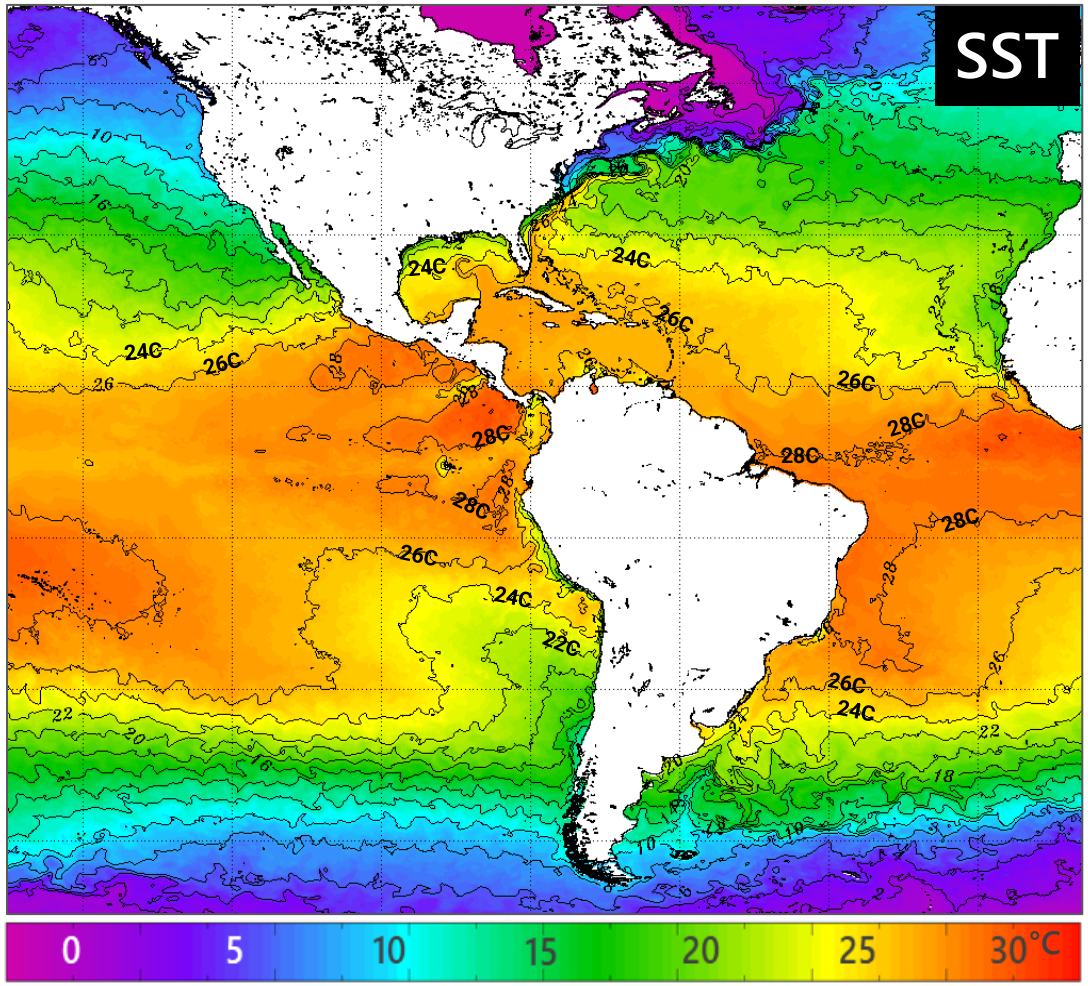
Monthly WMO Regional Focus Group Session

RFG Climate Indices Presentation

Wednesday 8 March 2023 at 16 UTC

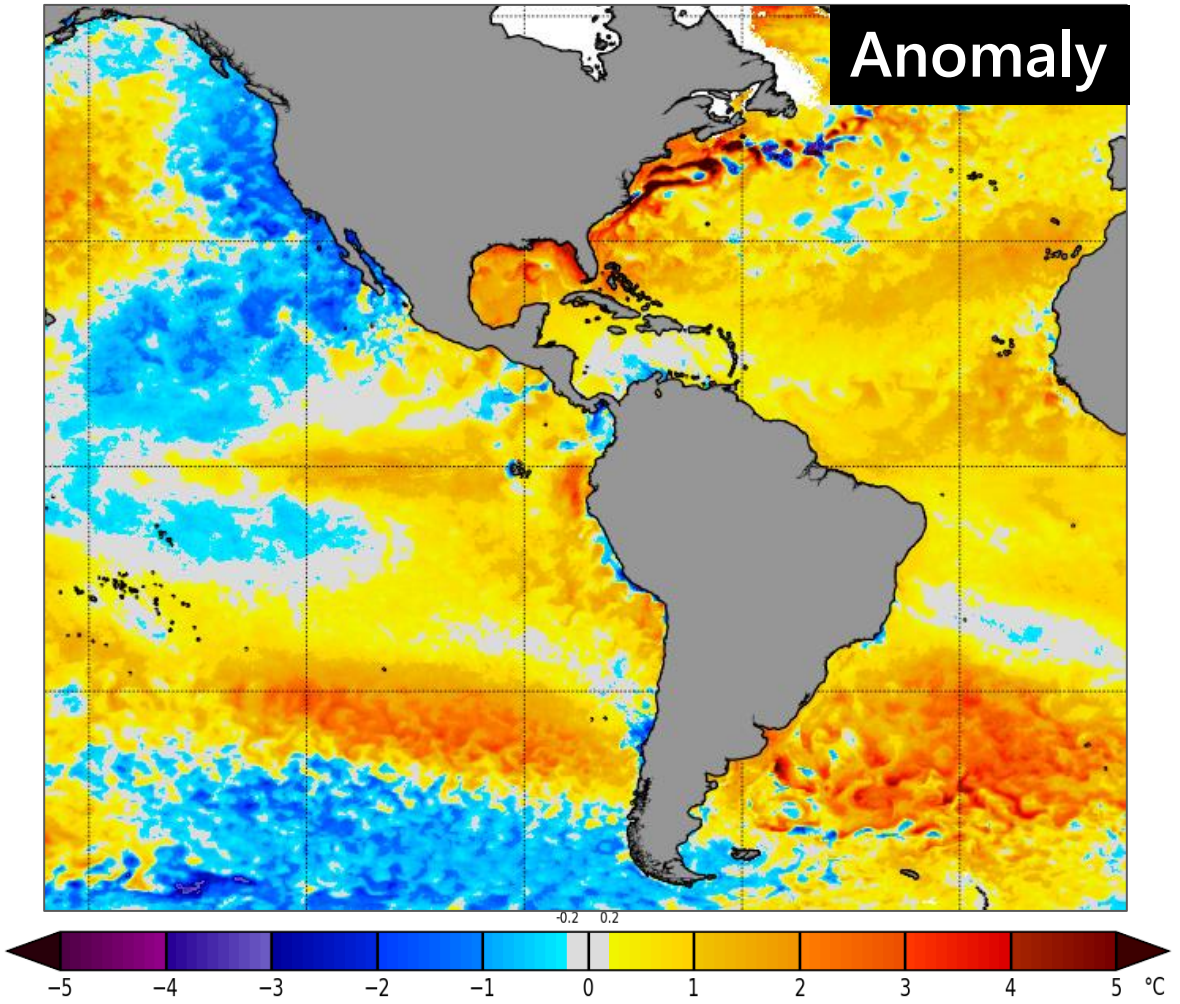
Sea Surface Temperature (SST)

