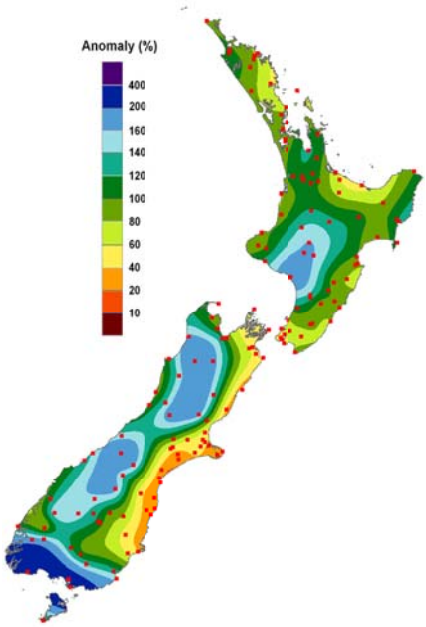
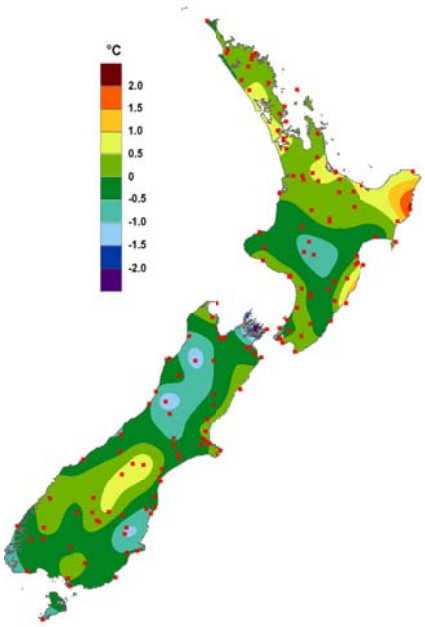
New Zealand Climate Update No 146, August 2011

Current climate – July 2011

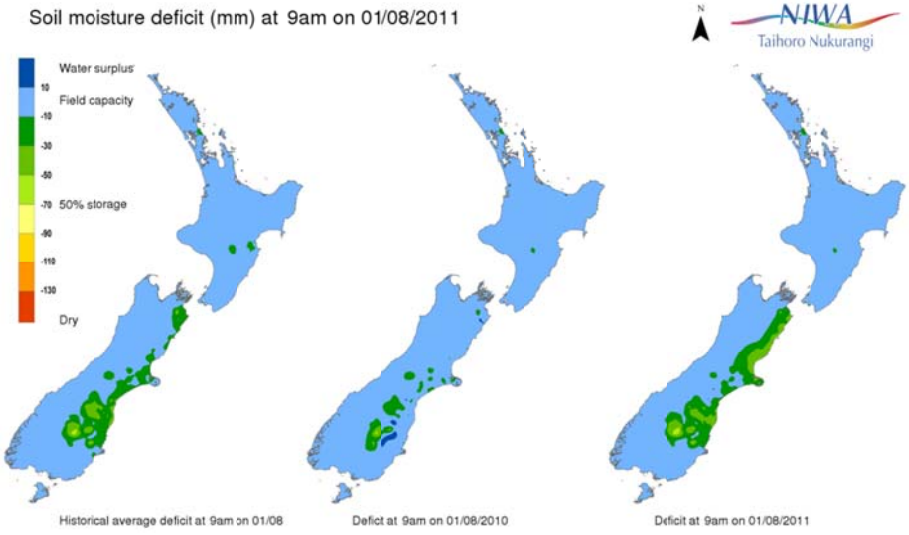
Low pressures were anchored south of New Zealand and the Chatham Islands during July, producing an extremely windy and stormy month overall. Mean sea level pressures over the southern half of the South Island were unusually low for the month as a whole, and the monthly "westerly wind" index for Christchurch southwards was the second-strongest for July, since records began in 1941.



Percentage of normal rainfall, July 2011



Departure from average air temperature for July 2011.



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

Rainfall

The frequent westerly winds during July resulted in a very wet month for western areas of both islands. July rainfall totals were well above normal (exceeding 150 percent of July normal) across the south and west of the South Island, as well as for Wanganui to Waiouru, reflecting the stormy, southwesterly nature of the month. It was the wettest July on record around Invercargill, with more than 200 percent (double normal) July rainfall there. Two localised areas which were also very wet were the Firth of Thames, and Tolaga Bay. In sharp contrast, the entire eastern South Island was extremely dry (with less than 50 percent of July normal rainfall). Below normal rainfall (between 50 and 79 percent of July normal) was also experienced around Wellington, the Bay of Plenty, and eastern parts of Northland. Elsewhere, July rainfall was close to normal.

