

## A wetter and warmer than normal spring for many

<b>Rainfall</b>	Rainfall was well above normal (> 149%) in the Wellington region and eastern parts of Otago. Rainfall was above normal (120-149%) in parts of Northland, Auckland, Bay of Plenty, Nelson, Tasman and South Canterbury. In contrast, rainfall was below normal (50-79%) in eastern parts of the Wairarapa.
<b>Temperature</b>	Spring temperatures were above average (+0.51°C to +1.20°C) for many parts of the country. The exception was parts of Northland, Wellington, Nelson, Tasman, inland Canterbury and eastern Otago where temperatures were near average (-0.50°C to +0.50°C).
<b>Soil moisture</b>	At the end of November 2016, soil moisture levels were above normal for the time of year in Wellington, Tasman, Nelson, Marlborough, Bay of Plenty, southern Canterbury, eastern Otago and Southland. Soil moisture levels were below normal for the time of year for northern Waikato, the East Cape, southern Hawke's Bay and northern Canterbury.
<b>Sunshine</b>	Spring sunshine was well below normal (< 75%) in parts of Manawatu, Wairarapa and Kapiti Coast, and below normal (75-89%) in Wellington and many inland parts of the North Island. Above normal sunshine (110-125%) was observed in Northland and the west coast of the South Island.

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## Overview

Overall, spring 2016 was characterised by mean sea level pressures that were lower than normal over New Zealand, and this contributed to an unsettled season for many parts of the country. Rainfall was well above normal (> 149% of the spring normal) in the Wellington region and eastern parts of Otago. Above normal rainfall (120-149% of the spring normal) was observed in parts of Northland, Auckland, Bay of Plenty, Nelson, Tasman and South Canterbury. Rainfall was near normal (within 20% of the spring normal) for almost all remaining parts of the country. The exception was eastern parts of Wairarapa where rainfall was below normal (50-79% of the spring normal) for the season. Soil moisture levels were above normal for the time of year in Wellington, Tasman, Nelson, Marlborough, Bay of Plenty, southern Canterbury, eastern Otago and Southland as a result of the

abundant November (and spring) rainfall that was generally observed in these areas. In contrast, soil moisture levels were below normal for the time of year for northern Waikato, the East Cape, southern Hawke's Bay and northern Canterbury. Soil moisture levels were typically near normal for the time of year in remaining parts of the country.

Temperatures were above average (0.51°C to 1.20°C above the spring average) in many parts of the country including Southland, inland Otago, West Coast, and the much of the North Island north of Wellington. Temperatures were near average (-0.50°C to + 0.50°C of the spring average) for most remaining parts of the country including Northland, Wellington, Nelson, Tasman, inland Canterbury and eastern Otago. Only four stations (Timaru, Nugget Point, Appleby and Takaka) observed temperatures below their spring average. The nation-wide average temperature in spring 2016 was 12.6°C (0.5°C above the 1981-2010 spring average from NIWA's seven station temperature series which begins in 1909). This makes the spring of 2016 the 9<sup>th</sup>-warmest spring on record.

It was a fairly dreary spring in parts of Manawatu, Wairarapa and Kapiti Coast where sunshine was well below normal (<75% of the spring normal), as well as inland parts of the North Island and Wellington which observed below normal sunshine (75-89% of the spring normal). In contrast, Northland and the west coast of the South Island enjoyed above normal sunshine totals (110-125% of the spring normal). Remaining areas of New Zealand observed near normal spring sunshine totals (within 10% of the spring normal).

#### **Further Highlights:**

- The highest temperature was 34.8°C, observed at Gisborne on 23 November.
- The lowest temperature was -6.1°C, observed at Mt Cook Airport on 9 September.
- The highest 1-day rainfall was 176 mm, recorded at Milford Sound on 8 November.
- The highest wind gust was 182 km/hr, observed at Cape Turnagain on 29 November.
- Of the six main centres in spring 2016, Auckland was the warmest, Dunedin was the coolest, Christchurch was the driest, Wellington was the wettest and Tauranga was the sunniest.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations so far in 2016 (1 January to 30 November) were Richmond (2551 hours), Blenheim (2339 hours), Takaka (2288 hours) and New Plymouth (2228 hours).

