

New Zealand's warmest winter on record

Temperature	Winter 2020 was New Zealand's warmest winter on record. The nationwide average temperature was 9.6°C (1.1°C above the 1981-2010 average from NIWA's seven station temperature series which begins in 1909). Temperatures across the country were generally above average (0.51 to 1.20°C above the winter average) or well above average (>1.20°C above the winter average). Several isolated locations however observed near average winter temperatures (within 0.50°C of the winter average), including Taranua, Kaikoura, and parts of Southland and Otago.
Rainfall	Rainfall totals in Northland were above normal (120-149% of the winter normal) or well above normal (>149% of the winter normal). Rainfall was below normal (50-79% of the winter normal) for western Waikato and many locations between Taihape and Wellington, and near normal (80-119% of the winter normal) for most remaining North Island locations. In the South Island, southern locations generally observed near normal winter rainfall totals including Southland, much of Otago, and the southern portion of the West Coast region. Remaining South Island locations generally observed below normal (50-79% of the winter normal) or even well below normal (<50% of the winter normal) winter rainfall totals (including the northeastern portion of Otago).
Soil moisture	At the end of winter, soil moisture levels were near normal for most of the North Island, although soils were drier than normal in parts of the Manawatu-Wanganui and Greater Wellington regions. Soil moisture levels were considerably drier than normal in eastern parts of South Canterbury and North Otago, with NIWA's New Zealand Drought Index classifying conditions as "very dry" in some areas. Near normal soil moisture levels were found for the remaining majority of the South Island.

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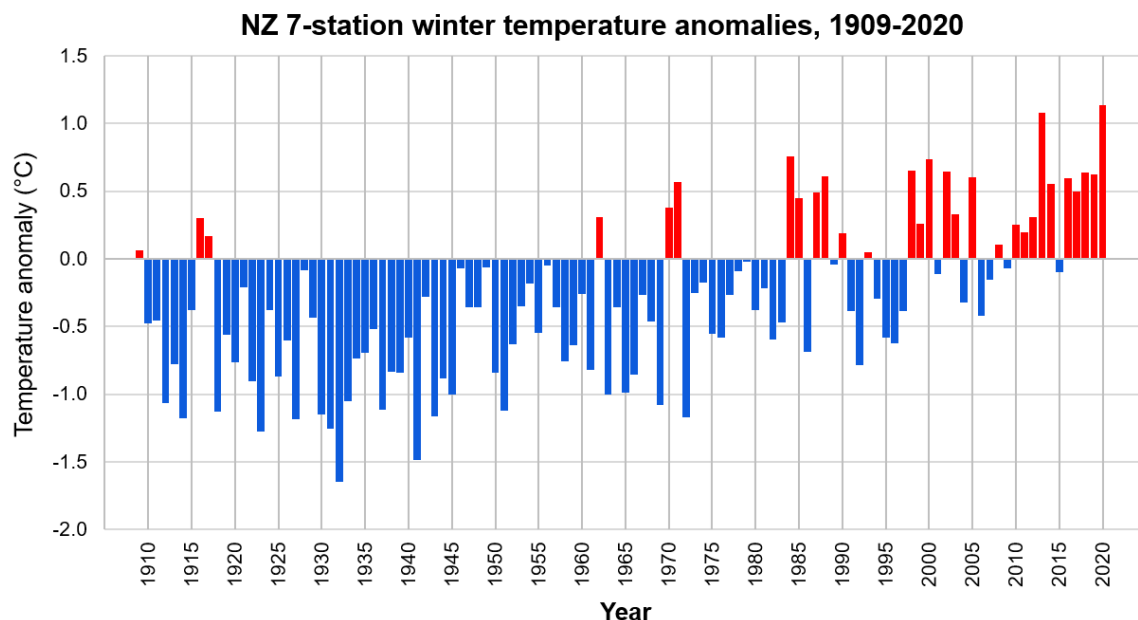
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Overview

Winter 2020 was New Zealand's warmest winter on record. The season was characterised by mean sea level pressures that were higher than normal over, to the east, and southwest of New Zealand, with slightly lower than normal sea level pressure northwest of the country. This pressure pattern delivered more frequent warm northeasterly winds than normal, particularly to the North Island. This pattern was associated with a developing La Niña event in the equatorial Pacific. Sea surface temperatures (SSTs) surrounding New Zealand were also warmer than average during winter, most notably during August, and this exerted a further warming influence on the country's air temperatures. Additionally, the prevalence of high pressure over the country contributed to a

sunnier than normal winter for much of the South Island and lower North Island. This combination of more frequent northeasterlies, warmer SSTs, and higher pressure over the country, along with a background influence of climate change (i.e. a long-term increase in average temperatures), resulted in widespread warm conditions during winter.

