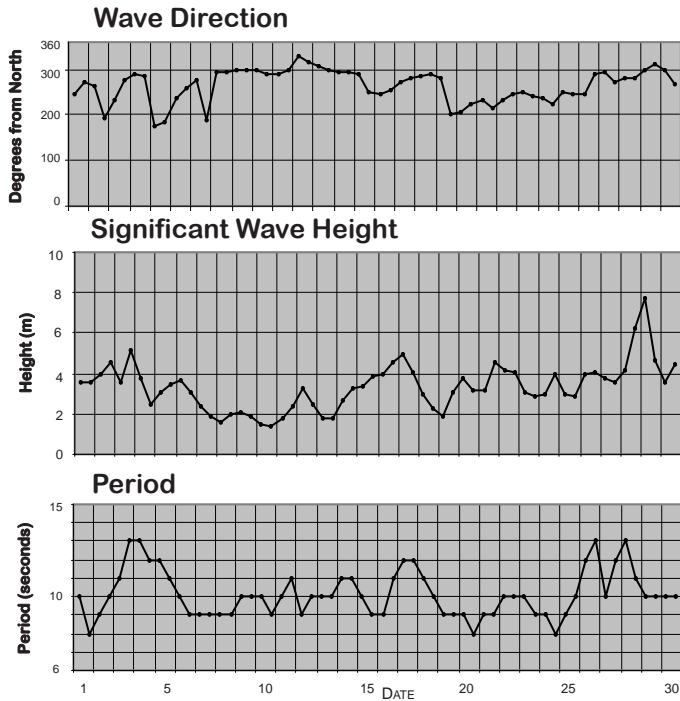
Dublin Airport



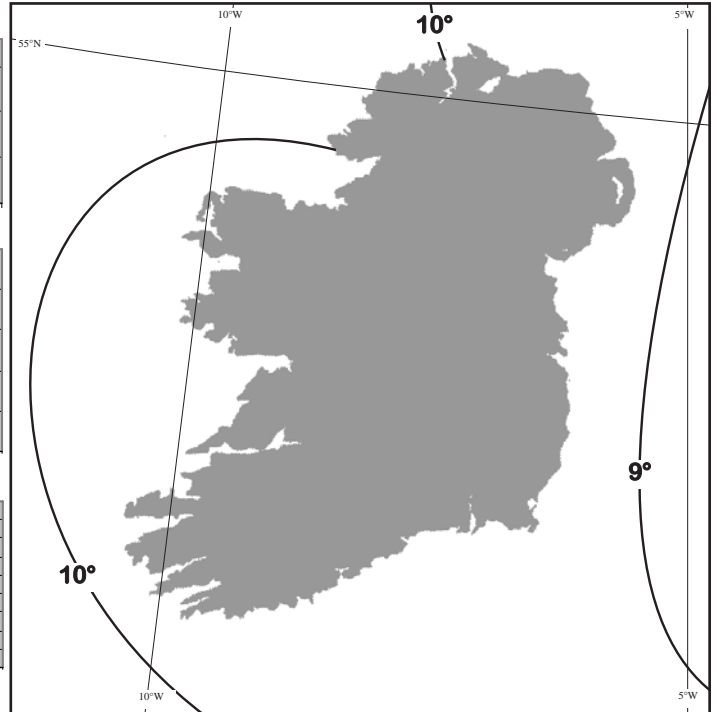
FREQUENCY OF WIND DIRECTION

### SEA TEMPERATURES

Sea temperatures rose by more than one degree from their March values. There was little variation in temperatures around the coast; at mid-month they ranged from around 9°C in the Irish Sea to just over 10°C near the northwest coast. They were a degree or more higher than normal everywhere; at Malin Head the mean sea temperature for the month was 9.5°C compared with its normal for April of 8.1°C.



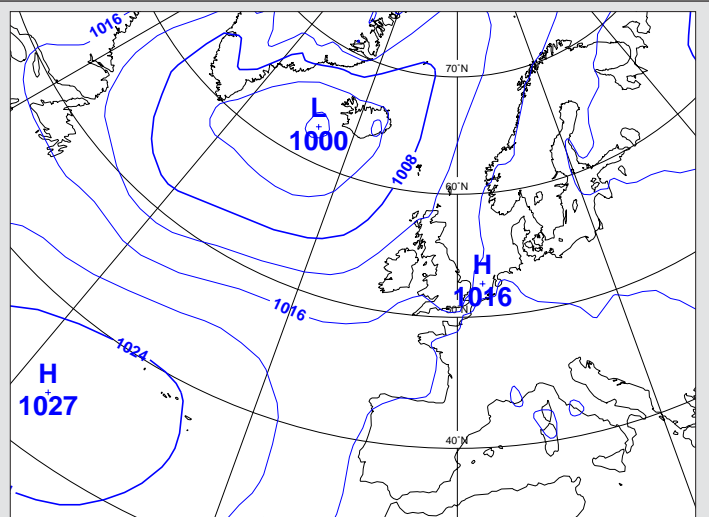
Wave conditions at 52.5°N, 12°W based on WAM model



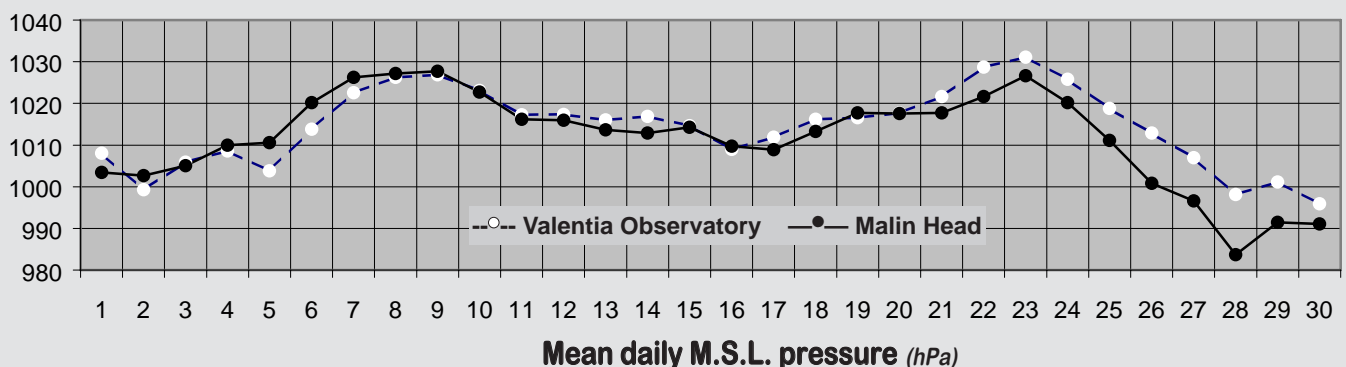
Sea Temperatures (°C) around mid-month

### MEAN ATMOSPHERIC PRESSURE

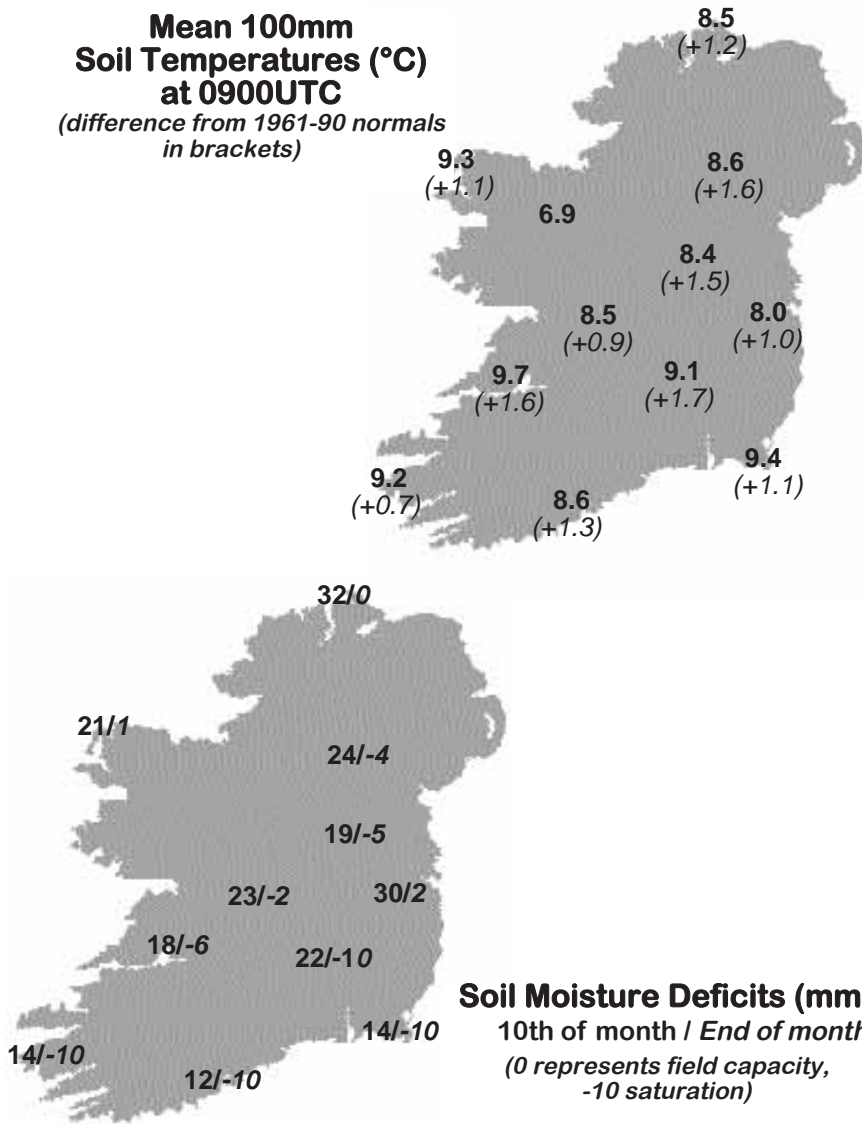
Despite periods of high pressure during the month, mean sea level pressure values for the month were a little below normal everywhere. They ranged from over 1012hPa in the northwest to almost 1015hPa in the south, around 2hPa below normal for April generally. For most of the month there was little variation in pressure values from day to day. Cork Airport recorded the highest value of the month, 1033.1hPa on the both the 22nd and 23rd. The lowest pressure values were associated with depressions crossing the country during the final week. Malin Head recorded the lowest value, 980.6hPa on the 28th.



