

5th-warmest October on record

Temperature	It was Aotearoa New Zealand's 5 th warmest October on record. Temperatures were above average (0.51°C to 1.20°C above average) to well above average (>1.20°C above average) for the majority of the country. The exceptions were parts of Marlborough and coastal Canterbury where temperatures were near average ($\pm 0.50^\circ\text{C}$ of average).
Rainfall	Rainfall was well above normal (>149% of normal) in large parts of Northland and Auckland. Rainfall was above normal (120-149% of normal) in the Coromandel, coastal Bay of Plenty, coastal Taranaki, northern Tasman, an area near Christchurch, and southern Canterbury/northern Otago. Conversely, below normal (50-79% of normal) and well below normal (<50% of normal) rainfall was observed in Manawatū-Whanganui, Wellington, most of the east coast of the North Island, northern and central Canterbury, Fiordland, and much of Southland.
Soil Moisture	At the end of the month, and for the time of year, soil moisture levels were lower than normal in eastern Wairarapa as well as parts of Canterbury, Otago and Southland. Soil moisture was higher than normal in Auckland, Northland, the Bay of Plenty and parts of Waikato and Marlborough. Soil moisture was near normal elsewhere.

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Overview

As is often the case, October weather patterns were changeable. Periods of high pressure and calm weather were interspersed with unsettled and active weather. For the month as a whole, air pressure was higher than normal south and east of Aotearoa New Zealand, with lower than normal pressure in the western Tasman Sea. This atmospheric pattern was consistent with a developing La Niña in the tropical Pacific and was associated with more northerly and north-easterly air flows than normal over New Zealand.

Winds from the north brought frequent warm and humid conditions and were a key driver behind the warm month alongside warmer than normal coastal waters. Many locations experienced a record or near-record warm October, particularly when looking at overnight minimum temperatures. Overall, the nationwide average temperature for October 2021 was 13.2°C (1.2°C above the 1981-2010

October average) making it New Zealand's 5th-warmest October on record since NIWA's seven station temperature series began in 1909.

The warmth for the month as a whole occurred despite occasional cold snaps. Brisk southerlies mid-month saw Paraparaumu and Ngawi experiencing a near-record cold October day on the 13th. Conversely on 26 October, a warm and humid northerly air flow led to several North Island locations experiencing near-record warm temperatures during the day as well as record and near-record warm temperatures overnight (see the [highlights and extreme events](#) section for more details).

Rainfall patterns across the country were mixed. For Northland and Auckland, rainfall was well above normal (>149% of normal) for large parts of the regions. Both Kerikeri and Kaikohe observed more than three times their normal October rainfall amount, resulting in their wettest October on record (with records extending to 1935 and 1956 respectively). This was influenced by a persistently wet Labour weekend, as well as thunderstorms and localised heavy rainfall events earlier in the month.

Rainfall was above normal (120-149% of normal) in the Coromandel, coastal Bay of Plenty, coastal Taranaki, northern Tasman, an area near Christchurch, and southern Canterbury/northern Otago. It was an active end of the month for the Bay of Plenty, Hawke's Bay and Marlborough where thunderstorms on 28 and 29 October led to heavy downpours and localised flooding. Reported damage was worst in Marlborough where many homes and businesses were flooded.

Conversely, dry conditions were observed during October in Manawatū-Whanganui, Wellington, most of the east coast of the North Island, northern and central Canterbury, Fiordland, and much of Southland. Tiwai Point in Southland experienced its third-lowest October rainfall total since records began in 1970.

Further Highlights:

- The highest October temperature was 28.9°C, observed at Napier on 27 October.
- The lowest October temperature was -4.1°C, observed at Mt Cook (Airport) on 14 October.
- The highest 1-day rainfall was 151 mm, recorded at Arthur's Pass on 17 October.
- The highest wind gust was 156 km/h, observed at Cape Turnagain on 19 October.
- Of the six main centres, Auckland was the warmest, Dunedin was the driest, Christchurch was the sunniest, Hamilton was the least sunny, Dunedin and Christchurch were the coldest and Hamilton and Auckland were the wettest.
- Of the available, regularly reporting sunshine observation sites, the sunniest four regions in 2021 so far are Taranaki (2101 hours), Marlborough (2089 hours), Hawke's Bay (2085 hours), and Wider Nelson (2080 hours).

