

National Climate Summary – Spring 2009: Extremely dry for much of the South Island

- **Rainfall:** Below normal rainfall over much of the South Island, especially Otago and the Lakes District, as well as eastern parts of Northland, Auckland and Coromandel. Very wet in southern Hawkes Bay and the Tararua District. Near normal spring rainfall elsewhere.
- **Temperature:** Near average temperatures in Northland, Coromandel, the Bay of Plenty and the Lakes District; a cooler than usual spring in most other regions.
- **Sunshine:** Sunny over much of the South Island, as well as for Waikato, Taupo, Bay of Plenty, Gisborne and Hawkes Bay. Very cloudy in the west from Taranaki to Wellington.

It was a very dry spring (with rainfalls below 75 percent of normal) in eastern parts of Northland, Auckland and Coromandel, and for much of the South Island. Record or near-record low spring rainfalls were observed in Northland, Coromandel, Westland, along the South Island Main Divide, in the Lakes District, and Otago, with totals often less than 50 percent of spring normal. In contrast, spring rainfall was above normal in southern Hawkes Bay, the Tararua District, and in Wanganui (with more than 120 percent of normal recorded). Elsewhere, near normal spring rainfall was observed.

Spring temperatures were near average (between -0.5°C and 0.5°C of average) along the eastern coasts of Northland, Coromandel, the Bay of Plenty, as well as throughout the South Island Lakes District and in Fiordland. Below average temperatures (between 1.2°C and 0.5°C below the seasonal average) were observed in most other regions of the country. However, there were several small pockets of well below average temperatures observed, particularly along the southeast coasts of both Islands (with temperatures more than 1.2°C below the spring average). Overall, the New Zealand national average temperature for spring was 11.6°C (0.4°C below the long-term seasonal average).

Spring sunshine totals were above normal (more than 110 percent of normal) over much of the South Island, as well as throughout the Waikato, Taupo, Bay of Plenty, Gisborne and Hawke's Bay regions. In contrast, it was quite cloudy in the west of the North Island, from Taranaki through to Wellington, with sunshine totals less than 90 percent of normal.

Spring 2009 was characterised by stronger than normal southwest winds over New Zealand, caused by lower pressures to the southeast of the South Island consistent with El Niño.

Further Highlights:

- The highest spring temperature was 32.1°C recorded at Whakatane on November 24th (an all-time record at this site). The lowest spring temperature of -7.2°C was recorded at Hanmer Forest on September 4th (not a record).
- The highest 1-day spring rainfall was 122.3 mm, recorded at Milford Sound, on November 14th (not a record).
- The highest spring wind gust was 184 km/hr, recorded at Stewart Island on November 4th (a November record at this site).
- Of the six main centres this spring, Tauranga was the warmest, Wellington the wettest, Dunedin the driest and Christchurch the sunniest and coolest.

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RAINFALL: EXTREMELY DRY IN NORTHERN NEW ZEALAND, AND OVER MUCH OF SOUTH ISLAND. EXTREMELY WET IN SOUTHERN HAWKES BAY, TARARUA DISTRICT AND WANGANUI

It was an extremely dry spring (with rainfalls below 75 percent of normal) in eastern parts of Northland, Auckland and Coromandel. Whangarei recorded its lowest spring rainfall total ever, since records began in 1937. Spring rainfall was also below normal (less than 75 percent of normal) over much of the South Island (except for Nelson, Marlborough, coastal Canterbury and coastal Southland, which recorded near normal spring rainfalls). Record or near-record low spring rainfalls were observed in Westland, along the Main Divide, in the Lakes District, and Otago, with totals often less than 50 percent of spring normal. Arthurs Pass experienced its driest spring ever (since records began in 1906), as did Lake Tekapo, Ranfurly and Lumsden.

In contrast, spring rainfall was above normal in southern Hawkes Bay, the Tararua District, and in Wanganui (with more than 120 percent of spring normal recorded). The remainder of the North Island (excluding Northland, Auckland and Coromandel), received near normal spring rainfalls (between 80 and 120 percent of normal).

