NATIONAL CLIMATE CENTRE **Tuesday 7 December 2010**

National Climate Summary – Spring 2010: Settled and sunny; driest on record in north

- **Rainfall: Driest spring on record in parts of Northland and Auckland. Below normal rainfall in Nelson, south Canterbury, Lakes District and parts of central Otago and Fiordland. Near normal rainfall over remainder of country, except for above normal spring falls recorded in Waiouru, Gisborne and Hawkes Bay.**
- **Sunshine: Record high spring sunshine in western North Island, south Canterbury and the Clutha. Above normal spring sunshine totals right across New Zealand.**
- **Temperatures: Above average spring temperatures across most of South Island, as well as in Bay of Plenty and eastern Waikato, and parts of Taranaki and Manawatu. Near average elsewhere.**

Anticyclones ('highs') dominated New Zealand's climate during October and November 2010, following a rather stormy September. Mean sea level pressures for the season overall were at least 4hPa higher than usual over the Tasman Sea and New Zealand. The prevalence of highs during spring produced a sunny season in many regions, and a much drier than normal spring for Auckland and Northland, Nelson, South Canterbury, the Lakes District, central Otago, and parts of Fiordland. By the end of spring, the dry conditions, elevated sunshine and above average temperatures had resulted in severe soil moisture deficits (more than 130 mm of deficit) in parts of Northland, Auckland, Waikato, Manawatu, Nelson, Marlborough, the Lakes District and central Otago, with significant soil moisture deficits (more than 110 mm of deficit) in many other parts of the North Island, Canterbury and Otago.

Spring rainfall totals were record low in Northland and Auckland, following three dry months there. Seasonal rainfall was also below normal (between 50 and 80 percent of normal) in Nelson, south Canterbury, the Lakes District, and parts of Fiordland and central Otago. In most other regions of the country, spring rainfalls were in the near normal range (between 80 and 120 percent of normal), reflecting the mix of the very wet September and extremely dry months of October and November. The exceptions were around Waiouru, and in parts of Gisborne and Hawkes Bay, which recorded above normal rainfalls (between 120 and 150 percent of spring normal), mostly due to a significant event on October 13-15th.

The prevalence of highs during spring produced clear skies and a very sunny season in many regions. Sunshine hours were record high in the western North Island, south Canterbury and in the Clutha, and were above normal (between 110 and 125 percent of normal) right across the remainder of the country.

Spring mean temperatures were above average (more than 0.5°C above spring average) across the South Island (except the northwest region), as well as in the Bay of Plenty, eastern Waikato, Taranaki and Manawatu. Elsewhere, spring temperatures were near average (within 0.5°C of average). The New Zealand national average temperature for spring was 12.4°C (0.3°C above the 1971–2000 spring average).

Further Highlights:

- The highest temperature recorded was 32.9°C recorded at Waiau on November 29th (near-record).
- The lowest temperature recorded was -6.2°C observed at Lake Tekapo on September 22nd.
- The highest 1-day rainfall of 151 mm occurred at Patutahi (Gisborne) on October 13th (a new spring record there).
- The highest gust was 204 km/hr recorded at Cape Turnagain on September 23rd.
- Of the six main centres, for spring as a whole, Christchurch was the sunniest, Dunedin the driest and coolest, Wellington the wettest, and Tauranga the warmest.

For further information, please contact:
Ms Georgina Griffiths – Climate Scientist– NIWA National Climate Centre, Auckland,
Tel. (09) 375 4506 or (027) 293 6545 (mobile)

RAINFALL: DRIEST SPRING ON RECORD IN PARTS OF NORTHLAND AND AUCKLAND. BELOW NORMAL RAINFALL IN NELSON, SOUTH CANTERBURY, LAKES DISTRICT AND PARTS OF CENTRAL OTAGO AND FIORDLAND. NEAR NORMAL SEASONAL RAINFALLS IN OTHER REGIONS, EXCEPT FOR ABOVE NORMAL SPRING FALLS IN WAIOURU, GISBORNE AND HAWKES BAY.