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Temperature: Record and near-record warmth for many

October temperatures were above average (0.51°C to 1.20°C above average) to well above average (>1.20°C above average) for the majority of the country, aided by a northerly quarter air flow and warm coastal waters. The exceptions were parts of Gisborne, Marlborough and coastal Canterbury where temperatures were near average ($\pm 0.50^\circ\text{C}$ of average).

Many locations experienced a record or near-record warm October in terms of mean temperatures and more than 30 locations experienced record or near-record high mean minimum temperatures. This shows that warm nights were frequent and widespread throughout the month.

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Dannevirke	13.7	1.7	1951	Highest
Porirua	13.7	1.1	1968	Highest
Ohakune	11.7	2.0	1962	Highest
Windsor	11.8	1.6	2000	Highest
Middlemarch	12.0	1.9	2000	Highest
South West Cape	11.2	1.6	1991	Highest
Kaikohe	14.7	1.2	1973	2nd-highest
Auckland (Whenuapai)	15.0	1.3	1945	2nd-highest
Tūrangi	12.3	1.0	1968	2nd-highest
Lower Retaruke	13.4	1.4	1966	2nd-highest
Hāwera	13.5	1.6	1977	2nd-highest
Waiouru	10.0	1.7	1962	2nd-highest
Milford Sound	11.8	1.4	1934	2nd-highest
Hanmer Forest	12.4	2.2	1906	2nd-highest
Manapouri (West Arm)	10.4	1.5	1971	2nd-highest
Lumsden	10.8	1.0	1982	2nd-highest
Cape Reinga	15.2	0.7	1951	3rd-highest
Leigh	16.2	1.5	1966	3rd-highest
Matamata	14.2	1.6	1999	3rd-highest
Taupō	13.2	2.1	1949	3rd-highest
Mt Ruapehu (Chateau)	7.7	1.3	2000	3rd-highest
Reefton	13.1	1.9	1960	3rd-highest
Franz Josef	11.9	1.4	1953	3rd-highest
Puysegur Point	11.3	1.2	1978	3rd-highest
Te Anau	10.9	1.4	1963	3rd-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.

Kerikeri	15.5	1.3	1945	4th-highest
Whangaparāoa	15.3	0.7	1982	4th-highest
Te Puke	14.6	1.3	1973	4th-highest
Taumarunui	14.0	1.6	1947	4th-highest
Ngawi	14.9	1.2	1972	4th-highest
Rangiora	12.6	1.3	1965	4th-highest
Ranfurly	10.6	1.5	1897	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Porirua	17.2	1.2	1968	Highest
Tākaka	19.1	1.3	1978	Highest
South West Cape	14.3	2.0	1991	Highest
Dannevirke	18.2	1.8	1951	2nd-highest
Ohakune	17.2	3.0	1962	2nd-highest
Hanmer Forest	20.3	3.5	1906	2nd-highest
Mt Ruapehu (Chateau)	12.2	1.5	2000	3rd-highest
Windsor	17.0	1.1	2000	3rd-highest
Matamata	19.0	1.2	1999	4th-highest
Hāwera	16.8	1.5	1977	4th-highest
Reefton	18.1	1.6	1960	4th-highest
Puysegur Point	13.7	1.1	1978	4th-highest
Middlemarch	18.2	1.7	2000	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Lower Retaruke	8.9	1.9	1966	Highest
Hāwera	10.1	1.7	1977	Highest
Middlemarch	5.7	2.0	2000	Highest
Dunedin (Musselburgh)	9.1	2.0	1947	Highest
Te Anau	6.3	2.2	1963	Highest
Gore	7.0	1.6	1907	Highest
South West Cape	8.1	1.2	1991	Highest
Cape Reinga	12.9	1.1	1951	Equal highest
Kaitaia	12.4	1.7	1948	2nd-highest
Port Taharoa	12.6	1.8	1973	2nd-highest
Porirua	10.2	1.0	1968	2nd-highest

