



Weeks 2-3 Global Tropics Hazards Outlook

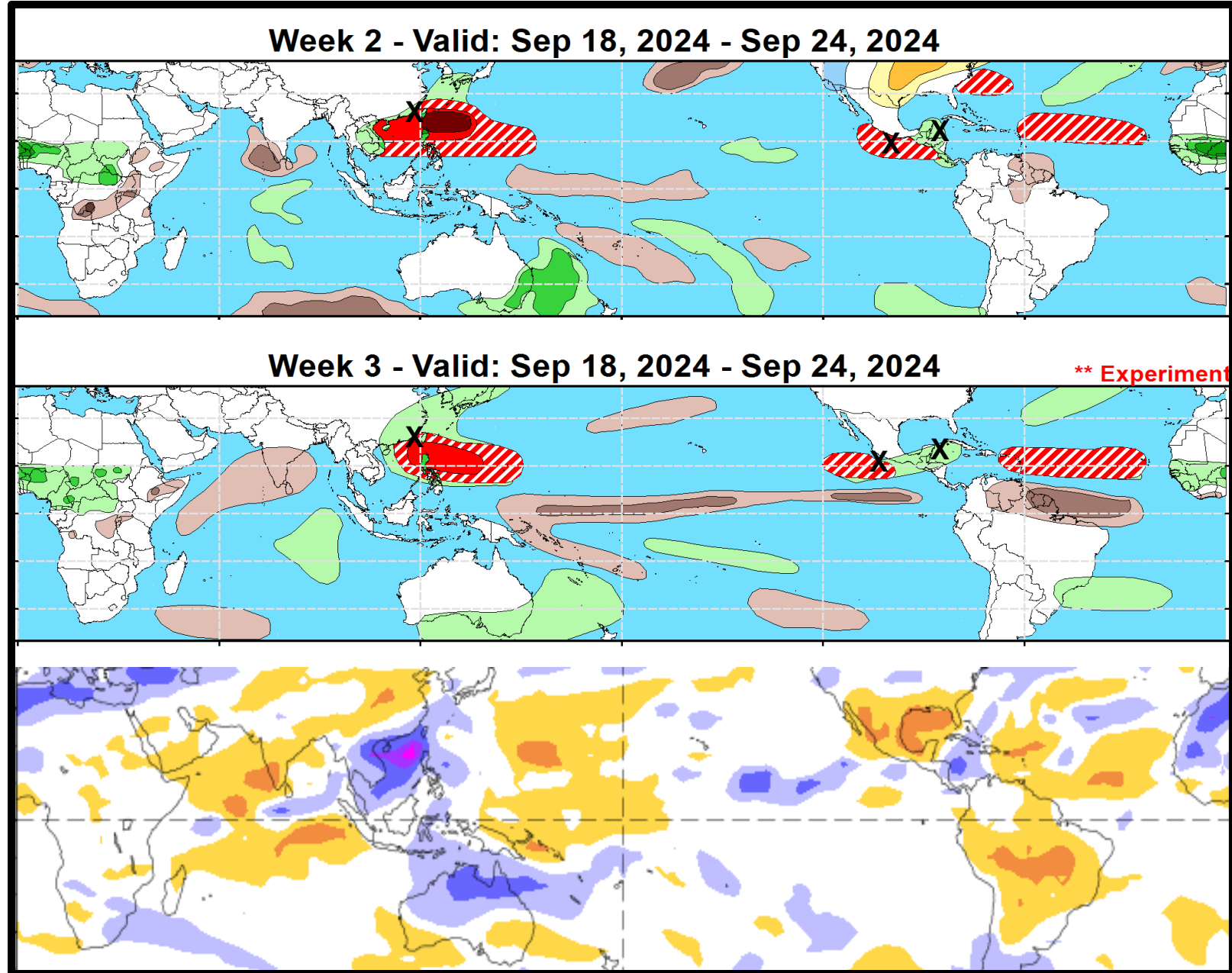
9/24/2023

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- TS 17W – 9/22 – Taiwan Strait
- Hurricane John – 9/23 – East Pacific
- Tropical Storm Helene – 9/24 – formed over the western Caribbean



Synopsis of Climate Modes:

ENSO: (Sep 12, 2024 Update) *next update on Thursday, Oct 10th*

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña is favored to emerge in September-November (71% chance) and is expected to persist through January-March 2025.

MJO and other subseasonal tropical variability:

- Following a period of incoherence and stalled propagation over the Maritime Continent, the MJO crossed the Pacific during the past week.
- RMM index forecasts are in good agreement that the MJO will cross the Western Hemisphere and Indian Ocean during Week-2. Some weakening is favored for Week-3, with a rapid return to the Maritime Continent during Week-4.
- The large-scale environment is anticipated to become more favorable for Western Hemisphere tropical cyclone development, particularly across the Gulf of Mexico and western Caribbean during Weeks 2-3, and the MDR primarily during Week-2.
- Reduced activity is favored for the West Pacific, while MJO activity across the Indian Ocean may touch off some early season activity.

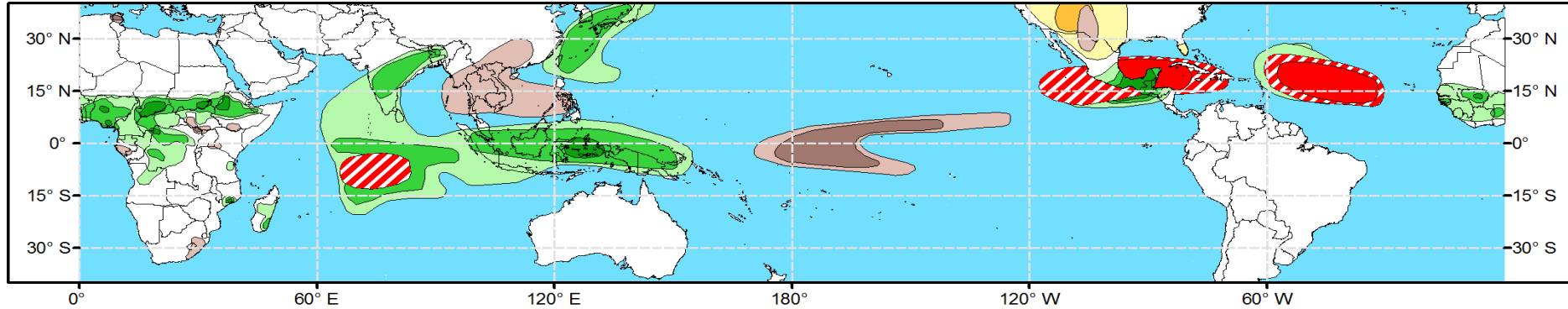
GTH Outlook:



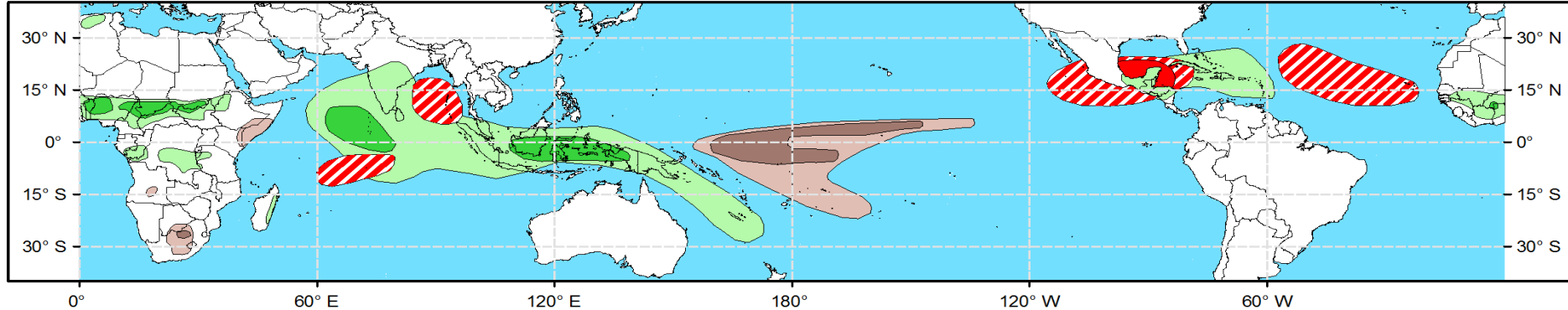
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Oct 02, 2024 - Oct 08, 2024



Week 3 - Valid: Oct 09, 2024 - Oct 15, 2024



**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**



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*7-day max temperatures in the
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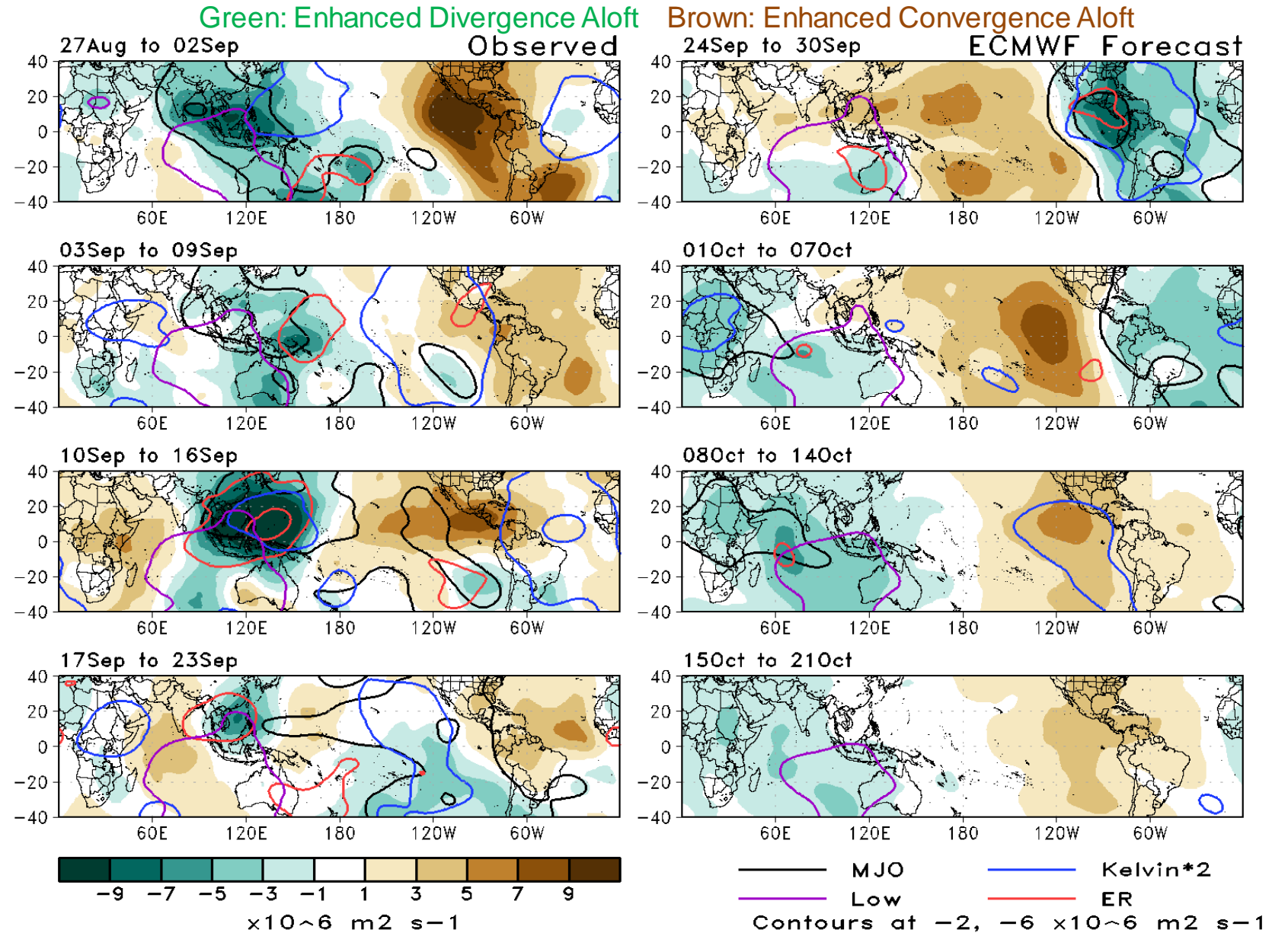
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**Issued: 09/24/2024
Forecaster: Allgood**

