

# NSW Climate Summary - December 2014

## Summary

Seasonal outlook	Current Outlook	Previous Outlook
Rainfall (quarter)	<b>Drier</b> (majority of NSW) Near neutral (far south west and north east)	<b>Drier</b> (majority of NSW) Near neutral (limited areas of the far south east and the central to mid-north coast)
Max Temperature (quarter)	<b>Warmer</b>	<b>Warmer</b>
Min Temperature (qtr)	<b>Warmer</b> Near neutral (far south west)	<b>Warmer</b>

## ENSO

ENSO (overall)	Neutral – <b>El Niño likely</b>	Neutral – <b>El Niño possible/likely</b>
BoM ENSO Tracker Status	<b>El Niño Alert</b>	<b>El Niño Watch</b>
SOI	<b>Moderately negative</b>	<b>Moderately negative</b>
Pacific Ocean (NINO3.4)	<b>Slightly warm/warm</b> (Neutral – some models)	<b>Slightly warm/warm</b> (Neutral – some models)
Indian Ocean (IOD)	Neutral	Neutral
Southern Annular Mode (SAM/AO)	<b>Weakly – moderately positive</b>	<b>Weakly negative – neutral</b>

**Source:** Derived from information provided by the [Australian Bureau of Meteorology](#) and the [US National Oceanic & Atmospheric Administration](#).

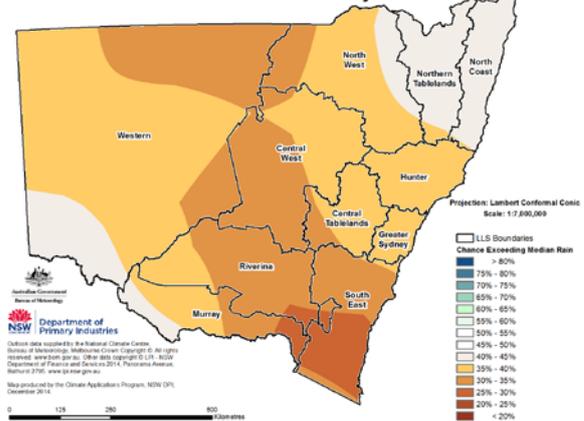
## Seasonal outlook

(Source: [Bureau of Meteorology](#))

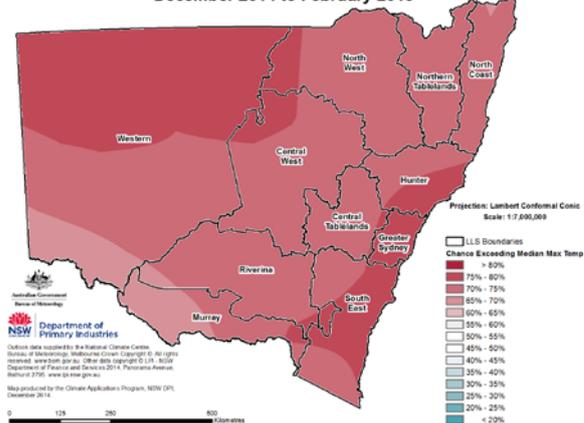
Between December to February, drier than normal conditions are likely across most of NSW. There is a near-equal chance of drier or wetter than normal conditions across the north east and the far south west of the State.

Warmer than normal daytime temperatures are likely across NSW for the period. For overnight temperatures during December to February, warmer than normal temperatures are likely across most of the State, with a near-equal chance for warmer or cooler than normal temperatures in the far south west of NSW.

