

## A mild month with mixed rainfall patterns

Rainfall	Below normal rainfall (50-79% of normal) or well below normal rainfall (<50% of normal) was observed in much of Northland, parts of Auckland and Waikato, the Central Plateau, Gisborne south to Wellington, the upper South Island, and coastal central Canterbury. Above normal rainfall (120-149% of normal) or well above normal rainfall (>149% of normal) was observed in much of the lower South Island as well as small portions of interior Canterbury, southern Manawatū-Whanganui, and eastern Bay of Plenty. Near normal rainfall (80-119% of normal) was observed elsewhere.
Temperature	Temperatures were near average ( $\pm 0.50^{\circ}\text{C}$ of average) for much of the South Island and scattered portions of the North Island. However, above average temperatures ( $>0.50^{\circ}\text{C}$ above average) were observed in much of the upper and eastern North Island, along with parts of coastal Canterbury. Below average temperatures ( $<0.50^{\circ}\text{C}$ below average) were observed in parts of interior Tasman, Canterbury, and Otago.
Soil Moisture	At the end of January, soil moisture levels were lower than normal for nearly all of the North Island, except Taranaki and coastal Manawatū-Whanganui where soil moisture was near normal. In the South Island, soil moisture levels were lower than normal in Nelson, Marlborough Sounds, northern Tasman, and a small portion of eastern Southland, with higher than normal soil moisture levels from southern Canterbury to Southland. Soil moisture levels were near normal elsewhere.

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### Overview

January 2021 mean sea level pressure was lower than normal over and just east of Aotearoa New Zealand. This resulted in more southwesterly winds than normal, keeping temperatures near average in much of the South Island and portions of the North Island, along with cooler than average sea surface temperatures in parts of the Tasman Sea. While moderate La Niña conditions continued in the tropical Pacific, any impacts on weather patterns over New Zealand were not those typically expected.

Rainfall was quite varied across New Zealand during January, with drier than normal conditions found across much of the North Island and upper South Island. Meanwhile, above normal (120-149% of normal) or well above normal rainfall (>149% of normal) was observed in much of the lower South Island, primarily due to a heavy rain event early in the month (see *Highlights and extreme events* section). Notably, Oamaru and Clyde both experienced their wettest January on record.

Although temperatures for the month as a whole were generally unremarkable, a very warm air mass originating in Australia combined with westerly Foehn winds to produce widespread record and near-record temperatures across eastern New Zealand from 26-28 January. In Ashburton, a blistering 39.3°C was recorded on 26 January. This was New Zealand's 2<sup>nd</sup>-hottest January temperature on record, surpassed only by 40.0°C at Timaru on 22 January 1908.

**Further Highlights:**

- The highest temperature was 39.3°C, observed at Ashburton on 26 January. This was followed by 38.9°C at Wakanui, and 38.0°C at Akaroa, both also observed on 26 January.
- The lowest temperature was -0.1°C, observed at Mt Cook Airport on 29 January.
- The highest 1-day rainfall was 132 mm, recorded at Arthurs Pass on 19 January.
- The highest wind gust was 180 km/h, observed at South West Cape on 26 January.
- Of the six main centres in January 2021, Tauranga was the warmest, driest and sunniest, while Dunedin was the coolest, wettest and least sunny.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations so far in 2021 are Taranaki (315 hours), Hawkes Bay (314 hours), Bay of Plenty (310 hours), and Marlborough (309 hours).

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## Rainfall: Drier in the north; wetter in the south

January rainfall was below normal (50-79% of normal) or well below normal (<50% of normal) in much of Northland, parts of Auckland and Waikato, the Central Plateau, Gisborne south to Wellington, the upper South Island, and coastal central Canterbury. Above normal rainfall (120-149% of normal) or well above normal rainfall (>149% of normal) was observed in much of the lower South Island as well as small portions of interior Canterbury, southern Manawatū-Whanganui, and eastern Bay of Plenty. Near normal rainfall (80-119% of normal) was observed elsewhere.

It was a particularly dry month in parts of Wairarapa, where Masterton received only 10% of its normal January rainfall. This dryness caused water-use restrictions to be extended. Conversely, multiple locations in the lower South Island received more than 250% of their normal January rainfall. In fact, Ranfurly had its 2<sup>nd</sup>-wettest January since records began in 1897, while Waimate experienced its 3<sup>rd</sup>-wettest January since 1898. Clyde received 147 mm of rain in January, which is 35% of its normal annual rainfall total of 416 mm.

