Monthly WMO Regional Focus Group Session

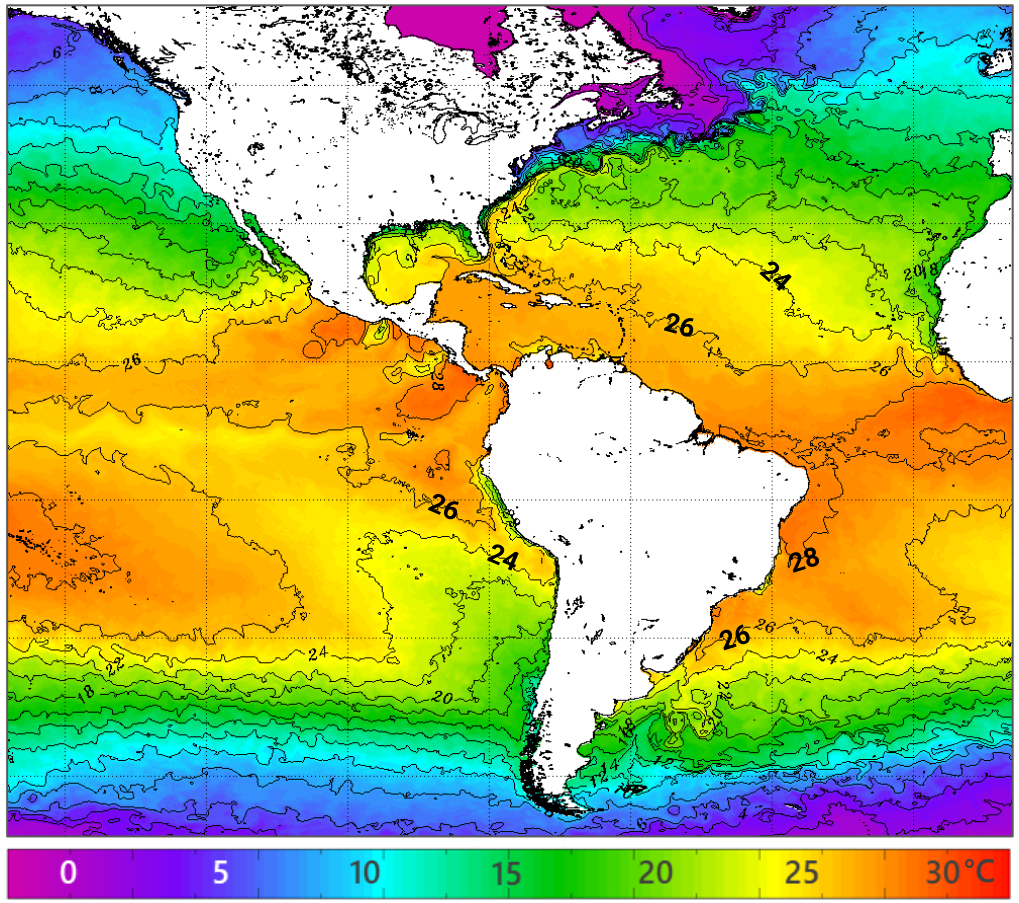
Climate Indices Presentation

Wednesday 8 February 2023 at 15 UTC

Sea Surface Temperature (SST)

