

**National Climate Summary – November 2006: Large contrasts from west to east**

**Rainfall: Rather dry in eastern Northland and Gisborne; well above normal in the southwest of the North Island, and much of the South Island**

**Severe soil moisture deficits in Gisborne and Hawke's Bay, significant deficits in other northern and eastern regions**

**Temperature: Very warm in the east of the North Island, cold in the southwest of the South Island**

**Sunshine: Sunny in Gisborne, very cloudy in the west of the North Island**

**Wind: Stormy westerlies over the South Island – especially mid-month**

November was a month of much larger than normal contrasts in climate from west to east. It was rather dry in eastern Northland, and Gisborne, but very wet in Horowhenua, and on the Kapiti Coast, as well as much of the South Island. The month's temperatures were more typical of mid-summer in Gisborne and Hawke's Bay, rather than spring. However, it was rather cool in the southwest of the South Island. It was windier than usual in the south and east of the North Island and over much of the South Island.

Rainfall was less than 50 percent (half) of normal in eastern Northland, and Gisborne. The low rainfall in Gisborne and below normal rainfall in Hawke's Bay has resulted in severe soil moisture deficits (more than 130 mm) there. Significant soil moisture deficits (more than 110 mm) also existed in eastern Northland, Bay of Plenty, central Marlborough, and Otago. In contrast, rainfall for the month was about 200 percent (twice) of normal in Horowhenua, on the Kapiti coast, on the West Coast, and in parts of Canterbury, Otago, and Southland. In contrast, the national average temperature of 13.6 °C was 0.1 °C below normal. However, November was very much warmer than average in parts of Gisborne and Hawke's Bay. It was noticeably cooler in the southwest of the South Island, especially in Fiordland, South Westland, and parts of Southland and Central Otago. A sunny month occurred in Gisborne and coastal Otago. However, it was very cloudy from Waikato to Manawatu. More anticyclones ('highs') predominated to the northeast of New Zealand and also well south of Australia, with below average pressures well south of New Zealand. This pattern produced more frequent westerlies and northwesterlies over New Zealand.

**Other Highlights:**

The highest temperature during November 2006 was 29.4 °C recorded at Timaru Airport and Musselburgh (Dunedin) on the 23<sup>rd</sup>. The lowest air temperature for the month was -4.6 °C recorded at Murchison on the 19<sup>th</sup>.

There were several high rainfall events (most affecting the West Coast) with at least 50 mm in 24 hours, during 4, 7, 11, 13, 16-17, 23-24, and 28-29 November. High rainfall affected Wellington, Taranaki, and Golden Bay on the 17<sup>th</sup>.

A wind gust of 159 km/h from the northwest was recorded at South West Cape on the 3<sup>rd</sup>. High winds from the southwest buffeted Auckland and parts of Bay of Plenty over 9/10 November, damaging roofs, along with fallen trees and broken power lines. Severe northwest gales occurred throughout Canterbury, Marlborough, and the lower North Island on 14 November. A man was killed by a fallen tree in North Canterbury.

Cold southerlies brought snowfall to 200 m in the South Island, including Queenstown and Geraldine on the 8<sup>th</sup>, with hail to other eastern regions and the central North Island on the 9<sup>th</sup>.

Wellington was the wettest, Dunedin the driest, and Christchurch the sunniest of the five main centres. Temperatures were near normal in Auckland, Hamilton, and Dunedin, and below normal in the two other main centres. Rainfall was above normal in Wellington and Christchurch, near normal in Auckland and Hamilton, and below normal in Dunedin. Sunshine hours were above normal in Dunedin, well below normal in Hamilton, and near normal in the other main centres.

**Rainfall:** November rainfall totals were less than 50 percent (half) of normal in eastern Northland, and Gisborne. Rainfall was also below normal in Western Bay of Plenty, Hawke's Bay, and along the Kaikoura Coast. In contrast, rainfall was about 200 percent (twice) of normal in Horowhenua, on the Kapiti coast, the

West Coast, Canterbury, Otago, and parts of Southland. Rainfall was also above normal in King Country, Manawatu, Wellington, Nelson, the Marlborough Sounds, and Canterbury.

**Temperature:** Mean temperatures were near normal in the north and west of the North Island, and much of the eastern South Island. However, they were more than 1.5 °C above average in parts of Gisborne and Hawke’s Bay. Temperatures were also above average in central Marlborough. It was much cooler in the southwest of the South Island, with mean temperatures more than 1.0 °C below average in Fiordland, South Westland, and parts of Southland and Central Otago.

