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Monthly Weather Bulletin November 2011

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Monthly Weather Bulletin

No. 307

November 2011



Daily sunshine in November was highest during the first week as clear, dry weather was experienced across the country. Pictured above, blue skies on the 6th aided the competitors at the ploughing match held at Ballyfeard, Co. Cork (picture courtesy Irish Examiner)

WARM EVERYWHERE; WET AND SUNNY IN MOST PLACES

Mean air temperatures were well above average, with differences above normal, ranging from 2.1°C to 3.3°C. The majority of stations in the west, midlands and east reported their warmest November on record, with Phoenix park reporting its warmest November since the station opened in 1855 (156 years), with a mean temperature of 9.9°C. and with some stations in the south and southwest, reported their warmest November since 1994 (17 years). Grass and air minimum temperatures were above average for the month everywhere, leading to a below average number of air and ground frosts reported. Minimum air temperatures recorded at

stations in the west and south were the warmest in a number of years, with Belmullet and Cork Airport recording their highest November minimum temperatures since records began in 1956 (55 years) and 1962 (49 years), respectively. Rainfall for the month was above normal in parts, with the majority of stations in the south and west measuring the highest rainfall totals. Valentia Observatory recorded the highest monthly rainfall, with 203% of its long-term average and highest daily rainfall of 57 mm, its highest daily fall in November in 27 years. Shannon Airport received below average rainfall, but reported a daily fall of



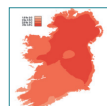
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Above average temperatures everywhere



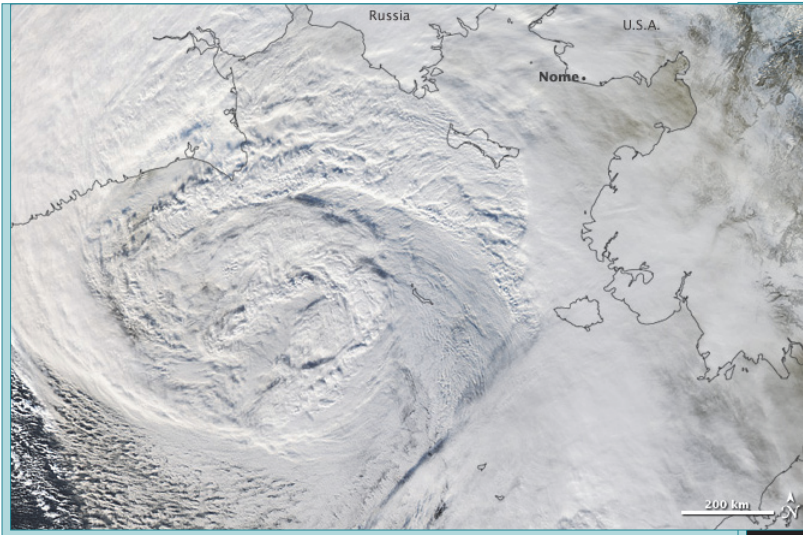
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Notes on the tables and map
showing location of stations
appear in January issue
Edition 307.1



Left: A rare, extremely powerful winter storm hit northwestern Alaska on November 8th and 9th, with hurricane-force winds, high seas, and heavy snow. Nome, the largest community (top right corner of photograph) affected by the storm, experienced winds gusting to 57 knots (106 km/h) and a three metre storm surge. (information and picture courtesy NASA Earth Observatory)

Below: The image below was captured on November 27th by the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite. Late November 2011 offered mostly cloud-free skies along the entire length of Baja California and the Pacific coast of Mexico, during which, strong northeasterly winds stirred up dust storms on the mainland and the peninsula (information and picture courtesy NASA Earth Observatory)



28 mm on the 29th, the wettest November day at the station since 1980 (31 years). Despite some areas recording above average rainfall, the number of wetdays (*days with 1 mm or more*) was mainly below average for the time of year, except in the southwest. Sunshine totals for the month were above average, except in the south and southeast. Shannon Airport recorded 136% of its November sunshine and measured its sunniest November in 5 years, while Cork Airport had below average sunshine with 63 hours, its dullest November since 2004. Casement Aerodrome recorded 8.8 hours of sunshine on the 7th, the highest daily November sunshine recorded at the stations since it opened in 1964 (47 years).

1st to 3rd: Temperatures were mild due to a southerly airflow over Ireland. Some dry, sunny, clear spells, but mainly very wet and windy with rain and showers, heaviest in the south and west. Winds were predominantly moderate, sometimes strong, south to southwesterly in direction with gale gusts in most locations.

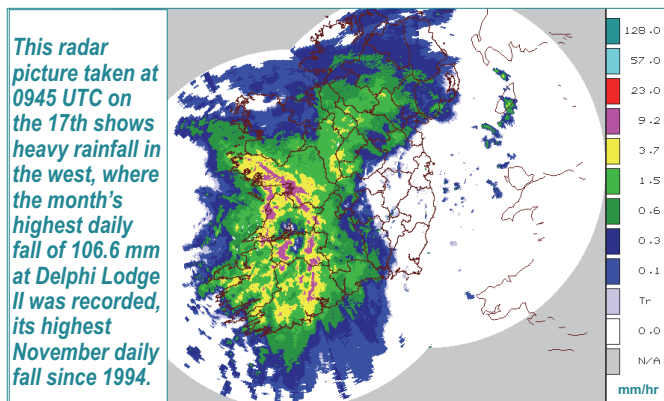
4th to 7th: A ridge of high pressure with a west to northwesterly airflow followed, bringing cool, dry, clear weather with a few scattered showers and light drizzle in places. Winds became light and variable with ground frosts and fog reported in south and southwest locations.

8th to 15th : Dry and cloudy to start, followed by frontal activity, bringing showers, drizzle and some persistent rain to parts. Drier, milder conditions with sunny spells followed, as high pressure moved in from eastern Europe. A few patches of isolated mist, drizzle

and fog. Winds were predominantly moderate to fresh at the start of the period, with gale gusts, becoming light almost everywhere, except along Atlantic coasts.

16th to 20th: Atlantic depressions and their associated fronts brought heavy rain and high winds, especially to the west. Later, some bright, dry spells were experienced, with periods of light rain and drizzle. Winds were predominantly moderate, southerly in direction, with gale gusts, before becoming light at the end of the period. Fog reported along Atlantic coasts.

21st to 30th: Dry, clear, sunny spells with some outbreaks of drizzle, rain and showers to start. Later, frontal activity brought cooler temperatures and outbreaks of heavy persistent rain and showers with high cumulations in parts. Gale force winds were recorded along Atlantic coasts, with gale gusts in most locations.



Wind and elements: Mean windspeeds for the month were between 8 and 18 knots (*15 and 33 km/h*). Gale gusts were recorded on numerous days, with the month's highest gust of 65 knots (*120 km/h*) was at Belmullet on the 24th. Thunderstorms were reported on the 29th and 30th in the west and southwest, with four days reported with hail during November. Nine days with fog were reported, all in the south and southwest. Few air frosts were also reported, mainly in the east, southeast and midlands on the 5th, 6th, 7th and 22nd.

THE WEATHER OF AUTUMN 2011

THE WEATHER OF SEPTEMBER, OCTOBER AND NOVEMBER

WARM AND DULL; WET IN MOST PLACES

All mean air temperatures for Autumn were above normal with all three months of the season recorded higher than normal temperatures, with November having the greatest differences above average. Most stations in the east and midlands reported Autumn 2011 as the warmest on record, with Phoenix Park, Co. Dublin reporting an Autumnal mean temperature of 12.3°C, its warmest in over 150 years. Mean air temperature differences in the south and southwest were less, but it was still the warmest in a number of years with Shannon Airport and Sherkin Island recording their warmest Autumns since 2001 (10 years).

Most of the highest maximum air temperatures for Autumn were recorded during September, with most stations measuring seasonal maximums on the 9th and 28th. The highest temperature during Autumn was recorded at Phoenix Park with 25.7°C on September 28th, the highest temperature recorded at a synoptic station in 2011 and the highest Autumn temperature recorded at the site since Autumn 1929 (82 years). The majority of lowest minimum air temperatures for Autumn were recorded during November, with some stations in the western half of Ireland reporting their highest ever autumnal minimum temperatures. Belmullet and Valentia Observatory reported minimum temperatures of 4.0°C and 2.9°C, the highest minimum temperatures recorded during the Autumn months since 1956 (55 years) and 1939 (72 years), respectively.

Rainfall totals for Autumn were above normal in most parts, except for some stations in the south and southeast. Above average rainfall was experienced almost everywhere during September, with below normal rainfall in a few eastern, southern and coastal locations in October and November. Dublin Airport reported its wettest Autumn since 2002 (9 years) and Belmullet reported its wettest autumn since 2006 (5 years) with 139% of its long-term average. The highest daily fall of the season was 106.6mm at Delphi Lodge II, the areas highest daily fall during Autumn, since records began in 1994 (17 years). Even though totals were below normal in some parts, the number of wetdays (*days with 1 mm or more*) recorded across the country was above average for Autumn.

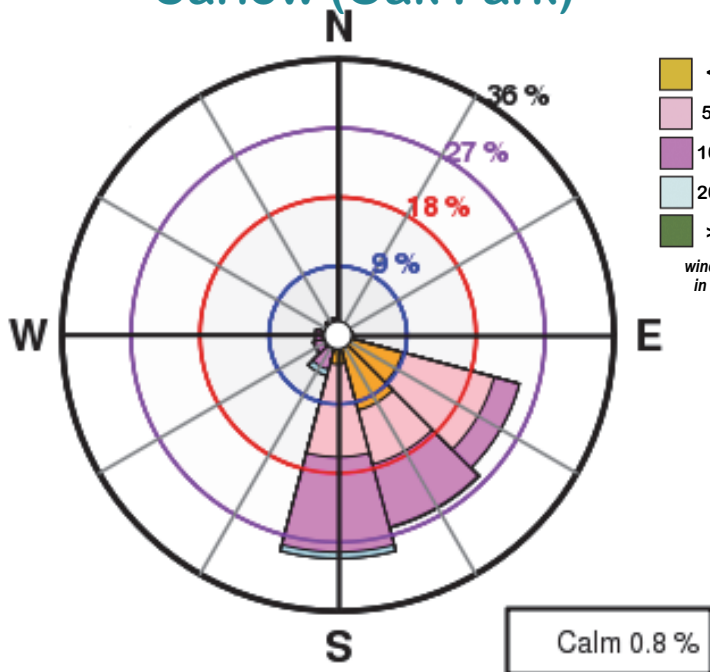
Sunshine totals for Autumn were below normal, with November being the only month to record above average sunshine for the time of year. All stations reported the dullest Autumn in a number of years, with Cork Airport and Valentia Observatory recording their dullest Autumns since sunshine records began in 1962 (49 years) and 1893 (118 years), respectively. Dublin Airport received the highest total sunshine for the season, recording over 280 hours of sunshine and 95% of its long-term average, but it was still the dullest Autumn since 1993 (18 years).

