

National Climate Summary – December 2004

- **Temperature: Coldest December since 1945, many new records set**
- **Rainfall: Well above average in the east from Hawke's Bay to Southland; below average rainfall in Westland and Fiordland.**
- **Sunshine: Rather cloudy in many areas**

December was the fifth coldest on record overall since reliable temperature measurements were established in 1853, and the coldest since 1945. The national average of 13.4°C was 2.2°C below normal, lower only in 1902 (12.9°C), 1911 (13.0°C), 1914 (13.2°C), and 1945 (13.3°C). The December 2004 temperatures were equivalent to mid spring temperatures, rather than those of an early summer month. Record-breaking low mean December temperatures occurred in many places, being up to 4°C below average in inland parts of Canterbury, Otago, and Southland. The cold weather slowed the growth and ripening of berries, stone fruit, and many horticultural crops. Along with the cold temperatures, frequent southerlies produced a very wet month, with more than 200 percent (twice) of average rainfall in some eastern regions from Hawke's Bay to Southland. However, the same conditions produced less than 75 percent (three quarters) of average rainfall in sheltered parts of south Westland and Fiordland. Soil moisture deficits persisted in Gisborne, coastal Marlborough, and Central Otago. Sunshine hours were well below average in the north and west of the North Island, and the southeast of the South Island. There were many more depressions ('lows') than average, often centred south of the Chatham Islands (where surface pressures were at least 12 hPa below average). These produced the strongest south to southwest airflow over New Zealand on record.

Highlights:

- The highest December 2004 temperature was 31.0°C, recorded at Napier Airport on the 2nd. The lowest temperature for the month was -3.7°C, recorded at Wreys Bush (Southland) on the 20th.
- Ground frost occurred on the 12th of December in inland sheltered areas of the North Island, and on several days during the month in many locations in the South Island.
- A very cold and unseasonable southerly outbreak brought gale force southerlies to exposed southern and eastern areas over the weekend of 18-19 December, with hail in Auckland, and the beach at Port Waikato during thunderstorms on the 19th. Hailstones ruined fruit in parts of Auckland, Hawke's Bay, Tasman, and Canterbury. Damaging winds occurred in Auckland. Snowfall occurred as low as 600 m in the South Island, with a light fall on the Desert Road in the central North Island. Skiing was still possible on Mt. Ruapehu over the Christmas period.
- Damaging winds associated with a small tornado occurred in Auckland on the 22nd.
- Rainfall totalled at least 60 mm occurred in the Bay of Islands on the 29th and Bay of Plenty on the 30th. The 28-29th was also very wet in Buller and Westland, with 162 mm in Takaka on the 29th and 280 mm for the 2-day period recorded at Franz Josef.
- Of the four main centres Wellington was the sunniest and Christchurch the driest. Rainfall was above average and temperatures were well below average in all four cities. Sunshine hours were near average in Wellington, and below average in Auckland, Christchurch and Dunedin.

Temperature: North Island mean temperatures were about 2.0°C below average, and South Island mean temperatures mostly 2.0 to 4.0°C below average, the largest anomalies being in the east.

Rainfall: Rainfall was well above average in eastern regions from Hawke's Bay to Southland, some locations recorded more than 200 percent (twice) of average. Rainfall was also above average in parts of Northland, Auckland, Coromandel, Waikato, Wanganui, Ruapehu, Manawatu, Horowhenua, Wellington, and Nelson. In contrast, December rainfall totals were less than 75 percent (three quarters) of average, in parts of south Westland and Fiordland. Rainfall was near average elsewhere.

Sunshine: Sunshine hours were well below average in parts of Northland, Auckland, Waikato, King Country, Manawatu, Otago, and Southland. However, they were near average elsewhere.

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WELL BELOW AVERAGE TEMPERATURES, ESPECIALLY IN THE SOUTH ISLAND

The national average of 13.3°C (2.3°C below average) was the lowest for December since 1945 and fifth coldest since reliable temperature measurements were established in 1853. North Island mean temperatures were about 2.0°C below average, and South Island mean temperatures mostly 2.0 to 4.0°C below average, the largest anomalies being in inland areas of Canterbury, Otago and Southland.