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



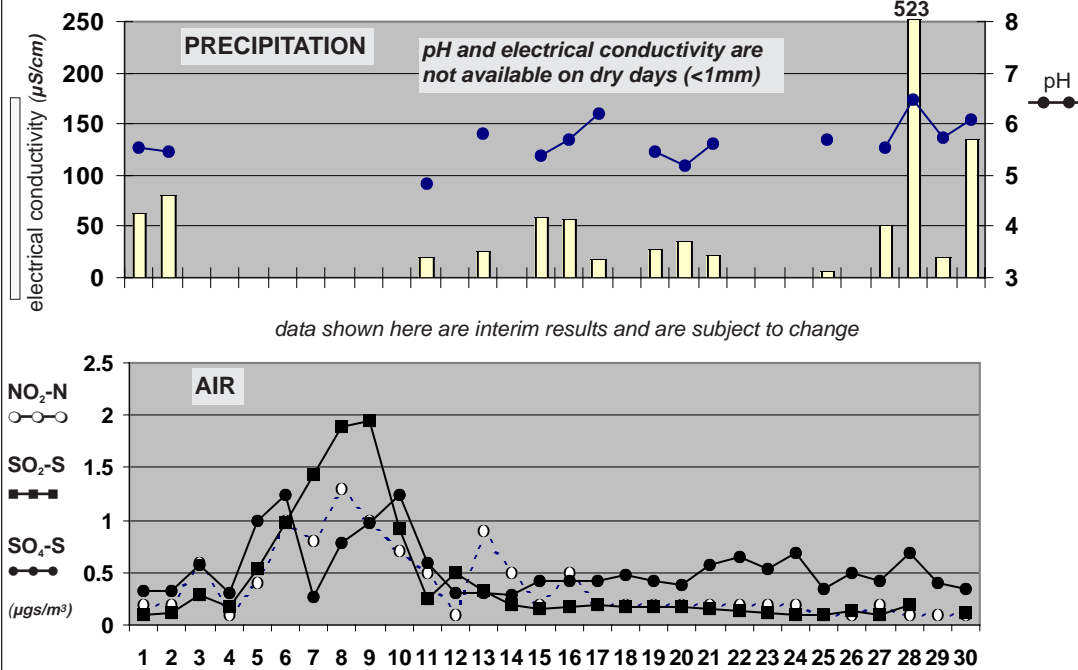
**Mean 100mm Soil Temperatures (°C) at 0900UTC**  
(difference from 1961-90 normals in brackets)



**Soil Temperatures at 0900UTC**

County/ Station	°C		
	100mm	200mm	300mm
<b>CO. CLARE</b>			
SHANNON AIRPORT	9.7	10.1	10.6
CARRON	8.7		9.5
<b>CO. CORK</b>			
FERMOY (MOORE PARK)	9.3	9.3	9.8
CORK AIRPORT	8.6	9.1	10.8
SHERKIN ISLAND	10.1		10.7
BALLINCURRIG (PEAFIELD)	7.9	8.2	8.8
<b>CO. DONEGAL</b>			
MALIN HEAD	8.5	9.1	9.9
<b>CO. DUBLIN</b>			
DUBLIN AIRPORT	8.1	8.5	9.0
CASEMENT AERODROME	8.0	8.7	9.4
<b>CO. KERRY</b>			
VALENTIA OBSERVATORY	9.2	9.9	11.1
<b>CO. KILKENNY</b>			
KILKENNY	9.1	9.6	10.3
<b>CO. LEITRIM</b>			
BALLINAMORE	8.1	8.8	9.6
<b>CO. LIMERICK</b>			
MOUNT RUSSELL	7.5	8.4	
<b>CO. LOUTH</b>			
ARDEE (BOHARNAMOE)	8.4	8.7	9.2
<b>CO. MAYO</b>			
BELMULLET	9.3	10.0	11.4
STRAIDE	8.6		
CONNAUGHT AIRPORT	6.9	7.3	8.8
<b>CO. MEATH</b>			
WARRENSTOWN	8.3	8.7	9.8
<b>CO. MONAGHAN</b>			
CLONES	8.6	9.0	9.8
<b>CO. OFFALY</b>			
BIRR	8.5	9.2	10.1
<b>CO. TIPPERARY</b>			
FETHARD (PARSONSHILL)	8.1	8.5	
<b>CO. WATERFORD</b>			
DUNGARVAN (CARRIGLEA)		9.6	10.2
<b>CO. WESTMEATH</b>			
MULLINGAR II	8.4	9.0	10.1
<b>CO. WEXFORD</b>			
JOHNSTOWN CASTLE	9.0	9.1	9.5
ROSSLARE	9.4	9.6	11.1
CLONROCHE		9.2	10.0
JOHN F. KENNEDY PARK	9.4	9.7	10.9

**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) 2magl.	P.E. (Penman) (mm)
Fermoy	11-20	33.9	-	6	4	12.2	2.8	7.5	-	-2.3	11	4	38	6	-4.7	11	5	8.9	9.4	-	-	2.8	-
	21-end	42.7	-	8	7	13.4	7.3	10.4	-	1.8	29	0	61	16	-0.5	25	2	10.8	10.9	-	-	5.3	-
	<b>month</b>	<b>86.2</b>	<b>146</b>	<b>18</b>	<b>13</b>	<b>13.1</b>	<b>4.4</b>	<b>8.8</b>	<b>0.8</b>	<b>-3.2</b>	<b>8</b>	<b>6</b>	<b>143</b>	<b>31</b>	<b>-7.2</b>	<b>8</b>	<b>12</b>	<b>9.3</b>	<b>9.8</b>	-	-	<b>3.3</b>	<b>80</b>
<b>Co. Donegal</b>	1-10	7.2	-	2	2	14.0	3.7	8.9	-	-2.2	8	3	50	11	-7.1	7	4	-	-	-	-	-	-
Glenties	11-20	47.2	-	6	6	12.4	3.2	7.8	-	-2.2	13	2	39	8	-6.2	13	5	-	-	-	-	-	-
	21-end	74.7	-	9	8	12.9	6.6	9.8	-	2.1	30	0	55	15	-1.5	30	1	-	-	-	-	-	-
	<b>month</b>	<b>129.1</b>	<b>161</b>	<b>17</b>	<b>16</b>	<b>13.1</b>	<b>4.5</b>	<b>8.8</b>	<b>1.1</b>	<b>-2.2</b>	<b>13</b>	<b>5</b>	<b>144</b>	<b>34</b>	<b>-7.1</b>	<b>7</b>	<b>10</b>	-	-	-	-	-	-
<b>Co. Kerry</b>	1-10	6.0	-	3	3	14.8	3.5	9.2	-	-1.2	7	2	51	13	-4.4	7	4	-	-	75.8	-	-	-
Ardfert	11-20	18.1	-	7	5	13.2	4.4	8.8	-	-0.8	13	1	47	10	-3.5	13	5	-	-	44.7	-	-	-
	21-end	38.7	-	8	7	13.6	7.8	10.7	-	4.7	29	0	63	16	2.0	25	0	-	-	52.8	-	-	-
	<b>month</b>	<b>62.8</b>	-	<b>18</b>	<b>15</b>	<b>13.8</b>	<b>5.2</b>	<b>9.5</b>	<b>1.1</b>	<b>-1.2</b>	<b>7</b>	<b>3</b>	<b>160</b>	<b>38</b>	<b>-4.4</b>	<b>7</b>	<b>9</b>	-	-	<b>173.3</b>	-	-	-
<b>Co. Leitrim</b>	1-10	4.9	-	4	1	12.3	3.4	7.9	-	-2.2	8	1	39	6	-4.1	7	3	7.4	9.0	64.1	-	-	-
Ballinamore	11-20	35.4	-	8	6	12.5	2.8	7.7	-	-2.6	13	3	38	8	-8.0	13	3	7.4	9.4	49.0	-	-	-
	21-end	55.7	-	9	8	12.9	6.5	9.7	-	2.9	29	0	54	14	2.5	29	0	9.6	10.6	49.2	-	-	-
	<b>month</b>	<b>96.0</b>	<b>143</b>	<b>21</b>	<b>15</b>	<b>12.6</b>	<b>4.2</b>	<b>8.4</b>	<b>0.7</b>	<b>-2.6</b>	<b>13</b>	<b>4</b>	<b>131</b>	<b>27</b>	<b>-8.0</b>	<b>13</b>	<b>6</b>	<b>8.1</b>	<b>9.6</b>	<b>162.3</b>	<b>119</b>	-	-
<b>Co. Louth</b>	1-10	1.8	-	3	1	13.4	3.0	8.2	-	-2.9	8	3	43	9	-6.2	8	5	8.1	8.7	-	-	-	-
Ardee	11-20	59.6	-	6	5	12.5	2.4	7.5	-	-2.6	13	3	37	7	-5.4	15	6	7.2	8.4	-	-	-	-
	21-end	18.9	-	7	5	14.1	6.6	10.4	-	2.9	29	0	60	16	-2.2	25	2	9.9	10.5	-	-	-	-
	<b>month</b>	<b>80.3</b>	<b>146</b>	<b>16</b>	<b>11</b>	<b>13.3</b>	<b>4.0</b>	<b>8.7</b>	<b>1.2</b>	<b>-2.9</b>	<b>8</b>	<b>6</b>	<b>140</b>	<b>32</b>	<b>-6.2</b>	<b>8</b>	<b>13</b>	<b>8.4</b>	<b>9.2</b>	-	-	-	-
<b>Co. Waterford</b>	1-10	9.7	-	3	2	13.6	4.4	9.0	-	-0.7	8	1	48	10	-2.5	8	2	-	9.5	76.8	-	1.5	-
Dungarvan	11-20	58.3	-	6	4	12.5	4.0	8.3	-	-1.0	15	1	43	7	-2.7	15	3	-	9.7	38.2	-	1.9	-
	21-end	43.1	-	8	7	13.6	8.3	11.0	-	4.5	25	0	65	17	2.7	25	0	-	11.3	55.5	-	3.8	-
	<b>month</b>	<b>111.1</b>	-	<b>17</b>	<b>13</b>	<b>13.2</b>	<b>5.6</b>	<b>9.4</b>	<b>0.9</b>	<b>-1.0</b>	<b>15</b>	<b>2</b>	<b>156</b>	<b>34</b>	<b>-2.7</b>	<b>15</b>	<b>5</b>	-	<b>10.2</b>	<b>170.5</b>	<b>113</b>	<b>2.4</b>	<b>55</b>
<b>Co. Wexford</b>	1-10	15.4	-	3	2	11.2	5.9	8.6	-	2.8	8	0	42	3	-0.8	2	2	8.1	8.9	n/a	-	0.8	-
Johnstown Castle	11-20	60.1	-	6	5	11.8	4.9	8.4	-	1.7	15	0	41	5	-0.3	13	2	8.5	9.2	n/a	-	1.0	-
	21-end	58.0	-	9	8	12.5	7.7	10.1	-	3.5	29	0	57	9	1.6	29	0	10.5	10.6	n/a	-	1.9	-
	<b>month</b>	<b>133.5</b>	<b>209</b>	<b>18</b>	<b>15</b>	<b>11.8</b>	<b>6.2</b>	<b>9.0</b>	<b>1.0</b>	<b>1.7</b>	<b>15</b>	<b>0</b>	<b>141</b>	<b>17</b>	<b>-0.8</b>	<b>2</b>	<b>4</b>	<b>9.0</b>	<b>9.5</b>	<b>n/a</b>	-	<b>1.2</b>	<b>58</b>

