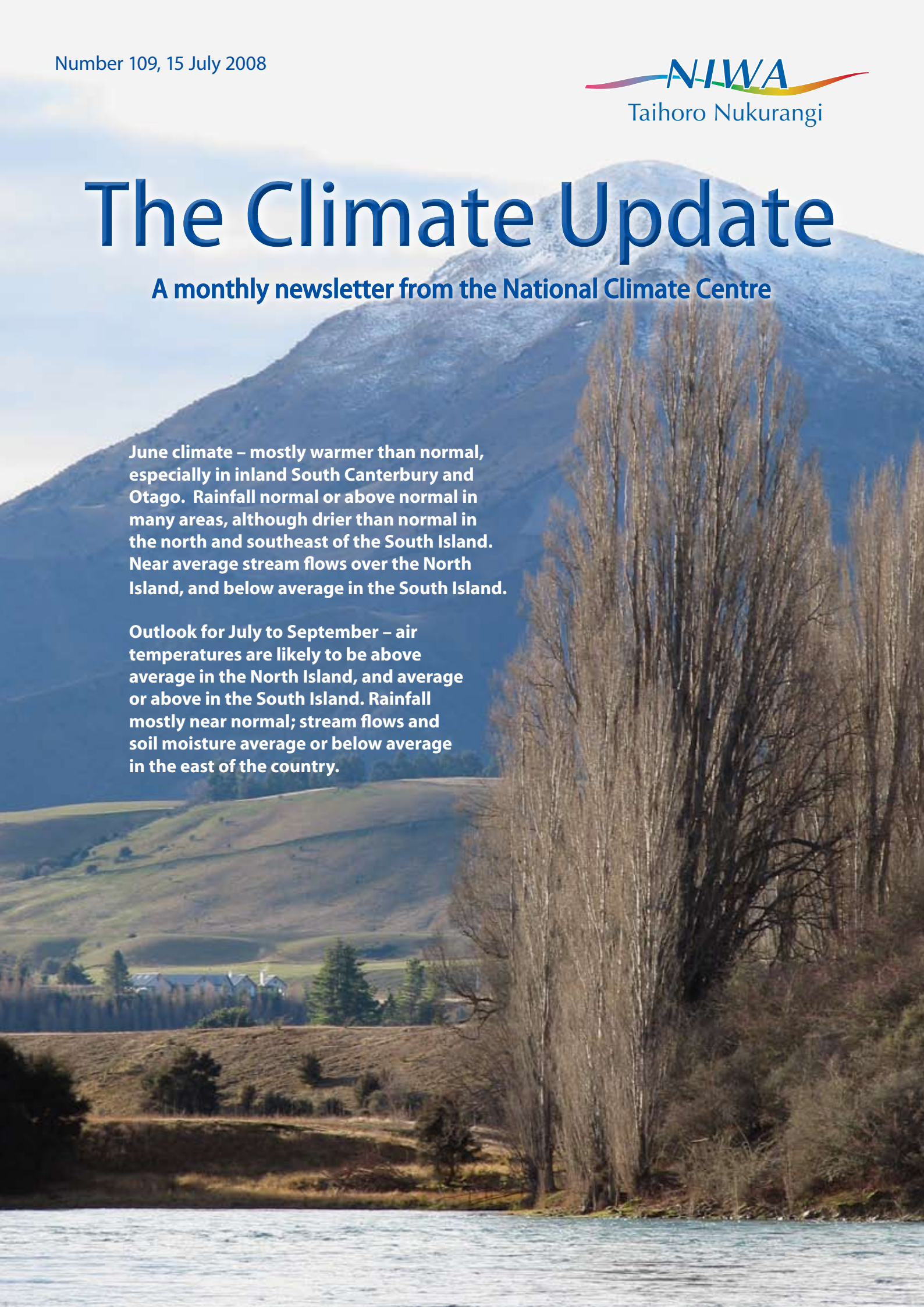
Number 109, 15 July 2008

NIWA
Taihoro Nukurangi

The Climate Update

A monthly newsletter from the National Climate Centre

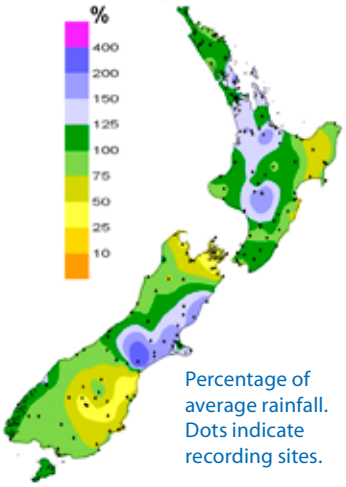


June climate – mostly warmer than normal, especially in inland South Canterbury and Otago. Rainfall normal or above normal in many areas, although drier than normal in the north and southeast of the South Island. Near average stream flows over the North Island, and below average in the South Island.

Outlook for July to September – air temperatures are likely to be above average in the North Island, and average or above in the South Island. Rainfall mostly near normal; stream flows and soil moisture average or below average in the east of the country.

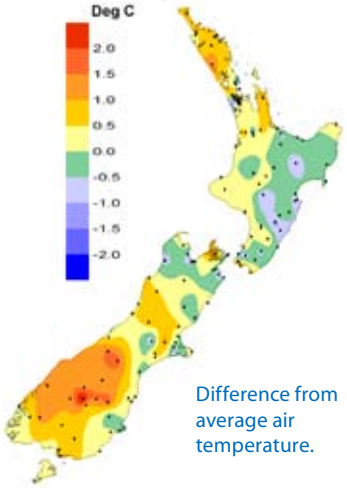
New Zealand climate in June

Rainfall



Percentage of average rainfall. Dots indicate recording sites.

