

National Climate Summary – Summer 2011: North Island and Nelson – short changed!

- **Sunshine: Record cloudy for much of North Island and Nelson/Marlborough.**
- **Rainfall: Wettest summer on record for Takaka and Nelson. Very wet across the North Island, Otago and South Canterbury. Extremely dry over southwest of South Island.**
- **Temperatures: A cooler than average summer between Timaru and Gisborne, as well as for the Central Plateau and Bay of Plenty. Warmer than usual for the West Coast of the South Island and Fiordland.**
- **Soil Moisture: Above normal by the end of summer for Auckland, Bay of Plenty, Taranaki, Tasman, Otago and south Canterbury. Below normal for coastal Southland, Fiordland, Wairarapa and southern Hawkes Bay.**

Summer (December 2011- February 2012) was characterised by more highs than usual near the Chatham Islands, and more lows than normal over the north Tasman Sea. This produced more northeasterly winds than usual over the country, consistent with the La Nina climate pattern present throughout the summer. December 2011 was notable for being extremely wet for the North Island and Nelson/Marlborough, with Takaka recording 392 mm on 14 December. In contrast, December was extremely dry over the west and south of the South Island. January was unusually cool, and February extremely cloudy, over much of the country.

It was an extremely cloudy summer across the North Island as well as in Nelson/Marlborough, with many records broken. Notably, it was the cloudiest summer on record for four of the six main centres (Auckland, Tauranga, Hamilton and Wellington). In contrast, it was sunny for the west and south of the South Island.

It was the wettest summer on record for Takaka and Nelson, with the summer rainfall totals about treble summer normal. Summer rainfall was also above normal or well above normal across most of the North Island, as well as in Otago and South Canterbury. In contrast, it was a rather dry summer over the west and south of the South Island. Soil moisture levels at the end of summer were above normal in Auckland, Bay of Plenty, Taranaki, Tasman, Otago and south Canterbury. In contrast, soils were drier than usual in coastal Southland, Fiordland, Wairarapa and southern Hawkes Bay by summer's end.

Below average summer mean temperatures (between 0.5°C and 1.2°C below average) were experienced in Canterbury, the Kaikoura Coast, Wellington and the Wairarapa, Hawkes Bay, Gisborne, the Central Plateau, Taupo and Bay of Plenty. Above average summer mean temperatures (between 0.5°C and 1.2°C above average) were observed for Fiordland and the West Coast. Elsewhere, temperatures were close to average. The nation-wide average temperature in summer was 16.2°C (0.4°C below the 1971–2000 summer average), using NIWA's seven-station temperature series which begins in 1909.

Further Highlights:

- The highest temperature was 31.7°C, observed at Lake Pukaki on 4 January.
- The lowest temperature was -0.9°C, at Ranfurly on 3 January.
- The highest 1-day rainfall experienced was 392 mm at Takaka on 14 December.
- The highest gust recorded was 185 km/hr at Rock and Pillar Range, Central Otago, on 31 January.
- Of the six main centres in summer 2011/2012, Tauranga was the warmest and sunniest, Hamilton the wettest and cloudiest, Christchurch the driest, and Dunedin the coolest.

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SUNSHINE: RECORD CLOUDY FOR MUCH OF THE NORTH ISLAND AS WELL AS NELSON/MARLBOROUGH. SUNNY OVER THE SOUTH AND WEST OF THE SOUTH ISLAND.

It was an extremely cloudy summer across most of the North Island as well as in Nelson/Marlborough, with many records broken (see Table below). Notably, it was the cloudiest summer on record for four of the six main centres (Auckland, Tauranga, Hamilton and Wellington). In contrast, it was a sunny summer for the west and south of the South Island (with summer sunshine totals generally in the range 105-115 percent of normal). Sunshine totals for summer were generally below normal for coastal Canterbury and the Kaikoura Coast (with between 75 and 89 percent of summer normal sunshine hours).

