WMO VLab Regional Focus Group of the
Americas and Caribbean

Since 2004

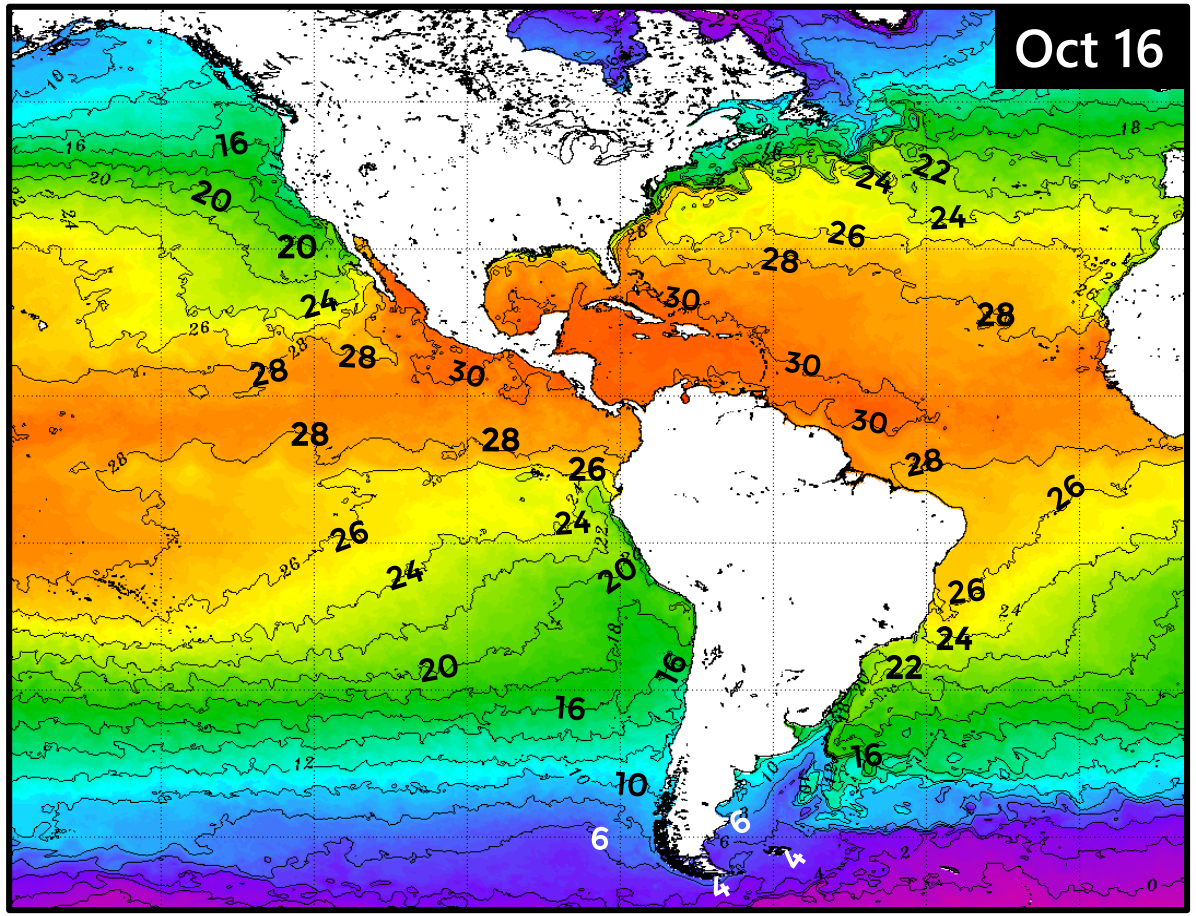
Climate Indices

Current Status and Projections

Wednesday 18 October 2023

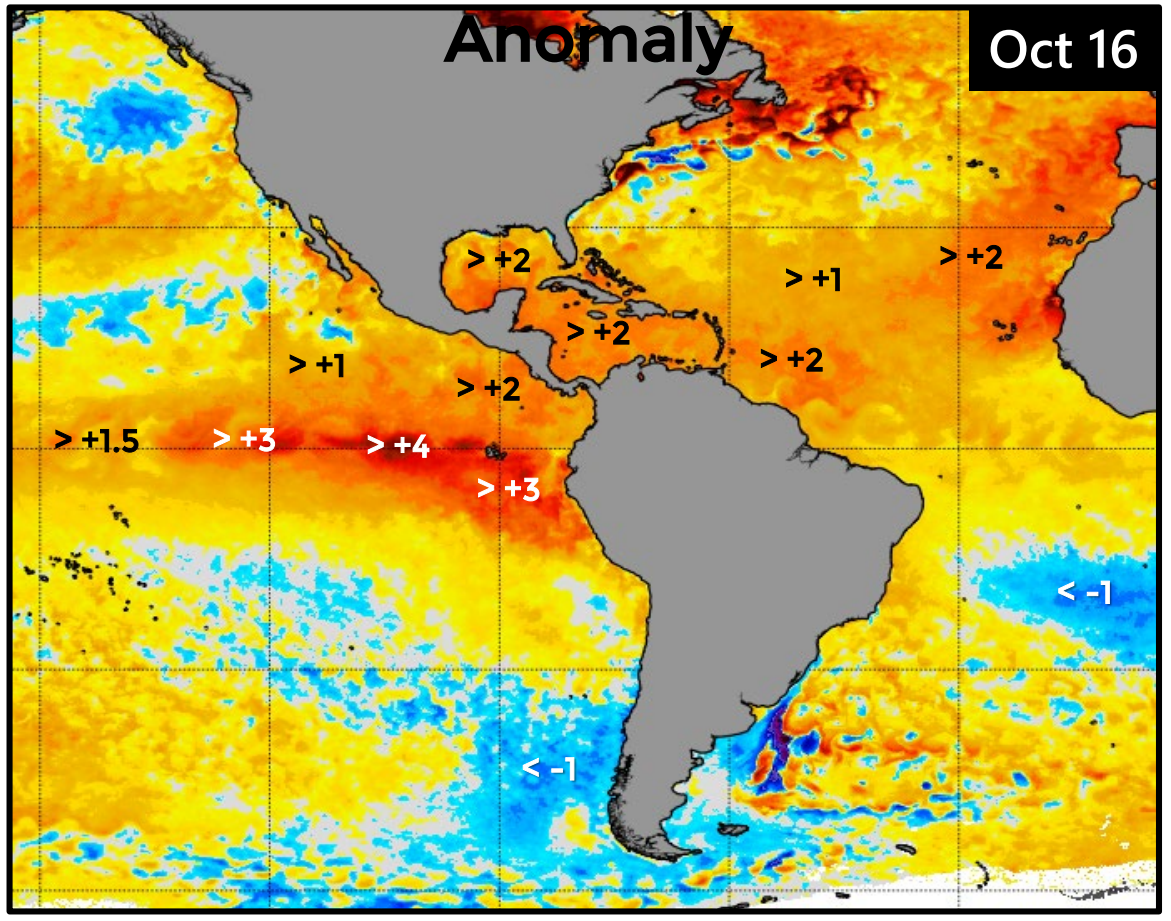
Sea Surface Temperature (SST)

