

## July 2019

The averaging period used for the following assessment was 1981-2010.

July began with a cool, showery north-westerly flow over the UK, but for most of the first half of the month high pressure was close to the south and west and this brought mostly dry weather with plentiful sunshine for much of England, especially the south-west, and also south Wales, but elsewhere cloud was more variable. The second half was generally more unsettled with frequent westerly and south-westerly winds, but with an exceptionally hot spell from the 22nd to 26th which saw record-breaking temperatures in many parts of the country, including a new record for the UK as a whole, and also widespread thunderstorms.

The provisional UK mean temperature was 16.4 °C, which is 1.2 °C above the 1981-2010 long-term average, making it the equal 8th warmest July in a series since 1910, though not as warm as July 2018. The mean minimum temperature was the equal 4th highest in the series. Mean maximum temperatures ranged from over 1.5 °C above normal in the south and east to around 0.5 °C above in some western coastal areas. Mean minimum temperatures were over 1.5 °C above average in much of the north and east, but less than 0.5°C above in the south-west. Rainfall was 114% of average, but was very variable across the country, with below-average rainfall over most of Wales and the south-west, but more than twice the normal amount from Manchester to Leicestershire. Sunshine was 100% of average, and amounts were above normal over the south-west but below normal over most of Scotland and Northern Ireland.

The UK monthly extremes were as follows: A maximum temperature of 38.7 °C was recorded at Cambridge Botanic Garden on the 25th. A minimum temperature of -0.4 °C was recorded at Altnaharra (Sutherland) on the 8th. In the 24 hours ending at 0900 GMT on the 11th, 80.4 mm of rain fell at Fettercairn (Kincardineshire). A wind gust of 50 knots (58 mph) was recorded at Berry Head (Devon) on the 29th.

### Weather impacts

After a quiet start to the month, during the second week some heavy showers and thunderstorms caused impacts. On the 11th, there was significant surface water flooding in Dingwall, with fire crews pumping water out of the town, and in Manchester surface water flooding disrupted transport. On the 12th, lightning strikes caused disruption on the rail lines between Perth and Inverness and hundreds were left without power in the Scottish Highlands.

On the 19th, rain in south Wales caused disruption, with flooding on the M4 between J43 and J42 and also on the A494, and difficult driving conditions on the A470. Floodwater also caused disruption in Aberdeen, notably on the A90, and in the Manchester area and in Cumbria. There was a suspected tornado in the Mobberley/Hale area of Cheshire, resulting in a tree blocking the rail line at Mobberley and disruption to power supplies.

Thunderstorms and record-breaking temperatures were associated with numerous impacts from the 24th onwards. On the 24th, lightning caused delays to rail services between Inverness and Perth and there were power outages in Penicuik on the 25th. Also on the 24th, heavy rain and lightning brought disruption in Wales, northern England and southern Scotland, with thousands without power in north-east England. The heat led to numerous rail delays and cancellations, especially in the east and south-east of England and around Manchester. Part of the A11 had to be closed due to the road surface melting. On the 25th, UK Power Networks reported that 10 to

20,000 properties had power cuts due to thunderstorms, and some buildings were struck by lightning; also a number of large field and gorse fires arose.

On the 28th, heavy rain continued in the north of England and in southern Scotland. The A77 and various local roads were closed due to flooding; in Edinburgh damage was caused to the National Records of Scotland building and some public events were cancelled due to flooding. The heavy and persistent rain resulted in surface water and some minor river flooding in Greater Manchester, Lancashire and Bradford with some properties flooded and travel disruption.

## **England diary of highlights**

**July started off rather cool with north-westerly winds, but with high pressure close to the south-west. The first half was mostly dry and settled but with unremarkable temperatures, and high pressure remained close to the south and west. The second half was much wetter, due largely to numerous thundery outbreaks, but with an exceptionally hot spell from the 22nd to 25th which saw record-breaking temperatures and plenty of sunshine.**

The mean temperature for July was provisionally 1.2 °C above the 1981-2010 long-term average, and the mean minimum temperature was the joint 6th highest in a series from 1910. Averaged nationally, rainfall was 109% and sunshine was 104% of average, but rainfall varied widely, with more than twice the normal amount in a swathe from Manchester to Leicestershire, while the south-west had a dry sunny month.

