

# The Climate Update

**A monthly newsletter from the National Climate Centre**

May – high rainfalls in Northland, Auckland, and Canterbury; dry conditions in Otago. Warm conditions in the north of the country. High river and stream flows in the north and east and normal to below normal flows in the west and south of both islands.

Outlook for May to July – mostly near normal conditions, but wetter and warmer in the north of the country. Above normal river flows are expected in the northern North Island and eastern South Island.



## New Zealand climate in May

May was very wet in parts of Northland and Auckland, and in coastal Canterbury. In contrast, well below normal rainfall was recorded in Central and East Otago.

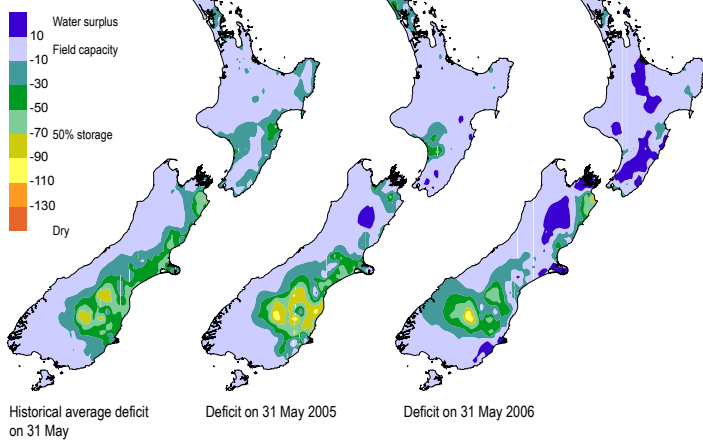
May was warmer than average in much of the north and west of the North Island, and in Nelson and the west of the South Island, but cooler than average in parts of Wairarapa, South Canterbury, Otago, and Southland. The national average temperature of 11.0 °C was 0.3 °C above the 1971–2000 average.

For more information on the climate in May 2006, visit the climate summaries page at [www.niwasience.co.nz/ncc/cs/mclimsum\\_06\\_05](http://www.niwasience.co.nz/ncc/cs/mclimsum_06_05)

### Soil near saturation

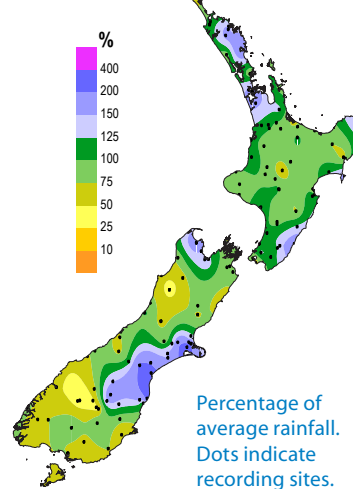
Soil moisture levels at the end of May were near saturation in many areas of both the North and South Islands. Parts of coastal Marlborough and inland Otago remained drier than normal.

#### Soil moisture deficit

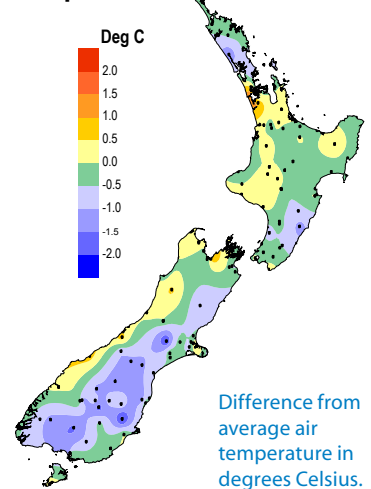


Water balance in the pasture root zone for an average soil type where the available water capacity is taken to be 150 mm.

#### Rainfall



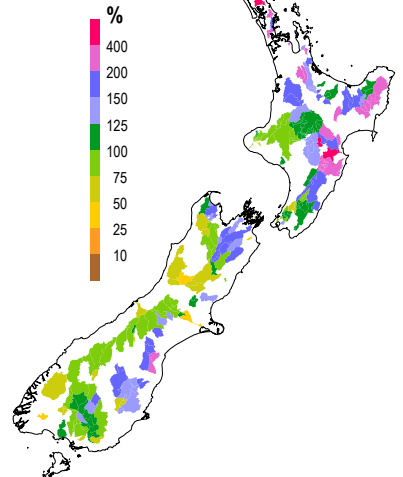
#### Air temperature



### High river flows in the north and east

River flows were above normal in the north and east of the North Island, and the east of the South Island. River flows in the west and south of both islands were normal or below normal.

