



# Weeks 2-3 Global Tropics Hazards Outlook

9/26/2023

Thomas Collow

NWS / NCEP / Climate Prediction Center

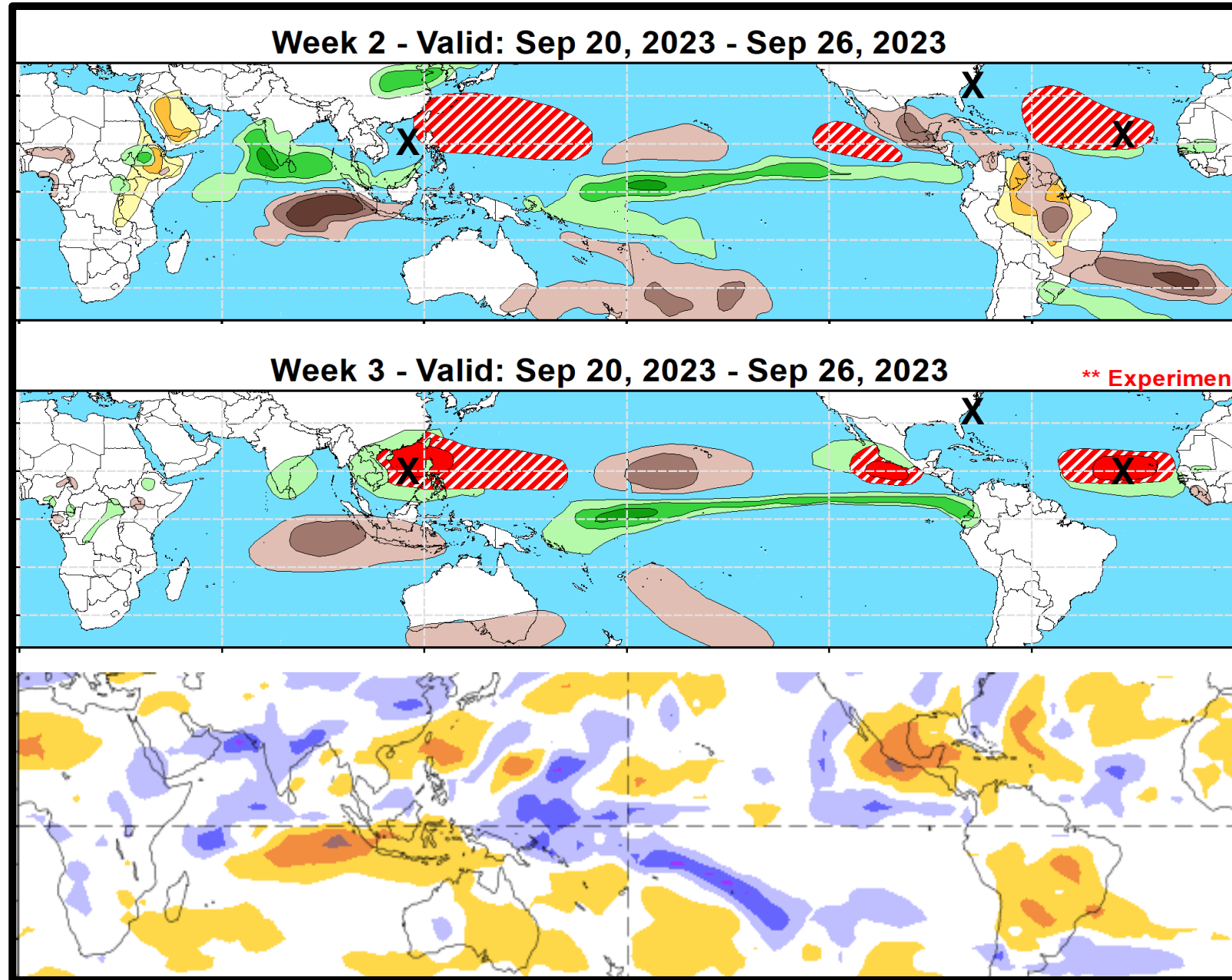
# Outlook Review: TC development & anomalous precipitation during the past week

## Atlantic

- Tropical Storm Ophelia (9/22)
- Tropical Storm Philippe (9/23)

## West Pacific

- Tropical Depression 13W (9/24)



# Synopsis of Climate Modes:

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**ENSO:** (Sep 14, 2023 Update)      *next update on Thursday, Oct 12<sup>th</sup>*

- ENSO Alert System Status: [El Niño Advisory](#)
- El Niño is anticipated to continue through the Northern Hemisphere winter, with greater than 95% chance through Jan-Mar, 2024.

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

- The RMM-based MJO index returned to the unit circle, with dynamical models depicting a largely incoherent propagation during the next 2 weeks.
- Despite the weak RMM-based MJO signals, the upper-level velocity potential filtering depicts a much more coherent eastward propagating MJO signal in the GEFS and ECMWF ensembles from the Indian Ocean/Maritime Continent to the Western Hemisphere by mid-October.
- As a result, tropical cyclone activity is forecast to increase across the Western and Eastern Pacific by week-2, possibly extending into the Western Caribbean, consistent with October climatology.

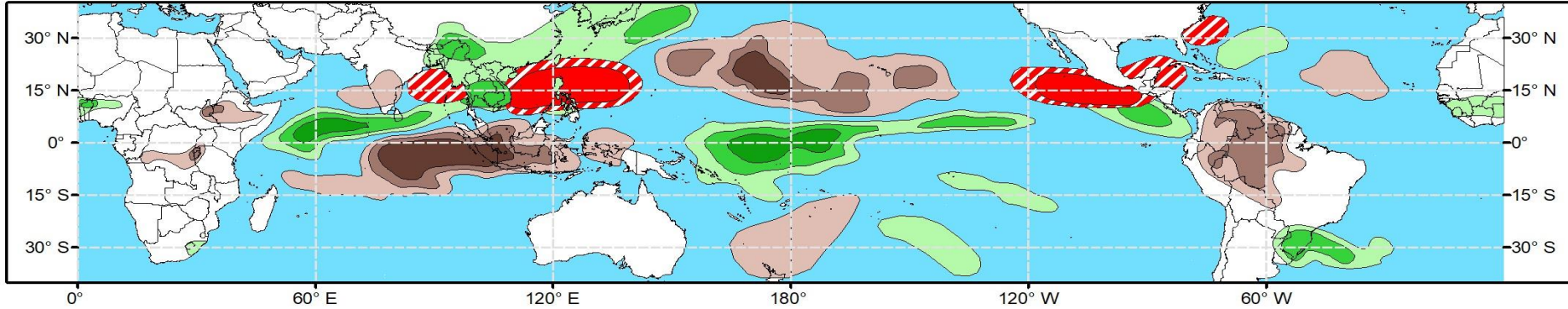
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

