

## A warm spring with near normal rainfall for many.

|                      |   |
|----------------------|---|
| <b>Temperature</b>   | A warm spring for the country, with record or near record -high spring temperatures occurring in many parts of the country, but especially so for the North Island. Well above average mean temperatures (more than 1.2°C above the spring average) were recorded in parts of Northland, Auckland, Bay of Plenty, Hawke's Bay, Taranaki, Manawatu, Wairarapa, Nelson and Marlborough. The nation-wide mean temperature was 0.9°C above the spring average, based on NIWA's seven-station temperature series, making this the equal third-warmest spring on record since 1909. |
| <b>Rainfall</b>      | Spring rainfall was near normal (between 80 and 120 percent of normal) across many parts of New Zealand. However, rainfall was above normal (more than 120 percent of normal) in parts of the Central Plateau, Wairarapa, Tasman, the Kaikoura Coast, inland Canterbury along the Southern Alps, and western Southland. Below normal rainfall (less than 80 percent of normal) occurred in parts of Northland, Bay of Plenty, southwest Waikato, Banks Peninsula, coastal mid-Canterbury and Dunedin.   |
| <b>Soil Moisture</b> | As at 1 December 2013, soils were much drier than normal in Northland, Auckland, and Waikato, but much wetter than normal along the southeast of the North Island. Elsewhere, soils were typically wetter than normal for remaining parts of the North Island, and drier than normal across most of the South Island.   |
| <b>Sunshine</b>      | Spring sunshine hours were well above normal (more than 125 percent of spring normal) about northern Fiordland and southern Westland, and above normal (110-125 percent of spring normal) for parts of western Southland, and much of the North Island. Near normal sunshine hours were experienced in remaining areas of the country (sunshine hours within 10 percent of spring normal).  |

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

[Overview](#)

[Temperature](#)

[Rain](#)

[Sunshine](#)

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

[Highlights and extreme events](#)

## Overview

Lower pressures than normal dominated the New Zealand region during September and October, particularly to the south of the country. This resulted in more westerly quarter airflows than usual across New Zealand during these months. These airflows were often very strong, as is typical of the spring months. Of particular note were two damaging wind events, the first occurring on 10-11 September and the second on 14 October. These storms were notable because the winds associated with them were particularly strong, and damage was widespread across numerous regions (see highlights and extreme events section for further details). November was a relatively calm month by comparison. This was due to pressure anomalies that were strongly positive over the South Island during this time, with such anomalies extending well east, west and south of New Zealand. Across northern New Zealand, pressure anomalies were below normal. These regional pressure patterns in November resulted in frequent easterly flows across New Zealand.

Following on from the warmest winter on record, New Zealand also experienced a warm spring. The nation-wide average temperature in spring 2013 was 13.0°C (0.9°C above the 1971-2000 spring average). Using NIWA's seven-station temperature series which begins in 1909, spring 2013 was the equal third-warmest spring on record for New Zealand to date. It was a particularly warm spring for parts of Hawke's Bay, where mean temperatures were more than 1.5°C above average. Well above average temperatures (more than 1.2°C above the spring average) occurred in parts of Northland, Auckland, Bay of Plenty, Gisborne, Hawke's Bay, Taranaki, Manawatu, and Wairarapa. Most remaining areas of the North Island recorded above average temperatures (0.5-1.2°C above the spring average), with the exception of the Far North, and parts of Waikato and Wellington where temperatures were near average (within 0.5°C of spring average). In the South Island, temperatures were above average for many areas, but especially about more western and northern parts. Temperatures were well above average in parts of Nelson and Marlborough. In contrast, near average spring temperatures were recorded in some inland and eastern parts of Canterbury, and eastern parts of Otago.

Overall, near normal rainfall for spring was recorded across many parts of New Zealand (between 80 and 120 percent of normal spring rainfall). However, it was wetter than normal in some parts, especially about the southeast of the North Island and the southwest of the South Island. Rainfall was above normal (more than 120 percent of normal spring rainfall) in parts of the Central Plateau, Wairarapa, Tasman, the Kaikoura Coast, inland Canterbury along the Southern Alps, and western Southland. Below normal rainfall (less than 80 percent of normal spring rainfall) occurred in parts of Northland, Bay of Plenty, southwest Waikato, Banks Peninsula, coastal mid-Canterbury and Dunedin.

As at 1 December 2013, soils were much drier than normal in Northland, Auckland, and Waikato, but much wetter than normal along the southeast of the North Island. Elsewhere, soils were typically wetter than normal for remaining parts of the North Island, and drier than normal across most of the South Island.

Sunshine hours for spring were well above normal (more than 125 percent of spring normal) about northern Fiordland and southern Westland, and above normal (110-125 percent of spring normal) for parts of western Southland, and much of the North Island, north of and including the Wairarapa.

Near normal sunshine hours were experienced in remaining areas of the country (sunshine hours within 10 percent of spring normal).

#### Further Highlights:

- The highest temperature was 30.3°C, recorded at Clyde on 19 November.
- The lowest temperature was -6.4°C, observed at Albert Burn (near Wanaka) on 14 September.
- The highest 1-day rainfall was 253 mm, recorded at Mount Cook on 10 September.
- The highest wind gust was 167 km/hr, at Mt Kaukau, Wellington, on 14 October.
- Of the six main centres in spring 2013, Auckland was the warmest, Wellington was the wettest, Tauranga was the sunniest, and Dunedin was the coolest, driest, and cloudiest.

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### Temperature: A warm spring, especially about the North Island and northern parts of the South Island.

It was a warm spring for many parts of the country, with 37 locations recording record or near record -high mean temperatures. Nine locations recorded record mean maximum air temperatures, whilst four locations recorded record mean minimum air temperatures. Of particular note this spring was Stratford in Taranaki, which recorded both its highest mean maximum and minimum air temperatures for spring since records began there in 1960. The nation-wide average temperature in spring 2013 was 13.0°C (0.9°C above the 1971-2000 spring average, using NIWA's seven-station temperature series which begins in 1909).

