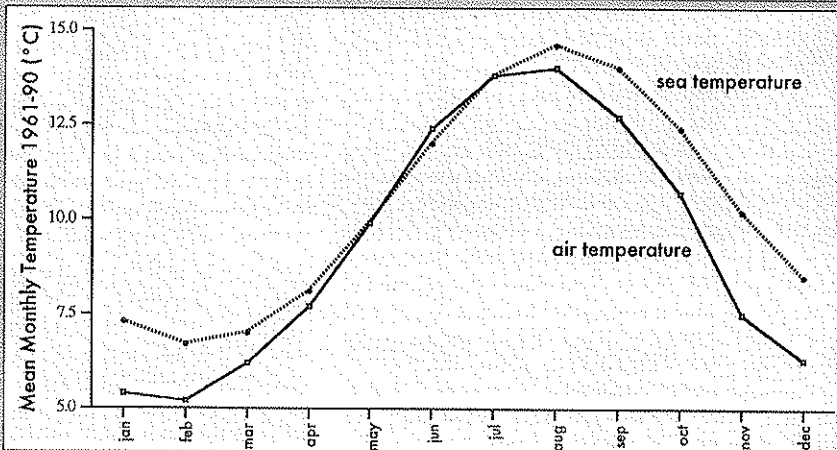
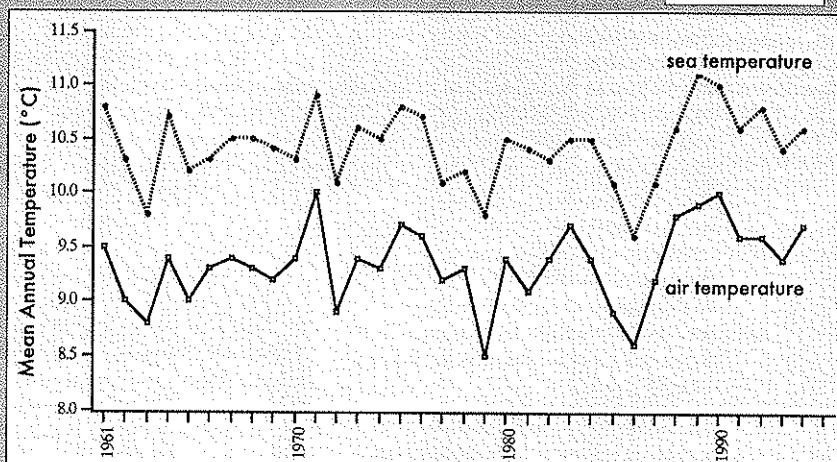


Monthly Weather Bulletin

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1995

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SEA TEMPERATURES AT MALIN HEAD - see feature page

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ANOTHER VERY MILD MONTH, SOME HEAVY DAILY RAINFALLS

The month was dominated by mild southerly or southwesterly winds as pressure was typically high to the east or south of Ireland, while low pressure in the Atlantic brought rainbelts from time to time, usually much more active in the west than in the east. The 24th brought very severe conditions in the southeast and east as a depression deepened over the country; Rosslare recorded its highest gust on record and there was considerable structural damage in several places (see opposite page). The weather pattern changed markedly at the end of the month as pressure rose in the region of Iceland and an anticyclone to the east of Ireland extended northwestwards to link up with it.

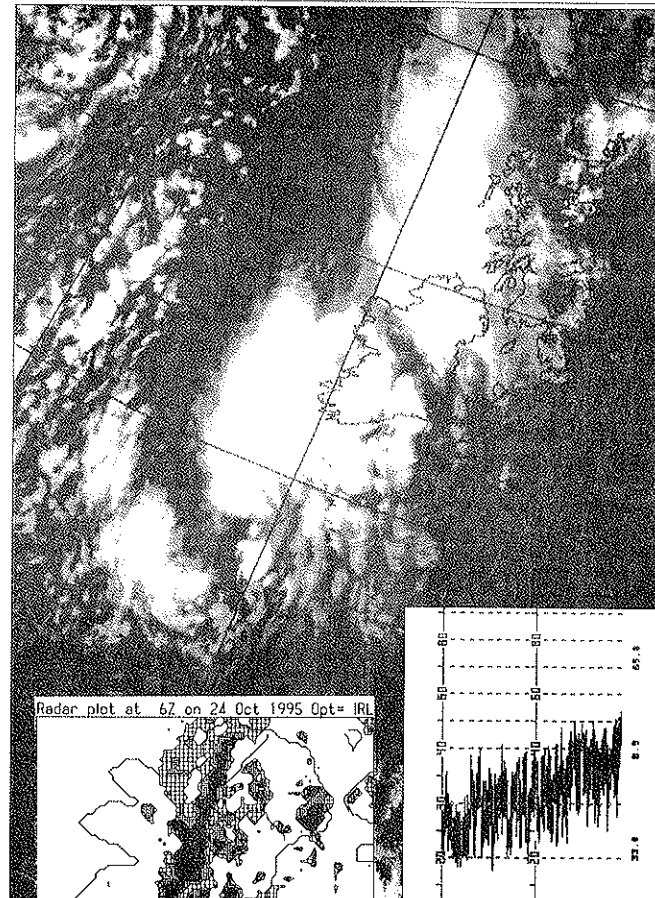
The month began with a strong showery southwesterly airflow; minor troughs moving eastwards caused some of the showers to be thundery on the 1st and 2nd. Winds backed towards the southeast in the later part of the 3rd as an Atlantic depression approached the northwest; its frontal trough gave some further thundery activity during the evening, notably in the Cork area. As the depression moved on northeastwards towards Scotland on the 4th, the front cleared the east of Ireland during the morning and it turned out a breezy day with sun and showers, becoming heavy near the north coast during the evening. During the 5th winds backed from westerly towards southerly as another Atlantic depression tracked northeastwards to the west. Its active rainbelt affected the southwest during the late afternoon and evening, causing some nasty gusts as well as heavy rain. The front cleared

the southeast and east early on the 6th and behind it winds turned southwesterly with some scattered showers. On the 7th a depression near the Azores moved northwards, its warm front giving some rain or drizzle as it moved slowly up over Ireland during the afternoon and evening in a mild southerly airflow. With a series of lows moving northwards towards Iceland on the 8th it was breezy, especially near the west coast, but warm and mostly dry. A cold front approached the west coast late in the day but weakened as it crossed Ireland early on the 9th, causing winds to turn southwesterly. A few showers developed and there was some thundery activity later as a trough approached the west coast. Shower activity decreased after this trough had moved eastwards early on the 10th and there were good sunny spells. It was dull on the 11th with southerly winds and some light rain at times, mostly in the west and south. A cold front came in over the northwest late in the day and became slow-moving over the south early on the 12th. It became active as it moved back northwards later on the 12th and early on the 13th and a return to a mild, dull southerly windflow followed.

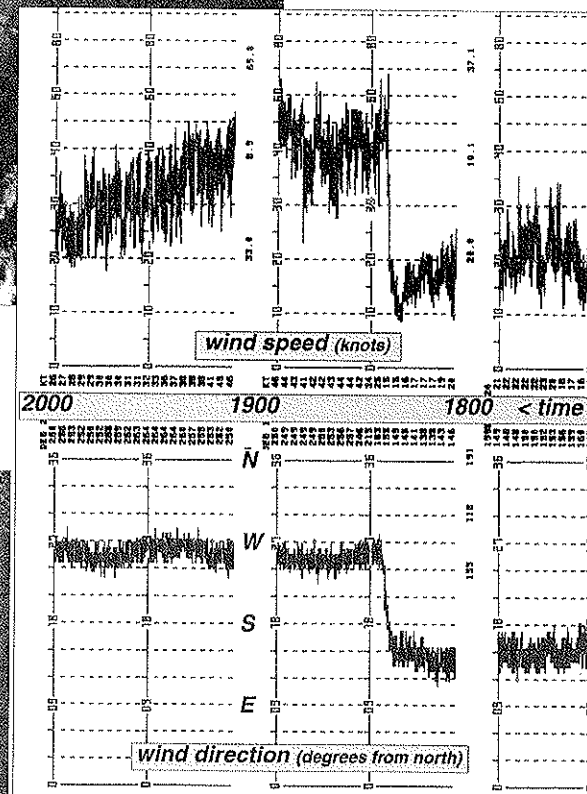
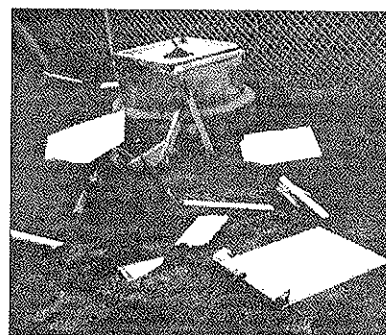
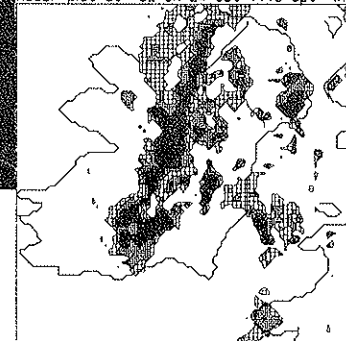
A weak front moved northeastwards across the country during the afternoon of the 14th and as its parent depression moved northwards near the west coast late in the day and in over the south of Scotland early on the 15th, winds over Ireland veered southwesterly. A weak ridge crossed Ireland during the afternoon and a moist southerly airflow then developed. A very active cold front edged slowly towards the west

Severe weather on 24th

The satellite picture on the left shows the deepening depression which crossed Ireland during the 24th. Heavy rain affected all parts of the country in the morning and afternoon (see radar picture below left). As a trough line cleared the east and southeast during the early evening, some violent squalls were recorded. The anemometer chart for Dublin Airport (below) shows mean winds increased from under 20 knots to over 40 knots within minutes, while the wind direction veered from southeasterly to westerly. Rosslare recorded a gust of 96 knots (111m.p.h.), one of the highest ever recorded in the country; meteorological equipment at the station was damaged in the storm (bottom left).
satellite picture: Dundee University
Rosslare picture: Dermot Aherne



