

ENSO neutral; a negative IOD likely for southern winter-spring

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The majority of El Niño-Southern Oscillation (ENSO) indicators have remained neutral since mid-2012. While the surface waters of the eastern Pacific have cooled recently, they are not supported by equally cool waters beneath the surface. Hence climate models suggest a neutral ENSO pattern will persist into the austral spring. However, the development of La Niña in 2013 cannot be totally ruled out yet.

In the tropical Indian Ocean, the current sea surface temperature pattern is typical of a negative Indian Ocean Dipole (IOD) event, and hence the IOD index has been below $-0.4\text{ }^{\circ}\text{C}$ since mid-May. If this index remains at, or below, $-0.4\text{ }^{\circ}\text{C}$ until mid-to-late July, then 2013 will be classified as a negative IOD year. All climate models surveyed predict a negative IOD during the southern winter-spring period.

A negative IOD during winter-spring increases the chances of above-average rainfall over southern Australia, and over parts of northern Australia it increases the chance of higher humidity. The northwest cloudbands that have tracked across Australia over the past month or two are examples of how a negative IOD can influence southern Australia.

Next update expected on 16 July 2013 | [print version](#)

Further Details

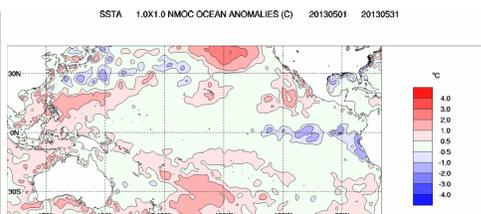
Sea Surface Temperatures

Monthly sea surface temperatures:

The sea surface temperature (SST) anomaly map for May shows cool SST anomalies across the eastern tropical Pacific and along part of the coast of Peru in South America, a cooling compared with April. SST anomalies are near-average across the majority of the remaining tropical Pacific and warm anomalies continue across the Maritime Continent region.

Index	April	May	Temperature change
NINO3	+0.1	-0.4	0.5 °C cooler
NINO3.4	+0.1	-0.1	0.2 °C cooler
NINO4	0.0	+0.1	0.1 °C warmer

Baseline period 1961–1990.

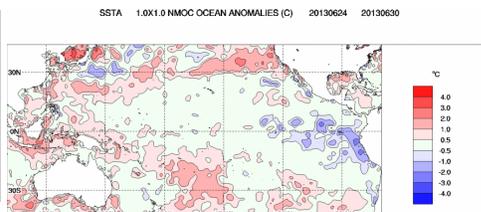


Weekly sea surface temperatures:

Compared to two weeks ago, negative SST anomalies have strengthened in the far eastern equatorial Pacific while remaining generally similar and warming slightly in the west. While notable at the surface, these cool anomalies are not supported by the sub-surface (see next section) and are therefore expected to be transitory. For the week ending 30 June, negative SST anomalies lie along much of the equator east of 130°W and extend southward along the South American coast (see map below). Weak warm SST anomalies are present around the Maritime Continent, northeast of Australia in the western Pacific, near the South Pacific Convergence Zone (SPCZ) and along Australia's southern coastline. Anomalies are near average across the central tropical Pacific.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	-0.3	-0.4	0.1 °C cooler
NINO3.4	0.0	0.0	no change

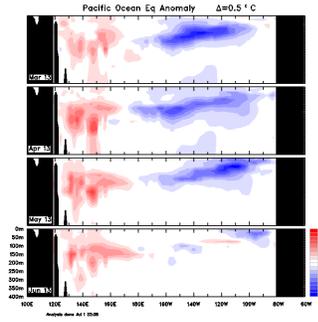
Baseline period 1961–1990.



