February 2024 Monthly Weather Report

This document provides a summary of the UK's weather and climate statistics for February 2024.

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UK overview

February was a mild but wet month with generally unsettled weather. A cold spell pushed into the north of the UK from the 6th onwards, with temperatures reaching 4.0 to 6.0°C below average in some areas of Scotland and northern England on the 7th and 8th. The south of England, however, experienced consistently mild temperatures throughout this cold spell, leading to a large temperature gradient across the UK. Mild temperatures in southern England persisted throughout the month up until the 24th, when temperatures dipped to just below average for a few days. The overall mild temperatures in February were also accompanied by extensive precipitation. By mid-month, some areas in the south of England had already seen the whole-month average rainfall, with several stations experiencing new record daily rainfalls. Widespread snow hit northern England, Scotland and Northern Ireland on the 7th and 8th, leading to school closures and travel disruption. On the 22nd, a band of heavy rain moved east across south and central UK, leading to extensive flooding.

Overall, temperatures for the month were warmer than average, especially across England. The UK overall was provisionally 2.2°C warmer than average, making this the second warmest February in the series from 1884 behind 1998. It was the warmest February on record for England and Wales. February was a very wet month across the southern half of the UK which received more than twice the average rainfall widely, for some locations more than three times. Southern England recorded 239% of average and here it was the wettest February on record. East Anglia recorded both its warmest and its wettest February on record. It was a fairly dull month for most of the UK (79% of the average sunshine hours).

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

Weather impacts

- **Heavy rain across the country throughout the month, particularly in southern England, caused widespread transport disruption due to flooding and landslips**
- **Snow in the Pennines and Northern Ireland caused road closures and power cuts to homes**

In the first five days of February flooding from heavy rain in western and northern Scotland disrupted transport. Network Rail Scotland reported the closure of the Perth to Inverness line at Kingussie and the Inverness to Wick/Kyle of Lochalsh line. The A82 north of Drumnadrochit was closed with mud and debris covering the road due to the prolonged heavy rain. Even the diversion route was flooded and impassable for a time. Elsewhere across the northern half of Scotland reports of flooded A-routes and landslips were received during the 5th.

On the 8th two amber snow warnings were issued for north Wales and the Pennines. Trans-Pennine, Derbyshire and South/West Yorkshire roads were closed by snow, including the A57 Snake Pass and the A537 Cat and Fiddle Pass. The Derbyshire Resilience Forum reported 2500 properties without power. The snow caused travel disruption for Northern Ireland with some high-level routes reported impassable.

Three consecutive wet days in southern England from the 6th to the 8th brought flooding impacts. On the 9th floods closed many rail lines including Bristol Parkway to Swindon, Plymouth to Newton Abbot and Gobowen to Shrewsbury and services operating between England and Wales were badly disrupted. On the 9th roads across Essex, Cambridgeshire and Peterborough were closed due to floodwater. On the 10th the River Nene in Northamptonshire overtopped forcing evacuation from the Billing Aquadrome Leisure Park in Northampton. In E/NE Scotland high tides caused damage to coastal sea defences at Golspie, north of Inverness and at Stonehaven in Aberdeenshire.

There was widespread rainfall across the southern half of the UK on the 17th causing road closures from flooding on the 18th. Several rain-related road accidents were reported, Devon Police described four cars aquaplaning on the A38 prior to crashing. The village of Crosscombe between Wells and Shepton Mallet saw extensive road flooding and an unconfirmed number of properties experiencing flooding.

Unsettled conditions continued in the final week of February with further rainfall and local flooding impacts, particularly across southern England, various low and medium impact rain warnings were issued. The 22nd saw renewed transport disruption with rail lines between Plymouth and Newton Abbot, Machynlleth and Aberystwyth and Shrewsbury to Wrexham

closed due to flooding. Services along the line between Birmingham New Street and Cheltenham Spa were also disrupted.

On the 25th a deep low centre tracked across the southwest approaches into France, bringing more rain to southern England and strong winds to southwest England. Fallen trees were reported, one of which near Exeter early on the 26th resulted in severe injuries to a motorcyclist. With the ground saturated after the previous rainfall further localised disruption to road and rail transport resulted.

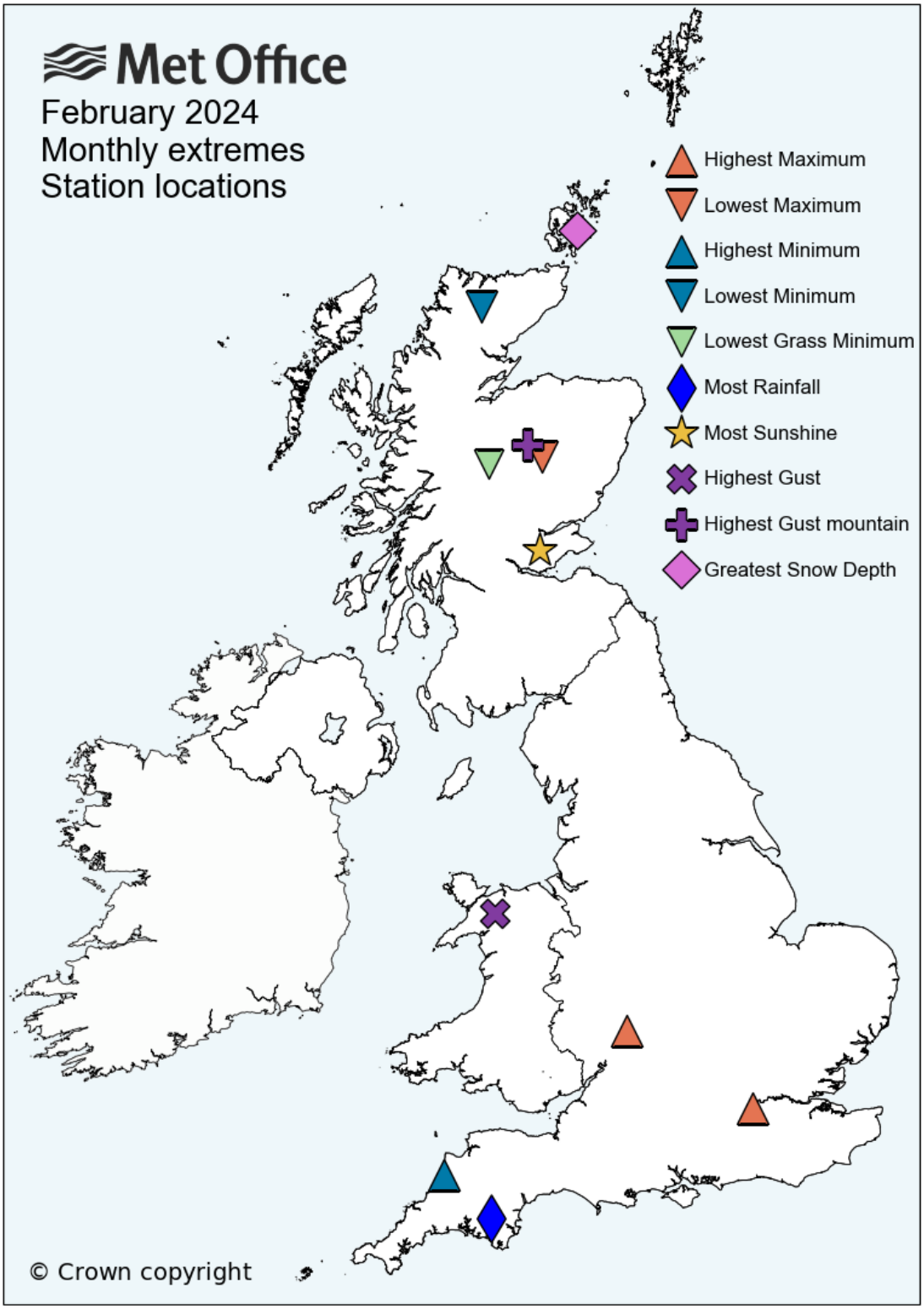
Monthly extremes

The table below lists UK monthly weather extremes recorded at individual weather stations during February 2024 from data available on 04/03/2024. The map shows the location of these stations.

