

New Zealand's 4th-warmest December on record

Temperature	December 2021 was New Zealand's 4 th -warmest December on record. Temperatures were well above average (>1.20°C above average) across the entire North Island and the western and northern South Island, as well as a pocket in Southland. Above average temperatures (0.51°C to 1.20°C above average) were observed elsewhere across the South Island, except for a portion of the Canterbury Plains, where near average temperatures ($\pm 0.50^\circ\text{C}$ of average) were occurred.
Rainfall	Rainfall was above normal (120-149% of normal) or well above normal (>149% of normal) for parts of Bay of Plenty, much of Gisborne, Taranaki, much of Manawatū-Whanganui, Hawke's Bay, Wellington, Nelson, Tasman, much of Canterbury, parts of northern Otago, and parts of West Coast. Below normal (50-79% of normal) or well below normal (<50% of normal) rainfall was observed in much of Northland, much of Waikato, southern Southland, and pockets of the Southern Alps. Elsewhere, near normal rainfall (80-119% of normal) was observed, including much of Auckland.
Soil Moisture	At the beginning of January, soil moisture levels were below normal across much of Northland, Auckland, Waikato, northern Manawatū-Whanganui, southern Bay of Plenty, southern Gisborne, northern Hawke's Bay, southern Southland and southern Otago. Soil moisture levels were above normal across East Cape, much of Taranaki, central and southern Manawatū-Whanganui, Wellington, coastal Marlborough, eastern Canterbury and parts of the coast of the Otago. Elsewhere, soil moisture levels were near normal.

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Overview

December 2021 was characterised by lower than normal mean sea level pressure (MSLP) located to the northwest of Aotearoa New Zealand, and higher than normal MSLP to the east and southwest of New Zealand. This resulted in more northeasterly quarter winds than normal. These warm and humid winds from the subtropics, combined with the intensification of marine heatwave (MHW) conditions in New Zealand's coastal waters, resulted in New Zealand 4th-warmest December on record.

In the Pacific, La Niña continued and indicators of the event strengthened, with sea surface temperature anomalies (SSTAs) in the Niño 3.4 region falling to -0.68°C . The monthly Southern Oscillation Index (SOI) was +1.3. In the lower latitudes, the Southern Annular Mode (SAM) was positive for all of December, which is associated with a reduction in windiness and storm activity around New Zealand. Around the New Zealand coastline, a MHW strengthened, reaching the highest about mid-

month around the North Island, where sea surface temperature anomalies were 3-4°C above average around the North Island coasts. These climate drivers worked in tandem to bring periods of anomalously high pressure and exceptional temperatures.

Overall, the nationwide average temperature in December was 17.4°C. This was 1.7°C above the 1981-2010 December average, making December 2021 the 4th warmest December on record. Three of the four warmest Decembers on record have now occurred since 2005.

The warmth was expressed across the country, with well above average temperatures (>1.20°C above average) across the entire North Island and large parts of the South Island. Above average temperatures (0.51°C to 1.20°C above average) were observed elsewhere across the South Island, except for a portion of the Canterbury Plains, where near average temperatures (\pm 0.50°C of average) were found.

Heavy rain fell in the lower and eastern North Island, and parts of the eastern and northern South Island, with other areas missing out on rain-bearing systems. Rainfall was above normal (120-149% of normal) or well above normal (>149% of normal for parts of Bay of Plenty, much of Gisborne, Taranaki, much of Manawatū-Whanganui, Hawke's Bay, Wellington, Nelson, Tasman, much of Canterbury, parts of northern Otago, and parts of West Coast. Below normal (50-79% of normal) or well below normal (<50% of normal) rainfall was observed in much of Northland, much of Waikato, southern Southland, and pockets of the Southern Alps. Elsewhere, near normal rainfall (80-119% of normal) was observed, including much of Auckland.

Further Highlights:

- The highest temperature was 33.4°C, observed at Kawerau on 24 December.
- The lowest temperature was 0.1°C, observed at Invercargill on 25 December.
- The highest 1-day rainfall was 167 mm, recorded at Milford Sound on 20 December.
- The highest wind gust was 185 km/h, observed at South West Cape on 20 December.
- Of the six main centres in December 2021, Wellington was the wettest, Dunedin was the coolest and driest, Auckland was the warmest and Tauranga was the sunniest.