Radar plot at 6Z on 24 Oct 1995 Opt= IRL

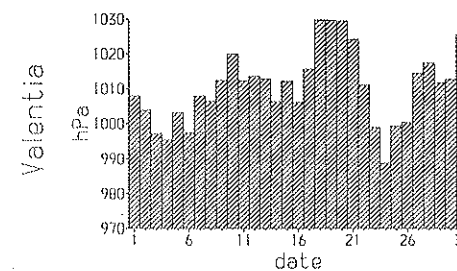
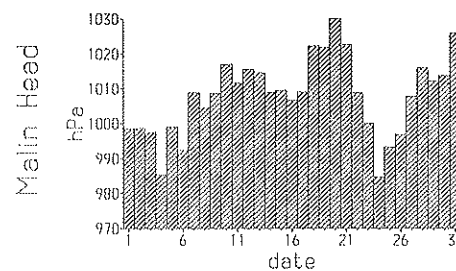
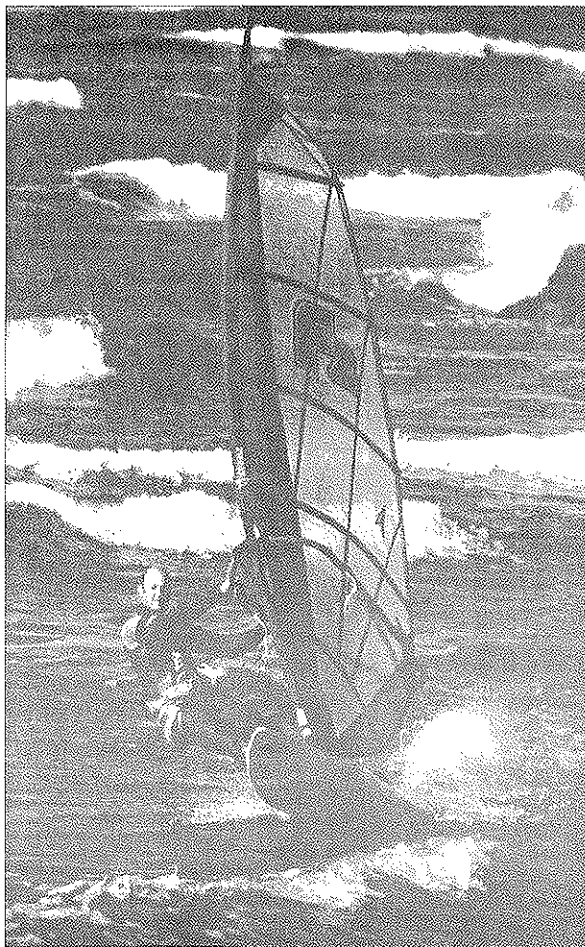


coast during the 16th causing widespread rain with very heavy falls in parts of Munster. The front weakened as it pushed across the country on the 17th as pressure rose and winds turned gradually to the northwest. With the main Atlantic depression far to the north and pressure high to the southwest winds backed gradually southwesterly during the 18th, which was essentially dry. It remained dry on the 19th except near the north coast, where a cold front approaching from the north gave some steady rain. The front weakened as it moved southwards on the 20th. A slack northerly windflow then developed

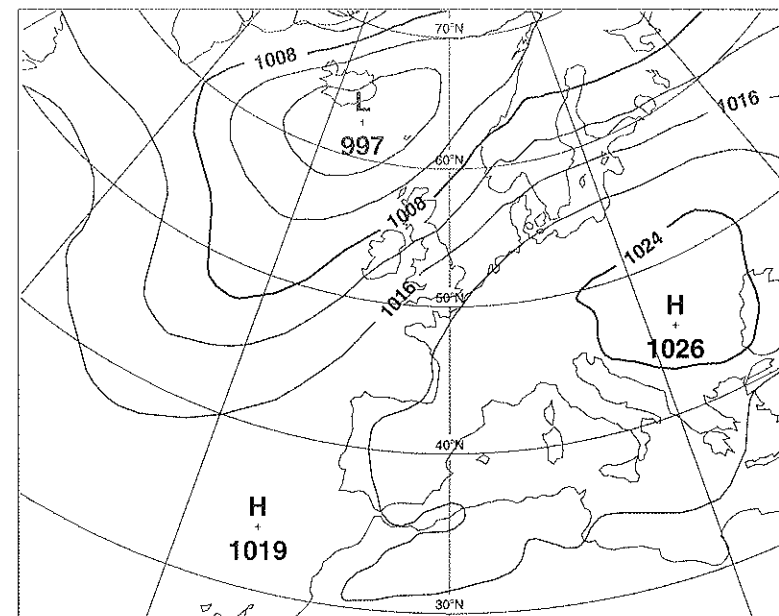
with a cell of high pressure coming in over the north late in the day. This anticyclone pushed on southeastwards during the 21st and we were back in the southwesterlies before the end of the day. A cold front came down from the northwest to become slow-moving on a line stretching from south Connaught to the east of Ulster on the 22nd, with only the east and south escaping significant rain. Early on the 23rd the front moved back northwards and the day was mostly dry with southerly winds. Late in the day the approach of a very active cold front gave thundery rain near the west and southwest coasts. The front remained active as it edged slowly eastwards on 24th. A depression developed over Ireland in the afternoon and moved quickly northwards in the evening causing some very severe squalls, accompanied by thunderstorms in places, in the southeast and east.

As the low moved away northwards early on the 25th we got into a southwesterly windflow with thundery showers in some coastal counties, especially in north Connaught and west Ulster. The next wave depression came in over north Connaught late on the 25th and moved rapidly northeastwards, creating a strong southerly windflow for a time and causing a downpour in the Belmullet area. The associated cold front gradually became less active as it moved eastwards during the night and morning of the 26th and a cool bright westerly airflow followed. On the 27th we remained in this westerly airflow, but only near the north coast was there significant shower activity as pressure was rising steadily. Ridge conditions early on the 28th gave some fog and air frost but the day turned out dry and pleasant. With the anticyclone to the east becoming more influential it was essentially dry in all but a few coastal areas between the 29th and 31st, with light southerly winds everywhere.

Below
Mild southerly winds produced ideal windsurfing conditions in Dublin Bay on the 10th. (picture Irish Times).



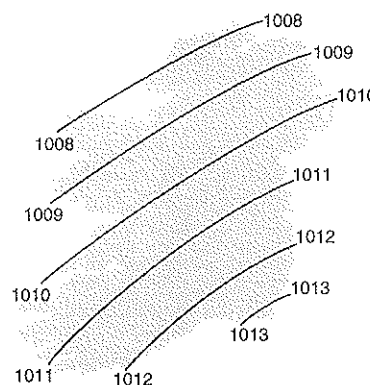
Mean daily M.S.L. pressure (hPa)



the above map is based on means of 1200 UTC values

MEAN ATMOSPHERIC PRESSURE

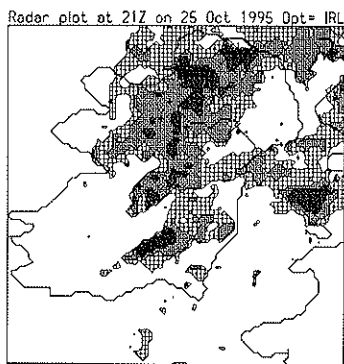
Mean sea level pressure for the month was near normal in the south of the country but was around 4hPa below normal in the north, with a much tighter than normal pressure gradient across the country. Pressure was low for the first week of the month, with western stations recording their lowest pressure values of the month on the 4th. Casement Aerodrome observed the month's lowest value, however, when it recorded 974.3hPa during the storm of the 24th. There was high pressure over the country between the 17th and 21st and again towards the end of the month, with Belmullet recording the month's highest pressure value of 1032.7hPa on the 20th.



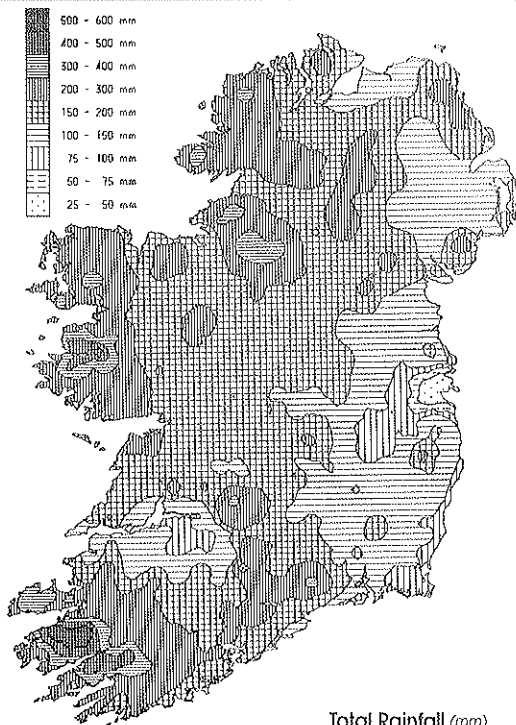
Some very heavy daily falls

Monthly rainfall totals were well above normal in most places, but it was drier than normal at some eastern coastal stations for the seventh successive month. Percentage of normal rainfall ranged from 55% at Dublin (Merrion Square) to 230% at Ballinamore, Co. Leitrim. Clones had its wettest October in over 40 years of recording with a total of 190.0mm. There was widespread heavy rain during the first week of the month, but thereafter there were some fairly dry spells in most places, punctuated by a number of heavy falls, mainly on the 12th and 16th and in the period 23rd to 26th. Very heavy rain fell in the south of the country on the 3rd, with Cork Airport recording a daily total of 41.2mm; the same station measured 56.2mm on the 16th, the greatest daily fall of the month. All areas were affected by heavy rain between the 24th and 26th, with some stations recording almost half their monthly totals in this

period. Both Birr and Kilkenny recorded their highest ever October daily falls on the 24th, while most other places had their highest daily falls for October for between 5 and 8 years on the same day. Despite the high monthly totals in many places, the number of wetdays during the month (days with 1.0mm or more rainfall) was around the normal range of 14 to 20.

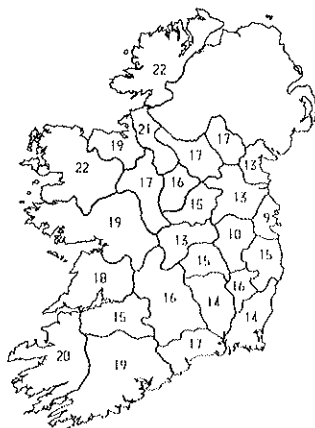


Left
The period between the 24th and 26th produced widespread heavy rain, setting new records of maximum daily falls for October at a number of stations; this radar picture taken late on the 25th shows rain associated with a cold front affecting the north of the country.



