



Pacific Ocean in early stages of a La Niña event.

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Tropical Pacific Ocean temperatures continued to cool over the past fortnight, and are now approaching levels typical of a La Niña. Similarly, other ENSO indicators are also at or exceeding La Niña thresholds. As computer models predict the central Pacific will continue to cool over the coming months, it is now highly likely that the Pacific is in the early stages of a La Niña event, and that 2010 will be considered a La Niña year.

Signs of an emerging La Niña event have been apparent in the equatorial Pacific for several months. Pacific Ocean temperatures have cooled steadily throughout the year and are now more than 1°C cooler than average in some areas on the equator. The Southern Oscillation Index (SOI) has increased in value and is currently around +14, trade winds continue to be stronger than average and cloudiness has remained suppressed over the central Pacific. All of these key indicators are at levels typical of the early stages of a La Niña event.

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 typically warmer than average and Tropical Cyclone risk for northern Australia increases during the cyclone season (November-April).

Next update expected by 4 August 2010 | [print version](#)

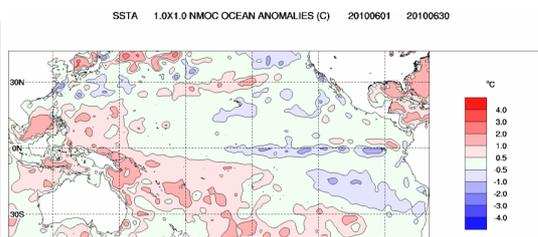
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The central and eastern tropical Pacific Ocean continued to cool during June. The sea surface temperature (SST) anomaly map for June shows a large area of cooler than normal water stretching along the equator east of 160°W, with some areas of the ocean more than 1°C cooler than normal for this time of the year. Warm anomalies exceeding +1°C remain in the Maritime Continent region.

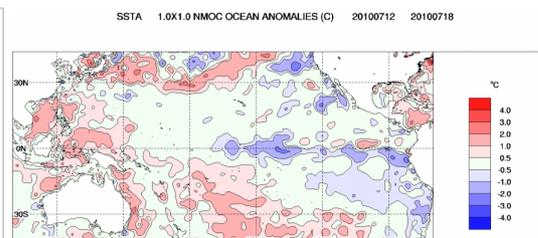
Regions	May	Jun	Temperature change
Nino 3	+0.1	-0.3	0.4°C cooler
Nino 3.4	0.0	-0.4	0.4°C cooler
Nino 4	+0.3	0.0	0.3°C cooler



Weekly sea surface temperatures:

When compared with two weeks ago, all NINO indices have cooled. The area of cooler than normal SST east of the date-line has increased. The weekly SST anomaly map shows large areas where the ocean surface is more than 1°C cooler than normal in the central and eastern equatorial Pacific. Warm anomalies remain evident in the Maritime Continent region.

Regions	Previous	Current	Temperature change (2 weeks)
Nino 3	-0.4	-0.6	0.2°C cooler
Nino 3.4	-0.5	-0.8	0.3°C cooler
Nino 4	-0.2	-0.3	0.1°C cooler

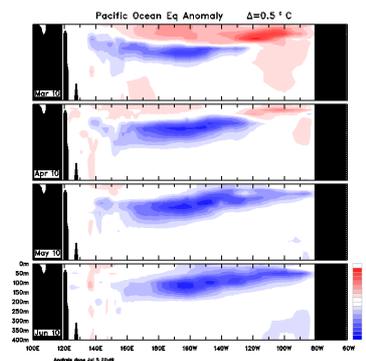


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

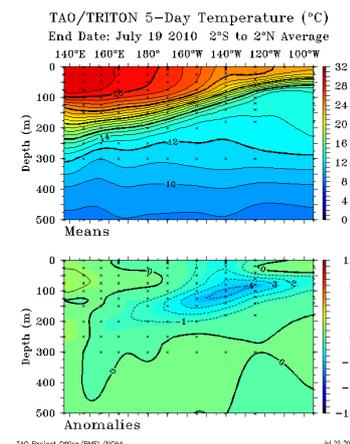
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, ending 30 June, shows a steady cooling with each month. A large volume of cooler than normal water now extends across most of the tropical Pacific Ocean below the surface. In some regions the sub-surface water is more than 3°C cooler than average.



