

National Climate Summary – November 2010: Highs and dryness dominate for second month

- **Rainfall: Extremely dry across the North Island and western areas of the South Island. Many November low rainfall records broken. Soils unusually dry in the north and west of the North Island, and northwest of the South Island.**
- **Temperatures: Record warm in the South Island. Extreme hot spell at the end of the month.**
- **Sunshine: Record sunshine across the lower half of the North Island.**

Anticyclones ('highs') dominated New Zealand's climate during November 2010, producing record low November rainfall in many areas, and record November warmth for the South Island. This was the second month in a row in which rainfall has been extremely low for most regions, resulting in unusually dry soils for the time of year across northern and western regions of the North Island, and the northwest of the South Island. Severe soil moisture deficits (more than 130 mm of deficit) existed as at the end of the month in Northland, Auckland, parts of the Waikato, Nelson, the Lakes District and central Otago, with significant soil moisture deficits (more than 110 mm of deficit) elsewhere in the Waikato, Taupo, parts of the Manawatu and Gisborne, in Hawkes Bay and the Wairarapa, Marlborough, and parts of Canterbury.

November rainfall was less than half (50 percent) of November normal in all regions, except the eastern South Island (where near normal rainfalls occurred). Rainfall was around 25% (quarter) of normal in the Lakes District and northwest of the South Island, as well as in parts of Waikato and Northland. Record low rainfalls were experienced in many regions in the north and west of both islands.

Monthly mean temperatures for November as a whole were more than 2°C above average across the entire South Island, and many long-term November temperature records were broken there. It was also warmer than usual across most regions of the North Island, with temperatures between 0.5°C and 1.2°C above average. The exceptions were Northland, Gisborne, Hawkes Bay and coastal Wairarapa, where near average temperatures prevailed (within 0.5°C of average). An extremely hot (record breaking) spell occurred across the country on the 28th-30th, with numerous November extreme maximum temperature records broken in both islands. The New Zealand national average temperature was 14.7°C in November (1.0°C above the 1971–2000 November average).

The persistent highs during the month brought clear skies and a sunny month overall for most regions of the country. Sunshine totals were well above normal (more than 125 percent of November normal) in the lower half of the North Island, and several sites broke records there. Elsewhere, sunshine totals were also above normal (between 110 and 125 percent of November normal). The exceptions were Southland and Otago, which recorded near normal sunshine hours (between 90 and 110 percent of normal).

Further Highlights:

- The highest temperature recorded was 32.9°C recorded at Waiau on the 29th (2nd highest temperature for November since records began at this location).
- The lowest temperature recorded was -2.4°C recorded at Masterton on the 24th.
- The highest 1-day rainfall of 71 mm occurred at Milford Sound on the 17th.
- The highest gust was 174.2 km/hr recorded at Cape Turnagain on the 14th.
- Of the six main centres, Tauranga was the warmest, Dunedin the coolest, Hamilton the driest, and Christchurch the wettest but also the sunniest.

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RAINFALL: VERY DRY OVER ALL REGIONS OF THE COUNTRY EXCEPT CANTERBURY. NOVEMBER LOW RAINFALL RECORDS SET IN MANY REGIONS.

November rainfall was less than half (50 percent) of November normal in all regions, except the eastern South Island (where near normal rainfalls occurred). Rainfall was around 25% (quarter) of normal in the Lakes District and the northwest of the South Island, as well as in parts of Waikato and Northland. Record low rainfalls were experienced in many regions in the north and west of both islands.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Kaitaia	31	31	1985	3rd-lowest
Kerikeri	24	18	1981	3rd-lowest
Dargaville	10	14	1943	Lowest
Whangarei	14	16	1937	2nd-lowest
Leigh	27	36	1966	4th-lowest
Warkworth	25	26	1966	2nd-lowest
Whangaparaoa	20	31	1946	3rd-lowest
Kumeu	37	42	1978	4th-lowest
Matamata	33	36	1951	3rd-lowest
Taupo	16	19	1949	Lowest
Auckland	22	28	1959	3rd-lowest
Whatawhata	24	18	1952	Lowest
Hamilton	16	17	1935	Lowest
Te Kuiti	17	13	1950	Lowest
Turangi	30	21	1968	2nd-lowest
New Plymouth	27	24	1944	Lowest
Dannevirke	20	22	1951	Lowest
Wairoa	18	23	1964	2nd-lowest
Paraparaumu	19	24	1945	3rd-lowest
Wellington	21	27	1958	4th-lowest
Wallaceville	29	28	1924	4th-lowest
Stratford	22	14	1960	Lowest
Ohakune	40	34	1961	Lowest
Waiouru	35	45	1950	3rd-lowest
Wanganui	9	12	1890	Lowest
Takaka	9	5	1976	Lowest
Westport	42	24	1944	3rd-lowest
Lake Rotoiti	32	23	1933	2nd-lowest
Hokitika	88	37	1963	4th-lowest
Reefton	17	10	1960	Lowest
Greymouth	54	27	1947	2nd-lowest
Motueka	18	17	1943	4th-lowest
Appleby	13	16	1941	4th-lowest
Arthurs Pass	70	15	1906	2nd-lowest
Mt Cook	49	13	1928	3rd-lowest
Wanaka	3	5	1927	Lowest
Manapouri	2	3	1961	Lowest

