

National Climate Summary – Spring 2005

Rainfall: Extremely low in Kapiti, Wellington, Nelson, and Otago; rather wet in Gisborne and Hawke's Bay

Soil moisture: Significant deficits in the east from southern Wairarapa to Otago, as well as Kapiti, Wellington, and Nelson

Sunshine: Extremely sunny in the west from Taranaki to Westland, as well as Wellington, Nelson and Southland

Temperature: Above average in many western regions

Spring was extremely sunny in the west, with contrasting rainfall patterns across New Zealand. Seasonal rainfall was less than 50 percent (half) of normal, and the lowest in more than 60 years in parts of Kapiti, Wellington and Nelson. There was a period of 30 days without any measurable rainfall in Paraparaumu, from 20 October to 19 November. It was also very dry in Golden Bay, Buller, Marlborough, and Otago. The dryness resulted in significant soil moisture deficits at the end of November in eastern regions, from southern Wairarapa to Otago, as well as Kapiti, Wellington, and Nelson. Deficits of this type are not usually experienced until summer. In contrast, rainfall was well above normal in Gisborne, and Hawke's Bay. Sunshine hours were extremely high for spring in many western regions from Taranaki to Westland, as well as Wellington, Nelson, and Southland. Seasonal mean temperatures were above average in many western regions, but near average in most other districts. The national average temperature of 12.3 °C was 0.2 °C above normal. The overall spring climate pattern was dominated by higher than average mean sea level pressures in the Southern Ocean, with more frequent southeasterlies over New Zealand.

Major Highlights:

- The highest temperature during spring 2005 was 30.7 °C recorded in Christchurch city on 11 November. The lowest temperature for the season was -7.0 °C at Arthurs Pass on 20 September.
- There were at least five major rainfall events – two with serious flooding, both affecting the Gisborne region, over 21-22 October and 27-28 November.

Four damaging tornadoes occurred. These affected parts of Hokitika on 5 September, Hamilton on 17 September, Auckland city on 11 October, and Okoroire near Matamata on 15 October. Other damaging winds occurred in Northland and Auckland on 8 October.

Snowfall occurred to sea level in Canterbury on 19 September, resulting in the closure of Christchurch Airport, along with schools and universities, and snow depths of 5-10 cm in the region. Hundreds of newborn lambs died in the cold. Severe ground frosts followed.

Damaging hailstorms affected parts of Hawke's Bay on 5 October, Gisborne and Hawke's Bay on 17 October, and Wairarapa on 30 October.

Of the four main centres, Auckland was the warmest and wettest, while Wellington was by far the sunniest. Auckland was wetter than average. Wellington was extremely sunny, very dry, and warmer than average. Christchurch was cooler and drier than average, and Dunedin was sunnier and drier than average.

Rainfall: Spring rainfall was less than 50 percent (half) of normal in Kapiti, Wellington, parts of Golden Bay and Buller, Nelson, Marlborough, and Otago. Rainfall was also below average in north Taranaki, south Westland, Fiordland, and Southland. In contrast, rainfall of more than 150 percent (one and a half times) of normal occurred in Gisborne, and Hawke's Bay. Rainfall was also above normal in parts of Auckland, Coromandel, Waikato, Wanganui and Manawatu.

Sunshine: Sunshine hours were at least 120 percent of normal in parts of Manawatu, Westland, and Southland, and at least 110 percent of average in parts of Northland and Taranaki, and much of Kapiti, Wellington, Buller, Nelson, and Otago. Totals were near normal elsewhere.

Temperature: Seasonal mean temperatures were above average in parts of Northland, Auckland, Bay of Plenty, Wellington, Nelson, south Westland, Fiordland, Southern Lakes, Central Otago, and Southland. Temperatures were below average in parts of Canterbury.

For further information, please contact:

Dr Jim Salinger – Principal Scientist – Climate, NIWA National Climate Centre, Auckland,

Tel. (09) 375 2053, or (027) 521 9468 (mobile)

Stuart Burgess – Climatologist – NIWA National Climate Centre, Wellington, Tel. (04) 386 0569

**EXTREMELY LOW SPRING RAINFALL IN KAPITI, WELLINGTON, NELSON, AND OTAGO;
HIGH SPRING RAINFALL IN GISBORNE AND HAWKE'S BAY**

Rainfall was well below average, being less than 50 percent (half) of normal in Kapiti, Wellington, parts of Golden Bay and Buller, Nelson, Marlborough, and Otago. Rainfall was also below average (less than 75 percent of normal) in north Taranaki, south Westland, Fiordland, and Southland. In contrast, rainfall was well above average, being more than 150 percent (one and a half times) of normal in Gisborne, and Hawke's Bay. Rainfall was at least 120 percent of normal in parts of Auckland, Coromandel, Waikato, Wanganui, and Manawatu. Totals were near normal elsewhere.