Highest Maximum	**18.1°C** on **15th** at Pershore College (Hereford & Worcester, 37mAMSL) and Teddington, Bushy Park (Middlesex, 9mAMSL)
Lowest Maximum	**0.4°C** on **8th** at Braemar No 2 (Aberdeenshire, 327mAMSL)
Highest Minimum	**12.5°C** on **15th** at Bude (Cornwall, 15mAMSL)
Lowest Minimum	**-13.8°C** on **8th** at Altnaharra No 2 (Sutherland, 81mAMSL)
Lowest Grass Minimum	**-13.9°C** on **8th** at Dalwhinnie No 2 (Inverness-shire, 351mAMSL)
Most Rainfall	**86.9mm** on **17th** at White Barrow (Devon, 445mAMSL)
Most Sunshine	**9.6hr** on **29th** at Kinross (Kinross-shire, 116mAMSL)
Highest Gust	**63Kt 72mph** on **21st** at Capel Curig No 3 (Gwynedd, 216mAMSL)
Highest Gust (mountain*)	**104Kt 120mph** on **2nd** at Cairngorm Summit (Inverness-shire, 1237mAMSL)
Greatest Snow Depth at 0900 UTC	**15cm** on **7th** at Kirkwall (Orkney, 26mAMSL)

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

*Mountain stations are above 500mAMSL.


Met Office
February 2024
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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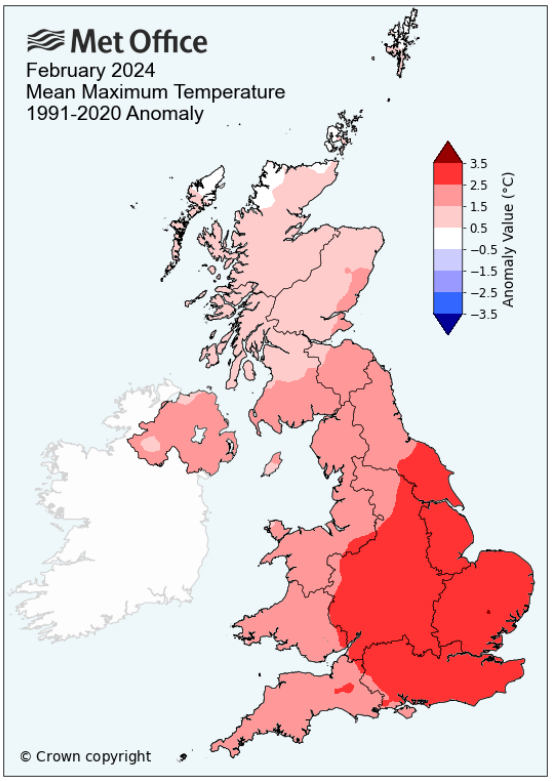
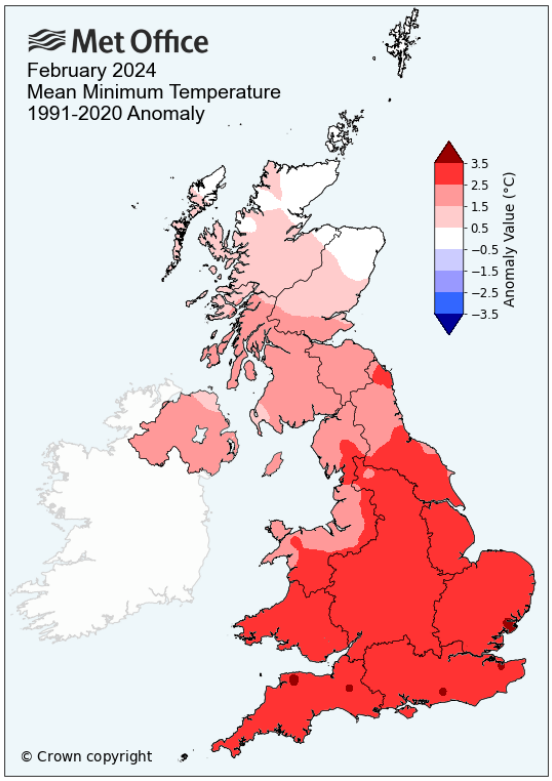
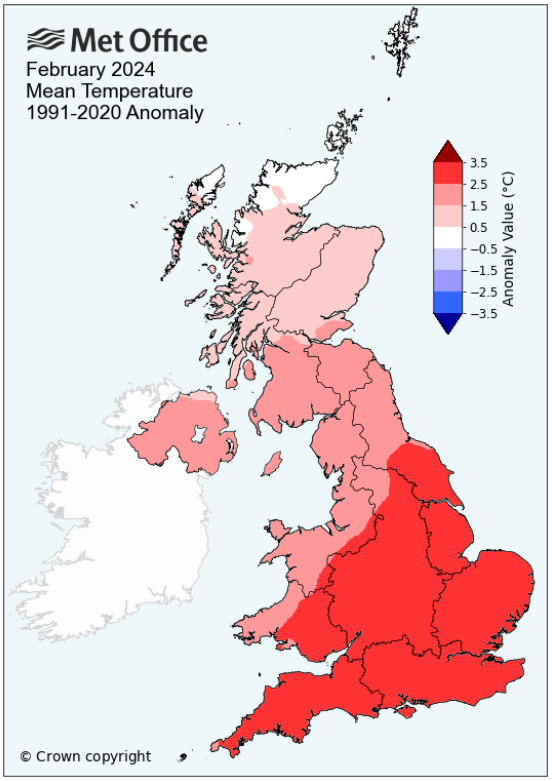
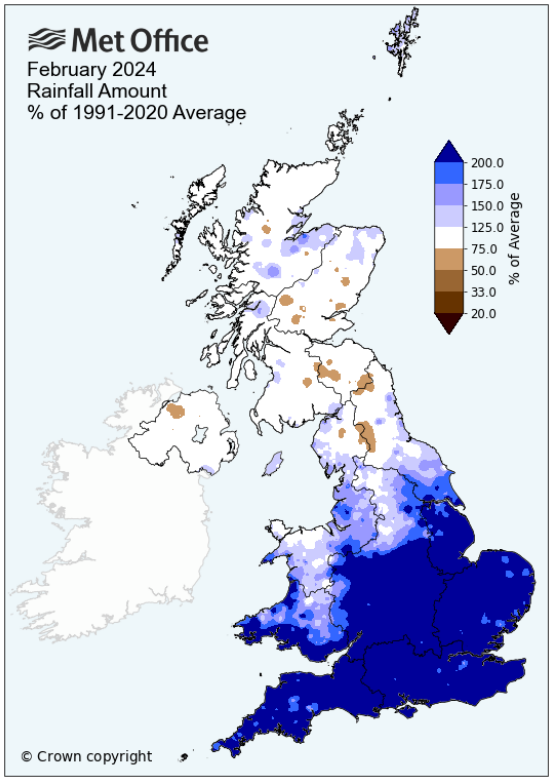
Monthly maps

These maps show monthly average daily maximum, monthly average daily minimum and monthly mean temperature and monthly rainfall for February 2024 as anomalies relative to the February 1991-2020 long term average.