Air temperature



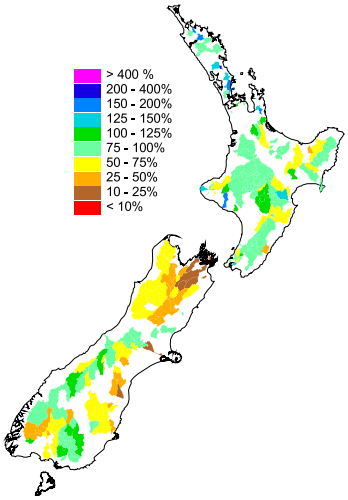
Difference from average air temperature.

June temperatures were above average in many areas, although it was cooler than normal in the east of the North Island. Conditions in some parts of inland South Canterbury and Otago were more than 1.5 °C warmer than normal.

For more information see www.niwascience.co.nz/ncc/cs/mclimsum_08_06

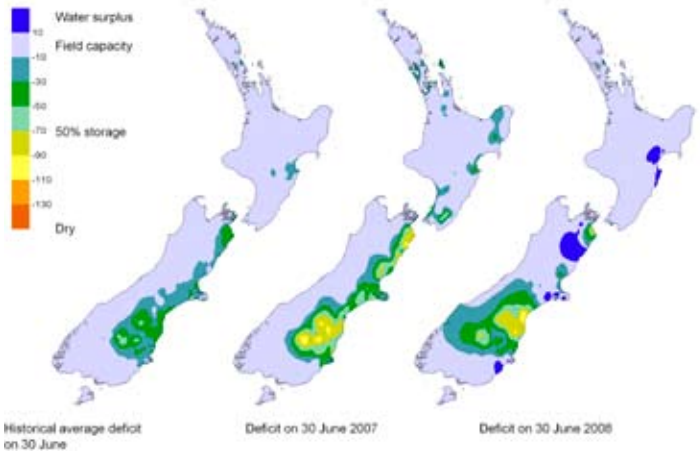
River flows

Stream flows were near normal in the North Island and the southwest of the South Island, and below normal in the north and east of the South Island.



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

Soil moisture deficit



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

Soils in Blenheim and South Canterbury–North Otago were drier than normal at the end of the month, while soils were mostly near field capacity elsewhere.

