

## Neutral outlook for tropical Pacific and Indian Oceans

Issued on Tuesday 8 October 2013 | Product Code IDCKGEW00

The El Niño-Southern Oscillation (ENSO) remains neutral (neither El Niño nor La Niña), with virtually all indicators at near-normal levels. International climate models surveyed by the Bureau of Meteorology suggest that the tropical Pacific will remain ENSO-neutral for the remainder of spring and the austral summer.

The Indian Ocean Dipole (IOD) also remains neutral. The negative IOD event which contributed to above average rainfall across large parts of southern Australia during late autumn and winter has ended. Climate models surveyed by the Bureau of Meteorology indicate the IOD will remain neutral at least until the onset of the Australian monsoon, around November, after which the IOD typically has low impact upon Australian climate.

Next update expected on 22 October 2013 | [print version](#)

### Further Details

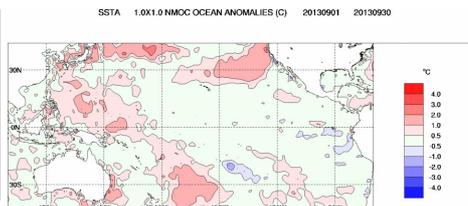
#### Sea Surface Temperatures

##### Monthly sea surface temperatures:

The sea surface temperature (SST) anomaly map for September 2013 shows close to average conditions across the eastern tropical Pacific and along the Peruvian coast. Some weak warming in the eastern Pacific during September removed most of the weak cool anomalies present in August. Warm anomalies persist across the Maritime Continent, the areas near the South Pacific Convergence Zone and along Australia's southern and eastern coastlines, with some strengthening of anomalies along the southeastern coastline. SST anomalies are near-average across the central tropical Pacific.

Index	August	September	Temperature change
NINO3	-0.4	0.0	0.4 °C warmer
NINO3.4	-0.1	0.0	0.1 °C warmer
NINO4	+0.3	+0.3	no change

Baseline period 1961–1990.

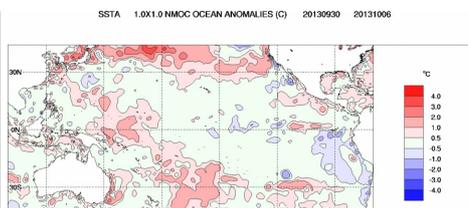


##### Weekly sea surface temperatures:

Sea surface temperature anomalies across the tropical Pacific generally remain similar to those of a fortnight ago, with all three NINO indices close to zero. The anomaly map for the week ending 6 October 2013 shows that small areas of weak cool anomalies remain in the eastern Pacific along and south of the equator. Small areas of warm SST anomalies also remain in the eastern Pacific, though these areas have not increased in size. Warm anomalies remain in the western Pacific and around the South Pacific Convergence Zone, slightly strengthening in the western Pacific over the past two weeks. Most of surface waters of the central equatorial Pacific are near average for this time of year.

Index	Previous	Current	Temperature change (2 weeks)
<a href="#">NINO3</a>	+0.1	-0.1	0.2 °C cooler
<a href="#">NINO3.4</a>	0.0	-0.2	0.2 °C cooler
<a href="#">NINO4</a>	+0.1	+0.2	0.1 °C warmer

Baseline period 1961–1990.

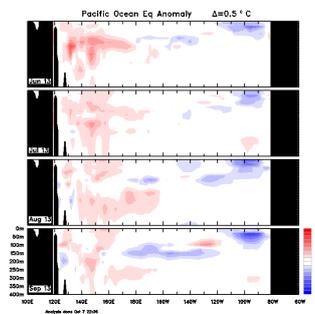


[An animation of recent SST changes](#) | [Weekly data graph](#) | [Map of NINO regions](#)

#### Pacific ocean sub-surface temperatures

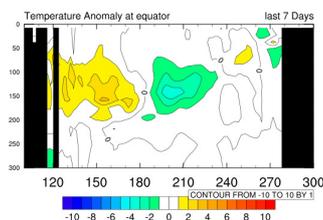
##### Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies ending September, shows waters are slightly cooler than average in the east, and weakly warmer than average in much of the water column west of the Date Line. Small areas of moderately cool anomalies remain in the eastern equatorial Pacific close to the surface and have developed along the thermocline in the central Pacific. Over the last three months, the sub-surface anomaly pattern has remained fairly constant, although cool anomalies along the thermocline and in the eastern Pacific have strengthened slightly.



