



# Weeks 2-3 Global Tropics Hazards Outlook

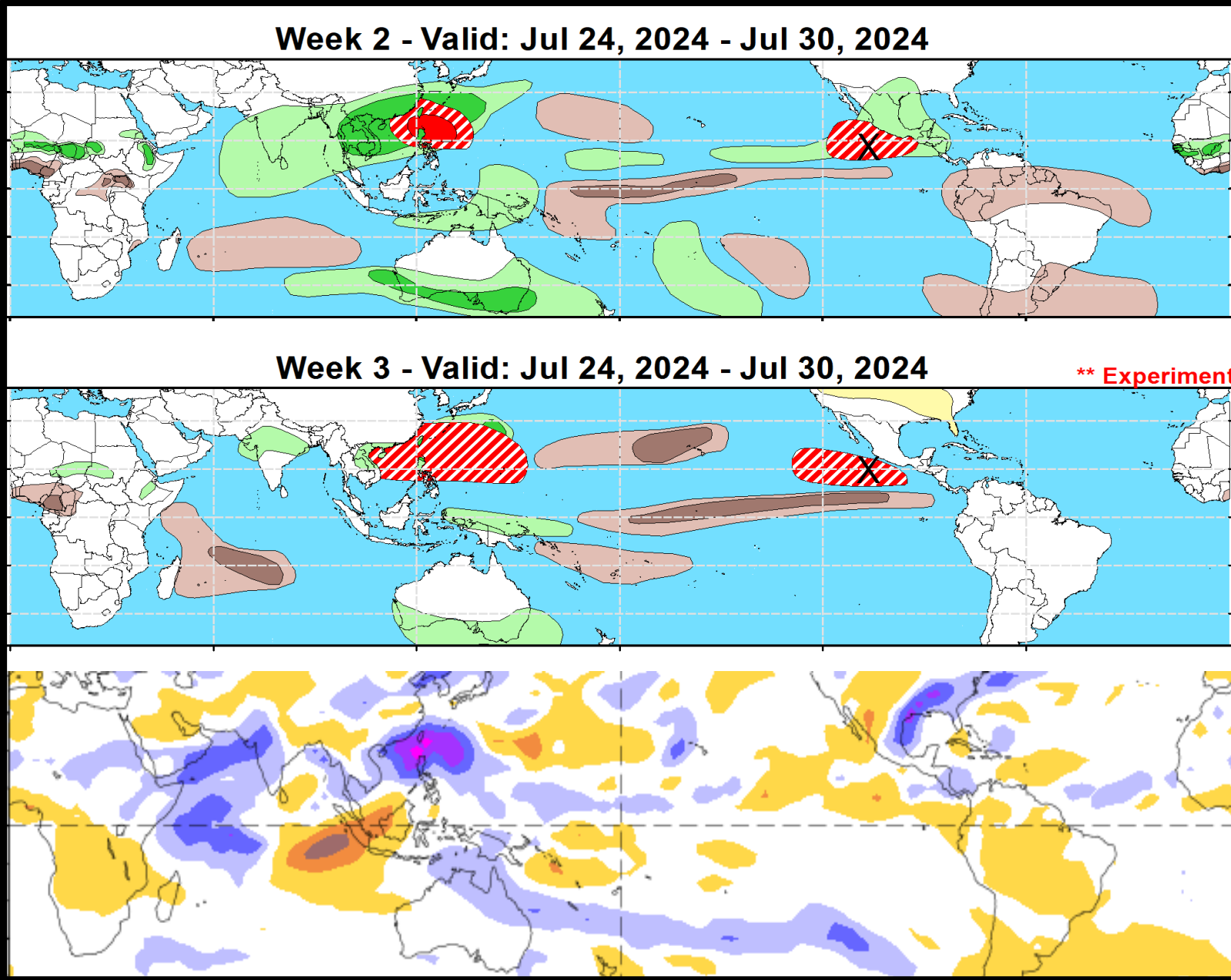
7/30/2024

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- EPAC: TC Bud



# Synopsis of Climate Modes:

---

**ENSO:** (Jul 11, 2024 Update)     *next update on Thursday, Aug 8<sup>th</sup>*

- ENSO Alert System Status: [La Niña Watch](#)
- ENSO-neutral is expected to continue for the next several months, with La Niña favored to emerge during August-October (70% chance) and persist into the Northern Hemisphere winter 2024-25 (79% chance during November-January).

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

- The MJO has been weak and disorganized over the Maritime Continent for most of July, as other modes of tropical variability have prevailed throughout the tropical landscape.
- Recently, RMM observations have finally broken the phase 5 barrier, rapidly propagating the MJO signal into the Western Hemisphere, where some ensemble solutions favor some amplification and renewed MJO activity.
- While interference between the MJO and other modes of variability is expected to continue, upper-level velocity potential anomaly forecasts suggest a more coherent wave-1 pattern emerging later in August.
- An organizing MJO would support increased (decreased) chances for tropical cyclogenesis in the Western Hemisphere (Eastern Hemisphere)

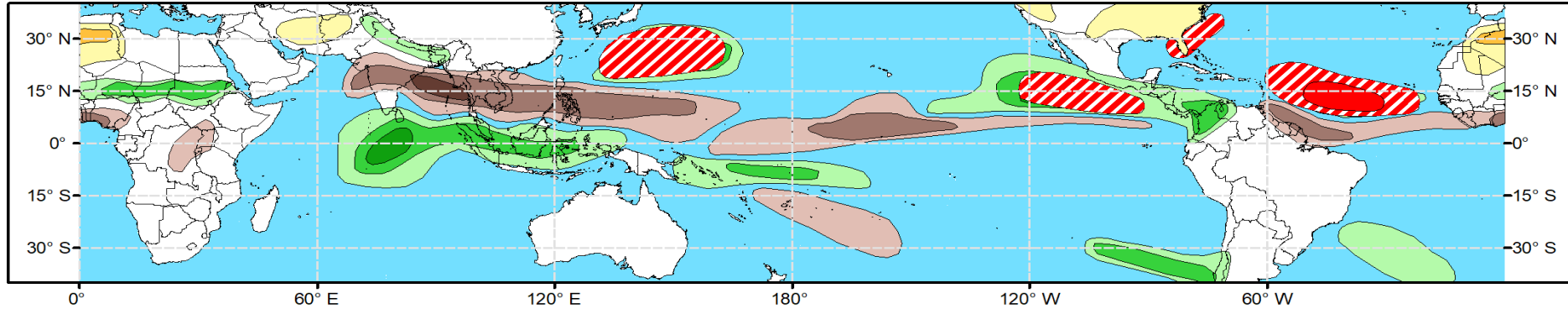
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

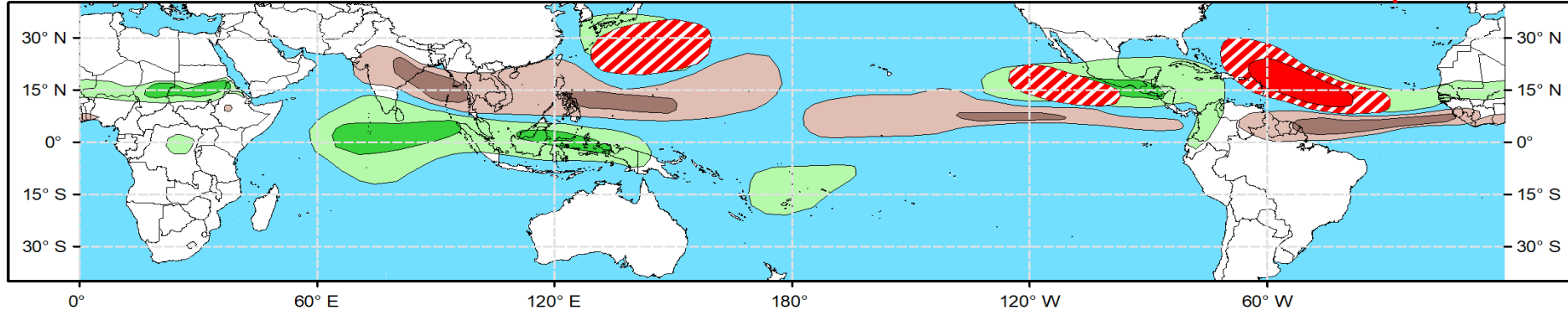


**Week 2 - Valid: Aug 07, 2024 - Aug 13, 2024**



**Week 3 - Valid: Aug 14, 2024 - Aug 20, 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

**Below-Average  
Rainfall Probability**



>50% >65% >80%

Weekly total rainfall in the  
Lower third of the historical range

**Above-Average  
Temperatures Probability**



>50% >65% >80%

7-day max temperatures in the  
Upper third of the historical range

**Below-Average  
Temperatures Probability**



>50% >65% >80%

7-day min temperatures in the  
Lower third of the historical range

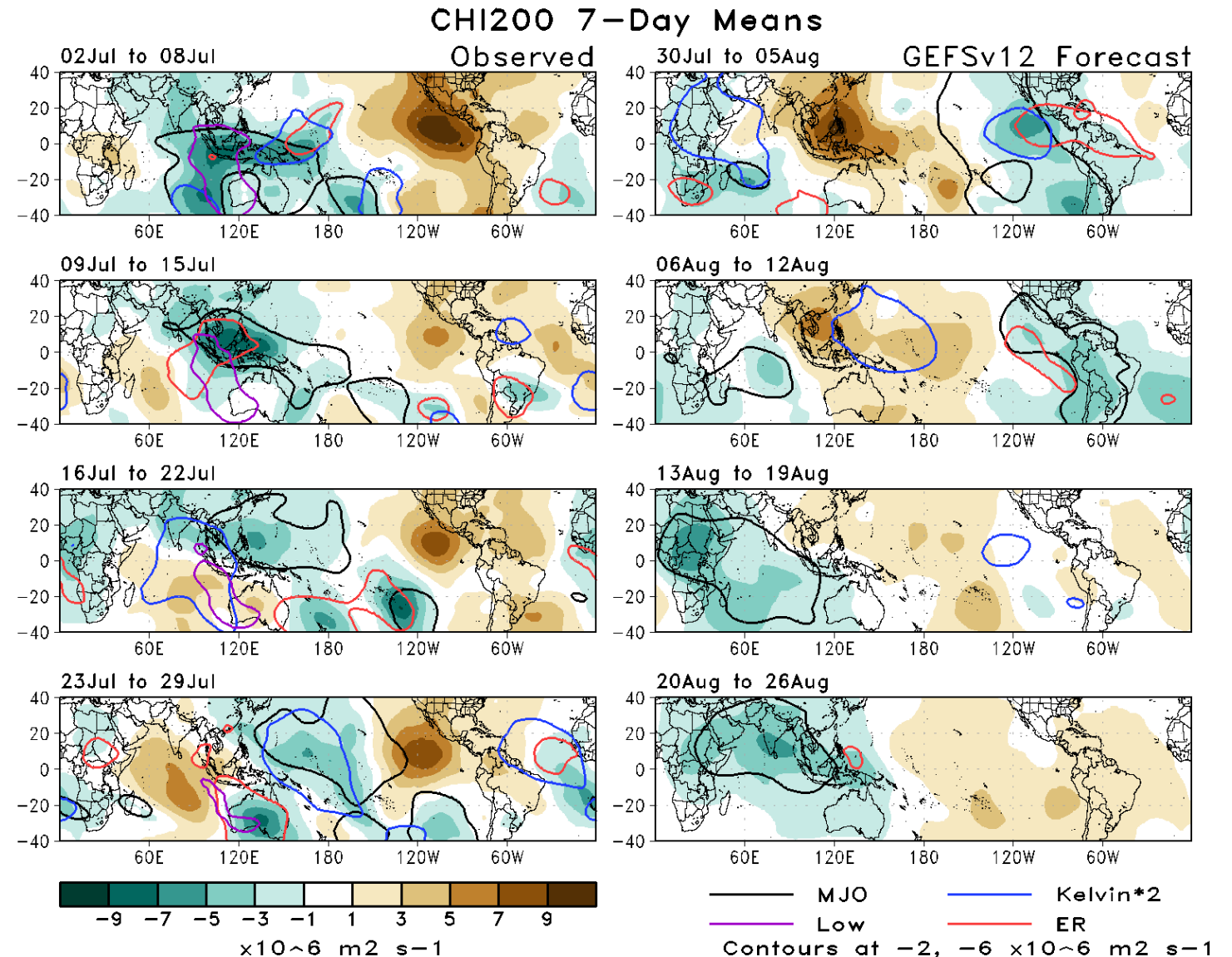
**Issued: 07/30/2024  
Forecaster: Novella**

