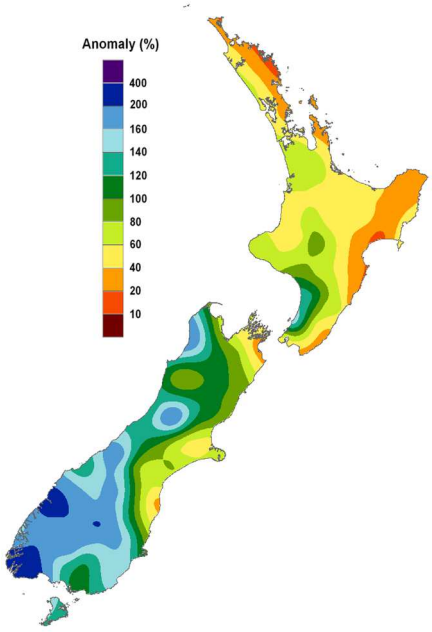
Climate Update

NIWA Taihoro Nukurangi

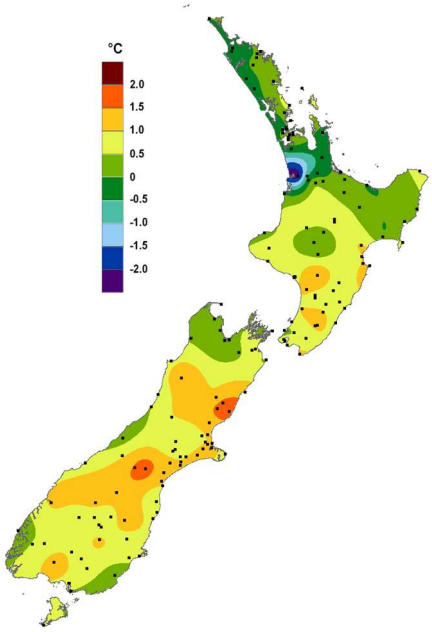
New Zealand Climate Update No 180, June 2014

Current climate – May 2014

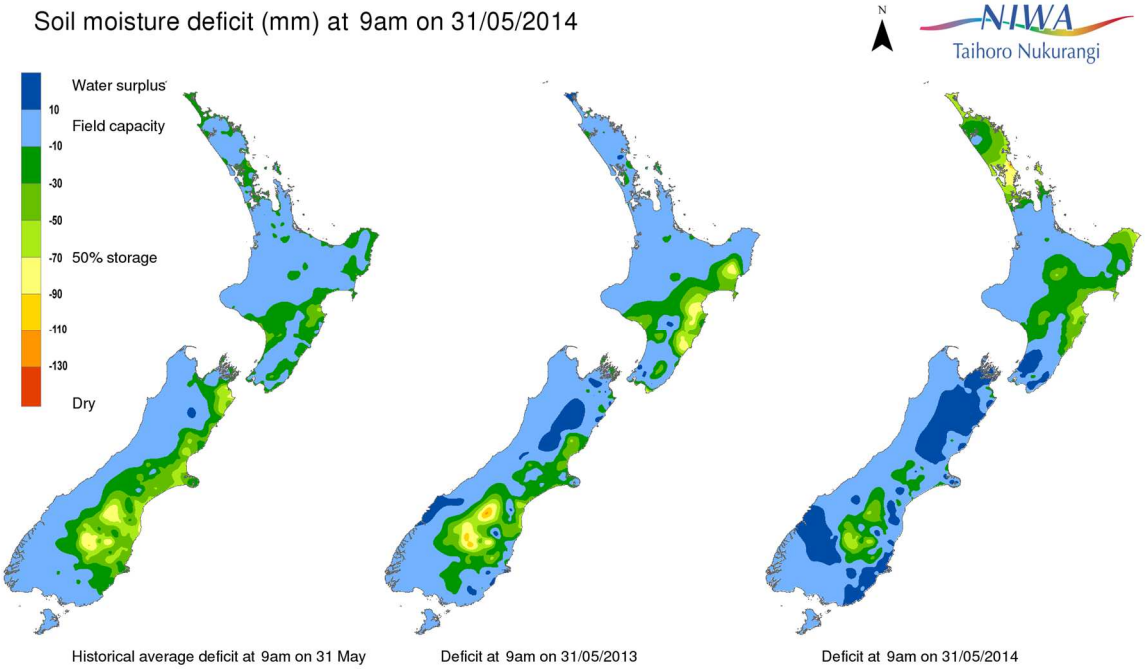
May 2014 was characterised by lower pressures than normal to the south and west of New Zealand, with slightly higher than normal pressures to the north of the country.
This pressure pattern resulted in an anomalous westerly flow over most of the country, bringing considerable rainfall to western and southern parts of the South Island, but relatively dry and sunny conditions for much of the North Island.



