

National Climate Summary – August 2009: An early start to spring!

- Temperature: The warmest August on record, with record temperatures at many locations.
- Rainfall: Well above normal rainfall in Westland, and in parts of Fiordland and Waikato; very dry in eastern parts of both islands.
- Sunshine: Sunshine totals were well above normal over the lower North Island, but well below normal in Fiordland, Westland and in the far north.

It was an early start to spring, with temperatures rocketing upwards during August to record or near-record levels over much of the country. Temperatures were more than 2°C above average in central Otago and the Lakes District, and parts of: Canterbury, Northland, Auckland, and the western Bay of Plenty. Well above average temperatures (between 1.2°C and 2°C above average) were recorded elsewhere, except for Gisborne and Hawke's Bay (with temperatures between 0.5°C and 1.2°C above average). It was the warmest August since records began 155 years ago, with a national average temperature of 10.2°C (1.7°C above the long-term August average).

Well above normal rainfall for August (more than 150 percent of normal) occurred in Westland and parts of Fiordland and the Waikato. Rainfall was also above normal in Nelson/Marlborough (between 120 and 150 percent of normal). In contrast, well below normal August rainfalls (less than 50 percent of normal) were recorded in coastal parts of the Wairarapa, southern Hawkes Bay and Gisborne, coastal Canterbury and parts of Otago. Below normal August rainfall (between 50 and 80 percent of normal) occurred in Northland and Auckland. Elsewhere, August rainfall was near normal.

August 2009 was a very sunny month in the lower North Island (Wellington, Kapiti Coast, Manawatu/Horowhenua, the Wairarapa and southern Hawkes Bay), with August sunshine totals greater than 125% of normal. In contrast, well below normal August sunshine totals (less than 75 percent of normal) were recorded in Fiordland, Westland and Kaitaia. It was a sunny month for the east of the South Island.

There were three notable weather events during August: On the 1st and 2nd of the month, trees and deep snow from a series of avalanches blocked the only road access to Milford Sound (via the Homer Tunnel), until the 11th. Thunderstorms on the 26th brought heavy rain and lightning to Taranaki, Auckland and the western Bay of Plenty (cutting power to more than 8000 homes). On the 31st, heavy rain resulted in surface flooding across the greater Wellington region, causing a major slip onto the railway tracks at Pukerua Bay.

During August 2009, frequent northerly winds affected New Zealand, resulting in warmer temperatures.

Further Highlights:

- The highest temperature during August 2009 was 25.5°C recorded at Henderson (Auckland) on the 11th. The lowest temperature was recorded at Dashwood (Marlborough) with a minimum temperature of -8.6°C on the 18th.
- The highest 1-day rainfall total for August was 260.4 mm, recorded at Awakino (coastal Waitomo) on the 25th.
- The highest wind gust for August was 165 km/hr recorded at both Cape Turnagain (Wairarapa Coast) and Awakino (coastal Waitomo) on the 28th and 29th, respectively.
- Of the six main centres, Auckland and Tauranga were the warmest; Wellington was the sunniest and also the wettest, Dunedin the driest, and Christchurch the coolest.

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TEMPERATURES: A RECORD WARM AUGUST, WITH WELL ABOVE AVERAGE TEMPERATURES IN MANY LOCATIONS

It was the warmest August since records began 155 years ago, with a national average temperature of 10.2°C (1.7°C above the long-term August average). This was a remarkable turn-around after the unusually cold months earlier in the winter. Mean temperatures were more than 2°C above average in central Otago and the Lakes District, and parts of: Canterbury, Northland, Auckland, and the western Bay of Plenty. Well above average temperatures (between 1.2°C and 2°C above average) were recorded elsewhere, except for Gisborne and Hawke's Bay (with temperatures between 0.5°C and 1.2°C above average).

Record high monthly maximum temperatures were experienced at numerous locations across New Zealand, and notably, maximum temperatures in August 2009 were 3.0°C above August average at Cromwell (central Otago) and Waipara West (Canterbury), and 4.0°C above August average at Hanmer Forest (Canterbury).

