

A warm and wet spring for much of New Zealand

Temperature	Spring 2020 was New Zealand's 5 th -warmest spring on record. The nationwide average temperature was 12.9°C (0.9°C above the 1981-2010 average from NIWA's seven station temperature series which begins in 1909). Temperatures were above average (0.51 to 1.20°C above the spring average) or well above average (>1.20°C above the spring average) across nearly all of the North Island and large portions of the South Island. However, near average spring temperatures (within 0.50°C of the spring average), were observed in parts of Wellington-Wairarapa, Marlborough, upper West Coast, interior Otago, and Southland.
Rainfall	Spring 2020 rainfall totals were generally above normal (120-149% of the spring normal) or well above normal (>149% of the spring normal) across the lower half of the North Island, Nelson, Tasman, interior Otago, Fiordland, and coastal Southland. Rainfall was generally below normal (50-79% of the spring normal) in much of Northland, Auckland, Coromandel Peninsula, Bay of Plenty, Banks Peninsula, and near Dunedin. Elsewhere, rainfall was near normal (80-119% of the spring normal).
Soil moisture	At the end of spring, soil moisture levels were higher than normal for most of the North Island south of Hamilton, as well as Nelson-Tasman. Soil moisture levels were lower than normal for much of Northland to northern Waikato and the southern half of the South Island.

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Overview

Spring 2020 was characterised by mean sea level pressure that was higher than normal over, and to the east and west of the North Island. This pressure pattern delivered slightly more northeasterly winds than normal to the North Island, and slightly more westerly winds than normal to the South Island. This pattern was generally associated with La Niña conditions in the equatorial Pacific Ocean. Sea surface temperatures (SSTs) surrounding New Zealand were warmer than average during spring, and this exerted a warming influence on the country's air temperatures.

The nationwide average temperature for spring 2020 was 12.9°C (0.9°C above the 1981-2010 average from NIWA's seven station temperature series which begins in 1909), making it New Zealand's 5th-warmest spring on record. Four of the five warmest springs have occurred during La Niña conditions, including New Zealand's warmest spring in 1988. Temperatures were above average (0.51 to 1.20°C above the spring average) or well above average (>1.20°C above the spring

average) across nearly all of the North Island and large portions of the South Island. However, near average spring temperatures (within 0.50°C of the spring average), were observed in parts of Wellington-Wairarapa, Marlborough, upper West Coast, interior Otago, and Southland. Spring started on a chilly note, when several South Island locations observed near-record low September daily maximum temperatures on 1 September. Conversely, early October featured unseasonably warm weather as a warm air mass arrived from Australia. On 5 October, Wairoa reached 30.8°C, which is only the third year in the last decade that New Zealand observed a 30°C temperature in the month of October. This was also New Zealand's warmest temperature during spring 2020.

Spring 2020 rainfall totals were generally above normal (120-149% of the spring normal) or well above normal (>149% of the spring normal) across the lower half of the North Island, Nelson, Tasman, interior Otago, Fiordland, and coastal Southland. Rainfall was generally below normal (50-79% of the spring normal) in much of Northland, Auckland, the Coromandel Peninsula, Bay of Plenty, Banks Peninsula, and near Dunedin. Elsewhere, rainfall was near normal (80-119% of the spring normal). It was a particularly wet season in the eastern and lower North Island, where both Napier and Wellington had their wettest springs on record. Records in Napier began in 1870, and 1928 in Wellington. On 9 November, Napier's Nelson Park recorded 242.4 mm of rain, which was the wettest November day and wettest spring day on record for Napier, and the 2nd-wettest day overall in the city. A local state of emergency was declared in Napier due to widespread flooding causing landslips, power cuts and evacuations.

Further Highlights:

- The highest temperature was 30.8°C, observed at Wairoa on 5 October.
- The lowest temperature was -7.5°C, observed at Middlemarch on 2 September.
- The highest 1-day rainfall was 242 mm, recorded at Napier on 9 November.
- The highest wind gust was 189 km/h, observed at Cape Turnagain on 1 November.
- Of the six main centres in spring 2020, Auckland was the warmest, Dunedin was the coolest and driest, Wellington was the wettest, Christchurch was the sunniest, and Hamilton was the least sunny.

