

Radcliffe Meteorological Station

Oxford University Centre for the Environment

The Weather at Oxford in 2013

Mean weather conditions for 2013 at the Radcliffe Meteorological station were unexceptional. All air temperatures were slightly above average, although only the absolute minimum recorded temperature exceeded its long-term mean value by more than one standard deviation. Interestingly, and by contrast, temperatures measured on grassy/concrete surfaces were slightly lower than expected. 2013 saw very slightly less rainfall than expected, a happy respite from the extremely wet conditions of 2012. There were more hours of sunshine and days with snow on the ground than expected, but well within one standard deviation of their long-term mean values. Two measures that did differ from these by slightly more than one standard deviation were wind speed (slightly higher than expected) and days with fog (less than expected).

January 2013 saw fairly ordinary temperatures (albeit slightly above average) and rainfall, the exception to this being an unusually high absolute maximum temperature for the month (14.3°C, +1.9°C). Days with snow lying were far in excess of the long-term mean (13, +9.3), with only 5 previous January's seeing more. **February** was generally colder than expected although not exceptionally so, and slightly wetter (47.4 mm, +6.2 mm), with, interestingly, the majority of this rainfall occurring over the 3 day spell 8-10th. **Winter** 2013 as a whole (taking December 2012 into account) was unusually wet, with total accumulated rainfall of 214.6 mm +65.4 mm on the long-term winter mean, a departure of more than 1 standard deviation that places it among the top 25 wettest on record (although it was worth bearing in mind that this is largely a result of December 2012 being very wet (> 100 mm)). A mean winter temperature of 4.5°C (+ 0.3°C) on the other hand was comfortably within the expected range.

March 2013 was the 7th coldest on record (2.9°C, -2.9°C on March long-term mean) and the coldest since 1962, with all colder March's occurring in the nineteenth century. Mean maximum temperature was the coldest ever recorded (6.3°C, -3.8°C). It was also a very wet month, with almost double the expected rainfall, placing March 2013 in the top 20 wettest on record (77.4 mm, +36.4 mm). Interestingly, most of this rain fell on just 3 days, with over half of other days recording no rain at all. **April** was not as remarkable – slightly colder than expected, and dry, recording little over 50% of expected rain (24.9 mm, -18.8 mm), a stark contrast to April 2012 which received over 5* more than this April and was the wettest on record. There was much more sun than usual, even with 1 missed observation (174.9 hours, +21.61 hours), although this fell just within 1 standard deviation of the long-term mean. **May** was a cold and wet month, but air temperatures and accumulated rainfall were mainly within expected ranges. Surface temperatures were both unusually cold, with mean minimum concrete temperature being the 2nd lowest on record (6°C, -1.6°C on long-term mean; NOTE this record only began in 1987). It was also unusually windy, with a mean wind speed of 10.5 knots (+2 knots) placing it within the top 10 on record. **Spring 2013** as whole, with a mean air temperature of 7.3°C more than one standard deviation below the long-term mean (-1.2°C) was in the top 20 coldest on record (17th) and the coldest experienced in Oxford since 1951. It was also slightly wetter than usual (168.5 mm, +19.3 mm), but comfortably within expected bounds of variability.

June 2013 saw temperatures that were generally very slightly below average, a trend that was manifested through cooler than expected maximum air temperatures (mean maximum temperature -0.4°C on long-term mean), as opposed to any drop in minimum air temperatures (mean minimum air temperature = long-term mean). It was a very dry month, with total rain in excess of 1 standard deviation below the long-term mean (17.3 mm, -36.3 mm), placing June 2013 within the 30 driest June's on record. Conditions turned in **July**, which saw well above-average temperatures across the board. Mean air temperature of 19.4°C exceeded the long-term mean by over 2 standard deviations, making it the 4th warmest on record (19.4 , $+2.8$). This was mirrored in the mean maximum air temperature, which was also the 4th warmest on record. Perhaps unsurprisingly, July 2013 was also very sunny, with over 100 more hours of bright sunshine than expected (3rd highest on record). Above-average temperatures continued into **August** with all air temperatures exceeding their long-term mean values by more than 1 standard deviation. It was also very dry, with rainfall more than 1 standard deviation below the long-term mean (19.3 mm, -39.2 mm), and again total hours of bright sunshine were well above normal. As a result of the unusually warm July and August, **Summer 2013** mean air temperature of 17.2°C ($+1.3^{\circ}\text{C}$, exceeding the long-term mean by more than 1 standard deviation) was among the top 20 on record, the warmest since 2006. It was also well inside top 20 driest, with only 82.3mm of rainfall (-89.6 mm), the driest summer since 1995.

September 2013 saw slightly above average air temperatures, the most extreme departure being the maximum recorded temperature (absolute maximum), which exceeded its long-term mean by over 1 standard deviation (27.6°C , $+3.2^{\circ}\text{C}$). Ground temperatures on the other hand were slightly cooler than usual. Rainfall, sunshine hours and mean wind speed were all slightly below average, but not exceptionally so. **October** returned to the trend of the summer with all temperatures well above normal, all exceeding their long-term mean values by more than 1 standard deviation. Mean air temperature was the 8th warmest on record (12.8°C , $+2.7^{\circ}\text{C}$), and mean minimum air temperature and mean minimum grass temperature the joint 6th and 5th warmest, respectively. Owing to these unseasonably warm temperatures, far less ground frost was observed than usual (1 day, -5.4 days). October was also a very windy month, with a mean wind speed of 11.3 knots ($+2.9$ knots) making it the 7th windiest on record. Weather conditions for **November** were altogether more usual, with only small departures in temperatures from their long-term means. It was however much sunnier than usual, with 85.6 hours of bright sunshine exceeding the expected amount by more than 1 standard deviation ($+20.5$ hours). Unusually for November, no fog was recorded. On the whole, **Autumn 2013** was unusually warm, with mean air temperature of 11.2°C ($+1.1^{\circ}\text{C}$) placing it among the top 20 warmest Autumns on record. It was also very slightly drier than normal (182.5 mm, -5.2 mm).

December 2013 saw mild, wet and windy conditions. Almost all temperatures exceeded their long-term means by over 1 standard deviation, the most notable being an absolute minimum air temperature of 0.6°C ($+5.5^{\circ}\text{C}$), the 2nd highest on record. Total rainfall was also well over 1 standard deviation above that expected for December, placing it in the wettest 30 on record (97.7 mm, $+41.4$ mm), almost all of which fell in 2nd half of the month.

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