NIWA National Climate Centre

Monthly Climate Summary

NIWA Taihoro Nukurangi

New Zealand Climate Summary: **July 2015** Issued: 4 August 2015

A dry month for many parts of the country.

Rainfall	Rainfall was well below normal (< 50%) or below normal (50-79%) in most New Zealand regions. The exceptions were Tasman, Nelson, West Coast and Southland where rainfall was typically near normal (80-119%) or above normal (120-149%). Rainfall was well above normal (> 149%) for the southwest of the South Island and parts of West Coast.
Temperature	Mean temperatures were below average (-0.51°C to -1.20°C) in parts of the Far North, Bay of Plenty, Gisborne, Wairarapa, West Coast, coastal South Canterbury and North Otago. July temperatures were above average (+0.51°C to +1.20°C) for the Mackenzie Country and Banks Peninsula, and well above average (> 1.20°C) in parts of Central Otago.
Sunshine	July sunshine was abundant for many parts of New Zealand, with the majority of the country receiving above normal sunshine (110-125%). It was particularly sunny in Marlborough, Central Otago and the Southern Lakes where July sunshine was well above normal (> 125%).
Soil Moisture	As of 1 August 2015, soil moisture levels were below normal for this time of year for Hawke's Bay, coastal Wairarapa, and eastern parts of Canterbury and North Otago.

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Overview

Overall, July 2015 was characterised by air pressures which were higher than normal over and to the northwest of the country, while lower pressures than normal were observed to the south of New Zealand. This circulation pattern resulted in slightly more westerly airflows than normal over New Zealand. The westerlies were interrupted by outbreaks of cold southerlies that delivered snowfalls to low elevations, and anticyclones which resulted in spells of frost. After a particularly eventful June, July was a relatively settled month, although there were still a number of extreme events as expected for this time of year (see *Highlights and extreme events* section for further details).

It was a dry July for many parts of New Zealand. Specifically, rainfall was below normal (50-79% of the July normal) or well below normal (< 50% of the July normal) in parts of every region except Tasman, Nelson, West Coast and Southland. It was especially dry in eastern parts of South Canterbury, North

Otago and Central Otago which received just 20% or less of normal July rainfall. In contrast, rainfall was above normal (120-149% of July normal) for much of West Coast and parts of Auckland. Auckland received a considerable proportion of its monthly rainfall from downpours associated with frontal activity. Soil moisture levels have remained lower than normal in eastern parts of New Zealand. As of 1 August 2015, soils were notably drier than normal for Hawke's Bay, coastal Wairarapa, and eastern parts of Marlborough, North Canterbury, South Canterbury and Otago. Elsewhere, soil moisture levels were typically near normal for this time of year.

It was a cool month for many parts of the North Island and upper South Island. Mean temperatures were below average (0.51°C to 1.20°C below the July average) in parts of the Far North, Bay of Plenty, Gisborne, Wairarapa, West Coast, and Tasman. Mean temperatures were also below average in coastal South Canterbury and North Otago, mostly due to daily minimum temperatures which were well below average (> 1.20°C below the July average). In contrast, the Mackenzie Country and Banks Peninsula recorded above average temperatures (0.51-1.20°C above the July average), while mean temperatures were well above average (> 1.20°C above the July average) in parts of Central Otago. Temperatures were typically near average (between -0.50°C to +0.50°C of the July average) for the remainder of the country. The nation-wide average temperature in July 2015 was 7.8°C (equal to the 1981-2010 July average from NIWA's seven station temperature series which begins in 1909)[1].

It was a sunny month for many parts of New Zealand, with the majority of the country receiving above normal sunshine (110-125% of the July normal). Sunshine hours were well above normal (> 125% of the July normal) in Marlborough, Central Otago and the Southern Lakes. Parts of Taranaki received near normal July sunshine (90-109% of the July normal).

