

10 JANUARY 2008

New Zealand national climate summary – the year 2007

2007: much drier than average in many places, but disastrous floods in Northland. Drought, destructive tornadoes, windstorms, variable temperatures

New Zealand's climate for 2007 was marked by too little rain in many places, and record low rainfalls in some locations. Rainfall during the year was less than 60 percent of normal in parts of Marlborough, Canterbury and Central Otago, with some places recording their driest year on record. Parts of the south and east, and Wellington, recorded one of their sunniest years on record too. The national average temperature was of 12.7°C during 2007 was close to normal. This was a result of some warm months (May being the warmest on record) offset by some cooler months.

“Notable climate features in various parts of the country were disastrous floods in Northland with very dry conditions, and drought in the east of the North Island”, says NIWA Principal Scientist Dr Jim Salinger. “As well there was an unprecedented swarm of tornadoes in Taranaki, destructive windstorms in Northland and in eastern New Zealand in October and hot spells. Of the main centres Dunedin was extremely sunny and dry, and it was dry in the other centres.”

“The year saw a swing from an El Niño to a La Niña climate pattern. The start of the year was dominated by a weakening El Niño in the equatorial Pacific. From September onwards La Niña conditions had developed in the tropical Pacific, with a noticeable increase in the frequency and strength of the westerlies over New Zealand in October and then a significant drop in windiness from November. Moderate to strong La Niña conditions had developed by the end of the year. Overall more anticyclones (‘highs’) occurred over New Zealand.”

“There were numerous heavy rainfall events during 2007, of which about 9 produced floods. Notable snowfall events occurred on relatively few occasions. There were 14 damaging tornado events for New Zealand for the year, an early autumn and late spring hot spell, two severe hailstorms, and seven damaging electrical storms” said Dr Salinger.

The year in review

The year began with low rainfall and significant soil moisture deficits, especially in the east, which persisted in the east of the North Island until May. A 1-day hot spell occurred near the end of January in Hawke's Bay with temperatures reaching 34°C, and exceeding 30 °C in most other eastern regions. The most disastrous Northland floods for many decades occurred in the Far North and Whangarei districts, especially in the Bay of Islands area at the end of March, due to exceptionally high rainfall ranging from 250 to more than 400 mm occurred in eastern Northland. April was a relatively dry month overall, especially over the North Island, and in the north and west of the South Island. Warmer than normal seas to the west, anticyclones to the east, and frequent warm northwesterlies over New Zealand, produced record high mean May temperatures for New Zealand overall and the driest May on record in the north of the north and east of the country. The national average temperature was 12.4 °C (1.7 °C above normal); the highest for New Zealand as a whole in reliable records dating back to the 1860s.

June was a wintry month in the South Island, especially in the south, with frequent bitterly cold southwesterlies producing snowfall to low levels in Southland, Otago, and South Island high country passes. Severe frosts occurred after the snow. July was a month of extremes and contrasts with depressions often tracking over, or to the north of, the North Island producing floods in parts of Northland (over 400 mm in some areas), Hawke's Bay, coastal South Canterbury, and Otago, damaging windstorms in Northland, Auckland, and the Coromandel, and thunderstorms and damaging tornadoes in Taranaki (severe), Auckland, and Bay of Plenty. More settled, although rather cold, conditions existed for much of the month in Central Otago and inland Southland, often with periods of freezing fog. At Lauder, air temperatures were constantly below zero from July 12th to 21st, and there were 13 days from July 7 to 22 with minimum air temperatures below -10.0 °C. August was windy at times with frequent disturbed southwesterlies, especially to the east, resulting in low rainfall in sheltered northern and eastern South Island regions, and normal or above normal rainfall in most other regions. It was particularly sunny in Wellington, Nelson, and inland areas of south Canterbury. September was a relatively benign month with more anticyclones, less wind than normal, and generally below average rainfall.

October was rather stormy and generally cold with deep depressions tracking south of New Zealand and frequent westerly gales. This was the 4th windiest October overall in regard to westerlies in measurements that commenced in 1966. Wind gusts over 130 km/h were recorded on 13 days (42%) in the month. In fact, many stations had at least 7 more days with strong winds (with gusts to 60 km/h or more) than is average for the time of year. Low rainfall occurred in many regions in November 2007, especially in the South Island, with totals less than 10 mm throughout much of Nelson, Marlborough, and Central Otago, and severe soil moisture deficits resulted from the lack of rainfall in parts of Hawke's Bay, Marlborough, Canterbury, and Otago. Extremely warm conditions with maximum temperatures of 30 °C or more occurred in many eastern regions between 20 and 26 November. The month was one of the sunniest November's on record in Golden Bay, Nelson, Marlborough, Taranaki, and inland areas of Canterbury.

December 2007 was characterised by near or below normal rainfall in many regions, with severe soil moisture deficits persisting in Marlborough, Canterbury, North and Central Otago. The month had a wet start in Northland followed by more settled conditions. Temperatures were above average in most northern and western regions, but near average in the east. Southland and Otago basked in well above average sunshine. However, cloudy skies prevailed with near or record low December sunshine hours in parts of Northland, Waikato, and Taranaki.

NIWA analyses of month-by-month records and preliminary end of year data show:

- The highest annual mean temperature recorded for the year was 16.0°C recorded at Whangarei Airport.
- The highest recorded extreme temperature of the year occurred in Hawke's Bay, being 33.5 °C recorded at Napier Airport on 22 January during hot dry northwesterly conditions.
- The lowest air temperature for the year was -15.4 °C recorded at Lauder on 18 July the lowest there since July 1995 (-19.7 °C), with numerous other inland South Island locations recording minimum air temperatures below -10.0 °C at times between 7 and 22 July.
- May was the warmest in reliable records dating back to the 1860s.
- The highest recorded wind gust for the year (as archived in the NIWA climate database) was 170 km/h was recorded from the west, at Taiaroa Head (Otago coast) during violent storm conditions on 23 October. A higher wind gust of 180 km/h was reported on the offshore island of Tiritiri Matangi between 9-11 July.
- An extraordinary swarm of damaging tornadoes wrecked havoc throughout Taranaki over 4-5 July.
- The driest rainfall recording locations were Alexandra in Central Otago with 272 mm of rain for the year, followed by Lauder with 291 mm, and then Clyde with 294 mm.

- Of the regularly reporting gauges, the Cropp River gauge in Westland, inland in the headwaters of the Hokitika River, recorded the highest rainfall with a 2007 annual total of 8940 mm.
- Christchurch was the driest of the five main centres with 510 mm and Auckland the wettest with 1096 mm. Hamilton received 952 mm, Wellington 1070 mm, and Dunedin 599 mm.
- Blenheim was the sunniest centre in 2007, recording 2567 hours, followed by Lake Tekapo with 2554 hours, then Whakatane with 2551 hours. Wellington was the sunniest of the five main centres with 2231 sunshine hours, closely followed by Christchurch with 2221 hours. Auckland recorded 2080 hours, Dunedin 1853 hours and Hamilton 1922 hours.

Prevailing climate patterns - A change from an El Niño early in the year to La Niña from spring

Overall, mean sea level pressures were above average over New Zealand, with more anticyclones ('highs') than average in the Tasman Sea and over the country. This pattern resulted in less wind than is normal, for much of the year, over a lot of New Zealand. This gave more frequent winds from the south and southwest over the South Island. Warmer than normal sea temperatures prevailed around New Zealand from mid autumn through late winter, disappearing over spring, and becoming cooler toward the end of the year.

