

**National Climate Summary Winter 2010: Sunny & dry in southwest; mild & wet for northeast**

- **Rainfall:** Very wet in Bay of Plenty, Coromandel, Waikato, parts of Gisborne and northern Hawkes Bay, Marlborough, coastal Canterbury and parts of Otago. Extremely dry in the southwest of the South Island.
- **Sunshine:** Very sunny in the south and west of the South Island; extremely cloudy for Christchurch, north Canterbury, Marlborough, Wellington, Wairarapa, and Taranaki.
- **Temperatures:** A mild winter in the north and east of the North Island, as well as for the north and west of the South Island. Below average winter temperatures for parts of eastern Otago.

Winter (June – August) 2010 was characterised by more easterly winds than usual over southern and central districts. June was extremely wet except for the southwest of the country. July was dry and very sunny in western areas. August was warm, cloudy, and very wet for all regions except Fiordland and Southland.

The easterly winds of winter resulted in wet conditions in the northeast of both islands, but below normal rainfall in the southwest of New Zealand. It was extremely wet in Bay of Plenty, Marlborough and north Canterbury, with well above normal winter rainfalls (more than 150 percent of normal). Te Puke and Blenheim observed their highest winter rainfall totals on record. Winter rainfalls were above normal (between 120 and 150 percent of normal) in Waikato and Coromandel, parts of Gisborne and northern Hawkes Bay, coastal south Canterbury and in parts of Otago. In contrast, winter rainfalls were below normal (between 50 and 75 percent of normal) in Fiordland and Southland. Elsewhere, winter rains were near normal (between 80 and 120 percent of normal).

It was an extremely sunny winter in the southwest. Well above normal sunshine totals were recorded (more than 125 percent of normal) in the Grey district, Westland, Fiordland, Southland and Otago. Greymouth, Invercargill and Balclutha experienced their highest-equal winter sunshine totals. Sunshine hours were above normal (between 110 and 125 percent of normal) in Northland, Auckland, Waikato and the Ruapehu district. In comparison, it was extremely cloudy in eastern and inland areas of the South Island north of about Banks Peninsula, as well as for Wellington, Wairarapa and Taranaki. Martinborough and Blenheim reported their lowest-equal winter sunshine totals on record. Elsewhere, sunshine hours were near normal.

Winter temperatures were above average (between 0.5°C and 1.2°C above average) in parts of the north and east of the North Island, in Nelson, along the West Coast and in Fiordland. Below average winter temperatures (between 0.5°C and 1.2°C below average) were observed for parts of eastern Otago. In other regions, winter temperatures were close to average (within 0.5°C of seasonal average). The New Zealand national average temperature was 8.7°C (0.5°C above the 1971-2000 winter average).

**Further Highlights:**

- The highest temperature was 22.2°C, recorded at Waipara on June 19<sup>th</sup> (a near-record at this site for winter).
- The lowest temperature was -12.6°C, recorded at Lake Tekapo on August 10<sup>th</sup> (not a record).
- The highest 1-day rainfall was 255 mm recorded at North Egmont on August 13<sup>th</sup> (not a record).
- The highest wind gust was 141 km/hr, recorded at Cape Turnagain on July 27<sup>th</sup> (not a record).
- Of the six main centres, Auckland was the warmest, Christchurch the coolest and cloudiest, Tauranga was the wettest but also the sunniest, and Dunedin the driest.

