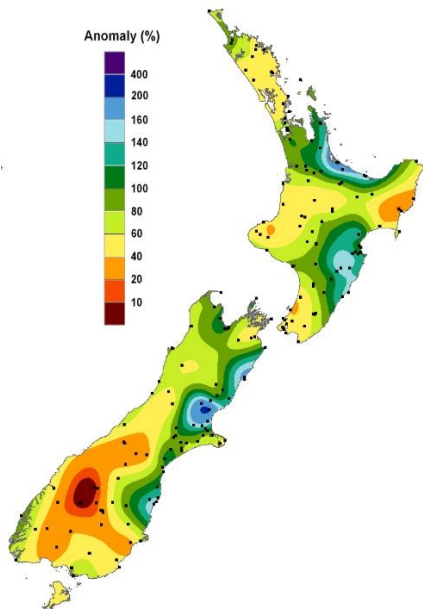


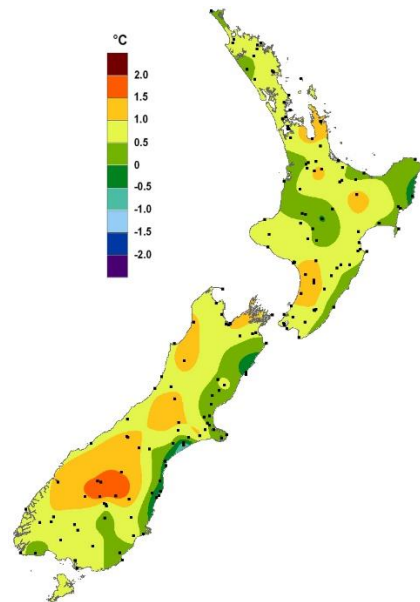
New Zealand Climate Update No 221, October 2017

Current climate – October 2017

October 2017 was characterised by higher than normal sea level pressure over New Zealand and the surrounding seas. This consistent high pressure resulted in settled, warm conditions over much of the country during the month, but this was occasionally punctuated with rainfall events, particularly in the east of both North and South Islands.

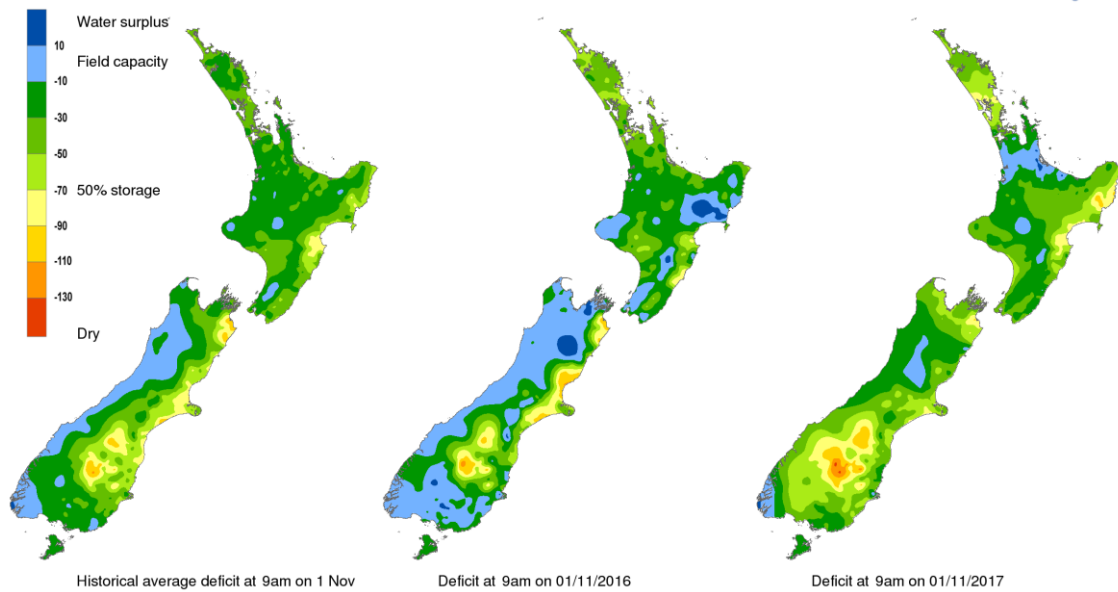


Percentage of normal rainfall for October 2017



Departure from average air temperature for October 2017

Soil moisture deficit (mm) at 9am on 01/11/2017



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 below normal (<50% of normal) for most of Otago as well as parts of Northland, Gisborne, Kapiti Coast, Marlborough, southern Canterbury, and Southland. Rainfall was below normal (50-79% of normal) for parts of Northland, Auckland, Manawatu-Whanganui, Wellington, Wairarapa, Canterbury and Southland. Rainfall was well above normal (>149% of normal) for parts of western Bay of Plenty, Waikato, the east coast of the South Island, West Coast, and Fiordland. Rainfall was above normal (120-149% of normal) or near normal (80-119% of normal) elsewhere.