Mean windspeeds for the season were mostly above average, with Dublin Airport reporting the highest mean windspeed for Autumn since 1943 (68 years). The highest gust of the season was at Malin Head with 66

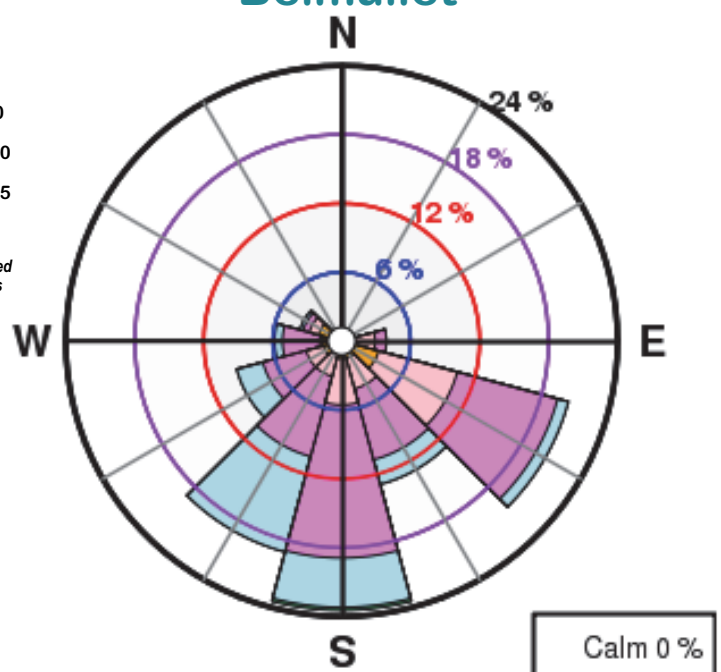
County/ Station	RAINFALL (mm)			TEMPERATURE (°C)				SUNSHINE (HOURS)			NO. OF DAYS WITH:						
	Total	% of average	Most in a day amount date(s)	Mean	diff. from average	Extremes Highest	Lowest	Daily mean	% of average	Most in a day amount date(s)	Rain	Snow	Air frost	Hail	Thunder	Fog	Gale gusts
CO. CARLOW																	
Oak Park	277.0	123	46.5 30 Sep	11.9	2.0	21.1	-2.1				59	0	3	0	0	0	15
CO. CAVAN																	
Ballyhaise	410.6	156	23.8 29 Nov	10.8		20.8	-1.4				73	0	2	0	0	0	12
CO. CLARE																	
Shannon Airport	280.3	103	28.0 29 Nov	12.3	1.5	21.4	1.3	2.28	82	8.1 19 Oct	66	0	0	3	0	6	26
CO. CORK																	
Cork Airport	355.7	107	32.9 17 Nov	11.3	1.0	20.1	2.6	2.23	74	8.8 18 Oct	72	0	0	0	1	32	24
Roche's Point	253.8	95	21.4 23 Oct	12.3	1.2	19.5	2.5				61	0	0	0	0	0	30
CO. DONEGAL																	
Malin Head	412.4	123	22.4 17 Oct	11.7	1.4	23.4	2.5				69	0	0	0	0	0	54
CO. DUBLIN																	
Dublin Airport	283.2		69.1 24 Oct	12.0		24.1	-2.0	3.09	95	10.4 28 Sep	49	0	2	0	1	5	29
Casement Aerodrome	297.0	153	82.2 24 Oct	12.1	2.1	24.4	-1.3	3.01	97	10.6 28 Sep	45	0	2	1	0	4	31
CO. KERRY																	
Valentia Observatory	651.1	152	54.9 22 Oct	12.7	1.5	19.0	2.9	1.90	73	7.0 19 Oct	79	0	0	2	1	5	34
CO. MAYO																	
Belmullet	511.5	139	23.0 17 Oct	11.9	1.5	20.1	4.0	2.31	88	8.6 7 Nov	80	0	0	5	0	1	56
Knock Airport	538.5		32.7 17 Oct	10.1		20.6	1.8	1.74	63	8.1 5 Nov	82	0	0	3	0	28	33
CO. TIPPERARY																	
Gurteen	294.3	85	18.1 29 Nov	11.6		20.6	0.4				68	0	0	0	0	0	18
CO. WESTMEATH																	
Mullingar	357.9	134	19.2 29 Nov	11.2	1.9	22.2	-2.3				71	0	4	0	0	0	7
CO. WEXFORD																	
Johnstown Castle	261.2	86	22.4 24 Oct	12.2	1.8	19.2	3.0				62	0	0	0	0	0	22

County / Station	WIND (KNOTS)						ELEMENTS							
	Mean speed	Max. dir.	10-min. mean speed	date/hour	Max. Gust dir.	date/time	Days with gales	gale gusts	Hours with gale gusts	Snow	Snow Lying	Hail	Thunder	Fog
CO. CARLOW Oak Park	8.9	260°	27	27/01	210° 39	26/2147 220° 39 27/0147	0	7	17					
CO. CAVAN Ballyhaise	8.2	160°	22	17/13 220° 22 27/00	160° 40	17/1344	0	5	16					
CO. CLARE Shannon Airport	10.7	250°	35	27/01	260° 45	27/0 0	1	10	36	0	0	1	0	4
CO. CORK Roche's Point	15.4	170°	39	17/12 180° 39 29/07	170° 50	17/1258	5	13	125					
Cork Airport	11.9	150°	31	2/11 130° 31 11/07	230° 48	30/2044	0	13	96	0	0	0	1	8
CO. DONEGAL Malin Head	17.7	190°	40	30/20	280° 56	25/ 903	7	17	185					
CO. DUBLIN Dublin Airport	11.8	260°	37	27/03	250° 49	27/0230	1	10	47	0	0	0	0	2
Casement	11.5	240°	32	27/02 200° 32 29/04	240° 54	30/2223	0	9	84	0	0	0	0	0
CO. KERRY Valentia Observatory	11.9	230°	31	26/24	150° 51	2/0705	0	17	134	0	0	2	1	0
CO. MAYO Belmullet	13.8	210°	40	24/15 230° 40 25/06	200° 65	24/1359	5	16	168	0	0	3	0	0
Knock Airport	11.8	260°	36	26/24	260° 53	26/2336	1	11	75	0	0	1	0	7
CO. TIPPERARY Gurteen	10.7	160°	28	2/00	160° 41	17/1156 240° 41 27/0 43	0	9	27					
CO. WESTMEATH Mullingar	7.9	150°	22	2/11 170° 22 17/13	240° 37	27/0 56	0	3	3					

Carlow (Oak Park)



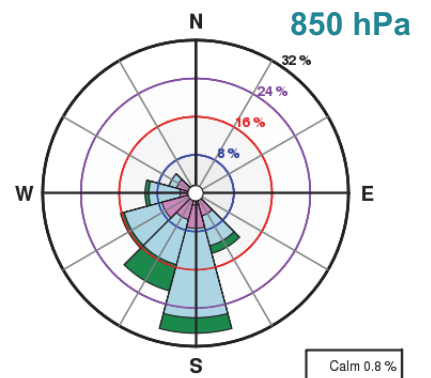
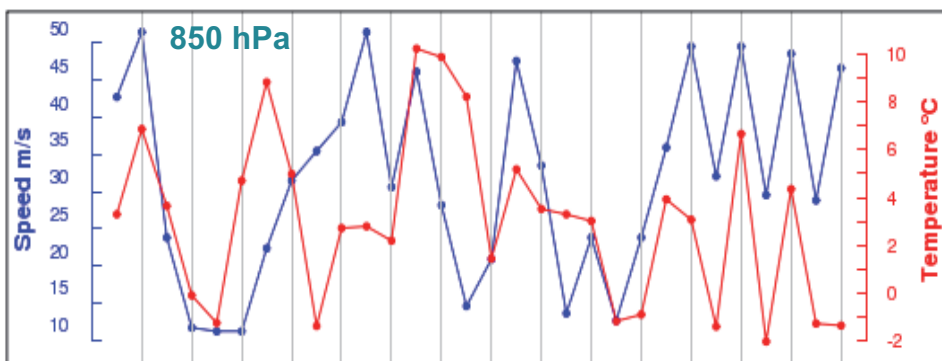
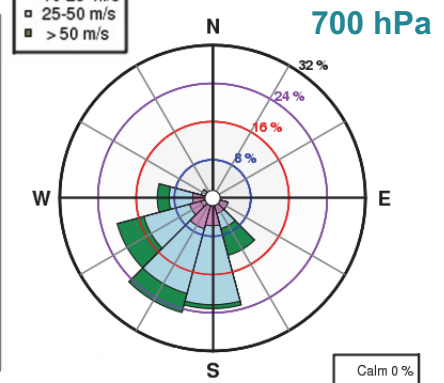
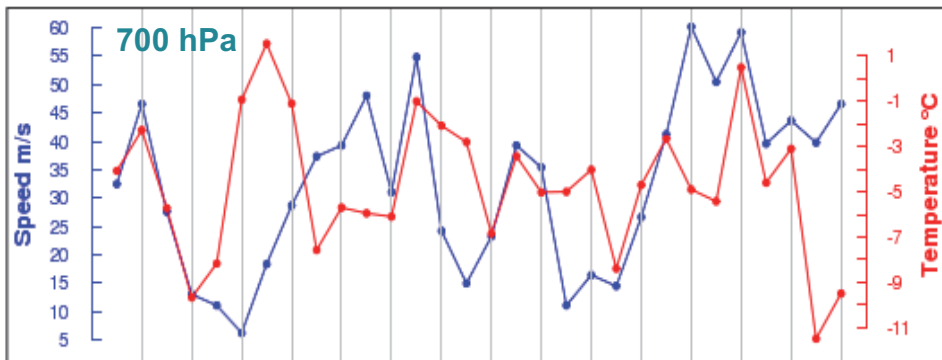
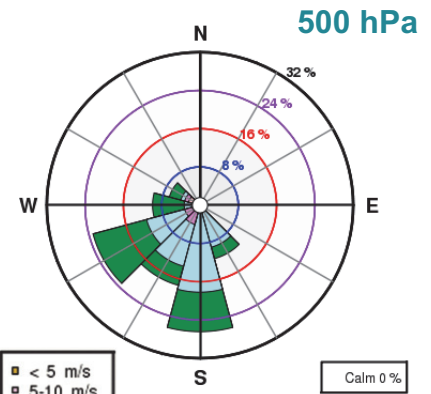
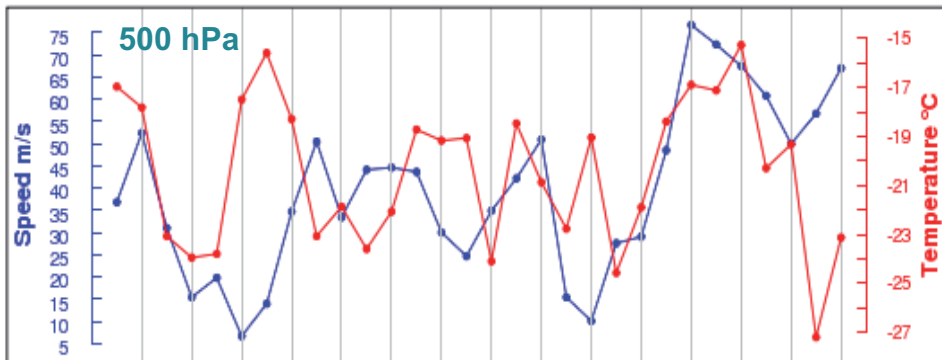
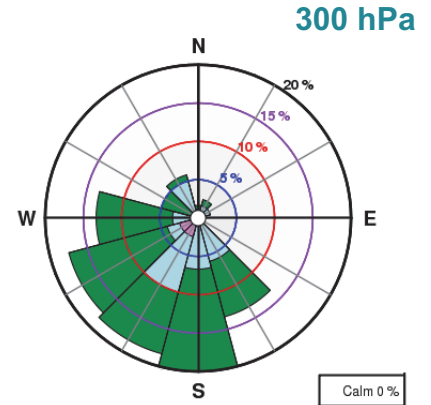
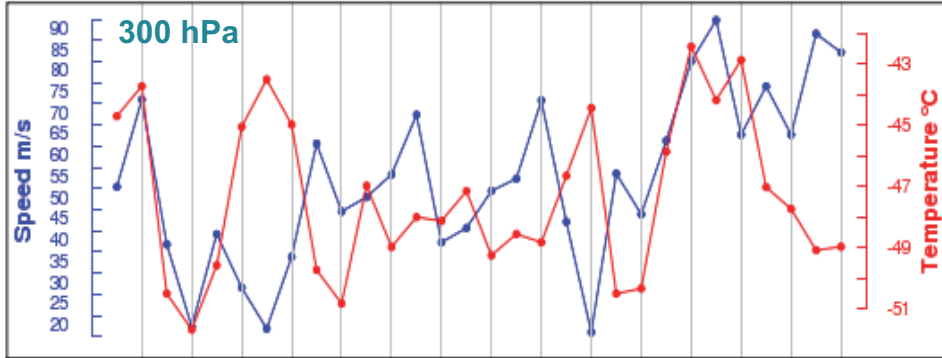
Belmullet



PERCENTAGE FREQUENCY OF WIND DIRECTION

Upper Atmosphere wind and temperature readings are made at Valentia Observatory four times daily by a radiosonde (a balloon with instruments attached). Shown below are daily average windspeeds and temperatures at defined pressure levels, 850, 700, 500 and 300 hPa, corresponding approximately to heights of 1500, 3000, 6000 and 10000 metres. Monthly windroses are also shown for each pressure level.