#### River flows



## March to May: the climate we predicted and what happened

### Rainfall

Rainfall was above normal in the north and central North Island, and normal or above normal as was predicted in the east. Conditions in the southwest of the South Island were drier than predicted; in the east, the predicted dry conditions ended abruptly in April.

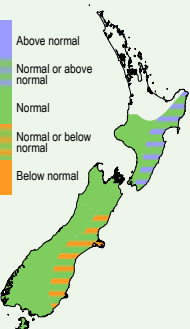
### Air temperature

Air temperatures were above average as predicted in parts of the North Island, and average, as predicted, in much of Canterbury and Otago. Elsewhere conditions were mostly cooler than expected.

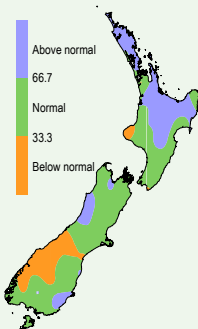
### River flows

Streamflows were above normal to normal in the north and east of both islands, and normal or below normal in the west and south of both islands.

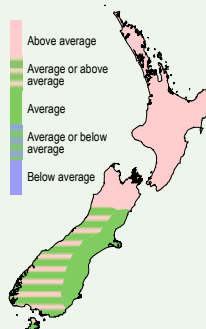
#### Outlook



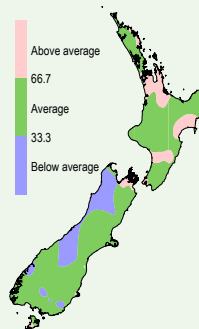
#### Outcome



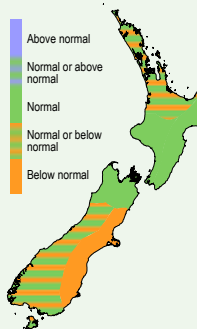
#### Outlook



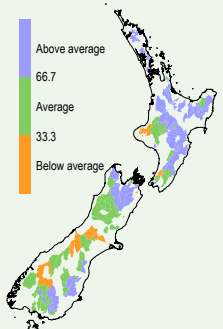
#### Outcome



#### Outlook



#### Outcome



The three outcome maps give the tercile rankings of the rainfall totals, mean air temperatures, and mean river flows that eventuated from March to May, in comparison with the forecast conditions.

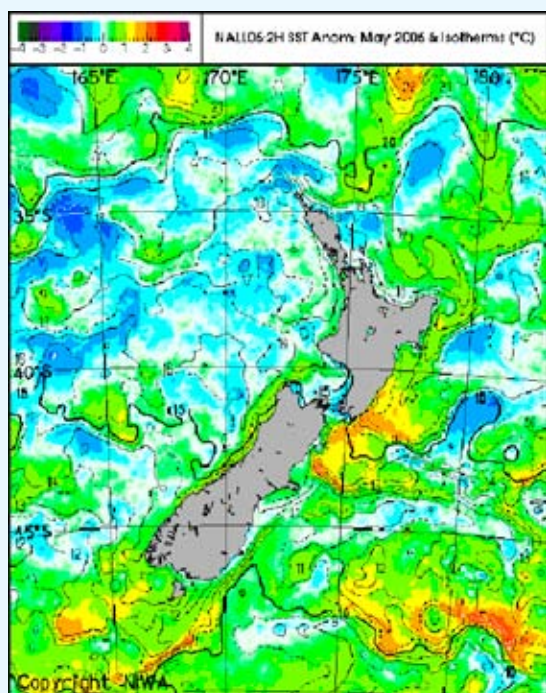
As an approximate guide, middle tercile rainfalls typically range from 80 to 115% of the historical normal, and middle tercile temperatures range about the average by plus or minus 0.5 °C.



## Global setting and climate outlook

### Sea surface temperatures around New Zealand

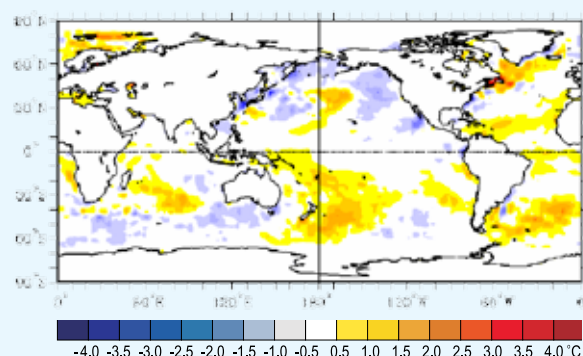
Sea surface temperature (SST) anomalies in the New Zealand region increased sharply in May to near +0.8 °C, the 16th consecutive month of above average SST in the New Zealand region shown in the map below. The average temperature anomaly for March to May was about +0.4 °C.



