

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

SUMMARY OF OBSERVATIONS COMPILED FROM RETURNS OF OFFICIAL STATIONS AND VOLUNTEER OBSERVERS

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JULY, 1931.—Wet and Dull with widespread Thunderstorms.

Like June, July was distinguished by a general deficiency of sunshine, while rainfall was above the normal almost everywhere. Many places experienced severe thunderstorms accompanied by heavy rain causing much local flooding.

The belt of high pressure which covered the British Isles at the end of June gave way on July 1st before a depression advancing from the Atlantic. This disturbance was centred off our north-west coasts till the fifth when it gave place to another system which formed westward of Ireland and moved eastward across the kingdom causing thunderstorms in many districts. A polar air current in its rear covered the kingdom until the 9th when a new depression appeared off the south-west coasts. This was the first of a series of disturbances which followed one another in rapid succession until the end of the month, several members of which passed directly across the British Isles. The fair intervals between the depressions were of brief duration, no district being free from rain for more than a day or two at a time.

Pressure and Winds.—As a result of the general cyclonic character of the month, pressure was below the normal in all districts, the deficiency ranging from 4.5 mb. at Scilly (St. Mary's) to 8.5 mb. at Wick. The gradient for south-west to west winds was thus intensified. The numerous disturbances of the month were not, however, associated generally with high winds though some damage was done on the south-west coasts by a gale on the 17th, when the wind velocity reached 54 m.p.h. at Pendennis Castle. The Littlehampton observer reports that a squall of Beaufort force 9 occurred on the 27th at 2.10 p.m. accompanied by a very heavy shower for about 2 minutes.

At Southport the mean pressure for the month was the lowest for July since 1888 when the value was practically the same.

Temperature.—At most stations the mean temperature differed little from the normal July value. At most Scottish stations and some of the stations in northern and eastern England the mean for the month was slightly above normal but in the south there was a deficiency of one or two degrees. There was a conspicuous absence of warm days but at nights the temperature frequently exceeded the July normal. In the southern and eastern districts the highest temperatures were recorded during the periods 1st to 7th, 11th–12th and 22nd to 24th, when the day maximum frequently exceeded 75°F. At Shoeburyness 80° was reached on the 12th. At Ross-on-Wye, the absolute maximum of 73° was the lowest since 1922. In Scotland the 9th was associated with some relatively high temperatures in the eastern and central districts, 79° being registered at Stirling and Perth, 78° at Cupar, Leuchars and Crieff and 77° at Strathpeffer.

In the cold winds in the rear of the depressions, the temperature occasionally fell to about 40° locally. At Rickmansworth 38° was registered on the 7th and 21st. A ground frost occurred at Biggin Hill on the 1st and at Leafield and Hampstead on the 21st.

The extreme temperatures for the month were:—(England and Wales) 80°F. at Shoeburyness on the 12th and 38° F. at Rickmansworth on the 7th and 21st, and at Cantref (Brecknock) on the 9th and 31st (Scotland) 79° F. at Perth and Stirling on the 9th, and 39° at Balmoral on the 21st. (Ireland) 74° F. at Rathfarnham (Dublin) on the 13th and 42° F. at Killarney on the 9th.

Precipitation.—The general precipitation of the British Isles expressed as a percentage of the normal for the period 1881–1915 was 142; the corresponding figures for the constituent countries were:—England and Wales 153, Scotland 136, Ireland 121. The general rainfall thus exceeded the normal in each of the constituent countries for the fourth consecutive month. Falls exceeding twice the average July total occurred in parts of Perthshire, Fifeshire, Lincolnshire, Berkshire and the Devon-Cornwall peninsula. Over most of Great Britain the percentage of normal exceeded 140. In spite of this general excess of precipitation an area embracing part of north-east Ireland, N. Wales, Anglesea, south-west Scotland and the Isle of Man experienced less

than the average July rainfall. At Rhyl and Llandudno the fall was only about half of the normal. Mention has already been made of the absence of fair periods of other than brief duration. Several Scottish stations experienced only one or two dry days.

The following comments by observers reflect the unusual character of the month's rainfall:—

Strelley.—"In 50 years only July, 1880 and 1915 had more rain: only three Julys had less sunshine."

Littlehampton.—"The outstanding features of the weather have been the low amount of sunshine, the number of days on which rain fell and the large amount of cloud."

Redruth.—"The wettest July since 1888."

Newquay.—"By far the wettest July in 39 years."

At Swyncombe House, to the north west of Henley-on-Thames the total of 6.24 inches for the month was equal to more than 50 per cent. of the fall for the previous six months.

Thunderstorms occurred somewhere in the British Isles on no fewer than 19 days during the month, and heavy thunderstorm precipitation accounted for a large proportion of the total rainfall at most stations. The more important stormy periods were the 5th–7th, 12th–15th, 19th–20th and 24th–27th. Thunderstorms occurring outside these periods were severe locally.

The following are some of the highest daily readings received from observers:—

3rd	Eskdalemuir 21 mm., Hawkshead (Lancs.) 53 mm.
6th	Rounton 46 mm., Lochmaben (Dumfries) 43 mm., Newquay 48 mm., Armagh 33 mm., Troon 40 mm.
7th	Oving House (Bucks.) 51 mm., Attenborough 32 mm., Nottingham 32 mm., Swansea 42 mm., Newton Abbot 38 mm.
11th	Falmouth 45 mm., Redruth 35 mm., Newquay 35 mm.
12th	Tynemouth 34 mm., Rounton 39 mm., Skegness 44 mm., Sutton Bonington 37 mm.
13th	Newtownforbes 49 mm., Crossdovey (Co. Cavan) 53 mm.
14th	Osgodby 48 mm., Luton 43 mm., Earl's Colne 37 mm., Ascot 41 mm., Winchester 41 mm., Nettlebed (Oxon.) 52 mm.
15th	Ross-on-Wye 28 mm.
19th	Margate 30 mm.
22nd	Ardgour 43 mm.
24th	Tavistock 33 mm., Princetown 32 mm., Redruth 28 mm., Roche's Point 27 mm.
25th	Spurn Head 31 mm., Oundle 26 mm., Barnsley 40 mm.
26th	Kingsbarns (Fife) 40 mm., Carnoustie 43 mm.
27th	Keswick 25 mm.
29th	Appleby 31 mm., Keswick 26 mm., Lancaster 36 mm.

Many falls of hail were reported and flooding due to torrential rain caused much dislocation of traffic.

Sunshine.—In all districts the aggregate duration of sunshine was below normal. The nearest approach to the average occurred in the Channel Islands where Guernsey had 97 per cent. of its normal duration. Elsewhere there were large deficiencies approaching 50 per cent. in places. The brightest days generally were the 1st, 3rd, 7th, 9th, 11th and 23rd on each of which twelve hours or more of sunshine were registered over a wide area. At Wakefield the sunshine for the month gave the lowest July total since 1922.

Fog.—Coastal fog occurred occasionally during the month, mainly on the northern and south-western coasts.

Miscellaneous Phenomena.—Aurora was observed at Gordon Castle on the 3rd.