



# Weeks 2-3 Global Tropics Hazards Outlook

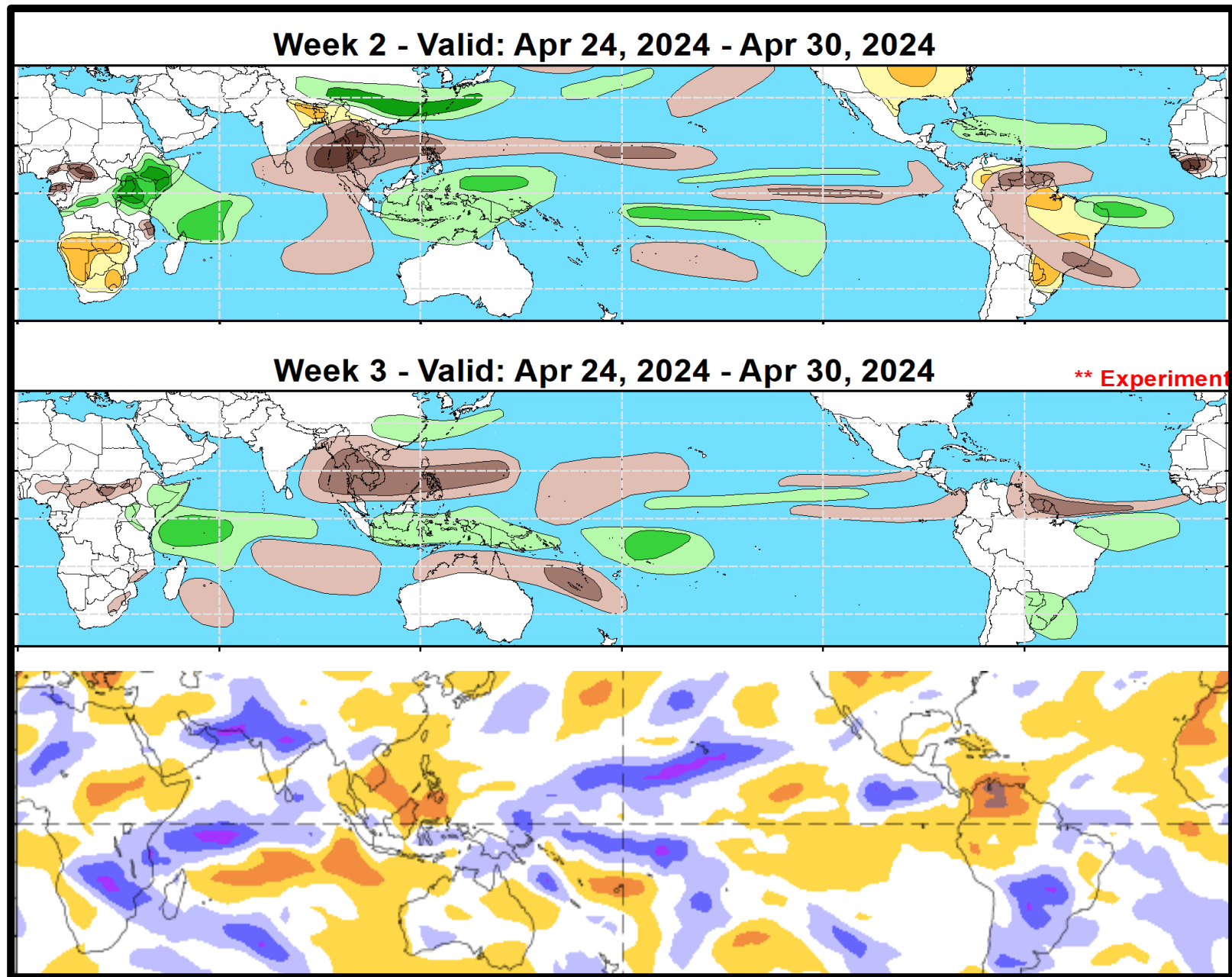
4/30/2024

Thomas Collow

NWS / NCEP / Climate Prediction Center

# Outlook Review: TC development & anomalous precipitation during the past week

No TCs developed in the past week.



# Synopsis of Climate Modes:

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**ENSO:** (April 11, 2024 Update)      *next update on Thursday, May 9<sup>th</sup>*

- ENSO Alert System Status: [El Niño Advisory](#) / [La Niña Watch](#)
- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (85% chance), with chances of La Niña developing by June-August (60% chance).

## **MJO and other subseasonal tropical variability:**

- The MJO weakened during mid- to late April, with the global tropics continuing to remain quiet in terms of tropical cyclone development.
- Dynamical models favor a re-emerging MJO across the eastern Indian Ocean, with propagation across the Maritime Continent and Western Pacific forecast during early May.
- An enhanced low frequency convective signal remains established across eastern Africa and the western Indian Ocean.

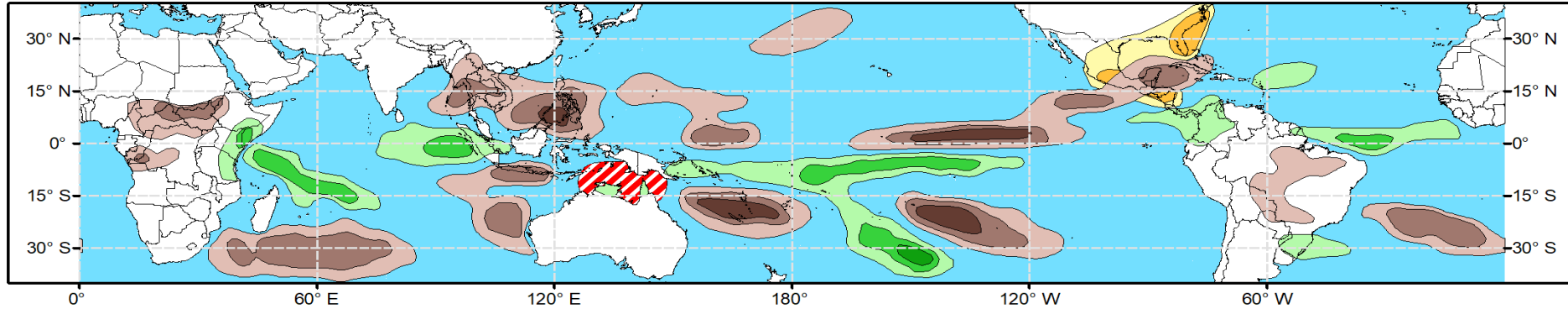
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

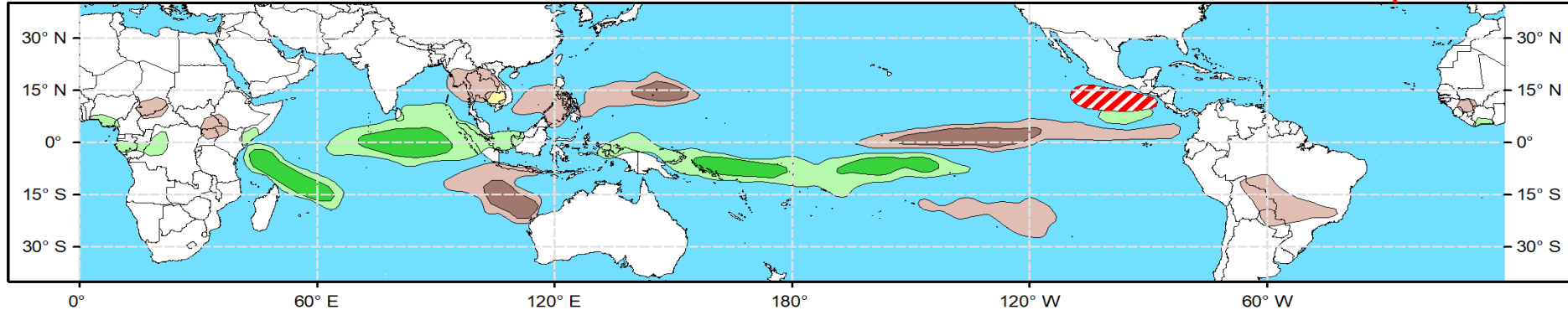


**Week 2 - Valid: May 08, 2024 - May 14, 2024**



**Week 3 - Valid: May 15, 2024 - May 21, 2024**

**\*\* Experimental \*\***



**Tropical Cyclone (TC)  
Formation Probability**



>20% >40% >60%

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or greater strength

**Above-Average  
Rainfall Probability**



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Weekly total rainfall in the  
Upper third of the historical range

**Below-Average  
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Weekly total rainfall in the  
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**Above-Average  
Temperatures Probability**



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7-day max temperatures in the  
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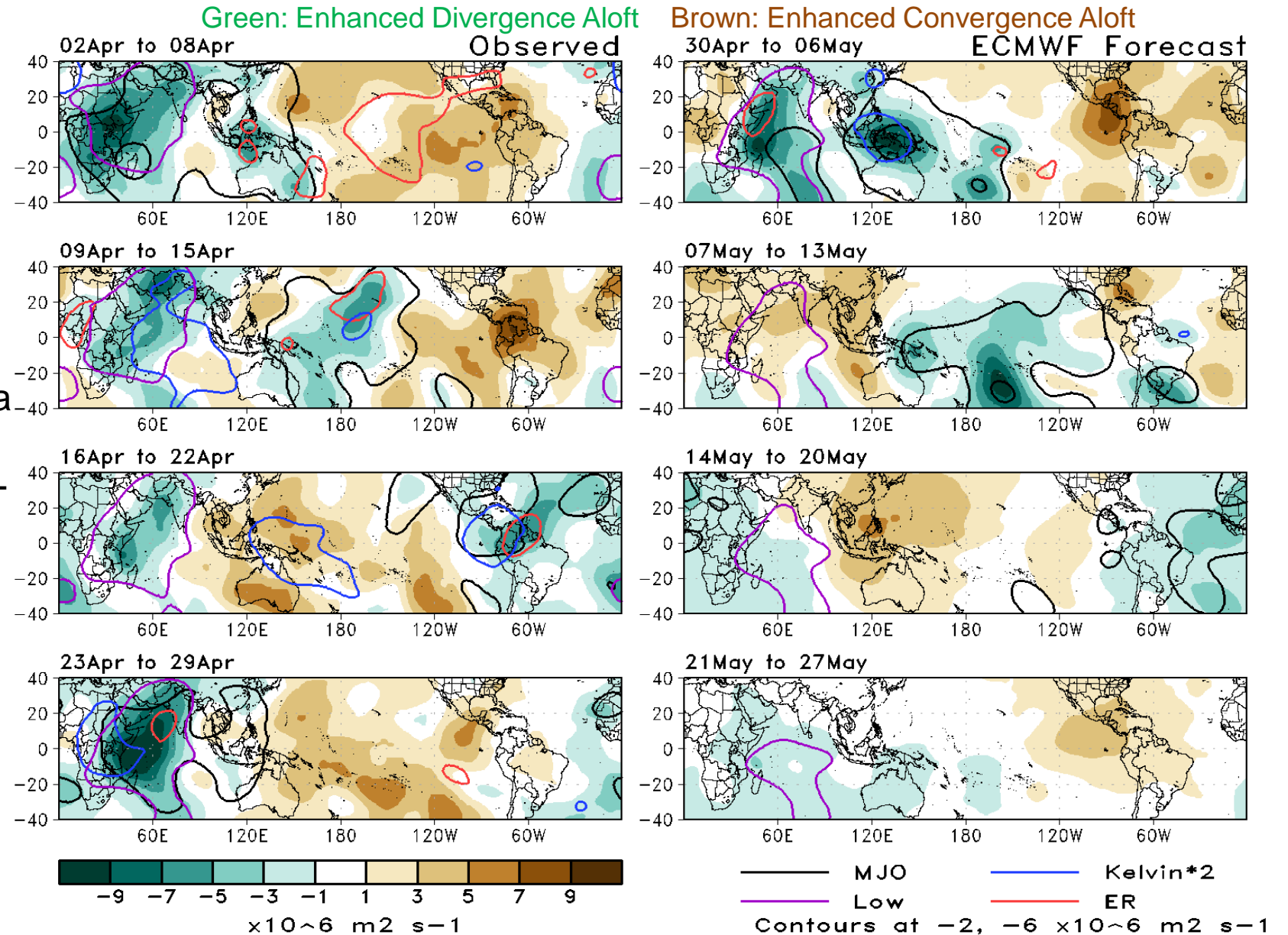
**Issued: 04/30/2024**

