

WMO VLab Regional Focus Group
of the Americas and Caribbean



Since 2004

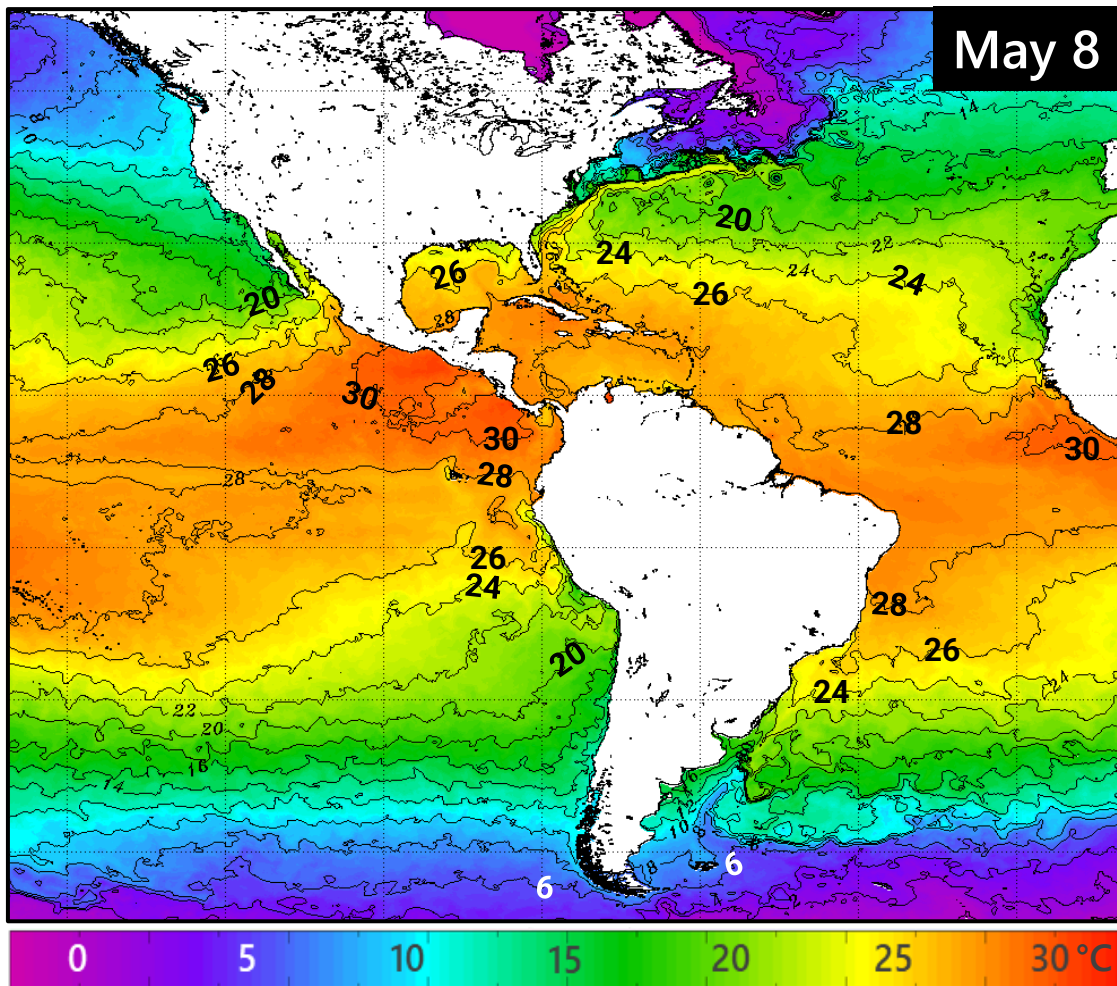
Climate Indices

Current Status and Projections

Wednesday 10 May 2023

Sea Surface Temperature (SST)