The nationwide average temperature for winter 2020 was 9.6°C (1.1°C above the 1981-2010 average from NIWA’s seven station temperature series which begins in 1909), making it New Zealand’s warmest winter on record, beating the previous record set in 2013 by only 0.06°C. Temperatures around the country were generally above average (i.e. 0.51 to 1.20°C above the winter average) or well above average (>1.20°C above the winter average), with only a handful of locations experiencing near average winter temperatures (within 0.50°C of the winter average). The season started and ended on a warm note with New Zealand’s fifth-warmest June, and fourth-warmest August on record. Many locations achieved record or near-record high mean temperatures for the time of year during these months. During the final few days of winter, several locations observed very high daily maximum temperatures, including Timaru at 25.1 °C on 30 August, which was the 4th-equal warmest winter temperature on record for New Zealand.



Historical nation-wide winter temperature anomalies (degrees above or below the winter 1981-2010 normal) from NIWA’s seven-station temperature series which begins in 1909. Winter 2020 has claimed the record of warmest winter, which was formerly held by the winter of 2013.

Rainfall patterns varied spatially month-to-month, however for winter as a whole, below normal rainfall (50-79% of the winter normal) was observed for most of the upper and eastern South Island, as well as western Waikato and many locations in the lower North Island between Taihape and Wellington. Above normal (120-149% of the winter normal) or well above normal (>149% of the winter normal) winter rainfall was observed in Northland, largely attributed to events during July and August, while near normal (80-119% of the winter normal) rainfall for winter was observed for most remaining locations across the country. A particularly noteworthy rainfall event occurred in Northland on 17 July, resulting in daily rainfall totals of 262 mm and 251 mm at Kaikohe and Whangarei. These are the highest maximum one-day rainfall amounts on record for winter at those

locations, contributing 28% and 31% of the total rainfall amounts recorded at Kaikohe and Whangarei respectively for winter 2020 as a whole. Several impacts relating to this event are summarised in the [highlights and extreme events](#) section.

Further Highlights:

- The highest temperature was 25.1°C, observed at Timaru on 30 August.
- The lowest temperature was -12.3°C, observed at Middlemarch on 14 June.
- The highest 1-day rainfall was 262 mm, recorded at Kaikohe on 17 July.
- The highest wind gust was 191 km/h, observed at Cape Turnagain on 23 July.
- Of the six main centres in winter 2020, Auckland was the warmest, Christchurch was the coolest, Tauranga was the wettest and sunniest, Dunedin was the driest, and Hamilton was the least sunny.

For further information, please contact:

Mr Chris Brandolino

Principal Scientist – Forecasting, NIWA National Climate Centre

Tel. 09 375 6335, Mobile 027 866 0014

Temperature: Record-breaking warmth for many locations

The nationwide average temperature for winter 2020 was 9.6°C (1.1°C above the 1981-2010 average from NIWA’s seven station temperature series which begins in 1909). This makes winter 2020 New Zealand’s warmest winter on record, beating the previous record (winter 2013) by only 0.06°C. Seventeen locations observed record breaking mean winter temperatures, with an additional 53 locations ranking within their top-four warmest winters. Twenty-one locations observed record high mean maximum (i.e. daytime) temperatures, and nine locations observed record high mean minimum (i.e. night-time) temperatures, with many additional near-records observed in both categories. The most anomalously warm mean temperature for winter was observed at Farewell Spit, which was 2.8°C warmer than average. This location also observed mean maximum (i.e. daytime) temperatures that were 3.1°C above the winter average, and mean minimum (i.e. night-time) temperatures that were 2.3°C above the winter average (the largest anomalies in both categories). There were no locations that observed a record or near-record cold winter.

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Kerikeri	12.9	1.1	1945	Highest
Whitianga	12.2	1.5	1962	Highest
Tauranga	11.9	1.2	1913	Highest
Rotorua	9.5	1.2	1964	Highest
Port Taharoa	12.7	1.3	1973	Highest
Taumarunui	9.5	1.5	1947	Highest
Martinborough	9.6	1.2	1986	Highest

