

# The Climate Update

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

**November – warm and dry for most of the month, but cool and wet in the last week in some areas.**

**Outlook for December to February – weaker than normal westerlies with average or above average temperatures in most areas. Wet conditions are likely in the north and east of the North Island.**



# New Zealand climate in November 2005

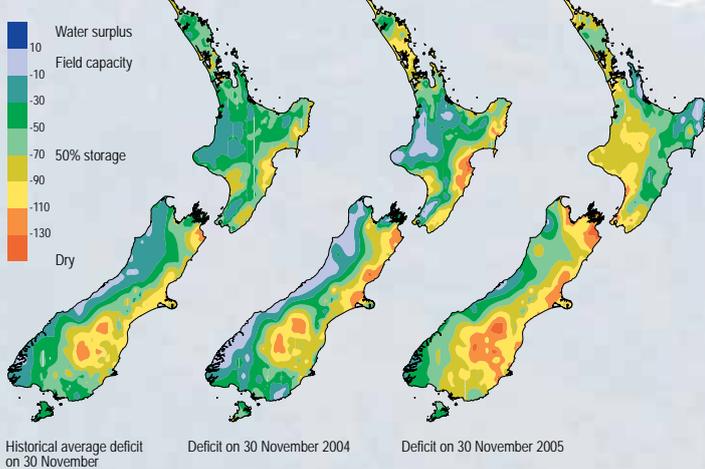
Rainfall was less than 50% of normal throughout much of the north and west of both islands, and less than 25% of normal in north Taranaki, Kapiti, and Golden Bay. Rainfall was higher than normal in Coromandel, Gisborne, and the far southwest of the South Island.

Mean temperatures were above historical averages in Marlborough, Otago, south Westland, Fiordland, and Southland, and below average in Thames, inland Bay of Plenty, Taupo, and Hawke's Bay. They were near average elsewhere.

## Low soil moisture in many areas

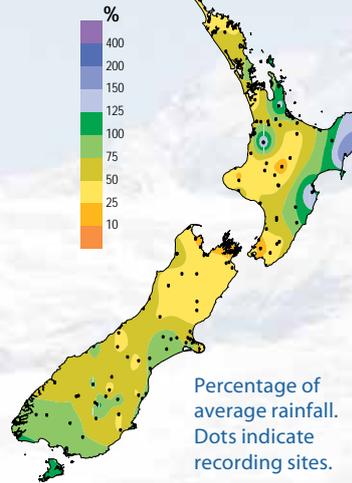
In November, soils became drier in eastern regions from southern Wairarapa to Otago, as well as in Kapiti, Wellington, and Nelson. The change from October to drier conditions was particularly noticeable in the west of the North Island.

## Soil moisture deficit

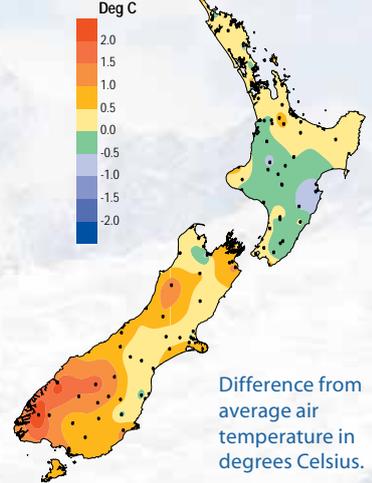


Water balance in the pasture root zone for an average soil type where the available water capacity is taken to be 150 mm.

## Rainfall



## Air temperature



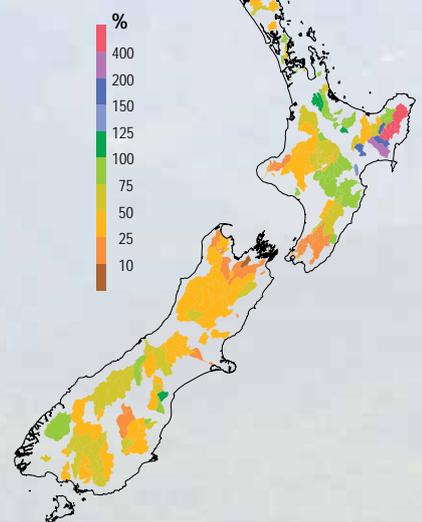
For more information on the climate in November, visit the climate summaries page at [www.niwa.co.nz/ncc/cs/mclimsum\\_05\\_11](http://www.niwa.co.nz/ncc/cs/mclimsum_05_11)

## Low flows in many areas

November river flows were high for northern Hawke's Bay and Gisborne, near average in parts of Bay of Plenty and southern Hawke's Bay, and lower than average everywhere else.