**This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only.  
Consult your local responsible forecast agency.**

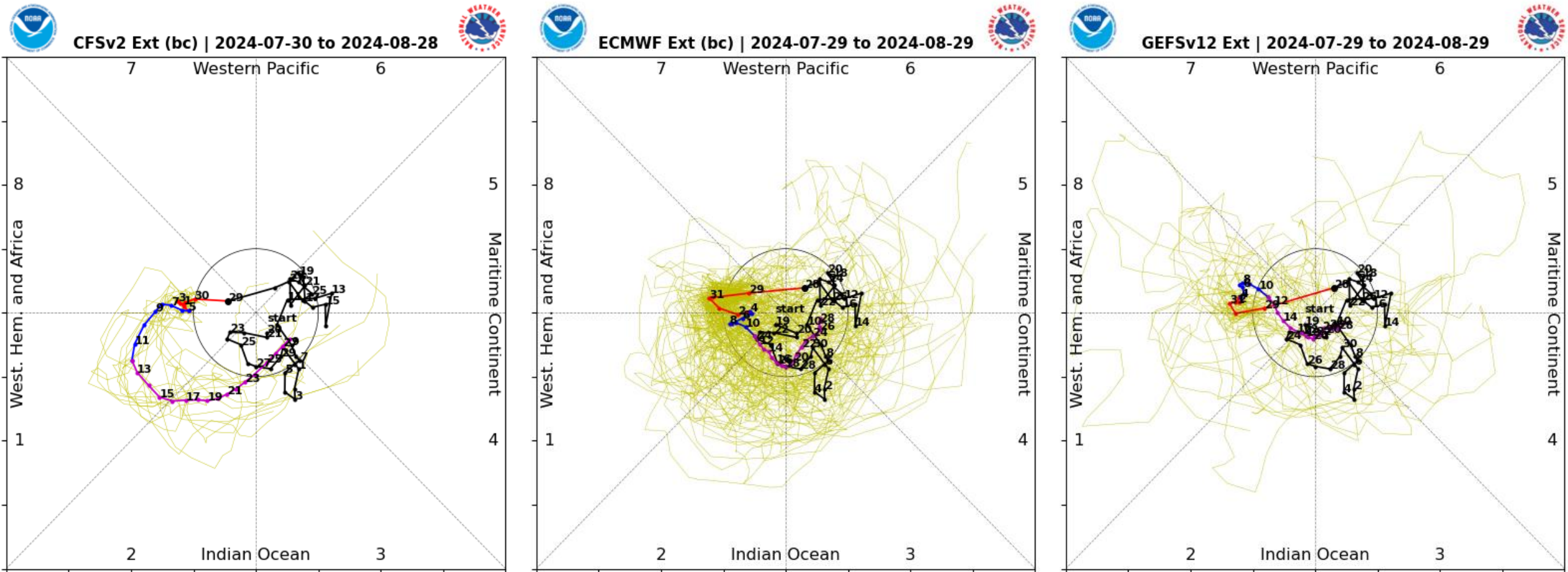
# 200-hPa Velocity Potential Anomaly Maps:

Green: Enhanced Divergence Aloft    Brown: Enhanced Convergence Aloft

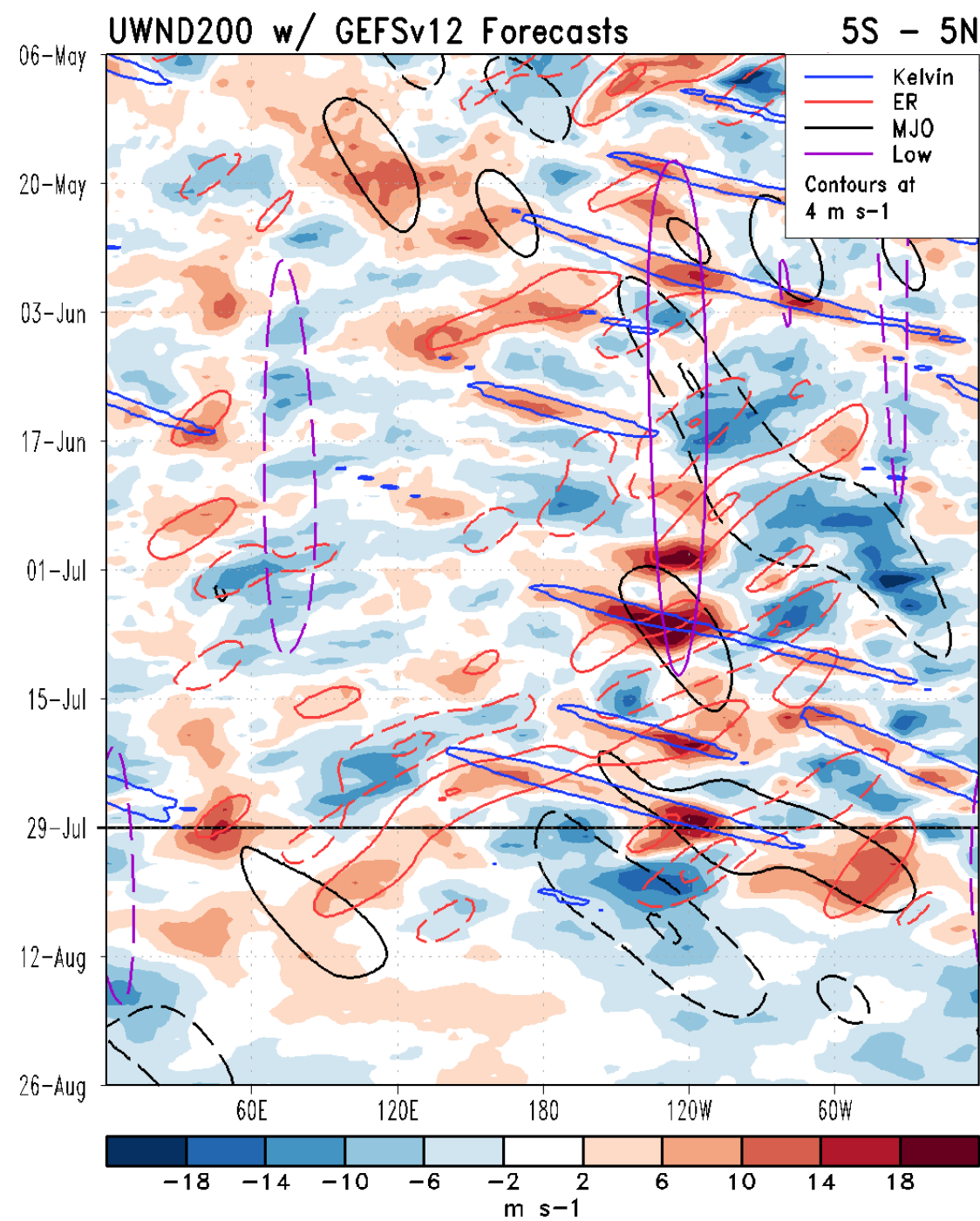
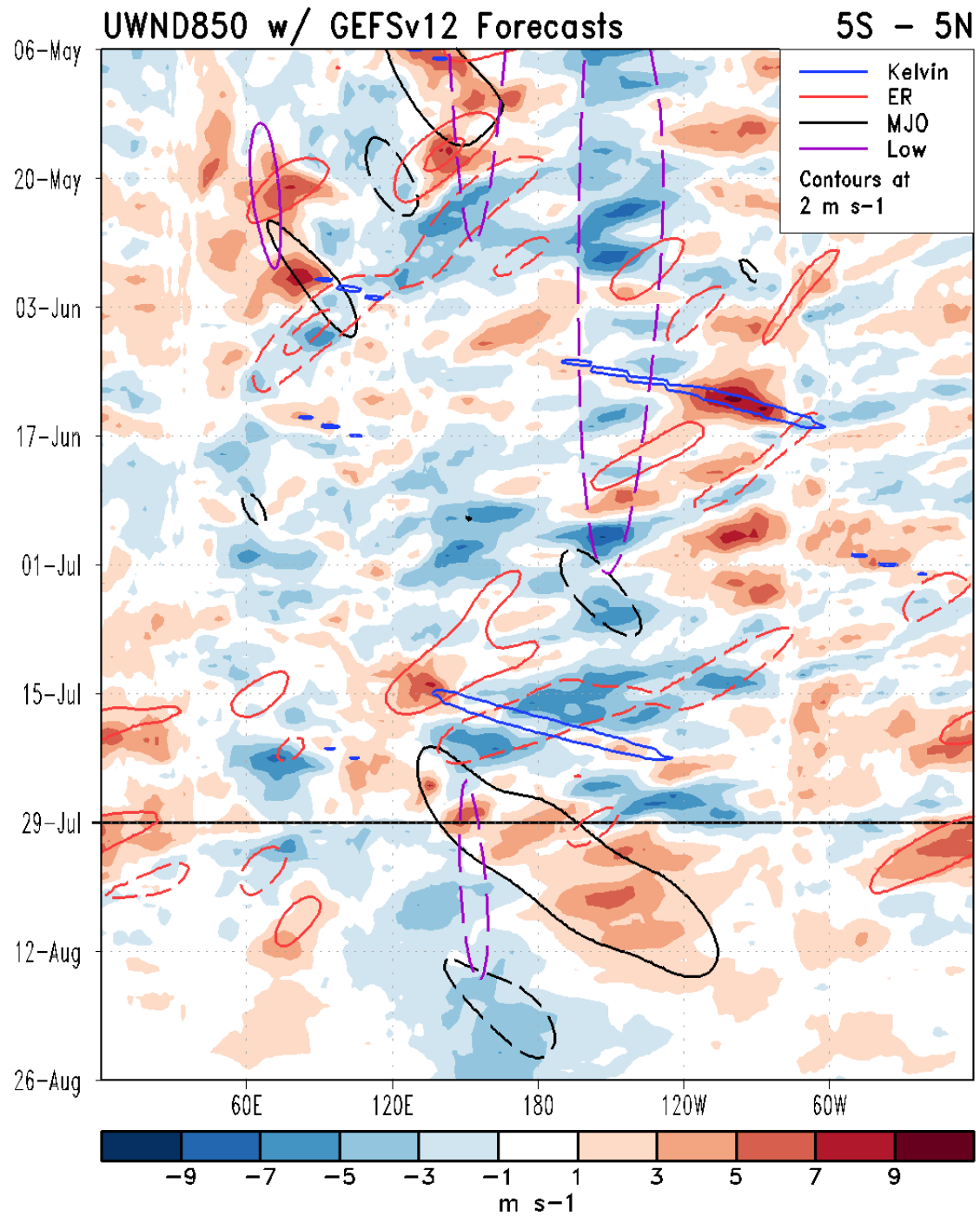
- Multiple envelopes of enhanced/suppressed divergence aloft was observed during the past week, with little to no eastward propagation of the **MJO**.
- Wave-2 **Kelvin Wave** activity is favored to prevail through ~mid-August, before weakening and allowing a wave-1 MJO pattern to take shape later in August.
- Combined with **Rossby wave** activity favored over the tropical Americas, chances for tropical cyclone developed have increased during week-1.



