

# NSW Climate Summary - March 2016

## Summary

Seasonal Outlook	Current outlook
Rainfall (quarter)	Near neutral (most of NSW)  Wetter (south west and areas of the south, north west and northern central west)
Max Temperature (quarter)	Warmer (most of NSW)  Near neutral (far western NSW)
Min Temperature (quarter)	Warmer
ENSO	
ENSO (overall)	El Niño
ENSO Tracker Status	El Niño
SOI	Variable, currently strongly negative
Pacific Ocean (NINO3.4)	Warm but declining (above El Niño thresholds)
Indian Ocean (IOD)	Neutral (variable)
Southern Annular Mode (SAM/AO)	Weakly - moderately positive

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

## Seasonal outlook

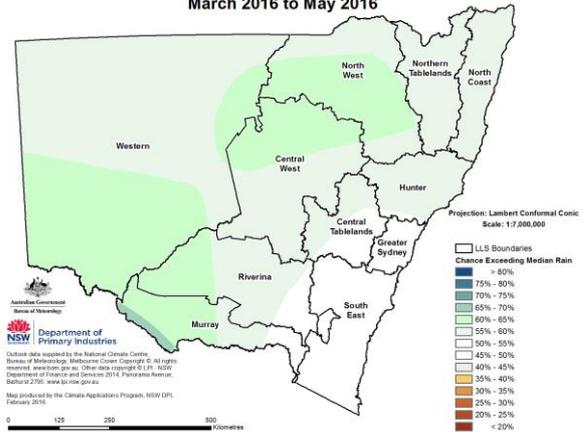
(Source: [Bureau of Meteorology](#))

Between March and May there is a near-neutral rainfall outlook for most of NSW. This means there is a near-equal chance of drier or wetter than normal conditions. Wetter than normal conditions are likely across the south west of NSW and areas of the northern central west and north west.

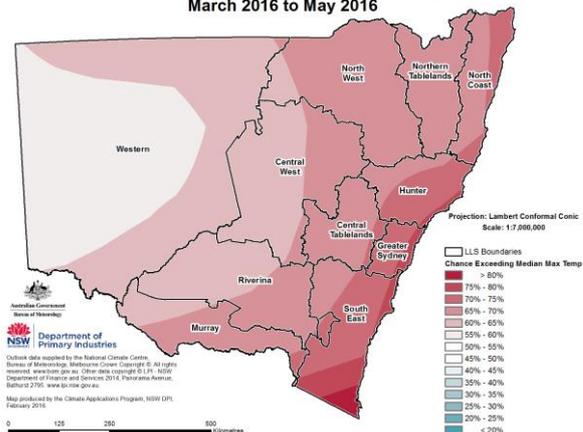
Warmer than normal daytime temperatures are likely across most of NSW for the period. There a near-neutral outlook for daytime temperatures across areas of the far west.

Overnight temperatures are likely to be warmer than normal across NSW.

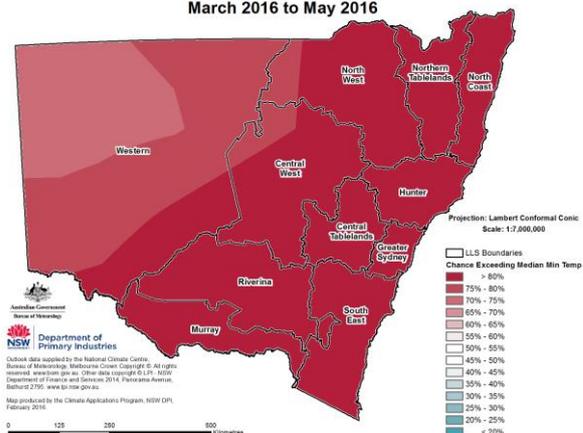
Chance of Exceeding Median Rainfall  
March 2016 to May 2016



