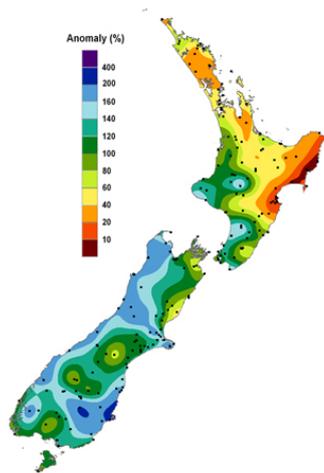


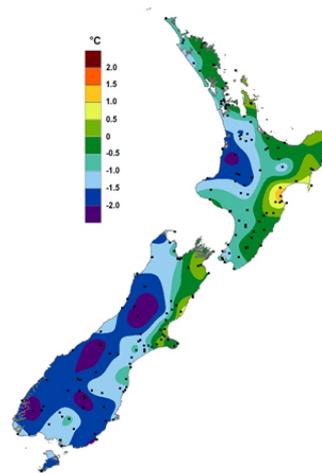
New Zealand Climate Update No 212, February 2017

Current climate – January 2017

January 2017 was characterised by significantly lower mean sea level pressure than normal over and to the south of New Zealand. This atmospheric pressure setup caused more southwesterly winds than normal across the country, which encouraged the passage of storms and low temperatures for much of New Zealand throughout the month.

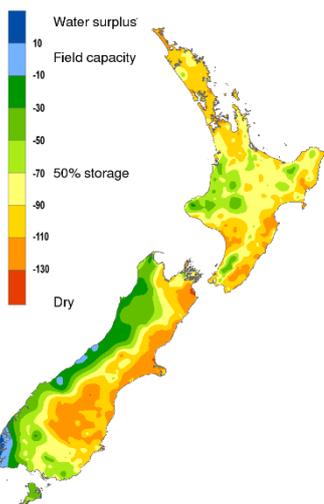


Percentage of normal rainfall for January 2017

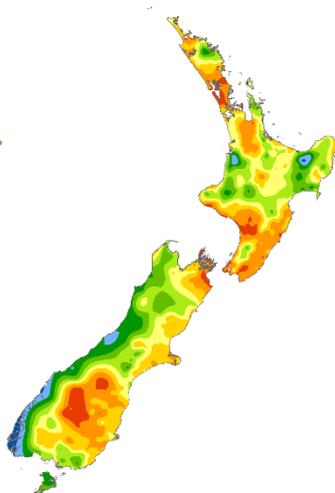


Departure from average air temperature for January 2017

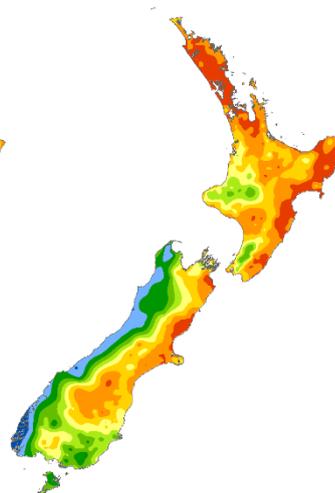
Soil moisture deficit (mm) at 9am on 01/02/2017



Historical average deficit at 9am on 1 Feb



Deficit at 9am on 01/02/2016



Deficit at 9am on 01/02/2017

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: Significant dryness in eastern North Island, well below normal rainfall (<50% of normal) in Gisborne, Hawke's Bay and Northland. Above normal (120-149% of normal) or well above normal (>149% of normal) rainfall for West Coast, middle and south-coastal Canterbury, Otago, inland Southland, Wellington and Manawatu-Whanganui.

Temperature: Well below average (< -1.20°C of average) or below average (-1.20°C to -0.50°C of average) temperatures for most of the South Island and south and west North Island. Near average (-0.50°C to +0.50°C of average) temperatures for eastern areas and well above average (>1.20°C of average) for a small number of locations in Hawke's Bay.

Sunshine: Near (90-110% of normal) or above normal sunshine (110-125% of normal) in eastern areas of the North Island and for parts of eastern Canterbury. Below normal (75-89% of normal) or well below normal (<75% of normal) sunshine for west and south of both North and South Islands.