Further Highlights:

- The highest temperature was 21.2°C, observed at Christchurch (Riccarton) on 26 July.
- The lowest temperature was -10.2°C, observed at Hanmer Forest on 12 July.
- The highest 1-day rainfall was 91 mm, recorded at Franz Josef on 14 July.
- The highest wind gust was 152 km/hr, observed at Cape Turnagain on 5 July.
- Of the six main centres in July 2015, Auckland was the warmest and wettest, Christchurch was the coolest, Dunedin was the driest and cloudiest and Tauranga was the sunniest.
- Of the available, regularly reporting sunshine observation sites, the sunniest four centres so far in 2015 (1 January to 31 July) are: Blenheim (1555 hours), Whakatane (1539 hours), Appleby (1512 hours) and Waipara West (1489 hours).

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[1] Interim value

Rainfall: Extremely dry in South Canterbury, North Otago and Central Otago

July 2015 was a record or near-record dry month in six New Zealand locations. Some parts of South Canterbury, North Otago and Central Otago received less than 10 mm of rainfall for the month, which was equivalent to just 20% or less of normal July rainfall in these areas. These locations are sheltered from both westerly and south-westerly airflows, which were the predominant directions of rain-bearing weather systems during the month.

Record[2] or near-record July rainfall totals were recorded at:

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Alexandra	3	14	1983	Lowest
Waione	59	43	1991	2nd-lowest
Ranfurly	3	9	1943	2nd-lowest
South West Cape	67	63	1991	2nd-lowest
Masterton	59	46	1992	3rd-lowest
Dannevirke	38	38	1951	4th-lowest

Temperature: Cool for many regions but mild for inland parts of the South Island

Relatively few locations observed record or near-record mean temperatures for July as a whole. However, a period of prolonged southerlies followed by heavy frosts early in the month resulted in a number of locations observing record or near-record low daily maximum and daily minimum temperatures (see *Highlights and extreme events section* for further details). The nation-wide average temperature in July 2015 was 7.8°C (equal to the 1981-2010 July average from NIWA's seven station temperature series which begins in 1909).

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

Location	Mean air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Ranfurly	4.0	1.8	1975	3rd-highest
Low records or near-records				
Takapau Plains	5.8	-1.3	1962	4th-lowest

[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.

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

Location	Mean maximum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
Mt Cook Village	9.1	2.5	1929	3rd-highest
Christchurch (Riccarton)	12.7	1.6	1863	3rd-highest
Orari Estate	11.8	1.5	1972	3rd-highest
Ranfurly	9.5	2.3	1975	4th-highest
Cromwell	10.3	2.3	1949	4th-highest
Low records or near-records				
Port Taharoa	13.3	-1.1	1973	Lowest
Kaitaia	14.5	-1.0	1967	3rd-lowest
Takapau Plains	9.7	-1.5	1962	4th-lowest
Waione	12.3	-0.8	1991	4th-lowest
Martinborough	11.6	-0.8	1986	4th-lowest

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

Location	Mean minimum air temp. (°C)	Departure from normal (°C)	Year records began	Comments
High records or near-records				
None observed				
Low records or near-records				
Waiau	-1.6	-0.7	1974	Lowest
Appleby	-0.9	-2.8	1932	4th-lowest
Nugget Point	2.8	-0.6	1970	4th-lowest

Sunshine: Plentiful sunshine hours for most of the country

Blenheim and Cromwell observed their sunniest July on record, with four other locations observing near-record sunshine hours for the month. Of the available, regularly reporting sunshine observation sites, the sunniest four centres so far in 2015 (1 January to 31 July) are: Blenheim (1555 hours), Whakatane (1539 hours), Appleby (1512 hours) and Waipara West (1489 hours).

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

Location	Sunshine hours	Percentage of normal	Year records began	Comments
High records or near-records				
Blenheim	199	127	1947	Highest
Cromwell	153	155	1979	Highest
Dannevirke	140	137	1963	2nd-highest
Lake Tekapo	177	125	1928	2nd-highest
Queenstown	158	179	1930	2nd-highest
Balclutha	135	140	1964	4th-highest
Low records or near-records				
None observed				

July climate in the six main centres

July temperatures were near average in the main centres for this time of year. It was dry in Dunedin, with the city receiving just 44% of normal July rainfall. In contrast, rainfall was above normal in Auckland, which received more than six times the rainfall that was recorded in Dunedin. Of the six main centres in July 2015, Auckland was the warmest and wettest, Christchurch was the coolest, Dunedin was the driest and cloudiest and Tauranga was the sunniest.