Total Rainfall (mm)

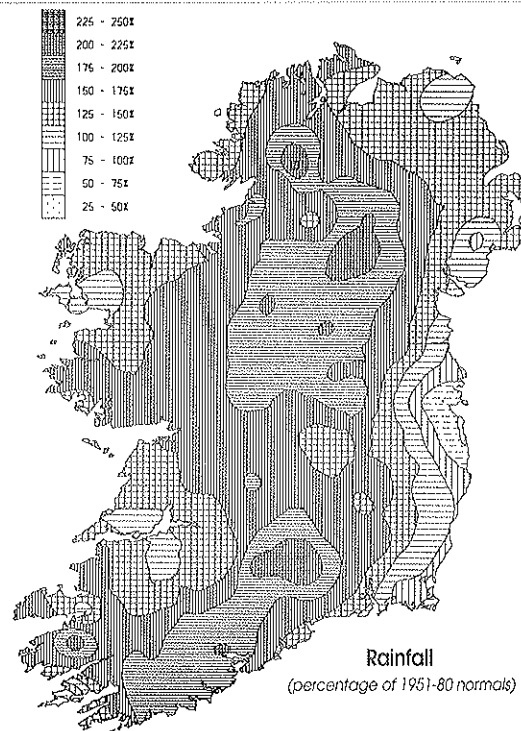
Below - The number of wetdays - days with 1mm or more of rain - in each county during October 1995



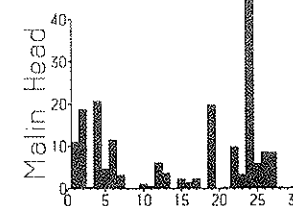
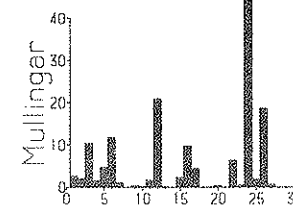
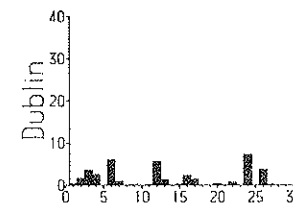
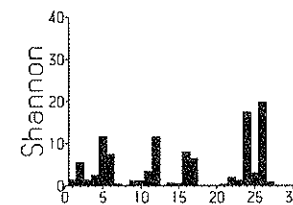
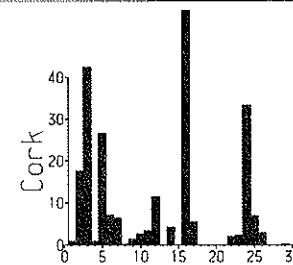
DAILY RAINFALL EXPRESSED AS % OF MONTHLY NORMAL (1951-80)

COUNTY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Carlow	-17	16	1	23	3	1	1	-	-	1	6	-	2	-	12	-	-	1	1	1	2	24	26	3	3	-	-	1	-	-	...	147
Cavan	5	10	5	-	10	2	3	1	-	-	4	16	-	3	-	15	-	-	1	-	5	13	16	16	25	5	-	-	-	-	...	187
Clare	2	5	4	3	17	2	2	1	1	-	3	13	-	3	-	14	1	1	1	-	1	5	14	19	14	10	1	-	-	-	...	138
Cork	3	13	18	1	22	2	2	1	1	-	10	9	1	3	5	28	-	-	-	-	1	5	15	16	6	4	-	-	-	-	...	156
Donegal	4	13	4	11	9	5	2	1	1	-	3	7	-	4	-	7	-	2	7	-	11	5	7	29	17	4	3	-	-	-	...	157
Dublin	-	6	12	-	7	1	-	-	-	-	1	4	-	-	-	2	1	-	1	-	1	-	3	16	-	6	-	-	-	-	...	61
Galway	8	14	3	1	12	4	3	-	2	-	3	10	-	7	-	14	-	-	-	-	6	24	14	20	26	2	-	-	-	-	...	173
Kerry	1	6	6	3	30	-	2	2	1	-	7	7	1	6	6	23	-	-	1	-	1	6	16	8	17	6	1	-	-	-	...	157
Kildare	-	8	14	-	17	1	-	-	-	-	3	10	-	-	-	4	-	-	1	-	1	13	31	2	13	-	-	-	-	-	...	119
Kilkenny	1	16	19	1	18	2	-	-	1	-	3	8	-	1	-	12	-	-	-	-	-	20	36	3	4	-	-	-	-	-	...	145
Leeds	-	8	11	1	19	-	2	1	1	-	8	6	-	2	-	16	-	-	-	-	1	2	1	26	26	4	11	-	-	-	...	147
Leitrim	4	17	2	6	14	2	3	1	2	-	4	11	-	7	1	13	-	2	3	-	7	19	18	32	31	2	1	-	-	-	...	202
Limerick	1	7	3	3	16	-	1	1	2	-	-	-	-	-	-	-	-	-	-	1	2	-	23	25	2	12	-	-	-	-	...	100
Longford	4	5	4	-	24	-	6	-	2	-	2	21	-	5	-	19	-	-	-	-	1	12	23	39	24	8	-	-	-	-	...	199
Louth	1	7	25	-	15	2	2	-	-	-	2	19	-	3	-	10	-	-	-	-	1	2	5	28	1	13	-	-	-	-	...	136
Mayo	6	10	6	3	12	1	3	1	6	-	3	12	-	5	-	9	-	1	2	-	9	10	19	5	26	2	1	1	1	-	...	163
Meath	1	5	29	-	10	-	1	-	-	-	2	22	-	1	-	6	-	-	-	-	1	2	4	35	2	13	-	-	-	-	...	132
Monaghan	2	22	8	1	20	3	1	-	1	-	3	18	-	3	-	14	-	-	-	1	-	2	22	11	43	20	11	-	-	-	...	206
Offaly	-	11	13	2	15	1	1	1	-	-	2	21	-	1	-	21	-	-	-	-	1	1	24	48	3	14	-	-	-	-	...	182
Roscommon	4	17	2	1	17	2	3	1	1	-	5	11	-	5	-	14	-	-	-	-	5	19	17	28	29	1	-	-	-	-	...	182
Sligo	2	6	4	1	10	-	4	-	7	-	4	3	9	1	12	1	1	-	13	11	9	24	25	1	-	-	-	-	-	-	...	153
Tipperary	1	12	14	3	23	2	1	2	-	-	5	14	-	3	2	26	1	-	1	2	2	33	28	6	10	1	-	-	-	-	...	191
Waterford	3	14	12	-	25	3	1	-	-	2	9	-	2	2	25	1	-	-	1	2	27	20	4	2	-	-	-	-	-	-	...	159
Wexmouth	1	2	12	14	2	1	-	-	-	2	23	-	2	1	15	1	-	-	-	-	8	4	56	2	20	-	-	-	-	-	...	170
Wexford	2	3	9	-	19	5	2	-	-	1	2	-	1	-	15	-	-	-	1	1	11	20	3	1	-	-	-	-	-	-	...	101
Wicklow	-	13	10	-	18	3	1	-	-	-	1	3	-	2	-	8	-	-	-	1	-	1	2	12	20	5	2	-	-	-	...	103
MEAN	2	10	2	17	2	2	1	1	-	-	3	11	-	3	1	14	-	-	-	1	-	3	7	16	28	12	7	-	-	-	...	153

NOTE: In the above table, each value represents the percentage of the monthly normal that fell on each day. Stations within each county are averaged together. For example, 17% of the average monthly rainfall in Co. Carlow fell on the 2nd.



Rainfall
(percentage of 1951-80 normals)

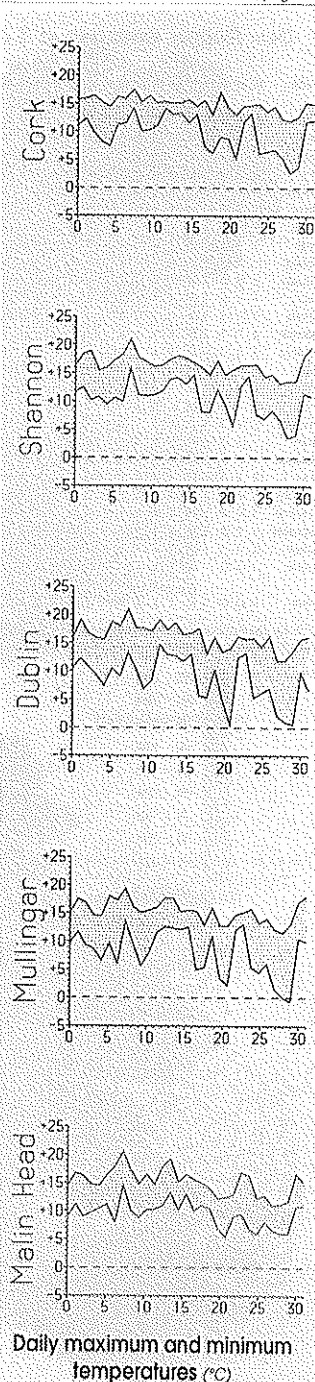
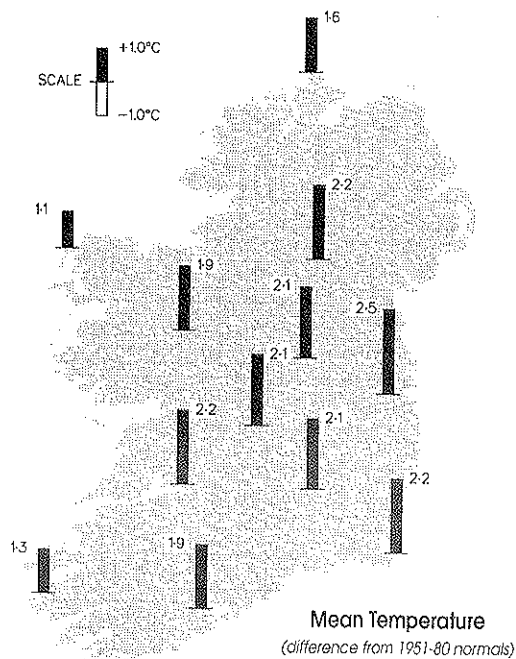


Daily rainfall amounts (millimetres)

Two degrees above normal

It was the warmest October for at least 24 years and the warmest on record at a few stations, including Dublin (Phoenix Park), where the mean temperature of 13.1°C was the highest since records began there in the mid-19th century. Mean temperatures were generally around two degrees above normal, ranging from 11.4°C at Ballinamore, Co. Leitrim, to 13.9°C at Dublin (Merrion Square). The first half of the month was particularly mild; by mid-month temperatures were over three degrees above normal in most places, but cooler weather during the second half, particularly between the 27th and 29th, brought monthly

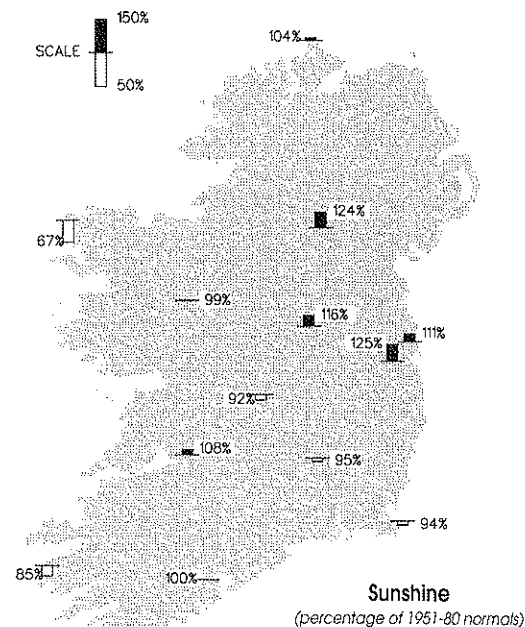
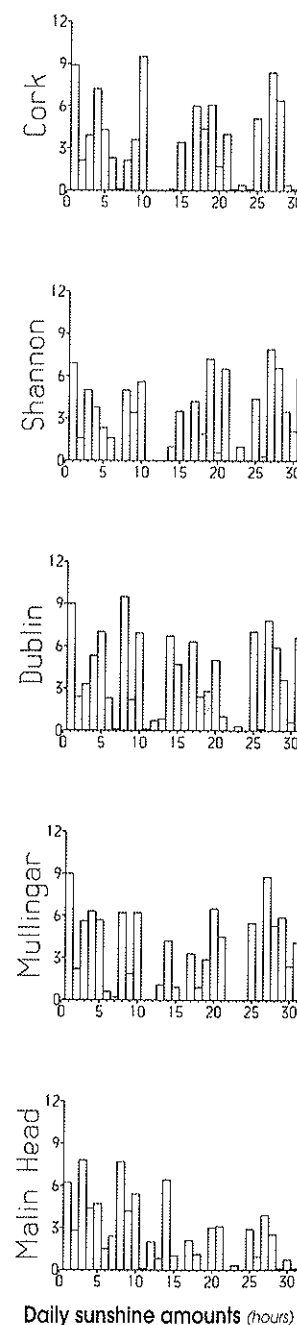
mean temperatures closer to normal. Daily maximum temperatures were above 15°C at most stations between the 1st and 18th, with the period from the 6th to the 8th being particularly warm. Malin Head recorded 20.6°C on the 8th, its highest October temperature since 1959, while the highest temperature of the month, 21.1°C, was recorded at Shannon Airport on the same day, its highest October value since 1969. Most stations recorded their lowest temperatures of the month on the 28th or 29th; Ardee (Boharnamoe), Co. Louth, recorded the lowest air temperature of -1.1°C on the 29th. Derrygreenagh, Co. Offaly, recorded the lowest grass minimum temperature of -6.5°C on the 21st.



