

Meteorological data summary for December 2020 and Annual Summary for 2020, for the Blenheim Weather station located at the Grovetown Park campus of the Marlborough Research Centre.

Table 1: Weekly temperatures, rainfall and sunshine during December 2020

	Mean Max (°C)	Mean Min (°C)	Mean (°C)	Rainfall (mm)	Sunshine (hours)
1 st - 7 th	22.7 (+0.8)	11.5 (-0.2)	17.1 (+0.3)	0.2	69.0
8 th - 14 th	21.1 (-0.8)	13.9 (+2.2)	17.5 (+0.7)	4.4	42.9
15 th - 21 st	24.1 (+2.2)	12.0 (+0.3)	18.1 (+1.3)	3.2	68.4
22 nd - 28 th	20.1 (-1.8)	10.6 (-1.1)	15.4 (-1.4)	15.0	40.9
29 th - 31 st (3 days)	18.4 (-3.5)	8.7 (-3.0)	13.6 (-3.2)	0	34.2
1st - 31st December	21.7 (-0.2°C)	11.7 (=)	16.7 (-0.1°C)	22.8 47%	255.4 102%
LTA 1986-2019	21.9	11.7	16.8	48.1	250.6

Temperatures for December

The mean temperature of 16.7°C for December 2020 was 0.1°C below the long-term average of 16.8°C (1986-2019).

December 2019 mean temperature was 16.7°C.

December 2018 mean temperature was 17.4°C.

December 2017 mean temperature was 18.7°C; +1.9°C, 2nd warmest December on record 1932-2020

The first week of December 2020 recorded an above average maximum temperature and below average minimum temperature, with a daily range of 11.2°C. In contrast the second week recorded below average maximum and above average minimum temperatures, with a daily range of only 7.2°C. However, the mean temperatures for both the first and second weeks were slightly above average. The third week of December was very warm and by 21st the mean temperature for December was 0.9°C above average. However, the final 10 days of December were much cooler than average and consequently those 10 days dragged the mean temperature for the whole of December down, so that the final mean temperature for December was 0.1°C below the long-term average.

The Maximum temperature during December 2020 was 27.7°C recorded on 18 December

The Minimum temperature during December 2020 was 3.5°C recorded on 28 December

Sunshine for December

255.4 hours sunshine for December 2020 was 102% of the long-term average for December of 249.9 hours.

December 2019 recorded 272.6 hours sunshine

December 2018 recorded 213.2 hours sunshine

December 2017 recorded 319.1 hours sunshine; 2nd sunniest December on record 1930-2019

Sunshine totals for December 2020

Blenheim was only the sixth sunniest town in New Zealand during December 2020.

Whakatane	301.6 hours
Tekapo	282.4 hours
New Plymouth	281.1 hours
Napier	270.2 hours
Richmond	264.2 hours
Blenheim	255.4 hours (46.2 hours behind Whakatane)

Rainfall for December

22.8 mm of rain for December 2020 was 47% of the long-term average for December of 48.1 mm.
December 2019 recorded 91.2 mm (four times the December 2020 rainfall)
December 2018 recorded 53.6 mm
December 2017 recorded 21.6 mm

Wind-run

Average daily wind-run for December 2020 was 259.4 km. This was below the long-term average for December of 283.6 km (1996-2019). Average daily wind speed in December was 10.8 km/hr compared to the December average of 11.8 km/hr. Maximum wind speed of 68.0 km/hr was recorded on 11 December.

There were 10 days during December 2020 that recorded higher than the long-term average daily wind-run of 283.6 km. All of these 10 days were between the 1st and 12th of December. There were 21 days that recorded lower than average daily wind-run.

However, even though wind-run in December 2020 was below average, December was a lot windier than November 2020 which recorded only 197.9 km daily wind-run.

In each of the eleven years 2010 to 2020, December has recorded below average daily wind-run. In contrast, of the 14 years 1996 to 2009, December recorded above average wind-run in nine of those 14 years; i.e. December has been far less windy in the past decade compared to the previous 10 to 15 years.

Evapotranspiration

Total potential evapotranspiration for December 2020 was 143.2 mm, compared to the long-term average of 140.3 mm.

Soil Moisture for December

Average shallow soil moisture (5-35 cm depth) at the Grovetown Park weather station was 22.4% for December 2020 compared with 21.1% long-term average (2002-2019).

Shallow soil moisture was well above average on 1 December at 29.8% after well above average rainfall in November 2020. However, with low rainfall during December the soil moisture fell by 11%, to be 18.8% on 31 December.