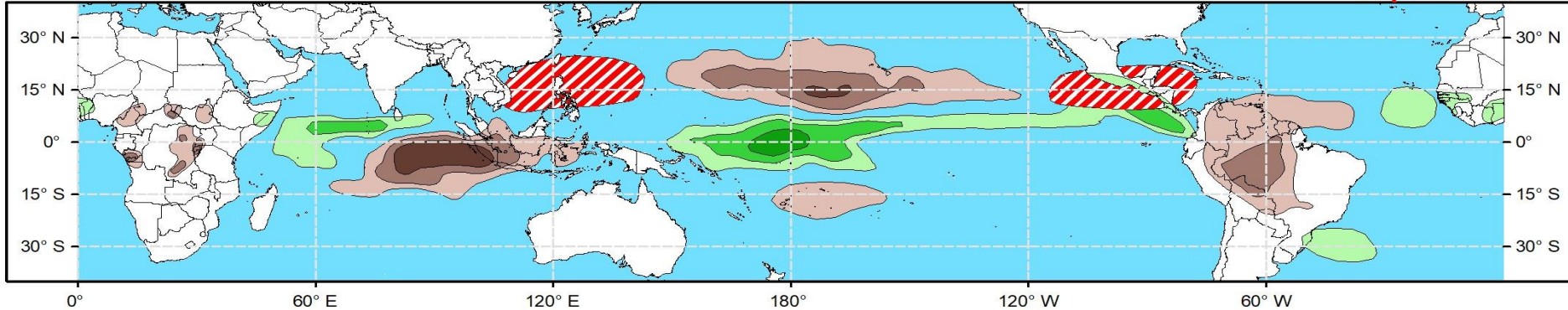


**Week 2 - Valid: Oct 04, 2023 - Oct 10, 2023**



**Week 3 - Valid: Oct 11, 2023 - Oct 17, 2023**

**\*\* 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*

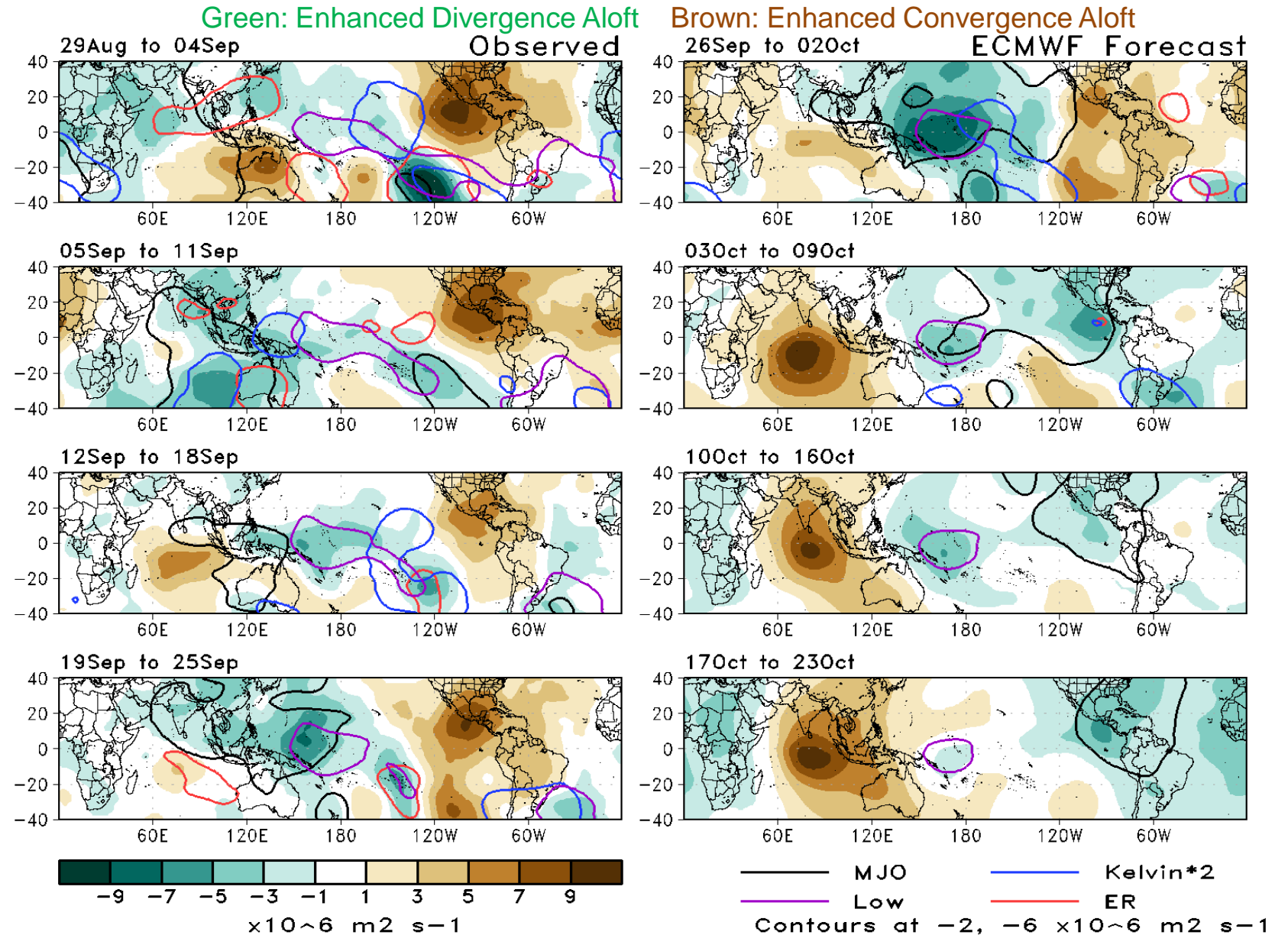
**Issued: 09/26/2023**

**Forecaster: Collow**

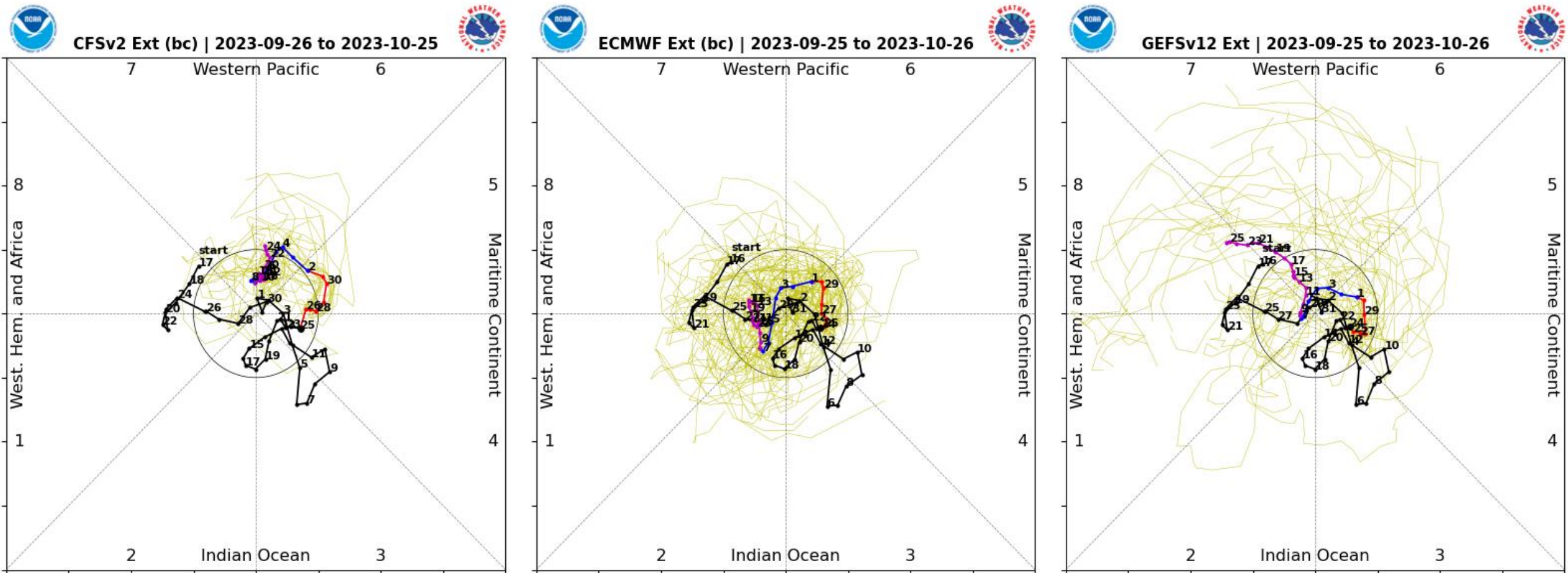
**This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.**

# 200-hPa Velocity Potential Anomaly Maps:

- Despite the incoherent MJO signal, more organization is apparent in the upper-level velocity potential field.
- Enhanced divergence aloft is forecast to expand eastward across the Pacific and into the Western Atlantic by early to mid-October.
- Enhanced divergence aloft is forecast to persist over the Central Pacific due to the low frequency El Niño footprint, while enhanced convergence aloft builds over the Indian Ocean and far Western Pacific.

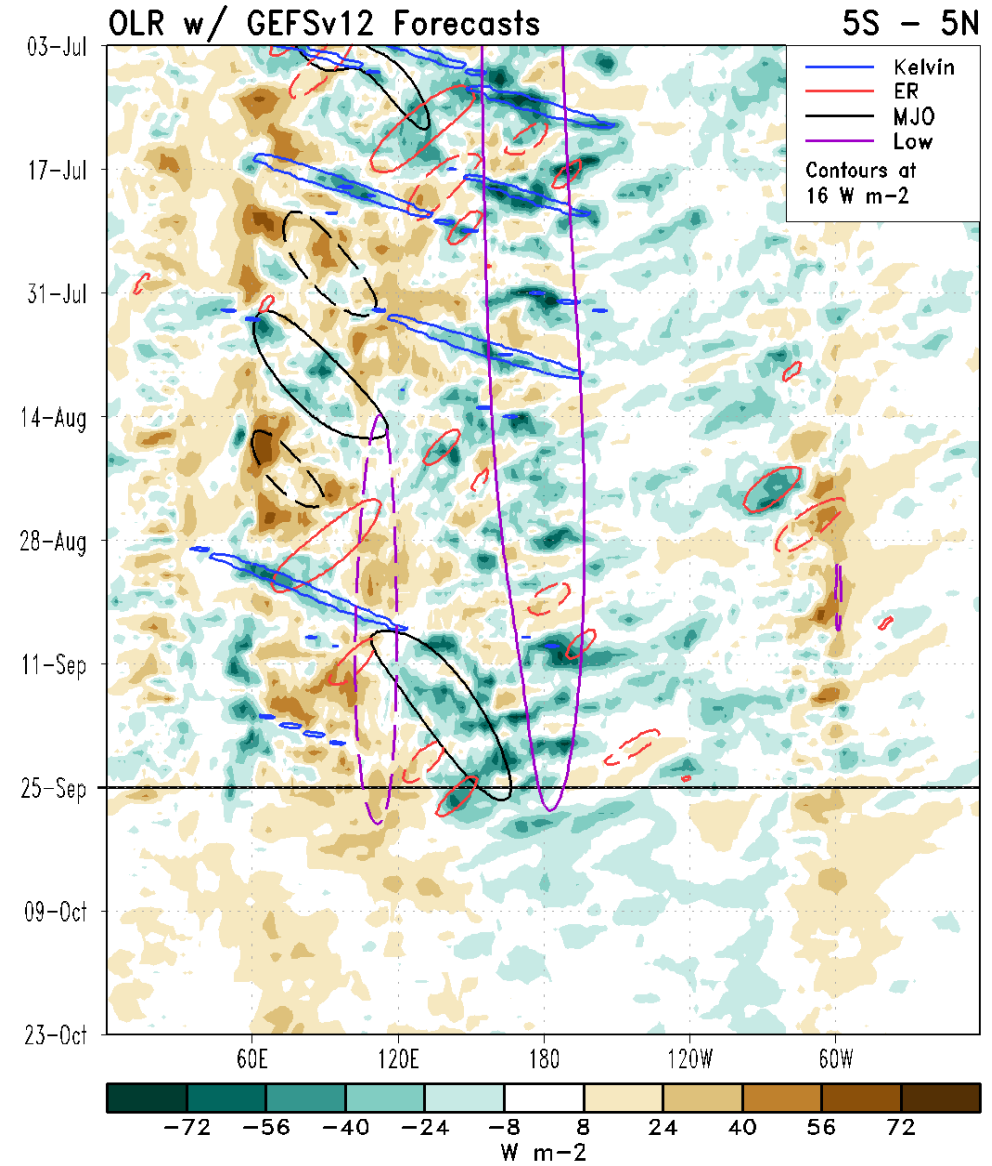
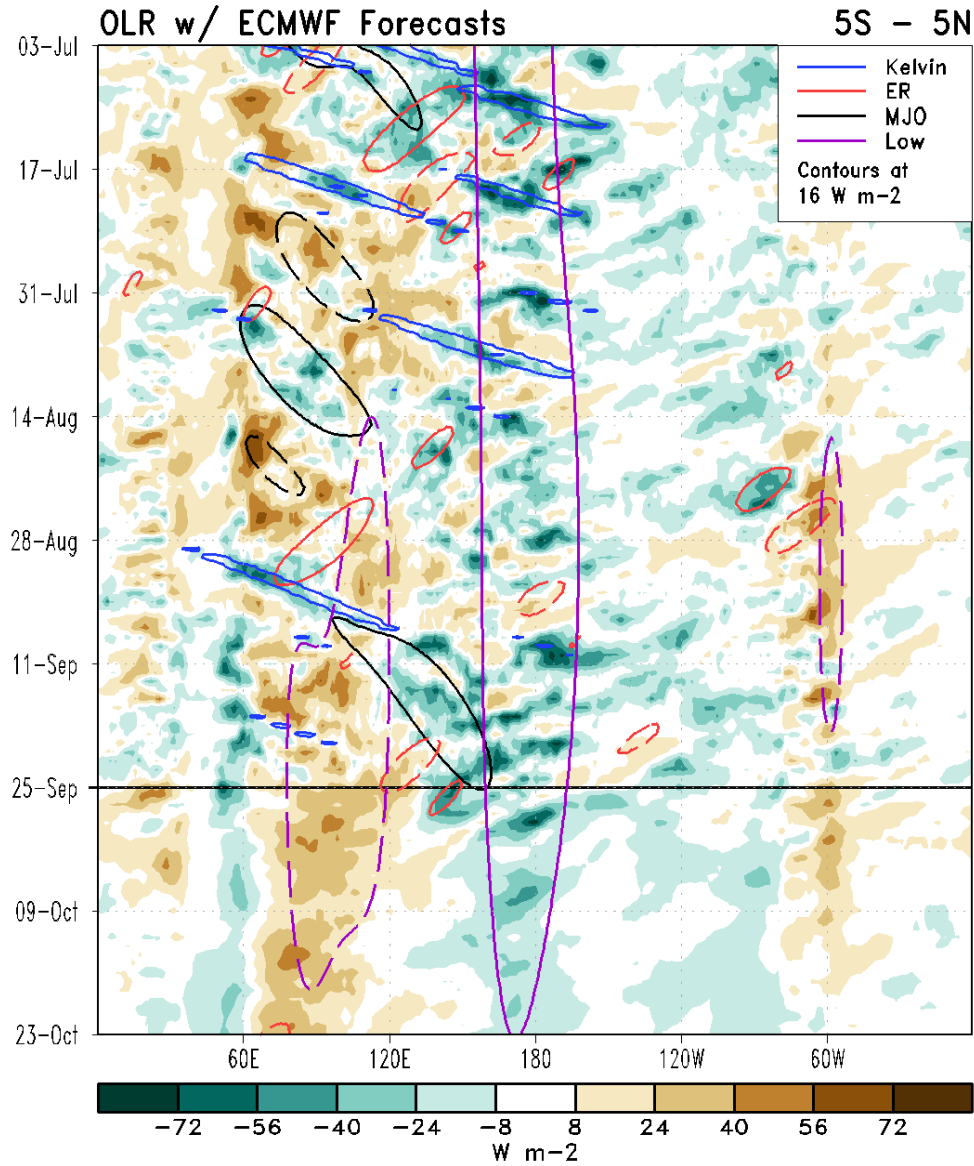


# RMM Index Observations & Forecasts:



- The CFSv2, ECMWF, and GEFsv12 ensembles generally depict an incoherent and weak MJO signal during the next 2 weeks.
- Some individual ensemble members indicate a more pronounced eastward propagation from the Maritime Continent/Western Pacific into the Western Hemisphere, particularly in the GEFsv12.

