WMO VLab Regional Focus Group
of the Americas and Caribbean

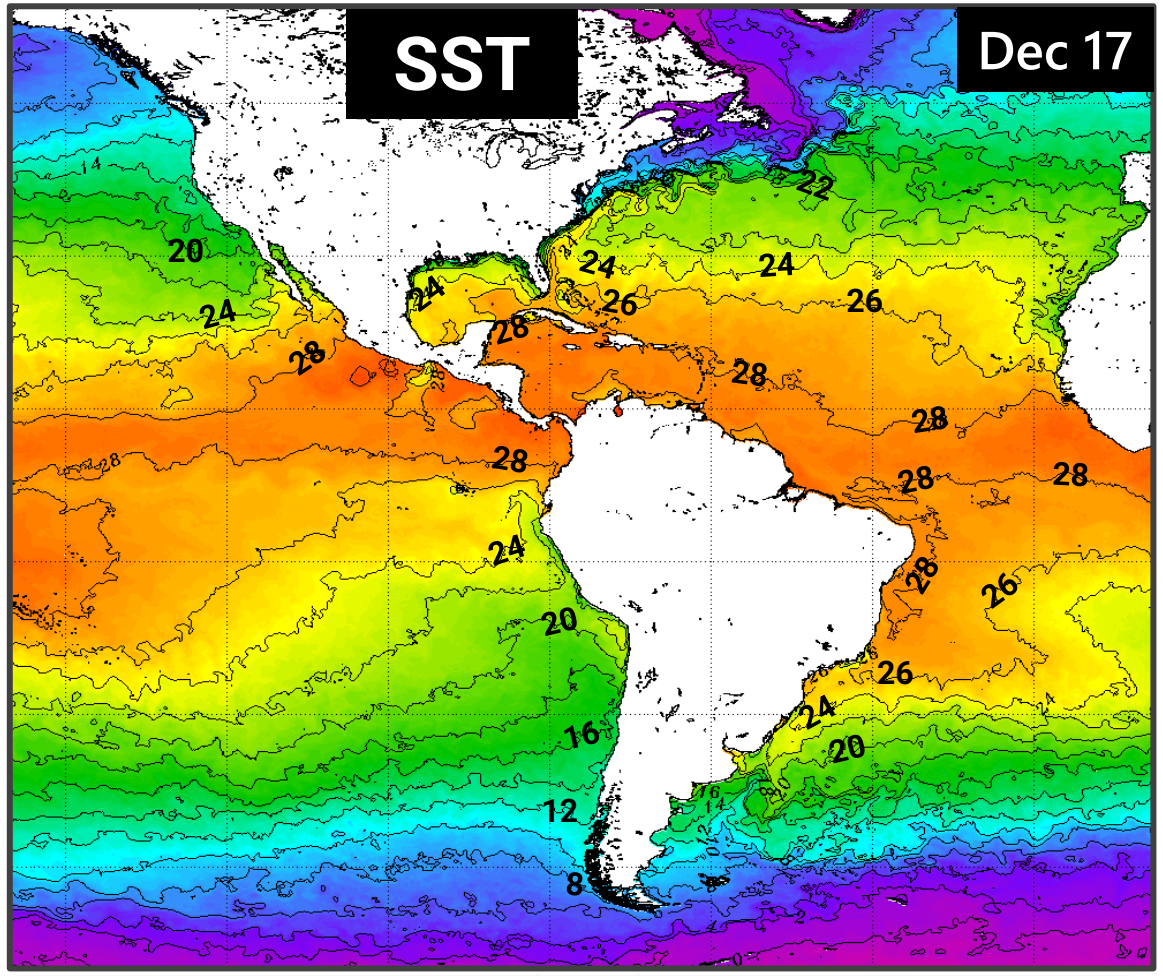
Since 2004

Climate Indices

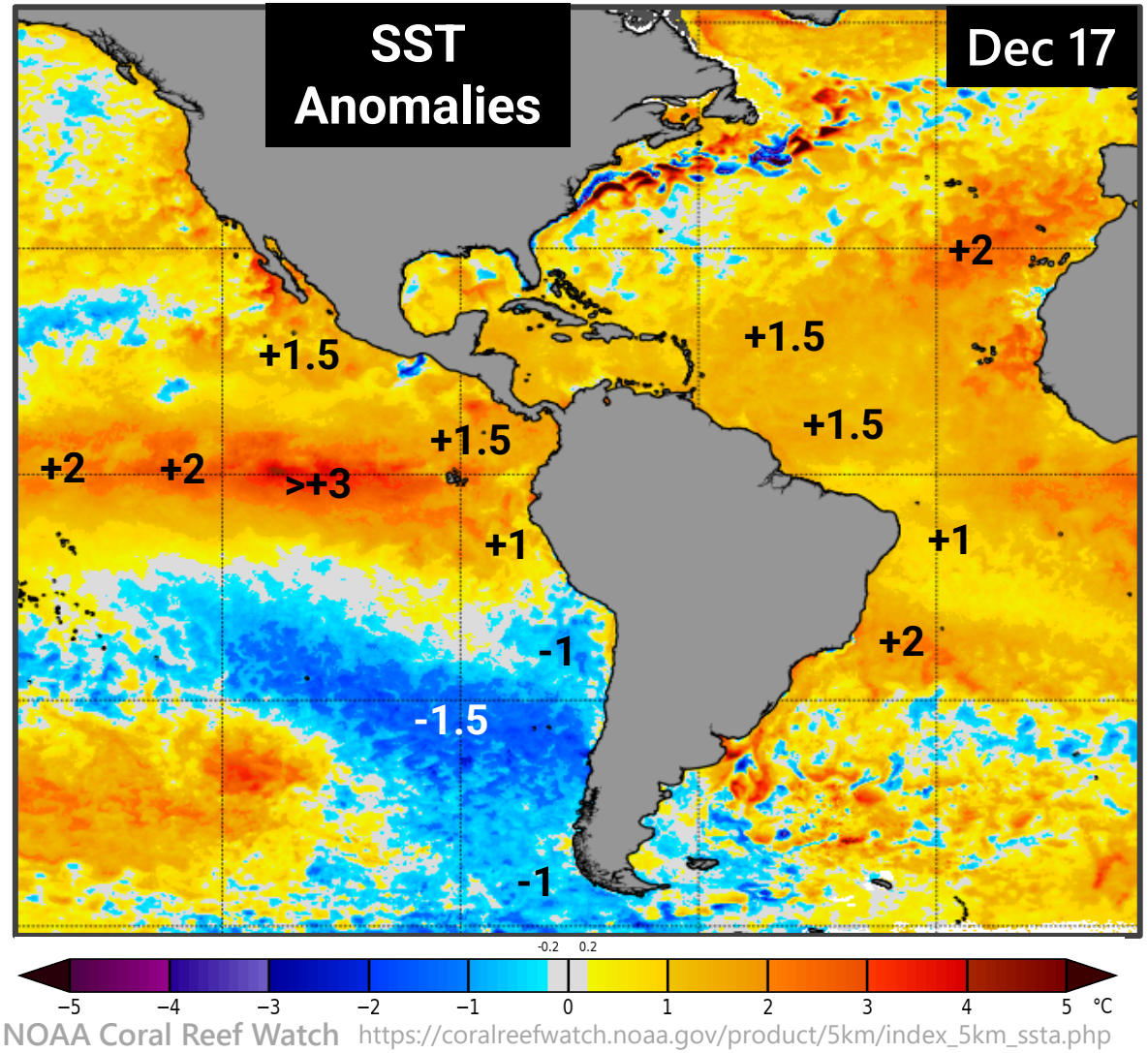
Current Status and Projections

Tuesday 19 December 2023

Sea Surface Temperature (SST)



