WMO VLab Regional Focus Group
of the Americas and Caribbean

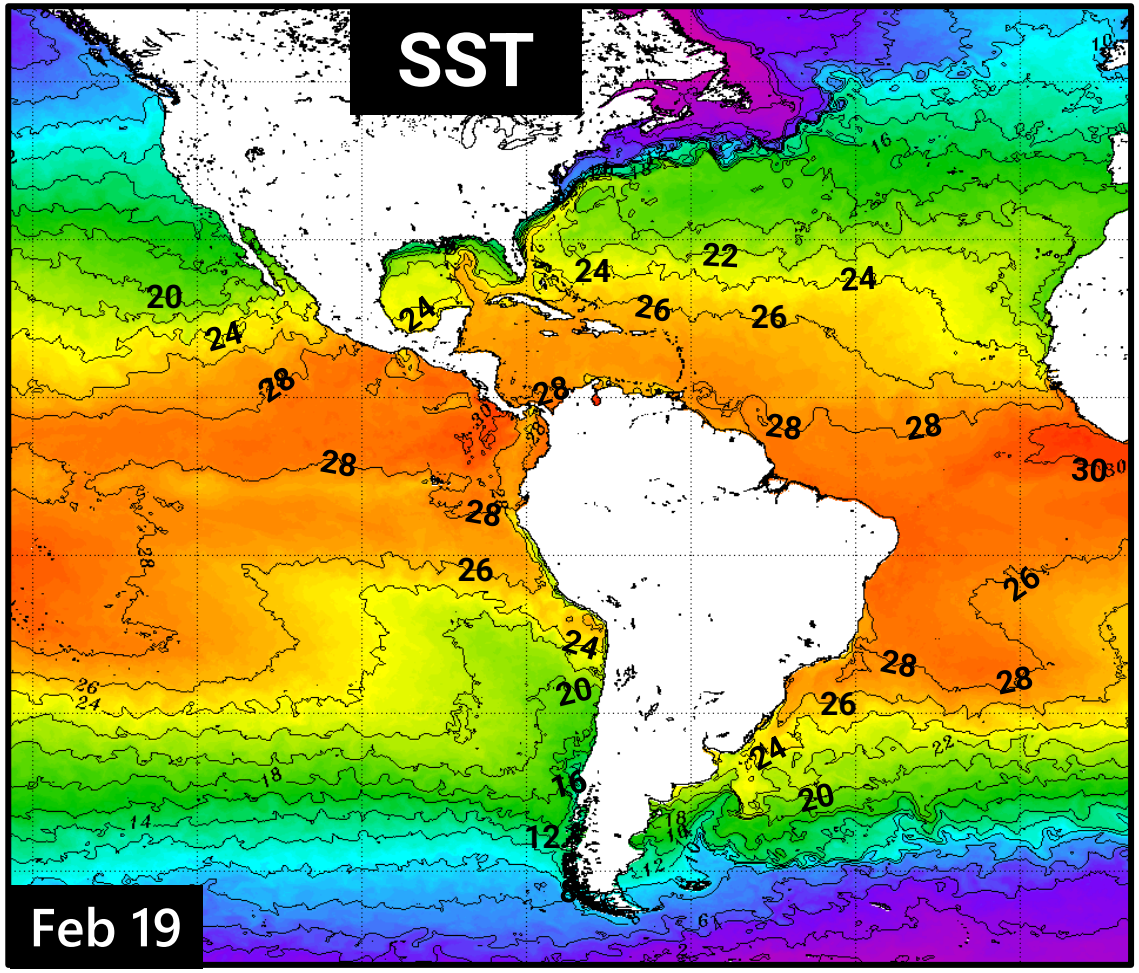
Since 2004

Climate Indices

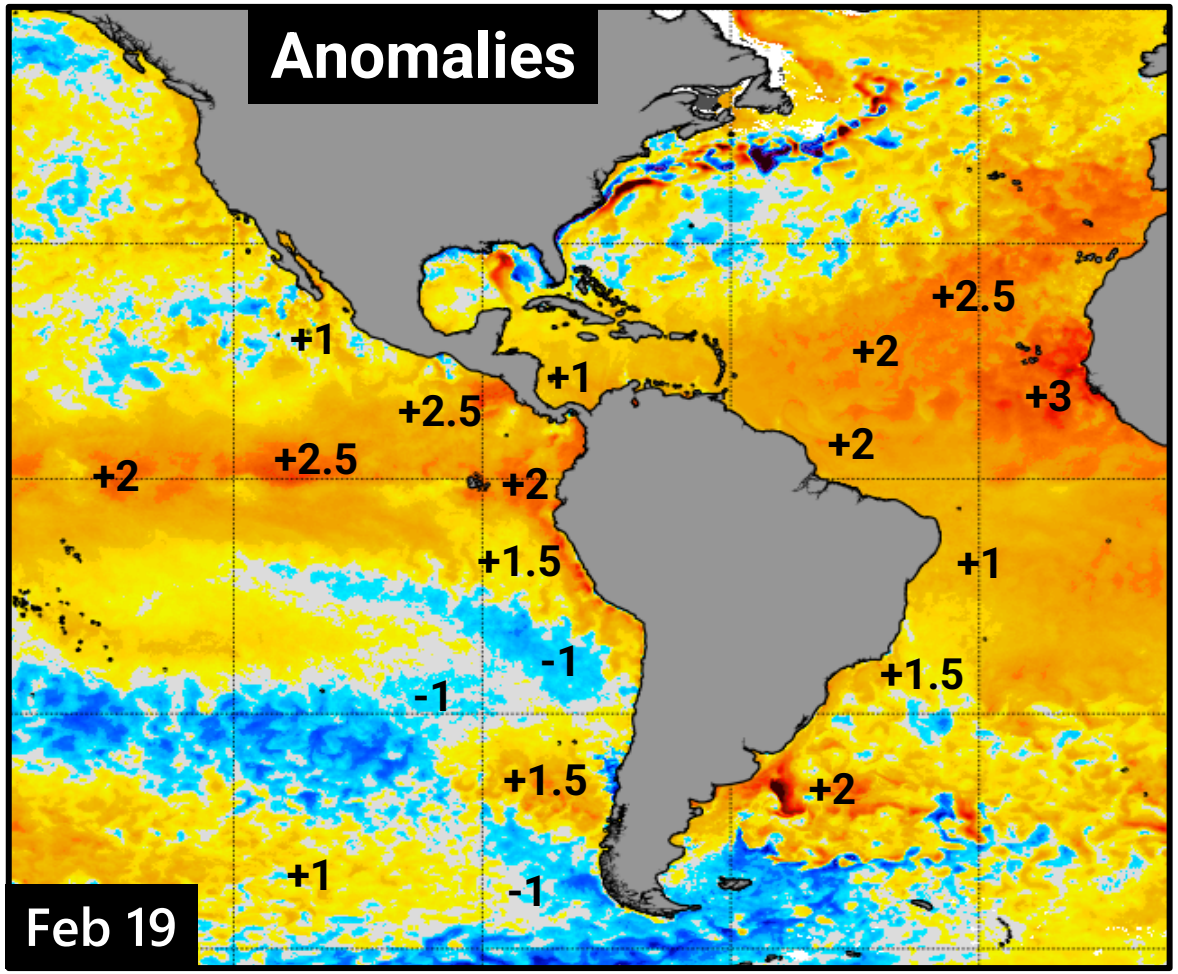
Current Status and Projections

Wednesday 21 February 2024

Sea Surface Temperature (SST)



