

The Climate Update

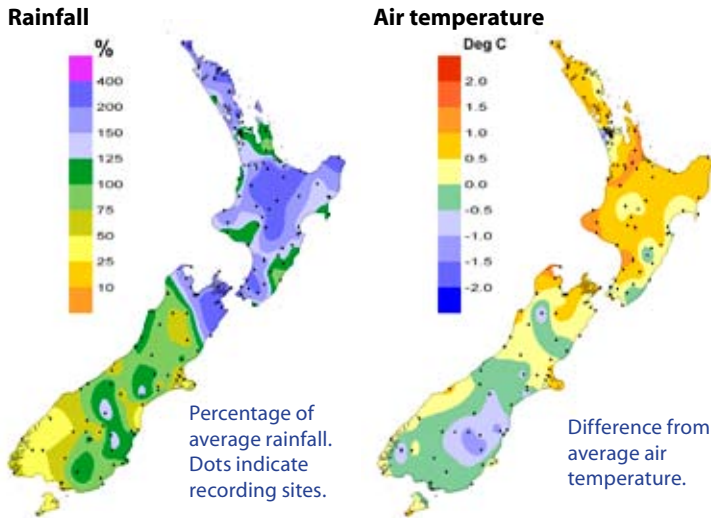
A monthly newsletter from the National Climate Centre



April climate – very wet in the north particularly at the end of the month. Low rainfall in the southwest of the country. Generally warm conditions in north and central New Zealand; cooler than normal in the south. Low flows over much of the country.

Outlook for May to July – above average air temperatures, but cold outbreaks at times. Rainfall normal or above normal in the north and east of the North Island, normal or below in the southwest South Island, and near normal elsewhere. Normal or below normal soil moisture and river flows in southern New Zealand.

New Zealand climate in April



North and central New Zealand were warmer than normal in April, while temperatures were mostly below average in inland parts of Canterbury and Otago.

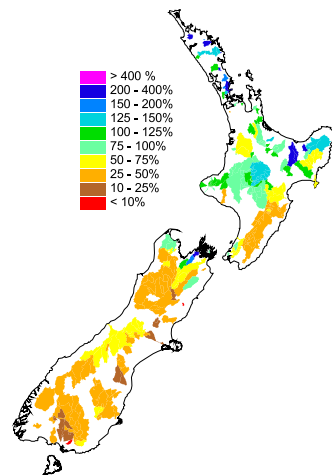
Rainfall was 200% of normal in many north, central, and southern districts of the North Island, and in Nelson and Marlborough, and at least 150% of normal in many other North Island districts. Less than 50% of normal rainfall was recorded in the southwest of the South Island.

For more information see www.niwascience.co.nz/ncc/cs/mclimsum_08_04

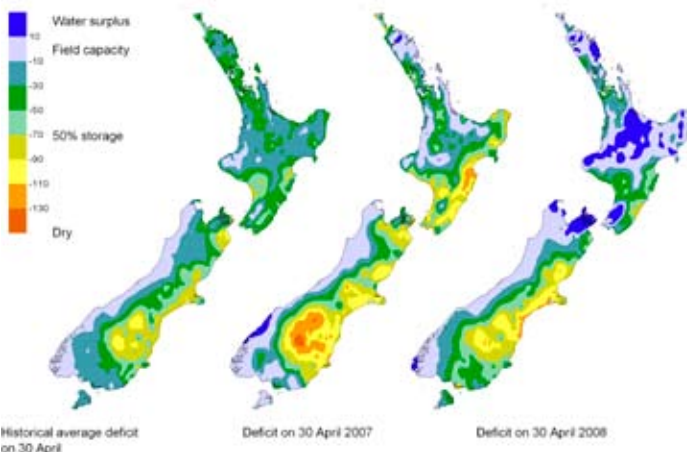
River flows

River flows were near normal in the northern North Island, and below normal in most other places

Percentage of average April 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.

April saw a dramatic improvement in soil moisture levels for most of the country, apart from unusually dry soil conditions remaining in coastal Canterbury and North Otago.

