

Warmer and drier than normal for many

Rainfall	Well below normal rainfall (<50% of normal) was widespread in the eastern North Island and in parts of the central North Island and eastern South Island. Near normal rainfall (80-119% of normal) occurred in Northland, parts of Auckland, western Waikato, west coastal Taranaki, east coastal Bay of Plenty, northern Tasman, Nelson, the West Coast, Fiordland, coastal Southland, and near Oamaru. Small patches of above normal rainfall (120-149% of normal) were found in southern Northland and lower Westland. Below normal rainfall (50-79%) occurred elsewhere.
Temperature	Above average temperatures (0.50-1.20°C above average) were common across the country. Temperatures were well above average (>1.20°C above average) in parts of eastern Waikato, Coromandel, Bay of Plenty, Gisborne, Hawke's Bay, Manawatū-Whanganui, south coastal Wairarapa, northern Tasman, northern Marlborough, Canterbury, and Otago. Patches of near average temperatures (±0.50°C of average) were found in Northland, western Waikato, the northern West Coast, and southern Tasman and Marlborough.
Soil Moisture	At the beginning of May, soil moisture levels were in severe deficit across the eastern North Island and eastern and interior South Island, particularly across Gisborne, Hawke's Bay, Canterbury, Otago, and Southland. Pockets of below normal soil moisture were also present about the Coromandel Peninsula and Auckland. Elsewhere, soil moisture levels were largely near or slightly above normal.

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Overview

April featured lower than normal air pressure around Aotearoa New Zealand, in the Tasman Sea, and Southern Ocean. For New Zealand, this was associated with more westerly winds than normal, which steered several unusually warm air masses toward the country during the first half of the month.

Over three dozen locations observed near record or record high maximum temperatures, a majority of which occurred between 4-6 April. Particularly impressive was a maximum temperature of 30.8°C in Timaru on 4 April, New Zealand's 4th-highest April temperature on record.

The atypical warmth also caused coastal sea temperature anomalies to spike, ranging from 0.5 to 1.3°C above average around the country for the month.

La Niña, which began in October 2020, transitioned to ENSO neutral¹ during April with equatorial ocean temperatures and the Southern Oscillation Index within the neutral range. A pulse of the Madden-Julian Oscillation, an eastward-moving area of rain and cloud in the global tropics, was active over the Pacific during April and was associated with a westerly air flow anomaly for New Zealand.

These westerly winds dried out as they descended the interior mountain ranges and flowed into the east of both islands, with below normal rainfall again a theme. Just 13 mm of rain fell in Dunedin (Musselburgh), the city's equal-driest April on record since records began in 1918.

Further Highlights:

- The highest temperature was 30.8°C, observed at Timaru on 4 April.
- The lowest temperature was -6.4°C, observed at Lake Pukaki on 28 April.
- The highest 1-day rainfall was 126 mm, recorded at Milford Sound on 4 April.
- The highest wind gust was 178 km/h, observed at South West Cape on 4 April.
- Of the six main centres in April 2021, Auckland was the warmest and wettest, Christchurch was the sunniest, Dunedin was the coolest and driest, and Hamilton was the least sunny.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations so far in 2021 are Taranaki (1033 hours), Bay of Plenty (997 hours), Marlborough (992 hours), Horowhenua (964 hours) and Hawke's Bay (964 hours).
- The mean temperature for April 2021 was 14.2°C which is 0.9°C warmer than normal (1981-2010).

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¹ NIWA and the Australian Bureau of Meteorology have acknowledged ENSO neutral conditions while NOAA (USA) continues with La Niña. The definition of an ENSO event varies slightly by organisation.

Rainfall: substantial deficits in the east

April was persistently dry, particularly in the east of both islands due to regular bouts of westerly foehn winds. Seven locations observed near record dryness, highlighted by Dunedin’s equal-driest April and Wellington’s 4th-driest April on record.

While much of the country experienced well below normal (<50% of normal) or below normal rainfall (50-79% of normal), parts of the northern and western North Island and northern and western South Island experienced near normal (80-119% of normal) and in some isolated cases, above normal rainfall (120-149%).

Record^{2,3} or near-record April rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Dunedin (Musselburgh)	12	23	1918	Equal lowest
Masterton	15	22	1926	3rd-lowest
Upper Hutt (Trentham)	21	27	1924	3rd-lowest
Dunedin (Airport)	12	26	1962	3rd-lowest
Martinborough	11	21	1924	4th-lowest
Wellington (Airport)	20	29	1958	4th-lowest
Waipara West	10	18	1973	4th-lowest

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.