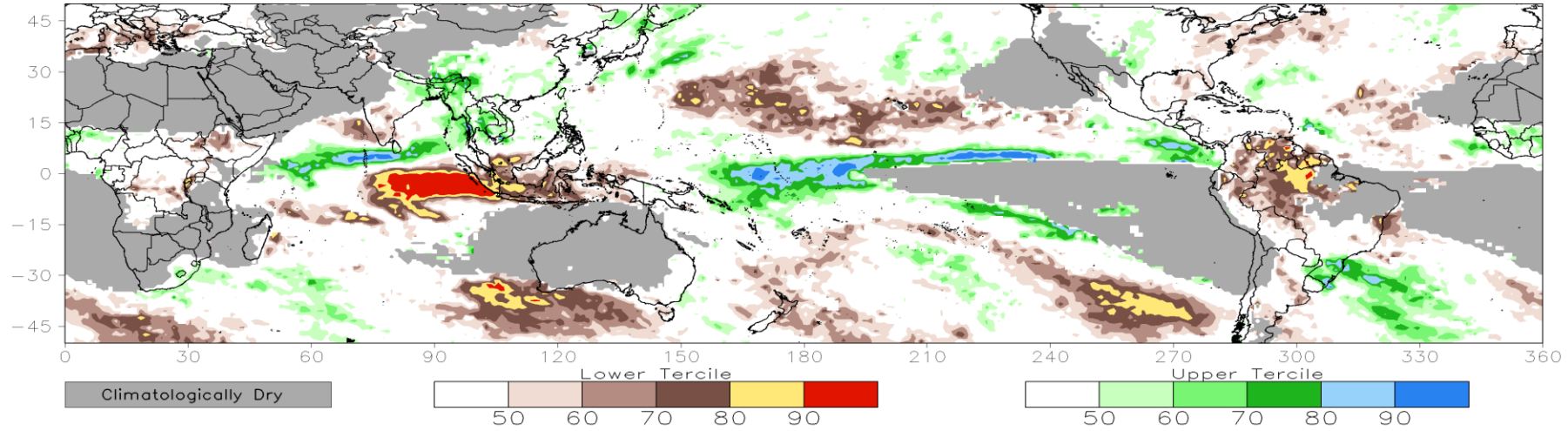
# Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



# Consolidated Probabilistic Precipitation: Weeks 2 & 3

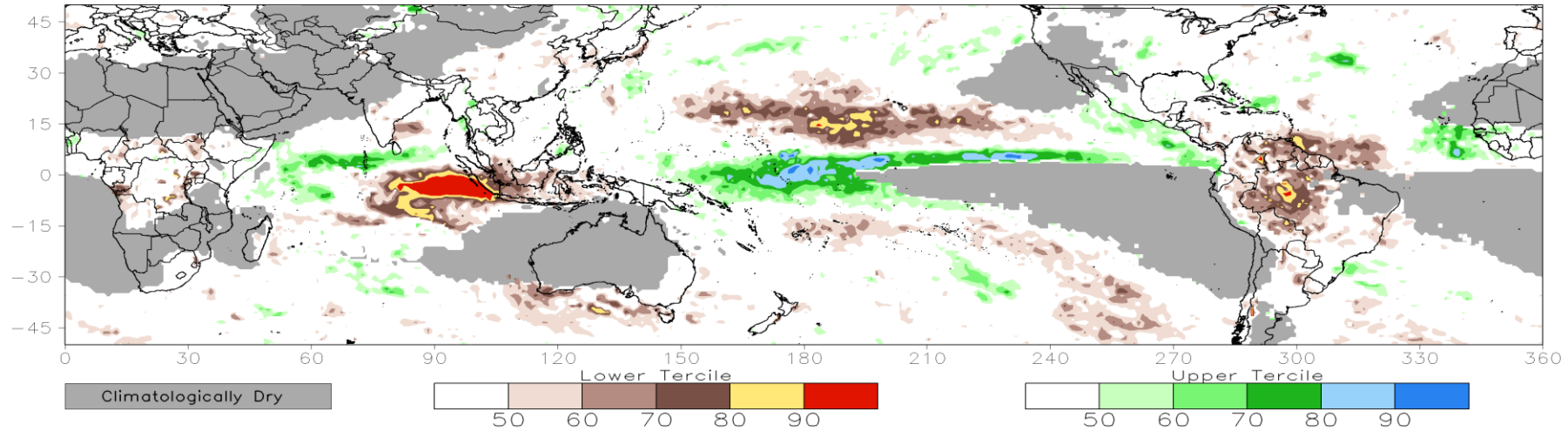
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 04Oct2023–10Oct2023



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

Valid: 11Oct2023–17Oct2023

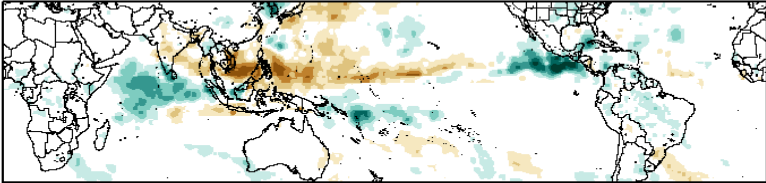




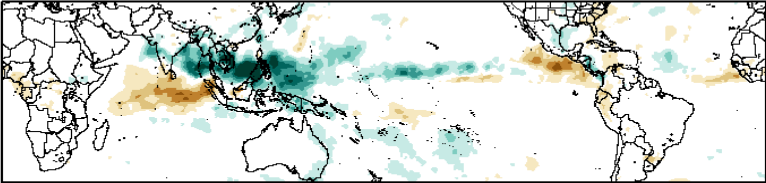
# Historical Precipitation Anomalies By MJO Phase:

ASO MJO Composite: GPCP1DD (mm/day)

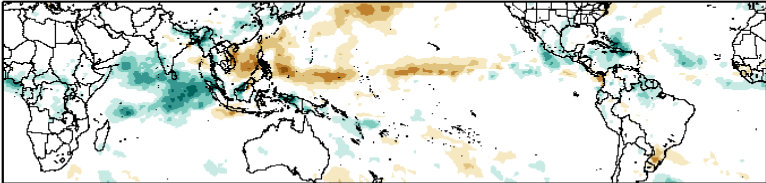
Phase 1



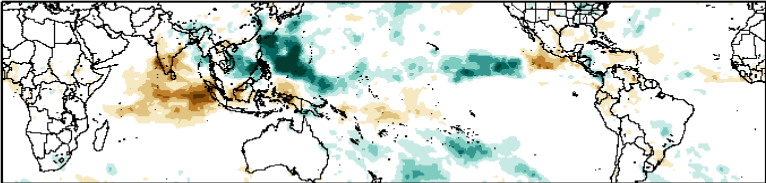
Phase 5



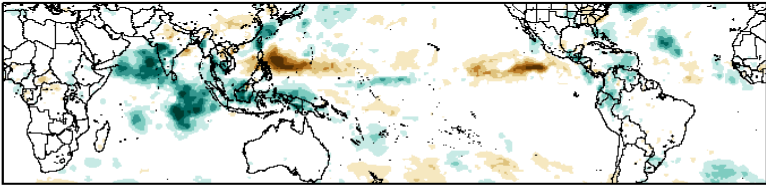
Phase 2



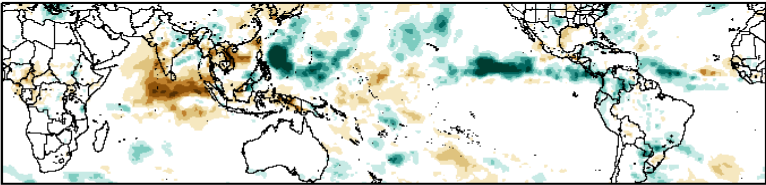
Phase 6



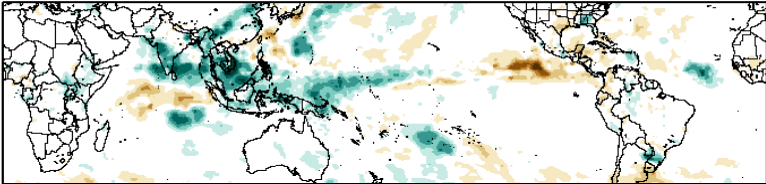
Phase 3



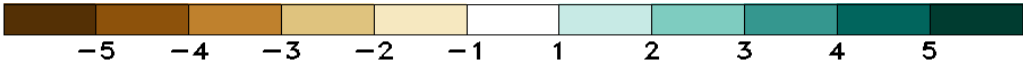
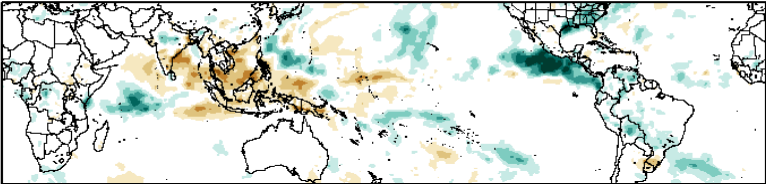
Phase 7



Phase 4

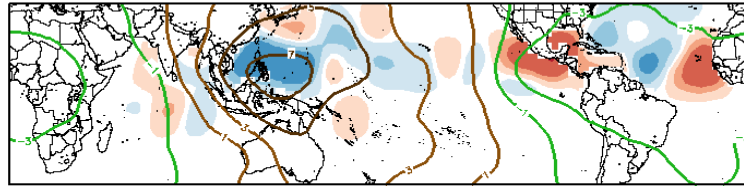


Phase 8

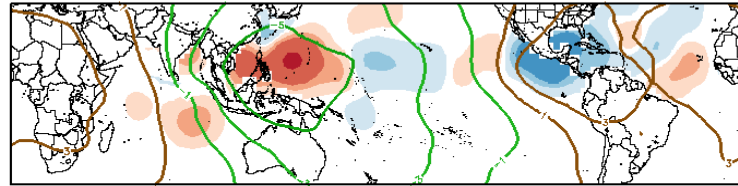


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

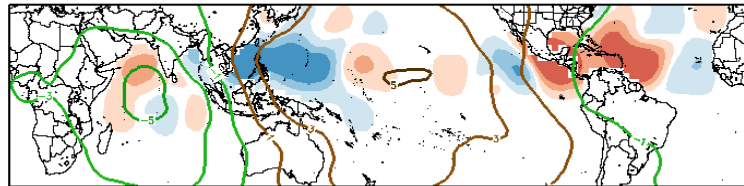
ASO MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ ASO CH200 ( $\times 10^6 m^{-2} s^{-1}$ ) / Contours every  $2 \times 10^6 m^{-2} s^{-1}$