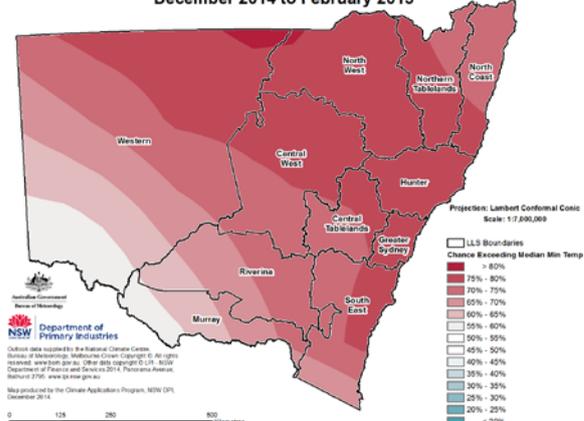
Chance of Exceeding Median Rainfall  
December 2014 to February 2015



Chance of Exceeding the Median Maximum Temperature  
December 2014 to February 2015



Chance of Exceeding the Median Minimum Temperature  
December 2014 to February 2015

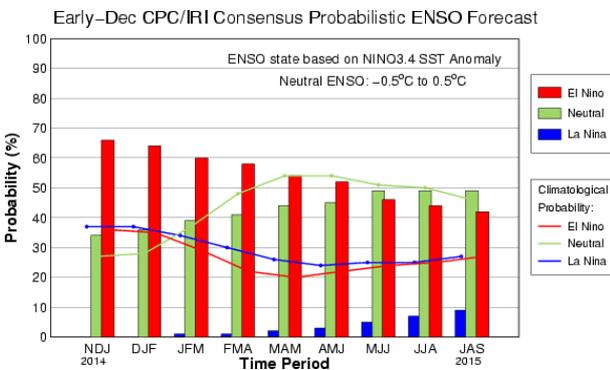


The seasonal outlooks presented in this report are obtained from the Australian Bureau of Meteorology & other sources. These outlooks are general statements about the likelihood (chance) of (for example) exceeding the median rainfall or minimum or maximum temperatures. Such probability outlooks should not be used as categorical or definitive forecasts, but should be regarded as tools to assist in risk management & decision making. Changes in seasonal outlooks may have occurred since this report was released. Outlook information was up to date as at 8 December 2014.

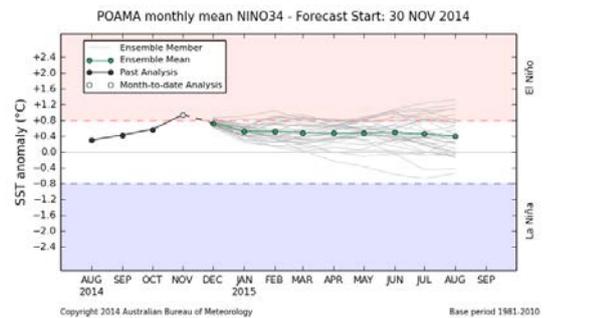
## ENSO

(Source: Bureau of Meteorology & International Research Institute for Climate and Society)

ENSO remains neutral, with an increased likelihood of a weak El Niño event commencing in summer and lasting into autumn. The Bureau of Meteorology's El Niño status has increased to 'alert' level. Sea surface temperatures are warm across the most of equatorial Pacific. Positive subsurface temperature anomalies cover much of the central and eastern equatorial Pacific, which favours the development of an El Niño event. The SOI has generally been negative since mid-August. The marginal El Niño-like conditions this year appear to have affected winter and spring rainfall across NSW. Cooler sea surface temperatures to the north of Australia are also reducing potential rainfall sources, although this may be partly offset by warmer temperatures to the north west of the continent.



