NEW ZEALAND

# Climate Update

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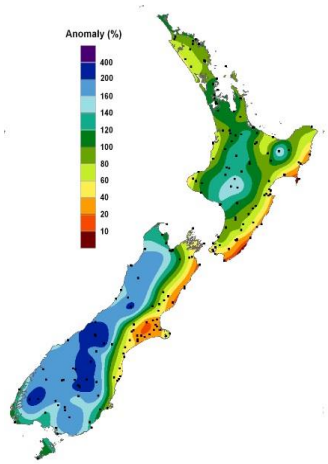
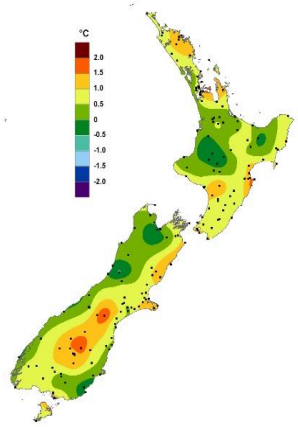
## New Zealand Climate Update No 206, August 2016

## Current climate – July 2016

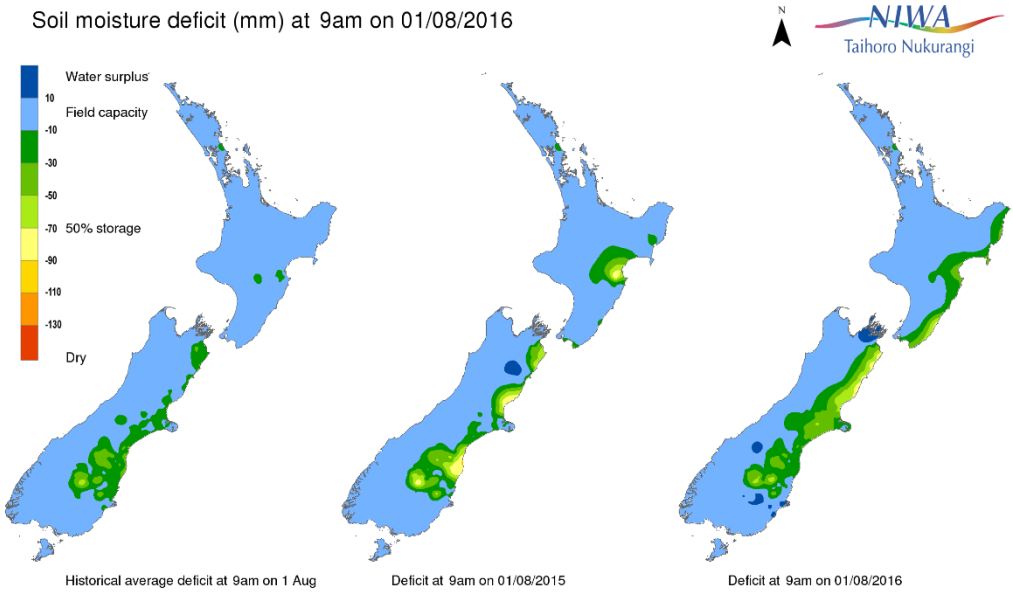
During July 2016, mean sea-level pressures were lower than normal over and to the south of New Zealand. This pressure pattern resulted in a prevalence of winds from a westerly direction.




Percentage of normal rainfall for July 2016




Departure from average air temperature for July 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:** It was a very dry month for many eastern areas of the country, particularly in Gisborne, Hawke's Bay, coastal Wairarapa and eastern Canterbury, where rainfall was well below normal (<50% of normal). Conversely, rainfall was well above normal (>149% of normal) or above normal (120-149% of normal) for most remaining parts of the South Island, Whanganui and the Central Plateau.

**Air temperature:** July temperatures were above average (+0.51°C to +1.20 °C) in many parts of New Zealand. It was an especially warm month for much of the inland South Island, Kaikoura and Auckland where well above average mean temperatures (> +1.20°C) were observed.

**Sunshine**: July sunshine was well above normal (>125% of normal) or above normal (110-125% of normal) in many parts of the country. It was especially sunny for this time of year in south Otago, Central Otago, eastern Canterbury and the southern North Island.

