Australian Government
Bureau of Meteorology

Tropical Pacific remains ENSO-neutral

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The El Niño–Southern Oscillation (ENSO) remains in a neutral state, with all indicators well within neutral bounds. International climate models surveyed by the Bureau indicate this neutral ENSO state is likely to persist into the austral autumn. Some models suggest the central Pacific Ocean may warm during autumn and winter, while others remain near average. However, forecasts that span autumn have lower skill than forecasts at other times of year, and hence long-range model outlooks need to be used with more caution at this time of year. The Bureau will continue to monitor the ENSO state closely as forecasts become more reliable.

ENSO events (El Niño and La Niña) usually follow a typical life cycle. Events usually begin to develop during the austral autumn and winter months, mature during spring and summer, and rapidly weaken by the end of the following autumn.

The Indian Ocean Dipole is currently neutral. It typically does not influence the Australian climate during the months from December to April.

Next update expected on Tuesday 28 January | print version

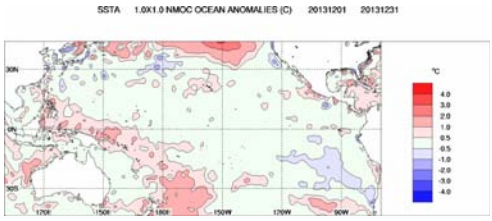
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The sea surface temperature (SST) anomaly map for December 2013 shows SSTs are near average along most of the equatorial Pacific, similar to last month. Weak cool anomalies remain in the far eastern Pacific south of the equator between around 10°S and 30°S, while weak warm anomalies persist west of the Date Line between the Maritime Continent and the South Pacific Convergence Zone (SPCZ).

Index	November	December	Temperature change
NINO3	0.0	+0.1	0.1 °C warmer
NINO3.4	+0.2	+0.1	0.1 °C cooler
NINO4	+0.5	+0.3	0.2 °C cooler

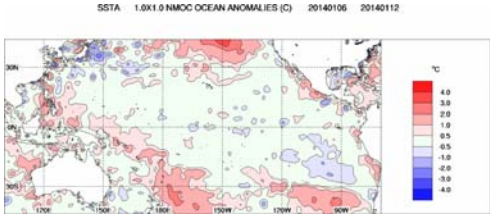


Baseline period 1961–1990.

Weekly sea surface temperatures:

SST anomalies across the tropical Pacific remain generally similar to two weeks ago. The anomaly map for the week ending 12 January shows near-average temperatures across most of the tropical Pacific, with weak warm anomalies surrounding the Maritime Continent. Warm anomalies around the SPCZ have strengthened slightly over the past two weeks, as have cool anomalies in the eastern Pacific between around 10°S and 30°S. Warm anomalies remain around the western half of Australia.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	0.0	−0.2	0.2 °C cooler
NINO3.4	0.0	−0.2	0.2 °C cooler
NINO4	+0.1	0.0	0.1 °C cooler



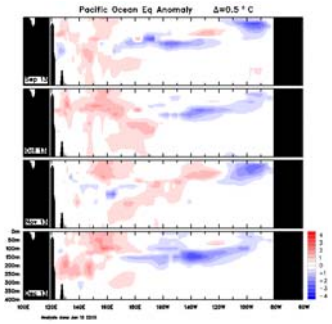
Baseline period 1961–1990.

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

Pacific ocean sub-surface temperatures

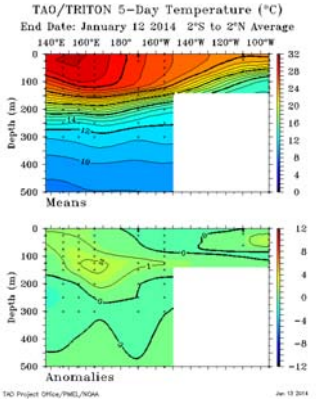
Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies (to December 2013) shows waters are cooler than average in the sub-surface of the equatorial Pacific east of the Date Line, a significant cooling compared to November. However, cool anomalies have been present in at least part of the eastern equatorial Pacific during the past four months. Weak warm anomalies are present throughout most of the water column west of the Date Line.



