

National Climate Summary – February 2009: Hot at the beginning of the month then a cool change; wet for most of country except in the southwest; below normal sunshine for most areas

- Temperature: Above average over most of the North Island; below average for much of Canterbury, Otago and Southland.
- Rainfall: Above normal over the North Island and east of the South Island; below normal for Fiordland and parts of Southland.
- Sunshine: Well below normal for eastern Northland and Auckland, Marlborough, Canterbury and Otago; normal or below normal elsewhere.

Temperatures flip-flopped from above average over the first 12 days of February (which included record high temperatures at several locations) to below average for the remainder of the month. Heatwave conditions were experienced over the country from 7 to 12 February when temperatures of 34°C or more occurred in many locations on each day. Averaged over the whole month, February temperatures were above average (by between 0.5 and 1.5°C) north of a line extending from Wanganui to Hastings while much of Canterbury, Otago and Southland experienced below or well below average temperatures (temperature departures from normal of between -0.5 and -2.0°C). Temperatures in the remainder of the country were near normal for February. The national average temperature of 17.5°C was 0.3°C below the long-term average for February.

Rainfall was more than double (greater than 200% of normal) in Northland, Coromandel, Bay of Plenty, Hawke's Bay, Manawatu, Wellington, Marlborough, Canterbury and Otago. Most of the remainder of the North Island received normal or above normal (120 – 150% or normal) rainfall for the month – the majority coming in three storms on the 10th, 20th and 27-28th. Soil moisture levels for most of the country have returned to near-normal levels as at the end of February. Rainfall was below normal in Fiordland and parts of Southland.

Most of New Zealand received below normal (between 75 and 90% or normal) sunshine for the month, particularly eastern Northland and Auckland, Marlborough, Canterbury and Otago. Parts of the Bay of Plenty, northern Taranaki and West Coast received near normal sunshine hours.

The most significant extreme weather event to impact on the country in February was on the 20th when severe rain caused surface flooding in parts of Wellington, Levin, and Palmerston North, and caused raw sewage to overflow into central Wellington, the harbour, and Lyall Bay. In Tauranga, the severe rain caused the postponement of the Kapa Haka festival, the first time this had happened in 36 years. In South Canterbury and north Otago, surface flooding affected SH1 and SH8, and closed some minor roads. Another significant rainfall event occurred on 27-28 February when heavy rainfall caused the postponement of several North Island events.

While the first two weeks of February were very warm, associated with frequent warm north-westerly wind flows onto the country, the unsettled weather for the remainder of the month resulted from higher than normal pressure to the southwest of the country and more 'lows' (depressions) than normal to the east of New Zealand. This resulted in more southerly airflows onto the South Island than normal for this time of year, which contributed to the cool temperatures in the south.

Further Highlights:

- The highest temperature during February 2009 was 38.0°C recorded at Culverden on the 8th (the highest February maximum temperature for this location). The lowest temperature during February was recorded at Ranfurly on the 14th, where the minimum temperature was -1.0°C.
- The highest 1-day rainfall total for February was 158 mm recorded at Kaikohe on the 27th (the second highest February 1-day total for this location, since records began in 1956).
- The wind gust of 183 km/hr recorded at Southwest Cape on the 8th was the highest gust for February

for New Zealand.

- Of the six main centres, Tauranga was the warmest, wettest and sunniest and Christchurch was the driest.

For further information, please contact:

Dr Andrew Tait – Climate Scientist – NIWA National Climate Centre, Wellington,

Tel. (04) 386 0562 (work) or (027) 327 7948 (mobile); or

Dr James Renwick – Principal Scientist– NIWA National Climate Centre, Wellington,

Tel. (04) 386 0343 (work) or (021) 178 5550 (mobile)

TEMPERATURE: HOT START, COOL FINISH

The national average temperature of 17.5°C for February 2009 was 0.3°C below average for this time of the year. February started out very warm for most of New Zealand with an especially warm 6-day period from the 7th to the 12th. However, more southerlies than normal from the middle to the end of the month brought cooler air to southern areas of both islands. Averaged over the whole month, temperatures were above average (by between 0.5 and 1.5°C) north of a line extending from Wanganui to Hastings while much of Canterbury, Otago and Southland experienced below or well below average temperatures (between -0.5 and -2.0°C). Temperatures in the remainder of the country were near normal for February.