TEMPERATURES: RECORD WARM IN SOUTH ISLAND. EXTREME HOT SPELL AT THE END OF THE MONTH.

Monthly mean temperatures for November as a whole were more than 2°C above average across the entire South Island, and many long-term November temperature records were broken there. It was also warmer than usual across most regions of the North Island, with temperatures between 0.5°C and 1.2°C above average. The exceptions were Northland, Gisborne, Hawkes Bay and coastal Wairarapa, where near average temperatures prevailed (within 0.5°C of average).

An extremely hot (record breaking) spell occurred across the country on the 28th-30th, with numerous November daily extreme maximum temperature records broken in both islands (see details later in summary). The New Zealand national average temperature was 14.7°C in November (1.0°C above the 1971–2000 November average)¹.

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

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Tauranga	12.8	1.5	1913	4th-highest
Whakatane	11.5	0.9	1974	4th-highest
Farewell Spit	12.0	1.5	1971	4th-highest
Milford Sound	9.1	1.7	1934	2nd-highest
Puysegur Point	10.9	2.2	1978	Highest
Nelson	11.5	1.8	1943	3rd-highest
Arthurs Pass	6.9	2.2	1978	Highest
Culverden	8.8	1.5	1928	4th-highest
Waipara West	9.7	1.6	1973	3rd-highest
Lincoln	9.5	1.5	1881	4th-highest
Le Bons Bay	9.5	1.1	1984	3rd-highest
Orari	9.0	2.0	1972	Highest
Timaru	9.9	2.4	1885	2nd-highest
Tara Hills	7.0	1.5	1949	4th-highest
Wanaka	9.6	2.4	1955	2nd-highest
Dunedin	10.4	1.8	1947	Highest
Lumsden	8.2	2.3	1982	Highest
Cromwell	9.0	1.9	1949	4th-highest
Alexandra	8.9	2.3	1983	2nd-highest
Gore	8.9	2.3	1971	Highest
Invercargill	8.7	1.9	1948	Highest
Tiwai Point	10.2	1.9	1970	Highest
Balclutha	8.5	1.4	1964	2nd-highest
Nugget Point	9.0	1.6	1970	Highest

¹ Interim monthly value.