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

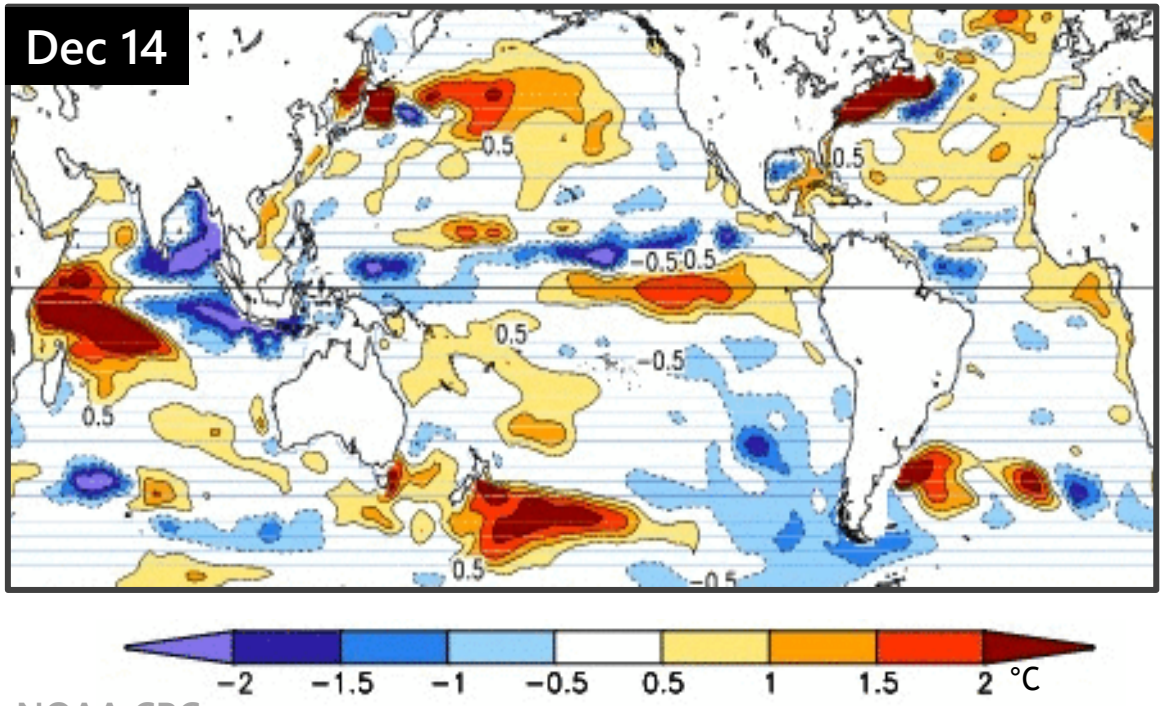


NOAA Coral Reef Watch https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

Top Layer Temperature Anomaly

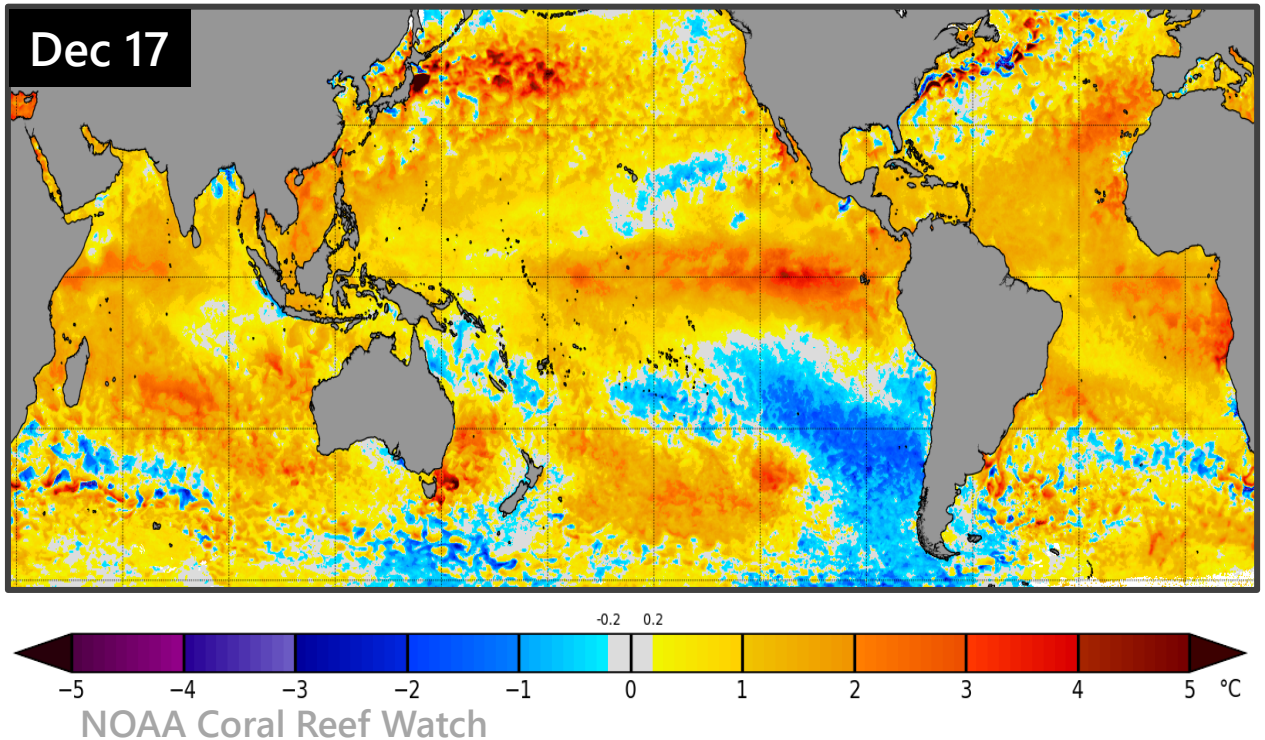
Anomalies in a layer take longer to dissipate than superficial ones, and can last for weeks.

