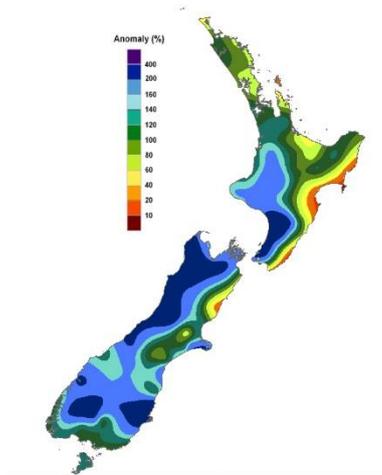


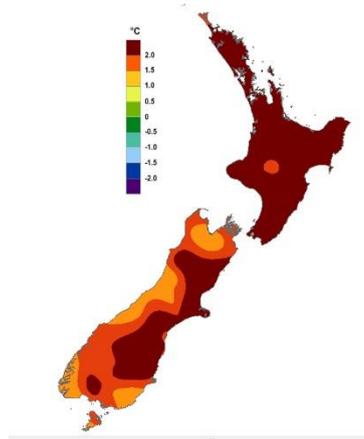
New Zealand Climate Update No 204, June 2016

Current climate – May 2016

During the month of May, air pressure was lower than normal over and to the south-west of the South Island while higher than normal pressures existed to the northeast of the country. This pressure set up led to a prevalence of north-westerly wind flow throughout the month.

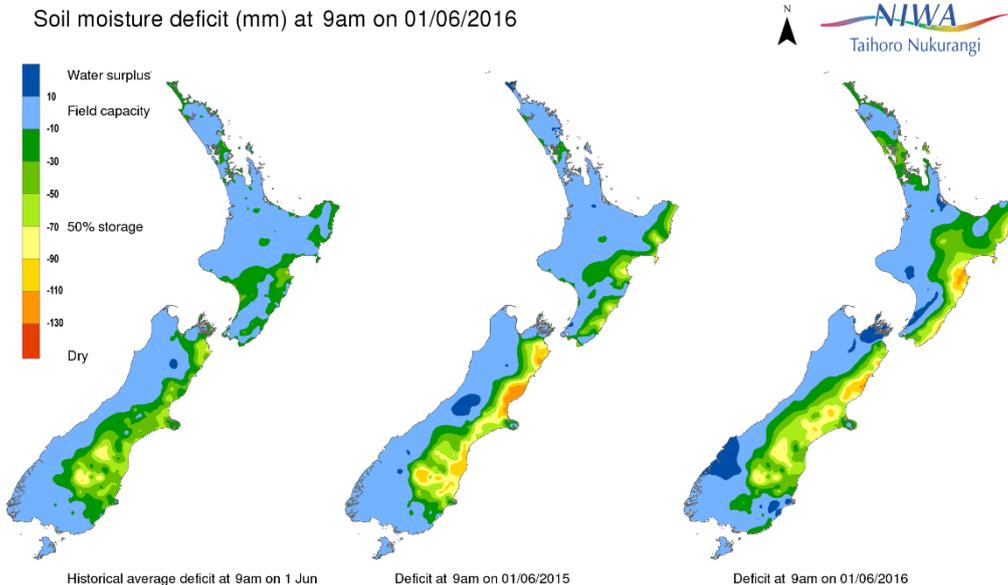


Percentage of normal rainfall for May 2016



Departure from average air temperature for May 2016

Soil moisture deficit (mm) at 9am on 01/06/2016



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 well above normal (>149%) for large parts of the South Island. The exceptions were parts of central and eastern Canterbury were below normal (50-79%) and well below normal (<50%) rainfall was recorded. In the North Island, rainfall was well above normal in Taranaki and Manawatu-Wanganui as well as the western portion of the Wellington region. Well below normal rainfall was recorded along the coastal fringes of Gisborne, Hawke's Bay and eastern Wellington.

Air temperature: May temperatures were well above average (>1.20°C) for the entire North Island as well as the majority of the South Island. Pockets of above average temperatures (+0.51°C to +1.20 °C) were observed in Marlborough, Nelson, Tasman, the West Coast and Southland. No locations observed average temperatures (-0.50°C to +0.50°C) or colder than average temperatures.

