

**National Climate Summary – August 2010: Cloudy, warm, and extremely wet**

- **Rainfall: Extremely wet for most North Island regions, as well as the north and east of the South Island. Double normal August rainfall for Kaitaia, Coromandel, Bay of Plenty and eastern Otago.**
- **Sunshine: Very cloudy for the North Island, as well as inland and eastern South Island.**
- **Temperatures: Above average for all regions, except eastern Otago.**

August 2010 was characterised by lower pressures than normal over the Tasman Sea and New Zealand, resulting in a much wetter and cloudier August than normal. Frequent northerly air streams affected the North Island during the month, with more easterly winds over the South Island.

It was an extremely wet August across most of the country. Rainfalls were well above normal (more than 150 percent of normal) for all of the North Island except Hawkes Bay, as well as in Nelson and Marlborough, and parts of Canterbury and Otago. Double normal August rainfall was observed around Kaitaia, Coromandel and the Bay of Plenty, and eastern Otago. It was the wettest August on record for parts of the Bay of Plenty, Wanganui and Turangi. In contrast, Fiordland and Southland recorded below normal rainfall (between 50 and 80 percent of normal). For Hawkes Bay and the West Coast, rainfall was near normal (between 80 and 120 percent of normal).

It was a very cloudy month over much of New Zealand. August sunshine totals were below average (between 75 and 90 percent of normal) across the entire North Island, as well as for inland and eastern areas of the South Island. Turangi, Stratford, Martinborough and Christchurch recorded well below average sunshine (between 50 and 75 percent of normal). It was the cloudiest August on record for Turangi and Martinborough. Sunshine hour totals were closer to normal in the west and south of the South Island (ranging between 90 and 110 percent of normal).

August 2010 mean temperatures were above average (between 0.5°C and 1.2°C above average) across all regions of New Zealand, except for eastern Otago, where temperatures were near average (within 0.5°C of average). Small areas of well above average temperatures (more than 1.2°C above average) were observed in Northland, eastern Bay of Plenty, Nelson and Fiordland. The New Zealand national average temperature was 9.6°C (0.9°C above the 1971-2000 August average).

**Further Highlights:**

- The highest temperature was 21.9°C, recorded at Motueka on the 15<sup>th</sup> (a new August record).
- The lowest temperature was -12.6°C, recorded at Lake Tekapo on the 10<sup>th</sup> (2<sup>nd</sup>-lowest August temperature on record there).
- The highest 1-day rainfall was 255 mm recorded at North Egmont on the 13<sup>th</sup> (not a record).
- The highest wind gust was 130 km/hr, recorded at Stephens Island on the 1<sup>st</sup> (not a record).
- Of the six main centres, Auckland was the warmest, Christchurch and Dunedin equally the coolest, Tauranga the wettest but also the sunniest, and Dunedin the driest.

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**RAINFALL: EXTREMELY WET FOR MOST OF NORTH ISLAND, AND NORTH AND EAST OF SOUTH ISLAND. DOUBLE NORMAL AUGUST RAINFALL FOR KAITAIA, COROMANDEL, BAY OF PLENTY AND EASTERN OTAGO.**

It was an extremely wet August across most of the country. Rainfalls were well above normal (more than 150 percent of normal) for all of the North Island except Hawkes Bay, as well as in Nelson and Marlborough, and parts of Canterbury and Otago. Double normal August rainfall was observed around Kaitaia, Coromandel and the Bay of Plenty, and eastern Otago. It was the wettest August on record for parts of the Bay of Plenty, Wanganui and Turangi. In contrast, Fiordland and Southland recorded below normal rainfall (between 50 and 80 percent of normal). For Hawkes Bay and the West Coast, rainfall was near normal (between 80 and 120 percent of normal).

**Record or near-record August rainfall totals were recorded at:**

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Kaitaia	249	173	1967	3rd-highest
Kerikeri	270	145	1981	3rd-highest
Whitianga	374	212	1961	3rd-highest
Tauranga	274	236	1898	Highest
Te Puke	413	262	1973	Highest
Whakatane	252	225	1952	2nd-highest
Rotorua	290	203	1963	3rd-highest
Taupo	173	155	1949	3rd-highest
Hamilton	196	169	1935	4th-highest
Turangi	269	176	1968	Highest
Hawera	146	145	1977	3rd-highest
Wanganui	155	223	1987	Highest
Takaka	362	181	1976	2nd-highest
Ranfurly	53	185	1943	4th-highest
Alexandra	36	142	1983	4th-highest

**SUNSHINE: VERY CLOUDY ACROSS THE NORTH ISLAND, AS WELL AS FOR INLAND AND EASTERN AREAS OF THE SOUTH ISLAND.**

August sunshine totals were below average (between 75 and 90 percent of normal) across the entire North Island, as well as for inland and eastern areas of the South Island. Turangi, Stratford, Martinborough and Christchurch recorded well below average sunshine (between 50 and 75 percent of normal). It was the cloudiest August on record for Turangi and Martinborough. Sunshine hour totals were closer to normal in the west and south of the South Island (ranging between 90 and 110 percent of normal).

