

New Zealand Climate Update

Sunset over Alexandra. Steve Le Gal

Current climate – January 2009

Rainfall was less than 50% of normal over much of the country in January. The exceptions were near normal rainfall in Manawatu and northern Taranaki, and 25% above normal rainfall in Gisborne and Southland.

Soil moisture levels for most North Island areas apart from Taranaki were below normal by between 20 mm and 50 mm at the end of the month. In the South Island, soils were drier than normal in Tasman, northern Westland, North and South Canterbury, and South Otago

Air temperatures were between 1.5 °C and 2.5 °C above average on the east coast of the South Island from Kaikoura to Mosgiel, and between 0.5 °C and 1.5 °C above average in Bay of Plenty, eastern North Island, inland Canterbury and Otago, and much of Southland.

Temperatures in the west of the country were near normal for January. The national average temperature of 17.6 °C was 0.6 °C above the historical average.

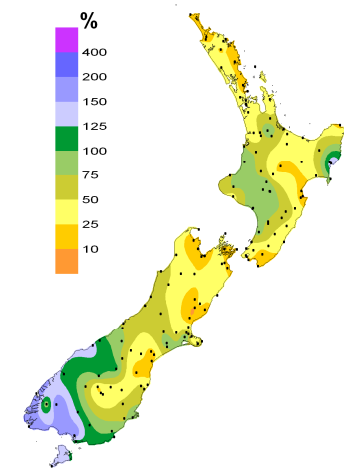
The warm, dry, and sunny weather for January resulted from more ‘highs’ (anticyclones) to the east of the country and more ‘lows’ (depressions) than normal in the southern Tasman Sea, giving more northerly and northeasterly winds over the country than normal.

For more information:

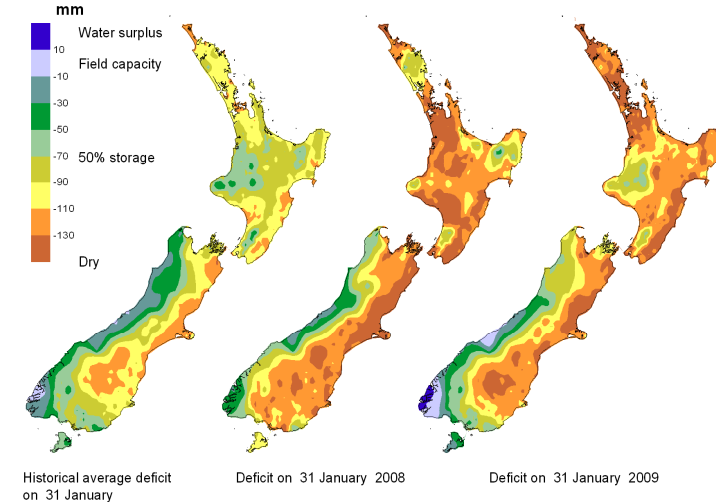
www.niwa.co.nz/ncc/cs/monthly/mclimsum_09_01

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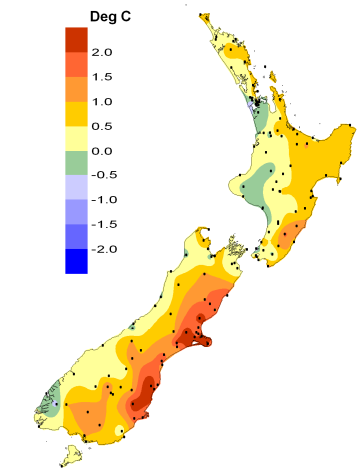
Rainfall



Soil moisture



Air temperature



Percentage of average rainfall for January 2009.

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.

