# The 3<sup>rd</sup> warmest June on record, unusually dry and sunny for many

Temperature	June temperatures were well above average (>1.20°C) for much of the South Island except in parts of Tasman and Marlborough where temperatures were above average (+0.51°C to +1.20°C). As a whole, the country observed well above average, above average, or near average temperatures (-0.50°C to 0.49°C). No location observed below average temperatures (-1.20°C to -0.51°C) on either Island.
Rainfall	Rainfall was well below normal (<50%) for much of Gisborne, southern Hawke's Bay, and Wairarapa. Rainfall was also well below normal in central and northern Canterbury and much of Otago and eastern Southland. Pockets of above normal rainfall (120-149%) were observed in parts of the Bay of Plenty, eastern Waikato and the north of Otago. Rainfall was near normal (80-119%) elsewhere.
Sunshine	Sunshine was above normal (110-124%) in Southland, the West Coast, Otago, and Canterbury with sections of well above normal sunshine (>125%). The majority of the North Island also observed above or well above normal sunshine. Sunshine was near normal (90-109%) or below normal (75-89%) in Tasman, Nelson, Marlborough, parts of Taranaki, Manawatu-Whanganui, and northern Northland.
Soil Moisture	As of 1 July 2016, soil moisture levels were below normal for this time of year for large parts of Gisborne, Hawke's Bay, the Wairarapa as well as central and northern parts of Canterbury. Soil moisture levels for the remainder of the country were near normal for this time of year.

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June 2016 climate in the six main centres
Highlights and extreme events

# Overview

During the month of June 2016, air pressure was higher than normal over and to the east of New Zealand while lower than normal pressures existed to the south-west of the country. This pressure set up led to a prevalence of winds from a northerly direction. In addition to frequent winds from the north, warmer than usual sea surface temperatures persisted around New Zealand, especially to the west and north. Much like the past several months, these two factors worked in tandem to bring unusually mild temperatures to the country. As a result, Christchurch and Dunedin had their warmest June on record. Many climate stations in New Zealand recorded above average (0.51°C to 1.20°C) or well above average (>1.20°C) temperatures during June, with several locations experiencing record or near-record warmth (particularly in the South Island). The nationwide average temperature in June

2016 was 10.2°C¹ (1.6°C above the 1981-2010 June average from NIWA's seven station temperature series which begins in 1909), making June 2016 the 3<sup>rd</sup> warmest June on record using this series. The first 6 months of 2016 have all been warmer than average and January to June 2016 is the warmest such period in the seven station series temperature history with a departure from average of +1.4°C.

Much like May, the warmer than usual ocean surrounding New Zealand not only contributed to unseasonable warmth on land but also created an environment that was more conducive for strong storms. However, unlike May, record high monthly rainfall was rare, though several one-day maximum or near maximum rainfall extremes did occur, speaking to the isolated nature of the downpours. Much of eastern Southland and Otago received well below normal rainfall (<50%) during the month. Most notably, Nugget Point (Otago) experienced its driest June since records began in 1930. Middle and northern Canterbury, sheltered from a wind that was most predominantly coming from the northwest, also received well below normal rainfall with a small pocket in the Waimakariri and Hurunui Districts observing less than 20% of normal. After a dry start to June, portions of the east coast of the North Island experienced downpours as the month concluded. A few strong areas of low pressure moved from the northwest to southeast across the North Island during the latter stages of the month, resulting in near-record 1-day rainfall in some parts of the eastern North Island. Despite a few rounds of flooding, highlighted by Auckland's wettest June hour in recorded history on 29 June (25.4 mm), much of the northern North Island received near normal (80-119%) rainfall during June.

Soil moisture levels at the beginning of June were well below normal for this time of year for large parts of Gisborne, Hawke's Bay, the Wairarapa as well as central and northern parts of Canterbury. Below normal rainfall continued during June for many of these locations, meaning below normal soil moisture levels persisted in these parts. On 1 July 2016, the east coast of both islands continued to exhibit the most abnormally dry soils anywhere in the country with most other places experiencing near normal soil moisture levels for this time of the year.

June sunshine hours were above normal (110-125%) across much of the country with parts of the east coast of both Islands experiencing well above normal (>125%) sunshine. The north of the South Island, south of the North Island, and north of the North Island observed near normal (90-109%) sunshine. Timaru and Balclutha had their second-sunniest June on record while Invercargill had its fourth-sunniest June. Queenstown had its third-sunniest June on record with records dating back to 1930.

## **Further Highlights:**

- The highest temperature was 25.1°C, observed at Napier on 10 June.
- The lowest temperature was -8.2°C, observed at Mt Cook on 7 June.
- The highest 1-day rainfall was 141 mm, recorded at Otamatuna on 22 June.
- The highest wind gust was 172km/h, observed at Cape Turnagain on 10 June.
- Of the six main centres in June 2016, Auckland was the warmest and tied with Wellington as the wettest, Christchurch was sunniest and driest, Tauranga was the cloudiest, and Dunedin was the coolest.
- Of the available, regularly reporting sunshine observation sites, the sunniest four locations in 2016 so far (1 January 30 June) were Richmond (1440 hours), Blenheim (1324 hours), New Plymouth (1284 hours) and Takaka (1263 hours).

