

## Cool and dry for much of the South Island, wet for inland parts of the North Island

<b>Temperature</b>	May temperatures were below average (-0.51 to -1.20°C) for eastern and inland parts of the South Island, southern Hawke's Bay and Wairarapa. Pockets of well below average temperatures (< -1.20 °C) were observed in Tasman, south Canterbury, Mt Cook and southern Central Otago. May temperatures were typically near average (-0.50°C to +0.50°C) for the remainder of the country.
<b>Rainfall</b>	Rainfall was well below normal (< 50%) for many eastern and inland parts of Canterbury, as well as Milford Sound. Below normal rainfall (50-79%) was recorded in Otago, southwestern parts of Southland and the Far North. In contrast, rainfall was well above normal (>149%) for the central North Island and Tasman, and above normal (120-149%) for parts of Nelson, Marlborough, Manawatu, Gisborne and Bay of Plenty.
<b>Sunshine</b>	Sunshine was well above normal (> 125%) in southeastern parts of Otago, the Southern Lakes, and Taumarunui. Above normal sunshine (110-125%) was recorded in parts of Northland, Auckland, southern Hawke's Bay, coastal Wairarapa, Marlborough and the Mackenzie Country. Sunshine was typically near normal (90-109%) for the remainder of the country.
<b>Soil Moisture</b>	As at 1 June 2017, soil moisture levels were below normal for the time of year for large parts of Southland and inland Otago. Soil moisture levels were above normal for eastern parts of New Zealand, especially in Marlborough.

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### Overview

Overall, mean sea level air pressures were higher than normal over and to the southwest of New Zealand during May. This resulted in more easterly winds than normal over the North Island, and these winds delivered more rainfall than normal to many eastern and inland parts of the North Island. In the South Island, the air pressure anomaly for the month resulted in more southerly winds than normal. These southerlies delivered cool temperatures to many southern, eastern and inland parts. In addition, the higher than normal air pressures generally provided settled weather with clear skies, particularly in southern-most parts. As a result, much of Southland and Otago observed a relatively dry and sunny month overall.

### Further Highlights:

- The highest temperature was 23.4°C, observed at Waione on 10 May.
- The lowest temperature was -6.9°C, observed at Middlemarch on 22 May.
- The highest 1-day rainfall was 176 mm, recorded at Milford Sound on 2 May.
- The highest wind gust was 167 km/hr, observed at Akitio on 19 May.
- Of the six main centres in May 2017, Auckland was the warmest, Christchurch was the coldest, Dunedin was the driest, Wellington was the least sunny, and Tauranga was both the wettest and sunniest<sup>1</sup>.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations in 2017 so far (1 January – 31 May) were Whakatane (1145 hours), Blenheim (1104 hours), Richmond (1089 hours) and Lake Tekapo (1076 hours).

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## Temperature: A cool month for much of the South Island

The nationwide average temperature in May 2017 was 10.5°C (0.3°C below the 1981-2010 May average from NIWA's seven station temperature series which begins in 1909). May temperatures were below average (-0.51 to -1.20°C of the May average) or well below average temperature (< -1.20°C of the May average) for most of the South Island. The exception was parts of West Coast where temperatures were near average (-0.50°C to 0.50°C of the May average) or above average (0.51°C to 1.20°C of the May average). This may be attributed to more southerly winds than normal observed during the month. Southerly winds often result in relatively mild temperatures on the West Coast due to sheltering from the Southern Alps, and the associated [Foehn effect](#). This was apparent on 20 May, when southerlies saw snowfall to low elevations of the South Island. On this day, Queenstown recorded a maximum temperature of just 4.7°C, compared to 10.9°C recorded in Milford Sound. Many South Island locations observed well below average mean minimum temperatures. This may be attributed to clearer skies and enhanced radiative cooling at night resulting from the higher than normal air pressure. May temperatures were typically near average for the North Island. The exception was parts of southern Hawke's Bay and Wairarapa where temperatures were below average.

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<sup>1</sup> Tauranga received most its total rainfall for May on just five days, while remaining days of the month were fairly settled and sunny. See *May Climate in the six main centres* section for further explanation.

