



Pacific reaches La Niña thresholds

Issued on Wednesday 12 October | Product Code IDCKGEW00

Conditions in the tropical Pacific Ocean are consistent with the early stages of a late-forming La Niña event. If the current cooling persists, as is expected, then 2011-12 will be recorded as the second La Niña in as many years. Current observations and model predictions indicate that this La Niña is likely to be weaker than the strong 2010-11 event.

In addition to the trends in the ocean, key atmospheric signals such as trade winds, cloud and the Southern Oscillation Index (SOI), are also close to, or have passed, La Niña thresholds.

La Niña events raise the odds of above average rainfall across northern and eastern Australia, but do not guarantee it. Oceans surrounding Australia's north are currently close to or cooler than average, which is less favourable for widespread rainfall than at this time in 2010, when they were much warmer than normal. Similarly, the latest observations from the Indian Ocean show a positive dipole event. A positive dipole event increases the chance of below average rainfall over south-eastern and central Australia during spring.

Next update expected by 26 October 2011 | [print version](#)

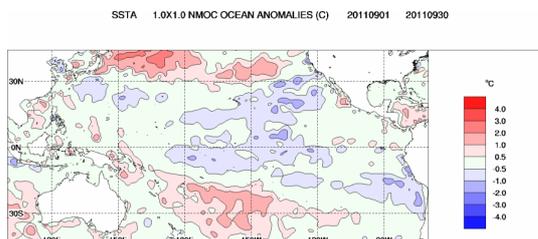
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

Sea surface temperature (SST) anomalies continued to cool across the tropical Pacific Ocean during September. The sea surface temperature (SST) anomaly map for September shows cool anomalies have increased in the central Pacific when compared to August, and now cover most of the equatorial central Pacific.

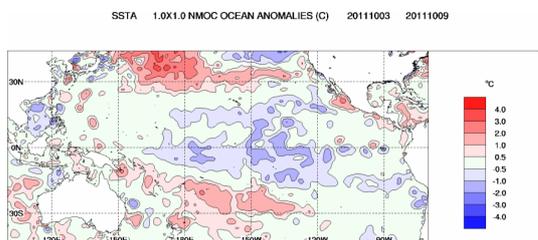
Index	August	September	Temperature change
NINO3	0.2	-0.4	0.2 °C cooler
NINO3.4	-0.5	-0.6	0.1 °C cooler
NINO4	-0.1	-0.4	0.3 °C cooler



Weekly sea surface temperatures:

Weekly sea surface temperature anomalies have continued to cool over the past fortnight. Compared with two weeks ago, surface waters across all three NINO regions have cooled. The SST anomaly map for the week ending 9 October shows cool anomalies span the central Pacific, in placed reaching more than 1 °C cooler than normal for this time of the year.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	-0.3	-0.5	0.2 °C cooler
NINO3.4	-0.6	-0.8	0.2 °C cooler
NINO4	-0.5	-0.6	0.1 °C cooler

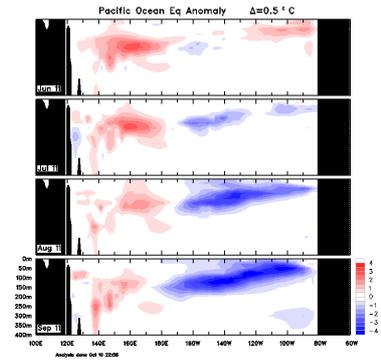


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

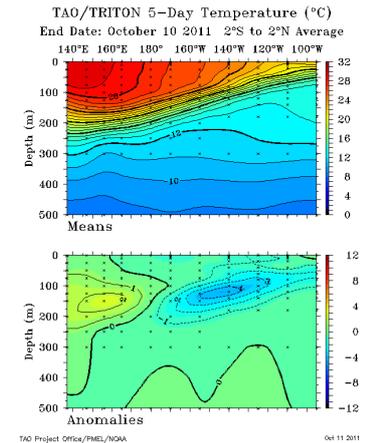
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, to September, shows the area of cool anomalies in the sub-surface has continued to expand over September. This large volume of cooler than usual water now extends across the entire Pacific east of the Date Line, with anomalies exceeding 4 °C cooler than average in the central region.



Weekly sub-surface:

When compared with two weeks ago, temperatures in the sub-surface of the central tropical Pacific have cooled significantly (see the map for the 5 days ending 10 October). Anomalies in this region are now more than 4 °C cooler than usual, for this time of the year.

