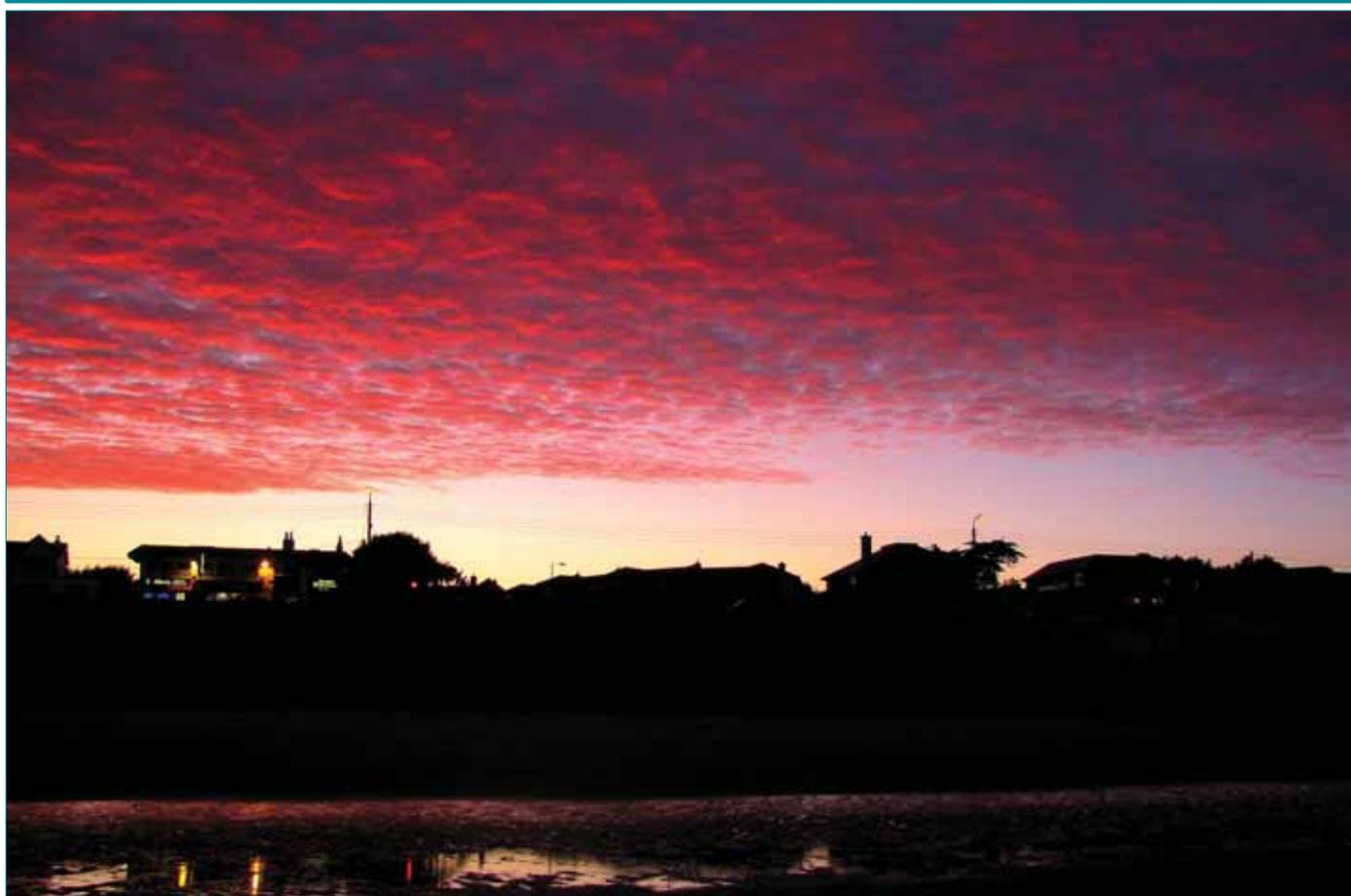


# Monthly Weather Bulletin

No. 281  
SEPTEMBER 2009



Above- A dramatic sunset over Portmarnock, Co. Dublin, on the evening of the 8th, at the beginning of a long spell of settled weather (picture Gerry Dunne)

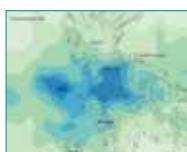
## DRY FOR MOST OF MONTH AFTER WET START; WARMER AND SUNNIER THAN NORMAL

The very disturbed weather of most of the summer months extended into early September also, but high pressure close to or over Ireland gave mostly settled conditions from the 9th onwards. After wet and often windy weather during the first week, very little rain was measured during the remainder of the month,

when winds were mostly light. This latter period began with very sunny weather between the 9th and 14th, but thereafter it was mainly dull. Rainfall totals were below normal everywhere and were less than half of normal in many places. Most stations had their driest September since 2002, while at Claremorris it was the driest



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Ketsana  
hits Manila -  
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**Third very  
wet summer  
in a row**

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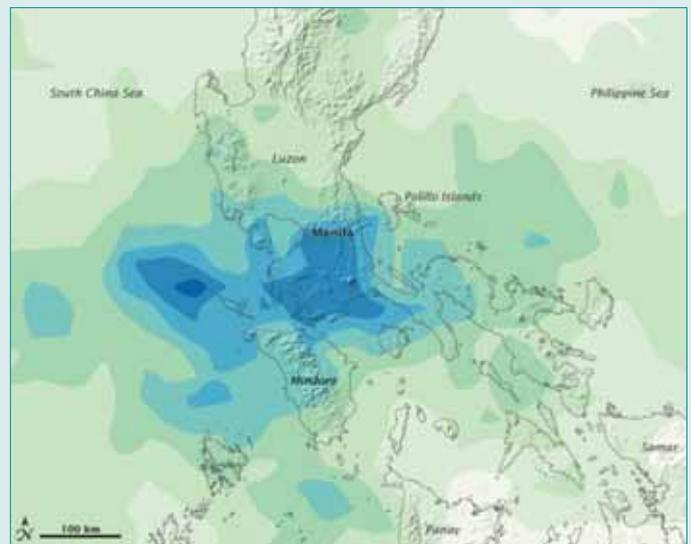
Notes on the tables and map  
showing location of stations  
appear in January issue

since 1990. Totals of between four and 10 wetdays were measured (days with 1mm or more rainfall) in most places, compared with the normal range for September of between 12 and 17 wetdays. Heavy rain fell over eastern and southern areas on the 2nd, causing localised flooding as ground conditions were saturated. Mean monthly air temperatures were a little above normal generally, but were a degree above normal in the southeast. Daytime values rose slightly above 20°C between the

11th and 13th, but they were close to normal throughout most of September. Slight ground frost was recorded in some inland areas around the middle of the month. Much of September was dull, but almost cloudless conditions over the country between the 9th and 13th gave over 10 hours of sunshine each day during this period in most places, bringing monthly totals above normal everywhere. Knock Airport's daily sunshine value of 11.8 hours on the 13th was its highest for September

## EXCEPTIONAL RAINFALLS BRING SEVERE FLOODING

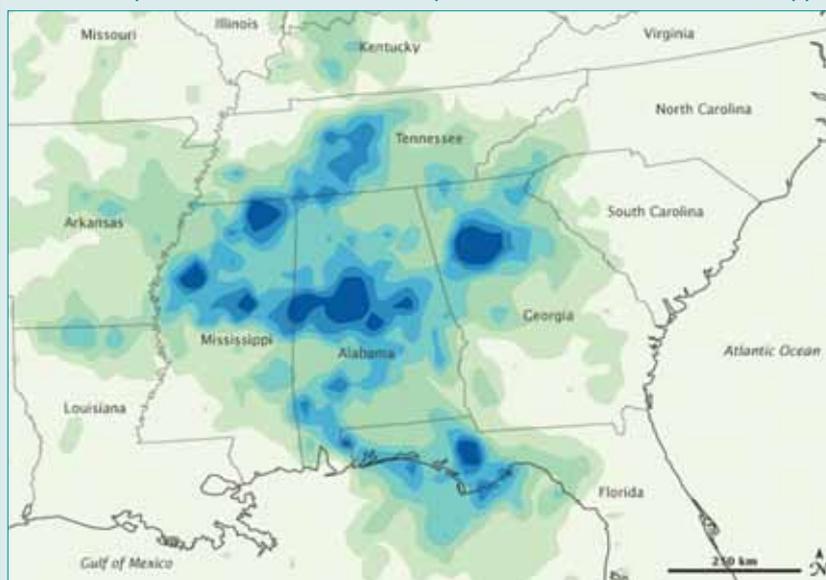
An active typhoon season in the Pacific continued with tropical storm **Ketsana**, which moved over the Philippines on the 26th, bringing winds of up to 100 km/h. The main impact of the storm, however, was caused by torrential rain in and around the capital city of Manila. Approximately 80% of the city was submerged, as it experienced its worst flooding for 40 years. A 12-hour fall of 424mm in the city was higher than its previous record for a full 24-hour period, set in 1967. This amount also surpassed the average September monthly rainfall for the area of 391mm. Almost four million people were affected by the storm and 375,000 were forced to flee their homes. At least 295 fatalities due to flash flooding were reported, with 39 others reported missing. **Ketsana** continued westwards over subsequent days, reaching the coast of Vietnam on the 30th near Danang, where further heavy rain and coastal flooding caused the deaths of at least 23 people and led to the evacuation of around 170,000 people. Shown on the right is an estimate of seven-day rainfall over the area, produced by the near-real-time, multi-satellite precipitation analysis at NASA's Goddard Space Flight Centre.



Seven-day rainfall totals (mm), September 21st-27th

75 150 300 450 600

Earlier in the month, several storms over the southeastern United States caused significant flooding over a wide area and led to multiple deaths. An area of low pressure over the lower Mississippi River Valley drew moisture from the Gulf of



Eight-day rainfall totals (mm), September 14th-21st

50 100 150 200 250 300

Mexico northeastward over the area, fuelling showers and thunderstorms. The low pressure area persisted over the same location for several days, bringing substantial rainfall accumulations. The chart on the left shows estimates of rainfall over an eight-day period between the 14th and 21st, using the same satellite-derived data as the chart above. The highest rainfall amounts- more than 300mm- appear in blue, while lighter amounts are shown in pale green. Heavy rainfall occurred throughout many southeastern states. It was especially intense over Mississippi, Alabama, Georgia, North Carolina and northern Florida; 506mm was measured over the period at Lake Toxaway, North Carolina. Eleven people were killed in Georgia, Alabama, and Tennessee, primarily due to being swept away by floodwaters, while damage was estimated at more than \$250 million.

(images courtesy NASA Earth Observatory)

**since the station opened in 1996.**

**1st to 8th:** The first week of the month continued the weather pattern of much of the summer, with rain or showers each day, together with strong winds at times. Heaviest falls were on the 2nd, especially in the east and south, and in the period 6th to 8th. Some sunshine was recorded on most days, but the period was mainly dull, with temperatures recovering after a cool start. Gale gusts were recorded at coastal stations on the 4th, 7th and particularly on the 8th, when a deep depression passed close to the north coast.

**9th to 30th:** Pressure rose rapidly as an anticyclone to the southwest of Ireland moved northeastwards, becoming centred over the country by the 11th. Malin Head recorded the highest ever September mean sea level pressure in Ireland, 1041.3hPa, on both the 10th and 11th. Most days during this period were completely dry, with a total of less than 1mm of rain recorded during this 22-day spell at eastern stations. Clear skies gave almost unbroken sunshine early in the period, bringing daytime temperatures above normal, but much

cloudier conditions developed during the second half of the month, when temperatures were near normal. Winds were generally light and variable in direction; mist or fog patches were widespread on several mornings when skies were clear. High pressure retreated southwards between the 19th and 22nd, allowing frontal systems to move over Ireland, bringing outbreaks of rain, heaviest in the northwest, together with strong southwesterly winds. High pressure became re-established during the final week, however, bringing a return to dry but mainly cloudy conditions.