³ All normal values in this climate summary are compared to the 1981-2010 normals.

Temperature: unseasonable warmth early in the month

The combination of warm westerly winds and abundant sunshine caused dozens of record and near-record mean maximum monthly temperatures. Of note, Christchurch experienced its 2nd-warmest April on record in terms of mean maximum monthly temperatures since records began in 1863.

While above average (0.50-1.20°C above average) or well above average temperatures (>1.20°C above average) covered much of the country, near average temperatures ($\pm 0.50^\circ\text{C}$ of average) occurred in parts of Northland, western Waikato, southern Tasman, southern Marlborough, and in areas along the West Coast.

Not only did no locations experience a record or near-record cold month, but no locations observed below average monthly temperatures across the country.

The nationwide average temperature in April 2021 was 14.2°C. This was 0.9°C above the 1981-2010 average (and considered to be above average) from NIWA's seven station temperature series which began in 1909. It was the warmest April since 2014 and the 13th-warmest April on record.

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Cheviot	14.0	2.2	1982	Highest
Akaroa	15.3	2.4	1978	Highest
Le Bons Bay	14.2	2.0	1984	Highest
Ngawi	16.5	1.5	1972	2nd-highest
Wairoa	16.9	2.2	1964	3rd-highest
Motueka	14.7	2.0	1956	3rd-highest
Brothers Island	15.3	0.8	1997	3rd-highest
Kaikōura	14.9	1.9	1963	3rd-highest
Waipara West	14.5	1.6	1973	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whangārei	22.5	1.9	1967	Highest
Whitianga	22.5	2.3	1962	Highest
Motu	19.1	3.0	1990	Highest
Gisborne	22.9	2.8	1905	Highest
Whakatu	22.0	2.8	1965	Highest
Waipawa	21.2	2.6	1945	Highest

Wairoa	23.3	3.7	1964	Highest
Porirua (Elsdon Park)	18.9	1.2	1968	Highest
Kaikōura	18.8	2.6	1963	Highest
Medbury	20.8	2.5	1927	Highest
Cheviot	21.7	3.5	1982	Highest
Waipara West	21.2	2.7	1973	Highest
Rangiora	21.1	3.5	1965	Highest
Akaroa	20.9	3.0	1978	Highest
Le Bons Bay	18.1	2.7	1984	Highest
Hastings	21.9	2.7	1965	2nd-highest
Hanmer Forest	20.9	3.2	1906	2nd-highest
Waiau	21.0	2.7	1974	2nd-highest
Christchurch (Airport)	20.1	2.7	1863	2nd-highest
Oamaru	18.3	2.0	1967	2nd-highest
Ngawi	19.6	1.6	1972	3rd-highest
Lincoln	19.8	2.4	1881	3rd-highest
Timaru (Airport)	19.1	2.3	1885	3rd-highest
Windsor	18.7	1.9	2000	3rd-highest
Leigh	22.4	2.3	1966	4th-highest
Whangaparāoa	20.9	1.1	1982	4th-highest
Matamata	21.5	1.5	1999	4th-highest
Tūrangi	18.8	1.2	1968	4th-highest
Ohakune	17.7	1.9	1962	4th-highest
Takaka	20.3	1.6	1978	4th-highest
Motueka	20.7	2.1	1956	4th-highest
Winchmore	19.3	2.2	1949	4th-highest
Lake Tekapo	17.3	1.9	1927	4th-highest
Middlemarch	18.9	1.9	2000	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Brothers Island	13.4	0.9	1997	2nd-highest
Ngawi	13.5	1.5	1972	4th-highest
Le Bons Bay	10.3	1.3	1984	4th-highest
Low records or near-records				
None observed				

April climate in the six main centres

April rainfall was near normal in Auckland, below normal in Hamilton, and well below normal in the other main centres. Temperatures were well above average in Tauranga, Christchurch, and Dunedin and above average in the other main centres. Of the six main centres in April 2021, Auckland was the warmest and wettest, Christchurch was the sunniest, Dunedin was the coolest and driest, and Hamilton was the least sunny.