Upper Air Wind Speed and Temperature November 2011



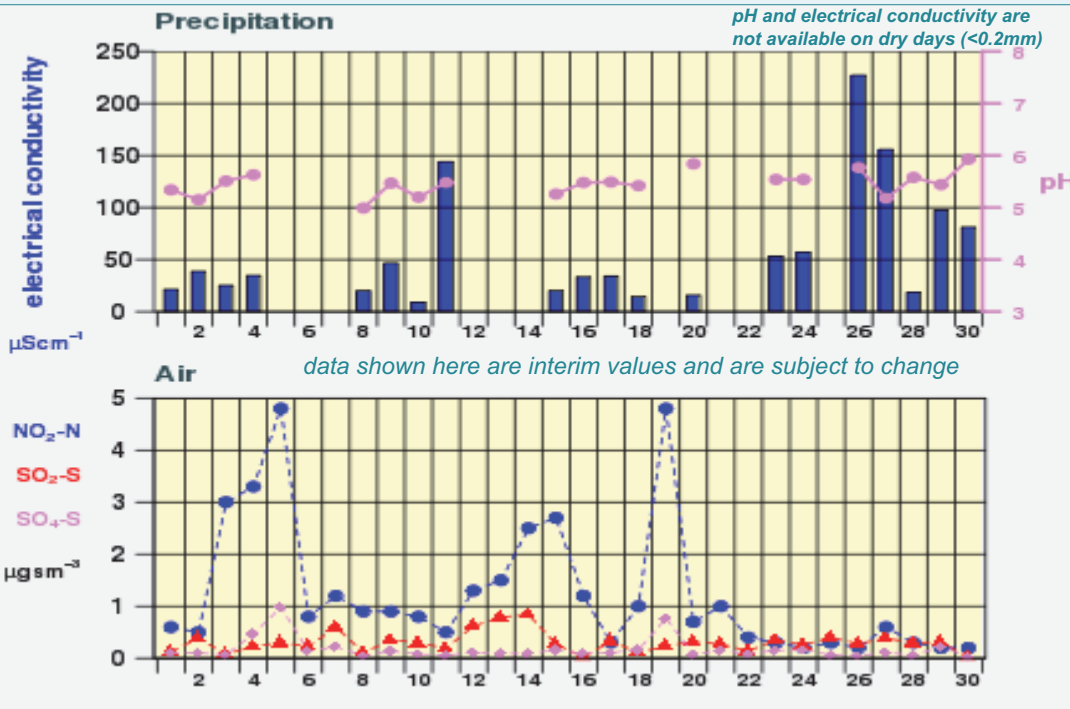
Day of Month

Chemical Analysis of Precipitation and Air Samples at Valentia Observatory

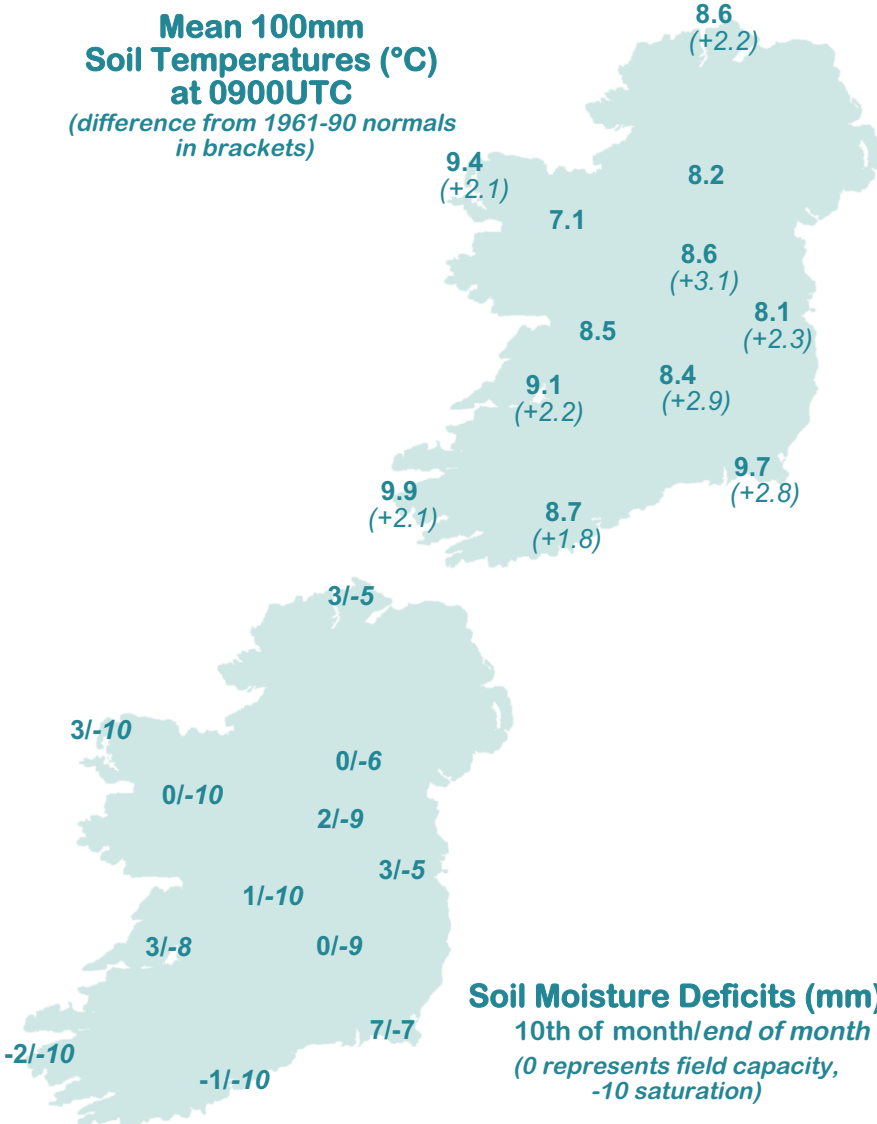
Acid rain occurs when pollutants combine with moisture in the air to form sulphuric or nitric acid. pH is the simplest way of measuring the acidity of precipitation. Usually pH of 7.00 is considered neutral but this is not the case in rainfall samples. Pure water in the atmosphere has an equilibrium 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.



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)	8.4	9.2	9.5
CO. CAVAN			
BALLYHAISE	8.2	9.0	9.4
CO. CLARE			
SHANNON AIRPORT	9.1	9.5	10.9
CARRON	9.5		10.3
CO. CORK			
ROCHE'S POINT	9.8	10.5	10.6
FERMOY (MOOREPARK)	8.8	9.5	10.1
CORK AIRPORT	8.7	9.4	10.5
SHERKIN ISLAND	10.6	11.1	11.4
BALLINCURRIG (PEAFIELD)	9.0	8.8	10.2
CO. DONEGAL			
MALIN HEAD	8.6	9.6	10.3
CO. DUBLIN			
PHOENIX PARK	8.0	9.0	9.9
DUBLIN AIRPORT	8.2	8.9	9.7
CASEMENT AERODROME	8.1	9.1	10.1
CO. KERRY			
VALENTIA OBSERVATORY	9.9	10.5	11.6
CO. LIMERICK			
MOUNT RUSSELL	8.6	9.2	
CO. MAYO			
BELMULLET	9.4	10.1	11.0
STRAIDE	9.1		
KNOCK AIRPORT	7.1	8.1	9.0
CO. MEATH			
WARRENSTOWN	8.7	9.7	9.7
CO. TIPPERARY			
GURTEEN	8.5	9.0	9.4
FETHARD (PARSONSHILL)	8.8	9.5	
CO. WATERFORD			
DUNGARVAN (CARRIGLEA)	9.9	10.6	
CO. WESTMEATH			
MULLINGAR	8.6	9.5	10.2
CO. WEXFORD			
JOHNSTOWN CASTLE	9.7	10.1	10.3
JOHN F. KENNEDY PARK	9.8	10.8	11.8
CLONROCHE (KNOXTOWN)	9.7	10.5	10.7
CO. WICKLOW			
ASHFORD (CRONYKEERY)	9.2	10.1	10.5

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
Co. Cork Ballincurrig	1-10	45.4	-	7	4	12.4	5.0	8.7	-	0.2	6	0	46	8	0.0	6	0	8.0	9.9	36.9	-
	11-20	68.2	-	8	5	12.9	8.6	10.8	-	5.0	12	0	64	13	3.8	12	0	10.6	10.9	11.5	-
	21-end	41.8	-	8	5	12.0	4.6	8.3	-	-0.1	22	1	42	6	-1.0	23	2	8.3	9.8	17.7	-
	month	155.4	-	23	14	12.4	6.1	9.3	-	-0.1	22	1	151	27	-1.0	23	2	9.0	10.2	66.1	-
Co. Donegal Glenties	1-10	26.6	-	5	4	12.8	6.5	9.7	-	0.1	6	0	54	12	-2.7	6	3	-	-	-	-
	11-20	54.4	-	5	5	13.4	8.6	11.0	-	6.0	17	0	66	15	1.6	20	0	-	-	-	-
	21-end	114.6	-	10	9	11.1	5.2	8.2	-	-0.4	22	1	39	4	-3.1	22	1	-	-	-	-
	month	195.6	120	20	18	12.4	6.8	9.6	3.2	-0.4	22	1	159	31	-3.1	22	4	-	-	-	-
Co. Kerry Ardfert	1-10	62.9	-	8	7	13.2	6.1	9.7	-	3.5	6	0	53	11	1.9	6	0	-	-	-	-
	11-20	64.9	-	6	5	13.7	8.4	11.1	-	4.9	12	0	67	16	3.1	12	0	-	-	-	-
	21-end	61.8	-	8	6	11.9	6.6	9.3	-	2.4	22	0	49	8	0.8	22	0	-	-	-	-
	month	189.6	-	22	18	13.0	7.0	10.0	2.3	2.4	22	0	169	34	0.8	22	0	-	-	-	-
Co. Monaghan Carrickmacross	1-10	8.5	-	4	3	12.9	3.3	8.1	-	-3.2	7	4	44	11	-5.4	7	4	-	-	-	-
	11-20	51.7	-	6	4	12.7	7.0	9.9	-	2.6	17	0	55	9	-0.3	17	1	-	-	-	-
	21-end	40.0	-	7	7	11.0	4.7	7.9	-	1.0	22	0	37	4	-1.9	22	4	-	-	-	-
	month	100.2	121	17	14	12.2	5.0	8.6	-	-3.2	7	4	135	23	-5.4	7	9	-	-	-	-
Co. Waterford Dungarvan	1-10	45.7	-	7	6	13.5	4.4	9.0	-	-2.4	7	3	52	14	-4.2	7	4	-	10.0	34.1	-
	11-20	65.5	-	6	4	13.9	9.7	11.8	-	5.0	17	0	74	21	2.7	17	0	-	11.6	7.5	-
	21-end	47.2	-	8	5	12.4	6.1	9.3	-	0.0	22	0	51	8	-2.0	22	2	-	10.1	16.2	-
	month	158.4	-	21	15	13.3	6.7	10.0	2.5	-2.4	7	3	176	43	-4.2	7	6	-	10.6	57.8	86
Co. Wexford J.F.K. Park	1-10	40.7	-	7	6	12.8	5.9	9.4	-	0.5	6	0	52	11	-0.5	6	2	9.0	12.0	35.7	-
	11-20	30.2	-	6	6	13.3	9.6	11.5	-	5.7	17	0	70	17	4.5	17	0	11.3	12.0	13.0	-
	21-end	35.7	-	6	6	12.1	5.7	8.9	-	1.6	22	0	46	7	0.4	22	0	9.1	11.4	16.6	-
	month	106.6	112	19	18	12.7	7.0	9.9	2.8	0.5	6	0	169	35	-0.5	6	2	9.8	11.8	65.3	99
Co. Wicklow Ashford	1-10	34.6	-	4	4	13.7	5.1	9.4	-	-0.4	7	2	54	14	-6.3	7	5	8.8	10.5	43.7	-
	11-20	40.6	-	6	4	13.9	8.4	11.2	-	3.8	17	0	68	18	-1.8	12	2	10.4	10.9	10.7	-
	21-end	27.1	-	6	5	12.8	5.4	9.1	-	1.1	28	0	49	9	-3.7	28	5	8.5	10.1	18.4	-
	month	102.3	-	16	13	13.5	6.3	9.9	-	-0.4	7	2	170	41	-6.3	7	12	9.2	10.5	72.8	-