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<sup>1</sup> Interim value

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# Temperature: A mild June with plenty of records

The theme of unusual warmth during May carried into June, with above average (+0.51°C to +1.20 °C) or well above average (>1.20°C) temperatures recorded by most climate stations in the country. No locations observed below average temperatures (-1.20°C to -0.51°C). Many locations experienced record or near record mean, mean maximum and mean minimum high temperatures. Most notably, Dunedin and Christchurch had their warmest June on record. Those locations have records that extend back to 1947 and 1863 respectively. The nationwide average temperature in June 2016 was 10.2°C (1.6°C above the 1981-2010 June average from NIWA's seven station temperature series which begins in 1909), making June 2016 the 3<sup>rd</sup> warmest June on record using this series. With that, the first six months of 2016 are officially the warmest start to any year on NIWA's seven station record.

# Record<sup>2</sup> 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				
Kaikohe	14.1	2.3	1973	Highest
Puysegur Point	10.2	1.6	1978	Highest
Christchurch (Riccarton)	9.6	2.7	1863	Highest
Orari	7.1	1.5	1972	Highest
Oamaru	8.6	1.5	1908	Highest
Dunedin (Musselburgh)	9.0	1.7	1947	Highest
Lumsden	6.6	1.9	1982	Highest
Gore	7.4	2.1	1971	Highest
Tiwai Point	9.6	2.7	1970	Highest
South West Cape	9.6	1.8	1991	Highest
Mokohinau	15.1	1.1	1994	2nd-highest
Whatawhata	12.4	2.4	1952	2nd-highest
Masterton	10.5	2.6	1992	2nd-highest
Ngawi	13.0	1.7	1972	2nd-highest
Milford Sound	8.0	2.1	1934	2nd-highest

<sup>&</sup>lt;sup>2</sup> The rankings (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>.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.

Secretary Island	10.8	1.4	1985	2nd-highest
Cape Campbell	11.6	1.4	1953	2nd-highest
Kaikoura	11.2	2.1	1963	2nd-highest
Lincoln	8.8	2.1	1881	2nd-highest
Le Bons Bay	10.3	2.0	1984	2nd-highest
Ranfurly	4.7	1.9	1975	2nd-highest
Nugget Point	8.2	1.4	1970	2nd-highest
Waipawa	9.1	0.9	1945	3rd-highest
Wellington (Airport)	11.9	1.4	1962	3rd-highest
Hawera	11.2	1.7	1977	3rd-highest
Cheviot	8.1	1.4	1982	3rd-highest
Waipara West	9.9	1.9	1973	3rd-highest
Wanaka	6.1	2.0	1955	3rd-highest
Invercargill	7.8	1.9	1905	3rd-highest
Whangaparaoa	13.8	1.2	1982	4th-highest
Te Puke	11.4	1.4	1973	4th-highest
Martinborough	9.8	1.2	1986	4th-highest
Mahia	12.2	1.4	1990	4th-highest
Paraparaumu	11.4	1.7	1953	4th-highest
Farewell Spit	12.1	1.6	1971	4th-highest
Westport	10.8	1.5	1937	4th-highest
Hokitika	9.8	1.6	1866	4th-highest
Reefton	8.0	2.1	1960	4th-highest
Mt Cook Village	4.9	1.6	1929	4th-highest
Tara Hills	4.6	1.7	1949	4th-highest
Manapouri	6.5	2.3	1963	4th-highest
Lauder	5.3	2.3	1924	4th-highest
Low records or near-records				
None observed				

# 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				
Lincoln	17.2	2.4	1973	Highest
Le Bons Bay	16.4	2.3	1952	Highest
Orari	16.0	2.7	1992	Highest
Timaru	15.5	2.4	1945	Highest
Tara Hills	11.8	2.2	1934	Highest
Ranfurly	12.7	1.8	1978	Highest
Dunedin (Musselburgh)	10.5	2.9	1929	Highest
Manapouri	16.0	4.0	1863	Highest
Queenstown	13.0	2.0	1972	Highest
Lumsden	13.0	1.7	1885	Highest
Gore	13.4	2.8	1947	Highest
Invercargill	11.2	2.9	1963	Highest
Tiwai Point	11.6	2.5	1982	Highest

