NIWA NATIONAL CLIMATE CENTRE

Seasonal Climate Summary

NIWA Taihoro Nukurangi

New Zealand Climate Summary: **Summer 2018-19** Issued: 5 March 2019

New Zealand's 3rd-warmest summer on record

Temperature	It was New Zealand's 3rd-warmest summer on record. Temperatures across the country were either above average (+0.51°C to +1.20°C of the summer average) or well above average (>1.20°C of the summer average). Some of the highest temperatures relative to what is typical for the time of year occurred in the Bay of Plenty, Waikato and the Coromandel.
Rainfall	Rainfall was below normal (50-79% of the summer normal) to well below normal (<50 % of the summer normal) in Northland, Taranaki, Nelson, Tasman and the West Coast as well as parts of Marlborough, Manawatu-Whanganui, Otago and Southland. Above normal rainfall (>120% of the normal) was observed around Hawke's Bay and parts of Gisborne. Rainfall was near normal elsewhere (80-120% of the summer normal rainfall).
Soil moisture	Summer started off on a wet note for some with wetter than normal soils present for much of the North Island (with the exception of Taranaki where drier than normal soils were present) and eastern South Island. A dry and warm January led to the rapid depletion of soil moisture levels and this continued throughout February. At the end of summer 2018-19, drier than normal soils were present across much the country. Severely dry soils were present across Northland, Auckland, Bay of Plenty, Waikato and Manawatu-Whanganui and extremely dry soils were present in the Taranaki, Tasman and Nelson regions. Meteorological drought conditions (as defined by the NZ Drought Index) were present at the end of summer in Nelson, Tasman and the Buller District.

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Overview

The nationwide average temperature for summer 2018-19 was 17.9°C (1.2°C above the 1981-2010 average from NIWA's seven station temperature series which begins in 1909) making it the 3rd-warmest summer on record in New Zealand. One of the key climate drivers and contributors to this ranking was the presence of above average sea temperatures around our coastlines. Some coastal areas around Hawke's Bay and Canterbury experienced marine heatwave[1] conditions for a time. Marine heatwave conditions also persisted in the Tasman Sea. New Zealand's warmest summer on

[1] According to Australian research (Hobday et al. 2016), warm sea surface temperature events are considered marine heatwaves (MHWs) if they last for five or more days with temperatures warmer than the 90th percentile based on a 30-year historical baseline period.

record occurred last year (2017-18) with the summer of 1934-35 coming in at 2nd place. Notably, both of these summers were characterised by significant marine heatwave events.

In addition to the warm seas, summer air flow patterns also favoured warm temperatures with a distinct lack of southerlies throughout the season. December was characterised by the prevalence of warm and moist easterly and north easterly winds, while frequents bouts of high pressure occurred in January and February. Most notably, the combination of high pressure and hot air masses originating from Australia led to prolonged hot conditions throughout much of New Zealand to end January. Several locations across the country observed record or near record high daily maximum and minimum summer temperatures during this time. The warmest summer temperature was 38.4°C recorded in Hanmer Forest on 31 January. This was Hanmer Forest's warmest temperature on record (data since 1906) and the 18th-equal warmest temperature on record for all months in New Zealand.

In terms of rainfall, summer 2018-19 had an unsettled start. Thunderstorms were a frequent occurrence during December and a storm on 24-25 December caused widespread slips and flooding, disrupting holiday plans for many North Islanders. Conversely, January and February saw widespread dry conditions. Nelson observed a 40-day dry spell[2] which was the 4th-longest dry spell on record there (with records extending back to 1862), while Tauranga and Hamilton had 36 consecutive dry days – their 3rd-longest dry spells on record (records began in 1910 and 1935, respectively). The dryness went hand in hand with high sunshine hours around the country. The stations in Richmond and Appleby both recorded 355 hours for the month of January which is a new record for the sunniest month in the South Island. The dry and sunny conditions during January and February were influenced by a central Pacific El Niño event.