Percentage of average November river and stream flows at monitored catchments. NIWA field teams, regional and district councils, and hydro-power companies are thanked for providing data.

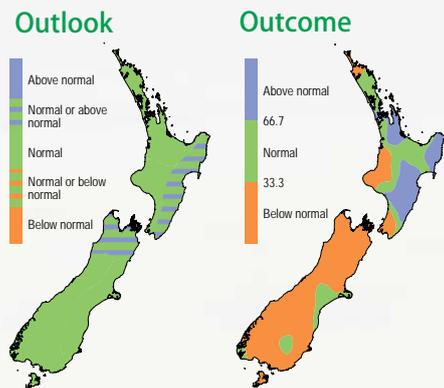
## River flows



## September to November: the climate we predicted and what happened

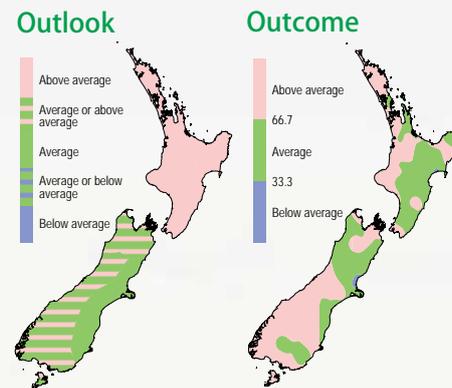
### Rainfall

Rainfall was above normal as predicted in the east of the North Island. The western North Island and most of the South Island were drier than expected.



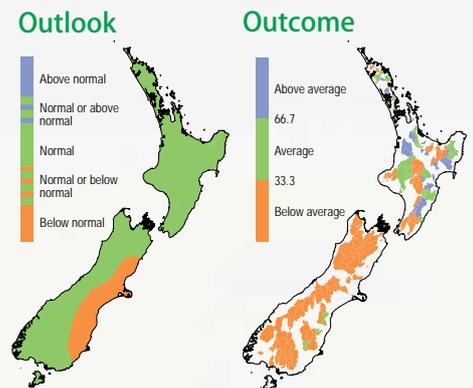
### Air temperature

Air temperatures were above average in much of the North Island as was predicted, and above average in the southwest of the South Island.



### River flows

River flows were normal to above normal in the north and east of the North Island, below normal to normal in the southwest of the North Island, and lower than normal elsewhere.



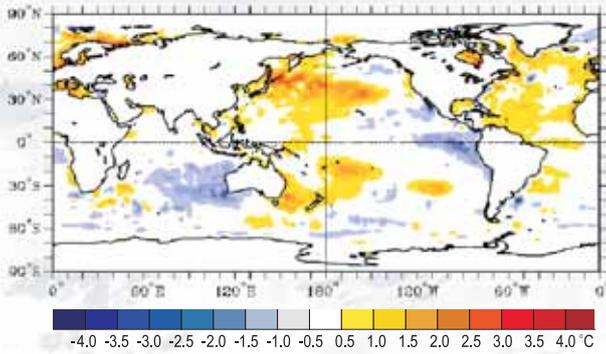
The three outcome maps give the tercile rankings of the rainfall totals, mean air temperatures, and mean river flows that eventuated from September to November, in comparison with the forecast conditions.

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

## El Niño-Southern Oscillation remains neutral

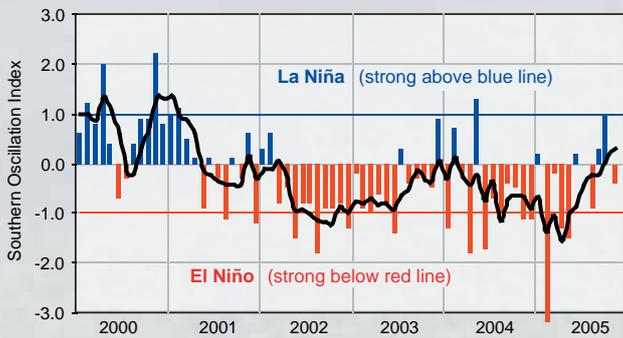
The tropical Pacific Ocean is likely to remain in a neutral state (no El Niño or La Niña) until autumn 2006. The pool of cold water off the South American coast has increased during November, while surface water near the date line remained warm.