Pacific ocean sub-surface temperatures

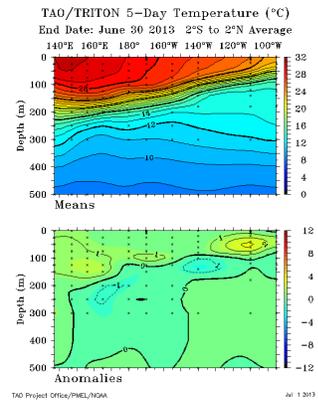
Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies (ending June) shows both cool and warm anomalies in the sub-surface of the equatorial Pacific have moved closer to average over the past month. Small areas of slightly cooler than average water remain in the sub-surface of the eastern equatorial Pacific; above 100 m depth in the far east and around 100 m deep at 150°W. These cool anomalies peaked in extent in January and have weakened since. There are warm anomalies present in the sub-surface west of the Date Line. The magnitude of both the cool and warm anomalies is less than 2 °C across nearly all of their extent.



Weekly sub-surface:

Anomalies in the subsurface of the eastern equatorial Pacific remain generally similar to those of two weeks ago, although the central equatorial Pacific has warmed slightly and is now near average. The sub-surface map for the 5 days ending 30 June shows anomalies 2 to 3 °C warmer than average in the eastern equatorial Pacific, around 110°W at 50 m depth. Anomalies across the remainder of the basin are near average.



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

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has dipped then again risen over the last two weeks. The latest 30-day SOI value to 30 June is +13.9. The recent high values of the SOI reflect surface patterns of cool SSTs in the eastern Pacific and warm SSTs in the west. Like the cool SSTs, the high SOI values are also not expected to persist.

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.

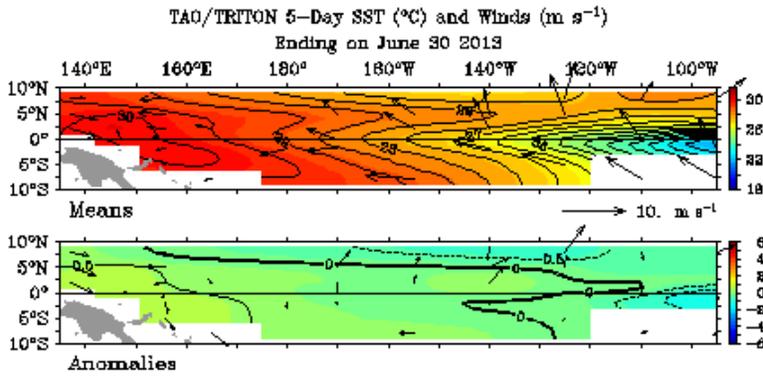


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds over the western tropical Pacific have weakened during the past two weeks. The anomaly map for the 5 days ending 30 June shows trade winds are near average over the majority of the tropical Pacific.

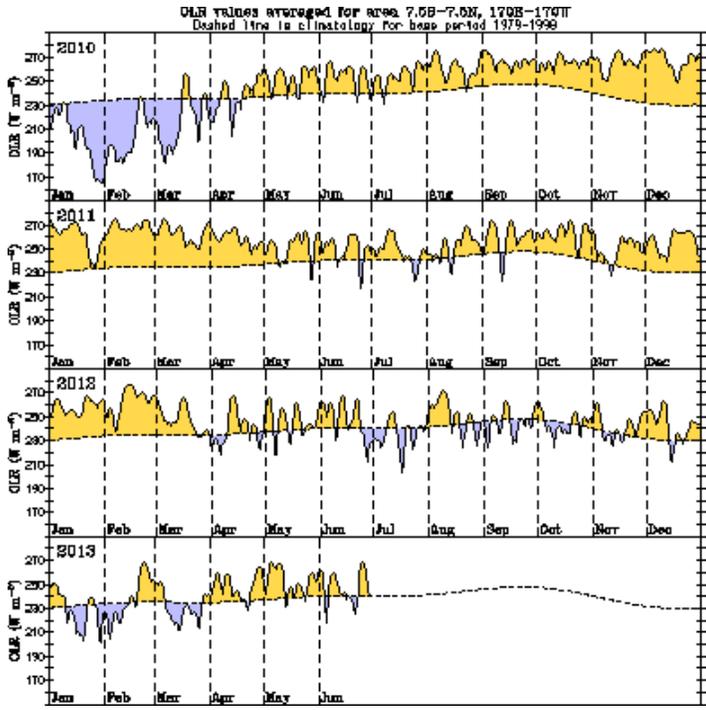
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

Cloudiness near the Date Line has fluctuated during the past two weeks but generally remains near average.