Despite a wet start to summer for large parts of the country, the dry and warm January and February led to the rapid depletion of soil moisture levels. The Ministry for Primary Industries classified a medium scale adverse event in Tasman on 8 February due to large wild fires and persistent dryness. Continued dry weather led to meteorological drought conditions (as defined by the NZ Drought Index) to appear in Nelson, Tasman and the Buller District.

Further Highlights:

- The highest temperature was 38.4°C, observed at Hanmer Forest on 31 January.
- The lowest temperature was -1.4°C, observed at Tara Hills on 25 February.
- The highest 1-day rainfall was 200 mm, recorded at Milford Sound on 19 January.
- The highest wind gust was 182 km/h, observed at Cape Turnagain on 27 January.
- Of the six main centres in summer 2018, Tauranga was the sunniest, wettest and warmest, Dunedin was the coolest and least sunny, and Christchurch was the driest.

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[2] A dry spell is defined as a period of 15 days or more with less than 1mm of rain on any one day.

Temperature: 3rd-warmest summer on record

It was New Zealand's 3rd-warmest summer on record. Temperatures across the country were either above average (+0.51°C to +1.20°C of the summer average) or well above average (>1.20°C of the summer average). No individual locations observed their warmest summer on record, however, several locations had near-record warm conditions. For example, Tauranga's summer temperature was the 2nd-warmest on record with records beginning in 1913. Although no locations observed record mean temperatures, summer mean maximum temperature records were set in a few locations such as Rotorua, Turangi and Whitianga.

Record[3] or near-record mean air temperatures for summer were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whitianga	20.4	1.8	1962	2nd-highest
Tauranga	20.8	1.7	1913	2nd-highest
Te Puke	19.7	1.7	1973	2nd-highest
Rotorua	18.9	1.8	1964	2nd-highest
Taupo	18.8	2.2	1949	2nd-highest
Motu	16.9	1.7	1990	2nd-highest
Te Kuiti	19.4	1.4	1959	2nd-highest
Turangi	17.9	1.2	1968	2nd-highest
Ngawi	19.5	1.4	1972	2nd-highest
Farewell Spit	19.0	1.6	1971	2nd-highest
Puysegur Point	15.0	1.6	1978	2nd-highest
Motueka	19.0	1.8	1956	2nd-highest
Waiau	18.4	1.7	1974	2nd-highest
Cheviot	18.0	1.9	1982	2nd-highest
Akaroa	18.2	1.3	1978	2nd-highest
Dunedin (Musselburgh)	16.1	1.4	1947	2nd-highest
South West Cape	14.1	1.4	1991	2nd-highest
Kerikeri	20.1	1.2	1945	3rd-highest
Whangaparaoa	20.4	1.2	1982	3rd-highest
Paeroa	20.2	1.1	1947	3rd-highest
Hicks Bay	19.5	1.3	1969	3rd-highest
Hastings	19.8	2.4	1965	3rd-highest
Wairoa	19.9	1.2	1964	3rd-highest
Mahia	19.0	1.1	1990	3rd-highest
Levin	18.6	1.4	1895	3rd-highest
Brothers Island	17.0	0.9	1997	3rd-highest
Ranfurly	15.5	1.2	1897	3rd-highest

[3] 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.