Spring rainfall totals were record low in Northland and Auckland, following three dry months there. Seasonal rainfall was also below normal (between 50 and 80 percent of normal) in Nelson, south Canterbury, the Lakes District, and parts of Fiordland and central Otago. In most other regions of the country, spring rainfalls were in the near normal range (between 80 and 120 percent of normal), reflecting the mix of the very wet September and extremely dry months of October and November. The exceptions were around Waiouru, and in parts of Gisborne and Hawkes Bay, which recorded above normal rainfalls (between 120 and 150 percent of spring normal rainfall), mostly due to a significant rainfall event October 13-15th.

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

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Waiouru	385	141	1950	2nd-highest
Kaitaia	209	64	1985	Lowest
Kerikeri	160	36	1981	Lowest
Kaikohe	195	56	1956	3rd-lowest
Dargaville	166	64	1943	4th-lowest
Whangarei	128	40	1937	Lowest
Leigh	166	63	1966	Lowest
Warkworth	208	61	1966	4th-lowest
Auckland	154	59	1959	2nd-lowest
Orari	84	49	1897	3rd-lowest
Oamaru	59	42	1898	2nd-lowest

SUNSHINE: RECORD HIGH SPRING SUNSHINE IN THE WESTERN NORTH ISLAND, SOUTH CANTERBURY AND THE CLUTHA. ABOVE NORMAL SPRING SUNSHINE RIGHT ACROSS NEW ZEALAND.

The prevalence of highs during spring produced clear skies and a very sunny season in many regions. Sunshine hours were well above normal (more than 125 percent of normal) in the western North Island, south Canterbury and in the Clutha, and were above normal (between 110 and 125 percent of normal) right across the remainder of the country, with very few exceptions. It was the sunniest spring on record for Te Kuiti, Taumarunui, Turangi and Timaru.

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

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Kaitaia	624	116	1985	2nd-highest
Dargaville	576	115	1943	2nd-highest
Te Kuiti	598	141	1962	Highest
Taumarunui	591	141	1947	Highest
Turangi	582	118	1976	Highest
New Plymouth	644	116	1972	4th-highest
Stratford	573	115	1963	2nd-highest

Takaka	699	116	1985	2nd-highest
Nelson	730	117	1948	3rd-highest
Blenheim	721	112	1947	4th-highest
Christchurch	685	118	1930	2nd-highest
Timaru	645	125	1930	Highest
Balclutha	590	127	1964	2nd-highest

TEMPERATURES: ABOVE AVERAGE SPRING TEMPERATURES ACROSS MUCH OF SOUTH ISLAND, AND IN THE BAY OF PLENTY, EASTERN WAIKATO, PARTS OF TARANAKI AND MANAWATU. NEAR AVERAGE SPRING TEMPERATURES ELSEWHERE.

Spring mean temperatures were above average (more than 0.5°C above spring average) across almost all of the South Island (except the northwest region), as well as in the Bay of Plenty, eastern Waikato, and parts of Taranaki and Manawatu. Elsewhere, mean spring temperatures were near average (within 0.5°C of average). The season saw a rapid transition (more than is typical) between extreme cold events, such as the record cold southerly that affected the far south on September 17th-18th, and the extremely hot (record breaking) spell which occurred across the country on November 28th-30th, with numerous spring daily extreme maximum temperature records broken in both islands.

The New Zealand national average temperature for spring was 12.4°C (0.3°C above the 1971–2000 spring average)[1].

