# Tropical Pacific expected to remain ENSO-neutral this summer

**Issued on Tuesday 19 November 2013** | Product Code IDCKGEWWOO

The El Niño-Southern Oscillation (ENSO) remains in a neutral state with all atmospheric and oceanic indicators within neutral bounds. International climate models surveyed by the Bureau indicate that the current ENSO-neutral state of the tropical Pacific will persist through to the end of the southern hemisphere summer.

While ENSO is the dominant natural driver of Australia's climate, a neutral period does not guarantee a benign or normal season. A neutral ENSO period indicates that the tropical Pacific Ocean is not shifting the odds towards a significantly wetter or drier period for Australia. When ENSO is in a neutral phase, more localised weather extremes can and do occur due to the influence of secondary or local factors. For instance, near record warm sea surface temperatures around parts of the Australian coastline are currently likely to be influencing regional climate.

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 3 December 2013** | print version

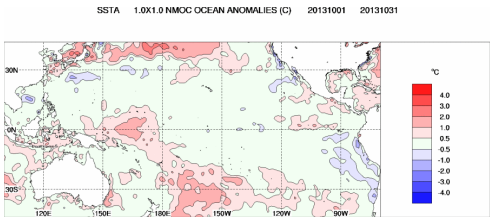
# Further Details

## Sea Surface Temperatures

### Monthly sea surface temperatures:

The sea surface temperature (SST) anomaly map for October shows SSTs are near average along the majority of the central and eastern equatorial Pacific. In the far eastern Pacific weak cool anomalies are present south of the equator and near the South American coast while areas of weak warm anomalies are present north of the equator. Weak to moderate warm anomalies also persist in the western tropical Pacific, across parts of the Maritime Continent and around the South Pacific Convergence Zone (SPCZ).

| Index | September | October | Temperature change |
|---|---|---|---|
| NINO3 | 0.0 | 0.0 | no change |
| NINO3.4 | 0.0 | −0.1 | 0.1 °C cooler |
| NINO4 | +0.3 | +0.4 | 0.1 °C warmer |

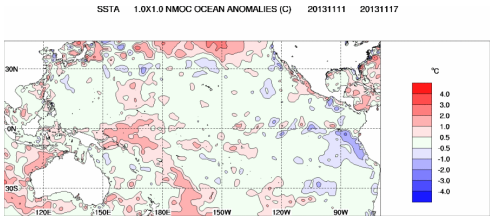



Baseline period 1961–1990.

### Weekly sea surface temperatures:

The pattern of sea surface temperature anomalies across the tropical Pacific is similar to that of two weeks ago. However, waters in the east have cooled marginally and waters west of the Date Line and around the SPCZ have warmed slightly. The anomaly map for the week ending 17 November shows warm anomalies west of the Date Line, near-average temperatures in the central Pacific, and areas of cool anomalies along the equator in the eastern Pacific, extending south of the equator between the South American coast and around 100°W. Warm anomalies around the western half of Australia also persist, and have strengthened compared to two weeks ago.

| Index | Previous | Current | Temperature change (2 weeks) |
|---|---|---|---|
| NINO3 | +0.1 | −0.1 | 0.2 °C cooler |
| NINO3.4 | +0.2 | +0.1 | 0.1 °C cooler |
| NINO4 | +0.6 | +0.5 | 0.1 °C cooler |



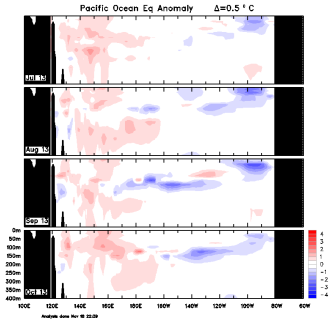

Baseline period 1961–1990.

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

## Pacific ocean sub-surface temperatures

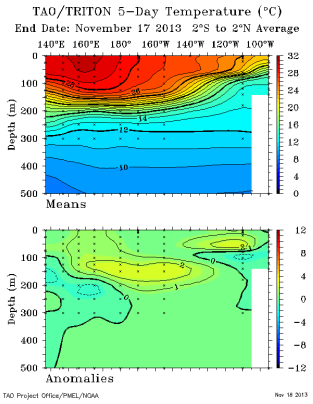
### Monthly sub-surface:

The four-month sequence of sub-surface temperature anomalies (to October) 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. Over the last three months, the sub-surface anomaly pattern has remained generally similar.