**Record<sup>2</sup> or near-record mean air temperatures for May were recorded at:**

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Takaka	9.1	-1.7	1978	3rd-lowest

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Takaka	14.1	-2.4	1978	Lowest

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
South West Cape	8.2	0.9	1991	4th-highest
Low records or near-records				
Clyde	-1.8	-3.3	1978	2nd-lowest
Lumsden	0.5	-2.0	1982	3rd-lowest
Waiau	1.2	-1.1	1974	4th-lowest
Five Rivers	0.6	-1.9	1982	4th-lowest

**Rainfall: Dry for most of the South Island, wet for parts of the North Island**

Rainfall was well below normal (< 50% of the May normal) for many eastern and inland parts of Canterbury, as well as Milford Sound. Below normal rainfall (50-79% of the May normal) was recorded in Otago, southwestern parts of Southland and the Far North. It was especially dry in Windsor and Timaru, which recorded just 26% and 27% of normal May rainfall, respectively. Rainfall was well above normal (>149% of the May normal) for the central North Island and Tasman, and above normal (120-149% of the May normal) for parts of Nelson, Marlborough, Manawatu, Gisborne and Bay of Plenty.

By the end of May, soil moisture levels were below normal for the time of year for large parts of Southland and inland Otago. Soil moisture levels were above normal for eastern parts of New Zealand,

<sup>2</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.

especially in Marlborough. A very wet start to the year in South Canterbury meant soil moisture levels remained higher than normal for the time of year, despite recording relatively low rainfall during May. Soil moisture levels were typically near normal for the time of year in remaining parts of New Zealand.

**Record or near-record May rainfall totals were recorded at:**

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Taupo	196	262	1949	2nd-highest
Low records or near-records				
South West Cape	72	59	1991	3rd-lowest

**Sunshine: A sunny month for southern parts**

Southern parts of the South Island enjoyed abundant sunshine, which may be attributed to clearer skies associated with higher than normal air pressures. Of the available, regularly reporting sunshine observation sites, the sunniest four locations in 2017 so far (1 January – 31 May) were Whakatane (1145 hours), Blenheim (1104 hours), Richmond (1089 hours) and Lake Tekapo (1076 hours).

**Record or near-record May sunshine hours were recorded at:**

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Dunedin (Musselburgh)	146	134	1980	Highest
Queenstown	146	167	1930	2nd-highest
Blenheim	205	120	1947	3rd-highest
Low records or near-records				
None observed				

## May climate in the six main centres

Of the six main centres in May 2017, Auckland was the warmest, Christchurch was the coldest, Dunedin was the driest and Wellington was the cloudiest. Interestingly, Tauranga was both the wettest and sunniest of the six main centres. This apparent paradox occurred because Tauranga received 145 mm of rainfall (94% of the 154 mm total for May) on just five days; the remaining days of the month were fairly dry, settled and sunny. It was a dry and sunny month in Dunedin, with the city observing its sunniest May on record (records began in 1980).

### May 2017 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland <sup>a</sup>	14.0	0.0	Near average
Tauranga <sup>b</sup>	13.0	-0.3	Near average
Hamilton <sup>c</sup>	11.1	-0.5	Near average
Wellington <sup>d</sup>	11.4	-0.3	Near average
Christchurch <sup>e</sup>	8.0	-1.0	Below average
Dunedin <sup>f</sup>	9.0	-0.3	Near average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland <sup>a</sup>	129	120%	Above normal
Tauranga <sup>b</sup>	154	139%	Above normal
Hamilton <sup>c</sup>	124	116%	Near normal
Wellington <sup>d</sup>	98	88%	Near normal
Christchurch <sup>e</sup>	45	77%	Below normal
Dunedin <sup>f</sup>	41	63%	Below normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Auckland <sup>a</sup>	160	111%	Above normal
Tauranga <sup>b</sup>	175	106%	Near normal
Hamilton <sup>g</sup>	130	95%	Near normal
Wellington <sup>d</sup>	129	97%	Near normal
Christchurch <sup>e</sup>	134	96%	Near normal
Dunedin <sup>f</sup>	146	134%	Well above normal (Highest on record)

<sup>a</sup> Mangere <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

### Temperatures

The highest temperature for the month was 23.4°C, observed at Waione on 10 May. The lowest temperature was -6.9°C, observed at Middlemarch on 22 May.

