

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

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SEPTEMBER, 1931.—Rather Cold and Dull. Abnormally Heavy Rain 1st to 4th.

Apart from warm days at the beginning and about the middle of the month, the days were mostly rather cold. Abnormally heavy rain occurred widely during the first four days, but thereafter the month was mainly dry though dull.

Very unsettled weather, associated with the passage of the depression, Track E, prevailed during the first four days, culminating in widespread and severe floods following abnormally heavy rain. Thunderstorms were widespread on the 2nd and 3rd and local on the 4th, 5th and 7th. On the 1st, day temperatures reached or slightly exceeded 70° F. in several places but in the rear of the depression cold northerly winds, approaching gale force locally at times, were accompanied by low day temperatures. On the 6th an anticyclone situated westwards of Ireland with a tongue of high pressure extending over France moved a little eastwards and was followed by a period of cool and, apart from scattered showers, mainly fair weather. This distribution persisted with little change until the evening of the 10th when a secondary depression south of Ireland moved south-east and gave rain locally on the 11th and 12th (25 mm. at Blacksod Point on the 11th and 20 mm. at Dungeness on the 12th). On the 13th an anticyclone near the Azores extended north-eastwards and by the 15th the anticyclone covered the British Isles and the Continent. Temperature rose above 70° F. at many places on the 15th, 16th and 18th (72° F. at York and Hull on the 15th). About the 20th a change to cooler conditions occurred when the winds became northerly. During the next few days the weather was sunny and bright but cool; at Cahirciveen (Co. Kerry) 11.0 hours sunshine were recorded on the 20th and 10.7 hours on the 22nd and again on the 23rd. In Eastern England slight rain occurred on the 22nd or 23rd. Subsequently the anticyclone diminished in intensity and moved eastwards. The weather became increasingly dull, and on the 29th rain set in in the west and spread to other districts on the 30th with warmer conditions in the south.

Pressure and Winds.—Cyclonic conditions prevailed during the first five days. Winds were frequently strong and in exposed places attained gale force; in a northerly gale on the 4th, 60 mi/hr. was recorded in a gust at Scilly and 56 mi/hr. at South Shields. Thereafter the predominating feature was the persistence of high pressure to the west or over the British Isles, the prevailing winds being north-westerly to north-easterly and mainly light to moderate. At Southport the month was notable for a remarkable prevalence of N.W., N. and N.E. winds, their normal duration being about doubled. In all districts monthly mean pressures exceeded the normal, the excess ranging from 8.7 mb. at Malin Head to 3.9 mb. at Yarmouth.

Temperature.—Associated with the prevalence of northerly winds, general deficiency of sunshine and low day maximum temperatures, mean temperatures were, with only a few unimportant exceptions, below the normal, the deficit in the east and south-east of England ranging from 3° F. to 4° F. At Hampstead (London) the mean temperature, 52.3° F., was the lowest for September since 1912. The warmest days occurred at the beginning of the month and about the 15th, 19th and 23rd when 70° F. and over was recorded in several places. Day temperatures were very low from the 4th to the 7th during a spell of cold polar winds; at Leafield the maximum temperature on the 5th was only 49° F. The nights were frequently cold during the period 5th to 13th; ground frost was recorded widely during this period and in Scotland between the 20th and 23rd. The temperature on the grass fell to 20° F. at Dalwhinnie (1,176 ft.) on the mornings of the 11th, 21st and 22nd, to 21° F. at Renfrew on the 11th, and to 22° F. at Achnashellach on the 13th.

The extreme temperatures for the month were:—(England and Wales) 73° F. at Huddersfield and Attenborough on the 1st, 29° F. at Rickmansworth on the 7th and 8th, at Rhayader on the 8th, at Castleton on the 10th, at Houghall on the 11th, at Appleby on the 11th and 13th, and at Bellingham on the 13th; (Scotland) 72° F. at Arbroath on the 15th, 24° F. at Eskdalemuir on the 11th; (Ireland) 70° F. at Cork on the 1st, at Kilkenny on the 15th and at Rathfarnham on the 15th and 17th, 30° F. at Markree Castle on the 11th.