Extreme (high and low) February mean maximum daily air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal	Year records began	Comments
Kaitaia	25.6	0.7	1985	3rd-highest
Whangarei Aero	25.6	1.2	1967	4th-highest
Whangaparaoa	24.4	1.9	1982	2nd-highest
Kumeu (Waitakere)	24.5	0.4	1978	2nd-highest
Wairoa, North Clyde	25.9	1.8	1964	3rd-highest
Cape Campbell	18.8	-2.8	1953	3rd-lowest
Cheviot	20.5	-1.9	1982	2nd-lowest
Winchmore	19.3	-2.6	1928	3rd-lowest
Waipara West	20.3	-3.3	1973	3rd-lowest
Darfield	19.9	-3.0	1939	3rd-lowest
Le Bons Bay	17.1	-2.1	1984	2nd-lowest
Orari Estate	18.1	-3.7	1972	Lowest
Timaru	17.8	-2.8	1885	2nd-lowest
Oamaru Airport	16.9	-3.7	1908	Lowest
Tara Hills	20.5	-2.8	1949	2nd-lowest
Dunedin, Musselburgh	16.3	-2.6	1947	Lowest
Lumsden	17.8	-2.5	1982	2nd-lowest
Gore	16.4	-2.9	1971	Lowest
Invercargill Aero	16.3	-3.0	1948	2nd-lowest
Tiwai Point	15.5	-2.7	1970	Lowest
Balclutha	16.6	-3.4	1964	Lowest
Nugget Point	15.7	-2.0	1970	4th-lowest

Extreme (high and low) February mean minimum daily air temperatures were recorded at:

Location	Mean minimum air temperature (°C)	Departure from normal	Year records began	Comments
Kaitaia	16.5	1.3	1985	4th-highest
Kerikeri	16.4	1.8	1981	4th-highest
Kaikohe	16.6	1.9	1973	3rd-highest
Whangaparaoa	18.0	1.3	1982	2nd-highest
Kumeu (Waitakere)	14.7	0.5	1978	3rd-highest
Te Puke	15.0	1.4	1973	4th-highest

Whakatane Aero	15.6	1.5	1974	4th-highest
Gisborne	15.7	1.9	1905	4th-highest
Ohakune	11.3	2.0	1962	3rd-highest
Puysegur Point	10.1	-1.3	1978	3rd-lowest
Dunedin Aero	8.5	-0.4	1947	4th-lowest
Tiwai Point	9.3	-1.6	1970	2nd-lowest
Balclutha	8.3	-1.3	1964	4th-lowest

RAINFALL: VERY WET FOR MOST AREAS

Rainfall was more than double (greater than 200% of normal) in Northland, Coromandel, Bay of Plenty, Hawke's Bay, Manawatu, Wellington, Marlborough, Canterbury and Otago. Most of the remainder of the North Island received normal or above normal (120 – 150% or normal) rainfall for the month – the majority coming in three storms on the 10th, 20th and 27-28th. Soil moisture levels for most of the country have returned to near-normal levels as at the end of February. Rainfall was below normal in Fiordland and parts of Southland.

Extreme (high and low) February rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Kaitaia	177	230	1985	3rd-highest
Kerikeri	241	259	1981	4th-highest
Te Puke	304	301	1973	2nd-highest
Whatawhata (near Hamilton)	215	261	1952	4th-highest
Martinborough	144	289	1924	3rd-highest
Palmerston North	213	379	1928	2nd-highest
Levin	172	285	1895	3rd-highest
Wellington Aero	161	312	1958	3rd-highest
Wanganui	146	221	1987	2nd-highest
Blenheim Aero	137	302	1927	Highest
Winchmore	139	263	1909	3rd-highest
Timaru	166	371	1881	3rd-highest
Dunedin, Musselburgh	165	267	1918	4th-highest
Cromwell	64	200	1949	4th-highest
Milford Sound	166	33	1929	3rd-lowest

SUNSHINE: BELOW NORMAL FOR MOST OF COUNTRY

Most of New Zealand received below normal (between 75 and 90% or normal) sunshine for the month, particularly eastern Northland and Auckland, Marlborough, Canterbury and Otago. Parts of the Bay of Plenty, northern Taranaki and West Coast received near normal sunshine hours.