Chance of Exceeding the Median Maximum Temperature  
March 2016 to May 2016



Chance of Exceeding the Median Minimum Temperature  
March 2016 to May 2016

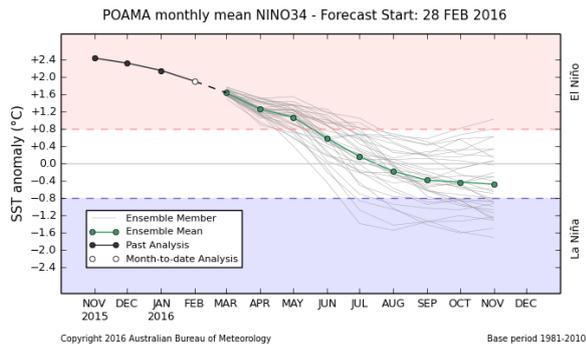


The seasonal outlooks presented in this report are obtained from the Australian Bureau of Meteorology & other sources. These outlooks are general statements about the likelihood (chance) of (for example) exceeding the median rainfall or minimum or maximum temperatures. Such probability outlooks should 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 9 March 2016.

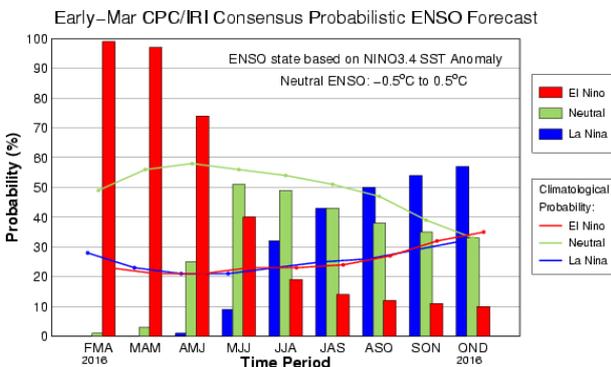
## ENSO

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

The Pacific Ocean has declined to a moderate-level El Niño event. NINO 3.4 sea surface and sub surface temperatures peaked in November and continue to decline. The NINO 3.4 sea surface temperature is now almost one degree less than the peak. The El Niño event is likely to persist into late autumn/early winter 2016 and is most likely to be followed by neutral conditions. A La Niña event is possible, but less likely. The Bureau of Meteorology's ENSO tracker status remains at 'El Niño'.



The Bureau of Meteorology's latest POAMA outlook (as at 28 February) suggests that the sea surface temperatures in the NINO3.4 region will reach neutral levels in late autumn. This is also indicated on the CPC/IRI consensus ENSO forecast probabilities.



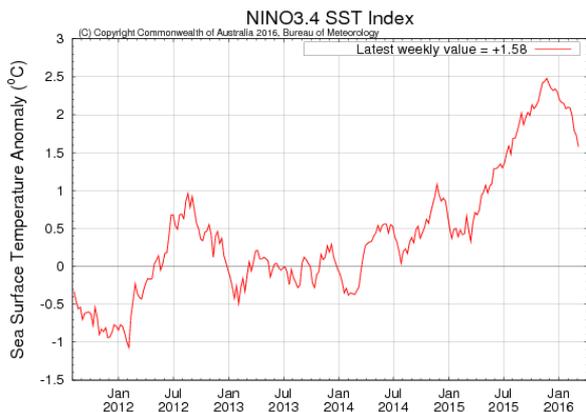
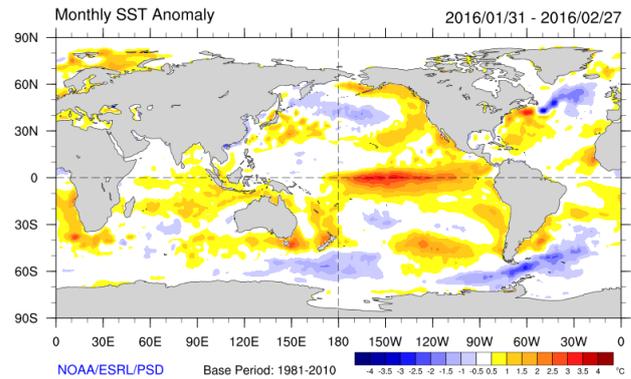
Eight climate models surveyed by the Bureau (as at 16 February) indicate NINO3.4 sea surface temperatures are likely to remain above the Bureau's El Niño threshold during March. Two of the eight suggest a return to neutral conditions by May, and all by July. Three of the eight suggest a decline to near or below the La Niña threshold level during July.

