November 2023 Monthly Weather Report

This document provides a summary of the UK's weather and climate statistics for November 2023.

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UK overview

The first half of November was unsettled and stormy at times with the ongoing influence of Atlantic low pressure systems and strong winds and heavy rain of most note. Storm Ciaran on 1st to 2nd was an exceptionally severe storm for the Channel Islands and northern France but fortunately a 'near miss' for southern England. Further south, winds were comparable to the 'Great Storm' of 16 October 1987. Storm Debi also brought some very strong winds on 13th, particularly affecting Northern Ireland, North Wales and north-west England. These storms contributed to mounting rainfall accumulations through a very wet autumn in some areas. 30 to 50mm of rain fell across southern England from storm Ciaran and a further 30 to 50mm across Northern Ireland and parts of north-west England from storm Debi - with over 100mm across upland areas. There were some incursions of colder air at times with -7.1°C recorded at Altnaharra, Sutherland on 16th, and frosts as far south as Kent with -0.8°C at East Malling, Kent on 12th, though nothing extreme for the time of year. In contrast, the second half of November saw rather quieter autumnal weather with a continued mild Atlantic influence until the last week. However, from 24th, a northerly airflow introduced drier but much colder weather, with some hard frosts (for example -4.8°C at Hurn, Dorset on 8th), and some wintry precipitation, particularly in the north and east.

Temperatures for November were near average overall (anomaly -0.1°C); slightly below across northern Scotland. Despite the wet first half of the month, rainfall totals were near average across much of England, Wales and eastern Scotland, although it was wetter than average for some southern counties. Western Scotland and Northern Ireland were drier than average. Overall the UK received slightly above-average sunshine hours (112%), but with a variable pattern: west parts of Wales and south-west England (for example) were notably dull whereas for the bulk of the rest of England this was a fairly sunny month.

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

Weather impacts

- **Flooding, wind and coastal impacts, including storms Ciaran and Debi.**

Although the UK narrowly avoided the strongest winds from storm Ciaran, the storm did still cause significant impacts to southern coastal counties on the 2nd. As many as 150,000 properties lost power for a time on the 2nd. The port of Dover was closed to all traffic for several hours with cross-Channel ferry services suspended. Many trees were brought down across south-west and south-east England. Large waves battered the South Coast with several vehicles swept into the sea and a major incident declared in Hampshire and the Isle of Wight. Hundreds of schools were closed, and flights and rail services were cancelled. Heavy rain from storm Ciaran also caused some localized flooding impacts with flooding on several motorways and rail disruption across East Anglia and south-west England.

Parts of southern England were affected by further flooding in early November due to the ongoing unsettled weather, with groundwater flooding an issue in parts of Dorset, and many rivers having burst their banks.

Storm Debi on 13th brought the strongest winds to coastal areas of Northern Ireland and north-west England. A number of roads in Northern Ireland were blocked by fallen trees and further roads also affected by floodwater. In Cumbria, several thousand homes were without power for a time and in Scotland localized flooding caused some flooding to roads and disruption to rail services.

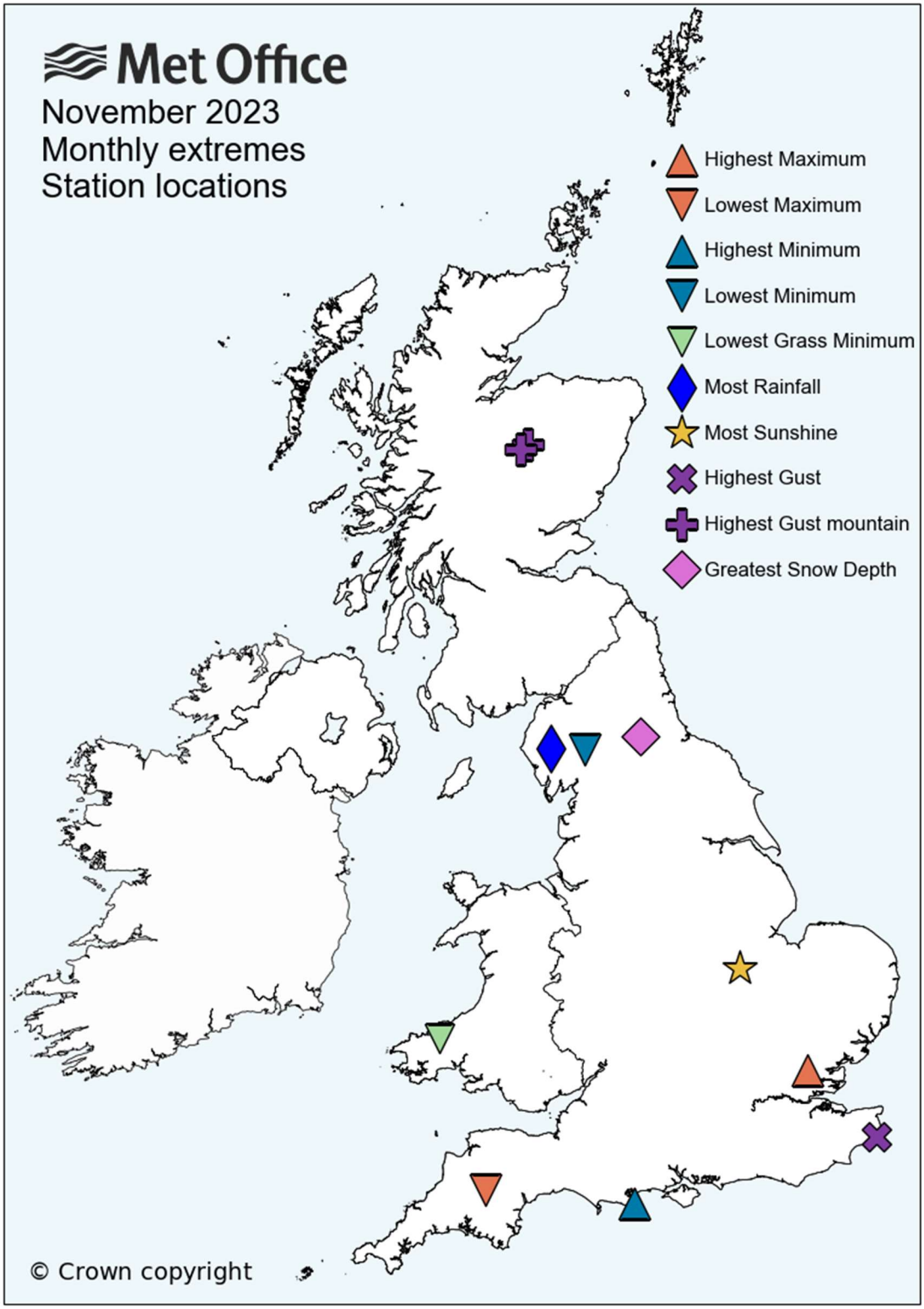
Monthly extremes

The table below lists UK monthly weather extremes recorded at individual weather stations during November 2023 from data available on 04/12/2023. The map shows the location of these stations.

Highest Maximum	**16.7°C** on **13th** at Writtle (Essex, 32mAMSL)
Lowest Maximum	**-0.3°C** on **30th** at Okehampton, East Okement Farm (Devon, 408mAMSL)
Highest Minimum	**13.1°C** on **14th** at Swanage (Dorset, 10mAMSL)
Lowest Minimum	**-7.7°C** on **25th** at Shap (Cumbria, 263mAMSL)
Lowest Grass Minimum	**-11.8°C** on **30th** at Whitechurch (Dyfed, 129mAMSL)
Most Rainfall	**124.2mm** on **13th** at Honister Pass (Cumbria, 358mAMSL)
Most Sunshine	**8.1hr** on **11th** at Wittering (Cambridgeshire, 74mAMSL)
Highest Gust	**68Kt 78mph** on **2nd** at Langdon Bay (Kent, 117mAMSL)
Highest Gust (mountain*)	**97Kt 112mph** on **22nd** at Cairngorm Summit (Inverness-shire, 1237mAMSL) also on **23rd** at Cairngorm Summit (Inverness-shire, 1237mAMSL)
Greatest Snow Depth at 0900 UTC	**10cm** on **30th** at Copley (Durham, 253mAMSL)

mAMSL refers to station elevation in metres above mean sea level.