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

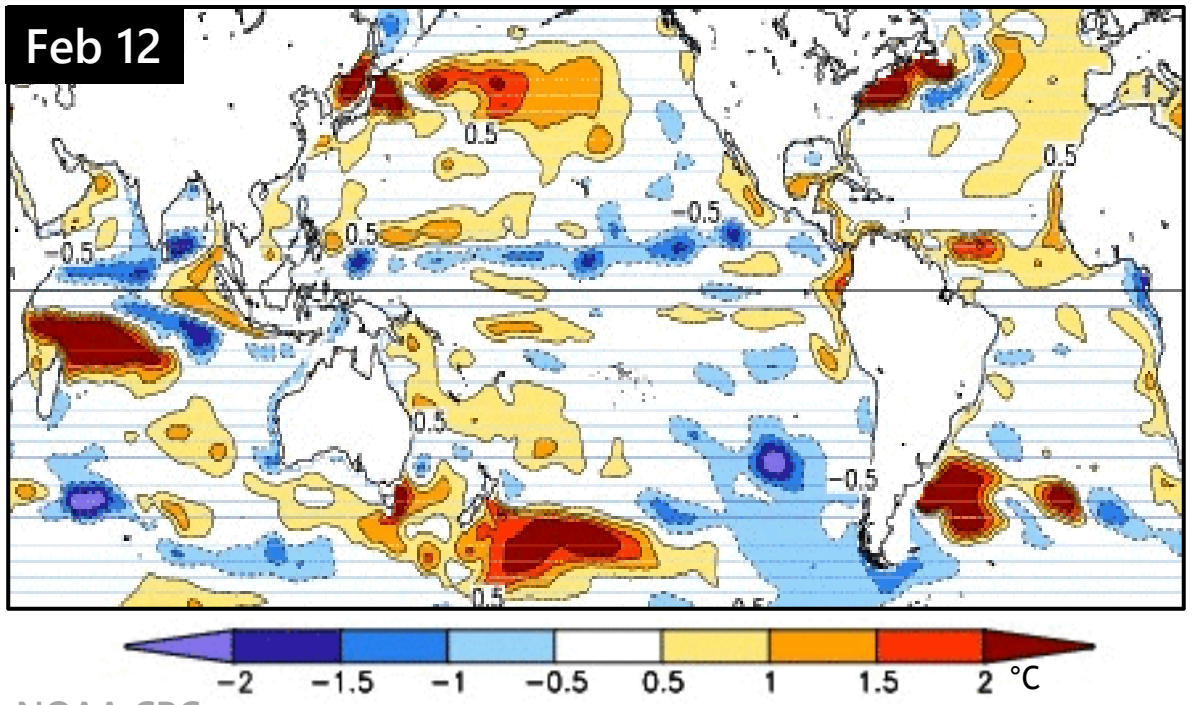


NOAA Coral Reef Watch https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

Top Layer Temperature Anomaly

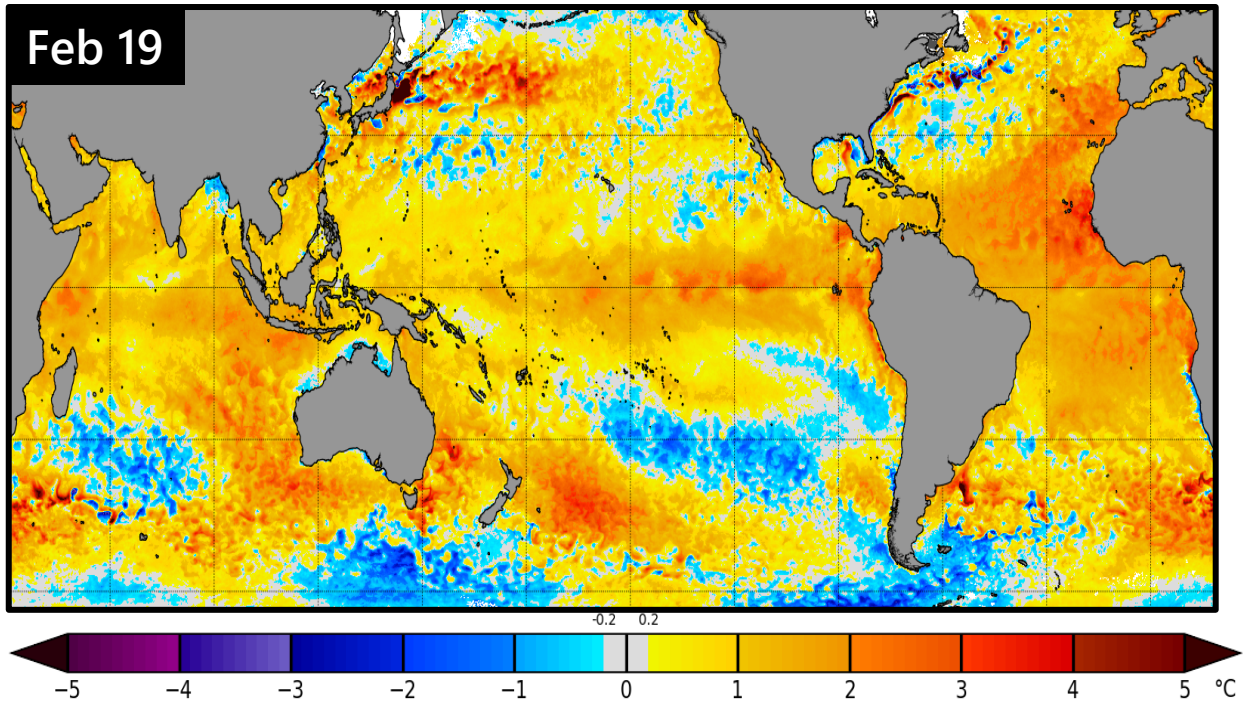
Anomalies in a layer take longer to dissipate than superficial ones, and can last for weeks.

