

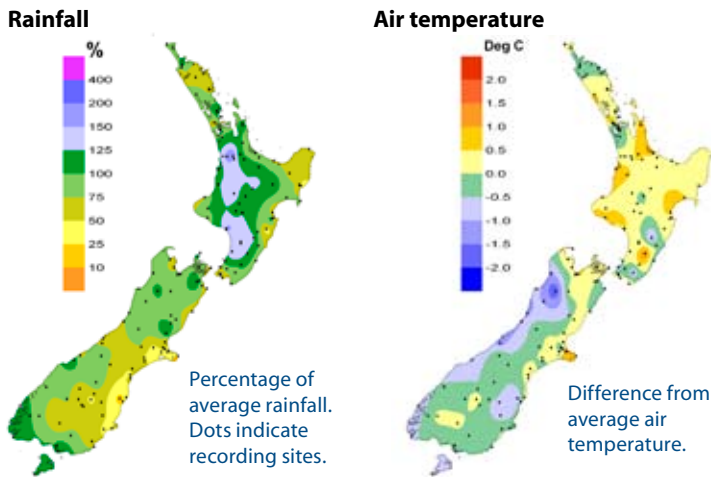
The Climate Update

A monthly newsletter from the National Climate Centre

October climate – mostly settled and sunny, with cool conditions in the west and south of the South Island. Lower rainfalls than normal in the east of the country. River flows lower than normal over much of the South Island.

Outlook for November to January – Above average temperatures are likely in most places, apart from average temperatures in Canterbury and coastal Otago. Rainfall is likely to be normal or below normal everywhere. Below normal river flows and soil moisture levels are likely in the east of the South Island.

New Zealand climate in October

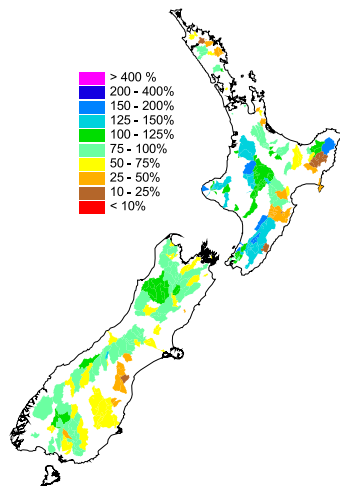


Apart from one major storm, October weather was generally more settled than usual, a product of frequent anticyclonic conditions in the Tasman Sea. Stronger than normal westerly to southwesterly winds over the country resulted in low rainfalls in the east. Conditions were sunnier than normal in the South Island, and generally cool in the west and south of the island.

For more information see www.niwascience.co.nz/ncc/cs/mclimsum_08_10

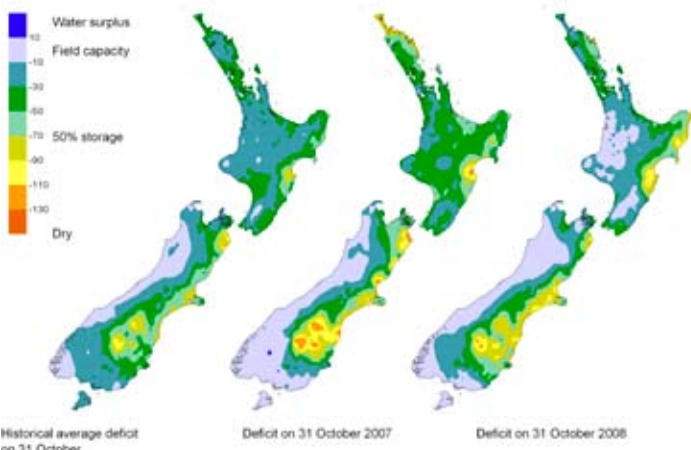
River flows

River flows in the southwest of the North Island were higher than normal. Elsewhere flows were normal to below normal.



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

Soil moisture



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

Soils in parts of eastern Northland, Hawke's Bay, mid Canterbury, and Otago were drier than normal at the end of October. Elsewhere soil moisture levels were mostly near or above normal.

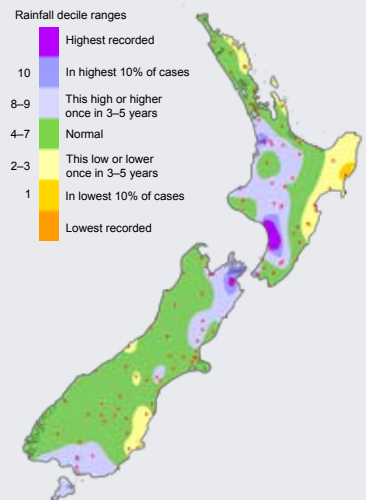
August to October – the climate we predicted and what actually happened

Rainfall

Predicted: Near normal in most regions; normal or below normal in the southwest of both the North and South Island.

