

NSW Climate Summary - October 2016

Summary

Seasonal Outlook	Current outlook
Rainfall (quarter)	Wetter (most of NSW) Near neutral (areas if the northern tablelands and north coast)
Max Temperature (quarter)	Cooler
Min Temperature (quarter)	Cooler (most of NSW) Near neutral (far south eastern NSW)
ENSO	Current outlook
ENSO (overall)	Neutral La Niña possible but unlikely
ENSO Outlook Status	La Niña watch
SOI	Positive
Pacific Ocean (NINO3.4)	Neutral (cool)
Indian Ocean (IOD)	IOD slightly negative – borderline neutral
Southern Annular Mode (SAM/AO)	Moderately negative (trending from moderately negative to near-neutral)

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

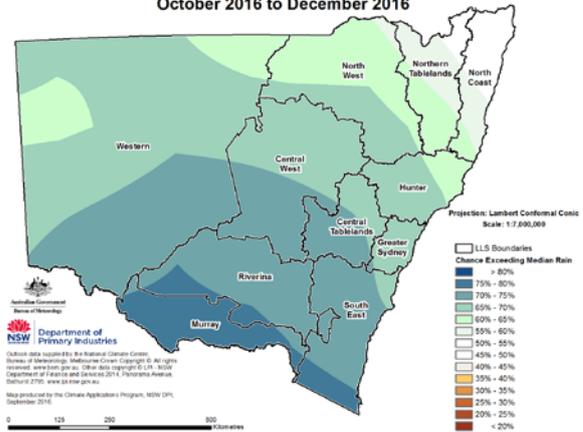
Seasonal outlook

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

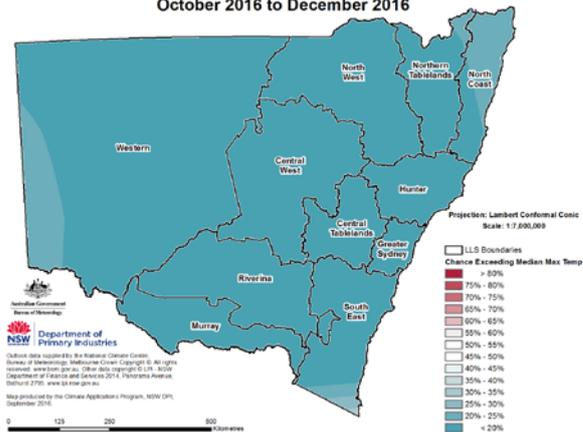
Between October and December, wetter than normal conditions are likely across most of NSW. There is a near-equal chance of drier or wetter than normal conditions for the north east, including areas of the north coast and northern tablelands.

Daytime and overnight temperatures are likely to be cooler than normal across most of NSW.

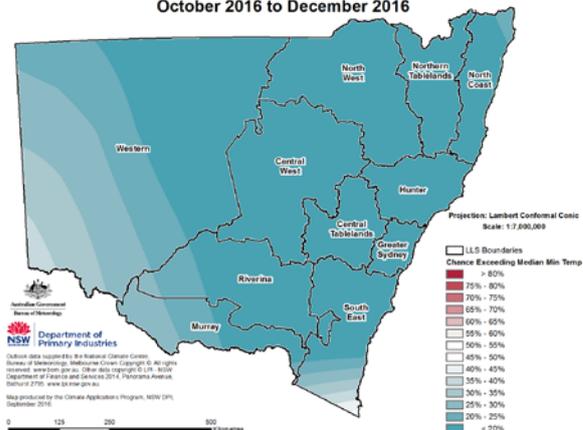
Chance of Exceeding Median Rainfall
October 2016 to December 2016



Chance of Exceeding the Median Maximum Temperature
October 2016 to December 2016



Chance of Exceeding the Median Minimum Temperature
October 2016 to December 2016

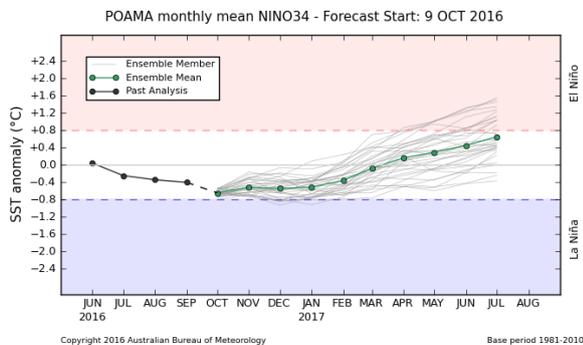


The seasonal outlooks presented in this report are obtained from the Australian Bureau of Meteorology & other sources. These outlooks are general statements about the likelihood (chance) of (for example) exceeding the median rainfall or minimum or maximum temperatures. Such probability outlooks should 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 10 October 2016.