MEASURED POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE					
Station	Period	P.E. (mm) Amount	Soil Moisture (mm) Deficit	Accum'td Deficit Surplus	
Co. Kerry Valentia Obs.	1-10	3.0	-	0	80
	11-20	11.7	-	0	98
	21-end	20.2	-	0	82
	month	34.9			

MONTHLY EVAPORATION (MM) FROM CLASS A PAN			
County	Station	Monthly Rainfall (mm)	Monthly Evaporation (mm)
Kerry	Valentia Observatory	298.6	57.0
Kerry	North Kerry Landfill	n/a	n/a
Mayo	Newport (Furnace)	166.7	3.0
Offaly	Derrygreenagh	97.6	12.1
Waterford	Dungarvan (Carriglea)	158.4	10.0
Wexford	J.F.K. Park	106.6	18.4

P.E. (Penman)		GLOBAL SOLAR RADIATION (MJ/sq.m.)			
Station	total(mm)	1st-10th	11th-20th	21st-end	Total
Co. Carlow					
Carlow (Oak Park) *	13	45.79	20.55	22.87	89.21
Co. Cavan					
Ballyhaise*	12	42.14	18.64	19.84	80.62
Co. Clare					
Shannon Airport	19	global solar radiation values for stations marked * are provisional			
Co. Cork					
Cork Airport	10				
Roche's Point*	19	50.98	25.16	24.65	100.79
Co. Donegal					
Malin Head	20	39.38	19.91	15.45	74.74
Co. Dublin					
Dublin Airport	18	42.69	21.28	23.45	87.42
Casement Aerodrome	19				
Co. Kerry					
Valentia Obs.	27	46.14	28.76	19.47	94.37
Co. Mayo					
Belmullet	18	40.60	25.06	15.79	81.45
Knock Airport	10				
Co. Tipperary					
Gurteen*	18	48.18	21.77	19.69	89.64
Co. Westmeath					
Mullingar*	13	45.94	21.17	20.96	88.07
Co. Wexford					
Johnstown Castle*	17	44.62	18.05	24.82	87.49

Tuesday 1st: The day was dry and bright in most places, with a few showers affecting parts of the west. Good sunny spells in many parts, particularly in the east. Towards evening, cloud began to build in the west as rain and windy weather moved in from the Atlantic. Heavy rain in the southwest. Winds; moderate to strong and gusty, south to southwesterly in direction.

Rainfall: nil to 27mm, heaviest at Valentia, nil in the east
Temperature: max. 11°C to 14°C, min. 4°C to 9°C, ground temperatures down to -2°C at Cork Airport

Sunshine: 4 to 8 hours, sunniest at Casement Aerodrome, 4 hours at Valentia

Wednesday 2nd: Very wet and windy overnight, particularly in the south. This pattern continued during the morning. By the afternoon the rain had become more widespread, affecting most of the country. By evening however, the rain had become more broken and showery, mainly affecting the east of the country. Winds were strong and gusty, south to southeasterly in direction.

Rainfall: 1 to 36mm, heaviest at Valentia, 1mm at Casement Aerodrome
Temperature: max. 12°C to 16°C, min. 10°C to 13°C, no ground frost

Sunshine: nil to trace

Thursday 3rd: Scattered showers overnight. By morning the showers became more widespread and quite heavy in places. This pattern continued during the afternoon. By late evening the showers were mainly confined to the northwest. A mild day with some sunny spells, the best of these in the west. Winds were southerly in direction, light to moderate with occasional gusts.

Rainfall: 1 to 7mm, heaviest at Malin Head, 1mm at Cork Airport
Temperature: max. 13°C to 16°C, min. 7°C to 12°C, no ground frost

Sunshine: trace to 3 hours, sunniest at Shannon Airport, trace at Knock Airport

Friday 4th: Generally dry overnight apart from a few scattered showers, heaviest in the southeast. It was a mostly dry day with good spells of sunshine throughout. Showers affected the west coast during the afternoon but were generally light. Dry in most parts by midnight. Winds; light, southwesterly.

Rainfall: nil to 3mm, heaviest at Johnstown Castle, nil at Malin Head
Temperature: max. 11°C to 13°C, min. 2°C to 6°C, ground temperatures down to -3°C at Mullingar

Sunshine: 4 to 7 hours, sunniest at Shannon Airport, 4 hours at Dublin Airport

Saturday 5th: Some overnight showers along the west coast, however, mainly dry in other areas with some ground frost. The day was generally dry with good sunshine throughout and just a few light showers, mainly in the west. Frost returned after dark to most areas. Winds; light southeasterly.

Rainfall: nil to 4mm, heaviest at Valentia
Temperature: max. 10°C to 12°C, min. -1°C to 5°C, ground temperatures down to -6°C at Mullingar

Sunshine: 7 to 8 hours, sunniest at Casement Aerodrome and Cork Airport

Sunday 6th: A cold night inland with widespread frost and fog, milder in western coastal areas. The day was bright and sunny and generally dry, however, thickening cloud in the southwest produced some light drizzle. The evening became misty with frost quickly forming. Winds; light southerly.

Rainfall: nil to trace
Temperature: max. 11°C to 14°C, min. -2°C to 9°C, ground temperatures below zero at most stations, down to -7°C at Mullingar

Sunshine: 2 to 9 hours, sunniest in the east, 2 hours at Knock Airport

Monday 7th: Misty overnight with a widespread ground frost. Fog in places also. A bright morning almost everywhere, however, fog lingered in a few places. The day was generally dry with just a few light showers and good sunshine throughout. Cloud in the south and east of the country in the afternoon spread countrywide during the evening. Winds; light, southerly.

Rainfall: nil to trace
Temperature: max. 9°C to 13°C, min. -2°C to 9°C, ground temperatures below zero at most inland stations, down to -8°C at Casement Aerodrome

Sunshine: 4 to 9 hours, sunniest at Casement Aerodrome, 4 hours at Knock Airport

Tuesday 8th: It was a mostly cloudy and dry night with only a few spots of mist and drizzle in places. The day was generally dry and overcast with just a few scattered showers and virtually no sunshine. During the night rain began to move into the south of the country. Winds; light, southeasterly in direction.

Rainfall: nil to 3mm, heaviest at Cork Airport, nil at Belmullet
Temperature: max. 9°C to 14°C, min. 6°C to 10°C, no ground frost

Sunshine: nil to trace generally, <1 hour at Belmullet

Wednesday 9th: Cloudy and mild overnight with a few spots of drizzle in the east. It remained cloudy into the morning with more persistent rain in parts of the east and southeast, dying away towards midday. The afternoon was a mixture of showers, some heavy, and sunny spells, the best of these in the southwest. Generally dry by midnight. Winds; light to moderate, southeasterly.

Rainfall: nil to 9mm, heaviest at Johnstown Castle, nil at Belmullet
Temperature: max. 12°C to 16°C, min. 7°C to 11°C, no ground frost

Sunshine: trace to 5 hours, sunniest at Valentia, trace at Cork Airport

Thursday 10th: There was light showery rain in the northeast overnight and into the morning and also heavy showers in the southwest during the early hours of the morning. Apart from that it was an otherwise dry day with some good sunny spells, the best of these in the east. Mild for the time of year. Winds were moderate, southeasterly in direction throughout.

Rainfall: nil to trace generally, 4mm at Valentia, 2mm at Cork Airport
Temperature: max. 12°C to 16°C, min. 6°C to 12°C, no ground frost

Sunshine: 3 to 7 hours, sunniest at Casement Aerodrome, 3 hours at Valentia

Friday 11th: A band of rain spread into the southwest during the early hours of the morning and gradually pushed northeastwards, affecting all areas during the day. It was mostly dry after the rain had cleared, apart from isolated showers near Atlantic coasts. Mild with some sunny spells. Winds were moderate, southeasterly, strong in parts of the west.

Rainfall: 1 to 21mm, heaviest at Valentia, 1mm at Belmullet
Temperature: max. 13°C to 15°C, min. 7°C to 12°C, no ground frost

Sunshine: trace to 4 hours, sunniest at Shannon Airport, trace at Valentia

Saturday 12th: Some patchy rain in parts of the east overnight, mostly dry over the rest of the country. The morning was dry with sunny periods and well scattered showers along the west coast. The afternoon continued dry with sunny spells and light to moderate winds. Mild throughout. Winds; southeasterly, light to moderate with occasional gusts, mainly in coastal regions.

Rainfall: nil to 5mm, heaviest at Carlow (Oak Park)
Temperature: max. 10°C to 15°C, min. 6°C to 10°C, ground temperatures down to -1°C at Cork Airport

Sunshine: 3 to 5 hours, sunniest at Dublin Airport, 3 hours at Shannon Airport

Sunday 13th: Patchy rain and drizzle in parts of the west overnight, otherwise dry with some clear spells and mist in places. The morning was dry with sunny spells in many areas. More in the way of cloud during the afternoon, however, it continued dry and mild. The evening and night continued dry and cloudy with some mist forming in places. Winds were generally southeasterly in direction, moderate to strong and gusty.

Rainfall: nil to 1mm, heaviest at Belmullet
Temperature: max. 13°C to 17°C, min. 7°C to 15°C, no ground frost

Sunshine: nil to 2 hours, sunniest at Dublin Airport, nil at Cork Airport

Monday 14th: Mild and misty overnight with a little drizzle in some southern areas. Misty during the morning with some sunny breaks, the best of these in the southwest. The mist thickened in southern areas during the afternoon with outbreaks of drizzle also. Misty with occasional drizzle in the south during the evening. Winds; generally southeasterly, moderate to strong with the odd gust.

Rainfall: nil to trace
Temperature: max. 12°C to 17°C, min. 6°C to 13°C, no ground frost

Sunshine: nil to 5 hours, sunniest at Valentia, nil at Cork Airport

Tuesday 15th: Mild and misty overnight. Remaining so throughout the morning with fog in parts of the west. Visibility improved during the afternoon, however, fog thickened again during the evening. It was an overcast, dry day generally with sun breaking through in a number of places for short periods. Winds were light, mainly southeasterly in direction.

Rainfall: nil to trace
Temperature: max. 10°C to 15°C, min. 5°C to 11°C, ground temperatures below zero at Casement Aerodrome

Sunshine: nil to 4 hours, sunniest at Casement Aerodrome, nil at Cork Airport.

Wednesday 16th: It was a cloudy morning with some patches of rain and drizzle. Rain reached the southeast coast during the afternoon and spread northwards, giving some very heavy falls, particularly in the southeast. Rain continued to become more widespread during the evening, affecting all but the most western edges of the country. It remained wet into the night with some heavy falls along the east coast. Winds; light, southeasterly in direction.

Rainfall: 1 to 15mm, heaviest at Johnstown Castle, 1mm at Claremorris
Temperature: max. 11°C to 14°C, min. 5°C to 9°C, no ground frost
Sunshine: nil to trace generally, <1 hour at Shannon Airport

Thursday 17th: Rain in the north cleared away shortly after midnight. A band of heavy rain reached the south of the country during the early morning and moved northwards during the day, affecting all areas. The rain was extremely heavy in places, particularly the southwest and south. By evening all parts of the country had experienced precipitation, which continued into the night. Winds were southeasterly in direction, moderate to strong and gusty.

