NEW ZEALAND

Climate Update

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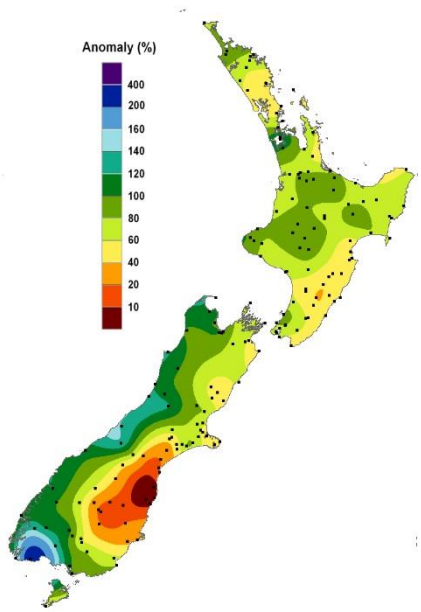
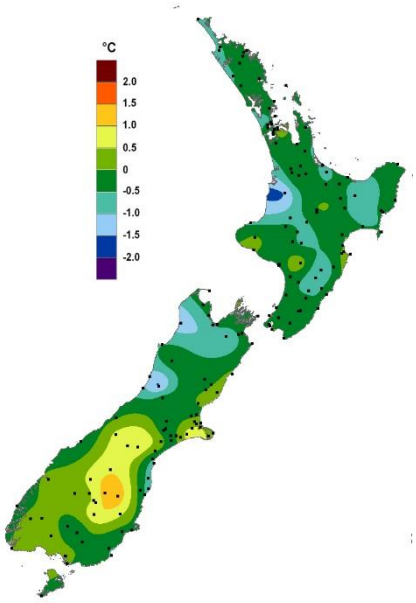
New Zealand Climate Update No 194, August 2015

Current climate – July 2015

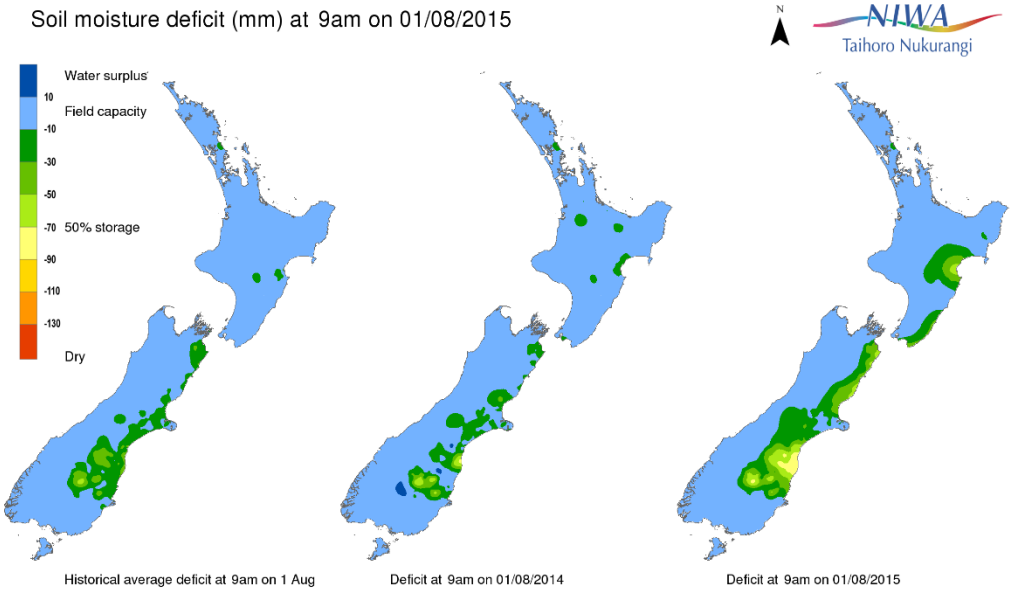
July 2015 was characterised by air pressures which were higher than normal over and to the northwest of the country, while lower pressures than normal were observed to the south of New Zealand. This circulation pattern resulted in slightly more westerly airflows than normal over New Zealand. The westerlies were interrupted by outbreaks of cold southerlies that delivered snowfalls to low elevations, and anticyclones which resulted in spells of frost.