April 2021 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	17.1	+0.9	Above average
Tauranga ^b	16.9	+1.3	Well above average
Hamilton ^c	15.1	+0.6	Above average
Wellington ^d	14.5	+0.8	Above average
Christchurch ^e	13.3	+1.4	Well above average
Dunedin ^f	13.0	+1.3	Well above average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	81	96	Near normal
Tauranga ^b	45	38	Well below normal
Hamilton ^c	45	54	Below normal
Wellington ^d	34	41	Well below normal
Christchurch ^e	23	53	Well below normal
Dunedin ^f	12	23	Well below normal (equal driest on record)
Sunshine			
Location	Sunshine (hours)		
Auckland ^a	168		
Tauranga ^b	174		
Hamilton ^g	153		
Wellington ^d	190		
Christchurch ^e	208		
Dunedin ^f	160		

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

Highlights and extreme events

Rain and slips

The highest 1-day rainfall was 126 mm, recorded at Milford Sound on 4 April.

On 10 April, heavy rain and wind affected parts of the country as a sub-tropical low pressure system approached. Police attended several vehicle crashes, including 18 in Auckland alone.

On 28 April, it was announced that a lack of rainfall and low hydro lake levels led to the Tiwai Point aluminium smelter agreeing to lower its consumption of electricity. At the time, South Island hydro storage levels were below the 10th percentile for the time of year and wholesale power prices had spiked. It was reported that actual hydro lake levels were at 67 percent of normal.

On 28 April, the Ministry for Primary Industries extended the classification of a large scale adverse event for drought to include Mid Canterbury, South Canterbury, and Otago, unlocking up to an extra \$900,000 to help farmers. The event had first been classified on 12 March, 2020, when it included the North Island, upper South Island, and the Chatham Islands.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Mokohinau	56	20th	1994	3rd-highest
Whakatāne	109	20th	1952	4th-highest

Temperatures

The highest temperature was 30.8°C, observed at Timaru on 4 April.

The lowest temperature was -6.4°C, observed at Lake Pukaki on 28 April.

On 4-5 April, numerous record and near-record temperatures occurred in the South Island, including a maximum temperature of 30.8°C in Timaru on 4 April, New Zealand's 4th-highest April temperature on record. On 5 April, the temperature reached 30.7°C in Bromley (Christchurch), New Zealand's equal-5th highest April temperature on record. On 5 April, the temperature reached 30.6°C in Wairoa, New Zealand's equal-6th highest April temperature on record. The April national record still stands as 31.4°C in Fairlie on 1 April 1952.

A ridge of high pressure was anchored to the north of the country while a strong low crossed to the south, a typical setup for extreme warmth in New Zealand. This pattern created a strong pressure gradient over the South Island, leading to the development of foehn nor'west winds. The origin of the air mass could be traced back to the Pilbara region of Western Australia.

