



La Niña strengthens in the Pacific

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A La Niña event is now well established in the Pacific Ocean. All computer models surveyed by the Bureau suggest Pacific Ocean sea surface temperatures (SSTs) will remain above La Niña thresholds through the southern hemisphere spring, with the majority indicating the event will persist into at least early 2011.

All key indicators of ENSO are at levels typical of a La Niña event. The central Pacific has cooled significantly over the past two weeks, the Southern Oscillation Index (SOI) remains well above La Niña thresholds, cloudiness over the central Pacific remains suppressed and trade winds continue to be stronger than the long-term average in the central and western Pacific.

La Niña periods are usually, but not always, associated with above normal rainfall during the second half of the year across large parts of Australia, most notably eastern and northern regions. Night time temperatures are historically warmer than average and Tropical Cyclone occurrence for northern Australia is typically higher than normal during the cyclone season (November-April).

Recent values of the Indian Ocean Dipole (IOD) index, combined with forecasts from the Bureau's POAMA model, suggest that a negative IOD event may have commenced in the Indian Ocean. Negative IOD events are often, but not always associated with above average rainfall over large areas of southern Australia during the southern hemisphere spring, and are known to coincide with La Niña events.

Next update expected by 15 September 2010 | [print version](#)

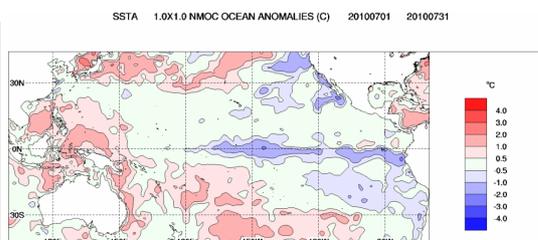
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The central and eastern tropical Pacific Ocean cooled during July, and has continued to cool during August. This area of ocean has been steadily cooling since January 2010. The sea surface temperature (SST) anomaly map for July shows a large area of cooler than normal water stretching along the equator east of the date-line. Much of this water is more than 1 °C cooler than normal for this time of the year. Warm anomalies exceeding +1 °C remain in the Maritime Continent region.

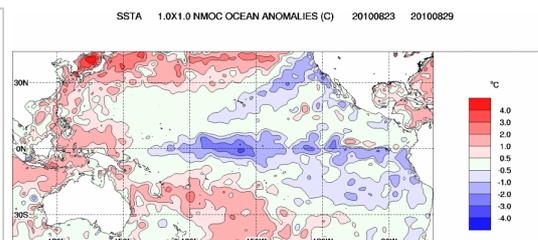
Index	Jun	Jul	Temperature change
Nino 3	-0.3	-0.7	0.4 °C cooler
Nino 3.4	-0.4	-0.9	0.5 °C cooler
Nino 4	0.0	-0.4	0.4 °C cooler



Weekly sea surface temperatures:

The tropical Pacific east of 160°E has cooled significantly over the past two weeks. All three key NINO indices have fallen in value, with NINO3.4 the coolest it has been measured since March 2008. The weekly SST anomaly map shows large areas of the central and eastern tropical Pacific where the ocean is more than 1 °C cooler than normal; in a most of the central equatorial Pacific SSTs are more than 2 °C cooler than usual. Warm anomalies remain evident in the Maritime Continent region.

Index	Previous	Current	Temperature change (2 weeks)
Nino 3	-0.7	-0.9	0.2 °C cooler
Nino 3.4	-0.9	-1.4	0.5 °C cooler
Nino 4	-0.7	-1.3	0.6 °C cooler

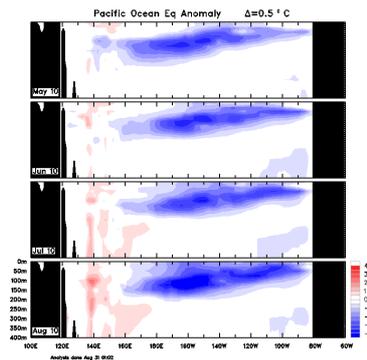


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

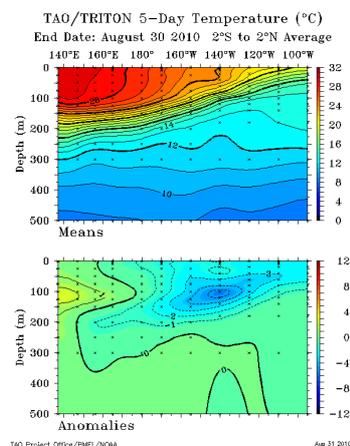
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, ending 31 August, shows further cooling of the large volume of cooler than normal water present below the surface of the tropical Pacific. In some regions the sub-surface water was more than 4°C cooler than average in August.



