

Warmest winter on record for New Zealand.

Temperature	A very warm winter for most of the country, with record-high mean temperatures for winter occurring throughout the South Island. Mean temperatures well above average (more than 1.2°C above the winter average) throughout Southland, Otago (except South Otago), inland Canterbury, coastal Canterbury north of Ashburton, and isolated parts of the lower half of the North Island. The nation-wide mean temperature was 1.2°C above the winter average, based on NIWA's seven-station temperature series, making this the warmest winter on record since 1909.
Rainfall	A wet winter overall for parts of Central Otago, the east coast of the South Island from Dunedin to Christchurch, and southeastern parts of Marlborough and Hawke's Bay. Rainfall was well above normal (more than 150 percent of normal winter rainfall) for areas of eastern and Central Otago. In contrast, below normal rainfall (less than 80 percent of normal winter rainfall) occurred in parts of Manawatu, Taranaki, Bay of Plenty and Waikato.
Soil Moisture	As at 1 September 2013, most soils throughout New Zealand were at normal soil moisture levels for the time of year. In isolated parts of Central Otago, coastal North Otago and about Kaikoura, soils were wetter than normal for the time of year.
Sunshine	Winter sunshine hours were above normal (110-125 percent of winter normal) for parts of western Southland, Queenstown Lakes, southern Westland, southeastern Hawke's Bay and Gisborne. Sunshine was below normal (75-90 percent of winter normal) in parts of eastern Otago including Dunedin and Oamaru, Nelson, Marlborough, and along the southwestern coast of the North Island from Wellington to Taranaki.

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

[Overview](#)

[Temperature](#)

[Rain](#)

[Sunshine](#)

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

[Highlights and extreme events](#)

Overview

Early winter 2013 was characterised by lower pressures than normal across New Zealand and to the north and northeast of the country, with persistent high pressure centres south and southeast of Tasmania. This resulted in an anomalous east-southeasterly flow over the South Island, which contributed to well above normal rainfall totals recorded throughout areas to the east of the Southern Alps. Of particular note was the storm of 19-21 June, which brought the strongest sustained 10-minute winds that Wellington airport has seen since 1985. In addition, cold south-southeasterly winds associated with the storm resulted in a significant snowfall event across the South Island. Mid-late winter was characterised by much higher than normal pressures to the east and south-east of the country, and lower than normal pressures to the north, west and south of New Zealand. This resulted in more northerly and north-easterly airflow than usual across the country. This pressure pattern caused largely settled conditions over New Zealand for much of July and August, resulting in high mean temperatures for the time of year in many locations, but particularly throughout the South Island.

It was a very warm winter for most of the country, with mean temperatures well above average (more than 1.2°C above the winter average) throughout Southland, Otago (except South Otago), inland Canterbury, coastal Canterbury north of Ashburton, and isolated parts of the lower half of the North Island. Numerous locations across New Zealand (but especially across the South Island) recorded their highest mean temperature for winter on record. Near average mean temperatures (within 0.5°C of winter average) were recorded in areas of northern Taranaki, western Waikato, Coromandel, Auckland and Northland. Elsewhere, temperatures were above average (0.5-1.2°C above the winter average). The nation-wide average temperature in winter 2013 was 9.5°C (1.2°C above the 1971-2000 winter average, using NIWA's seven-station temperature series which begins in 1909). Based on this temperature series, winter 2013 was the warmest winter on record for New Zealand to date.

Overall, it was a wet winter for parts of Central Otago, the east coast of the South Island from Dunedin to Christchurch, and southeastern parts of Marlborough and Hawke's Bay. Rainfall was above normal (more than 120 percent of normal winter rainfall) at most of these areas. The exception was areas of eastern and Central Otago, where rainfall was well above normal (more than 150 percent of normal winter rainfall). This was largely as a result of the record rainfall totals that were recorded in June at these locations. In contrast, below normal rainfall (less than 80 percent of normal winter rainfall) occurred in parts of Manawatu, Taranaki, Bay of Plenty and Waikato. Near normal rainfall was recorded elsewhere (between 80 and 120 percent of normal winter rainfall).

As at 1 September 2013, most soils throughout New Zealand were at normal soil moisture levels for the time of year. In isolated parts of Central Otago, coastal North Otago and about Kaikoura, soils were wetter than normal for the time of year.

Sunshine hours for winter were well above normal (more than 125 percent of winter normal) about northern Fiordland, and above normal (110-125 percent of winter normal) for parts of western Southland, Queenstown Lakes, southern Westland, southeastern Hawke's Bay and Gisborne. Sunshine was below normal (75-90 percent of winter normal) in parts of eastern Otago including Dunedin and Oamaru, Nelson, Marlborough, and along the southwestern coast of the North Island

from Wellington to Taranaki. Near normal sunshine hours were experienced in remaining areas of the country (sunshine hours within 10 percent of winter normal).

Further Highlights:

- The highest temperature was 22.1 °C, recorded at Winchmore on 2 June, and at Kaitaia on 13 August.
- The lowest temperature was -12.1°C, observed at Lake Tekapo on 28 June.
- The highest 1-day rainfall was 187 mm, recorded at Pigeon Creek, Tasman on 3 June.
- The highest wind gust was 202 km/hr, at Mt Kaukau, Wellington, on 20 June.
- Of the six main centres in winter 2013, Wellington was the wettest, Dunedin was the driest, Auckland was the warmest, Christchurch was the coolest, Tauranga was the sunniest and Hamilton was the cloudiest.

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Temperature: Warmest winter on record for NZ. Winter temperatures well above average across areas of Southland, Otago, inland Canterbury, coastal Canterbury north of Ashburton, and isolated parts of the lower half of the North Island.

