



Australian Government
Bureau of Meteorology

La Niña event expected to continue through 2010

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A La Niña remains well-established in the Pacific. Given the current strength of the event and the outlook from long-range models surveyed by the Bureau, this La Niña is expected to persist into at least early 2011.

All indicators remain firmly at La Niña levels. The central Pacific Ocean is cooler than the long-term mean both at and below the surface, the Southern Oscillation Index (SOI) remains strongly positive, trade winds are stronger than normal and cloudiness over the central tropical Pacific continues to be suppressed. Such consistent signals indicate the tropical atmosphere and ocean are now clearly reinforcing each other.

La Niña periods are generally 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).

A negative IOD event is also underway in the Indian Ocean. Negative IOD events often coincide with La Niña events, and are often, but not always, associated with above average rainfall over large areas of southern Australia during spring. IOD events generally decay in the months of November and December with the onset of the Australian monsoon.

Next update expected by 13 October 2010 | [print version](#)

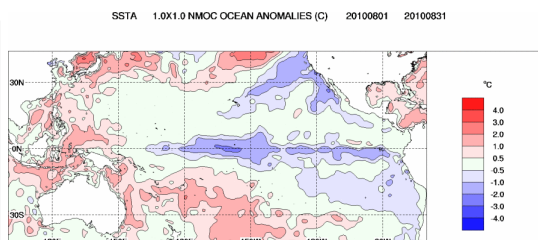
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

The central and eastern tropical Pacific Ocean cooled during August and has continued to cool during September. This area of ocean has been steadily cooling since January 2010. The sea surface temperature (SST) anomaly map for August shows cool anomalies, more than 1 °C cooler than normal, extending along the equator east of 160°E. The map shows a region of water in the central Pacific that was more than 2 °C cooler than normal. Warm anomalies exceeding +1 °C remain in the Maritime Continent region.

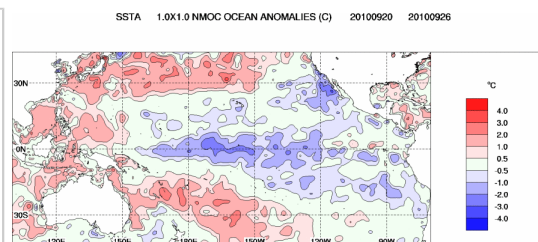
Index	Jul	Aug	Temperature change
Nino 3	-0.7	-0.8	0.1 °C cooler
Nino 3.4	-0.9	-1.1	0.2 °C cooler
Nino 4	-0.4	-0.9	0.5 °C cooler



Weekly sea surface temperatures:

The weekly SST anomaly map for the week ending 26 September shows cooler than usual surface temperatures extending along the equator, east of 160°E. When compared with two weeks ago, NINO3.4 and NINO4 have remained similar in value, while NINO3 has warmed slightly. There has been a general slight warming of the tropical Ocean in the eastern Pacific over the past two weeks. Warm anomalies remain evident in the Maritime Continent region, with waters close to Australia warmer than they were two weeks ago.

Index	Previous	Current	Temperature change (2 weeks)
Nino 3	-1.0	-0.7	0.3 °C warmer
Nino 3.4	-1.3	-1.4	0.1 °C cooler
Nino 4	-1.2	-1.3	0.1 °C cooler

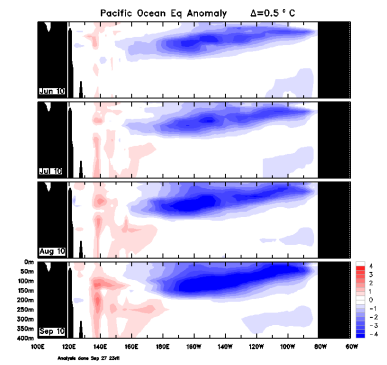


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

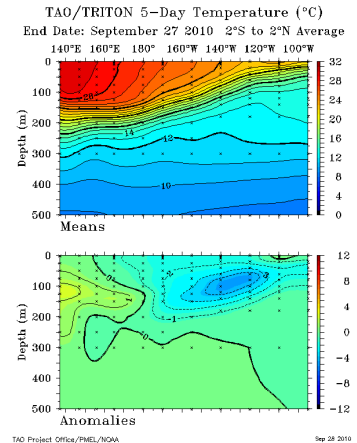
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, ending 27 September, shows that a large volume of cooler than normal water has been evident below the surface of the tropical Pacific for many months. The sub-surface of the equatorial Pacific has been steadily cooling since November 2009, the peak of the 2009-10 El Niño event. Along most of the equator, the sub-surface water is now more than 4°C cooler than average for this time of the year. The sequence also shows that weak warm anomalies have been developing slowly below the surface in the far western equatorial Pacific.