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Temperature: Exceptional warmth throughout the month

The unusual warmth that New Zealand experienced in November spilled into December, which then persisted and burgeoned throughout the month. There were 25 days in December that recorded a nation-wide temperature that was above average (0.51°C to 1.20°C above average), while 21 days were well-above average (>1.20°C above average), according to NIWA's Virtual Climate Station Network (VCSN) (see Figure 1). There were 59 locations that had record or near-record high mean air temperatures, 42 locations had record or near-record high mean maximum temperatures, and an astounding 76 locations had record or near-recorded high mean minimum temperatures. The only area to experience near-average temperatures was a sliver of the Canterbury Plains region, including

the Christchurch area. This was due to persistent onshore winds bringing notably cloudy weather (Christchurch was the least sunny of the 6 main centres; see [December climate in the six main centres](#) for more information).

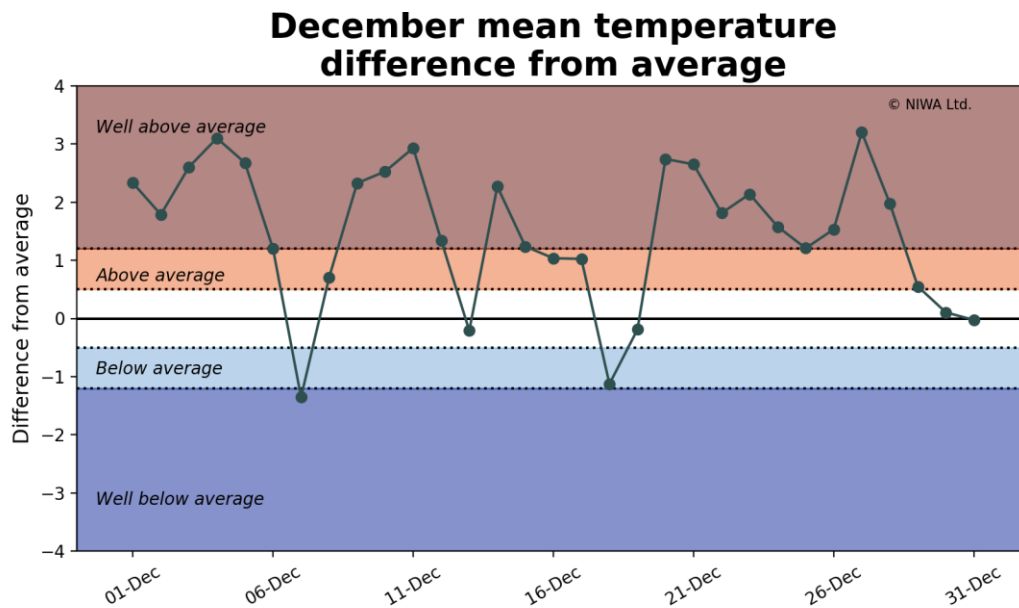


Figure 1: The nationwide temperature each day compared to the December average from NIWA’s Virtual Climate Station Network (VCSN). Averaged are based on the 1981-2010 period.

Northeasterly quarter winds and a persistent and intensifying marine heatwave (MHW) were the cause for the exceptional warmth. December monthly SSTAs were 2°C above average in the western and northern North Island. Daily SSTAs reached as high as +4°C to +5°C near the northern North Island. This contributed to excess humidity in the New Zealand region, and therefore overnight temperatures were unusually warm, particularly where SSTAs were high about the North Island. Historically speaking, the summer 2017-2018 MHW was the only comparable event over the last four decades.

The magnitude of the temperature anomalies was significant. Many locations about the central and eastern North Island had mean temperature departures that were in excess of 3°C above average. Hastings recorded a mean maximum temperature of 4.2°C above average.

There were also many record or near record daily minimum and maximum temperatures, as shown in the [Highlights and extreme events](#) section.