It was a very warm winter for most of the country, with mean temperatures well above average (more than 1.2°C above the winter average) throughout Southland, Otago (except South Otago), inland Canterbury, coastal Canterbury north of Ashburton, and isolated parts of the lower half of the North Island. Numerous locations across New Zealand (but especially across the South Island) recorded their highest mean temperature for winter on record (see Table below). Near average mean temperatures (within 0.5°C of winter average) were recorded in areas of northern Taranaki, western Waikato, Coromandel, Auckland and Northland.

The nation-wide average temperature in winter 2013 was 9.5°C (1.2°C above the 1971-2000 winter average, using NIWA's seven-station temperature series which begins in 1909)¹. Winter 2013 was the warmest winter on record for New Zealand to date, based on this temperature series. Furthermore, winter 2013 was 0.3°C warmer than the previous warmest winter that was recorded in 1984, making this the warmest winter on record by a considerable margin.

¹ Interim seasonal value

Record² or near-record mean air temperatures for winter were recorded at:

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Dargaville	13.1	1.5	1943	2nd-highest
Leigh	13.8	0.9	1966	2nd-highest
Te Puke	10.9	1.0	1973	4th-highest
Motu	7.7	1.4	1990	Highest
Masterton (Te Ore Ore)	9.6	1.7	1992	Highest
Dannevirke	9.7	1.4	1951	Highest
Waione	10.2	1.1	1991	2nd-highest
Martinborough	9.6	1.2	1986	Highest
Ngawi	11.9	1.1	1972	Highest
Gisborne	11.0	1.1	1905	3rd-highest
Waipawa	8.8	0.6	1945	Highest
Wairoa	11.2	1.4	1964	4th-highest
Mahia	11.4	1.1	1990	2nd-highest
Stratford	9.4	1.3	1960	Highest
Hawera	9.9	0.9	1977	2nd-highest
Palmerston North	10.3	1.2	1928	Highest
Wanganui	11.1	1.1	1937	3rd-highest
Levin	10.3	1.2	1895	Highest
Paraparaumu	10.3	1.1	1953	2nd-highest
Wellington (Airport)	11.1	1.0	1962	Highest
Wallaceville	9.2	0.8	1939	2nd-highest
Farewell Spit	11.5	1.3	1971	2nd-highest
Westport	10.3	1.2	1937	2nd-highest
Hokitika	9.1	1.1	1866	2nd-highest
Reefton	8.0	1.9	1960	Highest
Greymouth	9.7	1.1	1947	Highest
Haast	9.3	1.3	1949	3rd-highest
Milford Sound	7.8	1.7	1934	Highest
Secretary Island	10.2	1.0	1985	2nd-highest
Puysegur Point	9.6	1.1	1978	2nd-highest
Motueka	8.6	1.0	1956	3rd-highest
Nelson	9.3	1.2	1943	2nd-highest
Blenheim	9.6	1.2	1941	Highest
Kaikoura	10.1	1.4	1963	Highest
Culverden	7.3	1.5	1928	2nd-highest
Waiau School	7.4	1.6	1974	Highest
Cheviot	7.8	1.2	1982	2nd-highest
Waipara West	9.0	1.1	1973	Highest

² 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.

Christchurch (Riccarton)	8.3	1.3	1863	Highest
Lincoln	8.1	1.3	1881	Highest
Orari Estate	6.8	1.1	1972	Highest
Tara Hills	4.7	1.6	1949	2nd-highest
Wanaka (Airport)	6.0	1.7	1955	Highest
Ranfury	4.5	1.4	1975	Highest
Cromwell	5.8	1.5	1949	3rd-highest
Lauder	4.8	1.5	1924	Highest
Alexandra	5.7	1.5	1983	Highest
Oamaru	8.4	1.3	1908	Highest
Dunedin (Musselburgh)	8.4	1.3	1947	Highest
Manapouri	6.2	1.9	1963	2nd-highest
Lumsden	6.2	1.4	1982	2nd-highest
Gore	7.5	2.2	1971	Highest
Invercargill	7.5	1.5	1905	Highest
Nugget Point	8.1	1.5	1970	2nd-highest
South West Cape	9.0	1.3	1991	Highest
Campbell Island	5.6	0.5	1991	3rd-highest

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Leigh	17.4	1.9	1966	Highest
Motu	13.4	2.7	1990	Highest
Hamilton (Ruakura)	16.3	2.1	1906	Highest
Turangi	13.1	1.2	1968	2nd-highest
Masterton (Te Ore Ore)	14.5	1.3	1992	Highest
Dannevirke	13.9	1.8	1951	Highest
Martinborough	14.1	0.9	1986	4th-highest
Ngawi	14.3	1.0	1972	2nd-highest
Gisborne	15.9	1.0	1905	3rd-highest
Waipawa	14.0	1.0	1945	Highest
Wairoa	16.4	1.8	1964	Highest
Mahia	14.0	1.1	1990	Highest
Stratford	12.9	1.1	1960	Highest
Hawera	13.5	1.0	1977	3rd-highest
Palmerston North	14.3	1.2	1928	Highest
Paraparaumu	14.1	1.1	1953	3rd-highest
Levin	14.3	1.1	1895	3rd-highest
Wallaceville	13.7	0.8	1939	4th-highest
Wanganui	15.2	1.5	1937	2nd-highest
Takaka	14.5	0.6	1978	4th-highest
Westport	14.2	1.2	1937	Highest