Ngawi	11.9	1.1	1972	Highest
Waipawa	8.9	0.7	1945	Highest
Palmerston North	10.4	1.2	1928	Highest
Levin	10.3	1.2	1895	Highest
Farewell Spit	13.0	2.8	1971	Highest
Westport	10.6	1.5	1937	Highest
Arapito	10.7	1.7	1978	Highest
Medbury	7.7	2.0	1927	Highest
Cheviot	8.0	1.3	1982	Highest
Orari	6.9	1.1	1972	Highest
Cape Reinga	13.5	0.6	1951	2nd-highest
Kaitaia	13.5	1.2	1948	2nd-highest
Whangarei	13.0	1.0	1967	2nd-highest
Mokohinau	14.1	0.7	1994	2nd-highest
Auckland (Whenuapai)	11.8	1.0	1945	2nd-highest
Paeroa	11.7	1.4	1947	2nd-highest
Auckland (Airport)	12.4	1.0	1959	2nd-highest
Te Kuiti	10.3	1.1	1959	2nd-highest
Turangi	8.2	1.1	1968	2nd-highest
New Plymouth	11.2	1.0	1944	2nd-highest
Lower Retaruke	9.0	1.1	1966	2nd-highest
Hicks Bay	12.6	1.1	1969	2nd-highest
Gisborne	11.1	1.0	1905	2nd-highest
Hastings	10.0	1.4	1965	2nd-highest
Wairoa	11.4	1.6	1964	2nd-highest
Mahia	11.3	0.9	1990	2nd-highest
Porirua	10.1	0.8	1968	2nd-highest
Wellington (Kelburn)	10.3	1.0	1927	2nd-highest
Hawera	10.0	1.1	1977	2nd-highest
Waiouru	5.9	1.3	1962	2nd-highest
Takaka	9.7	1.4	1978	2nd-highest
Hokitika	9.2	1.2	1866	2nd-highest
Reefton	7.5	1.4	1960	2nd-highest
Greymouth	9.8	1.2	1947	2nd-highest
Haast	9.3	1.3	1949	2nd-highest
Milford Sound	7.4	1.5	1934	2nd-highest
Puysegur Point	9.4	0.9	1978	2nd-highest
Motueka	9.1	1.5	1956	2nd-highest
Nelson	9.7	1.6	1862	2nd-highest
Blenheim	9.5	1.2	1932	2nd-highest
Waiau	7.6	1.8	1974	2nd-highest
Ashburton	7.6	1.2	1927	2nd-highest
Waipara West	8.9	1.0	1973	2nd-highest
Lincoln	8.0	1.2	1881	2nd-highest
Le Bons Bay	8.7	0.9	1984	2nd-highest
Alexandra	5.5	1.3	1929	2nd-highest
Dargaville	12.8	1.2	1943	3rd-highest
Whakatane	11.1	1.2	1974	3rd-highest

Pukekohe	11.8	1.1	1969	3rd-highest
Hamilton (Ruakura)	10.9	1.4	1906	3rd-highest
Dannevirke	9.2	0.9	1951	3rd-highest
Paraparaumu	10.2	0.9	1953	3rd-highest
Rangiora	7.6	1.1	1965	3rd-highest
Akaroa	9.5	1.5	1978	3rd-highest
Oamaru	7.7	0.6	1967	3rd-highest
Dunedin (Musselburgh)	8.0	0.9	1947	3rd-highest
Five Rivers	5.8	1.0	1982	3rd-highest
Te Puke	11.0	1.1	1973	4th-highest
Motu	7.7	1.3	1990	4th-highest
Wellington (Airport)	10.9	0.8	1962	4th-highest
Whanganui	10.9	0.9	1937	4th-highest
Kaikoura	9.6	0.9	1963	4th-highest
Nugget Point	7.4	0.7	1970	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whangarei	17.2	1.3	1967	Highest
Whitianga	16.6	1.4	1962	Highest
Auckland (Mangere)	16.1	1.2	1959	Highest
Te Kuiti	15.9	2.0	1959	Highest
New Plymouth	14.8	1.1	1944	Highest
Martinborough	14.5	1.4	1986	Highest
Ngawi	14.5	1.3	1972	Highest
Waipawa	14.5	1.6	1945	Highest
Wairoa	16.5	2.0	1964	Highest
Paraparaumu	14.3	1.3	1953	Highest
Palmerston North	14.3	1.2	1928	Highest
Levin	14.7	1.5	1895	Highest
Porirua	14.2	1.3	1968	Highest
Takaka	15.5	1.7	1978	Highest
Farewell Spit	16.9	3.1	1971	Highest
Westport	14.5	1.6	1937	Highest
Arapito	15.2	1.8	1978	Highest
Reefton	12.7	2.0	1960	Highest
Greymouth	14.0	1.5	1947	Highest
Milford Sound	11.4	1.5	1934	Highest
Blenheim	14.7	1.1	1932	Highest
Medbury	13.3	1.8	1927	Highest
Kerikeri	17.2	0.9	1945	2nd-highest
Auckland (Whenuapai)	15.9	0.9	1945	2nd-highest