#### **For further information, please contact:**

##### **Mr Chris Brandolino**

Principal Scientist – Forecasting, NIWA National Climate Centre

Tel. (09) 375 6335, Mobile 027 866 0014

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## **Rainfall: Very wet in the Wellington region**

Wellington (Kelburn) observed its wettest spring on record, with three nearby locations (Upper Hutt, Paraparaumu and Martinborough) observing near-record high spring rainfall totals. The rainfall occurred frequently in Wellington: at least 0.1 mm of rainfall was recorded on 63 of the 91 days comprising spring (Wellington's spring average is 44 days); furthermore, the average dry spell<sup>1</sup> lasted just 1.6 days.

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<sup>1</sup> Defined here as consecutive days with 0 mm of rainfall.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
<b>High records or near-records</b>				
Wellington (Kelburn)	516	164	1928	Highest
Paraparaumu	477	175	1945	2nd-highest
Whangaparaoa	357	152	1946	3rd-highest
Martinborough	331	176	1924	4th-highest
Upper Hutt (Trentham)	534	155	1924	4th-highest
Middlemarch	215	175	1896	4th-highest
<b>Low records or near-records</b>				
None observed				

**Temperature: Warm or mild temperatures throughout the country**

Spring saw many locations observe record or near-record high mean, mean maximum and mean minimum temperatures. The nation-wide average temperature in spring 2016 was 12.6°C (0.5°C above the 1981-2010 spring average from NIWA’s seven station temperature series which begins in 1909). The season was bookended by a significant outbreak of cold temperatures in early-September and hot temperatures in late-November. During this time a number of locations observed record or near-record daily maximum and daily minimum spring air temperatures (further details of these events are presented in the *Highlights and extreme events* section).

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
<b>High records or near-records</b>				
Motueka	13.2	1.0	1956	2nd-highest
Rangiora	13.1	1.8	1965	2nd-highest
Whangarei	15.8	0.9	1967	3rd-highest
Masterton	13.6	1.5	1906	3rd-highest
Gisborne	15.4	1.6	1905	3rd-highest
Mahia	14.0	0.7	1990	3rd-highest
Franz Josef	11.7	1.4	1953	3rd-highest
Puysegur Point	11.1	0.8	1978	3rd-highest
Cheviot	12.0	0.7	1982	3rd-highest
South West Cape	10.3	0.6	1991	3rd-highest
Wairoa	15.1	1.3	1964	4th-highest

<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.

Hawera	12.6	0.8	1977	4th-highest
Waiouru	9.5	1.2	1962	4th-highest
Lumsden	10.5	0.7	1982	4th-highest
Low records or near-records				
Takaka	11.3	-0.8	1978	4th-lowest

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Kerikeri	20.3	1.1	1945	3rd-highest
Whangarei	19.9	1.0	1967	3rd-highest
Puysegur Point	13.7	1.0	1978	3rd-highest
Motueka	19.1	1.3	1956	3rd-highest
Mahia	17.2	0.7	1990	4th-highest
Franz Josef	16.2	1.6	1953	4th-highest
Cheviot	17.6	0.6	1982	4th-highest
South West Cape	12.8	0.4	1991	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Te Kuiti	9.2	1.2	1959	Highest
Dannevirke	9.4	1.8	1951	Highest
Rangiora	7.9	2.3	1965	Highest
Waimate	7.5	2.2	1908	Highest
Oamaru	7.4	1.4	1967	Highest
South West Cape	7.7	0.8	1991	Highest
Auckland (Henderson)	11.5	1.5	1948	2nd-highest
Whitianga	10.8	1.2	1962	2nd-highest
Te Puke	9.9	1.5	1973	2nd-highest
Port Taharoa	12.1	1.4	1973	2nd-highest
Lower Retaruke	8.3	1.5	1966	2nd-highest
Masterton	8.5	2.4	1906	2nd-highest
Hawera	9.3	1.1	1977	2nd-highest
Waiouru	5.2	1.6	1962	2nd-highest
Medbury	6.1	0.9	1927	2nd-highest
Akaroa	8.8	1.8	1978	2nd-highest
Ranfurly	4.0	1.2	1897	2nd-highest