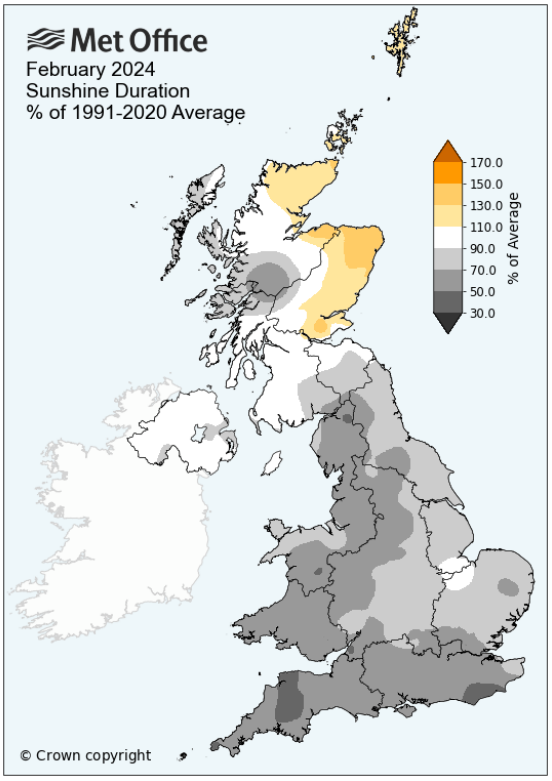


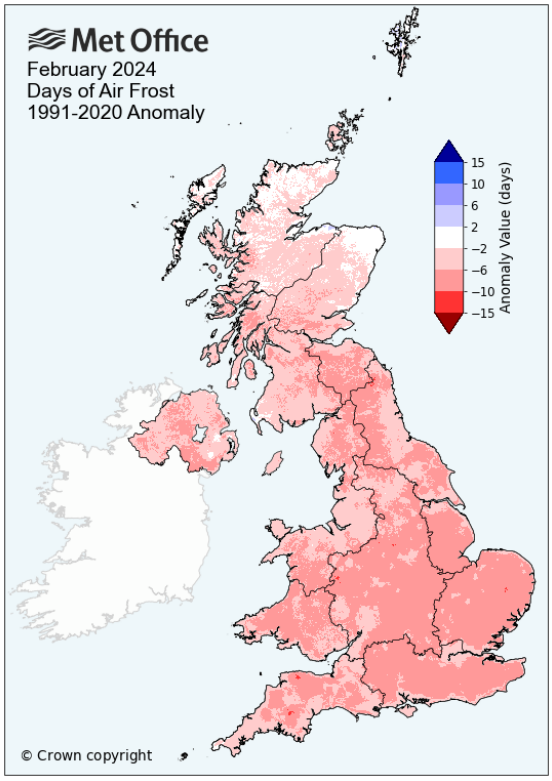


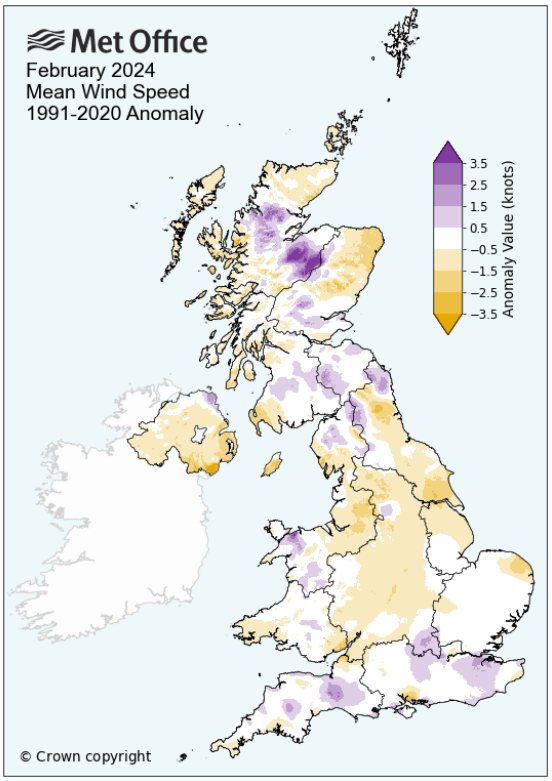


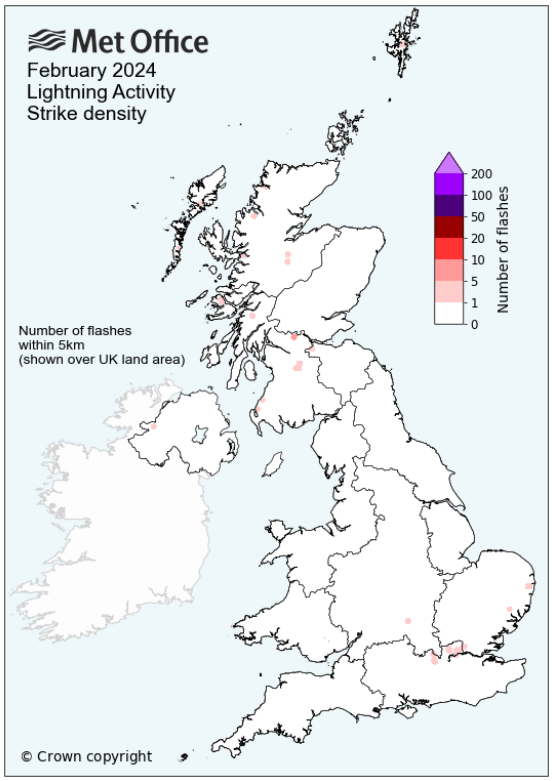


These maps show monthly sunshine, monthly air frost and monthly windspeed for February 2024 as anomalies relative to the February 1991-2020 long term average, plus a map showing lightning activity as the number of strikes within a 5km radius of any land location.









Monthly climate statistics - actuals and anomalies

These tables show the UK and national climate statistics for February 2024 for max, min and mean temperature, rainfall, sunshine and windspeed as actual values and anomalies relative to the February 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	9.2	2.1	3	139	141
England	10.5	2.7	2	140	141
Wales	9.4	2.1	4	138	141
Scotland	7.0	1.1	13	129	141
Northern Ireland	9.5	1.6	6	136	141
Central England	10.7	2.7	3	145	147

Mean minimum temperature

Region	Mintemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	3.5	2.3	2	140	141
England	4.5	3.0	1	141	141
Wales	4.4	2.8	1	141	141
Scotland	1.4	1.1	15	127	141
Northern Ireland	3.4	1.8	8	134	141
Central England	4.8	3.0	1	147	147

Mean temperature

Region	Meantemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	6.3	2.2	2	140	141
England	7.5	2.9	1	141	141
Wales	6.9	2.4	1	141	141
Scotland	4.2	1.1	15	127	141
Northern Ireland	6.4	1.7	6	136	141
Central England	7.8	2.8	2	365	366

Rainfall

Region	Rainfall (mm)	% of 1991-2020 Average	Rank - wettest	Rank - driest	Series length (yrs)
UK	139.8	145	11	179	189
England	129.5	196	4	186	189
Wales	205.8	171	11	179	189
Scotland	149.2	106	39	151	189
Northern Ireland	84.5	92	78	112	189
EWP (England and Wales)	151.1	209	4	256	259

