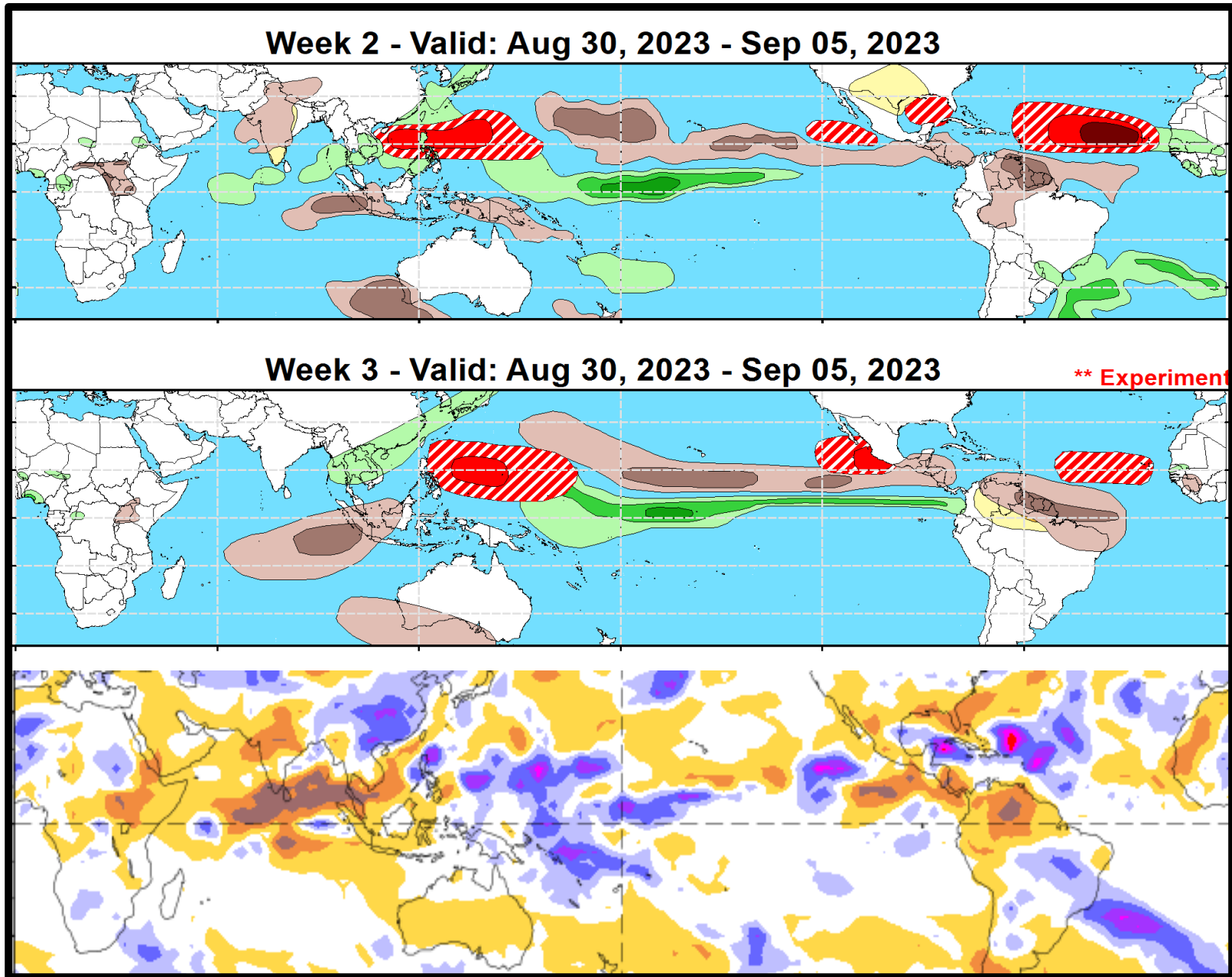
Weeks 2-3 Global Tropics Hazards Outlook

9/5/2023

Daniel Barandiaran
NWS / NCEP / Climate Prediction Center

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

- Six TCs formed last week:
- 2 in West Pac (Kirogi, Yun-Yeung)
- 1 in East Pac (Jova)
- 3 in Atlantic MDR (Jose, Katia, TD13)



Synopsis of Climate Modes:

ENSO: (Aug 10, 2023 Update) ***next update on Thursday, Sep 14th***

- ENSO Alert System Status: El Niño Advisory

- El Niño is anticipated to continue through the Northern Hemisphere winter (95% chance during DJF)

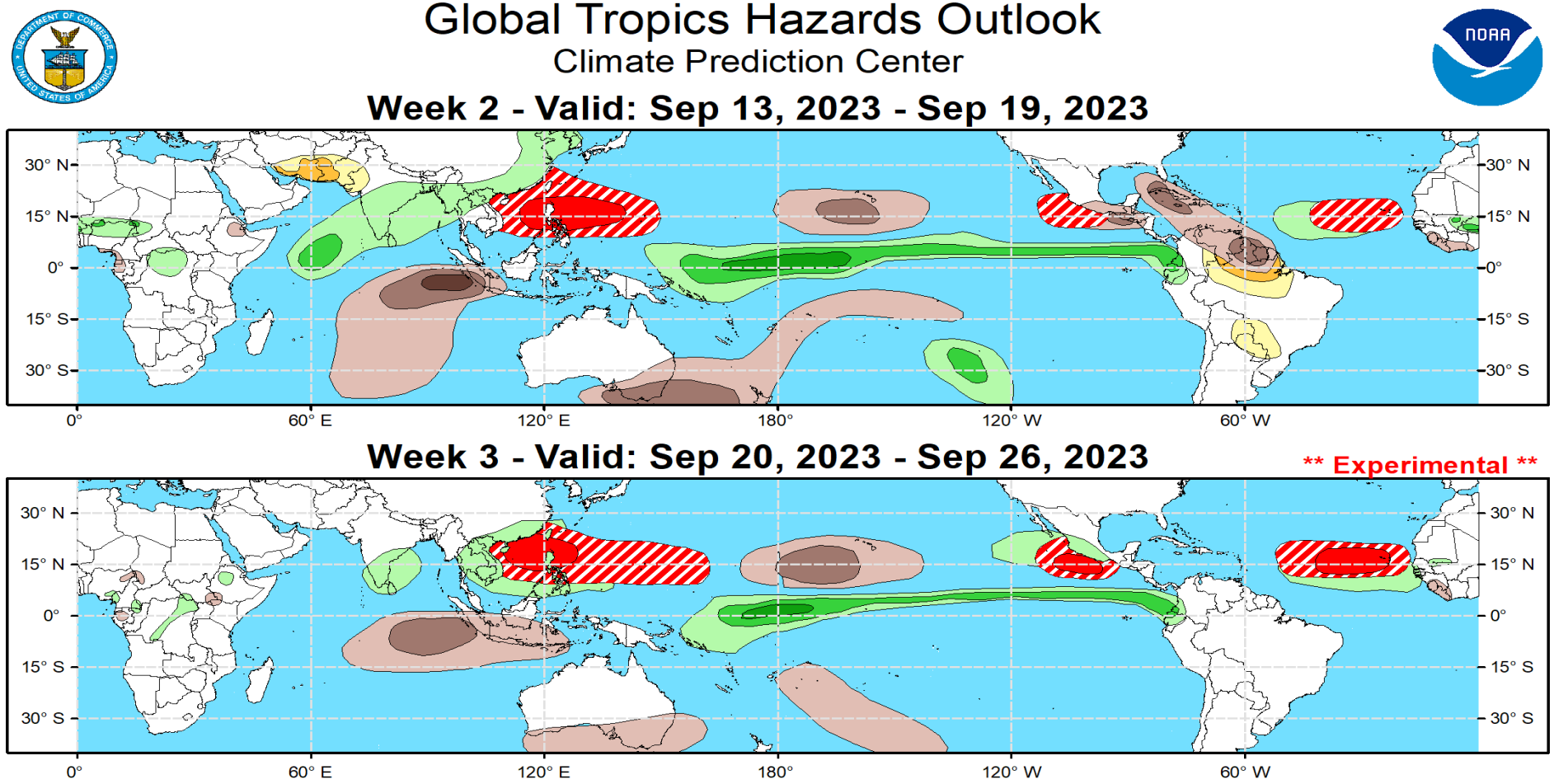
MJO and other subseasonal tropical variability:

- An active El Nino base state with increasing influence is dominating the tropics and is potentially obscuring MJO activity. The RMM-based index seems to be struggling to adequately depict the state of the MJO. Analysis of velocity potential anomalies suggest a much more robust MJO signal, and a clear wave-1 pattern, but eastward propagation of this feature is very slow.

- Besides the strong El Nino and the nebulous state of the MJO, variability in tropical convection patterns is also coming from Kelvin and Rossby wave activity, both of which can play a role in tropical cyclone (TC) formation.

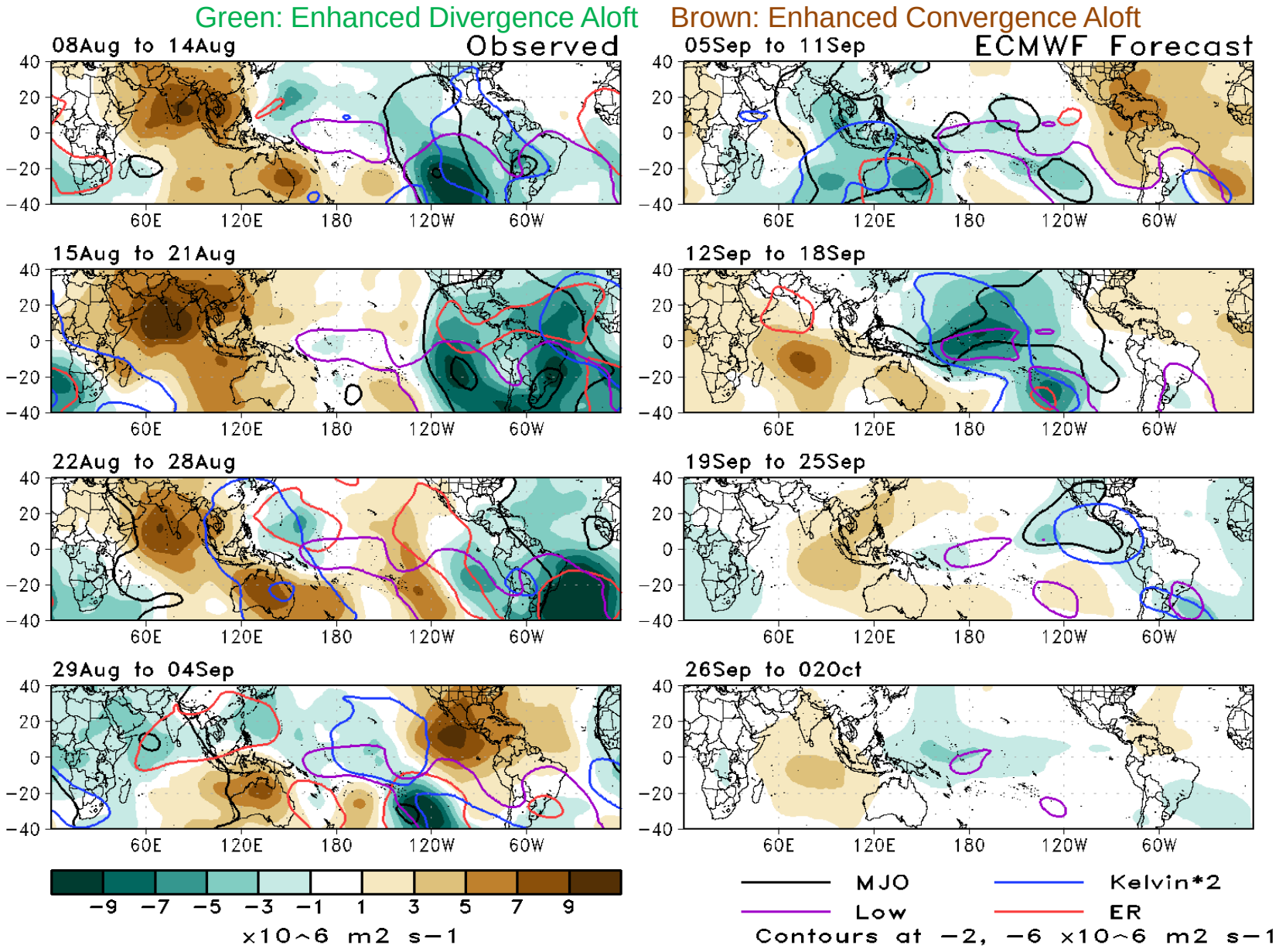
- Dynamical model MJO index forecasts depict a short-lived increase in signal amplitude before returning to a diminished state, with the RMM index staying mostly within the Maritime Continent quadrant.

