

## MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE

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

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## NOVEMBER, 1933.—Dry, except in some eastern and north-eastern districts.

The weather of the month was distinguished by a deficiency of rainfall except locally in the east and north-east and, in most parts, by a scarcity of winds from south or south-west. In the rear of a depression which moved south-east from Iceland to Denmark, squally northerly winds prevailed over the British Isles during the opening days of the month. Gales occurred locally and there were showers of rain, hail or sleet but sunshine records were good in many places. Between the 3rd and 4th a deep depression north of Iceland moving east cut off the polar air and weather subsequently became mainly dull with local drizzle and fog. Some notably high day temperatures registered in Scotland and north-east England on the 6th were due to equatorial air which had travelled round the large anticyclone centred south-west of Ireland. Between the 7th and 8th the anticyclone retreated south-westward and Icelandic depressions, with associated troughs of low pressure, moving east maintained rather unsettled weather until the 13th. A vigorous depression on the Atlantic, which moved south-east and then south, caused heavy rain and strong winds on the 14th and 15th. Ultimately it practically filled up over Portugal on the 19th. A heavy thunderstorm was reported at Guernsey on the 17th and snow occurred in Scotland on the 17th and 18th.

A new depression centred south of Greenland on the 19th with an associated trough approached the British Isles on the 20th and, in its rear, a belt of high pressure spread over the country and a spell of mainly quiet weather prevailed, with much fog, particularly in England. On the 24th the northern section of the high which was now centred between Iceland and Norway, began to move south-east to Scandinavia and later it increased in intensity over Finland. Cold continental air round this system caused a considerable drop in temperature over the British Isles and the cold spell persisted for the most part until the end of the month, though milder conditions set in in western Ireland on the 29th. Showers of snow, sleet and hail occurred in the south-eastern districts on the 25th and 26th. An Atlantic depression caused southerly gales on the western and northern sea-boards on the 30th and heavy rain in south-west Ireland.

**Pressure and Wind.**—Mean pressure for the month was above the average except in south and east England, the deviation from the normal at 7h. varying from +7.5 mb. at Lerwick to -1.1 mb. at Kew Observatory. The normal gradient for south-westerly winds was thus almost entirely destroyed (See chart 1) and, except in the north-west, south and south-west winds were rare, while winds from some northerly point were unusually frequent. Gales occurred locally between the 1st and 3rd, 14th and 16th, 18th and 20th, and 28th to 30th. A northerly gale was recorded at Scilly on the night of the 11th to 12th. Among the highest speeds recorded in gusts were 68 m.p.h. at Butt of Lewis, 66 m.p.h. at Bell Rock, 62 m.p.h. at Aberdeen and 61 m.p.h. at South Shields on the 2nd, 61 m.p.h. at Cahirciveen on the 30th and 60 m.p.h. at Scilly on the 12th.

**Temperature.**—In all districts except Scotland, E. and England, NE. mean temperature for the month fell below the normal, the greatest deficiency being -1.3 °F. in England, SE. Tropical air round an anticyclone situated west of Ireland was responsible for a short mild spell from the 6th to 8th. The highest temperatures at this period were registered in Scotland, generally on the 6th, when 60° F. was exceeded at several places and 67° F. was reached at Arbroath, 64° F. at Perth and 63° F. at Crieff, Montrose and Stonehaven. In north-east England 60° F. was also recorded locally at this time and 61° F. was touched at Houghall. A brief mild period was experienced around the 19th and 20th and, in England, the highest temperature of the month occurred on one or other of these days at many places. The

11th was a cold day and the nights were cold at times between the 11th and 16th, and, in Ireland, on the 22nd and 23rd. A cold spell due to air of continental origin occurred from the 25th to the end of the month. Temperature in the screen fell to 19° F. at Balmoral, Thorntonhall and Kilmarnock on the 26th, and on the same day the maximum at Abbotsinch was only 26° F. owing to almost continuous fog.

The extremes for the month were:—(England and Wales) 61° F. at Houghall on the 6th and at Wye and Newport, Isle of Wight, on the 20th, 20° F. at Usk on the 13th; (Scotland) 67° F. at Arbroath on the 6th, 19° F. at Balmoral, West Linton and Thorntonhall on the 26th; (Ireland) 59° F. at Newcastle (Wicklow) on the 6th, 20° F. at Markree Castle on the 22nd.

**Precipitation.**—The general precipitation of the British Isles expressed as a percentage of the normal for the period 1881-1915 was 59, the values for the constituent countries being England and Wales 59, Scotland 67, and Ireland 49. The most notable feature of the weather of the month was the deficiency of rainfall in some localities. Locally in Hampshire, Somerset and Carmarthenshire less than 20 per cent. of the normal was recorded, while a large number of stations in Wales and southern England had less than 30 per cent. At Malvern the total, 17 mm. was the least in November since 1896 when an equally low total was registered. At Eastbourne, Newquay and Totland Bay (Isle of Wight), it was the driest November on record apart from that of 1901, and at Ross-on-Wye it was as dry as November, 1917, which was the previous driest on record. In Ireland the deficiency was general, only one station in the extreme north-east reporting more than the normal. In Scotland the most notable deficiency occurred at some stations in the west and north-west; at Stornoway, for example, it was the driest November since records were started in 1870. In contrast to the general scarcity of rain was the excess recorded locally in eastern Scotland, north-east England and on the coast of East Anglia. At some stations in these areas it was markedly wet; at Tynemouth, for example, it was the wettest November since records were begun in 1915.

Heavy rain occurred around the 14th and 15th. On the 14th, 54 mm. fell at Gairlochhead, 53 mm. at Inverchaolin (Argyll), 50 mm. at Glenbranter, 46 mm. at Toward and West Kilbride, 44 mm. at Donaghadee and 41 mm. at Borrowdale.

Thunderstorms occurred locally, mainly on the 10th, 13th, 14th and 17th. Snow or sleet was reported in Scotland mainly between the 1st and 3rd, and on the 17th, 18th and 26th, and in east and south-east England on the 25th and 26th. On the 18th snow lay to a depth of 1 in. at Balmoral.

**Sunshine.**—Sunshine aggregates were above the normal in Ireland, south-west England and the Channel Islands and in the west and extreme north of Scotland; elsewhere there was a deficiency which was most marked in eastern England. On the whole the sunniest period occurred from the 1st to 4th and, except in the west, records were good at many places on the 14th. During the latter half of the month sunshine was poor on the whole in eastern districts, but records were good at times in the west.

**Fog.**—After the 4th fog occurred frequently, particularly from the 5th to 9th, the 11th to 14th, on the 16th, from the 18th to 24th, and the 26th to 28th.

**Miscellaneous Phenomena.**—A lunar rainbow was observed at Cirencester on the evening of the 3rd. The aurora was observed in Scotland on the nights of the 8th, 9th, 11th, 17th and 22nd, and solar haloes were noted at Oxford on three occasions.