



Weeks 2-3 Global Tropics Hazards Outlook

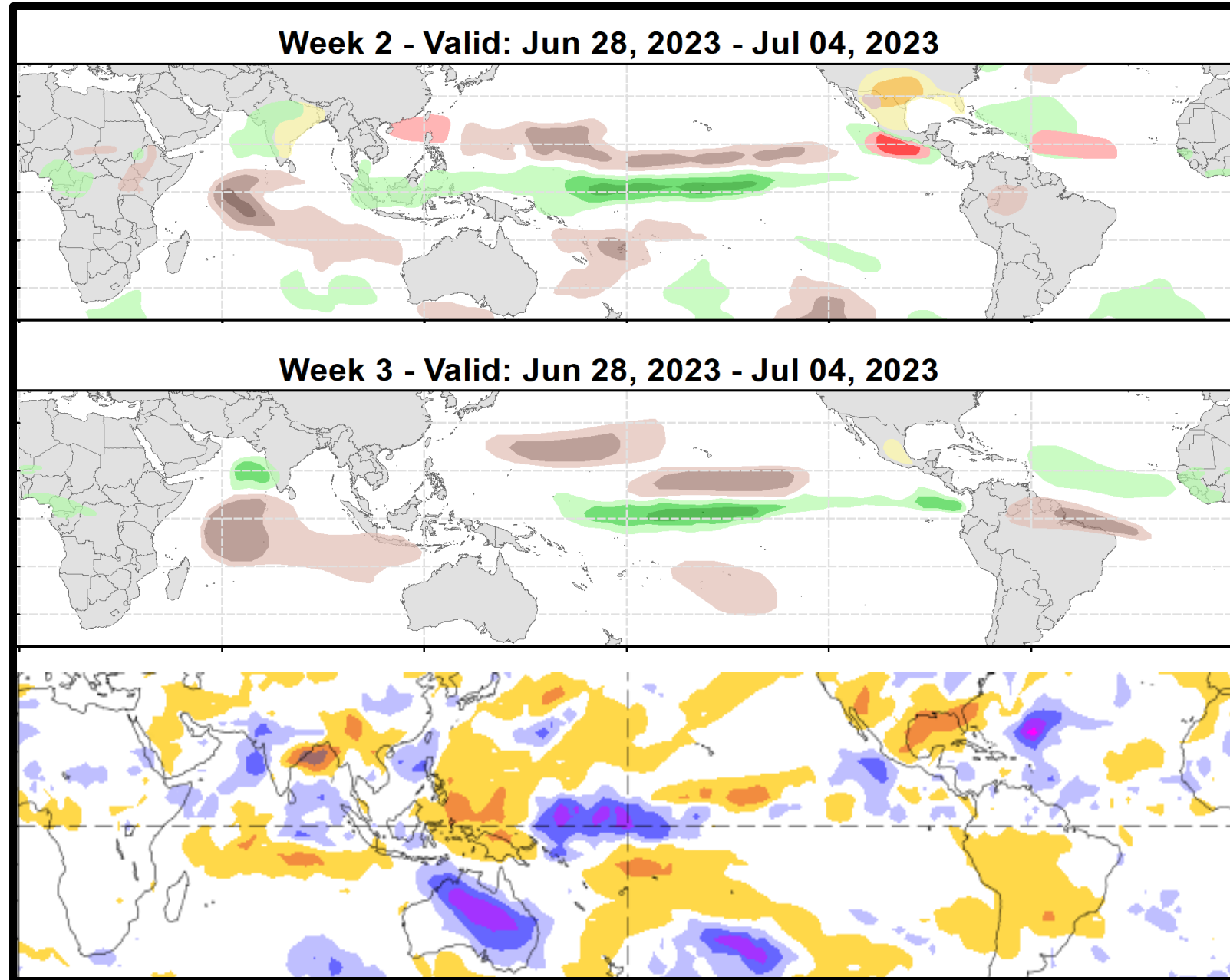
7/4/2023

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NWS / NCEP / Climate Prediction Center

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

- Hurricanes Adrian and Beatriz were well forecast in Week-2, as well as the south-central CONUS heatwave.
- No TC genesis occurred over the West Pac/So. China Sea or western MDR.
- Precipitation forecasts are broadly consistent (e.g., western India), though dryness north of New Guinea was not well forecast in Week-2.
- Enhanced convection near the Date Line is associated with El Niño.



Synopsis of Climate Modes:

ENSO: (June 8, 2023 Update) *next update on Thursday, July 13th.*

- ENSO Alert System Status: [El Niño Advisory](#)
- El Niño conditions are present and are expected to gradually strengthen into the Northern Hemisphere winter 2023-24.

MJO and other subseasonal tropical variability:

- MJO activity remains weak, with the subseasonal pattern dominated by Kelvin wave activity and extratropical forcing.
- An amplified Southern Hemisphere pattern has produced a zonal wind field uncharacteristic of a canonical El Niño response, with enhanced trades near the surface.
- Dynamical model MJO index forecasts increasingly indicate a potential for renewed MJO activity during Weeks 2-3, with the enhanced phase propagating from the Maritime Continent to the West Pacific. This renewed activity may be kicked off by Kelvin wave activity interacting with a slower moving signal.
- Should a MJO event develop and enter the West Pacific, it would constructively interfere with the ENSO base state and provide substantial reinforcing forcing (WWBs) in the western equatorial Pacific.

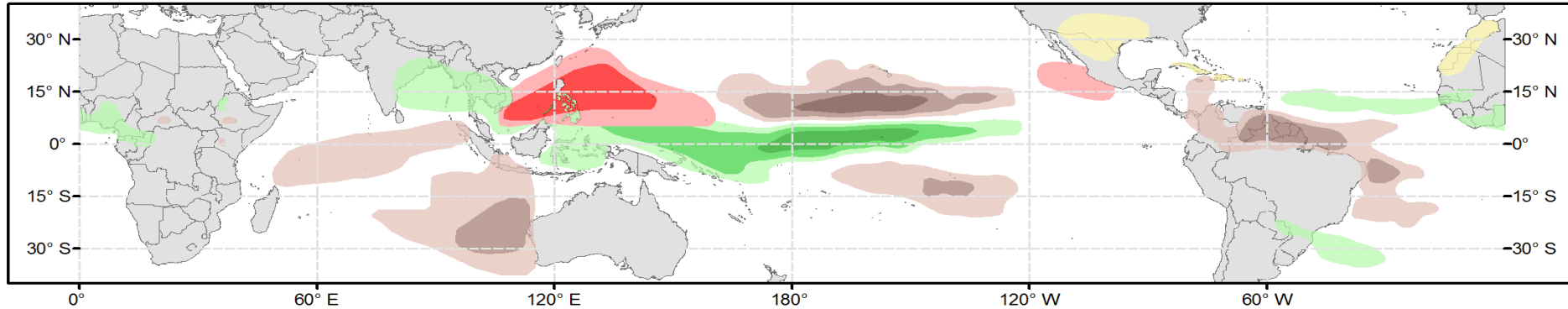
GTH Outlook:



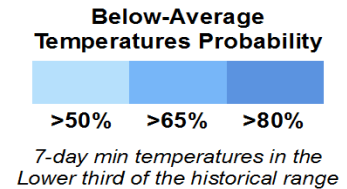
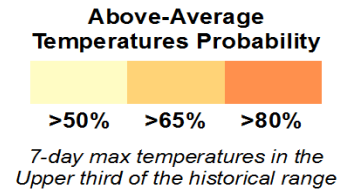
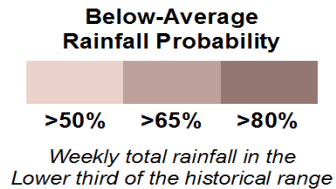
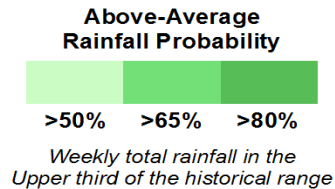
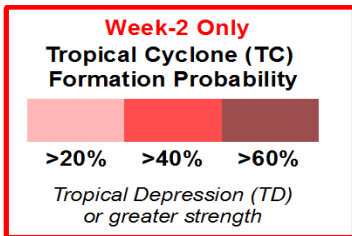
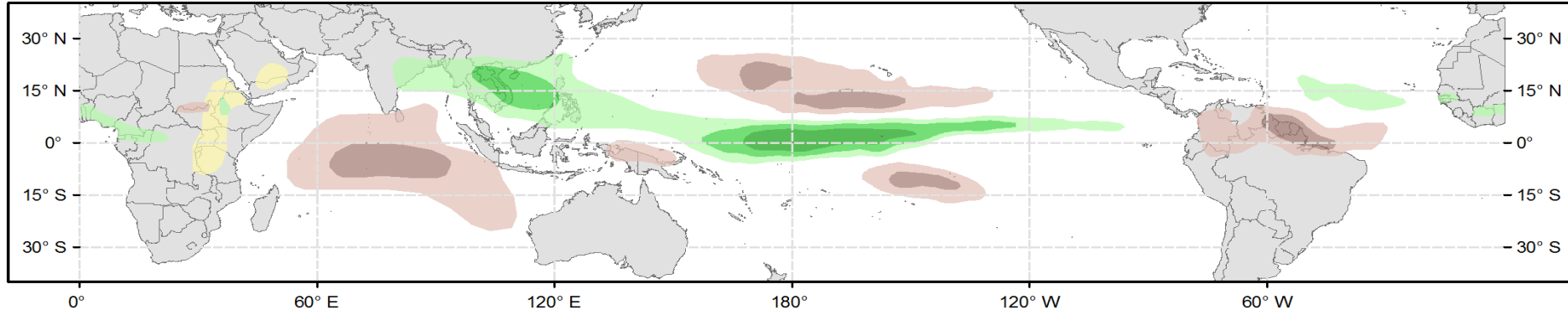
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Jul 12, 2023 - Jul 18, 2023