Tauranga	15.8	1.0	1913	2nd-highest
Whakatane	16.0	0.8	1974	2nd-highest
Rotorua	13.5	1.1	1964	2nd-highest
Hamilton (Ruakura)	16.3	2.1	1906	2nd-highest
Taumarunui	14.4	1.3	1947	2nd-highest
Turangi	13.1	1.2	1968	2nd-highest
Dannevirke	13.1	1.0	1951	2nd-highest
Hawera	13.6	1.0	1977	2nd-highest
Haast	12.9	1.2	1949	2nd-highest
Matamata	15.4	1.5	1999	3rd-highest
Hamilton (Airport)	15.2	0.9	1946	3rd-highest
Wellington (Airport)	13.7	1.0	1962	3rd-highest
Stratford	13.1	1.3	1960	3rd-highest
Hanmer Forest	13.0	1.9	1906	3rd-highest
Waiau School	13.5	1.7	1974	3rd-highest
Oamaru	12.2	0.8	1967	3rd-highest
Mokohinau	15.5	0.7	1994	4th-highest
Motu	12.2	1.5	1990	4th-highest
Masterton	14.3	1.1	1906	4th-highest
Hokitika	13.6	1.3	1866	4th-highest
Puysegur Point	11.7	0.9	1978	4th-highest
Motueka	14.9	1.6	1956	4th-highest
Richmond	14.2	1.3	1862	4th-highest
Cheviot	13.4	1.0	1982	4th-highest
Waipara	13.7	1.0	1973	4th-highest
Tara Hills	9.7	1.5	1949	4th-highest
Ranfurly	10.0	1.7	1897	4th-highest
Paeroa	15.5	0.7	1947	Equal 4th-highest

Low records or near-records

None observed

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Kerikeri	8.8	1.4	1945	Highest
Whitianga	8.0	1.7	1962	Highest
Port Taharoa	10.1	1.9	1973	Highest
Waibouru	2.4	1.6	1962	Highest
Farewell Spit	9.0	2.3	1971	Highest
Westport	6.7	1.4	1937	Highest
Medbury	2.1	2.1	1927	Highest
Cheviot	2.6	1.6	1982	Highest
Rangiora	2.4	1.2	1965	Highest
Cape Reinga	11.4	0.8	1951	2nd-highest
Kaitiāia	10.3	1.4	1948	2nd-highest

Mokohinau	12.6	0.8	1994	2nd-highest
Paeroa	7.9	2.2	1947	2nd-highest
Taupo	4.3	1.7	1949	2nd-highest
Taumarunui	4.5	1.5	1947	2nd-highest
Lower Retaruke	4.5	1.4	1966	2nd-highest
Ngawi	9.2	0.9	1972	2nd-highest
Mahia	8.9	1.0	1990	2nd-highest
Arapito	6.1	1.6	1978	2nd-highest
Secretary Island	7.6	1.0	1985	2nd-highest
Puysegur Point	7.1	1.0	1978	2nd-highest
Motueka	3.3	1.4	1956	2nd-highest
Blenheim	4.3	1.2	1932	2nd-highest
Cape Campbell	8.4	1.0	1953	2nd-highest
Waiau	1.7	1.9	1974	2nd-highest
Ashburton	2.4	1.1	1928	2nd-highest
Waipara	4.0	1.1	1973	2nd-highest
Lincoln	3.5	1.5	1881	2nd-highest
Le Bons Bay	6.3	1.1	1984	2nd-highest
Campbell Island	3.9	0.8	1991	2nd-highest
Whangarei	9.5	1.3	1967	3rd-highest
Auckland (Whenuapai)	7.8	1.2	1945	3rd-highest
Te Puke	6.8	1.8	1973	3rd-highest
Whakatane	6.2	1.6	1974	3rd-highest
Motu	3.1	1.0	1990	3rd-highest
Martinborough	4.7	0.9	1986	3rd-highest
Hicks Bay	9.6	1.2	1969	3rd-highest
Gisborne	6.6	1.2	1905	3rd-highest
Wellington (Kelburn)	7.8	1.0	1927	3rd-highest
Hawera	6.5	1.1	1977	3rd-highest
Haast	5.7	1.5	1949	3rd-highest
Milford Sound	3.4	1.5	1934	3rd-highest
Culverden	1.7	1.8	1928	3rd-highest
Akaroa	5.7	2.2	1978	3rd-highest
Nugget Point	4.7	0.8	1970	3rd-highest
Dargaville	9.5	1.2	1943	4th-highest
Tauranga (Airport)	8.0	1.5	1913	4th-highest
Pukekohe	8.1	1.1	1969	4th-highest
Dannevirke	5.2	0.8	1951	4th-highest
Hastings	4.8	1.6	1965	4th-highest
Wairoa	6.3	1.3	1964	4th-highest
Palmerston North	6.4	1.3	1928	4th-highest
Hokitika	4.9	1.2	1866	4th-highest
Kaikoura	6.7	0.9	1963	4th-highest
Mt Cook (Village)	-0.1	1.2	1929	4th-highest
Alexandra	-0.1	1.3	1929	4th-highest
Gore	2.5	0.9	1907	4th-highest
Low records or near-records				
None observed				

Rainfall: Wet in Northland, dry for many South Island locations

Winter was particularly wet for Northland, where rainfall totals were above normal (120-149% of normal) or well above normal (>149% of normal) for the season as a whole. Notably, Kaikohe observed 935 mm of rain during winter, which is 187% of the normal amount for the season, and the second highest winter total on record for that location (records there begin 1956). Whangarei also observed near-record high winter rainfall, with 810 mm observed for the season as a whole (190% of normal), the fourth-wettest winter total on record for that location. A large portion of the rainfall observed across Northland occurred during a significant rainfall event in mid-July (refer to the [highlights and extreme events](#) section for further details).