#### Record<sup>1</sup> 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 |                     |                            |                    |             |
| Dargaville                   | 16.0                | 1.7                        | 1943               | 3rd-highest |
| Whangarei                    | 15.8                | 0.9                        | 1967               | 3rd-highest |

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<sup>1</sup> The rankings (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>.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.

|                          |      |     |      |             |
|--------------------------|------|-----|------|-------------|
| Whangaparaoa             | 15.2 | 0.6 | 1982 | 2nd-highest |
| Tauranga                 | 15.5 | 1.4 | 1913 | 2nd-highest |
| Te Puke                  | 14.7 | 1.3 | 1973 | Highest     |
| Whakatane                | 14.5 | 1.1 | 1974 | 4th-highest |
| Motu                     | 12.0 | 1.8 | 1990 | Highest     |
| Auckland (Mangere)       | 15.7 | 1.2 | 1959 | 2nd-highest |
| Hamilton (Ruakura)       | 14.3 | 1.1 | 1906 | 4th-highest |
| Masterton                | 13.8 | 1.7 | 1992 | Highest     |
| Dannevirke               | 13.4 | 1.5 | 1951 | Highest     |
| Waione                   | 14.3 | 1.0 | 1991 | Highest     |
| Ngawi                    | 14.5 | 0.7 | 1972 | 3rd-highest |
| Hicks Bay                | 14.9 | 1.0 | 1969 | 4th-highest |
| Gisborne                 | 15.5 | 1.7 | 1905 | 2nd-highest |
| Hastings                 | 14.8 | 2.2 | 1965 | 3rd-highest |
| Waipawa                  | 13.5 | 1.3 | 1945 | 3rd-highest |
| Mahia                    | 14.4 | 1.1 | 1990 | Highest     |
| Paraparaumu              | 13.3 | 0.9 | 1953 | 4th-highest |
| Palmerston North         | 13.9 | 1.4 | 1928 | 2nd-highest |
| Levin                    | 13.4 | 0.9 | 1895 | 4th-highest |
| Stratford                | 12.3 | 1.3 | 1960 | Highest     |
| Hawera                   | 12.8 | 1.0 | 1977 | Highest     |
| Wanganui                 | 14.5 | 1.1 | 1937 | 4th-highest |
| Farewell Spit            | 14.2 | 1.0 | 1971 | Highest     |
| Reefton                  | 12.7 | 1.3 | 1960 | Highest     |
| Secretary Island         | 11.4 | 0.4 | 1985 | 4th-highest |
| Nelson                   | 13.7 | 1.3 | 1943 | 3rd-highest |
| Blenheim                 | 14.1 | 1.2 | 1941 | 2nd-highest |
| Kaikoura                 | 12.7 | 0.9 | 1963 | 3rd-highest |
| Waiau School             | 12.5 | 1.2 | 1974 | 4th-highest |
| Cheviot                  | 12.2 | 0.9 | 1982 | 2nd-highest |
| Christchurch (Riccarton) | 13.0 | 0.9 | 1863 | 4th-highest |
| Le Bons Bay              | 11.2 | 0.6 | 1984 | 3rd-highest |
| Ranfurly                 | 9.8  | 0.7 | 1975 | 2nd-highest |
| Gore                     | 10.8 | 0.9 | 1971 | 3rd-highest |
| Nugget Point             | 10.8 | 0.9 | 1970 | 2nd-highest |

**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 |                             |                            |                    |             |
| Kerikeri                     | 20.0                        | 0.8                        | 1981               | 2nd-highest |
| Kaikohe                      | 18.3                        | 1.2                        | 1973               | 2nd-highest |
| Dargaville                   | 19.7                        | 2.1                        | 1943               | 4th-highest |
| Whangarei                    | 20.2                        | 1.3                        | 1967               | 2nd-highest |

|                      |      |     |      |             |
|----------------------|------|-----|------|-------------|
| Whangaparaoa         | 18.9 | 1.0 | 1982 | Highest     |
| Auckland (Whenuapai) | 19.0 | 1.0 | 1945 | 3rd-highest |
| Tauranga             | 19.9 | 1.6 | 1913 | Highest     |
| Te Puke              | 19.6 | 1.3 | 1973 | 2nd-highest |
| Whakatane            | 19.6 | 1.2 | 1974 | 3rd-highest |
| Motu                 | 17.6 | 2.9 | 1990 | Highest     |
| Auckland (Mangere)   | 19.3 | 1.6 | 1959 | 2nd-highest |
| Hamilton (Ruakura)   | 20.6 | 2.5 | 1906 | 2nd-highest |
| Hamilton (Airport)   | 19.0 | 0.9 | 1946 | 3rd-highest |
| Turangi              | 17.7 | 1.3 | 1968 | Highest     |
| Masterton            | 19.2 | 1.1 | 1992 | Highest     |
| Dannevirke           | 18.2 | 1.9 | 1951 | 2nd-highest |
| Waione               | 19.0 | 0.7 | 1991 | 4th-highest |
| Ngawi                | 17.6 | 0.6 | 1972 | 4th-highest |
| Hicks Bay            | 18.2 | 1.3 | 1969 | 3rd-highest |
| Gisborne             | 20.4 | 1.4 | 1905 | 4th-highest |
| Waipawa              | 19.0 | 1.5 | 1945 | 3rd-highest |
| Mahia                | 17.5 | 1.1 | 1990 | 2nd-highest |
| Paraparaumu          | 17.1 | 1.0 | 1953 | 2nd-highest |
| Palmerston North     | 18.1 | 1.3 | 1928 | 3rd-highest |
| Levin                | 17.5 | 1.1 | 1895 | 3rd-highest |
| Stratford            | 16.4 | 1.1 | 1960 | Highest     |
| Wanganui             | 18.6 | 1.6 | 1937 | 2nd-highest |
| Takaka               | 18.3 | 0.6 | 1978 | 4th-highest |
| Reefton              | 18.0 | 1.3 | 1960 | 4th-highest |
| Motueka              | 19.4 | 1.6 | 1956 | 2nd-highest |
| Nelson               | 18.3 | 1.4 | 1943 | Highest     |
| Appleby              | 18.2 | 1.0 | 1932 | Highest     |
| Blenheim             | 19.1 | 1.0 | 1941 | 4th-highest |
| Cheviot              | 17.8 | 0.8 | 1982 | 2nd-highest |
| Ranfurly             | 16.3 | 0.8 | 1975 | 4th-highest |
| Nugget Point         | 14.4 | 1.0 | 1970 | Highest     |