06 February

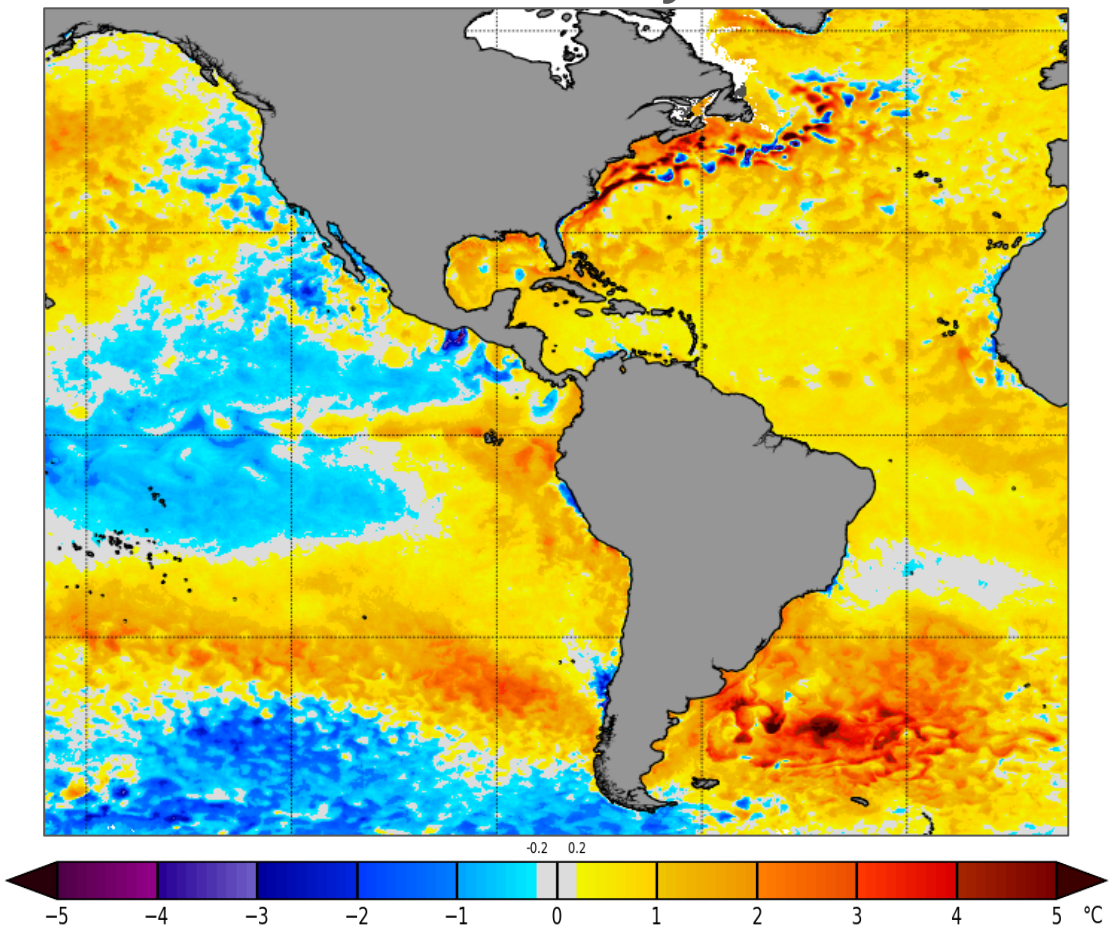
SST



NOAA OSPO

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

Anomaly



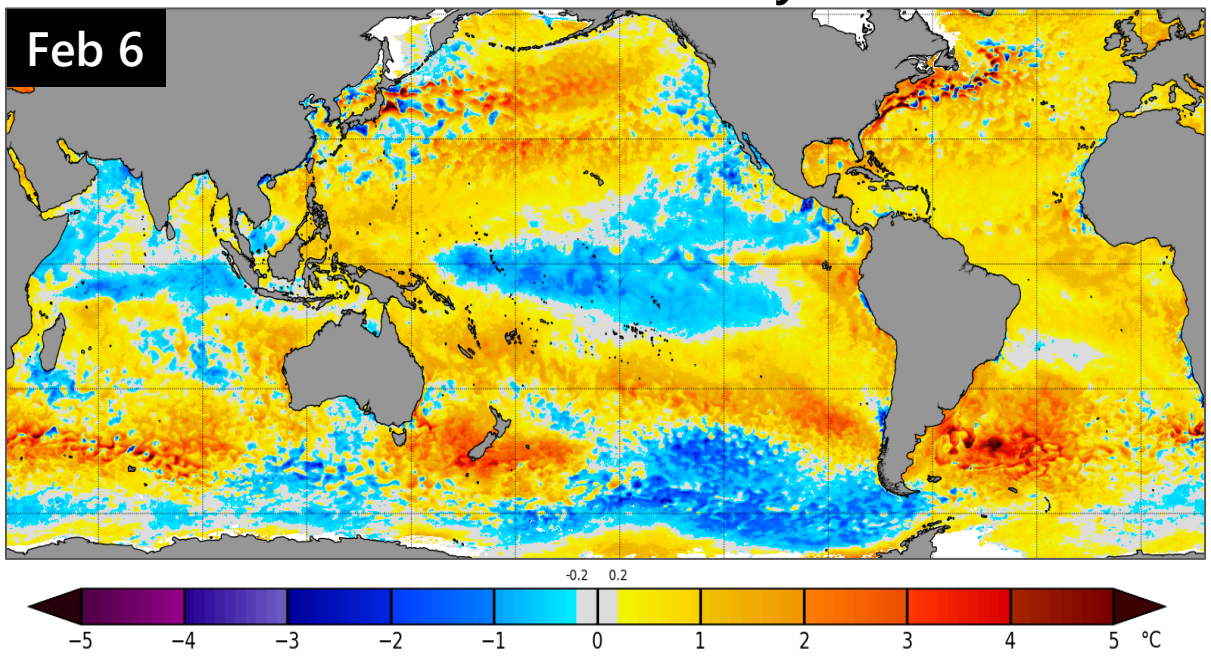
NOAA Coral Reef Watch

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

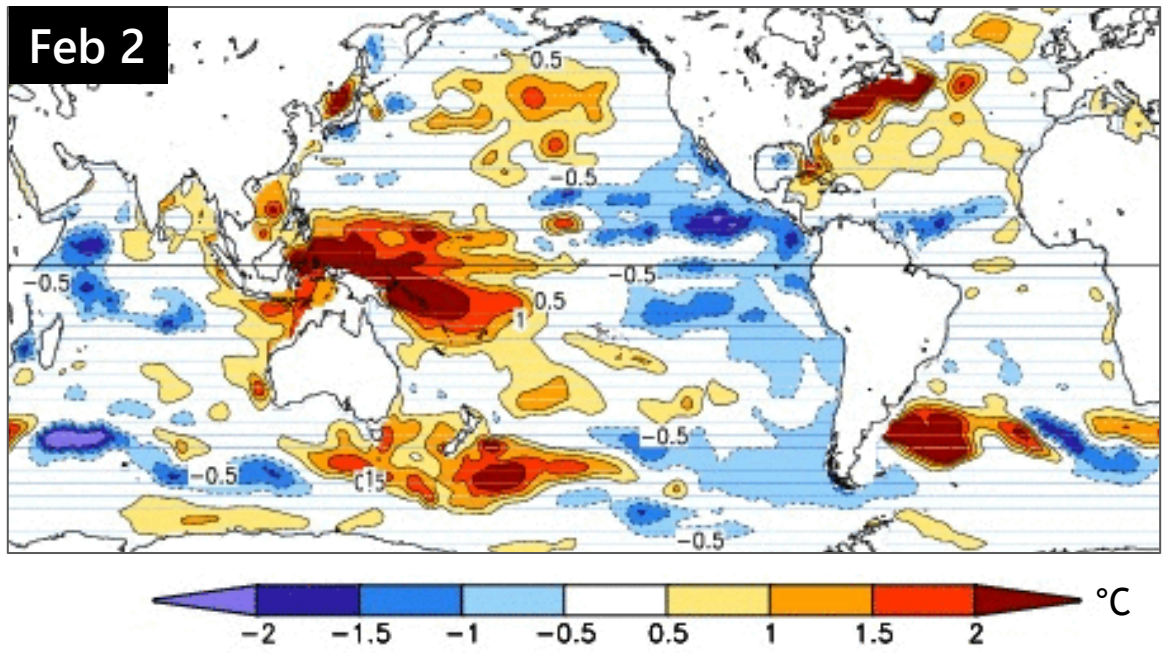
Surface Anomaly



NOAA Coral Reef Watch

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

Top 300m-Layer Anomaly (GODAS)



NOAA CPC

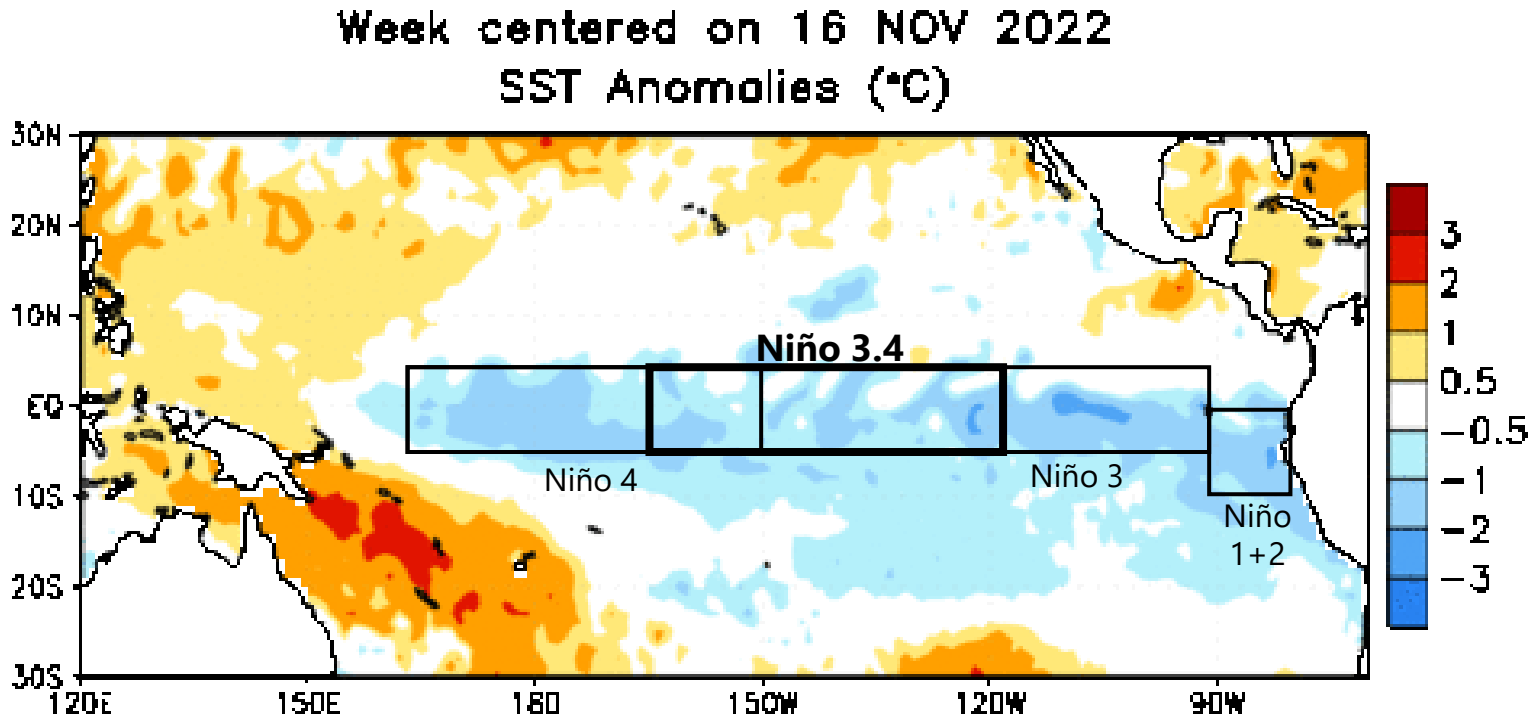
Source: CPC GODAS, https://www.cpc.ncep.noaa.gov/products/GODAS/

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.