Near or record low spring rainfall was recorded at:

Location	Spring 2005 rainfall (mm)	Percentage of normal	Year Records began	Comments
Paraparaumu Airport	126	46	1945	Lowest
Wellington Airport	133	53	1960	3 rd lowest
Wallaceville	146	42	1924	Lowest
Reefton	236	42	1960	Lowest
Motueka, Riwaka	92	27	1943	Lowest
Nelson Airport	81	33	1941	2 nd lowest
Appleby	65	26	1932	Lowest
Blenheim	86	50	1985	Lowest
Le Bons Bay	75	35	1987	Lowest
Wanaka Airport	94	53	1992	2 nd lowest
Dunedin Airport	78	48	1963	Lowest
Manapouri Airport	182	56	1991	Lowest

High spring rainfall was recorded at:

Location	Spring 2005 rainfall (mm)	Percentage of normal	Year Records began	Comments
Gisborne Airport	385	168	1905	Well above average
Napier Airport	314	164	1950	Well above average
Whakatu	246	157	1982	3 rd highest
Mahia	341	176	1953	Well above average

EXTREMELY SUNNY IN THE WEST FROM TARANAKI TO WESTLAND, AS WELL AS WELLINGTON, NELSON, AND SOUTHLAND

Sunshine hours were at least 120 percent of normal in parts of Manawatu, Westland, and Southland, and at least 110 percent of average in parts of Northland and Taranaki, and much of Kapiti, Wellington, Buller, Nelson, and Otago. Totals were near normal elsewhere.

High spring sunshine was recorded at:

Location	Spring 2005 sunshine (hours)	Percentage Of normal	Year Records began	Comments
New Plymouth Airport	650	117	1972	3 rd highest
Paraparaumu Airport	623	119	1953	3 rd highest
Palmerston North	532	121	1930	Highest since 1958
Wellington, Kelburn	656	117	1928	2 nd highest
Hokitika Airport	623	129	1964	Highest
Nelson Airport	731	117	1948	2 nd highest
Invercargill Airport	572	123	1932	Highest

ABOVE AVERAGE TEMPERATURES IN SEVERAL WESTERN REGIONS

Seasonal mean temperatures were at least 0.5 °C above average in parts of Northland, Auckland, Bay of Plenty, Wellington, Nelson, south Westland, Fiordland, Southern Lakes, Central Otago, and Southland. Temperatures were about 0.5 °C below average in parts of Canterbury. Spring temperatures were near average elsewhere.

SPRING CLIMATE IN THE FOUR MAIN CENTRES

Of the four main centres, Auckland was the warmest and wettest, while Wellington was by far the sunniest. Rainfall was above average in Auckland, and below average in the three other main centres. Temperatures were above average in Wellington, near average in Auckland and Dunedin, and below average in Christchurch. Spring sunshine hours were above average in Wellington and Dunedin, and near average in Auckland and Christchurch.

Location	Spring Mean Temp. (°C)	Dep. from normal (°C)		Spring rainfall (mm)	% of normal		Spring Sunshine (hours)	% of normal	
Auckland	14.7 ^a	+0.2	Near average	359 ^b	120	Above average	535 ^a	103	Near average
Wellington	12.6	+0.6	Above average	178	57	Well below average	656	117	2 nd highest
Christchurch	11.0 ^c	-0.5	Below average	101 ^c	72	Below average	541	94	Near average
Dunedin	10.9	+0.1	Near average	116	62	Below average	498	114	Above average

a Mangere

b Mt Albert

c Christchurch Airport

Temperature

The highest temperature during spring 2005 was 30.7 °C recorded in Christchurch city on 11 November. The lowest temperature for the season was -7.0 °C at Arthurs Pass on 20 September.

Rainfall

High rainfall totalling 338 mm was recorded at Arthurs Pass between 4 and 7 September. Rainfall totalling 70-80 mm was recorded in Western Bay of Plenty on 2 October. A major rainfall event produced rainfall totals of 55 to 85 mm throughout much of Northland, Auckland, Coromandel, and Bay of Plenty on 20 October, spreading to Gisborne and Hawke's Bay the next day; with Gisborne Airport recording 148 mm for the 24 hours to 9 am on the 22nd, Motu recording 134 mm, and Napier Airport 93 mm. However, more than 300 mm of rainfall was reported in the inland hill country in areas north of Gisborne. There were extensive crop losses (affecting about 3000 ha of horticultural land), and damage to roads on the Tologa and Poverty Bay plains. About 50 homes were evacuated, and the water supply cut off. The Mangatuna settlement appeared to be the worst affected area. The cost of the damage and losses is estimated to be in the millions.