Weekly sub-surface:

The map for the 5 days ending 27 September 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 the year, on a weekly scale. When compared with two weeks ago, the water below the surface of the tropical Pacific has warmed.

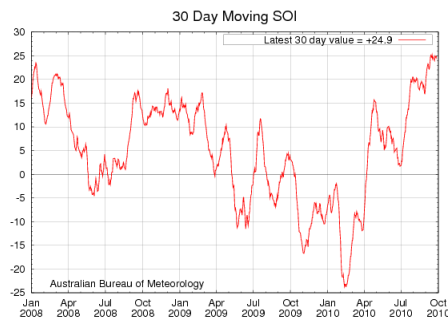


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

Southern Oscillation Index:

The SOI has remained firmly positive and fairly steady in value for the past two weeks. The latest (27 September) 30-day SOI value was +25; the monthly value for August was +19. 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.

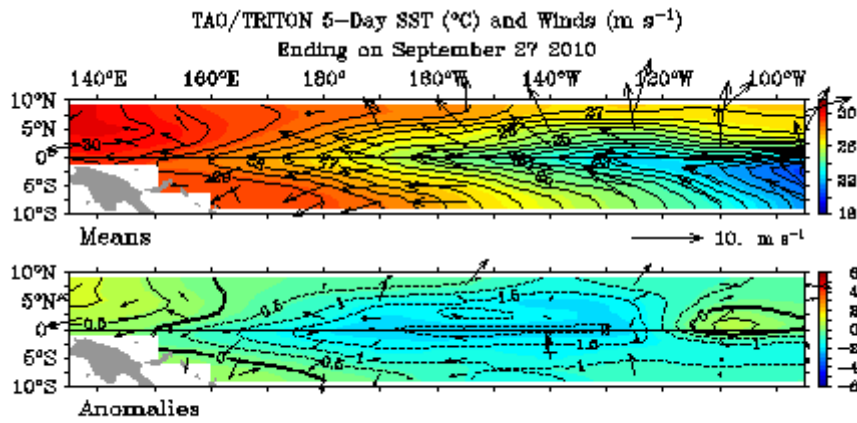


[monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds have remained stronger than normal over most of the equatorial Pacific during the past two weeks, with the exception of a small area in the far eastern Pacific where trade winds have been slightly weaker than normal. The latest wind anomaly map for the 5 days ending 27 September is shown below.

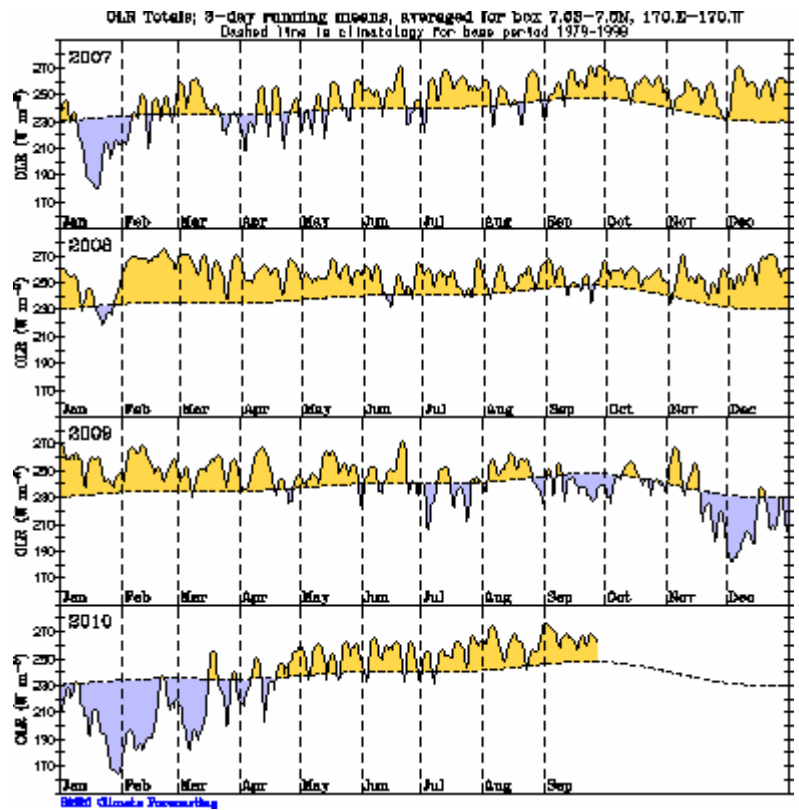
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



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.

