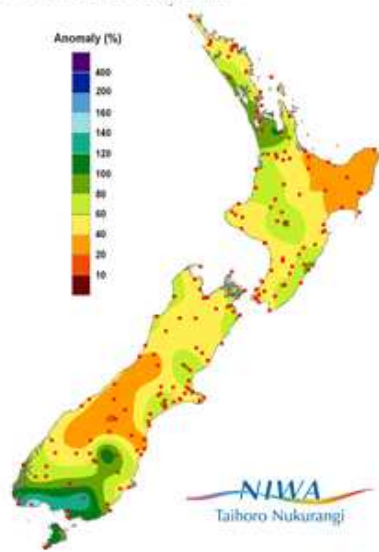


New Zealand Climate Update No 148, October 2011

Current climate – September 2011

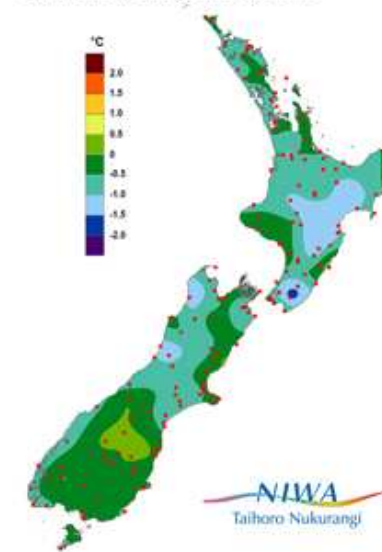
September 2011 was characterised by higher pressures than usual over the Tasman Sea and lower pressures to the south and east of the country. This pressure pattern produced more southwest winds than normal over New Zealand.

Percentage of average rainfall



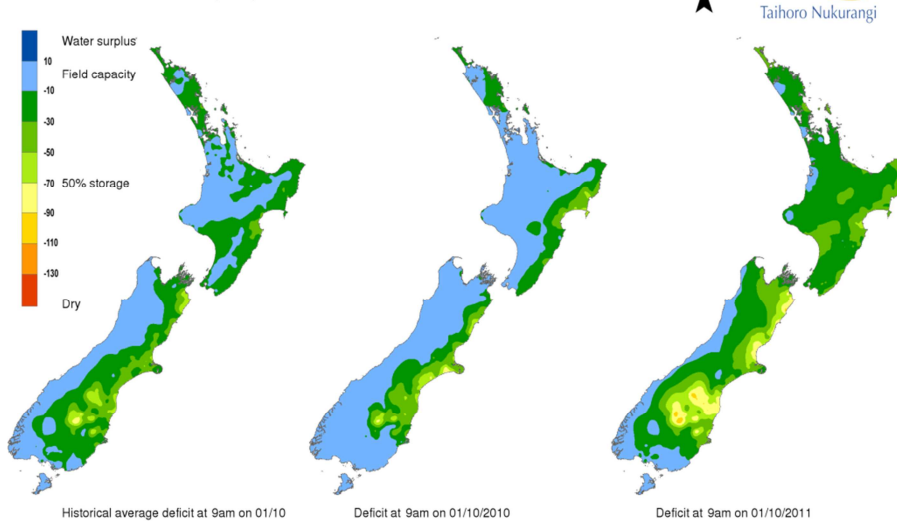
Percentage of normal rainfall, September 2011

Departure from average air temperature



Departure from average air temperature for September 2011.

Soil moisture deficit (mm) at 9am on 01/10/2011



End of month water balance in the pasture root zone for an average soil type, where the available water capacity is 150mm.

Rainfall

It was a very dry month for most regions. Less than half of normal September rainfall was recorded in Bay of Plenty, Gisborne, on the West Coast, and in the Mackenzie country. It was the driest September on record for Whakatane. It was generally very dry elsewhere, with below normal rainfall (between 50 and 79 percent of September normal). The only exceptions were coastal Southland (where rainfall totals between 120 and 149 percent of September normal were recorded), and Central Otago and Auckland (where near normal rainfall was experienced). Soil moisture levels are already below normal for this time of year in north Canterbury, Mackenzie country and central Otago, as well as parts of the North Island.

Air temperature

Mean temperatures well below average (between 1.2°C and 0.5°C below September average) across much of the North Island (with the exceptions of Coromandel, and parts of Auckland, Taranaki and Wanganui, where near average temperatures were recorded), as well as for most of Nelson and Marlborough, along the West Coast, coastal Fiordland, and south Canterbury. In north Canterbury, Southland and Otago, temperatures were close to average (within 0.5°C of September average).