**Forecaster: Collow**

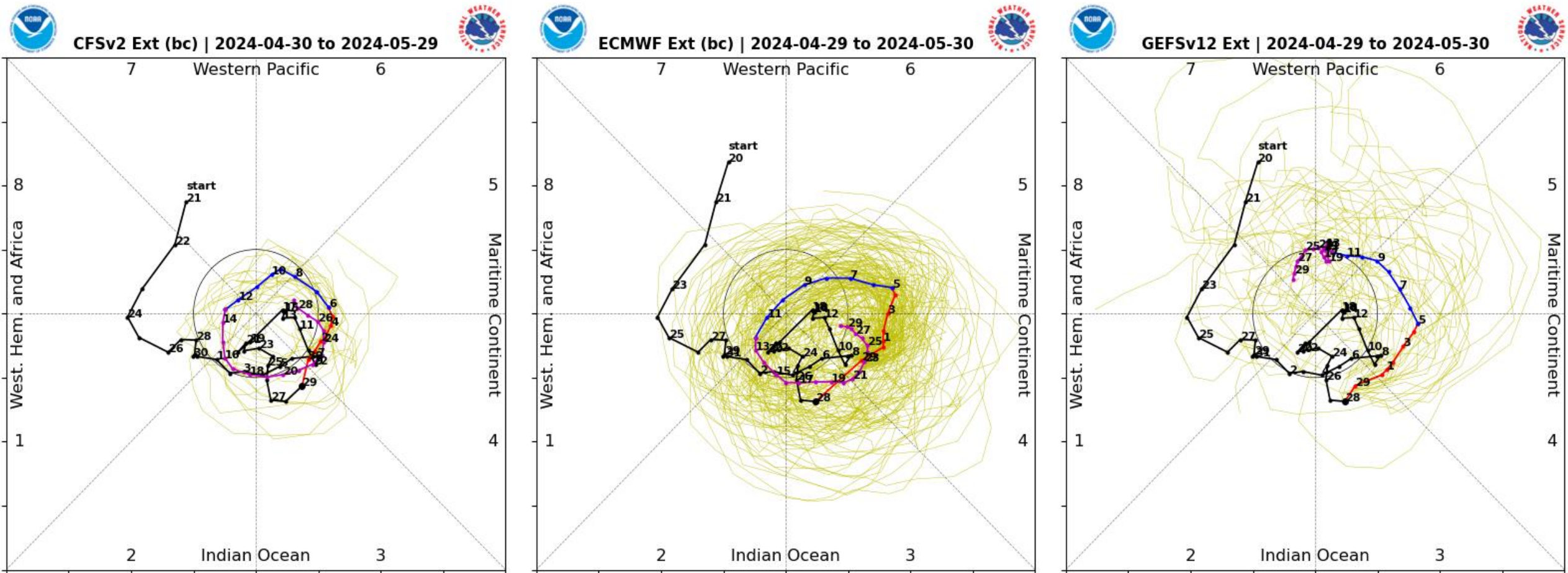
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# 200-hPa Velocity Potential Anomaly Maps:

- Strengthening convective envelope apparent over the Indian Ocean as the **low frequency** signal constructively interferes with the **MJO**.
- The ECMWF ensemble depicts a fast propagation of the **MJO** into the Western Hemisphere by mid-May.
- Following a brief disruption by the suppressed phase of the **MJO**, the **low frequency** signal around 60°E returns during mid- to late-May.

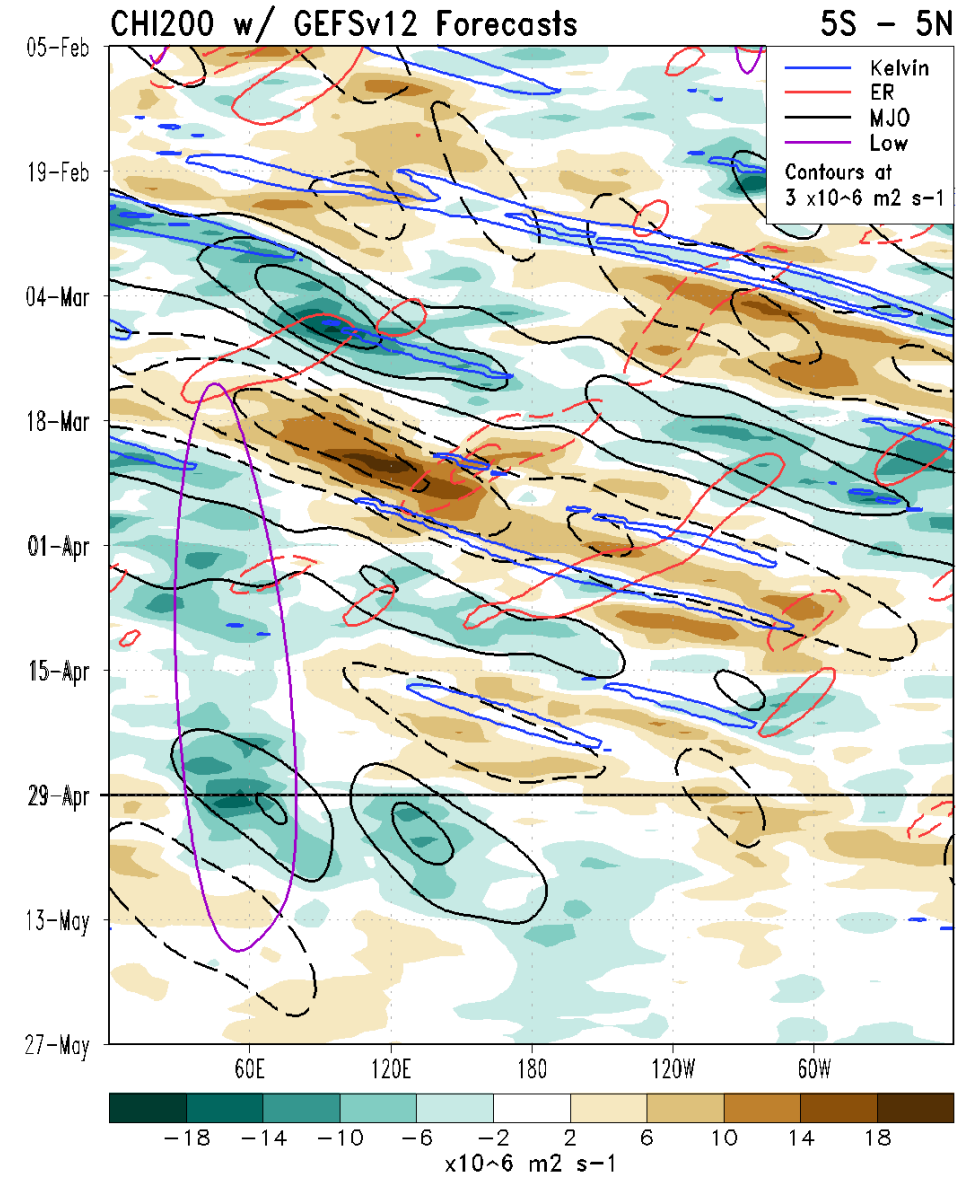
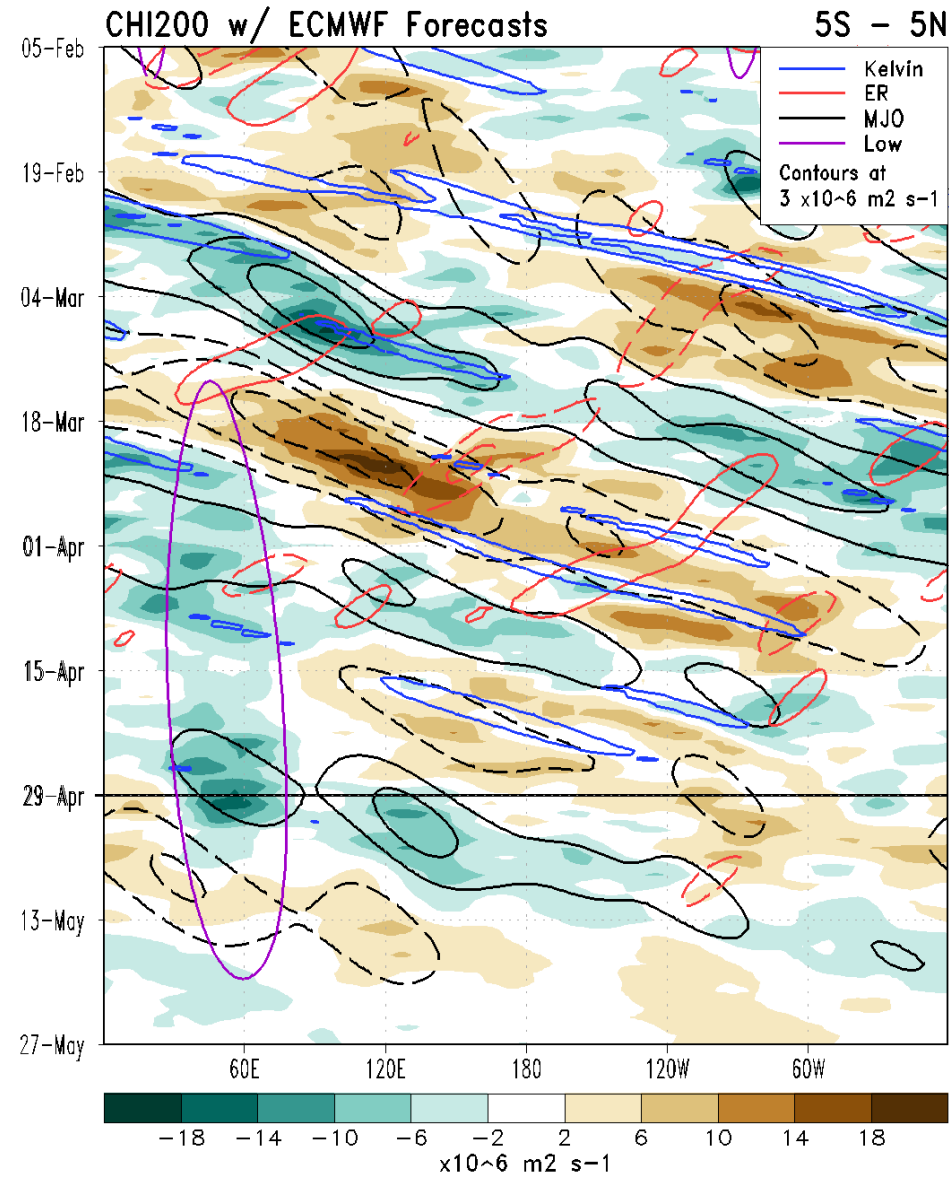


