

NSW Climate Summary - January 2017

Summary

Seasonal Outlook	Current outlook
Rainfall (quarter)	Drier (most of NSW) Near neutral (areas of western and south western NSW)
Max Temperature (quarter)	Warmer (most of NSW) Near neutral (areas of far western NSW)
Min Temperature (quarter)	Warmer (most of NSW) Near neutral (areas of western and south western NSW)
ENSO	Current outlook
ENSO (overall)	Neutral
ENSO Outlook Status	Neutral
SOI	Neutral
Pacific Ocean (NINO3.4)	Neutral (slightly cool but warming)
Indian Ocean (IOD)	Neutral (slightly warm but cooling)
Southern Annular Mode (SAM/AO)	Weakly to moderately negative (trending to weakly negative-neutral)

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

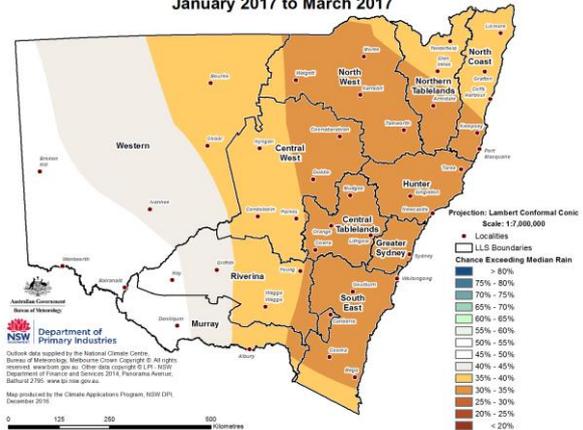
Seasonal outlook

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

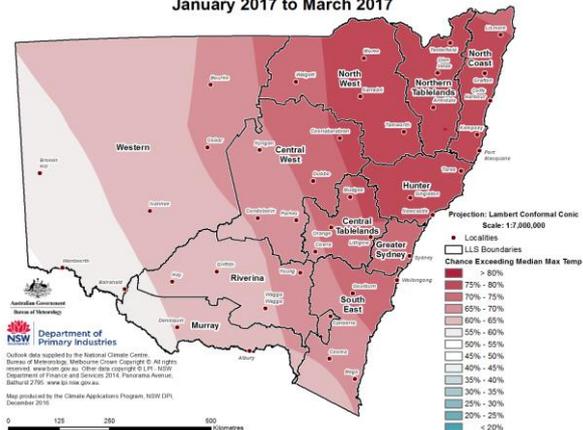
Between January and March drier than normal conditions are likely across most of NSW, with a near-equal chance of drier or wetter than normal conditions across areas of the south and west.

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 daytime and overnight temperatures across areas of the far west and areas of the south. There is also a near-equal chance of cooler or warmer than normal overnight temperatures in areas of the far south east.

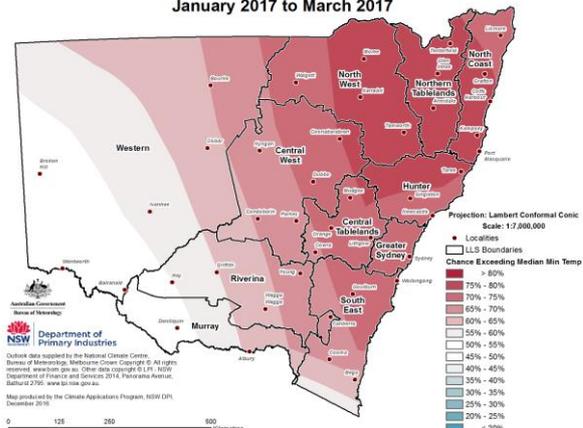
Chance of Exceeding Median Rainfall January 2017 to March 2017