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 |                             |                            |                    |             |
| Dargaville                   | 12.3                        | 1.4                        | 1943               | 2nd-highest |
| Te Puke                      | 9.7                         | 1.4                        | 1973               | 3rd-highest |
| Motu                         | 6.5                         | 0.7                        | 1990               | 2nd-highest |
| Masterton                    | 8.4                         | 2.3                        | 1992               | 2nd-highest |
| Waione                       | 9.5                         | 1.3                        | 1991               | 2nd-highest |
| Ngawi                        | 11.4                        | 0.8                        | 1972               | 4th-highest |
| Gisborne                     | 10.6                        | 2.1                        | 1905               | 2nd-highest |

|                  |      |     |      |             |
|------------------|------|-----|------|-------------|
| Hastings         | 9.6  | 2.5 | 1965 | 2nd-highest |
| Waipawa          | 8.0  | 1.1 | 1945 | 3rd-highest |
| Mahia            | 11.3 | 1.1 | 1990 | Highest     |
| Palmerston North | 9.9  | 1.4 | 1928 | 3rd-highest |
| Stratford        | 8.2  | 1.5 | 1960 | Highest     |
| Hawera           | 9.3  | 1.0 | 1977 | 3rd-highest |
| Wanganui         | 10.7 | 1.1 | 1937 | 3rd-highest |
| Farewell Spit    | 11.1 | 1.5 | 1971 | Highest     |
| Reefton          | 7.4  | 1.4 | 1960 | 4th-highest |
| Nelson           | 9.1  | 1.3 | 1943 | 3rd-highest |
| Blenheim         | 9.0  | 1.4 | 1941 | 4th-highest |
| Kaikoura         | 9.2  | 0.9 | 1963 | 4th-highest |
| Culverden        | 6.5  | 1.6 | 1928 | Highest     |
| Waiau School     | 6.4  | 1.5 | 1974 | 4th-highest |
| Cheviot          | 6.5  | 1.0 | 1982 | 2nd-highest |
| Waipara West     | 7.6  | 1.0 | 1973 | 3rd-highest |
| Le Bons Bay      | 7.9  | 0.8 | 1984 | 4th-highest |
| Nugget Point     | 7.2  | 0.8 | 1970 | 4th-highest |
| South West Cape  | 7.6  | 0.7 | 1991 | 2nd-highest |

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### Rainfall: Near normal rainfall for many parts of the country.

Overall, rainfall was near normal for spring throughout many parts of New Zealand. Relatively few extraordinary spring rainfall totals were recorded, with five locations recording near record-high spring rainfall totals, and two locations receiving record or near record-low spring rainfall totals. October was a dry month for the north of the North Island, and despite receiving rainfall that was closer to normal in November, soils in these parts remained considerably drier than normal at 1 December 2013.

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

| Location                            | Rainfall total (mm) | Percentage of normal | Year records began | Comments    |
|-------------------------------------|---------------------|----------------------|--------------------|-------------|
| <b>High records or near-records</b> |                     |                      |                    |             |
| Masterton                           | 320                 | 133                  | 1992               | 4th-highest |
| Takapau Plains                      | 350                 | 141                  | 1962               | 4th-highest |
| Waione                              | 356                 | 137                  | 1991               | 2nd-highest |
| Ohakune                             | 538                 | 132                  | 1961               | 3rd-highest |
| Campbell Island                     | 422                 | 124                  | 1992               | 3rd-highest |
| <b>Low records or near-records</b>  |                     |                      |                    |             |
| Kerikeri                            | 228                 | 57                   | 1981               | 4th-lowest  |
| Toenepi                             | 140                 | 52                   | 1951               | Lowest      |

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## Sunshine: Near normal or above normal sunshine for New Zealand.

Sunshine hours for spring were near normal (sunshine hours within 10 percent of spring normal) or above normal (110-125 percent of spring normal) for the majority of the country. Northern Fiordland and southern Westland were the exception, where well above normal sunshine hours (more than 125 percent of spring normal) were recorded. Six locations recorded record or near record -high total sunshine hours for spring, whilst no locations recorded record or near record -low spring sunshine hours.

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

| Location                     | Sunshine hours | Percentage of normal | Year records began | Comments    |
|------------------------------|----------------|----------------------|--------------------|-------------|
| High records or near-records |                |                      |                    |             |
| Kaitaia                      | 636            | 111                  | 1985               | Highest     |
| Dargaville                   | 574            | 105                  | 1943               | 3rd-highest |
| Turangi                      | 585            | 116                  | 1976               | Highest     |
| New Plymouth                 | 680            | 122                  | 1972               | Highest     |
| Cheviot                      | 596            | 114                  | 1983               | 4th-highest |
| Queenstown                   | 653            | 115                  | 1930               | 3rd-highest |

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## Spring climate in the six main centres

It was a warm and sunny spring for Auckland and Tauranga, with both locations recording both their second-warmest spring on record, and above average sunshine hours. The remaining four main centres recorded near normal sunshine hours for spring. Spring temperatures were above average for all main centres except Christchurch, where they were near average. Spring rainfall was below normal in Tauranga and Dunedin. Dunedin recorded 115 mm of rain over the season, of which a meagre 17 mm fell in November. In contrast, spring rainfall was above normal in Wellington, with the city receiving more than three times the rainfall of Dunedin. Of the six main centres in spring 2013, Auckland was the warmest, Wellington was the wettest, Tauranga was the sunniest, and Dunedin was the coolest, driest, and cloudiest.

