Australian Government
Bureau of Meteorology

ENSO neutral; a negative IOD slightly favoured

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The tropical Pacific has remained in a neutral El Niño-Southern Oscillation (ENSO) state since mid 2012. All atmospheric and oceanic indicators of ENSO are currently well within neutral values. International climate models surveyed by the Bureau of Meteorology favour an ENSO-neutral state persisting into the southern hemisphere winter.

Following record high ocean temperatures around Australia during the summer, oceans have remained warmer than average, with January to April 2013 the warmest such period on record. Warm ocean surface temperatures around the continent may enhance local rainfall under favourable conditions.

The Indian Ocean Dipole (IOD) index is currently neutral. Model outlooks of the IOD are mixed, with three of the five models favouring the development of a negative IOD during the southern hemisphere winter-spring period. Overall, a negative IOD event is slightly favoured over neutral conditions. A negative IOD during winter-spring increases the chances of above normal rainfall over southern Australia.

Next update expected on 21 May 2013 | print version

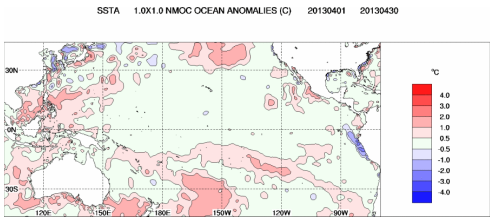
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The sea-surface temperature (SST) anomaly map for April shows near-average SSTs across nearly the entire tropical Pacific. A small area of cool anomalies hugs the South American coastline and warm anomalies continue across most of the Maritime Continent region. The eastern equatorial Pacific has cooled compared to April but elsewhere anomalies remain similar.

Index	March	April	Temperature change
NINO3	+0.3	+0.1	0.2 °C cooler
NINO3.4	+0.1	+0.1	no change
NINO4	0.0	0.0	no change

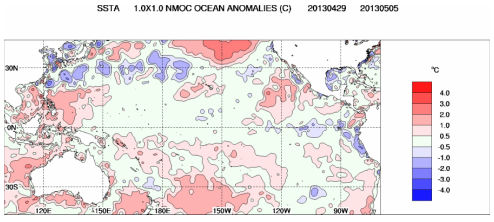


Baseline period 1961–1990.

Weekly sea surface temperatures:

SST anomalies have cooled in the eastern equatorial Pacific when compared to two weeks ago. The map for the week ending 5 May shows negative SST anomalies are present along the equator between the South American coast and 130°W. Elsewhere along the equator SSTs are near average with above warm anomalies in the far western Pacific and across the south of the Pacific Basin, poleward of the tropics. Warm anomalies also remain around much of the Australian coastline.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	+0.2	−0.1	0.3 °C cooler
NINO3.4	+0.1	+0.1	no change
NINO4	0.0	0.0	no change



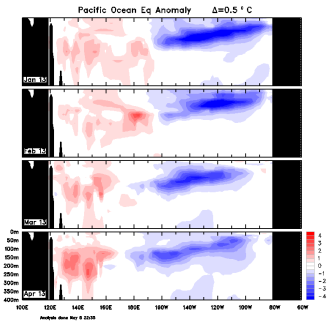
Baseline period 1961–1990.

An animation of recent SST changes | Weekly data graph | Map of NINO regions

Pacific ocean sub-surface temperatures

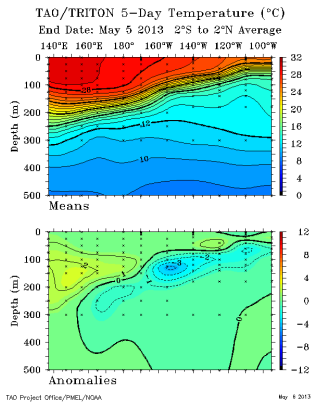
Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies (to April) shows cool anomalies in the sub-surface of the eastern to central equatorial Pacific; this pool of cooler than normal water peaked in extent in January and has weakened since. The position of this pool of cooler-than-average water has been moving westward over recent months. Much of this water was more than 2 °C cooler than average for April. Warm anomalies remain present in the sub-surface of the far western equatorial Pacific.



