



**July – September 2015**  
2015

Issued: 1 July

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## NIWA Outlook: July-September 2015

### Overview

An El Niño event is under way in the tropical Pacific. Sea surface temperatures have continued to warm across many areas of the eastern and central Tropical Pacific. Cloudiness, rainfall and convection activity near, and to the east of, the International Date Line has also intensified. These oceanic and atmospheric features are indicative of consolidating El Niño conditions.

International guidance indicates that El Niño conditions will continue through winter and spring, and into summer 2015/16.

During July – September 2015, above normal pressures are forecast to the west of New Zealand, with below normal pressures expected well south, and northeast, of the country. This mixed pressure pattern is likely to be accompanied by anomalous southerly-quarter wind flows, which is typical of El Niño conditions during the winter season in New Zealand.

Sea surface temperatures around the coasts of New Zealand are expected to be near average for the coming three months.

## Outlook Summary

July – September 2015 temperatures are most likely (45 to 50% chance) to be near average in all regions of New Zealand.

July – September 2015 rainfall totals are most likely (45-50% chance) to be in the below normal range for the north of both Islands and the west of the North Island, and about equally likely (35-45% chance) to be in in the near normal or below normal range for the east of both Islands. Near normal rainfall is most likely (45% chance) for the west of the South Island.

July – September 2015 soil moisture levels and river flow are most likely (50-60 % chance) to be below normal in the north of the North Island and the east of the South Island and about equally likely (35-40% chance) to be in the below normal or near normal range in the east of the North Island and the north of the South Island. Below normal or near normal river flows are also equally likely (35% chance) for the west of the North Island. In the west of the South Island, river flows are about equally likely (35-40% chance) to be in the near normal or above normal range. Near normal soil moisture levels are likely (40-45% chance) are forecast for the west of both Islands.

## Regional predictions for the July to September season

### Northland, Auckland, Waikato, Bay of Plenty

The table below shows the probabilities (or percent chances) for each of three categories: above average, near average, and below average. In the absence of any forecast guidance there would be an equal likelihood (33% chance) of the outcome being in any one of the three categories. Forecast information from local and global guidance models is used to indicate the deviation from equal chance expected for the coming three month period, with the following outcomes the *most likely* (but not certain) for this region:

- Temperatures are most likely (50% chance) to be near average.
- Rainfall totals are most likely (50% chance) to be in the below normal range.
- Soil moisture levels and river flows are most likely (50% chance) to be in the below normal range.

Other outcomes cannot be excluded. The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	15	15	15	15
Near average	50	35	35	35
Below average	35	50	50	50

### Central North Island, Taranaki, Wanganui, Manawatu, Wellington

Probabilities are assigned in three categories: above average, near average, and below average.

- Temperatures are most likely (50% chance) to be near average.

- Rainfall totals are most likely (45% chance) to be in the below normal range.
- Soil moisture levels are most likely (40% chance) to be near normal.
- River flows are equally likely (35% chance) to be in the near normal or below normal range.

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	20	20	30	30
Near average	50	35	40	35
Below average	30	45	30	35

### **Gisborne, Hawke's Bay, Wairarapa**

Probabilities are assigned in three categories: above average, near average, and below average.

- Temperatures are most likely (50% chance) to be near average.
- Rainfall totals are about equally likely (35-40% chance) to be in the near normal or below normal range.
- Soil moisture levels are about equally likely (35-40% chance) to be in the near normal or below normal range.
- River flows are equally likely (40% chance) to be in the near normal or below normal range.

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	20	25	25	20
Near average	50	40	35	40
Below average	30	35	40	40

### **Nelson, Marlborough, Buller**

Probabilities are assigned in three categories: above average, near average, and below average.

- Temperatures are most likely (45% chance) to be near average.
- Rainfall totals are most likely (50% chance) to be in the below normal range.
- Soil moisture levels and river flows are about equally likely (35-40% chance) to be in the near normal or below normal range.

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	30	15	25	25
Near average	45	35	40	40
Below average	25	50	35	35

## West Coast, Alps and foothills, inland Otago, Southland

Probabilities are assigned in three categories: above average, near average, and below average.