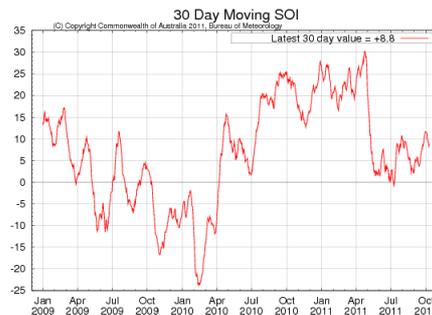


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has fallen over the past two weeks, but has remained above the La Niña threshold value of +8. The latest (10 October) 30-day SOI value is +8.8.

Sustained positive values of the SOI above +8 may indicate a La Niña event, while sustained negative values below -8 may indicate an El Niño event. Values of between about +8 and -8 generally indicate neutral conditions.

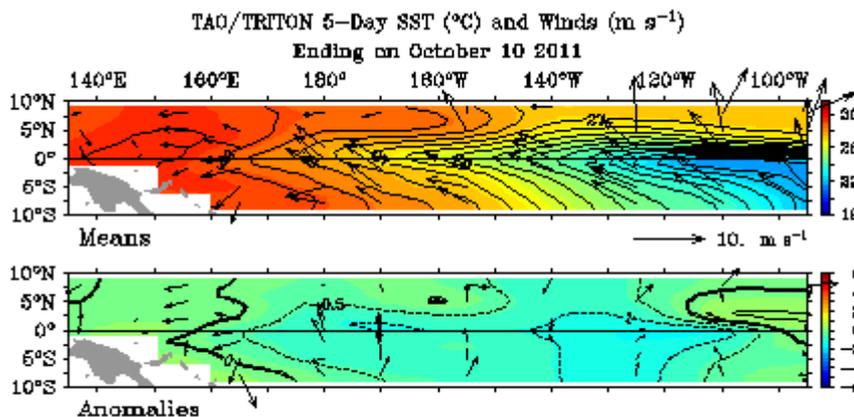


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

When compared with two weeks ago, trade winds in the central Pacific have weakened. The latest wind anomaly map, for the 5 days ending 10 October, shows trade winds are stronger than average across western equatorial Pacific Ocean.

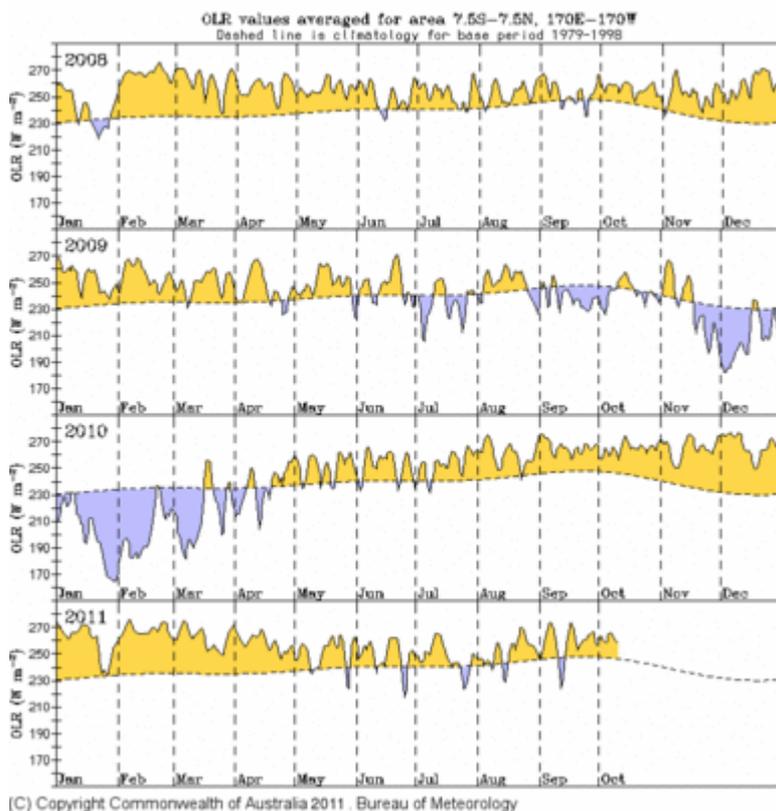
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

Cloudiness near the Date Line has remained suppressed over the last two weeks.

Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



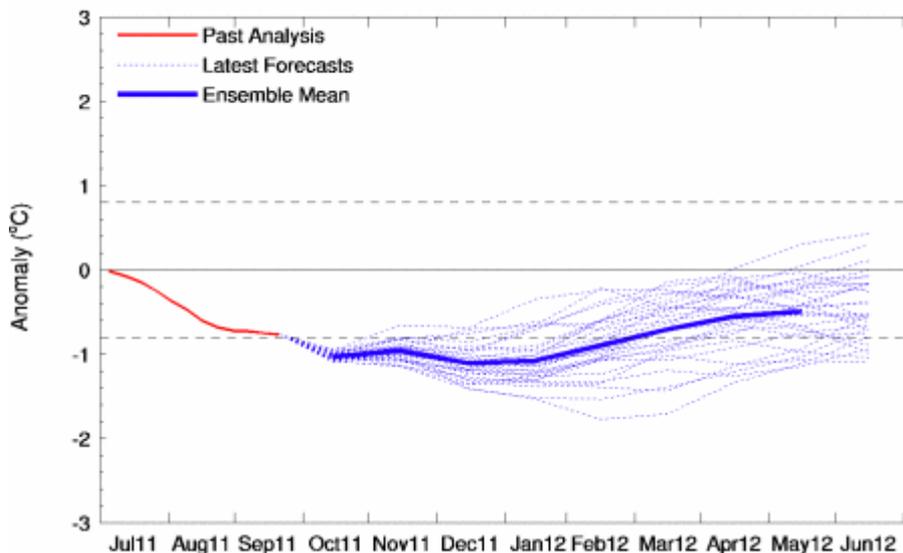
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Climate Models:

The majority of outlooks from leading international [climate models](#) surveyed by the Bureau forecast that La Niña thresholds will be passed by the end of 2011, then persist into the first quarter of 2012.

Please note the Bureau’s POAMA model has recently been upgraded. The NINO3.4 forecast shown is for the new version of the model, POAMA2.4.

Nino3.4 SST plumes from POAMA Forecasts: 1 Oct 2011

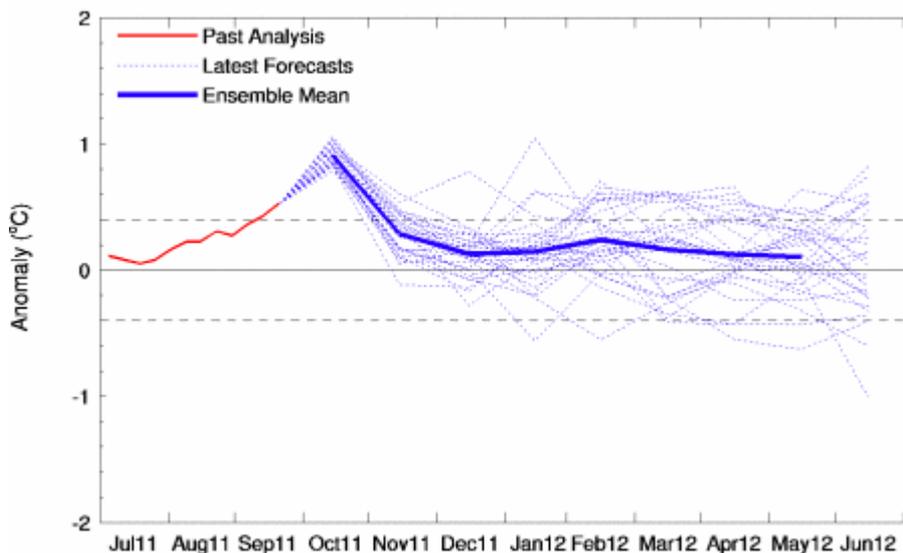


Indian Ocean Dipole:

The positive Indian Ocean Dipole (IOD) event, forecast over the past few months, continues. The IOD index value for the week ending 9 October was +0.6.

Recent forecasts from the POAMA model predict that the event will come to a close at the beginning of 2012. Positive IOD events have been associated with drier conditions over parts of Australia, particularly in the southeast, during winter and spring.

IO Dipole SST plumes from POAMA Forecasts: 1 Oct 2011



[IOD time series](#) [IOD map](#) [IOD forecasts](#) [DMI values](#)

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