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Temperature: Widespread warmth across the country

The nationwide average temperature for spring 2020 was 12.9°C (0.9°C above the 1981-2010 average from NIWA's seven station temperature series which begins in 1909), making it New Zealand's 5th-warmest spring on record. Five locations (including Whangarei and Oamaru) set new mean spring temperature records, while 28 other locations ranked within their top-four warmest springs. In addition, many locations observed record or near-record high mean maximum (i.e. daytime) temperatures, and record or near-record high mean minimum (i.e. night-time) temperatures. However, there were no locations that observed a record or near-record cold spring.

Multiple locations in the South Island did set records or near-records for cold maximum (daytime) and cold minimum (night-time) temperatures during two distinct cold outbreaks in early and late September. See the *Highlights and extreme events* section below for more details.

Record¹ or near-record mean air temperatures for spring were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whangarei	15.9	1.0	1967	Highest
Whangaparaoa	15.6	0.9	1982	Highest
Oamaru	11.5	0.7	1967	Highest
Motueka	13.8	1.6	1956	Highest
Le Bons Bay	11.6	1.0	1984	Highest
Wairoa	15.8	2.0	1964	2nd-highest
Te Puke	14.6	1.3	1973	2nd-highest
Taupo	12.8	1.7	1949	2nd-highest
Motu	11.6	1.4	1990	2nd-highest
Medbury	12.2	0.9	1927	2nd-highest
Leigh	15.9	1.1	1966	2nd-highest
Gisborne	15.7	2.0	1905	2nd-highest
Cheviot	12.4	1.1	1982	2nd-highest
Cape Reinga	15.2	0.6	1951	2nd-highest
Porirua	13.0	0.4	1968	3rd-highest
Paraparaumu	13.4	1.0	1953	3rd-highest
Mahia	14.1	0.8	1990	3rd-highest
Hicks Bay	14.9	1.1	1969	3rd-highest
Hawera	12.8	0.9	1977	3rd-highest
Dunedin (Musselburgh)	11.8	0.9	1947	3rd-highest
Auckland (Airport)	15.6	1.0	1959	3rd-highest
Whitianga	15.0	1.1	1962	4th-highest
Waiau	12.5	1.3	1974	4th-highest
Te Kuiti	14.0	0.9	1959	4th-highest
Tauranga	15.2	1.0	1913	4th-highest

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

Takaka	13.0	0.9	1978	4th-highest
Rotorua	13.1	1.1	1964	4th-highest
Ranfurly	10.0	0.9	1897	4th-highest
Ohakune	10.8	1.0	1962	4th-highest
Levin	13.5	1.0	1895	4th-highest
Kerikeri	15.2	0.9	1945	4th-highest
Dargaville	15.2	0.9	1943	4th-highest
Arapito	13.1	1.0	1978	4th-highest
Low records or near-records				
None observed				

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Whangarei	20.9	1.9	1967	Highest
Whangaparaoa	19.2	1.3	1982	Highest
Auckland (Whenuapai)	19.1	1.2	1945	Highest
Te Kuiti	19.9	1.8	1959	Highest
Takaka	18.7	1.0	1978	Highest
Le Bons Bay	15.3	1.3	1984	Highest
Whitianga	20.4	1.9	1962	2nd-highest
Auckland (Airport)	19.3	1.4	1959	2nd-highest
Ohakune	16.4	1.9	1962	2nd-highest
Hanmer Forest	19.0	2.1	1906	2nd-highest
Cheviot	18.3	1.3	1982	2nd-highest
Leigh	20.5	2.8	1966	3rd-highest
Matamata	19.1	1.2	1999	3rd-highest
Motu	16.6	1.9	1990	3rd-highest
Gisborne	21.0	2.0	1905	3rd-highest
Waipawa	19.2	1.6	1945	3rd-highest
Wairoa	21.4	2.6	1964	3rd-highest
Mahia	17.4	1.0	1990	3rd-highest
Motueka	19.3	1.5	1956	3rd-highest
Ranfurly	16.9	1.4	1897	3rd-highest
Oamaru	16.6	1.3	1967	3rd-highest
Kaikohe	18.2	1.1	1973	4th-highest
Tauranga	19.3	1.1	1913	4th-highest
Hamilton (Ruakura)	19.6	1.5	1906	4th-highest
Porirua	16.2	0.1	1968	4th-highest
Stratford	16.1	0.9	1960	4th-highest
Low records or near-records				
None observed				