Te Anau	6.0	1.8	1963	2nd-highest
Roxburgh	7.1	2.5	1950	2nd-highest
Paeroa	10.7	1.5	1947	3rd-highest
Taupo	7.8	1.6	1949	3rd-highest
Gisborne	10.3	1.8	1905	3rd-highest
Ohakune	6.2	1.1	1962	3rd-highest
Franz Josef	7.3	1.2	1953	3rd-highest
Cheviot	6.4	0.9	1982	3rd-highest
Whangarei	11.6	0.8	1967	4th-highest
Auckland (Whenuapai)	10.8	1.1	1945	4th-highest
Rotorua	8.5	1.0	1964	4th-highest
Taumarunui	8.4	1.2	1947	4th-highest
Hastings	9.1	0.9	1965	4th-highest
Whanganui	10.7	1.1	1937	4th-highest
Farewell Spit	10.7	1.2	1971	4th-highest
Culverden	6.5	1.5	1928	4th-highest
Waipara West	7.6	1.0	1973	4th-highest
Tara Hills	4.2	0.8	1949	4th-highest
Low records or near-records				
None observed				

## Sunshine: A cloudy spring for many North Island centres

Spring sunshine was lacking for many parts of the North Island, with the notable exception of Kaitaia which had its sunniest spring on record. Record or near-record low spring sunshine hours were observed in seven locations, including Paraparaumu which received just 65% of normal spring sunshine. Of the available, regularly reporting sunshine observation sites, the sunniest four locations so far in 2016 (1 January to 30 November) were Richmond (2551 hours), Blenheim (2339 hours), Takaka (2288 hours) and New Plymouth (2228 hours).

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

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Kaitaia	660	116	1951	Highest
Franz Josef	473	119	1983	2nd-highest
Low records or near-records				
Hamilton (Ruakura)	422	83	1936	Lowest
Paraparaumu	344	65	1953	Lowest
Palmerston North	300	70	1930	Lowest
Turangi	421	84	1976	2nd-lowest
Martinborough	448	72	1986	2nd-lowest
Wellington (Kelburn)	431	76	1928	2nd-lowest
Rotorua	476	86	1976	3rd-lowest

## Spring climate in the six main centres

With few exceptions, spring 2016 can be characterised as warm, wet and cloudy in New Zealand's main centres. It was a particularly unsettled season in Wellington, which observed both its wettest spring and second-lowest sunshine total on record. Similarly, Hamilton had its lowest spring sunshine total on record and that was accompanied by above normal spring rainfall. Of the six main centres in spring 2016, Auckland was the warmest, Dunedin was the coolest, Christchurch was the driest, Wellington was the wettest and Tauranga was the sunniest.