### Weekly sub-surface:

The sub-surface map for the 5 days ending 17 November shows temperatures are warmer than average across most of the central equatorial Pacific at around 150 m depth, and in the eastern equatorial Pacific closer to the surface. Water is more than 2 °C warmer than average in both areas.

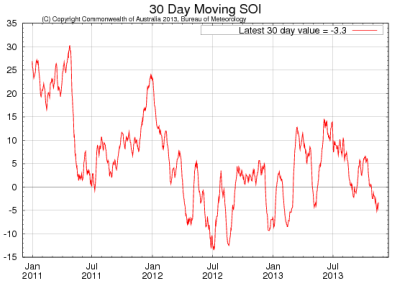



Animation of recent sub-surface changes | Archive of sub-surface temperature charts

### Southern Oscillation Index:

The Southern Oscillation Index (SOI) has remained slightly negative over the past two weeks. The latest approximate 30-day SOI value to 17 November is −3.3.

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.

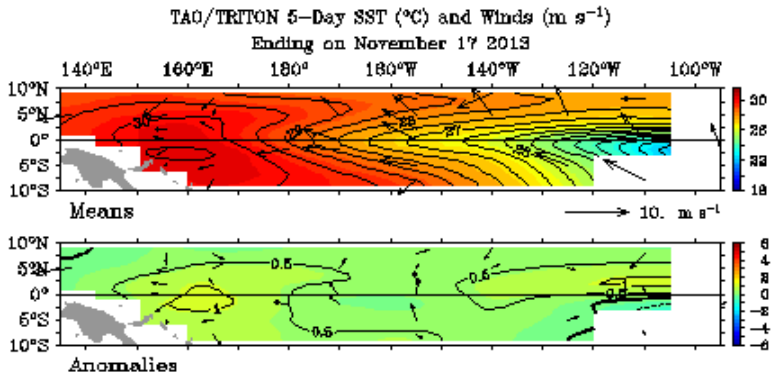



Monthly graph | SOI table | SOI text

### Trade winds:

Trade winds are near average across most of the tropical Pacific (see anomaly map for the 5 days ending 17 November).

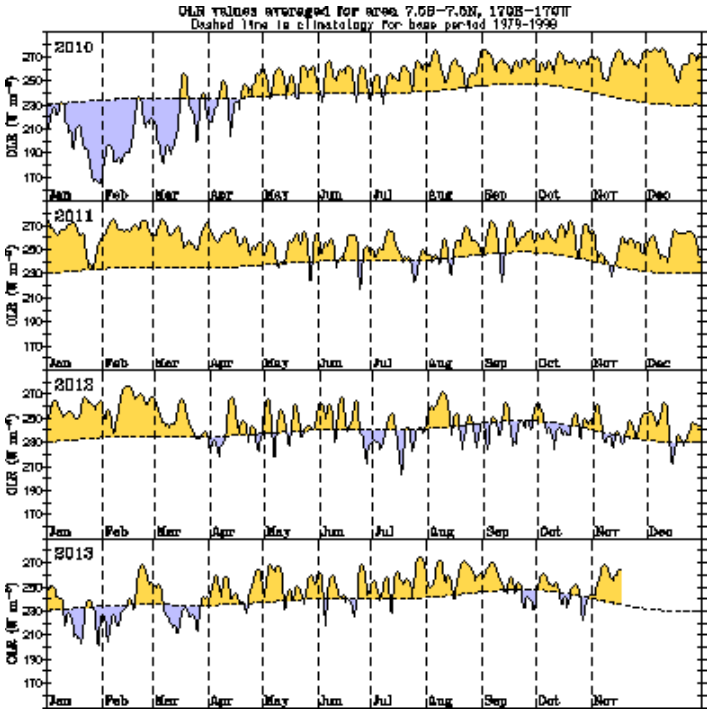
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.




