

NATIONAL CLIMATE CENTRE

SUNDAY 6 MARCH 2005

National Climate Summary – Summer 2004/05

- **Temperature swings: A very cold December and a very warm February**
- **Soil moisture: Severe or significant deficits throughout much of the North Island, and the north and east of the South Island during mid and late summer**
- **Rainfall: Well above average rainfall in southern Wairarapa and the east from mid Canterbury to Southland; below average rainfall in eastern Bay of Plenty**
- **Sunshine: above average in the east of the North Island**

Temperature extremes by day and by month were features of the 2004-05 summer which turned out to be 0.3°C below normal over the three month period with an average of 16.3°C. Summer temperatures went from one extreme to the other. December, with frequent southerlies, was the coldest since 1945 and fifth coldest on record overall. January was warmer, but temperatures were still 0.5°C below normal. On the other hand, February 2005 was very much warmer, with more frequent northeasterlies; being the 8th warmest in the historical record. The first 10-days of February were very hot, with maximum temperatures of 30°C or more in many locations throughout New Zealand, and 35°C or more in sheltered inland areas of the South Island. Summer rainfall was well above average in parts of southern Wairarapa, and in the eastern South Island from mid Canterbury to Southland, Timaru recording its wettest summer in almost 50-years. Relatively low rainfall occurred in eastern Bay of Plenty. Severe or significant soil moisture deficits occurred throughout much of the North Island and the north and east of the South Island during January and February. The summer was sunnier than average in the east of the North Island. The overall summer climate pattern was dominated by more depressions ('lows') east of the South Island with south westerlies over the North Island and south easterlies over southern New Zealand.

Highlights:

- The highest temperature-of the summer occurred during the February heat wave and was 38.7°C recorded at Alexandra on the 4th (the highest temperature there for any month, in records back to 1929). This is only one a few occasions when temperatures in New Zealand have exceeded the old 100°F (37.8°C). Ground frost occurred in December in inland sheltered areas of the North Island, including Hawke's Bay, and Manawatu, and on several days during the month in many locations in the South Island. The lowest temperature for the summer was -3.7°C, recorded at Wreys Bush (Southland) on the 20th of December.
- An unseasonably cold outbreak brought gale force southerlies to exposed southern and eastern areas of New Zealand over the 18th-19th of December, and thunderstorms with hail to several districts, along with snowfall in the high country of both islands.
- A damaging tornado affected parts of Auckland on the 22nd of December.
- Fog resulted in the closure of Wellington airport affecting thousands of travellers over 2-6 February.
- Rainfall resulted in flash floods on the Kapiti coast on the 5th of January. Localised high, short period rainfall also affected eastern areas of Southland on the same day. High rainfall also resulted in flooding, landslips, damage, and stock losses in South and West Otago over the 7th-8th of January. Heavy rainfall on the afternoon of the 17th of January resulted in flooding in Dunedin. Torrential rainfall occurred in Dunedin on the 7th of February, with flooding affecting many houses and shops. Heavy rainfall also occurred in Temuka over the 13-14th of February, resulting in surface flooding.
- Of the four main centres Wellington was, by far, the sunniest and Christchurch easily the driest. Rainfall was near average in Auckland, and above average in the other main centres. Temperatures were near average in Wellington, but below average in the three other main centres. Sunshine hours were below average in Dunedin, and near average in Auckland, Wellington and Christchurch.

Temperature: Mean temperatures were below average overall in many regions, and 1.0°C or more below average in parts of Auckland, King Country, coastal Wairarapa, coastal Otago, and inland Southland. However, they were above average in parts of central Wairarapa.

Rainfall: Summer rainfall was well above average in southern Wairarapa and in much of the eastern South Island, from mid Canterbury to Southland. In contrast rainfall was below average in eastern Bay of Plenty. Rainfall was near average elsewhere.

Sunshine: Sunshine hours were above average in Wairarapa, and slightly above average in other eastern North Island regions. Totals were below average in Waikato, and coastal Otago.

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

WELL ABOVE AVERAGE RAINFALL IN SOUTHERN WAIRARAPA AND THE EAST FROM MID CANTERBURY TO SOUTHLAND, BELOW AVERAGE RAINFALL IN EASTERN BAY OF PLENTY

Above average rainfall (generally 125-175 percent of normal, but more than 200 percent of normal in some areas) occurred in southern Wairarapa, and in much of the eastern South Island, from mid Canterbury to Southland. Rainfall was below average (less than 75 percent of normal) in eastern Bay of Plenty, and near average elsewhere.

