

National Climate Summary – June 2009: Cold and frosty with plentiful sunshine

- Temperature: Well below average over much of the country.
- Rainfall: Above normal rainfall in the north and east of the North Island, near normal rainfall for the Wairarapa, Nelson and Marlborough. Below normal rainfall elsewhere, with record low June rainfall in central Otago.
- Sunshine: Well above normal over the north and west of the North Island, as well as Taupo, Bay of Plenty, parts of the Hawke's Bay, Fiordland and Westland.

Extremely low temperatures for June (between 2.0 and 2.5 °C lower than normal) were recorded in the Waikato, Tamarunui, Taupo, southern Hawke's Bay, Central Otago, the Kaikoura Coast, and some alpine areas of the South Island. All other locations experienced below average temperatures (between 0.5 and 1.8 °C lower than normal). The national average temperature of 7.5°C was 0.7°C below the long-term average for June.

Well above normal rainfall for June (about 150 percent of normal) occurred in northern parts of Auckland, Coromandel, Bay of Plenty, Gisborne and Hawke's Bay. Near normal rainfall was recorded in Northland, the Waikato, Taupo, Wairarapa, Nelson and Marlborough districts. Well below normal June rainfall (less than 50 percent of normal) was recorded in parts of Taranaki and the Manawatu, and across much of the South Island except for Nelson and Marlborough. Extremely low June rainfalls (less than 10% of normal, and the lowest on record for June) were measured in central Otago.

Well above normal sunshine totals for June (greater than 125 percent of normal) were recorded in Northland, Auckland, the Waikato, Bay of Plenty, Taupo, parts of Taranaki and Hawke's Bay, Fiordland and Westland. Below normal June sunshine (75 – 90 percent of normal) occurred in coastal Otago, coastal Canterbury, the Wairarapa, and around East Cape.

There were several extreme events during June. High winds and rainfall affected Gisborne on the 12th and 13th. On the 16th, snow and ice to low levels affected Otago and Southland. Frosty conditions and cold temperatures affected many areas of New Zealand between the 16th and 26th. On the 27th, thick fog affected Auckland. During the last 3 days of the month, a slow-moving low brought heavy rain, strong winds and thunderstorms to the northeast of the country. Thunderstorms and heavy rain affected Northland and Auckland on the 28th. The system then brought heavy rain to Coromandel, Bay of Plenty, Gisborne, and Hawke's Bay on the 29th, as well as snow to the Central Plateau. A civil defence emergency was put in place in Gisborne on the 30th, as rain continued and rivers rose.

The average pressure pattern for June 2009 was dominated by anticyclones ("highs") to the far southwest of New Zealand, and higher-than-normal pressures over the country. The persistent wintertime "highs" experienced over New Zealand in June resulted in more frosts, colder than normal temperatures, and more southerly air flows than normal over the country.

Further Highlights:

- The highest temperature during June 2009 was 24.5 °C recorded at Henderson, Auckland, on the 29th. The lowest temperature during June was recorded at Hanmer Springs, with a minimum temperature of -8.9 °C.
- The highest 1-day rainfall total for June was 91.8 mm, recorded at Whitianga on the 28th.
- The highest wind gust for June was 133 km/hr recorded at Stephens Island (Cook Strait) on the 28th.
- Of the six main centres, Dunedin was the coldest and driest, Auckland was the warmest, Tauranga was the wettest, and Hamilton was the sunniest.

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TEMPERATURES: WELL BELOW NORMAL TEMPERATURES THE BREADTH AND LENGTH OF THE COUNTRY

The national average temperature of 7.5°C was 0.7°C below the long-term average for June. Monthly maximum temperatures were below average in many locations of New Zealand, and well below average (more than 2 degrees below normal) in Northland, the Tararua District, and central Otago. Record low June maximum temperatures were observed at Kaitaia, Whakatane, coastal Waikato, Dannevirke (with a June mean maximum temperature 3.0 °C below normal), Wanganui, Greymouth, and Banks Peninsula.

