

The Climate Update

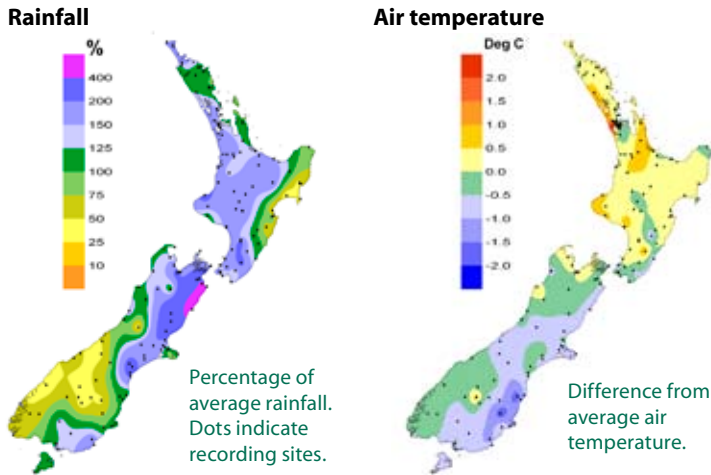
A monthly newsletter from the National Climate Centre



August climate – above average rainfall in central areas but drier than normal in Gisborne and the southwest of the South Island. Cool in the south.

Outlook for September to November – lower rainfall, river flows, and soil moisture than normal in the southwest of the South Island. Average or above average air temperatures over the country.

New Zealand climate in August



Well above normal rainfall for August was recorded in Marlborough (especially Kaikoura), Canterbury, Tasman, eastern Southland, and the majority of the North Island; Gisborne, Hawkes Bay, parts of the Southern Alps, Central Otago, and Fiordland were drier than normal.

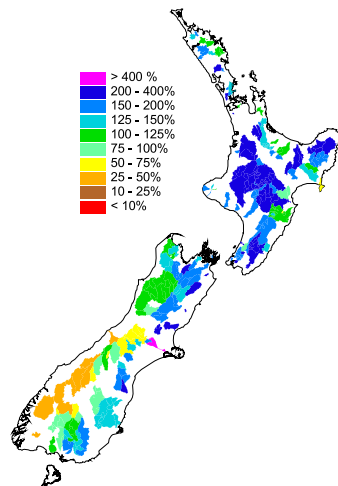
Temperatures were average to above average in the North Island and average to below average in the South Island. The national average temperature of 8.9 °C was 0.2 °C below average for August.

For more information see www.niwascience.co.nz/ncc/cs/mclimsum_08_08

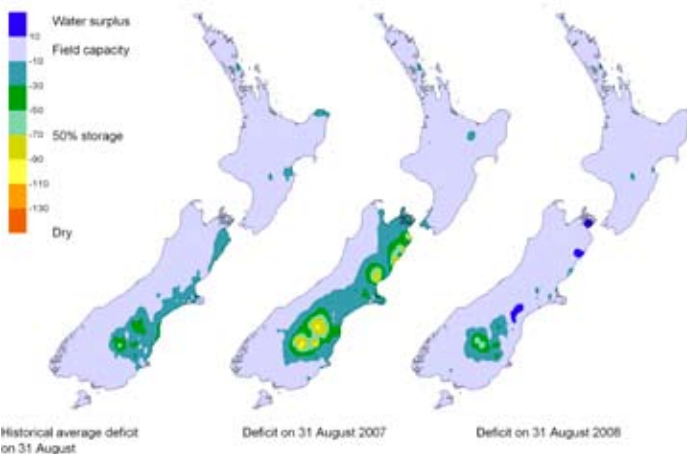
River flows

River flows in the North Island, and northern and eastern South Island were higher than normal, but the Southern Alps south of Arthur's Pass were drier than normal.

Percentage of average August 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.

Soil moisture levels were at field capacity over most of the country, apart from parts of inland Otago which had near normal deficits for the end of August.