July 2015 main centre climate statistics:

Temperature			
Location	**Mean temp. (°C)**	**Departure from normal (°C)**	**Comments**
Auckland[a]	11.0	+0.1	Near average
Tauranga[b]	9.8	-0.5	Near average
Hamilton[c]	8.3	-0.4	Near average
Wellington[d]	9.0	+0.1	Near average
Christchurch[e]	6.0	+0.2	Near average
Dunedin[f]	6.5	0.0	Near average
Rainfall			
Location	**Rainfall (mm)**	**% of normal**	**Comments**
Auckland[a]	168	122%	Above normal
Tauranga[b]	91	71%	Below normal
Hamilton[c]	127	98%	Near normal
Wellington[d]	141[3]	103%	Near normal
Christchurch[e]	49	76%	Below normal
Dunedin[f]	25	44%	Well below normal
Sunshine			
Location	**Sunshine (hours)**	**% of normal**	**Comments**
Auckland[a]	146	111%	Above normal
Tauranga[b]	148	98%	Near normal
Hamilton[g]	144	114%	Above normal
Wellington[d]	136	114%	Above normal
Christchurch[e]	127[3]	100%	Near normal
Dunedin[f]	121	110%	Near normal

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

[3] Missing one day of data.

Highlights and extreme events

Rain and slips

On 7 July thunderstorms resulted in heavy downpours of rain for parts of Auckland. Heavy rain also fell in parts of Waikato, where ten traffic accidents were partly attributed to the wet conditions.

On 15 July localised heavy downpours of rain struck Auckland in the evening, and resulted in considerable surface flooding in many areas. Floodwaters closed the road to Auckland Airport's domestic terminal, and leaks were reported in both the domestic and international terminals. Fire crews responded to dozens of flood-related calls, and pumped water from more than 50 flooded homes. West Auckland suburbs, Papakura and Manurewa were reportedly hardest-hit by the surface flooding. Auckland Airport recorded 51 mm of rain between 6 p.m. and 8 p.m.

The highest 1-day rainfall was 91 mm, recorded at Franz Josef on 14 July.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year records began	Comments
None observed				

Temperatures

From 9 July a high pressure system gradually became established over New Zealand, bringing widespread frosty conditions which were severe in many areas. The high remained in place until 14 July, and over the course of these six days 18 locations observed record or near-record low minimum temperatures for July. A very cold southerly airflow preceding the high pressure system contributed to numerous locations observing record or near-record low daily maximum temperatures for July.

On 13 July and 14 July the National Bonspiel was held on the Centennial Ponds in Naseby – the first outdoor curling championship in New Zealand for three years. It was the first time in 80 years the bonspiel was held in Naseby as opposed to the Idaburn Dam in Oturehua, due to insufficient ice for a full bonspiel at Oturehua. More than 300 curlers and spectators from 32 clubs around New Zealand took part in the event.

On 26 and 27 July, warm north-westerly winds brought relatively high temperatures to parts of the South Island, with a handful of locations observing record or near-record high daily maximum air temperatures.

The highest daily maximum temperature for the country was 21.2°C, observed at Christchurch (Riccarton) on 26 July. This was followed by 20.4°C at Waiau on 27 July, and 20.3°C at Cheviot on 26 July.

The lowest daily minimum temperature for the country was -10.2°C, observed at Hanmer Forest on 12 July. This was followed by -9.8°C at Clyde on 13 July, and -9.6°C at Pukaki Aerodrome on 13 July.