Reefton	8.0	2.0	1960	2nd-highest
Franz Josef	7.9	1.9	1953	2nd-highest
Puysegur Point	8.9	1.3	1978	2nd-highest
Rangiora	7.5	1.9	1965	2nd-highest
Windsor	6.6	2.1	2000	2nd-highest
Oamaru	7.4	1.5	1967	2nd-highest
Roxburgh	7.0	2.4	1950	2nd-highest
Nugget Point	7.8	1.5	1970	2nd-highest
Auckland (Whenuapai)	11.5	1.8	1945	3rd-highest
Auckland (Western Springs)	12.1	1.6	1948	3rd-highest
Te Puke	10.5	2.1	1973	3rd-highest
Mt Ruapehu (Chateau)	3.1	1.1	2000	3rd-highest
Ngawi	11.7	1.2	1972	3rd-highest
Mahia	11.2	1.1	1990	3rd-highest
Lumsden	5.7	1.2	1982	3rd-highest
Tiwai Point	7.7	0.8	1970	3rd-highest
Kerikeri	11.2	1.7	1945	4th-highest
Dargaville	11.8	0.7	1943	4th-highest
Pukekohe	11.4	1.8	1969	4th-highest
Taumarunui	9.0	1.7	1947	4th-highest
Waiouru	5.4	1.7	1962	4th-highest
Culverden	7.1	1.9	1928	4th-highest
Cheviot	6.5	1.0	1982	4th-highest
Ranfurly	4.3	1.6	1897	4th-highest
Invercargill	7.4	1.9	1905	4th-highest
Low records or near-records				
None observed				

Rainfall: A wet month for Northland and Auckland

Rainfall was well above normal (>149% of normal) in large parts of Northland and Auckland. Both Kerikeri and Kaikohe observed more than three times their normal October rainfall amount, resulting in their wettest October on record (with records extending to 1935 and 1956 respectively). Rainfall was above normal (120-149% of normal) in the Coromandel, coastal Bay of Plenty, coastal Taranaki, northern Tasman, an area near Christchurch, southern Canterbury, and northern Otago.

Conversely, below normal (50-79% of normal) and well below normal (<50% of normal) rainfall was observed in Manawatū-Whanganui, Wellington, most of the east coast of the North Island, northern and central Canterbury, Fiordland, and much of Southland. Tiwai Point in Southland experienced its third-lowest October rainfall total since records began in 1970.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Kerikeri	424	324	1935	Highest
Kaikohe	301	302	1956	Highest
Dargaville	174	202	1943	3rd-highest
Auckland (Warkworth)	199	184	1966	3rd-highest
Auckland (North Shore)	157	157	1966	4th-highest
Low records or near-records				
Tiwai Point	47	49	1970	3rd-lowest

October climate in the six main centres

October temperatures were above average or well above average for all main centres. It was a wet month in Auckland, Tauranga and Christchurch where above normal rainfall was observed. Conversely, Wellington and Dunedin received below normal rainfall. Of the six main centres in October 2021, Auckland was the warmest, Dunedin was the driest, Christchurch was the sunniest, Hamilton was the least sunny, Dunedin and Christchurch were the coldest and Hamilton and Auckland were the wettest.

October 2021 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	15.6	+1.2	Above average
Tauranga ^b	15.1	+1.0	Above average
Hamilton ^c	14.2	+1.2	Above average
Wellington ^d	13.1	+1.1	Above average
Christchurch ^e	12.3	+0.9	Above average
Dunedin ^f	12.3	+1.4	Well above average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	126	139	Above normal
Tauranga ^b	126	141	Above normal
Hamilton ^c	115	117	Near normal
Wellington ^d	80	68	Below normal
Christchurch ^e	67	137	Above normal
Dunedin ^f	48	77	Below normal
Sunshine			
Location	Sunshine (hours)		
Auckland ^a	173		
Tauranga ^b	154		
Hamilton ^g	140		
Wellington ^d	205		
Christchurch ^e	222		
Dunedin ^f	196		

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

Highlights and extreme events

Temperatures

The highest October temperature was 28.9°C, observed at Napier on 27 October. This was the 2nd warmest day this early in spring (through 27 October) for Napier with observations extending back to 1870.