GTH Outlook:

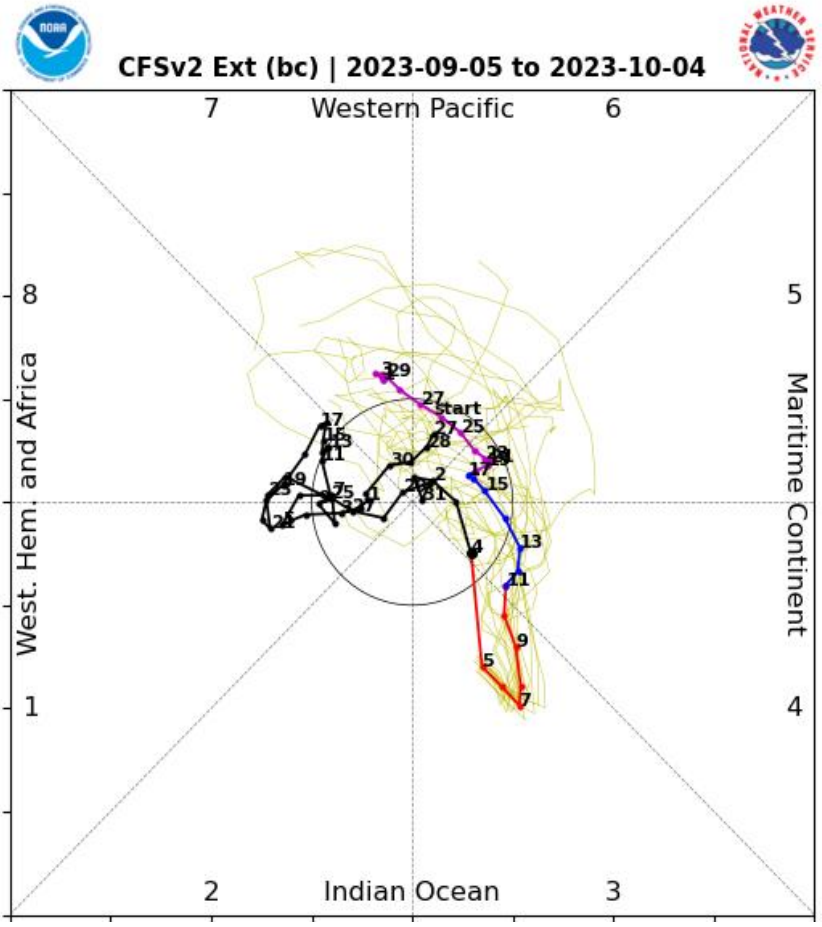

Global Tropics Hazards Outlook
Climate Prediction Center
Week 2 - Valid: Sep 13, 2023 - Sep 19, 2023
Week 3 - Valid: Sep 20, 2023 - Sep 26, 2023
** Experimental **
30° N
15° N
0°
15° S
30° S
0°
60° E
120° E
180°
120° W
60° W
Tropical Cyclone (TC) Formation Probability
>20% >40% >60%
Tropical Depression (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: 09/05/2023
Forecaster: Barandiaran
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.

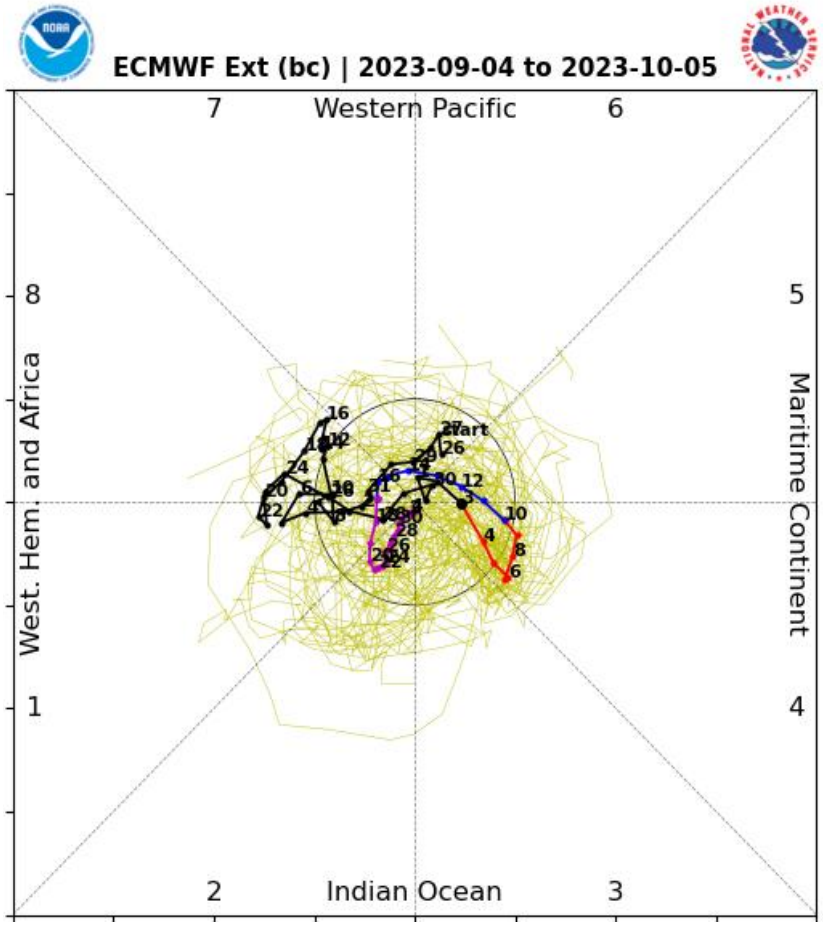
200-hPa Velocity Potential Anomaly Maps:

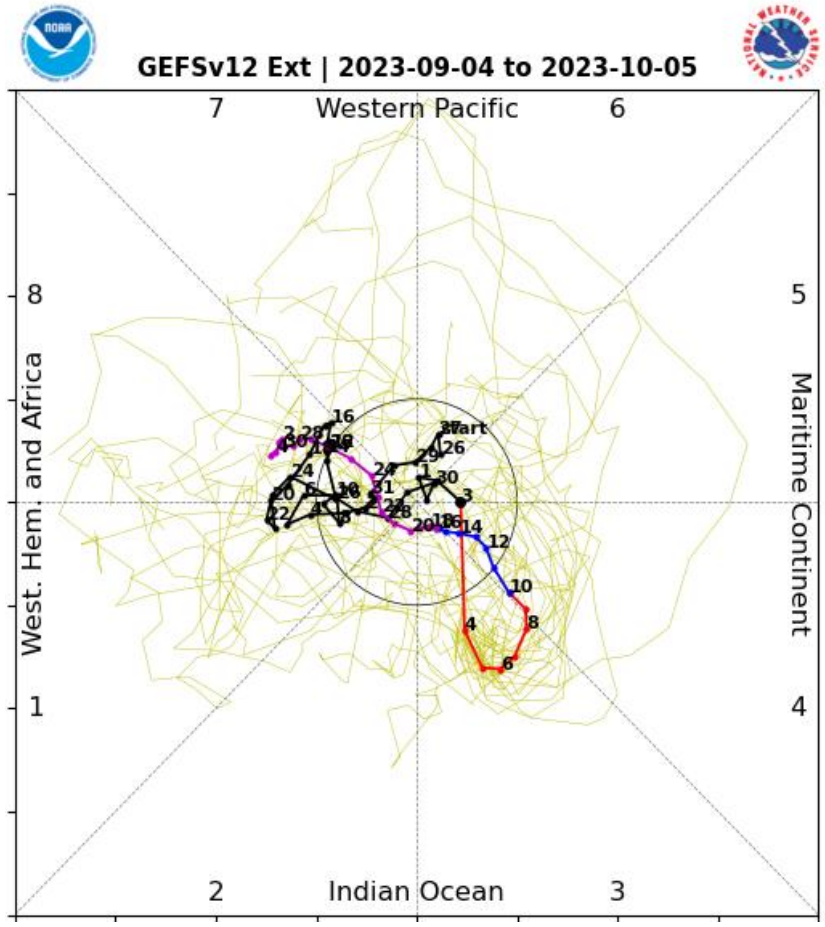
- During weeks 1-2 a wave-1 pattern emerges and an enhanced convective envelope moves quickly from the Maritime Continent to the Central Pacific.
- By week-3, the wave-1 signal becomes weaker and somewhat disorganized, suggesting a return to a weaker MJO state.