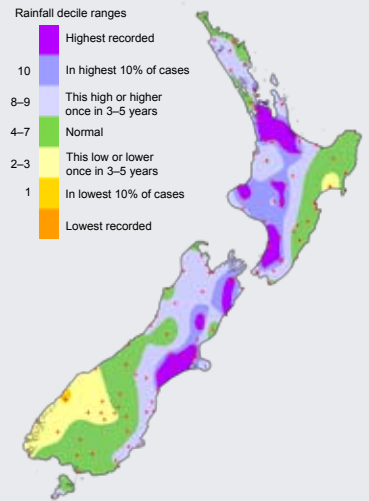
June to August – the climate we predicted and what actually happened

Rainfall

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

Outcome: Above normal in the north and west of the North Island, and the north of the South Island; normal or below normal elsewhere.

June to August rainfall

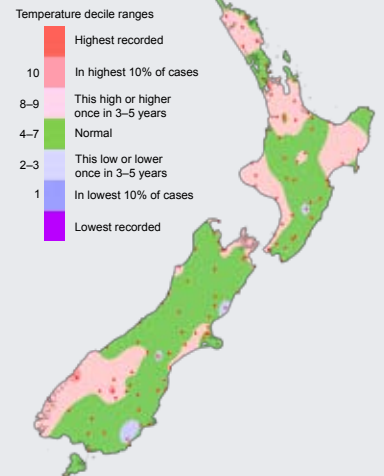


Air temperature

Predicted: Above average in the North Island, average or above in the north of the South Island, and average elsewhere.

Outcome: Above average in the north, west and east of the North Island, and in the southwest of the South Island; mostly near average elsewhere.

June to August temperature

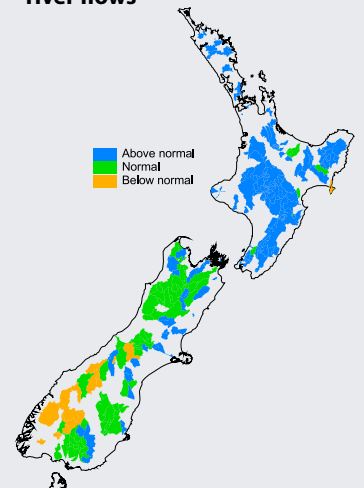


River flows

Predicted: Normal in the South Island, normal to below normal in the southwest of the North Island and normal to above in the rest of the North Island.

Outcome: River flows were above normal in all North Island regions, normal or above normal in northern and eastern South Island, and normal or below in the west and south of the South Island.

June to August river flows



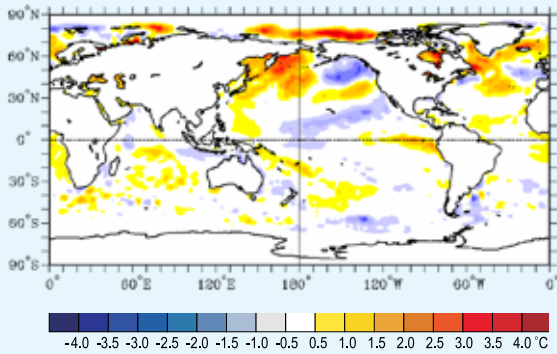
Global setting and climate outlook

El Niño-Southern Oscillation remains neutral

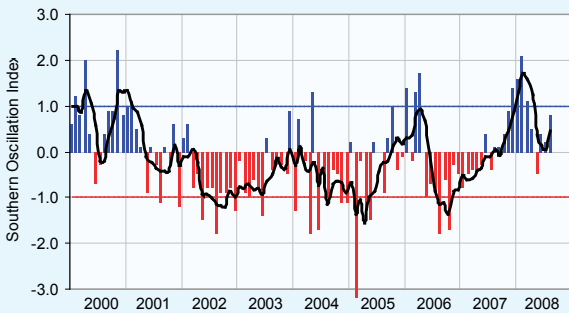
Neutral conditions now prevail in the tropical Pacific and are likely to continue through to summer. Some warm surface water is showing up along the Equator near South America, but this layer of warm water is shallow. The Southern Oscillation Index (SOI) is positive at +0.8, with the three-month mean also slightly positive. The near-equatorial trade winds are slightly stronger than normal throughout the entire equatorial Pacific.

