



Weather Front.

September 2023/1923

September 2023.

Observers Notes.

Middleton: A remarkably warm month! The warmest September since records began in 1963. Both the highest maximum and highest minimum temperatures were new September records. September was also warmer than July and August.

Saltfleetby: September 2023 was the wettest, together with the highest maximum temperature, for September on record (2012). On the 4th high pressure became established drawing in warm air from the south. Sea fret formed along the coast between the 6th and 8th, which cleared by late morning, giving clear skies as well as light drizzle, or wet fog. On the 10th, during the late afternoon, a thunderstorm, with lightning, was reported together with heavy rain. Heavy rain also occurred during the night of the 17th, and during the morning of the 26th.

Mountsorrel: September 2023 was the joint warmest for September ever recorded at this station (records began 2002) and matches the figure for 2006. This also represents the highest mean temperature for Leicestershire since 1836! The week 4th to 11th was incredibly hot for any time of the year, and represents one of the warmest weeks ever recorded, let alone for September! From the 12th onwards the weather became cooler and more unsettled, but it was never cold. After a very sunny first ten days the weather became duller after the 11th.

Louth: An exceptional month of warmth!

Mickleover: The highest maximum temperature of 31.5 C was the highest for September, and the highest daily temperature for the year. September was a warmer month than either July or August.

Bablake: September 2023 was equal in warmth to September 2006. It was also the first September that was warmer than both July and August in over 131 years. Two September records were broken in the early September heat. On the 9th the maximum of 30.5 C was the

latest date in any year to record a temperature of 30 C or more. The 10th was the warmest September night in over 131 years with a minimum of 18.7 C.

Derby: A remarkable September. The highest maximum temperature was the highest for September on the station record (1952) and the highest for 2023. Values above 30 C in September occurred, locally, in both 1911 and, famously, in 1906 (33 C). The highest minimum is a new record for September and was recorded on consecutive nights. Rarely does September come in warmer than either July or August. Since 1952 this has occurred twice for each month. For July, it happened in 1961 and 1980, and for August 1956 and 2006. This year, 2023, it was the first time that both July and August have been eclipsed. There was a run of seven consecutive days early in the month with maxima of 15 C or higher were recorded. The same frequency for this value occurred in September 1959 and 1999.

Eastwood: A flood occurred on Graden Road on the 12th. There were signs of a problem when brown water was seen discharging from an adjoining development site. The developer had removed the topsoil and had rolled the subsurface clay flat ready to start the development. On the night of 17th/18th the maximum rainfall reported was the second highest for September on the station record. It is estimated that 1.95 million litres of water ran off the site and around 40 homes were flooded. The incident made regional and national news.

Ely: The mean maximum, and mean minimum, temperatures were the highest for September on the station's 53-year record. The 17th was the wettest day for September ever recorded at this station.

UK overviewⁱ

High pressure influenced the UK's weather for the first half of September, bringing fine, sunny, dry conditions and the most significant spell of warmth since June. From 4th to 10th, the UK experienced a significant heatwave with temperatures exceeding 30°C somewhere in the UK for seven consecutive days: a September record. Temperatures in England reached 32°C on 6th, 7th, 9th and 10th, and 33.5°C at Faversham (Kent) on 10th, making this the hottest day of the year. This has only occurred in September on four previous occasions in 2016, 1954, 1949 and 1919. On 8th, 28.0°C at Castlederg (County Tyrone) set a new Northern Ireland September record. However, the heat brought several outbreaks of thunderstorms and intense downpours with rainfall rates of 20 to 30mm per hour, with impacts from flash-flooding. The second half of the month saw an abrupt change to much more unsettled and autumnal weather with westerly weather bringing Atlantic low pressure systems and significant rain. There were some very wet and windy days, notably storm Agnes from 27th to 28th, although fortunately the storm was weakening by the time it reached the UK. Maximum and minimum temperatures for the month overall were well above average, particularly across the southern half of the UK, with maximum temperature anomalies in some parts of the south-east 3.5 to 4°C above average. The UK monthly mean temperature

was 15.2°C, 2.2°C above the 1991-2020 average making this the UK's equal-warmest September in the series from 1884 (shared with 2006). For England and Wales this was the warmest September on record. The rainfall pattern was variable but rather wet overall with 131% for the UK. Some locations experiencing torrential downpours were particularly wet, for example parts of south and east Devon. Sunshine totals were slightly above average for the UK with 112%.

Reference climatology used for calculating anomalies is the period 1991-2020 unless otherwise stated.