**Wind and elements:** Mean windspeeds for the month of between 5 and 13 knots (9 and 24km/h) were below normal everywhere. The month's strongest winds were in the period 7th to 8th and on the 21st; the highest gust of 50 knots (93km/h) was measured at Malin Head on the 8th. Thunderstorms were infrequent and were widespread only in northern areas on the 1st, while there were no reports of hail. Fog developed in the early morning in many places between the 12th and 14th.

**Below**

*After a long wet spell during the summer months, fine and warm weather in mid-September was enjoyed by these swimmers on Dublin's north coast on the 13th.  
(picture Gerry Dunne)*

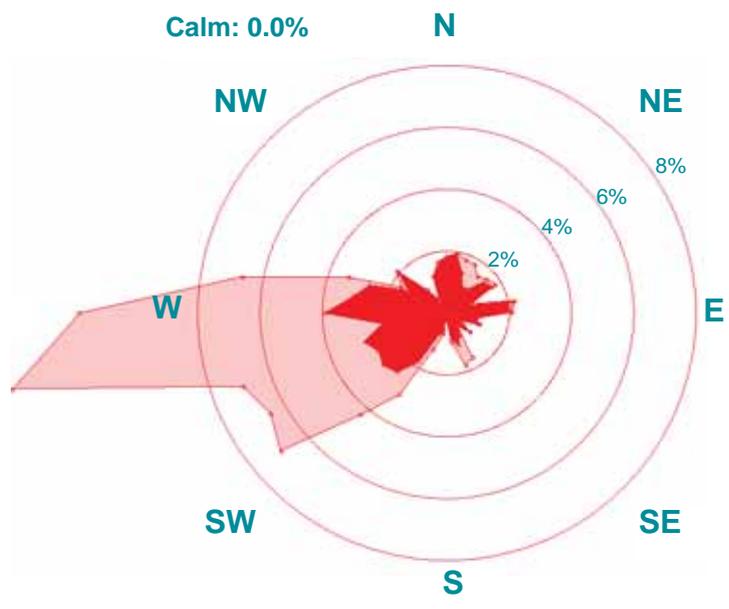
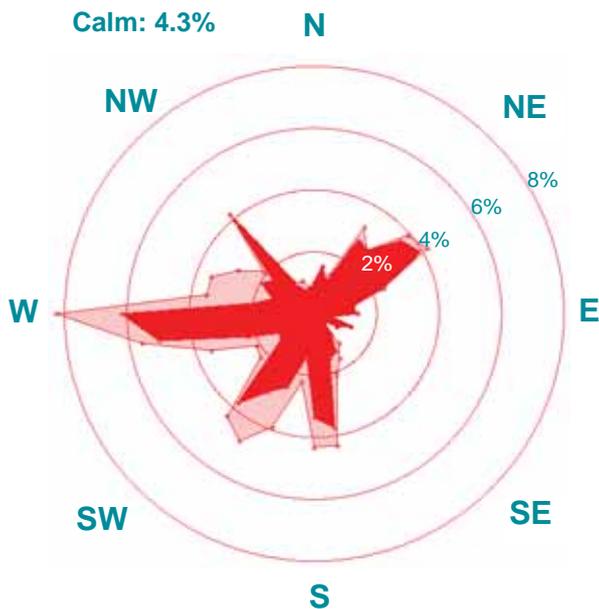


County / Station	WIND (KNOTS)										ELEMENTS				
	Mean speed	Max. dir.	10-min. speed	mean date/hour	Max. dir.	Gust speed	date/time	Days with gales	gale gusts	Hours with gale gusts	Snow	Snow Lying	Hail	Thunder	Fog
CO. CARLOW Carlow (Oak Park)	6.2	180°	23	8/ 5	180°	33	8/0541	0	0	0					
CO. CAVAN Ballyhaise	5.9	170°	19	7/22	210°	29	21/2026	0	0	0					
CO. CLARE Shannon Airport	7.6	270°	23	4/11	290°	31	3/1259	0	0	0	0	0	0	0	4
		150°	23	6/13	290°	31	4/0840								
CO. CORK Roche's Point	9.8	310°	30	2/15	300°	39	4/1249	0	2	17					
Cork Airport	7.7	310°	25	2/16	310°	34	2/1505	0	1	3	0	0	0	0	5
CO. DONEGAL Malin Head	12.8	170°	34	8/01	170°	50	8/0041	1	11	61	0	0	0	0	0
CO. DUBLIN Dublin Airport	10.1	280°	27	4/14	290°	35	4/1353	0	5	5	0	0	0	0	3
					220°	35	8/0545								
Casement Aerodrome	9.0	180°	28	7/23	190°	41	7/2258	0	3	12	0	0	0	0	3
		200°	28	8/01											
CO. KERRY Valentia Observatory	6.5	140°	23	7/17	140°	38	7/1634	0	2	4	0	0	0	0	0
CO. MAYO Belmullet	11.2	210°	33	21/12	220°	49	21/1742	0	7	53	0	0	0	0	2
Knock Airport	8.8	210°	27	21/16	210°	40	21/1530	0	3	13	0	0	0	0	9
					250°	40	22/0035								
CO. OFFALY Birr	5.5	190°	18	7/22	210°	32	8/0125	0	0	0	0	0	0	0	2
		210°	18	8/04											
CO. WESTMEATH Mullingar	5.0	160°	15	6/15	280°	26	4/1148	0	0	0					
					160°	26	6/1510								
		170°	15	7/23											
CO. WEXFORD Johnstown Castle	5.9	210°	19	21/14	220°	32	21/1311	0	0	0					

Elements are not available for automatic stations

Valentia Observatory

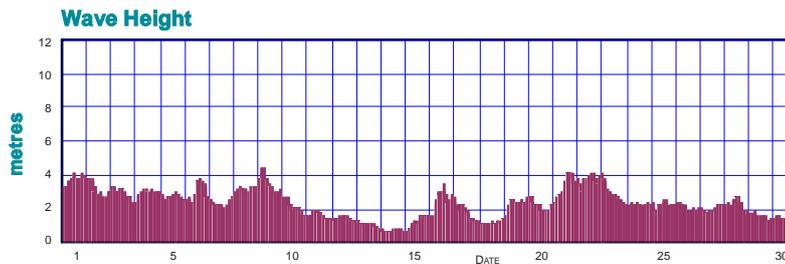
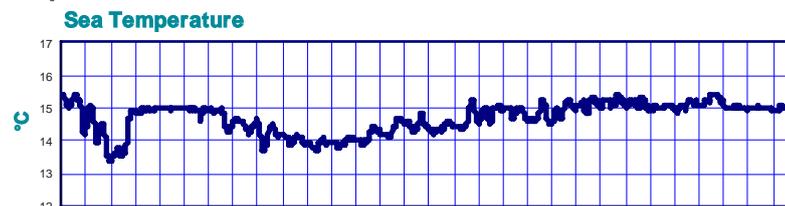
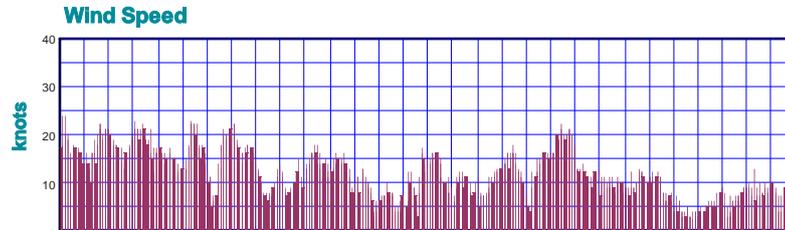
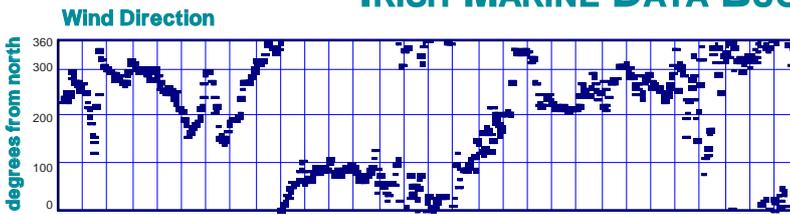
Dublin Airport



1-10 knots >10 knots

PERCENTAGE FREQUENCY OF WIND DIRECTION

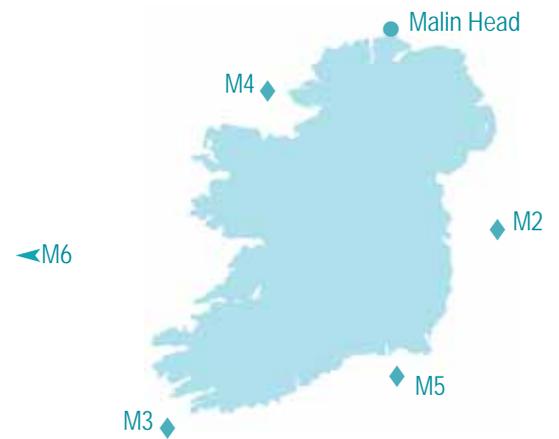
### MARINE OBSERVATIONS FROM IRISH MARINE DATA BUOY NETWORK



Hourly wind and wave conditions at M3 (51.22°N, 10.55°W)

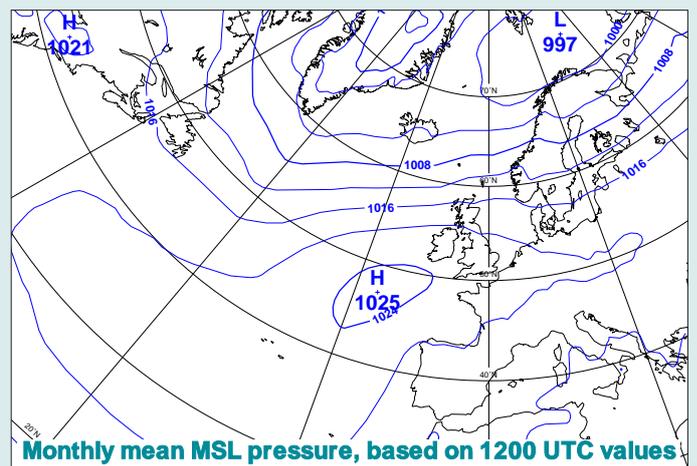
Buoy	Sea surface temp. (°C)	Mean wind speed (knots)	Max. 10-min wind (knots)	Mean wave height (m.)	Max. wave height (m.)
M2		not available			
M3	14.7	11.7	24	2.3	4.5
M4	14.1	14.7	30	2.9	6.2
M5	15.1	20.3	32	1.4	3.2
M6	14.6	15.7	32	2.6	6.0
Malin Head	14.4				

#### Summary of Mean Monthly Values

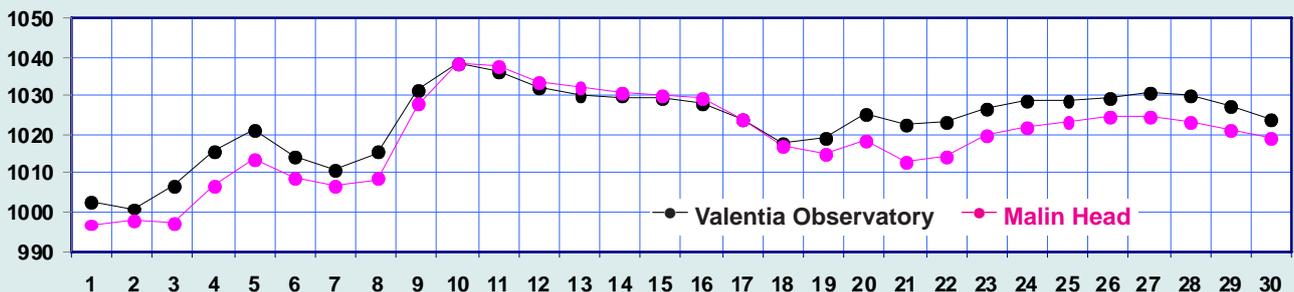


### MEAN ATMOSPHERIC PRESSURE

Mean sea level pressure values for the month varied between 1020hPa in the north and over 1023hPa in the southwest, around 8hPa higher than normal for September everywhere. Pressure was at its lowest early in the month, with the lowest value of the month, 990.5hPa, measured at Johnstown Castle on the 2nd. There was a steep rise in pressure after the first week as an anticyclone built over the country. The month's highest value of 1041.3hPa was measured at Malin Head on both the 10th and 11th, the highest September value ever recorded in Ireland.