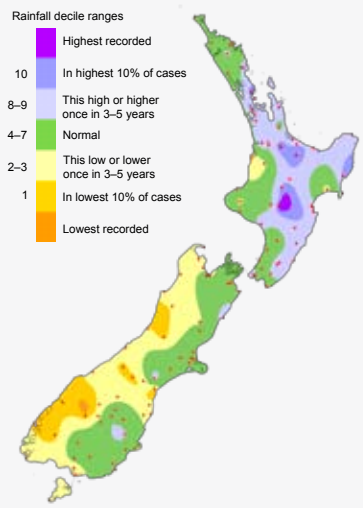
April to June – the climate we predicted and what actually happened

Rainfall

Predicted: Near normal rainfall in most places. Normal or below normal in the southwest of the North Island.

Outcome: Normal or above normal in much of the North Island. Normal or below normal in the South Island.

April to June rainfall

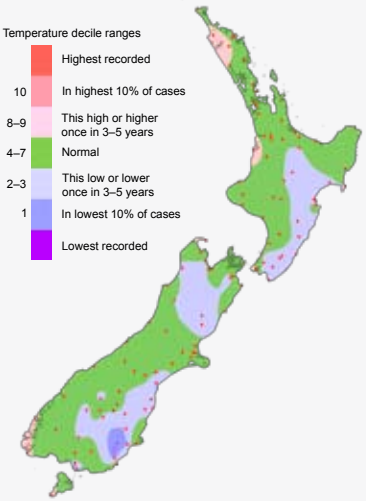


Air temperature

Predicted: Above average in many regions. Near average in the east of the North Island.

Outcome: Above average in the far north; cool in eastern regions, and near average elsewhere.

April to June temperature

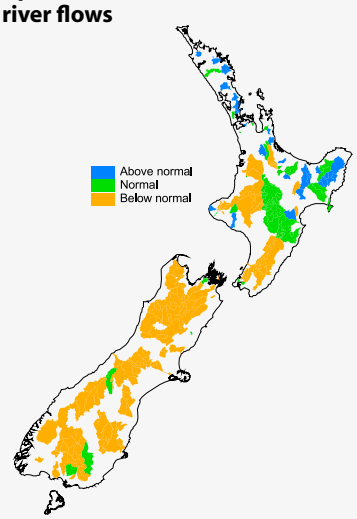


River flows

Predicted: Below normal over most of the North Island and the northern South Island. Normal in the west, south, and east of the South Island.

Outcome: Above normal in Northland and the East Cape area, normal in the central North Island, and below normal in most other places.

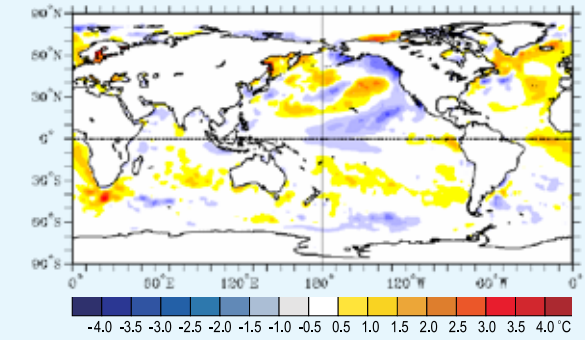
April to June river flows



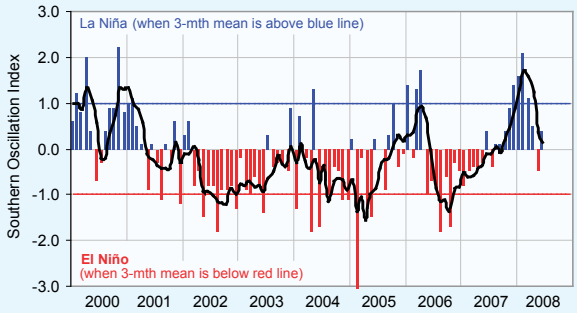
Global setting and climate outlook

La Niña weakening

La Niña conditions have continued to weaken in the equatorial Pacific, although some remnants of La Niña persist east of the Date Line. Sea surface temperature anomalies in the eastern equatorial Pacific increased during June to +0.5 °C, which is a continuation of the progressive warming from –1.5 °C in February 2008. The SOI was +0.4, with a 3-month mean of +0.1. The near-equatorial trade winds are slightly enhanced in the central equatorial Pacific.



