

New Zealand Climate Summary: **October 2014** Issued: 4 November 2014

# A dry month for some of the country with near average temperatures for most.

|  |  |
| --- | --- |
| **Rainfall** | Rainfall was below normal (50-79%) or well below normal (< 50%) for many eastern and northern areas of the South Island, Wellington, Wairarapa, the Kapiti Coast, Hawke’s Bay, Gisborne and the Bay of Plenty. Conversely, rainfall was above normal (120-149%) or well above normal (> 149%) for south-western parts of the South Island. |
| **Temperature** | October temperatures were near average (within 0.50°C of average) for many parts of New Zealand. Temperatures were below average (-1.20 to -0.51°C) for isolated inland parts of Southland and Otago, Waitomo and the Far North, and above average (+0.51°C to +1.20°C ) in parts of Bay of Plenty. |
| **Soil Moisture** | As of 1 November 2014, soil moisture levels for most eastern and northern parts of the South Island were below normal for the time of year, while levels for the remainder of the South Island were near normal. Soil moisture levels were above normal in the Far North, Auckland, Hawke’s Bay and parts of Manawatu-Whanganui. |
| **Sunshine** | A sunny October for the lower half of the North Island as well as northern, central and south-eastern areas of the South Island, with above normal sunshine (110-125%) recorded in many of these areas. Near normal (90-109%) sunshine for most remaining areas of the country. |

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## Overview

October 2014 was characterised by air pressures which were lower than normal over and to the south-east of the country. This resulted in an anomalous south-westerly flow over New Zealand. This southwest flow anomaly is clearly illustrated by the rainfall anomalies observed across New Zealand for October (see rainfall anomaly map on the last page of this document). Areas exposed to the south-westerlies received rainfall that was above normal (120-149%) or well above normal (> 149%). Indeed, such rainfall anomalies were experienced in south-western Southland and Fiordland. In contrast, areas sheltered from the south-westerlies received below normal (50-79%) or well below normal (< 50%) rainfall, and this was the case for eastern and northern parts of the South Island, as well as the lower North Island, Hawke’s Bay, Gisborne and the Bay of Plenty. Remaining areas of the country typically received near normal rainfall (within 20% of normal) for the month.

Soil moisture levels on the east coast of the South Island were below normal for the time of year at the start of the month, and this remained the case as of 1 November 2014 after a relatively dry October there. Likewise, at 1 November 2014 soils were drier than normal for the time of year in Marlborough and Nelson. Soils were wetter than normal in the Far North, Auckland, and parts of Manawatu-Whanganui. Soils were also wetter than normal in Hawke’s Bay despite the region receiving below normal rainfall in October: soil moisture levels have remained relatively high as a result of above normal September rainfall that was received in the region. Soil moisture levels were near normal for the time of year for remaining areas of New Zealand.

October saw near average temperatures (within 0.50°C of average) for most areas of the country overall. However, there was considerable day-to-day variability of temperatures at times as the anomalous south-westerly flow for the month overall (as outlined earlier) shifted between more westerly and southerly variations. Temperatures were much cooler than average during the early part of October, with a cool southerly flow bringing snow to low elevations in both the North and South Islands. The latter half of the month saw warmer than average temperatures across most of New Zealand. This effectively offset the cold start to the month, meaning temperatures were near average across most of New Zealand for the month as a whole. However, October was a cool month for isolated inland parts of Southland and Otago, Waitomo and the Far North, where temperatures were below average (-1.20 to -0.51°C), while above average temperatures (+0.51°C to +1.20°C) were observed in isolated inland parts of Bay of Plenty. The nation-wide average temperature in October 2014 was 12.2°C (0.1°C above the 1971-2000 October average from NIWA’s seven station temperature series which begins in 1909)[[1]](#footnote-1).

October was a sunny month for the lower half of the North Island as well as northern, central and south-eastern areas of the South Island, with above normal sunshine (110-125%) recorded in many of these areas. Balclutha, Dunedin, Cheviot and Martinborough enjoyed near-record high sunshine hours for the month. Sunshine hours were near normal (90-109%) for most remaining areas of the country.

**Further Highlights:**

* The highest temperature was 27.5°C, observed at Christchurch (Riccarton) on 17 October.
* The lowest temperature was -4.9°C, observed at Middlemarch on 25 October.
* The highest 1-day rainfall was 204 mm, recorded at Milford Sound on 5 October.
* The highest wind gust was 196 km/hr, observed at Cape Turnagain on 6 October.
* Of the six main centres in October 2014, Auckland was the warmest, Dunedin was the coolest, Christchurch was the driest, Hamilton was the wettest and cloudiest and Wellington was the sunniest.
* Of the available, regularly reporting sunshine observation sites, the sunniest four centres[[2]](#footnote-2) so far in 2014 (1 January to 31 October) are: Whakatane (2216 hours), Lake Tekapo (2020 hours), Nelson (2005 hours) and Blenheim (1997 hours).