# RMM Index Observations & Forecasts:



- The CFS, GEFs, and ECMWF ensembles depict propagation of the MJO into the Maritime Continent and Western Pacific during early May.
- There is more uncertainty in the evolution of the MJO east of the Date Line, with the ECMWF depicting a fast but weak propagation of the signal around the globe, and the other models being slower.

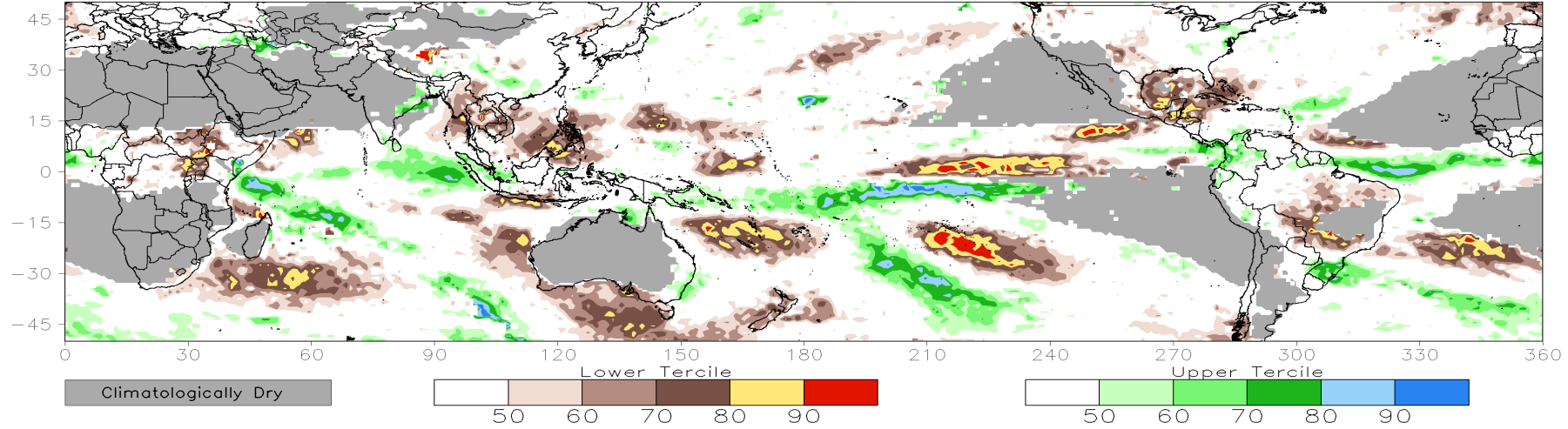
# 200-hPa Velocity Potential Anomaly Time/Lon Plots:



# Consolidated Probabilistic Precipitation: Weeks 2 & 3

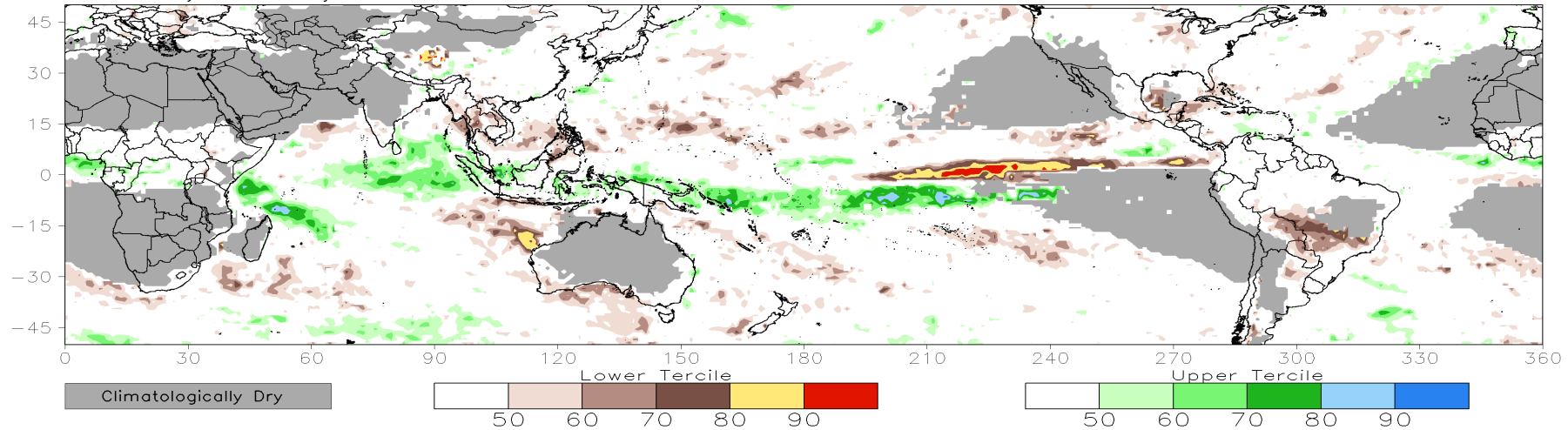
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 08May2024–14May2024



CONS 00z: Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

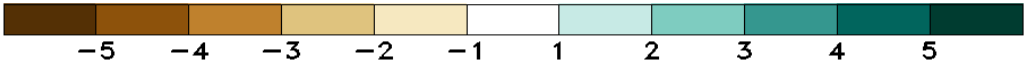
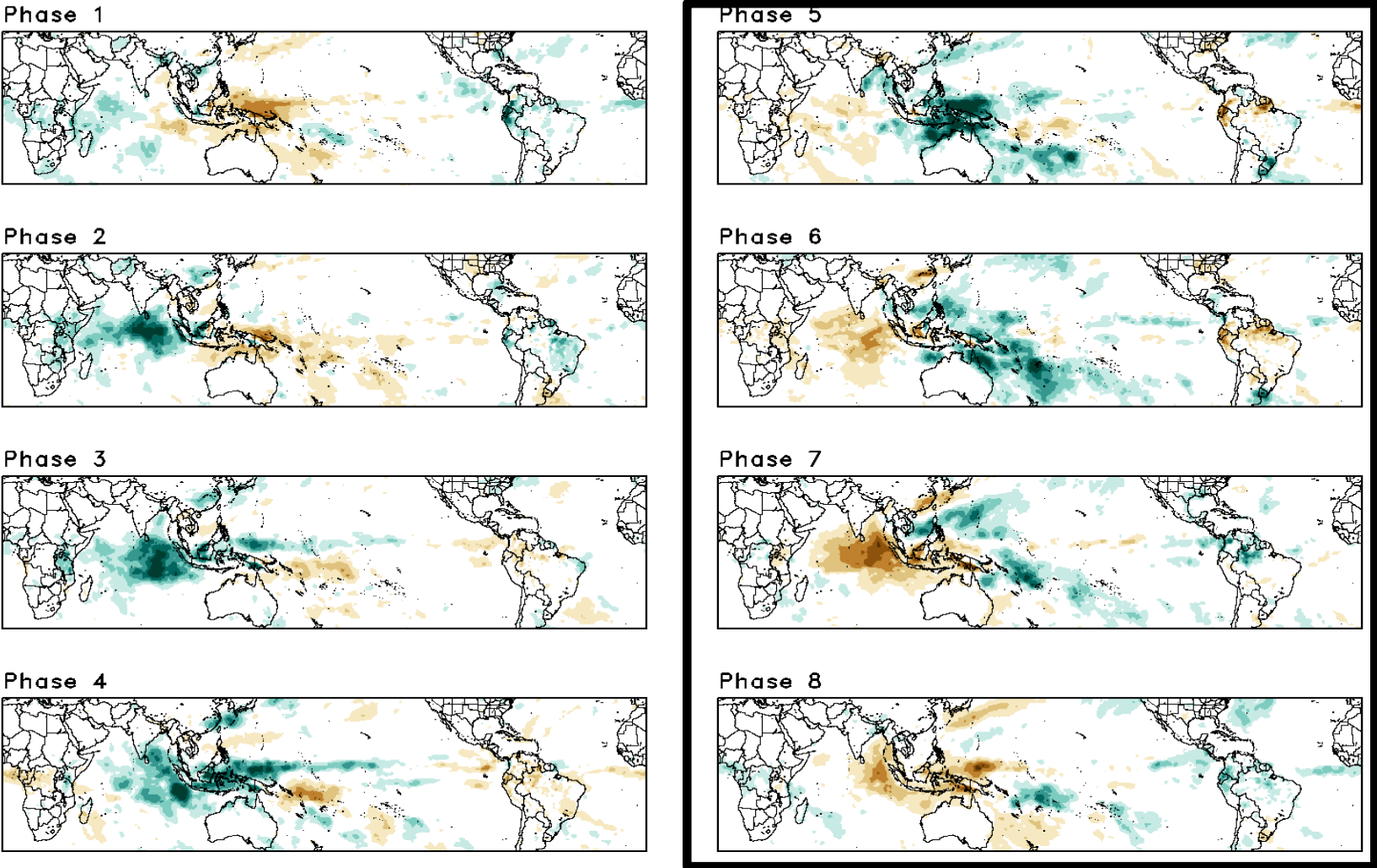
Valid: 15May2024–21May2024