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Dannevirke	417	154	1951	2nd-highest
Wanganui	307	136	1987	3rd-highest
Whangarei	155	49	1937	Lowest
Whangaparaoa	147	62	1946	3rd-lowest
Kumeu (Waitakere)	235	77	1978	3rd-lowest
Whitianga	232	57	1961	2nd-lowest
Hokitika	498	64	1963	2nd-lowest
Reefton	293	52	1960	2nd-lowest
Arthurs Pass	639	45	1906	Lowest
Mt Cook	529	46	1928	2nd-lowest
Lake Tekapo	45	30	1925	Lowest
Tara Hills	42	33	1949	2nd-lowest
Wanaka	56	30	1927	2nd-lowest
Ranfurly	40	39	1943	Lowest
Dunedin	99	59	1918	4th-lowest
Queenstown	80	44	1871	4th-lowest
Lumsden	117	52	1982	Lowest

TEMPERATURES: NEAR AVERAGE ON THE EAST COAST BETWEEN NORTH CAPE AND EAST CAPE, IN THE SOUTH ISLAND LAKES DISTRICT AND FIORDLAND. BELOW AVERAGE TEMPERATURES ELSEWHERE.

Spring temperatures were near average (between -0.5°C and 0.5°C of average) along the eastern coasts of Northland, Coromandel, the Bay of Plenty, as well as throughout the South Island Lakes District and Fiordland. Below average temperatures (between 1.2°C and 0.5°C below the seasonal average) were observed in most other regions of the country. However, there were several small pockets of well below average temperatures observed, particularly along the southeast coasts of both Islands (with temperatures more than 1.2°C below the spring average).

Afternoon temperatures this spring were record low in Kaitaia, Dannevirke and at Cape Campbell. Morning spring temperatures were record low at Turangi, Dannevirke, Hanmer Forest (where records began in 1906), Christchurch (in observations since 1863), and Dunedin.

Overall, the New Zealand national average temperature for spring was 11.6°C (0.4°C below the long-term seasonal average).

Extreme spring mean maximum daily air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kerikeri	19.6	0.5	1981	3rd-highest
Whangaparaoa	17.7	0.8	1982	4th-highest
Kaitaia	16.5	-1.7	1967	Lowest
Dargaville	16.7	-1.6	1943	2nd-lowest
Kumeu (Waitakere)	17.4	-0.6	1978	4th-lowest
Dannevirke	14.7	-1.6	1951	Lowest
Castlepoint	14.9	-1.4	1972	3rd-lowest
Martinborough	16.9	-1.0	1986	4th-lowest
Ngawi	16.2	-0.4	1972	4th-lowest
Wanganui	15.7	-1.1	1987	2nd-lowest
Cape Campbell	14.1	-2.6	1953	Lowest
Waipara West	16.5	-1.0	1973	3rd-lowest
Gore	13.3	-1.1	1971	2nd-lowest
Balclutha	14.2	-1.2	1964	2nd-lowest

Extreme low spring mean minimum daily air temperatures were recorded at:

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitaia	9.5	-1.2	1967	3rd-lowest
Warkworth	9.5	-1.2	1966	4th-lowest
Port Taharoa	10.1	-0.8	1973	4th-lowest
Taumarunui	6.1	-1.2	1947	4th-lowest
Turangi	5.1	-1.4	1968	Lowest
Takapau Plains	5.8	-1.2	1962	4th-lowest
Dannevirke	6.0	-1.7	1951	Lowest
Castlepoint	9.0	-1.1	1972	3rd-lowest
Martinborough	6.5	-1.1	1986	3rd-lowest
Ngawi	9.5	-0.5	1972	4th-lowest
Waipawa	5.4	-1.5	1945	4th-lowest
Wanganui	8.7	-0.8	1987	3rd-lowest
Westport	7.1	-1.3	1937	4th-lowest
Blenheim	5.5	-1.3	1932	2nd-lowest
Hanmer Forest	1.6	-2.3	1906	Lowest
Christchurch	4.8	-1.4	1863	Lowest
Le Bons Bay	6.3	-0.8	1984	Lowest
Dunedin	4.4	-0.4	1947	Lowest
Queenstown	3.8	-0.4	1871	2nd-lowest

