



ENSO expected to remain neutral at least through autumn

Issued on Tuesday 11 February 2014 | Product Code IDCKGEW00

The El Niño–Southern Oscillation (ENSO) state is neutral, with climate models suggesting neutral conditions will persist at least until the end of the austral autumn. However, some warming of the Pacific is likely in the coming months.

Most international climate models surveyed by the Bureau suggest the tropical Pacific Ocean will warm through the austral autumn and winter. Some, but not all, models indicate central Pacific Ocean temperatures may approach El Niño levels by early winter. Model outlooks that span autumn tend to have lower skill than outlooks made at other times of the year, hence long-range outlooks should be used cautiously at this point. Neither neutral nor El Niño states can be discounted for the second half of 2014.

In the last fortnight, a westerly wind event over the far western tropical Pacific led to some warming beneath the surface of the tropical Pacific Ocean, though surface temperatures remain close to average. The current high values of the SOI are expected to reduce as recent volatile weather near Darwin and Tahiti eases.

The Indian Ocean Dipole is typically too weak to have a significant influence on the Australian climate from December to April.

Next update expected on Tuesday 25 February 2014 | [print version](#)

Further Details

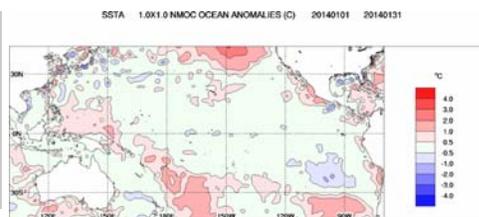
Sea Surface Temperatures

Monthly sea surface temperatures:

The sea surface temperature (SST) anomaly map for January shows SSTs are near average along most of the equatorial Pacific. 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	December	January	Temperature change
NINO3	+0.1	−0.2	0.3 °C cooler
NINO3.4	+0.1	−0.3	0.4 °C cooler
NINO4	+0.3	0.0	0.3 °C cooler

Baseline period 1961–1990.



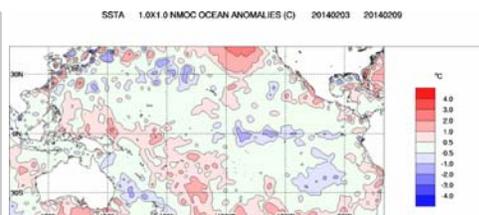
Weekly sea surface temperatures:

SST anomalies across the tropical Pacific remained largely unchanged over the past fortnight. The anomaly map for the week ending 9 February shows weak cool temperature anomalies along the equator east of 150°W, with weak warm anomalies west of the Date Line and north of the Maritime Continent. Warm anomalies also continue around the SPCZ, as do weak cool anomalies in the eastern Pacific between around 10°S and 30°S.

During January, much of southern Australia experienced extreme heat, which contributed to warming of much of the surface waters to the south of Australia.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	−0.2	−0.5	0.3 °C cooler
NINO3.4	−0.3	−0.4	0.1 °C cooler
NINO4	0.0	+0.3	0.3 °C warmer

Baseline period 1961–1990.

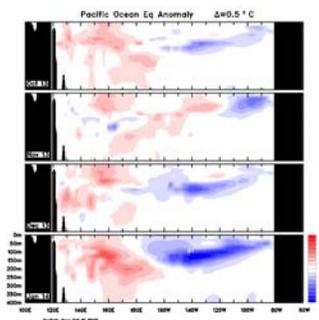


[An animation of recent SST changes](#) | [Weekly data graph](#) | [Map of NINO regions](#)

Pacific ocean sub-surface temperatures

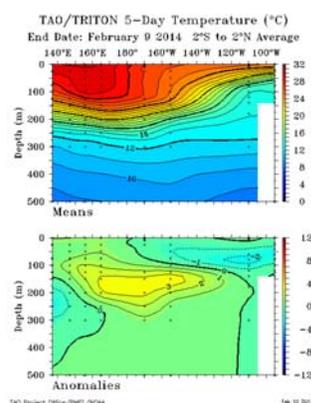
Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies (to January) shows waters are cooler than average in the sub-surface of the equatorial Pacific east of the Date Line; a pattern which has strengthened over the past two months. Water in an area of the eastern equatorial Pacific Ocean sub-surface between 140°W and 120°W at around 120 m depth is more than 4 °C cooler than average. Warm anomalies are present throughout most of the water column west of the Date Line and have increased in magnitude recently.