Outcome: Above normal in the west and south of the North Island, parts of Nelson-Marlborough, and Southland.

August to October rainfall

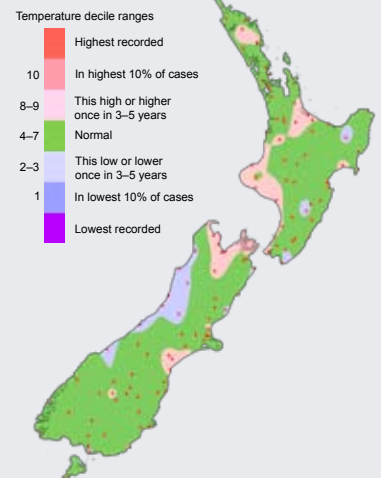


Air temperature

Predicted: Average or above average in most regions; average or below average in the eastern South Island.

Outcome: Above average in parts of the north and west of the North Island and north of the South Island; below average in parts of Westland; mostly average elsewhere.

August to October temperature

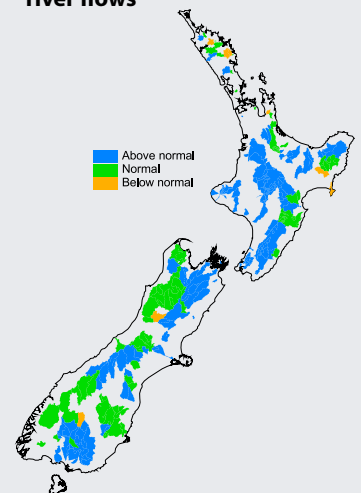


River flows

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

Outcome: Higher than normal river flows in most of the country, apart from near normal conditions in the far north and the east coast of the North Island, and the west and south of the South Island.

August to October river flows



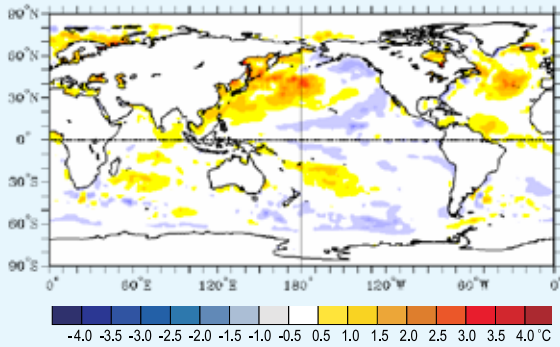
Global setting and climate outlook

El Niño-Southern Oscillation remains neutral

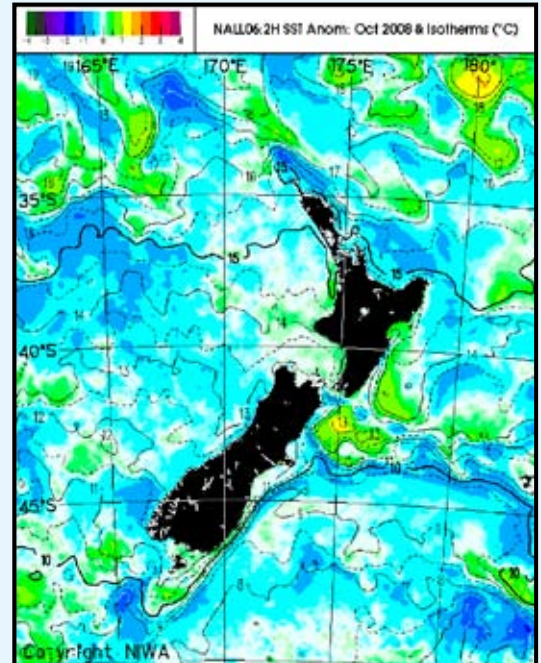
Pacific Trade Winds about and west of the Date Line were enhanced in October, and the Southern Oscillation Index was high. In spite of these La Niña-like characteristics of the Tropical Pacific atmosphere, ENSO remained in neutral phase during the month, and is very likely to continue in this state through summer. Sea surface temperatures in the equatorial west Pacific remained near normal during October.

Sea surface temperatures around New Zealand

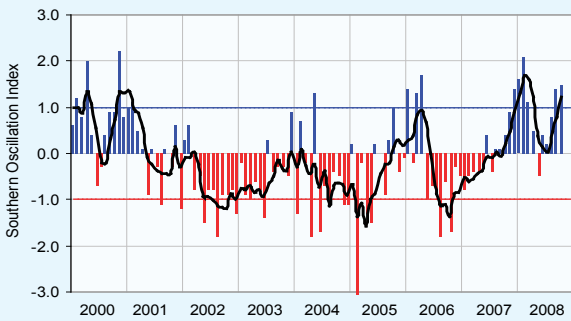
Sea surface temperatures (SSTs) are now a little below average in the New Zealand region. The October SST anomaly in the New Zealand quadrant was $-0.3\text{ }^{\circ}\text{C}$ with a three month (August to October) average anomaly of $-0.2\text{ }^{\circ}\text{C}$. Sea surface temperatures around New Zealand are expected to be near normal over the next three months.