Temperature: Temperatures were well above average (>1.20°C of average) in parts of Auckland, Coromandel, Manawatu-Whanganui, Kapiti Coast, Nelson, Canterbury, Otago, Southland, and Fiordland. Temperatures were above average (0.51-1.20°C above average) for most of the rest of the country, except for some eastern coastal areas of both Islands that recorded near (-0.50°C to +0.50°C of average) or below (-1.20°C to -0.50°C of average) average temperatures.

Sunshine: Sunshine was well above normal (>125% of normal) or above normal (110-125% of normal) for Otago and Southland as well as parts of the Wellington and Taranaki regions. Sunshine was near normal (90-110% of normal) for most other parts of the country, except for Auckland and parts of Northland where sunshine was below normal (75-89% of normal).

Soil Moisture: As at 1 November, soils were much drier than normal for the time of year for interior Otago and interior Southland, Tasman, Kapiti Coast, Taranaki, Gisborne, and Northland. Soils were wetter than normal for the time of year in Bay of Plenty, eastern Waikato, and the east coast of the South Island.

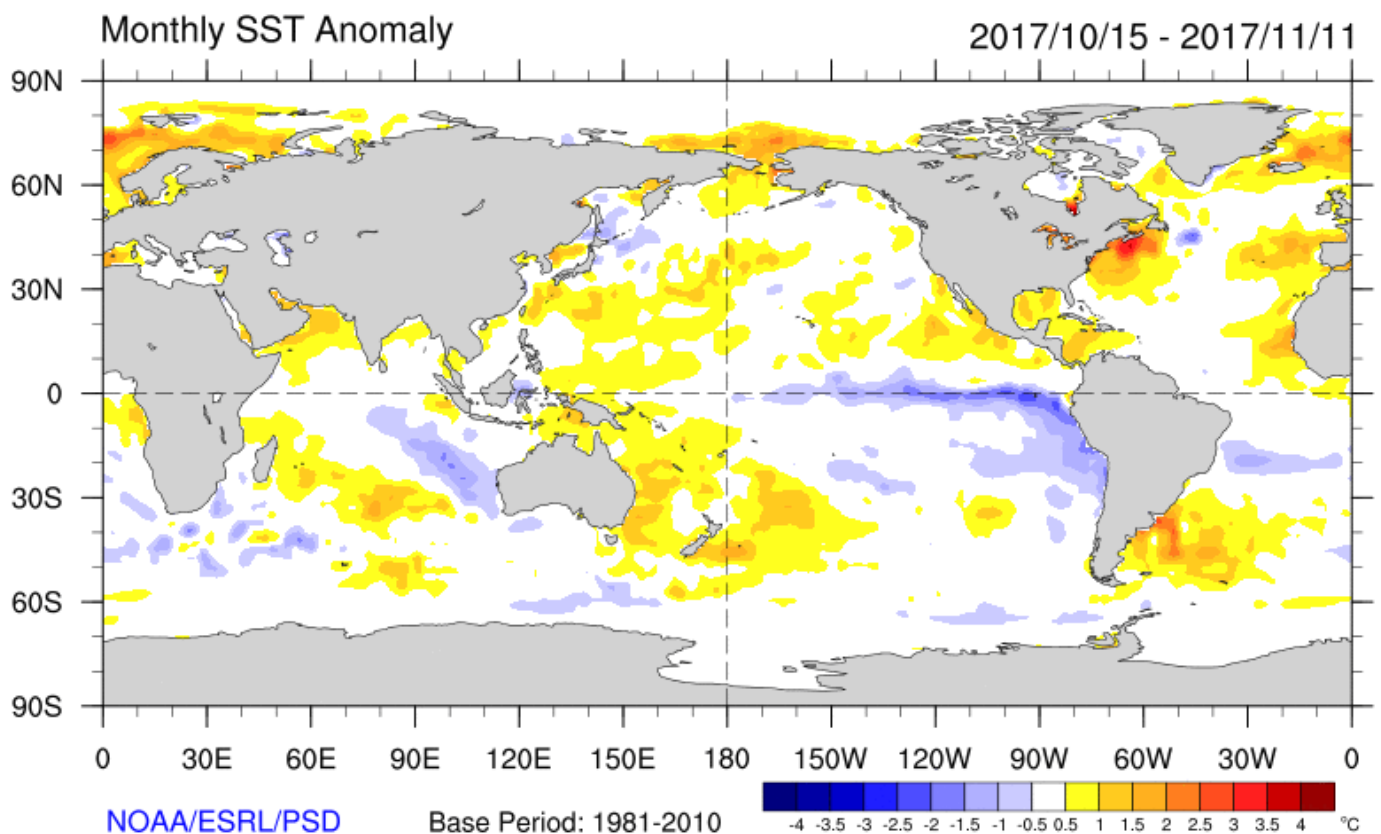
Global setting: October 2017

The tropical Pacific is still officially in a ENSO (El Niño Southern Oscillation) neutral state, but some indicators have leaned more towards La Niña conditions during the course of October 2017. After a brief period of warming early in the month, sea surface temperatures (SST) in the eastern equatorial Pacific Ocean have cooled significantly, especially off the South American coast. The NIWA Southern Oscillation Index has been positive since July 2017 and is currently at +0.9.

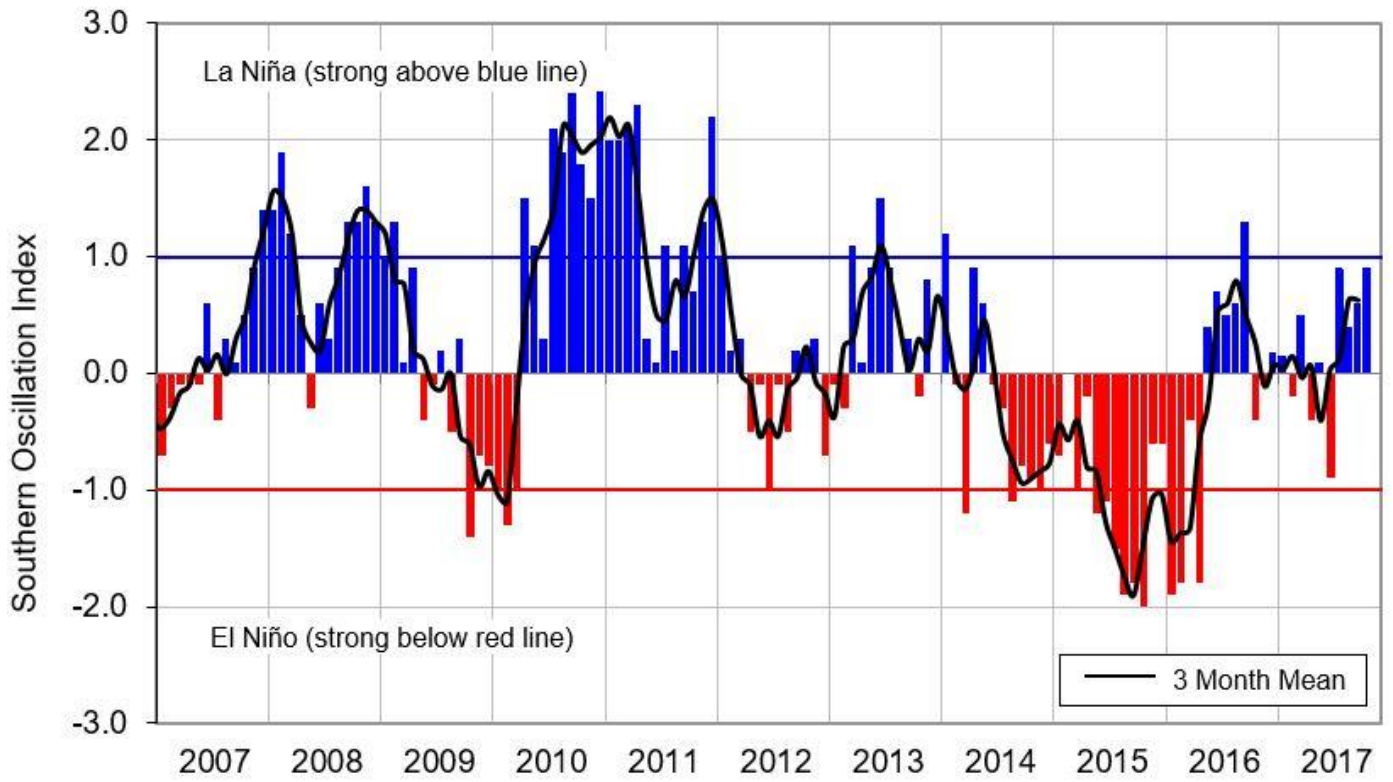
The international consensus is that the tropical Pacific Ocean will cool further over the next 3 months (November 2017 – January 2018), with La Niña conditions likely to be met over the same period (with 70% chance). However, the models indicate that if La Niña does develop, it is likely to remain in the weak category and be short-lived: a return to neutral conditions is most likely (58% chance) over the February-April 2018 period.

