Monthly Weather Bulletin

JUNE 1996

Forecasting sunburn risk - see feature page

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LONG DRY SPELL IN MOST PLACES; VERY WARM AROUND MID-MONTH

June was a sunny month with below normal rainfall in all areas apart from the southwest. At a number of stations in the eastern half of the country it was the first month with below average rainfall since last October. The middle two weeks of the month were particularly dry and sunny everywhere, with much more unsettled weather during the first and final weeks. Although temperatures rose well above normal around mid-month, mean temperatures for the month as a whole were near normal everywhere.

The very disturbed weather of late May continued into early June as a deep depression lay north of the country on the 1st, giving a showery northwesterly airstream over the country; some of the showers were heavy with hail. Winds slackened as the depression moved away eastwards on the 2nd and shower activity decreased, but another Atlantic depression approaching the northwest on the 3rd brought rain to all areas, heaviest in the southern half of the country. This area of low pressure became almost stationary to the northwest of the country until the 11th and slow-moving fronts brought rain or showers on most days. After a relatively dry couple of days on the 7th and 8th, rain returned to all areas on the 9th, heavy in the south and west. Winds throughout this period were mostly southwesterly, fresh or strong at times, especially on the 9th. Pressure rose steadily over the country as a cold front moved away eastwards on the 11th. This marked the beginning of a very settled spell, with high pressure dominating our weather until the 25th. As an anticyclone moved northeastwards over the country between the 12th and 14th, winds backed from a cool westerly to a much warmer southeasterly direction and fell very light. The weather became very warm under almost cloudless skies between the 15th and 17th, although light onshore breezes on southern and
eastern coasts kept these areas cooler. A weak cold front cleared southwards over the country on the 18th; although giving cloud rather than rain, it introduced a light northerly airstream bringing a sharp drop in temperatures to most places. With the anticyclone now centred to the northwest of the country, the weather remained dry and cool up to the 24th but cloud amounts increased. Some nights were cold inland, with even some sharp ground frost in places between the 19th and 22nd. High pressure eventually declined eastwards on the 25th, allowing frontal troughs to cross the country from the west and bringing a return to more unsettled and windier conditions for the remainder of the month.

Mean wind speed for the month showed much greater variation than normal over the country; at Rossa they was the lowest for June since 1979 while at Belmullet it was the highest since 1972. The strongest winds of the month were recorded on the 5th, when Belmullet recorded the highest gust, 52 knots (60 m.p.h.). There were no days with widespread fog during the month, while hail was reported only on the 1st.
Driest since 1975 in places

It was a very dry month in all but the southwest of the country, with percentage of normal rainfall ranging from 24% at Warrenstown, Co. Meath, to 121% at Valentia Observatory. A number of stations, mostly in the eastern half of the country, had their lowest rainfall totals for June since 1975.

The period between the 12th and 24th was completely dry in most places and an absolute drought (a period of 15 or more days with none of which 0.2mm or more rainfall) was recorded at Dublin (Phoenix Park) between the 10th and 24th. The number of wet days (days with 1.0mm or more rainfall) was below normal everywhere, ranging from 3 at some Dublin stations to around 10 in western counties. The wettest days of the month generally were the 9th, 25th and 27th, with heavy rain also in the southwest on the 2nd, 4th and 8th. The highest daily fall of the month, 38.00mm, was recorded at Ballinamore, Co. Leitrim, on the 9th.

Left - A band of rain moving seawards over the country during the afternoon of the 25th brought the dry spell to an end. (picture Dundalk University)
**TEMPERATURE**

Warm overall but some cold nights

Mean air temperatures for the month were a little higher than normal almost everywhere, ranging from 12.8°C at Straide, Co. Mayo, to 15.1°C at both Dublin (Merrion Square) and Shannon Airport. Mean minimum temperatures were below normal in many areas, however, reflecting the number of very cool nights during the month, especially inland. Even when daytime temperatures touched 25°C around the middle of the month, the temperature fell back below 10°C at night except at some coastal stations.

Temperatures were below normal everywhere until the 14th of the month. During the following 3 or 4 days, all stations recorded by far their warmest weather of the month. The month’s highest temperature, 27.0°C, was recorded at both Shannon Airport and Ardfern (Lisland), Co. Kerry on the 16th. The lowest air temperatures of the month were mostly recorded either during the first week or on the 13th. Straide recorded the lowest value of the month, 1.7°C on the 13th. The grass minimum temperature of -4.7°C at Clone on the 21st was the lowest of the month and the lowest for June at the station since 1962.