Record or near-record spring mean minimum (morning) air temperatures were recorded at:

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Tauranga	10.9	1.4	1913	4th-highest
Blenheim	8.2	0.6	1941	4th-highest
Culverden	6.4	1.2	1928	2nd-highest
Waipara West	7.5	1.2	1973	4th-highest
Timaru	7.1	1.5	1885	3rd-highest
Lumsden	5.3	0.9	1982	4th-highest
Cromwell	6.3	1.4	1949	3rd-highest
Alexandra	5.8	1.4	1983	2nd-highest
Gore	6.1	0.8	1971	3rd-highest
Tiwai Point	7.4	0.6	1970	4th-highest

Record or near-record spring mean maximum (afternoon) air temperatures were recorded at:

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Leigh	19.2	1.6	1966	Highest
Whangaparaoa	18.6	1.7	1982	Highest
Hamilton	19.4	1.4	1906	3rd-highest
New Plymouth	17.4	1.1	1944	3rd-highest
Lake Rotoiti	16.4	2.3	1965	Highest
Reefton	17.7	1.1	1960	4th-highest
Motueka	19.7	2.1	1956	Highest

[1] Interim seasonal value.

Nelson	18.0	1.3	1943	Highest
Hanmer Forest	18.7	2.3	1906	Highest
Arthurs Pass	13.2	1.6	1978	Highest
Mt Cook	16.1	2.1	1929	2nd-highest
Winchmore	18.5	2.3	1928	3rd-highest
Le Bons Bay	14.7	0.9	1984	3rd-highest
Lake Tekapo	16.7	2.2	1927	4th-highest
Tara Hills	18.1	2.3	1949	2nd-highest
Wanaka	17.8	1.7	1955	4th-highest
Dunedin	16.8	0.9	1947	2nd-highest
Lumsden	15.8	0.8	1982	4th-highest
Cromwell	19.6	2.2	1949	2nd-highest
Alexandra	19.3	1.6	1983	3rd-highest

SPRING CLIMATE IN THE SIX MAIN CENTRES

Of the six main centres, for spring as a whole, Christchurch was the sunniest of the main centres, Dunedin the driest and coolest, Wellington the wettest, and Tauranga the warmest. Overall, spring was very sunny for all of the main centres, and rather dry (except for Wellington).

Spring 2010 main centre climate statistics:

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of Normal		Sunshine (hours)	% of normal	
Auckland[a]	14.8	0.3	Near average	181	64%	Below normal	583	112%	Above normal
Tauranga[b]	15.1	1.3	Well above average	199	70%	Below normal	666	110%	Above normal
Hamilton[c]	13.5	0.7	Above average	238	80%	Below normal	571[g]	110%	Above normal
Wellington[d]	12.3	0.3	Near average	358	114%	Near normal	615	110%	Above normal
Christchurch[e]	11.9	0.4	Near average	117	83%	Near normal	685	118%	Above normal
Dunedin[f]	11.6	0.8	Above average	111	60%	Below normal	541	124%	Above normal

[a]Auckland Airport used since Mangere missing data due to calibration [b] Tauranga Airport [c] Hamilton Airport [d] Kelburn [e] Christchurch Airport [f] Musselburgh [g] Ruakura

HIGHLIGHTS AND EXTREME EVENTS

- **Heavy rain and slips**

On 18 September, several slips came down and trees fell over on SH43 from Stratford to Taumarunui causing the closure of the road to non-residents. On 19 September, SH41 at Waihi Hill, between Turangi and Kuratau, SH4 between Whanganui and Raetahi, SH3 at Ratana south of Whanganui, and SH1 between Taihape and Mangaweka, were closed by slips. SH56 at Tiakitahuna in Taranaki, and SH1 north of Bulls, were closed by flooding, with detours in place. The SH1 underpass at Calico Line filled up with water, and two cars had to be towed out. In Wanganui, residents were advised to leave, after a slip from Bastia Hill threatened their homes. At Turakina Beach, where natural topography directs the run-off into the village, an old drain running around the back of the village was re-opened to help ease the flood waters. Three properties were evacuated. Houses in Marton were also evacuated because of flooding.