Extreme low June mean maximum daily air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitaia	14.6	-1.6	1967	Lowest
Dargaville	14.1	-2.1	1943	2nd-lowest
Whangaparaoa	14.0	-0.7	1982	4th-lowest
Kumeu (Waitakere)	14.5	-0.9	1978	2nd-lowest
Whitianga	14.3	-1.1	1962	2nd-lowest
Whakatane	13.5	-1.2	1974	Lowest
Rotorua Aero	11.3	-1.3	1964	2nd-lowest
Taupo	10.4	-1.4	1949	4th-lowest
Auckland	13.6	-1.4	1959	2nd-lowest
Ruakura	12.8	-1.4	1906	3rd-lowest
Hamilton	12.9	-1.3	1946	4th-lowest
Port Taharoa	13.9	-1.0	1973	Lowest
Te Kuiti	12.5	-1.3	1959	3rd-lowest
Takapau Plains	9.6	-1.9	1962	2nd-lowest
Dannevirke	9.1	-3.0	1951	Lowest
Martinborough	11.9	-1.3	1986	2nd-lowest
Ngawi	11.6	-1.6	1972	2nd-lowest
Hicks Bay	13.9	-1.0	1969	2nd-lowest
Gisborne	13.2	-1.7	1905	4th-lowest
Napier	12.5	-1.8	1870	4th-lowest
Hastings	12.7	-1.5	1965	2nd-lowest
Waipawa	11.0	-1.7	1945	2nd-lowest
Paraparaumu	11.8	-1.2	1953	2nd-lowest
Wellington	11.4	-1.5	1962	3rd-lowest
Stratford	10.5	-1.5	1960	4th-lowest
Hawera	11.7	-1.0	1977	4th-lowest
Waiouru	6.8	-1.9	1962	3rd-lowest
Wanganui	12.4	-1.3	1987	Lowest
Takaka	12.7	-0.9	1978	2nd-lowest
Farewell Spit	12.6	-1.2	1971	2nd-lowest
Reefton	8.2	-1.7	1960	4th-lowest
Greymouth	10.9	-1.4	1947	Lowest
Milford Sound	7.7	-1.8	1934	3rd-lowest
Motueka, Riwaka	11.8	-1.4	1956	2nd-lowest
Blenheim	11.8	-1.3	1932	3rd-lowest
Cape Campbell	10.7	-1.9	1953	2nd-lowest
Kaikoura	10.0	-1.7	1963	2nd-lowest
Le Bons Bay (Banks Peninsula)	9.1	-1.5	1984	Lowest
Wanaka	6.0	-2.2	1955	3rd-lowest
Manapouri	6.4	-2.2	1963	2nd-lowest
Balclutha	8.4	-1.2	1964	4th-lowest

Monthly minimum temperatures were well below average in many locations of New Zealand. The persistence of the wintertime “highs” resulted in an extended frosty period between the 16th and 26th – and this is reflected in the minimum temperatures. Well below average June minimum temperatures were observed at Kaitaia, in the Waikato, at Taupo, Te Kuiti, Taumarunui, Dannevirke, Levin, Hanmer Springs, and Arthurs Pass. Notably, record low June minimum temperatures were observed at Port Taharoa (coastal Waikato), Pelorus Sound and Taumarunui (3.3 °C below normal).

Extreme low June mean minimum daily air temperatures were recorded at:

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitia	6.9	-2.3	1967	2nd-lowest
Whangaparaoa	8.7	-1.1	1982	3rd-lowest
Kumeu (Waitakere)	4.6	-1.9	1978	3rd-lowest
Taupo	0.7	-2.1	1949	3rd-lowest
Ruakura	1.4	-3.3	1906	3rd-lowest
Hamilton	1.4	-2.7	1946	2nd-lowest
Port Taharoa	6.3	-2.4	1973	Lowest
Te Kuiti	1.5	-3.1	1959	2nd-lowest
Taumarunui	0.0	-3.3	1947	Lowest
Dannevirke	2.0	-2.4	1951	3rd-lowest
Castlepoint	6.6	-1.6	1972	2nd-lowest
Ngawi	7.1	-1.1	1972	2nd-lowest
Hicks Bay	7.3	-1.4	1969	3rd-lowest
Levin	2.3	-2.9	1895	4th-lowest
Wanganui	5.1	-1.6	1987	2nd-lowest
Milford Sound	0.2	-1.7	1934	4th-lowest
Pelorus Sd, Crail Bay	4.9	-1.5	1982	Lowest
Hanmer Forest	-3.5	-2.7	1906	2nd-lowest
Arthurs Pass	-2.3	-2.4	1973	4th-lowest
Cheviot	-0.1	-0.8	1982	3rd-lowest
Le Bons Bay (Banks Peninsula)	4.8	-0.8	1984	4th-lowest
Queenstown	-2.1	-1.2	1871	2nd-lowest