Percentage of normal rainfall, Mayl 2014



Departure from average air temperature for May 2014



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

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Rainfall

There was quite a contrast in rainfall observed across the country. Many southern and western parts of the South Island received well above normal rainfall for the month (more than 150% of normal), whereas much of the North Island observed well below normal or below normal rainfall (less than 50% of normal and 50–79% of normal respectively). It was especially wet about parts of Fiordland which received more than 200% of normal May rainfall. Considerable spillover of rainfall from the Main Divide occurred in western Southland, the Southern Lakes and Central Otago where rainfall was also well above normal. In contrast, Christchurch enjoyed a welcome respite from persistent heavy rainfall after an especially wet March and April, with the city observing below normal rainfall for May. Rainfall was also below normal for many eastern, central and northern parts of the North Island. It was an especially dry month about Kerikeri, Whangarei, Tauranga, Hicks Bay, Napier and Blenheim, with less than 30% of normal May rainfall recorded at these locations.

Air temperature

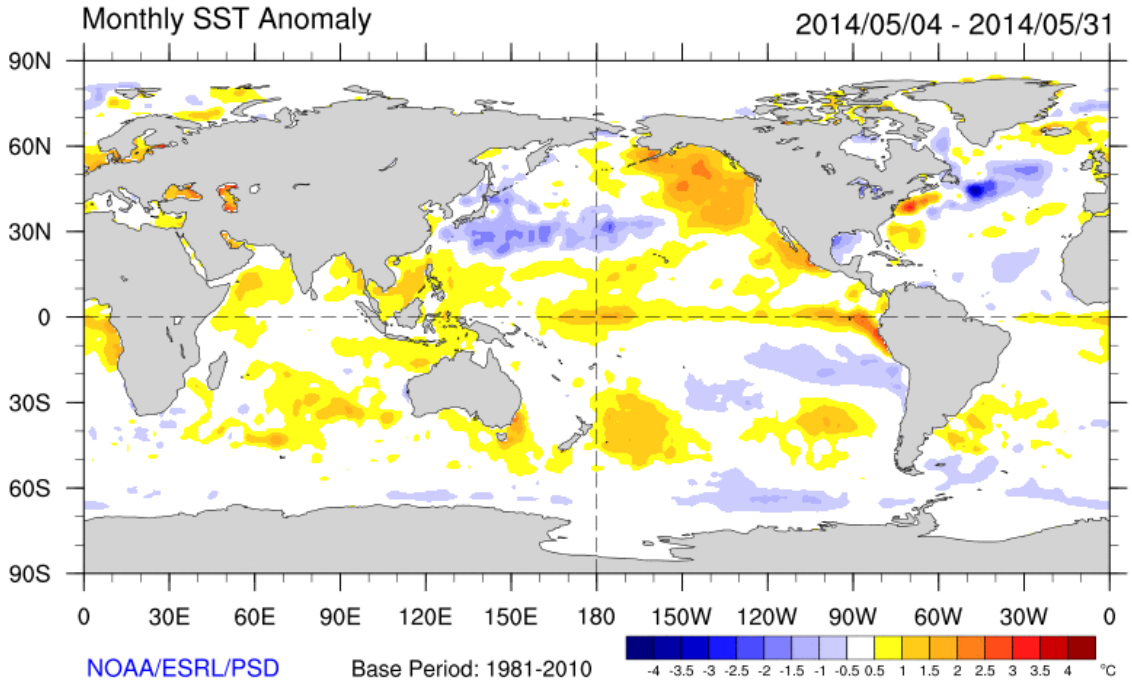
Mean temperatures were above average (0.5 to 1.2°C) for the month of May across most of the South Island and parts of the southern and central North Island. The exception was the Central Plateau, Nelson, coastal Westland near the glaciers and coastal Southland, where temperatures were near normal (within 0.5°C of May normal). Well above average mean temperatures (more than 1.2°C above May average) were observed in limited inland parts of Westland, Canterbury and Otago, as well as some coastal locations in Canterbury. Air temperature anomalies over the North Island were generally more moderate than the South Island, with no locations observing well above average or well below average (more than 1.2°C below May average) temperatures. Temperature anomalies observed over the North Island were generally higher in southern and central parts compared to remaining areas of the island, with temperatures above normal and near normal for those parts respectively. The average or above average mean temperature observed throughout New Zealand in May occurred despite a cold snap that struck in the last week of the month, which brought snow to sea level over the southern South Island, and was followed by widespread frosts across New Zealand as an anticyclone became established over the country. During this time, a number of North Island locations observed record or near-record low minimum temperatures for the month of May (see Highlights and extreme events - Temperatures section). The nation-wide average temperature in May 2014 was 11.4°C (0.7C° above the 1971-2000 May average from NIWA's seven station temperature series which begins in 1909).