**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)		Soil Moisture (mm)		
		Amount	Deficit	Deficit	Accumulated	Surplus
<b>Co. Dublin</b>	1-10	16.1	11	23	-	-
Kinsealy	11-20	10.8	-	11	12	-
	21-end	21.1	-	2	9	-
	<b>month</b>	<b>48.0</b>				
<b>Co. Kerry</b>	1-10	8.9	-	0	10	-
Valentia Obs.	11-20	22.3	-	0	13	-
	21-end	17.2	-	0	44	-
	<b>month</b>	<b>48.4</b>				
<b>Co. Leitrim</b>	1-10	9.6	5	5	-	-
Ballinamore	11-20	22.9	-	0	13	-
	21-end	18.5	-	0	36	-
	<b>month</b>	<b>51.0</b>				
<b>Co. Wexford</b>	1-10	4.8	-	0	11	-
Johnstown Castle	11-20	37.5	-	0	23	-
	21-end	15.3	-	0	43	-
	<b>month</b>	<b>57.6</b>				

County/ Station	GLOBAL SOLAR RADIATION (MJ/sq. m)				P.E. (Penman) total for month(mm)
	10-day totals 1-10	11-20	21-end	total for month	
<b>Co. Donegal</b>					
Malin Head	142.96	118.61	128.42	389.99	69
<b>Co. Dublin</b>					
Dublin Airport	136.23	110.58	160.94	407.75	59
<b>Co. Kerry</b>					
Valentia Obs.	147.03	130.91	108.92	386.86	68
<b>Co. Kilkenny</b>					
Kilkenny	142.56	115.95	144.72	403.23	63
<b>Co. Mayo</b>					
Belmullet	157.01	139.71	142.10	438.82	68
<b>Co. Monaghan</b>					
Clones	n/a	121.42	129.38	n/a	64
<b>Co. Offaly</b>					
Birr	147.47	119.49	141.15	408.11	59

**Monday 1st:** A cold front moving eastwards across the country introduced a cool, unstable, west to southwesterly flow. Relatively mild at first with outbreaks of rain and some mist patches, but brighter, showery weather soon became established; showers were mostly light but there was the odd hail shower in the northwest. Cool after dark with a slight ground frost in some inland and eastern areas. Moderate and gusty southerly winds at first became west to southwesterly and eased.

**Rainfall:** 1 to 4mm generally, 10mm at Rosslare

**Temperature:** max. 10°C to 13°C, min. 4°C to 7°C; ground temperatures around freezing inland

**Sunshine:** 3 to 10 hours, sunniest at Belmullet

**Tuesday 2nd:** A frontal trough associated with a depression to the west tracked northwards. Dry and frosty at first in the east, but rain or showers soon became widespread, heaviest in the south and southwest. Some sunny spells in the west later. Moderate to fresh south to southeasterly winds.

**Rainfall:** 1 to 5mm generally, >10mm in south and southwest

**Temperature:** max. 10°C to 12°C, min. 3°C to 7°C; ground temperatures down to -3°C at Dublin Airport

**Sunshine:** nil to 6 hours, sunniest at Belmullet

**Wednesday 3rd:** High pressure centred near the west coast moved northwards during the period. A weak frontal trough near the east coast gave some light rain here at first, but it was a mostly dry and sunny day with temperatures near normal. Cool with frost after dark. Light to moderate winds.

**Rainfall:** nil to 2mm

**Temperature:** max. 11°C to 15°C, min. 2°C to 8°C, mildest in northwest; ground temperatures -3°C to -5°C inland

**Sunshine:** 5 to 11 hours

**Thursday 4th:** A ridge of high pressure lay over Ireland. After a frosty start it was another dry and sunny day generally, but cloudier near the east and south coasts with patches of very light rain or drizzle. Winds light throughout.

**Rainfall:** nil or trace

**Temperature:** max. 11°C to 14°C, min. -1°C to 5°C; ground temperatures below freezing generally, -5°C to -7°C inland

**Sunshine:** variable, 1 hour at Rosslare to 12 hours at Cork Airport

**Friday 5th:** A freshening easterly airflow between an anticyclone over Scandinavia and a depression off the southwest coast. Light rain at first along the east coast, becoming mainly dry before another band of light rain affected western areas later. Sunny in the north. Winds were mainly light northeasterly.

**Rainfall:** nil generally, 5mm in south

**Temperature:** max. 11°C to 14°C, min. 2°C to 9°C, mildest in southeast; ground temperatures down to -5°C at Shannon Airport

**Sunshine:** nil to 8 hours, highest at Cork Airport

**Saturday 6th:** An anticyclone centred in the North Sea maintained an easterly airflow over Ireland. Outbreaks of light rain or drizzle in Munster at first, becoming dry and sunny everywhere. Warm in the west but the moderate easterly winds kept it cooler in the east and south.

**Rainfall:** nil to 1mm

**Temperature:** max. 10°C to 16°C, min. 4°C to 8°C; ground temperatures near freezing inland

**Sunshine:** 8 to 12 hours

**Sunday 7th:** Pressure remained high over Ireland. Sharp to severe frost overnight, clearing quickly during the morning. A dry, sunny day in all areas, with temperatures well up to normal in western and southern areas but much cooler along exposed eastern coasts. Light variable or easterly winds.

**Rainfall:** nil

**Temperature:** max. 9°C to 17°C, highest in southwest, min. -1°C to 7°C, lowest in east; ground temperatures down to -7°C at Dublin Airport

**Sunshine:** 11 to 12 hours

**Monday 8th:** A ridge of high pressure persisted over Ireland. Clear overnight with sharp to severe frost in most places. Frost cleared early to give a dry and sunny day, becoming a little more cloudy in the afternoon, with mist and haze in places. Light variable winds, mainly between northeasterly and northerly in direction. Frost setting in again after dark.

**Rainfall:** nil

**Temperature:** max. 10°C to 17°C, highest in southwest, min. -3°C to 3°C generally, 8°C at Rosslare; ground temperatures below freezing almost

everywhere, -7°C to -10°C inland

**Sunshine:** 2 to 11 hours, highest in south

**Tuesday 9th:** A ridge of high pressure covered Ireland. Slight frost in places overnight with mist patches. Dry everywhere throughout. Partly cloudy and misty during the day; a little cooler than previous days. Haze and mist in places during the afternoon and evening with virtually no wind.

**Rainfall:** nil

**Temperature:** max. 10°C to 15°C, min. 1°C to 8°C, mildest in north; ground temperatures -1°C to -2°C inland

**Sunshine:** 6 to 11 hours, highest in northwest

**Wednesday 10th:** Pressure remained high over Ireland as a weak cold front approached the northwest. Another mostly dry day except for some light rain in the west. Cloudier than recent days but sunny in the southeast. Winds were mainly light southwest to westerly, stronger along the north coast.

