

Pacific near El Niño thresholds; positive Indian Ocean Dipole

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Tropical Pacific Ocean sea surface temperatures remain at values close to El Niño thresholds. Other ENSO indicators such as the trade winds and tropical cloud patterns show patterns more typical of neutral conditions. The Southern Oscillation Index (SOI) is also presently within neutral values.

Regardless of whether El Niño thresholds are reached, the tropical Pacific remains warmer than average. This, combined with other influences on Australian climate such as cooler than normal waters to the north of the Australian continent and the patterns of cloud and ocean temperatures in the Indian Ocean, tends to favour below average spring rainfall over much of Australia.

Climate models surveyed by the Bureau of Meteorology suggest sea surface temperatures in the tropical Pacific Ocean will maintain values close to El Niño thresholds before returning to more neutral values towards the end of 2012 or early 2013.

The Indian Ocean Dipole (IOD) is currently positive, with values of the IOD index consistently above positive thresholds for the past 7 weeks. Outlooks from the Bureau's climate model indicate the IOD will likely remain positive throughout the remainder of spring. A positive IOD is usually associated with decreased spring rainfall over parts of southern, central and northern Australia.

Next update expected by 25 September 2012 | [print version](#)

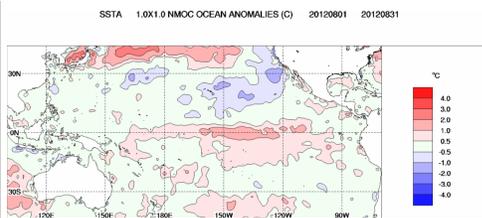
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The sea-surface temperature (SST) anomaly map for August shows the focus of warmer-than-average SSTs has migrated towards the central tropical Pacific Ocean, whereas during July the warmest anomalies were located in the east of the tropical Pacific. SSTs are close to average across the far eastern tropical Pacific and the Maritime Continent. An area of water along the equator between 160°W and 120°W is more than 1 °C warmer than usual.

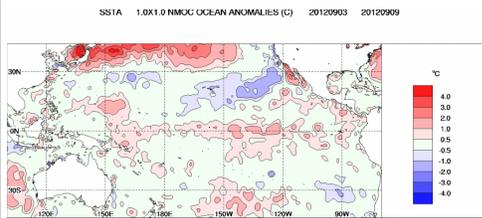
Index	July	August	Temperature change
NINO3	+0.9	+0.8	0.1 °C cooler
NINO3.4	+0.6	+0.9	0.3 °C warmer
NINO4	+0.3	+0.6	0.3 °C warmer



Weekly sea surface temperatures:

Sea-surface temperature (SST) anomalies remain slightly elevated (warmer than average) across most of the equatorial Pacific. The SST anomaly map for the week ending 9 September anomalies greater than +1 °C in small areas across the equatorial Pacific.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	+0.6	+0.7	0.1 °C warmer
NINO3.4	+0.8	+0.8	no change
NINO4	+0.7	+0.6	0.1 °C cooler

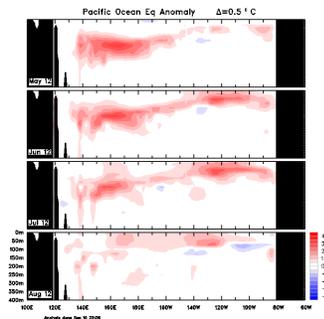


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

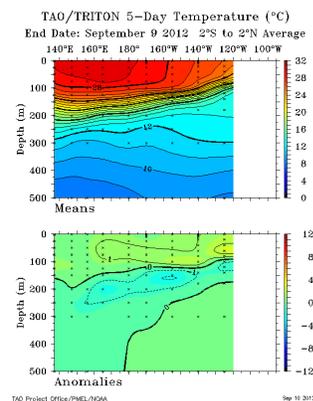
Monthly sub-surface:

The four-month sequence (to August) of sub-surface temperature anomalies in the equatorial Pacific Ocean shows that, although warm anomalies are still present across the sub-surface of most of the equatorial Pacific, the strength of these anomalies has decreased significantly compared to previous months. A small part of the sub-surface in the eastern Pacific remains more than 2 °C warmer than average.