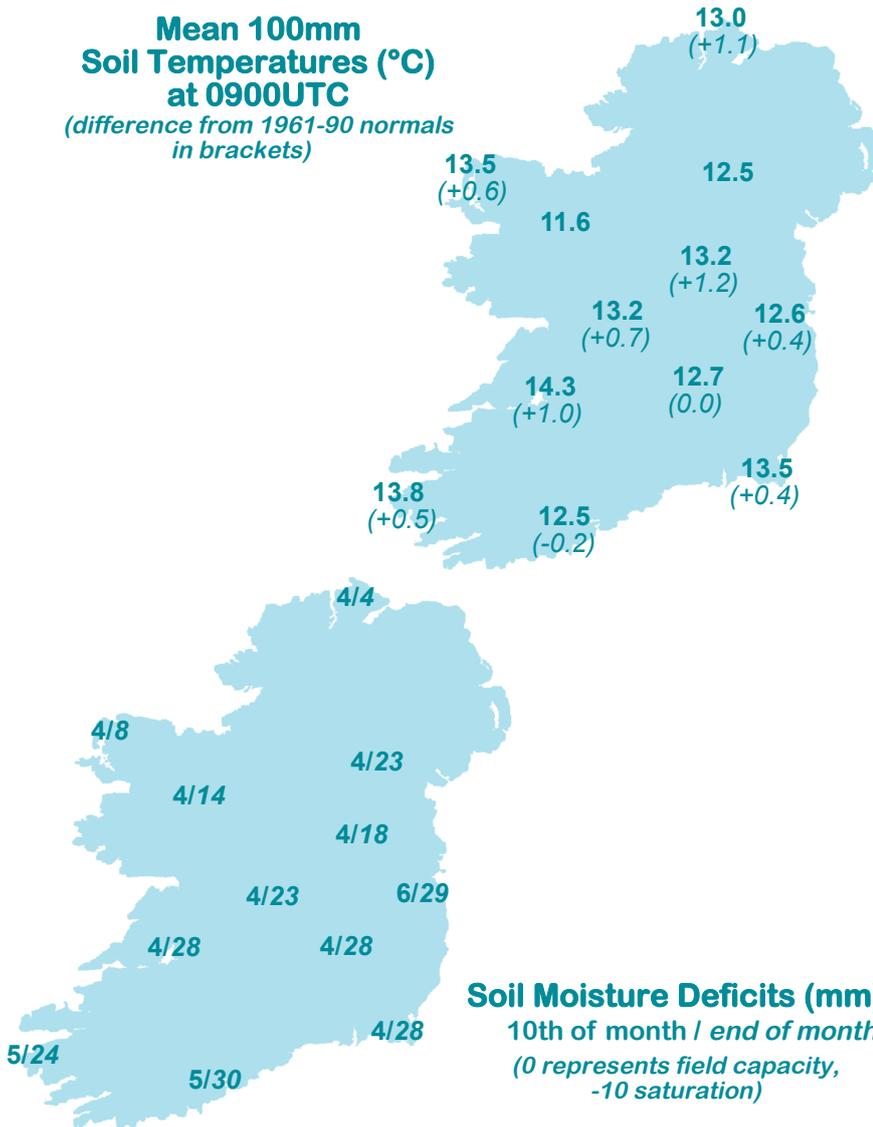
Monthly mean MSL pressure, based on 1200 UTC values



Mean daily Mean Sea Level pressure (hPa)

**Mean 100mm Soil Temperatures (°C) at 0900UTC**

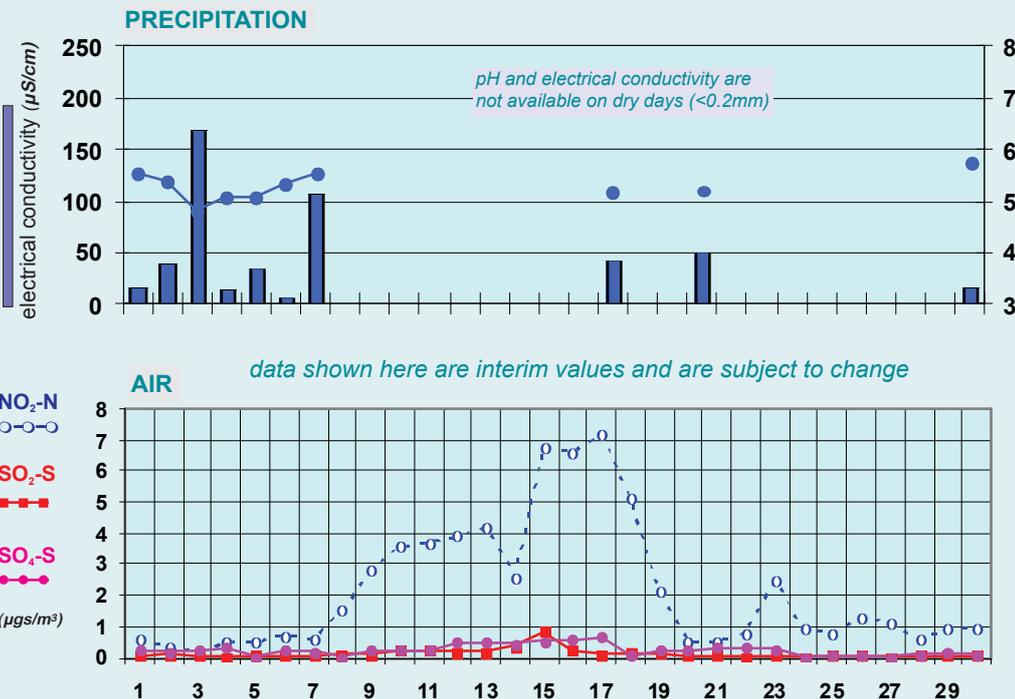
(difference from 1961-90 normals in brackets)



**Soil Temperatures at 0900UTC**

County/ Station	°C		
	100mm	200mm	300mm
CO. CARLOW			
CARLOW (OAK PARK)	12.7	13.2	13.5
CO. CAVAN			
BALLYHAISE	12.5	13.2	13.8
CO. CLARE			
SHANNON AIRPORT	14.3	14.5	14.9
CARRON	14.3		15.0
CO. CORK			
ROCHE'S POINT	12.9	13.1	14.1
FERMOY (MOOREPARK)	14.0	14.4	14.8
CORK AIRPORT	12.5	13.2	14.5
SHERKIN ISLAND	13.8	14.3	14.5
BALLINCURRIG (PEAFIELD)	12.0	11.9	13.6
CO. DONEGAL			
MALIN HEAD	13.0	13.8	14.5
CO. DUBLIN			
DUBLIN (PHOENIX PARK)	12.9	13.9	14.8
DUBLIN AIRPORT	12.2	12.8	13.8
CASEMENT AERODROME	12.6	13.2	13.9
CO. KERRY			
VALENTIA OBSERVATORY	13.8	14.7	15.8
CO. LIMERICK			
MOUNT RUSSELL	12.4	13.5	
CO. MAYO			
BELMULLET	13.5	14.5	15.7
STRAIDE	13.3		
KNOCK AIRPORT	11.6	12.7	13.3
CO. MEATH			
WARRENSTOWN	13.3	14.2	14.9
CO. OFFALY			
BIRR	13.2	14.0	15.3
CO. TIPPERARY			
FETHARD (PARSONSHILL)	12.7	13.5	
CO. WATERFORD			
DUNGARVAN (CARRIGLEA)		13.8	14.3
CO. WESTMEATH			
MULLINGAR	13.2	14.1	14.9
CO. WEXFORD			
JOHNSTOWN CASTLE	13.5	13.7	14.1
JOHN F. KENNEDY PARK	13.8	14.5	16.0
CLONROCHE (KNOXTOWN)	13.1	14.0	14.4

**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 (MM)				TEMPERATURE (°C)												SUNSHINE (HOURS)			
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
Cavan (Loreto)	11-20	0.5	-	2	0	17.3	6.3	11.8	-	3.6	20	0	74	27	0.4	20	0	-	-	51.5	-
	21-end	1.4	-	1	1	16.9	11.7	14.3	-	9.7	21	0	99	43	8.1	23	0	-	-	24.9	-
	<b>month</b>	<b>27.5</b>	<b>-</b>	<b>12</b>	<b>8</b>	<b>17.0</b>	<b>9.2</b>	<b>13.1</b>	<b>-</b>	<b>3.6</b>	<b>20</b>	<b>0</b>	<b>261</b>	<b>105</b>	<b>0.4</b>	<b>20</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>122.9</b>	<b>-</b>
<b>Co. Cork</b>	1-10	36.9	-	7	5	17.3	9.4	13.4	-	6.2	9	0	90	37	4.4	10	0	14.3	15.0	47.7	-
Fermoy	11-20	0.6	-	1	0	17.7	7.2	12.5	-	3.6	20	0	80	32	2.7	11	0	13.5	14.5	63.5	-
	21-end	0.2	-	0	0	17.9	10.9	14.4	-	4.7	24	0	100	45	4.8	24	0	14.3	14.9	43.1	-
	<b>month</b>	<b>37.7</b>	<b>48</b>	<b>8</b>	<b>5</b>	<b>17.6</b>	<b>9.2</b>	<b>13.4</b>	<b>0.6</b>	<b>3.6</b>	<b>20</b>	<b>0</b>	<b>270</b>	<b>114</b>	<b>2.7</b>	<b>11</b>	<b>0</b>	<b>14.0</b>	<b>14.8</b>	<b>154.3</b>	<b>138</b>
<b>Co. Donegal</b>	1-10	50.7	-	8	7	16.0	10.0	13.0	-	5.3	10	0	86	32	2.2	10	0	-	-	-	-
Glenties	11-20	17.1	-	5	2	18.3	6.1	12.2	-	2.9	12	0	79	32	-0.5	12	1	-	-	-	-
	21-end	23.0	-	9	7	15.1	12.2	13.7	-	10.0	24	0	93	37	6.8	23	0	-	-	-	-
	<b>month</b>	<b>90.8</b>	<b>63</b>	<b>22</b>	<b>16</b>	<b>16.5</b>	<b>9.4</b>	<b>13.0</b>	<b>0.7</b>	<b>2.9</b>	<b>12</b>	<b>0</b>	<b>257</b>	<b>101</b>	<b>-0.5</b>	<b>12</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Co. Kerry</b>	1-10	57.3	-	8	8	17.2	10.6	13.9	-	6.4	10	0	95	40	3.5	10	0	-	-	48.8	-
Ardfert	11-20	1.8	-	1	1	19.1	8.8	14.0	-	6.9	11	0	96	43	3.9	13	0	-	-	64.6	-
	21-end	0.9	-	2	0	17.8	10.9	14.4	-	7.7	24	0	99	45	4.6	24	0	-	-	33.4	-
	<b>month</b>	<b>60.0</b>	<b>-</b>	<b>11</b>	<b>9</b>	<b>18.1</b>	<b>10.1</b>	<b>14.1</b>	<b>0.8</b>	<b>6.4</b>	<b>10</b>	<b>0</b>	<b>290</b>	<b>128</b>	<b>3.5</b>	<b>10</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>146.8</b>	<b>-</b>
<b>Co. Monaghan</b>	1-10	24.6	-	8	4	16.8	8.9	12.9	-	5.0	9	0	85	33	-	-	-	-	-	-	-
Carrickmacross	11-20	0.6	-	1	0	17.1	5.8	11.5	-	2.5	20	0	71	26	-	-	-	-	-	-	-
	21-end	1.3	-	3	0	17.2	11.0	14.1	-	6.5	24	0	97	42	-	-	-	-	-	-	-
	<b>month</b>	<b>26.5</b>	<b>34</b>	<b>12</b>	<b>4</b>	<b>17.0</b>	<b>8.6</b>	<b>12.8</b>	<b>-</b>	<b>2.5</b>	<b>20</b>	<b>0</b>	<b>253</b>	<b>101</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Co. Waterford</b>	1-10	51.0	-	6	5	17.8	9.7	13.8	-	6.0	9	0	94	40	4.1	9	0	-	14.6	52.1	-
Dungarvan	11-20	0.0	-	0	0	18.2	9.0	13.6	-	5.2	12	0	92	39	4.1	12	0	-	13.9	66.6	-
	21-end	0.5	-	1	0	18.9	10.3	14.6	-	8.3	26	0	102	47	6.5	23	0	-	14.4	49.7	-
	<b>month</b>	<b>51.5</b>	<b>-</b>	<b>7</b>	<b>5</b>	<b>18.3</b>	<b>9.7</b>	<b>14.0</b>	<b>0.6</b>	<b>5.2</b>	<b>12</b>	<b>0</b>	<b>287</b>	<b>126</b>	<b>4.1</b>	<b>9</b>	<b>0</b>	<b>-</b>	<b>14.3</b>	<b>168.4</b>	<b>136</b>
<b>Co. Wexford</b>	1-10	47.7	-	6	5	17.0	9.6	13.3	-	6.5	9	0	89	36	2.5	4	0	13.9	16.3	57.5	-
J.F.K. Park	11-20	0.8	-	1	0	17.1	9.6	13.4	-	6.8	13	0	90	36	3.2	13	0	13.3	16.1	61.5	-
	21-end	0.0	-	0	0	18.3	10.3	14.3	-	5.8	24	0	99	45	1.6	24	0	14.2	15.7	43.3	-
	<b>month</b>	<b>48.5</b>	<b>56</b>	<b>7</b>	<b>5</b>	<b>17.5</b>	<b>9.9</b>	<b>13.7</b>	<b>0.7</b>	<b>5.8</b>	<b>24</b>	<b>0</b>	<b>278</b>	<b>117</b>	<b>1.6</b>	<b>24</b>	<b>0</b>	<b>13.8</b>	<b>16.0</b>	<b>162.3</b>	<b>140</b>