A weakening El Niño occurred in the equatorial Pacific during January, with neutral conditions by the end of February. A weak-moderate La Niña developed from September onwards, strengthening as the year progressed. Over New Zealand, monthly wind-flow anomalies were highly variable throughout the year. However, warm northwesterlies were persistent in May, cold wintry southerlies prevailed in June, wet easterlies occurred in July, windy southwesterlies in August, unusually strong westerlies in October, very dry anticyclonic conditions in November, and more northeasterlies in December.

Rainfall: Below normal throughout much of New Zealand, above normal in Northland

2007 annual rainfall was below average throughout much of New Zealand. Annual rainfall was less than 75 percent of normal in the east from Wairarapa to Otago, as well as eastern Bay of Plenty, Taranaki, Gisborne, Manawatu, Wellington, and Nelson, and less than 60 percent of normal in parts of Marlborough, Canterbury, and Central Otago, many locations recording their driest year on record. Lauder recorded its driest year in more than 60 years, with only 291 mm for the year.

Northland was the only region where rainfall was above average (at least 110% of normal).

Extremely low annual rainfall, for the year 2007 was measured at:

Location	2007 rainfall (mm)	Percentage of normal	Year records began	Comments
New Plymouth Airport	1051	73	1944	Lowest
East Taratahi	573	68	1973	Lowest
Hicks Bay AWS	1194	69	1993	2 nd lowest
Paraparaumu Airport	738	72	1945	2 nd lowest
Palmerston North Airport	668	75	1944	Lowest
Stratford	1501	73	1961	Lowest
Okarito	2631	79	1982	Lowest
Appleby	661	68	1932	3 rd lowest
Hanmer Forest	699	61	1905	4 th lowest
Darfield	504	63	1920	3 rd lowest
Lake Tekapo	358	60	1927	3 rd lowest
Tara Hills	345	65	1950	Lowest

Lauder	291	57	1943	2 nd lowest
Clyde	294	71	1984	2 nd lowest

Alexandra in Central Otago, was the driest of the sites where NIWA records rainfall, with only 272 mm (74% of average), followed by Lauder with 291 mm (57% of average). Of the regularly reporting rainfall stations, the wettest location in 2007, for which rainfall data are presently available was the Cropp River gauge in Westland, inland in the headwaters of the Hokitika River, with an annual total of 8940 mm. Milford Sound's rainfall totalled 6902 mm (102% of average).

Of the five main centres, Christchurch was the driest with 510 mm (81 % of average) and Auckland the wettest with 1096 mm (88 % of average). Hamilton received 952 mm (82 % of average), Wellington 1070 mm (86 % of average), and Dunedin 599 mm (74 % of average).

2007 temperatures: Above normal in the north of the North Island, near normal in the east from Wairarapa to Otago

The national average temperature in 2007 was 12.7 °C, 0.1 °C above the 1971 – 2000 normal. Thus, 2007 ended up very close to the 1971-2000 normal, as a consequence of several warm offsetting some cooler months. Temperatures were near normal in most regions. However, they were above normal (by about 0.3 °C) in Northland, Auckland, Thames-Coromandel, and Western Bay of Plenty, Waikato, Taranaki, Gisborne, Marlborough, Nelson, inland south Canterbury, and Fiordland. Temperatures were about 0.3 °C below average in a few areas along the east coast from Wairarapa to Otago. The warmest local was Whangarei Airport, with a mean temperature for the year of 16.0°C (0.3 °C above normal). For New Zealand as a whole, there were five warmer than normal months (March, May, July, August, and December), and five cooler than normal months (January, April, June, October, and November). All other months had mean temperatures close to the climatological average. May with a mean temperature of 12.4°C (1.7 °C above normal) was the warmest nationally since reliable records commenced in the 1860s.

More sunshine than normal in the south and west of the South Island

Sunshine hours were more than 115 percent of normal in inland South Canterbury and Otago, with Tekapo, Dunedin and Invercargill recording one of their sunniest years on record. Totals were at least 110 percent of normal in eastern Bay of Plenty, Southland, and Westland, and near normal elsewhere. Blenheim was the sunniest centre in 2007, recording 2567 hours, followed by Lake Tekapo with 2554 hours, and then Whakatane with 2551 hours.

Near or record high sunshine hours for the year 2007 were:

Location	2007 Sunshine (hours)	Normal (hours)	Departure from normal	Records Began	Comments
Whakatane	2551	2286	+12%	1957	Highest*
Lake Tekapo	2554	2149	+19%	1928	3 rd highest
Kelburn, Wellington	2231	2065	+8%	1928	3 rd highest
Dunedin	1853	1592	+16%	1948	Well above average
Invercargill	1882	1609	+17%	1932	Highest

** Highest from a mix of Whakatane area sites; the normal is from McGarvie Rd*

2007 climate in the five main centres

Auckland was the warmest and wettest of the five main centres, and Christchurch the driest. Wellington was the sunniest, and Dunedin was the coldest.

Rainfall was below average in all five main centres. Temperatures were above average in Auckland and Hamilton, below average in Wellington and Christchurch, and near average in Dunedin. Sunshine totals were above average in Dunedin and Wellington, and near average in the other main centres.

2007 climatological statistics for the five main centres:

Location	2007 Mean Temp. (°C)	Dep. from normal (°C)		2007 rainfall (mm)	% of normal		2007 Sunshine (hours)	% of normal	
Auckland	15.7	+0.4	Above normal	1096 ^a	88	Below normal	2080	103	Near normal
Hamilton	14.1	+0.4	Above normal	952	82	Below normal	1922	96	Near normal
Wellington	12.5	-0.3	Below normal	1070	86	Below normal	2231	108	3 rd highest
Christchurch	11.4	-0.2	Below normal	510	81	Below normal	2221 ^b	106	Near normal
Dunedin	11.1	0.0	Normal	599	74	Below normal	1853	116	Well above normal

^a Owhairaka ^b Christchurch Airport

Significant extremes

The most significant extreme event of the year was the extraordinary swarm of damaging tornadoes that wrecked havoc throughout Taranaki over 4-5 July, as active frontal bands crossed the country from the Tasman Sea. The first tornado hit the central business district in New Plymouth on the 4th. Damage was severe, with a large section of the Placemaker's roof lifted off. 56 staff and customers were in the building at the time. Several other shops and houses were also damaged, along with cars. Damages in New Plymouth were estimated at \$1.5 million. Multiple damaging tornadoes affected Taranaki on the 5th, with a state of emergency declared in the New Plymouth District. There was a swath of damage along a 140 km front, and temporary supplies and accommodation had to be found for affected residents. At least 7000 homes throughout the region were without electricity after lightning strikes and damage to power lines. About 50 Oakura houses were damaged, of which 80 percent were destroyed. In Opunake, eight people were trapped in a motor vehicle surrounded by damaged, but live, powerlines. Many other areas were also affected. Damages from the tornadoes in Taranaki were estimated at \$7 million.

The worst snowfall event during 2007 occurred over 20-25 June to low levels again in Southland, Otago, and the South Island high country, with Reefton, Hanmer Forest, and the North Island's Desert Road also affected after the 22nd. The Napier-Taupo Road was also closed on the 25th, as well as the Rimutaka Hill Road. More than 30 cm of snowfall accumulated at St Arnaud in the Nelson Lakes district. Snowfall (8 cm) settled in Reefton, their biggest snowfall event since 1969. Lake Tekapo had 12 cm of snow on the 25th. Further south, snowfall accumulated in and near Queenstown (4 cm in the town, 12 cm at Arthur's Point, and 16 cm in Arrowtown – some lying until the 30th), making it difficult for cars travelling without chains. Queenstown airport was closed. Snowfall occurred to sea level around Dunedin, with up to 10 cm in the hills on the 23rd. SH1 to Clinton was

closed (there was 5 cm of snowfall at Balclutha), and many roads were icy and treacherous. In Central Otago there were some abandoned cars. An international student died when the car she was a passenger slid off the Makarora-Lake Hawea Road on State Highway 6 and crashed into the lake. Three other women survived and were taken to hospital suffering from hypothermia. State Highway 80 to Mt Cook, State Highway 83 between Kurow and Omarama and State Highway 6 between Makarora and Haast were closed. Blackstone Hill, north Otago recorded 26 cm of snow on the 21st, with 30 cm at Lake Manapouri on the 22nd. State Highway 73 between Arthurs Pass and Otira, and the high country of the central South Island, and many other southern and inland South Island Roads were closed during this event.