**Record or near-record August sunshine hours were recorded at:**

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Kaitaia	122	78	1985	2nd-lowest
Dargaville	112	84	1943	2nd-lowest
Turangi	92	68	1976	Lowest
New Plymouth	121	79	1972	3rd-lowest
Martinborough	89	60	1986	Lowest
Wallaceville	87	71	1939	4th-lowest
Stratford	90	69	1963	3rd-lowest
Blenheim	156	86	1947	3rd-lowest
Christchurch	87	59	1930	2nd-lowest

**TEMPERATURES: ABOVE AVERAGE TEMPERATURES FOR ALL REGIONS, EXCEPT EASTERN OTAGO.**

August 2010 mean temperatures were above average (between 0.5°C and 1.2°C above average) across all regions of New Zealand, except for eastern Otago, where temperatures were near average (within 0.5°C of average). Small areas of well above average temperatures (more than 1.2°C above average) were observed in Northland, eastern Bay of Plenty, in and around Nelson, on the West Coast and Fiordland. The New Zealand national average temperature was 9.6°C (0.9°C above the 1971-2000 August average)<sup>1</sup>.

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

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaikohe	15.8	1.8	1973	2nd-highest
Leigh	16.9	1.7	1966	Highest
Tauranga	15.8	1.0	1913	4th-highest
Whakatane	16.0	1.1	1974	Highest
Westport	14.4	1.4	1937	2nd-highest
Lake Rotoiti	11.7	2.2	1965	Highest
Hokitika	14.0	1.5	1963	3rd-highest
Reefton	13.7	1.7	1960	2nd-highest
Greymouth	14.2	1.6	1947	2nd-highest
Haast	13.5	1.5	1949	2nd-highest
Motueka	17.2	3.7	1956	Highest
Appleby	14.2	1.1	1943	3rd-highest
Nelson	14.4	1.4	1943	2nd-highest

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

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitaia	9.9	1.7	1985	3rd-highest
Kerikeri	9.0	2.0	1981	2nd-highest
Kaikohe	10.4	2.5	1973	2nd-highest
Dargaville	9.2	1.6	1943	4th-highest
Whangarei	9.6	1.6	1967	2nd-highest
Te Puke	6.8	1.4	1973	3rd-highest
Masterton	5.4	1.7	1906	2nd-highest
Dannevirke	6.5	2.1	1951	Highest
Martinborough	5.9	1.6	1986	2nd-highest
Ngawi	9.0	1.3	1972	4th-highest
Gisborne	7.3	2.0	1905	2nd-highest
Hastings	6.2	1.6	1965	3rd-highest
Paraparaumu	7.3	1.8	1953	Highest
Wellington	8.5	1.5	1962	3rd-highest
Ohakune	3.8	2.0	1962	Highest
Greymouth	6.7	1.7	1947	4th-highest
Motueka	4.6	2.0	1956	4th-highest
Nelson	5.1	2.1	1943	3rd-highest

<sup>1</sup> Interim monthly value.

Arthurs Pass	0.6	1.7	1978	3rd-highest
Waipara West	4.9	2.2	1973	2nd-highest
Lincoln	4.6	2.0	1881	4th-highest
Orari Estate	3.5	2.4	1972	Highest
Timaru	4.6	3.0	1885	Highest
Oamaru	3.1	1.5	1908	Equal 4th-highest
Tara Hills	0.4	1.6	1949	3rd-highest
Cromwell	1.8	2.4	1949	4th-highest

## AUGUST CLIMATE IN THE SIX MAIN CENTRES

Of the six main centres, Auckland was the warmest, Christchurch and Dunedin equally the coolest, Tauranga the wettest but also the sunniest, and Dunedin the driest.

