

Meteorological data summary for February 2022 and the three months of summer (December to February) for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.

Table 1: Weekly temperatures, rainfall, sunshine and wind-run during February 2022

	Mean Max (°C)	Mean Min (°C)	Mean (°C)	Rainfall (mm)	Sunshine (hours)	Wind-run (km)
1 st - 7 th	21.4 (-1.9)	15.6 (+3.1)	18.5 (+0.6)	58.8	11.7	202.6
8 th - 14 th	20.7 (-2.6)	14.9 (+2.4)	17.8 (-0.1)	73.6	11.5	143.3
15 th - 21 st	22.2 (-1.1)	12.5 (=)	17.4 (-0.5)	21.0	65.1	200.3
22 nd - 28 th	20.5 (-2.8)	10.6 (-1.9)	15.5 (-2.4)	0.0	68.1	174.3
1st – 28th February	21.2 (-2.1)	13.4 (+0.9°C)	17.3 (-0.6°C)	153.4 334%	156.4 68%	180.1 72%
LTA 1986-2021	23.3	12.5	17.9	45.9	231.5	249.2

Temperature

February 2022 mean temperature of 17.3°C was 0.6°C below the long-term average temperature for February (1986-2021). This was slightly cooler than February 2021 and the coolest February since 2013.

The mean maximum temperature of 21.2°C was the coolest in the last 20 years. February 2002 also recorded 21.2°C.

February started out reasonably warm in the first week of the month, however each successive week became progressively cooler. The mean temperature from 1 to 21 February was 17.9°C, equal to the February average. However, the final very cool week dragged the overall mean for the month down by 0.6°C. The mean temperature in the final week of 15.5°C, was cooler than the mean March temperature of 16.1°C, hence the reason that it was feeling very autumnal.

February 2021 mean temperature was 17.5°C.

February 2020 mean temperature was 19.2°C.

February 2019 mean temperature was 18.9°C.

February 2018 mean temperature was 18.8°C.

The hottest maximum temperature recorded in Blenheim was 28.8°C on 1 February.

The coolest minimum temperature recorded in Blenheim was 8.5°C on 27 February.

The average daily range in temperature in Blenheim was 7.8°C during February, whereas the LTA daily range for February is 10.8°C. The overcast weather kept the daily maximum temperatures well below average and the daily minimum temperatures above average.

February 2022 recorded no days with maximum temperatures of 30°C or higher.

February 2021 recorded no days with maximum temperatures of 30°C or higher.

February 2020 recorded 4 days with maximum temperatures of 30°C or higher.

February 2019 recorded 5 days with maximum temperatures of 30°C or higher.

The average number of days of 30°C or higher during February over the 75 years 1947 to 2021 is only one; i.e. February 2019 and 2020 were the exception rather than the rule.

Summer temperatures

At the beginning of December 2021 NIWA predicted for Marlborough that there was a 70% chance of above average temperature, 25% chance of average temperature and only a 5% chance of below average temperature for the full 3 month period from December 2021 to February 2022; i.e. they were fairly certain that Marlborough would experience a warmer than average summer. The average temperature for the three summer months was 0.4°C above the long-term average; so NIWA's prediction was correct. December recorded a mean temperature well above average (+1.7°C), January slightly above average (+0.2°C), and February below average (-0.6°C).

Table 2: Monthly mean temperatures over the 6 summers from 2016-17 to 2021-22

	Long-term Average °C	2016-17 Mean °C	2017-18 Mean °C	2018-19 Mean °C	2019-20 Mean °C	2020-21 Mean °C	2021-22 Mean °C
December	16.8	16.7	18.7	17.4	16.7	16.7	18.6
January	18.2	18.4	20.7	20.7	17.5	18.4	18.3
February	17.9	18.0	18.8	18.9	19.2	17.5	17.3
Mean +/-LTA	17.7	17.7 +0.2	19.4 +1.8	19.0 +1.4	17.8 +0.17	17.5 -0.2	18.1 +0.4