Oamaru	15.8	1.0	1967	3rd-highest
Dunedin (Airport)	15.9	1.3	1962	3rd-highest
Kaitaia	20.3	1.2	1948	4th-highest
Whakatane	20.1	1.6	1974	4th-highest
Hamilton (Ruakura)	19.8	1.7	1906	4th-highest
Gisborne	20.1	1.5	1905	4th-highest
Paraparaumu	18.2	1.4	1953	4th-highest
Porirua	18.0	0.7	1968	4th-highest
Wellington (Kelburn)	17.8	1.3	1927	4th-highest
Stratford	16.9	1.4	1960	4th-highest
Waiouru	15.1	1.6	1962	4th-highest
Reefton	18.1	1.7	1960	4th-highest
Secretary Island	15.5	1.1	1985	4th-highest
Kaikoura	17.3	1.1	1963	4th-highest
Lumsden	15.2	1.1	1982	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whitianga	26.0	2.6	1962	Highest
Te Puke	24.9	1.8	1973	Highest
Rotorua	24.6	2.9	1964	Highest
Motu	22.8	2.7	1990	Highest
Te Kuiti	25.9	2.3	1959	Highest
Turangi	24.4	2.0	1968	Highest
Appleby	23.9	1.9	1932	Highest
Cheviot	24.8	2.7	1982	Highest
Kerikeri	25.5	1.7	1945	2nd-highest
Whangaparaoa	24.3	1.5	1982	2nd-highest
Tauranga	25.2	1.8	1913	2nd-highest
Whakatane	25.1	1.6	1974	2nd-highest
Taupo	25.0	2.9	1949	2nd-highest
Ngawi	23.6	1.6	1972	2nd-highest
Puysegur Point	17.9	1.8	1978	2nd-highest
Motueka	25.2	2.4	1956	2nd-highest
Hanmer Forest	25.0	2.5	1906	2nd-highest
Oamaru	20.4	1.3	1967	2nd-highest
Whangarei	25.3	1.3	1967	3rd-highest
Paeroa	25.8	1.4	1947	3rd-highest
Hicks Bay	22.9	1.5	1969	3rd-highest
Upper Hutt	23.0	1.5	1939	3rd-highest

Stratford	22.0	1.7	1960	3rd-highest
Farewell Spit	23.0	1.7	1971	3rd-highest
Reefton	24.4	2.2	1960	3rd-highest
Blenheim	25.5	2.1	1932	3rd-highest
Brothers Island	19.2	0.8	1997	3rd-highest
Kaikoura	21.7	1.9	1963	3rd-highest
Dunedin (Airport)	22.0	1.6	1962	3rd-highest
Dunedin (Musselburgh)	19.9	1.7	1947	3rd-highest
Kaikohe	24.1	1.7	1973	4th-highest
Hamilton	25.2	1.5	1946	4th-highest
Waipawa	24.7	1.2	1945	4th-highest
Wairoa	25.7	1.8	1964	4th-highest
Wellington (Kelburn)	21.1	1.3	1927	4th-highest
Takaka	23.8	1.3	1978	4th-highest
Secretary Island	18.9	1.3	1985	4th-highest
Balclutha	21.0	1.3	1964	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Ngawi	15.5	1.1	1972	2nd-highest
Mahia	15.8	1.4	1990	2nd-highest
Hawera	13.4	1.1	1977	2nd-highest
Farewell Spit	15.1	1.6	1971	2nd-highest
Motueka	12.8	1.2	1956	2nd-highest
Waiau	11.8	1.7	1974	2nd-highest
South West Cape	11.1	1.4	1991	2nd-highest
Tauranga	16.3	1.5	1913	3rd-highest
Paraparaumu	14.4	1.3	1953	3rd-highest
Levin	14.2	1.3	1895	3rd-highest
Puysegur Point	12.2	1.4	1978	3rd-highest
Nelson	14.7	1.4	1862	3rd-highest
Brothers Island	14.8	0.9	1997	3rd-highest
Cheviot	11.2	1.1	1982	3rd-highest
Mt Cook	9.7	1.5	1929	3rd-highest
Akaroa	12.9	1.3	1978	3rd-highest
Oamaru	11.3	1.1	1967	3rd-highest
Lumsden	9.3	1.0	1982	3rd-highest
Invercargill	10.4	1.4	1905	3rd-highest
Whitianga	15.2	1.4	1962	4th-highest
Te Puke	14.5	1.6	1973	4th-highest
Taupo	12.6	1.4	1949	4th-highest