Top 300m-Layer Anomaly



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

Surface Anomaly



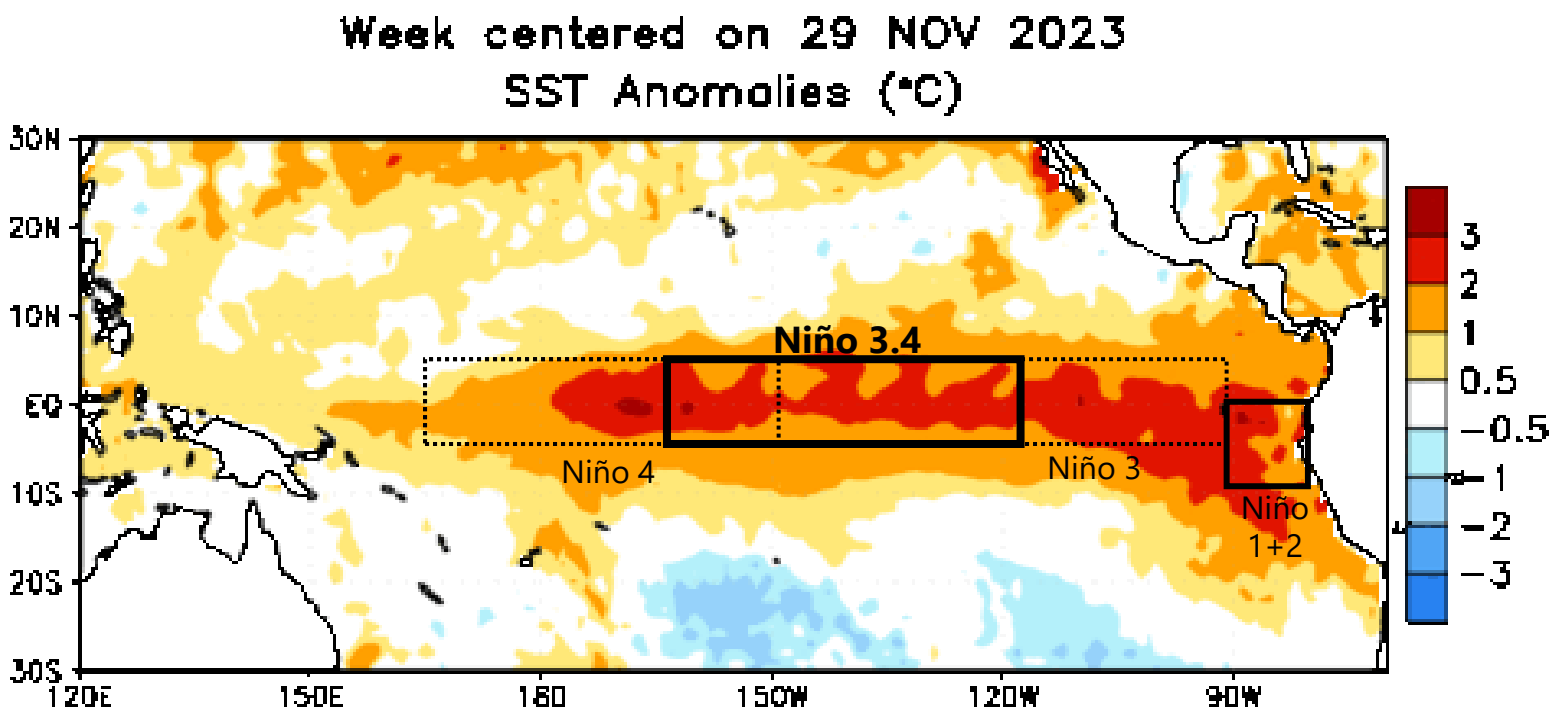
NOAA Coral Reef Watch
https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

El Niño-Southern Oscillation (ENSO)

CPC Official Statement

El Niño Advisory / La Niña Watch

- El Niño conditions are observed.*
- Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean.
- The tropical Pacific atmospheric anomalies are consistent with El Niño.

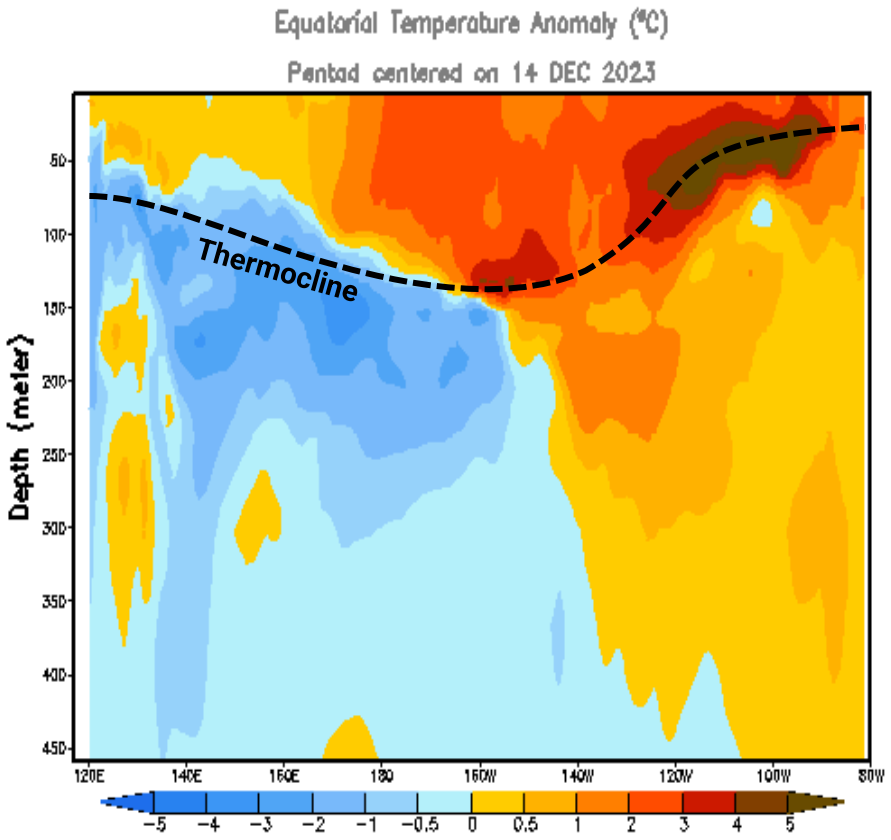


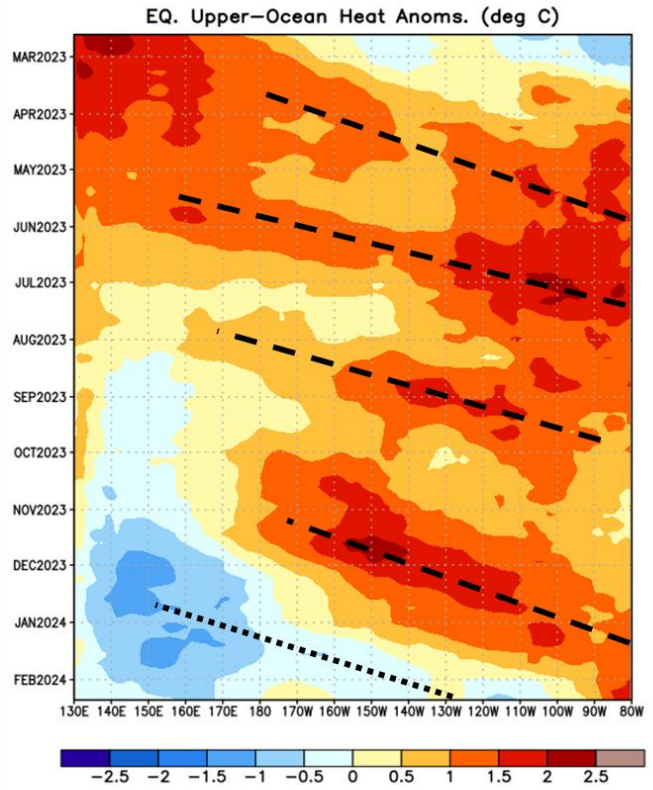
TAKEAWAYS

- Warm anomalies are rapidly collapsing, but still above El Niño thresholds.
- SAM coast has warmed up slightly (end of Oceanic Kelvin envelopes and transient weakenings of the South Pacific Anticyclone winds)

