

**September – November 2016**  
2016

Issued: 1 August

Hold mouse over links and press **ctrl + left click** to jump to the information you require:

[Overview](#)**Regional predictions for the next three months:**[Northland, Auckland, Waikato, Bay of Plenty](#)[Central North Island, Taranaki, Wanganui, Manawatu, Wellington](#)[Gisborne, Hawke's Bay, Wairarapa](#)[Nelson, Marlborough, Buller](#)[West Coast, Alps and foothills, inland Otago and Southland](#)[Coastal Canterbury, east Otago](#)[Background](#)[Contacts](#)[Notes to reporters and editors](#)

## NIWA Outlook: September - November 2016

### Overview

ENSO (El Niño – Southern Oscillation) neutral conditions continued in the tropical Pacific Ocean during August: sea surface temperatures along the eastern equatorial Pacific are near or slightly below normal, and the atmospheric conditions over the tropical Pacific are generally consistent with an ENSO-neutral state. As a whole the tropical ocean-atmosphere system still shows a leaning towards La Niña, but with a slight weakening of the signals that were observed last month (July 2016).

The Southern Oscillation Index (SOI) is currently positive but within the neutral range. Slightly enhanced trade-winds are present in the central and eastern Pacific (110-140°W). The subsurface ocean remains cooler than normal in the central and eastern Pacific, however these anomalies have weakened compared to last month.

International guidance still favours development of La Niña conditions (55% chance) over the next three month period (September – November 2016), however the probability of neutral conditions over the next 3 months is almost equally as high (45% chance). The likelihood of La Niña conditions becoming established in the Pacific remains at a 55% chance for December – February 2016/2017. In summary, both the current state and recent evolution of the ocean-atmosphere system in the Pacific, as well as the models' forecasts, suggest that if a La Niña event develops, it will be characterized by a relatively short duration and weak amplitude.

For September - November 2016, lower than normal pressure is forecast to the north-east of New Zealand while higher than normal pressure is expected to the south of the country. This airflow set-up is expected to produce more north-easterly winds than normal. The continuation of warmer than normal sea surface temperatures around the country suggests that warmer and more humid air masses are likely to affect New Zealand, especially the North Island.

## Outlook Summary

September-November 2016 temperatures are likely (50% chance) to be above average in the north of the South Island and very likely (60-70% chance) to be above average in the remaining regions of the country. Nevertheless, as we transition into spring, frosts and cold snaps will occur from time to time, particularly in the first half of the season. Sea surface temperatures are forecast to remain above normal over the next three months, especially to the north of New Zealand.

September-November 2016 rainfall totals are about equally likely to be in the near normal range (40% chance) or above normal range (35-40% chance) in the north and east of the North Island. Seasonal rainfall is most likely (45% chance) to be in the near normal range in the west of the North Island and the north of the South Island. In the east and west of the South Island, rainfall for the September-November 2016 period is about equally likely to be near normal (40% chance) or below normal (35% chance).

September-November 2016 soil moisture levels and river flows are most likely to be in the near normal (40% chance) or above normal (35% chance) range for the east of the North Island, while below normal (45-50% chance) soil moisture levels and river flows are most likely for the east of the South Island. For the north of the South Island, near normal (40-45% chance) soil moisture levels and river flows are most likely while near normal (40% chance) or below normal (40% chance) soil moisture levels and river flows are equally likely in the west of the South Island. In the north and west of the North Island near normal (45% chance) soil moisture levels are most likely while river flows are expected to be in the normal (40% chance) or above normal (35-40%) range.

## Regional predictions for the September – November 2016 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 very likely to be above average (70% chance).
- Rainfall totals are equally likely to be near normal (40% chance) or above normal (40% chance).
- Soil moisture levels are most likely (45% chance) to be in the near normal range.
- River flows are about equally likely to be near normal (40% chance) or above normal (35% chance).

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	70	40	30	35
Near average	20	40	45	40
Below average	10	20	25	25

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

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

- Temperatures are very likely to be above average (70% chance).
- Rainfall totals are most likely to be near normal (45% chance).
- Soil moisture levels are most likely (45% chance) to be in the near normal range.
- River flows are about equally likely to be near normal (40% chance) or above normal (40% chance).

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	70	30	30	40
Near average	20	45	45	40
Below average	10	25	25	20

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

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

- Temperatures are very likely to be above average (70% chance).
- Rainfall totals are about equally likely to be near normal (40% chance) or above normal (35% chance).
- Soil moisture levels and river flows are about equally likely to be near normal (40% chance) or below normal (35% chance).

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	70	35	35	35
Near average	20	40	40	40
Below average	10	25	25	25

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

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

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

- Rainfall totals are most likely (45% chance) to be in the near normal range.
- River flows and soil moisture levels are most likely to be in the near normal range (40-45% chance).

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	50	30	25	30
Near average	30	45	45	40
Below average	20	25	30	30

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

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

- Temperatures are very likely to be above average (60% chance).
- Rainfall totals are about equally likely to be near normal (40% chance) or below normal (35% chance).
- Soil moisture levels and river flows are equally likely (40% chance) to be near normal or below normal.