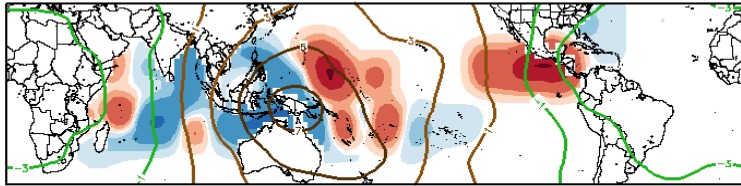
# Historical Precipitation Anomalies By MJO Phase:

MAM MJO Composite: GPCP1DD (mm/day)

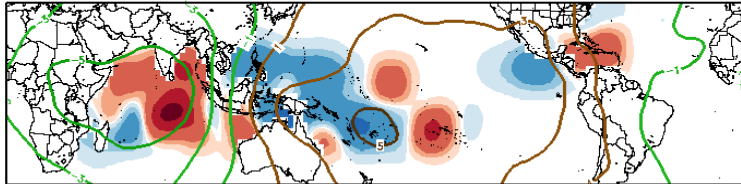


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

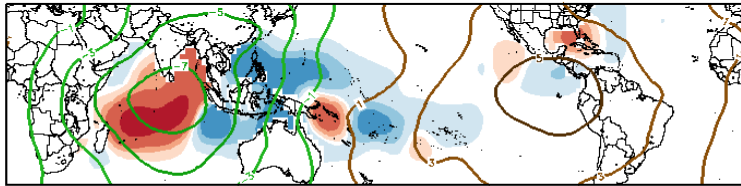
MAM MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ MAM CHI200 ( $\times 10^{-6} m^{-2} s^{-1}$ ) / Contours every  $2 \times 10^{-6} m^{-2} s^{-1}$



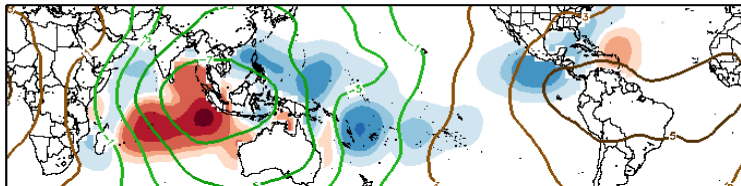
Phase 1



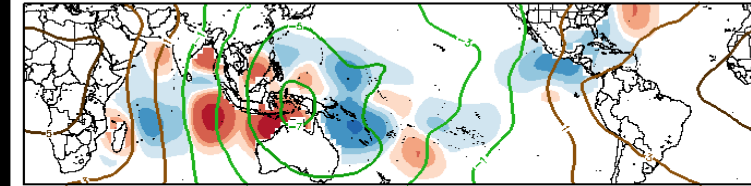
Phase 2



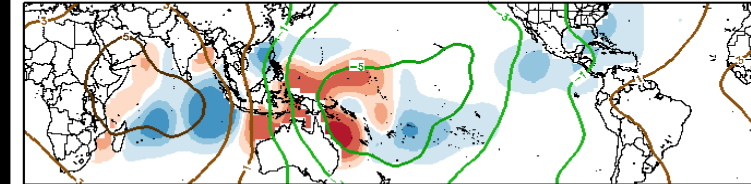
Phase 3



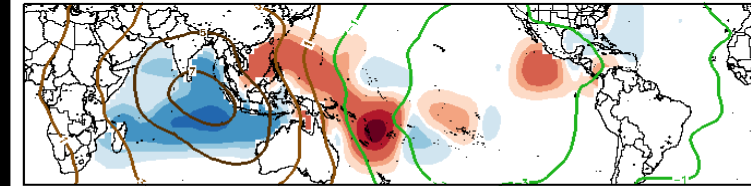
Phase 4



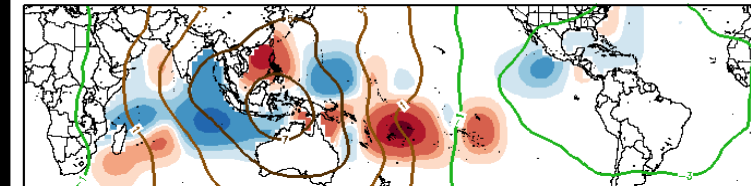
Phase 5



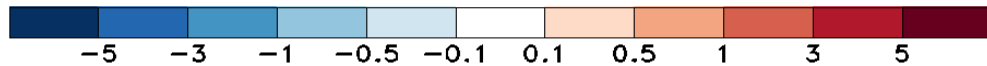
Phase 6



Phase 7



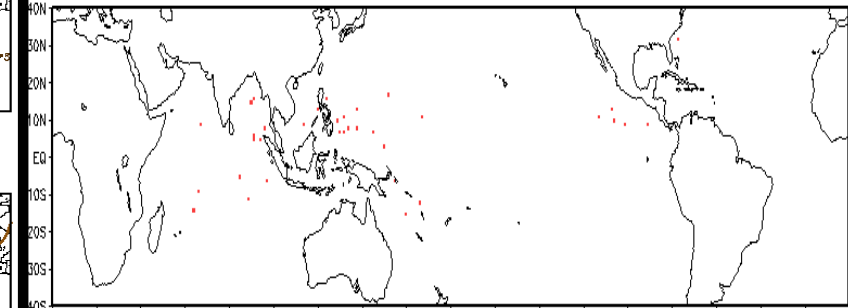
Phase 8



\*Experimental\*

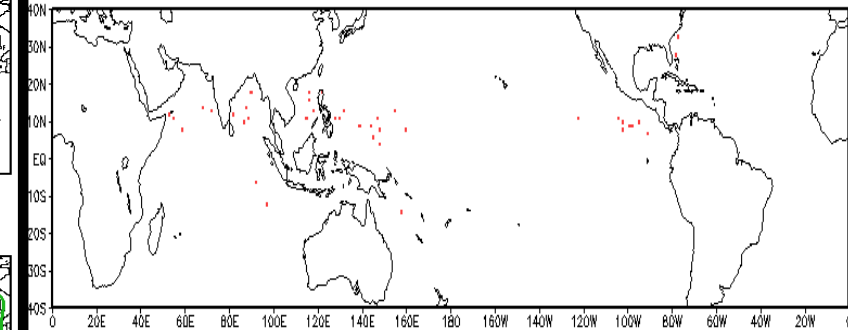
Observed TC Genesis, 1979-2021

7-day Period 0508 to 0514



Observed TC Genesis, 1979-2021

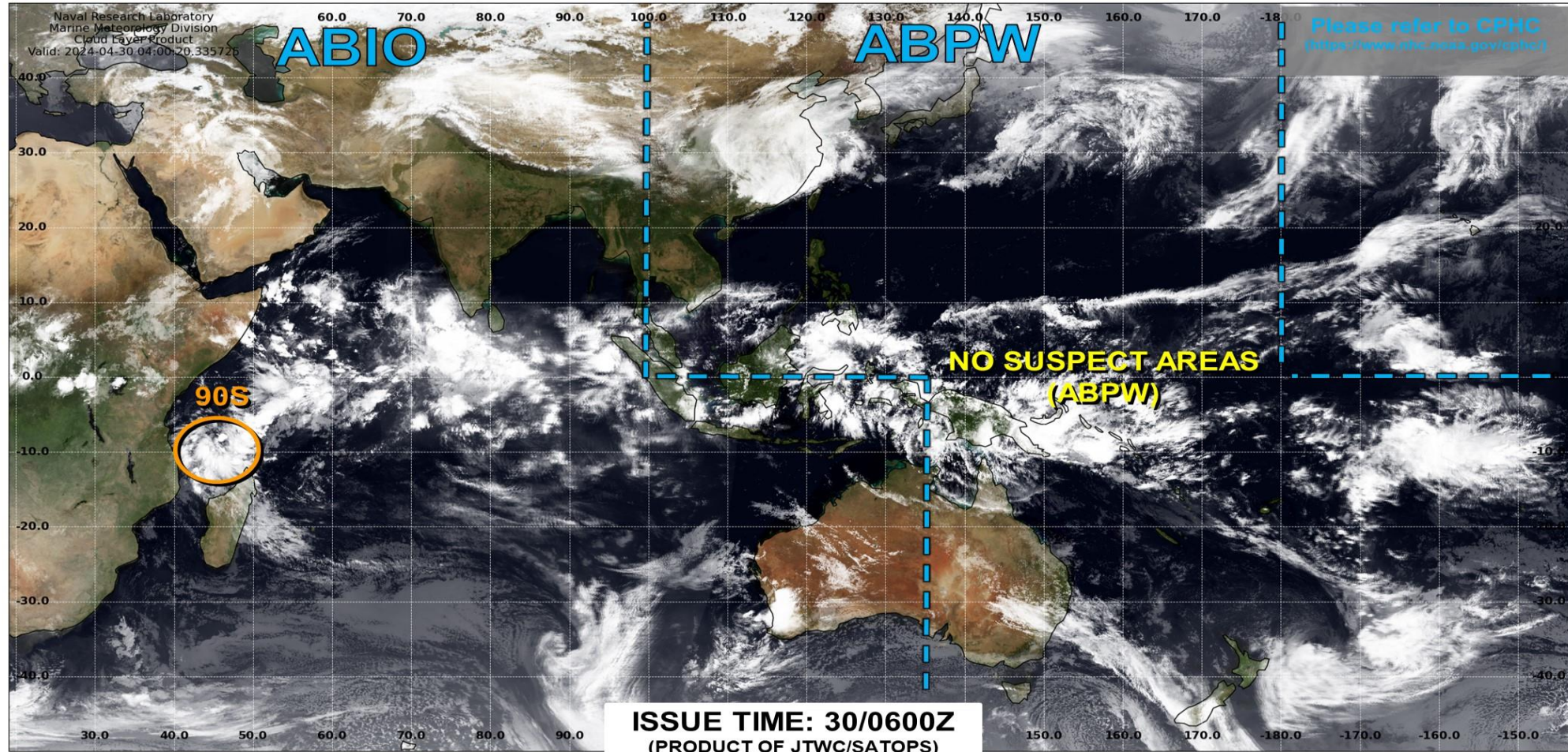
7-day Period 0515 to 0521



# Tropical Cyclone Monitoring/Forecast: JTWC



## JOINT TYPHOON WARNING CENTER



TC development unlikely within 24 hours



TC development likely, but expected to occur beyond 24 hours



TC development likely within 24 hours (Reference TCFA)