Sunshine

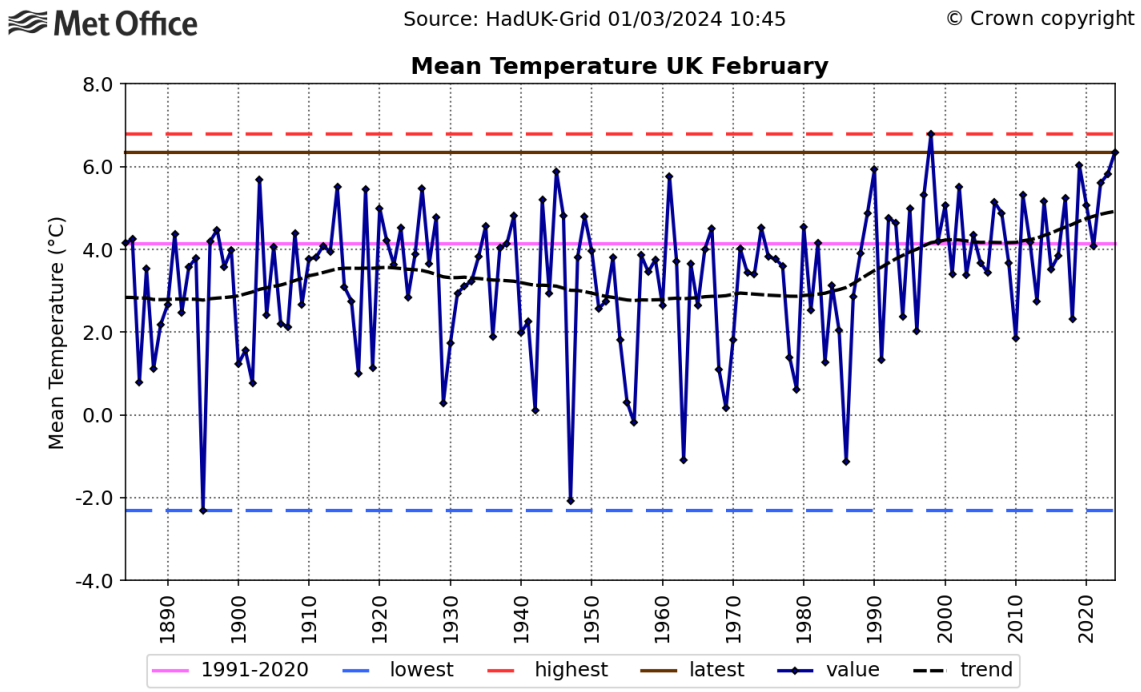
Region	Sunshine (hours)	% of 1991-2020 Average	Rank - sunniest	Rank - dullest	Series length (yrs)
UK	56.7	79	88	28	115
England	53.1	68	94	22	115
Wales	44.2	64	106	10	115
Scotland	64.7	102	43	73	115
Northern Ireland	64.1	96	56	60	115

Windspeed

Region	Windspeed (knots)	1991-2020 Anomaly (knots)	Rank - windiest	Rank - calmest	Series length (yrs)
UK	10.5	-0.3	29	28	56
England	9.2	-0.3	29	28	56
Wales	11.2	-0.1	23	34	56
Scotland	12.6	-0.1	25	32	56
Northern Ireland	9.1	-0.9	42	15	56

Monthly time-series

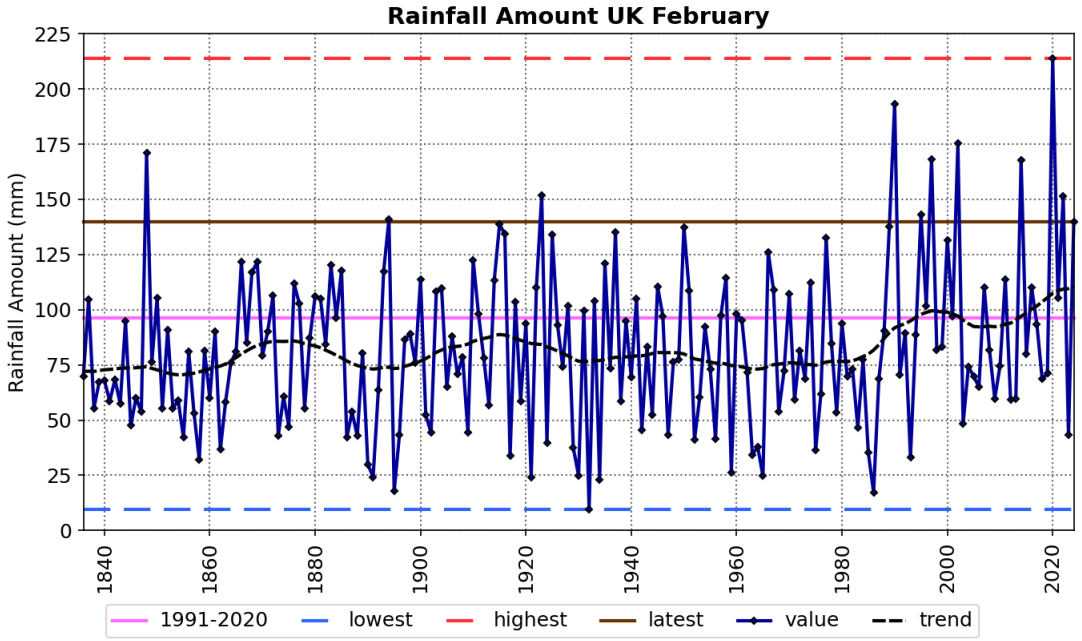
These charts show time-series for the UK for February for monthly mean temperature (from 1884), monthly rainfall (from 1836) and monthly sunshine (from 1919). The brown line shows the latest (2024) value. The hatched black line is a smoothing filter which shows the long-term trend. The tables below show statistics for the latest year, latest 10 years 2015-2024, 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	2015-2024	2024
Meantemp (°C)	3.0	4.1	4.8	6.3