SUNSHINE: WELL ABOVE NORMAL IN THE NORTH AND WEST OF THE NORTH ISLAND, FIORDLAND AND WESTLAND; CLOUDY ALONG THE COAST IN EASTERN REGIONS

Well above normal sunshine totals for June (greater than 125 percent of normal) were recorded in Northland, Auckland, the Waikato, Bay of Plenty, Taupo, parts of Taranaki and Hawke's Bay, Fiordland and Westland. Below normal June sunshine (75 – 90 percent of normal) occurred in coastal Otago, coastal Canterbury, the Wairarapa, and around East Cape. Record high sunshine for June was recorded at Taumarunui and Lake Tekapo (with a record 163% of normal June sunshine).

Extreme high June sunshine hours were recorded at:

Location	Sunshine (hours)	Percentage of normal	Year records began	Comments
Dargaville	137	152	1943	2nd-highest
Ruakura	149	145	1936	3rd-highest
Te Kuiti	131	154	1962	2nd-highest
Taumarunui	128	188	1947	Highest
Cheviot	113	125	1983	2nd-highest
Lake Tekapo	163	165	1928	Highest

RAINFALL: WET IN THE NORTHEAST OF THE NORTH ISLAND; VERY DRY IN THE SOUTHERN HALF OF THE SOUTH ISLAND

Double the normal rainfall for June (about 200 percent of normal) occurred in the eastern Bay of Plenty and in Gisborne, most of which occurred in the last 3 days of the month. Conversely, well below normal June rainfall occurred in southern Taranaki, inland Buller, Westland, Fiordland, central and eastern Otago, and parts of Canterbury. Record low June rainfall was recorded at Lumsden, Darfield and Ranfurly – with no rainfall (0 mm) at all recorded at Darfield over the entire month, the lowest since records began there in 1943.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Whakatane	269	213	1952	2nd-highest
Gisborne	244	217	1905	2nd-highest
Dannevirke	144	153	1951	4th-highest
Hawera	48	41	1977	2nd-lowest
Reefton	95	55	1960	4th-lowest
Dunedin	17	23	1918	2nd-lowest
Manapouri	25	25	1961	3rd-lowest
Queenstown	7	11	1871	Equal lowest
Lumsden	18	24	1982	Lowest
Cromwell	6	18	1949	3rd-lowest
Gore	29	41	1950	3rd-lowest
Darfield	6	9	1919	Lowest
Ranfurly	0	0	1943	Lowest

JUNE CLIMATE IN THE SIX MAIN CENTRES

Temperatures were well below average in Hamilton and Wellington, below average for Auckland, Tauranga and Christchurch, and near average for Dunedin. June rainfalls were near normal for Auckland and Hamilton, but above normal for Tauranga (with much of this rain received in the last 3 days of the month). It was extremely dry in Wellington and both South Island main centres. It was an extremely sunny June in Hamilton and Auckland, but quite gloomy in Christchurch, with below normal sunshine totals recorded there. Near normal June sunshine was recorded in Tauranga, Wellington and Dunedin.

Dunedin was the coldest and driest of the main centres (with only 12 mm of rainfall recorded for the entire month of June), followed closely by Christchurch. Auckland was the warmest of the main centres, Tauranga was the wettest, and Hamilton was the sunniest.