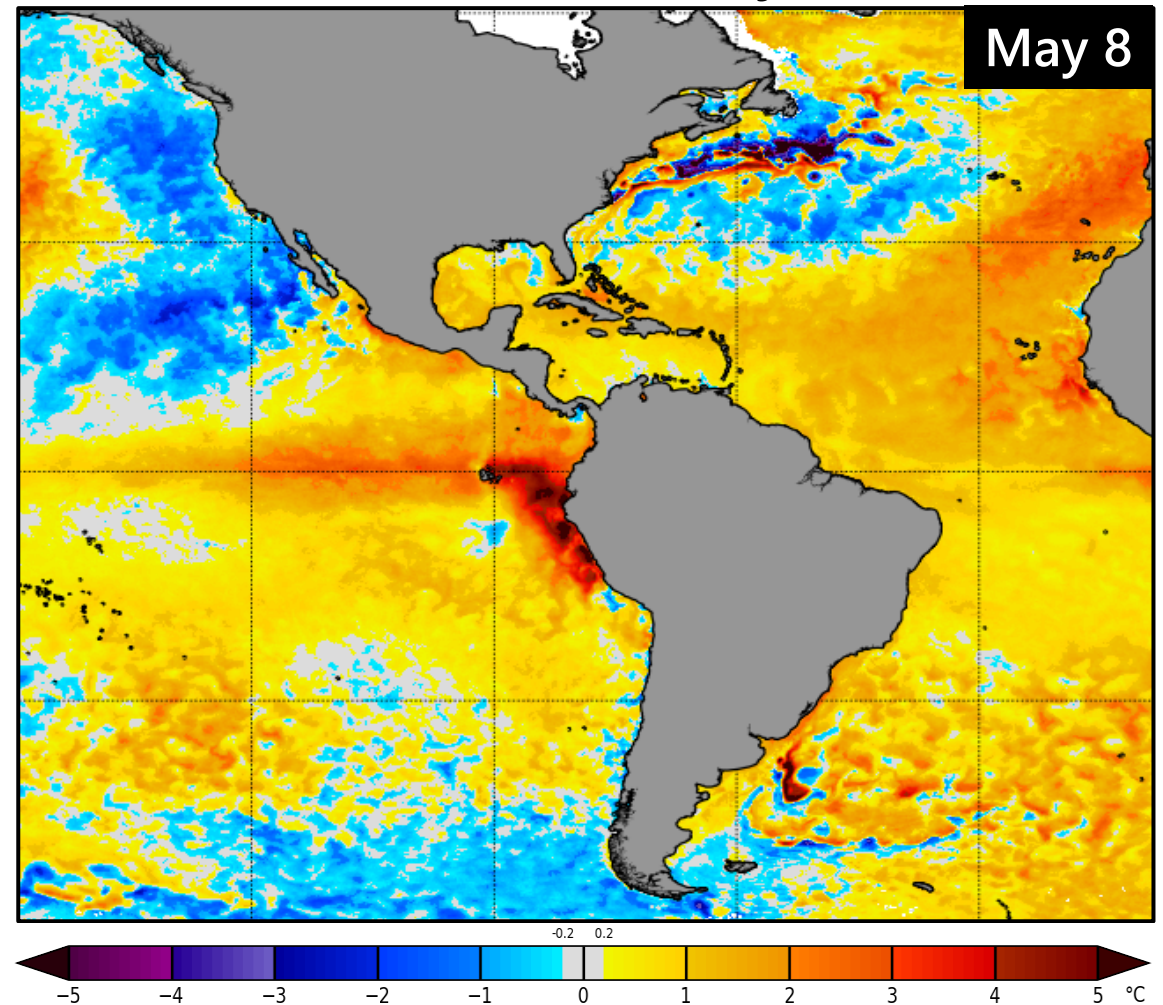
SST



NOAA OSPO

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

SST Anomaly



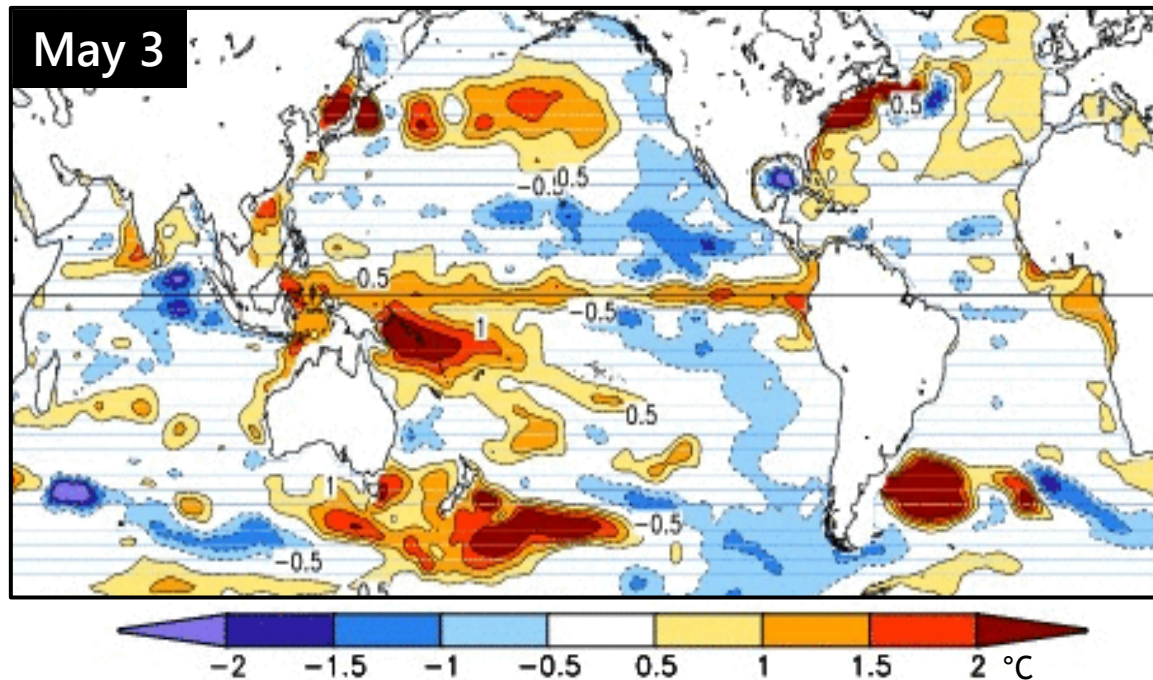
NOAA Coral Reef Watch

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.

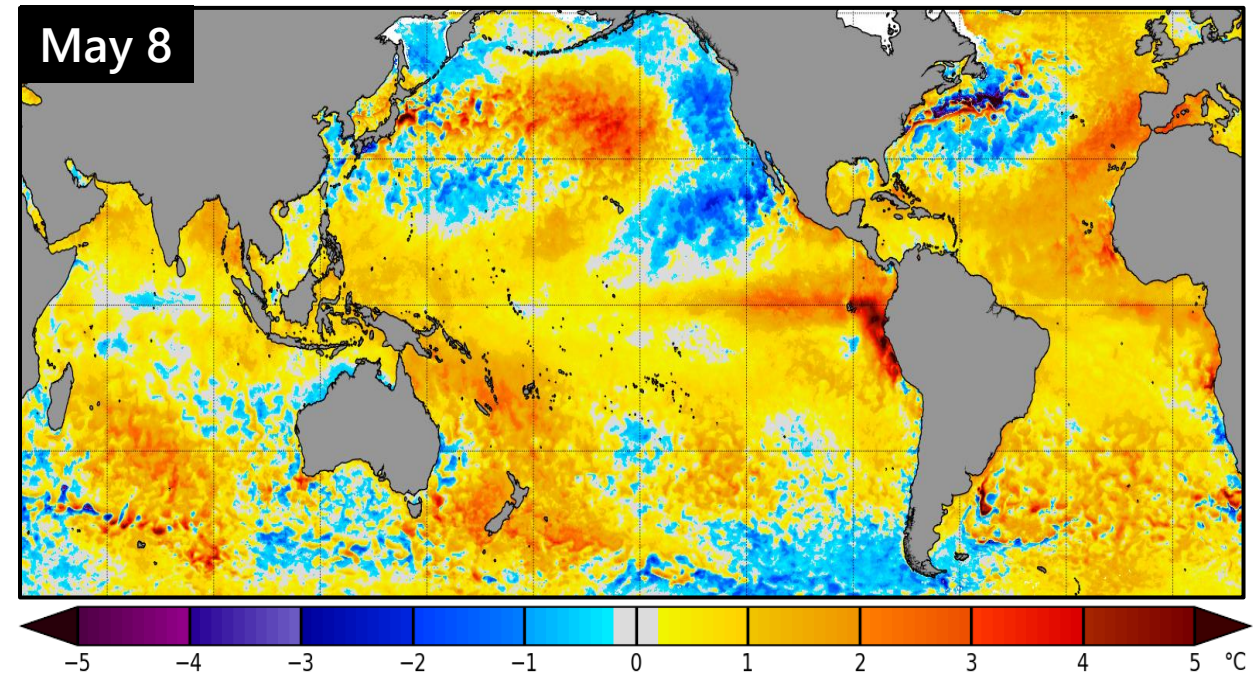
Top 300m-Layer Anomaly



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)

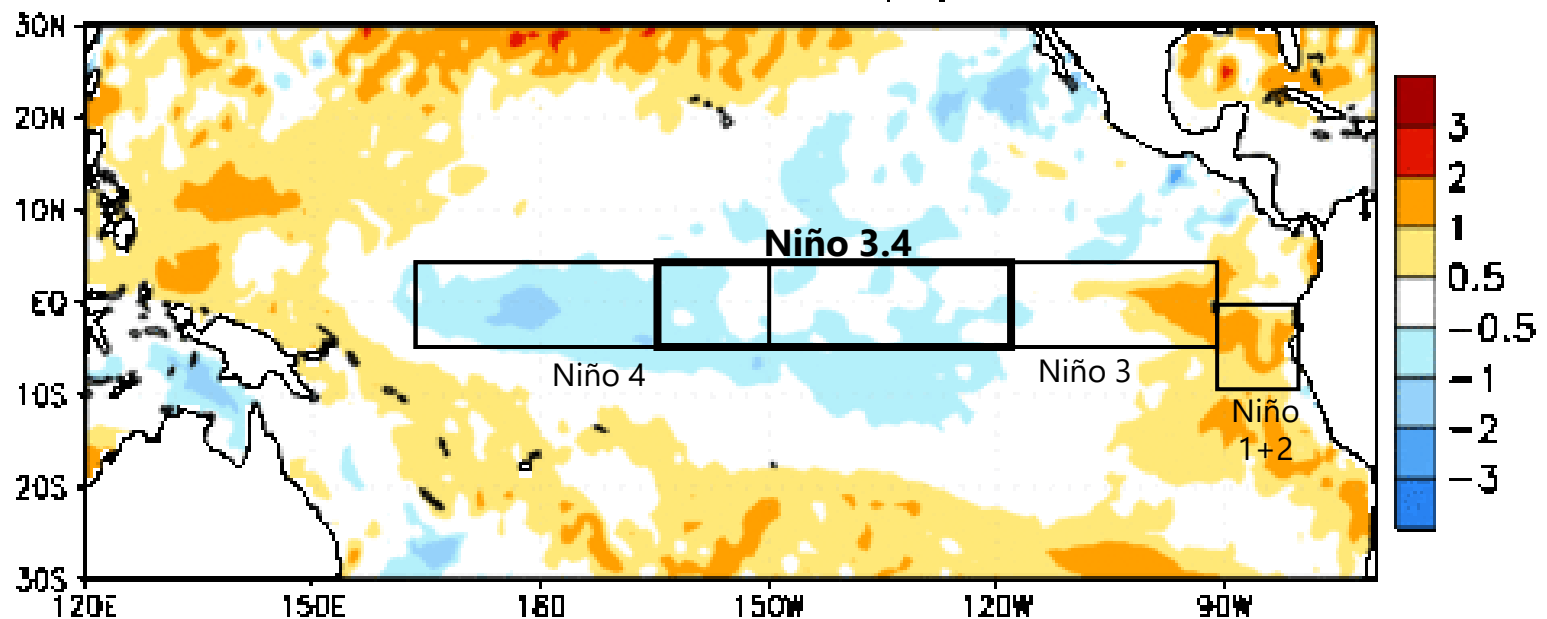
CPC Official Statement

Status: El Niño Watch

- ENSO-neutral conditions are observed.*
- Equatorial sea surface temperatures (SSTs) are near-to-above average across most of the Pacific Ocean.