ENSO: Oceanic Kelvin Waves

Temperature Anomalies with Depth and Heat Content Anomalies





TAKEAWAYS

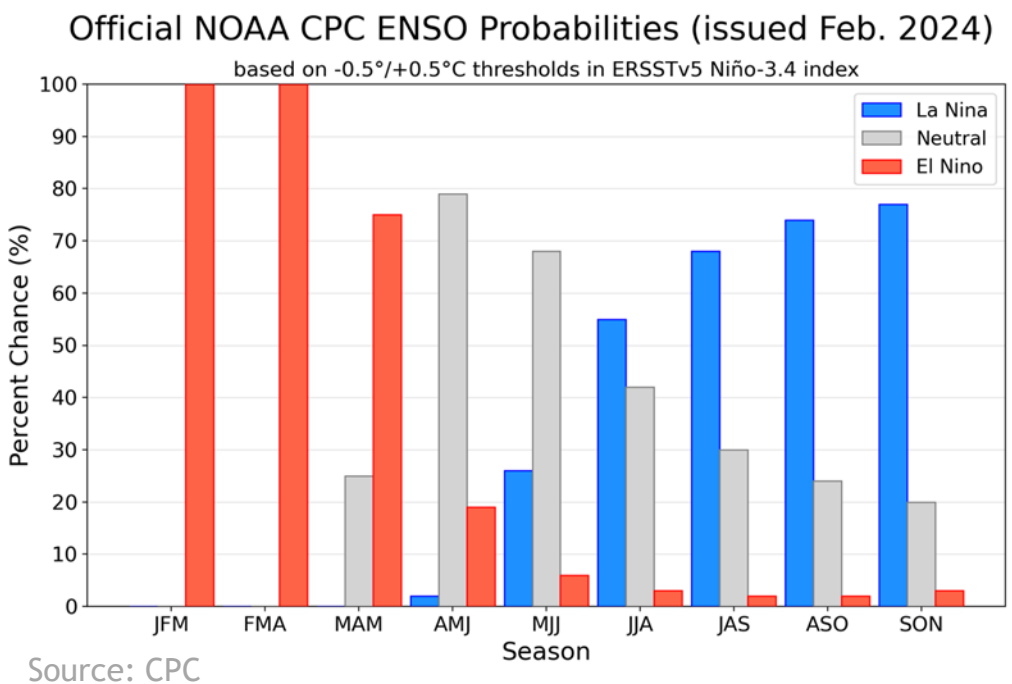
- Last of envelope of warm Kelvins is reaching the SAM coast.
- Coastal warming enhanced by local effects too.
- The leading edge of a large cool (upwelling) Kelvin should arrive by early March.

Source: CPC

ENSO Outlook

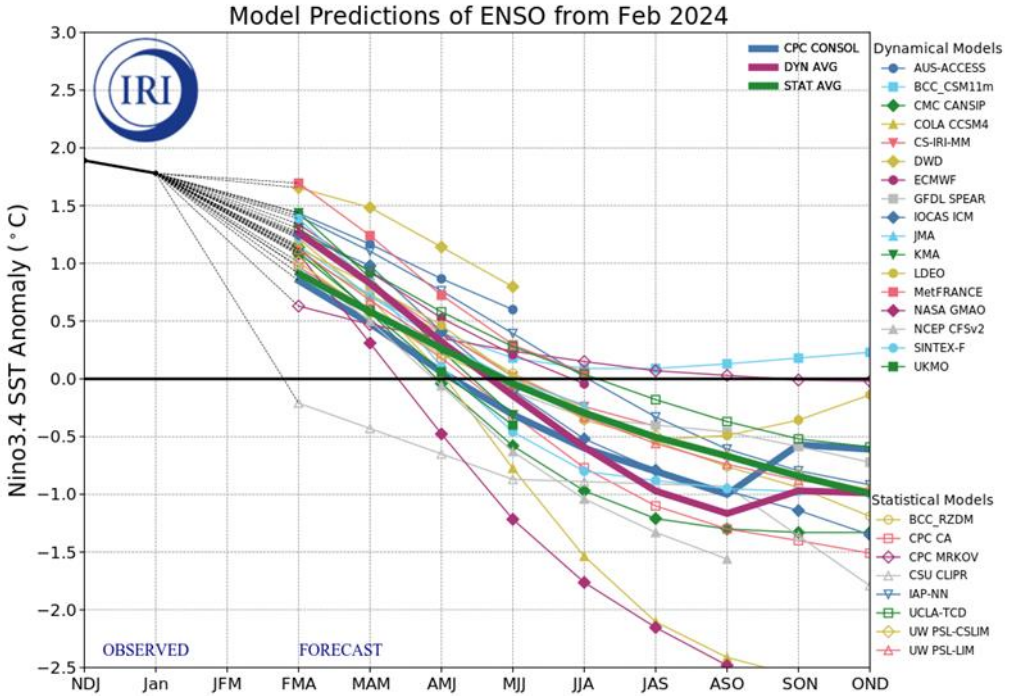
A transition from El Niño to ENSO-neutral is likely by April-June 2024 (79% chance), with increasing odds of La Niña developing in June-August 2024 (55% chance).*

Probabilistic Forecast



Source: CPC

IRI/CPC Dynamic Models



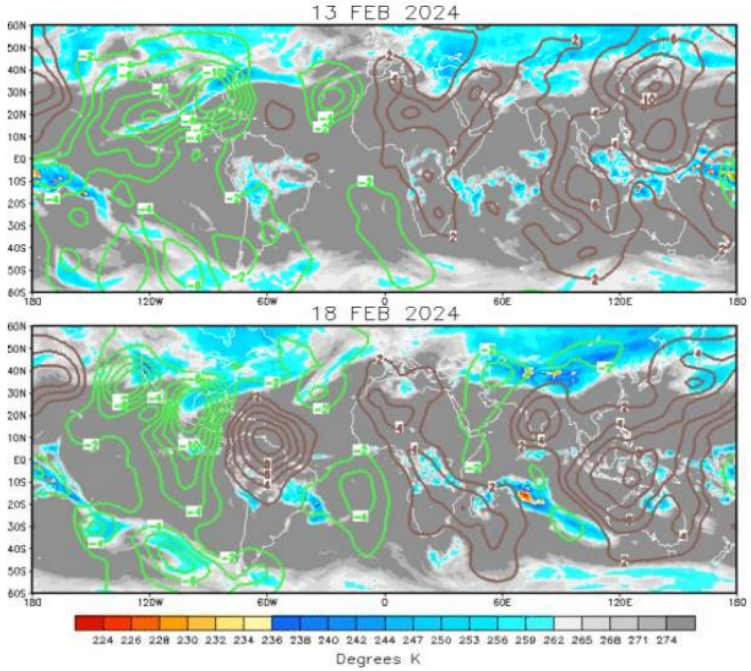
Source: IRI, updated 19 December 2023

Madden-Julian Oscillation (MJO)

Current Observations:

- The MJO is somewhat organized but not too much.
- Is taking about 1.5 months to circle the globe.
- A Kelvin is crossing the Americas, but a broad dry signal trails behind it.