Top 300m-Layer Anomaly



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

Surface Anomaly



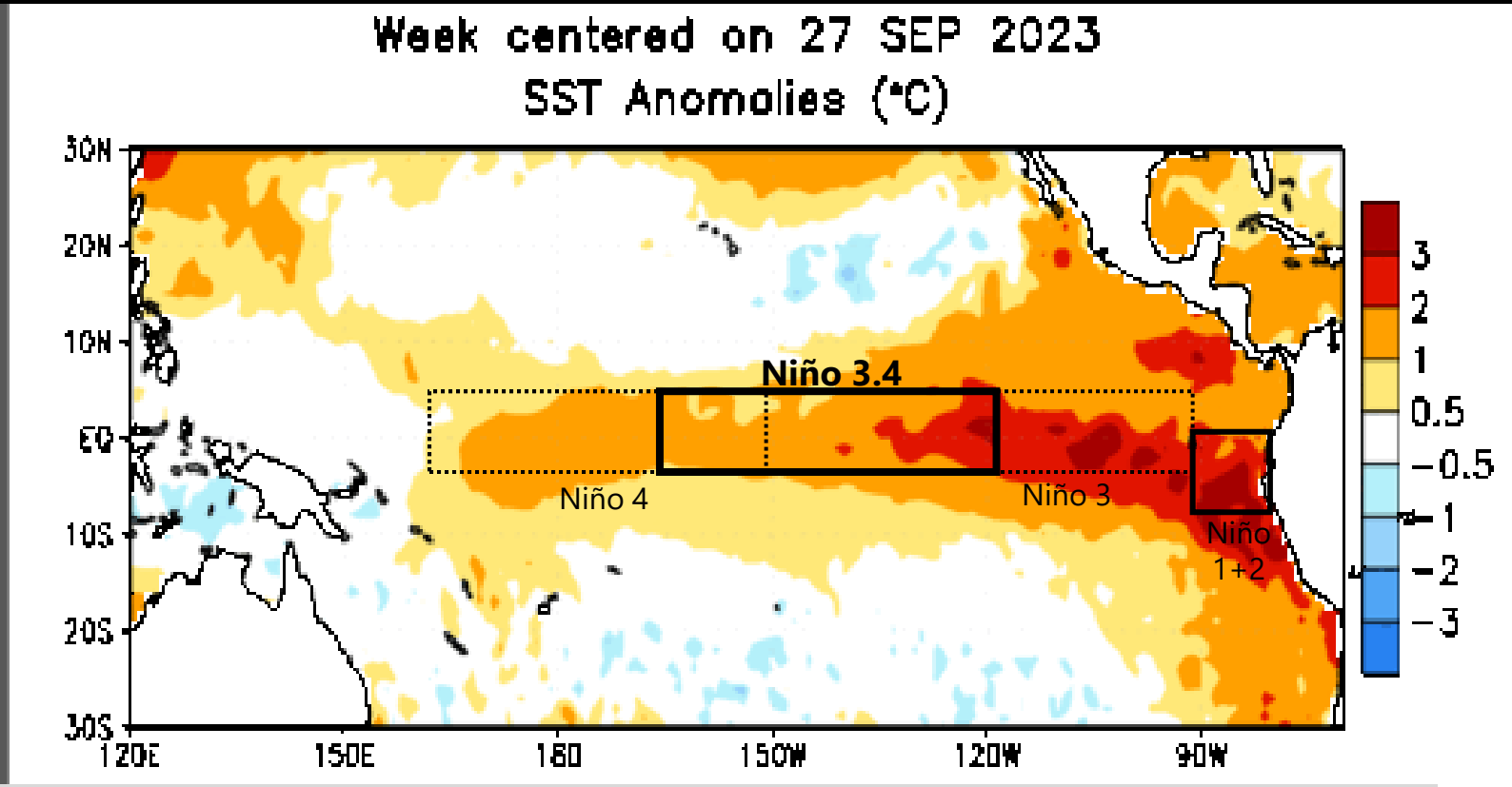
NOAA Coral Reef Watch
https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

El Niño-Southern Oscillation (ENSO)

CPC Official Statement

Status: El Niño Advisory

- 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.

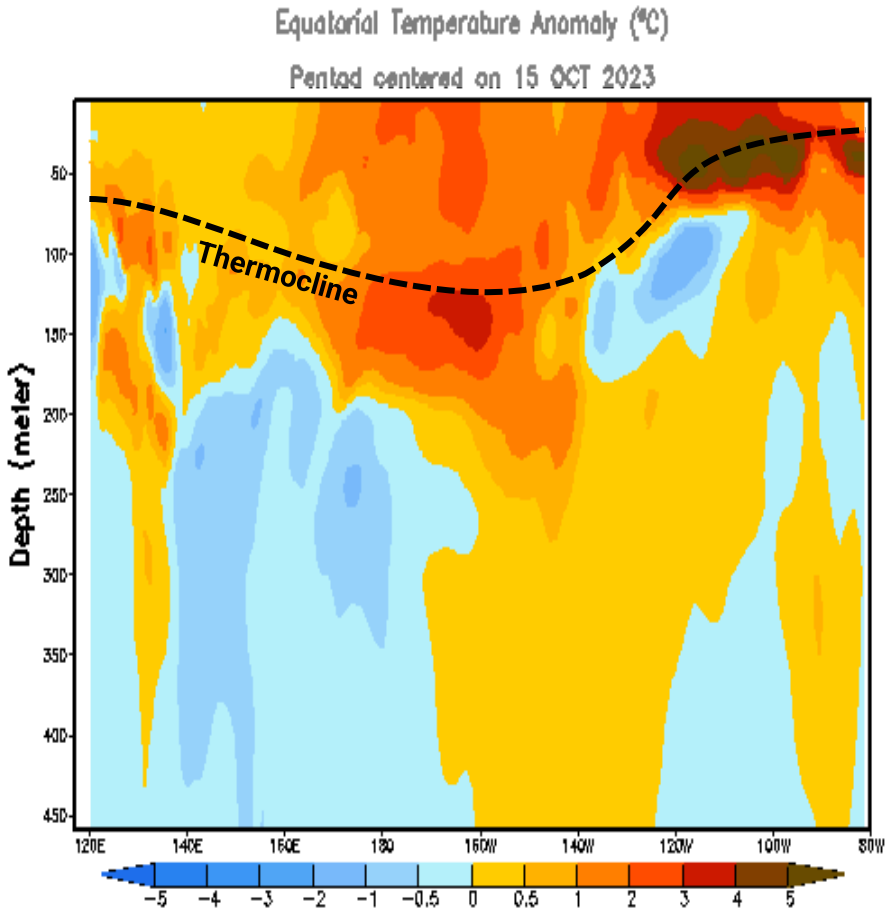


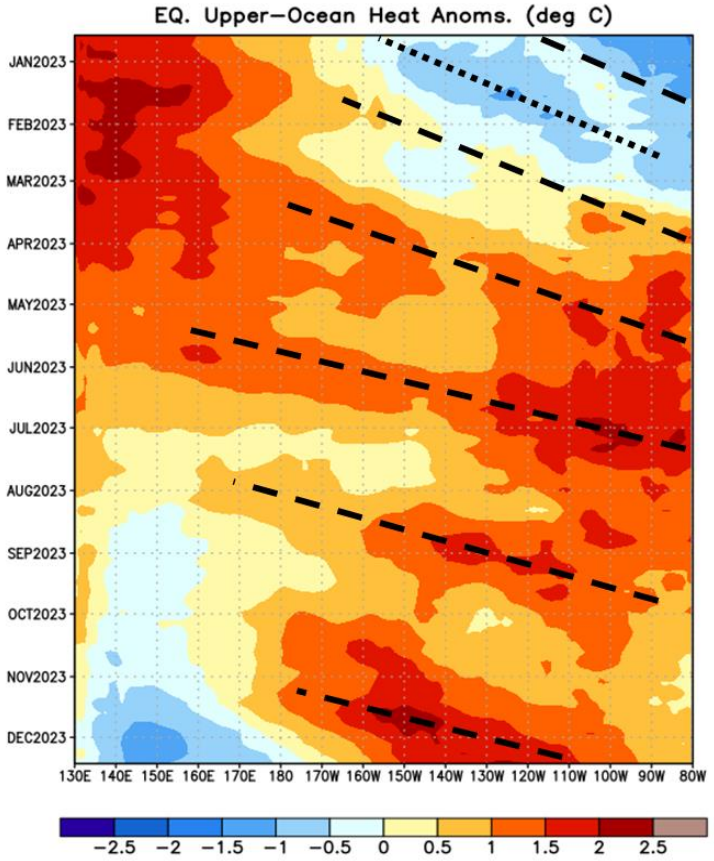
TAKEAWAYS

- Niño 3.4 reaching its warmest so far, almost +2°C
- Niño 1+2 (coast) cooled from persistent south easterly winds.