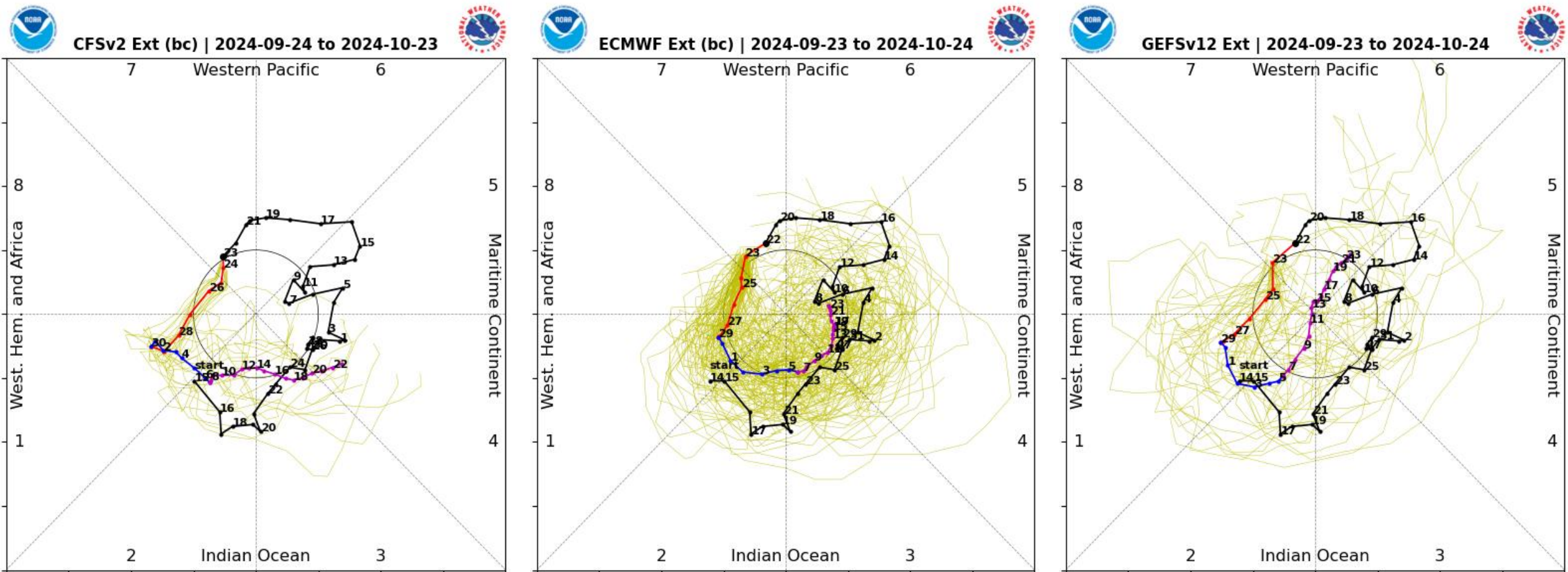
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200-hPa Velocity Potential Anomaly Maps:

- Strong Rossby wave activity superimposed onto the MJO signal during early September, resulting in alternating weakening and strengthening of the signal.
- The upper-level VP pattern is supportive of Atlantic TC activity during Weeks 2-3.

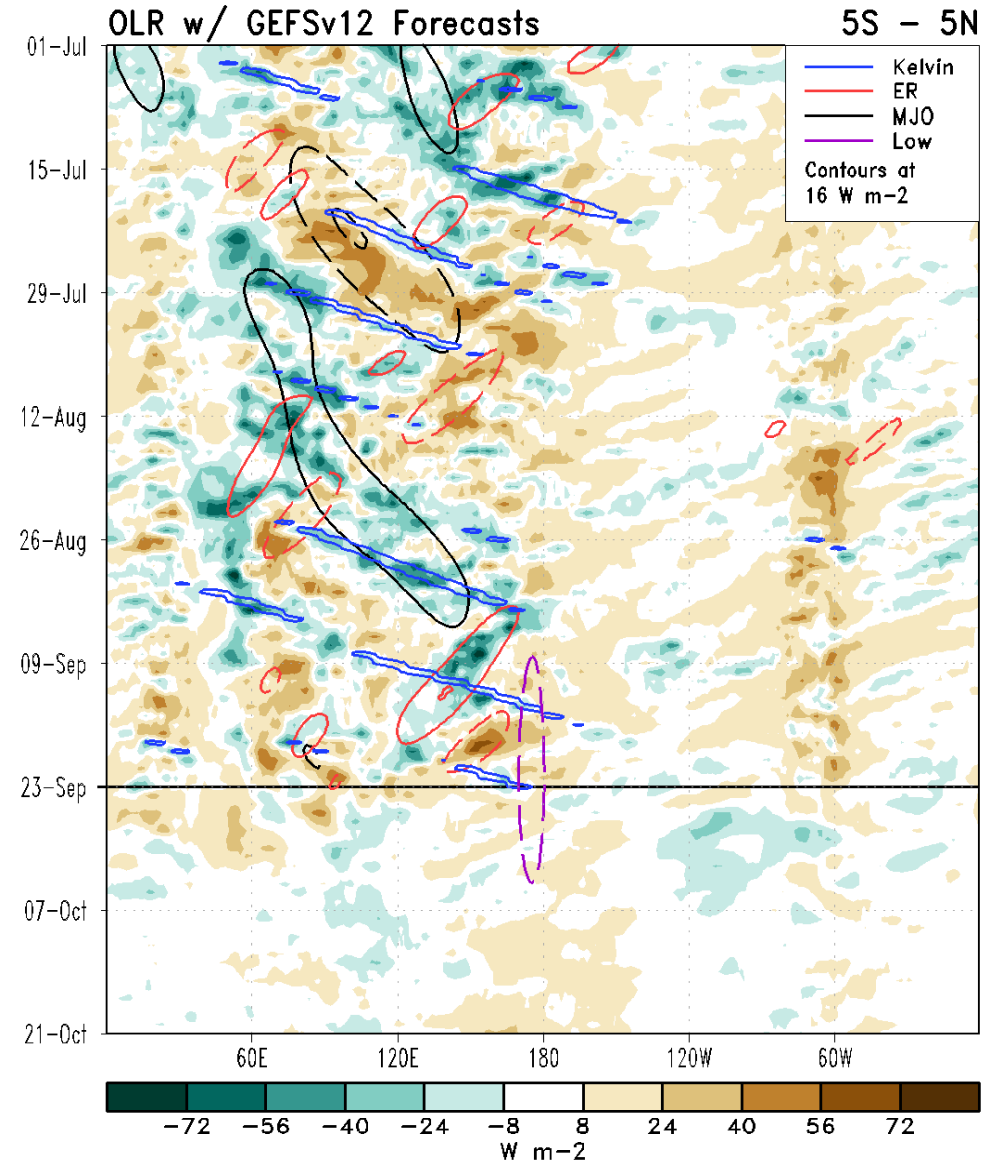
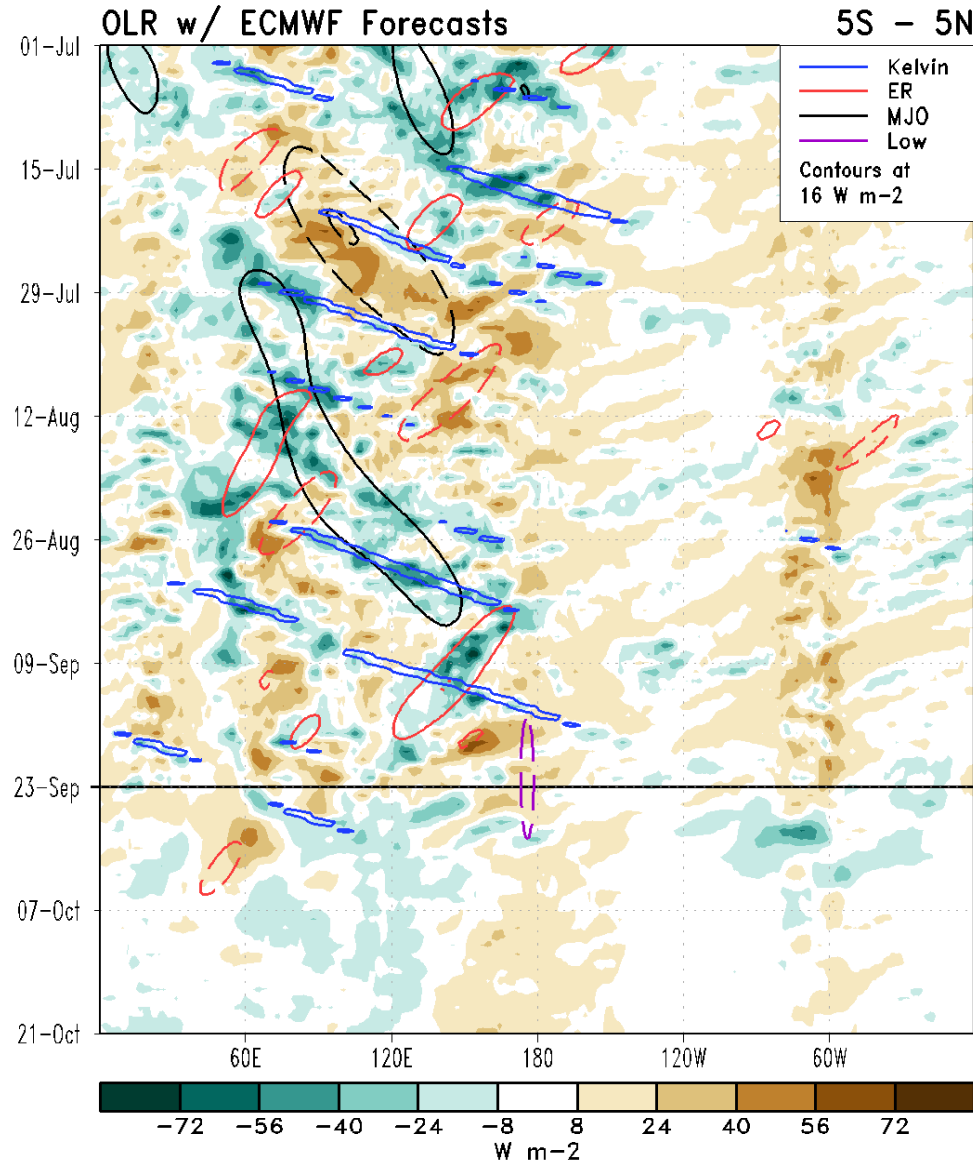


RMM Index Observations & Forecasts:



- Most models depict continued MJO evolution across the Western Hemisphere and Indian Ocean during the next few weeks.
- The GFSv12 has begun to show a rapid return to the Maritime Continent or far western Pacific beyond Week-2.

