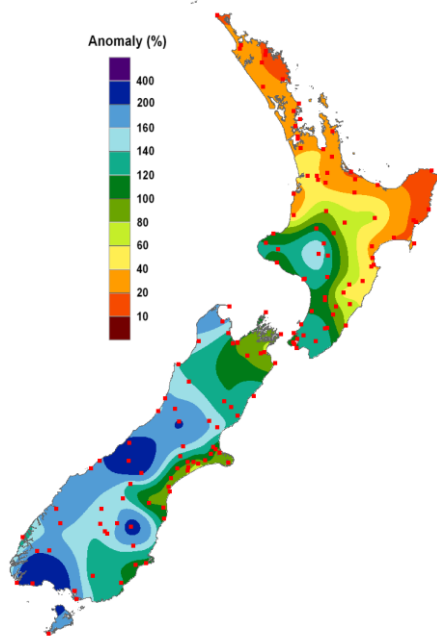


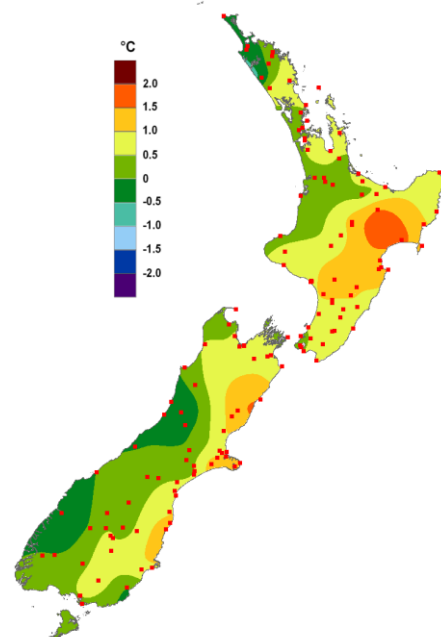
New Zealand Climate Update No 173, November 2013

Current climate – October 2013

October 2013 was characterised by mean sea level pressure anomalies that were strongly negative around the New Zealand region, particularly in the south-western sector. These regional pressure patterns resulted in frequent west to south-west flows across New Zealand. These flows resulted in considerable October rainfall totals along and west of the Southern Alps, and frequent episodes of warm air temperatures to the east of the Southern Alps due to the foehn effect.

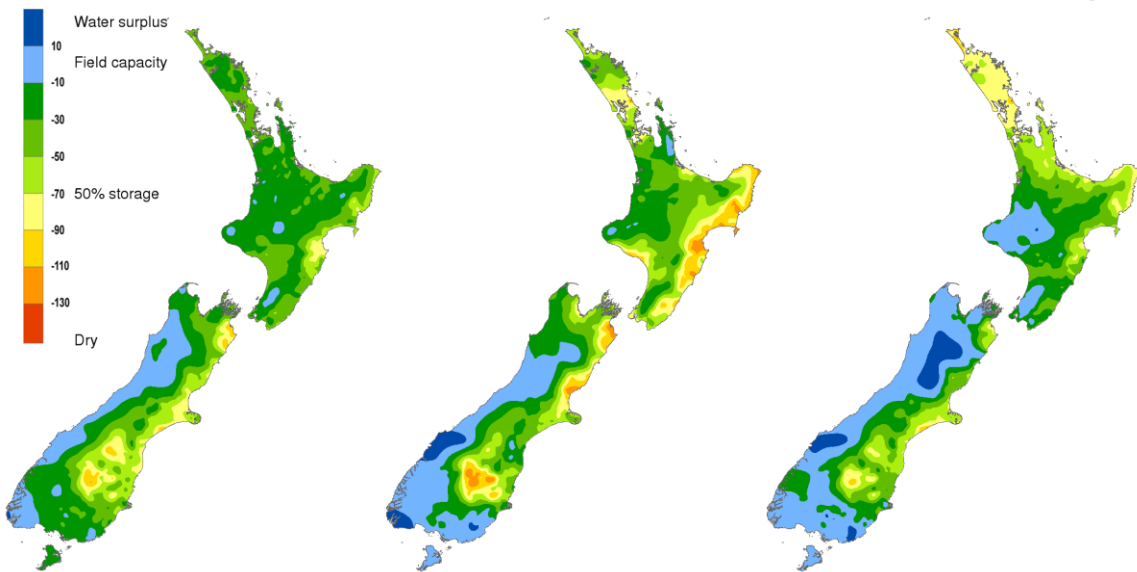


Percentage of normal rainfall, October 2013



Departure from average air temperature for October 2013

Soil moisture deficit (mm) at 9am on 01/11/2013



Historical average deficit at 9am on 1 Nov

Deficit at 9am on 01/11/2012

Deficit at 9am on 01/11/2013



End of month water balance in the pasture root zone for an average soil type, where the available water capacity is 150mm.