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## Rainfall: Dry for areas sheltered from south-westerlies

October was a dry month for areas of the country sheltered from south-westerly winds. It was especially dry in Nelson and Blenheim, with these locations receiving just 26% and 32% of normal October rainfall respectively. Parts of the Kapiti Coast, Wellington, Christchurch and Central Otago were similarly dry and received less than 50% of normal October rainfall. The Southern Alps of the South Island are a significant barrier to the westerly progression of weather systems typical in the New Zealand region. As a result, a rain-shadow is established whereby rainfall totals (at all time-scales) typically decline considerably as you move east of the mountain range. The rain-shadow effect of the Southern Alps was clearly demonstrated this month, with Mount Cook Village recording 411 mm of rainfall, whereas Lake Tekapo (~30 km south-east of Mount Cook Village) recorded just 42 mm of rainfall. Despite the lack of rainfall observed in many parts of the country, only one location (Motu, see table below) recorded a near-record low rainfall total for the month. Rainfall was above normal for the south-west of the South Island, however no locations observed record or near-record high rainfall totals for the month.

**Record[[3]](#footnote-3) or near-record October rainfall totals were recorded at:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Rainfall total (mm)** | **Percentage of normal** | **Year records began** | **Comments** |
| Low records or near-records | | | | |
| Motu | 102 | 49 | 1990 | 2nd-lowest |

## Temperature: Near average for most of New Zealand

Temperatures for the month as a whole were near average across the majority of New Zealand. This is reflected in the following three tables, which show relatively few locations observing record or near-record mean, mean maximum or mean minimum temperatures. Perhaps most notable this month was Wallaceville (Upper Hutt), which observed both its highest mean maximum air temperature on record and its second-lowest mean minimum air temperature on record. This suggests that the area observed relatively clear skies during the month, with a lack of cloud allowing for warm sunny days and cool clear nights. This suggestion is supported when observing the sunshine anomalies of nearby locations: Wellington observed 115% of normal October sunshine hours and Martinborough observed 122% of normal sunshine hours. The nation-wide average temperature in October 2014 was 12.2°C (0.1°C above the 1971-2000 October average from NIWA’s seven station temperature series which begins in 1909).

**Record or near-record mean air temperatures for October were recorded at:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Mean**  **air temp. (oC)** | **Departure from normal (oC)** | **Year records began** | **Comments** |
| High records or near-records | | | | |
| Te Puke | 14.5 | 1.2 | 1973 | 3rd-highest |
| Low records or near-records | | | | |
| Kaitaia | 13.2 | -1.2 | 1967 | 3rd-lowest |

**Record or near-record mean maximum air temperatures for October were recorded at:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Mean maximum**  **air temp. (oC)** | **Departure from normal (oC)** | **Year records began** | **Comments** |
| High records or near-records | | | | |
| Wallaceville | 18.3 | 2.4 | 1939 | Highest |
| Low records or near-records | | | | |
| Secretary Island | 12.8 | -1.0 | 1985 | 2nd-lowest |
| Kaitaia | 16.8 | -1.2 | 1967 | 3rd-lowest |

**Record or near-record mean minimum air temperatures for October were recorded at:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Mean minimum**  **air temp. (oC)** | **Departure from normal (oC)** | **Year records began** | **Comments** |
| High records or near-records | | | | |
| Te Puke | 10.1 | 1.7 | 1973 | 4th-highest |
| Low records or near-records | | | | |
| Wallaceville | 4.9 | -2.7 | 1939 | 2nd-lowest |
| Cheviot | 4.5 | -1.0 | 1982 | 3rd-lowest |
| Lumsden | 3.3 | -1.2 | 1982 | 3rd-lowest |
| Tiwai Point | 5.9 | -1.0 | 1970 | 3rd-lowest |
| Hanmer Forest | 1.3 | -2.3 | 1906 | 4th-lowest |
| Timaru | 3.1 | -1.6 | 1885 | 4th-lowest |

## Sunshine: Normal or above normal across the country

October was a sunny month for the lower half of the North Island as well as northern, central and south-eastern parts of the South Island. Four locations observed near-record high total sunshine hours for the month. Cheviot observed its third-highest total sunshine hours for October on record. The relatively clear skies observed here are likely to have contributed to cool overnight temperatures: Cheviot also observed its third-lowest mean minimum temperature for October on record. Remaining areas of the country were not quite as bright, and received near normal (90-109%) total sunshine hours. Of the available, regularly reporting sunshine observation sites, the sunniest four centres so far in 2014 (1 January to 31 October) are: Whakatane (2216 hours), Lake Tekapo (2020 hours), Nelson (2005 hours) and Blenheim (1997 hours).

