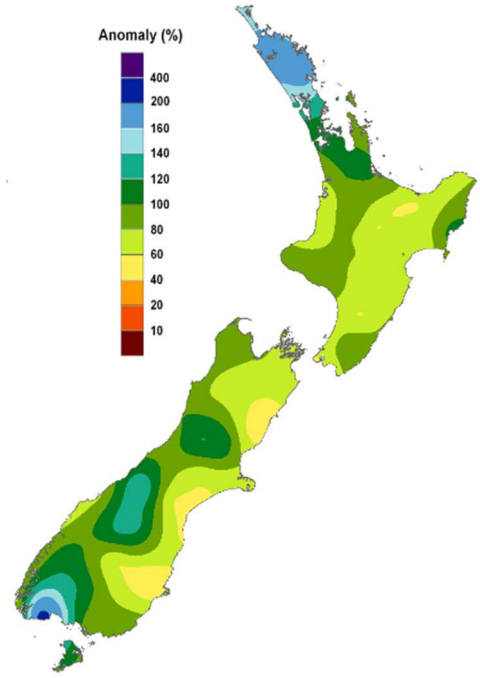
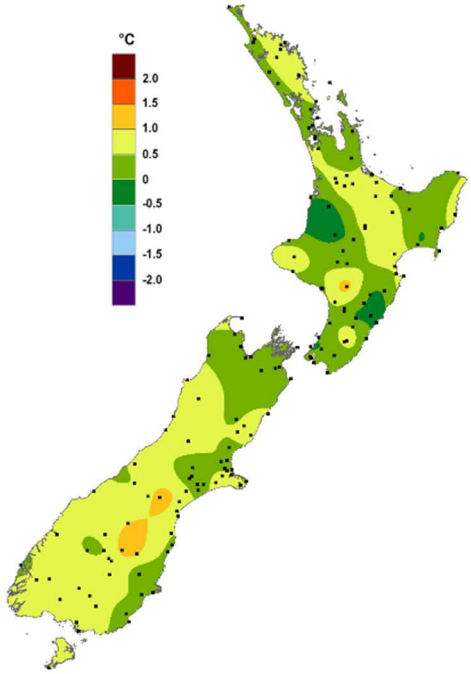
New Zealand Climate Update No 183, September 2014

Current climate – August 2014

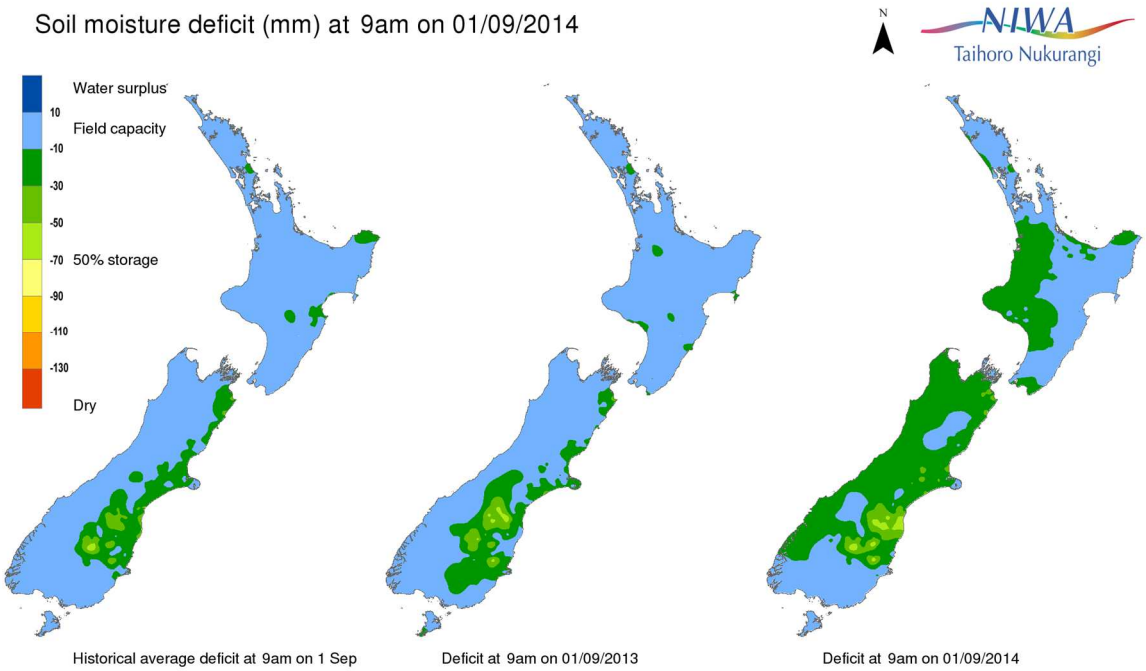
August 2014 was characterised by anomalously high pressure south of Australia extending over and around New Zealand. This pressure pattern brought about strong south-westerly flow anomalies to the country.



