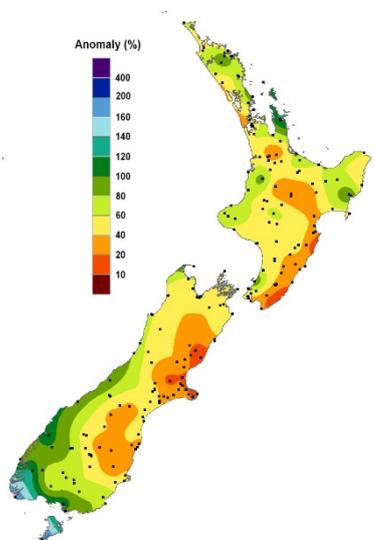


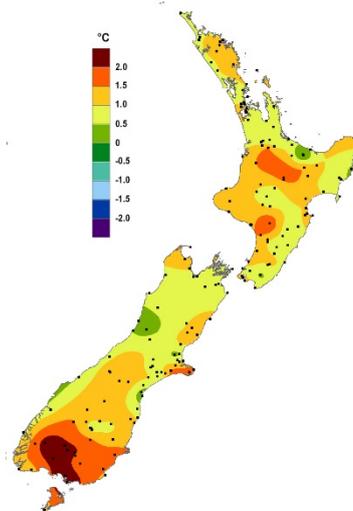
New Zealand Climate Update No 203, May 2016

Current climate – April 2016

During April 2016, a west to east oriented belt of significantly higher than normal pressure was present over New Zealand. This pressure pattern resulted in a settled month of weather, with warm temperatures, low rainfall and high sunshine hours characterising the month for many parts of the country.

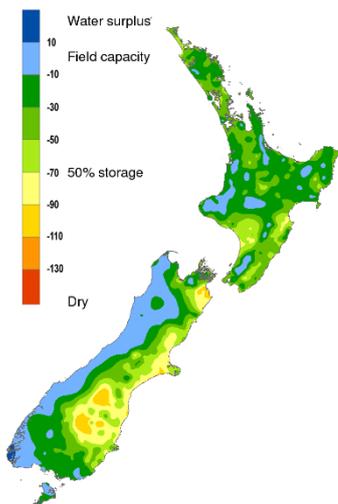
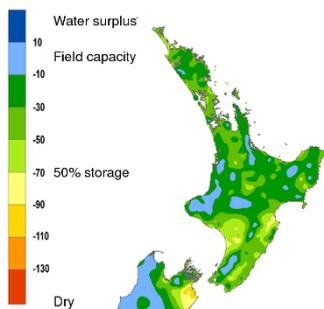


Percentage of normal rainfall for April 2016

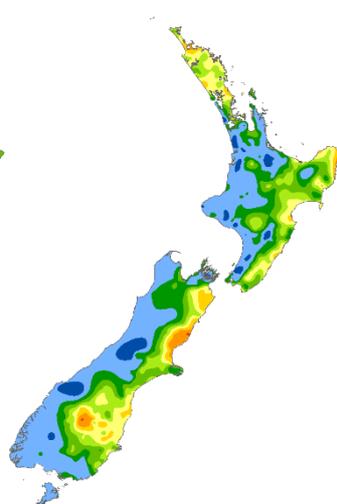


Departure from average air temperature for April 2016

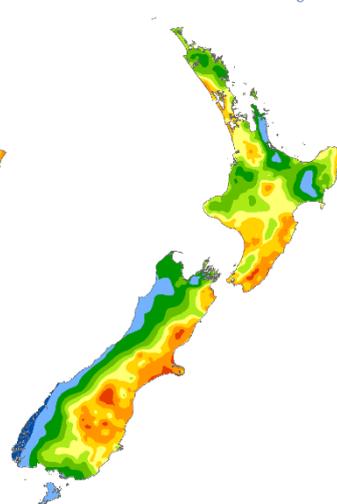
Soil moisture deficit (mm) at 9am on 01/05/2016



Historical average deficit at 9am on 1 May



Deficit at 9am on 01/05/2015



Deficit at 9am on 01/05/2016



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 below normal (<50% of normal) for parts of Northland, Auckland, Waikato, Hawke's Bay, Whanganui, Manawatu, Wairarapa, Wellington, Nelson, Tasman, Marlborough, Canterbury and Otago. Conversely, rainfall was well above normal (>149% of normal) or above normal (120-149% of normal) in the southwest of the South Island and Stewart Island.