06 March 2023



NOAA OSPO

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



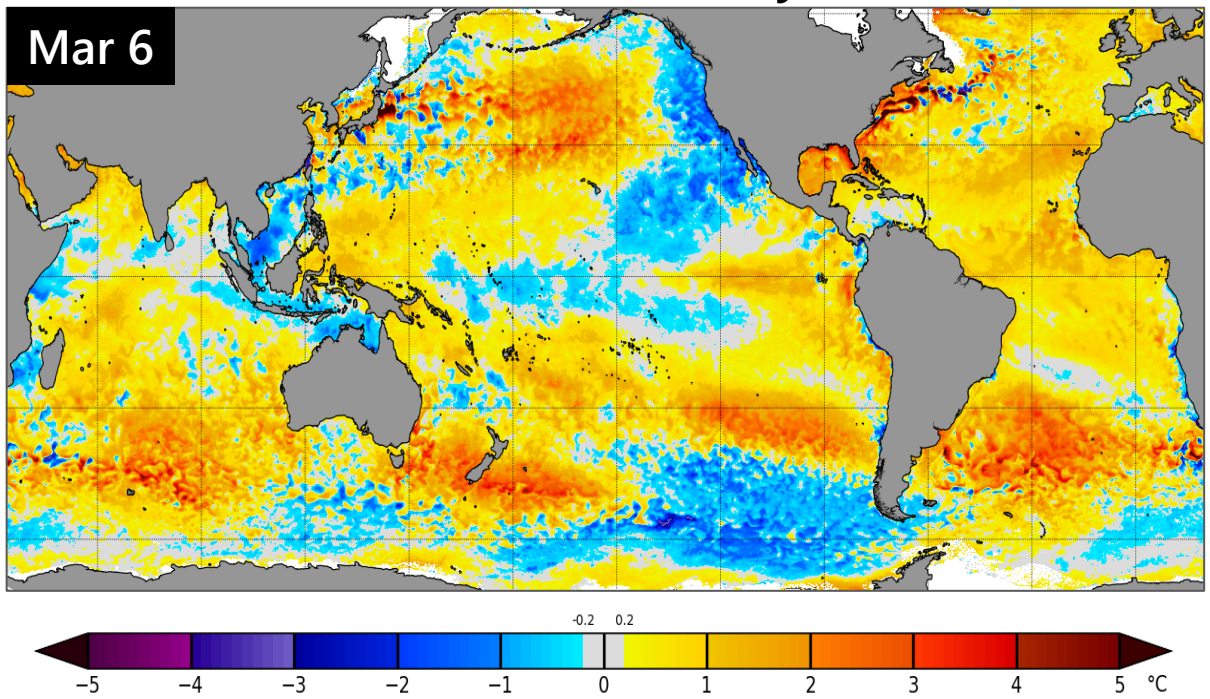
NOAA Coral Reef Watch

https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

Temperature Anomaly in Top Layer

DEEP ANOMALIES LAST LONGER, WHICH MAKES THEM USEFUL FOR SUBSEASONAL FORECASTING

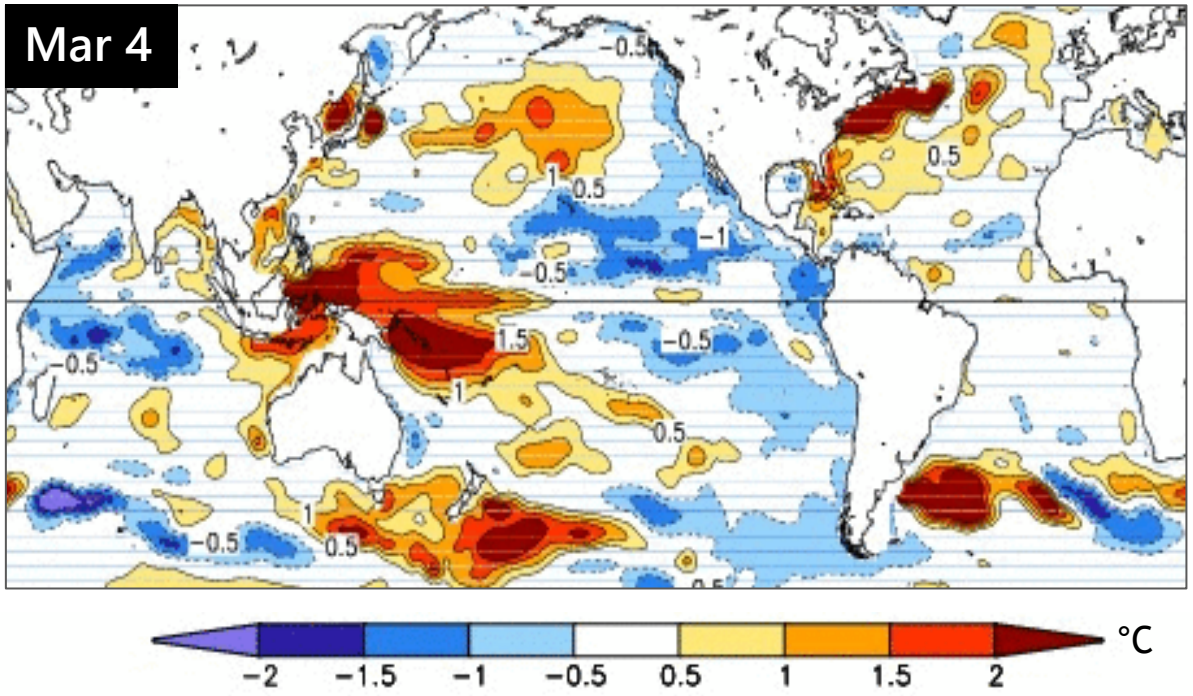
Surface Anomaly



NOAA Coral Reef Watch

https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

Top 300m-Layer Anomaly (GODAS)



NOAA CPC

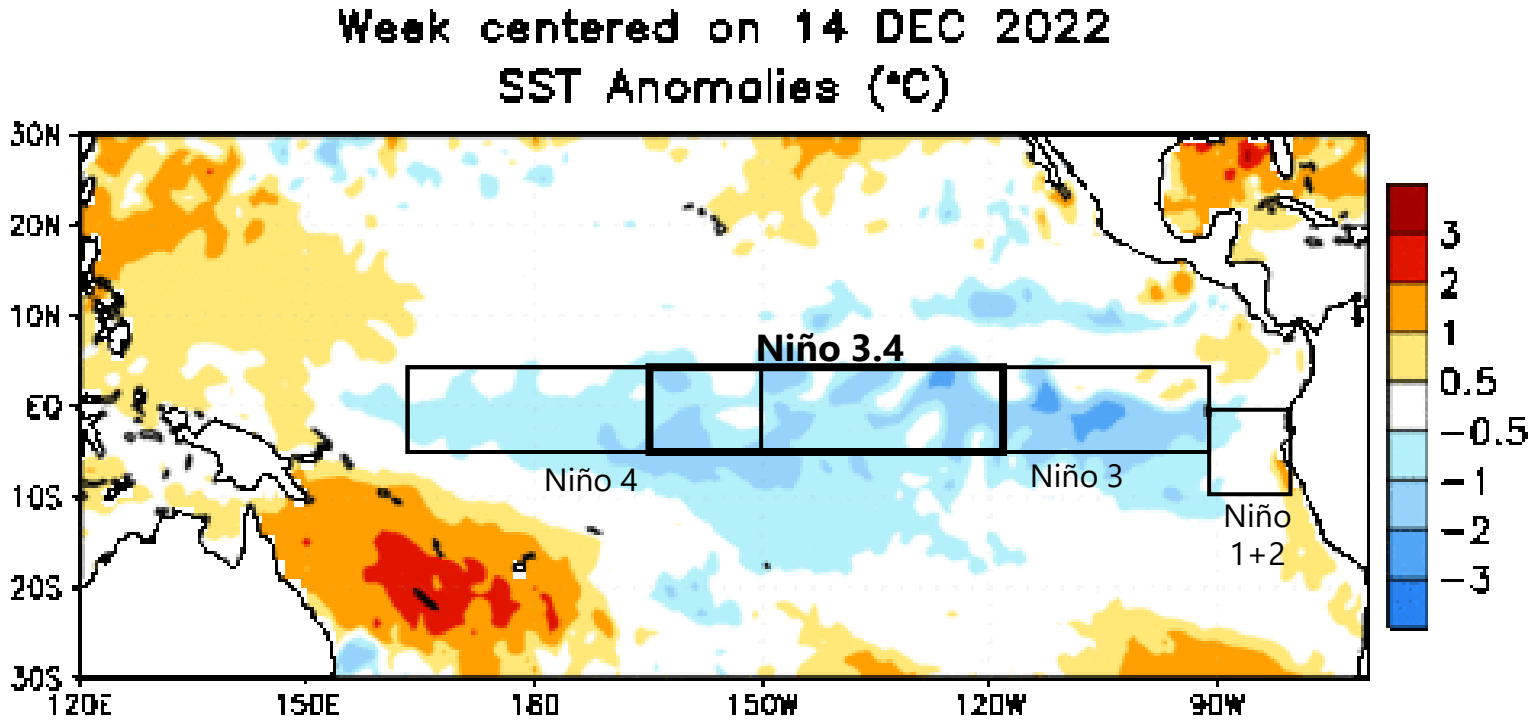
Source: CPC GODAS, https://www.cpc.ncep.noaa.gov/products/GODAS/

El Niño-Southern Oscillation (ENSO)

CPC Official Statement

Status: La Niña
(no changes since April '22)

- La Niña is present.*
- Equatorial SSTs are below average across most of the Pacific Ocean.
- The tropical Pacific atmosphere is consistent with La Niña.