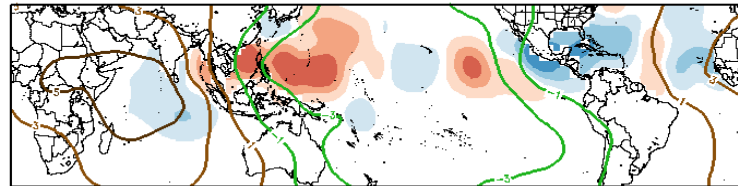
Phase 1



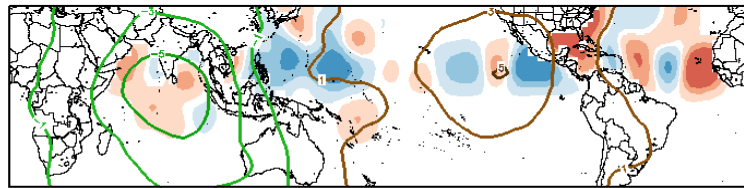
Phase 5



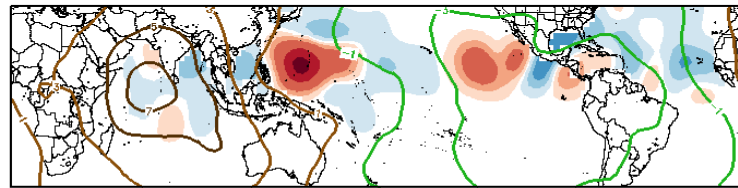
Phase 2



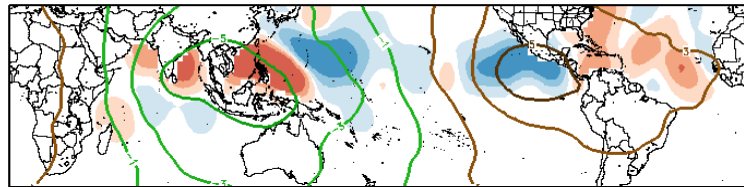
Phase 6



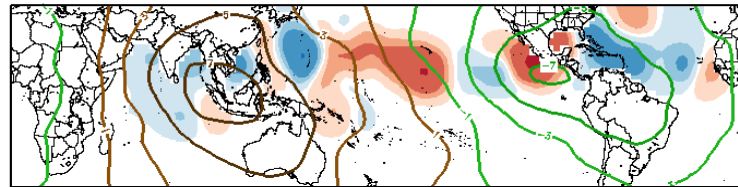
Phase 3



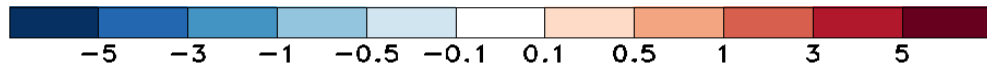
Phase 7



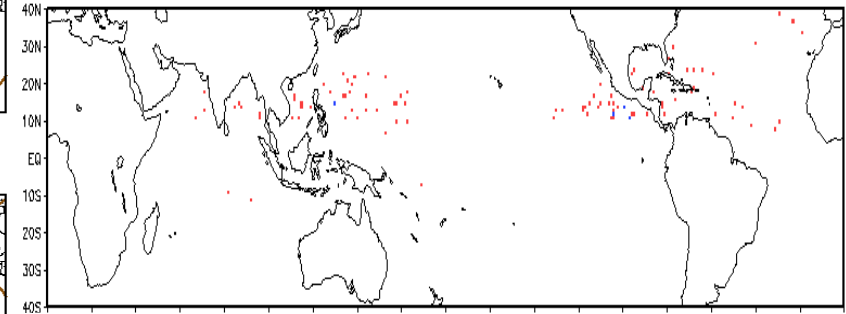
Phase 4



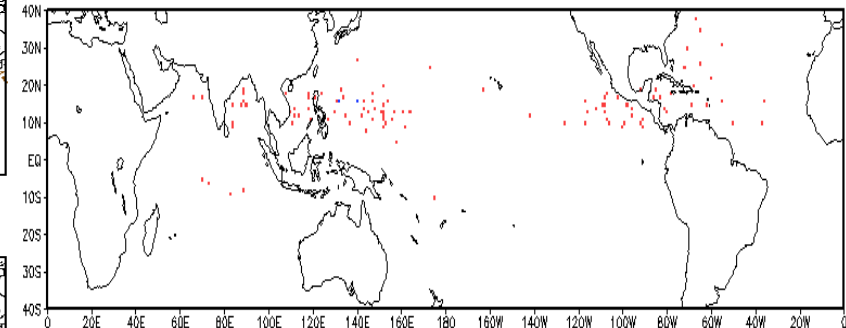
Phase 8



Observed TC Genesis, 1979-2021  
7-day Period 1004 to 1010



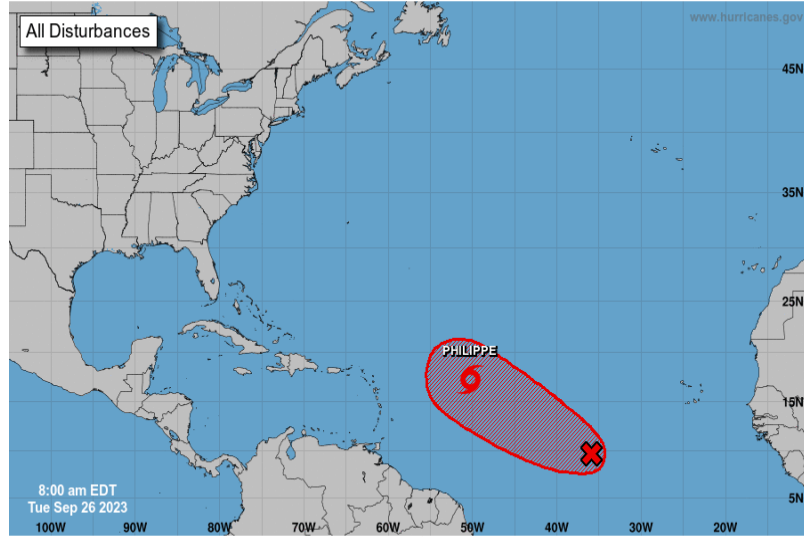
Observed TC Genesis, 1979-2021  
7-day Period 1011 to 1017



\*Experimental\*

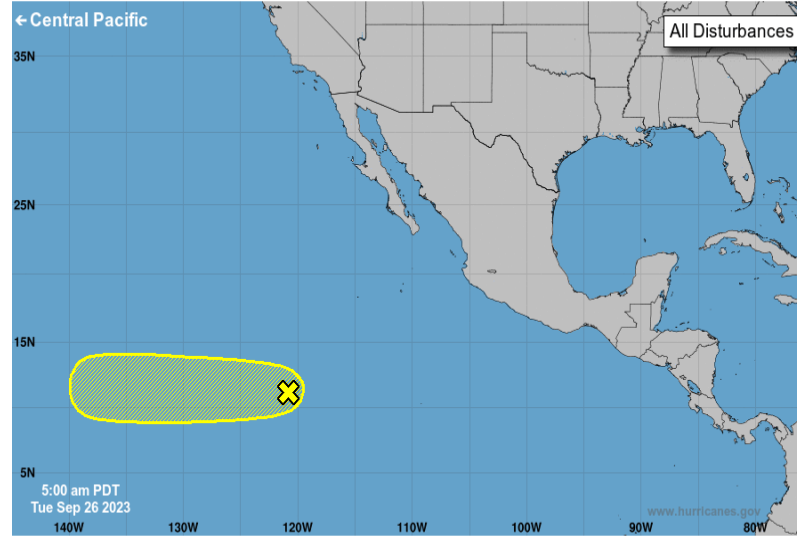
# Tropical Cyclone Monitoring/Forecast: NHC / CPHC

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



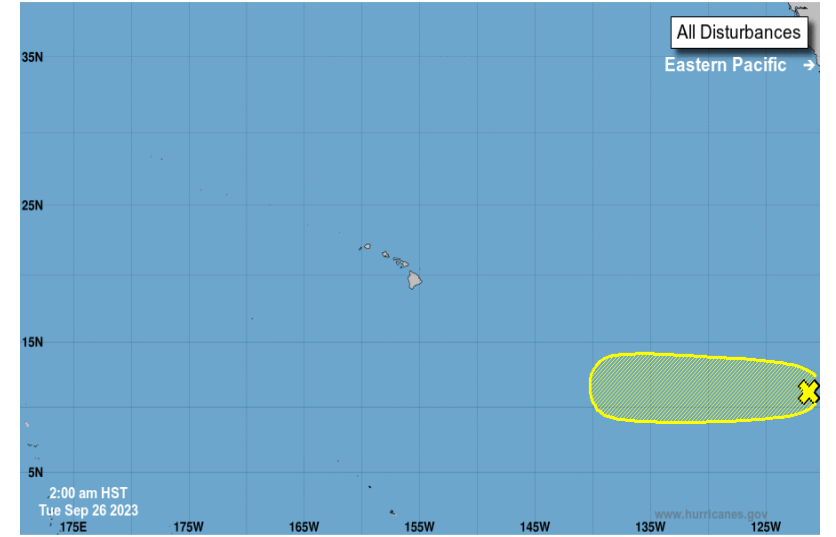
Current Disturbances and Seven-Day Cyclone Formation Chance: X < 40% X 40-60% X > 60%  
Tropical or Sub-Tropical Cyclone: ○ Depression ○ Storm ○ Hurricane  
○ Post-Tropical Cyclone or Remnants

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



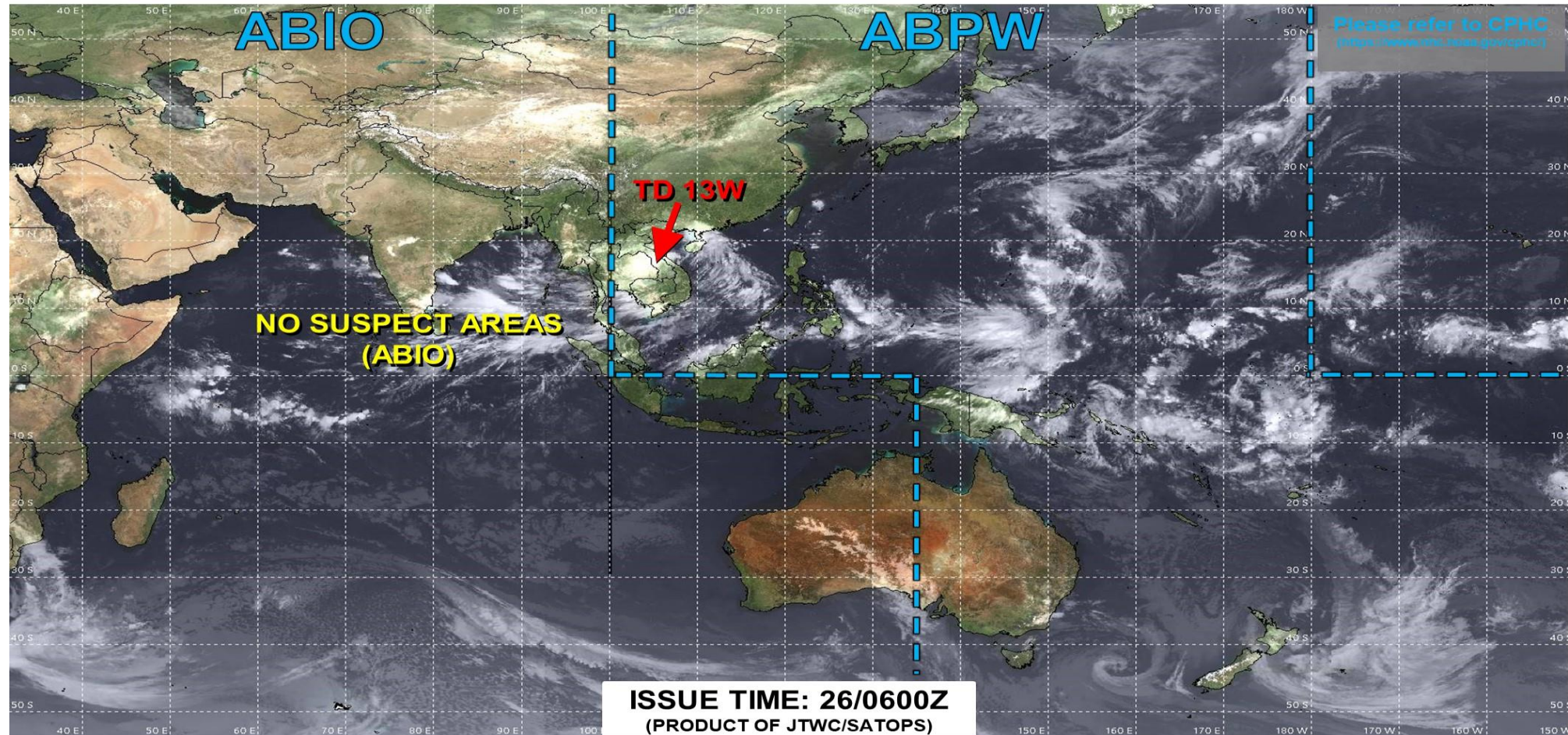
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# Tropical Cyclone Monitoring/Forecast: JTWC



