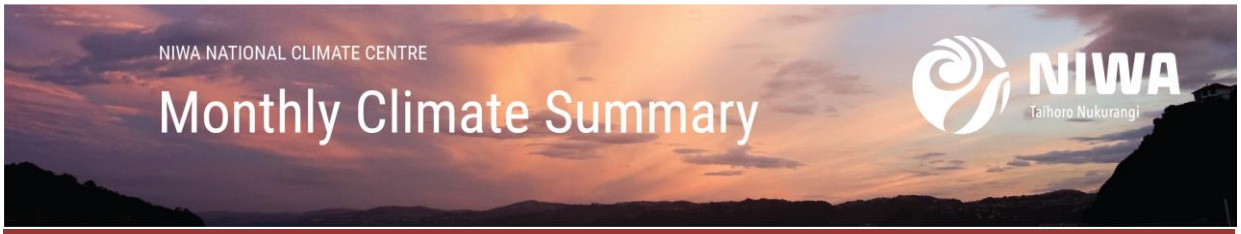

Aotearoa New Zealand Climate Summary: **June 2023** Issued: 4 July 2023

Warm and dry for many, but wet in the east and north of North Island

Temperature	Temperatures were above average (0.51-1.20°C above average) or well above average (>1.20°C above average) for many parts of the country. Near average temperatures (±0.50°C of average) were observed in parts of Northland, Auckland, and inland parts of Canterbury, Otago, and Southland. Temperatures were below average (0.51-1.20°C below average) in parts of the southern Mackenzie Basin and Central Otago.
Rainfall	Rainfall was below normal (50-79% of normal) or well below normal (<50% of normal) for inland, western, and southern parts of the North Island, and the majority of the South Island. Rainfall was above normal (120-149% of normal) or well above normal (>149% of normal) for eastern and northern parts of the North Island.
Soil Moisture	At the end of the month, soil moisture levels were higher than normal for Gisborne, parts of Hawke's Bay, coastal North Canterbury, Central Otago, and Dunedin. Soil moisture levels were lower than normal for parts of South Canterbury. Near normal soil moisture levels were typical for the remainder of the country.

Click on the link to jump to the information you require:

Overview

June 2023 mean sea level air pressure was higher than normal over and to the south-east of the South Island, and lower than normal to the north of Aotearoa New Zealand. This was associated with more easterly winds than normal for the month overall, especially over the North Island – a lag effect of the La Niña event that ended earlier in the year. The lack of cold southerly air flows and ongoing warmer than average sea surface temperatures meant it was a warm start to winter for most of the country. The exception was parts of the inland South Island which were trapped under a prolonged inversion, due to the persistence of high pressure. This resulted in areas of persistent low cloud and fog, frequent frosts, and a challenging start to the ski season due to a lack of natural and artificial snow (see *Highlights and extreme events* section for more details).

Temperatures were above average (0.51-1.20°C above average) or well above average (>1.20°C above average) for many parts of New Zealand, but especially for coastal parts of the South Island, and throughout the North Island south of Auckland. In contrast, temperatures were below average (0.51-

1.20°C below average) about the southern Mackenzie Basin and parts of Central Otago. Here, regular frosts and low daily maximum temperatures prevailed under high atmospheric pressure, which trapped cold air at low elevations in inland valleys and basins. Temperatures were near normal (±0.50°C of average) for inland parts of Southland, Otago, and Canterbury, as well as in Northland. Overall, the nationwide average temperature in June 2023 was 10.1°C. This was 1.4°C above the 1991-2020 June average, making it New Zealand's 5th-warmest June since NIWA's seven station temperature series began in 1909.