MEASURED POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE					
Station	Period	P.E. (mm)		Soil Moisture (mm)	
		Amount	Deficit	Accum'ltd	Deficit Surplus
<b>Co. Kerry</b>	1-10	11.6	-	0	75
Valentia Obs.	11-20	21.1	18	18	-
	21-end	11.4	8	26	-
	<b>month</b>	<b>44.1</b>			
<b>Co. Wexford</b>	1-10	20.9	-	0	50
Johnstown Castle	11-20	8.3	8	8	-
	21-end	11.3	11	19	-
	<b>month</b>	<b>40.5</b>			

Station	P.E. (Penman) total(mm)	GLOBAL SOLAR RADIATION (MJ/sq.m.)			
		1st-10th	11th-20th	21st-end	Total
<b>Co. Carlow</b>					
Carlow (Oak Park)*	45	102.00	98.88	78.74	279.62
<b>Co. Cavan</b>					
Ballyhaise*	44	108.21	105.72	69.92	283.85
<b>Co. Clare</b>					
Shannon Airport	49	global solar radiation values for stations marked * are provisional			
<b>Co. Cork</b>					
Cork Airport	45				
Roche's Point*		112.97	123.03	87.80	323.80
<b>Co. Donegal</b>					
Malin Head	43	102.53	117.82	48.43	268.78
<b>Co. Dublin</b>					
Dublin Airport	47	112.39	114.84	81.23	308.46
Casement Aerodrome	45				
<b>Co. Kerry</b>					
Valentia Obs.	49	117.77	142.32	79.30	339.39
<b>Co. Mayo</b>					
Belmullet	46	117.59	124.94	57.34	299.87
Knock Airport	42				
<b>Co. Offaly</b>					
Birr	42	106.11	121.30	78.06	305.47
<b>Co. Westmeath</b>					
Mullingar*	41	106.21	102.17	77.83	286.21
<b>Co. Wexford</b>					
Johnstown Castle*	46	110.00	107.05	92.92	309.97

MONTHLY EVAPORATION (MM) FROM CLASS A PAN			
County	Station	Monthly Rainfall (mm)	Monthly Evaporation (mm)
<b>Cork</b>	Fermoy (Moorepark)	37.7	64.2
<b>Kerry</b>	Valentia Observatory	90.0	58.1
<b>Kerry</b>	North Kerry Landfill	108.9	30.1
<b>Mayo</b>	Newport (Furnace)	87.1	35.0
<b>Offaly</b>	Derrygreenagh	30.4	39.5
<b>Waterford</b>	Dungarvan (Carriglea)	51.5	45.2
<b>Wexford</b>	J.F.K. Park	48.5	78.5

**Tuesday 1st:** Heavy showers overnight in the southwest and west. These showers spread countrywide during the morning and afternoon, dying out in the evening. Prolonged sunshine in the west and southwest, somewhat cloudier further east. Winds were moderate, southwesterly in direction.

**Rainfall:** 1 to 11mm, heaviest at Malin Head, 1mm at Casement Aerodrome

**Temperature:** max. 14°C to 18°C, min. 8°C to 12°C, no ground frost

**Sunshine:** 4 to 9 hours, sunniest at Belmullet, 4 hours at Dublin Airport

**Wednesday 2nd:** Rain reached the southwest in the early hours of the morning and spread gradually northeastwards during the day. The heaviest rain was in the south and east, where there were some particularly heavy bursts at times. The rain eventually cleared the east coast after midnight. Some sunshine in the southwest and north, but cloudy elsewhere. Cool. Winds were light southwesterly, becoming moderate cyclonic for a time and then strong northwesterly, before falling light or moderate later.

**Rainfall:** 1 to 29mm, heaviest at Johnstown Castle, 1mm at Belmullet

**Temperature:** max. 13°C to 17°C, min. 9°C to 12°C, no ground frost

**Sunshine:** nil to 3 hours, sunniest at Valentia

**Thursday 3rd:** Showers in the western half of the country overnight, mainly dry further east with some clear spells. Showers became widespread during the morning and afternoon with some sunny spells also, some of the showers were heavy. The showers became confined to western areas by evening. Winds were light to moderate, west to northwesterly in direction.

**Rainfall:** nil to 7mm, heaviest at Valentia, nil at Johnstown Castle

**Temperature:** max. 14°C to 16°C, min. 8°C to 12°C, no ground frost

**Sunshine:** 3 to 10 hours, sunniest at Dublin Airport, 3 hours at Valentia

**Friday 4th:** Mostly dry overnight with clear spells. During the morning showers developed, some of them heavy, with sunny spells also. The afternoon continued showery, but with some sunny periods as well. The showers died out during the evening, with clear spells developing in most areas. Winds were light westerly.

**Rainfall:** nil to 2mm, heaviest at Valentia, nil at Johnstown Castle

**Temperature:** max. 14°C to 17°C, min. 7°C to 12°C, no ground frost

**Sunshine:** 4 to 9 hours, sunniest at Dublin Airport, 4 hours at Valentia

**Saturday 5th:** Heavy rain crossed Ulster during the morning. Cloudy elsewhere, but with some sunny spells in the east. Scattered showers during the afternoon, although amounts were generally small. Clear spells after dark. Breezy and cool generally. Winds were moderate southwesterly.

**Rainfall:** nil to trace generally, 12mm at Malin Head

**Temperature:** max. 14°C to 17°C, min. 8°C to 13°C, no ground frost

**Sunshine:** nil to 2 hours, sunniest at Dublin Airport, nil at Valentia

**Sunday 6th:** After a dry start generally, rain moved into western areas during the morning and spread eastwards during the day. Some of this rain was very heavy, particularly in the southwest and south. Generally overcast with only occasional sunny spells in the east. Mainly dry by evening, but with isolated showers in the north. Winds were south to southwesterly, moderate to strong with occasional gusts.

**Rainfall:** 2 to 18mm, heaviest at Valentia, 2mm at Malin Head

**Temperature:** max. 15°C to 19°C, min. 10°C to 13°C, no ground frost

**Sunshine:** nil to trace generally, 1 hour at Casement Aerodrome

**Monday 7th:** The day started off mostly dry with sunny spells. Cloudier weather near Atlantic coasts spread eastwards during the forenoon. Wet and windy weather followed, spreading to all areas during the afternoon and evening. Becoming mild and humid during the evening, with fog patches in places. Winds were light to moderate southwesterly, backing south to southeasterly and increasing moderate to fresh and gusty.

**Rainfall:** nil to 9mm, heaviest at Valentia, nil at Casement Aerodrome

**Temperature:** max. 15°C to 19°C, min. 9°C to 13°C, no ground frost

**Sunshine:** 1 to 5 hours, sunniest in the east, 1 hour at Belmullet

**Tuesday 8th:** Humid and very mild overnight with outbreaks of rain and drizzle, heavy at times, particularly in the western half of the country. Apart from some clear periods in the east at first, the day started off dull, wet and windy. Cooler, clearer weather with scattered showers and sunny spells followed on from the Atlantic and moved eastwards across the country during the afternoon. The showers gradually died out early in the evening. Winds were southwesterly, moderate to fresh and gusty, becoming westerly and easing

gradually, while staying fresh and gusty on northwest coasts.

**Rainfall:** 1 to 18mm, heaviest at Valentia, 1mm at Belmullet

**Temperature:** max. 16°C to 19°C, min. 8°C to 13°C, no ground frost

**Sunshine:** nil to 4 hours, sunniest at Belmullet, nil at Casement Aerodrome

**Wednesday 9th:** Some showers in the northwest at the start of the night. Any mist or fog patches cleared quickly to give a mostly dry and sunny morning. Cloud thickened during the day, but many areas remained sunny throughout. Daytime temperatures near or above normal. Winds were light westerly, fresh and gusty in the northwest.

**Rainfall:** nil to trace

**Temperature:** max. 16°C to 18°C, min. 5°C to 12°C, ground temperatures below zero at Birr

**Sunshine:** 9 to 12 hours, sunniest at Knock Airport, 9 hours at Birr

**Thursday 10th:** Dry and cool overnight. Early morning fog cleared during the morning. After a cool start, temperatures rose to give a warm afternoon. Dry throughout with long hours of uninterrupted sunshine. Winds were light and variable in direction.

**Rainfall:** nil to trace

**Temperature:** max. 16°C to 20°C, min. 4°C to 10°C, no ground frost

**Sunshine:** 8 to 12 hours, sunniest at Cork Airport, 8 hours at Malin Head

**Friday 11th:** Remaining dry overnight. Fog patches around dawn cleared quickly during the morning. The day was dry and sunny throughout and after a cool start the afternoon became quite warm. Winds were light, easterly or variable.

**Rainfall:** nil to trace

**Temperature:** max. 17°C to 21°C, min. 3°C to 10°C, ground temperatures below zero at Birr

**Sunshine:** 10 to 12 hours, sunniest at Knock Airport, 10 hours at Dublin Airport

**Saturday 12th:** Dry and cool with fog in many places overnight. Another dry day countrywide followed, with unbroken sunshine throughout. Temperatures well up to or above normal, although becoming quite cool after dark. Winds were light and variable in direction.

**Rainfall:** nil to trace

**Temperature:** max. 16°C to 21°C, min. 4°C to 10°C, ground temperatures down to -1°C at Casement Aerodrome

**Sunshine:** 10 to 12 hours, sunniest at Knock Airport, 10 hours at Shannon Airport

**Sunday 13th:** Clear skies overnight with fog towards dawn. This fog was dense in places and lingered into the late morning in some parts. Elsewhere there were long sunny spells with almost clear skies in many places. It was warm in the afternoon, with temperatures well above the normal for September. Winds were light, variable or easterly in direction.