Rainfall totalling 73 mm was recorded in Whitianga on 25 November. Several days of high rainfall, especially in the hill country, resulted in surface flooding in the Gisborne region on 27 and 28 November. Motu recorded 170 mm over two days. The Te Karaka and Manutuke areas were the worst affected. Several roads were closed, including SH2 between Gisborne and Opotiki. Several schools were closed, and many residents were on standby in case high river levels necessitated evacuation. The rainfall also damaged ripening cherry crops.

High winds

The highest wind gust for the spring was 156 km/h from the southwest, recorded at Cape Reinga on 19 September. A tornado struck Hokitika at 12.30 am on 5 September, lifting a house roof, smashing windows, overturning a furniture truck, and leaving a trail of damage.

During gale force westerlies and rough seas on 8 October, a 3000-tonne container ship crashed into Auckland's old Mangere Bridge, and about 20 boats were blown off their moorings. Trees were felled, power lines broken, and roofs lifted in the city, with power cuts for about 17,500 residents. Gusts to 150 km/h were noted at Tiri Tiri Matangi lighthouse, and 100 km/h at Auckland Airport. Lightning strikes also caused power outages, affecting people as far north as Wellsford. The same weather system resulted in fallen trees in Northland, snowfall on the Desert Road, and 15 cm of snow in Arthurs Pass, Lewis Pass and Porters Pass. A tornado affected parts of Auckland city, including Western Springs, Kingsland, and Morningside, just after 1 am on 11 October, resulting in damaged roofs. High winds, also attributed to a tornado, damaged an Okoroire barn, trees, fences and power lines near Matamata on 15 October.

Fog

Flights were cancelled by fog for several hours in Auckland on 2 September.

Significant snowfall and severe frosts

A depression which had intensified over the Tasman Sea tracked over the lower North Island (with central pressures below 970 hPa) on 18 September. This was accompanied by rainfall totalling 50-80 mm in parts of Northland, Bay of Plenty and Taranaki, along with gale force winds. In Hamilton a tornado damaged several roofs and felled trees. An unseasonably cold southerly outbreak followed, with snowfall to sea level in Canterbury on 19 September. The snowfall resulted in the closure of Christchurch Airport, along with schools and universities, with snow depths of 5-10 cm reported in the region. Power cuts also occurred. The maximum air temperature at the airport was only 4.8 °C on 19 September, the lowest September maximum there in records that commenced in 1954. The southerlies produced hail showers in the lower North Island, and resulted in significant fresh snowfall in the central North Island mountains, and closed the Desert Road. In Canterbury, hundreds of newborn lambs died in the cold.

Snowfall depths of 10 cm were reported in the Queenstown district. With 25 cm of new snow, Coronet Peak ski field was able to reopen after having closed early on 12 September. Further south, snow lay briefly in Alexandra on the 19th. The cold southerlies were followed by severe ground frosts (grass minimum temperature -6.0 °C or lower) in the central North Island, Hawke's Bay, Manawatu, Kapiti, Wellington, Nelson, inland areas of Buller and Marlborough, Canterbury, Otago and Southland, over 20-21 September. Further severe ground frost was measured in Otago on 24 September. Frost prevention measures, including the use of helicopters, were taken to avoid potential plant damage, especially in Marlborough and Hawke's Bay.

Hailstorms

A hailstorm affected parts of Hawke's Bay (Mangateretere and Whakatu) at about 2.30 pm on 5 October, damaging summer fruit crops. The storm lasted for 10 minutes, with most of the hailstones described as pea-sized. Hail was still lying on the ground at 5 pm. Further hailstorms during the afternoon of 17 October affected parts of both Gisborne (Te Karaka), some hail stones estimated to be the size of small golf balls, and also Hawke's Bay, with crops in some orchards damaged. Pea sized hail occurred in Wairarapa on 30 October. These were associated with thunderstorms, which produced torrential rainfall, totalling 22 mm in 10 minutes, and 32 mm in an hour, in Masterton.

Large hail stones were reported in several locations during a period of cold southeasterlies on 26 and 27 November.

For further information, please contact:

**Dr Jim Salinger – Principal Scientist – Climate, NIWA National Climate Centre, Auckland,
Tel. (09) 375 2053, or (027) 521 9468 (mobile)**

**Stuart Burgess – Climatologist – NIWA National Climate Centre, Wellington, Tel. (04) 386 0569, or
Geoff Baird, NIWA Communications Manager Tel. (04) 385-0543 or (025) 229 6314.**

www.niwa.co.nz/ncc

Copyright NIWA 2005. All rights reserved.