Met Office

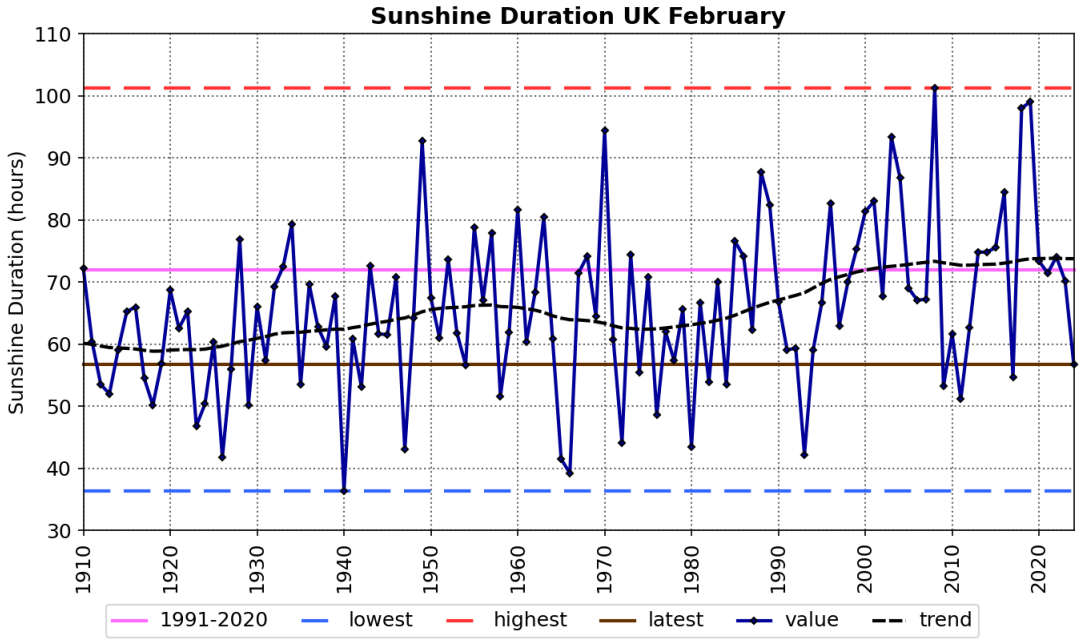
Source: HadUK-Grid 01/03/2024 10:45



Period	1961-1990	1991-2020	2015-2024	2024
Rainfall (mm)	77.5	96.2	107.7	139.8

Met Office

Source: HadUK-Grid 01/03/2024 10:45

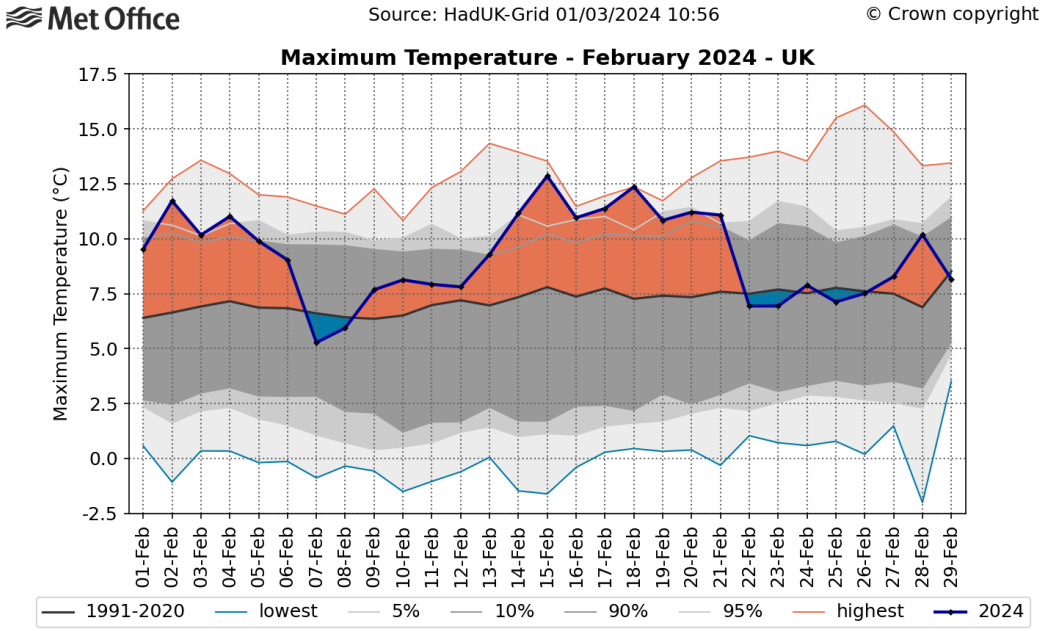


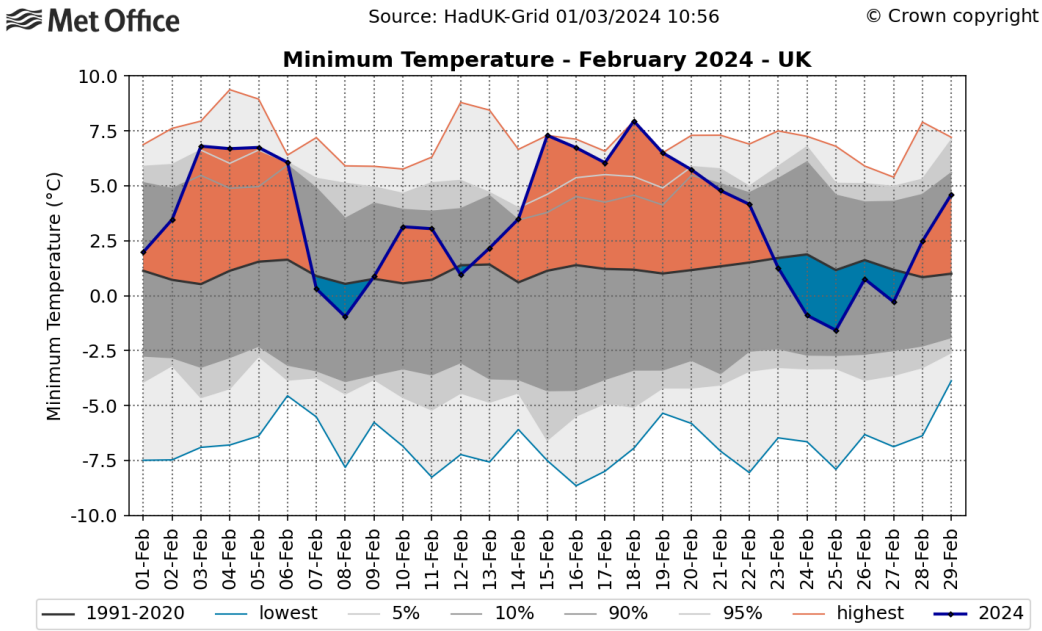
Period	1961-1990	1991-2020	2015-2024	2024
Sunshine (hours)	64.4	71.9	75.8	56.7

Daily time-series

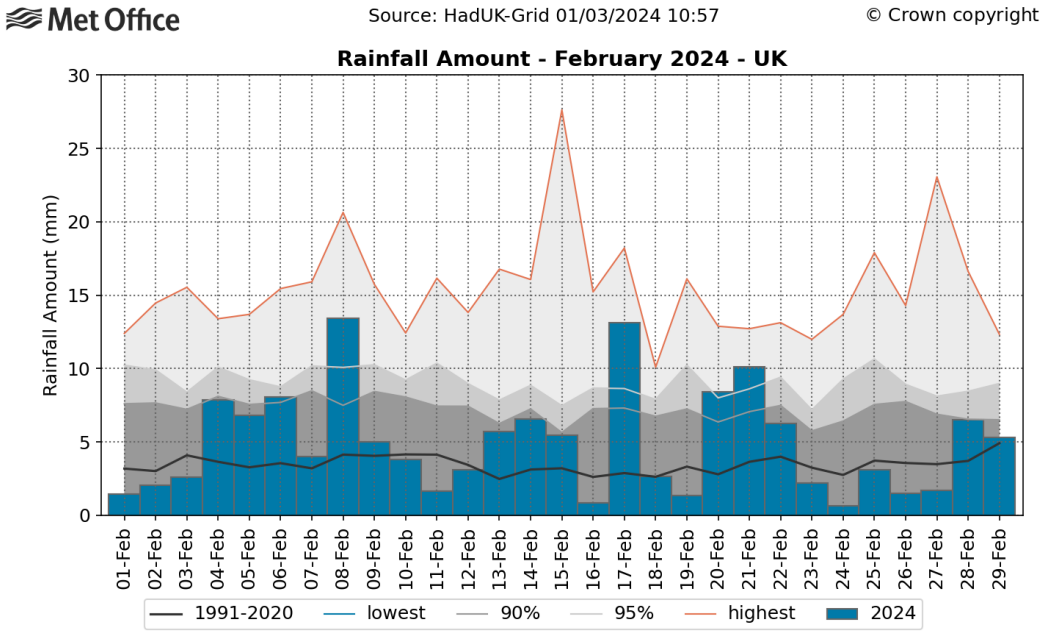
These charts show time-series of UK area-average daily maximum and daily minimum temperature and daily rainfall for each day of February 2024. The areas shaded in grey show the highest and lowest values in the daily temperature series (from 1960) and daily rainfall series (from 1891) together with percentiles 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.