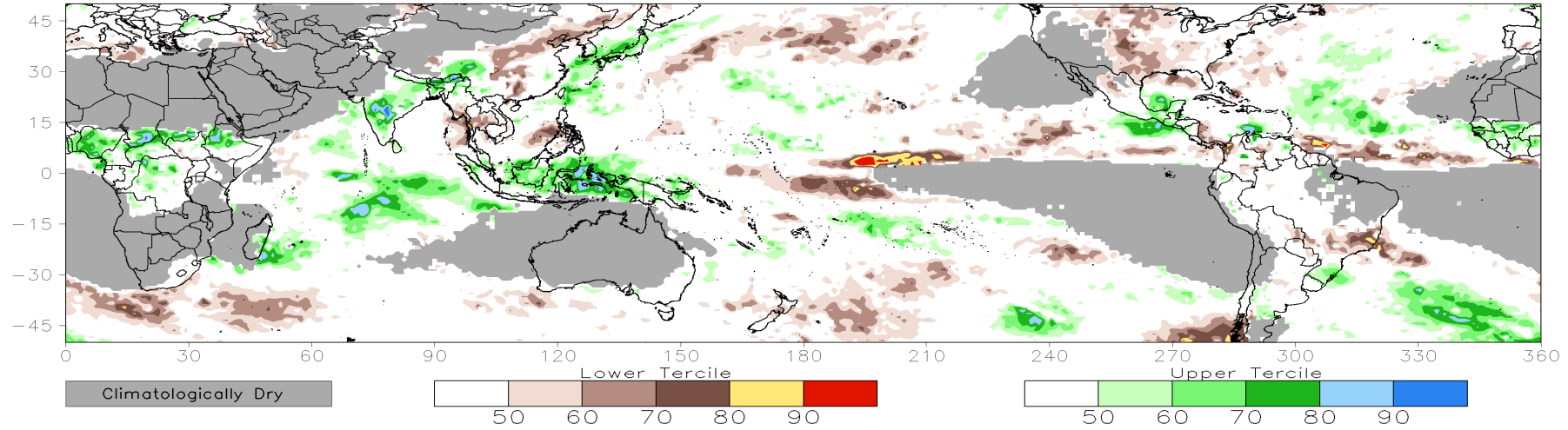
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

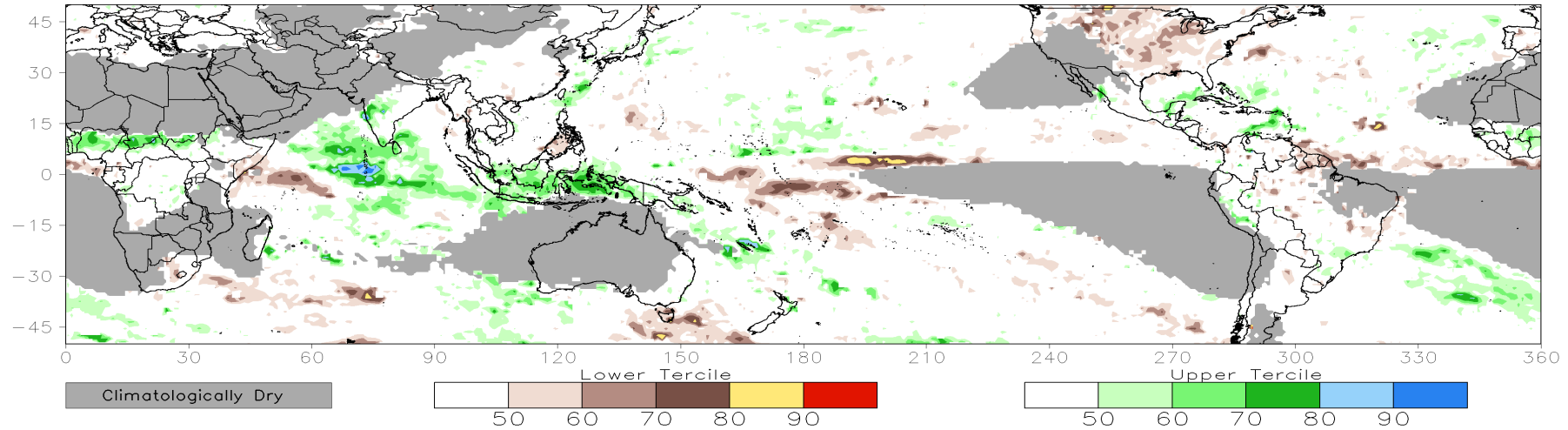
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 020Oct2024-080Oct2024



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

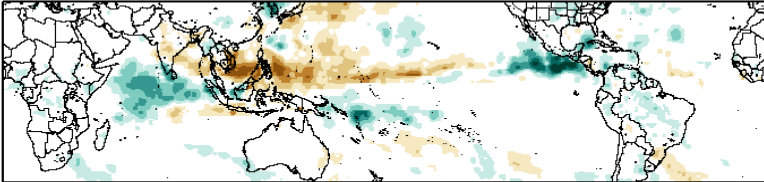
Valid: 090Oct2024-150Oct2024



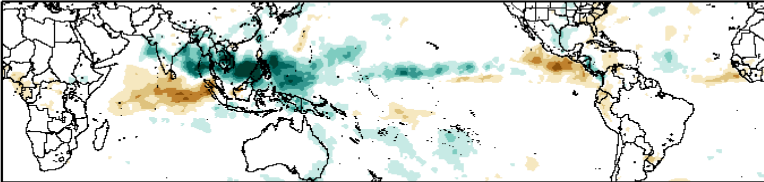
Historical Precipitation Anomalies By MJO Phase:

ASO MJO Composite: GPCP1DD (mm/day)

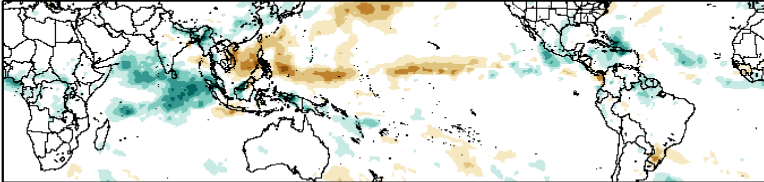
Phase 1



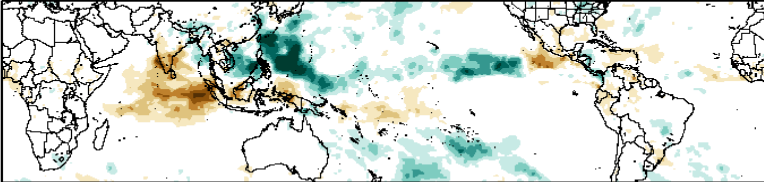
Phase 5



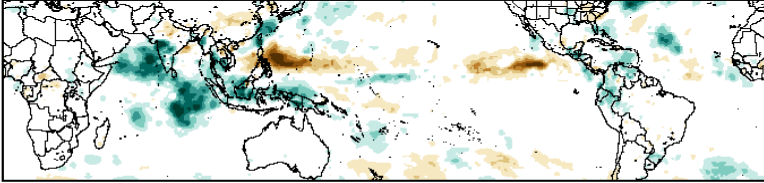
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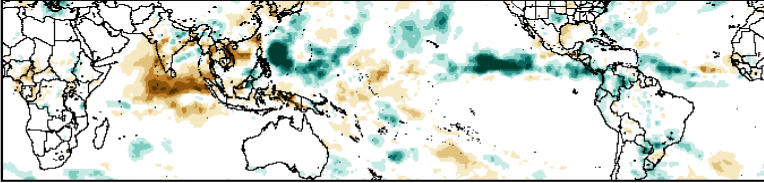
Phase 6



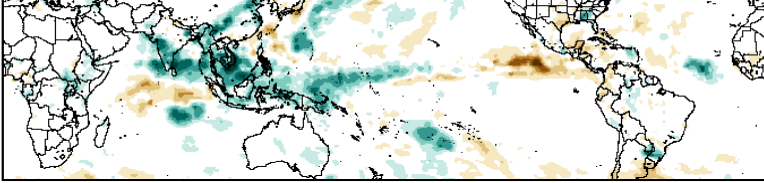
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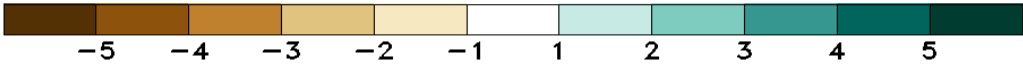
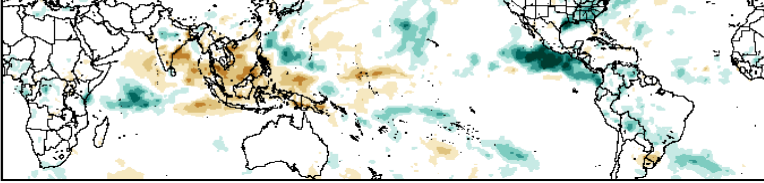
Phase 7



Phase 4

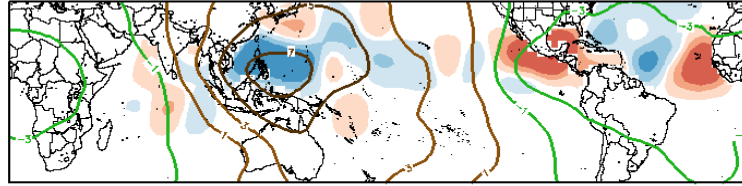


Phase 8

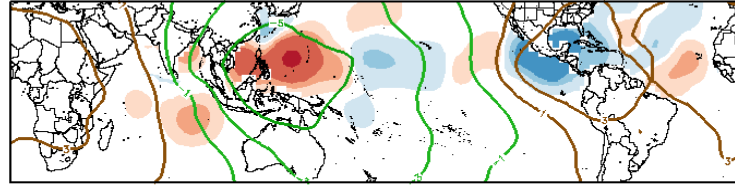


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

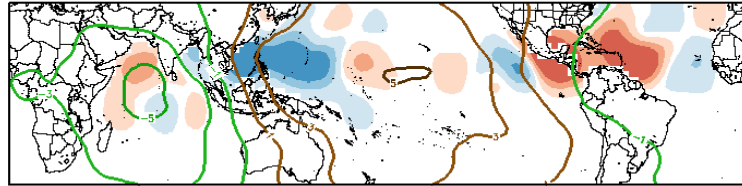
ASO MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ ASO CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