Extreme high August mean maximum daily air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitia	16.7	0.5	1985	3rd-highest
Whangarei	17.0	1.4	1967	Highest
Whangaparaoa	16.2	2.2	1982	Highest
Kumeu (Waitakere)	16.2	1.1	1978	2nd-highest
Whenuapai (West Auckland)	16.3	1.2	1945	2nd-highest
Tauranga	16.2	1.4	1913	2nd-highest
Port Taharoa	16.0	1.4	1973	2nd-highest
Turangi	13.2	1.3	1968	4th-highest
New Plymouth	15.2	1.5	1944	Highest
East Taratahi (Masterton)	15.0	1.9	1906	3rd-highest
Martinborough	15.9	2.3	1986	2nd-highest
Ngawi (Wairarapa coast)	15.2	2.3	1972	2nd-highest
Gisborne	16.3	1.4	1905	4th-highest
Paraparaumu	14.7	1.7	1953	Highest
Palmerston North	15.4	2.1	1928	Highest
Levin	15.3	2.0	1895	Highest
Wellington	14.7	2.0	1962	Highest
Wallaceville	15.5	2.6	1939	Highest
Stratford	13.4	1.5	1960	2nd-highest
Hawera	14.2	1.6	1977	Highest
Ohakune	12.0	1.9	1962	3rd-highest
Waiouru	10.4	1.6	1962	3rd-highest
Wanganui	16.0	2.2	1937	Highest
Takaka	15.0	1.4	1978	3rd-highest
Westport	14.3	1.3	1937	2nd-highest
Lake Rotoiti	11.3	1.8	1965	2nd-highest
Reefton	13.8	1.8	1960	Highest
Greymouth	13.9	1.3	1947	4th-highest
Puysegur Point (Fiordland)	12.6	1.9	1978	Highest
Nelson	14.3	1.2	1943	Highest
Appleby	15.4	2.3	1943	Highest
Blenheim	16.0	2.2	1941	Highest
Hanmer Forest	15.5	4.0	1906	2nd-highest
Kaikoura	13.8	2.3	1963	2nd-highest
Winchmore	14.4	2.8	1928	2nd-highest
Waipara West	15.5	3.0	1973	2nd-highest
Christchurch	14.2	2.1	1863	4th-highest
Le Bons Bay (Banks Peninsula)	12.4	2.4	1984	2nd-highest
Timaru	13.2	1.6	1885	4th-highest
Oamaru	13.8	1.8	1908	2nd-highest

Tara Hills	11.5	2.1	1949	3rd-highest
Wanaka	12.0	1.6	1955	3rd-highest
Dunedin	13.8	1.8	1947	2nd-highest
Manapouri	11.2	1.1	1963	3rd-highest
Lumsden	12.3	1.9	1982	Highest
Cromwell	14.0	3.0	1949	Highest
Gore	12.0	1.9	1971	2nd-highest
Invercargill	12.5	1.4	1948	2nd-highest
Nugget Point (coastal Otago)	11.7	1.9	1970	2nd-highest

Record high August minimum temperatures were also observed right across the country. Notably, minimum temperatures in August 2009 were at least 3.0°C above average in parts of Auckland, coastal Marlborough, at Arthurs Pass and Mt. Cook, and in parts of Canterbury, central Otago and the South Island Lakes District.

Extreme high August mean minimum daily air temperatures were recorded at:

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitiā	10.1	1.9	1985	Highest
Dargaville	9.5	1.9	1943	3rd-highest
Whangarei	10.5	2.5	1967	Highest
Whangaparaoa	10.7	1.3	1982	Highest
Kumeu (Waitakere)	8.6	2.2	1978	2nd-highest
Whenuapai (West Auckland)	9.7	3.3	1945	Highest
Whitianga	9.0	3.0	1962	Highest
Tauranga	9.5	3.4	1913	Highest
Te Puke	7.3	1.9	1973	Highest
Whakatane	6.8	2.5	1974	Highest
Rotorua	6.3	2.2	1964	Highest
Taupo	4.7	2.2	1949	2nd-highest
Auckland	9.8	1.8	1959	Highest
Whatawhata	7.7	2.0	1952	2nd-highest
Ruakura	6.5	1.6	1906	4th-highest
Hamilton	6.7	2.5	1946	3rd-highest
Port Taharoa	9.9	1.8	1973	Highest
Te Kuiti	6.3	1.6	1959	3rd-highest
Taumarunui	5.0	1.7	1947	3rd-highest
New Plymouth	8.1	1.7	1944	Highest
Martinborough	5.6	1.3	1986	3rd-highest
Ngawi (coastal Wairarapa)	9.5	1.8	1972	2nd-highest
Hicks Bay (East Cape)	9.8	1.7	1969	3rd-highest
Stratford	6.2	2.2	1960	2nd-highest
Hawera	6.6	1.5	1977	3rd-highest
Waiouru	2.7	1.8	1962	Highest
Wanganui	7.6	1.4	1937	3rd-highest
Takaka	5.6	1.7	1978	3rd-highest
Farewell Spit	8.9	2.7	1971	Highest
Westport	7.1	1.7	1937	2nd-highest
Lake Rotoiti	1.2	1.8	1965	2nd-highest
Hokitika	6.4	2.5	1963	Highest
Reefton	4.1	2.5	1960	2nd-highest
Greymouth	7.5	2.5	1947	Highest
Haast	6.4	2.3	1949	3rd-highest
Milford Sound	4.4	2.2	1934	2nd-highest
Puysegur Point (Fiordland)	7.3	1.4	1978	2nd-highest
Motueka	4.7	2.1	1956	2nd-highest
Nelson	5.3	2.3	1943	2nd-highest
Appleby	4.8	1.4	1943	2nd-highest
Blenheim	5.7	2.4	1941	Highest