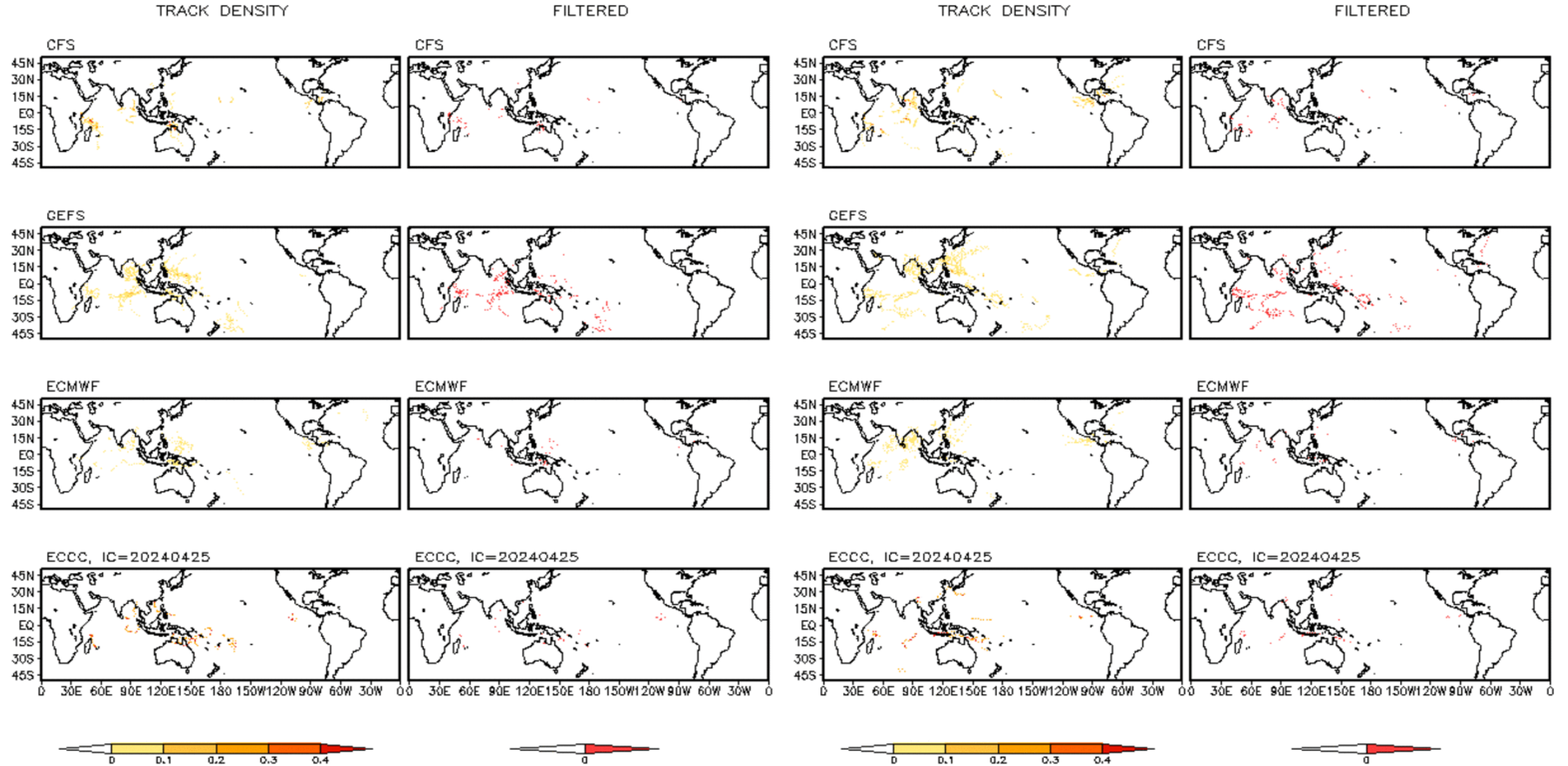
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

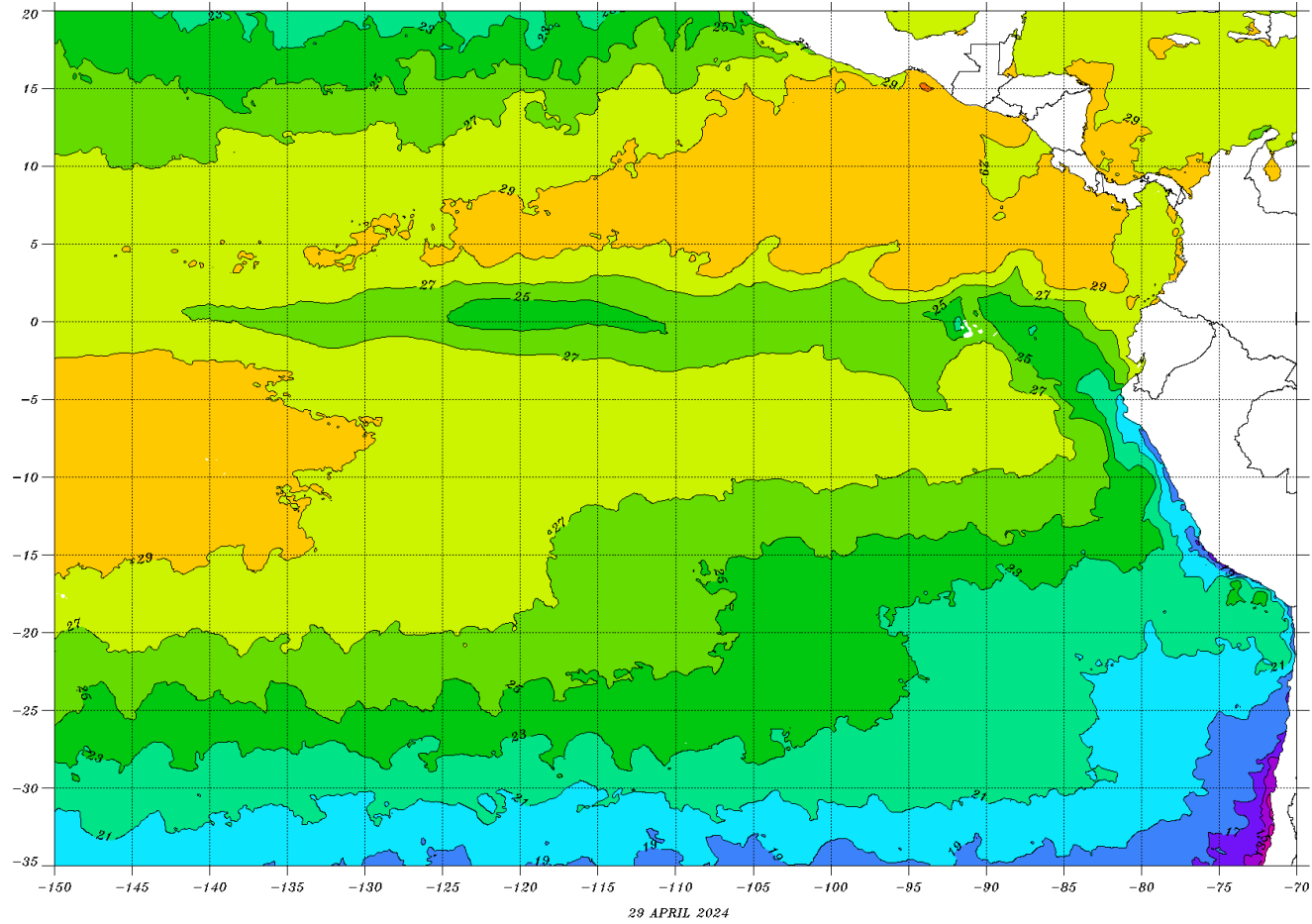
# Multi-Model TC Track Densities: Weeks 2+3

Storm Track Density Distribution, IC=20240429  
Week 2 Forecast: 0508-0514

Storm Track Density Distribution, IC=20240429  
Week 3 Forecast: 0515-0521



NOAA/NESDIS GEO-POLAR BLENDED 5 km SST ANALYSIS  
FOR THE EQUATORIAL PACIFIC

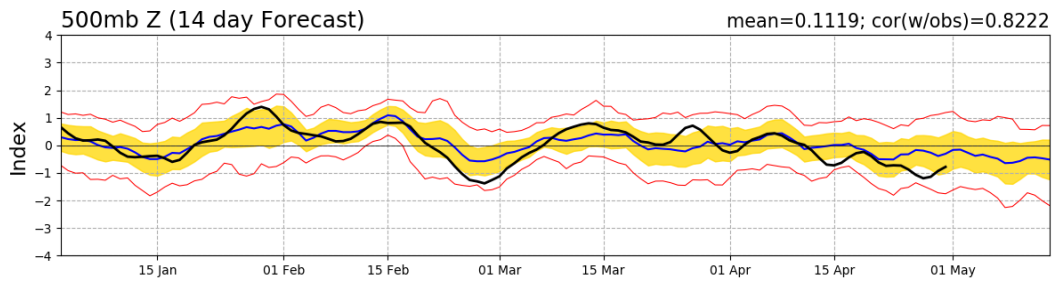
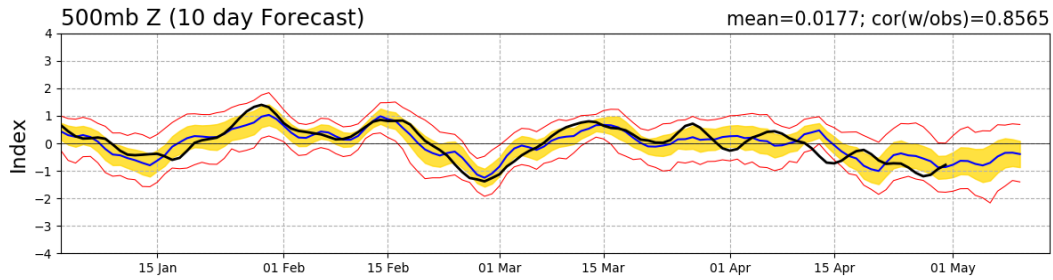
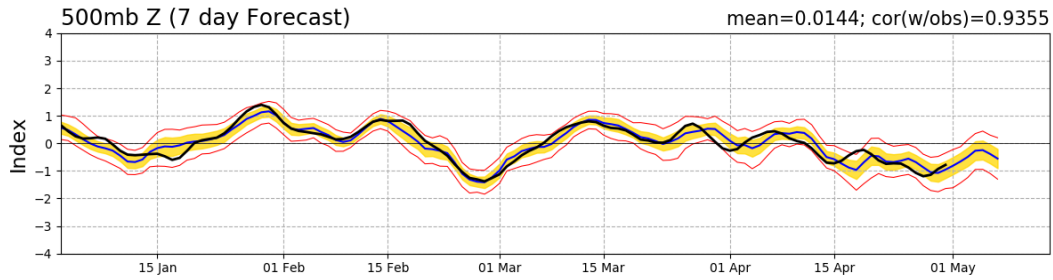
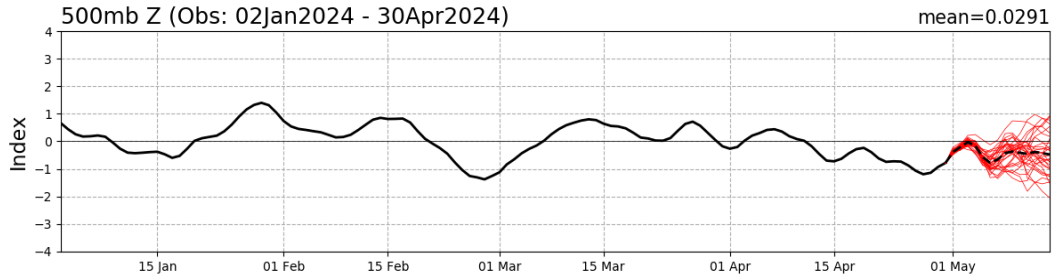


