



ENSO Wrap-Up

Current state of the Pacific and Indian Ocean

Tropical Pacific Ocean moves from El Niño to neutral

Issued on 20 January 2015 | Product Code IDCKGEWW00

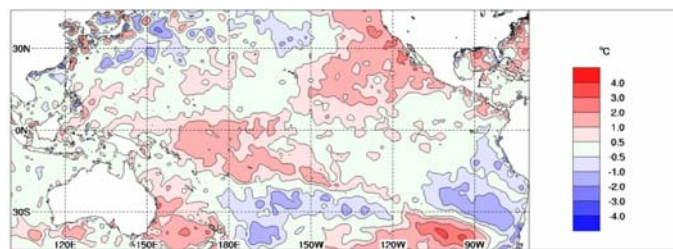
Since late 2014, most ENSO indicators have eased back from borderline El Niño levels. As the natural seasonal cycle of ENSO is now entering the decay phase, and models indicate a low chance of an immediate return to El Niño levels, neutral conditions are considered the most likely scenario through into autumn.

Central tropical Pacific Ocean surface temperatures have fallen by around half a degree from their peak of +1.1 °C in late November. Likewise, the Southern Oscillation Index has weakened to values more consistent with neutral conditions, while recent cloud patterns show little El Niño signature. As all models surveyed by the Bureau favour a continuation of these neutral conditions in the coming months, the immediate threat of El Niño onset appears passed for the 2014–15 cycle. Hence the ENSO Tracker has been reset to NEUTRAL. The Tracker will remain at NEUTRAL unless observations and model outlooks indicate a heightened risk of either La Niña or El Niño developing later this year.

Next update expected on 3 February 2015 |

Weekly sea surface temperatures

Sea surface temperature (SST) anomalies have decreased across the eastern equatorial Pacific over the past two weeks, while increasing around and west of the Date Line. Warm anomalies remain in the western tropical Pacific in much of the area west of 160°W (see SST anomaly map for the week ending 18 January). Temperatures are near average for this time of the year in most of the equatorial Pacific east of this point, although warm anomalies remain in small areas along the equator and across a large part of the northeastern Pacific Basin. Waters along Australia's east coast and across the Tasman Sea are also warmer than average, as are waters in much of the southern half of the Indian Ocean.

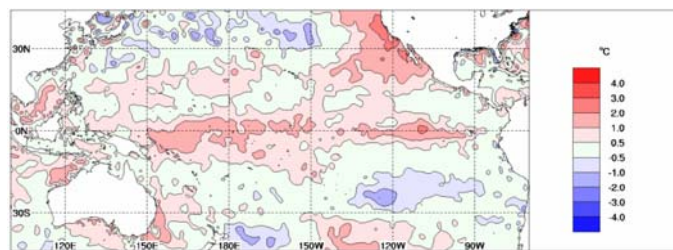


| Index | Previous | Current | Temperature change (2 weeks) |
|---------|----------|---------|------------------------------|
| NINO3 | +0.5 | +0.3 | 0.4 °C cooler |
| NINO3.4 | +0.5 | +0.5 | no change |
| NINO4 | +0.8 | +0.9 | 0.1 °C warmer |

Baseline period 1961–1990.

Monthly sea surface temperatures

The SST anomaly map for December 2014 shows warmer than average waters across nearly the entire equatorial Pacific as well as across much of the northern Pacific Basin, around southern and northwestern Australia and across much of the Indian Ocean. This pattern was generally similar to the previous month, although SST anomalies have decreased in the central and far eastern equatorial Pacific compared to November 2014.



| Index | November | December | Temperature change |
|---------|----------|----------|--------------------|
| NINO3 | +0.9 | +0.8 | 0.1 °C cooler |
| NINO3.4 | +0.9 | +0.8 | 0.1 °C cooler |
| NINO4 | +1.0 | +1.0 | no change |

Baseline period 1961–1990.

See also:

[Animation of recent SST changes](#)