*Mountain stations are above 500mAMSL.


Met Office
November 2023
Monthly extremes
Station locations
Highest Maximum
Lowest Maximum
Highest Minimum
Lowest Minimum
Lowest Grass Minimum
Most Rainfall
Most Sunshine
Highest Gust
Highest Gust mountain
Greatest Snow Depth
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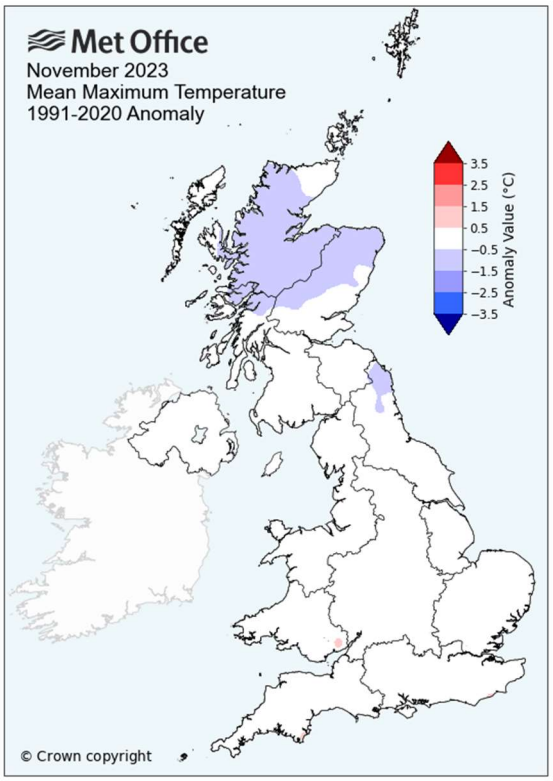
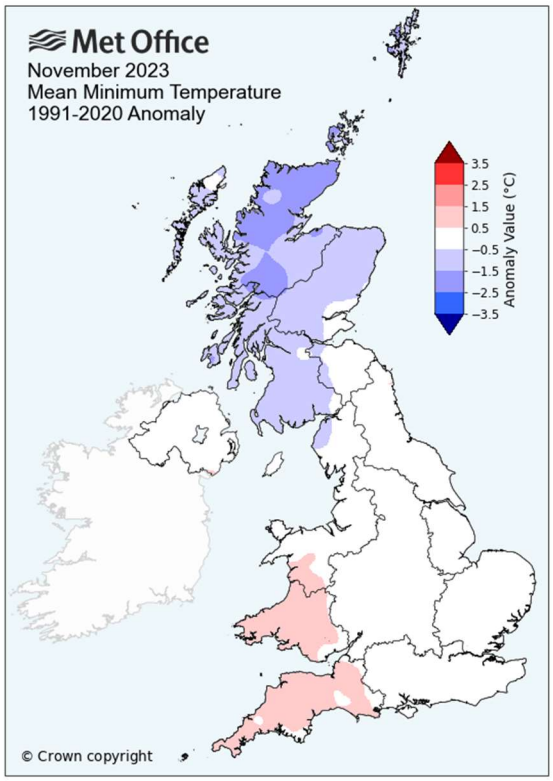
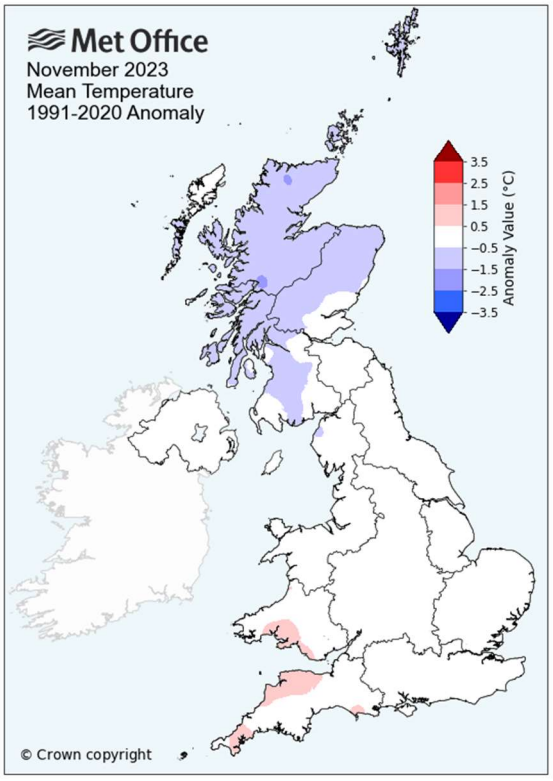
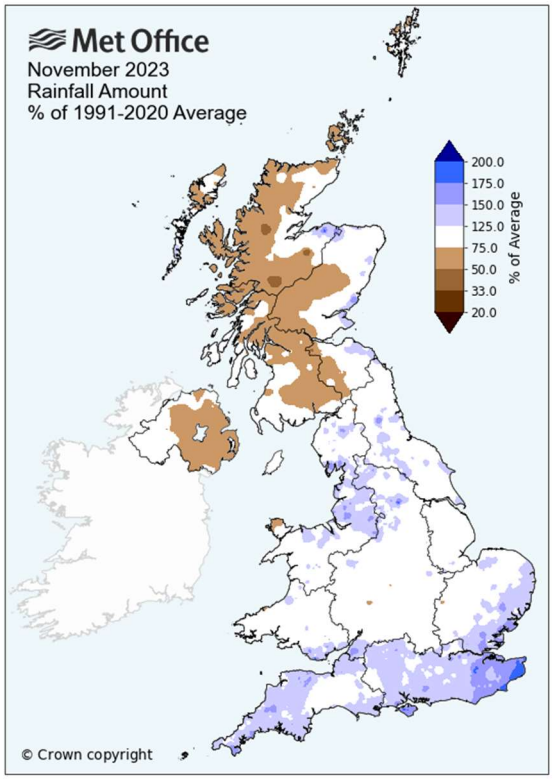
Monthly maps

These maps show monthly average daily maximum, monthly average daily minimum and monthly mean temperature and monthly rainfall for November 2023 as anomalies relative to the November 1991-2020 long term average.