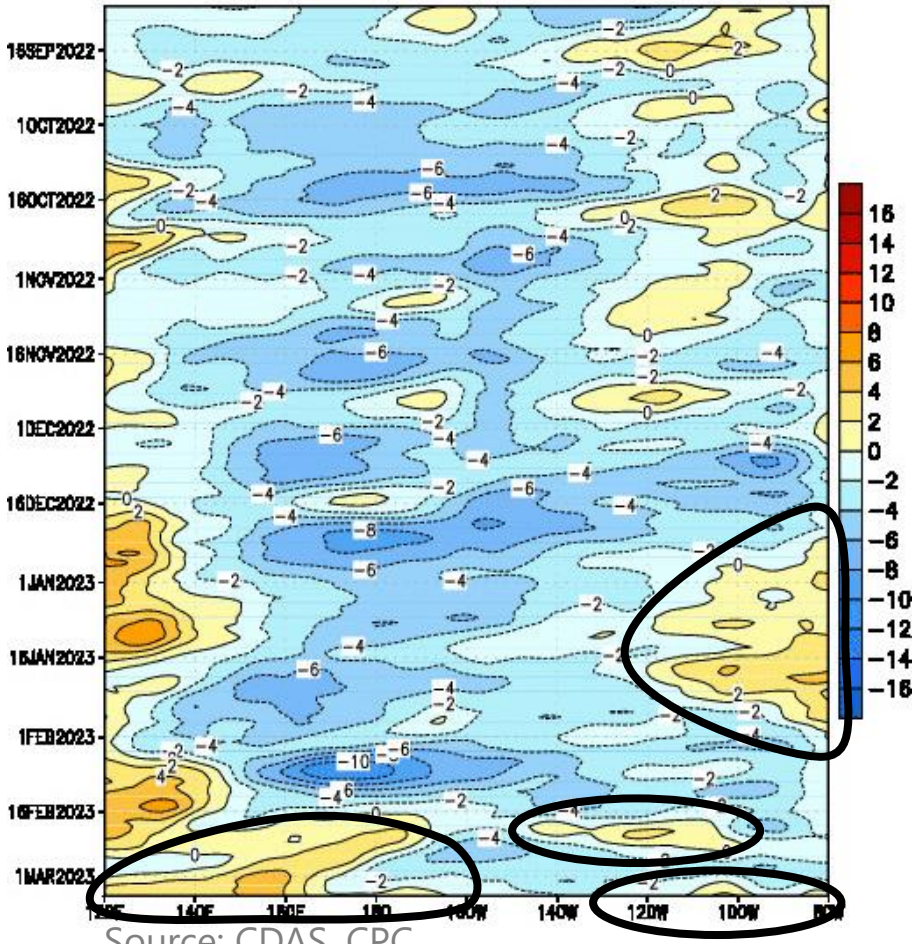


TAKEAWAYS

- The EPAC is warming but mostly superficially.
- The warming is producing impacts in South America.
- Local ENSO impacts often occur BEFORE oficial classification.

