

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

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NOVEMBER, 1923: COLD, SUNNY, AND FOGGY. FLOODS IN N.W. ENGLAND.

General.—The mild and unsettled weather of October continued for the first few days of November and maximum temperatures over 60°F. were registered. Apart from this period and a short one near the middle of the month, cold weather prevailed with much frost at night but many sunny days. A depression which passed northward of Scotland towards Scandinavia on the 3rd caused high winds and gales on the coasts, heavy rain locally and some snow or sleet in the north. In its rear northerly winds prevailed, effecting a gradual decrease in temperature; on the night 7th–8th some screen minima were below 20°F. Much rain or sleet occurred on the 9th as a new depression passed southward from Iceland to France. From the 12th to 18th a series of deep depressions caused gales and heavy rain generally and floods occurred in Lancashire, North Wales, Cheshire and other areas. Subsequently showers of hail, sleet and snow fell repeatedly in the northern and western Districts. There was intensely cold, foggy weather about the 25th. A depression near the Netherlands caused snow and sleet in London and the south-eastern counties on the 28th. Thunderstorms occurred at times. The association of an excess of rain, sun, cold and fog in November is very unusual.

The general character of the month is illustrated by the following remarks taken from observers' notes:—Belper (Derbyshire).—On only two occasions in the last 43 years has the mean November temperature been within one degree of that of the present month. Copdock (Suffolk).—The coldest November in 22 years' observations here but not much colder than November, 1919. Rainfall above the average, sunshine markedly so and a considerable amount of fog. Hodsock (Nottingham).—A very cold and rather unsettled month; only 1878, 1910 and 1919, have had a lower mean temperature; a moderate excess of rain and sunshine, no measurable snow. Leyland (Lancs.).—The wettest November on record. Malvern.—Very low temperatures. Meltham (Yorks.).—The wettest November since 1888. Newquay.—Extreme minimum as low as that of November, 1919. Sunshine 8 hrs. more than in previous record for this month (1909) and 100 hours more than the lowest (1917). Rothamsted.—The sunniest, and coldest November on record. Skegness.—The wettest November since 1916 and the sunniest since 1910. Torquay.—Only one equally cold November during the past 33 years (1919). Rainfall below the average, sunshine much above. Drumlanrig (Dumfries).—Cold backward weather. Outdoor work at a standstill. Ullapool (Ross and Cromarty).—The first half of month very wet and stormy, with snow at high altitudes. The last half quiet with frost and snow. Dublin.—A very severe wintry month. The mean temperature, 40°F., was however not a record, November, 1878, had one of 38.2°F. Very constant westerly winds.

Pressure and Winds.—The mean pressure of the month was below normal everywhere. The departure of monthly means of pressure at fixed hours from the normal varied from -8.4mb. at Lerwick to -1.6mb. at Valencia. The isobars of mean pressure were somewhat irregular but trended roughly from N.W. or W. to S.E.

Five primary depressions and one secondary crossed some portion of the country. The highest pressures occurred on the 10th and 11th and the lowest on the 14th. The depression (Track D) pursued a very unusual path passing southwards from Iceland to Brittany. In Brittany it was met at about 18 hr. on the 9th by a depression (Track E) advancing northward from the north coast of Spain. From the point of coalescence a low pressure system travelled S.E. to the Mediterranean coast of France.

Gales occurred most generally on the 15th, but were also prevalent on the 3rd and 16th. Holyhead and Southport each recorded 6 days of gale, and the latter station had a total duration of 46 hours of gale. The highest gust of the month was one of 82 m.p.h. at Southport on the 15th during a very violent squall shortly after 12hr.; the direction of the wind shifted from S.E. to W. Four other gusts exceeding 70 m.p.h. were recorded during the month at various stations.

At Norwich the first N.E. wind since July 11th was experienced on the 10th.

Temperature.—The mean temperature of Districts 1-10 was 39°F. and that of each District was markedly below normal. The largest deficiency was 5.8°F. in England S.E. (mean temperature 39°F.) and the smallest 3.5°F. in Scotland N. (mean temperature 38°F.). The coldest period was from the 25th to the end of the month: during this week the mean temperature of England S.E. was 10.8°F. below normal. The average screen minimum for the 7 days ending December 1st in some parts of the country was below 25°F. and at one or two stations it was about 20°F. In most places the mean temperature was a little higher than that of the cold November of 1919; in others it was equal or even a little lower. At Kew so long a period of frost in this month has not been experienced since 1890. At Rothamsted the maximum temperature did not exceed 38.9°F. during the last 9 days, and on the 27th a screen minimum of 12°F. and a grass minimum of 11°F. were

obtained. At Copdock the screen and grass minima of 17°F. and 12°F. respectively were the lowest in 22 years' observation. At Totland Bay the screen minimum of 23°F. on the 26th indicated the coldest November night since those of the 28th and 29th November, 1890, and with these exceptions the coldest in 38 years. Aeroplane observations at South Farnborough show that the mean temperature at 15,000 feet was 19°F. below the normal.