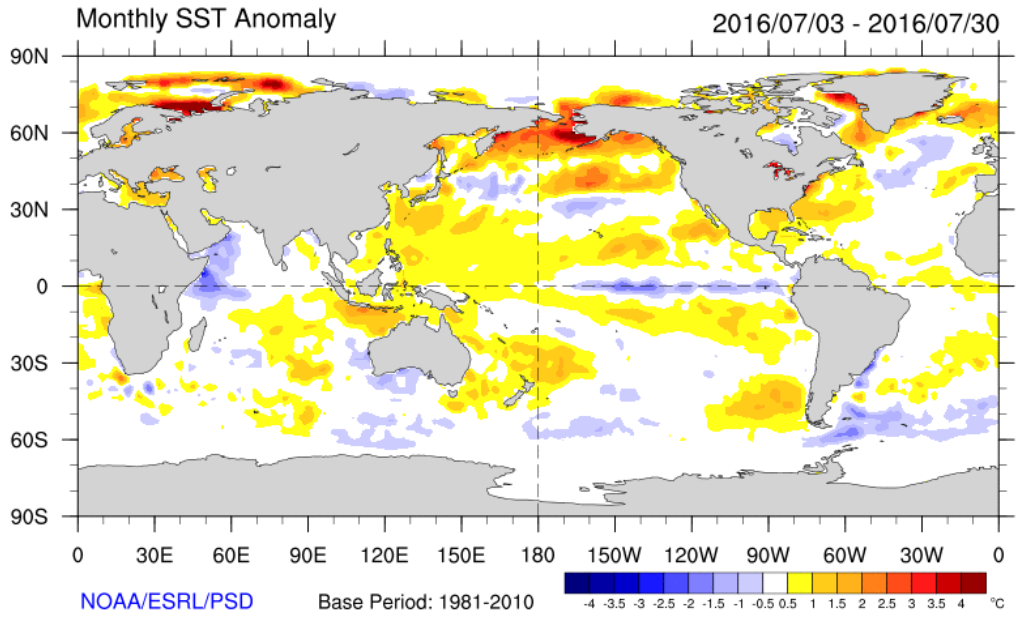
**Soil Moisture:** At the end of July 2016, soil moisture levels were below normal for the time of year for eastern parts of the South Island north of Ashburton, and eastern parts of the North Island, particularly coastal Wairarapa. Soil moisture levels for the remainder of the country were near normal for this time of year.

## Global setting

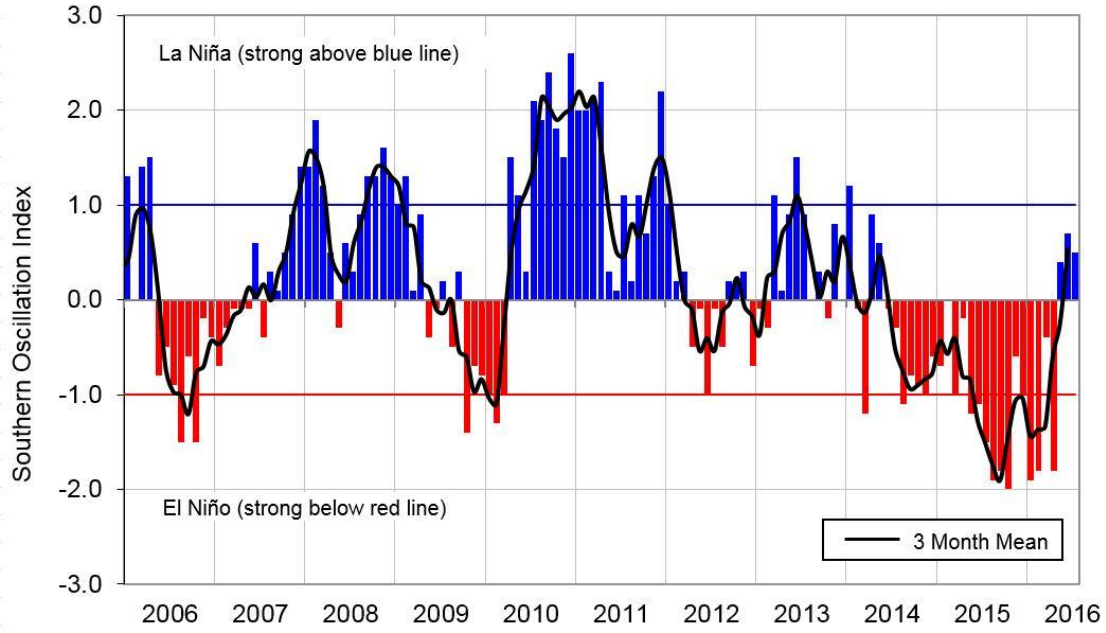
ENSO (El Niño – Southern Oscillation) neutral conditions are currently present in the tropical Pacific: Sea surface temperatures (SSTs) along the eastern equatorial Pacific are near or slightly below normal, and the atmospheric conditions over the tropical Pacific are generally consistent with an ENSO-neutral state. As a whole the tropical ocean-atmosphere system still shows a leaning towards La Niña, but with a slight weakening of the signals that were observed last month (June 2016).