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 spring with a La Niña event now unlikely. Sea surface temperatures are below average in the central and eastern-central equatorial Pacific and near-average to below average in the east. La Niña-like above average sea surface temperatures are present in the west. The current negative Indian Ocean Dipole (IOD) event has weakened, with the Dipole Mode Index (DMI) increasing to borderline-neutral in early October. Cool sub-surface sea temperatures exist in the central and eastern Pacific, and have strengthened, but still remain above La Niña thresholds. Trade winds were near-average, with some strengthening. Cloud conditions and the SOI are at La Niña-like levels. The ENSO outlook status from the Bureau of Meteorology remains at 'La Niña watch', but the CPC/IRI's status is 'inactive' (neutral).



The Bureau of Meteorology's POAMA outlook (as at 9 October) suggests that the sea surface temperatures in the NINO3.4 region will be cool but remain in the neutral range throughout spring. The current CPC/IRI ENSO forecast suggests ENSO neutral conditions are slightly favoured during the spring and summer. Note that CPC/IRI uses different thresholds for El Niño and La Niña events than does the Bureau of Meteorology.

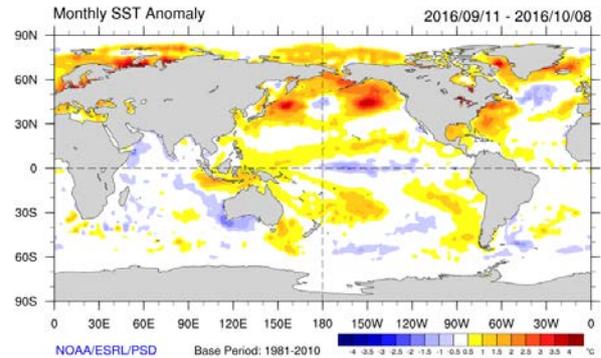
Of the eight climate models surveyed by the Bureau (as at 16 September), two indicate NINO3.4 sea surface temperatures are likely to reach La Niña levels during December and remain at those levels into February. All other models suggest a neutral outlook to February.

Sea Surface Temperatures

(Source: NOAA & Bureau of Meteorology)

Sea surface temperatures are below average in the central and eastern-central equatorial Pacific and near-average to below average in the east. La Niña-like above average sea surface temperatures are present in the west. A line of cooler than normal water continues to snake across the central equatorial Pacific, now extending just west of the International Date Line. The most recent weekly temperature anomaly value in the key NINO3.4 region has fallen to -0.62°C in the week to 9 October. A cool anomaly remains in the north western

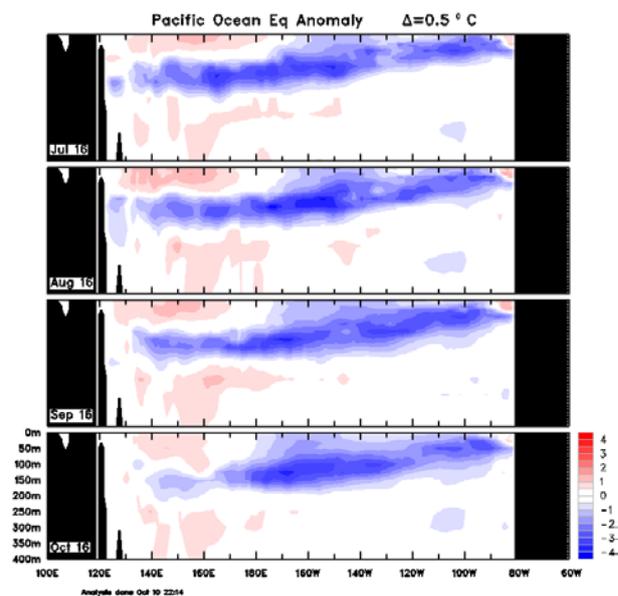
Indian Ocean and a warm anomaly to the south of Sumatra, consistent with a negative IOD event. The recent increase in the DMI is as a result of recent warming in the western Indian Ocean.



