

**National Climate Summary – November 2011: Extremely dry north of Taupo; wet over South Island**

- **Rainfall: Extremely dry in Northland, Firth of Thames, Eastern Waikato, Coromandel, Western Bay of Plenty, and Taupo. Wet around Palmerston North, and very wet over much of South Island, especially Otago, South Canterbury, and the Lakes District.**
- **Soil moisture levels: Significant deficit north of Taupo, as well as Gisborne, Hawkes Bay, Marlborough, and central Otago.**
- **Temperatures: Above average in the northeastern North Island. Near average elsewhere, except below average along the south and west coastline of the South Island.**
- **Sunshine: A sunny month in the east, but normal or below normal sunshine elsewhere.**

Much stronger than normal southwest winds affected New Zealand during November 2011, squeezed between higher than normal pressures over the Tasman Sea and lower pressures to the southeast of the country. The southwesterly winds produced a cooler than usual month along the southern and western coastline of the South Island, but a warmer than average month in the sheltered northeast coast of the North Island. These winds also produced an extremely dry month for regions north of Taupo, but in contrast it was an unsettled and very wet month across much of the South Island.

It was an extremely dry month in Northland, Firth of Thames, eastern Waikato, Coromandel, Western Bay of Plenty, and Taupo, with less than half of normal November rainfall observed. Whangarei received only 10 mm of rainfall during the month (it was the second-driest November there, in records which begin in 1937) and Tauranga reported only 13 mm (also the second-driest November there, in records which begin in 1898). Elsewhere in the North Island, rainfall totals in November were generally below normal, with the notable exception of around Palmerston North (well above normal rainfall) and Wellington (near normal totals). In contrast, rainfall exceeded 200 percent of normal in parts of central Otago, South Canterbury and the Lakes District. Elsewhere over the South Island, rainfall was generally normal or above normal (between 100 and 149 percent of normal), with the exception of Marlborough, which experienced below normal rainfall. Significant soil moisture deficit (more than 110 mm of deficit) was observed in regions north of Taupo, also Hawkes Bay, Gisborne, Marlborough, and central Otago, at the end of November.

Mean temperatures in November were above average (between 0.5°C and 1.2°C above November average) across much of the northeast North Island. Across most of the remainder of the country, temperatures were close to average (within 0.5°C of November average). The only exceptions were seen along the southern and western coastline of the South Island, where temperatures were below average (between 0.5°C and 1.2°C below average). The nation-wide average temperature in November was 13.5°C (0.2°C below the 1971–2000 November average), using NIWA's seven-station temperature series which begins in 1909.

November 2011 was a sunny month in eastern regions of both islands (from Coromandel down to Hawkes Bay, as well as the eastern South Island), consistent with the frequent southwest winds during the month. In contrast, below normal sunshine totals were observed around Palmerston North and around Hokitika (with totals between 75 and 90 percent of November normal). Elsewhere, sunshine totals were near normal.

**Further Highlights:**

- The highest temperature was 29.5°C, observed at Middlemarch on 27 November.
- The lowest temperature was -6.4°C, at Mt Cook on 5 November (2<sup>nd</sup> lowest for November).
- The highest 1-day rainfall experienced was 161 mm at Arthurs Pass on 20 November.
- The highest gust recorded was 156 km/hr at Akitio (Wairarapa) on 25 November.
- Of the six main centres in November 2011, Tauranga was the warmest, driest and sunniest, Wellington the wettest, and Dunedin the coolest.