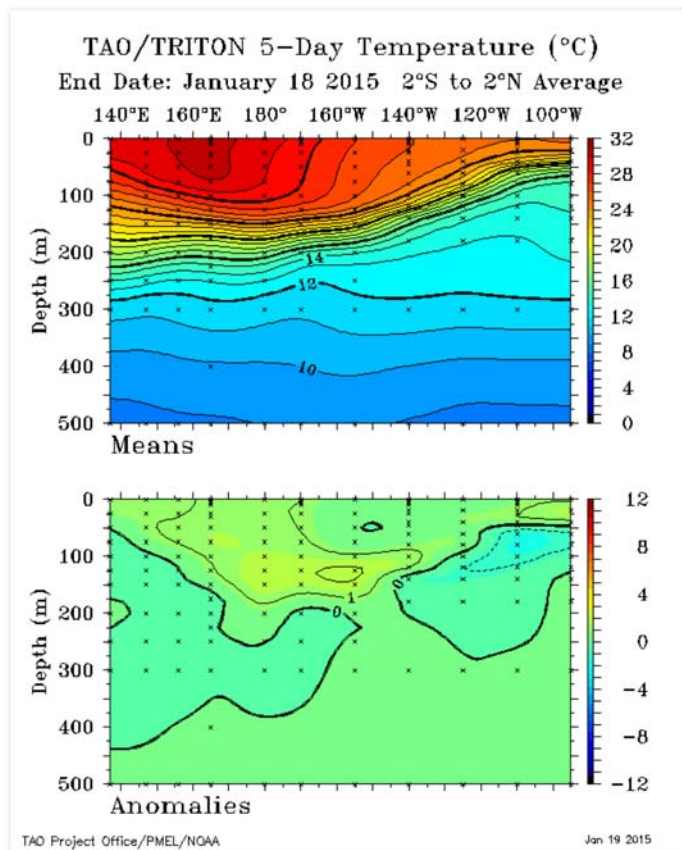
[Weekly index values](#)

[Sea temperature analyses](#)

[Map of NINO regions](#)

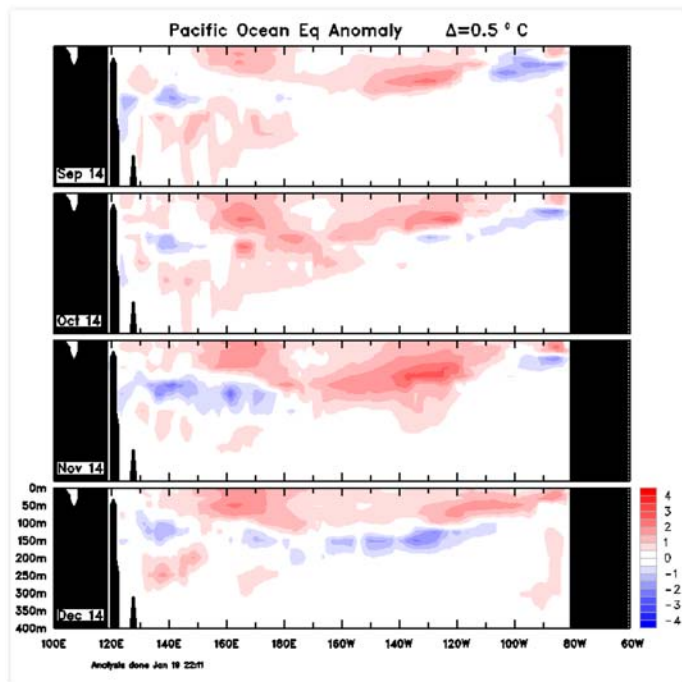
5-day sub-surface temperatures

The sub-surface temperature map for the 5 days ending 18 January shows temperatures are near average across the entire sub-surface of the equatorial Pacific.



Monthly sub-surface temperatures

The four-month sequence of sub-surface temperature anomalies (to 19 January) shows that while warm anomalies remain present across most of top 100 m of the equatorial sub-surface profile, these anomalies are generally weak. Anomalies reach more than 1.5 °C warmer than average in part of the eastern equatorial Pacific and in a region around 160°E. The strength of warm anomalies has declines over recent months.



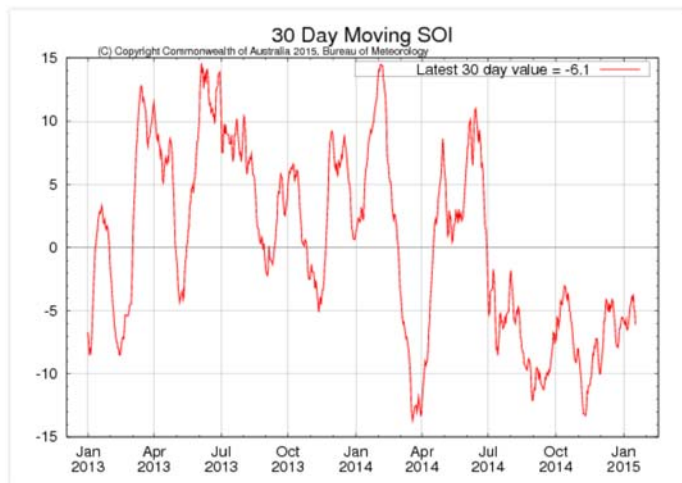
See also: [Animation of recent sub-surface temperature changes](#)

[Archive of sub-surface temperature charts](#)

Southern Oscillation Index

The Southern Oscillation Index (SOI) has fluctuated over the past fortnight, rising to −4 before dropping again, but has remained within neutral values. The latest 30-day SOI value to 18 January is -6.1.