SUNSHINE: A SUNNY SPRING OVER MUCH OF THE SOUTH ISLAND, AS WELL AS FOR THE KING COUNTRY, CENTRAL PLATEAU, BAY OF PLENTY, GISBORNE AND HAWKES BAY. VERY CLOUDY IN THE WEST OF THE NORTH ISLAND FROM TARANAKI TO WELLINGTON.

Spring sunshine totals were above normal (more than 110 percent of normal) over much of the South Island, as well as throughout the Waikato, Taupo, Bay of Plenty, Gisborne and Hawke's Bay regions. In fact, seasonal sunshine totals exceeded more than 125 percent of normal in the King Country, throughout Westland, and in parts of Canterbury and Otago. It was the sunniest spring on record for Te Kuiti, Turangi and Greymouth.

In contrast, it was quite cloudy in the west of the North Island, from Taranaki through to Wellington, with below normal sunshine totals (less than 90 percent of normal).

Record or near-record spring sunshine hours were recorded at:

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Te Kuiti	530	125	1962	Highest
Turangi	576	117	1976	Highest
Greymouth	596	136	1947	Highest
Cromwell	689	116	1979	3rd-highest
Balclutha	586	127	1964	2nd-highest

SPRING CLIMATE IN THE SIX MAIN CENTRES

Of the six main centres this spring, Tauranga was the warmest, Wellington the wettest, Dunedin the driest and Christchurch the sunniest and coolest.

Spring 2009 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	13.7	-0.8	Below average	204	73%	Below normal	506	98%	Near normal
Tauranga ^b	14.3	+0.6	Above average	257	91%	Near normal	620	107%	Near normal
Hamilton ^c	12.6	-0.2	Near average	341	115%	Near normal	521 ^g	100%	Near normal
Wellington ^d	11.5	-0.5	Near average	367	113%	Near normal	563	101%	Near normal
Christchurch ^e	10.5	-1.0	Below average	141	100%	Near normal	644	111%	Above normal
Dunedin ^f	10.8	-0.1	Near average	114	61%	Below normal	494	113%	Above normal

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

HIGHLIGHTS AND EXTREME EVENTS

• **Heavy rain and flooding**

The highest 1-day rainfall this spring was 122.3 mm, recorded at Milford Sound, on November 14th (not a record at this site). Waitomo Caves recorded its highest-ever spring 1-day rainfall total (93 mm) on September 24th.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year Records Began	Comments
Omeheu	98	Sep-24th	1987	2nd-highest
Waitomo Caves	93	Sep-24th	1970	Highest
Dannevirke	64	Sep-24th	1951	3rd-highest
Mapua	84	Sep-29th	1922	2nd-highest
Blenheim	50	Oct-08th	1927	4th-highest
Staveley, Birchlands	62	Oct-17th	1915	4th-highest
Timaru Harbour	56	Oct-19th	1942	2nd-highest

A major slip in the Johnsonville suburb of Wellington in the early hours of 1 September left houses at the top of a bank, in a precarious position, and blocked a private driveway.

A downpour in Stratford on 17 September, with 27.4 mm of rain falling in 20 minutes, caused surface flooding on roads and the high school grounds.

SH1, north of Bulls, was affected by flooding on 24 September.

Heavy rain on 28 September caused slips and blocked Old Russell Road on Helena Bay Hill in the Whangarei area.

Heavy rain in Bay of Plenty on 5 October, caused slips in Tauranga, flooded businesses in Rotorua, and caused a 30 m high Acacia tree to fall, blocking the road at Pongakawa.

