

Meteorological data summary for January 2020 for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.

Weekly temperatures, rainfall and sunshine during January 2020

	Mean Max (°C)	Mean Min (°C)	Mean (°C)	Rainfall (mm)	Sunshine (hours)
1 st - 7 th	22.1 (-1.5)	11.3 (-1.6)	16.7 (-1.5)	0.2	55.4
8 th - 14 th	21.0 (-2.6)	10.2 (-2.7)	15.6 (-2.6)	0	32.3
15 th - 21 st	20.1 (-3.5)	11.2 (-1.7)	15.6 (-2.6)	0	64.9
22 nd - 28 th	25.9 (+2.3)	14.0 (+1.1)	19.9 (+1.7)	0	72.2
29 th - 31 st (3 days)	29.1 (+5.5)	16.7 (+3.8)	22.9 (+4.7)	0	20.2
1st - 31st January	22.9 (-0.7°C)	12.2 (-0.7°C)	17.5 (-0.7°C)	0.2 (0.4%)	245.0 93%
LTA 1986-2019	23.6	12.9	18.2	44.5	263.5

January 2020 rainfall was the second lowest monthly total on record for the 91 years 1930 to 2020. January was cooler than average. Sunshine hours, evapotranspiration and wind-run were well below average.

Air Temperature

The mean temperature of 17.5°C was 0.7°C below the long-term average temperature (LTA) for January of 18.2°C (1986-2019). This was 3.2°C cooler than the very warm mean temperatures in January 2018 and 2019.

January 2020 was the coolest January since 2014 (17.2°C).

January 2019 mean temperature was 20.7°C

January 2018 mean temperature was 20.7°C

January 2017 mean temperature was 18.4°C

January 2016 mean temperature was 18.8°C

The first three weeks of January 2020 were much colder than normal. The mean temperature from 1 to 21 January was 16.0°C; 2.2°C below the January average. In dramatic contrast the mean temperature from 22 to 31 January was 20.8°C; 2.6°C above the January average, and 4.8°C warmer than the first three weeks.

Up until the 21st, January was heading towards being one of the coldest January's on record. However, the very warm temperatures over the last 10 days of January pulled the mean temperature up from 16.0°C to 17.5°C.

The highest maximum temperature of 31.5°C was recorded on Monday 27 January 2020. 31 January recorded 31.3°C. These were the only two days during the month to exceed 31°C. In marked contrast Blenheim recorded 10 days in January 2019 of 30.0°C or higher.

Sunshine

245.0 hours sunshine for January is 93% of the LTA for January of 263.5 hours.

January 2019 sunshine was 317.9 hours

January 2018 sunshine was 243.6 hours

January 2017 sunshine was 282.0 hours

Blenheim experienced a lot of overcast weather during January 2020. Many days experienced cloud cover for most of the morning. A number of other towns in New Zealand recorded substantially higher sunshine hours in January than Blenheim. Whakatane recorded 81.1 hours more sunshine than Blenheim. This is a massive difference in one month. 81.1 hours sunshine equates to an additional 2 hours 37 minutes sunshine every day of the month. It is going to be very difficult for Blenheim to claw back such a large deficit.

January sunshine hours

Whakatane – 326.1 hours (81.1 hours ahead of Blenheim)

New Plymouth – 313.4 hours (provisional, - 68.4 hours ahead of Blenheim)

Richmond – 311.7 hours (66.7 hours ahead of Blenheim)

Appleby – 307.8 hours (62.8 hours ahead of Blenheim)

Nelson – 277.8 hours (32.8 hours ahead of Blenheim)

Napier – 276.5 hours (31.5 hours ahead of Blenheim)

Tekapo – 272.8 hours (27.8 hours ahead of Blenheim)

I haven't checked all NZ sunshine totals, so there were probably some other towns also ahead of Blenheim

Rainfall

Rainfall total of 0.2 mm is 0.4% of the LTA for January of 44.5 mm. This is the second lowest monthly rainfall total, for the 91 years 1930-2020 (for any month of the year). The lowest monthly total on record is January 1978 when no rainfall was recorded.

The January 2020 total of 0.2 mm follows on the heels of January 2019 which also recorded a very low total of 3.2 mm.

Interestingly three of the lowest January rainfall totals in the 91 years 1930-2020, have been recorded since 2015.

Lowest January rainfall totals on record for Blenheim (1930-2020)

January 1978 rainfall = 0.0 mm is lowest on record

January 2020 rainfall = 0.2 mm is 2nd lowest on record

January 1939 rainfall = 1.5 mm is 3rd lowest on record

January 2001 rainfall = 2.2 mm is 4th lowest on record

January 2019 rainfall = 3.8 mm is 5th equal lowest on record

January 1955 rainfall = 3.8 mm is 5th equal lowest on record

January 2015 rainfall = 4.4 mm is 7th lowest on record

Wind-run

Average daily wind-run in January 2020 was 224.2 km, well below the LTA of 272.9 km. There were only six days in January that recorded greater than the LTA 272.9 km wind-run. The windiest day was Monday 6 January with 561 km wind-run. The maximum wind-speed in Blenheim that day was 82.1 km /hr. Some trees lost branches that day. So although people may remember some strong winds, those days were few in number.

Potential evapotranspiration

Total potential evapotranspiration for January 2020 was 133.9 mm, 93% of the LTA of 143.9 mm.

Potential water deficit

This is the difference between monthly rainfall and potential evapotranspiration.

0.2 mm rainfall – 133.9 mm potential evapotranspiration = -133.7 mm potential water deficit

The January 2020 water deficit of -133.7 mm was 132% of the LTA water deficit for January of -101.4 mm

Shallow soil moisture (topsoil)

Average shallow soil moisture (0 to 35 cm) at the Grovetown Park weather station for January 2020 was 19.4%. This was 1.5% below the LTA of 20.9%. Given the extremely low January rainfall why was average shallow soil moisture not lower? Blenheim recorded well above average rainfall in the first three weeks of December 2019. As a result the shallow soil moisture was 25.4% on 1 January 2020, which was above average for early January. However, with almost no rainfall in January the soil moisture fell from 25.4% on 1 January to 16.4% on 31 January. At the end of January there was almost no available moisture left in the top soil.

Plant & Food Research / Marlborough Research Centre

rob.agnew@plantandfood.co.nz