Rainfall was below normal (50-79% of normal) or well below normal (<50% of normal) for western and southern parts of Waikato, the Central Plateau, Taranaki, Manawatū-Whanganui, Kāpiti Coast, southern Wairarapa, Wellington, Tasman, Marlborough, West Coast, most of Canterbury, western Otago, and Southland. Rainfall was above normal (120-149% of normal) or well above normal (>149% of normal) for eastern and northern parts of the North Island including Hawke's Bay, Gisborne, western Bay of Plenty, Hamilton, Coromandel, northern Auckland, and Northland. Rainfall was near normal for central and southern parts of Auckland, Nelson, Central Otago and Dunedin.

Further Highlights:

- The highest temperature was 24.0°C, observed at Whakatu on 2 June.
- The lowest temperature was -10.6°C, observed at Tara Hills on 10 June.
- The highest 1-day rainfall was 109 mm, recorded at Mt Cook Village on 1 June.
- The highest wind gust was 161 km/h, observed at Puysegur Point on 1 June.
- Of the six main centres in June 2023, Tauranga was the warmest, wettest, and sunniest, Christchurch was the coolest, Wellington was the driest, and Dunedin was the least sunny.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations in 2023 so far are Taranaki (1248 hours), Mackenzie Basin (1240 hours), West Coast (1210 hours) and wider Nelson (1201 hours).

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Temperature: A warm month for many areas of the country

It was a warm start to winter for many areas of New Zealand. Eight locations observed their warmest June on record. Perhaps most notably, Christchurch (Botanic Gardens) and Lincoln observed their highest mean temperature for June, with records beginning in 1863 and 1881, respectively. Warmer than average sea surface temperatures contributed to the high air temperatures for much of New Zealand, with marine heatwave conditions present in coastal waters near the South Island and lower North Island.

New Zealand's coolest location relative to normal was Lauder (Central Otago), where the mean temperature of 2.1°C was 1.2°C below the June normal. This included a period of nearly five consecutive days where the air temperature remained below freezing (see *Highlights and extreme events* section for further details). Such low temperatures were largely confined to the lowest

elevations of inland basins and valleys – relatively mild temperatures and a lack of southerly airflows meant ski areas struggled with a lack of natural snow, and an inability to make artificial snow.

Record[1] or near-record mean air temperatures for June were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Westport	12.1	2.3	1937	Highest
Secretary Island	11.3	1.7	1985	Highest
Christchurch (Botanic Gardens)	9.3	2.5	1863	Highest
Lincoln	9.0	2.1	1881	Highest
Dunedin (Musselburgh)	9.1	1.7	1947	Highest
South West Cape	9.8	1.8	1991	Highest
Campbell Island	7.4	2.4	1991	Highest
Chatham Island	11.2	1.9	1878	Highest
Haast	10.2	1.8	1949	2nd-highest
Motueka	10.4	2.6	1956	2nd-highest
Brothers Island	12.9	1.8	1997	2nd-highest
Akaroa	10.8	2.0	1978	2nd-highest
Waimate	8.3	1.9	1908	2nd-highest
Te Puke	11.7	1.3	1973	3rd-highest
Whakatu	11.0	2.0	1965	3rd-highest
Waipawa	9.8	1.7	1945	3rd-highest
Cape Campbell	11.6	1.4	1953	3rd-highest
Oamaru	8.1	0.9	1967	3rd-highest
Whakatāne	12.2	1.9	1974	4th-highest
Gisborne	12.2	1.6	1905	4th-highest
Napier	12.1	2.1	1870	4th-highest
Tākaka	10.2	1.6	1978	4th-highest
Arapito	10.9	2.0	1978	4th-highest
Appleby	9.4	1.8	1932	4th-highest
Cheviot	7.9	1.2	1982	4th-highest
Low records or near-records				
Waipounamu	4.1	-0.5	1980	3rd-lowest

Record or near-record mean maximum air temperatures for June were recorded at:

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Paraparaumu	16.1	2.5	1953	Highest
Levin	16.0	2.4	1895	Highest

[1] The rankings (1st, 2nd, 3rd.etc) in all Tables in this summary are relative to climate data from a group of nearby stations, some of which may no longer be operating. The current climate value is compared against all values from any member of the group, without any regard for homogeneity between one station's record, and another. This approach is used due to the practical limitations of performing homogeneity checks in real-time.