Percentage of normal rainfall for July 2015



Departure from average air temperature for July 2015



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: Rainfall was below normal (50-79% of the July normal) or well below normal (< 50% of the July normal) in parts of every region except Tasman, Nelson, West Coast and Southland. It was especially dry in eastern parts of South Canterbury, North Otago and Central Otago which received just 20% or less of normal July rainfall. In contrast, rainfall was above normal (120-149% of July normal) for much of West Coast and parts of Auckland. Auckland received a considerable proportion of its monthly rainfall from downpours associated with frontal activity.

Air temperature: Mean temperatures were below average (-0.51°C to -1.20°C) in parts of the Far North, Bay of Plenty, Gisborne, Wairarapa, West Coast, coastal South Canterbury and North Otago. July temperatures were above average (+0.51°C to +1.20°C) for the Mackenzie Country and Banks Peninsula, and well above average (> 1.20°C) in parts of Central Otago.

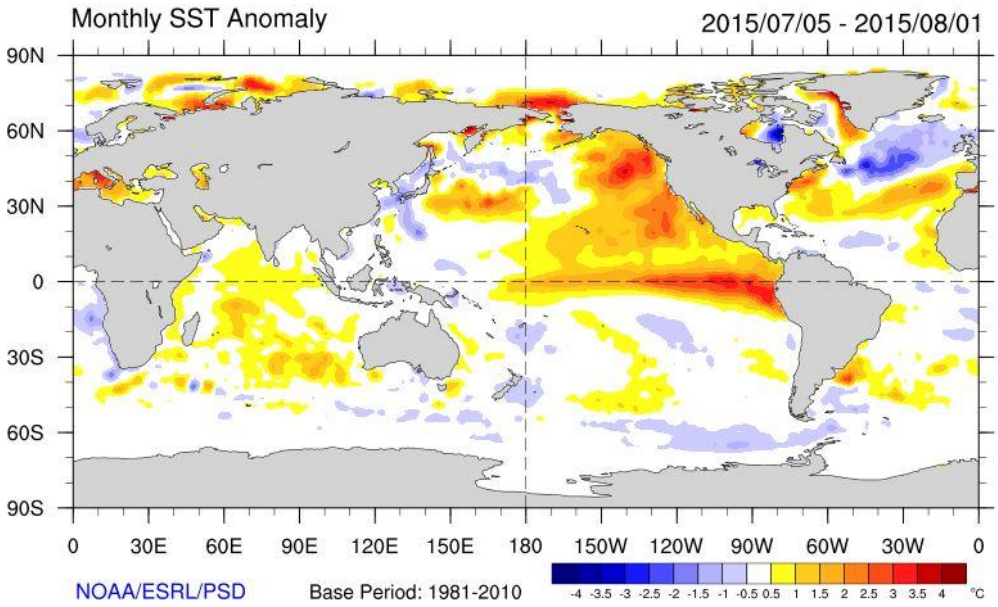
Sunshine: July sunshine was abundant for many parts of New Zealand, with the majority of the country receiving above normal sunshine (110-125%). It was particularly sunny in Marlborough, Central Otago and the Southern Lakes where July sunshine was well above normal (> 125%).