SST



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

SST Anomaly

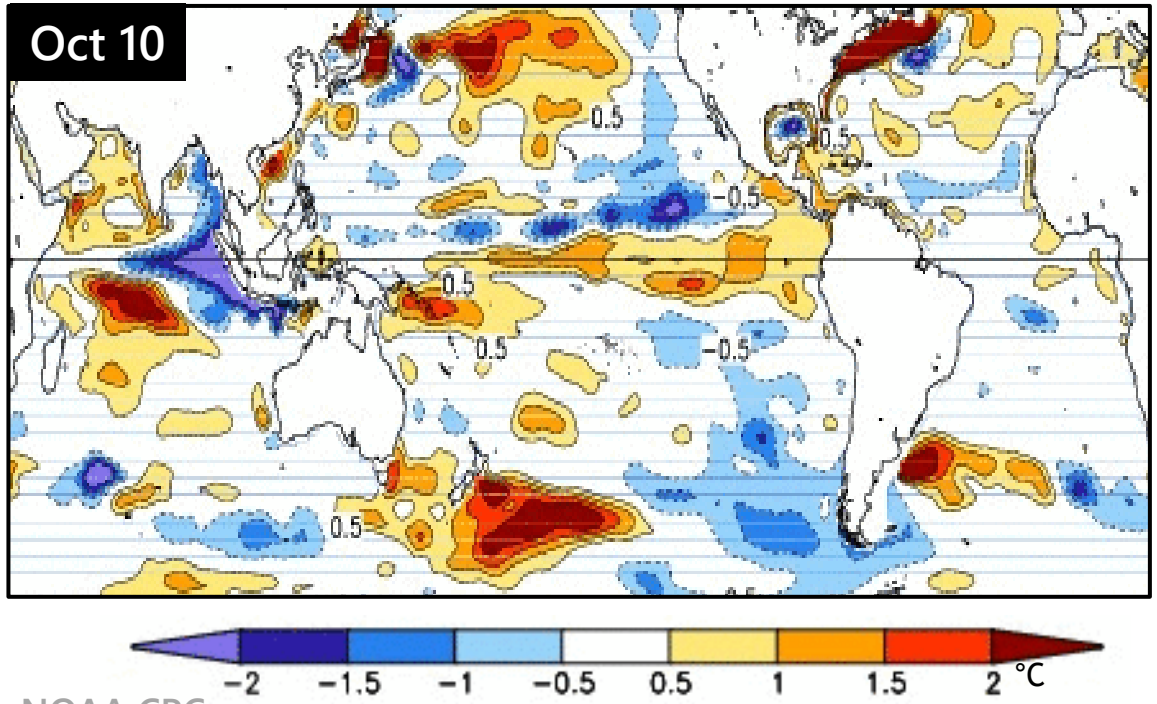


NOAA Coral Reef Watch https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

Top Layer Temperature Anomaly

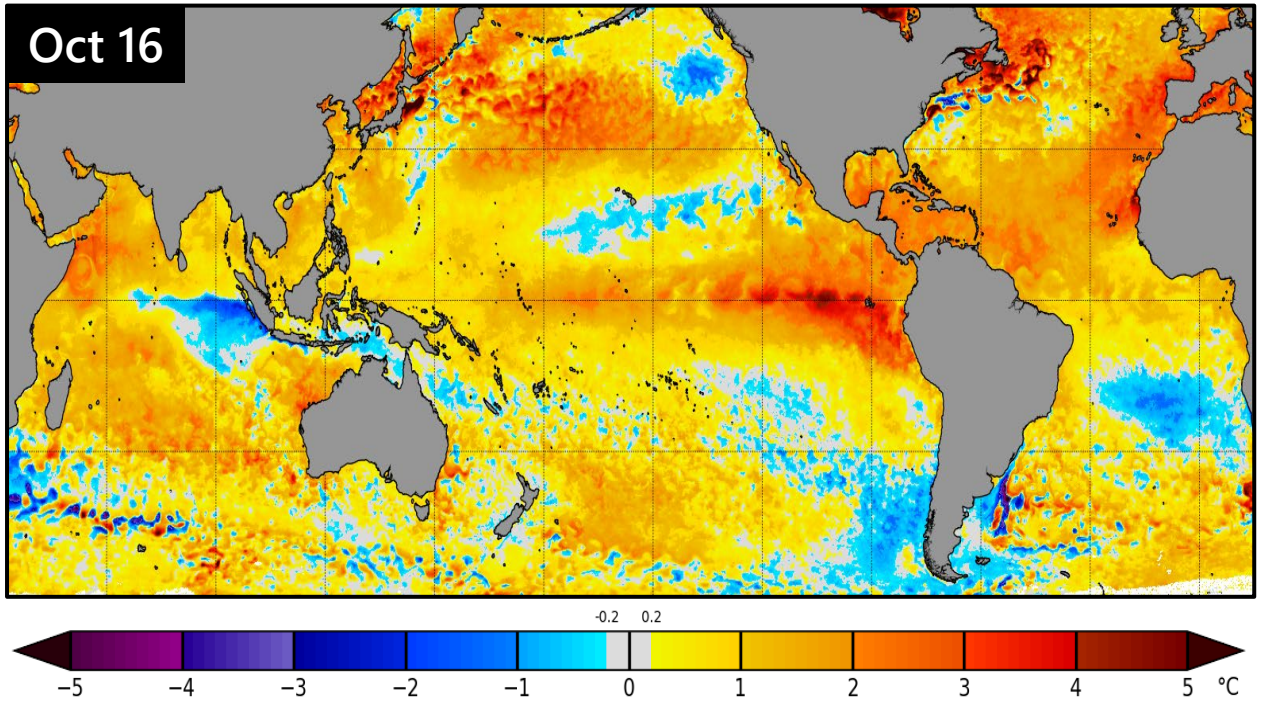
Anomalies in a layer take longer to dissipate than superficial ones, and can last for weeks.

Top 300m-Layer Anomaly



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

Surface Anomaly



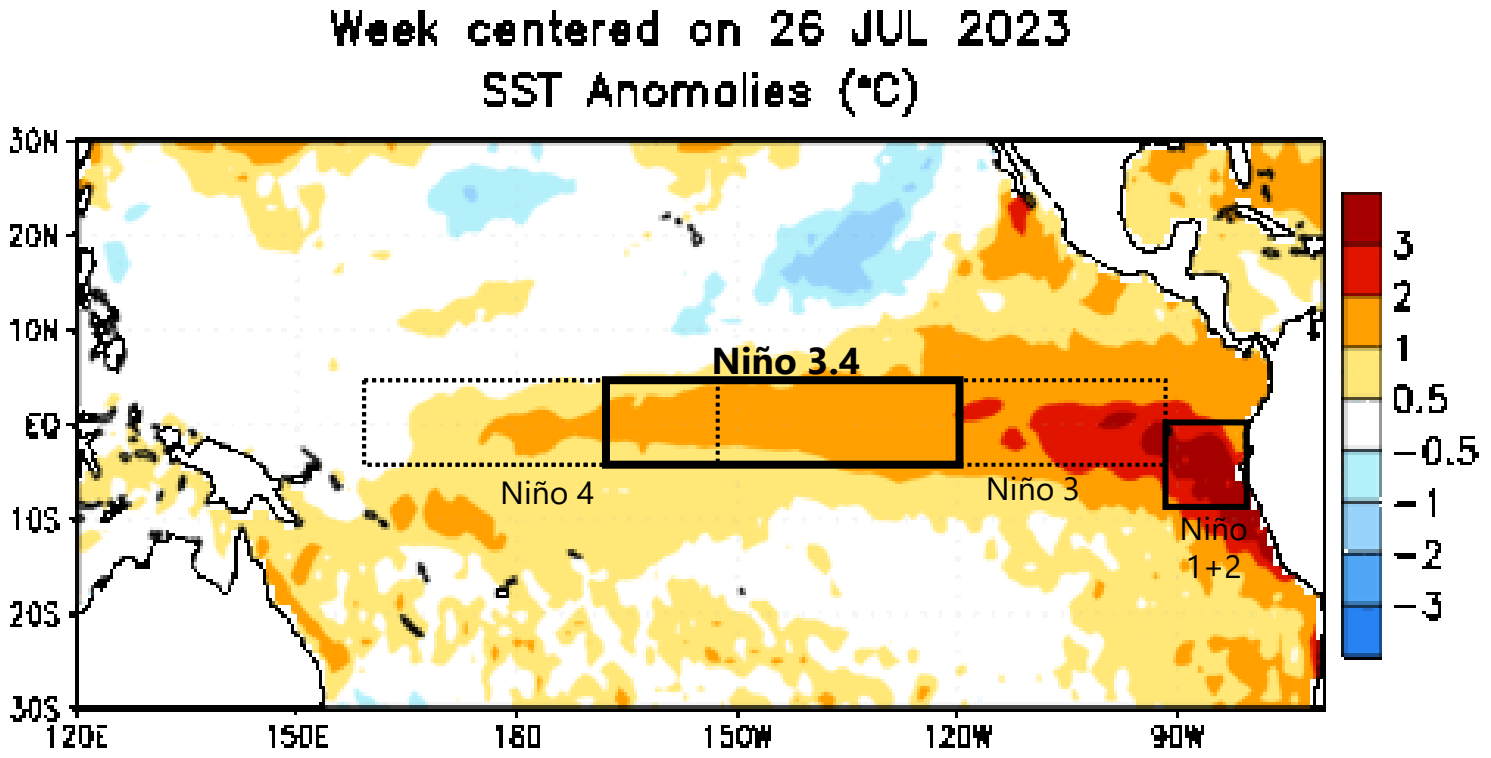
NOAA Coral Reef Watch
https://coralreefwatch.noaa.gov/product/5km/index_5km_ssta.php

