NEW ZEALAND

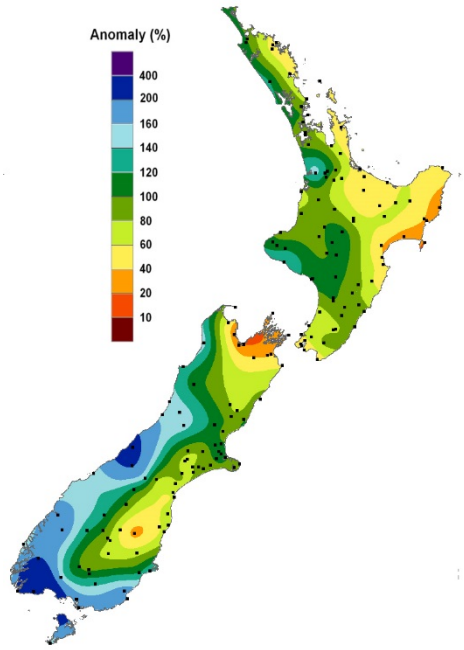
Climate Update

NIWA Taihoro Nukurangi

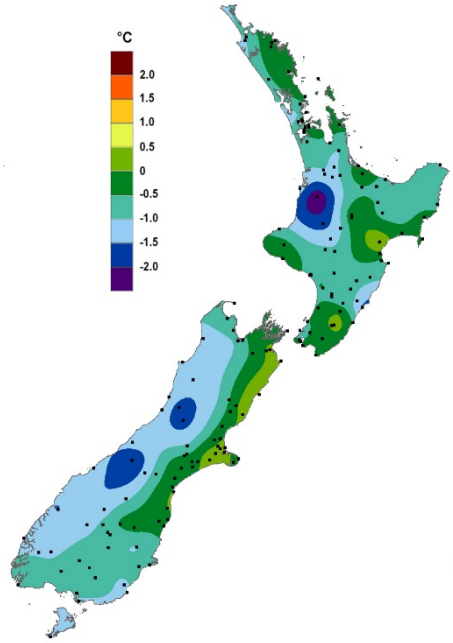
New Zealand Climate Update No 186, December 2014

Current climate – November 2014

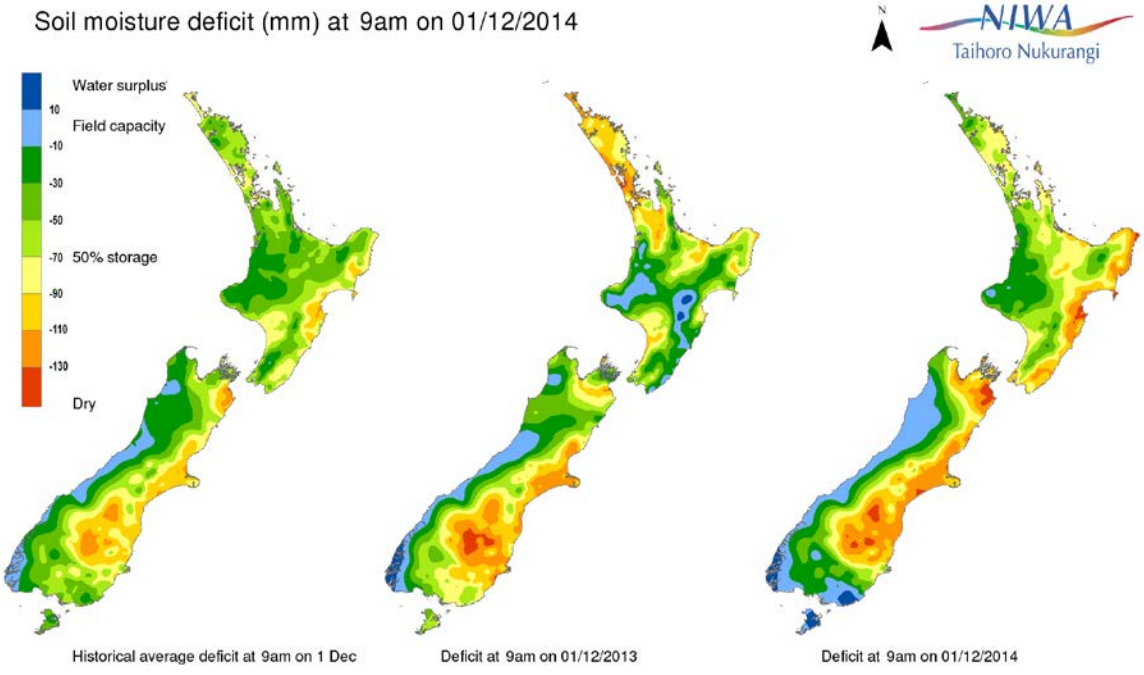
November 2014 was characterised by air pressures which were lower than normal over New Zealand and to the south of the Chatham Islands, with higher pressures than normal present in the north Tasman Sea.