Record¹ or near-record mean air temperatures for December were recorded at:

Location	Mean air temp. (°C)	Departure from average (°C)	Year records began	Comments
High records or near-records				
Hastings	20.4	+3.7	1965	Highest
Taupō	19.1	+3.6	1949	Highest
Leigh	21.5	+3.4	1966	Highest
Motu	17.6	+3.3	1990	Highest
Te Puke	20.2	+3.2	1973	Highest
Whitianga	20.8	+3.1	1962	Highest
Pukekohe	20.2	+3.1	1969	Highest
Whakatāne	20.5	+3.0	1974	Highest
Wairoa (North Clyde)	21.1	+3.0	1964	Highest
Auckland (Whenuapai)	20.3	+2.9	1945	Highest
Auckland (MOTAT)	20.9	+2.9	1948	Highest
Tauranga	20.9	+2.9	1913	Highest
Rotorua	18.9	+2.9	1964	Highest
Auckland (Māngere)	21.0	+2.9	1959	Highest
Waiouru	15.4	+2.9	1962	Highest
Hicks Bay	20.0	+2.8	1969	Highest
Hawera	18.1	+2.8	1977	Highest
Dargaville	20.4	+2.7	1943	Highest
Whangārei	21.2	+2.7	1967	Highest
Whangaparāoa	20.6	+2.7	1982	Highest
Stratford	17.1	+2.7	1960	Highest
Kaitaia	20.4	+2.6	1948	Highest
Auckland Airport	20.9	+2.6	1959	Highest
Turangi	18.2	+2.6	1968	Highest
New Plymouth	18.8	+2.6	1944	Highest
Waipawa	19.2	+2.6	1945	Highest
Levin	18.7	+2.6	1895	Highest
Whanganui	19.5	+2.6	1937	Highest
Port Taharoa	20.2	+2.5	1973	Highest
Paeroa	20.4	+2.4	1947	Highest
Lower Retaruke	18.5	+2.4	1966	Highest
Māhia	19.3	+2.4	1990	Highest
Paraparaumu	18.4	+2.4	1953	Highest
Kerikeri	20.1	+2.3	1945	Highest
Kaikohe	19.4	+2.2	1973	Highest
Dannevirke	18.2	+2.2	1951	Highest
Cape Reinga	19.4	+2.0	1951	Highest
Matamata	19.6	+3.0	1999	2nd-highest

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.

Gisborne	21.0	+3.0	1905	2nd-highest
Hamilton	19.7	+2.7	1906	2nd-highest
Mt Ruapehu (Chateau)	13.3	+2.7	2000	2nd-highest
Farewell Spit	19.0	+2.7	1971	2nd-highest
Ohakune	16.6	+2.6	1962	2nd-highest
Taumarunui	19.1	+2.5	1947	2nd-highest
Whatawhata	19.2	+2.4	1952	2nd-highest
Te Kuiti	19.2	+2.3	1959	2nd-highest
Palmerston North	18.7	+2.3	1928	2nd-highest
Upper Hutt (Trentham)	17.7	+2.1	1939	2nd-highest
Takapau Plains	17.4	+2.0	1962	2nd-highest
Mokohinau	20.1	+1.8	1994	2nd-highest
Warkworth	19.9	+2.8	1966	3rd-highest
Napier	20.5	+2.5	1870	3rd-highest
Arapito	17.5	+2.1	1978	3rd-highest
Martinborough	18.4	+2.0	1986	3rd-highest
Takaka	17.7	+1.7	1978	3rd-highest
Porirua	17.6	+1.3	1968	3rd-highest
Masterton	18.5	+2.4	1906	4th-highest
Cheviot	16.4	+1.3	1982	4th-highest
Brothers Island	16.3	+1.0	1997	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from average (°C)	Year records began	Comments
High records or near-records				
Hastings	26.1	+4.2	1965	Highest
Waipawa	25.9	+3.6	1945	Highest
Wairoa (North Clyde)	26.8	+3.6	1964	Highest
Motu	22.3	+3.3	1990	Highest
Whitianga	25.1	+2.8	1962	Highest
Turangi	23.6	+2.7	1968	Highest
Te Puke	24.6	+2.6	1973	Highest
Hicks Bay	22.8	+2.6	1969	Highest
Paeroa	25.5	+2.4	1947	Highest
Tauranga	24.5	+2.3	1913	Highest
Whakatāne	24.6	+2.1	1974	Highest
Māhia	22.3	+2.1	1990	Highest
Leigh	25.4	+4.3	1966	2nd-highest
Taupō	24.6	+3.9	1949	2nd-highest
Rotorua	23.5	+3.1	1964	2nd-highest
Dargaville	24.3	+2.9	1943	2nd-highest
Farewell Spit	22.9	+2.9	1971	2nd-highest
Matamata	24.8	+2.8	1999	2nd-highest
Gisborne	26.0	+2.8	1905	2nd-highest