## 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)

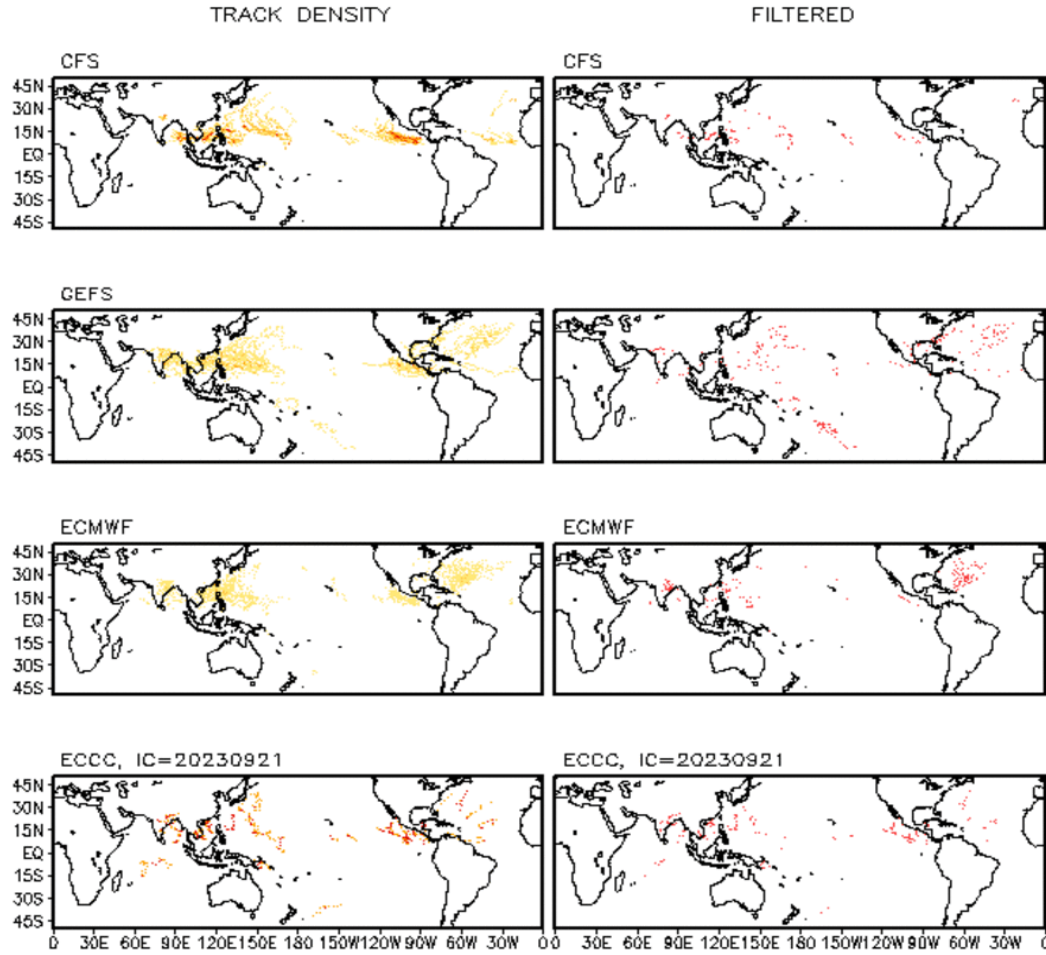


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

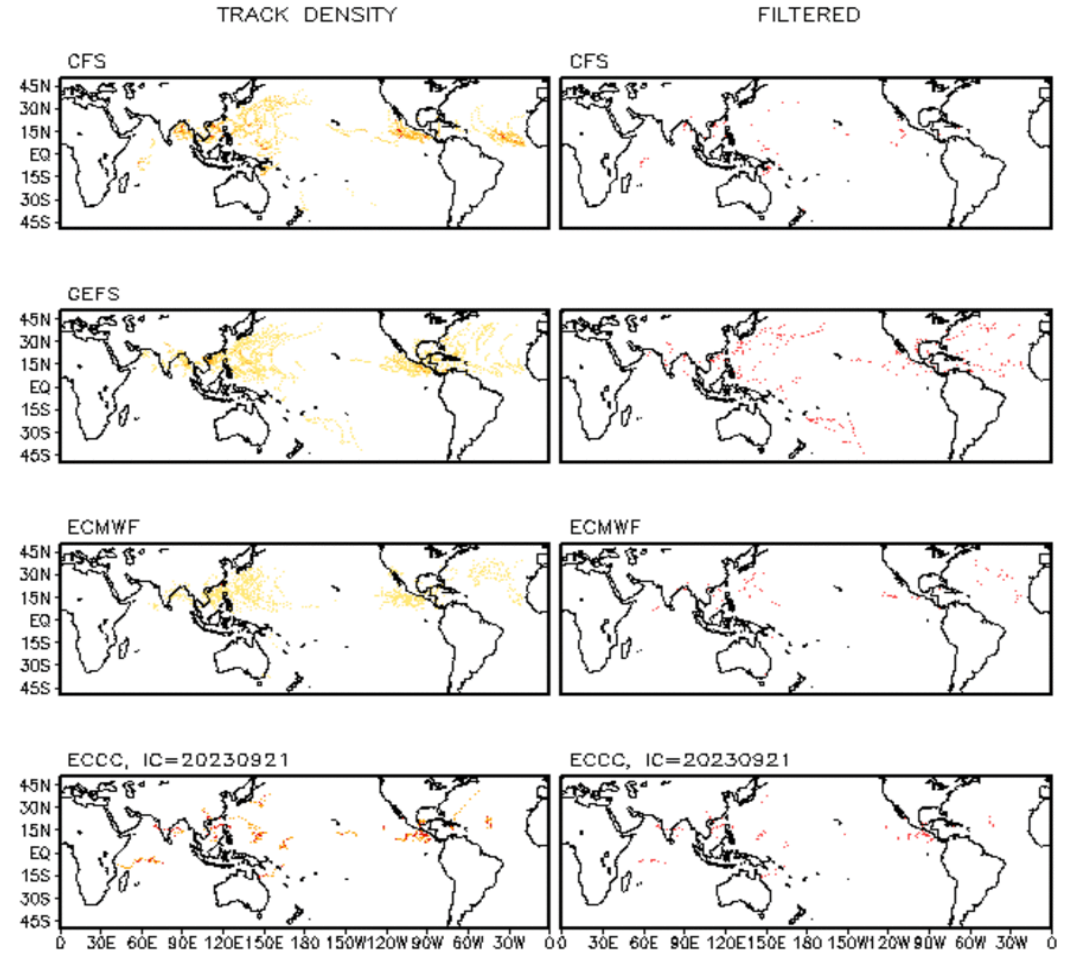
 Tropical Cyclone (Reference Warning)

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

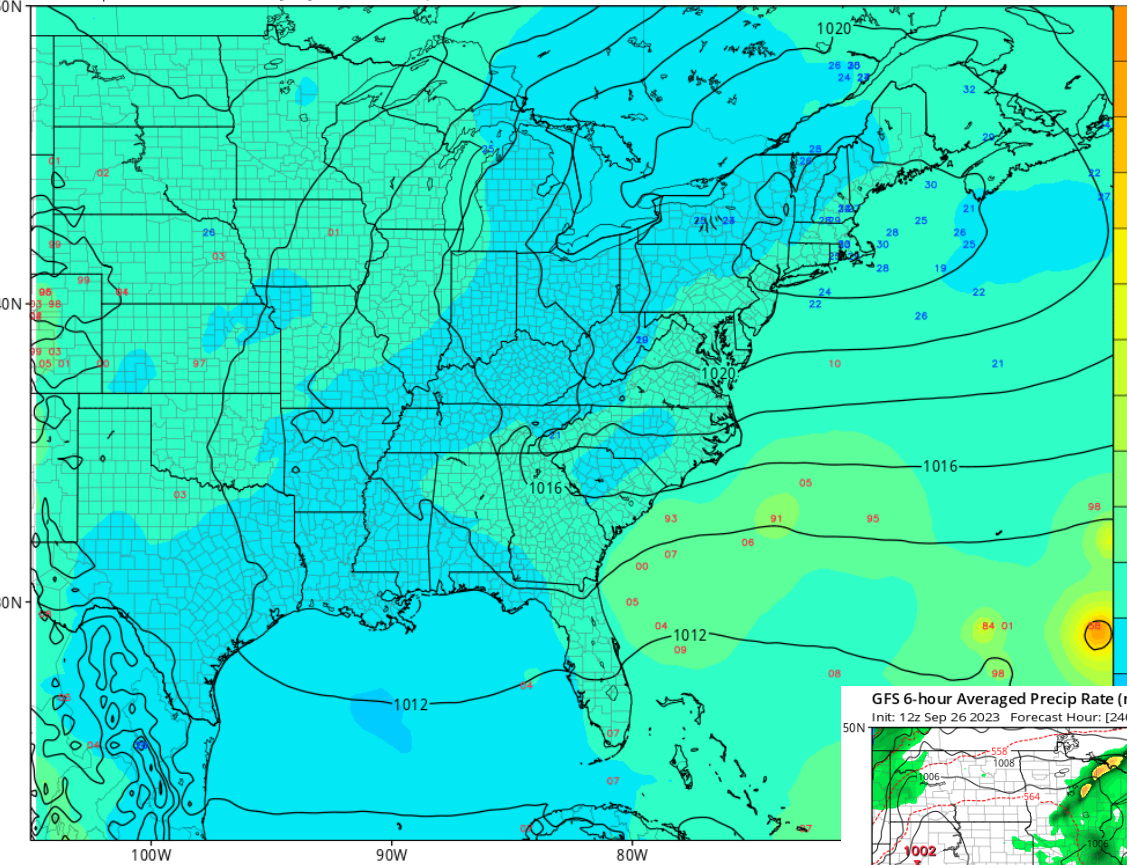
Storm Track Density Distribution, IC=20230925  
Week 2 Forecast: 1004–1010



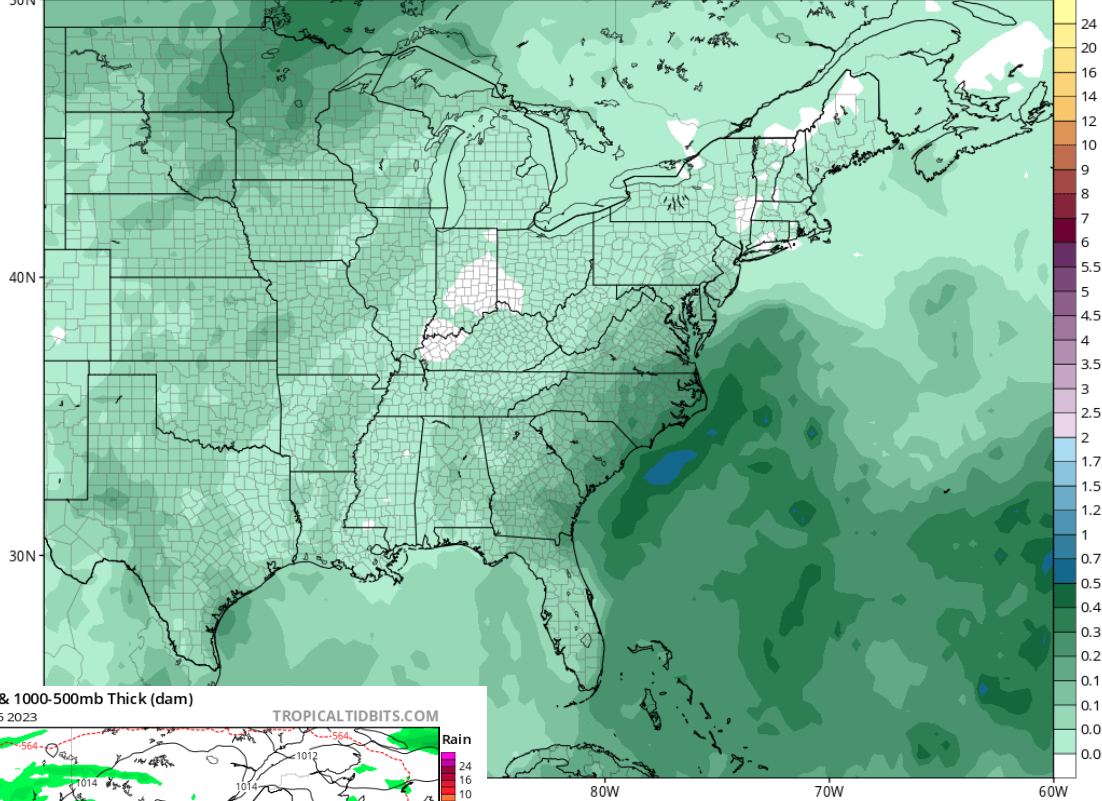
Storm Track Density Distribution, IC=20230925  
Week 3 Forecast: 1011–1017