The lowest October temperature was -4.1°C, observed at Mt Cook (Airport) on 14 October.

On 26 October, a warm and humid northerly air flow led to several North Island locations experiencing near-record warm temperatures during the day as well as record and near-record warm temperatures overnight.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Whatawhata	24.3	26th	1952	Highest
Kaikohe	23.2	26th	1973	Highest
Ohakune	23.9	26th	1962	2nd-highest
Auckland (Pukekohe)	23.9	26th	1969	2nd-highest
Manapouri (West Arm)	23.0	29th	1971	2nd-highest
Hāwera	21.7	26th	1977	2nd-highest
South West Cape	21.0	30th	1991	2nd-highest
Takapau Plains	23.8	26th	1962	Equal 2nd-highest
Te Kuiti	24.6	26th	1959	Equal 3rd-highest
Waiouru	21.7	26th	1962	4th-highest
Dannevirke	24.2	25th	1951	Equal 4th-highest
Tiwai Point	22.8	30th	1970	Equal 4th-highest
Low records or near-records				
Ngawi	9.8	13th	1972	2nd-lowest
Paraparaumu	10.0	13th	1972	Equal 3rd-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Tūrangi	14.0	27th	1968	Highest
Mt Ruapehu (Chateau)	10.0	27th	2000	Highest
Hicks Bay	16.2	29th	1972	Highest
Manapouri (West Arm)	12.3	26th	1972	Highest
Auckland (Whenuapai)	16.1	28th	1951	Equal highest

Cape Reinga	15.5	27th	1971	2nd-highest
Auckland (Western Springs)	16.4	27th	1971	2nd-highest
Matamata	15.0	27th	1999	2nd-highest
Motu	13.1	27th	1990	2nd-highest
Ohakune	13.1	27th	1972	2nd-highest
Upper Hutt	15.0	27th	1972	Equal 2nd-highest
Port Taharoa	16.1	26th	1974	3rd-highest
Porirua	14.6	31st	1972	3rd-highest
Franz Josef	13.1	26th	1953	3rd-highest
Secretary Island	13.3	25th	1988	3rd-highest
Whakatāne	16.0	31st	1975	4th-highest
Hamilton	15.8	27th	1946	4th-highest
Masterton	16.2	31st	1943	4th-highest
Te Kuiti	15.8	27th	1959	Equal 4th-highest
Low records or near-records				
Puysegur Point	1.7	22nd	1978	Lowest
Whangārei	2.9	16th	1967	4th-lowest
Tākaka	0.4	13th	1978	Equal 4th-lowest
Clyde	-2.8	20th	1978	Equal 4th-lowest

Rain and slips

The highest 1-day rainfall was 151 mm, recorded at Arthur's Pass on 17 October.

On 7 October, heavy rainfall in eastern Northland led to a slip at Te Ngaere Bay which affected a property and it was deemed unsafe.

On 12 October, heavy rain caused flooding on the West Coast, and State Highway 6 was closed by a slip near Punakaiki.

On 21-25 October, prolonged rainfall affected Northland and Auckland. On 23 October, Kerikeri received 137mm of rain, the 3rd-highest daily October rainfall there since records began in 1945.

On 28 and 29 October, thunderstorms brought heavy downpours to the Bay of Plenty, Hawke's Bay and Marlborough. Reported damage was worst in Marlborough where many homes and businesses were flooded.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Kerikeri	137	23rd	1945	3rd-highest
Whakatāne	112	28th	1952	3rd-highest

Wind

The highest wind gust was 156 km/h, observed at Cape Turnagain on 19 October.

On 13 October, Cook Strait passenger ferry sailings were cancelled due to large swells and a southerly gale. The swells flooded parts of the road on Wellington's south coast and also threw up debris and damaged the recently resealed road. Some businesses on Port Rd in the suburb of Seaview had to evacuate.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Mt Kaukau	150	12th	1969	Highest
Te Puke	61	12th	1987	Equal highest
Bromley	95	13th	1972	4th-highest
Motu	93	18th	1991	Equal 4th-highest

Lightning, hail, and tornadoes

On 18 October, an active front crossed the North Island. More than 4000 lightning strikes were recorded across Aotearoa and coastal waters, with the thunderstorms leading to surface flooding in Auckland, Northland and the Bay of Plenty.