**Rainfall:** nil to trace

**Temperature:** max. 15°C to 22°C, min. 2°C to 12°C, ground temperatures down to -1°C at Birr

**Sunshine:** 5 to 12 hours, sunniest at Belmullet, 5 hours at Malin Head

**Monday 14th:** Mist and fog overnight, dense in places. Around dawn, thick cloud moved in from the Irish Sea and quickly covered most of Leinster. Elsewhere there were long sunny spells, with afternoon temperatures rising above normal. During the evening, the cloud covered all but the extreme southwest. Mist returned to many parts after dark. Winds were light and variable in direction.

**Rainfall:** nil to trace

**Temperature:** max. 15°C to 21°C, min. 6°C to 10°C, no ground frost

**Sunshine:** 1 to 11 hours, sunniest at Valentia, 1 hour at Casement Aerodrome

**Tuesday 15th:** Dry and cool overnight with mist and fog patches. The mist and fog lifted during the morning and most areas had a dry day with some sunny spells. Eastern and southern areas had sunny spells, however, it was cloudier in the west and northwest with outbreaks of rain or drizzle at times throughout the day. Light, variable or northerly winds overnight became moderate and sometimes gusty during the day.

**Rainfall:** nil generally, 3mm at Knock Airport, 1mm at Claremorris

**Temperature:** max. 14°C to 17°C, min. 5°C to 12°C, no ground frost

**Sunshine:** trace to 6 hours, sunniest at Cork Airport, trace at Shannon Airport

**Wednesday 16th:** A few spots of light rain in the east, otherwise it was a dry day with sunny spells. The southwest and west were sunniest. Warm, with afternoon temperatures around normal for the time of year. Dry and mild after dark with clear spells. Winds were light to moderate, north to northeasterly in direction.

**Rainfall:** nil to trace

**Temperature:** max. 14°C to 18°C, min. 6°C to 12°C, no ground frost

**Sunshine:** 2 to 10 hours, sunniest at Knock Airport, 2 hours at Belmullet

**Thursday 17th:** Dry with clear spells overnight, mist and fog patches in places. Continuing dry during the day with light winds and some sunny spells, especially during the afternoon. The night continued dry, with some mist forming in places. Winds were light and variable.

**Rainfall:** nil to trace

**Temperature:** max. 13°C to 18°C, min. 3°C to 10°C, no ground frost

**Sunshine:** 1 to 8 hours, sunniest at Malin Head, 1 hour at Dublin Airport

**Friday 18th:** Dry overnight with mist or fog patches and becoming cold where skies cleared. Mist or fog cleared during the morning and it was a mainly dry day with variable cloud amounts and some sunny spells. Cloudy along Atlantic coasts in the late afternoon and evening, with isolated patches of drizzle. Winds were generally light and variable, but were moderate southerly on northwestern coasts.

**Rainfall:** nil or trace

**Temperature:** max. 13°C to 18°C, min. 4°C to 13°C, ground temperatures below zero at Casement Aerodrome

**Sunshine:** nil to 2 hours generally, 7 hours at Malin Head

**Saturday 19th:** Cloudy overnight with some patchy rain and drizzle in places. The rain and drizzle cleared the west coast early in the morning, giving sunny spells here, but rain and drizzle continued to affect eastern areas during the morning. Some rain and drizzle affected eastern areas during the afternoon, but it was dry over the rest of the country with sunny spells. Generally dry during the night. Winds were westerly, light to moderate.

**Rainfall:** nil to 4mm, heaviest at Valentia, nil at Dublin Airport

**Temperature:** max. 14°C to 17°C, min. 4°C to 11°C, ground temperatures below zero at Birr and Casement Aerodrome

**Sunshine:** 2 to 10 hours, sunniest at Belmullet, 2 hours at Cork Airport

**Sunday 20th:** Dry overnight and during the morning. The afternoon remained mainly dry with some sunny spells, however, patchy rain and drizzle developed along the west coast later in the afternoon. Some light rain or drizzle in the west and north during the evening. Winds were light to moderate southwesterly, with occasional gusts in the north and northwest.

**Rainfall:** nil to trace generally, 1mm at Belmullet

**Temperature:** max. 14°C to 17°C, min. 3°C to 10°C, ground temperatures down to -2°C at Birr

**Sunshine:** 1 to 7 hours, sunniest at Dublin Airport, 1 hour at Belmullet

**Monday 21st:** Rain and drizzle along northwest and northern coasts overnight. During the morning rain spread northeastwards over the country, but became light and patchy as it did so. Wet conditions continued in the northwest and north during the afternoon, while the remainder of the country remained dry with sunny spells. Dry throughout by evening. Winds were southwesterly, moderate to strong and gusty.

**Rainfall:** nil to 19mm, heaviest at Belmullet

**Temperature:** max. 14°C to 20°C, min. 10°C to 14°C, no ground frost

**Sunshine:** nil to 5 hours, sunniest at Shannon Airport, nil at Belmullet

**Tuesday 22nd:** Cloudy overnight with scattered outbreaks of rain. Mist in many parts apart from the southwest. The day was a mixture of sunshine and showers, with most sunshine in the south, while the heaviest of the rain was in the north. Winds were southwesterly, strong and gusty, easing slightly later.

**Rainfall:** trace to 3mm, heaviest at Malin Head, trace at Mullingar

**Temperature:** max. 14°C to 18°C, min. 9°C to 13°C, no ground frost

**Sunshine:** 2 to 10 hours, sunniest at Cork Airport, 2 hours at Birr

**Wednesday 23rd:** After a cloudy start, it was a breezy day with scattered showers and sunny spells. The showers died out in the late afternoon and evening, becoming mainly dry apart from some light rain or drizzle in the north. Light to moderate southwesterly winds were fresh and gusty on northwestern coasts.

**Rainfall:** nil to 3mm, heaviest at Malin Head

**Temperature:** max. 15°C to 18°C, min. 7°C to 12°C, no ground frost

**Sunshine:** 3 to 8 hours, sunniest at Shannon Airport, 3 hours at Dublin Airport

**Thursday 24th:** Most areas had a dry day with some sunny spells. Cloudy in Ulster and north Connacht with outbreaks of rain or drizzle at times. Mild with afternoon temperatures around normal for the time of year. Remaining mild after dark with patchy light rain in the north. Light to moderate southwesterly winds were fresh and gusty at times in the northwest.

**Rainfall:** nil to trace generally, 2mm at Malin Head

**Temperature:** max. 14°C to 17°C, min. 7°C to 12°C, no ground frost

**Sunshine:** trace to 6 hours, sunniest at Valentia, trace at Malin Head

**Friday 25th:** Relatively mild overnight with a few patches of light rain or drizzle in the west and northwest. Mainly dry with some clear spells elsewhere. Most areas had a dry day with sunny spells, but there was isolated light rain or drizzle in Atlantic coastal regions. Remaining mild after dark, with some light rain or drizzle along Atlantic coasts. Light to moderate southwesterly winds were fresh and gusty at times in the northwest.

**Rainfall:** nil to trace

**Temperature:** max. 15°C to 19°C, min. 9°C to 14°C, no ground frost

**Sunshine:** trace to 7 hours, sunniest at Cork Airport, trace at Malin Head

**Saturday 26th:** Mild and mostly cloudy overnight, with some patches of drizzle in the west, mainly dry elsewhere. A cloudy day generally with outbreaks of light rain or drizzle and some mist or fog patches in the western half of the country, largely dry elsewhere. Some short sunny spells, mainly in the east. Warm with temperatures around normal for the time of year. Mild again after dark. Winds were west to southwesterly, light to moderate.

**Rainfall:** nil to trace generally, <1mm at Knock Airport

**Temperature:** max. 14°C to 18°C, min. 10°C to 13°C, no ground frost

**Sunshine:** nil to 2 hours, sunniest at Dublin Airport, nil at Valentia

**Sunday 27th:** Some patchy drizzle in places overnight, with some fog patches also. The morning was damp over northern parts, with some rain and drizzle here, but over southern areas it was dry with isolated sunny spells. Rain and drizzle continued over northern areas during the afternoon and evening, but most areas were dry and cloudy. Winds were light to moderate, southwesterly in direction.

**Rainfall:** nil to 1mm, heaviest at Knock Airport

**Temperature:** max. 15°C to 18°C, min. 12°C to 14°C, no ground frost

**Sunshine:** nil to 2 hours, sunniest at Cork Airport, nil at Malin Head

**Monday 28th:** Rain and drizzle in the north and northwest overnight, dry elsewhere with some fog and mist forming in places. Patchy rain and drizzle continued over the northern half of the country during the morning and afternoon, while it remained generally dry further south. A few sunny spells during the afternoon, mainly in the east. The rain and drizzle continued in the north and northwest during the evening and night. Winds were light to moderate, southwesterly in direction.

**Rainfall:** nil to 1mm generally, 2mm at Malin Head

**Temperature:** max. 14°C to 19°C, min. 11°C to 14°C, no ground frost

**Sunshine:** nil to 3 hours, sunniest at Casement Aerodrome, nil at Malin Head

**Tuesday 29th:** Generally dry overnight with just a few isolated showers, heaviest in the north. Some mist and fog patches also. Overcast conditions throughout the day with a few sunny spells. Dry in most parts by evening. Winds were light, westerly in direction.

**Rainfall:** nil to trace generally, 2mm at Malin Head

**Temperature:** max. 14°C to 19°C, min. 9°C to 13°C, no ground frost

**Sunshine:** nil to 1 hour, sunniest at Shannon Airport

**Wednesday 30th:** Rain in the extreme north overnight, dry and cloudy over the rest of the country. Rain continued in the north during the morning, staying dry elsewhere with some sunny breaks. After some sunshine in the midlands and south during the early afternoon, rain in the north spread slowly southwards through the afternoon, becoming light and patchy as it did so. Dry in most parts by evening. Light westerly winds veered north or northwesterly during the afternoon while remaining light.

**Rainfall:** nil to 4mm, heaviest at Malin Head, nil in the south

**Temperature:** max. 14°C to 18°C, min. 8°C to 12°C, no ground frost

**Sunshine:** nil to 5 hours, sunniest at Birr, nil at Belmullet

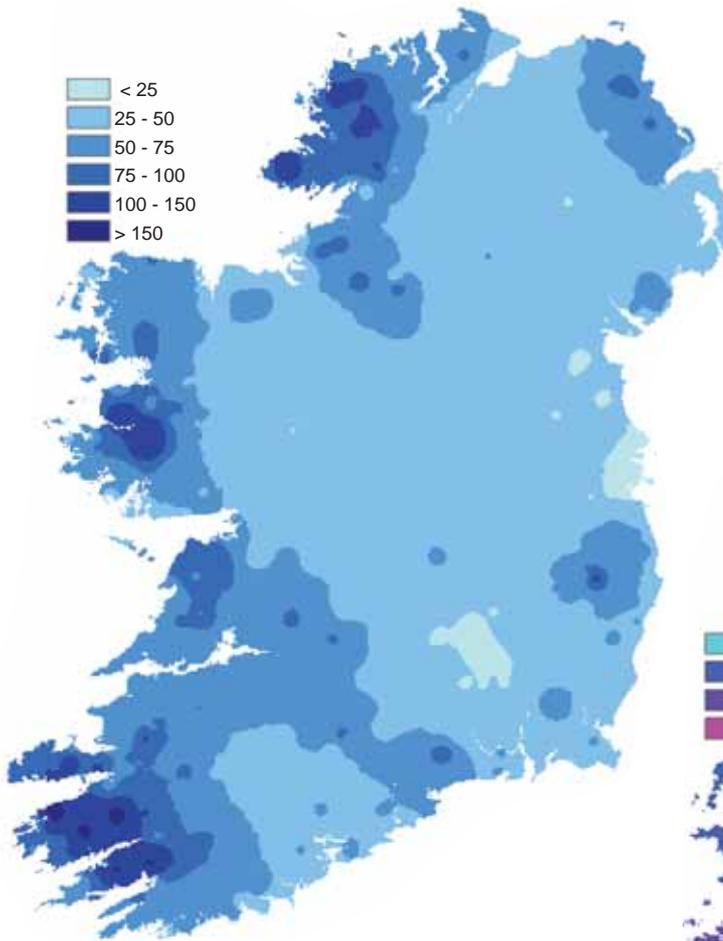
## Becoming dry almost everywhere after wet first week

Rainfall totals for September were below normal everywhere, with less than half of the normal monthly totals in many places. Only around a quarter of the normal amount was measured in parts of the east and northeast. Monthly totals ranged from 17mm at Dublin (Merrion Square) to 147mm at Maam Valley, Co. Galway, with percentage of normal values between 27% of normal at Merrion Square and 72% at Valentia Observatory. It was the driest September since 2002 in many places and the driest since 1990 at Claremorris.

