

# NSW Climate Summary - February 2017

## Summary

Seasonal Outlook	Current outlook
Rainfall (quarter)	Drier (most of NSW)  Near neutral (areas of the south to mid-north coast)
Max Temperature (quarter)	Warmer
Min Temperature (quarter)	Warmer (most of NSW)  Near neutral (areas of southern and south western NSW)
ENSO	Current outlook
ENSO (overall)	Neutral
ENSO Outlook Status	Neutral
SOI	Neutral
Pacific Ocean (NINO3.4)	Neutral (near neutral but warming)
Indian Ocean (IOD)	Neutral (slightly warm but cooling)
Southern Annular Mode (SAM/AO)	Near-neutral (tending to remain near-neutral to weakly positive)

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

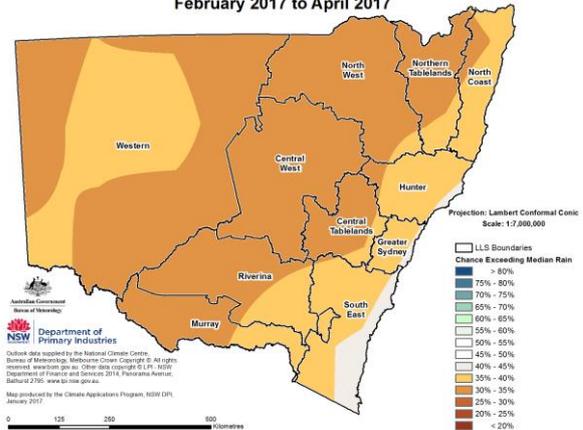
## Seasonal outlook

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

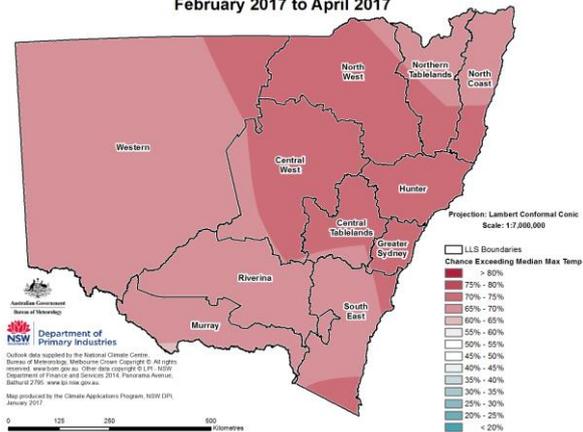
Between February and April drier than normal conditions are likely across most of NSW, with the possibility of a near-equal chance of drier or wetter than normal conditions across areas of the south to mid-north coast.

Daytime and overnight temperatures are likely to be warmer than normal across most of NSW. There is a near-equal chance of cooler or warmer than normal overnight temperatures in areas of the far south and south west.

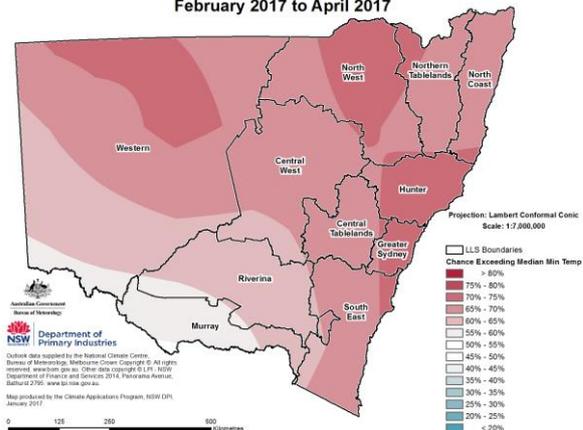
Chance of Exceeding Median Rainfall February 2017 to April 2017



Chance of Exceeding the Median Maximum Temperature February 2017 to April 2017



Chance of Exceeding the Median Minimum Temperature February 2017 to April 2017

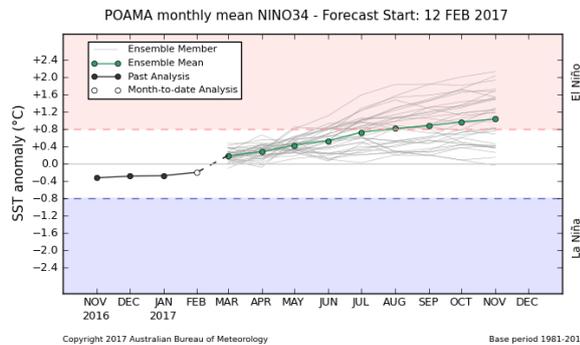


The seasonal outlooks presented in this report are obtained from the Australian Bureau of Meteorology & other sources. These outlooks are general statements about the likelihood (chance) of (for example) exceeding the median rainfall or minimum or maximum temperatures. Such probability outlooks should 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 14 February 2017.