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

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Greymouth	662	123	1947	2nd-highest
Balclutha	673	130	1964	4th-highest
Kaitaia	554	86	1985	4th-lowest
Dargaville	477	78	1943	2nd-lowest
Auckland	479	75	1963	Lowest
Hamilton	478	75	1936	Lowest
Tauranga	579	83	1932	Lowest
Te Kuiti	483	88	1962	Lowest
Taumarunui	465	82	1947	Lowest
Turangi	479	79	1976	Lowest
Martinborough	536	83	1986	3rd-lowest
Wellington	534	79	1928	Lowest
Wallaceville	465	74	1939	2nd-lowest
Stratford	488	76	1963	Lowest
Takaka	548	81	1985	Lowest
Appleby	634	86	1948	4th-lowest
Blenheim	575	78	1947	Lowest
Cheviot	565	91	1983	4th-lowest

RAINFALL: WETTEST SUMMER ON RECORD FOR TAKAKA AND NELSON. VERY WET ACROSS THE NORTH ISLAND, AS WELL AS FOR OTAGO AND SOUTH CANTERBURY. EXTREMELY DRY OVER THE WEST AND SOUTH OF THE SOUTH ISLAND.

It was the wettest summer on record for Takaka and Nelson, with the summer rainfall totals about treble summer normal. An astounding 1310 mm of rainfall was recorded at Takaka over the summer. Nearly one third of this fell on just one day (14 December 2011), in a significant and extreme event in the region (see page 5 for more details). The 392 mm recorded at Takaka on that day was the highest 1-day rainfall for 2011 from the regularly reporting gauges and a new all-time record at Takaka.

Summer rainfall was also above normal or well above normal (at least 120 percent of summer normal) across most of the North Island, as well as in Otago and South Canterbury. In contrast, it was a rather dry summer over the west and south of the South Island. Seasonal rainfall totals were generally less than half of summer normal for Fiordland and the West Coast, and were below normal for coastal Southland and South Island alpine areas (between 50 and 79 percent of summer normal).

Soil moisture levels at the end of summer were above normal in Auckland, Bay of Plenty, Taranaki, Tasman, Otago and south Canterbury. In contrast, soils were drier than usual in coastal Southland, Fiordland, Wairarapa and southern Hawkes Bay by summer's end.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Te Puke	648	195	1973	3rd-highest
Hawera	411	186	1977	3rd-highest
Wanganui	352	177	1987	2nd-highest
Takaka	1310	341	1976	Highest
Nelson	561	278	1941	Highest
Appleby	509	253	1941	2nd-highest
Milford Sound	756	40	1929	3rd-lowest
Mt Cook	506	45	1928	4th-lowest
Manapouri	164	54	1961	4th-lowest
Tiwai Point	167	60	1970	4th-lowest

TEMPERATURE: A COOLER THAN AVERAGE SUMMER BETWEEN TIMARU AND GISBORNE, AS WELL AS THE CENTRAL PLATEAU AND BAY OF PLENTY. A WARMER THAN USUAL SUMMER FOR WEST COAST OF THE SOUTH ISLAND AND FIORDLAND.

Below average summer mean temperatures (between 0.5°C and 1.2°C below average) were experienced in Canterbury, the Kaikoura Coast, Wellington and the Wairarapa, Hawkes Bay, Gisborne, the Central Plateau, Taupo and Bay of Plenty. Above average summer mean temperatures (between 0.5°C and 1.2°C above average) were observed for Fiordland and the West Coast. Elsewhere, summer mean temperatures were close to average (within 0.5°C of the summer average).

The nation-wide average temperature in summer was 16.2°C (0.4°C below the 1971–2000 summer average), using NIWA’s seven-station temperature series which begins in 1909¹.

In particular, afternoon (maximum) temperatures were affected by the cloudy conditions and prevailing easterly winds during the summer. Extremely low maximum temperatures were recorded in summer for eastern areas of both Islands (see Table overleaf). Afternoon temperatures were, on average, the lowest on record for summer for Whitianga, Castlepoint and Orari. In contrast, Milford Sound and Manapouri enjoyed above average afternoon temperatures.

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

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Martinborough	10.7	-1.1	1986	3rd-lowest
Wanganui	11.8	-1.8	1937	3rd-lowest
Le Bons Bay	10.8	-0.3	1984	4th-lowest

¹ Interim seasonal value.

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

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Milford Sound	20.6	1.9	1934	4th-highest
Manapouri	21.0	1.2	1963	4th-highest
Kaitaia	22.5	-1.4	1985	2nd-lowest
Whitianga	22.3	-1.2	1962	Lowest
Te Puke	22.1	-0.9	1973	2nd-lowest
Rotorua	20.7	-1.6	1964	3rd-lowest
Taupo	20.7	-2.0	1949	3rd-lowest
Hamilton (Ruakura)	21.4	-2.2	1906	4th-lowest
Turangi	20.9	-1.4	1968	2nd-lowest
Takapau Plains	19.5	-1.9	1962	3rd-lowest
Dannevirke	19.8	-2.1	1951	2nd-lowest
Castlepoint	18.6	-2.5	1972	Lowest
Martinborough	21.2	-2.4	1986	2nd-lowest
Ngawi	20.3	-1.0	1972	3rd-lowest
Wanganui	19.9	-2.0	1937	4th-lowest
Cape Campbell	17.7	-3.6	1953	3rd-lowest
Culverden	20.5	-2.5	1928	4th-lowest
Cheviot	21.0	-1.1	1982	3rd-lowest
Le Bons Bay	17.2	-1.4	1984	4th-lowest
Orari Estate	19.2	-2.3	1972	Lowest