# RMM Index Observations & Forecasts:

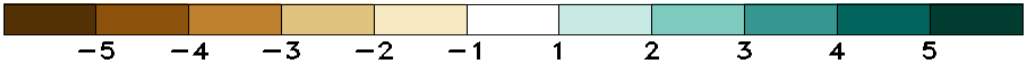
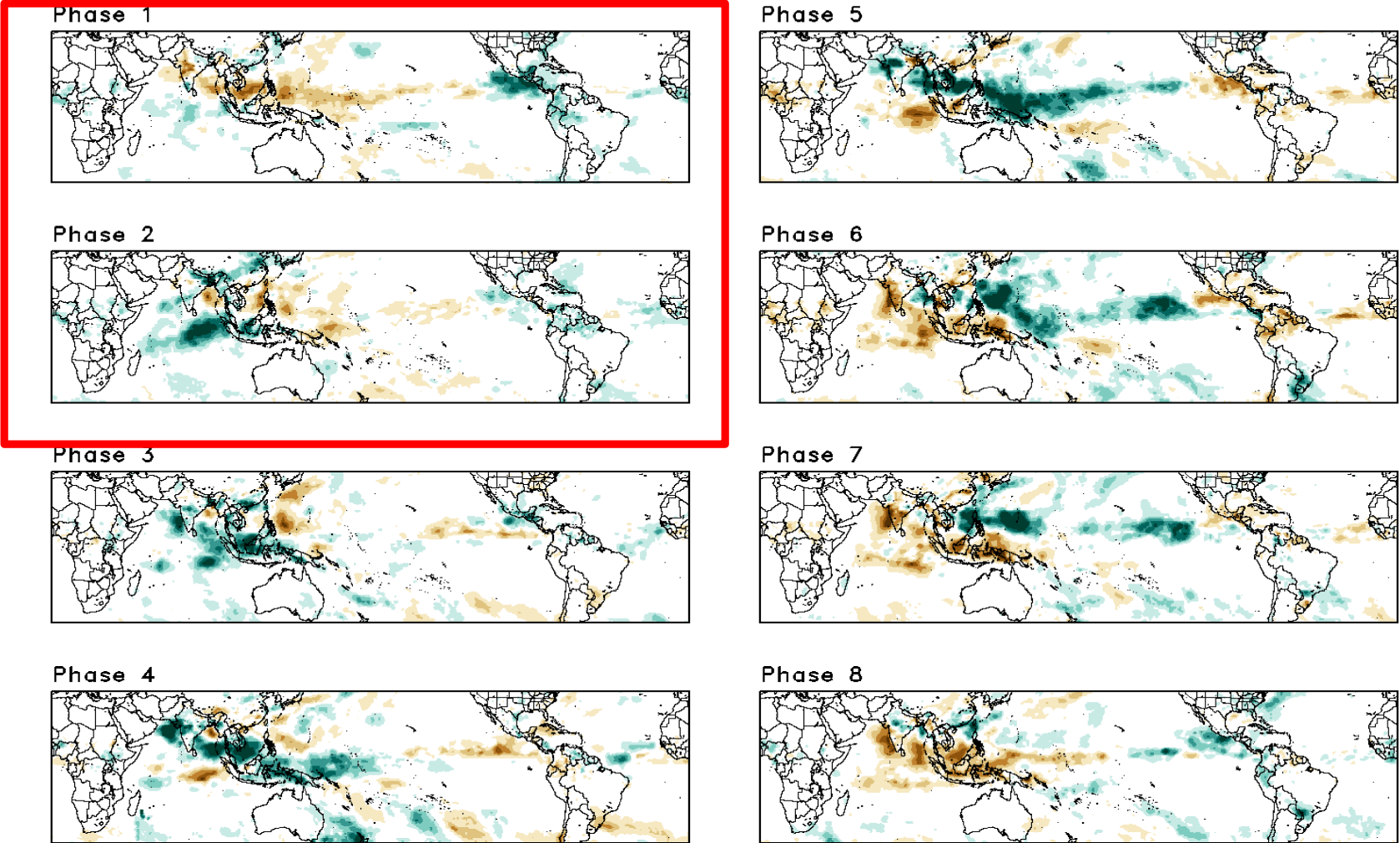


- RMM plots feature the MJO signal darting across the Western Pacific, and slowly amplifying over the Western Hemisphere during week-1.
- As the signals generally propagate eastward towards the Indian Ocean beyond week-1, models disagree on the coherence/strength of the MJO, which appears to be tied to destructive interference with continued Kelvin Wave activity.



# Historical Precipitation Anomalies By MJO Phase:

JJA MJO Composite: GPCP1DD (mm/day)

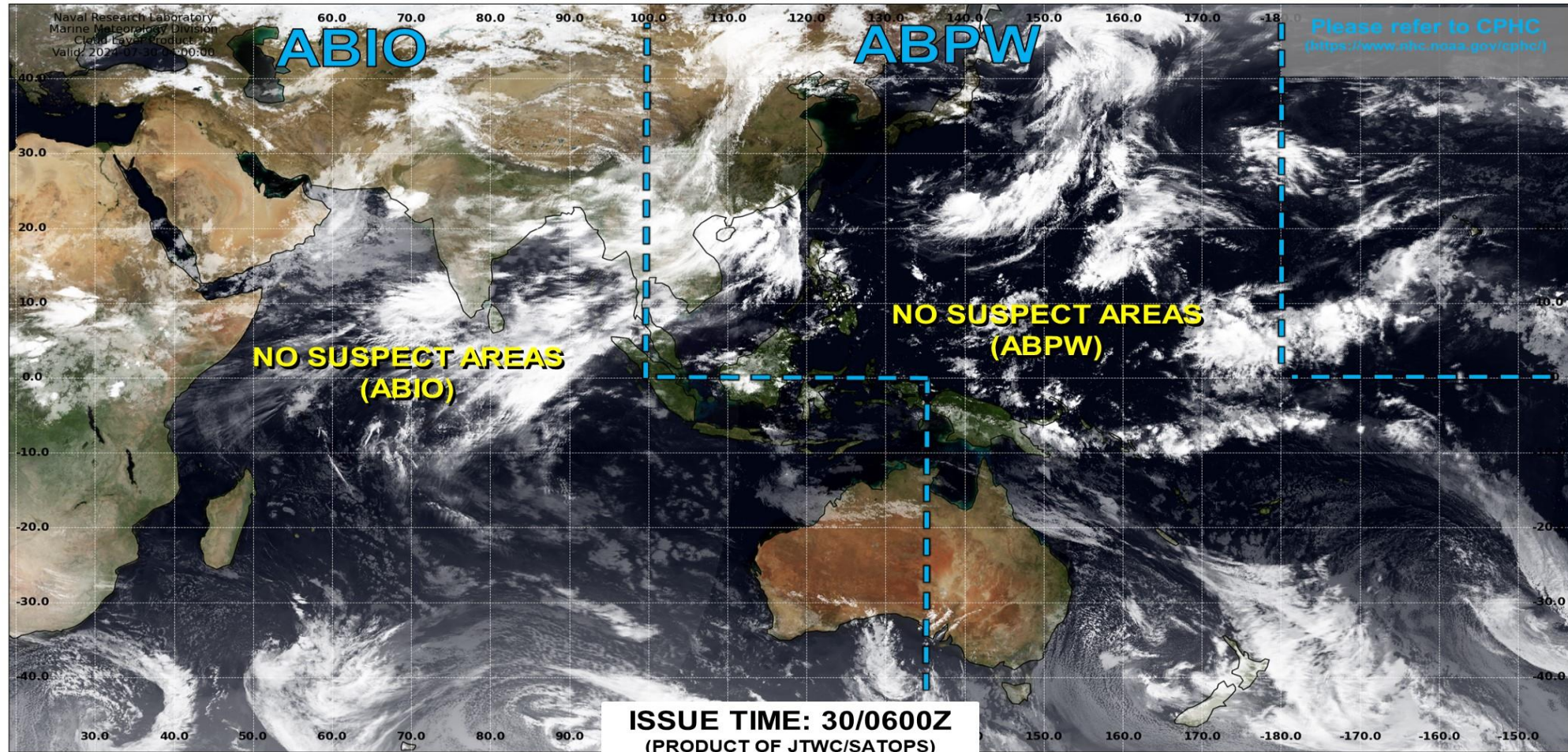




# Tropical Cyclone Monitoring/Forecast: JTWC



## 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)



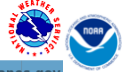
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



# Tropical Cyclone Monitoring/Forecast: NHC / CPHC



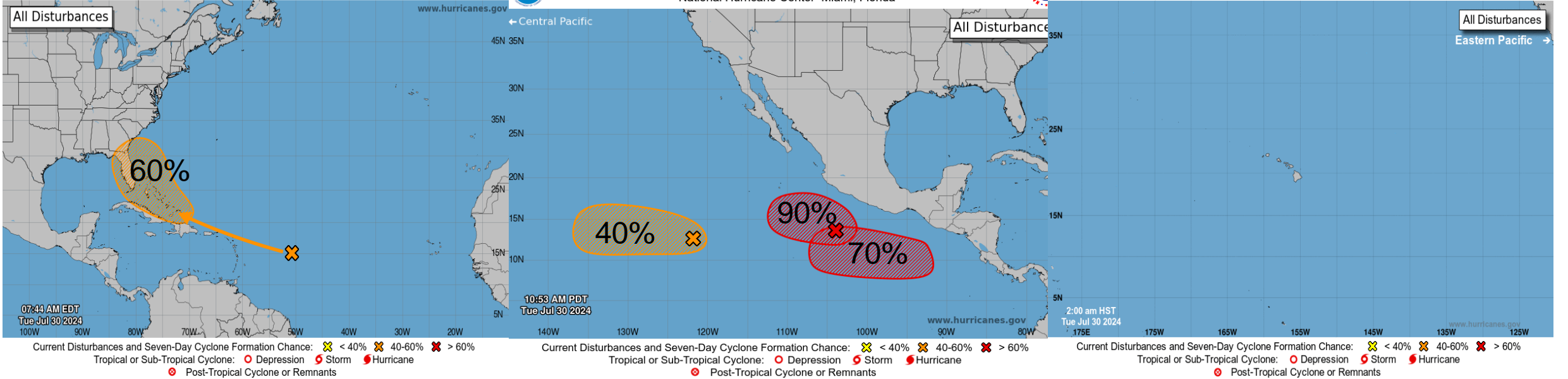
## Seven-Day Graphical Tropical Weather Outlook National Hurricane Center Miami, Florida



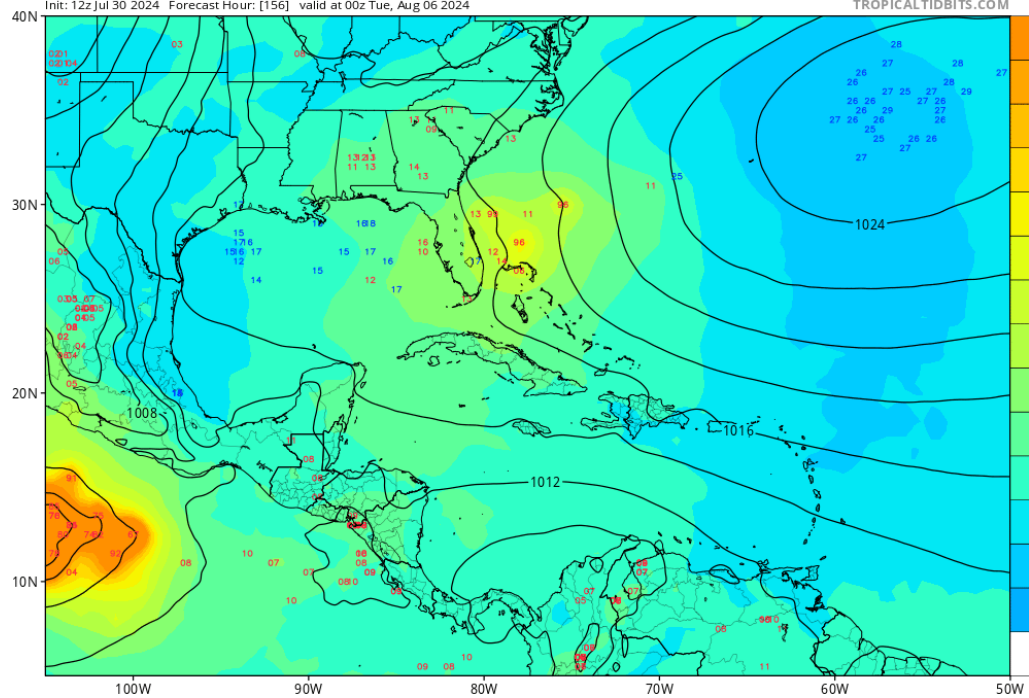
## Seven-Day Graphical Tropical Weather Outlook National Hurricane Center Miami, Florida



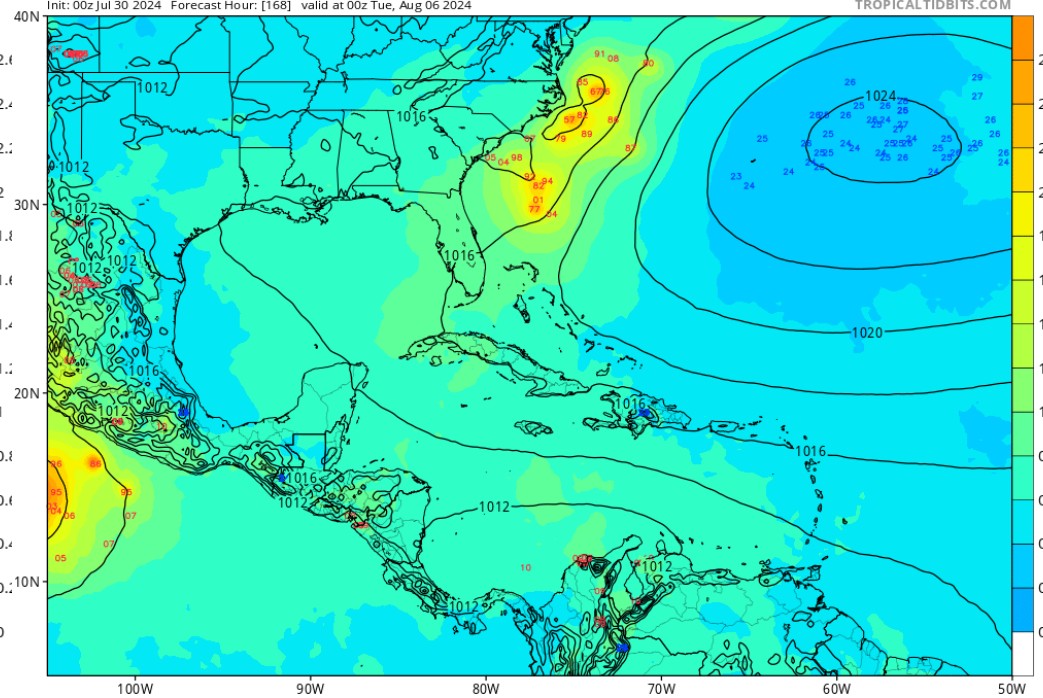
## Seven-Day Graphical Tropical Weather Outlook Central Pacific Hurricane Center Honolulu, Hawaii