**Rainfall:** nil to 1mm

**Temperature:** max. 10°C to 15°C, min. 1°C to 7°C, mildest in southeast; ground temperatures down to -6°C at Kilkenny

**Sunshine:** variable, nil at Belmullet to 9 hours at Rosslare

**Thursday 11th:** A weak cold front moved slowly eastwards, introducing a cool northerly airstream. Rain in the west extended to all areas, although amounts were generally small, followed by clear spells and showers. Winds were light variable at first, turning northerly and freshening.

**Rainfall:** trace to 2mm generally, 5mm in northwest

**Temperature:** max. 8°C to 13°C, min. -1°C to 7°C; ground temperatures -3°C to -6°C inland

**Sunshine:** nil to 3 hours

**Friday 12th:** A moderate northerly airflow covered Ireland. Light rain in the southeast at first, with scattered showers elsewhere. Becoming mainly dry in all areas by late afternoon with light northerly winds, a little stronger in the extreme southeast. Temperatures below normal. Sunny or clear spells during the evening with frost setting in after dark.

**Rainfall:** nil to 1mm

**Temperature:** max. 9°C to 12°C, min. 0°C to 7°C, mildest in north; ground temperatures -4°C to -6°C inland

**Sunshine:** 4 to 12 hours, highest at Malin Head

**Saturday 13th:** A ridge of high pressure covered Ireland, while a cold front lay to the west of the country. After a frosty start, most of the day was dry with sunny spells. Rain in the northwest during the evening spread slowly eastwards. Light variable or northerly winds.

**Rainfall:** nil to 2mm

**Temperature:** max. 10°C to 13°C, min. -3°C to 6°C, mildest in Rosslare; ground temperatures below freezing generally, -6°C to -8°C at Kilkenny

**Sunshine:** 1 hour in northwest to 9 hours in southeast

**Sunday 14th:** Pressure remained high over Ireland as a weak frontal trough crossed the country during the morning from the west. Slight to sharp frost inland during the night. Patchy rain or drizzle overnight cleared to scattered showers, but amounts of rainfall were small everywhere. Sunny periods during the day in most areas but temperatures below normal. Sharp to severe frost again after dark in inland areas. Light north to northwesterly winds.

**Rainfall:** nil to 2mm

**Temperature:** max. 9°C to 12°C, min. 1°C to 5°C inland; ground temperatures down to -6°C at Kilkenny

**Sunshine:** 2 hours at Rosslare to 11 hours at Shannon Airport

**Monday 15th:** Pressure slowly declined over Ireland. A cold, dry night with sharp to severe frost in many inland areas, followed by a fine, dry day in most areas with long sunny periods. During the evening a frontal trough reached the west coast, giving some rain in western areas by the end of the period. Becoming somewhat milder during the evening. Light winds at first from a southerly or variable direction, freshening along the northwest coast by late evening with occasional gale gusts.

**Rainfall:** nil or trace

**Temperature:** max. 10°C to 15°C, min. -2°C to 6°C; ground temperatures down to -8°C at Kilkenny

**Sunshine:** 1 hour at Belmullet, 4 to 11 hours elsewhere, highest in southeast



**Tuesday 16th:** Rain in Munster moved slowly northeastwards, heavy in places, reaching the east coast by late evening. Some sunny spells in the east at first and in western areas during the late afternoon following a clearance. Mild. Moderate south to southeasterly winds.

**Rainfall:** 1 to 5mm in eastern half, up to 12mm elsewhere

**Temperature:** max. 11°C to 14°C, min. 4°C to 8°C; ground temperatures 0°C to 3°C inland

**Sunshine:** nil to 5 hours generally, 10 hours at Casement Aerodrome

**Wednesday 17th:** A small depression over the south and east of the country. A band of rain aligned north-south through the centre of the country became almost stationary over the east, giving some heavy falls in these areas. Sunny spells and scattered showers in the west. Light to moderate cyclonic variable winds, settling into a westerly direction as the low moved into the Irish Sea.

**Rainfall:** <5mm in southwest, 12 to 25mm generally, >30mm in east

**Temperature:** max. 9°C to 12°C, min. 4°C to 7°C; ground temperatures -1°C to 2°C inland

**Sunshine:** nil to 2 hours generally, 8 hours at Valentia Observatory

**Thursday 18th:** A ridge of high pressure developed from the west as a depression in the North Irish Sea gradually filled and moved away eastwards. Rain in the east and northeast persisted until noon, with isolated showers elsewhere. The afternoon was dry and sunny except in northern areas, with ground frost developing after dark. Winds were mainly light southwesterly.

**Rainfall:** nil to 2mm generally, 6 to 9mm in parts of north and east

**Temperature:** max. 9°C to 14°C, min. 2°C to 7°C generally, 0°C at Mullingar; ground temperatures -1°C to -3°C inland

**Sunshine:** 0 to 2 hours in east and north, 7 to 12 hours elsewhere

**Friday 19th:** Ireland lay in a southerly airflow. Dry during the early part of the day with ground frost, but cloud and light rain or drizzle pushed into western areas during the early afternoon and extended slowly eastwards, reaching the east coast during the evening. Some sunny periods also, especially in the far north. South to southeasterly winds were moderate with gale gusts over northern areas.

**Rainfall:** nil to 8mm, highest in southwest

**Temperature:** max. 12°C to 15°C, min. 1°C to 10°C, mildest in southwest; ground temperatures 0°C to -3°C inland

**Sunshine:** 7 to 11 hours in east and north, nil to 5 hours elsewhere

**Saturday 20th:** A southerly airflow covered Ireland as Atlantic fronts off the west coast approached slowly. Patchy rain and drizzle spread countrywide during the morning and continued into the afternoon; another band of rain followed in the evening after a short clearance. Mild throughout with light southerly winds.

**Rainfall:** 4 to 10mm most stations, up to 25mm in south

**Temperature:** max. 11°C to 18°C, min. 9°C to 11°C; ground temperatures over 7°C everywhere

**Sunshine:** nil to 1 hour generally, 5 hours at Belmullet

**Sunday 21st:** A mild south to southwesterly airflow covered Ireland. Frontal systems moved eastwards across the country. Rain in many places at first with heavy falls in the south and southeast, clearing for a time. Another band of rain followed from the west during the afternoon. Mild throughout with light southerly winds at first, strengthening during the morning with gale gusts.

**Rainfall:** 2 to 8mm generally, up to 18mm at Rosslare

**Temperature:** max. 12°C to 16°C, min. 10°C to 12°C; ground temperatures above 8°C

**Sunshine:** nil to 5 hours, highest in northwest

**Monday 22nd:** Ireland lay in a fresh to strong southwesterly airflow. A weak frontal trough over the country declined as an anticyclone approached Ireland from the south. Apart from some light rain or drizzle in places it was a mainly dry but overcast day. Mild southwesterly winds with gale gusts.

**Rainfall:** <2mm everywhere

**Temperature:** max. 13°C to 16°C, min. 10°C to 11°C; ground temperatures above 5°C

**Sunshine:** 0 to 4 hours, sunniest in southeast

**Tuesday 23rd:** An anticyclone of 1034hPa to the southeast maintained a mild southwesterly airflow over Ireland. The flow tended to back southerly and strengthened as a frontal trough approached from the Atlantic. After a misty start with some drizzle, a dry day followed with most sunshine in the west, midlands and north. Very warm in eastern and southeastern areas.

**Rainfall:** <1mm everywhere

**Temperature:** max. 13°C to 20°C, highest in southeast, min. 8°C to 10°C; ground temperatures above 2°C

**Sunshine:** 7 to 11 hours generally

**Wednesday 24th:** An anticyclone to the southeast weakened. A cold front crossed Ireland during the afternoon and evening. After early fog and patches of drizzle, the first half of the day was generally dry, warm and sunny. The cold front moved into the west in the afternoon, bringing cooler, cloudy weather with outbreaks of rain and drizzle to many parts by evening. Clearer weather with scattered showers followed. Light southerly winds at first became fresh to strong and gusty during the day, later veering westerly and easing.

**Rainfall:** nil to 2mm

**Temperature:** max. 11°C to 19°C, highest in Clones, min. 6°C to 9°C; ground temperatures 0°C to 2°C inland

**Sunshine:** 5 to 7 hours generally

**Thursday 25th:** A ridge of high pressure over the country declined during the day. Cool and mostly clear overnight with one or two showers. Becoming cloudier during the day with rain becoming widespread by evening, heavy in the southwest. Southerly winds increased fresh to strong and gusty southwesterly.

**Rainfall:** 1 to 4mm generally, 11mm at Valentia Observatory

**Temperature:** max. 11°C to 14°C, min 4°C to 7°C; ground temperatures -2°C to 0°C inland

**Sunshine:** 1 to 7 hours, sunniest in southeast

**Friday 26th:** Frontal troughs moved southeastwards over Ireland, followed by a cold unstable northwesterly airflow. Mild overnight with widespread rain, clearing to colder, showery weather during the day. Some of the showers were heavy and of hail. Fresh and gusty southwesterly winds increased strong to gale force and very gusty during the day before easing gradually in the evening.

**Rainfall:** 1 to 9mm, heaviest in southeast

**Temperature:** max. 10°C to 14°C, min 4°C to 8°C; ground temperatures above 2°C

**Sunshine:** 9 to 12 hours

**Saturday 27th:** A frontal depression approached from the west and crossed the north of the country during the evening and night. Windy and showery over the northern half of the country to begin; rain became widespread during the afternoon and evening. Cold and mainly dull. Strong southwesterly winds.