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**RAINFALL: EXTREMELY DRY IN NORTHLAND, FIRTH OF THAMES, EASTERN WAIKATO, COROMANDEL, WESTERN BAY OF PLENTY, AND TAUPO. WET AROUND PALMERSTON NORTH AND VERY WET OVER MUCH OF SOUTH ISLAND, ESPECIALLY OTAGO, SOUTH CANTERBURY AND THE LAKES DISTRICT.**

It was an extremely dry month in Northland, Firth of Thames, eastern Waikato, Coromandel, Western Bay of Plenty, and Taupo, with less than half of normal November rainfall observed. Whangarei received only 10 mm of rainfall during the month (it was the second-driest November there, in records which begin in 1937) and Tauranga reported only 13 mm (also the second-driest November there since records began in 1898). Elsewhere in the North Island, rainfall totals in November were below normal (between 50 and 79 percent of normal), with the notable exception of around Palmerston North, which experienced well above normal rainfall (more than 149 percent of normal), and Wellington (which recorded near normal November totals).

In contrast, rainfall exceeded 200 percent (double) normal November totals in parts of central Otago, South Canterbury and the Lakes District. Elsewhere over the South Island, rainfall was generally normal or above normal (between 100 and 149 percent of normal), with the exception of Marlborough (which experienced below normal rainfall, with totals between 50 and 79 percent of normal).

Significant soil moisture deficit (more than 110 mm of deficit) was observed in regions north of Taupo, also Hawkes Bay, Gisborne, Marlborough, and central Otago, at the end of November.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Ranfurlly	93	255	1943	2nd-highest
Cape Reinga	15	24	1919	4th-lowest
Kerikeri	15	11	1981	3rd-lowest
Kaikohe	26	25	1956	3rd-lowest
Whangarei	10	11	1937	2nd-lowest
Leigh	23	32	1966	2nd-lowest
Whitianga	35	29	1961	2nd-lowest
Paeroa	26	29	1914	4th-lowest
Matamata	14	15	1951	2nd-lowest
Tauranga	13	16	1898	2nd-lowest
Te Puke	37	32	1973	4th-lowest
Rotorua	39	38	1963	4th-lowest
Taupo	24	29	1949	4th-lowest

**TEMPERATURE: ABOVE AVERAGE IN THE NORTHEASTERN NORTH ISLAND. NEAR AVERAGE FOR MUCH OF THE REMAINDER OF THE COUNTRY, EXCEPT FOR BELOW AVERAGE TEMPERATURES ALONG THE SOUTHERN AND WESTERN COASTLINE OF THE SOUTH ISLAND.**

Mean temperatures in November were above average (between 0.5°C and 1.2°C above November average) across much of the northeast North Island. Across most of the remainder of the country, temperatures were close to average (within 0.5°C of November average). The only exceptions were seen along the southern and western coastline of the South Island, where temperatures were below average (between 0.5°C and 1.2°C below average). The nation-wide average temperature in November was 13.5°C (0.2°C below the 1971–2000 November average) using NIWA’s seven-station temperature series which begins in 1909 <sup>1</sup>.

<sup>1</sup> Interim monthly value.

Several sites in the northeast of the North Island (Northland, Auckland, Bay of Plenty) experienced unusually high afternoon (maximum) temperatures, on average, during the month (see Table below). There were no record or near-record monthly-average minimum air temperatures in November.

**Record or near-record monthly-average maximum air temperatures for November were recorded at:**

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kerikeri	22.0	1.3	1981	3rd-highest
Kaikohe	20.2	1.5	1973	3rd-highest
Leigh	21.8	2.7	1966	Highest
Whangaparaoa	20.1	1.5	1982	4th-highest
Tauranga	21.8	1.8	1913	3rd-highest
Te Puke	21.0	1.3	1973	3rd-highest

**SUNSHINE: SUNNY IN THE EAST, BUT NORMAL TO BELOW NORMAL SUNSHINE TOTALS IN WESTERN AREAS**

November 2011 was a sunny month in eastern regions (from Coromandel down to Hawkes Bay, and the eastern South Island), with normal November sunshine totals between 110 and 125 percent of normal, consistent with the frequent southwest winds during the month. In contrast, below normal sunshine totals were observed around Palmerston North and at Hokitika (with totals between 75 and 90 percent of normal). Elsewhere, sunshine totals near normal (between 90 and 110 percent of November normal).

