

Seasonal Climate Summary

National Climate Summary: **Summer 2012/13**

Issued: 6 March 2013

Very dry for the North Island. An extremely sunny summer across the country.

Rainfall	An extremely dry summer for much of the North Island. Many North Island regions recorded rainfall totals around half of summer normal. However, parts of Northland and north Auckland, the Bay of Plenty (including Taupo), Hawkes Bay and Wairarapa only received around one third of normal summer rainfall. Also rather dry for Westland and Canterbury. In contrast, wetter than usual for Marlborough and the Kaikoura coast, and around Mt. Cook.
Sunshine	Record high sunshine for regions south of Hamilton.
Temperature	Most regions experienced near average summer temperatures. Above average temperatures for many inland and eastern parts of the North Island, and some eastern areas of the South Island.
Soil moisture	As at 1 March, extreme deficit (more than 130 mm of deficit) evident in Northland, Auckland, Waikato, the Bay of Plenty region (including Taupo), Gisborne, Hawkes Bay, Wairarapa, between Wanganui and Palmerston North, parts of Marlborough, Canterbury, and Central Otago. Significant deficit (more than 110 mm of deficit) generally observed elsewhere in the North Island, the Waimea Plains and eastern Otago. An adverse event due to drought was declared in Northland on 27 February.

Click on the link to jump to the information you require:

[Overview](#)

[Rainfall](#)

[Sunshine](#)

[Temperature](#)

[Summer climate in the six main centres](#)

[Highlights and extreme events](#)

Overview

Summer was characterised by much higher pressures than normal over the Tasman Sea and New Zealand region, with more southwesterly airflow than normal over the country. The frequent 'highs' over the country produced a very sunny summer for most of the country, and extremely dry conditions over most of the North Island. On 27 February, a state of drought was declared in Northland.

It was an extremely dry summer for much of the North Island. Many North Island regions recorded rainfall totals around half (50%) of summer normal. However, parts of Northland and north

Auckland, the Bay of Plenty (including Taupo), and areas of the Hawkes Bay and Wairarapa only received around one third (33%) of normal summer rainfall. It was a record-dry summer for Whakatane, Taupo, Motu (Gisborne ranges), Masterton, and Waione (Taranua District). Other relatively dry regions included Canterbury and Westland, with below normal summer rainfall (between 50 and 70 percent of summer normal).

In contrast, South Taranaki through to Wellington experienced closer to normal summer rainfall, as did much of Otago, Southland and Fiordland. Marlborough and the Kaikoura Coast, as well the alpine area around Mt. Cook, experienced a wetter than usual summer.

As at 1 March 2013, extreme soil moisture deficit (more than 130 mm of deficit) was evident in Northland, Auckland, Waikato, the Bay of Plenty region (including Taupo), Gisborne, Hawkes Bay, Wairarapa, between Wanganui and Palmerston North, parts of Marlborough, Canterbury, and Central Otago. Significant soil moisture deficit (more than 110 mm of deficit) was generally observed elsewhere in the North Island, as well as the Waimea Plains, and across eastern Otago. An adverse event due to drought was declared in Northland on 27 February.

It was an extremely sunny summer for much of the country (south of Hamilton), with numerous summer sunshine records broken. It was the sunniest summer on record for Te Kuiti, Turangi, New Plymouth, Dannevirke, Martinborough, Hokitika, Greymouth, Mt Cook, Cheviot, Ashburton, Lake Tekapo, Cromwell, and Balclutha.

Most regions experienced near average temperatures for summer, with mean temperatures within 0.5°C of summer average. However, parts of Auckland, Waikato, Bay of Plenty, Hawkes Bay, Wairarapa, coastal Canterbury, Otago, and Southland recorded mean temperatures between 0.5°C and 1.0°C above average, and much of the Central North Island recorded temperatures between 1.0°C and 1.5°C above summer average. The nation-wide average temperature in summer 2012/13 was 17.0°C (0.4°C above the 1971-2000 summer average), using NIWA's seven-station temperature series which begins in 1909.