Near normal in most places after sunny start

Most places received close to their normal sunshine amounts during October, but only 67% of normal was recorded at Belmullet, where the mean daily sunshine for the month was just 1.9 hours. Conversely there was over 20% more sunshine than normal at both Casement Aerodrome and Clones, even though it was the wettest October on record at the latter. The highest daily means were recorded in the Dublin area, with Casement Aerodrome, for example, measured an average of 3.9 hours sunshine per day and just 3 dull days (*days with 0.5 hour of sunshine or less*)

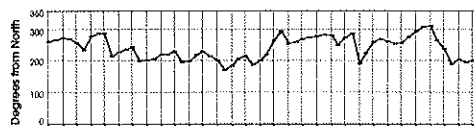
compared to 12 such days at both Cork Airport and Valentia Observatory. The periods from the 11th to 13th and 22nd to 24th were very dull. The month began with some very sunny days, the mean daily sunshine being around 5 hours in many places during the period 1st to 5th. Other sunny spells were the 8th to 10th and, despite the shortening days, three stations had their sunniest day of the month on either the 27th or 28th. The highest daily sunshine of the month, 9.8 hours, was recorded at two stations: Dungarvan (Carriglea), Co. Waterford, on the 1st and Casement Aerodrome on the 8th, its sunniest October day since records began there in 1964.



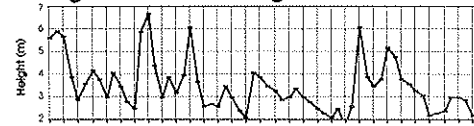
SEA TEMPERATURES

Sea temperatures declined slowly during the month, but as the chart below shows there was little of the normal variation in temperature around the coast. Almost all of the Irish coast had a sea temperature close to 14°C during mid-month, about a degree above normal. The mean sea temperature at Malin Head of 13.6°C for the month was exactly a degree higher than normal.

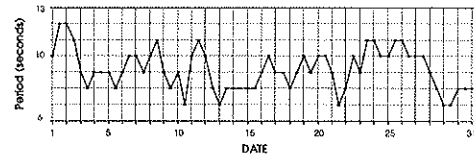
Wave Direction



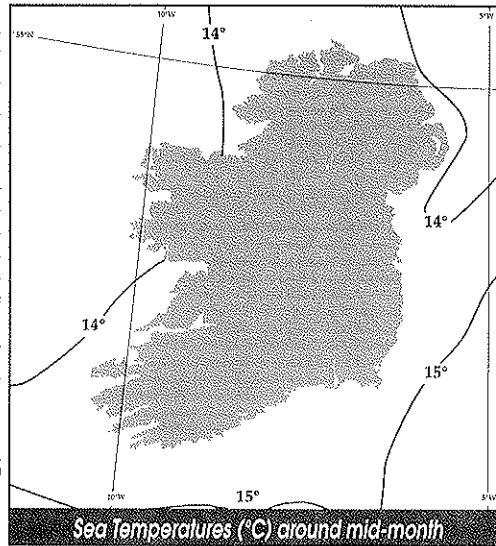
Significant Wave Height



Period



Wave conditions at 52.5°N, 12°W



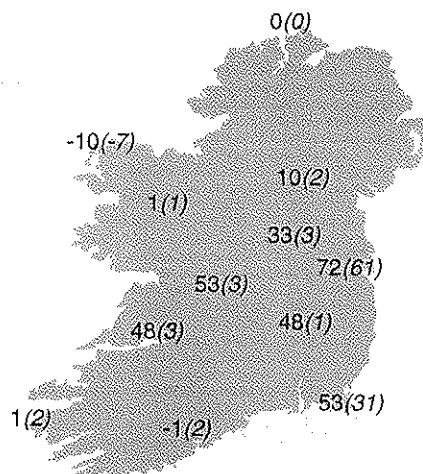
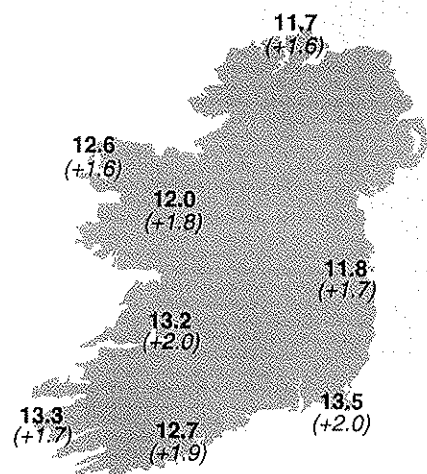
Sea Temperatures (°C) around mid-month

Mean 10cm Soil Temperatures (°C)

- difference from 1961-90 normals (in brackets)

Soil Moisture Deficits (mm)

- 10th compared to end of month (in brackets)



10-DAY VALUES FOR SELECTED AGROMETEOROLOGICAL STATIONS		RAINFALL		TEMPERATURE										SUNSHINE		mean wind speed (m/s) 2m agl. P.E. (Penman) (mm)								
Station	period	amount	% of average	rain days	wet days	mean max.	mean min.	mean daily	diff. from average	lowest min.	date	days with air frost	degree days > 4.4°C	degree days > 10.0°C	lowest 'grass-min.'	date	days with ground frost	mean 10cm at 0900h	mean 30cm at 0900h	total no. of hours	% of average	mean wind speed (m/s) 2m agl. P.E. (Penman) (mm)		
Co. Cork Permoy	1-10	67.6	-	7	6	17.2	10.2	13.7	-	3.1	5	0	93	39	-0.4	5	1	12.8	13.8	33.4	-	3.5	-	
	11-20	45.5	-	6	5	16.1	10.2	13.2	-	1.9	18	0	88	37	-0.9	18	1	13.1	14.1	12.5	-	2.2	-	
	21-end	50.5	-	8	5	14.6	6.3	10.5	-	1.0	27	0	69	22	-2.0	28	4	10.9	12.5	19.2	-	2.8	-	
	month	163.6	178	21	16	15.9	8.8	12.4	1.9	1.0	27	0	250	98	-2.0	28	6	12.2	13.4	65.1	81	2.8	16	
Co. Donegal Letterkenny	1-10	52.8	-	9	8	16.4	7.8	12.1	-	5.7	7	0	77	27	-	-	-	-	-	-	-	-	-	-
	11-20	28.7	-	8	6	15.4	9.2	12.3	-	4.0	20	0	79	27	-	-	-	-	-	-	-	-	-	-
	21-end	91.2	-	8	7	13.9	6.2	10.1	-	3.3	21	0	63	15	-	-	-	-	-	-	-	-	-	-
	month	172.7	-	25	21	15.2	7.7	11.5	-	3.3	21	0	219	70	-	-	-	-	-	-	-	-	-	-
Co. Kerry Ardfert	1-10	47.1	-	9	7	16.6	10.2	13.4	-	8.6	5	0	90	35	4.3	5	0	-	-	-	-	-	-	-
	11-20	38.3	-	7	6	16.2	10.9	13.6	-	5.4	18	0	91	37	0.7	18	0	-	-	-	-	-	-	-
	21-end	86.9	-	7	6	14.5	7.9	11.2	-	2.8	28	0	75	22	-1.4	28	1	-	-	-	-	-	-	-
	month	172.3	-	23	19	15.7	9.6	12.7	-	2.8	28	0	256	94	-1.4	28	1	-	-	-	-	-	-	-
Co. Leitrim Ballinamore	1-10	63.1	-	9	6	16.2	8.7	12.5	-	5.3	5	0	81	28	3.7	5	0	12.7	13.1	40.6	-	3.6	-	
	11-20	47.9	-	7	7	15.2	9.5	12.4	-	5.6	18	0	80	27	3.4	18	0	12.9	13.3	14.0	-	2.7	-	
	21-end	141.9	-	6	6	13.5	5.4	9.5	-	0.3	29	0	59	16	-1.4	29	2	10.6	11.4	27.3	-	2.6	-	
	month	252.9	230	22	19	14.9	7.8	11.4	1.5	0.3	29	0	219	71	-1.4	29	2	12.0	12.6	81.9	106	3.0	6	
Co. Louth Ardee	1-10	44.4	-	7	5	17.7	9.2	13.5	-	6.7	5	0	91	37	1.3	7	0	12.7	13.2	-	-	-	-	-
	11-20	27.0	-	7	4	16.3	9.0	12.7	-	4.9	11	0	83	32	-0.7	20	1	13.0	13.4	-	-	-	-	-
	21-end	47.9	-	7	5	15.2	4.6	9.9	-	-1.1	29	2	65	22	-5.2	29	6	10.7	11.6	-	-	-	-	-
	month	119.3	145	21	14	16.4	7.5	12.0	-	-1.1	29	2	239	91	-5.2	29	7	12.1	12.7	-	-	-	-	-
Co. Waterford Dungarvan	1-10	74.9	-	9	8	17.6	11.0	14.3	-	5.4	5	0	99	44	0.0	5	0	-	14.4	48.9	-	3.3	-	
	11-20	53.4	-	5	4	16.7	11.3	14.0	-	3.9	18	0	96	43	0.0	18	0	-	14.7	22.2	-	2.3	-	
	21-end	80.8	-	8	5	14.9	6.9	10.9	-	-0.6	28	1	74	25	-3.0	28	3	-	12.8	23.3	-	2.6	-	
	month	209.1	-	22	17	16.3	9.6	13.0	-	-0.6	28	1	269	113	-3.0	28	3	-	14.0	94.4	-	2.7	14	
Co. Wexford Johnstown Castle	1-10	42.6	-	7	5	16.8	11.9	14.4	-	7.3	5	0	99	44	4.8	5	0	13.3	14.0	46.9	-	2.4	-	
	11-20	18.2	-	6	3	15.7	11.4	13.6	-	6.2	18	0	91	37	4.4	18	0	12.9	13.7	22.1	-	1.8	-	
	21-end	30.6	-	6	4	15.0	8.7	11.9	-	2.9	28	0	82	27	-0.1	28	1	10.8	12.2	19.7	-	2.1	-	
	month	91.4	89	19	12	15.8	10.6	13.2	2.3	2.9	28	0	272	108	-0.1	28	1	12.3	13.2	88.7	90	2.1	15	