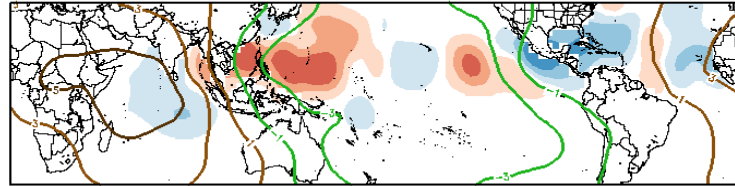
Phase 1



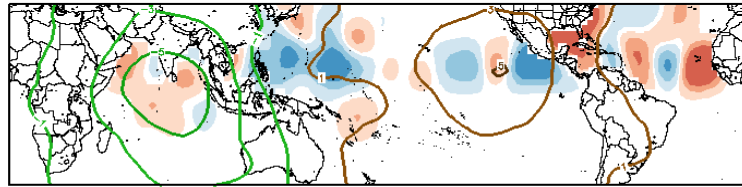
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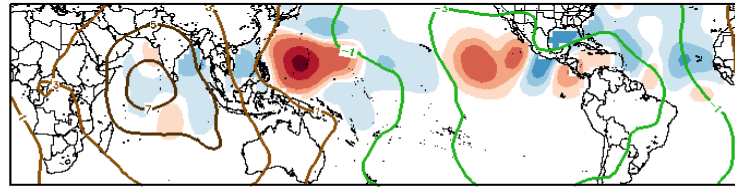
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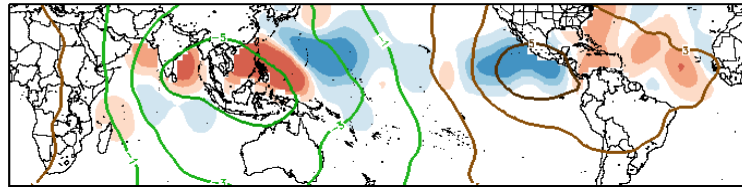
Phase 6



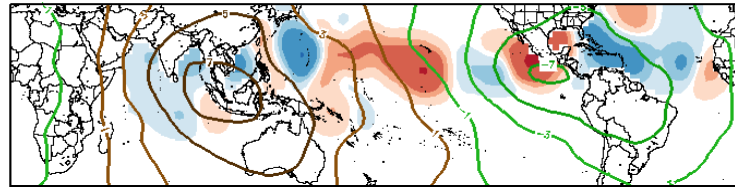
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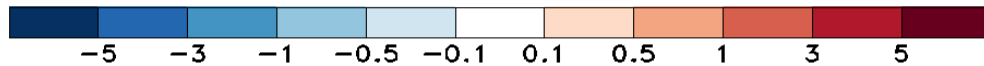
Phase 7



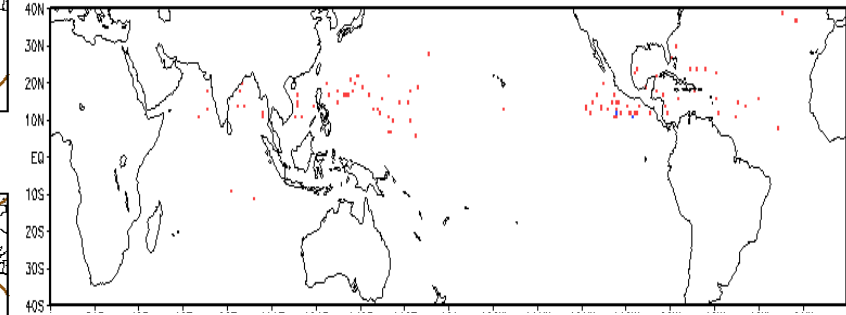
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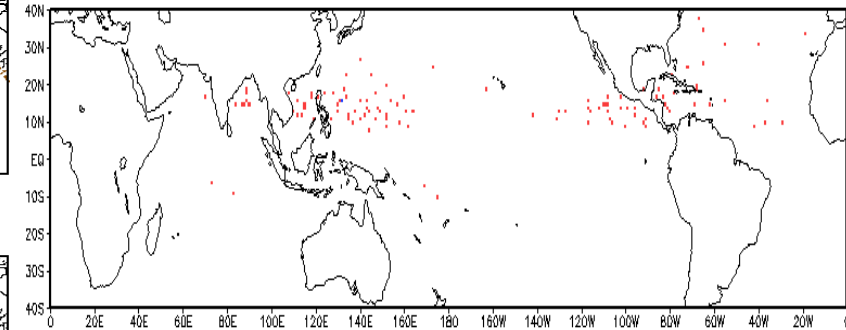
Phase 8



Observed TC Genesis, 1979-2021
7-day Period 1002 to 1008

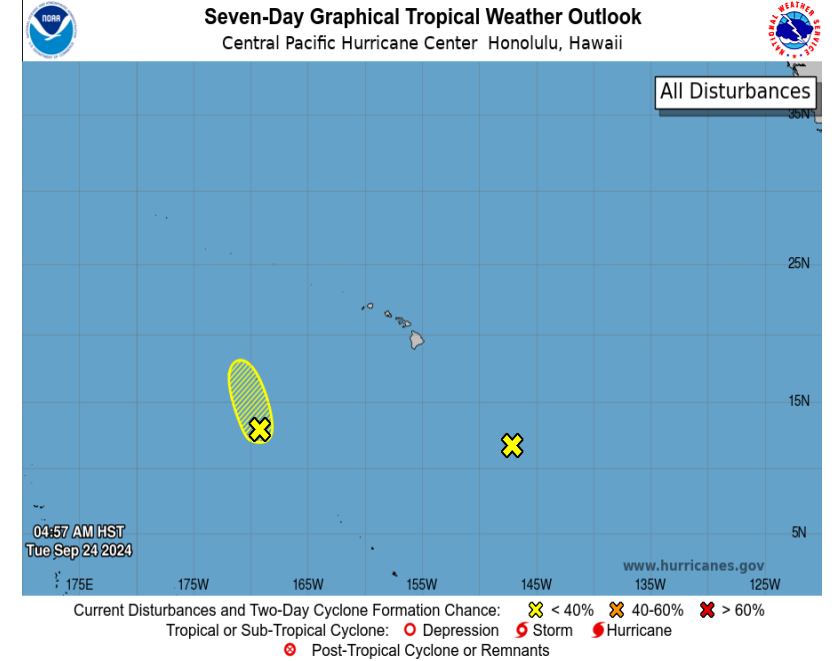
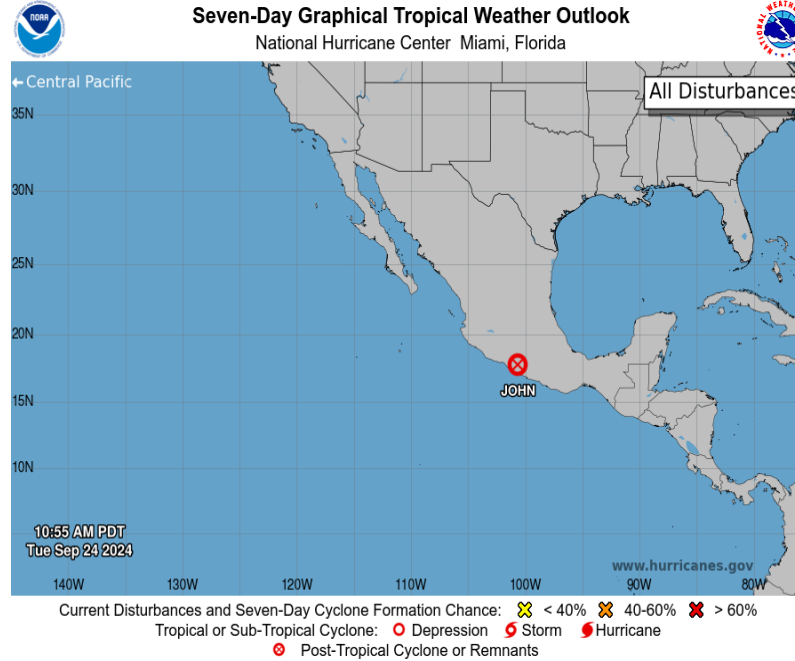
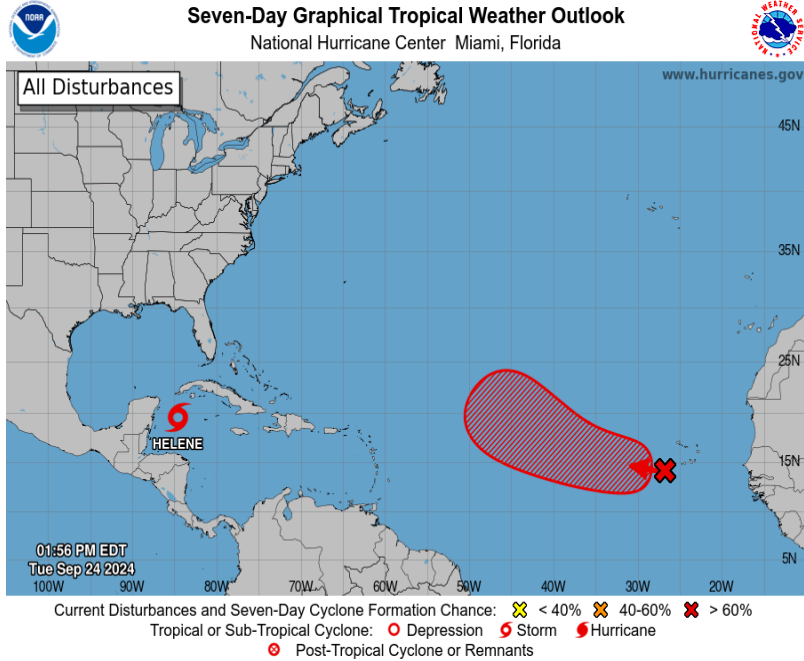


Observed TC Genesis, 1979-2021
7-day Period 1009 to 1015



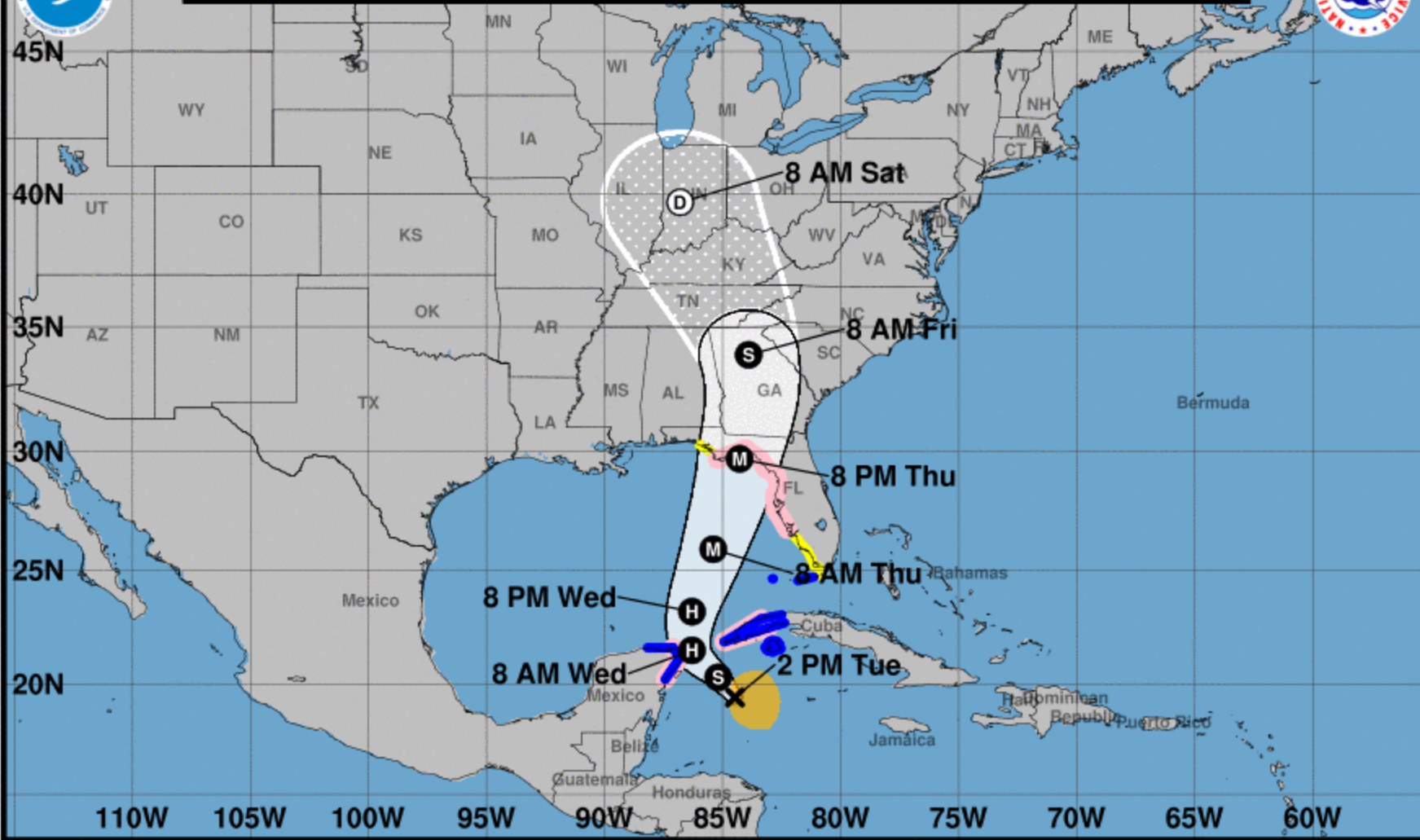
Experimental

Tropical Cyclone Monitoring/Forecast: NHC / CPHC





Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Tropical Storm Helene

Tuesday September 24, 2024
 2 PM EDT Intermediate Advisory 5A
 NWS National Hurricane Center