Mt Ruapehu (Chateau)	18.2	+2.7	2000	2nd-highest
Waiouru	20.4	+2.7	1962	2nd-highest
Te Kuiti	24.7	+2.6	1959	2nd-highest
Whangaparāoa	24.0	+2.5	1982	2nd-highest
Auckland (Whenuapai)	24.2	+2.4	1945	2nd-highest
Auckland (Airport)	24.2	+2.4	1959	2nd-highest
Stratford	21.4	+2.4	1960	2nd-highest
Ohakune	21.4	+2.4	1962	2nd-highest
Whanganui	23.3	+2.4	1937	2nd-highest
Whangārei	25.3	+2.3	1967	2nd-highest
Whatawhata	23.5	+2.3	1952	2nd-highest
Kaikohe	23.1	+2	1973	2nd-highest
Mokohinau	21.9	+1.3	1994	2nd-highest
Whakatu	24.8	+2.9	1965	3rd-highest
Auckland (Māngere)	24.1	+2.6	1959	3rd-highest
Auckland (MOTAT)	24.4	+2.5	1948	3rd-highest
Hāwera	21.3	+2.3	1977	3rd-highest
Napier	25.2	+2.2	1870	3rd-highest
Kerikeri	24.4	+1.7	1945	3rd-highest
Cape Reinga	21.9	+1.6	1951	3rd-highest
New Plymouth	22.1	+2.4	1944	4th-highest
Port Taharoa	23.0	+1.9	1973	4th-highest
Paraparaumu	21.5	+1.9	1953	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from average (°C)	Year records began	Comments
High records or near-records				
Te Puke	15.8	+3.8	1973	Highest
Whakatāne	16.4	+3.7	1974	Highest
Auckland (Whenuapai)	16.5	+3.5	1945	Highest
Whitianga	16.5	+3.4	1962	Highest
Taupō	13.8	+3.4	1949	Highest
Motu	12.9	+3.4	1990	Highest
Masterton	13.3	+3.4	1906	Highest
Auckland (MOTAT)	17.4	+3.3	1948	Highest
Tauranga	17.2	+3.3	1913	Highest
Pukekohe	16.2	+3.3	1969	Highest
Auckland (Māngere)	17.9	+3.2	1959	Highest
Gisborne	15.9	+3.2	1905	Highest
Hāwera	14.8	+3.2	1977	Highest
Wanganui	15.9	+3.2	1937	Highest
Port Taharoa	17.4	+3.1	1973	Highest
Hicks Bay	17.2	+3.1	1969	Highest
Levin	15.4	+3.1	1895	Highest

Kaitaia	16.8	+3	1948	Highest
Whangārei	17.3	+3	1967	Highest
Waiouru	10.5	+3	1962	Highest
Kerikeri	15.8	+2.9	1945	Highest
Whangaparāoa	17.2	+2.9	1982	Highest
Rotorua	14.3	+2.8	1964	Highest
New Plymouth	15.5	+2.8	1944	Highest
Māhia	16.3	+2.8	1990	Highest
Paraparaumu	15.4	+2.8	1953	Highest
Palmerston North	14.9	+2.8	1928	Highest
Stratford	12.7	+2.8	1960	Highest
Ohakune	11.7	+2.8	1962	Highest
Nelson	15.3	+2.8	1862	Highest
Auckland (Airport)	17.6	+2.7	1959	Highest
Martinborough	14.1	+2.7	1986	Highest
Upper Hutt (Trentham)	14.0	+2.7	1939	Highest
Blenheim	14.3	+2.7	1932	Highest
Kaikohe	15.8	+2.6	1973	Highest
Dargaville	16.6	+2.6	1943	Highest
Turangi	12.9	+2.6	1968	Highest
Lower Retaruke	13.2	+2.6	1966	Highest
Dannevirke	14.0	+2.6	1951	Highest
Arapito	13.9	+2.6	1978	Highest
Cheviot	12.0	+2.5	1982	Highest
Leigh	17.5	+2.4	1966	Highest
Wairoa (North Clyde)	15.4	+2.4	1964	Highest
Cape Reinga	16.8	+2.3	1951	Highest
Mokohinau	18.2	+2.3	1994	Highest
Paeroa	15.3	+2.3	1947	Highest
Westport	13.7	+2.1	1937	Highest
Porirua	14.8	+2	1968	Highest
Whitianga	16.4	+3.3	1962	2nd-highest
Matamata	14.5	+3.3	1999	2nd-highest
Whakatāne	16.2	+3.2	1974	2nd-highest
Hastings	14.7	+3.2	1965	2nd-highest
Waiau School	12.4	+3	1974	2nd-highest
Hamilton	14.8	+2.8	1906	2nd-highest
Mt Ruapehu (Chateau)	8.4	+2.8	2000	2nd-highest
Takapau Plains	12.9	+2.8	1962	2nd-highest
Whatawhata	14.9	+2.6	1952	2nd-highest
Farewell Spit	15.1	+2.4	1971	2nd-highest
Reefton	12.4	+2.4	1960	2nd-highest
Rangiora	12.2	+2.2	1965	2nd-highest
Te Kuiti	13.7	+2	1959	2nd-highest
Franz Josef	11.6	+2	1953	2nd-highest
Middlemarch	9.9	+2	2000	2nd-highest
Windsor	10.8	+1.8	2000	2nd-highest
Waipawa	12.6	+1.7	1945	2nd-highest