Near or record low December mean air temperatures were recorded at:

Location	Mean temperature	Departure from average (°C)	Records Began	Comments
Cape Reinga AWS	15.5	-1.9	1951	2 nd lowest
Kaitaia Observatory	15.9	-1.8	1985	Lowest
Kerikeri EWS	16.1	-1.6	1981	Lowest
Kaikohe	15.2	-1.9	1973	Lowest
Dargaville	15.8	-1.6	1943	Well below average
Whangarei Airport	16.7	-1.6	1967	2 nd lowest
Mokohinau	16.1	-2.0	1972	Lowest
Henderson, River Park	16.0	-2.2	1985	Lowest
Auckland, Owairaka	15.4	-2.4	1949	Lowest
Paeroa	15.3	-2.8	1947	Lowest
Tauranga Airport	15.8	-1.7	1913	Well below average
Whakatane Airport	15.1	-1.9	1974	Lowest
Rotorua Airport	13.5	-2.7	1964	Lowest
Taupo Airport	13.3	-2.3	1976	Lowest
Auckland, Mangere	15.6	-2.6	1959	Lowest
Auckland Airport	16.0	-2.2	1962	Lowest
Hamilton, Ruakura	14.8	-2.0	1906	Well below average
Hamilton Airport	14.5	-1.9	1970	Lowest
Taumarunui	13.6	-3.1	1947	Lowest
New Plymouth Airport	14.3	-1.9	1944	Well below average
Turangi	13.0	-2.7	1968	Lowest
Castlepoint	13.8	-2.9	1972	Lowest
East Taratahi	14.1	-1.1	1972	2 nd lowest
Hicks Bay	15.3	-2.0	1990	Lowest
Gisborne Airport	16.2	-1.6	1905	Well below average
Napier Airport	16.0	-1.5	1973	3 rd lowest
Mahia	15.4	-1.7	1990	2 nd lowest
Palmerston North Airport	14.3	-1.7	1962	2 nd lowest
Palmerston North	14.5	-1.9	1928	Well below average
Levin	14.5	-1.5	1895	Well below average
Wellington, Kelburn	13.9	-1.4	1928	Well below average
Wellington Airport	15.0	-1.4	1962	2 nd lowest
Wallaceville	13.9	-1.7	1939	3 rd equal lowest
Stratford	12.8	-1.5	1960	2 nd lowest
Takaka	14.2	-1.6	1985	Lowest
Farewell Spit	14.7	-1.2	1972	2 nd equal lowest
Westport Airport	12.6	-2.4	1937	3 rd lowest
Murchison	14.1	-1.1	1969	2 nd lowest
Hokitika Airport	12.2	-2.2	1963	Lowest

Franz Josef	12.0	-1.4	1982	3 rd lowest
Milford Sound	11.2	-2.2	1934	Equal lowest
Puysegur Point	10.2	-2.3	1978	Lowest
Motueka, Riwaka	14.1	-2.0	1956	Lowest
Nelson Airport	14.5	-1.6	1943	Well below average
Blenheim Research	14.6	-2.1	1985	Equal lowest
Blenheim Airport	14.5	-1.8	1941	2 nd equal lowest
Hanmer Forest	11.6	-2.7	1906	2 nd lowest
Kaikoura	13.1	-2.3	1963	Lowest
Mt Cook Village	9.1	-3.7	1929	2 nd lowest
Winchmore	11.4	-3.5	1949	Lowest
Rangiora	12.3	-3.1	1999	Lowest
Christchurch Airport	13.0	-2.8	1953	Lowest
Christchurch Gardens	13.3	-2.8	1863	Equal lowest
Lincoln, Broadfield	12.5	-2.8	1881	2 nd equal lowest
Lake Tekapo	9.5	-3.8	1927	2 nd lowest
Timaru Airport	11.8	-2.7	1962	Lowest
Wanaka Airport	12.2	-3.6	1992	Lowest
Dunedin Airport	11.5	-2.4	1962	Lowest
Dunedin, Musselburgh	11.0	-2.9	1947	Lowest
Manapouri Airport	10.0	-3.0	1991	Lowest
Queenstown Airport	10.8	-3.5	1968	Lowest
Lauder	11.0	-3.4	1981	Lowest
Clyde	11.8	-4.0	1983	Lowest
Ettrick	11.4	-4.1	1986	Lowest
Gore	10.0	-3.5	1971	Lowest
Invercargill Airport	10.5	-2.5	1948	Lowest
Tiwai Point	10.9	-2.5	1970	Lowest
Chatham Islands	11.9	-1.8	1956	Equal lowest

WELL ABOVE AVERAGE RAINFALL IN THE EAST FROM HAWKE'S BAY TO SOUTHLAND
BELOW AVERAGE RAINFALL IN SOME WESTERN AREAS OF THE SOUTH ISLAND

Rainfall was well above average eastern regions from Hawke's Bay to Southland, most with totals between 150 (one and a half) and 250 percent (two and a half) of average. Three times the normal occurred in the Timaru area and the Chatham Islands. Rainfall was also above average in Northland, Auckland, Coromandel, Waikato, Wanganui, Ruapehu, Manawatu, Horowhenua, Wellington, and Nelson, all with at least 125 percent (one and a quarter) of average totals. In contrast, December rainfall totals were less than 75 percent (three quarters) of average, in parts of south Westland and Fiordland. Rainfall was near average elsewhere.