**Record or near-record October sunshine hours were recorded at:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Sunshine hours** | **Percentage of normal** | **Year records began** | **Comments** |
| High records or near-records | | | | |
| Martinborough | 236 | 122 | 1986 | 2nd-highest |
| Cheviot | 242 | 131 | 1983 | 3rd-highest |
| Dunedin (Musselburgh) | 208 | 124 | 1980 | 3rd-highest |
| Balclutha | 219 | 129 | 1964 | 3rd-highest |

## October climate in the six main centres

October temperatures were above average in Auckland and Wellington but near average for the remaining four main centres. It was a relatively dry month in all main centres, but especially in Tauranga, Wellington and Christchurch which all received less than half of their respective normal rainfall. Wellington and Dunedin enjoyed a sunnier than normal month, whereas the remaining main centres observed near normal total sunshine hours. Of the six main centres in October 2014, Auckland was the warmest, Dunedin was the coolest, Christchurch was the driest, Hamilton was the wettest and cloudiest and Wellington was the sunniest.

**October 2014 main centre climate statistics:**

|  |  |
| --- | --- |
| **Temperature** | |
| **Location** | **Mean temp. (oC)** | **Departure from normal (oC)** | **Comments** |
| Aucklanda | 15.0 | +0.6 | Above average |
| Taurangab | 14.4 | +0.3 | Near average |
| Hamiltonc | 12.9 | -0.1 | Near average |
| Wellingtond | 12.6 | +0.6 | Above average |
| Christchurche | 11.1 | -0.3 | Near average |
| Dunedinf | 10.5 | -0.4 | Near average |
| **Rainfall** | |
| **Location** | **Rainfall (mm)** | **% of normal** | **Comments** |
| Aucklanda | 69 | 76% | Below normal |
| Taurangab | 38 | 42% | Well below normal |
| Hamiltonc | 79 | 80% | Near normal |
| Wellingtond | 51[[4]](#footnote-4) | 44% | Well below normal |
| Christchurche | 21 | 42% | Well below normal |
| Dunedinf | 46 | 75% | Below normal |
| **Sunshine** | |
| **Location** | **Sunshine (hours)** | **% of normal** | **Comments** |
| Aucklanda | 184 | 104% | Near normal |
| Taurangab | 192 | 90% | Near normal |
| Hamiltong | 163 | 92% | Near normal |
| Wellingtond | 220[[5]](#footnote-5) | 115% | Above normal |
| Christchurche | 2035 | 108% | Near normal |
| Dunedinf | 208 | 124% | Above normal |  |

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

## Highlights and extreme events

### Wind

On 2 October strong winds bore down on much of the country and flipped a trailer being towed across the Rimutaka Hill Road (SH 2).

On 6 October strong winds hit parts of Wellington, cancelling several *East by West* commuter ferry services. The Fire Service responded to dozens of callouts, including a roof lifting in Miramar and in Upper Hutt. Strong wind gusts knocked trees and vegetation on to power lines, cutting electricity to about 2100 homes in the capital's northern suburbs and areas further north. A fallen tree also knocked out *Tranz Metro's* overhead electrical lines near Taita, cancelling some services on the Hutt Valley and Melling rail lines and delaying services to Wairarapa during the evening rush hour. Farther north, a tree came down on to a house and caravan in Kawerau, and many roofs were lifted off on the east coast from Whangamata to Papamoa. A strong gust blew a truck into a ditch across the Napier-Hastings expressway. In Tauranga, strong winds and rough seas caused boats to break free of their moorings. Power was knocked out in the Auckland suburbs of Green Bay, Riverhead and Titirangi due to the high winds.

On 8 October strong winds in the Mackenzie Country knocked down six power lines, causing a loss of power to twelve homes between Twizel and Omarama.

On 29 October strong winds across Canterbury caused power outages to more than 1700 households in Coalgate, Darfield, Greendale and Homebush.