Nelson	14.9	+2.9	1862	3rd-highest
Napier	15.9	+2.6	1870	3rd-highest
Waimate	11.8	+2.4	1908	3rd-highest
Mt Cook	9.4	+2.2	1929	3rd-highest
Tara Hills	9.8	+2.1	1949	3rd-highest
Five Rivers	9.4	+1.7	1982	3rd-highest
Ngawi	15.3	+1.6	1972	3rd-highest
Brothers Island	14.3	+1.2	1997	3rd-highest
Taumarunui	13.4	+2.1	1947	4th-highest
Oamaru	11.2	+1.6	1967	4th-highest
Wellington	14.8	+1.3	1962	4th-highest
Low records or near-records				
None observed				

Rainfall: Soaking rain events interspaced by dry weather

Rainfall was defined by several soaking rain events as weather systems collected moisture from tropics. Of particular note was how a humid northerly flow was intercepted by a colder southerly, generating widespread heavy rain across Wellington from 5-7 December. Another heavy rainfall event occurred in Canterbury and parts of the upper North and South Islands between 13-15 December as moisture from Tropical Cyclone Ruby moved over New Zealand. More information about these can be found in the [Highlights and extreme events](#) section.

Conversely, much of the northern North Island missed out on many of these rain-bearing systems. Wairoa, Hamilton, Whangaparāoa, Kaitia and Gisborne all had 22 or more dry days during the month, during which no rainfall was recorded.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Paraparaumu	329	385	1945	Highest
Levin	283	278	1895	Highest
Hāwera	235	256	1977	Highest
Palmerston North	235	246	1928	Highest
Wellington (Airport)	207	320	1958	2nd-highest
Waipara West	148	283	1973	2nd-highest
Stratford	329	200	1960	2nd-highest
Martinborough	163	300	1924	3rd-highest
Wellington (Kelburn)	232	279	1928	3rd-highest
Upper Hutt (Trentham)	246	231	1924	3rd-highest
Whanganui	192	222	1890	3rd-highest
Kaikōura	200	427	1898	4th-highest
Masterton	185	272	1926	4th-highest
Akaroa	138	220	1977	4th-highest
Turangi	223	162	1968	4th-highest

Low records or near-records

None observed

December climate in the six main centres

The nationwide average temperature in December was 17.4°C. This was 1.7°C above the 1981-2010 December average, being the 4th warmest December on record. Five of the six main centres experienced well above average temperatures in December, with Auckland, Tauranga and Hamilton observing record or near-record warm average temperatures. Auckland, Tauranga, Wellington and Christchurch had above or well above normal rainfall, while Hamilton and Dunedin experienced below normal rainfall. Of the six main centres in December 2021, Wellington was the wettest, Dunedin was the coolest and driest, Auckland was the warmest and Tauranga was the sunniest.