GEFS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | High: blue), & Normalized Spread ( $\sigma$ )  
 Init: 12z Jul 30 2024 Forecast Hour: [156] valid at 00z Tue, Aug 06 2024

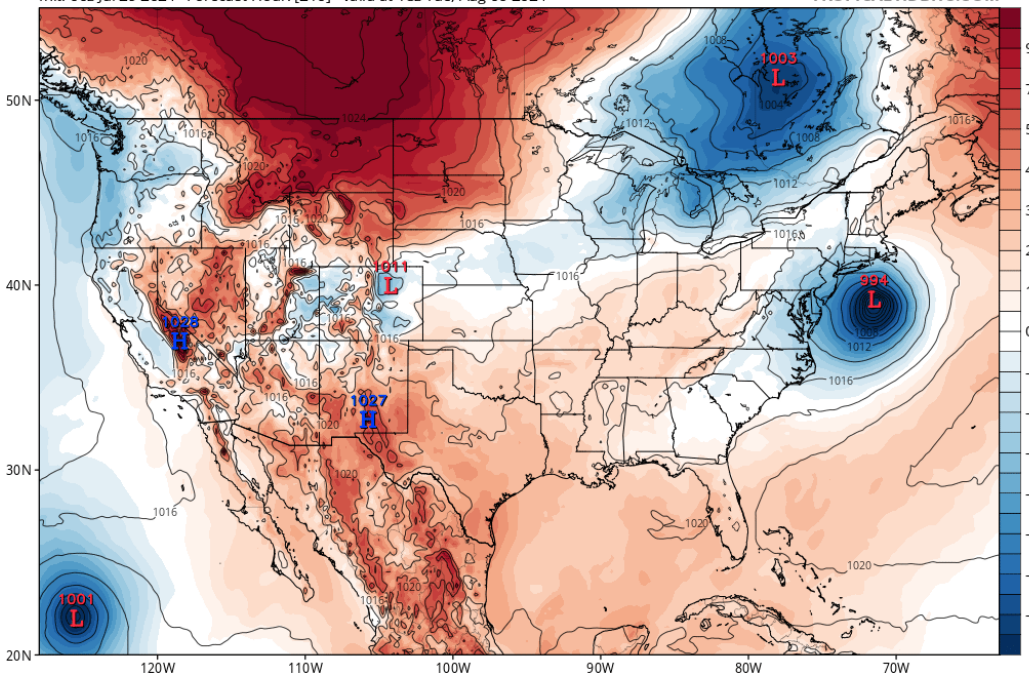


EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | High: blue), & Normalized Spread ( $\sigma$ )  
 Init: 00z Jul 30 2024 Forecast Hour: [168] valid at 00z Tue, Aug 06 2024



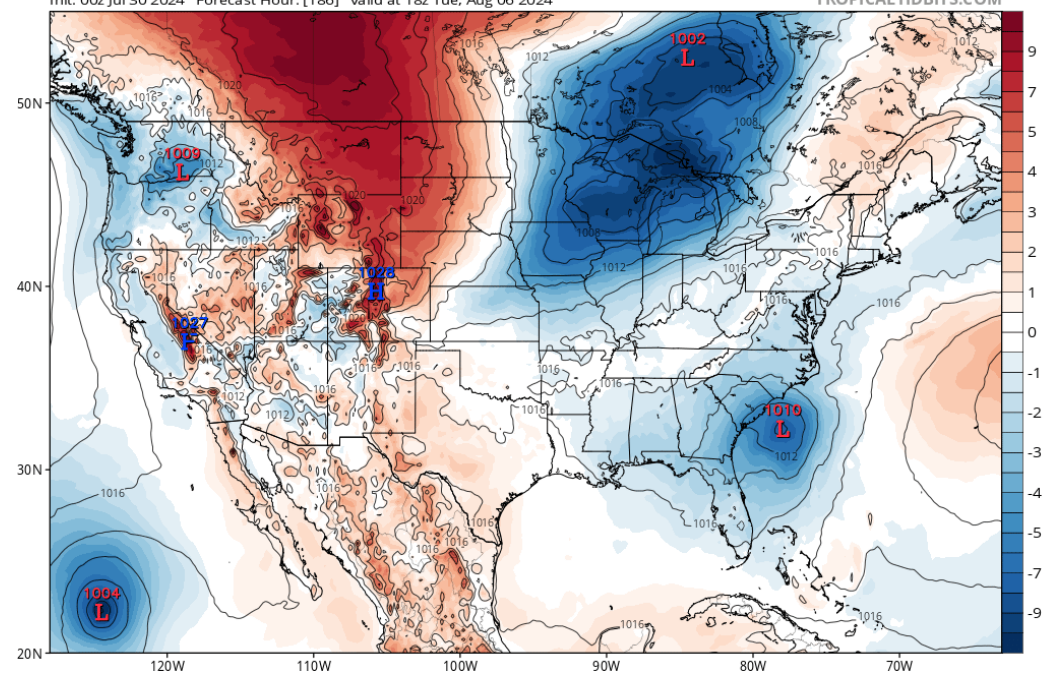
ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 00z Jul 29 2024 Forecast Hour: [210] valid at 18z Tue, Aug 06 2024



ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

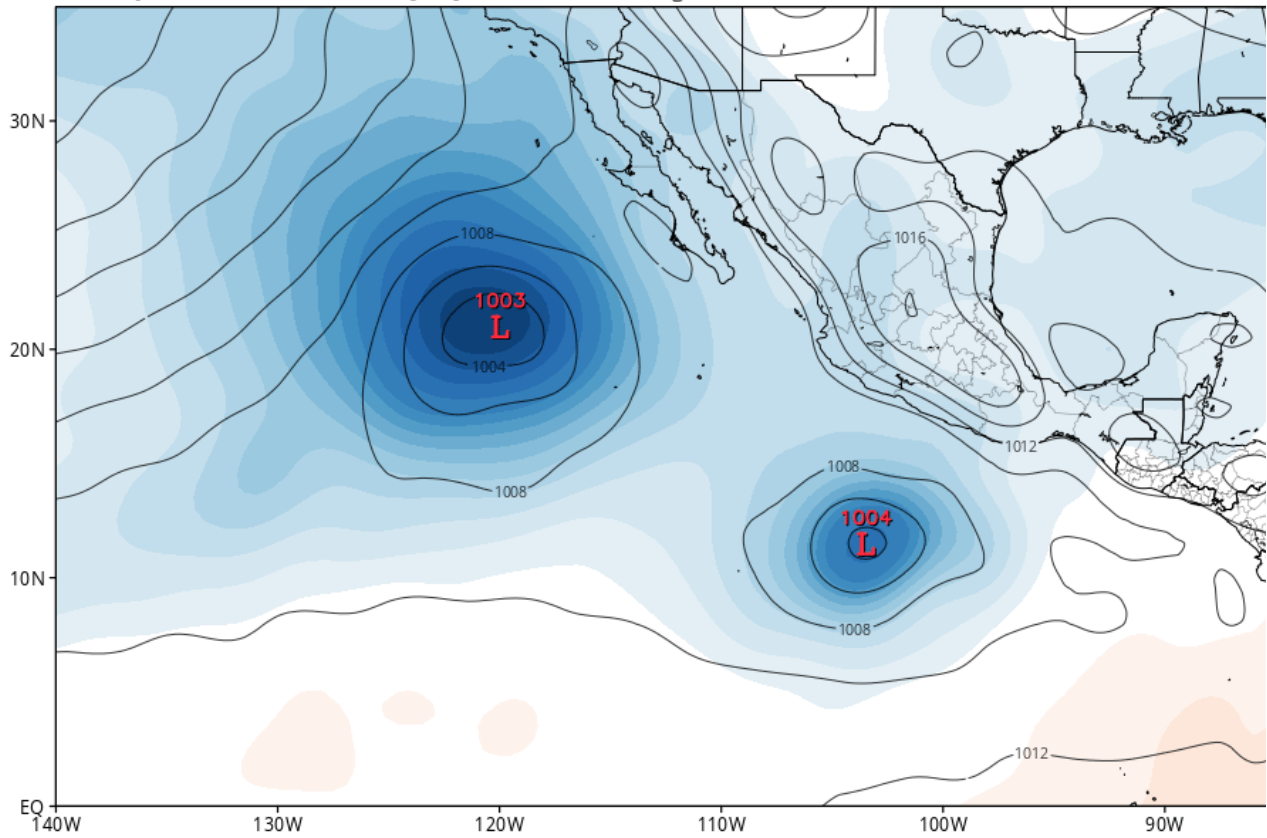
Init: 00z Jul 30 2024 Forecast Hour: [186] valid at 18z Tue, Aug 06 2024



### GEFS MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 12z Jul 30 2024 Forecast Hour: [144] valid at 12z Mon, Aug 05 2024