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Motueka	8.4	1.7	1956	Highest
Medbury	6.6	1.4	1927	Highest
Cape Reinga	12.6	0.8	1951	2nd-highest
Te Puke	10.1	1.8	1973	2nd-highest
Motu	6.7	1.0	1990	2nd-highest
Port Taharoa	12.2	1.4	1973	2nd-highest
Hicks Bay	11.8	1.0	1969	2nd-highest
Porirua	9.8	0.7	1968	2nd-highest
Culverden	6.6	1.6	1928	2nd-highest
Ngawi	11.5	0.8	1972	3rd-highest
Gisborne	10.5	1.9	1905	3rd-highest
Whakatane	9.8	1.0	1974	4th-highest
Lower Retaruke	8.1	1.3	1966	4th-highest
Mahia	10.9	0.7	1990	4th-highest
Levin	9.7	1.0	1895	4th-highest
Upper Hutt (Trentham)	8.9	1.4	1939	4th-highest
Hawera	9.3	1.0	1977	4th-highest
Farewell Spit	10.8	1.3	1971	4th-highest
Brothers Island	11.0	0.4	1997	4th-highest
Waiau	6.6	1.6	1974	4th-highest
Cheviot	6.5	0.9	1982	4th-highest
Roxburgh	6.7	2.2	1950	4th-highest
Low records or near-records				
None observed				

Rainfall: Wet in eastern and lower North Island

Spring was particularly wet from Hawke’s Bay south to Wellington-Wairarapa, where rainfall totals were above normal (120-149% of normal) or well above normal (>149% of normal) for the season as a whole. Notably, Wellington observed more than a half-metre of rain during spring (545 mm), which is 174% of its normal amount for the season, and the wettest spring on record for that location (records there begin in 1928). Napier also observed its wettest spring, with records there extending all the way back to 1870. More than half of the spring rainfall observed in Napier occurred during a heavy rainfall event on 9 November that caused significant flooding (refer to the *Highlights and extreme events* section for further details).

Conversely, near-record low spring rainfall was observed in parts of the upper North Island, where Auckland (Western Springs) and Kaitaia recorded 70% and 67% of their normal spring rainfall, respectively.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Napier	429	248	1870	Highest
Wellington (Kelburn)	545	174	1928	Highest
Masterton	376	157	1926	3rd-highest
Dannevirke	384	138	1951	4th-highest
Paraparaumu	389	143	1945	4th-highest
Low records or near-records				
Auckland (Western Springs)	201	70	1948	3rd-lowest
Kaitaia	185	67	1948	4th-lowest

Spring climate in the six main centres

Mean spring temperatures were above average in all main centres except Wellington, where the mean temperature was near average. Three of the six main centres received below normal rainfall, but it was the wettest spring on record in Wellington, where more than a half-metre of rainfall accumulated. Of the six main centres in spring 2020, Auckland was the warmest, Dunedin was the coolest and driest, Wellington was the wettest, Christchurch was the sunniest, and Hamilton was the least sunny.

Spring 2020 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	15.4	+0.9	Above average
Tauranga ^b	15.2	+1.0	Above average (4 th -warmest on record)
Hamilton ^c	13.7	+0.7	Above average
Wellington ^d	12.5	+0.4	Near average
Christchurch ^e	12.3	+0.8	Above average
Dunedin ^f	11.8	+0.9	Above average (3 rd -warmest on record)
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	173	67	Below normal
Tauranga ^b	158	64	Below normal
Hamilton ^c	298	104	Near normal
Wellington ^d	545	174	Well above normal (Wettest on record)
Christchurch ^e	136	100	Near normal
Dunedin ^f	117	71	Below normal
Sunshine			
Location ²	Sunshine (hours)		
Auckland ^a	608		
Tauranga ^b	622		
Hamilton ^g	491		
Wellington ^d	507		
Christchurch ^e	657		
Dunedin ^f	601		

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

² Tauranga, Wellington and Christchurch record sunshine use Campbell-Stokes manual sunshine recorders, whereas Auckland, Hamilton and Dunedin record sunshine with high-precision electronic sensors.

Highlights and extreme events

This section contains information pertaining to some of the more significant highlights and extreme events that occurred during spring 2020. Note that a more detailed list of significant weather events for spring 2020 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: <https://niwa.co.nz/climate/monthly>

Temperatures

On 1 September, several South Island locations observed near-record low spring daily maximum temperatures. The cold temperatures resulted from a southerly front that delivered snow to relatively low elevations.

