

A warm and dry finish to winter

Temperature	It was New Zealand's fourth-warmest August on record. Temperatures were above average (0.51°C to 1.20°C above average) or well above average (>1.20°C above average) for most of the country.
Rainfall	It was a particularly dry month for eastern and inland parts of Canterbury and North Otago, where less than 20% of normal August rainfall was recorded. Rainfall was below normal (50-79% of normal) or well below normal (<50% of normal) in parts of almost every region. Rainfall was above normal (120-149% of normal) or well above normal (>149%) in Northland and northern Auckland.
Soil Moisture	At the end of the month, soil moisture levels were lower than normal in eastern parts of the South Island, and southern parts of the North Island. Soils were considerably drier than normal in eastern parts of south Canterbury and north Otago, where NIWA's New Zealand Drought Index classified areas as "very dry". Soil moisture levels were typically near normal for most remaining parts of New Zealand.

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Overview

August 2020 was characterised by higher than normal mean sea level pressure (MSLP) to the east of New Zealand, and lower than normal MSLP to the northwest of the country. This set up resulted in a northeast airflow anomaly (i.e. more northeasterly winds than normal), particularly in the North Island. The airflow pattern appears to be consistent with the development of a La Niña in the equatorial Pacific. The prevailing northeast winds resulted in warmer than usual temperatures for much of New Zealand. Overall, the nationwide average temperature in August 2020 was 10.1°C. This was 1.2°C above the 1981-2010 August average, making it New Zealand's fourth-warmest August since NIWA's seven station temperature series began in 1909. It has now been 43 consecutive months since New Zealand's nationwide average temperature was below average. Temperatures were above average (0.51°C to 1.20°C above average) or well above average (>1.20°C above average) for most of the country. The only exceptions were parts of inland Wairarapa, Hawke's Bay and the Central Plateau where temperatures were near average (within 0.50°C of average).

It was a dry finish to winter for most of the country, with parts of almost every region observing below normal (50% to 79% of normal) or well below normal (<50% of normal) rainfall. The exception was Northland and northern parts of Auckland, where rainfall was above normal (120% to 149% of normal)

or well above normal (>149% of normal). It was a particularly dry month for eastern and inland parts of Canterbury and North Otago, where less than 20% of normal August rainfall was recorded.

The combination of relatively warm and dry weather meant a lack of natural snowfall for many mountainous areas of the country. Towards the end of the month, snow depth was approximately half of usual¹ at several locations along the Southern Alps (see [Highlights and extreme events](#) section for further details). Sea surface temperatures surrounding New Zealand were higher than normal by the end of the month, and this likely contributed to the warm air temperatures observed during the month. Overall, there were relatively few episodes of unsettled weather events during August. The benign climate pattern may be partly attributed to the polar jet stream, which was largely suppressed to the south of New Zealand.

Further Highlights:

- The highest temperature was 25.1°C, observed at Timaru on 30 August.
- The lowest temperature was -8.2°C, observed at Pukaki Airport on 15 August.
- The highest 1-day rainfall was 79 mm, recorded at Milford Sound on 31 August.
- The highest wind gust was 187 km/h, observed at Cape Turnagain on 29 August.
- Of the six main centres in August 2020, Auckland was the warmest and wettest, Tauranga was the sunniest, Christchurch was the coldest and driest, and Dunedin was the least sunny.
- Of the available, regularly reporting sunshine observation sites, the sunniest four regions in 2020 so far are Bay of Plenty (1769 hours), Wider Nelson (1726 hours), Taranaki (1707 hours), and Marlborough (1679 hours).

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¹ Based on approximately 10 years of snow depth data beginning in 2010.

Temperature: New Zealand's fourth-warmest August on record

It was a warm end to winter throughout New Zealand, with dozens of locations observing record or near-record high mean, mean maximum and mean minimum temperatures (see following three tables). It was especially warm in parts of Central Otago, as well as inland and northern Canterbury, where mean temperatures were more than 2.0°C higher than average for the time of year.