El Niño-Southern Oscillation (ENSO)

CPC Official Statement

Status: El Niño Advisory

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

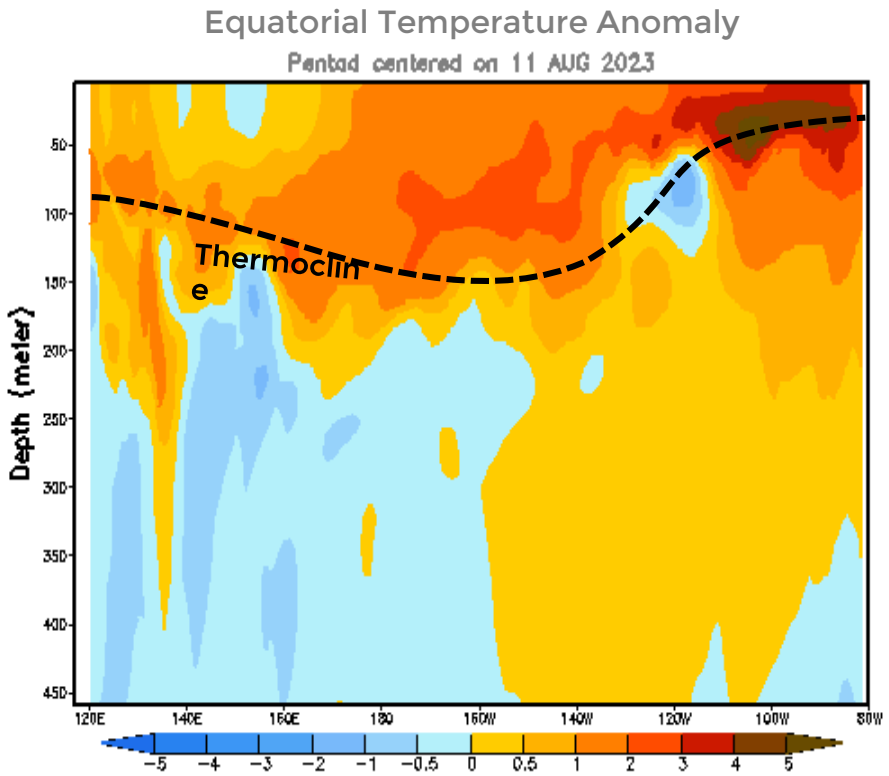


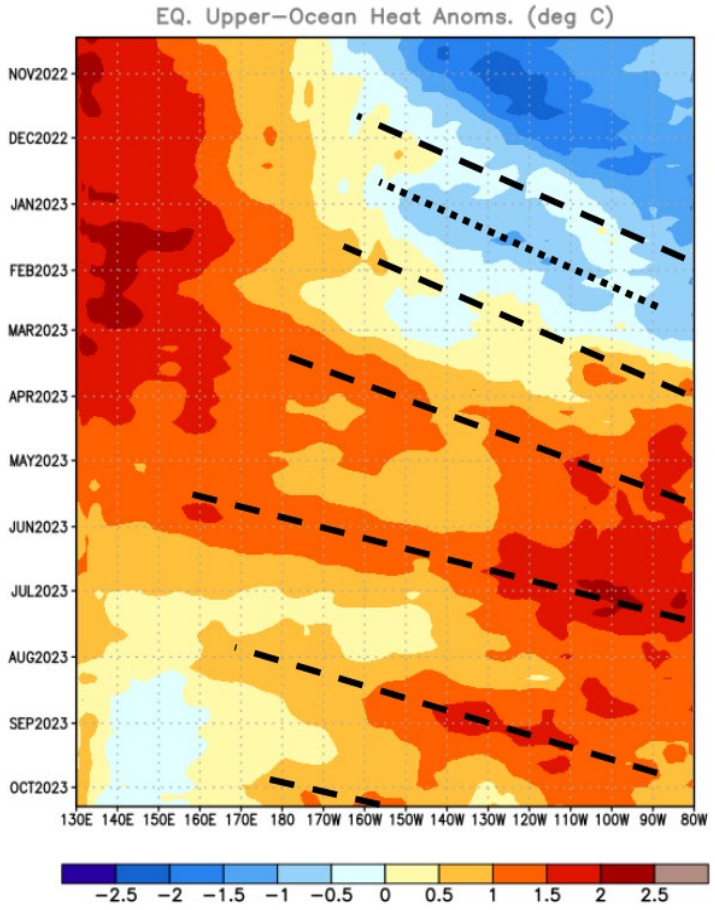
TAKEAWAYS

- 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

Temperature Anomalies with Depth and Heat Content Anomalies

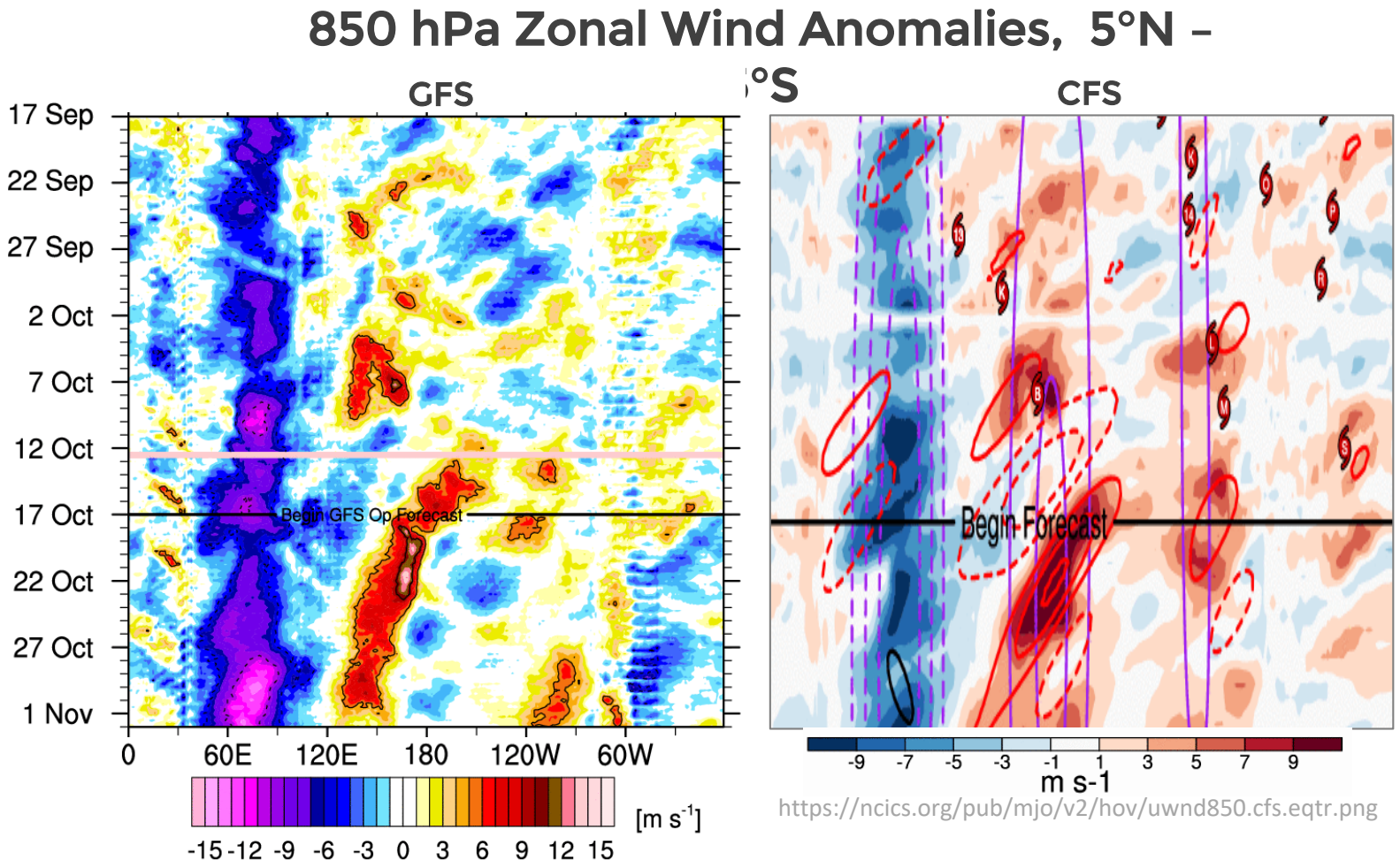




TAKEAWAYS