Reefton	12.4	1.7	1960	Highest
Milford Sound	11.3	1.2	1934	Highest
Puysegur Point	11.5	0.7	1978	3rd-highest
Motueka	15.1	1.8	1956	2nd-highest
Appleby	14.3	1.0	1932	Highest
Nelson	14.2	1.4	1943	Highest
Blenheim	14.5	0.9	1941	2nd-highest
Kaikoura	12.9	1.4	1963	2nd-highest
Waiau School	13.0	1.2	1974	4th-highest
Cheviot	13.2	0.8	1982	3rd-highest
Christchurch (Riccarton)	13.2	1.3	1863	2nd-highest
Lincoln	12.7	1.2	1881	2nd-highest
Orari Estate	11.9	0.7	1972	3rd-highest
Timaru	12.5	1.2	1885	3rd-highest
Tara Hills	10.1	1.9	1949	Highest
Wanaka (Airport)	10.3	1.5	1955	Highest
Cromwell	10.8	1.4	1949	2nd-highest
Alexandra	11.0	1.4	1983	4th-highest
Dunedin (Airport)	12.1	1.0	1962	3rd-highest
Dunedin (Musselburgh)	11.9	1.3	1947	Highest
Manapouri	10.5	1.7	1963	Highest
Lumsden	10.6	1.1	1982	2nd-highest
Gore	11.3	2.3	1971	2nd-highest
Invercargill	11.4	1.2	1905	Highest
Nugget Point	10.8	1.3	1970	Highest
South West Cape	10.8	1.1	1991	2nd-highest

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Dargaville	9.9	1.5	1943	2nd-highest
Auckland (Lincoln Rd)	8.7	1.6	1948	4th-highest
Te Puke	6.2	1.2	1973	4th-highest
Stratford	5.8	1.6	1960	Highest
Hawera	6.3	0.9	1977	3rd-highest
Palmerston North	6.5	1.4	1928	Highest
Wanganui	7.5	1.1	1937	4th-highest
Masterton (Te Ore Ore)	4.6	2.1	1992	Highest
Dannevirke	5.5	1.1	1951	3rd-highest
Waione	6.1	1.6	1991	2nd-highest
Castlepoint	8.9	1.1	1972	2nd-highest
Martinborough	5.1	1.3	1986	Highest
Ngawi	9.4	1.2	1972	Highest

Mahia	8.9	1.0	1990	2nd-highest
Paraparaumu	6.6	1.1	1953	2nd-highest
Wellington (Airport)	8.5	1.1	1962	2nd-highest
Wallaceville	4.8	0.8	1939	3rd-highest
Farewell Spit	8.6	2.0	1971	Highest
Westport	6.5	1.2	1937	2nd-highest
Hokitika	5.1	1.4	1866	2nd-highest
Reefton	3.5	2.1	1960	Highest
Greymouth	6.5	1.7	1947	Highest
Haast	6.0	1.8	1949	2nd-highest
Milford Sound	4.3	2.3	1934	Highest
Secretary Island	8.0	1.4	1985	Highest
Puysegur Point	7.7	1.6	1978	2nd-highest
Nelson	4.4	1.1	1943	2nd-highest
Blenheim	4.8	1.6	1941	Highest
Cape Campbell	8.5	1.1	1953	Highest
Kaikoura	7.2	1.4	1963	2nd-highest
Culverden	2.1	2.3	1928	2nd-highest
Waiau School	1.7	1.9	1974	2nd-highest
Cheviot	2.5	1.5	1982	Highest
Ashburton	2.4	1.1	1928	3rd-highest
Waipara West	4.5	1.6	1973	Highest
Lincoln	3.5	1.5	1881	2nd-highest
Orari Estate	1.7	1.4	1972	2nd-highest
Timaru	2.9	0.9	1885	4th-highest
Tara Hills	-0.7	1.3	1949	Highest
Wanaka (Airport)	1.8	1.9	1955	3rd-highest
Ranfurly	-0.5	1.6	1975	2nd-highest
Oamaru	4.3	1.7	1908	Highest
Dunedin (Musselburgh)	5.0	1.2	1947	2nd-highest
Manapouri	1.9	2.0	1963	4th-highest
Lumsden	1.8	1.7	1982	2nd-highest
Cromwell	0.7	1.5	1949	2nd-highest
Lauder	-0.1	1.6	1924	2nd-highest
Alexandra	0.5	1.7	1983	Highest
Gore	3.6	2.0	1971	Highest
Invercargill	3.6	1.9	1905	Highest
Nugget Point	5.5	1.6	1970	Highest
South West Cape	7.2	1.5	1991	2nd-highest
Campbell Island	3.8	0.8	1991	2nd-highest

Rainfall: Wet winter for parts of Central Otago, the east coast of the South Island from Dunedin to Christchurch, and southeastern parts of Marlborough and Hawke’s Bay. Below normal rainfall for parts of Manawatu, Taranaki, Bay of Plenty and Waikato.

Overall, it was a wet winter for parts of Central Otago, the east coast of the South Island from Dunedin to Christchurch, and southeastern parts of Marlborough and Hawke’s Bay. Rainfall was above normal (more than 120 percent of normal winter rainfall) at most of these areas. The exception was areas of eastern and Central Otago, where rainfall was well above normal (more than 150 percent of normal winter rainfall). This was largely as a result of the record rainfall totals that were recorded in June at these locations. In contrast, below normal rainfall (less than 80 percent of normal winter rainfall) occurred in parts of Manawatu, Taranaki, Bay of Plenty and Waikato. Near normal rainfall was recorded elsewhere (between 80 and 120 percent of normal winter rainfall).