Sea Surface Temperatures

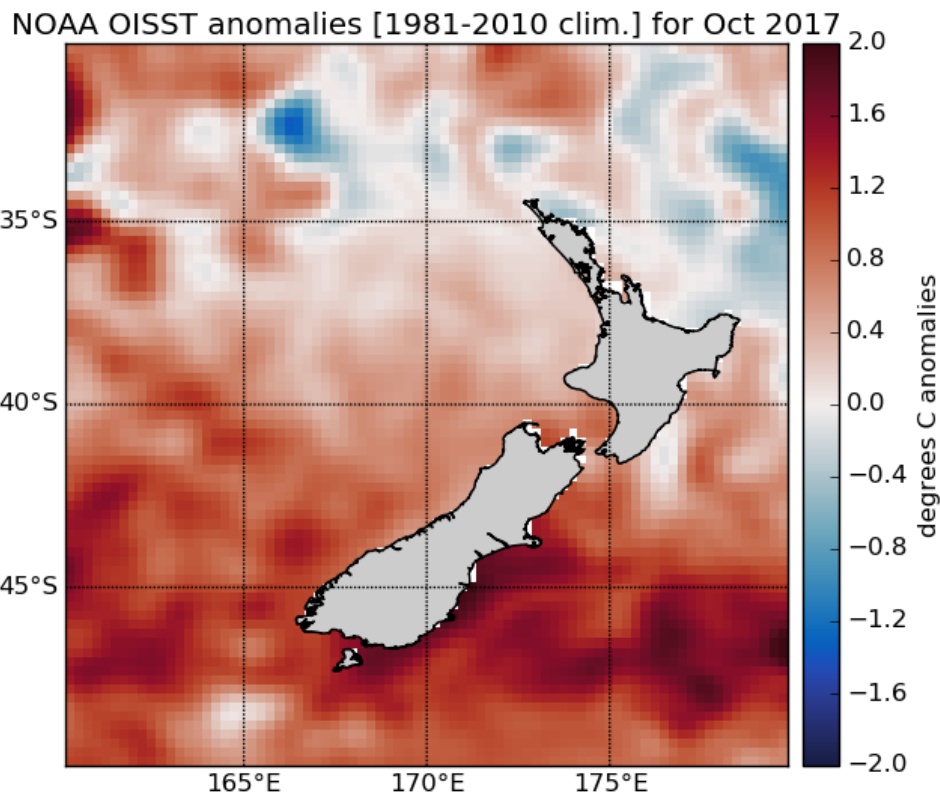
Coastal waters remain generally warmer than average around New Zealand, especially along the east coast of the South Island, where the anomaly for the month of October (estimated using data to the 28th October) exceeds +1°C. On the other hand, waters around the North Island have cooled compared to last month. The warmest ocean waters in the New Zealand region remain around and south of the Chatham Islands.



