



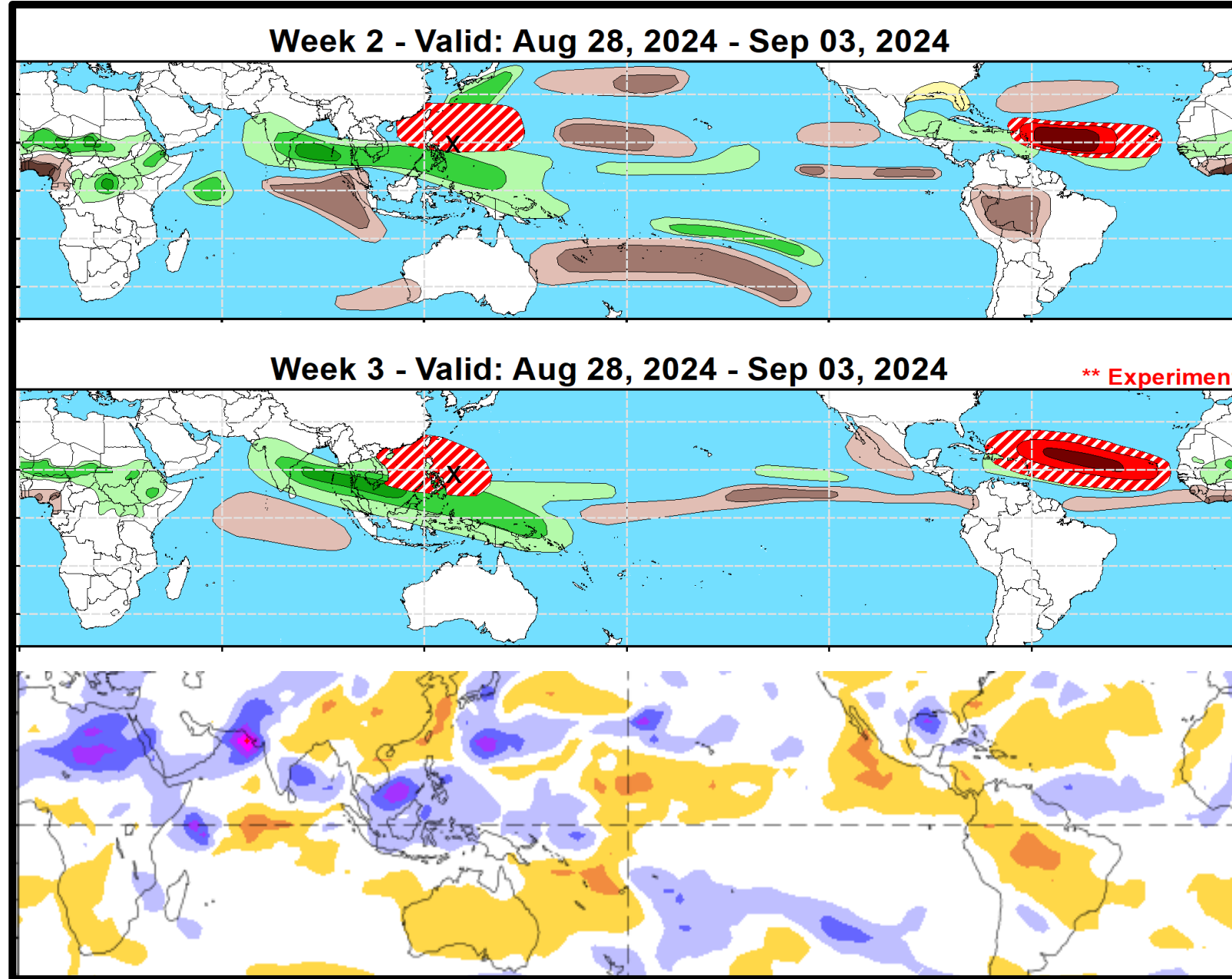
# Weeks 2-3 Global Tropics Hazards Outlook

9/3/2024

Danny Barandiaran  
NWS / NCEP / Climate Prediction Center

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

- 9/1: TC Yagi



# Synopsis of Climate Modes:

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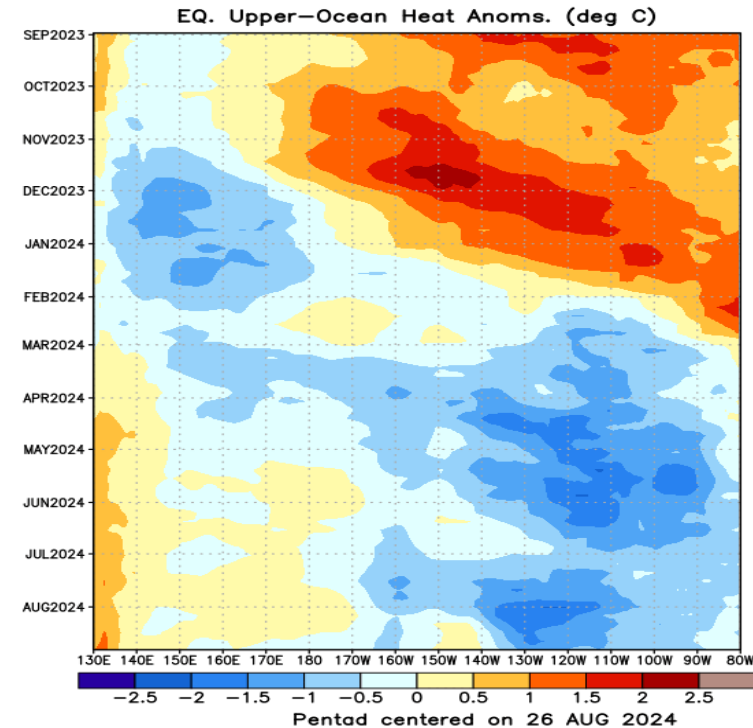
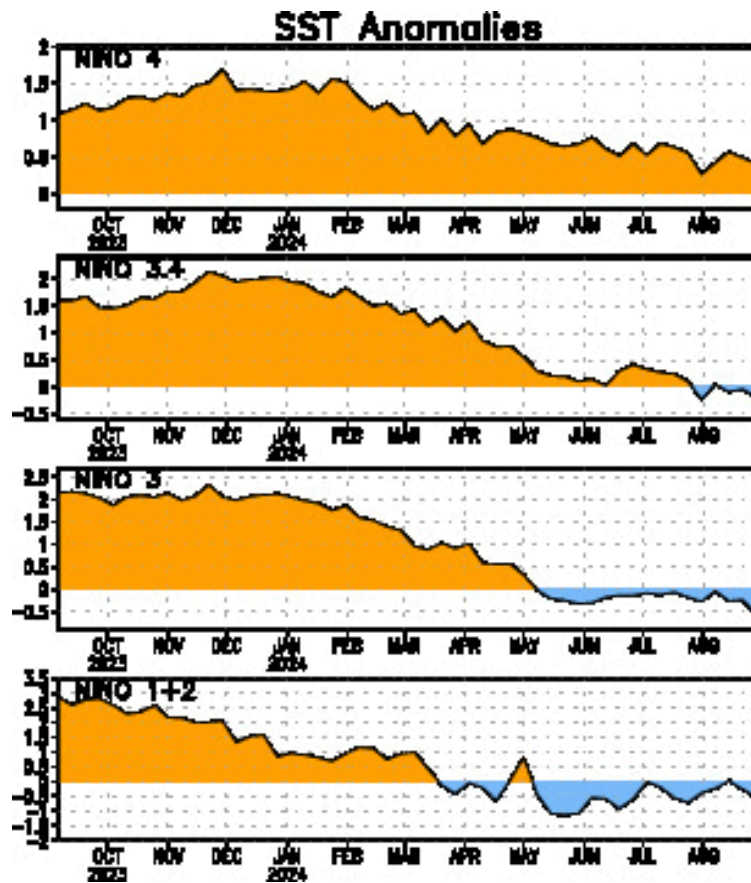
**ENSO:** (Aug 8, 2024 Update)      *next update on Thursday, Sep 12<sup>th</sup>*

- 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 SON (66% chance) and persist into the Northern Hemisphere winter 2024-25 (74% chance during November-January).

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

- The MJO has been largely coherent since early August, having propagated from the Western Hemisphere into the Indian Ocean. The RMM signal has strengthened lately after the MJO emerged from destructive interference from Rossby wave activity. RMM forecast suggest this modulating signal is likely to continue, as dynamical models indicate the potential for further interference from Rossby waves.
- Should the MJO remain coherent over the Maritime Continent and Western Pacific, this historically supports continued tropical cyclone (TC) activity over the Western Pacific, while also creating less favorable conditions for TC formation in the East Pacific and the Main Development Region of the Tropical Atlantic. However, any lowered TC potential in the western hemisphere is counteracted by an active climatology as well as other modes of tropical variability that contribute to genesis.

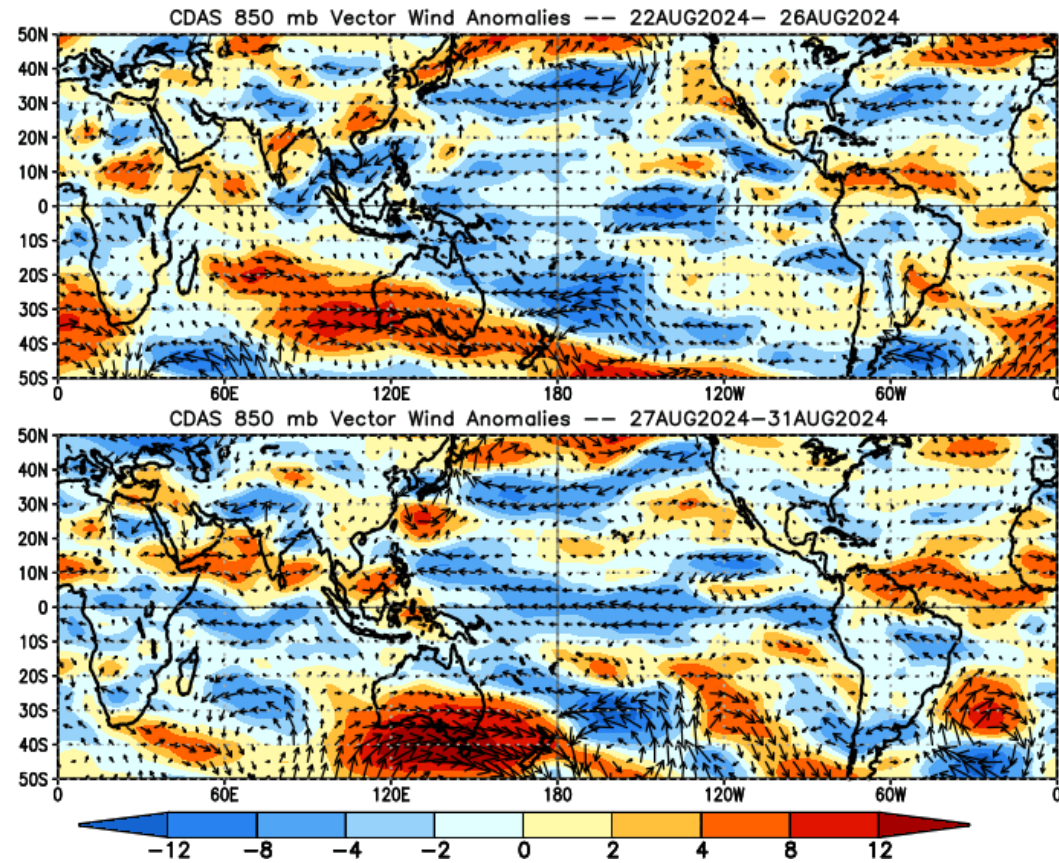
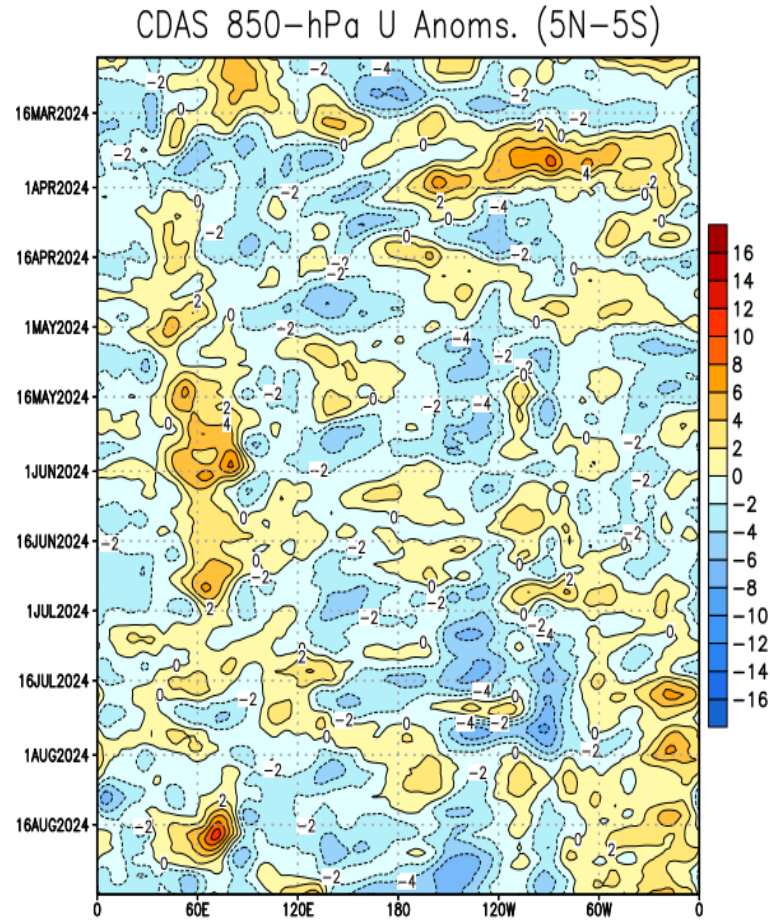
# SSTs and Weekly Heat Content Evolution in the Equatorial Pacific



- The downward trend in SST anomalies became nearly flat over the summer. It does not appear to have stopped completely however, and all Niño regions have ticked downward recently.
- Below normal subsurface heat content anomalies remain established from roughly 160°W eastward, except for a region between 150W-140W where warming was observed since early August.

