



Australian Government
Bureau of Meteorology

La Niña near its end

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The 2010–11 La Niña event is nearing its end, with most indicators approaching neutral values. Climate models surveyed by the Bureau of Meteorology suggest that the Pacific Ocean will continue to warm over the coming months, with neutral conditions likely to persist through the austral winter.

Steady warming of the equatorial Pacific Ocean since mid-January has resulted in near-normal ocean temperatures. Atmospheric indicators of La Niña are now responding to these changes in the ocean and an active Madden Julian Oscillation, resulting in a weakening of trade winds, changes in cloudiness and an easing of typical La Niña pressure patterns. Likewise, the Southern Oscillation Index (SOI), which recorded its highest April value since 1904, has dropped from above +25 to +11 in the past fortnight.

The influence of the Indian Ocean Dipole (IOD) on Australian rainfall is currently neutral. A weakly positive IOD event has been forecast to develop during winter. In the past, positive IOD events have been associated with drier conditions over parts of Australia, particularly in the south east, during the winter and spring seasons.

Next update expected by 25 May 2011 | [print version](#)

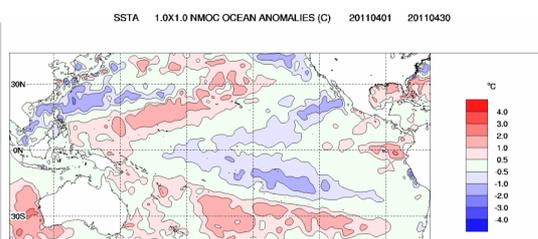
Further Details

Sea Surface Temperatures

Monthly sea surface temperatures:

When compared with the previous month, sea surface temperature (SST) anomalies for April have continued to show a strong warming at the surface of the eastern tropical Pacific Ocean. The sea surface temperature (SST) anomaly map for April shows that anomalies along much of the equator in the central Pacific were near normal for that month. Anomalies greater than 2 °C warmer than normal for that month emerged in the far eastern equatorial Pacific, and warm anomalies persist in the northern Maritime Continent region, but have cooled compared to the previous month.

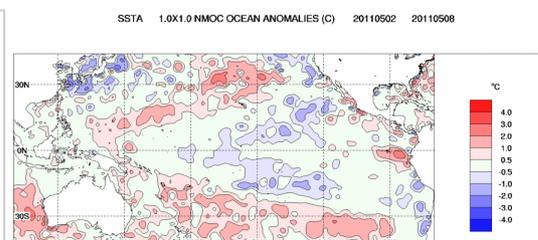
Index	Mar	Apr	Temperature change
NINO3	-0.4	0.0	0.4 °C warmer
NINO3.4	-0.6	-0.5	0.1 °C warmer
NINO4	-0.5	-0.5	no change



Weekly sea surface temperatures:

Weekly sea surface temperature anomalies in the western and central equatorial Pacific Ocean have weakened slightly, when compared with two weeks ago. The SST anomaly map for the week ending 8 May shows near normal temperatures along most of the equator, with a small area of SST anomalies more than 2 °C warmer than normal for this time of the year in the far eastern equatorial Pacific.

Index	Previous	Current	Temperature change (2 weeks)
NINO3	+0.1	0.0	0.1 °C cooler
NINO3.4	-0.4	-0.4	no change
NINO4	-0.5	-0.4	0.1 °C warmer

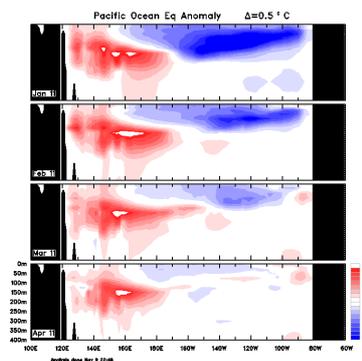


[An animation of recent SST changes](#) | [Weekly data graph](#)

Pacific ocean sub-surface temperatures

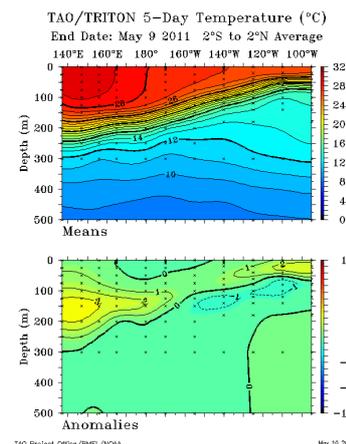
Monthly sub-surface:

The four-month sequence of sub-surface Pacific Ocean equatorial temperature anomalies, to April, shows the volume of cooler than normal water below the surface of the central and eastern equatorial Pacific has continued to warm and shoal when compared with previous months, and now shows only very weak cool anomalies. Positive anomalies in excess of 4 °C remain evident in the western Pacific.