Near or record high summer rainfall was recorded at:

Location	Summer 2004/05 rainfall (mm)	Percentage of normal	Year Records began	Comments
Martinborough	295	203	1945	4 th highest*
Timaru Airport	315	224	1956	2 nd highest
Ranfurly	212	150	1975	Highest*
Queenstown Airport	243	148	1968	4 th highest
Lumsden	354	150	1985	2 nd highest
Gore	405	147	1987	2 nd highest
Invercargill Airport	464	158	1939	2 nd highest
Tiwai Point	481	174	1970	2 nd highest

** for the district*

NEAR OR BELOW AVERAGE TEMPERATURES THROUGHOUT MUCH OF NEW ZEALAND

Mean temperatures were at 0.3 to 0.9°C below average in many regions, and 1.0°C or more below average in parts of Auckland, King Country, coastal Wairarapa, coastal Otago, and inland Southland. However, they were near average in Gisborne, Hawke's Bay, the western North Island from Wanganui to Wellington, and Nelson, and as much as 0.5°C above average in parts of central Wairarapa.

Near record low summer 2004/05 mean air temperatures were recorded at:

Location	Mean temperature	Departure from average (°C)	Records Began	Comments
Warkworth	16.8	-1.5	1972	Lowest

ABOVE AVERAGE SUNSHINE IN THE EAST OF THE NORTH ISLAND

Sunshine hours were at least 105 percent of average in Wairarapa, and slightly above average in other eastern North Island regions. Totals were less than 90 percent of average in Waikato, and coastal Otago, and near average elsewhere.

SUMMER CLIMATE IN THE FOUR MAIN CENTRES

Of the four main centres Wellington was, by far, the sunniest and Christchurch the driest. Rainfall was near average in Auckland, and above average in the other main centres. Temperatures were near average in Wellington, but below average in the three other main centres. Sunshine hours were below average in Dunedin, and near average in Auckland, Wellington and Christchurch.

Location	Summer Mean Temp. (°C)	Dep. from normal (°C)		Summer rainfall (mm)	% of normal		Summer Sunshine (hours)	% of normal	
Auckland	18.4 ^a	-0.9	Below average	218 ^b	94	Near average	617 ^a	97	Near average
Wellington	16.3	-0.2	Near average	244	111	Above average	692	102	Near average
Christchurch	16.1 ^c	-0.5	Below average	156 ^c	120	Above average	646	100	Average
Dunedin	13.8	-1.0	Below average	289	134	Above average	441	88	Below average

a-Mangere b Mt Albert c-Christchurch Airport

HIGHLIGHTS AND EXTREME EVENTS

• Heatwaves and high temperatures

The highest temperature during the 2004/05 summer was 38.7°C recorded at Alexandra on the 4th of February (the highest temperature there for any month, in records back to 1929). This is only one a few occasions when temperatures in New Zealand have exceeded the old 100°F (37.8°C).

In January, Darfield maximum temperatures were 30.0°C or higher on 4 consecutive days from the 13th-16th. Murchison maximum temperatures were 30.0°C or higher on 4 consecutive days from the 24th-27th. The first 10-days of February were very hot, with maximum temperatures of 30°C or more in many locations throughout New Zealand, and temperatures of 35°C or more in sheltered inland areas of the South Island. Daily minima and maxima were at 5-9°C above average in many places, during that period. At Murchison maximum temperatures were 30.0°C or higher on 10 consecutive days from the 1st-10th. During this period Central Otago and inland Canterbury were also extremely hot.

Near or record high summer 2004/05 air temperatures were recorded at:

Location	Maximum temp. °C	Date of occurrence	Records Began	Comments
Alexandra	38.7	4 Feb.	1929	Highest for any month.
Murchison	36.8	4 Feb.	1970	Highest for any month
Darfield	36.2	15 Jan.	1939	3 rd highest for Jan.
Clyde	35.7	5 Feb.	1984	Highest for any month
Hanmer Forest	35.1	10 Feb.	1906	3 rd highest for Feb.
Lauder	35.0	5 Feb.	1981	Highest for any month
Culverden	35.0	6, 9 & 10 Feb.	1984	Highest for any month
Hororata, Illana	35.0	9 Feb.	1998	Equal highest for any month
Wanaka Airport	34.5	4 Feb.	1993	Highest for any month
Murchison	34.4	27 Jan.	1970	2 nd highest for Jan.
Reefton	33.5	1 Feb.	1961	Highest for Feb.
Ranfurly	33.4	5 Feb.	1975	Highest for any month