The highest wind gust was 196 km/hr, observed at Cape Turnagain on 6 October.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Extreme wind gust (km/hr)** | **Date of extreme gust** | **Year records began** | **Comments** |
| Auckland (Whenuapai) | 109 | 29th | 1972 | Highest |
| Rotorua | 104 | 6th | 1972 | Highest |
| Paraparaumu | 130 | 6th | 1972 | Highest |
| Palmerston North | 102 | 6th | 1991 | Highest |
| Wanganui | 109 | 6th | 1977 | Highest |
| Farewell Spit | 115 | 3rd | 1973 | Highest |
| Kaikohe | 102 | 7th | 1986 | Equal highest |
| New Plymouth | 106 | 29th | 1972 | Equal highest |
| Tauranga | 106 | 6th | 1973 | 2nd-highest |
| Auckland (Mangere) | 107 | 29th | 1971 | 2nd-highest |
| Pukekohe | 80 | 29th | 1986 | 2nd-highest |
| Hamilton | 85 | 6th | 1978 | 2nd-highest |
| Napier | 107 | 6th | 1973 | 2nd-highest |
| Westport | 98 | 6th | 1973 | 2nd-highest |
| Kaikoura | 150 | 6th | 1972 | 3rd-highest |
| Taupo | 91 | 29th | 1982 | Equal 3rd-highest |
| Levin | 91 | 6th | 1971 | Equal 3rd-highest |
| Gisborne | 95 | 6th | 1972 | 4th-highest |

### Rain and slips

The highest 1-day rainfall was 204 mm, recorded at Milford Sound on 5 October.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Extreme 1-day rainfall**  **(mm)** | **Date of extreme rainfall** | **Year records began** | **Comments** |
| Campbell Island | 22 | 7th | 1991 | Equal 4th-highest |

### Temperatures

On 13 October north-westerly winds contributed to warm temperatures for the time of year throughout the lower South Island. Maximum temperatures (and departure from average October daily maximum temperature) observed included: Invercargill 23.0°C (+8.7°C), Manapouri 21.0°C (+6.1°C), Lumsden 22.5°C (+7.3°C), Queenstown 22.0°C (+6.7°C), Dunedin Airport 26.0°C (+9.8°C) and Wanaka 22.2°C (+5.9°C).

The highest daily maximum temperature was 27.5°C, observed at Christchurch (Riccarton) on 17 October. Blenheim was a close second-place, recording 27.4°C on 14 October. Timaru recorded the third-highest daily maximum temperature for the month, with 27.2°C observed on 17 October.

The lowest daily minimum temperature was -4.9°C, observed at Middlemarch on 25 October.

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location** | **Extreme maximum (°C)** | **Date of extreme temperature** | | **Year records began** | **Comments** |
| High records or near-records | | | | | |
| Kaikohe | 22.9 | 15th | 1973 | | Highest |
| Tiwai Point | 23.1 | 13th | 1970 | | Highest |
| Masterton | 25.8 | 16th | 1992 | | 2nd-highest |
| Nelson | 24.6 | 14th | 1943 | | 3rd-highest |
| Ranfurly | 24.1 | 13th | 1975 | | 3rd-highest |
| Whitianga | 23.4 | 15th | 1962 | | Equal 3rd-highest |
| Motu | 23.4 | 15th | 1990 | | Equal 3rd-highest |
| Low records or near-records | | | | | |
| Kerikeri | 12.5 | 10th | 1981 | | Lowest |
| Cape Reinga | 12.9 | 10th | 1971 | | 2nd-lowest |
| Balclutha | 7.3 | 3rd | 1972 | | 2nd-lowest |
| Te Kuiti | 10.9 | 4th | 1959 | | Equal 2nd-lowest |
| Westport | 11.0 | 3rd | 1966 | | 3rd-lowest |
| Greymouth | 9.6 | 3rd | 1972 | | 3rd-lowest |
| Campbell Island | 4.2 | 27th | 1991 | | 3rd-lowest |
| Kaitaia | 12.6 | 10th | 1971 | | 4th-lowest |
| Paeroa | 12.4 | 4th | 1971 | | 4th-lowest |
| Hicks Bay | 12.0 | 11th | 1972 | | 4th-lowest |
| Secretary Island | 8.9 | 3rd | 1989 | | Equal 4th-lowest |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **Extreme minimum (°C)** | **Date of extreme temperature** | **Year records began** | **Comments** |
| High records or near-records | | | | |
| Kerikeri | 17.1 | 29th | 1981 | Highest |
| Orari Estate | 16.0 | 23rd | 1972 | 2nd-highest |
| Warkworth | 16.1 | 29th | 1966 | Equal 3rd-highest |
| Te Puke | 15.2 | 29th | 1973 | Equal 3rd-highest |
| Campbell Island | 9.3 | 2nd | 1991 | Equal 3rd-highest |
| Whangaparaoa | 15.0 | 29th | 1982 | Equal 4th-highest |
| Low records or near-records | | | | |
| Whangaparaoa | 0.9 | 7th | 1982 | Lowest |
| Wallaceville | -3.2 | 5th | 1939 | Lowest |
| Te Kuiti | -1.0 | 25th | 1959 | 2nd-lowest |
| Martinborough | -1.2 | 5th | 1986 | 2nd-lowest |
| Puysegur Point | 2.8 | 4th | 1978 | Equal 2nd-lowest |
| Timaru | -3.3 | 4th | 1885 | 3rd-lowest |
| Haast | -0.4 | 4th | 1949 | Equal 3rd-lowest |
| Cheviot | -2.2 | 5th | 1982 | 4th-lowest |
| Kaitaia | 4.7 | 8th | 1985 | Equal 4th-lowest |
| Kerikeri | 3.2 | 8th | 1981 | Equal 4th-lowest |

