



# Weeks 2-3 Global Tropics Hazards Outlook

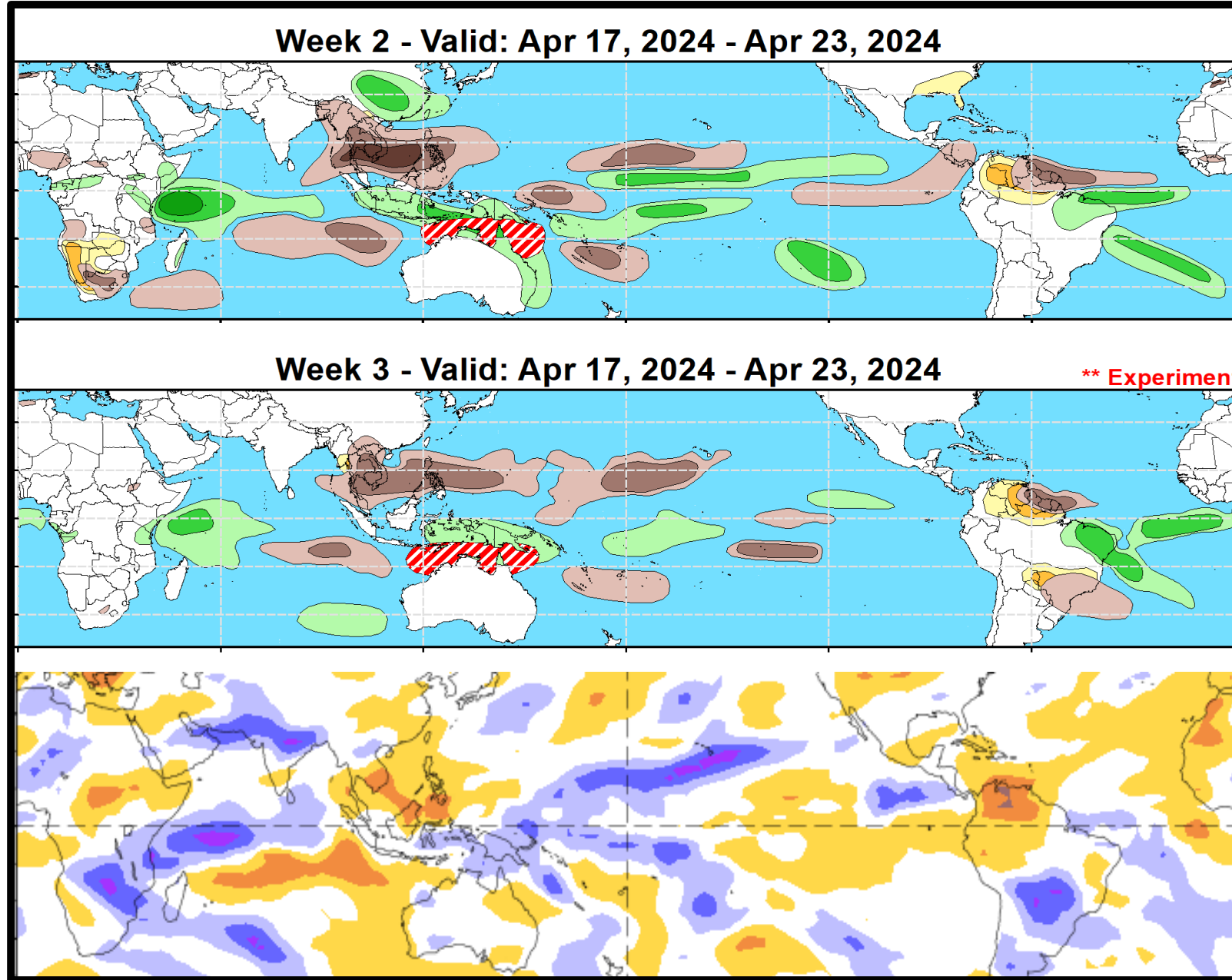
4/23/2024

Brad Pugh

NWS / NCEP / Climate Prediction Center

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

No tropical cyclones formed during 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:**

- Although the MJO is weaker compared to March, there has been a remnant MJO shifting east over the Western Hemisphere during early to mid-April.
- Dynamical model forecasts, especially the GFS, indicate a strengthening MJO propagating to the West Pacific by early May.
- This is a quiet time of year for tropical cyclones globally but the MJO would favor an increasing chance of TC development across the West Pacific during early to mid-May.

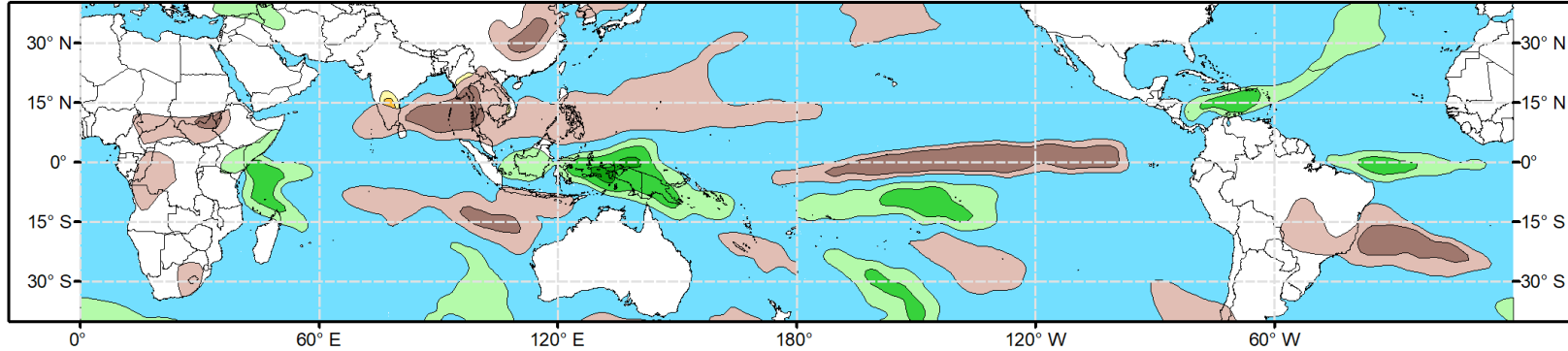
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