On 12 September, clear skies and light winds following the passage of a cold front allowed a heavy frost to develop in many parts of the South Island. Christchurch Airport recorded a minimum temperature of -4.7°C ; the city's second-lowest spring temperature since records began in 1863.

From 28-30 September, a bitterly cold southerly outbreak brought unseasonably low temperatures to many parts of the South Island. The coldest air of the system passed over during 29 September, when several locations observed record or near-record low daily maximum temperatures for spring.

Several Canterbury locations observed near-record low minimum temperatures on 30 September during the early morning hours. Christchurch recorded a minimum temperature of -4.8°C , the equal-lowest spring temperature ever observed in the city.

An unseasonably warm air mass that originated over Australia moved across New Zealand in early October, causing well above average temperatures. On 4 October, Kaikoura reached 28.0°C , its second-warmest October day on record. On 5 October, Wairoa reached 30.8°C , which is the third year in the last decade that New Zealand observed a 30°C temperature in the month of October. This was Wairoa's 4th-highest spring temperature on record, which is particularly notable given how early in the season it occurred. Several other locations around New Zealand also set record or near-record high spring temperatures on 4 and 5 October.

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

Location	Extreme maximum ($^{\circ}\text{C}$)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Haast	24.4	Nov-25th	1949	Equal highest
Te Anau	26.5	Nov-25th	1963	3rd-highest
Motu	25.7	Oct-5th	1990	Equal 3rd-highest
Balclutha	27.5	Oct-4th	1964	Equal 3rd-highest
Wairoa	30.8	Oct-5th	1964	4th-highest
Grassmere Salt Works	29.3	Oct-4th	1953	4th-highest

Low records or near-records				
Puysegur Point	6.2	Sep-28th	1978	Lowest
Dunedin (Airport)	5.2	Sep-29th	1972	Lowest
Manapouri (West Arm Jetty)	1.9	Sep-28th	1972	Lowest
Five Rivers	3.8	Sep-29th	1982	Lowest
Alexandra	4.6	Sep-29th	1930	Lowest
Balclutha	4.7	Sep-29th	1972	Lowest
Clyde	5.7	Sep-29th	1978	Equal lowest
Roxburgh	5.3	Sep-28th	1950	Equal lowest
Matamata	9.8	Oct-15th	1999	2nd-lowest
Mt Cook (Airport)	0.4	Sep-1st	1929	2nd-lowest
Rangiora	6.2	Sep-1st	1972	2nd-lowest
Nugget Point	3.2	Sep-29th	1972	2nd-lowest
Westport	9.4	Sep-29th	1966	Equal 2nd-lowest
Le Bons Bay	5.2	Sep-1st	1984	Equal 2nd-lowest
Palmerston	6.2	Sep-29th	1972	Equal 2nd-lowest
Alexandra	7.3	Sep-1st	1992	Equal 2nd-lowest
Cheviot	6.4	Sep-1st	1982	3rd-lowest
Oamaru	6.8	Sep-29th	1972	3rd-lowest
Lumsden	4.5	Sep-29th	1982	3rd-lowest
Gore	2.8	Sep-29th	1907	3rd-lowest
Hamilton	9.6	Oct-15th	1946	Equal 3rd-lowest
Port Taharoa	11.9	Oct-15th	1974	Equal 3rd-lowest
Rotorua	8.0	Oct-15th	1972	4th-lowest
Taihape	8.0	Sep-29th	1972	4th-lowest
Mt Cook Village	0.8	Sep-1st	1929	4th-lowest
Lake Tekapo	1.4	Sep-1st	1928	4th-lowest
Waiau	5.6	Sep-1st	1974	Equal 4th-lowest
Oamaru	7.2	Sep-1st	1972	Equal 4th-lowest
Tiwai Point	6.3	Sep-28th	1972	Equal 4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
Low records or near-records				
Puysegur Point	1.1	Sep-29th	1978	Lowest
Le Bons Bay	-0.9	Sep-18th	1984	Lowest
Orari Estate	-4.0	Sep-4th	1972	Lowest
Balclutha	-6.0	Sep-6th	1964	Lowest
Tautuku	-3.0	Sep-2nd	1976	Lowest
Christchurch (Airport)	-4.8	Sep-30th	1863	Equal lowest
Tiwai Point	-1.5	Sep-30th	1970	Equal lowest
Secretary Island	1.3	Sep-29th	1985	2nd-lowest
Nugget Point	-1.4	Sep-30th	1970	2nd-lowest
Ohakune	-5.2	Sep-4th	1962	3rd-lowest