Cape Campbell	8.9	3.7	1953	Highest
Kaikoura	7.3	1.8	1963	Highest
Arthurs Pass	2.3	3.4	1978	Highest
Mt Cook	2.1	3.0	1929	Highest
Winchmore	3.7	1.7	1928	2nd-highest
Waipara West	5.7	3.0	1973	Highest
Darfield	5.1	3.1	1939	Highest
Christchurch, Lincoln	4.4	1.8	1881	4th-highest
Le Bons Bay (Banks Peninsula)	6.9	2.1	1984	Highest
Lake Tekapo	1.9	3.2	1927	Highest
Timaru	4.2	2.6	1885	Highest
Tara Hills	1.5	2.7	1949	Highest
Wanaka	3.0	2.7	1955	2nd-highest
Dunedin	5.3	1.2	1947	3rd-highest
Lumsden	2.3	1.6	1982	3rd-highest
Cromwell	3.5	4.2	1949	Highest
Gore	3.4	1.4	1971	Highest
Invercargill	3.8	1.9	1948	Highest
Nugget Point (coastal Otago)	5.7	1.7	1970	Highest

RAINFALL: VERY WET IN WESTLAND, PARTS OF FIORDLAND AND WAIKATO; VERY DRY IN PARTS OF OTAGO, CANTERBURY, AND THE WAIRARAPA

Well above normal rainfall for August (more than 150 percent of normal) occurred in Westland and parts of Fiordland and the Waikato. Rainfall was also above normal in Nelson/Marlborough (between 120 and 150 percent of normal). In contrast, well below normal August rainfalls (less than 50 percent of normal) were recorded in coastal parts of the Wairarapa, southern Hawkes Bay and Gisborne, coastal Canterbury and parts of Otago. Below normal August rainfall (between 50 and 80 percent of normal) occurred in Northland and Auckland. Elsewhere, August rainfall was near normal.

Record high August rainfall was recorded at Matamata (mostly due to a heavy rainfall event on the 14th), with near-record high rainfalls experienced at Hokitika, Milford Sound and Mt Cook (reflecting frequent northwesterly winds over southern New Zealand during the month). Record low August rainfalls were observed at Waipawa (central Hawkes Bay) and Lumsden (Southland).

Extreme August rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Matamata	219	191	1951	Highest
Hokitika	486	217	1963	2nd-highest
Milford Sound	852	199	1929	3rd-highest
Mt Cook	673	227	1928	4th-highest
Dargaville	53	47	1943	3rd-lowest
Kumeu (Waitakere)	68	50	1978	4th-lowest
Waipawa (Hawkes Bay)	8	11	1945	Lowest
Lumsden	34	54	1982	Lowest

SUNSHINE: A VERY SUNNY MONTH IN THE LOWER NORTH ISLAND; VERY CLOUDY IN WESTLAND, FIORDLAND AND IN THE FAR NORTH.

It was a very sunny month in the lower North Island (Wellington, Kapiti Coast, Manawatu/Horowhenua, the Wairarapa and southern Hawkes Bay), with August sunshine totals greater than 125% of normal. In contrast, well below normal August sunshine totals (less than 75 percent of normal) were recorded in Fiordland, Westland and the far north of the country. It was a sunny month for the east of the South Island,

with sunshine hours between 105 and 115% of August normal. Elsewhere, sunshine hours were closer to normal.