Weekly sub-surface:

The temperature in the sub-surface of the tropical Pacific Ocean shows little change when compared with two weeks ago (see the map for the 5 days ending 9 May). The volume of warmer than usual water in the western tropical Pacific has reduced in extent when compared with the preceding fortnight and the sub-surface has cooled slightly in the eastern tropical Pacific. Weekly temperature anomalies in the west remain around 3 °C warmer than usual for this time of the year, at a depth of around 150m.

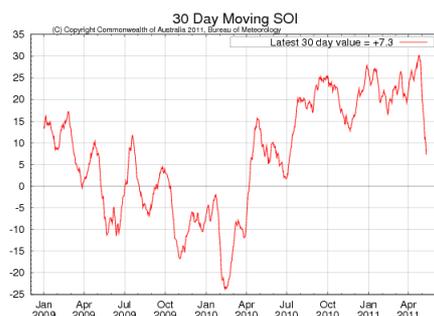


[Animation of recent sub-surface changes](#) | [Archive of sub-surface temperature charts](#)

Southern Oscillation Index:

The Southern Oscillation Index (SOI) has fallen sharply over the past two weeks, after recording the second highest April monthly value on record (the highest on record is 31.7, in 1904). The latest (9 May) 30-day SOI value remains positive, at +11. The SOI has been consistently positive since early April 2010.

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.

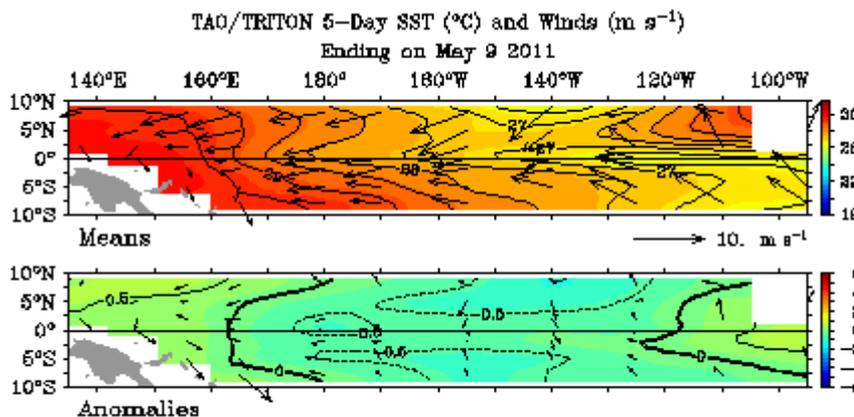


[Monthly graph](#) | [SOI table](#) | [SOI text](#)

Trade winds:

Trade winds are slightly stronger than normal across most of the equatorial Pacific. Trade winds have decreased in strength across the equatorial Pacific over the last fortnight as an active Madden-Julian Oscillation (MJO) event progressed through the Maritime Continent and western Pacific Ocean. The latest wind anomaly map for the 5 days ending 9 May is shown below.

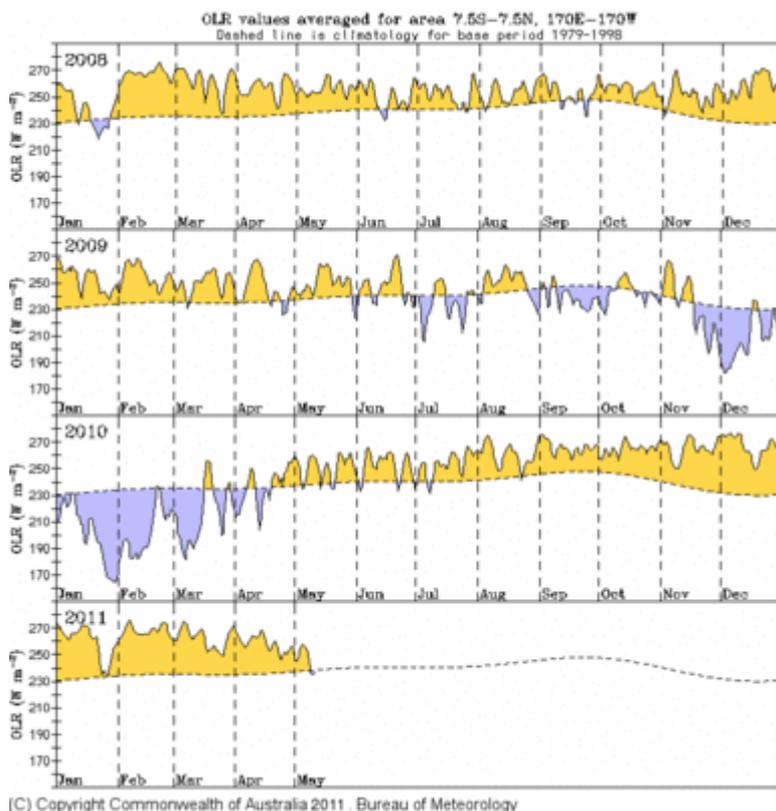
During La Niña events, there is a sustained strengthening of the trade winds across much of the tropical Pacific, while during El Niño events there is a sustained weakening of the trade winds.