Current information: x

Center location 19.4 N 84.5 W
 Maximum sustained wind 45 mph
 Movement WNW at 12 mph

Forecast positions:

● Tropical Cyclone ○ Post/Potential TC
 Sustained winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:

Day 1-3 Day 4-5

Watches:

Hurricane Trop Stm

Warnings:

Hurricane Trop Stm

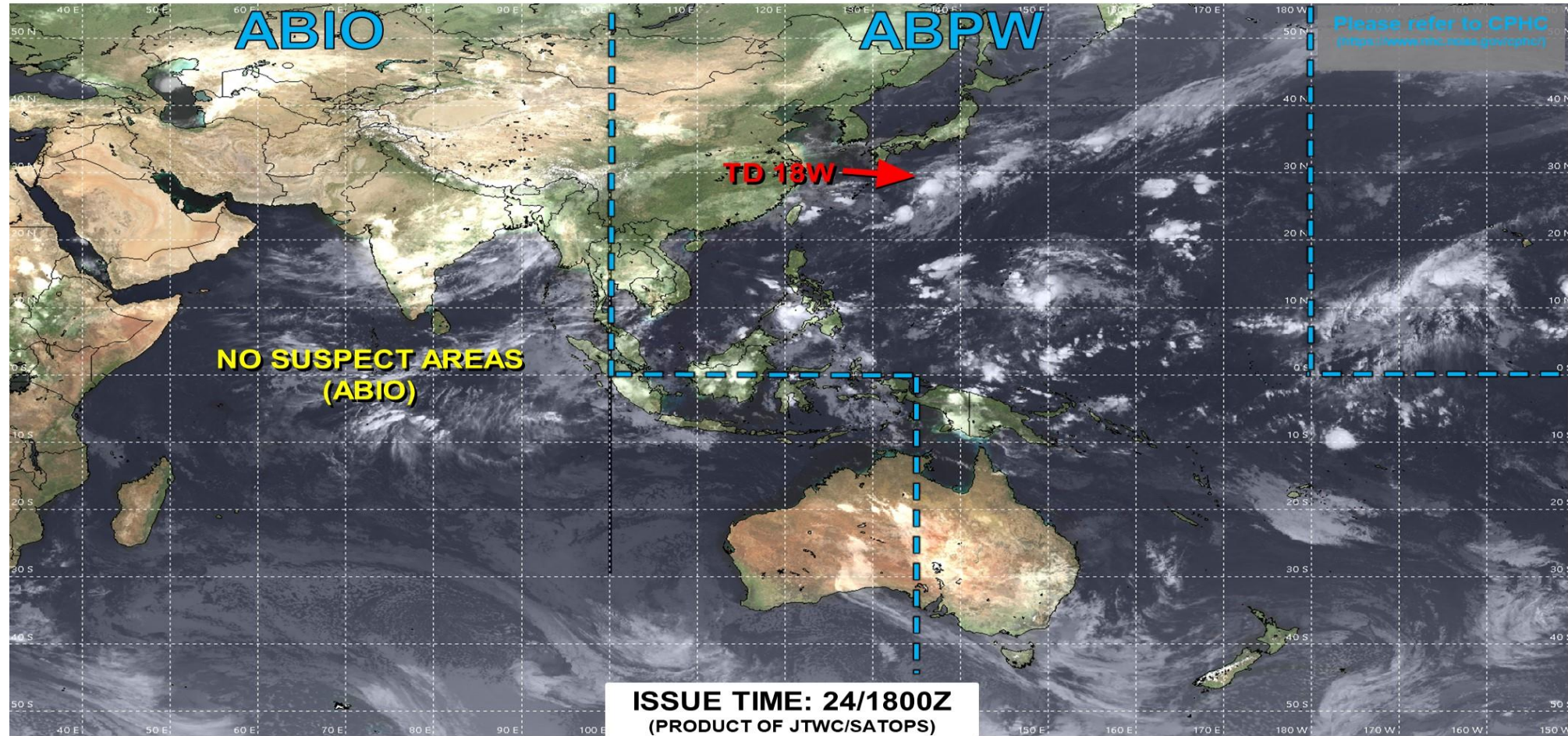
Current wind field estimate:

Hurricane Trop Stm

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)



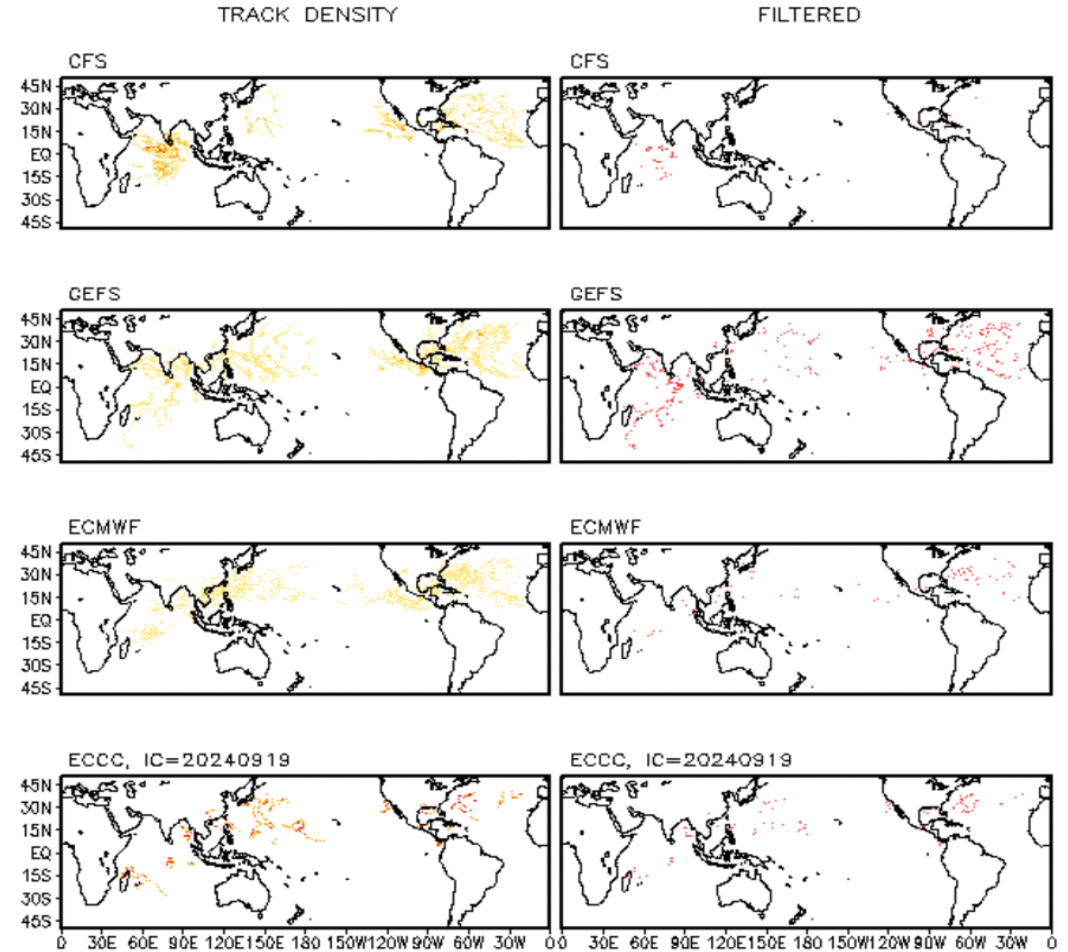
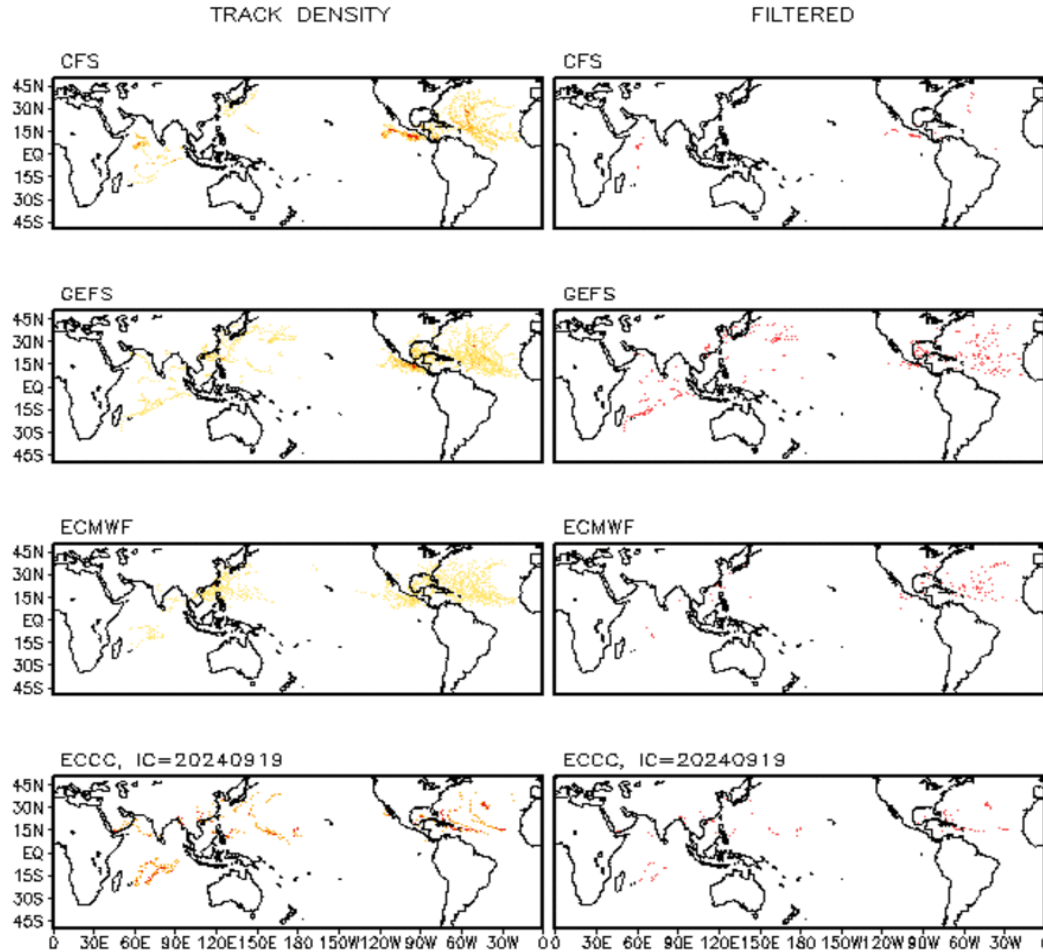
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