Percentage of normal rainfall, August 2014



Departure from average air temperature for August 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

Rainfall during August was highly variable across the country. Above normal rainfall (120-149%) occurred throughout eastern Northland, Manawatu-Wanganui, Gisborne and Southland regions as well as the Central Otago and Mackenzie districts. The largest rainfall anomalies were in Whangarei and Gisborne where rainfall in excess of 200% of normal occurred. In contrast, dry conditions prevailed in the Waikato, Bay of Plenty, and the north of the West Coast where below normal rainfall (50-79%) was experienced. Conditions were even drier in Tasman, Nelson, Marlborough and coastal Canterbury where well below normal rainfall (< 50%) was observed. As a result, several sites in these regions experienced near-record low rainfall totals for the month.

Air temperature

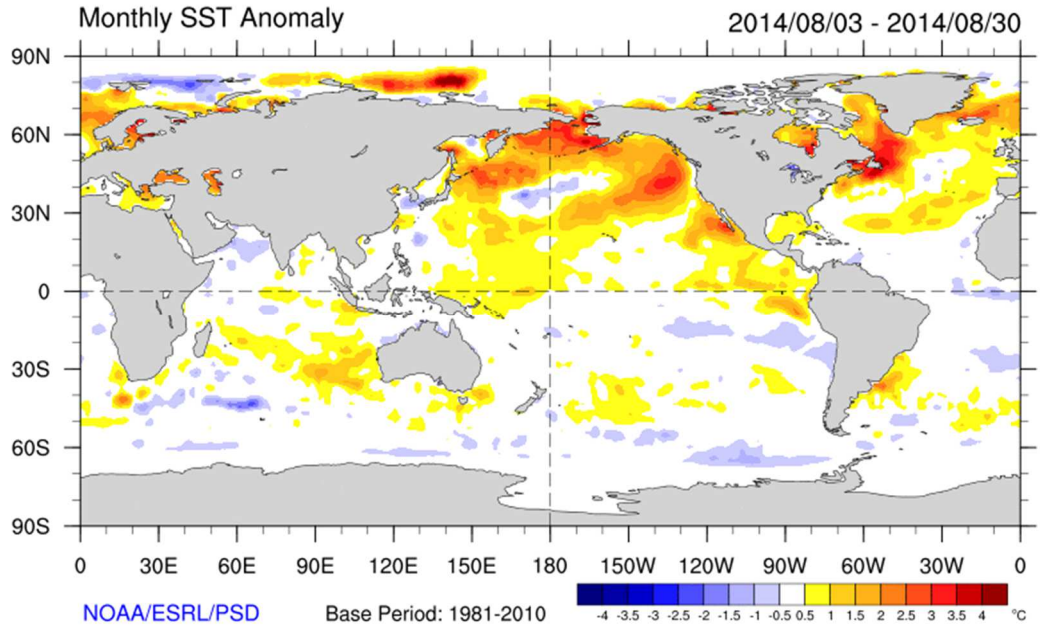
The near average temperatures observed in July continued into August, with the majority of the country characterised again by near average temperatures (within 0.5°C of average). In fact nationwide, only a handful of stations reported above average mean temperatures for August. Small pockets of below average temperature (-1.20 to -0.51°C) were recorded in the districts of Waitomo, Opotoki, Central Hawke's Bay, Tararua and South Wairarapa. Despite the fairly neutral August mean temperatures, some weather highlights did occur. In particular the 1st-3rd of August were exceptionally warm all around the country due to a north-westerly flow combined with the foehn effect in eastern areas. As a result, several locations experienced record or near record high daily maximum and minimum temperatures. The nation-wide average temperature in August 2014 was 8.7°C (0.1°C above the 1971-2000 August average from NIWA's seven station temperature series which begins in 1909).