June 2009 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	10.0	-0.7	Below average	111	86%	Near normal	130	117%	Above normal
Tauranga ^b	9.9	-0.6	Below average	160	126%	Above normal	147	107%	Near normal
Hamilton	7.2	-2.0	Well below average	101	82%	Near normal	149	145%	3 rd highest in records back to 1936
Wellington	8.8	-1.4	Well below normal	54	49%	Well below normal	98	100%	Near normal
Christchurch ^c	5.6	-0.6	Below normal	19	31%	Well below normal	94	79%	Below normal
Dunedin	5.2	-0.2	Near normal	12	24%	Well below normal	79	91%	Near normal

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

HIGHLIGHTS AND EXTREME EVENTS

- **Temperature**

The highest temperature during June 2009 was 24.5 °C recorded at Henderson, Auckland, on the 29th (not a June maximum temperature record at this site). Only one station recorded a near-record high June daily extreme maximum temperature (Kaitaia, recording 20.0 °C on the 11th).

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
Kaitaia	20.0	11th	1985	Equal 3rd-highest

Record low June extreme daily maximum temperatures were recorded at Kaitaia (recording a maximum temperature of only 11.1 °C on the 17th) and Ngawi (Palliser Bay), recording a maximum temperature of only 6.6 °C on the 16th.

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaitaia	11.1	17th	1972	Lowest
Dargaville	10.5	17th	1951	Equal 4th-lowest
Dannevirke	5.1	17th	1951	Equal 2nd-lowest
Ngawi	6.6	16th	1972	Lowest
Takaka	8.6	29th	1978	Equal 3rd-lowest
Farewell Spit	9.0	29th	1972	2nd-lowest
Reefton	2.6	24th	1972	3rd-lowest
Milford Sound	3.0	23rd	1935	3rd-lowest
Cape Campbell	7.3	16th	1972	Equal 3rd-lowest
Hanmer Forest	1.1	29th	1972	3rd-lowest
Le Bons Bay (Banks Peninsula)	4.0	16th	1984	Equal lowest
Wanaka	0.3	22nd	1972	Equal 3rd-lowest
Dunedin	4.0	16th	1947	Equal 2nd-lowest
Manapouri	2.1	22nd	1973	Equal 4th-lowest
Balclutha, Telford	2.7	16th	1972	2nd-lowest

The lowest temperature during June was recorded at Hanmer Springs on the 18th, with a minimum temperature of -8.9 °C (not a June minimum temperature record for this location). Several sites did record their lowest-ever June extreme daily minimum air temperature; Warkworth, Whanaparaoa, Part Taharoa (coastal Waikato), Turangi, Paraparaumu, Wellington, Wanganui and Banks Peninsula. The Wellington and Paraparaumu records are notable, in that the minimum air temperature recorded on the 8th (-0.6 °C and -4.2 °C respectively) broke long-standing records, going back to 1962 (Wellington) and 1953 (Paraparaumu).

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Kaitaia	2.0	19th	1985	4th-lowest
Warkworth	-1.3	5th	1966	Lowest
Whangaparaoa	4.1	1st	1982	Lowest
Kumeu (Waitakere)	-3.2	4th	1978	3rd-lowest
Te Puke	-1.6	17th	1973	4th-lowest
Rotorua	-4.0	19th	1964	Equal 3rd-lowest
Taupo	-5.4	18th	1949	4th-lowest
Hamilton	-4.5	19th	1946	2nd-lowest
Port Taharoa	0.5	17th	1973	Lowest

Te Kuiti	-3.9	19th	1959	2nd-lowest
Taumarunui	-5.8	23rd	1947	2nd-lowest
Turangi	-7.4	5th	1968	Lowest
Castlepoint	2.0	17th	1972	Equal 4th-lowest
Paraparaumu	-4.2	8th	1953	Lowest
Wellington	-0.6	8th	1962	Lowest
Hawera	-3.3	8th	1977	Equal 2nd-lowest
Wanganui	-1.5	8th	1987	Lowest
Lake Rotoiti	-8.2	19th	1965	Equal 4th-lowest
Milford Sound	-3.4	23rd	1934	Equal 4th-lowest
Puyssegur Point (Fiordland)	0.6	7th	1978	2nd-lowest
Motueka, Riwaka	-4.8	19th	1956	2nd-lowest
Pelorus Sd, Crail Bay	-1.0	17th	1982	2nd-lowest
Appleby	-5.5	19th	1943	4th-lowest
Blenheim	-5.5	17th	1932	3rd-lowest
Le Bons Bay (Banks Peninsula)	0.0	17th	1984	Lowest
Manapouri	-5.9	7th	1963	4th-lowest