Week 3 - Valid: Jul 19, 2023 - Jul 25, 2023

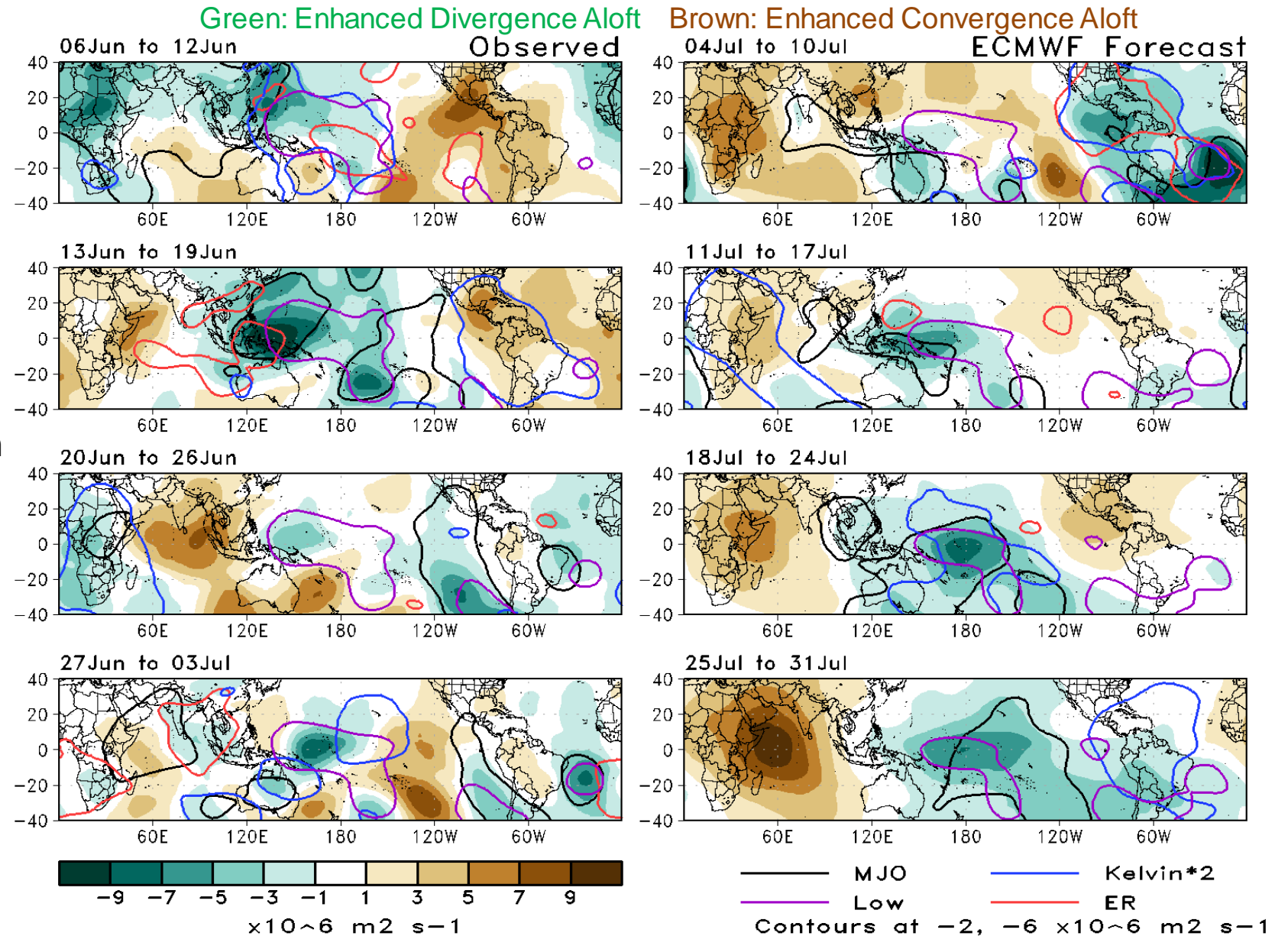


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Forecaster: Allgood

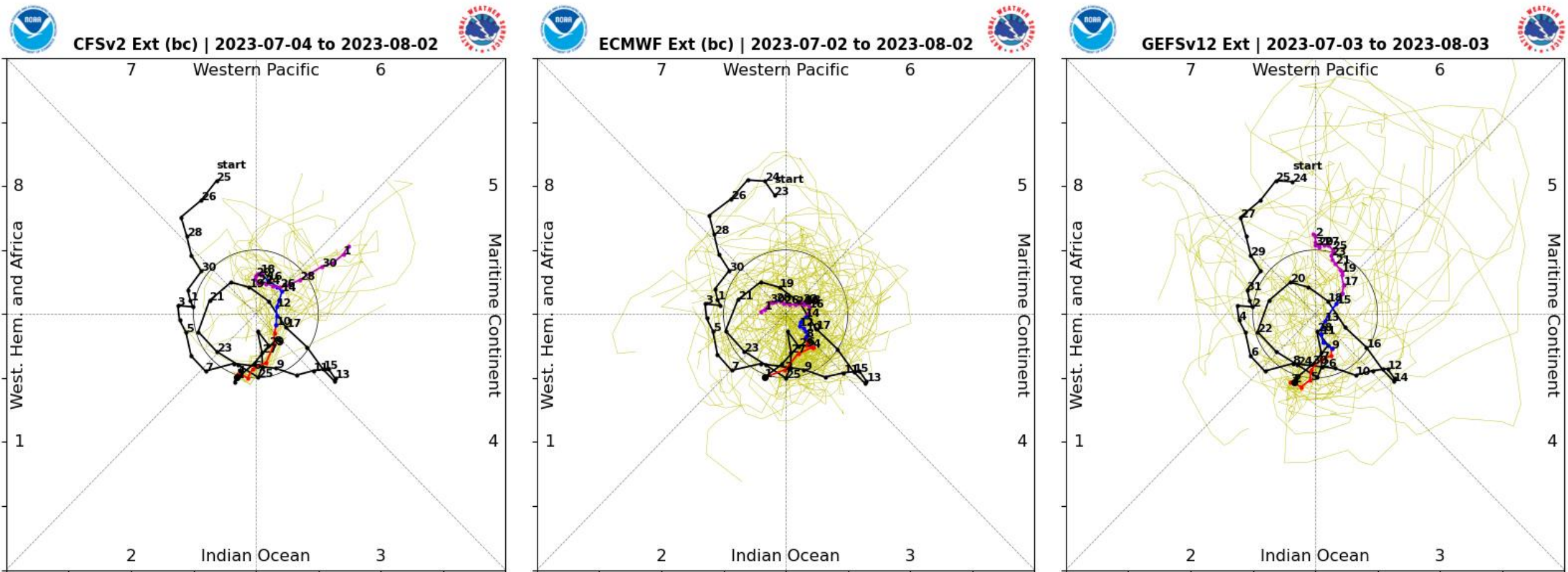
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

- During mid to late June, MJO activity weakened, and enhancement became more persistent near the Date Line (associated with a response to El Niño).
- The ECMWF forecast depicts an evolution more consistent with MJO activity, crossing the Maritime Continent during Week-2 and reaching the West Pacific in Week-3, where it constructively interferes with the ENSO base state.

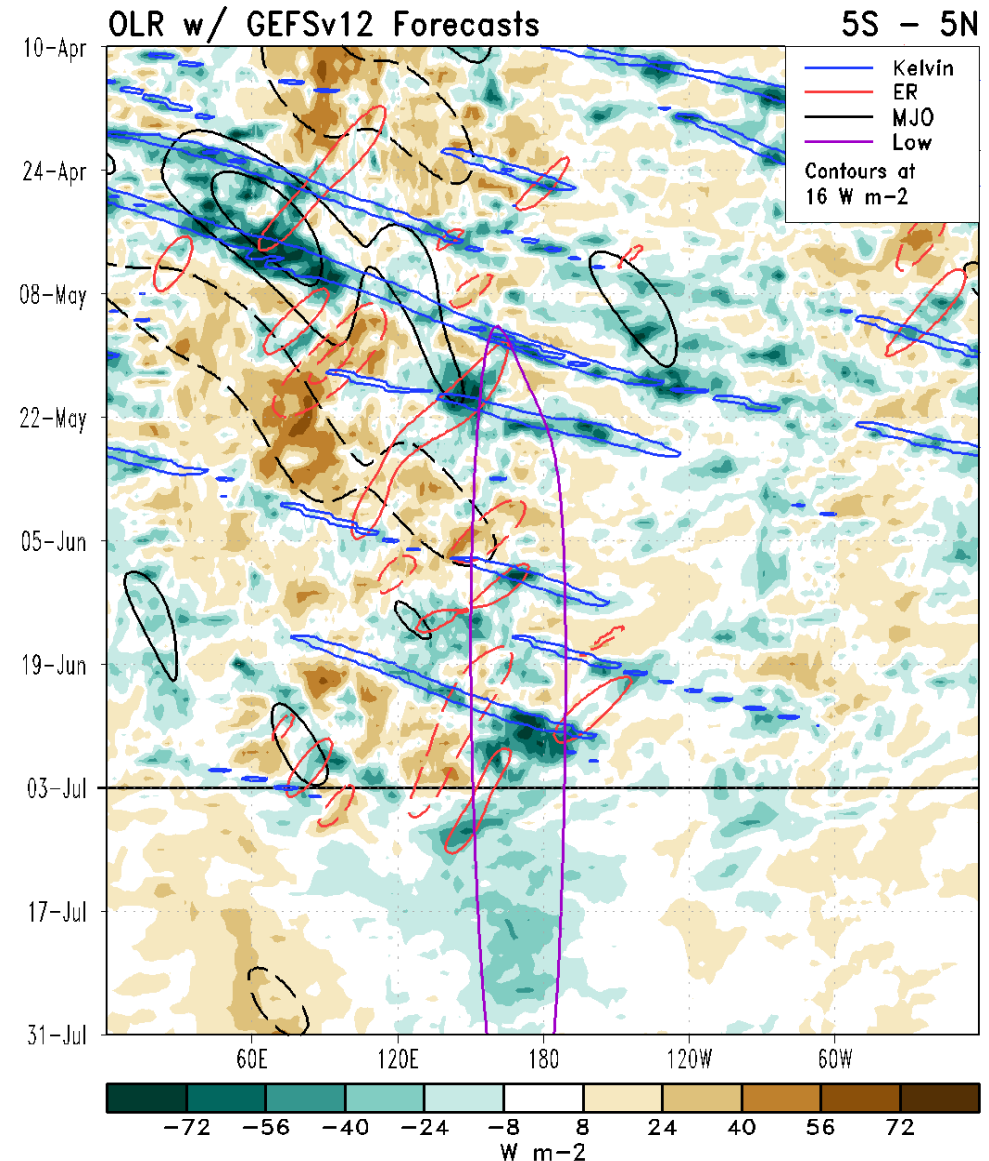
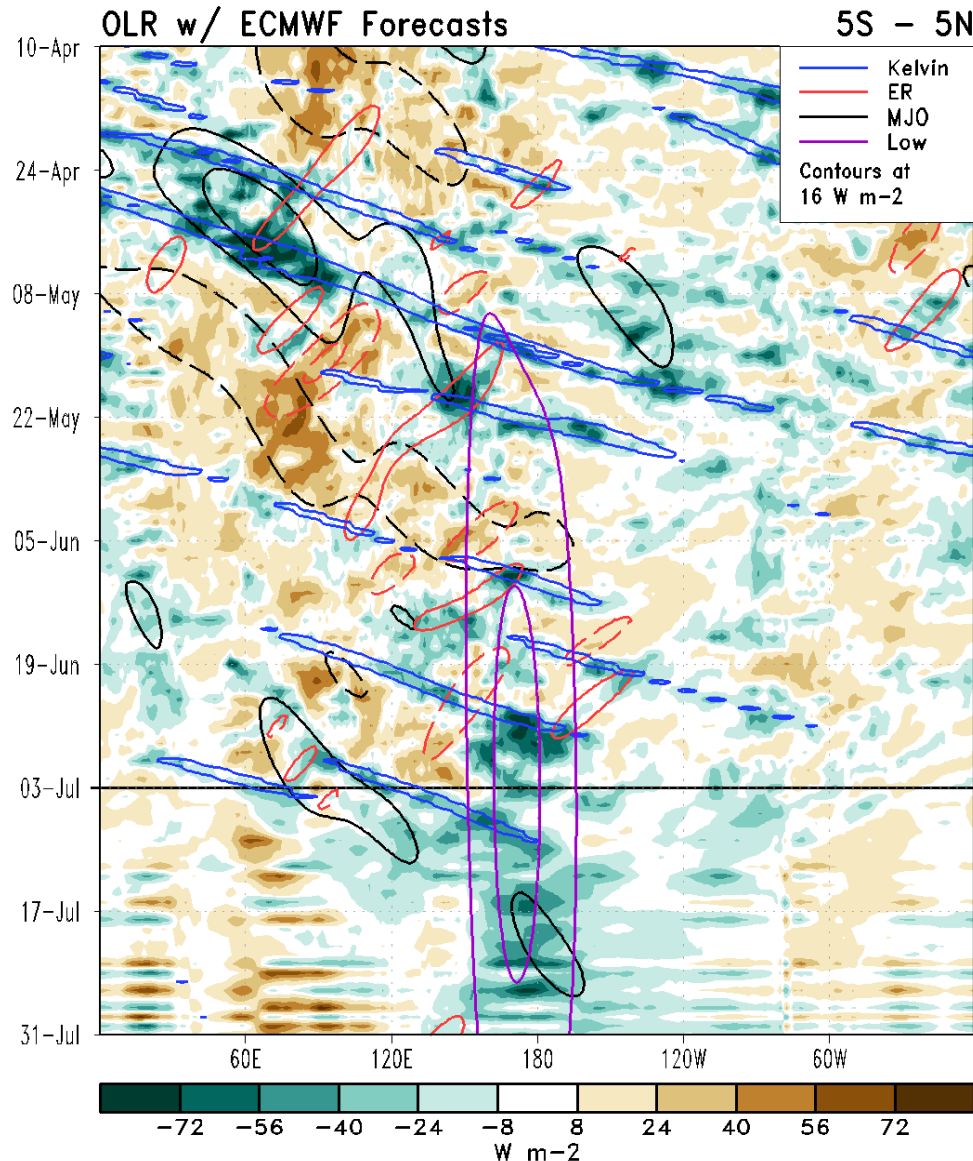


RMM Index Observations & Forecasts:



- Although model spread is high, both the CFS and GEFs have multiple ensemble members depicting MJO activity developing over the Maritime Continent.
- The ECMWF is generally weaker, but a significant number of ensemble members also reflect MJO activity. The ECMWF has been showing this potential solution longer than the GEFs.