### **1st to 8th**

July started with a chilly north-westerly flow. The 1st had some scattered light showers in the north and a maximum of only 13.4 °C at Malham Tarn (North Yorkshire). High pressure built from the south-west on the 2nd and 3rd and the weather turned dry and generally sunny, with 16.0 hours of bright sunshine at Morecambe (Lancashire) on the 3rd. The 4th and 5th were warm and sunny for most areas but cloudier and cooler in the north, and a band of high cloud affected some southern areas on the 5th. Temperatures reached 26.8 °C at Kew Gardens (London) on the 4th and 27.6 °C at Heathrow (London) on the 5th. A band of cloud and rain progressed slowly southwards on the 6th followed by cooler weather. Most places were dry with some sunshine on the 7th although it started off cloudy in the north-east and south-east. There was a minimum of 1.8 °C overnight 7th/8th at Redesdale (Northumberland). It generally turned cloudier on the 8th, particularly in the north, with some light rain for the north-west and the north Midlands.

### **9th to 16th**

The ridge of high pressure moved further to the south on the 9th and 10th, and the 9th had some rain in the north, although it was sunny in the far south and especially south-west. Northern, central and eastern counties saw patchy, mainly light rain early on the 10th, which slowly cleared, with the brightest weather in the south-west. Any residual rain slowly cleared on the 11th followed by generally brighter weather but with some heavy, locally thundery, showers developing in the north-east. High pressure then rebuilt from the south-west between the 12th and 14th, bringing mostly dry sunny weather for western areas, but heavy and locally thundery showers developed in the north-east on the 12th, with generally fewer showers on the 13th. Showers and longer spells of rain affected some eastern counties early on the 14th, but the dry sunny weather then extended into eastern areas. Most places were sunny and dry on the 15th, but a continued northerly flow brought cooler cloudier weather for East Anglia and the south-east. The 16th was warmer with plenty of dry sunny weather especially for the south, but with some light showers mainly in the north Midlands.

### **17th to 21st**

A more changeable south-westerly type became established during this period. A belt of rain moved eastwards on the 17th, most persistent in the north, and this slowly cleared the south-east on the 18th, but rainfall amounts in the south were small. Brighter weather followed, with a few isolated showers in the north. Fronts brought longer spells of rain on the 19th and patchy fog, with some thunder locally in the south-west. The rain cleared by the 20th leaving a day of sunshine and showers, most of the showers developing near North Sea coasts, with some thunder especially over East Anglia. The 21st had some sunshine and a few scattered showers in the west, but cloud increased, with rain crossing the north in the evening.

## **22nd to 31st**

The weather turned very warm on the 22nd, especially in the east, with plenty of sunshine for the east and south-east but cloudier weather elsewhere. Hot sunny weather extended to most of the country on the 23rd, with temperatures widely exceeding 30 °C, but showers developed in the south-west, with thunderstorms breaking out here in late evening and spreading north-east over much of the country overnight. The thunderstorms cleared the east coast before midday on the 24th, followed by a mainly cloudy day in the west, but it was again sunny and hot in the east, especially the south-east. The 25th was dry and sunny in most areas with record-breaking temperatures, and Cambridge Botanic Garden reached 38.7 °C, setting a new UK temperature record. Thunderstorms again broke out, mainly in eastern areas. The night of the 25th/26th was exceptionally warm, with Carlton (Cleveland) not falling below 22.6 °C, and the 26th saw outbreaks of rain and some thunder for the north and east, brighter with scattered showers for the south-west. Persistent heavy rain affected many areas on the 27th and 28th, with 67.4 mm of rain at Rochdale (Lancashire) on the 28th, but parts of the south and south-west remained fine and dry. A vigorous southerly-tracking low brought gusts to 58 mph at Berry Head (Devon) later on the 29th, with showers and thunderstorms moving into the south-west, but other areas continued mainly dry and sunny. Showers and longer spells of rain affected most areas on the 30th and 31st, and thunderstorms and heavy falls of rain affected Lancashire and Yorkshire, which on the 30th also extended to Cumbria.