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

County/ Station	Period	P.E. (mm)		Soil Moisture (mm)		
		Amount	Deficit	Accumulated	Surplus	Deficit
Co. Carlow Carlow (Oak Park)	1-10					
	11-20					
	21-end					
	month					
Co. Dublin Kinsealy	1-10	16.1	-	80	12	
	11-20	12.6	2	82	-	
	21-end	9.3	-	72	10	
	month	38.0	-	-	-	
Co. Kerry Valentia Obs.	1-10	17.3	-	0	66	
	11-20	5.5	-	0	75	
	21-end	9.3	-	0	89	
	month	32.1	-	-	-	
Co. Leitrim Ballinamore	1-10					
	11-20					
	21-end					
	month					
Co. Wexford Johnstown Castle	1-10	19.0	-	26	34	
	11-20	8.0	-	16	10	
	21-end	9.4	-	0	21	
	month	36.4	-	-	-	

SEE BACK PAGE FOR NOTES ON THE DATA

County/ Station	GLOBAL SOLAR RADIATION (MJ/sq. m.)			P.E. (Penman)	
	10-day totals	total for month		October	September*
Co. Donegal Malin Head	1-10	11-20	21-end		
	77.54	40.22	33.90	151.66	39 56
Co. Dublin Dublin Airport	1-10	11-20	21-end		
	83.79	55.44	50.27	189.50	23 42
Co. Kerry Valentia Obs.	1-10	11-20	21-end		
	77.21	45.31	48.52	171.04	26 50
Co. Kilkenny Kilkenny	1-10	11-20	21-end		
	80.45	37.52	43.95	162.32	21 49
Co. Mayo Belmullet	1-10	11-20	21-end		
	70.17	35.90	36.97	143.04	30 51
Co. Monaghan Clones	1-10	11-20	21-end		
	75.27	40.59	46.99	162.85	22 43
Co. Offaly Birr	1-10	11-20	21-end		
	82.45	44.06	53.25	179.76	20 38

* August values were reprinted in error in September 1995 bulletin

SUMMARY OF SIGNIFICANT WEATHER WORLDWIDE DURING OCTOBER 1995

RECORD NUMBER OF TROPICAL STORMS

Early October saw hurricane *Opal* make landfall close to Pensacola in Florida. It was one of the most powerful hurricanes of what has been the busiest year for tropical storms since 1933, with winds around 150m.p.h. at one stage. *Opal* weakened as it tracked north towards Canada but was still potent enough to give some heavy rain, with Toronto receiving 79mm on the 7th, 18mm above the October average. Typhoon *Sybil* drenched Hong Kong with 186mm of rain on the 3rd and later in the week torrential thunderstorms brought 276mm of rain in a 12-hour spell on the 6th, the average rainfall for October there being 114mm. Parts of Europe were also having their share of heavy rain as Genoa had 123mm of rainfall in a 24-hour period ending on the 7th, taking the 5-day total there up to 240mm, 50mm more than the monthly average. Later in the week an area of high pressure built across Europe and in the west some warm air pushed northwards from Africa towards Britain. The combination of sun and warm southerly winds lifted temperatures to 25°C in parts of Wales and England, 10 or 11 degrees above average.

During the second week the warm weather over the British Isles continued to make the headlines with London enjoying its warmest spell of October weather since 1921. In Pakistan high temperatures were also a feature of the weather but on a more extreme scale. At Karachi the temperature reached at least 40°C on four consecutive days with peaks of 41.0°C on the 13th and 14th, some 8 degrees above normal. The heat was followed by thundery showers across Pakistan with 30mm of rain falling at Peshawar on the 15th, double the October average. Temperatures were rising in Australia as their summer season approached and reached over 40°C in western Australia. On the 15th the temperature at Port Hedland peaked at 43.1°C, around 10 degrees above normal.

Tropical storm *Ted* affected parts of southeast Asia, occasionally attaining typhoon status. Da Nang, on the east coast of Vietnam, recorded a 3-day total of 595mm ending on the 12th, 26mm more than the October average. Heavy rain also affected Goa in southwest India as 329mm fell in the five days up to the 13th, nearly three times the average. A thundery spell of weather in Tunisia brought 170mm of rain to the eastern port of Kilibia on the 13th, nearly double the average monthly fall of 91mm.

There were interesting contrasts in the weather over Australia around mid-month. On the 21st, Melbourne had a maximum temperature of 32°C, 13 degrees above the October average. By the following day the temperature struggled to reach a

distinctly chilly 12°C. On the other side of the continent, Perth reached 29°C on the 16th, comparing favourably to the average maximum at this time of year of 21°C. The following day, 48mm of rain fell in 12 hours, pegging the temperature back to just 19°C. In the United States the city of Denver, Colorado, experienced similar rapid changes when sunny skies on the 22nd helped temperatures reach 23°C, but by the following day a depression introduced brisk northerly winds, with temperatures down to 7°C. By evening, heavy snow had pushed the temperature down to freezing with visibility of only 400 metres. The final week of the month saw tropical storm activity continue in the western Pacific, as typhoon *Yvette* made its presence felt. As it passed over the Philippines, *Yvette* soaked Cayan, in the north of country, with 203mm of rain reported there in a 36-hour period ending on the 24th. The typhoon then moved over the south China Sea and into Vietnam where further daily falls in excess of 100mm were recorded. No sooner had it passed than a fresh typhoon, *Zack*, hit the Philippines, with Mactan receiving 164mm of rain in 12 hours on the 28th. Closer to home, Iceland experienced very stormy conditions accompanied by heavy rain or sleet, with snow over higher ground. Vopnaf and Dalatangi, situated on the east coast, both recorded 80mm of rain on the 25th; further inland, exceptional snowfall brought severe avalanches.

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HIGHEST EVER SEA TEMPERATURES DURING SUMMER 1995

The temperature of the sea is generally warmer at the surface than at the sea bed and cools, as one would expect, from the equator to the poles. In the North Atlantic, however, warm waters from southern latitudes are brought northwards by the Gulf Stream, which flows parallel to the U.S. coast from the Florida Strait up to Newfoundland, then turns eastwards into the North Atlantic. An extension current called the North Atlantic Drift flows from the Gulf Stream past Ireland towards Scandinavia, causing sea temperatures around Ireland to be warmer than at comparable latitudes around the globe. The prevailing southwesterly winds around Ireland thus transfer heat from the sea, giving us a much milder climate than one would otherwise expect. The temperature of the sea can influence the weather in many ways. For example, cold air blowing over a much warmer sea is heated from below which causes instability, enhancing the development or deepening of depressions. Conversely, warm moist air passing over colder water is cooled causing fog to develop. If the dew point of the air - the temperature at which the air becomes saturated - is higher than the temperature of the sea, then fog will develop. If this temperature difference is small the fog will be patchy, but if there is a large difference, then the fog will be extensive. Sea fog commonly occurs around Ireland during a period of southerly or southwesterly winds blowing from the Azores.

Sea temperatures around the coast of Ireland have been measured for many years by passing ships but the longest continuous coastal record is at Malin Head, where sea temperatures have been recorded twice daily since 1957. Between 1957 and 1991 a tide gauge was maintained there by the Ordnance Survey but readings of the recorder and of sea temperature were made by the staff of the meteorological station. Readings were taken using a thermometer within a sea thermometer protector between January 1958 and November 1991, and using both a standard meteorological sea bucket and thermometer together with an electronic sea temperature gauge since November 1991. A few readings have been missed over the years, due for example to silting up of the well, or during very stormy weather when the pier was inaccessible; estimates for missing data were made by linear interpolation between the readings on either side of the missing period of data. The sea temperature rises from its lowest point in late February to a maximum in late August (see bottom graph on cover page). On average the air temperature is warmer than the sea temperature only in the month of June, with the greatest difference between air and sea temperature occurring in November. Mean annual temperatures (top graph on cover page) show that the coldest years were 1963, 1979 and 1986, the coldest of all to date, while 1989 was the warmest year so far. This summer has broken all previous records as the maximum sea temperatures reached 15.9°C in July, 17.5°C in August and 16.7°C in September and is perhaps a contributory factor to our mild autumn this year.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1990	7.7	7.0	7.8	8.6	11.0	13.0	14.4	15.5	14.5	12.7	10.6	8.6	11.0
1991	6.9	6.2	7.3	8.6	10.1	11.7	14.2	15.4	15.1	12.6	10.2	9.1	10.6
1992	8.4	7.9	8.2	8.7	10.5	12.6	14.2	15.0	13.7	11.9	9.7	8.2	10.8
1993	7.2	7.6	7.9	8.7	10.2	12.1	13.9	14.3	13.3	11.6	9.5	8.0	10.4
1994	7.1	6.4	7.1	8.5	9.8	11.7	14.0	15.0	14.2	12.7	11.2	9.6	10.6
1995	7.9	7.5	7.3	8.7	10.5	11.9	14.1	16.3	15.4	13.6			

Mean monthly and annual sea temperatures (°C) at Malin Head, 1990 to 1995

Sunday 1st: A deep depression between Ireland and Greenland maintained a strong southwesterly airstream over Ireland. Frontal troughs crossed the country during the day. There were some outbreaks of rain or drizzle in the early part of the day followed by showers in places. The showers became more widespread as the day progressed. Temperatures were well up to normal and there were also good bright or sunny spells in most areas.

Rainfall: nil to 3mm generally, 7mm to 14mm in the west and northwest.
Temperature: max. 15°C to 18°C, min. 9°C to 13°C
Sunshine: 6 to 10 hours

Monday 2nd: The unstable southwesterly airflow continued. Bright periods and showers in all areas. Leinster fared best during the morning — dry, warm and sunny, but later showers, which had affected all other areas earlier, spread here also. Some of the showers were heavy and thundery. Late in the day a trough line spread some heavy rain over Ulster and north Connaught and Munster. Winds throughout were southwesterly light to moderate but fresh near showers.

Rainfall: trace to 23mm
Temperature: max. 16°C to 19°C, min. 11°C to 14°C
Sunshine: trace to 4 hours

Tuesday 3rd: Overnight rain in the east and southeast cleared as a cold front moved into the Irish Sea. Isolated showers through the morning in a light southerly airflow died out. Rain and freshening south-southeasterly winds affected the southwest and south after dark, as troughs, associated with a deepening depression, neared the southwest. Rain was heaviest in the Cork region with thunderstorms.