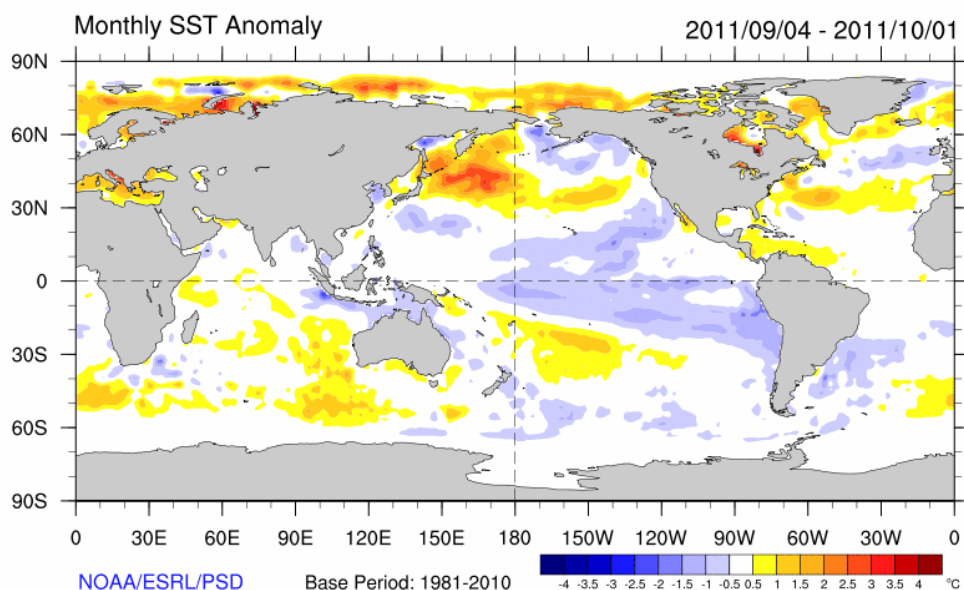
The average temperature in September 2011 was 9.7°C (0.7°C below the 1971–2000 September average) using NIWA's seven-station temperature series which begins in 1909.

Sunshine

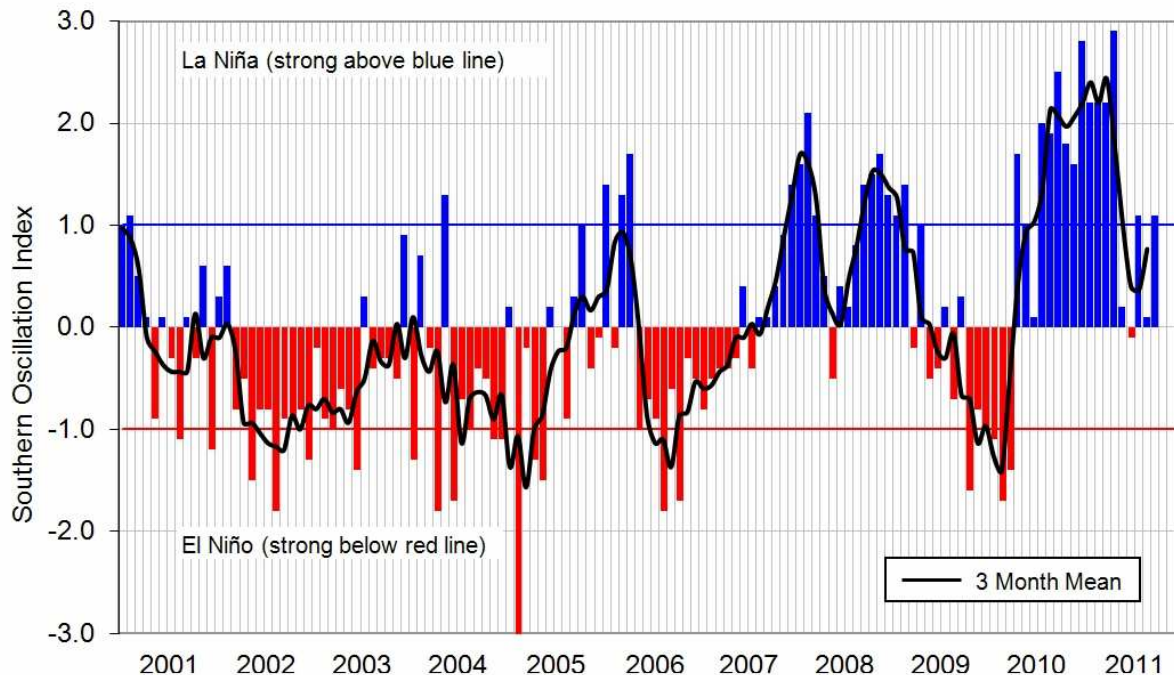
September sunshine totals were well above normal (more than 125 percent of normal) across much of the North Island, and the north and east of the South Island. It was the sunniest September on record for Dargaville, New Plymouth, Tauranga, Dannevirke, Gisborne, Waipawa, Takaka, and Cheviot. For the remainder of the country, it was also a rather sunny September (with sunshine totals between 110 and 125 percent of normal). The only exceptions were Fiordland and Southland, which experienced close to normal September sunshine hours.

