

La Niña persists over Pacific

Issued on Wednesday 4 January | Product Code IDCKGEW00

La Niña conditions continue over the tropical Pacific Ocean. The majority of climate models surveyed by the Bureau suggest this La Niña may be close to its peak, with a gradual decline expected over the remainder of the austral summer and early autumn.

Climate indicators of ENSO continue to exceed La Niña thresholds. Despite some cooling (i.e. strengthening of the La Niña pattern) at the surface of the tropical Pacific over the past fortnight, sea surface temperatures remain less extreme (i.e., warmer) than at the same time in 2010-11. Atmospheric indicators of La Niña also strengthened slightly over the last fortnight, with the Southern Oscillation Index (SOI) monthly December value of +23 being the highest value since the breakdown of the 2010-11 event in autumn 2011. The effects of this La Niña can be seen in Australia, with much of the country receiving above average rainfall since October.

La Niña periods are usually, but not always, associated with above normal rainfall during the second half of the year and summer across large parts of Australia, particularly the eastern and northern regions. Daytime temperatures are typically cooler than average, while there is an increased tropical cyclone risk for northern Australia during the cyclone season (November to April), peaking in February and March. For the cyclone season so far, three tropical cyclones have occurred in the Australian region. For detailed rainfall and temperature outlooks, please see: www.bom.gov.au/climate/ahead.

Next update expected by 18 January 2012 | [print version](#)

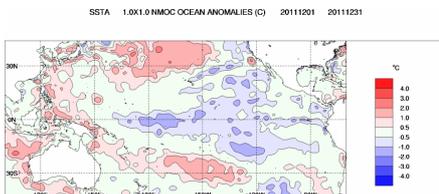
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

Sea surface temperature (SST) anomalies continued to cool across the tropical Pacific Ocean during December. The sea surface temperature (SST) anomaly map for December shows cool anomalies have increased in the central Pacific near the dateline when compared to November; sea surface temperatures more than 1 °C cooler than normal cover areas of the central and eastern equatorial Pacific.

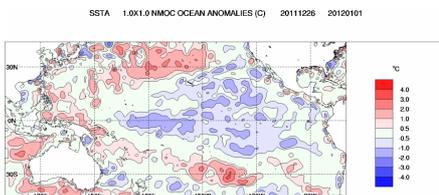
Index	November	December	Temperature change
NINO3	-0.8	-0.6	0.2 °C warmer
NINO3.4	-0.9	-0.8	0.1 °C warmer
NINO4	-0.5	-0.8	0.3 °C cooler



Weekly sea surface temperatures:

Weekly sea surface temperature anomalies have cooled in the central equatorial Pacific, while warming in the far east, when compared to the map from two weeks ago. The SST anomaly map for the week ending 1 January shows cool anomalies present across the majority of the equatorial Pacific east of 160°, with much of the central equatorial Pacific more than 1 °C cooler than normal for this time of the year.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	-0.5	-0.6	0.1 °C cooler
NINO3.4	-0.8	-0.8	no change
NINO4	-0.8	-0.6	0.2 °C warmer

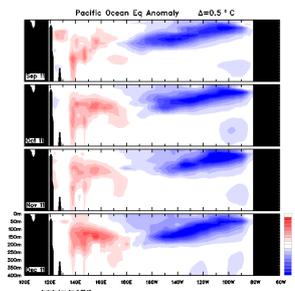


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

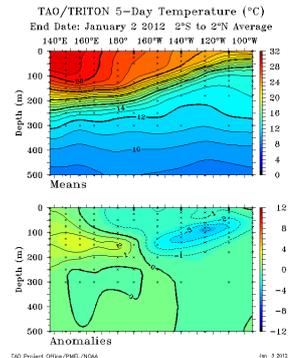
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies shows that the cool anomalies in the sub-surface of the eastern Pacific have strengthened in the central Pacific during December, while the overall extent of cool anomalies remains similar to the previous month. Water in the eastern Pacific is more than 4 °C cooler than average. Cool sub-surface anomalies extend across the Pacific east of the dateline.



Weekly sub-surface:

Temperatures in the sub-surface of the eastern tropical Pacific have continued to cool over the past two weeks. The map for the 5 days ending 2 January shows cool anomalies in the sub-surface of the eastern tropical Pacific are now more than 4 °C cooler than usual, for this time of the year. Anomalies in the sub-surface of the western tropical Pacific remain generally unchanged.



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

Southern Oscillation Index:

The Southern Oscillation Index (SOI) continued to strengthen during the past fortnight, stabilising towards the end of the period. The latest (2 January) 30-day SOI value is +23.1.

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.

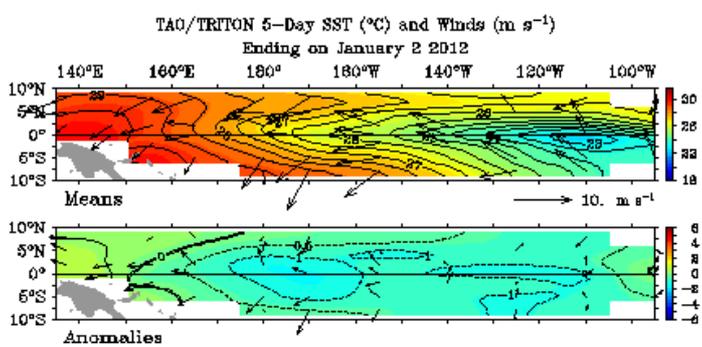


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have weakened in the western Pacific, when compared with two weeks ago. The latest wind anomaly map, for the 5 days ending 2 January, shows trade winds are stronger than average across most of the equatorial Pacific, but near-neutral in the eastern Pacific.

