

National Climate Summary – August 2004

- **Temperatures: Coldest August overall in more than ten years. Especially cold in Canterbury, Otago and Southland**
- **Rainfall: Well above average in the Wairarapa, and coastal Canterbury, Otago and southland; below average in Northland, Auckland, Bay of Plenty, Nelson and Marlborough**
- **Sunshine: Record high hours in Auckland; well above average in Northland, Waikato King Country, Taranaki, Manawatu, Buller and Westland, with lower than normal totals in the Wairarapa and Canterbury**

A convergence of intense depressions ('lows') around the Chatham Islands led to the extremes of cold, high rainfall, hail, snow and wind which enveloped New Zealand in August. These produced storm force southerlies, which brought wintry conditions to many areas. The prolonged period of storms from 11 – 30th August produced two high rainfall events producing floods, two severe hail storms, four heavy snowfall events to low levels, record ground frosts, a destructive tornado and the worst southerly wind storm to batter the Wellington area in more than a decade. Nationally, this was the coldest August since 1992. Kelburn in Wellington recorded 7 consecutive days from 23-29 August with maximum temperatures of 9.0°C or less, making this the longest cold spell there since July 1981. Temperatures were well below average throughout much of the South Island. It was very wet, with about 200 percent (twice) of average rainfall, in many eastern regions from Wairarapa to Southland. In contrast, rainfall was below average in northern regions of both Islands. Record sunshine occurred in Auckland and hours were well above average in the north and west of the North Island and Westland. Sunshine was less than average in the east from southern Wairarapa to the Southern Lakes. Depressions ('lows') were very much more frequent than average east of New Zealand, often centred near the Chatham Islands, resulting in long periods of cold southerlies in many areas.

Highlights:

- The highest August 2004 temperature was 20.2°C, recorded at Darfield on the 12th. The lowest temperature for the month was -12.0°C, recorded at Fairlie on the 16th.
- Auckland was the sunniest and driest of the four main centres. Rainfall was below average in Auckland, near average in Wellington, and well above average in Christchurch and Dunedin. Temperatures were below average in all four main centres. Sunshine totals were a record in Auckland, above normal in Wellington, near normal in Dunedin, and below normal in Christchurch.

Temperatures: Mean temperatures below average almost everywhere, and especially in the South Island where they were at least 1.5°C below average in most southern and eastern regions. Temperature were near average only in Gisborne and Hawke's Bay. The national average of 7.9°C was 0.8°C below average.

Rainfall: It was very wet, with about 200 percent (twice) of average rainfall, in parts of Wairarapa, Canterbury, Otago, and coastal Southland. Rainfall was also above average in Waikato, Wanganui, Ruapehu, southern Hawke's Bay, the Kapiti coast, the Hutt Valley, Nelson Lakes, Fiordland, and inland Southland. In contrast rainfall was less than 50 percent (half) of average in inland Bay of Plenty, and also below average in Northland, Auckland, Coromandel, coastal Bay of Plenty, Nelson, and much of Marlborough.

Sunshine: Monthly sunshine totals were well above average in Northland, Auckland, Waikato, Taranaki, King Country, Manawatu, and Westland. However, totals were below average in the Wairarapa, north Canterbury, and the Southern Lakes.

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BELOW AVERAGE TEMPERATURES THROUGHOUT MUCH OF NEW ZEALAND, ESPECIALLY IN THE SOUTH ISLAND

Mean temperatures were 0.5 to 1.0°C below average throughout much of the North Island, and 1.0 to 1.5°C below average throughout much of the South Island. Temperatures were more than 2.0°C below average in some areas of inland South Canterbury and Central Otago. They were near average only in Gisborne and Hawke's Bay.

Mean daily maximum temperatures were 2 to 3°C below average in parts of inland south Canterbury, Otago, and Southland.