Sunshine

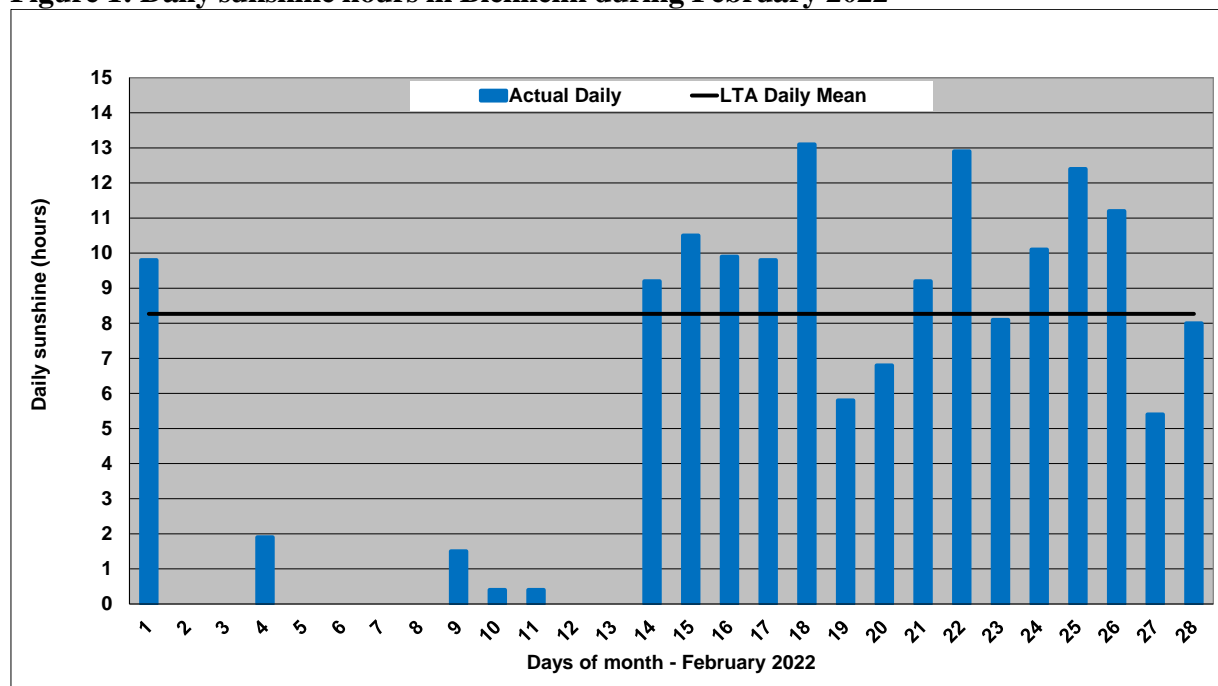
156.4 hours sunshine for February was 68% of the long-term average (1986-2021). This is the second lowest February sunshine total on record for Blenheim for the 93 years 1930 to 2022. Lowest is 133.6 hours recorded in February 2012. The first 14 days of February were exceptionally overcast recording only 23.2 hours sunshine; i.e. an average of only 1.66 hours per day. Eight of the first 14 days of the month recorded zero hour's sunshine, associated with the 132.4 mm of rain over those 14 days. In contrast, the 14 days from 15 to 28 February recorded 133.2 hours sunshine, 9.5 hours per day, well above average.

February 2021 recorded 263.9 hours sunshine

February 2020 recorded 270.9 hours sunshine

February 2019 recorded 289.4 hours sunshine

February 2018 recorded 226.4 hours sunshine

Figure 1: Daily sunshine hours in Blenheim during February 2022

Summer Sunshine

Table 3: Sunshine hours over the 6 summers from 2016-17 to 2021-22

	Long-term Average	2016-17 hours	2017-18 hours	2018-19 hours	2019-20 hours	2020-21 hours	2021-22 hours
December	249.3	253.0	319.1	213.2	272.6	255.4	201.5
January	264.3	282.0	243.6	317.9	245.0	309.0	313.8
February	229.9	246.3	226.4	289.4	270.9	263.9	156.4
Total	745.1	781.3 105%	789.1 106%	820.5 110%	788.5 106%	828.3 111%	671.7 90%

January 2022 was the only summer month to record above average sunshine hours. December 2021 sunshine hours were well below average due to high rainfall in the first half of the month. February 2022 sunshine hours were also well below average, again due to very high rainfall in the first 2-weeks of the month. With a total of 671.7 hours, the summer sunshine total for 2021-22 is ranked 75th out of the 92 years on record, from 1930-31 to 2021-22.