Westport	16.6	2.9	1937	Highest
Franz Josef	14.3	1.8	1953	Highest
Secretary Island	13.9	1.7	1985	Highest
Motueka	16.4	2.9	1956	Highest
Appleby	15.8	2.1	1932	Highest
South West Cape	11.8	1.9	1991	Highest
Campbell Island	8.8	1.7	1991	Highest
Chatham Island	13.5	1.5	1878	Highest
Whakatāne	16.9	1.4	1974	2nd-highest
Taupō	14.6	2.7	1949	2nd-highest
Te Kuiti	16.2	1.9	1959	2nd-highest
Tūrangi	14.1	1.7	1968	2nd-highest
New Plymouth	15.6	1.3	1944	2nd-highest
Lower Retaruke	14.4	1.8	1966	2nd-highest
Ohakune	12.5	1.9	1962	2nd-highest
Arapito	15.6	2.2	1978	2nd-highest
Hokitika	14.5	2.0	1866	2nd-highest
Ōkārito	14.1	1.2	1982	2nd-highest
Haast	13.6	1.5	1949	2nd-highest
Nelson	15.2	1.8	1862	2nd-highest
Brothers Island	14.5	1.7	1997	2nd-highest
Oban (Stewart Island)	12.0	1.6	1975	2nd-highest
Rotorua	14.2	1.5	1964	3rd-highest
Whatawhata	15.8	1.5	1952	3rd-highest
Taumarunui	15.0	2.1	1947	3rd-highest
Ngawi	15.5	1.7	1972	3rd-highest
Palmerston North	15.2	1.7	1928	3rd-highest
Wellington (Airport)	14.8	1.6	1962	3rd-highest
Upper Hutt (Trentham)	14.8	1.9	1939	3rd-highest
Whanganui	15.8	1.7	1937	3rd-highest
Kawerau	16.6	1.1	1954	4th-highest
Waikeria	15.8	1.3	1957	4th-highest
Low records or near-records				
Waipounamu	9.2	-0.2	1980	3rd-lowest

Record or near-record mean minimum air temperatures for June were recorded at:

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Gisborne	9.0	3.2	1905	Highest
Kaikōura	8.2	1.9	1963	Highest
Christchurch (Botanic Gardens)	5.7	3.9	1863	Highest
Lincoln	5.4	3.3	1881	Highest
Akaroa	8.2	2.9	1978	Highest
Le Bons Bay	8.4	2.6	1984	Highest
Waimate	3.9	2.7	1908	Highest
Oamaru	4.2	1.5	1967	Highest
Dunedin (Musselburgh)	5.9	2.0	1947	Highest

Campbell Island	5.9	2.9	1991	Highest
Chatham Island	8.8	2.3	1878	Highest
Te Puke	8.0	2.4	1973	2nd-highest
Waipawa	5.3	2.5	1945	2nd-highest
Māhia	10.3	1.8	1990	2nd-highest
Brothers Island	11.2	1.8	1997	2nd-highest
South West Cape	7.8	1.6	1991	2nd-highest
Motu	4.9	2.6	1990	3rd-highest
Hastings	6.0	2.0	1965	3rd-highest
Westport	7.6	1.7	1937	3rd-highest
Haast	6.7	2.0	1949	3rd-highest
Secretary Island	8.6	1.6	1985	3rd-highest
Cape Campbell	9.6	1.5	1953	3rd-highest
Windsor	1.5	1.3	2000	3rd-highest
Whakatāne	7.5	2.4	1974	4th-highest
Napier	8.1	2.9	1870	4th-highest
Wairoa	7.4	2.2	1964	4th-highest
Motueka	4.3	2.2	1956	4th-highest
Cheviot	2.7	1.5	1982	4th-highest
Low records or near-records				
Waipounamu	-1.1	-0.9	1980	Lowest

Rainfall: Dry for many, but wet in Gisborne, Hawke's Bay and Northland

It was a particularly dry month for Manawatū-Whanganui, Kāpiti Coast, and parts of Wellington and the Mackenzie Basin, where less than 25% of normal June rainfall was recorded. Most notably, Paraparaumu and Pukaki Aerodrome recorded their driest June on record, with just 7 mm and 2 mm of rainfall for the month, respectively.