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

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Cheviot	242	124	1983	3rd-highest

**NOVEMBER CLIMATE IN THE SIX MAIN CENTRES**

It was an extremely dry November in Tauranga (the 2<sup>nd</sup>-driest November in over 100 years of record), and also very dry for Auckland and Hamilton. Christchurch experienced a wetter than usual November, while November rainfall was near normal for Wellington and Dunedin. Of the six main centres, Tauranga was the warmest, driest and sunniest, Wellington the wettest, and Dunedin the coolest.

**November 2011 main centre climate statistics:**

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland <sup>a</sup>	15.9	-0.3	Near average	49	57%	Below normal	181	95%	Near normal
Tauranga <sup>b</sup>	17.0	+1.4	Well above average	13	16%	2 <sup>nd</sup> -lowest	258	120%	Above normal
Hamilton <sup>c</sup>	14.7	0.0	Average	38	40%	Well below normal	195 <sup>g</sup>	99%	Near normal
Wellington <sup>d</sup>	13.5	+0.1	Near average	98	99%	Near normal	223	106%	Near normal
Christchurch <sup>e</sup>	12.9	-0.6	Below average	64	138%	Above normal	232	108%	Near normal
Dunedin <sup>f</sup>	12.0	-0.3	Near average	68	106%	Near normal	174	108%	Near 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

\*One day of missing data in the month

## HIGHLIGHTS AND EXTREME EVENTS

### • Rain and slips

The highest 1-day rainfall experienced in November 2011 was 161 mm at Arthurs Pass on 20 November.

On 16 November heavy rain caused surface flooding in Levin.

Heavy rain on 20 and 21 November caused flooding and road closures on the West Coast. Slips closed SH6 in the lower Buller Gorge, SH7 at the Lewis Pass, and many rural roads in the district. A slip near the Shenandoah Saddle reduced SH65 to one lane. The Grey River burst its banks, and there was extensive flooding of farmland. Widespread stock losses were reported, including one of cattle being electrocuted after floodwaters brought down power lines. In Greymouth, the racecourse, golf course, speedway, and sports grounds were covered in water and silt, with damage to infrastructure. Surface flooding and strong winds also affected SH73 at Arthurs Pass.

On 22 November, the Mataura River burst its banks, and nearby roads were closed by flooding.

On 25 November, flooding closed SH56 at Opiki.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Hokitika	120	20th	1866	2nd-highest
Greymouth	82	20th	1947	2nd-highest
Lumsden	28	20th	1982	4th-highest

### • Temperatures

The highest temperature was 29.5°C, observed at Middlemarch on 27 November. The lowest temperature was -6.4°C, recorded at Mt Cook on 5 November (the 2<sup>nd</sup>-lowest on record at this site for November, in records that began in 1929), during an unusually cold pulse of air, which brought snow to much of Southland, Otago, as well as Banks Peninsula. Several South Island sites experienced extremely low minimum and maximum temperatures during this southerly event (see Tables below), with record cold minimum temperatures observed at Milford Sound and Haast on the 5<sup>th</sup> (0°C and -0.4°C, respectively).

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Ranking
Kaikohe	24.7	21st	1973	3rd-highest
Whangarei	26.7	28th	1967	2nd-highest
Leigh	25.0	23rd	1966	2nd-highest
Lumsden	25.1	30th	1982	4th-highest
Lake Rotoiti	6.6	4th	1972	2nd-lowest
Greymouth	10.5	5th	1972	3rd-lowest
Haast	9.9	4th	1949	Equal 3rd-lowest
Milford Sound	6.8	4th	1935	4th-lowest
Arthurs Pass	4.5	4th	1973	2nd-lowest