Rainfall

February rainfall total of 153.4 mm was 334% of the long-term average (1986-2021). This is the second highest February rainfall total on record for the 93 years 1930 to 2022. The highest February total of 181.4 mm was recorded only 4-years ago in 2018.

- February 2021 rainfall was 22.8 mm (10th lowest on record)
- February 2020 rainfall was 8.6 mm (10th lowest on record)
- February 2019 rainfall was 8.0 mm (9th lowest on record)
- February 2018 rainfall was 181.4 mm (highest on record 1930 to 2022)

While February’s rainfall was very high, only four of the last 20-years have recorded well above average rainfall in February; 14 of the 20 years have recorded below average rainfall; 2-years have recorded close to average rainfall.

Summer Rainfall

Table 4: Rainfall over the 6 summers from 2016-17 to 2021-22

	Long-term Average	2016-17 mm	2017-18 mm	2018-19 mm	2019-20 mm	2020-21 mm	2021-22 mm
December	48.4	20.2	21.6	53.6	91.2	22.8	85.8
January	42.2	27.2	80.4	3.8	0.2	7.8	12.6
February	45.9	61.8	181.4	8.0	8.6	22.8	153.4
Total	136.5 mm	109.2 mm 80%	283.4 mm 208%	65.4 mm 48%	100.0 mm 73%	53.4 mm 39%	251.8 mm 185%

Total summer rainfall in 2021-22 (Table 5) of 251.8 mm was 185% of the long-term average total. This is the sixth highest summer rainfall on record for Blenheim for the 92 years 1930-31 to 2021-22. The previous wettest summer was 4-years ago in 2017-18, when 283.4 mm rain was recorded.

Wind Run

Average daily wind run for February 2022 was 180.1 km, 72% of the long-term average (1996-2021) of 249.2 km. This is the least windy February on record for Blenheim for the 27 years 1996 to 2022.

Shallow Soil Moisture

Average shallow soil moisture (5–35 cm depth) at the Grovetown Park weather station for February was 32.2%. Soil moisture was low at the start of the month (16.5%) after a dry January. However, high rainfall during the month boosted moisture in the topsoil well above the February average.

Potential Evapotranspiration

Potential evapotranspiration for February 2022 was 86.6 mm, 75% of February’s long-term average of 115.5 mm. This is the lowest potential evapotranspiration for February for the 26 years 1996 to 2022, the period over which it has been recorded.

Table 5: Potential evapotranspiration over the 6 summers from 2016-17 to 2021-22

	Long-term Average	2016-17 mm	2017-18 mm	2018-19 mm	2019-20 mm	2020-21 mm	2021-22 mm
December	140.2	153.7	177.8	114.9	140.1	143.2	135.1
January	144.6	181.5	135.6	186.9	133.9	172.3	152.5
February	115.5	121.9	122.4	151.0	140.3	123.3	86.6
Total	400.3 mm	457.1 mm 114%	435.8 mm 109%	452.8 mm 113%	414.3 mm 103%	438.8 mm 110%	374.2 mm 93%

Potential Water Deficit

Potential water deficit (Table 6) is the difference between monthly rainfall received (Table 4) and potential monthly evapotranspiration lost (Table 5). Potential water deficit for February 2022 was +66.8 mm; i.e. a water surplus. Average water deficit for February is -78.6 mm.

Potential water deficit for the three summer months December 2021 – February 2022 was -122.4 mm, only 44% of the LTA.

Table 6: Potential Water Deficit over the 6 summers from 2016-17 to 2021-22

	Long-term Average	2016-17 mm	2017-18 mm	2018-19 mm	2019-20 mm	2020-21 mm	2021-22 mm
December	-91.8	-133.5	-156.2	-61.3	-48.9	-120.4	-49.3
January	-105.2	-154.1	-55.2	-183.1	-133.7	-164.5	-139.9
February	-78.6	-60.1	+59.0	-143.0	-131.7	-100.5	+66.8
Total	-275.6 mm	-347.7 mm 127%	-152.4 mm 56%	-387.4 mm 141%	-314.3 mm 115%	-385.4 mm 141%	-122.4 mm 44%

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