Weekly sub-surface:

Sub-surface temperature anomalies in the shallow eastern equatorial Pacific have increased slightly compared to two weeks ago; a small area of water is more than 2 °C warmer than average. The map for the 5 days ending 9 September also shows very weak warm anomalies across the shallow sub-surface of the remainder of the equatorial Pacific.



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

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has climbed sharply over the past fortnight, returning to neutral values. The latest (9 September) 30-day SOI value is +0.8.

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.

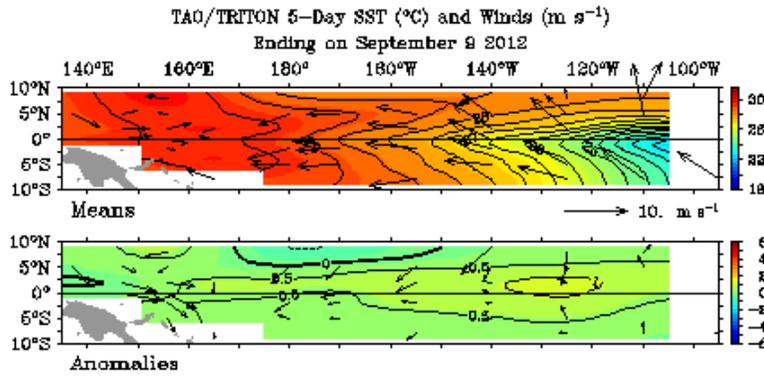


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have remained generally similar to two weeks ago across the central and eastern tropical Pacific, with weak easterly anomalies across that region. In the western tropical Pacific westerly wind anomalies (weaker than average trade winds) have emerged, with the wind anomaly map for the 5 days ending 9 September showing moderate westerly anomalies over this area.

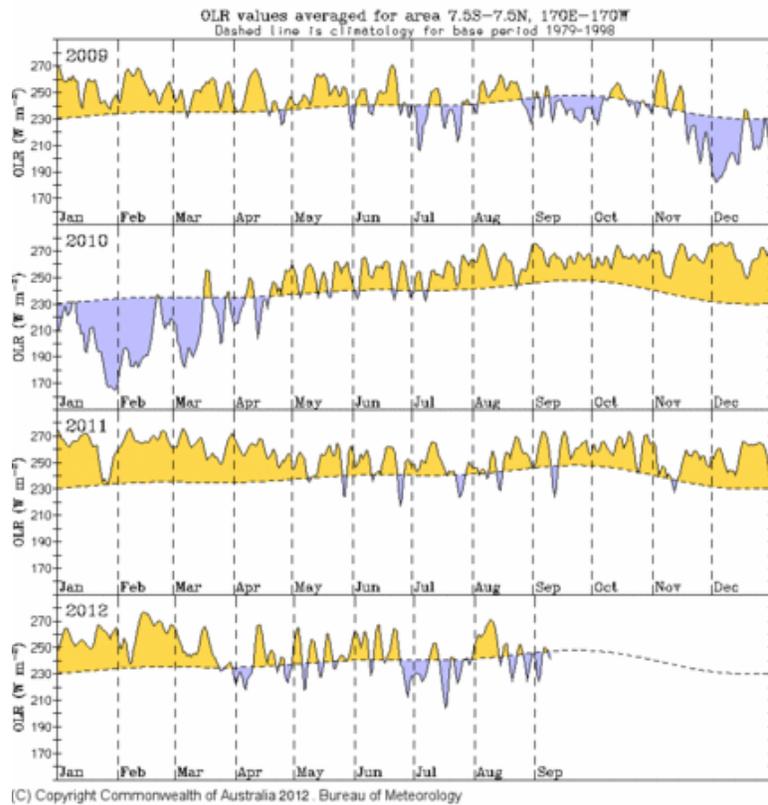
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

Cloudiness near the Date Line has fluctuated over the past two weeks, with near average values following weakly negative anomalies at the start of the month.