Chance of Exceeding the Median Maximum Temperature January 2017 to March 2017



Chance of Exceeding the Median Minimum Temperature January 2017 to March 2017

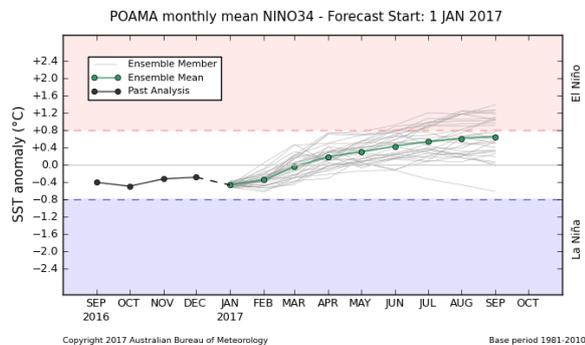


The seasonal outlooks presented in this report are obtained from the Australian Bureau of Meteorology & other sources. These outlooks are general statements about the likelihood (chance) of (for example) exceeding the median rainfall or minimum or maximum temperatures. Such probability outlooks should 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 6 January 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 into early autumn. Above average sea surface temperatures are still present in the western equatorial Pacific and in the eastern Indian Ocean near Sumatra, but have cooled with the onset of the monsoon. These areas may provide sources of moisture for NSW if the right conditions occur. Cool surface and sub-surface sea temperatures persist in the central and eastern-central equatorial Pacific, but have weakened and are expected to warm. Trade winds were near-average. Cloud conditions are at La Niña-like levels, but the SOI is neutral. The major influence on the climate during November and December was negative Southern Annular Mode, which in summer tends to result in reduced rainfall and warmer temperatures. The Bureau of Meteorology's ENSO outlook status is 'inactive'.



The Bureau of Meteorology's POAMA outlook (as at 1 January) suggests that the sea surface temperatures in the NINO3.4 region will warm but remain in the neutral range throughout summer and into early autumn. The CPC/IRI ENSO forecast suggests weak La Niña conditions are currently present but the outlook is for ENSO neutral conditions in summer to early autumn. Note that CPC/IRI uses different thresholds for El Niño and La Niña events than does the Bureau of Meteorology.

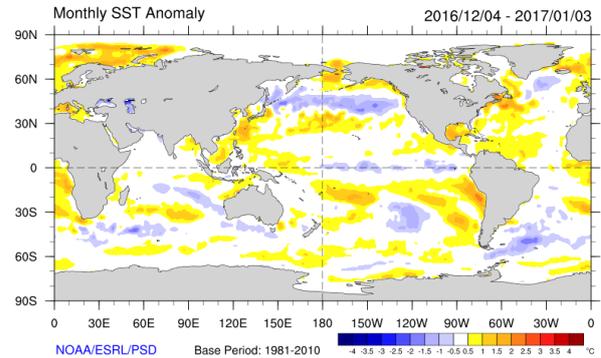
Of the eight climate models surveyed by the Bureau (as at 16 December), most indicate NINO3.4 sea surface temperatures are likely to remain neutral throughout January and into March, although some indicate borderline La Niña temperatures during January. Most suggest warm but neutral temperatures by May, with one model suggesting El Niño temperatures occurring.

Sea Surface Temperatures

(Source: NOAA & Bureau of Meteorology)

Sea surface temperatures remain below average in the central and eastern equatorial Pacific, but have warmed. This is expected to continue into early autumn. La Niña-like above-average sea surface temperatures are present across much of the west, but have cooled due to the effects of the monsoon.

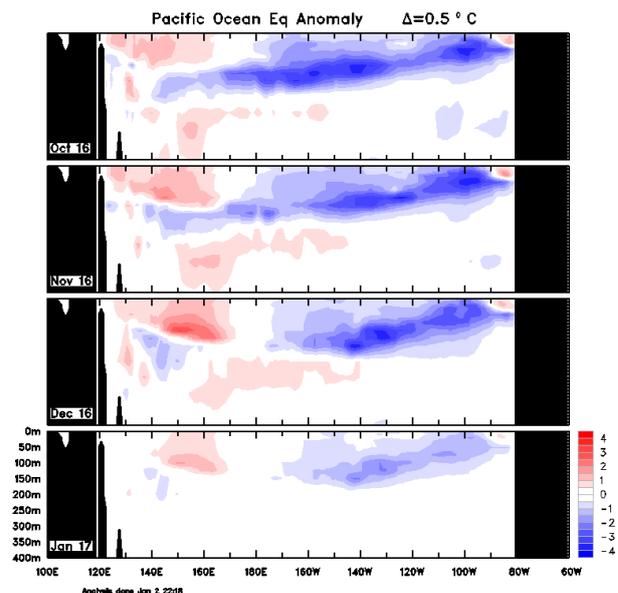
The most recent weekly temperature anomaly value in the key NINO3.4 region was -0.28°C in the week to 1 January. A warm anomaly is persisting to the south of Sumatra, but has weakened.