SUMMER CLIMATE IN THE SIX MAIN CENTRES

Summer rainfalls were well above normal for Auckland, Tauranga, Hamilton and Wellington, and it was a record cloudy summer at these four centres. Summer temperatures were below average for Auckland, Wellington, and Christchurch, and near average for Tauranga, Hamilton, and Dunedin.

Of the six main centres for summer 2011/2012, Tauranga was the warmest and sunniest, Hamilton the wettest and cloudiest, Christchurch the driest, and Dunedin the coolest.

Summer 2011/2012 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland ^a	18.8	-0.5	Below average	358	163%	Well above normal	479	75%	Lowest on record
Tauranga ^b	18.9	0.3	Near average	415	174%	Well above normal	579	83%	Lowest on record
*Hamilton ^c	17.8	0.1	Near average	437	165%	Well above normal	478 ^g	75%	Lowest on record
Wellington ^d	15.7	-0.7	Below average	375	171%	Well above normal	534	79%	Lowest on record
Christchurch ^e	15.7	-0.8	Below average	166	128%	Above normal	568	88%	Below normal
Dunedin ^f	14.5	-0.3	Near average	194	90%	Near normal	515	103%	Near normal

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

*Hamilton values based on 90 days of data instead of 91 days of data (rainfall and temperature only)

HIGHLIGHTS AND EXTREME EVENTS

- **Rain and slips**

The highest 1-day rainfall experienced in summer 2011/2012 was 392 mm at Takaka on 14 December. This was the highest 1-day rainfall for 2011 from any of the regularly reporting gauges and a new all-time record at Takaka.

Extraordinary rainfall totals were observed during this event, when a humid, northerly airstream affected the Nelson region on 14 December 2011, resulting in a State of Emergency being declared, as major flooding and land slips cut off coastal communities in Cable Bay and around Golden Bay. In Nelson city, more than 100 homes near rising rivers were evacuated. The Matai river walkway was closed, as were many urban and rural roads, isolating communities. The Coastal Highway, SH60, was closed at both Appleby Bridge and at Takaka Hill. Collingwood was cut off after the road was washed away at Birds Hill, and roads to Pakawau and Puponga were closed. A dam collapsed above Pohara Gully in Golden Bay.

On 15 December, schools in Golden Bay were closed after the extreme rainfall closed roads and damaged property. Many slips threatened properties in the Nelson region, and more homes were evacuated. Food was taken to Collingwood on an alternative four-wheel vehicle track. About 500 Tahunanui homes lost landlines after slips washed away power lines. Campers were trapped at the Totaranui Campground after mudslides closed the only access road. Pohara Beach Holiday Park was closed after its water and sewerage supplies were cut. On 16 December, many roads in Nelson, Waimea and Golden Bay remained closed, including SH60 from Takaka to Collingwood.

On 17 December, heavy rain caused a landslide which dislodged three cabins at the Oakura Bay Holiday Park. Several homeowners who lived above the slip were evacuated. In Rotorua, heavy rain caused surface flooding in several areas, including Te Ngae Road and Fairy Springs Road.

On 30 December, a band of very heavy rain crossed most of the country. In Wellington, low lying suburbs were flooded and the Moa Point sewage treatment plant was overwhelmed by the storm water, overflowing into Lyall Bay, resulting in the beach being closed to swimmers. In Nelson, a new slip again closed Rocks Road, and in Golden Bay, the Wainui River carved a new course, isolating a commune and flooding farmland.

On 31 December, continuing heavy rain caused the cancellation of many planned New Year's Eve celebrations, including those at Mt Maunganui, Palmerston North, and Wellington. Slips closed SH29 over the Kaimai Ranges, and SH2 between Whakatane and Opotiki. Many roads in the Nelson region remained closed. Near Whangamata, a car attempting to cross a ford was swept down river, but both occupants escaped unharmed.