December 2021 main centre climate statistics:

Location	Mean temp. (°C)	Departure from average (°C)	Comments
Auckland ^a	21.0	+2.8	Well above average (warmest on record)
Tauranga ^b	20.9	+2.9	Well above average (warmest on record)
Hamilton ^c	19.3	+2.4	Well above average (2 nd warmest on record)
Wellington ^d	16.8	+1.4	Well above average
Christchurch ^e	16.2	+0.4	Near average
Dunedin ^f	15.2	+1.4	Well above average

Location	Rainfall (mm)	% of normal	Comments
Auckland ^h	106	124	Above normal
Tauranga ^b	116	123	Above normal
Hamilton ^c	78	75	Below normal
Wellington ^d	232	279	Well above normal (3 rd -highest on record)
Christchurch ^e	130	277	Well above normal
Dunedin ^f	62	78	Below normal

Location	Sunshine (hours)
Auckland ^a	213
Tauranga ^b	229
Hamilton ^g	206
Wellington ^d	185
Christchurch ^e	167
Dunedin ^f	205

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

^h Auckland Airport

Highlights and extreme events

Temperatures

The highest temperature was 33.4°C, observed at Kawerau on 24 December.

The lowest temperature was 0.1°C, observed at Invercargill on 25 December.

Southeasterly foehn winds flowing around a weak low pressure system on 14 Dec brought a hot day to the western South Island. Arapito reached 28.0°C and Westport reached 27.3°C, their warmest December days on record. Milford Sound, reached 26.9°C, their 2nd warmest December day on record.

Several locations in inland and northern parts of the North Island had a record near-record December warmth between 23-25 December as the MHW around New Zealand and clear skies under a high pressure ridge contributed to hot day.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Te Puke	32.2	24th	1973	Highest
Taupō	30.8	24th	1949	Highest
Rotorua	30.4	23rd	1964	Highest
Kaikohe	28.4	25th	1973	Highest
Westport	27.3	15th	1937	Highest
Hicks Bay	26.3	24th	1969	Highest
Secretary Island	26.0	14th	1985	Highest
Mt Ruapehu (Chateau)	25.0	23rd	2000	Highest
Whanganui	29.7	15th	1937	Equal highest
Arapito	28.0	15th	1978	Equal highest
Windsor	30.7	20th	2000	2nd-highest
Tauranga	30.5	24th	1913	2nd-highest
Turangi	30.2	24th	1968	2nd-highest
Whitianga	29.9	24th	1962	2nd-highest
Paeroa	29.4	25th	1947	2nd-highest
Milford Sound	26.9	14th	1934	2nd-highest
Levin	28.8	15th	1895	Equal 2nd-highest
Te Kuiti	29.4	25th	1959	3rd-highest
Dargaville	29.1	26th	1943	3rd-highest
Kaitaia	28.2	25th	1948	3rd-highest
Porirua	26.5	15th	1968	3rd-highest
Matamata	28.7	24th	1999	Equal 3rd-highest
Waipawa	30.6	28th	1945	4th-highest
Whakatāne	29.5	24th	1975	4th-highest
Hamilton	29.0	25th	1946	4th-highest
Pukekohe	28.5	10th	1969	4th-highest
Whatawhata	28.4	25th	1952	4th-highest
Auckland (Māngere)	27.7	10th	1959	4th-highest

Auckland (Airport)	27.6	11th	1959	4th-highest
Nugget Point	27.4	19th	1970	4th-highest
Whangaparāoa	26.9	25th	1982	4th-highest
Farewell Spit	26.6	31st	1971	4th-highest
Low records or near-records				
Oamaru	10.0	11th	1972	Lowest
Brothers Island	12.1	6th	1997	Equal 3rd-lowest
Porirua	13.6	6th	1972	4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Kaitiāia	20.7	13th	1948	Highest
Tauranga	20.6	12th	1941	Highest
Whakatāne	20.4	12th	1975	Highest
Hicks Bay	19.2	25th	1972	Highest
Motu	16.8	12th	1990	Highest
Brothers Island	16.7	28th	1997	Highest
Tiwai Point	16.6	20th	1972	Highest
Leigh	19.9	12th	1966	Equal highest
Auckland (MOTAT)	20.7	28th	1971	2nd-highest
Port Taharoa	20.4	12th	1974	2nd-highest
Waiau School	20.2	21st	1974	2nd-highest
Mokohinau	19.7	13th	1994	2nd-highest
Porirua	18.8	28th	1972	2nd-highest
Lumsden	18.0	20th	1982	2nd-highest
Auckland (Māngere)	20.7	28th	1961	Equal 2nd-highest
Whangaparāoa	19.1	12th	1982	Equal 2nd-highest
Kerikeri	20.0	13th	1952	3rd-highest
Dargaville	19.6	13th	1951	3rd-highest
Hamilton	19.4	12th	1940	3rd-highest
Kaikohe	19.2	13th	1973	3rd-highest
Dunedin	18.3	20th	1972	3rd-highest
Clyde	18.2	20th	1978	3rd-highest
Gore	17.8	20th	1907	3rd-highest
Windsor	17.7	20th	2000	3rd-highest
Haast	17.2	16th	1949	3rd-highest
Balclutha	16.2	20th	1972	3rd-highest
Whanganui	19.7	6th	1972	Equal 3rd-highest
Te Puke	19.1	28th	1973	Equal 3rd-highest
Cape Reinga	18.4	7th	1971	Equal 3rd-highest
Upper Hutt (Trentham)	18.3	11th	1972	Equal 3rd-highest
Warkworth	19.5	28th	1966	4th-highest
Roxburgh Wxt	19.1	20th	1950	4th-highest
Martinborough	18.9	11th	1986	4th-highest