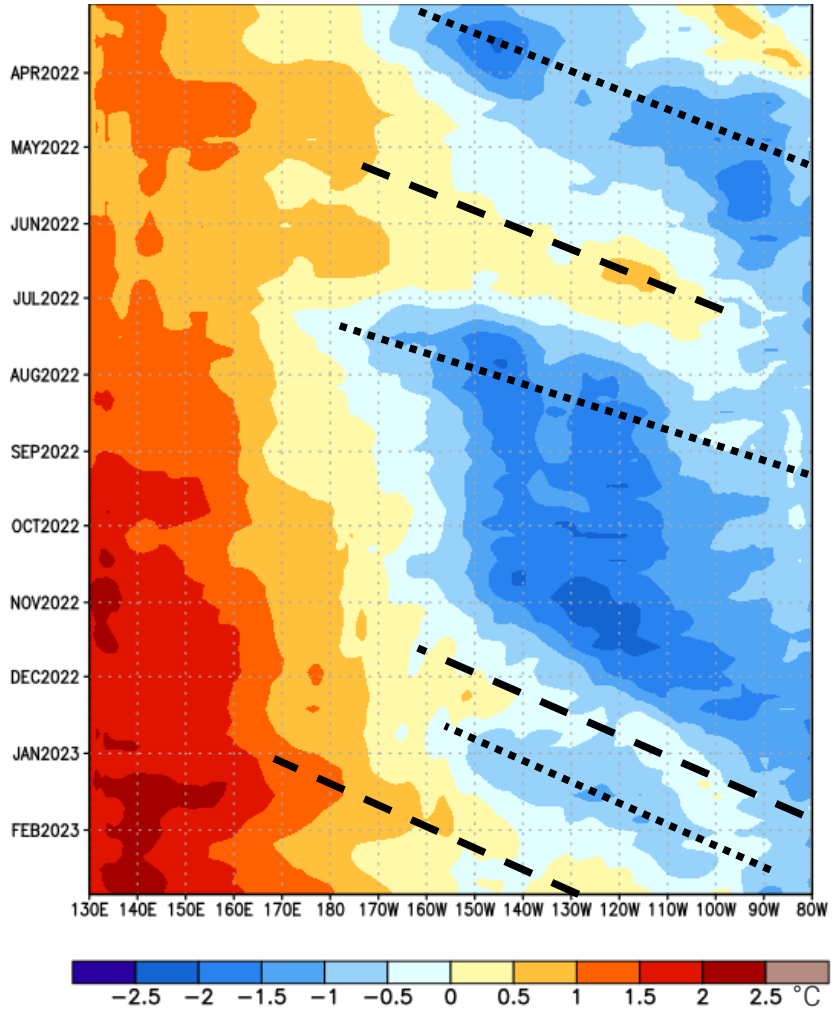
Hovmöller of Winds and Heat Content

850 hPa Zonal Wind Anomaly (5N-5S



Source: CDAS, CPC

Heat Content Anomaly Hovmöller

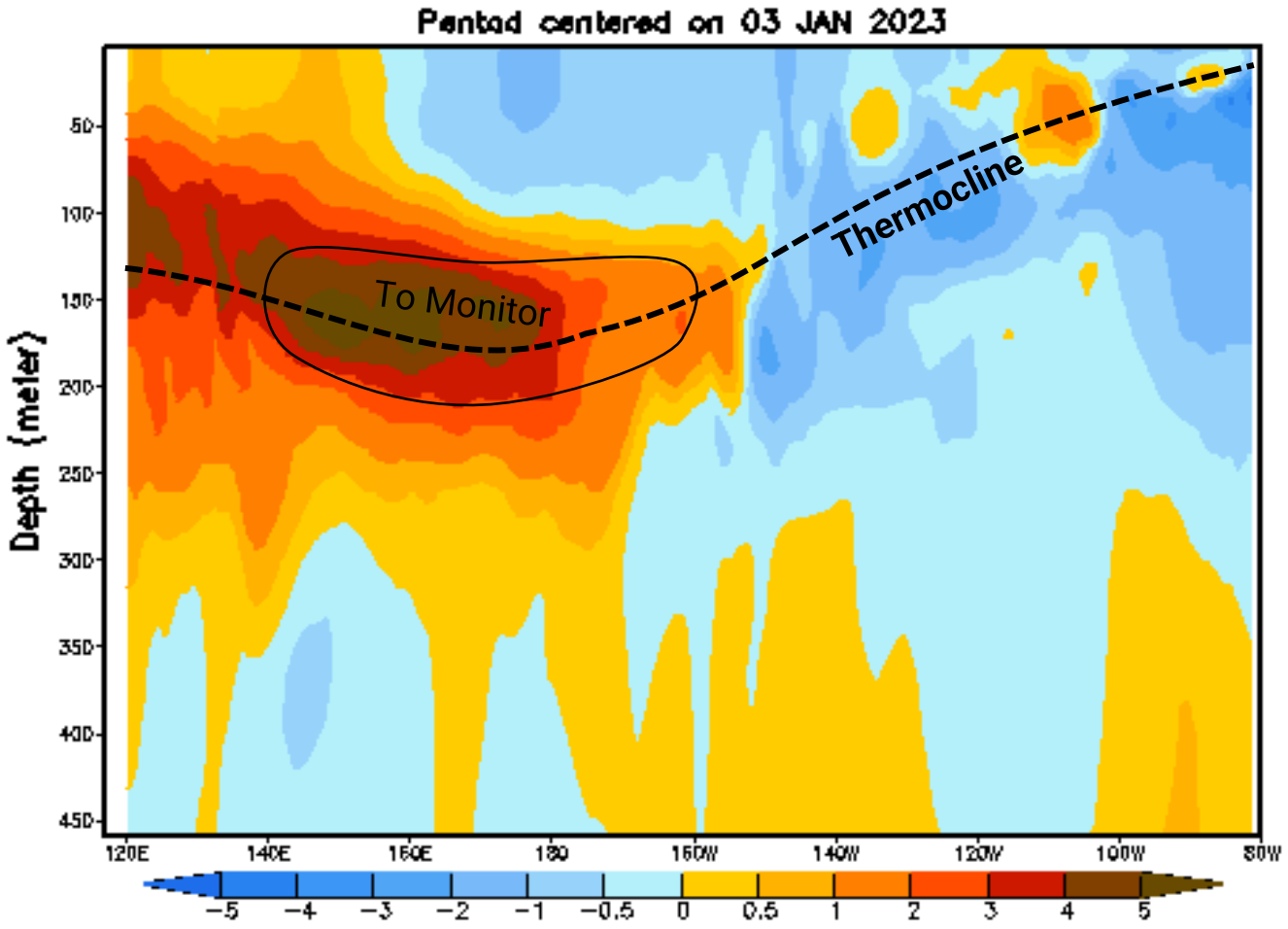


WHY DO WE MONITOR THIS?

- Zonal wind anomalies can trigger Oceanic Kelvin Waves that propagate into the South American coast.
- Westerlies (yellow) can trigger warm waves that can warm the SAM coast in coming weeks.

ENSO: Oceanic Kelvin Waves

Equatorial Pacific Temperature Anomaly Section



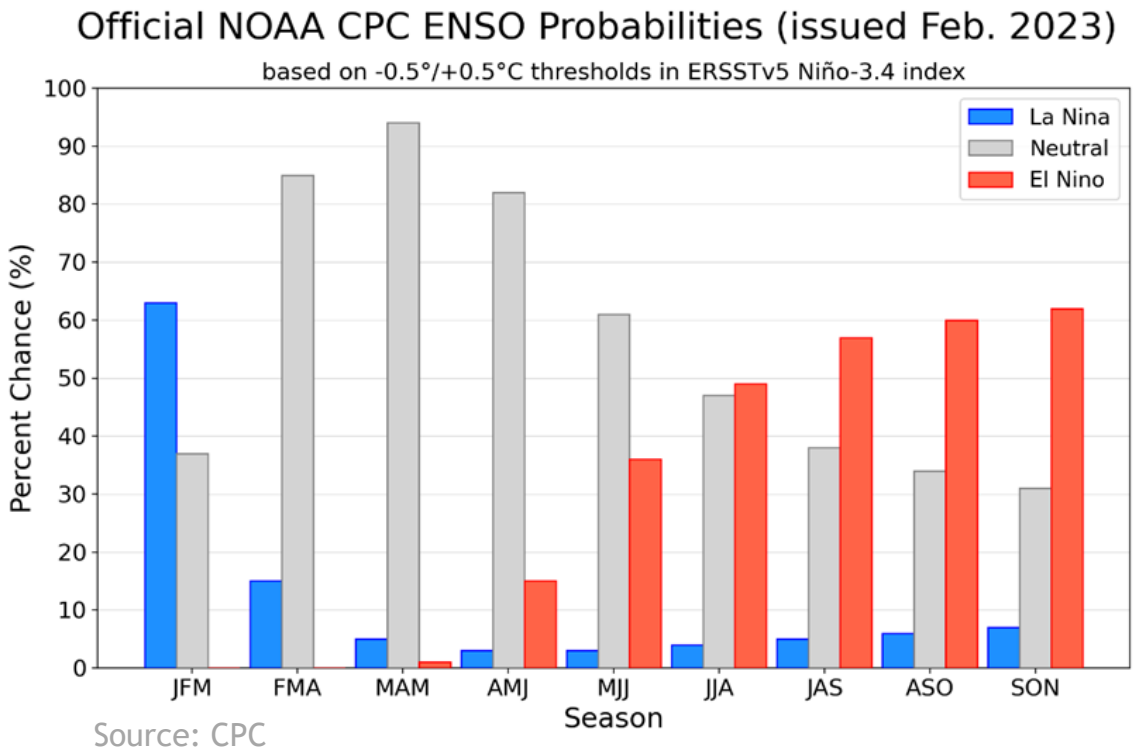
TAKEAWAYS

- An extensive area of warm anomalies continues in the western Pacific.
- Warm anomalies are developing in the EPAC thermocline likely from westerly wind bursts. Watching out the current MJO-related westerlies.
- A cool Kelvin Wave appears to be arriving into South America, likely to provide some relief to the current warming in the next few weeks.

ENSO Outlook

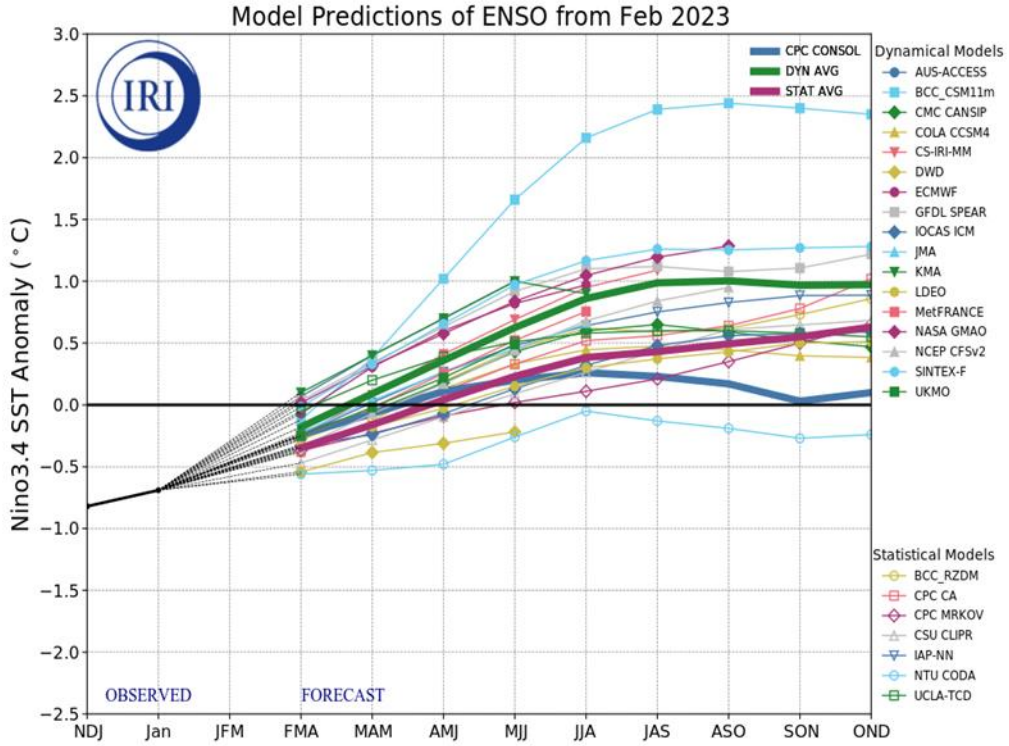
ENSO-neutral conditions are expected to begin within the next couple of months, and persist through the Northern Hemisphere spring and early summer.*

