

Meteorological data summary for October 2021 for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.

October 2021 mean temperature and rainfall were above average. Sunshine hours were average. Wind-run was below average.

Table 1: Weekly weather data during October 2021

	Mean Max (°C)	Mean Min (°C)	Mean (°C) Deviation	Ground Frosts	Rainfall (mm)	Sunshine (hours)	Windrun (km)
1 st - 7 th	17.7	8.6	13.2 (+0.1)	0	17.6	38.6	156.4
8 th - 14 th	17.5	7.2	12.3 (-0.8)	1	6.4	55.6	238.4
15 th - 21 st	18.5	8.4	13.5 (+0.4)	1	12.6	56.4	238.9
22 nd - 28 th	20.4	9.9	15.2 (+2.1)	0	2.4	53.9	203.9
29 th - 31 st (3 days)	22.4	11.3	16.8 (+3.7)	0	31.2	29.3	245.3
1 st - 31 st October 2020	18.9 (+0.5)	8.8 (+0.9)	13.9 (+0.8)	2	70.2 (123%)	233.8 (101%)	212.9 (73%)
October LTA (1986 - 2020)	18.4	7.9	13.1	2.1	56.8	230.6	291.0

LTA – Long Term Average

Temperature

Mean temperature of 13.9°C was 0.8°C above the long-term average temperature (LTA) for October of 13.1°C (1986-2020). The first two weeks of October recorded average and below average mean temperatures respectively. The third and fourth weeks of October recorded above average and well above average mean temperatures respectively.

October 2020 mean temperature was 14.3°C.

October 2019 mean temperature was 12.7°C.

October 2018 mean temperature was 13.7°C.

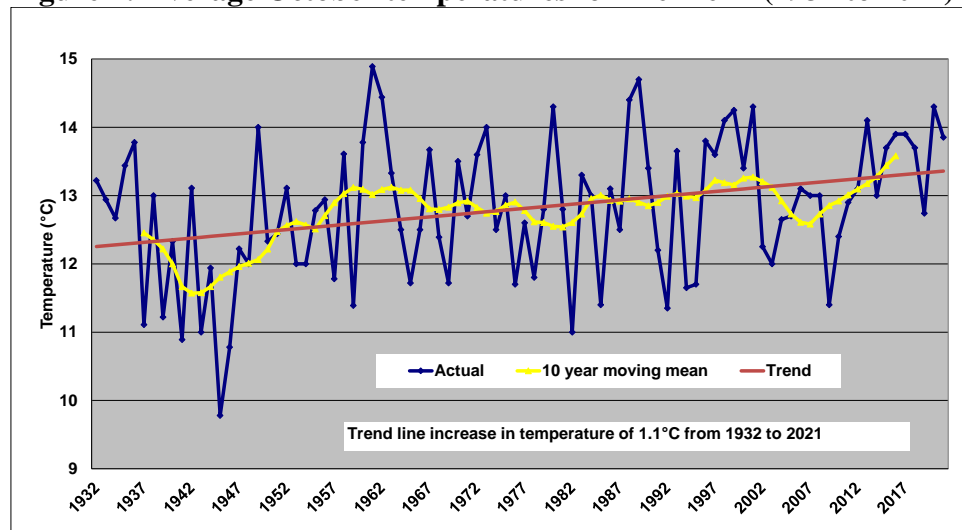
October 2017 mean temperature was 13.9°C.

The warmest maximum temperature of 24.6°C was recorded on 26 October 2021. The coolest minimum air temperature of +1.3°C and grass temperature of -1.4°C were recorded on the morning of 14 October 2021.

In the 11 years from 2002 to 2012 the October mean temperature was below average in all 11 years. In the 9 years from 2013 to 2021, the October mean temperature has been above average in 7 of those 9 years.

Figure 1 shows that October can exhibit marked variation in mean temperature from year to year. However, the trend line indicates that October has warmed by 1.1°C in the 90 years from 1932 to 2021.

Figure 1: Average October temperatures for Blenheim (1932 to 2021)



Frosts

Two ground frosts were recorded in Blenheim in October 2021. The LTA number of ground frosts for October is also two.

Sunshine

233.8 hours sunshine for October was 101% of the LTA for October of 230.6 hours (1986-2020).

October 2020 recorded 224.8 hours sunshine.

October 2019 recorded 250.5 hours sunshine.

October 2018 recorded 266.1 hours sunshine.

October 2017 recorded 247.4 hours sunshine.

Total sunshine for January to October 2021 was 2093.1 hours, 104% of the LTA of 2017.3 hours.

Sunniest town in New Zealand update.