# 850-hPa Wind Anomalies

Shading denotes the zonal wind anomaly. **Blue shades:** Anomalous easterlies. **Red shades:** Anomalous westerlies.



- An enhanced trade regime continues across the tropical Pacific with easterly anomalies becoming more widespread and increasing in intensity.
- Westerlies persist over the tropical Atlantic to reduce shear, although upper-level easterly anomalies have become less pronounced recently.

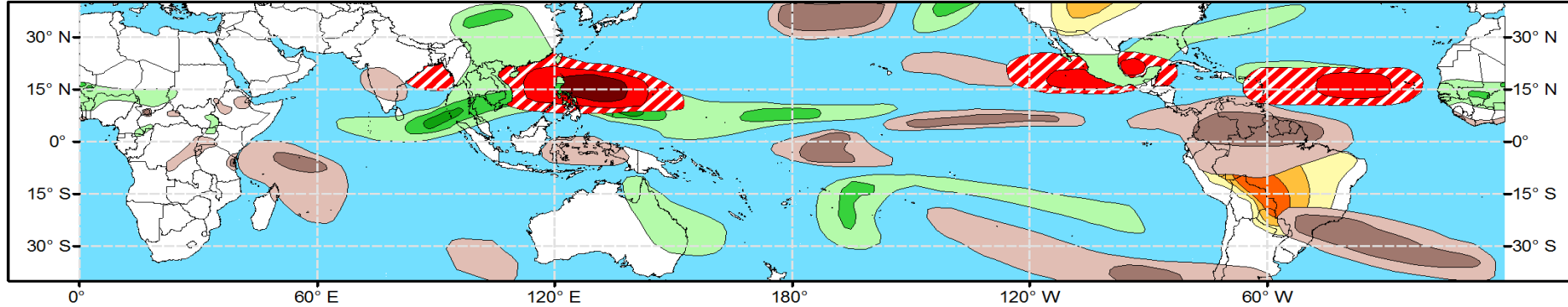
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

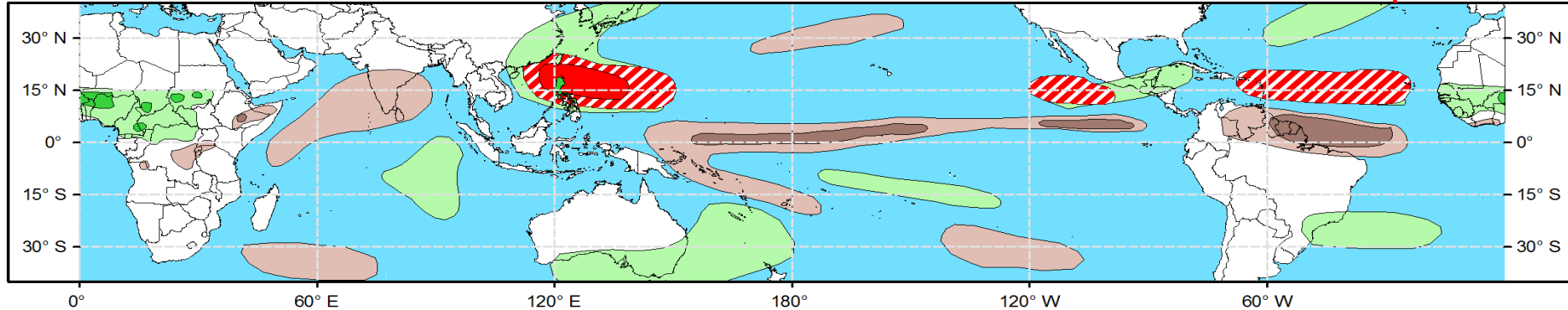


**Week 2 - Valid: Sep 11, 2024 - Sep 17, 2024**



**Week 3 - Valid: Sep 18, 2024 - Sep 24, 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  
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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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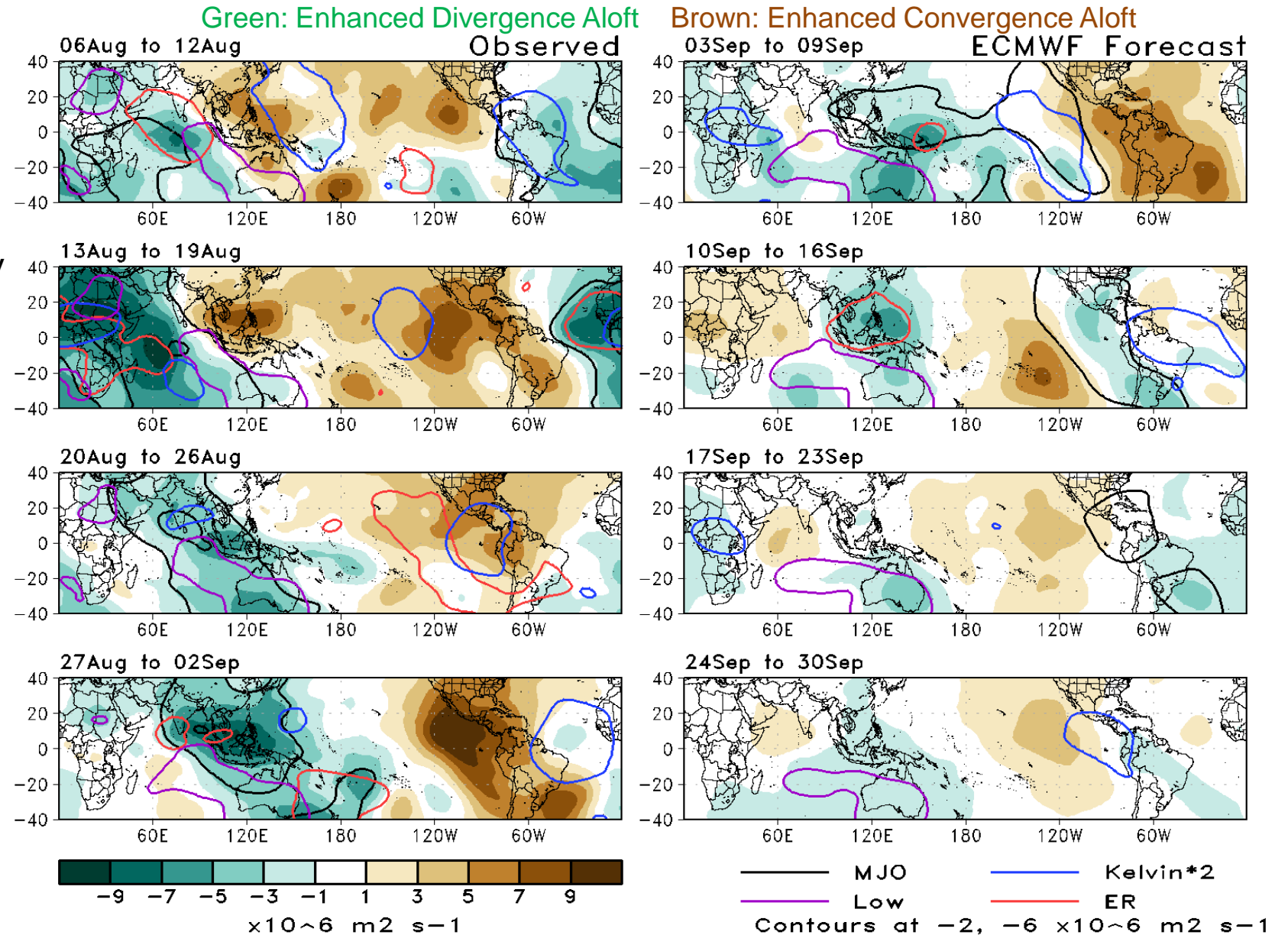
**Issued: 09/03/2024**

**Forecaster: Barandiaran**

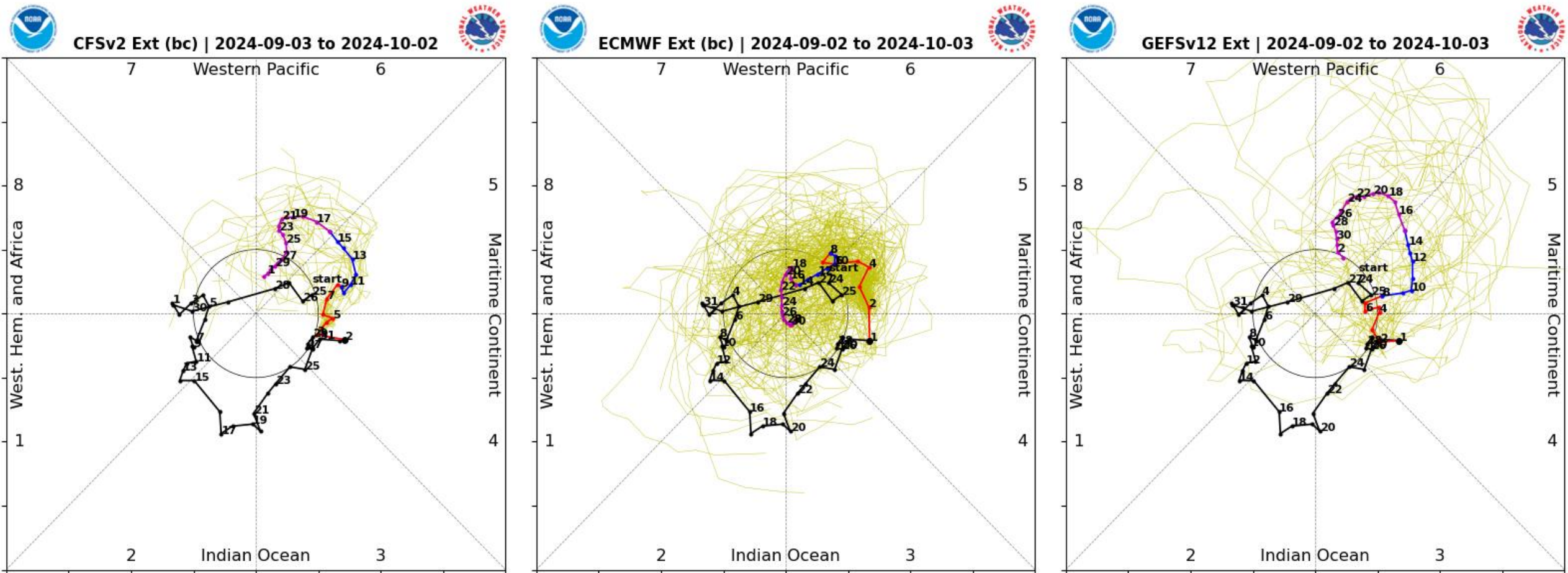
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# 200-hPa Velocity Potential Anomaly Maps:

- A coherent wave-1 pattern emerged in mid-August and has been propagating eastward, with the enhanced envelope currently over the Maritime Continent.
- Model ensembles offer a wide range of solutions. The ECMWF (pictured) favors a weaker, stalling MJO signal and increased Kelvin wave activity, while the GEFS favors a more progressive MJO over the coming month.