In contrast, it was yet another wet month for Gisborne, Hawke's Bay and Northland. Seven locations observed record or near-record high rainfall totals for June. With 303 mm, Gisborne recorded 282% of normal June rainfall, making it the city's second-wettest June since 1905.

Record or near-record June rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Takapau Plains	189	189	1962	Highest
Gisborne	303	282	1905	2nd-highest
Whakatu	163	213	1965	2nd-highest
Waipawa	170	215	1945	2nd-highest
Kaikohe	333	190	1956	3rd-highest
Mokohinau	158	156	1994	3rd-highest
Whangaparāoa	208	193	1946	4th-highest
Low records or near-records				
Paraparaumu	7	7	1945	Lowest
Pukaki Aerodrome	2	3	1972	Lowest
Tūrangi	48	34	1968	2nd-lowest
Lower Retaruke	50	36	1966	2nd-lowest

Palmerston North	21	22	1928	2nd-lowest
Levin	26	26	1895	2nd-lowest
Whanganui	12	13	1890	2nd-lowest
Martinborough	23	28	1924	3rd-lowest
Porirua	29	22	1953	3rd-lowest
Upper Hutt (Trentham)	25	20	1924	3rd-lowest
Stratford	72	37	1960	3rd-lowest
Ohakune	50	39	1961	3rd-lowest
Wellington (Kelburn)	47	35	1928	4th-lowest
Wellington (Airport)	38	37	1958	Equal 4th-lowest

June climate in the six main centres

Temperatures were well above average or above average for most of the main centres. The exception was Auckland where temperatures were near average. It was a wet June for Hamilton and Tauranga, where rainfall was above normal and well above normal, respectively. In contrast, it was dry in Wellington where just 47 mm of rainfall (35% of normal) was recorded, making it the city's fourth-driest June since records began in 1928. From 1 January to 30 June 2023, Auckland recorded 1,151 mm of rain. This is 44 mm more than Auckland's *annual* average rainfall total. Of the six main centres in June 2023, Tauranga was the warmest, wettest, and sunniest, Christchurch was the coolest, Wellington was the driest, and Dunedin was the least sunny.

June 2023 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland[a]	12.4	+0.4	Near average
Tauranga[b]	12.6	+1.4	Well above average
Hamilton[c]	10.3	+0.7	Above average
Wellington[d]	11.0	+1.1	Above average
Christchurch[e]	8.1	+1.7	Well above average
Dunedin[f]	9.1	+1.7	Warmest June on record
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland[a]	119	94	Near normal
Tauranga[b]	227	188	Well above normal
Hamilton[c]	166	128	Above normal
Wellington[d]	47	35	Well below normal
Christchurch[e]	51	75	Below normal
Dunedin[f]	51	86	Near normal
Sunshine			
Location	Sunshine (hours)		
Auckland[a]	155		
Tauranga[b]	164		
Hamilton[g]	148		
Wellington[d]	129[2]		
Christchurch[e]	92		
Dunedin[f]	86		

[a] Māngere [b] Tauranga Airport [c] Hamilton Airport [d] Kelburn [e] Christchurch Airport [f] Musselburgh [g] Ruakura

[2] Missing two days of data.