As at 1 September 2013, most soils throughout New Zealand were at normal soil moisture levels for the time of year. In isolated parts of Central Otago, coastal North Otago and about Kaikoura, soils were wetter than normal for the time of year.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
Ranfurlly	142	174	1943	3rd-highest
Cromwell	164	180	1949	2nd-highest
Lauder	134	179	1924	Highest
Alexandra	141	175	1983	Highest
Low records or near-records				
Motu	361	54	1990	Lowest
Turangi	256	56	1968	3rd-lowest
Campbell Island	288	90	1992	4th-lowest

Sunshine: Sunny winter for western Southland, Queenstown Lakes, southern Westland, southeastern Hawke’s Bay and Gisborne. Below normal sunshine for parts of eastern Otago including Dunedin and Oamaru, Nelson, Marlborough, and along the southwestern coastal areas of the North Island from Wellington to Taranaki.

Sunshine hours for winter were well above normal (more than 125 percent of winter normal) about northern Fiordland, and above normal (110-125 percent of winter normal) for parts of western Southland, Queenstown Lakes, southern Westland, southeastern Hawke’s Bay and Gisborne. Sunshine was below normal (75-90 percent of winter normal) in parts of eastern Otago including Dunedin and Oamaru, Nelson, Marlborough, and along the southwestern margin of the North Island from Wellington to Taranaki. Near normal sunshine hours were experienced in remaining areas of the country (sunshine hours within 10 percent of winter normal).

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

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Cheviot	432	133	1983	Highest
Low records or near-records				
Blenheim	443	91	1947	3rd-lowest

Winter climate in the six main centres

Mean winter temperatures were well above average in Dunedin and Christchurch, above average in Wellington and Tauranga, and near average in Auckland and Hamilton. Christchurch recorded more than 1.5 times its normal winter rainfall, although two-thirds of the total winter rainfall observed there was recorded in June. Similarly, Dunedin recorded the vast majority (74%) of their winter rainfall in June. Near normal winter sunshine hours were recorded across all main centres except Christchurch, where below normal winter sunshine hours were recorded. Of the six main centres in winter 2013, Wellington was the wettest, Dunedin was the driest, Auckland was the warmest, Christchurch was the coolest, Tauranga was the sunniest and Hamilton was the cloudiest.

Winter 2013 main centre climate statistics:

Temperature			
Location	Mean temp. (°C)	Departure from normal (°C)	Comments
Auckland ^a	11.8	0.4	Near average
Tauranga ^b	11.4	0.7	Above average
Hamilton ^c	9.6	0.4	Near average
Wellington ^d	10.4	1.1	Above average
Christchurch ^e	7.7	1.2	Well above average
Dunedin ^f	8.4	1.2	Well above average
Rainfall			
Location	Rainfall (mm)	% of normal	Comments
Auckland ^a	351	95%	Near normal
Tauranga ^b	271	77%	Below normal
Hamilton ^c	293	79%	Below normal
Wellington ^d	470	121%	Above normal
Christchurch ^e	285	155%	Well above normal
Dunedin ^f	234	139%	Above normal
Sunshine			
Location	Sunshine (hours)	% of normal	Comments
Auckland ^a	382	96%	Near normal
Tauranga ^b	436	95%	Near normal
Hamilton ^g	336	93%	Near normal
Wellington ^d	343 ³	94%	Near normal
Christchurch ^e	354	89%	Below normal
Dunedin ^f	341	104%	Near normal

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

³ Three days of missing sunshine data in July (due to earthquake evacuations) were estimated.

Highlights and extreme events

Temperatures

The highest winter temperature was 22.1 °C, recorded at Winchmore on 2 June, and Kaitaia on 13 August.

The lowest winter temperature was -12.1°C, observed at Lake Tekapo on 28 June. This was associated with enhanced radiative cooling of the near surface atmosphere that resulted from clear skies, and snow lying on the ground surface.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Kaitaia	22.1	Aug-13th	1967	Highest
Leigh	20.9	Aug-04th	1966	Equal 2nd-highest
Whakatane	20.0	Jun-12th	1975	Equal 3rd-highest
Opotiki	20.1	Jun-12th	1947	4th-highest
Motu	17.7	Jul-23rd	1990	3rd-highest
Port Taharoa	20.3	Aug-03rd	1973	Highest
Turangi	18.6	Jun-12th	1968	3rd-highest
Paraparaumu	19.4	Jun-10th	1953	4th-highest
Levin	20.5	Aug-25th	1895	3rd-highest
Wallaceville	20.5	Aug-25th	1939	Highest
Westport	18.5	Aug-03rd	1937	Equal highest
Reefton	18.7	Aug-17th	1960	2nd-highest
Franz Josef	20.0	Jun-30th	1982	2nd-highest
Haast	18.1	Aug-17th	1949	4th-highest
Secretary Island	19.2	Aug-17th	1985	2nd-highest
Stephens Island	15.8	Jun-11th	1973	2nd-highest
Motueka	20.8	Aug-10th	1956	Equal 3rd-highest
Nelson	18.9	Aug-10th	1943	Equal 2nd-highest
Appleby	20.0	Aug-10th	1932	3rd-highest
Lumsden	17.5	Aug-18th	1982	3rd-highest
Gore	17.7	Jun-01st	1971	Equal 3rd-highest
South West Cape	16.3	Aug-18th	1991	3rd-highest
Low records or near-records				
Tauranga	8.3	Jul-16th	1941	2nd-lowest
Arapito	7.3	Jul-09th	1978	3rd-lowest
Motueka	5.6	Jun-22nd	1972	2nd-lowest