CPC Probabilistic Forecast



Source: CPC

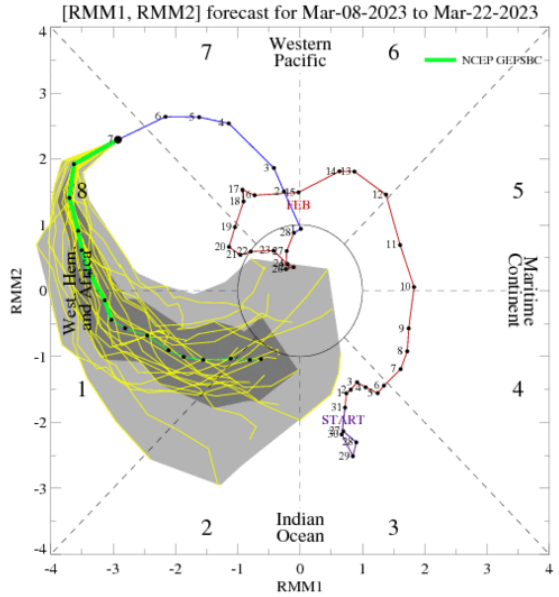
IRI/CPC Dynamic Models



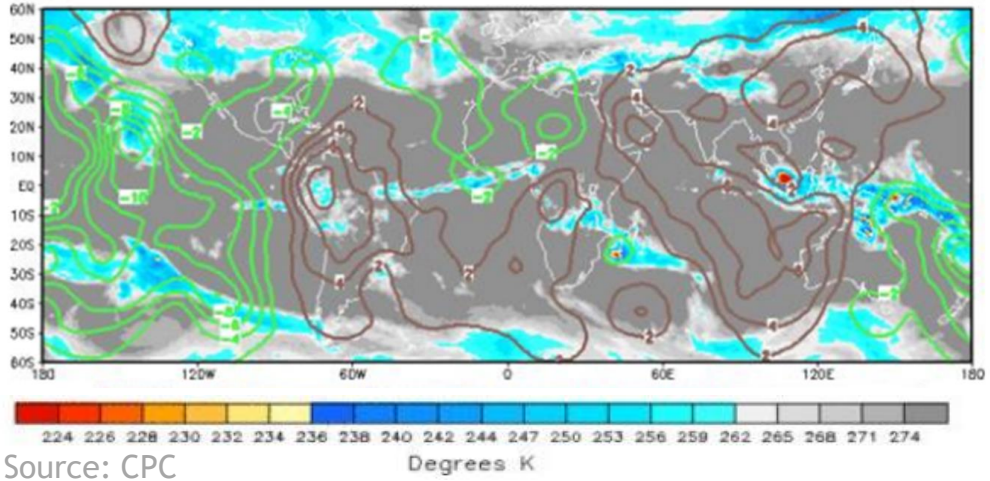
Madden-Julian Oscillation (MJO)

Current Observations:

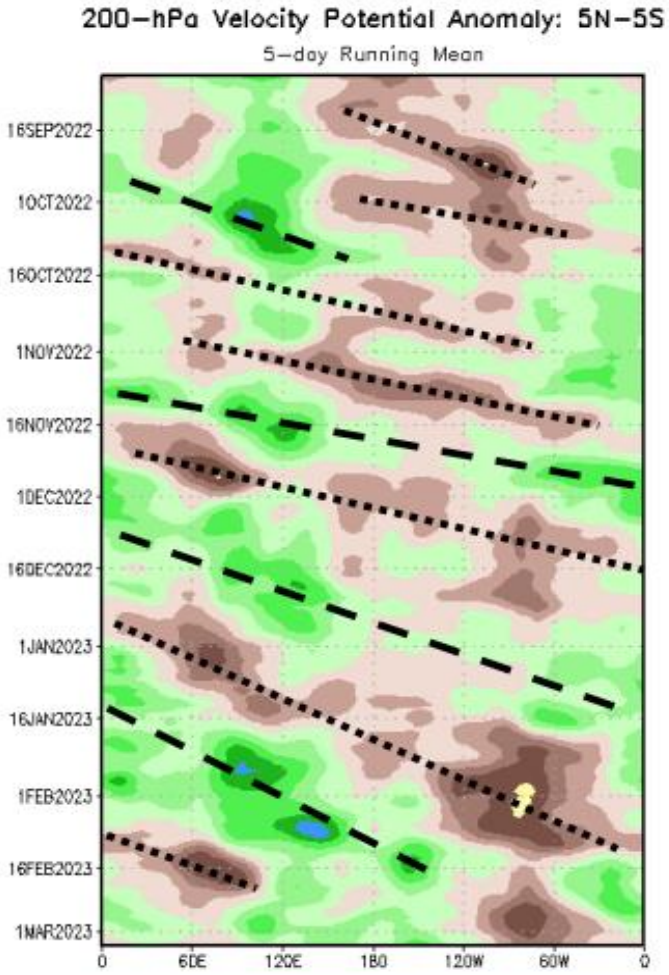
- Wave-1 Pattern continues, after a reorganization period during the second week of February.
- Speed: Average (slightly over 1 Month to traverse the globe).
- Strong wet phase entering the Americas from the EPAC.



Velocity Potential (contours) and Brightness Temperature (shaded) – March 05



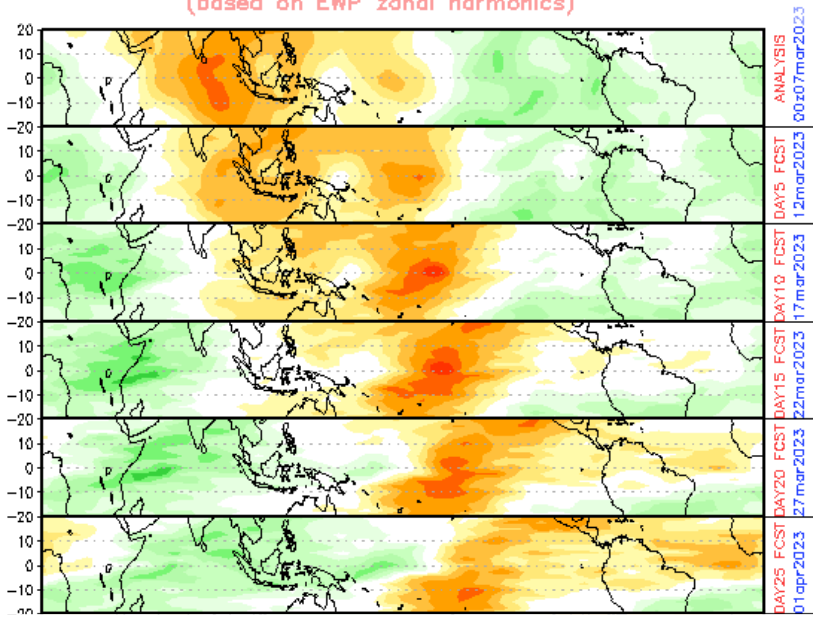
Source: CPC



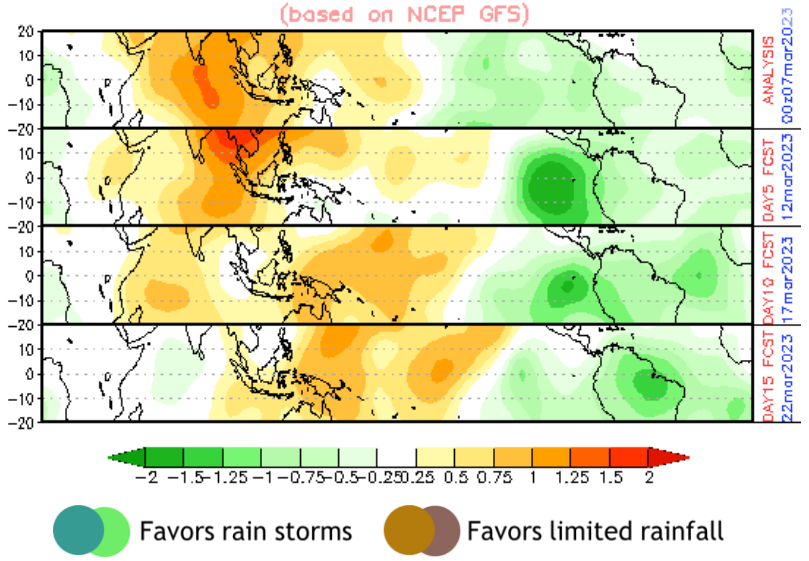
Favors rain storms Favors limited rainfall