### August 2010 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland <sup>a</sup>	12.1	+0.6	Above average	192	166%	Well above normal	125	88%	Below normal
Tauranga <sup>b</sup>	11.8	+1.3	4 <sup>th</sup> highest	274	236%	Highest on record	147	92%	Near normal
Hamilton <sup>c</sup>	10.2	+0.8	Above average	196	169%	Well above normal	117 <sup>e</sup>	84%	Below normal
Wellington <sup>d</sup>	10.1	+0.9	Above average	205	167%	Well above normal	131	97%	Near normal
Christchurch <sup>e</sup>	8.0	+1.0	Above average	86	132%	Above normal	87	59%	2 <sup>nd</sup> lowest on record
Dunedin <sup>f</sup>	8.0	+0.4	Near average	68	103%	Near normal	112	98%	Near normal

<sup>a</sup> Mangere <sup>b</sup> Tauranga Airport <sup>c</sup> Hamilton Airport <sup>d</sup> Kelburn <sup>e</sup> Christchurch Airport <sup>f</sup> Musselburgh <sup>g</sup> Ruakura

## HIGHLIGHTS AND EXTREME EVENTS

### • Heavy rain and slips

On 1 August, heavy rain closed SH1 at Ngauranga Gorge, and caused flooding in the northern Wellington suburbs of Johnsonville and Newlands.

On 4 August, a large landslide behind a house in the Wellington suburb of Karori made the house uninhabitable, forcing the residents to move out. Further north a storm lashed Northland, closing schools at Rawene and Opononi, while flooded roads cut off Omanaia School from either side. Surface flooding was also reported on SH1 near Houhora, in Whangarei, Kaeo, Waikare, and the Kai Iwi Lakes area.

On 7 August, a large slip closed SH25 just south of Whangamata. In the South Island, SH1 was affected by surface flooding between Timaru and Waianakarua, and several minor roads in the area were closed by slips.

On 8 August, a large slip closed northbound lanes of SH2 between Wellington and the Hutt Valley for about four hours. In Canterbury, the heavy rain caused slips and flooding, closing two roads overnight on Banks Peninsula. A slip at Greta Valley reduced SH1 to one lane.

On 10 August, a large slip closed Ngaio Gorge Road, a major route from the northern suburbs of Wellington into the city.

Heavy rain over the weekend of 14-15 August caused floods in the Bay of Plenty with a 10-metre breach in the Te Rahu Canal stop-bank off the Whakatane River. Several families were evacuated, and four schools

and two pre-schools in Whakatane were closed. The Whakatane Boat Ramp was closed, phone lines were cut, and there was widespread surface flooding. Many roads around the region were closed, with Opotiki isolated. The Waioeka Gorge was closed by large slips, cutting off SH2 between Opotiki and Matawai, and surface flooding closed SH2 between Opotiki and Whakatane. A washout northeast of Opotiki closed SH35 to all but one lane of traffic, and the road between Taneatua and Kutarere was also closed by flooding.

On 15 August, a slip blocked both lanes of SH1 between Picton and Blenheim.

SH1, north of Oamaru, was affected by surface flooding on 30 August, after overnight rain. Grange Hill Road at Waihemo, North Otago, was closed by surface flooding, and other minor roads had caution notices in place.

The highest 1-day rainfall recorded in August 2010 was 255 mm recorded at North Egmont on the 13<sup>th</sup> (not an August record at this site).

**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
Wanganui	30	4th	1987	3rd-highest
Takaka	91	12th	1976	2nd-highest
Woodbury	58	7th	1973	3rd-highest
Alexandra	17	13th	1983	2nd-highest

• **Temperature**

The highest temperature recorded in August 2010 was 21.9 °C recorded at Motueka on the 15<sup>th</sup>. This was the highest August afternoon temperature recorded there since records began in 1956. Maximum temperatures were extremely low on August 9<sup>th</sup> in Wellington and the Wairarapa.

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kerikeri	20.2	28th	1981	3rd-highest
Kaikohe	18.5	31st	1973	4th-highest
Leigh	19.6	28th	1966	Equal highest
Whangaparaoa	18.6	28th	1982	Equal 2nd-highest
Kumeu	18.6	17th	1978	Equal 3rd-highest
Lake Rotoiti	16.3	14th	1965	4th-highest
Reefton	18.5	15th	1960	Highest
Haast	18.4	30th	1949	4th-highest
Motueka	21.9	15th	1956	Highest
Masterton	6.4	9th	1943	Equal 4th-lowest
Castlepoint	6.8	9th	1972	Lowest
Martinborough	7.7	9th	1986	Equal 3rd-lowest
Ngawi	8.3	9th	1972	4th-lowest
Levin	8.0	9th	1950	3rd-lowest
Wallaceville	6.5	9th	1972	Equal lowest

The lowest temperature recorded in August 2010 was -12.6 °C recorded at Lake Tekapo on August 10<sup>th</sup> (this is the 2<sup>nd</sup> lowest August minimum air temperature recorded at this site since records began in 1925). Numerous sites broke August minimum temperature records on the 2<sup>nd</sup> and 14<sup>th</sup> of August.