Percentage of normal rainfall for November 2014



Departure from average air temperature for November 2014



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

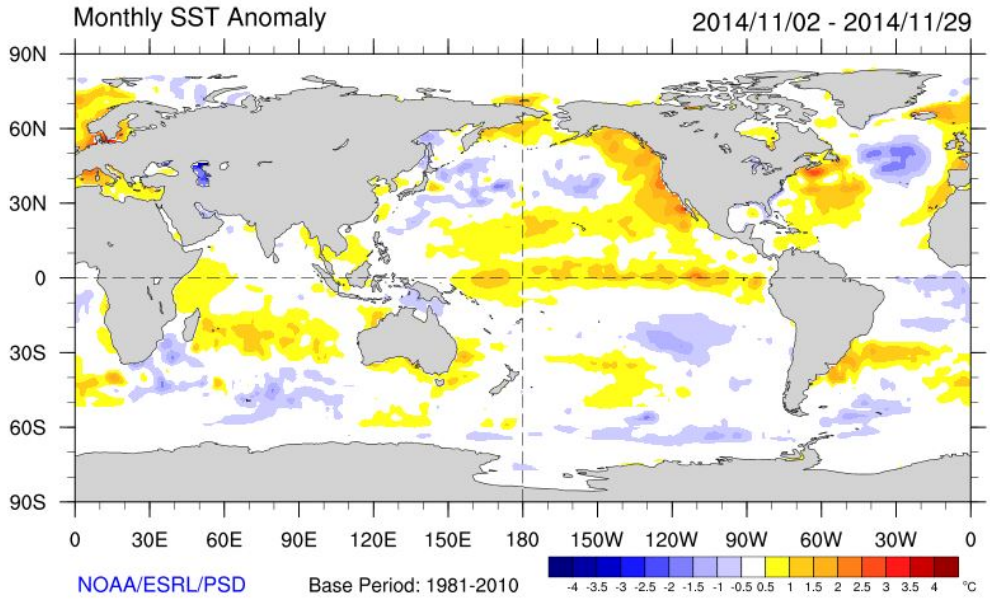
Rainfall: The westerly flow anomaly for the month as a whole contributed to rainfall totals that were above normal (120-149%) or well above normal (> 149%) for western and southern parts of the South Island, and isolated locations in the North Island including Palmerston North, Whanganui and Dargaville. The orographic effect of air moving eastwards over elevated land meant that rainfall was below normal (50-79%) or well below normal (< 50%) in eastern parts of both islands such as Central Otago, South Canterbury, Marlborough, Hawke's Bay, Gisborne, Bay of Plenty and the Coromandel Peninsula. It was a similarly dry month for Nelson, Wellington, the Kapiti Coast and Auckland. Remaining areas of the country typically received near normal rainfall (within 20% of normal) for the month.

Air temperature: November temperatures were below average (-1.20°C to -0.51°C) for many parts of the country, particularly for southern and western parts of the South Island, and central, western and northern-most parts of the North Island. It was a particularly cold month for Fiordland, parts of the Southern Lakes and Central Otago, the Canterbury High Country and central-western parts of Waikato where temperatures were well below average (> 1.20°C below average). In contrast, isolated locations including Kaikoura and Te Kuiti recorded above average temperatures (+0.51°C to +1.20°C).