### Spring 2016 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland <sup>a</sup>	15.3	+ 0.8	Above average
Tauranga <sup>b</sup>	15.0	+ 0.8	Above average
Hamilton <sup>c</sup>	13.6	+ 0.6	Above average
Wellington <sup>d</sup>	12.4	+ 0.4	Near average
Christchurch <sup>e</sup>	12.0	+ 0.6	Above average
Dunedin <sup>f</sup>	11.2	+ 0.2	Near average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland <sup>a</sup>	322	124%	Above normal
Tauranga <sup>b</sup>	299	121%	Above normal
Hamilton <sup>c</sup>	368 <sup>3</sup>	128%	Above normal
Wellington <sup>d</sup>	516	164%	Well above normal. Highest on record
Christchurch <sup>e</sup>	151	111%	Near normal
Dunedin <sup>f</sup>	236	142%	Above normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Auckland <sup>a</sup>	494	95%	Near normal
Tauranga <sup>b</sup>	551	90%	Near normal
Hamilton <sup>e</sup>	422	83%	Below normal. Lowest on record
Wellington <sup>d</sup>	431	76%	Below normal. 2nd-lowest on record
Christchurch <sup>e</sup>	508 <sup>4</sup>	85%	Below normal
Dunedin <sup>f</sup>	~	~	Missing 22 days of data

<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 four days of data

<sup>4</sup> Missing one day of data

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## Highlights and extreme events

This section contains information pertaining to some of the more significant highlights and extreme events that occurred in spring 2016. Note that a more detailed list of significant weather events for spring 2016 can be found in the *Highlights and extreme events* section of NIWA's monthly Climate Summaries. These monthly summaries are available online, and may be viewed at the following website: <http://www.niwa.co.nz/climate/summaries/monthly>

### Rain and slips

On 25 September, a stationary high pressure system to the southeast of New Zealand along with low pressure systems to the north and west caused a moist easterly flow to affect eastern parts of the North Island. Around 30 carloads of holidaymakers spent the night in their cars stranded by rising floodwaters in the Coromandel. SH25 was closed south of Tairua, forcing the motorists to spend the night at a garage in Hikuai. There was no road access in and out of Pauanui. The occupants of four cars were stranded overnight in the Kauaeranga Valley, Thames, unable to be reached by firefighters. Traffic was also affected by slips on SH 25 between Tairua and Whangamata as well as at Kuaotunu West, Tapu-Coroglen Rd, and Kennedy Bay Rd. In Northland, a man was swept to his death in his car as he tried to cross a flooded creek near Kaeo.

On 15 November, a very heavy rain event caused flooding around Wellington, resulting in the closure of SH1 and SH2 for a time during the afternoon. Upper Hutt and Lower Hutt observed the equivalent of their normal November rainfall (whole month) in less than 24 hours with each location receiving more than 90mm rain. About 500 homes in Pukerua and the Porirua suburb of Camborne were without power for some time due to a flood-related slip. The flooding also closed schools and disrupted NCEA exams in the region. Earlier in the day, the heavy rain impacted Marlborough causing the highway between Blenheim and Nelson to close due to flooding in Canvastown. Pelorus River breached its banks and evacuations were planned in the area.

The highest 1-day rainfall for spring 2016 was 176 mm, recorded at Milford Sound on 8 November.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Te Puia Springs	244	Sep-26th	1946	Highest
Martinborough	73	Sep-17th	1924	2nd-highest
Kaihoka	92	Sep-16th	1983	2nd-highest
Parakao	78	Sep-24th	1951	3rd-highest
Greentops	74	Sep-18th	1923	3rd-highest
Tapawera	62	Oct-25th	1992	3rd-highest
Rings Beach	93	Sep-25th	1986	4th-highest
Mana Island	47	Sep-17th	1987	4th-highest
Pakawau	102	Sep-16th	1984	4th-highest
Glenfinnan	122	Oct-11th	1969	4th-highest

Palmerston North	50	Nov-07th	1928	Equal 4th-highest
Reikorangi	85	Sep-16th	1969	Equal 4th-highest

## Temperatures

A storm bringing cold temperatures more typical of mid-winter hit the country on 8-9 September. During this period, record or near-record low daily maximum temperatures for spring were observed in many parts of the North Island and in some northern parts of the South Island.

