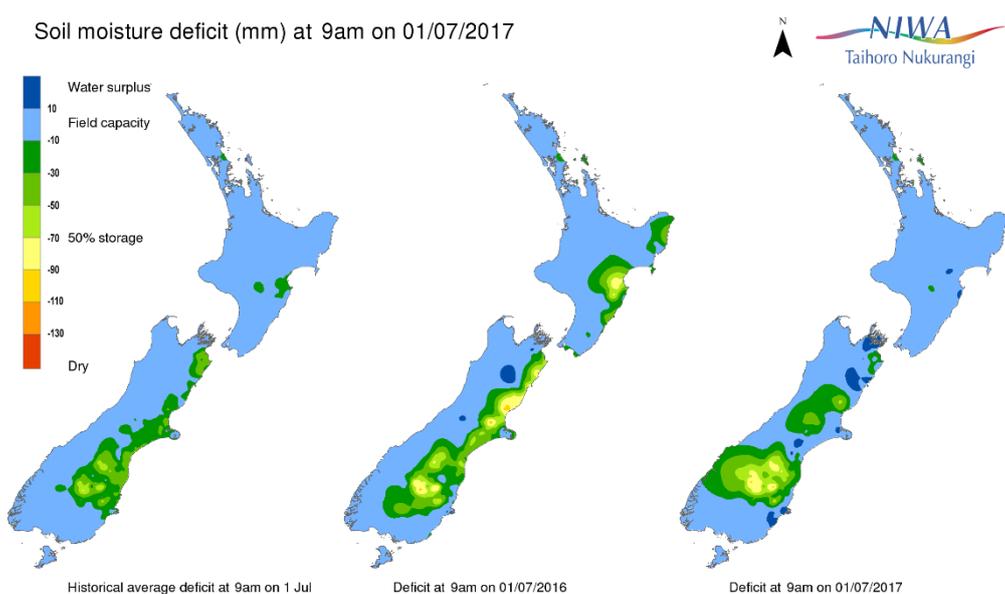
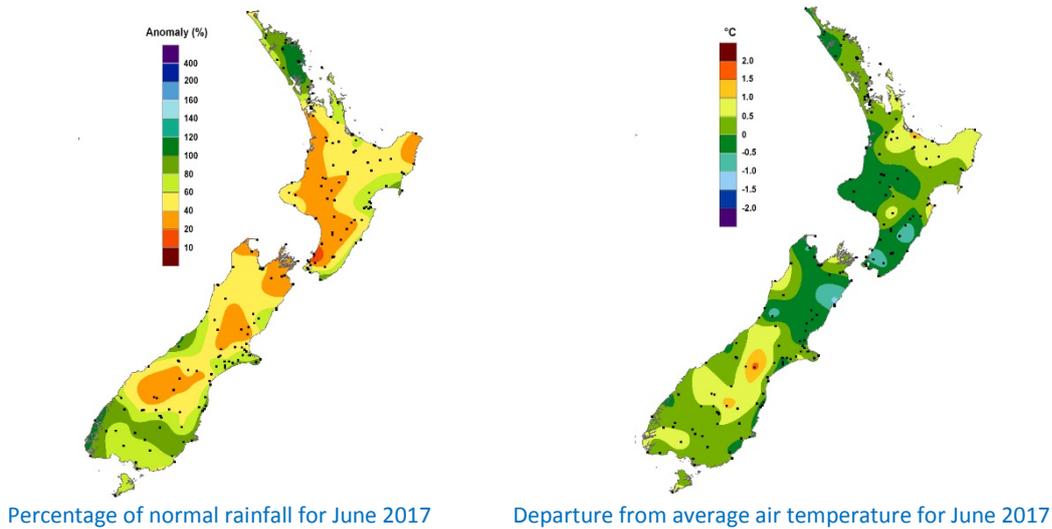


New Zealand Climate Update No 217, June 2017

Current climate – June 2017

Overall, mean sea level air pressures were higher than normal over and to the east, west, and south New Zealand during June. This resulted in more easterlies than usual over the North Island and more westerlies than usual over the South Island.



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: Well below normal (<50%) for many stations in the North Island south of Auckland city, particularly in the central and western parts of the Island. Rainfall was also well below normal for some parts of the northern and central South Island, and below normal rainfall (50-79%) was observed in the southern and western South Island. Rainfall was near normal (80-119%) in Hawke's Bay and near normal or above normal (120-149%) in Northland.

Temperature: Were near average for most of the country (-0.50°C to +0.50°C). Pockets of above average temperatures (0.51°C to 1.20°C) occurred in the Bay of Plenty, West Coast, and inland Otago. Below average temperatures (-0.51°C to -1.20°C) were observed in parts of the Wellington Region and the central North Island, and well below average temperatures (< -1.20°C) were observed in isolated locations in the eastern South Island.

