

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

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JULY, 1924: WET AND THUNDERY. GENERALLY COOL.

General.—The most striking features of the weather of the month were the severe local thunderstorms and general heavy rains. During the first week low pressure prevailed to the west and north of the British Isles, and secondary depressions passing across the country in a north-easterly direction caused generally cool and unsettled weather, with rainfall above the weekly average except in eastern and south-eastern England. Thunderstorms were widespread in England and Ireland on the 3rd and 4th and gales occurred at exposed places in the south on the 3rd. On the 9th the high pressure area to the south spread northwards over Great Britain and the North Sea and a spell of fine warm weather set in over the country generally, though, owing to the low pressure area which still prevailed to the north-west conditions on the west coasts of Ireland and Scotland remained unsettled. Temperature rose gradually until the 12th, which was the hottest day of the year in most places. The spell of fine weather, however, broke on the 17th, an intense secondary depression passing eastwards across southern England, causing heavy rain and local gales in the south. From then until the end of the month the weather was cool and unsettled and depressions passing across the southern area caused heavy local rains and numerous thunderstorms.

The general character of the month is illustrated by the following remarks taken from the observers' notes:—Copdock (Suffolk).—The first half of July was exceptionally brilliant, but after the 16th frequent small depressions passed over with persistent heavy rainfall and a good deal of thunder. Rainfall more than 50 per cent., and sunshine more than 25 per cent. above the average. Newquay.—Temperature still equable and a little below normal. Rainfall above normal, sunshine somewhat below. Redruth.—A dull damp month, humidity and cloud being both above the average. Rainfall 145 per cent. of the average for 1901–20. Skegness.—An average July. Torquay.—The month was generally unsettled with moderate equable temperatures. There was a dry period of ten days, five exceptionally heavy downpours of rain, an absence of thunderstorms and a duration of sunshine slightly above the average. Walton-on-Naze.—Over three times as much rain as in July, 1923, nearly all in second half of month. Temperatures exceptionally low. St. Andrews (Fifeshire).—Wet and chilly, not summerlike. Swinton House (Berwickshire).—Incessant rain did much damage to hay. Dublin.—The month was cloudy, rainy, and generally unsettled with a mean temperature nearly one degree below normal. In the Dublin district there were only five rainless days.

Pressure and Winds.—The mean pressure was everywhere below normal, the deviations varying from -6.4 mb. at Stornoway to -1.2 mb. at Southampton. The isobars of mean pressure trended on the whole from W.S.W. to E.N.E., so that the prevailing winds were westerly.

With the exception of the period 9th–16th the pressure distribution was mainly cyclonic in character. The tracks of six primary depressions and one secondary are shown on the chart crossing some part of the British Isles. The depression (Track K) made a remarkable loop over northern France and the Channel. The highest recorded pressure was 1029mb. at Guernsey on the 14th and the lowest 978mb. at Castlebay on the 2nd and at Stornoway on the 3rd (Depression Track B).

The wind attained a mean speed of 38 m.p.h. for the duration of not less than an hour on 6 days at Southport and 4 days at Fleetwood but at no other anemometer station. Several gusts exceeding 50 m.p.h. were recorded in various parts of the country, the two highest being one of 59 m.p.h. at Southport on the 24th and one of 58 m.p.h. at Spurn Head on the 3rd.

Temperature.—The mean temperature of Districts 1–10 was 58°F . The mean temperature of all Districts was below normal with the exception of Scotland N. England E. The largest excess, 0.4°F . was experienced in England E. and N.E. (mean temperature 61°F .), and the largest deficiency, 1.4°F ., in England S.W. (mean temperature 58°F .). The second week was the warmest everywhere and the highest day temperatures occurred in Great Britain on the 12th. This day was the hottest of the year in England generally.

The frequent low day temperatures and the low mean daily range were again features of the month and soil temperatures remained generally deficient.

