

A mild spring, very wet for parts of the North Island

Temperature	Spring temperatures were above average (+0.51°C to +1.20°C of average) for many parts of the country. The exceptions were coastal parts of the North Island from Taranaki to Wellington, Nelson, West Coast, coastal northern Canterbury, inland parts of Otago, and western and southern parts of Southland, where temperatures were near average ($\pm 0.50^\circ\text{C}$ of average).
Rainfall	Rainfall was well above normal (>149% of normal) in Gisborne, northern Hawke's Bay, and central Northland. Above normal (120-149% of normal) rainfall was observed in Bay of Plenty, southern Waikato, coastal parts of southern Hawke's Bay and Wairarapa, and inland parts of Otago. In contrast, rainfall was below normal (50-79% of normal) in parts of the Greater Wellington region, the northern South Island, and Banks Peninsula. Elsewhere, rainfall was generally near normal (80-119% of normal).
Soil moisture	At the end of spring, soil moisture levels were well above normal for eastern and inland parts of the North Island from western Bay of Plenty to Wairarapa, as well as the Far North. Below normal soil moisture levels were observed in western Waikato, Kāpiti Coast, Wellington, southern Canterbury, South Otago, and southern Southland. Elsewhere, near normal soil moisture levels were observed.

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Overview

Spring 2023 was characterised by a large area of higher-than-normal mean sea level pressure (MSLP) over and surrounding Aotearoa New Zealand. This generally resulted in more northeasterly winds than normal for eastern and northern parts of the North Island, with westerly winds prevailing for the lower South Island. El Niño strengthened in the tropical Pacific during the season, with several strong westerly wind events signalling its building influence across New Zealand.

Temperatures were relatively warm for the season overall, with above average temperatures (+0.51°C to +1.20°C of average) observed in parts of every region of the country. Overall, the nationwide average temperature for spring was 12.8°C, 0.7°C above the 1991-2020 average from NIWA's seven-station temperature series which begins in 1909. This ranked as New Zealand's 10th-warmest spring on record.

It was a very wet season in Gisborne, northern Hawke's Bay, and central parts of Northland. Rainfall was well above normal (>149% of normal) in these areas, with some locations receiving more than

double their usual spring rainfall. In contrast, it was a dry season in parts of the Greater Wellington region, with Upper Hutt, Martinborough, and Paraparaumu each receiving little more than half of their normal spring rainfall (rainfall totals ranged from 57-59% of normal, respectively). Rainfall was also below normal (50-79% of normal) in Tasman, Nelson, Marlborough, and Banks Peninsula.

Further highlights for spring 2023:

- The highest temperature was 30.0°C, observed at Blenheim on 23 November.
- The lowest temperature was -5.9°C, observed at Mount Cook Airport on 26 September.
- The highest 1-day rainfall was 234 mm, recorded at Milford Sound on 20 September.
- The highest wind gust was 246 km/h, observed at Cape Turnagain on 17 September.
- Of the available, regularly reporting sunshine observation sites, the sunniest four regions in 2023 so far are wider Nelson (2397 hours), Mackenzie Basin (2330 hours), Tasman (2323 hours), and Taranaki (2292 hours).
- Of the six main centres in spring 2023, Auckland was the warmest, Dunedin was the coolest and equal-driest, Christchurch was the sunniest and equal-driest, Tauranga was the wettest, and Wellington was the least sunny.

For further information, please contact:

Gregor Macara

Climate Scientist

Tel. 04 386 0509

Temperature: Warm for many areas

Approximately two-thirds of monitoring stations around the country recorded above average temperatures (+0.51°C to +1.20°C of average). Nineteen locations observed record or near-record high mean air temperatures for spring.

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				
Whakatāne	15.3	1.3	1974	Highest
Mt Ruapehu Chateau	8.0	1.4	2000	Highest
Chatham Island	12.8	1.5	1878	Highest
Whangaparāoa	15.6	1.0	1982	2nd-highest
Te Puke	14.8	1.2	1973	2nd-highest
Taupō	13.3	2.1	1949	2nd-highest
Motu	12.1	1.7	1990	2nd-highest
Waikeria	14.4	1.3	1957	2nd-highest
Leigh	16.3	2.6	1966	3rd-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.