Weekly sub-surface:

Compared to two weeks ago, the sub-surface map for the 5 days ending 5 May shows cool anomalies in the subsurface of the eastern Pacific have strengthened; water more than 1 °C cooler than average is present between 50 and 250 m deep across nearly all of the equatorial Pacific, reaching more than 3 °C cooler than average east of the Date Line. Warm anomalies are still present in the far western equatorial Pacific sub-surface.

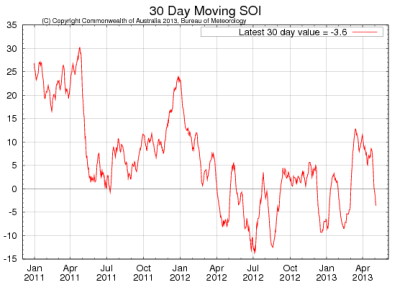


Animation of recent sub-surface changes | Archive of sub-surface temperature charts

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has continued to drop over the last two weeks. The latest 30-day SOI value to 5 May is −3.6.

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.

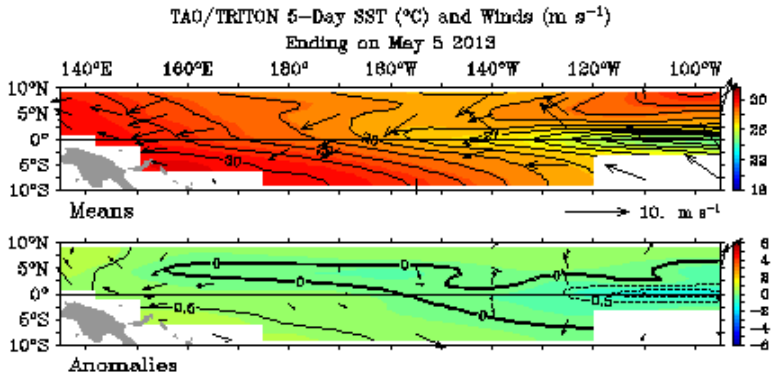


Monthly graph | SOI table | SOI text

Trade winds:

Trade winds have strengthened across the western tropical Pacific during the past two weeks. The anomaly map for the 5 days ending 5 May shows trade winds are stronger than average across the far western tropical Pacific and near average elsewhere.

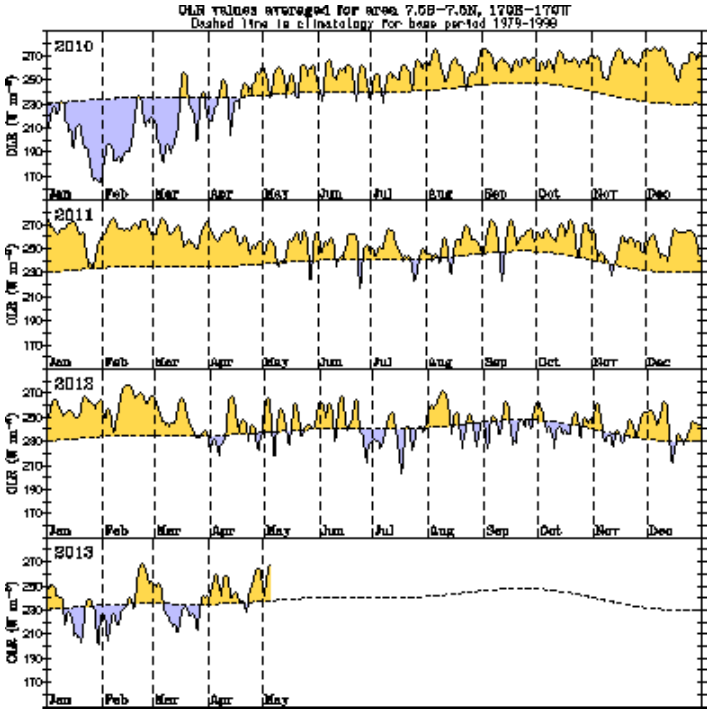
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