- Temperatures are most likely (45% chance) to be near average.
- Rainfall totals are most likely (45% chance) to be in the normal range.
- Soil moisture levels are most likely (45% chance) to be in the normal range.
- River flows are about equally likely (35-40% chance) to be in the near normal or above normal range.

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	30	25	30	35
Near average	45	45	45	40
Below average	25	30	25	25

## Coastal Canterbury, east Otago

Probabilities are assigned in three categories: above average, near average, and below average.

- Temperatures are most likely (45% chance) to be near average.
- Rainfall totals are about equally likely (40-45% chance) to be in the near normal or below normal range.
- Soil moisture levels and river flows are most likely (60% chance) to be in the below normal range.

The full probability breakdown is:

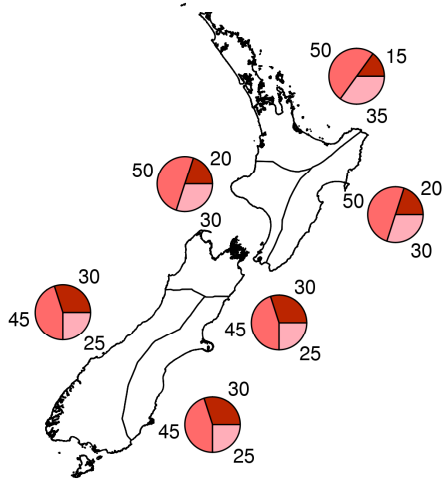
	Temperature	Rainfall	Soil moisture	River flows
Above average	30	15	10	10
Near average	45	40	30	30
Below average	25	45	60	60

Graphical representation of the regional probabilities

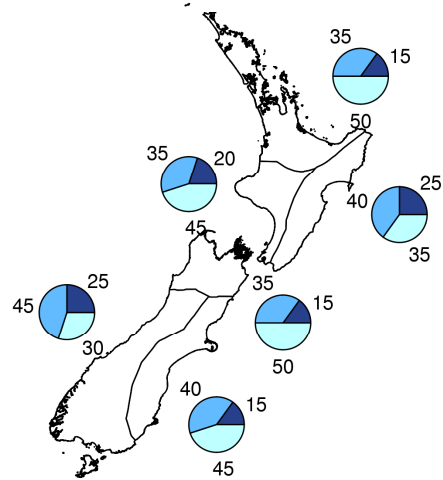
Outlook for July - September 2015



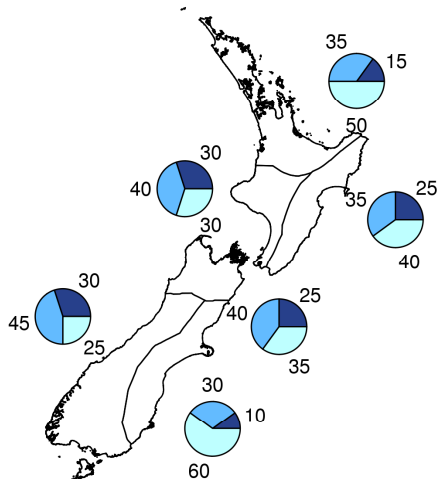
**Air Temperature**



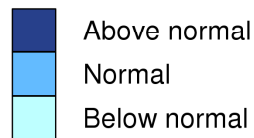
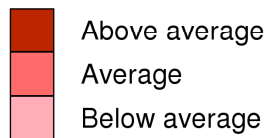
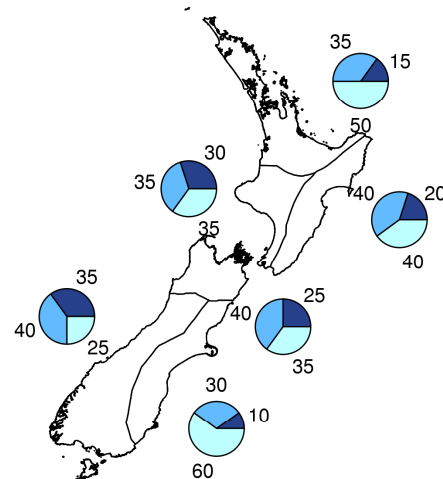
**Rainfall**



**Available Soil Moisture**



**River Flows**



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## Background

An El Niño event is under way in the tropical Pacific. Sea surface temperatures have continued to warm across many areas of the eastern and central Tropical Pacific. Cloudiness, rainfall and convection activity near, and to the east of, the International Date Line has also intensified. These oceanic and atmospheric features are indicative of consolidating El Niño conditions.