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

Location	Extreme maximum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Appleby	19.1	27th	1932	Highest
Waiau	20.4	27th	1974	2nd-highest
Ranfurly	16.7	27th	1975	2nd-highest
Cheviot	20.3	26th	1982	Equal 2nd-highest
Motu	16.4	16th	1990	3rd-highest
Puysegur Point	16.7	14th	1978	3rd-highest
South West Cape	14.8	14th	1991	3rd-highest
Waione	19.2	27th	1991	Equal 3rd-highest
Christchurch (Riccarton)	21.2	26th	1863	4th-highest
Balclutha	17.8	16th	1964	4th-highest
Low records or near-records				
Cape Reinga	10.8	10th	1971	Lowest
Kaitaia	9.6	10th	1971	Lowest
Port Taharoa	8.7	8th	1974	Lowest
Waione	4.9	9th	1993	Lowest
Ngawi	6.9	8th	1972	Lowest
Wairoa	6.4	9th	1972	Lowest
Hicks Bay	8.1	8th	1972	Equal lowest
Dargaville	9.4	9th	1951	2nd-lowest
Mokohinau	10.1	9th	1994	2nd-lowest
Whangaparaoa	9.7	9th	1982	2nd-lowest
Whitianga	9.8	9th	1971	2nd-lowest
Takapau Plains	3.8	9th	1972	2nd-lowest
Dannevirke	4.0	9th	1951	2nd-lowest
Waipawa	4.5	9th	1945	2nd-lowest
Le Bons Bay	3.4	8th	1984	2nd-lowest
Nugget Point	3.5	18th	1972	2nd-lowest
Mahia	7.4	9th	1990	Equal 2nd-lowest
Motu	3.8	8th	1990	3rd-lowest
Castlepoint	6.5	8th	1972	3rd-lowest
Gisborne	6.9	9th	1940	3rd-lowest
Hastings	6.6	9th	1972	3rd-lowest
Secretary Island	5.9	6th	1989	3rd-lowest
South West Cape	5.2	6th	1991	3rd-lowest
Rotorua	7.1	8th	1972	Equal 3rd-lowest
Ohakune	2.2	9th	1972	Equal 3rd-lowest
Warkworth	9.8	9th	1966	4th-lowest
Paeroa	8.8	9th	1971	4th-lowest
Te Puke	8.6	8th	1973	4th-lowest
Turangi	5.7	9th	1968	4th-lowest
Napier	7.5	9th	1940	4th-lowest
Haast	6.1	6th	1949	4th-lowest

Whakatane	9.3	8th	1975	Equal 4th-lowest

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

Location	Extreme minimum (°C)	Date of extreme temperature	Year records began	Comments
High records or near-records				
Whatawhata	13.3	7th	1952	Equal 2nd-highest
Masterton	11.9	27th	1992	4th-highest
Secretary Island	11.5	15th	1988	4th-highest
Low records or near-records				
Kerikeri	-0.7	12th	1981	Lowest
Warkworth	-2.3	12th	1966	Lowest
Takapau Plains	-5.4	14th	1962	Lowest
Waione	-5.5	14th	1991	Lowest
Martinborough	-4.3	14th	1986	Lowest
Greymouth	-2.6	9th	1947	Lowest
Appleby	-9.7	31st	1932	Lowest
Kaitaia	0.4	12th	1948	2nd-lowest
Mahia	1.8	9th	1990	2nd-lowest
Balclutha	-6.1	13th	1964	2nd-lowest
Port Taharoa	0.9	10th	1973	Equal 2nd-lowest
Dunedin (Musselburgh)	-3.1	13th	1947	Equal 2nd-lowest
Timaru	-7.7	13th	1885	3rd-lowest
North Shore, Auckland	1.0	12th	1994	Equal 3rd-lowest
Mokohinau	7.3	10th	1994	4th-lowest
Westport	-1.3	9th	1937	4th-lowest
Puysegur Point	1.1	7th	1978	4th-lowest
Alexandra	-8.7	12th	1983	4th-lowest
Taumarunui	-5.9	12th	1947	Equal 4th-lowest
Waiau	-7.3	12th	1974	Equal 4th-lowest

Wind

On 15 July, 1600 homes in St Heliers (Auckland) were without power, with strong winds attributed as the main cause. The gusty winds and heavy downpours of rain for many parts of Auckland were as a result of a low pressure system and associated occluded front passing over the area.

On 18 July, approximately 9000 customers in Northland, Auckland, Coromandel Peninsula and Bay of Plenty were without power as a result of strong winds causing trees to fall onto power lines. The strong winds tore off roofs, smashed boats into sea walls and twisted traffic lights in parts of Auckland, and numerous trees were felled. One family was evacuated from their west Auckland home after wind brought a tree down on their house. At Ardmore Airport, two light aircraft were flipped upside down by the wind. Water spouts and mini tornadoes were reported farther south at Mount Maunganui.