Velocity Potential and Brightness Temperature (shaded)



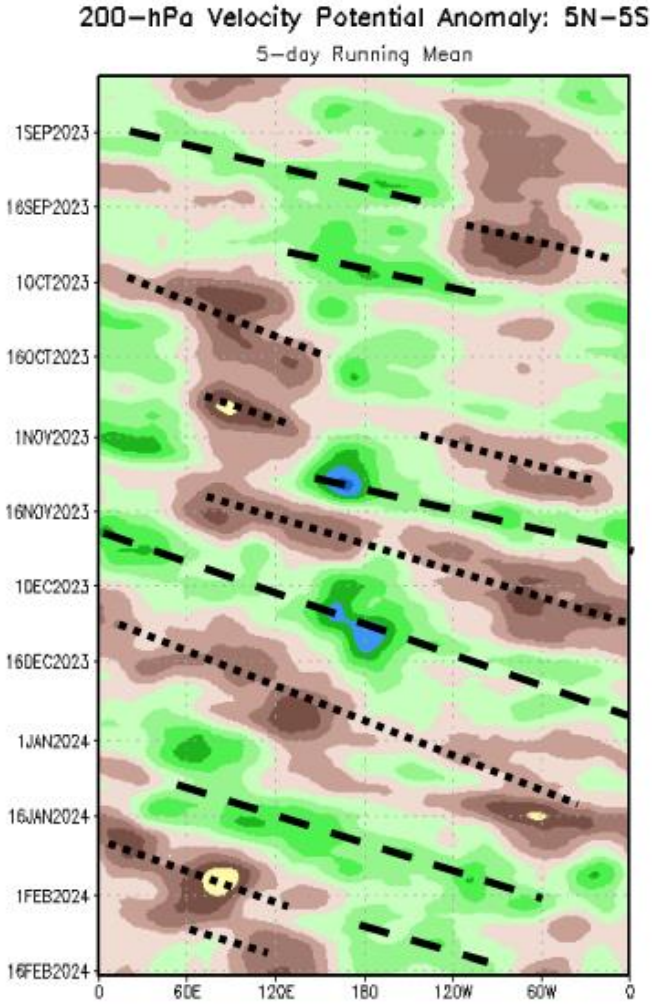
Feb 13

Feb 18

Source: CPC

Favors rain storms

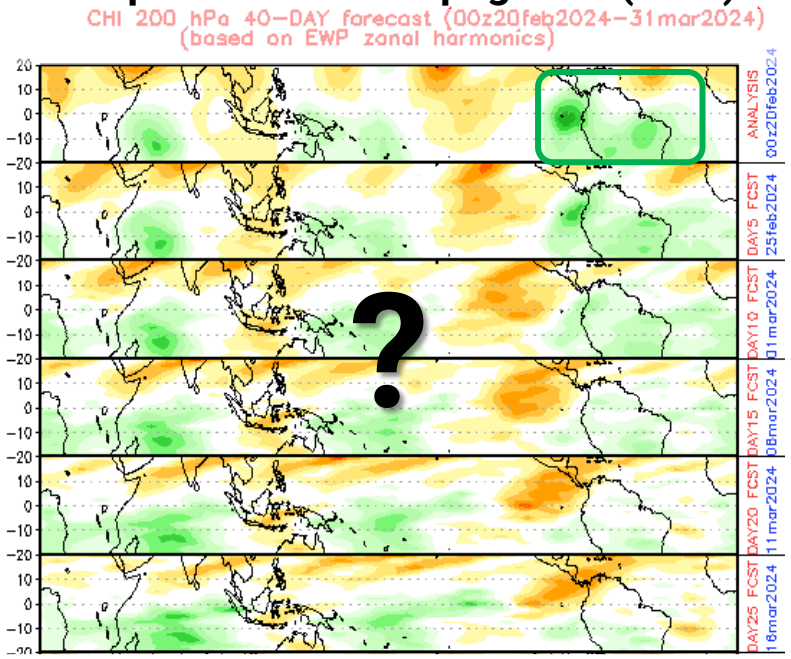
Favors limited rainfall



Source: CPC

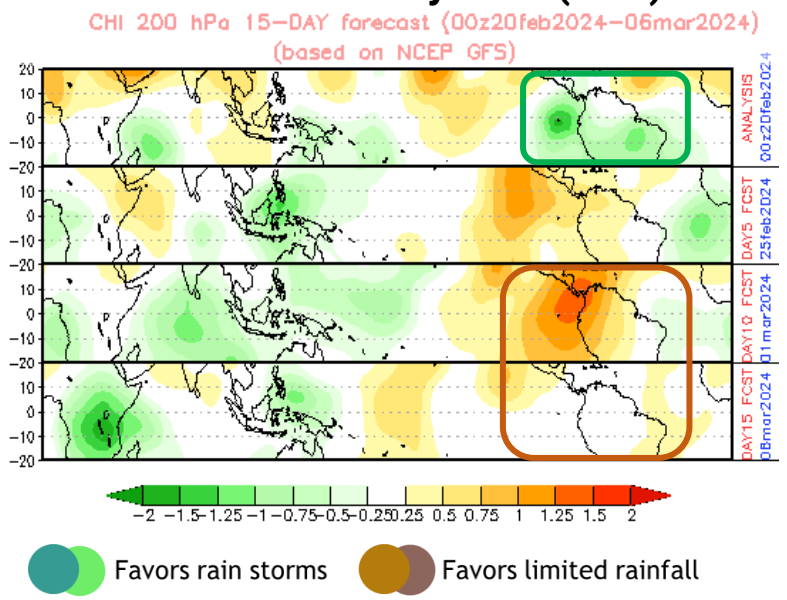
MJO Forecasts

Empirical Wave Propagation (EWP)

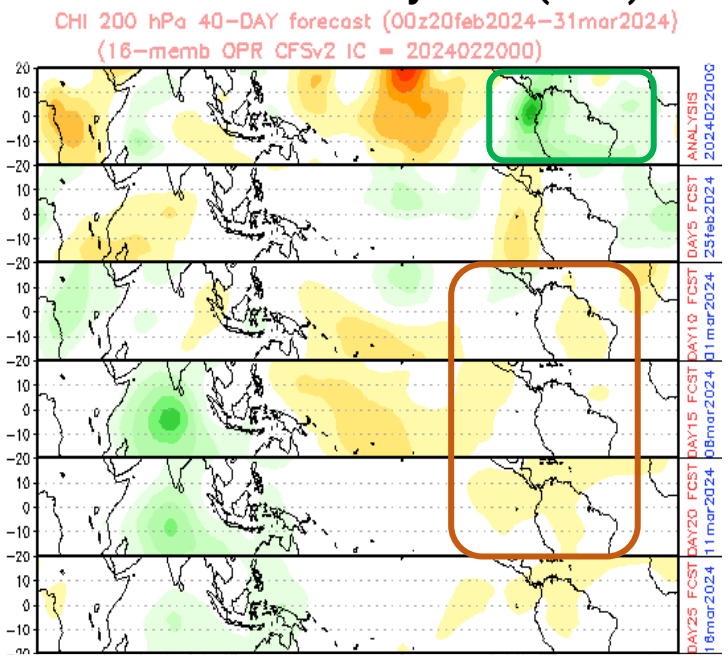


Source: CPC

Global Forecast System (GFS)