## Sea Surface Temperatures

(Source: NOAA & Bureau of Meteorology)

Warm sea surface temperatures anomalies extend across the equatorial Pacific west of the International Date Line, but have weakened during the month, particularly across the central and eastern areas. Temperatures remain near-normal to slightly warmer than normal west of the International Date Line.

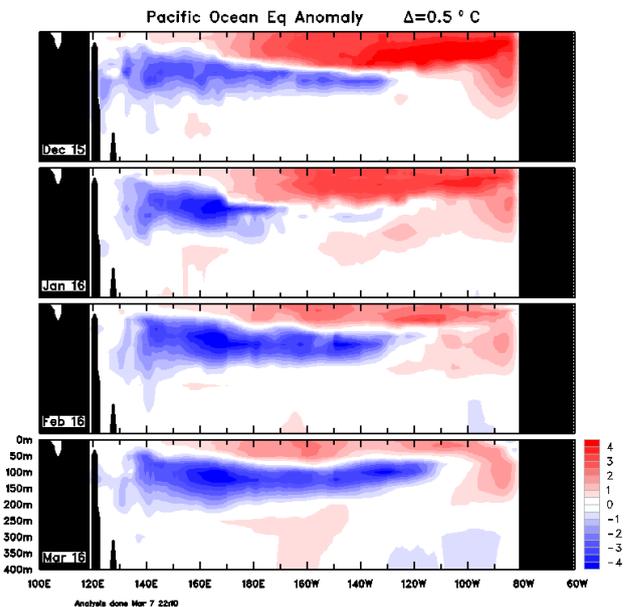
The most recent weekly temperature anomaly value in the key NINO3.4 region was +1.58°C to 6 March, down from a peak of +2.48°C on 22 November.



## Monthly Sub-surface Temperatures

(Source: Bureau of Meteorology)

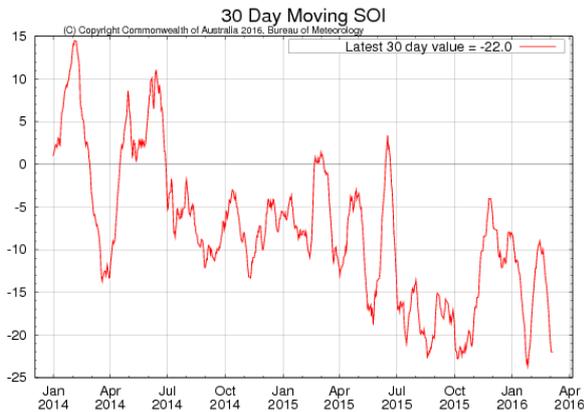
The sub-surface sea temperatures show the strong warm anomaly at depth across the central and eastern equatorial Pacific weakening. This is due to the passage and strengthening of a cool anomaly, which now extends into the eastern Pacific. The development of this cool anomaly signals the decay of the El Niño event, and indicates the possibility of a La Niña event developing.



### Southern Oscillation Index (SOI)

(Source: Bureau of Meteorology & Queensland DSITI)

The Southern Oscillation Index (SOI) has been variable and is currently strongly negative after rising to be neutral in late November. On 6 March, the 30-day SOI value was -22.0 and on 8 March the 90-day SOI was -16.15. Fluctuations in the SOI are common at this time of year due to the influence of the monsoon season, and the 90-day SOI is a more reliable indicator.