The highest wind gust was 152 km/hr, observed at Cape Turnagain on 5 July.

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

Location	Extreme wind gust (km/hr)	Date of extreme gust	Year records began	Comments
Secretary Island	128	25th	1994	Highest
Cape Campbell	119	18th	1963	2nd-highest
Oamaru	82	20th	1984	Equal 2nd-highest
Wanganui	95	19th	1977	3rd-highest
Tauranga	96	18th	1973	Equal 3rd-highest
Baring Head	141	19th	1991	Equal 3rd-highest
Lincoln Rd, Auckland	80	19th	1994	4th-highest
Lyttelton Harbour	91	29th	1980	4th-highest
Queenstown	83	8th	1972	4th-highest
Leigh	119	18th	1972	Equal 4th-highest

Snow and ice

On 6 July, the Milford Road (SH 94) was closed due to snow and avalanche danger. Chains were essential for vehicles travelling on SH 73 between Arthur's Pass and Otira due to snow. Caution was required on SH 94 from Mossburn to Te Anau, the Lindis Pass (SH 8), the Mount Cook Highway (SH 80), SH 79 from Geraldine to Fairlie, and SH 85 between Palmerston and Kyeburn due to snow and ice. In Queenstown, morning flights were delayed after overnight precipitation froze on the runway, and a car rolled on black ice near Fernhill Road. *Coronet Peak* and *The Remarkables* ski areas reported 15 cm and 20 cm of fresh snowfall, respectively, whilst farther north *Broken River* ski area reported 24 cm of fresh snowfall.

On 7 July snow showers continued to fall to low levels in parts of the South Island. The Milford Road (SH 94), SH 6 from Makarora to Haast (Haast Pass) and SH 93 from Clinton to Mataura were closed due to snow. SH 73 from Arthur's Pass to Otira and SH 97 from Mossburn to Five Rivers were closed to towing vehicles due to snow. Motorists were warned to take extra care on the Lindis Pass (SH 8), the Mount Cook Highway (SH 80), SH 6 from Kingston to Dipton, SH 94 from Mossburn to Gore, SH 1 from Mataura to Balclutha and SH 90 from Raes Junction to McNab due to snow and ice.

On 8 July snow showers persisted in southern and eastern parts of the South Island, and began to affect areas of the North Island. Snow fell to sea level in parts of Southland, while a few centimetres of snow settled in the hill suburbs of Dunedin, to lake level in Queenstown, and on the Port Hills near Christchurch. Numerous roads throughout Southland and Otago were affected by snow and black ice and many accidents were reported in both regions. The Milford Road (SH 94), SH 93 from Clinton to Mataura and Dunedin's Northern Motorway (SH 1) were closed due to snow. In the North Island, the Rimutaka Hill Road (SH 2) and the Napier to Taupo Highway (SH 5) were also closed due to snow, while caution was required on the Desert Road (SH 1) and SH 1 from Oruanui to Wairakei (north of Taupo) due to snow. A ski patroller both triggered and was partially buried by a size 1 avalanche at Turoa skifield. Farther south, a solo backcountry skier was caught in an avalanche near the Godley Glacier (north of Lake Tekapo), and required rescue by helicopter after triggering their emergency locator beacon.

On 9 July cold southerlies continued over the country, with snow showers falling to low elevations in eastern parts of the South Island north of the Rakaia River, and throughout many central and southern parts of the North Island. Light snow fell and settled in the higher hill suburbs of Wellington, and the Rimutaka Hill Road (SH 2) was again closed due to snow. The Desert Road (SH 1) was also closed due to snow, and caution was advised to motorists travelling on SH 2 between Gisborne and Wairoa due to snow and ice. Farther south, chains were essential for motorists travelling over Arthur's Pass and Lewis Pass, and approximately 5-10 cm of snow was reported in Hanmer Springs.