### Record<sup>1,2</sup> or near-record January rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
<b>High records or near-records</b>				
Oamaru	133	305	1941	Highest
Clyde	147	282	1978	Highest
Windsor	139	273	2000	2nd-highest
Ranfurly	150	281	1897	2nd-highest
Lauder	150	257	1924	2nd-highest
Waimate	131	264	1898	3rd-highest
Cromwell	110	263	1949	3rd-highest
<b>Low records or near-records</b>				
Masterton	6	10	1926	2nd-lowest

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<sup>1</sup> The rankings (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>.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.

<sup>2</sup> All normal values in this climate summary are compared to the 1981-2010 normals.

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## Temperature: Record heat late in the month

January temperatures were near average ( $\pm 0.50^{\circ}\text{C}$  of average) for much of the South Island and scattered portions of the North Island. However, above average temperatures ( $>0.50^{\circ}\text{C}$  above average) were observed in much of the upper and eastern North Island, along with parts of coastal Canterbury. Below average temperatures ( $<0.50^{\circ}\text{C}$  below average) were observed in parts of interior Tasman, Canterbury, and Otago. Only one location (Wairoa) had a near-record mean air temperature during the month, although many locations observed record or near-record high daily maximum temperatures between 26-28 January. This short hot-spell occurred only about a week after multiple South Island locations saw record or near-record low daily maximum temperatures.

The nationwide average temperature in January 2021 was  $17.5^{\circ}\text{C}$ . This was  $0.4^{\circ}\text{C}$  above the 1981-2010 January average (and considered to be near average) from NIWA's seven station temperature series which begins in 1909. It has now been four years since New Zealand experienced a nationwide temperature that was below average (more than  $0.5^{\circ}\text{C}$  below the monthly average).

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

Location	Mean air temp. ( $^{\circ}\text{C}$ )	Departure from normal ( $^{\circ}\text{C}$ )	Year records began	Comments
High records or near-records				
Wairoa	21.0	1.8	1964	3rd-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. ( $^{\circ}\text{C}$ )	Departure from normal ( $^{\circ}\text{C}$ )	Year records began	Comments
High records or near-records				
Whangārei	26.5	2.0	1967	3rd-highest
Whitianga	26.1	2.2	1962	3rd-highest
Wairoa	27.4	2.9	1964	3rd-highest
Whangaparāoa	25.0	1.7	1982	4th-highest
Matamata	26.4	2.1	1999	4th-highest
Hicks Bay	23.7	2.0	1969	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. ( $^{\circ}\text{C}$ )	Departure from normal ( $^{\circ}\text{C}$ )	Year records began	Comments
High records or near-records				
None observed				

## Low records or near-records

None observed

## January climate in the six main centres

January rainfall was well below normal in Tauranga and Wellington, above normal in Dunedin, and near normal in the other main centres. Temperatures were above average in Tauranga and Dunedin while the other main centres saw near average temperatures. Of the six main centres in January 2021, Tauranga was the warmest, driest and sunniest, while Dunedin was the coolest, wettest and least sunny.

### January 2021 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland <sup>a</sup>	20.1	+0.5	Near average
Tauranga <sup>b</sup>	20.3	+0.8	Above average
Hamilton <sup>c</sup>	18.2	-0.1	Near average
Wellington <sup>d</sup>	17.3	+0.4	Near average
Christchurch <sup>e</sup>	17.7	+0.5	Near average
Dunedin <sup>f</sup>	15.9	+0.6	Above average

Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland <sup>a</sup>	54	88	Near normal
Tauranga <sup>b</sup>	17	22	Well below normal
Hamilton <sup>c</sup>	77	93	Near normal
Wellington <sup>d</sup>	33	44	Well below normal
Christchurch <sup>e</sup>	41	115	Near normal
Dunedin <sup>f</sup>	106	146	Above normal

Sunshine	
Location	Sunshine (hours)
Auckland <sup>a</sup>	280
Tauranga <sup>b</sup>	306
Hamilton <sup>g</sup>	255
Wellington <sup>d</sup>	244
Christchurch <sup>e</sup>	230
Dunedin <sup>f</sup>	219

<sup>a</sup> Māngere <sup>b</sup> Tauranga Airport <sup>c</sup> Hamilton Airport <sup>d</sup> Kelburn <sup>e</sup> Christchurch Airport <sup>f</sup> Musselburgh <sup>g</sup> Ruakura

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## Highlights and extreme events

### Rain and slips

The highest 1-day rainfall was 132 mm, recorded at Arthurs Pass on 19 January.