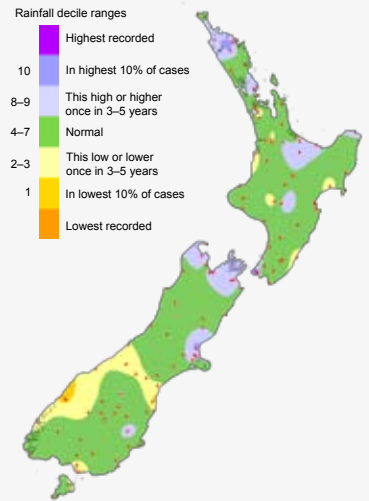
February to April — the climate we predicted and what actually happened

Rainfall

Predicted: Normal rainfall in the North Island and north of the South Island; below normal elsewhere.

Outcome: Above normal in the far north, Bay of Plenty, the north of the South Island, and mid Canterbury; near normal in most other places; lower than normal in parts of the south and southwest of the South Island.

February to April rainfall

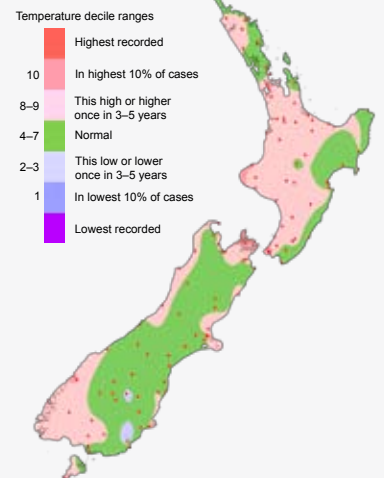


Air temperature

Predicted: Above average in all districts.

Outcome: Above average over much of New Zealand; near average in eastern regions and inland South Island.

February to April temperature

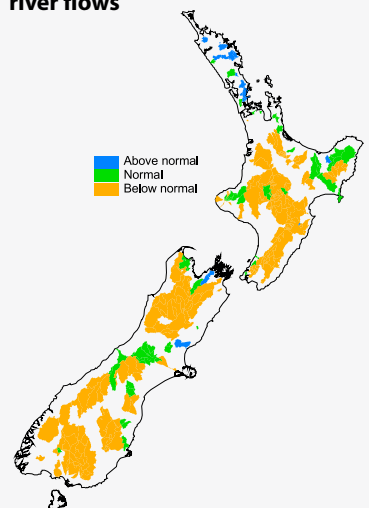


River flows

Predicted: Normal or below normal in the North Island and north of the South Island; below normal elsewhere.

Outcome: Stream and river flows were normal in Northland, and below normal in most other locations.

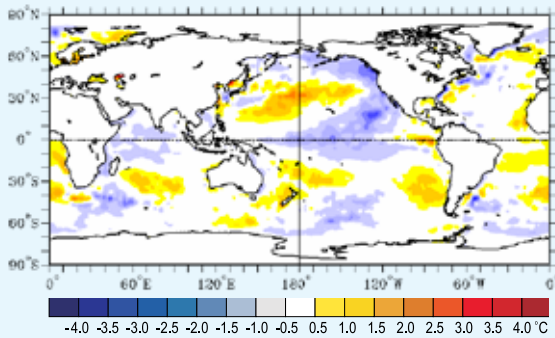
February to April river flows



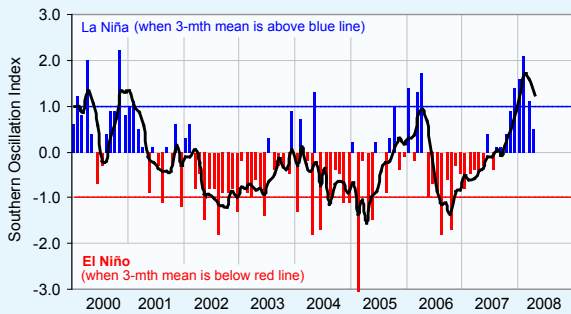
Global setting and climate outlook

La Niña weakening

La Niña is now weakening in the tropical Pacific, and is expected to ease to neutral conditions by July. At the ocean surface, temperature anomalies have eased dramatically across much of the equatorial Pacific. By the end of April, sea surface temperature anomalies were positive near the South American coast. The SOI eased further in April to about +0.5, with a three month average of +1.2.