Winchmore	-4.7	Sep-30th	1928	3rd-lowest
Motu	-5.0	Sep-13th	1990	Equal 3rd-lowest
Te Kuiti	-2.0	Sep-4th	1959	Equal 3rd-lowest
Mt Cook (Airport)	-7.0	Sep-3rd	1929	4th-lowest
Lumsden	-4.3	Sep-2nd	1982	4th-lowest
Whangaparaoa	5.9	Sep-4th	1982	Equal 4th-lowest
Appleby	-2.9	Sep-12th	1932	Equal 4th-lowest
Cheviot	-3.6	Sep-30th	1982	Equal 4th-lowest
Rangiora	-3.6	Sep-12th	1965	Equal 4th-lowest
High records or near-records				
Whangaparaoa	17.1	Nov-4th	1982	Equal highest
Puysegur Point	15.2	Oct-25th	1978	Equal highest
Auckland (Western Springs)	18.5	Nov-4th	1971	2nd-highest
Franz Josef	14.6	Nov-5th	1953	2nd-highest
Te Anau	14.3	Nov-15th	1973	2nd-highest
Whangarei	18.8	Nov-4th	1967	Equal 2nd-highest
Auckland (Whenuapai)	17.9	Nov-4th	1951	Equal 2nd-highest
Grassmere Salt Works	18.7	Oct-26th	1972	Equal 2nd-highest
Hicks Bay	17.1	Nov-27th	1972	3rd-highest
Porirua	15.9	Nov-5th	1972	3rd-highest
Hanmer Forest	17.0	Oct-26th	1972	3rd-highest
Roxburgh	17.8	Oct-4th	1950	3rd-highest
Nugget Point	13.6	Oct-25th	1972	3rd-highest
Port Taharoa	17.6	Nov-4th	1974	Equal 3rd-highest
Paeroa	18.0	Nov-5th	1971	4th-highest
Ashburton	18.0	Nov-5th	1928	4th-highest
Kaitaia	18.3	Nov-4th	1948	Equal 4th-highest
Upper Hutt (Trentham)	16.4	Nov-5th	1972	Equal 4th-highest
Reefton	15.1	Nov-5th	1972	Equal 4th-highest

Rain and slips

On 18 September, several hours of heavy rain fell in the Wellington region. *Metlink* reported flooding in the Taita subway (Hutt Valley). Fire and Emergency crews reported responding to several call outs due to flooding.

On 26-27 September, heavy rain struck the Wellington region. Several roads were closed temporarily due to flooding and slips, including Grays Road between Plimmerton and Pauatahanui, Glenmore Street in Kelburn, Wainuiomata Hill, and Block Road adjacent to Hutt River. This was one of four heavy rainfall events observed in Wellington during the month. Overall, both climate stations at Kelburn and the Airport observed 200% of normal September rainfall.

On 4 October, up to 60 mm of rainfall caused flooding across parts of Southland. Several properties in Riverton, Invercargill, and Otatara needed to be pumped out by fire crews. Additional flooding was observed in Winton, Mokoreta, Wyndham, Gore, Fortrose, and Tokanui, while slips were reported in the Catlins and Stewart Island.

On 9 November a local state of emergency was declared in Napier due to widespread flooding causing landslips, power cuts and evacuations. 3300 homes were without power overnight and at least 14 roads and streets were closed due to slips. Napier's Nelson Park recorded 242.4 mm of rain on that day which was the wettest November and wettest spring day on record for Napier, with records going back to 1870. It was the second-wettest day in the entire record (the record is 297 mm on 3 June 1963). The rain caused damage to structures in impacted areas such as Napier Hill and the suburbs of Maraenui, Marewa and Pirimai, ranging from minor to severe.

On 24 November New Plymouth had its second-wettest November day on record with rain continuing on 25 November. The rain caused widespread flooding, road closures and sewage overflows.

On 25 November thunderstorms and a burst of heavy rain caused flooding in Te Awamutu. A café roof collapsed and several stores suffered water damage due to the event. Rain also caused a slip to partially block State Highway 3, south of Hāwera.