Highlights and extreme events

Temperatures

High pressure delivered frequent frosts for much of the South Island during June. In addition, an inversion became established over inland parts of the South Island from approximately 6-25 June, with cold air pooling in valleys and basins. This contributed to relatively low daily maximum and minimum temperatures in several locations. Particularly notable was Lauder, where the air temperature remained below freezing for 114 consecutive hours (nearly 5 days) – from 7 p.m. on 6 June to 1 p.m. on 11 June. On 10 June, Lauders maximum temperature was only -2.7°C.

The highest temperature for June was 24.0°C, observed at Whakatu on 2 June. The lowest temperature was -10.6°C, observed at Tara Hills on 10 June.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Purerua	20.7	2nd	1983	Highest
Westport	19.6	23rd	1937	Highest
Hokitika	20.2	23rd	1866	Highest
Greymouth	18.8	23rd	1947	Highest
Middlemarch	21.1	1st	2000	Highest
Dunedin (Airport)	20.8	1st	1962	Highest
Tautuku	18.7	1st	1976	Highest
Chatham Island	17.4	2nd	1878	Highest
Paraparaumu	19.8	23rd	1953	2nd-highest
Wellington (Airport)	18.5	2nd	1962	2nd-highest
Milford Sound	17.2	1st	1934	2nd-highest
Brothers Island	18.0	2nd	1997	2nd-highest
Windsor	20.4	1st	2000	2nd-highest
Tūrangi	19.2	23rd	1968	Equal 2nd-highest
Māhia	20.0	2nd	1990	Equal 2nd-highest
Arapito	19.6	25th	1978	Equal 2nd-highest
Ōkārito	18.0	21st	1982	Equal 2nd-highest
Pukaki Aerodrome	17.6	1st	1972	Equal 2nd-highest
Clyde	19.5	1st	1978	Equal 2nd-highest
Taupō	18.4	23rd	1949	3rd-highest
New Plymouth	19.2	25th	1944	3rd-highest
Franz Josef	18.8	23rd	1953	3rd-highest
Haast	17.4	24th	1949	3rd-highest
Waipounamu	18.9	1st	1980	3rd-highest
Tapanui	19.0	1st	1900	3rd-highest
Whakatu	24.0	2nd	1965	Equal 3rd-highest
Hastings	23.2	2nd	1965	4th-highest
Ranfurly	17.9	1st	1897	4th-highest
Alexandra	19.9	1st	1928	4th-highest
Nugget Point	17.8	1st	1970	4th-highest

Dunedin (Musselburgh)	20.0	1st	1947	Equal 4th-highest
Cromwell	19.1	1st	1949	Equal 4th-highest
Low records or near-records				
Middlemarch	-0.5	10th	2000	2nd-lowest
Gore	1.0	9th	1907	3rd-lowest
Tiwai Point	4.8	9th	1972	4th-lowest
Balclutha	3.3	9th	1972	4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Paraparaumu	15.8	2nd	1972	Highest
Westport	14.6	23rd	1966	Highest
Motueka	15.0	24th	1972	Highest
Brothers Island	14.9	2nd	1997	Highest
Cheviot	12.4	24th	1982	Highest
Rangiora	12.6	24th	1972	Highest
Christchurch (Botanic Gardens)	12.6	24th	1863	Highest
Windsor	10.4	1st	2000	Highest
Oamaru	12.1	20th	1972	Highest
Nugget Point	10.7	20th	1972	Highest
Dannevirke	14.2	2nd	1951	Equal highest
Wellington (Airport)	15.7	2nd	1972	Equal highest
Port Taharoa	16.0	2nd	1974	2nd-highest
Ngawi	16.3	2nd	1972	2nd-highest
Palmerston North	14.1	23rd	1940	2nd-highest
Upper Hutt Trentham	14.8	2nd	1972	2nd-highest
Oamaru	11.1	1st	1972	2nd-highest
Campbell Island	9.4	21st	1991	2nd-highest
Levin	15.1	2nd	1950	Equal 2nd-highest
Takapau Plains	13.1	2nd	1972	3rd-highest
Waimate	11.1	20th	1908	3rd-highest
Middlemarch	11.0	1st	2000	3rd-highest
Dunedin (Airport)	10.8	20th	1972	3rd-highest
Dunedin (Musselburgh)	11.6	20th	1947	3rd-highest
Medbury	11.5	2nd	1927	Equal 3rd-highest
Whanganui	14.1	2nd	1972	4th-highest
Kaikōura	13.4	2nd	1972	4th-highest
Waipounamu	6.9	29th	1980	4th-highest
Tautuku	10.3	20th	1976	4th-highest
Tākaka	12.6	23rd	1978	Equal 4th-highest
Secretary Island	13.1	1st	1988	Equal 4th-highest
Culverden	12.5	2nd	1930	Equal 4th-highest
Timaru	10.2	20th	1885	Equal 4th-highest
Low records or near-records				
None observed				