Air temperature

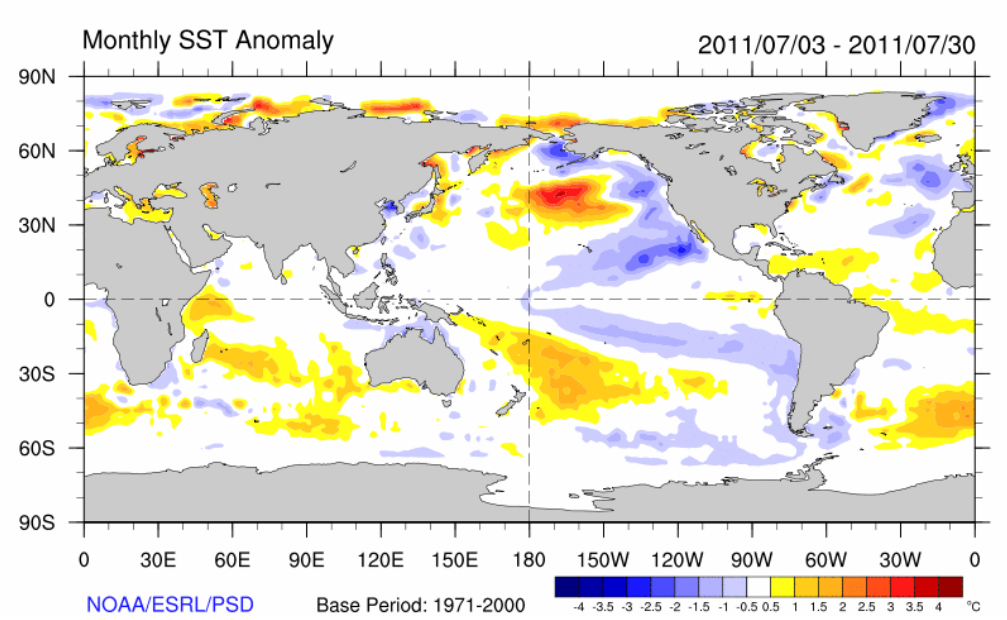
The month of July started out unusually warm in eastern areas of both islands, but a polar blast during 24-26 July delivered a bitterly cold air mass over the country – so that mean temperatures for July were near average, overall, for many regions of the country. Extremely cold air affected Canterbury, the Kaikoura coast, Nelson, Wellington, Wairarapa, Manawatu, Hawkes Bay and Taranaki during 25-26 July, and snowfall was heavy and to low levels over Canterbury, the Kaikoura Ranges (both Inland and Seaward), the Richmond Ranges, Tararua and Rimutaka Ranges, the Central Plateau, and around Mt Egmont. Brief dustings of snow were also reported in the ranges of Motueka and Northland on the 25th. The average temperature in July 2011 was 8.0°C (0.1°C above the 1971–2000 June average) using NIWA's seven-station temperature series which begins in 1909.

Sunshine

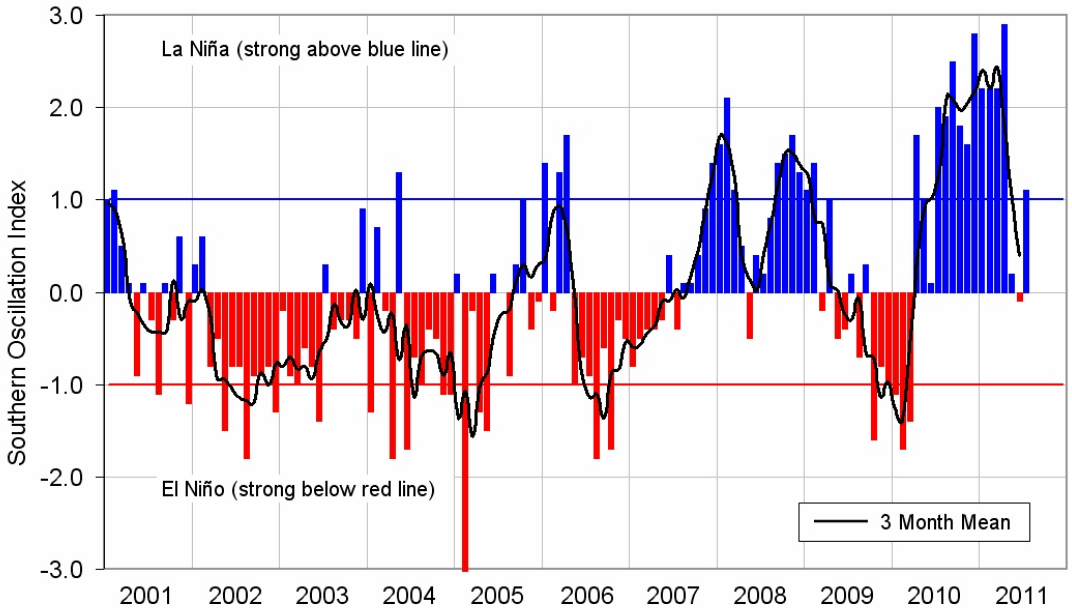
Sunshine totals were well above normal (exceeding 125 percent of July normal) for the entire east coast of the South Island, as well as coastal Wairarapa. It was the sunniest July on record at Cheviot. In contrast, it was very cloudy for the southwest of the South Island (Westland, Fiordland, Southland and central Otago). This contrast in sunshine hours across the Southern Alps reflects the enhanced westerly winds experienced during the month. It was also rather sunny for Nelson, Hawkes Bay, and much of Northland and Auckland (with totals between 110 and 125 percent of July normal). Elsewhere, July sunshine hours were close to normal.