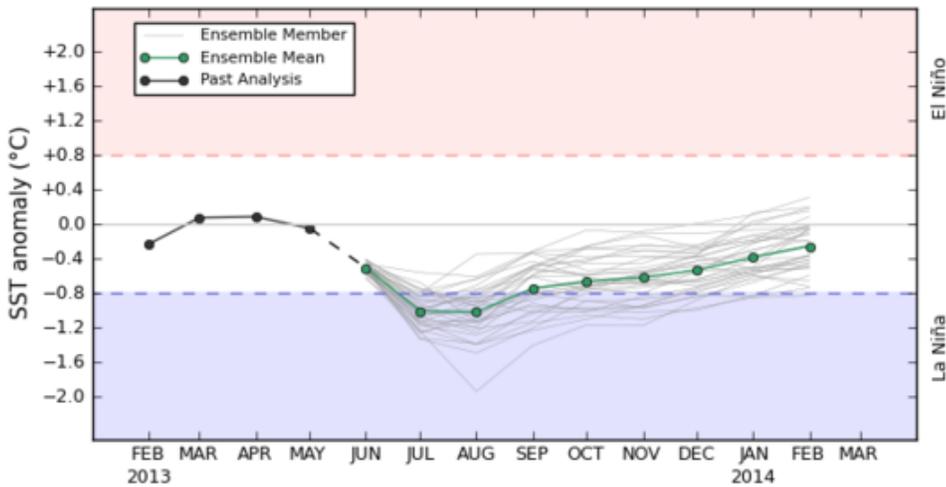
Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Climate Models:

Most international [climate models](#) surveyed by the Bureau indicate that SSTs in the equatorial Pacific Ocean are likely to remain neutral until at least the southern hemisphere spring, however the Bureau of Meteorology's model suggests there is a small chance of weak La Niña conditions forming during the winter months.

POAMA monthly mean NINO34 - Forecast Start: 3 JUN 2013



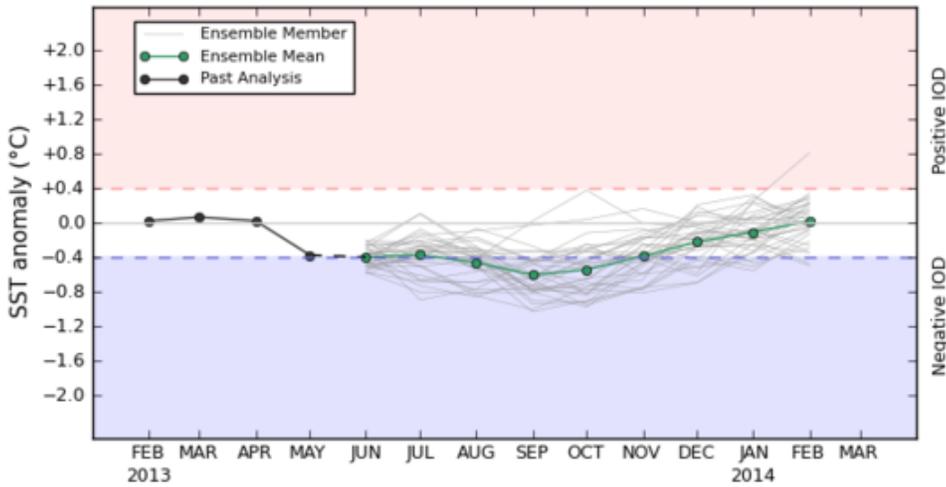
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Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) continues to show a negative pattern. The IOD index value has been below the threshold value (-0.4 °C) since mid-May, with the latest value -0.6 °C for the week ending 30 June. If the index remains at, or below, -0.4 °C until mid-to-late July, 2013 will be classified as a negative IOD year.

All five models surveyed in the [model outlooks](#) suggest a negative IOD event is likely during the southern hemisphere winter and will persist into spring. A negative IOD during winter-spring increases the chances of above-average rainfall over southern Australia, and increased humidity over parts of northern Australia.

POAMA monthly mean IOD - Forecast Start: 3 JUN 2013



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

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