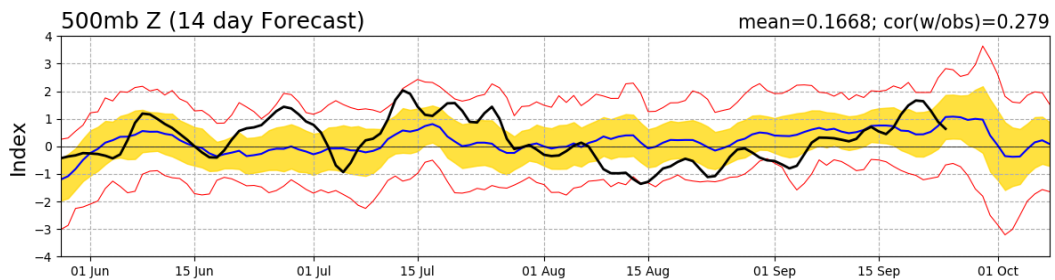
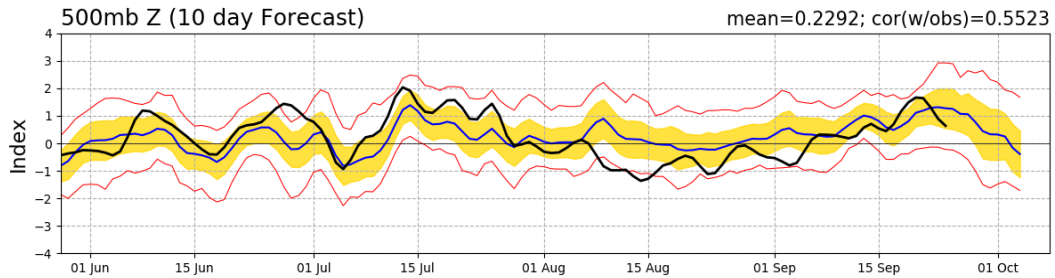
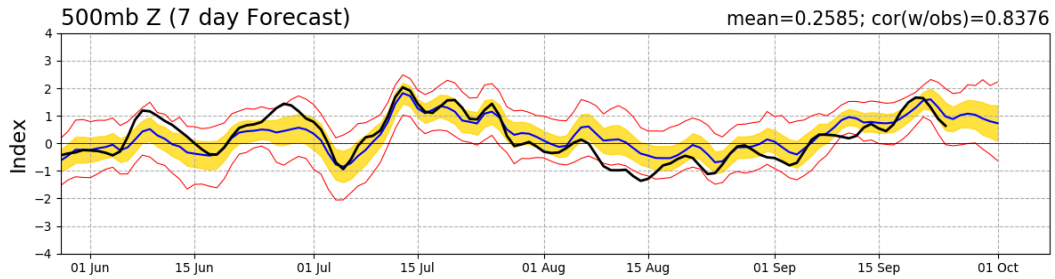
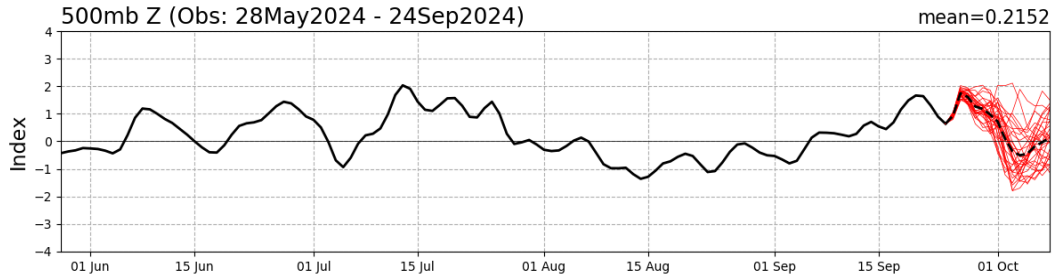
Storm Track Density Distribution, IC=20240923
Week 2 Forecast: 1002–1008

Storm Track Density Distribution, IC=20240923
Week 3 Forecast: 1009–1015

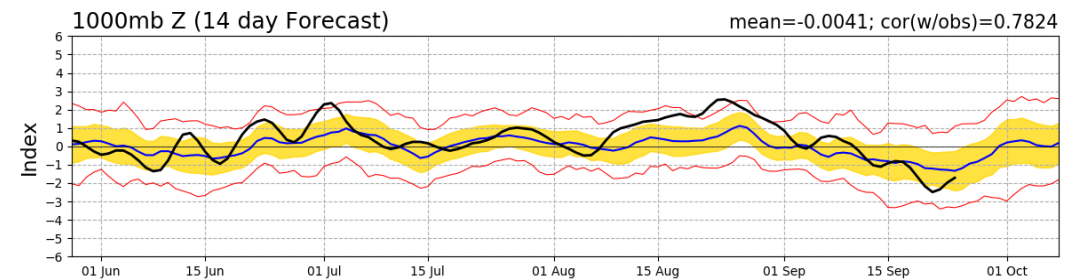
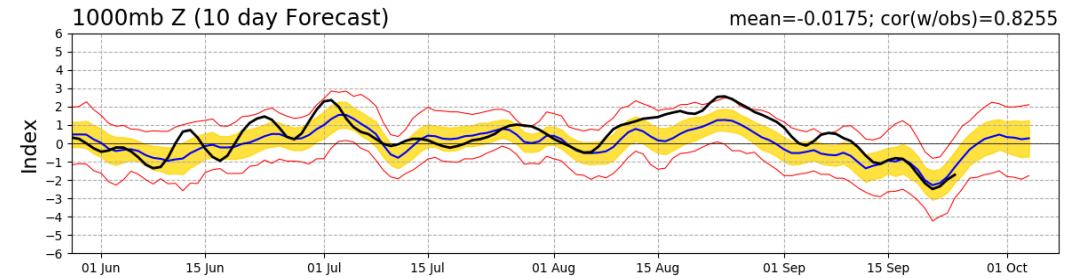
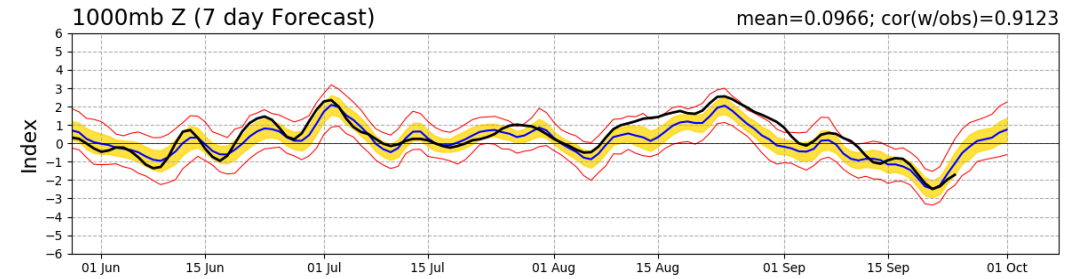
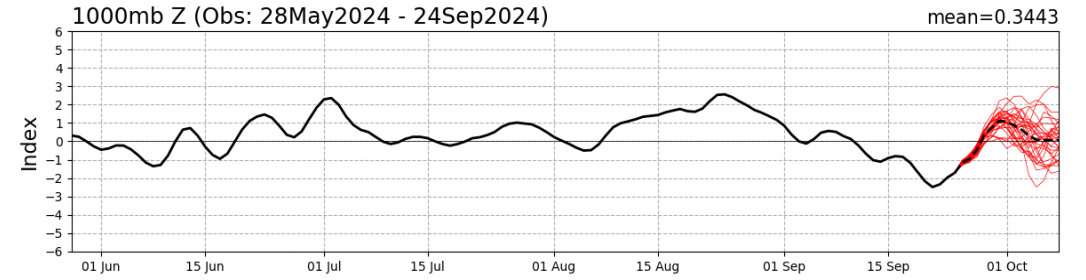


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

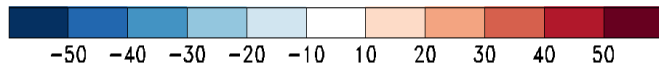
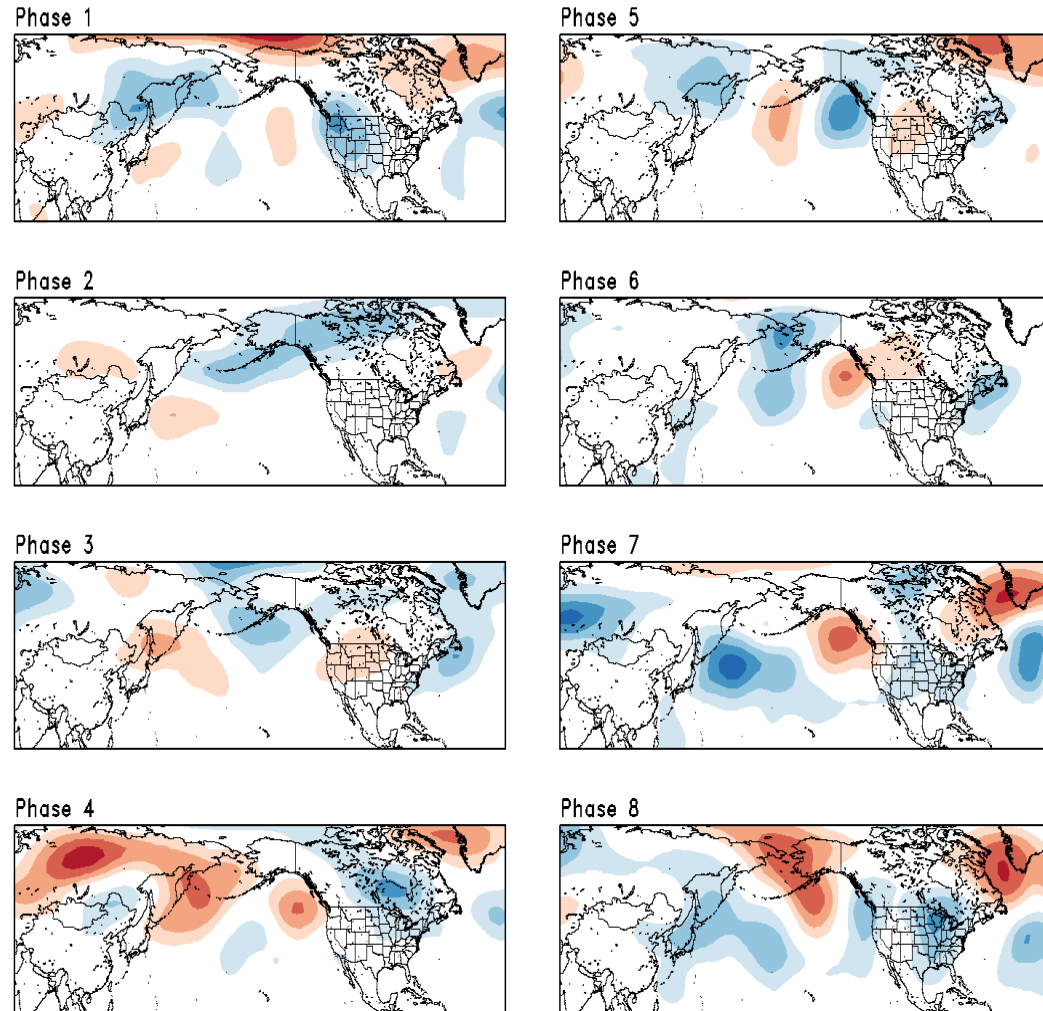