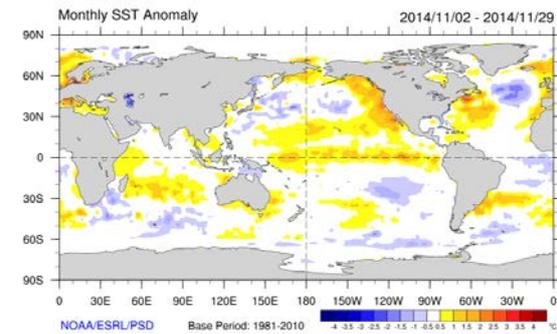
The CPC/IRI consensus ENSO forecast probabilities indicate that 65% of global climate models consider El Niño conditions are likely to develop over summer. Note that the CPC/IRI use a NINO3.4 anomaly of +0.5°C as an El Niño threshold, where the Bureau of Meteorology use +0.8°C. The Bureau of Meteorology's long range POAMA outlook indicates that the sea surface temperature anomalies in the NINO3.4 Pacific Ocean region are likely to increase to above the El Niño threshold in November-December (which has already occurred) and then decline to warm but neutral levels. Two of the eight global climate models surveyed by the Bureau of Meteorology indicate that sea surface temperatures in the NINO3.4 Pacific Ocean region are likely to remain at El Niño levels in late summer and autumn. The others indicate temperatures that are warm, but below the threshold level of +0.8°C.



## Monthly Sea Surface Temperatures

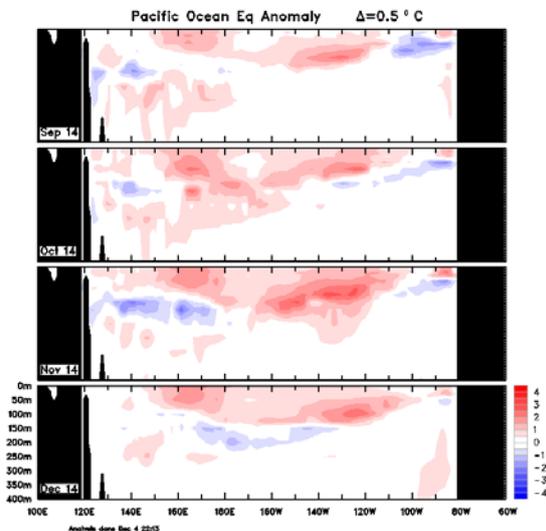
(Source: NOAA & Bureau of Meteorology)

Sea surface temperatures increased over November and are warm across most of the equatorial Pacific, decreasing slightly in the east but increasing in the west. The most recent monthly temperature anomaly value in the key NINO3.4 region is +0.85°C for November. The weekly value to 30 November is +0.94°C.



## Monthly Sub Surface Temperatures

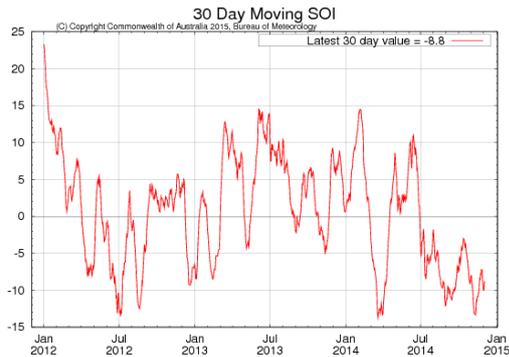
The sub surface sea temperatures show warm anomalies across most of the equatorial Pacific, and have done so since September. The positive anomalies in the central equatorial Pacific have moved eastwards. Some weak negative anomalies remain in the far east and at depth in the central Pacific.



### Southern Oscillation Index (SOI)

(Source: Bureau of Meteorology & Queensland Department of Science, Information Technology, Innovation & the Arts)

The Southern Oscillation Index (SOI) is currently in the negative range at -8.8 (as at 3 December), generally sustaining values of below -7 since mid-August and indicates some degree of atmospheric coupling with the ocean. However, other indicators have not yet reached El Niño levels and overall atmospheric circulation (winds and rainfall near the dateline) has yet to show clear coupling.



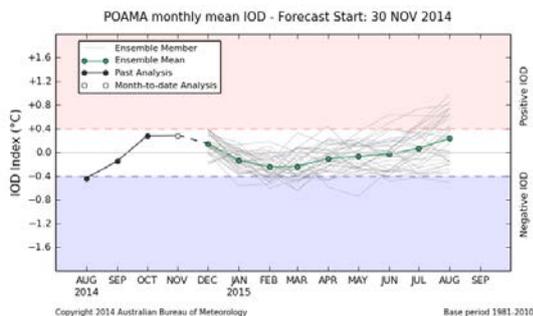
Values of between -8 and +8 indicate neutral conditions, sustained values above +8 may indicate a La Niña event, and sustained values below -8 may indicate an El Niño event.