**SUNSHINE**

Very sunny spell around mid-month

Mean daily sunshine for the month was above normal everywhere, ranging from 103% of normal at Johnstown Castle, Co. Wexford, to 142% at Claremorris. Although around 25% above normal in most parts of the country, at most stations it was not quite as sunny as June 1995. Monthly totals of over 200 hours at most stations were equivalent to between 40% and 50% of possible sunshine for the month. Cork Airport, with just over half its possible sunshine total, had the sunniest June since recording began there in 1962, while Casement Aerodrome had its highest June sunshine total since 1969.

Daily values in excess of 10 hours were recorded in most places in the period 13th to 19th, with most stations recording at least one day with 15 hours or more during this period. Rosslare had its sunniest June day since 1968 when it measured 15.7 hours on the 13th, the highest daily value of the month. After this exceptionally sunny spell there were a number of full days between the 22nd and the end of the month, away from eastern coasts in particular.
SEA TEMPERATURES

Sea temperatures rose by around 2 degrees during the month. They were a little below normal off the west coast but, as was the case last month, were a degree or so higher than normal in the Irish Sea. The mean sea temperature for the month at Malin Head of 12.2°C was exactly normal.

Mean 10cm Soil Temperatures (°C) at 0900Z
(difference from 1961-90 normals in brackets)

Soil Moisture Deficits (mm)
10th of month (end of month in brackets)
(0 represents field capacity)

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

GLOBAL SOLAR RADIATION (MJ/m²)

P.E. (Pennies)
SUMMARY OF SIGNIFICANT WEATHER WORLDWIDE DURING JUNE 1996

FLOODING OVER NORTHERN ITALY

The very wet weather of late May over northern Africa continued into early June. Tabarka, on the north coast of Tunisia, recorded more than double its average June rainfall when 72mm fell on the 6th. The Libyan town of Yefren collected 28mm of rain in a 24-hour period ending on the 8th, compared to the monthly average of just 11mm. In Asia, India sweltered in the heat before the arrival of the annual southwest monsoon. Hissar in the northeastern state of Haryana recorded a maximum temperature of 47.2°C on the 3rd, while in Pakistan, Jacobabad reached a scorching 52.0°C. In the southern hemisphere, the South African town of Aliwal North had a minimum temperature of -7.5°C on the morning of the 5th, compared with an average night minimum for June of 6°C, not far off the known extreme for the town of -8.4°C.

Tropical cyclone 3B formed in the Bay of Bengal during the second week of June, introducing some very wet weather to southeastern coasts of India. Madras recorded 47.4mm of rain between the 11th and 16th, nearly ten times the monthly average. Another tropical cyclone soaked the island of Masirah around the same time with 48mm of rain in the 36 hours up to midday GMT on the 11th, considerably more than the June average of 1mm. In Ghana, the city of Kumasi had 116mm in just 6 hours on the 15th, about half of the monthly average. On the 12th, the Italian city of Milan reported a top temperature of 35°C, well above the average daily maximum of 27°C.

In the town of Midland, Texas, the temperature reached 41°C on the 19th, some 7 degrees above the seasonal average; San Angelo also soared to 41°C on the same day. Just over the border in Mexico, the town of Piedras Negras had a temperature of 44°C on the 21st. Following the very high temperatures earlier in the month in northern Italy, some severe weather hit the area during the second half of the month, with torrential rain over the Alps and flash flooding in Tuscany. In Bergamo, located just north of Milan at the foot of the Alps, there was 96mm of rain in the 30 hours up to midday on the 22nd, equivalent to the normal total for June. Over the Swiss border, the town of Locarno, situated on the shores of Lake Maggiore, received 103mm in a 24-hour period ending on the 22nd. Around the middle of the week, tropical cyclone 4A developed in the Arabian Sea then moved into northwest India, drenching Rajkot. A total of 174mm fell in just 9 hours to midday on the 19th.

During the last week of June, the Cypriot town of Athalassa had a top temperature of 42°C on the 27th, well above the June average of 34°C. Across the Mediterranean on mainland Greece, temperatures on the 26th soared to 39°C in both Larissa and Lamia, some 9 or 10 degrees above the seasonal averages. Towards the end of the month, parts of Canada enjoyed a real taste of summer. Winnipeg, Manitoba’s capital, recorded a temperature of 35°C on the 27th, well above the June average of 22°C. In the Canadian Northwest Territories, Norman Wells, close to the Arctic Circle, had a temperature of 29°C on the 26th, 10 degrees above normal. Much more unsettled weather affected the other side of the country, however. On the last weekend of June, Pickle Lake, Ontario, recorded 130mm of rain in a 48-hour period ending on the 30th, well in excess of their normal June total of 83mm.