Soil Moisture: As of 1 February, soil moisture levels were much lower than normal across most of the North Island, particularly in Northland, eastern Waikato, Coromandel, inland Bay of Plenty, East Cape, and Hawke's Bay. Soils were also drier than normal for coastal northern Canterbury. Soils were wetter than normal for the time of year for Tasman, West Coast, Otago and Southland, and near normal soil moisture levels were observed elsewhere.

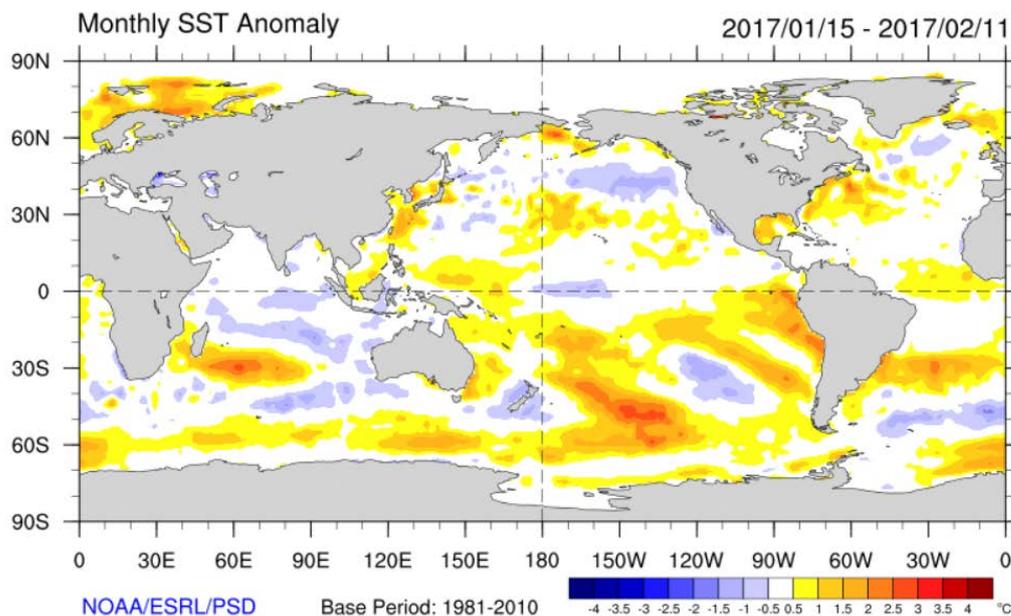
Global setting: January 2017

The tropical Pacific is currently in an ENSO (El Niño – Southern Oscillation) neutral state (neither El Niño nor La Niña).

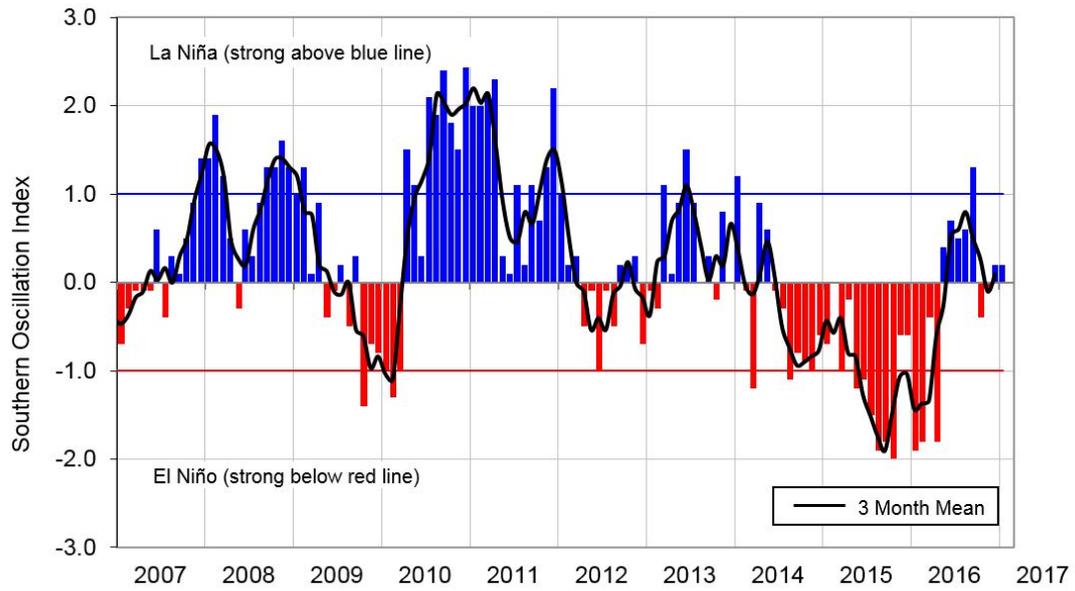
Sea surface temperatures (SSTs) in the central Equatorial Pacific Ocean are marginally below average. In the sub-surface ocean, the pockets of cooler than average temperatures that remained in December 2016 have all but dissipated and slightly warmer than normal ocean waters are now present in the western equatorial Pacific. The Southern Oscillation Index is close to zero for January 2017. Except for some aspects of rainfall and convection anomalies along the equatorial Pacific, the weak La Niña-like signals that were present in previous months have now vanished.

