



Tropical Pacific remains ENSO-neutral

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Following the demise of the 2011–12 La Niña, the state of ENSO across the tropical Pacific remains neutral (neither El Niño nor La Niña). Climate models surveyed by the Bureau of Meteorology suggest that, although the Pacific Ocean will continue to warm over the coming months, a neutral ENSO state will persist into the southern hemisphere winter. Historically, about 70% of the time neutral or El Niño conditions have developed in the year following a 2-year La Niña event.

The main signs of ENSO, including trade winds, the Southern Oscillation Index (SOI), cloudiness near the Date Line and ocean temperatures, have all returned to near-normal levels. The SOI is at its lowest level since early 2010, while the equatorial Pacific has warmed by about 0.2 to 0.4 °C during the past fortnight.

The Indian Ocean Dipole (IOD) has limited influence on Australian rainfall from December through to April. Neutral IOD conditions are forecast for the southern hemisphere winter.

Next update expected by 24 April 2012 | [print version](#)

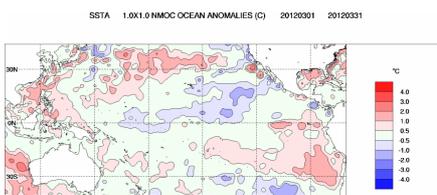
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

Sea surface temperature (SST) in the central and eastern equatorial Pacific Ocean warmed during March. The SST anomaly map for March shows SSTs were near normal across most of the tropical Pacific. Small areas of warm anomalies more than 1 °C warmer than usual are present in the far east, near the equator and along the South American coast.

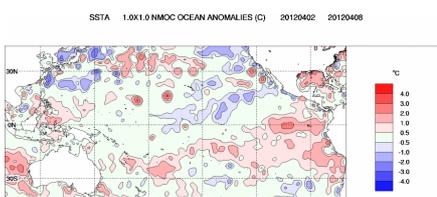
Index	February	March	Temperature change
NINO3	+0.1	+0.1	no change
NINO3.4	-0.5	-0.3	0.2 °C warmer
NINO4	-0.7	-0.4	0.3 °C warmer



Weekly sea surface temperatures:

All three NINO indices monitored have continued to warm during the past fortnight. Ocean temperature in these regions are mostly near normal for this time of the year. Warm anomalies in the far eastern Pacific have intensified over the past two weeks. The SST anomaly map for the week ending 8 April shows neutral sea-surface temperature anomalies across most of the equatorial Pacific, with slight residual cool anomalies north of the equator in the central Pacific, and a small area of temperatures more than 2 °C warmer than usual, on a weekly scale, in the far eastern tropical Pacific.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	+0.1	+0.5	0.4 °C warmer
NINO3.4	-0.3	-0.2	0.1 °C warmer
NINO4	-0.3	-0.2	0.1 °C warmer

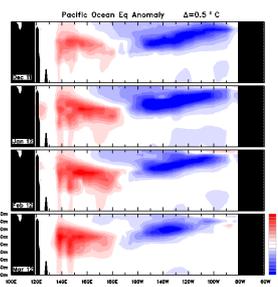


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

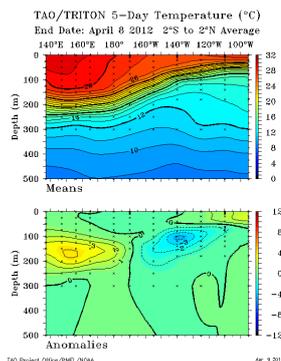
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies to March shows cool anomalies remain in the sub-surface of the eastern Pacific, although they have continued to contract during March. Cool anomalies in the sub-surface of the eastern Pacific have been declining since late January, with a steady decrease in the volume of water more than 4 °C cooler than average. Sub-surface warm anomalies in the western equatorial Pacific have also contracted when compared to last month; a small volume of water here remains more than 4 °C warmer than average.



Weekly sub-surface:

Over the past fortnight the volume of cooler than average water in the sub-surface of the eastern equatorial Pacific has shown an overall decrease, on a 5-day scale. However, the strength of the anomaly of the coolest water here has increased; a small volume is now more than 4 °C cooler than usual for this time of year. The map for the 5 days ending 8 April also shows a continued warming of shallow warm anomalies in the far eastern equatorial Pacific and warm sub-surface anomalies in the western Pacific, when compared to two weeks ago.



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

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has decreased over the past fortnight, but remains within values indicative of neutral ENSO conditions. The latest (8 April) 30-day SOI value is -3.8. The SOI is at its lowest level since early 2010.

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.