**Rainfall:** 3 to 14mm, heaviest in southwest

**Temperature:** max. 9°C to 13°C, coolest in northwest, min. 4°C to 7°C; ground temperatures above 2°C

**Sunshine:** 0 to 4 hours

**Sunday 28th:** Low pressure to the north maintained a strong, showery, west to northwesterly airflow over the country. A cold day with frequent heavy showers, some thundery and with widespread hail. Sunny periods also between the showers, especially in the south and southeast. Strong to gale force westerly winds with gale gusts at all stations.

**Rainfall:** 3 to 7mm generally, up to 17mm in southeast

**Temperature:** max. 8°C to 12°C, min. 2°C to 5°C; ground temperatures down to 0°C in places

**Sunshine:** 5 to 10 hours

**Monday 29th:** A cold northwesterly airflow backed westerly as a weak ridge of high pressure crossed the country. Continuing cold and windy with scattered showers, some heavy and of hail. Sunny spells between the showers but temperatures were a few degrees below normal. A band of heavy rain moved into the southwest during the evening. Strong and gusty northwesterly winds backed westerly during the day and eased gradually.

**Rainfall:** 1 to 5mm most stations, 10 to 14mm in south and southwest

**Temperature:** max. 10°C to 12°C, min. 8°C to 12°C; ground temperatures down to 0°C at Clones

**Sunshine:** 3 to 10 hours

**Tuesday 30th:** A depression off the west coast moved slowly eastwards, while its associated fronts moved northeastwards across the country. Spells of rain and drizzle in many areas overnight, followed by a showery day with longer spells of rain in many places. Remaining cool. South to southwesterly winds became stronger during the morning, later veering west to northwesterly.

**Rainfall:** 4 to 11mm, highest in southeast

**Temperature:** max. 8°C to 13°C, coolest in north, min. 4°C to 6°C; ground temperatures above 1°C everywhere

**Sunshine:** trace Malin Head, 4 to 9 hours elsewhere

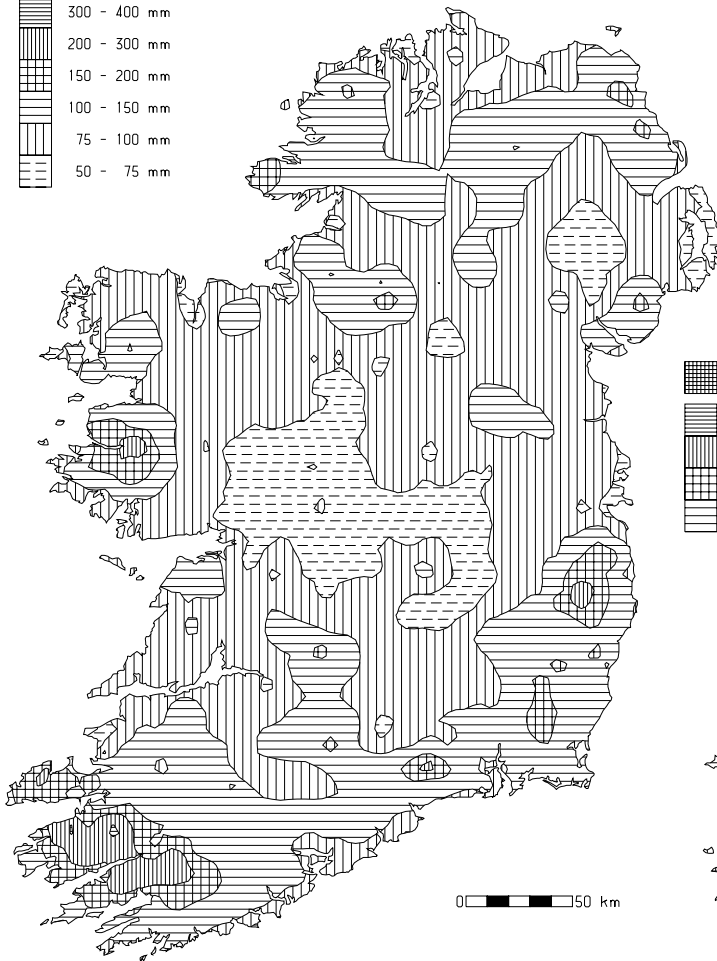
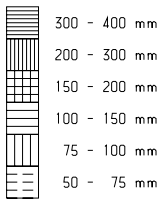
## Wetter than normal everywhere, over twice the normal in southeast

Despite a relatively dry start to the month, rainfall totals for April were above normal everywhere, with over twice the monthly normal recorded over parts of south Leinster. Totals ranged from 63mm at Ardfert (Liscahane), Co. Kerry, to 194mm at Maam Valley, Co. Galway, with percentage of normal values between 121% at Ballyshannon (Cathleen's Fall), Co. Donegal and 229% at Clonroche, Co. Wexford. At this latter station and at several other locations in County Wexford it was the wettest April since 1966. In contrast, although having totals above normal for the month, both Clones and Belmullet had their driest April since 1997.

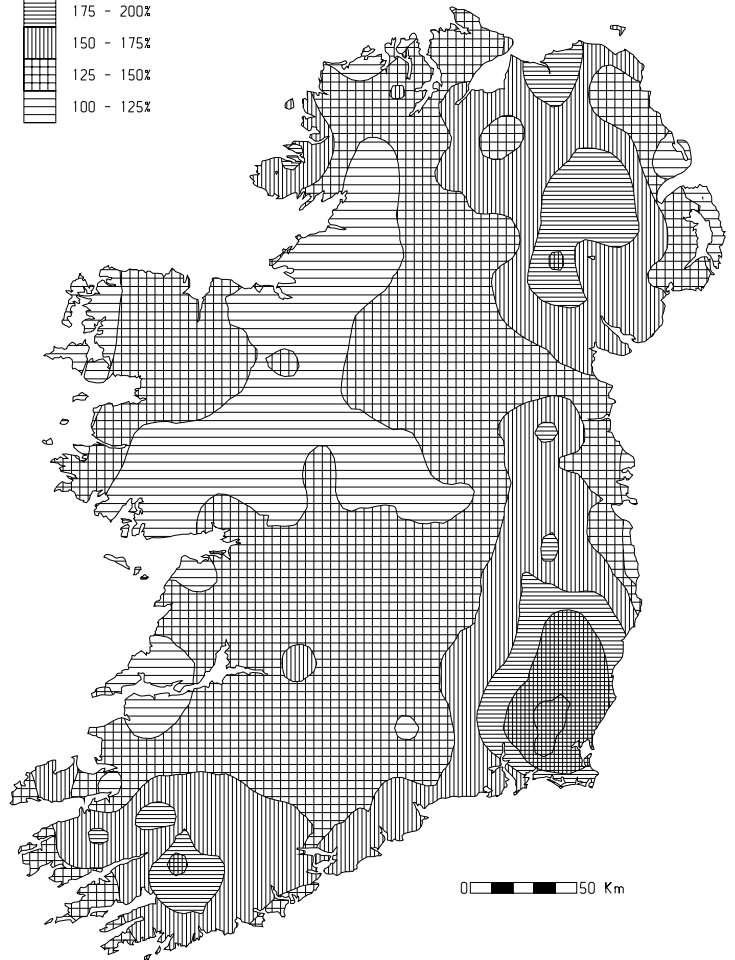
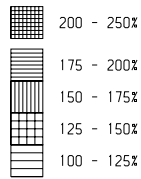
The chart of daily rain opposite shows the disparity in the amounts of rainfall recorded between the first and second halves of the month. At many stations only around 10mm of rain was recorded up to the 15th, but heavy rain fell on several days thereafter. The periods 16th to 20th and 25th to 30th were particularly wet. Ardee (Boharnamoe), Co. Louth, recorded the highest daily fall of the month, 33.0mm on the 17th, the highest daily fall for April at the station since it opened in 1968. The number of wetdays during the month (*days with 1.0mm or more of rainfall*) was between 12 and 17 generally, highest in the west, a little higher than normal for April.

County/ Station	Total Amount (mm)	% of 1961-90 average	Most in a day / date		Number of Raindays (>0.2mm)	Wetdays (>1mm)
<b>CO. CLARE</b>						
SHANNON AIRPORT	74.9	133	14.2	27	18	12
CARRON	106.9	124	17.6	27	20	14
<b>CO. CORK</b>						
FERMOY (MOORE PARK)	86.2	146	11.9	16	18	13
CORK AIRPORT	114.0	163	22.0	20	16	12
SHERKIN ISLAND	103.4	159	19.5	29	17	12
BALLINCURRIG (PEAFIELD)	123.4		22.7	20	19	15
<b>CO. DONEGAL</b>						
MALIN HEAD	72.5	125	20.0	17	16	14
BALLYSHANNON (CATHLEEN'S FALL)	69.2	121	14.4	30	18	15
GLENTIES	129.1	161	19.1	16	17	16
<b>CO. DUBLIN</b>						
DUBLIN (PHOENIX PARK)	80.7	152	22.9	17	19	14
DUBLIN AIRPORT	81.5		20.6	17	18	11
CASEMENT AERODROME	76.8	150	25.9	17	17	11
DUBLIN (MERRION SQUARE)	65.8	134	23.7	17	17	11
<b>CO. GALWAY</b>						
GALWAY (UNIV. COLL.)	89.3	133	15.0	16	21	17
MAAM VALLEY	193.7		32.9	25	20	18
CONNEMARA NATIONAL PARK	102.0	123	13.8	20	21	17
BALLYGAR	80.4	132	19.5	16	19	15
<b>CO. KERRY</b>						
VALENTIA OBSERVATORY	111.0	144	16.5	29	18	17
ARDFERT (LISCAHANE)	62.8		10.9	27	18	15
<b>CO. KILKENNY</b>						
KILKENNY	85.2	164	15.8	28	16	12
<b>CO. LETTRIM</b>						
BALLINAMORE	96.0	143	18.9	16	21	15
<b>CO. LIMERICK</b>						
MOUNT RUSSELL	115.9		26.7	2	20	16
<b>CO. LOUTH</b>						
ARDEE (BOHARNAMOE)	80.3	146	33.0	17	16	11
<b>CO. MAYO</b>						
BELMULLET	66.9	116	10.5	20	18	15
STRAIDE	85.6	134	12.1	28	17	17
CONNAUGHT AIRPORT	87.1		11.6	16	19	16
<b>CO. MEATH</b>						
WARRENSTOWN	86.2	149	25.2	17	17	12
<b>CO. MONAGHAN</b>						
CLONES	77.4	138	13.8	17	15	13
<b>CO. OFFALY</b>						
BIRR	72.6	137	12.9	27	16	12
DERRYGREENAGH	70.9	124	14.5	20	15	12
<b>CO. SLIGO</b>						
ARDTARMON	79.3		11.5	30	17	16
<b>CO. TIPPERARY</b>						
FETHARD (PARSONSHILL)	90.2		15.9	27	17	15
<b>CO. WATERFORD</b>						
WATERFORD (TYCOR)	98.6	162	31.2	20	16	13
DUNGARVAN (CARRIGLEA)	111.1		28.1	20	17	13
<b>CO. WESTMEATH</b>						
MULLINGAR II	77.7	132	13.8	17	15	14
<b>CO. WEXFORD</b>						
JOHNSTOWN CASTLE	133.5	209	26.0	20	18	15
ROSSLARE	110.1	197	24.7	20	15	11
CLONROCHE	162.8	229	29.9	20	16	13
JOHN F. KENNEDY PARK	127.7	200	27.6	20	15	13