AO Index: Observed & GEFS Forecasts

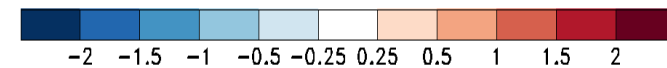
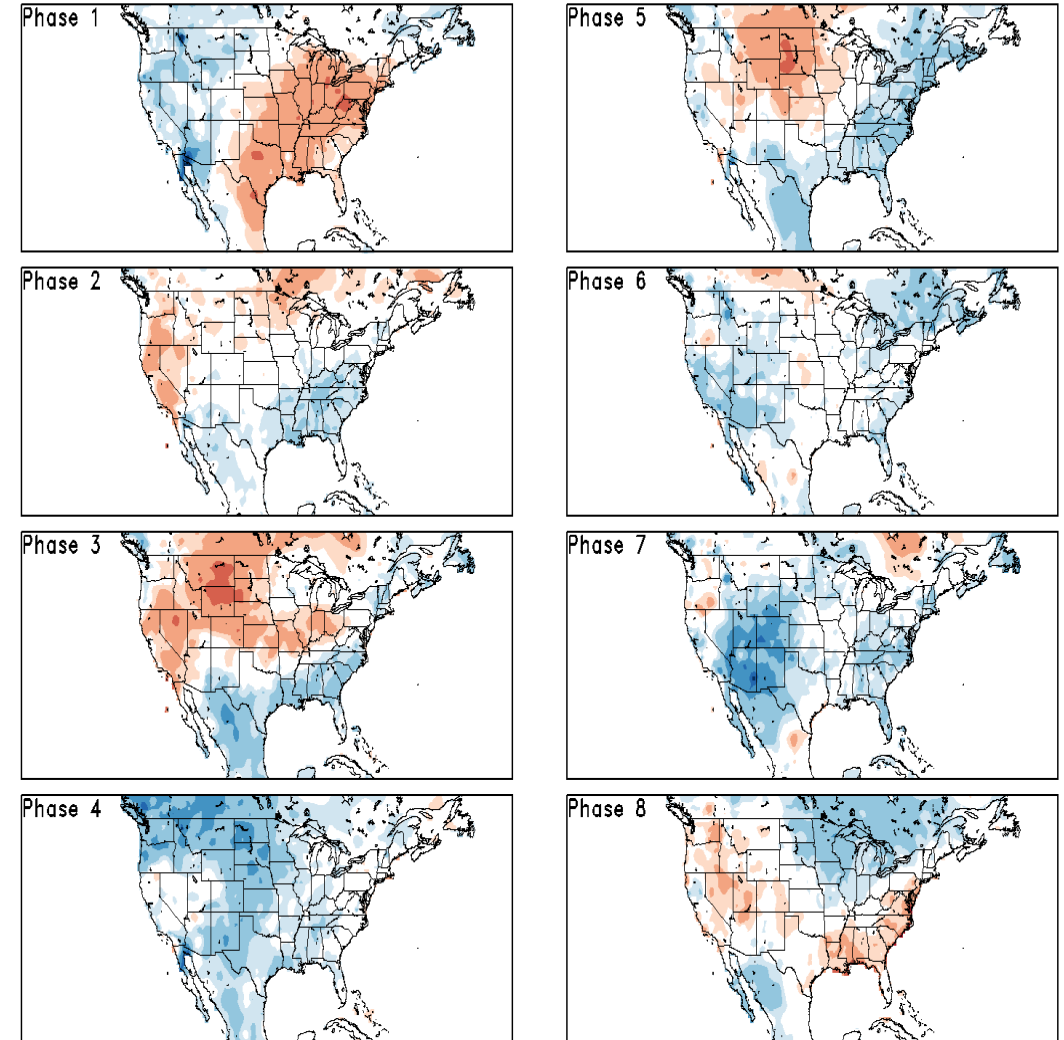


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

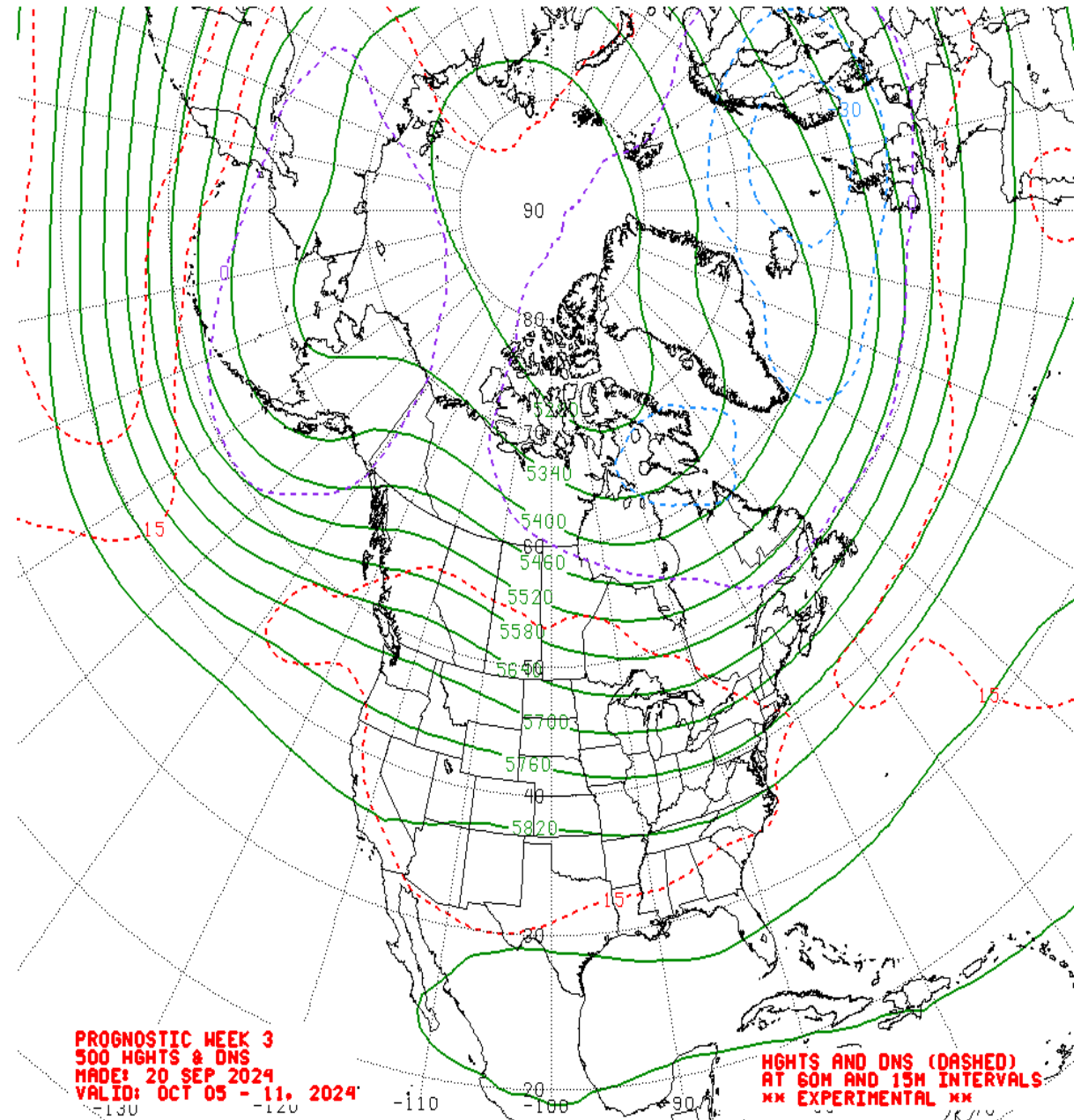
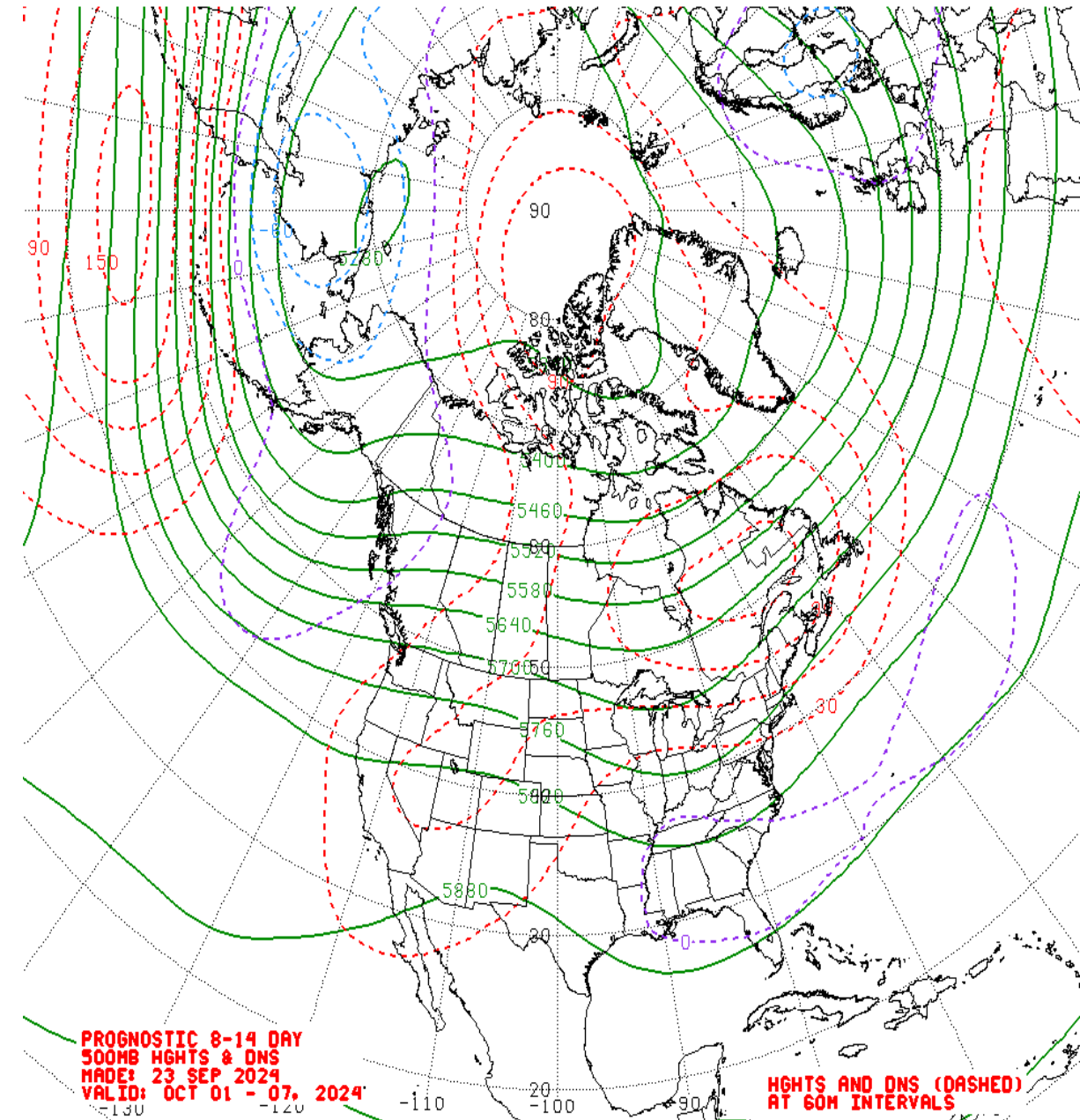
ASO MJO Composite: CDAS 500-hPa Height (m)