Rainfall: <1 to 52mm, heaviest at Valentia, <1mm at Dublin Airport
Temperature: max. 12°C to 14°C, min. 4°C to 10°C, ground temperatures below zero at Mullingar
Sunshine: nil to trace

Friday 18th: Damp overnight with widespread light rain or drizzle. The rain was heaviest in parts of south Munster. It continued wet for virtually the entire day, with the heaviest bursts in the south and west. Overcast throughout, yet mild for the time of year. Winds; moderate, southeasterly in direction.

Rainfall: nil to 20mm, heaviest at Valentia, nil at Dublin Airport
Temperature: max. 12°C to 15°C, min 10°C to 13°C, no ground frost
Sunshine: nil to trace generally, <1 hour at Casement Aerodrome

Saturday 19th: A narrow band of rain, already into the west, pushed very slowly eastwards overnight and through the morning. There were some heavy pulses up through the middle of the country around dawn. The rain stalled and fizzled out over the midlands during the late morning and afternoon. The east was mainly dry and overcast, apart from just a few isolated spots of rain. Some sunny spells in the west in the afternoon. Winds; light, southeasterly.

Rainfall: nil to 22mm, heaviest at Claremorris, nil in the east
Temperature: max. 12°C to 15°C, min. 5°C to 12°C, no ground frost
Sunshine: nil to 6 hours, sunniest at Belmullet, nil at Dublin Airport

Sunday 20th: Some drizzle along the west coast overnight, dry elsewhere with some mist and fog. Drizzle continued along the west coast during the morning, with mist and fog in places also. It remained generally dry further east with some bright or sunny spells, the best of these in the Dublin area. Some patchy rain during the night with mist in many places. Winds; light, southeasterly.

Rainfall: nil to 2mm, heaviest at Belmullet, nil at Dublin Airport
Temperature: max. 11°C to 14°C, min. 6°C to 11°C, no ground frost
Sunshine: nil to 5 hours, sunniest at Casement Aerodrome, nil at Cork Airport

Monday 21st: Some patchy rain and drizzle in western parts overnight, generally dry elsewhere. The morning was cloudy with patchy rain and drizzle in places. The afternoon was mostly dry with just the odd spot of drizzle in parts. A few sunny spells in the northwest. Rain along the west and north coasts overnight, dry elsewhere. Winds; light, variable or westerly in direction.

Rainfall: nil to 11mm, heaviest at Gurteen, nil at Dublin Airport
Temperature: max. 10°C to 13°C, min. 3°C to 8°C, ground temperatures down to -1°C at Claremorris
Sunshine: nil to trace generally, 2 hours at Belmullet

Tuesday 22nd: Mostly dry and clear overnight with a widespread ground frost and just the odd shower along the west coast. Some showers along western coasts during the morning, good sunny spells elsewhere. The afternoon continued dry with sunshine in most areas. Cloud increased during the evening along western coasts. Winds; light to moderate, southwesterly.

Rainfall: nil to trace generally, 1mm at Belmullet
Temperature: max. 9°C to 13°C, min. -1°C to 5°C, ground temperatures down to -6°C at Mullingar
Sunshine: 3 to 7 hours, sunniest at Cork Airport, 3 hours at Belmullet

Wednesday 23rd: Mild overnight with rain affecting Connacht and western parts of Ulster. Rain persisted in these areas during the morning, with some heavy bursts in places. The rain moved into most of Munster and parts of Leinster by the afternoon. The rain continued to affect the western half of the country during the evening, however, it became significantly lighter. Winds; southwesterly, backing southeasterly, light to moderate with occasional gusts, easing somewhat by evening.

Rainfall: nil to 21mm, heaviest at Belmullet, nil in the east
Temperature: max. 11°C to 13°C, min. 7°C to 12°C, no ground frost
Sunshine: nil to trace

Thursday 24th: Scattered outbreaks of rain in the north and west moved away northwards during the night. Rain moved in over the west during the mid-morning and spread eastwards, affecting all areas. There were some very heavy falls during the day, particularly in the southwest and west. A clearance followed from the west after nightfall and scattered showers developed across the country before midnight. Winds were southwest to westerly in direction, strong and gusty, very gusty in the northwest and north.

Rainfall: 1 to 22mm, heaviest at Valentia, 1mm at Malin Head
Temperature: max. 11°C to 13°C, min. 5°C to 9°C, no ground frost
Sunshine: nil to trace

Friday 25th: It was showery overnight, with the heaviest falls in the northwest. The showers became more widespread during the morning as they moved southeastwards across the country. It was a cool day, however, there were some good sunny spells, mainly in the south. Occasional scattered showers continued into the afternoon and evening. Winds; southwesterly, moderate to strong and gusty, strongest on northwest and north coasts.

Rainfall: nil to 11mm, heaviest at Malin Head, nil at Dublin Airport
Temperature: max. 8°C to 12°C, min. 3°C to 8°C, no ground frost
Sunshine: 1 to 4 hours, sunniest at Cork Airport, 1 hour at Belmullet

Saturday 26th: Light rain in northern areas overnight. Heavy rain in Connacht during the morning spread eastwards, affecting the northern half of the country through the afternoon. The rain cleared around nightfall, however, further heavy rain spread into the northwest late in the evening, pushing eastwards. Winds; southwesterly, moderate to strong and gusty.

Rainfall: nil to 21mm, heaviest at Knock Airport, nil at Carlow (Oak Park)
Temperature: max. 12°C to 14°C, min. 7°C to 11°C, no ground frost
Sunshine: nil to trace

Sunday 27th: A band of rain stretching from Derry to Limerick passed very quickly across the country, in a southeasterly direction, during the early hours of the morning. A second weaker band of showery rain followed, also quickly, and introduced scattered showers which lasted into the early afternoon, mainly in northern counties. Mild with some winter sunshine everywhere, the best of this in the east. Winds; strong to gale force southwesterly, veering northwesterly with the clearance, gradually easing and backing southwesterly later.

Rainfall: trace to 4mm, heaviest at Malin Head, trace at Johnstown Castle
Temperature: max. 10°C to 14°C, min. 3°C to 9°C, ground temperatures down to -2°C at Johnstown Castle
Sunshine: 1 to 6 hours, sunniest at Dublin Airport, 1 hour at Valentia

Monday 28th: Cloudy and windy overnight in the west with some showers. Rain and drizzle continued in the west during the morning and afternoon, while it remained generally dry over the midlands and east with a few bright spells, though generally overcast. During the late afternoon, rain reached the west coast and spread eastwards, affecting most parts, with some very heavy falls in the northwest. Winds were strong and gusty, southwesterly in direction.

Rainfall: <1 to 39mm, heaviest at Claremorris, <1mm at Carlow (Oak Park)
Temperature: max. 11°C to 14°C, min. 4°C to 10°C, no ground frost
Sunshine: nil to 1 hour, sunniest at Casement Aerodrome, nil in the west

Tuesday 29th: Rain in many parts overnight, with heavy falls in the west and north. During the morning the heavy rain spread countrywide. A clearance reached the west by late morning, and was followed by showers. The rain cleared the east coast by early afternoon, with good bright spells developing here, where it remained mostly dry. Some heavy showers in the west during the evening and night. Winds; strong and gusty, southwesterly.

Rainfall: 7 to 33mm, heaviest at Valentia, 7mm at Dublin Airport
Temperature: max. 10°C to 13°C, min. 2°C to 6°C, ground temperatures below zero at Cork Airport
Sunshine: 1 to 2 hours, sunniest at Cork Airport, 1 hour at Casement Aerodrome

Wednesday 30th: Showers overnight, mainly in western areas. These showers continued during the morning. By early afternoon rain reached the west coast and spread eastwards, affecting all areas. A further band of heavy rain followed and finally cleared the east coast after midnight. Generally overcast throughout. Winds; strong and gusty, southwesterly in direction.

Rainfall: 4 to 21mm, heaviest at Claremorris, 4mm at Dublin Airport
Temperature: max. 8°C to 12°C, min. 2°C to 7°C, no ground frost
Sunshine: nil to trace

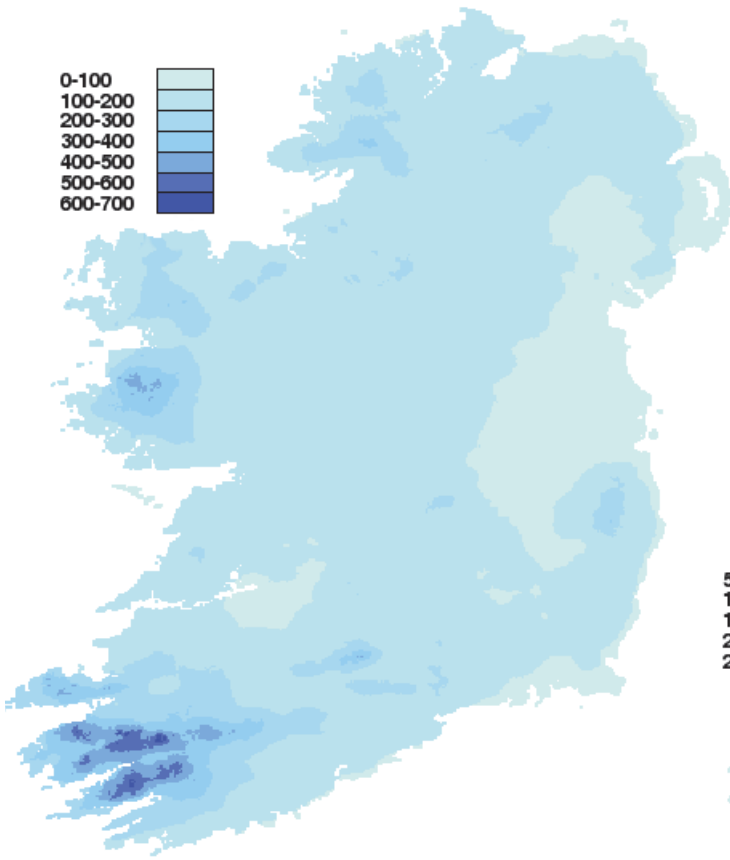
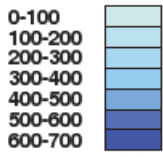
Wet in most places; highest above normal in the southwest

Monthly rainfall totals were below normal in a few parts of the east, north and southwest, but were mainly above average elsewhere. The highest amounts were measured along the west and southwest coasts, with the highest total rainfall for November recorded at Delphi Lodge II, Co. Mayo, where over a quarter of the total monthly rain of 416mm, fell during heavy rainfall on the 17th. The daily fall of 107mm, was the highest fall recorded this month and was the site's highest November daily fall since it opened in 1994 (17 years). Percentage of normal values ranged from 69% at Johnstown Castle, Co. Wexford to 203% at Valentia Observatory, where its daily fall of 57 mm on the 28th, was its highest November daily fall reported since 1984.