Week centered on 15 FEB 2023

SST Anomalies (°C)



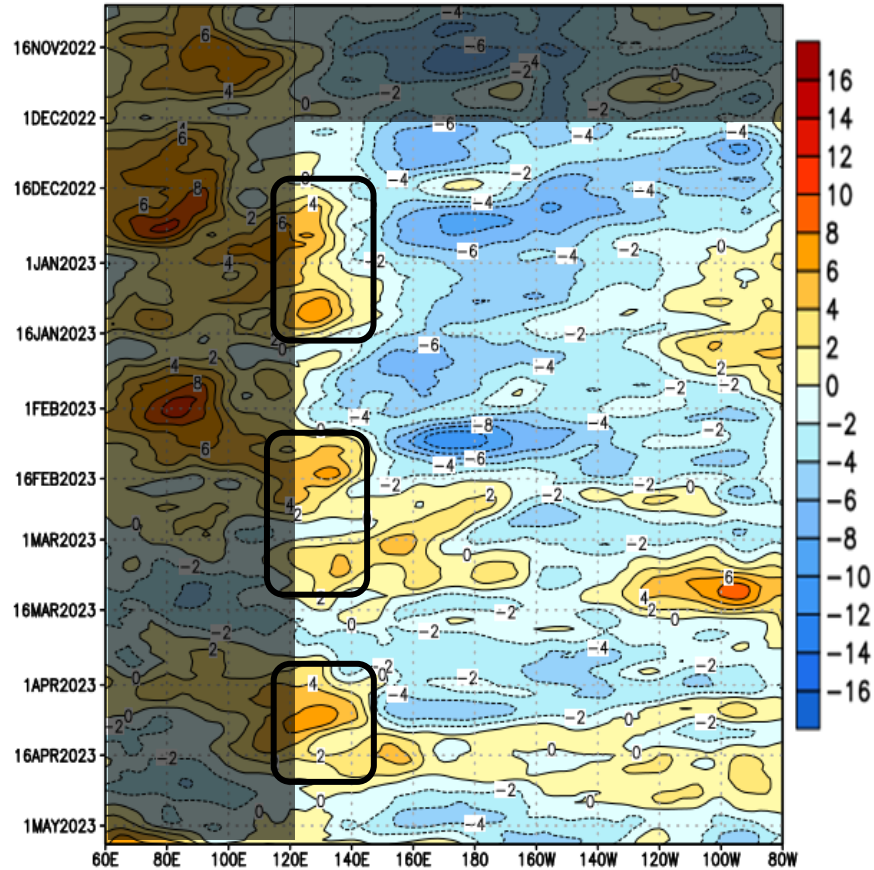
TAKEAWAYS

- The rapid EPAC warming that started in mid-March is expanding west and north.
- Impacts on weather and climate are becoming very prominent in Central America (warm temperatures and dry conditions). They continue in western South America.
- Niño 3.4 is warming, but still below +0.5°C (+0.4°C last week) .

Hovmöller of Zonal Wind & Heat Content Anomalies

Westerly wind bursts can trigger warm Kelvin Waves that propagate towards South America.