- 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?



http://mikeventrice.weebly.com/hovmollers.html

https://ncics.org/pub/mjo/v2/hov/uwnd850.cfs.eqtr.png

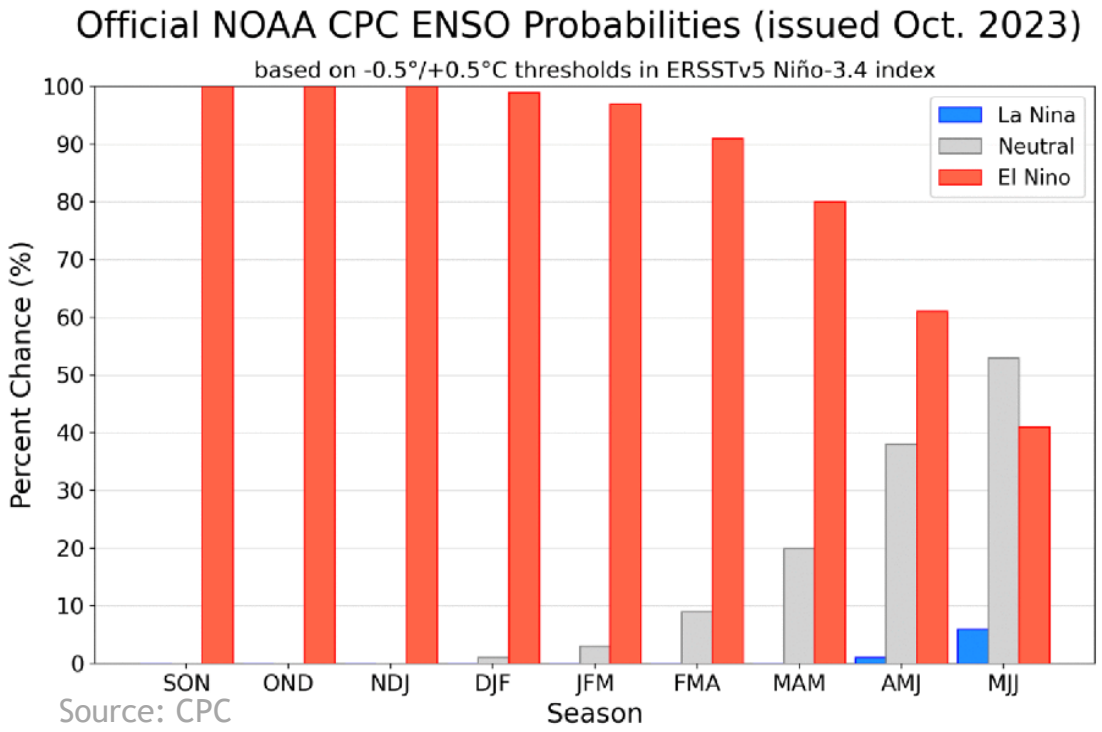
TAKEAWAYS

- 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.

ENSO Outlook

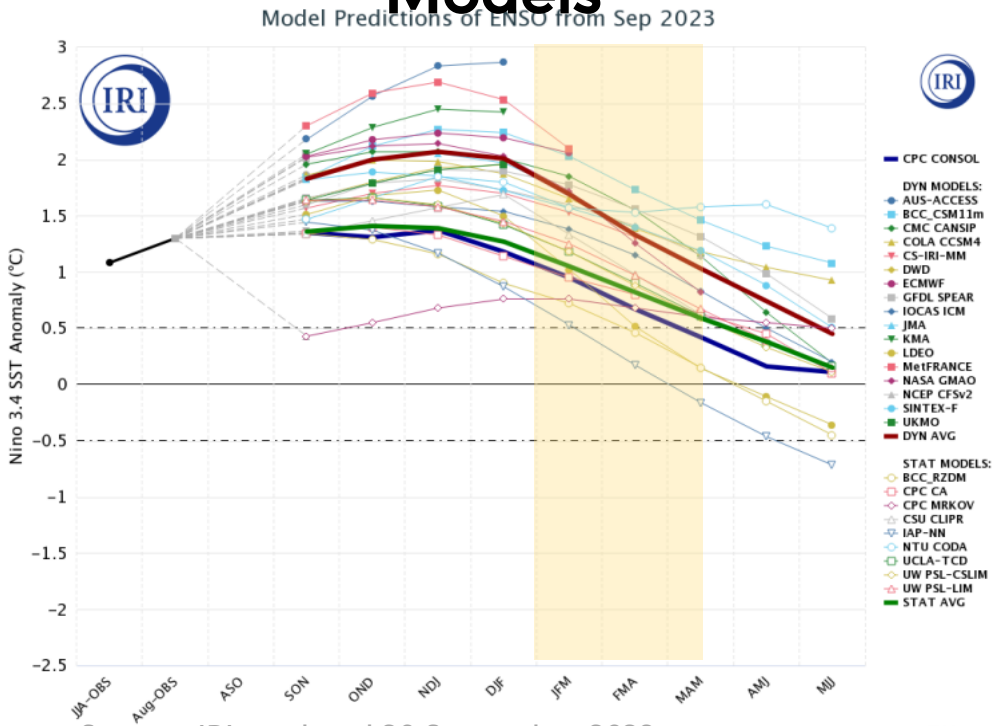
El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March–May 2024).