Most South Island locations north of Oamaru observed below normal (50-79% of normal) or even well below normal (<50% of normal) winter rainfall totals, with only a few setting near-record lows. Of note was Reefton, where only 54% of the normal winter rainfall amount was observed, making the winter of 2020 the second-driest on record for that location.

Record¹ or near-record winter rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Kaikohe	935	187	1956	2nd-highest
Whangarei	810	190	1937	4th-highest
Low records or near-records				
Reefton	291	54	1960	2nd-lowest
Arapito	410	69	1978	3rd-lowest
Waipara	92	54	1973	3rd-lowest
Dannevirke	168	59	1951	4th-lowest

¹ 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.

Winter climate in the six main centres

Mean temperatures were above average in all six centres for winter. Tauranga observed its warmest winter on record, with a mean daily temperature of 11.9°C which is 1.2°C above the long-term average. Tauranga was also among the handful of locations outside Northland which experienced above normal rainfall during winter, recording a total of 462 mm (131% of normal). Of the six main centres in winter 2020, Auckland was the warmest, Christchurch was the coolest, Tauranga was the wettest and sunniest, Dunedin was the driest, and Hamilton was the least sunny.

Winter 2020 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	12.4	+1.0	Above average (4 th -highest on record)
Tauranga ^b	11.9	+1.2	Above average (highest on record)
Hamilton ^c	10.2	+1.0	Above average (3 rd -highest on record)
Wellington ^d	10.3	+1.0	Above average (2 nd -highest on record)
Christchurch ^e	7.4	+0.9	Above average
Dunedin ^f	8.0	+0.9	Above average (3 rd -highest on record)
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	350	95%	Near normal
Tauranga ^b	462 ²	131%	Above normal
Hamilton ^c	320 ²	86%	Near normal
Wellington ^d	267 ³	68%	Below normal
Christchurch ^e	189	102%	Near normal
Dunedin ^f	176	103%	Near normal
Sunshine			
Location ⁴	Sunshine (hours)		
Auckland ^a	402		
Tauranga ^b	415		
Hamilton ^g	349		
Wellington ^d	397		
Christchurch ^e	373 ²		
Dunedin ^f	351 ²		

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

² Missing 1 day of data

³ Missing 2 days of data

⁴ Tauranga, Wellington and Christchurch record sunshine use Campbell-Stokes manual sunshine recorders, whereas Auckland, Hamilton and Dunedin record sunshine with high-precision electronic sensors.

Highlights and extreme events

This section contains information pertaining to some of the more significant highlights and extreme events that occurred during winter 2020. Note that a more detailed list of significant weather events for winter 2020 can be found in the *Highlights and extreme events* section of NIWA's monthly Climate Summaries. These monthly summaries are available online, and may be viewed at the following website: <https://niwa.co.nz/climate/monthly>

Temperatures

On 14 June, a heavy frost was observed in many parts of the South Island with very low overnight minimum temperatures. Between 8-9 a.m., Middlemarch got as cold as -12.3°C – New Zealand's lowest June temperature since 2015. At the same time on 15 June (8-9 a.m.), the temperature got as high as 17.0°C in Middlemarch – a remarkable one-day difference of 29.3°C. On 15 June, the temperature was as low as -8.0°C in Middlemarch between 1-2 a.m., but reached as high as 15.8°C between 4-5 a.m., a temperature change of 23.8°C in approximately three hours, which is all the more impressive given this was overnight with no solar radiation contribution to the warming.

Under the influence of a ridge of high pressure over and to the east of the South Island during the middle stages of July, an inversion developed over many parts of the South Island, bringing persistent cold temperatures which were notably cool during daylight hours. The maximum temperature at Tiwai Point (near Invercargill) on 17 July was just 2.3°C, making it the coldest July day there since records began in 1972. The temperature stayed below freezing throughout 17 July in Lauder, reaching a maximum of just -2.8°C.

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 temperature on record for winter. This was additionally New Zealand's equal 4th-highest winter temperature on record overall. Timaru observed another warm day on 31 August, when the maximum temperature reached 23.0°C.