Further Highlights:

- The highest summer temperature was 35.1°C, recorded three times during summer: at Clyde on 5 January, and at Gisborne on both 9 and 10 January.
- The lowest temperature was -1.7°C, recorded at Motu on 1 December.
- The highest 1-day rainfall experienced was 346 mm, observed at Mount Cook on 9 January
- The highest gust recorded was 206 km/hr at Cape Turnagain, on 2 December.
- Of the six main centres in summer 2012/13, Auckland and Tauranga tied for the warmest, Tauranga was the sunniest, Christchurch was the driest, Wellington was the wettest, and Dunedin the coolest.

For further information, please contact:

Dr Richard Turner

Climate Modeller – NIWA National Climate Centre, Wellington

Tel. 04 3860315

Rainfall: An extremely dry summer for many regions of the North Island. Drought declared in Northland.

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In contrast, South Taranaki through to Wellington experienced closer to normal summer rainfall, as did much of Otago, Southland and Fiordland. Marlborough and the Kaikoura Coast, as well the alpine area around Mt. Cook, experienced a wetter than usual summer.

As at 1 March 2013, extreme soil moisture deficit (more than 130 mm of deficit) was evident in Northland, Auckland, Waikato, the Bay of Plenty region (including Taupo), Gisborne, Hawkes Bay, Wairarapa, between Wanganui and Palmerston North, parts of Marlborough, Canterbury, and Central Otago. Significant soil moisture deficit (more than 110 mm of deficit) was generally observed elsewhere in the North Island, as well as the Waimea Plains, and across eastern Otago. An adverse event due to drought was declared in Northland on 27 February.

Record¹ or near-record summer rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Record high or near-record high				
South West Cape	416	135	1991	3rd-highest
Record low or near-record low				
Kaitaia	164	59	1985	4th-lowest
Leigh	102	46	1966	3rd-lowest
Whangaparaoa	74	37	1946	3rd-lowest
Whakatane	83	33	1952	Lowest
Taupo	93	38	1949	Lowest
Motu	245	55	1990	Lowest
Auckland (Mangere)	98	45	1959	3rd-lowest
Auckland (Airport)	104	47	1959	4th-lowest
Te Kuiti	146	44	1950	2nd-lowest
Turangi	170	48	1968	2nd-lowest
Masterton	76	41	1992	Lowest

¹ The rankings (1st, 2nd, 3rd.etc) in 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 because of the practical limitations of performing homogeneity checks in real-time.

Takapau Plains	129	57	1962	4th-lowest
Waione	98	46	1991	Lowest
Mahia	122	57	1990	3rd-lowest
Ohakune	173	56	1961	4th-lowest
Secretary Island	917	88	1985	4th-lowest

Sunshine: Record high south of Auckland

It was an extremely sunny summer for much of the country (south of Hamilton), with numerous summer sunshine records broken. It was the sunniest summer on record for Te Kuiti, Turangi, New Plymouth, Dannevirke, Martinborough, Hokitika, Greymouth, Mt Cook, Cheviot, Ashburton, Lake Tekapo, Cromwell, and Balclutha.

Sunshine totals were generally well above normal (above 125 percent of summer normal) for the east coast of the North Island, Taranaki, Canterbury, Southland and Westland. Sunshine totals were above normal (between 110 and 125 percent of summer normal) elsewhere, with the exceptions of Northland and Auckland (where sunshine totals were closer to normal, ranging between 100 and 110 percent of summer normal).

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

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Te Kuiti	696	126	1962	Highest
Taumarunui	712	127	1947	2nd-highest
Turangi	710	115	1976	Highest
New Plymouth	861	126	1972	Highest
Dannevirke	754	125	1963	Highest
Martinborough	748	121	1986	Highest
Gisborne	814	119	1905	2nd-highest
Waipawa	766	137	1945	2nd-highest
Paraparaumu	806	123	1953	2nd-highest
Takaka	749	110	1985	3rd-highest
Hokitika	756	127	1912	Highest
Greymouth	737	135	1947	Highest
Nelson	836	113	1948	3rd-highest
Cheviot	833	133	1983	Highest
Mt Cook	628	121	1930	Highest
Ashburton	739	134	1930	Highest
Christchurch	754	116	1930	2nd-highest
Lake Tekapo	887	126	1928	Highest
Queenstown	807	122	1930	3rd-highest
Cromwell	855	119	1979	Highest
Invercargill	661	122	1932	2nd-highest
Balclutha	747	150	1964	Highest

Temperature: Near average summer temperatures for many regions. Above average temperatures for many inland and eastern parts of the North Island, and some eastern areas of the South Island.