Sunshine: Sunshine was below normal (75-89%) in the regions of Southland, the West Coast, Tasman, Manawatu-Wanganui and Taranaki. Above normal sunshine (110-125%) was recorded along the eastern portions of Gisborne, Hawke's Bay and eastern Wellington. Sunshine was near normal in the regions of Waikato, Auckland and Northland.

Soil Moisture: As at 1 June 2016, soil moisture levels were below normal for the time of year for large parts of Gisborne, Hawke's Bay, the Wairarapa as well as central and northern parts of Canterbury. Soil moisture levels for the remainder of the country were near normal for the time of year.

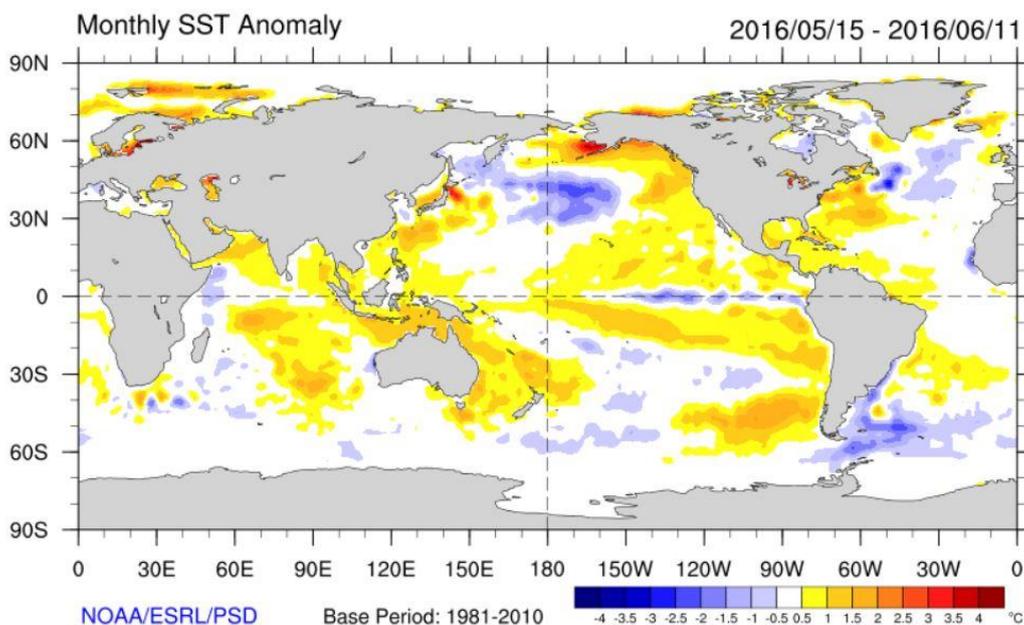
Global setting

Ocean-atmosphere conditions in the tropical Pacific have now returned to near normal after a rapid demise of the El Niño event that peaked late 2015. Sea surface temperatures in the central Pacific are close to average, and slightly cooler than normal ocean temperatures have emerged along the equator in the eastern Pacific.