Climate forecast System (CFS)



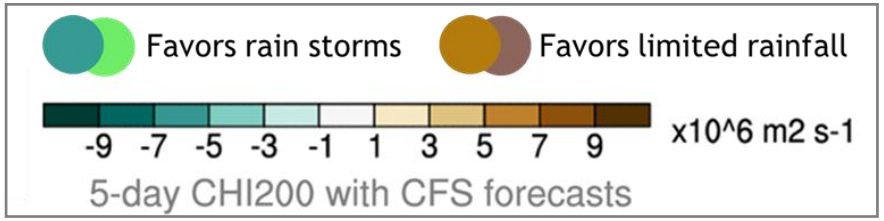
TAKEAWAYS

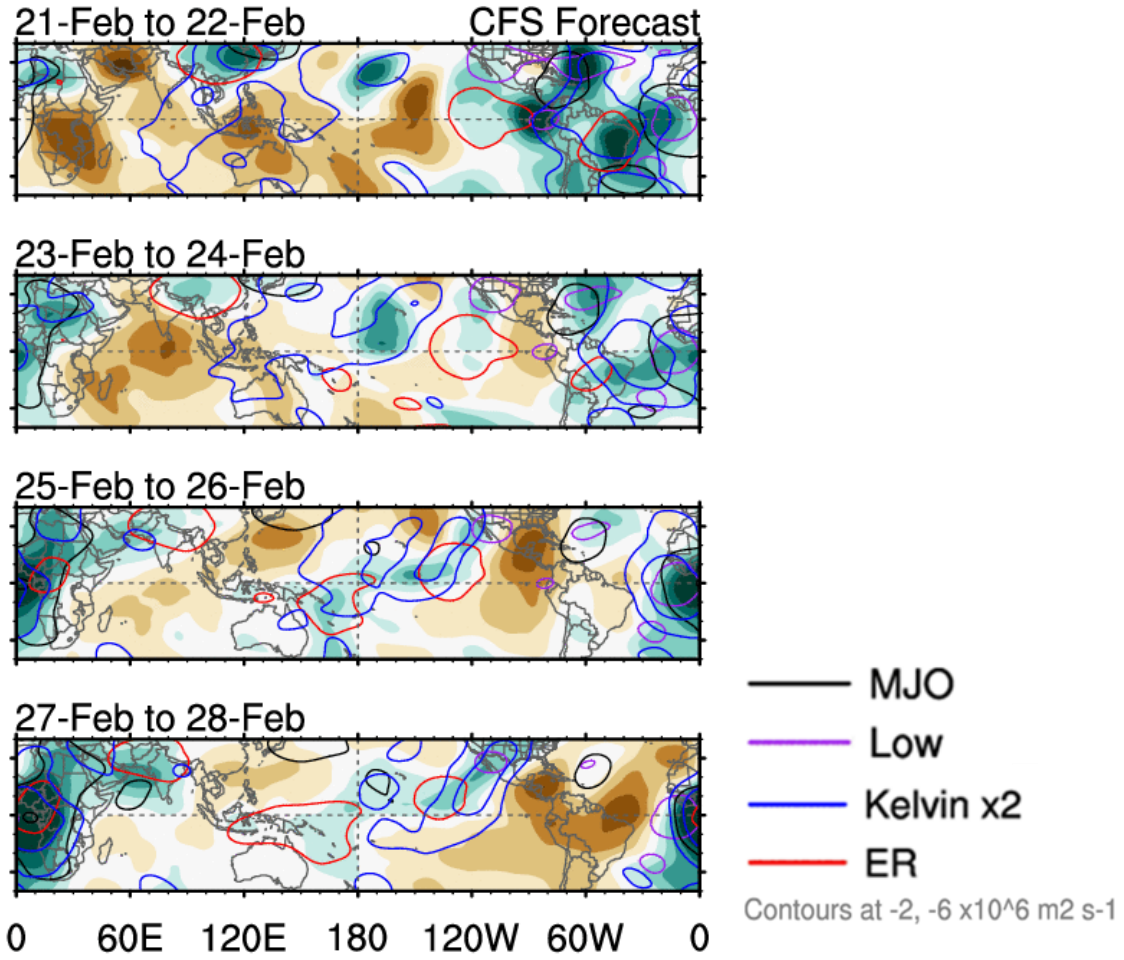
- Models are not in great agreement. The CFS and GFS are more in tune.
- Upper divergent (wet) this week. Then drier, especially through mid-March.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

- Kelvin crossing this week, embedded in the rear end of the wet MJO. Dry after.
- Another wet Kelvin by Feb 27-29, but impacts mostly constrained to northwest Mexico and the US.