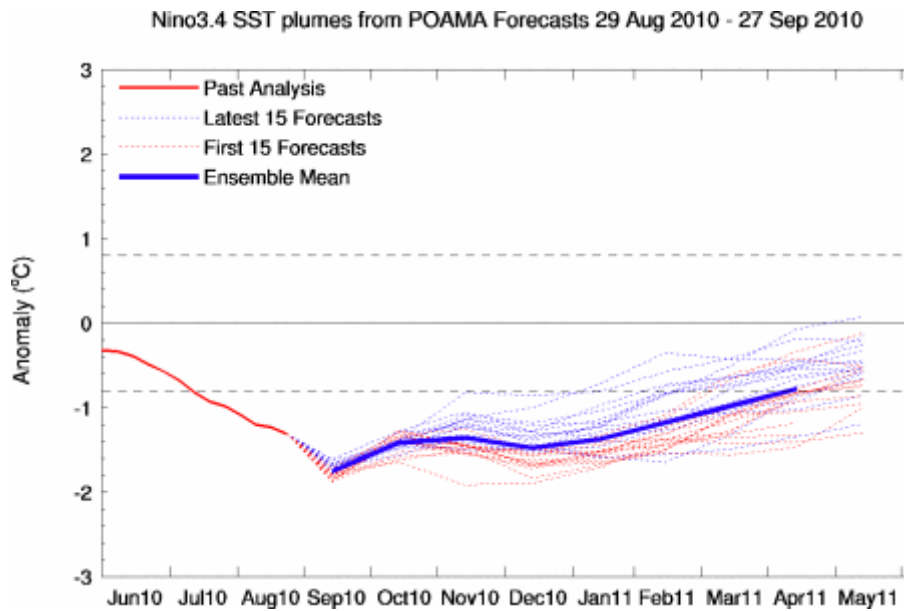
Cloudiness along the equator, near the date-line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the dateline during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Computer Models:

All leading international [climate models](#) surveyed by the Bureau predict surface temperatures in the tropical Pacific Ocean will remain at levels typical of a La Niña through the remainder of 2010. The majority of models indicate the event will persist well into the first quarter of 2011.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, are predicting that Pacific Ocean temperatures will remain at La Niña levels throughout the southern hemisphere spring and summer.

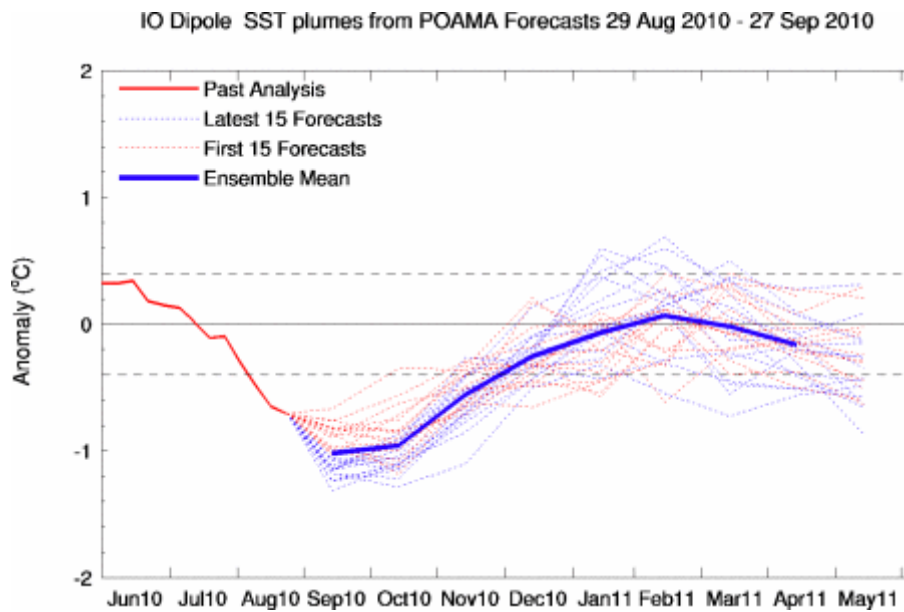


Indian Ocean Dipole:

The latest (26 September) weekly value of the IOD index is -1.0 . The IOD index has been consistently negative, at levels typical of a negative IOD event for several weeks.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, predict that the negative IOD event will persist throughout the remainder of the spring, before decaying in the months of November and December with the onset of the Australian monsoon.

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.



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

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