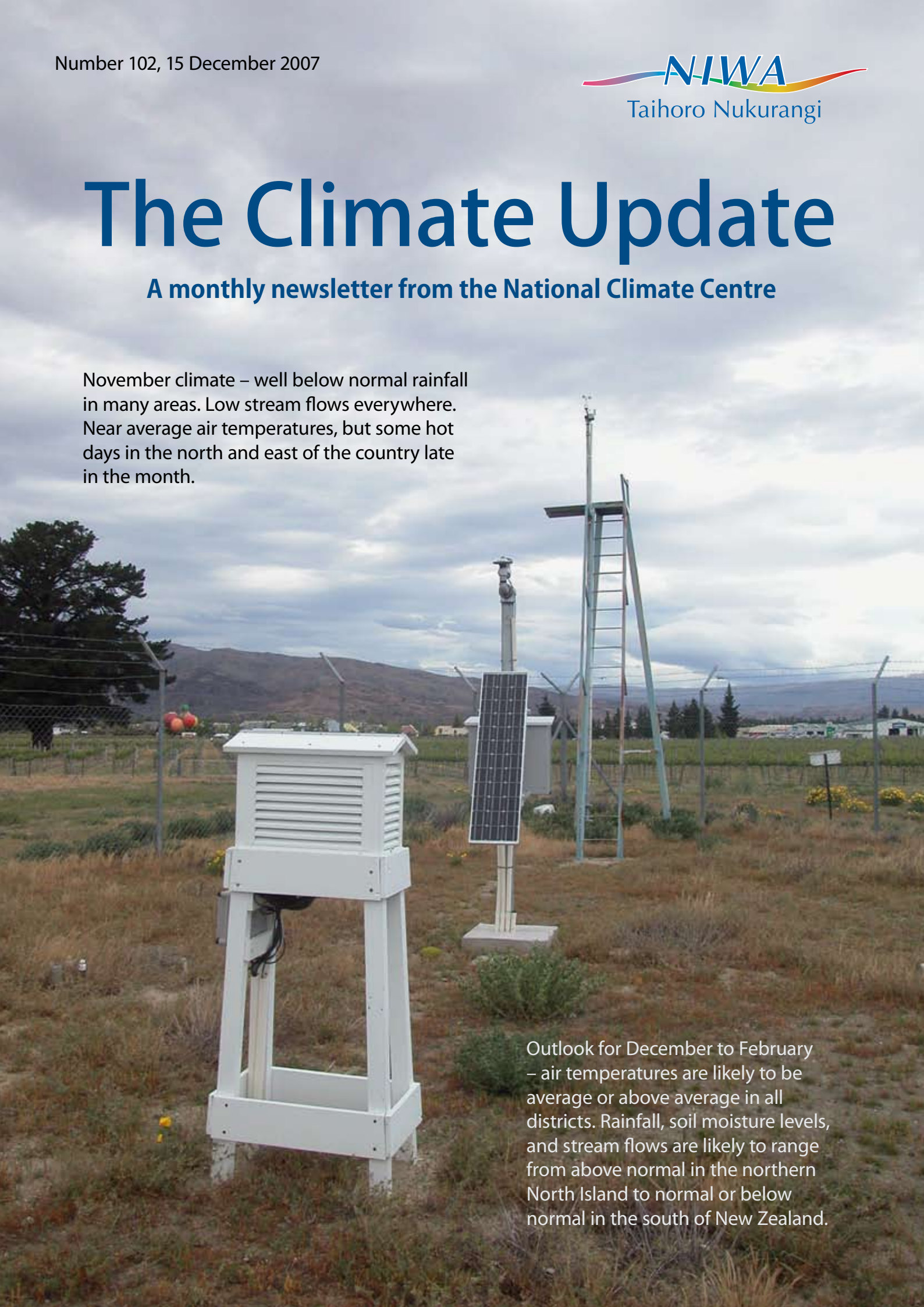


# The Climate Update

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

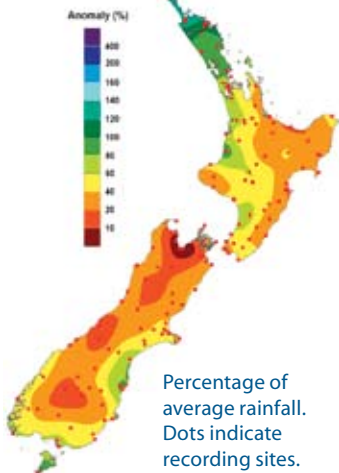
November climate – well below normal rainfall in many areas. Low stream flows everywhere. Near average air temperatures, but some hot days in the north and east of the country late in the month.

Outlook for December to February – air temperatures are likely to be average or above average in all districts. Rainfall, soil moisture levels, and stream flows are likely to range from above normal in the northern North Island to normal or below normal in the south of New Zealand.

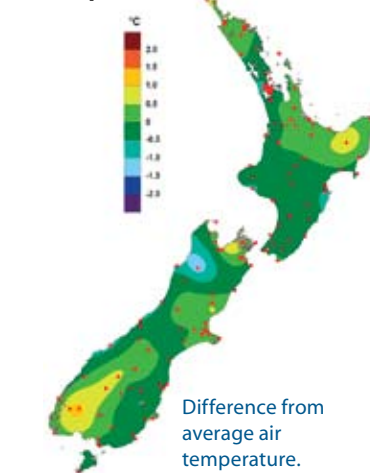