Sea surface temperatures around New Zealand

Sea surface temperature (SST) anomalies in the New Zealand region overall are minimal. The August SST anomaly in the New Zealand zone was $-0.1\text{ }^{\circ}\text{C}$, and the average anomaly for the three month period June to August was $+0.1\text{ }^{\circ}\text{C}$. SSTs around New Zealand are expected to remain near normal.

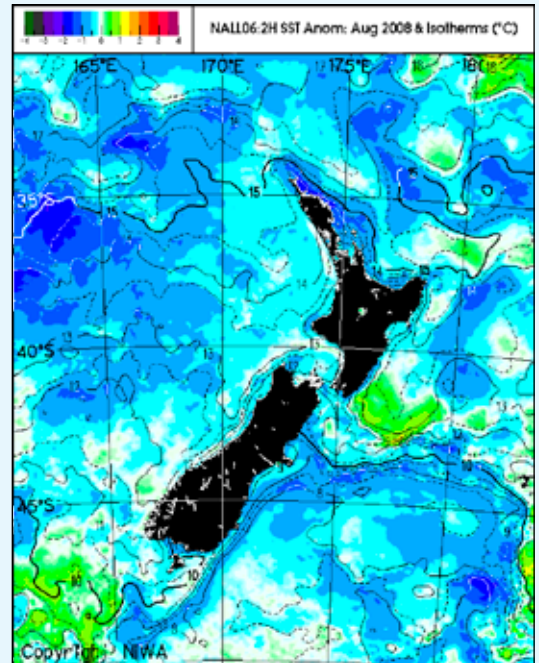


Difference from average global sea surface temperatures for August 2008
Map courtesy of NOAA Climate Diagnostics Centre.



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:
August: +0.8
June to August: +0.5



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

Outlook for September to November 2008

In the New Zealand region, mean sea level pressures are likely to be higher than normal, especially over the South Island, with lighter winds than normal over the country. Air temperatures are likely to be average or above over the entire country. Rainfall is likely to be near or below normal over much of the South Island, and the north of the North Island, with near normal rainfall elsewhere. Normal

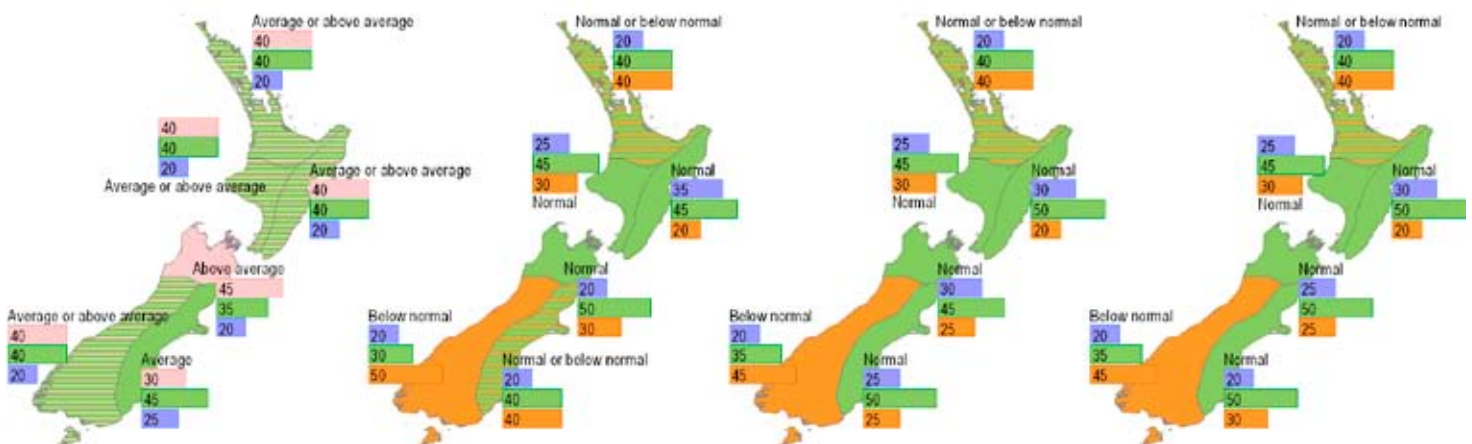
or below normal soil moisture levels and streamflows are likely in the north of the North Island and below normal conditions are likely in the south and west of the South Island. Elsewhere, normal conditions are likely.