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
Motueka, Riwaka	11.1	13th	1972	3rd-highest

• **Heavy rain and flooding**

The highest 1-day rainfall total for June was 91.8 mm at Whitianga, recorded on the 28th (not a June record at this site). High 1-day rainfall totals were recorded at Kaitaia and Whakatane, associated with the event on the 11th/12th of the month, and at Te Kuiti, Gisborne, and Wanganui (associated with the slow-moving low and associated frontal system), on the 28th.

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
Kaitaia	84	11th	1967	3rd-highest
Kumeu (Waitakere)	32	28th	1978	4th-highest
Whakatane	82	12th	1952	4th-highest
Te Kuiti	57	28th	1957	4th-highest
Gisborne	85	28th	1937	3rd-highest
Wanganui	36	28th	1987	2nd-highest

On 13 June, SH35, north of Ruatoria, was closed for about 7 hours by a slip.

Heavy rain on 29 June caused slips and the closure of SH4 between Raetihi and Wanganui. SH57 between Palmerston North and Linton was flooded, and slips occurred in the Manawatu Gorge.

On 30 June, the residents of the small settlement of Mangatuna just out of Gisborne were evacuated following heavy rainfall. Many slips affected the Napier-Taupo Road, and SH2 between Napier and Wairoa, although both remained open. A Civil Defence Emergency was established in the Gisborne District on the morning of the 30th. Further north, about 1 m of water closed Tram Valley Road in Swanson, west Auckland, isolating 30 homes overnight.

• **High winds and tornadoes**

The highest wind gust for June was 133 km/hr, recorded at Stephens Island (Cook Strait) on the 28th (not a June record at this site).

A storm on 12 June caused havoc in the Gisborne region, triggering a series of power outages. All power was restored by the afternoon of 13 June.

- **Snow and ice**

Dunedin Airport and many roads were closed on 16 June, after snow fell to low levels in Otago and Southland. Ten flights were cancelled, and all primary schools and kindergartens in Dunedin were closed for the day. SH1 between Waitati and Dunedin, Milton and Balclutha, and Balclutha and Clinton, and SH93 between Clinton and Mataura were closed by snow. Multiple traffic accidents were caused by the icy conditions, especially on Dunedin's hills. Roads requiring chains, and/or with vehicle restrictions in place were:

- SH1 Dunedin (Andersons Bay) to Mosgiel
- SH87 Outram to Middlemarch
- SH6 Kingston to Dipton
- SH97 Five Rivers to Mossburn
- SH94 Gore to Mossburn
- SH8 Alexandra to Roxburgh
- SH8 Lindis Pass Omarama to Tarras
- SH94 Te Anau to Milford Sound

Further north, SH2 over the Rimutaka Hill north of Wellington, was closed briefly.

SH29, the road over the Kaimai Ranges was closed by ice on 20 June. On the same morning, the edges of the Pauatahanui Inlet, near Porirua, froze over.

On the 29th, snow closed SH8 from Fairlie to Tekapo, and extreme caution was needed on the Desert Road through the central North Island, SH29 through Turiko in the Bay of Plenty, and SH 94 near Te Anau. Chains were also required on SH 73 near Arthurs Pass.

- **Lightning**

A two-hour lightning and thunderstorm hit Auckland and Northland on 28 June, with hundreds of strikes between 10 pm and midnight, including at least one which hit the Sky Tower. The storm also brought heavy rain, causing some flash flooding.

- **Fog**

Fog on 27 June disrupted domestic flights out of Auckland International Airport with 25 flights cancelled. International flights were not affected.

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