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

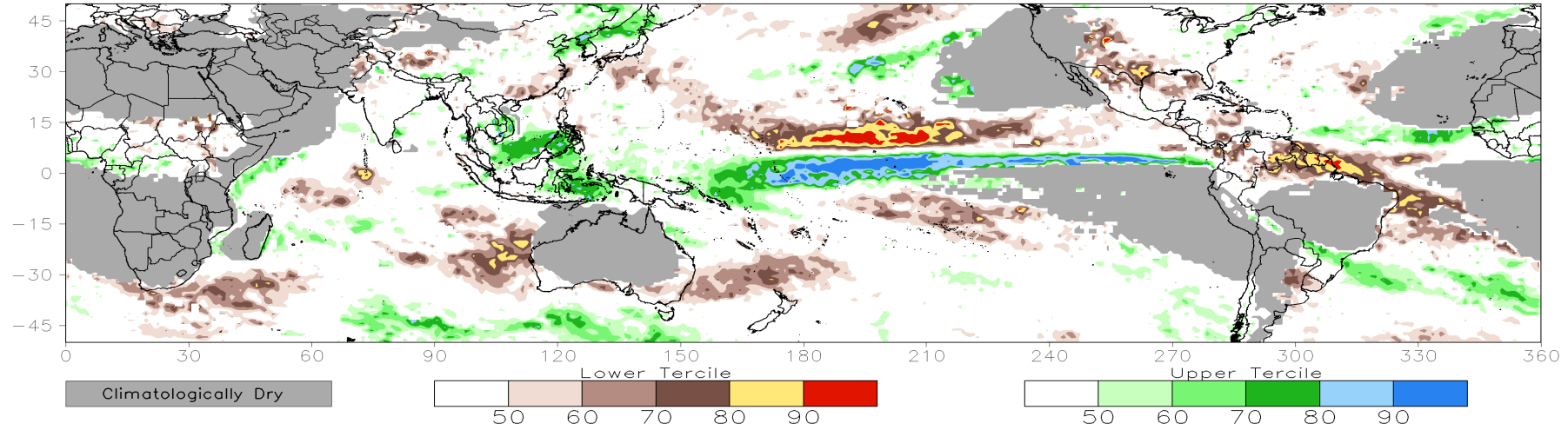


Potential data issues associated with an ECMWF upgrade

Consolidated Probabilistic Precipitation: Weeks 2 & 3

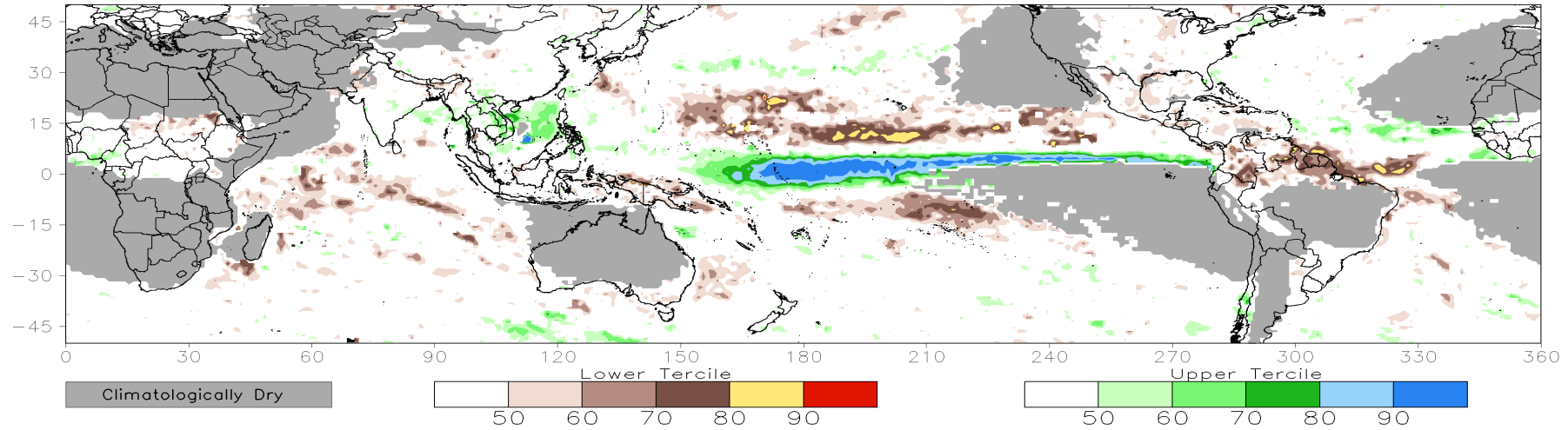
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 12Jul2023–18Jul2023



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

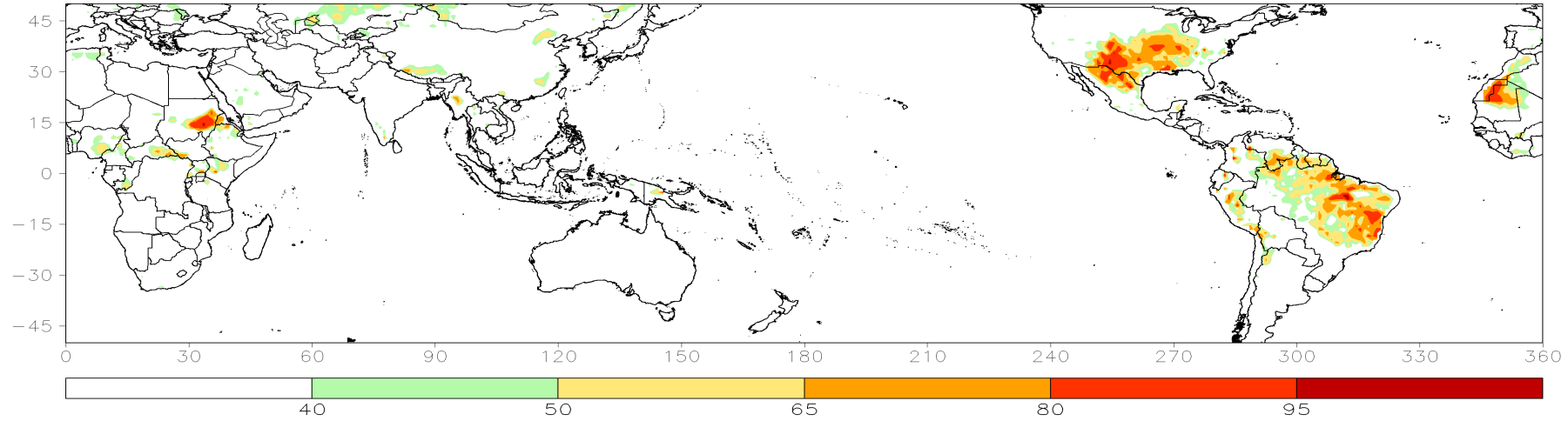
Valid: 19Jul2023–25Jul2023



Consolidated Probabilistic Temperatures: Week-2

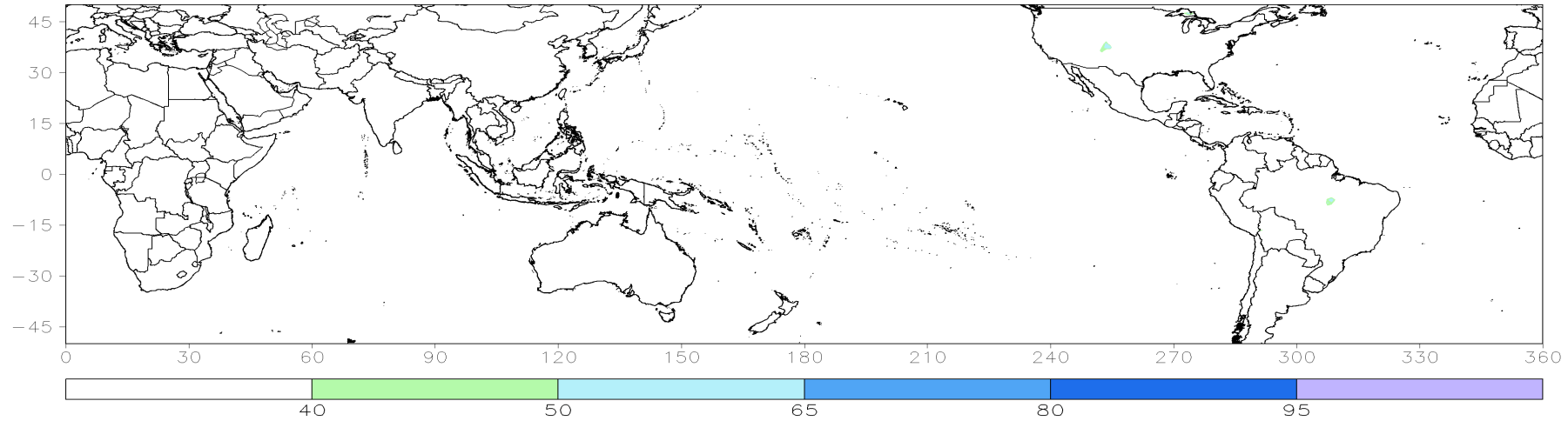
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 12Jul2023–18Jul2023



CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmin Below Lower Tercile (%)

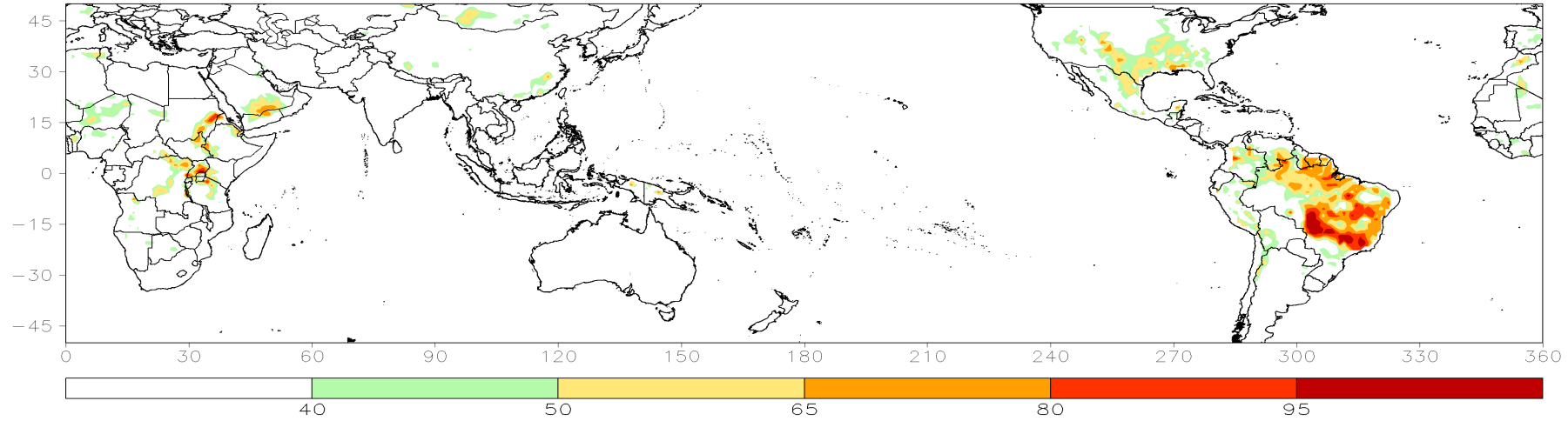
Valid: 12Jul2023–18Jul2023



Consolidated Probabilistic Temperatures: Week-3

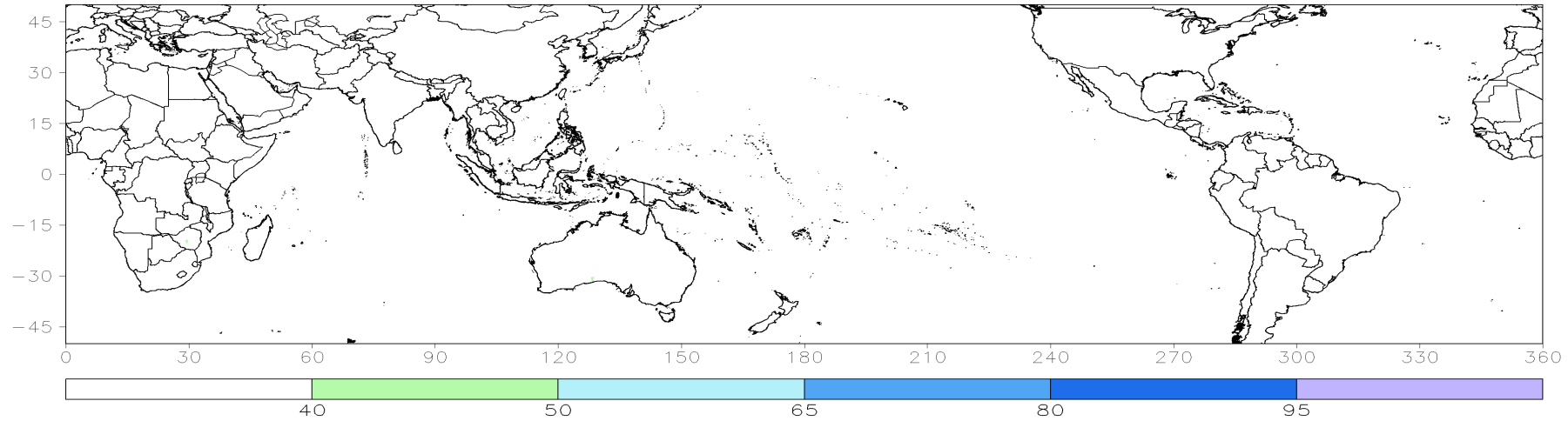
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 19Jul2023–25Jul2023



CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmin Below Lower Tercile (%)

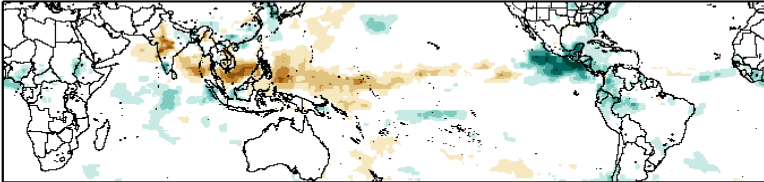
Valid: 19Jul2023–25Jul2023



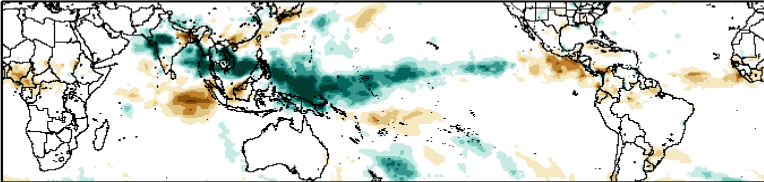
Historical Precipitation Anomalies By MJO Phase:

JJA MJO Composite: GPCP1DD (mm/day)

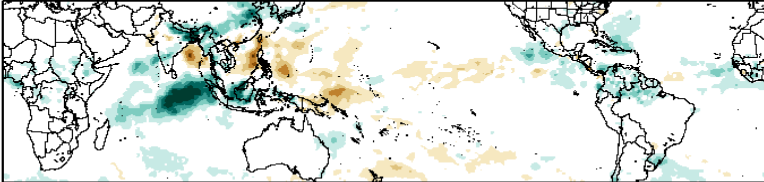
Phase 1



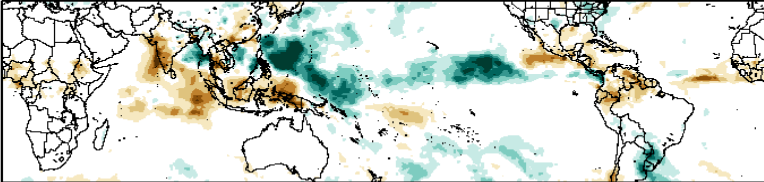
Phase 5



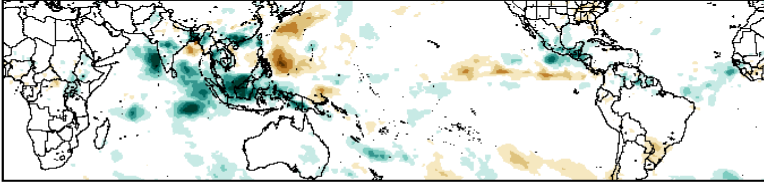
Phase 2



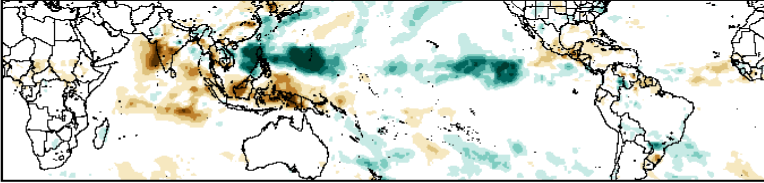
Phase 6



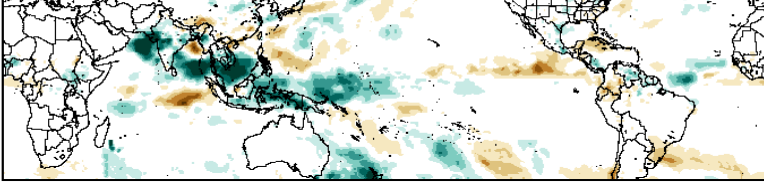
Phase 3



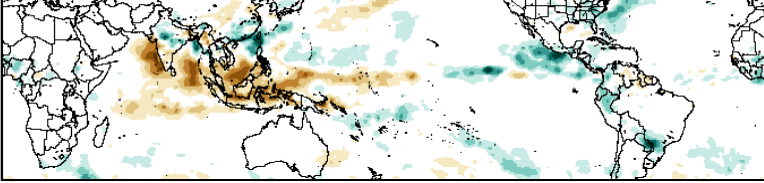
Phase 7



Phase 4

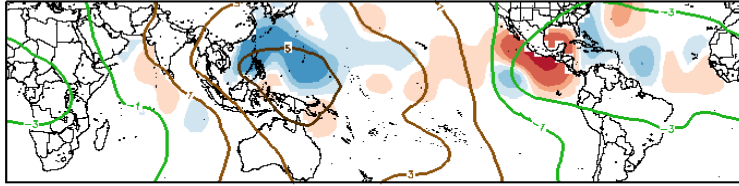


Phase 8

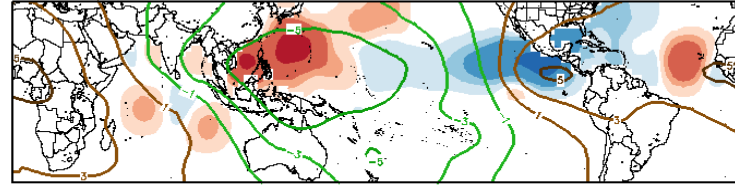


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

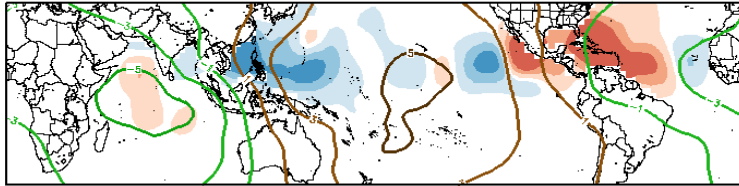
JJA MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JJA CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



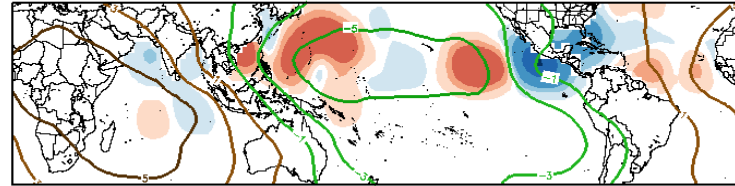
Phase 1



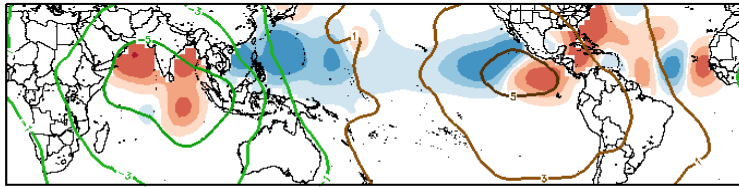
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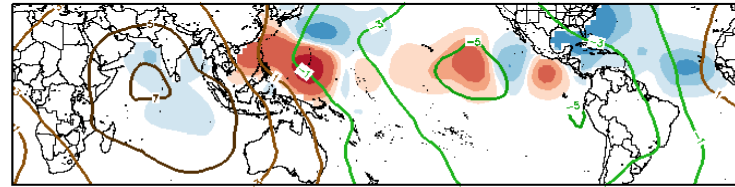
Phase 2