Balctutha         12.8         2.9         1905         Highest           Nugget Point         14.5         4.5         1970         Highest           South West Cape         11.5         1.6         1964         Highest           Campbell Island         11.6         1.8         1991         Highest           Kaikohe         16.5         1.1         1994         2nd-highest           Whangaparei         16.4         1.6         1974         2nd-highest           Whokohinau         15.3         2.0         1986         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whataane         16.8         1.8         1969         2nd-highest           Motu         16.1         2.1         1995         2nd-highest           Motual Mangerei         14.7         1.6         1937         2nd-highest           Whatawahata         13.2         1.2         1985         2nd-highest           Walone         14.8         2.3         1982         2nd-highest           Takapau Plains         11.6         2.8<					
South West Cape         11.5         1.6         1964         Highest           Campbell Island         11.6         1.8         1991         Highest           Kaitala         17.5         1.3         1948         2nd-highest           Kaikohe         16.5         1.1         1994         2nd-highest           Whangarei         16.4         1.6         1974         2nd-highest           Whokohinau         15.3         2.0         1986         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whatawata         16.8         1.8         1969         2nd-highest           Motu         16.1         2.1         1995         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Whatawhat         13.2         1.2         1985         2nd-highest           Turangi         14.8         2.3         1	Balclutha	12.8	2.9	1905	Highest
Campbell Island         11.6         1.8         1991         Highest           Kaitaia         17.5         1.3         1948         2nd-highest           Kaikohe         16.5         1.1         1994         2nd-highest           Whangarei         16.4         1.6         1974         2nd-highest           Whokohinau         15.3         2.0         1986         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Waiti         13.8         2.2         1974         2nd-highest           Waiti         13.8         2.3         1982 <td>Nugget Point</td> <td></td> <td>4.5</td> <td>1970</td> <td>Highest</td>	Nugget Point		4.5	1970	Highest
Kaitaia         17.5         1.3         1948         2nd-highest           Kaikohe         16.5         1.1         1994         2nd-highest           Whangarei         16.4         1.6         19.4         2nd-highest           Mokohinau         15.3         2.0         1986         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Rotorua         17.3         2.1         1905         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Mutakahada         13.2         1.2         1987         2nd-highest           Wakatawhata         13.2         1.2         1982         2nd-highest           Watawhata         13.2         1.2         1983         2nd-highest           Watawhata         13.2         1.2         1982         2nd-highest           Watawhata         13.2         1.2         1983         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Waione         15.2         1.3         1959	South West Cape	11.5	1.6	1964	Highest
Kaikohe         16.5         1.1         1994         2nd-highest           Whangarei         16.4         1.6         1974         2nd-highest           Whokohinau         15.3         2.0         1986         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whatatane         16.8         1.8         1969         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Mutakawhata         13.2         1.2         1985         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Waisone         15.2         1.3         1992         2nd-highest           Waitinborough         14.2         1.9 <t< td=""><td>Campbell Island</td><td>11.6</td><td>1.8</td><td>1991</td><td>Highest</td></t<>	Campbell Island	11.6	1.8	1991	Highest
Whangarei         16.4         1.6         1974         2nd-highest           Mokohinau         15.3         2.0         1986         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Rotorua         17.3         2.1         1995         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Waiser         8.1         0.9         1991<	Kaitaia	17.5	1.3	1948	2nd-highest
Mokohinau         15.3         2.0         1986         2nd-highest           Whangaparaoa         15.6         1.9         1972         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Rotorua         17.3         2.1         1905         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.2         1.3         1991         3rd-highest           Marinborough         14.2         1.9	Kaikohe	16.5	1.1	1994	2nd-highest
Whangaparaoa         15.6         1.9         1972         2nd-highest           Whakatane         16.8         1.8         1969         2nd-highest           Rotorua         17.3         2.1         1905         2nd-highest           Motu         16.1         2.1         19937         2nd-highest           Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Maine         8.1         0.9         1991         2nd-highest           Maine         15.2         1.3 <t< td=""><td>Whangarei</td><td>16.4</td><td>1.6</td><td>1974</td><td>2nd-highest</td></t<>	Whangarei	16.4	1.6	1974	2nd-highest
Whakatane         16.8         1.8         1969         2nd-highest           Rotorua         17.3         2.1         1905         2nd-highest           Motu         16.1         2.1         1997         2nd-highest           Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Waione         15.2         1.3         1991         2nd-highest           Waione         15.2         1.3         1993         3rd-highest           Ngawi         15.5         1.8         199	Mokohinau	15.3	2.0	1986	2nd-highest
Rotorua         17.3         2.1         1905         2nd-highest           Motu         16.1         2.1         1937         2nd-highest           Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Napier         17.2         2.3         1964 </td <td>Whangaparaoa</td> <td>15.6</td> <td>1.9</td> <td>1972</td> <td>2nd-highest</td>	Whangaparaoa	15.6	1.9	1972	2nd-highest
Motu         16.1         2.1         1937         2nd-highest           Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Marinborough         14.2         1.9         1951         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7	Whakatane	16.8	1.8	1969	2nd-highest
Auckland (Mangere)         14.7         1.6         1937         2nd-highest           Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Mazone         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Wairoa         15.0         1.7	Rotorua	17.3	2.1	1905	2nd-highest
Whatawhata         13.2         1.2         1985         2nd-highest           Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Magwi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Waipowa         15.2         2.0         1953         3rd-highest           Waipowa         15.4         1.3         19	Motu	16.1	2.1	1937	2nd-highest
Te Kuiti         13.8         2.2         1974         2nd-highest           Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Kapier         17.2         2.3         1964         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Waipawa         15.2         2.0         1953         3rd-highest           Waipawa         15.4         1.3         1	Auckland (Mangere)	14.7	1.6	1937	2nd-highest
Turangi         14.8         2.3         1982         2nd-highest           Masterton         15.3         2.5         1973         2nd-highest           Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Kisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Wairoa         15.0         1.7         1990         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Wairoa         15.4         1.3         1978	Whatawhata	13.2	1.2	1985	2nd-highest
Masterton         15.3         2.5         1973         2nd-highest           Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Wairoa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977	Te Kuiti	13.8	2.2	1974	2nd-highest
Takapau Plains         11.6         2.8         1971         2nd-highest           Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Hawera         13.2         1.6         1949	Turangi	14.8	2.3	1982	2nd-highest
Dannevirke         8.1         0.9         1991         2nd-highest           Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Waipawa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Paraparaumu         15.4         1.3         1978         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Hawera         13.2         1.6         1949         3rd-highest           Wanganui         15.4         1.7         1941	Masterton	15.3	2.5	1973	2nd-highest