The worst flooding events during 2007 was those of 28-29 March and 10-11 July. During the first event in historical daily rainfall records were swept aside in eastern parts of Northland. Rainfall ranging from 250 to more than 400 mm occurred in eastern Northland. The floods were the most disastrous for many decades in the Far North and Whangarei districts, especially in the Bay of Islands area. Some buildings were washed away, and homes flooded, and many motorists were stranded on flooded roads. Initial estimates put the cost of damage from the floods up to \$80 million. Losses of stock and agricultural production also occurred in low-lying areas. A state of emergency was also declared in the far north as heavy rainfall producing widespread severe flooding throughout much of Northland on the 10th. Floodwaters and several massive landslips resulted in the closure of many roads. There were many landslips between Whangarei and Opoua. Water supplies were also affected. Thousands of residents were without phones and electricity, and some forced to evacuate their homes. The town of Kaeo was worst hit, with 254 mm of rainfall in 12 hours, and at least 23 houses flooded, the water being 1m high in places. At one stage, Whangarei was completely blocked off by floodwaters and slips. In Kaitaia, floodwaters resulted in the evacuation of a rest home and pensioner flats. A house at Totara North was damaged by a landslip. Damage from the flooding (which was also combined with high winds) was estimated to be almost \$60 million, with almost 70 houses left uninhabitable.

Windstorms (not including tornadoes) occurred on numerous occasions, particularly severe events occurring in July and October. A state of emergency was declared over 9-11 July in the far north as damaging easterlies affected Northland, Auckland, and Coromandel, with roofs lost, containers toppled, fallen trees, broken power lines, boats washed ashore. More than 140,000 people were without electricity throughout Northland, Auckland, and the Coromandel. A wind gust of 180 km/h was recorded on the offshore island of Tiritiri Matangi.

In October, high winds from the west and northwest were more much frequent than normal. On 3 October, high winds resulted in the cancellation of many flights in and out of Wellington Airport. Winds on 4 October, resulted in power outages for Canterbury residents, some roofs were lifted, and a campervan was also toppled by the wind, along with fallen trees. A wind gust of 163 km/h was recorded at Tasman Aerodrome, Mt. Cook, during violent storm force northerlies. On 23 October, storm force north westerlies buffeted the southwest of the South Island, lifting roofing iron, downing power lines, and felling trees in Southland. Damage also occurred in Hawke's Bay, Manawatu, Otago, and Canterbury (with trucks toppled).

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Significant weather and climate events - 2007

Floods and high rainfall

There were numerous heavy rainfall events during 2007, about nine of which produced floods. Most of the rainfall events that produced flooding are listed below. The worst flooding events during 2007 were those of 28-29 March and 10-11 July, both in Northland.

- **5-7 February**

Cape Reinga recorded rainfall totalling 91 mm within 6 hours. Further south, SH1 was closed, as the approach to the Mitimiti Bridge near Te Kao (40 km south of Cape Reinga) was washed out, restricting access to northern areas (500 people were isolated). In Waikato, Whatawhata recorded 80 mm within 3 hours during this rainfall event.

- **14 March**

Paraparaumu was hit by heavy rainfall, with flooding affecting several streets and about half a dozen businesses at Raumati Beach.

- **17 March**

Landslips, surface flooding, and road closures occurred in Westport.

- **28-29 March**

Historical daily rainfall records were swept aside in eastern parts of Northland, as exceptionally high rainfall produced widespread, severe flooding. Rainfall ranging from 250 to more than 400 mm occurred in eastern Northland, over 28 and 29 March, as a stationary high pressure centre, east of New Zealand, slowed the progress of a band of heavy rain in a trough projecting humid northeasterlies across eastern Northland. The floods were the most disastrous for many decades in the Far North and Whangarei districts, especially in the Bay of Islands area. Some buildings were washed away, and homes flooded, and many motorists were stranded on flooded roads. Initial estimates put the cost of damage from the floods up to \$80 million. Losses of stock and agricultural production also occurred in low-lying areas. March rainfall was as high as 300 percent of normal in parts of Northland.

Selected rainfall statistics for 28-29 March:

Region	Location and rainfall (mm)	Comments
Northland	Kerikeri Airport (390)	Highest, records began in 1978
Northland	Purerua (218)	Highest, records began in 1983
Northland	Kaikohe (180)	2 nd highest, records began in 1956
Auckland	Whangarei (283)	Highest, records began in 1943
Auckland	Warkworth (199)	2 nd highest, records began in 1972
Coromandel	Whitianga Airport (184)	-

- **22/23 May**

Parts of Nelson and Taranaki were hit by heavy rainfall, with localised flooding. In Nelson, torrents of water washed down several Stoke streets, forcing the closure of a supermarket and three schools. Along the Taranaki coast, four houses were flooded and had to be evacuated as the Oakura River overflowed its banks onto Hall Terrace. Even a car was swept downstream and into the sea. Water, in one house, was up to 2 m deep, with as much as 0.2 m of mud and silt deposited on the floor. At the Timaru Stream, a man, managed to escape as raging water caught him on the swing bridge which was later torn and flung aside. In New Plymouth, thigh-deep water flooded a motel at Burgess Park, where a rainfall total of 50 mm was estimated to have fallen in less than an hour. Official figures showed that 63 mm had accumulated in four hours at the Mangorei reservoir. New Plymouth Airport recorded 35 mm of rain from 7 am to noon. Water was knee-deep in some parts of the city, with several shops reporting water-related damage.

- **9-11 July**

A state of emergency was declared in the far north as heavy rainfall, caused by a deep depression tracked across the north of the North Island, producing widespread severe flooding throughout much of Northland on the 10th. Floodwaters and several massive landslips resulted in the closure of many roads. There were many landslips between Whangarei and Opoua. Water supplies were also affected. Thousands of residents were without phones and electricity, and some forced to evacuate their homes. The town of Kaeo was worst hit, with 254 mm of rainfall in 12 hours, and at least 23 houses flooded, the water being 1m high in places. At one stage, Whangarei was completely blocked off by floodwaters and slips. In Kaitaia, floodwaters resulted in the evacuation of a rest home and pensioner flats. A house at Totara North was damaged by a landslip. Rainfall for the 48 hours to 9am on the 11th totalled at least 150 mm throughout much of central and eastern Northland. Damage from the flooding (which was also combined with high winds) was estimated to be almost \$60 million, with almost 70 houses left uninhabitable.

- **17-18 July**

Major flooding, in moist easterly conditions, occurred in parts of Hawke’s Bay, particularly near Hastings on the 17th, with further heavy rainfall resuming on the 18th. The worst affected areas were Flaxmere, where water was at least 1m deep in some streets. Rainfall totalling as much as 300 mm was reported within 48 hours, and 150 mm within 24 hours in some areas, with 75 mm recorded at Maraekakaho (west of Hastings) between 6 am and 9 am on the 17th. Children were transported, via army vehicles, from two flooded country schools, as floodwaters blocked several roads, bridges, and streets.