## **Wales diary of highlights**

**The first half of July was mostly dry and settled with high pressure close to the west and south, and generally sunny in the south although it was more cloudy in central and northern counties. The period 16th to 21st was more unsettled, then there was a notable hot spell from the 22nd to 25th, followed by a return to wet weather.**

The mean temperature for the month was provisionally 0.9 °C above the 1981-2010 average. It was a dry month except in the north and north-east, with just 59% of average rainfall overall. Sunshine was 103% of average, and it was a sunny month in the south, but rather duller further north.

### **1st to 8th**

A cool north-westerly flow brought a mostly cloudy day on the 1st with a few showers in the north during the afternoon, and the temperature only reached 15.1 °C at Capel Curig (Gwynedd). A ridge of high pressure brought dry, sunny and increasingly warm weather between the 2nd and 4th. Under clear skies, St Harmon (Powys) had a minimum of -0.2 °C overnight 2nd/3rd, and then had 15.0 hours of sunshine on the 3rd. There was a maximum of 25.4 °C at Tredegar, Bryn Bach Park (Gwent) on the 4th. Cloud increased in the north late on the 4th and it was cloudier in the far south on the 5th, but otherwise the 5th was again mainly sunny with a high of 25.5 °C at Cardiff Bute Park. A belt of cloud and light rain moved slowly southwards through the country on the 6th,

followed by fresher, dry and mainly sunny weather on the 7th. Cloud increased from the north-west on the 8th, with a little rain at times in the north.

### **9th to 15th**

High pressure moved away southwards, and the 9th was cloudy in most areas, with a little rain in parts of the north-east early on, but dry and sunny in the south and south-west. The 10th and 11th continued mostly dry and sunny in the south, but with increasing amounts of rain and drizzle in the west, which spread inland on the 11th. As high pressure ridged in from the west, the 12th was mostly dry and sunny with just a few isolated showers, but the 13th was cloudier. It remained dry on the 14th and 15th and most areas were sunny and increasingly warm.

### **16th to 21st**

A weak cold front moved eastwards on the 16th bringing cloudier weather after a sunny morning for most, and a few light showers. The 17th began dry and bright, before an area of persistent rain spread from the west. The rain cleared overnight, and after a cloudy morning on the 18th it brightened up with a few isolated showers. Fronts brought showers and longer spells of rain, locally thundery, on the 19th. A mostly cloudy day followed on the 20th, with scattered showers. After a bright start to the 21st with a few showers, cloud increased from the west, and rain and strong winds crossed the far north during the evening. Capel Curig recorded 42.0 mm of rain on the 21st, and had gusts to 53 mph on both the 21st and 22nd.

### **22nd to 31st**

The 22nd started windy and dull with some light rain in places, but brightened up through the afternoon. It became sunny and hot on the 23rd, after low cloud had cleared from some areas, and 30 °C was reached in places. Thunderstorms affected some, mainly eastern, areas overnight 23rd/24th. Cloud persisted in the west on the 24th with some light rain near the west coast, but the east remained very warm with some sunshine. The 25th was hot and sunny in most areas with a high of 32.5 °C at Colwyn Bay (Clwyd), and the heat sparked off some thunderstorms in the east during the afternoon. The night of the 25th/26th was unusually warm with the temperature falling no lower than 18.9 °C at Porthmadog (Gwynedd), then the 26th had some sunshine but also scattered showers. Much of the country suffered from persistent rain on the 27th but the south and south-west remained mostly sunny and dry. The rain became more confined to far northern and north-eastern counties on the 28th. A depression took an unusually southerly track on the 29th-31st, bringing showers or longer spells of rain into the south-east later on the 29th which was otherwise generally warm and sunny. Showers and longer spells of rain, locally thundery especially over the north, occurred on the 30th; these became mainly confined to the north on the 31st with some sunshine in the south.