RMM Index Observations & Forecasts:

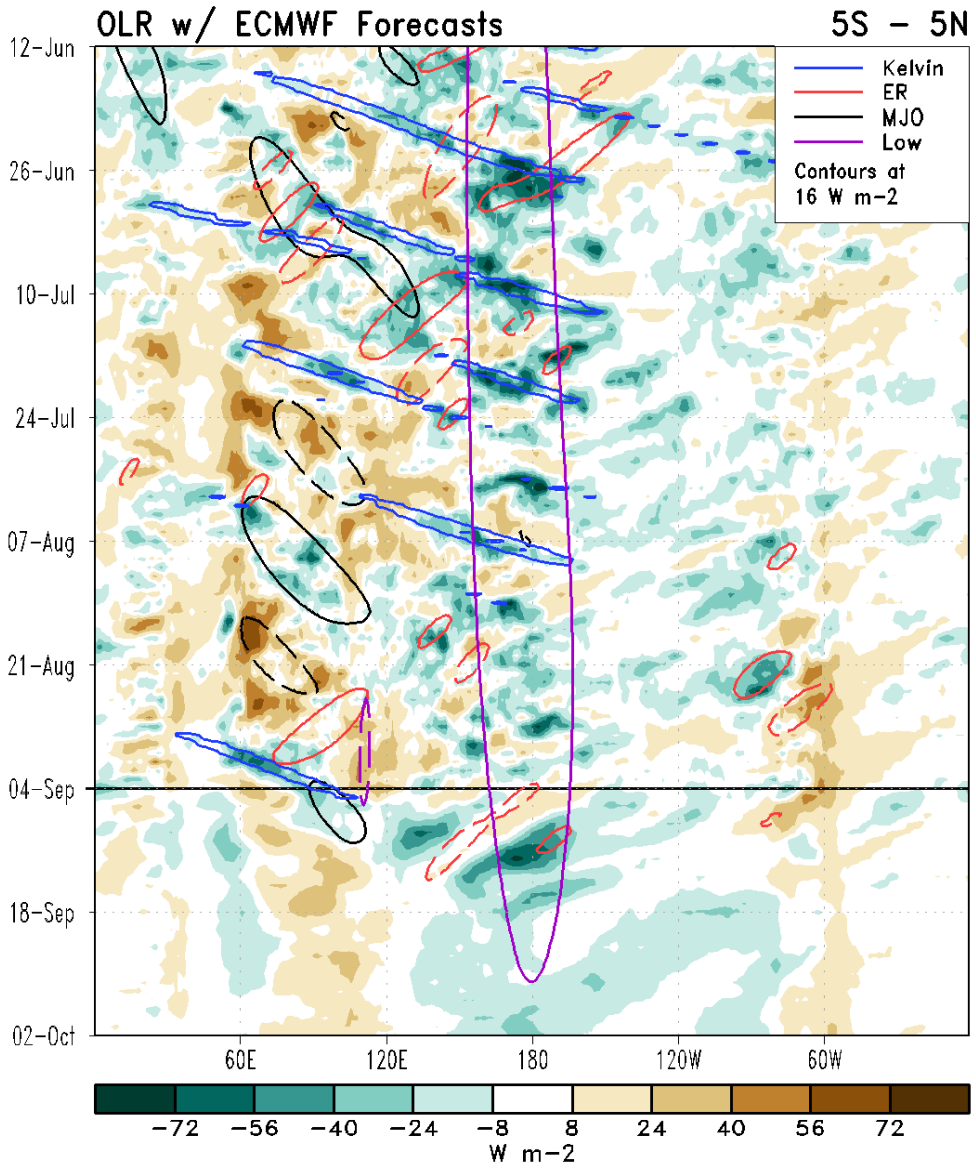


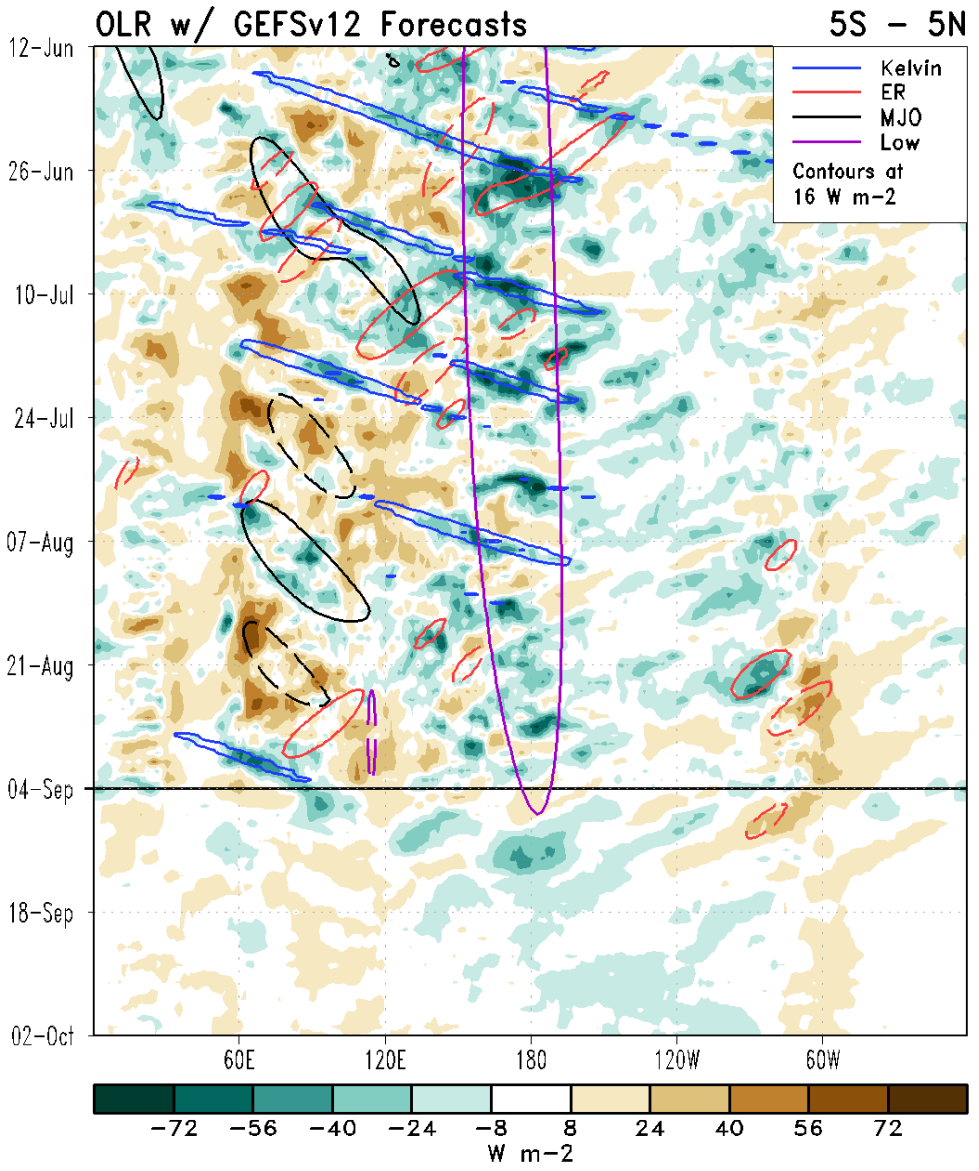




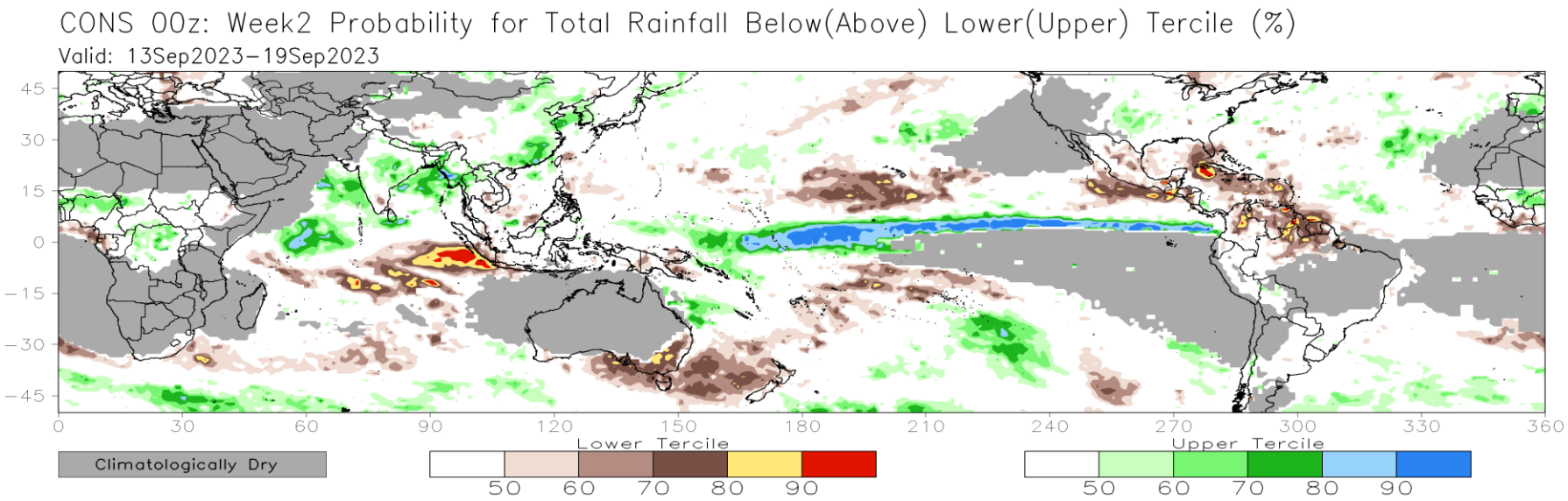
- Model consensus depicts a fast increase in signal amplitude during week-1, after which the signal once again drops into the unit circle. The ECMWF has a smaller increase in amplitude, decreased from yesterday.
- Models have very poor agreement regarding eastward movement of the RMM signal. This, as well as the rapid oscillation in signal strength could be the result of interference with the El Nino base state as a convective envelope tries to propagate eastward.

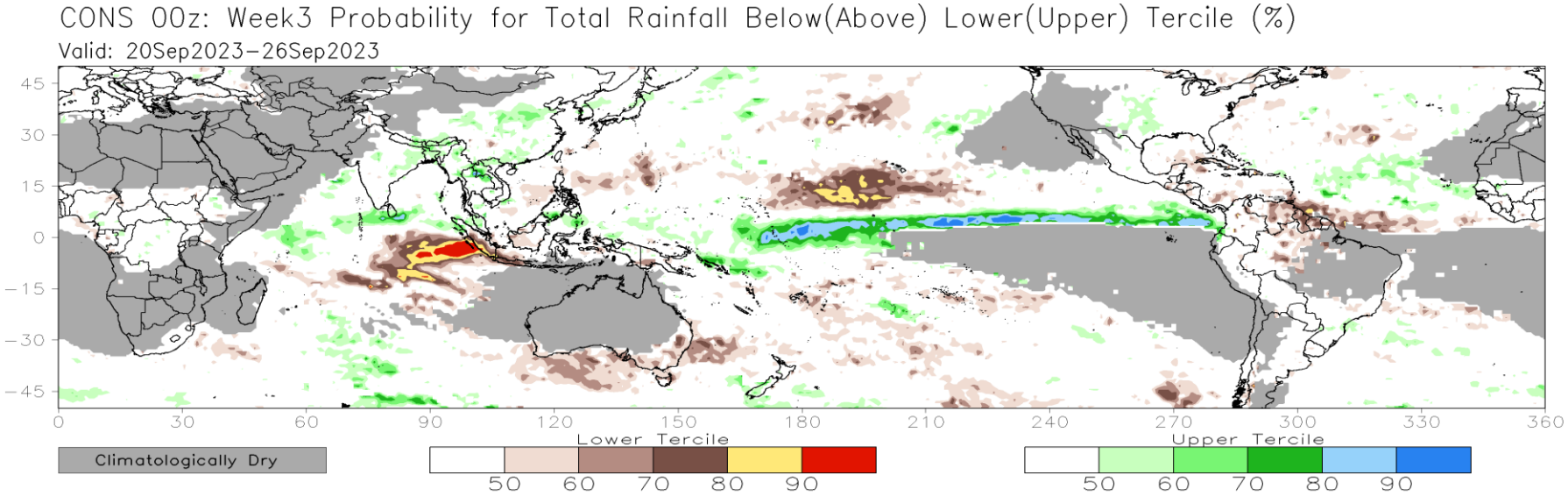
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