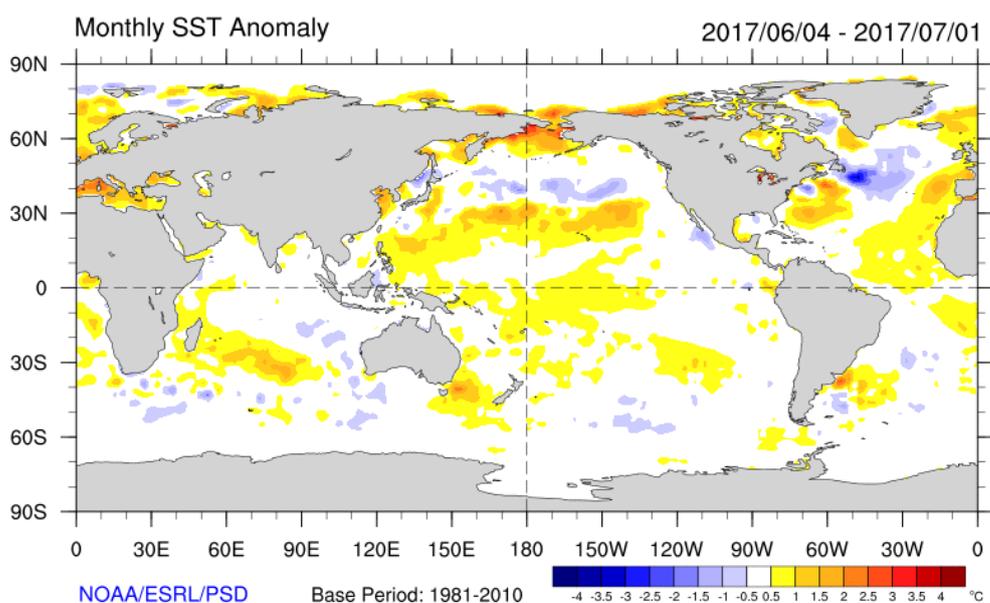
Sunshine: Was well above normal (> 125%) in Auckland, Waikato, Kapiti Coast, Taranaki, and parts of Southland. Above normal sunshine (110-125%) was recorded in Marlborough, Nelson and West Coast. Sunshine was typically near normal (90-109%) for the remainder of the country, although some eastern parts of the South Island recorded below normal sunshine (75-89%).

Soil Moisture: As at 1 July 2017, soil moisture levels were below normal for the time of year for large parts of Southland and inland Otago. Soil moisture levels were above normal for eastern parts of the South Island. Near normal soil moisture levels were observed for the entire North Island.

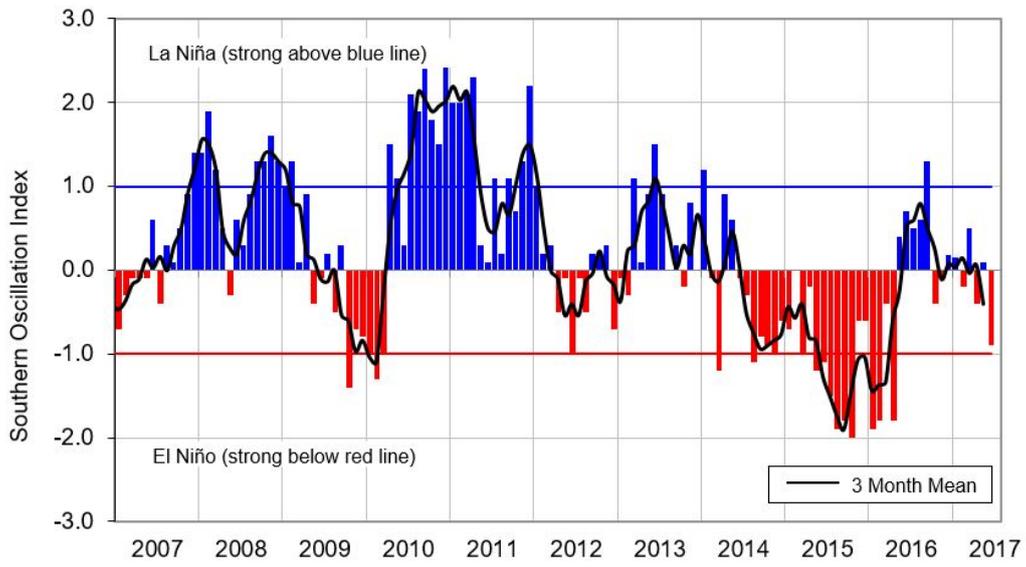
Global setting: June 2017

The tropical Pacific remained in an ENSO (El Niño – Southern Oscillation) neutral state (neither El Niño nor La Niña) during June 2017, but oceanic and atmospheric anomalies were mixed, with some indicators leaning towards El Niño and others towards La Niña. Across the equatorial Pacific Ocean, sea surface temperatures (SSTs) are currently slightly above normal. The large-scale atmospheric circulation continues to generally reflect ENSO-neutral conditions, but is showing conflicting signals: the Southern Oscillation Index (SOI) is currently negative (*i.e.* leaning towards El Niño), with a value of -1.0 for June 2017, but large-scale rainfall and convection anomalies are showing La Niña-like patterns, with more intense than normal convection and rainfall over large parts of the Maritime Continent.

