

**National Climate Summary – Summer 2008/09: Wet in many areas; mild and sunny in the North Island and northern South Island; heat wave in early February.**

- Rainfall: Above normal in the north, west and south of the North Island, Marlborough, mid- and south Canterbury and Otago; below normal in Hawke’s Bay and Westport
- Temperature: Above average for most of the North Island and the north of the South Island; below average in mid- and south Canterbury, Otago and coastal Southland.
- Sunshine: Near normal for most of New Zealand; below normal in Otago and Southland

Summer rainfall was above normal (120 – 150% of normal) in parts of Northland, Auckland, Waikato, Manawatu, Wellington and Otago. Some locations in Marlborough and south Canterbury received nearly double their normal summer rainfall totals. Hawke’s Bay and Westport received between 50 and 80 percent of normal summer rainfall. Other areas received near normal rainfall for summer. Severe soil moisture deficits in many eastern areas of the country eased to near normal levels by the end of February.

Summer overall was warmer than average (by between 0.5 and 1.5°C) for most of the North Island and the north of the South Island. A significant heat wave was experienced in many parts of the country from 7 – 12 February, when several record high temperatures were set. Temperatures were below the long-term summer average by between 0.5 and 1.5°C throughout much of inland mid- and south Canterbury, Otago and coastal Southland. The national average temperature of 16.7 °C was 0.1 °C above average for summer.

December and January’s climate was dominated by more ‘highs’ (anticyclones) to the east of the country and more ‘lows’ (depressions) than normal in the Tasman sea, resulting in stronger than normal north-easterly winds over the country. In February, the first two weeks were very warm, associated with frequent warm north-westerly wind flows onto the country, whereas the last two weeks were dominated by more southerly airflows onto the South Island than normal for this time of year, which contributed to the cool temperatures in the south.

**Major Highlights:**

- Heavy rain fell in Queenstown and on the West Coast overnight on 2 January. River levels in the Haast and Callery (near Franz Josef) Rivers rose quickly as a result. On 3 January, thunder and hail in Christchurch forced the postponement of the international cricket match against the West Indies, while large, 2 cm hailstones whipped across roads and buildings in Waipara, bringing traffic to a standstill, and denting cars.
- On 20 February, 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.
- Several locations experienced record or near-record high summer maximum and minimum temperatures in the six day “heat wave” from the 7<sup>th</sup> to the 12<sup>th</sup> of February. The highest temperature during summer 2008/09 was 38.0°C recorded at Culverden on the 8<sup>th</sup> of February (the highest summer maximum temperature for this location). The minimum temperature of 22.5°C at Tauranga airport on the night of the 10<sup>th</sup>/11<sup>th</sup> of February was the highest minimum for the country for summer (and the highest summer minimum temperature at that location since records began in 1941).
- The lowest temperature during summer was recorded at Hanmer Forest on 6 December where the minimum temperature was -1.7°C (not a summer record for this location). A cold southerly air flow persisted for three days from 11 – 14 February resulting in minimum temperatures of -1.0°C at Ranfurly, -0.6°C at Manapouri, 1.7°C at Queenstown and 1.9°C at Dunedin airport.
- Of the six main centres, Tauranga was the warmest and sunniest, Wellington the wettest, and Christchurch was the driest.

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### **RAINFALL: AVERAGE OR ABOVE AVERAGE FOR MOST AREAS; BELOW AVERAGE IN HAWKE'S BAY, WESTPORT AND CHEVIOT**

Summer rainfall was above normal (120 – 150% of normal) in parts of Northland, Auckland, Waikato, Manawatu, Wellington and Otago. Some locations in Marlborough and south Canterbury received nearly double their normal summer rainfall totals. Hawkes Bay and Westport received between 50 and 80 percent of normal summer rainfall. Other areas received near normal rainfall for summer.