Waione         15.2         1.3         1959         3rd-highest           Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Waipawa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Paraparaumu         15.4         1.3         1978         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Wawera         13.2         1.6         1949         3rd-highest           Wastport         14.3         2.3         1963         <	Takapau Plains	11.6	2.8	1971	2nd-highest
Martinborough         14.2         1.9         1951         3rd-highest           Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Wairoa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Paraparaumu         15.4         1.3         1978         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Hawera         13.2         1.6         1949         3rd-highest           Wanganui         15.4         1.7         1941         3rd-highest           Takaka         13.3         2.4         1906         3rd-highest           Westport         14.3         2.3         1963	Dannevirke	8.1	0.9	1991	2nd-highest
Ngawi         15.5         1.8         1991         3rd-highest           Hicks Bay         16.9         2.4         1870         3rd-highest           Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Waipawa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Paraparaumu         15.4         1.3         1978         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Hawera         13.2         1.6         1949         3rd-highest           Wanganui         15.4         1.7         1941         3rd-highest           Takaka         13.3         2.4         1906         3rd-highest           Westport         14.3         2.3         1963         3rd-highest           Reefton         14.0         2.7         1928         3	Waione	15.2	1.3	1959	3rd-highest
Hicks Bay       16.9       2.4       1870       3rd-highest         Gisborne       16.8       2.4       1965       3rd-highest         Napier       17.2       2.3       1964       3rd-highest         Hastings       15.0       1.7       1990       3rd-highest         Waipawa       15.2       2.0       1953       3rd-highest         Wairoa       15.0       1.7       1895       3rd-highest         Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Haast       14.1       2.5       1881       3rd-highest <td>Martinborough</td> <td>14.2</td> <td>1.9</td> <td>1951</td> <td>3rd-highest</td>	Martinborough	14.2	1.9	1951	3rd-highest
Gisborne         16.8         2.4         1965         3rd-highest           Napier         17.2         2.3         1964         3rd-highest           Hastings         15.0         1.7         1990         3rd-highest           Wairoa         15.2         2.0         1953         3rd-highest           Wairoa         15.0         1.7         1895         3rd-highest           Mahia         14.7         1.8         1977         3rd-highest           Paraparaumu         15.4         1.3         1978         3rd-highest           Levin         12.3         2.2         1960         3rd-highest           Hawera         13.2         1.6         1949         3rd-highest           Wanganui         15.4         1.7         1941         3rd-highest           Westport         14.3         2.3         1966         3rd-highest           Westport         14.3         2.3         1963         3rd-highest           Heast         14.0         2.7         1928         3rd-highest           Haast         14.1         2.5         1881         3rd-highest           Milford Sound         13.1         2.2         1984 <t< td=""><td>Ngawi</td><td>15.5</td><td>1.8</td><td>1991</td><td>3rd-highest</td></t<>	Ngawi	15.5	1.8	1991	3rd-highest
Napier       17.2       2.3       1964       3rd-highest         Hastings       15.0       1.7       1990       3rd-highest         Waipawa       15.2       2.0       1953       3rd-highest         Wairoa       15.0       1.7       1895       3rd-highest         Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975	Hicks Bay	16.9	2.4	1870	3rd-highest
Hastings       15.0       1.7       1990       3rd-highest         Waipawa       15.2       2.0       1953       3rd-highest         Wairoa       15.0       1.7       1895       3rd-highest         Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975 </td <td>Gisborne</td> <td>16.8</td> <td>2.4</td> <td>1965</td> <td>3rd-highest</td>	Gisborne	16.8	2.4	1965	3rd-highest
Waipawa       15.2       2.0       1953       3rd-highest         Wairoa       15.0       1.7       1895       3rd-highest         Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Waspanui       15.4       1.7       1941       3rd-highest         Waspanui       15.4       1.7       1941       3rd-highest         Waspanui       15.4       1.7       1941       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       <	Napier	17.2	2.3	1964	3rd-highest
Wairoa       15.0       1.7       1895       3rd-highest         Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Wastport       14.3       2.3       1963       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964<	Hastings	15.0	1.7	1990	3rd-highest
Mahia       14.7       1.8       1977       3rd-highest         Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990 <td>Waipawa</td> <td>15.2</td> <td>2.0</td> <td>1953</td> <td>3rd-highest</td>	Waipawa	15.2	2.0	1953	3rd-highest
Paraparaumu       15.4       1.3       1978       3rd-highest         Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Mt Cook       13.1       1.1       1968 </td <td>Wairoa</td> <td>15.0</td> <td>1.7</td> <td>1895</td> <td>3rd-highest</td>	Wairoa	15.0	1.7	1895	3rd-highest
Levin       12.3       2.2       1960       3rd-highest         Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Winchmore       13.6       1.5       1962 <td>Mahia</td> <td>14.7</td> <td>1.8</td> <td>1977</td> <td>3rd-highest</td>	Mahia	14.7	1.8	1977	3rd-highest
Hawera       13.2       1.6       1949       3rd-highest         Wanganui       15.4       1.7       1941       3rd-highest         Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962 </td <td>Paraparaumu</td> <td>15.4</td> <td>1.3</td> <td>1978</td> <td>3rd-highest</td>	Paraparaumu	15.4	1.3	1978	3rd-highest
Wanganui       15.4       1.7       1941       3rd-highest         Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Levin	12.3	2.2	1960	3rd-highest
Takaka       13.3       2.4       1906       3rd-highest         Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Hawera	13.2	1.6	1949	3rd-highest
Westport       14.3       2.3       1963       3rd-highest         Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Wanganui	15.4	1.7	1941	3rd-highest
Reefton       14.0       2.7       1928       3rd-highest         Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Takaka	13.3	2.4	1906	3rd-highest
Haast       14.1       2.5       1881       3rd-highest         Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Westport	14.3	2.3	1963	3rd-highest
Milford Sound       13.1       2.2       1984       3rd-highest         Secretary Island       9.8       1.9       1949       3rd-highest         Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Reefton	14.0	2.7	1928	3rd-highest
Secretary Island         9.8         1.9         1949         3rd-highest           Puysegur Point         10.3         2.4         1975         3rd-highest           Blenheim         10.9         1.4         1970         3rd-highest           Hanmer Forest         16.1         1.0         1982         4th-highest           Kaikoura         13.9         1.3         1964         4th-highest           Waiau         12.6         1.6         1990         4th-highest           Cheviot         16.7         1.4         1959         4th-highest           Mt Cook         13.1         1.1         1968         4th-highest           Winchmore         13.6         1.5         1962         4th-highest	Haast	14.1	2.5	1881	3rd-highest
Puysegur Point       10.3       2.4       1975       3rd-highest         Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Milford Sound	13.1	2.2	1984	3rd-highest
Blenheim       10.9       1.4       1970       3rd-highest         Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Secretary Island	9.8	1.9	1949	3rd-highest
Hanmer Forest       16.1       1.0       1982       4th-highest         Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Puysegur Point	10.3	2.4	1975	3rd-highest
Kaikoura       13.9       1.3       1964       4th-highest         Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Blenheim	10.9	1.4	1970	3rd-highest
Waiau       12.6       1.6       1990       4th-highest         Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Hanmer Forest	16.1	1.0	1982	4th-highest
Cheviot       16.7       1.4       1959       4th-highest         Mt Cook       13.1       1.1       1968       4th-highest         Winchmore       13.6       1.5       1962       4th-highest	Kaikoura	13.9	1.3	1964	4th-highest
Mt Cook         13.1         1.1         1968         4th-highest           Winchmore         13.6         1.5         1962         4th-highest	Waiau	12.6	1.6	1990	4th-highest
Winchmore 13.6 1.5 1962 4th-highest	Cheviot	16.7	1.4	1959	4th-highest
				1968	
Waipara West 10.9 2.6 1871 4th-highest	Winchmore		1.5	1962	
	Waipara West	10.9	2.6	1871	4th-highest