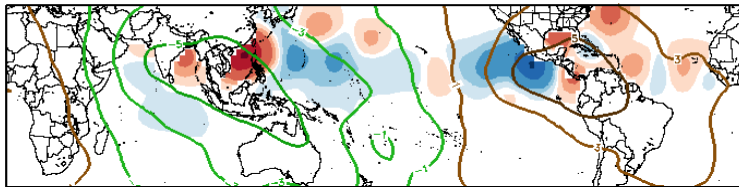
Phase 6



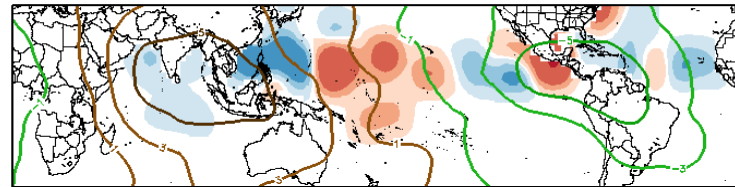
Phase 3



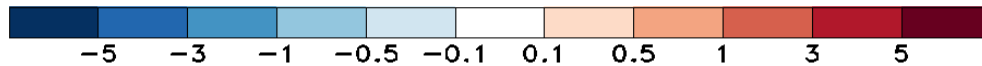
Phase 7



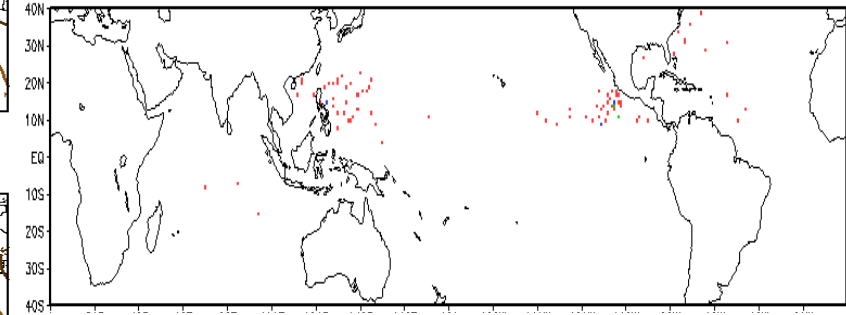
Phase 4



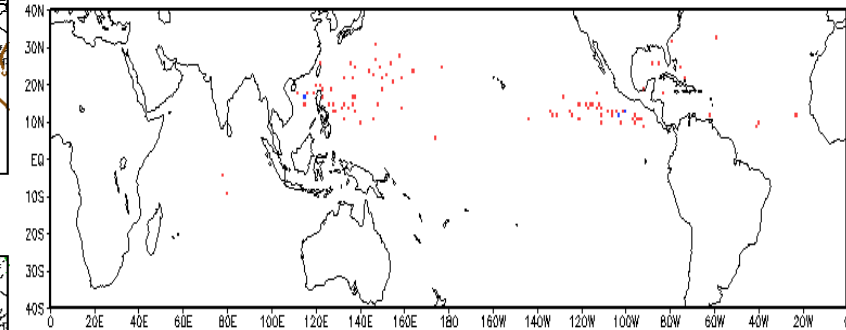
Phase 8



Observed TC Genesis, 1979-2021
7-day Period 0712 to 0718

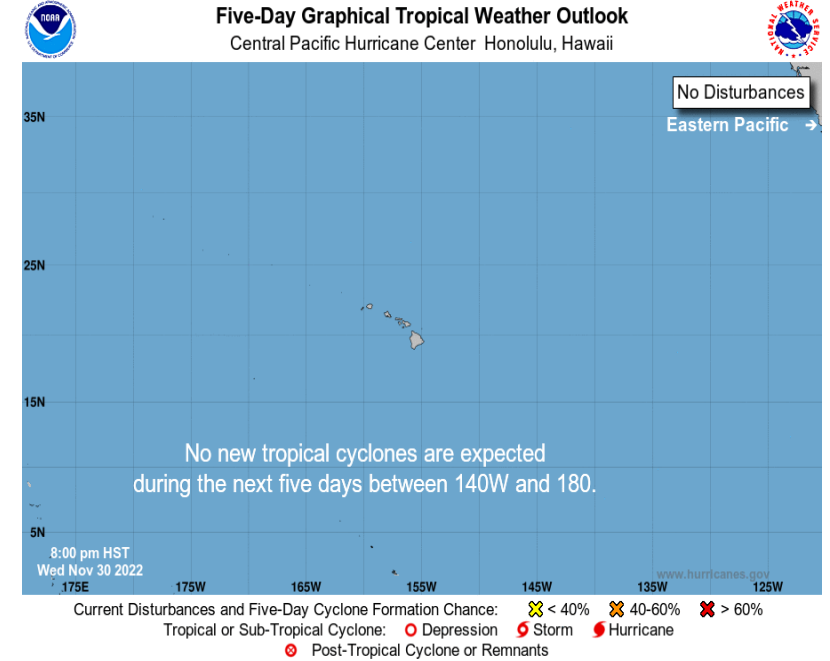
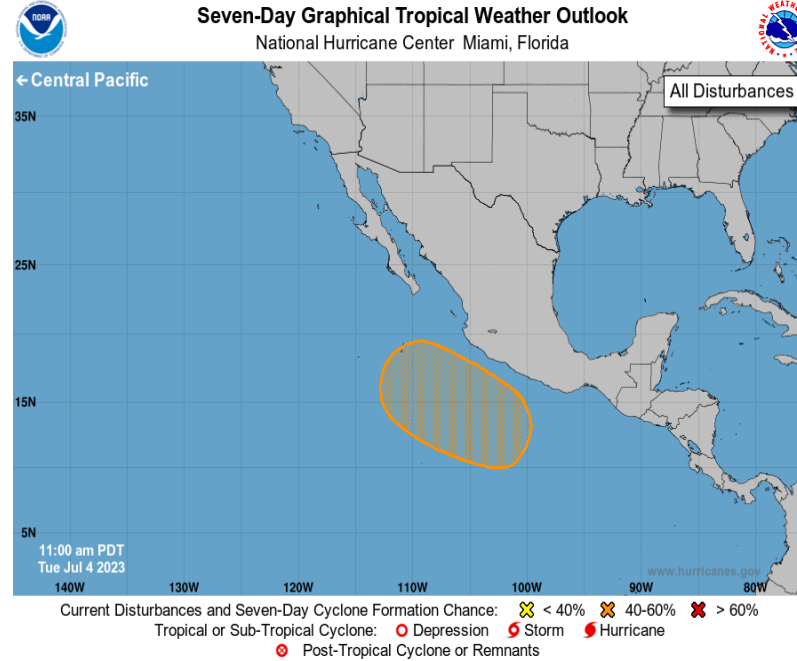
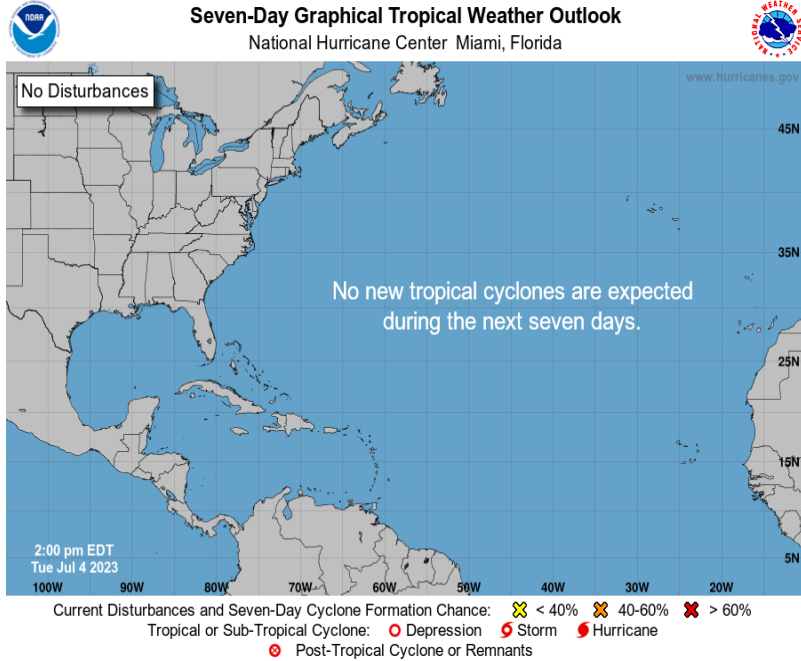


Observed TC Genesis, 1979-2021
7-day Period 0719 to 0725



Experimental

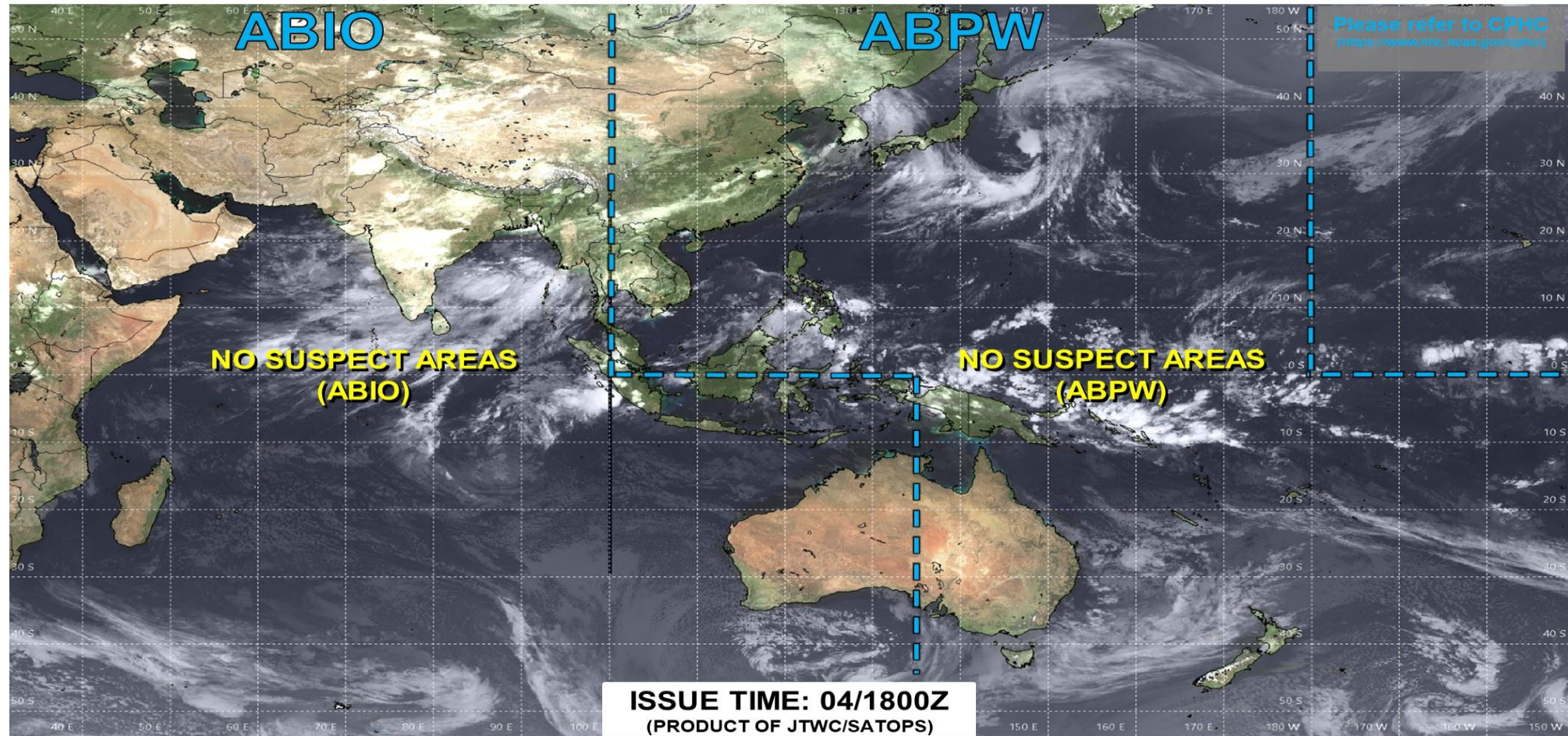
Tropical Cyclone Monitoring/Forecast: NHC



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)



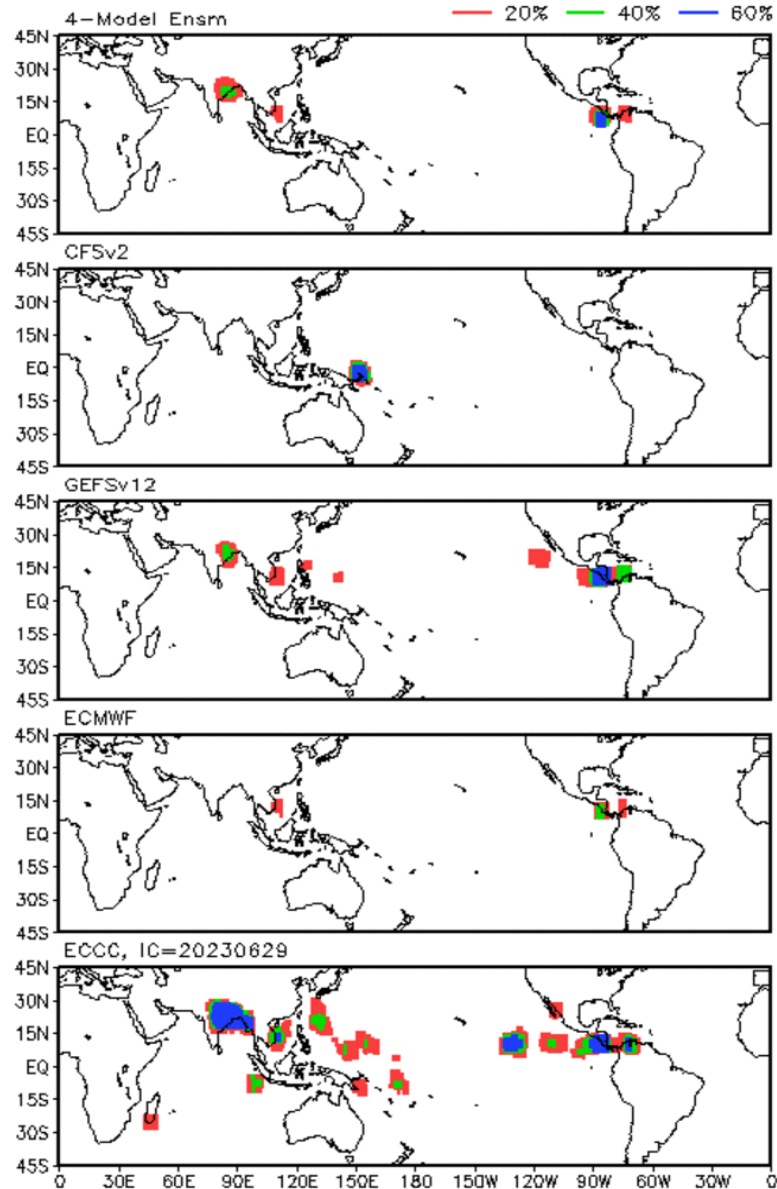
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