Weekly sub-surface:

The sub-surface map for the 5 days ending 12 January shows temperatures in the equatorial Pacific are generally close to average.

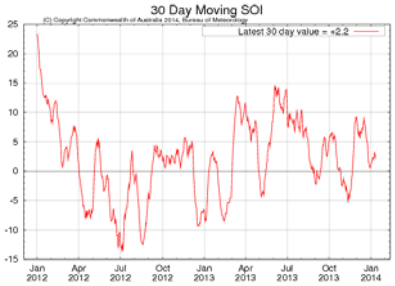


Animation of recent sub-surface changes | Archive of sub-surface temperature charts

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has risen very slightly over the past two weeks. The latest approximate 30-day SOI value to 12 January is +2.2.

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.

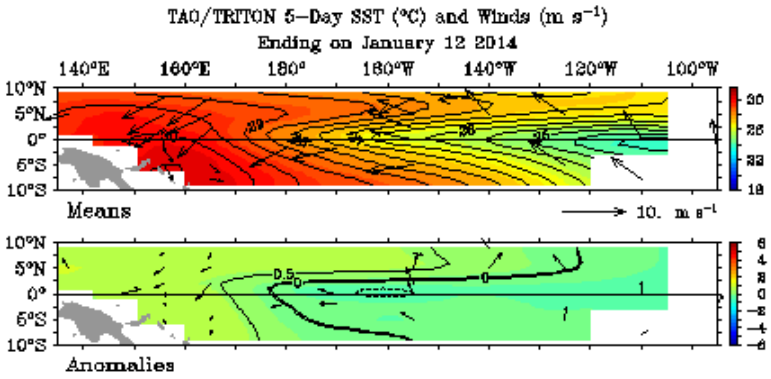


Monthly graph | SOI table | SOI text

Trade winds:

Trade winds are close to average strength across the tropical Pacific (see anomaly map for the 5 days ending 12 January).

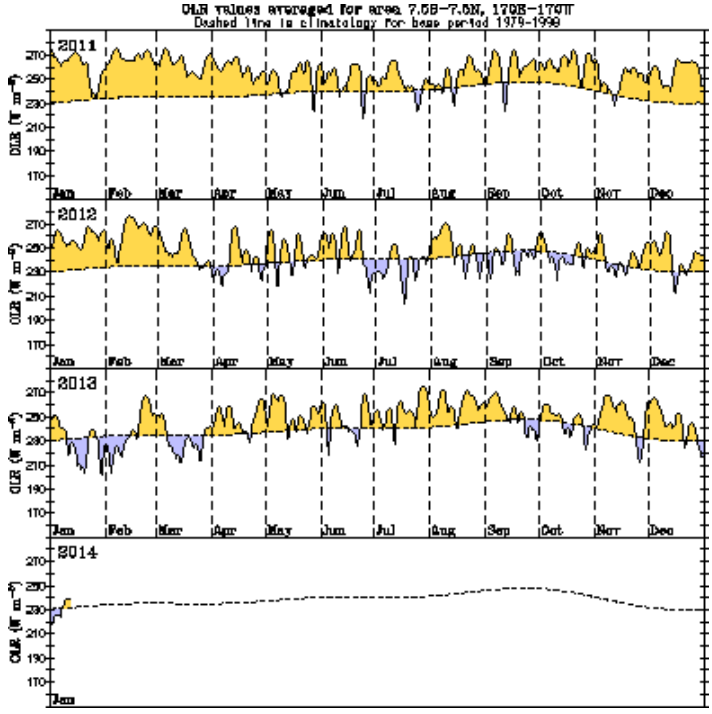
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