Moisture Deficit for December

The water deficit for December 2020 was -120.4 mm. The long-term average moisture deficit for December is -92.4 mm.

Rainfall 22.8 mm minus Evapotranspiration 143.2 mm = Moisture Deficit -120.4 mm
i.e. with only 47% of the average December rainfall in 2020, the moisture deficit was well above average.

Annual Statistics for Blenheim in 2020, compared to the long term average

Sunshine

Total sunshine for Blenheim in 2020 was 2602.1 hours. This is 104% of the long-term average of 2504.9 hours (1986-2019). 2020 is the 12th sunniest year on record for Blenheim over the 91 year period 1930 to 2020. 2019 recorded 2799.1 hours sunshine: second sunniest year on record for Blenheim (1930 to 2020). The sunniest year on record is 2015 with 2813.8 hours sunshine.

Provisional sunshine totals 2020 (NIWA will confirm sunshine totals)

Whakatane is the sunniest town in New Zealand for 2020 with a provisional total of 2704.4 hours sunshine. Richmond is the second sunniest town with 2638.2 hours sunshine, (66.2 hours behind Whakatane). Blenheim is the third sunniest town with 2602.1 hours sunshine (102.3 hours).

Rainfall

Total rainfall for 2020 was 461.4 mm; 72% of the long term average (1986-2019) of 641.8 mm. This is the 9th lowest total on record for Blenheim (1930 – 2020) and the lowest annual total since 2015, which also recorded the lowest total on record for the 91 years 1930 to 2020.

2019 rainfall was 661.0 mm.

2018 rainfall was 809.6 mm.

2015 rainfall was 381.6 mm, the lowest total on record for Blenheim.

1995 rainfall was 1003.4 mm, the highest total on record for Blenheim.

Table 2: Monthly rainfall recorded in Blenheim for 2020

Month	Rainfall (mm)	% of long term average	Long-term average (mm) 1986-2019
January	0.2	0.4%	44.5
February	8.6	18%	47.7
March	11.2	27%	41.5
April	24.2	47%	51.7
May	81.6	141%	57.9
June	77.6	119%	65.0
July	16.8	26%	63.6
August	49.6	80%	61.9
September	64.6	123%	52.5
October	22.4	39%	57.8
November	81.8	165%	49.6
December	22.8	47%	48.1
Total (Jan-Dec)	461.4	72%	641.8

Eight months recorded well below average rainfall (January, February, March, April, July, August, October and December). Four months recorded above average rainfall (May, June, September and November).

Temperature

The mean temperature for 2020 was 13.64°C; 0.44°C above the long term average for the 34 years 1986-2019, of 13.2°C. This is the 9th hottest year on record for Blenheim (1933 to 2020) (Table 3).

8 months in 2020 recorded above average mean temperatures.

4 months in 2020 recorded below average mean temperatures.

The hottest day of 2020 was 2nd February with a maximum temperature of 33.0°C.

The coldest day of 2020 was 25th July with an air frost of -1.7°C and a ground frost of -4.2°C.

However, the 30th September also recorded an air minimum of -1.0°C and a ground frost of -4.6°C.

Table 3: 10 hottest years on record for Blenheim for the 88 year period 1933 to 2020

Year	Temperature (°C)
2019	13.954
1998	13.950
2016	13.93
2018	13.89
2013	13.86
2010	13.70
2017	13.67
1990	13.66
2020	13.64
2005	13.62

Blenheim has reliable temperature records dating back to April 1932, a period of nearly 88 years. As shown in Table 3, the 10 hottest years on record for Blenheim have all occurred since 1990. Seven of the 10 hottest years on record, have occurred since 2010.

Summer: December 2019 to February 2020

35th warmest summer on record (1933-2020)

Autumn: March – May 2020

45th warmest autumn on record (1933-2020)

Winter: June – August 2020

2nd warmest winter on record (1933–2020)

Spring: September – November 2020

6th warmest spring on record (1933–2020)

Frosts

37 ground frosts were recorded in 2020; 14 less than the long term average of 51.4 (1986-2019). This is the lowest number of ground frost on record for Blenheim over the 89 years 1932 to 2020.

10 air frosts were recorded in 2020; 8 less than the long-term average of 18.2.

47 ground frosts and 12 air frosts in 2019

49 ground frosts and 8 air frosts in 2018

39 ground frosts and 12 air frosts in 2017

Wind-run

Average daily wind-run for 2020 was 223.4 km compared to the long-term average of 252.7 km (1996-2019).

For thirteen years in a row (2008-2020) Blenheim has recorded lower than average daily wind-run and wind speed.

Ten months in 2020 recorded below average wind-run.

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