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year records began	Comments
Kaikohe	14.9	2nd	1973	Highest
Whangarei	14.6	4th	1967	4th-highest
Whangaparaoa	14.4	14th	1982	Highest
Kumeu	13.5	14th	1978	4th-highest
Whenuapai	14.5	14th	1951	2nd-highest
Whitianga	14.6	14th	1971	3rd-highest
Paeroa	15.4	14th	1971	Highest
Tauranga	14.9	14th	1941	Highest
Te Puke	13.5	14th	1973	3rd-highest
Whakatane	14.1	15th	1975	Highest
Rotorua	11.6	14th	1972	4th-highest
Hamilton	13.6	14th	1946	Highest
Port Taharoa	13.7	14th	1974	Equal 4th-highest
Taumarunui	13.0	14th	1947	3rd-highest
Hicks Bay	14.5	15th	1972	Equal highest
Gisborne	14.6	14th	1940	2nd-highest
Hastings	13.9	14th	1972	Highest
Wairoa	13.9	14th	1972	2nd-highest
Palmerston North	11.9	14th	1940	Equal 4th-highest
Ohakune	10.7	14th	1972	Highest
Waiouru	9.0	14th	1972	Highest
Lake Rotoiti	6.9	14th	1972	2nd-highest
Reefton	9.8	14th	1972	3rd-highest
Kaikoura	11.5	2nd	1972	2nd-highest
Arthurs Pass	7.0	14th	1978	Highest
Culverden	12.8	2nd	1930	2nd-highest
Waipara West	12.4	2nd	1973	3rd-highest
Orari Estate	8.9	2nd	1972	Equal 2nd-highest
Timaru	10.8	2nd	1885	Equal highest
Balclutha	8.2	2nd	1972	4th-highest
Warkworth	0.9	11th	1966	3rd-lowest
Lake Tekapo	-12.6	10th	1925	2nd-lowest

• **High winds**

On 1 August, one car was blown into the path of another on the Rimutaka Hill Road section of SH2. The road was closed temporarily.

A localised twister hit Hairini, just outside Tauranga, on 4 August, sending a shed roof flying across SH29. In Northland, high winds caused havoc. A yacht broke its moorings and washed up on the beach at Waitangi, a trampoline was carried 30 m, bringing down power lines and cutting power, and a shed was flattened.

On 12 August, the access to Mt Hutt ski field was closed because of high winds. About 1,000 people were

forced to spend the night in the cafes.

Crew from a Greymouth fishing vessel got into difficulties in gale force winds near Jackson Bay in the early hours of 13 August when their boat was caught by a wave that tipped it and stopped the main motor. All crew were transferred successfully to another vessel.

The highest wind gust was 130 km/hr, recorded at Stephens Island on the 1<sup>st</sup> (not an August record at this site).

**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
Kaikohe	85	29th	1986	3rd-highest
Westport	95	1st	1973	Equal 4th-highest

- **Snow and ice**

On 8 August, snow fell in inland Canterbury, with chains required for all vehicles driving over the high passes. Lindis Pass re-opened about mid-day after being closed overnight. The snow, and accompanying winds, disrupted several domestic and international flights at Queenstown Airport. In South Canterbury heavy snow brought down power lines in the Burkes Pass area, cutting power all day.

On 9 August, SH1 between Waiouru and Rangipo was closed by snow and ice. Heavy snow in Dunedin's hill suburbs created the usual difficulties for people trying to reach the city.

- **Lightning and hail**

A fierce hailstorm on 29 August affected the Bay of Plenty, with particularly heavy falls in Tauranga. In Papamoa, lightning struck a home, blasting a hole through the roof, blowing off tiles, damaging the home's wiring, and blowing a light switch out of its socket. Otumoetai College closed for the day as it had no power or hot water as a result of a blown power transformer. Other parts of the northern and western parts of the North Island experienced electrical storms, with thunder heard in Taranaki, Matamata, Auckland and Northland.

- **Fog**

Heavy fog on 3 August caused delays to ferry services, and led to the cancellation of more than 50 domestic flights into and out of Auckland International Airport. The fog stretched as far as Hamilton, Rotorua and Taupo.

Fog disrupted domestic flights in and out of Christchurch Airport on the morning of 23 August. It was fully operational by mid-morning.

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