

Radcliffe Meteorological Station

Oxford University Centre for the Environment

The Weather at Oxford in 2019

2019 was the joint 11th warmest year on record at the RMS. Although mean temperatures were not as high as in 2018, several notable spells of extremely hot weather occurred, including a heat wave in July which produced the highest temperature recorded in the RMS's 205-year history. The rainfall total for 2019 was slightly higher than average with an especially wet three months to conclude the year.

January saw weather conditions close to their average for the season, with relatively dry conditions especially in the first half of the month. Air frost was frequent and light snow fell on the 23rd. The lowest air temperature (of -5.7°C) for the year was recorded on the 31st.

February was remarkable for being the sunniest on record, beating the previous record by 3.7 hours, mostly thanks to a period of anomalously warm weather towards the end of the month (only four days saw no sunshine at all). On the 26th, a maximum temperature of 18.8°C was reached, the highest ever recorded at the RMS for February. Rainfall was average for the month.



Unseasonably warm weather continued through **March**, with all but one metrics of temperature exceeding one standard deviation above the long-term mean. Mild conditions persisted through the nights, with temperatures never going below freezing. The absolute minimum concrete temperature of -0.5°C was the warmest on record for the month, although data only goes back as far as 1987. Like January and February, rainfall totals were unremarkable.

While most of **April** saw conditions close to their seasonal average, a warm period late in the month brought temperatures up to 25.1°C , the 7th highest value on record for April – without this brief spurt of high temperatures over Easter the mean for the month would have been well below that of March.

May temperatures were average on the whole. However, only 21.3 mm of rain fell this month across 8 rain days, well short of the average for the month. This was the driest May since 1998. May was the sunniest month of the year so far (204.6 hours), but only slightly sunnier than the long-term average.

June was slightly warmer than average, with the hottest day on the 29th accompanying a heat wave across western Europe. While temperatures in southern France exceeded 40°C , Oxford saw a maximum of 33.0°C , the 4th warmest June day recorded at the RMS. The month was also much wetter than average with 24.2 mm falling on the 10th, the rainiest day of the year. In spite of the short burst of hot weather, there was relatively little sunshine and most of June saw air temperatures close to the seasonal average.



Almost every day in **July** exceeded 20°C, with an average temperature for the month of 18.9, well above the long-term mean. This culminated in an extreme (albeit short-lived) heat wave towards the end of the month, with three consecutive days reaching 30°C. At about 3pm on the 25th, temperatures reached 36.5°C, beating the previous all-time record of 35.1 (set in 1932) by a large margin. Data from the RMS was subsequently used in an attribution study into the heat wave, which found that an event such as that observed in the UK was made 3-10 times more likely by climate change¹. July was relatively dry (42.9 mm), but not anomalously so, nor did the high temperatures translate to an especially sunny month.

August continued the trend of unseasonably warm weather, with all but one metrics of temperature more than one standard deviation above the long-term mean. Like July, temperatures peaked on the 25th, reaching 32.6°C (the 6th warmest August value on record) and making for a sunny bank holiday weekend. Other variables were close to their long-term means, with slightly more rainfall than average (46.9 mm).



September was above average in temperature, but unlike previous months saw an even spread of warm days which, on average, exceeded 20°C. Total rainfall and sunshine hours were close to their long-term means.



October brought several days of high rainfall, especially in the first half of the month. A monthly total of 120 mm was well in excess of the long-term mean, in line with rainy conditions across the UK and flooding across Oxfordshire. Although temperatures were close to average, the rainy weather meant the sunshine was lacking for the time of year.

Rainy conditions persisted into **November**, especially during the first half. The month saw a total of 105.6 mm, over 40 mm in excess of the long-term mean, in part thanks to 23.9 mm falling on the 13th.

December was another month of mild, wet weather with 88.1 mm in rainfall, again exceeding the long-term mean. Temperatures were close to average, meaning that the high overall average for the year was primarily due to the summer months. A lack of

¹ <https://www.worldweatherattribution.org/human-contribution-to-the-record-breaking-july-2019-heat-wave-in-western-europe/>

frosty conditions overnight this winter meant that no fog was observed. A total of three days of fog for the entire year is the joint lowest count since records began in 1926.

RMS news

Book publication

May 2019 saw the release of the much-anticipated *Oxford Weather and Climate Since 1767* by Stephen Burt and Tim Burt. Published by Oxford University Press, the book is full of fascinating historical information about the UK's longest single-site weather station and places contemporary weather patterns into context. Long-term weather records are a precious resource and very few match the longevity and completeness of those collected in Oxford – this book is a must-read for anyone interested in Britain's changing climate.

Observers

2019 saw a big change in staffing at the RMS, with Amy Creese and Emma Howard both completing their doctoral studies and moving on to greater things. Taking their place are Thomas Caton Harrison and James King, both DPhil students under the supervision of Richard Washington, the station Director. Thankfully Amy and Emma had time to pass on much of their wisdom to the new recruits!

The annual report was written by Thomas Caton Harrison and James King. We would like to thank Emma Howard and Amy Creese for their patient guidance as we took over the observer roles at the station. Our thanks also go to Roger Brugge, Stephen Burt and Phil Johnson who gave their time to quality check our recordings and advise on good observing practices.