Matamata	18.8	12th	1999	4th-highest
Middlemarch	18.8	20th	2000	4th-highest
Five Rivers	17.2	20th	1982	4th-highest
Whangārei	20.2	12th	1967	Equal 4th-highest
Paeroa	20.0	12th	1971	Equal 4th-highest
Paraparaumu	18.7	28th	1972	Equal 4th-highest
Māhia	18.6	22nd	1990	Equal 4th-highest
Low records or near-records				
None observed				

Rain and slips

The highest 1-day rainfall was 167 mm, recorded at Milford Sound on 20 December.

On 6 December, airmass laden with tropical moisture combined with brisk southerly change to generate flooding rainfall for the Wellington region. Over 25 mm of rainfall was recorded at Kelburn in an hour, the heaviest hourly rainfall rate recorded in over 14 years. Palmerston North recorded 26 mm in an hour, the heaviest hourly rainfall rate recorded in 3 years. As a result, roadways were flooded as the Waikanae River and Hutt River burst its banks. Twenty-five homes near Paraparaumu were cut off after a serious slip. Over 24 hours, Paraparaumu collected 80 mm of rainfall, the highest December rainfall on record, while Wellington Airport received 76 mm of rainfall, the 2nd-highest December rainfall on record.

Between 13-15 December, an influx of tropical moisture from Tropical Cyclone Ruby was drawn across New Zealand by an upper trough. This also resulted in the formation of a surface low pressure system. The resulting weather system lead to heavy rainfall, spreading from the north to the south over several days. Parts of Auckland received 25 mm in an hour, while over a month's worth of rain fell within a 72 hour period as rainfall totals reached 94 mm. This resulted in several road collisions due to slippery motorways. In Akaroa, 79 mm of rain fell in 24 hours, the heaviest December rainfall on record, while in Christchurch, 61 mm fell in 24 hours, the 3rd heaviest December rainfall on record. Flooding and slips were observed around Le Bons Bay, closing roads.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Masterton	59	13th	1926	Highest
Paraparaumu	80	6th	1951	Highest
Akaroa	79	15th	1977	Highest
Wellington (Airport)	76	6th	1958	2nd-highest
Farewell Spit	78	14th	1882	2nd-highest
Arapito	112	9th	1978	2nd-highest
Waipara West	56	15th	1973	2nd-highest
Palmerston North	61	13th	1928	3rd-highest
Wellington (Kelburn)	73	6th	1928	3rd-highest
Winchmore	53	15th	1947	3rd-highest
Christchurch	61	15th	1873	3rd-highest
Wanganui	49	28th	1937	4th-highest

Wind

The highest wind gust was 185 km/h, observed at South West Cape on 20 December.