On the morning of 22 May, many locations in New Zealand dipped below freezing, and several locations observed record or near-record low temperatures for May. The low temperatures were recorded after southerly winds hit the country, followed by settled anticyclonic conditions with clear skies.

Overnight on 22-23 May, another cold night was experienced around the country, particularly for the North Island where several sites recorded below freezing temperatures. A northwesterly wind change resulted in comparatively warmer temperatures in the lower South Island.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Takaka	7.9	20th	1978	Lowest
Akaroa	7.4	20th	1978	2nd-lowest
Le Bons Bay	5.2	20th	1984	2nd-lowest
Dannevirke	6.4	20th	1951	3rd-lowest
Waione	8.3	20th	1993	3rd-lowest
Te Kuiti	8.9	23rd	1959	Equal 3rd-lowest
Takapau Plains	5.1	20th	1972	Equal 3rd-lowest
Castlepoint	8.1	20th	1972	Equal 3rd-lowest
Five Rivers	2.9	20th	1982	Equal 3rd-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Whangarei	18.6	12th	1967	2nd-highest
Whakatane	17.8	12th	1975	3rd-highest
Hicks Bay	17.8	12th	1972	Equal 3rd-highest
Cape Reinga	17.4	11th	1971	4th-highest
Kerikeri	18.3	12th	1952	4th-highest
Whitianga	17.5	12th	1971	4th-highest
Low records or near-records				
Te Kuiti	-3.2	22nd	1959	Lowest
Turangi	-4.9	22nd	1968	Equal 3rd-lowest

New Plymouth	0.1	22nd	1944	Equal 3rd-lowest
Whangarei	1.5	22nd	1967	4th-lowest
Rotorua	-2.7	22nd	1964	4th-lowest
Taumarunui	-4.1	22nd	1947	4th-lowest
Hicks Bay	2.5	21st	1969	4th-lowest
Stratford	-1.7	22nd	1960	4th-lowest
Waiouru	-6.5	21st	1962	4th-lowest
Auckland (North Shore)	3.6	23rd	1994	Equal 4th-lowest

### Rain and slips

The highest 1-day rainfall was for the month was 176 mm, recorded at Milford Sound on 2 May.

In the early hours of 11 May, Nelson and Tasman were hit by heavy downpours of rain. Mapua School was closed after the wastewater system overflowed into the school's grounds. Surface flooding was reported in Ruby Bay, and Aporo Rd was temporarily closed due to floodwaters.

On 12 May, a low pressure system and associated fronts delivered heavy rain to many parts of the North Island. A large slip forced the closure of SH2 between Awateri and Kutarere (Waimana Gorge) in the Bay of Plenty. In Wellington, the southbound lane of Paekakariki Hill Road was closed due to multiple slips. Minor surface flooding was reported on Alderman Drive in west Auckland.

On 18 May, heavy rain overnight caused flooding in parts of the northern South Island. Several people were rescued from inundated vehicles in different parts of the Tasman District. One person had to be rescued from a house bus by a surf lifesaving boat near Hope.

On 27 May, heavy rain in Tauranga caused a transfer station and Maleme Street to close after they were affected by flooding. Two drivers were rescued from their cars on Maleme Street. A home on The Mall in Mt Maunganui was water damaged, and the ANZ Bank and a café in Waihi also flooded.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Ohakune	62	11th	1961	Highest
Secretary Island	166	2nd	1985	Highest
Taupo	81	11th	1949	2nd-highest
Waiouru	59	11th	1950	2nd-highest
Manapouri	40	2nd	1963	3rd-highest
Mokohinau	42	16th	1994	4th-highest
Lower Retaruke	59	11th	1967	4th-highest

### Wind

The highest wind gust for the month was 167 km/hr, observed at Akitio on 19 May.

On 3 May, strong winds blew a campervan off SH8 at Burke's Pass.

On 21 May, all *Interislander* ferry sailings were cancelled through to at least late afternoon due to rough seas on Cook Strait.