**Sunshine:** Sunshine hours and/or solar radiation were at least 110 percent of normal in Gisborne, and coastal Otago, but were well below normal in the west from Waikato to Manawatu.

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**WELL ABOVE NORMAL RAINFALL IN THE SOUTHWEST OF THE NORTH ISLAND AND MUCH OF THE SOUTH ISLAND; RATHER DRY IN EASTERN NORTHLAND AND GISBORNE**

November rainfall totals were less than 50 percent (half) of normal in eastern Northland and Gisborne, and 75 percent (three quarters) or less of normal in the western Bay of Plenty, Hawke’s Bay, and along the Kaikoura Coast. In contrast, rainfall was about 200 percent (twice) of normal in Horowhenua, on the Kapiti coast, the West Coast, Canterbury, Otago, and parts of Southland. Rainfall was also above normal, with totals 125 percent (one and a quarter) or more of normal, in King Country, Manawatu, Wellington, Nelson, the Marlborough Sounds, and Canterbury. Rainfall was near normal elsewhere.

**Low November rainfall was recorded at:**

Location	November Rainfall (mm)	Percentage of normal	Year Records began	Comments
Gisborne Airport	20	32	1905	Well below normal
Raoul Island	3	3	1937	2 <sup>nd</sup> lowest

**High November rainfall was recorded at:**

Location	November Rainfall (mm)	Percentage of normal	Year Records began	Comments
Motu	329	207	1990	Highest
Levin	147	198	1895	Well above normal
Paraparaumu Airport	195	238	1945	2 <sup>nd</sup> highest
Wallaceville	226	220	1924	3 <sup>rd</sup> highest
Reefton	351	201	1960	3 <sup>rd</sup> highest
Arthurs Pass	1013	240	1906	3 <sup>rd</sup> highest
Mt Cook Village	789	207	1929	Well above normal
Winchmore	120	221	1947	3 <sup>rd</sup> highest
Lake Tekapo	100	242	1925	Well above normal
Tara Hills, Omarama	108	245	1949	Well above normal
Wanaka Airport	122	238	1992	Highest
Ranfurly	67	199	1975	Well above normal
Queenstown Airport	137	249	1968	3 <sup>rd</sup> highest
Lauder	91	197	1942	Equal 3 <sup>rd</sup> highest
Clyde	73	261	1983	2 <sup>nd</sup> highest
Invercargill Airport	162	199	1940	Equal 3 <sup>rd</sup> highest

## VERY WARM IN THE EAST OF THE NORTH ISLAND, COLD IN THE SOUTHWEST OF THE SOUTH ISLAND

The national average temperature of 13.6 °C was 0.1 °C below normal. However, mean temperatures were more than 1.5 °C above average in parts of Gisborne and Hawke's Bay, and at least 0.5 °C above average in central Marlborough. It was much cooler in the southwest of the South Island, with mean temperatures more than 1.0 °C below average in Fiordland, South Westland, and parts of Southland and Central Otago. Temperatures were near average elsewhere.

### High November mean temperatures were recorded at:

Location	Mean temperature (°C)	Departure from Normal	Year Records began	Comments
Wairoa, North Clyde	17.5	+1.7	1991	Highest
Napier Airport	17.5	+2.2	1973	2 <sup>nd</sup> highest

### Low November mean temperatures were recorded at:

Location	Mean temperature (°C)	Departure from Normal	Year Records began	Comments
Wanaka Airport	11.3	-2.0	1992	2 <sup>nd</sup> lowest

Napier Airport's mean daily maximum temperature of 23.1 °C was equivalent to those normally experienced in January. The mean daily maximum was 2.6 °C above normal, and 3<sup>rd</sup> highest there for November since measurements commenced in 1973.

## SUNNY IN GISBORNE, VERY CLOUDY IN THE WEST OF THE NORTH ISLAND

Sunshine hours and/or solar radiation were at least 110 percent of normal in Gisborne, and East Otago. Sunshine hours were well below normal in the west from Waikato to Manawatu. Sunshine was normal in most other regions.