Rainfall: trace to 11mm generally, 42mm at Cork Airport.
Temperature: max. 16°C to 19°C, min. 8°C to 12°C inland, up to 14°C coastal.
Sunshine: 3 to 8 hours.

Wednesday 4th: The rain cleared the east coast during the night and a freshening unstable south-southwesterly airflow followed giving showers and sunny spells throughout the day. As the depression moved northeastwards winds veered west-southwesterly with gale gusts. A spell of heavy rain affected the extreme north during the late evening.

Rainfall: 1mm to 6mm generally, 8mm in Belmullet and 21mm in Malin Head
Temperature: max. 15°C to 17°C, min. 8°C to 11°C
Sunshine: 4 to 10 hours generally, 2 hours in Belmullet.

Thursday 5th: Dry, warm and sunny in the east until evening but more cloudy in the west — the odd shower here also. The southwesterly airflow backed southerly ahead of a frontal system which spread rain, heavy in Munster, northeastwards late in the day. Light to moderate southwesterly winds backed and strengthened from noon on with some severe gusts in the southwest.

Rainfall: nil to 5mm in the east and southeast, 5mm to 12mm in the west and 25mm to 36mm in the south and southwest
Temperature: max. 14°C to 16°C, min. 4°C to 11°C; ground frost down to -2°C in Kilkenny
Sunshine: 1 to 7 hours

Friday 6th: As the airstream veered back to the southwest further fronts crossed the country, mostly during darkness, when most of the rain fell. Some showers and also sunny spells during daylight hours. Fresh southwest to westerly winds decreasing later.

Rainfall: 3mm to 9mm in the east, west and southwest, 11mm to 16mm in the north, midlands and southeast
Temperature: max. 16°C to 19°C, min. 9°C to 11°C inland, up to 14°C coastal
Sunshine: trace to 4 hours

Saturday 7th: With a slack southerly airflow over Ireland it was largely dry for the first half of the day with just the odd patch of rain or drizzle. As a warm front moved northwards during the afternoon and evening, all areas experienced a spell of rain or drizzle with strengthening southerly winds.

Rainfall: 1mm to 4mm generally, 6mm at Cork Airport
Temperature: max. 16°C to 18°C, min. 6°C to 13°C
Sunshine: zero to 3 hours

Sunday 8th: A strong southwesterly airflow over Ireland with winds in the west and north reaching strong gale force. Apart from outbreaks of rain or drizzle on the west coast most of the country had a very warm sunny day.

Rainfall: nil to 1mm
Temperature: max. 17°C to 21°C, min. 13°C to 16°C
Sunshine: zero to 5 hours in the west and southwest, 5 to 10 hours elsewhere

Monday 9th: A fairly weak cold front passed over the country from the west, clearing all areas by noon. Winds southerly, light to moderate at first veering southwesterly with the clearance and increasing strong on the west coast. Some thundery showers on the west coast late in the evening but not much shower activity elsewhere.

Rainfall: nil to 3mm generally, 10mm in Belmullet
Temperature: max. 15°C to 18°C, min. 9°C to 11°C inland, up to 13°C coastal
Sunshine: 1 to 8 hours

Tuesday 10th: Low pressure to the north of the country and high pressure to the southeast gave a mainly south to southwesterly airflow over the country. Some good sunshine but some showers also, some of these heavy overnight but not mostly today. Mild, temperatures above normal. Winds mainly south to southwesterly fresh at times and with gale gusts particularly in the northwest.

Rainfall: nil to 5mm
Temperature: max. 15°C to 18°C, min. 6°C to 11°C
Sunshine: 5 to 10 hours

Wednesday 11th: Southerly winds, strong at times near western and northwestern coasts. Some rain at times mostly in the west and south but very little elsewhere. Rainbelt coming in over the northwest very late. Dull but fairly mild.

Rainfall: nil to 6mm
Temperature: max. 15°C to 17°C, min. 8°C to 11°C inland up to 13°C coastal
Sunshine: zero to 1 hour

Thursday 12th: A warm front moving very slowly northwards gave some considerable accumulations of rain in places, least in the east and southeast. Very little sunshine though still very mild. Winds mainly light southerly behind the front and light northeasterly ahead of the front.

Rainfall: 1mm to 7mm in the east and southeast, 7mm to 21mm elsewhere
Temperature: max. 13°C to 19°C, min. 8°C to 15°C
Sunshine: zero to 2 hours

Friday 13th: A warm front over the northern half of the country moved northwards leaving Ireland in a warm south to southeasterly airflow. Some heavy rain in the north and northwest overnight, otherwise amounts quite small. Cloudy with light rain and drizzle elsewhere and a good deal of dry weather in the afternoon and evening. Winds light south-southeasterly and mild. Very little sunshine.

Rainfall: nil to 3mm generally, 18mm in Belmullet
Temperature: max. 15°C to 18°C, min. 10°C to 14°C
Sunshine: zero to 1 hour

Saturday 14th: A mild and humid south-southeasterly airflow over Ireland gave just isolated spots of drizzle with widespread mist. During the afternoon and evening a weakening cold front moved eastwards across the country giving outbreaks of rain, mostly in the west and south.

Rainfall: nil to 2mm generally, 5mm in Claremorris and up to 8mm in the southwest.
Temperature: max. 15°C to 19°C, min. 12°C to 14°C
Sunshine: zero to 1 hour generally, 3 to 7 hours in the east and north

Sunday 15th: A shallow depression over Connacht moved north-eastwards during the night together with its associated rain. A weak ridge followed in a west-southwesterly airflow, giving a mostly dry day with some sunshine. Winds backed southerly, with the approach of frontal troughs after dark.

Rainfall: nil to 3mm generally, 7mm in Claremorris
Temperature: max. 15°C to 18°C, min. 10°C to 14°C
Sunshine: 1 to 6 hours

Monday 16th: A slow moving front with waves lay north/south over the country and gave considerable heavy rain especially in the south and west. The east and north escaped more lightly. Very mild with strong winds up to gale force for much of the period from a south to southeasterly direction with gusts up to 47 kt.

Rainfall: trace to 2mm in the east and north, 7mm to 15mm elsewhere with 43mm in Valentia and 56mm at Cork Airport
Temperature: max. 15°C to 17°C, min. 13°C to 15°C
Sunshine: zero or trace

Tuesday 17th: A mild south-southwesterly airflow gave way to a cooler northwesterly, as cold fronts pushed across the country overnight and in the forenoon. Showers early and during the afternoon died out as a ridge built over the country.

Rainfall: trace to 8mm
Temperature: max. 15°C to 18°C, min. 5°C to 10°C; ground frost down to zero in Kilkenny
Sunshine: 2 to 6 hours

Wednesday 18th: With high pressure to the southwest the west-southwesterly airstream over Ireland gave mainly dry, though rather cloudy weather, with well scattered showers.

Rainfall: nil or trace
Temperature: max. 13°C to 15°C, min. 4°C to 8°C inland, up to 11°C coastal; ground frost down to -2°C in Kilkenny
Sunshine: 1 to 4 hours

Thursday 19th: Settled weather over the southern half of Ireland continued in a west-southwesterly airflow but an approaching frontal trough gave scattered outbreaks of rain and drizzle in the north and northwest, which became heavier during the evening as the trough pushed slowly southwards.

Rainfall: nil generally, 2mm in Belmullet and 20mm in Malin Head
Temperature: max. 14°C to 18°C, min. 8°C to 13°C
Sunshine: zero to 1 hour in the west and north, 3 to 7 hours elsewhere.

Friday 20th: A weak cold front moved southeastwards across the country and became almost stationary off the south coast at the end of the day. Pressure remained high, winds were generally light and variable and there were some scattered outbreaks of mostly light rain early on.

Rainfall: nil to 1mm
Temperature: max. 12°C to 15°C, min. 2°C to 11°C; ground frost down to -3°C in Kilkenny
Sunshine: trace to 2 hours in the south, elsewhere 3 to 7 hours

Saturday 21st: A high pressure area moved eastwards towards England and the continent. Pressure fell steadily throughout the day, allowing a warm front to pass over the northern half of the country giving outbreaks of rain to these areas from early afternoon. Winds light variable to start but becoming moderate to fresh south-southwesterly over northern areas. Sunny intervals nearly everywhere.

Rainfall: nil to 1mm, 5mm in Belmullet
Temperature: max. 12°C to 16°C, min. zero to 7°C inland, up to 11°C coastal; ground frost down to -5°C in Birr
Sunshine: 2 to 7 hours generally, 1 hour in the east and southeast.

Sunday 22nd: A slow-moving front stretching from the northeast to the southwest lay across Connaught and Ulster bringing outbreaks of some heavy rain to places but Munster and south Leinster escaped lightly.

Rainfall: nil to 2mm in the east and south, elsewhere 6mm to 20mm
Temperature: max. 13°C to 16°C, min. 9°C to 14°C
Sunshine: zero to 1 hour

Monday 23rd: The front moved northwards overnight; the day was mild in most parts but a strong southerly wind became established later in the day. A cold front off the west coast produced a lot of rain in parts of the west and southwest in the evening. Rain was light and scattered in the north and east.

Rainfall: nil to 4mm generally, up to 28mm in the west and 30mm in Valentia Observatory
Temperature: max. 15°C to 17°C, min. 9°C to 15°C
Sunshine: zero to 2 hours

Tuesday 24th: The strong to gale force mild southerly airflow persisted ahead of the cold front which was on the west coast at midnight. It pushed eastwards through the forenoon and afternoon, with waves developing and deepening along the front. Rain was widespread and heavy throughout the day. A record gust of 96kt at Rosslare was recorded with the passage of the trough and there were violent gusts and thunderstorms in other eastern areas. Winds were southwesterly late in the evening and slackened as the depression moved away northwards.

Rainfall: 13mm to 15mm generally, 7mm at Dublin Airport
Temperature: max. 13°C to 17°C, min. 5°C to 8°C
Sunshine: zero or trace

Wednesday 25th: Southwesterly winds overnight and in the morning gave some thundery showers especially in the north and west. A vigorous wave depression approaching from the southwest caused winds to back southerly and become strong and gusty and gave some rain in the evening with heavy falls in parts of Connacht.

Rainfall: nil to 4mm in the east and southeast, 6mm to 21mm elsewhere, 41mm in Belmullet
Temperature: max. 12°C to 15°C, min. 5°C to 8°C; ground frost down to -1°C in Kilkenny
Sunshine: 3 to 7 hours generally, 1 hour in the west

Thursday 26th: A mild but strong to gale force southerly airflow preceded a cold front which crossed southeastwards over the country during the morning and afternoon. A slacker but unstable west-southwesterly airstream followed in the evening.