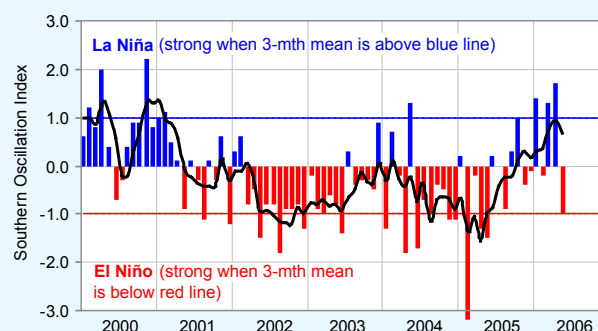
Average difference from normal May surface temperatures in the seas around New Zealand.

### No El Niño or La Niña

The tropical Pacific should remain in a neutral state over the next 3 months.



Difference from average global sea surface temperatures for May 2006. Map courtesy of NOAA Climate Diagnostics Center.



Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressures across the Pacific, and the three-month mean (black line). The SOI dropped to -1.0 in May, with the three month March to May average at +0.7

### Outlook for June to August 2006

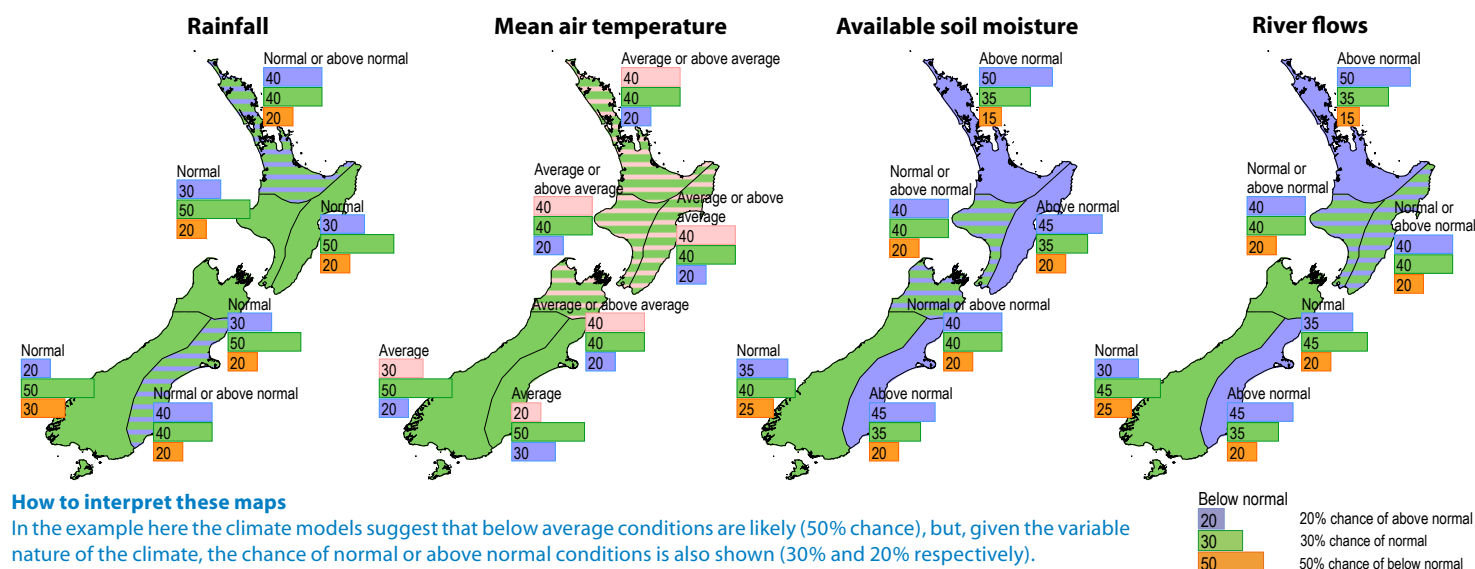
Atmospheric pressures during winter are expected to be higher than normal to the south and east of the South Island, with more easterly or northeasterly air flows than usual over New Zealand.

Air temperatures are likely to be average or above average in the North Island and the northern South Island, and near average over the rest of the South Island. Despite the overall temperature expectation, cold outbreaks typical of winter will occur.

Rainfalls are likely to be normal or above normal in the north of the North Island and east of the South Island. Elsewhere,

including the main South Island hydro catchments, near normal seasonal rainfalls are the most likely outcome.

