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NIWA
Taihoro Nukurangi

The Climate Update

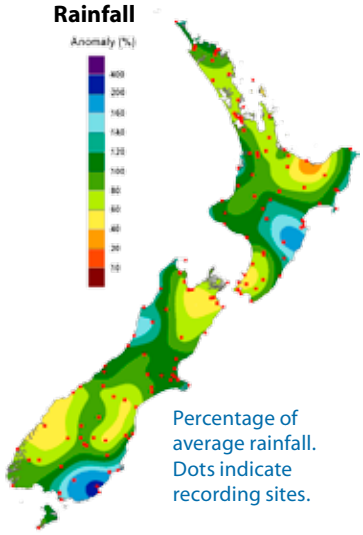
A monthly newsletter from the National Climate Centre

June – more southwesterlies than usual with resulting cold conditions, particularly in the south. Mostly higher than normal sunshine hours over New Zealand. Low rainfall in Bay of Plenty, and below normal streamflows over much of the country.

Outlook for July to September – air temperatures average or above over much of New Zealand, although cold outbreaks typical of winter remain likely. Normal or above normal rainfall in the east and north of the North Island.

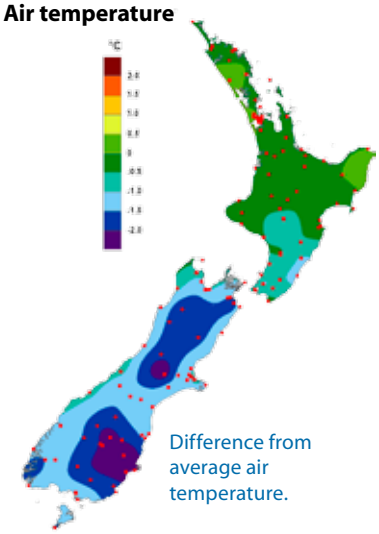
New Zealand climate in June

Rainfall



Percentage of average rainfall. Dots indicate recording sites.

Air temperature



Difference from average air temperature.

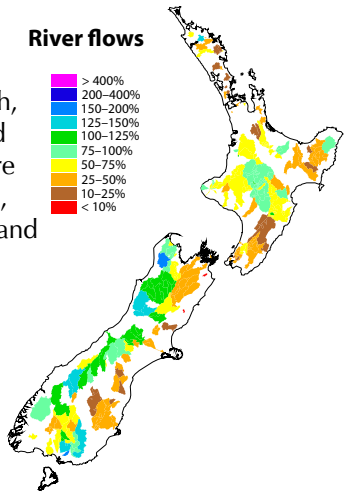
June brought lower than normal rainfall in Bay of Plenty, and parts of central New Zealand. More southwesterlies than usual in June meant cold conditions predominated over the South Island. The average temperature for New Zealand (7.9 °C) dropped by 4 °C compared to May. [See www.niwascience.co.nz/ncc/cs/mclimsum_07_06]

River flows

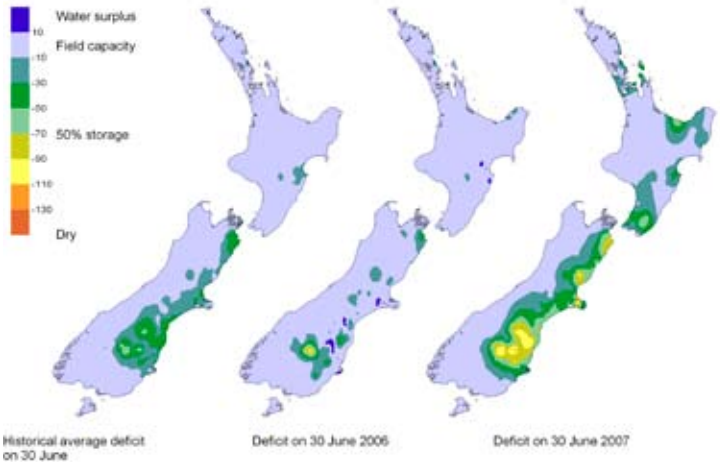
Streamflows were below normal over the North Island, Marlborough, coastal Canterbury and Otago, and inland Southland. Streamflows were above normal in coastal Southland, some alpine catchments of Otago and Canterbury, and north Westland.

Percentage of average June river and stream flows in monitored catchments. NIWA field teams, regional and district councils, and hydropower companies are thanked for providing data.