Extreme August sunshine hours were recorded at:

Location	Sunshine (hours)	Percentage of normal	Year records began	Comments
Dannevirke	162	134	1963	2nd-highest
Martinborough	171	116	1986	3rd-highest
Waipawa	183	133	1945	2nd-highest
Paraparaumu	179	126	1953	4th-highest
Wallaceville	162	132	1939	3rd-highest
Balclutha	150	130	1964	3rd-highest
Kaitaia	143	91	1985	2nd-lowest
Mt Cook	65	59	1930	2nd-lowest

AUGUST CLIMATE IN THE SIX MAIN CENTRES

August temperatures were record high in Auckland, Tauranga, Hamilton and Dunedin, and well above average in Wellington and Christchurch. Monthly rainfalls were well below normal for Dunedin (about one third of typical August rainfall recorded there), below normal in Auckland, but near normal elsewhere. Sunshine totals for August were well above normal in the capital (131% of normal), above normal in Dunedin and Christchurch, and near normal elsewhere.

Auckland and Tauranga were jointly the warmest of the main centres. Wellington was the sunniest and yet also the wettest (due to flooding on the last day of the month), Dunedin was the driest, and Christchurch the coolest (relatively speaking), of the main centres.

August 2009 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	12.8	+1.3	Warmest August since records began in 1959	79	68%	Below normal	150	105%	Near normal
Tauranga ^b	12.8	+2.3	Warmest August since records began in 1913	97	83%	Near normal	160	97%	Near normal
Hamilton	11.0	+1.6	2 nd warmest August since records began in 1946	107	92%	Near normal	135	97%	Near normal
Wellington ^c	11.1	+1.9	Well above normal	138	112%	Near normal	178	131%	Well above normal
Christchurch ^d	8.8	+1.8	Well above normal	56	85%	Near normal	166	112%	Above normal
Dunedin	9.0	+1.4	Warmest August since records began in 1947	24	36%	Well below normal	129	114%	Above normal

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

HIGHLIGHTS AND EXTREME EVENTS

- Temperature**

The highest temperature during August 2009 was 25.5°C recorded at Henderson (Auckland) on the 11th (not an August maximum temperature record at this site). Record high August maximum temperatures were observed in Whangarei, Waitakere (Auckland), Paraparumu, Waiouru, Takaka, and Appleby (Nelson).

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaikohe	19.0	28th	1973	Equal 2nd-highest
Dargaville	20.5	30th	1943	Equal 4th-highest
Whangarei	20.9	28th	1967	Highest
Warkworth	18.9	30th	1966	2nd-highest
Whangaparaoa	19.2	28th	1982	2nd-highest
Kumeu (Waitakere)	20.0	30th	1978	Highest
Whenuapai (West Auckland)	19.4	30th	1945	Equal 4th-highest
Takapau Plains	18.5	30th	1962	4th-highest
Martinborough	19.2	30th	1986	4th-highest
Ngawi (coastal Wairarapa)	18.7	15th	1972	Equal 3rd-highest
Gisborne	21.5	30th	1905	3rd-highest
Hastings	22.2	26th	1965	Equal 2nd-highest
Wairoa, North Clyde	21.4	30th	1964	Equal 4th-highest
Paraparumu	21.0	15th	1953	Highest
Palmerston North	20.2	30th	1918	2nd-highest
Wellington	17.7	14th	1962	Equal 4th-highest
Wallaceville	19.9	15th	1939	2nd-highest
Stratford	16.8	29th	1960	Equal 4th-highest
Hawera	17.5	15th	1977	2nd-highest
Ohakune	17.4	15th	1962	2nd-highest
Waiouru	18.0	29th	1962	Highest
Wanganui	20.2	15th	1937	4th-highest
Takaka	20.0	28th	1978	Highest
Lake Rotoiti	16.1	17th	1965	4th-highest
Milford Sound	17.7	16th	1934	4th-highest
Motueka	19.5	28th	1956	Equal 3rd-highest
Appleby	19.8	28th	1943	Highest
Arthurs Pass	13.0	16th	1978	Equal 4th-highest
Culverden	22.0	25th	1928	4th-highest
Tiwai Point (Southland)	17.4	25th	1970	Equal 3rd-highest

The lowest temperature was recorded at Dashwood (Awatere Valley, Marlborough) with a minimum temperature of -8.6°C on the 18th (not an August July minimum temperature record for this location). Record-high August minimum temperatures were observed at several sites (Hastings, Palmerston North, Takaka, Motueka, and Arthurs Pass) on various dates during the month.