### Lightning and Hail

On 4 October a southerly change brought hail to areas of Wellington in the afternoon including Lower Hutt and the Ngauranga Gorge.

On 6 October a bolt of lightning killed two calves in Featherston. The lightning melted the fence line and carved a two metre trench in the soil.

In the early hours of 29 October, thunderstorms struck across Northland and Auckland. Approximately 16,000 lightning strikes were recorded, including one which struck an *Air New Zealand* flight travelling from Auckland to New Plymouth. The areas of Kaikohe, Kaeo, Omapere and Waipapa were temporarily without power due to faults caused by lightning strikes.

In the late hours of 29 October and early hours of 30 October the Auckland region was hit by a number of thunderstorms. Large hail stones were reported in Auckland, whilst 600 lightning strikes were recorded from Auckland to Taranaki. One home in East Tamaki was struck by lightning, resulting in a 2-metre wide hole in the roof.

### Snow and ice

On 3 October snow fell to low elevations across the North and South Islands. State Highway 94 was closed from lower Hollyford to The Chasm as a result of snow.

On 4 October a southerly change brought snow to the Rimutaka Hill road north of Wellington.

On 6 October snow fell to approximately 150 metres above sea level in Southland, and settled down to elevations of 300 metres above sea level. The snowfall resulted in lamb losses and the cancellation of two stages of the Junior Tour of Southland cycling event.

On 7 October snow overnight closed Desert Road, with the road reopened just after 8 a.m.

### Cloud and fog

On 13 October heavy fog was reported in northern parts of Christchurch, prompting a warning for motorists in those areas to exercise caution. Flights at Christchurch Airport were not affected by fog.

**For further information, please contact:**

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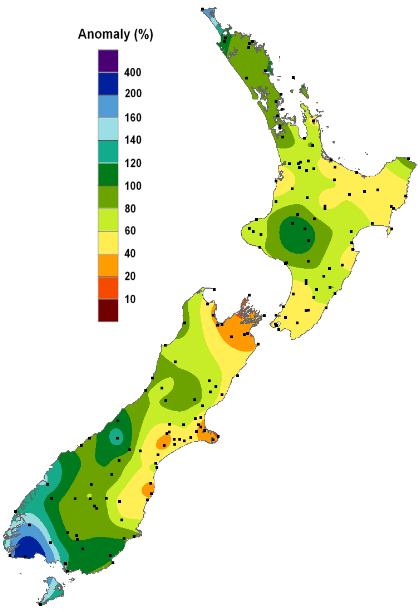
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*October 2014 total rainfall, expressed as a percentage of the 1981-2010 normal.*

*Rainfall was below normal (50-79%) or well below normal (< 50%) for many eastern and northern parts of the South Island, as well as in* *Wellington, Wairarapa, the Kapiti Coast, Hawke’s Bay, Gisborne and the Bay of Plenty. Conversely, rainfall was at least above normal (120-149%) for the south-west of the South Island (blue colours on the map).*

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1. Interim value [↑](#footnote-ref-1)
2. New Plymouth sunshine is still omitted from this ranking while recent instrumentation changes are assessed. [↑](#footnote-ref-2)
3. The rankings (1st, 2nd, 3rd.etc) in all Tables in this summary are relative to climate data from a *group* of nearby stations, some of which may no longer be operating. The current climate value is compared against all values from any member of the group, without any regard for homogeneity between one station’s record, and another. This approach is used due to the practical limitations of performing homogeneity checks in real-time. [↑](#footnote-ref-3)
4. Missing two days of data. [↑](#footnote-ref-4)
5. Missing one day of data. [↑](#footnote-ref-5)