# New Zealand climate in November

## Rainfall



## Air temperature



November featured frequent ridges of high pressure over New Zealand, with more dry southerly quarter winds than usual. The month was extremely dry in many regions, especially in the South Island, with totals of less than 10 mm throughout much of Nelson, Marlborough, and central Otago.

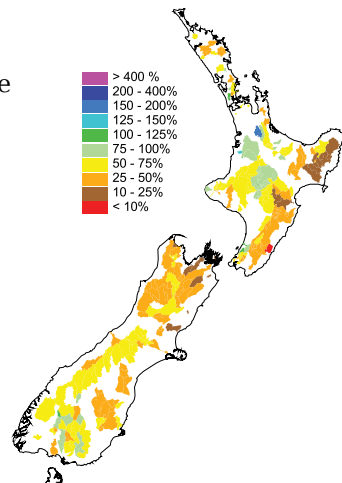
Temperatures were lower than average in the first half of November, and higher than average later, resulting in a national average temperature of 13.4 °C which was 0.3 °C below normal.

For more information see [www.niwasience.co.nz/ncc/cs/mclimsum\\_07\\_11](http://www.niwasience.co.nz/ncc/cs/mclimsum_07_11)

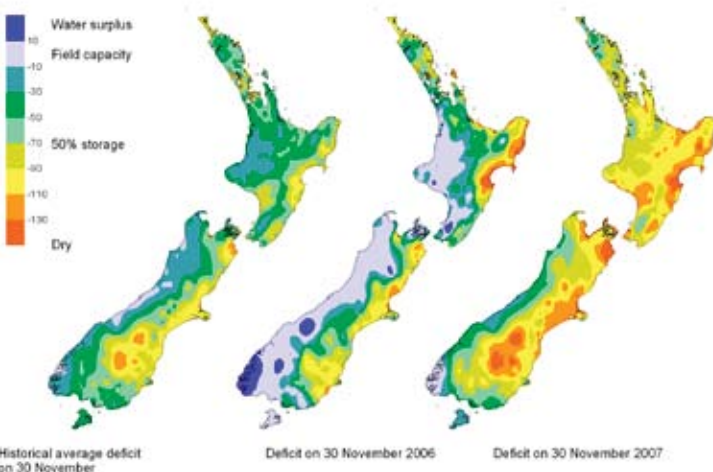
## River flows

Streamflows and riverflows were below normal throughout the country.