On 29 November heavy rain and flooding in Plimmerton was exacerbated by the timing of the high tide, rendering more than a dozen homes uninhabitable due to flooding.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Napier	242	Nov-9th	1870	Highest
Te Puke	102	Nov-10th	1973	3rd-highest
Greymouth	112	Oct-26th	1947	3rd-highest
Tiwai Point	48	Oct-3rd	1970	3rd-highest
Paroa	112	Oct-26th	1964	4th-highest
Plains Station	67	Oct-25th	1950	4th-highest
Quarry Hills	55	Oct-3rd	1939	Equal 4th-highest

Wind

On 18 September, strong winds occurred in Auckland. A shipping container truck travelling south on the Harbour Bridge was blown sideways causing structural damage to the bridge. By the end of September, lane closures remained in place to allow repair work.

From 27-28 September, winds brought down trees in the Wellington region. Widespread power outages were reported in Wainuomata, Eastborne, Plimmerton, Pukerua Bay, Judgeford, Tawa, Elsdon, Grenada North, Takapu Valley and Pauatahanui with approximately 2000 residents affected. Paraparaumu also experienced strong winds, with fences, trees, a shipping container and a shed blown over in and near Mazengarb Reserve and Kapiti Sports Turf and Pavilion.

On 29 September, more than 700 properties across the wider Whanganui region were without power after strong winds brought down trees onto powerlines. The Auckland Harbour Bridge was closed due to strong wind gusts. Four cars and a street light in Hamilton were crushed by a falling

tree. Farther south, a fallen tree caused traffic delays in Little River (between Christchurch and Akaroa).

During the night of 3-4 October, strong westerly winds gusting near or above 100 km/h fanned fires near Lake Ōhau Village and Livingstone in Canterbury. The 4800 hectare Lake Ōhau fire destroyed about 50 homes and at least 300 sheep and lambs were killed, while the Livingstone fire resulted in several property evacuations. A separate fire near Domett resulted in the evacuation of Hurunui River Huts.

On 5 October, strong winds in Southland tipped over a truck and trailer on the Winton-Hedgehope Highway, blocking a lane. Strong winds were also experienced about Lake Wakatipu, with a downed tree near Kingston crushing a campervan, and damage to roofs and windows at properties in Frankton.

On 21 November strong winds affected Otago and Southland and led to downed trees, roofs lifting and widespread power outages. A Fire and Emergency New Zealand spokesman said it was called to 17 wind-related callouts in Southland and 16 in Otago. Strong winds caused part of the spire at St Patrick's Catholic Church in Rimu St, Invercargill, to come loose and the area was cordoned off to protect the public. Strong winds on the Otago Peninsula contributed to a fire in Portobello. 28 residents from 14 houses were evacuated to Portobello's Coronation Hall.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Hawera	104	Sep-29th	1986	Highest
Westport	120	Sep-15th	1973	Highest
Motu	107	Sep-27th	1991	2nd-highest
Upper Hutt (Trentham)	98	Sep-28th	1999	2nd-highest
Secretary Island	156	Sep-26th	1994	2nd-highest
Brothers Island	139	Sep-28th	1997	2nd-highest
Levin	95	Sep-28th	1971	3rd-highest
Palmerston North	96	Sep-15th	1991	Equal 3rd-highest
South West Cape	172	Oct-3rd	1991	Equal 3rd-highest

Snow and ice

On 1 September, snow fell to relatively low elevations throughout the South Island. Snow flurries were reported in parts of Ashburton and Timaru, with snow accumulations to the valley floor reported in several inland Southland, Otago and Canterbury locations including Kingston, Arrowtown, the Maniototo, Lake Tekapo and Castle Hill Village. The cold front delivered a welcome dump of fresh snow to ski areas which had suffered from a relative lack of snow during winter. Coronet Peak (near Queenstown) reported 25-40 cm of fresh snow, while farther north Craigieburn (Canterbury, north of Castle Hill Village) reported 42 cm of fresh snow. The snowfall provided relief to firefighters battling a large scrub fire near SH80 between Twizel and Mount Cook Village.

From 28-29 September, snow settled to sea level in Otago, Southland and Stewart Island. It was the most widespread low-elevation snowfall of the year to-date, with polar air drawn from Antarctica by a deep low pressure system in the Southern Ocean. There were widespread road closures in Southland and Otago, and snow also caused the closure of SH6 between Fox Glacier and Franz Josef Glacier. Approximately 50 cars and trucks were stranded on SH1 north of Balclutha due to blizzard conditions, with police and council contractors called in to move the vehicles safely. Flights to and from Invercargill, Dunedin and Queenstown Airports were disrupted by snow on their runways and poor visibility. The Remarkables ski area reported up to 60 cm of fresh snow, and the snow density was relatively low due to very cold air temperatures associated with the snowfall. Snow also fell to low elevations in Nelson and Tasman, with several road closures including SH63 from Kawatiri to St Arnaud and Canaan Road (Takaka Hill).