On 20 September SH43 between Stratford and Taumurunui remained closed by several slips. In Scotts Ferry, at the Rangitikei River mouth near Bulls, entire paddocks and roads were under water and four houses flooded. On 21 September, SH54, from Hunterville to Cheltenham, was re-opened to a single lane

after slips were partly cleared. On 22 September, a 25 m landslip closed SH2 between Woodville and Dannevirke. SH43 from Stratford to Taumaranui remained closed. Slips on the Manawtu Gorge and debris on SH4 between Wanganui and Raetihi also caused traffic problems. Surface flooding affected SH1, south of Levin. The only road to Taumarunui Hospital was blocked for more than an hour as a slip covered the road. On 23 September, large slips reduced SH1 to one lane between Taihape and Utiku, and at Irirangi south of Waiouru.

On 30 September, SH6 was flooded north of Pelorus Bridge, and motorists advised to use SH63. Many minor roads in the Nelson area were closed after continuous heavy rain. In Cable Bay, northeast of Nelson, a farmer could only watch as floodwaters rose and swept away a flock of ewes and lambs. They had been shifted to higher ground but had returned. In the Wellington region, Grays Road, the Paekakariki Hill Road and Takarau Gorge Road in Ohariu were closed by slips and flooding, and surface flooding was also reported on SH1 near Lindale. A slip on SH1 south of Tawa reduced the road to one lane, and slips also caused delays on SH2 near Petone and Normandale, and SH58 near Whitby in Porirua. A passenger train heading north to Paraparaumu hit a slip north of Plimmerton, causing it to derail and pushing it sideways. A south-bound train then collided with the cab of the derailed train. Both trains were badly damaged, but there were no serious injuries. Another slip closed the Johnsonville line, and tracks subsided near Muri, in Pukerua Bay, with a 15 m slip causing the earth to fall away from beneath the tracks. The Karori Tunnel was also closed for an hour by a slip. In Melrose, Wellington, a retaining wall collapsed on to a house, forcing the family out of the building, and properties in Khandallah were undermined by a slip. Many homes on the Kapiti Coast were flooded.

On 13 October, heavy rain caused slips and flooding, closing SH2 between Napier and Wairoa, SH35 north of Tolaga Bay, and many minor roads in the area. Dozens of homes were left without power, rural schools were closed, and many families were evacuated from Tolaga Bay. On 14 October, a series of slips overnight, from the Matahorua Gorge to Tangoio, just north of Napier, made SH2 impassable. About 20 cars were trapped overnight between two slips. North of Gisborne, flooding reduced SH2 to one lane north of Te Karaka, and SH35 to one lane between Gisborne and Ruatoria. Firefighters had to pump out flooded marquees at the Gisborne showgrounds before the annual A&P show. In Napier, flooding was reported at the EIT campus. Wairoa airport was closed. In northern Wairarapa, a huge slip blocked the road from Pahiatua to Makuri and Pongoroa. On 15 October, more than 20 motorists, some towing horses, were trapped between a slip at Otoko Hill and a washed-out bridge on SH2. In Hawkes Bay, Eskdale residents were isolated by flood waters.

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

Location	Extreme 1-day rainfall (mm)	Date of extreme rainfall	Year Records Began	Comments
Gisborne	111	Oct-13th	1937	3rd-highest
Patutahi (Gisborne)	151	Oct-13th	1890*	Highest
Wairoa	99	Oct-13th	1967	3rd-highest
Paraparaumu	72	Sep-30th	1951	4th-highest
Wanganui	39	Sep-06th	1987	4th-highest

**The Patutahi daily rainfall record spans 1890-1958, 2003-present.*

- **Temperature**

An intense southwesterly event during September 17-24 brought snow to very low levels in the far south, and record low temperatures there. In contrast, an extremely hot (record breaking) spell occurred across the country on November 28-30, with numerous spring daily extreme maximum temperature records broken in both islands.