Rainfall

Considerable variations in rainfall anomalies were observed across the country. Well below normal rainfall (less than 50 percent of October normal) was recorded throughout Northland, Auckland and Gisborne. Rainfall was either well below normal or below normal (50-79 percent of October normal) in Waikato (with the exception of the southwest of the region), Bay of Plenty and Hawke's Bay. Below normal rainfall was also recorded in coastal mid-Canterbury and north-eastern Marlborough. In contrast, well above normal rainfall (more than 150 percent of October normal) occurred near and west of the Southern Alps, and in south-western parts of Southland, eastern Central Otago and northwest Tasman. Rainfall was generally above normal (120-149 percent of October normal) for the remainder of New Zealand, with the exception of rather limited areas including Dunedin, the Canterbury Plains, Marlborough and parts of the south-western North Island where near normal rainfall (within 20 percent of October normal) was recorded. As at 1 November 2013, soils were drier than normal in north-eastern parts of New Zealand, especially about Northland, northern Auckland and coastal Bay of Plenty. In contrast, soils were wetter than normal about eastern Southland and Otago, the Southern Lakes, northern Canterbury and Whanganui. Soil moisture levels were mostly near normal for the remainder of the country.

Air temperature

Near average temperatures (within 0.5°C of October average) were recorded in western and southern parts of Southland and Otago, the Canterbury High Country, Westland, northwest Tasman, northern Taranaki, and northern parts of Waikato, Auckland and Northland. Above average temperatures (0.5-1.2°C above October average) occurred throughout most remaining areas of New Zealand, with well above average temperatures (more than 1.2°C above October average) recorded in parts of Hawke's Bay and north Canterbury near Kaikoura. The nation-wide average temperature in October 2013 was 12.9°C, (0.8°C above the 1971-2000 October average from NIWA's seven-station temperature series which begins in 1909).

Sunshine

October was a very sunny month for Northland, Gisborne, Hawke's Bay and mid-Canterbury (well above normal sunshine totals, more than 125% of October normal). Above normal sunshine (110-125 percent of normal October sunshine) occurred throughout central parts of the North Island, Bay of Plenty and northern Auckland. Below normal sunshine (75-90 percent of normal October sunshine) was recorded for the northwest and southwest of the South Island. Sunshine was near normal elsewhere (within 10 percent of normal October sunshine).

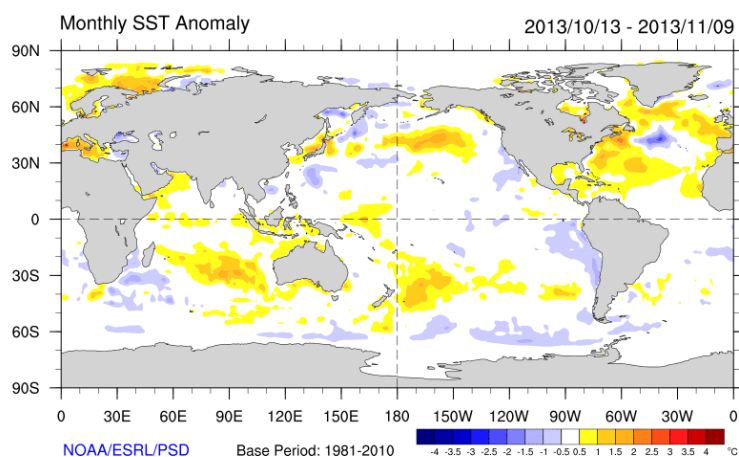
Global setting

The equatorial Pacific Ocean continues in a neutral state (neither El Niño nor La Niña). The recent cooler-than-normal sea-surface conditions (La Niña-like) in the eastern tropical Pacific have disappeared, but slightly warmer-than-normal sea-surface temperatures persist west of the Dateline. International guidance indicates that ENSO-neutral conditions are the most likely outcome for the next three months (November–January), and neutral conditions are likely to persist into autumn 2014.

In the New Zealand region, lower pressures than normal are forecast in the Tasman Sea and across the North Island, and higher pressures than normal are expected to the south of the country. This circulation pattern is expected to produce disturbed northerly quarter flows over the north of the country, and slightly enhanced easterly flows over the South Island.