Christchurch (Riccarton)	17.4	1.3	1967	Equal 4th- highest	
Low records or near-records					
None observed					

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

Location	Mean minimum	Departure from normal (°C)	Year records began	Comments
	air temp. (°C)			
High records or near-records				
Puysegur Point	7.8	1.5	1978	Highest
Cape Campbell	9.6	1.7	1953	Highest
Kaikoura	8.0	1.8	1963	Highest
Le Bons Bay	7.4	1.6	1984	Highest
Oamaru	4.0	1.4	1908	Highest
Nugget Point	5.5	1.3	1970	Highest
Kaikohe	11.0	2.2	1973	2nd-highest
Mokohinau	13.7	1.2	1994	2nd-highest
Secretary Island	8.4	1.5	1985	2nd-highest
Waipara West	4.6	1.5	1973	2nd-highest
South West Cape	7.7	1.8	1991	2nd-highest
Whatawhata	8.4	2.5	1952	3rd-highest
Masterton	4.9	2.4	1992	3rd-highest
Ngawi	10.4	1.6	1972	3rd-highest
Wellington (Airport)	9.2	1.3	1962	3rd-highest
Hawera	7.8	1.7	1977	3rd-highest
Ranfurly	-0.9	1.3	1975	3rd-highest
Alexandra	-0.1	1.1	1983	3rd-highest
Paraparaumu	7.6	1.5	1953	4th-highest
Farewell Spit	9.4	2.4	1971	4th-highest
Wanaka	2.0	2.1	1955	4th-highest
Lauder	0.2	2.1	1924	4th-highest
Gore	3.2	1.4	1971	4th-highest
Low records or near-records				
None observed				