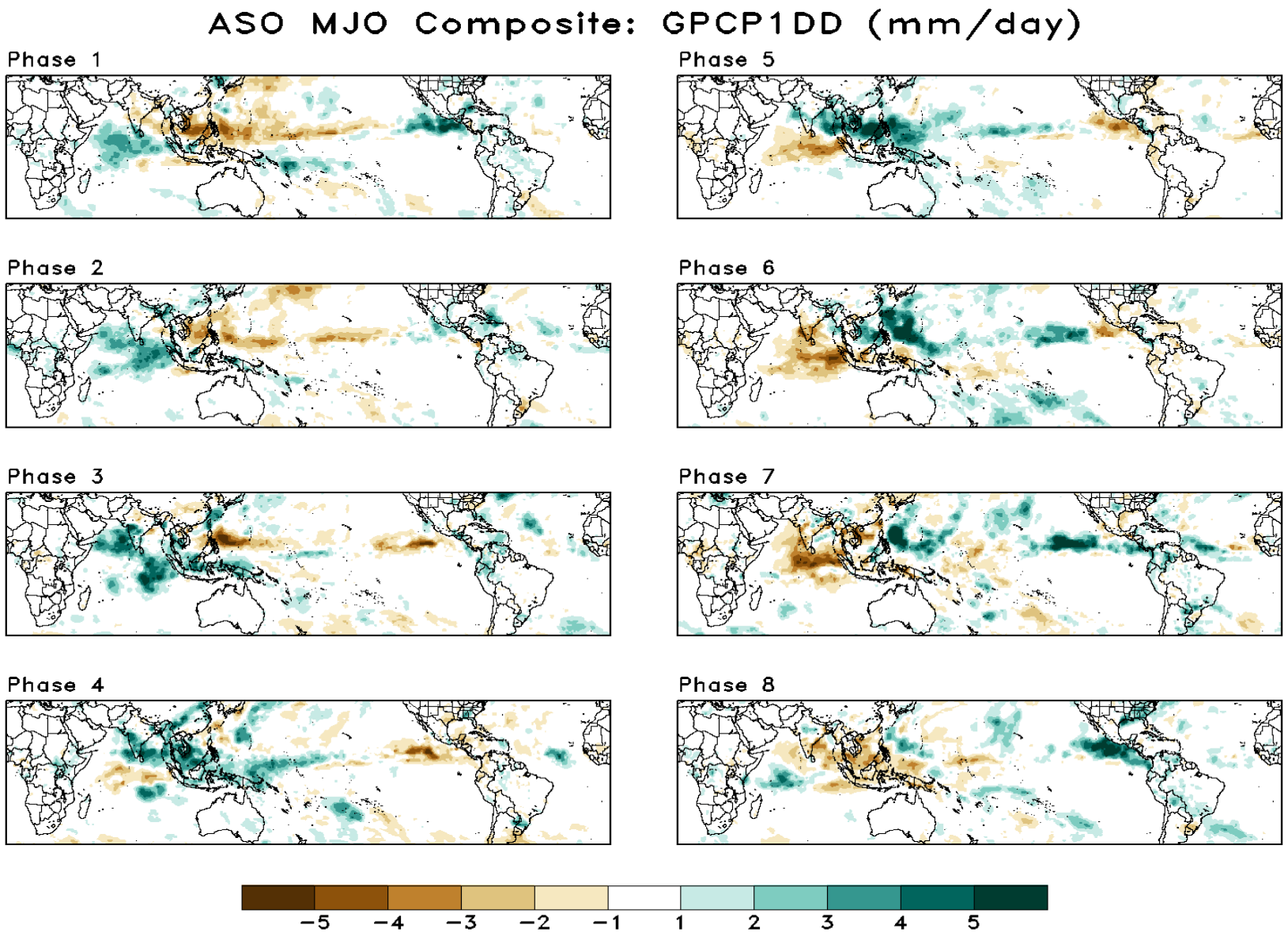


Consolidated Probabilistic Precipitation: Weeks 2 & 3

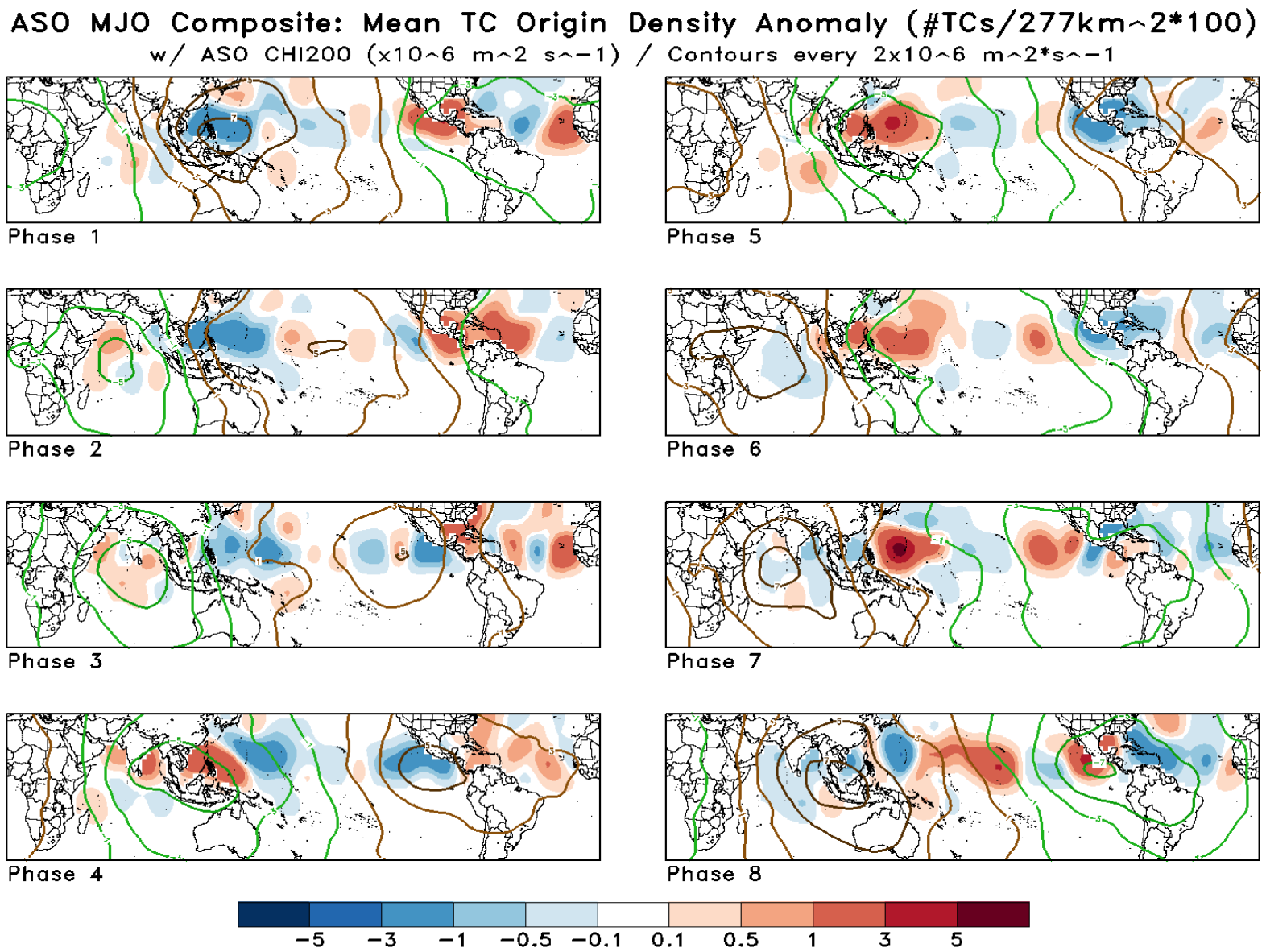


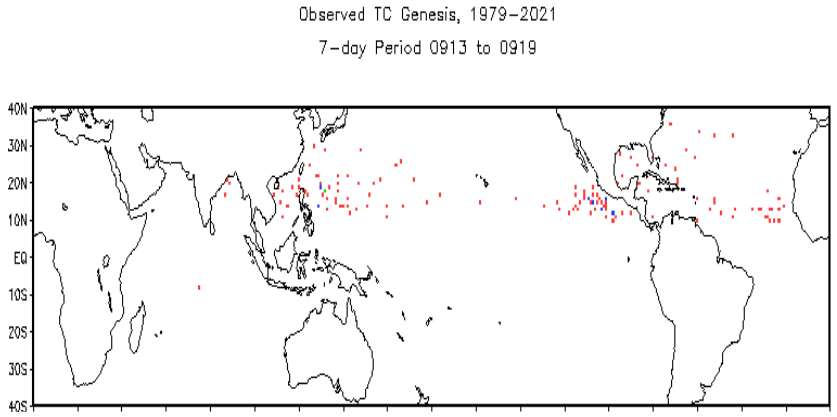


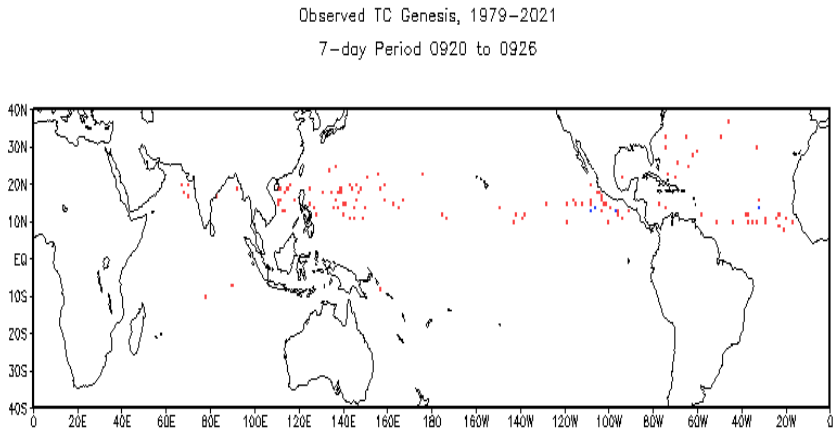
Historical Precipitation Anomalies By MJO Phase:



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

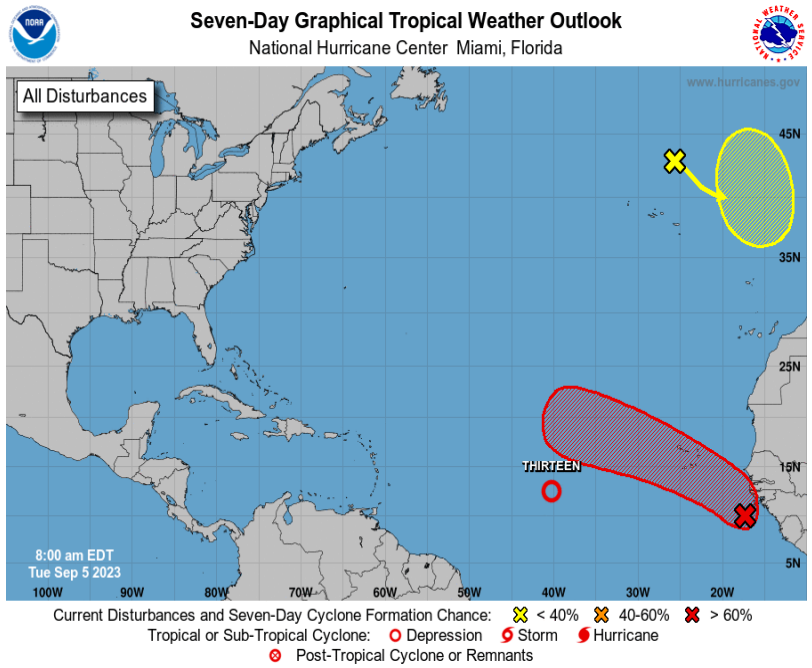


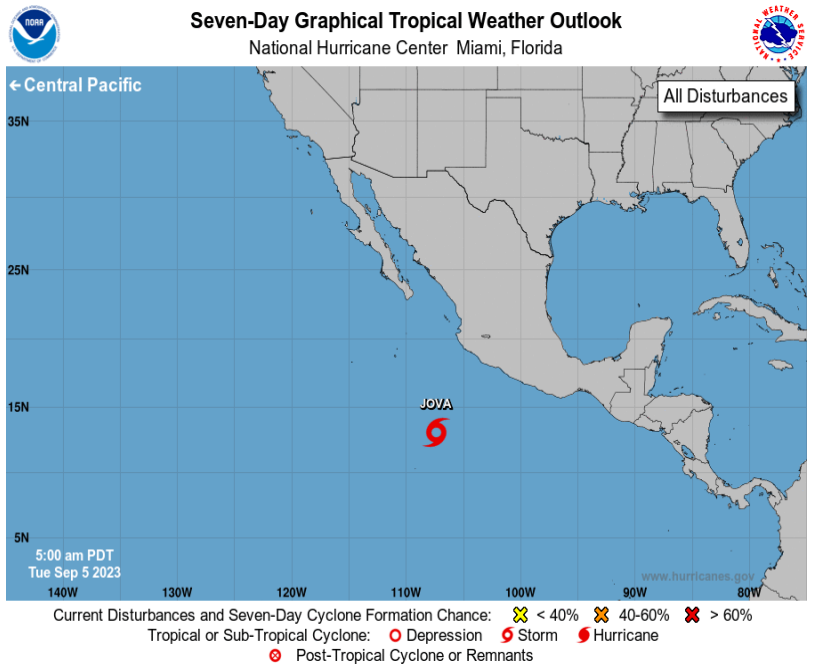


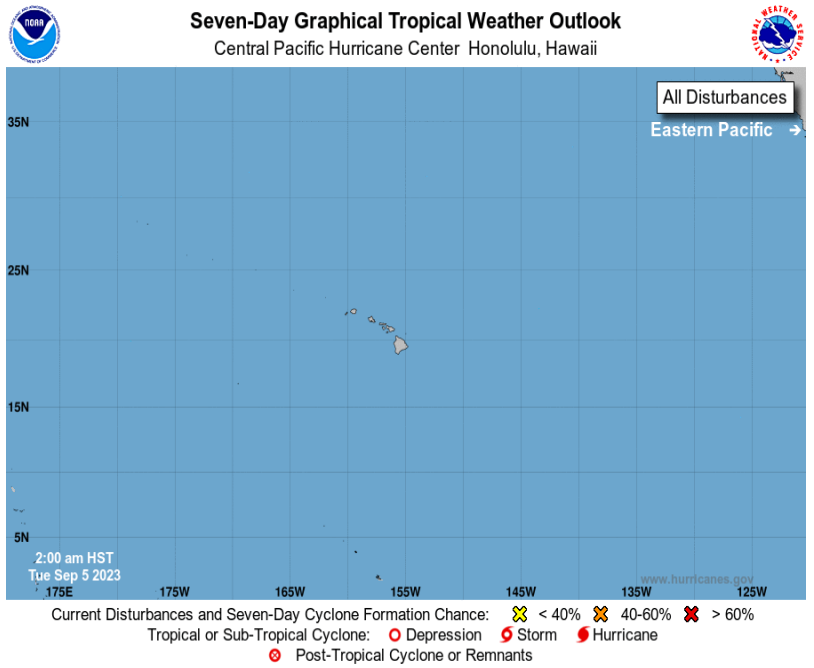


Experimental

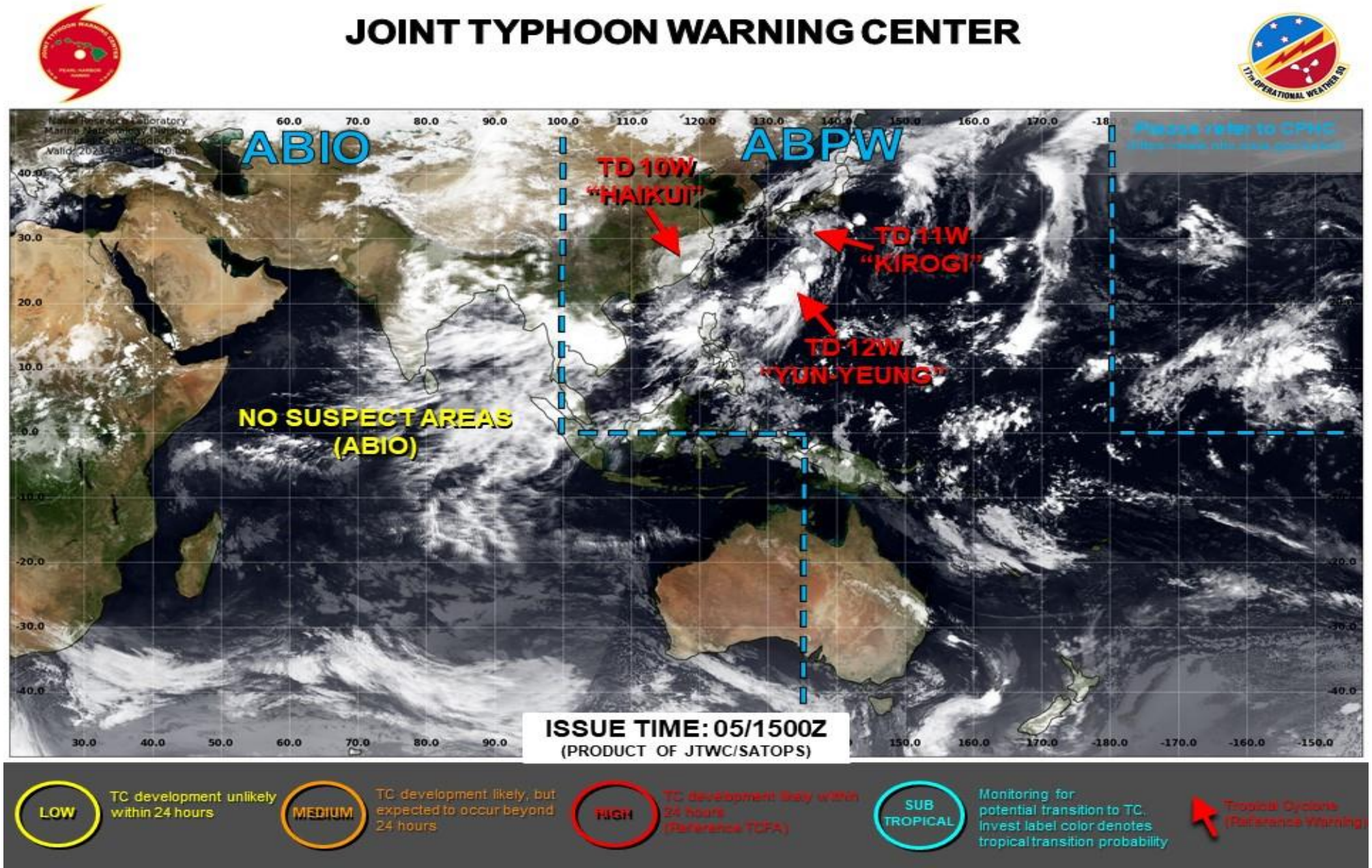
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