#### **Near or record summer rainfall totals were recorded at:**

Location	Summer 2008 rainfall (mm)	Percentage of normal	Year Records began	Comments
Wanganui	289	145	1987	3rd-highest
Blenheim Aero	285	185	1927	3rd-highest
Tara Hills (near Omarama)	246	185	1949	3rd-highest
Westport Aero	272	53	1944	2nd-lowest

### **TEMPERATURE: ABOVE AVERAGE FOR MUCH OF COUNTRY; BELOW AVERAGE FROM MID-CANTERBURY SOUTH**

Seasonal mean temperatures were between 0.5 and 1.5 °C above average for most of the North Island and the north of the South Island. They were below average by between 0.5 and 1.5°C throughout much of inland mid- and south Canterbury, Otago and coastal Southland. The national average temperature of 16.7 °C was 0.1 °C above average for summer.

#### **Extreme (high and low) summer mean daily air temperatures were recorded at:**

Location	Mean air temperature (°C)	Departure from normal	Year records began	Comments
Kaikohe	19.1	0.9	1973	3rd-highest
Tauranga Aero	20.1	1.3	1913	Highest
Wairoa, North Clyde	19.5	0.9	1964	4th-highest
Ohakune	15.7	0.9	1962	4th-highest
Tiwai Point	13.3	-0.8	1970	2nd-lowest
Balclutha	13.5	-1.1	1964	3rd-lowest

#### **Extreme (high and low) summer mean maximum daily air temperatures were recorded at:**

Location	Mean maximum air temperature (°C)	Departure from normal	Year records began	Comments
Kaikohe	23.4	1.0	1973	4th-highest
Whangaparaoa	23.3	1.5	1982	Highest
Tauranga Aero	24.6	1.3	1913	4th-highest
Wairoa, North Clyde	25.3	1.4	1964	2nd-highest

Takaka	23.1	1.1	1978	4th-highest
Lake Rotoiti	21.6	1.5	1965	4th-highest
Cape Campbell	18.2	-3.2	1953	2nd-lowest

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

Location	Mean minimum air temperature (°C)	Departure from normal	Year records began	Comments
Balclutha	8.4	-1.0	1964	4th-lowest

**SUNSHINE: NORMAL FOR MOST AREAS; BELOW NORMAL IN SOUTHLAND AND OTAGO**

Summer sunshine hours were near normal (between 90 and 110% of normal) for all of New Zealand except for around Turangi, Martinborough, Franz Josef and Greymouth where sunshine totals were above normal and for much of Otago and Southland where totals were below normal.

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

Location	Summer sunshine (hours)	Percentage of normal	Year records began	Comments
Turangi	681	112	1976	3rd-highest
Greymouth Aero	656	121	1947	2nd-highest

**SUMMER CLIMATE IN THE SIX MAIN CENTRES**

Of the six main centres, Tauranga was the warmest and sunniest, Wellington the wettest, and Christchurch was the driest. Summer temperatures were near average everywhere except Tauranga, which was well above average. Summer rainfall was near normal in Hamilton and Christchurch, above normal in Tauranga and Auckland and well above normal in Wellington. Summer sunshine was near normal everywhere except Tauranga, which was above normal.

Location	Summer Mean Temp. (°C)	Dep. from normal (°C)		Summer rainfall (mm)	% of normal		Summer Sunshine (hours)	% of normal	
Auckland <sup>a</sup>	18.8	-0.5	Near average	266	122	Above normal	644	101	Near normal
Tauranga <sup>b</sup>	20.0	+1.4	Well above average	315	132	Above normal	791	113	Above normal
Hamilton	18.2	+0.5	Near average	287	109	Near normal	637 <sup>d</sup>	98	Near normal
Wellington	16.7	+0.3	Near average	336	153	Well above normal	674	99	Near normal
Christchurch <sup>c</sup>	16.8	+0.2	Near average	138	106	Near normal	644	100	Near normal
Dunedin	14.5	-0.2	Near average	283	131	Above normal	471	94	Near normal

<sup>a</sup> Mangere    <sup>b</sup> Tauranga Airport    <sup>c</sup> Christchurch Airport    <sup>d</sup> Ruakura

**HIGHLIGHTS AND EXTREME EVENTS**

• **High rainfall and hail**

2 – 3 January: Heavy rain fell in Queenstown and on the West Coast overnight on 2 January. River levels in the Haast and Callery (near Franz Josef) Rivers rose quickly as a result. The Te Anau Rodeo Club annual event was cancelled after consistent rain turned the arena into a quagmire. On 3 January, thunder and

hail in Christchurch forced the postponement of the international cricket match against the West Indies, while large, 2 cm hailstones whipped across roads and buildings in Waipara, bringing traffic to a standstill, and denting cars.