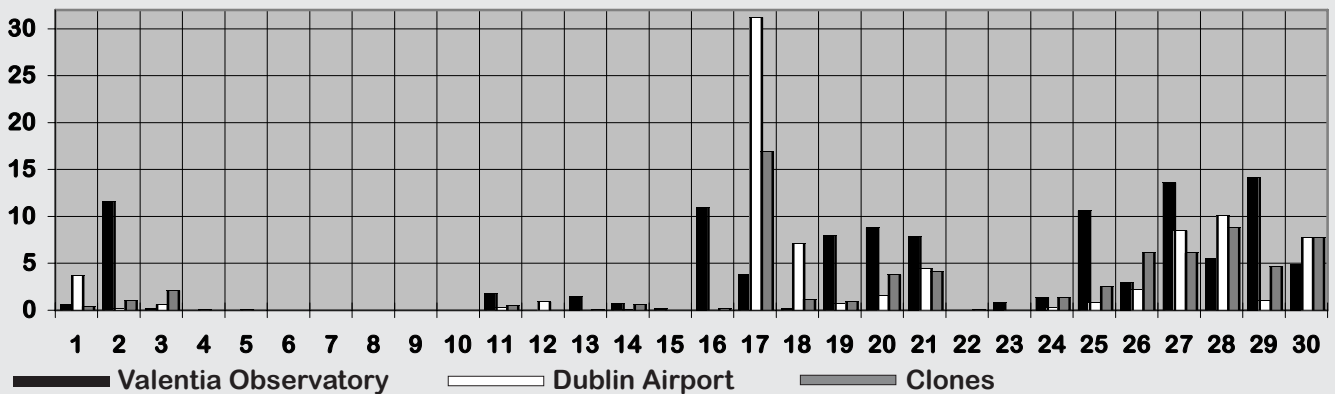
**Total rainfall (mm)**



**Percentage of normal rainfall**



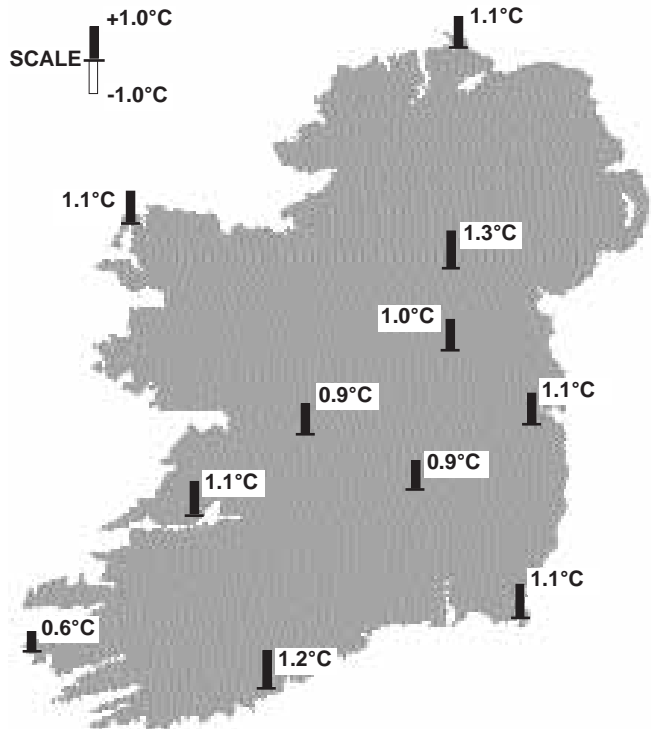
**Daily 0-24h rainfall values (mm)**



# Warmer than normal overall, but some severe frost at times

Like every other month so far this year, mean air temperatures for April were above normal everywhere. They were around a degree above normal overall, but as can be seen from the graphs below, the month consisted of spells of very warm weather as well as shorter periods when frost became widespread, with some severe ground frost at inland stations. Mean temperatures ranged from 8.0°C at Connaught Airport to 10.0°C at Shannon Airport.

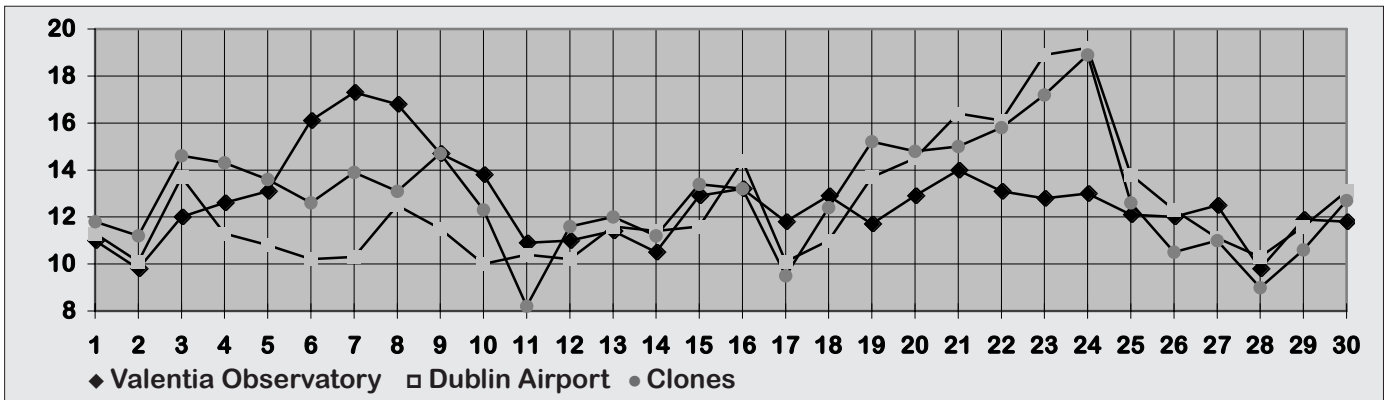
Daytime temperatures rose well above normal in the period 6th to 8th, but most stations measured their highest temperatures during the final week. The highest value, 20.7°C, was measured at Dublin (Merrion Square) on the 24th; this was the highest April temperature at the station since it opened in 1948. The lowest air temperature, -3.3°C, was recorded at Casement Aerodrome on the 13th, while the lowest grass minimum temperature, -10.4°C, was measured at Derrygreenagh, Co. Offaly, on the 8th. Overall there was a total of



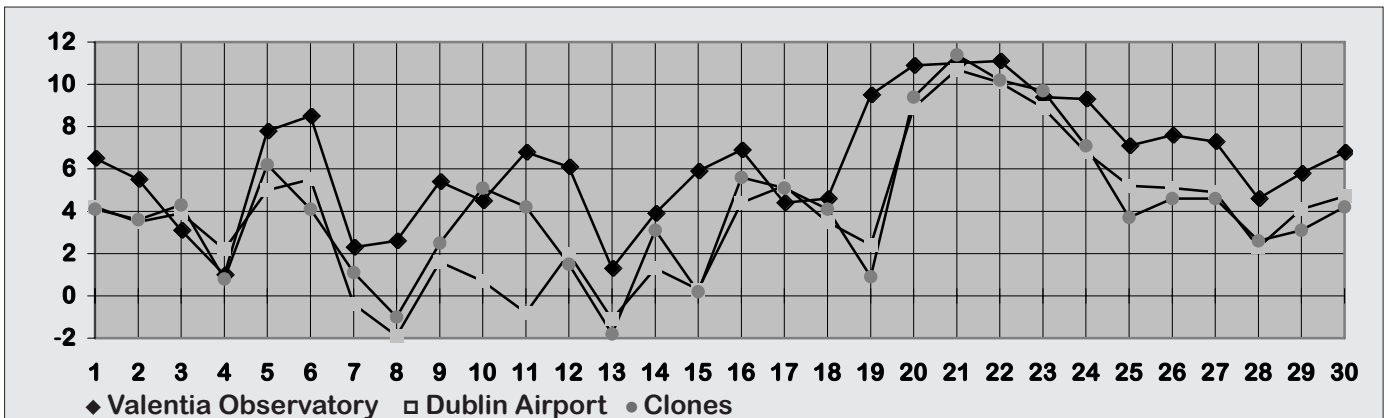
**Mean Temperature**  
(difference from 1961-90 normals)

between 9 and 14 ground frosts at many inland stations, close to normal for April. In contrast, no air or ground frost was recorded at Rosslare.