Probabilistic Forecast



Source: CPC

IRI/CPC Dynamic Models



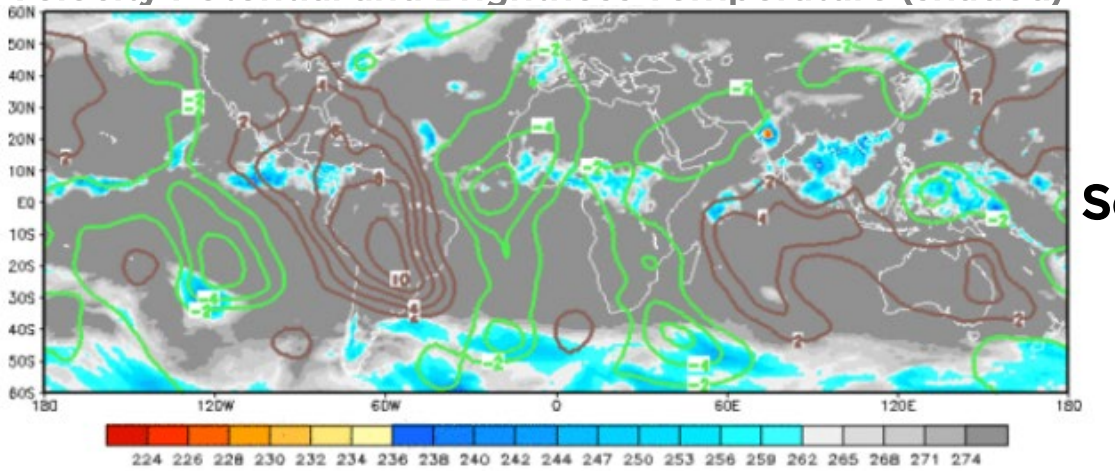
Source: IRI, updated 20 September 2023

Madden-Julian Oscillation (MJO)

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)