Sunshine

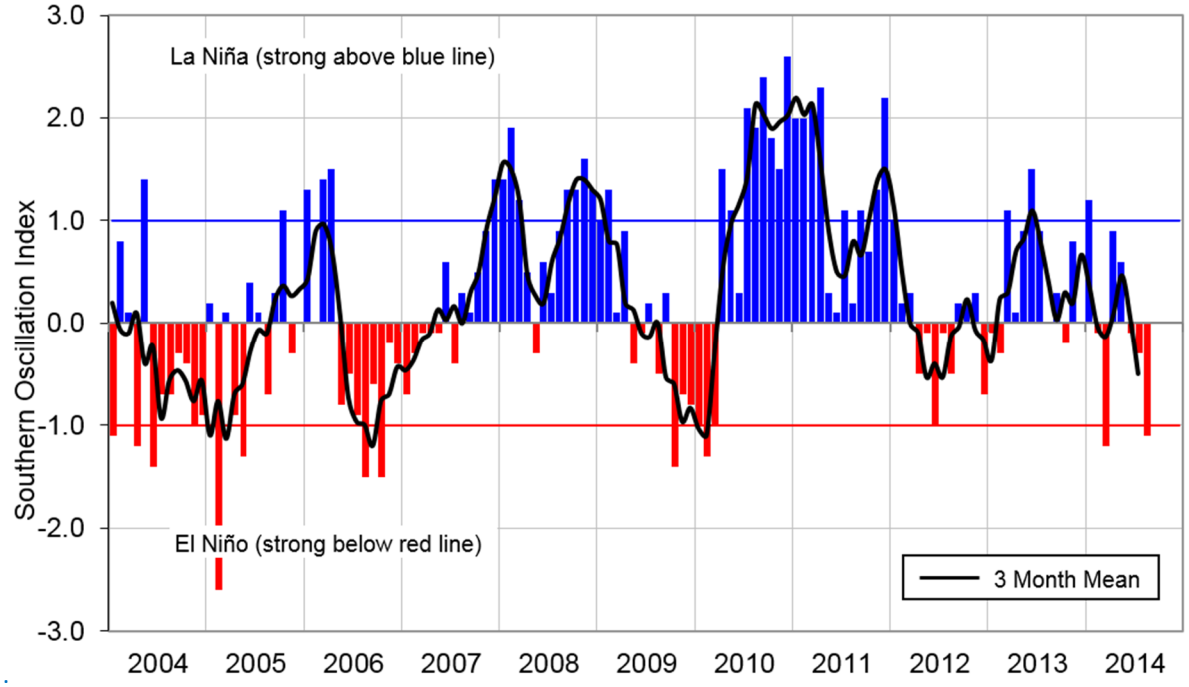
A lack of rain in large parts of the country coincided with a very sunny end to winter with well above normal (>125%) or above normal (110-125%) sunshine recorded for many locations. It was particularly sunny in the Waikato, Bay of Plenty, Westland, southern Canterbury and Central Otago where well above normal sunshine was observed and several August records were set. Only two locations (Takaka and Martinborough) recorded below normal sunshine levels during August.

Global setting

The equatorial Pacific Ocean remains ENSO-neutral at the end of August 2014. Despite the Southern Oscillation Index being currently negative, a fully coupled (ocean and atmosphere) event has yet to initiate.



Differences from average global sea surface temperatures for 3rd of August 2014 to 30th of August 2014. Map courtesy of NOAA Climate Diagnostics Centre (http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif).