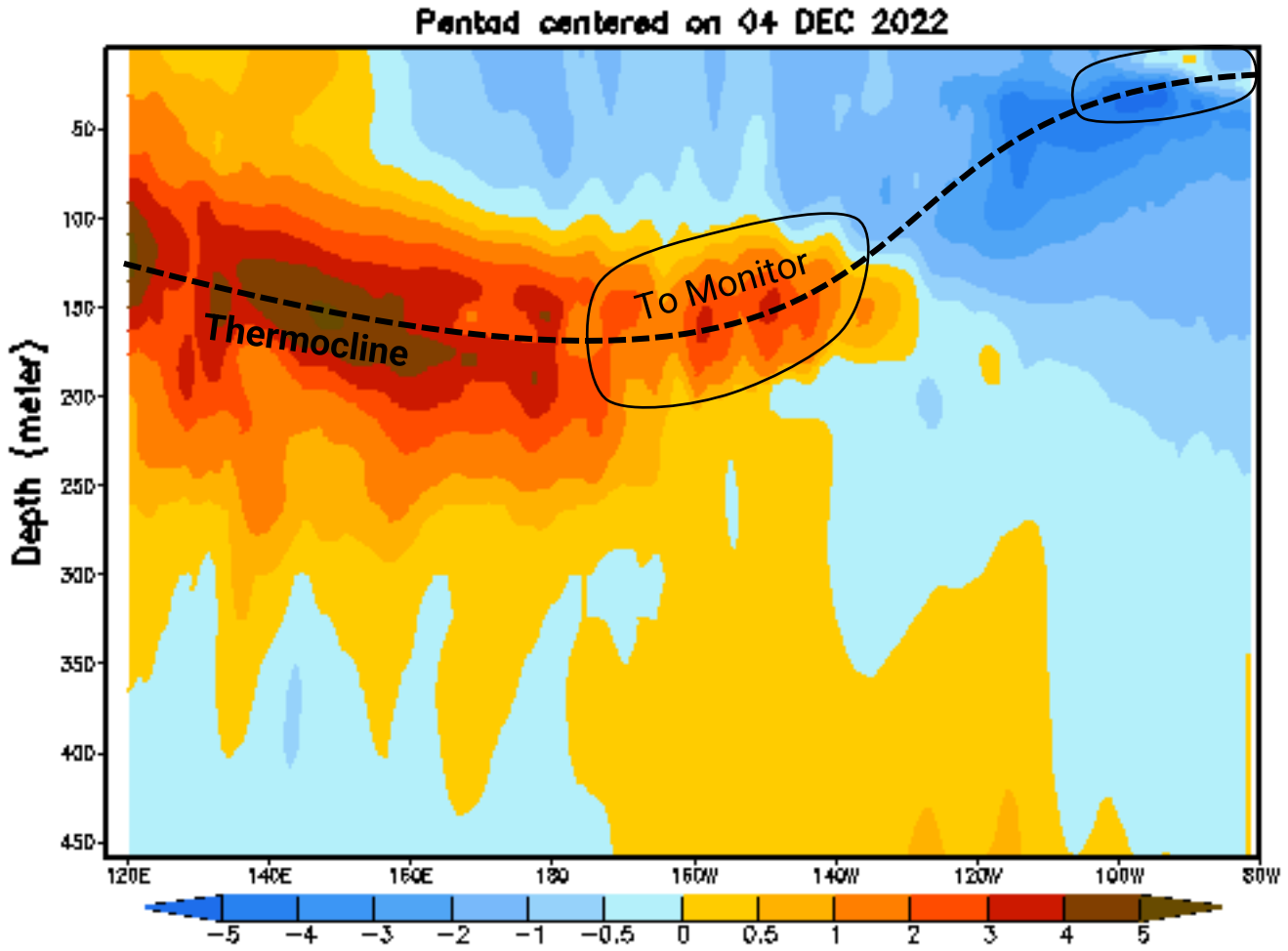


TAKEAWAYS

- The EPAC is warming rapidly, but mostly superficially.
- The warming is starting to produce impacts in South America.
- Local ENSO impacts often occur BEFORE oficial classification.

ENSO: Oceanic Kelvin Waves

Equatorial Pacific Temperature Anomaly

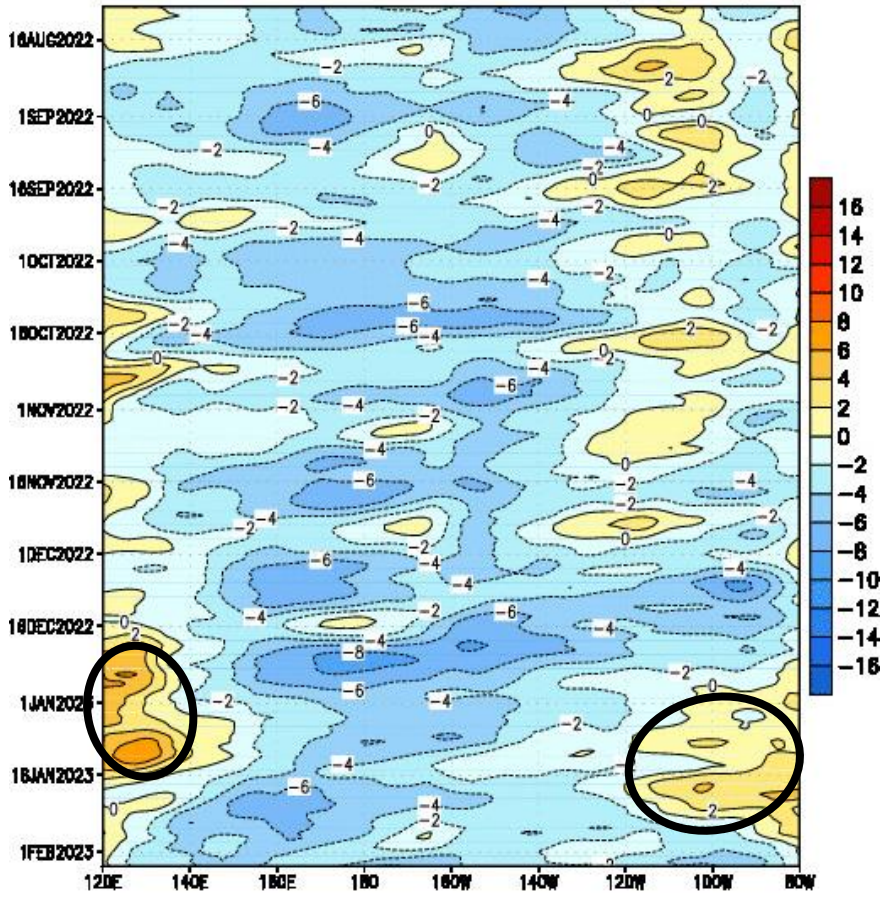


TAKEAWAYS

- An extensive area of important warm sub-superficial anomalies continues in the western Pacific.
- Warmer EPAC: Arriving warm Kelvin and surface wind anomalies.
- A cool Kelvin Wave appears to be propagating along 110W, trailed by a warm one near 160W.