On 23 November, a foehn wind sent temperatures soaring across the eastern part of both the North and South Island. It was a particularly hot day in Gisborne and Hawke's Bay, where temperatures exceeded 34°C in parts of these regions. Napier and Gisborne observed their hottest spring day on record, which is especially notable given records began at these locations in 1868 and 1905 respectively. The 34.8°C reading at Gisborne became New Zealand's 2<sup>nd</sup>-highest temperature observed during spring on record. Furthermore, the 34.1°C temperature observed at Wairoa (Hawke's Bay) on the same day was New Zealand's 4<sup>th</sup>-highest temperature observed during spring on record.

In spring 2016, the highest temperature recorded was 34.8°C, observed at Gisborne on 23 November. Mt Cook Airport observed the lowest temperature in spring 2016, with -6.1°C recorded on 9 September.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
<b>High records or near-records</b>				
Gisborne	34.8	Nov-23rd	1905	Highest
Napier	33.4	Nov-23rd	1868	Highest
Hastings	32.7	Nov-23rd	1965	Highest
Wairoa	34.1	Nov-23rd	1964	Highest
Mahia	27.7	Nov-23rd	1990	Highest
South West Cape	23.7	Nov-25th	1991	Highest
Cheviot	30.5	Nov-23rd	1982	3rd-highest
Tiwai Point	25.8	Nov-22nd	1970	3rd-highest
Whitianga	26.8	Nov-22nd	1962	Equal 3rd-highest
Turangi	26.8	Nov-23rd	1968	Equal 3rd-highest
Motueka	28.6	Nov-23rd	1956	Equal 3rd-highest
Whangaparaoa	23.8	Nov-23rd	1982	4th-highest
Kaikohe	24.7	Nov-23rd	1973	Equal 4th-highest
Waipara West	29.8	Nov-23rd	1973	Equal 4th-highest
Five Rivers	25.0	Nov-22nd	1982	Equal 4th-highest
<b>Low records or near-records</b>				
Dargaville	10.8	Sep-08th	1951	Lowest
North Shore, Auckland	11.1	Sep-08th	1995	Lowest
Whitianga	9.8	Sep-08th	1971	Lowest
Taihape	6.0	Sep-08th	1972	Lowest



Appleby	8.5	Sep-08th	1941	Lowest
Arthurs Pass	-0.3	Sep-08th	1973	Lowest
Cape Reinga	11.5	Sep-09th	1971	2nd-lowest
Mokohinau	11.6	Sep-08th	1994	2nd-lowest
Whangaparaoa	11.0	Sep-08th	1982	2nd-lowest
Paeroa	10.0	Sep-08th	1971	2nd-lowest
Mahia	9.0	Sep-08th	1990	2nd-lowest
Stratford	7.0	Sep-08th	1972	2nd-lowest
Reefton	6.1	Sep-08th	1972	2nd-lowest
Waiouru	1.6	Sep-08th	1972	Equal 2nd-lowest
Kaikohe	10.4	Sep-08th	1973	3rd-lowest
Whangarei	11.8	Sep-08th	1967	3rd-lowest
Auckland (Whenuapai)	10.9	Sep-08th	1951	3rd-lowest
Auckland (Henderson)	11.0	Sep-08th	1971	3rd-lowest
Thames	10.3	Sep-08th	1957	3rd-lowest
Port Taharoa	10.7	Sep-08th	1974	3rd-lowest
Lower Retaruke	7.6	Sep-08th	1972	3rd-lowest
Takapau Plains	6.2	Sep-08th	1972	Equal 3rd-lowest
Castlepoint	8.0	Sep-08th	1972	Equal 3rd-lowest
Ngawi	9.2	Sep-09th	1972	Equal 3rd-lowest
Paraparaumu	9.0	Sep-08th	1972	Equal 3rd-lowest
Levin	8.8	Sep-08th	1950	Equal 3rd-lowest
Ohakune	5.4	Sep-08th	1972	Equal 3rd-lowest
Warkworth	11.3	Sep-08th	1966	4th-lowest
Auckland (Mangere)	10.9	Sep-08th	1961	4th-lowest
Pukekohe	10.8	Sep-08th	1969	4th-lowest
Cape Campbell	8.0	Sep-08th	1972	4th-lowest
Taumarunui	8.8	Sep-08th	1947	Equal 4th-lowest
Blenheim	8.3	Sep-08th	1972	Equal 4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Ranfurlly	16.1	Nov-23rd	1897	Highest
Roxburgh	18.1	Nov-23rd	1950	2nd-highest
Mahia	16.6	Nov-16th	1990	Equal 2nd-highest
Alexandra	17.3	Nov-23rd	1930	Equal 2nd-highest
Wanaka	15.5	Nov-23rd	1972	3rd-highest
Dunedin Airport	15.8	Nov-23rd	1972	3rd-highest
Waiau	16.7	Nov-23rd	1974	Equal 3rd-highest
Lauder	16.3	Nov-23rd	1924	Equal 3rd-highest
Hawera	15.5	Nov-11th	1977	4th-highest
Oamaru	16.3	Nov-23rd	1972	4th-highest
Cromwell	17.0	Nov-23rd	1949	4th-highest