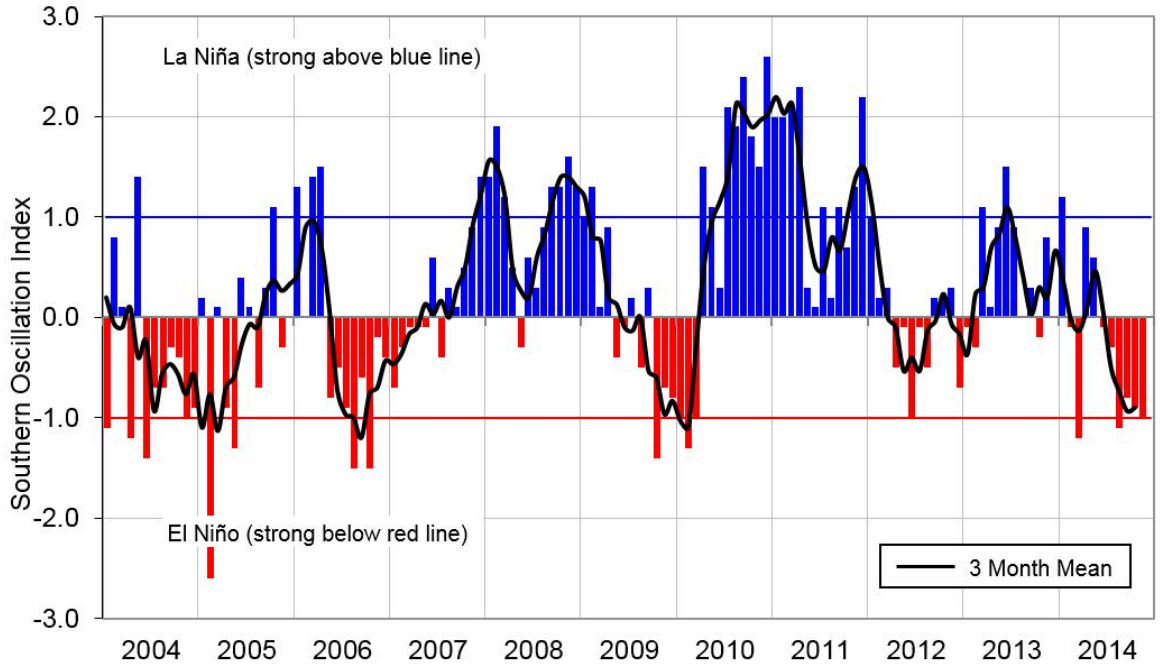
Sunshine: Most of the country received near normal (90-109%) or above normal (110-125%) sunshine hours for November. It was particularly sunny for eastern areas of the North Island, and eastern and northern parts of the South Island, with well above normal sunshine (> 125%) observed in Gisborne, Blenheim and Cheviot. In contrast, it was a cloudy month for south-western parts of the South Island, where sunshine was below normal (75-90%) or well below normal (< 75%) for the south-western parts of the South Island.

Global setting

In November 2014, the equatorial Pacific Ocean warmed significantly, reaching El Niño levels towards the end of the month. Some – but importantly not all – atmospheric indicators also show patterns consistent with the development of a weak El Niño.



Differences from average global sea surface temperatures for 2 November 2014 to 29 November 2014. Map courtesy of NOAA Climate Diagnostics Centre (http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif).