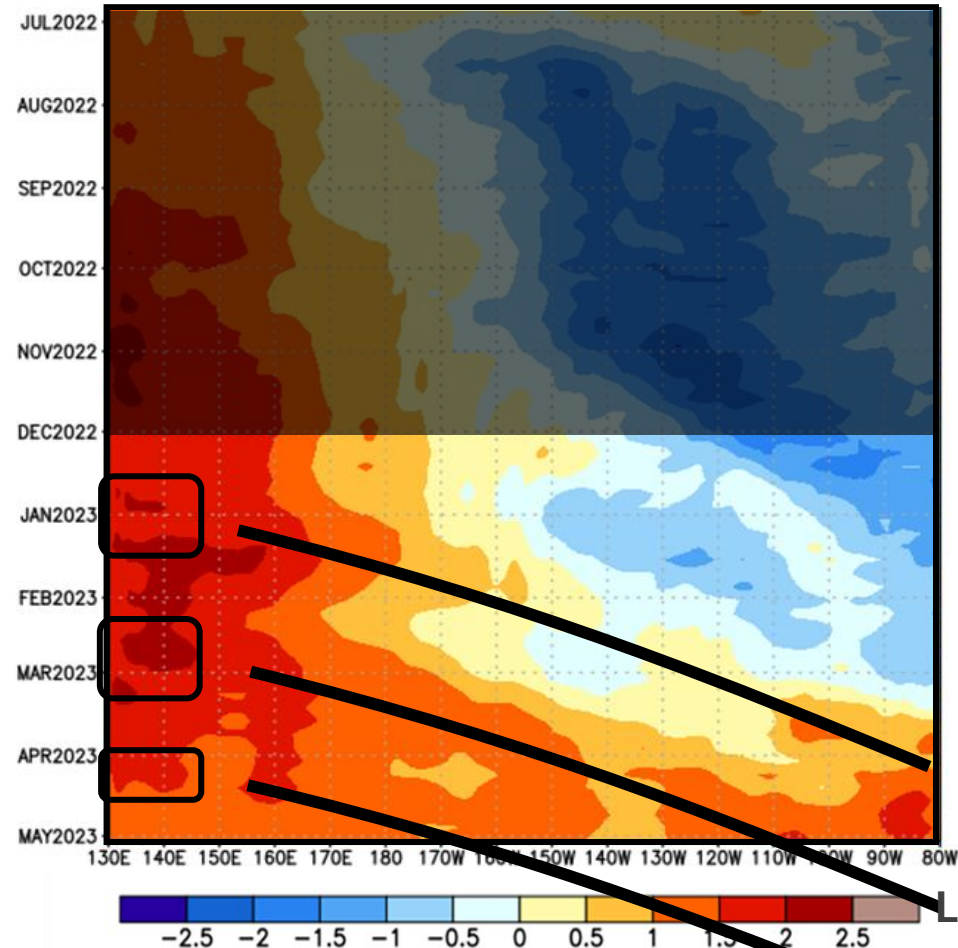
850 hPa Zonal Wind Anomaly



Source: CDAS, CPC

(5N-5S) in m/s

Heat Content Anomaly



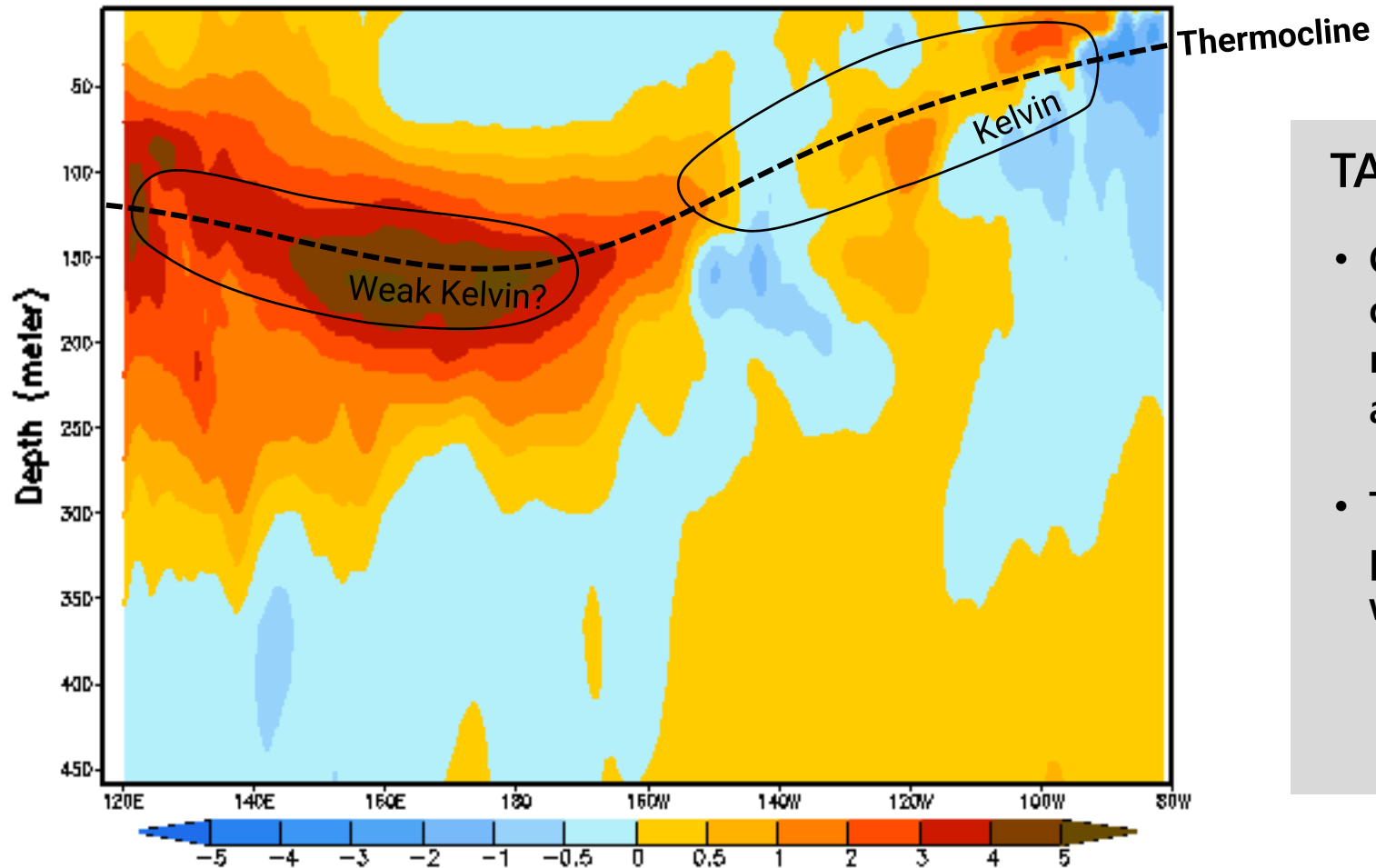
TAKEAWAYS

- Heat Content Anoms. suggest 2 warm Kelvin, potentially arriving in SAM by late May and early July.
- Periods of basin-wide westerly anomalies have exacerbated heat content anomalies.

ENSO: Oceanic Kelvin Waves

Equatorial Pacific Temperature Anomaly Section

Pentad centered on 04 MAR 2023



TAKEAWAYS

- Generalized sub-superficial warming of the equatorial Pacific from recurrent basin-wide westerly anomalies favored by the active MJO.
- Two warm Kelvin waves are propagating, the western one is much weaker.

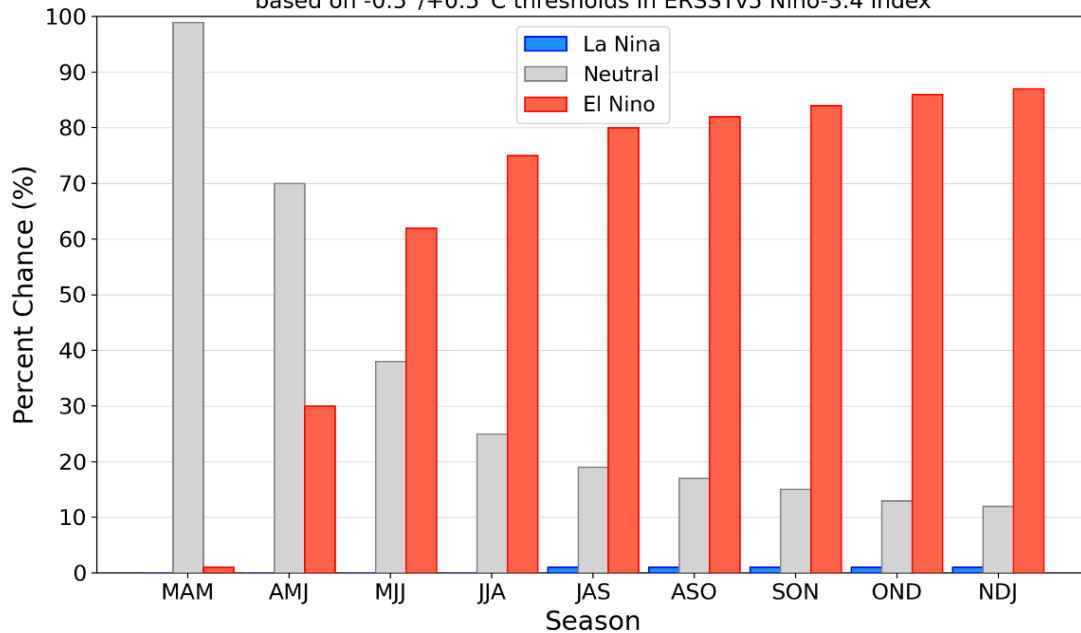
ENSO Outlook

ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring, followed by a 62% chance of El Niño developing during May-July 2023.*

CPC Probabilistic Forecast

Official NOAA CPC ENSO Probabilities (issued Apr. 2023)

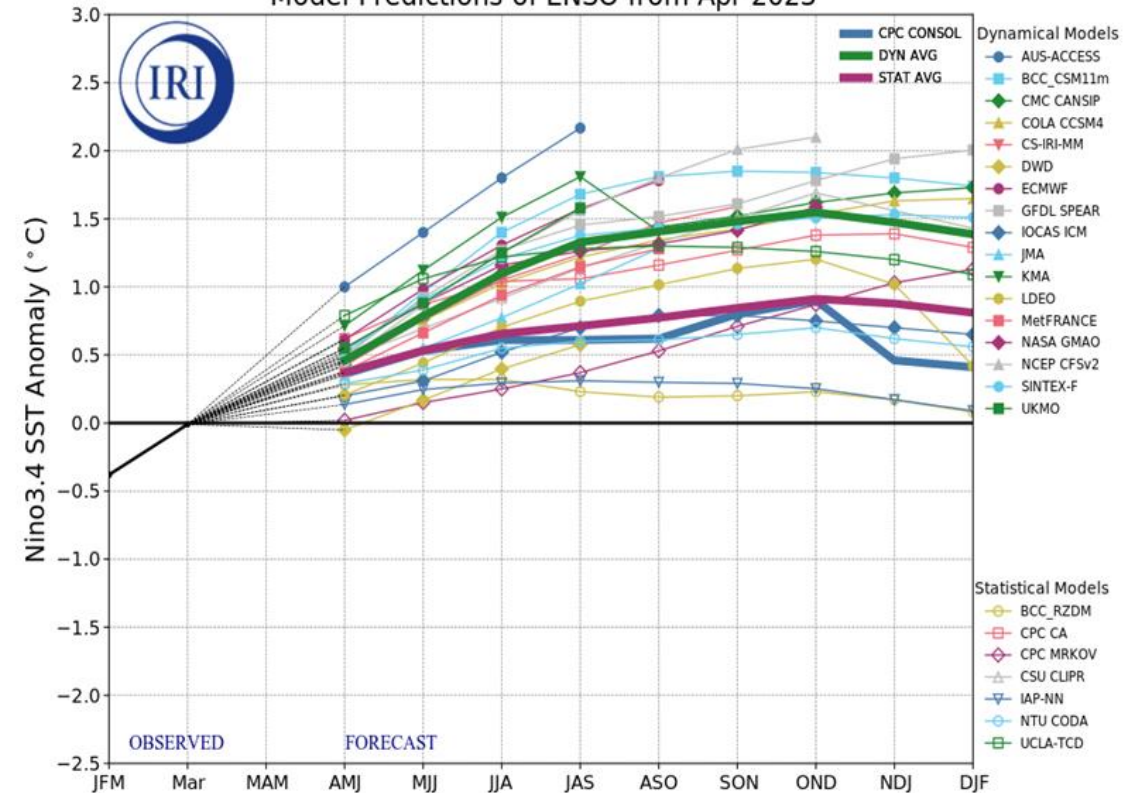
based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index