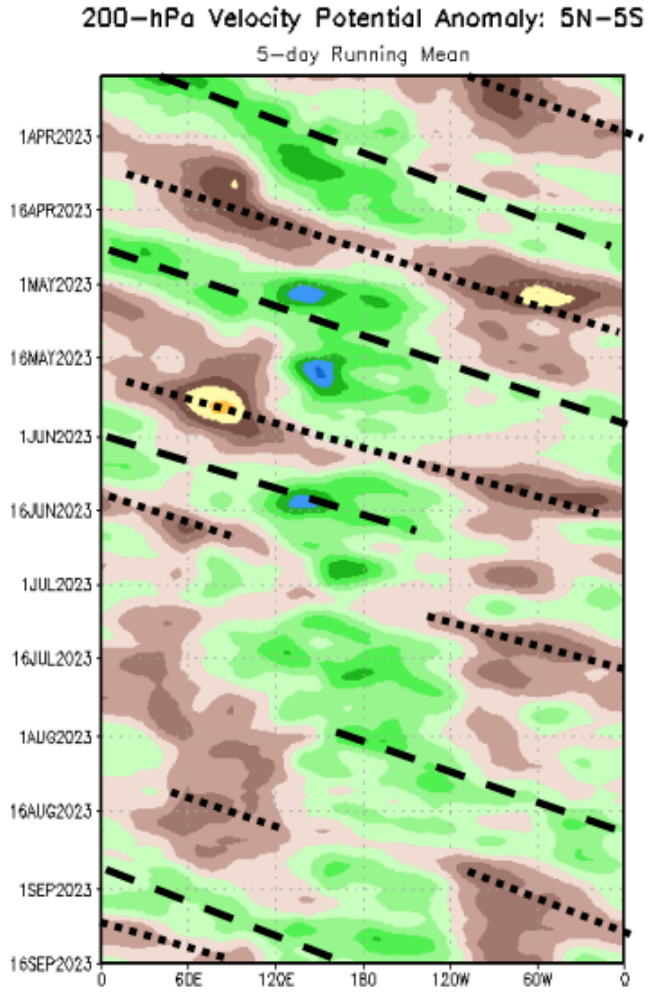


Source: CPC

Sep 17

Favors rain storms

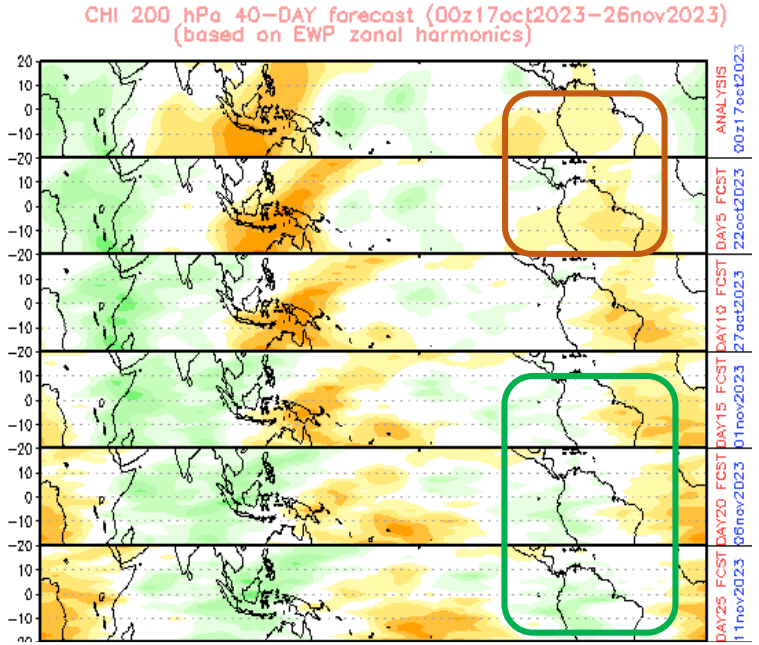
Favors limited rainfall



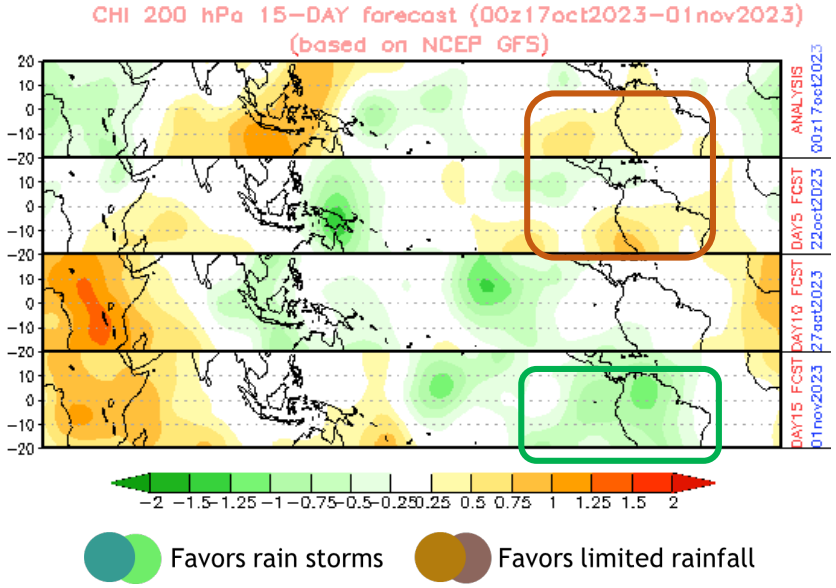
Source: CPC

MJO Forecasts

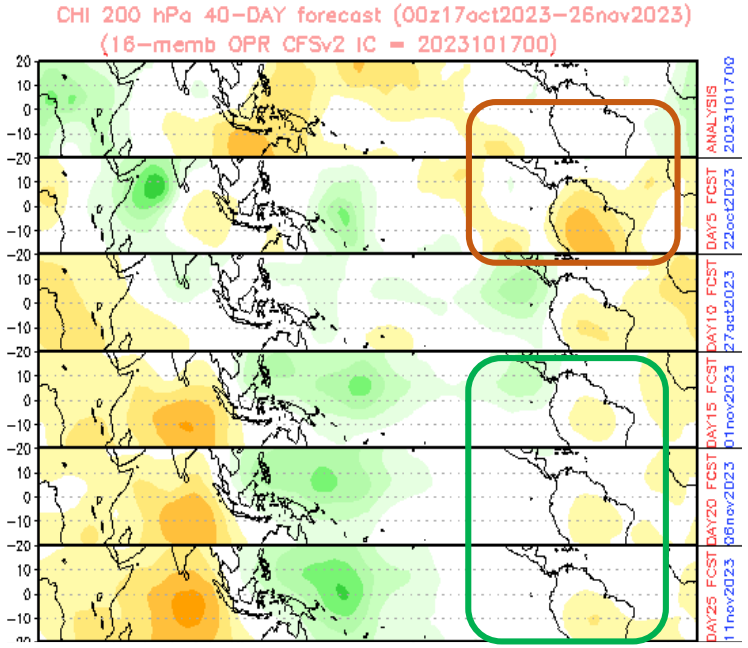
Empirical Wave Propagation (EWP)



Global Forecast System (GFS)



Climate forecast System (CFS)



Source: CPC

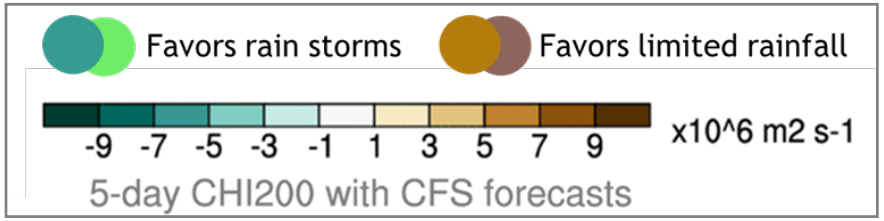
TAKEAWAYS

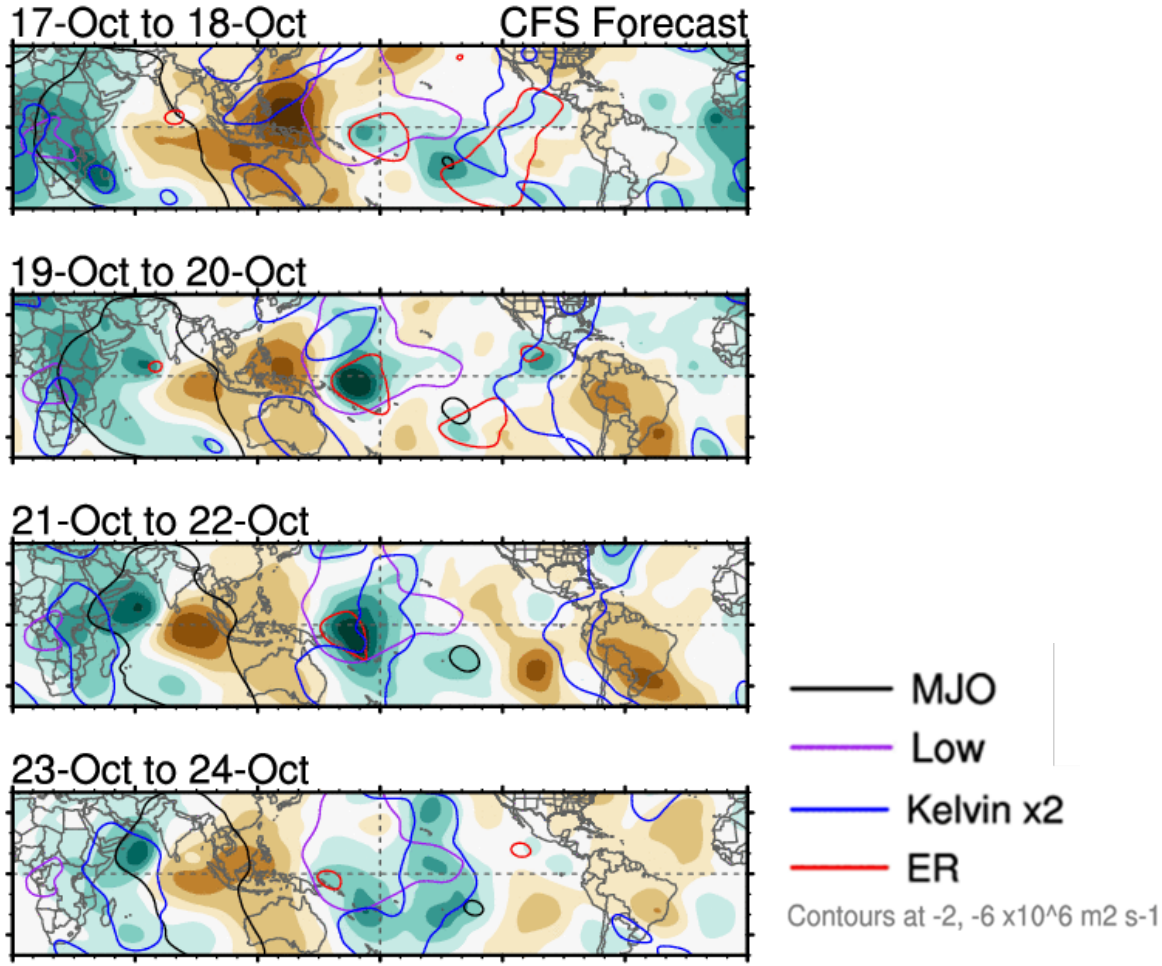
- Models keep changing their solutions = confidence is not very high.
- Dry spell during the last 10 days of October. Possibly wetter in early November.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

