

## MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

(Supplement to the Weekly Weather Report.)

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

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE,

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## SUMMARY OF OBSERVATIONS.

**Pressure, Winds and Weather.**—The closing month of the year was characterised by very variable atmospheric conditions over the United Kingdom, the distribution of pressure during the greater part of the period being of an exceedingly disturbed type, at times producing severe gales, heavy rain or snow, and rapid fluctuations of temperature. This unstable type was associated with the appearance over or in the immediate neighbourhood of these islands of a number of very deep cyclonic systems, in nearly all of which the barometer fell below 29 ins. Throughout the first seven days the conditions were entirely cyclonic, with the barometer below 29 ins. on six days, the lowest reading for the month, and for the whole of the year 1909, being registered at Spurn Head on the morning of the 3rd, when the instrument dropped to the very low level of 28·03 ins. On several occasions two of these deep pressure minima were found over different parts of the country at the same time. From the 8th to the 10th anticyclonic conditions prevailed over the southern districts, the barometer mounting to 30·48 ins. at Jersey on the 9th, the high pressure system being mainly on the Continent. A cyclonic system which occupied the whole country on the 11th quickly passed back to the upper region of the Atlantic, and an anticyclone which had hitherto been over Russia spread westward very rapidly, so that already on the 12th it embraced the whole of the British Isles and the greater portion of the Continent. Only in the south of England and of Ireland did the barometer fail to pass above 30·5 ins., exceeding 30·6 ins. in the northern districts, and on the evening of the 14th it touched 30·73 ins. at Aberdeen, or 2·7 ins. higher than the Spurn Head minimum on the 3rd. The maximum pressure in the system, a little above 30·8 ins., was attained on the 13th and 14th, between Christiania and Moscow. This anticyclonic interval over these islands was of brief duration. It came to an end on the 16th; thenceforward until the 28th the conditions were again wholly cyclonic, and on several days pressure descended below 29 ins. at various stations, sinking to 28·55 ins. at Blacksod Point on the morning of the 22nd. The last three days of the month were marked by cyclonic conditions in the north, and anticyclonic in the south, the barometer on the 30th ascending, for the second time, to 30·48 ins. at Jersey.

There was thus a very decided preponderance of low pressure conditions during the month, and the mean results show that the values were everywhere considerably below the average, the deficiency ranging from 0·18 in. at Stornoway to 0·29 in. at Nottingham and Spurn Head. The range of pressure was greater than in any previous month for a long time past, amounting to 1·6 in. at Jersey and Scilly, and exceeding 2 ins. at more than half the stations, up to 2·55 ins. at Shields. The distribution of the mean pressure for the month did not differ appreciably from the average. In consequence of the number of depressions that passed directly across the country from West to East the winds varied greatly in direction, but those in the western half of the compass predominated. The force exceeded that of a strong breeze at one or more of the telegraphic reporting stations on twenty-six days, and attained gale force on seventeen days, there being a number of instances of a strong or whole gale.

During the very disturbed week at the commencement of the month the weather was influenced by as many as six very deep depressions, so that the period was of an exceedingly wet boisterous character. A disturbance which appeared off our north-western coasts on the opening day occasioned Westerly high winds and gales over the southern half of the Kingdom, a strong gale at Jersey, the anemometers disclosing hourly wind-paths of 50 miles at Holyhead, and 56 miles at Scilly, while in sharp gusts Shoberness reached a rate of 63 miles per hour, Roche's Point 65 miles per hour, and Holyhead and Scilly 66 miles per hour. This system, however, travelled away rapidly across North Germany, and on the morning of the 2nd there were indications of the approach of another towards the Irish coast, which quickly developed into the deepest cyclonic area which visited our coasts during the year. By the evening of the 2nd its centre, with the barometer a little above 28·5 ins., was over Galway, but next morning it was out on the North Sea, off the coast of Yorkshire, with pressure down to 28 ins. The rate of translation in the interval was more than 30 miles an hour, then, slowing down, the system dispersed over southern Norway on the 5th. Its passage across the British Isles was marked by a South-Westerly to Westerly and North Westerly gale, which was general over Ireland and England, the force of a strong gale being felt at Malin Head, Roche's Point, Liverpool, Holyhead, and Dover, a whole gale at Pembroke, Scilly, Portland Bill, Dungeness, Skegness, Spurn Head, Nottingham and in London. At Scilly the greatest hourly travel of the wind was 54 miles, while in gusts a rate of 62 miles per hour was registered at Southport, 73 miles per hour at Roche's Point, and 75 miles per hour at Scilly and Pendennis Castle. Copious rain fell over the kingdom generally, and in Ireland, Wales and the North of England there were numerous records of an inch and upwards on the 2nd, ranging up to 1·5 in. at Giggleswick and Prestwich, and 1·6 in. at Pant-yr-Eos (Mon.) and Bettws-y-Coed. There was snow locally, and at West Linton on the morning of the 3rd it was from 4 ins. to 10 ins. deep.

Two depressions which appeared respectively on the 4th and the 5th near the Bristol Channel, and subsequently passed across the North Sea,

produced much less wind and rain, although a strong South-Westerly gale was felt at Jersey. Dungeness and Nottingham, and a few scattered stations had a little over an inch of rain. Snow was experienced in several localities, but not in any large quantity, Uldale (Cumberland) reporting, however, 6 ins. on the 6th.