## **Scotland diary of highlights**

**While high pressure was often close to the south and west of Britain during the first half of July, in Scotland the weather was often cloudy, with rain at times. It turned more unsettled during the third week, then there was a hot spell from the 22nd to 26th, with some thunderstorms and record-breaking temperatures in places. The month ended with frequent showers and longer spells of rain.**

The mean temperature for July was provisionally 1.4 °C above the long-term average, making it the 7th warmest July in a series from 1910, and the warmest for minimum temperature. It was a cloudy and wet month, but generally not exceptionally so, and Scotland overall had 133% of average rainfall and 93% of average sunshine.

### **1st to 8th**

The month started cool with north-westerly winds, and the 1st and 2nd were mostly cloudy with scattered showers, though with fewer showers on the 2nd. Loch Glascarnoch (Ross & Cromarty) only reached a maximum of 10.6 °C on the 1st. The weather continued mostly cloudy on the 3rd, but warmer in eastern areas, while rain persisted in the far north and in parts of Grampian. The 4th started sunny in the south, but rain spread from the north-west, followed by showers for the north-west. Another belt of rain moved south-eastwards across the country on the 5th, though the east saw some brighter spells. Colder drier weather with isolated showers followed for the 6th, with some sunny spells in the south but remaining cloudy in the north. Most places were mainly cloudy and cool on the 7th with isolated showers, but it was sunny in the Western Isles. Northern and eastern parts had a clear cold night overnight 7th/8th with a minimum of -0.4 °C at Altnaharra (Sutherland). Cloud increased from the south-west during the 8th, with rain reaching the west, but the far north-east remained dry and sunny.

### **9th to 15th**

Frontal systems brought a dull wet day for most on the 9th, but it was sunny and dry in the Shetland Islands. The rain cleared by the 10th, which however saw further showers and longer spells of rain, locally thundery in the east, and further rain spread from the south-west from late afternoon, with 80.4 mm at Fettercairn (Kincardineshire). The 11th started off cloudy in most areas, then became a day of sunshine and showers, the showers occasionally heavy and thundery. The 12th had more in the way of cloud but with fewer showers, any heavier showers confined to the east, and it was warm in the south. Cloud amounts were variable on the 13th, with further showers in the north and east. It was dry and increasingly warm on the 14th and 15th, with variable amounts of cloud, though the 15th was very sunny in the Western Isles.

### **16th to 21st**

A weak frontal system brought light rain to western areas early on the 16th, which died out as it moved eastwards, but a few showers developed in the south and the north-east, while it remained warm. A depression and fronts brought a wet and windy day on the 17th, followed by sunshine and showers on the 18th, the showers locally thundery in the north-east. Sunshine and scattered showers in the north on the 19th, cloudier in the south with some rain for the Borders. The 20th had sunshine and showers again, the showers merging into longer spells of rain in the east, where they also turned thundery. The 21st started off dry and sunny but cloud and rain spread from the west.

### **22nd to 31st**

The 22nd was warm and windy, dull and wet in the north and west but with some sunshine in the east, and Salsburgh (Lanarkshire) had gusts to 53 mph. The cloud and rain cleared away north-westwards on the 23rd leaving a dry and increasingly sunny day with temperatures in the mid to high 20s Celsius. Heavy rain and thunderstorms spread from the south overnight, slowly clearing the north-east on the 24th, which was a cooler cloudier day in the west, but a warm and sunny one further east. Sunny and hot weather became established widely on the 25th with maxima of 31.6 °C at Edinburgh Gogarbank and Floors Castle (Roxburghshire). Thunderstorms again broke out in the evening, mainly in the Borders, and Achnagart (Ross & Cromarty) did not fall below 20.9 °C overnight 25th/26th, setting a new high minimum temperature record for Scotland. The 26th started off sunny and became hot again in the north, but it turned cloudier from the south with some showers for the south and east. A belt of heavy persistent rain straddled much of the country on the 27th, which was replaced by showers on the 28th, but the Northern Isles were dry, sunny and unusually warm with 14.9 hours of sunshine at Lerwick (Shetland) on the 27th. The 29th was mostly cloudy with some showers or longer spells of rain and drizzle affecting mainly northern and western areas. After a sunny start on the 30th, a southerly tracking depression