Heavy rain in the early hours of 9 October caused surface flooding in Wellington, and closed the Johnsonville railway line.

On 14 October, at 7.30 pm, a slip closed SH3 just north of New Plymouth. One lane was opened about 8 pm.

Heavy rain in Wellington on 15-16 October caused surface flooding on SH1 north of the city, as well as causing slips in Lower Hutt and Evans Bay Parade.

SH1 was closed by flooding near Marton, south of Wanganui, on 18 October.

- **Temperature**

The highest spring temperature was 32.1°C recorded at Whakatane on the 24th of November (both a November record and all-time record at this site).

Record or near-record warm afternoon conditions were experienced in the east of the South Island on November 23rd, in a strong northwesterly event. Dunedin experienced its hottest spring day ever (31.1°C) on November 23rd, since records began in 1947. Several North Island climate stations also recorded record high afternoon temperatures on the following day (November 24th), as well as on the 29th/30th, also caused by strong northwesterly winds.

In contrast, record cold afternoon conditions were experienced on October 4th/5th in many North Island locations, caused by very heavy snowfall and bitterly cold southeast winds over the central North Island, as well as on October 9th at several southern sites, associated with another snowfall event in the southeast South Island.

Extreme daily maximum air temperatures were recorded at:

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Comments
Kerikeri	26.4	Nov-30th	1981	2nd-highest
Whangarei	25.9	Nov-30th	1967	3rd-highest
Tauranga	28.6	Nov-24th	1913	Highest
Whakatane	32.1	Nov-24th	1975	Highest
Rotorua	27.3	Nov-24th	1964	Highest
Hastings	30.2	Nov-29th	1965	3rd-highest
Farewell Spit	24.4	Nov-24th	1971	3rd-highest
Dunedin	31.1	Nov-23rd	1947	Highest
Lumsden	24.4	Nov-23rd	1982	Equal 4th-highest
Balclutha	27.6	Nov-23rd	1964	2nd-highest
Nugget Point	27.9	Nov-23rd	1970	Highest
Kaitaia	11.7	Oct-05th	1972	2nd-lowest
Dargaville	11.0	Oct-05th	1951	Lowest
Whangarei	11.7	Sep-04th	1967	2nd-lowest
Warkworth	10.7	Oct-05th	1966	Equal lowest
Whangaparaoa	10.0	Oct-05th	1982	Lowest
Kumeu (Waitakere)	11.2	Oct-05th	1978	Lowest
Whenuapai	11.0	Oct-05th	1951	3rd-lowest
Tauranga	9.4	Oct-05th	1941	2nd-lowest
Rotorua	7.6	Oct-05th	1972	Equal lowest
Taupo	8.2	Oct-05th	1950	4th-lowest
Auckland	10.6	Oct-05th	1961	2nd-lowest
Hamilton	8.2	Oct-05th	1940	2nd-lowest
Port Taharoa	9.7	Oct-05th	1974	Lowest
New Plymouth	9.4	Oct-04th	1944	2nd-lowest
Takapau Plains	5.2	Oct-05th	1972	Lowest
Dannevirke	5.3	Oct-05th	1951	Lowest
Castlepoint	8.0	Oct-06th	1972	2nd-lowest
Ngawi	9.1	Oct-05th	1972	2nd-lowest
Napier	8.5	Oct-05th	1940	4th-lowest
Hastings	8.6	Oct-05th	1972	2nd-lowest
Palmerston North	8.1	Oct-05th	1940	4th-lowest
Ohakune	2.6	Oct-05th	1972	Lowest
Wanganui	8.5	Oct-04th	1987	Lowest
Farewell Spit	10.0	Sep-24th	1972	2nd-lowest
Reefton	6.4	Oct-09th	1972	2nd-lowest
Greymouth	8.5	Oct-09th	1972	4th-lowest
Cape Campbell	7.4	Oct-09th	1972	Equal 2nd-lowest
Kaikoura	6.0	Oct-09th	1972	Equal 3rd-lowest
Arthurs Pass	0.8	Oct-09th	1973	Lowest
Waipara West	5.6	Oct-09th	1973	Equal 2nd-lowest
Balclutha	6.5	Sep-02nd	1972	2nd-lowest

The lowest spring temperature of -7.2°C was recorded at Hanmer Forest on the 4th of September (not a record at this site).