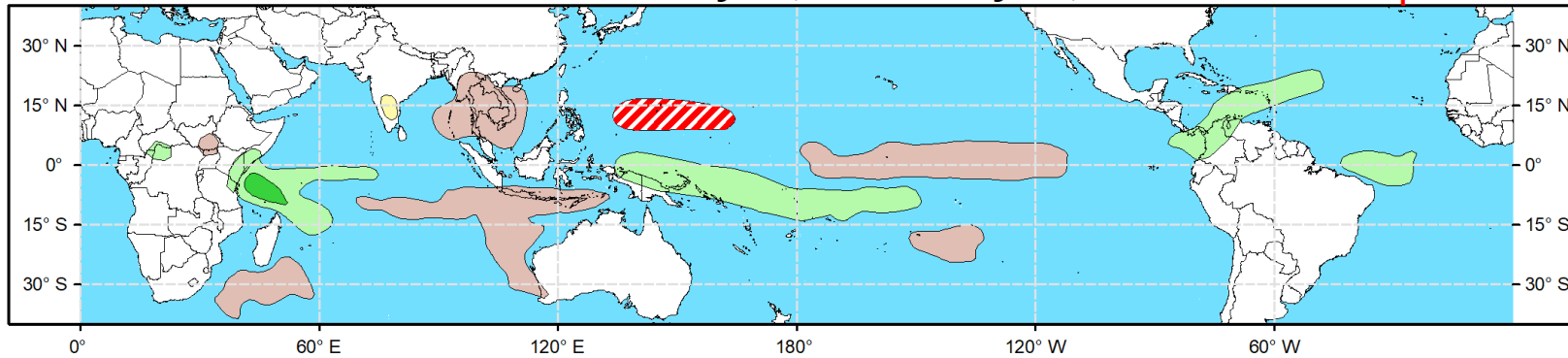


**Week 2 - Valid: May 01, 2024 - May 07, 2024**



**Week 3 - Valid: May 08, 2024 - May 14, 2024**

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



**Tropical Cyclone (TC)  
Formation Probability**



>20% >40% >60%

Tropical Depression (TD)  
or greater strength

**Above-Average  
Rainfall Probability**



>50% >65% >80%

Weekly total rainfall in the  
Upper third of the historical range

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Rainfall Probability**



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Weekly total rainfall in the  
Lower third of the historical range

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Temperatures Probability**



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7-day max temperatures in the  
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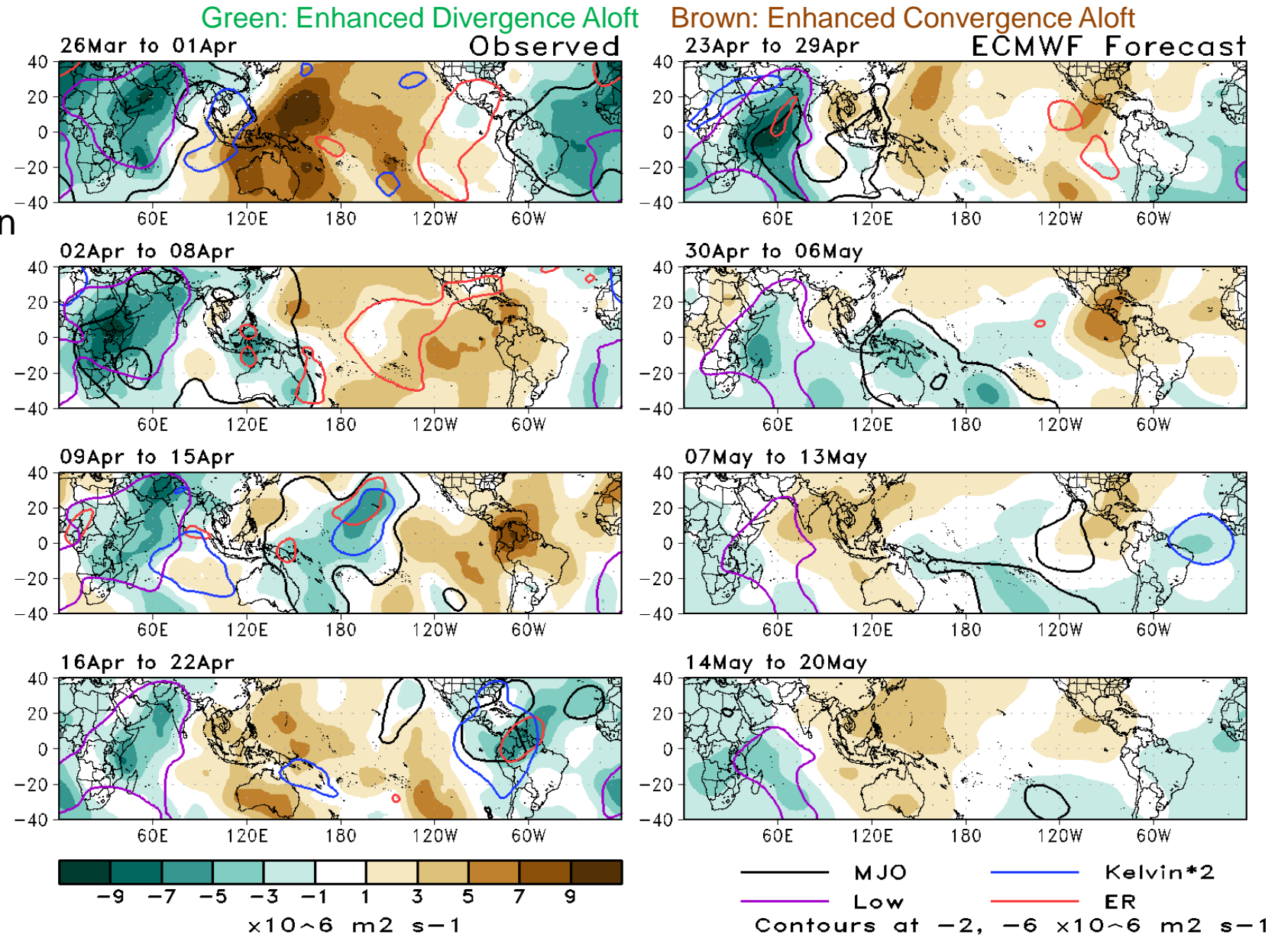
**Issued: 04/23/2024**

**Forecaster: Pugh**

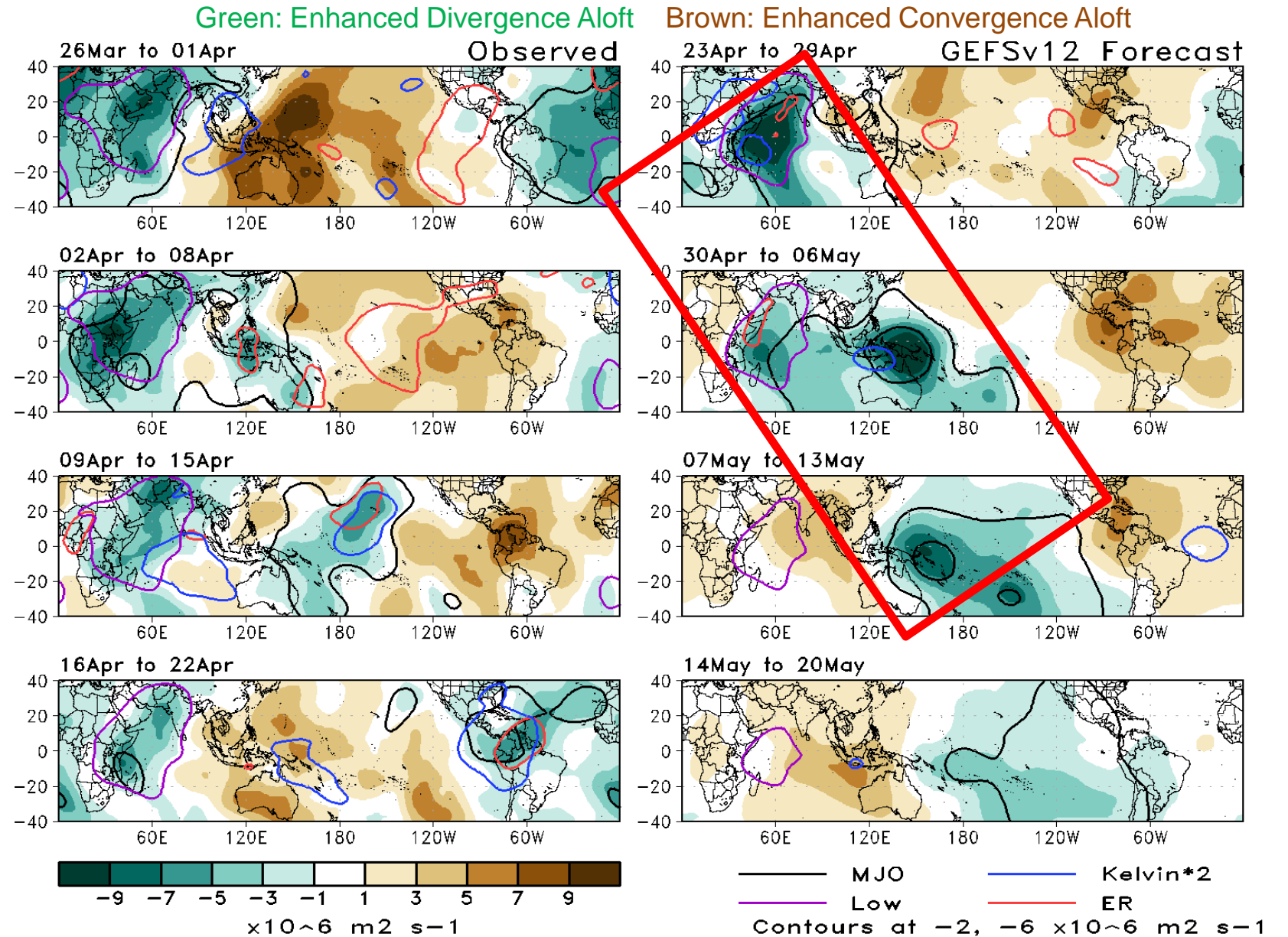
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Consult your local responsible forecast agency.

