

## MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

(Supplement to Weekly Weather Report.)

SUMMARY OF OBSERVATIONS COMPILED FROM RETURNS OF OFFICIAL STATIONS AND VOLUNTEER OBSERVERS IN THE UNITED KINGDOM, AND AT GIBRALTAR AND MALTA, WITH A CHART OF RAINFALL CONTRIBUTED BY THE BRITISH RAINFALL ORGANIZATION.

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE.

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## Very quiet generally. Dry in Great Britain.

Cyclonic disturbances were comparatively few and unimportant for October, and as their direct influence was mostly confined to the western districts the weather was generally very dry for the time of year in the major portion of Great Britain. The passage of a depression over the Channel on the 31st, however, brought heavy rain to some of the southern districts, which had hitherto been abnormally dry.

A very shallow depression, marked A on map 2, p. 111, caused more or less rain in most districts on the 1st and 2nd, but as a large anticyclone extended over these Islands from Scandinavia the weather became dry generally until the 7th, when a depression in the west and south-west gave more than 30 mm. of rain to a large portion of Ireland, and caused a strong and squally Easterly wind in the south of that country. At Weaver Point the gusts reached 25 m/s. The Easterly and South-Easterly winds prevalent during the next few days were attended by slight rain in various parts of the Kingdom. On the 11th local thunderstorms visited the south-west of England, and a shallow depression, marked D, which moved directly across England on the 12th, caused some expansion of the rain area. On the 13th a depression far out on the Atlantic produced a steeper gradient for Southerly winds along our western seaboard, and gales were experienced in exposed places. This was followed by a quiet and generally dry period until the 20th, when the approach of a depression to Ireland yielded heavy rain, at first locally, and subsequently over a wider area. Southerly to South-Easterly strong squally winds or gales of brief duration occurred on the 21st on several parts of our western and northern coasts, and at some places in the south-western counties local thunderstorms were experienced. On the 23rd more than 25 mm. of rain fell in many parts of England and the west of Scotland, accompanying the passage of a depression, track G, moving south south-eastward over the western districts. At Sidmouth the rain was as much as 67 mm., at Douglas, I. of Man, 55 mm., and at Bargrennan 58 mm. On the 24th, when the depression centre moved very slowly eastward on the English Channel, further heavy rains were experienced at many stations; at Creech Grange the measurement was 51 mm. The depression subsequently travelled southward, and in its rear the Easterly and North-Easterly winds increased to a gale on the south-east coast of England. On the 27th and 28th a rather deep depression skirting our western coasts, with a secondary further east, caused a great increase in the force of the wind, and gales from between South-West and South-East were experienced in most parts of the Kingdom. At Aberdeen the velocity of the gusts reached 28 m/s on the 28th. The rain was also heavy locally. At Foffany, Co. Down, on the 27th there was the unusual amount of 90 mm., with a Southerly wind, and at Crathes on the 28th 85 mm., with a South-Easterly wind. At the latter station no less than 130 mm. fell in 42 hours, and the river Dee was in high flood. Associated with the secondary 39 mm. fell at Dover on the 28th, and 31 mm. at Sandgate, the latter followed by 56 mm. at Sandgate on the 29th. Late on the 30th the wind again rose to a gale on our south-western coasts, in front of another depression. The movement eastward of this depression on the 31st was slow, and as is usual in such circumstances the quantity of rain with the Easterly wind on its northern side was large. Numerous stations in the southern half of England measured more than 30 mm. and several more than 40 mm., Basingstoke 52 mm., and Grayshott 56 mm. Passing thunderstorms were experienced in various parts of England on the 28th and 29th, and locally in the south on the 30th.

**Barometric Pressure.**—The mean pressure distribution for the period, was abnormal. The average October isobaric lines run from west to east for Westerly winds, but on the present occasion they were for South-Easterly to Southerly winds. A somewhat similar distribution occurred in October, 1898, and again in 1908, while in 1910 and in 1911 it was in favour of East South-East winds. Examples of a mean gradient for winds from the opposite point of the compass—the North-West—are found in the Monthly Reports for October, 1892, 1895, and 1905. In all parts of the Kingdom the mean height of the barometer was above the average, but the mean range agreed closely with the normal. In the south-east and east of England the barometer reached its highest point on the 18th, but elsewhere the highest readings were recorded on the 26th, when an anticyclonic system extended over these Islands from the Atlantic, and the general direction of the wind was Northerly. The barometer fell to its lowest level at the end of the month in all districts; on the 28th or 29th in the northern and most of the western parts of the Kingdom, with the depression centred outside the Irish coast, and elsewhere on the 31st, with the depression centred near the south-west coast of England. The absolute highest value was 1037 millibars in Scotland North on the

25th, and the lowest 978 millibars in the Scilly Isles on the 31st. On at least ten days the distribution was anticyclonic over the entire Kingdom. On as many as 26 days pressure was highest over northern Europe, not once over France.