### Spring 2013 main centre climate statistics:

| Temperature               |                  |                            |                              |
|---------------------------|------------------|----------------------------|------------------------------|
| Location                  | Mean temp. (°C)  | Departure from normal (°C) | Comments                     |
| Auckland <sup>a</sup>     | 15.7             | 1.2                        | 2nd-warmest Spring on record |
| Tauranga <sup>b</sup>     | 15.5             | 1.4                        | 2nd-warmest Spring on record |
| Hamilton <sup>c</sup>     | 13.7             | 0.7                        | Above average                |
| Wellington <sup>d</sup>   | 12.8             | 0.7                        | Above average                |
| Christchurch <sup>e</sup> | 11.6             | 0.2                        | Near average                 |
| Dunedin <sup>f</sup>      | 11.5             | 0.5                        | Above average                |
| Rainfall                  |                  |                            |                              |
| Location                  | Rainfall (mm)    | % of normal                | Comments                     |
| Auckland <sup>a</sup>     | 242              | 93%                        | Near normal                  |
| Tauranga <sup>b</sup>     | 173              | 70%                        | Below normal                 |
| Hamilton <sup>c</sup>     | 292              | 101%                       | Near normal                  |
| Wellington <sup>d</sup>   | 402              | 128%                       | Above normal                 |
| Christchurch <sup>e</sup> | 120              | 88%                        | Near normal                  |
| Dunedin <sup>f</sup>      | 115              | 69%                        | Below normal                 |
| Sunshine                  |                  |                            |                              |
| Location                  | Sunshine (hours) | % of normal                | Comments                     |
| Auckland <sup>a</sup>     | 578              | 111%                       | Above normal                 |
| Tauranga <sup>b</sup>     | 682              | 111%                       | Above normal                 |
| Hamilton <sup>g</sup>     | 543              | 105%                       | Near normal                  |
| Wellington <sup>d</sup>   | 513              | 91%                        | Near normal                  |
| Christchurch <sup>e</sup> | 556              | 93%                        | Near normal                  |
| Dunedin <sup>f</sup>      | 487              | 104%                       | Near normal                  |

<sup>a</sup> Mangere <sup>b</sup> Tauranga Airport <sup>c</sup> Hamilton Airport <sup>d</sup> Kelburn <sup>e</sup> Christchurch Airport <sup>f</sup> Musselburgh <sup>g</sup> Ruakura



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## Highlights and extreme events

### Wind

The highest wind gust was 167 km/hr, at Mt Kaukau, Wellington, on 14 October.

On 5 September, strong winds caused minor damage to vegetation and infrastructure in Wellington. There were isolated reports of downed trees, a window that had blown out, and a lifting roof on a residential property. Strong winds toppled trees onto power lines in Taranaki, resulting in 1000 customers losing electricity supply. Flights in and out of New Plymouth airport were cancelled due to the strong winds. Further south, motorists were warned to take extra care on SH 6 from Harihari to Haast due to high winds.

On 10-11 September, strong northwest winds affected much of the South Island and the lower North Island, causing downed power lines and trees, damage to houses and businesses, and flipping trucks, boats, and caravans. About 28,000 houses and businesses were without power overnight throughout Canterbury, due to wind blowing trees onto power lines. Over 800 irrigators were damaged in Canterbury, which would cost millions of dollars to repair. The Fire Service attended over 1000 callouts in the Southern region overnight. Many calls were due to vegetation fires caused by downed power lines, and one bush fire near Amberley was particularly large and took a number of hours to extinguish. Two trucks overturned near Dunedin in the high winds, and roofing iron flew off one of Otago University's buildings. A number of schools in Canterbury were closed on 11 September due to storm damage and power outages, and the printing and delivery of *The Press* newspaper was delayed. In Wellington, a 20,000 tonne container ship dragged its anchor due to high winds, causing it to come close to shore. A yacht in Evans Bay broke its mooring and washed up on a nearby breakwater. Trains were cancelled in Wellington due to trees on the railway lines, and almost all domestic flights in and out of Wellington airport were diverted or cancelled. Some Interislander ferry sailings were also cancelled or delayed. In the Wairarapa, a number of truck and trailer units were flipped over by the wind, and falling trees damaged houses.

On 12 September, the storm moved up the country and the high winds toppled trees and damaged buildings. Power was still out for 17,000 homes and businesses in Canterbury, and numerous schools were still closed.

On 13 September, a tornado passed through Matapouri, north of Whangarei, felling trees and power poles.

On 24 September, strong winds brought down trees onto roads and power lines in Auckland's North Shore and Hauraki Plains, as well as the Coromandel Peninsula and East Coast region. At one point 6600 customers were without power in west and south Auckland. Strong winds contributed to damaging seas which both flooded and eroded coastal properties in Orewa and Whangaparaoa.

On 25 September, nine domestic flights were cancelled at Auckland airport due to the wind, and a similar number were delayed. Auckland's waterfront venue the Cloud was damaged by the wind, with a rip in its plastic covering. In the western Bay of Plenty and the Coromandel Peninsula, as well as in Tauranga, about 7000 properties were without power due to gales.

On 8 October, a damaging downburst of wind in the Auckland suburb of Devonport flattened a number of trees, lifted roofs, and briefly knocked out electricity.