Near or record high December rainfall was recorded at:

Location	December rainfall (mm)	Percentage of normal	Year Records began	Comments
Cape Reinga	114	197	1919	Well above average
Kerikeri EWS	206	199	1981	2 nd highest
Rotorua Airport	212	184	1963	Well above average
Castlepoint	163	272	1902	Well above average
Waione	137	202	1996	2 nd highest
East Taratahi	146	268	1972	Highest
Martinborough	209	330	2001	Highest
Ngawi	152	198	1989	Highest
Whakatu	94	240	1982	3 rd highest
Wallaceville	196	191	1924	Well above average
Wanganui	148	210	1890	Well above average
Takaka	268	181	1985	3 rd highest
Nelson Airport	148	199	1941	Well above average
Winchmore	149	249	1947	2 nd highest
Christchurch Airport	110	237	1943	Well above average
Christchurch Gardens	123	249	1863	Well above average
Lincoln	132	252	1881	Well above average
Timaru Airport	141	313	1956	2 nd highest
Wanaka Airport	112	189	1992	2 nd highest
Queenstown Airport	107	184	1968	Well above average
Ettrick	162	222	1985	2 nd highest
Gore	215	235	1971	Highest
Nugget Point	170	209	1983	Highest
Invercargill Airport	230	231	1940	Highest
Tiwai Point	225	253	1970	Highest
Chatham Islands	168	306	1951	Highest

RATHER CLOUDY IN THE NORTH AND WEST OF THE NORTH ISLAND, AND THE SOUTHEAST OF THE SOUTH ISLAND

Sunshine hours were 80 percent of average or less in parts of Northland, Auckland, Waikato, King Country, Manawatu, Otago, and Southland. However, they were near average elsewhere.

Near or record low December sunshine hours were recorded at:

Location	December Sunshine (hours)	Percentage of normal	Year Records began	Comments
Kaitaia	162 ^{1-day} missing	74	1985	2 nd Lowest
Auckland, Mangere	174	83	1963	3 rd lowest
Ruakura	167	75	1936	4 th lowest
Taumarunui	130	71	1947	3 rd lowest
Palmerston North	130	72	1930	Well below average

DECEMBER'S CLIMATE IN THE FOUR MAIN CENTRES

Of the four main centres Wellington was the sunniest and Christchurch the driest. Rainfall was above average and temperatures were well below average in all four cities. Sunshine hours were near average in Wellington, and below average in the Auckland, Christchurch and Dunedin.

Location	December Mean Temp. (°C)	Dep. from normal (°C)		December rainfall (mm)	% of normal		December Sunshine (hours)	% of normal	
Auckland	15.6 ^a	-2.6	Well below average	146 ^b	160	Above average	174 ^a	83	Well below average
Wellington	13.9	-1.4	Well below average	114	133	Above average	231	102	Near average
Christchurch	13.0 ^c	-2.8	Well below average	110 ^c	237	Well above average	201	91	Below average
Dunedin	10.9	-3.0	Well below average	119	145	Above average	133	79	Below average

a-Mangere b Mt Albert c-Christchurch Airport

HIGHLIGHTS AND EXTREME EVENTS

- **Temperature**

The highest December 2004 temperature was 31.0°C, recorded at Napier Airport on the 2nd. The lowest temperature for the month was -3.7°C, recorded at Wreys Bush (Southland) on the 20th. This was their lowest December temperature since measurements commenced in 2000.

- **Frost**

Ground frost occurred on the 12th of December in inland sheltered areas of the North Island, including Hawke's Bay, and Manawatu, and on several days during the month in many locations in the South Island. Tekapo recorded 10 days with ground frost, about twice the average.

- **Southerly storm**

Rough weather buffeted the country over the weekend of 18-19 December, when a very cold and unseasonable southerly outbreak brought gale force southerlies to exposed southern and eastern areas. Hail covered roads in Auckland, and thick hail covered the beach at Port Waikato during thunderstorms on the 19th. On the same day a fire occurred in a house after a lightning strike. Hailstones ruined fruit in parts of Auckland, Hawke's Bay, Tasman, and Canterbury. Damaging winds occurred in Auckland, and Cook Strait ferries had long delays due to high seas, with swells up to 8 m, the 7 pm sailing of the Lynx being cancelled. Snowfall occurred as low as 600 m in the South Island, with a light fall on the Desert Road in the central North Island. Temperatures were 6-8 °C below normal in many southern and eastern regions.

- **Tornado**

Damaging winds associated with a small tornado occurred in Penrose and Mt Wellington, Auckland on the 22nd, with some windows broken. Damage occurred to about six houses. The winds were strong enough to move a truck.

- **High rainfall**

Rainfall totalled at least 60 mm occurred in the Bay of Islands on the 29th and Bay of Plenty on the 30th. The 28-29th was also very wet in Buller and Westland, with 162 mm in Takaka on the 29th and 280 mm for the 2-day period recorded at Franz Josef.

For further information, please contact:

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