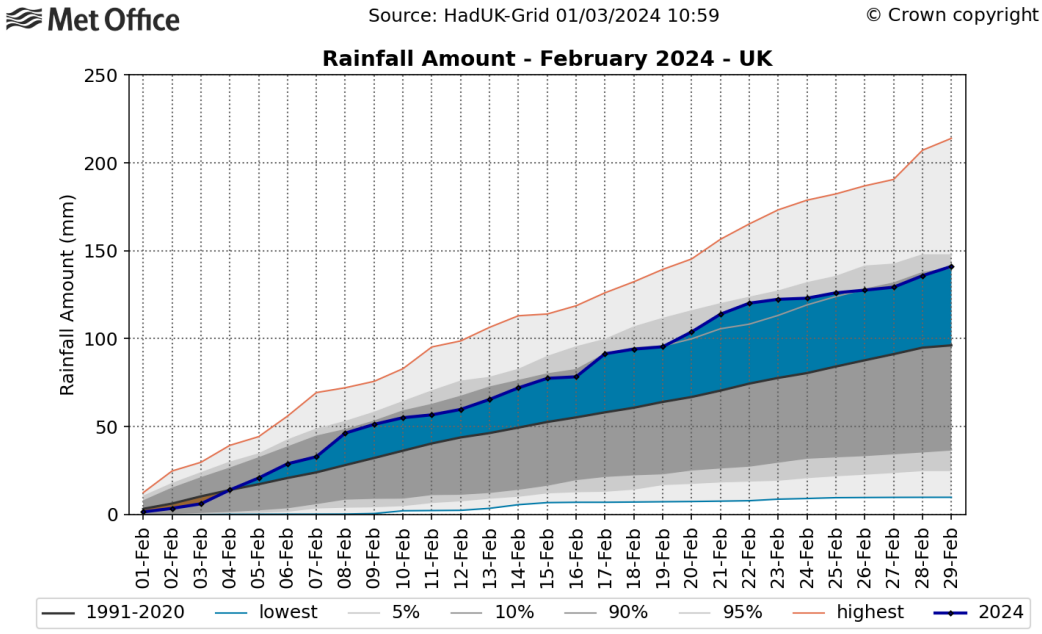
Daily maximum and daily minimum temperature





Daily rainfall and rainfall accumulation

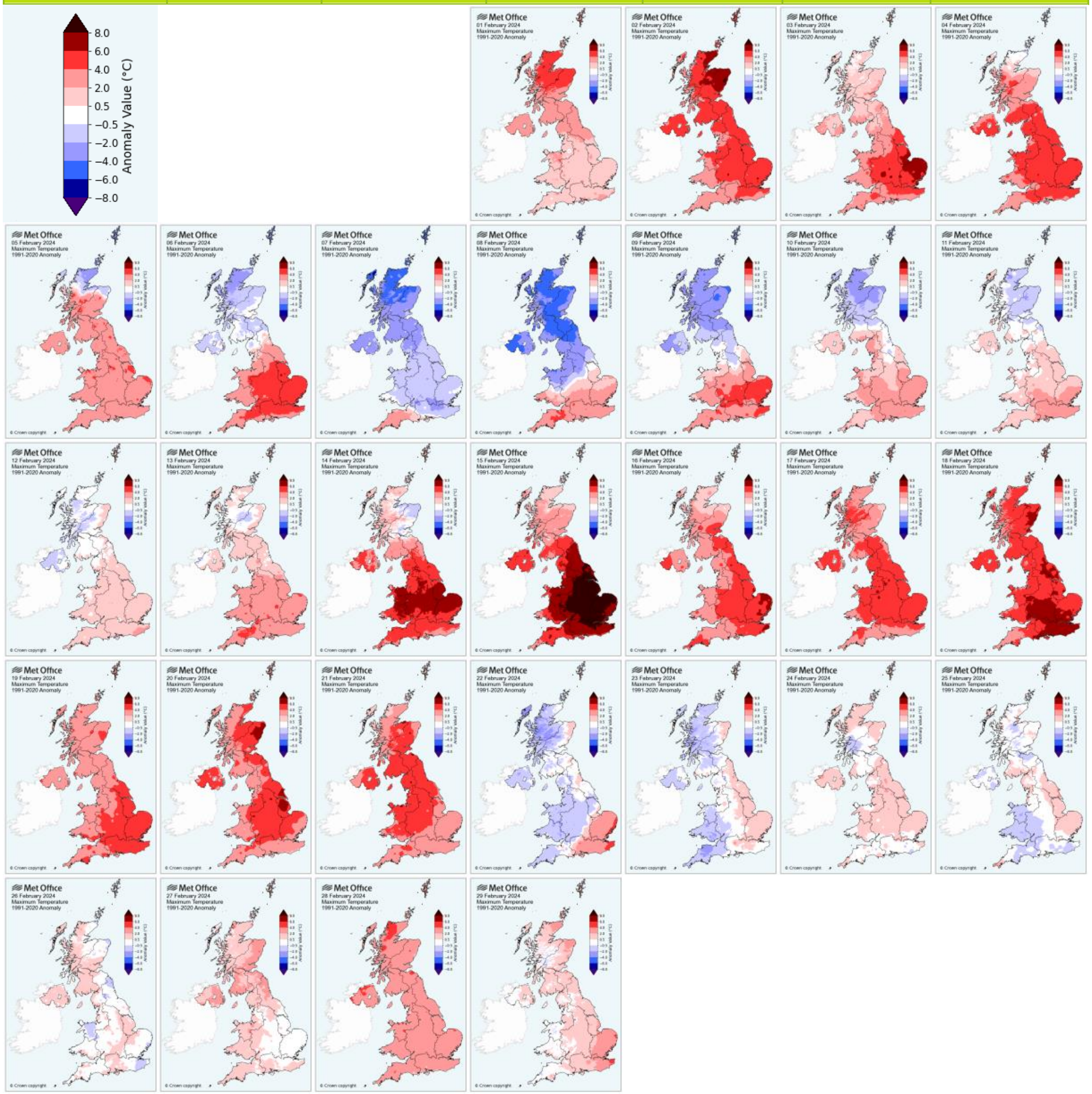




Daily maximum temperature maps - calendar view

These maps show daily maximum temperatures for each day of February 2024 as anomalies relative to the February 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.