Rainfall: 1mm to 5mm in the east and south, 9mm to 25mm elsewhere
Temperature: max. 13°C to 16°C, min. 5°C to 8°C; ground frost down to -1°C in Claremorris
Sunshine: nil to 2 hours generally, up to 5 hours in Baldonnel

Friday 27th: Scattered showers continued overnight and in the morning but as a ridge built over the country they became largely confined to northern areas in the slack west-southwesterly airflow. Ground frost early.

Rainfall: nil to 1mm generally, 9mm in Malin Head
Temperature: max. 11°C to 13°C, min. 2°C to 7°C; ground frost down to -4°C in Kilkenny
Sunshine: 6 to 10 hours generally, 4 hours in Malin Head

Saturday 28th: High pressure to the east of Ireland maintained a southeasterly airflow giving slight winds. Sharp frost during the night and early morning in many areas. Good sunshine, the best in the south of country, only the odd shower in the northwest.

Rainfall: nil or trace
Temperature: max. 11°C to 14°C, min. -1°C to 4°C inland; up to 6°C coastal; ground frost down to -6°C in Kilkenny
Sunshine: 1 to 3 hours in the west and north, 5 to 9 hours elsewhere

Sunday 29th: After overnight ground frost in the eastern half of the country and some fog patches, the day was mostly dry but misty with spots of rain or drizzle in the west and northwest which became more persistent in the evening with the approach of a warm front. Winds continued from a mostly south-southeasterly direction.

Rainfall: nil to 2mm generally, 8mm in Belmullet
Temperature: max. 12°C to 15°C, min. -1°C to 5°C inland, 5°C to 10°C coastal; ground frost down to -5°C in Kilkenny
Sunshine: zero to 4 hours generally, up to 6 hours in Mullingar and Birr

Monday 30th: The southerly airflow over Ireland continued to give mild and misty weather. Mostly cloudy with just isolated spots of rain or drizzle, which were more persistent for a time around noon in the west and northwest, before pressure built again from the east.

Rainfall: nil or trace generally, 6mm in Belmullet
Temperature: max. 15°C to 18°C, min. 10°C to 12°C inland, up to 14°C coastal
Sunshine: zero to 2 hours generally, 4 hours in Claremorris

Tuesday 31st: With a ridge of high pressure over the country, it was a fine end to a fine month. After some overnight mist and fog, it was a good dry day in all areas with some sunny spells, the best of these in the midlands. Mist lingered in some eastern and southern coastal areas. Very mild and generally light breezes. A weak cold front started moving slowly southwards over the north of the country at day's end.

Rainfall: nil or trace
Temperature: max. 15°C to 20°C, min. 7°C to 12°C
Sunshine: trace to 2 hours in the south and north, 4 to 7 hours elsewhere

TABLES

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County / Station	TEMPERATURE (°C)						
	Mean max.	Mean min.	Mean/ deviation from average		Highest max./date	Lowest min./date	Lowest grass min./date
CO. CARLOW							
CARLOW (OAK PARK)	16.5	9.3	12.9	2.5	20.8 12	0.0 28	-3.0 28
CO. CLARE							
SHANNON AIRPORT	16.4	10.3	13.4	2.2	21.1 8	3.6 28	-1.3 28
CARRON	14.4	8.8	11.6		19.6 8	3.6 28	-0.5 27
CO. CORK							
FERMOY (MOORE PARK)	15.9	8.8	12.4	1.9	18.0 7 8	1.0 27	-2.0 28 29
CORK AIRPORT	14.9	9.8	12.4	1.9	17.5 8	2.7 28	-1.7 28
SHERKIN ISLAND	15.6	11.5	13.6	1.9	17.6 8	3.8 28	2.0 28
CO. DONEGAL							
MALIN HEAD	15.2	9.7	12.5	1.6	20.6 8	5.4 21	2.6 21
BALLYSHANNON (CATHLEEN'S FALL)	14.9	9.5	12.2	1.6	21.0 8	5.9 21 29	
LETTERKENNY (MAGHERENAN)	15.2	7.7	11.5		20.1 8	3.3 21	
CO. DUBLIN							
DUBLIN AIRPORT	16.2	9.3	12.8		21.0 8	0.6 21 29	-1.7 29
CASEMENT AERODROME	16.1	9.5	12.8	2.5	19.8 8	1.7 21	-3.0 21
DUBLIN (MERRION SQUARE)	16.5	11.2	13.9	2.3	22.5 8	3.8 29	
CO. GALWAY							
GALWAY (UNIV. COLL.)	15.6	10.3	13.0	2.0	20.0 8	4.5 28	
MAAM VALLEY	15.0	9.7	12.4		18.5 8	0.5 28	-4.2 28
BALLYGAR	15.3	8.5	11.9		19.5 8	0.3 28	-2.0 28
CO. KERRY							
VALENTIA OBSERVATORY	15.6	10.5	13.1	1.3	17.7 7	3.1 28	1.0 28
ARDFERT (LISCAHANE)	15.7	9.6	12.7		19.1 14	2.8 28	-1.4 28
CO. KILDARE							
NAAS (GOWRAN GRANGE)	15.4	8.8	12.1		18.6 8	0.2 21	-2.6 21
CO. KILKENNY							
KILKENNY	16.0	9.0	12.5	2.1	19.0 8	-0.5 28	-5.6 28
CO. LEITRIM							
BALLINAMORE	14.9	7.8	11.4	1.5	20.0 8	0.3 29	-1.4 29
CO. LIMERICK							
MOUNT RUSSELL	14.8	9.6	12.2		17.0 3	4.1 21	0.4 21 28
CO. LOUTH							
ARDEE (BOHARNAMOE)	16.4	7.5	12.0		20.4 8	-1.1 29	-5.2 29
CO. MAYO							
CLAREMORRIS	15.0	8.9	12.0	1.9	19.9 8	1.7 28	-1.6 28
BELMULLET	15.0	9.7	12.4	1.1	18.3 31	6.3 25 28	3.4 28
STRAIDE	15.0	8.8	11.9		18.6 8	1.5 28	-2.2 28
CO. MEATH							
WARRENSTOWN	15.8	9.2	12.5	2.4	19.7 8	0.7 29	-5.0 29
CO. MONAGHAN							
CLONES	15.2	8.9	12.1	2.2	19.7 8	1.5 28	-3.2 29
CO. OFFALY							
BIRR	15.7	9.2	12.5	2.1	19.7 8	0.2 21	-4.7 21
DERRYGREENAGH	15.5	8.3	11.9	2.2	19.6 8	0.1 21	-6.5 21
CO. SLIGO							
MARKREE CASTLE	15.5	7.5	11.5	1.4	20.0 8	0.7 28	
CO. WATERFORD							
WATERFORD (TYCOR)	16.1	9.9	13.0	2.0	18.1 8 14	1.1 28	
DUNGARVAN (CARRIGLEA)	16.3	9.6	13.0		18.8 8	-0.6 28	-3.0 28
CO. WESTMEATH							
MULLINGAR II	15.3	8.5	11.9	2.1	19.3 8	-0.7 29	-3.2 29
CO. WEXFORD							
JOHNSTOWN CASTLE	15.8	10.6	13.2	2.3	18.0 8	2.9 28	-0.1 28
ROSSLARE	15.7	11.7	13.7	2.2	17.9 8	5.1 28	1.8 28
CLONROCHE	15.2	9.4	12.3	2.1	17.5 19	1.0 28	-4.0 28
JOHN F. KENNEDY PARK	15.5	9.9	12.7	2.0	17.8 19	1.7 28	-2.7 28

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County / Station	RAINFALL (MM)			SUNSHINE (HRS)			
	Total amount	% of average	Most in a day/date	Daily mean (hrs./day)	% of average	% of possible	Most in a day/date
CO. CARLOW							
CARLOW (OAK PARK)	123.8	161	28.5 24	2.57	95	24	8.5 10 28
CO. CLARE							
SHANNON AIRPORT	107.2	128	18.2 26	2.96	108	28	7.9 27
CARRON	177.3	121	26.0 25				
CO. CORK							
FERMOY (MOORE PARK)	163.6	178	32.7 16	2.10	81	20	7.5 1
CORK AIRPORT	234.3	195	56.2 16	3.00	100	28	9.5 10
SHERKIN ISLAND	169.7	154	23.5 5	3.10	100	29	8.7 10
CO. DONEGAL							
MALIN HEAD	187.9	179	47.3 24	2.52	104	24	7.8 3
BALLYSHANNON (CATHLEEN'S FALL)	183.3	176	26.6 24	2.35	95	22	7.3 1
LETTERKENNY (MAGHERENAN)	172.7		31.0 24				
CO. DUBLIN							
DUBLIN AIRPORT	38.0		6.9 24	3.56	111	34	9.5 8
CASEMENT AERODROME	47.0	69	15.6 24	3.93	125	37	9.8 8
DUBLIN (MERRION SQUARE)	33.9	55	8.4 3 24				
CO. GALWAY							
GALWAY (UNIV. COLL.)	192.9	165	35.4 22	2.55	89	24	7.2 27
MAAM VALLEY	311.6		31.4 25				
BALLYGAR	188.6	192	27.2 23				
CO. KERRY							
VALENTIA OBSERVATORY	229.0	161	40.7 16	2.25	85	21	7.3 28
ARDFERT (LISCAHANE)	172.3		32.3 25				
CO. KILDARE							
NAAS (GOWRAN GRANGE)	92.7		24.3 24				
CO. KILKENNY							
KILKENNY	125.7	151	45.4 24	2.65	95	25	8.8 10
CO. LEITRIM							
BALLINAMORE	252.9	230	43.0 24	2.64	106	25	8.0 20
CO. LIMERICK							
MOUNT RUSSELL	179.4		32.1 16				
CO. LOUTH							
ARDEE (BOHARNAMOE)	119.3	145	38.0 24				
CO. MAYO							
CLAREMORRIS	176.1	153	38.5 25	2.48	99	23	6.9 27
BELMULLET	249.0	220	40.8 25	1.85	67	17	7.8 9
STRAIDE	186.2		37.7 25				
CO. MEATH							
WARRENSTOWN	96.7	112	27.2 24				
CO. MONAGHAN							
CLONES	190.0	216	44.4 24	3.03	124	29	7.9 1
CO. OFFALY							
BIRR	139.9	175	42.2 24	2.58	92	24	7.2 27
DERRYGREENAGH	154.5	186	36.5 24				
CO. SLIGO							
MARKREE CASTLE	170.7	151	28.5 25				
CO. WATERFORD							
WATERFORD (TYCOR)	148.2	147	24.5 16				
DUNGARVAN (CARRIGLEA)	209.1		34.4 5	3.05		17	9.8 3
CO. WESTMEATH							
MULLINGAR II	154.2	171	50.7 24	3.23	116	30	9.0 1
CO. WEXFORD							
JOHNSTOWN CASTLE	91.4	89	21.5 5	2.86	90	27	9.1 4
ROSSLARE	65.8	73	14.6 5	3.29	94	31	9.7 4
CLONROCHE	136.0	119	25.6 5	2.99	97	28	9.1 1
JOHN F. KENNEDY PARK	135.5	128	29.0 24	3.15	108	29	8.8 1 10