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

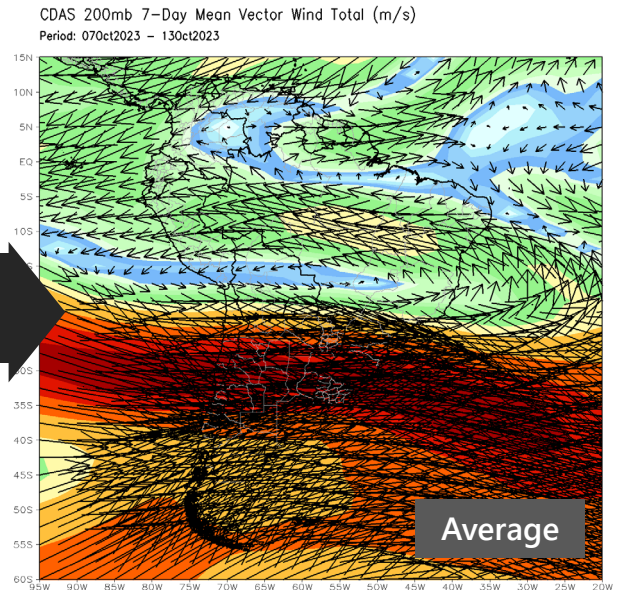


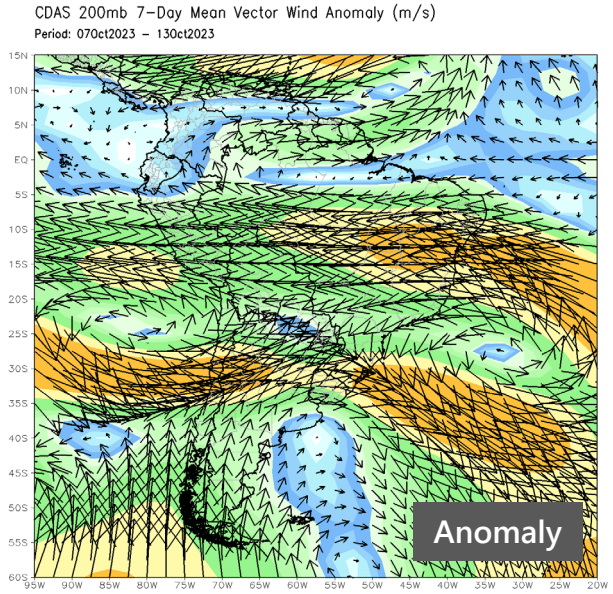


Source: NCICS

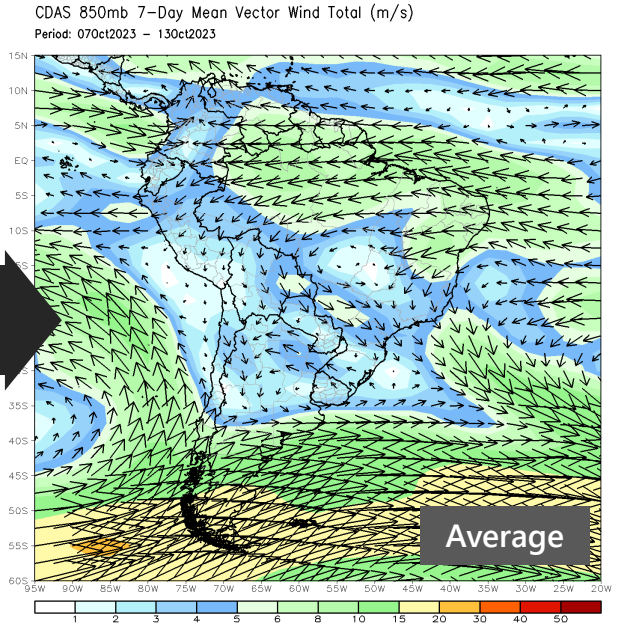
South America, Last 7 Days

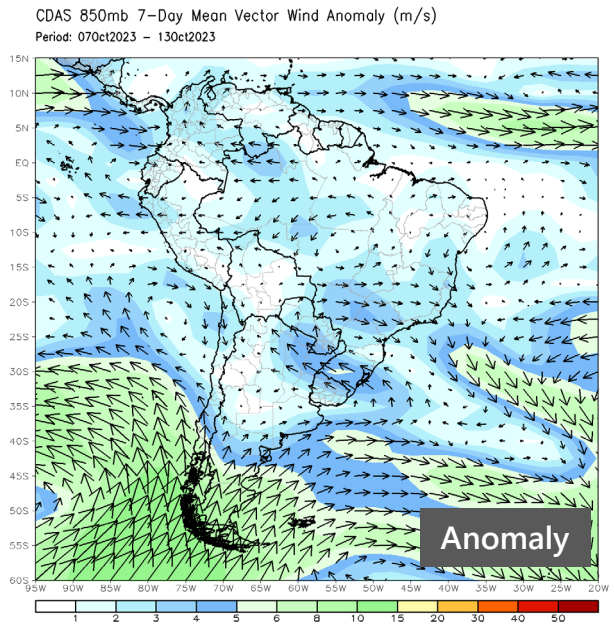
200 hPa Flow





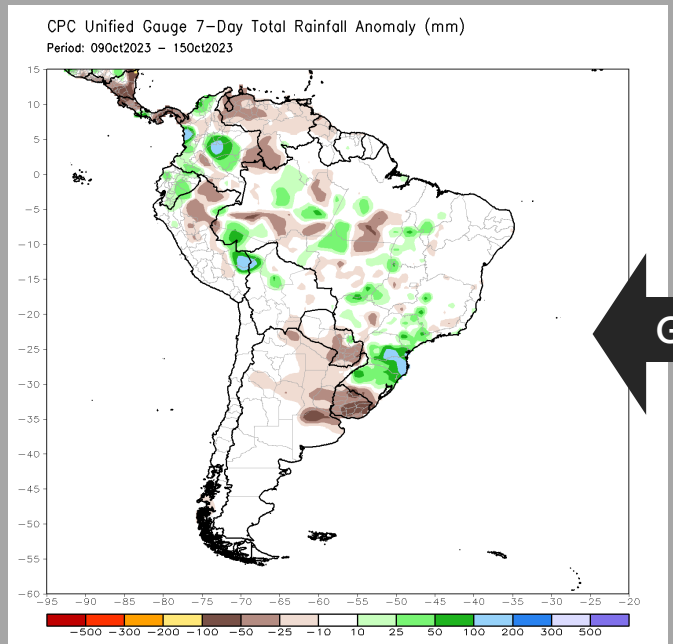
850 hPa Flow



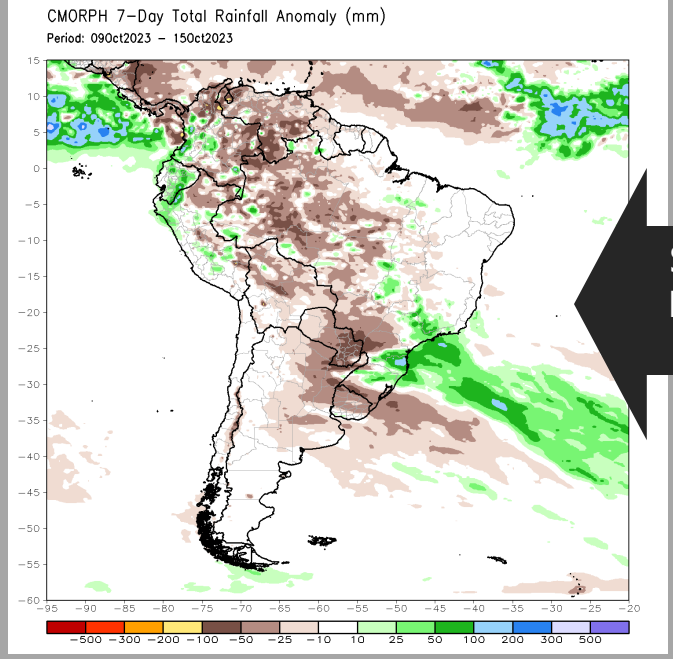


Rainfall Anomalies

Gauges



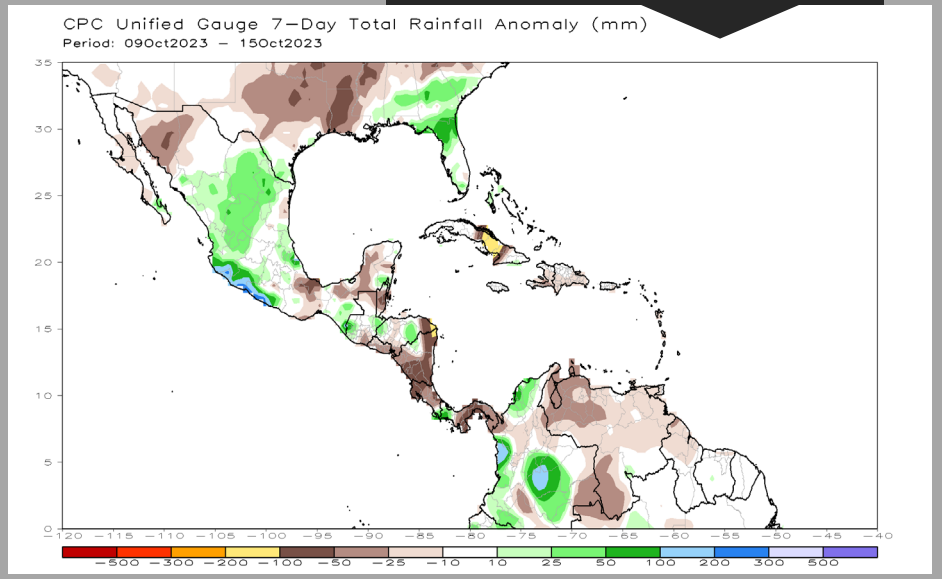
Satellite – Estimated (CMORPH)



