



## Pacific approaches La Niña. Positive Indian Ocean dipole develops.

Issued on Wednesday 14 September | Product Code IDCKGEW00

Steady cooling of the central Pacific Ocean since early winter has increased the chance of La Niña returning during the last quarter of 2011. Current ENSO indicators are approaching values typically associated with La Niña events.

However, ocean temperatures are yet to reach critical thresholds, while climate model guidance about their future trends is mixed. Some models predict only modest cooling resulting in a borderline-La Niña event, but others predict stronger cooling beyond La Niña thresholds during the southern spring. A minority predict little or no cooling. Taken as a whole, there is an expectation that the trend towards La Niña will continue.

If a La Niña does form, current indicators are that it will be weaker than the strong 2010-11 event. La Niña events raise the odds of above average rainfall across the north and east of the country, but don't guarantee it. The Bureau's National Climate Centre will monitor the situation closely and issue regular updates via this summary.

The latest observations from the Indian Ocean show the development of a positive dipole event, as predicted over the last few months by climate models, including the Bureau's POAMA. Typically peaking in spring, positive dipole modes increase the chance of below average rainfall over southeastern and central Australia.

Next update expected by 28 September 2011 | [print version](#)

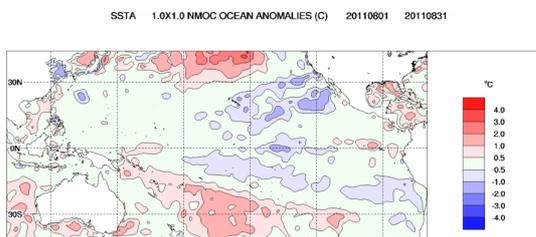
### Further Details

#### Sea Surface Temperatures

##### Monthly sea surface temperatures:

Sea surface temperature (SST) anomalies across the tropical Pacific Ocean have cooled during August, when compared to those for July. The sea surface temperature (SST) anomaly map for August shows cool anomalies along the equator in much of the central equatorial Pacific. A small area of warmer than usual SSTs remains in the far eastern equatorial Pacific.

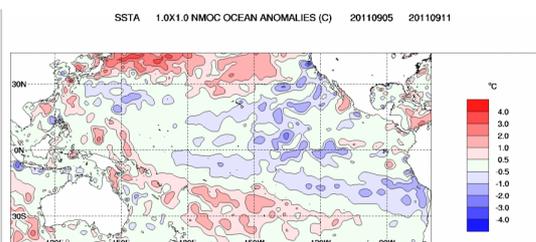
Index	July	August	Temperature change
<a href="#">NINO3</a>	0.2	-0.2	0.4 °C cooler
<a href="#">NINO3.4</a>	-0.1	-0.5	0.4 °C cooler
<a href="#">NINO4</a>	-0.1	-0.1	no change



##### Weekly sea surface temperatures:

When compared with two weeks ago, weekly sea surface temperature anomalies have continued to cool through the central and eastern equatorial Pacific Ocean. The SST anomaly map for the week ending 14 September shows cool anomalies near the equator in the central Pacific of more than 2 °C cooler than normal for this time of the year.

Index	Previous	Current	Temperature change (2 weeks)
<a href="#">NINO3</a>	-0.4	-0.5	0.1 °C cooler
<a href="#">NINO3.4</a>	-0.5	-0.6	0.1 °C cooler
<a href="#">NINO4</a>	-0.1	-0.3	0.2 °C cooler

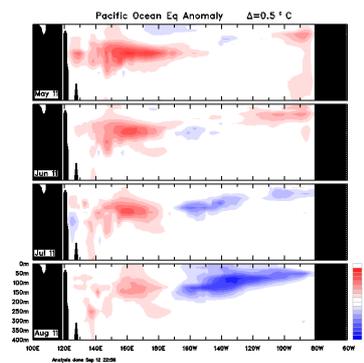


[An animation of recent SST changes](#) | [Weekly data graph](#)

#### Pacific ocean sub-surface temperatures

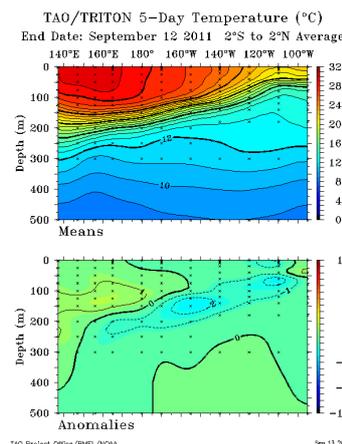
##### Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, to August, shows a large area of cool temperature anomalies across the eastern and central Pacific. Anomalies in the central Pacific are more than 3 °C cooler than average. The extent of positive anomalies in the western Pacific has continued to decrease during August.