# 200-hPa Velocity Potential Anomaly Maps:

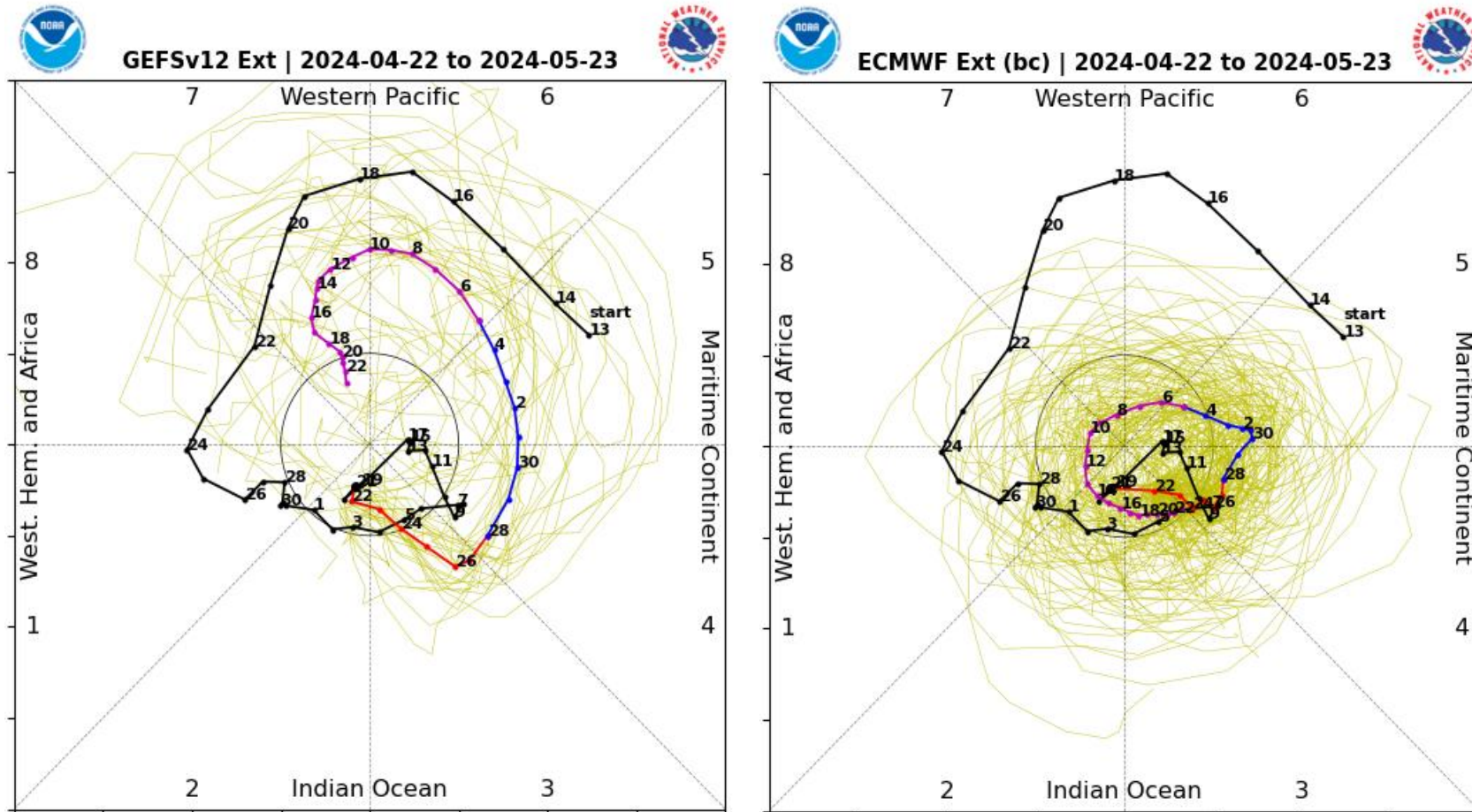
- Week-1: Anomalous upper-level divergence increases over eastern Africa and western Indian Ocean due to constructive interference between the MJO and a low-frequency state.
- Week 2-3: MJO propagates east to the Pacific (GEFS is stronger: next slide)