- **30 July**

More flooding, caused by moist easterly conditions, and a state of civil emergency, occurred in south Canterbury and Otago on the 30th. Roads were flooded and some people left their homes in Morven, Milton, and Palmerston; Milton being isolated by surrounding floodwaters, knee deep in places. Surface flooding was also widespread in Mosgiel (with several homes threatened) and in Dunedin City, and SH1 was closed both north and south of Dunedin. Other roads through the south Canterbury-Otago region were also affected, some with slips. Dunedin streams became torrents, with many basements flooded. The Waikouaiti River burst its banks by SH1. Rainfall exceeded 100 mm at several recording sites in the North Otago, Dunedin, and Taieri districts. High rainfall and slips also affected parts of Stewart Island.

- **7-8 October**

Substantial rainfall occurred in Hutt Valley catchment areas on the 7th, with surface flooding in the Hutt Valley, with water up to 300 mm deep on some roads between Upper Hutt and Petone. An overflow of the Waiau River in North Canterbury occurred on the 8th, and a family had to be evacuated.

- **9-17 and 23-30 December**

Periods of persistent heavy rainfall occurred on the West Coast of the South Island, with as much as 560 mm at Franz Josef between 9-17 December and 258 mm at Milford Sound between 23-30 December.

Near or record monthly rainfall

Locations that experienced near or record high monthly rainfall at various times during the year were:

Location	Rainfall (mm)	Percentage of normal for the month	Year Records began	Comments
February				
Kaitaia	171	222	1986	3 rd highest
Kaikohe	245	267	1973	3 rd highest
March				
Kerikeri EWS	366	297	1982	Highest
Keriker Airpori	430	316	1978	Highest
Whangarei Airport	310	244	1937	3 rd highest
Warkworth	241	219	1973	3 rd highest
Henderson	189	190	1986	3 rd highest
Whitianga Airport	293	180	1988	3 rd highest
July				
Kerikeri EWS	389	222	1982	Highest

Whangarei Airport	456	281	1937	2 nd highest
Whitianga Airport	401	188	1991	2 nd highest
Napier Airport	246	293	1951	Highest
Middlemarch	89	266	1916	Highest
Dunedin Airport	110	223	1963	3 rd highest
October				
Waiouru MWD	163	180	1950	Highest
Hanmer Forest	202	190	1905	3 rd highest
Culverden	107	201	1983	Highest
December				
Kerikeri EWS	217	209	1981	2 nd highest
Kerikeri Airport	279	232	1978	Highest
Kaikohe	256	245	1973	Highest

Low soil moisture levels and record low monthly rainfall

Dry conditions persisted on the east coast of the North Island, particularly in Hawke's Bay from January through May resulted in a severe shortage of feed for livestock, and a lower than normal spring lambing and beef population, costing more than \$500M.

- **January**

January rainfall was relatively low in many regions, especially in the east. As a result, severe soil moisture deficits (of at least 130 mm) existed from Gisborne to Marlborough, as well as Central Otago, Auckland, and Nelson.

- **February**

Another month with low rainfall throughout much of New Zealand, with severe soil moisture deficits (of at least 130 mm) occurring in all eastern regions from Gisborne to Central Otago, as well as Auckland, Waikato, Eastern Bay of Plenty, Wanganui, Manawatu, Wellington, and Nelson (all more severe than normal for the time of year). Significant soil moisture deficits (at least 110 mm) affected many other North Island regions. Rainfall totalled only 0.4 mm (1% of normal) at Lake Tekapo, making it the driest February there in over 80 years. Mount Cook Village recorded its driest February in over 75 years. Less than 10 mm of rainfall also occurred in parts of Auckland, Nelson, and in North and Central Otago.

- **March**

Rainfall was very low, being 25 percent or less of normal in parts of Gisborne, Hawke's Bay, and Marlborough. The relatively dry weather meant that severe soil moisture deficits of at least 130 mm occurred in many eastern regions from Gisborne to Marlborough, as well as Central Otago, while significant soil moisture deficits of at least 110 mm affected other eastern regions, as well as parts of the Kapiti Coast and Wellington.

- **April**

A relatively dry month overall, especially over the North Island, and in the north and west of the South Island. Rainfall events at the end of the month meant that significant soil moisture deficits of at least 110 mm persisted only in Hawke's Bay, central Marlborough, and Central Otago.

- **May**

Record low May rainfall occurred in many northern and eastern regions, producing significant soil moisture deficits (of at least 110 mm) in the east from Gisborne to Wairarapa, as well as Central Otago; highly unusual for the time of year. Rainfall had been below average in the east of the North Island since January, and May's conditions were severe enough to cause Hawke's Bay farmers to sell stock because of insufficient feed for winter.

- **October**

Significant soil moisture deficits (more than 110 mm) occurred toward the end of the month in parts of Marlborough and Central Otago (normal for the time of year).

- **November**

Severe soil moisture deficits (more than 130 mm) developed in Hawke’s Bay, Marlborough, and parts of Canterbury and Otago, with significant soil moisture deficits (more than 110 mm) in Bay of Plenty, Taupo, Gisborne, Wanganui, Wellington, and Nelson.

- **December**

Severe soil moisture deficits (more than 130 mm) persisted from November in Marlborough, Canterbury, North and Central Otago, with significant soil moisture deficits (more than 110 mm) occurring in Auckland, Bay of Plenty, Taranaki, Wairarapa, Manawatu, and Nelson.

Many locations measured unusually low rainfall at various times during the year. These were:

Location	Rainfall (mm)	Percentage of normal	Year records began	Comments
January				
Lauder	13	24	1943	2 nd lowest
February				
Warkworth	18	24	1973	3 rd lowest
Owairaka	9	13	1949	Lowest
Rotorua Airport	13	14	1964	3 rd lowest
Taupo Airport	10	15	1976	3 rd lowest
Motu	21	21	1991	Lowest
Pukekohe	7	8	1970	2 nd lowest
East Taratahi	16	32	1973	3 rd lowest
Martinborough	11	25	2002	Lowest
Hicks Bay	28	37	1991	3 rd lowest
Hokitika Airport	29	17	1964	Lowest
Blenheim	10	23	1986	3 rd lowest
Awatere Valley	7	23	2001	2 nd lowest
Arthurs Pass	15	6	1907	2 nd lowest
Mt Cook Village	13	5	1930	Lowest
Lake Tekapo	0.4	1	1926	Lowest
Tara Hills	2	6	1950	2 nd lowest
Wanaka Airport	4	9	1993	Lowest
Manapouri Airport	25	30	1991	3 rd lowest
Lauder	7	16	1943	2 nd lowest
Clyde	7	22	1984	2 nd lowest
Ettrick	20	33	1985	3 rd lowest
Campbell Is.	48	45	1942	Lowest
March				
Mahia	9	5	1992	Lowest
Awatere Valley	9	12	2001	Lowest
Kaikoura	10	11	1950	Lowest
May				
Cape Reinga	19	26	1920	Lowest
Kaitaia Obs.	29	24	1985	Lowest
Kerikeri	13	10	1982	Lowest
Kerikeri Airport	14	11	1978	Lowest
Kaikohe	23	20	1987	Lowest
Dargaville	22	20	1943	Lowest
Whangare Airport	29	28	1991	2 nd lowest
Warkworth	15	13	1972	Lowest
Henderson	28	26	1986	Lowest
Owairaka	23	23	1949	Lowest
Whitianga Airport	37	30	1991	2 nd lowest
Te Puke	38	33	1973	Lowest
Whakatane Airport	21	27	1991	2 nd lowest
Taupo Airport	10	13	1976	Lowest
Mangere	11	11	1959	Lowest
Auckland Airport	12	13	1962	Lowest
Pukekohe	31	26	1986	Lowest
Ruakura	22	22	1906	2 nd lowest
East Taratahi	8	10	1973	Lowest
Martinborough	4	6	2001	Lowest
Hicks Bay	11	8	1992	Lowest
Gisborne Airport	7	8	1905	Lowest
Napier Airport	4	7	1951	Lowest
Wairoa, N. Clyde	8	6	1992	Lowest