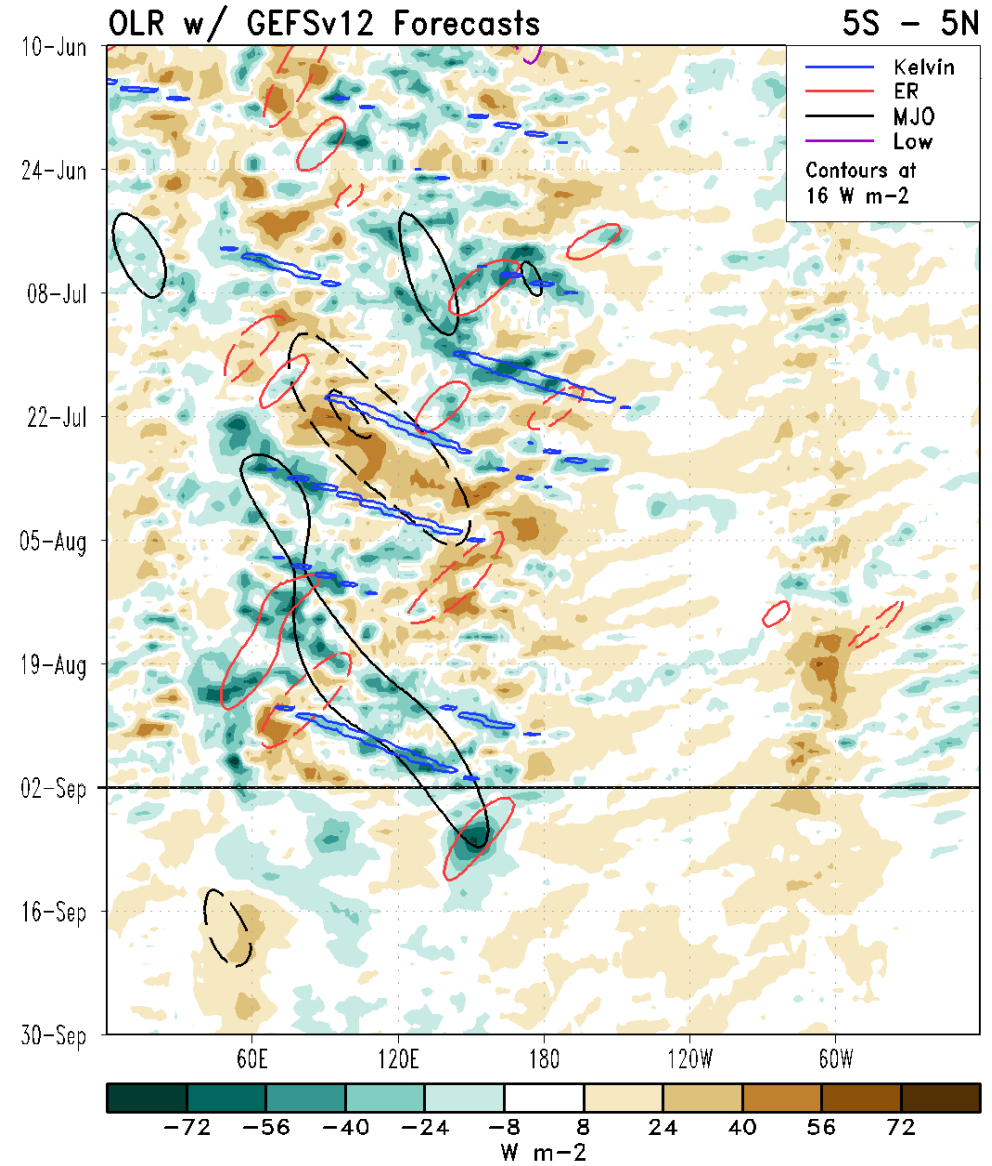
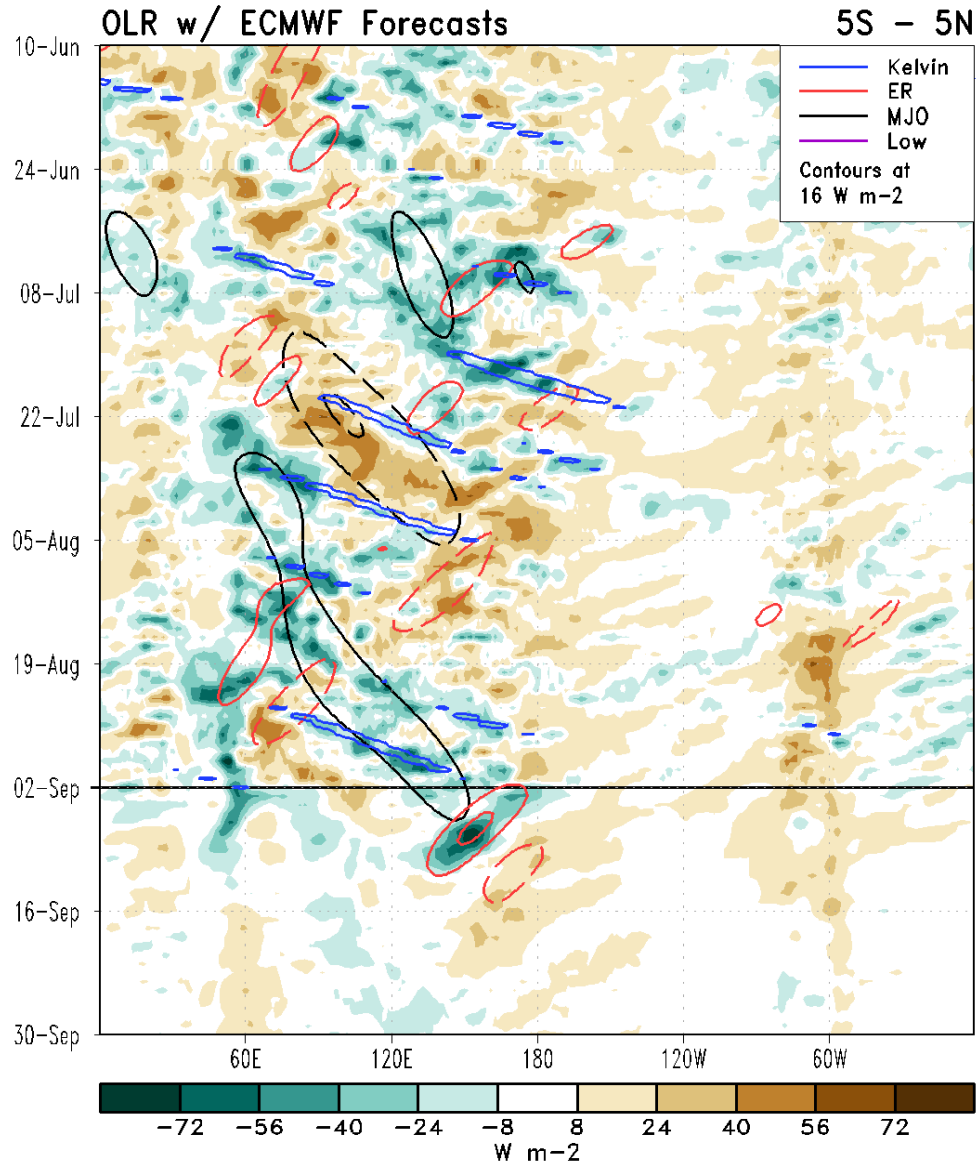
# RMM Index Observations & Forecasts:



- Differences between the GFS and ECMWF mentioned previously can also be seen in RMM forecasts, with the GFS amplifying the signal in week-2 and showing good eastward propagation, while the ECWMF depicts a weakening MJO and a lot of member clustering in the upper-right quadrant of the RMM diagram.



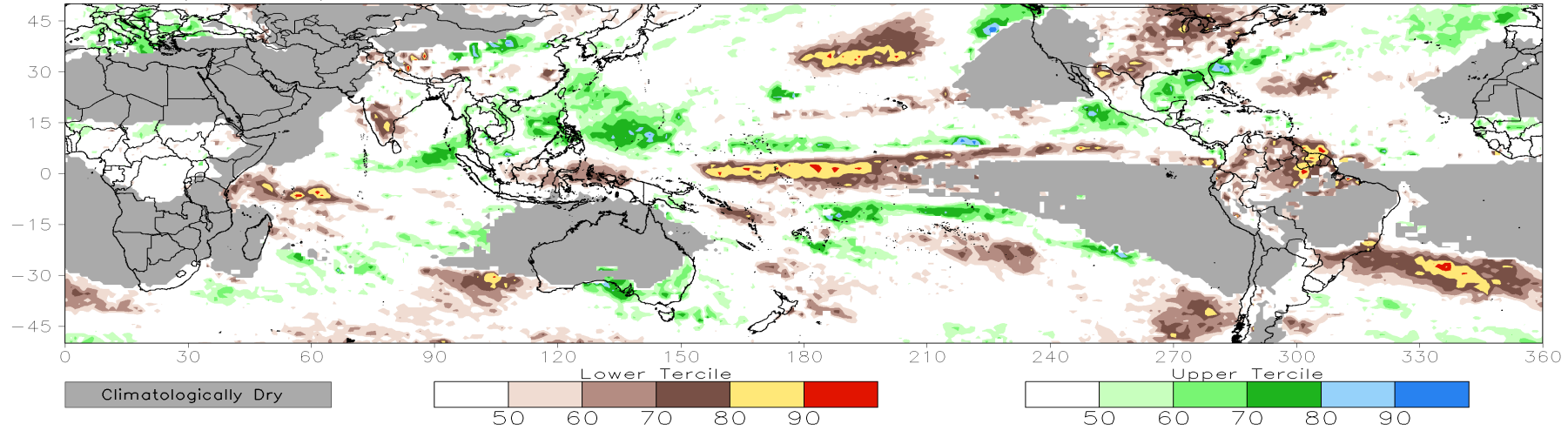
# Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



# Consolidated Probabilistic Precipitation: Weeks 2 & 3

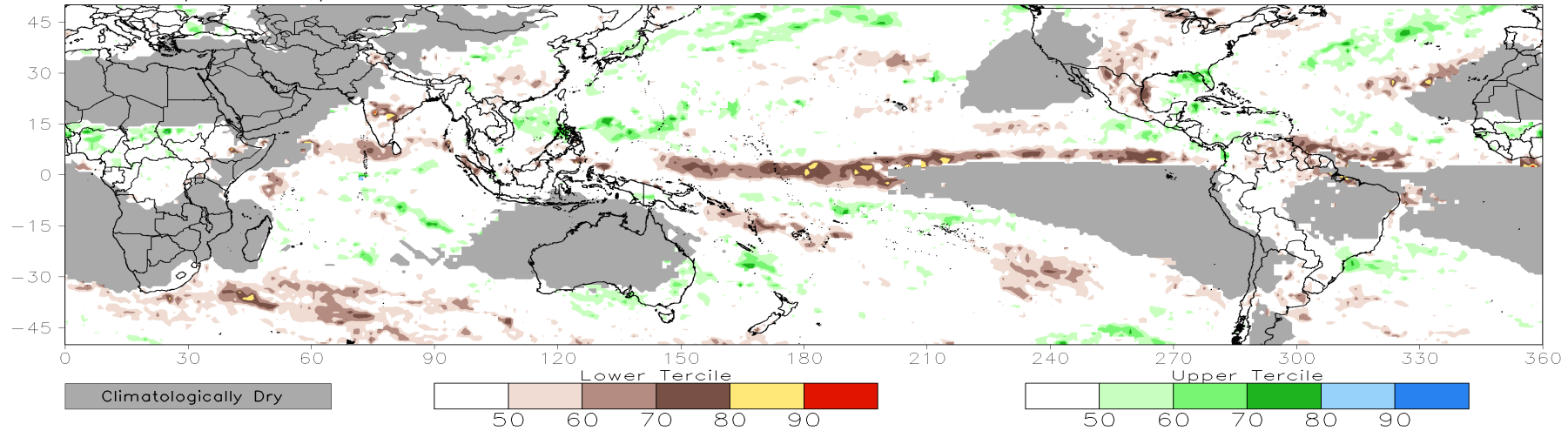
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 11Sep2024–17Sep2024



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

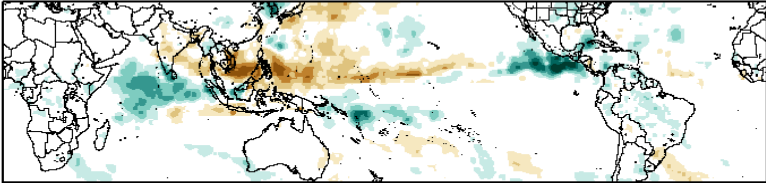
Valid: 18Sep2024–24Sep2024



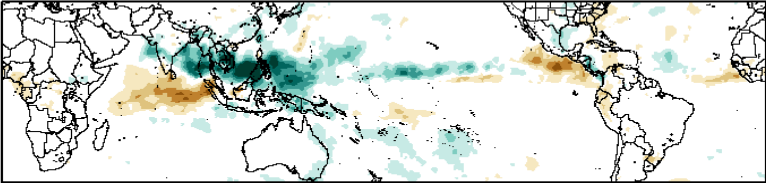
# Historical Precipitation Anomalies By MJO Phase:

ASO MJO Composite: GPCP1DD (mm/day)

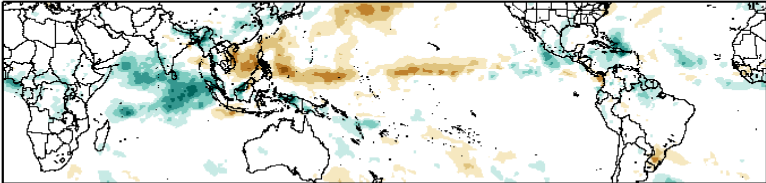
Phase 1



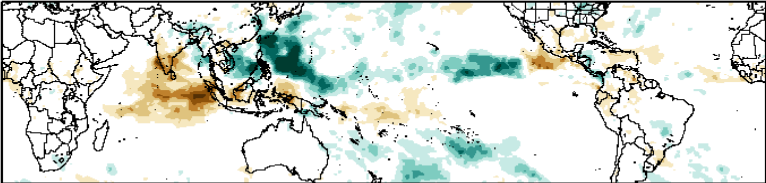
Phase 5



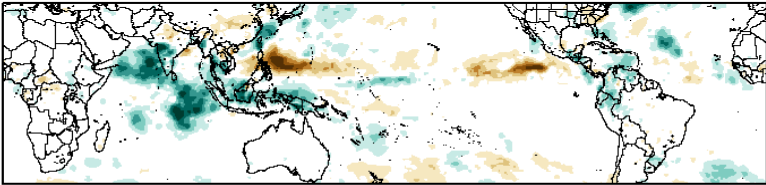
Phase 2



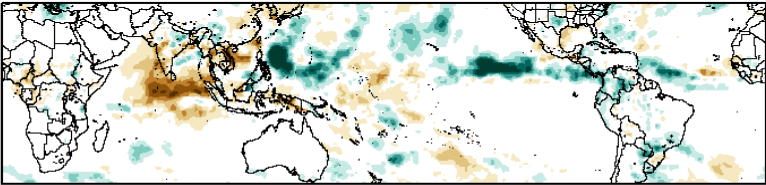
Phase 6



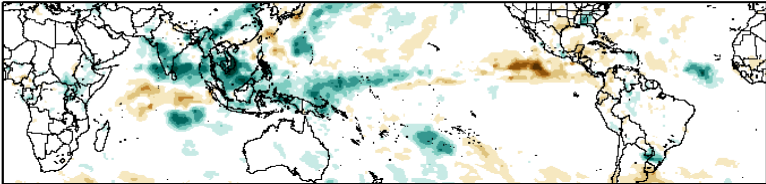
Phase 3



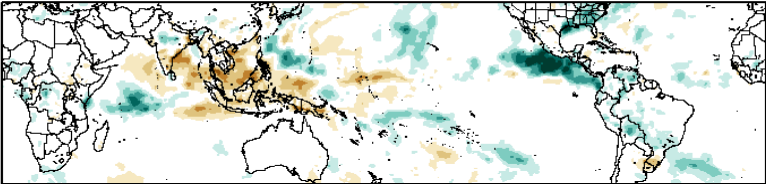
Phase 7



Phase 4

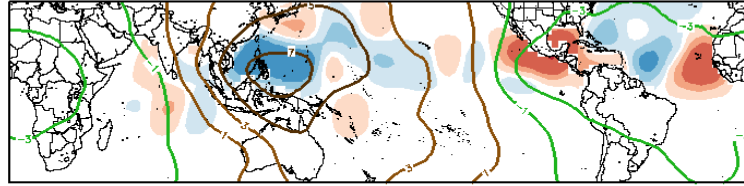


Phase 8

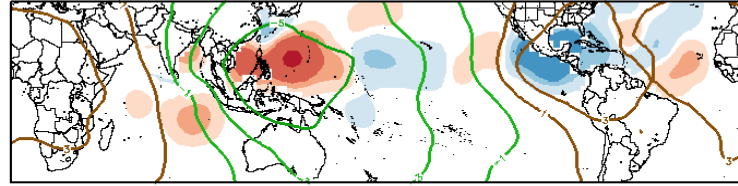


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

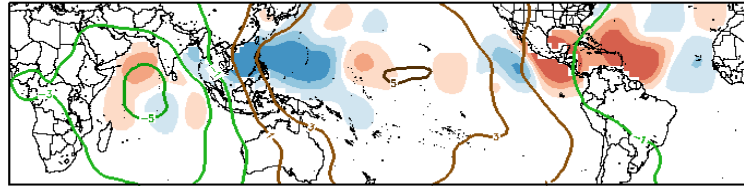
ASO MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ ASO CH200 ( $\times 10^6 m^2 s^{-1}$ ) / Contours every  $2 \times 10^6 m^2 s^{-1}$



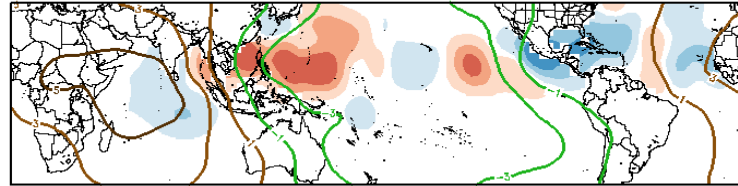
Phase 1



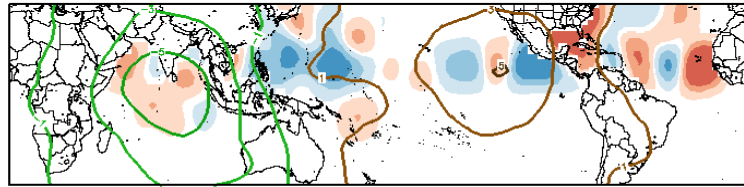
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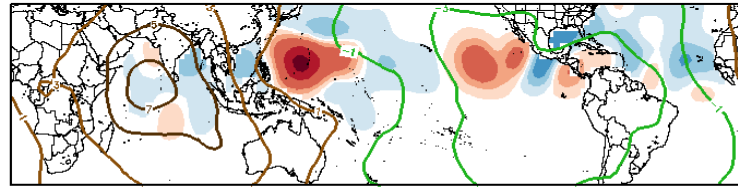
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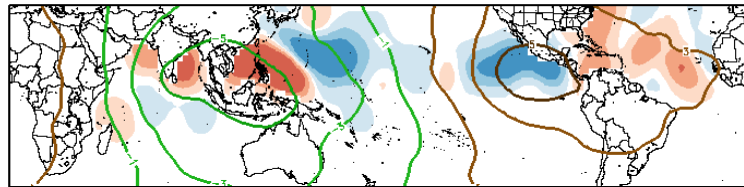
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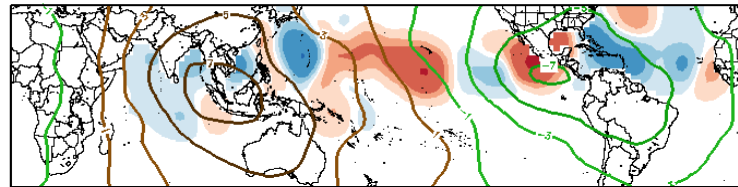
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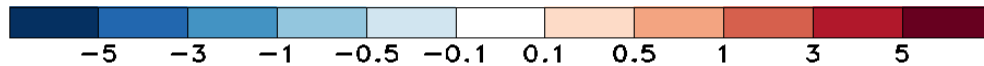
Phase 7



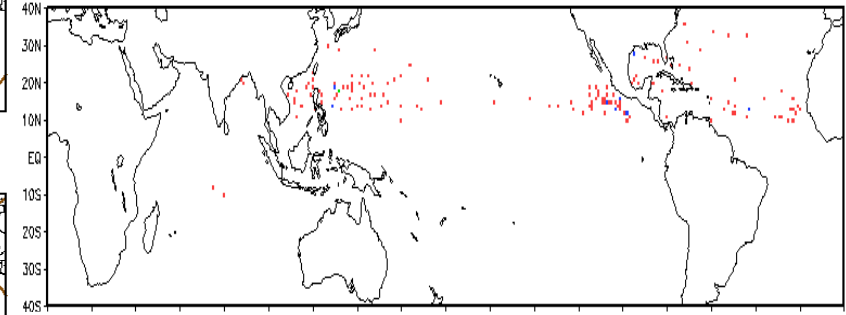
Phase 4



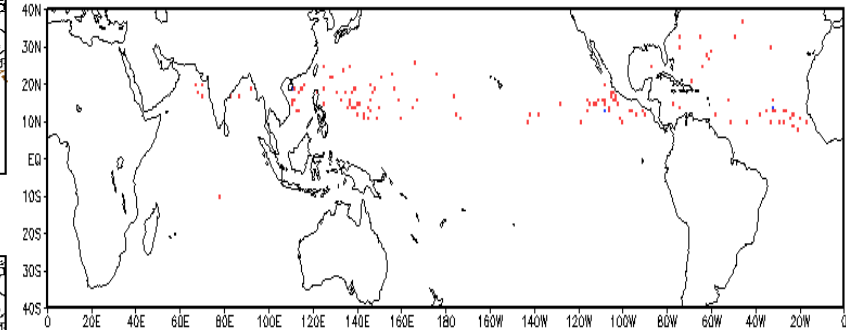
Phase 8



Observed TC Genesis, 1979-2021  
7-day Period 0911 to 0917

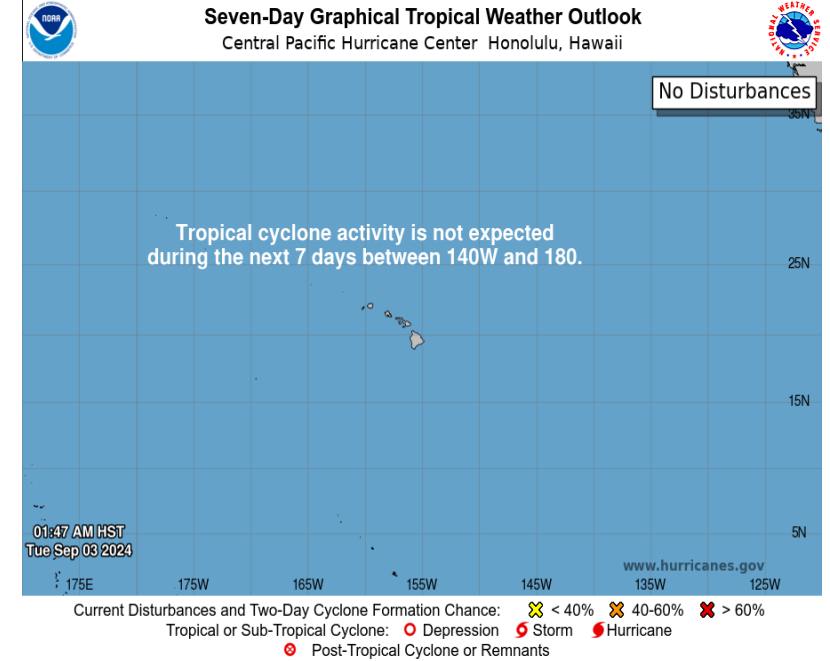
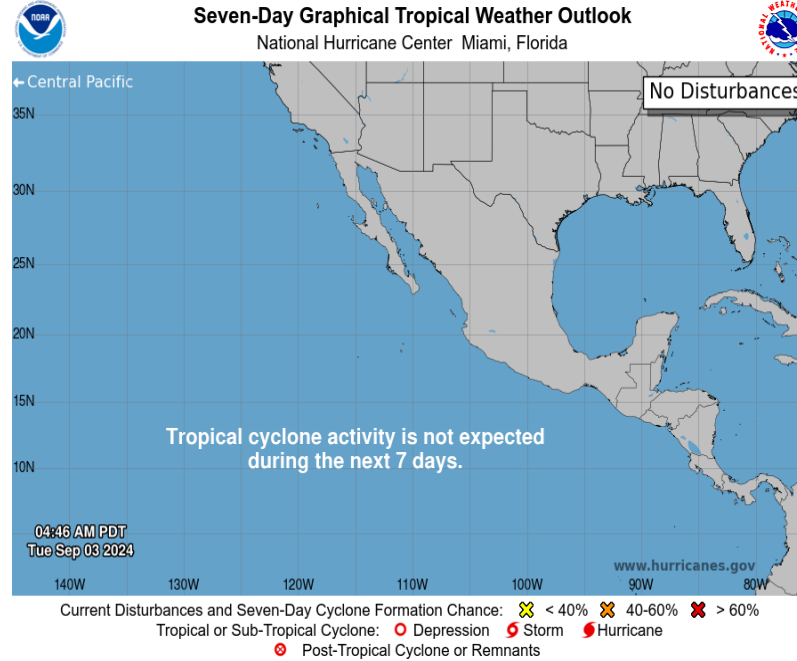
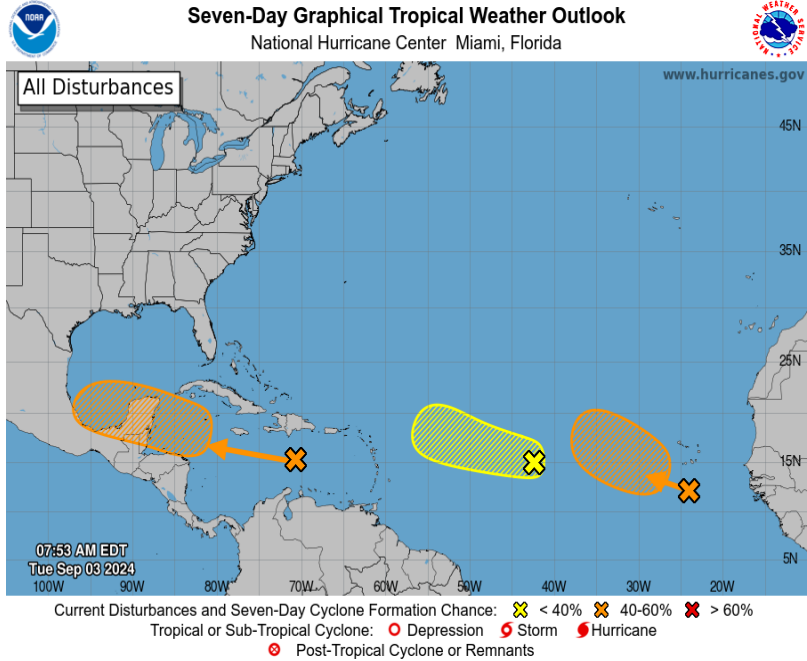