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

Location	Extreme minimum temperature (ºC)	Date of extreme temperature	Year records began	Comments
Le Bons Bay	1.0	Sep-22nd	1984	3rd-lowest
Oamaru	-3.9	Sep-19th	1908	3rd-lowest
Nugget Point	-0.8	Sep-18th	1970	Equal 2nd-lowest
Whenuapai	17.6	Nov-20th	1951	4th-highest
Tauranga	18.3	Nov-30th	1941	2nd-highest
Te Puke	17.2	Nov-30th	1973	Highest
Whakatane	17.5	Nov-21st	1975	Equal highest
Rotorua	15.9	Nov-20th	1972	Equal 4th-highest
Taupo	16.0	Nov-29th	1950	3rd-highest
Auckland	18.0	Nov-20th	1961	4th-highest
Hamilton	18.6	Nov-20th	1940	Highest
Port Taharoa	18.3	Nov-20th	1974	Highest
Te Kuiti	16.9	Nov-20th	1959	3rd-highest
Taumarunui	17.0	Nov-20th	1947	4th-highest
New Plymouth	17.1	Nov-20th	1944	4th-highest
Takapau Plains	16.4	Nov-14th	1972	Equal 2nd-highest
Martinborough	17.7	Nov-20th	1986	Highest
Ngawi	18.6	Nov-14th	1972	Equal 2nd-highest
Ohakune	14.8	Nov-20th	1972	Highest
Farewell Spit	15.1	Nov-14th	1972	Equal 2nd-highest
Lake Rotoiti	13.1	Nov-14th	1972	Highest
Hokitika	15.1	Nov-20th	1964	4th-highest
Nelson	18.8	Nov-14th	1943	Highest
Arthurs Pass	12.0	Nov-20th	1978	Highest
Waipara West	19.5	Nov-14th	1973	2nd-highest
Lake Tekapo	16.6	Nov-14th	1928	Highest
Orari Estate	14.7	Nov-28th	1972	4th-highest
Tara Hills	17.9	Nov-14th	1949	Highest
Manapouri	14.1	Nov-25th	1973	2nd-highest
Balclutha	14.2	Nov-11th	1972	Equal 2nd-highest
Nugget Point	15.0	Nov-11th	1972	2nd-highest

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

Location	Extreme maximum temperature (ºC)	Date of extreme temperature	Year Records Began	Comments
Kaitaia	12.3	Oct-11th	1971	2nd-lowest
Kerikeri	12.6	Oct-11th	1981	Lowest
Lake Rotoiti	4.3	Sep-20th	1972	3rd-lowest
Tara Hills	3.2	Sep-17th	1949	2nd-lowest
Lumsden	5.5	Sep-17th	1982	2nd-lowest
Gore	2.5	Sep-18th	1972	Lowest
Invercargill	4.1	Sep-18th	1948	Lowest
Tiwai Point	5.3	Sep-18th	1972	Lowest
Balclutha	4.5	Sep-18th	1972	Lowest
Nugget Point	2.5	Sep-18th	1972	Lowest
Kaitaia	24.6	Nov-27th	1985	Equal highest
Dargaville	25.3	Nov-19th	1943	Equal 4th-highest
Leigh	24.4	Nov-26th	1966	2nd-highest
Warkworth	25.7	Nov-28th	1966	Highest
Whenuapai	25.1	Nov-28th	1945	Equal 4th-highest
Whitianga	26.8	Nov-17th	1962	2nd-highest
Taupo	27.2	Nov-30th	1949	3rd-highest
Pukekohe	25.2	Nov-28th	1969	4th-highest
Whatawhata	26.6	Nov-28th	1952	2nd-highest
Hamilton	28.3	Nov-28th	1946	Highest
Te Kuiti	27.5	Nov-28th	1959	Highest
Taumarunui	29.8	Nov-28th	1947	3rd-highest
Turangi	29.2	Nov-30th	1968	Highest
New Plymouth	26.4	Nov-27th	1944	Highest
Masterton	30.2	Nov-29th	1906	2nd-highest
Takapau Plains	25.8	Nov-29th	1962	4th-highest
Dannevirke	26.3	Nov-29th	1951	3rd-highest
Martinborough	30.7	Nov-29th	1986	Highest
Hastings	29.7	Nov-20th	1965	4th-highest
Wallaceville	26.6	Nov-29th	1939	2nd-highest
Stratford	24.8	Nov-28th	1960	Highest
Waiouru	25.2	Nov-29th	1962	Highest
Takaka	27.8	Nov-13th	1978	Equal 2nd-highest
Farewell Spit	24.9	Nov-30th	1971	3rd-highest
Lake Rotoiti	29.9	Nov-29th	1965	Highest
Reefton	30.9	Nov-27th	1960	Highest
Motueka	29.8	Nov-17th	1956	Highest
Blenheim	31.0	Nov-18th	1932	3rd-highest
Arthurs Pass	26.0	Nov-28th	1978	Highest
Mt Cook	28.6	Nov-28th	1929	Highest
Tara Hills	29.9	Nov-27th	1949	Highest
Wanaka	31.4	Nov-28th	1955	Highest
Queenstown	28.5	Nov-28th	1871	4th-highest
Lumsden	26.4	Nov-28th	1982	2nd-highest
Cromwell	32.3	Nov-28th	1949	Highest
Alexandra	31.6	Nov-29th	1983	Highest
Nugget Point	26.4	Nov-11th	1970	2nd-highest