Weekly sub-surface:

The map for the 5 days ending 19 July shows a large volume of cooler than normal water evident below the surface of the equatorial Pacific Ocean. The sub-surface of the ocean is more than 4°C cooler than normal for this time of year in the central Pacific. When compared with two weeks ago, the central Pacific has cooled.

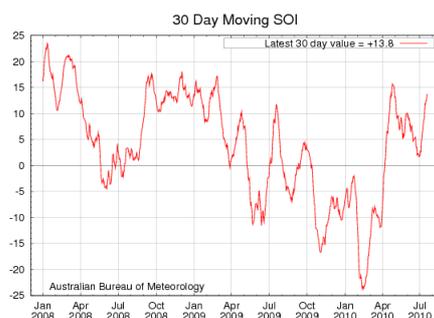


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has steadily increased during July, from a monthly value of +2 for June to the latest (19 July) 30-day SOI value of +14. 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.

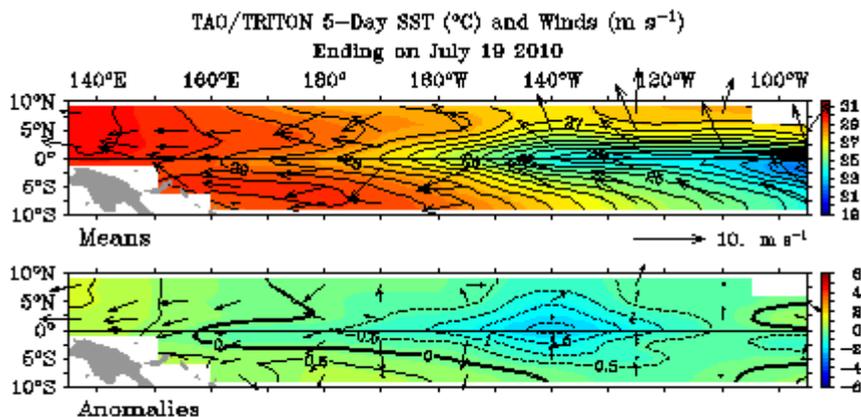


[monthly_graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have strengthened over the central and western Pacific during the last two weeks. The latest wind anomaly map for the 5 days ending 19 July shows strong easterly anomalies to the west of 170°W. To the east of 170°W trade winds are near normal, on a weekly scale.

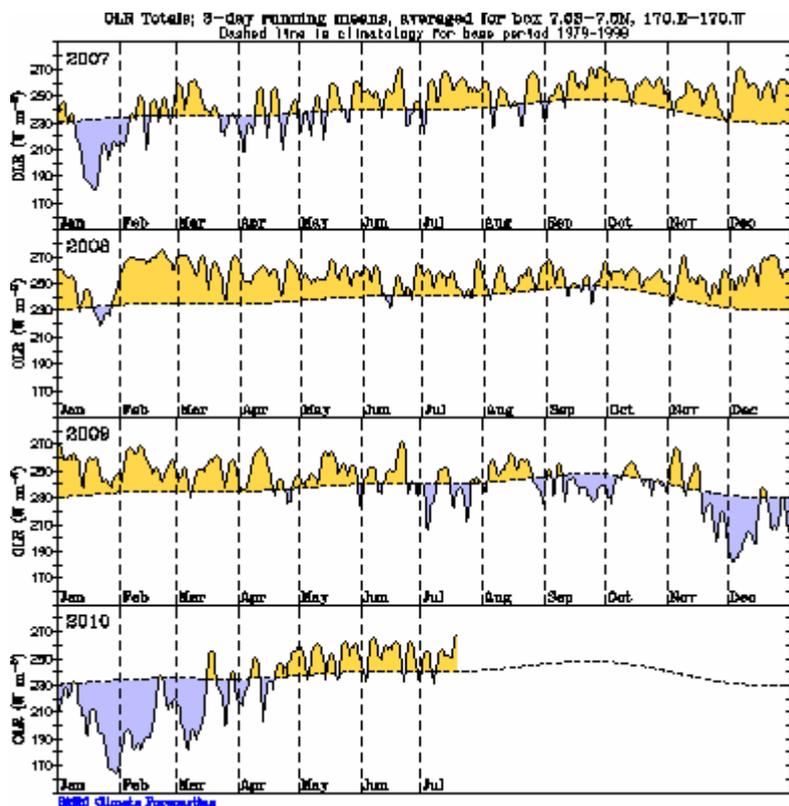
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the date-line:

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

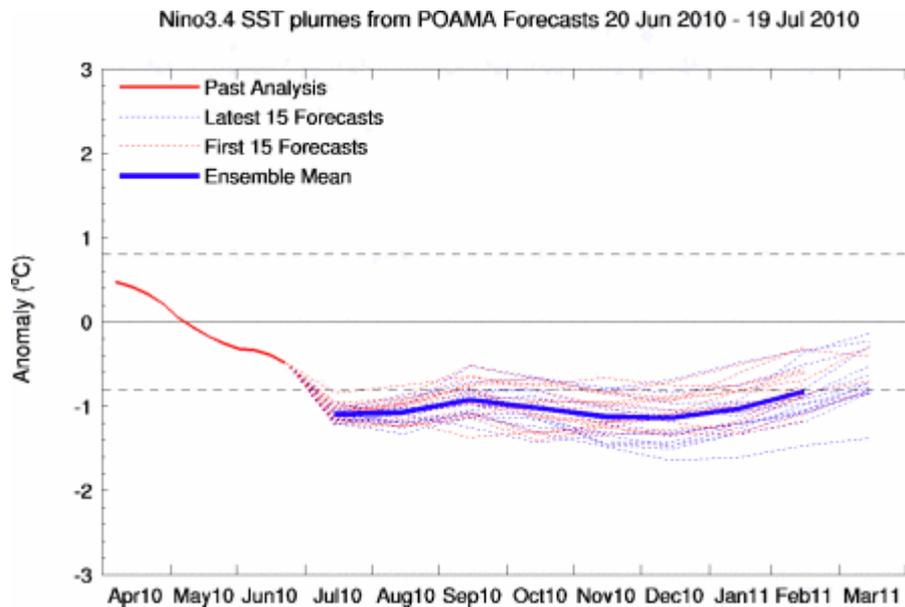
Cloudiness along the equator, near the date-line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the dateline during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Computer Models:

All leading international [climate models](#) surveyed by the Bureau predict further cooling of the tropical Pacific, accompanied by La Niña conditions, during the coming southern spring.

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

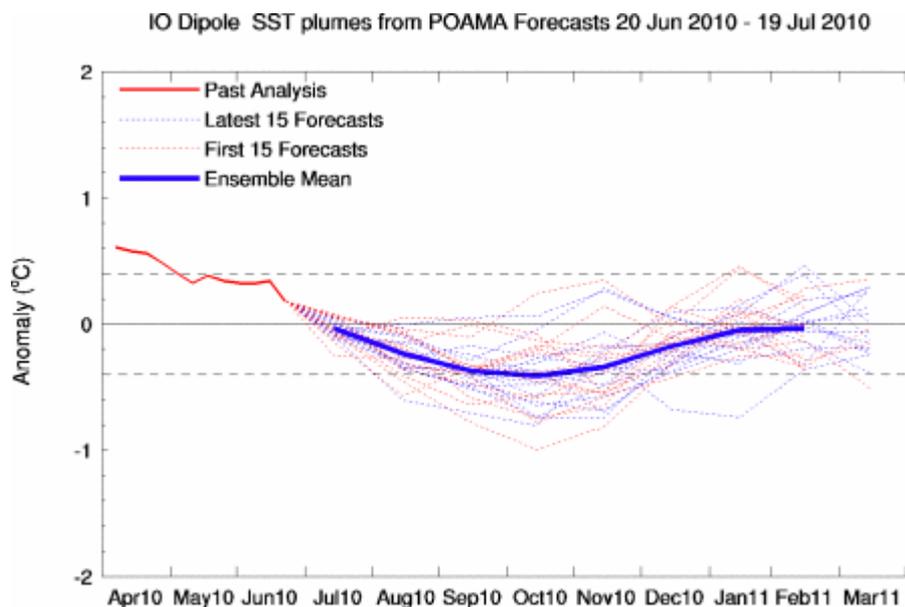


Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) remains in a neutral phase, with the latest weekly value of the IOD index near zero.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, predict that the IOD index will fall during the coming months, and potentially reach levels typical of a negative IOD event in spring.

Negative IOD events are often, but not always, associated with above average rainfall over large areas of southern Australia and often coincide with La Niña events.



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

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