Mahia	10	7	1991	Lowest
Paraparaumu Airport	33	33	1945	2 nd lowest
Kaikoura	4	6	1949	Lowest
Rangiora	11	21	1999	Lowest
Le Bons Bay	25	25	1984	Lowest
Ranfurlly	8	25	2001	Lowest
Middlemarch	7	19	2001	Lowest
Dunedin Airport	9	15	1963	Lowest
Dunedin	8	12	1918	2 nd lowest
Nugget Point	20	19	1930	Lowest
Raoul Island	28	21	1938	Lowest
August				
Le Bons Bay	11	10	1989	Equal lowest
Lauder EWS	7	23	1987	3 rd lowest
September				
New Plymouth Airport	36	31	1982	2 nd lowest
Le Bons Bay	18	29	1987	2 nd equal lowest
Nugget Point	17	22	1991	Lowest
November				
Whitianga Airport	46	39	1989	2 nd Lowest
Paeroa	31	34	1914	Equal 3 rd lowest
Te Puke	27	23	1973	Lowest
Whakatane Airport	10	12	1975	Lowest
Rotorua Airport	25	25	1964	Lowest
Taupo Airport	18	23	1976	Lowest
East Taratahi	22	31	1972	2 nd lowest
Wairoa, North Clyde	20	25	1991	Lowest
Wellington Airport	16	20	1960	3 rd lowest
Stratford	30	18	1960	Lowest
Hokitika Airport	60	25	1963	2 nd lowest
Reefton	25	15	1960	2 nd lowest
Franz Josef EWS	63	14	2003	Lowest
Motueka, Riwaka	3	3	1943	Lowest
Nelson Airport	7	9	1941	2 nd lowest
Appleby	3	3	1932	Lowest
Blenheim Research	9	17	1927	Equal 3 rd lowest
Awatere Valley, Dashwood	11	28	2001	Lowest
Culverden	14	28	1983	Lowest
Mt Cook Village	38	10	1929	2 nd lowest
Le Bons Bay	22	33	1990	2 nd lowest
Wanaka Airport	9	18	1992	Lowest
Middlemarch	10	20	1916	Equal 3 rd lowest
Dunedin, Musselburgh	22	34	1918	2 nd lowest
Manapouri Airport	18	19	1991	Lowest
Queenstown Airport	4	8	1968	Lowest
Lauder	18	39	1942	Equal 3 rd lowest
Clyde	5	19	1983	Lowest
December				
Whakatane Airport	31	32	1974	3 rd lowest

Snowfall

There were only a few major snowfall events compared to normal over the winter season, however most ski areas reported good snowfall. The 7-10 and 20-25 June occurrences were the most notable events.

- **14 March**

Unseasonable snowfall occurred at Lake Rotoiti.

- **7-10 June**

Bitterly cold southwesterlies produced snowfall to low levels in Southland, Otago, and South Island high country passes, from the 7th through 9th. Some residents in inland parts of Southland were without electricity after 5-10 cm of snowfall accumulated. There were broken power lines, and high winds tore out power poles. Forty two homes around Clinton (where 10 cm of snowfall occurred), spent two nights without electricity. In total, about 130 homes were affected. Between 30 and 40 homes at Slope Down, Kuriwao, and between the

back of Matura and Kaiwera, were also affected by power outages. Another outage at Mokoreta left about 40 homes without electricity. Snowfall also occurred on the 10th on the North Island's Desert Road.

- **20-25 June**

Snowfall occurred to low levels again in Southland, Otago, and the South Island high country, from the 20th to 24th, with Reefton, Hanmer Forest, and the North Island's Desert Road (which was closed) also affected after the 22nd. The Napier-Taupo Road was also closed on the 25th, as well as the Rimutaka Hill Road. More than 30 cm of snowfall accumulated at St Arnaud in the Nelson Lakes district. Snowfall (8 cm) settled in Reefton, their biggest snowfall event since 1969. Lake Tekapo had 12 cm of snow on the 25th. Further south, snowfall accumulated in and near Queenstown (4 cm in the town, 12 cm at Arthur's Point, and 16 cm in Arrowtown – some lying until the 30th), making it difficult for cars travelling without chains. Queenstown airport was closed. Snowfall occurred to sea level around Dunedin, with up to 10 cm in the hills on the 23rd. SH1 to Clinton was closed (there was 5 cm of snowfall at Balclutha), and many roads were icy and treacherous. In Central Otago there were some abandoned cars. An international student died when the car she was a passenger slid off the Makarora-Lake Hawea Road on State Highway 6 and crashed into the lake. Three other women survived and were taken to hospital suffering from hypothermia. State Highway 80 to Mt Cook, State Highway 83 between Kurow and Omarama and State Highway 6 between Makarora and Haast were closed. Blackstone Hill, north Otago recorded 26 cm of snow on the 21st, with 30 cm at Lake Manapouri on the 22nd. State Highway 73 between Arthurs Pass and Otira, and the high country of the central South Island, and many other southern and inland South Island Roads were closed during this event.

- **4 September**

Snowfall occurred to low levels on the 4th in the east of the South Island, settling in low lying parts of Canterbury (6-8 cm) in and around Ashburton, Methven, and Geraldine, with several schools closed. Snow flurries occurred further north in Christchurch. Inland, chains were required for motorists travelling over the Lindis Pass and Crown Range, and moderate to heavy snowfall (15-45 cm) occurred on Otago and Canterbury ski fields. Minor stock losses, affecting new-born lambs, occurred. Light snowfall was reported in Twizel, Tekapo, Darfield, Springfield, and Windwhistle.

- **October**

Snowfall occurred in many high country areas over 2-7 October (including Mt Cook Village, Tekapo, and the North Island Desert Road), 10-11, 14-15, and 17-18 October. With the last event 5-6 cm of snowfall accumulated in the South Canterbury hill country including Tekapo, Mt Cook Village, and Arthurs Pass, with a dusting in Fairlie, and later on the North Island's Desert Road.

Severe or damaging hail and electrical storms

- **2 January**

A ten-minute hailstorm affected parts of Te Puke. Although it was heavy, no significant horticultural damage was reported

- **13/14 March**

Lightning strikes resulted in power outages to about 40,000 homes in the Wellington region (between Kapiti and Johnsonville, as well as parts of the Hutt Valley) for several hours over the night of 13/14 March.

- **18 March**

Thunderstorms occurred in Christchurch at about noon, accompanied by lightning (resulting in power cuts in surrounding areas), heavy rainfall (and surface flooding), hail (some 10 mm in diameter).

- **20 June**

More than 1000 Rotorua homes were without power after 8.30 pm after a lightning strike.

- **22 June**

A lightning strike occurred in Levin, cutting power to about 6000 homes at 6.45 am.

- **25 September**

A trough passed over the North Island on the 25th producing thunderstorms in Auckland, Waikato, and Waitomo. Some of the hailstones were 20 mm in diameter, and there were many lightning strikes. Little damage was reported, apart from a few lightning strikes to power lines, and structural damage to the odd roof.

- **1 and 3 October**

Lightning struck a house in Redvale (Rodney district) during 1 October, resulting in fire, a collapsed ceiling, and electrical damage. A Wellington passenger aircraft on route to Auckland was struck by lightning, without damage, on 3 October.

Tornadoes, high winds and rough seas

- **22 January winds**

High winds gusted to 167 km/h from the northwest at Rock and Pillar, Otago.

- **13-15 March winds**

Westerly gales with very high gusts, exceeding 130 km/h, were measured in Auckland. The high winds resulted in many fallen trees and branches, along with property damage, and power outages. Gusty westerlies blew over grape vines in part of Marlborough on the 14th.