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**RAINFALL: VERY WET IN BAY OF PLENTY, COROMANDEL, WAIKATO, PARTS OF GISBORNE AND NORTHERN HAWKES BAY, MARLBROUGH, COASTAL CANTERBURY, AND PARTS OF OTAGO. VERY DRY IN THE SOUTHWEST OF THE SOUTH ISLAND.**

The easterly winds of winter resulted in wet conditions in the northeast of both islands, but below normal rainfall in the southwest of New Zealand. It was an extremely wet winter in Bay of Plenty, Marlborough and north Canterbury, with well above normal winter rainfalls (more than 150 percent of normal). Te Puke and Blenheim both observed their highest winter rainfall totals on record. Winter rainfalls were also above normal (between 120 and 150 percent of normal) in Waikato and Coromandel, parts of Gisborne and northern Hawkes Bay, coastal south Canterbury and in parts of Otago. In contrast, winter rainfall totals were below normal (between 50 and 75 percent of normal) in Fiordland and Southland. Elsewhere, winter rainfall was near normal (between 80 and 120 percent of normal).

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Te Puke	765	150	1973	Equal highest
Blenheim	377	175	1927	Highest
Hanmer	518	151	1905	Equal 4 <sup>th</sup> -highest
Milford Sound	786	61	1929	3rd-lowest
Tiwai Point	132	51	1970	Equal lowest
Nugget Point	124	53	1930	Equal 3rd-lowest

**SUNSHINE: VERY SUNNY IN THE SOUTH AND WEST OF THE SOUTH ISLAND; EXTREMELY CLOUDY FOR CHRISTCHURCH, NORTH CANTERBURY, MARLBOROUGH, WELLINGTON, WAIRARAPA AND TARANAKI.**

It was an extremely sunny winter in the southwest of the country. Well above normal sunshine totals were recorded (more than 125 percent of normal) in the Grey district, Westland, Fiordland, Southland and Otago. Greymouth, Invercargill and Balclutha experienced their highest-equal winter sunshine totals. Sunshine hours were also above normal (between 110 and 125 percent of normal) in Northland, Auckland, Waikato and the Ruapehu district. In comparison, it was extremely cloudy in eastern and inland areas of the South Island north of about Banks Peninsula, as well as for Wellington, Wairarapa and Taranaki. Martinborough and Blenheim reported their lowest-equal winter sunshine totals since records began in 1986 and 1947, respectively. Elsewhere, sunshine hours were near normal.

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

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Taumarunui	329	124	1947	Equal 4th-highest
Greymouth	419	134	1947	Equal highest
Invercargill	359	125	1932	Equal highest
Balclutha	392	134	1964	Equal highest
Martinborough	274	78	1986	Equal lowest
Blenheim	439	91	1947	Equal lowest
Christchurch	304	78	1930	3rd-lowest

**TEMPERATURES: A MILD WINTER IN THE NORTH AND EAST OF THE NORTH ISLAND, AND IN THE NORTH AND WEST OF THE SOUTH ISLAND. BELOW AVERAGE TEMPERATURES FOR PARTS OF EASTERN OTAGO.**

Winter temperatures were above average (between 0.5°C and 1.2°C above average) in parts of the north and east of the North Island, in Nelson, along the West Coast and in Fiordland. Below average winter temperatures (between 0.5°C and 1.2°C below average) were observed for parts of eastern Otago and in isolated Alpine areas of the South Island. In other regions, winter temperatures were close to average (with temperatures within 0.5°C of seasonal average). The New Zealand national average temperature was 8.7°C (0.5°C above the 1971-2000 winter average)<sup>1</sup>.

Winter mean maximum temperatures were the highest on record for Kaikohe, Leigh (north Auckland), Westport, Haast, Motueka and Lake Rotoiti. In contrast, Dunedin and Queenstown experienced their lowest winter mean minimum temperatures on record.