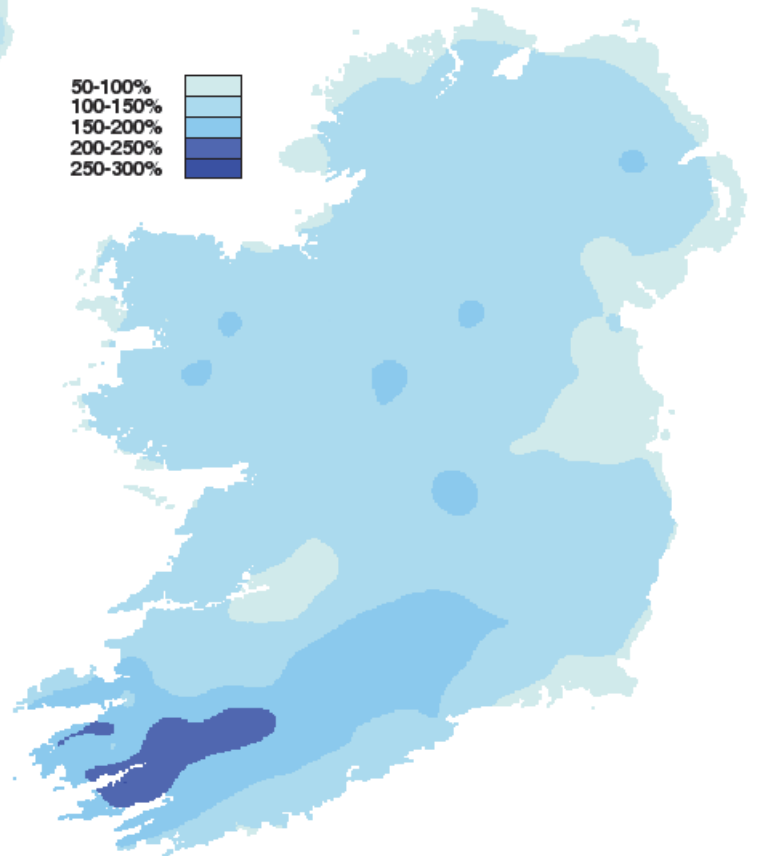
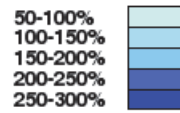
All stations measured between 8 and 21 wetdays (*days with 1mm or more of rainfall*), with a below average number recorded in most parts except for stations in the southwest, which reported an average number for the time of year.

County/ Station	<small>* 9-9 totals</small>	Total* Amount (mm)	% of 1961-90 average	Most in a day / date*		Number of Raindays Wetdays (>0.2mm) (>1mm)	
CO. CARLOW							
CARLOW (OAK PARK)		89.1	124	13.9	2	17	16
CO. CAVAN							
BALLYHAISE		112.2	132	28.7	28	19	17
CO. CLARE							
SHANNON AIRPORT		87.5	92	27.7	28	21	15
CARRON		166.4	103	41.6	28	27	18
CO. CORK							
ROCHE'S POINT		96.2	109	18.4	17	22	13
CORK AIRPORT		148.6	137	35.2	17	23	16
SHERKIN ISLAND		130.1	123	19.3	18	23	17
BALLINCURRIG (PEAFIELD)		155.4		28.6	18	23	14
CO. DONEGAL							
MALIN HEAD		105.0	91	14.0	26	20	16
GLENTIES HATCHERY		195.6	120	30.7	28	20	18
BALLYSHANNON (CATHLEEN'S FALL)		136.3	123	30.4	28	22	17
CO. DUBLIN							
DUBLIN (PHOENIX PARK)		53.7	78	10.6	11	11	10
DUBLIN AIRPORT		48.5		11.7	16	11	10
CASEMENT AERODROME		54.9	83	12.5	29	13	9
DUBLIN (MERRION SQUARE)		60.6	98	16.5	11	13	8
CO. GALWAY							
GALWAY (UNIV. COLL.)		154.2	134	37.4	28	22	18
MAAM VALLEY		349.2		72.4	17	25	19
CO. KERRY							
VALENTIA OBSERVATORY		298.6	203	56.7	28	25	19
ARDFERT (LISCAHANE)		189.6		31.8	28	22	18
CO. LIMERICK							
MOUNT RUSSELL		197.6		34.7	28	21	17
CO. MAYO							
BELMULLET		130.9	103	15.5	30	21	18
STRAIDE		190.3	157	42.7	28	23	19
KNOCK AIRPORT		181.0		37.7	28	25	18
DELPHI LODGE II		416.4		106.6	17	25	21
CO. MEATH							
WARRENTOWN		70.0	90	16.5	11	15	13
CO. MONAGHAN							
CARRICKMACROSS (DUNOGE)		100.2	121	28.9	11	17	14
CO. OFFALY							
DERRYGREENAGH		97.6	119	16.1	28	20	16
CO. SLIGO							
ARDTARMON		117.5		25.2	28	17	15
CO. TIPPERARY							
GURTEEN		108.2		17.7	28	21	15
FETHARD (PARSONSHILL)		140.4		21.6	18	23	19
CO. WATERFORD							
WATERFORD (TYCOR)		105.4	111	15.4	30	21	18
DUNGARVAN (CARRIGLEA)		158.4		32.9	17	21	15
CO. WESTMEATH							
MULLINGAR		106.0	113	18.4	28	18	17
CO. WEXFORD							
JOHNSTOWN CASTLE		77.1	69	15.4	16	18	14
JOHN F. KENNEDY PARK		106.6	112	17.0	28	19	18
CLONROCHE (KNOXTOWN)		116.3		21.5	18	19	15
CO. WICKLOW							
ASHFORD (CRONYKEERY)		102.3		16.5	3	16	13

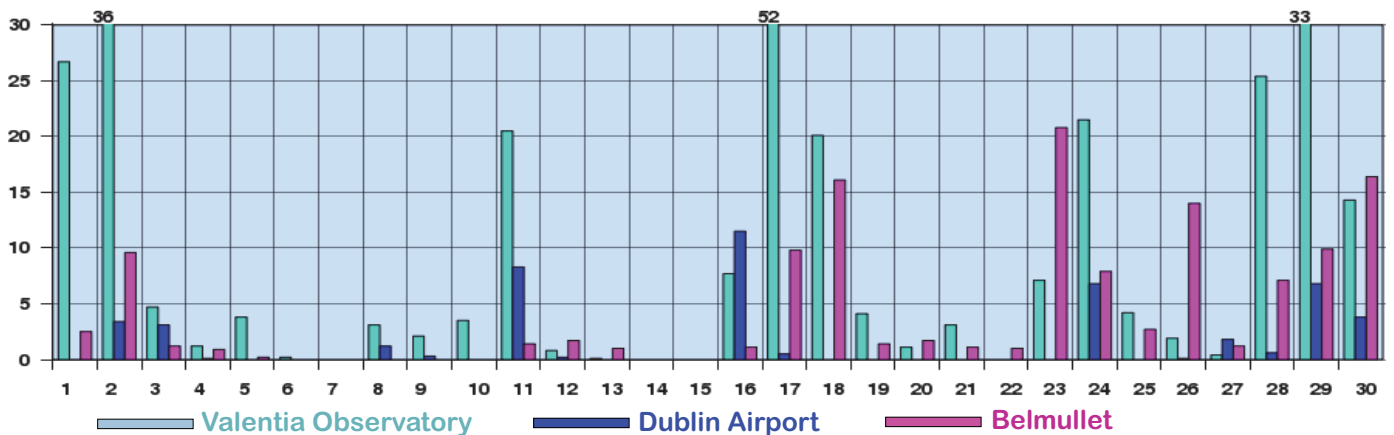
Total rainfall (mm)



Percentage of normal rainfall



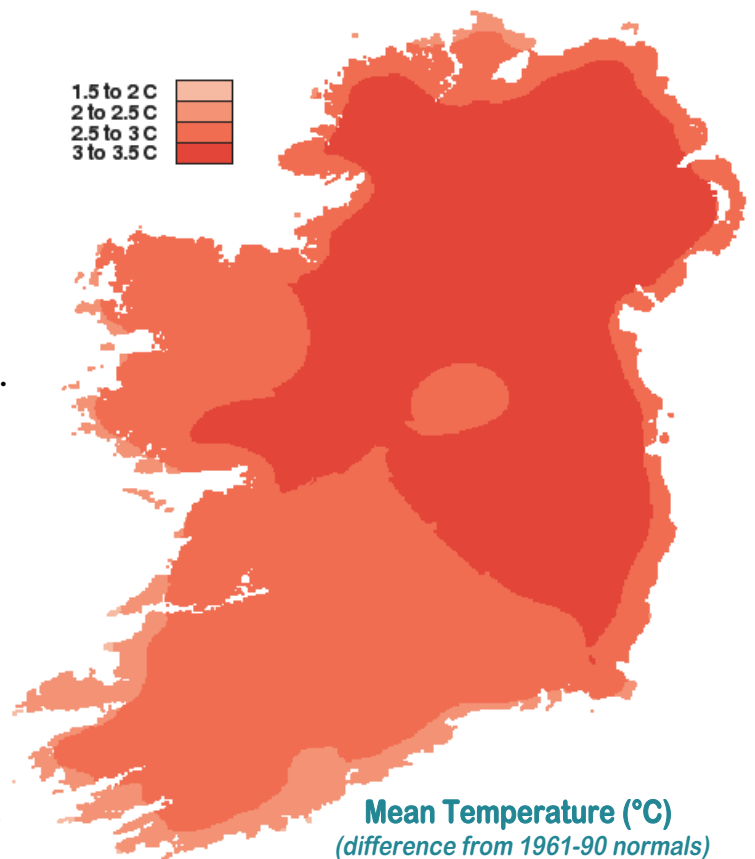
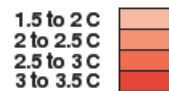
Daily 0-24h rainfall values (mm)



Mean temperatures above normal everywhere

Mean air temperatures for the month were above normal, over +3°C in the majority of places, with the smallest departures from normal along southern and Atlantic coasts. Mean air temperatures for the month ranged from 8.1°C at Knock Airport, its warmest November in five years to 11.2°C at Valentia Observatory, its warmest November since 1994. Some stations in the east, midlands and west reported it was the warmest November on record, with Dublin (Phoenix Park) reporting its warmest November since the station opened in 1855, with 9.9°C.

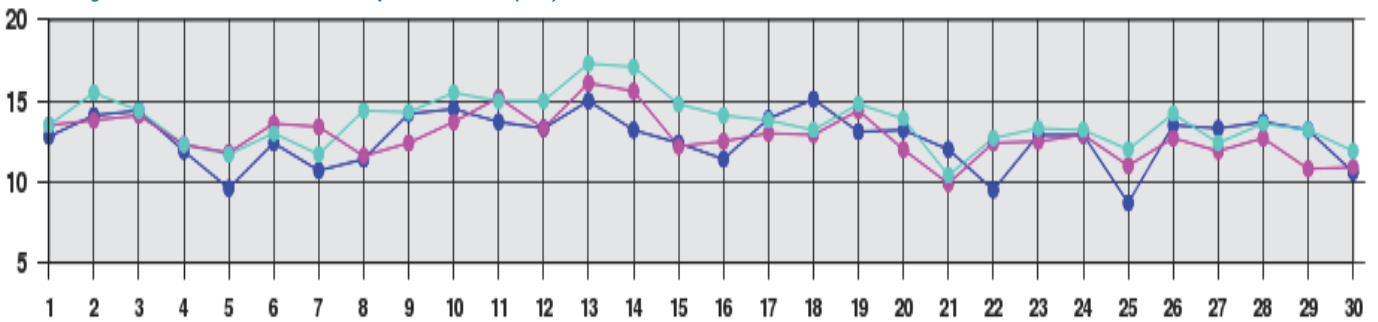
November's monthly maximums were mainly recorded mid-month, with the highest recorded on the 12th, at Valentia Observatory with 17.3°C, its highest November maxima since 1989. The number of days with air and ground frosts were below normal everywhere, due to above normal air and grass minimums, with some stations in the western half of the country reporting them as their warmest minimums on record. The monthly minimum air temperature of 4.0°C and grass minimum temperature of 0.5°C, both recorded at Belmullet on the 5th, were the warmest recorded



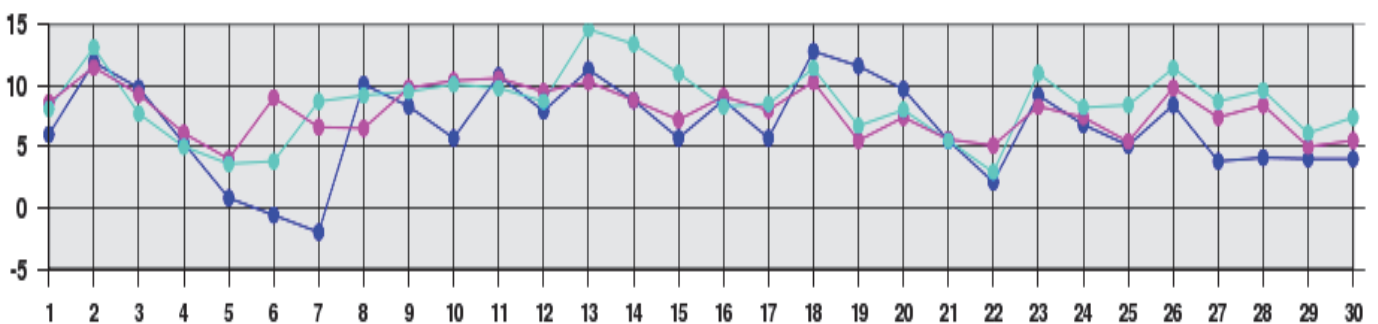
Mean Temperature (°C)
(difference from 1961-90 normals)

during November since the station opened in 1956, while the month's highest minimum grass temperature of 0.8°C at Ardfert (Lisachane), Co. Kerry was the warmest November grass minimum temperature since the station opened in 1980.