Appleby	5.9	Jun-22nd	1941	3rd-lowest
Nelson	6.3	Jun-22nd	1943	3rd-lowest
Blenheim	5.4	Jun-22nd	1947	2nd-lowest
Hanmer Forest	0.9	Jun-22nd	1972	3rd-lowest
Cheviot	3.8	Jun-22nd	1982	3rd-lowest
Campbell Island	-1.0	Jul-25th	1991	Lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
Low records or near-records				
Hokitika	-4.0	Jul-12th	1866	2nd-lowest
Okarito	-3.5	Jul-08th	1982	3rd-lowest
Stephens Island	-0.1	Jul-11th	1973	3rd-lowest
Cheviot	-7.0	Jun-12th	1982	Lowest
Orari Estate	-7.4	Jul-12th	1972	3rd-lowest
High records or near-records				
Motu	11.0	Jun-18th	1990	3rd-highest
Ngawi	15.1	Jun-02nd	1972	2nd-highest
Paraparaumu	14.7	Jun-02nd	1972	Highest
Wellington (Airport)	14.2	Jun-02nd	1972	Equal 3rd-highest
Takaka	12.7	Jun-03rd	1978	3rd-highest
Farewell Spit	13.9	Jun-04th	1972	3rd-highest
Greymouth	13.6	Jun-02nd	1972	Highest
Okarito	13.0	Jun-03rd	1983	Highest
Haast	13.1	Jun-02nd	1949	2nd-highest
Secretary Island	12.7	Jun-17th	1988	3rd-highest
Puysegur Point	13.0	Jul-22nd	1978	Highest
Blenheim	13.7	Jun-03rd	1972	4th-highest
Hanmer Forest	13.2	Jun-02nd	1972	2nd-highest
Culverden	14.9	Jun-02nd	1930	Highest
Cheviot	11.6	Jul-02nd	1982	Highest
Craigieburn Forest	8.5	Jun-02nd	1964	Equal highest
Waipara West	15.0	Jun-02nd	1973	2nd-highest
Darfield	11.5	Jun-02nd	1972	Equal 4th-highest
Le Bons Bay	14.0	Jun-02nd	1984	Highest
Orari Estate	8.4	Aug-19th	1972	4th-highest
Lumsden	10.3	Jul-02nd	1982	Equal 4th-highest
Alexandra	10.8	Jul-03rd	1983	Equal 4th-highest
Nugget Point	10.4	Jun-02nd	1972	4th-highest
Tautuku	10.0	Jun-01st	1976	Equal 2nd-highest
South West Cape	11.6	Jul-21st	1991	Highest
Campbell Island	8.5	Jun-08th	1991	Equal 4th-highest

Rain and slips

The highest 1-day rainfall was 187 mm, recorded at Pigeon Creek, Tasman on 3 June.

On 4 June, flash flooding in the Auckland suburbs of Massey, Glen Eden, Stanmore Bay, and Mt Roskill caused damage to some houses and garages, and a supermarket in Green Bay (west Auckland) was also flooded. Several Southland roads remained closed due to flooding caused by heavy rain and melting snow.

Torrential rainfall occurred in the Nelson and Tasman regions on the 15th and 16th of June. A 200 m long slip near Kaiteriteri destroyed a house, and resulted in the death of a 63-year-old woman. The Anatoki Salmon Farm was severely damaged by a landslide, with much of the fish stock destroyed. Numerous roads were closed in the region due to flooding and slips. A number of motorists were trapped and residents were isolated when two landslides blocked a road near Tapawera. Residents of a home in Titirangi, west Auckland, were evacuated after a landslide forced a tree through their roof. Heavy rain caused widespread surface flooding and power cuts in the Auckland region. SH 8 between Cromwell and Clyde was closed for several hours, as heavy rain compromised the integrity of adjacent cliffs, resulting in rocks the size of car bonnets falling onto the road. SH 1 from Blenheim to Kaikoura was closed for a time due to flooding.

On 17 June, another slip damaged a home in the Tasman region. A number of roads in the region were closed due to slips and flooding. In parts of Golden Bay there were minor sewage overflows. In Christchurch, widespread surface flooding occurred in a number of suburbs, causing disruption for motorists and flooding houses. A number of schools, shops, and roads in the Canterbury region were closed due to flooding. Water had to be trucked in to Akaroa, Takamatua, and Duvauchelle on Banks Peninsula where dirty stormwater contaminated supply to the area, and boil water notices were issued in parts of Christchurch. In north Otago, rivers were at or above record levels. Overnight on 16-17 June, a series of slips came down on SH 2 at Rimutaka Hill, blocking the road for a few hours.

On 17 June, transport routes in and out of Dunedin and Oamaru were cut off by flooding for a time. Flooding caused SH 1 to close in Otago, between Waikouaiti and the Karitane turn-off, from Big Kuri Creek to Hampden, from Maheno to Reidston, and from Pukeuri to Waitaki River Bridge. SH 83 from Seven Mile Rd to Otematata, SH 87 from Hyde to Kyeburn, and SH 82 from Waimate to Kurow were closed due to flooding. In Taranaki, one person died in a car crash attributed to wet roads.

On 20 June, slips closed several roads across Dunedin. Additionally, a Dunedin woman was rescued after a slip trapped her inside her house. Several homes were flooded in Leeston, Canterbury, and some schools in the area were closed due to flooding. A number of car crashes in the Canterbury region were attributed to flooding.

On 20-21 June, Wellington was hit by the storm that had been working its way up the country. Surface flooding was recorded in many areas, and train tracks were undermined by high swells. The Hutt Valley line between Wellington and Petone was closed, as was the Melling line from Melling to Petone, and the Wairarapa line from Wellington to Upper Hutt. These rail lines were closed for almost a week. In Kaitaia, minor surface flooding was reported. Severe flooding occurred in the Selwyn District in Canterbury, especially around the town of Leeston. Christchurch's stormwater

system struggled to cope with the amount of rain, and the sewer system overflowed in some areas. The worst flooding of Lake Ellesmere in decades caused thousands of hectares of farmland to flood and forced the evacuation of some homes. SH 1 between Blenheim and Kaikoura was closed for a time due to flooding.

