

## A dry month in the east of both Islands and widespread dry soils.

<b>Rainfall</b>	Rainfall was well below normal (< 50%) for eastern areas of both Islands, particularly parts of Northland, eastern Bay of Plenty, Gisborne, Hawkes Bay, Marlborough, Canterbury, and northern Otago. Rainfall was below normal (50-79%) for most other parts of the country, the exception being Central Otago and Southland, where rainfall was above normal (120-149%) or well above normal (> 149%) in some areas.
<b>Soil Moisture</b>	As of 1 March 2015, soil moisture levels were below normal for the time of year for extensive areas of New Zealand, with the exception of the Central Plateau and Whanganui areas of the North Island and Central Otago and northern Southland in the South Island.
<b>Temperature</b>	February temperatures were near average (within 0.5°C of the monthly average) for most of the country, with some areas experiencing below average temperatures (-0.51°C to -1.20°C). It was a cool month for the central North Island and southern Hawkes Bay, with temperatures well below average (< -1.20°C) in some parts.
<b>Sunshine</b>	It was a sunny month for western and central areas of the South Island, where well above normal sunshine totals for February were recorded (> 125%). For the remainder of the country, sunshine totals were mostly near normal (within 10% of February normal).

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### Overview

February 2015 was characterised by higher air pressures than normal over and to the south and west of New Zealand, which caused a weak south-westerly airflow anomaly over the country. This pressure pattern resulted in dry conditions for many areas but especially in the east of both Islands, and near average temperatures for much of the country. The predominance of anticyclones (highs) during the month was reflected in rainfalls for the month as a whole, which were well below normal (< 50% of the February normal) or below normal (50-79% of the February normal) for most of New Zealand, except for parts of the South Island around Central Otago and Southland, where rainfall was above normal (120-149% of the February normal) or well above normal (> 149% of February normal). The low rainfall, in addition to a very dry January, contributed to soil moisture levels that were much lower

than normal for the time of year in many areas. Specifically, as of 1 March 2015, soils were much drier than normal for most of the North Island (aside from Central Plateau and Whanganui areas) and north-western, central, and southern areas of the South Island. Central Otago soils were wetter than normal for the time of year.

February temperatures were near average overall for most of the country (within 0.5°C of the February average). However, pockets of well below average temperatures (< 1.20°C below the February average) occurred in the King Country, Ruapehu, and southern Hawkes Bay. Temperatures were also below average (0.51-1.20°C below the February average) in scattered parts of: Waikato, Bay of Plenty, Wairarapa, Gisborne, Hawkes Bay, Wellington, Westland, Marlborough, Nelson, Canterbury, and Otago. The nation-wide average temperature in February 2015 was 17.0°C (0.2°C below the 1981-2010 February average from NIWA's seven station temperature series which begins in 1909)<sup>1</sup>.

It was a sunny month for much of the South Island, with the prevailing pressure pattern of anticyclones (highs) giving rise to clear skies and sunny days. Western and central areas of the South Island recorded well above normal sunshine totals for February (> 125% of February normal). Above normal sunshine (110-119% of February normal) was recorded in the King Country, Marlborough, and Southland. Most other areas of the country recorded near normal sunshine hours (within 10% of February normal).

#### **Further Highlights:**

- The highest temperature was 33.5°C, observed at Waiau (North Canterbury) on 1 February.
- The lowest temperature was -1.5°C, observed at Ranfurly on 26 February.
- The highest 1-day rainfall was 194 mm, recorded at North Egmont on 1 February.
- The highest wind gust was 150 km/hr, observed at South West Cape on 4 February.
- Of the six main centres in February 2015, Auckland was the warmest, Dunedin was the coolest and wettest, Hamilton was the cloudiest, and Christchurch was the driest and sunniest.
- Of the available, regularly reporting sunshine observation sites, the sunniest four centres so far in 2015 (1 January to 28 February) are: New Plymouth (636 hours), Appleby (583 hours), Paraparaumu (576 hours) and Nelson (572 hours).