18 January: Flash floods struck Christchurch on the evening of 18 January. The same storm brought torrential rain and hail to Ashburton in half an hour, turning streets into rivers, and ruining vegetable gardens.

10 February: 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.

20 February: 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.

27 – 28 February: Severe rain on the 27<sup>th</sup> caused surface flooding and traffic accidents in several North Island regions. Stormy weather on the 28<sup>th</sup> 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.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year Records began	Comments
Cape Reinga	102	Feb-27th	1919	4th-highest
Kerikeri	132	Feb-27th	1981	3rd-highest
Kaikohe	158	Feb-27th	1956	Highest
Kumeu (Waitakere)	69	Dec-23rd	1978	2nd-highest
Raglan	91	Dec-23rd	1983	2nd-highest
Waikeria (near Te Awamutu)	70	Dec-23rd	1977	3rd-highest
Wairoa, North Clyde	92	Feb-24th	1967	4th-highest
Wanganui	75	Feb-10th	1937	4th-highest
Hokitika Aero	151	Feb-20th	1963	Highest
Hokitika	147	Feb-20th	1866	4th-highest
Craigieburn Forest	106	Dec-19th	1964	Highest
Woodbury	88	Feb-20th	1973	2nd-highest
Arthurs Point (near Queenstown)	71	Dec-31st	1966	2nd-highest
Mt Barker (Lake Coleridge)	58	Jan-16th	1967	4th-highest

### • Temperature

#### Cold spells

6 December: The lowest temperature during summer was recorded on this day at Hanmer Forest where the minimum temperature was -1.7°C (not a summer record for this location).

20 December: The maximum temperatures on this day were very low for many South Island locations, with Darfield reaching only 9.1°C, Fairlie and Woodbury reaching only 9.0°C, Orari Estate reaching only 9.8°C and Wanaka Airport only getting to 8.3°C on that day (all record lowest December maximum temperatures).

11 – 14 February: A cold southerly air flow resulted in minimum temperatures of -1.0°C at Ranfurly, -0.6°C at Manapouri, 1.7°C at Queenstown and 1.9°C at Dunedin airport.

#### Warm spells

29 – 30 December: Culverden reached 33.0°C on the 29<sup>th</sup> (the 3<sup>rd</sup>-highest December maximum

temperature for this location) and Cheviot received it's highest ever December maximum temperature with a reading of 32.0°C on the 30<sup>th</sup>.

8 January: The highest temperature during January 2009 was 37.2°C recorded at Waione in the Wairarapa on this day (the highest January maximum temperature for this location and the equal 9<sup>th</sup> highest January temperature for anywhere in New Zealand – the highest was 38.9°C in Ruatoria in January 1979). Takapau Plains (southern Hawkes Bay) and Ohakune also received their highest ever January maximum temperatures with readings of 32.8°C and 30.0°C on the 8<sup>th</sup>.

24 – 25 January: Culverden recorded 37.0°C on the 24<sup>th</sup> (the 2<sup>nd</sup>-highest January maximum temperature for this location). Invercargill airport and Tiwai Point received their highest ever January minimum temperatures on the night of the 25<sup>th</sup>, with 17.9 and 17.3°C respectively.

1 February: Extremely high maximum temperatures exceeding 36°C were recorded on this day in Wairoa (second highest summer maximum temperature since records began in 1964), Napier airport (highest temperature since 1868) and Hastings (highest temperature since 1930).