Difference from average global sea surface temperatures for June 2008. Map courtesy of NOAA Climate Diagnostics Centre.

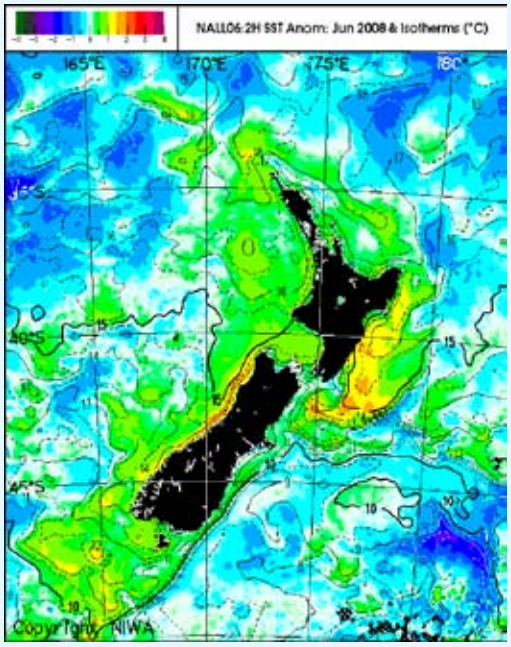


Monthly values of the Southern Oscillation Index (SOI), a measure of the changes in atmospheric pressures across the Pacific, and the three-month mean (black line).

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

Sea surface temperatures around New Zealand

Sea surface temperature (SST) anomalies in the New Zealand region remained above normal, as part of the 'warm horseshoe' associated with La Niña in the southern extra-tropics. The June SST anomaly in the New Zealand box was +0.4 °C (with a three-month average of +0.5 °C). Sea surface temperatures around New Zealand are expected to remain above normal until September.



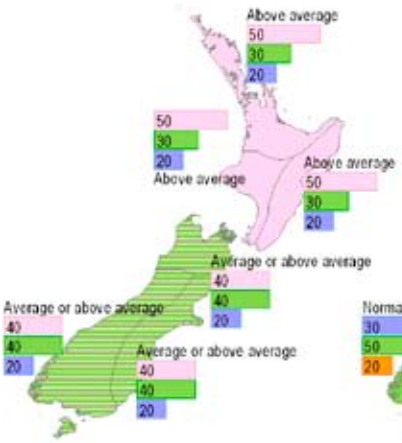
Differences from normal June surface temperatures in the seas around New Zealand.

Outlook for July to September 2008

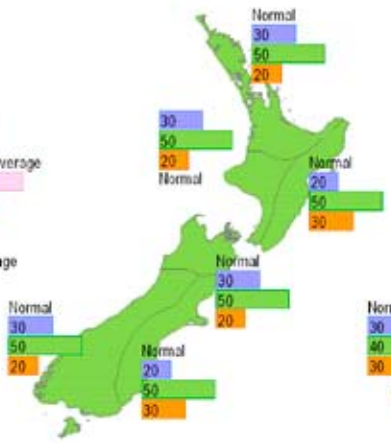
In the New Zealand region, mean sea level pressures are expected to be higher than normal to the south of the South Island, and lower than normal to the northwest of New Zealand, with more winds from the northeast than normal over the country.

Air temperatures are likely to be above average in the North Island, and average or above over the South Island. Rainfall is expected to be near normal in all regions. Normal or below normal soil moisture levels are likely on the South Island east coast, and normal moisture levels elsewhere. Normal or below normal stream flows are likely in the north and east of both islands. In the west and south of both islands, normal stream flows are likely.

Mean air temperature

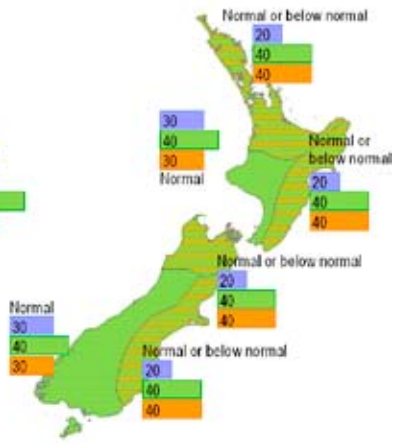


Rainfall



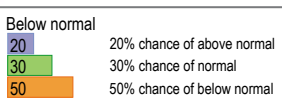
Available soil moisture

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).