Source: CPC

IRI/CPC Dynamic Models

Model Predictions of ENSO from Apr 2023

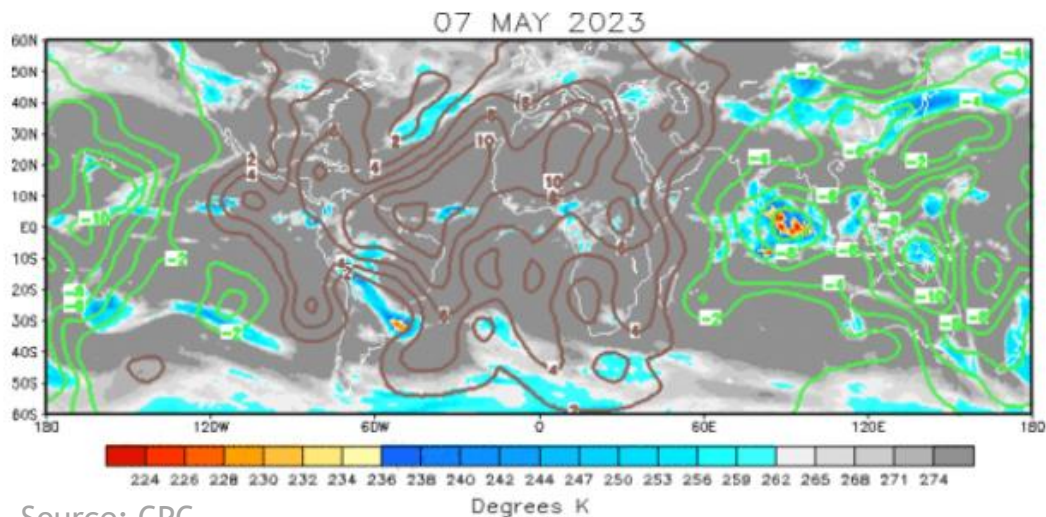


Madden-Julian Oscillation (MJO)

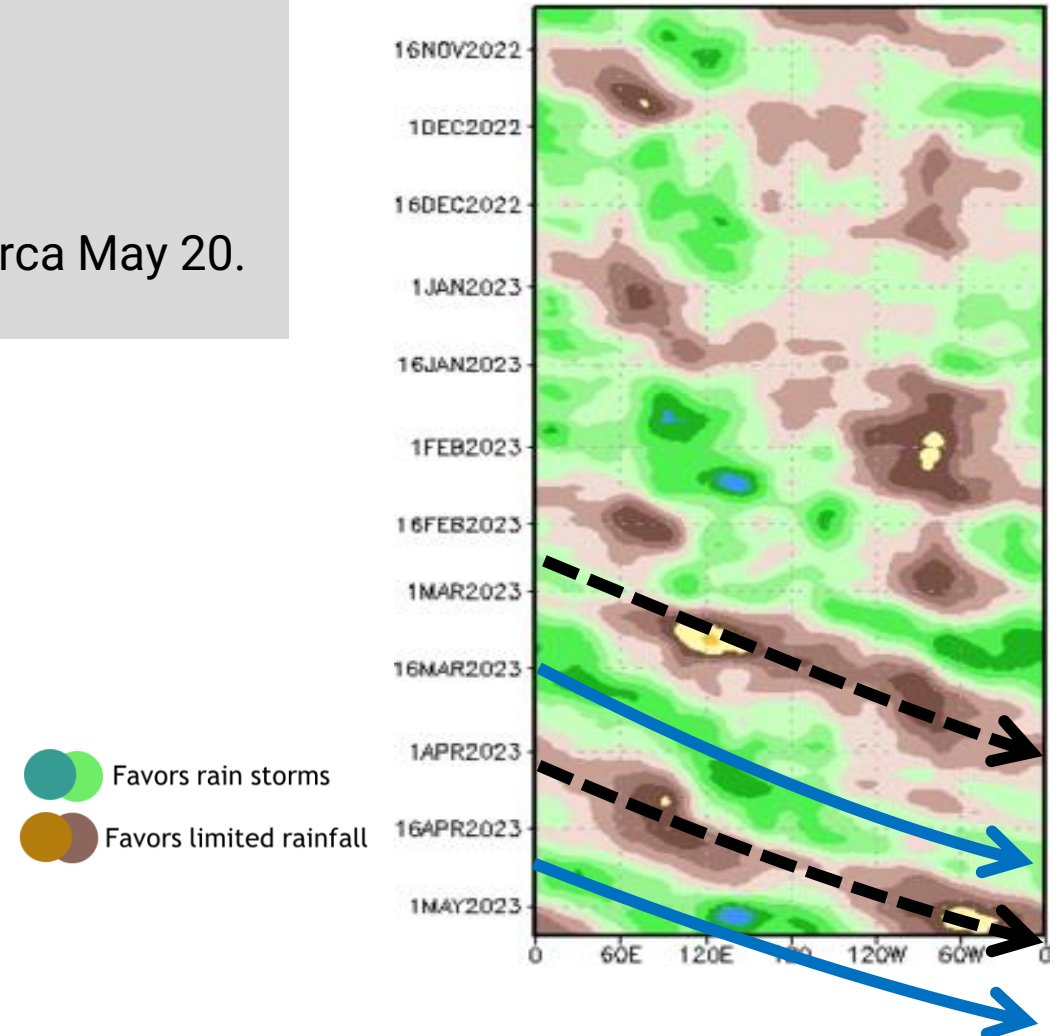
Current Observations:

- Very well defined Wave-1 Pattern continues.
- Speed: 1 to 1.5 months to circle the globe.
- Wet phase in the Maritime Continent/West Pac, arriving circa May 20.

Velocity Potential and Brightness Temperature (shaded)



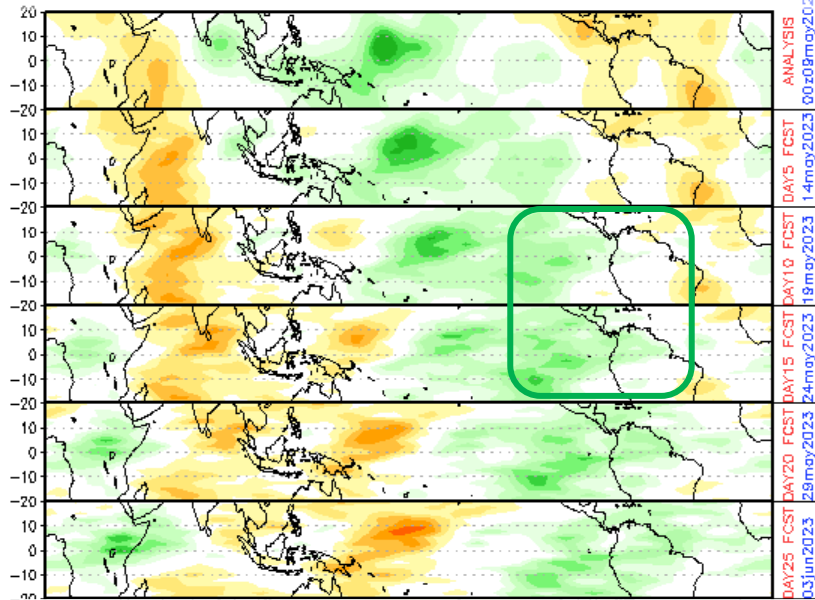
200-hPa Velocity Potential Anomaly: 5N-5S
5-day Running Mean



MJO Forecasts

Empirical Wave Propagation (EWP)