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



## 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.

Severe soil moisture deficits developed in Hawke's Bay, Marlborough, and parts of Canterbury and Otago. Many other areas were drier than normal.

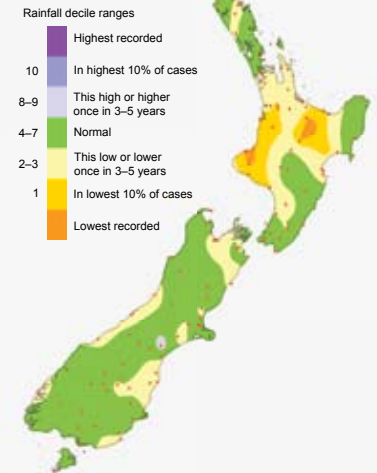
## September to November – the climate we predicted and what happened

### Rainfall

**Predicted:** Above normal rainfall in the east of the North Island, with normal or below normal rainfalls likely elsewhere.

**Outcome:** Mostly normal or below normal. Lower than expected in the east of the North Island.

### September to November rainfall

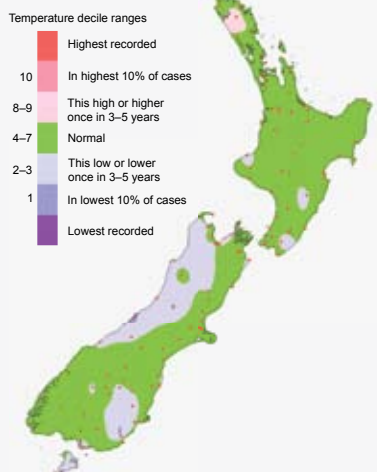


### Air temperature

**Predicted:** Average or above average in all regions.

**Outcome:** Mostly average; above average in parts of western Northland; below average in Buller, Westland, and Otago, and in some districts in the west and southeast of the North Island.

### September to November temperature

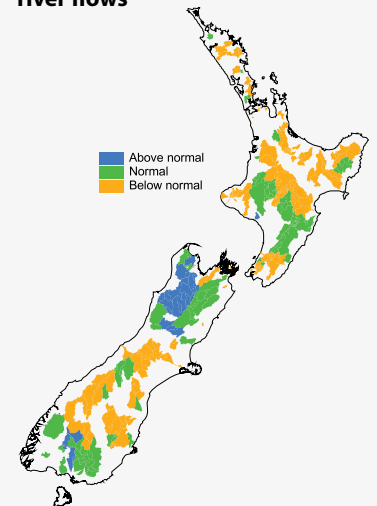


### River flows

**Predicted:** Normal or below normal in the South Island and west of the North Island. Normal or above normal in the east of the North Island, and normal in the north of the North Island.

**Outcome:** Stream flows were above normal in northwest Nelson & Buller, and below normal in most other locations.

### September to November river flows

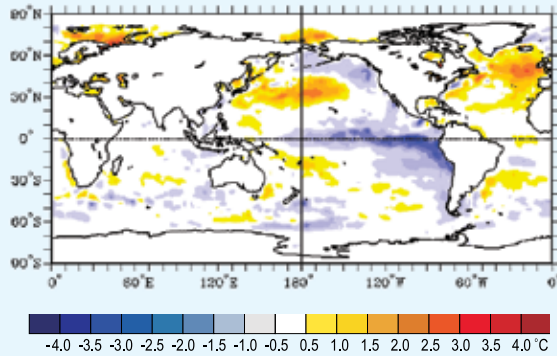




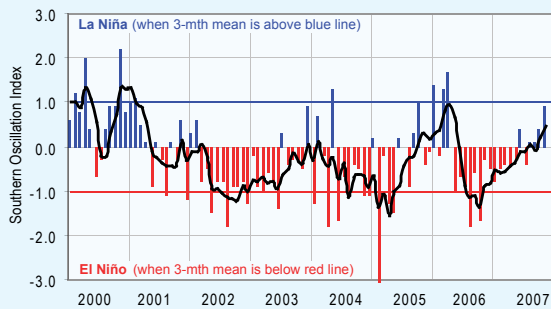
## Global setting and climate outlook

### La Niña strengthens

La Niña conditions have strengthened in the central and eastern equatorial Pacific, and are expected to persist through into autumn 2008. For the first month since this La Niña event began, the SOI has shown a strong movement upwards, although the present prevailing conditions are described as moderate. Easterly trade winds, characteristic of La Niña, were strong and persistent during November over a wide longitude band centred on the Date Line.