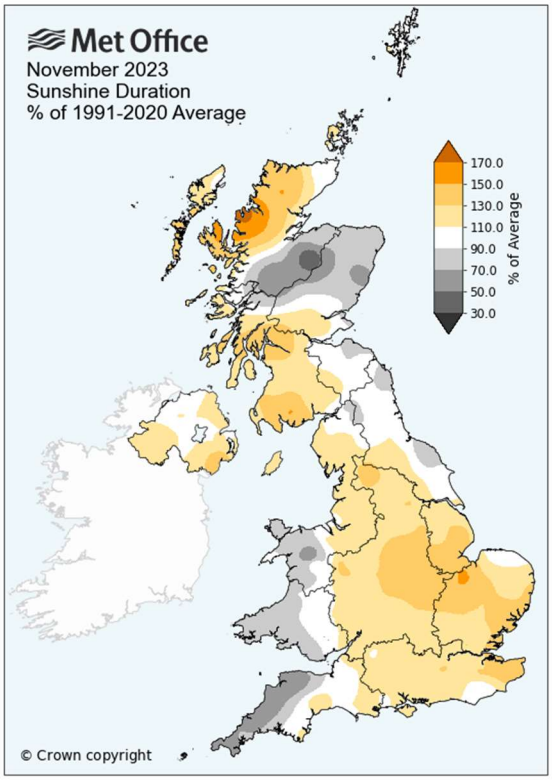


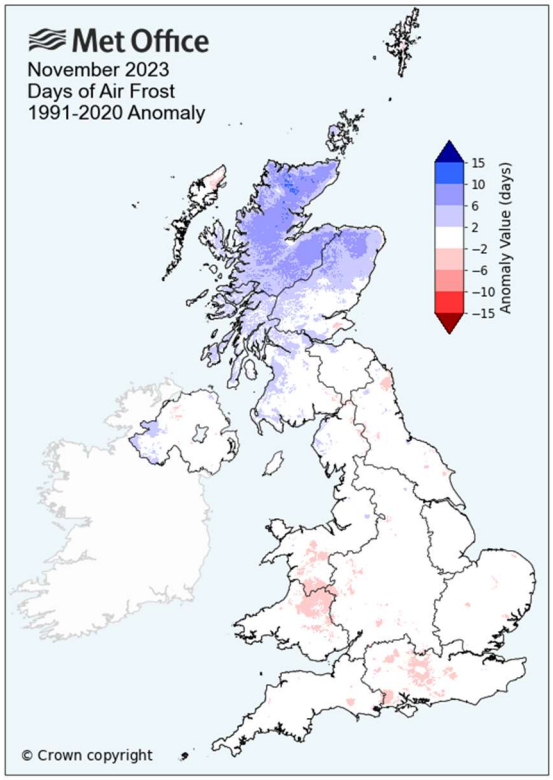


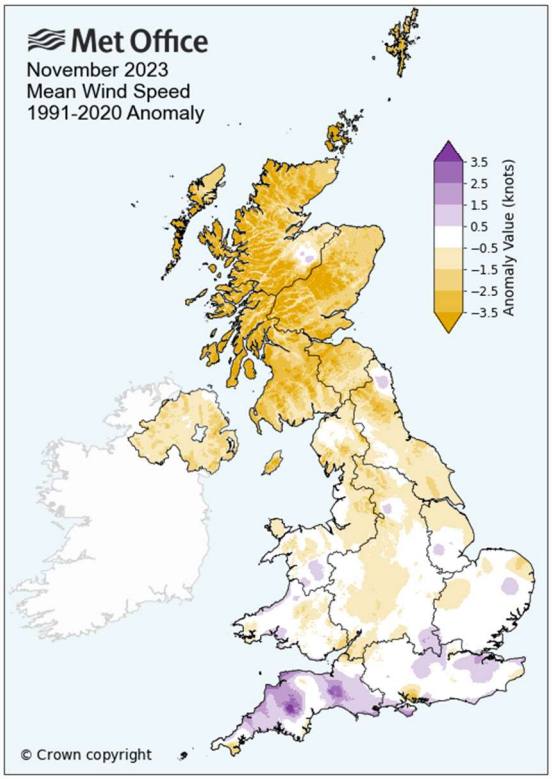


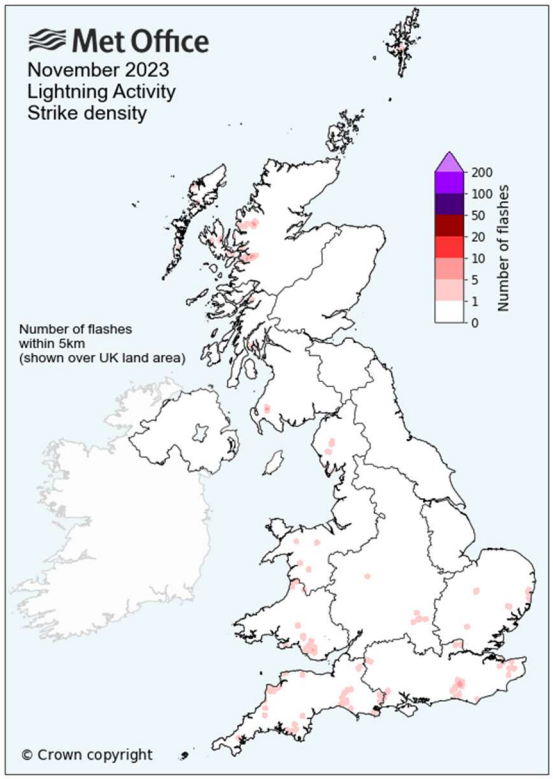


These maps show monthly sunshine, monthly air frost and monthly windspeed for November 2023 as anomalies relative to the November 1991-2020 long term average, plus a map showing lightning activity as the number of strikes within a 5km radius of any land location.









Monthly climate statistics - actuals and anomalies

These tables show the UK and national climate statistics for November 2023 for max, min and mean temperature, rainfall, sunshine and windspeed as actual values and anomalies relative to the November 1991-2020 long term average. The position of the value within the full series (in both ascending and descending order) is shown in the two 'Rank' columns. Central England Temperature (CET) and England & Wales Precipitation (EWP) are also included.

Mean maximum temperature

Region	Maxtemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	9.3	-0.1	43	98	140
England	10.3	0.1	36	105	140
Wales	9.9	0.1	35	106	140
Scotland	7.5	-0.5	59	82	140
Northern Ireland	9.9	0.2	35	106	140
Central England	10.4	0.1	34	113	146

Mean minimum temperature

Region	Mintemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	3.4	-0.2	51	90	140
England	4.3	0.2	33	108	140
Wales	4.8	0.6	26	115	140
Scotland	1.4	-1.1	98	43	140
Northern Ireland	3.7	-0.0	47	94	140
Central England	4.4	-0.1	48	99	146

Mean temperature

Region	Meantemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	6.3	-0.1	47	94	140
England	7.3	0.2	33	108	140
Wales	7.3	0.3	27	114	140
Scotland	4.4	-0.8	77	64	140
Northern Ireland	6.8	0.1	44	97	140
Central England	7.4	0.0	61	305	365

Rainfall

Region	Rainfall (mm)	% of 1991-2020 Average	Rank - wettest	Rank - driest	Series length (yrs)
UK	118.9	96	70	119	188
England	110.8	120	41	148	188
Wales	174.6	108	60	129	188
Scotland	122.4	74	124	65	188
Northern Ireland	92.0	75	115	74	188
EWP (England and Wales)	127.8	120	51	208	258

Sunshine

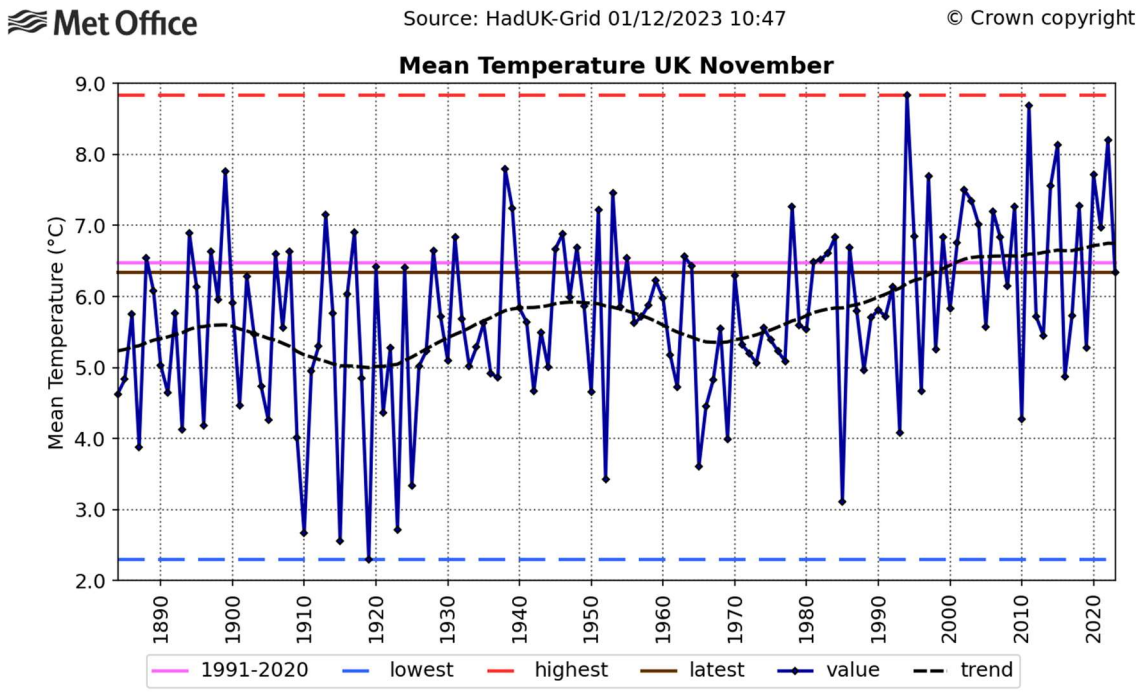
Region	Sunshine (hours)	% of 1991-2020 Average	Rank - sunniest	Rank - dullest	Series length (yrs)
UK	64.6	112	21	94	114
England	75.4	116	17	98	114
Wales	49.4	89	80	35	114
Scotland	51.1	107	29	86	114
Northern Ireland	61.5	113	40	75	114