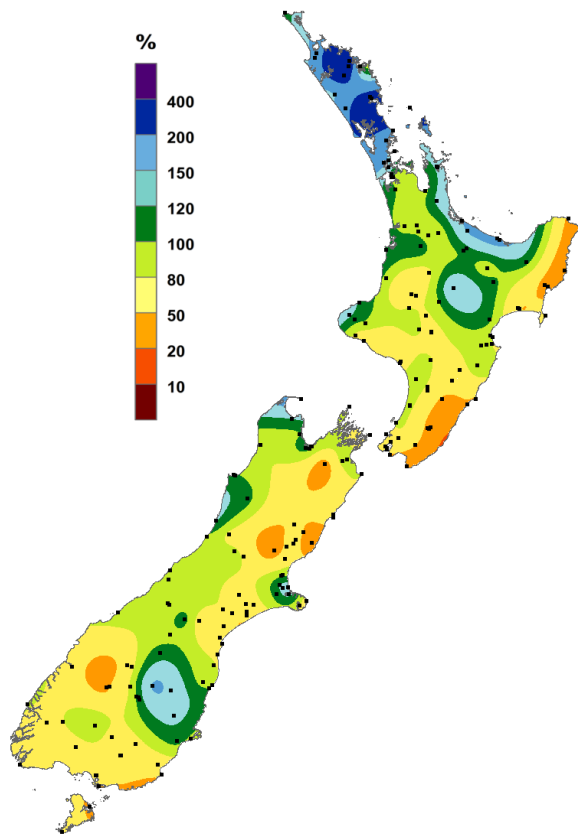
On 29 October, over 4000 lightning strikes were recorded across the central and lower North Island as well as Marlborough and northern Canterbury.

Snow and ice

On 12 October, snow fell as low as 400m across Southland, Otago and Canterbury. Waka Kotahi NZ Transport Agency advised of weather-related issues on several highways, including snow on State Highway 85 Omakau-Kyeburn, SH8 (Lindis Pass) and SH94 (Milford Road). Approximately 20 cm of new snow was reported by ski fields around Queenstown and Wānaka.

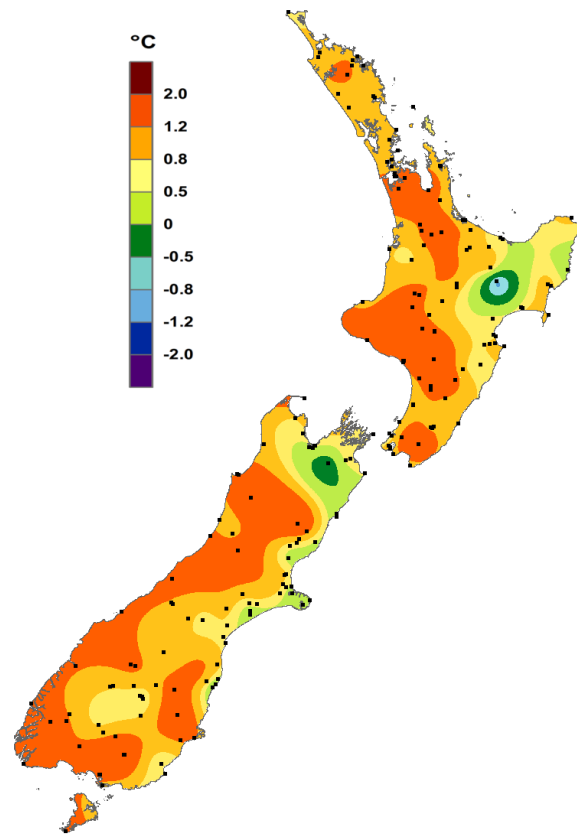
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October rainfall

Expressed as a percentage of the 1981-2010 normal.



October temperature

Expressed as a departure from the 1981-2010 average in degrees Celsius. Note that the very lowest temperature anomalies ($>0.8^{\circ}\text{C}$ below average) illustrated south of Whakatāne are a result of data quality issues at a single station, and as such are not an accurate representation of monthly temperature for this area.

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

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