Sunshine

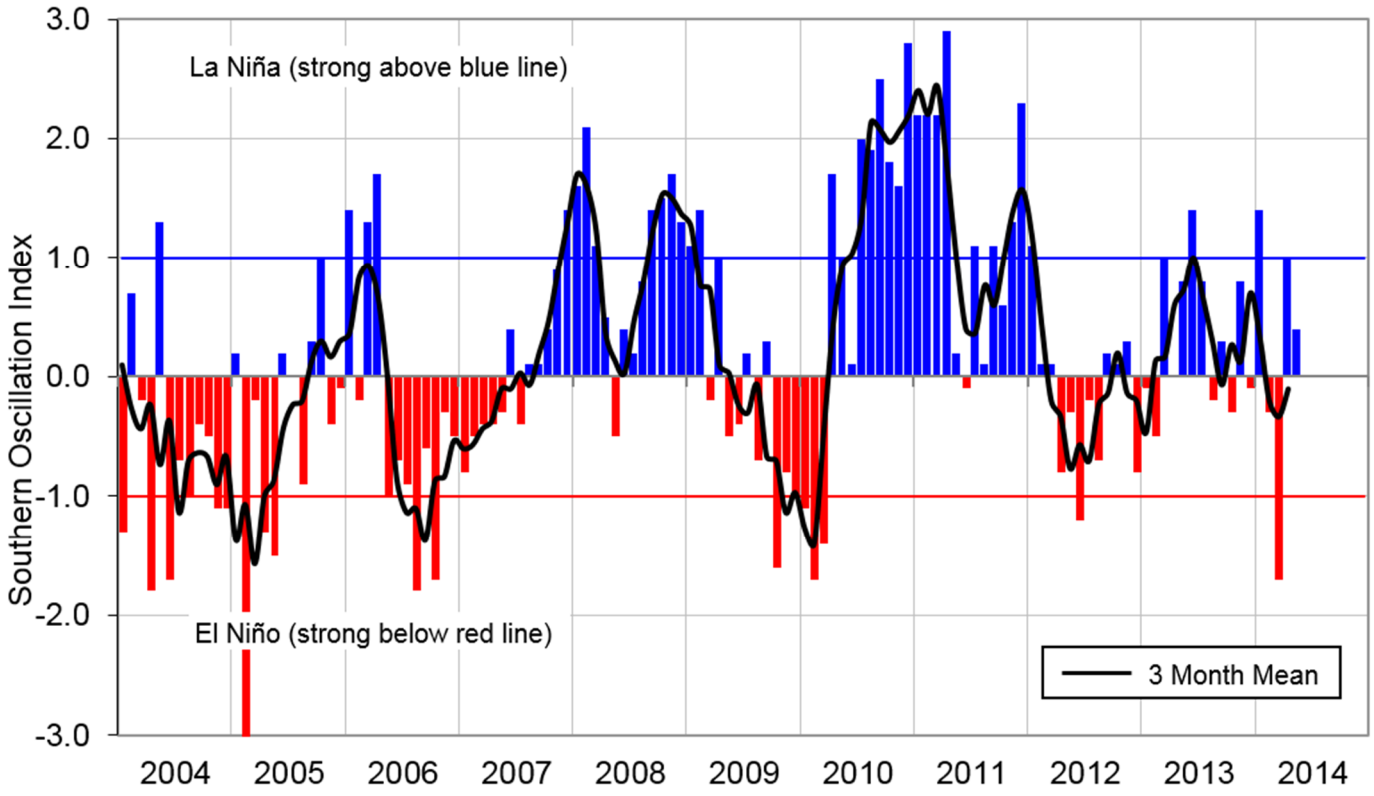
May was a particularly sunny month for most of the North Island, with well above normal (more than 125% of May normal) or above normal (110-124% of May normal) recorded there. Areas of coastal Manawatu-Whanganui and the Kapiti Coast were the exception, where sunshine was near normal (within 10% of May normal). Sunshine was below normal in Fiordland (75-89% of May normal), well above normal in costal North Canterbury, and above normal in Canterbury north of Ashburton and South Otago. Remaining parts of the South Island observed near normal sunshine. Such sunshine anomalies are in keeping with the anomalous westerly flow occurring over most of the country in May: the effect of orography on this flow giving rise to increased cloud along western parts of the South Island and increased sunshine towards the east coast.