Cloudiness near the date-line:

Cloudiness near the date-line has been below average over the last two weeks (suppressed). Cloudiness has generally been suppressed near the date-line since April 2010.

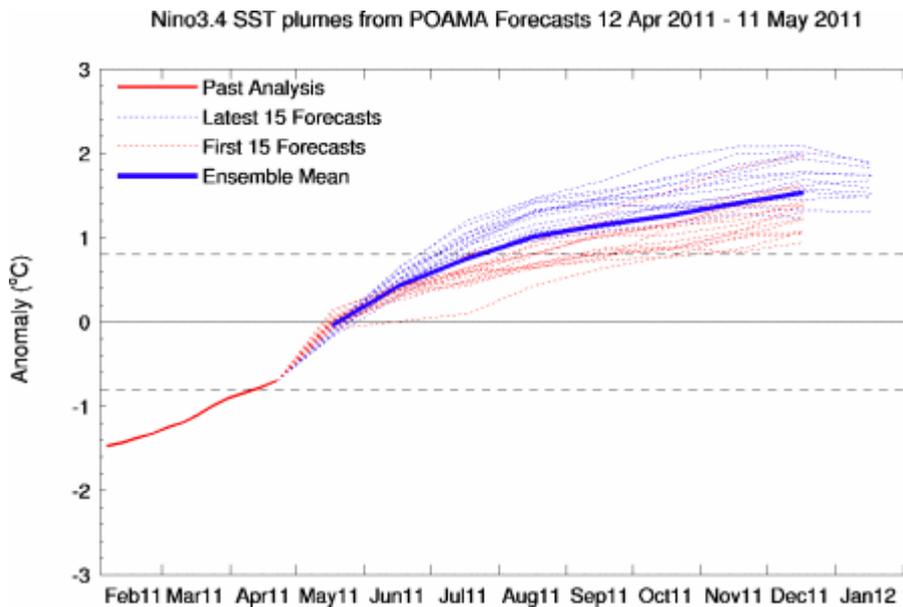
Cloudiness along the equator, near the date-line, is an important indicator of ENSO conditions, as it typically increases (negative OLR anomalies) near and to the east of the dateline during an El Niño event and decreases (positive OLR anomalies) during a La Niña event.



Computer Models:

The majority of leading international [climate models](#) surveyed by the Bureau predict ENSO conditions within the neutral range over the southern hemisphere winter. Models indicate that oceanic conditions may become weakly warm during the southern hemisphere spring.

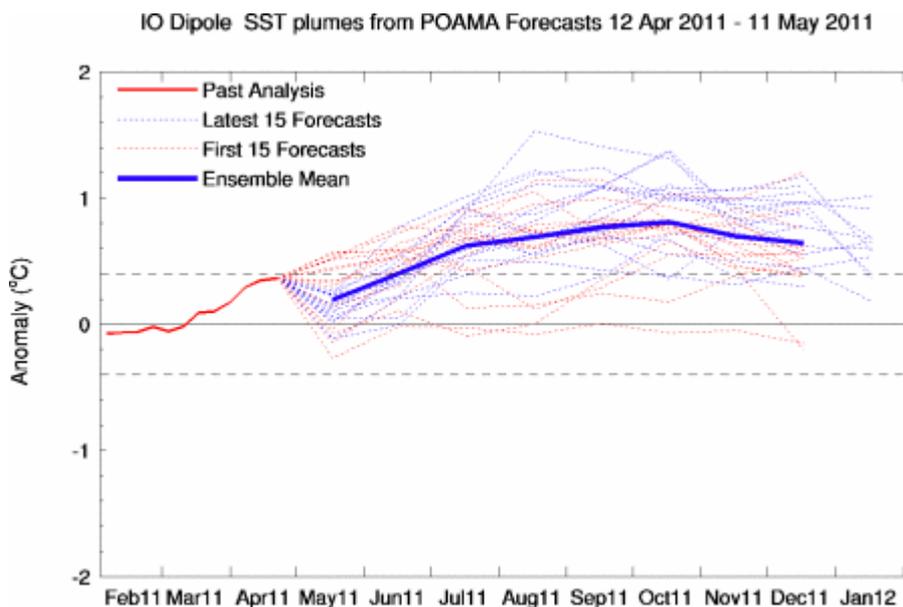
Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, predict that neutral conditions will persist through the southern hemisphere winter before becoming weakly positive in spring.



Indian Ocean Dipole:

The Indian Ocean Dipole (IOD) has remained neutral over the past two weeks, which is typical for this time of year; the IOD index value for the week ending 8 May was +0.6.

Recent forecasts from the [POAMA model](#), run daily at the Bureau of Meteorology, predict that a positive IOD event will develop during the southern hemisphere winter, with values of the index remaining weakly positive into spring.



[IOD time series](#) [IOD map](#) [IOD forecasts](#) [DMI values](#)

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