### Indian Ocean Dipole (IOD)

(Source: Bureau of Meteorology)

The Indian Ocean Dipole (IOD) remains neutral. The latest IOD index value is +0.15°C for the week ending 30 November. The Bureau of Meteorology's POAMA model and all climate models surveyed by the Bureau favour a neutral IOD between December and April.

The IOD has little effect on Australian climate until autumn or winter. A negative IOD increases the chances of above normal rainfall during winter and spring across southern and much of western and central NSW. A positive IOD increases the chances of below normal rainfall.



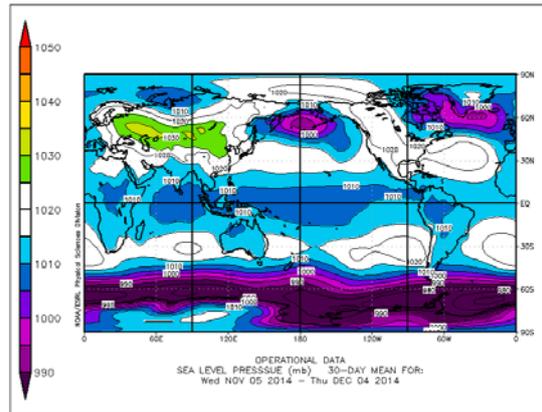
### Sub-Tropical Ridge (STR)

(Source: NOAA & Bureau of Meteorology)

The sub-tropical ridge was slightly further south in latitude than normal during November. There was high atmospheric pressure over most of the continent during

November, particularly over the north (affecting the SOI), as indicated on NOAA and Bureau of Meteorology mean sea level pressure charts. Increased pressure contributes to the blocking of the passage of fronts through NSW.

The sub-tropical ridge is a zone of high pressure which between January and March is normally located south of Australia at about 38°S to 39°S, and tends to suppress cold front activity. During June to September, it generally moves northwards to around 30°S to 32°S, allowing cold fronts to extend further into southern Australia.

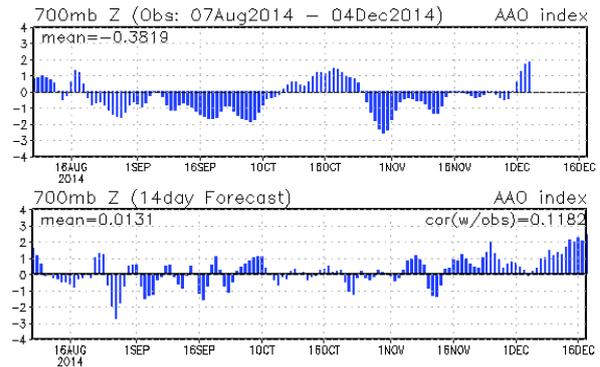


### Southern Annular Mode (SAM)

(Source: Bureau of Meteorology [experimental] & NOAA)

The experimental Southern Annular Mode or Antarctic Oscillation (AAO) index is currently weakly-moderately positive as at 4 December. The outlook from POAMA indicates the SAM index will be weakly positive through to mid-late December. The NOAA outlook is similar, but suggests the index will be moderately positive through to about mid-December.

#### AAO: Observed & GFS forecasts



A negative SAM indicates an expansion of the belt of strong westerly winds towards the equator, resulting in more or stronger low pressure systems across southern Australia and potentially increased rainfall. A positive SAM indicates the contraction of the belt of strong westerly winds towards Antarctica and higher pressures over southern Australia, and can result in stable, drier conditions.