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



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



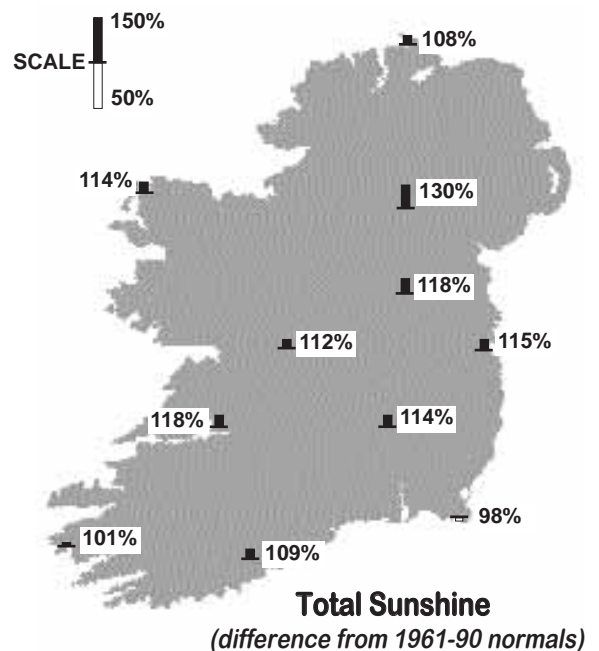
County/ Station	°C											
	Mean max.	Mean min.	Mean/ deviation from 1961-90 average		Highest max./date		Lowest min./date		Lowest grass min./date		Days with air frost ground frost	
<b>CO. CLARE</b>												
SHANNON AIRPORT	13.9	6.1	10.0	1.1	18.9	23	1.6	13	-4.8	8	0	9
CARRON	12.2	4.7	8.5	0.8	15.6	20	-0.1	13	-7.0	13	1	11
<b>CO. CORK</b>												
FERMOY (MOORE PARK)	13.1	4.4	8.8	0.8	18.1	23	-3.2	8	-7.2	8	6	12
CORK AIRPORT	12.4	5.7	9.1	1.2	17.2	7	2.4	8	-1.9	15	0	3
SHERKIN ISLAND	12.5	7.1	9.8	1.0	14.9	8	1.4	4	-1.5	8	0	4
BALLINCURRIG (PEAFIELD)	12.4	4.6	8.5		16.4	7	0.2	8	-1.4	8	0	3
<b>CO. DONEGAL</b>												
MALIN HEAD	11.6	6.1	8.9	1.1	18.4	24	0.9	15	-1.3	7	0	2
BALLYSHANNON (CATHLEEN'S FALL)	12.9	4.4	8.7	0.8	18.9	24	-2.0	13			2	
GLENTIES	11.3	5.9	8.6	1.1	13.8	2	-0.2	9 13	-2.9	9	2	6
<b>CO. DUBLIN</b>												
DUBLIN (PHOENIX PARK)	13.5	4.9	9.2	1.3	19.9	23	-1.9	8	-8.0	8	3	17
DUBLIN AIRPORT	12.4	4.8	8.6		19.2	24	-1.9	8	-6.7	8	3	10
CASEMENT AERODROME	12.6	4.9	8.8	1.1	18.6	23	-3.3	13	-5.2	8	3	7
DUBLIN (MERRION SQUARE)	12.8	6.9	9.9	1.0	20.7	24	2.8	13			0	
<b>CO. GALWAY</b>												
GALWAY (UNIV. COLL.)	13.4	5.4	9.4	0.7	17.0	20 24	-1.1	13	-6.7	13	1	12
MAAM VALLEY	12.9	6.0	9.5		16.8	20	1.3	13	-3.7	13	0	4
CONNEMARA NATIONAL PARK	12.8	5.6	9.2	0.8	16.5	7 9	1.4	13			0	
BALLYGAR	13.5	4.9	9.2		17.4	24	-1.4	13	-3.4	4	1	9
<b>CO. KERRY</b>												
VALENTIA OBSERVATORY	12.7	6.4	9.6	0.6	17.3	7	1.0	4	-4.0	7	0	4
ARDFERT (LISCAHANE)	13.8	5.2	9.5	1.1	18.5	7	-1.2	7	-4.4	7	3	9
<b>CO. KILKENNY</b>												
KILKENNY	13.3	4.7	9.0	0.9	19.5	23	-2.2	8	-9.9	8	4	13
<b>CO. LEITRIM</b>												
BALLINAMORE	12.6	4.2	8.4	0.7	18.9	24	-2.6	13	-8.0	13	4	6
<b>CO. LIMERICK</b>												
MOUNT RUSSELL	12.1	5.1	8.6		18.3	23	-0.2	7	-5.2	7	1	8
<b>CO. LOUTH</b>												
ARDEE (BOHARNAMOE)	13.3	4.0	8.7	1.2	18.4	23	-2.9	8	-6.2	8	6	13
<b>CO. MAYO</b>												
BELMULLET	12.8	6.2	9.5	1.1	15.8	6	0.6	13	-3.8	7	0	4
STRAIDE	13.2	4.6	8.9	0.8	17.5	20	-2.0	13	-5.5	7 13	4	10
CONNAUGHT AIRPORT	11.4	4.5	8.0		15.9	20	0.8	4	-4.7	13	0	5
<b>CO. MEATH</b>												
WARRENSTOWN	12.8	5.4	9.1	1.4	19.0	23	-1.4	8	-4.0	8	2	5
<b>CO. MONAGHAN</b>												
CLONES	12.9	4.9	8.9	1.3	18.9	24	-1.8	13	-7.6	13	2	9
<b>CO. OFFALY</b>												
BIRR	13.0	4.7	8.9	0.9	18.2	23	-2.8	8	-9.7	8	3	11
DERRYGREENAGH	13.0	4.0	8.5	1.1	18.0	23	-2.6	13	-10.4	8	5	12
<b>CO. SLIGO</b>												
ARDTARMON	13.1	5.9	9.5		18.3	23	1.6	13	-1.5	7 8	0	4
<b>CO. TIPPERARY</b>												
FETHARD (PARSONSHILL)	12.3	4.4	8.4		18.5	23	0.9	12	-5.8	8	0	11
WATERFORD (TYCOR)	13.7	5.4	9.6	1.2	17.3	8	0.2	15			0	
DUNGARVAN (CARRIGLEA)	13.2	5.6	9.4	0.9	17.2	7	-1.0	15	-2.7	15	2	5
<b>CO. WESTMEATH</b>												
MULLINGAR II	12.5	4.6	8.6	1.0	17.7	23	-2.3	8	-8.1	8	4	11
<b>CO. WEXFORD</b>												
JOHNSTOWN CASTLE	11.8	6.2	9.0	1.1	14.2	22	1.7	15	-0.8	2	0	4
ROSSLARE	11.7	7.3	9.5	1.1	13.7	22	3.9	29	0.1	15	0	0
CLONROCHE	12.2	5.0	8.6	0.9	15.6	23	-0.4	15	-6.5	15	2	14
JOHN F. KENNEDY PARK	12.4	5.6	9.0	0.8	15.1	7 8	0.0	15	-3.3	15	0	4

County/ Station	Daily mean (hours/day)	% of average	% of possible	Most in a day/date	
<b>CO. CLARE</b>					
SHANNON AIRPORT	5.81	118	42	12.1	7
<b>CO. CORK</b>					
CORK AIRPORT	5.73	109	41	12.2	7
SHERKIN ISLAND	5.53	94	40	11.5	7 14
BALLINCURRIG (PEAFIELD)	5.58		41	12.1	7
<b>CO. DONEGAL</b>					
MALIN HEAD	5.49	108	39	12.4	12
BALLYSHANNON (CATHLEEN'S FALL)	5.84	119	41	12.2	23
<b>CO. DUBLIN</b>					
DUBLIN AIRPORT	5.31	102	38	11.2	7
CASEMENT AERODROME	5.64	115	40	10.8	7
<b>CO. GALWAY</b>					
GALWAY (UNIV. COLL.)	5.34	108	38	12.0	7
<b>CO. KERRY</b>					
VALENTIA OBSERVATORY	5.07	101	37	11.6	7
ARDFERT (LISCAHANE)	5.78		43	12.1	7
<b>CO. KILKENNY</b>					
KILKENNY	5.53	114	40	12.2	7
<b>CO. LEITRIM</b>					
BALLINAMORE	5.41	119	39	12.2	7
<b>CO. MAYO</b>					
BELMULLET	5.99	114	43	12.4	7
STRAIDE	5.60			12.3	23
CONNAUGHT AIRPORT	5.68		41	12.2	18
<b>CO. MONAGHAN</b>					
CLONES	5.86	130	42	11.6	7
<b>CO. OFFALY</b>					
BIRR	5.22	112	37	11.8	7
<b>CO. WATERFORD</b>					
DUNGARVAN (CARRIGLEA)	5.68	113	43	12.0	7
<b>CO. WESTMEATH</b>					
MULLINGAR II	5.68	118	41	12.1	7
<b>CO. WEXFORD</b>					
JOHNSTOWN CASTLE	not available				
ROSSLARE	5.63	98	41	11.8	26
CLONROCHE	5.10	97	37	11.4	7
JOHN F. KENNEDY PARK	5.30	101	38	11.6	7