# Rainfall: Many places drier than normal, though still rounds of flooding

June had drier than normal conditions for much of the South Island, especially in the south and east. Much of eastern Southland and Otago received well below normal rainfall (<50%) during the month, as did middle and northern Canterbury. A small pocket in the Waimakariri and Hurunui Districts of northern Canterbury observed less than 20% of normal rainfall in June. In contrast to the dryness in the east of the South Island, a storm brought flooding rainfall to the western South Island between 9 and 11 June. Across the North Island, late-month downpours caused a few bouts of flooding; in fact, Auckland had its wettest June hour on record on 29 June (25.4 mm) which led to water inundation in

homes and businesses, especially in the west of the city. Despite the heavy downpours, many locations in the north of the North Island had near normal rainfall in June. Though eastern Gisborne, Hawke's Bay, and Wellington were sheltered from the predominant north-westerlies early in the month, the area had a few bouts of useful rain at the end of June. Even still, many of these places recorded below (50-79%) and well below (<50%) normal rainfall.

#### 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-reco	rds				
Motu	364	148	1990	2nd-highest	
Low records or near-records					
Nugget Point	21	25	1930	Lowest	
Masterton	52	51	1992	2nd-lowest	
Secretary Island	164	52	1985	3rd-lowest	
Hanmer Forest	29	29	1905	3rd-lowest	
Waipara West	14	26	1973	3rd-lowest	
Lumsden	32	40	1982	3rd-lowest	
Balclutha	16	28	1964	3rd-lowest	

# Sunshine: A sunny month overall

June sunshine hours were above normal (110-125%) across much of the country with parts of the east coast of both Islands experiencing well above normal (>125%) sunshine. Parts of the south and west of the South Island also had well above normal sunshine. Several locations in the South Island experienced near-record sunshine hours in June. Most notably it was the 3<sup>rd</sup> sunniest June on record in Invercargill with records extending back to 1913. The north of the South Island, south of the North Island, and north of the North Island observed near normal (90-109%) sunshine. Of the available, regularly reporting sunshine observation sites, the sunniest four locations in 2016 so far (1 January – 30 June) were Richmond (1440 hours), Blenheim (1324 hours), New Plymouth (1284 hours) and Takaka (1263 hours).

#### Record or near-record June sunshine hours were recorded at:

Location	Sunshine hours	Percentage of normal	Year records began	Comments	
High records or near-recor	rds				
Ashburton	159	137	1930	2nd-highest	
Timaru	164	135	1930	2nd-highest	
Balclutha	127	164	1964	2nd-highest	
Cheviot	147	161	1983	3rd-highest	
Lake Tekapo	153	113	1928	3rd-highest	
Queenstown	135	188	1930	3rd-highest	
Invercargill	114	145	1913	3rd-highest	
Low records or near-records					
None observed					

# June climate in the six main centres

June temperatures were well above average (>1.20°C above the June average) for all main centres. Christchurch and Dunedin experienced their warmest June on record. Rainfall was above normal (120-149%) in Auckland and Hamilton, near normal (80-119%) in Wellington and Tauranga, and below normal (50-79%) in Christchurch and Dunedin. Below normal sunshine hours were observed in Tauranga, near normal sunshine hours were observed in Auckland and Hamilton while Dunedin, Christchurch, and Wellington had above normal sunshine hours. Of the six main centres in June 2016, Auckland was the warmest and tied with Wellington as the wettest, Christchurch was the driest and sunniest, Tauranga was the cloudiest, and Dunedin was the coolest.

#### June 2016 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Aucklanda	13.2	+1.4	Well above average
Tauranga <sup>b</sup>	12.3	+1.3	Well above average
Hamilton <sup>c</sup>	10.9	+1.3	Well above average
Wellington <sup>d</sup>	11.5	+1.8	Well above average
Christchurch <sup>e</sup>	9.6	+2.7	Well above average (highest on record)
Dunedin <sup>f</sup>	9.02	+1.7	Well above average (highest on record)
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Aucklanda	142	120%	Above normal
Tauranga <sup>b</sup>	113	98%	Near normal
Hamilton <sup>c</sup>	140	120%	Above normal
Wellington <sup>d</sup>	142	103%	Near normal
Christchurch <sup>e</sup>	31	53%	Below normal
Dunedin <sup>f</sup>	33 <sup>2</sup>	57%	Below normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Aucklanda	133	93%	Near normal
Tauranga <sup>b</sup>	102	76%	Below normal
Hamilton <sup>g</sup>	112	101%	Near normal
Wellington <sup>d</sup>	120	90%	Near normal
Christchurch <sup>e</sup>	129	92%	Near normal
Dunedin <sup>f</sup>	107 <sup>2</sup>	113%	Above normal

<sup>&</sup>lt;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

 $<sup>^2</sup>$  Missing 2 days of data.