Soil moisture is likely to be normal or above normal in all regions. Above normal river flows are likely in the northern North Island, with normal or above normal flows likely in the remainder of the North Island. For the South Island, above normal river flows are likely in the east, including in rivers fed predominantly from catchments well to the east of the South Island Main Divide. Normal flows are likely elsewhere, including in the major South Island rivers fed from the Southern Alps.



#### How to interpret these maps

In the example here the climate models suggest that below average conditions are likely (50% chance), but, given the variable nature of the climate, the chance of normal or above normal conditions is also shown (30% and 20% respectively).

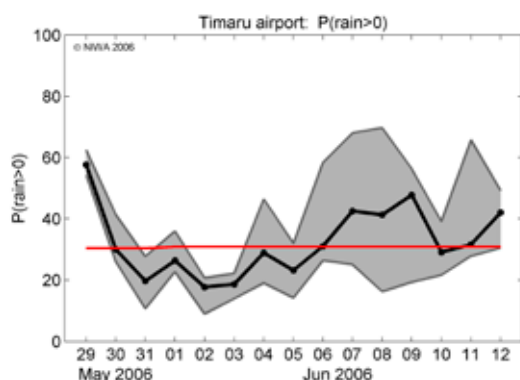
# Climate Explorer <http://climate-explorer.niwa.co.nz>

## Improving irrigation water use efficiency with probabilistic rainfall forecasts

Climate Explorer provides farmers and other irrigation managers a way of ensuring that irrigators are running only when they are needed. The web site provides daily updates of probabilistic forecasts of rainfall over the next 15 days for over 100 representative sites around New Zealand.

The forecasts are created by 'down scaling' southwest Pacific atmospheric conditions to New Zealand locations, combining outlooks from the latest international models with the history of weather conditions at each location. The objective of the forecasts is to show how expected synoptic conditions over the next few days are likely to change the background or climatological probability of the rain happening. Hence the forecasts are not categorical ('32 mm will fall tomorrow') but based on tendency ('under these conditions, it is much more likely to rain tomorrow than normal').

In all, five different measures of rainfall are forecast, including the examples for Timaru Airport shown below. In each case, the red line shows the climatological values, and the dark line and shaded band the mean and spread of model output respectively.



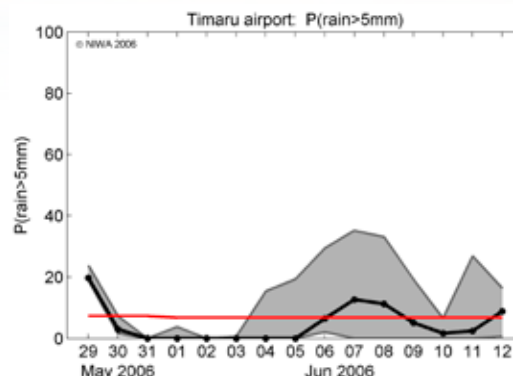
Probability of rainfall exceeding zero, 29 May to 12 June 2006. The background (climatological) chance of rain occurring on any day during the period is about 26% (red line). There is less chance than usual of rain in the first three days of June, and a higher chance of a wet period over 7-9 June.

For more information, and to obtain an annual subscription for access to all regularly updated products, please contact [explorerhelp@niwa.co.nz](mailto:explorerhelp@niwa.co.nz).

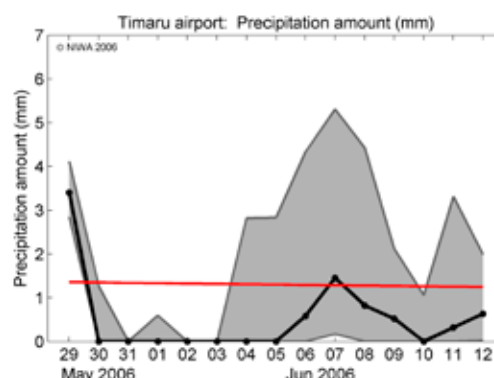
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Probability of rainfall exceeding 5 mm, 29 May to 12 June 2006. The red line indicates that rainfall higher than 5 mm occurs, on average, less than once in 10 days. More than 5 mm of rain is more likely than this on 7-8 June.



Likely precipitation amount, 29 May to 12 June 2006. Apart from 29 May, a wet period is likely during 6-9 June



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Centre pivot irrigation system operating in mid Canterbury. Efficient use of irrigation water is a key to conserving the water resource.

Cover photo: Alan Blacklock

*The Climate Update* is a monthly newsletter from NIWA's National Climate Centre, and is published by NIWA, Private Bag 14901, Wellington. It is also available on the web. Comments and ideas are welcome. Please contact Alan Porteous, Editor  
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