River flows



Soil moisture deficit



Moisture levels recover in the north

Soil moisture levels along the North Island's east coast recovered strongly in June. In the South Island, deficits remain in parts of Marlborough, Canterbury, and Otago.

Water balance in the pasture root zone for an average soil type, where the available water capacity is taken to be 150 mm.

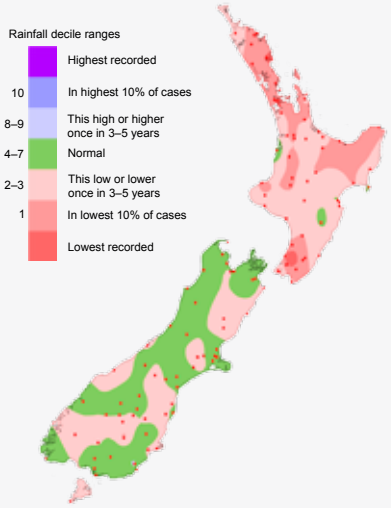
April to June – the climate we predicted and what happened

Rainfall

Predicted: Normal in most districts, but near or below normal in the eastern South Island.

Outcome: Below normal in the North Island and parts of the South Island. Normal elsewhere in the South Island.

April to June rainfall

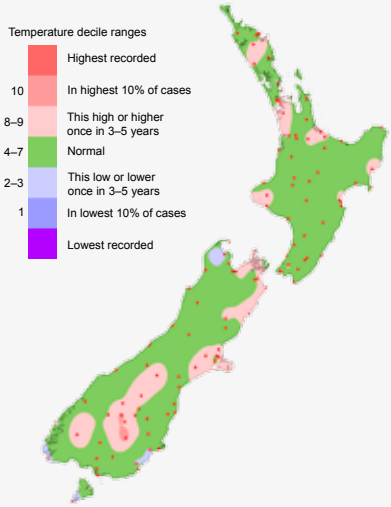


Air temperature

Predicted: Near average in the North Island and average or below average in the South Island.

Outcome: Near average in most districts. Above average and warmer than expected in some places.

April to June temperature

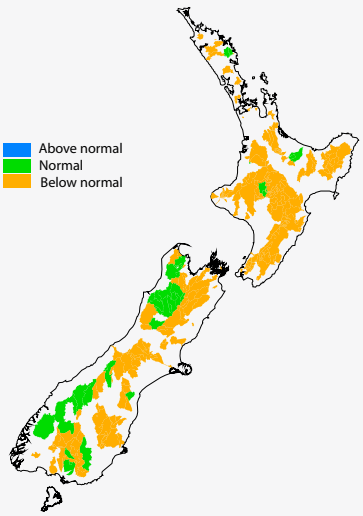


River flows

Predicted: Normal in all regions except the east of the South Island, where below normal streamflows were expected.

Outcome: Streamflows were below normal everywhere except for some alpine catchments in the South Island where streamflows were normal.

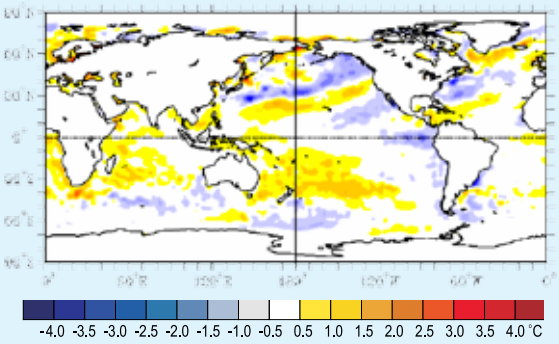
April to June river flows



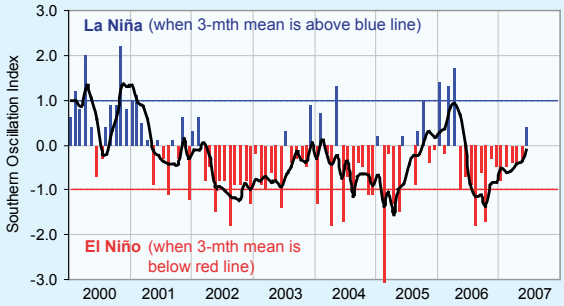
Global setting and climate outlook

La Niña on its way

Conditions in the tropical Pacific are currently neutral, although progressing slowly towards La Niña. The pattern of sea surface temperature anomalies resembles conditions that are typical of La Niña, with colder than average waters in the far eastern Pacific and slightly warmer than average waters in the western Pacific. The SOI has risen in the last month to +0.4, and so is now more in phase with the oceanic part of ENSO than it was in earlier months.