**Rainfall.**—Except in the south-west of England, the south of Ireland, and locally elsewhere, the rainfall was less than the normal, the divergence being very marked in the extreme north and north-west of Britain. In Scotland, North, the total fall was only 36 per cent. of the average, and in England, North-East and North-West, 47 and 48 per cent. respectively. In Scotland as a whole the percentage of the average was 60, and in England and Wales 63, but in Ireland was 112. Many parts of England experienced 15 or more consecutive days without rain. At Chelmsford there was absolute drought from the 6th till the 22nd, inclusive, at Bucklebury from the 3rd till the 20th, and at Weston Turville and Wokingham from the 3rd till the 22nd. The total fall and the number of days showed great variation. At Inverness the aggregate fall was only 6 mm. At Newton Rigg rain fell on only 4 days, at Chelmsford on 5 days, and at Wokingham and Stockport on 7 days. At Newton Rigg there was only 15 per cent. of the average fall, Glencarron 23 per cent., Stonyhurst 24, Deerness 25, and Cambridge 33, while at Bath it was 132, Hereford 146, Wilton 157, and at Waterford and Valencia 178.

At 17 stations taking measurements for the 9 hours ending at 6 p.m. and for the 15 hours ending at 9 a.m. the fall in every case but one was proportionately less during the day than at night. The aggregate fall for the 9 hours was 343 mm., and for the 15 hours 998 mm., while the proportional values would have been 502 mm. and 839 mm. Similar results were shown at 7 stations measuring at 9 a.m. and 9 p.m. In nearly every case the fall during the day was much less than that for the night. The 9 p.m. measurements yielded a total of 173 mm. and the 9 a.m. measurements 326 mm.

The level of the underground water at Kew varied from 207 cm. above Mean Sea Level on the 2nd to 192 cm. on the 25th.

**Temperature** as a whole did not differ greatly from the average. In Ireland and in Scotland North, however, it was 1° above. In Ireland the weather was consistently mild until towards the end of the month, but in nearly all parts of Britain the first week was cold, the second very mild, and the third about normal, while the last was cold throughout the Kingdom. The mean difference of temperature between the coldest and warmest weeks was 6°·5. The absolute maxima were reached between the 11th and 14th, when there was a high value of 68° in the Midland Counties, England South-East and East, and Ireland South. Frost was experienced sometime during the month in every district except the English Channel. At some stations—mostly in the North—the absolute minima occurred on the 1st and 2nd, at Braemar on the 6th. Generally, however, the coldest nights were the 29th, 30th, and 31st. At West Linton the thermometer fell to 21°, and at Wellington (Shropshire) to 22°. During the warmest week the wind was from some point between South and South-East, while with the coldest the direction varied greatly. During both periods the distribution of pressure was mainly cyclonic.

**Sea Surface Water Temperature.**—The mean temperature of the sea was higher than that of the land, the difference being rather marked except in the north and west. Coastal fogs were of frequent occurrence in the west, sometimes over a wide area, and were rather common off the north-east of England. About the middle of the month fog was prevalent off Kent and Sussex, but along the south coast generally the atmosphere was clear. Fog and mist were developed on several occasions inland during the intervals of little air movement.

The mean temperature of the river Derwent, at Belper, was 50°·2, and the mean temperature of the air 47°·5.

**Bright Sunshine** was less than the normal generally, the mean deficit being 1·5 hour per day in the Midland Counties, and 1·1 hour in England South-East. In Scotland North and East, however, there was a mean excess of 1·0 hour and 0·4 hour respectively. Over a wide area in England the percentage of the average duration was only about 50.

**Bright Aurora** was observed in a few parts of Scotland and at Carrick-on-Suir on the 14th, again at the same Irish station, Holyhead, and in many parts of Scotland on the 15th, and at Gordon Castle and Banff on the 24th.

An earthquake shock was felt at Aspatia at 3.15 a.m. on the 2nd.