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaikohe	13.4	15th	1973	4th-highest
Whangarei	14.4	15th	1967	4th-highest
Whangaparaoa	13	30th	1982	Equal highest

New Plymouth	13.3	29th	1944	Equal 3rd-highest
Takapau Plains	10.8	29th	1972	Equal 4th-highest
Hastings	13.8	29th	1972	Highest
Paraparaumu	12.8	29th	1972	2nd-highest
Palmerston North	12.6	16th	1940	Highest
Hawera	11.4	16th	1977	Equal 4th-highest
Waiouru	8.0	15th	1972	Equal 2nd-highest
Wanganui	12.0	29th	1987	Equal 4th-highest
Takaka	11.6	26th	1978	Highest
Lake Rotoiti	6.8	26th	1972	Equal 2nd-highest
Reefton	10.1	26th	1972	2nd-highest
Puyssegur Point (Fiordland)	10.9	8th	1978	3rd-highest
Motueka	11.1	26th	1972	Highest
Appleby	12.3	16th	1943	Equal 2nd-highest
Blenheim	11.8	26th	1972	4th-highest
Kaikoura	11.3	29th	1972	Equal 2nd-highest
Arthurs Pass	7.0	25th	1978	Highest
Waipara West	13.0	12th	1973	2nd-highest
Timaru	10.8	29th	1885	Equal highest
Balclutha	8.0	26th	1972	4th-highest
Warkworth	1.4	6th	1966	4th-lowest
Takapau Plains	-3.6	9th	1962	3rd-lowest
Wairoa, North Clyde	-1.5	9th	1964	2nd-lowest

- **Heavy rain and flooding**

The highest 1-day rainfall total for August was 260.4 mm, recorded at Awakino (coastal Waitomo) on the 25th (not an August record at this site). High 1-day rainfall totals for August are shown below:

Record or 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
Matamata (Waikato)	78	14th	1951	2nd-highest
Paraparaumu	53	30th	1951	4th-highest
Wallaceville	101	30th	1939	2nd-highest
Stratford	81	30th	1960	3rd-highest
Ohakune	43	30th	1961	4th-highest
Takaka	82	25th	1976	4th-highest
Arthurs Pass	163	25th	1906	3rd-highest

On 31 August, Te Anga Rd, east of Waitomo Caves was closed by a large slip of mud and trees, while in the Wellington region, surface flooding closed roads in Lower Hutt, southern Wairarapa, and Plimmerton. A slip on the tracks at Pukerua Bay delayed trains until mid-morning, with buses brought in for commuters.

- **High winds and tornadoes**

The highest wind gust for August was 165 km/hr, recorded at both Cape Turnagain (Wairarapa Coast) and Awakino (coastal Waitomo) on the 28th and 29th of the month, respectively. Napier, Farewell Spit and Hokitika also recorded notable wind gusts during August. An extreme wind gust of 100 km/hr was experienced at Westport on the 31st of August – a new August gust record at this site.

There was no significant tornado activity during the month.

Record or near record high extreme wind gusts for August were recorded at:

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records Began	Comments
Napier	91	27th	1973	4th-highest
Farewell Spit	91	25th	1973	Equal 4th-highest
Westport	100	31st	1973	Highest
Hokitika	100	25th	1972	4th-highest

- **Snow and ice**

Trees, and snow up to 5 m deep, from a series of avalanches over 1-2 August, blocked SH94, closing the only road access to Milford Sound. Both ends of the Homer Tunnel were buried in more than 100,000 tonnes of debris. It re-opened for nine hours on 10 August, but was closed again at 5 pm. It again re-opened on the morning of 11 August.

Snow closed the Desert Road on the morning of 3 August.

- **Lightning**

On 1 August, a bolt of lightning smashed into the old, disused Stanley Road School, Stratford, scattering concrete for 20 m, and causing a crater, 1 m across and 150 mm deep.

Thunderstorms brought heavy rain to Mt Taranaki on 26 August. Lightning strikes were also reported in Auckland, and the western Bay of Plenty where the storm cut power to more than 8000 homes, and damaged property.

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