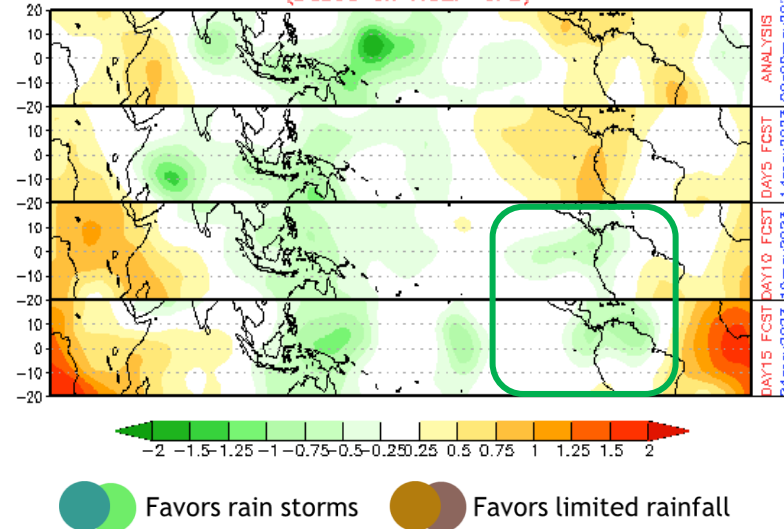
CHI 200 hPa 40-DAY forecast (00z09may2023-18jun2023)
(based on EWP zonal harmonics)



Source: CPC

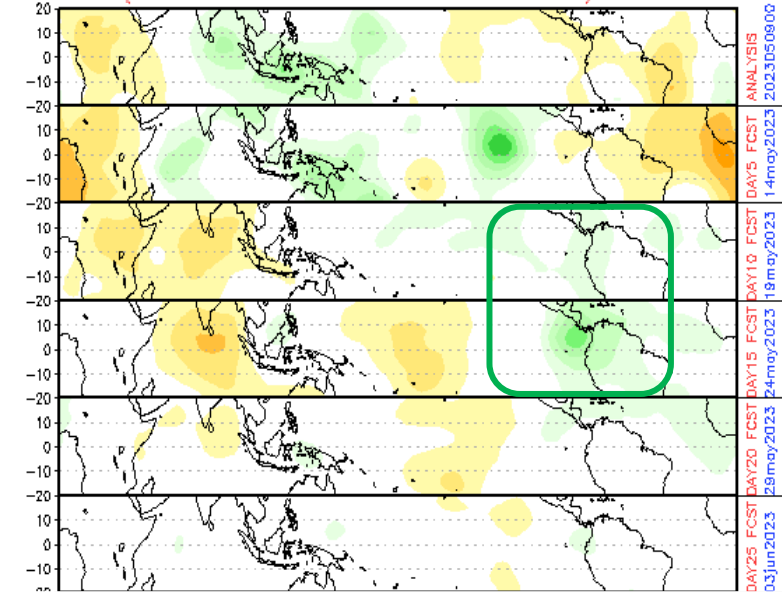
Global Forecast System (GFS)

CHI 200 hPa 15-DAY forecast (00z09may2023-24may2023)
(based on NCEP GFS)



Climate forecast System (CFS)

CHI 200 hPa 40-DAY forecast (00z09may2023-18jun2023)
(16-memb OPR CFSv2 IC = 2023050900)



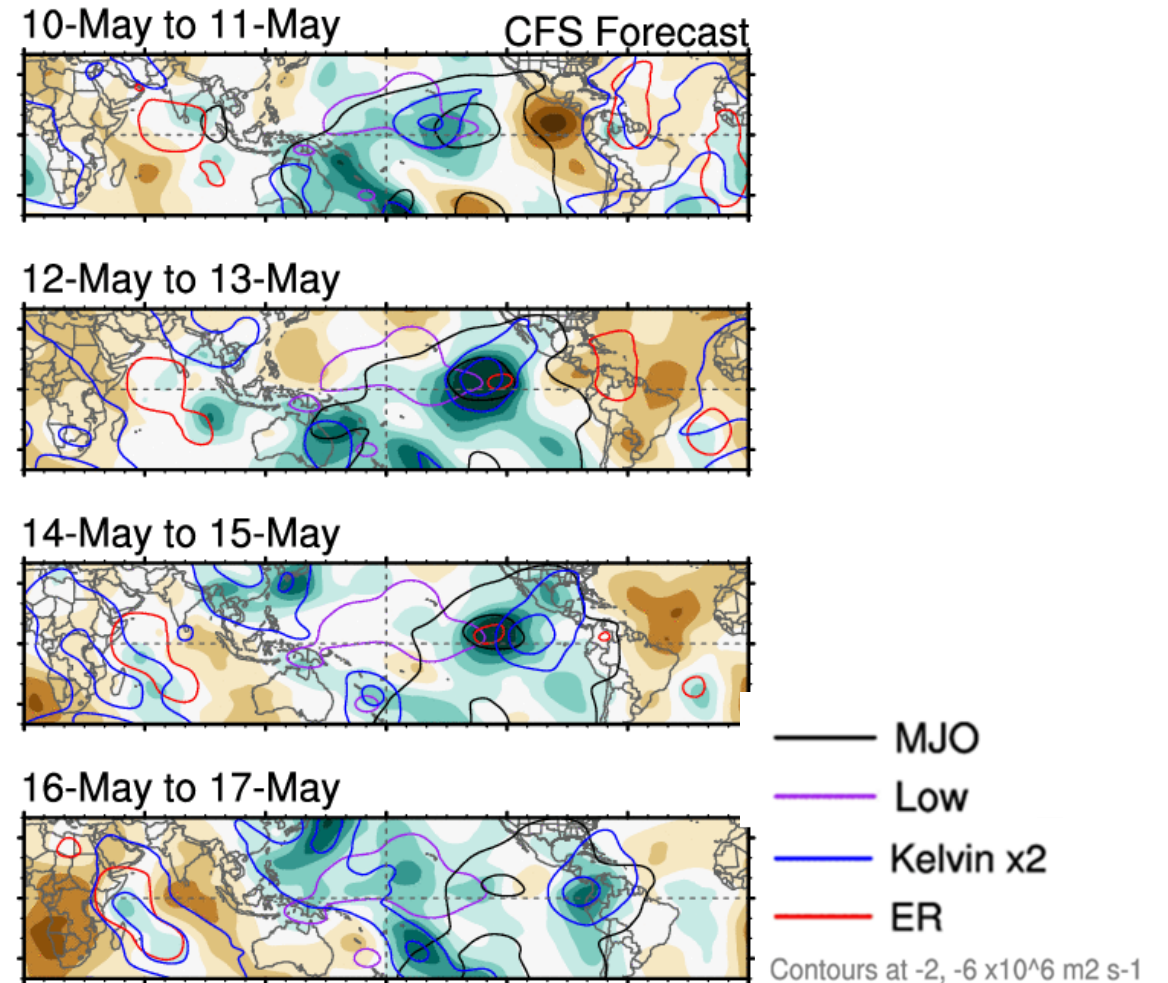
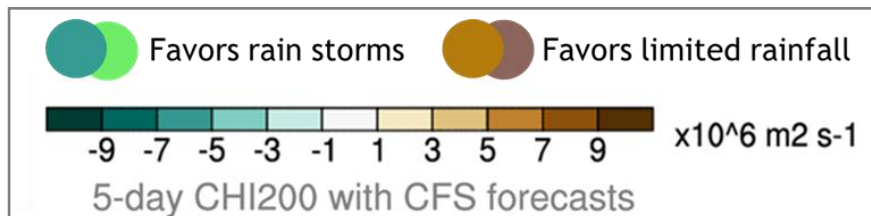
TAKEAWAYS

- Dry MJO ending circa May 15.
- Wet MJO last 10 days of May, primarily.

MJO and Upper Tropospheric Waves

Outlook for the next few days:

- Wet Kelvin on May 13-15 for Mexico/Central America, and May 16-18 for northern South America.