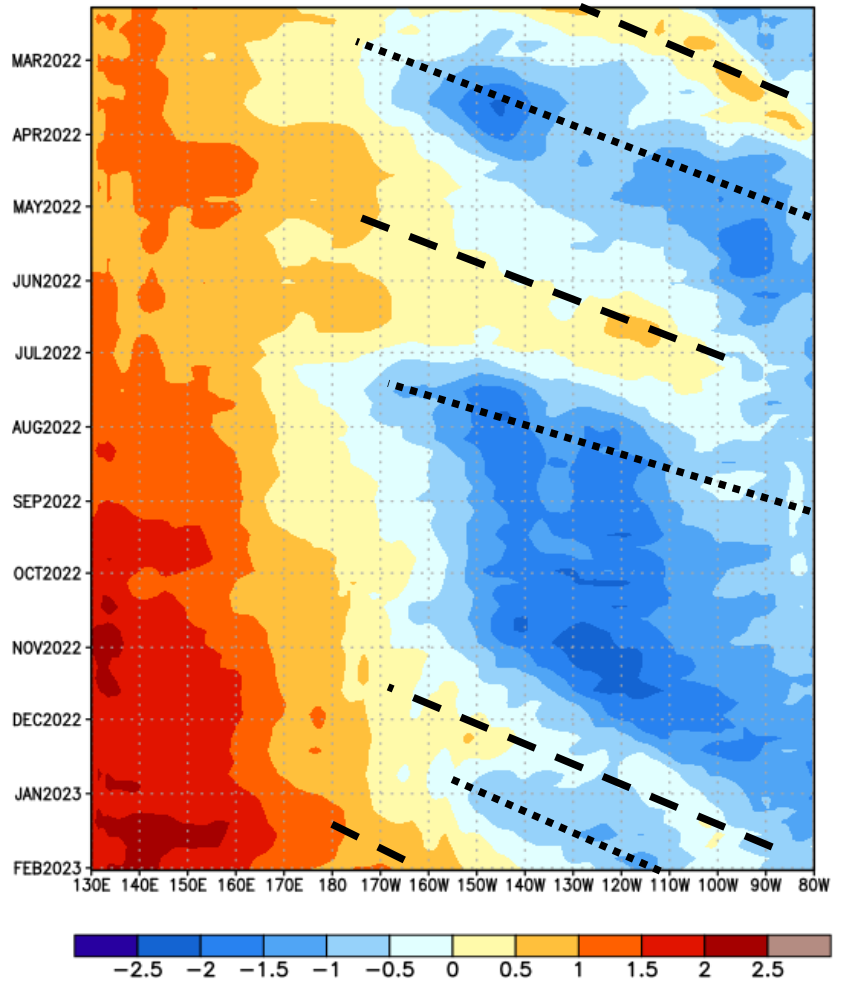
Hovmöller of Winds and Heat Content

850 hPa Zonal Wind Anomaly (5N-5S



Source: CDAS, CPC

Heat Content Anomaly Hovmöller



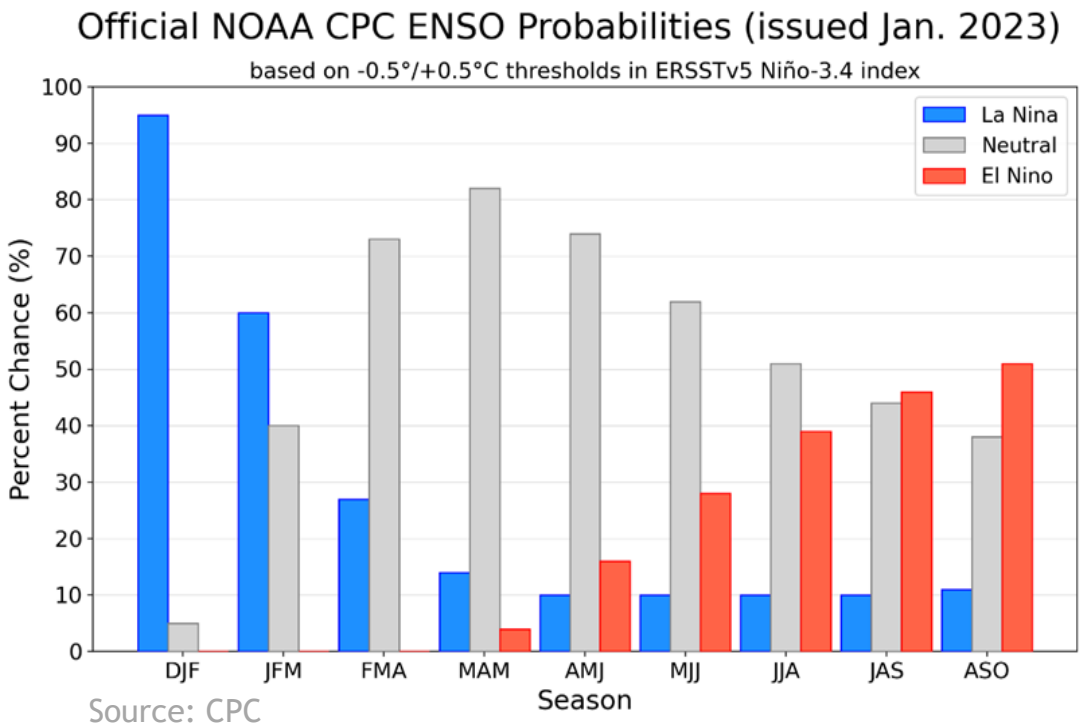
WHY DO WE MONITOR THIS?

- Zonal wind anomalies can trigger Oceanic Kelvin Waves that propagate into the South American coast.
- Westerlies can trigger warm waves, easterlies cool waves.

ENSO Outlook

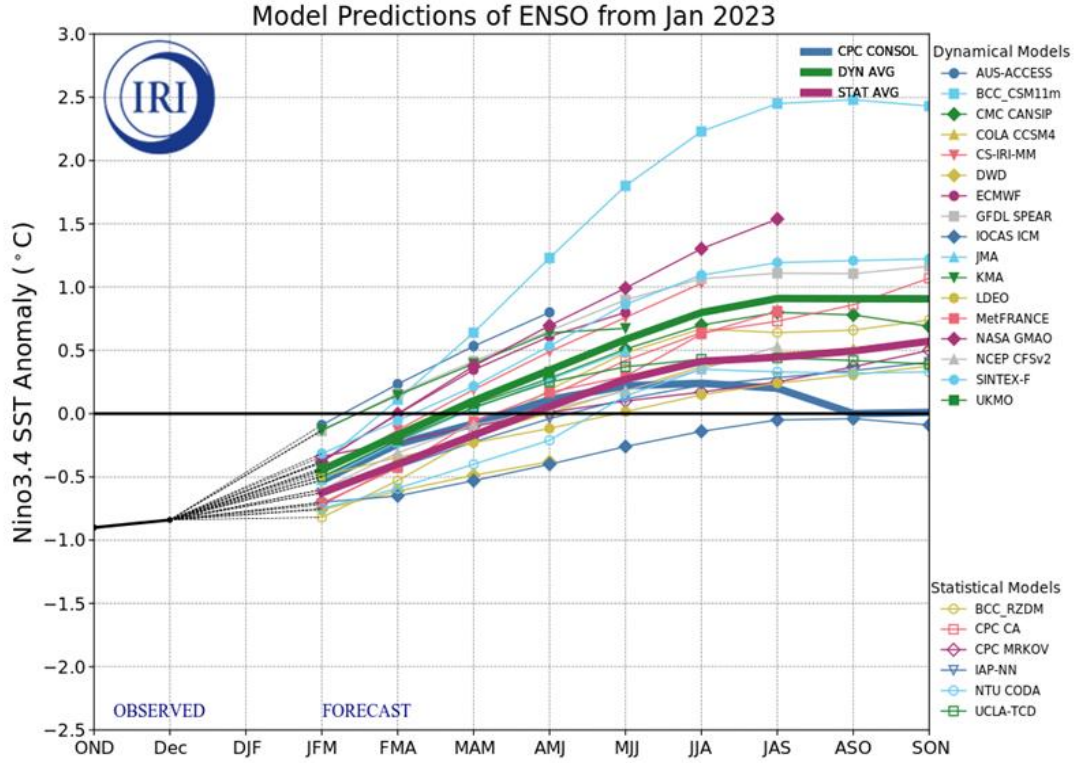
A transition from La Niña to ENSO-neutral is anticipated during the February-April 2023 season. By Northern Hemisphere spring (March-May 2023), the chance for ENSO-neutral is 82%.*