Above average summer temperatures were recorded in parts of Auckland, Waikato, Bay of Plenty, Hawkes Bay, Wairarapa, coastal Canterbury, Otago, and Southland (with temperatures between 0.5°C and 1.0°C above average), and the Central North Island (with temperatures between 1.0°C and 1.5°C above summer average). Elsewhere, near average summer temperatures were generally observed (with mean temperatures within 0.5°C of the summer average). The nation-wide average temperature in summer 2012/13 was 17.0°C (0.4°C above the 1971-2000 summer average), using NIWA's seven-station temperature series which begins in 1909².

However, because of the numerous anticyclones ('highs') during summer, with their relatively clear skies and light winds, afternoon temperatures in summer were above average for many regions, and the frequency of 'hot days' (days with temperatures exceeding 25°C) was up for most areas of the country. Christmas Day temperatures were extremely high (and in many cases record hot), and it was the warmest day of the summer, nationally (averaging 21.8°C across the country). December 30th was the 2nd-warmest summer day this season nationally, with an average temperature of 20.0°C.

Near-record mean air temperatures for summer were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C) ³	Year records began	Comments
High records or near-records				
Leigh	20.6	1.3	1966	3rd-highest
Masterton	19.3	2.3	1992	Highest
Ohakune	16.5	1.6	1962	2nd-highest
Le Bons Bay	15.8	1.0	1984	4th-highest

² Interim seasonal value

³ This climate summary uses the updated 'normal' period, 1981-2010, unless otherwise stated. (A 'normal' period is a 30 year window of time from which the normal (average) and percentage of normal are calculated from).

Summer climate in the six main centres

Summer temperatures were above average in Tauranga and Dunedin, but near average in the other main centres. It was an extremely dry summer in Auckland (3rd driest summer on record), and Tauranga also recorded extremely low rainfall. It was also rather dry in Hamilton, Christchurch, and Dunedin. Sunshine was above summer normal in all of the main centres except Auckland and Hamilton (with near normal summer sunshine observed).

Of the six main centres in summer 2012/13, Auckland and Tauranga tied for the warmest; Dunedin was the coolest and cloudiest, Christchurch the driest (followed very closely by Auckland), Wellington the wettest, and Tauranga the sunniest (followed closely by Wellington).

Summer 2012/13 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	19.7	+0.4	Near average
Tauranga ^b	19.7	+0.6	Above average
Hamilton ^c	18.4	+0.4	Near average
Wellington ^d	16.9	+0.4	Near average
Christchurch ^e	17.0	+0.4	Near average
Dunedin ^f	15.4	+0.7	Above average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	98	45%	3 rd driest summer in records since 1959
Tauranga ^b	114	44%	9 th driest summer in records since 1898
Hamilton ^c	166	63%	11 th driest summer in records since 1935
Wellington ^d	224	98%	Near normal
Christchurch ^e	96	76%	Below normal
Dunedin ^f	156	71%	Below normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Auckland ^a	656	105%	Near normal
Tauranga ^b	772	110%	6 th sunniest summer in records since 1932
Hamilton ^g	665	103%	Near normal
Wellington ^d	760	112%	5 th sunniest summer in records since 1928
Christchurch ^e	755	116%	2 nd sunniest summer in records since 1930
Dunedin ^f	612	121%	5 th sunniest summer in records since 1947

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

Highlights and extreme events

Rain and slips

The highest 1-day rainfall experienced in summer 2012/13 was 346 mm, observed at Mount Cook on 9 January.

On 6 December, heavy rain caused flooding, closing SH18 between Tauhinu Road and Westgate, the major link between North Shore and west Auckland. Flash flooding affected many minor roads particularly in the Hobsonville and Whenuapai areas. The storm caused delays and cancellations of flights into and out of Auckland International Airport. Near Rotorua, intense rain caused flash flooding in Ngongotaha, sweeping a caravan about 50 m from its berth. In the Reporoa area, the storm uprooted trees, flooded roads and paddocks, and damaged driveways.

On 7 December, heavy rain caused the Heathcote River in Christchurch to burst its banks.

On 18 December, a slip caused delays on SH6 between Inangahua Junction and Westport.