Weekly sub-surface:

The sub-surface map for the 5 days ending 9 February shows temperatures in the sub-surface of the western equatorial Pacific are more than 3 °C warmer than average between around 100 and 250 m depth, while a small area of weak cool anomalies exist around 110°W and 80 m depth in the eastern equatorial Pacific. Warming of the western equatorial Pacific sub-surface has continued over the past month, as expected following strong westerly wind anomalies over the western tropical Pacific in recent weeks.



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

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has dropped slightly after continuing to rise over the past two weeks, though this is thought to be largely due to short term local weather variations rather than larger scale climate shifts. It is expected to decrease over the next fortnight, as large daily values drop out of the 30-day average. The latest approximate 30-day SOI value to 9 February is +13.0.

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.

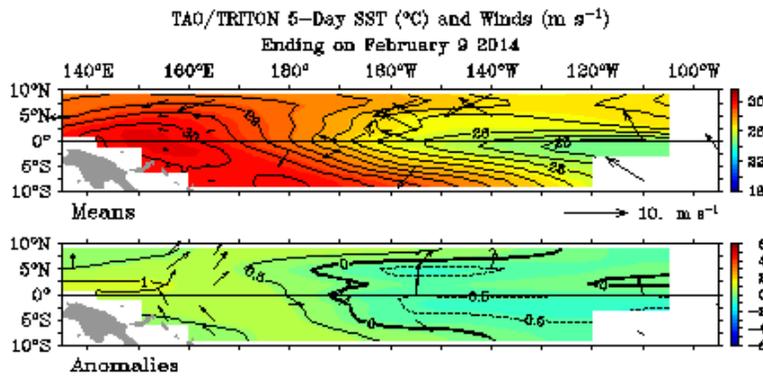


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have returned to near-average strength across the far western tropical Pacific and are now near-average along the entire equator (see anomaly map for the 5 days ending 9 February).

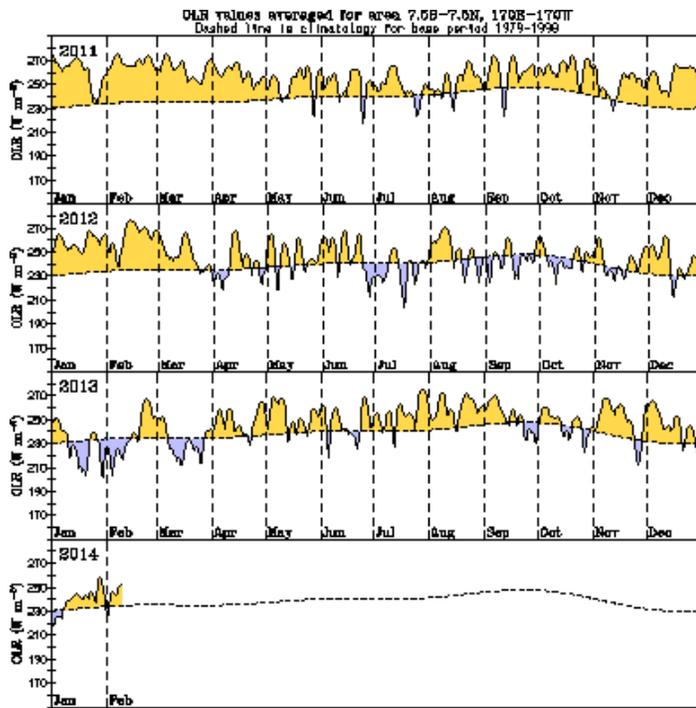
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the Date Line:

Cloudiness near the Date Line has generally been slightly below average since early January and remained so over the past two weeks.