International guidance still favours development of La Niña conditions (50% chance) over the next three month period (August – October 2016), but note that this probability is lower than this time last month. The likelihood of La Niña conditions becoming established in the Pacific increases slightly later on, reaching 55% in November – January 2016/2017. In summary, both the current state and recent evolution of the ocean-atmosphere system in the Pacific, as well as the models' forecasts, suggest that this La Niña event, if it develops, will be characterized by a relatively late onset, short duration and weak amplitude.

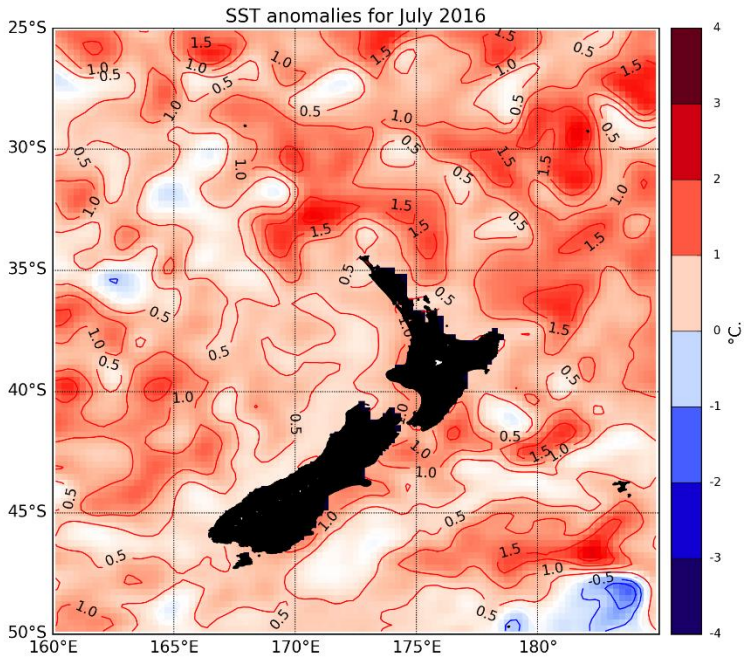
For August - October 2016, there is no clear guidance or indication on seasonal airflow anomaly. However, weak anomalously low pressures are forecast around New Zealand and are likely to be accompanied with unsettled conditions.




Differences from average global sea surface temperatures for 3 July – 30 July 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: July SOI 0.5; May - July average 0.5.