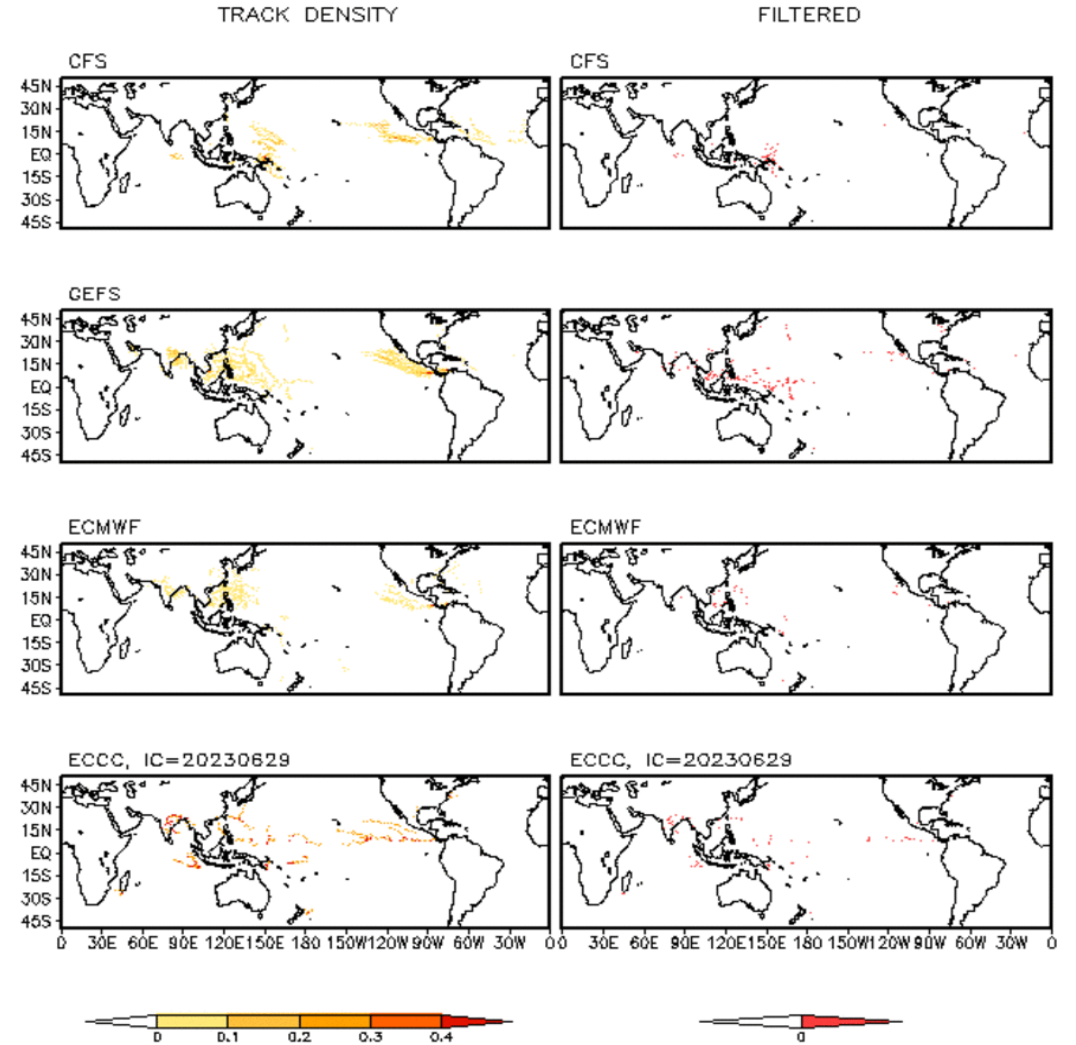
Tropical Cyclone (Reference Warning)

Multi-Model TC Track Probabilities/Densities: Week-2

Storm Track Probabilities, IC=20230703
Week 2: 0712 - 0718

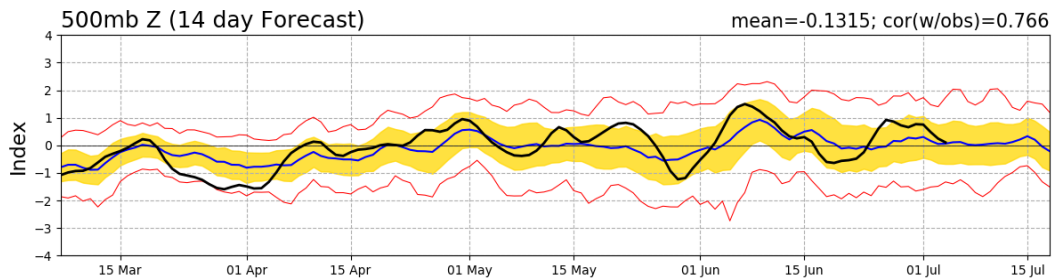
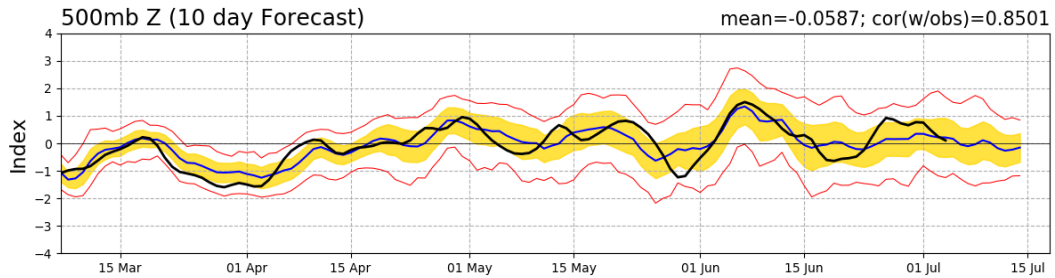
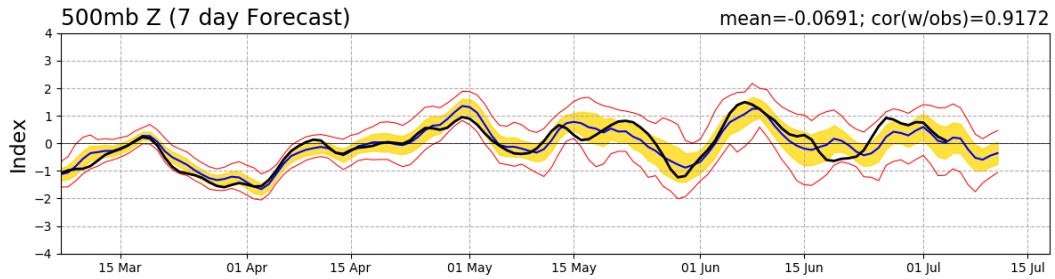
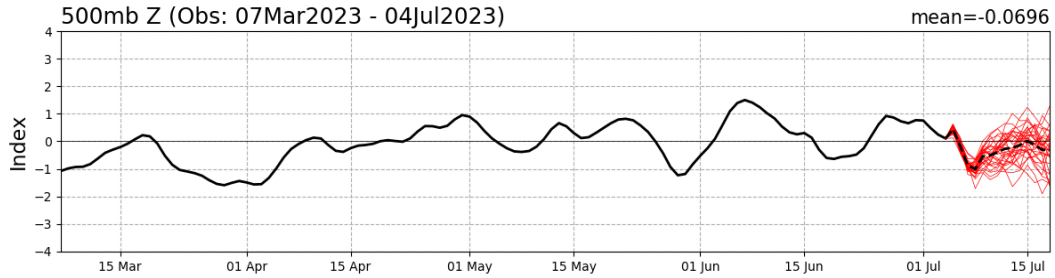


Storm Track Density Distribution, IC=20230703
Week 2 Forecast: 0712-0718

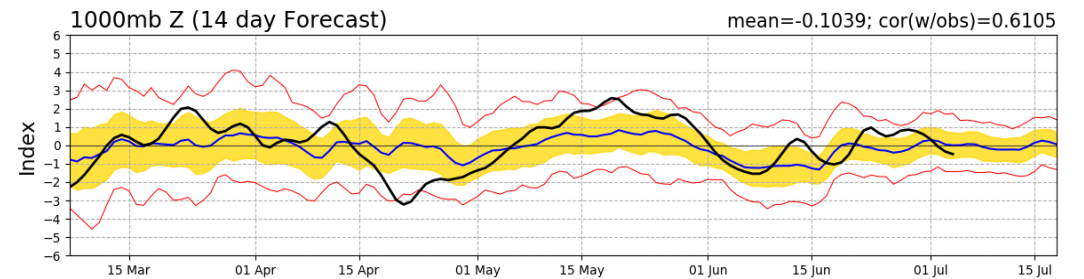
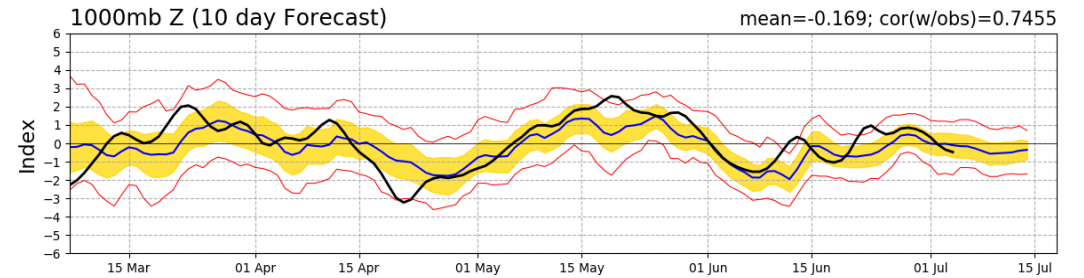
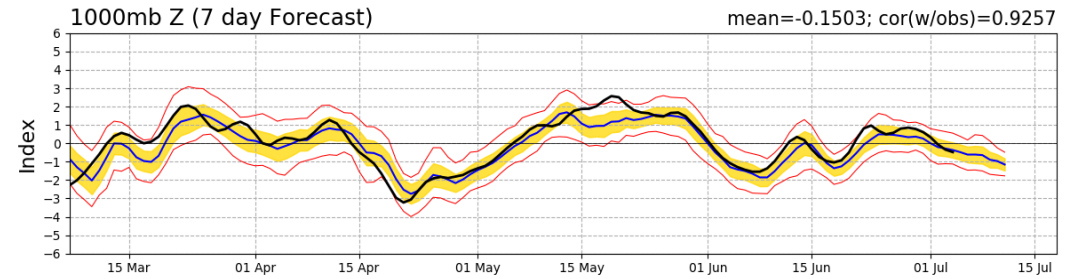
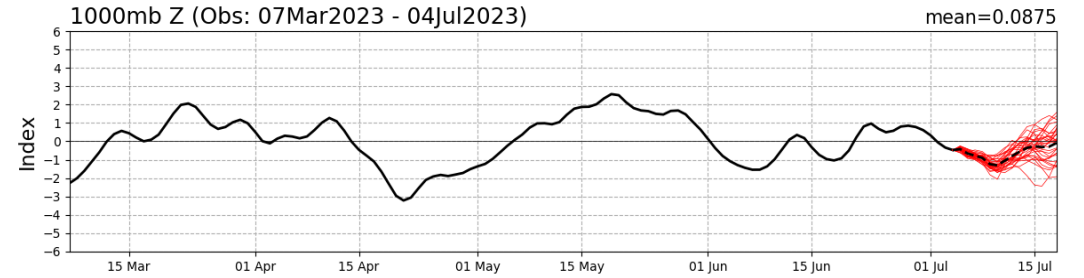