Advice on Sunshine Exposure Now Issued by Met Éireann

Few would deny that a tanned skin looks attractive. Perhaps this explains why it is all too often perceived as a symbol of good health. It is true that a certain amount of exposure to sunlight is necessary for our bodies to synthesise vitamin D, but excessive exposure leads, not to better health, but to permanently damaged skin cells. The skin may not be just prematurely aged; there is also a real danger of developing skin cancer in later life. The culprit is ultra violet (UV) radiation, or more specifically, the UV-B component in sunlight.

The intensity of UV-B reaching the earth’s surface is controlled by trace amounts of ozone gas in the stratosphere which filter the damaging short wave radiation. The efficiency of the filter is related to the concentration of the gas and the depth of the atmosphere traversed by the sun’s rays. In turn, the distribution of ozone is strongly controlled by atmospheric dynamics which both transport ozone and provide the temperature environment which determines the ozone reaction rates. As the ozone concentration is strongly correlated with the vertical temperature structure of the upper atmosphere it is possible to forecast this concentration using data produced by a numerical weather prediction (NWP) model in Met Éireann. The forecast ozone values are used to calculate the intensity of UV-B striking the ground, taking into account the solar elevation and the time of the day. As the reaction of human skin to UV is non-linear, the intensity is weighted by a sensitivity function to produce an index or ‘burn-time’ which describes the maximum exposure necessary to provoke a reaction in a moderately sensitive skin bathed in sunshine around solar noon. Forecasts of the index/burn-time are now regularly produced by Met Éireann and at times of high risk are mentioned in radio and TV broadcasts by the forecasters.

The long term decline in stratospheric ozone in the northern hemisphere due to CFC pollutants has prompted increased interest in this field. As part of its environmental monitoring work, Met Éireann routinely monitors total column ozone and ground level UV in Ireland. Detailed monitoring of the upper level ozone has been carried out at Valentia Observatory with funding provided through the EU STRIDE programme.

Above - Skin "burn-time" in minutes at solar noon, 22nd May 1996. Times refer to noon on 31st May.
Saturday 18th: Light mostly southerly on the coast. Cool night with light to fresh northwesterly. 10 to 15 mph. Sun today with temperatures inland a little higher than yesterday.

Monday 21st: A ridge moved eastwards early and then a slack southerly airflow developed. Continued generally dry but a little more moisture moved in from the west as the ridge passed through. Generally cloudy but some sunny intervals. Winds slowly increasing. Temperatures up, especially on the coast, being a little above normal.

Tuesday 22nd: Cloudy at first with a little rain or drizzle in places. Afternoon temperatures were near normal and the day turned cloudy with some variation in rainfall amounts. Light occasionally moderate westerly winds became variable later in the day as a ridge came in from the Atlantic. Temperatures were near normal.

Wednesday 23rd: Cloudy at first with a little rain or drizzle in places. Afternoon temperatures were near normal and the day turned cloudy with some variation in rainfall amounts. Light occasionally moderate westerly winds became variable later in the day as a ridge came in from the Atlantic. Temperatures were near normal.

Thursday 24th: Cloudy at first with a little rain or drizzle in places. Afternoon temperatures were near normal and the day turned cloudy with some variation in rainfall amounts. Light occasionally moderate westerly winds became variable later in the day as a ridge came in from the Atlantic. Temperatures were near normal.

Friday 25th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Saturday 26th: High pressure will decrease in the next 24 hours.

Sunday 27th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Monday 28th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Tuesday 29th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Wednesday 30th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Thursday 31st: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Friday 1st: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Saturday 2nd: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Sunday 3rd: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Monday 4th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Tuesday 5th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Wednesday 6th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Thursday 7th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.