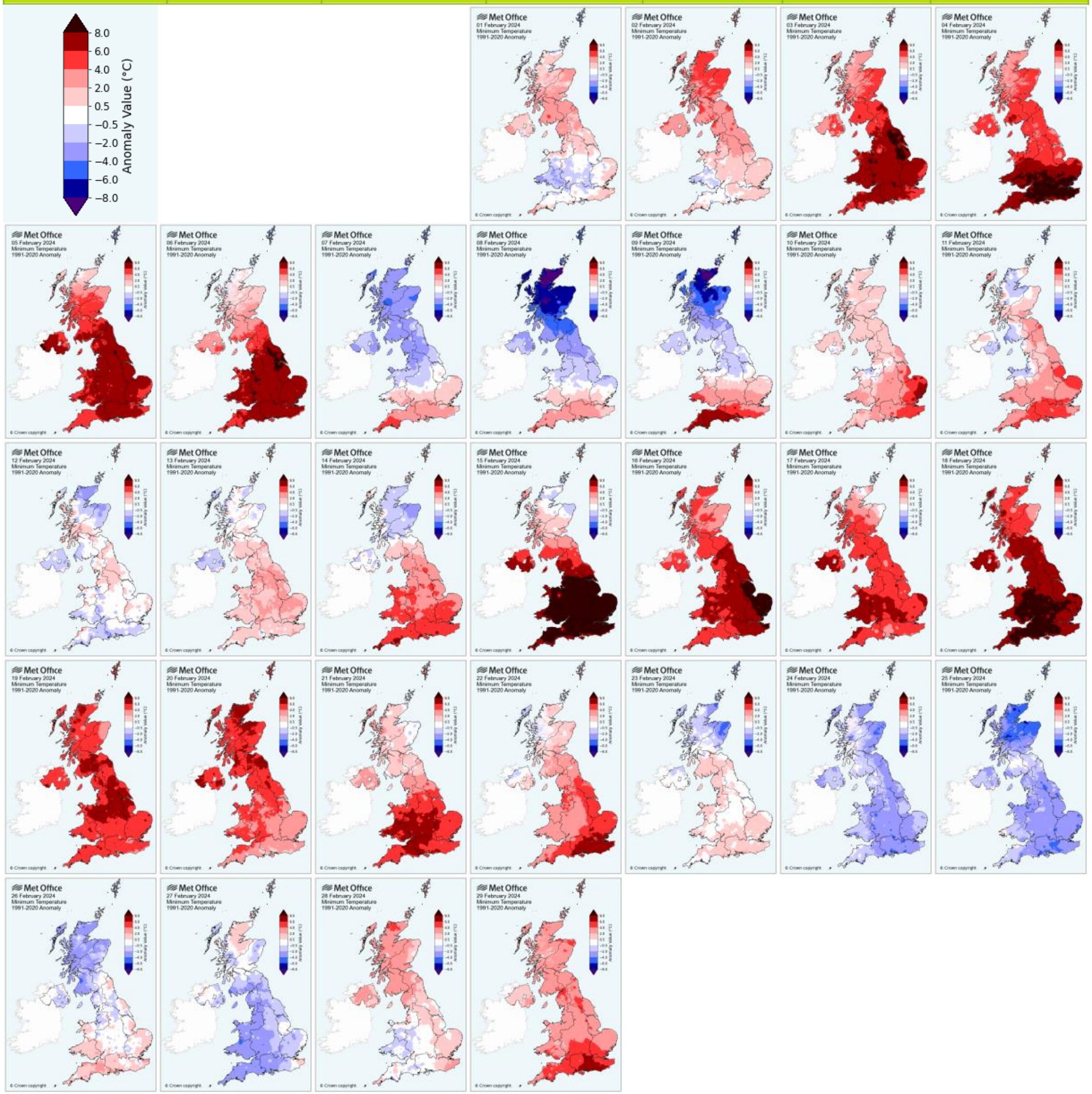
Mon	Tue	Wed	Thu	Fri	Sat	Sun



Daily minimum temperature maps - calendar view

These maps show daily minimum temperatures for each day of February 2024 as anomalies relative to the February 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.

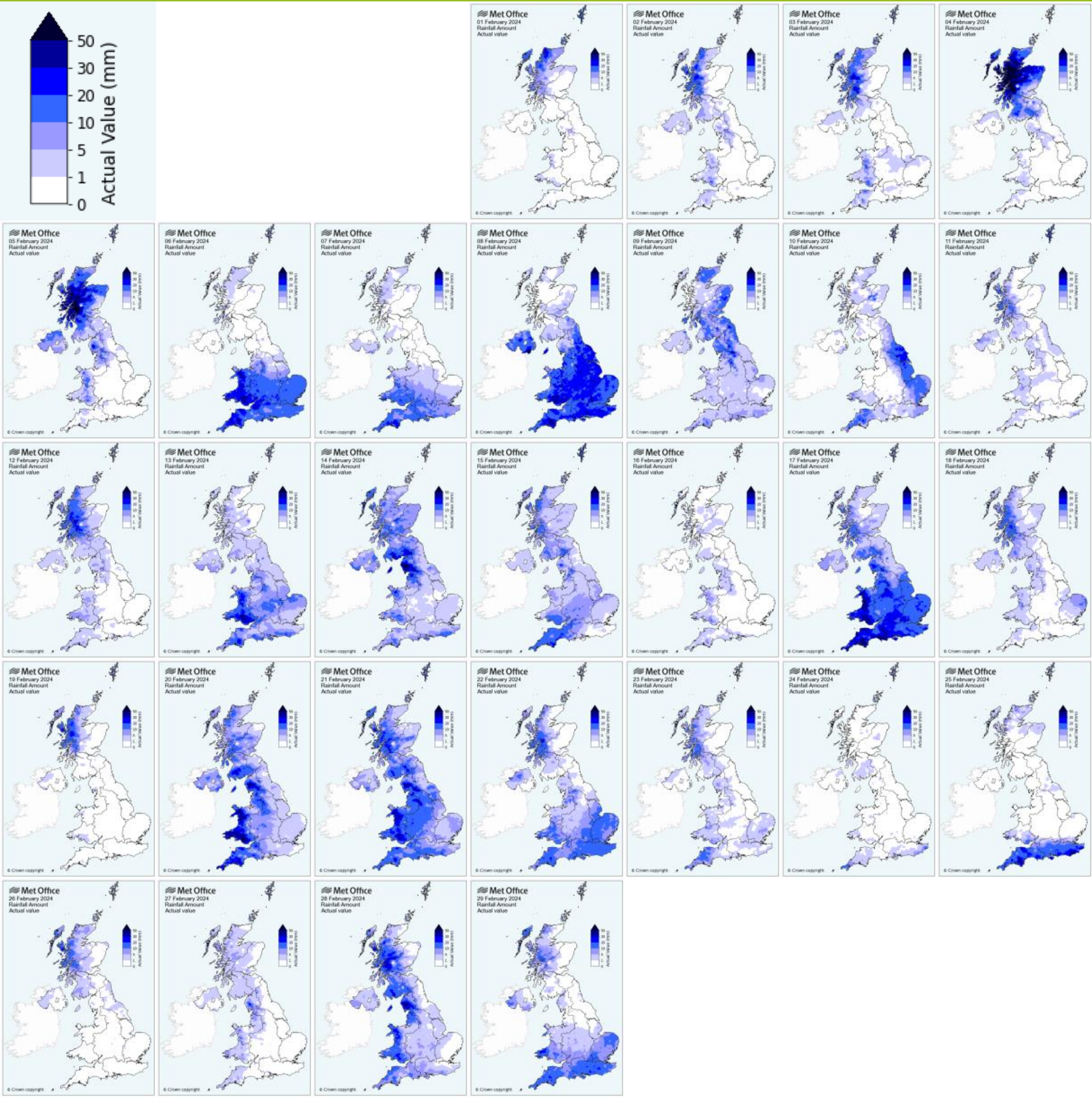
Mon	Tue	Wed	Thu	Fri	Sat	Sun



Daily rainfall maps - calendar view

These maps show daily rainfall for each day of February 2024 as daily totals. The daily rainfall is the total from 0900UTC on the day in question to 0900UTC the following day.