Values 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.

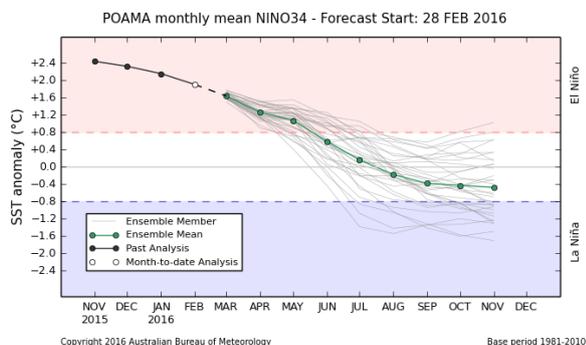
### Indian Ocean Dipole (IOD)

(Source: Bureau of Meteorology)

The Indian Ocean Dipole (IOD) returned to neutral during November. The current value is -0.30 for the week to 7 March. The IOD has little influence on the climate between December and May.

However, the warm sea surface temperatures across the Indian Ocean are likely to influence the climate over summer, providing sources of moisture.

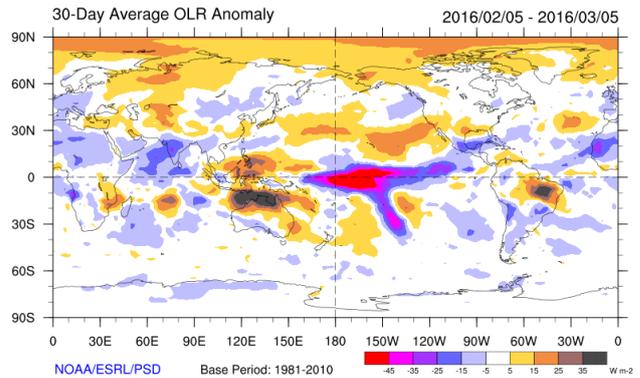
A positive IOD increases the chances of below normal rainfall and may exacerbate the effect of an El Niño event over south eastern Australia. A negative IOD increases the chances of above normal winter and spring rainfall across southern and much of western and central NSW.



### Cloudiness and trade winds

(Source: Bureau of Meteorology & NOAA)

Levels of cloud at the junction of the International Date Line and equator remained high during most of February, but remained low across much of Indonesia, Papua New Guinea, the Philippines and northern Australia, consistent with an El Niño event. Cloud was low over NSW, reflecting the dry conditions.

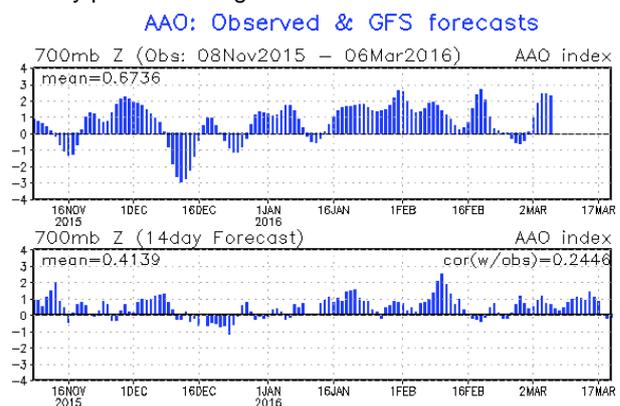


Trade winds were near-normal across the equatorial Pacific during February, contributing to the passage of the cool subsurface anomaly. Between early 2015 and January 2016, the trade winds had been weaker than average or reversed, consistent with an El Niño event.

### Southern Annular Mode (SAM)

(Source: NOAA)

The experimental Southern Annular Mode or Antarctic Oscillation (AAO) index is currently moderately positive as at 6 February. The outlook suggests it will be mostly weakly positive during mid-late March.