Observed TC Genesis, 1979-2021  
7-day Period 0918 to 0924



\*Experimental\*

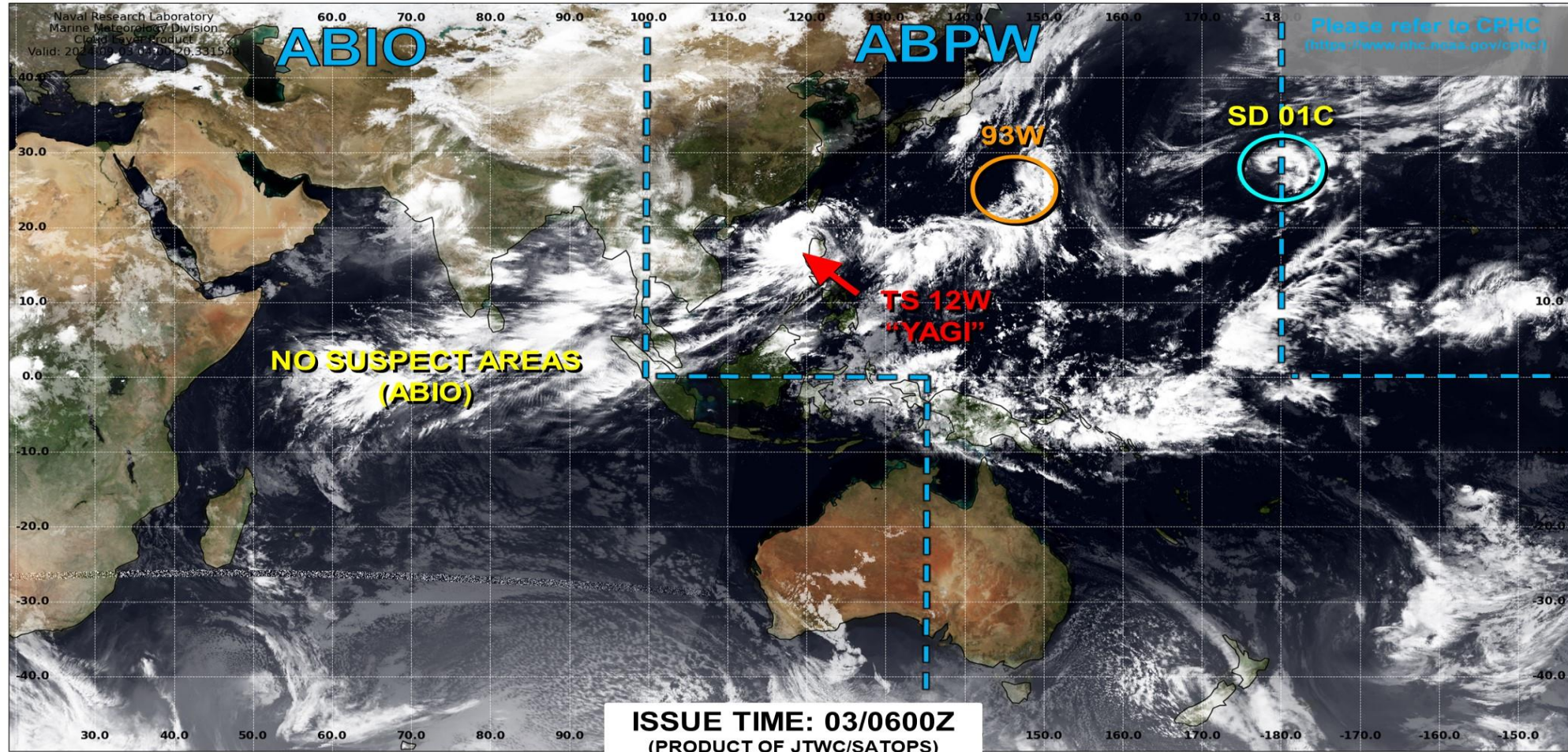
# Tropical Cyclone Monitoring/Forecast: NHC / CPHC



# 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




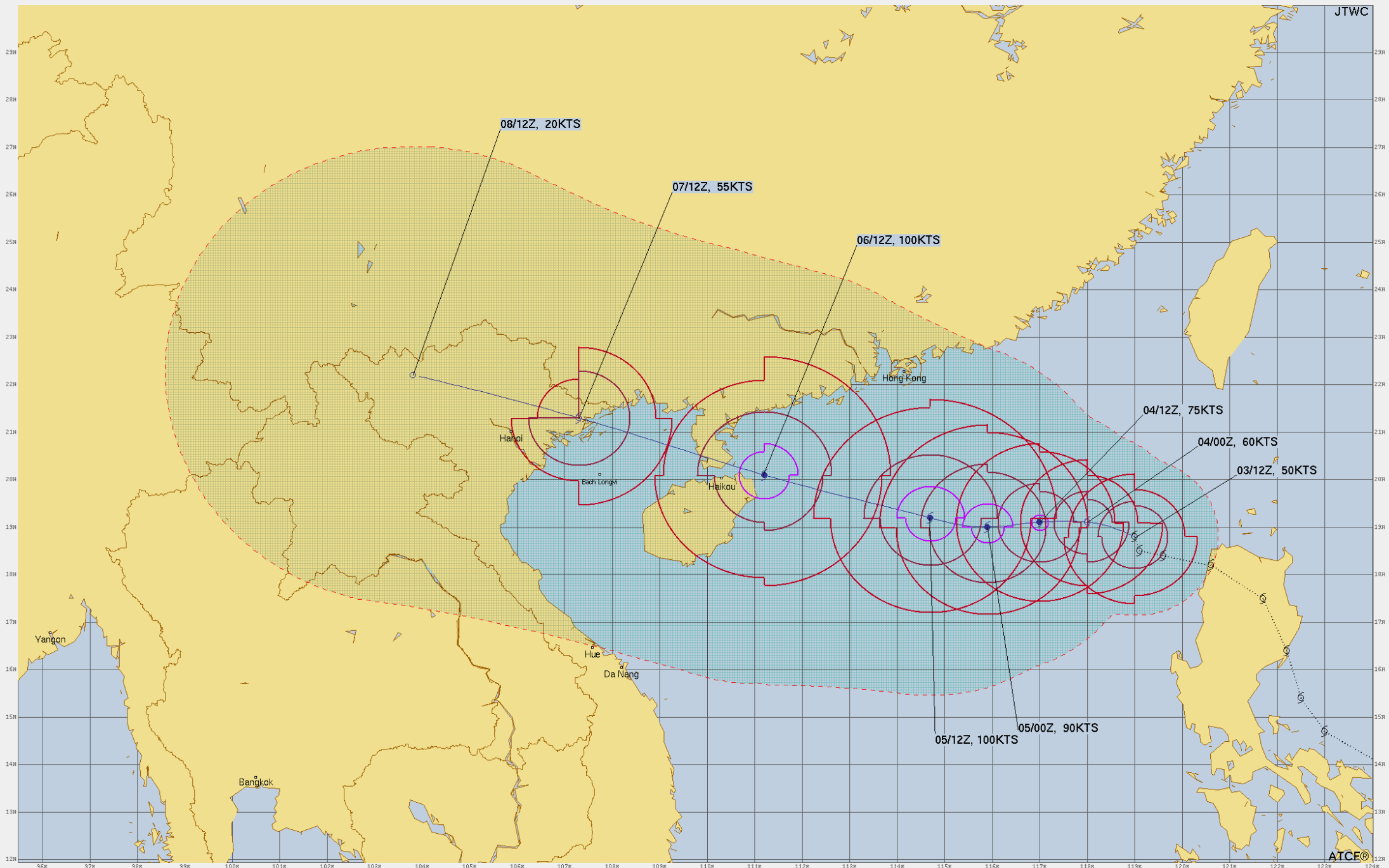
Tropical Cyclone (Reference Warning)

**TROPICAL STORM 12W (YAGI) WARNING #9**  
 WTN03 PGTW 031500  
 031500Z PGTT WVAR 18.8N 119.0E  
 MOVING 340 DEGREES TRUE AT 03 KNOTS  
 MAXIMUM SUSTAINED WIND HEIGHT - 20 FEET  
 03/12Z, WINDS 050 KTS, GUSTS TO 065 KTS  
 04/00Z, WINDS 060 KTS, GUSTS TO 075 KTS  
 04/12Z, WINDS 075 KTS, GUSTS TO 090 KTS  
 05/00Z, WINDS 090 KTS, GUSTS TO 110 KTS  
 05/12Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 06/12Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 07/12Z, WINDS 055 KTS, GUSTS TO 070 KTS  
 08/12Z, WINDS 020 KTS, GUSTS TO 030 KTS

CPA TO:	RM	DTG
KAOSHUNG	239	09/03/192
HONG KONG	175	09/05/222
BA_NHAI	285	09/06/202
HAROI	99	09/07/202

BEARING AND DISTANCE	DIR	DIST	TRV	(HR)	(HR-S)
CLARK AB	337	235	0		
HONG KONG	127	342	0		
HARILA	336	277	0		
SUBIC_BAY	344	250	0		
BRACKTUNG	138	239	0		