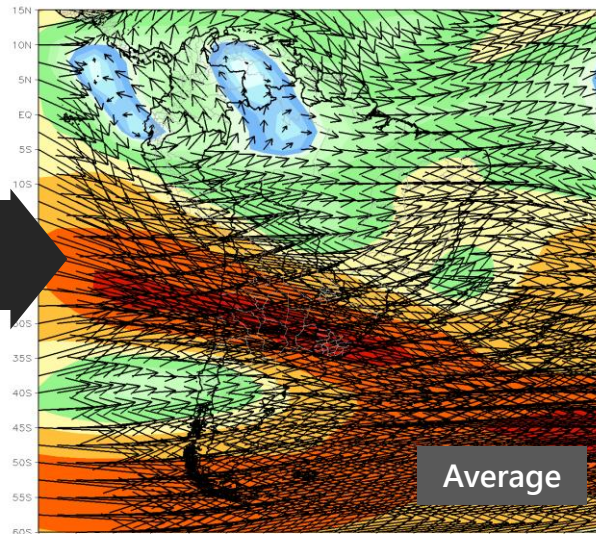
Source: NCICS

South America, Last 7 Days

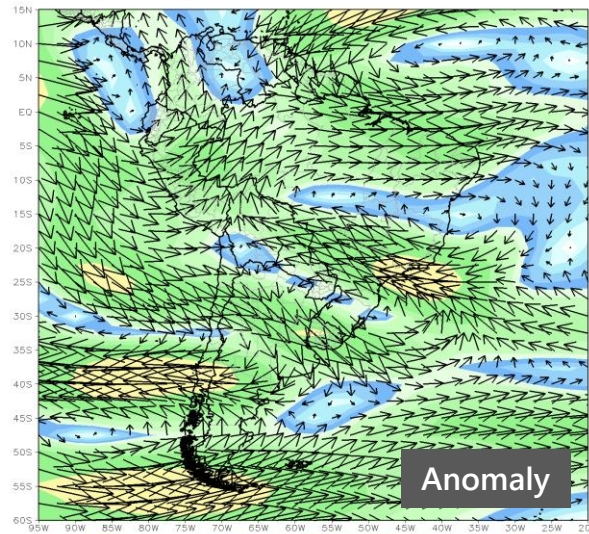
Rainfall Anomalies

200 hPa
Flow

CDAS 200mb 7-Day Mean Vector Wind Total (m/s)
Period: 30Apr2023 - 06May2023

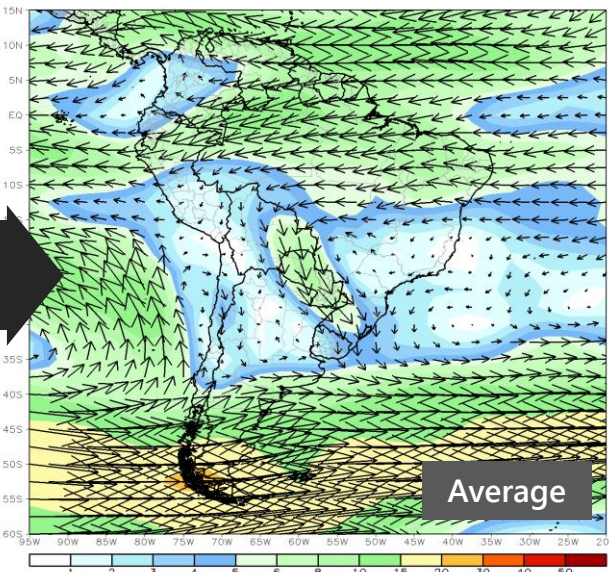


CDAS 200mb 7-Day Mean Vector Wind Anomaly (m/s)
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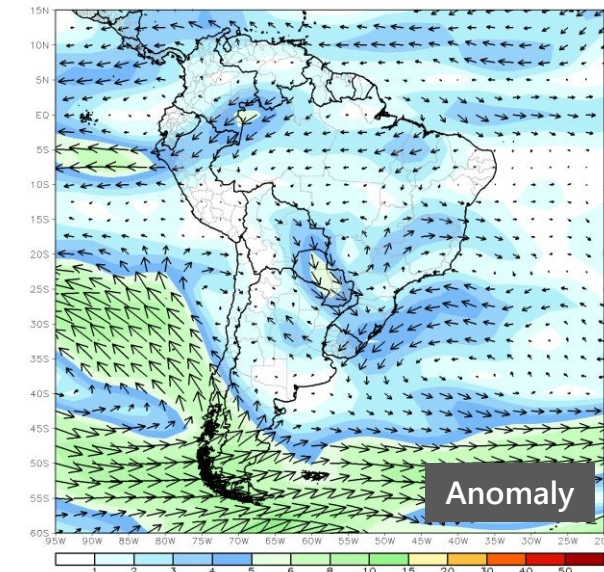


850 hPa
Flow

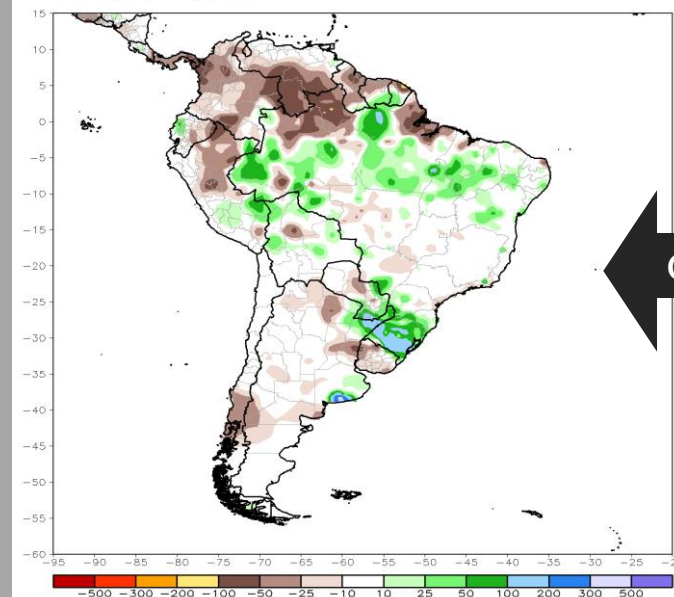
CDAS 850mb 7-Day Mean Vector Wind Total (m/s)
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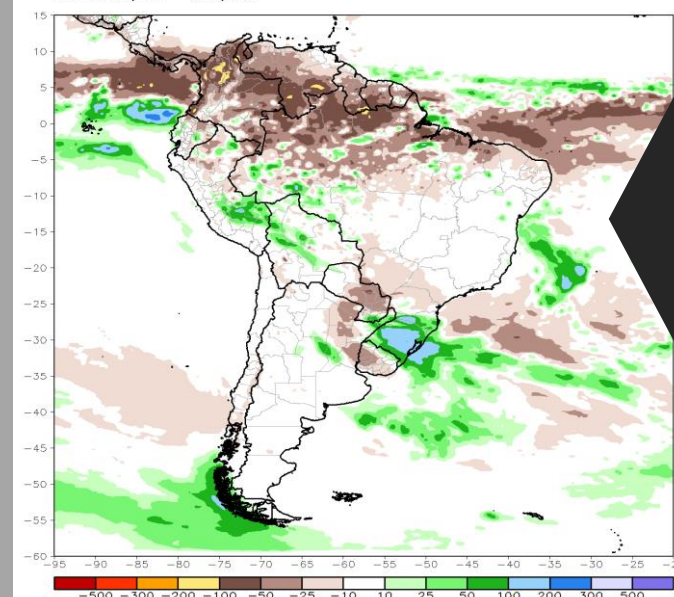
CDAS 850mb 7-Day Mean Vector Wind Anomaly (m/s)
Period: 30Apr2023 - 06May2023



CPC Unified Gauge 7-Day Total Rainfall Anomaly (mm)
Period: 02May2023 - 08May2023