Difference from average global sea surface temperatures for November 2005. Map courtesy of NOAA Climate Diagnostics Center.

The Southern Oscillation Index was weakly negative in November (-0.4), with the 3-month September to November average at +0.3. The equatorial trade winds are near normal strength.

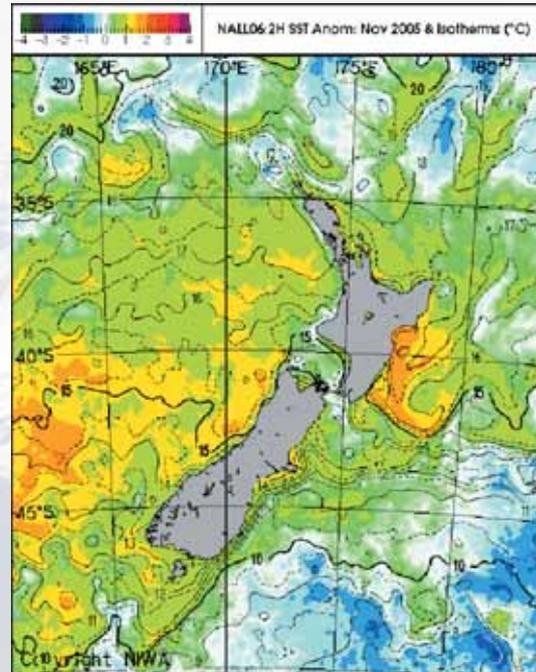
Normal tropical cyclone activity is expected in the Pacific until April 2006. For New Zealand, this means a 70% chance of a cyclone passing somewhere near the country, with Northland and Gisborne being most at risk. The risk is greatest after the end of January.



Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressure across the Pacific, and the 3-month mean (black line).

## Sea surface temperatures (SST) around New Zealand

The New Zealand average difference from the historical normal SST was about +0.8 °C for November and +0.6 °C for the September to November average. Surface waters were warmer than normal



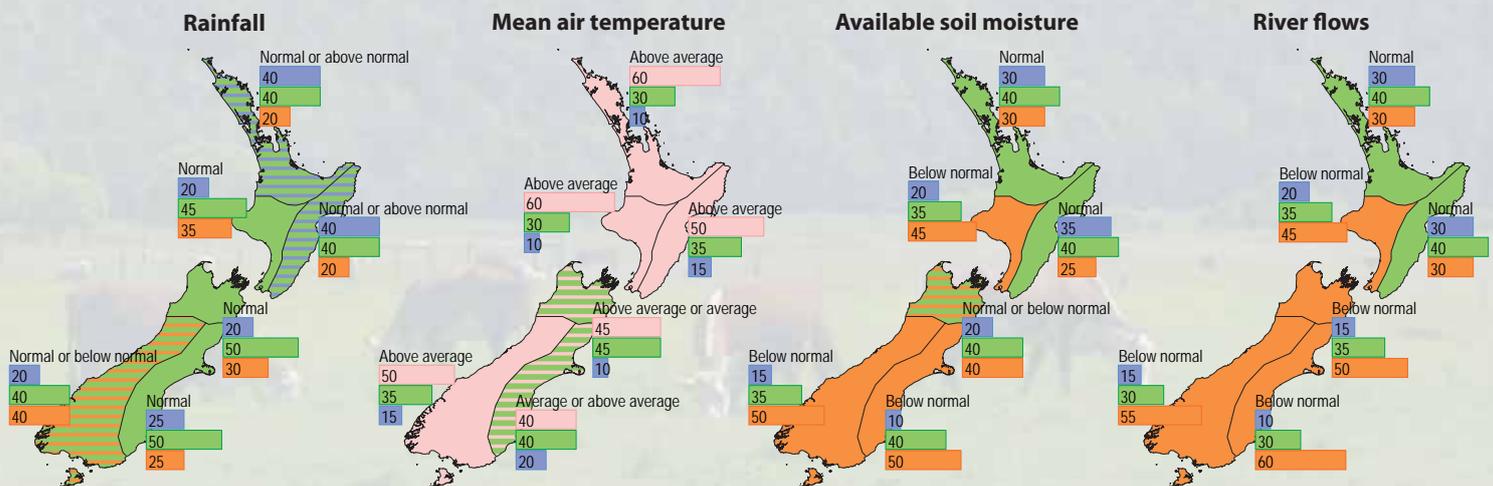
over much of the Tasman Sea, around the New Zealand coast, and to the northeast of the country.