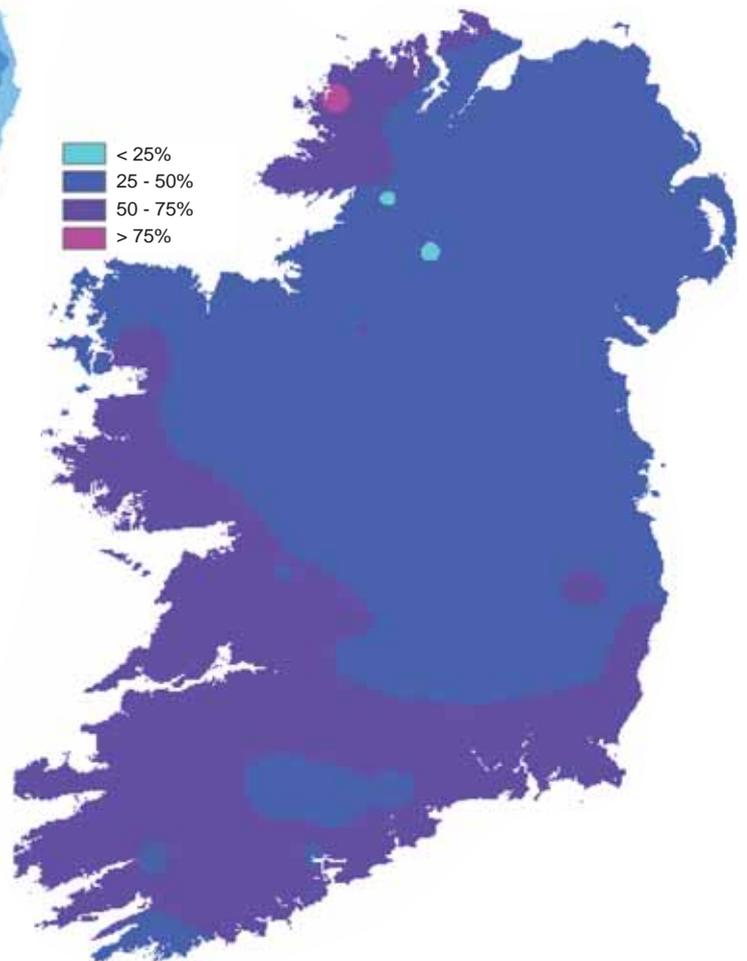
Almost all of September's rainfall was recorded during the first eight days of the month, when some heavy daily falls were recorded. These caused flooding in some parts of the country, as soil conditions were near saturation following the very wet summer. The month's highest daily fall of 36.4mm was recorded at Delphi Lodge, Co. Mayo, on the 7th. Many other stations recorded their highest daily falls on the 2nd, which amounted to over half of their monthly totals in some cases. Fewer than 10 wetdays were recorded during the month at the majority of stations (*days with 1mm or more of rainfall*), but between 11 and 16 wetdays were measured near Atlantic coasts.

<i>County/ Station</i>	Total Amount (mm)	% of 1961-90 average	Most in a day / date		Number of Raindays (>0.2mm)	Wetdays (≥1mm)
<b>CO. CARLOW</b>						
CARLOW (OAK PARK)	41.6		25.5	2	8	6
<b>CO. CAVAN</b>						
BALLYHAISE	35.4		6.7	2	14	10
CAVAN LORETO COLLEGE	27.5		6.0	2	12	8
<b>CO. CLARE</b>						
SHANNON AIRPORT	56.9	69	20.7	2	12	8
CARRON	89.1	63	22.7	2	19	14
<b>CO. CORK</b>						
ROCHE'S POINT	48.2		12.3	7	10	4
FERMOY (MOOREPARK)	37.7	48	17.7	2	8	5
CORK AIRPORT	53.8	55	15.8	7	11	6
SHERKIN ISLAND	36.8	38	12.2	7	11	7
BALLINCURRIG (PEAFIELD)	47.5		14.1	7	12	5
<b>CO. DONEGAL</b>						
MALIN HEAD	71.0	70	13.9	2	17	14
GLENTIES HATCHERY	90.8	63	13.6	2	22	16
BALLYSHANNON (CATHLEEN'S FALL)	49.3	48	8.4	20	17	14
<b>CO. DUBLIN</b>						
DUBLIN (PHOENIX PARK)	24.0	35	13.0	2	9	4
DUBLIN AIRPORT	24.2		13.0	2	9	5
CASEMENT AERODROME	28.8	46	17.7	2	8	6
DUBLIN (MERRION SQUARE)	16.9	27	10.6	2	8	4
<b>CO. GALWAY</b>						
GALWAY (UNIV. COLL.)	63.9	59	20.0	7	16	13
MAAM VALLEY	147.3		36.1	7	16	12
BALLYGAR	37.0	39	10.0	7	15	8
<b>CO. KERRY</b>						
VALENTIA OBSERVATORY	90.0	72	25.0	2	16	11
ARDFERT (LISCAHANE)	60.0		26.1	2	11	9
<b>CO. LIMERICK</b>						
MOUNT RUSSELL	42.8		15.0	2	14	8
<b>CO. MAYO</b>						
BELMULLET	45.6	42	15.4	20	15	8
STRAIDE	35.8	34	10.6	7	18	8
CONNACHT AIRPORT	45.3		13.8	7	20	11
DELPHI LODGE II	127.3		36.4	7	20	15
<b>CO. MEATH</b>						
WARRENTOWN	32.1	42	19.9	2	10	5
<b>CO. MONAGHAN</b>						
CARRICKMACROSS (DUNOGE)	26.5	34	14.2	2	12	4
<b>CO. OFFALY</b>						
BIRR	29.4	41	9.0	2	16	9
DERRYGREENAGH	30.4	38	12.9	2	11	8
<b>CO. SLIGO</b>						
ARDTARMON	49.2		8.8	2	17	11
<b>CO. TIPPERARY</b>						
FETHARD (PARSONSHILL)	37.0		21.0	2	10	6
<b>CO. WATERFORD</b>						
WATERFORD (TYCOR)	55.3	64	26.8	2	7	6
DUNGARVAN (CARRIGLEA)	51.5		16.2	2	7	5
<b>CO. WESTMEATH</b>						
MULLINGAR	38.1		11.7	2	16	8
<b>CO. WEXFORD</b>						
JOHNSTOWN CASTLE	51.6		26.2	2	10	5
JOHN F. KENNEDY PARK	48.5	56	23.2	2	7	5
CLONROCHE (KNOXTOWN)	66.2		27.3	2	7	6

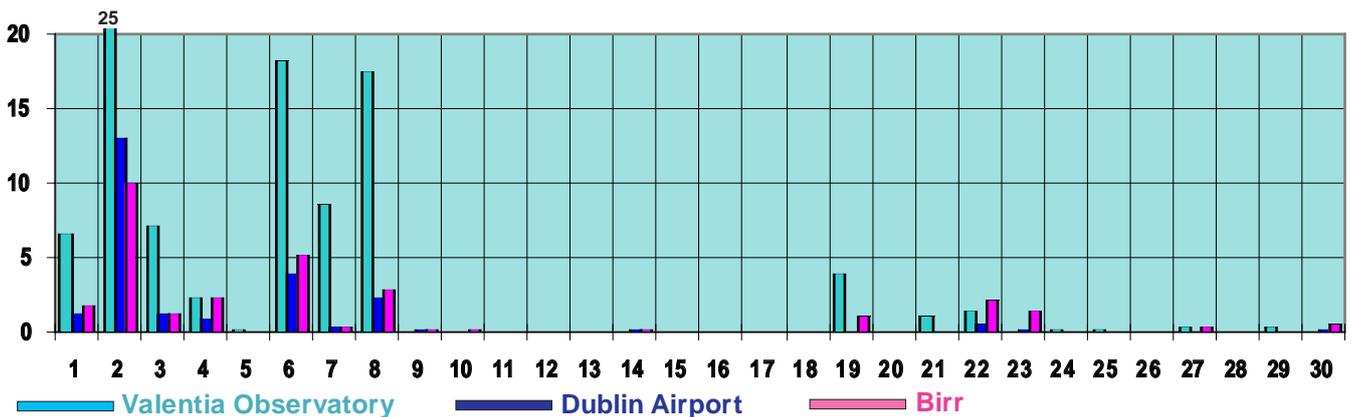
**Total rainfall (mm)**



**Percentage of normal rainfall**



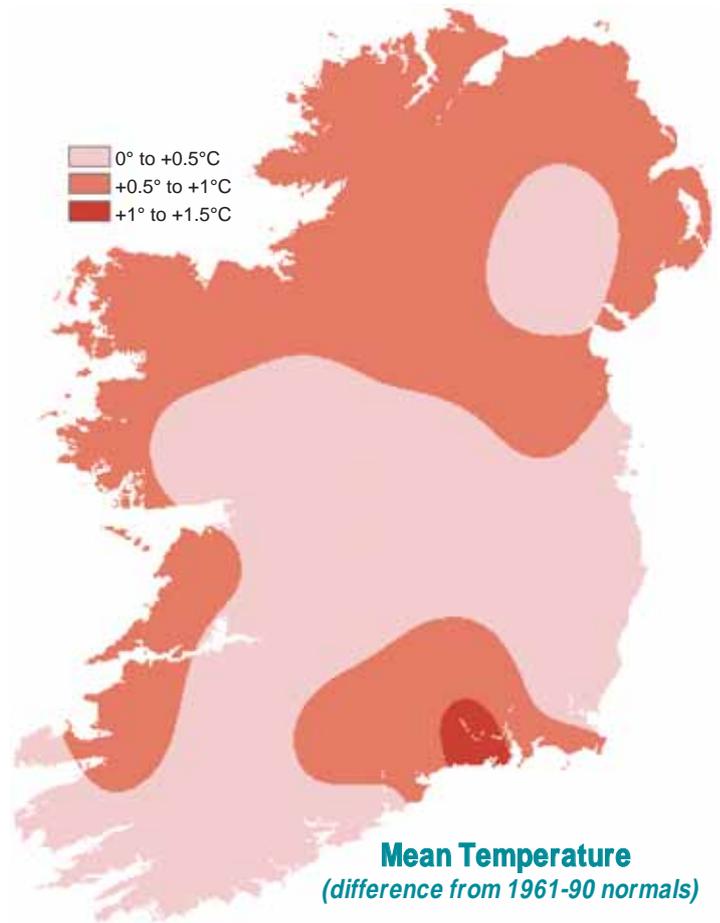
**Daily 0-24h rainfall values (mm)**



## Temperatures near normal throughout the month

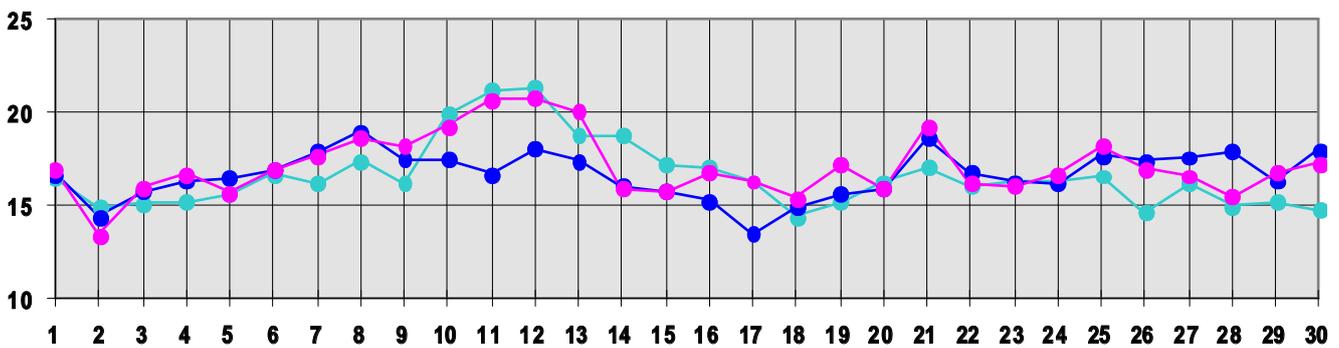
Temperatures during September were a little higher than normal generally, but were just over a degree higher than normal in parts of the southeast. They ranged from 12.3°C at Knock Airport to 14.5°C at Waterford (Tycor).