MJO Forecasts

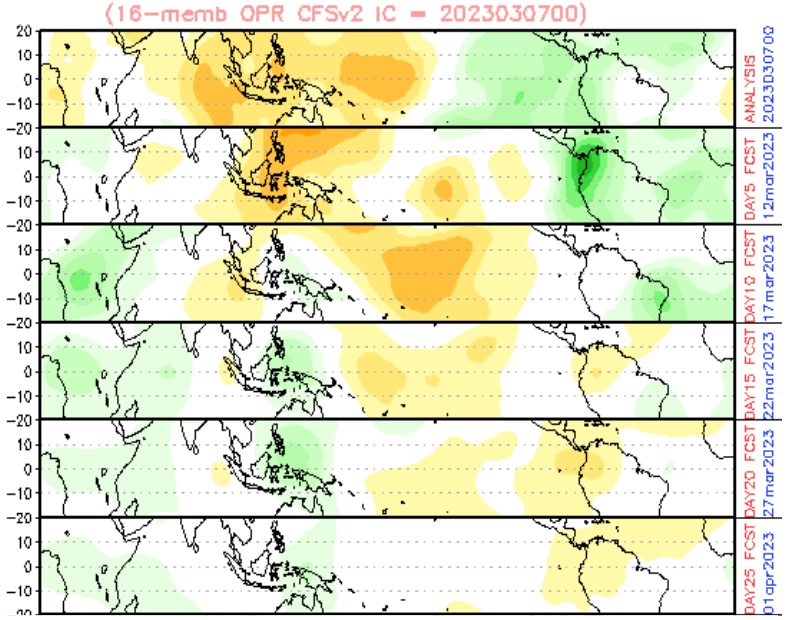
Empirical Wave Propagation (EWP)



Global Forecast System (GFS)



Climate forecast System (CFS)



Source: CPC

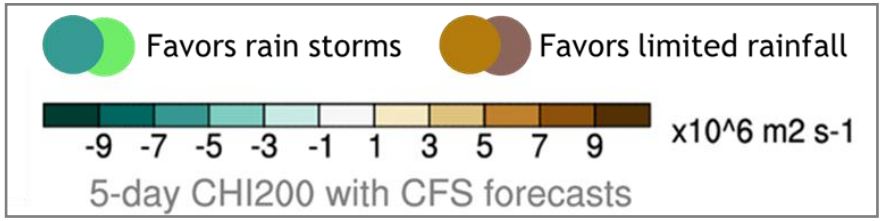
TAKEAWAYS

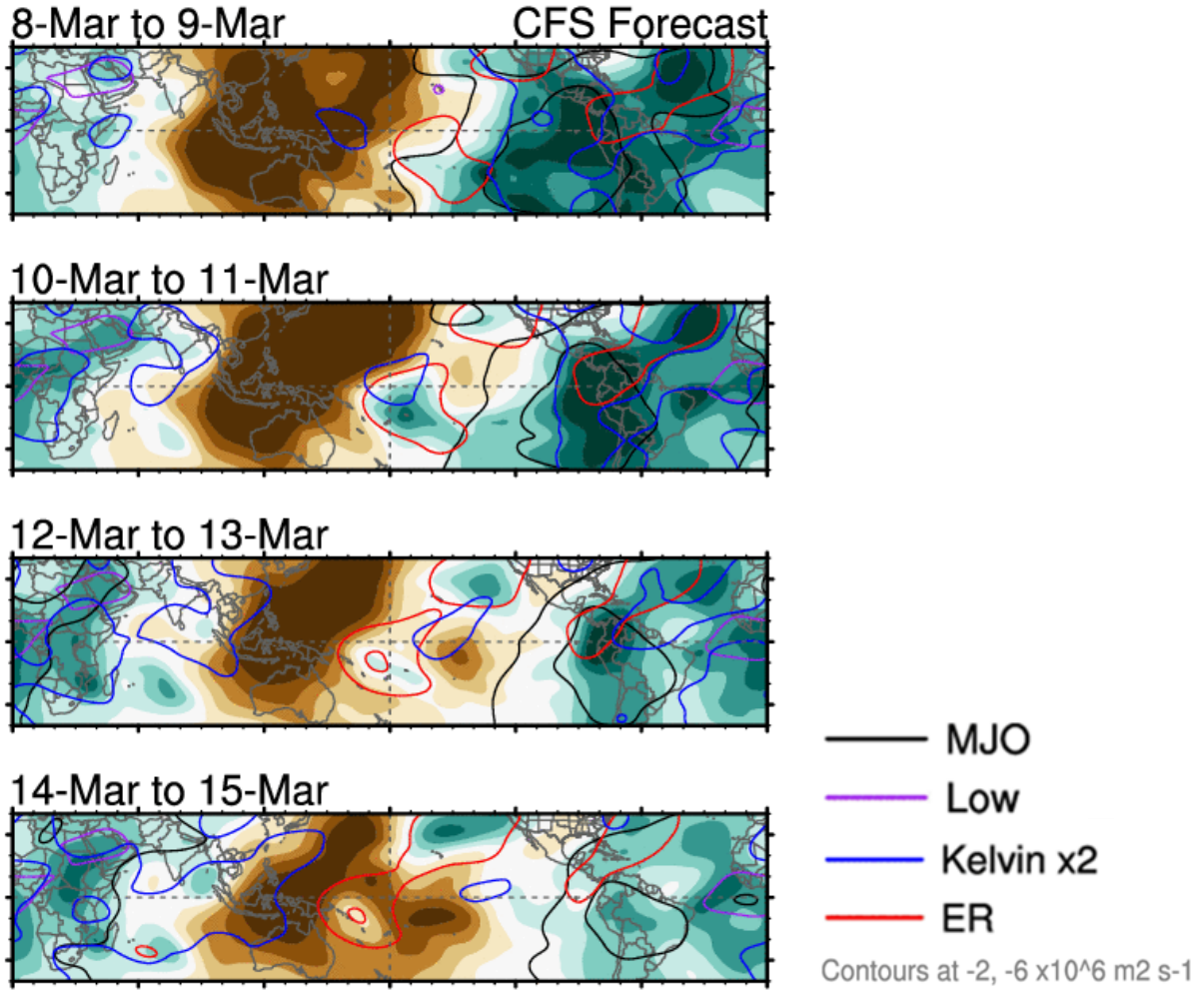
- **<u>VERY WET through March 17/18!</u>** Wettest trough March 12. Of most concern: NW South America.
- Last 2 weeks of March look drier.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

- Very wet (strong upper divergence) through early next week (MJO).
- Kelvin crossing Thursday-Saturday.
- Heavy rain in NW South America/Amazon will also depend on the placing of rain-producing synoptic systems. [MJO and Kelvin waves only provide a large-scale background environment]