In early January, a cut-off area of low pressure directly over New Zealand led to widespread heavy rainfall and flooding, especially in the lower South Island.

On 2 January, between 150-200 holidaymakers had to be evacuated when the Otematata River burst its banks. Emergency services cleared about 50 campsites right beside the river. Another 200 people attending the Whare Flat Folk Festival northwest of Dunedin were stranded due to rising water levels on Silverstream. In Central Otago, the water supply for Patearoa was shut down due to the flooding, with a water tanker brought in for affected residents. In Middlemarch, residents were advised not to flush their toilets and avoid drinking water from bores as it was likely to be contaminated. Similarly, the Dunedin City Council advised residents to avoid flushing their toilets until further notice. In Earnscliffe (near Clyde), the Fraser River breached its banks, inundating orchards and vineyards in the area. Floodwaters were reportedly 1 metre deep on some properties, with orchards noting extensive damage and significant crop losses. In the 48-hour period from 9 a.m. on 1 January, Alexandra recorded 120.4 mm of rain, which is equivalent to 33% of the town's normal annual rainfall.

Many roads in the lower South Island were closed due to flooding and slips, including a stretch of SH1 between Maheno and Reidston, and SH6 between Kingston and Queenstown. Meanwhile, SH87, from Kyeburn to Outram, was closed due to the washout of the Kokonga Bridge. SH83 from Otematata to Aviemore was also closed due to flooding. FENZ closed the Kakanui Bridge due to debris building up on its central piers. Patearoa Bridge was also damaged by the floodwaters.

In the North Island, flooding was reported in both Morrinsville and Whangamata in the Waikato Region.

On 3 January, a significant thunderstorm hit eastern Bay of Plenty, causing surface flooding in the areas between Whakatāne and Ōpōtiki. Slips and flooding caused the closure of multiple sections of SH2 in Bay of Plenty and Gisborne.

Beginning the week of 11 January, Level 3 water restrictions were imposed in Kaitia due to low flow in the Awanui River, while restrictions were extended by all three district councils in Wairarapa. Restrictions were also enacted in Kawakawa-Moerewa and Paihia. On 28 January, Level 4 restrictions were imposed in Waimarama by the Hastings District Council.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Windsor	37	1st	2000	Highest
Clyde	63	2nd	1978	Highest
Ranfurlly	53	1st	1897	3rd-highest
Oamaru	43	1st	1950	3rd-highest
Cromwell	43	1st	1949	3rd-highest
Lauder	50	2nd	1924	Equal 3rd-highest

## Temperatures

The highest temperature was 39.3°C, observed at Ashburton on 26 January. This was followed by 38.9°C at Wakanui, and 38.0°C at Akaroa, both also observed on 26 January. An additional eight stations recorded daily maximum temperatures higher than 37.0°C on 26 January, including Christchurch and Timaru.

The lowest temperature was -0.1°C, observed at Mt Cook Airport on 29 January.

From 25-28 January, a very warm air mass originating in Australia combined with westerly Foehn winds resulted in widespread record and near-record temperatures across eastern New Zealand. Notably, on 26 January, Akaroa reached 38.0°C, shattering its all-time record by 2.5°C. Cheviot reached 37.9°C, breaking its all-time record by 0.1°C, while Timaru also recorded 37.9°C: its 2<sup>nd</sup>-hottest January temperature since records began in 1885.

Meanwhile, on 26 January a blistering 39.3°C was recorded at Ashburton. This was New Zealand's 2<sup>nd</sup>-hottest January temperature on record, surpassed only by 40.0°C at Timaru on 22 January 1908.