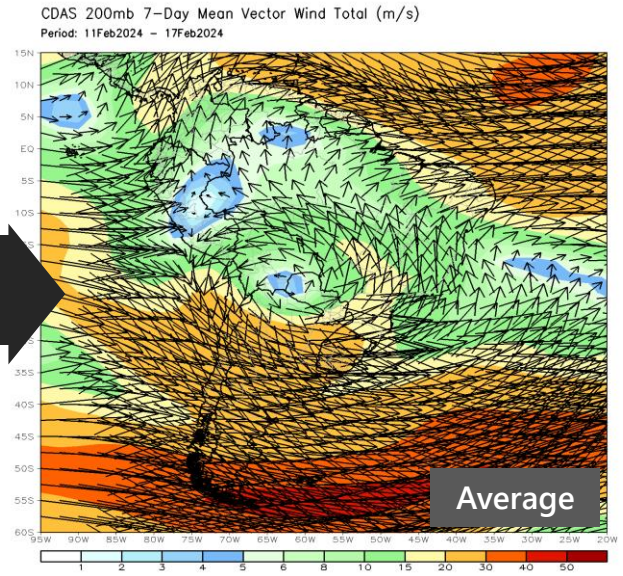


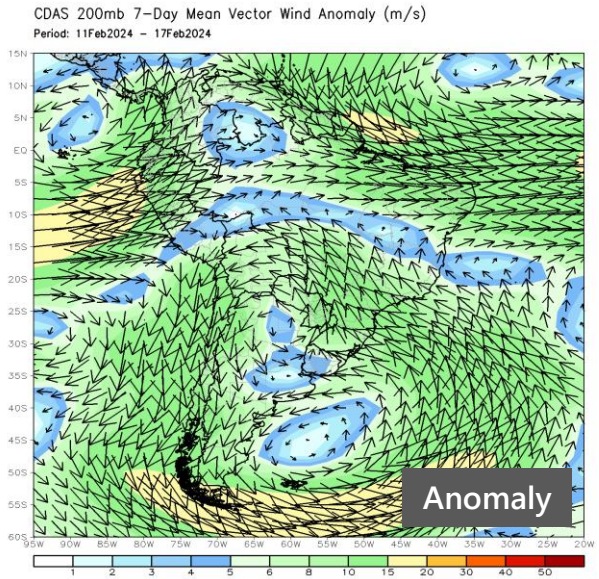


Source: NCICS

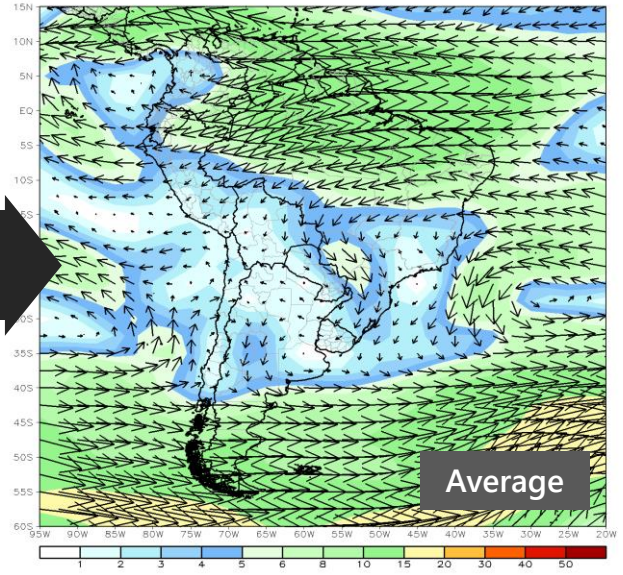
South America, Last 7 Days

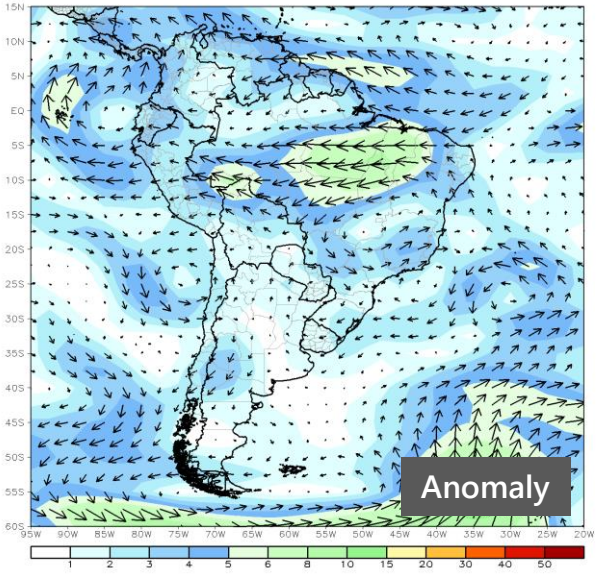
200 hPa Flow



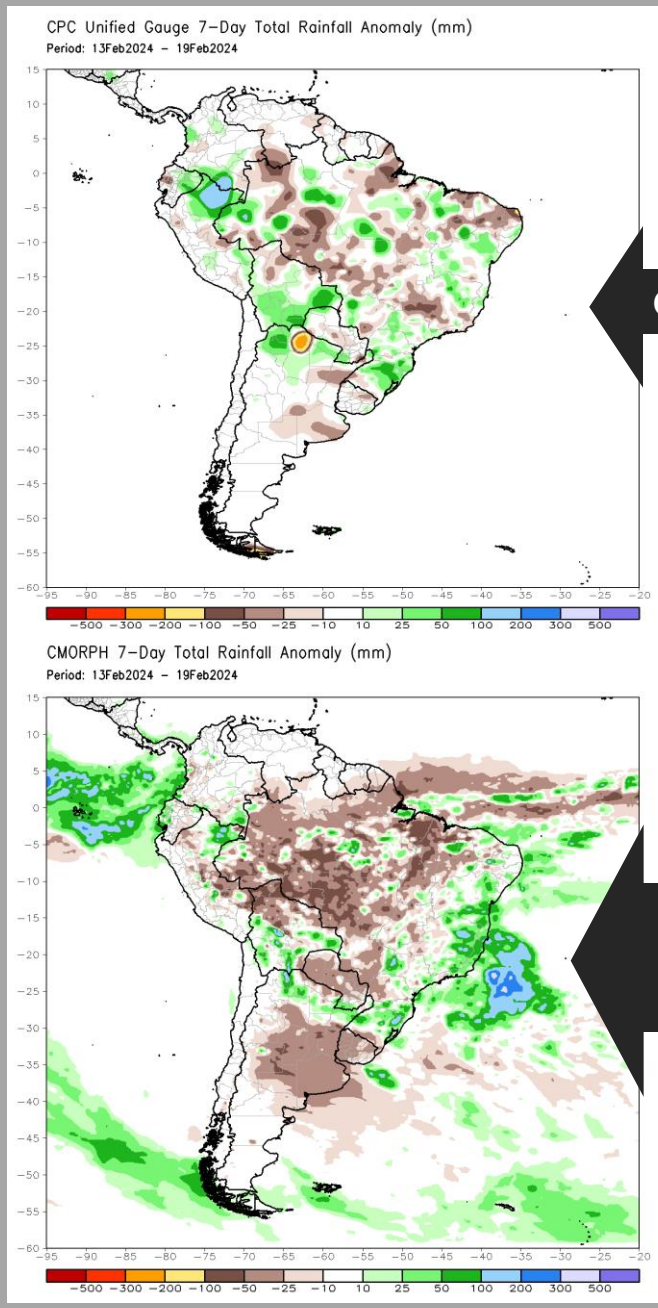


850 hPa Flow



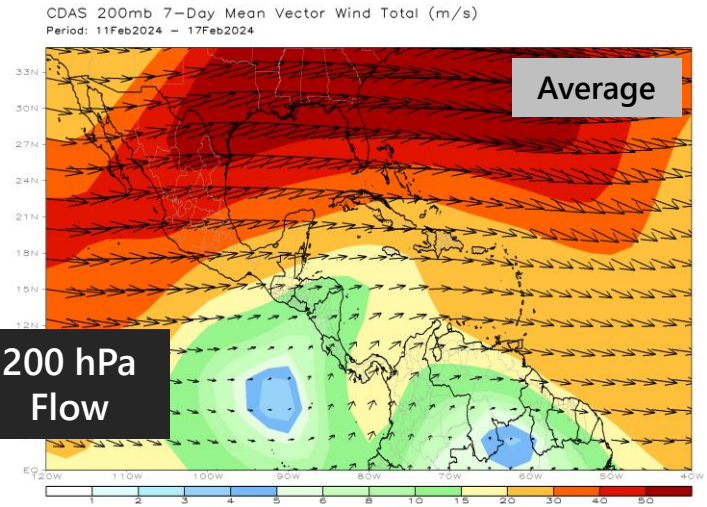


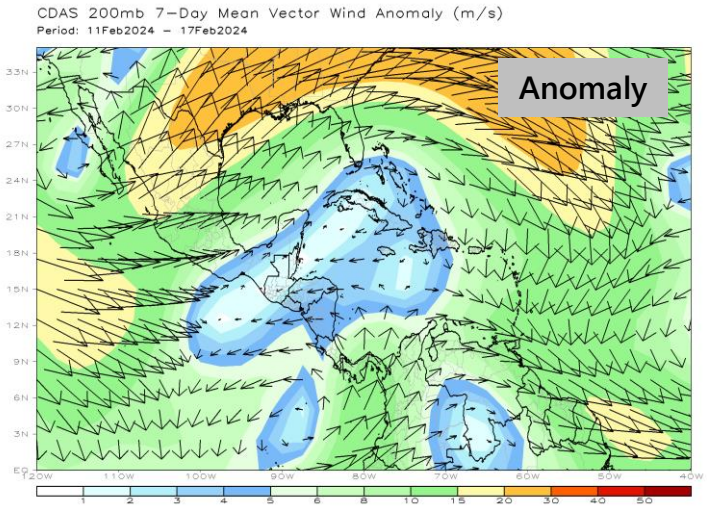
Rainfall Anomalies



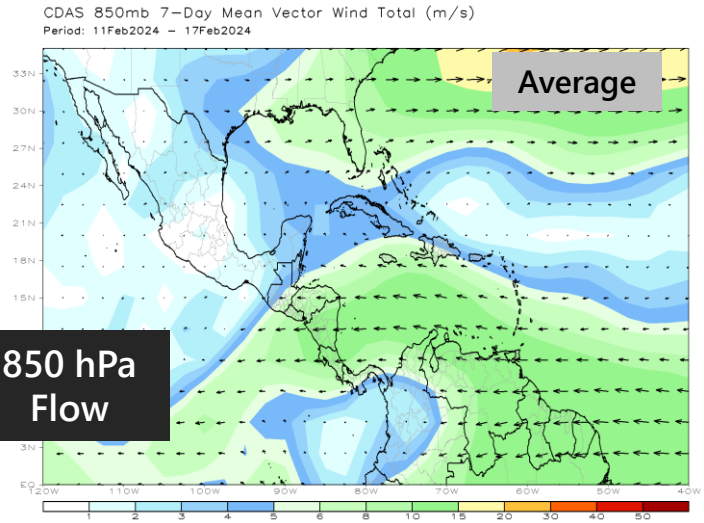