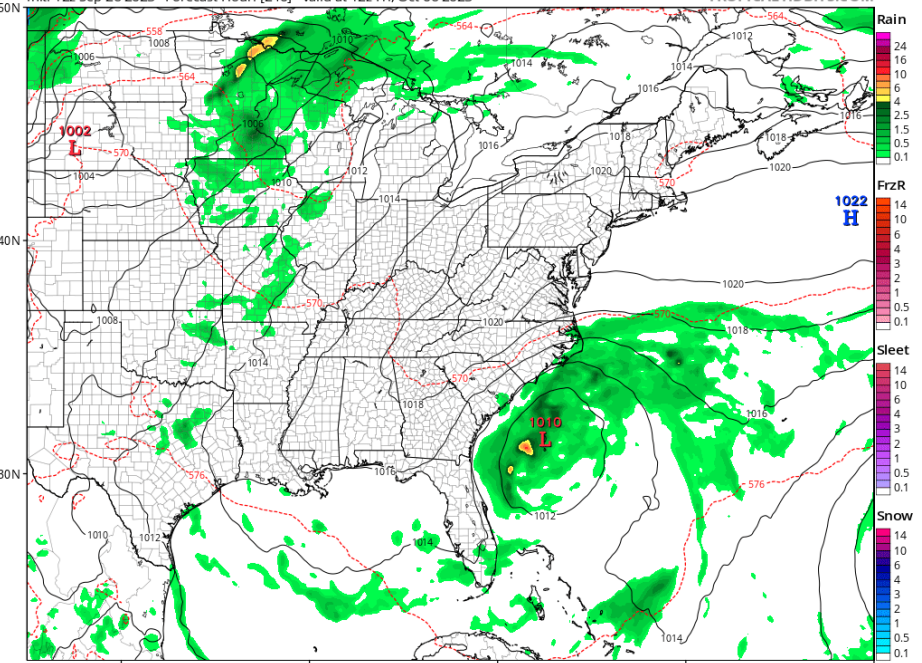
EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | High: blue), & Normalized Spread ( $\sigma$ )  
 Init: 00z Sep 26 2023 Forecast Hour: [216] valid at 00z Thu, Oct 05 2023 TROPICALTIDBITS.COM



EPS Accumulated 24-hour Precipitation (inches)  
 Init: 00z Sep 26 2023 Forecast Hour: [258] valid at 18z Fri, Oct 06 2023 TROPICALTIDBITS.COM

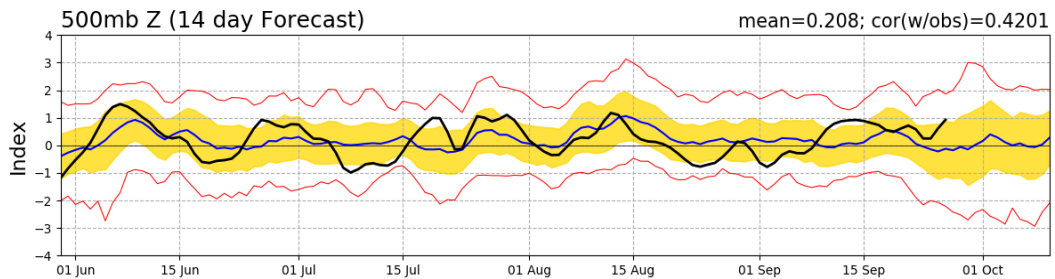
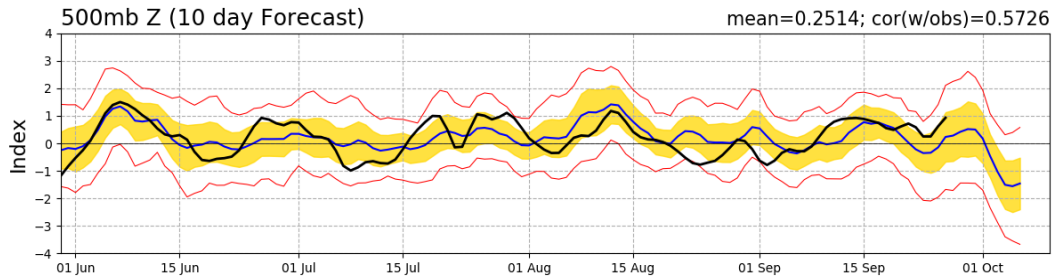
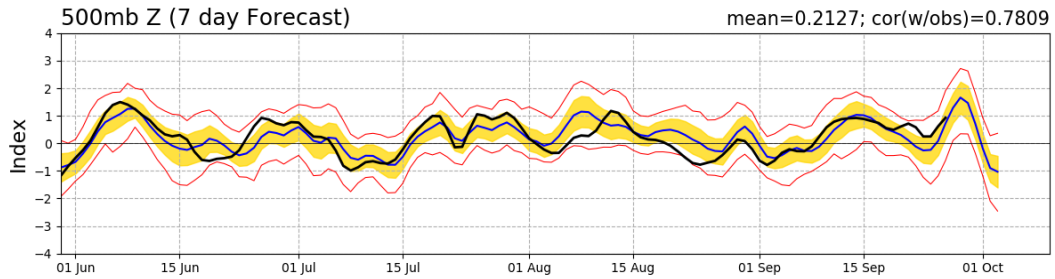
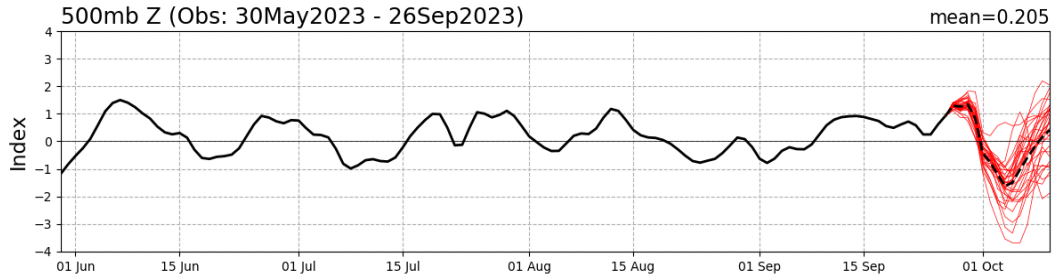


GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa), & 1000-500mb Thick (dam)  
 Init: 12z Sep 26 2023 Forecast Hour: [240] valid at 12z Fri, Oct 06 2023 TROPICALTIDBITS.COM

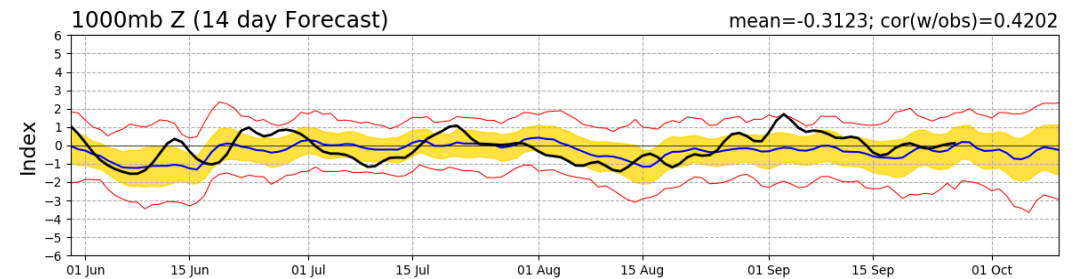
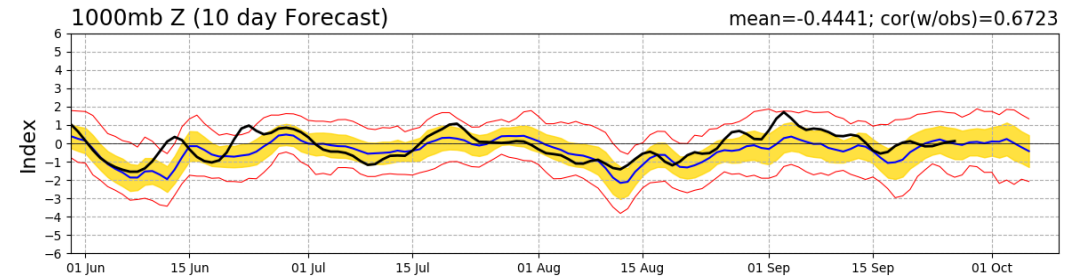
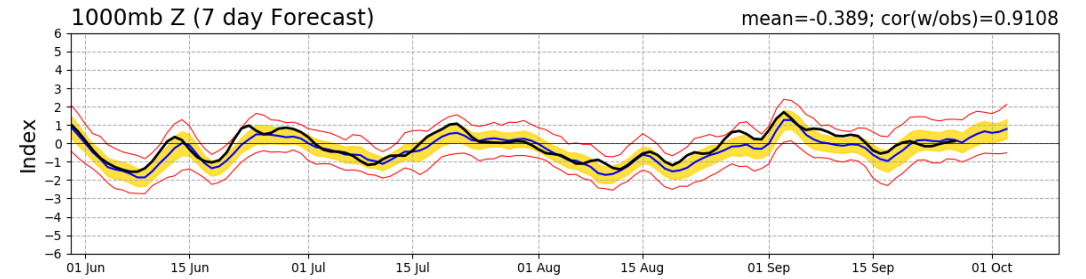
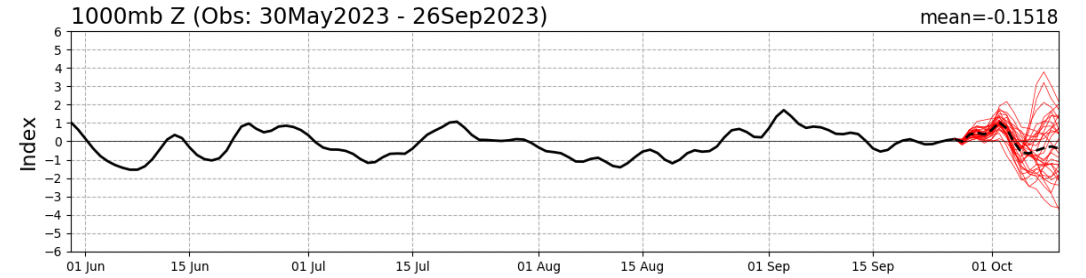


# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts

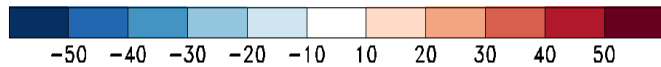
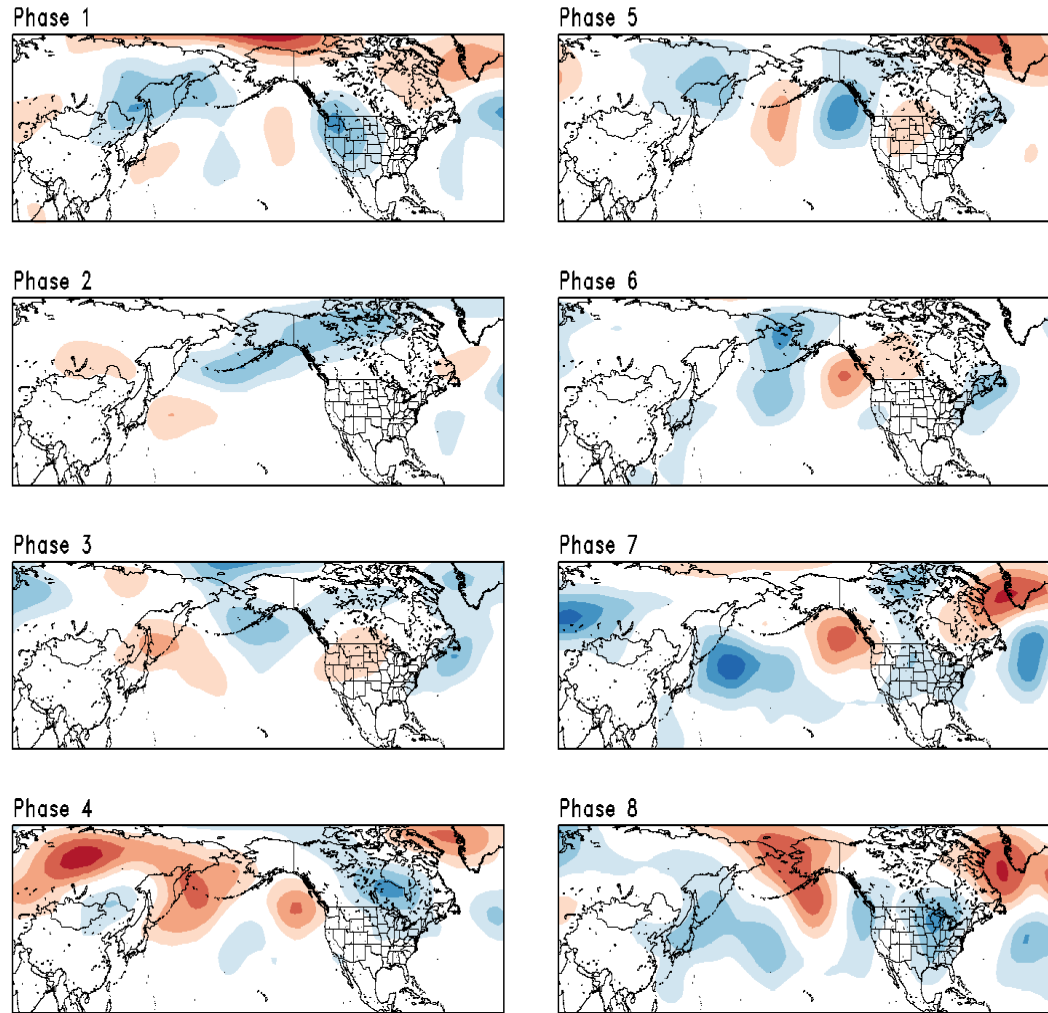