International guidance favours ENSO-neutral conditions with high probability (90% chance) over the next three month period (February - April 2017). Later during the year, the models indicate substantial chances for a return to El Niño conditions (37% in August – October 2017), but note that ENSO forecasts beyond the Southern Hemisphere autumn are known to be less reliable than at other times of the year.

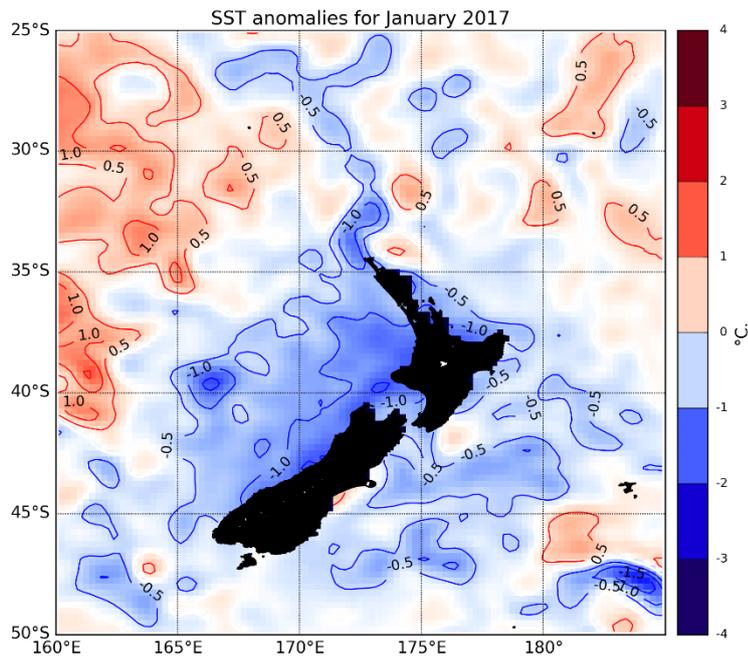
With the likely persistence of ENSO-neutral conditions, and the anticipated absence of other large- scale climate drivers over the next three months, the atmospheric circulation around New Zealand is expected to favour only slightly more westerly to south-westerly wind flows than normal.



Differences from average global sea surface temperatures for 15 January – 11 February 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: January SOI 0.2; November to January average 0.1.