Record² or near-record mean air temperatures for August were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Arapito	11.2	1.9	1978	Highest
Brothers Island	11.9	1.3	1997	Highest
Medbury	9.0	2.6	1927	Highest
Cheviot	9.2	1.9	1982	Highest
Orari Estate	8.5	1.8	1972	Highest
Ranfurly	6.4	2.1	1897	Highest
Westport	11.0	1.7	1937	2nd-highest
Milford Sound	8.6	1.8	1934	2nd-highest
Waiau	9.1	2.5	1974	2nd-highest
Mt Cook Village	6.2	2.2	1929	2nd-highest
Dunedin (Musselburgh)	9.3	1.6	1947	2nd-highest
Alexandra	7.8	1.8	1929	2nd-highest
Roxburgh	8.7	2.3	1950	2nd-highest
Gore	7.8	1.6	1907	2nd-highest
Kerikeri	13.3	1.6	1945	3rd-highest
Ngawi	12.4	1.6	1972	3rd-highest
Kaikoura	10.4	1.6	1963	3rd-highest
Waipara West	10.1	1.7	1973	3rd-highest
Akaroa	10.3	1.7	1978	3rd-highest
Tara Hills	6.2	1.7	1949	3rd-highest
Oamaru	8.8	1.3	1967	3rd-highest
Te Anau	6.9	1.3	1963	3rd-highest
Queenstown	7.5	1.9	1871	3rd-highest
Lauder	6.7	1.8	1924	3rd-highest
Invercargill	8.0	1.3	1905	3rd-highest
Balclutha	8.0	1.2	1964	3rd-highest
Kaitaia	13.6	1.5	1948	4th-highest
Whangarei	13.1	1.1	1967	4th-highest
Whangaparaoa	12.9	1.0	1982	4th-highest
Whitianga	12.4	1.6	1962	4th-highest

² The rankings (1st, 2nd, 3rd.etc) in all Tables in this summary are relative to climate data from a *group* of nearby stations, some of which may no longer be operating. The current climate value is compared against all values from any member of the group, without any regard for homogeneity between one station's record, and another. This approach is used due to the practical limitations of performing homogeneity checks in real-time.

Tauranga	12.1	1.3	1913	4th-highest
Te Puke	11.3	1.2	1973	4th-highest
Pukekohe	11.9	1.1	1969	4th-highest
Whatawhata	11.1	1.0	1952	4th-highest
Secretary Island	10.5	1.2	1985	4th-highest
Motueka	9.8	1.5	1956	4th-highest
Hanmer Forest	7.7	1.8	1906	4th-highest
Le Bons Bay	9.3	1.6	1984	4th-highest
Oamaru	8.3	1.3	1967	4th-highest
Manapouri (West Arm Jetty)	6.1	1.5	1971	4th-highest
Nugget Point	8.3	1.2	1970	4th-highest
Low records or near-records				
None observed				

Record or near-record mean maximum air temperatures for August were recorded at:

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Te Kuiti	16.4	2.0	1959	Highest
Porirua	14.7	1.6	1968	Highest
Ohakune	12.8	2.5	1962	Highest
Takaka	15.9	1.8	1978	Highest
Arapito	15.8	2.0	1978	Highest
Brothers Island	13.7	1.3	1997	Highest
Medbury	15.2	3.0	1927	Highest
Cheviot	15.2	2.2	1982	Highest
Tara Hills	12.7	2.8	1949	Highest
Clyde	13.9	2.3	1978	Highest
Whangarei	17.4	1.5	1967	2nd-highest
Whitianga	16.8	1.5	1962	2nd-highest
Whakatane	16.1	0.7	1974	2nd-highest
Taupo	13.7	1.9	1949	2nd-highest
Hamilton (Ruakura)	16.7	2.1	1906	2nd-highest
Ngawi	15.3	1.9	1972	2nd-highest
Hicks Bay	15.9	1.4	1969	2nd-highest
Waipawa	15.1	1.8	1945	2nd-highest
Stratford	13.6	1.5	1960	2nd-highest
Reefton	14.1	1.9	1960	2nd-highest
Blenheim	15.8	1.7	1932	2nd-highest
Hanmer Forest	15.9	3.7	1906	2nd-highest
Waiau	15.9	3.2	1974	2nd-highest
Mt Cook (Airport)	11.3	2.6	1929	2nd-highest
Wanaka	12.7	2.3	1955	2nd-highest
Ranfurly	12.5	2.7	1897	2nd-highest
Kerikeri	17.4	1.2	1945	3rd-highest
Leigh	17.2	1.9	1966	3rd-highest