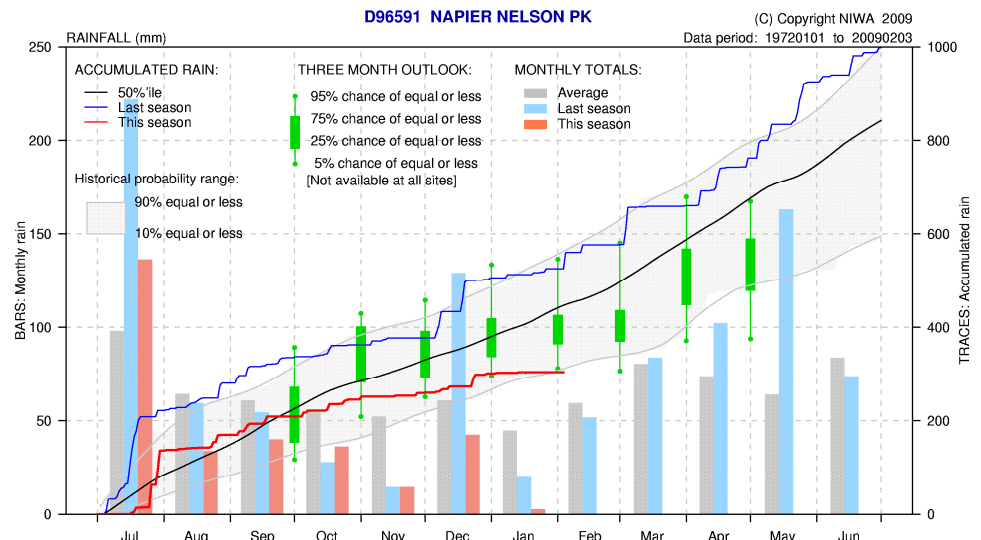
Departure from average air temperature for January 2009.

Focus point: Low rainfall in Hawke’s Bay – a series of dry months continues

Most of Hawke’s Bay has now endured six months of below normal monthly rainfall (August to January), as shown in the example (right) for Nelson Park, Napier. Total rainfall for this period was 174 mm. Rainfall for the equivalent period has been lower only four times previously in recordings at this site, which began in 1870. Previous lows were:

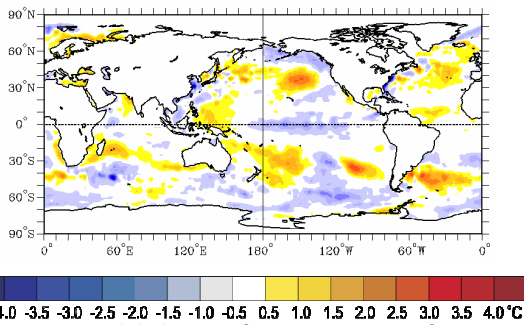
- 1953–54: 114 mm
- 1914–15: 129 mm
- 1994–95: 139 mm
- 1982–83: 158 mm

RIGHT: Rainfall daily accumulation and monthly totals for July to June at Nelson Park climate station, Napier.

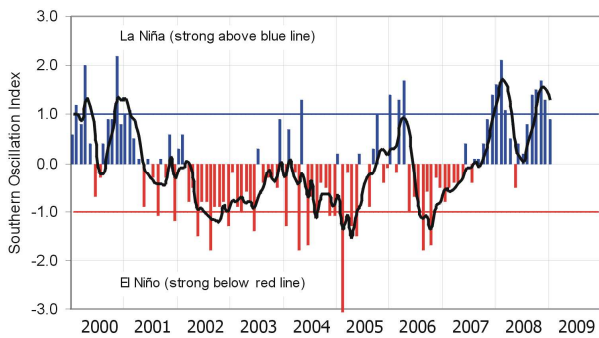


Global setting and climate outlook – February to April 2009

A moderate La Niña in the tropical Pacific is expected to continue during autumn before returning to ENSO-neutral conditions by the start of winter. Equatorial sea surface temperatures have been lower than normal but there are signs of warming near the South American coast.



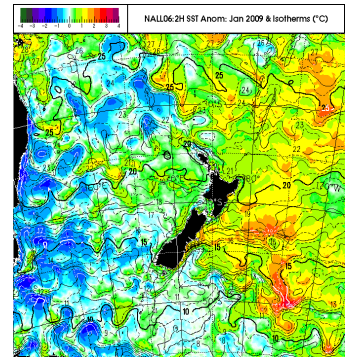
Differences from average global sea surface temperatures for January 2009. Map courtesy of NOAA Climate Diagnostics Centre.



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: January +0.9; November to January average +1.3.

Sea surface temperatures

In line with the La Niña development in the equatorial Pacific, sea surface temperatures in the New Zealand region have risen from close to average in December to +0.6 °C in January. The three-month average for November to January is +0.1 °C. Surface temperatures are likely to remain above normal for the next three months.