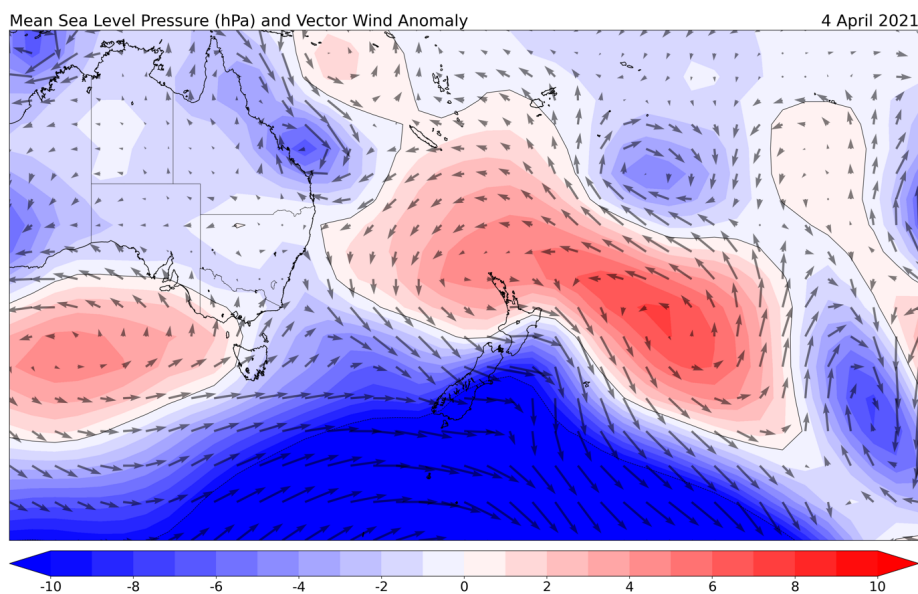


Figure 1: Mean sea level pressure (hPa) and winds, 4 April 2021 | Data: NCEP

On 11 April, an additional wave of sub-tropical warmth washed over the country, spiking temperatures in the east. Gisborne and parts of Canterbury observed near record warmth.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Wairoa	30.6	5th	1964	Highest
Takaka	26.7	5th	1978	Highest
Farewell Spit	25.4	6th	1971	Highest
Motueka	27.3	5th	1956	Highest
Rangiora	29.9	5th	1965	Highest
Akaroa	30.0	4th	1978	Highest
Le Bons Bay	29.0	5th	1984	Highest
Timaru	30.8	4th	1885	Highest
Windsor	26.1	4th	2000	Highest
Dunedin (Musselburgh)	28.5	4th	1947	Highest
Oamaru	27.5	4th	1967	Highest
Whitianga	27.8	11th	1962	Equal highest
Motu	24.7	6th	1990	2nd-highest
Tūrangi	24.5	6th	1968	2nd-highest
Gisborne	29.1	11th	1905	2nd-highest
Hastings	29.1	13th	1965	2nd-highest
Winchmore	28.0	4th	1949	2nd-highest
Oamaru	27.3	4th	1967	2nd-highest
Matamata	26.3	11th	1999	3rd-highest
Whakatāne	26.4	6th	1975	3rd-highest
Rotorua	24.4	11th	1964	3rd-highest
Whakatu	28.5	4th	1965	3rd-highest

Cheviot	28.7	5th	1982	3rd-highest
Ashburton	30.3	4th	1928	3rd-highest
Lincoln	29.7	5th	1881	3rd-highest
Paeroa	26.6	12th	1947	Equal 3rd-highest
Te Puke	26.0	6th	1973	Equal 3rd-highest
Christchurch (Airport)	29.9	5th	1863	Equal 3rd-highest
Martinborough	25.9	12th	1986	4th-highest
Waiouru	22.7	12th	1962	4th-highest
Greymouth	23.4	1st	1947	4th-highest
Nelson	25.8	5th	1862	4th-highest
Richmond	26.1	5th	1862	4th-highest
Blenheim	27.3	5th	1932	4th-highest
Hanmer Forest	27.3	11th	1906	4th-highest
Waipara West	27.8	5th	1973	4th-highest
Waimate	28.4	4th	1908	4th-highest
Dunedin (Airport)	27.3	4th	1962	4th-highest
Campbell Island	15.2	10th	1991	4th-highest
Mokohinau	23.5	1st	1994	Equal 4th-highest
Low records or near-records				
Franz Josef	7.6	26th	1953	Lowest
Haast	9.6	26th	1949	3rd-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Hicks Bay	19.3	12th	1972	Highest
Cheviot	18.0	5th	1982	Highest
Ashburton	19.5	5th	1928	Highest
Akaroa	19.5	5th	1978	Highest
Le Bons Bay	17.5	5th	1984	Highest
Tara Hills	15.3	5th	1949	Highest
Ranfurly	16.0	5th	1897	Highest
Middlemarch	18.4	5th	2000	Highest
Cromwell	17.8	5th	1949	Highest
Lauder	17.3	5th	1924	Highest
Clyde	19.1	5th	1978	Highest
Alexandra	18.6	5th	1930	Highest
Roxburgh	18.3	5th	1950	Highest
Campbell Island	11.2	10th	1991	Highest
Whakatāne	19.4	13th	1975	Equal highest
Motu	16.4	12th	1990	2nd-highest
Kaikōura	16.9	13th	1972	2nd-highest
Alexandra	18.4	5th	1930	2nd-highest
Rangiora	16.8	5th	1972	Equal 2nd-highest
Christchurch (Airport)	18.0	5th	1863	3rd-highest

Queenstown	15.8	5th	1871	3rd-highest
Five Rivers	14.6	5th	1982	3rd-highest
Lumsden	14.6	5th	1982	3rd-highest
Palmerston North	17.5	6th	1940	Equal 3rd-highest
Ngawi	19.5	13th	1972	4th-highest
Lincoln	18.3	5th	1881	4th-highest
Low records or near-records				
Whangārei	3.7	29th	1967	2nd-lowest
Lake Tekapo	-5.4	28th	1925	Equal 2nd-lowest
Mt Cook (Airport)	-4.5	28th	1929	3rd-lowest
Waipara West	0.2	26th	1973	Equal 3rd-lowest
Ohakune	-2.7	29th	1962	Equal 4th-lowest

Wind

The highest wind gust was 178 km/h, observed at South West Cape on 4 April.