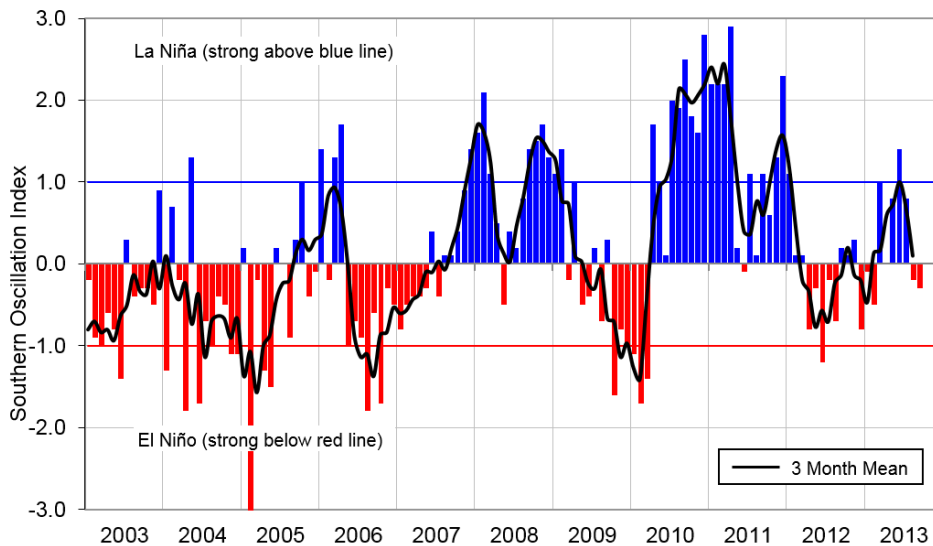
Sea surface temperature

Sea surface temperatures are expected to remain near average overall for the coming three months around New Zealand, except for above average temperatures east of the North Island.



Differences from average global sea surface temperatures for 13th of October to 9th November 2013.

Map courtesy of NOAA Climate Diagnostics Centre



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 -0.3; August to October average -0.1.

Outlook – November 2013 to January 2014

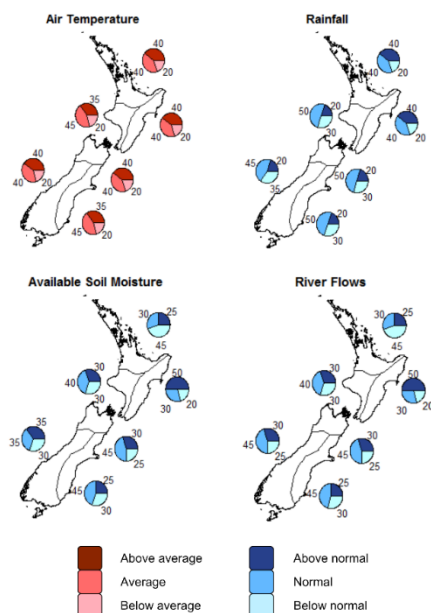
Temperatures are equally likely (40% chance) to be near average or above average in all regions of New Zealand, except for the west of the North Island and east of the South Island, where near average temperatures are the most likely outcome (45% chance).

Rainfall is forecast to be most likely (45-50% chance) near normal in all regions except for the north and east of the North Island, where rainfall is equally likely (40% chance) to be near normal or above normal.

Soil moisture levels and river flows are most likely (45% chance) to be below normal in the north of the North Island, and most likely (50% chance) to be above normal in the east of the North Island, and likely to be near normal for all remaining regions.

For the **tropical cyclone** season (November – April), the risk of an ex-Tropical Cyclone (ETC) approaching New Zealand is expected to be close to normal. Based on the long-term record, ETCs come within 550km of New Zealand for 9 out of every 10 years (averaging close to one event per year). These systems typically occur during the latter part of the TC season (February–April). For ENSO-neutral years, ETCs are twice as likely to pass to the east of Auckland than west of the city.

Outlook for November 2013 - January 2014



Graphical representation of the regional probabilities, Seasonal Climate Outlook, Nov-Jan 2014.

Note: A new colour scheme is being trialled this month – aimed at making the regional probabilities more legible to those with certain forms of colour blindness.

The climate we predicted (August to October) and what happened

Predicted rainfall: Rainfall is forecast to be normal or above normal in the east and north of the North Island as well as the west of the South Island, while normal or below normal rainfall is likely for the west of the North Island and the north of the South Island. Normal rainfall is expected for the east of the South Island.

Outcome: Actual rainfall for the forecast period was above normal for the west of the South Island, with closer to normal rainfalls observed for all other regions of the country. In spite of this, isolated areas of above normal rainfall were recorded across Stewart Island, Invercargill, Kaikoura, north-eastern Tasman, Kapiti Coast, Horowhenua, western Masterton, western Carterton, Taranaki, Hastings and coastal Gisborne Districts.

Predicted air temperature: Temperatures are very likely to be above average in the North Island regions as well as in the north of the South Island, and likely to be average or above average in the east and west of the South Island. Nevertheless, cold snaps, frost and snow conditions will of course still occur in many areas from time to time, as is typical of this time of year.

Outcome: The forecast was well advised with above average temperatures between 0.5-2.0°C observed across all regions. However, pockets of closer to normal conditions were recorded in parts of the Far North, southern Hawkes Bay, Grey and central Otago.

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

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