Near or record low August mean temperatures were recorded at:

Location	Mean temperature	Departure from average (°C)	Records Began	Comments
Castlepoint	8.5	-1.9	1972	Lowest
Westport Airport	7.9	-1.5	1937	3 rd equal lowest
Puysegur Point	7.1	-1.3	1980	2 nd lowest
Mt Cook Village	1.3	-2.5	1930	Well below average
Winchmore	5.1	-1.6	1950	Well below average
Lake Tekapo	1.3	-2.1	1927	Well below average
Dunedin, Musselburgh	6.2	-1.4	1947	3 rd equal lowest
Manapouri Airport	2.9	-1.9	1992	Lowest
Queenstown Airport	3.2	-1.5	1969	3 rd equal lowest
Clyde	3.5	-2.3	1983	Lowest
Ettrick	4.7	-2.0	1985	3 rd equal lowest
Invercargill Airport	4.9	-1.6	1948	3 rd lowest
Tiwai Point	5.3	-1.9	1970	Lowest

Near or record low August temperatures were recorded at:

Location	Temperature	Date of occurrence (°C)	Records Began	Comments
Fairlie	-12.0	16 th	1925	3 rd lowest
Westport Airport	-1.5	17 th	1937	Lowest
Hokitika Airport	-2.9	17 th	1964	Lowest
Blenheim Airport	-5.8	24 th	1941	Lowest
Kaikohe	1.4	29 th	1973	3 rd lowest
Manapouri Airport	-6.5	29 th	1992	2 nd lowest

Near or record low August grass minimum temperatures were recorded at:

Location	Temperature	Date of occurrence (°C)	Records Began	Comments
Warkworth	-6.3	29 th	1972	Lowest
Auckland, Henderson	-6.3	29 th	1986	Lowest

WELL ABOVE AVERAGE RAINFALL IN THE EAST, BELOW AVERAGE RAINFALL IN THE NORTH OF BOTH ISLANDS

It was rather unsettled, with rainfall about 200 percent (twice) of average in parts of Wairarapa, Canterbury, and coastal Southland. Rainfall was also above average, with at least 150 percent (one and a half) of average in areas of Otago and inland Southland, and at least 125 percent (one and a quarter) of average in Waikato, Wanganui, Ruapehu, southern Hawke's Bay, the Kapiti coast, the Hutt Valley, Nelson Lakes, and Fiordland. It was much drier in areas more sheltered from the southerlies, with less than 50 percent (half) of average rainfall in inland Bay of Plenty, and less than 75 percent (three quarters) of average in Northland, Auckland, Coromandel, coastal Bay of Plenty, Nelson, and much of Marlborough.

High August rainfall was recorded at:

Location	August rainfall (mm)	Percentage of normal	Year Records began	Comments
Castlepoint	216	231	1902	2 nd highest
East Taratahi	184	207	1972	Highest
Mahia AWS	246	215	1991	Highest
Christchurch Airport	130	199	1944	Well above normal
Christchurch Gardens	149	216	1864	Well above normal
Lincoln	137	197	1881	Well above normal
Oamaru Airport	127	299	1941	2 nd highest
Dunedin, Musselburgh	120	185	1918	Well above normal
Invercargill Airport	134	188	1940	3 rd highest
Tiwai Point	194	268	1970	Highest

WELL ABOVE AVERAGE SUNSHINE IN THE NORTH AND WEST OF THE NORTH ISLAND

Sunshine hours were at least 120 percent of average in Northland, Auckland, Waikato, King Country, Taranaki, Manawatu and Westland, and at least 110 percent of average in Kapiti, Wellington and Nelson. However, sunshine totals were lower than usual in southern Wairarapa, north Canterbury, and the Southern Lakes. Sunshine totals were near average elsewhere.

Near or record high August sunshine hours were recorded at:

Location	August sunshine (hrs)	Percentage of normal	Year Records began	Comments
Dargaville	170	126	1943	2 nd highest
Auckland, Mangere	194	136	1963	Highest
New Plymouth Airport	191	125	1973	2 nd highest

AUGUST'S CLIMATE IN THE FOUR MAIN CENTRES

Of the four main centres Auckland was the sunniest and the driest. Rainfall was below average in Auckland, near average in Wellington, and well above average in Christchurch and Dunedin. Temperatures were below average in all four main centres. Record sunshine totals for August occurred in Auckland, with well above average hours in Wellington, near normal in Dunedin and below normal in Christchurch.