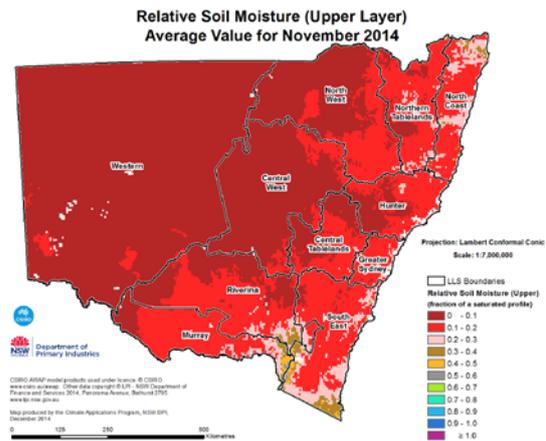
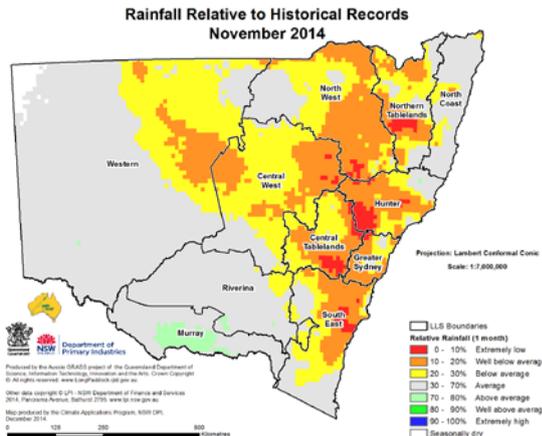
## Conditions during November

### Rainfall

(Source: Queensland DSITIA)

Rainfall across most of NSW ranged between 5-25 mm during November. The north east, south and coast received 25-100 mm, with isolated areas receiving higher rainfall. The far north west received 0-10 mm.

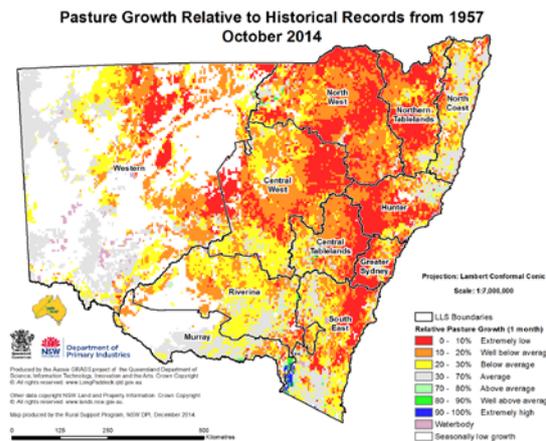
Relative to historical records, rainfall during November was below average across 46 per cent of NSW, with recordings generally being less than 60 per cent of normal.



### Pasture growth

(Source: Queensland DSITIA)

Relative pasture growth during November was below average across 58 per cent of NSW, although there were large areas of missing data. Below average relative growth occurred across most of NSW, with the exception of areas of the north coast, the south and the far west. Growth declined over the south east, central coast, Hunter valley and central tablelands.



### Soil moisture

(Source: CSIRO)

Modelled topsoil moisture was low across NSW during November. Relative to historical records, it was below average across most of NSW, but average in areas of the south and far west

Modelled subsoil moisture levels declined across western and central NSW. Relative to historical records, subsoil moisture was below average across the north west, northern tablelands, mid-north to north coast, central tablelands and Riverina.

### More information

For more information, contact the NSW Department of Primary Industries on 02 6391 3100 or Local Land Services on 1300 795 299. Additional and more detailed information on seasonal conditions can be found in the NSW Seasonal Conditions Report, available at <http://www.dpi.nsw.gov.au/agriculture/emergency/seasonal-conditions/regional-seasonal-conditions-reports>.

### Acknowledgments

Information used in this report was sourced from the Australian Bureau of Meteorology, CSIRO, Queensland Department of Science, Information Technology, Innovation and the Arts, the US National Oceanic and Atmospheric Administration, the International Research Institute for Climate and Society (Columbia University) and NSW Department of Primary Industries.

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