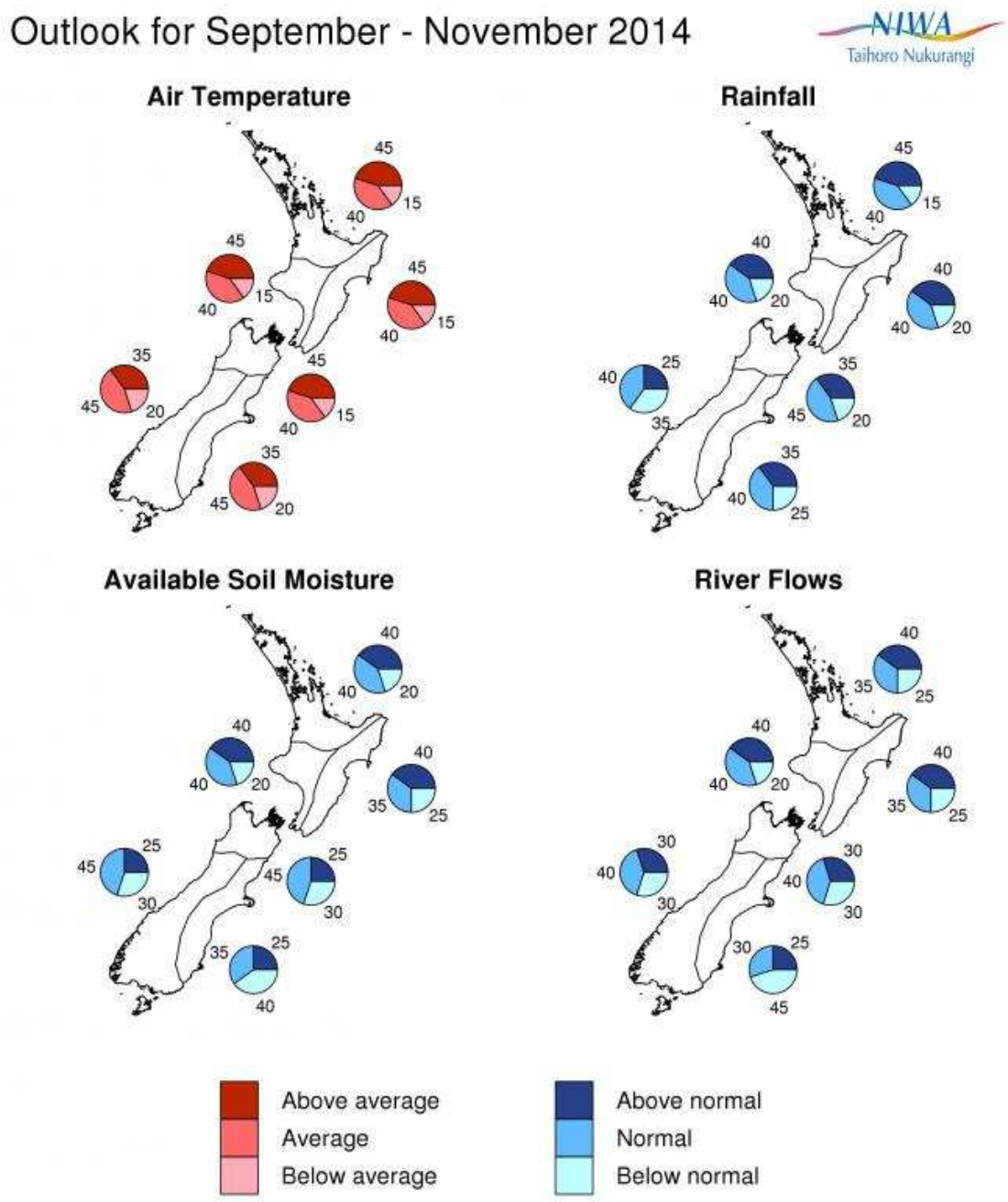
Monthly values of the Southern Oscillation Index (SOI), a measure of changes in atmospheric pressures across the Pacific, and the 3-month mean (black line). SOI mean values: August SOI -1.1; June to August average -0.5.

Outlook – September to November 2014

Temperatures are likely to be average or above average in all North Island regions, and also in the north of the South Island. Seasonal temperatures are most likely to be near average for the east and the west of the South Island. Cold snaps and frosts can still be expected in some parts of the country as we advance into spring.

Rainfall totals are about equally likely to be in the normal or above normal range in all North Island regions, and most likely to be normal in the north of the South Island. Seasonal rainfall is about equally likely to be in the near normal or above normal range in the east of the South Island, but about equally likely to be near normal or below normal in the west of the South Island.

August– October **river flows** and **soil moisture levels** are about equally likely to be in the near normal or above normal range in all North Island regions, and most likely to be in the near normal range in the north and west of the South Island. In the east of the South Island, soil moisture levels are about equally likely to be in the near normal or below normal range and river flows most likely to be in the below normal range



Graphical representation of the regional probabilities, Seasonal Climate Outlook, September to November 2014.

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

Predicted rainfall: Rainfall totals are equally likely to be near normal or above normal for the east of the North Island and the north of the South Island. For the remaining regions of New Zealand, three-month rainfall totals are most likely to be in the near normal range.

Outcome: Actual rainfall during the forecast period was above normal in the Far North, Kaipara, Whangarei, southern Southland, Queenstown Lakes and Grey Districts, while below normal rainfalls (<80% of normal) were observed across many eastern areas of the North and South Island. Particularly low rainfalls (<60% of normal) were recorded in the districts of Hurunui, Ashburton and Dunedin. Normal rainfall was recorded across all remaining areas.

Predicted air temperature: Temperatures are most likely to be above average in the North Island and about equally likely to be above average or average in the South Island. As we progress into winter, cold snaps and frosts are to be expected in many parts of the country.

Outcome: Actual temperatures in the North Island were average and above average with warm temperature anomalies mostly confined to the eastern Far North, Whangarei, Taranaki, Waipa, Western Bay of Plenty, Rotorua, Whakatane, Taupo, and Hastings Districts. Temperatures in the South Island were above normal for most areas – with anomalies in excess of 1°C recorded in the eastern Mackenzie District. In contrast, temperatures were closer to normal in the north of the South Island as well as in the districts of Selwyn, coastal Waitaki and Clutha.

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

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