Global setting

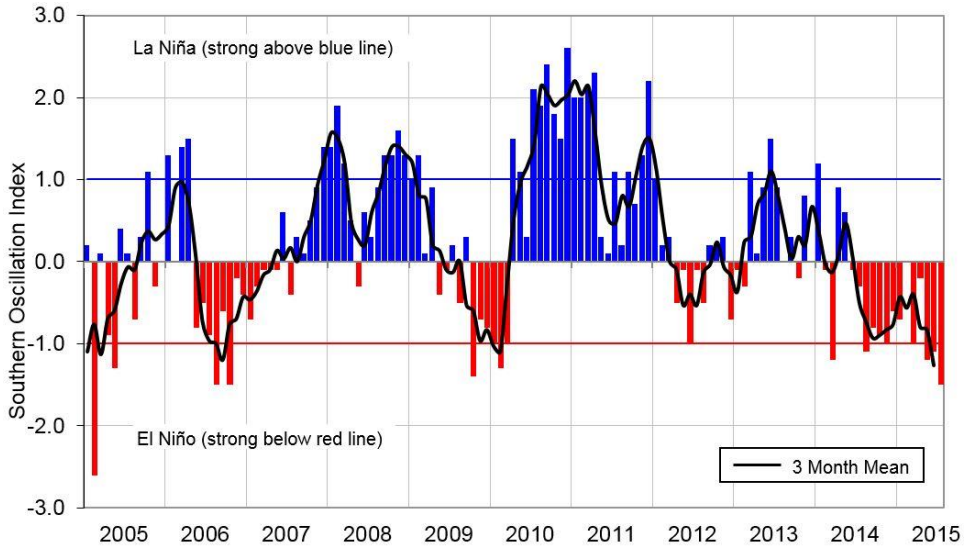
El Niño conditions continued to strengthen during July 2015. Sea surface temperature anomalies in the eastern and central Equatorial Pacific have been exceeding +1°C for the past two months. The Southern Oscillation Index (SOI) was strongly negative (-1.3 for July 2015, value estimated on the 30th of July) and westerly wind anomalies (weaker trade-winds) dominated the central and western equatorial Pacific.

International guidance indicates that El Niño is virtually certain (97% chance) to continue over the next three months period (August – October 2015) and extremely likely (above 90% chance) to persist into the summer 2015 / 2016.

During August – October 2015, above normal pressure is forecast over and to the south of Australia, while below normal pressure is expected well to the northeast of New Zealand. This circulation pattern is likely to be accompanied with anomalous south-westerly winds, which is typical of an El Niño influence during winter-spring.



Differences from average global sea surface temperatures for 5 July to 1 August 2015. Map courtesy of NOAA Climate Diagnostics Centre (http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif)