# 200-hPa Velocity Potential Anomaly Maps:



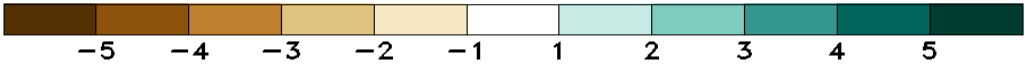
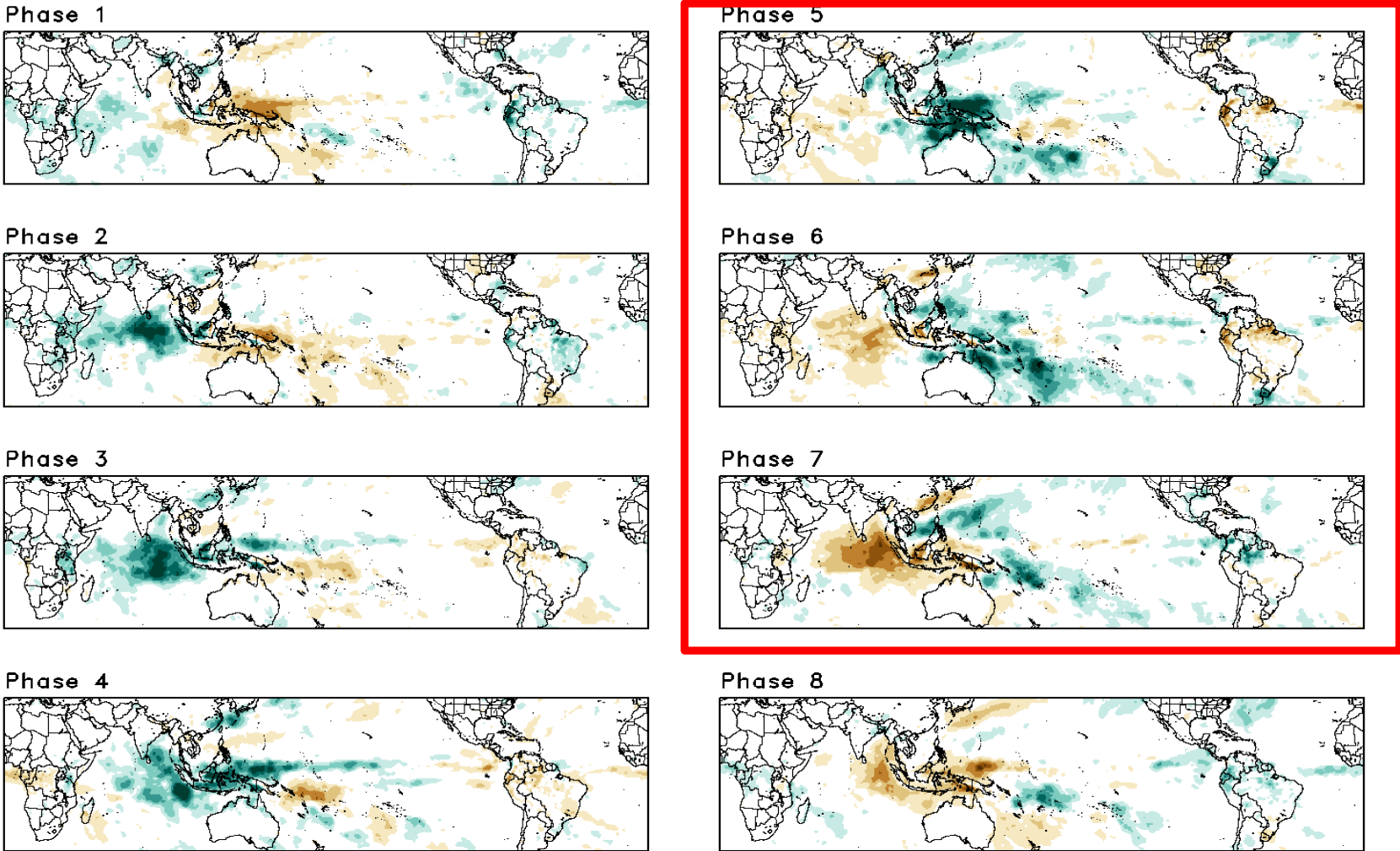
# RMM Index Observations & Forecasts:



- Both the GEFS and ECMWF ensemble members depict eastward propagation, but the GEFS has a much higher MJO amplitude.

# Historical Precipitation Anomalies By MJO Phase:

MAM MJO Composite: GPCP1DD (mm/day)