Whangaparaoa	15.9	1.1	1982	3rd-highest
Wairoa	16.8	2.0	1964	3rd-highest
Paraparaumu	14.6	1.5	1953	3rd-highest
Wellington (Airport)	14.3	1.4	1962	3rd-highest
Motueka	15.6	1.7	1956	3rd-highest
Waipara West	15.4	2.0	1973	3rd-highest
Oamaru	13.1	1.2	1967	3rd-highest
Dunedin (Musselburgh)	12.9	1.7	1947	3rd-highest
Queenstown	12.1	2.2	1871	3rd-highest
Tauranga	16.1	1.1	1913	4th-highest
Auckland (Mangere)	16.1	1.3	1959	4th-highest
Masterton	15.3	1.5	1906	4th-highest
Martinborough	15.3	1.6	1986	4th-highest
Westport	14.5	1.4	1937	4th-highest
Milford Sound	12.7	1.4	1934	4th-highest
Kaikoura	13.6	1.9	1963	4th-highest
Culverden	14.8	2.1	1928	4th-highest
Le Bons Bay	11.9	1.5	1984	4th-highest
Cromwell	13.3	1.9	1949	4th-highest
Roxburgh	13.7	1.8	1950	4th-highest
Alexandra	14.3	1.8	1929	Equal 4th-highest
Low records or near-records				
None observed				

Record or near-record mean minimum air temperatures for August were recorded at:

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Westport	7.5	2.0	1937	Highest
Brothers Island	10.1	1.3	1997	Highest
Arapito	6.6	1.8	1978	2nd-highest
Medbury	2.8	2.1	1927	2nd-highest
Dunedin (Musselburgh)	5.7	1.5	1947	2nd-highest
Lumsden	2.8	2.0	1982	2nd-highest
Gore	4.0	1.8	1907	2nd-highest
Invercargill	3.8	1.6	1905	2nd-highest
Balclutha	3.6	1.5	1964	2nd-highest
Nugget Point	5.8	1.6	1970	2nd-highest
Kerikeri	9.1	1.9	1945	3rd-highest
Milford Sound	4.6	2.3	1934	3rd-highest
Le Bons Bay	6.7	1.7	1984	3rd-highest
Orari Estate	3.3	2.1	1972	3rd-highest
Oamaru	4.5	1.4	1967	3rd-highest
Te Anau	3.4	2.5	1963	3rd-highest
Whangarei	9.5	1.3	1967	4th-highest

Port Taharoa	9.6	1.5	1973	4th-highest
Ngawi	9.5	1.3	1972	4th-highest
Kaikoura	7.2	1.3	1963	4th-highest
Cheviot	3.2	1.6	1982	4th-highest
Mt Cook (Village)	1.3	2.0	1929	4th-highest
Manapouri (West Arm Jetty)	3.1	1.5	1971	4th-highest
Roxburgh	3.6	2.7	1950	4th-highest
Tiwai Point	4.9	1.1	1970	4th-highest
Waipara West	4.9	1.5	1973	Equal 4th-highest
Low records or near-records				
None observed				

Rainfall: A dry month for most, but wet in the far north

Several locations in Wairarapa, Wellington and Canterbury observed record or near-record low August rainfall totals. Martinborough recorded 17 mm of rainfall, making it the driest August there since records began in 1924. Akaroa recorded just 16% of its normal August rainfall. It was wetter than normal for the second consecutive month in Northland, after the region endured a prolonged drought earlier in the year. Kaikohe observed 260 mm of rainfall, which is 163% of normal for the time of year.