- **18 March winds**

High winds capsized a yacht in Lyttelton harbour, its occupants having to swim to shore.

- **21 March tornado**

Destructive, localised winds were attributed to a *tornado*, which damaged a hall (lifting part of its roof) near Pembroke School in Stratford, about 12.45 p.m. on the 21st of March. There was an incredible noise, and debris was seen flying up into the air.

- **12-13 April winds**

Southwest gales with very high gusts, exceeding 130 km/h, were measured in parts of Auckland.

- **2 May tornado**

A damaging *tornado* occurred near Tauranga,

- **11 May tornado**

High winds, attributed to *tornadoes*, ripped off roofs and felled trees in parts of Greymouth during the afternoon in Cobden, Boddytown and Kararo.

- **27 May winds**

A wind gust of 156 km/h was recorded from the west at Taiaroa Head.

- **7 June winds**

Wind gusts as high as 148 km/h were recorded from the west at Castlepoint.

- **22 June tornado**

High winds were attributed to a *tornado* in Invercargill about 3pm, uplifting roofs and felling fences and trees.

- **24 June winds**

Wind gusts as high as 148 km/h were recorded from the west at Taiaroa Head.

- **26 June winds**

Gale force southerlies occurred in Cook Strait, with 5 m swells, resulting in the cancellation of ferry crossings.

- **4-5 July severe tornadoes**

Several damaging tornadoes affected parts of the north and west of the North Island, as active frontal bands crossed the country from the Tasman Sea.

The first tornado, which originated about 300m offshore, hit the central business district in New Plymouth at about 1 pm on the 4th. The tornado was reported to have been 10m high and 15m wide (described as a dark column, with a huge amount of noise, including thunder and lightning), with a damage path 800m in length. Damage was severe, with a large section, roughly a third, of the Placemaker's roof lifted off, and a wall destroyed. 56 staff and customers were in the building at the time. About six other shops and 20 houses were also damaged (with roofs lifted and windows broken). Cars were also damaged by fallen debris (one was crushed with the roof right down to the seats), trees uprooted, and signs destroyed. One person was in his car when the rear windscreen shattered, covering him in glass. He also saw the tornado, with chairs and corrugated iron flying above him. The La Mer Racecourse to the south-southeast was also badly affected, probably by the same tornado, with a trail of damage across the raceway, windows blown out (described as 'popping'), a small building and perimeter fence flattened, and with a parked car moved about 4m. Damages in New Plymouth were estimated at \$1.5 million. Another tornado occurred on the 4th in southeast Auckland (Botany Bay), damaging about 25 homes (including fences) in four streets at about 3.30 pm. Nine houses had damage to their roofs. One person was injured by falling roof tiles. A further tornado occurred in Tauranga at about 5.30 pm, ripping tiles off a house.

Multiple damaging tornadoes, possibly seven or more affected Taranaki after 5.30 pm on the 5th, with a state of emergency declared in the New Plymouth District. There was a swath of damage along a 140 km front, and temporary supplies and accommodation had to be found for affected residents. There were reports of minor, but not severe, injuries. At least 7000 homes throughout the region were without electricity after lightning strikes and damage to lines. The township of Oakura was severely affected. There reports of as many as three (two small and one large) tornadoes seen simultaneously, accompanied by lightning, coming in from the sea at about 5.40 pm, with a lot of flying debris. About 50 Oakura houses were damaged, of which 80 percent were destroyed. Some people were trapped in a car by fallen power lines, and broken lines meant many people were without electricity. An Oakura caravan was flung into the air and damaged as it was turned upside down upon landing; the man inside it was knocked out, but later escaped with only a few scratches. In Opunake, eight people were trapped in a motor vehicle surrounded by damaged, but live, powerlines. Motunui, Stratford, Hawera, and Normanby, also suffered damage, with trees uprooted, roofs lifted, and powerlines broken, with a car crushed, hay barn wrecked, and glasshouse damaged in Oakiawa. Egmont Village, Inglewood, and Waitara, and to a lesser extent Urenui and Pungarehu, were also affected. Damaging winds, also attributed to tornadoes, (preceded by a severe hailstorm), were reported at Tutaenui, north of Marton at about 8 pm on the 5th, and also at Aramoho in Wanganui (during a thunderstorm at 7.30 pm) which ripped a bus shelter from its foundations and knocked over several trees and fences. Damages from the tornadoes in Taranaki were estimated at \$7 million.

- **9-11 July winds**

A state of emergency was declared in the far north as gale easterlies (combined with heavy rainfall), caused by a deep depression with an intense pressure gradient, tracked across the north of the North Island, producing damaging winds in Northland, Auckland, and Coromandel which resulted in fallen trees and broken power lines. In Northland high winds caused at least two houses to lose their roofs. In Auckland, a roof was lifted off an apartment block, and two motorcyclists were blown off their bikes on the Auckland Harbour Bridge. Several large containers were toppled at Auckland's Bledisloe Wharf, and two boats washed ashore at Torpedo Bay in Devonport. Roofs were also lifted in Coromandel. More than 140,000 people were without electricity throughout Northland, Auckland, and the Coromandel (where power was out everywhere except Waihi and Whangamata), and more than 20,000 customers were without land-line phone usage. Major power outages occurred in Auckland's East Coast Bays districts and as far north as Warkworth. A dairy shop in Te Puru, near Thames, was almost totally demolished by the high winds, and boats were blown across a road in Tararu, north of Thames. A wind gust of 180 km/h was reported on the offshore island of Tititiri Matangi, and 148 km/h at Mokohinau Island, north of Auckland, during this event. Easterly gust speeds between 100 and 120 km/h occurred at many Northland, Auckland, and Thames Valley recording sites during the late afternoon and evening, with higher speeds (150 km/h) reported in the Coromandel.

- **31 July tornado**

A small tornado hit a trucking firm's yard in Brixton, 15 km north of New Plymouth, at about 8.30 am, tipping a truck and trailer unit on its side, tearing roofing iron off, and crumpling the buildings large roller doors. The tornado was seen by several people, as it made its way inland from the sea.

- **9-12 August winds**

Gale force northwesterlies buffeted many central and southern New Zealand regions as a very deep depression tracked south of New Zealand, producing a large pressure gradient over the country. Several power lines were damaged by the high winds in parts of Otago. Kelburn's 141 km/h gust speed was the highest there since July 2000.

Very high wind gusts, of more than 130 km/h, were recorded at:

Date	Region	Location	Wind gust (km/h)
10 Aug.	Wairarapa	Castlepoint	150
	Wellington	Kelburn	141
	Southland	Puysegur Point	133
	Otago	Rock & Pillar	154
	Stewart Island	South West Cape	146
11 Aug.	Wairarapa	Castlepoint	146
	Wellington	Kelburn	133
	Southland	Puysegur Point	137
	Otago	Rock & Pillar	158
	Stewart Island	South West Cape	146
12 Aug.	Wairarapa	Castlepoint	135
	Wellington	Paraparaumu Airport	139

- **October winds**

High winds from the west and northwest were more frequent than normal during the month. On 4 October, power outages occurred for 1500 mid Canterbury residents, and some roofs were lifted by the winds. A campervan, near Burke Pass, was also toppled by the wind, along with fallen trees. A wind gust of 163 km/h was recorded at Tasman Aerodrome, Mt. Cook, during violent storm force northerlies. Earlier, on 3 October, high winds resulted in the cancellation of 18 flights in and out of Wellington Airport. North westerlies reached violent storm force (mean speed 111 km/h) at Puysegur Point and storm force (mean speed 93 km/h) at South West Cape during the early morning of 23 October, with gales lifting roofing iron, power lines down, and trees felled in Bluff and Invercargill (gusts 130-150 km/h), wind damage also occurring in Woodville and Dannevirke. Such wind gusts in the south only occur very infrequently. High winds associated with debris and several broken power lines also affected Dunedin and areas near Christchurch. Power was lost for approximately 2500 houses in Southland and Otago during the event, 1500 of which were still without power on 24 October. Damaging winds (over 120 km/h) also buffeted Manawatu, with a large 17 tonne truck overturned on SH2 north of Dannevirke. Trucks were also overturned or forced off roads near Balclutha and Kaikoura, and an ambulance was toppled on its way to reach a woman trapped in a car by a fallen tree in Central Hawke's Bay. North of Wellington, the Rimutaka Hill Road was closed due to gusts as high as 150 km/h. Trains were also disrupted; the main south line being closed in Dunedin after part of a supermarket roof was blown onto the track. Several people were injured throughout the country during the event. Wind gusts exceeded 100 km/h in the south and east of both islands, and were at least 130 km/h in the south of the South Island and south east of the North Island.