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

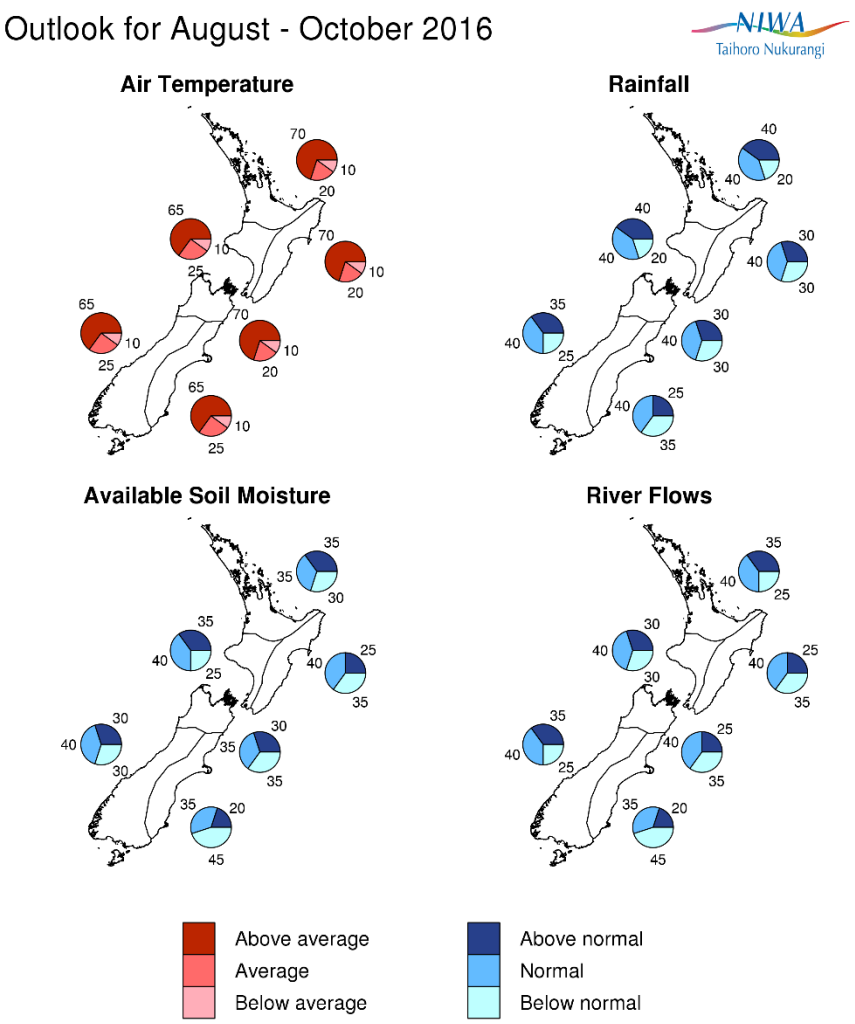
## Outlook – August 2016 to October 2016

**Temperatures** are very likely to be above average in all regions of the country. Nevertheless, frosts and cold snaps will occur from time to time in cooler locations. Sea surface temperatures are forecast to remain above normal over the next three months, especially to the west of New Zealand.

**Rainfall** totals are about equally likely to be in the near normal or above normal range in the north and west of the North Island and the west of the South Island. Seasonal rainfall is most likely to be in the near normal range in the east of the North Island and the north of the South Island. In the east of the South Island, rainfall for the August – October 2016 period is about equally likely to be near normal or below normal.

**Soil moisture levels and River Flows** are most likely to be below normal in the east of the South Island. In the north of the North Island, soil moisture levels and river flows are about equally likely to be in the near normal range or above normal range. In the west of the North Island, soil moisture levels are about equally likely to be near normal or above normal, and river flows are most likely to be in the near normal range. Seasonal soil moisture levels and river flows are about 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 South Island, soil moisture levels are most likely to be near normal while river flows are about equally likely to be near normal or above normal.

**Sea surface temperatures** (SSTs) Anomalously high ocean temperatures around the country mean warmer and more humid air masses are likely to affect New Zealand, especially the North Island. Consequently, there remains an elevated risk for significant rainfall events and severe storms.




Graphical representation of the regional probabilities, Seasonal Climate Outlook, August - October 2016.

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

**Predicted rainfall:** May – July 2016 rainfall was likely to be above normal in the north of the North Island, likely to be near normal or above normal in the west of both islands and in Nelson-Marlborough, and likely to be in the near normal range in the east of both islands.

**Outcome:** Actual rainfall was above normal in the west of the South Island, Tasman, Nelson, Manawatu-Whanganui and central Waikato. Below normal rainfall was observed along the coastal fringes of Gisborne, Hawke's Bay, Wellington, Marlborough and northern Canterbury. Rainfall was near normal in the north of the North Island and southern Southland.

**Predicted air temperature:** May – July 2016 temperatures were very likely to be above average in all regions of the country.

**Outcome:** Actual seasonal temperatures were indeed above average for all regions of New Zealand. Well above average temperatures were recorded in eastern parts of both islands.

**Predicted air pressure:** For May – July 2016, above normal pressure was forecast to the north and northeast of New Zealand. This circulation pattern was likely to be accompanied by anomalous north-westerly wind flow.

**Outcome:** Actual pressures were lower than normal over and to the southwest of New Zealand, while higher than normal pressure existed to the northeast of the country. This pressure set produced more north-westerly winds than normal, as forecast.

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