On 4 April, strong northwesterly winds caused damage in the lower North Island and South Island:

- Winds flipped a caravan onto State Highway 2 north of Wellington on the Remutaka Hill Rd.
- Winds flipped a caravan being towed by a ute on Tekapo-Twizel Rd (State Highway 8).
- Winds fanned several wildfires in the South Island. This included a forest fire near Fairlie in the Mackenzie District that tore through a 10 hectare plantation, a vegetation fire in Temuka, South Canterbury, fires in Owaka and Waikouaiti, Otago, and three fires in Southland (two of which were in the Waimea Valley).
- Winds downed trees and power lines in the Temuka area north of Timaru, causing a few hundred power outages.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Mt Cook (Airport)	145	5th	2000	Highest
Gore	117	4th	1987	Highest
South West Cape	178	4th	1991	Highest
Puysegur Point	154	4th	1986	2nd-highest
Oamaru	87	4th	1984	Equal 2nd-highest
Castlepoint	148	5th	1972	3rd-highest
Clyde	82	4th	1983	3rd-highest
Secretary Island	126	10th	1994	Equal 3rd-highest
Manapouri	72	4th	1991	Equal 3rd-highest
Cape Campbell	107	5th	1963	4th-highest
Oamaru	83	4th	1984	4th-highest
Rangiora	76	4th	1999	Equal 4th-highest
Tara Hills	83	4th	1985	Equal 4th-highest

Lightning, hail, and tornadoes

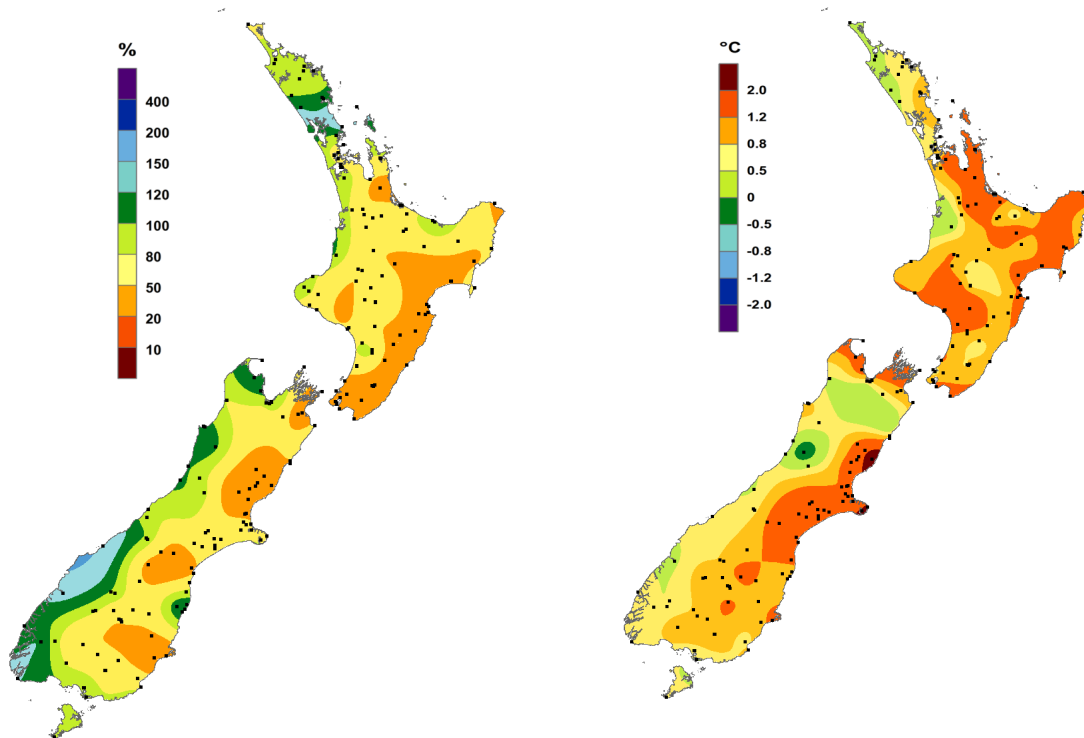
On 14 April around 5:00 pm local time, a waterspout (tornado over the water) formed just off the coast of Napier's marine parade. On this day, a pocket of cold pocket air aloft (upper level low pressure system) moving over warmer and more humid air near the ground, like the relatively warm ocean, caused the necessary instability and vertical motion needed for thunderstorms and the waterspout to form. Vertical wind shear, or change in wind direction and speed with height, also likely contributed to the waterspout's formation and sustainment. Additionally, over 5900 cloud-to-ground lightning strikes were observed across the North Island and in coastal waters.

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April rainfall

Expressed as a percentage of the 1981-2010 normal.

April 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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