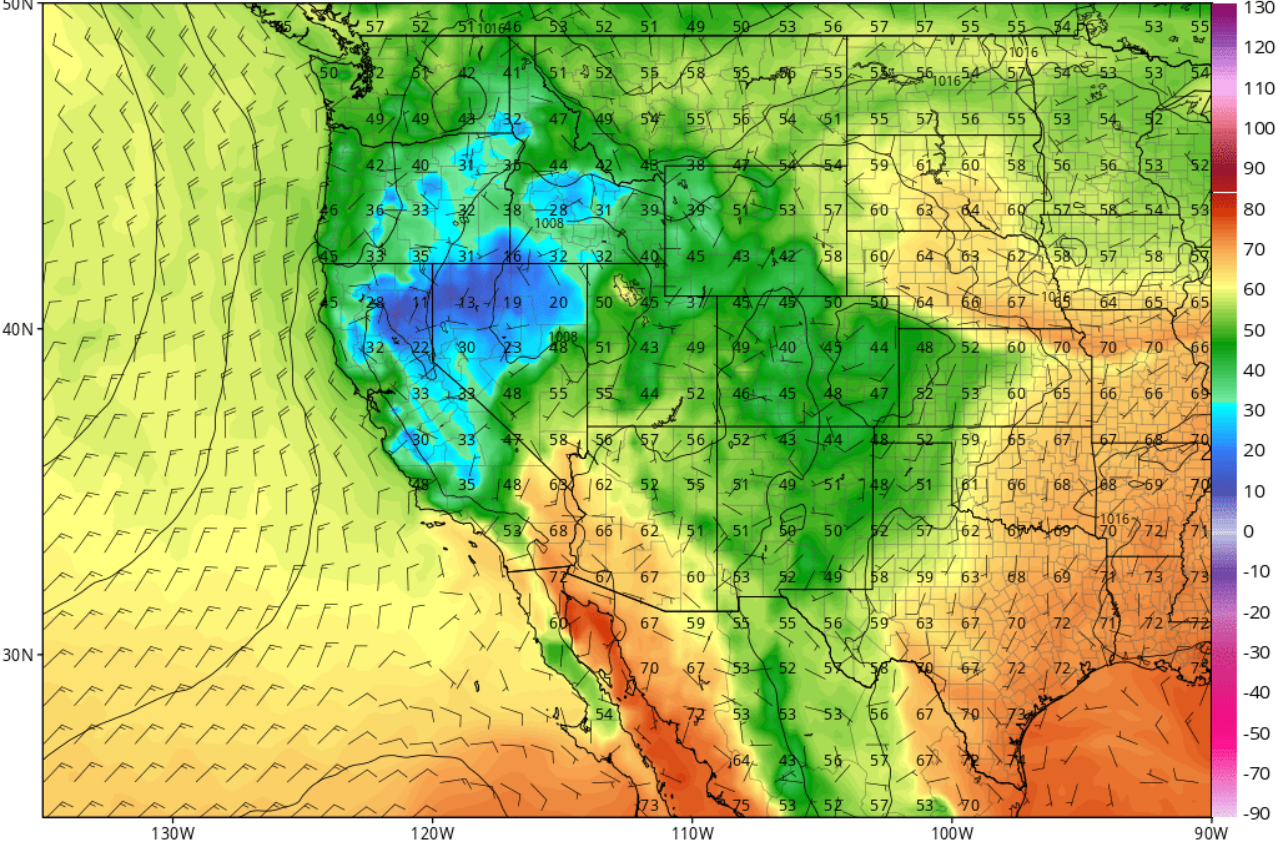
TROPICALTII.COM



### GEFS 2-meter Dewpoint (°F), 10m Wind (kt), and MSLP (hPa)

Init: 12z Jul 30 2024 Forecast Hour: [192] valid at 12z Wed, Aug 07 2024

TROPICALTIDBITS.COM



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

Storm Track Density Distribution, IC=20240729  
Week 2 Forecast: 0807–0813

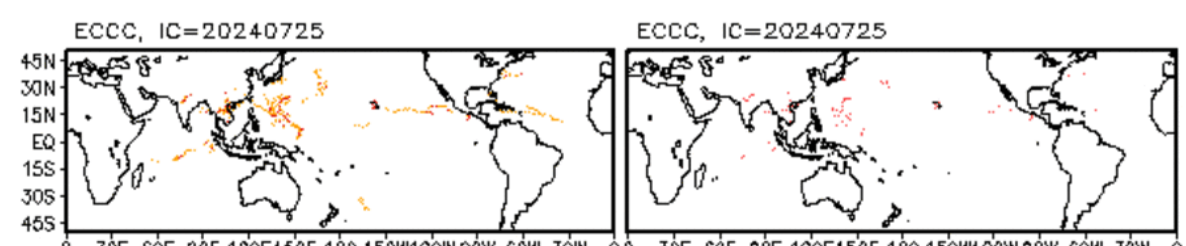
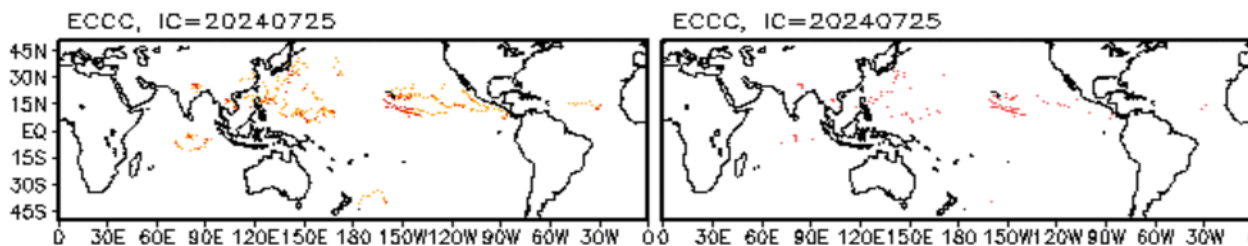
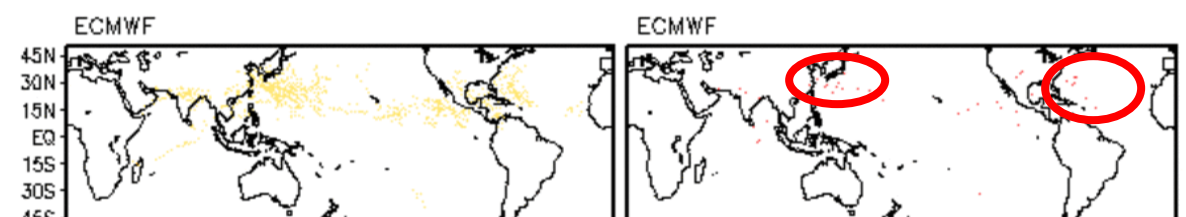
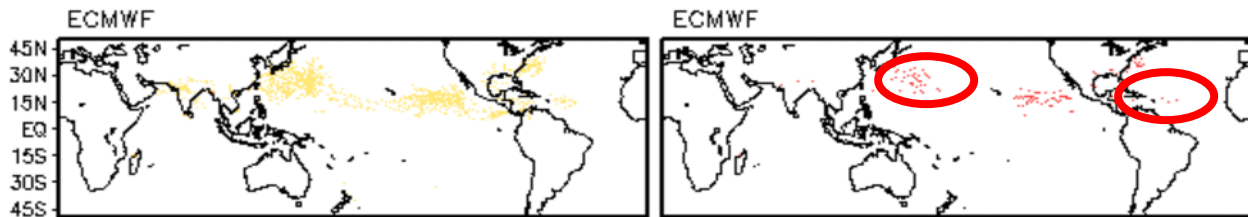
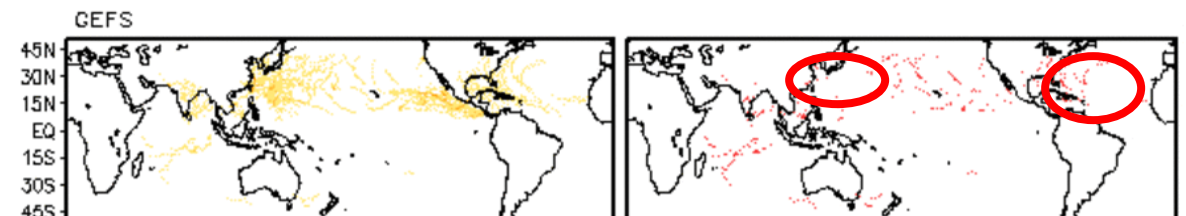
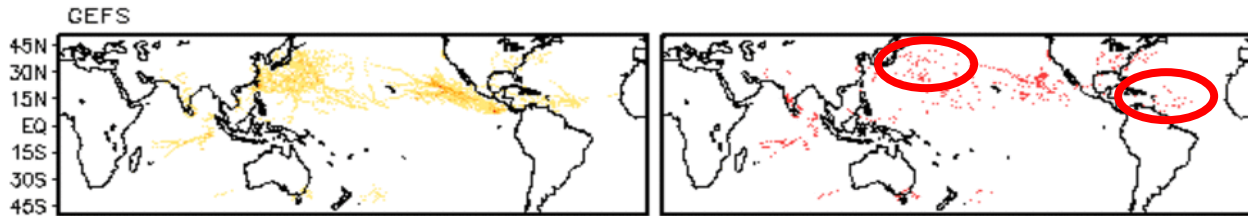
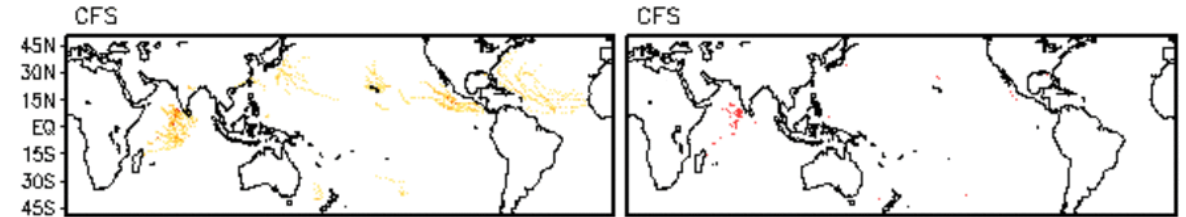
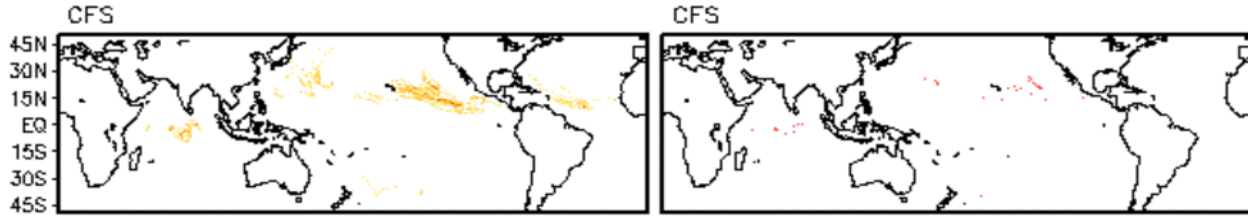
Storm Track Density Distribution, IC=20240729  
Week 3 Forecast: 0814–0820

TRACK DENSITY

FILTERED

TRACK DENSITY

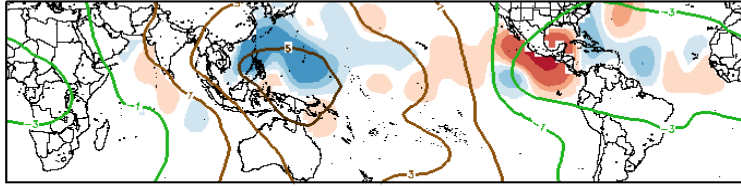
FILTERED



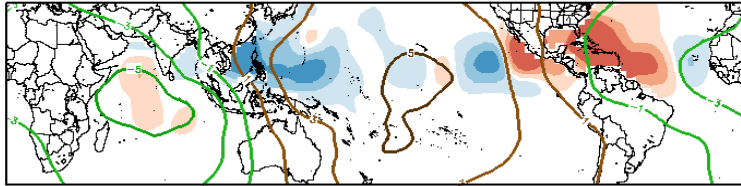
# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

JJA MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )

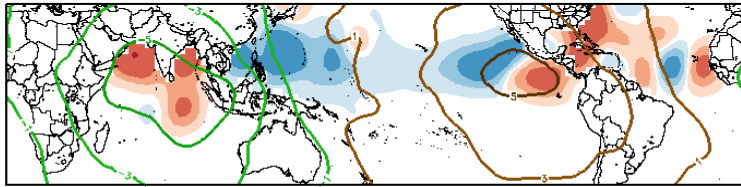
w/ JJA CH200 ( $\times 10^{-6} m^2 s^{-1}$ ) / Contours every  $2 \times 10^{-6} m^2 s^{-1}$