The highest winter temperature was 25.1°C, observed at Timaru on 30 August. The lowest temperature was -12.3°C, observed at Middlemarch on 14 June.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Port Taharoa	20.5	Jun-22nd	1973	Highest
Porirua	19.4	Jun-27th	1968	Highest
Blenheim	23.8	Aug-31st	1932	Highest
Boyle River	21.5	Jun-28th	1983	Highest
Arthurs Pass	17.2	Jul-5th	1978	Highest
Le Bons Bay	20.4	Aug-30th	1984	Highest

Orari	23.8	Aug-30th	1972	Highest
Timaru	25.1	Aug-30th	1885	Highest
Waimate	23.4	Aug-30th	1908	Highest
Oamaru	23.2	Aug-30th	1967	Highest
Stratford	18.3	Jul-19th	1960	Equal highest
Akaroa	23.0	Jun-16th	1978	Equal highest
Whakatane	20.9	Jun-2nd	1975	2nd-highest
Motu	19.6	Jun-2nd	1990	2nd-highest
Te Kuiti	20.7	Jun-22nd	1959	2nd-highest
Gisborne	23.0	Aug-31st	1905	2nd-highest
Farewell Spit	19.4	Jun-2nd	1971	2nd-highest
Arapito	19.4	Jun-19th	1978	2nd-highest
Puysegur Point	17.7	Jun-14th	1978	2nd-highest
Motueka	21.6	Aug-30th	1956	2nd-highest
Wanaka	18.5	Aug-30th	1955	2nd-highest
Ranfurlly	18.8	Aug-30th	1897	2nd-highest
Dunedin (Airport)	21.7	Aug-31st	1962	2nd-highest
Dunedin (Musselburgh)	21.6	Aug-31st	1947	2nd-highest
Rotorua	18.5	Jun-1st	1964	3rd-highest
Wairoa	23.7	Aug-30th	1964	3rd-highest
Westport	18.4	Jun-24th	1937	3rd-highest
Brothers Island	17.7	Jun-9th	1997	3rd-highest
Hanmer Forest	22.8	Aug-31st	1906	3rd-highest
Cheviot	22.7	Jun-16th	1982	3rd-highest
Ashburton	22.8	Aug-30th	1928	3rd-highest
Tara Hills	18.3	Aug-30th	1949	3rd-highest
Lumsden	18.3	Jun-16th	1982	3rd-highest
Rangiora	22.9	Aug-30th	1965	Equal 3rd-highest
Alexandra	21.3	Aug-31st	1928	Equal 3rd-highest
Clyde	20.6	Aug-30th	1978	Equal 3rd-highest
Roxburgh	21.0	Aug-30th	1950	Equal 3rd-highest
South West Cape	16.4	Jun-15th	1991	Equal 3rd-highest
Mokohinau	18.6	Jun-25th	1994	4th-highest
Whakatane	20.1	Jun-2nd	1975	4th-highest
Hastings	22.9	Aug-30th	1965	4th-highest
Waipawa	22.0	Jun-4th	1945	4th-highest
Lincoln	22.3	Aug-30th	1881	4th-highest
Five Rivers	18.2	Jun-16th	1982	4th-highest
Stewart Island	16.0	Jun-3rd	1975	Equal 4th-highest
Low records or near-records				
Grassmere	0.0	Jul-1st	1972	Lowest
Tiwai Point	2.3	Jul-17th	1972	Lowest
Lumsden	-0.3	Jul-16th	1982	3rd-lowest
Five Rivers	0.0	Jul-16th	1982	4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
Low records or near-records				
Clyde	-9.9	Jun-14th	1978	Lowest
Balclutha	-12.5	Jun-14th	1964	Lowest
High records or near-records				
Secretary Island	13.6	Aug-1st	1988	Highest
Puysegur Point	13.3	Jun-16th	1978	Highest
Alexandra	11.0	Aug-31st	1930	Highest
South West Cape	12.2	Jun-16th	1991	Highest
Arthurs Pass	9.5	Jun-17th	1978	Equal highest
Taihape	12.0	Jun-27th	1973	2nd-highest
Cheviot	11.8	Aug-30th	1982	2nd-highest
Mt Cook (Airport)	10.3	Jun-17th	1929	2nd-highest
Tara Hills	9.7	Aug-30th	1949	2nd-highest
Ranfurly	11.0	Aug-31st	1897	2nd-highest
Te Anau	11.0	Jun-17th	1973	2nd-highest
Manapouri (West Arm Jetty)	9.6	Jun-17th	1972	2nd-highest
Lumsden	12.6	Aug-31st	1982	2nd-highest
Clyde	12.1	Aug-31st	1978	2nd-highest
Nugget Point	10.6	Aug-31st	1972	2nd-highest
Wanaka	10.8	Jun-17th	1972	Equal 2nd-highest
Oamaru	11.2	Aug-31st	1972	Equal 2nd-highest
Westport	13.2	Jun-17th	1966	3rd-highest
Arapito	13.1	Jun-27th	1978	3rd-highest
Milford Sound	11.6	Aug-2nd	1935	3rd-highest
Waipara	14.9	Jun-17th	1973	3rd-highest
Five Rivers	12.2	Aug-31st	1982	3rd-highest
Kaikoura	12.9	Jun-17th	1972	Equal 3rd-highest
Le Bons Bay	12.8	Jun-17th	1984	Equal 3rd-highest
Ngawi	15.2	Jun-17th	1972	4th-highest
Medbury	12.4	Aug-30th	1927	4th-highest
Roxburgh	12.0	Aug-31st	1950	Equal 4th-highest

Rain and slips

On 18 June, heavy rain in Wellington caused surface flooding, and several roads were closed due to slips. Parts of Oakura (Taranaki) were flooded when the Oakura River burst its banks after heavy overnight rain.