Auckland (Airport)	16.7	0.9	1959	4th-highest
Port Taharoa	16.2	1.1	1973	4th-highest
Martinborough	12.9	1.1	1986	4th-highest
Porirua	14.3	0.7	1968	4th-highest
Wellington (Kelburn)	14.5	1.3	1927	4th-highest
Secretary Island	12.1	0.9	1985	4th-highest
Kaikoura	13.6	1.0	1963	4th-highest
Dunedin (Musselburgh)	12.3	1.1	1947	4th-highest
Oamaru	11.3	0.8	1967	4th-highest
Gore	10.0	0.9	1907	4th-highest
Low records or near-records				
None observed				

Rainfall: Record and near-record low rainfall for parts of the South Island

Rainfall was below normal (50-79% of the summer normal) to well below normal (<50 % of the summer normal) in Northland, Taranaki, Nelson, Tasman and the West Coast as well as parts of Marlborough, Manawatu-Whanganui, Otago and Southland. Hokitika had its driest summer on record with records extending back to 1866. Drought-affected Appleby and Richmond received just a third of their normal rainfall this summer making it their 3rd- and 4th-driest summers on record, respectively.

Above normal rainfall (>120% of the normal) was observed around Hawke's Bay and parts of Gisborne. This was largely driven by a wet December and a couple of wet days in January and February. For the most part, Hawke's Bay and Gisborne observed dry weather alongside the rest of the country.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Hokitika	309	43	1866	Lowest
Takaka	120	29	1976	2nd-lowest
Westport	257	54	1944	2nd-lowest
Arapito	287	52	1978	2nd-lowest
Reefton	231	52	1960	2nd-lowest
Appleby	68	32	1932	3rd-lowest
Richmond	71	32	1862	4th-lowest

Summer climate in the six main centres

Temperatures were above average or well above average for all of the main centres during summer 2018-19. Both Tauranga and Dunedin had their 2nd-warmest summer on record while Wellington had its 4th-warmest summer on record. In terms of rainfall Hamilton and Christchurch saw near normal summer rainfall totals while Wellington and Dunedin observed below normal rainfall. Summer rainfall in Tauranga and Auckland was slightly above normal, driven mainly by a wet December. Of the six main centres in summer 2018-19, Tauranga was the sunniest, wettest and warmest, Dunedin was the coolest and least sunny, and Christchurch was the driest.

Summer 2018-19 main centre climate statistics:

Temperature			
Location	**Mean temp. (°C)**	**Departure from normal (°C)**	**Comments**
Auckland[a]	20.2	+0.9	Above average
Tauranga[b]	20.8	+1.7	Well above average (2nd-highest on record)
Hamilton[c]	19.2	+1.2	Well above average
Wellington[d]	17.8	+1.3	Well above average (4th-highest on record)
Christchurch[e]	17.7	+1.1	Above average
Dunedin[f]	16.1	+1.4	Well above average (2nd-highest on record)
Rainfall			
Location	**Rainfall (mm)**	**% of normal**	**Comments**
Auckland[a]	278	123%	Above normal
Tauranga[b]	313	121%	Above normal
Hamilton[c]	228	87%	Near normal
Wellington[d]	143	62%	Below normal
Christchurch[e]	118	94%	Near normal
Dunedin[f]	160	72%	Below normal
Sunshine			
Location	**Sunshine (hours)**		
Auckland[a]	756		
Tauranga[b]	819		
Hamilton[g]	727		
Wellington[d]	679[1]		
Christchurch[e]	654		
Dunedin[f]	652		

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

[1] 1 day of missing data

Highlights and extreme events

This section contains information pertaining to some of the more significant highlights and extreme events that occurred during summer 2018-19. Note that a more detailed list of significant weather events for summer 2018-19 can be found in the *Highlights and extreme events* section of NIWA's monthly Climate Summaries. These monthly summaries are available online, and may be viewed at the following website: http://www.niwa.co.nz/climate/summaries/monthly

Rain, slips and dryness

On 2 December a localised heavy downpour caused flash flooding in Dinsdale, Hamilton and saw 24 people evacuated from 10 homes.