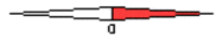
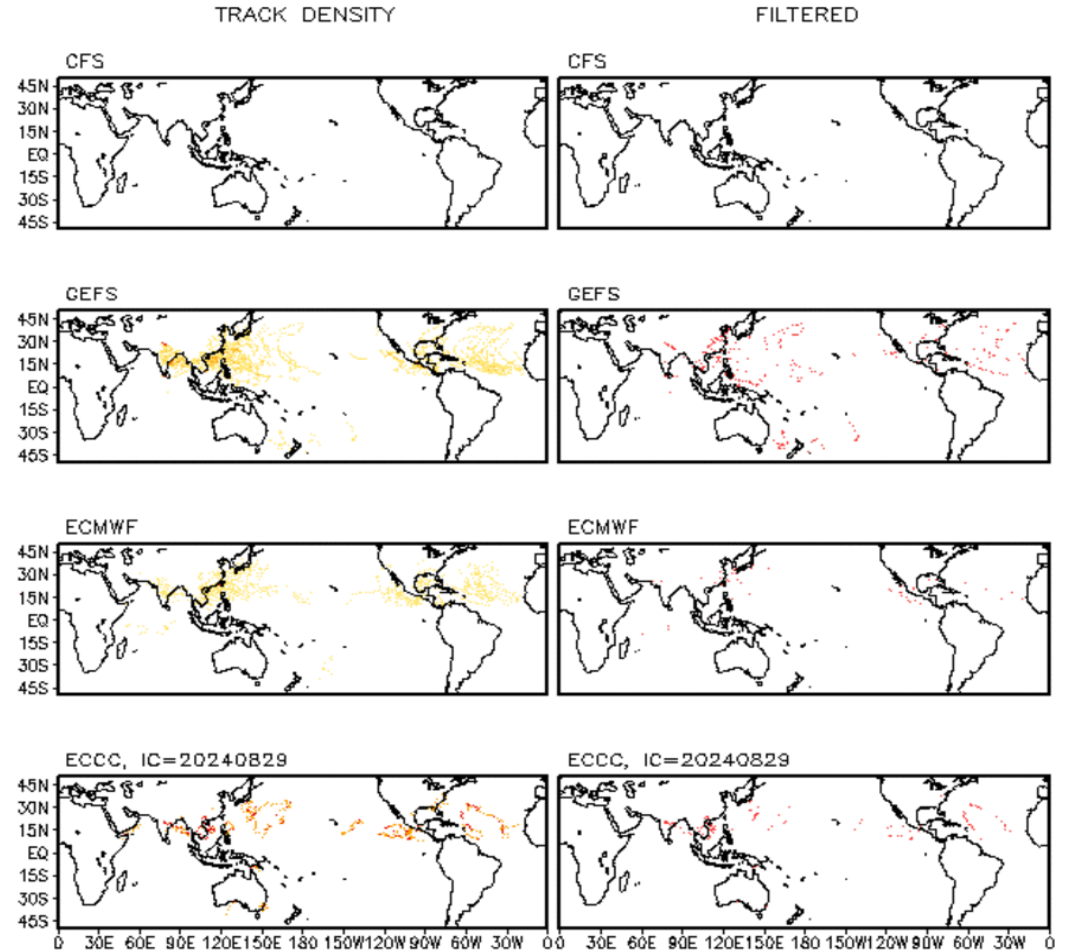
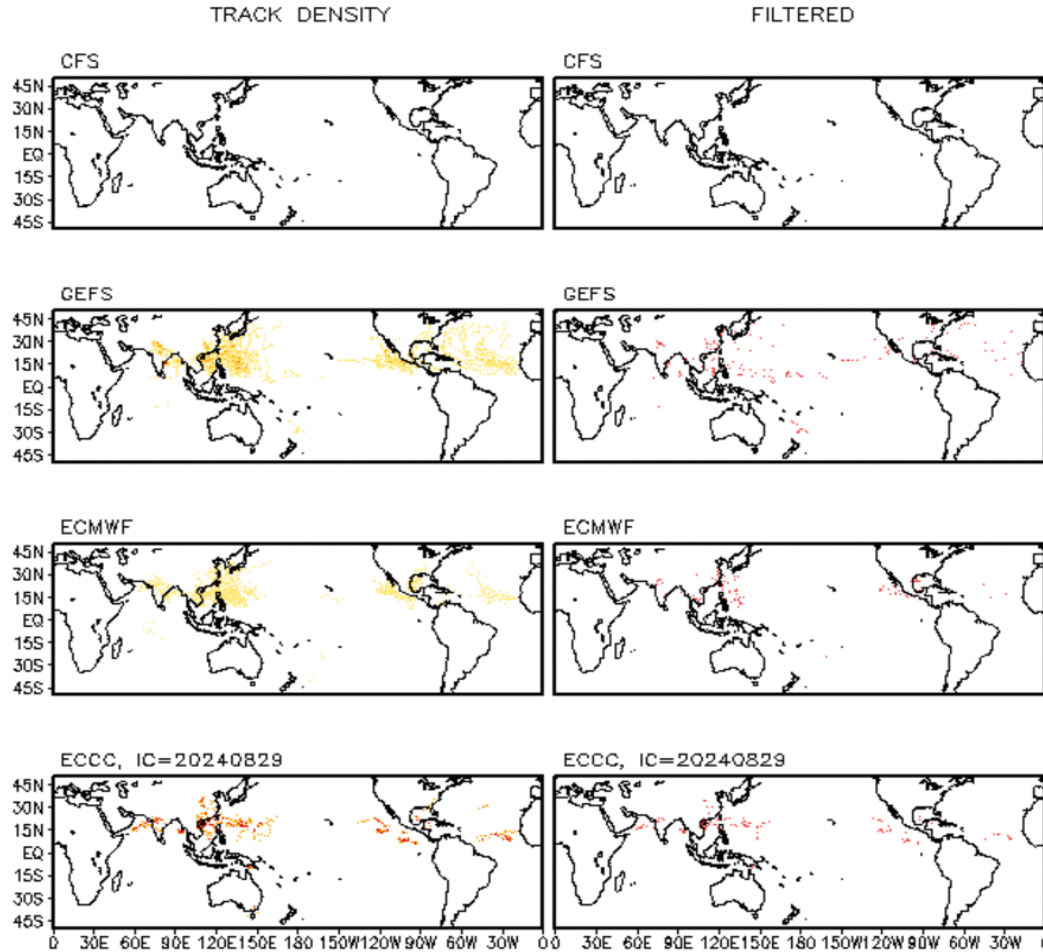
○ ○ ○ LESS THAN 34 KNOTS  
 ○ ○ ○ 34-63 KNOTS  
 ○ ○ ○ MORE THAN 63 KNOTS  
 ● FORECAST CYCLONE TRACK  
 - - - PAST CYCLONE TRACK  
 ■ DENOTES 34 KNOT WIND DANGER AREA/USN SHIP AVOIDANCE AREA  
 ■ FORECAST 34/50/64 KNOT WIND RADII (WINDS VALID OVER OPEN OCEAN ONLY)

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

Storm Track Density Distribution, IC=20240902  
Week 2 Forecast: 0911-0917

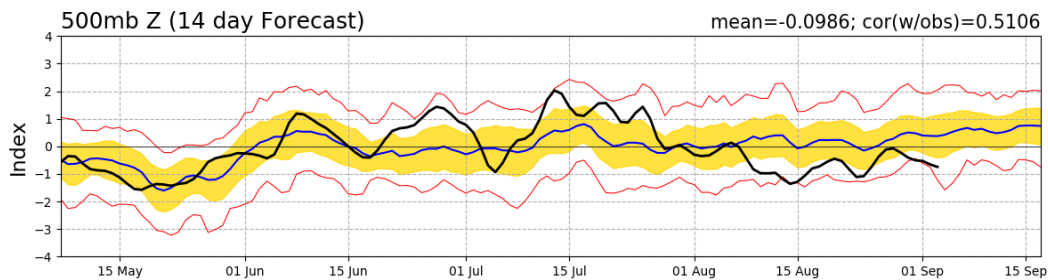
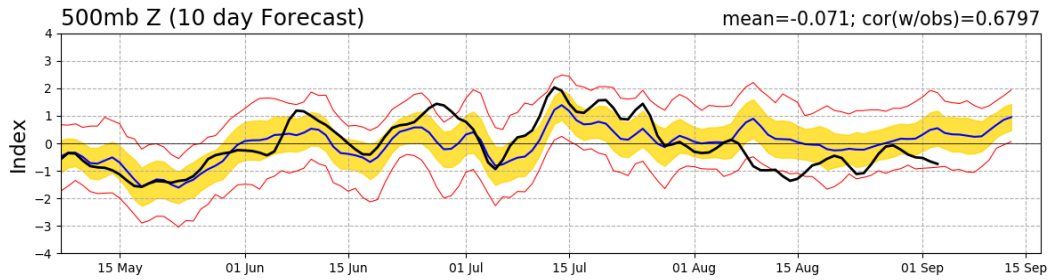
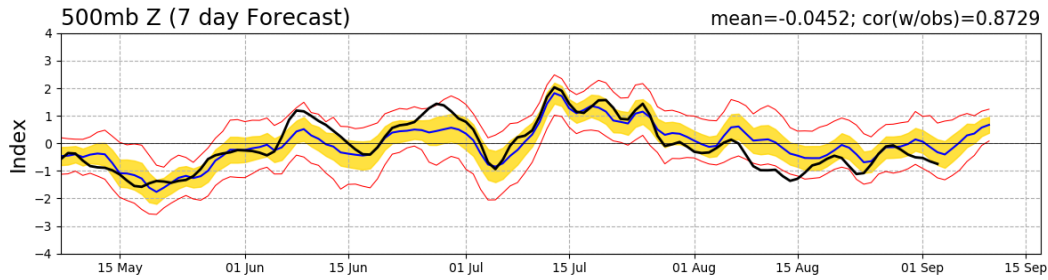
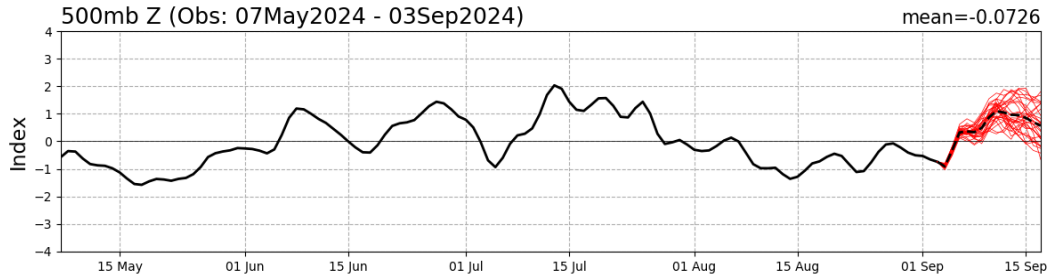
Storm Track Density Distribution, IC=20240902  
Week 3 Forecast: 0918-0924



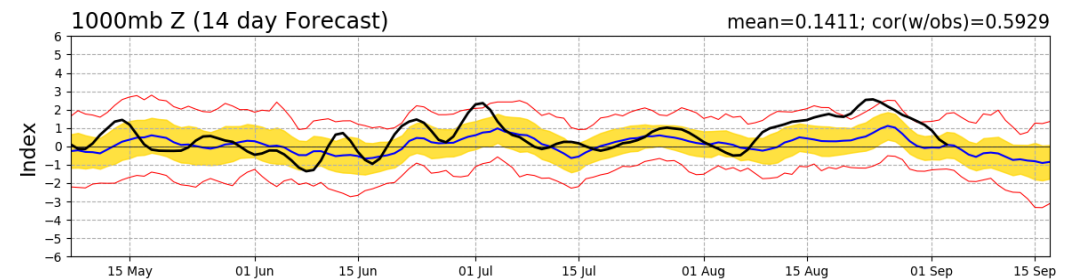
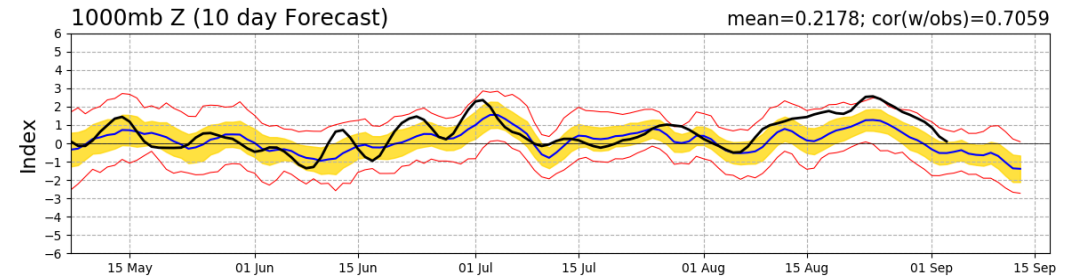
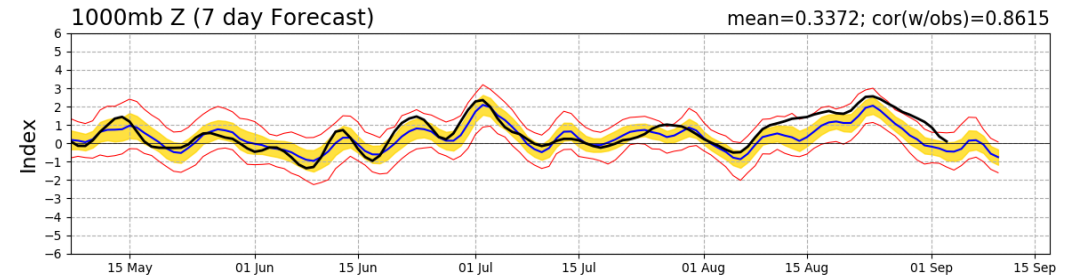
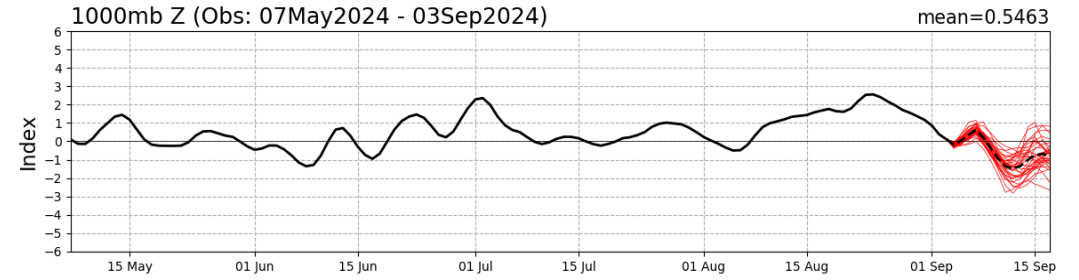


# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts

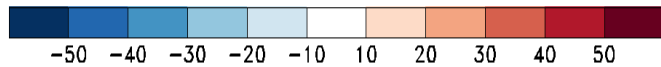
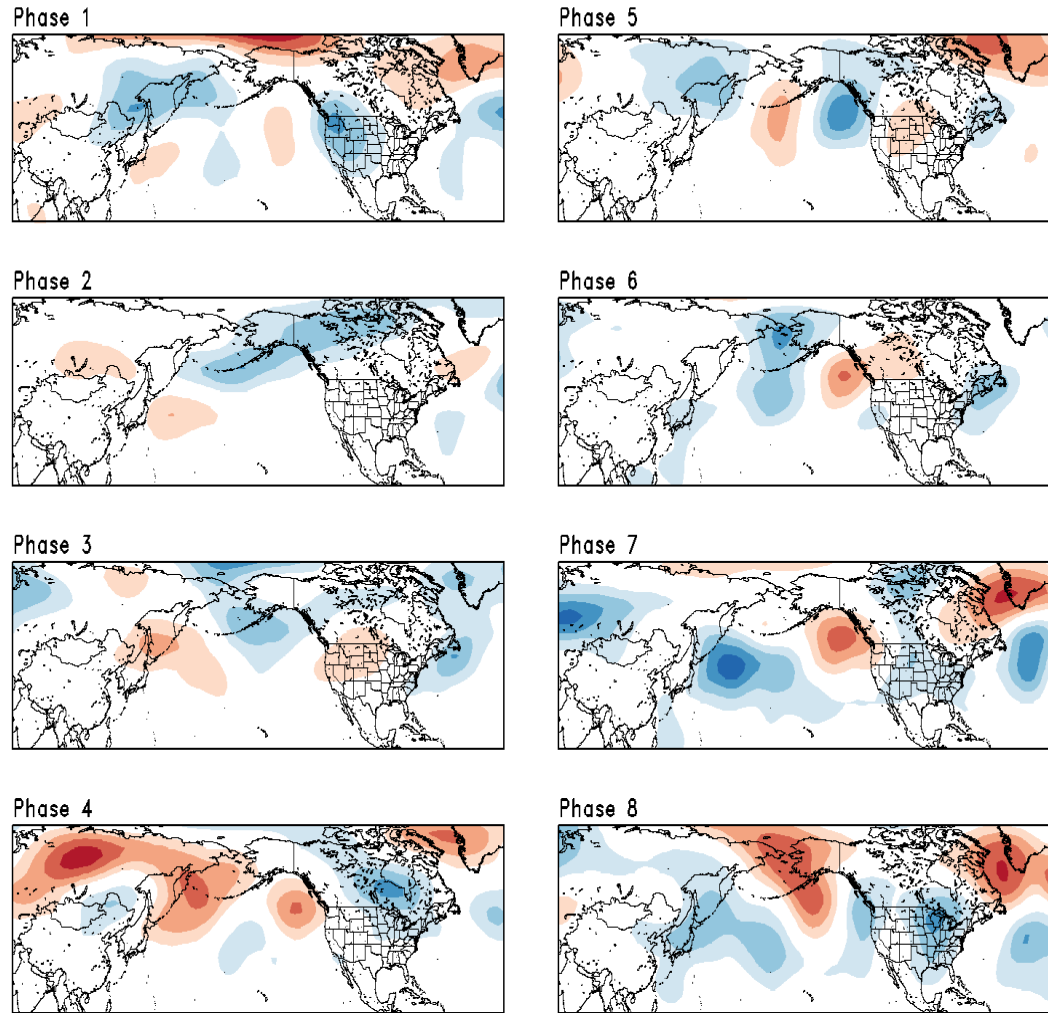


## AO Index: Observed & GEFS Forecasts

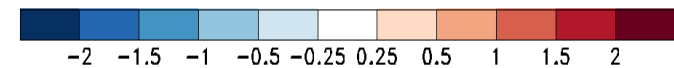
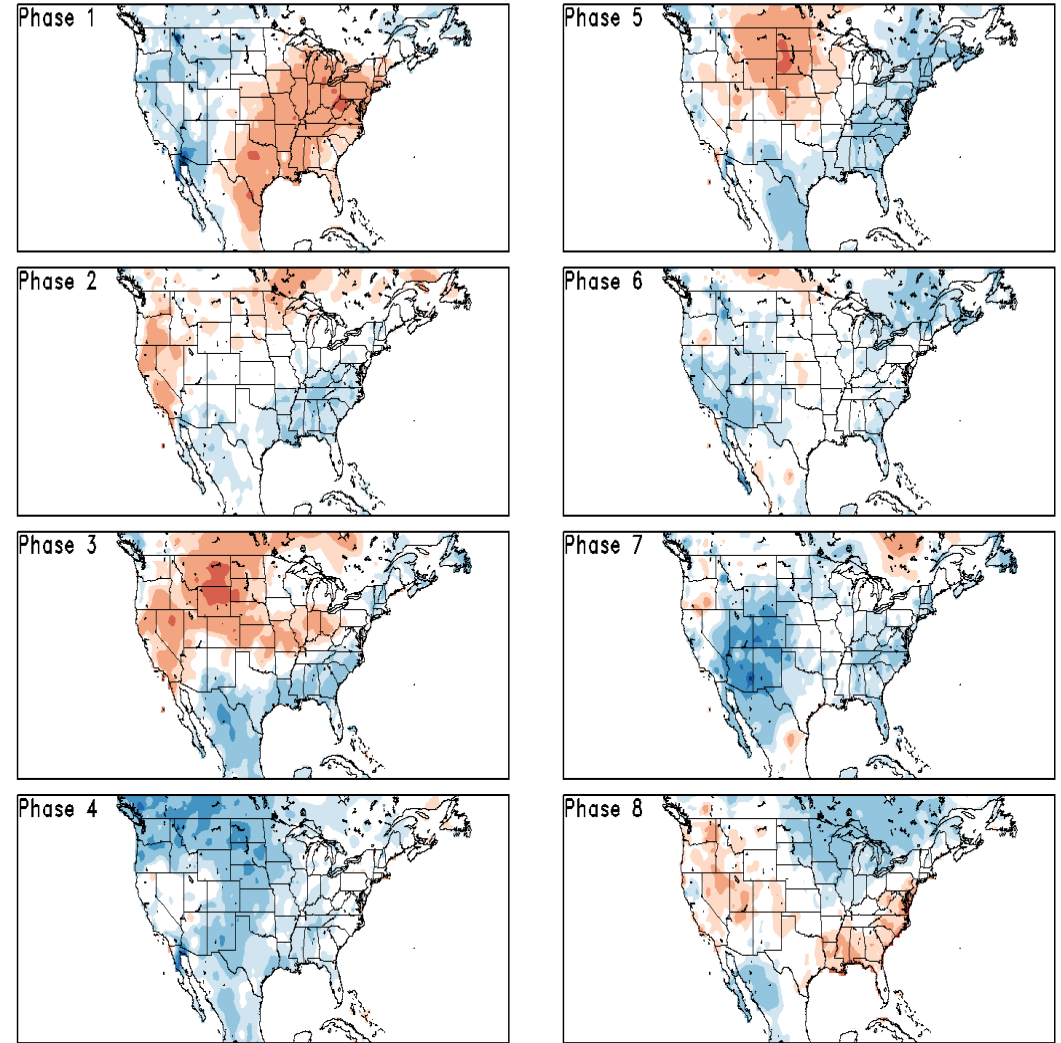


# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

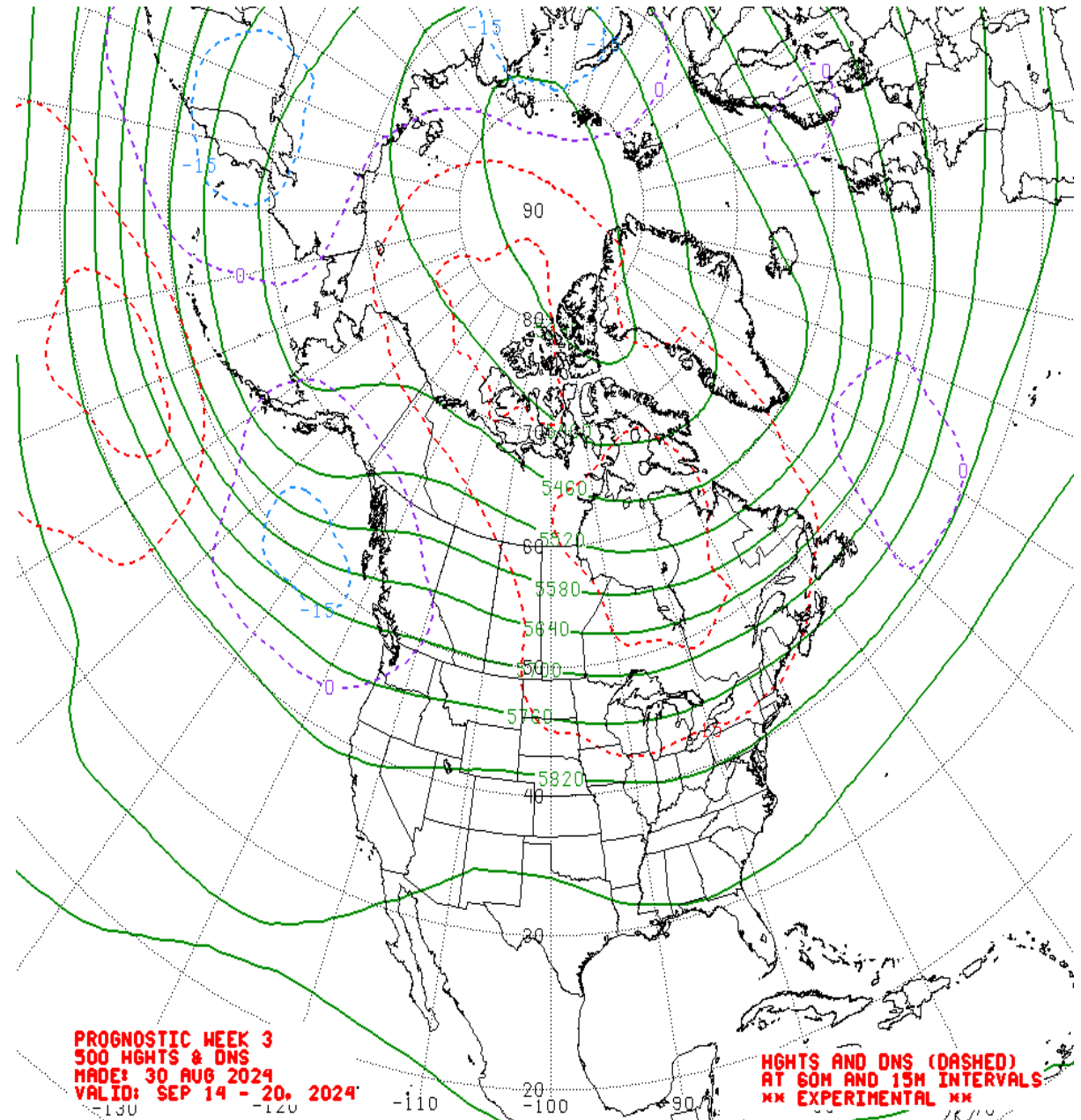
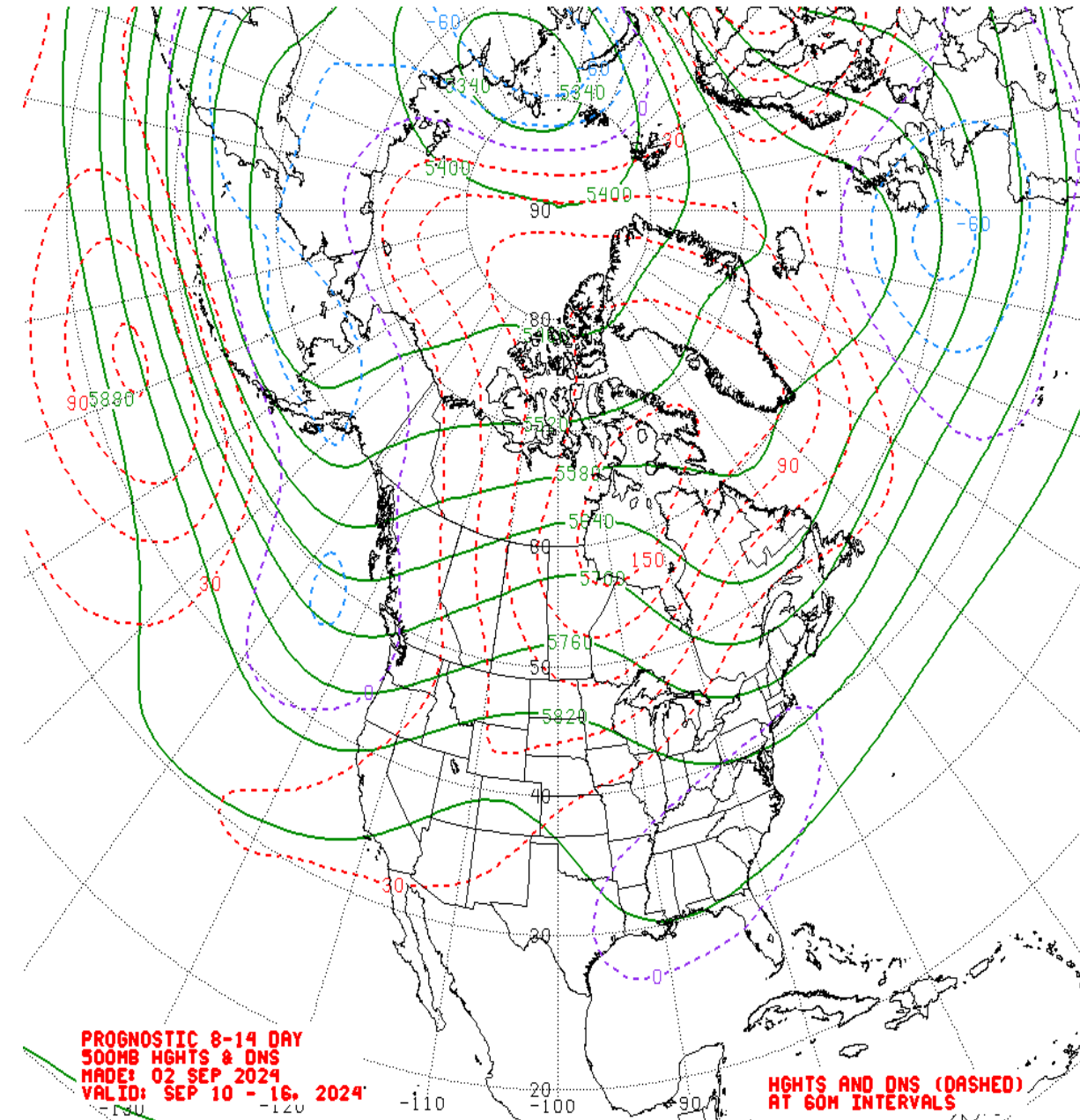
ASO MJO Composite: CDAS 500-hPa Height (m)