CPC Probabilistic Forecast



Source: CPC

IRI/CPC Dynamic Models

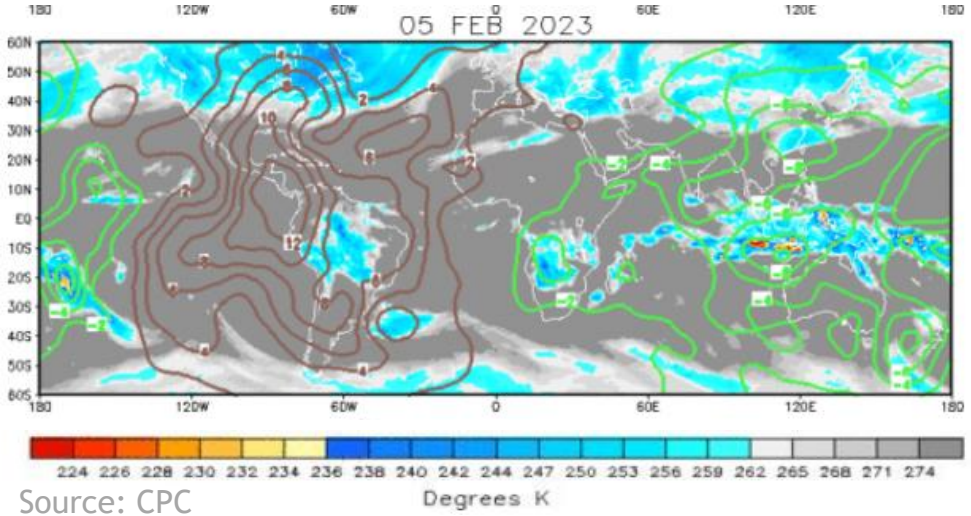


Madden-Julian Oscillation (MJO)

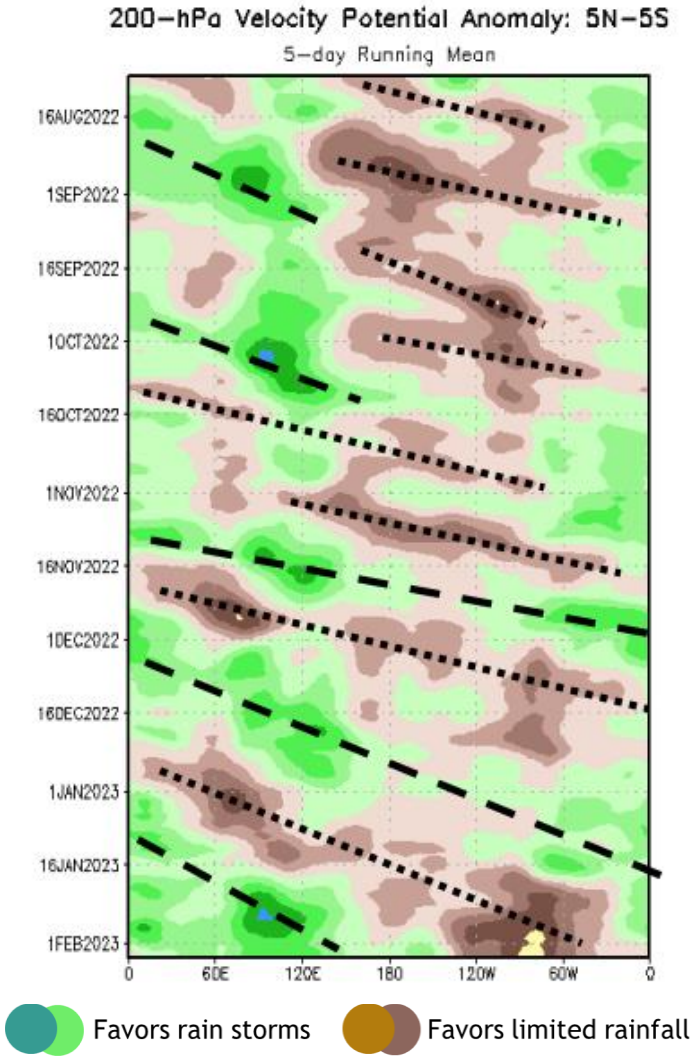
Current Observations:

- Wave-1 Pattern and coherent propagation continue. Upper convergent phase (brown) over the Americas now.
- Speed: Slower than average (1.5 Months to traverse the globe)
- Strong MJO suggests La Niña is fading.

Velocity Potential (contours) and Brightness Temperature (shaded)