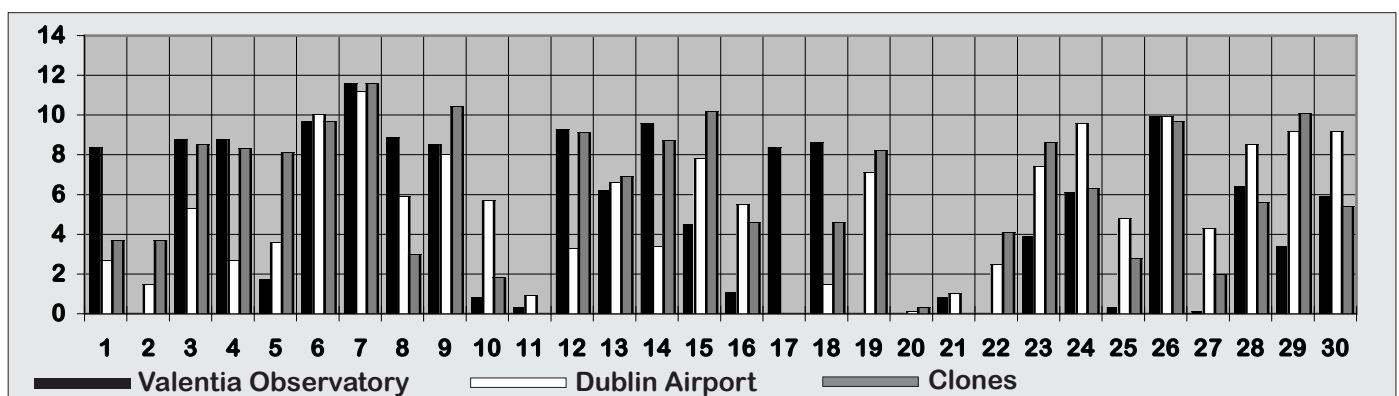
## Sunny except in southeast

**Sunshine totals were above normal except near some southern and southeastern coasts. There was little variation in totals across the country, with mean daily sunshine varying between 5 and 6 hours everywhere. Percentage of normal values were between 94% at Sherkin Island, Co. Cork and 130% at Clones, where it was the sunniest April since 1974. At several other stations it was the sunniest April for between 7 and 16 years.**

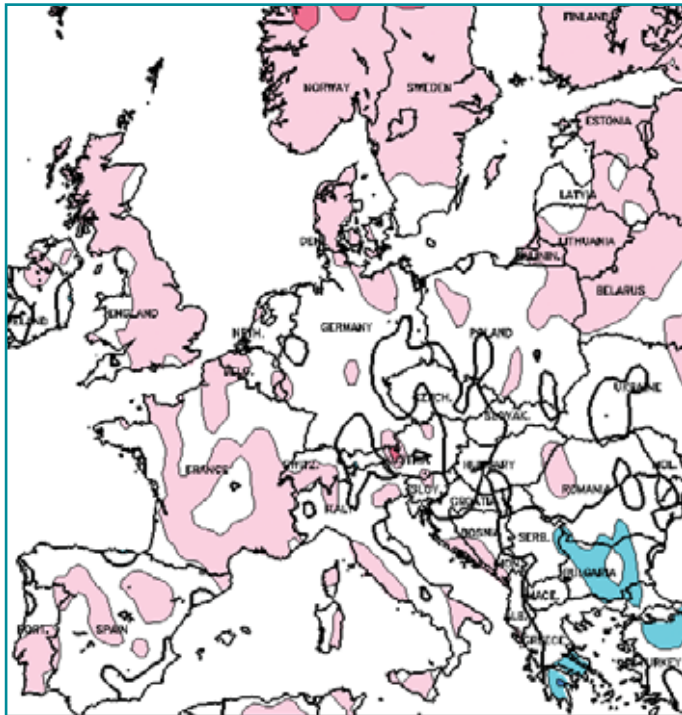
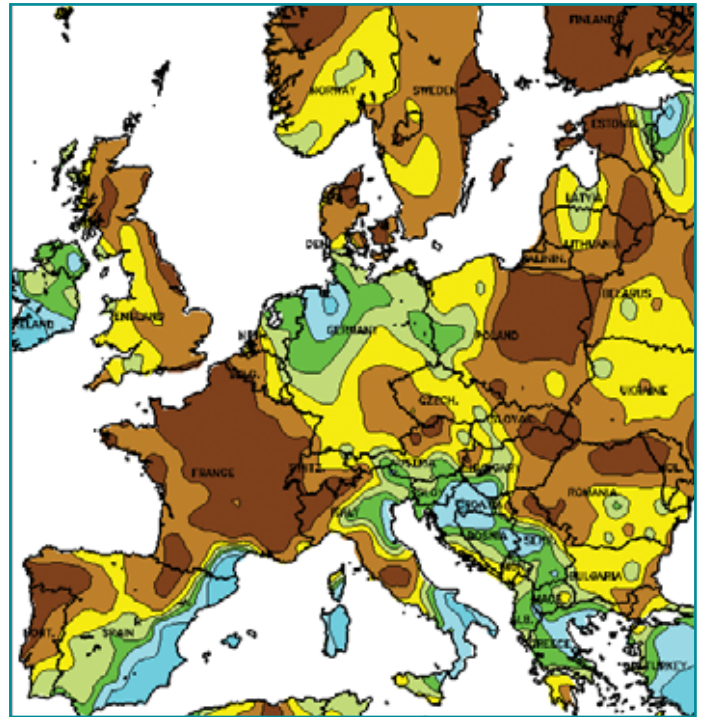
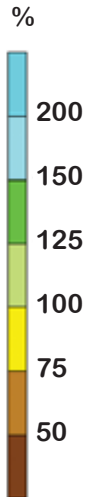
Sunshine was fairly evenly distributed throughout the month, but the period between the 6th and 9th was particularly sunny. The highest daily value, 12.4 hours, was measured at both Belmullet on the 7th and at Malin Head on the 12th. Global solar radiation totals ranged from 91% of normal at Valentia Observatory to 110% at Belmullet.



### Daily sunshine values(hours)



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



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

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

Many central and eastern states experienced widely fluctuating temperatures during the month. In Minneapolis/St Paul, for example, snowfall early in the month was followed by record high temperatures by the 15th. The temperature reached 33°C, breaking the 82-year old April record by five degrees. Another change by the end of the month brought widespread tornadoes (see pages 2 and 3).

A storm system over the Canary Islands at the beginning of the month caused flash flooding which led to the deaths of 5 people and injury to 30 others. The worst affected island was Tenerife, where flooding in Santa Cruz swept away cars and left 50000 residents without electricity.

April was an unusually wet month over many parts of the eastern Mediterranean and Saudi Arabia. A fall of 57mm in Beirut over a 2-day period up to the 22nd was the same as would normally be received in the whole month of April.

Temperatures of over 40°C were measured in the Rajasthan desert of northwestern India, with 42°C recorded at Bikaner on a number of days at the beginning of the month, twelve degrees above normal for early April.

**Global weather highlights of the month**

## Increasing desertification in China causes worst dust storms in living memory

This spring has brought the worst dust storms in living memory over large portions of north Asia. An estimated 50,000 tonnes of airborne dust has been driven eastwards during the late winter and spring of 2002 by surface and upper level winds, affecting mainly northern Chinese towns, particularly Beijing, but periodically also across Korea and Japan. Accelerating desertification in central and eastern Inner Mongolia is primarily responsible for the increasing frequency and intensity of dust storms hitting northern Chinese cities. Beijing has always experienced dust storms in the spring, when the prevailing westerly wind carries sand particles to the city from the Gobi Desert, but meteorologists confirm that the recent rash of dust storms has come not only from historic desert areas but also from recently desertified regions such as Xilingol. In effect, the Gobi is expanding eastwards.

Abnormally dry conditions over northern China have undoubtedly contributed to desertification in the area, after below normal rainfall for four years in a row. Many Chinese climate experts suspect that this dry trend is not transitory. Because of deforestation and global climate change, they say, northern China is becoming warmer, drier and windier. Others draw connections to the El Niño/La Niña cycle. But experts agree that the root cause of the problem is unsustainable land use, namely overgrazing. Overgrazing and deforestation across the north of the country has damaged the fragile ecosystem, rendering oases and rivers dry, and accelerating a desert environment. To overcome these problems, China is working on a "Green Wall" project, whose purpose is to halt and eventually reverse the advancing Gobi desert. In this way it would function like the stone and brick Great Wall of China, built to hold back the Central Asian warrior horsemen. The Great Green Wall is a project to plant a 4480km shelterbelt of trees across the northwest rim of China, skirting the Gobi Desert. Although prevention efforts are targeted at tree planting in cities and rural areas, progress has sometimes been slow. Almost one third of this vast country's landmass is desert or is in the process of becoming one, according to official statistics. Throughout China, an area of about 100,000 square kilometers has become desertified over the last 50 years. The desert area has been expanding by about

2,500 square kilometers a year since the mid-1980s and now the Gobi desert is only 250 kilometers from the capital.

While climate change has a probable role in accelerating desertification, the reverse may also be true. An interdisciplinary Chinese research team in Xilingol is studying the impact of grassland destruction on the global climate system. Xilingol forms the southeastern edge of the great Eurasian Steppe, whose ecosystem is both a major source and sink for greenhouse gases. The research team is attempting to quantify the role of the steppe ecosystem in the global carbon cycle.

*(Text and pictures: NCDC/NOAA, US Department of Commerce)*

### From grassland to desert....



*These pictures, taken in the same area of northern China over a 4-year spell between 1997 and 2001, show the effects of desertification due to drought and overgrazing.*