On 26 and 27 January, Christchurch Airport reached a daily maximum temperature of 37.1°C and 35.8°C, respectively. This is only the second time the city has exceeded 35°C on consecutive days since records began in 1863. The previous occurrence was on 5 and 6 February 1973, when the Christchurch Gardens station reached 35.2°C and 35.5°C, respectively.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Whitianga	31.9	6th	1962	Highest
Masterton	35.6	27th	1906	Highest
Waipawa	35.4	27th	1945	Highest
Blenheim	36.5	27th	1932	Highest
Cheviot	37.9	26th	1982	Highest
Ashburton	39.3	26th	1928	Highest
Waipara West	37.4	26th	1973	Highest
Christchurch	37.1	26th	1863	Highest
Lincoln	37.2	26th	1881	Highest
Akaroa	38.0	26th	1978	Highest
Le Bons Bay	31.7	26th	1984	Highest
Orari Estate	37.5	26th	1972	Highest
Timaru	37.9	26th	1885	Highest
Mahia	32.6	28th	1990	Equal highest
Castlepoint	32.1	27th	1972	2nd-highest
Wairoa	36.4	27th	1964	2nd-highest
Ohakune	30.5	27th	1962	2nd-highest
Hanmer Forest	36.8	26th	1906	2nd-highest
Rangiora	35.1	26th	1965	2nd-highest
Waimate	34.6	26th	1908	2nd-highest

Ngawi	32.6	27th	1972	Equal 2nd-highest
Mokohinau	26.3	14th	1994	3rd-highest
Whangaparāoa	29.1	6th	1982	3rd-highest
Matamata	31.7	27th	1999	3rd-highest
Rotorua	30.4	26th	1964	3rd-highest
Winchmore	35.7	26th	1949	3rd-highest
Dunedin (Musselburgh)	33.4	26th	1947	3rd-highest
Nugget Point	30.2	26th	1970	3rd-highest
Te Puke	31.3	26th	1973	4th-highest
Taupō	31.9	27th	1949	4th-highest
Mt Ruapehu (Chateau)	26.8	27th	2000	4th-highest
Napier	35.1	28th	1868	4th-highest
Puysegur Point	24.2	16th	1978	4th-highest
Waiau	36.5	26th	1974	4th-highest
Lake Tekapo	32.9	26th	1925	4th-highest
Motu	28.2	26th	1990	Equal 4th-highest
<b>Low records or near-records</b>				
Mt Ruapehu (Chateau)	8.7	21st	2000	Lowest
Arapito	14.8	20th	1978	Lowest
Reefton	11.2	20th	1972	Lowest
Arthurs Pass	5.8	20th	1973	Lowest
Te Anau	9.8	19th	1973	Lowest
Greymouth	13.8	20th	1972	Equal lowest
Franz Josef	11.8	20th	1953	2nd-lowest
Milford Sound	9.5	20th	1935	Equal 2nd-lowest
Manapouri	10.5	19th	1973	3rd-lowest
Haast	12.9	20th	1949	Equal 3rd-lowest
Secretary Island	11.8	20th	1989	Equal 3rd-lowest
Port Taharoa	17.7	20th	1974	4th-lowest
Wānaka	11.0	19th	1972	Equal 4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
<b>High records or near-records</b>				
Windsor	18.5	27th	2000	Highest
Lumsden	20.4	27th	1982	Highest
Five Rivers	20.3	27th	1982	2nd-highest
Tiwai Point	17.7	27th	1972	2nd-highest
Mt Cook (Airport)	20.1	27th	1929	Equal 2nd-highest
Puysegur Point	18.1	27th	1978	3rd-highest
Te Anau	18.7	27th	1973	3rd-highest
Porirua	18.5	7th	1972	4th-highest
Manapouri	17.7	27th	1973	4th-highest
<b>Low records or near-records</b>				
Warkworth	4.6	30th	1966	Lowest



Whangaparāoa	11.0	21st	1982	Equal 2nd-lowest
Windsor	2.3	30th	2000	4th-lowest

## Wind

The highest wind gust was 180 km/h, observed at South West Cape on 26 January.