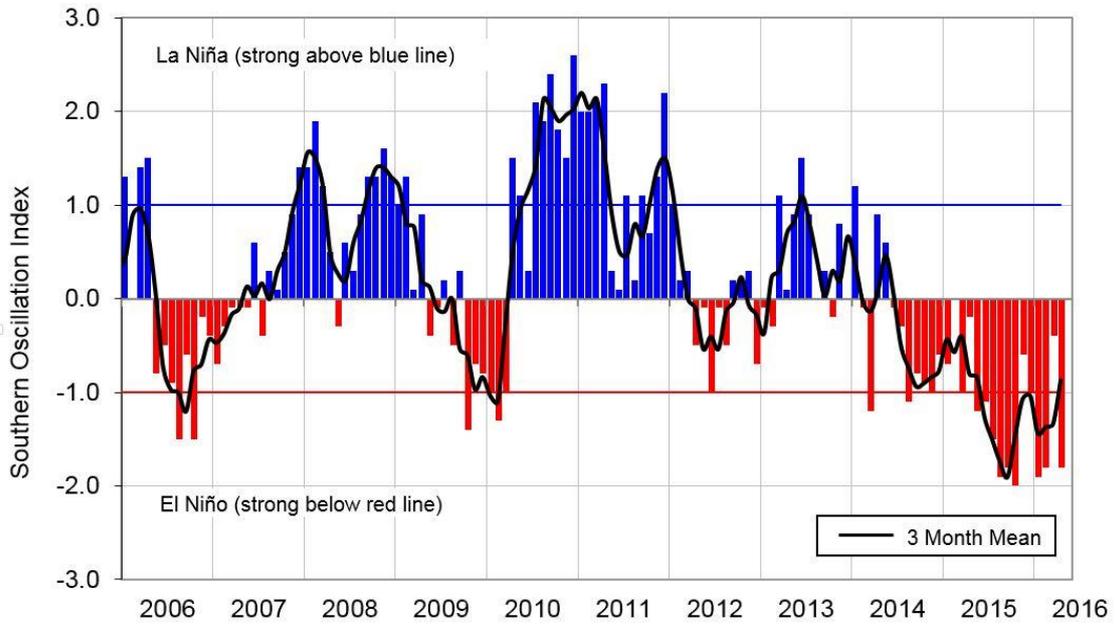
Atmospheric circulation along the equatorial Pacific has returned to near-normal, and the Southern Oscillation Index (SOI) has also returned to near neutral values. Cooler than normal sub-surface ocean waters have continued to intensify and spread eastward along the equatorial Pacific, suggesting the possibility of La Niña conditions developing later this year.

International guidance indicates that neutral ENSO (El Niño - Southern Oscillation) conditions are most likely (54% chance) over the next three month period (June – August 2016), as a whole, but a transition to La Niña is also possible over the same period (43% chance). The likelihood of La Niña conditions establishing in the Pacific increases later in the year, with a 58% chance in September-November 2016 and 61% chance in December 2016 – February 2017.

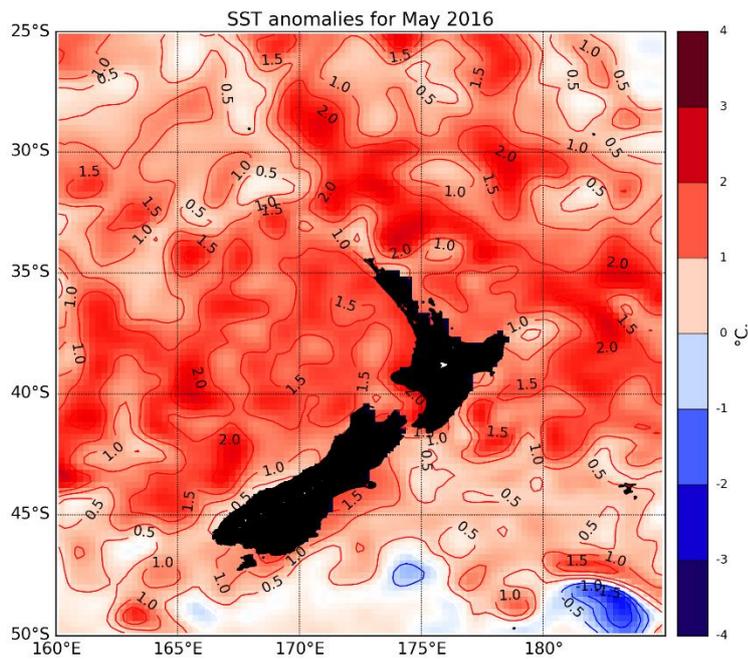
For June – August 2016, higher pressures than normal are forecast to the north and northeast of New Zealand, with lower pressures than normal expected to the south and the southeast of the country. Westerly to northwesterly wind flow anomalies are expected to affect the country.



Differences from average global sea surface temperatures for 15 May – 11 June 2016. 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 -0.9.



Differences from average May surface temperatures in the seas around New Zealand.