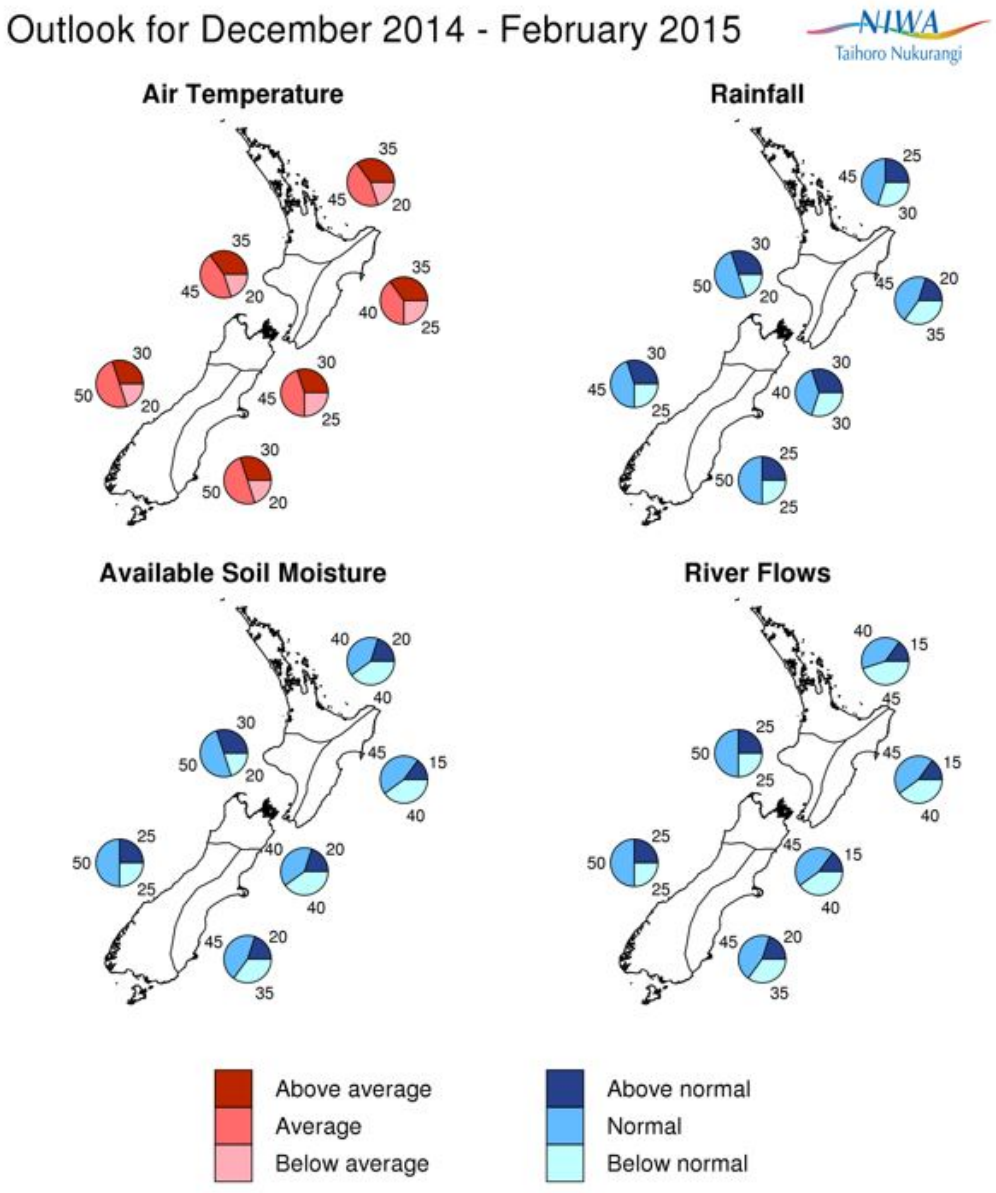
Monthly values of the Southern Oscillation Index (SOI), a measure of changes in atmospheric pressures across the Pacific, and the 3-month mean (black line). SOI mean values: November SOI -1; September to November average -0.9.

Outlook – November 2014 to January 2015

Temperatures are likely to be average in all regions but for the east of the North Island, where seasonal temperatures are about equally likely to be near average or above average.

Rainfall totals are most likely to be in the near normal range for all regions.

River flows and soil moisture levels are about equally likely to be in the near normal or below normal range in the north and east of the North Island and the north of the South Island. Soil moisture levels and river flows are most likely to be in the near normal range in all remaining regions of the country.



Graphical representation of the regional probabilities, Seasonal Climate Outlook, December 2014 to February 2015.

The climate we predicted (September to November) and what happened

Predicted rainfall: Rainfall is likely to be in the near normal range for the north of the South Island, normal or below normal over the west of the South Island and normal or above normal in the remaining regions of New Zealand.

Outcome: Actual rainfall was well-below normal in the east and north of the South Island (40 to 60% of normal). Rainfall was also below normal in parts of the North Island including Tauranga, Western Bay of Plenty, Waitomo, South Waikato and the Kapiti Coast. Normal rainfall was experienced elsewhere.

Predicted air temperature: Temperatures are forecast to be most likely average for the east and west of the South Island, and likely average or above average for all remaining regions of New Zealand. Cold snaps and frosts can still be expected in some parts of the country as we advance into spring.

Outcome: Actual temperatures were mostly average (between - 0.5°C and + 0.5°C) over the whole country, with isolated pockets of below normal (less than -0.5°C) temperatures in the Waitomo, Tararua and Dunedin districts.

For more information about NIWA's climate work, visit:
www.niwa.co.nz/our-science/climate