On 24 December more than 100 holiday-makers were evacuated from their campsites overnight after flooding in Waihi Beach. The flooding was due to heavy rainfall coinciding with a high king tide.

On 25 December there were several flood related incidents across the North Island. A severe localised thunderstorm struck Napier. The thunderstorm led to several flooding call-outs. Flooding and slips also affected State Highway 4, which was closed between Whanganui and Raetihi. Likewise, State Highway 25 from Coromandel to Whitianga was closed due to slips in the Whangapoua Hill area. In Auckland, localised flooding closed State Highway 16 in Kaukapakapa and also resulted in five adults needing to be rescued from two vehicles which were swept along by floodwaters.

On 5 February, tinder-dry conditions in the Tasman region fuelled a large scrub fire in Pigeon Valley near Wakefield. The fire doubled in size overnight, spreading to cover 1870 hectares within a perimeter of 20 km by 3 AM on 6 February. A Civil Defence state of emergency was declared which lasted until 27 February as firefighting efforts continued to work on hot spots, fight flareups and contain the fire. By 13 February, the wildfires had burned through 2300 hectares in the Nelson-Tasman region, destroyed one home, and led to evacuations of more than 1000 people. By 24 February, the fire was contained and controlled with a 30m boundary black-out zone. It was reportedly the largest aerial firefight in New Zealand's history, with 23 helicopters and two planes used at the peak of the fire. Fire and Emergency New Zealand stated that the cost of the aircraft, ground machinery, and other firefighting resources had been $1 million a day for the first week of the fire.

Nelson observed a 40-day dry spell which was the 4th-longest dry spell on record there (with records extending all the way back to 1862) while Hamilton and Tauranga had 36 consecutive dry days – their 3rd-longest dry spells on record. Auckland (Mangere) observed a 23-day dry spell which was the regions 9th-longest on record.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Maungatautari	105	Dec-19th	1975	Highest

Kaweku	81	Dec-4th	1949	2nd-highest
Edgecumbe	119	Dec-24th	1990	4th-highest
Te Kaihi	84	Jan-15th	1995	4th-highest
Hastings	104	Jan-15th	1983	4th-highest
Palmerston North	79	Dec-25th	1928	4th-highest
Motunau	47	Dec-22nd	1992	4th-highest
Mandeville	57	Dec-4th	1967	4th-highest

Temperatures

From 27 January – 1 February a combination of warm seas, high pressure over the country and a hot airmass originating from Australia led to heatwave conditions across New Zealand. Several locations across the country observed record or near record high daily maximum and minimum summer temperatures. The warmest temperature during the month was 38.4˚C recorded in Hanmer Forest on 31 January. This was Hanmer Forest's highest temperature on record (data since 1906) and the 18th-equal warmest temperature on record for all months in New Zealand. The heatwave conditions contributed to water restrictions put in place in the Tasman District as well as the closure of recreational bike/walking trails through private and council owned forest areas due to high fire risk in the district.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Kaitaia	31.2	Jan-29th	1948	Highest
Whakatane	33.3	Jan-28th	1975	Highest
Rotorua	32.2	Feb-13th	1964	Highest
Motu	30.9	Jan-7th	1990	Highest
Whatawhata	32.2	Jan-29th	1952	Highest
Hamilton (Airport)	32.0	Jan-29th	1946	Highest
Te Kuiti	33.3	Jan-29th	1959	Highest
Levin	32.6	Jan-29th	1895	Highest
Porirua	31.0	Jan-29th	1968	Highest
Wellington (Kelburn)	30.3	Jan-29th	1928	Highest
Upper Hutt	33.5	Jan-29th	1939	Highest
Stratford	29.5	Jan-29th	1960	Highest
Ohakune	31.1	Jan-29th	1962	Highest
Pelorus Sound (Crail Bay)	31.0	Jan-29th	1982	Highest
Hanmer Forest	38.4	Jan-31st	1906	Highest
Medbury	37.9	Jan-31st	1927	Highest
Waiau	37.8	Jan-31st	1974	Highest
Lake Tekapo	35.0	Jan-31st	1925	Highest
Ranfurly	33.7	Jan-31st	1897	Equal highest
Auckland (Whangaparaoa)	29.4	Jan-29th	1982	2nd-highest
Paeroa	32.3	Feb-14th	1947	2nd-highest