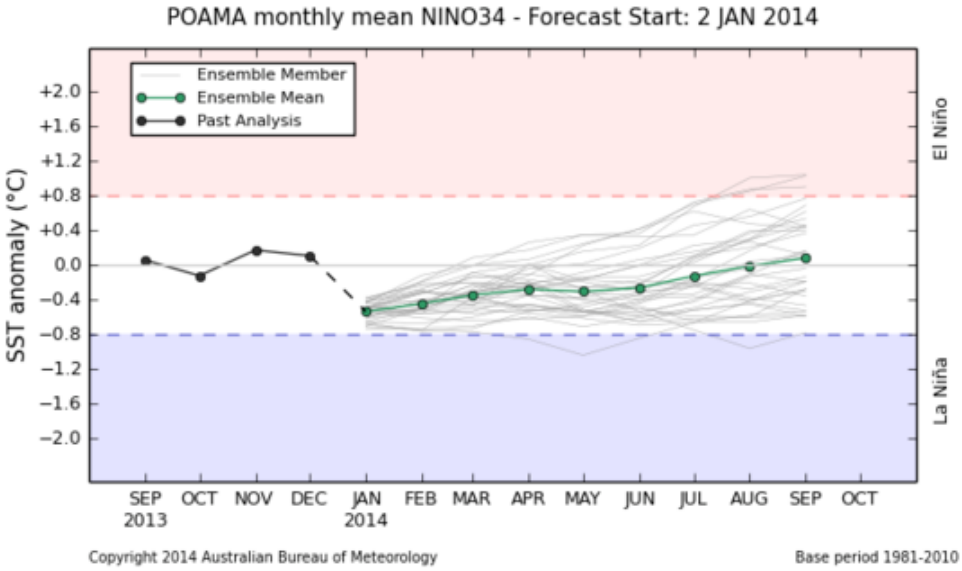
Cloudiness near the Date Line has been close to average over the past two weeks. Cloudiness near the Date Line has generally been below average since April 2013, with a near-average period between mid-September 2013 and the end of October 2013.

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 at least through the first quarter of 2014.

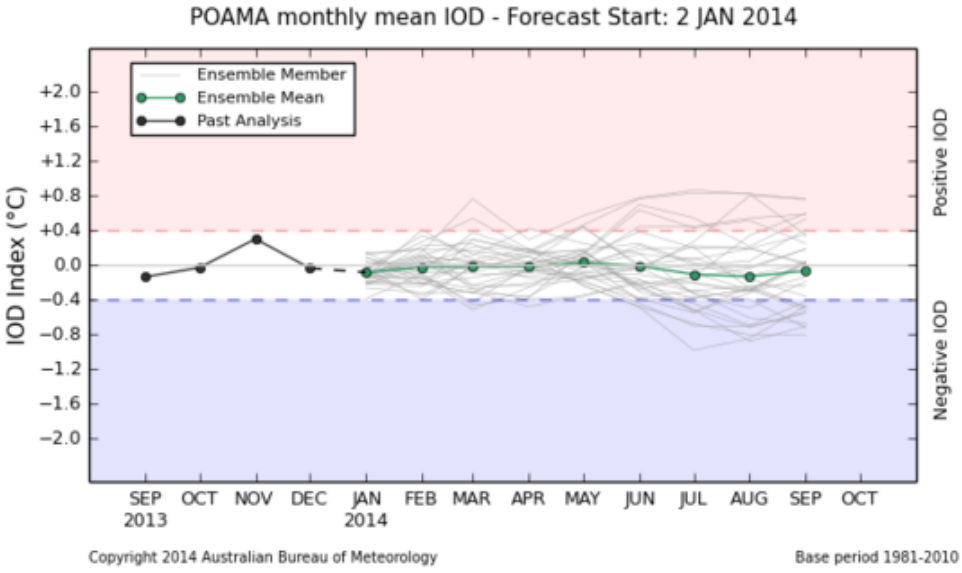


NINO3.4 timeseries NINO3.4 values Map of NINO regions NINO3.4 forecasts (POAMA)

Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) remains neutral, with the latest weekly index value (12 January) −0.3 °C.

Climate models surveyed in the model outlooks favour neutral IOD values over the coming months. The IOD typically has little influence on Australian climate during summer and early autumn. During this time of year, establishment of negative or positive IOD patterns is largely inhibited by the development and position of the monsoon trough in the southern hemisphere.



IOD timeseries DMI values Map of IOD regions IOD forecasts (POAMA)

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