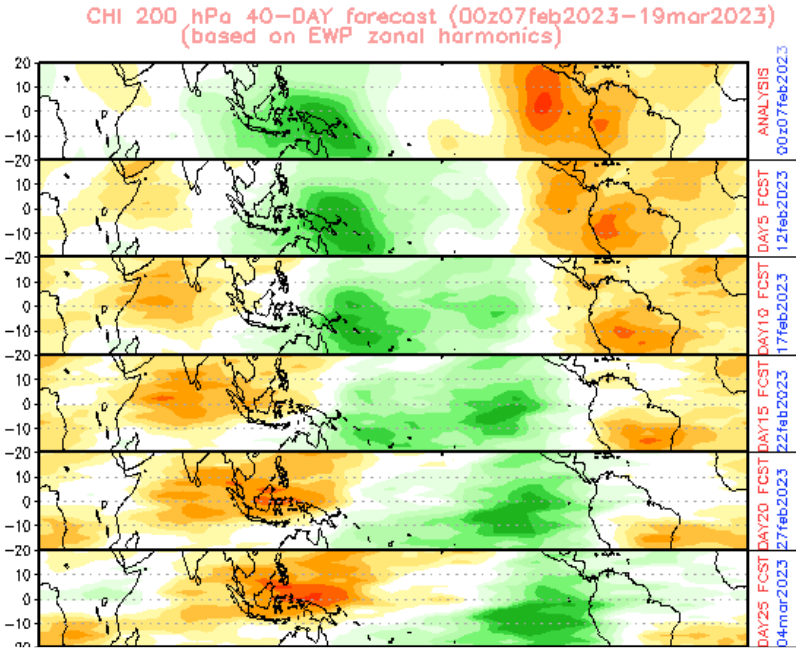


Source: CPC

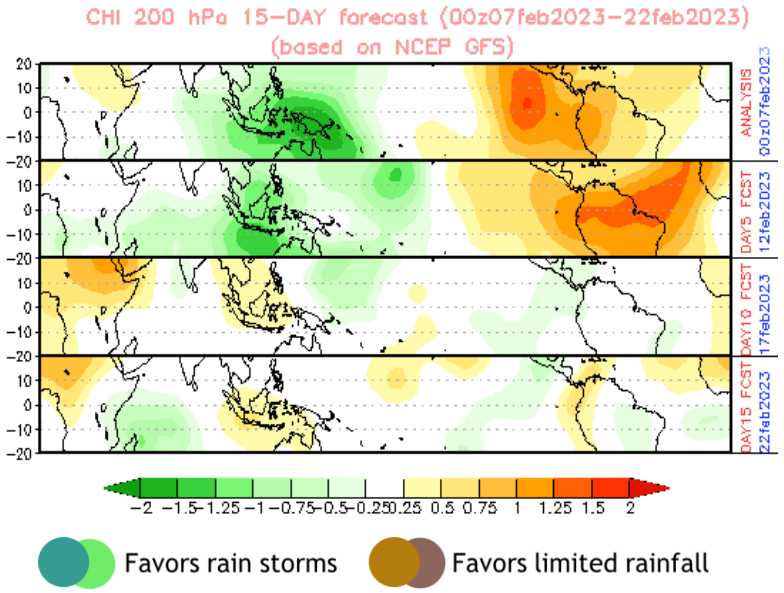


MJO Forecasts

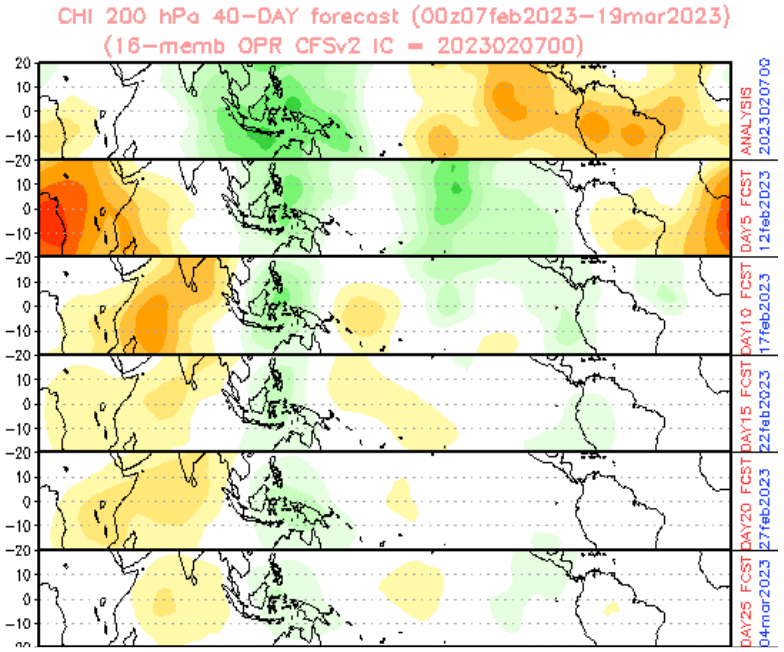
Empirical Wave Propagation (EWP)



Global Forecast System (GFS)



Climate forecast System (CFS)



Source: CPC

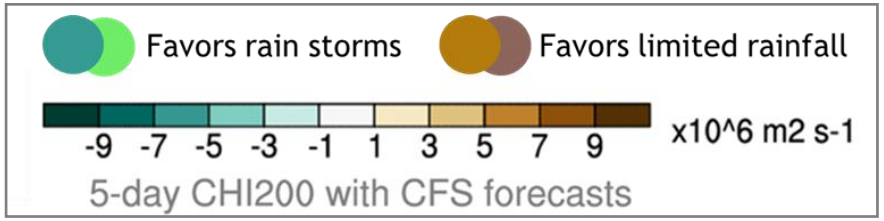
TAKEAWAYS

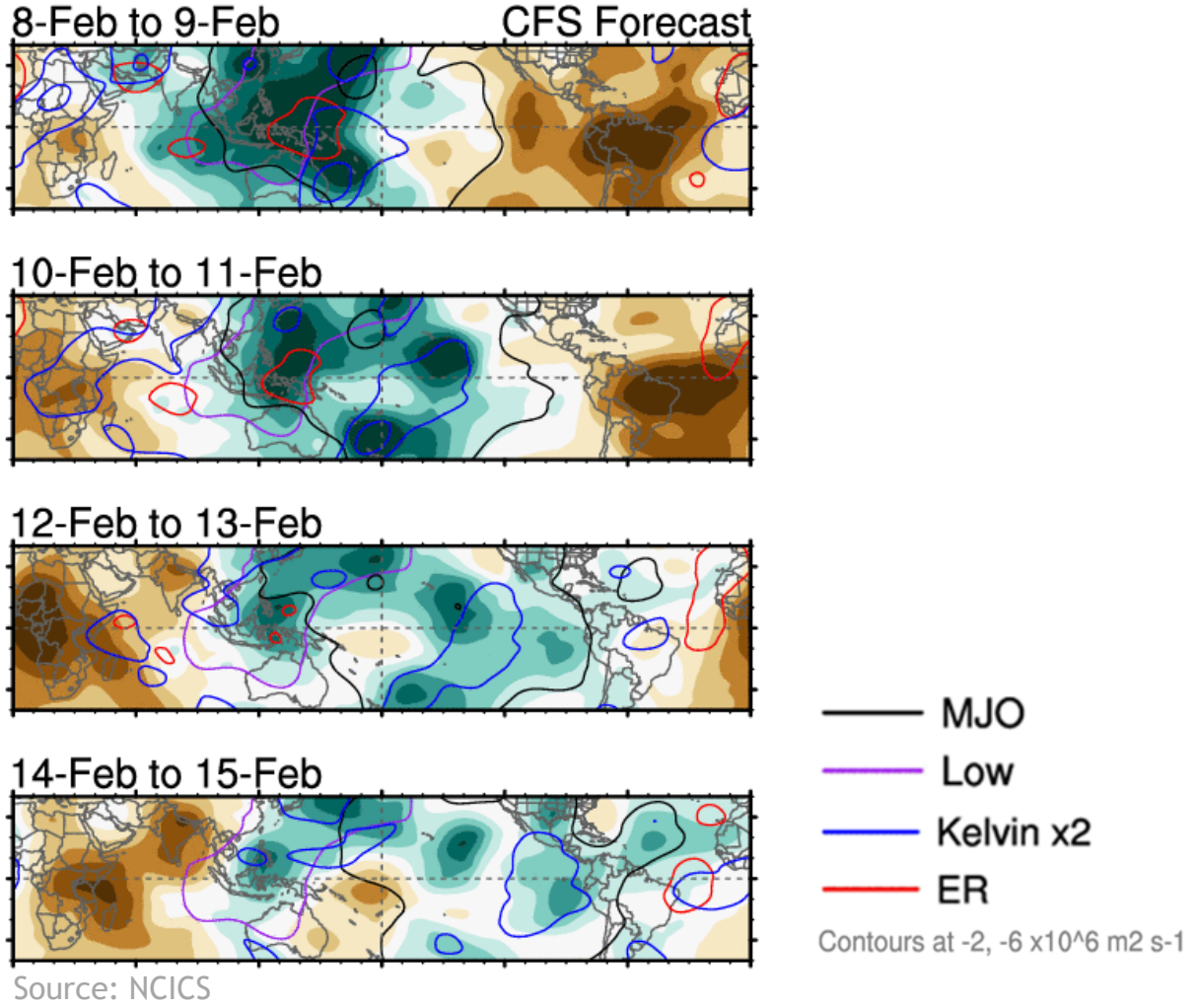
- Upper convergence (dry) through the weekend.
- Upper divergent (wet) on the second half of February. Watch out for excessive precipitation in portions of South America.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

- Upper convergent MJO (dry) through Friday.
- Note that CFS might be a bit too fast with transition towards wetter. I will likely develop next week.
- A wet Kelvin arrives around Feb 14, increasing chance for wetter conditions through Feb 17.