Difference from average global sea surface temperatures for November 2007. Map courtesy of NOAA Climate Diagnostics Centre.

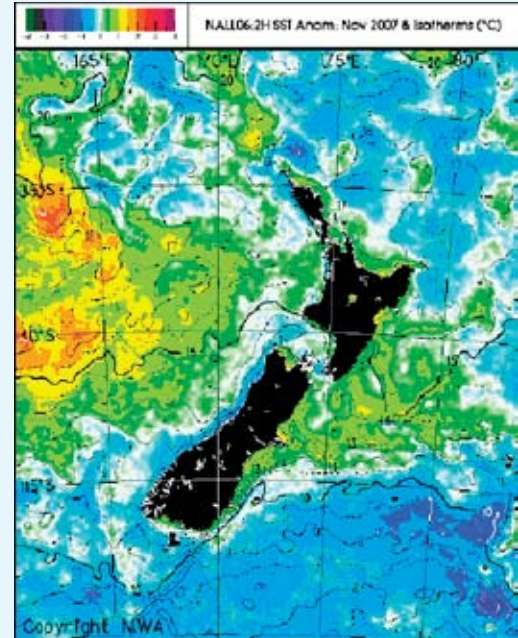


Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressures across the Pacific, and the three-month mean (black line).

SOI mean values:  
September: +0.9  
September to November: +0.5

### Sea surface temperatures around New Zealand

SST anomalies in the New Zealand region continued the trend seen in October to more negative values, the reverse of what might be expected during La Niña. The November average SST anomaly for New Zealand was 0.0 °C. However, during summer, SSTs around New Zealand are expected, on average, to be above normal around the North Island and near normal around the South Island.



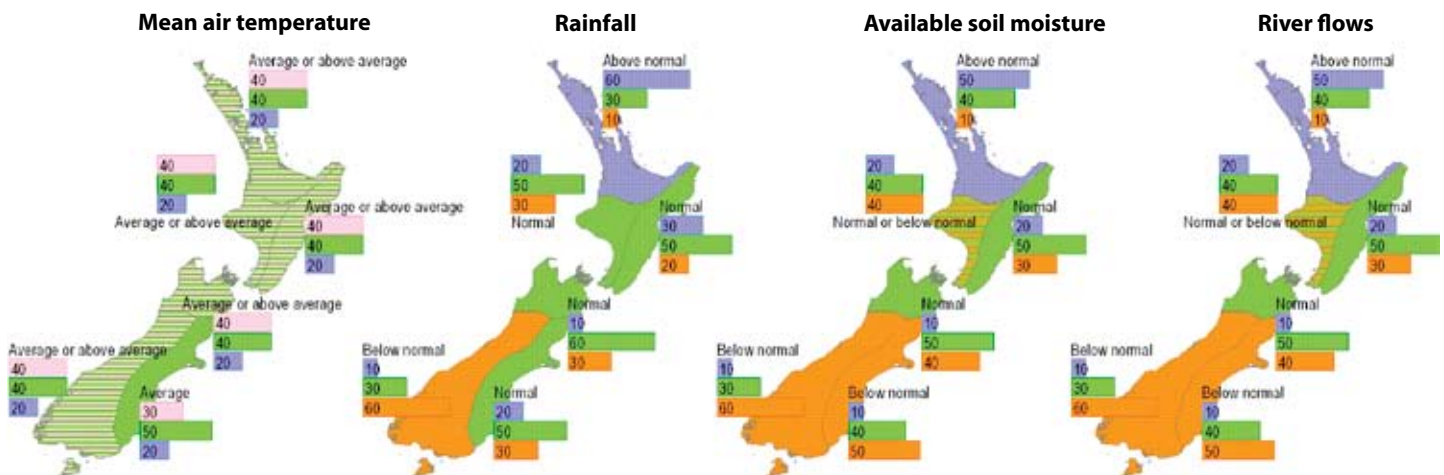
Differences from normal November surface temperatures in the seas around New Zealand.