On 20 December, powerful west-northwesterly winds ahead of a front develop across the south Island and lower North Island. Wellington Airport experienced a gust of 100 km/h, while the Upper Hutt had a gust of 82 km/h, the equal 3rd highest December gust on record. The highest gust recorded was 135 km/h at Mt Kaukau, the strongest gust since October.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Puysegur Point	185	20th	1986	Highest
South West Cape	185	20th	1991	Highest
Mt Cook Airport	133	20th	2000	Equal highest
Castlepoint	159	21st	1972	Equal 2nd-highest
Brothers Island	124	20th	1997	3rd-highest
Mokohinau	98	14th	1994	Equal 3rd-highest
Upper Hutt (Trentham)	82	20th	1999	Equal 3rd-highest
Baring Head	120	20th	1991	4th-highest

Thunderstorms

On 28 December, afternoon convection due to daytime heating trigger isolated thunderstorms and heavy showers. 48 mm of rain fell within one hour at Stratford. There were 18 lightning strikes counted in the lower North Island.

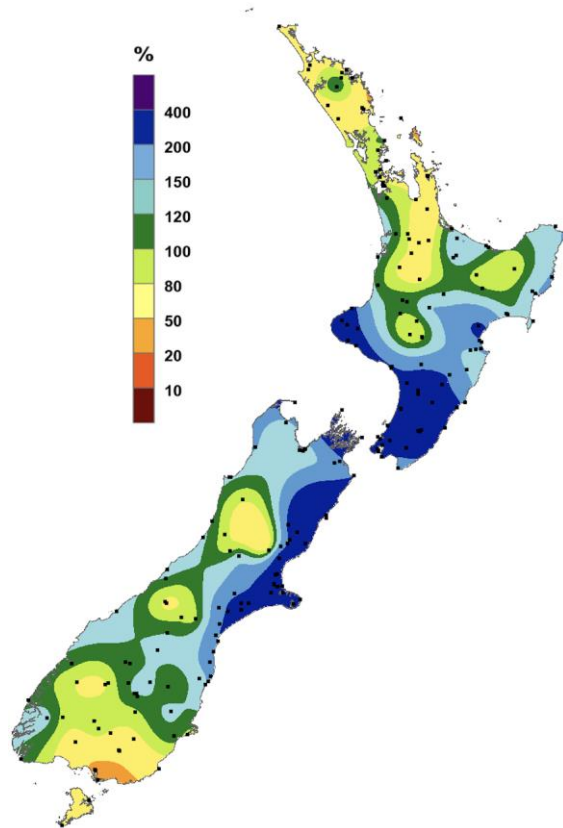
On 30 December, scattered thunderstorms sparked to life over the eastern Otago along a southerly change. Some of these thunderstorm cells became severe, producing hail. There were 325 lightning strikes observed in the South Island.

For further information, please contact:

Tristan Meyers

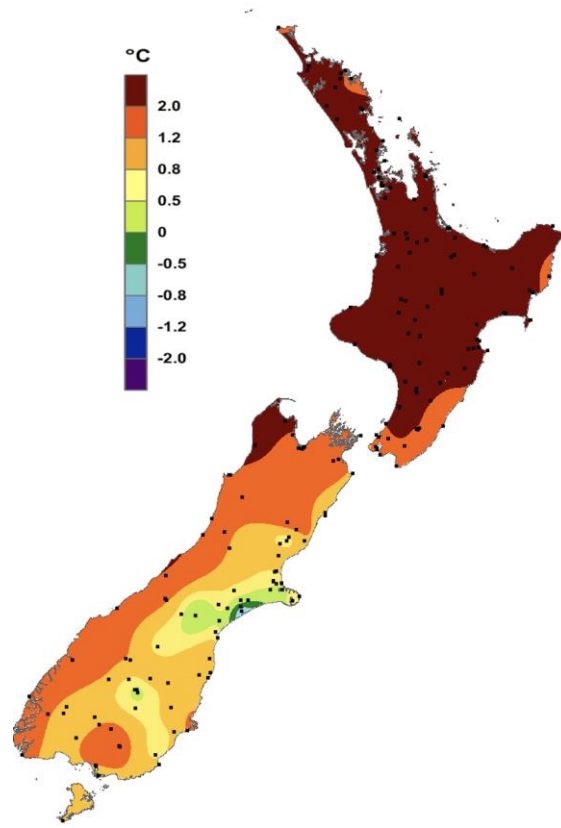
Meteorologist – NIWA Wellington

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December rainfall

Expressed as a percentage of the 1981-2010 normal.
Note that the anomalously dry spot about Balclutha is due to missing data. These data were not corrected in time for production of this map.



December temperature

Expressed as a departure from the 1981-2010 average in degrees Celsius.

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

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