

### Current climate – December 2008

**Rainfall** was less than normal in many eastern areas of the country (continuing the pattern from October) and in Southland. Double the normal rainfall for December fell in inland Canterbury and Banks Peninsula and 150% of normal rainfall fell in Northland, western Wellington, Nelson and Marlborough over the month.

December **air temperatures** were 0.5 °C to 1.0 °C above normal for much of the North Island excluding Northland, Auckland, and Waikato.

Temperatures were also above average in northern Tasman district, and around Westport and Cheviot. Temperatures in the far north of

the North Island and in inland Canterbury were 0.5 °C to 1.0 °C below average for the month. Temperatures were near normal in other locations. The national average temperature of 15.8 °C was 0.2 °C above average.

**Soil moisture levels** in eastern areas of the country, and in Waikato and much of Southland, were between 10 and 50 mm lower than normal at the end of the month.

More information:

http://www.niwa.co.nz/ncc/cs/monthly/mclimsum\_08\_12



Percentage of average rainfall for December 2008.

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 December 2008.



# Focus point: Rainfall at Napier Airport

Following a wet winter, rainfall in much of Hawke's Bay has been lower than normal over the past 5 months, resulting in on-going significant soil moisture deficits.

There is a 40% chance of above normal rainfall for January to March (see forecast map next page), which suggests that improving soil moisture conditions are likely.

LEFT: Rainfall accumulation for July to June at Napier Airport. The rainfall total for the current year (red curve) is less than a 1-in-10 year low rainfall for this data period (1972 to present).

# Global setting and climate outlook – January to March 2009

La Niña conditions have redeveloped in the tropical Pacific and are expected to continue through to autumn. The SOI has remained persistently positive with a December value of +1.3 and an average of +1.4 for the past three months. Easterly trade winds have remained strong during December about and west of the Date Line.



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: December +1.3; October to December average +1.4

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 winds than normal over the North Island, and lighter winds than normal over the South Island.

Rainfall is likely to be normal or above normal in the north and east of the North Island, and below normal in much of the South Island.

Normal soil moisture levels and river flows are likely in the North Island. Normal or below normal conditions are likely in the north of the South Island. Below normal conditions are likely in the remainder of the South Island.

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

Sea surface temperatures (SSTs) in the New Zealand region (see map below) are currently close to average. The December SST anomaly in the New Zealand 'box' was +0.1 °C, and average for the past three months, -0.2 °C. This temperature rise was caused by warmer than average surface water spreading towards the country from the northeast. Sea surface temperatures around New Zealand are expected to be above normal in January-March 2009.





# **Outlook conditions and probabilities for January to March 2009**

#### Key to maps (example interpretation)

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

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

# October to December – the climate we predicted and what actually happened

Rainfall: Predicted: Normal or below normal rainfall over much of the country; near normal in the east of the North Island. Outcome: Below normal rainfall in most eastern regions of New Zealand and in Southland; wet in the north of the South Island; mostly near normal elsewhere.

Air temperature: Predicted: Average or above average in the South Island; average in the North Island. Outcome: Mostly average temperatures; above average in some parts of the west and south of the North Island and in eastern Northland, and in the north-east of the South Island.

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