**Weekly sub-surface:**

Broadly, compared to two weeks ago, the sub-surface of the equatorial Pacific shows that the area of weak cool anomalies that was to the west of the dateline has shifted to the east along the thermocline. A small area of positive anomalies to the east of this has also shifted further east. Warm anomalies have appeared in the western Pacific. Sub-surface temperatures are generally near-average (see map for the 7 days ending 1 October). Due to the US Government shutdown, Pacific Ocean subsurface maps are currently unavailable. The map shown here is from an experimental (POAMA) model analysis and hence caution should be taken when directly comparing to other analysis systems.

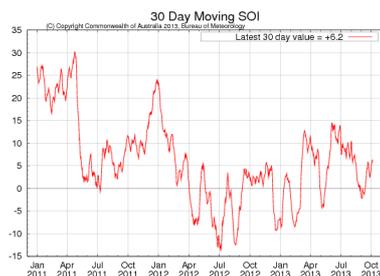


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

**Southern Oscillation Index:**

The Southern Oscillation Index (SOI) has showed little change over the last two weeks. The latest approximate 30-day SOI value to 6 October is +6.2.

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.

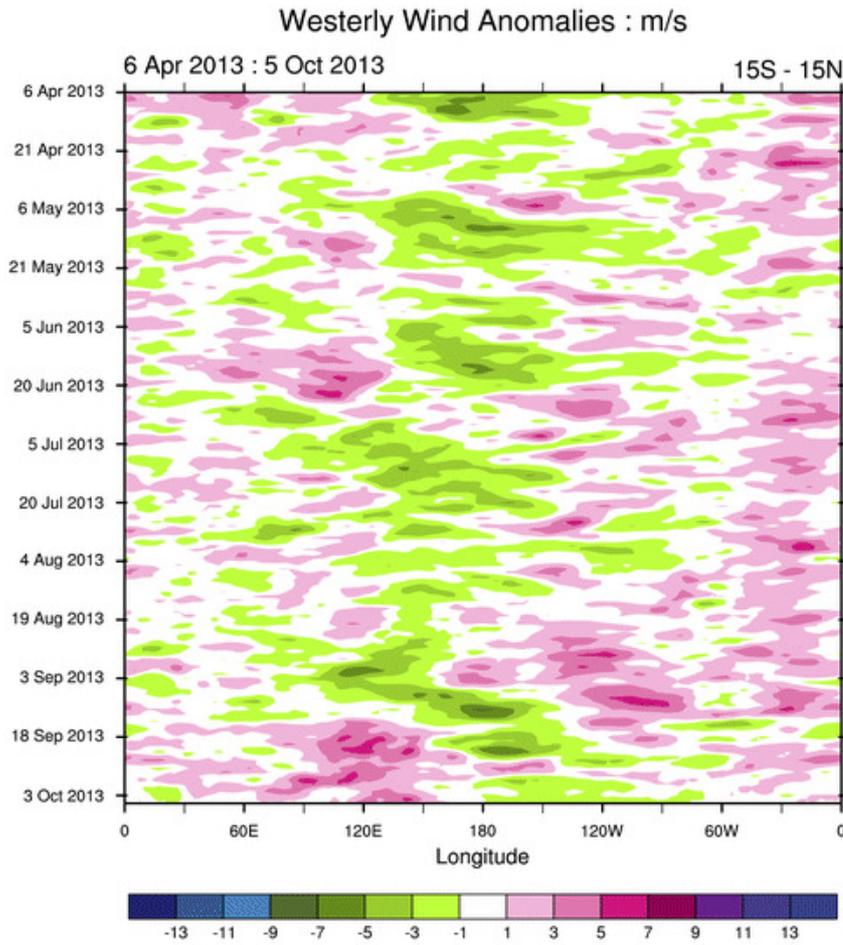


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

**Trade winds:**

Trade winds have showed little variation over the past two weeks, remaining slightly stronger than average across the western tropical Pacific and slightly weaker than average in the eastern tropical Pacific. Due to the US Government shutdown a different trade winds map is displayed this week. The map shows trade winds across the equator varying with time.

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.

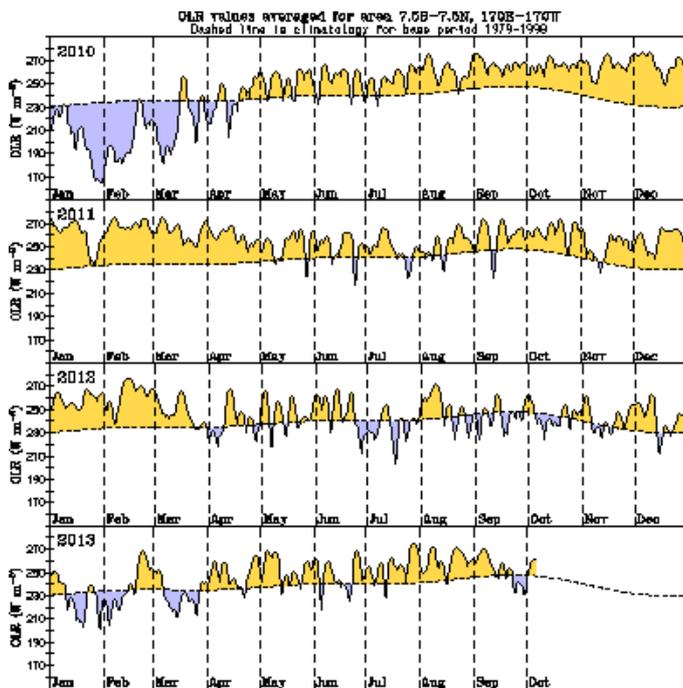


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**Cloudiness near the Date Line:**