## ENSO

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

The Pacific Ocean remains in an ENSO-neutral state. Most models suggest a neutral outlook for the remainder summer and autumn. Some models suggest warming to weak El Niño levels by winter, although model skill is currently low till early winter. During January, sea surface temperatures were near-average to slightly below average in the central and eastern-central equatorial Pacific. Above average sea surface temperatures were present in the west. Temperatures were above average in the eastern equatorial Pacific, and have expanded to the west since early January. The cool sub-surface anomaly in the central and eastern Pacific weakened during January, with weak warm anomalies present in the west. Trade winds were near-average. Cloud conditions in the central Pacific remained at La Niña-like levels, but the SOI was neutral. The Bureau of Meteorology's ENSO outlook status is currently 'inactive'.



The Bureau of Meteorology's POAMA outlook (as at 12 February) suggests that the sea surface temperatures in the NINO3.4 region will remain in the neutral range throughout summer and autumn. The CPC/IRI ENSO forecast also indicates ENSO neutral conditions are present and likely to continue throughout summer and autumn. Note that CPC/IRI uses different thresholds for El Niño and La Niña events than does the Bureau of Meteorology.

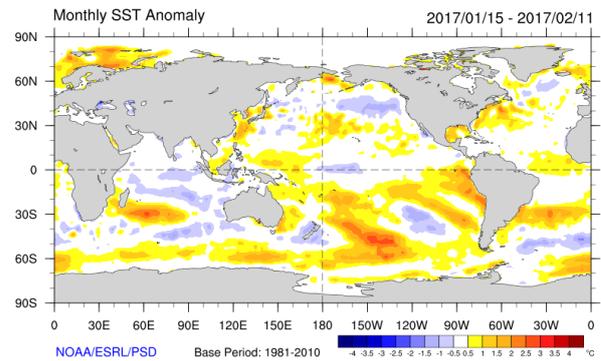
Of the eight climate models surveyed by the Bureau (as at 16 January), most indicate NINO3.4 sea surface temperatures are likely to remain neutral throughout February and into April. One indicates borderline El Niño temperatures occurring during April and three during June.

## Sea Surface Temperatures

(Source: NOAA & Bureau of Meteorology)

Sea surface temperatures were near-average to slightly below average in the central and eastern-central equatorial Pacific during January. Temperatures were above average in the eastern equatorial Pacific, and the warmer temperatures have expanded to the west since early January. Temperatures were also above average in the western equatorial Pacific.

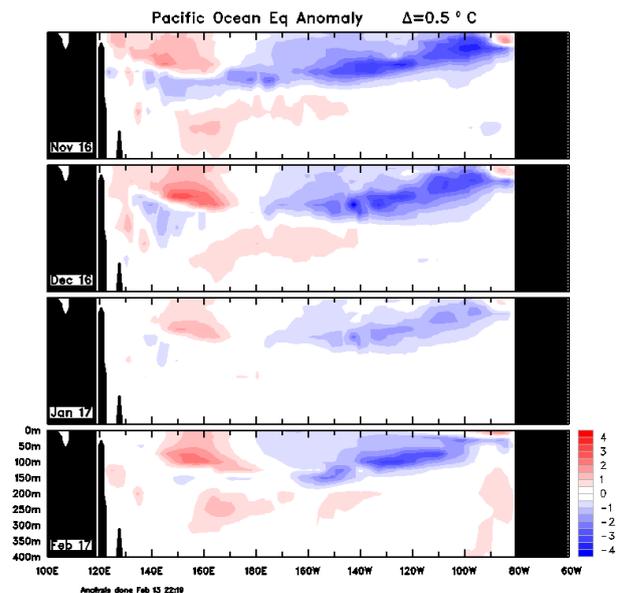
The most recent weekly temperature anomaly value in the key NINO3.4 region was  $-0.11^{\circ}\text{C}$  in the week to 12 February.