sea surface temperature in degrees Celsius

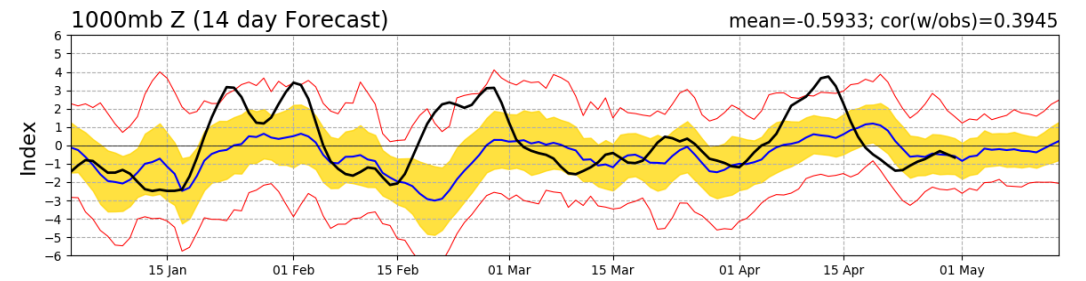
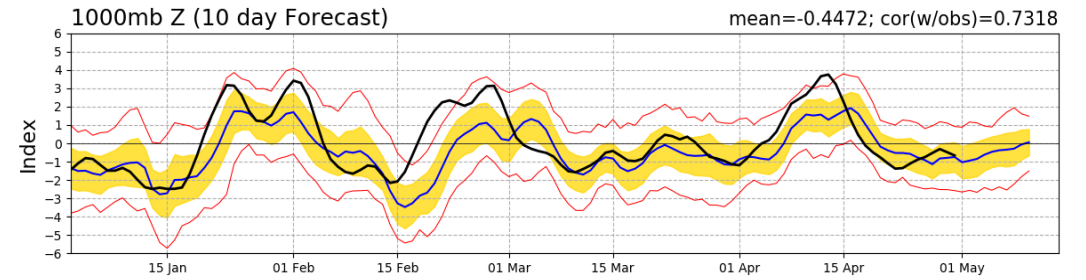
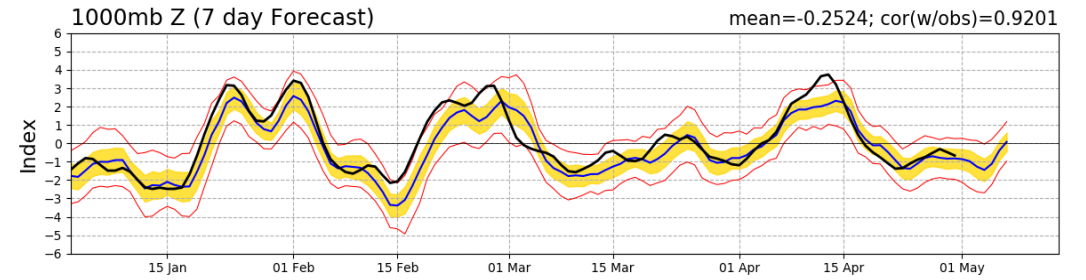
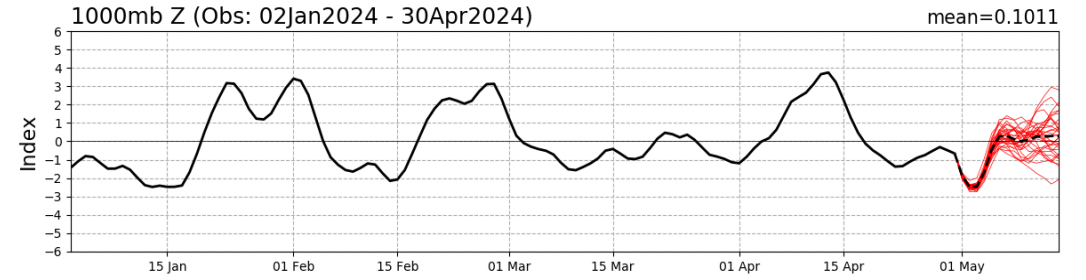


# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts

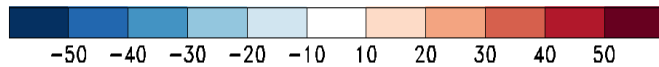
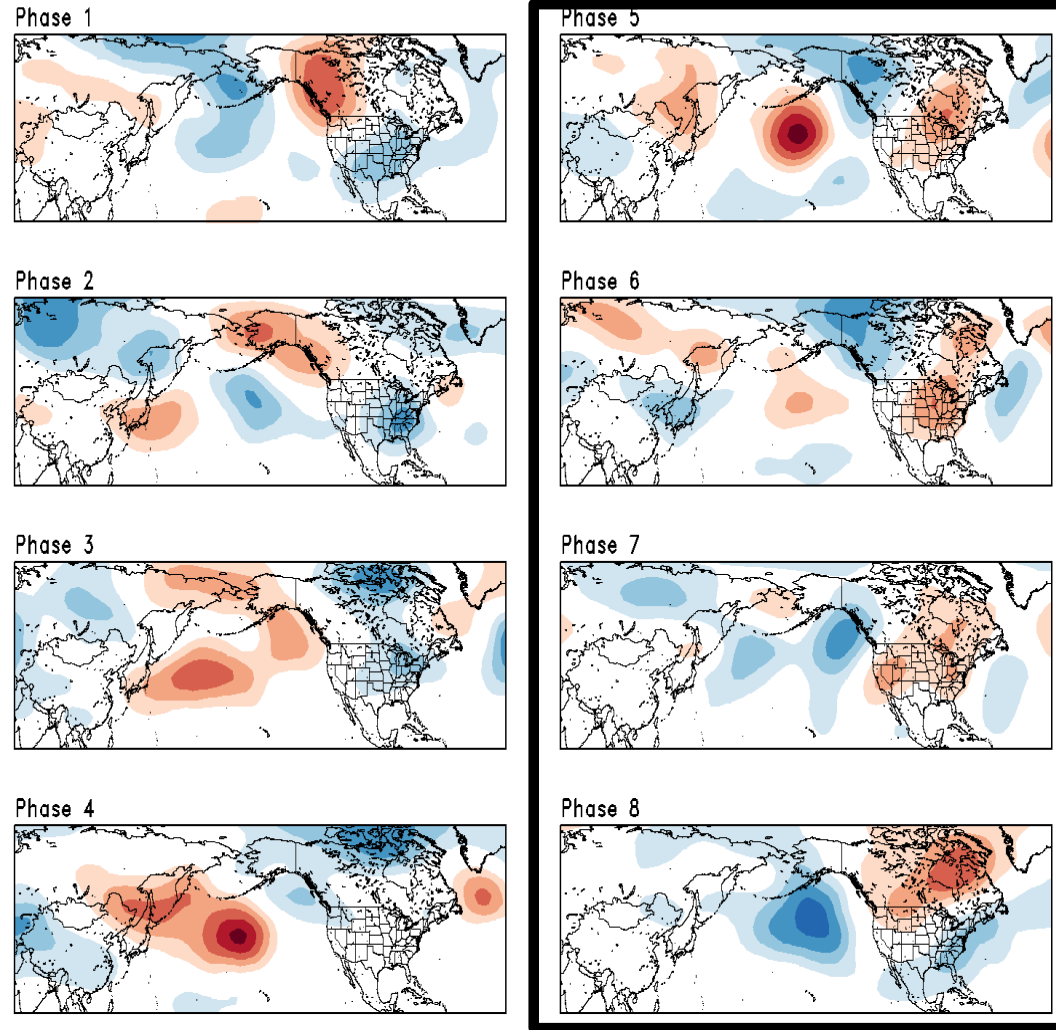