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

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kerikeri	16.8	0.6	1981	2nd-highest
Kaikohe	15.8	1.7	1973	Highest
Leigh	16.9	1.6	1966	Highest
Whangaparaoa	15.5	1.4	1982	2nd-highest
New Plymouth	14.5	0.8	1944	4th-highest
Westport	14.0	1.2	1937	Highest
Lake Rotoiti	10.4	1.5	1965	Highest
Reefton	11.7	1.1	1960	3rd-highest
Greymouth	13.1	0.9	1947	2nd-highest
Haast	13.0	1.4	1949	Highest
Motueka	16.0	2.9	1956	Highest
Appleby	13.7	0.9	1943	4th-highest
Nelson	13.8	1.2	1943	2nd-highest
Castlepoint	12.2	-0.8	1972	4th-lowest
Le Bons Bay	9.9	-0.2	1984	3rd-lowest
Alexandra	9.4	0.2	1985	3rd-lowest

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

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaikohe	9.5	1.4	1973	4th-highest
Whakatane	5.2	1.3	1974	4th-highest
Hastings	4.7	0.6	1965	4th-highest
Greymouth	5.7	1.0	1947	4th-highest
Puysegur Point	6.7	0.8	1978	4th-highest
Blenheim	4.0	1.2	1941	Highest
Cape Campbell	7.8	3.1	1953	Highest
Culverden	1.0	1.2	1928	3rd-highest
Darfield	2.9	1.4	1939	Highest

<sup>1</sup> Interim seasonal value.

Orari Estate	1.2	0.9	1972	2nd-highest
Dunedin	-0.4	-0.8	1947	Lowest
Queenstown	-1.3	-0.5	1871	Lowest
Lumsden	-0.6	-0.7	1982	3rd-lowest

## WINTER CLIMATE IN THE SIX MAIN CENTRES

Winter mean temperatures were above average for Tauranga, but near average for all of the other main centres. Seasonal rainfalls were above normal for all of the main centres, except Auckland (where near normal winter rainfalls were experienced) and Dunedin (which recorded below normal winter rainfall). Sunshine hours were above normal for Auckland and Dunedin, below normal in Christchurch, but near normal elsewhere.

Of the six main centres, Auckland was the warmest, Christchurch the coolest and cloudiest, Tauranga was the wettest but also the sunniest, and Dunedin the driest.

### Winter 2010 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland <sup>a</sup>	11.4	+0.1	Near average	456	119%	Near normal	429	112%	Above normal
Tauranga <sup>b</sup>	11.2	+0.9	Above average	528	144%	Above normal	452	102%	Near normal
Hamilton <sup>c</sup>	9.3	+0.4	Near average	485	135%	Above normal	391 <sup>g</sup>	108%	Near normal
Wellington <sup>d</sup>	9.3	+0.1	Near average	524	129%	Above normal	330	94%	Near normal
Christchurch <sup>e</sup>	6.6	+0.2	Near average	247	124%	Above normal	304	78%	3 <sup>rd</sup> -lowest
Dunedin <sup>f</sup>	7.4	+0.4	Near average	158	76%	Below normal	366	121%	Above normal

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

## HIGHLIGHTS AND EXTREME EVENTS

### • Heavy rain and slips

Whakatane Airport recorded 170 mm of rainfall on June 1<sup>st</sup> (a new June record there). Notably, 90 mm fell in just 1 hour. More than 50 people were evacuated from their homes in Whakatane, and a rest home in Opotiki was also evacuated. Two people were rescued from a car stuck in floodwaters in Matata, and another group was rescued 3 km west of Matata. In Mount Maunganui, some streets were under 30 cm of water, several properties were flooded, and a family trapped in their car by floodwaters on Ocean Beach Road. At Papamoa Beach, water up to 20 cm deep flooded homes. In Auckland, properties were flooded in Mt Roskill, One Tree Hill, Epsom, Penrose, Shelly Park and the Southdown Industrial Park. The heavy rain caused a sewage main in Otahuhu to rupture, and 12 houses were evacuated. In Whitianga, homes were flooded, schools closed early, and local roads were closed by slips.