Record or near-record November mean maximum air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitaia	20.7	0.4	1985	2nd-highest
Leigh	20.9	1.8	1966	Highest
Whangaparaoa	20.7	2.1	1982	Highest
Paeroa	22.5	1.4	1947	2nd-highest
Tauranga	21.4	1.4	1913	4th-highest
Rotorua	20.0	1.3	1964	3rd-highest
Whatawhata	20.9	1.9	1952	2nd-highest
Hamilton	22.2	2.3	1906	3rd-highest
Te Kuiti	21.7	1.7	1959	3rd-highest
Taumarunui	22.7	2.3	1947	4th-highest
Turangi	20.9	2.2	1968	2nd-highest
New Plymouth	19.7	1.9	1944	2nd-highest
Masterton	21.9	2.7	1906	4th-highest
Martinborough	21.7	1.9	1986	Highest
Ngawi	20.2	2.0	1972	Highest
Wallaceville	20.2	2.5	1939	Highest
Stratford	18.7	1.7	1960	2nd-highest
Ohakune	18.7	2.1	1962	3rd-highest
Waiouru	17.8	2.4	1962	Highest
Wanganui	20.3	1.5	1937	4th-highest
Takaka	20.7	1.8	1978	3rd-highest
Farewell Spit	19.9	1.6	1971	Highest
Westport	18.4	1.7	1937	4th-highest
Lake Rotoiti	22.1	5.7	1965	Highest
Reefton	22.1	3.3	1960	3rd-highest
Puysegur Point	15.2	1.5	1978	Highest
Motueka	22.1	2.5	1956	Highest
Nelson	20.6	1.8	1943	Highest
Blenheim	22.0	2.2	1932	3rd-highest
Hanmer Forest	23.2	4.8	1906	Highest
Arthurs Pass	18.0	4.2	1978	Highest
Mt Cook	21.5	5.3	1929	Highest
Le Bons Bay	17.1	1.8	1984	4th-highest
Lake Tekapo	21.6	4.6	1927	Equal highest
Tara Hills	23.4	4.8	1949	Highest
Wanaka	22.6	4.0	1955	Highest
Dunedin	19.5	2.0	1947	Highest
Manapouri	18.9	2.1	1963	2nd-highest
Queenstown	20.4	2.9	1871	4th-highest
Lumsden	19.5	2.7	1982	Highest
Cromwell	24.0	3.9	1949	2nd-highest
Alexandra	23.5	3.3	1983	Highest
Gore	18.3	2.2	1971	3rd-highest
Invercargill	18.7	2.5	1948	Highest
Tiwai Point	17.6	2.3	1970	Highest

SUNSHINE: RECORD SUNSHINE OVER LOWER HALF OF NORTH ISLAND.

The persistent highs during the month brought clear skies and a sunny month overall for most regions of the country. Sunshine totals were well above normal (more than 125 percent of November normal) in the lower half of the North Island, and several sites broke records there. New Plymouth, Turangi, Taumarunui and Te Kuiti all recorded their sunniest November on record, with around 150 percent of November normal sunshine hours experienced. Elsewhere, sunshine totals were also above normal (between 110 and 125 percent of November normal). The exceptions were Southland and Otago, which recorded closer to normal sunshine hours (between 90 and 110 percent of normal).

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

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Kaitiā	228	120	1985	2nd-highest
Te Kuiti	239	149	1962	Highest
Taumarunui	272	165	1947	Highest
Turangi	263	142	1976	Highest
New Plymouth	275	135	1972	Highest
Dannevirke	237	134	1963	2nd-highest
Martinborough	250	129	1986	3rd-highest
Paraparaumu	254	128	1953	4th-highest
Stratford	255	131	1963	2nd-highest
Blenheim	284	123	1947	3rd-highest

NOVEMBER CLIMATE IN THE SIX MAIN CENTRES

Of the six main centres, for the month of November 2010 as a whole, Tauranga was the warmest, Dunedin the coolest, Hamilton the driest and Christchurch the wettest but also the sunniest.

November 2010 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	16.1	-0.1	Near average	39	46%	Well below normal	223	117%	Above normal
Tauranga ^b	17.1	+1.5	2 nd highest	36	42%	Well below normal	259	120%	Above normal
Hamilton ^c	15.7	+1.0	Above average	16	17%	Record low	228 ^g	115%	Above normal
Wellington ^d	14.2	+0.8	Above average	37	38%	Well below normal	249	119%	Above normal
Christchurch ^e	14.7	+1.2	Well above average	53	115%	Near normal	264	123%	Above normal
Dunedin ^f	14.1	+1.8	2 nd highest	33	52%	Well below normal	170	105%	Near normal

^a Mangere ^b Tauranga Airport ^c Hamilton Airport ^d Kelburn ^e Christchurch Airport ^f Musselburgh ^g Ruakura

HIGHLIGHTS AND EXTREME EVENTS

There were no significant weather events during the month.

- **Temperature**

In contrast, there were numerous daily temperature records broken during the month, associated with a warm and humid air mass on the 14th and the 20th (with record warm morning temperatures), and an extreme hot spell between the 28th-30th, in which extreme maximum temperatures were broken at many sites in both islands.