## AO Index: Observed & GEFS Forecasts

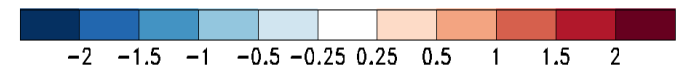
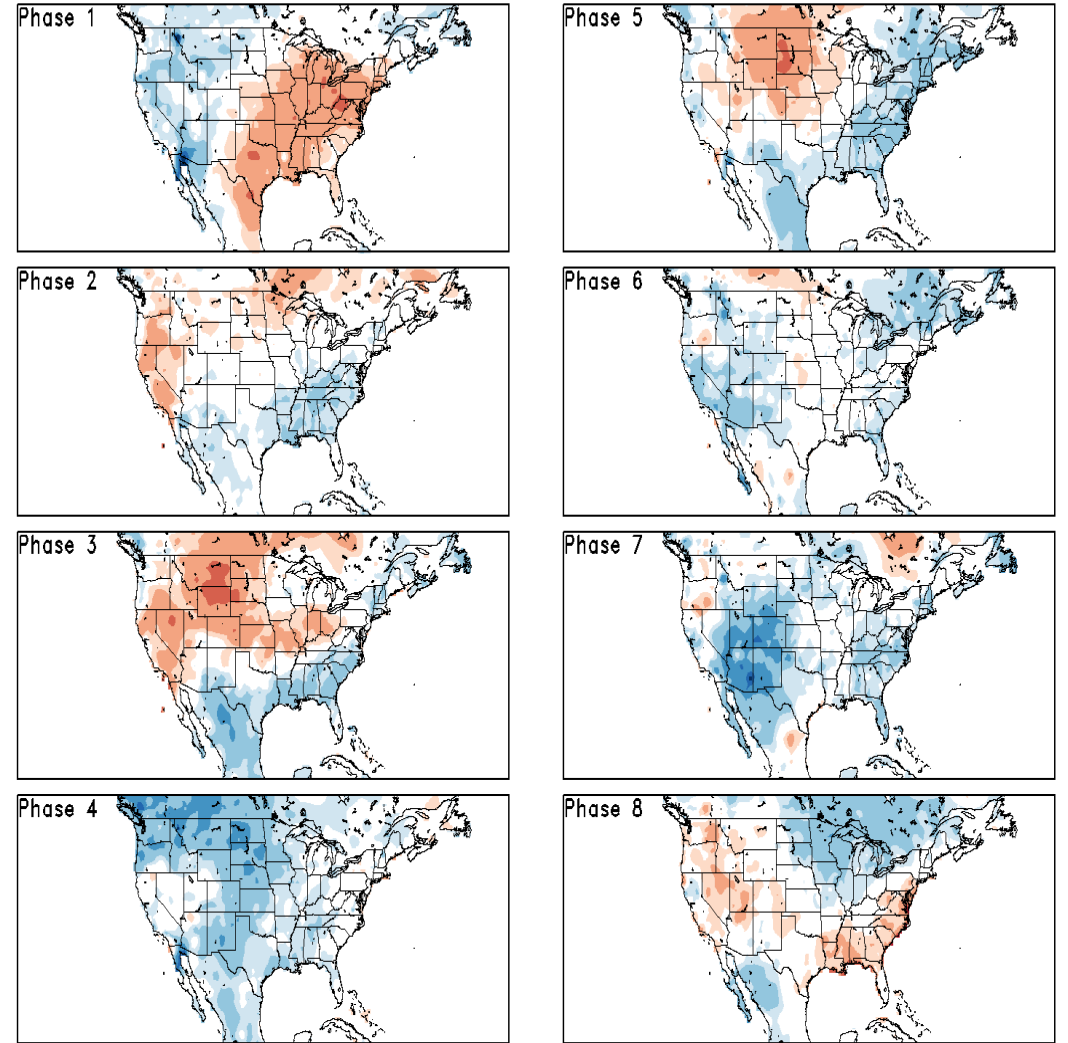


# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

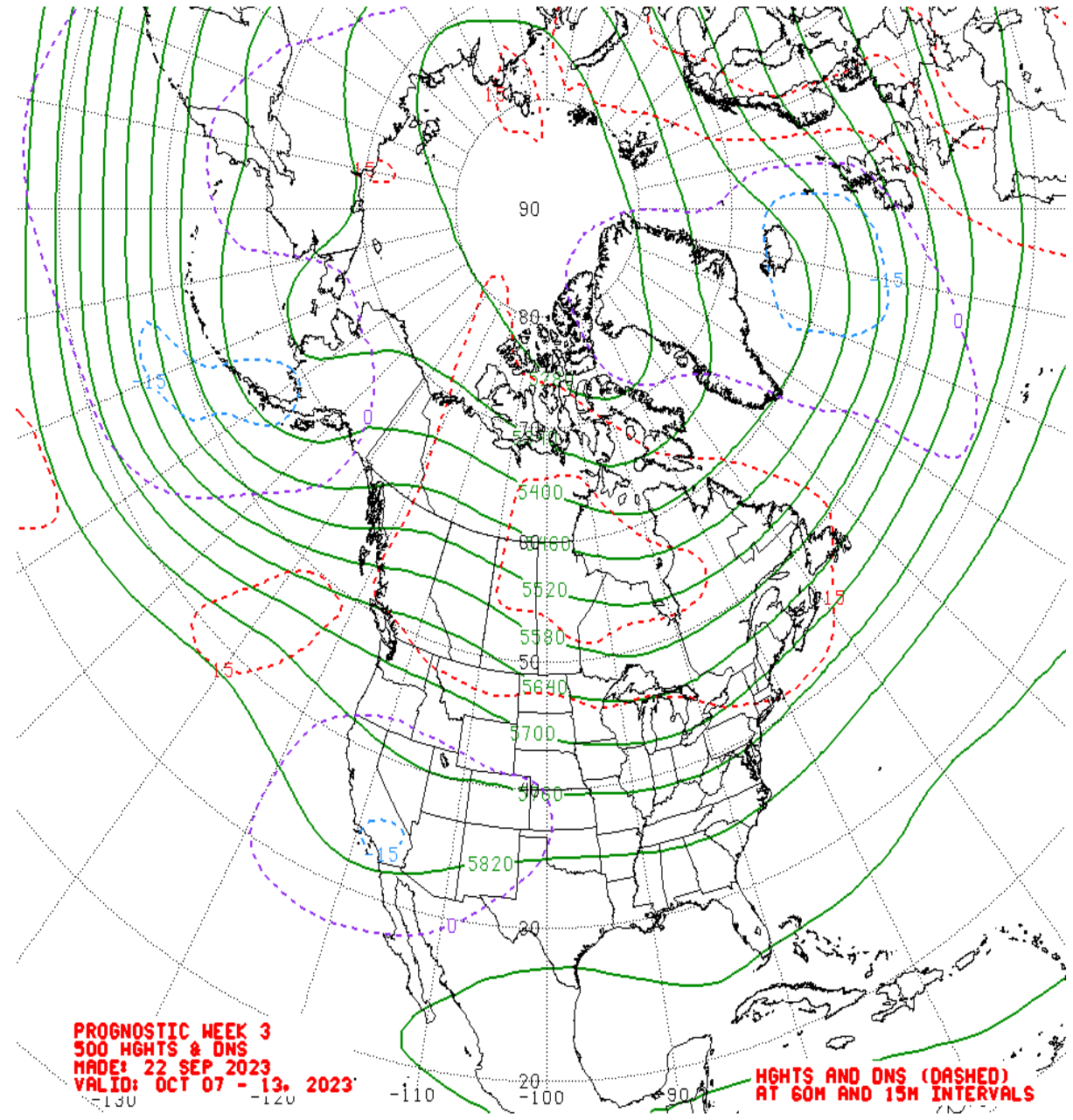
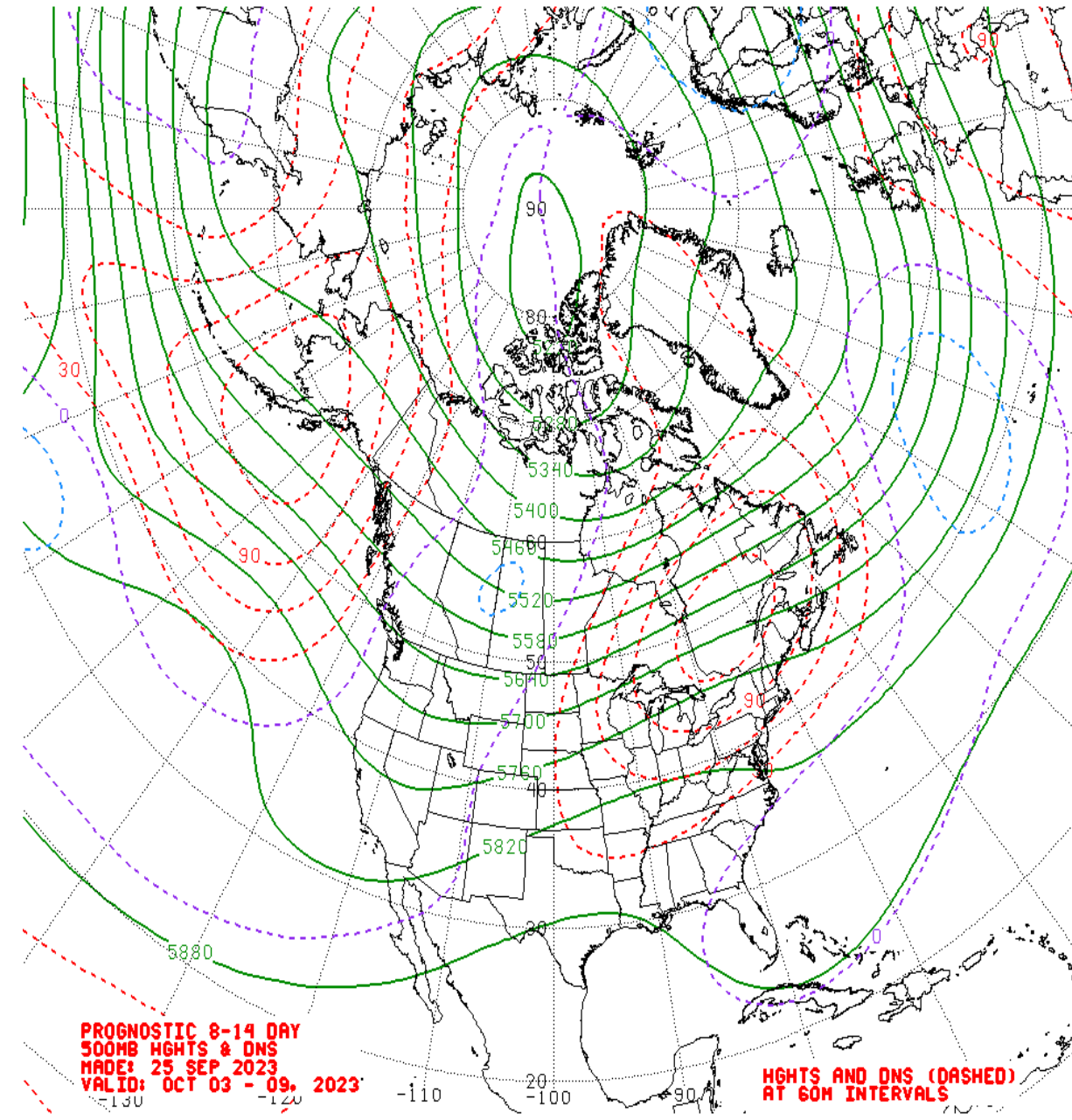