Blenheim was the sunniest town in New Zealand during October 2021 with 233.8 hours sunshine. In second place was Richmond with 227.2 hours and Tekapo was in third place with 220.9 hours.

Current sunshine totals and rankings to the end of October 2021 are:

New Plymouth	2100.5 hours (7.5 hours ahead of Blenheim)
Blenheim	2093.0 hours
Napier	2084.7 hours
Richmond	2080.3 hours

New Plymouth has been leading the race for sunniest town in NZ in 2021. However, Blenheim is rapidly closing the gap. At the end of May Blenheim was trailing New Plymouth by 52.4 hours. At the end of October Blenheim has cut New Plymouth's lead back to 7.5 hours. Hopefully with two months to go Blenheim will take the lead and beat off all other wannabee sunniest town contenders.

Rainfall

Rainfall total of 70.2 mm was 123% of the LTA for October of 56.8 mm (1986-2020). This is the highest October total in the past 10 years, the previous highest being October 2011 with 85.4 mm.

October 2020 rainfall was 22.4 mm.

October 2019 rainfall was 28.0 mm.

October 2018 rainfall was 33.8 mm.

October 2017 rainfall was 32.4 mm.

Rain was recorded in Blenheim on 12 days during October 2021. The highest daily total was 31.2 mm on Friday 29 October.

Total rainfall for January to October 2021 of 619.0 mm was 115% of the LTA of 538.8 mm.

Total rainfall for January to October 2020 of 356.8 mm was 66% of the LTA of 538.8 mm.

29 October rainfall and flooding in central Blenheim

Friday 29 October experienced a very high intensity rainfall event which was centred over the Blenheim business district and which caused extensive surface flooding and damage to a number of businesses with water coming through ceilings and in some cases through the front door from surface flooding on the streets.

The Marlborough District Council records rainfall at the council office in Seymour Square. This location in central Blenheim is 1.75 km south-west of the official Blenheim weather station at the Grovetown Park campus of the Marlborough Research Centre. However, although these two stations are only a short distance apart, the MDC rain gauge in Seymour Square recorded a much higher daily rainfall total.

29 October MRC = 31.2 mm,
29 October MDC = 60.5 mm

The intensity of hourly rainfall was much higher at the MDC office than at the Grovetown Park weather station.

Friday 29 October	MDC rainfall Seymour Square	MRC rainfall Grovetown Park
4 to 5 pm	36.5 mm	11.8 mm
5 to 6 pm	18.6 mm	13.4 mm
6 to 7 pm	3.9 mm	5.0 mm

MDC data also showed that the highest 60 minute rainfall total was 50.2 mm (not an hour to hour total). To put that amount of rainfall into some perspective with regards to the volume of water received, the central Blenheim business district bounded by Symonds Street (SH1), Maxwell Road, Seymour Street and Nelson Street (SH6) is approximately 700 m by 500 m which is 35 hectares. 50.2 mm rain in one hour over 35 hectares equates to 17.57 million litres of water dumped on this area over 60 minutes. Blenheim's average October rainfall is 56.8 mm. So central Blenheim received its average October rainfall in just over a one hour period on Friday 29 October. It is no wonder that the shop roofs, gutterings and storm water system were unable to cope with the volume of water.

Unofficial reports from other suburbs such as Witherlea, Redwoodtown and Springlands are that there was far less rainfall in these areas, than in central Blenheim.

Evapotranspiration

Evapotranspiration for October 2021, was 99.5 mm, 97% of the LTA of 102.9 mm.

Soil Moisture

Average topsoil moisture during October was 34.5%, compared to the LTA during October of 31.5% (2003-2020).

Topsoil moisture fell from 34.7 % on 1 October to 30% by 28 October. However, the large dump of rainfall on 29 October boosted topsoil moisture again so that on 31 October it was sitting at 36.2%; i.e. the topsoil was actually wetter at the end of the month than at the beginning of the month. It is a fairly rare occurrence for topsoil moisture to increase during October in Marlborough. LTA topsoil moisture loss during October is 6.5% (2003-2020).

In contrast, in October 2020 topsoil moisture in Blenheim fell from 34.6% to 23.4%; a drop of 11.2%.

Moisture Deficit

Moisture deficit is rainfall minus potential evapotranspiration

For October 2021 this was: 70.2 mm rain – 99.5 mm potential evapotranspiration = -29.3 mm; 67 % of the LTA.

Wind

October 2021 average daily wind-run was 212.9 km. This was 73% of the October LTA (1996-2020) of 291.0 km. Average wind speed was 8.9 km/hr, compared to the LTA of 12.1 km/hr.

Plant & Food Research / Marlborough Research Centre
rob.agnew@plantandfood.co.nz