ENSO: Oceanic Kelvin Waves

Temperature Anomalies with Depth and Heat Content Anomalies





TAKEAWAYS

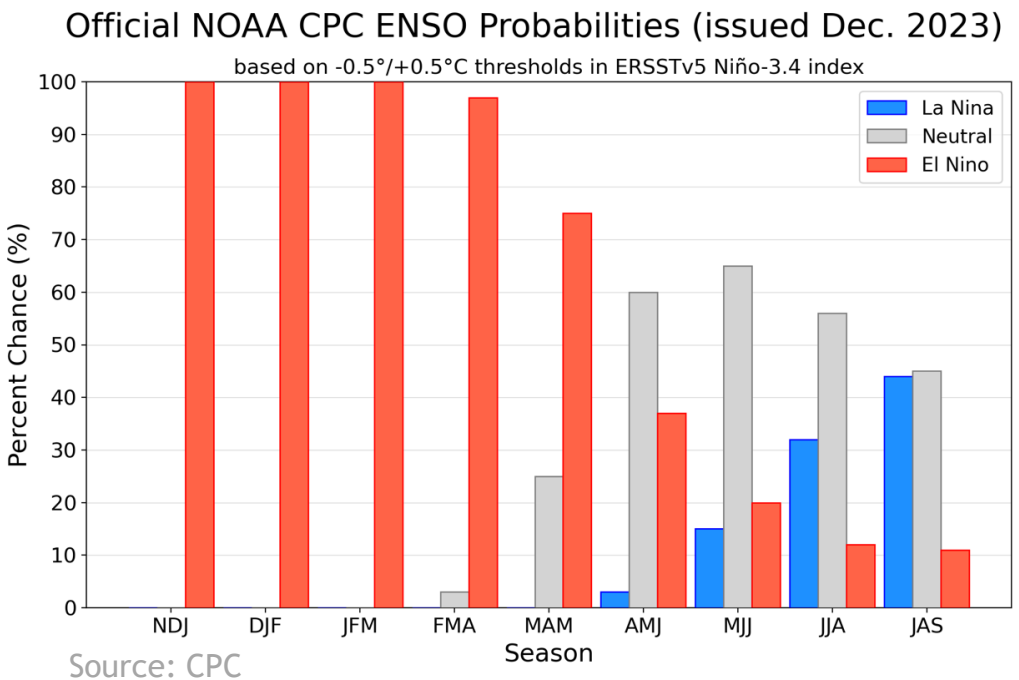
- An envelope of warm Kelvin Waves is propagating towards the South American coast. Arrival, early January.
- Warm Kelvins are, however, struggling to develop important coastal warmings.
- The Western Pacific is cooling rapidly sub-superficially. Sometimes indicates the beginning of the end of El Niño.

Source: CPC

ENSO Outlook

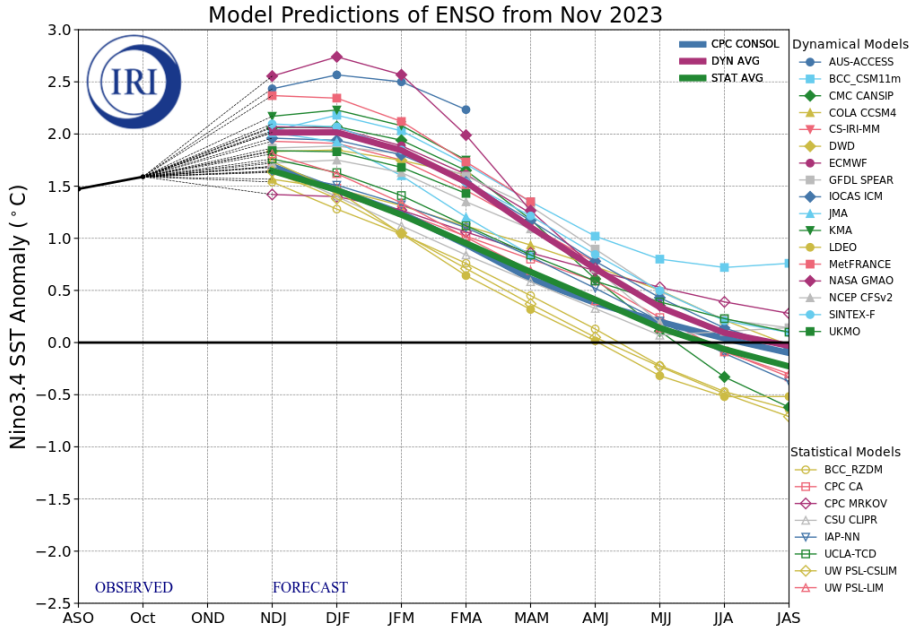
El Niño is expected to continue through the Northern Hemisphere winter, with a transition to ENSO-neutral favored during April-June 2024 (60% chance).*

Probabilistic Forecast



Source: CPC

IRI/CPC Dynamic Models



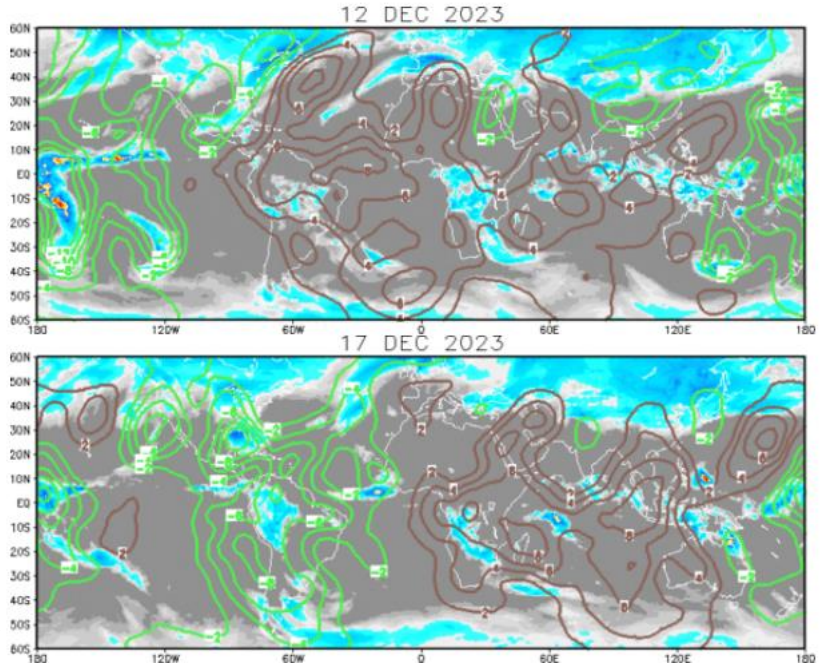
Source: IRI, updated 19 October 2023

Madden-Julian Oscillation (MJO)

Current Observations:

- Wet MJO Pulse rapidly expanded over the Americas since the weekend. Crossing the Americas through Christmas.
- It is taking ~1.3 months to circle the globe, next wet: End of January?