ASO MJO Composite: GLBT (degC)





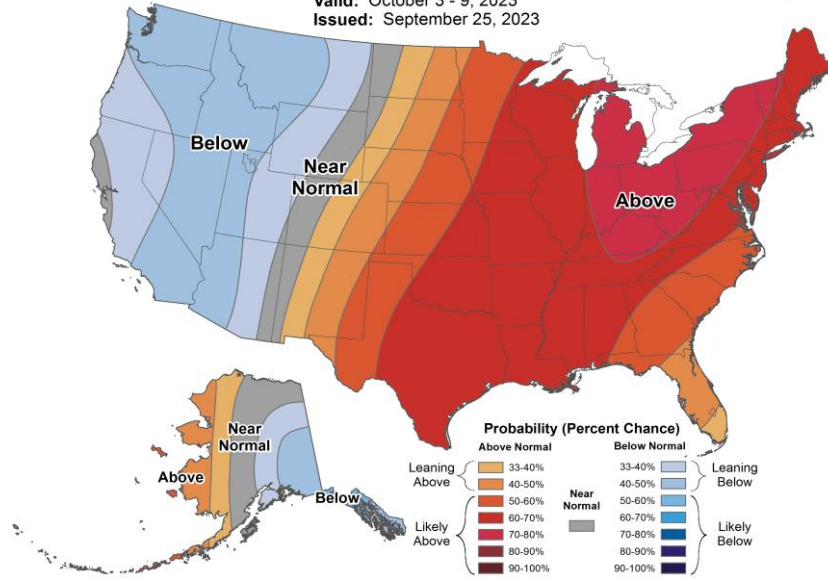
# Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3



# Official Temperature & Precipitation Forecasts:

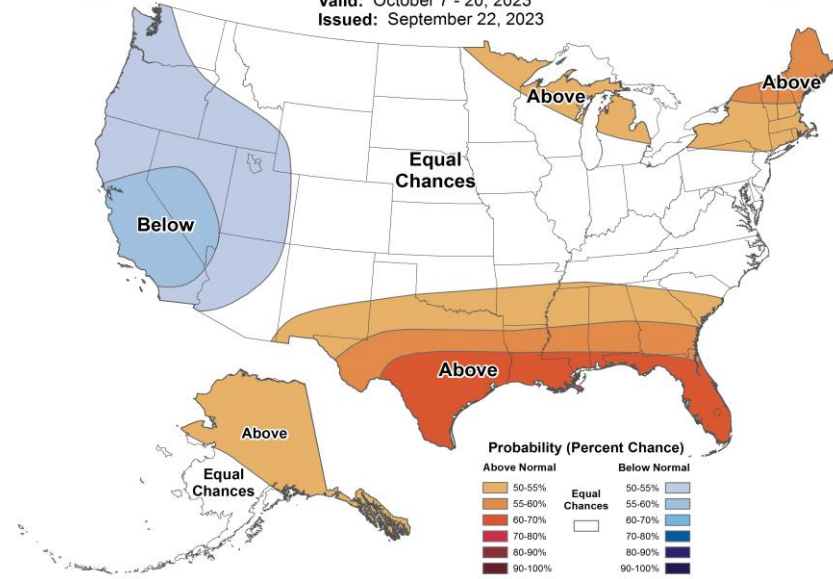
## 8-14 Day Temperature Outlook

Valid: October 3 - 9, 2023  
Issued: September 25, 2023



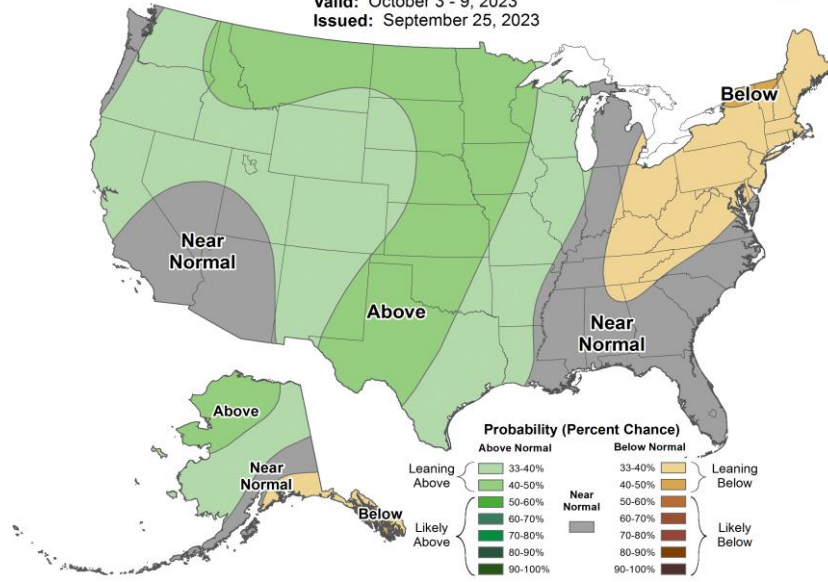
## Weeks 3-4 Temperature Outlook

Valid: October 7 - 20, 2023  
Issued: September 22, 2023



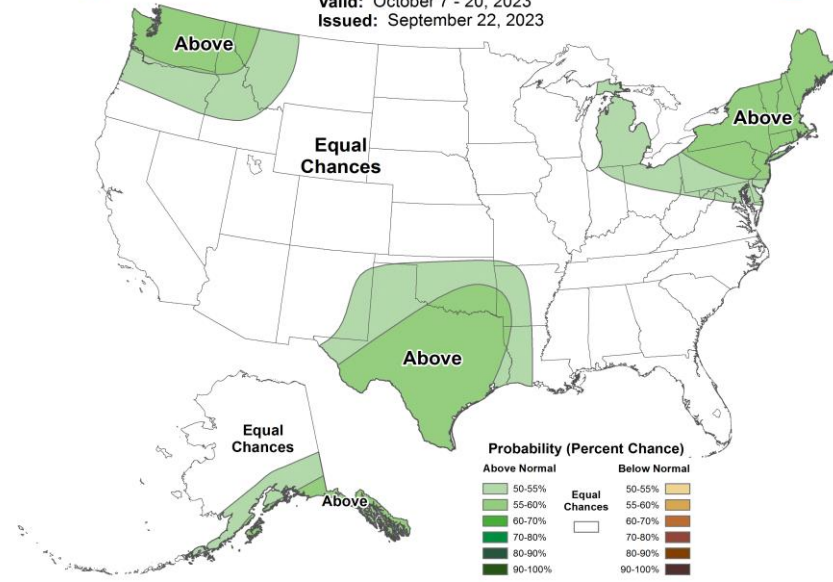
## 8-14 Day Precipitation Outlook

Valid: October 3 - 9, 2023  
Issued: September 25, 2023



## Weeks 3-4 Precipitation Outlook

Valid: October 7 - 20, 2023  
Issued: September 22, 2023



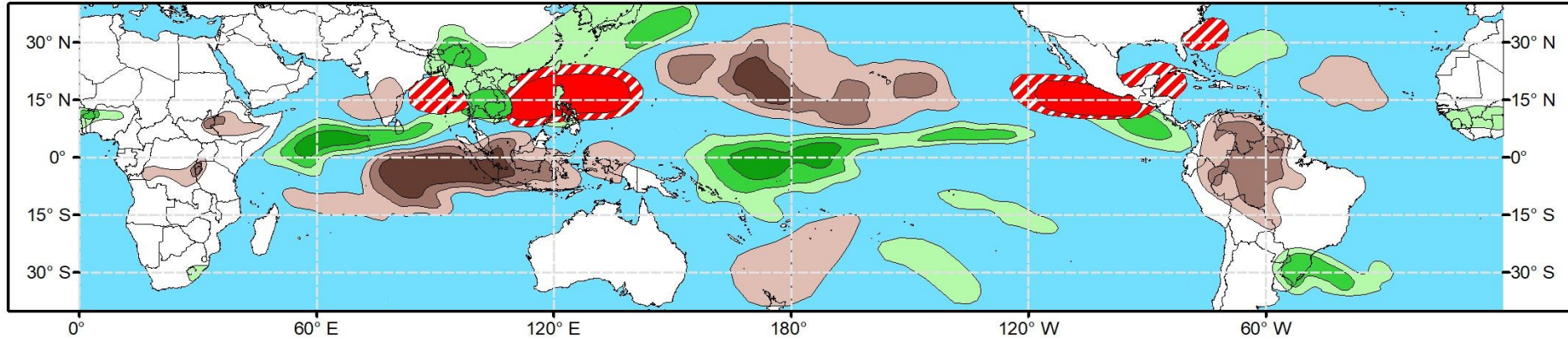


# Global Tropics Hazards Outlook

Climate Prediction Center

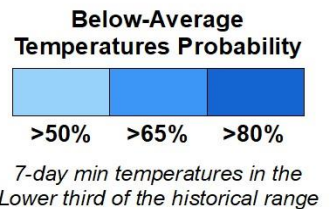
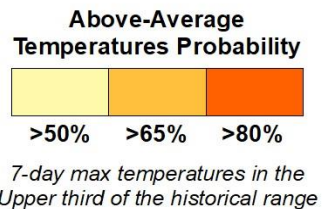
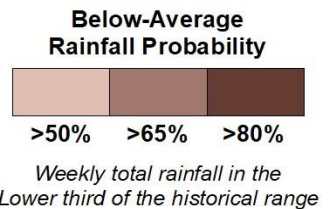
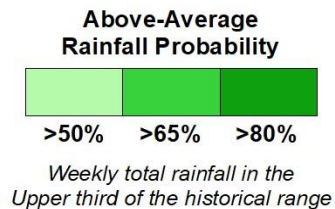
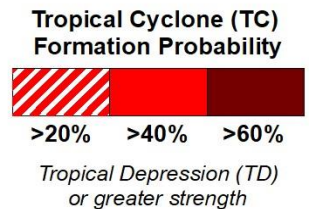
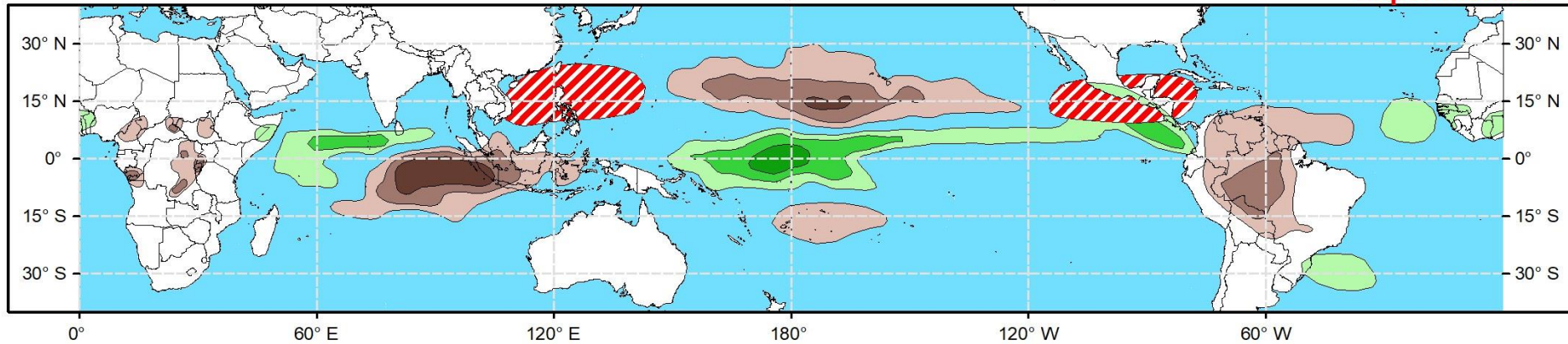


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**Forecaster: Collow**

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