Air temperature: April temperatures were well above average (>1.20°C above the April average) or above average (+0.51°C to +1.20°C above the April average) in parts of every region of the country. It was a particularly warm month for much of Southland which recorded temperatures more than 2.0°C above the April average. Isolated parts of Waikato, Gisborne, West Coast and Canterbury observed near average April temperatures (-0.51°C to +0.50°C of the April average).

Sunshine: Sunshine was well above normal (>125% of normal) or above normal (110-125% of normal) in many parts of the country. The exception was parts of Northland, Auckland, Waikato, Bay of Plenty and Southland where sunshine was near normal (90-109% of normal).

Soil Moisture: As at 1 May 2016, soil moisture levels were below normal for the time of year for eastern and inland parts of the South Island, and extensive parts of the North Island. Soil moisture levels were above normal in parts of Fiordland.

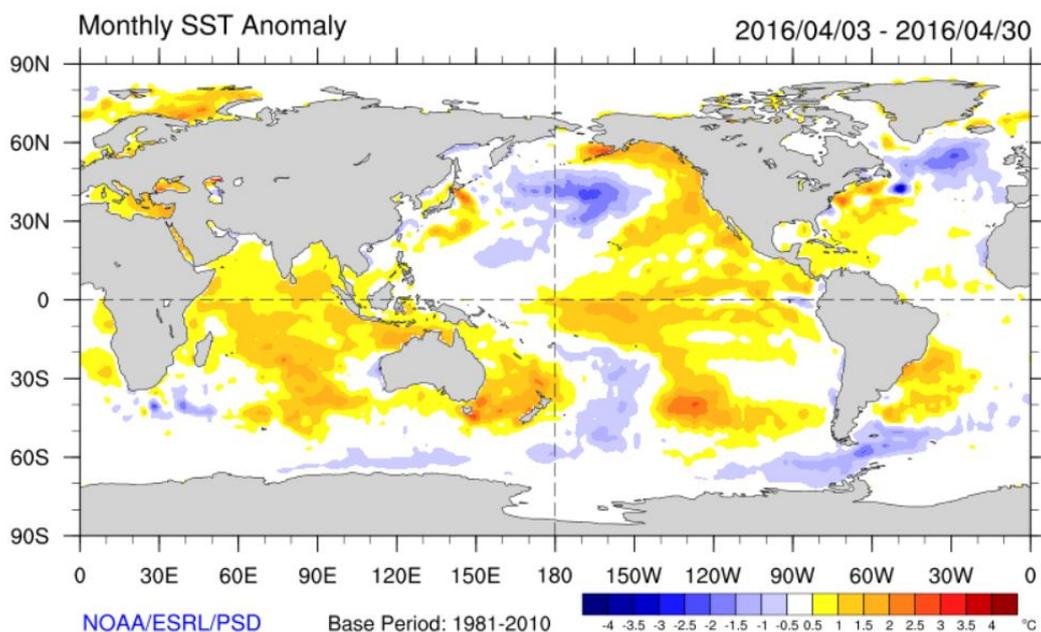
Global setting

El Niño conditions in the tropical Pacific weakened further during April 2016, with sea surface temperatures now typically only about +1°C warmer than normal.

