AUTUMN 2012 Issued: 29 February 2012

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La Nina gone by Easter; somewhat stormy Tasman Sea

A mature La Niña event in the tropical Pacific should be gone by Easter, according to the NIWA National Climate Centre. This means that local sea temperatures around our coast, and low pressure activity over the Tasman Sea, are likely to most influence our autumn climate.

The NIWA National Climate Centre's outlook for Autumn, March to May 2012, indicates cooler than usual seas around New Zealand, and a somewhat stormy Tasman Sea. Lower pressures than normal are expected over the Tasman Sea for March to May as a whole, resulting in more frequent northeast winds than usual over the country.

Autumn temperatures are likely to be average or below average in eastern areas of both Islands, and near average elsewhere. Autumn rainfall is likely to be normal or above normal in the north and east of the North Island, as well as the north of the South Island. In all other regions, near normal seasonal rainfall totals are likely.

Overall picture

Temperature

Seas around New Zealand are likely to be cooler than usual during autumn. Seasonal temperatures are likely to be average or below average in eastern areas of both Islands, and near average elsewhere.

Rainfall, soil moisture and river flows

The National Climate Centre projects that autumn rainfall and river flows are likely to be normal or above normal in the north and east of the North Island, as well as the north of the South Island. In all other regions, near normal seasonal rainfall totals and river flows are likely. Autumn soil moisture levels are projected to be above normal in the northern North Island, normal or above normal in the east of the North Island and north of the South Island, and near normal elsewhere.

Regional predictions for the next three months

Northland, Auckland, Waikato, Bay of Plenty

Autumn temperatures are likely to be near average. Seasonal rainfall totals and river flows are equally likely to be in the near normal or above normal range. Autumn soil moisture levels are projected to be above normal.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

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

Central North Island, Taranaki, Wanganui, Manawatu, Wellington

Seasonal temperatures are likely to be near average. Autumn rainfall totals, river flows, and soil moisture levels are projected to be near normal for the three month season as a whole.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

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

Gisborne, Hawke's Bay, Wairarapa

Seasonal temperatures are equally likely to be in the near average or below average range. Autumn rainfall totals, river flows, and soil moisture levels are projected to be in the near normal or above normal category.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

	Temperature	Rainfall	Soil moisture	River flows
Above average	20%	40%	40%	40%
Near average	40%	40%	40%	40%
Below average	40%	20%	20%	20%

Nelson, Marlborough, Buller

Autumn temperatures are likely to be near average. Seasonal rainfall totals, river flows, and soil moisture levels are equally likely to be in the normal or above normal range.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

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

West Coast, Alps and foothills, inland Otago, Southland

Autumn temperatures are projected to be near average. Seasonal rainfall totals, river flows and soil moisture levels are likely to be in the near normal range.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

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

Coastal Canterbury, east Otago

Seasonal temperatures are equally likely to be near average or below average. Autumn rainfall totals, river flows and soil moisture levels are projected to be near normal.

Probabilities are assigned in three categories: above average, near average, and below average. The full probability breakdown is:

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

Background

Mature La Niña conditions in the tropical Pacific are expected to dissipate in early autumn 2012. The Southern Oscillation Index (SOI) eased sharply to around +0.1 in February (down from +1.1 in January). Sub-surface sea temperature/heat content anomalies are also weakening in the eastern equatorial Pacific region. Both are signs of the weakening of the La Niña event.

Most global climate models predict neutral conditions in the tropical Pacific as we start winter (June-August), but a handful of models now develop an El Niño state during the winter period. NIWA will continue to monitor the global climate situation.

For comment, please contact

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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 cent
   We 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
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 ±0.5°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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