- **High winds**

On 5 September, an ambulance with three people inside was blown over south of Featherston, and a truck was blown over on nearby Western Lake Road. In Dunedin, high winds brought down trees and power lines, closing some roads, and trapping a dozen cars on Portobello Road between fallen trees, for about two hours. Several flights were cancelled and many others were delayed by extremely strong crosswinds at Dunedin International Airport. Power was out in North Dunedin, Outram, parts of Mosgiel and Highcliff Road on the Otago peninsula after winds toppled powerlines. About 500 homes in Becks, Ettrick and Millers Flat were without power for several hours after trees were blown down on lines and one power pole was broken.

On 17 September, a violent overnight storm lifted roofs, sent trampolines flying, and brought down trees and power lines, causing power outages to as many as 30,000 people from Dome Valley near Warkworth to Huntly, including, Remuera, Mangere, and large parts of west Auckland. The Coromandel Peninsula, Hauraki, Bay of Plenty, Waikato, Taranaki, Whanganui, Rangitikei and Wairarapa were also hit by power cuts. Farmers were forced to miss milkings because of the outage and Powerco supplied generators in some cases. SH1 at Rangiriri was reduced to one lane by a fallen tree, and large trees also fell on to the Waikato Expressway, 50 km south of Auckland, hitting one vehicle. The west-bound lanes on Auckland's Northwestern Motorway, were closed after an overhead sign fell between Newton Road and St Lukes. At Clarks Beach on the southern Manukau Harbour, a home was destroyed by strong winds, and two 30 m tall macrocarpa trees were up-rooted into the tide. Near Tauranga, the barrier arm at Te Maunga rail crossing was snapped in half by the storm. In Te Puna, heavy wind collapsed a large section of the roof of a large storage shed. In Te Puke, a large artificial shelter, which covered three rows of a kiwifruit orchard, was destroyed and lay strewn across the orchard, with10 heavy wooden poles uprooted from the ground. Further south, Mt Hutt ski field was closed as high winds meant the lifts could not be used. On 18 September, a flight from Sydney to Rotorua was redirected to Auckland when cross-winds prevented a safe landing in Rotorua. In Mokoia, south-east of Hawera, one farmer lost several heifers after power lines fell and left all of his fences electrified. Turoa ski field closed after high wind, snowstorms and damage to the chairlift.