Windspeed

Region	Windspeed (knots)	1991-2020 Anomaly (knots)	Rank - windiest	Rank - calmest	Series length (yrs)
UK	8.6	-1.1	48	8	55
England	8.3	-0.3	31	25	55
Wales	10.2	-0.2	30	26	55
Scotland	8.9	-2.8	54	2	55
Northern Ireland	7.8	-1.3	47	9	55

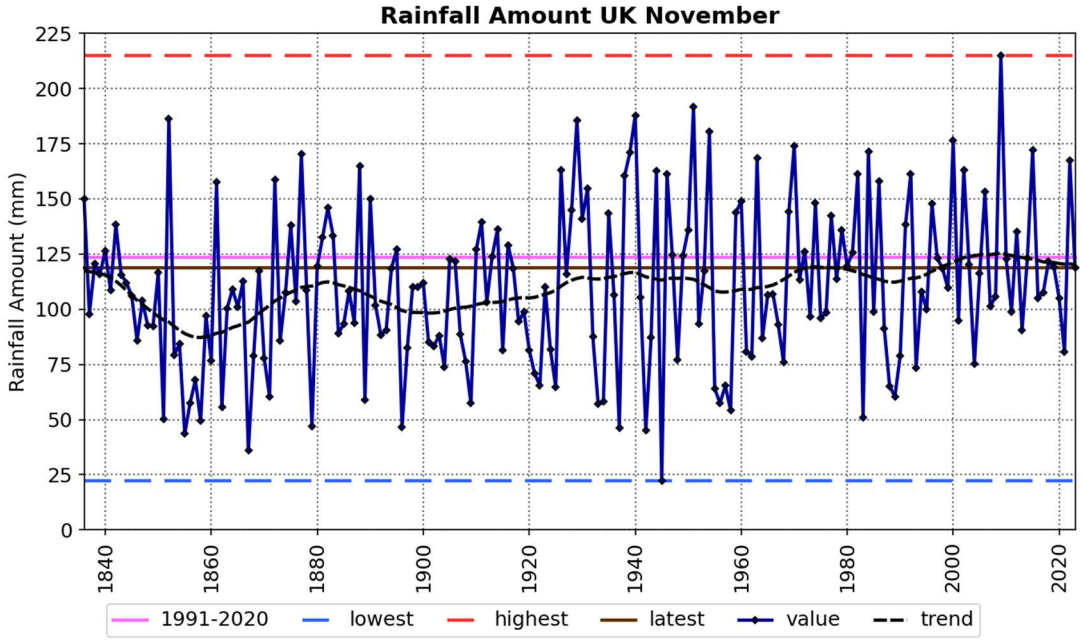
Monthly time-series

These charts show time-series for the UK for November for monthly mean temperature (from 1884), monthly rainfall (from 1836) and monthly sunshine (from 1919). The brown line shows the latest (2023) value. The hatched black line is a smoothing filter which shows the long-term trend. The tables below show statistics for the latest year, latest 10 years 2014-2023, the most recent 30-year climate reference period 1991-2020 and the 30-year baseline climate reference period 1961-1990.



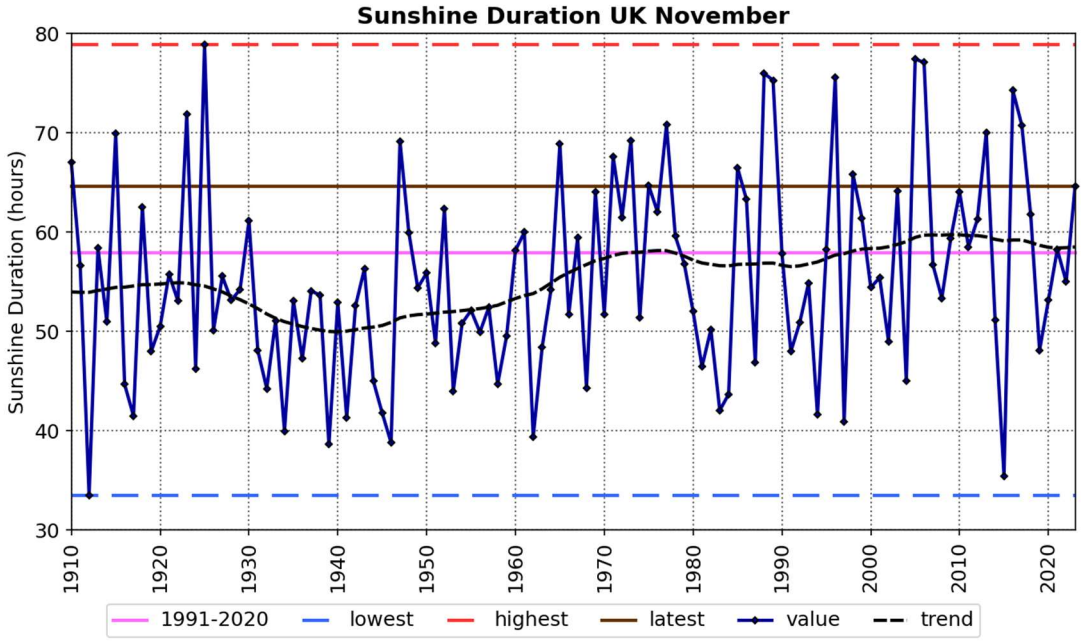
Period	1961-1990	1991-2020	2014-2023	2023
Meantemp (°C)	5.5	6.5	6.8	6.3