Difference from average global sea surface temperatures for June 2007. Map courtesy of NOAA Climate Diagnostics Centre.

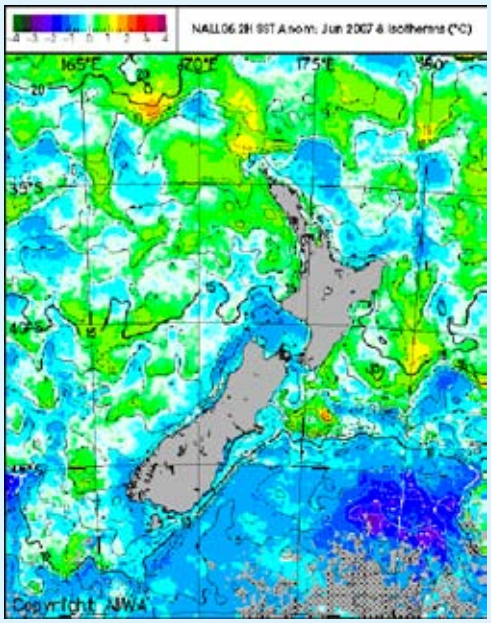


Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressures across the Pacific, and the three-month mean (black line).

SOI mean values:
June: +0.4
April to June: -0.1

Sea surface temperatures (SST) around New Zealand

Sea surface temperature anomalies in the New Zealand region increased in June, warming slightly to +0.8 °C, from +0.7 °C in May. The mean three month April to June anomaly was about +0.6 °C. SST anomalies have increased since April throughout most of the Tasman Sea, except for south of Chatham Rise to the east of the South Island, an area which remains cooler than normal.



Differences from normal June surface temperatures in the seas around New Zealand.

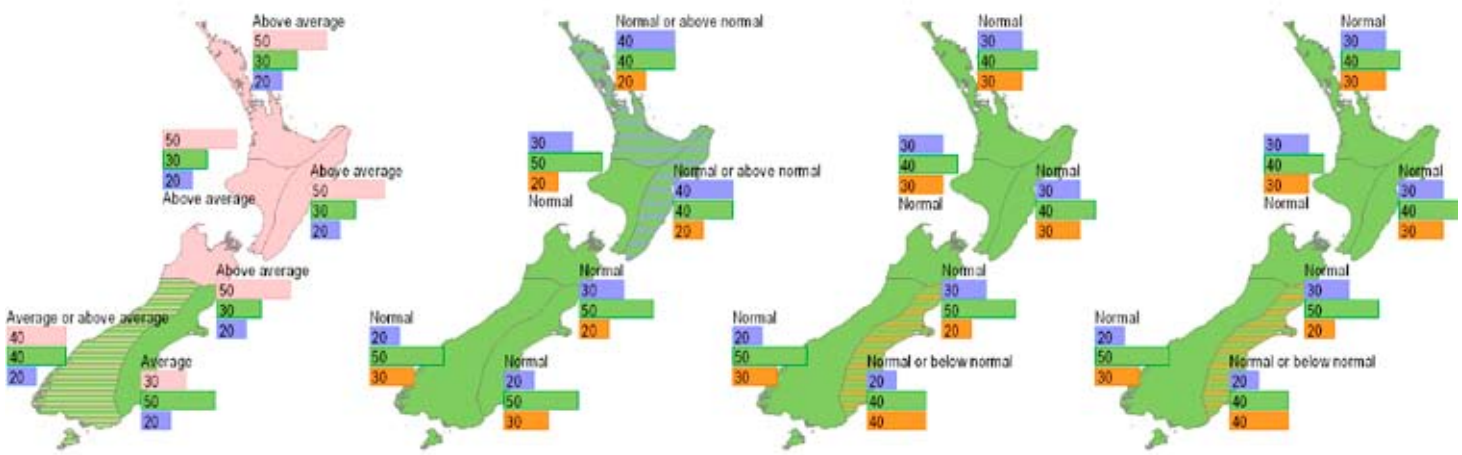
Outlook for July to September 2007

Atmospheric pressures at mean sea level are expected to be higher to the south or southeast of New Zealand, with more east or northeast winds than usual across the North Island.