On 7 June, heavy rain caused a large slip on Paekakariki Hill Road, north of Wellington, blocking both lanes. In the city, a large slip in the suburb of Strathmore forced the evacuation of two houses. In the Manawatu Gorge, SH3, a large slip obstructed one lane at the Woodville end. A large slip blocked one lane of SH2, near Waioeka Gorge, for most of the day, and a slip blocked the southbound lane in Wharerata Gorge, south of Gisborne. Water up to 30 cm on SH1 near the Awatere Valley–Redwood Pass intersection caused delays, with cars being let through one at a time. Many roads in South Canterbury and North Otago, that had just reopened after earlier flooding, were closed again, as were parts of SH1 between Hilderthorpe

and Pukeuri, just north of Oamaru. Surface flooding caused some road closures in Dunedin, on Otago Peninsula, and on the Taieri Plains.

On 8 June, a large slip closed one lane of SH7, south of Reefton. A slip also blocked lanes on the road from Dunedin to Aramoana. On 9 June, surface flooding was reported on SH1 between Otaki and Peka Peka. The Department of Conservation closed Bushy Beach Track, used to reach a viewing platform overlooking yellow-eyed penguins nesting on the tip of Cape Wanbrow, near Oamaru, after heavy rain caused slips and slumping. On 14 June, Noonan Road, near Poolburn in Central Otago, was closed by flooding.

On 25 June, flooding and slips closed SH25 between Coromandel and Kuaotunu, between Coromandel and Tapu, and between Whitianga and Coroglen. A slip caused by heavy rain affected SH5 between Taupo and Napier. On 27 June, a large slip near Little River closed SH75, between Akaroa and Christchurch. There were several other slips on the same road.

Heavy rain on 5 July closed SH25 at Whitianga and Manaia on the Coromandel Peninsula. Six people were rescued after two cars became stranded by rising water on Kauaeranga Valley Road in the Coromandel Ranges. Heavy rain also affected Northland, causing slips and closing roads in Whangarei.

On 6 July heavy rain on the East Coast cut power to properties in the Gisborne area, affecting the Te Araroa, Waikura Valley and Mata Road areas. People in inland Ruatoria were isolated after the Mata River washed away their sole road access. SH2 between Napier and Wairoa was closed by extensive slips and flooding. SH35 was down to one lane near Te Araroa, and many rural roads were closed by slips and surface flooding.

On 7 July, SH2 between Napier and Wairoa was closed by major slips at the Devil's Elbow and Waikouau Hill areas. SH2 was also underwater around Tutira and was closed overnight. Many rural roads in the Hastings and Havelock North areas were blocked by flooding and slips. The Napier-Taupo Road was reduced to one lane by a slip near Te Pohue. Travel to and from Rissington was affected by a slip which closed Puketitiri Road. SH2 was blocked during the morning by a fallen tree at Bartletts Hill. Power lines were downed, cutting electricity to Te Araroa, Waikura Valley and Mata Road areas. Some Ngatapa residents could not go home because their only access road was blocked.

On 9 July, a large slip blocked the road to Anaura Bay, north of Gisborne, leaving residents walk-in access only, via the beach.

On 23 and 24 July, heavy rain caused flooding and slips on SH1 between Blenheim and Waipara, and on SH7 between Springs Junction and Waipara. In southern Wairarapa, flooding closed the Ponatahi Bridge near Martinborough, and White Rock Road at the intersection with Lagoon Hill Road.

Heavy rain warnings were in effect for the West Coast and the Southern Alps on 31 July. On 1 August, heavy rain closed SH1 at Ngauranga Gorge, and caused flooding in the northern Wellington suburbs of Johnsonville and Newlands.

On 4 August, a large landslide behind a house in the Wellington suburb of Karori made the house uninhabitable, forcing the residents to move out. Further north a storm lashed Northland, closing schools at Rawene and Opononi, while flooded roads cut off Omanaia School from either side. Surface flooding was also reported on SH1 near Houhora, in Whangarei, Kaeo, Waikare, and the Kai Iwi Lakes area.