Motueka	15.9	Nov-10th	1972	Equal 4th-highest
Manapouri	13.6	Nov-23rd	1973	Equal 4th-highest
<b>Low records or near-records</b>				
Takaka	-4.3	Sep-09th	1978	Lowest
Mokohinau	7.1	Sep-09th	1994	2nd-lowest
Mahia	3.5	Sep-08th	1990	2nd-lowest
Appleby	-3.5	Sep-10th	1932	2nd-lowest
Cape Reinga	5.0	Sep-09th	1951	3rd-lowest
Turangi	-4.6	Sep-11th	1968	3rd-lowest
Whangaparaoa	5.9	Sep-09th	1982	4th-lowest
Mana Island	1.1	Sep-02nd	1987	4th-lowest
Arapito	-0.6	Sep-09th	1978	4th-lowest

## Wind

On 7-8 September, the significant storm that affected most of New Zealand brought strong southerly winds, low temperatures, and snow to much of the central and eastern South Island and Wellington regions. Wind gusts of up to 160 km/hr affected Banks Peninsula overnight on the 7<sup>th</sup>, and thousands of homes were without power in Otago, Canterbury, and Wellington due to wind-blown trees and debris damaging power lines. Two people were injured after a tree toppled onto their car near Tai Tapu, south of Christchurch. Cook Strait ferries and Wellington Harbour ferries were cancelled due to high seas and strong winds. Major roads that were affected by strong winds included: SH 1 from Timaru to Glenavy, SH 8 from Timaru to Omarama, SH 8 from Cromwell to Omarama (Lindis Pass) and SH 80 from Twizel to Mt Cook.

On 26 October a small tornado hit central New Plymouth around 1.30 a.m. which lifted roofs, ripped off garage doors, and threw a trampoline about 120 metres.

On 7 November, several small tornadoes were reported across the Bay of Plenty region. A small tornado touched down in Ohope. Trees were uprooted, roofs lifted, windows smashed and trampolines went flying. Another tornado was reported in Katikati earlier in the day while a kiwifruit orchard in Opotiki was also reportedly struck by a mini tornado.

The highest wind gust for spring 2016 was 182 km/hr, observed at Cape Turnagain on 29 November.

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

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Hawera	102	Sep-08th	1986	Highest
Waiouru	143	Nov-15th	1970	Highest
Westport	106	Nov-27th	1973	Highest
Kaitia	109	Oct-07th	1972	Equal 2nd-highest
Puysegur Point	150	Oct-10th	1986	4th-highest
Whanganui	95	Sep-08th	1977	Equal 4th-highest

## **Snow and ice**

On 7-8 September, a significant snow event affected the South Island and lower North Island. Snow settled in the hill suburbs around Wellington. Heavy snow fell in parts of Otago and Canterbury, and in the central North Island. The Remarkables Ski Field reported 55 cm of new snow overnight on the 7<sup>th</sup>, and Mt Hutt ski field reported up to 1 m of new snow in places. Snow settled on Mt Pirongia in the Waikato region. On 8 September, snow fell to near sea level around the Wellington region for the first time in five years. Meanwhile, more than 80 people, including pupils from St Bernard's Primary School in Wellington and Wellington High School, were stranded at Tukino Ski Field on Mt Ruapehu because of poor weather and snow blocking the access road. They were able to leave the ski field lodge on 10 September.