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

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Kaikohe	89	20th	1986	Highest
Whitianga	85	18th	1991	2nd-highest
Secretary Island	128	19th	1994	2nd-highest
Paeroa	87	17th	1991	3rd-highest
Tauranga	93	19th	1973	3rd-highest
Auckland (Western Springs)	70	20th	1994	Equal 3rd-highest
Taupo	83	19th	1982	4th-highest
Pukekohe	65	20th	1986	Equal 4th-highest
Kaikoura	128	18th	1972	Equal 4th-highest
Oamaru	87	18th	1984	Equal 4th-highest
South West Cape	146	23rd	1991	Equal 4th-highest

**Snow and ice**

On 20 May, a southerly outbreak delivered the first significant snowfall to low elevations for the year. Snow settled to approximately 200 metres above sea level in southern parts of the South Island, with snow flurries falling to near sea level. Around 13 cm of snow was recorded in Kingston, and numerous flights were cancelled or delayed in Queenstown due to adverse weather and snow on the runway. Several southern roads were closed due to snow, including SH1 between Dunedin and Waitati and SH87 from Outram to Sutton. Snow drifts of 70-90 cm were observed at *The Remarkables* ski area near Queenstown, although some exposed slopes were stripped bare of snow due to strong winds that accompanied the snowfall. Farther north, Mt Ruapehu received up to 25 cm of snow. The Desert Road (SH1) was closed for a time due to snow and ice, and some vehicles required towing after becoming stuck.

On 22 May, some trains into Wellington on the Hutt Valley Line were delayed due to frost on overhead power lines.

On 29 May, black ice warnings were issued for numerous roads in Dunedin, Central Otago and the Mackenzie Country.

**Cloud and fog**

On 8 May, fog in Timaru disrupted the departure of a flight bound for Wellington, and a ship was unable to dock at the harbour due to poor visibility.

On 10 May, persistent fog in Christchurch and Timaru disrupted flights to and from both locations.

On 25 May, fog caused chaos at Auckland Airport, where about 120 domestic flights were delayed or cancelled, and one international flight was diverted. The fog lingered for much of the morning. Motorists were unable to see more than a few metres ahead of them in some parts of the city.



On 27 May, fog affected Auckland for much of the morning. In total, 42 domestic flights were cancelled and 42 more were delayed due to poor visibility. One international flight was diverted to Wellington.

On 29 May, freezing fog was experienced in Dunedin, causing some delays at Dunedin Airport.

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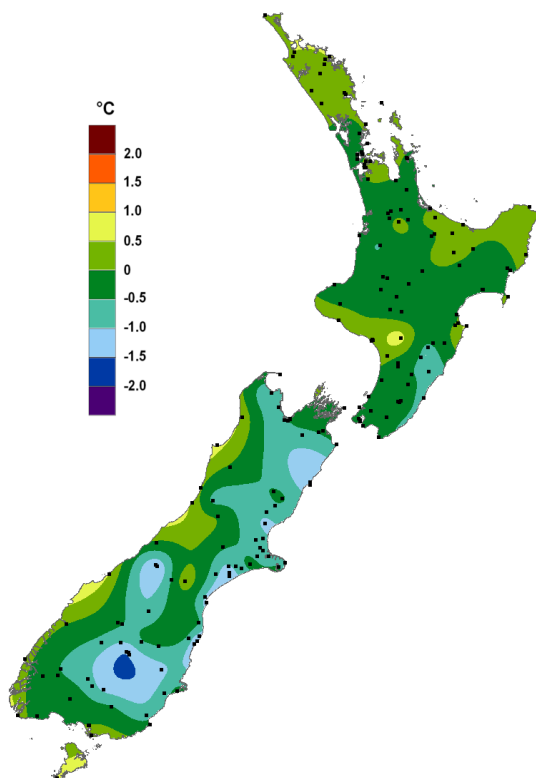
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*May 2017 mean temperature, expressed as a departure from average (1981-2010 average).*

*May temperatures were cooler than average for many parts of the South Island, as indicated by the teal and blue shades.*

*Temperatures were near average (-0.50 to 0.50°C; green shades) for much of the North Island.*

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