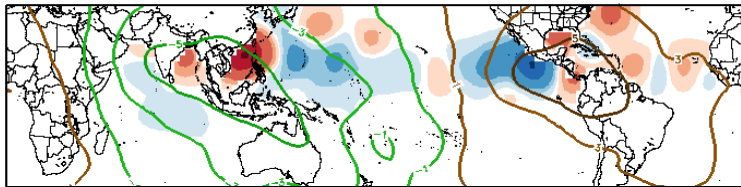
Phase 1



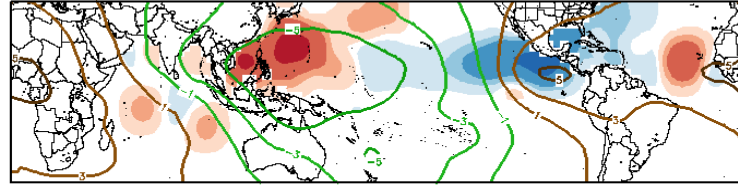
Phase 2



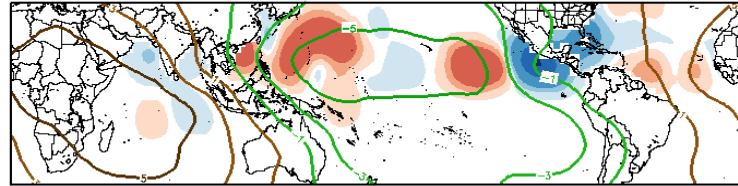
Phase 3



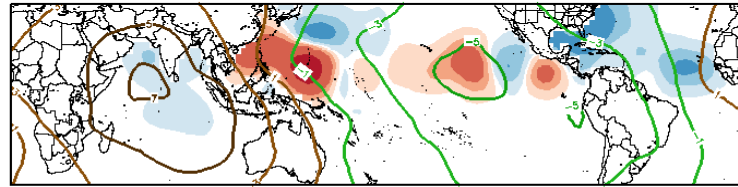
Phase 4



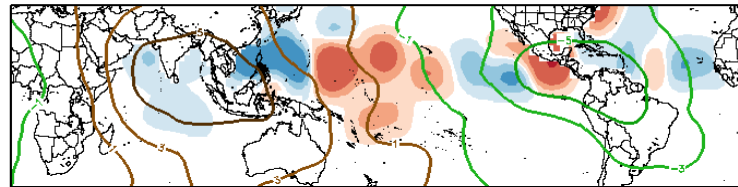
Phase 5



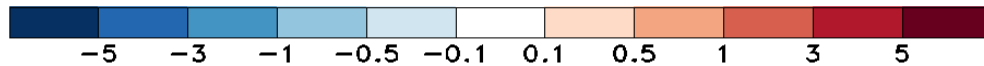
Phase 6



Phase 7

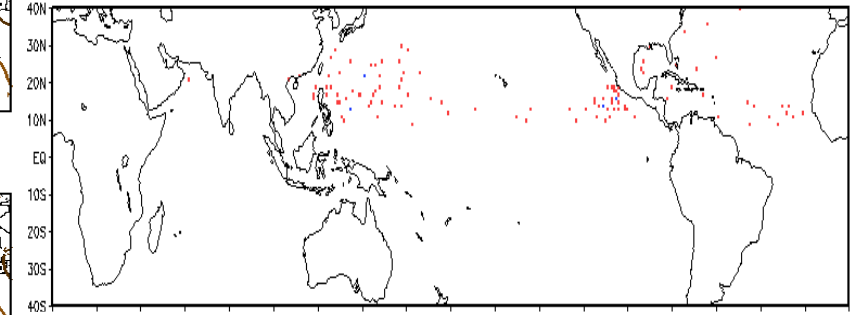


Phase 8



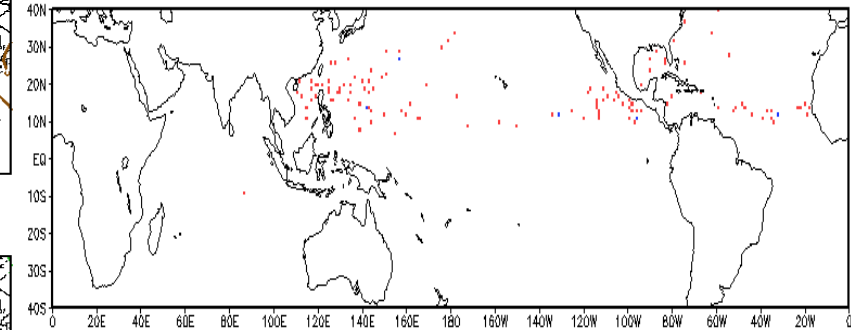
Observed TC Genesis, 1979-2021

7-day Period 0807 to 0813



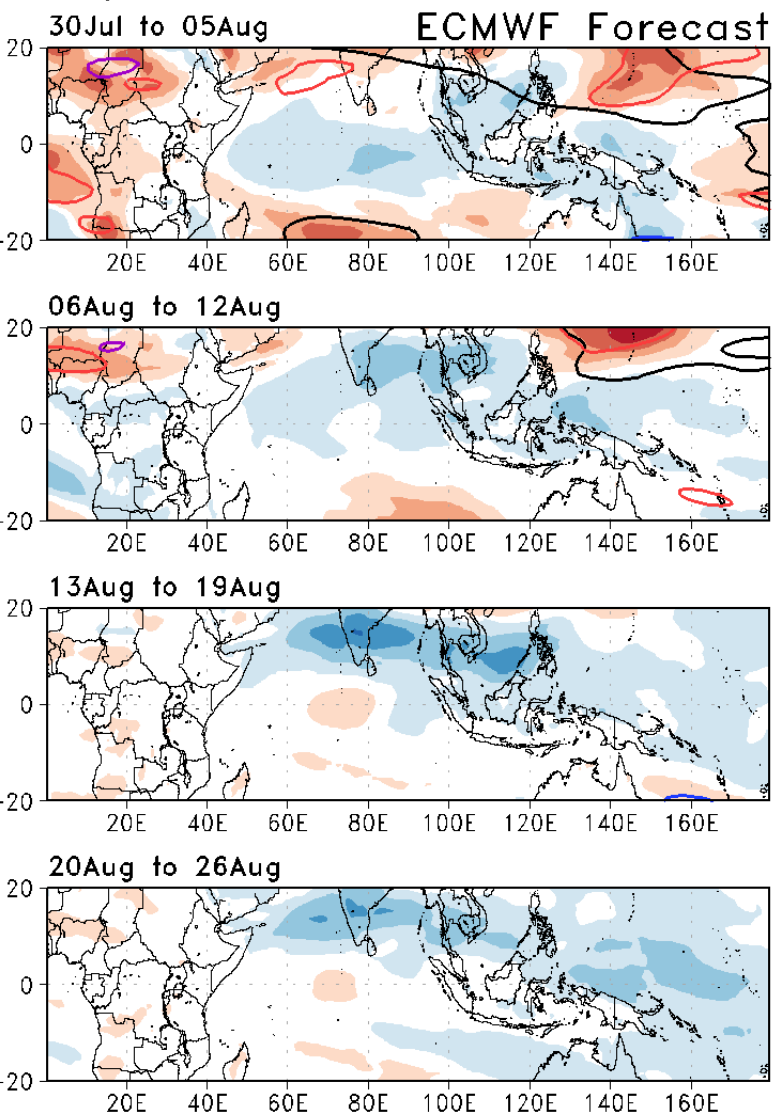
Observed TC Genesis, 1979-2021

7-day Period 0814 to 0820



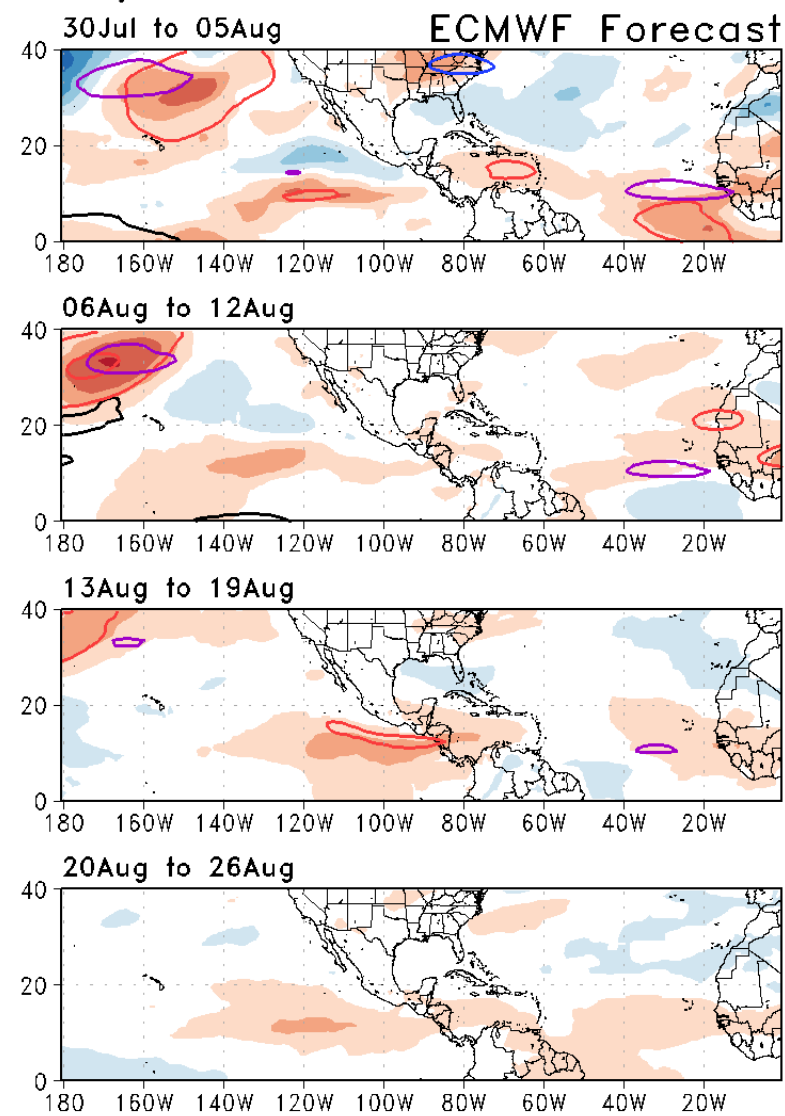
\*Experimental\*

# -Day Means



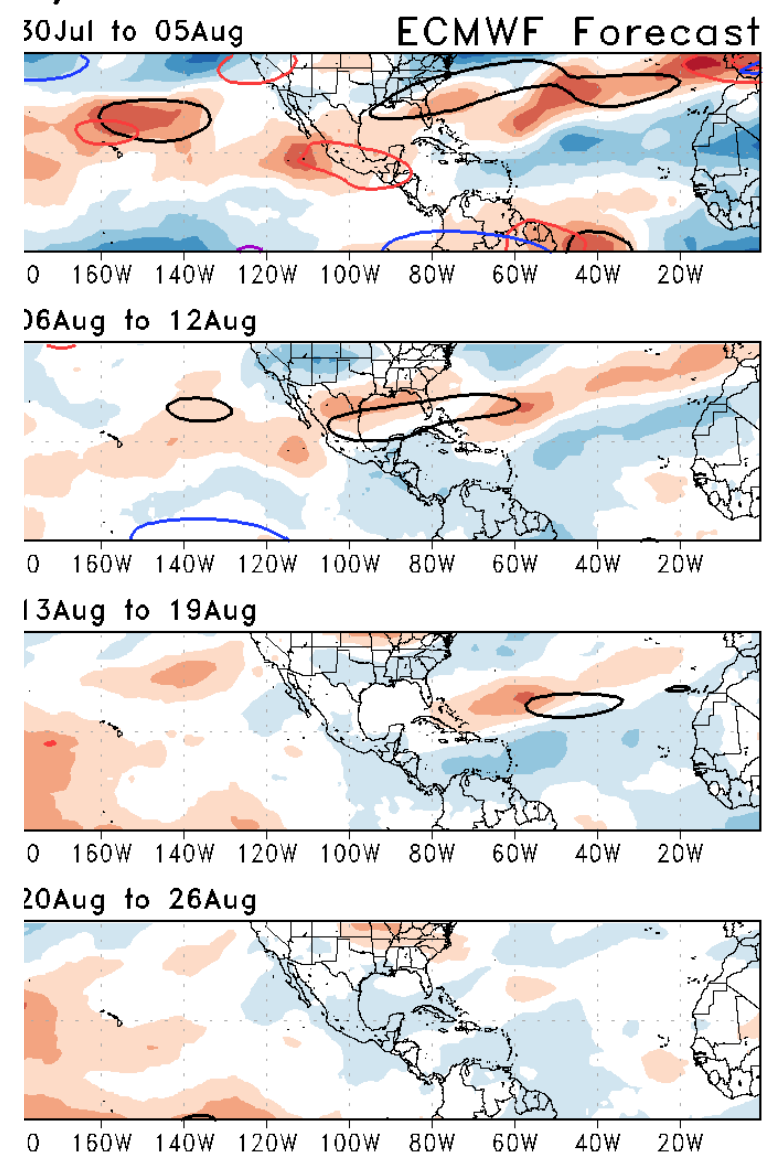
— MJO      — Kelvin\*2  
— Low      — ER  
Contours at 2, 6 m s<sup>-1</sup>