On 7 August, a large slip closed SH25 just south of Whangamata. In the South Island, SH1 was affected by surface flooding between Timaru and Waianakarua, and several minor roads in the area were closed by slips. On 8 August, a large slip closed northbound lanes of SH2 between Wellington and the Hutt Valley for about four hours. In Canterbury, the heavy rain caused slips and flooding, closing two roads overnight on Banks Peninsula. A slip at Greta Valley reduced SH1 to one lane. On 10 August, a large slip closed Ngaio Gorge Road, a major route from the northern suburbs of Wellington into the city.

Heavy rain over the weekend of 14-15 August caused floods in the Bay of Plenty with a 10-metre breach in the Te Rahu Canal stop-bank off the Whakatane River. Several families were evacuated, and four schools and two pre-schools in Whakatane were closed. The Whakatane Boat Ramp was closed, phone lines were cut, and there was widespread surface flooding. Many roads around the region were closed, with Opotiki

isolated. The Waioeka Gorge was closed by large slips, cutting off SH2 between Opotiki and Matawai, and surface flooding closed SH2 between Opotiki and Whakatane. A washout northeast of Opotiki closed SH35 to all but one lane of traffic, and the road between Taneatua and Kutarere was also closed by flooding.

On 15 August, a slip blocked both lanes of SH1 between Picton and Blenheim.

SH1, north of Oamaru, was affected by surface flooding on 30 August, after overnight rain. Grange Hill Road at Waihemo, North Otago, was closed by surface flooding, and other minor roads had caution notices in place.

The highest 1-day rainfall recorded in winter 2010 was 255 mm recorded at North Egmont on August 13<sup>th</sup> (not a winter record at this site).

Notably wet events during winter occurred on June 1<sup>st</sup> and 6<sup>th</sup>, and July 4<sup>th</sup> and 5<sup>th</sup>. All of these events were associated with active lows located over the north Tasman Sea, bringing moist northerly to easterly flows onto the country.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year Records Began	Comments
Parakao (Northland)	119	Jul-04th	1951	2nd-highest
Mamaranui (Northland)	79	Jul-04th	1951	4th-highest
Kumeu (Waitakere)	54	Jun-25th	1978	4th-highest
Karangahake Gorge	108	Jun-24th	1981	4th-highest
Thornton East (Bay of Plenty)	135	Jun-01st	1948	Highest
Whakatane	170	Jun-01st	1952	Highest
Opotiki	118	Jun-01st	1913	4th-highest
Greentops (Wairarapa)	104	Jun-26th	1923	3rd-highest
Te Puia Springs (Gisborne)	191	Jul-05th	1946	2nd-highest
Ahititi Station (Taranaki)	128	Jul-05th	1973	3rd-highest
Te Pohue, Hawkes Bay	155	Jul-05th	1983	3rd-highest
Okarito	123	Jul-31st	1981	3rd-highest
Blenheim	71	Jun-06th	1927	3rd-highest
Woodbury	58	Aug-07th	1973	4th-highest
Minaret Bay (Lake Wanaka)	82	Jul-31st	1952	3rd-highest
Lauder	39	Jun-06th	1945	Highest
Alexandra	27	Jun-06th	1983	2nd-highest
Roxburgh	28	Jun-06th	1967	2nd-highest

• **Temperature**

The highest temperature observed in winter 2010 was 22.2 °C recorded at Waipara West on June 19<sup>th</sup> (the 3rd-highest winter temperature on record at this site).