On 14 October, damaging winds were experienced throughout New Zealand. In Wellington, at least 40 flights were cancelled, whilst power was cut to hundreds of homes and uprooted trees were reported. Further north, power outages occurred in Bulls, Kimbolton and parts of Dannevirke, mostly as a result of trees falling on power lines. Wairarapa Police warned motorists to be wary of “extreme” wind gusts in the Mt Bruce area, where a truck had been blown over. SH 1 at the Rimutaka Hill was closed due to strong winds, with 140 km/hr gusts reported there. Caution was advised to motorcyclists and drivers of high sided vehicles on SH 1 at the Desert Road, SH 73 from Springfield to Arthurs Pass and SH 7 from Hanmer turnoff to Springs Junction due to strong winds. In Canterbury, strong winds brought down trees, with trees falling on power lines causing a loss of power for more than 2000 homes in areas including Geraldine and Temuka. A number of controlled burn offs had reignited, and a small plantation fire on Orari Estate Road was triggered by downed power lines. In Marlborough, downed trees were reported in Blenheim, and had caused traffic delays on SH 6 near Long Valley Road. Downed trees on power lines and lifting roofs were reported throughout the Nelson region.

On 15 October, strong winds in Auckland cancelled flights, brought down power lines in South Auckland, and caused minor damage to numerous buildings across the city.

On 25 October, strong winds downed power lines which sparked a fire across 4 hectares of farmland near Masterton.

On 26 October, strong winds knocked trees into power lines, leaving a number of Canterbury communities temporarily without electricity. Customers in Bishopdale, Courtenay, Halkett, Harewood, Ellesmere, Lincoln, Lincoln University, Rolleston, Springston, Springston south, Weedons, West Melton and Yaldhurst were all without power. Caution was advised to motorists along the entire length of SH 1 in Canterbury due to high winds. A provincial rugby final in Ashburton was also struck by the strong winds. Comically, a kick-off was blown back beyond the kicking teams own in-goal area. Further north, motorists were warned of high winds on SH 2 at Rimutaka Hill. The Waimakariri District Council closed the Southbrook Transfer Station for safety reasons because of high winds.

On 21 November, a mini-tornado swept through the Hastings suburb of Raureka. It caused minimal damage but littered properties with hay.

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

| Location         | Extreme wind gust (km/hr) | Date of extreme gust | Year records began | Comments          |
|------------------|---------------------------|----------------------|--------------------|-------------------|
| Paeroa           | 106                       | Sep-24th             | 1991               | 3rd-highest       |
| Motu             | 102                       | Oct-15th             | 1991               | 3rd-highest       |
| Palmerston North | 96                        | Oct-14th             | 1991               | Equal 2nd-highest |
| Wanganui         | 95                        | Oct-09th             | 1977               | Equal 3rd-highest |
| Puysegur Point   | 154                       | Oct-02nd             | 1986               | 3rd-highest       |
| Blenheim         | 93                        | Oct-14th             | 1972               | Equal 4th-highest |
| Cape Campbell    | 120                       | Sep-25th             | 1963               | Equal 3rd-highest |
| Ashburton        | 128                       | Sep-10th             | 1970               | Highest           |
| Christchurch     | 133                       | Sep-10th             | 1972               | Highest           |
| Manapouri        | 85                        | Sep-10th             | 1991               | Equal 4th-highest |

## Temperatures

The highest spring temperature was 30.3°C, recorded at Clyde on 19 November. Leeston (Canterbury) was the only other location to top the 30°C mark this spring, reaching 30.2°C on 16 November. Neither of these were near-records.

The lowest spring temperature was -6.4°C, observed at Albert Burn (near Wanaka) on 14 September.

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 |                      |                             |                    |                   |
| Kaitia                       | 26.3                 | Nov-22nd                    | 1967               | Highest           |
| Kaikohe                      | 25.3                 | Nov-24th                    | 1973               | 2nd-highest       |
| Dargaville                   | 25.8                 | Nov-22nd                    | 1943               | 4th-highest       |
| Whangarei                    | 27.0                 | Nov-24th                    | 1967               | 2nd-highest       |
| Warkworth                    | 25.4                 | Nov-26th                    | 1966               | 4th-highest       |
| Whangaparaoa                 | 25.5                 | Nov-24th                    | 1982               | Highest           |
| Auckland (Whenuapai)         | 25.8                 | Nov-23rd                    | 1945               | 3rd-highest       |
| Whitianga                    | 26.9                 | Nov-24th                    | 1962               | 2nd-highest       |
| Paeroa                       | 27.0                 | Nov-24th                    | 1947               | 2nd-highest       |
| Te Puke                      | 27.4                 | Nov-11th                    | 1973               | Equal highest     |
| Motu                         | 25.7                 | Nov-25th                    | 1990               | 3rd-highest       |
| Auckland (Mangere)           | 26.8                 | Nov-23rd                    | 1959               | Highest           |
| Auckland (Airport)           | 25.9                 | Nov-26th                    | 1959               | 2nd-highest       |
| Pukekohe                     | 26.9                 | Nov-23rd                    | 1969               | 2nd-highest       |
| Hamilton (Ruakura)           | 28.4                 | Nov-23rd                    | 1906               | Highest           |
| Port Taharoa                 | 25.1                 | Nov-19th                    | 1973               | 4th-highest       |
| Te Kuiti                     | 26.7                 | Nov-23rd                    | 1959               | 4th-highest       |
| Masterton                    | 28.2                 | Nov-24th                    | 1992               | 4th-highest       |
| Waione                       | 29.3                 | Nov-24th                    | 1991               | 2nd-highest       |
| Martinborough                | 28.0                 | Nov-24th                    | 1986               | 2nd-highest       |
| Stratford                    | 24.1                 | Nov-19th                    | 1960               | Equal 3rd-highest |
| Wanganui                     | 26.8                 | Nov-19th                    | 1937               | 4th-highest       |
| Farewell Spit                | 24.6                 | Nov-24th                    | 1971               | 4th-highest       |
| Westport                     | 24.6                 | Nov-06th                    | 1937               | Equal highest     |
| Hokitika                     | 24.6                 | Nov-06th                    | 1866               | Equal 4th-highest |
| Reefton                      | 27.6                 | Nov-07th                    | 1960               | 3rd-highest       |
| Greymouth                    | 24.0                 | Nov-07th                    | 1947               | Highest           |
| Haast                        | 24.4                 | Nov-26th                    | 1949               | Highest           |
| Milford Sound                | 24.4                 | Nov-28th                    | 1934               | 4th-highest       |
| Secretary Island             | 23.0                 | Nov-27th                    | 1985               | Equal 3rd-highest |