On 30 December, brief but intense heavy rain, thunder and lightning, affected Dunedin about 4pm causing stormwater systems to back up and floodwaters to lap at the front doors of Mosgiel shops. Dunedin firefighters were kept busy with about eight water-related callouts in about 40 minutes.

On 1 January 2013, the Milford Track was closed after heavy rainfall overnight. The Arthur and Clinton rivers were flooded across the track in several places, with the Arthur having reached record levels. About 120 stranded trampers already on the track had to hunker down in Department of Conservation huts for two nights, and no new walkers joined the trail. In addition, one tramper had to be airlifted from the Kepler Track with hypothermia. The trampers were able to resume their walk on 2 January.

On 2 January, extreme rain on the West Coast resulted in a washout of the Whanganui River Bridge on SH6 near Harihari. The bridge also carried the fibre optic cables, cutting all telecommunications to Westland. South Westland dairy farmers were forced to dump their milk. Cell towers at Fox Glacier, Franz Josef and Mt Hercules were also damaged. SH6 was also blocked by a slip between Inangahua and Westport in the lower Buller Gorge. Flooding closed sections of SH73 from Cass, through Arthur's Pass to Otira.

On 9 January, the Milford Track was closed again because of extremely intensive rain and high winds. The Clinton River flooded the track with water waist-deep and storm-force winds affected Mackinnon Pass. Flooding closed SH94 between Lumsden and Te Anau, and a washout closed SH6 4 km north of Makarora. Gore's northern and western suburbs were flooded, with water coming very close to residential property, but no houses had to be evacuated. Cars on the road to Milford Sound were stopped at Cascade Creek because of fears of flooding. Further north, Shotover Jet, Dart River Jet and Skippers Canyon Jet operations were suspended, and some flood-prone roads were closed.

On 10 January, one lane of SH73 was closed by a slip between Cass and Arthur's Pass. Flooding affected SH73 between Arthur's Pass and Springfield, SH94 between Lumsden and Te Anau, SH6 at

the intersection with Harvey Road and also between Invercargill and Winton, SH96 at the intersection with Murchison Road, SH1 near Gore and between Mataura and Invercargill, SH94 at Croyden, and SH99 between Invercargill and Wallacetown. Many secondary roads across Southland were also closed by flooding. Rafting and kayaking operations in Otago were closed.

On 11 January both the Routeburn Track and the Milford Track were closed after heavy rain caused flooding. In Gore, the Mataura River burst its banks, and many more Southland roads were closed.

On 14 January, heavy rain caused surface flooding on SH1 near Paekakariki, disrupting commuter traffic heading south. In Nelson, heavy rain caused flooding in several homes and businesses in the city, and several local roads were closed. The Waimea River burst its banks and a group of tourists had to be rescued when their campervans, parked on the river bed, were swept downstream. In Golden Bay, the Wainui River overflowed, closing the road between Totaranui and Takaka.

On 15 January, Tahunanui Beach was closed to swimmers because the heavy rain of the 14th caused sewage overflows into Waimea Inlet. Heavy rain in Christchurch caused the Avon River to swell, with water flooding on to streets in Avondale and New Brighton. In the Wellington region, downpours caused surface flooding in Porirua city, Titahi Bay and Wellington city.

On 16 January, Wellington region beaches at Lyall Bay, Island Bay, Sorrento Bay, Rona Bay and Riversdale Lagoon were closed for swimming after heavy rain caused street rubbish to be washed through the storm water system, increasing the likelihood of bacterial infections.

On 17 January, Picton beaches were closed for swimming after heavy rain caused sewage to flow into the ocean. In Wellington, Island Bay beach remained closed. Trains on the steep Johnsonville line in Wellington were slower than usual because the heavy rain had made the tracks slippery.

On 4 February, a thunderstorm with accompanying heavy rain caused localised flooding and slips in the Wellington region. Slips closed the Akatarawa Road between Waikanae and Upper Hutt, and also affected the Rimutaka Hill section of SH2, but the road remained open. Traffic had to be diverted around a flooded section of SH1 at Paekakariki during the early hours of 5 February. One plane was unable to land at Wellington Airport and was diverted to Christchurch. In Queenstown, after heavy rain overnight and during the morning, a large macrocarpa tree fell on to the road, just missing a motorist.