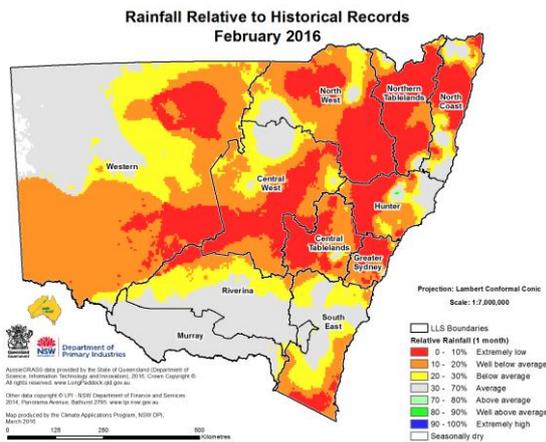
A negative SAM indicates expansion of the belt of strong westerly winds towards the equator, resulting in more or stronger low pressure systems across southern Australia and potentially increased rainfall. A positive SAM indicates the contraction of the belt of westerly winds towards Antarctica and higher pressures over southern Australia, and can result in stable, drier conditions. A strongly positive SAM in spring-summer can mean southern Australia is influenced by the northern half of high pressure systems, leading to a slightly higher likelihood of increased rainfall over south eastern and central NSW.

## Conditions during February

### Rainfall

(Source: Queensland DSITI)

Rainfall across NSW ranged from 0-292 mm during February, with a variable distribution across the central and western areas of the state. Relative to historical records, rainfall was below average across most of NSW and was in the lowest 10 per cent of recordings over most of this area. Areas of the far west, south and mid-north coast had near-average rainfall for the period.



### Soil moisture

(Source: CSIRO)

Modelled topsoil moisture levels declined across most of NSW during February, with the exception of areas of the coast. Relative to historical records, topsoil moisture during February was average across most of NSW and above average in the south and some areas of the north west. It was below average across most of the north coast, northern tablelands and in the west near Bourke. By the end of the month, levels had declined and were below average across most of northern, north western and central NSW, as well as in many southern areas.

Modelled subsoil moisture levels remained relatively stable during the month, but improved across areas of the coast, and improved slightly across some areas of the far south and the north west. Levels remained moderate across most of the tablelands and slopes.

### 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 Summary and Report, available at <http://www.dpi.nsw.gov.au/agriculture/emergency/seasonal-conditions/regional-seasonal-conditions-reports>, and the LLS On-ground Seasonal Conditions Reports available at <http://www.lls.nsw.gov.au/agriculture/seasonal-conditions>.

### Acknowledgements

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

### Warning

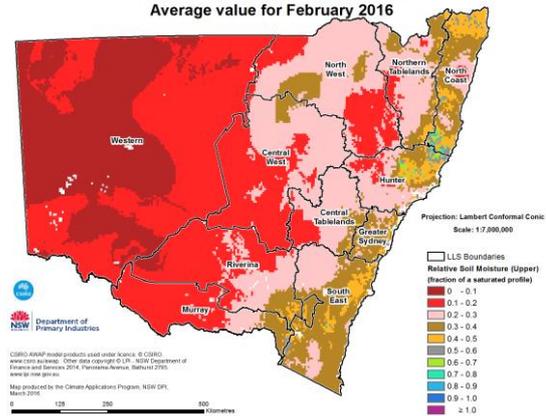
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Published by the Department of Primary Industries. ISSN 2203-5060 (Online) PUB16/132 Volume 3/Number 3

Relative Soil Moisture (Upper Layer)  
Average value for February 2016



### Pasture growth

(Source: Queensland DSITI)

During February growth declined to generally average to below average levels across much of NSW. Below average growth occurred in areas of the far north west, north west, central west, northern tablelands, upper Hunter valley and the central areas of the north coast. Limited areas of above average growth occurred across some of the south east, eastern Riverina and far south. Other pasture growth models suggested average relative growth areas of the Riverina, central to mid-north coast, south and south east and below average growth for the remainder of NSW.

Pasture Growth Relative to Historical Records from 1957  
February 2016