## Monthly Sub-surface Temperatures

(Source: Bureau of Meteorology)

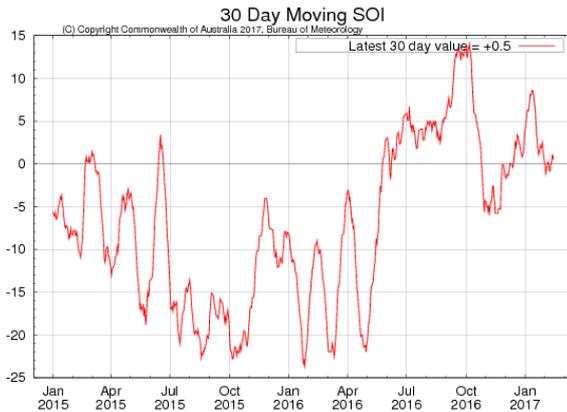
The sub-surface sea temperatures show cool subsurface temperature anomaly extending across the central and eastern equatorial Pacific weakened during January but strengthened slightly in early February. Weak warm anomalies were present in areas of the west.



### Southern Oscillation Index (SOI)

(Source: Bureau of Meteorology & Queensland DSITI)

The Southern Oscillation Index (SOI) is currently neutral. On 14 February, the 30-day SOI value was +0.5 (Bureau of Meteorology) and the 90-day SOI was +2.40 (QDSITI). The neutral SOI is due to atmospheric pressure at Darwin and Tahiti being near-average.



Values between -7 and +7 indicate neutral conditions, sustained values above +7 may indicate a La Niña event, and sustained values below -7 may indicate an El Niño event.

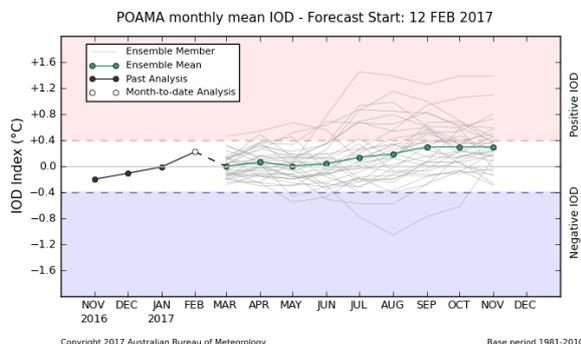
### Indian Ocean Dipole (IOD)

(Source: Bureau of Meteorology)

The Indian Ocean Dipole (IOD) is neutral, which is normal for this time of year. IOD events typically do not form between December and April due to the effects of the monsoon. The Dipole Mode Index (DMI) value was at +0.28 for the week to 12 February.

The five climate models surveyed by the Bureau of Meteorology on 16 January suggest the likelihood of IOD neutral conditions during April and June.

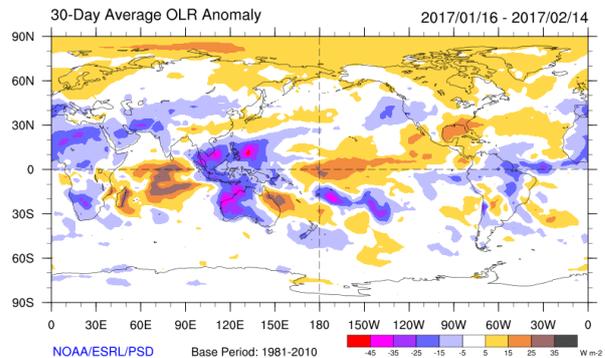
A positive IOD increases the chances of below normal rainfall and may exacerbate the effect of an El Niño event over south eastern Australia. A negative IOD increases the chances of above normal winter and spring rainfall across southern and much of western and central NSW.



### Cloudiness and trade winds

(Source: Bureau of Meteorology & NOAA)

Levels of cloud at the junction of the International Date Line (IDL) were below normal during January. Cloud levels remained high over Indonesia, the Philippines, Papua-New Guinea and much of Australia and South East Asia.

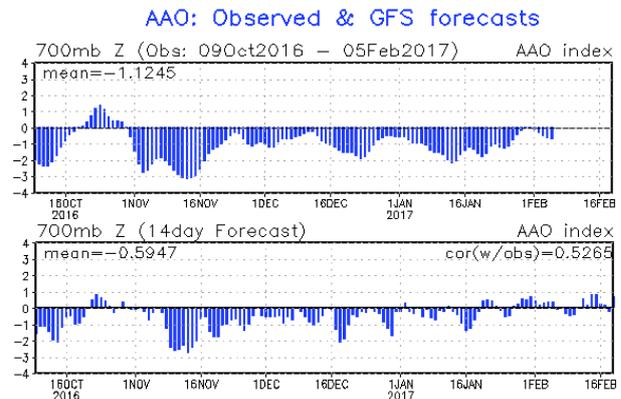


Trade winds were near-normal across the equatorial Pacific during most of January.