Hamilton (Ruakura)	14.4	1.2	1906	3rd-highest
Ohakune	11.1	1.1	1962	3rd-highest
Waipounamu	10.6	0.7	1980	3rd-highest
Purerua	15.4	0.8	1983	4th-highest
Auckland (Western Springs)	15.5	1.1	1948	4th-highest
Whitianga	15.2	0.9	1962	4th-highest
Hamilton (Airport)	14.0	1.0	1946	4th-highest
Ngawi	14.5	0.7	1972	4th-highest
Kaikōura	12.7	0.8	1963	4th-highest
Cheviot	12.2	0.8	1982	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				
Purerua	19.1	1.0	1983	Highest
Mt Ruapehu Chateau	12.8	1.6	2000	Highest
Appleby	18.5	1.2	1932	Highest
Whangaparāoa	19.2	1.2	1982	2nd-highest
Whakatāne	19.9	1.1	1974	2nd-highest
Taupō	18.6	2.5	1949	2nd-highest
Waikeria	19.7	1.3	1957	2nd-highest
Motu	17.2	2.0	1990	3rd-highest
Te Kuiti	19.5	1.3	1959	3rd-highest
Cheviot	18.2	0.9	1982	3rd-highest
Mt Cook (Airport)	15.5	1.2	1929	3rd-highest
Waipounamu	16.2	1.0	1980	3rd-highest
Cromwell	19.4	1.3	1949	3rd-highest
Clyde	19.3	1.1	1978	3rd-highest
Chatham Island	16.1	1.5	1878	3rd-highest
Te Puke	19.3	0.8	1973	4th-highest
Hamilton (Airport)	19.0	1.0	1946	4th-highest
Ngawi	17.8	0.7	1972	4th-highest
Pukaki Aerodrome	18.1	0.7	1972	4th-highest
Nugget Point	14.1	0.7	1970	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				
Auckland (Western Springs)	11.6	1.0	1948	Highest
Kaitia	12.2	1.6	1948	2nd-highest
Te Puke	10.3	1.7	1973	2nd-highest
Whakatāne	10.6	1.6	1974	2nd-highest
Mt Ruapehu Chateau	3.2	1.3	2000	2nd-highest
Chatham Island	9.5	1.6	1878	2nd-highest
Whitianga	10.9	1.2	1962	3rd-highest
Motu	7.0	1.3	1990	3rd-highest
Taupō	8.0	1.7	1949	4th-highest
Waikeria	9.2	1.3	1957	4th-highest
Māhia	11.0	0.8	1990	4th-highest
Low records or near-records				
None observed				

Rainfall: Near normal for most, but wet or dry in some areas

Spring rainfall was near normal (80-119% of normal) for the majority of monitoring stations across the country. However, it was a very wet season for Gisborne, Māhia, and Kaikohe, with each location observing their 2nd-highest spring rainfall total on record. Alexandra recorded 171% of its normal spring rainfall, resulting in the town's 4th-highest spring rainfall total since records began in 1922. In contrast, Paraparaumu and Akaroa recorded near-record low spring rainfall totals.

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				
Kaikohe	633	206	1956	2nd-highest
Gisborne	513	253	1905	2nd-highest
Māhia	448	211	1990	2nd-highest
Alexandra	148	171	1922	4th-highest
Low records or near-records				
Paraparaumu	147	59	1945	2nd-lowest
Akaroa	132	62	1977	4th-lowest

Spring in the six main centres

Temperatures were above or near average in all main centres for the season overall. It was a particularly wet spring in Tauranga, with 143% of normal spring rainfall there. Rainfall was also above normal in Christchurch, but otherwise near normal in the remaining four main centres. Of the six main centres in spring 2023, Auckland was the warmest, Dunedin was the coolest and equal-driest, Christchurch was the sunniest and equal-driest, Tauranga was the wettest, and Wellington was the least sunny.

Spring 2023 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	15.3	+0.8	Above average
Tauranga ^b	15.2	+0.9	Above average
Hamilton ^c	14.0	+1.0	Above average
Wellington ^d	12.7	+0.5	Near average
Christchurch ^e	11.8	+0.5	Near average
Dunedin ^f	11.7	+0.8	Above average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	247	100	Near normal
Tauranga ^b	329	143	Above normal
Hamilton ^c	279 ²	96	Near normal
Wellington ^d	281	90	Near normal
Christchurch ^e	164	120	Above normal
Dunedin ^f	164	97	Near normal
Sunshine			
Location	Sunshine (hours)		
Auckland ^a	580		
Tauranga ^b	643 ²		
Hamilton ^g	583		
Wellington ^d	577		
Christchurch ^e	657		
Dunedin ^f	597		

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

² Missing one day of data

Highlights and extreme events

This section contains information pertaining to some of the more significant highlights and extreme events that occurred during spring 2023. Note that a more detailed list of significant weather events for spring 2023 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 [here](#).