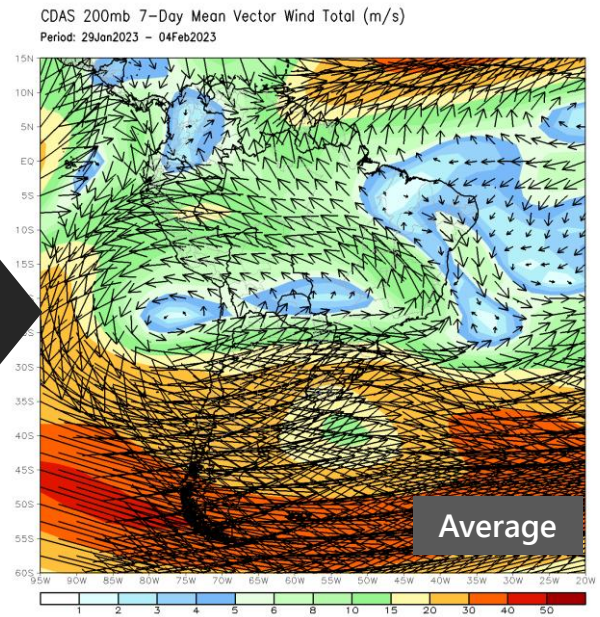


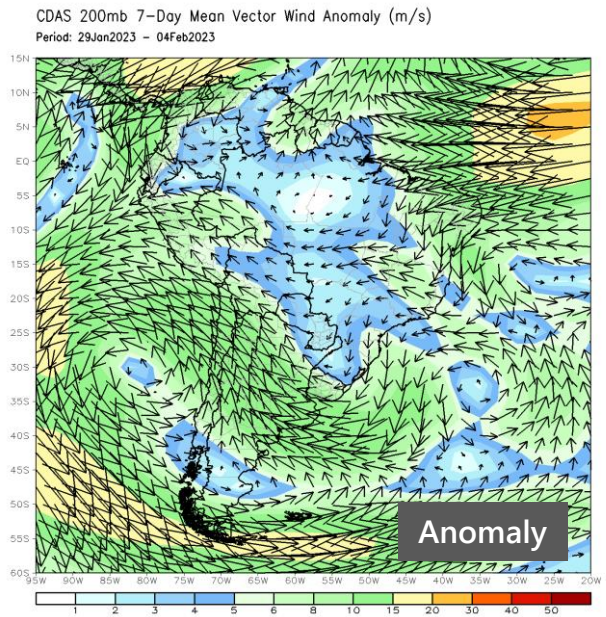


Source: NCICS

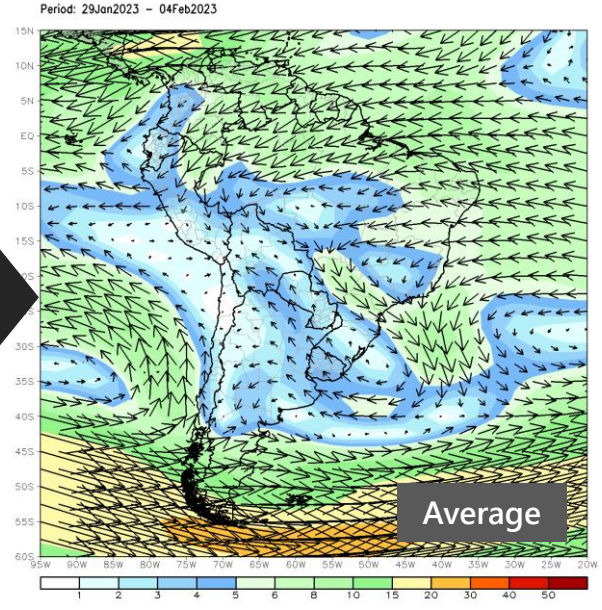
South America, Last 7 Days

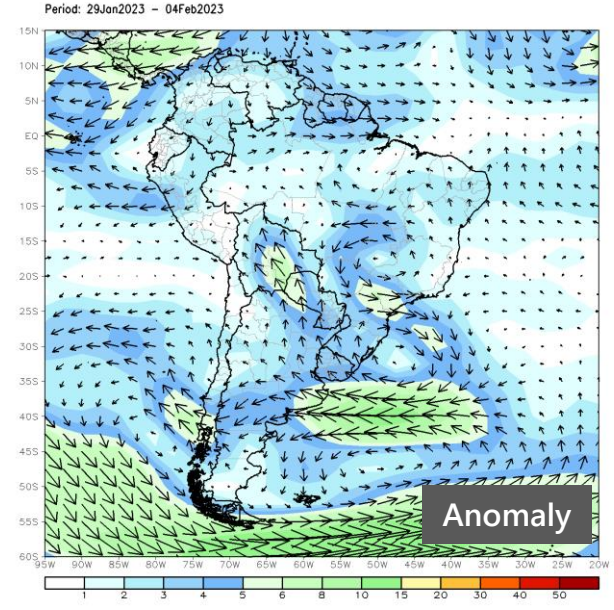
200 hPa Flow

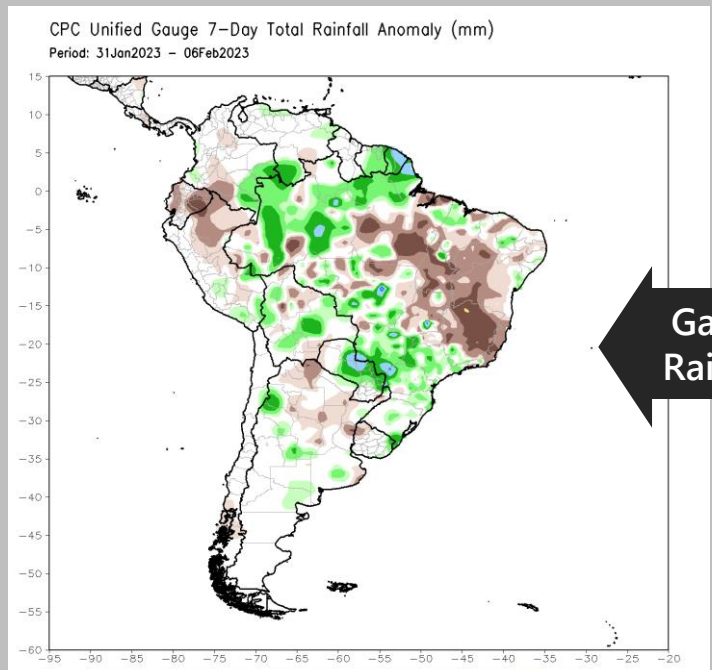




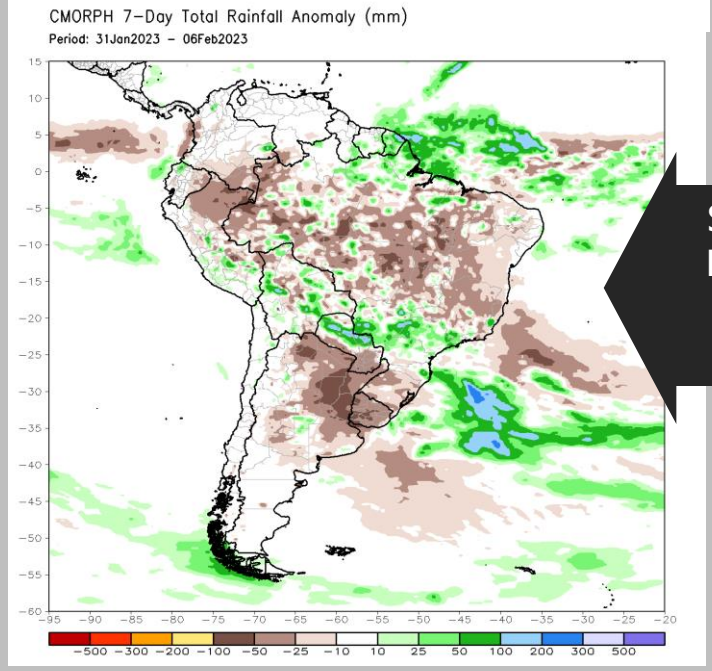
850 hPa Flow







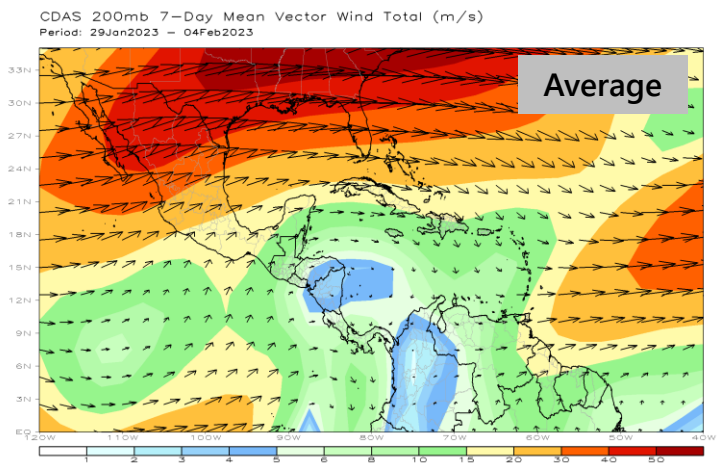
Gauge Rainfall

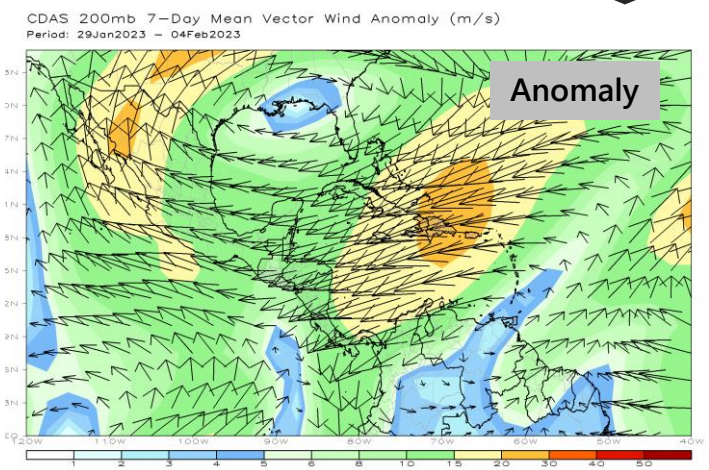