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



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



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:
October: +1.5
August to October 1.2

Outlook for November 2008 to January 2009

In the New Zealand region, mean sea level pressures are likely to be higher than normal, especially east of the country, resulting in lighter winds than usual over most regions. Air temperatures are likely to be above average in most regions of the country, but near average in the eastern South Island. Rainfall is likely to be near normal in the north and east of the North Island, and normal or below normal elsewhere. Normal or below normal

soil moisture levels and stream flows are likely in most regions, apart from the east of the South Island where below normal conditions are likely.

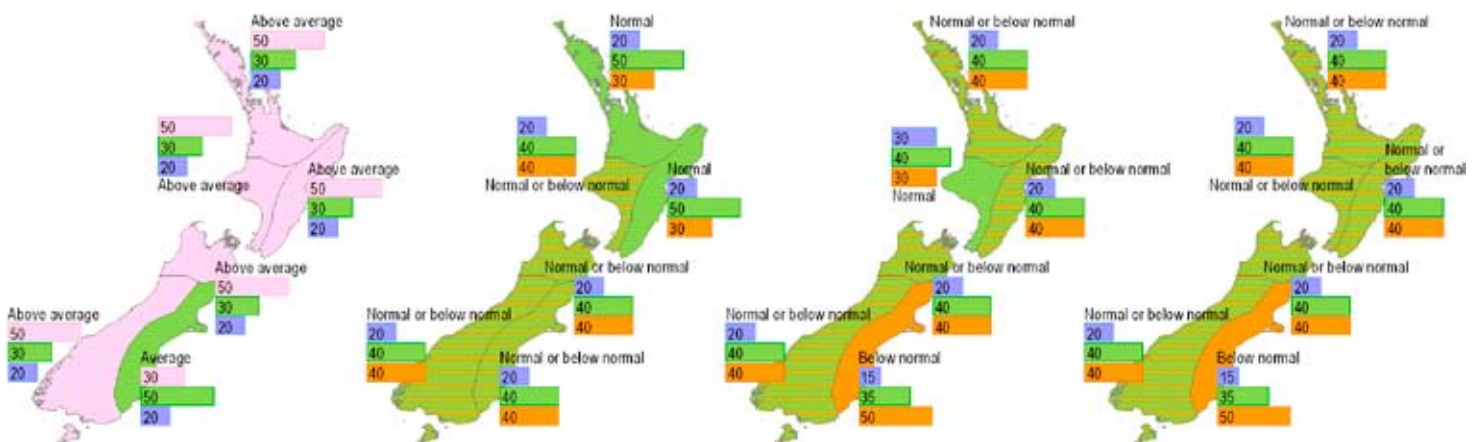
With ENSO-neutral conditions, there is a 4 out of 5 chance of an ex-tropical cyclone passing within 500 km of the country between November and May, with the highest risk in the Northland and Gisborne districts.