Daily 0-24h maximum temperatures (°C)



Daily 0-24h minimum temperatures (°C)



● Valentia Observatory ● Dublin Airport ● Belmullet

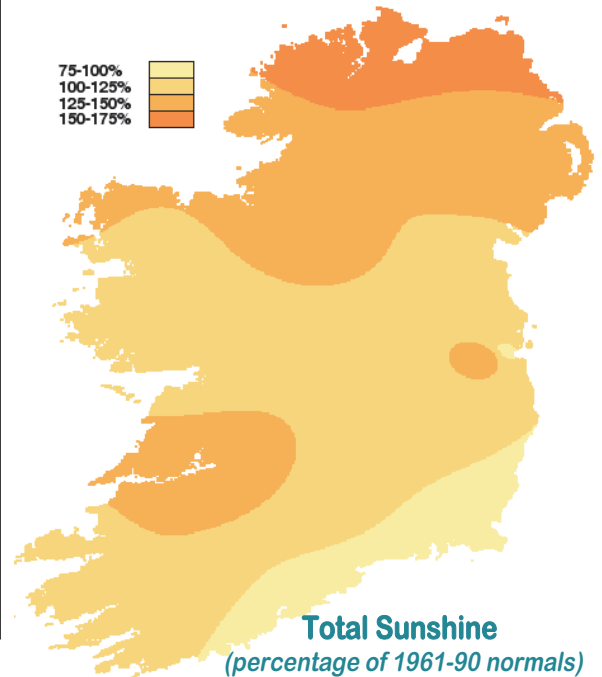
County/ Station	°C		Mean/ deviation		Highest max./date	Lowest min./date	Lowest grass min./date	Days with	
	Mean max.	Mean min.	from 1961-90 average					air frost	ground frost
CO. CARLOW									
CARLOW (OAK PARK)	12.6	6.5	9.6	2.6	15.9 13	-2.1 7	-7.1 7	3	8
CO. CAVAN									
BALLYHAISE	12.0	6.0	9.0		14.6 13	-1.4 6		2	
CAVAN (LORETO COLLEGE)	12.3	6.3	9.3		14.9 13	-1.6 7	-4.6 7	3	5
CO. CLARE									
SHANNON AIRPORT	13.1	7.3	10.2	2.7	16.1 13	1.3 22	-2.7 22 6	0	4
CARRON	12.3	6.4	9.4	2.9	15.2 13	1.4 22	-5.4 22	0	7
CO. CORK									
ROCHE'S POINT	12.7	8.6	10.7	2.3	14.1 13	2.5 6	-0.8 7	0	2
FERMOY (MOOREPARK)	12.6	6.0	9.3	2.4	14.7 13	-2.1 6	-5.7 6	5	7
CORK AIRPORT	11.9	7.1	9.5	2.3	14.4 19	2.6 6	-3.6 6	0	6
SHERKIN ISLAND	13.3	8.7	11.0	2.1	14.9 15	2.0 6	-1.3 22	0	2
BALLINCURRIG (PEAFIELD)	12.4	6.1	9.3		13.8 13 19	-0.1 22	-1.0 23	1	2
CO. DONEGAL									
MALIN HEAD	12.3	7.2	9.8	2.2	14.9 3	2.5 30	-1.5 8	0	5
GLENTIES HATCHERY	12.4	6.8	9.6	3.2	16.2 13	-0.4 22	-3.1 22	1	4
BALLYSHANNON (CATHLEEN'S FALL)	12.5	7.0	9.8	2.9	15.5 13	3.5 5 22		0	
CO. DUBLIN									
DUBLIN (PHOENIX PARK)	13.2	6.5	9.9	3.3	15.9 3	-1.7 7	-6.5 7	3	11
DUBLIN AIRPORT	12.7	6.5	9.6		15.1 18	-2.0 7	-6.5 7	2	3
CASEMENT AERODROME	13.0	6.6	9.8	3.2	16.1 9	-1.3 6	-8.2 7	2	7
DUBLIN (MERRION SQUARE)	13.3	8.3	10.8	2.8	15.6 13	0.4 7		0	
CO. GALWAY									
GALWAY (UNIV.COLL.)	13.7	6.8	10.3	2.9	17.0 16	-0.2 22	-4.1 22	1	8
MAAM VALLEY	13.4	7.3	10.4		15.8 12	0.7 22	-2.1 22	0	3
CO. KERRY									
VALENTIA OBSERVATORY	13.7	8.7	11.2	2.5	17.3 12	2.9 22	-2.2 6	0	3
ARDFERT (LISCAHANE)	13.0	7.0	10.0	2.3	15.1 13	2.4 22	0.8 22	0	0
CO. LIMERICK									
MOUNT RUSSELL	12.2	7.3	9.8		14.5 12	3.2 22	-1.1 22	0	2
CO. MAYO									
BELMULLET	12.9	7.8	10.4	2.7	16.1 13	4.0 5	0.5 5	0	0
STRAIDE	12.8	5.8	9.3	2.8	15.6 13	-1.6 22	-6.3 22	3	10
KNOCK AIRPORT	10.9	5.3	8.1		14.1 13	1.8 6	-1.7 22	0	3
DELPHI LODGE II	13.4	8.3	10.9		16.2 12	2.5 6	-1.0 6	0	1
CO. MEATH									
WARRENTOWN	12.9	5.8	9.4	3.2	15.8 3	-2.9 7	-7.6 7	3	7
CO. MONAGHAN									
CARRICKMACROSS (DUNOGE)	12.2	5.0	8.6		15.1 3	-3.2 7	-5.4 7	4	9
CO. OFFALY									
DERRYGREENAGH	12.7	5.3	9.0	3.2	16.6 13	-1.6 5	-7.2 7	3	13
CO. SLIGO									
ARDTARMON	12.3	7.0	9.7		15.9 13	3.5 5 22	-2.8 22	0	4
CO. TIPPERARY									
GURTEEN	12.3	6.6	9.5		15.9 13	0.4 6	-4.4 6	0	8
FETHARD (PARSONSHILL)	12.0	6.2	9.1		14.5 13	0.4 6	-0.6 6	0	4
CO. WATERFORD									
WATERFORD (TYCOR)	13.1	7.4	10.3	2.9	14.9 11	0.1 7		0	
DUNGARVAN (CARRIGLEA)	13.3	6.7	10.0	2.5	15.3 11	-2.4 7	-4.2 7	3	6
CO. WESTMEATH									
MULLINGAR	12.0	5.5	8.8	2.9	14.9 13	-2.3 6	-7.6 7	4	8
CO. WEXFORD									
JOHNSTOWN CASTLE	12.7	8.2	10.5	3.3	14.5 3	3.0 7	-2.2 7	0	3
JOHN F. KENNEDY PARK	12.7	7.0	9.9	2.8	14.5 10 11	0.5 6	-0.5 6	0	2
CLONROCHE (KNOXTOWN)	12.7	6.1	9.4		14.6 9	-2.0 7	-5.9 7	2	9
CO. WICKLOW									
ASHFORD (CRONYKEERY)	13.5	6.3	9.9		16.3 13	-0.4 7	-6.3 7	2	12

County/ Station	Daily mean (hours/day)	% of average	% of possible	Most in a day/date
CO. CAVAN				
CAVAN (LORETO COLLEGE)	1.94			6.8 1
CO. CLARE				
SHANNON AIRPORT	2.62	136	30	7.9 6
CO. CORK				
CORK AIRPORT	2.10	97	24	8.2 5
SHERKIN ISLAND	2.32	109	26	7.6 4 5
BALLINCURRIG (PEAFIELD)	2.20			8.2 7
CO. DONEGAL				
BALLYSHANNON (CATHLEEN'S FALL)	2.24	143	26	7.6 7
CO. DUBLIN				
DUBLIN AIRPORT	2.54	108	29	8.6 7 6
CASEMENT AERODROME	2.87	131	33	8.8 7
CO. GALWAY				
GALWAY (UNIV.COLL.)	2.37	119	27	8.3 7
CO. KERRY				
VALENTIA OBSERVATORY	1.93	112	22	6.8 7 5
CO. MAYO				
BELMULLET	2.23	129	26	8.6 7
STRAIDE	2.20			7.4 5
KNOCK AIRPORT	1.66			8.1 5
CO. WATERFORD				
DUNGARVAN (CARRIGLEA)	1.93	86	22	7.0 5
CO. WEXFORD				
JOHN F. KENNEDY PARK	2.18	99	25	7.2 6
CLONROCHE (KNOXTOWN)	2.00			7.4 5
CO. WICKLOW				
ASHFORD (CRONYKEERY)	2.43		28	8.5 5

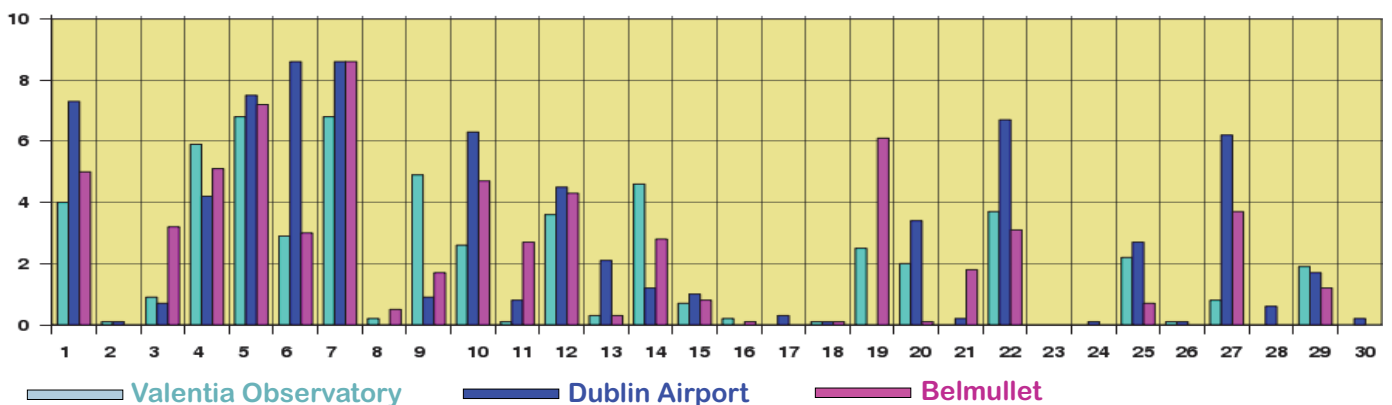
Above average sunshine almost everywhere; sunniest in the north

Sunshine totals for the month were above normal nearly everywhere, except along south and southeast coasts. Days that measured the most sunshine hours during November were all during the high pressure period from the 4th to the 7th, with the month's highest daily sunshine recorded at Casement Aerodrome on the 7th, with 8.8 hours, the highest November sunshine ever recorded at the station. Percentage of normal values ranged from 86% at Dungarvan (Carriglea), Co. Waterford, its dullest November since 2004 to 143% at Ballyshannon, Co. Donegal.