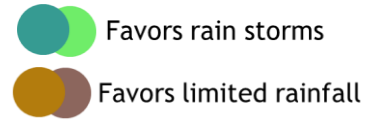
Velocity Potential and Brightness Temperature (shaded)

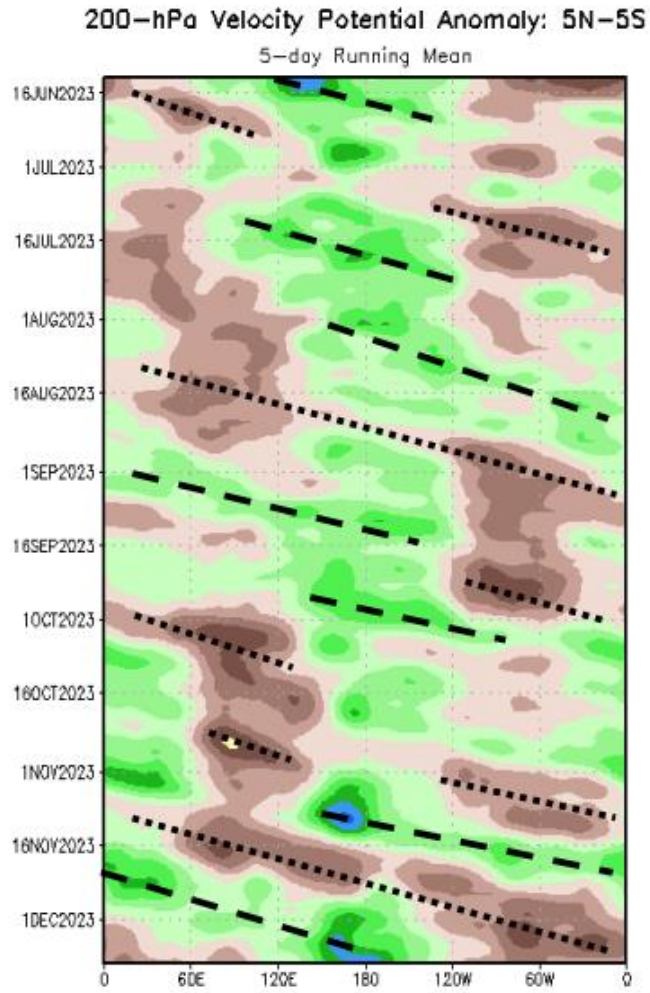


Dec 12

Dec 17

Source: CPC

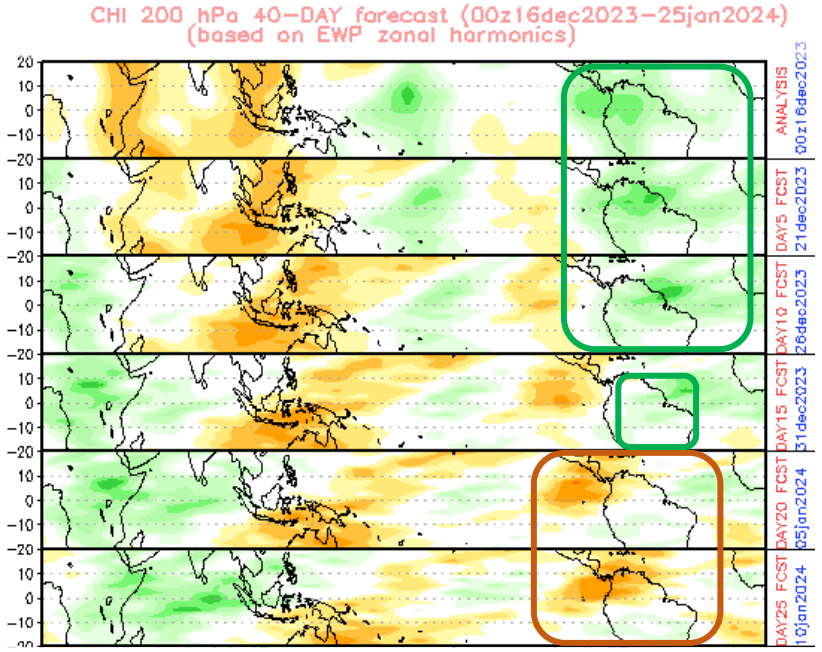




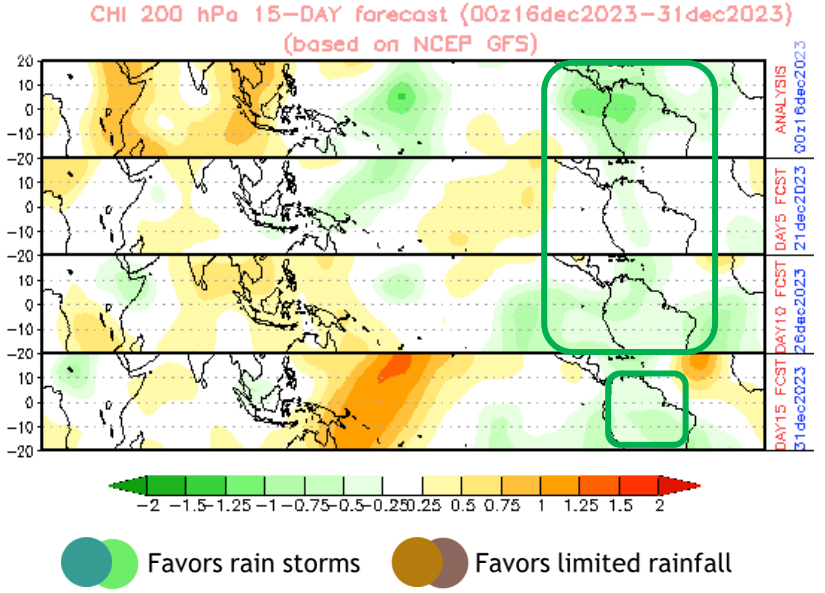
Source: CPC

MJO Forecasts

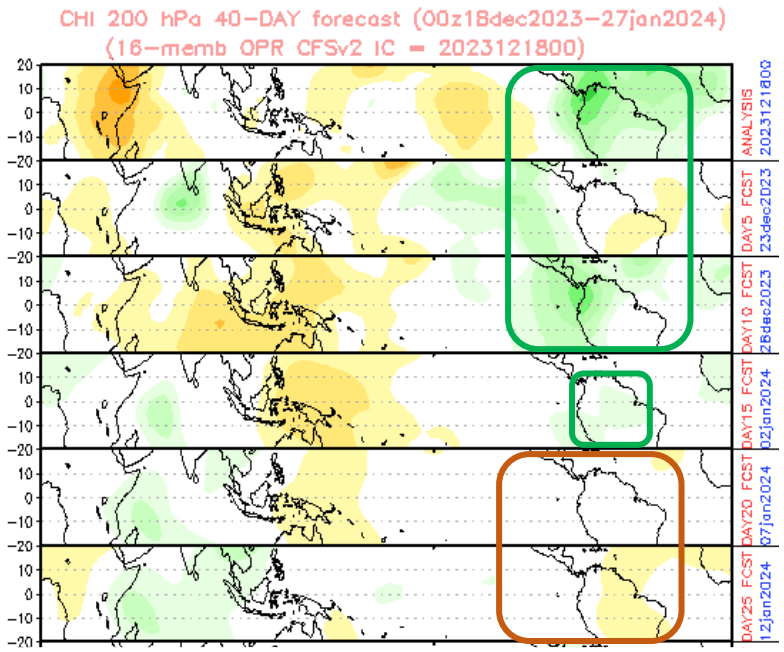
Empirical Wave Propagation (EWP)