Sustained positive values of the SOI above +8 may indicate La Niña, while sustained negative values below -8 may indicate El Niño. Values of between about +8 and -8 generally indicate neutral conditions.



See also:

[Monthly SOI graph](#)

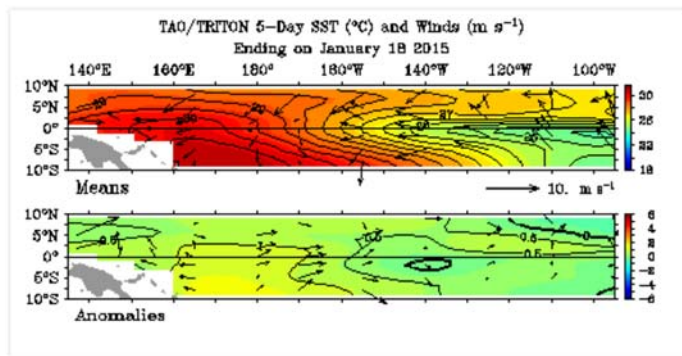
[Table of monthly SOI values](#)

[30-day SOI values](#)

Trade winds

Trade winds were stronger than average over the far western tropical Pacific, but weaker than average between the Date Line and around 150°W for the 5 days ending 18 January (see map).

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



Data Source:

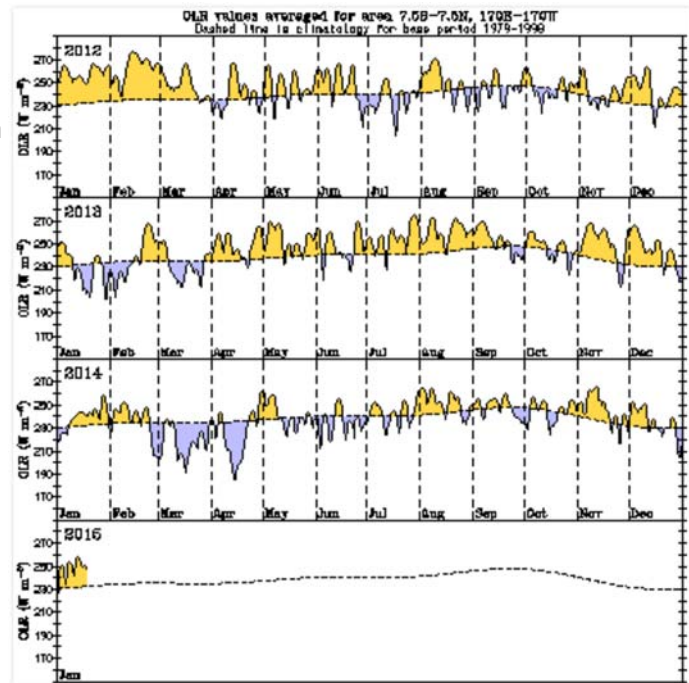
[TAO/TRITON data](#)

[Time-longitude wind anomalies](#)

Cloudiness near the Date Line

Cloudiness near the Date Line has remained below average since the first few days of January.

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 El Niño and decreases (positive OLR anomalies) during La Niña.