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<sup>1</sup> Interim value

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## Rainfall: A dry month for the east of both Islands, wet for Central Otago

February was a dry month for many parts of New Zealand – particularly in the eastern areas of both Islands, where well below normal rainfall was recorded. Some stations recorded less than 20% of the normal February rainfall: Hicks Bay, Wairoa, and Wallaceville. However, the low rainfall totals across the country were not significant enough to be record or near-record low rainfalls for February (because February is traditionally a dry month). In contrast, it was a very wet month for Ranfurly (190% of the February normal) and Queenstown (154% of the February normal). Half of Ranfurly's rainfall for the month was recorded on one day, the 21<sup>st</sup> of February. On 12 February, a medium-scale drought event was declared for Marlborough, Canterbury, and Central and North Otago. This state of drought remained in place past the end of February.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Low records or near-records				
Campbell Island	52	49	1992	3rd-lowest
High records or near-records				
None observed				

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<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.

## Temperature: Near average temperatures throughout the country

Temperatures in February were near average for most of the country, but parts of the country experienced below and well below average temperatures. This resulted from the weak south-westerly flow over the country for the month, which kept temperatures down compared to a more tropical airflow from the northeast that often occurs at this time of year. A number of near-record low mean minimum temperatures were recorded over the month (see table below). The nation-wide average temperature in February 2015 was 17.0°C (0.2°C below the 1981-2010 February average from NIWA's seven station temperature series which begins in 1909).

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Cheviot	16.9	0.5	1982	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Cheviot	24.1	1.8	1982	2nd-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Te Kuiti	10.6	-2.3	1959	3rd-lowest
Martinborough	10.2	-1.6	1986	3rd-lowest
Takaka	10.3	-1.5	1978	4th-lowest
Hanmer Forest	6.0	-2.3	1906	4th-lowest
Le Bons Bay	11.1	-0.8	1984	4th-lowest

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## Sunshine: A very sunny month

February was sunny for much of the South Island, particularly in western and central areas. This was due to the anticyclonic (high pressure) conditions which prevailed, giving rise to clear skies and sunny days in that part of the country. Hokitika and Greymouth observed their highest sunshine totals on record for February. This is notable, especially for Hokitika, because sunshine has been recorded there for 103 years. Of the available, regularly reporting sunshine observation sites, the sunniest four centres so far in 2015 (1 January to 28 February) are: New Plymouth (636 hours), Appleby (583 hours), Paraparaumu (576 hours) and Nelson (572 hours).

### Record or near-record February sunshine hours were recorded at:

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Hokitika	263	140	1912	Highest
Greymouth	247	138	1947	Highest
Cheviot	252	130	1983	2nd-highest
New Plymouth	280	125	1972	3rd-highest
Taumarunui	231	125	1947	4th-highest
Low records or near-records				
None observed				

## February climate in the six main centres

It was a dry month with average temperatures for most of New Zealand, and the main centres reflected this. All of the main centres recorded near average temperatures for February, and Dunedin was the only main centre that recorded rainfall in the near normal category (the others were either well below normal or below normal). Reflecting the sunshine anomalies for the rest of the country, North Island main centres recorded near normal sunshine, whereas Christchurch and Dunedin were sunnier than normal. Of the six main centres in February 2015, Auckland was the warmest, Dunedin was the coolest and wettest, Hamilton was the cloudiest, and Christchurch was the driest and sunniest.