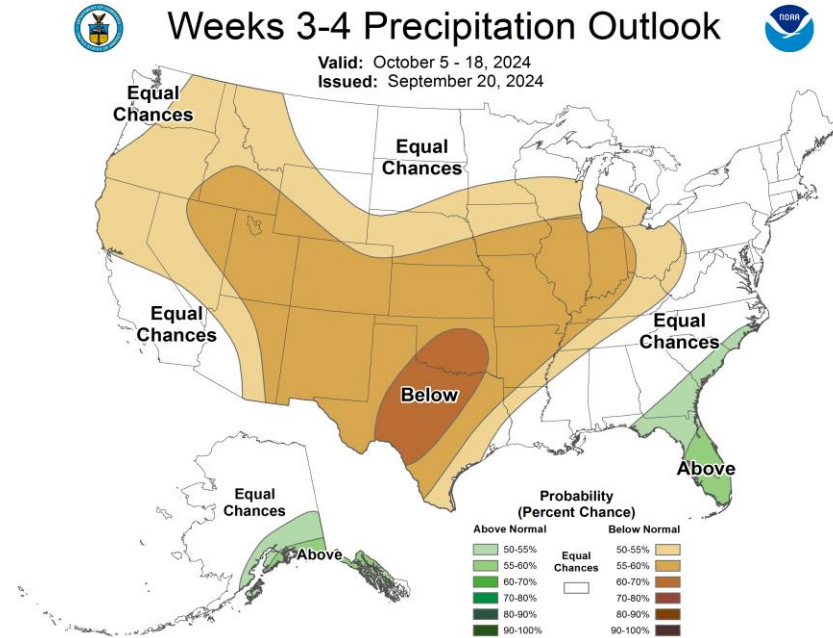
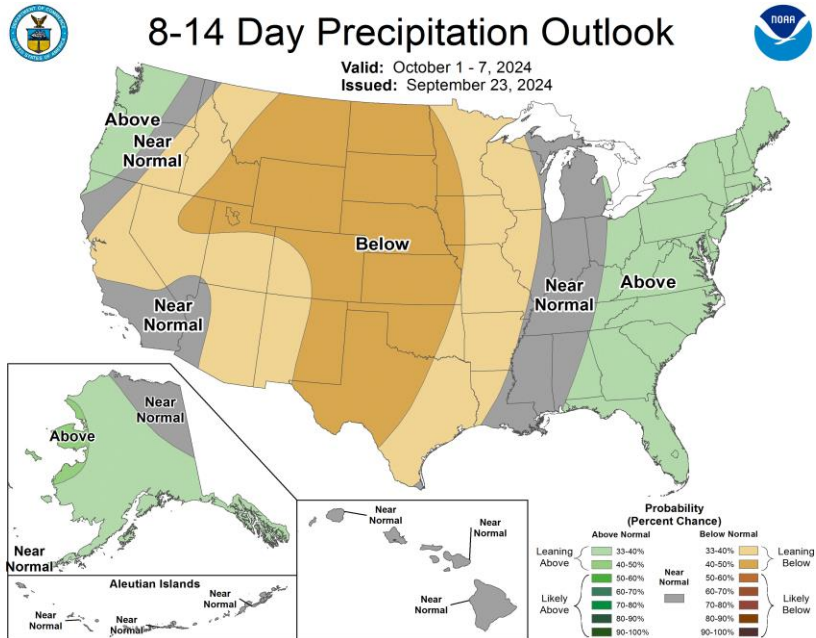
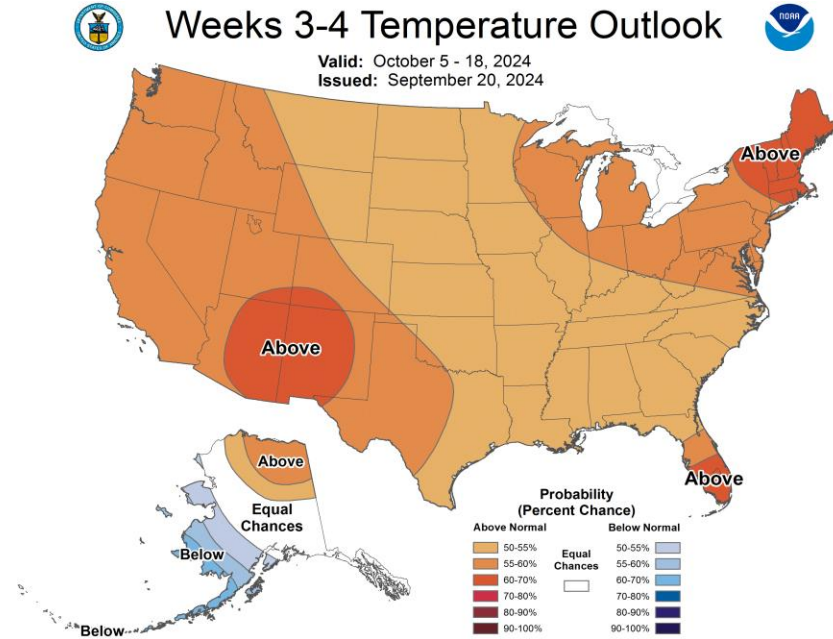
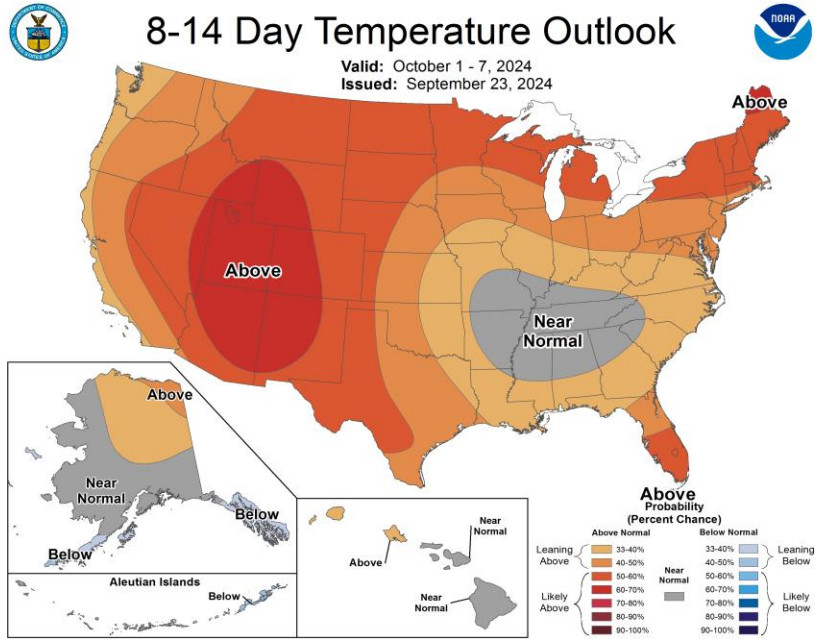
ASO MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



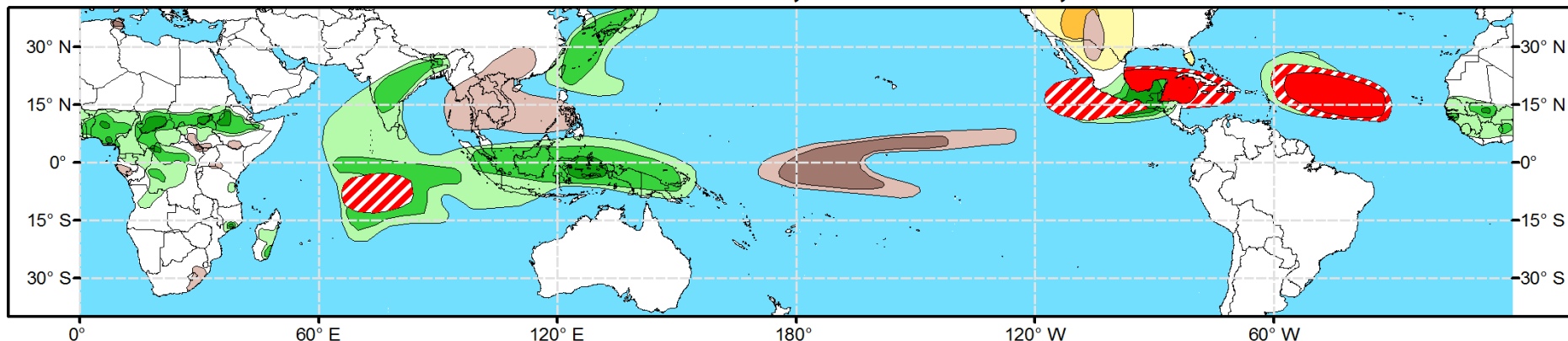


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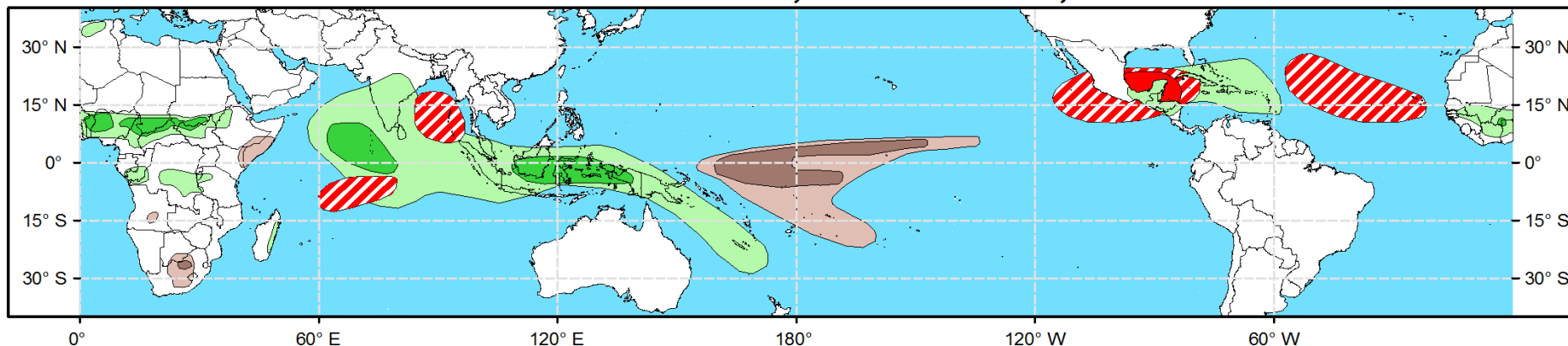
Climate Prediction Center



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