Very high wind gusts in October, of at least 130 km/h, were recorded at:

Date	Region	Location	Wind gust (km/h)
1 Oct.	Wellington	Kelburn	146
4 Oct.	Wairarapa	Castlepoint	137
	Wellington	Kelburn	133
5 Oct	Aorangi	Mt. Cook, Tasman Aero.	163
	Wairarapa	Castlepoint	145
	Wellington	Mt. Kaukau	133
6 Oct	Southland	Puysegur Point	141
	Wairarapa	Castlepoint	143
7 Oct	Wellington	Kelburn	145
8 Oct	Wairarapa	Castlepoint	139
	Wellington	Mt. Kaukau	135
13 Oct	Wellington	Kelburn	141
16 Oct	Wairarapa	Castlepoint	141
17 Oct	Wairarapa	Castlepoint	146

20 Oct	Wairarapa	Castlepoint	150
	Stewart Island	South West Cape	133
21 Oct	Aorangi	Mt. Cook Village	130
23 Oct	Wairarapa	Castlepoint	141
	Wellington	Mt Kaukau	152
	Otago	Taiaroa Head	170
	Southland	Tiwai Point	148
	“	Puysegur Point	146
	Stewart Island	South West Cape	141
24 Oct	Wairarapa	Castlepoint	145
	Aorangi	Mt. Cook, Tasman Aero.	139
	Otago	Taiaroa Head	143

- **9 October tornado**

High winds, attributed to a tornado, ripped roofing iron off a garage and part of a Dargaville house at about 1.30 pm producing a noise as loud as a ‘train crash’.

Five warmer months, five cooler months, two near average

The national average temperature in 2007 was 12.7 °C, 0.1 °C above the 1971 – 2000 normal. For New Zealand as a whole, there were four warmer than normal months (March, May, July, August and December), and four cooler than normal months (January, April, June, October and November). All other months had mean temperatures close to the climatological average. May with a mean temperature of 12.4°C (1.7 °C above normal) was the warmest nationally since reliable records commenced in the 1860s.

High temperatures

- **Hot January day - highest annual maxima**

The highest temperature of the year was 33.5 °C recorded at Napier Airport on 22 January during hot dry northwesterly conditions.

- **Very warm afternoons in Central Otago during March**

Alexandra recorded 6 days during March (1st, 3rd, 4th, 5th, 11th, and 24th) with maximum temperatures of 30 °C or more (about 5 days more than average).

- **Warmest May on record**

A mix of warmer than normal seas to the west, anticyclones to the east, and frequent warm northwesterlies over New Zealand, produced record high mean May temperatures. The national average temperature was 12.4 °C (1.7 °C above normal) making it the highest for New Zealand as a whole in reliable records dating back to the 1860s. Mean temperatures were more than 2.5 °C above normal throughout Marlborough, Canterbury, and Otago. Record high extreme maxima occurred in the north of the North Island on 1 May.

- **High August temperatures**

Unusually high temperatures for August 2007 of 22.2 °C were recorded at both Dunedin Airport and Palmerston on 31 August.

- **November hot spell**

A hot spell affected the north and east of both islands between 20 and 26 November, with record high November temperatures recorded in many of these regions. The highest temperature during November 2007 was 32.8 °C recorded at Blenheim Airport on the 25th.

Extremes of daily maximum temperature in 2007 were recorded at:

Location	Maximum temperature (°C)	Date of occurrence	Records began	Comments
May				
Kerikeri	24.6	1 May	1982	Highest
Whangarei Airport	24.8	1 May	1968	Highest
Warkworth	22.9	1 May	1972	Highest
Auckland, North Shore	24.5	1 May	1995	Highest
Whitianga Airport	22.8	1 May	1991	Highest
Hastings AWS	24.6	1 May	1982	Highest
August				
Dunedin Airport	22.2	31 August	1963	Highest
Palmerston	22.2	31 August	1969	Highest
Oamaru Airport	22.0	31 August	1967	Highest
Dunedin, Musselburgh	21.5	31 August	1947	Highest
September				
Wanganui	24.0	20 September	1937	Highest
November				
Te Puke	27.8	26 November	1973	Highest
Kawerau	32.0	25-26 November	1954	Equal highest
East Taratahi	28.5	25 November	1972	Highest
Martinborough EWS	27.2	25 November	2002	Highest
Ngawi AWS	28.8	25 November	1999	Highest
Motueka, Riwaka	29.2	25 November	1956	Highest
Blenheim Research	31.7	25 November	1932	Highest
Blenheim Airport	32.8	25 November	1941	Highest
Awatere Valley,				Highest
Dashwood	31.8	25 November	2001	
Hanmer Forest	30.3	21 November	1906	Highest
Culverden	32.0	21 November	1983	Highest
December				
Christchurch Airport	32.8	11 December	1953	3 rd highest
Culverden	32.0	30 December	1983	Highest
Wanaka Airport	31.6	8 December	1992	Highest

Data in italics are rounded to the nearest whole number

Unusually high mean monthly temperatures were recorded at:

Location	Mean temperature (°C)	Departure from normal (°C)	Records began	Comments
March				
Ngawi	18.7	+2.0	1973	Highest
Blenheim	17.8	+1.6	1986	3 rd highest
Winchmore	16.3	+2.0	1950	2 nd highest
Darfield	17.1	+1.9	1939	2 nd highest
Dunedin Airport	14.7	+1.6	1963	3 rd highest
Queenstown	16.0	+1.6	1872	3 rd highest
Clyde	15.8	+1.6	1983	3 rd highest
Invercargill Airport	14.1	+1.6	1949	2 nd highest
May				
Kaikohe	14.8	+1.3	1973	2 nd highest
Dargaville	15.6	+1.7	1943	Highest
Whangarei Airport	15.6	+1.4	1968	Equal 2 nd highest
Henderson	15.0	+1.7	1986	Highest
Mangere	15.4	+1.6	1959	Equal highest
Auckland Airport	15.1	+1.4	1963	2 nd highest
Pukekohe	14.6	+1.6	1971	Highest
Te Puke	13.6	+1.6	1973	Equal highest
Port Taharoa	15.4	+1.6	1982	Highest
New Plymouth Airport	14.2	+1.9	1944	Highest
Lower Retaruke	11.4	+1.5	1967	2 nd highest