Global setting

In May 2014, oceanic conditions in the equatorial Pacific were borderline between neutral and weak El Niño. Above normal sea surface temperatures warmed further in the eastern Pacific and persisted around the International dateline.



Differences from average global sea surface temperatures for 4th of May 2014 to 31st of May 2014. Map courtesy of NOAA Climate Diagnostics Centre (http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif).



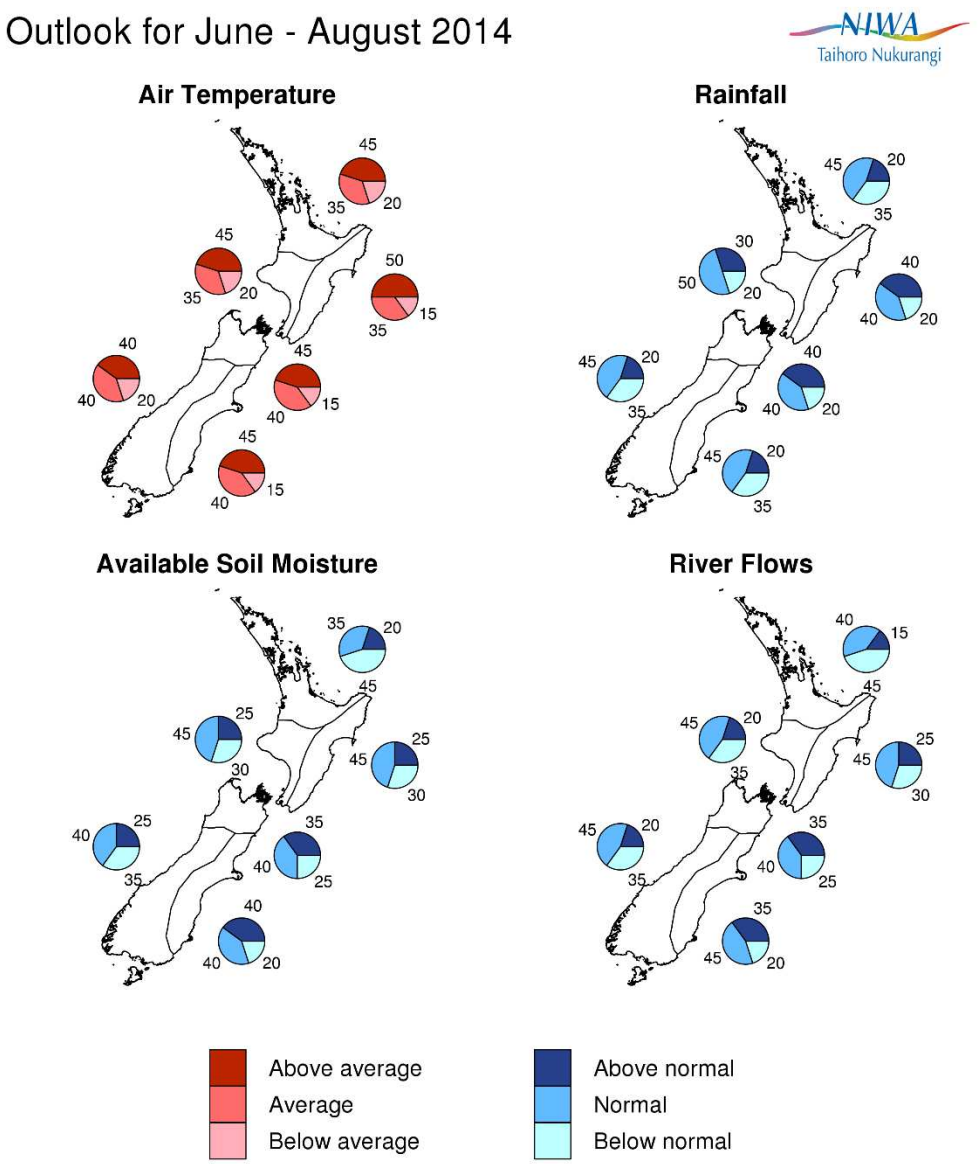
Monthly values of the Southern Oscillation Index (SOI), a measure of changes in atmospheric pressures across the Pacific, and the 3-month mean (black line). SOI mean values: May SOI +0.4; March to May average -0.1.