On 22 June, 11 houses in Dunedin were evacuated due to a slip. A slip fell onto Lyttelton Museum, which had already been closed due to earthquake damage.

On 3 July, heavy rain caused surface flooding on roads in Waikaka, north of Gore. Snowmelt and heavy rain caused streams to burst their banks in south Otago and northern Southland, closing some roads and blocking drains. Water was shin-deep in parts of Clinton township.

On 6 July, a rock fall closed SH 6 at the Kawarau Gorge, between Cromwell and Queenstown. The rock fall was caused by the heavy rain over the preceding weeks. The detour to get to Queenstown had to go via Wanaka and the Crown Range, adding more than an hour to the journey. Hundreds of motorists were held up from crossing the Crown Range because snow and icy conditions set in.

The lack of rain in July and early August caused some Waikato water tanks to run dry. Demand for water tankers to fill tanks was up 80% from the same time last year.

On 17 August, heavy rain in Marlborough forced the closure of Marama Rd, Old Renwick Road and Omaka Road due to surface flooding.

On 22 August, slips blocked the south-bound lane and part of the north-bound lane on Kopu Hikui Rd in Coromandel, and on the Tauranga side of the Kaimai Range on SH 29.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
Te Aroha, Bowler Road	50	Jun-09th	1992	4th-highest
Eastray Station	74	Jul-11th	1897	2nd-highest
Rotowai	97	Jul-10th	1967	Highest
Pongaroa	92	Jul-11th	1973	2nd-highest
Hastings	92	Jul-10th	1983	3rd-highest
Napier	126	Jul-13th	1870	4th-highest
Smedley	94	Jul-10th	1964	4th-highest
Makaretu North	101	Jul-10th	1960	4th-highest
Mahia	60	Aug-04th	1990	4th-highest
Waituna	36	Jun-04th	1984	4th-highest
Judgeford	94	Jun-20th	1978	Highest
Trentham Racecourse	75	Jun-20th	1930	4th-highest
Ohakune	152	Aug-11th	1961	Highest
Waiouru	51	Jul-10th	1950	2nd-highest
Pukeokahu	58	Jul-10th	1991	Highest
Tapawera	54	Jun-16th	1992	Equal 4th-highest
Brandy Creek	108	Jun-08th	1985	Highest

Kohatu	107	Jun-08th	1913	3rd-highest
Glenthorne	60	Jun-03rd	1985	Equal 3rd-highest
Hororata West	57	Jun-16th	1948	3rd-highest
Woodend	75	Jun-16th	1981	4th-highest
Prebbleton	60	Jun-16th	1969	3rd-highest
Living Springs	62	Jun-21st	1978	Highest
Leeston	43	Jun-22nd	1986	4th-highest
Kimbell	87	Jun-19th	1971	3rd-highest
Mt Nimrod	112	Jun-17th	1964	Highest
Melford Hills	77	Jun-16th	1964	3rd-highest
Hunter Valley	86	Jun-02nd	1958	2nd-highest
Tara Hills	65	Jun-02nd	1949	2nd-highest
Hawea Flat	76	Jun-02nd	1921	Highest
Naseby Forest	45	Jun-02nd	1983	Highest
Ranfury	33	Jun-02nd	1943	3rd-highest
Trotters Creek	62	Jun-16th	1908	3rd-highest
Lee Flat	49	Jun-19th	1954	4th-highest
Mosgiel	75	Jun-19th	1952	3rd-highest
Sullivans Dam	121	Jun-16th	1953	4th-highest
Southern Reservoir	72	Jun-16th	1967	3rd-highest
Queenstown	72	Jun-02nd	1890	4th-highest
Cromwell	49	Jun-02nd	1949	4th-highest
Matakanui	58	Jun-02nd	1947	Highest
Lauder	49	Jun-02nd	1924	Highest
Bannockburn	59	Jun-02nd	1971	Highest
Ophir	35	Jun-02nd	1924	3rd-highest
Alexandra	49	Jun-02nd	1983	Highest
Rosebank	32	Jun-02nd	1984	Highest
Lovells Flat	34	Jun-19th	1977	4th-highest

Wind

The highest wind gust was 202 km/hr, at Mt Kaukau, Wellington, on 20 June.

On 2 June, high winds in the Mackenzie Country overturned vehicles and downed powerlines. The gusts blew out the windows of a caravan, and a section of SH 8 between Fairlie and Twizel was temporarily closed due to wind gusts. A motorhome was overturned on the Mt Cook Road, and a motorcyclist was blown off his bike in Central Otago.

On 4 June in Wellington, strong gales and high seas forced the Te Matau a Maui sailing waka to anchor in Island Bay instead of entering the harbour. The gales in Wellington caused power cuts in Tawa and Titahi Bay as falling trees downed powerlines. Some flights from Wellington were cancelled due to the wind. Gale force winds cut power and felled trees in Westport and the Buller district, and were of such strength that trampolines were displaced.

On 16 June, high winds in Auckland caused power outages.

On 19 June, a tornado touched down near Ohaupo, southwest of Hamilton.