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	111	Jan-14th	1986	4th-highest
Kaikoura Plains	53	Jan-14th	1980	4th-highest
Mt Cook	346	Jan-9th	1928	4th-highest
Manapouri	66	Jan-9th	1963	4th-highest
Lumsden	68	Jan-9th	1982	Highest

Temperatures

The highest summer temperature was 35.1°C, recorded three times during the January: at Clyde on 5 January, and at Gisborne on both 9 and 10 January. The lowest temperature recorded in summer was -1.7°C, recorded at Motu on 1 December.

Ex-Tropical Cyclone Evan slowly approached the northern North Island between 22 and 27 December, dragging very warm and humid subtropical air onto the country. Humidity levels were very high during this period over the North Island. The northeast air stream also produced extremely high Christmas Day and Boxing Day temperatures in western areas which were in the 'lee', namely Taranaki to Wellington, as well as Nelson. Elsewhere, numerous extreme maximum temperature records occurred during the week around Christmas due to warm windy northwesterly conditions.

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				
Leigh	29.8	Jan-24th	1966	Highest
Whakatane	32.5	Jan-7th	1975	2nd-highest
Port Taharoa	31.4	Dec-24th	1973	Highest
New Plymouth	30.6	Jan-6th	1944	Highest
Masterton	33.5	Feb-2nd	1992	Highest
Takapau Plains	31.5	Jan-10th	1962	Equal 2nd-highest
Waione	33.3	Feb-1st	1991	Equal 4th-highest
Waipawa	34.6	Jan-10th	1945	Highest
Paraparaumu	29.3	Dec-24th	1953	2nd-highest
Mana Island	28.6	Dec-25th	1987	2nd-highest
Wellington (Airport)	29.6	Dec-25th	1962	2nd-highest
Franz Josef	27.1	Dec-24th	1982	4th-highest
Puysegur Point	24.7	Jan-30th	1978	4th-highest
Stephens Island	26.8	Dec-25th	1973	Highest
Motueka	31.9	Dec-25th	1956	2nd-highest
Mt Cook	32.8	Jan-5th	1929	Highest
Clyde	35.1	Jan-5th	1973	Equal 3rd-highest
Lumsden	29.6	Jan-30th	1982	4th-highest
Nugget Point	29.4	Jan-5th	1970	4th-highest
Low records or near-records				
Port Taharoa	16.6	Dec-2nd	1974	Equal 3rd-lowest
Ohakune	10.8	Feb-5th	1972	4th-lowest
Okarito	13.0	Dec-6th	1983	Equal 4th-lowest
Franz Josef	11.2	Dec-6th	1982	Equal 3rd-lowest
Secretary Island	11.8	Dec-6th	1989	Equal 3rd-lowest
Motueka	14.5	Jan-15th	1972	3rd-lowest

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				
Kerikeri	4.8	Dec-21st	1981	Lowest
Taupo	-1.1	Dec-1st	1949	2nd-lowest
Motu	-1.7	Dec-1st	1990	Lowest
Turangi	0.2	Dec-1st	1968	3rd-lowest
Hicks Bay	5.7	Dec-1st	1969	Equal lowest
Wairoa	4.5	Dec-1st	1964	Equal 3rd-lowest
Le Bons Bay	3.7	Dec-1st	1984	Lowest
Balclutha	-0.2	Feb-22nd	1964	2nd-lowest
High records or near-records				
Port Taharoa	20.8	Dec-25th	1974	3rd-highest
Masterton	19.9	Jan-14th	1992	4th-highest
Gisborne	24.7	Jan-14th	1940	Highest
Waipawa	20.6	Jan-15th	1945	2nd-highest
Waiouru	17.0	Dec-30th	1972	4th-highest
Takaka	20.3	Dec-26th	1978	2nd-highest
Puysegur Point	18.6	Feb-1st	1978	Highest
Nelson	20.9	Dec-26th	1943	Highest
Waiau School	21.8	Jan-10th	1974	Highest
Lumsden	19.4	Feb-10th	1982	2nd-highest
Balclutha	16.5	Dec-16th	1972	4th-highest
South West Cape	15.7	Feb-2nd	1991	2nd-highest

Wind

The highest gust recorded in summer 2012/13 was 206 km/hr at Cape Turnagain, on 2 December.

On 2 December, strong winds caused property damage in Featherston.