# Highlights and extreme events

#### Rain and slips

On 9 June, heavy rain along New Zealand's West Coast near Greymouth caused a man and child to become trapped in a car while attempting to cross the Poerua River in Hari Hari near Greymouth. The man died, while the search for the toddler was called off on the 16<sup>th</sup> of June.

On 11 June, a kayaker was saved from drowning in a swollen Grey River following bouts of heavy rain.

On 12 June, heavy rain and strong winds disrupted traffic on both the main highways into Wellington. Traffic on State Highway 1 was briefly turned back between Otaki and Levin where surface flooding occurred. Slips reduced a part of State Highway 2 to one lane.

On 22 June, brief but torrential downpours caused surfacing flooding around Auckland during the afternoon and evening, forcing the evacuation of a motel in Tokoroa. A thunderstorm during the evening brought down trees along a state highway and flung a trampoline onto a roof.

On 23 June, a car crash on Auckland's Harbour Bridge may have been a result of extremely wet road conditions.

On 23 June, heavy rainfall in the Bay of Plenty led to surface flooding, distressing motorists and farmers. Some motorists were forced to push their vehicles through the floodwater, which was most significant in Whakatane and Pukehina.

On 23 June, heavy rain along the Coromandel Peninsula led to a slip on Highway 25 near Kuranui Bay, leaving one of the country's most well-travelled scenic highways with just one lane.

On 29 June, heavy rain in the Auckland region caused flash flooding, trapping one person in a factory and several people in their cars in West Auckland. A primary school was forced to close due to water and electrical damage. Several homes were also flooding, prompting removal of the floodwater by bucket and multiple fire service callouts. Some bus services were also impacted by the flooding. Between 1 and 2 p.m., Auckland (Mangere) had its wettest hour in June history with 25.4 mm worth of rain.

On 29 June, a deluge of rain caused flooding and slips in the Bay of Plenty, closing parts of the Tauranga Eastern Link.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Motu	126	22nd	1990	Highest
Te Puke	117	22nd	1973	2nd-highest
Matamata	68	22nd	1951	3rd-highest

#### **Temperatures**

A cold snap affected New Zealand during the first few days of June. Widespread negative temperatures and frosts occurred across the South Island and parts of the North Island.

On 10 June, a foehn effect initiated by north-westerly winds contributed to record and near-record high minimum temperatures and high maximum temperatures at several eastern New Zealand locations.

Exceptionally warm weather during the day with the shortest amount of daylight made news headlines on the Winter Solstice, the 21<sup>st</sup> of June. Kaikoura set a daily record high of 18.2°C. Several cities, including Auckland, Christchurch, New Plymouth, Taupo, Tauranga, and Kaitaia then had their warmest 21<sup>st</sup> June overnight on record.

# 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				
Gisborne	23.2	10th	1905	Highest
Napier	25.1	10th	1868	Highest
Wairoa	24.2	10th	1964	Highest
Hanmer Forest	21.7	9th	1906	Highest
Christchurch (Riccarton)	23.1	10th	1863	Highest
Manapouri	18.2	9th	1963	Highest
Tiwai Point	21.9	9th	1970	Highest
South West Cape	18.0	21st	1991	Highest
Dannevirke	21.0	10th	1951	2nd-highest
Waione	21.8	10th	1991	2nd-highest
Hastings	24.4	10th	1965	2nd-highest
Mahia	20.0	11th	1990	2nd-highest
Cheviot	22.9	22nd	1982	2nd-highest
Lumsden	17.4	22nd	1982	2nd-highest
Waipawa	22.4	10th	1945	3rd-highest
Puysegur Point	17.3	8th	1978	3rd-highest
Hicks Bay	20.6	11th	1969	Equal 3rd-highest
Wellington (Airport)	18.3	9th	1962	Equal 3rd-highest
Kerikeri	21.1	10th	1981	4th-highest
Masterton	20.4	10th	1992	4th-highest
Kaikoura	23.5	10th	1963	4th-highest
Waiau	21.5	9th	1974	4th-highest
Mt Cook	17.9	14th	1929	4th-highest
Waipara West	22.1	22nd	1973	4th-highest
Ranfurly	17.2	22nd	1975	4th-highest
Invercargill	18.6	9th	1905	4th-highest
Low records or near-records				
None observed				