Extreme (high and low) February sunshine hours were recorded at:

Location	Sunshine (hours)	Percentage of normal	Year records began	Comments
Takaka	177	82	1985	3rd-lowest
Blenheim	173	76	1947	Equal lowest
Cheviot	149	77	1983	2nd-lowest
Christchurch Aero	133	68	1930	4th-lowest
Timaru	108	63	1930	2nd-lowest
Cromwell	190	89	1979	2nd-lowest

FEBRUARY'S CLIMATE IN THE SIX MAIN CENTRES

Rainfall was well above normal in all of the main centres. Christchurch was the driest main centre and Tauranga was the wettest. Tauranga (the warmest of the main centres) received well above average temperatures for February, while temperatures in Hamilton were above average. Wellington and Auckland temperatures were near average, while Christchurch was below average and Dunedin temperatures were well below average. Sunshine totals everywhere except Tauranga (the sunniest of the main centres) were below normal.

February 2009 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	20.1	0.2	Near average	127	169	Well above normal	177	89	Below normal
Tauranga ^b	21.1	1.6	Well above average	190	263	Well above normal	225	107	Near normal
Hamilton	19.6	1.0	Above average	134	215	Well above normal	156 ^d	79	Below normal
Wellington	16.7	-0.4	Near average	168	271	Well above normal	181	87	Below normal
Christchurch ^c	15.9	-0.9	Below average	68	165	Well above normal	133	68	Well below normal
Dunedin	13.2	-2.0	Well below average	165	267	Well above normal	123	80	Below normal

^a Mangere ^b Tauranga Airport ^c Christchurch Airport ^d Ruakura

HIGHLIGHTS AND EXTREME EVENTS

• Temperature

The highest temperature during February 2009 was 38.0°C recorded at Culverden on the 8th (the highest February maximum temperature for this location). Several other locations also experienced their highest recorded February maximum and minimum temperatures in the six day “heat wave” from the 7th to the 12th (see tables below).

Near record high extreme daily maximum air temperatures were recorded at:

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaitiāia	30.4	7th	1985	Highest
Kerikeri	28.9	8th	1981	Equal 4th-highest
Kaikohe	31.6	8th	1973	Highest
Whangarei Aero	30.5	12th	1967	Equal 2nd-highest
Warkworth	29.4	12th	1966	Highest
Whangaparaoa	28.5	8th	1982	Highest
Kumeu (Waitakere)	31.3	12th	1978	Highest
Whenuapai	32.4	12th	1945	Highest
Whitianga Aero	31.9	8th	1962	Highest
Paeroa	32.2	8th	1947	2nd-highest
Te Puke	30.7	8th	1973	Equal 2nd-highest
Rotorua Aero	30.0	9th	1964	2nd-highest
Taupo	30.4	8th	1949	4th-highest
Whatawhata (near Hamilton)	31.5	18th	1952	Highest
Turangi	32.6	8th	1968	Highest
Takapau Plains	30.7	8th	1962	Equal 4th-highest
Castlepoint	31.5	8th	1972	Highest
East Taratahi	33.6	8th	1906	4th-highest
Martinborough	34.1	8th	1986	Highest
Ngawi	30.2	8th	1972	Equal 3rd-highest
Hicks Bay	28.2	8th	1969	2nd-highest