|                                    |      |          |      |             |
|------------------------------------|------|----------|------|-------------|
| Cheviot                            | 29.8 | Nov-10th | 1982 | 4th-highest |
| Manapouri                          | 25.4 | Nov-19th | 1963 | 3rd-highest |
| <b>Low records or near-records</b> |      |          |      |             |
| Kerikeri                           | 10.8 | Sep-05th | 1981 | Lowest      |
| Kaikohe                            | 10.1 | Sep-05th | 1973 | 2nd-lowest  |
| Franz Josef                        | 7.0  | Oct-12th | 1982 | 2nd-lowest  |
| Milford Sound                      | 4.2  | Sep-13th | 1935 | Lowest      |
| Arthurs Pass                       | 0.9  | Oct-08th | 1973 | 2nd-lowest  |
| Le Bons Bay                        | 5.2  | Oct-08th | 1984 | Lowest      |
| Stewart Island                     | 7.0  | Sep-13th | 1975 | 4th-lowest  |
| Campbell Island                    | 2.8  | Sep-12th | 1991 | 4th-lowest  |

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

| Location                            | Extreme minimum (°C) | Date of extreme temperature | Year records began | Comments          |
|-------------------------------------|----------------------|-----------------------------|--------------------|-------------------|
| <b>Low records or near-records</b>  |                      |                             |                    |                   |
| Cape Reinga                         | 5.7                  | Sep-05th                    | 1951               | 4th-lowest        |
| Kerikeri                            | 0.7                  | Sep-05th                    | 1981               | Lowest            |
| Kaikohe                             | 3.1                  | Sep-05th                    | 1973               | 4th-lowest        |
| Te Kuiti                            | -1.5                 | Sep-18th                    | 1959               | 4th-lowest        |
| Turangi                             | -4.3                 | Sep-18th                    | 1968               | Equal 4th-lowest  |
| Paraparaumu                         | -2.1                 | Sep-18th                    | 1953               | 4th-lowest        |
| Taihape                             | -4                   | Sep-03rd                    | 1972               | Equal 2nd-lowest  |
| Stephens Island                     | 1.6                  | Sep-11th                    | 1973               | 3rd-lowest        |
| Lumsden                             | -4.1                 | Sep-18th                    | 1982               | Equal 3rd-lowest  |
| Balclutha                           | -3.6                 | Sep-18th                    | 1964               | 2nd-lowest        |
| <b>High records or near-records</b> |                      |                             |                    |                   |
| Whangaparaoa                        | 16.6                 | Nov-26th                    | 1982               | 4th-highest       |
| Masterton                           | 16.2                 | Nov-30th                    | 1992               | 3rd-highest       |
| Mahia                               | 16.0                 | Nov-26th                    | 1990               | 4th-highest       |
| Farewell Spit                       | 16.0                 | Nov-30th                    | 1972               | 2nd-highest       |
| Greymouth                           | 16.0                 | Nov-21st                    | 1972               | Equal 2nd-highest |
| Milford Sound                       | 15.8                 | Oct-24th                    | 1935               | Highest           |
| Waiau School                        | 15.9                 | Oct-22nd                    | 1974               | Equal 4th-highest |
| Invercargill                        | 16.0                 | Oct-02nd                    | 1905               | Equal 2nd-highest |
| Campbell Island                     | 9.3                  | Nov-20th                    | 1991               | Equal 3rd-highest |

#### Rain and slips

The highest 1-day rainfall was 253 mm, recorded at Mount Cook on 10 September.

On 11 September, SH 6 between Makarora and Haast (Haast Pass) was closed due to flooding and a large slip that came across the road. A Canadian couple died as their campervan was swept off the road in a large slip near the Gates of Haast. Caution was advised due to flooding on SH 65 from

O'Sullivan's Bridge to Springs Junction, SH 73 from Otira to Kumara and SH 6 from Fox Glacier to Haast. SH 6 at Haast Pass was closed intermittently from 11 September until further notice due to continuous slips and rock falls.

On 20 September, high intensity rainfall associated with a significant electrical storm resulted in widespread surface flooding across Wellington. The local council received around 100 calls, many of which reported manhole covers which had been dislodged due to high stormwater flows.

On 24 September, the upper North Island experienced the effects of a severe ex-tropical depression. Flooding and slips were reported throughout the upper North Island, which closed some roads for a time. A slip on SH 1 at the Brynderwyns (north of Auckland) caused the road to be reduced to one lane, causing southbound traffic to be diverted through Waipu and Mangawhai.

On 25 September, heavy rain resulted in flooding and slips on numerous North Island roads. SH 2 at the Clive River Bridge and SH 50 from Hastings to SH 2 Junction were affected by flooding, a slip blocked one lane of SH 2 at the Rimutaka Hill, and river scour caused a partial drop out of SH 35 between Te Araroa and Tolaga Bay. Flooding also affected the aforementioned stretch of SH 35. A slip closed SH 5 near Ngongotaha, near Rotorua. At Tauweru in the Wairarapa, five families were isolated by a flooded stream, and Castlepoint was also isolated for a time. Nine houses in Picton were evacuated due to a slip. SH 16 between Waimauku and Helensville in the Auckland region was closed due to flooding to motorcycles and cars.

On 2 October, heavy rain resulted in further movement of a slip on SH 6 at Diana Falls near Haast Pass. The road was closed between Makarora and Haast.