Differences from average global sea surface temperatures for 15 October – 11 November 2017. 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: October SOI 0.9; August - October average 0.6



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

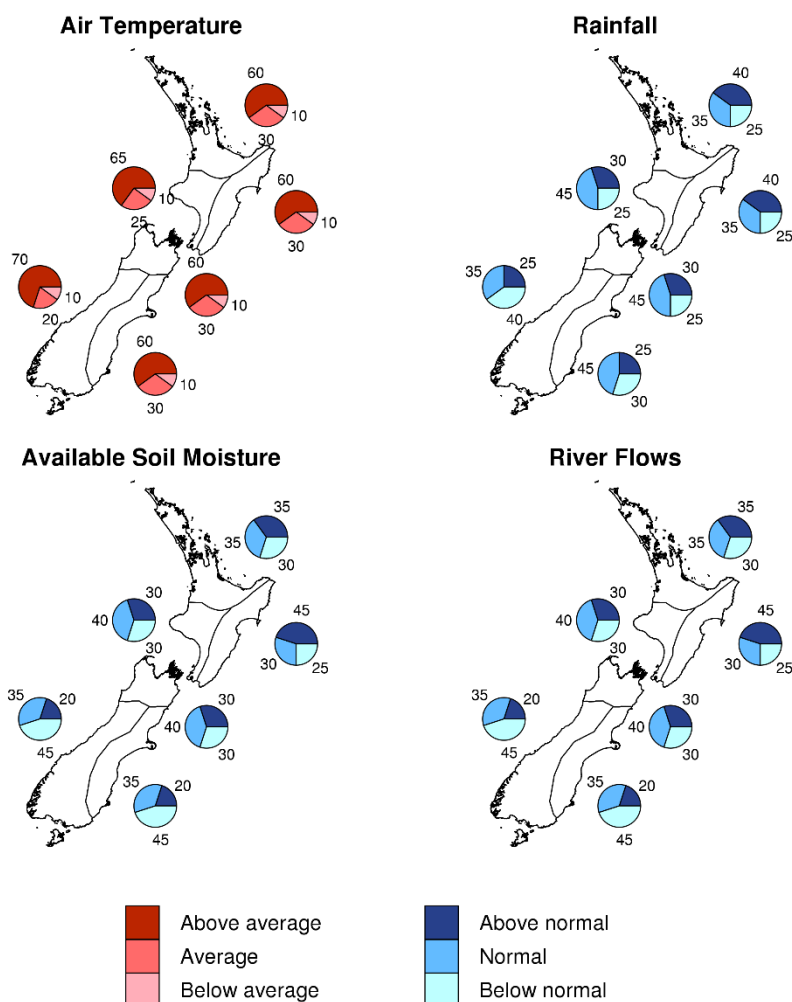
Outlook: November – January 2018

Temperatures are forecast to be above average for all regions of New Zealand (60% to 70% chance for above average temperatures). Coastal water temperatures around New Zealand are forecast to remain above average over the next three-month period, especially along the east coast of the South Island.

Rainfall totals are about equally likely to be normal (35% chance) or above normal (40% chance) for the north and east of the North Island, and most likely to be near normal (45% chance) in the west of the North Island and the north and east of the South Island. Rainfall totals for the next three months are about equally likely to be below normal (40% chance) or near normal (35% chance) in the west of the South Island.

Soil moisture levels and river flows are most likely to be below normal (45% chance) in the west and east of the South Island and most likely to be above normal (45% chance) in the east of the North Island. Soil moisture levels and river flows are equally likely to be near normal (35% chance) or above normal (35% chance) in the north of the North Island. In the west 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 (40% chance).

Outlook for November 2017 - January 2018



Graphical representation of the regional probabilities, Seasonal Climate Outlook, November – January.

The climate we predicted (July 2017 – September 2017) and what happened

For August – October 2017 as a whole, the atmospheric circulation around New Zealand was forecast to be characterised by lower pressure than normal west of the country, leading to weak northwesterly flow anomalies over New Zealand. La Niña-like atmospheric signals in the Pacific could result in intermittent periods of anomalous easterly or northeasterly flows. Significant low pressure systems, occasionally with a deep sub-tropical moisture connection, were also expected to sweep the country from time to time. Actual pressures were indeed lower than normal over and to the west of the country leading to more north westerlies than normal.

Predicted air temperature: August – October 2017 temperatures were forecast to be above average for all regions of New Zealand, with high confidence.

Outcome: Actual temperatures were above average for much of the country with small patches of near average temperatures about western Waikato, Marlborough and southern Southland.

Predicted rainfall: August – October 2017 rainfall totals were most likely to be near normal for the east of the South Island and near normal or above normal for all remaining regions of New Zealand.

Outcome: Actual rainfall was near normal for large parts of the country. Above normal rainfall was recorded in parts of the Bay of Plenty, South Taranaki, Marlborough and northern Canterbury. Below normal rainfall was observed in Southland and large parts of Otago.

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

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