Record or near-record August rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Kaikohe	260	163	1956	Equal 4th-highest
Low records or near-records				
Martinborough	17	23	1924	Lowest
Wellington (Airport)	28	30	1958	Lowest
Dannevirke	27	33	1951	2nd-lowest
Castlepoint	21	24	1902	2nd-lowest
Akaroa	20	16	1977	2nd-lowest
Wellington (Kelburn)	38	33	1928	4th-lowest

August climate in the six main centres

August temperatures were above or well above average for all main centres. Dunedin observed its second-warmest August on record, and Tauranga observed its fourth-warmest August on record. It was a particularly dry month in Christchurch and Wellington, with just 27% and 33% of normal August rainfall, respectively. Of the six main centres in August 2020, Auckland was the warmest and wettest, Tauranga was the sunniest, Christchurch was the coldest and driest, and Dunedin was the least sunny.

August 2020 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	12.4	+0.8	Above average
Tauranga ^b	12.1	+1.3	4th-highest on record
Hamilton ^c	10.4	+0.8	Above average
Wellington ^d	10.7	+1.3	Well above average
Christchurch ^e	8.4	+1.2	Above average
Dunedin ^f	9.3	+1.6	2nd-highest on record
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	116	102	Near normal
Tauranga ^b	106 ³	96	Near normal
Hamilton ^c	100 ⁴	83	Near normal
Wellington ^d	38	33	4th-lowest on record
Christchurch ^e	17	27	Well below normal
Dunedin ^f	38	68	Below normal
Sunshine			
Location	Sunshine (hours)		
Auckland ^a	154		
Tauranga ^b	181		
Hamilton ^e	145		
Wellington ^d	167		
Christchurch ^e	178		
Dunedin ^f	139 ⁴		

^a Mangere ^b Tauranga Airport ^c Hamilton Airport ^d Kelburn ^e Christchurch Airport ^f Musselburgh ^g Ruakura

³ Missing one day of data.

⁴ Missing two days of data.

Highlights and extreme events

Temperatures

During the final few days of August, a strong and warm northwesterly airflow became established over New Zealand. Dozens of locations observed record or near-record high daily maximum and minimum air temperatures during this period. Most notably, Timaru recorded 25.1°C on 30 August. This was the city's highest August temperature on record, exceeding its previous highest August temperature (23.2°C) by 1.9°C. This was additionally New Zealand's third-highest August temperature on record. Timaru observed another warm day on 31 August, when the maximum temperature reached 23.0°C.

On 31 August, Mount Cook Airport recorded a daily minimum temperature of 10.0°C; its highest August daily minimum temperature since records began in 1929. The average daily minimum temperature for August at Mount Cook Airport is -0.7°C.

The highest August temperature was 25.1°C, observed at Timaru on 30 August. The lowest August temperature was -8.2°C, observed at Pukaki Airport on 15 August.

Record or near-record daily maximum air temperatures for August were recorded at:

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Gisborne	23.0	31st	1905	Highest
Hastings	22.9	30th	1965	Highest
Takaka	20.8	30th	1978	Highest
Farewell Spit	19.4	29th	1971	Highest
Blenheim	23.8	31st	1932	Highest
Lincoln	22.3	30th	1881	Highest
Le Bons Bay	20.4	30th	1984	Highest
Orari Estate	23.8	30th	1972	Highest
Timaru	25.1	30th	1885	Highest
Waimate	23.4	30th	1908	Highest
Oamaru	23.2	30th	1967	Highest
Whangarei	21.3	20th	1967	2nd-highest
Ngawi	20.0	31st	1972	2nd-highest
Napier	22.4	30th	1868	2nd-highest
Wairoa	23.7	30th	1964	2nd-highest
Motueka	21.6	30th	1956	2nd-highest
Ashburton	22.8	30th	1928	2nd-highest
Oamaru	22.6	30th	1967	2nd-highest
Wanaka	18.5	30th	1955	2nd-highest
Ranfurlly	18.8	30th	1897	2nd-highest
Dunedin (Airport)	21.7	31st	1962	2nd-highest
Dunedin (Musselburgh)	21.6	31st	1947	2nd-highest
Nugget Point	18.5	31st	1970	2nd-highest
Whakatane	20.2	30th	1975	Equal 2nd-highest
Whakatu	22.2	30th	1965	Equal 2nd-highest
Whangaparaoa	19.0	20th	1982	3rd-highest

Turangi	17.4	31st	1968	3rd-highest
Brothers Island	16.9	30th	1997	3rd-highest
Hanmer Forest	22.8	31st	1906	3rd-highest
Rangiora	22.9	30th	1965	3rd-highest
Alexandra	21.3	31st	1928	3rd-highest
Roxburgh	20.7	30th	1950	3rd-highest
Hamilton (Ruakura)	20.0	23rd	1906	Equal 3rd-highest
Akaroa	22.4	30th	1978	Equal 3rd-highest
Tara Hills	18.3	30th	1949	Equal 3rd-highest
Clyde	20.6	30th	1978	Equal 3rd-highest
Whitianga	20.0	29th	1962	Equal 4th-highest
Waipara West	21.2	30th	1973	Equal 4th-highest
Low records or near-records				
None observed				

Record or near-record daily minimum air temperatures for August were recorded at:

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Milford Sound	11.6	2nd	1935	Highest
Secretary Island	13.6	1st	1988	Highest
Brothers Island	12.8	30th	1997	Highest
Cheviot	11.8	30th	1982	Highest
Mt Cook (Airport)	10.0	31st	1929	Highest
Tara Hills	9.7	30th	1949	Highest
Wanaka	10.8	31st	1972	Highest
Te Anau	10.7	31st	1973	Highest
Lumsden	12.6	31st	1982	Highest
Porirua	12.5	21st	1972	Equal highest
Ngawi	14.7	31st	1972	2nd-highest
Hicks Bay	14.6	21st	1972	2nd-highest
Le Bons Bay	12.8	31st	1984	2nd-highest
Ranfurly	11.0	31st	1897	2nd-highest
Clyde	12.1	31st	1978	2nd-highest
Alexandra	11.0	31st	1930	2nd-highest
Nugget Point	10.6	31st	1972	2nd-highest
Medbury	12.4	30th	1927	Equal 2nd-highest
Oamaru	11.2	31st	1972	Equal 2nd-highest
Waipara West	13.6	30th	1973	3rd-highest
Waimate	9.8	30th	1908	3rd-highest
Paraparaumu	12.9	31st	1972	Equal 3rd-highest
Manapouri (West Arm Jetty)	8.6	2nd	1972	Equal 3rd-highest
Whitianga	14.7	21st	1971	4th-highest
Gisborne	14.4	21st	1940	4th-highest
Waiau	12.9	30th	1974	4th-highest

Roxburgh	11.7	31st	1950	4th-highest
Low records or near-records				
Turangi	-6.5	15th	1968	2nd-lowest
Hawera	-2.2	15th	1977	4th-lowest
Ohakune	-5.7	15th	1962	4th-lowest

Rain and slips

On 18 August, a period of heavy rain occurred in parts of Northland, with 69 mm recorded at Kerikeri. While the rainfall totals observed were not especially high, they were cause for concern as much of Northland's soils were still saturated by heavy rain and flooding that occurred during the previous month.

The highest 1-day rainfall was 79 mm, recorded at Milford Sound on 31 August.