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.

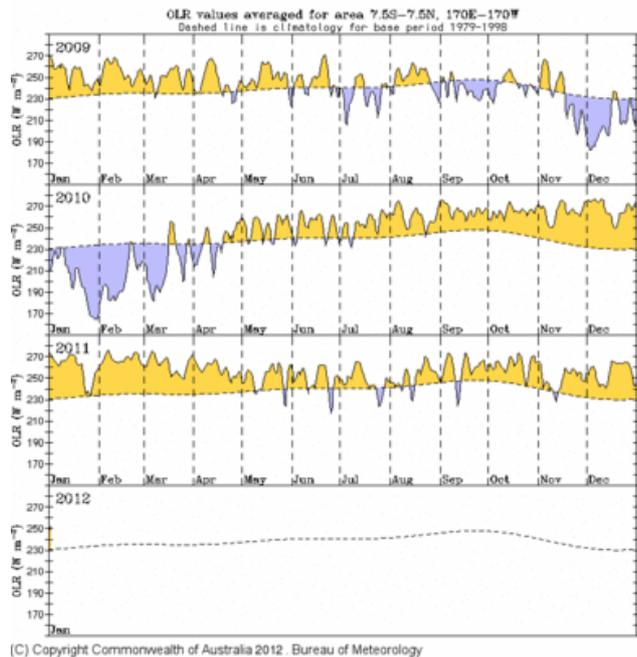


Cloudiness near the dateline:

Cloudiness near the dateline has been suppressed over the past two weeks.

Cloudiness along the equator, near the dateline, is an important indicator of ENSO conditions, as it

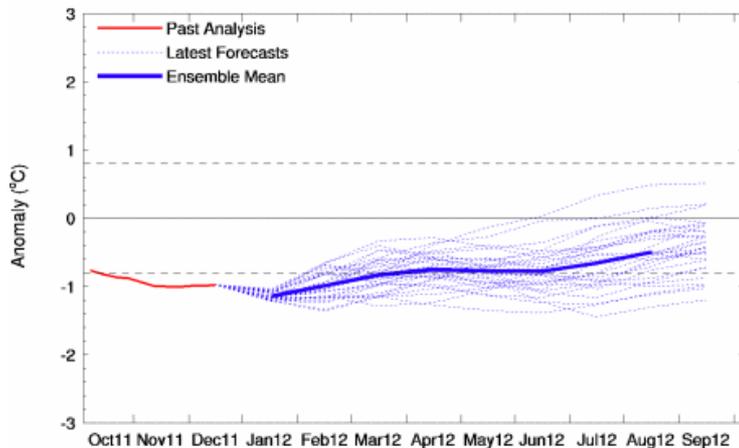
typically increases (negative OLR anomalies) near and to the east of the Date Line during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Climate Models:

The majority of outlooks from leading international [climate models](#) surveyed by the Bureau indicate that the current La Niña may be near its peak. The current event is expected to persist throughout the summer, but a gradual weakening of La Niña conditions is forecast, returning to neutral values during autumn.

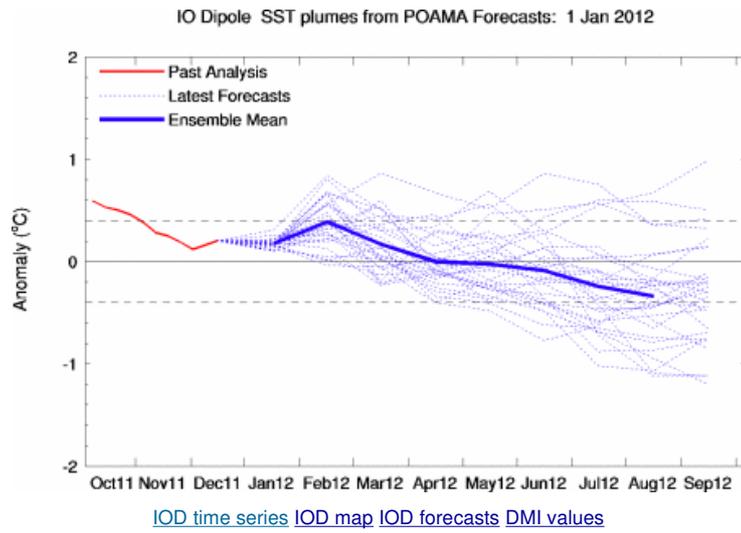
Nino3.4 SST plumes from POAMA Forecasts: 1 Jan 2012



Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) typically has little influence in Australia over summer. The IOD index is currently neutral; the index value for the week ending 18 December was +0.1.

Recent forecasts from the [POAMA model](#) predict neutral IOD conditions for the summer and following autumn.



© Copyright Commonwealth of Australia 2011, Bureau of Meteorology (ABN 92 637 533 532) | [Disclaimer](#) | [Privacy](#) | [Accessibility](#)