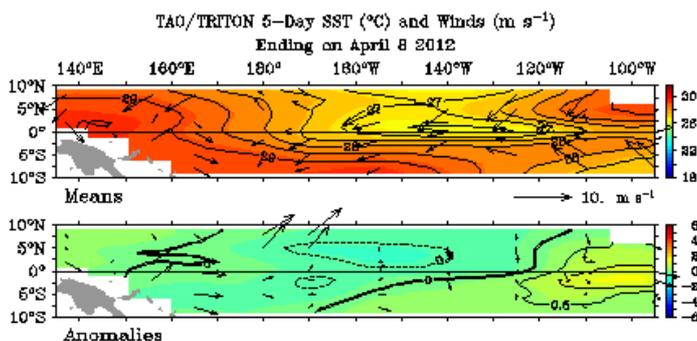


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have continued to weaken over the past two weeks. Westerly anomalies have expanded from the far western equatorial Pacific into the central Pacific (see wind anomaly map for the 5 days ending 8 April). Wind anomalies in the eastern equatorial Pacific are near normal.

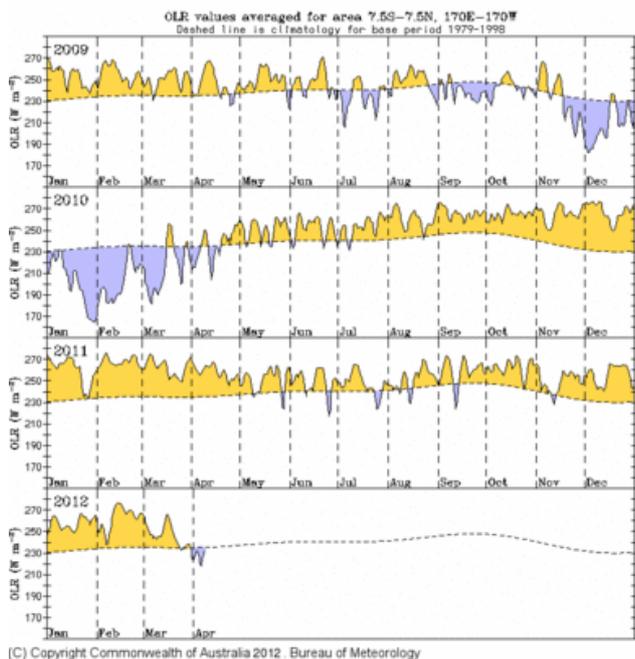
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

Cloudiness near the dateline has been slightly enhanced over most of the past two weeks, the first time negative OLR anomalies have been observed since mid-November last year.

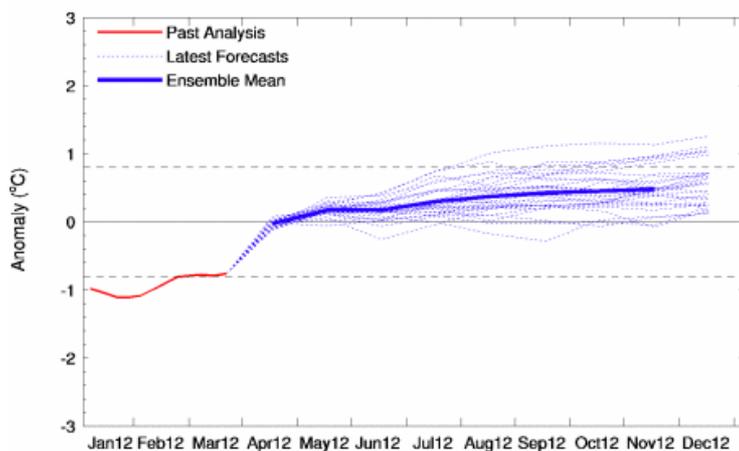
Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Climate Models:

All outlooks from leading international [climate models](#) surveyed by the Bureau forecast neutral ENSO conditions for the remainder of autumn and early winter. Three of the six models surveyed show the tropical Pacific approaching El Niño thresholds during the southern hemisphere spring.

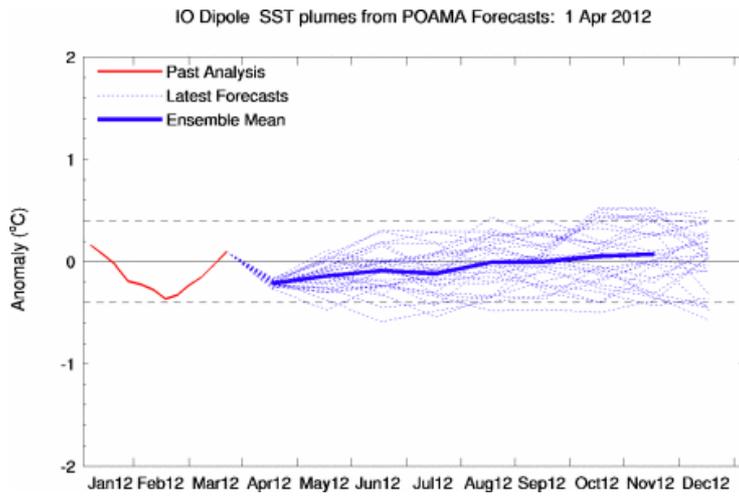
Nino3.4 SST plumes from POAMA Forecasts: 1 Apr 2012



Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) typically has little influence in Australia between December and April. The IOD index is currently neutral, with a value of +0.2 for the week ending 8 April.

Recent forecasts from the [POAMA model](#) predict neutral IOD conditions for autumn and winter.



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

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