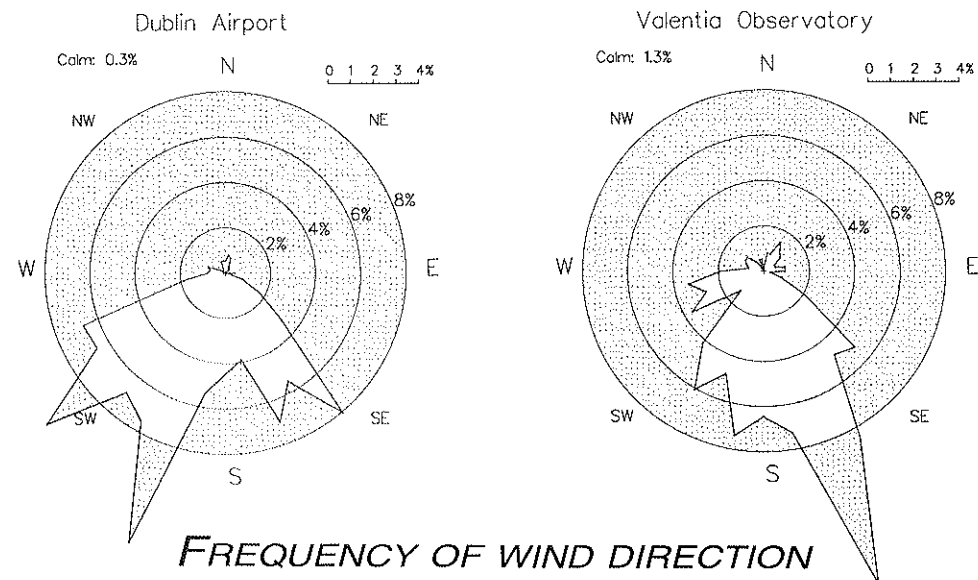
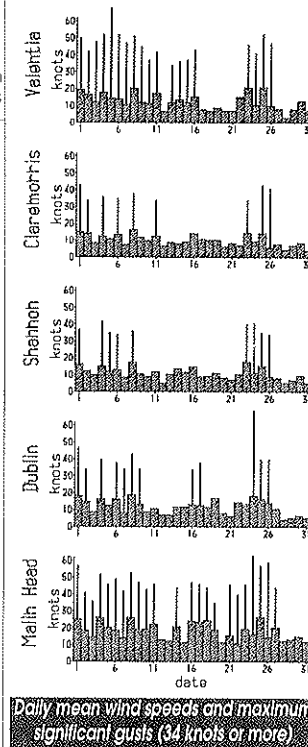
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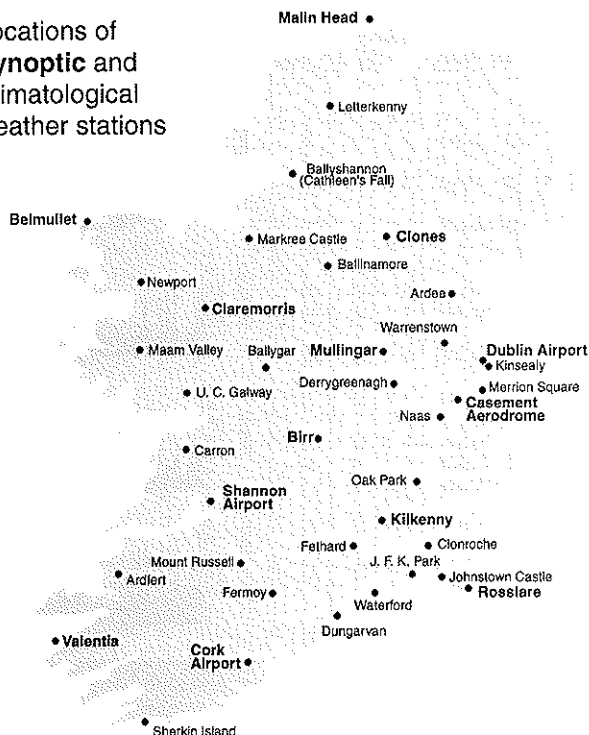
County / Station	WEATHER — NO. OF DAYS WITH									MEAN 0900 SOIL TEMPERATURES (°C)		
	Rain days	Wet days	Air frost	Ground frost	Snow	Snow lying	Hail	Thunder	Fog	10cm	20cm	30cm
CO. CARLOW												
CARLOW (OAK PARK)	20	15	0	3						11.4	11.7	13.0
CO. CLARE												
SHANNON AIRPORT	21	15	0	3	0	0	0	0	1	12.3	13.2	13.9
CARRON	24	21	0	2						11.6		12.6
CO. CORK												
FERMOY (MOORE PARK)	21	16	0	6						12.2	12.6	13.4
CORK AIRPORT	21	19	0	2	0	0	1	1	12	11.8	12.7	13.6
SHERKIN ISLAND	22	18	0	0						13.7		14.3
CO. DONEGAL												
MALIN HEAD	24	18	0	0	0	0	2	1	0	11.1	11.4	12.6
BALLYSHANNON (CATHLEEN'S FALL)	25	21	0									
LETTERKENNY (MAGHERENAN)	25	21	0									
CO. DUBLIN												
DUBLIN AIRPORT	16	8	0	3	0	0	0	1	1	11.5	12.9	12.8
CASEMENT AERODROME	17	10	0	3	0	0	0	0	0	10.9	11.8	12.5
DUBLIN (MERRION SQUARE)	14	7	0									
CO. GALWAY												
GALWAY (UNIV. COLL.)	20	18	0									
MAAM VALLEY	26	24	0	1								
BALLYGAR	22	15	0	2								
CO. KERRY												
VALENTIA OBSERVATORY	22	20	0	0	0	0	0	0	0	12.5	13.4	14.5
ARDERT (LISCANANE)	23	19	0	1								
CO. KILDARE												
NAAS (GOWRAN GRANGE)	14	10	0	3						11.6		
CO. KILKENNY												
KILKENNY	20	14	1	7						12.0	12.5	13.4
CO. LEITRIM												
BALLINAMORE	22	19	0	2						12.0	12.5	12.6
CO. LIMERICK												
MOUNT RUSSELL	26	18	0	0						11.1	11.9	
CO. LOUTH												
ARDEE (BOHARNAMOE)	21	14	2	7						12.1	12.5	12.7
CO. MAYO												
CLAREMORRIS	22	19	0	2	0	0	0	0	0	11.2	11.9	13.0
BELMULLET	27	22	0	0	0	0	1	3	0	12.1	12.5	13.5
STRAIDE	22	19	0	2						11.9		
CO. MEATH												
WARRENTOWN	16	11	0	4						11.1	11.9	13.0
CO. MONAGHAN												
CLONES	20	18	0	3						11.9	12.4	13.0
CO. OFFALY												
BIRR	20	12	0	4						11.6	12.6	13.3
DERRYGREENAGH	19	13	0	4								
CO. SLIGO												
MARKREE CASTLE	25	19	0									
CO. WATERFORD												
WATERFORD (TYCOR)	22	17	0									
DUNGARVAN (CARRIGLEA)	22	17	1	3							13.6	14.0
CO. WESTMEATH												
MULLINGAR II	22	15	1	3						11.4	12.2	12.9
CO. WEXFORD												
JOHNSTOWN CASTLE	19	12	0	1						12.3	12.8	13.2
ROSSLARE	18	10	0	0	0	0	0	1	1	12.9	13.6	14.5
CLONROCHE	20	19	0	4						12.2	12.8	13.3
JOHN F. KENNEDY PARK	20	15	0	4						12.4	13.0	14.1

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County / Station	WIND (KTS)										Days with gales	Hours with gale gusts
	Mean speed	Max. 10-min. dir. speed	mean date/hour	Max. Gust dir. speed	date/time							
CO. CLARE												
SHANNON AIRPORT	10.7	170°	29 23/11	230°	42 4/0619	0	9	21				
CO. CORK												
CORK AIRPORT	10.9	190°	31 6/02	190°	49 6/0151	0	10	56				
CO. DONEGAL												
MALIN HEAD	18.0	250°	44 1/11	290°	63 24/2022	10	23	246				
		290°	46 24/21									
CO. DUBLIN												
CASEMENT AERODROME	14.0	260°	43 24/19	260°	60 24/1853	5	17	139				
DUBLIN AIRPORT	11.6	250°	51 24/19	220°	69 24/1824	2	12	58				
CO. KERRY												
VALENTIA OBSERVATORY	12.1	170°	34 5/23	170°	68 5/2230	1	19	160				
CO. KILKENNY												
KILKENNY	8.2	280°	32 24/18	290°	51 24/1744	0	13	56				
CO. MAYO												
BELMULLET	15.9	200°	45 8/11	200°	71 8/1854	6	19	173				
CLAREMORRIS	9.8	190°	28 25/24	270°	43 1/0607	0	9	23				
		190°	28 26/01	190°	43 25/2340							
CO. MONAGHAN												
CLONES	8.2	260°	32 24/19	280°	62 24/1856	0	10	59				
CO. OFFALY												
BIRR	8.0	180°	26 8/12	190°	45 8/0352	0	12	47				
				290°	45 24/1703							
CO. WESTMEATH												
MULLINGAR II	7.8	280°	26 24/19	280°	50 24/1805	0	7	24				
CO. WEXFORD												
ROSSLAKE	12.7	230°	56 24/18	230°	96 24/1708	2	15	120				



Locations of Synoptic and Climatological weather stations



The **Monthly Weather Bulletin** is produced by the Climatology and Observations Division of the Meteorological Service. The annual subscription to the bulletin costs £36. Further climatological information is available from the Climate Enquiries Office, Glasnevin Hill, Dublin 9, telephone 01-8375436, fax 01-8369115.

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Notes on the tables

A. General

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

B. Agmet

11. Calculated Potential Evapotranspiration (P.E.) values are based on values of temperature, sunshine, wind speed and vapour pressure using the Penman formula. Because of formula limitations, negative values can occur in winter; these are replaced in the table by zero. Measured P.E. values are those measured by means of soil-filled tanks sunk into the ground with their upper grass-covered ends at surface level.
12. Soil moisture deficits and surpluses are computed from the differences between rainfall and actual evapotranspiration (A.E.). Estimates of A.E. are derived from measured values of P.E. (See Agmet Memo No. 1, 1968). Soil moisture surpluses are assumed to be removed by drainage and surface run-off and are not therefore carried forward from one period to the next. Soil moisture deficits are regarded as being cumulative. Where heavy rain occurs near the end of the fixed period, the date of cut-off may be adjusted to avoid error due to insufficient run-off time.
13. Degree day totals are calculated using the method set out by McVicker in the Journal of Heating and Ventilating Engineers (Vol. 14 No. 18, Nov-Dec 1946).
14. Global solar radiation values are given in MJ/sq.m. correct to two decimal places (3.6MJ=1kWh).