Monthly Sub-surface Temperatures

(Source: Bureau of Meteorology)

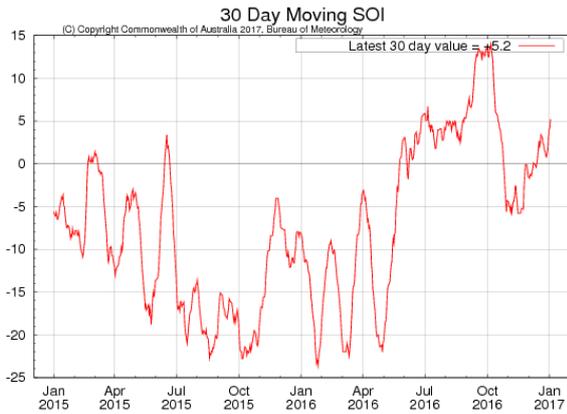
The sub-surface sea temperatures show the cool anomaly in the central to eastern equatorial Pacific has weakened, reducing in size and intensity. The warm anomaly in the western Pacific intensified in December but has weakened into January.



Southern Oscillation Index (SOI)

(Source: Bureau of Meteorology & Queensland DSITI)

The Southern Oscillation Index (SOI) is currently neutral. On 3 January, the 30-day SOI value was +5.2 (Bureau of Meteorology) and the 90-day SOI was -0.57 (QDSITI). The neutral SOI is due to atmospheric pressure at Darwin being slightly below average, with near-average pressure at Tahiti.



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.

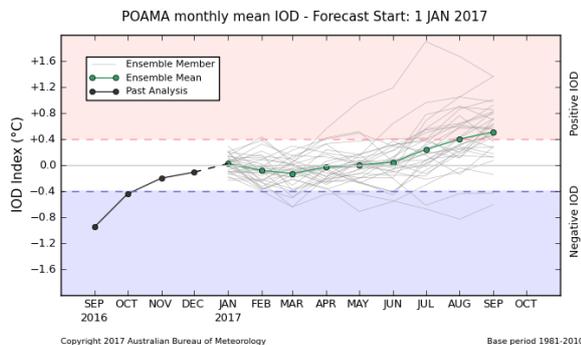
Indian Ocean Dipole (IOD)

(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 -0.23 for the week to 1 January.

Four of the five climate models surveyed by the Bureau of Meteorology on 16 December suggest the likelihood of neutral conditions continuing through to May.

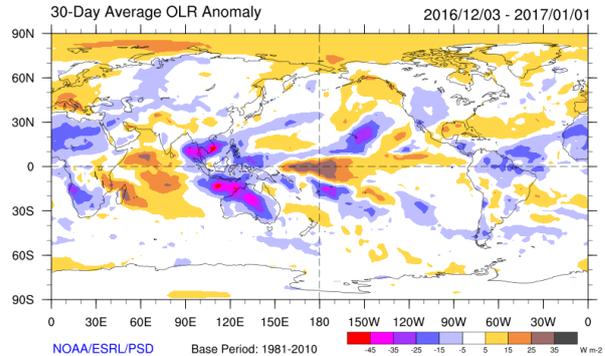
A positive IOD increases the chances of below normal rainfall and may exacerbate the effect of an El Niño event over south eastern Australia. A negative IOD increases the chances of above normal winter and spring rainfall across southern and much of western and central NSW.



Cloudiness and trade winds

(Source: Bureau of Meteorology & NOAA)

Levels of cloud at the junction of the International Date Line (IDL) remained below normal during December. Cloud levels remained high over Indonesia, the Philippines and much of Australia.



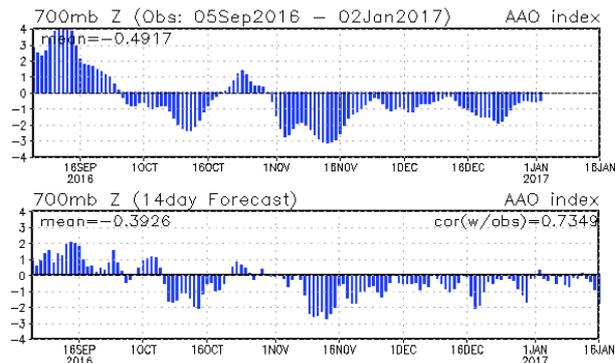
Trade winds were near-normal across the equatorial Pacific during most of December.