On 5 December, strong winds in the Wellington region damaged property and brought down trees and power lines.

On 13 December, strong winds associated with a lightning storm, damaged property in Nelson, particularly in the Stoke area, with many trees uprooted, including historic trees in Isel Park. A tulip tree, possibly the biggest in the southern hemisphere, split and fell, squashing a 150-year-old fig tree, and a giant oak was uprooted. At Nayland Primary School, branches were torn off trees, and the telegraph poles holding up the shade sails over the playground were ripped off at ground level.

On 14 December, a twister moved through Cromwell, damaging property and uprooting at least one large tree.

On 31 December, strong winds forced Wellington City Council to cancel its midnight fireworks display at the last minute due to the strong northerly winds that would have sent the fireworks off 'sideways'.

On 2 January, strong winds caused delays, cancellations and diversions of flights into and out of Wellington Airport. In the suburb of Johnsonville, power lines crashing together caused a power cut. A power pole was also blown over in Seatoun.

On 3 January, strong winds in Wairarapa blew trees down on to power lines, cutting power to about 500 homes. In Marlborough, the wind blew over trees up to 80 years old, and stirred dust clouds. In Ashburton, a small twister uprooted 30-year old birch trees and scattered debris across fairways at a golf course.

On 7 January, campers at Hahei on the Coromandel Peninsula had to take shelter after high winds destroyed tents, brought down power poles, and upturned picnic tables. Power was out for several hours. In Waihi, the fire brigade was called to help pull down a large marquee at the Waihi Beach Hotel after it was destroyed by high winds. Trees were blown down in Auckland, Hamilton, Whangamata and Turangi. In Renwick, a woman narrowly avoided being flattened inside her car when an 8 m tree was uprooted by strong winds. Near Nelson, a man suffered head injuries after an alloy dinghy became airborne in high winds in the Abel Tasman National Park. Trees in the Nelson area were uprooted, including Tahunanui Drive and Aniseed Valley. Roofing blew off commercial and domestic buildings, including one at Nelson Airport, and about 30 tents were taken down at the Tahunanui Camping Ground. Strong winds also buffeted Manawatu, bringing down power lines and cutting power to more than 1000 homes around Feilding and Sanson. The winds also brought down a high-voltage wire in Halcombe, causing a small grass fire.

On 9 January, wind warnings were issued for SH73 at Arthur's Pass and SH7 at Lewis Pass. Rangers had to escort trampers over the alpine section of the Kepler Track because of the extreme winds buffeting the high country.

On 10 January, motorists were advised not to use SH2 over the Rimutaka Hill because of severe gales. Two accidents occurred when a motorcyclist was blown from his bike, and a caravan towed by a car rolled onto its side. Flights into and out of Wellington were affected, with about ten domestic flights cancelled or delayed, and one international flight diverted to Auckland. In the city, trees were brought down, property was damaged, cyclists were advised to use other forms of transport, and walkers were told the town belt walks could be hazardous because of flying pine cones. In Nelson, the wild weather delayed the departure of a coastal tanker, kept a luxury charter yacht in port, and disrupted the national P-class yachting regatta on most days. The persistent winds over the Nelson province since the start of the year had also damaged horticultural crops, with boysenberries, raspberries, plums, pears, apples, kiwifruit, and vegetables affected.

On 11 January, a twister was reported in Kaikoura, cutting power when flying roof iron brought down the lines, uprooting trees and causing property damage. In South Canterbury, the wind uprooted trees, including some toppled on to SH79 near Fairlie.

On 12 January, the strong winds caused problems at a kite festival in Wanaka, with conditions too rough for the biggest kites.

On 13 January, wind warnings were issued for SH73 between Arthur's Pass and Springfield. Further south, the wind demolished tents and threatened a large marquee at the Venture South Scout camp in Riverton. Bad weather also caused the cancellation of several planned activities.

On 23 January, a mini-tornado was reported to have ripped the roof off a house in Waipukurau.

On 5 February wind warnings were issued for SH6 between Harihari and Haast. In Rotorua, the wind brought down trees and blew branches on to shops in Pukuatua Street. In New Plymouth, flights were delayed and some flights were diverted to Palmerston North and Wanganui.