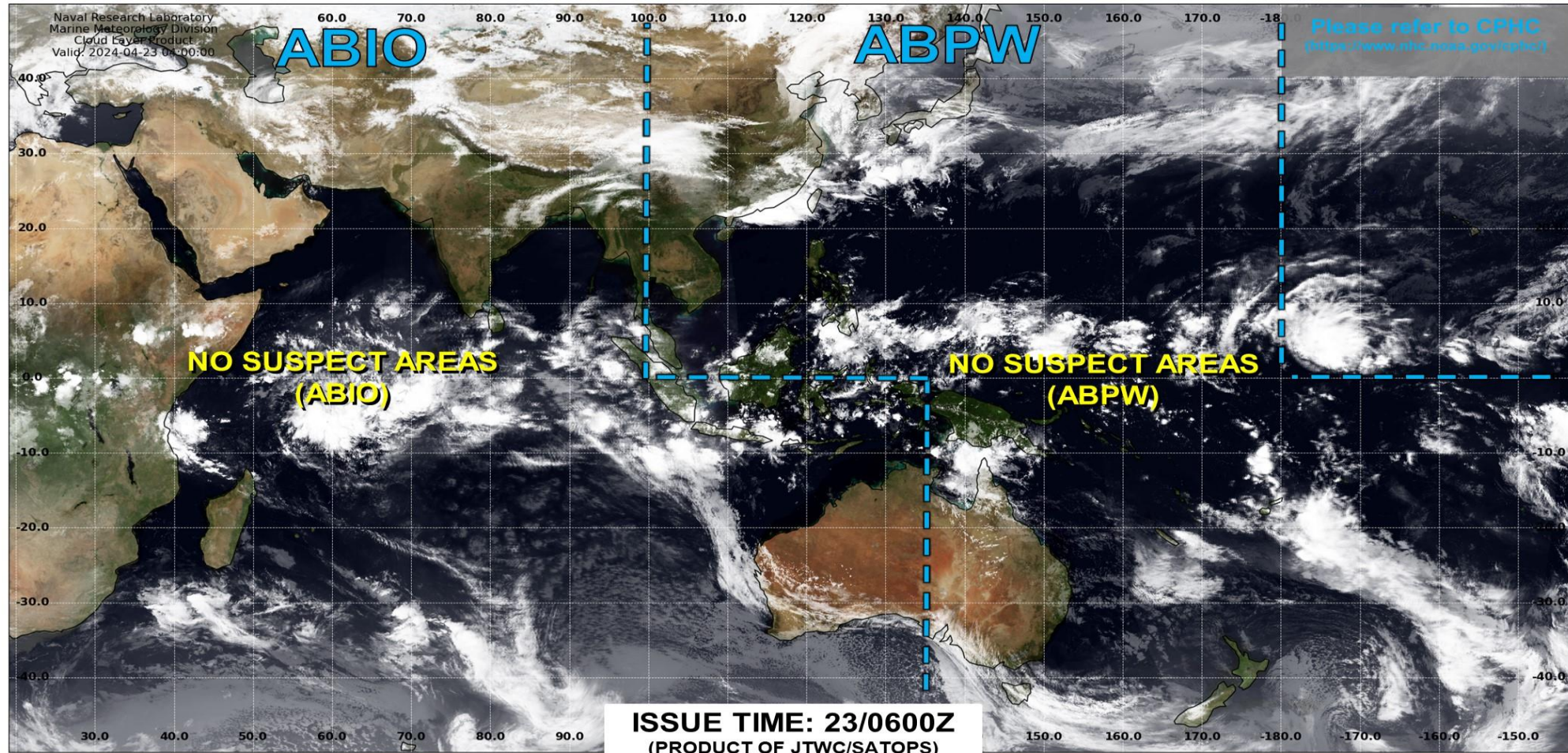




# Tropical Cyclone Monitoring/Forecast: JTWC



## 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)



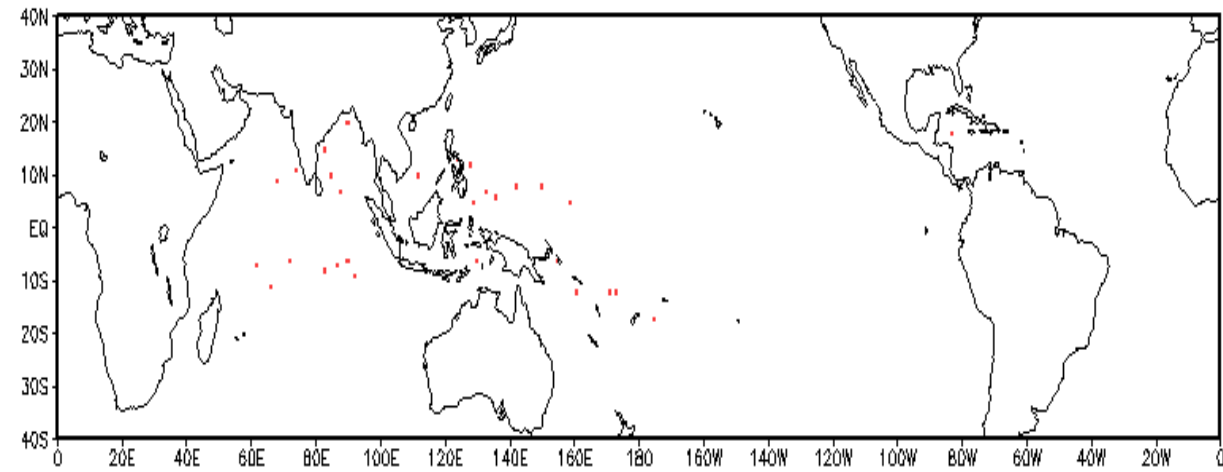
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

# TC Climatological Genesis: Weeks 2+3

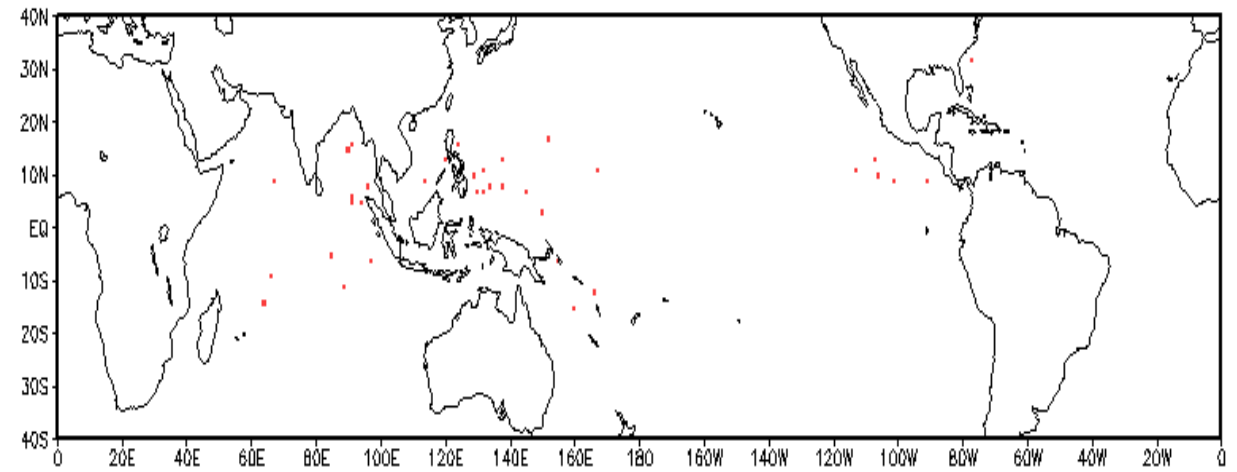
Observed TC Genesis, 1979–2021

7-day Period 0501 to 0507



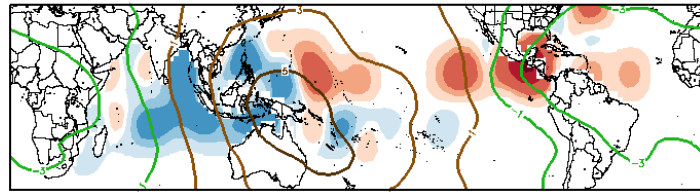
Observed TC Genesis, 1979–2021

7-day Period 0508 to 0514

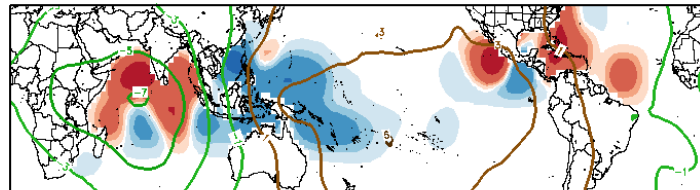


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

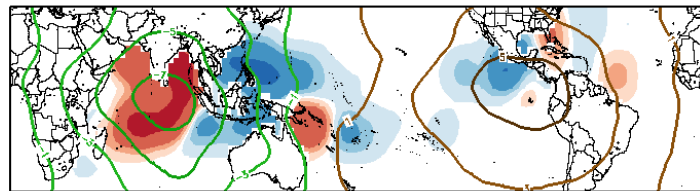
AMJ MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ AMJ CHI200 ( $\times 10^{-6} m^{-2} s^{-1}$ ) / Contours every  $2 \times 10^{-6} m^{-2} s^{-1}$