Caribbean and Central America, Last 7 Days

Rainfall Anomalies

Gauges (CPC)



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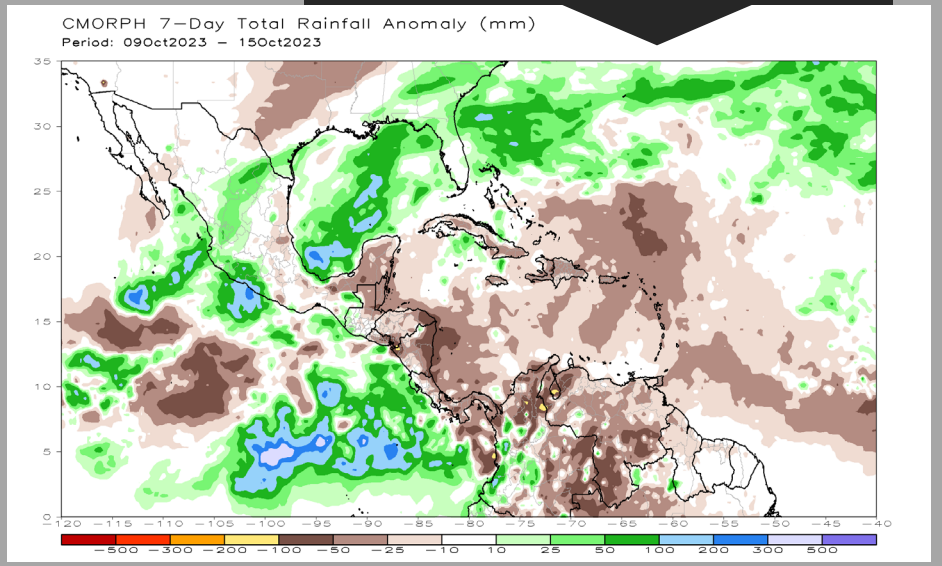
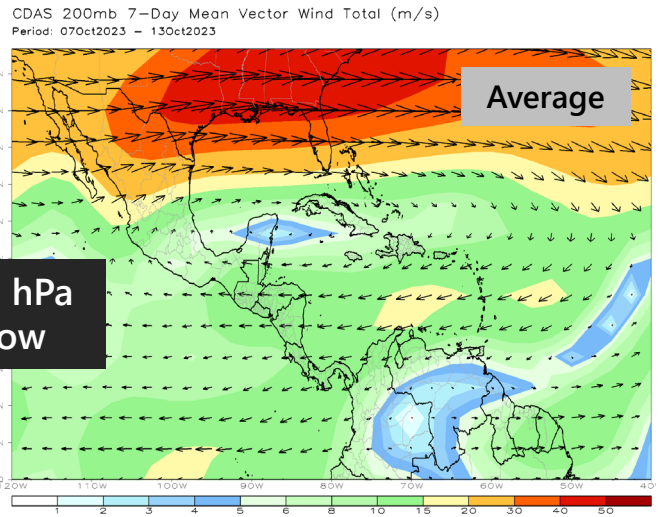
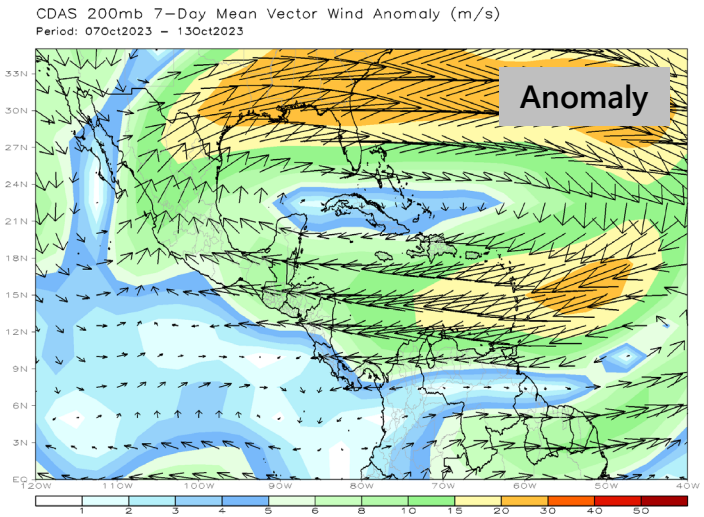
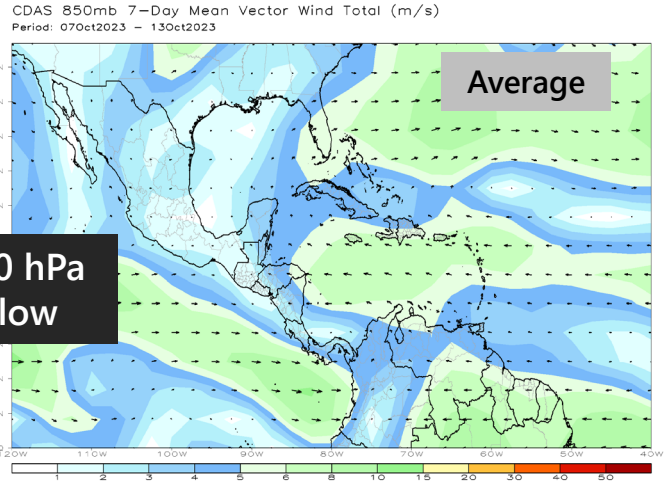


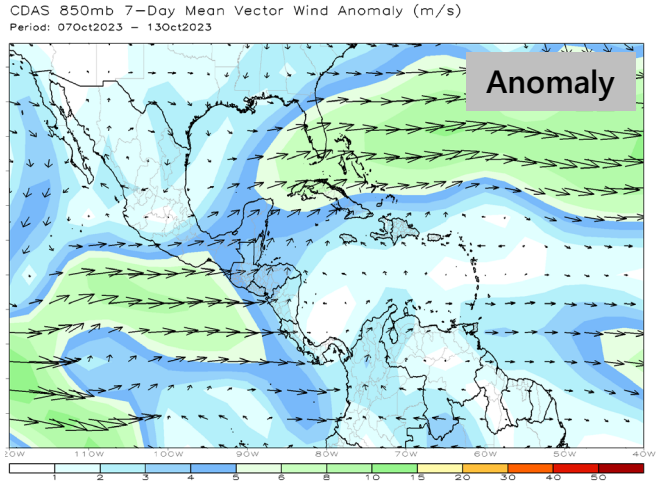
200 hPa Flow





850 hPa Flow





¡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/

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