Temperatures

The highest temperature was 30.0°C, observed at Blenheim on 23 November. The lowest temperature was -5.9°C, observed at Mount Cook Airport on 26 September.

From 20-21 September, a strong northwesterly flow over New Zealand delivered very high temperatures for the time of year to eastern and inland parts of the country. Wairoa recorded a maximum temperature of 29.6°C on 21 September, which is New Zealand's third-highest September temperature on record, and the North Island's highest September temperature on record.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Whangaparāoa	26.4	Nov-21st	1982	Highest
Waikeria	29.7	Nov-22nd	1957	Highest
Motu	25.8	Sep-20th	1990	4th-highest
Whatawhata	26.7	Nov-21st	1952	4th-highest
Mt Ruapehu Chateau	23.8	Oct-5th	2000	4th-highest
Low records or near-records				
Clyde	5.5	Sep-22nd	1978	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
High records or near-records				
Dunedin (Musselburgh)	16.5	Sep-21st	1947	Equal 2nd-highest
Peel Forest	16.3	Sep-21st	1973	3rd-highest
Alexandra	16.5	Sep-21st	1992	3rd-highest
Campbell Island	9.4	Nov-12th	1991	Equal 3rd-highest
Wānaka	15.3	Nov-23rd	1972	Equal 4th-highest
Oamaru	15.9	Nov-13th	1972	Equal 4th-highest
Low records or near-records				
South West Cape	0.3	Oct-27th	1991	Lowest

Rain and slips

The highest 1-day rainfall was 234 mm, recorded at Milford Sound on 20 September.

From 21-22 September, heavy rain caused flooding in parts of Southland, Otago, and Canterbury, with a State of Emergency declared in Southland and Queenstown. The Gore and Mataura combined

stormwater and wastewater network was reportedly overwhelmed, leading to widespread surface flooding. Surface flooding was also prominent in other parts of Southland, with flooded storm water drains reported to be contaminated with sewage in Winton, Lumsden, and Nightcaps. In Queenstown, 68 properties were evacuated due to flooding and associated debris.

From 25-26 September, heavy rainfall occurred over eastern parts of the Bay of Plenty and inland Gisborne. Slips and fallen trees caused the closure of numerous roads including SH2 at Waioatahe, SH2 at Awakeri, SH2 at Waimana Gorge, SH2 at Waioeka Gorge, SH30 at Rotoma, SH35, and SH5 at Tumunui (south of Rotorua).

On 29-30 October, the remnants of ex-Tropical Cyclone Lola brought heavy rain to parts of the upper North Island. Multiple schools in the Coromandel Peninsula were closed due to slips and flooded roadways, including parts of SH25. In Whangārei, CBD streets were closed due to flooding exacerbated by a king tide. In Gisborne, SH35 at Rototahi was closed for a time due to flooding.

From 7-8 November, heavy rainfall in northern Hawke’s Bay caused surface flooding for parts of Wairoa and Nūhaka. Three people were rescued from their cars after becoming stuck in floodwaters south of Nūhaka, and three homes were evacuated.

From 25-26 November, heavy rainfall in northern Hawke’s Bay and Gisborne resulted in elevated river levels, with areas of surface flooding, and power outages for approximately 300 customers. One person died after crashing their vehicle into a slip on SH2 south of Wairoa.