International guidance – in contrast to previous months – now suggests that the tropical Pacific Ocean is more likely to remain in an ENSO neutral state (60% chance) than to transition towards El Niño (35% chance) over the next three month period (July – September 2017). The probability for El Niño increases only slightly later during the year, with a maximum of 43% over the October-December 2017 period. Chances for La Niña development remain low (less than 15%).



Differences from average global sea surface temperatures for 4 June – 1 July 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: June SOI -0.9; April-June average -0.4.

Outlook: July – September 2017

temperatures are about equally likely to be above average (45% chance) or near average (40% chance) for the west and east of the North Island. In all remaining regions of New Zealand, above average temperatures for July – September 2017 as a whole are very likely (60-70% chance). Nevertheless, frosts and cold snaps will occur during the winter and early spring seasons. Coastal waters around New Zealand are forecast to remain above average and may warm further over the next three month period.

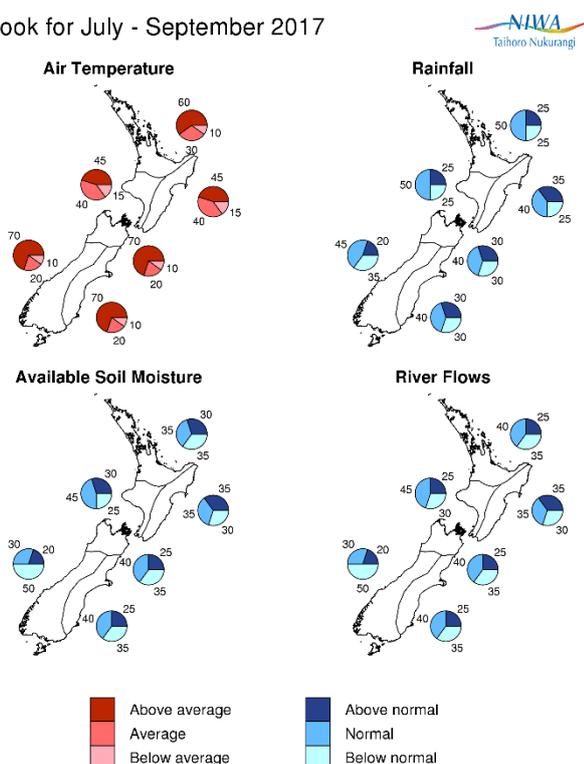
Rainfall totals are about equally likely to be near normal (40% chance) or above normal (35% chance) in the east of the North Island. For all remaining regions of New Zealand, rainfall totals are most likely to be near normal (40-50% chance) over the next three month period. In contrast to long periods of settled conditions during June, the first half of July may have more active, rainier intervals across New Zealand.

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

Sea surface temperatures Coastal waters remain generally warmer than average all around the country, with anomalies exceeding +0.5°C along the west coast of the South Island. However, in the last two weeks, SSTs have trended slightly cooler near the North Island. The anomaly in the “NZ box” (160°E-170°W, 30-45°S) is currently reaching about +0.5°C. Ocean waters are still much warmer than average in the southern part of the Tasman Sea, off the east coast of Tasmania and southeast Australia, with anomalies exceeding +3°C in place.

The dynamical models’ forecasts indicate that warmer than average SSTs around New Zealand are likely to persist or intensify over the July – September 2017 period.

Outlook for July - September 2017



Graphical representation of the regional probabilities, Seasonal Climate Outlook, July-September 2017.

The climate we predicted (April 2017 – June 2017) and what happened

Predicted rainfall: April – June 2017 rainfall totals were about equally likely to be above normal or near normal in the north of both Islands. Conversely, rainfall was about equally likely to be below normal or near normal in the west of the South Island. For other regions, near normal rainfall was the most likely outcome.

Outcome: Actual rainfall was above normal for much of the North Island as well as northern and coastal eastern parts of the South Island. Rainfall was below normal for large parts of Otago, Southland and the West Coast.

Predicted air temperature: April – June 2017 temperatures were most likely to be above average in the north of the North Island, and about equally likely to be above average or average for all other regions of New Zealand.

Outcome: Actual temperatures were above average in Northland, Auckland, eastern Waikato and the Bay of Plenty as well as parts of Gisborne, Hawke's Bay and the West Coast. Temperatures were near average elsewhere.

Predicted air pressure: During April-June, the atmospheric circulation around New Zealand was expected to favour higher pressure than normal to the west of the country, with more anticyclonic south-westerly wind flows than normal, a pattern suggestive of El Niño. However, in April 2017 as the season starts, it was expected that New Zealand will be influenced by active sub-tropical disturbances, potentially producing heavy rainfall, and frequent wind flows from the north.

Outcome: Actual pressures were higher than normal over the country, particularly to the south-east. This pressure set up led to more easterlies than normal.

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

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