

## Weather Data summary for August 2021 for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.

August 2021 mean temperature and total rainfall were above average. Sunshine hours were well below average. Air and ground frost numbers were close to average. Average daily wind-run was close to average.

**Table 1: Weekly weather data during August 2021**

	Mean Max (°C)	Mean Min (°C)	Mean (°C) Deviation	Ground Frosts	Air Frosts	Rainfall (mm)	Sunshine (hours)	Wind-run (km)
1 <sup>st</sup> - 7 <sup>th</sup>	13.8	3.9	8.9 (-0.2)	1	1	18.8	28.8	165.3
8 <sup>th</sup> - 14 <sup>th</sup>	13.9	3.3	8.6 (-0.5)	4	1	17.2	50.0	234.9
15 <sup>th</sup> - 21 <sup>st</sup>	14.1	4.0	9.1 (=)	4	0	8.8	44.0	263.1
22 <sup>nd</sup> - 28 <sup>th</sup>	15.3	8.2	11.7 (+2.6)	1	0	26.0	31.7	265.1
29 <sup>th</sup> - 31 <sup>st</sup> (3 days)	11.2	6.3	8.8 (-0.3)	1	0	0.4	4.4	201.7
1 <sup>st</sup> - 31 <sup>st</sup> August 2021	14.0 (-0.3)	5.0 (+1.1)	9.5 (+0.4)	11	2	71.2 (116%)	158.8 (85%)	222.9 (96%)
August LTA (1986 - 2020)	14.3	3.9	9.1	10.2	3.6	61.6	185.8	232.1

LTA – Long Term Average

### Temperature

Mean temperature of 9.5°C was 0.4°C above the long-term average (LTA) temperature for August of 9.1°C (1986-2020).

August 2020 mean temperature was 10.3°C.

August 2019 mean temperature was 8.8°C.

August 2018 mean temperature was 10.0°C.

August 2017 mean temperature was 10.3°C.

Up until the fourth week of the month, August was heading for a colder than average mean temperature after the first two weeks recorded slightly below average mean temperatures and the third week was equal to the LTA mean. However, the seven days from 23 to 29 August all recorded well above average mean temperatures and pushed the overall mean for August up above average. The final two days of the month were very cold, with a mean temperature of only 7.4°C. The daily maximum temperatures on the 30<sup>th</sup> and 31<sup>st</sup> August 2021 were 10.5°C and 9.4°C respectively, whereas the LTA daily maximum temperature for August is 14.3°C. In complete contrast the last two days of August 2020 were very warm and shattered the previous maximum temperature record for August. The 30<sup>th</sup> and 31<sup>st</sup> August 2020 recorded daily maximum temperatures of 21.7°C and 23.8°C respectively; (over double the daily maximums on 30<sup>th</sup> and 31<sup>st</sup> August 2021). Those two days both exceeded the previous highest August daily maximum temperature on record for Blenheim (1932 to 2020).

### Frosts

There were 2 air frosts and 11 ground frosts in August 2021

There was 1 air frost and 6 ground frosts in August 2020

There were 3 air frosts and 13 ground frosts in August 2019

There were 0 air frosts and 6 ground frosts in August 2018

The coldest air minimum temperature of -1.1°C was recorded on 4<sup>th</sup> August.

The coldest ground minimum temperature of -1.1°C was recorded on 4<sup>th</sup> August. This was the coldest ground frost of winter 2021 (June, July, August).

August 2020 coldest air minimum was -0.6°C and ground minimum of -3.5°C.  
 August 2019 coldest air minimum was -1.2°C and ground minimum of -5.9°C.  
 August 2018 coldest air minimum was +1.2°C and ground minimum of -2.3°C.

### **Sunshine**

158.8 hours sunshine for August is 85% of the long term average for August of 185.8 hours (1986-2020). This is the lowest August sunshine total since 2013 (150.2 hours). August 2021 recorded 64.1 hours less sunshine than August 2020, or 2.1 hours less per day. Probably a good thing we were all locked inside for nearly half the month.

August 2020 recorded 222.9 hours sunshine. (3<sup>rd</sup> sunniest August on record)  
 August 2019 recorded 221.9 hours sunshine. (4<sup>th</sup> sunniest August on record)  
 August 2018 recorded 179.7 hours sunshine.  
 August 2011 recorded 235.0 hours sunshine. Highest total on record (1930-2020)  
 August 1941 recorded 129.2 hours sunshine. Lowest total on record (1930-2020)

Total sunshine for Blenheim for the eight months January to August 2021 is 1635.4 hours, or 103% of the long-term average of 1591.4 hours.

### **Rainfall**

Rainfall total of 71.2 mm for August was 116% of the long-term average for August of 61.6 mm (1986-2020). The highest total since August 2012

August 2020 rainfall was 49.6 mm.  
 August 2019 rainfall was 56.6 mm.  
 August 2018 rainfall was 59.6 mm.  
 August 1969 rainfall was 4.9 mm – driest on record (1930 – 2021)  
 August 1990 rainfall was 172.1 mm – wettest on record (1930 – 2021)

Total rainfall for Blenheim for the eight months January to August 2021 is 496.2 mm or 116% of the long-term average of 429.1 mm (1986-2020).

### **Wind**

Average daily wind run for August 2021 was 222.9 km, with an average wind speed of 9.3 km/hr. The long-term average wind-run for August is 232.1 km (1996-2020).

### **Winter 2021**

Table 2 summarises the main weather parameters over the three winter months of June, July and August for the seven years 2015 to 2021 compared to the LTA.

**Table 2: Summary of winter (June, July and August) weather parameters for Blenheim for the seven years 2015 to 2021 compared to the long-term average**

	<b>LTA</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Mean air temp (°C)	8.6	8.6	9.0	9.0	9.3	9.0	9.5	9.5
Mean 30 cm soil temp (°C)	8.0	7.9	8.6	9.5	9.0	8.5	9.2	9.2
Number of ground frosts	36.9	41	32	30	36	36	23	32
Mean ground frost temp (°C)	NA	-3.1	-2.8	-3.0	-2.1	-2.8	-2.4	-3.0
Total rainfall	189.2	172.0	150.4	146.6	170.6	194.2	144.0	290.4
Total sunshine	499.2	560.4	537.5	504.6	504.8	529.2	510.8	480.5
Average daily wind-run (km)	226.5	240.8	229.6	195.1	207.9	208.9	194.6	

All three winter months in 2021, (June, July, August) recorded well above average mean temperatures. (June 10.3°C was +1.6°C; July 8.8°C was +0.8°C; August 9.5°C was +0.4°C). The mean winter air temperature of 9.5°C was 0.9°C warmer than the LTA. The winter of 2021 is now the second equal warmest winter on record for Blenheim (1932 to 2021), the same mean as in winter 2020. Winter 2013 is the warmest with a mean temperature of 9.6°C.

As a consequence of warmer than average air temperatures and slightly lower than average number of ground frosts, the mean 30 cm soil temperature over winter was well above the LTA.

32 ground frosts were recorded over winter, compared to the LTA of 36.9. This is slightly less than the LTA, but well above 2020 which only recorded 23 ground frosts, the lowest number on record for Blenheim.

Total rainfall over winter of 290.4 mm is 153% of the LTA of 189.2 mm. This is the 7<sup>th</sup> highest winter rainfall total on record for Blenheim over the 92 years 1930 to 2021

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