Rain and slips

On 1 June, heavy rain caused a slip on Milton Road at Arnott Heights in Greymouth, with areas of surface flooding reported nearby.

On 18 June, surface flooding was reported in parts of Gisborne after heavy rain. Residents were advised against fishing, gathering shellfish or water activities in rivers and beaches for at least five days, after the emergency wastewater valve into the Turanganui River was opened.

On 22 June, prolonged heavy rain brought areas of surface flooding and caused many slips in Gisborne and Hawke's Bay. A State of Emergency was declared in Gisborne, with residents Te Karaka evacuating due to rising levels of the Waipaoa River. Several State Highways were closed including SH2 between Ormond and Matawai, and between Wairoa to Napier, SH5 from Taupō to Eskdale, and SH35 from Okitu to Ruatori. In total, 73 local roads were closed or significantly obstructed by slips. Farther north, heavy rain in Hamilton caused flooding in the suburb of Glenview.

The highest 1-day rainfall was 109 mm, recorded at Mt Cook Village on 1 June.

Record or near-record June extreme 1-day rainfall totals were recorded at:

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Campbell Island	69	28th	1991	Highest
Hamilton (Ruakura)	87	22nd	1907	2nd-highest
Mt Ruapehu (Chateau)	67	30th	2000	4th-highest

Wind

On 5 June, *Interislander* ferry sailings were cancelled due to high swells generated by strong southerly winds.

The monthly mean wind speed at Wellington Airport was 4.3 m/s. This was its lowest mean wind speed for June, and second-lowest of any month, since the anemometer mast was moved to its existing location in 1993.

The highest wind gust was 161 km/h, observed at Puysegur Point on 1 June.

Record or near-record June extreme wind gusts were recorded at:

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Puysegur Point	161	1st	1986	Highest
Clyde	78	1st	1983	2nd-highest

Snow and ice

On 5 June, snow fell and settled to approximately 400 m above sea level in parts of Central Otago. The Lindis Pass (SH8) was temporarily closed due to snow.

For approximately two weeks from 6 June, hoar frosts were reported in parts of Central Otago and the Mackenzie Basin, as a combination of fog and freezing temperatures persisted under a prolonged inversion over much of the inland South Island.

On 19 June, Mount Hutt ski area (Canterbury) was forced to close due to a lack of snow, after opening for the season on 10 June. The snowpack depth was relatively low to start the season, and warm temperatures combined with a period of rain meant the lower elevation runs became unskiable. Farther south, Coronet Peak (Otago) opened their learner area and Meadows Chair on 16 June, but the ski area was also forced to subsequently close on 26 June due to deteriorating conditions and a lack of snow.

Lightning, hail, and tornadoes

On 1 June, approximately 8,000 lightning strikes were recorded over the West Coast of the South Island.

On 5 June, thunderstorms occurred over upper parts of the North Island. A funnel cloud was sighted off the coast of Langs Beach, Northland. Farther south, approximately 500 lightning strikes were detected near the Coromandel Peninsula.