On 19 January, strong winds caused cancellation of Wellington ferries and Wellington port operations, while a tree was blown over in Kelburn. One flight from Christchurch to Wellington had to be diverted to Palmerston North.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
South West Cape	180	26th	1991	Highest
Upper Hutt	96	19th	1999	2nd-highest
Secretary Island	148	20th	1994	2nd-highest
Dannevirke	87	20th	1961	Equal 3rd-highest
Milford Sound	100	19th	1974	Equal 3rd-highest
Winchmore	89	19th	1970	Equal 4th-highest
Bromley	80	19th	1972	Equal 4th-highest

## Snow and ice

On 20 January, a strong front moving up the South Island brought a dusting of snowfall to several South Island ski fields.

## Lightning and hail

On 2 January, a lightning strike set fire to a shed in Twizel. On 3 January, another lightning strike caused power cuts in Beaconsfield, south of Timaru.

On 28 January, a lightning strike on Levels Valley Road in South Canterbury caused a fire in a paddock, and FENZ crews were called to the scene to extinguish it.

## Cloud and fog

On 15 January, several flights into and out of Wellington Airport were delayed or diverted due to dense fog.

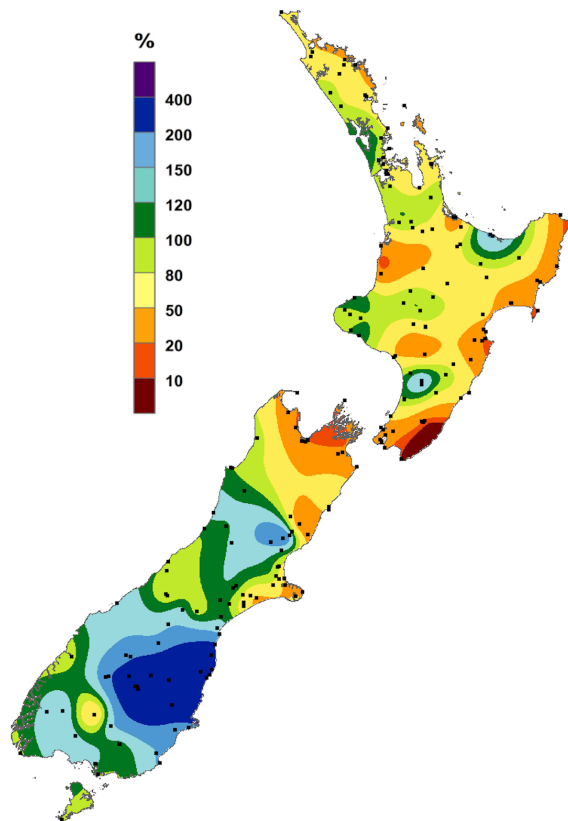
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### For further information, please contact:

#### Seth Carrier

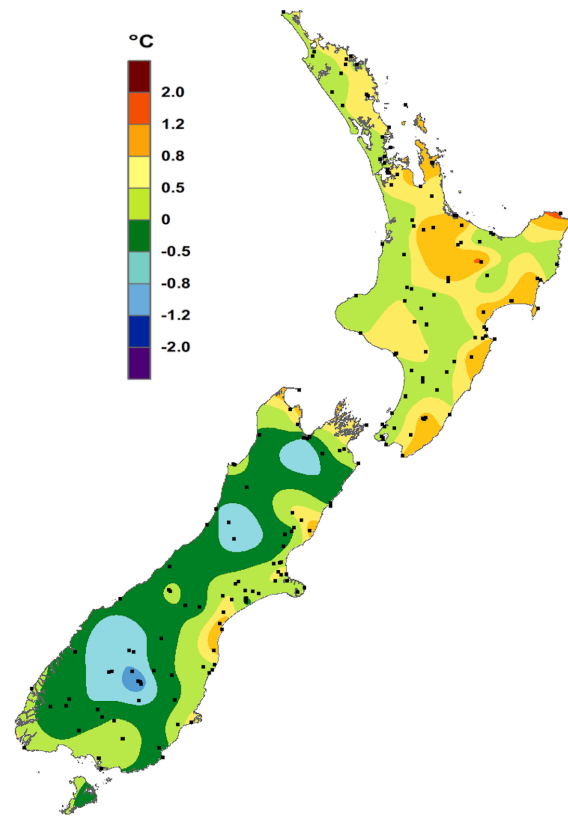
Meteorologist, NIWA Auckland

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**January rainfall**

Expressed as a percentage of the 1981-2010 normal.



**January 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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