On 15 October, hail was reported in central Wellington and in several Wellington suburbs. A light snowfall was reported to relatively low-elevation hill areas of Hawke's Bay near Puketitiri, while a dusting of snow also occurred along the Desert Road and Napier-Taupo Road.

On 8 November snow fell to low levels in the South Island. A dusting of snow fell at Tekapo.

Lightning and hail

On 6 September, a late-afternoon southerly change generated several thunderstorms over parts of Canterbury, especially towards the eastern foothills. Heavy hail was reported in the town of Oxford, which blanketed the ground white. Fire and Emergency responded to several calls in Oxford where household roofs were leaking. At least 900 lightning strikes were recorded over the area between Methven and Amberley.

Cloud and fog

On 21 September, early morning fog in Timaru caused flight delays at the local airport.

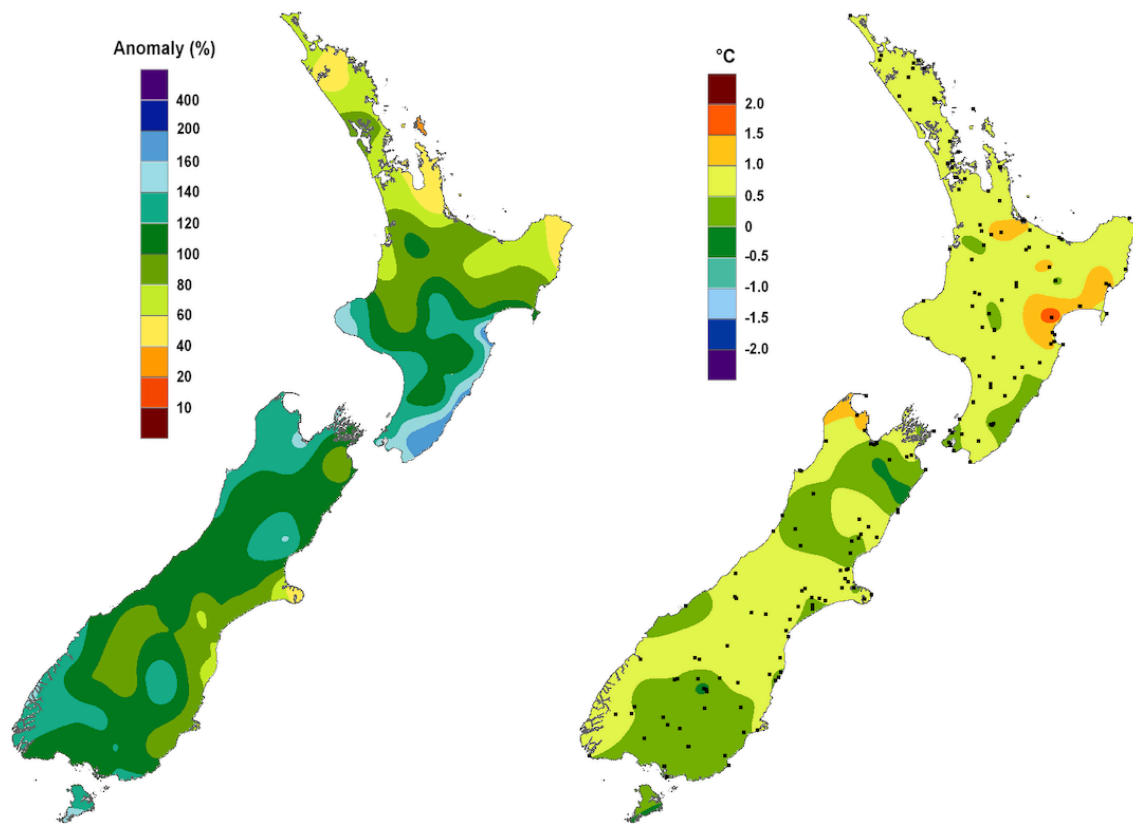
On 25 October, at least five morning flights out of Wellington were delayed by thick fog.

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Spring rainfall

Expressed as a percentage of the 1981-2010 normal.

Spring temperature

Expressed as a departure from the 1981-2010 average in degrees Celsius.

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