Precipitation.—The outstanding feature of the month's rainfall was the abnormally heavy falls during the first four days which gave rise to widespread and severe floods, particularly in the Midlands and the north of England.

The rainfall was associated with a deep and complex depression which, situated off the south-west of Ireland on the 1st, moved slowly eastwards and by the morning of the 4th was centred over the southern North Sea (Track E).

Amongst the largest daily totals were:—

1st	42 mm. at Cantref (Brecknock); 36 mm. at Princetown; 31 mm. at Langholm; 38 mm. at Haverfordwest.
2nd	40 mm. at Burnley; 35 mm. at Lancaster.
3rd	89 mm. at Newcastle (Wicklow); 81 mm. at Rathfarnham; 77 mm. at Glasnevin (Dublin); 65 mm. at Mansfield; 51 mm. at Rhyl; 44 mm. at Kensington (London).
4th	127 mm. at Castleton (Yorks); 126 mm. at Kildale (Yorks); 79 mm. at Pickering (Yorks); 57 mm. at Harrogate; 51 mm. at Meltham.

Referring to the flood on the river Derwent during the night of the 4th to 5th, the observer at Belper (Quarry Bank), states "I believe this to be the greatest experienced since that of February 8th, 1881."

After the 4th the rainfall was unimportant except for moderate falls in several districts on the 11th and 12th and in Scotland on the 16th.

Mainly as a result of the abnormally heavy falls during the first few days monthly totals of rainfall were markedly above the normal in the Midlands and the north of England; in Yorkshire totals exceeded two and one-half times the normal locally. In the extreme south and west there was a deficiency. Only in the vicinity of Edinburgh did the rainfall in Scotland approach the normal, there being a decided deficiency elsewhere; in western and northern districts where large areas had less than 30 per cent. of the normal, it was locally the driest September since records began and at Deerness, Achnashellach and Glenquoich it was the driest September since 1894. In Ireland monthly totals were mostly below the normal except in the east and south-east where again the heavy falls during the first three days resulted in a pronounced excess; in Dublin the month's total amounted to two and one-half times the normal.

Thunderstorms were widespread on the 2nd and 3rd and were reported from some part of the country on the 4th, 5th, 6th, 7th, 10th, 16th and 19th. Fresh snow was noted on the Cairngorms on the 3rd and 6th and on the higher hills near Braemar on the 6th and 11th.

The general precipitation of the British Isles, expressed as a percentage of the normal for the period 1881–1915, was 102; the corresponding figures for the constituent countries were:—England and Wales 123, Scotland 55, Ireland 101.

Sunshine.—In all districts sunshine aggregates were deficient, the loss being most pronounced in the Midlands and the north of England and in the lowlands of Scotland where the mean daily duration of sunshine was in several places less than 2½ hours. At Cranwell the mean daily duration, 2.91 hours, was 2.02 hours below the normal whilst at Nottingham the mean daily duration, 2.06 hours, was as much as 2.41 hours below the normal. This is the sixth consecutive month with a general deficiency of sunshine in England and Wales. The month was the dullest September since records commenced at Southport in 1896, Liverpool in 1908, Eskdalemuir in 1910 and Ross-on-Wye in 1915. The deficiency was least in the east of Scotland, a daily average exceeding 4½ hours being recorded around the Firth of Tay. Most sunshine was recorded on the south-east coast of England where the average daily duration exceeded 5 hours in most places. The sunniest period extended from about the 6th to the 13th. Amongst some notable daily records were 12.3 hours at Falmouth on the 7th and 12.4 hours at Tiree on the 10th.

Fog.—With the prevalence of quiet anticyclonic conditions fog occurred locally fairly frequently. Industrial towns were most affected and in Scotland the area between the Firths of Forth and Clyde.

Miscellaneous Phenomena.—Aurora was observed in Scotland on the 4th, 8th, 9th, 11th and 21st, that on the 21st being observed as far south as Leuchars. A vividly coloured solar halo of 46°, together with a bright parhelion on the circumference of a less vividly coloured 22° halo and faint traces of a sun pillar were observed at Armagh on the 4th. The halo system lasted 3 hours, only disappearing shortly before sunset.