**Weekly sub-surface:**

When compared with two weeks ago, the temperature in the sub-surface of the central tropical Pacific has cooled as the volume of cooler than usual water has increased (see the map for the 5 days ending 12 September). Anomalies in this region remain more than 2 °C cooler than usual, for this time of the year.

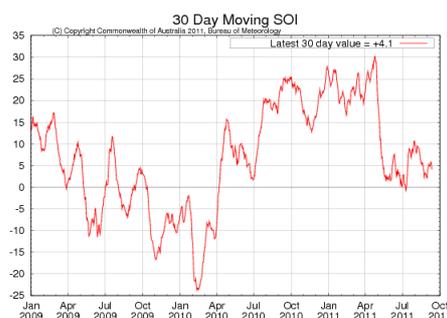


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

**Southern Oscillation Index:**

The Southern Oscillation Index (SOI) has remained relatively stable and weakly positive over the last two weeks. The latest (12 September) 30-day SOI value is +4.1.

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.

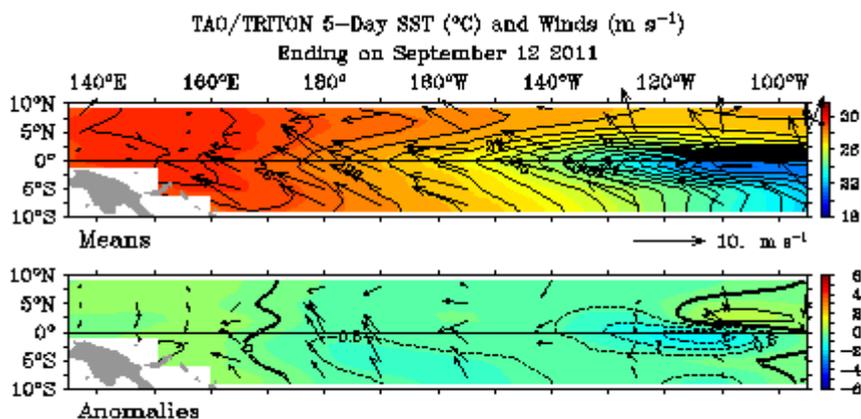


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

**Trade winds:**

When compared with two weeks ago, trade winds in the central Pacific have strengthened while weakened in the far west. The latest wind anomaly map, for the 5 days ending 12 September, shows trade winds are stronger than average across the central and central-western equatorial Pacific Ocean.

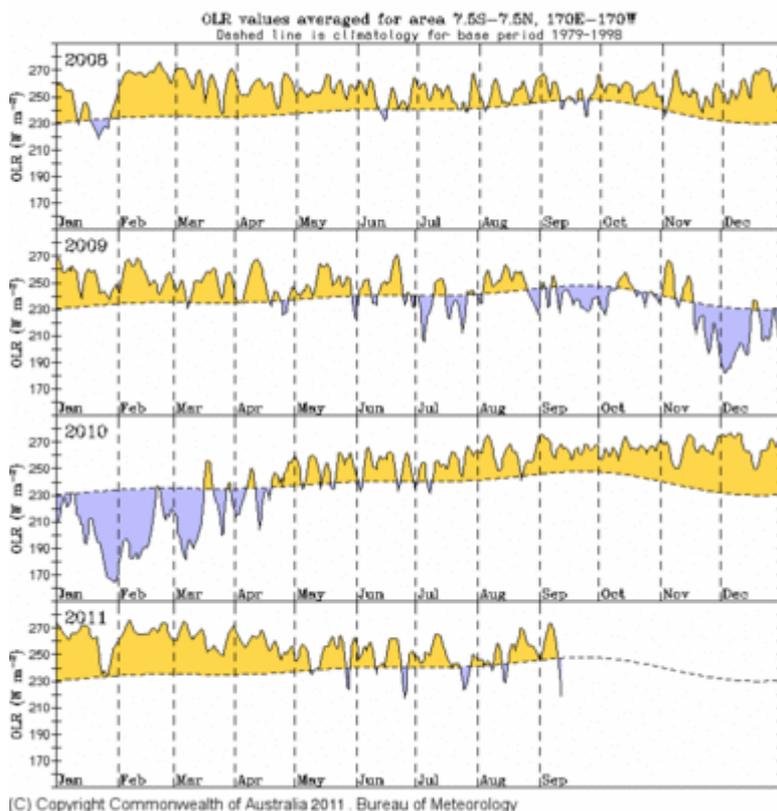
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