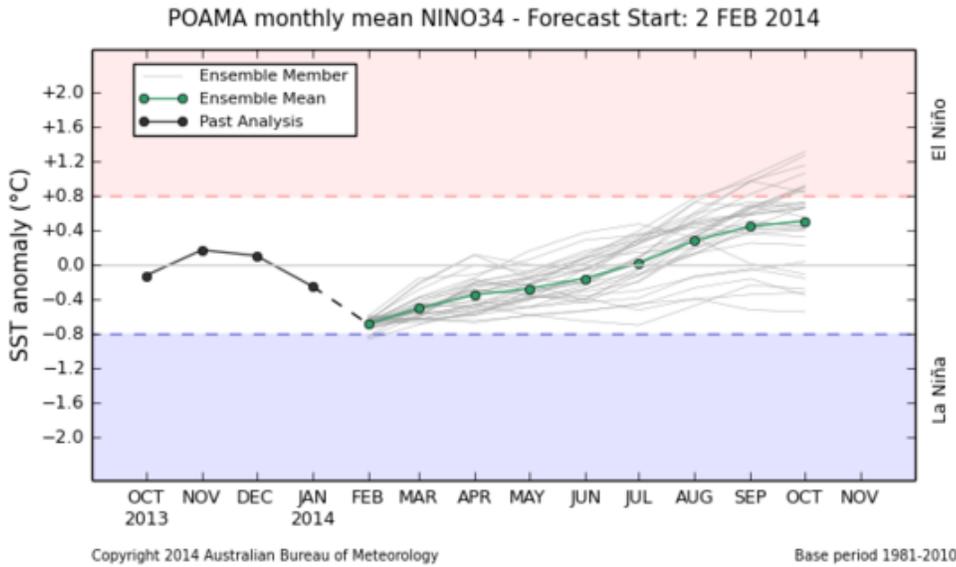
Cloudiness along the equator, near the Date Line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Climate Models:

Six of the seven international [climate models](#) surveyed by the Bureau indicate that SSTs in the equatorial Pacific Ocean are likely to slowly warm, although remaining ENSO-neutral until at least the end of autumn. Some models suggest this warming may approach El Niño thresholds during winter.

The predictability of El Niño or La Niña conditions for the period extending through and beyond autumn is less strong than for forecasts at other times of the year (known as “the autumn predictability barrier”), hence long-range model outlooks should be used cautiously at this time.

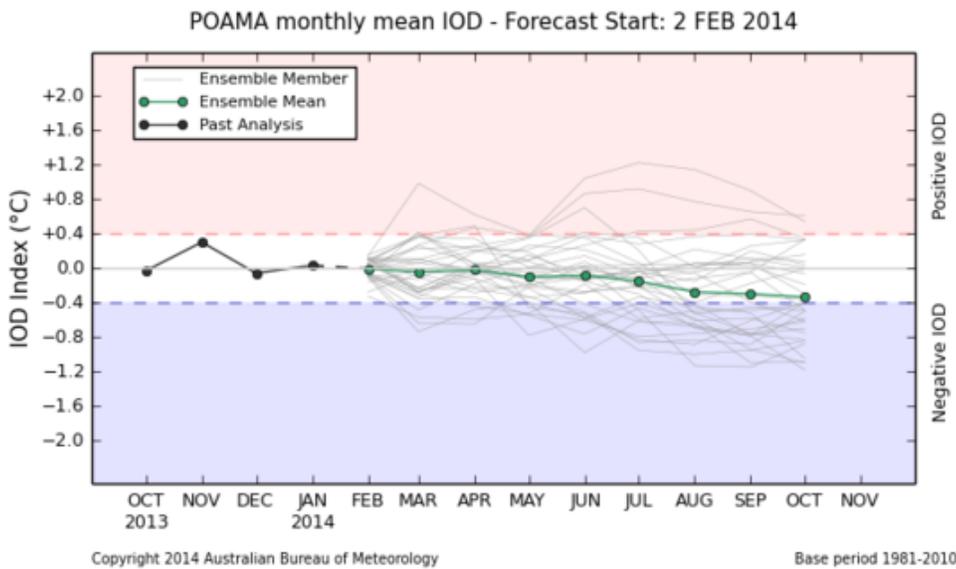


[NINO3.4 timeseries](#) [NINO3.4 values](#) [Map of NINO regions](#) [NINO3.4 forecasts \(POAMA\)](#)

Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) remains neutral, with the latest weekly index value (9 February) -0.1 °C.

Climate models surveyed in the [model outlooks](#) favour neutral IOD values over the coming months. The IOD is typically not an active 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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