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

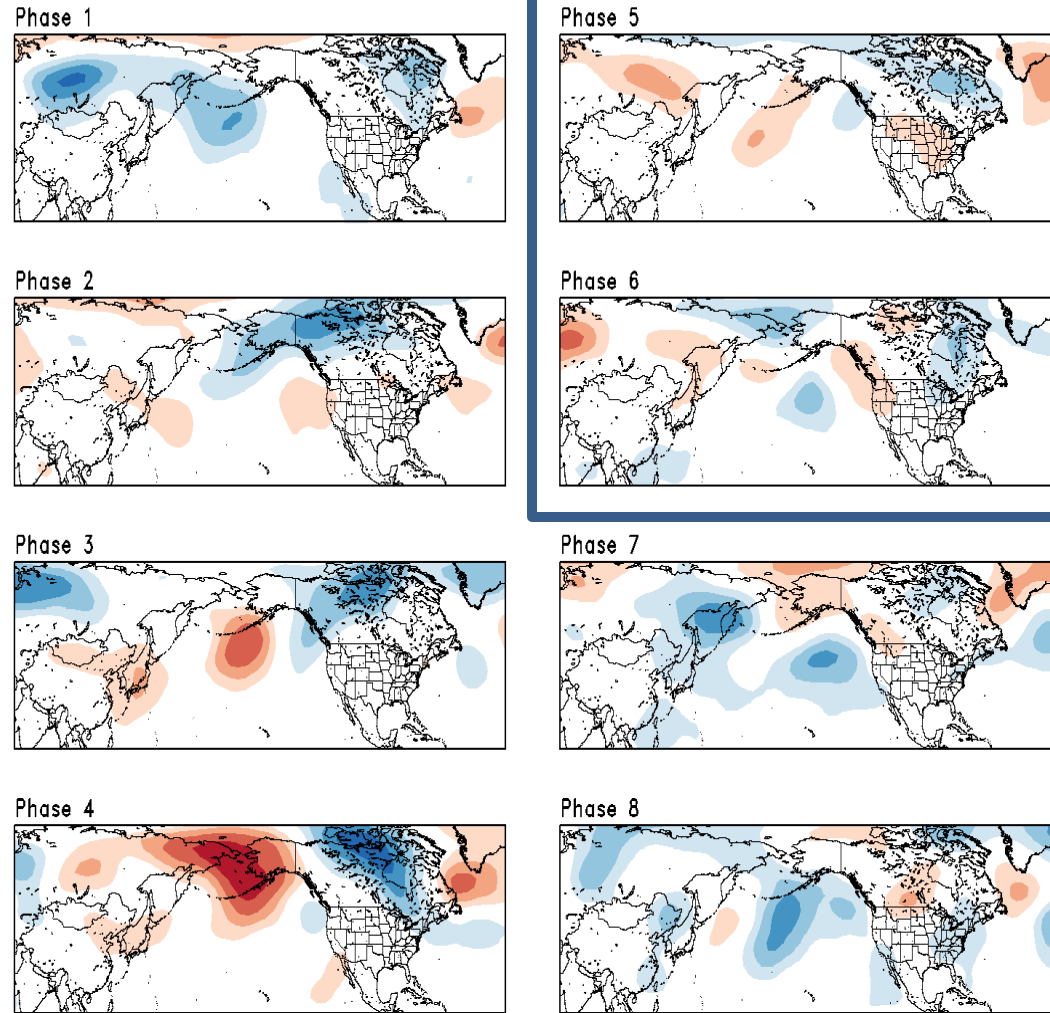


AO Index: Observed & GEFS Forecasts

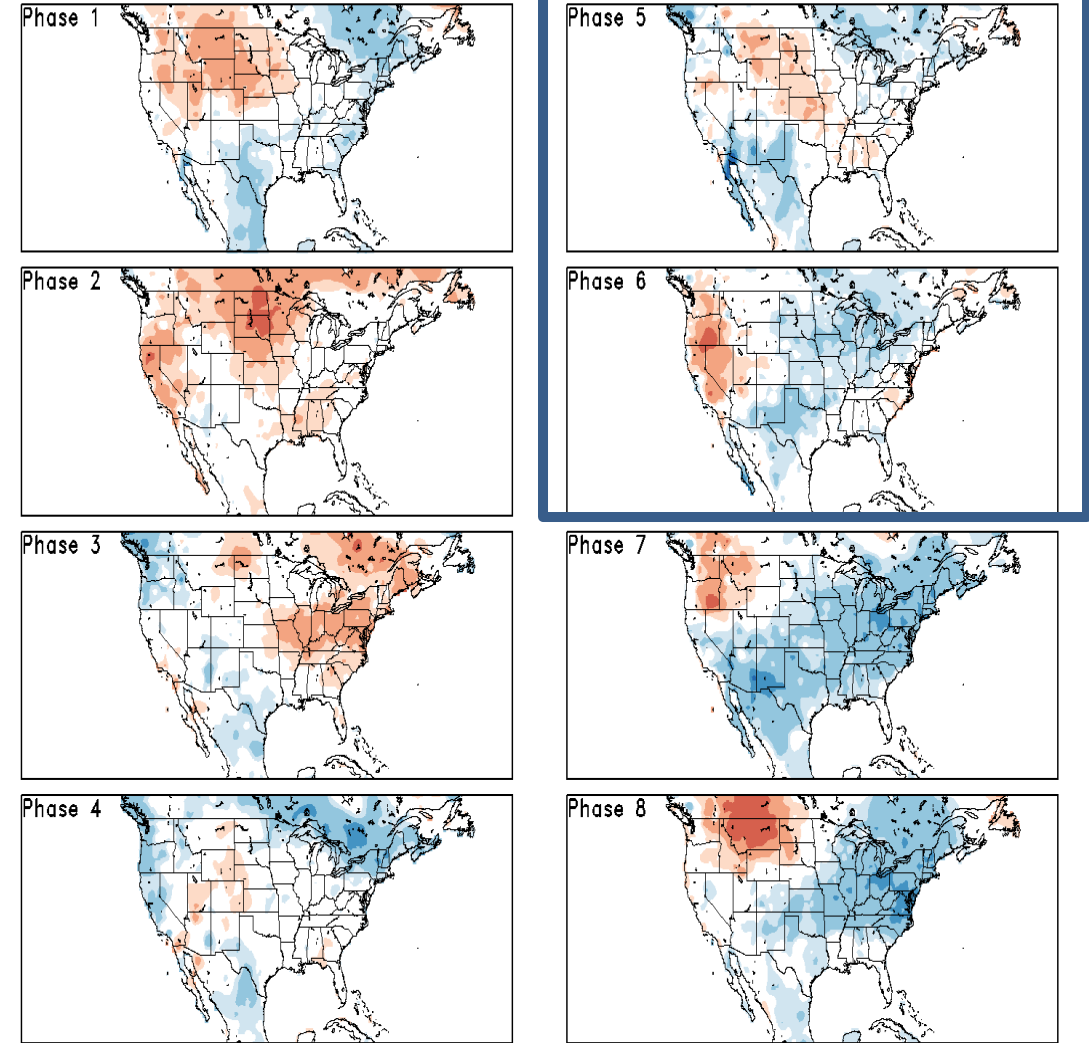


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

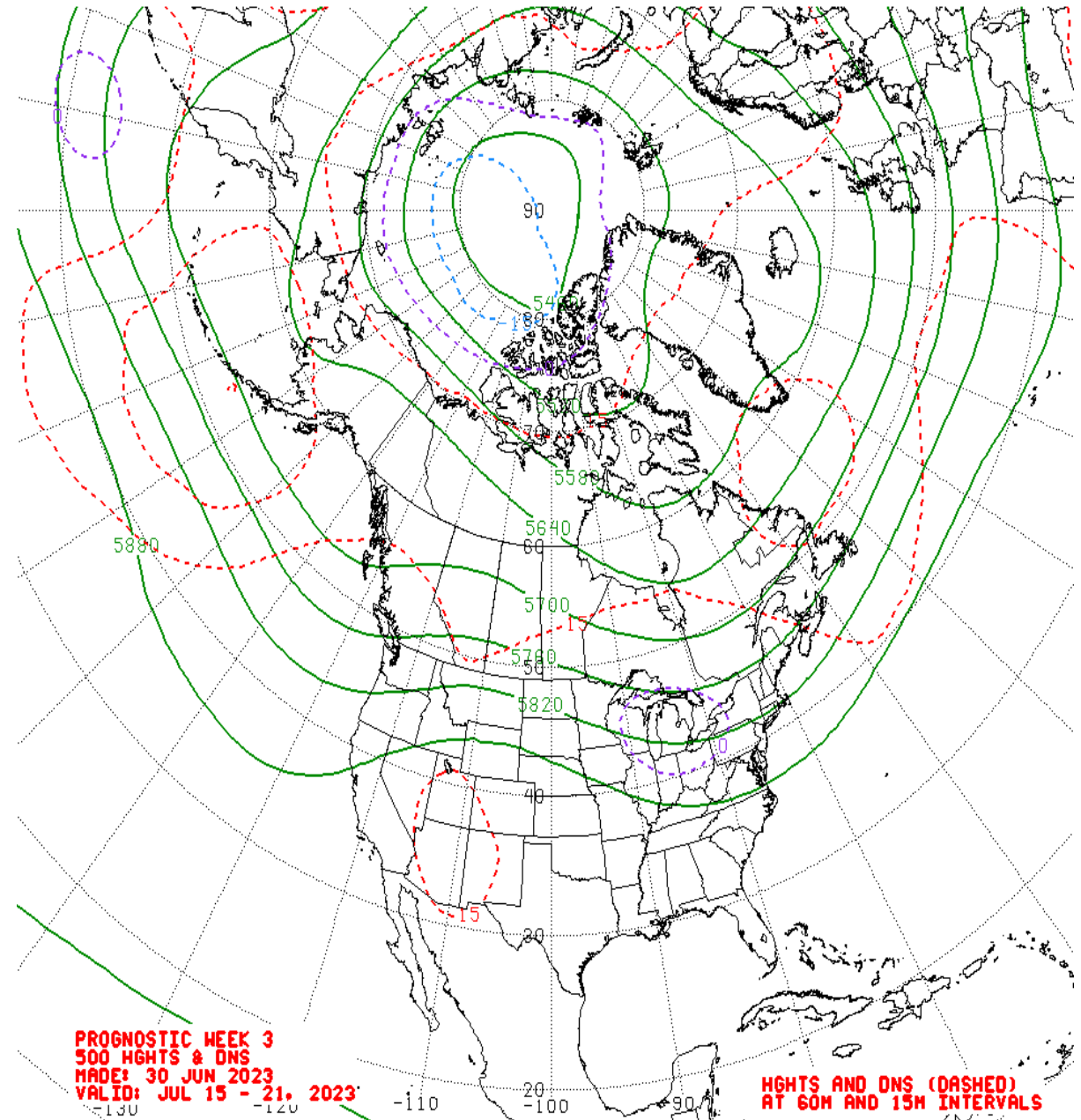
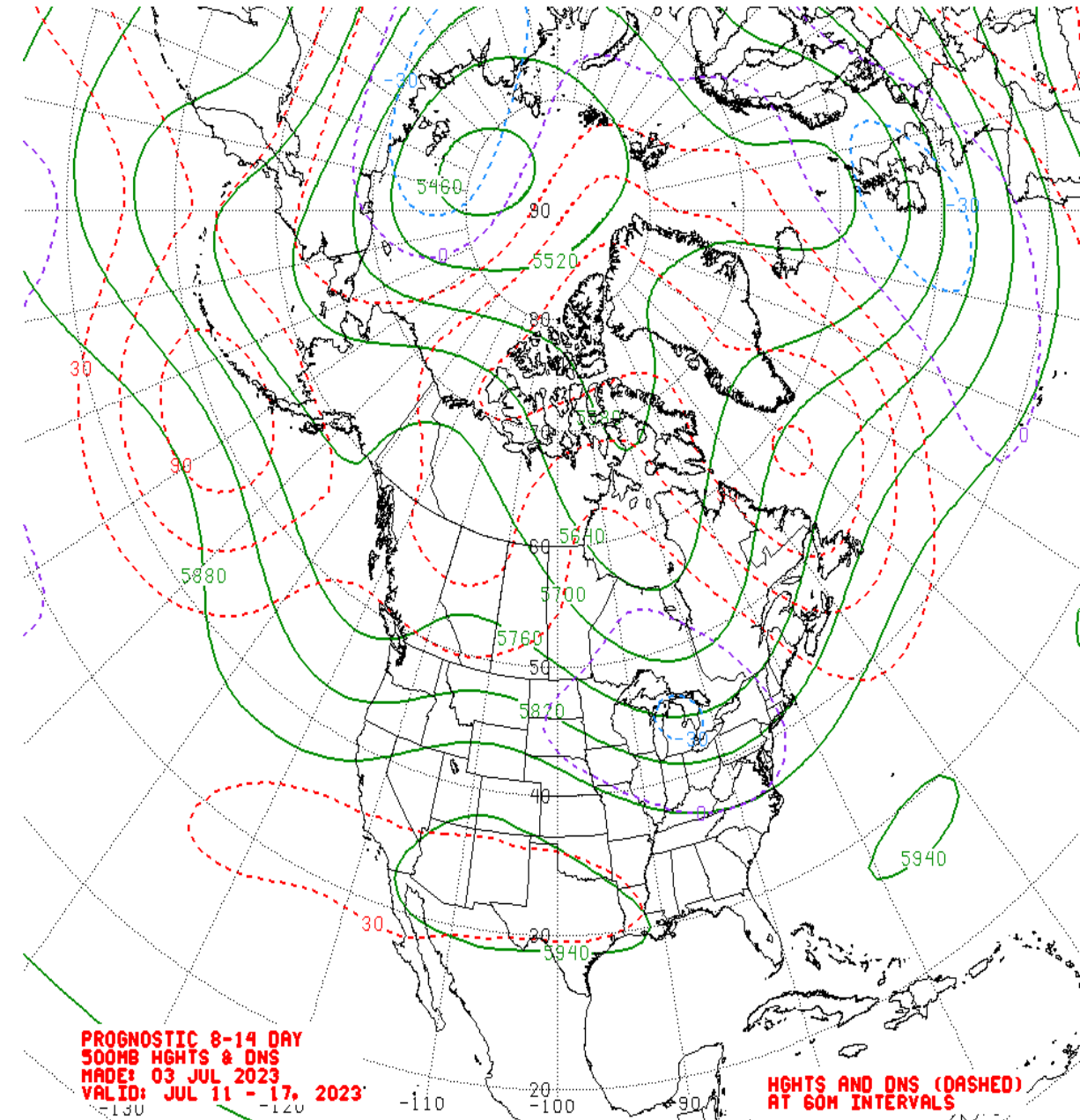
JJA MJO Composite: CDAS 500-hPa Height (m)