On 10 July snow had settled to approximately 700 m above sea level on the Waima Ranges in Northland (southwest of Kaikohe). SH 2 from Wairoa to Gisborne and from Matawai to Otoko (between Gisborne and Opotiki) was closed due to snow. A number of inland North Island roads were also closed by snow, including SH 1 between Taihape and Rangipo, SH 5 from Napier to Taupo, SH 49 from Waiouru to Ohakune, SH 4 from Raetihi to Taumarunui, SH 47 from National Park to Turangi and SH 46 from Rangipo to Tongariro. In the South Island the worst of the weather had cleared due to the onset of a high pressure system, resulting in excellent skiing conditions under clear skies with light winds.

On 17 July, black ice warnings were issued for the Queenstown Lakes district, with one accident on the Cardrona Valley attributed to ice.

On 18 July, snow fell to near sea level in Southland and Otago. By late evening, a few centimetres of snow had settled in the hill suburbs of Dunedin and to lake level in Queenstown. Snow also fell to relatively low elevations in Canterbury, where a few centimetres of snow were reported at Lake Tekapo and Hanmer Springs on the morning of 19 July. Icy roads contributed to a car rolling and a truck becoming stuck on Burke's Pass (SH 8). Flights at Queenstown Airport were delayed on 19 July until 11.30 a.m. while the runway was cleared of snow.

On 20 and 21 July, the Desert Road (SH 1) was closed due to snow and ice, and caution was required on the Napier to Taupo Highway (SH 5) due to snow. On 20 July, a car rolled onto its roof in snowy conditions on the Crown Range road near Queenstown. On the morning of 21 July, motorists travelling on SH 1 between Blenheim and Picton were warned to take extra caution due to black ice.

Lightning and hail

On 15 July, approximately 40 lightning strikes were recorded off the coast of Northland.

Cloud and fog

On 17 July, Police warned motorists travelling on SH 1 between Levin and Sanson to take extra care due to poor visibility resulting from fog.

On 23 and 25 July, flights at Auckland Airport were disrupted by fog.

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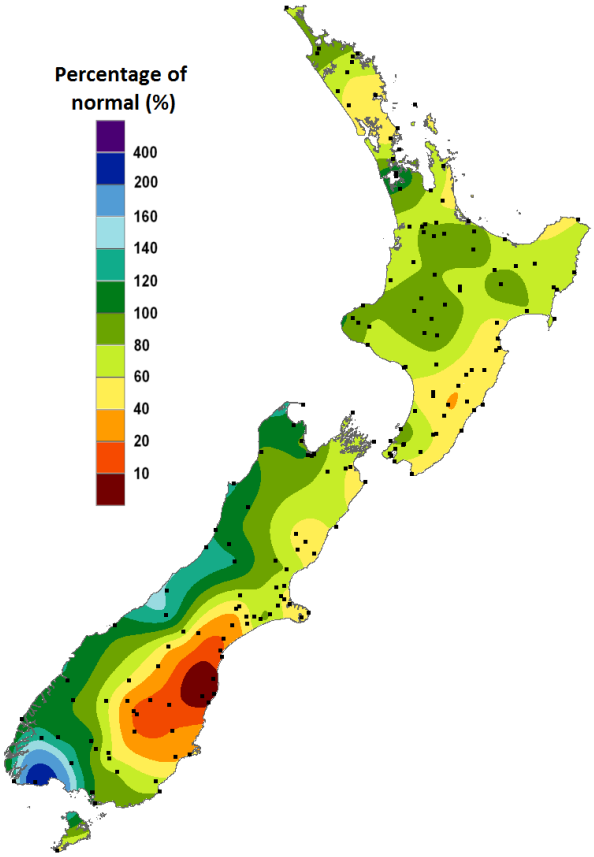

July 2015 total rainfall, expressed as a percentage of the 1981-2010 normal (%).

It was a dry month for parts of Northland, Hawke's Bay, Manawatu, Wairarapa, Marlborough, Canterbury and Otago, as indicated by the yellow, orange and red shades. Here, rainfall was typically below normal (50-79% of the July normal) or well below normal (< 50% of the July normal). In contrast, rainfall was above normal (120-149% of the July normal) or well above normal (> 149% of the July normal) in in western and southwestern parts of the South Island, as indicated by the teal and blue shades.