On 20-21 June, severe gales associated with a significant storm event hit Wellington, causing widespread damage to infrastructure and vegetation in the region. 30,000 homes were without power, and the Fire Service attended over 900 callouts on the night of the 20 June. Trees were felled, roofs blown off, and windows smashed due to the wind. The airport was closed to all flights during the worst of the storm, with train, harbour ferry and interisland ferry services cancelled. The Interislander ferry Kaitaki broke off its moorings and had to be anchored in Wellington Harbour for the night, with 50 staff on board. A large number of schools were closed in the region. A gust of 202 km/hr was recorded at Wellington's Mt Kaukau, and swells were up to 15m in Cook Strait. On the south coast of Wellington, large waves damaged houses, roads, and sea walls. On the west coast of the South Island, strong winds caused the roof to be lifted off Whataroa Store and a flight from Christchurch to Hokitika had to turn around. In Kaitia, trees were felled due to wind. Performances by the NZ Symphony Orchestra and the NZ Royal Ballet were cancelled in Auckland because performers were stuck in Wellington due to the storm.

On 3 July, strong winds caused a tree to fall on a car on SH 8 between Timaru and Fairlie. SH 8 between Fairlie and Pleasant Point was closed due to fallen trees on the road. More than 1000 homes were out of power again in the Mackenzie, Albury, and Fairlie areas as wind brought down powerlines, and power was also cut to about 6000 Ashburton homes and businesses. In Wellington, strong gusts blew down a billboard and lifted a roof. The wind was also a likely cause of two crashes in Canterbury, a caravan which rolled off the road near Castle Hill, and a truck and trailer unit which rolled near Lake Pearson.

On 5 July, severe gales cut power to about 10000 Christchurch homes, and downed powerlines sparked scrub fires in inland Canterbury, causing two houses to be evacuated and destroying a farm shed. A truck and trailer unit was blown over on SH 1 north of Kaikoura, and trees and powerlines were blown down throughout the Marlborough and Canterbury regions.

On 7 July, a small tornado touched down at Himatangi Beach near Palmerston North, ripping out a fence, and sending a barn roof flying into power lines before cutting off electricity to the area.

On 14-15 July, strong winds affected much of the North Island and northern South Island, bringing down trees and power lines. Some flights in and out of Wellington and interisland ferry sailings were cancelled on 14 July due to high winds and 7 m swells in Cook Strait. New Plymouth airport was closed for a time due to high winds. Strong winds caused considerable damage to property in New Plymouth, ripping off roofs, damaging barns, smashing windows, and toppling chimneys. The Interislander ferry Arahura was forced to take an alternative route through Queen Charlotte Sound to Picton on the 15th, instead of the usual Tory Channel route. About 1700 homes in Lower Hutt and 8000 homes in Taranaki lost power due to the wind. The Trans-Future 7, a high-sided car carrier, broke free of its moorings in the wind and drifted away from the dock in Wellington Harbour. Two tug boats pulled the ship to safety. SH 73 between Renwick and St Arnaud was closed due to fallen trees and debris blocking the road.

On 7 August, a waterspout was seen off the coast of New Plymouth. It hit land near Bell Block but no damage was reported.

Record or near record winter extreme wind gusts were recorded at:

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Turangi	98	Jul-14th	1973	2nd-highest
New Plymouth	128	Jul-14th	1972	2nd-highest
Baring Head	150	Jul-14th	1991	2nd-highest
Wellington (Airport)	143	Jun-20th	1972	3rd-highest
Hawera	104	Jul-14th	1986	Equal highest
Wanganui	126	Jun-20th	1977	Highest
Westport	109	Jun-04th	1973	3rd-highest
Puysegur Point	150	Jul-02nd	1986	2nd-highest
Cape Campbell	150	Jun-20th	1963	2nd-highest
Ashburton	98	Jul-06th	1970	Equal 3rd-highest
Tara Hills	106	Jun-02nd	1985	Highest
Wanaka (Airport)	78	Jun-02nd	1992	4th-highest
Manapouri	76	Jul-01st	1991	2nd-highest
Gore	109	Jul-02nd	1987	4th-highest
South West Cape	167	Jul-01st	1991	2nd-highest

Snow and ice

On 3 June, Burkes Pass near Tekapo had to be closed due to up to 50 cm of snow on the road, catching out more than 100 motorists.

On 19 June, the occupants of 20 cars were rescued at Jollies Pass in Southland after they were stranded by snow.

On 20-21 June, a severe snow event occurred in the South Island. Relatively little snow settled at isolated sea level locations over the course of the event, however significant accumulations occurred at higher elevations. Heaviest snowfalls occurred in areas including Tekapo, Naseby, Clarks Junction and the Hakataramea Valley, where unofficial snow depths of 60 cm or more were reported. Elsewhere, unofficial snow depths of 30 cm or more were reported in areas of northern Southland, eastern Central Otago, and throughout the foothills and high country of Canterbury. Fairlie and Middlemarch were cut off by snow and with no power, and Naseby was also cut off. The snowfall proved especially challenging for farmers. In some cases, considerable snow clearing efforts were required in order to reach livestock and provide them with feed. By the end of the storm, most ski fields in the South Island had received over a metre of new snow, with accurate measurement of actual snowfall proving difficult by virtue of the considerable amount of snow that fell, combined with drifting caused by strong winds. Staff at Mt Hutt in Canterbury estimated a total of 2.8 m of new snow from the storm, with drifts in excess of 6 m on their access road. Flights from Invercargill, Queenstown, and Dunedin were cancelled or delayed due to snow. A number of state highways were closed due to snow, including: SH 85 from Omakau to Palmerston, SH 87 from Kyeburn to Outram, SH 6 from Kingston to Lumsden, SH 97 from Five Rivers to Mossburn, SH 6 from Queenstown to Kingston, SH 6 from Haast to Wanaka, SH 8 Lindis Pass, SH 80 from Glentanner to Mt Cook, SH 8 from Twizel to Fairlie (Burkes Pass), SH 79 from Geraldine to Fairlie, SH 73 from

Springfield to Arthurs Pass (Porters Pass), Arthur's Pass on SH 73, and SH 7 from Hanmer turnoff to Springs Junction (Lewis Pass). Chains had to be carried on SH 94 from Te Anau to Milford Sound. Numerous schools were closed throughout the South Island. The Southland finals of the Smokefree Rockquest were cancelled due to poor weather conditions. Snow also affected the central North Island, where National Park Primary School was closed, and the following state highways were closed: SH 1 Rangipo to Taihape (Desert Road), SH 46 Rangipo to Tongariro, SH 48 Tongariro National Park, SH 47 Turangi to National Park, and SH 4 and 49 National Park to Waiouru.