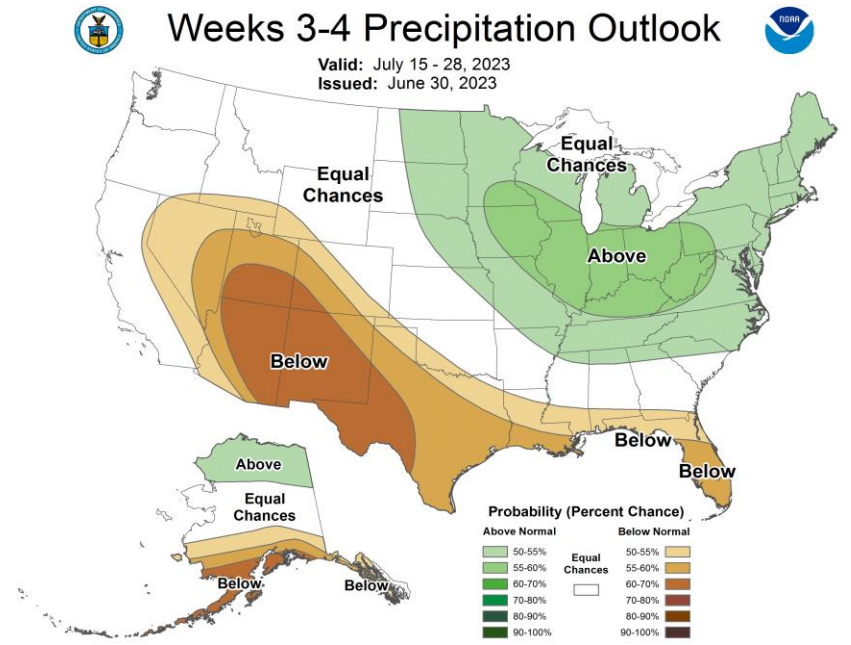
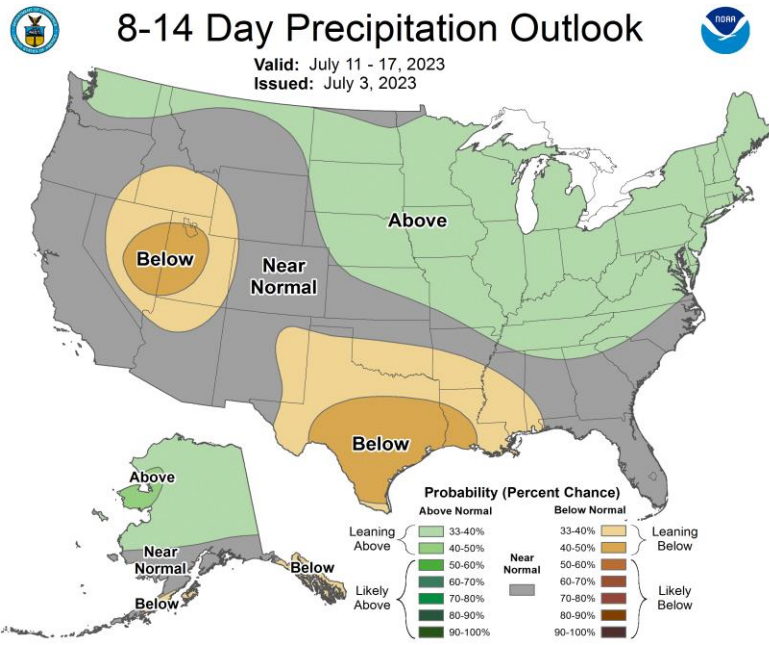
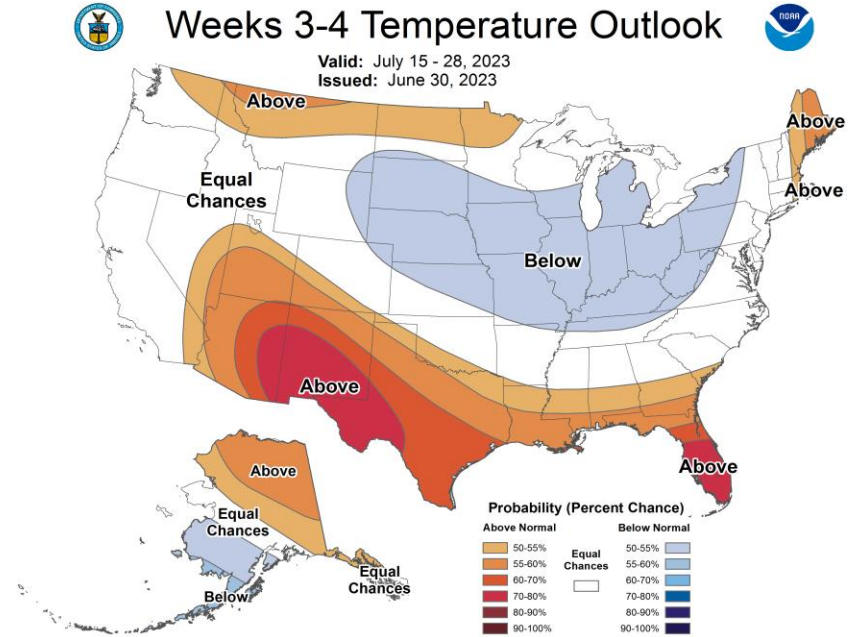
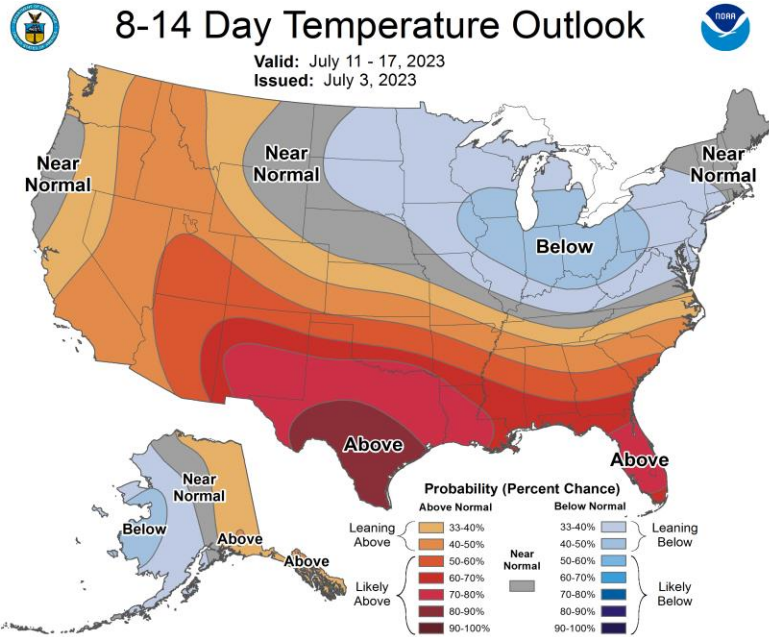
JJA MJO Composite: GLBT (degC)



Mean 500-hPa Height Anomaly Forecasts:



Official Temperature & Precipitation Forecasts:



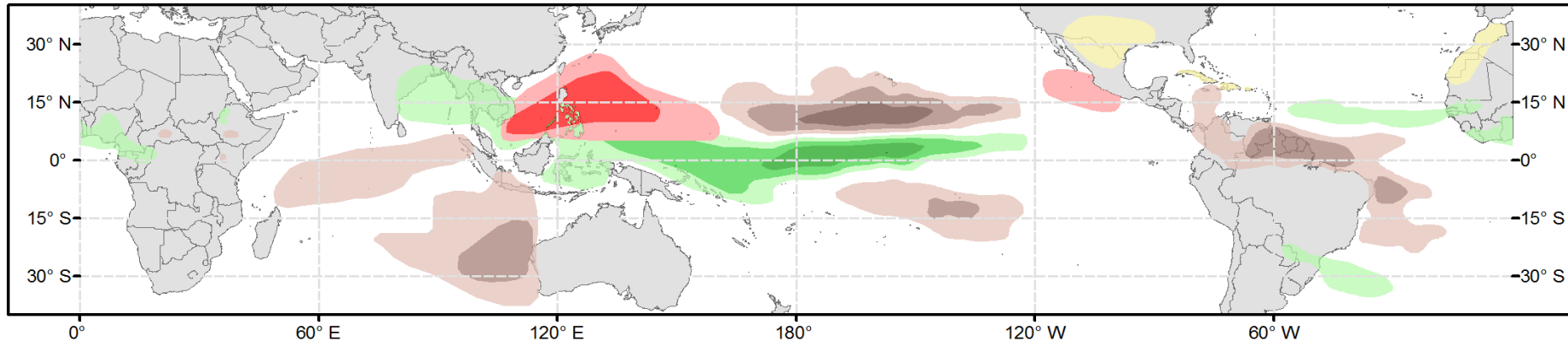


Global Tropics Hazards Outlook

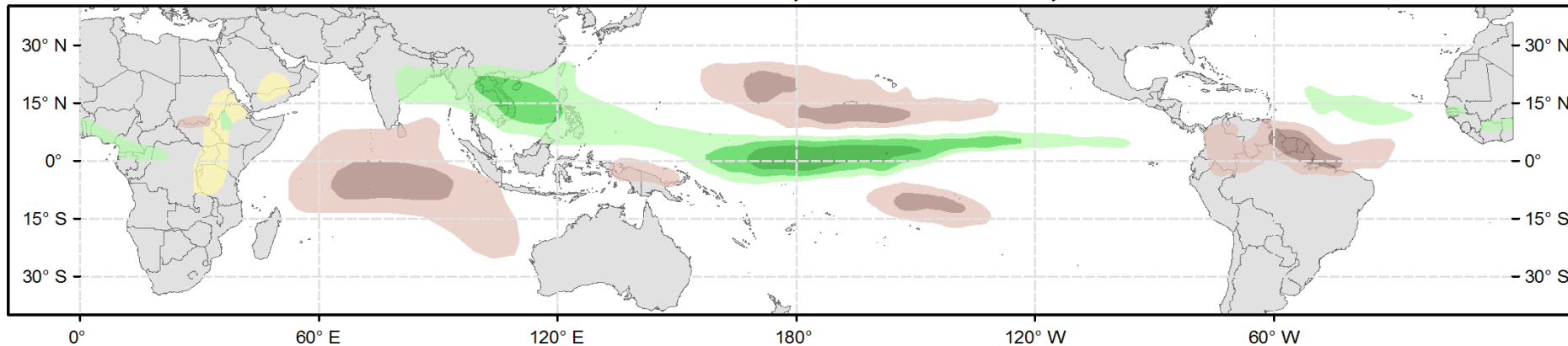
Climate Prediction Center



Week 2 - Valid: Jul 12, 2023 - Jul 18, 2023



Week 3 - Valid: Jul 19, 2023 - Jul 25, 2023



Week-2 Only

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

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