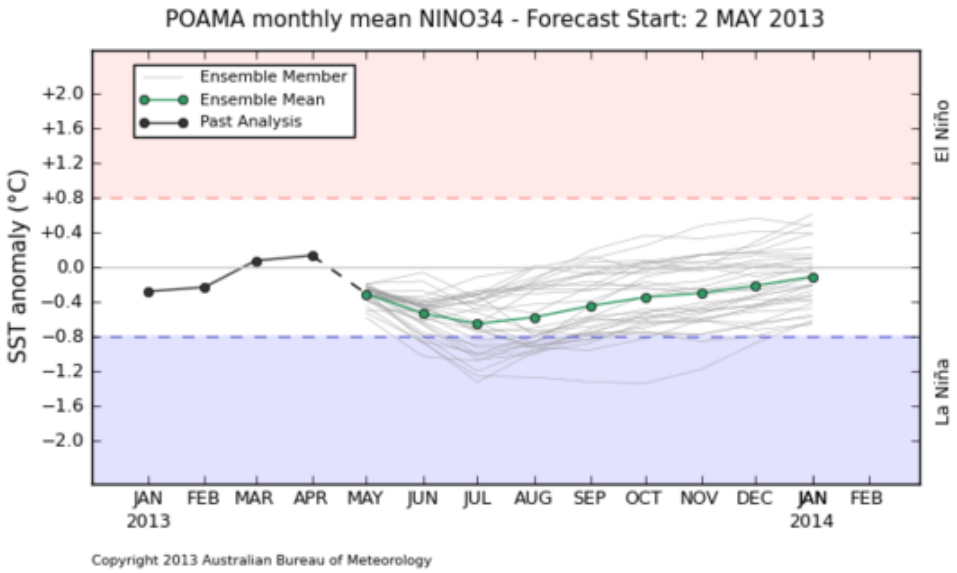
Cloudiness near the Date Line has been below average during the past two weeks.

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.



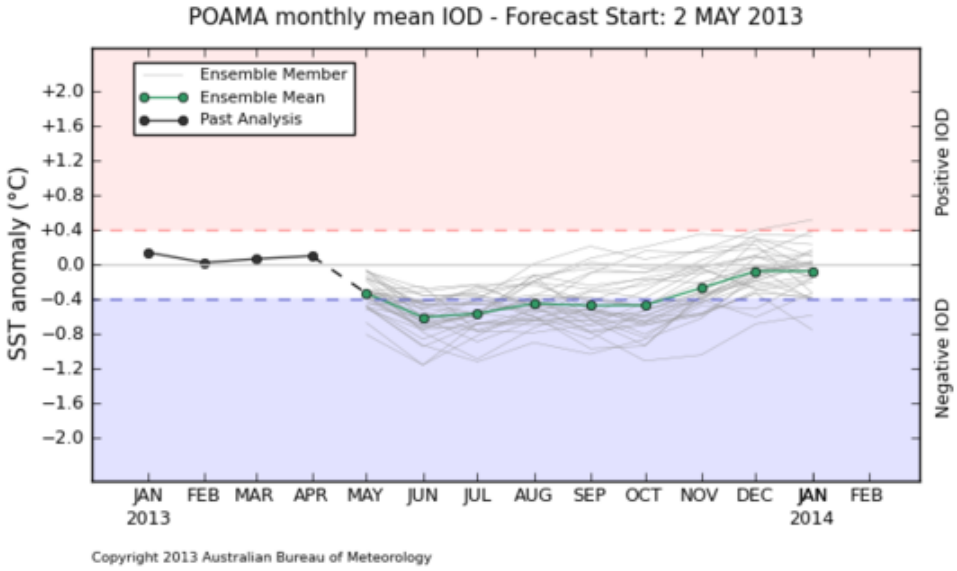
Climate Models:

International climate models surveyed by the Bureau indicate that SSTs in the equatorial Pacific Ocean are likely to remain neutral at least until the southern hemisphere spring.



Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) is currently neutral, with the latest IOD index value at +0.2 °C for the week ending 5 May. Current model outlooks indicate the IOD will remain on the cool side of neutral into the southern hemisphere winter. However, three of the five models surveyed indicate the possibility of a negative IOD heading into the southern spring. A negative IOD during spring increases the chances of above normal rainfall over southern Australia.



IOD time series IOD map IOD forecasts DMI values

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