Weather impacts

- **Impacts from thunderstorms and torrential downpours causing surface water flooding.**
- **Localized disruption from wet and windy weather, including storm Agnes.**

A significant proportion of the rain that fell during the month was in the form of thundery downpours, making for a rather uneven rainfall distribution across the country. Surface water flooding caused some problems in Kent on the 1st, while the thundery breakdown to the spell of hot weather in early September caused various impacts. On the 10th, thousands of runners taking part in the Great North Run were stranded after the event due to major disruption to the transport network, with the South Shields Metro station closed while water was cleared from the tracks. Weather fronts moving south-east across the UK on 11th to 12th brought heavy rain and thunderstorms, with local flooding in Ipswich and Wymondham. Devon and Somerset bore the brunt of impacts from thunderstorms on the 17th to the 18th. In Devon, Exeter Airport was forced to close due to surface water flooding whilst flash flooding also affected Dawlish as local water courses struggled to contain the sudden influx of rainwater. In Somerset, significant surface water flooding occurred along the high street in Minehead. Overall, around 100 properties in south-west England suffered flooding on the 17th, largely due to ingress of excess surface water. Surface water flooding also affected much of Swindon early on the 18th. The second half of the month saw wind and rain impacts from Atlantic low pressure systems. On the 19th, flooding occurred across parts of North Wales with some fallen trees, while power cuts affected several hundred homes in South Wales. Flooding also disrupted rail transport across parts of the south Pennines and the Inverclyde area on the 20th, while prolonged rainfall in Cumbria also caused some surface water flooding. On the 24th, strong winds associated with a deep Atlantic low centre brought disruption to Northern Ireland, with reports of some power outages and structural damage due to a band of squally and locally intense rainfall. Storm Agnes affected the UK from 27th to 28th, bringing strong winds and heavy rain, although fortunately the storm was weakening by the time it tracked north-west across the northern half of the UK. A woman was rescued from her car in fast flowing floodwater in Northern Ireland. Irish Sea ferry services were suspended with power outages on the Isles of Scilly and also in Kirkcudbright, south-west Scotland. Some trees were felled and road transport disrupted in south-west Scotland and parts of Cumbria.

September 1923.

Observers Notes.ⁱⁱ

Bude: Wet and wild weather from 16th to 23rd, end of the month warm and damp.

Hodsock Priory (Nottingham): During the first fortnight the bulk of the harvest was secured in good condition. The next ten days were unsettled with a good deal of rain. Sunshine exactly double that of September 1922. Rather more frosts than usual.

Isleworth: A fair month.

Meltham (Yorkshire): The first month since August 1895 without any east winds.

Skegness: An average month.

Southport: The fifth consecutive month with an excessive prevalence of westerly winds. The mean daily range of temperature was again remarkably small.

Arisaig (Inverness): An abnormally wet and unsettled month with much wind.

Ullapool (Ross and Cromarty): Cold and wet, little sunshine, snow down to 2,000 ft line on the 20th and 21st.

Dublin: A disappointing month with only three days of sunshine.

Derby/Burton-on-Trent: The month a hundred years ago was a little wetter than normal, with most sites recording rainfall totals between 55 and 65 mm. Temperatures ranged from a minimum around 2 C or so on the 3rd, 16th, and 20th, while the maxima were noted on the 6th, 9th, 29th, and 30th; the highest for the month, at Burton, was 23 C. Overall, the mean temperature for the month was around 12 C.ⁱⁱⁱ

[Stratton summaries September 1923 as “warm and sunny at first; then unsettled period with storms and gales”.]^{iv}

UK, September 1923, an Overview.

The early part of the month saw fair, warm, and sunny weather predominate over southerly parts of the country. High maximum temperatures were recorded, and sunshine was above average. In the north and west there was also an improvement on the windy and unsettled weather at the end of August, but there were reports of heavy rain at times due to the influence of depressions tracking from Iceland to northern Norway. Towards the end of the second week the track of depressions moved more towards the south producing more unsettled weather over much of the country, with strong winds occurring along western and northern coasts on the 11th and 12th. These unsettled conditions spread to the south-east on the 13th, with thunderstorms developing locally on the following two days. High winds

occurred on the 26th along exposed parts of the coast. A northerly air stream, originating in the area of Iceland, produced a marked fall of temperature on the 15th, and from then almost to the end of the month, the weather remained cool, with snow being reported on the Scottish mountains on the 20th. Towards the end of the month the anticyclone, located over France, moved north, bringing warmer, but rather misty, weather. In some parts of the country the highest temperatures were recorded on the last day, and night minima were also high.

Mean temperatures were generally below average, ranging from -1.9 F [-0.9 C] in eastern Scotland, the Channel Islands, and the Isles of Scilly, to -0.6 F [-0.3 C] in eastern England. The coldest period was from the 16th to the 22nd, and the warmest was the week ending the 29th. During the first week the mean daily range was 20-25 F [10-12 C]. Night minima were unusually high at the end of the month. At Kew, a minimum of 64 F [18 C] was reported on the night 29th/30th, which was the highest ever recorded during September.

Rainfall was above average except for parts of the east and south-western coastal regions. In some areas of the country rainfall exceeded 200% of average, the largest area included Argyll, Renfrew, and Ayr, while the greater part of England and Ireland saw rainfall totals of between 100% and 150%.