Location	August Mean Temp. (°C)	Dep. from normal (°C)		August rainfall (mm)	% of normal		August Sunshine (hours)	% of normal	
Auckland	10.9 ^a	-0.6	Below average	93 ^b	77	Below average	194	136	Highest
Wellington	8.3	-1.0	Below average	119	97	Near average	157	116	Above average
Christchurch	6.2 ^c	-0.8	Below average	149	216	Well above average	131	89	Below average
Dunedin	6.2	-1.4	Well below average	120	185	Well above average	116	102	Near average

HIGHLIGHTS AND EXTREME EVENTS

- The highest August 2004 temperature was 20.2°C, recorded at Darfield on the 12th. The lowest temperature for the month was -12.0°C, recorded at Fairlie on the 16th.

Wintry storms from 11 –30 August

- An active trough of low pressure moved onto New Zealand from the Tasman Sea on the 14th. This was followed by cold southerlies from the 15th, as a depression developed and then intensified east of the North Island, with central pressures reaching below 985 hPa. The depression was almost stationary, but eventually moved east. This was followed by another trough of low pressure that developed into a deep nearly stationary depression east of the South Island, with more cold southerlies from the 22nd. The southerlies persisted over much of New Zealand until the 30th. Severe weather events associated with these systems were:

11-14 August High rainfall, huge hailstones

- High rainfall in Fiordland and the Southern Alps from the 11th to 14th, totalling 434 mm at Milford Sound, of which 202 mm occurred on the 11th. Golf ball sized hailstones were reported in Upper Hutt, associated with thunderstorms on the 12th.

15 August Tornado and snowfall

A very destructive tornado occurred in Taranaki, leaving at least a 1 km path of damage, destroying a house near Waitara, and resulting in the death a woman and one child. On the same day snow fell to low levels in the east of the South Island, from Southland to Canterbury, with depths to 10 cm in some inland areas, and also at the summit of the Rimutaka Hill Road north of Wellington. Dunedin Airport was closed, along with SH1 north and south of the city. Several Dunedin schools were closed.

17-19 August Severe winds, high rainfall, flooding, and snowfall

Storm force southerlies (mean speeds at least 89 km/h) and very high seas (averaging 9m swells, periodically up to 11m) occurred through Cook Strait and in Wellington. At Wellington Airport there were 20 hours with mean wind speeds of at least 74 km/h and gusts in excess of 100 km/h from the evening on the 17th through the 18th. The highest gust recorded was 183 km/h at Baring Head. This was the worst southerly storm to affect Wellington in more than a decade. High rainfall accompanied the storm, with surface flooding in Lower Hutt and Masterton, with rainfall totalling 50-100 mm in many areas, and as much as 140 mm in the Orongaronga Ranges. There were many slips, fallen trees, power outages due to lines down, and road closures. Huge waves broke over southern coastal roads. Roofs were lifted and many windows blown out. Cladding was blown off an airport hangar, and some of Wellington airport roofing was lifted. All Wellington trains, flights, and ferry sailings were cancelled. Buses from the Hutt Valley were also cancelled,

and several schools were closed. Thousands of commuters could not make it to work. Snowfall resulted in the closure of many central North Island high country roads, including the Napier-Taupo highway.

High southerly wind gusts were recorded at:

Location	Highest gust (km/h)	Date of occurrence
Castlepoint	135	17 th
Baring Head	183	18 th
Mt. Kaukau	178	18 th
Wellington, Kelburn	135	18 th
Wellington Airport	119	18 th
Brothers Island	161	18 th

• **22-30 August – Bitterly cold with snow, hail and frost**

Bitterly cold southerlies spread over New Zealand, followed by snowfall to near sea level in the east of the South Island, and sleet and hail in the south and east of the North Island, with snow closing roads near Dunedin, as well as many central North Island high country roads (20-30 cm on the Desert Road) and the Rimutaka Hill Road. Further snowfall occurred to near sea level in Canterbury on the 27/28th and as low as 300 m in the lower North Island (including the Kapiti hill country and the Orongaronga Ranges). As much as 20 cm of snowfall was reported near the summit of the Rimutaka Hill Road. Furthermore, isolated golf ball sized hailstones were reported in the Wellington area. Kelburn, Wellington recorded 7 consecutive days from 23-29 August with maximum temperatures of 9.0°C or less, making this the longest cold spell there since July 1981. Ground frosts of about -6°C occurred in parts of Northland, Waikato and the Bay of Plenty on the 29th and 30th.

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