Mean air temperature

Rainfall

Available soil moisture

River flows



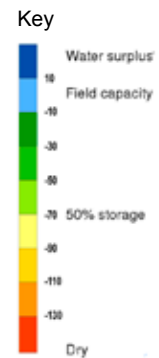
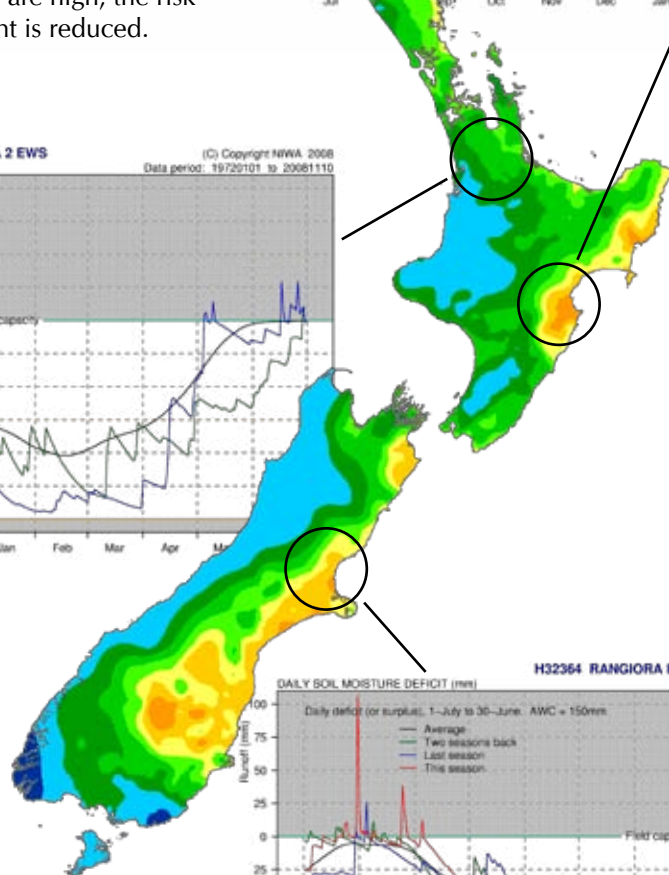
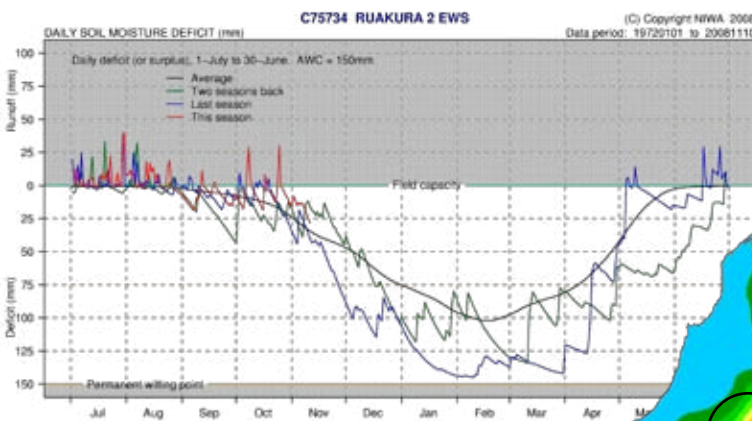
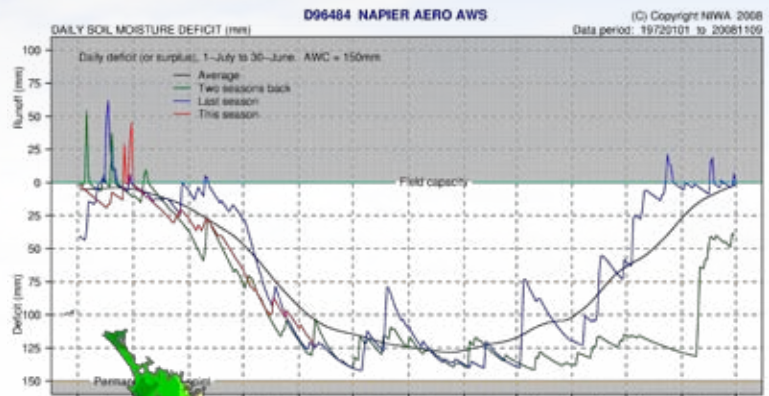
How to interpret these maps

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).

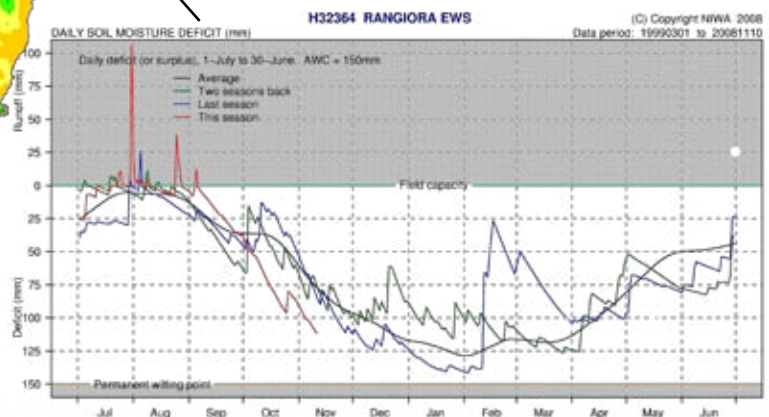
Below normal	20% chance of above normal
20	30% chance of normal
30	50% chance of below normal
50	

Soil moisture levels dip on the east coast

Soils in Gisborne, Hawke's Bay and parts of Canterbury and Otago are drier than normal (at the time of publication). As shown in the accompanying figures, the modelled soil moisture deficit (red curve) at Napier Airport and Rangiora reached 50% depletion of available water (75 mm deficit) by early or mid October, which is 2-3 weeks earlier than normal. This is likely to have slowed pasture production and increased demand for irrigation earlier than is usual for spring. It also means that above normal rainfall is likely to be needed to return soil moisture to typical levels. In contrast, soil moisture levels in the Waikato appear to be near or above normal. When moisture levels are high, the risk of late spring or early summer drought is reduced.



Soil moisture deficit (mm)
at 9am on 11/11/2008



Spring flowering native trees attract tui to suburban gardens.
Cover photo: *Wendy St George*

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 Phone: 0-4-386 0300. Visit our webpage: www.niwa.co.nz/ncc

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