7 – 12 February: Several locations experienced record or near-record high summer maximum temperatures in the six day “heat wave” from the 7<sup>th</sup> to the 12<sup>th</sup> (see table below). The highest temperature during the summer of 2008/09 was 38.0°C recorded at Culverden on the 8<sup>th</sup> of February (the highest summer maximum temperature for this location).

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaitaia	30.4	Feb-07th	1985	Highest
Kaikohe	31.6	Feb-08th	1973	Highest
Whangarei Aero	30.7	Jan-02nd	1967	4th-highest
Warkworth	29.4	Feb-12th	1966	Highest
Whangaparaoa	28.5	Feb-08th	1982	Highest
Kumeu (Waitakere)	31.3	Feb-12th	1978	Highest
Whenuapai	32.4	Feb-12th	1945	Highest
Whitianga Aero	31.9	Feb-08th	1962	Highest
Paeroa	32.2	Feb-08th	1947	2nd-highest
Rotorua Aero	30.0	Feb-09th	1964	3rd-highest
Whatawhata (near Hamilton)	31.5	Feb-18th	1952	2nd-highest
Turangi	32.6	Feb-08th	1968	Highest
Kopua (near Gisborne)	32.1	Jan-08th	1962	Highest
Takapau Plains	32.8	Jan-08th	1962	Highest
Castlepoint	31.5	Feb-08th	1972	2nd-highest
Martinborough	34.1	Feb-08th	1986	3rd-highest
Hicks Bay	28.2	Feb-08th	1969	4th-highest
Napier Aero	36.7	Feb-01st	1868	Highest
Hastings	37.1	Feb-01st	1930	Highest
Waipawa	33.8	Feb-08th	1945	4th-highest
Wairoa, North Clyde	37.3	Feb-01st	1964	2nd-highest
Ohakune	30.0	Jan-08th	1962	Equal highest
Waiouru	28.2	Jan-08th	1962	4th-highest
Takaka	31.6	Feb-07th	1978	2nd-highest
Farewell Spit	29.5	Feb-08th	1971	Highest
Lake Rotoiti	31.3	Feb-08th	1965	Highest
Hanmer Forest	35.7	Feb-08th	1906	3rd-highest
Culverden	38.0	Feb-08th	1928	Highest
Cheviot	37.8	Feb-08th	1982	Highest
Waipara West	36.2	Feb-08th	1973	2nd-highest
Darfield	36.4	Feb-08th	1939	3rd-highest
Christchurch Aero	35.7	Jan-08th	1863	4th-highest
Woodbury	35.0	Feb-08th	1973	2nd-highest
Naseby Forest	32.7	Jan-24th	1983	Equal highest

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Warkworth	6.4	Dec-07th	1966	Equal lowest
Grassmere	0.7	Dec-14th	1953	4th-lowest
Cheviot	0.0	Dec-22nd	1982	2nd-lowest
Dunedin Aero	1.9	Feb-11th	1947	4th-lowest
Balclutha	0.8	Dec-13th	1964	2nd-lowest

- **High winds and tornadoes**

3 January: Gale force winds caused havoc in Canterbury with thousands of homes left without power. Lines were blown down in central Christchurch, and in Ashburton, winds brought trees down on to power lines, causing short circuits and fires, cutting power to more than 10,000 homes in the area. On the same day, a tornado hit a farmhouse on the southern outskirts of Waikouaiti, ripping tiles off the roof, smashing windows, splintering trees and felling nearby power lines.

8 January: A tornado ripped the roof off the Bannockburn Hotel, and dumped it onto nearby power lines. Power was cut to 450 customers in the area for about 20 minutes.

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

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

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records began	Comments
Cape Reinga	122	Feb-27th	1974	4th-highest
Kaikohe	72	Feb-28th	1986	4th-highest
Whakatane Aero	85	Feb-20th	1974	4th-highest
Winchmore	106	Jan-02nd	1970	Equal highest
Lauder	107	Jan-02nd	1981	4th-highest

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