Taupo	32.9	Jan-29th	1949	2nd-highest
Taumarunui	33.6	Jan-29th	1947	2nd-highest
Hicks Bay	29.1	Jan-7th	1969	2nd-highest
Takaka	32.6	Jan-28th	1978	2nd-highest
Motueka	34.0	Jan-27th	1956	2nd-highest
Appleby	32.6	Jan-28th	1932	2nd-highest
Richmond	33.8	Jan-27th	1862	2nd-highest
Brothers	27.0	Jan-29th	1997	2nd-highest
South West Cape	27.0	Feb-13th	1991	2nd-highest
Te Puke	32.4	Feb-13th	1973	Equal 2nd-highest
Taihape	32.5	Jan-29th	1972	Equal 2nd-highest
Farewell Spit	29.0	Jan-29th	1971	Equal 2nd-highest
Tara Hills	34.6	Jan-31st	1949	Equal 2nd-highest
Auckland (Whenuapai)	30.3	Jan-29th	1945	3rd-highest
Auckland (Henderson)	31.7	Jan-29th	1948	3rd-highest
Waiouru	30.1	Jan-29th	1962	3rd-highest
Kerikeri	31.2	Jan-6th	1945	Equal 3rd-highest
Whitianga	31.7	Jan-11th	1962	Equal 3rd-highest
Cheviot	36.1	Jan-30th	1982	Equal 3rd-highest
Whakatane	32.3	Jan-6th	1975	4th-highest
Hamilton (Ruakura)	32.9	Jan-29th	1906	4th-highest
Nelson	32.3	Jan-28th	1862	4th-highest
Blenheim	35.3	Jan-27th	1932	4th-highest
Martinborough	33.0	Jan-31st	1986	Equal 4th-highest
Low records or near-records				
None observed				

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
Low records or near-records				
Arapito	3.8	Feb-25th	1978	Equal lowest
Kaikoura	4.2	Feb-26th	1963	4th-lowest
High records or near-records				
Appleby	20.5	Jan-28th	1941	Highest
Richmond	24.3	Jan-28th	1862	Highest
Five Rivers	20.5	Dec-30th	1982	Highest
Balclutha	20.5	Jan-2nd	1972	Highest
Tautuku	19.0	Dec-30th	1976	Highest
Secretary Island	19.2	Feb-11th	1988	Equal highest
Balclutha	18.1	Dec-30th	1972	Equal highest
Taihape	19.1	Jan-31st	1973	2nd-highest
Puysegur Point	19.6	Feb-10th	1978	2nd-highest
Waiau	21.5	Feb-1st	1974	2nd-highest
Tara Hills	19.9	Jan-6th	1949	2nd-highest

Lumsden	20.4	Dec-30th	1982	2nd-highest
Alexandra	19.8	Dec-30th	1992	2nd-highest
Winton	19.8	Jan-31st	1972	2nd-highest
Nugget Point	16.6	Jan-31st	1972	2nd-highest
South West Cape	17.3	Feb-10th	1991	2nd-highest
Lake Tekapo	19.5	Feb-1st	1928	Equal 2nd-highest
Mahia	20.3	Jan-20th	1990	3rd-highest
Stewart Island	16.2	Jan-31st	1975	3rd-highest
Orari Estate	19.2	Feb-1st	1972	4th-highest
Dunedin (Musselburgh)	19.6	Feb-1st	1947	4th-highest
Whangaparaoa	20.4	Jan-30th	1982	Equal 4th-highest
Port Taharoa	20.8	Feb-22nd	1974	Equal 4th-highest
Queenstown	19.1	Jan-23rd	1871	Equal 4th-highest
Clyde	20.6	Jan-23rd	1978	Equal 4th-highest

Wind

On 22 January, gale force winds across south Otago fanned a fire in Pukeawa. Three milking sheds were destroyed in the incident. Additional fires occurred in northern Southland.