Met Office Source: HadUK-Grid 01/12/2023 10:47 © Crown copyright



Period	1961-1990	1991-2020	2014-2023	2023
Rainfall (mm)	112.2	123.4	122.0	118.9

Met Office Source: HadUK-Grid 01/12/2023 10:47 © Crown copyright

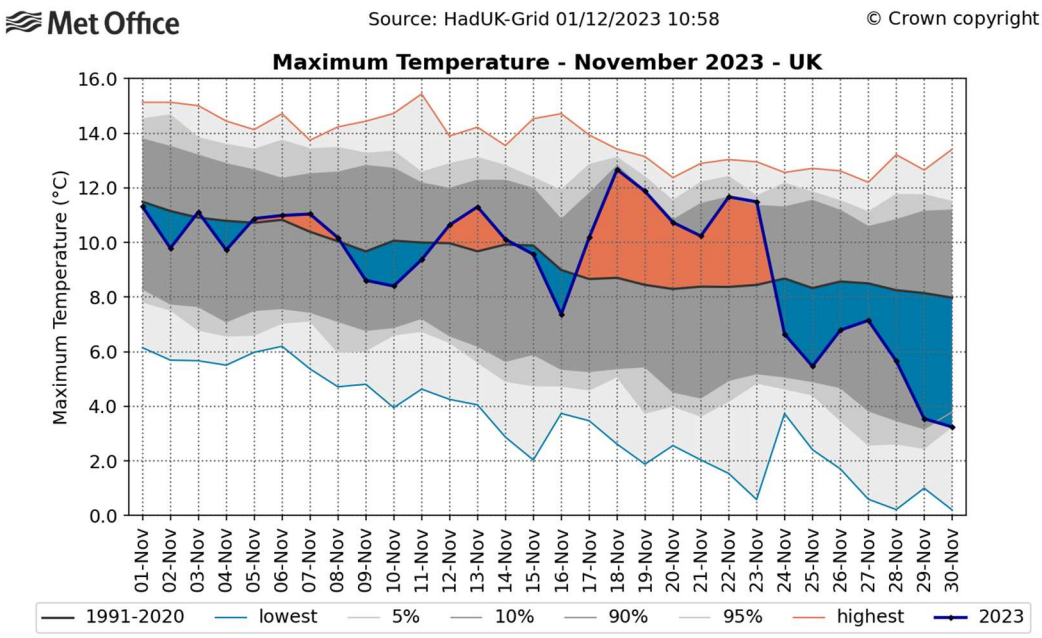


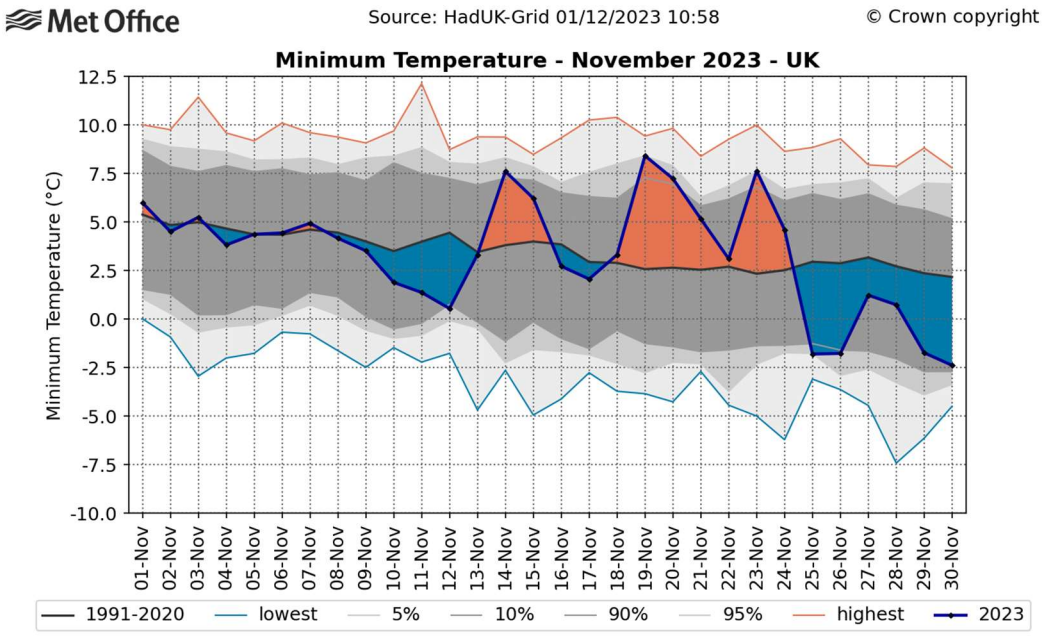
Period	1961-1990	1991-2020	2014-2023	2023
Sunshine (hours)	57.5	57.9	57.3	64.6

Daily time-series

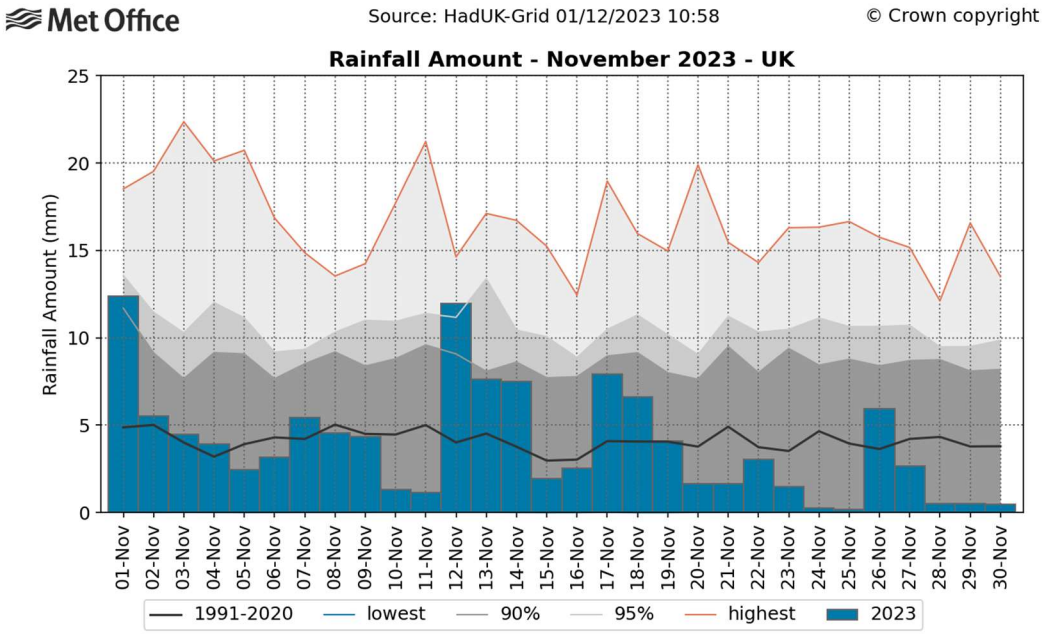
These charts show time-series of UK area-average daily maximum and daily minimum temperature and daily rainfall for each day of November 2023. The areas shaded in grey show the highest and lowest values in the daily temperature series (from 1960) and daily rainfall series (from 1891) together with percentiles and the 1991-2020 long term averages for each day. The rainfall accumulation chart shows the daily rainfall series as an accumulation through the month.

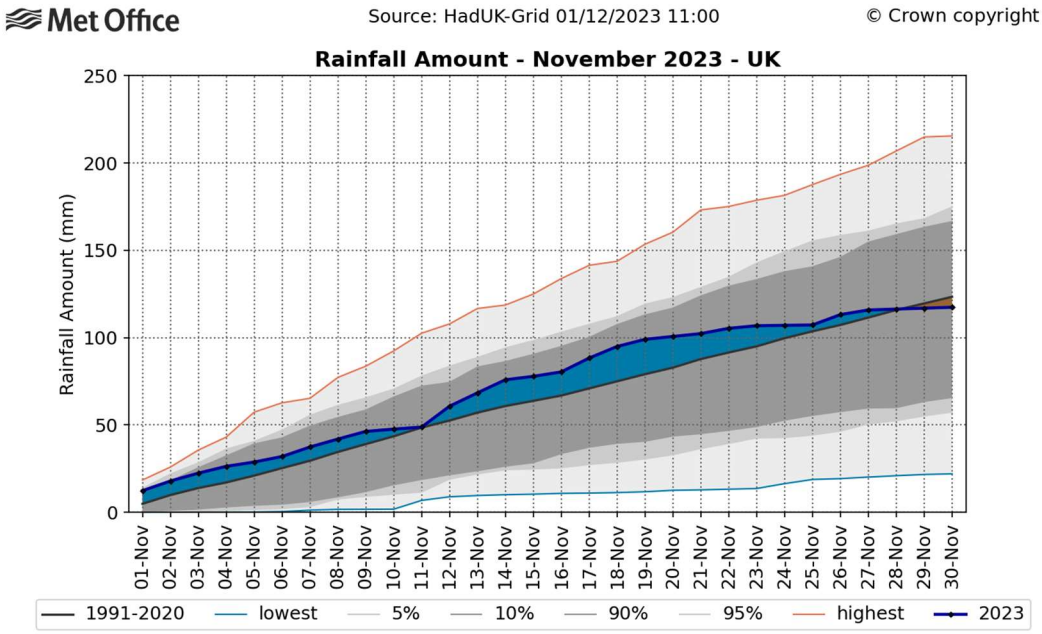
Daily maximum and daily minimum temperature