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

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Comments
Kerikeri	21.0	Jun-02nd	1981	Equal 3rd-highest
Leigh	20.3	Jun-02nd	1966	2nd-highest
Taihape	18.8	Jun-06th	1972	Equal 4th-highest
Lake Rotoiti	16.3	Aug-14th	1965	Equal 4th-highest

Reefton	18.5	Aug-15th	1960	2nd-highest
Haast	18.4	Aug-30th	1949	4th-highest
Motueka	21.9	Aug-15th	1956	Highest
Nelson	18.7	Jun-07th	1943	Equal 3rd-highest
Waipara West	22.2	Jun-19th	1973	3rd-highest
Castlepoint	6.8	Aug-09th	1972	2nd-lowest
Taihape	4.0	Jul-14th	1972	2nd-lowest

The lowest temperature recorded in winter 2010 was -12.6°C, recorded at Lake Tekapo on August 10<sup>th</sup> (this was the 2<sup>nd</sup>-lowest August temperature on record there, but was not a winter record). Notably cold days in winter occurred on July 12<sup>th</sup>, associated with an intense winter anticyclone. Extremely warm mornings occurred on June 7<sup>th</sup>, and August 2<sup>nd</sup>, both associated with northwesterly air streams.

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

Location	Extreme minimum temperature (°C)	Date of extreme temperature	Year Records Began	Comments
Warkworth	-0.7	Jul-11th	1966	2nd-lowest
Te Kuiti	-4.3	Jul-12th	1959	2nd-lowest
Taumarunui	-6.8	Jul-12th	1947	Lowest
Turangi	-7.6	Jul-12th	1968	Lowest
Hawera	-4.4	Jul-12th	1977	Equal lowest
Wanganui	-2.4	Jul-12th	1987	2nd-lowest
Dunedin	-6.7	Jul-12th	1947	3rd-lowest
Queenstown	-7.2	Jul-12th	1871	3rd-lowest
Kaikohe	14.9	Aug-02nd	1973	3rd-highest
Whitianga	15.8	Jun-07th	1971	2nd-highest
Paeroa	15.4	Aug-14th	1971	2nd-highest
Whakatane	15.7	Jun-07th	1975	2nd-highest
Rotorua	13.4	Jun-07th	1972	4th-highest
Taumarunui	13.5	Jun-07th	1947	4th-highest
Hicks Bay	16.0	Jun-07th	1972	2nd-highest
Hastings	13.9	Aug-14th	1972	2nd-highest
Hawera	13.0	Jun-07th	1977	4th-highest
Ohakune	11.4	Jun-07th	1972	Highest
Waiouru	9.9	Jun-07th	1972	4th-highest
Taihape	11.5	Jun-07th	1973	2nd-highest
Franz Josef	10.0	Jun-20th	1982	4th-highest
Culverden	12.8	Aug-02nd	1930	3rd-highest
Orari Estate	8.9	Aug-02nd	1972	Equal highest
Timaru	10.8	Aug-02nd	1885	Equal 3rd-highest

#### • High winds

The highest winter wind gust was 141 km/hr, recorded at Cape Turnagain on July 27<sup>th</sup> (not a record there).

Wind gusts of up to 111 km/hr caused 2 m-high waves in Lyttelton harbour on 7 June, sinking two boats in the marina, and downing trees and powerlines. About 3000 homes on Banks Peninsula lost power for about two hours.

Gales on 4-5 July caused fallen trees and power lines in Northland, Auckland and Waikato, cutting power to thousands of properties, particularly in North Shore, West Auckland and Rodney. In Whangarei, a New Zealand Historic Places Trust-listed house lost its veranda, roof and a brick chimney to the gales.

On 1 August, one car was blown into the path of another on the Rimutaka Hill Road section of SH2. The road was closed temporarily.

A localised twister hit Hairini, just outside Tauranga, on 4 August, sending a shed roof flying across SH29. In Northland, high winds caused havoc. A yacht broke its moorings and washed up on the beach at Waitangi, a trampoline was carried 30 m, bringing down power lines and cutting power, and a shed was flattened.

On 12 August, the access to Mt Hutt ski field was closed because of high winds. About 1,000 people were forced to spend the night in the cafes. Crew from a Greymouth fishing vessel got into difficulties in gale force winds near Jackson Bay in the early hours of 13 August when their boat was caught by a wave that tipped it and stopped the main motor. All crew were transferred successfully to another vessel.