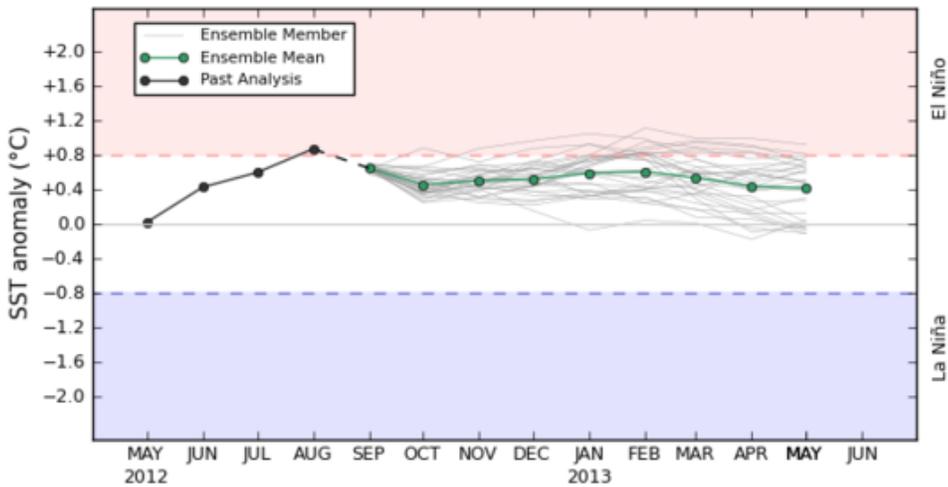
Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Climate Models:

Most of the international [climate models](#) surveyed by the Bureau indicate that the equatorial Pacific Ocean is likely to remain near El Niño thresholds for the remainder of 2012, before returning to neutral by early 2013.

POAMA monthly mean NINO34 - Forecast Start: 1 SEP 2012



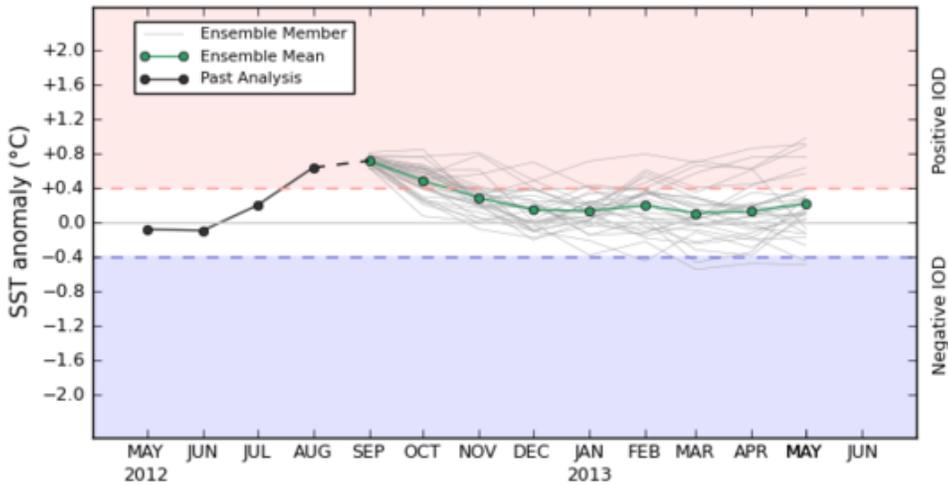
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Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) has continued to show a pattern typical of a positive IOD event, with cooler-than-average water off the coast of Sumatra and northwest Australia. Values of the IOD index have remained above positive thresholds, with the latest IOD index value +0.87 for the week ending 9 September. A positive IOD event favours reduced spring rainfall over parts of southern, central, and northern Australia.

Recent forecasts from the [POAMA model](#) indicate the IOD will remain weakly positive throughout spring.

POAMA monthly mean IOD - Forecast Start: 1 SEP 2012



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

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