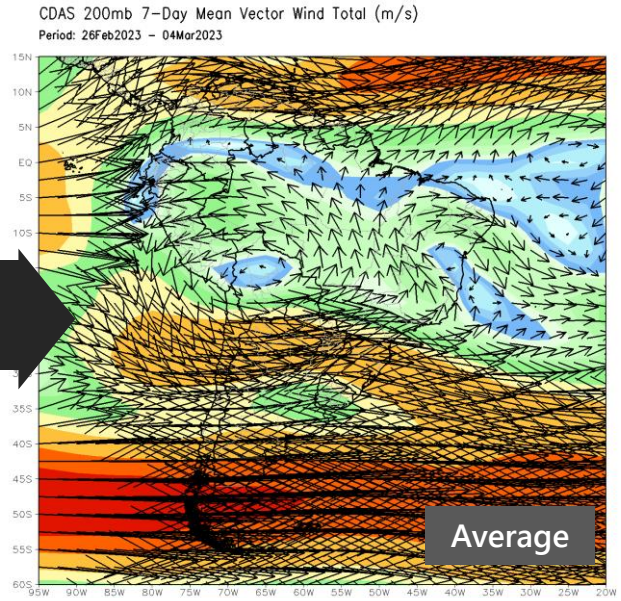


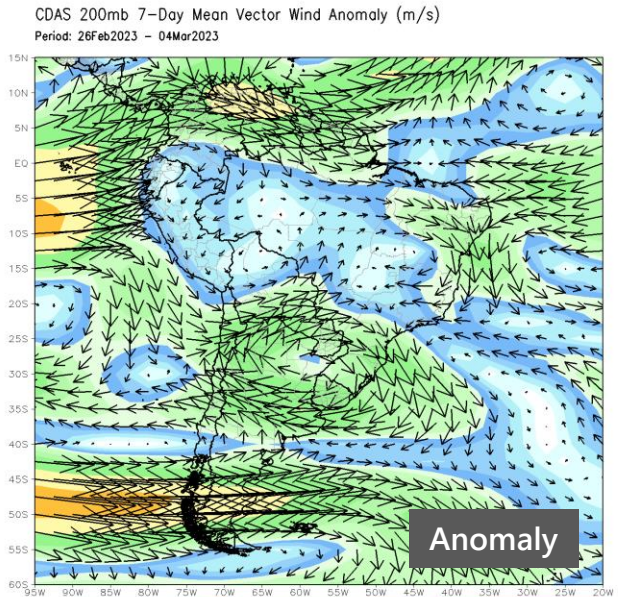


Source: NCICS

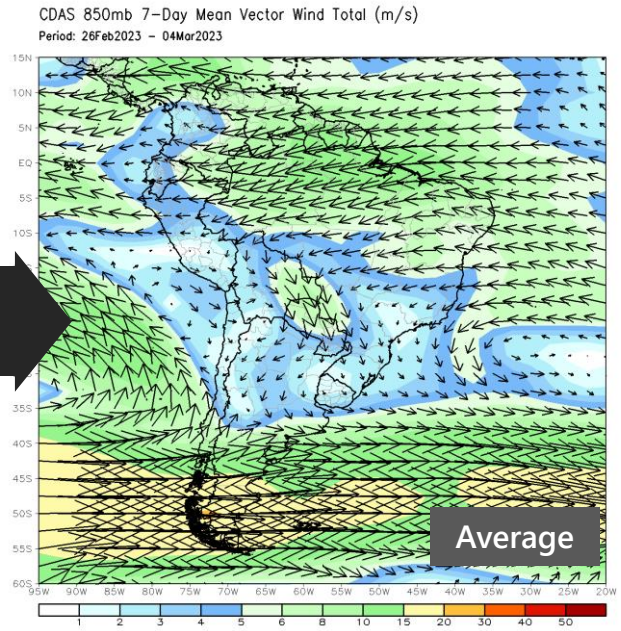
South America, Last 7 Days

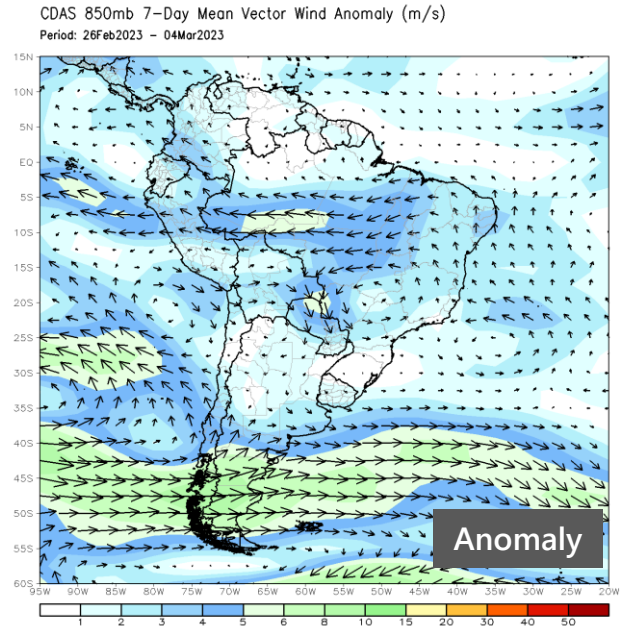
200 hPa Flow

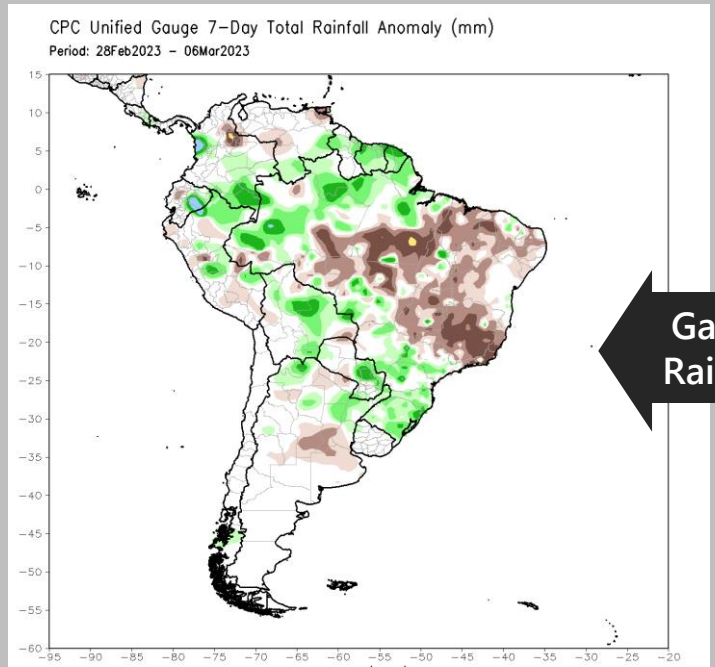




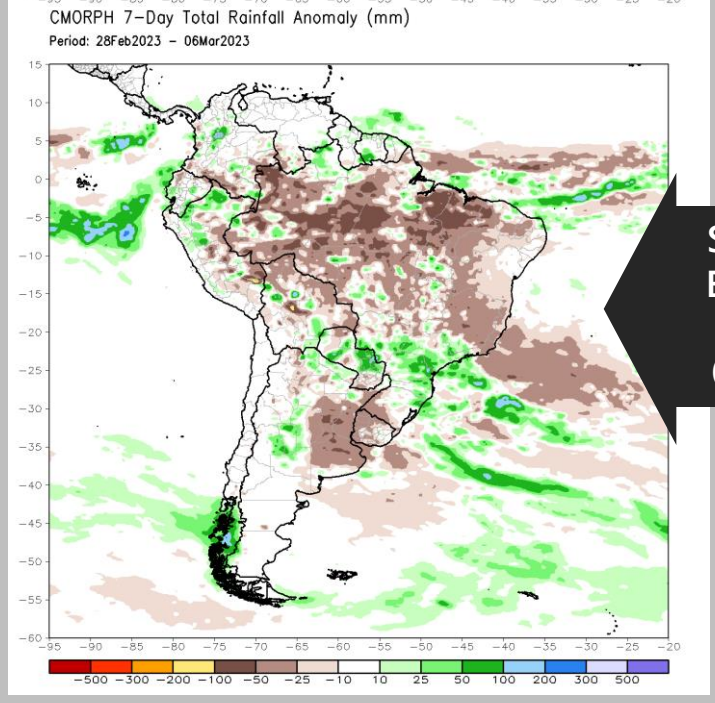
850 hPa Flow







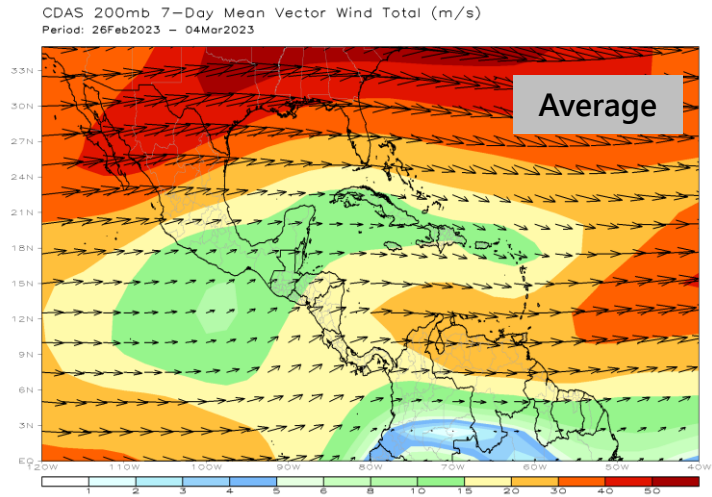
Gauge Rainfall

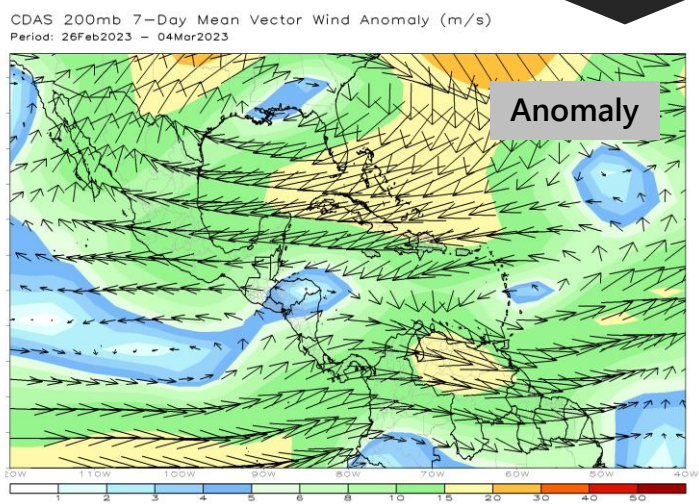


Satellite – Estimated Rainfall (CMORPH)