The extreme screen temperatures for the month were (England and Wales) 90°F . at Camden Square (London) on the 12th, 35°F . at

Usk (Monmouthshire) on the 1st; (Scotland) 81°F . at Fort Augustus on the 12th, 37°F . at Eskdalemuir and at Wolfelee on the 27th; (Ireland) 75°F . at Dublin City on the 15th, 39°F . at Kilkenny on the 4th.

A few stations reported one or two ground frosts; Chopwellwood (Durham) had seven.

Precipitation.—Precipitation was above normal in every District. The amount of precipitation was between 100 and 200 per cent of the normal over the British Isles generally. It was below normal only in an area surrounding the Wash and in one or two very restricted regions in Scotland and Ireland. The higher figure was exceeded in the London area and three other relatively small regions. The general precipitation of the British Isles expressed as a percentage of the normal was 149; the values for the several countries were:—England and Wales 152, Scotland 152, Ireland 132.

The second week of the month was the driest, and in most districts the precipitation was less than the weekly normal. The heaviest daily rainfall at any station given in the Report was 103mm. at Wisley (Surrey) on the 22nd, associated with the heavy thunderstorm of that date. During the 24 hrs. ending at midnight on the 21st a fall of 74mm. occurred at Falmouth, associated with a thunderstorm, this being the largest amount ever recorded there for a similar period. Other notable falls were one of 51mm. at Clacton on the 17th, associated with the passage of the depression (Track J), and one of 64mm. at Brushford (Somerset) on the 20th. The 28th was a day of heavy rainfall generally in Ireland, England and, later, in eastern Scotland in connection with the depression (Track N); 64mm. were recorded at Douglas (Isle of Man), 52mm. at Petersfield (Hants), 46mm. at Hawarden Bridge (Flintshire) and 41mm. at Cockle Park (Northumberland). At Hampstead the July rainfall total, 193mm. was the largest recorded in any month since observations began there in 1858. The nearest approach was 180mm. in October, 1865.

The month was noteworthy for frequent and sometimes severe thunderstorms; many of these were accompanied by heavy rain, which was often of very local character. During the London thunderstorm of the afternoon of the 22nd 10mm. fell in not more than 3 minutes at South Kensington and the total fall of 32 mm. occupied 25 minutes. The rate of rainfall was, however, not as great as that recorded at Camden Square on June 23rd 1878. Ball lightning was observed during this storm at South Kensington, and at Woking. At Hampstead 9.9mm. fell in $2\frac{1}{2}$ minutes with a total fall of 25mm. in 16 minutes. Another severe storm was experienced in London on the afternoon of the 29th. On this day Hampstead recorded 54mm. Thunder was widely experienced on the 3rd and 4th and between the 18th and the 26th. A severe storm occurred very generally in Scotland on the 12th. Very few stations reported no days of thunder, the maximum number was six at several stations in England and Scotland.

Hail was infrequent. Copdock (Suffolk) and Hampstead reported 3 days. The hailstones at Hampstead on the 22nd measured $\frac{1}{2}$ to 1 in. in diameter and those at the Air Ministry, Kingsway, 0.8 in. on the same day.

Sunshine.—The duration of sunshine was above normal in England N.E., E., S.E., the Midland Counties and Scotland N., and below normal in the remaining seven Districts. The largest mean daily excess occurred in England S.E. (1.13 hr.) and the largest mean daily deficiency in Scotland W. (1.39 hr.). England S.E. had 51 per cent. of the possible duration, while Ireland N. had only 21 per cent. The third week of the month was the sunniest on the whole and the last week the least sunny. A number of daily durations exceeding 14 hrs. were recorded and a few of over 15 hrs. The mean daily duration at Guernsey was 9.09 hrs. and that at Eastbourne 8.95 hrs.

Fog.—Fog was reported at a number of stations but not extensively. Bellingham (Northumberland) recorded 11 days of fog and Manchester (Whitworth Park) 7 days.

Miscellaneous Phenomena.—Solar and lunar halos were frequently observed. A parhelion was seen at Oxford on the 1st and on the 16th. On the 22nd just before 10h. a waterspout was seen off the Needles (Isle of Wight); it subsequently burst some distance from the shore.