Temperatures over land are likely to be above average across the country, with average or above average temperatures likely in the west of the South Island. Despite the overall temperature expectation, cold outbreaks typical of winter and early spring will occur from time to time.

Normal or above normal rainfall is expected in the north and east of the North Island, and normal rainfall elsewhere. Normal soil moisture and streamflows are expected everywhere except for the east of the South Island, where they are likely to be normal or below normal.

Mean air temperature | **Rainfall** | **Available soil moisture** | **River flows**



How to interpret these maps

In the example here the climate models suggest that below normal conditions are likely (50% chance), but, given the variable nature of the climate, the chance of normal or above normal conditions is also shown (30% and 20% respectively).

Below normal
20 — 20% chance of above normal
30 — 30% chance of normal
50 — 50% chance of below normal

NIWA's new free data policy

From this month, NIWA is making access to our nationally significant databases free over the web. The initiative covers archived data on climate, lake level, river flow, sea level, water quality, and freshwater fish from NIWA, the MetService, and several other contributing agencies.

"We hope our free data policy will contribute to good natural resource planning and decision-making and encourage further scientific discovery," says Dr Barry Biggs, NIWA's General Manager of Environmental Information.

Chris Arbuckle, Manager of Environmental Information, Environment Southland, describes this as "a fantastic and long-awaited initiative." He says, "The whole reason for gathering environmental information is to see it used, analysed, improved, and explained. The more eyes you have looking at the facts the more you learn."

How can I get climate data?

To get started, go to our climate website [http://cliflo.niwa.co.nz] and fill in a 'subscription' form. This is simple and free. It tells us that you accept our standard terms and conditions for data use, and provides us with basic information to help improve the service.

Previous users of CliFlo will have the unused portion of their subscription refunded. New users of the climate database will find on-line help and a 'dummies' guide' on the CliFlo home page.

There are some technical limits to the size of downloads, and you will have to update your 'subscription' every two years or after you've downloaded two million rows, whichever is sooner. If you need customised formats or non-standard data, there will be a charge for the labour involved. There will also continue to be limits on access to some data which NIWA does not own, such as climate data from the Pacific, where the data owners themselves have imposed such restrictions.

The free data policy covers archived data. If you require 'real-time' measurements, please contact us.

About the National Climate Database:

The database currently contains over 250 million individual measurements.
Data are from 7471 climate stations, of which 2817 (38%) are currently 'open' (taking measurements at present). This includes 311 stations in the Pacific (restricted access – not free), and 4 stations in Antarctica.

- 202 stations have data before 1900,
- two stations have data before 1855,
- earliest station: Dunedin, Princes St, opened 1 November 1852, closed 31 March 1864,
- longest-running station: Christchurch Gardens, opened December 1864 & still open, Observations include rain, temperature (earth & air), wind, soil moisture, evaporation, solar radiation, sunshine, pressure, and humidity.

Other free data: water and freshwater fish

For these data, also available free over the web, go to:
Water: http://edenz.niwa.co.nz
Freshwater fish: http://fbis.niwa.co.nz

Checking an automatic rain gauge at Wellington Airport. Close attention to instrument accuracy and reliability ensures users of the National Climate Database can rely on the quality of the data.
Cover photo: *Alan Blacklock*

The Climate Update is a monthly newsletter from NIWA's National Climate Centre, and is published by NIWA, Private Bag 14901, Wellington. It is also available on the web. Comments and ideas are welcome. Please contact Alan Porteous, Editor
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Visit our webpage: www.niwa.co.nz

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Weather veteran retires

Les Henderson checks the amount of rain in a glass measure for the last time, prior to the Blackstone Hill, Central Otago, rainfall station closing last month. The station was established in 1915, firstly just down the road at the local Blackstone Hill post office, and when that closed in 1938 it was shifted to the Henderson's property. The gauge was read by Margaret Henderson from 1938 until 1986, when she was confined to a wheelchair and brother Les took over. He has read it ever since, travelling several kilometres from his house to the rain gauge site each time. Now in his eighties, Les has decided to semi-retire to a property on the Taieri Plains.

People like Margaret and Les Henderson have contributed beyond measure to the foundation of long-term rainfall records in New Zealand, providing fundamental data for current climate studies and the understanding of our contemporary environment. It is important that their voluntary and enduring commitment to the job is recognised and appreciated by all who use the National Climate Database.