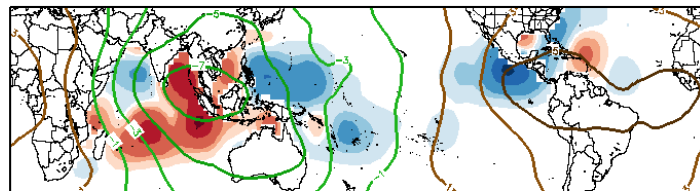
Phase 1



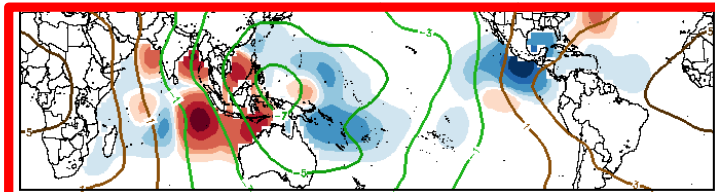
Phase 2



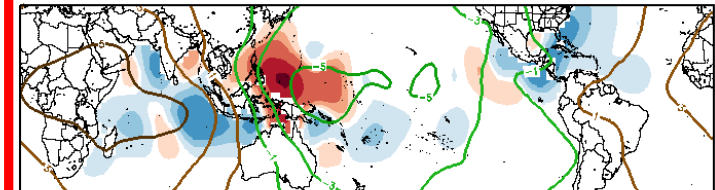
Phase 3



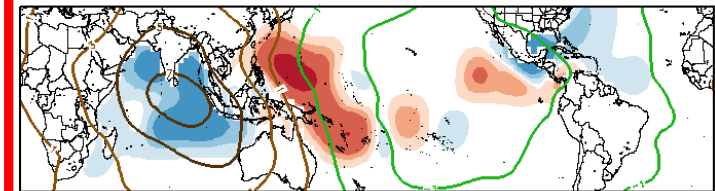
Phase 4



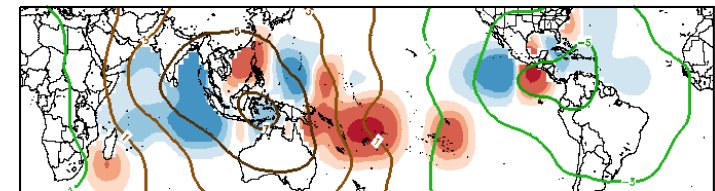
Phase 5



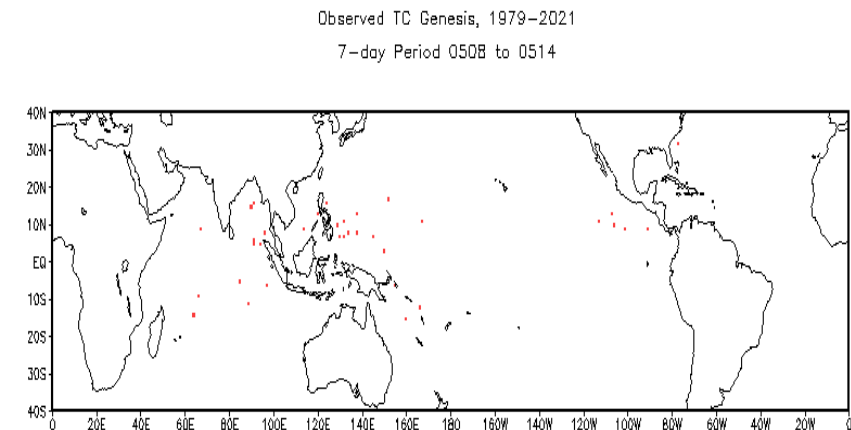
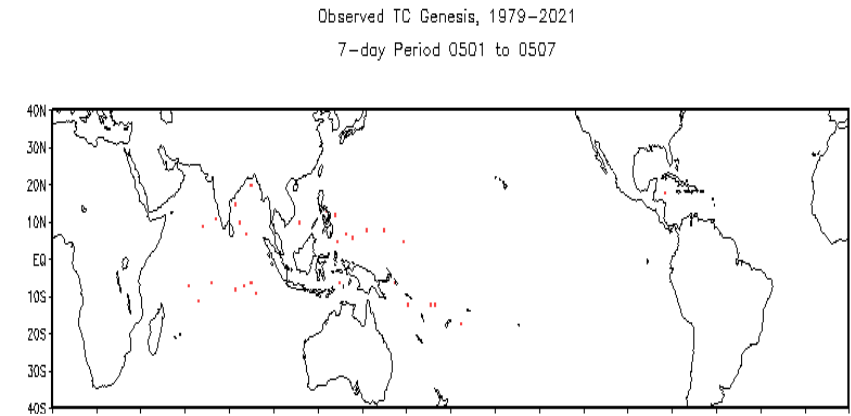
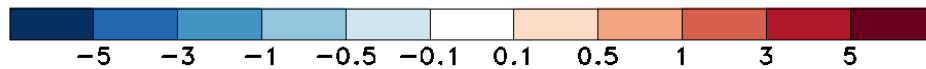
Phase 6