Satellite – Estimated Rainfall (CMORPH)

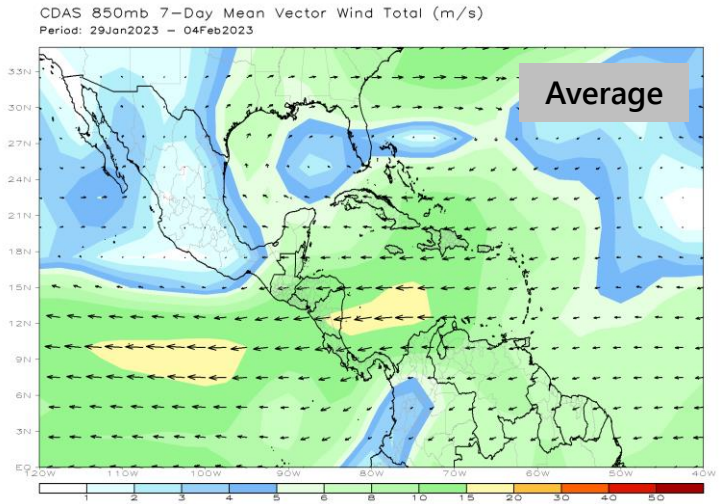
Caribbean/Central America, Last 7 Days

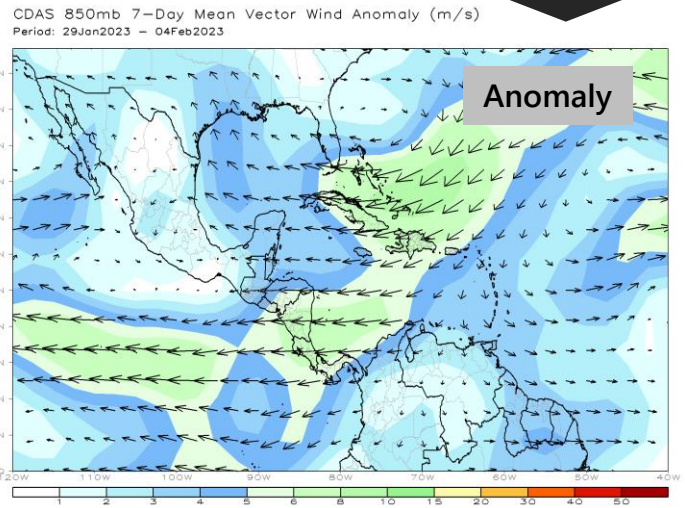
200 hPa Flow



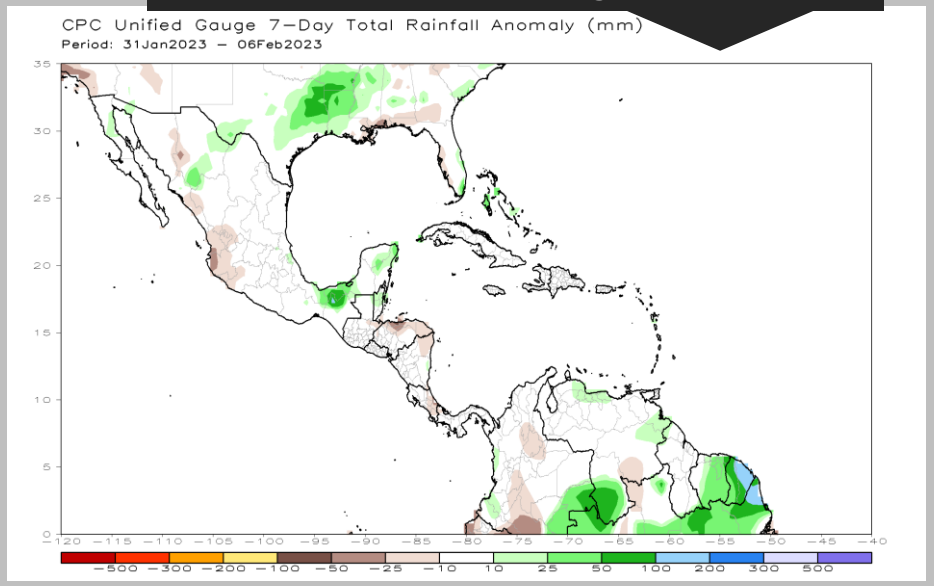


850 hPa Flow

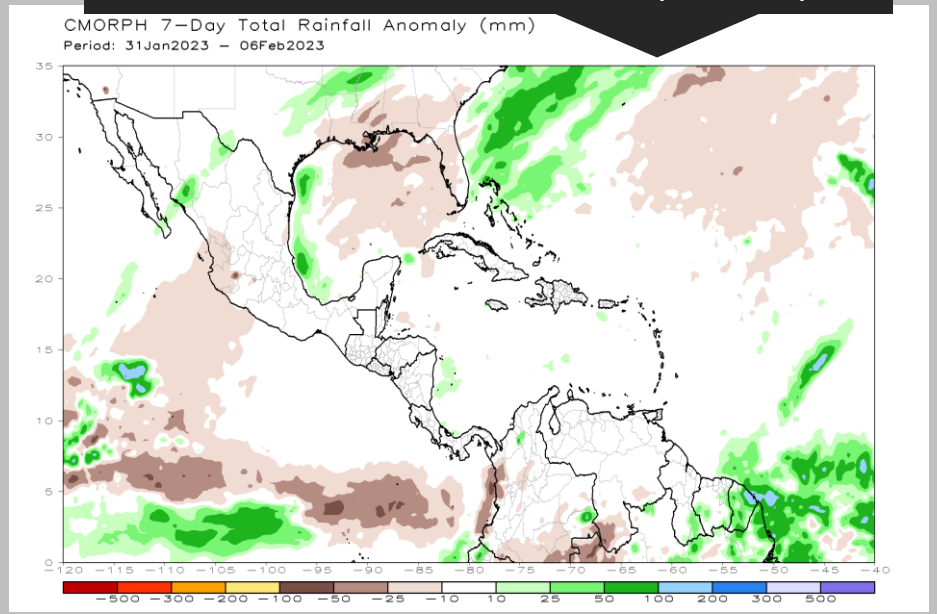




Rainfall from Gauges (CPC)



Satellite – Estimated Rainfall (CMORPH)



¡Gracias! Thank you! ¡Obrigado!

Next Session: Wed 8 March 2023, 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