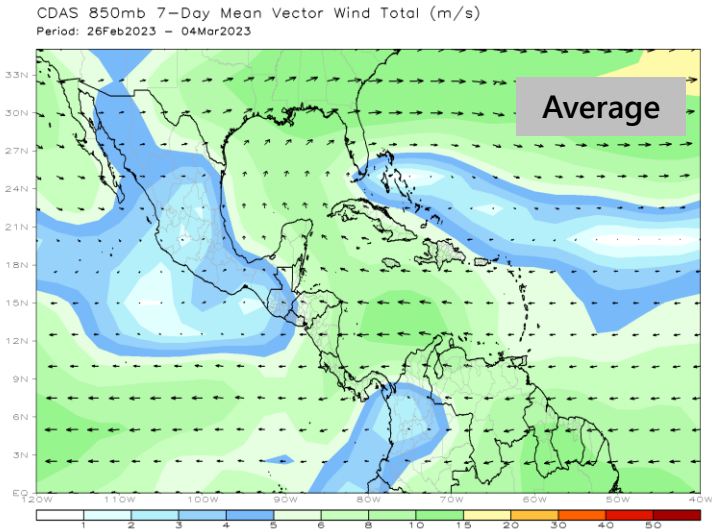
Caribbean/Central America, Last 7 Days

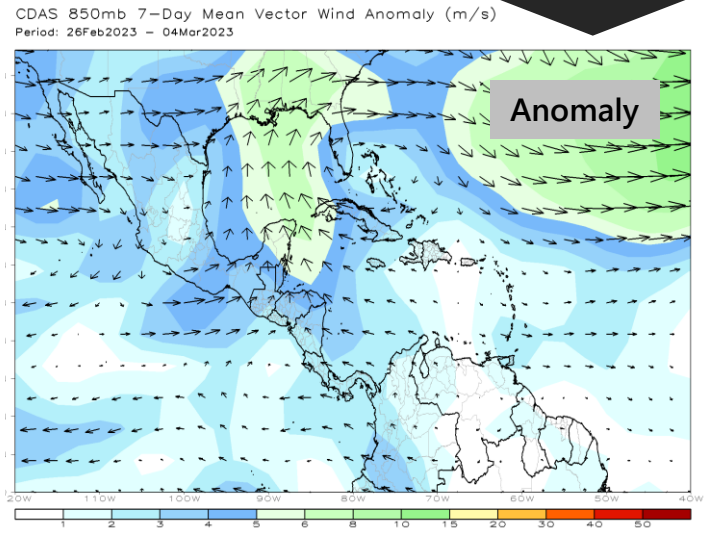
200 hPa Flow



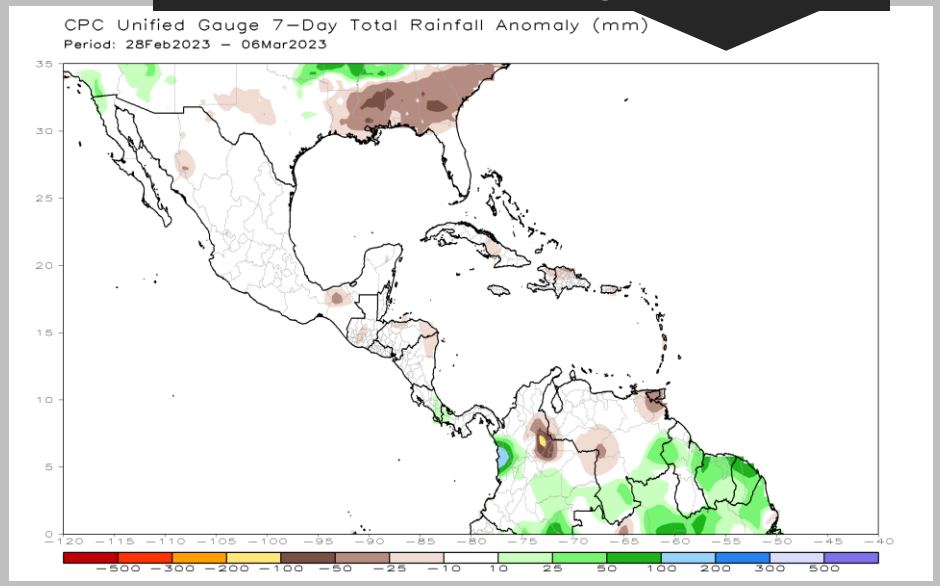


850 hPa Flow

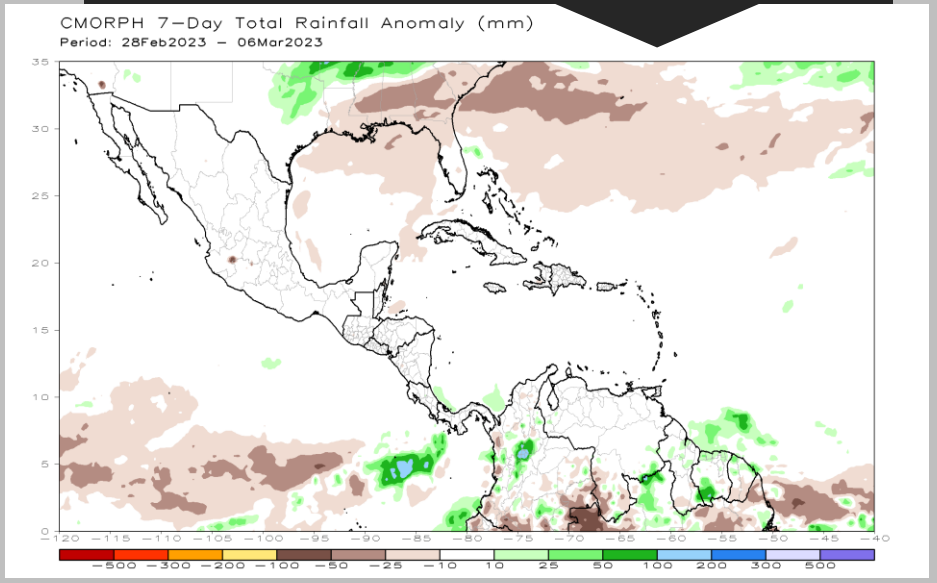




Rainfall from Gauges (CPC)



Satellite – Estimated Rainfall (CMORPH)



¡Gracias! Thank you! ¡Obrigado!

Next Session: April, date and time still to be discussed

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