Record low spring minimum temperature records were recorded right across New Zealand in the period September 4th – 6th, caused by an intense, slow moving anticyclone lying over the country which brought clear skies, light winds, and extreme frost conditions. In contrast, record high morning temperatures were experienced at several locations over the period November 21st – 24th, caused by strong northwesterly winds.

Extreme daily minimum air temperatures were recorded at:

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records began	Comments
Warkworth	1.2	Sep-06th	1966	Lowest
Whangaparaoa	5.4	Sep-05th	1982	Lowest
Kumeu (Waitakere)	-1.5	Sep-06th	1978	Lowest
Hamilton	-2.8	Sep-06th	1906	Equal 3rd-lowest
Port Taharoa	1.5	Sep-06th	1973	Lowest
Te Kuiti	-2.3	Sep-05th	1959	Lowest
Taumarunui	-4.2	Sep-05th	1947	2nd-lowest
Turangi	-5.0	Sep-05th	1968	Lowest
Martinborough	-2.9	Sep-05th	1986	3rd-lowest
Ngawi	2.7	Sep-05th	1972	Lowest
Paraparaumu Aero	-2.8	Sep-05th	1953	2nd-lowest
Levin	-2.3	Sep-05th	1895	3rd-lowest
Wallaceville	-4.0	Sep-06th	1939	Equal 3rd-lowest
Hawera	-2.7	Sep-05th	1977	Lowest
Wanganui	0.1	Sep-05th	1987	Equal lowest
Takaka	-0.9	Sep-06th	1978	4th-lowest
Blenheim	-3.5	Sep-05th	1932	Lowest
Christchurch	-3.9	Sep-04th	1863	2nd-lowest
Dunedin	-4.7	Sep-05th	1947	Lowest
Queenstown	-3.8	Sep-04th	1871	Equal 3rd-lowest
Lumsden	-4.8	Sep-04th	1982	2nd-lowest
Gore	-3.4	Sep-04th	1971	Equal 3rd-lowest
Kerikeri	17.0	Nov-23rd	1978	Equal 3rd-highest
Ohakune	13.9	Nov-24th	1972	3rd-highest
Lake Rotoiti	12.6	Nov-24th	1972	4th-highest
Waipara West	19.4	Nov-21st	1973	2nd-highest
Wanaka	15.7	Nov-21st	1972	2nd-highest
Lumsden	15.3	Nov-21st	1982	Equal 4th-highest
Cromwell	17.3	Nov-21st	1949	3rd-highest
Gore	15.7	Nov-21st	1972	3rd-highest

- **High winds and tornadoes**

The highest wind gust for spring was 184 km/hr, recorded at Southwest Cape (Stewart Island) on November 4th (a new November record at this site).

A 10 m twister caused havoc on an Invercargill farm on 2nd September, when it picked up water from a ditch throwing it as high as the power lines, and taking the corrugated roof off a shed.

A significant wind event occurred on September 14th, with widespread and record-high wind gusts experienced over the southern half of the South Island during a storm-force northwesterly event. Damage included felled power lines and lifted roofs on the Otago peninsula. Near Arrowtown, a tree felled by the wind, crashed on to a vehicle, killing the driver. Tara Hills recorded its highest spring gust since records began in 1985.

A tornado funnel cloud was reported over eastern Taranaki on 17th September, but dissipated before it touched the ground.

On 28th September, a tornado in Ramarama, south of Auckland, damaged properties, some severely, and uprooted trees.