On the 9th there was a low pressure minimum over Iceland, and Atlantic wireless reports showed another in about 50° N., 40° W. Both systems were moving on easterly paths, the former passing away across Northern Scandinavia, the latter reaching the Irish coast on the 11th, and then returning to the ocean. They caused high South-Westerly winds in some neighbourhoods, but only Stornoway and Malin Head attained gale force. The feature of the disturbances was the heavy rain they produced, the largest quantities registered being: on the 9th, 2·3 ins. at Oban, 2·5 ins. at Fort William and Kinlochewe, 2·9 ins. at Llandale, 2·7 ins. at Ford, and 3·7 ins. at Cruachan (both on Loch Awe); on the 10th 1·9 in. at Lancaster, 2 ins. at Port Talbot and Kirkby Lonsdale, and 2·5 ins. at Graythwaite; and on the 11th 1·7 in. at Arlington, and 2·1 ins. at Stonehaven. With a fall of  $\frac{1}{2}$  in. in the night of the 9th a flood occurred at Uldale.

Following this the country had a few days of very much quieter conditions, but on the 16th the north-eastern spur of a very deep cyclonic system centred near the Azores arrived near the mouth of the English Channel, bringing very heavy rain to the southern and south-western districts, the falls ranging up to 1·6 in. at Abersychan and Newport (Mon.), and 2·1 ins. at Portland Bill. As the depression passed up the Channel next day, the rain continued, more than an inch falling in the Forest of Dean region.

The unsettled weather was maintained for the rest of the month. The disturbance near Blacksod Point on the 22nd was centred out on the Atlantic, and from the 20th to the 26th it moved on a north-easterly course from the Azores to the north coast of Norway. It caused South-Easterly gales on our coasts on the 21st and 22nd, a strong gale at Roche's Point, Donaghadee, Portland Bill, Yarmouth and Nottingham, a whole gale at Malin Head, Pembroke and Spurn Head, the velocity in gusts rising to 65 miles per hour at Roche's Point, and to 60 miles at Gorleston per hour. Very heavy rains were again experienced, up to 2 ins. at Worcester Lodge (Forest of Dean) and Torquay, and 2·1 ins. at Newchurch (Mon.), Pant-yr-Eos and Burrator. In many places there was heavy snow, which lay from 4 ins. to 8 ins. deep. Subsequently, although Malin Head had a whole South-Westerly gale from the 24th to the 26th, there was less wind, but on several days there were records of more than an inch of rain.

Under these ever-changing conditions temperature varied greatly, the day readings sometimes as high as 55°, up to 58° at Torquay on the 3rd, and Kingstown on the 27th, and 59° at Kingstown on the 10th; at other times they were below the freezing point, 23° at West Linton, and 24° at Fort William on the 7th, and 26° at Fort Augustus on the 19th. Similarly with the night minima—numbers of instances were below 20°, down to 0° at Balmoral on the 7th, and 1° at Garforth on the 22nd, while readings above 47° were very numerous, 52° at Dublin, Glasnevin, and Markree Castle in the night of the 9th–10th.

There was comparative freedom from fog inland, but on the western and eastern coasts it was frequently reported, and especially on the 11th and 22nd in the west. On the English Channel there were few records, most of them towards the close of the month.

The temperature of the sea water round our coasts was lower than in November, to the extent of 5° or 6° in several places, but the water was everywhere warmer than the air on shore, by 5° to 7° in a number of instances, and 8° at Stornoway.

Brilliant aurora was witnessed at many northern stations on the 14th, and on various other dates there were less marked local displays.

**Rainfall.**—Over Northern Scotland there was a deficiency of precipitation, up to as much as 4·2 ins. at Glencarron, and in Southern Ireland the distribution was very irregular, from an excess of 2·2 ins. in Dublin (City) to a deficiency of 2 ins. at Killarney. All other districts returned an excess, of more than 2 ins. in numerous cases, ranging up to 4·9 ins. at Buxton. Only Nairn had an aggregate total of less than 2 ins., the amounts generally being large, ranging up to 9 ins. at Swansea and Lickeen, 9·6 ins. at Sheepstor (Dartmoor), 10 ins. at Buxton, 10·5 ins. at Cruachan, 10·7 ins. at Pant-yr-Eos, 10·8 ins. at Inverary, 10·9 ins. at Graythwaite, 16·2 ins. at Plynlimon, 17·1 ins. at Treherbert, and 18·9 ins. at Seathwaite. As a rule there were more than 20 days on which precipitation was measured, 28 at Llandrindod Wells and Huddersfield, but at Kilmarnock only on 11, and Ampleforth, Gordon Castle, Cruachan and Kinlochewe on 14 days.

**Bright Sunshine.**—There was a considerable deficiency of sunshine in the south-western islands, Scilly recorded 9 hours, and Jersey 17 hours less than the average. The mainland districts had an excess, ranging up to 19 hours at Tenby, 20 at Blackpool, and 27 at Pembroke. The largest aggregate was 75 hours at Bournemouth, Totland Bay, Rousdon (31 per cent. of the possible), and Oban (36 per cent.). About Manchester the records were very small, 5 hours (2 per cent.) in the City, 9 hours (4 per cent.) in Whitworth Park, and 10 hours (4 per cent.) at Prestwich. At Hull also the total was only 10 hours.