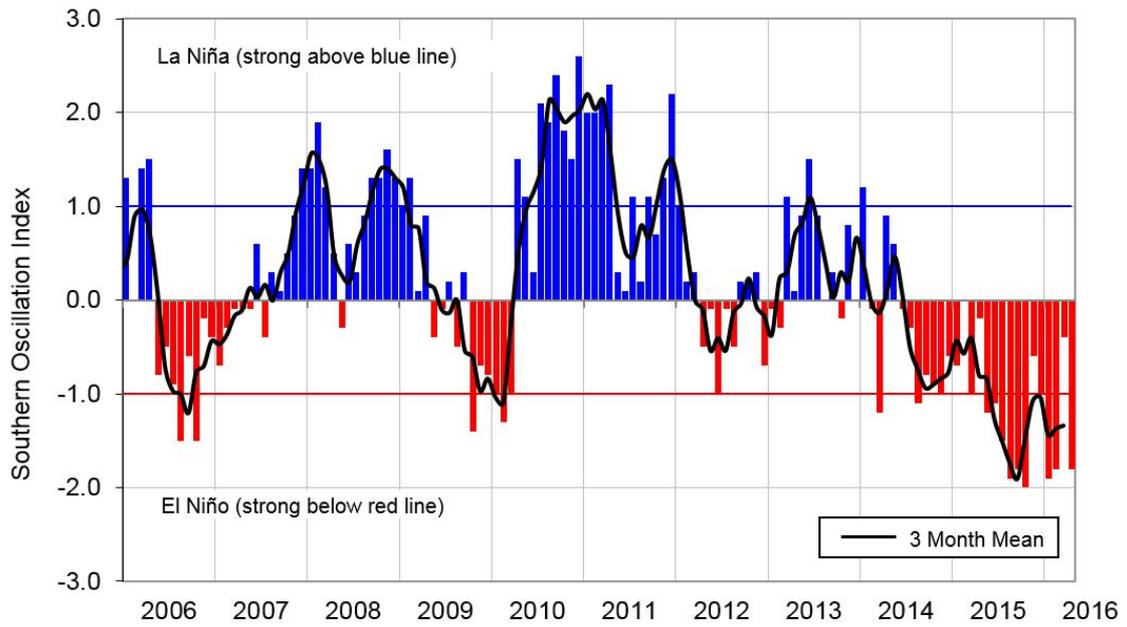
Moreover, cooler than normal sub-surface waters have spread eastward from the western Pacific, and temperatures are more than 3°C below normal between 50 and 100m depth east of 160°W. These changes in sub-surface temperatures mean the tropical Pacific is poised to make a rapid transition into La Niña conditions.

International guidance indicates that neutral ENSO conditions are very likely (76% chance) over the next three month period (May – July 2016), as a whole. The likelihood of La Niña development increases into early spring, with a 52% chance over August – October 2016, and a further increase to 60% over November 2016 – January 2017. Forecast models indicate it is very unlikely (less than 10% chance) for a return of El Niño conditions during the rest of 2016. Because of the good chance of La Niña forming later in 2016, NIWA is on a La Niña “Watch”.

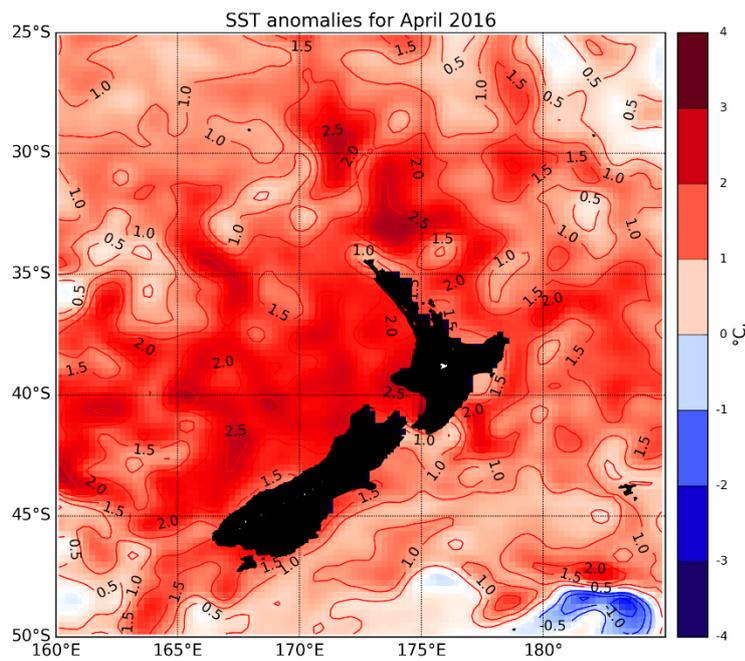
For May – July 2016, above normal pressure is forecast to the north and northeast of New Zealand. This circulation pattern is likely to be accompanied by anomalous north-westerly wind flow.



Differences from average global sea surface temperatures for 3 – 30 April 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: April SOI -1.8; February to April average -1.3.