**Near-record high extreme wind gusts were recorded at:**

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records Began	Comments
Turangi	95	Jun-15	1973	Equal 2 <sup>nd</sup> -highest

- **Snow and ice**

On 6 June, a large group of motorcyclists had to be rescued after they ignored the road closure signs, and tried to ride over Danseys Pass. Snow was reportedly shoulder high near the summit. On 7 June, SH8, the Lindis Pass, was closed by snow between Omarama and Tarras, and chains were required on Burkes Pass. In Central Otago, a farmer rescued two people from a four-wheel-drive vehicle trapped in snow near the Manuherikia River in the remote Oteake Conservation Park, after they ignored road closed signs.

On 8 June, snow closed the Desert Road, the Lindis Pass, and SH1 from Hildethorpe to Oamaru. In Christchurch, snow settled above 300 m on the Port Hills, with small hail at lower levels in some city suburbs. Snow was also reported in the Wellington hill suburb of Newlands, with sleet and hail elsewhere over the city. SH2 over the Rimutaka Hill was closed by snow for a short time.

Snow closed SH8, the Lindis Pass, and SH94 from Te Anau to Milford Sound, to towing vehicles over the weekend of 12-13 June, and other vehicles required chains. Chains were also essential on the Crown Range between Queenstown and Wanaka.

Snow overnight and in the morning of 23 June closed schools in the Queenstown and Te Anau areas, and affected many roads. The Crown Range between Arrowtown and Wanaka, and SH8, between Omarama and Tarras, (the Lindis Pass), and between Fairlie and Twizel (Burkes Pass) were closed, and chains were required on SH65 near Springs Junction, SH80 near Mount Cook, SH6 between Queenstown and Lumsden, SH94 between Te Anau and Milford Sound, the Lewis Pass, Porters Pass, and Arthurs Pass. Queenstown Airport was closed all morning because of snow on the runway.

A national bonspiel was called at the Idaburn Dam on 7 and 8 July, the first in three years. The dam had 12 -13 cm of strong "black" ice, considered by curlers to be better than snow ice. On 14 July, for the first time in more than 20 years, a bonspiel was held on the Waikaia natural ice rink in Southland, with many recreational skaters on the ice over the weekend of 17-18 July.

On 8 August, snow fell in inland Canterbury, with chains required for all vehicles driving over the high passes. Lindis Pass re-opened about mid-day after being closed overnight. The snow, and accompanying winds, disrupted several domestic and international flights at Queenstown Airport. In South Canterbury



heavy snow brought down power lines in the Burkes Pass area, cutting power all day. On 9 August, SH1 between Waiouru and Rangipo was closed by snow and ice. Heavy snow in Dunedin's hill suburbs created the usual difficulties for people trying to reach the city.

- **Lightning and hail**

A fierce hailstorm on 29 August affected the Bay of Plenty, with particularly heavy falls in Tauranga. In Papamoa, lightning struck a home, blasting a hole through the roof, blowing off tiles, damaging the home's wiring, and blowing a light switch out of its socket. Otumoetai College closed for the day as it had no power or hot water as a result of a blown power transformer. Other parts of the northern and western parts of the North Island experienced electrical storms, with thunder heard in Taranaki, Matamata, Auckland and Northland.

- **Fog**

Fog affected Auckland Airport on 26 June, with about 50 domestic flights delayed or cancelled during the morning.

On 6 July, fog closed Invercargill Airport during the morning. On 15 July, early morning commuter traffic in central Timaru had to contend with fog. Fog caused more than a dozen domestic flights in and out of Christchurch Airport to be cancelled, and many others delayed, on 19 July. Several international flights were also affected.

Heavy fog on 3 August caused delays in ferry services, and led to the cancellation of more than 50 domestic flights into and out of Auckland International Airport. The fog stretched as far as Hamilton, Rotorua and Taupo. Fog disrupted domestic flights in and out of Christchurch Airport on the morning of 23 August.

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