# -Day Means



— MJO      — Kelvin\*2  
— Low      — ER  
Contours at 2, 6 m s<sup>-1</sup>

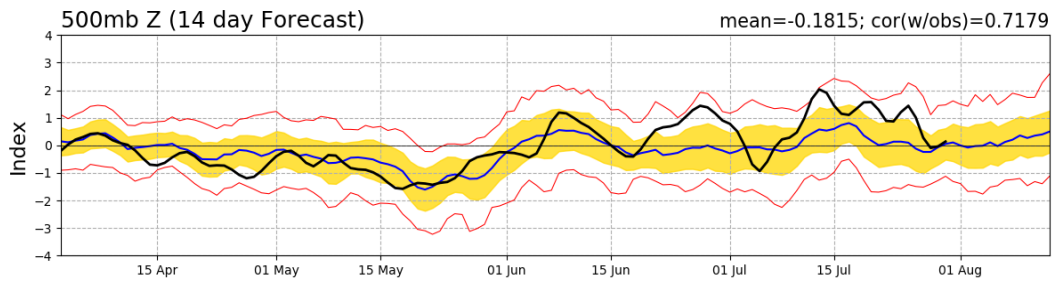
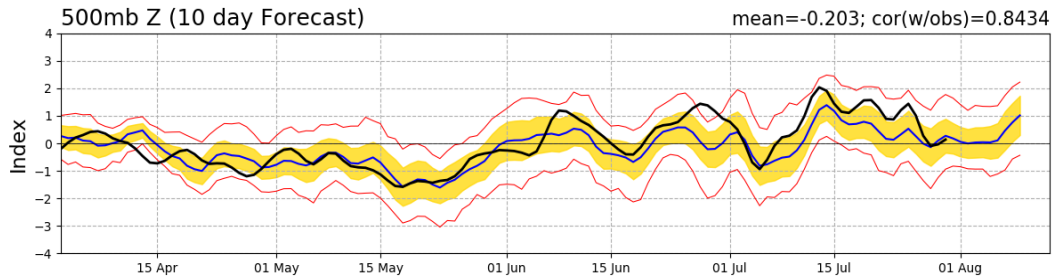
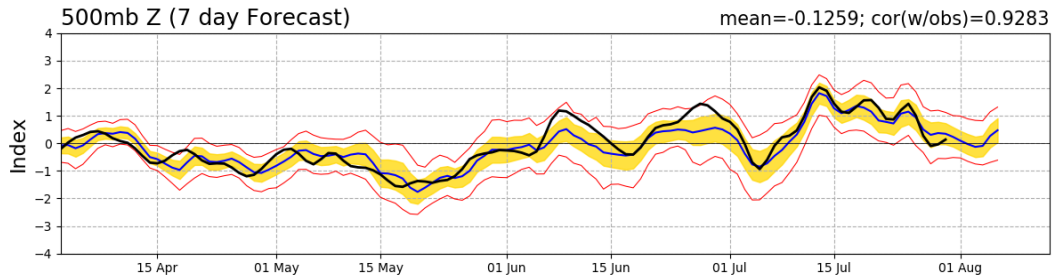
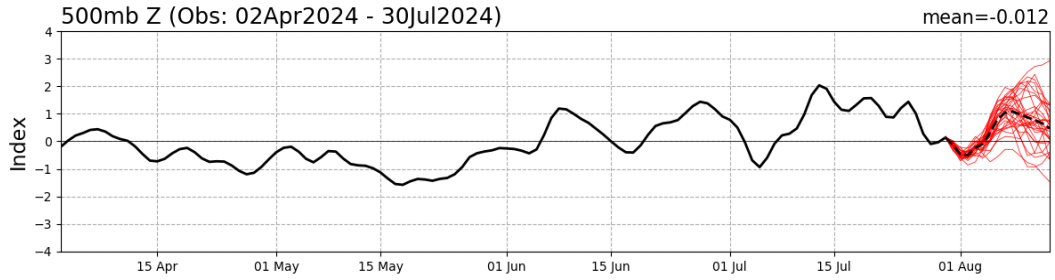
# ay Means



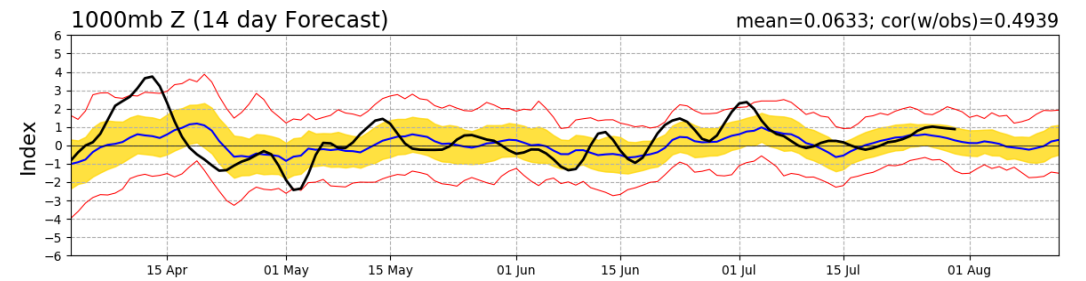
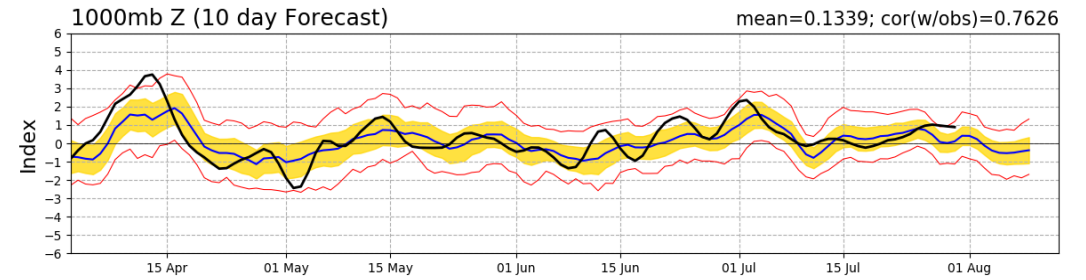
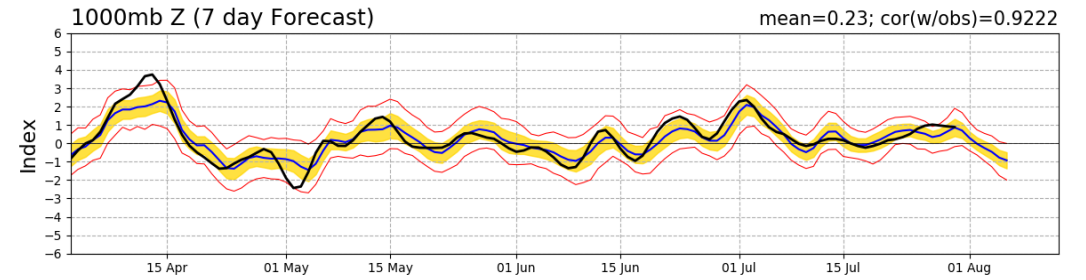
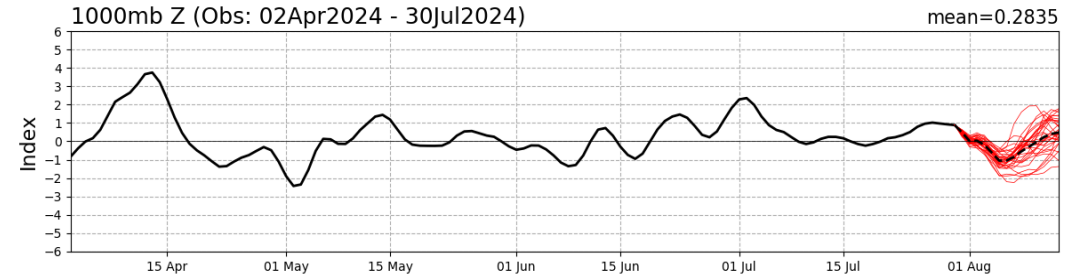
— MJO      — Kelvin\*2  
— Low      — ER  
Contours at 4 m s<sup>-1</sup>

# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts

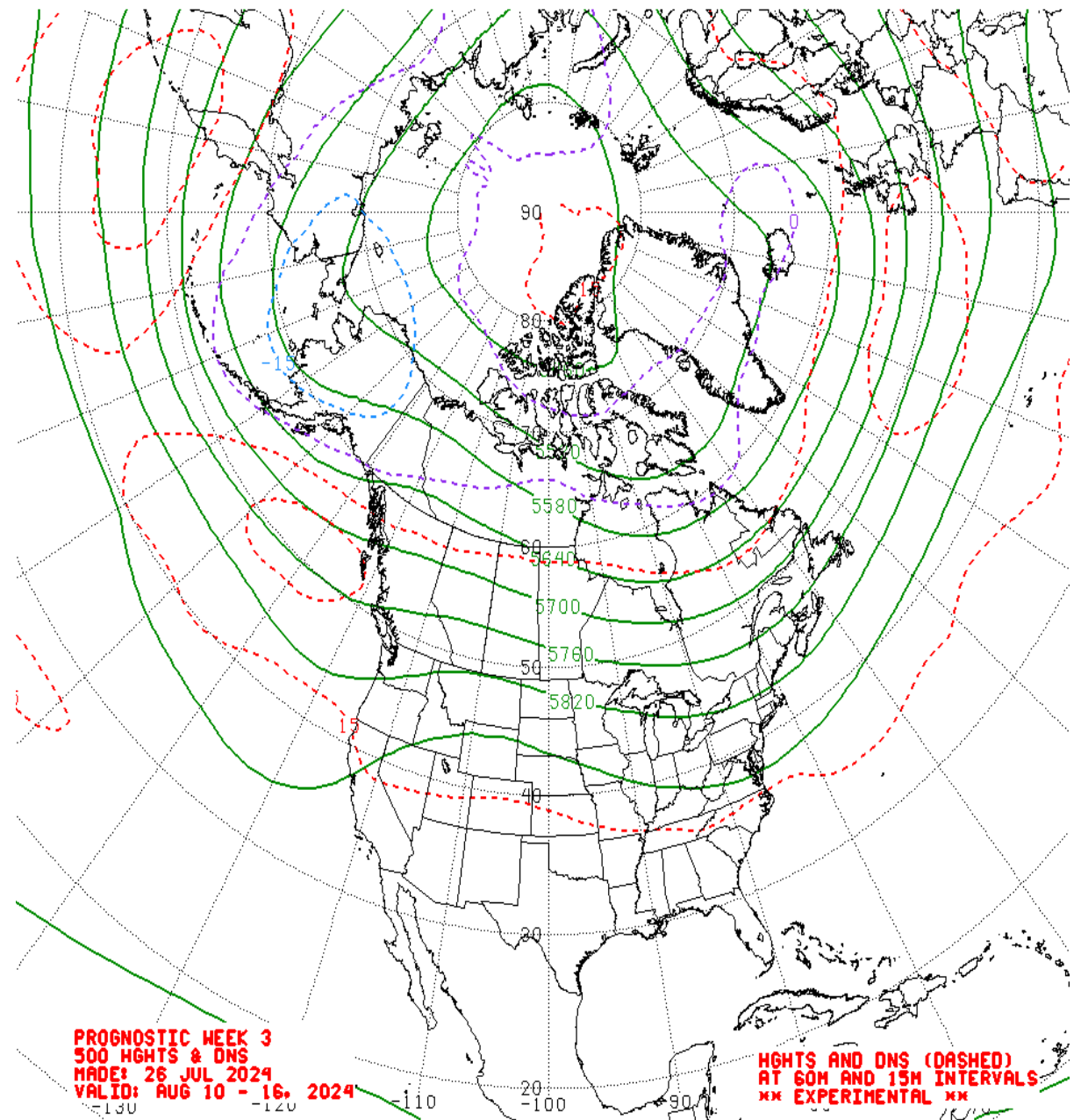
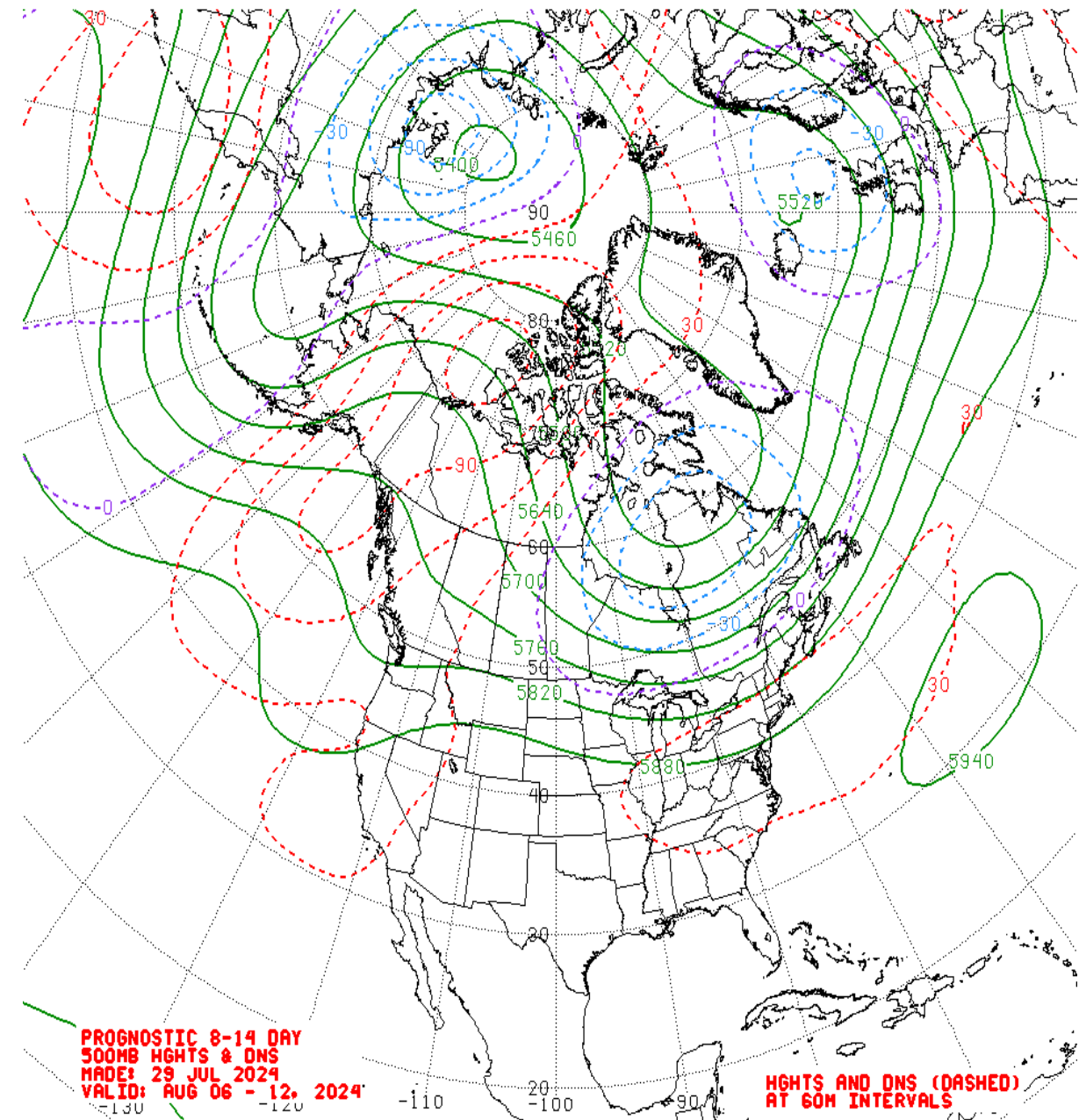