Global setting

La Niña conditions are redeveloping in the tropical Pacific, and the event is expected to build through the coming spring and continue through summer. Sea surface temperature anomalies have become increasingly negative in the east-central equatorial Pacific, negative sub-surface sea temperature anomalies have continued to strengthen, and low level easterly wind anomalies have been observed over the central tropical Pacific.



Differences from average global sea surface temperatures for 4 September 2011 to 1st October 2011. Map courtesy of NOAA Climate Diagnostics Centre (<http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif>).



Monthly values of the Southern Oscillation Index (SOI), a measure of changes in atmospheric pressures across the Pacific, and the 3-month mean (black line). Estimated SOI mean values: September SOI +1.1; July to September average +0.8

Outlook October to December 2011

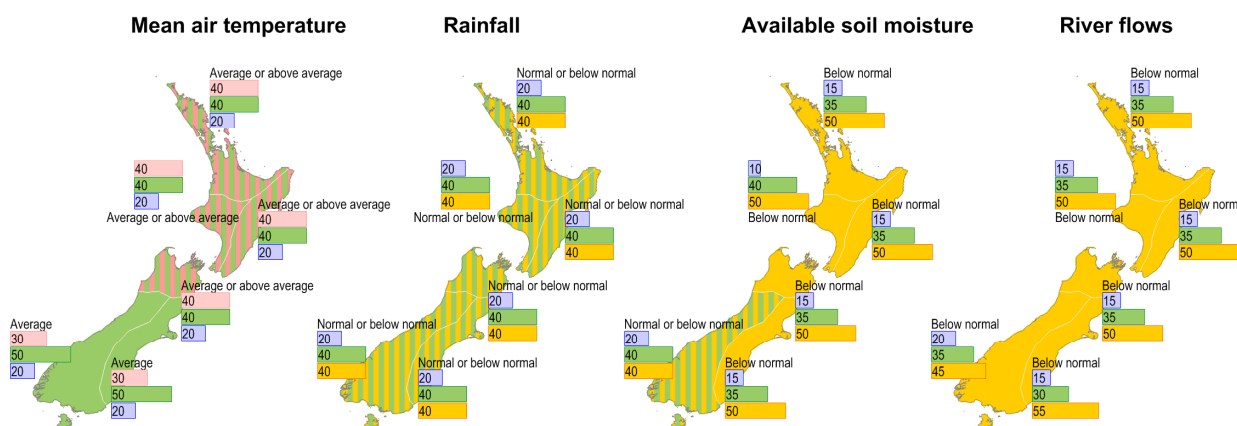
ENSO conditions in the tropical Pacific are returning to the La Niña range, and although still currently weak, are expected to continue strengthening. Mean sea level pressures are likely to be above normal across New Zealand, with weaker westerlies than normal over the country, on average. Temperatures are likely to be average or above average in all regions, while seasonal rainfall is likely to be normal or below normal in all regions.

Temperatures are likely to be near average in the east, west and south of the South Island, and average or above average in all other regions.

Seasonal rainfall is likely to be normal or below normal in all regions.

Soil moisture levels and river flows are likely to be below normal in all regions of the country, except for the west and south of the South Island where normal or below normal soil moisture levels are likely.

Outlook for October-December 2011



Key to maps (example interpretation)

Below normal
 Upper tercile: 20% chance of above normal 20
 Middle tercile: 30% chance of normal 30
 Lower tercile: 50% chance of below normal 50

In this example the climate models suggest that below average conditions are likely (50% chance of occurrence), but, given the variable nature of the climate, the chance of normal or above normal conditions is also shown (30% and 20% respectively).

The climate we predicted (June to August) and what happened

Overall, July-September was very sunny and very dry for many regions, due to the higher than usual pressures.

Predicted rainfall: Seasonal rainfall is likely to be near normal or below normal in the north of the North Island and the west and south of the South Island, and near normal in all other regions.

Outcome: Below normal rainfall was observed in the north of the North Island and the west of the South Island. However, it was wetter than forecast for the south of the South Island, with coastal Southland receiving well above normal rainfalls, while inland Southland experienced close to normal precipitation. Rainfall in the eastern North Island was mostly near normal, but it was much drier than forecast for Nelson/Marlborough and the eastern South Island (recording below normal rainfall). The southwest of the North Island experienced a mixture of near normal and below normal rainfalls (it was drier than predicted in Taranaki, as well as the Kapiti Coast and Wellington).

Predicted air temperature: Air temperatures are likely to be above average in North Island regions and in Nelson-Marlborough, near or above average in the west and south of the South Island, and near average in the eastern South Island.

Outcome Temperatures were generally cooler than forecast. Below average temperatures were recorded in the North Island (excepting areas of both Auckland and Northland, south Taranaki, much of the Bay of Plenty as well as areas north of Gisborne, which recorded near average temperatures), as well as for Nelson, along the West Coast, inland parts of Southland, coastal Otago and coastal South Canterbury. Elsewhere in the South Island, near average temperatures were observed.

For more information about NIWA's climate work, visit:

www.niwa.co.nz/our-science/climate