Mean air temperature

Rainfall

Available soil moisture

River flows

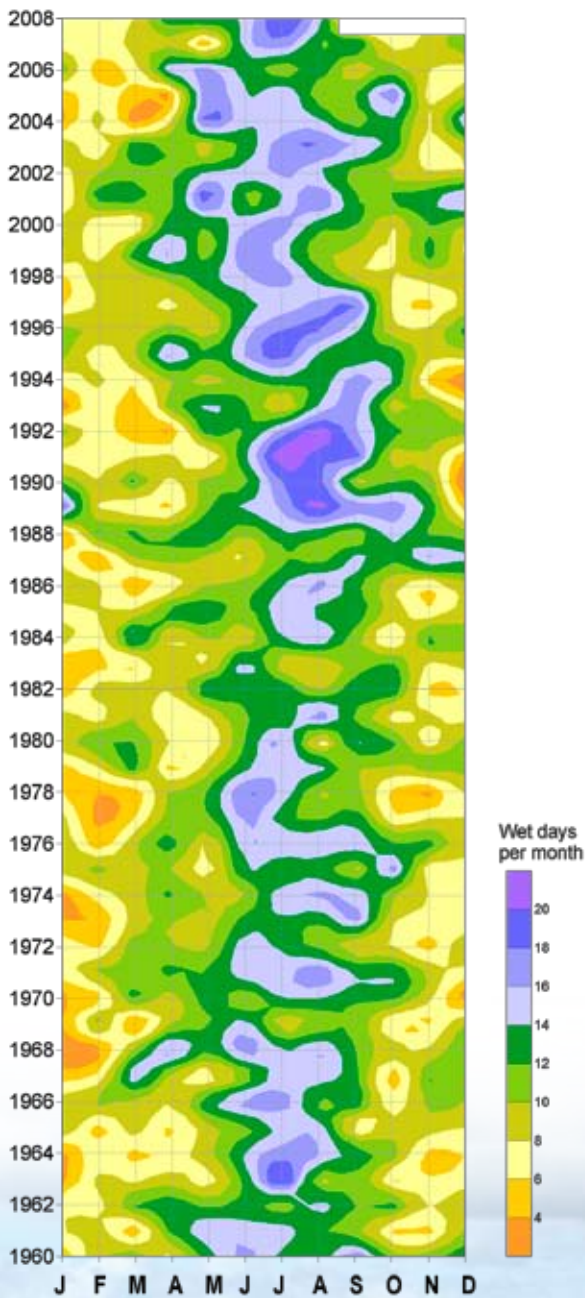


How to interpret these maps

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).

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

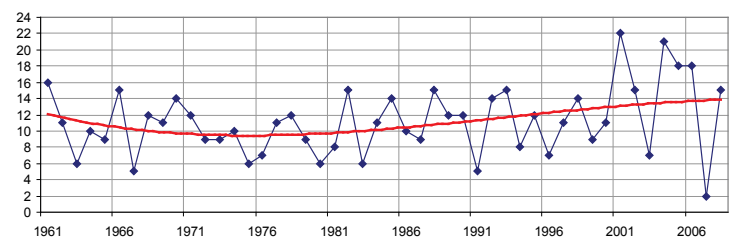
Rain-days in Kawakawa



It is often useful to 'visualise' the variability of meteorological data by using a diagram format invented by Danish meteorologist Ernest Hovmöller (who incidentally passed away this year). The larger figure (left), usually called a 'Hovmöller diagram', shows the number of rain-days per month near Kawakawa, Northland. The data series run from 1960 to 2008 (vertical axis), and are shown by month (bottom axis).

The pattern shows typically higher numbers of wet days in winter, often with 12 to 16 days, and drier conditions in summer, with usually 10 or fewer wet days. Up to 23 wet days in a calendar month have been estimated by this analysis, in July 1963 and again in July 1991.

The additional figure below shows the data series for May only. The number of rain-days has varied from 22 in 2001 down to 2 in 2007, and, subjectively, appears to be more variable in recent years.



The Northland floods of July 2007.
[Photo: Northland CDEM Group]



Kowhai blossom
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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