## AO Index: Observed & GEFS Forecasts

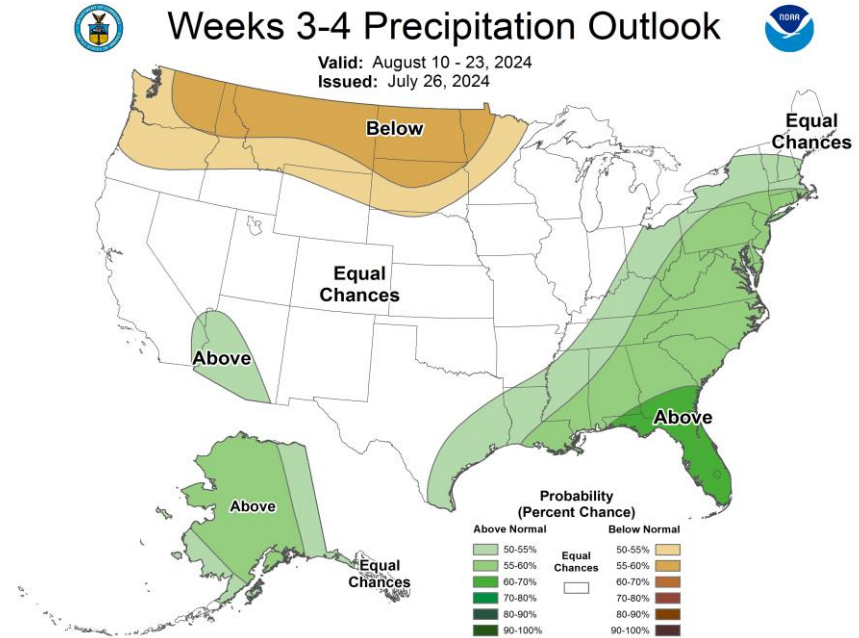
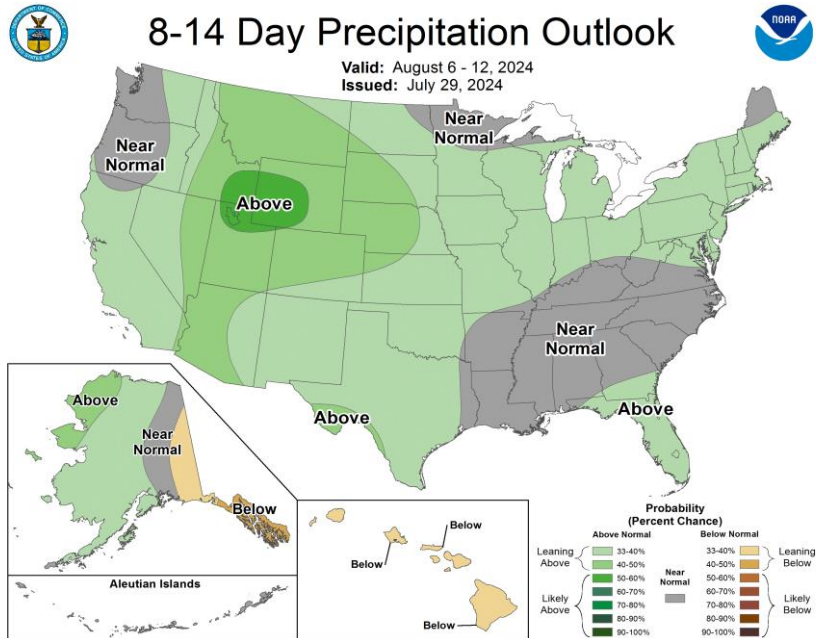
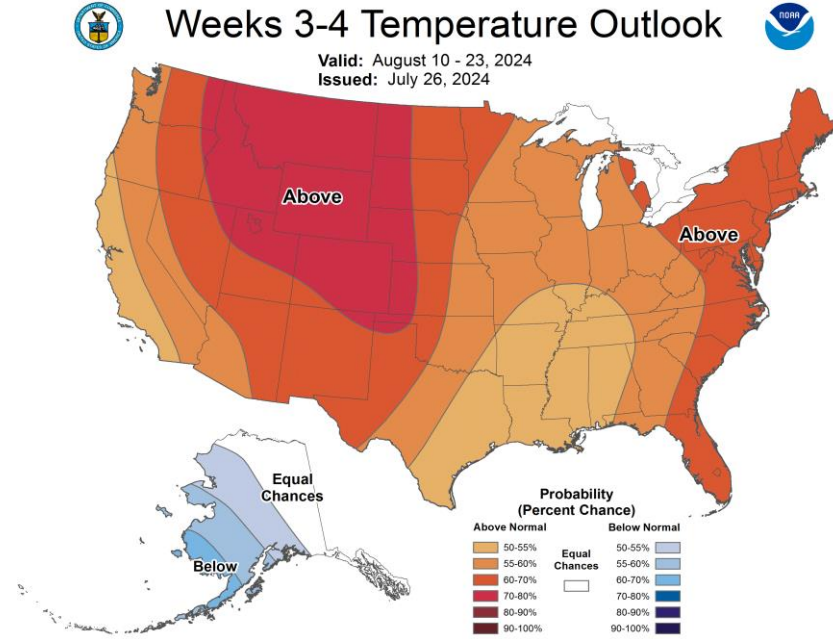
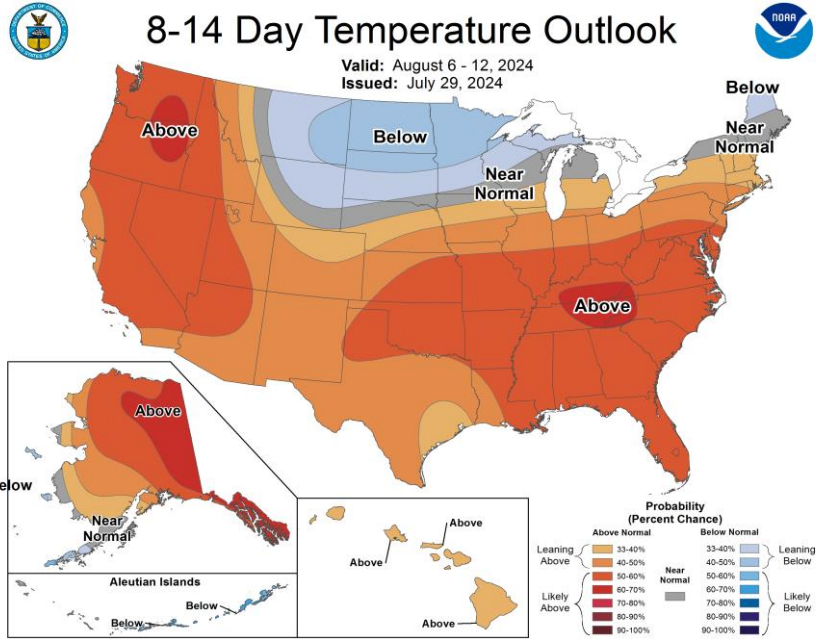




# Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3



# Official Temperature & Precipitation Forecasts:



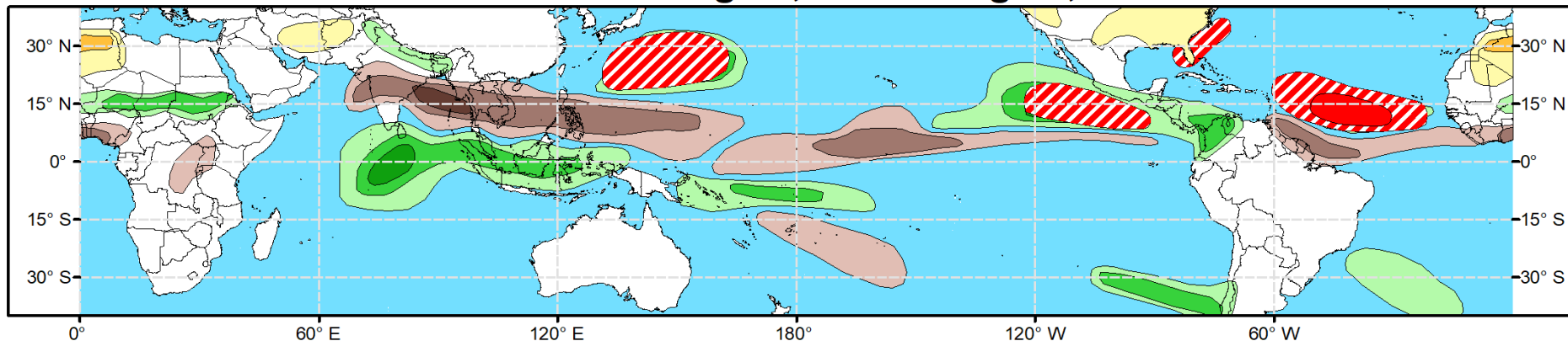


# Global Tropics Hazards Outlook

Climate Prediction Center

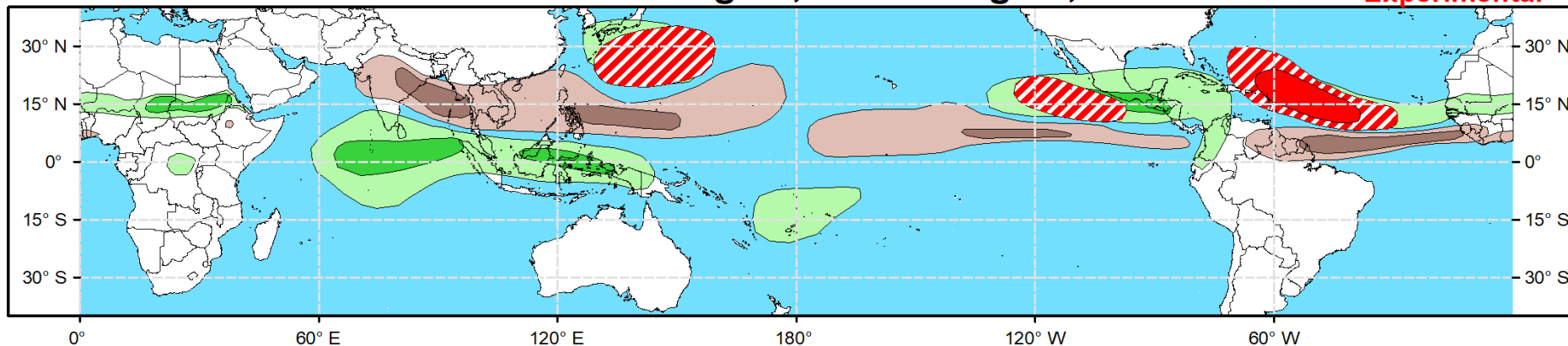


## Week 2 - Valid: Aug 07, 2024 - Aug 13, 2024



## Week 3 - Valid: Aug 14, 2024 - Aug 20, 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

**Below-Average  
Rainfall Probability**



>50% >65% >80%

Weekly total rainfall in the  
Lower third of the historical range

**Above-Average  
Temperatures Probability**



>50% >65% >80%

7-day max temperatures in the  
Upper third of the historical range

**Below-Average  
Temperatures Probability**



>50% >65% >80%

7-day min temperatures in the  
Lower third of the historical range

**Issued: 07/30/2024  
Forecaster: Novella**

**This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.**