Southern Annular Mode (SAM)

(Source: NOAA)

The experimental Southern Annular Mode or Antarctic Oscillation (AAO) index is weakly to moderately negative and was at these levels for most of December. The outlook is for the SAM to remain weakly to moderately negative, possibly returning to near-neutral levels in late January. During summer, a negative SAM contributes to a greater likelihood of drier and warmer than normal conditions.

AAO: Observed & GFS forecasts



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.

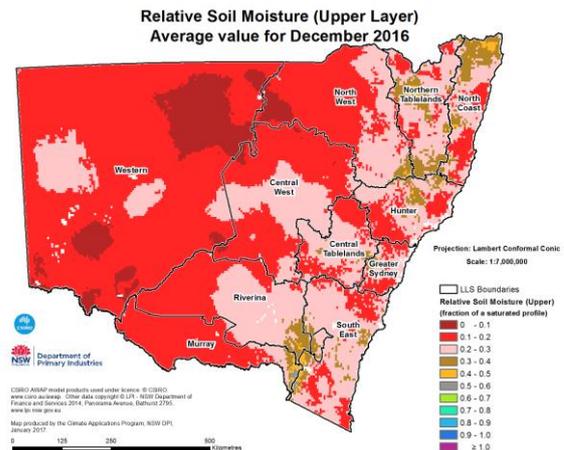
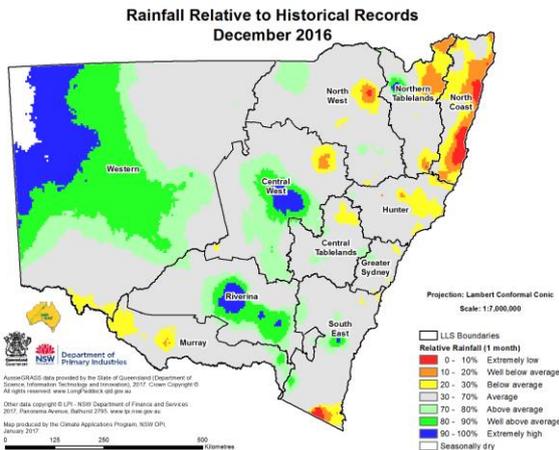
A positive SAM indicates the contraction of the westerly winds towards Antarctica and higher pressures over southern Australia, and can result in stable, drier conditions. A strongly positive SAM in spring-summer can mean southern Australia is influenced by the northern half of high pressure systems,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

Conditions during December

Rainfall

(Source: Queensland DSITI)

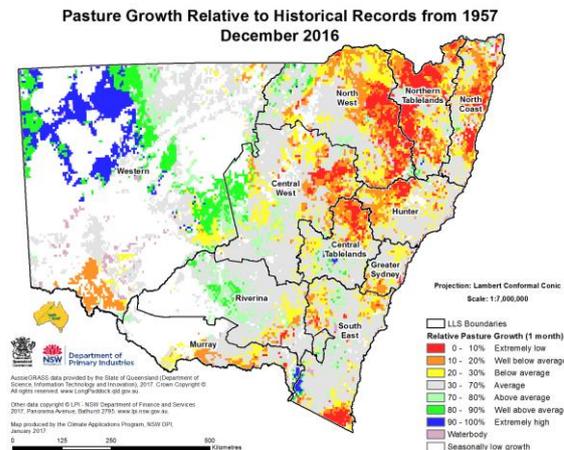
Rainfall across NSW ranged from 5-203 mm during December. Relative to historical records, rainfall was near average across much of NSW, but below average across the north coast and areas of the northern tablelands, the Hunter valley, the far south west and the far south east. Above average relative rainfall occurred across areas of the far west and eastern and central areas of the central west and the Riverina.



Pasture growth

(Source: Queensland DSITI)

During December pasture growth was average over south eastern, central and southern NSW and areas of the far west. Below average growth occurred over the north east and areas of the tablelands, north west and central west. Areas of the far west and the central Riverina had above average growth. Other models indicated near-average growth across southern and central NSW, below average growth across the north and north east and above average growth in areas of the Riverina and the far west.



Soil moisture

(Source: CSIRO)

Topsoil moisture declined across areas of western NSW and the tablelands during December. Relative to historical records, topsoil moisture levels were near average across most of NSW. Levels were above average in the far west and areas of the central west and Riverina, but below average across areas of the north west and the coast (particularly the north coast).

Subsoil moisture levels declined slightly in most areas. Relative to historical records, levels remained extremely high across most of inland NSW, but average across the coast and the east of the tablelands. Below average subsoil moisture occurred along areas of the coast.

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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