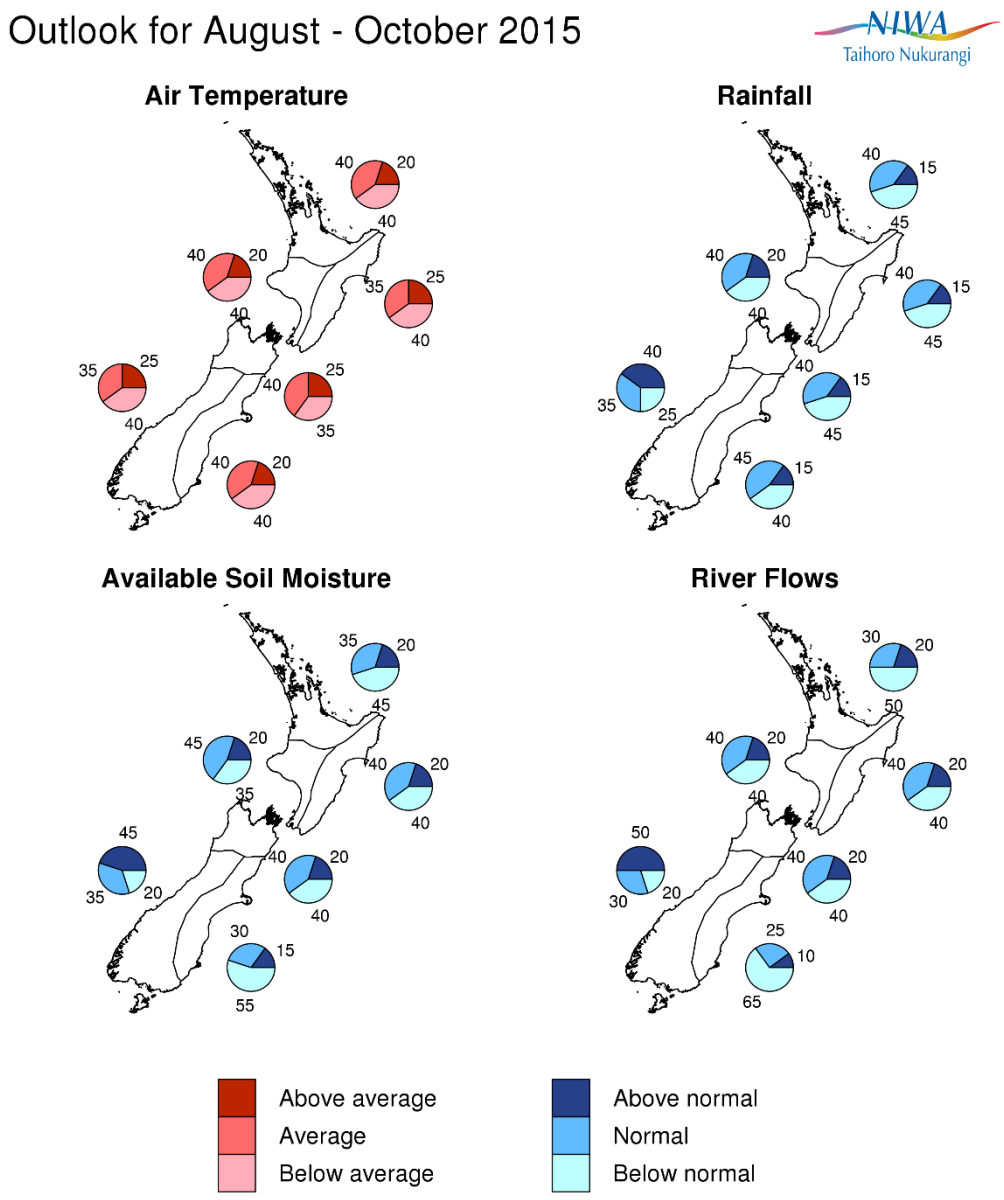
Monthly values of the Southern Oscillation Index (SOI), a measure of changes in atmospheric pressures across the Pacific, and the 3-month mean (black line). SOI preliminary mean values: July SOI -1.5; May to July average -1.3.

Outlook – August to October 2015

Temperatures are about equally likely to be average or below average in all regions of New Zealand. Note that cold snaps and frosts are to be expected in some parts of the country from time to time.

Rainfall totals are about equally likely to be in the near normal or below normal range for all regions of New Zealand except for the west of the South Island, where near normal or above normal rainfall is about equally likely.

Soil moisture levels and river flows most likely to be in the below normal range for the north of the North Island and the east of the South Island. In the west of the South Island, soil moisture levels and river flows for the August – October 2015 season as a whole are most likely to be in the above normal range. Soil moisture and river flows are equally likely to be near normal or below normal in the east of the North Island and the north of the South Island. In the west of the North Island, soil moisture levels are most likely to be in the near normal range, while river flows are equally likely to be in the near normal or below normal range.



Graphical representation of the regional probabilities, Seasonal Climate Outlook, August – October 2015.

The climate we predicted (May – July 2015) and what happened

Predicted rainfall: May – July 2015 rainfall was equally likely to be normal or below normal for the east of the South Island, and most likely to be near normal for all remaining regions of the country.

Outcome: Actual rainfall was above normal in the west of both islands and below normal in the east of both islands. Rainfall in the north of the North and South Island was largely in the near normal range.

Predicted air temperature: May – July 2015 temperatures were most likely to be above average for the east and west of the North Island and near average or above average for all other regions of New Zealand.

Outcome: Actual temperatures were near average for the majority of the country with the exception of the east of the South Island where above average temperatures occurred in the districts of Central Otago, Waitaki, Waimate, Ashburton, Christchurch and Waimakariri.

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