Phase 7



Phase 8

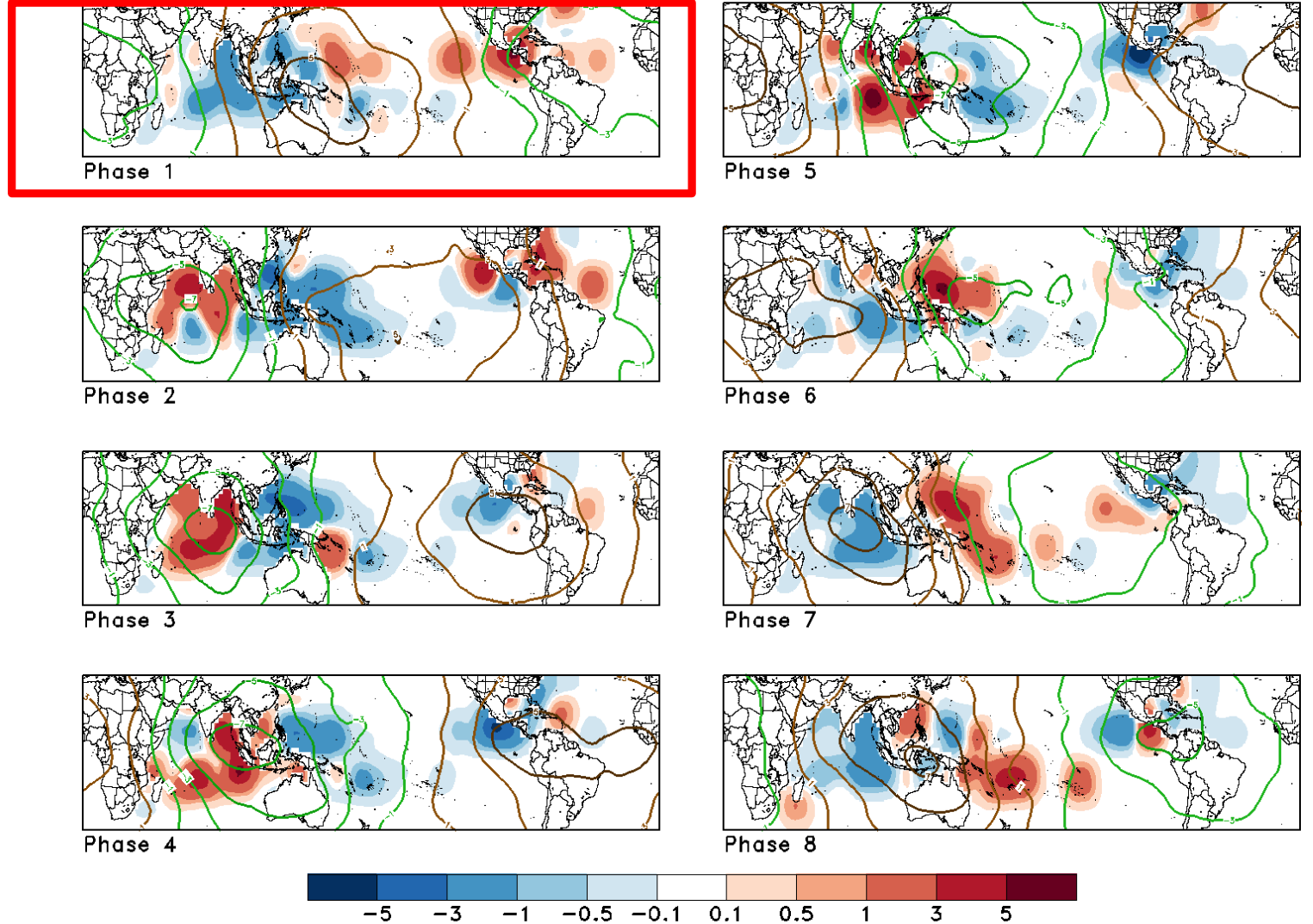


\*Experimental\*

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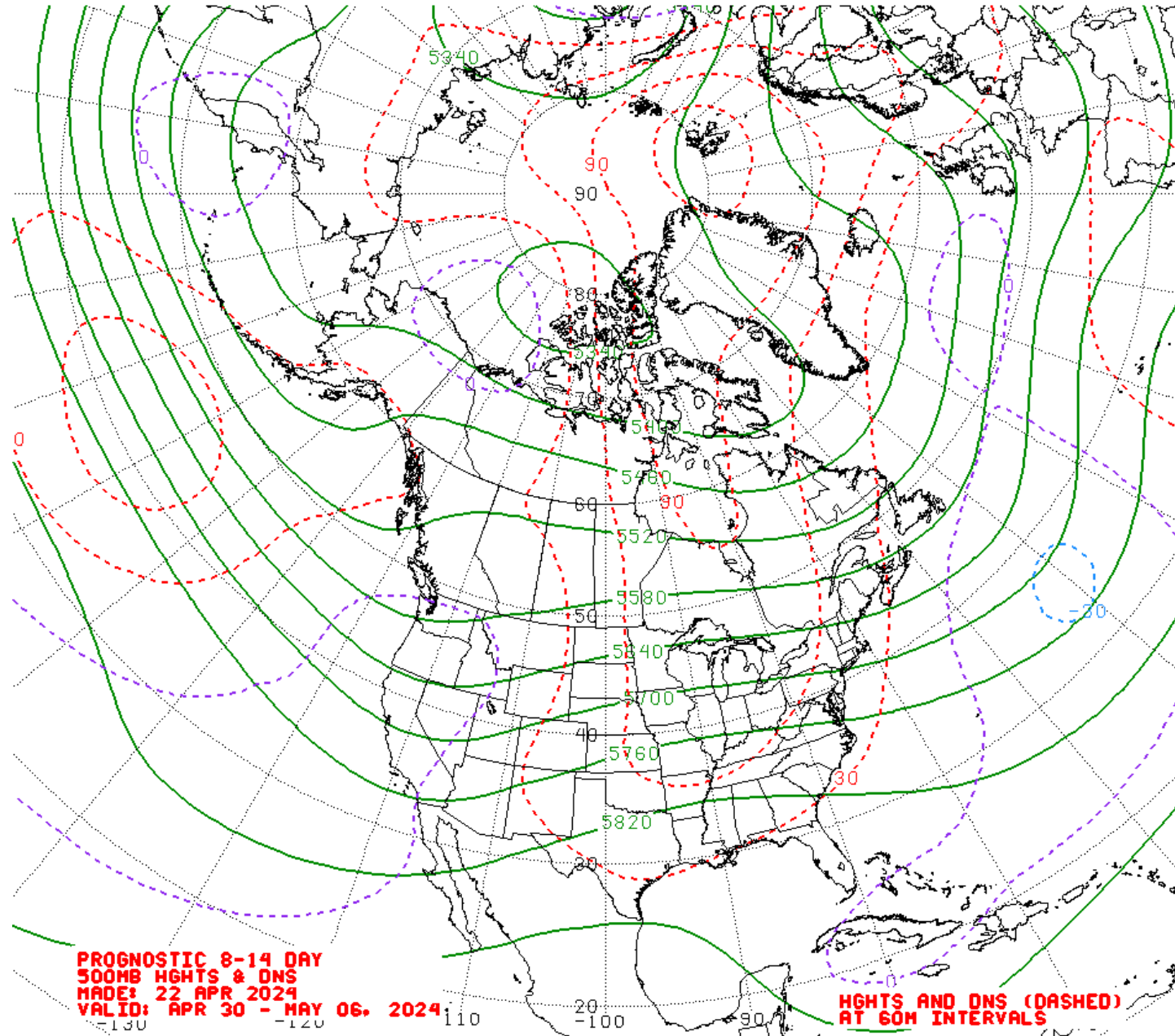
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If a stronger MJO propagates back to the Western Hemisphere later in May, that could kick start the East Pacific season.



\*Experimental\*

# Mean 500-hPa Height Anomaly Forecasts: Weeks 2



# Official Temperature & Precipitation Forecasts: Week-2



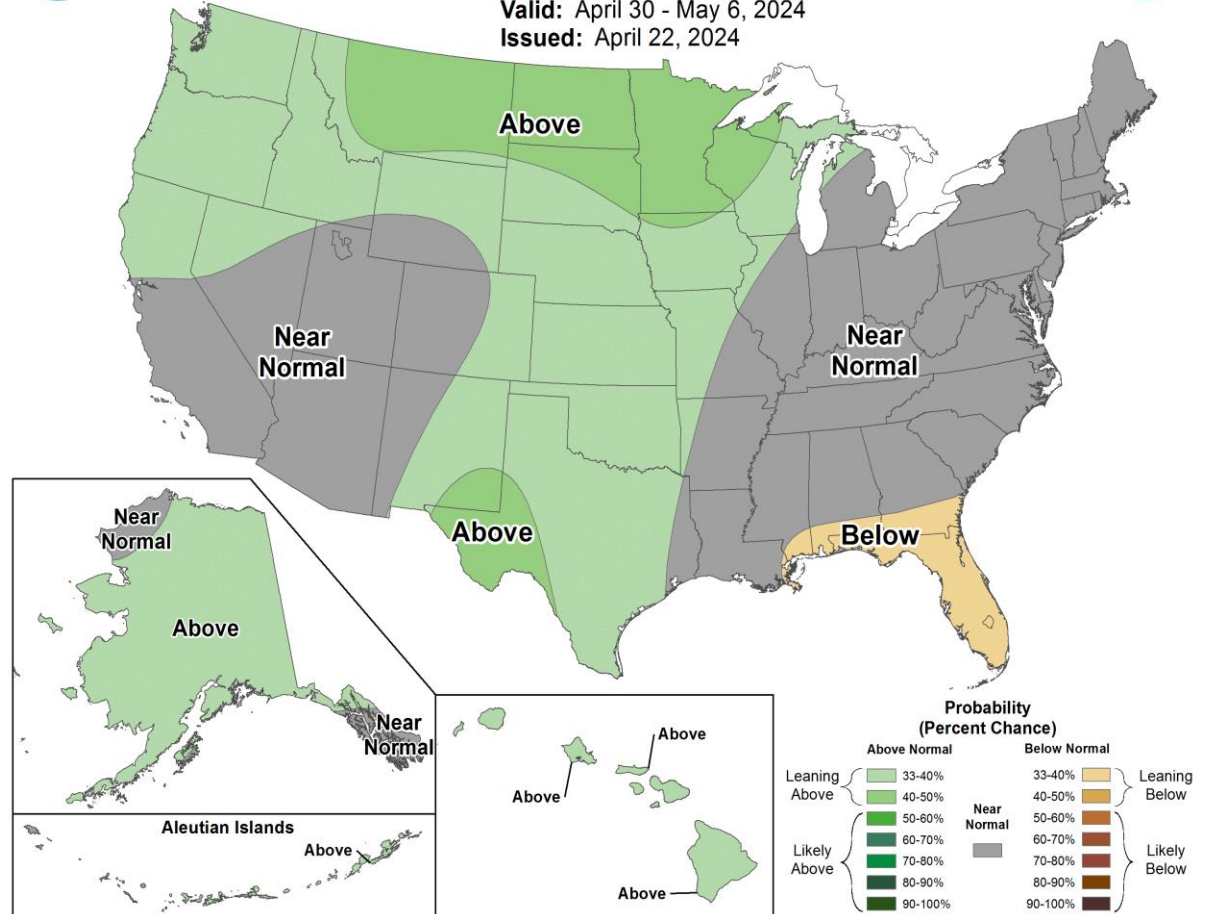
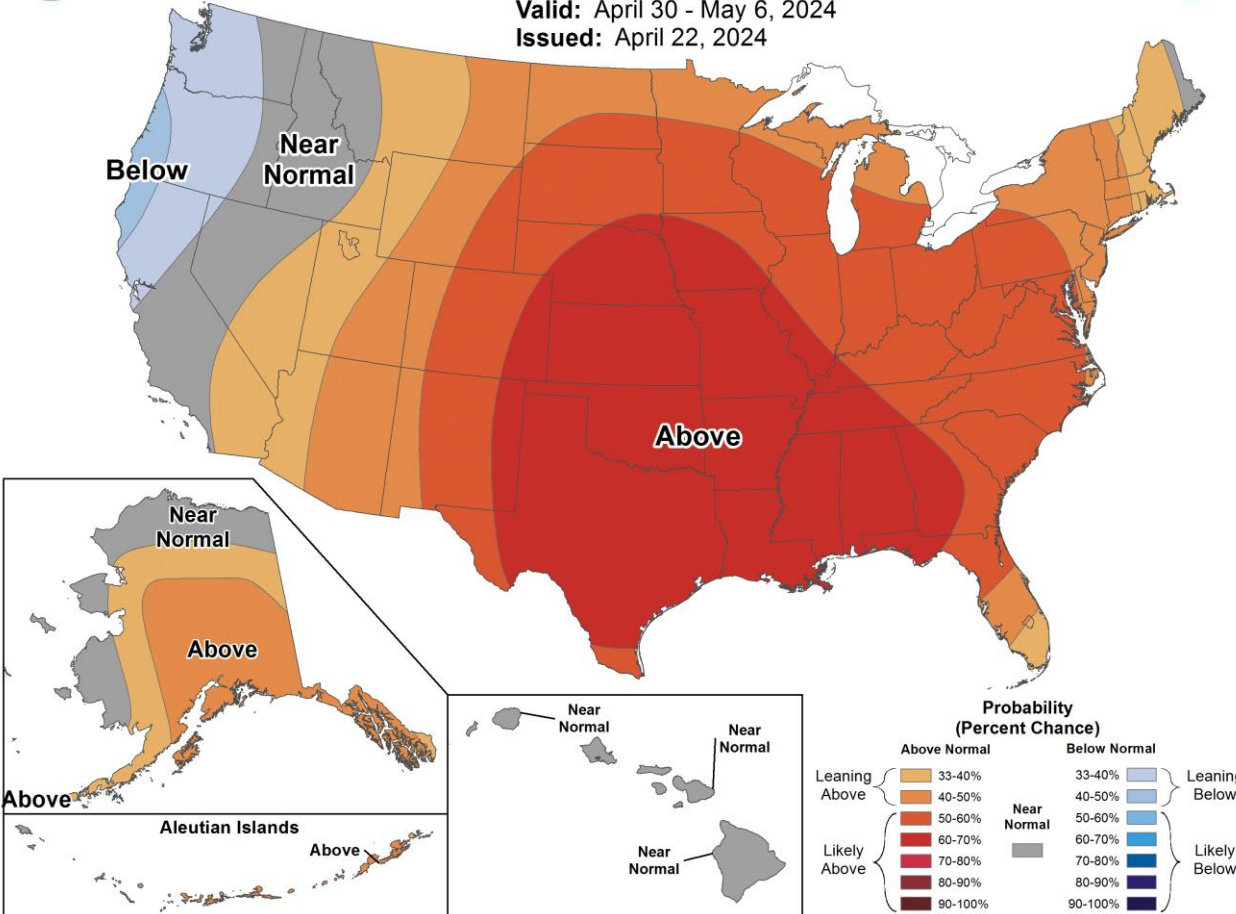
## 8-14 Day Temperature Outlook