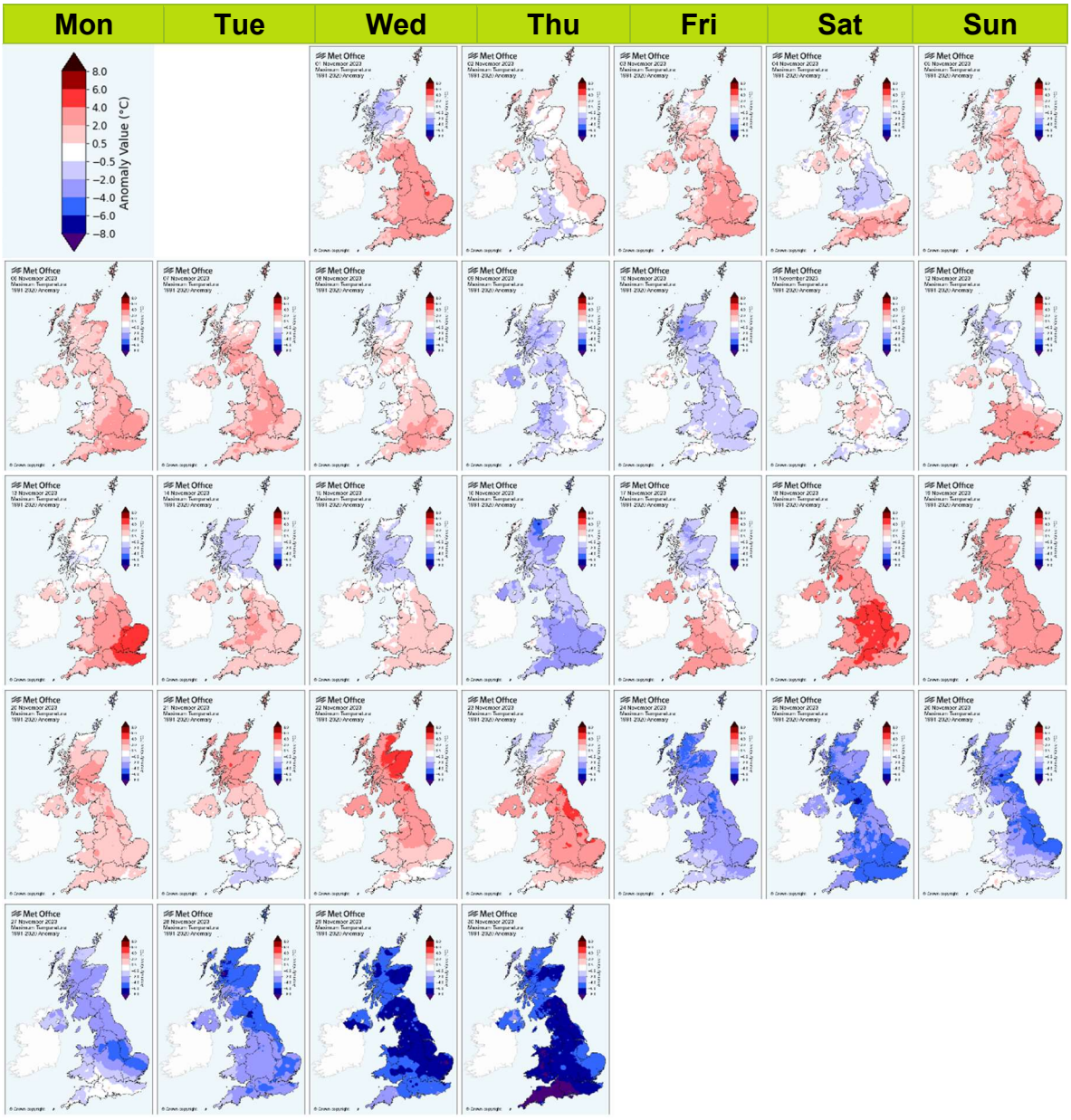
Daily rainfall and rainfall accumulation





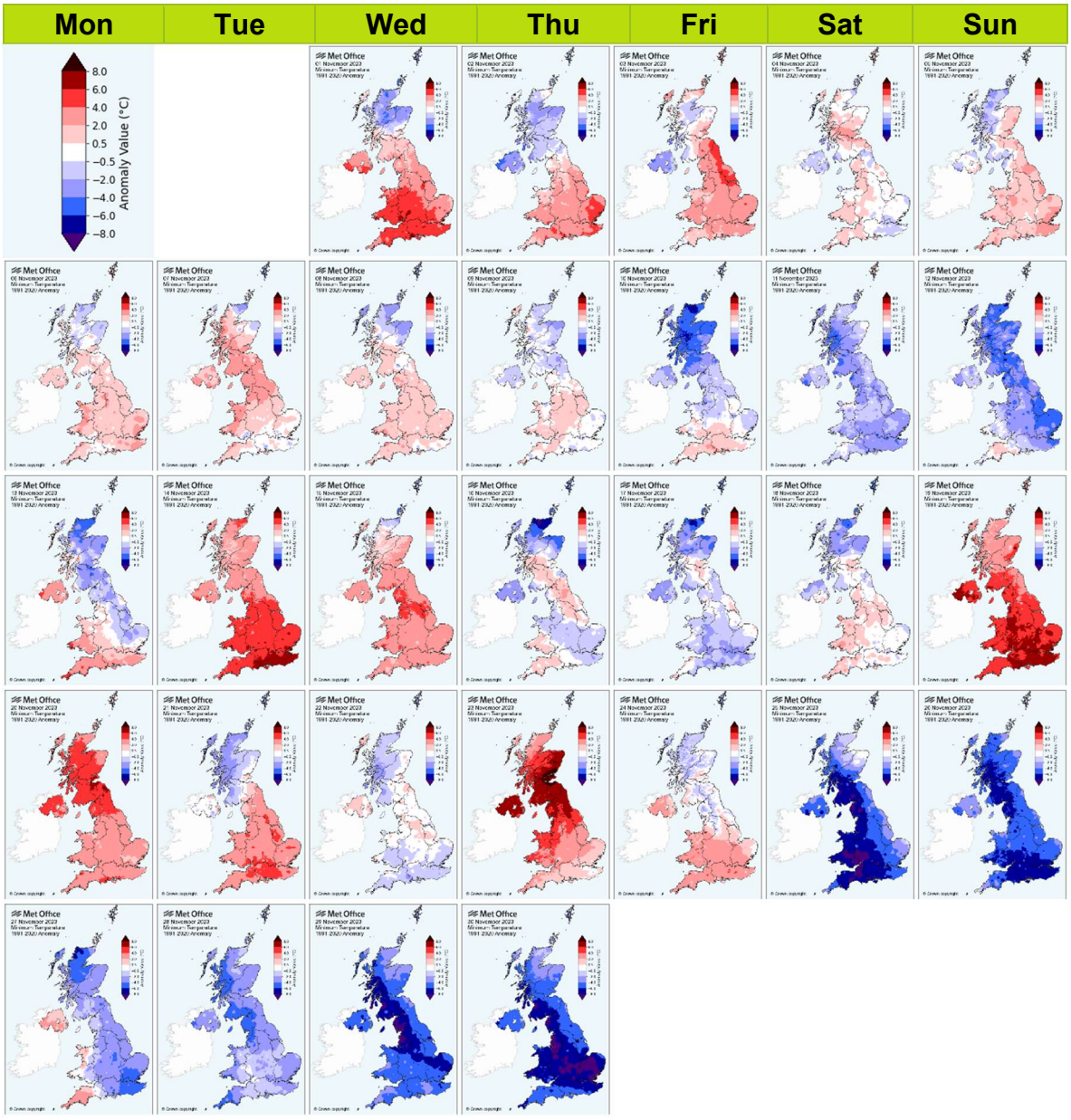
Daily maximum temperature maps - calendar view

These maps show daily maximum temperatures for each day of November 2023 as anomalies relative to the November 1991-2020 long term average. The daily maximum temperature is the maximum from 0900UTC on the day in question to 0900UTC the following day. Normally, the maximum occurs in the early afternoon.