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

Location	Extreme minimum Temperature (°C)	Date of extreme temperature	Year records Began	Ranking
Whangaparaoa	7.9	6th	1982	3rd-lowest
Greymouth	1.2	5th	1947	2nd-lowest
Haast	-0.4	5th	1949	Lowest
Milford Sound	0.0	5th	1934	Lowest
Mt Cook	-6.4	5th	1929	2nd-lowest
Le Bons Bay	1.1	5th	1984	Equal 2nd-lowest
Timaru	-1.5	5th	1990	Equal 2nd-lowest
Dunedin	1.2	5th	1947	4th-lowest
Nugget Point	0.0	5th	1970	3rd-lowest
Whitianga	18.1	24th	1971	Equal highest

**• Wind**

The highest wind gust recorded was 156 km/hr, observed at Akitio (coastal Wairarapa) on 25 November. Most regions between about Taupo and Blenheim were affected by severe winds on the 25<sup>th</sup> and 26<sup>th</sup> of the month (see Table overleaf).

On 14 November, wind warnings were issued for SH1 between Waikanae and Pekaheka.

On 16 November, gale-force winds blew down trees in Wanganui, downing power lines and cutting power to several areas. On 17 November, wind warnings were issued for SH1 between Milton and Gore.

Gales struck the lower North Island on 21 November. In Greytown, a tree branch was blown off, injuring two pedestrians who were admitted to Masterton Hospital. Some flights were delayed at Wellington Airport, with one flight from Auckland making two attempts to land, before giving up and returning to Auckland. Several harbour commuter ferries were cancelled, and a large, high-sided carrier, unable to berth at Aotea Quay, was forced to leave the harbour and circle at the heads where conditions were calmer. In Wainuiomata, a large tree was blown on to a house. Near Palmerston North, a truck and trailer unit was blown off the road. Westport Airport was closed by the storm.

On 22 November, high winds caused damage in Hawke's Bay, downing trees and power lines. Lowburn Road, near Cromwell, was closed in high winds because of the danger of falling trees.

On 23 November, strong winds in Wellington blew a window out of the 10th floor of a central city office building, and deposited it in a car park 100 m away. A cruise ship needed the help of a tug to berth, and several flights in and out of Wellington airport were delayed.

On 24 November, wind warnings were issued for SH1 between Milton and Gore.

Gales battered Southland and Otago on 25 November, downing trees and power lines. Fallen trees caused temporary closures of SH1 north of Waitati, and later in north Dunedin. Wind warnings were issued for SH8 from Milton to Raes Junction, SH90 from Raes Junction to Gore, and SH87 from Kyeburn to Middlemarch. The motorcycle beach racing event at Oreti Beach, part of Invercargill's big Burt Munro Challenge events, was cancelled. A truck blew over in Wyndham bringing down power lines, and in Invercargill, a car door was found blowing down the road.

On 26 November, strong winds made life difficult for the cyclists in the annual Lake Taupo Cycling Challenge, with scattered branches and debris strewn across SH32. The 80 km mountain bike race was cancelled after two hours. In Stratford, marquees were blown over at the annual A & P show.

On 28 November, wind warnings were issued for SH73 between Springfield and Arthur's Pass. In Picton, strong winds caused the Aratere to swing away from its berth, wrenching out a bollard, damaging both the wharf and the ship.

**Near-record high extreme wind gusts for November were recorded at:**

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year records began	Comments
Taupo	85	25th	1982	Equal 2nd-highest
Turangi	95	25th	1973	2nd-highest
Napier	100	26th	1973	3rd-highest
Farewell Spit	96	25th	1973	Equal 4th-highest
Blenheim	91	25th	1972	3rd-highest

- **Snow and ice**

On 5 November, snow fell over much of Southland, Otago and Banks Peninsula.

- **Lightning and hail**

On 5 November, a 20-minute hail storm in Otautau hammered cyclists on the Tour of Southland.

A thunderstorm struck Rotorua on 14 November, accompanied by heavy rain and hail. Flooding closed some roads, including SH5 at Whakarewarewa. Properties were flooded, power cut to some areas, and one building had its roof blown off during the storm. Hailstones up to 2 cm in diameter were also reported in Taupo.

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