Global Forecast System (GFS)



Climate forecast System (CFS)



Source: CPC

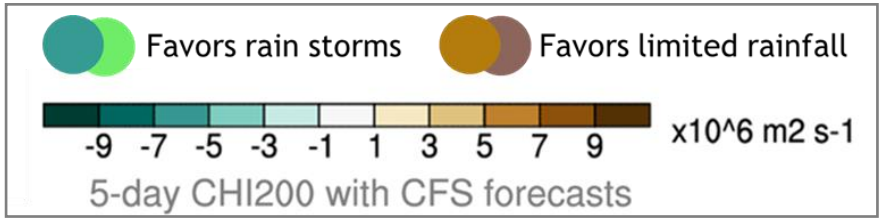
TAKEAWAYS

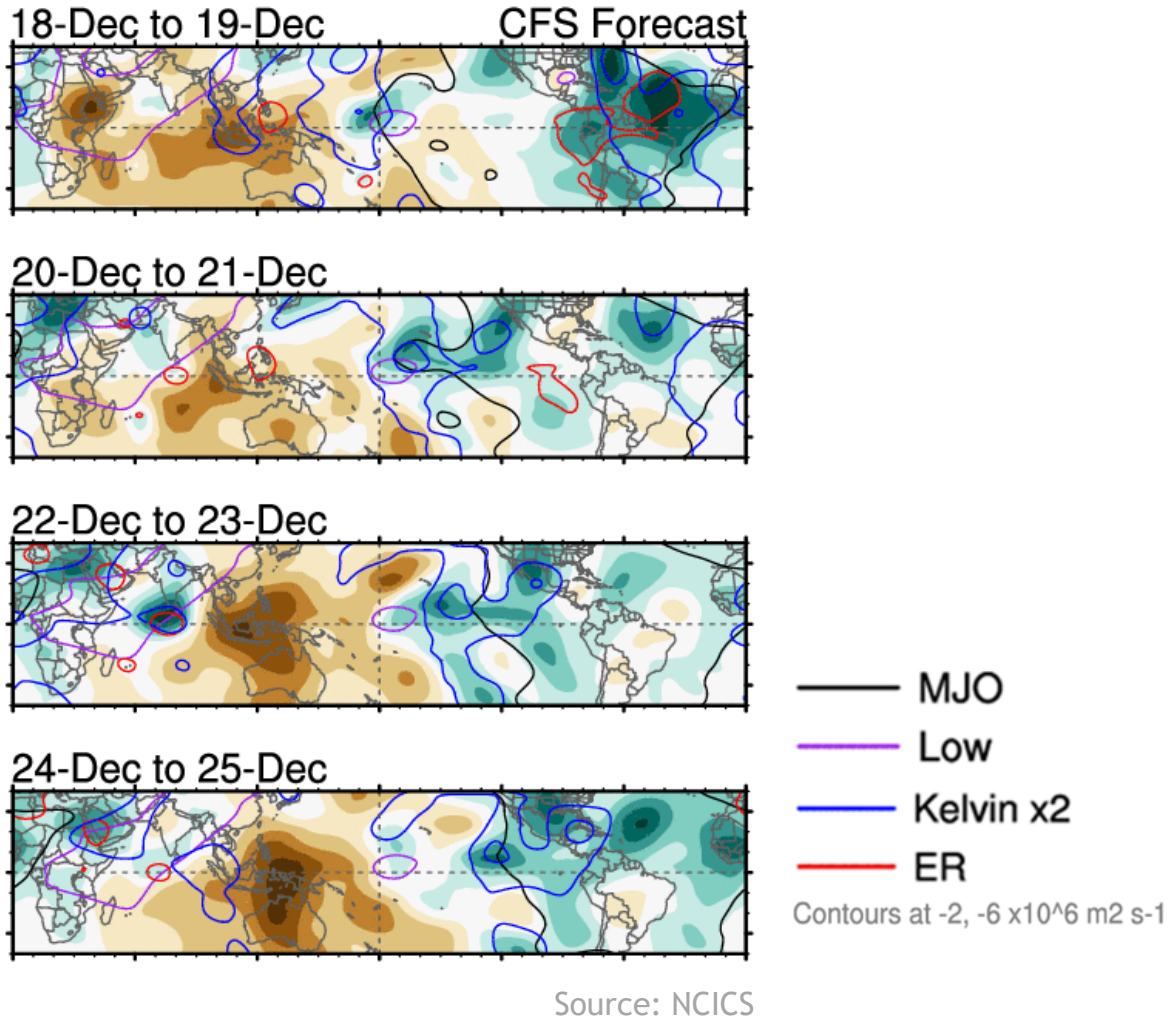
- Models in decent agreement. Considering coherent propagation, confidence is not terrible.
- Wet through the end of December, persistent for Brazil.
- January might be drier.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

- MJO and Kelvin are stimulating convection in the Americas.
- Another Kelvin is expected during the last week of December.