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year records began	Comments
Warkworth	3.7	8th	1966	Lowest
Taumarunui	-1.6	7th	1947	Lowest
Turangi	-1.8	1st	1968	3rd-lowest
Whangaparaoa	17.3	20th	1982	2nd-highest
Whenuapai	17.6	20th	1951	4th-highest
Tauranga	18.3	30th	1941	2nd-highest
Te Puke	17.2	30th	1973	4th-highest
Whakatane	17.5	21st	1975	Equal highest
Rotorua	15.9	20th	1972	Equal 4th-highest
Taupo	16.0	29th	1950	2nd-highest
Auckland	18.0	20th	1961	4th-highest
Hamilton	18.6	20th	1940	Highest
Port Taharoa	18.3	20th	1974	Highest
Te Kuiti	16.9	20th	1959	4th-highest
Taumarunui	17.0	20th	1947	4th-highest
New Plymouth	17.1	20th	1944	4th-highest
Takapau Plains	16.4	14th	1972	Equal 3rd-highest
Martinborough	17.7	20th	1986	Highest
Ngawi	18.6	14th	1972	Equal 3rd-highest
Ohakune	14.8	20th	1972	Highest
Wanganui	16.1	20th	1987	Equal 3rd-highest
Lake Rotoiti	13.1	14th	1972	Highest
Hokitika	15.1	20th	1964	4th-highest
Puysegur Point	15.0	29th	1978	2nd-highest
Nelson	18.8	14th	1943	Highest
Arthurs Pass	12.0	20th	1978	3rd-highest
Waipara West	19.5	14th	1973	2nd-highest
Lake Tekapo	16.6	14th	1928	Highest
Orari Estate	14.7	28th	1972	3rd-highest
Tara Hills	17.9	14th	1949	Highest
Wanaka	15.3	29th	1972	3rd-highest
Manapouri	14.1	25th	1973	4th-highest
Lumsden	14.6	25th	1982	4th-highest
Alexandra	15.3	30th	1983	4th-highest
Gore	15.0	12th	1972	3rd-highest
Balclutha	14.2	11th	1972	Equal 2nd-highest
Nugget Point	15.0	11th	1972	Highest

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Comments
Castlepoint	10.2	6th	1972	3rd-lowest
Kaitaia	24.6	27th	1985	Equal-Highest
Leigh	24.4	26th	1966	Equal 2nd-highest
Warkworth	25.7	28th	1966	Highest
Whangaparaoa	24.9	28th	1982	Highest
Whenuapai	25.1	28th	1945	Equal 4th-highest
Whitianga	26.8	17th	1962	2nd-highest
Pukekohe	25.2	28th	1969	4th-highest
Whatawhata	26.6	28th	1952	2nd-highest
Hamilton	28.3	28th	1946	Highest
Te Kuiti	27.5	28th	1959	2nd-highest
Taumarunui	29.8	28th	1947	3rd-highest
Turangi	29.2	30th	1968	Highest
New Plymouth	26.4	27th	1944	Highest
Masterton	30.2	29th	1906	2nd-highest
Takapau Plains	25.8	29th	1962	4th-highest
Dannevirke	26.3	29th	1951	3rd-highest
Martinborough	30.7	29th	1986	Highest
Wallaceville	26.6	29th	1939	2nd-highest
Ngawi	28.2	18th	1972	2nd-highest
Wallaceville	26.6	29th	1939	2nd-highest
Stratford	24.8	28th	1960	Highest
Ohakune	26.5	29th	1962	2nd-highest
Waiouru	25.2	29th	1962	Highest
Takaka	27.8	13th	1978	2nd-highest
Lake Rotoiti	29.9	29th	1965	Highest
Farewell Spit	24.9	30th	1971	3rd-highest
Reefton	30.9	27th	1960	Highest
Motueka	29.8	17th	1956	Highest
Blenheim	31.0	18th	1932	3rd-highest
Hanmer Forest	30.6	18th	1906	Highest
Arthurs Pass	26.0	28th	1978	Highest
Mt Cook	28.6	28th	1929	Highest
Tara Hills	29.9	27th	1949	Highest
Wanaka	31.4	28th	1955	Highest
Queenstown	28.5	28th	1871	4th-highest
Lumsden	26.4	28th	1982	3rd-highest
Cromwell	32.3	28th	1949	Highest
Alexandra	31.6	29th	1983	Highest
Waiau	32.9	29th	1974	2nd-highest
Nugget Point	26.4	11th	1970	2nd-highest

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