Difference from average global sea surface temperatures for April 2008. Map courtesy of NOAA Climate Diagnostics Centre

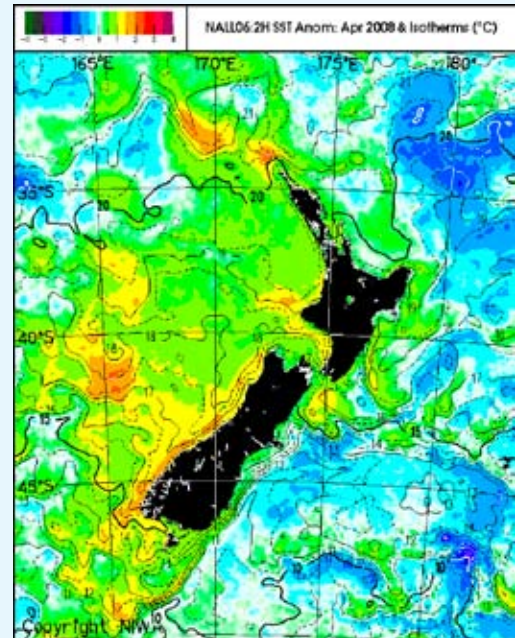


Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressures across the Pacific, and the three-month mean (black line).

SOI mean values:
April: +0.5
February to April: +1.2

Sea surface temperatures around New Zealand

Sea surface temperature (SST) anomalies have risen in the New Zealand region in April, as the 'warm horseshoe' associated with La Niña has consolidated in the southern extra-tropics. The April SST anomaly in the New Zealand 'box' was about +0.9 °C, having risen from +0.1 °C in March. Sea surface temperatures around New Zealand are expected to remain above normal during the next three months.



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

Outlook for May to July 2008

Average atmospheric pressures are expected to be higher than normal to the south of the South Island and lower than normal to the northwest of New Zealand, with more winds from the northeast than normal over the country.

Air temperatures are very likely to be above average in many regions. Despite this overall temperature expectation, cold outbreaks typical of late autumn and winter will occur from time to

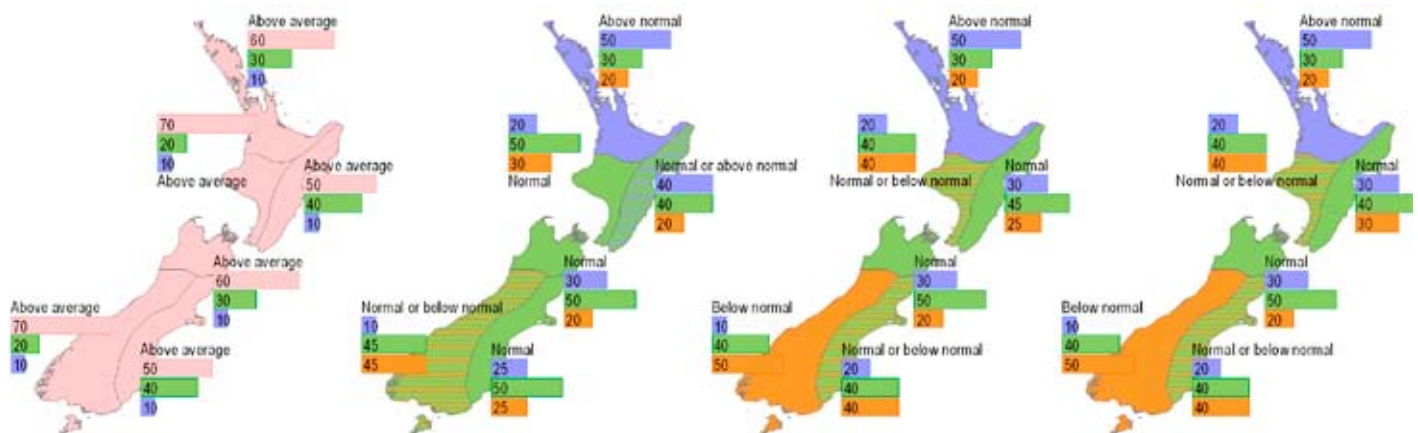
time. Rainfall is expected to be normal or above normal in the north and east of the North Island, normal or below in the southwest South Island, and near normal elsewhere. Soil moisture levels and stream flows are likely to be above normal in the northern North Island, near normal in the eastern North Island and northern South Island, and normal or below normal in the southwest of the North Island and the west, south, and east of the South Island.