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

Location	Extreme wind gust (km/h)	Date of extreme gust	Year records began	Comments
Turangi	104	Jan-8th	1973	Highest
Castlepoint	172	Dec-2nd	1972	2nd-highest
Wanganui	98	Jan-7th	1977	3rd-highest
Nelson	95	Jan-2nd	1972	Equal 3rd-highest
Winchmore	96	Jan-10th	1970	4th-highest

Lightning, hail and tornadoes

On 2 December, a rare form of lightning storm crossed Wellington and Wairarapa, with cloud-to-cloud lightning bolts. The NIWA electronic weather station at Baring Head was destroyed by the lightning.

On 6 December, a tornado, struck west Auckland and the North Shore. The wind brought down trees and flung them over the motorway, along with panels ripped from beside the motorway. Three people were killed by falling slabs of concrete at a construction site. Several people were injured and required hospital treatment. Property damage was reported across the region and power was cut to Hobsonville, Henderson, Greenhithe and Riverhead. Auckland Transport suspended several bus services because of the extreme weather. Lights were blown down on the Upper Harbour motorway near Whenuapai. About 250 people were evacuated from damaged homes, and looked after at Whenuapai Airforce Base. Many homes were damaged beyond repair. Near Rotorua, a twister brought down trees and power lines, damaged property, sent calves flying, injured horses and trapped children at a remote riding school. Lightning was reported to have killed eight young cows on a Reporoa farm, and hail cause significant damage to fruit crops in the Nelson area.

On 13 December, a severe lightning storm struck Nelson, knocking out power in many areas.

Cloud and fog

On 2 December, low cloud and fog caused cancellations and delays of flights into and out of Wellington Airport.

On 5 December, low cloud and heavy rain near St Arnaud, caused the cancellation of an RNZAF helicopter training exercise.

On 18 December, fog caused the cancellation of several flights into and out of Wellington Airport, causing disruptions at other airports around the country. Low cloud also affected Nelson Airport, and sea fog closed New Plymouth Airport. In Christchurch, a rare rainbow cloud, formed when the sun is high in the sky and shines through ice particles in high-level cirrus clouds, was visible for about 30 minutes in the middle of the day.

On 19 December, fog again covered Wellington, but it did not affect flights.

On 23 December, thick fog and low cloud caused delays and cancellations to more than 100 flights in and out of Wellington Airport during the afternoon and evening. Flights were resumed at 9am on the 24th.

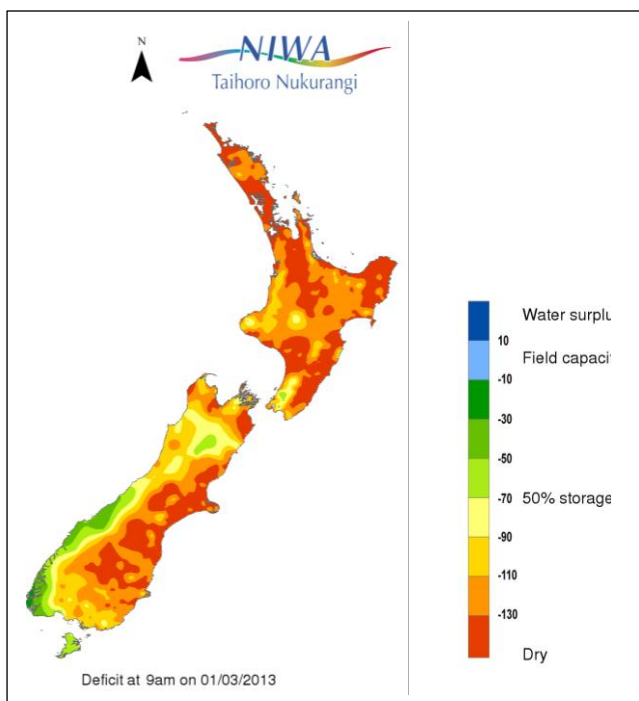
For further information, please contact:

Dr Richard Turner

Climate Modeller – NIWA National Climate Centre, Wellington
Tel. 04 3860315

Ms Petra Chappell

Climate Analyst - NIWA National Climate Centre, Auckland
Tel 09 375 2052



Soil moisture deficit map as at 1 March 2013. Red colours depict extremely dry soils (extreme deficit, more than 130 mm of deficit) and dark orange colours show significantly dry soils (significant deficit, more than 110 mm of deficit).

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