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
Kaikohe	150	Oct-29th	1956	Highest
Russell	127	Oct-29th	1919	Highest
Lumsden	68	Sep-21st	1982	Highest
Kawhia	86	Sep-23rd	1905	Equal highest
Chiltern	151	Sep-4th	1950	2nd-highest
Karangahake Gorge	113	Oct-30th	1981	2nd-highest
Māhia	94	Nov-7th	1990	2nd-highest
Norbury	47	Sep-23rd	1999	2nd-highest
Tara Hills	68	Sep-21st	1949	2nd-highest
Wānaka	98	Sep-21st	1927	2nd-highest
Queenstown	87	Sep-21st	1890	2nd-highest
Waipounamu	62	Sep-21st	1917	2nd-highest
Gore	68	Sep-21st	1907	2nd-highest
Taumata	37	Sep-21st	2001	2nd-highest
Manapouri	63	Sep-20th	1963	Equal 2nd-highest
Kaeo	114	Oct-29th	1981	3rd-highest
Athenree	61	Oct-30th	2000	3rd-highest
Edgecumbe	99	Sep-25th	1990	3rd-highest
Port Taharoa	58	Sep-23rd	1973	3rd-highest
Wairoa	120	Nov-7th	1967	3rd-highest

Green Island, Kaikorai	31	Sep-21st	1993	3rd-highest
Clyde	50	Sep-21st	1978	3rd-highest
Tautuku	49	Sep-21st	1976	3rd-highest
Te Aroha	50	Oct-30th	1992	4th-highest
Cromwell	45	Sep-21st	1949	4th-highest
Alexandra	47	Sep-21st	1922	4th-highest
Campbell Island	35	Sep-8th	1991	4th-highest

Wind

The highest wind gust was 246 km/h, observed at Cape Turnagain on 17 September.

From 17-18 September, strong winds occurred over much of the South Island and lower North Island, with widespread reports of damage and accidents as a result. Approximately 7,000 properties in Wellington were without power, as were properties in Waimatua (near Invercargill) as strong winds caused damage to power lines. A campervan and SUV were blown over by strong winds on the road between Tekapo and Twizel (SH8), while two campervans were blown over on the Mt Cook Highway (SH80). A tree was blown onto a house in Levin, with downed trees also reported in Invercargill, Puramahoi (near Golden Bay), and Wainuiomata. Strong winds lifted roofs in parts of the Manawatū and Wellington. Fires near Culverden, Dunsandel, Kaikōura and Renwick were exacerbated by gusty winds, before being brought under control by the local Fire Services.

On 20 September, strong winds fanned a large wildfire at Pukaki Downs (north of Twizel). As many as seven helicopters with monsoon buckets were deployed to battle the blaze, and residents of six properties were forced to evacuate. The fire caused the closure of SH80 from the intersection of SH8 through to Mt Cook. South of Twizel, 11 power poles were snapped in half due to the strong winds, causing power outages for some local customers.

On 14 October, an area of low pressure moving across the South Island delivered damaging winds to Canterbury in particular, with some gusts exceeding 150 km/h. Waipara West recorded a gust of 170 km/h between 2:00-3:00 p.m. More than 8,000 homes were left without electricity, while FENZ had more than 25 responses underway by early afternoon due to downed power lines, fallen trees, lifting roofs, and a tree that had fallen onto a car in central Christchurch.

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
Baring Head	161	Sep-17th	1991	Highest
Puysegur Point	183	Sep-20th	1986	Highest
Mt Cook (Airport)	178	Sep-17th	2000	Highest
Wānaka	93	Sep-20th	1992	Highest
Middlemarch	135	Sep-20th	2000	Highest
South West Cape	209	Nov-15th	1991	Highest
Whanganui	98	Sep-17th	1977	2nd-highest
Farewell Spit	111	Nov-15th	1973	2nd-highest
Windsor	104	Oct-2nd	2001	2nd-highest
Clyde	100	Oct-2nd	1983	2nd-highest

Whitianga	87	Oct-10th	1991	Equal 2nd-highest
Palmerston North	98	Sep-18th	1991	Equal 2nd-highest
Castlepoint	174	Sep-17th	1972	3rd-highest
Secretary Island	154	Oct-2nd	1994	3rd-highest
Blenheim	96	Sep-17th	1972	3rd-highest
Rangiora	102	Oct-14th	1999	3rd-highest
Alexandra	113	Oct-2nd	2001	3rd-highest
Mokohinau Island	122	Oct-29th	1994	Equal 3rd-highest
Mt Ruapehu Chateau	113	Nov-25th	2000	Equal 3rd-highest
Upper Hutt (Trentham)	96	Sep-17th	1999	Equal 3rd-highest
Hanmer Forest	109	Sep-17th	1995	4th-highest
Lincoln	93	Oct-2nd	1999	4th-highest
Cape Reinga	143	Oct-29th	1974	Equal 4th-highest
Tūrangi	96	Sep-18th	1973	Equal 4th-highest

Snow and ice

On 22 September, heavy snow fell to low elevations in inland parts of Canterbury and northern Otago. SH80 to Mount Cook Village was closed because of snow, notably just a day after it had been closed due to a fire at Pukaki Downs. Ōhau ski area reported 1 metre of new snow. Farther south, Coronet Peak ski area was forced to call an early end to their ski season after warm temperatures and heavy rainfall melted a great deal of their snowpack.