Friday 8th: A cold front moved in with strong northwesterly winds developing. High pressure will decrease in the next 24 hours.
### County / Station | Temperature (°C)
---|---
COUNTY | MEAN MAX | MEAN MIN | MEAN / DEVIATION FROM AVERAGE | HIGHEST MAX / DATE | LOWEST MIN / DATE | LOWEST GREAT MIN / DATE
COUNTY CAROL | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY CLARK | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY DENTON | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY JOHNSON | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY KENT | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY LAWRENCE | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY LUCAS | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY MASON | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY MEADE | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY MOORE | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY POTTAWATOMI | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY ROSEAU | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY RUSSELL | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY TAYLOR | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY TIMPSON | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WISE | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WORTH | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WASHINGTON | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WALLER | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WHITMORE'S | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WOONATIC | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY WOODRUFF | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY YORK | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22
COUNTY ZIEGFELD | 19.4 | 8.6 | 14.0 | 0.2 | 25.8 | 17 | 3.5 | 22 | -0.5 | 22

### County / Station | Rainfall (mm) | Sunshine (hrs)
---|---|---
COUNTY CAROL | 17.1 | 35 | 6.4 | 25 | 7.36 | 129 | 44 | 14.6 | 16
COUNTY CLARK | 22.2 | 38 | 6.2 | 35 | 7.04 | 121 | 44 | 15.0 | 17
COUNTY DENTON | 68.5 | 51 | 5.0 | 25 | 7.70 | 121 | 44 | 14.6 | 16
COUNTY JOHNSON | 28.9 | 52 | 6.7 | 2 | 7.36 | 129 | 44 | 14.6 | 16
COUNTY LAWRENCE | 24.5 | 73 | 5.7 | 2 | 7.62 | 129 | 44 | 14.6 | 16
COUNTY MOORE | 39.3 | 70 | 11.6 | 2 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY POTTAWATOMI | 63.6 | 75 | 10.8 | 9 | 8.61 | 133 | 44 | 15.0 | 16
COUNTY ROSEAU | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY RUSSELL | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY TAYLOR | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY TIMPSON | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY WISE | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY WORTH | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY WHITMORE'S | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY WOONATIC | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY WOODRUFF | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY YORK | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16
COUNTY ZIEGFELD | 17.1 | 9.3 | 31 | 7 | 7.64 | 129 | 44 | 14.6 | 16

**Table:** Monthly Weather Bulletin, June 1906, page 17

**Title:** Monthly Weather Bulletin, June 1906, page 17
### WEATHER — NO. OF DAYS WITH MEAN 0900 ZL SOIL TEMPERATURES (°C)

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<th>County / Station</th>
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<th>Wet days</th>
<th>Dry days</th>
<th>Frost</th>
<th>Snow</th>
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### WIND (KTS)

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<th>Max. speed</th>
<th>Mean gusts</th>
<th>Max. gusts</th>
<th>Days with</th>
<th>% gusts</th>
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### FREQUENCY OF WIND DIRECTION

- Dublin Airport
- Valentia Observatory
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 mi per hr)
2. At all stations daily rainfall totals refer to the 24-hour period ending at 0000 GMT 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. "Freezing" and "winding" are days during which the daily rainfall is not less than 0.2 mm and 1.2 mm respectively.
4. A "day" for the purposes of this publication refers to the period from 0000 GMT on a particular day to 0000 GMT on the following day. (This is because climatological stations make their daily observations at 0000 GMT.)
5. The mean daily air temperature over a period is taken as the mean of the daily maxima and minima (averaged separately over the period).
6. Days with air frost are those during which the minimum air temperature was below 0°C. Similarity 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 grass just above the tips of short grass.)
7. Mean soil and air temperatures are based on readings taken at 0000 GMT.
8. A gale is a mean wind over a 10 minute period of 34 knots or more. A gale gust is a gust of 44 knots or more. All wind speeds refer to the wind at an effective height of 10 metres above the ground.
9. "g" 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. Agron
11. Calculated Potential Evapotranspiration (P.E.) values are based on 100% of the calculated daily rainfall. The formula used is that of Penman (See Agnot. Memo No. 1, 1968). Soil moisture deficits are calculated using the method of Penman (See Agnot. Memo No. 1, 1968). Where heavy rain occurs near the end of the period, the data of cut-off may be adjusted to avoid error due to insufficient run-off time.
12. Degree days totals are calculated using the equation set out in McVicker in the Journal of Heating and Ventilating Engineering (Vol. 14 No. 18, Nov/Dec 1944).
13. Global solar radiation values are given in kJ/m², corrected to two decimal places (5.81 = 581).

The Monthly Weather Bulletin is produced by the Climatology and Observations Division of Met Éireann. The annual subscription to the bulletin costs £S. Further climatological information is available from the Climate Enquiries Office, Glasnevin Hill, Dublin 9, telephone 01-8064260, fax 01-8064216.

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