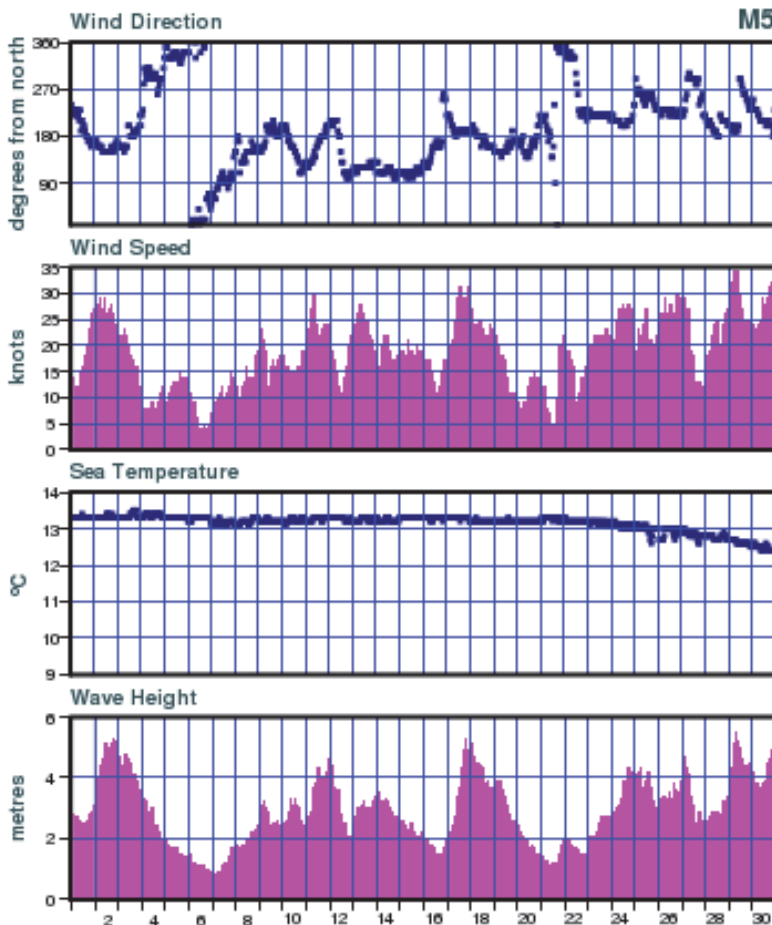
Global solar radiation totals were above average for the month. Percentage of normal values ranged from 100% at Dublin Airport to 110% at Malin Head.



Daily sunshine values (hours)

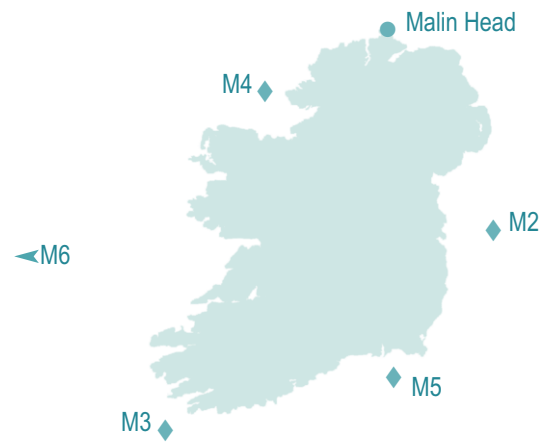


MARINE OBSERVATIONS FROM IRISH MARINE DATA BUOY NETWORK



Buoy	Sea surface temp. (°C)	Mean wind speed (knots)	Max. 10-min wind (knots)	Mean wave height (m.)	Max. wave height (m.)
M2	13.7	17.7	37.4	1.7	5.2
M3	13.0	19.1	36.0	4.1	7.5
M4	12.0	19.7	35.9	3.9	9.2
M5	13.1	18.0	34.0	2.8	5.5
M6	12.0	19.1	39.0	4.4	9.7
Malin Head	11.4				

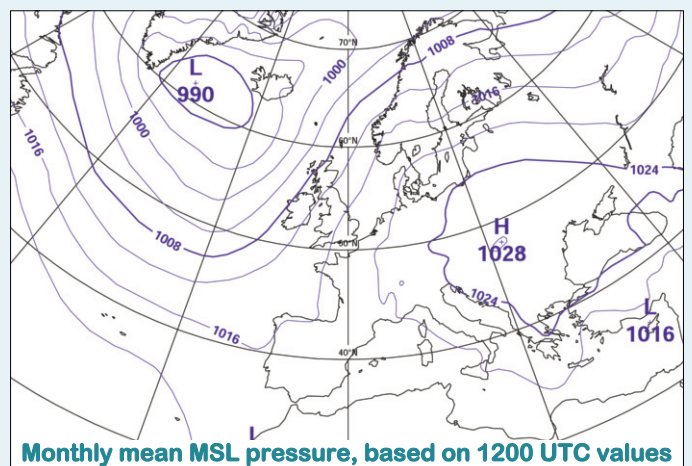
Summary of Mean Monthly Values



Hourly wind and wave conditions at M5 (51.7°N, 6.7°W)

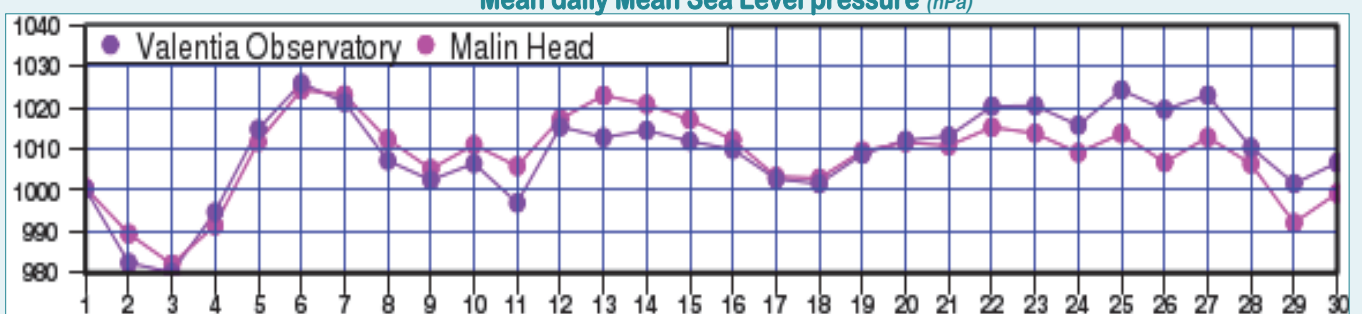
MEAN ATMOSPHERIC PRESSURE

Mean sea level pressure values for the month ranged from 1008 hPa to just over 1012 hPa in the southeast, which is below normal for the time of year. Stations recorded their lowest pressure values during the unsettled period at the start of November, with the month's minimum pressure value of 977.3 hPa recorded at Belmullet on the 3rd. All monthly maximum pressure values were recorded on the 6th and 7th, with Dublin Airport recording the month's highest pressure value of 1029.5 hPa, on the 6th.

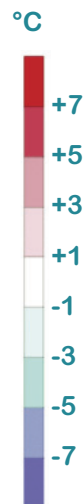
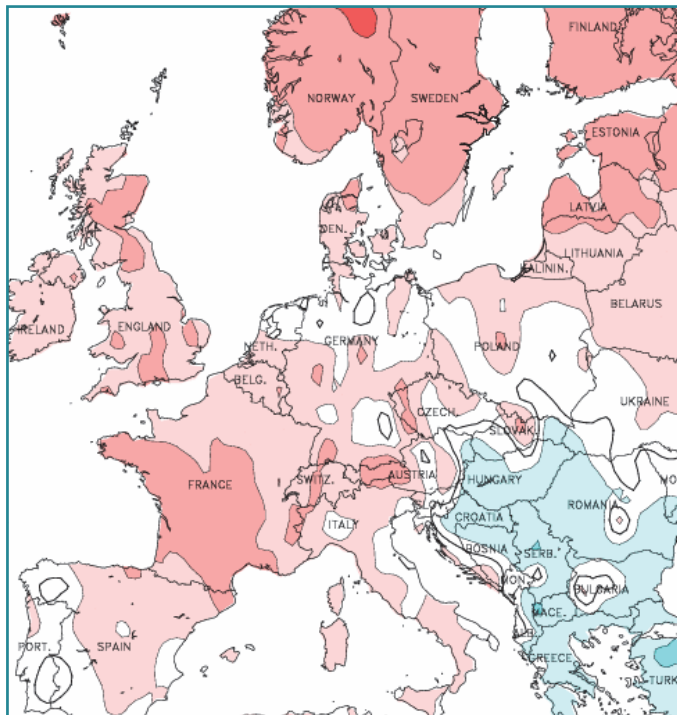
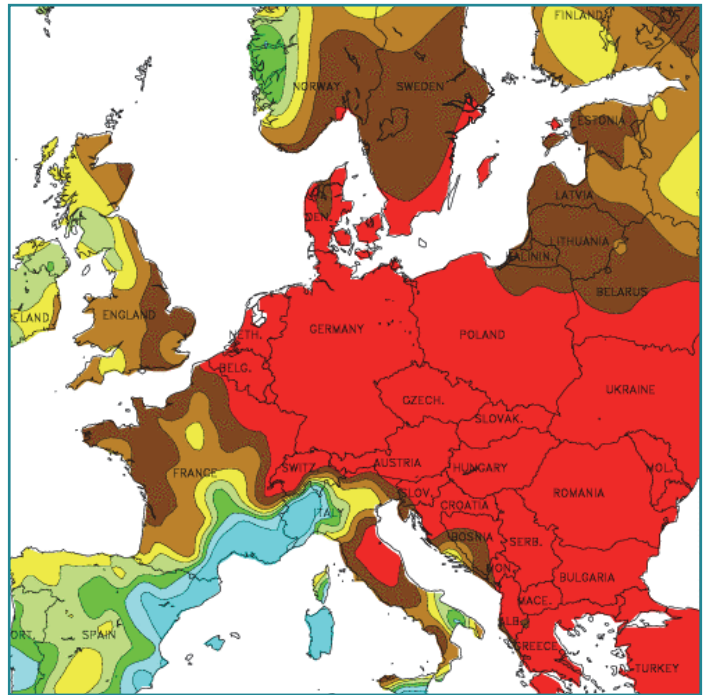


Monthly mean MSL pressure, based on 1200 UTC values

Mean daily Mean Sea Level pressure (hPa)



NOVEMBER RAINFALL
(percentage of 1961-1990 normal)



NOVEMBER MEAN TEMPERATURE
(difference from 1961-1990 normal)

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

Global weather highlights of the month

A cold front stretching from the Gulf of Mexico to the Northeast United States collided with a warm air mass on November 16th, creating severe storms that spawned tornadoes across several states. NOAA's Storm Prediction Center listed 22 preliminary tornado reports—including two EF-2 twisters—in Alabama, Georgia, South Carolina, North Carolina, and Virginia. Six people were killed across the region and dozens of homes and buildings sustained damages.

Parts of England were placed on drought alert as the Midlands had its driest 12-month period since records began in 1910. Residents in Cambridgeshire, South Lincolnshire and Northamptonshire were requested to conserve water. In Southern England, a 10-mile stretch of the Kennet and Avon Canal was closed when water levels reached the lowest point in 90 years.

In eastern Africa, torrential rains fell over Uganda and Kenya from November 9th to 15th. In Kenya, at least four people were killed in the Kolowa region of the Rift Valley and a total of 10,000 residents were displaced. On the 12th, heavy rains fell for six hours over Bute town in the northeastern region. According to the Global Disaster Alert and Coordination System rainfall of this magnitude was the highest since 1974. At least 15,000 people were displaced in Uganda. No fatalities were reported.

Thailand's flooding, which began in July due to a combination of unusually heavy monsoon rains and tropical storm systems, continued into November. As of November 20th, 17 of the country's 76 provinces were still affected by the floodwaters. At least 602 deaths have been blamed on the flooding over the past four months with the Thai government estimated that 2.9 million people were impacted by the floods.