Record or near-record August extreme 1-day rainfall totals were recorded at:

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Clyde	19	31st	1978	4th-highest

Wind

On 19 August, strong winds in Auckland brought down a tree in New Lynn, and a portable building blew off a truck on SH16 blocking the road towards Avondale.

On 20 August, a tornado was reported in Pukenui (Northland). A launch was blown off its blocks, and one house lost half of its roof. Additional damage was reported to include trees, a large shed and a trampoline that was sent tumbling along the road.

The highest wind gust was 187 km/h, observed at Cape Turnagain on 29 August.

Record or near-record August extreme wind gusts were recorded at:

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Clyde	80	29th	1983	2nd-highest
Kaikohe	87	7th	1986	3rd-highest
Secretary Island	120	1st	1994	3rd-highest
Wanaka	78	29th	1992	3rd-highest
Manapouri	72	31st	1991	3rd-highest
Cape Reinga	137	7th	1974	4th-highest
Castlepoint	146	31st	1972	4th-highest
Te Puke	52	21st	1987	Equal 4th-highest
Oamaru	83	31st	1984	Equal 4th-highest

Cloud and fog

On 4 August, fog at Hawke's Bay Airport affected several commercial flights, with one arriving plane forced to return to Auckland.

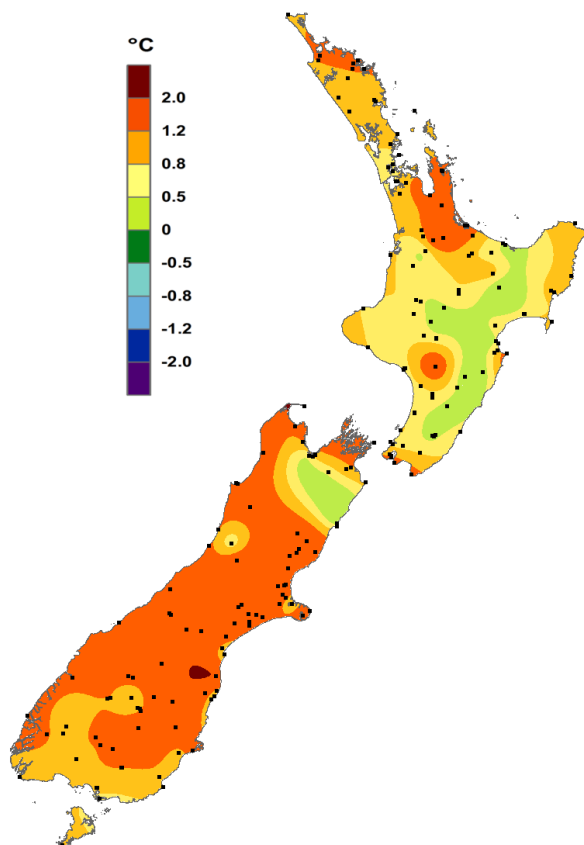
On 16 August, fog was reported in parts of Auckland, including the Auckland Harbour Bridge.

Snow and ice

August 2020 was notable for a relative lack of snow in many of New Zealand's mountain areas. Towards the end of August, snow depths were approximately half of usual for the time of year at several NIWA Snow and Ice Monitoring sites, including Mt Philistine (Arthur's Pass National Park), Mueller Hut (Aoraki/ Mount Cook National Park) and Castle Mount (Fiordland National Park). Several ski areas were impacted by the lack of snow, including Temple Basin (Arthur's Pass) which announced it wouldn't open at all for the season.

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August temperature, expressed as a departure from the 1981-2010 average.

Temperatures were higher than average for most parts of the country. It was notably warmer than usual in the South Island where temperatures were mostly 1.2 to 2.0°C higher than average (as indicated by the dark orange colour).

It has now been 43 consecutive months since New Zealand experienced a nationwide average temperature that was below average (0.51°C to 1.20°C below the 1981-2010 average).

<https://www.niwa.co.nz/our-science/climate>

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