On 21 June, heavy rain caused surface flooding in parts of the Coromandel Peninsula. The Tairua River Bridge (SH25) was closed due to flooding, and a small slip was reported on SH25A over the Coromandel Range. Farther south, SH2 was down to one lane at Waioeka Gorge (between Opotiki and Gisborne) due to a slip.

On 25 June, heavy rain fell across Auckland and the Coromandel Peninsula, causing surface flooding on many roads and farm properties. State Highway 25 in the Coromandel was closed in several places due to flooding. The rainfall was welcomed after Auckland had observed many consecutive months without significant rain, resulting in depleted water storage levels in their dams. It was the first time Auckland had recorded 50 mm or more of rain in a day since October 2019.

On 2 July, heavy rain caused surface flooding in parts of Masterton, with slips reported on rural roads near Castlepoint.

On 17 July, very heavy rain and thunderstorms hammered much of Northland. Civil Defence welfare centres were activated as people were forced to leave their homes due to flooding. Approximately 65 homes were evacuated, and four of these homes were left uninhabitable due to damage sustained by floodwaters. Police advised against non-essential travel throughout Northland due to widespread and considerable flooding, particularly about Whangarei. Whangarei (Airport) observed 50.8 mm of rain in the hour between 9-10 p.m., which was the city's second-highest hourly rainfall total for all months on record (records began 1978). Several road closures resulted from the heavy rain and floods, including SH1 between Ohaeawai and Kawakawa. Heavy rain also fell over the Coromandel Peninsula causing widespread flooding and road closures.

On 18 July, heavy rain caused flash flooding and slips in the Gisborne region. Three families were evacuated from Mangatokerau (north of Gisborne), and SH35 was closed from Tolaga Bay to Makarika Road (just south of Ruatoria). The beach at Tolaga Bay was blanketed in forestry slash which had been washed down from inland areas by rivers.

On 21 July, heavy rain caused surface flooding on some Queenstown roads, with rockfalls reported on the Queenstown-Glenorchy road, the Crown Range road and SH6 between Frankton and Kingston.

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 soils were still saturated by heavy rain and flooding that occurred during the previous month.

The highest 1-day rainfall was 262 mm, recorded at Kaikohe on 17 July.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Kaikohe	262	Jul-17th	1956	Highest
Whangarei	251	Jul-17th	1943	Highest
Waiheke Island	119	Jun-24th	1980	Highest
Living Springs	70	Jun-28th	1978	Highest
Greenpark	58	Jun-28th	1956	Highest
Leeston	60	Jun-28th	1986	Highest
Kerikeri	175	Jul-17th	1945	2nd-highest
Tautuku	45	Jul-6th	1976	2nd-highest
Parakao	112	Jul-17th	1951	3rd-highest
Thames	106	Jun-20th	1957	3rd-highest
Rainbow Point	53	Jun-27th	1978	3rd-highest
Mcqueens Valley	64	Jun-28th	1947	3rd-highest
Karangahake Gorge	120	Jun-25th	1981	4th-highest
Glenledi	49	Jul-7th	1984	4th-highest

Wind

On 26 June, three separate small tornadoes were reported in Northland. In Whangarei, six boats were blown off their cradles in the *Norsand Boatyard*. In Mata (south of Whangarei), trees were toppled and iron from a farm shed strewn among a nearby stand of trees. Farther north in Oakura, trees were also toppled by a tornado. A tornado also struck Dairy Flat (north of Auckland), with one house suffering considerable damage including having the roof torn off. Nearby areas saw mature trees torn down with reports of miscellaneous property damage.

On 27 June, tornadoes were reported in Auckland and Papamoa. Multiple buildings and roofs were damaged in East Tamaki (south Auckland) and trees were brought down. In Papamoa a local reported seeing roof tiles, gutters and tv dishes ripped off houses.

On 2 July, strong southerly winds brought down several trees in the Wellington suburbs of Khandallah, Karori and Vogeltown. Wellington's *East by West* ferry services were cancelled due to large swells driven by the strong winds, and Cook Strait ferry crossings were also cancelled. The strong winds blew down power lines in Wainuiomata, while a tree was brought down onto power lines in Naenae. Farther north, 90 customers near Martinborough were without power due to downed power lines.