### Southern Annular Mode (SAM)

(Source: NOAA)

The experimental Southern Annular Mode or Antarctic Oscillation (AAO) index was negative throughout most of late spring and summer, increasing the likelihood of drier conditions during the period. The SAM is currently near-neutral and the outlook is for it to remain near-neutral into mid-late February, with a possible shift to weakly positive during late February and into early 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 during autumn and winter. During spring and summer, the opposite occurs.

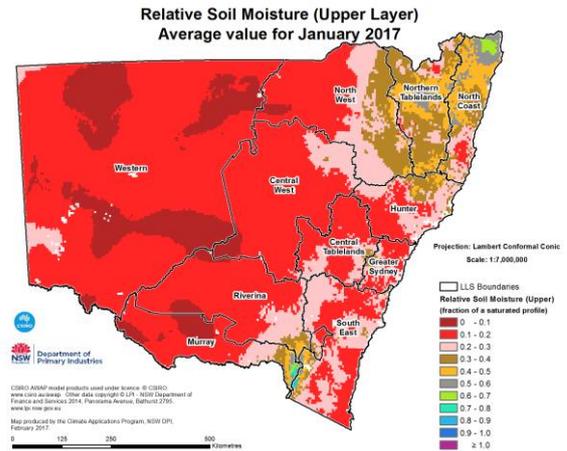
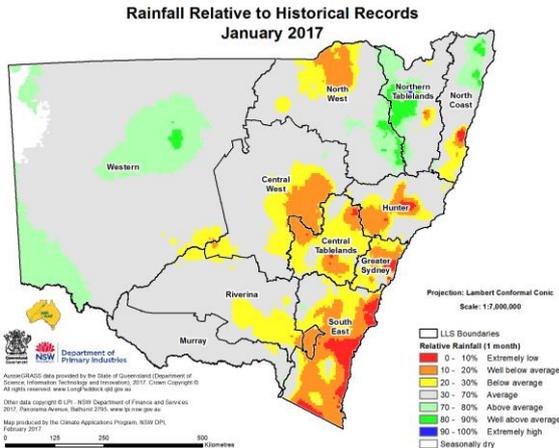
A positive SAM indicates the contraction of the westerly winds towards Antarctica and higher pressures over southern Australia, and can result in stable, drier conditions. A strongly positive SAM in spring-summer can mean southern Australia is influenced by the northern half of high pressure systems,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

## Conditions during January

### Rainfall

(Source: Queensland DSITI)

Rainfall across NSW ranged from 1-404 mm during January. Relative to historical records, rainfall was near average across much of the state. Rainfall was below average across areas of the coast, Hunter valley, north west, central west, central tablelands, Riverina, Sydney basin and the south east. Above average relative rainfall occurred across areas of the far west, northern tablelands and the far north coast.

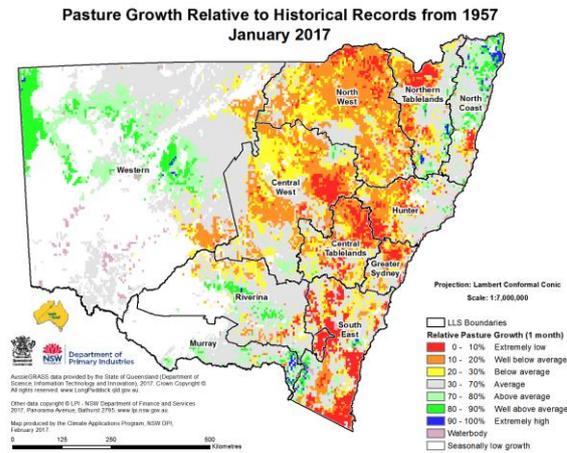


### Pasture growth

(Source: Queensland DSITI)

During January pasture growth was below average across much of the north west, central west, central and southern tablelands, upper Hunter valley, Sydney basin, Monaro, south coast and the west of the northern tablelands. Most of western and southern NSW had near average growth.

Other models indicated below average growth across much of NSW, particularly in the north west and far south east. Growth was near average across the far south and areas of the north east.



### Soil moisture

(Source: CSIRO)

Topsoil moisture remained low across much of inland NSW during January, with declines across the south east and central and southern NSW. A slight improvement occurred in areas of the north east. Relative to historical records, levels were average across most of NSW but above average in areas of the far west, far south and north east. Below average topsoil moisture occurred across areas of the central tablelands, central west, north west, Sydney basin, Hunter valley, mid-north to lower north coast and the central to south coast. Subsoil moisture declined in most areas, particularly across the south east, central and southern areas of the state. Relative to historical records, levels remained extremely high across much of inland NSW.

#### 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.

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