On 27 October, a strong cold front brought snow to low elevations in the lower South Island. This included snow falling to lake level in Queenstown, and flurries of snow in Dunedin's CBD.

Lightning, hail, and tornadoes

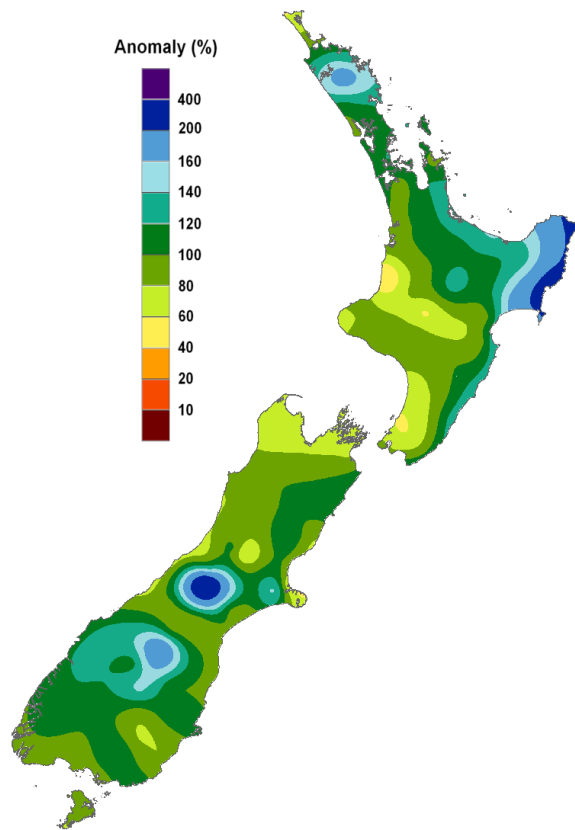
On 8 October, thunderstorms brought accumulating hail to multiple locations around the upper North Island, including Langs Beach, Mangawhai, Auckland, Whitianga, and Okere Falls.

For further information please contact:

Gregor Macara

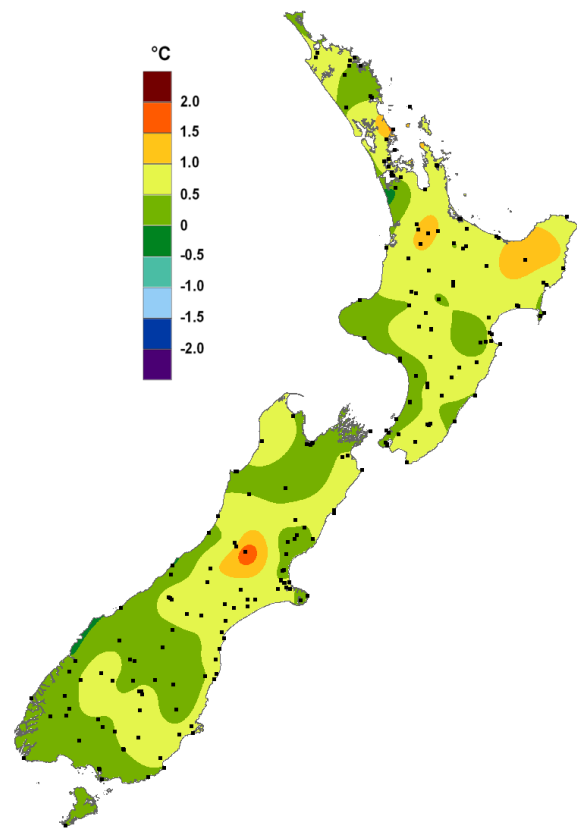
Climate Scientist

Tel. 04 386 0509



Spring rainfall

Expressed as a percentage of the 1991-2020 normal.



Spring temperature

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

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

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