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

Outlook – May 2016 to July 2016

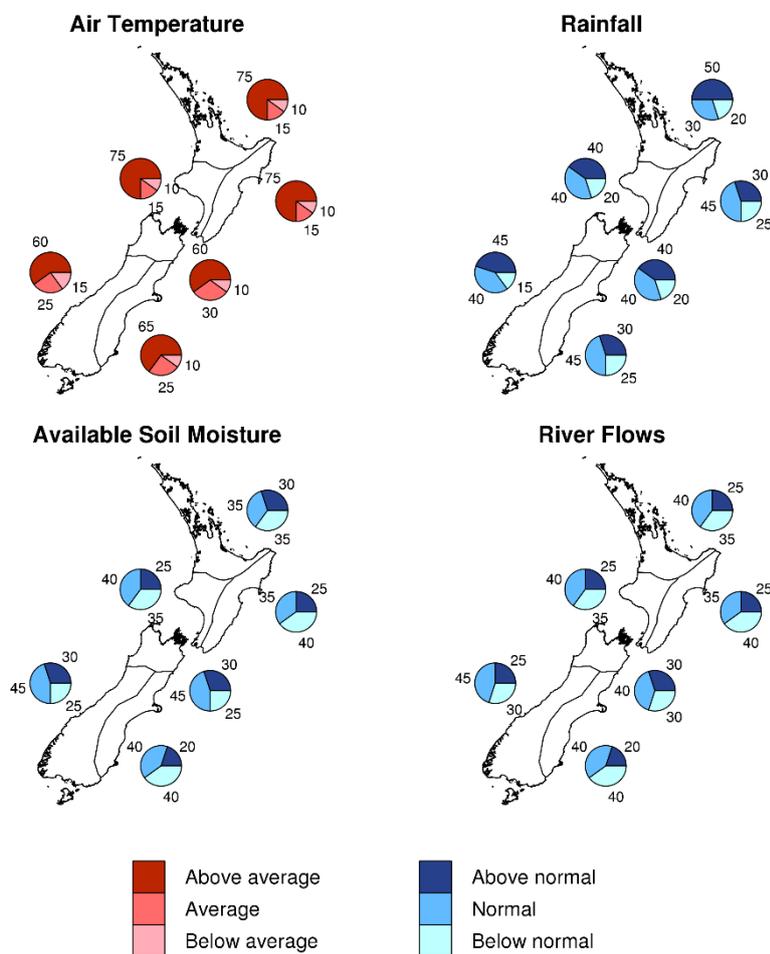
Temperatures are very likely to be above average (60-75% chance) in all regions of the country. Nevertheless, June and July are winter months, and frosts will occur from time to time in cooler locations.

Rainfall is likely to be above normal (50% chance) in the north of the North Island, likely to be near normal or above normal (40-45% chance) in the west of both islands and in Nelson-Marlborough, and likely to be in the near normal range (45% chance) in the east of both islands.

Soil moisture levels and River Flows are likely to be near normal or below normal (35-40% chance) in all North Island regions and in the east of the South Island. In the remainder of the South Island, soil moisture levels and river flows are likely to be in the near normal range (40-45% chance).

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

Outlook for May - July 2016



Graphical representation of the regional probabilities, Seasonal Climate Outlook, May - July 2016.

The climate we predicted (February 2016 – April 2016) and what happened

Predicted rainfall: February - April 2016 rainfall was about equally likely to be below normal or in the normal range for the north and east of the North Island and for the east of the South Island. Seasonal rainfall totals were most likely to be near normal for west of the North Island and for the north and west of the South Island.

Outcome: Actual rainfall was normal in the north of the North Island, north of the South Island, and west of the South Island. However, pockets of above-normal rainfall were found in the Far North, the Coromandel Peninsula, Tasman, Nelson, Westland and Fiordland. Meanwhile, rainfall was below normal in the west of the North Island, east of the North Island, and east of the South Island. Rainfall anomalies were especially extraordinary in parts of Carterton, where less than 20% of normal rainfall fell.

Predicted air temperature: February - April 2016 temperatures were most likely to be above average for the north and west of the North Island. Temperatures were about equally likely to be near average or above average for all remaining regions of the country.

Outcome: Actual seasonal temperatures were above average for the entire country. Temperature anomalies exceed 2°C in parts of the central and southern North Island as well as the central and eastern South Island.

Predicted air pressure: February - April 2016, above normal pressure was forecast to the north 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 westerly wind flows – a signature consistent with El Niño.

Outcome: were much higher than normal over and to the east of New Zealand. This pressure set-up resulted in north-easterly flow anomalies over the whole of New Zealand.

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

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