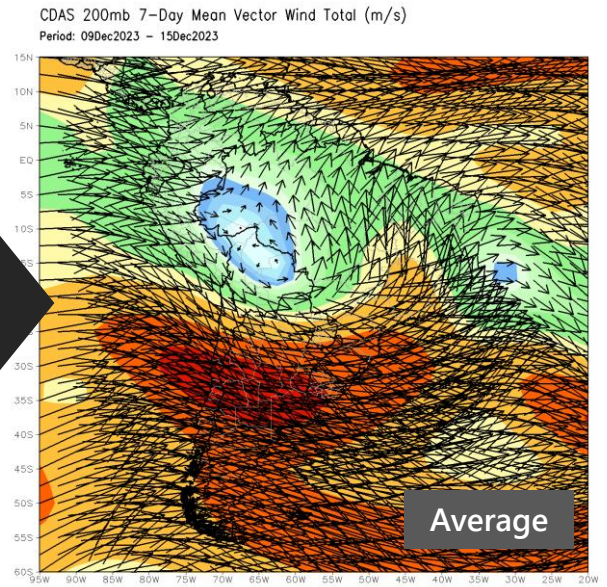


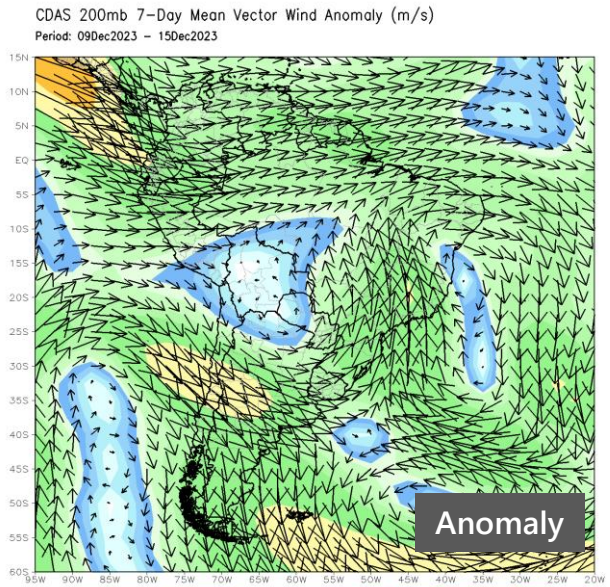


Source: NCICS

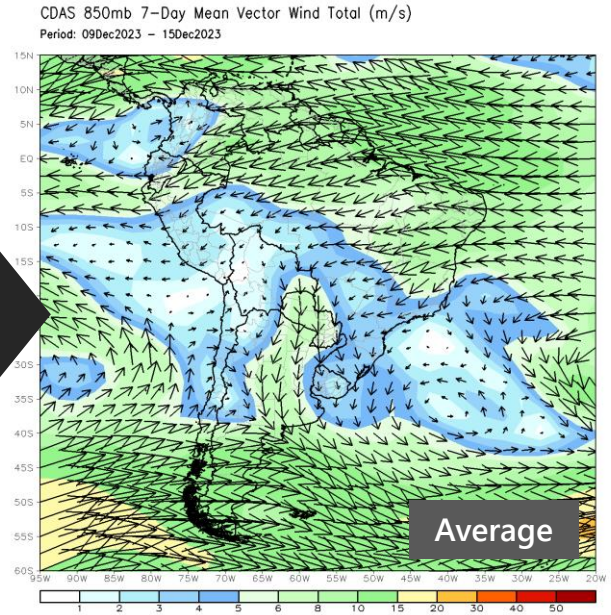
South America, Last 7 Days

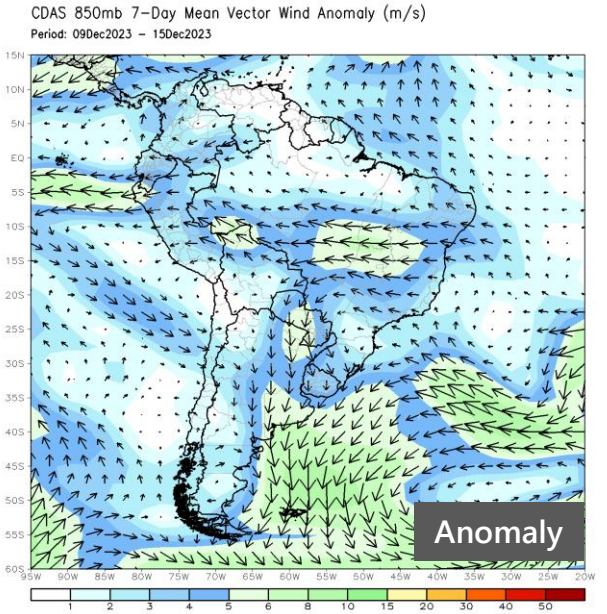
200 hPa Flow



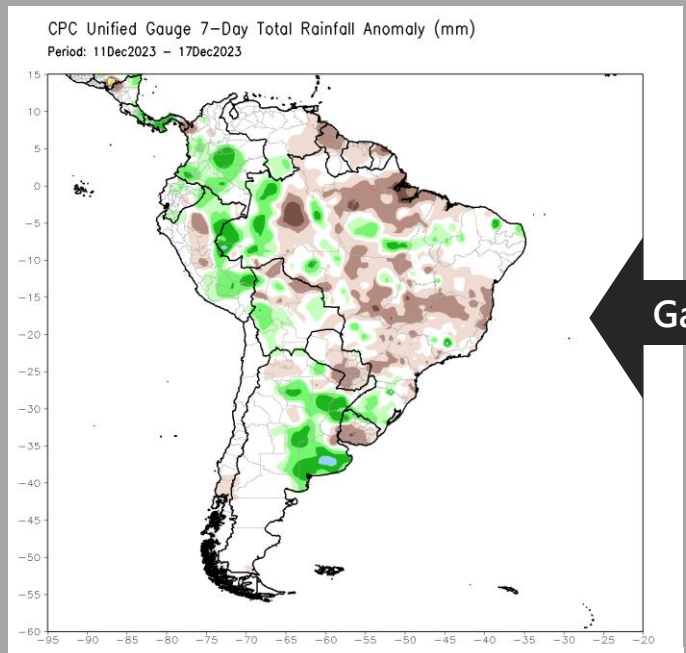


850 hPa Flow

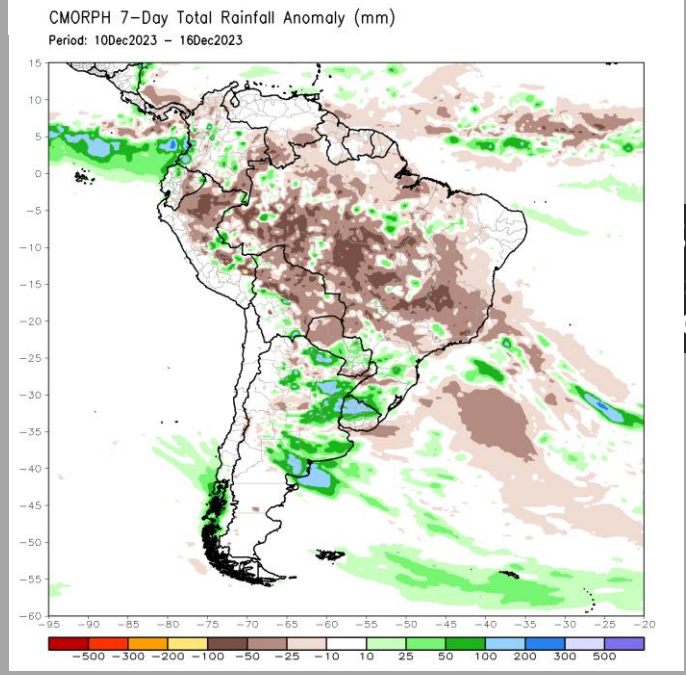




Rainfall Anomalies



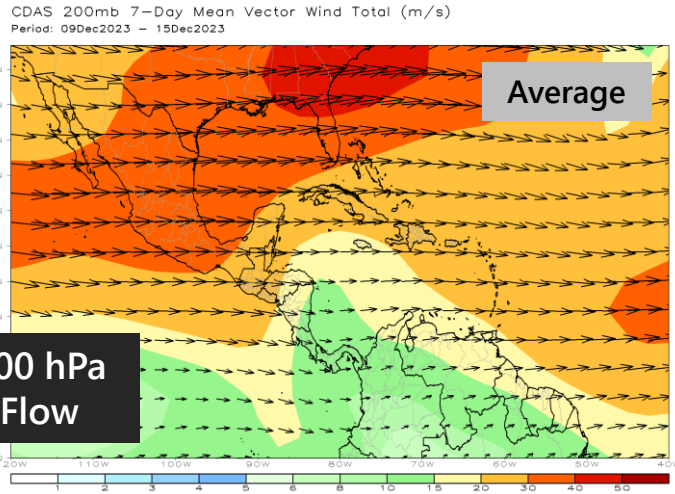
Gauges

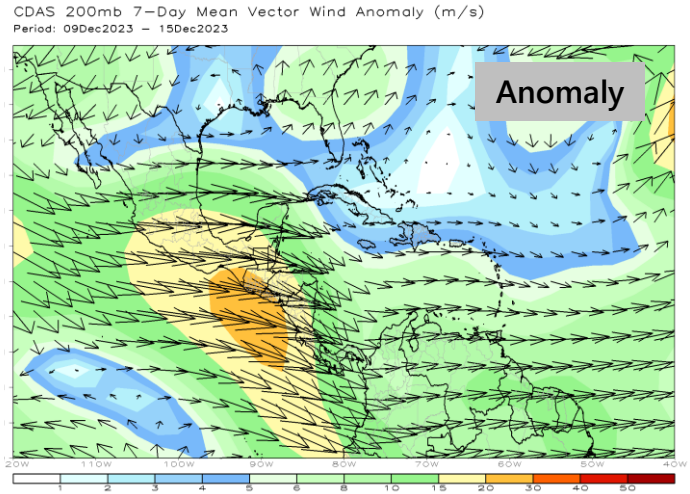


atellite – stimated CMORPH)