Valid: April 30 - May 6, 2024  
 Issued: April 22, 2024



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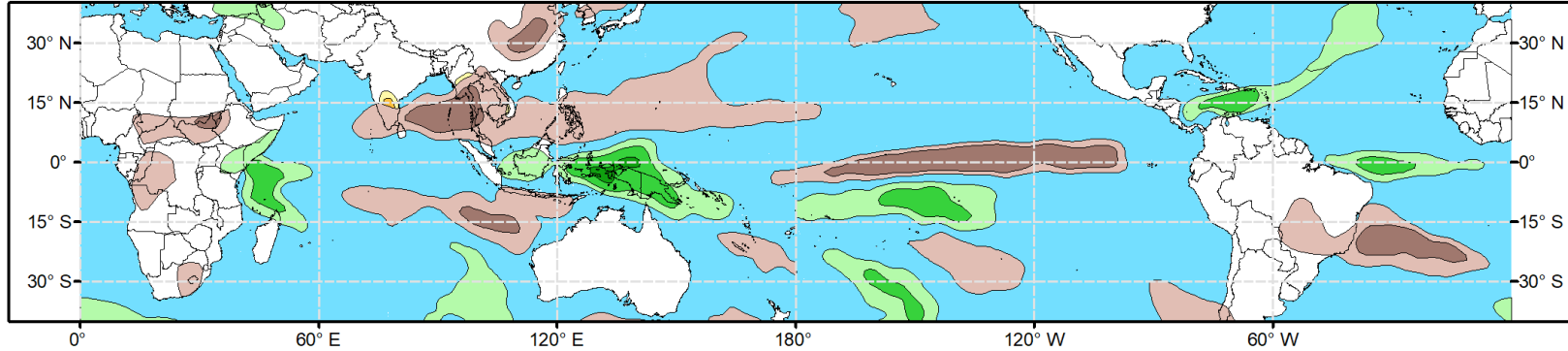
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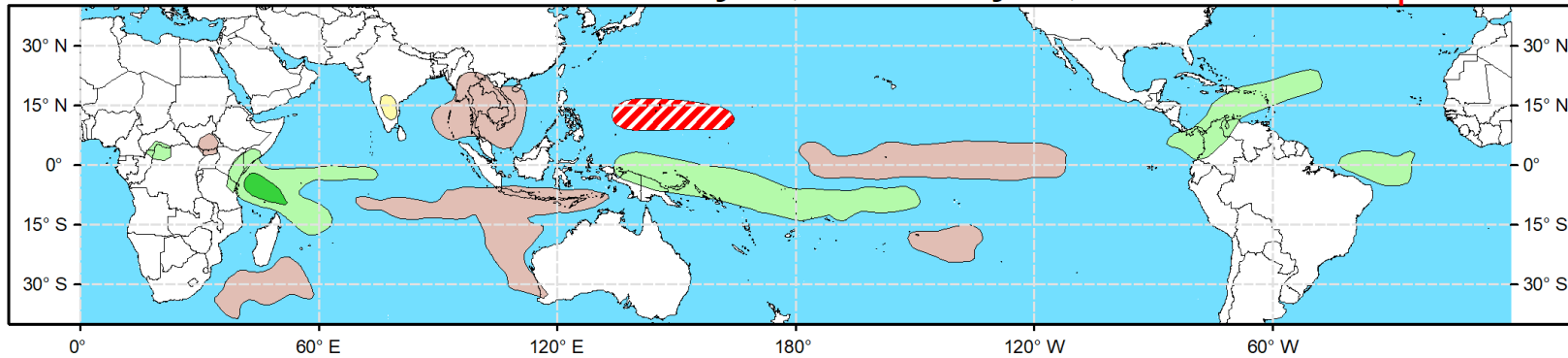


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