On 21 September, high winds in Rotorua blew down power lines and trees, including one tree which blocked SH30 at Lake Rotoma. In Kaikoura, pupils arrived at Hapuku School to find a 30 m high, 40-year old eucalyptus tree had fallen down in the playground. Severe winds on 22 September caused power cuts in west Auckland, Waiheke Island, North Shore, Wellsford, western Bay of Plenty, Taranaki, Manawatu and Wairarapa. A twister brought down power lines on SH45 near Oakura southwest of New Plymouth, with property and trees also being damaged. In Auckland, a piece of roofing iron was blown off the Lion Nathan Breweries building and on to train tracks below where it got stuck under the wheel of a train. A small part of the roof was also blown off the domestic terminal at Auckland International Airport.

On 23 September high winds made driving hazardous on SH8 from Raes Junction to Milton, SH1 from Waihola to Gore, and SH90 from Raes Junction to the SH1 intersection. Parts of Dunedin also lost power after gales battered the city. Further north, more trees and powerlines were brought down overnight, cutting power in Manawatu, Taranaki, Rangitikei and western Bay of Plenty. In Wanganui, property damage was reported in the city. On 24 September, SH73 from Arthurs Pass to Springfield was closed because of strong winds. Other roads with wind warnings in place were SH1 from Oamaru to Ashburton, SH83 from Kurow to Oamarama, and SH79 from Omarama to Geraldine.

Near-record high extreme wind gusts for Spring were recorded at:

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year Records Began	Comments
Kaikohe	95	Sep-17th	1986	4th-highest
Whenuapai	100	Sep-17th	1972	4th-highest
Auckland	120	Sep-17th	1971	2nd-highest
Pukekohe	98	Sep-17th	1986	Highest
Hamilton	82	Sep-18th	1978	Equal 4th-highest
Turangi	104	Sep-21st	1973	Highest
Westport	104	Sep-23rd	1973	Equal highest
Dunedin	117	Sep-05th	1972	3rd-highest

- **Snow and ice**

On 18 September heavy snow caused the roof to collapse on Stadium Southland in Invercargill. The stadium was demolished. After a paint shop roof also collapsed, the central Invercargill Street was cordoned off because of concerns the building's windows would explode on to the street. Several other commercial properties all had sagging roofs and were closed. Fonterra was unable to collect milk from more than 400 dairy farmers in Edendale, Winton, and Eastern Southland because of the dangerous roads, and some farmers were asked to dump milk. Thousands of lambs were lost, with those born during the weekend storm having little chance of survival. Some farmers reported lambing losses of up to 80 per cent. Invercargill airport was closed by snow all day. Snow also closed SH93 between Mataura and Clinton, SH94 from Te Anau to Milford Sound, and the Southern Scenic Route between Owaka and Niagara. Snow closed numerous South Island roads on September 19th and 20th.

On 22 September, snow closed the Rimutaka Road between Wellington and Wairarapa for part of the morning. Drivers had lengthy delays as cars were allowed to cross only in escorted conveys one direction at a time. Pembroke Road on Mt Taranaki was closed by snow about 4 km from the Mountain House. Snow also closed SH97 between Mossburn and Lowther, SH6 between Kingston and Five Rivers, and SH93 between Mataura and Clinton. SH94 between Te Anau and Milford Sound was closed to towing vehicles. The Remarkables ski field was also closed. On 23 September, snow closed SH7 from the Hanmer turnoff to Springs Junction, SH87 from Outram to Kyeburn, SH1 from Waitati to Dunedin, and SH93 from Clinton to Mataura. SH85 from Palmerston to Kyeburn was closed by ice. Snow created an avalanche hazard on SH94 from Te Anau to Milford Sound, closing the road for two days. Snow closed SH73 from Arthurs Pass to Otira to towing vehicles, and chains were essential for all vehicles.

For further information, please contact:
Ms Georgina Griffiths – Climate Scientist– NIWA National Climate Centre, Auckland,
Tel. (09) 375 4506 or (027) 293 6545 (mobile)

www.niwa.co.nz/ncc

Copyright NIWA 2010. All rights reserved.