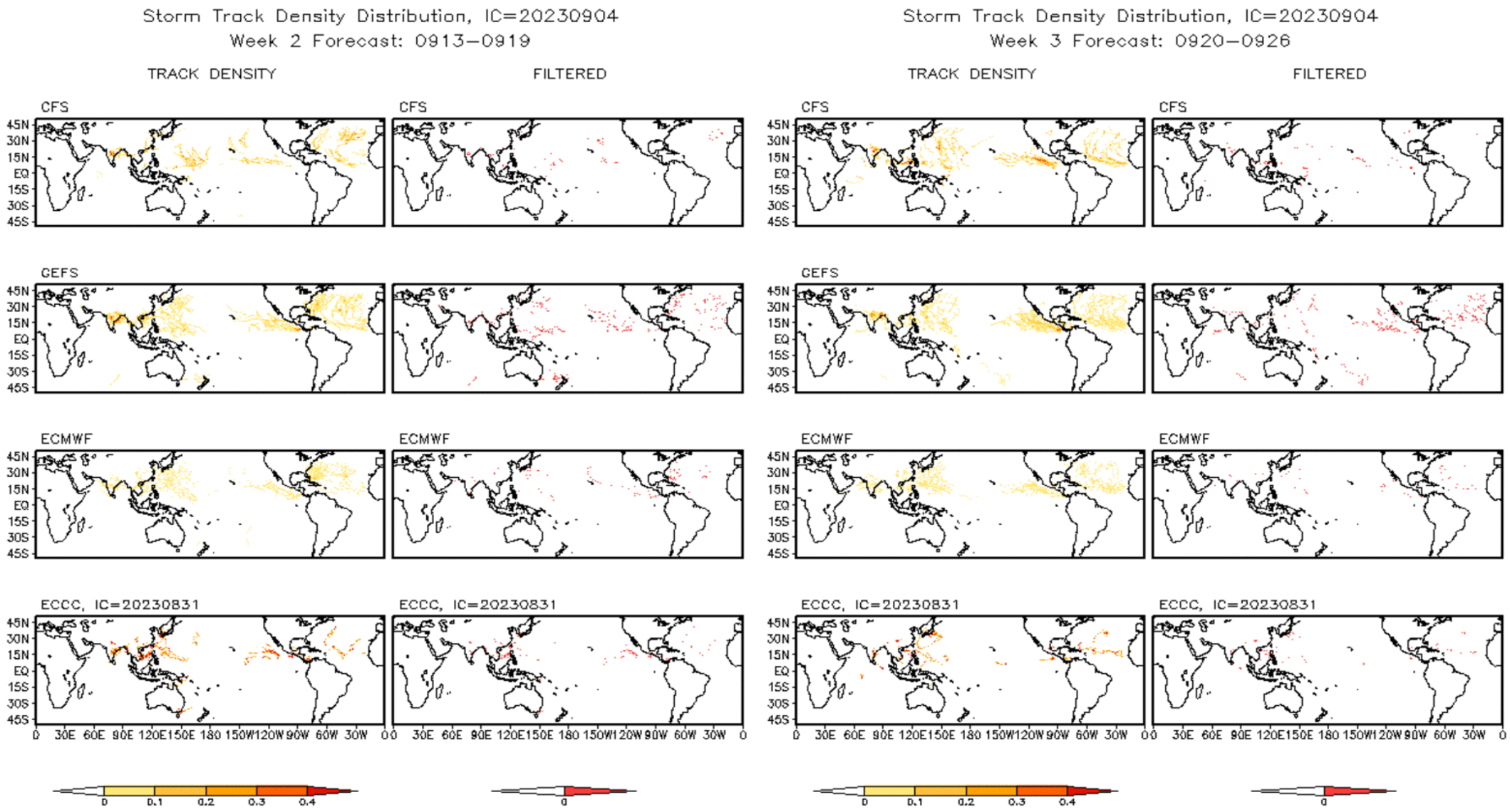




Tropical Cyclone Monitoring/Forecast: JTWC

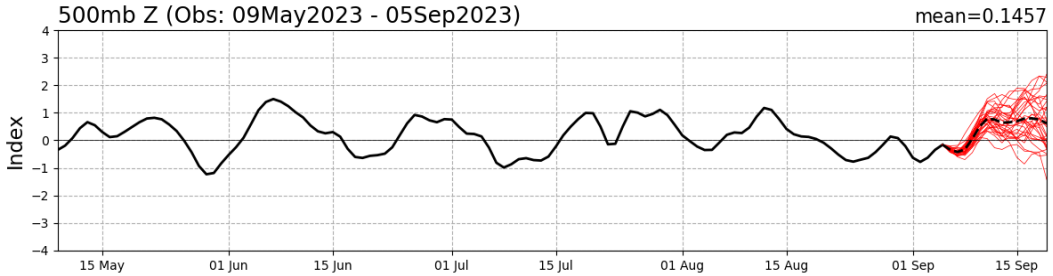


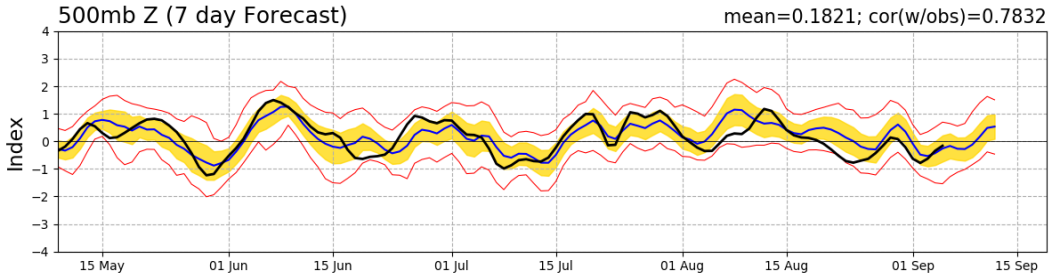
Multi-Model TC Track Densities: Weeks 2+3

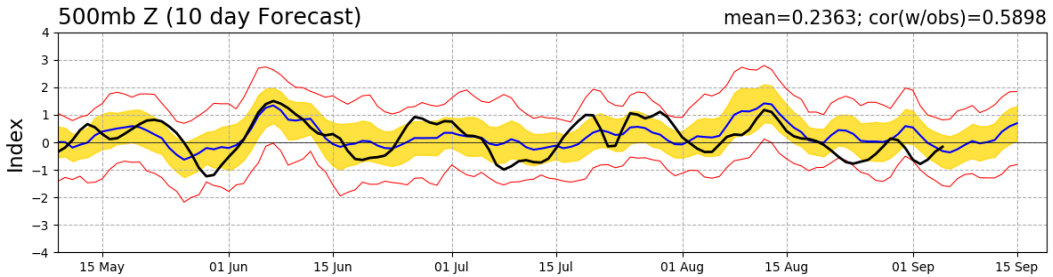


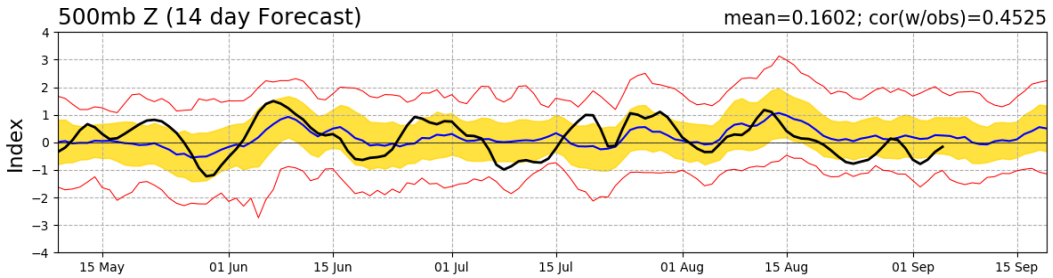
Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