Global setting

ENSO conditions in the tropical Pacific are now in the neutral range and are expected to remain neutral through to spring. During the August-October season as a whole, mean sea level pressures are likely to be above normal to the south and southeast of New Zealand, with weaker westerlies over the country, on average. However, the month of August is expected to be rather different, with a continuation of the recent disturbed south-westerly flow.



Differences from average global sea surface temperatures for 3rd July 2011 to 30th July 2011. 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). Estimated SOI mean values: July SOI +1.1; May to July average +0.4

Outlook August to October 2011

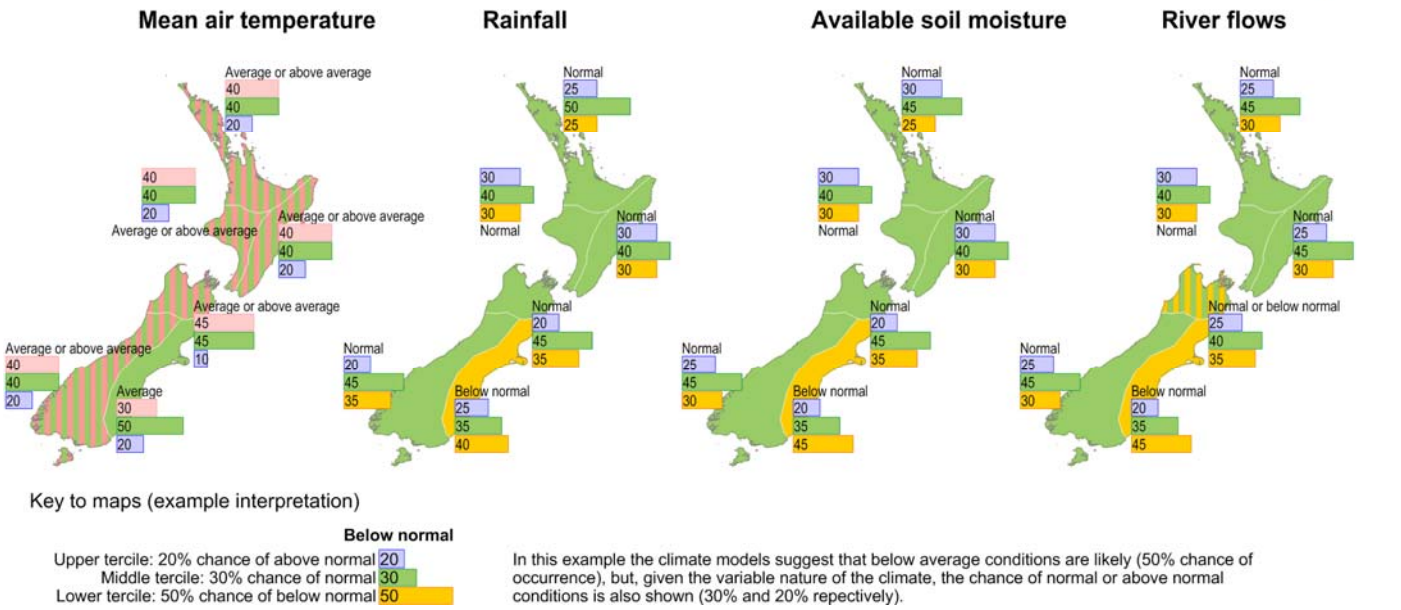
Temperatures for the 3-month period are likely to be near average or above average in all regions, except for the east of the South Island where near average temperatures are likely. Cold snaps typical of winter will occur from time to time through the period.

Seasonal rainfall is likely to be normal or below normal in the east of the South Island, and near normal in all other regions.

Soil moisture levels levels are likely to be below normal in eastern South Island, and near normal in all other regions.

River flows are likely to be below normal in eastern South Island, near normal or below normal in the north of the South Island, and normal in all other regions.

Outlook for August-October 2011



The climate we predicted (May to July 2011) and what happened

Predicted rainfall: Seasonal rainfall is likely to be normal or above normal in the north and east of the North Island, near normal in the southwest North Island and northern South Island, and normal or below normal over the rest of the South Island.

Outcome: Above normal rainfall fell south of the Auckland Region, parts of the Waikato Region, the Bay of Plenty, north and east of the Gisborne Region, the Taranaki Region, coastal Manawatu, the top of the South Island, parts of the Westcoast Region, central Otago and south of the Southland Region. Below normal rainfall fell in south of the Hawkes Bay Region, eastern Manawatu, east and south of the Wellington Region, most of the Canterbury Region and west of the Southland Region. Normal rainfall fell elsewhere.

Predicted air temperature: Temperatures are likely to be above average across all the North Island and in Buller/Nelson/Marlborough, and average or above average over the rest of the South Island.

Outcome: Most parts of New Zealand experienced above average temperatures apart from small parts of the Northland Region, east of the Wellington Region, west of the Southland Region and Stewart Island where normal temperatures were recorded.

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

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