Outlook – June 2016 to August 2016

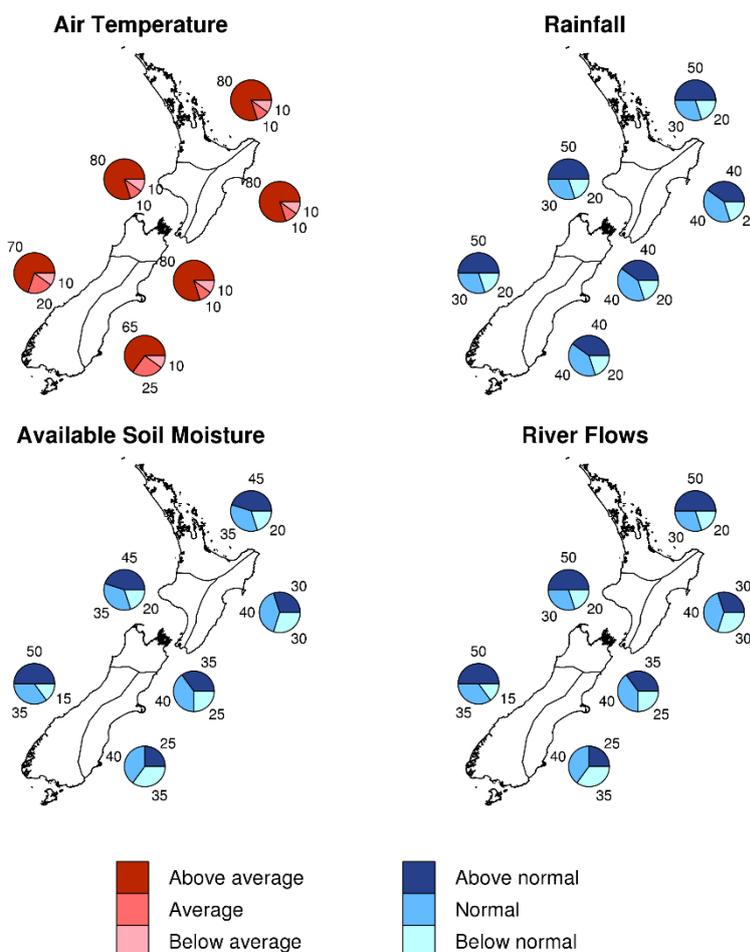
Temperatures are very likely (65-80% chance) to be above average in all regions of the country. Nevertheless, frosts and cold snaps will occur from time to time in cooler locations.

Rainfall is likely to be above normal (50% chance) in the north and west of the North Island and the west of the South Island. Seasonal rainfall totals are equally likely to be near normal (40% chance) or above normal (40% chance) in the east of the North Island and the north and east of the South Island.

Soil moisture levels and River Flows are most likely (45-50% chance) to be in the above normal range in the north and west of the North Island and the west of the South Island and most likely (40% chance) to be in the near normal range in the east of the North Island. In the North of the South Island, soil moisture levels and river flows are about equally likely to be in the near normal range (40% chance) or above normal range (35% chance). Soil moisture levels and river flows are both about equally likely to be in the near normal (40% chance) or below normal (35% chance) range in the east of the South Island.

Sea surface temperatures (SSTs) are forecast to be above normal over the next three months, especially to the west of New Zealand.

Outlook for June - August 2016



Graphical representation of the regional probabilities, Seasonal Climate Outlook, June – August 2016.

The climate we predicted (March 2016 – May 2016) and what happened

Predicted rainfall: March – May 2016 rainfall was forecast to be near normal for the north of the North Island and east of the South Island. Normal or below normal rainfall totals were likely for the west and east of the North Island, whereas normal or above normal was likely for the north and west of the South Island.

Outcome: Actual rainfall was below normal for the east of the North Island, Auckland, Kaipara, the Far North and Kaikoura. Rainfall was above normal in the west of the South Island as well as Nelson, Tasman and the Manawatu. Rainfall was near normal elsewhere.

Predicted air temperature: March – May 2016 temperatures were forecast to be above average for all regions of the country.

Outcome: Actual seasonal temperatures were indeed above average for the entire country. In the North Island temperatures were more than 1.5°C above normal.

Predicted air pressure: above normal pressure was forecast to the north and northeast of New Zealand, while below normal pressure was expected to the south of the country. This circulation pattern was likely to be accompanied by anomalous northerly and north-westerly wind flows.

Outcome: Actual pressures were lower than normal south of Australia and slightly higher than normal to the northeast of New Zealand. This pressure pattern produced more northwesterlies than normal.

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

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