Climate Indices
Current Status and Projections

Wednesday 18 October 2023
Sea Surface Temperature (SST)

SST

Oct 16

SST Anomaly

Oct 16

NOAA OSPO

https://www.ospo.noaa.gov/data/sst/contour/global_small.c.gif

NOAA Coral Reef Watch

https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php
Anomalies in a layer take longer to dissipate than superficial ones, and can last for weeks.

**Top Layer Temperature Anomaly**

![Top 300m-Layer Anomaly](https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php)


**Surface Anomaly**

![Surface Anomaly](https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php)

Source: NOAA Coral Reef Watch, https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php
El Niño-Southern Oscillation (ENSO)

**CPC Official Statement: El Niño Advisory**
- El Niño conditions are observed.*
- Equatorial SST are above average across the central and eastern Pacific.
- Tropical Pacific atmospheric anomalies are consistent with El Niño.

**TAKEAWAYS**
- All Niño regions are warm, >1°C. Niño 4 is warming up.
- Niño 1+2 is slightly cooler than in previous months (strong S Pacific Anticyclone since September), but still > +2°C
ENSO: Oceanic Kelvin Waves

- Heat anomalies have cooled some since August, but a new downwelling (warm) Kelvin wave formed in early October.
- It is propagating near 150W.
- Will this wave be strong enough to strengthen the warming of the South American coast by December?

Temperature Anomalies with Depth and Heat Content

TAKEAWAYS

- Heat anomalies have cooled some since August, but a new downwelling (warm) Kelvin wave formed in early October.
- It is propagating near 150W.
- Will this wave be strong enough to strengthen the warming of the South American coast by December?
ENSO: Will the current Kelvin strengthen?

Both GFS and CFS entertain strong westerly wind bursts through late Oct.

Yet...models have been correcting frequently = limited confidence.

Forecasts mean that we need to monitor the potential for a widening and strengthening of the current warm Kelvin, which could reinforce the warming in the South American coast from mid-December through mid-January.

TAKEAWAYS
El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March-May 2024).

**Probabilistic Forecast**

Official NOAA CPC ENSO Probabilities (issued Oct. 2023)

<table>
<thead>
<tr>
<th>Season</th>
<th>La Nina</th>
<th>Neutral</th>
<th>El Nino</th>
</tr>
</thead>
<tbody>
<tr>
<td>SON</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OND</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NDJ</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DJF</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>JFM</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FMA</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MAM</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AMJ</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MJJ</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: CPC

**IRI/CPC Dynamic Models**

Model Predictions of ENSO from Sep 2023

Source: IRI, updated 20 September 2023
The Madden-Julian Oscillation (MJO) has struggled to propagate since mid-July, including persistent upper divergence (wet) conditions in the central Pacific. This is often consistent with a well-established El Niño.

Yet weak, propagation is evident. Next wet pulse might arrive in the Americas in early October.

Current Observations:

- The MJO has struggled to propagate since mid-July, including persistent upper divergence (wet) conditions in the central Pacific. This is often consistent with a well-established El Niño.

- Yet weak, propagation is evident. Next wet pulse might arrive in the Americas in early October.

Velocity Potential and Brightness Temperature (shaded)

Source: CPC
TAKEAWAYS

- Models keep changing their solutions = confidence is not very high.
- Dry spell during the last 10 days of October. Possibly wetter in early November.
Outlook for the next few days:

- Wet Kelvin crossing Central America during 19-21 October.
- Otherwise, weak upper convergence (drier conditions) are expected.

Source: NCICS
South America, Last 7 Days

200 hPa Flow

Average

Anomaly

850 hPa Flow

Average

Anomaly

Rainfall Anomalies

Gauges

Satellite – Estimated (CMORPH)
Caribbean and Central America, Last 7 Days

Gauges (CPC) Rainfall Anomalies

200 hPa Flow

Satellite – Estimated (CMORPH)

850 hPa Flow

Average

Anomaly
¡Gracias! Thank you! ¡Obrigado!

Next Session: Tuesday November 21 at 16 UTC

Final sessions of 2023: Tuesday Dec. 19 at 16 UTC

Recorded sessions and more information available at:
https://rammb2.cira.colostate.edu/training/rmtc/focusgroup/

For enrolling in the distribution list for RFG announcements,
please send an email to jose.galvez@noaa.gov or
bernie.connell@colostate.edu