Weekly sub-surface:

The map for the 5 days ending 30 August shows a large volume of cooler than normal water below the surface of the tropical Pacific Ocean. In the central Pacific, the sub surface of the ocean is more than 5°C cooler than normal for this time of year, on a weekly scale. When compared with two weeks ago the area of coolest sub-surface ocean temperature has migrated eastward with slight warming observed in the western Pacific.

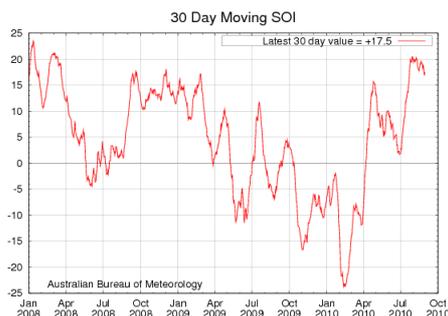


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

Southern Oscillation Index:

The SOI has remained relatively stable during August at a value well above La Niña thresholds. The latest (30 August) 30-day SOI value is +18, slightly less than the July monthly value of +21, which was the highest monthly SOI since February 2008. The SOI has been consistently positive since early April.

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.

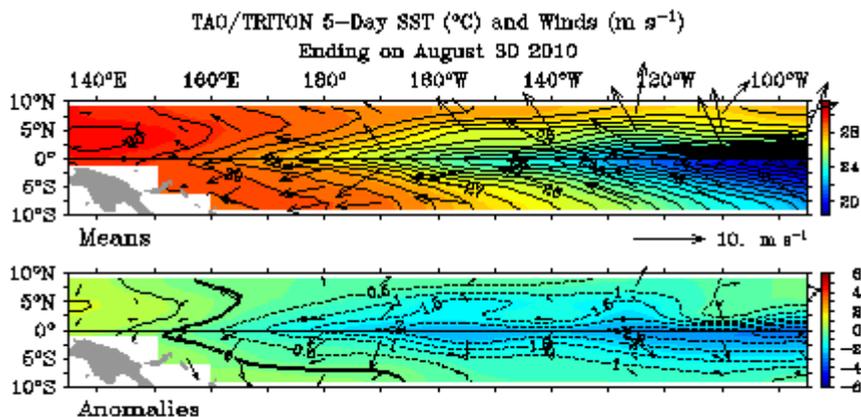


[monthly_graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds remain stronger than usual over the central and western tropical Pacific, despite a slight weakening in strength over the past two weeks. The latest wind anomaly map for the 5 days ending 30 August shows easterly anomalies on the equator west of 160°W.

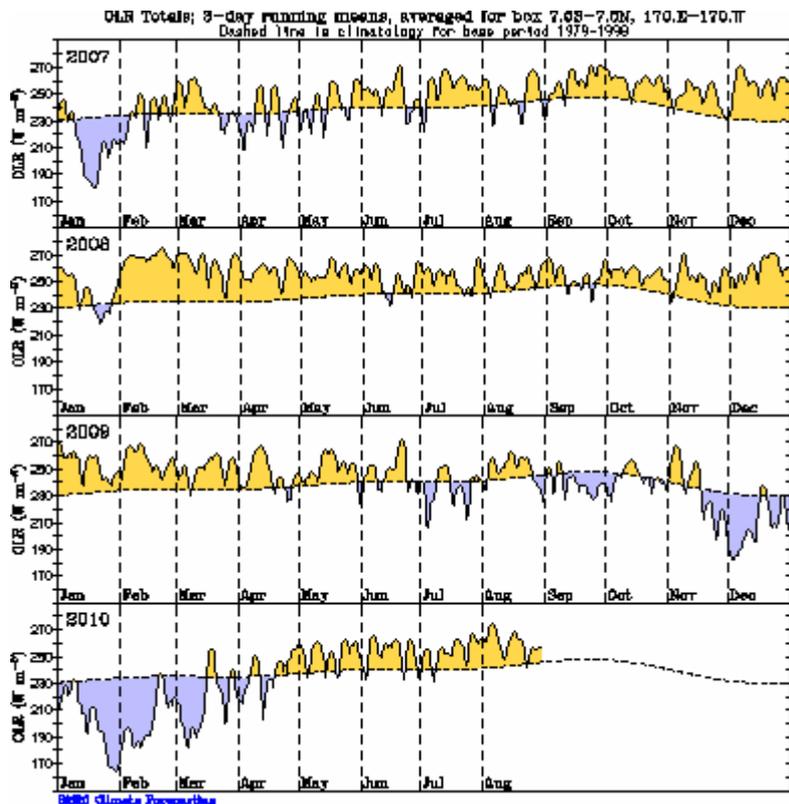
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the date-line:

Cloudiness near the date-line has continued to be suppressed (below average) over the last two weeks. Cloudiness has generally been suppressed near the date-line since late April.