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

Outlook

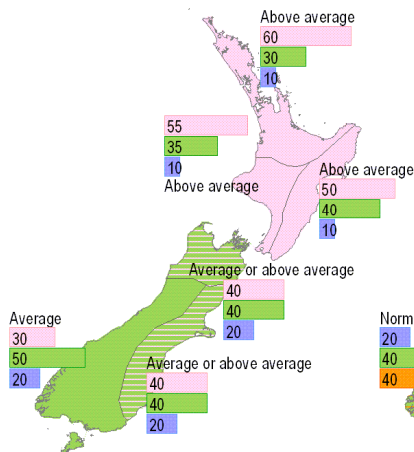
In the New Zealand region, mean sea level pressures are likely to be higher than normal over southern New Zealand and to the east, with more easterly wind episodes than normal over the North Island, and lighter winds than normal over the South Island.

Air temperatures are likely to be above average in many areas.

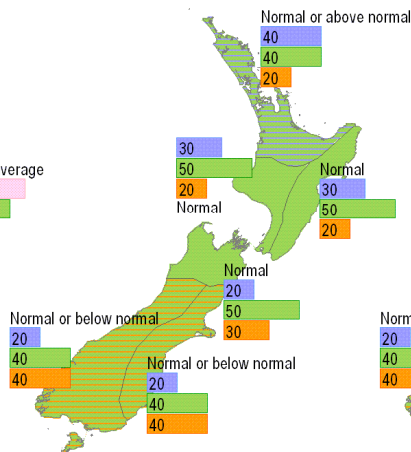
Rainfall is predicted to be normal or above normal in the north of the North Island, normal in other regions of the North Island, and normal or below normal in the South Island. **Soil moisture** levels and **stream flows** are likely to be normal in the north and west of the North Island, below normal in the east of the South Island, and normal or below normal elsewhere.

Outlook for February to April 2009, expressed as conditions and probabilities

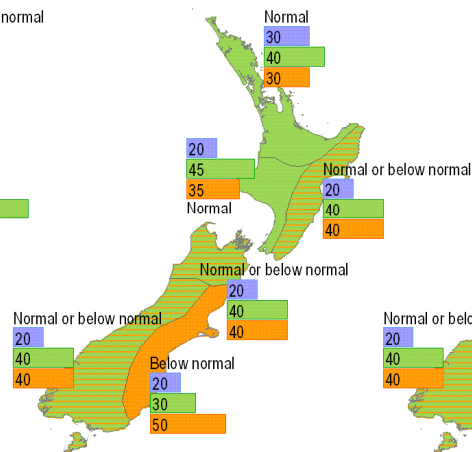
Mean air temperature



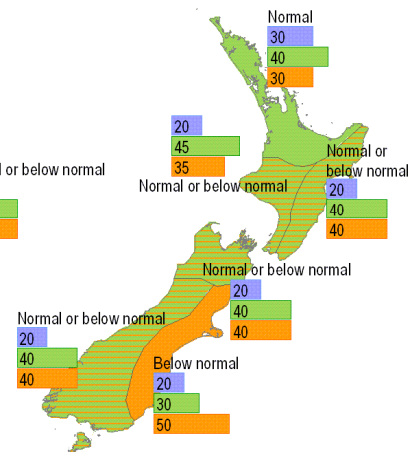
Rainfall



Available soil moisture



River flows



How to interpret these maps:

Upper tercile: 20% chance of above normal	20
Middle tercile: 30% chance of normal	30
Lower tercile: 50% chance of below normal	50

In this example (left), 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).

November to January – the climate we predicted and what actually happened

Rainfall: Predicted: Normal in the north and east of the North Island; normal or below normal elsewhere. **Outcome:** Normal in Northland and Taranaki; below normal elsewhere in the North Island, and in Marlborough, North and South Canterbury, and Otago. Normal or above normal elsewhere in the South Island.

Air temperature: Predicted: Above average in most regions; near average in the eastern South Island. **Outcome:** Above average temperatures in parts of Northland, Bay of Plenty, southern North Island, and in eastern and inland regions of the South Island; near normal elsewhere.