On 12 October, several South Island roads were affected by snow: SH94 from Te Anau to Milford Sound was closed due to avalanche risk and SH8 from Omarama to Tarras (the Lindis Pass) was closed due to snow. SH6 from Queenstown to Cromwell and from Haast to Wanaka was under caution due to snow. Roads at the top of Lake Wakatipu were blocked by fallen trees, including the only roads to Paradise, Kinloch and the Routeburn track. 1800 customers were without power in the Wakatipu basin due to dense snow and fallen trees bringing down power lines. An early morning flight from Queenstown to Auckland was delayed due to snow on the runway.

## **Lightning and hail**

On 28 September, thunderstorms brought heavy hail to parts of Northland. In Whangarei, there was so much hail that a snowboarder managed to ride along the hail-covered grass verge.

On 6 October, thunderstorms in the Auckland region caused a number of power outages. Vector confirmed about 140 customers were without power in Clevedon, as well as about 30 in Point Chevalier, 26 in Silverdale and 18 in Albany. 182 households in Kaukapakapa and Kumeu had no power at 9.10pm but it was back on again by midnight.

On 3 November, Waimate reported 7 centimetres of hail between 2-3pm. The hailstorm caused some building damage as well as flooding, forcing many businesses in the township to close for the afternoon.

On 14 November, a phenomena sometimes called "earthquake lightning" was observed. During and after Culverden's magnitude 7.8 earthquake, coloured light was observed flashing in the sky above Wellington.

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### **For further information, please contact:**

#### **Mr Chris Brandolino**

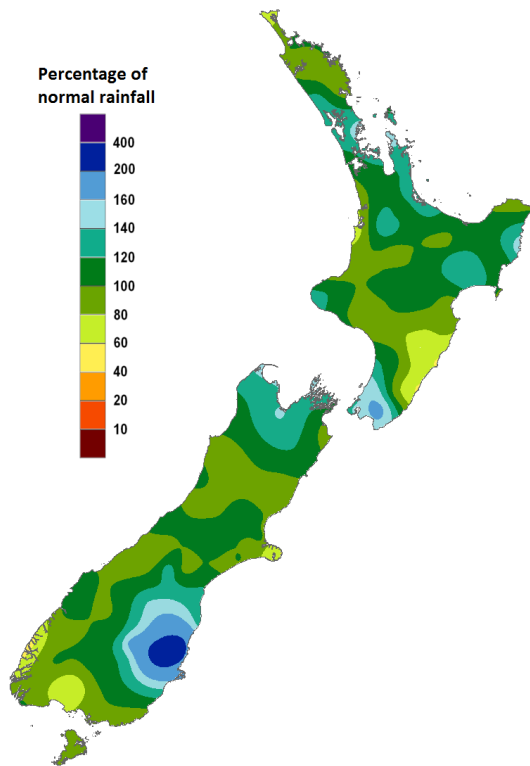
Principal Scientist – Forecasting, NIWA National Climate Centre  
Tel. (09) 375 6335, Mobile (027) 866 0014

For climate data enquiries, please contact:

**Mr Gregor Macara**

Climate Scientist, NIWA Wellington

Tel. (04) 386 0509



*Spring 2016 rainfall expressed as a percentage of normal, illustrating that it was a particularly wet season in Wellington and eastern parts of Otago (indicated by light blue and dark blue shades).*

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