### February 2015 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland <sup>a</sup>	20.4	+0.4	Near average
Tauranga <sup>b</sup>	19.6	-0.2	Near average
Hamilton <sup>c</sup>	18.4	-0.4	Near average
Wellington <sup>d</sup>	16.8	-0.4	Near average
Christchurch <sup>e</sup>	16.5	-0.3	Near average
Dunedin <sup>f</sup>	14.7	-0.3	Near average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland <sup>a</sup>	28	39%	Well below normal
Tauranga <sup>b</sup>	44	51%	Below normal
Hamilton <sup>c</sup>	47	63%	Below normal
Wellington <sup>d</sup>	33	47%	Well below normal
Christchurch <sup>e</sup>	11	27%	Well below normal
Dunedin <sup>f</sup>	59	87%	Near normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Auckland <sup>a</sup>	185	95%	Near normal
Tauranga <sup>b</sup>	222	102%	Near normal
Hamilton <sup>g</sup>	183	93%	Near normal
Wellington <sup>d</sup>	217	103%	Near normal
Christchurch <sup>e</sup>	232 <sup>3</sup>	119%	Above normal
Dunedin <sup>f</sup>	191	121%	Well above normal

<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

<sup>3</sup> Missing one day of data.

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## Highlights and extreme events

### Temperatures

The highest daily maximum temperature for the country was 33.5°C, observed at Waiau on 1 February. This was followed by 33.0°C at Timaru and 32.7°C at Clyde on 8 February.

The lowest daily minimum temperature for the country was -1.5°C, observed at Ranfurly on 26 February. This was followed by -0.6°C at Lumsden on 26 February and -0.4°C at Mt Cook Village on 6 February. Many low daily maximum temperature records or near-records for February were observed on 5 February in the South Island, due to an unusually cool air mass that settled over the region.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
<b>High records or near-records</b>				
Mokohinau	26.4	3rd	1994	4th-highest
Mahia	29.0	3rd	1990	4th-highest
<b>Low records or near-records</b>				
Campbell Island	6.7	5th	1991	Lowest
Invercargill	9.6	5th	1905	Lowest
Secretary Island	10.9	5th	1989	Lowest
Puysegur Point	10.9	5th	1978	Lowest
Haast	10.5	5th	1949	Lowest
Manapouri	10.5	5th	1973	Equal lowest
Nugget Point	9.4	5th	1972	2nd-lowest
South West Cape	10.5	4th	1991	2nd-lowest
Tiwai Point	10.7	5th	1972	2nd-lowest
Milford Sound	7.7	5th	1935	2nd-lowest
Hokitika	12.6	5th	1866	Equal 2nd-lowest
Greymouth	14.1	5th	1972	3rd-lowest
Le Bons Bay	11.7	14th	1984	3rd-lowest
Wallaceville	14.4	14th	1972	Equal 3rd-lowest
Castlepoint	14.3	6th	1972	4th-lowest
Mt Cook	7.1	5th	1929	4th-lowest
Balclutha, Telford	11.0	5th	1972	4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
<b>High records or near-records</b>				
Cheviot	19.1	2nd	1982	2nd-highest
Waiau	19.6	3rd	1974	3rd-highest
Masterton, Te Ore Ore	19.5	3rd	1992	Equal 3rd-highest
Stratford	18.1	1st	1972	4th-highest
<b>Low records or near-records</b>				
Le Bons Bay	4.7	6th	1984	Lowest
Lumsden	-0.6	26th	1982	Lowest
Nugget Point	4.0	6th	1970	2nd-lowest
South West Cape	5.1	6th	1991	2nd-lowest
Motu	1.3	7th	1990	Equal 2nd-lowest
Alexandra	0.8	26th	1983	3rd-lowest
Secretary Island	6.6	6th	1985	3rd-lowest
Ranfurly	-1.5	26th	1975	Equal 3rd-lowest
Haast	3.8	6th	1949	Equal 4th-lowest

### Rain and slips

The highest 1-day rainfall was 194 mm, recorded at North Egmont on 1 February.

On 21 February, Ranfurly recorded half of its monthly rainfall in one day.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Ranfurly	35	21st	1943	4th-highest

### Wind

The highest wind gust was 150 km/hr, observed at South West Cape on 4 February.