On 23 June, a large avalanche triggered during snow safety operations by staff at Mt Hutt severely damaged the Towers Triple Chair. Porters ski area also suffered damage to infrastructure as a result of avalanche activity.

On 25 June, the inland Kaikoura Road between Waiau and SH 1 was closed to all traffic after a 15-tonne avalanche blocked the road.

On 14-15 July, snow fell to low levels in Canterbury, Otago, and the Kaikoura ranges, as well as on the hills around Wellington, Hawke's Bay, inland from Gisborne, and the across the Central Plateau. Roads closed to snow included: SH 2 at Rimutaka Hill, Akatarawa Road (which joins the Kapiti Coast to Upper Hutt), SH 1 at the Desert Road, and the Napier-Taihape road. Caution was advised on SH 2 between Opotiki and Wairoa due to snow, and SH 73 between Springfield and Otira (Arthur's Pass) was closed to towing vehicles, while all other vehicles were required to use chains. A warning was issued in Southland and Otago for black ice on roads, which contributed to a number of car crashes in the area. A buildup of snow and ice snapped powerlines in the Rangitikei district, causing power to be cut to some rural areas.

On 29 August, a short southerly blast caused snowfall across parts of Central Otago, Canterbury, and the hills around Nelson, boosting the snow base at ski fields which hadn't seen decent snowfall for over a month. SH 73 from Springfield to Otira (Arthurs Pass and Porters Pass) and SH 94 from Te Anau to Milford Sound were closed to towing vehicles due to snow, and all other vehicles had to carry chains. Caution was advised on SH 8 between Fairlie and Omarama due to snow and ice.

Lightning and hail

On 17 June, an Air New Zealand plane flying from Christchurch to Auckland was struck by lightning, giving passengers a fright.

On 20 June, lightning strikes caused the evacuation of a number of homes in west Auckland. Intense hail storms struck west Auckland, where the accumulation of hail on roads made for treacherous driving conditions.

On 8 July, silent 'heat' lightning occurred off the Wairarapa coast and was seen across Kapiti, Wellington, and as far north as Masterton. This was due to a trough of cold air moving over the relatively warm waters off the Wairarapa coast.

On 14 July, lightning strikes cut power to a few hundred homes in the Leeston area in Canterbury for a time.

In the early hours of 25 August, thunderstorms caused flooding of some homes and set off security alarms in Auckland. A house in Helensville was struck by lightning.

Cloud and fog

On 24 and 26 June, thick fog covered Hamilton so some flights were delayed or diverted to Tauranga.

On 22 July, heavy fog persisted for much of the day in Auckland, and caused the cancellation of dozens of domestic flights at Auckland airport. Fog also cancelled some flights at Hamilton airport.

On 30 July, fog caused the cancellation and delays of numerous regional flights in and out of Auckland airport. Some flights were delayed at Hamilton airport due to fog.

On 26 August, around 50 domestic flights were delayed or cancelled at Auckland airport, and Auckland ferry services were delayed, due to heavy fog. Flights were also cancelled and delayed at Hamilton airport due to fog.

For further information, please contact:

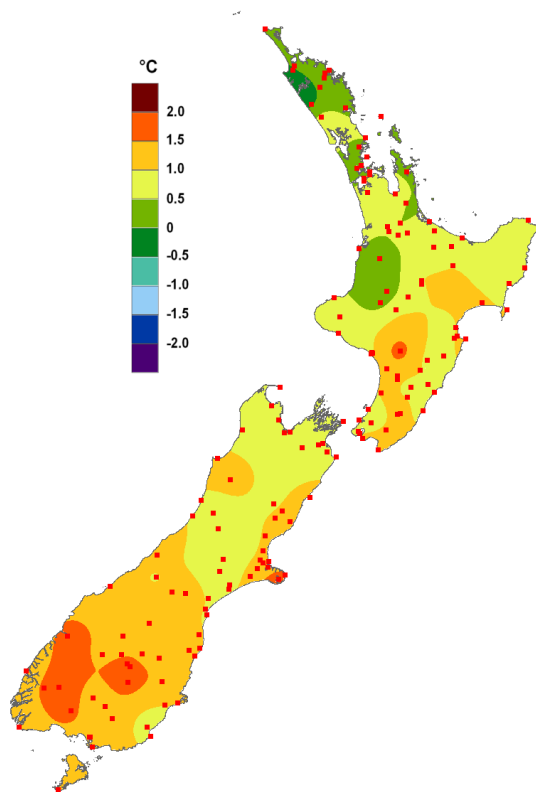
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Winter 2013 mean temperatures, expressed as a difference from average (°C).

Dark orange colours indicate temperatures more than 1.5°C above the winter average, which were predominantly recorded in parts of Southland. Mean temperatures were at least above average (between 0.5 to 1.2°C above the winter average) across the majority of New Zealand. The exception was areas of northern Taranaki, western Waikato, Coromandel, Auckland and Northland, where near average temperatures were recorded (within 0.5°C of the winter average temperature, as indicated by green colours on the map).

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