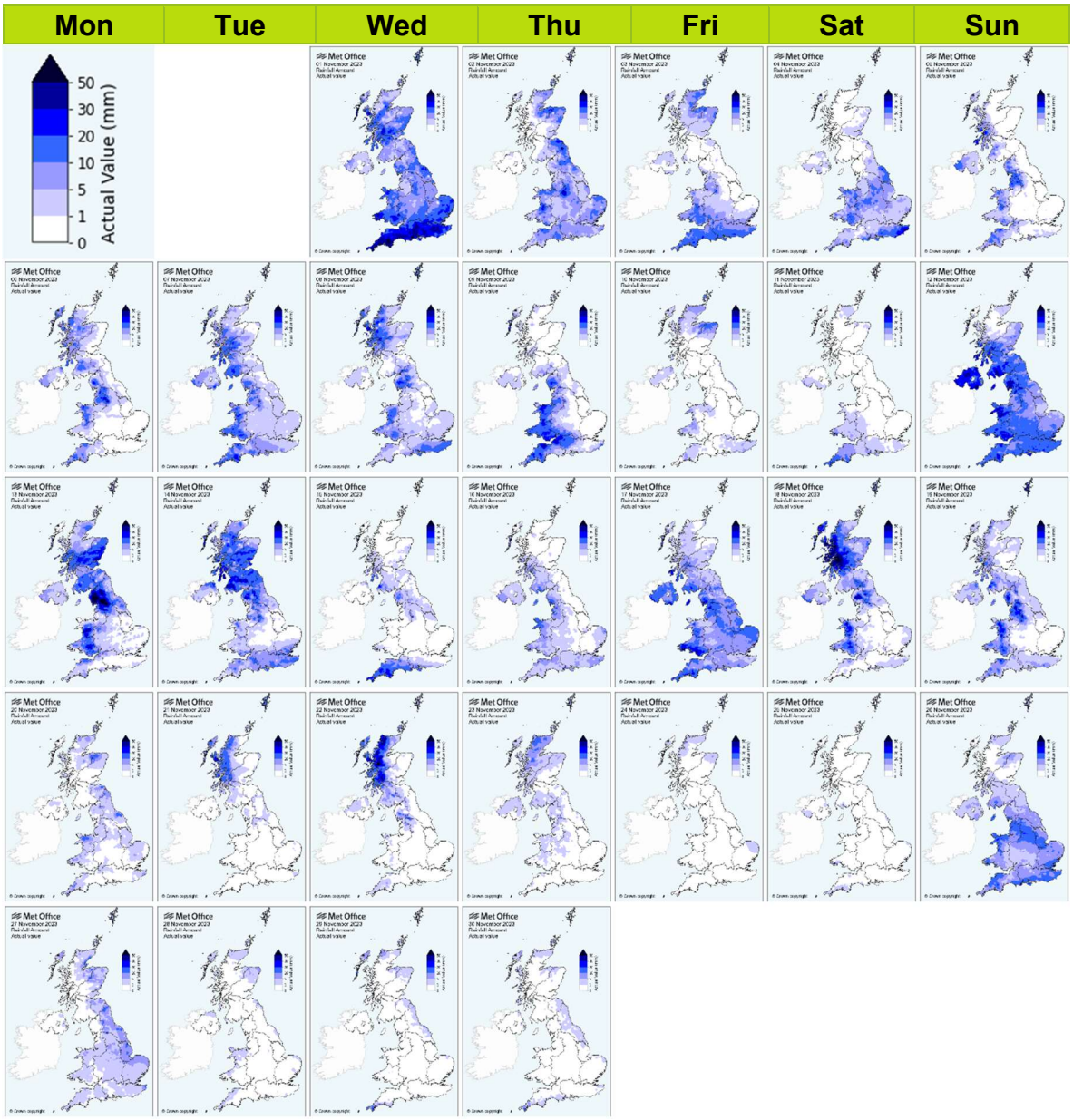
Daily minimum temperature maps - calendar view

These maps show daily minimum temperatures for each day of November 2023 as anomalies relative to the November 1991-2020 long term average. The daily minimum temperature is the minimum from 0900UTC the previous day to 0900UTC on the day in question. Normally, the minimum occurs in the early morning.



Daily rainfall maps - calendar view

These maps show daily rainfall for each day of November 2023 as daily totals. The daily rainfall is the total from 0900UTC on the day in question to 0900UTC the following day.

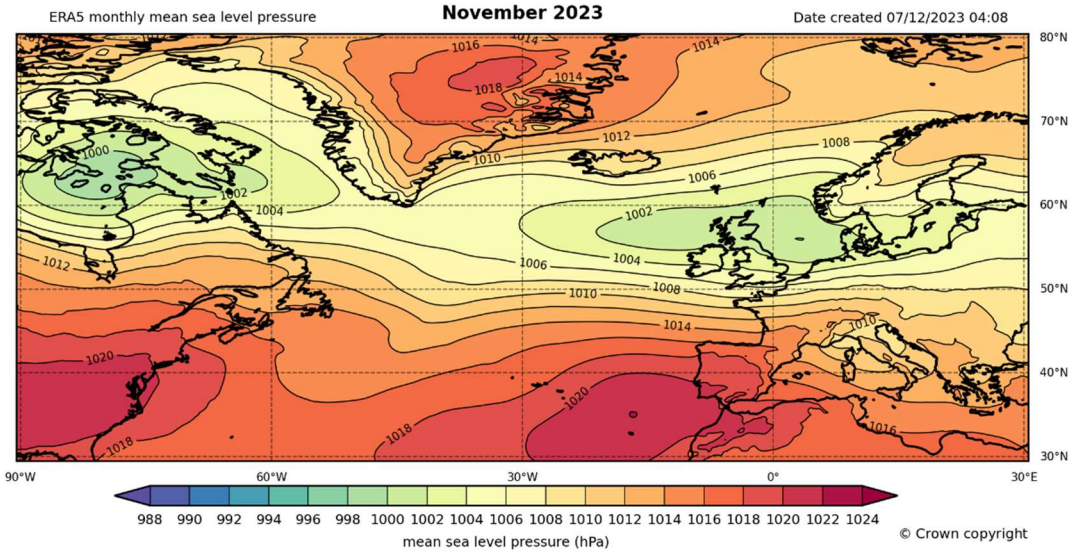


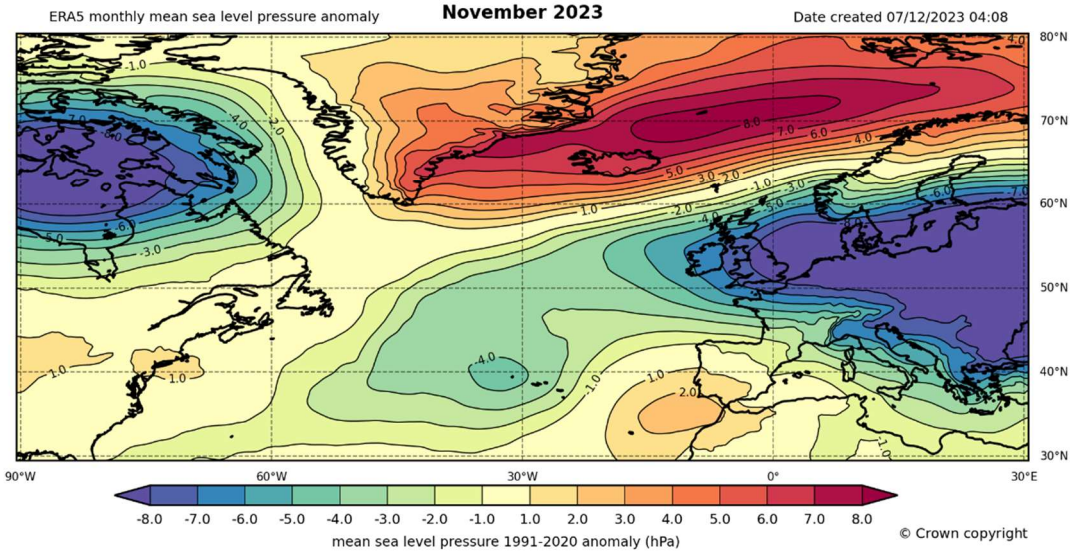
Monthly atmospheric circulation

Mean sea level pressure

These charts show the monthly mean sea level pressure for November 2023 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the November long term average. These charts provide an indication of the weather characteristics of the month overall i.e. whether the weather type has been generally settled (high pressure) or unsettled (low pressure) during the month.

A low pressure anomaly extending west from Germany and Denmark covered much of the UK, particularly eastern England. The resulting anomalous north-easterly flow in the north of the UK led to a drier than average month for western Scotland.