In western and southern Scotland, it was the third wettest month in succession, the July to September period being the wettest at Rosyth for at least 100 years, at Cargen (Dumfries) the wettest for at least 60 years, and at Greenock the wettest September for at least 50 years.

The first week of the month was generally the driest, and the week 16th-22nd the wettest, with the last three days being dry. The largest falls were 39 mm at Porton on the 14th, 37 mm at Mallarany on the 27th, 36 mm at Onich on the 11th, and at Seskin on the 17th. Other, heavier, falls were 63 mm at Basset Down (Wiltshire) on the 13th, and Dungeon Ghyll (Cumbria) on the 17th.

Snow was recorded in Scotland on the 20th, and Ben Lomond was capped for the first time in the season.

Several stations recorded four days of thunder, with a few recording three days of hail. There were no notable thunderstorms, but local ones were reported, mainly in the second half of the month. On the 22nd ball lightning struck the Manchester Corporation Golf Links at Heaton Park.

The number of days of fog varied from 0 to 6, the largest being recorded at Sparkhill (Birmingham), and at Biggin Hill (Kent). Biggin Hill is at an altitude of 600 feet, consequently, it is probable that the hill fog was due to low stratus covering the hill tops. Mist and fog was prevalent during the last two days of the month along southern coasts of England and Ireland, resulting in many shipping incidents in the English Channel and St Georges Channel.

The weather for the month of September 1923 can be summed up as, “cool, sunny in the south-east, wet in the north”.^v

Europe and the Rest of the World, September 1923.^{vi}

The heat and drought noted during August, continued throughout the first half of the month but, from the 20th onwards, heavy snowfalls were reported down to 5,900 ft.

In India the rains were generally heavy, especially at Bombay [Mumbai], which was flooded on the 20th, and recorded a further 12 in [304.8 mm] of rain during the following week. This brought the total rainfall for the season to 77 in [1955.8 mm], or 10 in [254 mm] above average.

In the USA, snow and frost was reported over an extensive area in the north and middle west from the 13th and, on the 27th, a bridge in Wyoming, weakened by heavy rain, caused a serious [railway?] accident.

Early in the month much fog was reported, and on the 8th seven American destroyers ran aground in thick fog north of Santa Barbara, on the Pacific coast. The white Star liner “Majestic” was delayed by fog between New York and Southampton.

In Brazil it was reported that, in the north, rainfall was 23 mm below average, in the south, while being irregular, rainfall was 22 mm above average, and in the central districts the rain was “abundant, being 38 mm above normal”. The temperature was slightly above average. The prospects for the coffee and sugar crop was considered to be not so good.

In Argentina, the early days of September saw the end of an unusually cold and windy period of weather, which included much rain and snow. In some parts of central Argentina undrafted snow lay to a depth of 3 or 4 feet [between 90 to 120 cm]. Significant loss of livestock was reported, together with an epidemic of influenza. It is understood that the bad weather was due to the interaction of an intense anticyclone, located at 50 S, with a deep, slow moving, depression south-east of Buenos Aires.

September 1923.

Central England Data.^{vii} (Averaging period is 1891 to 1920.)

Mean Maximum Temperature: 16.5 C. Average: 17.7 C.

Mean Minimum Temperature: 8.5 C. Average: 9.1 C.

Mean Temperature: 12.5 C. Average: 13.1 C.

England and Wales Rainfall: 82.5 mm. Average: 64.3 mm. 128%.

Midlands Data. (Averaging period is 1911 to 1920).

Midlands Mean Maximum Temperature: 16.5 C. Average: 17.1 C.

Midlands Mean Minimum Temperature: 7.2 C. Average: 7.9 C.

Midlands Mean Temperature: 11.9 C. Average: 12.5 C.

Midlands Rainfall: 73.9 mm. Average: 55.2 mm. 134%.

September 2023 (Provisional)

Central England (Averaging period is 1991-2020).

Mean Maximum Temperature: 21.5 C. Average: 18.3 C.

Mean Minimum Temperature: 12.5 C. Average: 10.1 C.

Mean Temperature: 17.0 C. Average: 14.2 C.

England and Wales Rainfall: 91.0 mm. Average: 76.0 mm. 120%.

ⁱ Weather Summary, September 2023, Meteorological Office, October 2023.

ⁱⁱ Monthly Weather Report, September 1923, Meteorological Office, HMSO, October 1923, p. 113.

ⁱⁱⁱ Stanier DJ, by email, 1 October 2023.

^{iv} Agricultural Records, AD 220-1977, Stratton JM and Houghton Brown J, ed. Whitlock R, John Baker 1978, p. 141.

^v MWR< September 1923, p. 113.

^{vi} Meteorological Magazine, October 1923, Meteorological Office, HMSO, p. 217.

^{vii} Hadley Centre, Central England and Midlands, Meteorological Office.