On 23 January, a strong southerly change caused damage to the electricity network across Queenstown Lakes and Central Otago and brought rain and cooler temperatures to the lower South Island. Downed trees and powerlines resulted in the loss of power for 4500 homes and/or businesses as well as road closures throughout the region. The maximum gust in Queenstown was 106 km/h and this was the equal highest wind gust on record there.

Record or near record summer extreme wind gusts were recorded at:

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Kaikoura	172	Jan-23rd	1972	Highest
Queenstown	106	Jan-23rd	1972	Equal highest
Castlepoint	159	Dec-05th	1972	2nd-highest
Secretary Island	137	Feb-01st	1994	2nd-highest
Whakatu	89	Jan-21st	1997	3rd-highest
Oamaru	91	Jan-23rd	1984	4th-highest

Snow and ice

On 24 February, a southerly change brought snow to high elevation areas. Mt Hutt in Canterbury received 40-50 cm of snow.

Lightning and hail

On 3 December four people were injured after lightning struck a rugby goalpost at a Hamilton school and jumped into neighbouring classrooms.

On 4 December several hundred lightning strikes were recorded across the Auckland and Waikato regions. At 9.30 AM lightning struck an Auckland home, exploding a lamp and propelling shattered glass. In Mangere, lightning injured a woman. Lightning also struck and killed four cows on a farm in Hamilton. The lightning caused delays and cancellations at Auckland airport. Later in the day, lightning was responsible for cutting power to 1400 homes in Rotorua.

On 14 December over 30,000 lightning strikes were recorded across the country, the bulk of these were over the North Island. Fire and Emergency received 40 weather related calls across the Auckland region.

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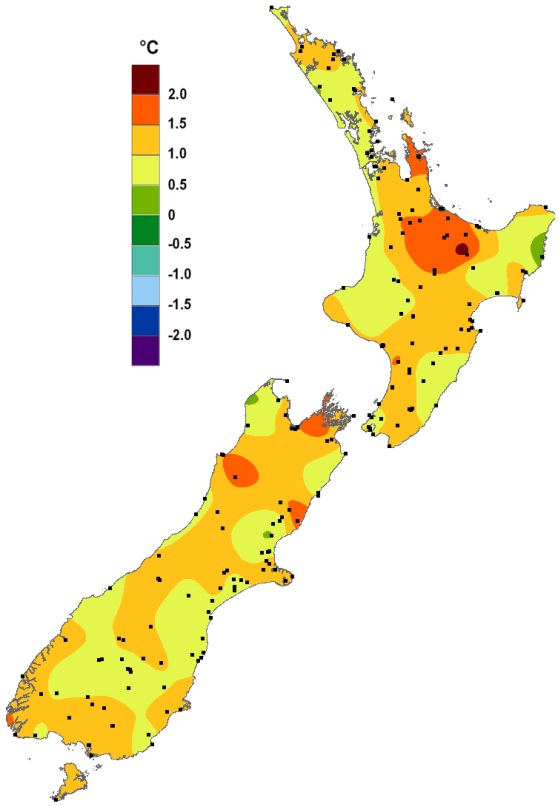

Summer 2018-19 temperature, expressed as a difference from average (1981-2010 average).

It was New Zealand's 3rd-warmest summer on record. Temperatures across the country were either above average (+0.51°C to +1.20°C of the summer average) or well above average (>1.20°C of the summer average). Some of the highest temperatures relative to what is typical for the time of year occurred in the Bay of Plenty, Waikato and the Coromandel.

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