CMORPH 7-Day Total Rainfall Anomaly (mm)
Period: 02May2023 - 08May2023

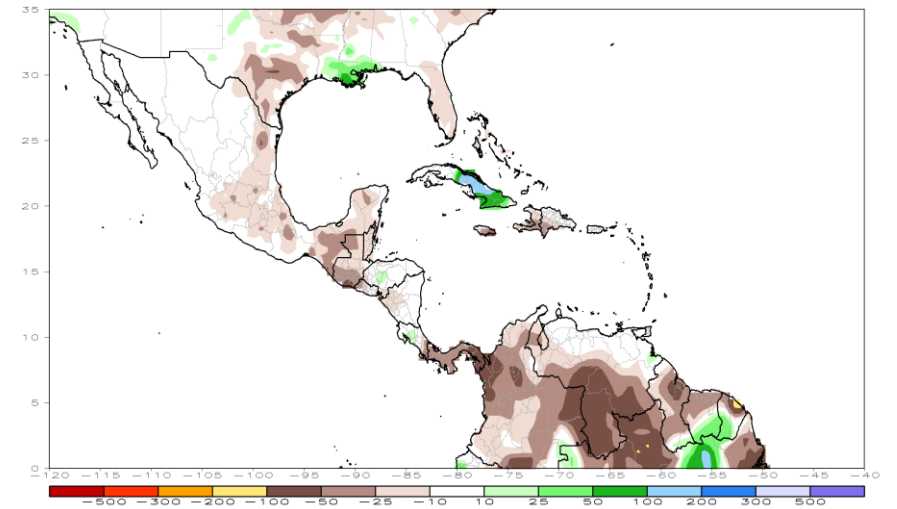


Caribbean and Central America, Last 7 Days

Rainfall Anomalies

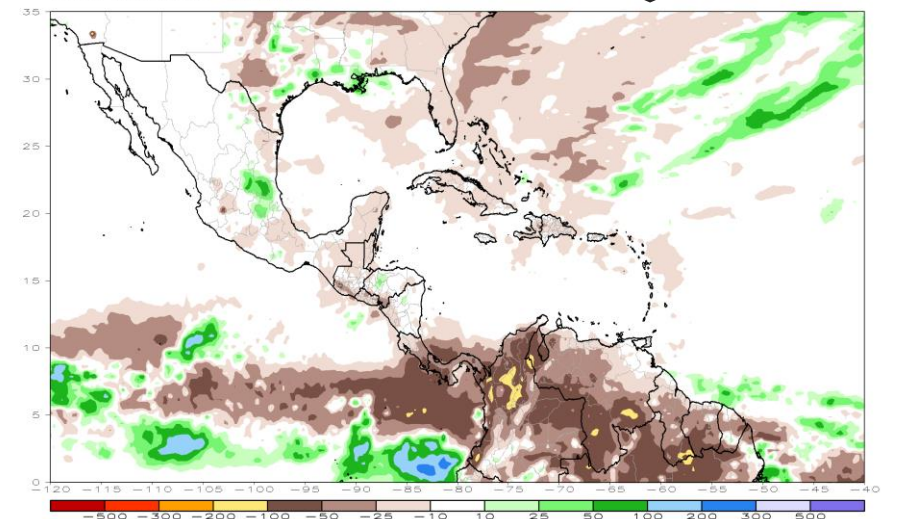
Gauges (CPC)

CPC Unified Gauge 7-Day Total Rainfall Anomaly (mm)
Period: 02May2023 - 08May2023



Satellite – Estimated (CMORPH)

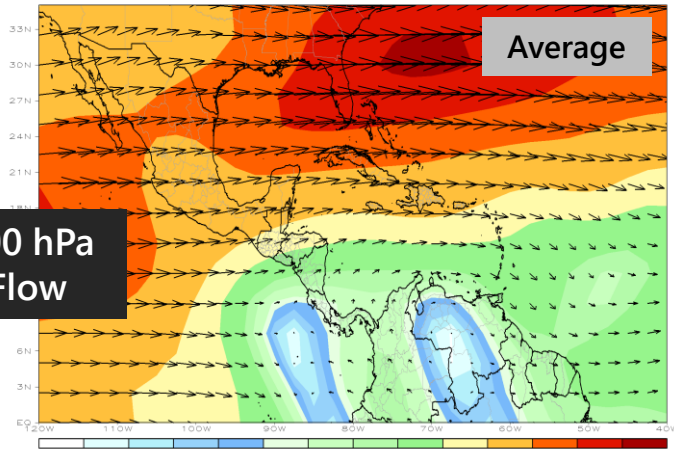
CMORPH 7-Day Total Rainfall Anomaly (mm)
Period: 02May2023 - 08May2023



CDAS 200mb 7-Day Mean Vector Wind Total (m/s)
Period: 30Apr2023 - 06May2023

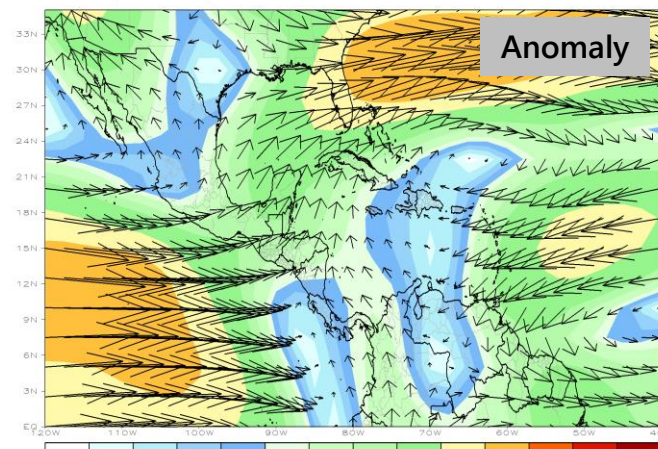
Average

200 hPa
Flow



CDAS 200mb 7-Day Mean Vector Wind Anomaly (m/s)
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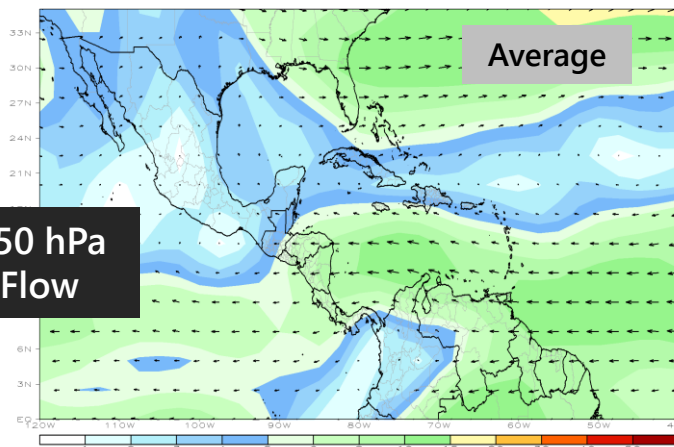
Anomaly



CDAS 850mb 7-Day Mean Vector Wind Total (m/s)
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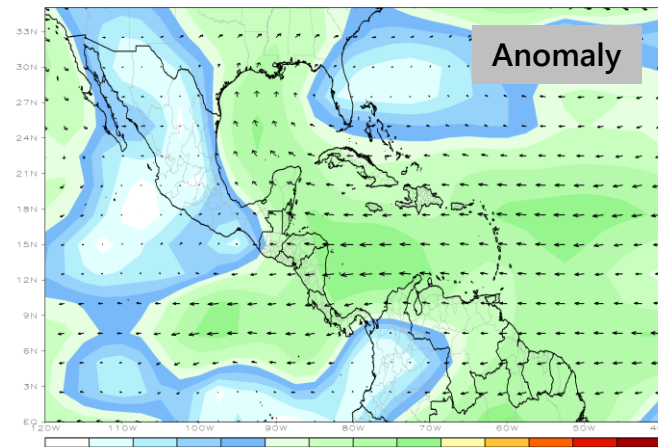
Average

850 hPa
Flow



CDAS 850mb 7-Day Mean Vector Wind Total (m/s)
Period: 02Apr2023 - 08Apr2023

Anomaly



¡Gracias! Thank you! ¡Obrigado!

Next Session: 14 June 2023 at 15:00 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