Cloud and fog

For much of June, but especially 6-25 June, high pressure persisted over much of the South Island. This resulted in an inversion becoming established, with low cloud and fog trapped in many inland valleys and basins. Cromwell was one location subject to persistent low cloud cover, with the town receiving just 54 hours of sunshine for the month – its lowest sunshine total for June since records began in 1979.

Frequent high air pressure and easterly air flows resulted in settled weather and a relative lack of cloud for some western areas of the country. Paraparaumu (172 hours) and Arapito (northern West Coast, 151 hours) each observed their highest sunshine hour total for June, with records beginning in 1953 and 1979, respectively.

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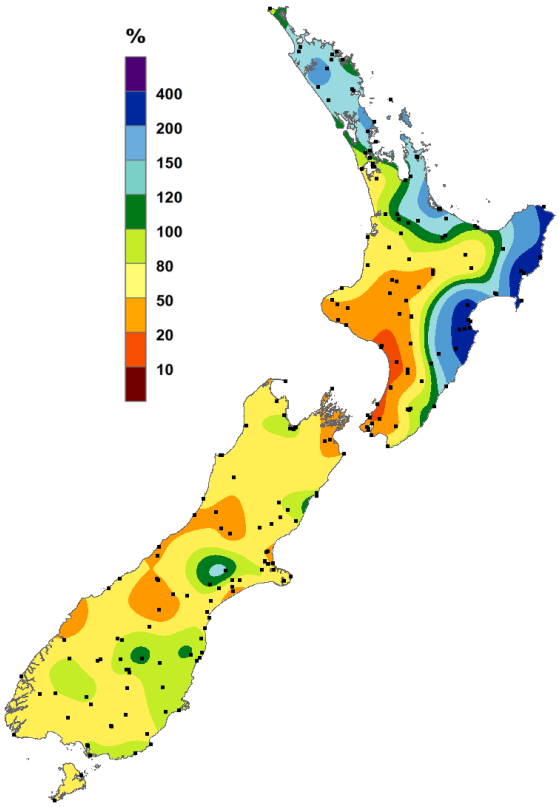
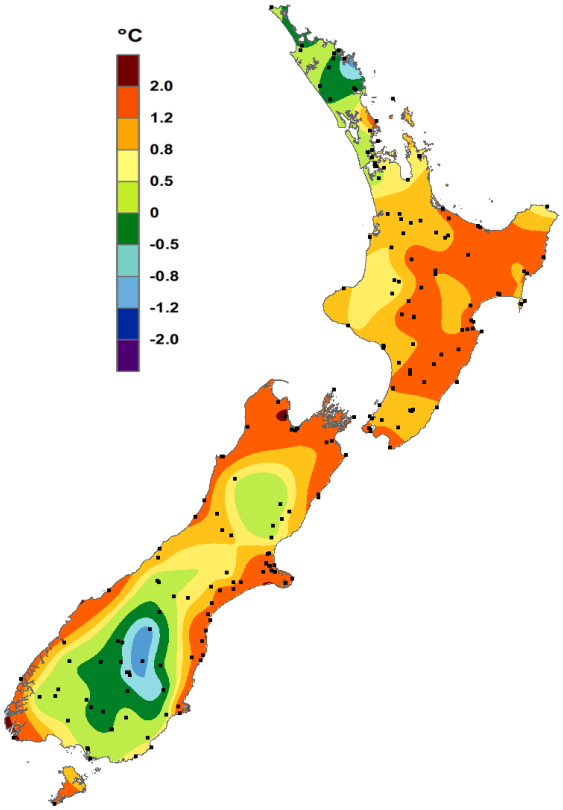


June rainfall
Expressed as a percentage of the 1981-2010 normal.



June temperature
Expressed as a departure from the 1991-2020 average in degrees Celsius.

https://www.niwa.co.nz/our-science/climate