Outlook – June to August 2014

Temperatures are forecast to be above average for the North Island regions and average or above average for the South Island. Cold snaps and frosts are to be expected in some parts of the country.

Rainfall is forecast to be normal or above normal for the east of the North Island and the north of the South Island. Rainfall is likely to be in the near-normal range for all remaining regions.

Soil moisture levels are most likely to be below normal in the north of the North Island. They are forecast to be near normal in the west and east of the North Island and near normal or above normal in the north of the South Island. Soil moisture levels are forecast to be near normal or below normal in the west of the South Island and normal or above normal in the east of the South Island.
River flows are most likely to be below normal in the north of the North Island. They are forecast to be near normal in the west and east of the North Island and near normal or above normal in the north of the South Island. River flows are likely to be near normal in these two latter regions.



Graphical representation of the regional probabilities, Seasonal Climate Outlook, June - August 2014.

The climate we predicted (March to May) and what happened

Predicted rainfall: Rainfall is likely (40-45% chance) to be near normal or below normal for the north and west of the North Island, and for the north, west and south of the South Island. For the eastern regions of both Islands, three-month rainfall totals are most likely (50% chance) to be in the near normal range.

Outcome: In the North Island actual rainfall was below normal for Auckland and Northland, as well as parts of the Gisborne and Waitomo district. Above average rainfall was recorded in the Wellington Region with the remainder of the North Island experiencing average rainfall. Rainfall in the South Island was near normal along the West Coast as well as around Invercargill and Westland districts. Above average rainfall was recorded in all other areas with anomalies in excess of 200% recorded in eastern Canterbury and eastern Marlborough.

Predicted air temperature: Temperatures are most likely (45-50% chance) to be near average for all regions of the country. As autumn progresses, cold snaps and frosts can be expected from time to time in some parts of the country.

Outcome: Actual temperatures for the forecast period were above average (anomalies above 0.5°C) for the majority of New Zealand. In the North Island, average temperatures were recorded in the region of Auckland and parts of Northland, Waikato, Hawkes Bay and eastern parts of the Wellington Region. In the South Island, normal temperatures were recorded in the Canterbury region as well as eastern Otago, eastern Nelson-Malrborough and Tasman Regions. Above average temperatures were recorded for the remainder of the South Island with Buller and western Southland recording anomalies above 1°C.

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

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