The extreme temperatures of the month were:—(England and Wales) 62°F. at Hodsock and Lenton Fields on the 3rd, 12°F. at Rothamsted on the 27th; (Scotland) 60°F. at Dunrobin on the 11th; 10°F. at Braemar on the 24th and 25th; (Ireland) 58°F. at Killarney on the 2nd and 3rd and at Mallarany on the 11th, 17°F. at Kilkenny on the 25th. Ground frosts were very numerous; many stations had over 20, Hull having 28. The lowest temperatures recorded (over snow) were 8°F. at Balmoral on the 15th and 9°F. at Renfrew on the 24th.

Precipitation.—This was in excess in 6 Districts, normal in one and deficient in five. An excess of more than 50 per cent. occurred over a wide area in northern England and around the north Welsh coast, also over a small area of north-eastern Scotland. England south of the Wash, eastern Wales, central Scotland and southern and eastern Ireland had less than the normal fall, the Isle of Wight and the extreme south of Hampshire having under 50 per cent. The general precipitation of the British Isles expressed as a percentage of the normal was 101: the values for the several countries were:—England and Wales 99, Scotland 110, Ireland 97.

The largest total falls registered were 762mm. at the Styne, Borrowdale (Cumberland) and 546mm. in the Snowdon region.

The week 11th-17th was the wettest and the normal was exceeded in every District save England E. A number of daily falls exceeding 30mm. were recorded at stations given in this Report, the largest being 50mm. at Achnashellach (Ross and Cromarty) and 49mm. at Ford (Argyll) on the 11th, and 59mm. at Stonyhurst, 43mm. at Lancaster and 40mm. at Mallarany (Mayo) on the 12th. At other stations some very heavy precipitation was recorded on the 12th and 13th, as much as 100mm. falling at Llyn Fawr (Glamorgan) on the 13th, 90mm. at Oughtershaw (Yorks.) on the 12th, and 70mm. Penryhn Quarry (Carnarvon) on the 13th, while at Dungeon Ghyll (Westmorland) the total was 153mm. for the 48 hours ending 9 hr. on the 14th. The floods were very severe; that at Sale on the Mersey was the worst within memory, the water being 11ft. deep at Sale Priory. At Portmadoc rain is said to have fallen continuously for 48 hrs.

Snow fell very generally and nearly all stations reported it. At West Linton (Peebles) snow fell on 18 days. At Leadhills snow was lying on 21 days and on 20 days at Braemar. On the 15th a severe snow-storm was general, with a fall of 4 in. at e.g., Galashiels and 20 ins. at Braemar. The snowfall of the 28th in south-east England lay for 3 days on the inland hills.

A thunderstorm was experienced in west and south Scotland on the night of the 3rd-4th. Local storms occurred in various parts of the British Isles, a few stations recording as many as 4 days of thunder. Hail fell frequently, notably in the more northern areas. Markree and Malin Head recorded it on 12 days and Liverpool, Stonyhurst and Redruth on 11 days.

Sunshine.—The duration was in excess of the normal in all Districts. The largest mean daily excess occurred in the Channel Isles (+1.43 hr.) and the smallest in Scotland N. (+0.32 hr.). The duration was 20 per cent. of the possible in Scotland N. and reached 43 per cent. in the Channel Islands. The week 4th-10th was the sunniest generally but with rare exceptions the duration was in excess in all Districts for each individual week. At Torquay the total of 124 hours was the highest in November for 31 years; 8.45 hrs. were recorded on the 2nd.

Fog.—Fog was prevalent generally. Southampton had 24 days of fog, Geldeston and Nottingham 16 days and there were several other stations with more than 10 days. The most foggy periods were the 6th, 9th and the 24th-27th. On the 25th a dense and unbroken fog prevailed over south England stopping all shipping movements in the Thames and Southampton Water and preventing the landing of aeroplanes from the Continent. Very few stations recorded no fog.

Miscellaneous Phenomena.—Solar and lunar halos and coronae were frequently observed. A lunar parhelion was seen at Ross-on-Wye on the 21st and a solar parhelion at Manchester on the 29th. Lunar rainbows were seen at Walton-on-Naze on the 12th, Ross-on-Wye on the 15th and Sanderstead (Surrey) on the 17th. Aurora was observed in Shetland on the 7th and 13th and at Seskin, Carrick-on-Suir on 13th, 15th and on 20th in moonlight. Towards the end of the month rime occurred generally to an unusual degree and glazed frost was also observed. The Counterglow and Zodiacal Band were observed at Wadhurst (Sussex) on 2nd, 4th, 8th, 10th, 11th and 15th, the former also on the 12th and the latter on the 30th.