**Cloudiness near the Date Line:**

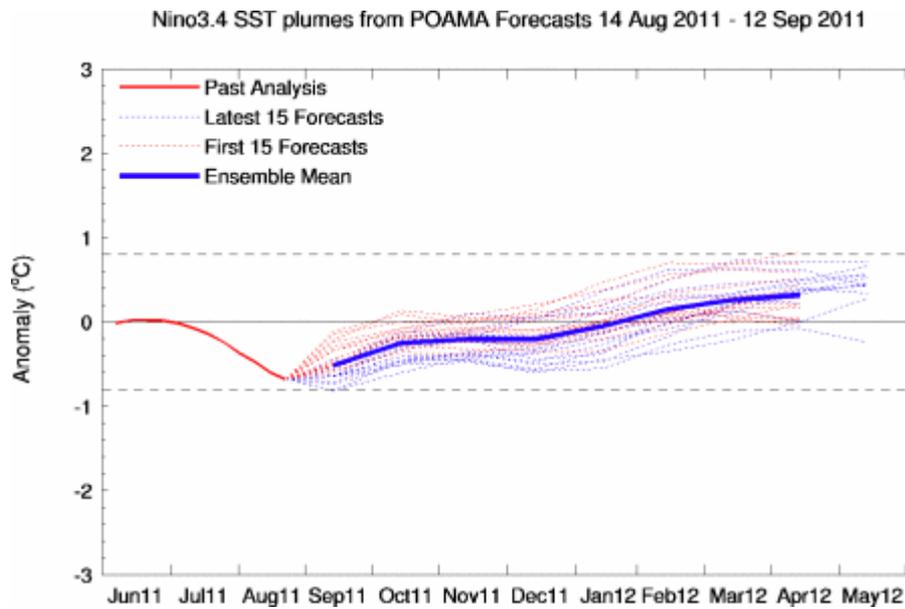
Cloudiness near the Date Line has increased over the last two weeks. While OLR values at the Date Line are fluctuating around the long-term average, cloudiness across the central equatorial Pacific remains generally suppressed.

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.



**Climate Models:**

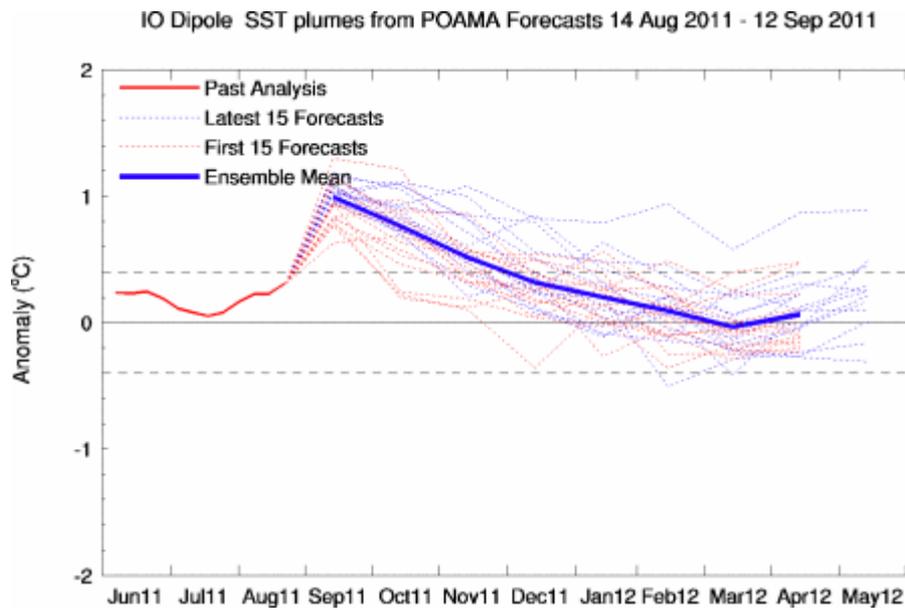
Outlooks from leading international [climate models](#) surveyed by the Bureau are split between remaining on the cool side of neutral and reaching La Niña thresholds by the end of 2011. Overall, the models predict the current cooling trend will continue over the coming months.



**Indian Ocean Dipole:**

The Indian Ocean Dipole (IOD) has shown signs of a developing positive IOD event for a number of weeks, reflected by positive index values and strong cool SST anomalies south of Indonesia. The IOD index value for the week ending 11 September was +0.6.

Recent forecasts from the [POAMA model](#) predict that a weak positive IOD event will occur during the southern hemisphere spring, with values of the index returning to neutral by summer. Positive IOD events have been associated with drier conditions over parts of Australia, particularly in the south east, during winter and spring.



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

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