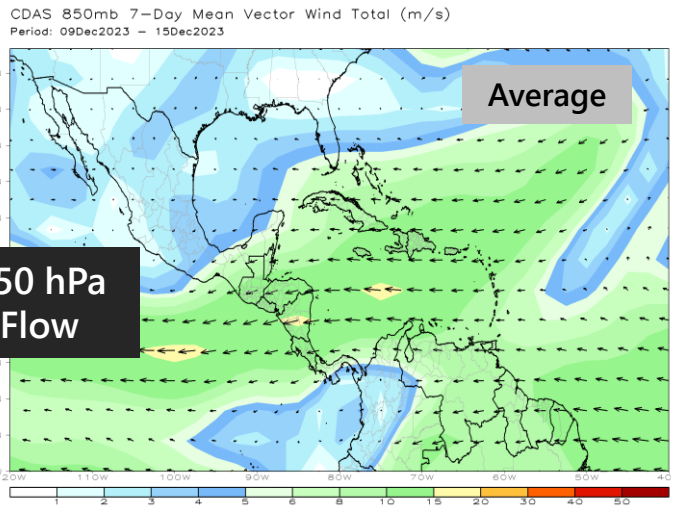
Caribbean and Central America, Last 7 Days

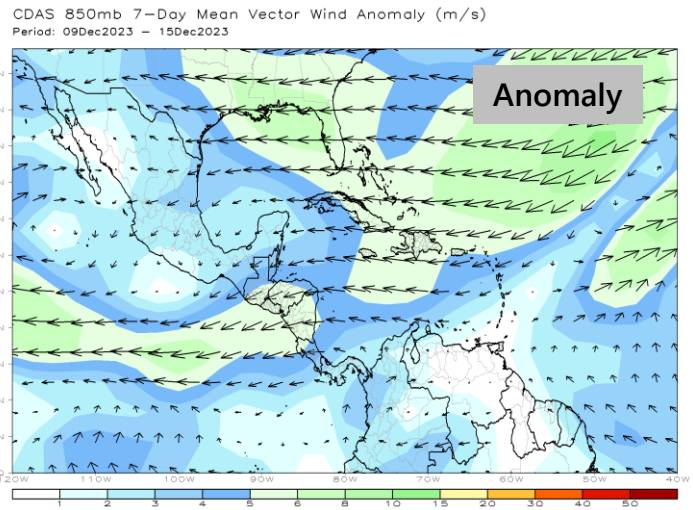
200 hPa Flow





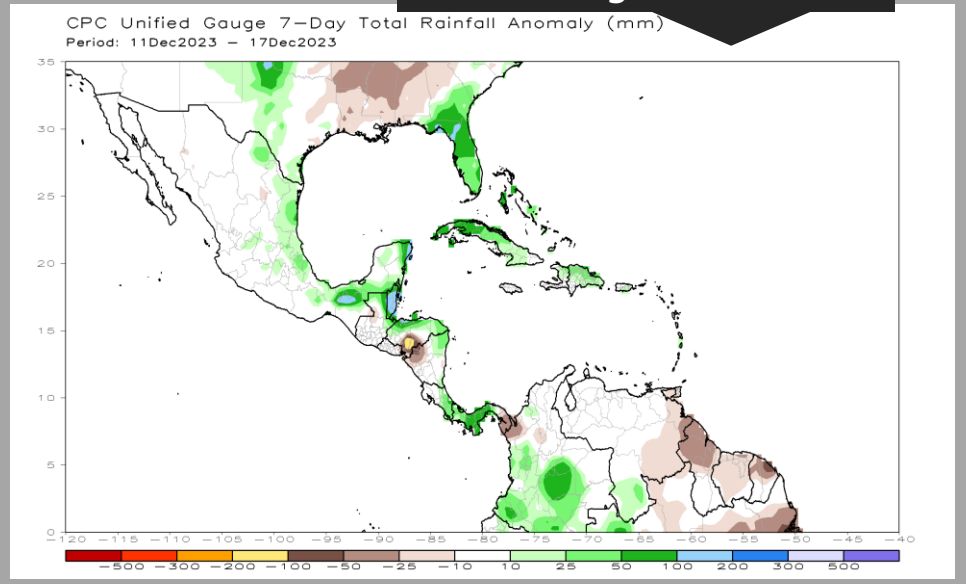
850 hPa Flow



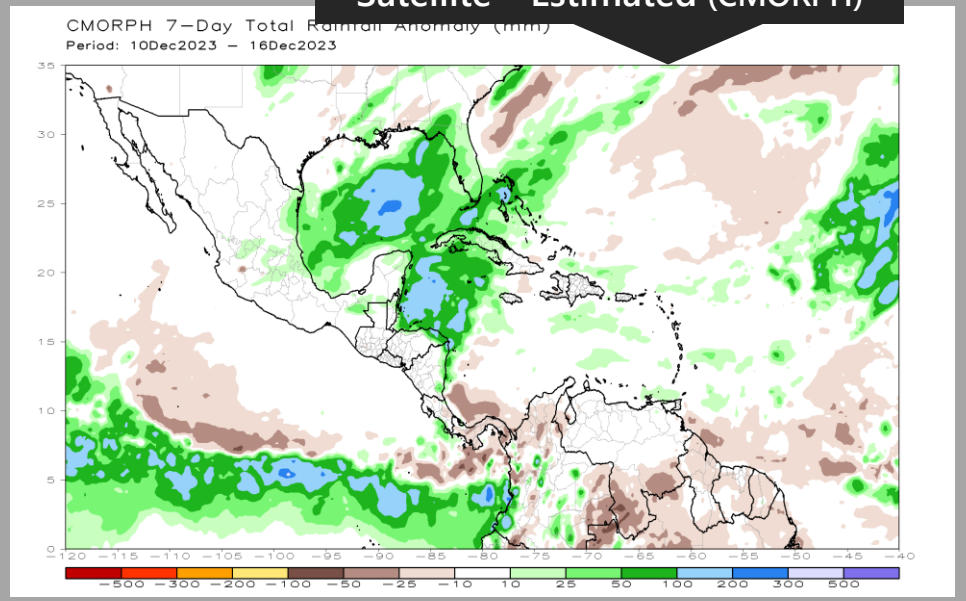


Rainfall Anomalies

Gauges (CPC)



Satellite – Estimated (CMORPH)



¡Gracias! Thank you! ¡Obrigado!

Next Sessions:

- Wednesday January 17 at 16 UTC
- Wednesday February 21 at 16 UTC
- Wednesday March 21 at 14 UTC

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

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