The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	60	25	20	20
Near average	30	40	40	40
Below average	10	35	40	40

### **Coastal Canterbury, east Otago**

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

- Temperatures are very likely to be above average (60% chance).
- Rainfall totals are about equally likely to be near normal (40% chance) or below normal (35% chance).
- Soil moisture levels and river flows are most likely to be in the below normal range (45-50% chance)

The full probability breakdown is:

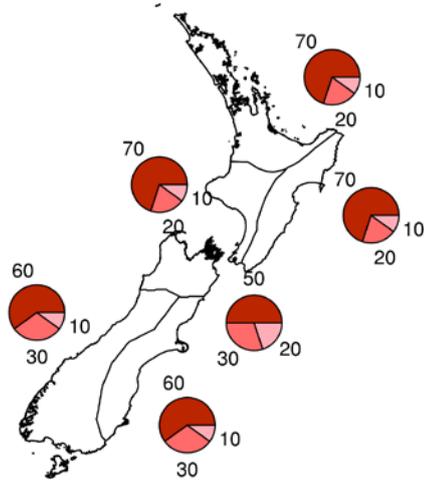
	Temperature	Rainfall	Soil moisture	River flows
Above average	60	25	20	20
Near average	30	40	35	30
Below average	10	35	45	50

Graphical representation of the regional probabilities

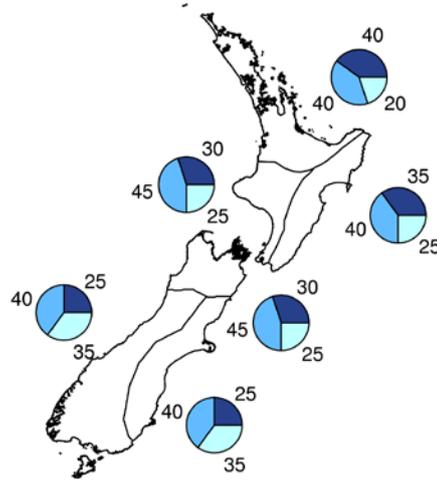
Outlook for September - November 2016



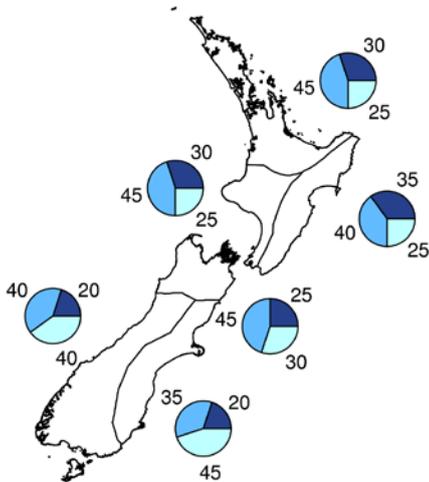
**Air Temperature**



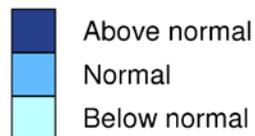
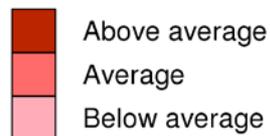
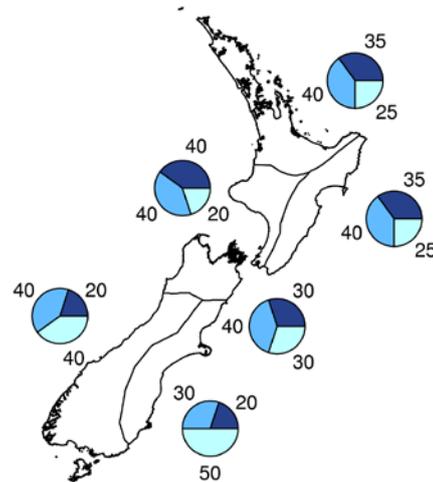
**Rainfall**



**Available Soil Moisture**



**River Flows**



---

## Background

Sea surface temperatures (SSTs) are currently near to below average across the eastern Equatorial Pacific ocean. Cooler than normal sub-surface ocean waters have weakened slightly in the central Equatorial Pacific.

The Southern Oscillation Index (SOI) is currently positive [+0.5, value estimated before end of month]. Slightly enhanced trade-winds were present in the central and eastern Pacific (110-140°W). The Intertropical Convergence Zone (ITCZ) was displaced north of its climatological position along the Equator in the central Pacific. Rainfall were generally above normal for the Maritime Continent (*e.g.* Indonesia), Melanesia and northern parts of Polynesia. Convection and rainfall were below normal in some parts of the western Pacific (Micronesia).

Collectively, these oceanic and atmospheric signals indicate ENSO-neutral conditions. As a whole the tropical ocean-atmosphere system still shows a leaning towards La Niña, but with a slight weakening of the signals that were observed last month (July 2016).

International guidance still indicates that a transition towards La Niña is the most likely outcome (55% chance) over the next three months (September – November 2016), however the probability of neutral conditions over the next 3 months is almost equally as high (45% chance). Chances for La Niña becoming established later in 2016 remains at about 55% for the December 2016 – February 2017 period. Current ocean – atmosphere conditions and models' forecasts suggest that if La Niña indeed develops, it will be associated with maximum cooling of SSTs in the central rather than eastern Pacific, remain in the weak category and be short-lived.

Waters surrounding New Zealand remain warmer than normal (particularly north of New Zealand), and ocean models predict that these warm conditions will persist, through September – November 2016. These warmer regional sea surface temperatures will remain a major driving force for New Zealand's climate over the coming season. The continuation of warmer than normal sea surface temperatures around the country suggests that warmer and more humid air masses are likely to affect New Zealand, especially the North Island.

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

---

## For comment, please contact

Chris Brandolino, Principal Scientist – Forecasting, NIWA National Climate Centre  
Tel (09) 375 6335, Mobile (027) 886 0014

Dr Brett Mullan, Principal 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.
9. Where probabilities are within 5% of one another, the term "about equally" is used.

Visit our media centre at: [www.niwa.co.nz/news-publications/media-centre](http://www.niwa.co.nz/news-publications/media-centre)