### Well below average November sunshine hours were recorded at:

Location	November Sunshine (hours)	Percentage of normal	Year records began	Comments
Ruakura	143	72	1936	2 <sup>nd</sup> lowest
Taumarunui	99 <sup>a</sup>	60	1947	Lowest
New Plymouth Airport	139	68	1915	3 <sup>rd</sup> lowest, lowest since 1982
Palmerston North	108	63	1930	Lowest

<sup>a</sup> missing 1 day

## NOVEMBER'S CLIMATE IN THE FIVE MAIN CENTRES

Wellington was the wettest, Dunedin the driest, and Christchurch the sunniest of the five main centres. Temperatures were near normal in Auckland, Hamilton, and Dunedin, and below normal in the two other main centres. Rainfall was above normal in Wellington and Christchurch, near normal in Auckland and Hamilton, and below normal in Dunedin. Sunshine hours were above normal in Dunedin, well below normal Hamilton, and near normal in the other main centres.

Location	Nov. Mean Temp. (°C)	Dep. from normal (°C)		Nov. rainfall (mm)	% of Normal		Nov. Sunshine (hours)	% of Normal	
Auckland	16.3	0.1	Near normal	100 <sup>a</sup>	108	Near normal	201	105	Near normal
Hamilton	15.2	+0.2	Near normal	86	93	Near normal	143	72	Well below normal
Wellington	12.8	-0.6	Below normal	173	175	Above normal	191	91	Near normal
Christchurch	12.8	-0.7	Below normal	65 <sup>b</sup>	140	Above normal	232 <sup>b</sup>	108	Near normal
Dunedin	12.1	-0.2	Near normal	50	79	Below normal	178	110	Above normal

<sup>a</sup> *Owairaka*    <sup>b</sup> *Christchurch Airport*

## HIGHLIGHTS AND EXTREME EVENTS

### Temperature

The highest temperature during November 2006 was 29.4 °C recorded at Timaru Airport and Musselburgh (Dunedin) on the 23<sup>rd</sup>. The lowest air temperature for the month was -4.6 °C recorded at Murchison on the 19<sup>th</sup>; their lowest November temperature since measurements commenced in 1998.

### High rainfall

There were several high rainfall events, with at least 50 mm in 24 hours, during November. These were:

Date	Region and location	Rainfall
4 Nov.	Fiordland	Milford Sound (50 mm)
7 Nov.	Gisborne hill country, West Coast, Southern Alps	Arthurs Pass (87 mm)
11 Nov.	West Coast, Southern Alps	Arthurs Pass (109 mm)
13 Nov.	West Coast, Southern Alps	Mt Cook (215 mm)
16 Nov.	West Coast, Southern Alps	Milford Sound (103 mm)
17 Nov.	Wellington, Taranaki, Golden Bay, Westland	Arthurs Pass (148 mm)
23-24 Nov.	West Coast, Southern Alps	Milford Sound (122 mm)
28-29 Nov.	West Coast, Southern Alps, Otago, Southland	Milford Sound (256 mm)

Heavy alpine rainfalls on 13 November brought a number of large South Island rivers (e.g. Waimakariri, Rakaia, Rangitata) to their highest flows in over ten years. By the end of the month hydroelectric power storages were at their highest levels for several years and Lake Wakatipu was on the verge of flooding Queenstown.

### High winds

A wind gust of 159 km/h from the northwest was recorded at South West Cape on the 3<sup>rd</sup>.

High winds from the southwest buffeted Auckland and parts of Bay of Plenty over 9/10 November, Auckland's Sky tower recording gusts to 150 km/h. Damage occurred to roofs, along with fallen trees and broken power lines (20,000 homes were without electricity). In the Bay of Plenty some of the wind was attributed to tornadoes (most of a roof was lifted off a house and hurled 60m away and the house's chimney destroyed at Waiotahi at 10am on the 9<sup>th</sup>).

Severe northwest gales occurred throughout Canterbury, Marlborough, and the lower North Island on 14 November. A man was killed by a fallen tree in North Canterbury, and about 100 trees had fallen at Hanmer Forest. Power was cut to about 2500 residents. Several roofs were damaged by the wind in Wellington's northern suburbs.

**Cold southerly outbreak with hail and late spring snowfall**

Cold southerlies brought snowfall to 200 m in the South Island, including Queenstown and Geraldine on the 8<sup>th</sup>, with hail to other eastern regions, including the central North Island on the 9<sup>th</sup>. Hail damaged some blackcurrant crops at Lowcliffe and Waterton (Canterbury).

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