As shown by the charts below, there was very little variation in daily maximum temperatures throughout the month, with values between 15°C and 18°C generally. Temperatures above 20°C were recorded in places between the 10th and 13th, with the month's highest value of 23.1°C measured at Ardfert (Lis Cahane) on the 12th. Sea breezes at this time kept coastal stations cooler in the east and north of the country, and the maximum values for the month at both Dublin Airport and Malin Head of 19°C and 18°C respectively were their lowest maxima for September for over 30 years. The month's lowest temperatures were recorded in the periods 11th to 13th and 17th to 20th. The lowest air temperature of the month, 2.0°C, was measured at both Ballyhaise on the 1st and Warrenstown, Co. Meath, on the 20th, while the lowest grass minimum temperature of -1.5°C was recorded at Birr on the 20th. There

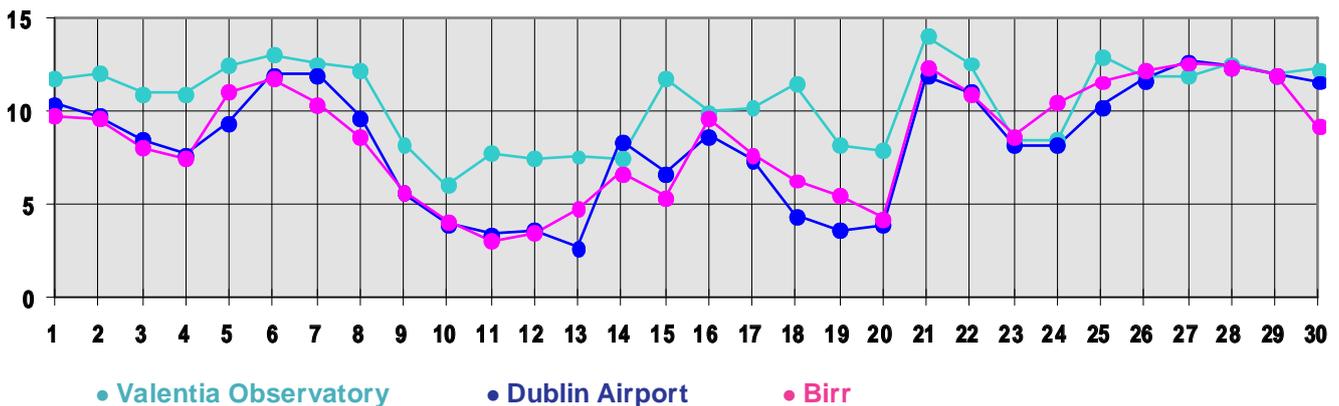


was a total of six ground frosts during the month at Straide, Co. Mayo, but each of them was slight.

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. CARLOW</b>										
CARLOW (OAK PARK)	17.3	9.3	13.3	0.3	21.2 13	4.2 20	-1.1 20	0	1	
<b>CO. CAVAN</b>										
BALLYHAISE	16.4	8.9	12.7		20.5 13	2.0 13	0.2 20	0	0	
CAVAN LORETO COLLEGE	17.0	9.2	13.1		20.0 12	3.6 20	0.4 20	0	0	
<b>CO. CLARE</b>										
SHANNON AIRPORT	17.3	10.7	14.0	0.3	21.9 13	5.5 10	2.4 10 11	0	0	
CARRON	16.3	9.8	13.1	0.8	19.8 13	6.4 20	1.1 10	0	0	
<b>CO. CORK</b>										
ROCHE'S POINT	16.4	10.9	13.7	0.1	18.5 25	7.8 24	3.9 9	0	0	
FERMOY (MOOREPARK)	17.6	9.2	13.4	0.6	21.8 13	3.6 20	2.7 11	0	0	
CORK AIRPORT	16.3	9.7	13.0	0.2	19.7 13	7.4 9 20	3.3 9 20	0	0	
SHERKIN ISLAND	16.8	10.6	13.7	0.0	19.1 13	6.7 24	4.2 20	0	0	
BALLINCURRIG (PEAFIELD)	17.5	8.9	13.2		22.0 13	4.7 20	4.5 20	0	0	
<b>CO. DONEGAL</b>										
MALIN HEAD	15.5	11.2	13.4	0.6	17.9 7	6.6 18	2.0 18	0	0	
GLENTIES HATCHERY	16.5	9.4	13.0	0.7	22.5 13	2.9 12 18	-0.5 12	0	1	
BALLYSHANNON (CATHLEEN'S FALL)	16.6	10.6	13.6	0.9	22.0 13	6.0 13		0		
<b>CO. DUBLIN</b>										
DUBLIN (PHOENIX PARK)	17.6	9.3	13.5	0.5	19.7 12	4.6 20	0.1 20	0	0	
DUBLIN AIRPORT	16.7	8.9	12.8		19.0 7	2.7 13	-0.2 13	0	1	
CASEMENT AERODROME	16.6	9.4	13.0	0.1	19.3 12	3.3 20	-1.1 12	0	4	
DUBLIN (MERRION SQUARE)	16.8	11.5	14.2	0.1	20.7 7	8.2 12		0		
<b>CO. GALWAY</b>										
GALWAY (UNIV. COLL.)	17.3	9.8	13.6	0.2	21.1 12	4.8 10	0.9 10	0	0	
MAAM VALLEY	17.4	10.4	13.9		22.7 13	5.5 20	2.1 20	0	0	
BALLYGAR	17.6	8.8	13.2		20.5 12	3.5 20	1.9 20	0	0	
<b>CO. KERRY</b>										
VALENTIA OBSERVATORY	16.6	11.0	13.8	0.1	21.4 12	6.1 10	0.7 10	0	0	
ARDFERT (LISCAHANE)	18.1	10.1	14.1	0.8	23.1 12	6.4 10	3.5 10	0	0	
<b>CO. LIMERICK</b>										
MOUNT RUSSELL	16.8	9.8	13.3		20.7 13	7.4 11 17	2.8 11	0	0	
<b>CO. MAYO</b>										
BELMULLET	16.3	11.3	13.8	0.8	20.8 14	6.6 17	2.8 17	0	0	
STRAIDE	17.3	9.0	13.2	0.7	21.2 13	3.0 17	-1.3 13	0	6	
CONNACHT AIRPORT	15.2	9.4	12.3		19.9 13	6.5 20	2.6 20	0	0	
DELPHI LODGE II	16.9	11.2	14.1		21.9 13	6.6 10	2.9 10	0	0	
<b>CO. MEATH</b>										
WARRENSTOWN	17.2	9.1	13.2	0.6	20.5 12	2.0 20	1.1 20	0	0	
<b>CO. MONAGHAN</b>										
CARRICKMACROSS (DUNOGE)	17.0	8.6	12.8		20.1 13	2.5 20		0		
<b>CO. OFFALY</b>										
BIRR	17.1	8.9	13.0	0.2	20.8 12	3.1 11	-1.5 20	0	5	
DERRYGREENAGH	17.4	7.6	12.5	0.3	20.1 11 13	2.3 20	-0.2 14	0	1	
<b>CO. SLIGO</b>										
ARDTARMON	17.2	10.6	13.9		20.0 11	6.5 13	1.4 13	0	0	
<b>CO. TIPPERARY</b>										
FETHARD (PARSONSHILL)	16.7	9.0	12.9		20.0 12	5.3 20	1.7 20	0	0	
<b>CO. WATERFORD</b>										
WATERFORD (TYCOR)	18.4	10.6	14.5	1.2	21.4 13	6.9 20		0		
DUNGARVAN (CARRIGLEA)	18.3	9.7	14.0	0.6	20.3 12	5.2 12	4.1 9 12	0	0	
<b>CO. WESTMEATH</b>										
MULLINGAR	16.7	8.7	12.7	0.4	19.8 13	3.4 20	-1.2 20	0	2	
<b>CO. WEXFORD</b>										
JOHNSTOWN CASTLE	16.7	10.3	13.5	0.5	19.2 29	6.7 24	4.2 24	0	0	
JOHN F. KENNEDY PARK	17.5	9.9	13.7	0.7	20.5 12	5.8 24	1.6 24	0	0	
CLONROCHE (KNOXTOWN)	17.5	8.4	13.0		20.1 13	3.7 10	-0.5 10	0	1	

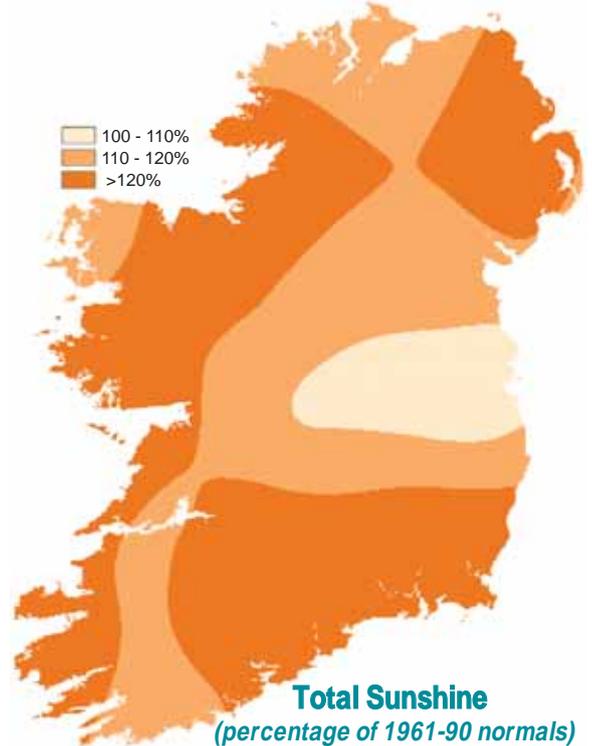
County/ Station	Daily mean (hours/day)	% of average	% of possible	Most in a day/date
<b>CO. CAVAN</b>				
CAVAN (LORETO COLLEGE)	4.10		32	10.0 11
<b>CO. CLARE</b>				
SHANNON AIRPORT	4.44	120	35	11.2 11
<b>CO. CORK</b>				
FERMOY (MOOREPARK)	5.14	138	40	12.3 11
CORK AIRPORT	5.12	124	40	11.5 10
SHERKIN ISLAND	5.19	118	41	11.4 9 10
BALLINCURRIG (PEAFIELD)	5.68			11.3 11
<b>CO. DONEGAL</b>				
MALIN HEAD	3.94	113	31	11.6 12
BALLYSHANNON (CATHLEEN'S FALL)	4.07	124	32	11.4 9
<b>CO. DUBLIN</b>				
DUBLIN AIRPORT	4.50	105	35	11.6 12
CASEMENT AERODROME	4.25	104	33	11.7 13
<b>CO. GALWAY</b>				
GALWAY (UNIV. COLL.)	4.49	122	35	11.5 13
<b>CO. KERRY</b>				
VALENTIA OBSERVATORY	4.62	128	36	11.3 11 13
ARDFERT (LISCAHANE)	4.89		39	10.7 11
<b>CO. MAYO</b>				
BELMULLET	4.28	117	33	11.9 13
STRAIDE	4.53			11.5 9
CONNACHT AIRPORT	4.12			11.8 12 13
<b>CO. OFFALY</b>				
BIRR	3.97	111	31	11.1 13
<b>CO. WATERFORD</b>				
DUNGARVAN (CARRIGLEA)	5.61	136	44	11.4 10
<b>CO. WEXFORD</b>				
JOHN F. KENNEDY PARK	5.41	140	43	11.2 9
CLONROCHE (KNOXTOWN)	5.40			10.8 10 13

Sunshine values are not available for automatic synoptic stations

## Sunnier than normal everywhere

Sunshine totals for September were above normal everywhere, particularly in parts of the south and southeast. Totals ranged from 118 hours at Malin Head to 170 hours at Ballincurrig (Peafield), Co. Cork, with percentage of normal values between 104% at Dublin Airport and 140% of normal at John F Kennedy Park, Co. Wexford, where it was the sunniest September since 1996.