## Cloudiness near the Date Line:

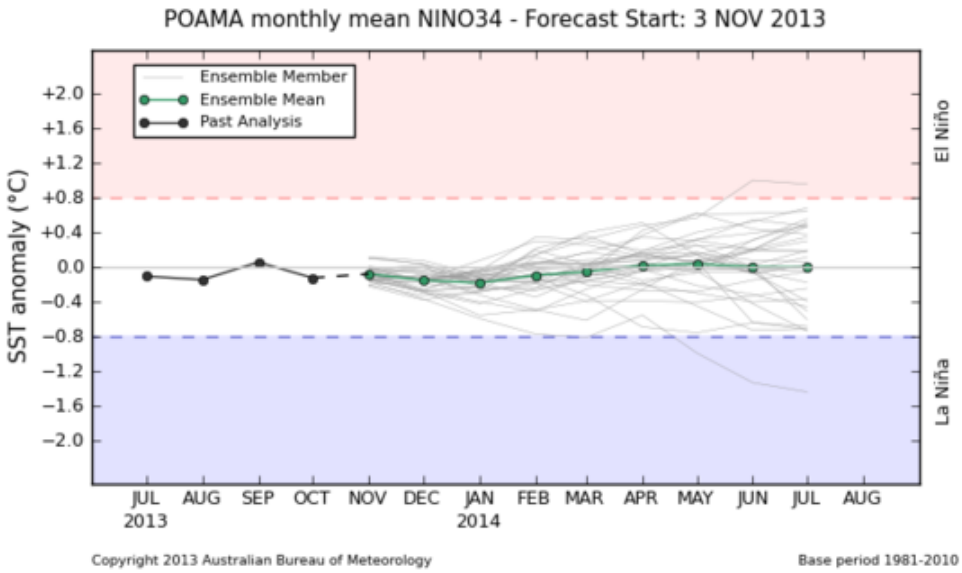
Cloudiness near the Date Line has been below average over the past two weeks. Cloudiness near the Date Line has generally been below average since April, with a near-average period between mid-September and October.

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 into at least the first quarter of 2014.

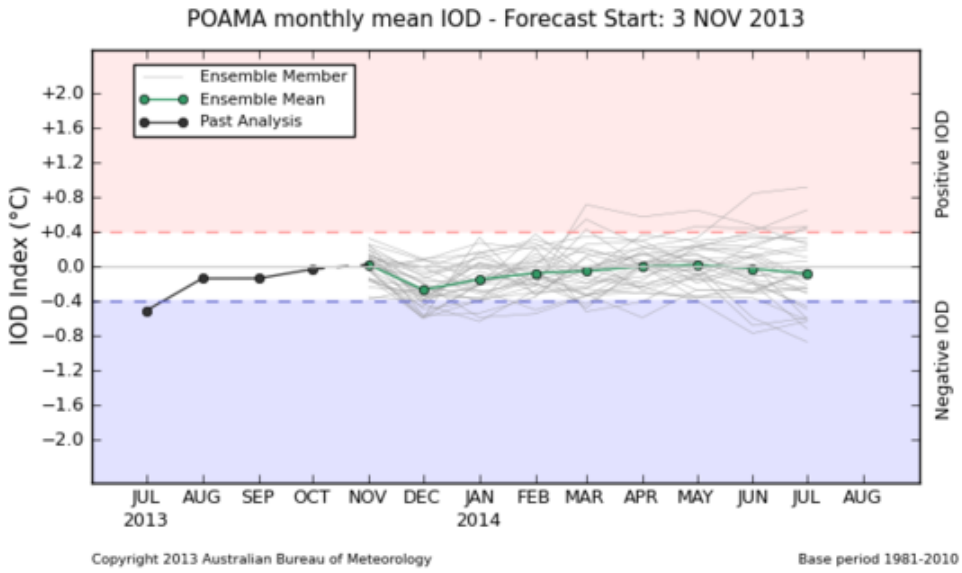



NINO3.4 timeseries NINO3.4 values Map of NINO regions NINO3.4 forecasts (POAMA)

## Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) remains neutral, with the latest weekly index value (3 November) +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 IOD patterns are 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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