## AO Index: Observed & GEFS Forecasts

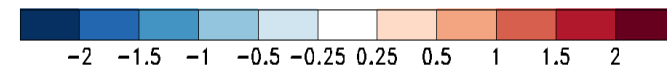
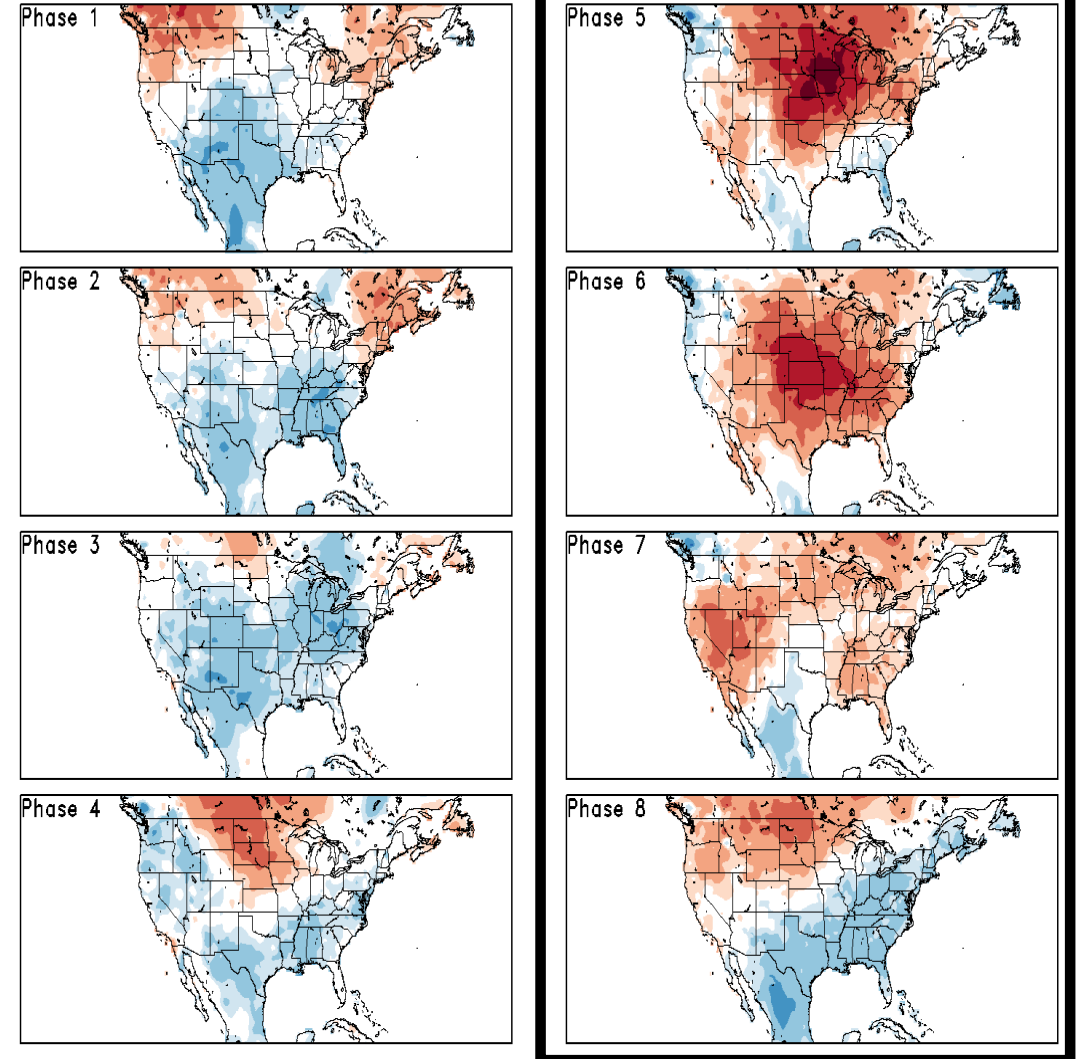


# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

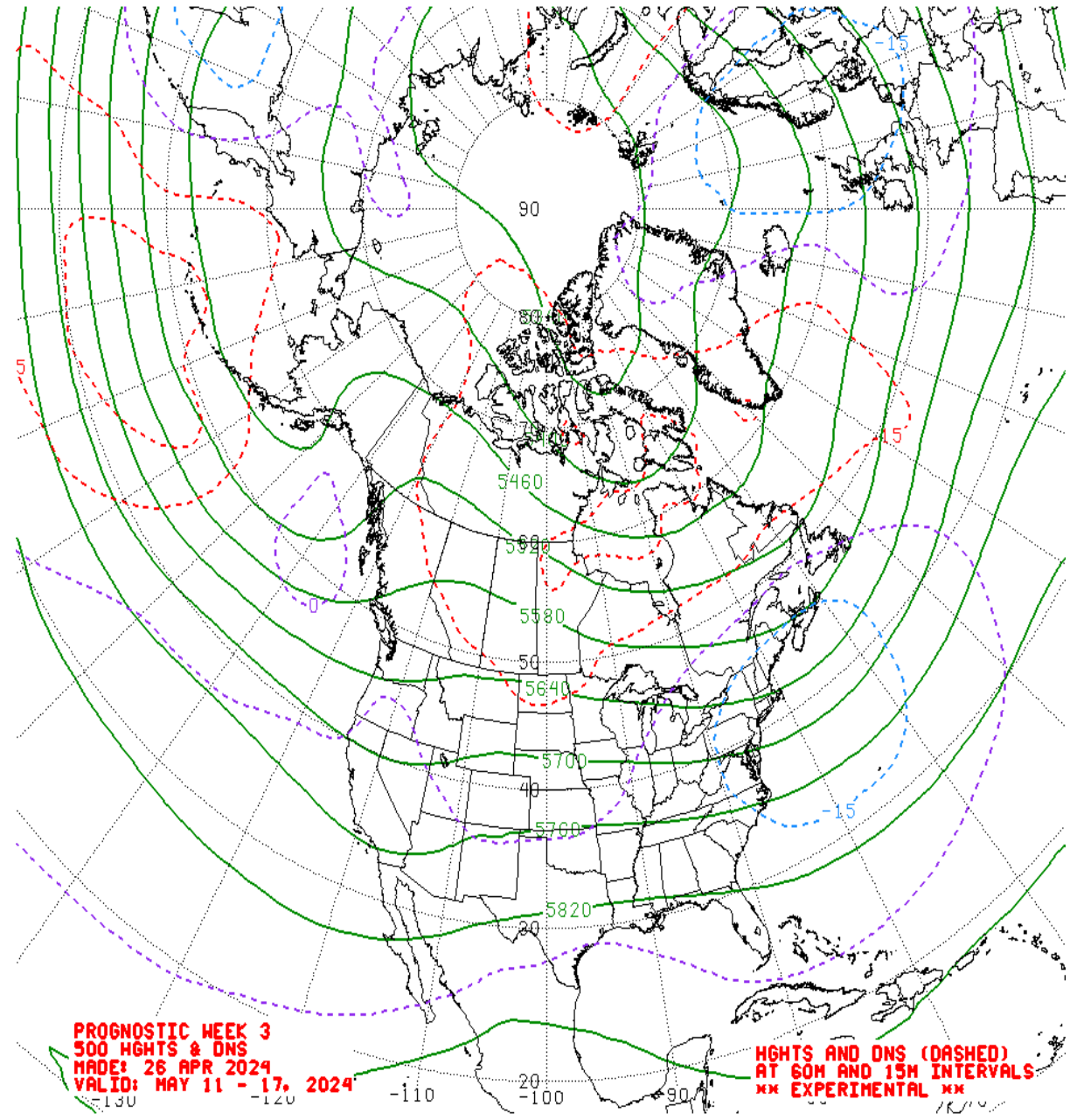
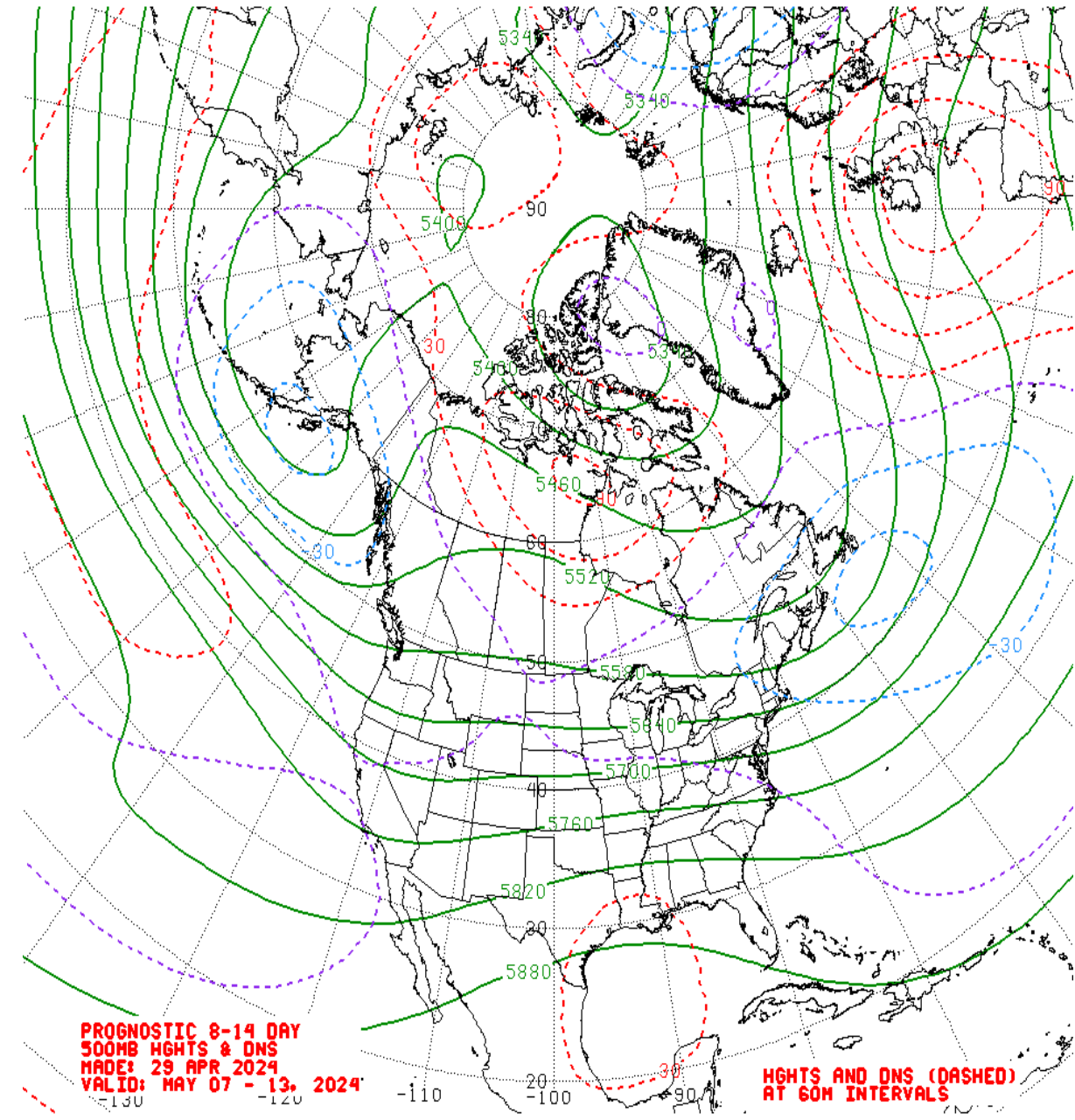
MAM MJO Composite: CDAS 500-hPa Height (m)