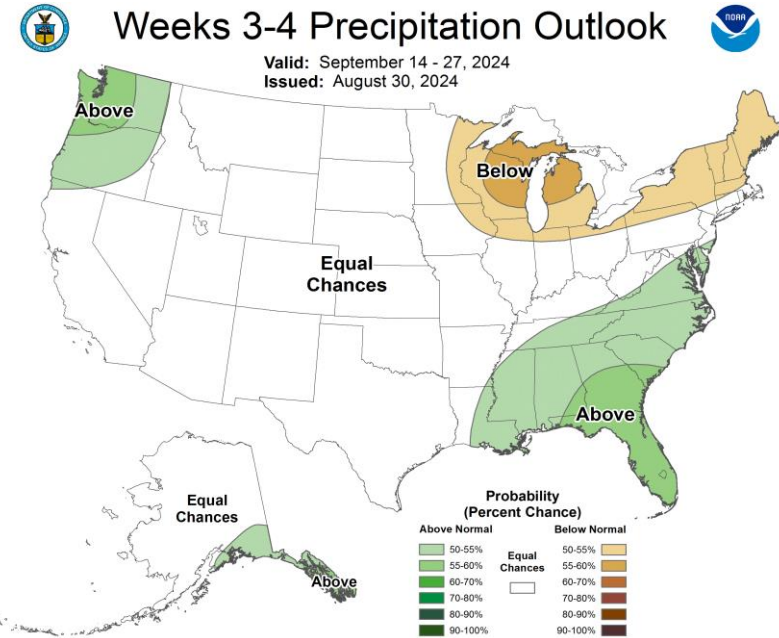
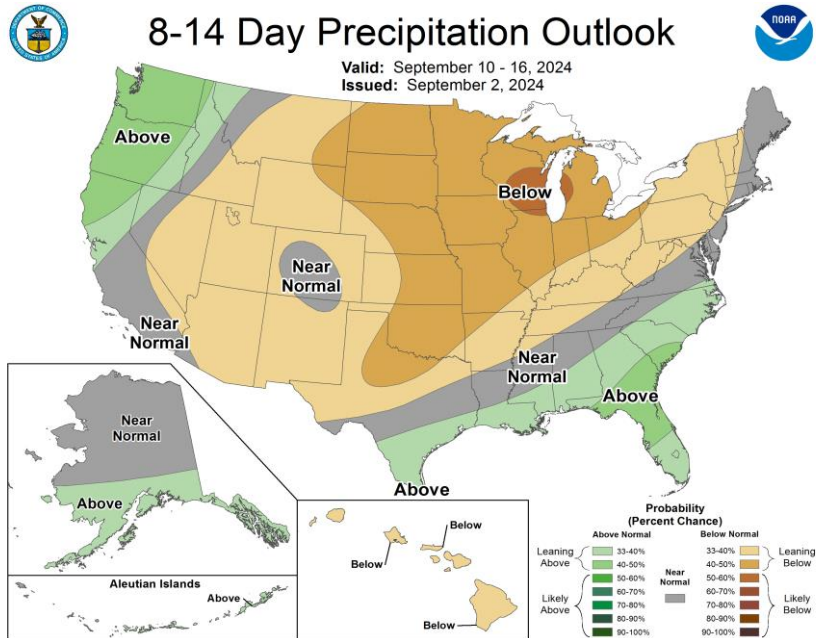
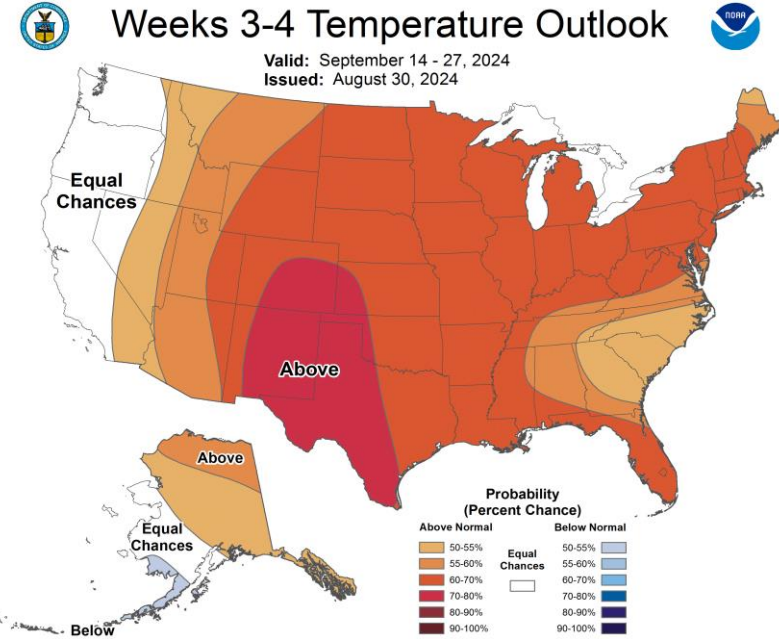
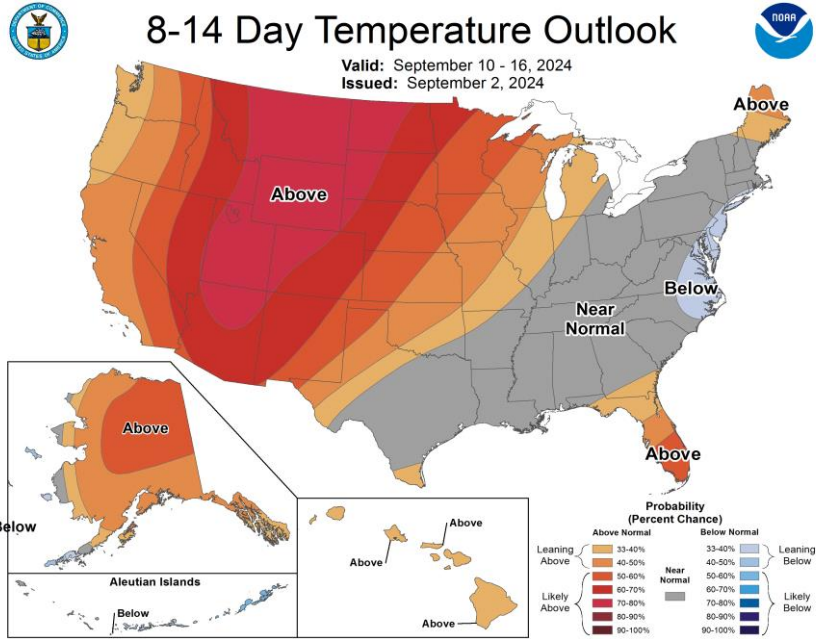
ASO MJO Composite: GLBT (degC)



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



# Official Temperature & Precipitation Forecasts:



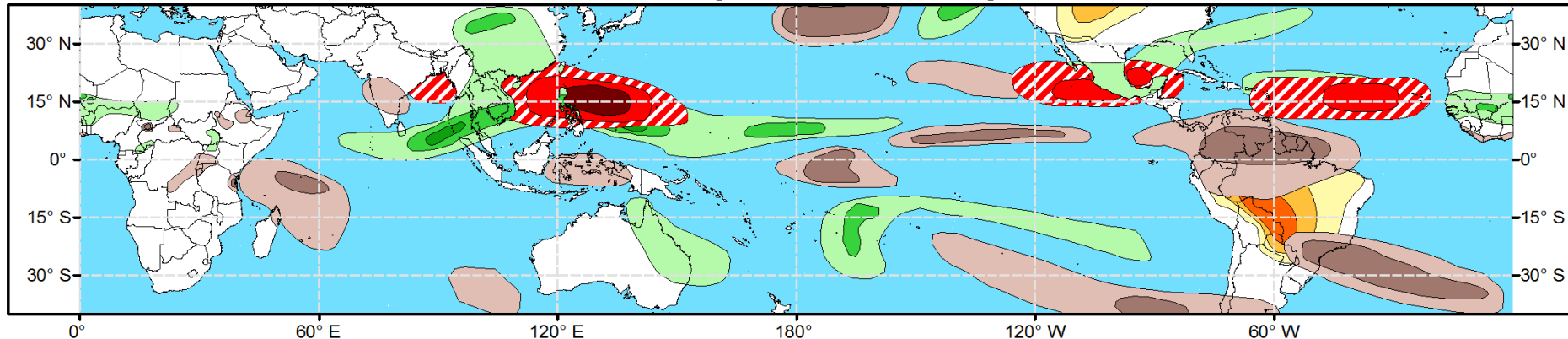


# Global Tropics Hazards Outlook

Climate Prediction Center

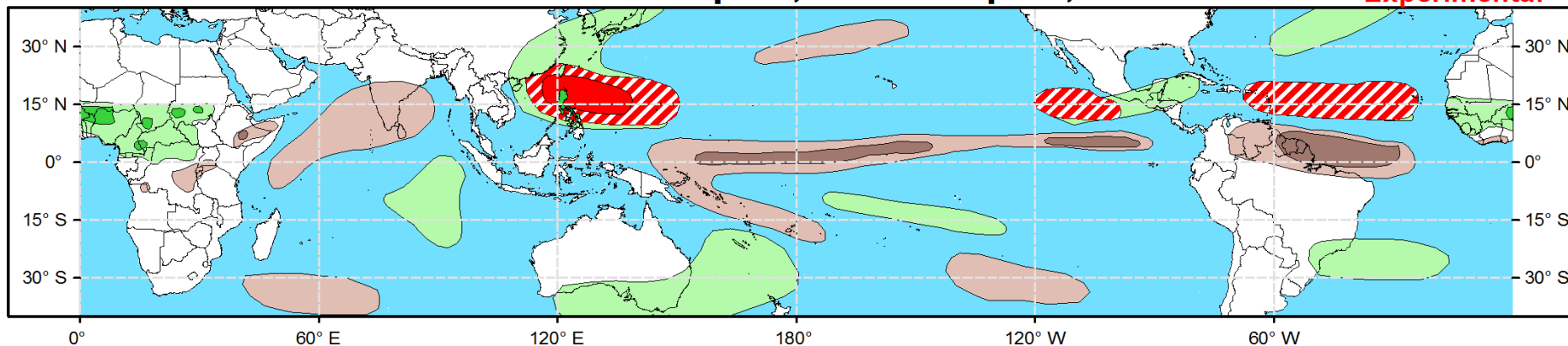


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**Above-Average  
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**Issued: 09/03/2024**

**Forecaster: Barandiaran**

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