Cloudiness near the Date Line was briefly above average over the past two weeks, anomalies have now returned to below average though remain smaller than observed in recent months.

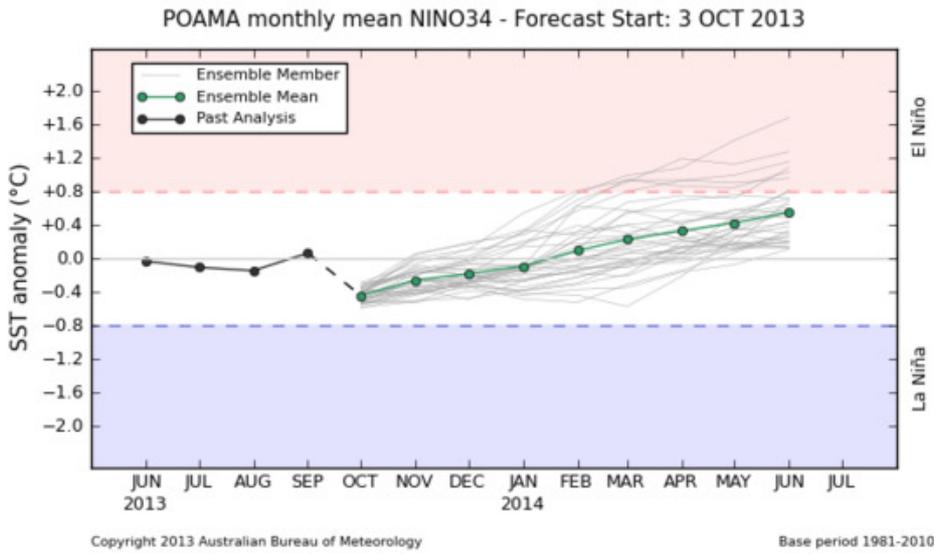
Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



**Climate Models:**

All seven international [climate models](#) surveyed by the Bureau indicate that SSTs in the equatorial Pacific

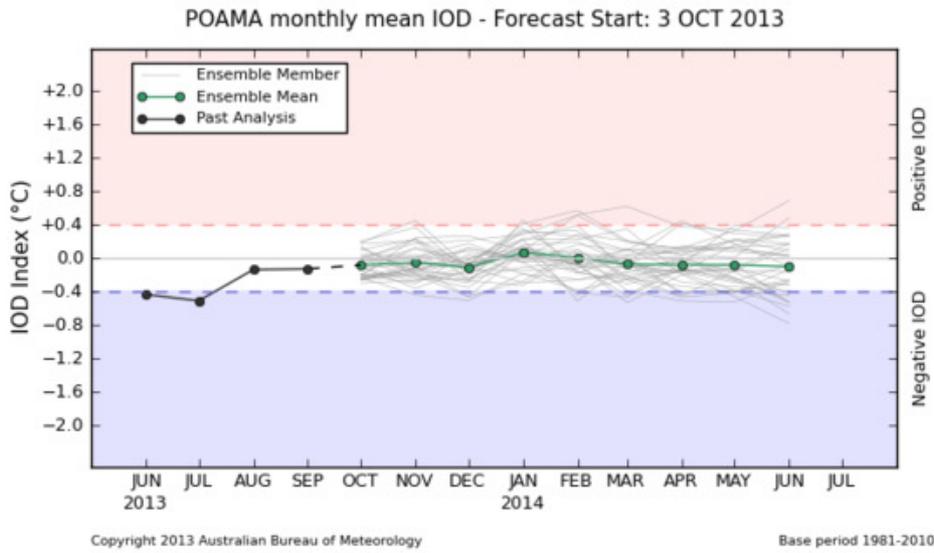
Ocean are likely to remain ENSO neutral until at least the end of the year.



**Indian Ocean Dipole:**

The Indian Ocean Dipole (IOD) index remains within the neutral range, with the latest weekly value (6 October)  $-0.2$  °C.

Climate models surveyed in the [model outlooks](#) favour neutral IOD values over the coming months.



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

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