Gisborne	34.6	1st	1905	3rd-highest
Napier Aero	36.7	1st	1868	Highest
Waipawa	33.8	8th	1945	2nd-highest
Wairoa, North Clyde	37.3	1st	1964	Highest
Wallaceville	30.6	8th	1939	3rd-highest
Ohakune	30.0	8th	1962	Equal highest
Waiouru	28.0	8th	1962	3rd-highest
Takaka	31.6	7th	1978	2nd-highest
Farewell Spit	29.5	8th	1971	Highest
Lake Rotoiti	31.3	8th	1965	Highest
Motueka, Riwaka	30.5	8th	1956	4th-highest
Appleby	29.7	8th	1943	4th-highest
Blenheim Aero	34.1	9th	1932	2nd-highest
Hanmer Forest	35.7	8th	1906	3rd-highest
Culverden	38.0	8th	1928	Highest
Cheviot	37.8	8th	1982	Highest
Winchmore	35.2	8th	1928	Equal 4th-highest
Waipara West	36.2	8th	1973	2nd-highest
Darfield	36.4	8th	1939	2nd-highest
Le Bons Bay	30.9	9th	1984	2nd-highest
Woodbury	35.0	8th	1973	2nd-highest

Near record high extreme daily minimum air temperatures were recorded at:

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaitaia	20.7	12th	1985	3rd-highest
Kerikeri	21.1	12th	1981	Highest
Kaikohe	20.9	12th	1973	Highest
Whangarei Aero	21.8	12th	1967	3rd-highest
Warkworth	21.4	12th	1966	Equal highest
Whangaparaoa	21.4	12th	1982	Highest
Kumeu (Waitakere)	20.2	12th	1978	4th-highest
Whenuapai	21.2	12th	1951	3rd-highest
Whitianga Aero	21.9	11th	1972	Highest
Paeroa	21.9	11th	1972	Highest
Tauranga Aero	22.5	11th	1941	Highest
Te Puke	21.1	11th	1973	Equal highest
Whakatane Aero	22.0	12th	1975	Highest
Rotorua Aero	20.2	12th	1972	Highest
Taupo	19.9	12th	1950	Equal highest
Auckland Aero	22.1	12th	1961	Highest
Pukekohe	20.7	12th	1972	4th-highest
Whatawhata (near Hamilton)	21.3	12th	1952	Equal 2nd-highest
Ruakura	21.2	12th	1940	3rd-highest
Hamilton	21.3	12th	1946	Equal 2nd-highest
Te Kuiti	21.9	12th	1959	Highest
Taumarunui	20.9	12th	1947	Highest
Turangi	20.0	12th	1968	Highest
Gisborne	22.2	10th	1940	4th-highest
Ohakune	18.7	12th	1972	Highest
Waiouru	17.3	12th	1972	Highest
Motueka, Riwaka	18.9	10th	1972	Equal 4th-highest
Nelson Aero	19.9	10th	1943	3rd-highest
Arthurs Pass	14.5	9th	1973	Equal 4th-highest
Mt Cook	19.9	9th	1929	4th-highest
Lake Tekapo	20.8	9th	1928	Highest
Tara Hills	19.7	9th	1949	2nd-highest
Wanaka Aero	19.6	9th	1972	2nd-highest
Manapouri Aero	17.6	9th	1973	3rd-highest
Lumsden	19.6	9th	1982	Highest
Cromwell	23.3	9th	1949	Highest

The lowest temperature during February was recorded at Ranfurly on the 14th, where the minimum temperature was -1.0°C (not a February record minimum temperature for this location).

Near record low extreme daily minimum air temperatures were recorded at:

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Warkworth	9.2	25th	1966	3rd-lowest
Dunedin Aero	1.9	11th	1947	3rd-lowest
Queenstown Aero	1.7	14th	1871	3rd-lowest

Near record low extreme daily maximum air temperatures were recorded at:

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Whangaparaoa	18.7	14th	1982	Lowest
Kumeu (Waitakere)	18.1	14th	1978	2nd-lowest
Whakatane Aero	19.0	28th	1975	2nd-lowest
Pukekohe	16.6	14th	1972	Lowest
Martinborough	14.4	13th	1986	2nd-lowest
Ngawi	14.0	13th	1972	3rd-lowest
Wellington Aero	14.3	13th	1972	Equal 3rd-lowest
Puysegur Point	11.4	21st	1978	Equal 3rd-lowest
Hanmer Forest	9.7	13th	1972	3rd-lowest
Kaikoura	11.9	13th	1972	2nd-lowest
Cheviot	11.7	13th	1982	2nd-lowest
Le Bons Bay	11.6	13th	1984	2nd-lowest
Woodbury	11.0	16th	1973	Equal 2nd-lowest
Orari Estate	12.2	24th	1972	4th-lowest
Invercargill Aero	11.0	21st	1948	Equal 2nd-lowest
Tiwai Point	11.5	21st	1972	Equal 3rd-lowest
Balclutha	10.6	21st	1972	3rd-lowest
Nugget Point	10.1	21st	1972	3rd-lowest

• **Heavy rain and flooding**

Torrential rain in Manawatu and Wanganui on the afternoon of 10 February caused flooding up to 1 m deep. From 11am to 4pm, 72.4 mm was recorded in Palmerston North, and from 9am and 4 pm, 74.4 mm was recorded in Wanganui.

A heavy, isolated, rainstorm about 1am on the 19th caused flash flooding in Ohope.

Severe rain on 20 February caused surface flooding in parts of Wellington, Levin, and Palmerston North, and caused raw sewage to overflow into central Wellington, the harbour, and Lyall Bay. In Tauranga, the severe rain caused the postponement of the Kapa Haka festival, the first time this had happened in 36 years. In South Canterbury and north Otago, surface flooding affected SH1 and SH8, and closed some minor roads.

Dunedin's fundraising "Relay for life" on 21 February was cancelled at midnight because of heavy rain.

Severe rain on the 27th caused surface flooding, traffic accidents in several North Island regions, and sewage overflows in Wellington City and the harbour.

Stormy weather on the 28th forced the cancellation of the Mission Estate Concert in Hawke's Bay when excessive water and mud made the venue dangerous, and the Derby Day race at Ellerslie was postponed for the first time in its history.

The highest 1-day rainfall total for February 2009 was 158 mm recorded at Kaikohe on the 27th (the second highest February 1-day total for this location, since records began in 1956).

Near record high extreme 1-day rainfall totals were recorded at:

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year Records Began	Comments
Cape Reinga	102	27th	1919	3rd-highest
Kaitaia	80	27th	1985	4th-highest
Kerikeri	132	27th	1981	3rd-highest
Kaikohe	158	27th	1956	2nd-highest
Te Puke	120	28th	1973	4th-highest
Wairoa, North Clyde	92	24th	1967	3rd-highest
Palmerston North	78	10th	1928	4th-highest
Wanganui	75	10th	1937	3rd-highest
Hokitika Aero	151	20th	1963	Highest
Hokitika	147	20th	1866	3rd-highest
Pelorus Sd, Crail Bay	67	12th	1982	4th-highest
Woodbury	88	20th	1973	Highest
Timaru Harbour	49	20th	1942	3rd-highest

• High winds and tornadoes

The wind gust of 183 km/hr recorded at Southwest Cape on the 8th was the highest gust for February for New Zealand, though it was not a February record for this location.

Near record high extreme wind gusts were recorded at:

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records began	Comments
Cape Reinga	122	27th	1974	4th-highest
Kaikohe	72	28th	1986	Highest
Whenuapai	82	28th	1972	Equal 4th-highest
Tauranga Aero	83	20th	1973	3rd-highest
Whakatane Aero	85	20th	1974	Highest
Hamilton	70	28th	1978	Equal 4th-highest
Turangi	78	1st	1973	4th-highest
Castlepoint	139	1st	1972	4th-highest
Puysegur Point	145	8th	1986	4th-highest
Gore	107	8th	1987	2nd-highest

For further information, please contact:

Dr Andrew Tait – Climate Scientist – NIWA National Climate Centre, Wellington,

Tel. (04) 386 0562 (work) or (027) 327 7948 (mobile); or

Dr James Renwick – Principal Scientist– NIWA National Climate Centre, Wellington,

Tel. (04) 386 0343 (work) or (021) 178 5550 (mobile)

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