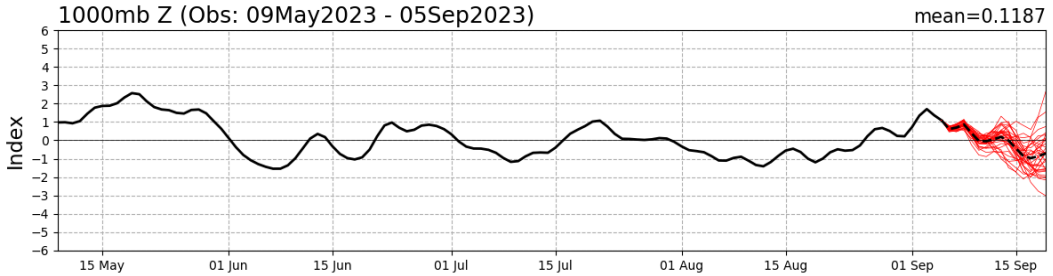


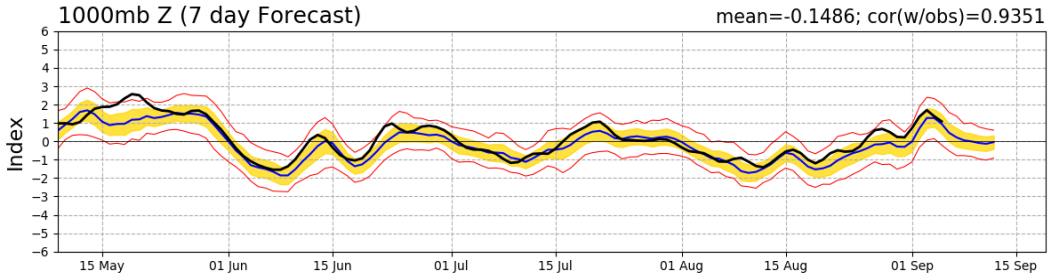


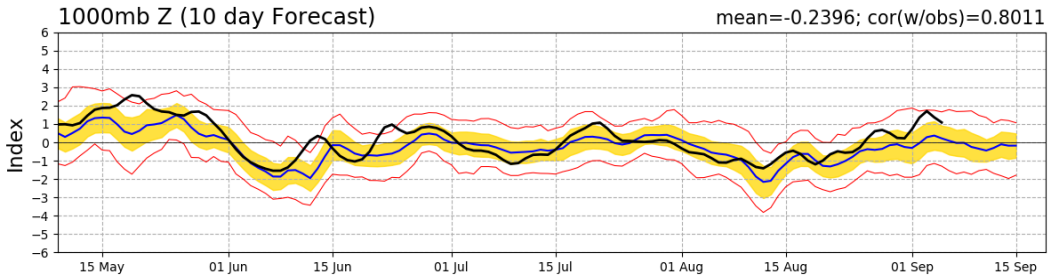


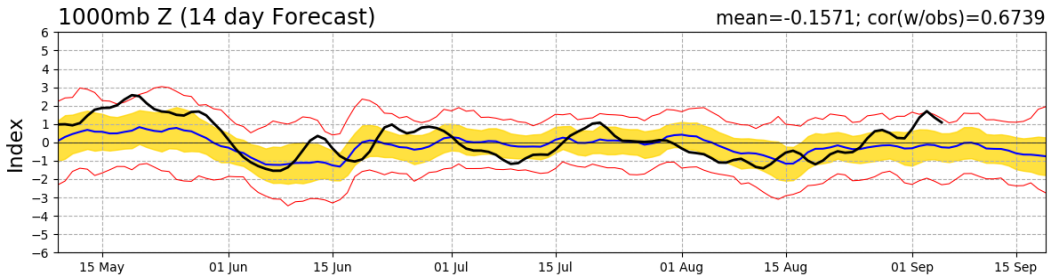


AO Index: Observed & GEFS Forecasts

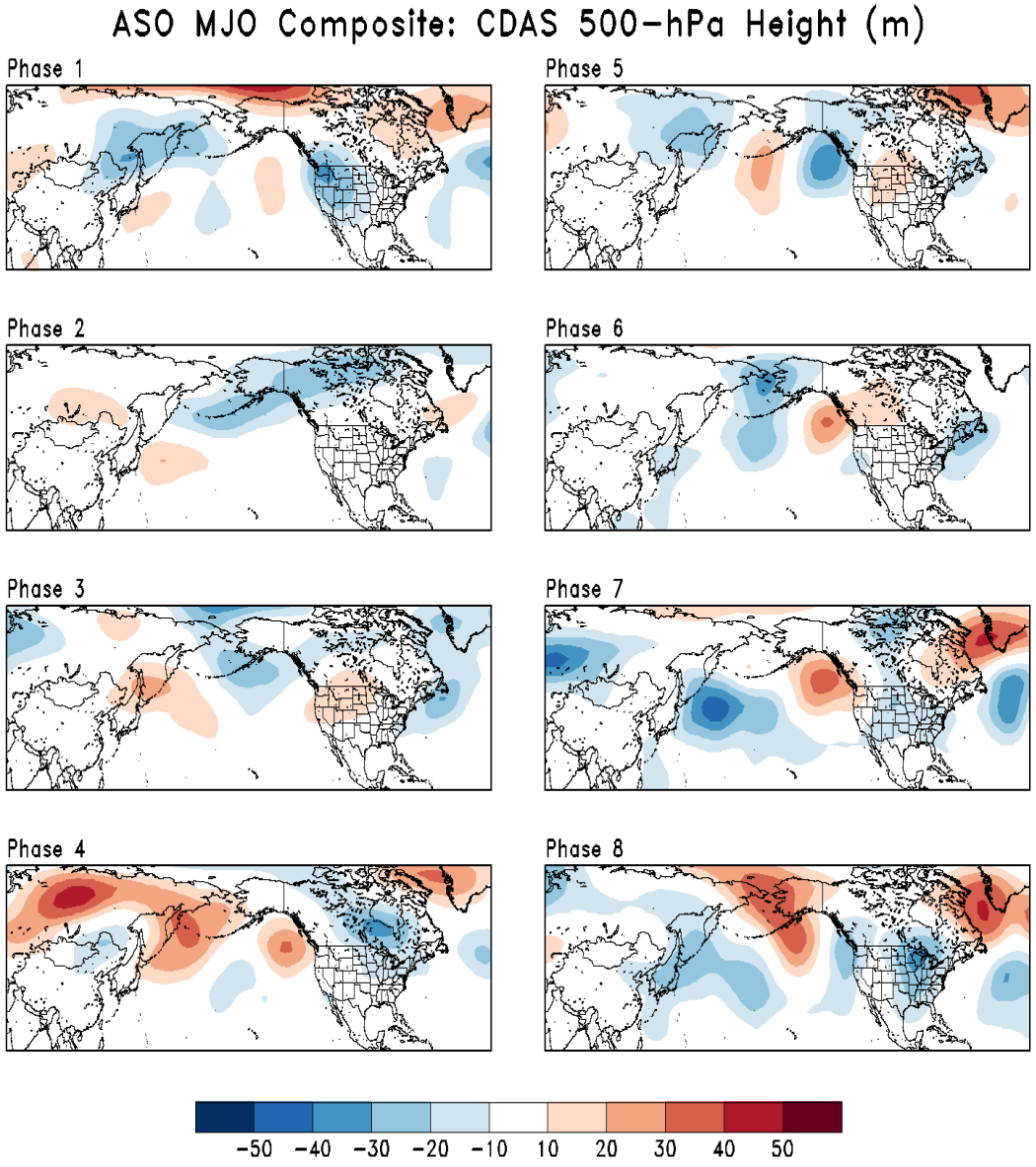


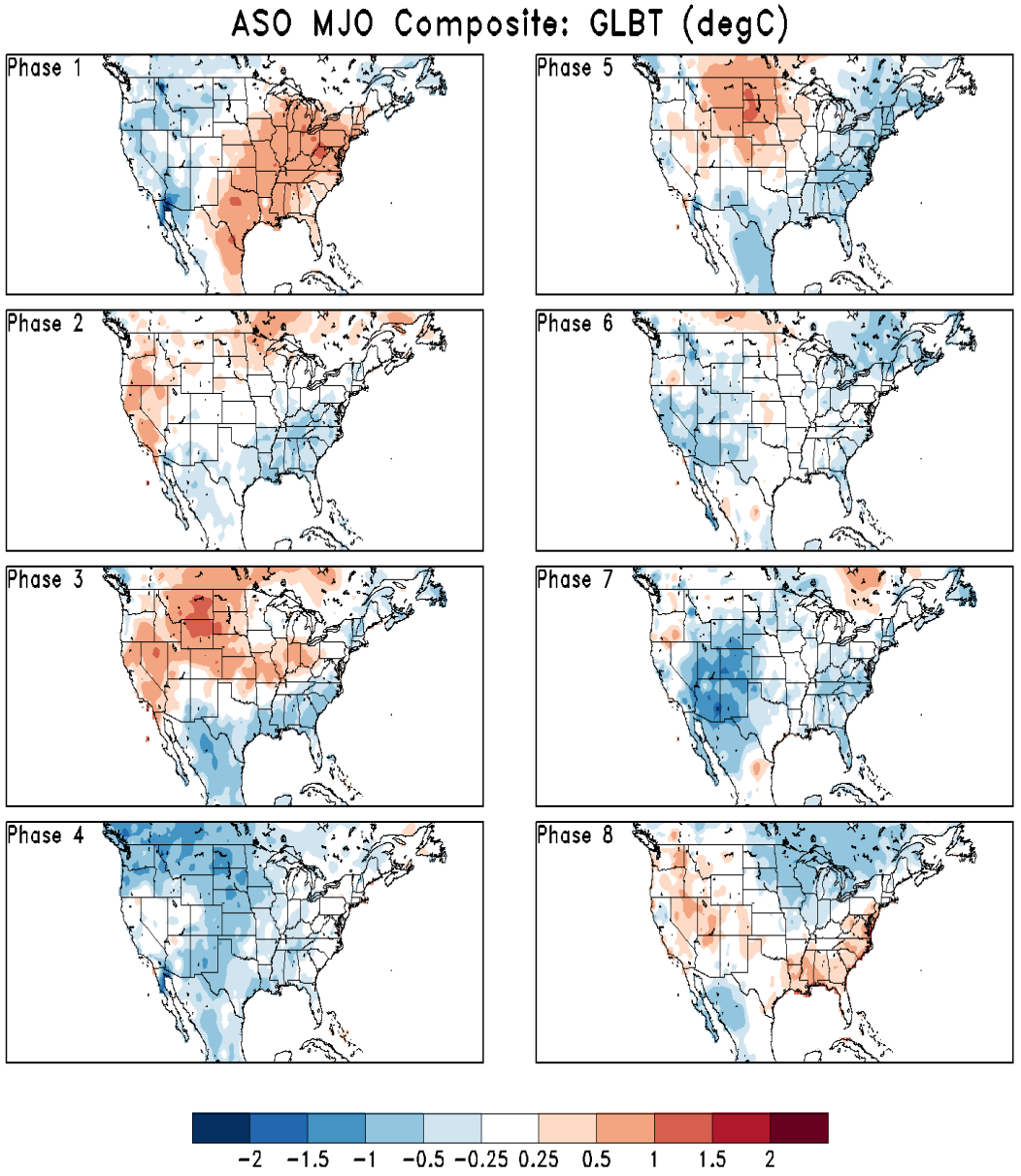




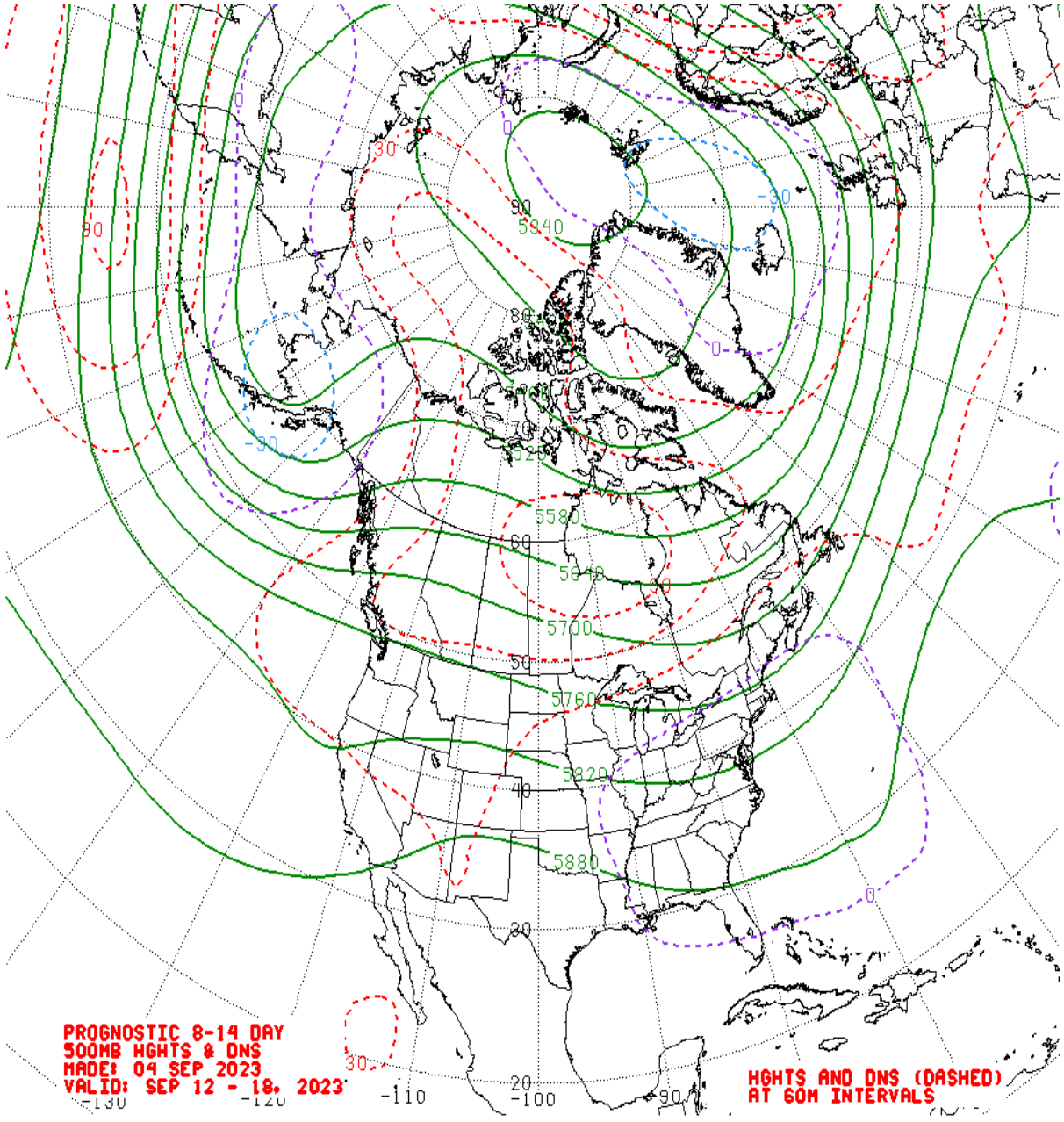


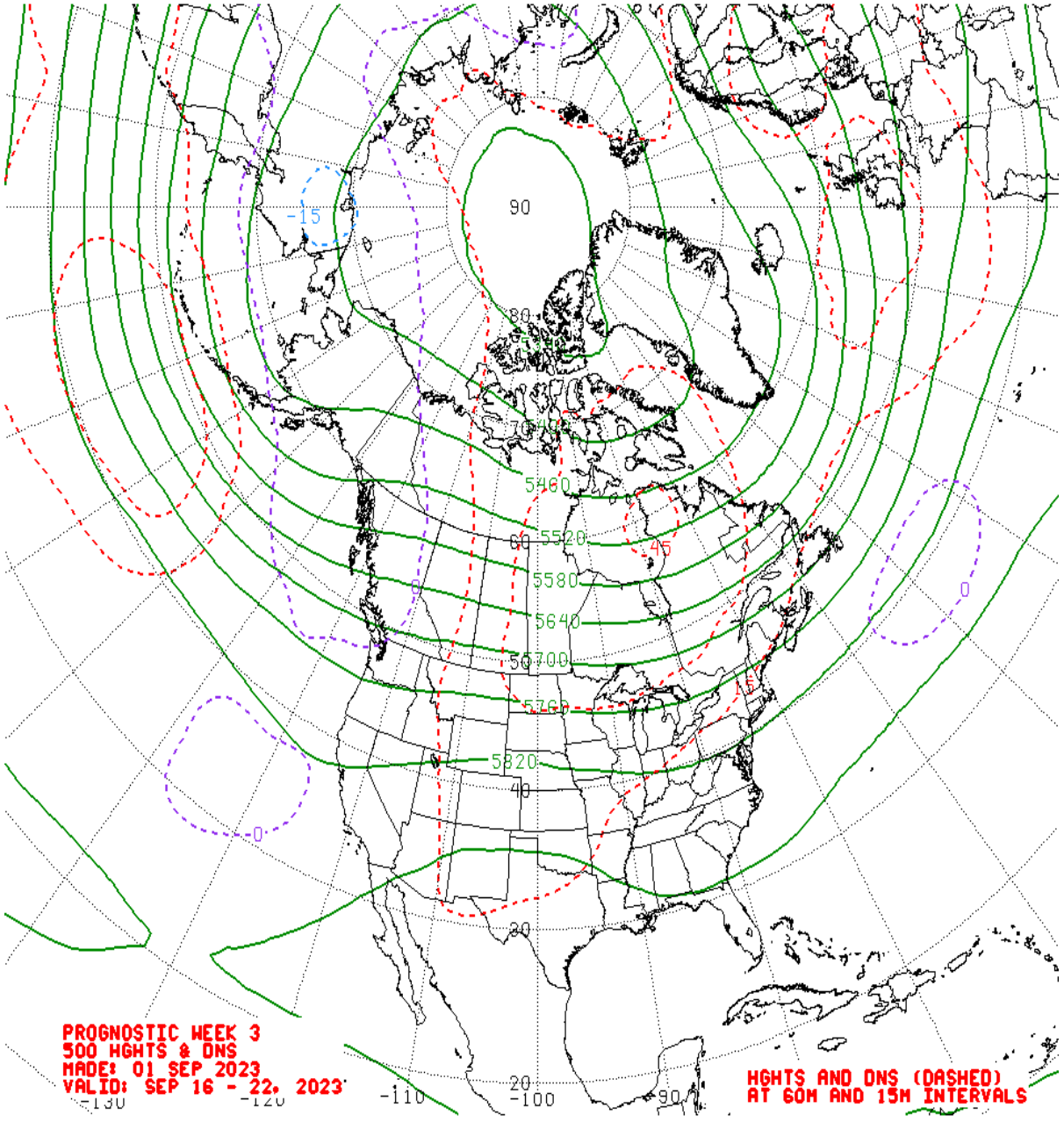
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:



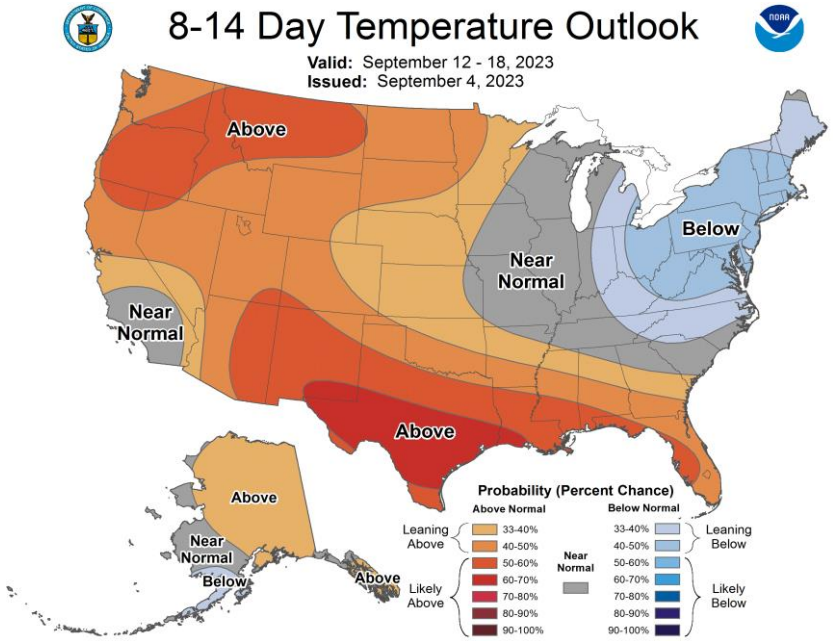


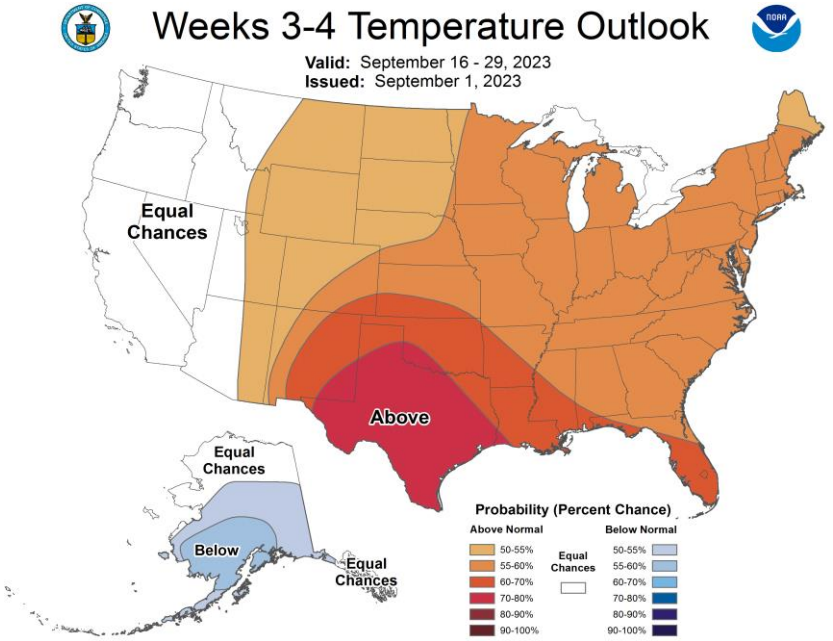
Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3

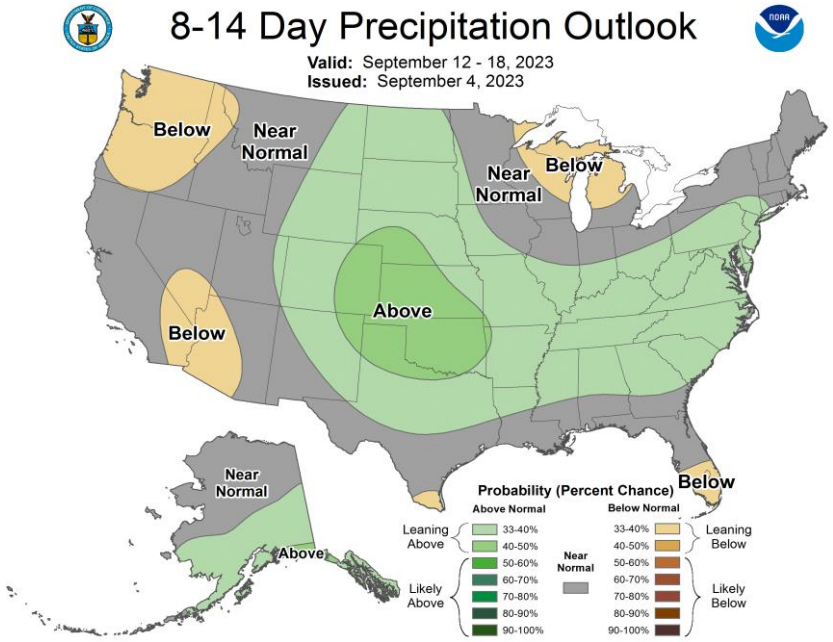


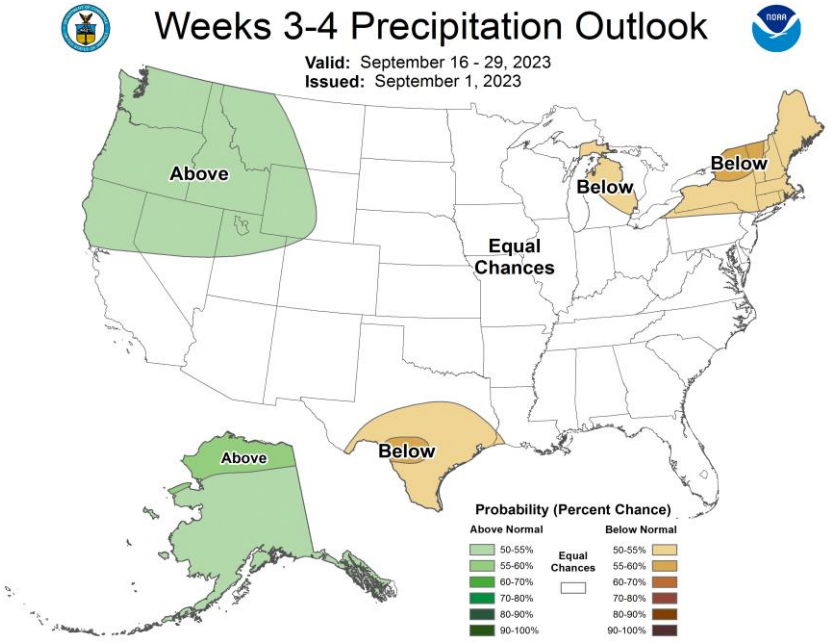


Official Temperature & Precipitation Forecasts:





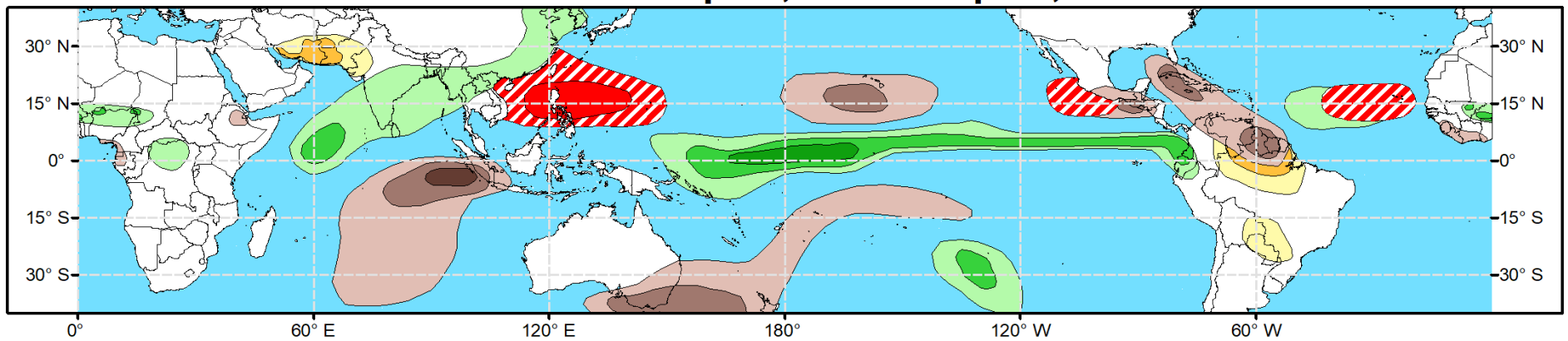




Global Tropics Hazards Outlook

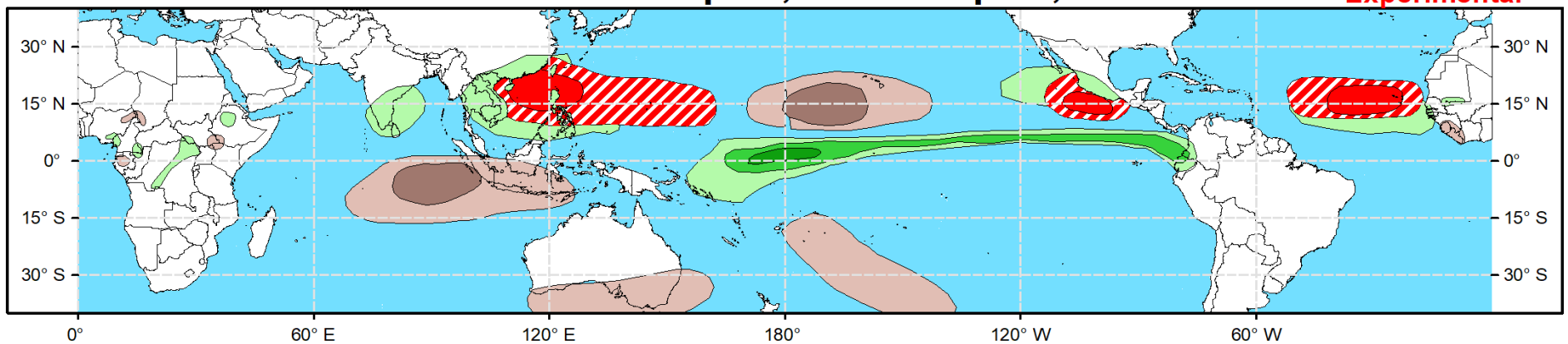
Climate Prediction Center

Week 2 - Valid: Sep 13, 2023 - Sep 19, 2023



Week 3 - Valid: Sep 20, 2023 - Sep 26, 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: 09/05/2023

Forecaster: Barandiaran

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.