On 4 February, strong winds in Canterbury brought down trees and power lines, and fanned a number of vegetation fires that forced the evacuation of some residents and schools. One particularly large fire between Islington and Hei Hei destroyed one home and severely damaged two others. Dust storms were reported in Christchurch and 5000 Canterbury customers were affected by power cuts. Farther north, a large forest fire broke out in the late-evening between the Onamalutu Valley and SH 6 north-west of Renwick (Marlborough). The fire was still burning the following morning, and required nine helicopters and two fixed-wing aircraft to bring under control. Motorists were warned to drive cautiously on the Rimutaka Road (SH 1), SH 7 from Culverden to Springs Junction, SH 73 from Springfield to Arthur's Pass, SH 1 from Balclutha to Gore and SH 90 from Gore to Raes Junction due to strong winds.

On 6 February strong winds brought down power lines in central Auckland, cutting power to 1300 homes in Newmarket.



On 26 February, a number of small tornadoes were seen in the western Bay of Plenty around Tauranga and Katikati during a thunderstorm.

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

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Lincoln Rd, Auckland	76	18th	1994	Highest
Oamaru	82	4th	1984	2nd-highest
Manapouri	80	4th	1991	2nd-highest
Motu	76	6th	1991	Equal 2nd-highest
Oamaru	74	13th	1984	3rd-highest
Lyttelton Harbour	93	6th	1980	3rd-highest
Wanaka	76	4th	1992	Equal 3rd-highest
Levin	80	6th	1971	4th-highest
Tauranga	78	6th	1973	Equal 4th-highest
Turangi	78	6th	1973	Equal 4th-highest
Baring Head	126	6th	1991	Equal 4th-highest

**Lightning and Hail**

On 1 February an *Air New Zealand* flight was struck by lightning near Dunedin. A thunderstorm struck near Ettrick (Teviot Valley, Central Otago) with hail causing significant damage to fruit and crops in the area.

On 11 February, a blinding flash similar to lightning lit up the sky over much of New Zealand at about 10 p.m., and a sonic boom was also heard. The flash was caused by a meteor entering the atmosphere.

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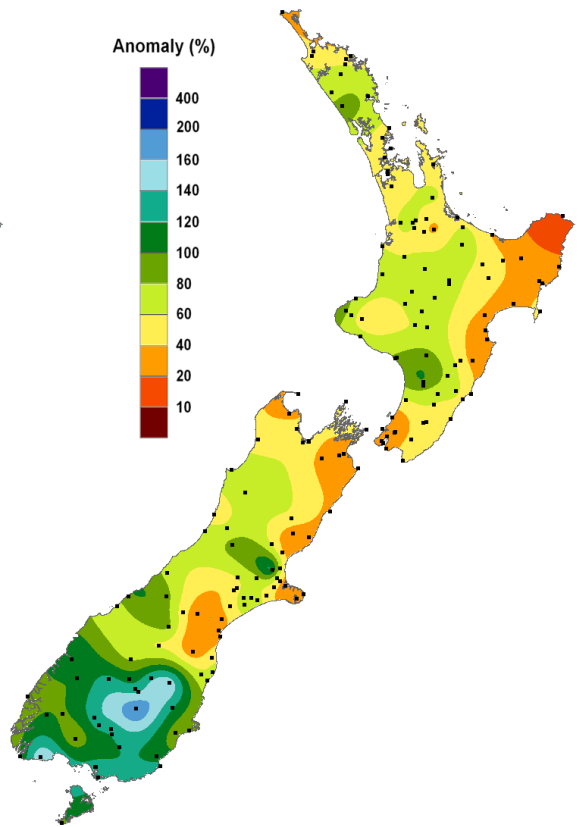
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*February 2015 total rainfall, expressed as a percentage of the 1981-2010 normal (%).*

*Rainfall was well below normal (< 50% of the February normal) in eastern areas of New Zealand, as indicated by the yellow, orange and red shades. In contrast, Central Otago and Southland experienced above normal (120-149% of February normal) or well above normal (> 149% of February normal) rainfall, as indicated by the blue and teal shades.*

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