Gusty cross-winds forced the closure of New Plymouth airport for 20 hours from 3 pm on 4th October. The strong winds also brought down trees and cut the power supply to about 1000 properties in Taranaki, particularly Okato, Oakura, and Hawera. Power was also cut to about 1200 homes in Rotorua district after

high winds brought down trees.

High winds on 5th October, together with the heavy snow, brought down trees and power poles in the central North Island, leaving about 1300 people without power. Some properties were without power for four days.

On November 4th, extreme winds were also experienced over parts of Fiordland, Southland, Central Otago and Canterbury, where a container ship was from its moorings at the port of Lyttelton.

On 13th November, strong winds caused havoc in Canterbury, grounding helicopters, felling trees, and downing power lines.

Winds at Masterton were too strong for three original World War I planes and 17 replicas to take to the skies at the Remembrance Day World War I Air Show, on November 14th.

On 15th November, gale force winds toppled the main food and wine tent at Toast Martinborough. Two more marquees were crumpled, signs were ripped from their posts, and power was knocked out at Ata Rangi vineyard.

Wind brought down trees and power lines down at Porangahau on November 26th, with gusts to 178 km/hr recorded at Castlepoint.

On November 27th, extreme winds were experienced in Central Otago and Southland. Caravans were knocked over in Canterbury on the 28th, and gusts to 130 km/hr were experienced in West Melton.

Extreme high wind gusts for spring were recorded at:

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records Began	Comments
Tara Hills	107	Sep-14th	1985	Highest
Lauder	132	Nov-04th	1981	Equal 3rd-highest

• **Snow and ice**

On 2nd September, snow closed the Crown Range Road, and both Cardrona and The Remarkables ski fields after 25-35 cm of fresh snow fell overnight. The Milford Road, and Old Coach Road from Matura to Clinton, were also closed in the morning.

SH2 over the Rimutaka Hill was closed by snow for several hours on 24 September. Heavy snow also fell in the Tararua district, closing both the Pahiatua Track and Saddle Road. The weight of the snow tore boughs from trees, interrupted power supplies, and some houses in Atea Valley were on low voltage power all night, meaning appliances like television sets, computers, fridges and freezers had to be turned off. In the Nelson region, SH60 was closed at Takaka Hill.

On 3 October, 20 cm of snow was reported to low levels in Fiordland and Southland. Coronet Peak ski field received 7 cm of fresh powder overnight on 2-3 October, while Treble Cone received 20 cm of snow, and Cardrona 15 cm.

Overnight, 4-5 October, several hundred motorists were stranded in up to 50 cm of snow along the Napier-Taupo Highway. Most were rescued by the army, but some spent the night in their vehicles. Snow was reported as far north as Te Aroha and Katikati, and on Mt Taranaki. Unexpected snow in the Motu-Matawai area, and further south at Te Pohue, caused significant losses in newborn lambs and calves.

Roads closed by snow on 5th October were SH1 between Turangi and Taihape, SH5 from Taupo to Napier, SH38 in the Urewera National Park, SH47 at Turangi, SH49 from its junction with SH4 to Waiouru. The Desert Road, Napier-Taupo Road and SH38 remained closed until 7 October.

On 6 October, Waikato residents woke to see snow on Mt Pirongia and Mt Te Aroha. A DoC ranger reported 15 cm of snow on the road up Mt Te Aroha, the heaviest fall since 1978. On Mt Taranaki, skiers could not reach the Manganui ski field because the access road was blocked by fallen trees. About 20-25 cm of snow covered the road. At North Egmont car park, a car was trapped in snow, forcing the owner to spend the night in the hut. Snow was also reported in the Rotorua district, for the first time in about 30 years.

Snow started falling in Central Otago on the evening of 8th October, and further north in Canterbury, it was reported in Darfield and Kirwee early in the morning of 9th October. Mt Hutt ski field received about 50 cm of new snow.

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