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

Location	Extreme	Date of	Year	Comments
	minimum (°C)	extreme temperature	records began	
High records or near-records		temperature	began	
Whangaparaoa	15.8	10th	1982	Highest
Auckland (Whenuapai)	16.4	10th	1951	Highest
Auckland (Lincoln Rd)	16.4	10th	1971	Highest
Whitianga	16.4	10th	1971	Highest
Paeroa	16.9	10th	1971	Highest
Tauranga	16.5	10th	1941	Highest
Te Puke	15.8	10th	1973	Highest
Whakatane	16.3	10th	1975	Highest
Port Taharoa	15.6	10th	1974	Highest
Masterton	14.6	23rd	1992	Highest
Waione	14.6	231u 11th	1992	Highest
Reefton	11.7	23rd	1993	Highest
South West Cape	11.7	10th	1972	Highest
Farewell Spit	14.0	22nd	1972	Equal highest
Kaikohe	16.6	10th	1972	2nd-highest
Mokohinau	16.7	10th	1973	2nd-highest
Secretary Island	13.1	22nd	1988	2nd-highest
· ·	12.8	10th	1978	2nd-highest
Puysegur Point Cheviot	10.6	24th	1978	_
	16.0			2nd-highest
Ngawi Nelson		23rd	1972	Equal 2nd-highest
Kerikeri	13.5 16.5	23rd 10th	1943 1981	Equal 2nd-highest
	16.3	10th	1967	3rd-highest
Whangarei Hamilton	15.7	10th		3rd-highest
			1946	3rd-highest
Te Kuiti	15.2 16.3	10th	1959	3rd-highest 3rd-highest
Hicks Bay		10th	1972	- C
Hastings	14.1	23rd 23rd	1972	3rd-highest
Motueka Lumsden	11.9 10.7		1972	3rd-highest
		18th	1982	3rd-highest Equal 3rd-highest
Rotorua Auckland	13.5 16.4	10th 10th	1972	Equal 3rd-highest
Pukekohe			1961	
	15.9 14.0	10th 23rd	1969 1972	Equal 3rd-highest Equal 3rd-highest
Wanganui (Spriggens Park) Haast	12.4	23rd 22nd	1972	Equal 3rd-highest
Dargaville		10th		4th-highest
Auckland (North Shore)	15.8 16.4	10th	1951 1994	4th-highest
Whatawhata	15.6	10th		4th-highest
	13.5		1952	
Wairoa		23rd	1945	4th-highest
Wairoa	14.3	23rd	1972	4th-highest
Hawera	13.7	10th	1977	4th-highest
Kaitaia	16.5	10th	1948	Equal 4th-highest
Mahia	13.6	11th	1990	Equal 4th-highest
	12.2	10(1)	19/2	equal 4th-flighest
Stratford Low records or near-records	12.2	10th	1972	Equal 4th-highest

#### Wind

On 8 June, Mt Hutt ski field delayed its opening day by one day due to a forecast of strong winds.

On 21 and 22 June, Mt Hutt ski field was closed due to strong winds.

On 26 June, high winds blew over a truck's trailer on Napier-Taupo Road in Hawke's Bay.

On 27 June, strong low pressure passing over the north of the North Island resulted in high winds that blew over a tree and powerline in Helensville, northwest of Auckland. The wind also sent two trampolines flying onto roofs in West Auckland, which required fire fighter assistance to remove them. In additional, the wind ripped trees from their roots, causing about 500 houses to lose power in Coatesville, 900 houses in Titirangi, and 1200 houses in Greenhithe. Gusts of 150km/h occurred at Manukau Heads and 85km/h on the Auckland Harbour Bridge.

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

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Motu	106	23rd	1991	2nd-highest
Oamaru Airport	83	25th	1984	2nd-highest
Castlepoint	152	10th	1972	3rd-highest
Wanganui	98	12th	1977	Equal 3rd-highest

#### **Cloud and fog**

On 16 June, flights en route to Hamilton were diverted to Tauranga and Rotorua as dense fog made for poor visibility across Waikato, particularly at Fieldays in Mystery Creek.

On 20 June, caution was advised on Hamilton area roads as thick fog blanketed much of the Waikato. Despite the fog, all flights out of Hamilton Airport were scheduled on time.

On 21 June, fog that was slow-to-depart, cancelled a mid-morning flight in Whangarei.

On 22 June, fog delayed flights into and out of Auckland.

On 30 June, fog caused disruptions to more than 40 flights at Auckland International Airport and delayed ferry services.

## Snow and ice

On 1 June, snow on some of the alpine passes in the South Island forced vehicle drivers to carry chains.

On 22 June, Porters Ski Area in Canterbury delayed its opening due to mild temperatures.

Wanaka's Treble Cone ski area delayed its 23 June opening due to a lack of snow.

In Queenstown, Coronet Peak was forced to close due to a lack of snow from 22 June, after having already opened for the season with sufficient snow on 11 June.

On 30 June, Mt Ruapehu delayed its ski area opening due to a lack of snow.

# For further information, please contact:

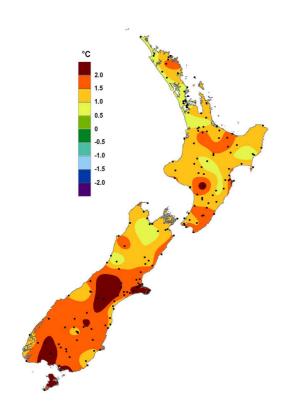
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June 2016 mean temperature, expressed as a departure from average (1981-2010 average).

It was the warmest June on record for many locations on New Zealand's South Island. June temperatures were well above average (>1.20°C) for all main centres.

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