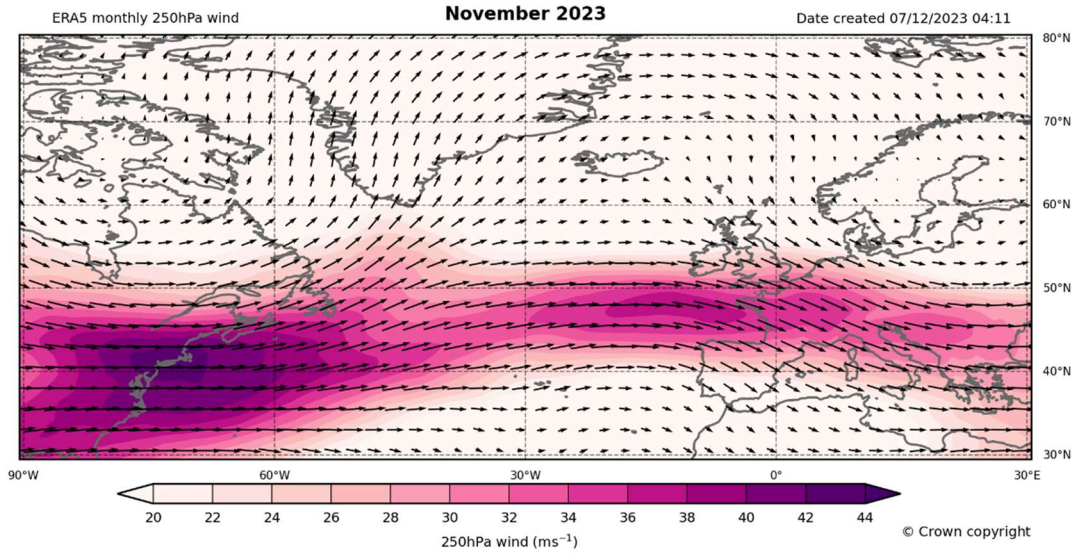


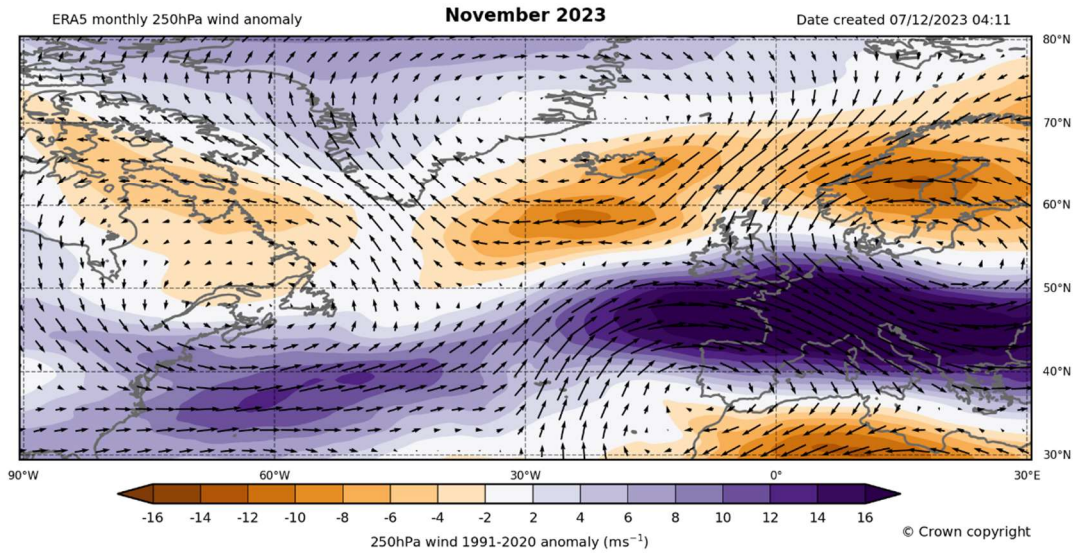


250hPa wind speed and direction

These charts show the monthly 250hPa wind speed and direction for November 2023 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the November long term average. This provides an indication of the mean strength and position of the jet stream compared to normal. The wind anomaly map shows shaded (scalar) wind speed anomalies with arrows as (vector) wind anomalies.

For much of the month, the jetstream was displaced to the south and stronger than normal, associated with areas of low pressure, including storms Ciaran and Debi. There were incursions of colder air at times, especially later in the month and to the north.





Weather diary

- **Generally mild , wet and very windy at times, cold end to the month**

November began as October finished, on a wet and windy note. With the UK already under the influence of a deep depression off the west coast of Scotland, Storm Ciaran barrelled its way off the Atlantic and through the Channel overnight on the 2nd, producing winds gusting in excess of 70mph along the south coast.

The unsettled theme was prevalent from the 1st to the 20th of the month with high pressure conspicuous by its absence. However, with the weather coming predominantly off the Atlantic, it was at least mild. On the 13th, maximum temperatures generally reached the mid to high teens Celsius with many sites particularly through Wales and northern England recording totals in excess of 50mm, and over 100mm over the Cumbrian hills. Wales and Northern Ireland saw their highest winds on the 13th with some stations recording gusts above 70mph.

There was a brief respite from the 20th to 23rd with an area of high pressure becoming established off the southwest approaches. This also signalled a significant change in weather type from mild westerlies to cold northerlies or north-easterlies and the first snows of the late autumn. There was a widespread frost on the 25th with minima below -7°C being reported in parts of Scotland and southern England. Snow showers off the North sea brought some significant falls for parts of northeast England with up to 10cm of lying snow in County Durham.

Notes

The Met Office National Meteorological Library and Archive holds a near-continuous record of monthly weather reports from 1884, and this report forms a continuation of that series. The purpose of each report is to provide an overview of the weather conditions across the UK for that month. The emphasis is mainly based on observations from the surface network of weather stations. Climate series based on from data from these stations are used to provide long term context.

This summary was produced on 07/12/2023 16:07. The statistics are a provisional assessment of the observational data available at the time of production. Ongoing data receipt and quality assurance processes may result in subsequent updates to the statistics presented.

If you have any questions or feedback about this product, spot any data errors or omissions, or wish to obtain further data, please contact the Met Office.

For historical monthly weather reports please visit the Library and Archive.

- The land-surface observations presented in this report are from the Met Office official weather station network which includes both automatic weather stations and manual climate stations operated by volunteer observers. Rainfall data are from the official registered rain-gauge network which includes rain-gauges operated by a number of key partners including the Environment Agency, Scottish Environmental Protection Agency and Northern Ireland Water.
- The observations are carefully managed such that they conform to current best-practice observational standards as defined by the World Meteorological Organization (WMO). The observations also pass through a range of quality assurance procedures at the Met Office before application for climate monitoring.
- Daily and monthly maps, monthly statistics and monthly time-series are primarily based on the HadUK-Grid dataset of 1km resolution UK gridded climate data (Hollis et al, 2019). Monthly statistics from the monthly Central England temperature series 1659 (Manley, 1974) and England and Wales precipitation series from 1766 (Wigley et al, 1984) provide long term context.
- The monthly lightning activity map is based on data from the Met Office ATDnet (Arrival Time Difference Network) system. This is an automatic lightning location network comprising around ten lightning outstation sensors located across Europe.
- The monthly maps of mean sea level pressure and 250hPa wind speed and direction are based on the ERA5 reanalysis (Hersbach et al, 2019). ERA5 is the fifth generation ECMWF reanalysis for the global climate and weather for the past 4 to 7 decades. Reanalysis combines model data with observations from across the world into a globally complete and consistent dataset using the laws of physics.

Hersbach, H., Bell, B., Berrisford, P., Biavati, G., Horányi, A., Muñoz Sabater, J., Nicolas, J., Peubey, C., Radu, R., Rozum, I., Schepers, D., Simmons, A., Soci, C., Dee, D., Thépaut, J-N. (2019): ERA5 monthly averaged data on single levels from 1959 to present. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). https://doi.org/10.24381/cds.f17050d7

Hollis, D, McCarthy, MP, Kendon, M, Legg, T, Simpson, I. HadUK-Grid - A new UK dataset of gridded climate observations. Geosci Data J. 2019; 6: 151-159. https://doi.org/10.1002/gdj3.78

Manley, G. (1974), Central England temperatures: Monthly means 1659 to 1973. Q.J.R. Meteorol. Soc., 100: 389-405. https://doi.org/10.1002/qj.49710042511

Wigley, T.M.L., Lough, J.M. and Jones, P.D. (1984), Spatial patterns of precipitation in England and Wales and a revised, homogeneous England and Wales precipitation series. J. Climatol., 4: 1-25. https://doi.org/10.1002/joc.3370040102