Monthly Sub-surface Temperatures

(Source: Bureau of Meteorology)

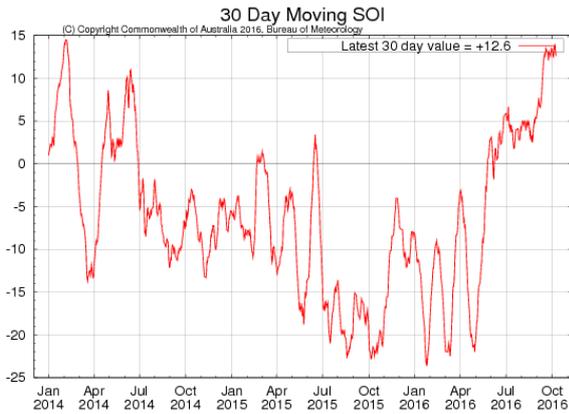
The sub-surface sea temperatures show the warming at and near the sea surface in the western equatorial Pacific. A cool anomaly extends from 100-200 m in depth in the west to the surface in the central and eastern Pacific, has weakened in the west but strengthened slightly in the central areas.



Southern Oscillation Index (SOI)

(Source: Bureau of Meteorology & Queensland DSITI)

The Southern Oscillation Index (SOI) is currently positive. On 9 October, the 30-day SOI value was +12.6 (Bureau of Meteorology) and the 90-day SOI was +8.16 (QDSITI). The recent increase has been due to decreased atmospheric pressure at Darwin and increased pressure at Tahiti.

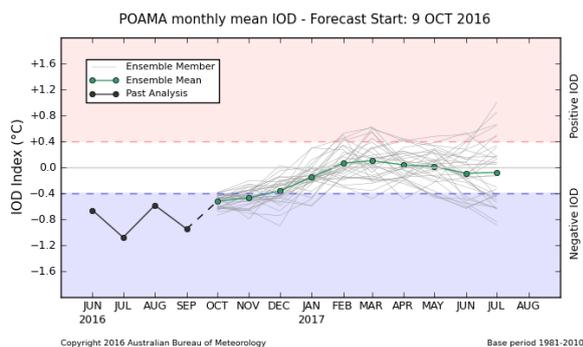


Values between -7 and +7 indicate neutral conditions, sustained values above +7 may indicate a La Niña event, and sustained values below -7 may indicate an El Niño event.

Indian Ocean Dipole (IOD)

(Source: Bureau of Meteorology)

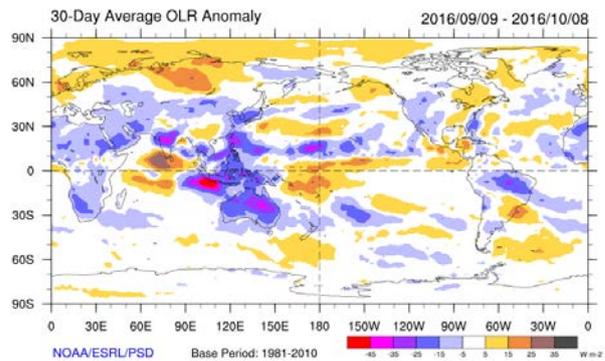
The Indian Ocean Dipole (IOD) has moved from being in a strongly negative event to weakening during late September and early October to borderline neutral levels. The Dipole Mode Index (DMI) value was at -0.38 for the week to 9 October as a result of warming in the western Indian Ocean. The warm water off Sumatra suggests the impacts of the negative IOD event may continue. The Bureau of Meteorology's outlook suggests continued weakening into spring. All five climate models surveyed by the Bureau of Meteorology on 16 September indicated the likelihood of a negative IOD event continuing through October but four indicated it will be neutral by December. 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 September, which occurs during a La Niña event. Cloud levels were high over Indonesia and Australia. Cloud levels were particularly high to the south west of Sumatra, consistent with the negative IOD event.