On 7 and 8 January, a heavy band of rain affected most of the North Island, associated with a subtropical low which moved south over New Zealand. Flooding was reported in Waimarama in Hawke's Bay on the 8th, and power was lost to many homes in the greater Wellington area.

On 12 January Nelson and Golden Bay again experienced heavy rain.

Heavy rain on 13 January in Oamaru caused surface flooding, but the rain was generally welcomed after a long dry spell.

On 17 February, very heavy rain in Auckland caused flooding and damaged homes in Glen Eden and Titirangi. The storm caused the cancellation of a flight from Auckland to Wellington, and delays to some international flights as well as flights to Christchurch, Tauranga, and Blenheim. Flash floods also hit Taupo.

On 22 and 23 February, heavy rain in Otago flooded properties in Alexandra, and caused Shotover Jet in Queenstown to cancel boat trips because of high river levels. Dunedin Airport was closed for several hours, and rural roads in South Otago, and SH97 at Lowther in northern Southland, were closed by surface flooding. About 25 tourists were trapped at a camping ground at Trotter's Gorge near Hampden, and some groups in the Otago Goldfield's Heritage Trust Cavalcade Trail became stuck in the Nevis area. In the

Nelson area, slips came down on Cable Bay Road. Hospitals in both Rotorua and Taupo were flooded, with some patients having to be moved. One flight from Hamilton Airport was cancelled because of the conditions, and others delayed. On 24 February, many Otago roads remained closed.

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
Takaka	392	Dec-14th	1976	Highest
Nelson	168	Dec-14th	1941	Highest
Appleby	99	Dec-14th	1941	4th-highest
Naseby Forest	61	Jan-13th	1983	2nd-highest
Ranfurly	50	Jan-13th	1943	3rd-highest
Lumsden	45	Feb-23rd	1982	4th-highest
Alexandra	38	Feb-22nd	1983	4th-highest

• **Temperatures**

The highest temperature observed in summer 2011/2012 was 31.7°C, observed at Lake Pukaki on 4 January. The lowest temperature was -0.9°C, at Ranfurly on 3 January. An extremely unusual summer cold snap affected the North Island on 17 and 18 December (see Table below), with many records broken.

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Ranking
Stephens Island	26.4	Dec-27th	1973	Highest
Warkworth	14.4	Dec-18th	1966	2nd-lowest
Whangaparaoa	14.9	Dec-18th	1982	2nd-lowest
Whenuapai	15.1	Dec-18th	1951	Lowest
Henderson	15.5	Dec-18th	1971	2nd-lowest
Whitianga	16.0	Dec-18th	1971	2nd-lowest
Thames	14.2	Dec-18th	1957	Lowest
Paeroa	14.8	Dec-18th	1971	Lowest
Te Puke	15.9	Dec-18th	1973	Equal 2nd-lowest
Rotorua	13.1	Dec-18th	1972	2nd-lowest
Auckland	15.3	Dec-18th	1961	3rd-lowest
Pukekohe	15.8	Dec-18th	1969	3rd-lowest
Whatawhata	14.3	Dec-18th	1952	3rd-lowest
Hamilton	13.1	Dec-18th	1940	Lowest
Taumarunui	13.8	Feb-28th	1947	3rd-lowest
Masterton	11.5	Dec-17th	1943	3rd-lowest
Kopua	11.5	Dec-17th	1972	Equal 3rd-lowest
Takapau Plains	11.0	Dec-17th	1972	2nd-lowest
Dannevirke	11.4	Dec-17th	1951	Equal 2nd-lowest
Hicks Bay	14.5	Dec-18th	1972	Lowest
Waipawa	12.9	Dec-17th	1945	4th-lowest
Wallaceville	12.5	Dec-17th	1972	Equal 3rd-lowest
Stratford	11.3	Dec-17th	1972	2nd-lowest
Hawera	13.0	Dec-17th	1977	Lowest
Wanganui	13.8	Dec-17th	1972	4th-lowest
Motueka	15.0	Dec-06th	1972	Equal 3rd-lowest
Timaru	11.7	Dec-16th	1990	4th-lowest
Balclutha	12.2	Dec-07th	1972	4th-lowest

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

Location	Extreme minimum Temperature (°C)	Date of extreme temperature	Year records Began	Ranking
Kaitaia	21.3	Feb-23rd	1985	3rd-highest
Kerikeri	21.5	Feb-23rd	1981	2nd-highest
Kaikohe	22.2	Feb-23rd	1973	Highest
Whangarei	21.9	Feb-23rd	1967	3rd-highest
Arthurs Pass	15.0	Dec-14th	1978	Equal 3rd-highest
Naseby Forest	16.6	Dec-13th	1984	Highest
Balclutha	16.0	Dec-26th	1972	4th-highest
Martinborough	2.3	Feb-28th	1986	Equal 4th-lowest
Le Bons Bay	4.3	Jan-27th	1984	3rd-lowest

• Wind

The highest gust recorded during summer 2011/2012 was 185 km/hr at Rock and Pillar Range, Central Otago, on 31 January.