On 16 July, trees were felled by strong winds on the Hauraki Plains, with arching power lines reported in Onewhero. Approximately 150 homes were without power, including 86 homes in Te Aroha.

On 20 August, a tornado was reported in Pukenui (Northland). A launch 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 was sent tumbling along the road.

The highest wind gust was 191 km/h, observed at Cape Turnagain on 23 July.

Record or near record winter extreme wind gusts were recorded at:

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Secretary Island	133	Jun-15th	1994	Highest
Paeroa	100	Jul-16th	1991	3rd-highest
Puysegur Point	148	Jun-15th	1986	Equal 3rd-highest
Hanmer Forest	109	Jun-25th	1995	4th-highest
Pukekohe	76	Jul-22nd	1986	Equal 4th-highest

Snow and ice

On 6 June, snow fell over inland parts of Canterbury particularly about the Mackenzie Country. The snowfall closed several roads including Burkes Pass (SH8), and SH80 between Aoraki/Mt Cook and Pukaki.

On 22 June, black ice contributed to several vehicle accidents in the Mackenzie Basin, although no injuries were reported.

On 2 July, snow fell to low elevations in the central North Island. Several roads were closed due to snow, including the Desert Road (SH1), SH46 from Rangipo to the SH47 junction, and SH47 from National Park to the SH41 junction near Turangi.

On 23 July, snow settled down to around 200 metres above sea level in southeastern parts of the South Island, especially near Balclutha. Snow was also reported in the hill suburbs of Dunedin. The Southland District Council urged extreme caution on roads in the southeast of the province, especially around Edendale, Wyndham, Glenham and the Catlins due to slushy road conditions. A bus rolled onto its side near Glenham (south-east of Gore), with the driver taken to hospital. Snow fell to around 400 metres above sea level near Queenstown. Chains were required on vehicles travelling over the Crown Range Road. The Milford Road (SH94) was closed due to heavy snow.

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.

Lightning and hail

On 4 June, approximately 20 lightning strikes were recorded about Nelson and Tasman. The lightning was associated with a thunderstorm that passed over during the evening hours.

On 25 June, approximately 20 lightning strikes were recorded over Auckland between 5-6 a.m.

On 17 July, approximately 500 lightning strikes were recorded near Northland. They were associated with thunderstorms that delivered heavy downpours of rain to the region.

Cloud and fog

On 23 June, heavy fog in Wellington caused flight disruptions and prompted warnings for motorists to take extra care. The fog lasted until the early afternoon.

Low cloud persisted in many inland basins of the South Island during the second week of the school holidays (13-19 July). The cloud was trapped under an inversion, resulting in consecutive days without sunshine in areas including Wanaka, Cromwell, Alexandra and the Mackenzie Basin. Cold air was trapped near the valley floors by the inversion, and combined with the humid air to create hoar frost (see example picture below). In many parts, daytime temperatures barely rose above freezing (0°C).

On 16 July, three flights were unable to land at Invercargill Airport due to fog.

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

For further information please contact:

Mr Chris Brandolino

Principal Scientist – Forecasting, NIWA National Climate Centre

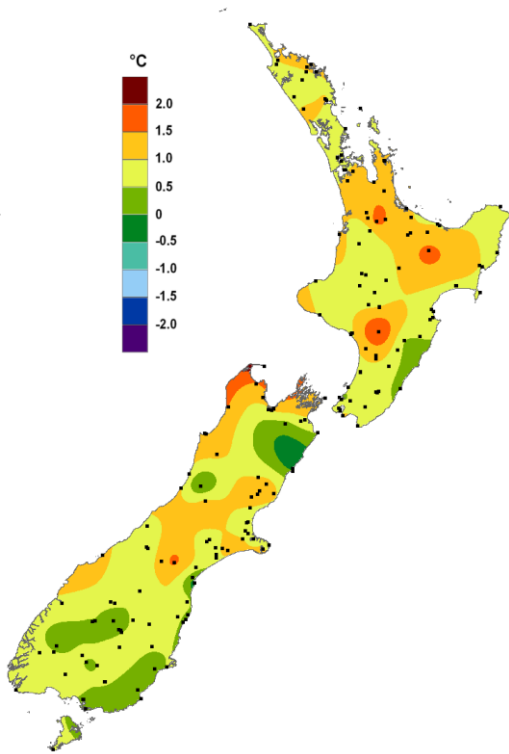
Tel. 09 375 6335, Mobile 027 866 0014

For climate data enquiries, please contact:

Mr John-Mark Woolley

Climate Scientist, NIWA Auckland

Tel. 09 375 4502



Winter 2020 temperature expressed as a deviation from the long-term winter average (1981-2010).

It was a New Zealand's warmest winter on record. Most locations experienced temperatures that were above or well above average, with many observing record-breaking warmth.

Farewell Spit was the most anomalously warm location, with mean winter temperatures that were 2.8°C above average.

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

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