brought showers and longer outbreaks of rain northwards from late morning, and further showers spread north on the 31st, becoming widespread and thundery during the afternoon particularly in the Central Belt.

## **Northern Ireland diary of highlights**

**The first half of July was often relatively settled with high pressure close by but with variable amounts of cloud. The second half was generally wetter with frequent westerly and south-westerly winds, but with a very warm spell from the 22nd to 25th.**

The mean temperature for July was provisionally 1.0 °C above the long-term average. Rainfall was 107% of average, although the number of days with rain was generally below normal. Sunshine was generally a little below normal, with 92% of average overall.

### **1st to 7th**

A cool north-westerly flow brought a mostly cloudy and showery day on the 1st. The cloud and showers cleared away on the 2nd leaving dry sunny weather, which continued into the 3rd, but it turned cloudy in the afternoon. After a bright start on the 4th, cloud spread from the north bringing patchy light rain and drizzle. Most places were again cloudy on the 5th with some light rain spreading into the north, but it was brighter in the south-west. A cold front moved southwards on the 6th, with a dry cloudy start followed by brighter weather. The 7th began bright and chilly with a minimum of 1.6 °C at Katesbridge (County Down), and the day was sunny except in the far south-west, with 14.9 hours of sunshine at Aldergrove (County Antrim).

### **8th to 15th**

High pressure moved away to the south allowing less settled weather to take hold. The 8th was cloudy and wet, the rain most persistent early and late in the day, and further rain affected northern counties on the 9th but it was drier in the south with some sunshine in the south-west. There was further rain early and late on the 10th, which turned very heavy in some northern parts late in the day. High pressure then slowly rebuilt from the west, and the 11th was a day of sunshine and isolated showers, then the 12th was generally cloudier with more frequent but generally lighter showers. The high moved over Northern Ireland from the 13th to 15th bringing dry, sunny and increasingly warm weather.

### **16th to 21st**

A weak frontal system brought mostly cloudy conditions and light rain on the morning of the 16th, followed by brighter weather with isolated showers. Frontal systems brought wind and rain on the 17th, followed by sunshine and showers on the 18th. After a dry start on the 19th, showers and longer spells of rain spread from the west from late morning, with 31.4 mm of rain at Lough Navar (County Fermanagh). The 20th was brighter with just a few isolated showers. On the 21st, after a dry start, rain spread to all parts by midday, with winds increasing too: Killowen (County Down) recorded gusts to 52 mph.

### **22nd to 31st**

A warm, humid tropical maritime air mass became established on the 22nd, giving a mostly cloudy day with patchy light rain, but it brightened up in the afternoon and turned very warm with a high of 26.5 °C at Killowen (County Down). The night of the 22nd/23rd was unusually warm with the temperature falling no lower than 18.8 °C at Magilligan (County Londonderry). The 23rd started cloudy but slowly brightened up during the day with temperatures again widely into the mid-20s Celsius. The 24th was cloudy early and late with some light rain but in between it was dry and bright. The 25th was cloudy in the west, but sunny and warm in the east. The fronts moved

eastwards overnight, and the 26th had sunshine and showers but the east stayed dry. A slow-moving frontal system brought dry cloudy weather on the 27th, and a belt of rain spread into northern and eastern counties on the 28th, with Altnahinch (County Antrim) reaching only 13.2 °C on the 28th, but these two days were mostly dry and sunny in the south-west. Most areas had sunshine and showers on the 29th and 30th, and then the 31st started cloudy with some light rain but brightened up.