Queenstown	33.2	4 Feb.	1872	2 nd highest for Feb.
East Taratahi	33.1	10 Feb.	1973	2 nd highest for Feb.
Queenstown Airport	32.2	4 Feb.	1969	Highest for any month
Whakatane Airport	31.3	1 Feb.	1975	Equal highest for Feb.
Palmerston N. Airport	31.3	5 Feb.	1962	2 nd highest for Feb.
Levin	31.1	5 Feb.	1896	Highest for any month
New Plymouth Airport	29.5	1 Feb.	1944	Highest for Feb.
New Plymouth Airport	29.2	31 Jan.	1975	Highest for Jan. since 1975
Wellington Airport	28.1	6 Feb.	1962	3 rd highest for Feb.

- **Frost and low temperatures**

Ground frost occurred on the 12th of December in inland sheltered areas of the North Island, including Hawke's Bay, and Manawatu, and on several days during the month in many locations in the South Island. Tekapo recorded 10 days with ground frost, about twice the average. The lowest temperature for the summer was -3.7°C, recorded at Wreys Bush (Southland) on the 20th of December. This was their lowest December temperature since measurements commenced in 2000.

- **Southerly storm**

Rough weather buffeted the country over the weekend of the 18th-19th of December, when a very cold and unseasonable southerly outbreak brought gale force southerlies to exposed southern and eastern areas. Hail covered roads in Auckland, and thick hail covered the beach at Port Waikato during thunderstorms on the 19th. On the same day a fire occurred in a house after a lightning strike. Hailstones ruined fruit in parts of Auckland, Hawke's Bay, Tasman, and Canterbury. Damaging winds occurred in Auckland, and Cook Strait ferries had long delays due to high seas, with swells up to 8 m, the 7 pm sailing of the Lynx being cancelled. Snowfall occurred as low as 600 m in the South Island, with a light fall on the Desert Road in the central North Island. Temperatures were 6-8 °C below normal in many southern and eastern regions.

- **Tornado**

Damaging winds associated with a small tornado occurred in Penrose and Mt Wellington, Auckland on the 22nd of December, with some windows broken. Damage occurred to about six houses. The winds were strong enough to move a truck.

- **High rainfall and flooding**

Rainfall totalled at least 60 mm occurred in the Bay of Islands on the 29th and Bay of Plenty on the 30th of December. The 28-29th of December was also very wet in Buller and Westland, with 162 mm in Takaka on the 29th and 280 mm for the 2-day period recorded at Franz Josef.

Rainfall totalling 50-100 mm occurred in Kapiti, Horowhenua, Manawatu, and the Hutt Valley, and Golden Bay on the 5th of January. Rainfall totals for 24 hours exceeded 300 mm in the Tararuas, and 230 mm and 100 mm were reported in Otaki in 12 and 3 hours respectively, with 124 mm and 74 mm reported in the Akatarawa Hills during the same periods. The Waitohu Valley Road Bridge was washed out during the high rainfall/flooding event. The flash floods on the Kapiti coast resulted in metre high (waist deep) water at Otaihanga, and 23 houses near the Waikanae River, which breached its banks, were evacuated. Roads out of Wellington, including SH1 at Paekakariki were closed for a time. Localised high, short period rainfall also affected eastern areas of Southland on the same day. Localised high rainfall also resulted in flooding and landslips in South and West Otago over the 7th-8th of January, leaving one bridge closed, and several damaged. Reports of almost 60 mm in an hour were sighted, and 80 mm over 6 hours. The flooding also damaged roads and pasture, and resulted in stock losses. Heavy rainfall on the afternoon of the 17th of January resulted in flooding in Dunedin, with totals of 9 mm in 5 minutes.

Thunderstorms occurred in Dunedin on the 7th of February between 6pm and 6.30pm, with heavy rainfall totalling 17 mm in 15 minutes in the city, and 34 mm in 20 minutes in the hills. Flash flooding resulted with the downpour, water being knee-high in some areas, affecting many houses and shops, damages estimated in millions of dollars. High rainfall totalling 70-80 mm occurred in Takaka on the 11th of February with significant falls totalling 130-150 mm in Hokitika on the 16th. Heavy rainfall, totalling at least 100 mm, occurred in Temuka over the 13-14th, resulting in surface flooding, and a temporary closure of SH1 south of Timaru.

- **Fog**

Persistent fog resulted in the closure of Wellington airport and disruption of about 250 flights affecting 1000s of travellers from 2-6 February.

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

reserved.

Copyright NIWA 2005. All rights