MAM MJO Composite: GLBT (degC)

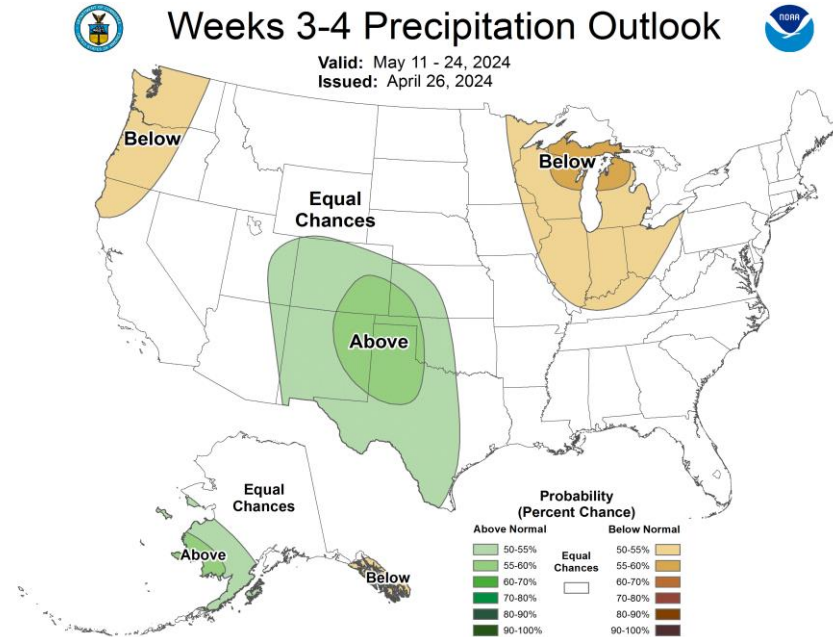
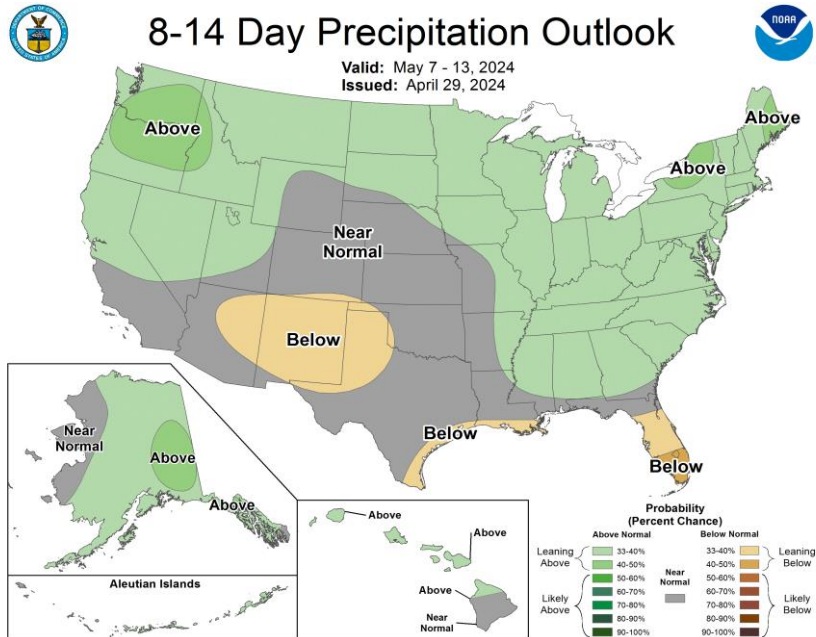
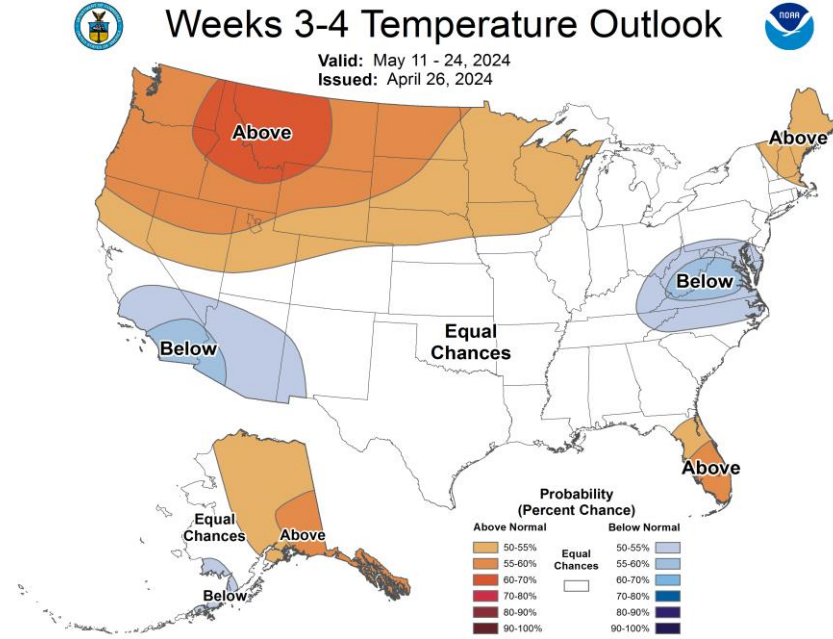
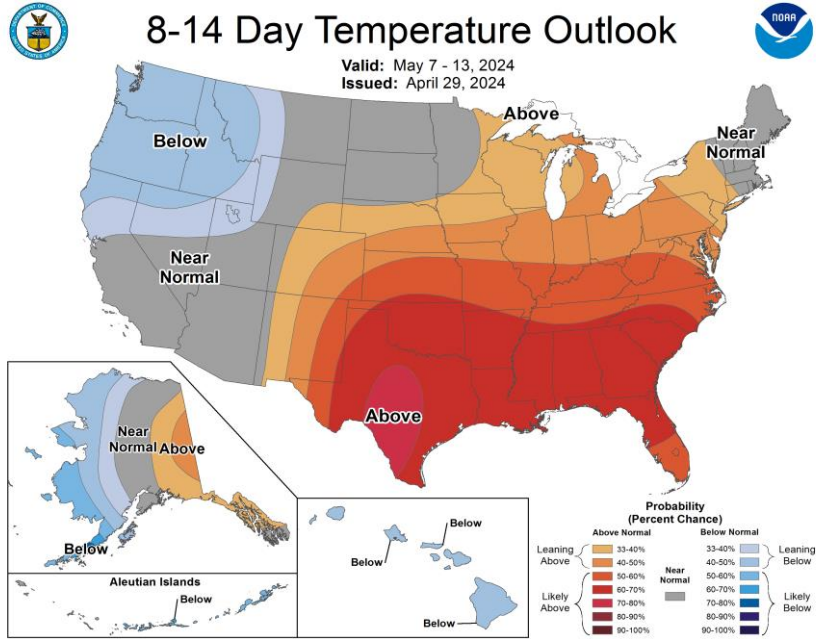


# Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3





# Official Temperature & Precipitation Forecasts:



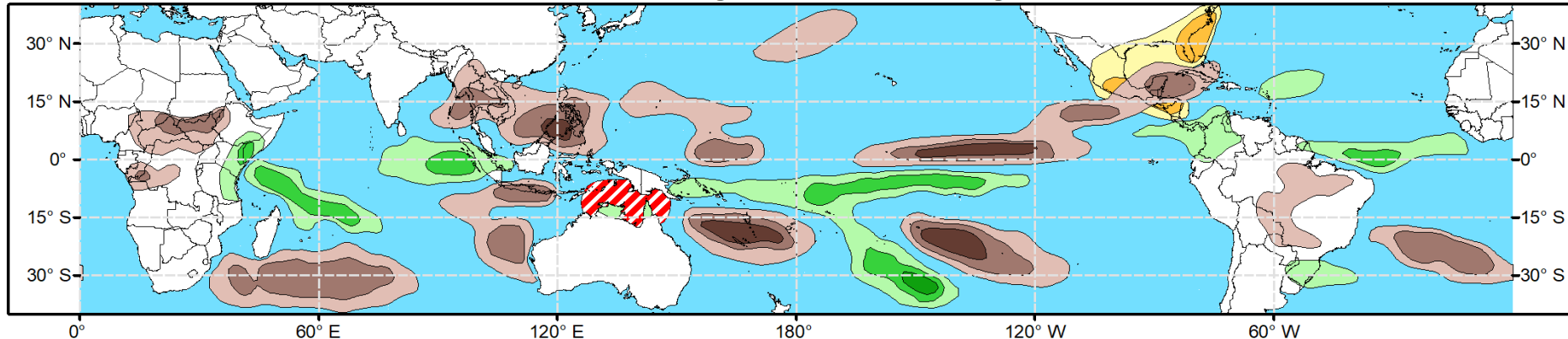


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Climate Prediction Center

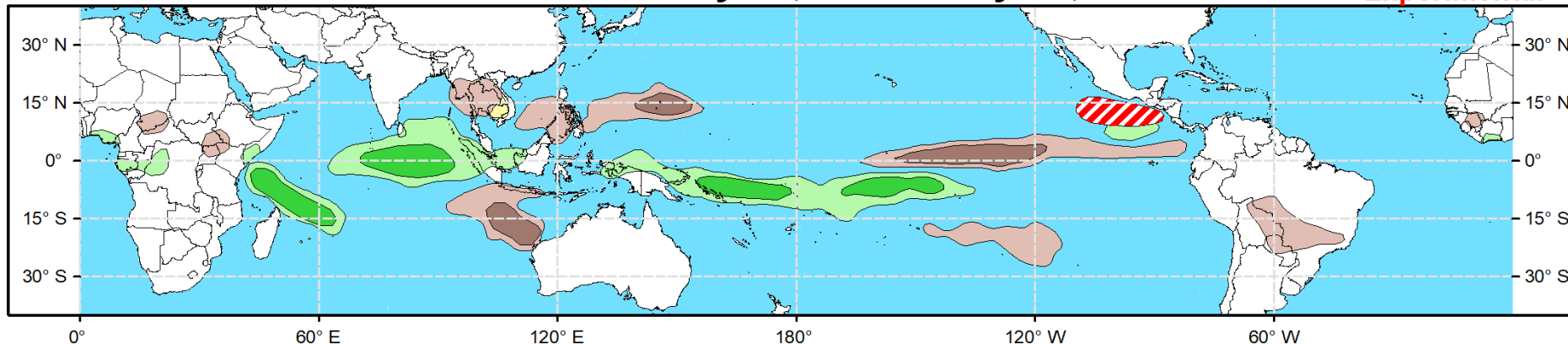


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