On 14 October, SH 6 from the Gates of Haast to Haast Pass was closed due to heavy rain causing further slips. Caution was advised to motorists travelling on SH6 from Haast to Harihari and on SH 73 from Arthurs Pass to Kumara due to surface flooding.

On 15 October, traffic delays were caused by a slip across one lane of SH 2 at the Rimutaka Hill, whilst the Turakina Valley Road in Manawatu was closed due to numerous slips. Surface flooding resulting from persistent rain was reported across many parts of the North Island, including Palmerston North, Fielding and Ohakune.

On 15 and 16 October, 100 houses and 50 businesses in Whanganui were evacuated as the Whanganui River burst its banks. A local state of emergency was declared by the Whanganui Mayor, and floodwaters were considered contaminated due to sewerage system overflows in some places. Residents of the small Turakina Beach settlement were isolated by 3 metre deep floodwaters which closed the only road out of the township. Flooding and slips affected numerous roads in the western North Island. SH 56 at Opiki and SH 43 at Tangarakau Gorge were closed, whilst motorists were warned to be cautious and expect delays on SH 4 from Raetihi to Whanganui, SH 3 from Uruti Valley to Mount Messenger, and SH 3 at Whangaehu Bridge. In Fiordland, the managers of Gunn's Camp and a whitebaiter were isolated by a major slip on the Lower Hollyford Road.

On 25 October, SH 7 from Reefton to Greymouth was closed due to a slip, and SH 73 from Arthurs Pass to Jacksons was closed because of flooding.

On 26 October, the flooded Inangahua River eroded the old Reefton landfill that was closed in 2004. Waste including old rubbish bags and bottles were washed out.

Heavy rain on 31 October caused a slip onto SH 2 on the Featherston side of Rimutaka Hill. Waterfall Rd in Raumati South was closed to all except local residents due to a slip. Block Road and the Riverbank carpark in Melling (Lower Hutt) were closed due to the risk of flooding from the rising Hutt River.

On 2 November, a 1000 cubic metre slip in the Otaki Gorge on the Kapiti Coast cut off a small number of houses and stranded trampers.

On 6-7 November, motorists were advised to take caution in the Manawatu Gorge, due to small slips and surface flooding.

On 7 November, surface flooding closed some roads in western Bay of Plenty for a time. A slip closed part of SH 94 between Te Anau and Milford Sound. Localised flooding occurred in parts of Auckland and northern Waikato due to short periods of intense rainfall.

On 26 November, a series of thunderstorms moved over the central North Island. Heavy rain caused localised surface flooding in Gisborne and Hawke's Bay, washing away a section of road and causing slips in parts of Napier.

On 28 November, SH 2 at the Rimutaka Hill was closed due to numerous slips that resulted from heavy rain.

**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          |
|----------------------------|-----------------------------|--------------------------|--------------------|-------------------|
| Warkworth                  | 105                         | Sep-24th                 | 1967               | 2nd-highest       |
| Karangahake Gorge          | 83                          | Sep-24th                 | 1981               | 4th-highest       |
| Te Aroha                   | 69                          | Sep-24th                 | 1992               | Highest           |
| Lottin Point (East Cape)   | 107                         | Sep-24th                 | 1965               | Highest           |
| Aniwhenua (Bay of Plenty)  | 115                         | Sep-11th                 | 1981               | 3rd-highest       |
| Raglan                     | 85                          | Sep-12th                 | 1983               | Highest           |
| Waikeria (Waikato)         | 75                          | Sep-11th                 | 1977               | Highest           |
| Te Kuiti                   | 91                          | Sep-21st                 | 1957               | Highest           |
| Ngapuke                    | 66                          | Sep-21st                 | 1989               | 4th-highest       |
| Tongariro Hatchery         | 88                          | Sep-21st                 | 1929               | 4th-highest       |
| Lower Retaruke             | 89                          | Sep-21st                 | 1974               | 2nd-highest       |
| Waiawa (Wairarapa)         | 93                          | Sep-24th                 | 1968               | 3rd-highest       |
| Kahutara (Wairarapa)       | 81                          | Oct-11th                 | 1981               | 2nd-highest       |
| Mahaki (Wairarapa)         | 62                          | Oct-11th                 | 1958               | 2nd-highest       |
| Pirinoa (Wairarapa)        | 63                          | Oct-11th                 | 1967               | 4th-highest       |
| Te Puia Springs            | 225                         | Sep-24th                 | 1946               | Highest           |
| Ahititi Station (Taranaki) | 133                         | Sep-25th                 | 1973               | 4th-highest       |
| Mokairau (Gisborne)        | 141                         | Sep-24th                 | 1947               | 2nd-highest       |
| Waihau (Bay of Plenty)     | 93                          | Sep-24th                 | 1985               | 4th-highest       |
| Brentwood                  | 116                         | Sep-24th                 | 1966               | Equal 3rd-highest |
| Mahia                      | 65                          | Sep-24th                 | 1990               | 3rd-highest       |
| Raetihi                    | 75                          | Oct-14th                 | 1979               | Equal highest     |
| Taihape                    | 48                          | Oct-11th                 | 1970               | 2nd-highest       |

|                            |     |          |      |             |
|----------------------------|-----|----------|------|-------------|
| Pukeokahu (Taihape)        | 33  | Oct-14th | 1991 | 3rd-highest |
| Kaihoka (Tasman)           | 85  | Oct-24th | 1983 | 2nd-highest |
| Pakawau (Tasman)           | 105 | Oct-24th | 1984 | 3rd-highest |
| Collingwood                | 157 | Oct-24th | 1992 | 3rd-highest |
| Kowhitirangi (West Coast)  | 142 | Sep-10th | 1965 | 4th-highest |
| Tapawera (Tasman)          | 68  | Oct-08th | 1992 | Highest     |
| Brandy Creek (Tasman)      | 62  | Oct-08th | 1985 | 4th-highest |
| Pelorus Sound (Crail Bay)  | 99  | Oct-30th | 1982 | 4th-highest |
| Grassmere                  | 57  | Sep-25th | 1943 | 3rd-highest |
| Kaikoura Plains            | 88  | Oct-08th | 1980 | 2nd-highest |
| Glenthorne (Lower Station) | 59  | Oct-14th | 1985 | 3rd-highest |
| Prebbleton (Canterbury)    | 46  | Oct-08th | 1969 | 3rd-highest |
| Greenpark (Canterbury)     | 42  | Oct-08th | 1956 | 3rd-highest |