Mt Ruapehu	7.6	+2.1	1930	3 rd highest
Castlepoint	14.4	+1.6	1972	Highest
East Taratahi	11.9	+1.9	1973	Highest
Martinborough	12.4	+1.8	2001	Highest
Ngawi, Palliser	15.1	+2.2	1972	Highest
Napier Airport	13.2	+1.5	1974	Equal 2 nd highest
Wairoa, N. Clyde	13.6	+1.6	1993	Highest
Mahia	14.4	+1.9	1992	Highest
Paraparaumu Airport	13.4	+2.0	1953	Highest
Palmerston North Airport	13.0	+2.1	1962	Highest
Levin	13.2	+2.0	1896	2 nd highest
Wellington	12.9	+1.4	1928	3 rd highest
Wellington Airport	14.2	+2.0	1962	Highest
Wallaceville	12.7	+2.2	1940	Highest
Stratford	12.0	+1.8	1961	Highest
Wanganui Airport	13.6	+1.3	1979	2 nd highest
Farewell Spit	14.1	+2.0	1971	Highest
Hokitika Airport	11.4	+1.4	1964	Equal highest
Milford Sound	10.1	+1.8	1935	2 nd highest
Puysegur Point	11.6	+1.5	1979	2 nd highest
Motueka	11.6	+1.6	1956	2 nd highest
Nelson Airport	12.3	+2.2	1943	Highest
Blenheim	13.1	+2.5	1937	Highest
Blenheim Airport	12.1	+2.0	1941	3 rd highest
Hanmer Forest	9.9	+2.3	1906	2 nd highest
Kaikoura	13.6	+2.6	1964	Highest
Arthurs Pass	7.9	+2.7	1978	Highest
Mt Cook Village	8.6	+2.4	1931	Equal highest
Winchmore	11.4	+2.8	1950	Highest
Darfield	12.2	+3.0	1939	Highest
Christchurch Airport	11.4	+2.5	1954	Highest
Christchurch	12.1	+2.6	1864	Highest
Lincoln	11.8	+2.6	1881	Highest
Le Bons Bay	12.8	+2.6	1984	Highest
Lake Tekapo	9.5	+3.5	1927	Highest
Timaru Airport	10.1	+2.0	1962	Highest
Tara Hills	9.0	+3.0	1950	Highest
Wanaka Airport	9.7	+2.6	1993	Highest
Dunedin Airport	9.9	+2.2	1963	2 nd highest
Dunedin	11.2	+1.9	1948	2 nd highest
Manapouri	8.8	+2.1	1998	2 nd highest
Queenstown	10.3	+2.7	1872	2 nd highest
Queenstown Airport	9.1	+2.5	1969	Highest
Lumsden	9.8	+2.5	1982	2 nd highest
Clyde	9.5	+2.8	1983	Highest
Gore	10.0	+2.5	1988	2 nd highest
Invercargill Airport	10.3	+2.3	1949	Highest
Tiwai Point	11.1	+2.2	1970	Highest
Nugget Point	10.5	+2.0	1971	2 nd highest
Raoul Island	20.1	+1.1	1940	3 rd highest
July				
Hamilton Airport	10.0	+1.5	1971	Equal 3 rd highest
Palmerston North Airport	9.8	+1.5	1962	3 rd highest
Raoul Island	17.6	+1.2	1940	Equal 2 nd highest
August				
Kaikohe	12.4	+1.4	1973	Highest
Tauranga Airport	11.7	+1.2	1913	3 rd highest
Napier Airport	10.7	+1.2	1974	Equal highest
Palmerston North Airport	10.2	+1.2	1962	2 nd equal highest
Stratford	9.2	+1.3	1960	Equal 2 nd highest
December				
Motueka, Riwaka	17.6	+1.4	1956	Equal 3 rd highest
Nelson Airport	17.9	+1.5	1943	Equal 2 nd highest

Manapouri, West Arm	14.2	+1.3	1996	2 nd highest
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Low temperatures and severe frost

- **22 June – severe frost in Otago**

The lowest air temperature during June was -11.6 °C recorded at Ophir on the 22nd. Many inland Otago locations experienced minimum air temperatures below -7.0 °C with grass minima below -10.0 °C on several nights between the 13th and 22nd, and also the 26th and 28th of June.

- **The 7-22 July freeze**

Numerous locations recorded minimum air temperatures below -10.0 °C at times between 7 and 22 July, e.g. Hanmer Forest, Arthurs Pass, Mt Cook Village, Lake Tekapo, Fairlie, St Bathans, Tara Hills, and Ranfurly. The severe frosts were often accompanied by freezing fog and treacherous black ice. Many houses water pipes burst in Otago and Southland following particularly severe frost over 8/9 July. Dunedin Airport recorded -8.8 °C on the 8th, the lowest there for July and equal lowest in annual records which commenced in 1963. For the first time since 2001, Central Otago curlers' were able to play their sport on the frozen Idaburn Dam, where air temperatures fell as low as -10 °C on the 17th. On the same day, ice was seen floating down the Shotover River near Queenstown, where the maximum temperature reached just -2 °C. The lowest air temperature during the year was -15.4 °C recorded at Lauder on 18 July, the lowest there since July 1995 (-19.7 °C).

Record low grass minimum temperatures (ground frost) were recorded during the year at:

Location	Minimum grass temperature (°C)	Date of occurrence	Records began	Comments
August				
Mt Cook Village	-16.4	15 August	1930	Lowest for August

Extremes of minimum temperature in 2007 were recorded at:

Location	Minimum temperature (°C)	Date of occurrence	Records began	Comments
July				
Dunedin Airport	-8.8	8 July	1963	Lowest for July

Unusually low mean monthly temperatures were recorded at various times during the year at:

Location	Mean temperature	Departure from average (°C)	Records Began	Comments
July				
Lauder	-1.0	-2.3	1963	3 rd lowest for July
October				
Mt Cook EWS	6.5	-2.3	1929	2 nd lowest
Wanaka Airport	9.3	-1.7	1992	Lowest
Manapouri, West Arm	7.8	-1.4	1996	2 nd lowest
Lumsden AWS	8.7	-1.3	1982	2 nd lowest
Tiwai Point EWS	8.9	-1.5	1970	Equal lowest

Sunshine extremes

Some locations experienced extremes of sunshine hours at various times during the year. January was extremely cloudy compared with average in the west of the North Island and the north of the South Island. In contrast, November was an extremely sunny month.

Monthly sunshine extremes for 2007 were:

Location	Sunshine (hours)	Percentage of normal	Year Records began	Comments
January				
Stratford	171	75	1963	2 nd lowest
Paraparaumu Airport	167	70	1953	3 rd lowest
Takaka	169	70	1986	Lowest
Motueka	200	76	1965	Equal lowest
Nelson Airport	181	68	1949	Lowest
February				
Arapito	210	122	1980	3 rd highest
Hokitika	261	142	1913	Highest
March				
Blenheim	258	125	1986	2 nd highest
April				
Kaitaia Obs.	198	124	1986	Equal highest
New Plymouth Airport	220	127	1905	3 rd highest
Lake Tekapo	212	133	1928	3 rd highest
August				
Nelson Airport	214	125	1949	3 rd highest
Tekapo	199	133	1928	2 nd highest
October				
Kaitaia	230	126	1985	3 rd highest
Dargaville	216	130	1943	Highest
Gisborne Airport	270	128	1905	3 rd highest
Blenheim Research	264	118	1985	2 nd highest
November				
New Plymouth Airport	259	127	1972	Highest
Wellington, Kelburn	260	124	1928	4 th highest
Takaka EWS	279	124	1986	2 nd highest
Motueka, Riwaka	303	133	1965	Equal highest
Nelson Airport	304	135	1948	2 nd highest
Blenheim Research	288	124	1985	2 nd highest
Mt Cook Village	232	156	1930	Highest
December				
Kaitaia Airport	140	64	1985	Lowest
Dargaville	134	66	1943	2 nd lowest
Ruakura	151	68	1936	2 nd lowest
Stratford	148	71	1963	2 nd lowest
Invercargill Airport	240	129	1932	Equal 3 rd highest

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