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

Outlook: January – March 2017

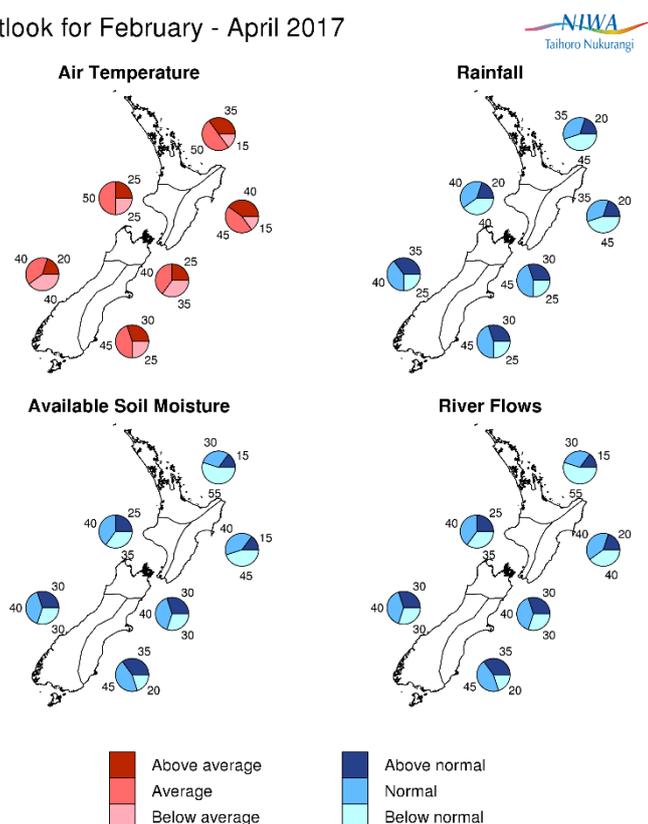
Temperatures are about equally likely to be near average (40% chance) or above average (35-45% chance) for the north and east of the North Island and for the east of the South Island. Near average temperatures are most likely (40% chance) for the remainder of the country.

Rainfall totals are about equally likely to be near normal (40% chance) or below normal (40-45% chance) for all North Island regions. Rainfall totals are about equally likely to be near normal (40% chance) or below normal (35% chance) for the north of the South Island. Near normal rainfall is most likely (40% chance) for the east and west of the South Island.

Soil moisture levels and River Flows are most likely (50% chance) to be below normal for the north of the North Island and about equally likely to be normal (40% chance) or below normal (45% chance) for the east and west of the North Island and east of the South Island. Near normal soil moisture levels and river flows are most likely (45-50% chance) for the north and west of the South Island.

Sea surface temperatures Sea surface temperatures (SSTs) are much warmer than average in the western part of the Tasman and along the east coast of Australia. The dynamical models' forecasts for SSTs indicate that this pattern is likely to persist over the next three month period. Thus, coastal waters around the country are expected to be near or slightly below average as a whole in February – April 2017.

Outlook for February - April 2017



Graphical representation of the regional probabilities, Seasonal Climate Outlook, February – April 2017.

The climate we predicted (November 2016 – January 2017) and what happened

Predicted rainfall: November 2016 – January 2017 rainfall totals were about likely to be above normal or near normal throughout the North Island. In the north and east of the South Island, rainfall was most likely to be near normal, whereas rainfall in the west and south of the South Island was about equally likely to be near normal or below normal.

Outcome: Actual rainfall was below normal for the north and east of the North Island and largely near normal for the west of the North Island. Pockets of above normal rainfall were observed in the Wellington Region as well as Porirua, the Kapiti Coast and South Taranaki. In the South Island, rainfall was above normal along the West Coast, Tasman, Nelson and eastern Otago.

Predicted air temperature: November 2016 – January 2017 temperatures were most likely to be above average for all regions of New Zealand.

Outcome: Actual seasonal temperatures were near average for much of the North Island with the exception of the New Plymouth, Stratford, Ruapehu, Waitomo, Otorohanga and Waikato districts where temperatures were below average. Small pockets of above average temperature were found in coastal Gisborne and Hawke's Bay. In the South Island, temperatures were largely below average with the exception of Nelson, Marlborough and coastal Canterbury where temperatures were near average.

Predicted air pressure: The circulation pattern expected for November-January for New Zealand was broadly consistent with a typical La Niña signature: higher pressure than normal was forecast to the south and southeast of the country, while lower pressures than normal were forecast to the north of the New Zealand, leading to more persistent easterly or north-easterly airflow than normal.

Outcome: Actual pressures were lower than normal over New Zealand and particularly low south of the country. This pressure set up produced more south-westerly winds than normal across the country.

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

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