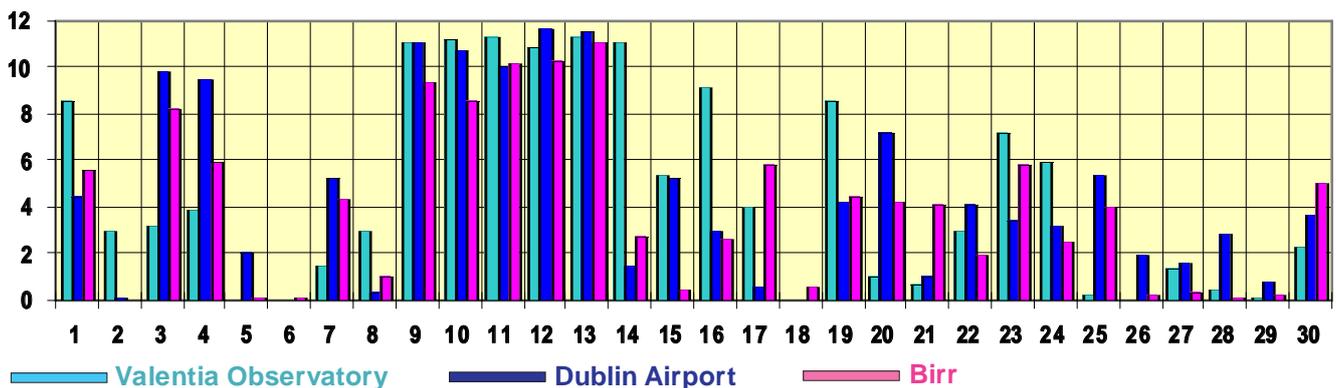
By far the sunniest weather of the month was in the period between the 9th and 14th. The highest daily value, 12.3 hours, was recorded at Fermoy (Moorepark), Co. Cork, on the 11th, its highest September value since 1975. Global solar radiation totals were between 94% of normal at Malin Head and 109% at Valentia Observatory.



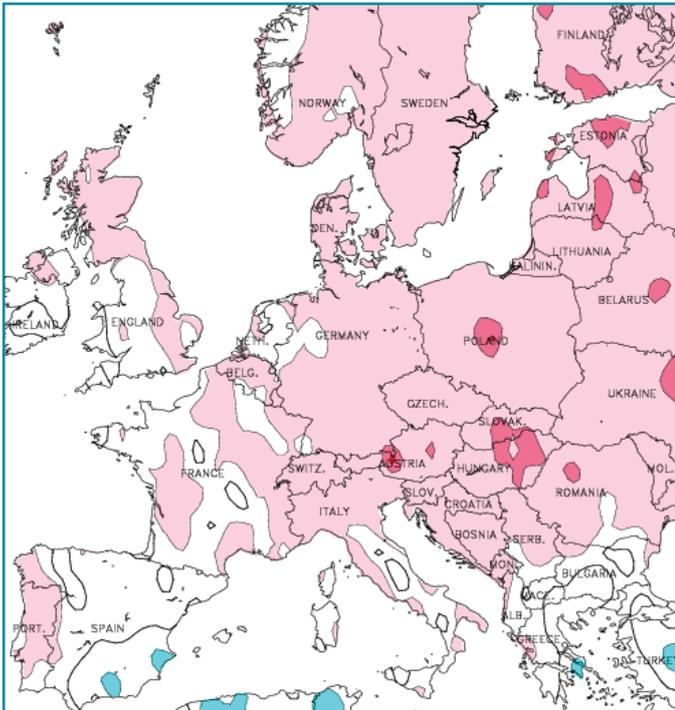
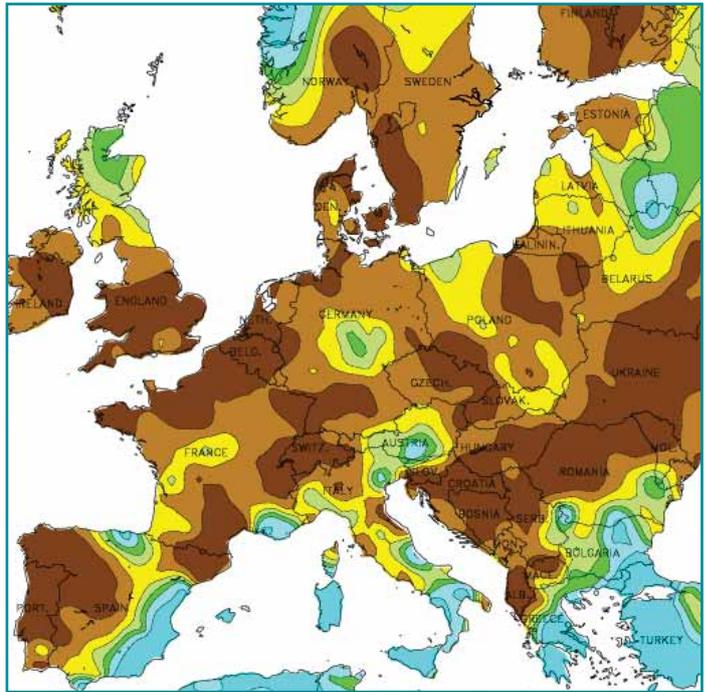
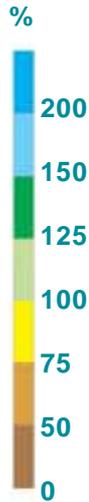
Total Sunshine

(percentage of 1961-90 normals)

### Daily sunshine values(hours)



**SEPTEMBER RAINFALL**  
(percentage of 1961-1990 normal)



**SEPTEMBER MEAN TEMPERATURE**  
(difference from 1961-1990 normal)

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

**Global weather highlights of the month**

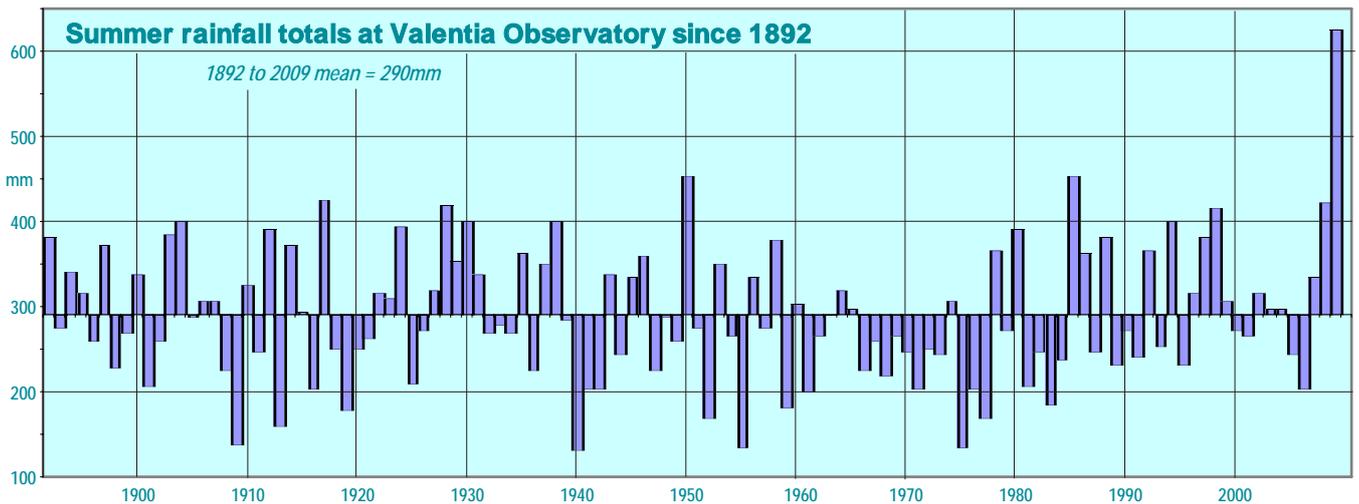
Heavy rain in southern Spain between the 16th and 17th claimed the lives of seven people. In Ibros, thunderstorms brought heavy rain and hail, causing a wall of mud which devastated parts of the city.

A violent storm that spawned a tornado and mudslides killed at least 15 people across northern Argentina and southern Brazil. Most damage was in the small Argentine towns of Santa Rosa and El Progreso, where officials said houses and a city health centre were blown down on the 8th. In Paraguay's capital city of Asuncion, the temperature reportedly dropped from 35°C to 12°C during the storm.

Two full days of torrential rain in northwestern Turkey that began on the 7th led to flash flooding that killed at least 36 people, including 24 in the capital city of Istanbul. According to reports, the area received its heaviest rainfall for 80 years. Further heavy rain in the northeast of the country on the 24th led to floods and a landslide that killed four people.

Continuing drought in East Africa affected millions of people across seven nations—Ethiopia, Kenya, Somalia, Uganda, Sudan, Djibouti, and Tanzania. The drought led to massive food shortages, with 6.2 million people in Ethiopia and 3.8 million in Kenya depending on relief aid. The drought in Kenya, the worst in recent history, was responsible for the loss of more than 150,000 livestock and a 40% decrease in maize harvests, as 70% of the country's wells and water sources dried up.

A massive dust storm engulfed Sydney on the 23rd, producing a dense red hue across the region. Winds gusting to 100 km/h transported an estimated 5,000 metric tons of dust over New South Wales and southern Queensland. While Australia is one of the driest continents on Earth, dust storms typically do not reach coastal areas, except in instances of widespread drought. The Air Quality Index for particles with diameters less than 10 micrometers, which can cause respiratory problems in humans, reached 4,854—the highest on record for the city. A level above 200 micrometers is considered to be hazardous.



## MORE RAINFALL RECORDS BROKEN DURING SUMMER 2009

Following the exceptionally wet summers (June to August) of both 2007 and 2008, the summer of 2009 was also the wettest on record in places. Percentage of normal values for the 3-month period this year were near normal in the extreme north of the country (see chart below), but were more than twice the normal in parts of the southwest, south and southeast. This was the third successive summer when twice the normal rainfall total was measured at some Leinster stations, an unprecedented occurrence. The last summer month when rainfall was below normal was August 2006. Some rainfall was recorded on almost every day during July and August this year. Totals of between 60 and 75 raindays (days with 0.2mm or more rainfall) and between 40 and 63 wetdays (days with 1mm or more rainfall) were

widely recorded; in the south, these were the highest totals since summer 1985.

The chart above shows summer rainfall totals at Valentia Observatory since observations began at the station in 1892. It shows that this summer's total of 620mm was the wettest on record by a considerable margin, exceeding 500mm for the first time and over 150mm higher than the previous highest total, recorded in 1950. It was also the wettest summer on record at Mullingar, where records began in 1950, and at a number of long-term rainfall stations in the southeast, including Foulkesmills, Co. Wexford, where the total of 423mm was the highest for at least 50 years.

*Below: Sheltering from the rain during the Rose of Tralee festival in late August (picture Irish Examiner)*