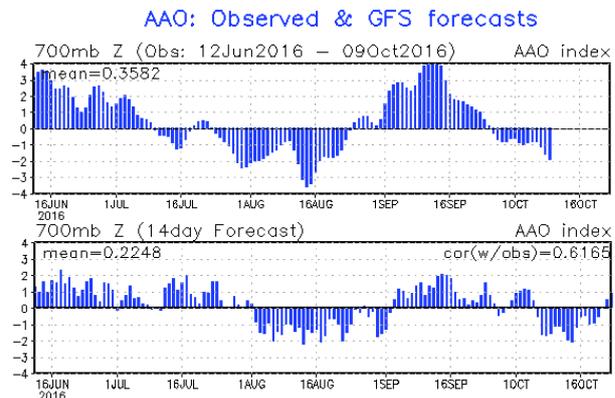


Trade winds were near-normal across the equatorial Pacific during most of September, with some strengthening in the west.

Southern Annular Mode (SAM)

(Source: NOAA)

The experimental Southern Annular Mode or Antarctic Oscillation (AAO) index has moved to being moderately negative in early October, after being strongly positive throughout most of September. The outlook is for the SAM to trend between moderately negative to near-neutral in mid-October.



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 in autumn and winter.

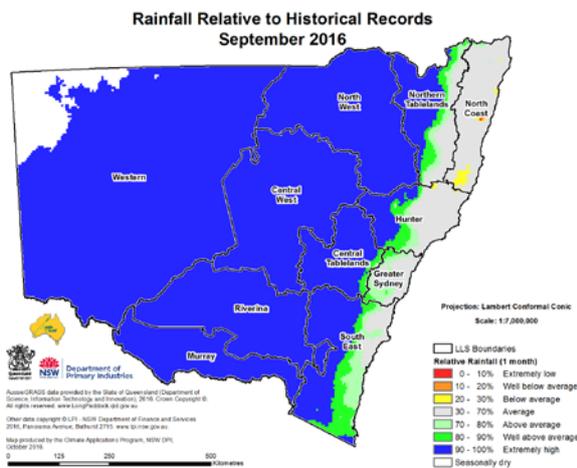
A positive SAM indicates the contraction of the westerly winds towards Antarctica and higher pressures over southern Australia, and can result in stable, drier conditions. A strongly positive SAM in spring-summer can mean southern Australia is influenced by the northern half of high pressure systems,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

Conditions during September

Rainfall

(Source: Queensland DSITI)

September was the wettest on record for NSW, with rainfall being extremely high across inland NSW. Rainfall across the state ranged from 11-320 mm with most of the state receiving 50-200 mm. Relative to historical records, rainfall during September was above average across 87 per cent of the state and was extremely high across inland NSW. The south coast received above average rainfall, with the remainder of the coast, the lower Hunter valley and the east of the northern tablelands experiencing near average conditions.



Soil moisture

(Source: CSIRO)

Topsoil moisture remained high during September, over most of the Riverina, far south, central west, north west, the southern and central tablelands and areas of the northern tablelands and far west. Relative to historical records, levels were extremely high across most of inland NSW. Subsoil moisture levels continued to increase across inland NSW. Relative to historical records, they were well above average to extremely high across most 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.

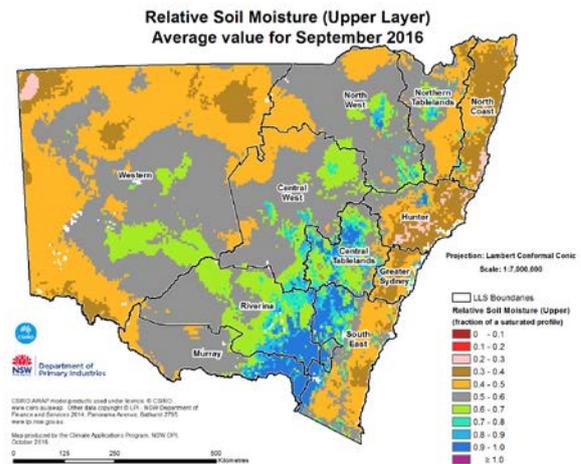
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Pasture growth

(Source: Queensland DSITI)

During September relative pasture growth was generally above average to extremely high across NSW. Growth was suppressed in some areas of the far west, central west, central tablelands, Riverina and far south. Other pasture growth models indicated extremely high pasture growth across most of inland NSW, with generally above average to well above average growth across most of the southern and central tablelands, south west slopes, the lower Hunter valley and the coast.