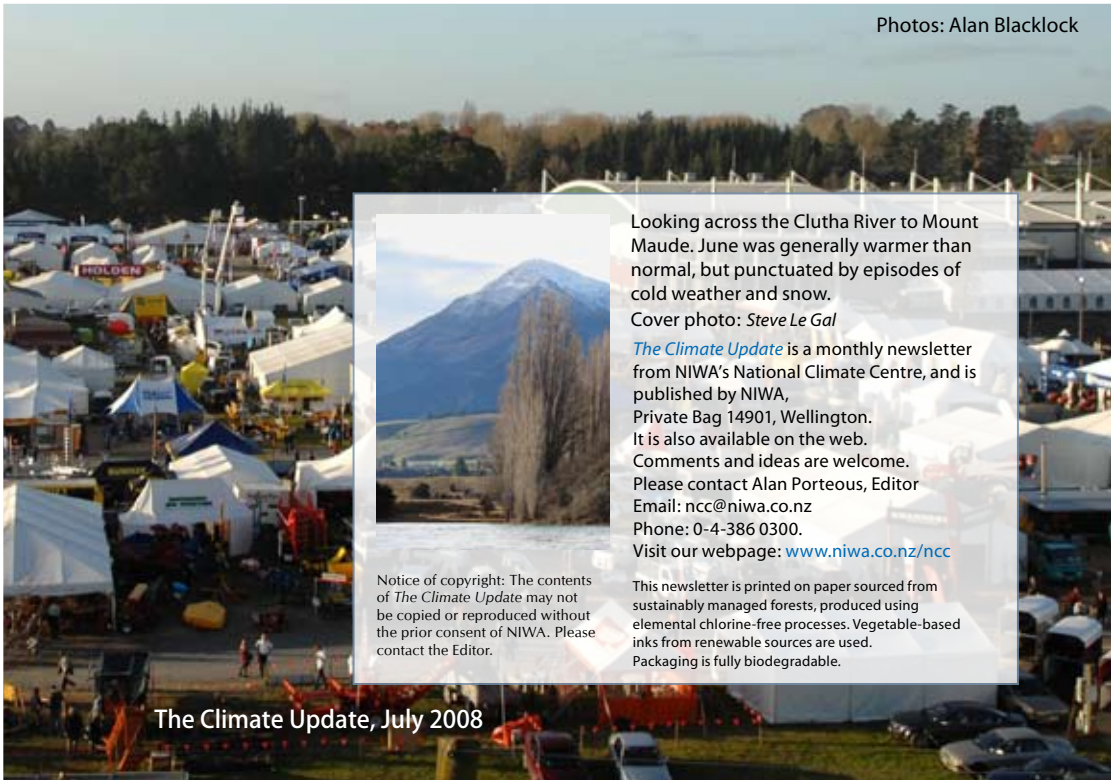


Mystery Creek Fieldays

'The Science of Farming' was the theme for this year's Fieldays at Mystery Creek, Hamilton, during 11–14 June. NIWA's stand in the Mystery Creek Pavilion demonstrated our capabilities in environmental forecasting, climate analysis and forecasting, climate data, and finfish aquaculture. Hundreds of farmers, people from agricultural agencies, and other interested public came to see EcoConnect, NIWA's environmental forcasting system, and CliFlo, the National Climate Database, where we demonstrated applications for agriculture.

The aquarium containing five hapuka (groper) was a magnet to visitors with an eye for the unexpected, and allowed NIWA aquaculture staff to inform visitors of our lesser-known capability in aquaculture and marine biotechnology.

Photos: Alan Blacklock



Looking across the Clutha River to Mount Maude. June was generally warmer than normal, but punctuated by episodes of cold weather and snow.
Cover photo: *Steve Le Gal*

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.
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