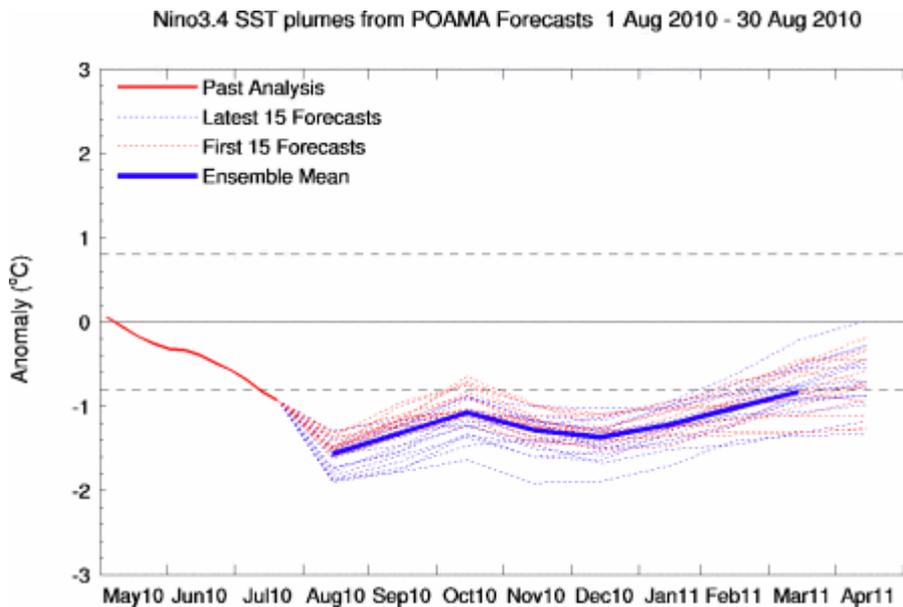
Cloudiness along the equator, near the date-line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the dateline during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Computer Models:

All leading international [climate models](#) surveyed by the Bureau predict surface temperatures in the central Pacific will remain above La Niña thresholds through the southern hemisphere spring. The majority of models indicate the event will persist into at least early 2011.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, are predicting that ocean temperatures will remain within La Niña values throughout the remainder of 2010.



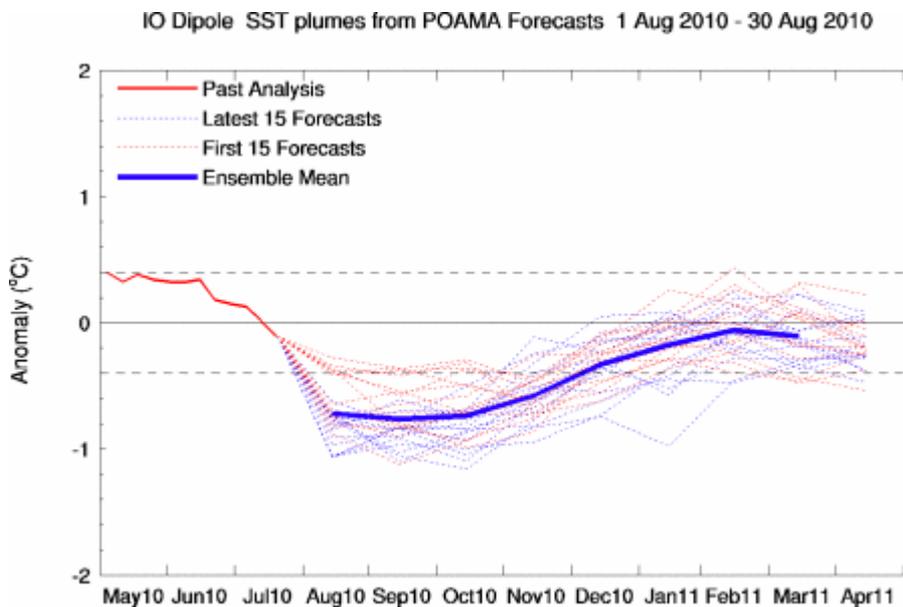
Indian Ocean Dipole:

The latest (29 August) weekly value of the IOD index is -0.9 . Over the last fortnight the weekly IOD value has dropped rapidly and is now well above the threshold of a negative IOD event.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, predict that the IOD index will remain negative throughout the southern hemisphere spring.

Recent values of the IOD index, combined with forecasts from the Bureau’s POAMA model, suggest that a negative IOD event may have commenced in the Indian Ocean

Negative IOD events are often, but not always, associated with above average rainfall over large areas of southern Australia during the southern hemisphere winter and spring and are known to coincide with La Niña events.



[IOD forecasts](#) | [DMI values](#)

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