Mean air temperature

Rainfall

Available soil moisture

River flows



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

Beyond Reasonable Drought

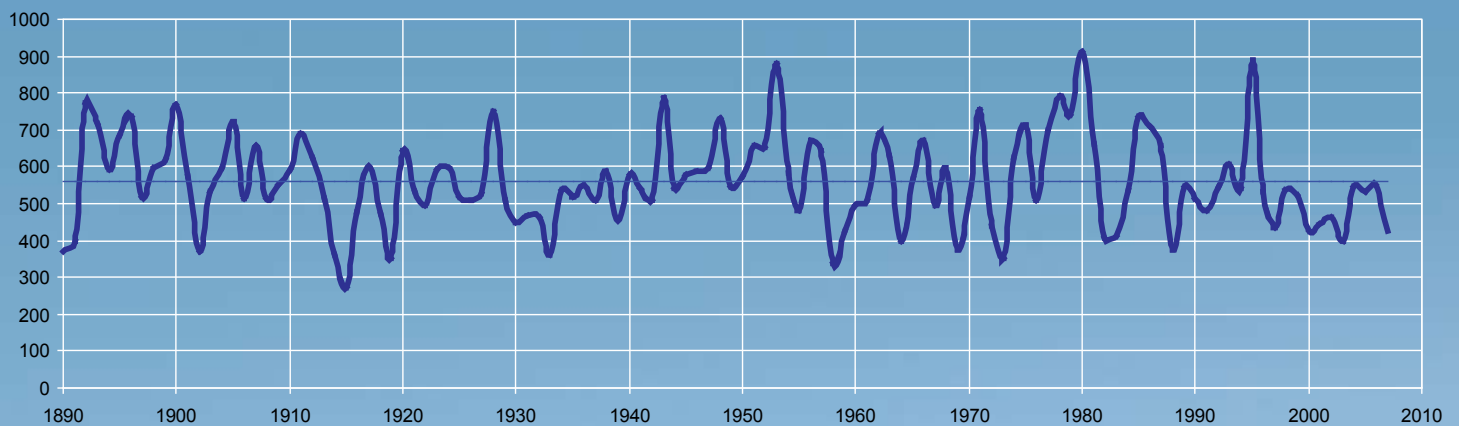
Beyond Reasonable Drought was the name given to a field day on Bonavaree, the property of Doug and Fraser Avery, near Grassmere in Marlborough. Over 400 farmers, scientists, local government officials, and rural service providers flocked to the farm on May 14. They were keen to see how the Averys had overcome many years of drought and the steps they had taken to build a resilient farming system. NIWA provided climate information for the meeting.

The field day was the culminating public event in a three year programme undertaken in South Marlborough by the Starborough-Flaxbourne Soil Conservation Group, of which Doug Avery was the chairman, with the help of the New Zealand Landcare Trust.

Below and to the right are some pictures from the day, and a figure showing annual rainfall, one of the topics of conversation.



Photos: Alan Porteous and Anthony Clark



Above: Estimated annual rainfall at Grassmere, 1890 to 2007, showing the relatively low annual rainfall in recent years. The blue line indicates the long term average (561 mm). Note that the early part of the series has been constructed from Cape Campbell data.

Below: The field day cavalcade drives past sloping land that has been stabilised with saltbush and other drought tolerant species.



Alexandra bridge and autumn colour reflections in the Clutha River.
Cover photo: *Steve Le Gal*

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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