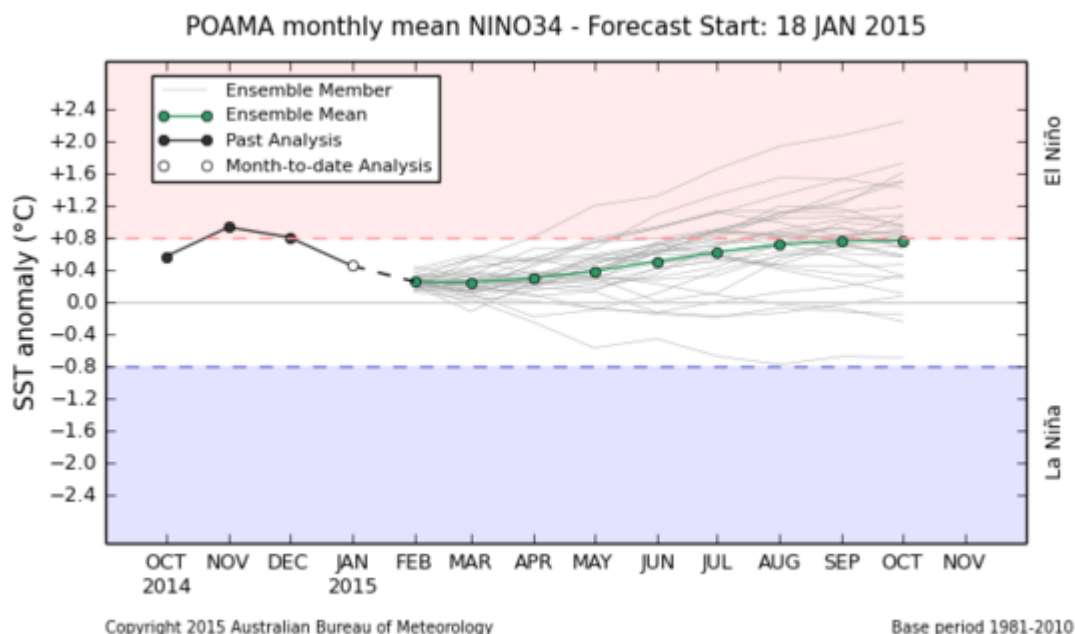


- Spatial cloudiness
- Regional cloudiness
- Out-going longwave radiation maps

Model outlooks

All eight surveyed international [climate models](#) favour neutral values of central Pacific Ocean SSTs until at least April. Around half of the models predict some warming of SSTs late during the southern hemisphere autumn or during winter; two models forecast NINO3.4 will exceed El Niño threshold values during winter and a third briefly reaches threshold values before dropping away. Two models indicate cooling of cooling of central Pacific SSTs over autumn–winter, although remaining within neutral bounds.

Model outlooks forecast through the autumn months have lower confidence than forecasts at other times of the year. This period is known as the “autumn predictability barrier” as the temperature gradients across the tropical Pacific Ocean naturally weaken at this time of year. Model outlooks for predictions through autumn should therefore be treated with caution.



See also:

[Climate model summary](#)

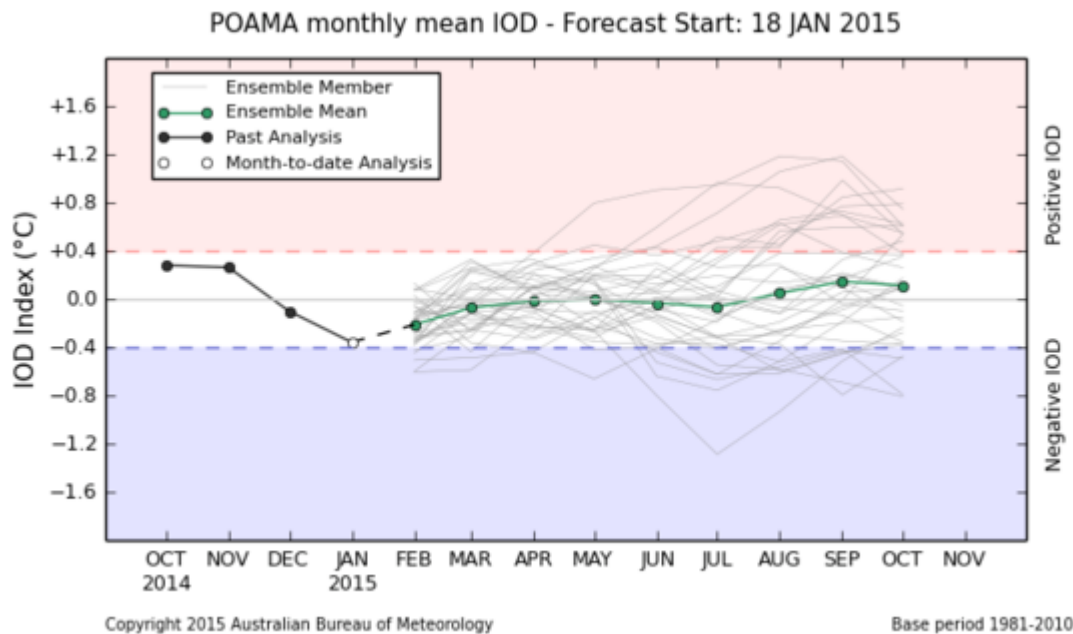
[POAMA model](#)

[Map of NINO regions](#)

Indian Ocean Dipole

The Indian Ocean Dipole (IOD) index remains neutral. The latest weekly index value to 18 January is -0.3 °C. Climate models surveyed in the [model outlooks](#) favour a continuation of neutral IOD values until at least early in the austral winter.

The IOD typically has little influence on the Australian climate from December to April.



See also:

[POAMA model](#)

[IOD time series](#)

[Map of IOD regions](#)

[IOD forecasts](#)

[Weekly IOD values](#)

Archive

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