### Outlook for December 2007 to February 2008

In the New Zealand region over summer, mean sea-level pressures are expected to be higher than normal over the South Island, with more northeasterlies than usual flowing onto the northern North Island, and lighter than normal winds across much of the country.

Air temperatures are likely to be average or above average in all districts. Rainfall is expected to be above normal in the northern North Island, below normal in the west of the South Island, and

near normal elsewhere. Soil moisture levels and streamflows are likely to range from above normal in the northern North Island to below normal in the west, south and east of the South Island. Through to May 2008, there is a slightly reduced chance of an ex-tropical cyclone passing within 500 km of the country, compared to the historical average risk. Should an ex-tropical cyclone approach New Zealand, the regions most at risk are the north and northeast of the North Island.



#### How to interpret these maps

In the example here the climate models suggest that below normal 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).

Below normal  
20 30 50  
20% chance of above normal  
30% chance of normal  
50% chance of below normal

## New leader of the National Climate Centre

Dr Andrew Tait is the new leader of the National Climate Centre (NCC) at NIWA, taking over from Dr David Wratt, who is now the General Manager for Climate Change at NIWA.

Andrew studied at the Universities of Otago and Colorado and has been working as a climatologist at NIWA since 2000. His recent projects include delivering map-based output for land-use management, for example identifying potential growing areas for alternative crops and tree species; also producing site-specific climate data estimates for water quality and quantity assessment, for example estimating daily rainfall in ungauged catchments for input into stream flow models.

Andrew sees the primary role of the NCC as one of connecting New Zealanders to the resources they need to better understand and adapt to our variable and changing climate.



### What is the NCC?

The National Climate Centre is a 'virtual' centre whose scientists work at NIWA sites throughout the country. The NCC maintains a national environmental observing network, and archives climate data. NCC scientists use data and models to monitor climate variability, produce seasonal climate outlooks, refine global scenarios of future climate change for the New Zealand region, and assess climatic impacts on New Zealand's economic activity. The NCC adds value to the data through analysis, public interpretation, and research initiatives, including collaboration with an international network of scientists and agencies.

### What can the NCC do for you?

Through the NCC, New Zealanders now have free access to international-standard environmental data, to assist with determining the impacts of weather and climate on their work and leisure, to provide high quality, routine input to operational models and decision making, and to plan forward decisions on various timescales. NCC scientists frequently present public talks on the current state of knowledge of climate science and the likely impacts of climate variability and change for New Zealand. Central and local government are able to use the NCC's information for public administration, and the maintenance and conservation of New Zealand's landscapes and resources.

### What are the benefits?

The NCC assists New Zealanders to understand our natural environment, to help prepare for exposure to climate risks, and to maximise use of the climate as a resource. It enables us to preserve our natural heritage so that we can both meet our current needs and provide for the enjoyment and prosperity of future generations.

For more information on the National Climate Centre, see:

[www.niwa.co.nz/ncc](http://www.niwa.co.nz/ncc)

Email: [climate-enquiries@niwa.co.nz](mailto:climate-enquiries@niwa.co.nz)

Phone: 0-4-386 0300.



NIWA automatic weather station at Cromwell. The National Climate Centre archives daily and hourly data from over 200 such climate stations, as well as many other special sites. Data from most of these are available free to the public via the National Climate Database.

Cover photos: Steve LeGal

*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.

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