Mon	Tue	Wed	Thu	Fri	Sat	Sun

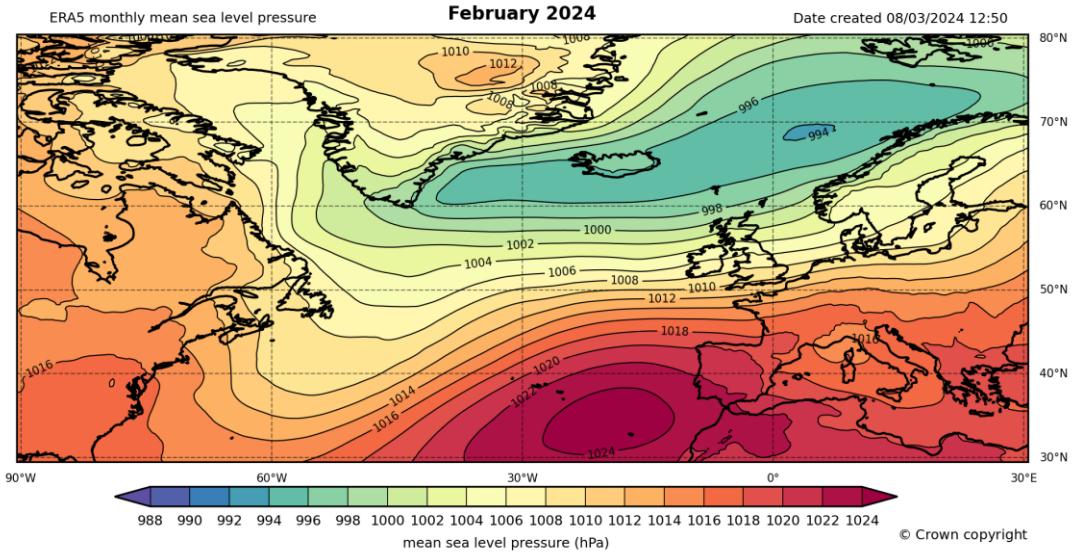


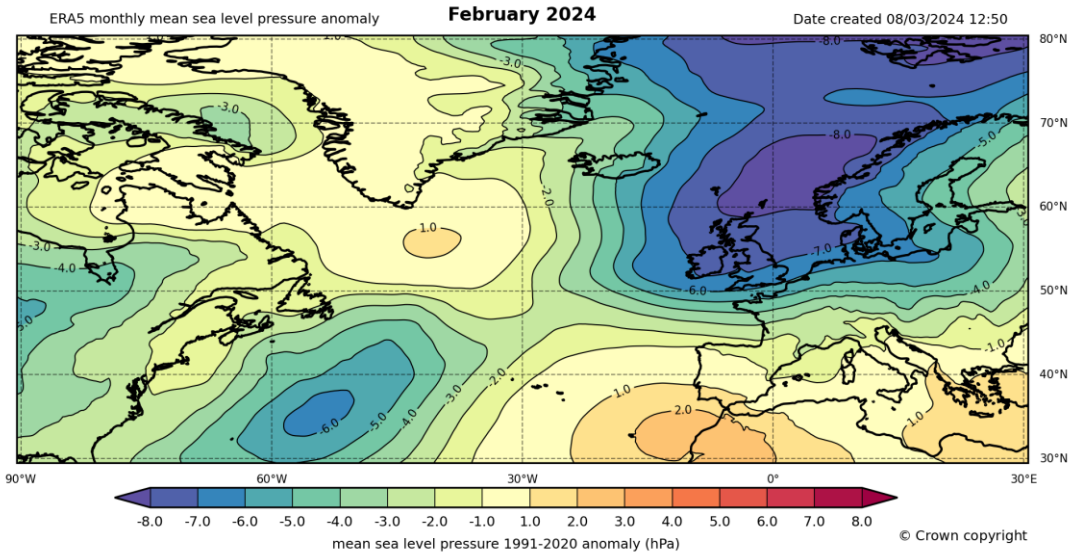
Monthly atmospheric circulation

Mean sea level pressure

These charts show the monthly mean sea level pressure for February 2024 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 February 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.

The mean monthly sea-level pressure pattern for February shows high pressure off the coast of western Europe and low pressure across Iceland and north of Scandinavia. This led to a large north-westerly gradient across the UK. Pressure across the UK was anomalously low, especially to the north of the UK.

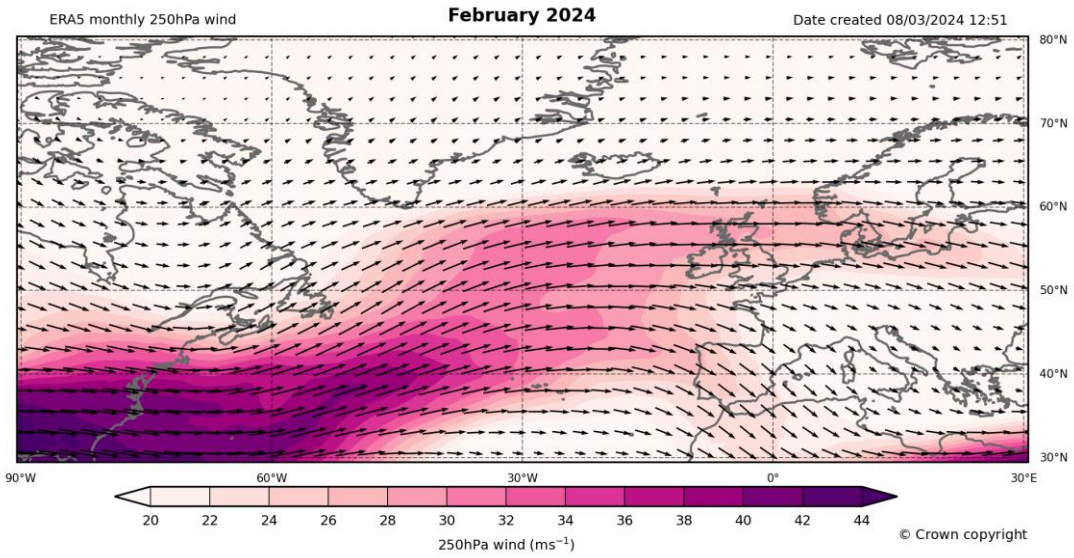


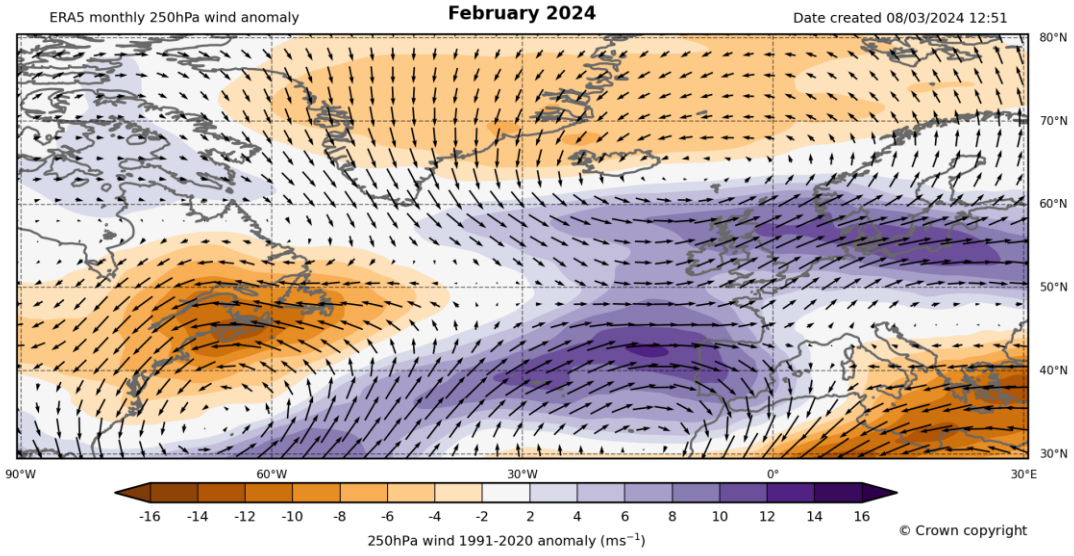


250hPa wind speed and direction

These charts show the monthly 250hPa wind speed and direction for February 2024 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 February 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.

The jetstream was positioned further south on the eastern seaboard of the USA than normal, with a strong westerly flow. Further east it was weaker, with an anomalously south-westerly flow across southern Scandinavia. Flow was predominantly westerly across the UK, with slightly north-westerly flow to the south of the UK.





Weather diary

- **Mild early and late, cold with snow mid-month, record breaking rainfall**

  With high pressure firmly established to the south of the UK from 1st to 7th, a westerly airstream brought very mild conditions especially over southern Britain, with maximum temperatures widely into double figures and as high as the mid-teens in places, and minimums staying well above average in most regions.

  Through the 6th and up to the 25th, with high pressure becoming conspicuous by its absence, the UK was beset with a series of depressions of the Atlantic, bringing the first significant rainfall. On the 8th, a number of sites in England, Wales and Northern Ireland saw 24 hour totals in excess of 25mm, Trassey in Northern Ireland experiencing 70mm. This theme continued for most of the month with stations in Wales and the southwest setting new monthly rainfall records. The depressions also brought a noticeable north south split, with temperatures over northern England, Northern Ireland and Scotland dropping back into the cold category, but staying mild elsewhere, a theme that would result in a number of stations in southern England breaking mean temperature records for the month.

  Snowfall was prevalent between the 7th and 9th, over the Pennines, Cumbrian Hills, and more widely in Scotland, with up to 15cm falling over the Shetlands on the 7th. A cold easterly airstream together with lying snow allowed temperatures to fall to -10°C or below over Sutherland.

  The UK got a brief respite from the wet and windy weather between the 25th and 27th with a ridge of high pressure extending up from the Azores, giving frosty nights and some local mist and fog patches. However, by the 28th, low pressure resumed its domination of the weather over the UK bringing more rain but generally milder conditions.

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 11/03/2024 10:35. 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