Caribbean and Central America, Last 7 Days

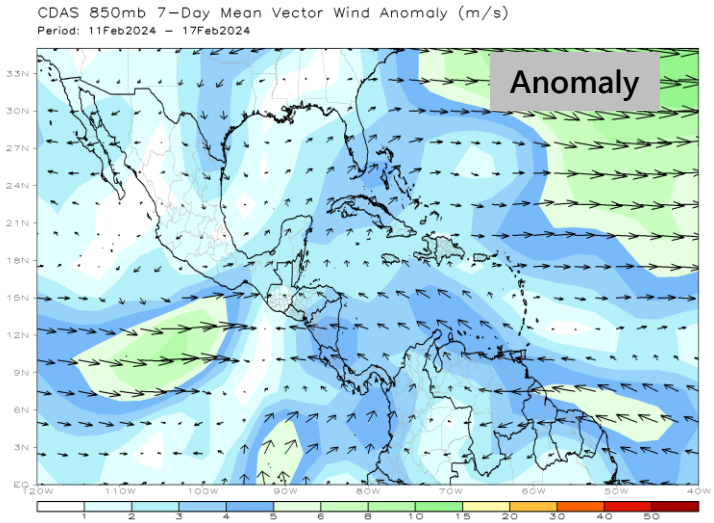
200 hPa Flow





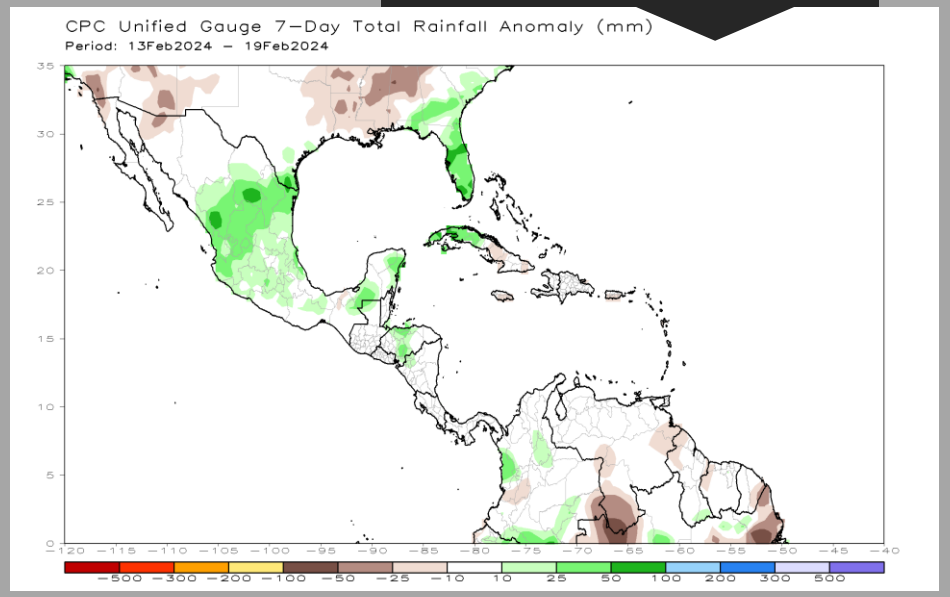
850 hPa Flow



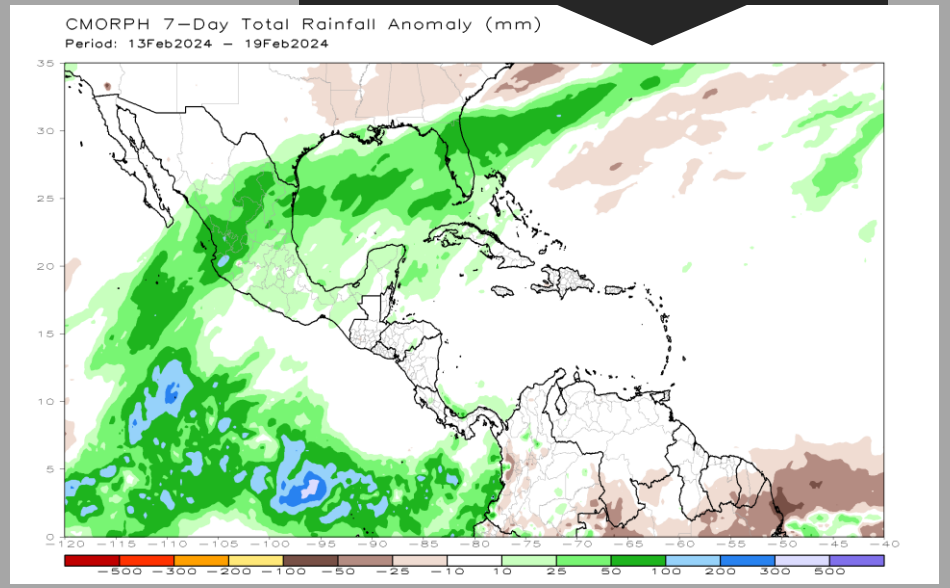


Rainfall Anomalies

Gauges (CPC)



Satellite – Estimated (CMORPH)



¡Gracias! Thank you! ¡Obrigado!

Next Session: Wednesday March 20 at 14 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