Difference from normal November surface temperatures in the seas around New Zealand.

## Outlook for December 2005 to February 2006

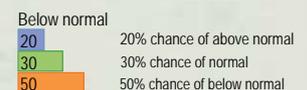
Atmospheric circulation patterns over New Zealand during summer (December-February) are likely to be characterised by weaker than normal westerly winds. Air temperatures are expected to be above average or average in all regions of New Zealand.

Rainfall is likely to be normal or above normal in the north and east of the North Island, normal or below normal in the west and south of the South Island, and near normal elsewhere. Soil moisture levels and river flows are expected to be below normal in the southwest of the North Island and all of the South Island, with normal conditions in the north and east of the North Island.



### 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).



# Adapting to climate change in eastern New Zealand



Farmers have been taking some severe hits from recent extreme weather events, testing their resolve to continue to manage a highly vulnerable industry. While the impacts of such extreme events are largely beyond their control, a recent report 'Adapting to Climate Change in Eastern New Zealand' shows that farmers are probably ahead of their urban peers in working to mitigate and adapt to future environmental challenges and change.

The report, compiled from farmer interviews and workshops by Dr Gavin Kenny of Earthwise Consulting, is a resource kit of farmer perspectives and action on global change. It shows that farmers have inherited the lessons learned from pioneer policies of exploiting the land, and, in some cases for several decades, have been working to restore damaged landscapes. Farmers have been adept at detecting farm and catchment scale changes that have occurred because of climate variability and change, and have been adapting their farming practices and strategic planning.

Going further than their farm gates, the report highlights the need to build on the work of proactive farmers in developing regional resilience. This requires active and positive partnerships between farmers, urban communities, industry groups, and statutory organisations. These partnerships need to develop forward vision, taking account of future climate change, and identify priorities for protecting and enhancing the environment, for future-proofing of farming, and for the wider benefit of everyone.



To the left we show images of just one of the farms described in the report, that of Philip and Robyn Holt at Maraetara, Hawke's Bay. The farm has been subjected to many severe floods and droughts over the past 60 years. The Holt's current management strategies have been honed through these experiences and an ongoing review of how to farm within the limitations of the climate.

For more information email [Dr Gavin Kenny, gavinkenny@clear.net.nz](mailto:gavinkenny@clear.net.nz), or the [National Climate Centre ncc@niwa.co.nz](http://ncc@niwa.co.nz)

Adapting to Climate Change in Eastern New Zealand – a farmer perspective. Compiled and written by Gavin Kenny. Illustrated by Fred Robertson. Programme funded by the Sustainable Farming Fund, Environment Bay of Plenty, Hawke's Bay Regional Council, Environment Canterbury, AGMARDT, Climate Change Office/Ministry for the Environment, and Merino Inc.

Copies of the resource kit, and more information about the project, are available from [www.earthlimited.org](http://www.earthlimited.org)



Left: Philip and Robyn Holt have implemented a whole new system of farming since the drought years of the 1980s. About 20% of the farm has been planted in trees as they work towards their ultimate goal of ensuring their farm against floods and droughts with catchment protection, shelter, and shade.



Cattle grazing in Matukituki Valley, Otago. Farmers are often the first to detect subtle changes in forest and pasture ecologies.

Cover photo: *Steve Le Gal*

Notice of copyright: The contents of *The Climate Update* may not be copied or reproduced without the prior consent of NIWA. Please contact the Editor.

*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  
Email: [ncc@niwa.co.nz](mailto:ncc@niwa.co.nz)  
Phone: 0-4-386 0300.  
Visit our webpage: [www.niwa.co.nz](http://www.niwa.co.nz)