Funnel clouds were reported in Hamilton on 5 December, and Bulls and Sanson on 7 December.

On 8 January, gale force winds struck Taranaki, demolishing garden sheds, downing trees and power lines, and causing the cancellation of eight flights at New Plymouth Airport, and the closure of Todd Energy Aquatic Centre. Residents of Egmont Village, Rahotu, Whangamomona, and Strathmore lost power, some overnight. Trees were brought down, and power was also lost around Palmerston North. Three poplar trees fell across SH57 just north of Tokomaru, and in Palmerston North, Centennial Drive was blocked when a pine tree fell across both lanes. The Saddle Road, between Ashhurst and Woodville, the alternative route to the closed Manawatu Gorge, was blocked by fallen trees.

On 13 January, wind warnings were issued for SH1 between Blenheim and Kaikoura. In Wellington, flights were delayed by the strong winds, and further south, winds felled trees and damaged roofs in Buller, with power cuts to about 1000 consumers, mainly north of Westport. Flights were cancelled between Westport and Wellington. Trees were also blown down north of Auckland and in Lower Hutt, and power lines brought down in Wairoa.

On 15 January, two funnel clouds were spotted in Invercargill at about midday. They were present for five to ten minutes, but neither touched the ground to produce tornadoes.

On 26 January, wind warnings were issued for SH1 between Allanton and Gore, SH8 between Raes Junction and Milton, and SH90 between Gore and Raes Junction. In Wellington, strong winds disrupted flights, including the cancellation of the flight bringing back the Toi Moko from France to Te Papa. Near the airport, wind gusts snapped an electrified trolley-bus cable hitting a car.

On 28 January, gales battered Southland, causing property damage, and downing trees and power lines.

On 17 February, a tornado blew roofs off houses in the Taupo suburb of Paetiki.

On 23 February, gale force winds toppled trees in the Nelson region, closing roads for short periods. Two large yachts ended up on the beach at Anchorage in the Abel Tasman National Park after dragging their anchors, making it necessary to cut tangled anchor lines. In Motueka, power was cut to the central area.

Near-record high extreme wind gusts for summer were recorded at:

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year records began	Comments
Turangi	87	Jan-29th	1973	Equal 4th-highest
New Plymouth	104	Jan-08th	1972	3rd-highest
Castlepoint	159	Jan-27th	1972	2nd-highest
Palmerston North	96	Jan-08th	1991	3rd-highest
Hawera	96	Jan-13th	1986	2nd-highest
Westport	107	Jan-13th	1973	Equal 2nd-highest
Tara Hills	91	Jan-26th	1985	3rd-highest
Lauder	113	Jan-31st	1981	4th-highest

• Lightning, hail, thunderstorms

On 12 January, thunder and lightning moved across the Kapiti Coast, Manawatu, Whanganui and Taranaki. Thunder was also reported in Central Otago.

On 15 January, thunderstorms moved along the west coast from Taranaki to Kapiti.

On 15 February, a swarm of twisting waterspouts was reported over the Waitemata Harbour, Auckland, including one large waterspout that moved along the harbour edge past the central business district.

On 17 February, a severe thunderstorm moved over Auckland accompanied by heavy rain. Hail in Kaitia and Wellsford was so heavy, drivers were forced to stop at the side of the road.

On 20 February, a severe thunderstorm affected the Central North Island.

On 24 February, thunderstorms affected the West Coast of the South Island.

• Snow and ice

On 15 January, visitors to Coronet Peak played in the snow that blanketed the hills around Queenstown.

Snow was reported falling in Porters Pass and Arthurs Pass on 22 January.

On 26 January, very cold air brought snow showers to high Fiordland peaks, rural Ashburton, Central Otago, the Maniototo, and Canterbury high country, with 5-10 cm of snow at Mt Hutt ski fields. The road through Dansey's Pass was closed.

• Cloud and fog

On 13 January, low cloud caused the cancellation of some flights at Queenstown Airport.

On 15 February, heavy fog covered Hastings and Clive.

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