## Snow and ice

On 4 September, widespread snow fell along SH 94 from Te Anau to Milford Sound, forcing closure of the road between Lower Hollyford and Murrells. Motorists were advised to take extra care on SH 8 from Twizel to Fairlie due to snow. Chains were essential for all vehicles on SH 73 at Porters Pass due to snow, as well as SH 73 from Arthurs Pass to Otira. The Mt Hutt Ski Area access road was closed around midday due to bad weather creating dangerous travelling conditions, trapping 316 people at the ski area until the road was re-opened at 2 am the next morning. The wintry weather resulted in 10 flight cancellations at Queenstown Airport.

On 10-11 September, SH 94 between Te Anau and Milford Sound was closed due to snow. Avalanches affected a 12 km stretch of the Milford Road, including a section which was hit by three separate avalanches leaving a five metre deep layer of snow. The road didn't reopen until 16 September.

On the morning of 8 October, SH 73 between Springfield and Otira (including Porters Pass and Arthurs Pass) was closed to towing vehicles due to snow, and chains were essential for all other vehicles. Later in the day, SH 73 from Springfield to Arthurs Pass was closed to all vehicles because of snow. On 9 October, snow was reported to have fallen and settled in many areas of Canterbury, including Methven, Darfield and Hanmer Springs.

On 27 October, snow showers fell to lake level in Queenstown throughout the day, and snow was reported to have fallen to between 100 m and 200 m above sea level in Southland in the late-evening. No substantial amounts of snow accumulated at low elevations of Southland and Otago, but considerable accumulations occurred in the mountains, especially the more southerly and westerly ranges.

## **Lightning and hail**

On 10 September, firefighters were called after a house in Fox Glacier township caught fire after being struck by lightning. Numerous fires in Canterbury were caused by lightning strikes, damaging barns, hay stocks, and trees.

More than 4000 lightning strikes were recorded over the South Island on 10-11 September. In Burkes Pass, a 136-year-old oak tree was struck by lightning and was destroyed.

On 20 September, a significant electrical storm struck central areas of New Zealand. Approximately 800 lightning strikes hit the Wellington region between 5 pm and 8 pm, causing temporary power outages and loss of internet services, as well as triggering home and business alarms. The storm resulted in disruption to flights at Wellington Airport and train services on the Hutt Valley line.

Early on 22 September, a Birkenhead (Auckland) home was struck by lightning during an electrical storm, which started a fire in the home's insulation, and caused considerable damage including shattered glass, cracked gip walls and a collapsed ceiling. Further south, nine cows were killed on a Kihikihi farm (Waikato) after being struck by lightning.

On 14 October, 5000 lightning strikes were recorded between 10 a.m. and noon. Most lightning occurred on the West Coast. However, lightning strikes occurring east of the Southern Alps resulted in dangerous conditions which hampered efforts to repair damaged power lines (brought down by falling trees in strong winds). A tree in Winscombe (near Fairlie, Canterbury) caught fire when struck by lightning.

On 1 November, thunder and hail lashed much of the Canterbury region. Large hailstones lay on roads and car windscreens in Geraldine.

On 18 November, over 900 lightning strikes were recorded as thunderstorms passed over parts of the country. Lightning hit a transformer in Marlborough, but this did not cut power.

On 19 November, a scrub fire near Kawerau was thought to have been started by a lightning strike during a thunderstorm.

## **Cloud and fog**

On 8 November, fog caused all flights in and out of Wellington airport to be cancelled for much of the day.



**For further information, please contact:**

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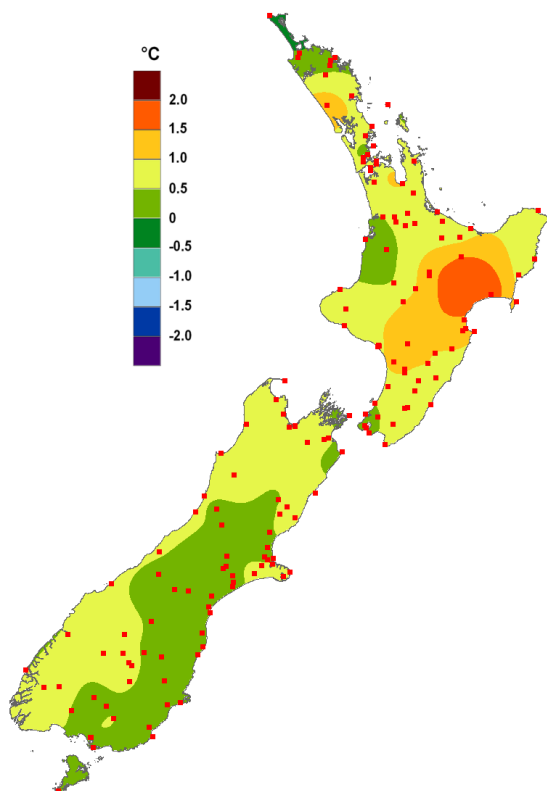
Tel. 04 386 0508

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*Spring 2013 mean temperatures, expressed as a difference from average (°C).*

*Dark orange colours indicate temperatures more than 1.5°C above the spring average, which were recorded in parts of Gisborne and Hawke's Bay. Mean temperatures were at least above average (between 0.5 to 1.2°C above the spring average) across the majority of the North Island, as well as northern and westerly parts of the South Island. Near average temperatures (within 0.5°C of the spring average temperature, as indicated by green colours on the map) were recorded elsewhere.*

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