International guidance indicates that El Niño conditions will continue through winter and spring, and most likely into summer 2015/16.

El Niño events are typically (but not always) associated with stronger and/or more frequent southerly winds during the winter in New Zealand. Such a circulation pattern typically leads to cooler conditions in most regions of the country. Despite the forecast for El Niño to continue over the next three months, the temperature outlook - as synthesized from various dynamical and statistical models - indicates that average temperatures are likely in most regions.

Waters surrounding New Zealand are currently near normal. Ocean models forecasts indicate that sea surface temperatures around the country are likely to be in the near average temperature range over the next three months

To find out more about normal conditions for this outlook period, refer to [NIWA's website](#), where daily updates on climate maps are available.

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## For comment, please contact

Chris Brandolino, NIWA forecaster, NIWA National Climate Centre  
Tel (09) 375 6335, Mobile (027) 886 0014

Darren King, Senior Scientist, NIWA National Climate Centre  
Tel (04) 386 0508, Mobile (027) 294 1169.

## Notes to reporters and editors

1. NIWA's outlooks indicate the likelihood of climate conditions being at, above, or below average for the season as a whole. They are not 'weather forecasts'. It is not possible to forecast precise weather conditions three months ahead of time.
2. The outlooks are the result of the expert judgment of NIWA's climate scientists. They take into account observations of atmospheric and ocean conditions and output from global and local climate models. The presence of El Niño or La Niña conditions and the sea surface temperatures around New Zealand can be a useful indicator of likely overall climate conditions for a season.
3. The outlooks state the probability for above average conditions, near average conditions, and below average conditions for rainfall, temperature, soil moisture, and river flows. For example, for winter (June–July–August) 2007, for all the North Island, we assigned the following probabilities for temperature:
  - Above average: 60 per cent
  - Near average: 30 per cent
  - Below average: 10 per centWe therefore concluded that above average temperatures were very likely.
4. This three-way probability means that a random choice would be correct only 33 per cent (or one-third) of the time. It would be like randomly throwing a dart at a board divided into three equal parts, or throwing a dice with three numbers on it. An analogy with coin tossing (a two-way probability) is not correct.
5. A 50 per cent 'hit rate' is substantially better than guesswork, and comparable with the skill level of the best overseas climate outlooks. See, for example, analysis of global outlooks issued by the International Research Institute for Climate and Society based in the US published in the Bulletin of the American Meteorological Society (Goddard, L., A. G. Barnston, and S. J. Mason, 2003: Evaluation of the IRI's "net assessment" seasonal climate forecasts 1997–2001. *Bull. Amer. Meteor. Soc.*, 84, 1761–1781).
6. Each month, NIWA publishes an analysis of how well its outlooks perform. This is available online and is sent to about 3500 recipients of NIWA's newsletters, including many farmers. See [www.niwa.co.nz/our-science/climate/publications/all/cu](http://www.niwa.co.nz/our-science/climate/publications/all/cu)
7. All outlooks are for the three months as a whole. There will inevitably be wet and dry days, and hot and cold days, within a season. The exact range in temperature and rainfall within each of the three categories varies with location and season. However, as a guide, the "near average" or middle category for the temperature predictions includes deviations up to  $\pm 0.5^{\circ}\text{C}$  for the long-term mean, whereas for rainfall the "near normal" category lies between approximately 80 per cent and 115 per cent of the long-term mean.
8. The seasonal climate outlooks are an output of a scientific research programme, supplemented by NIWA's Capability Funding. NIWA does not have a government contract to produce these outlooks.

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