



Weeks 2-3 Global Tropics Hazards Outlook

7/23/2024

Thomas Collow

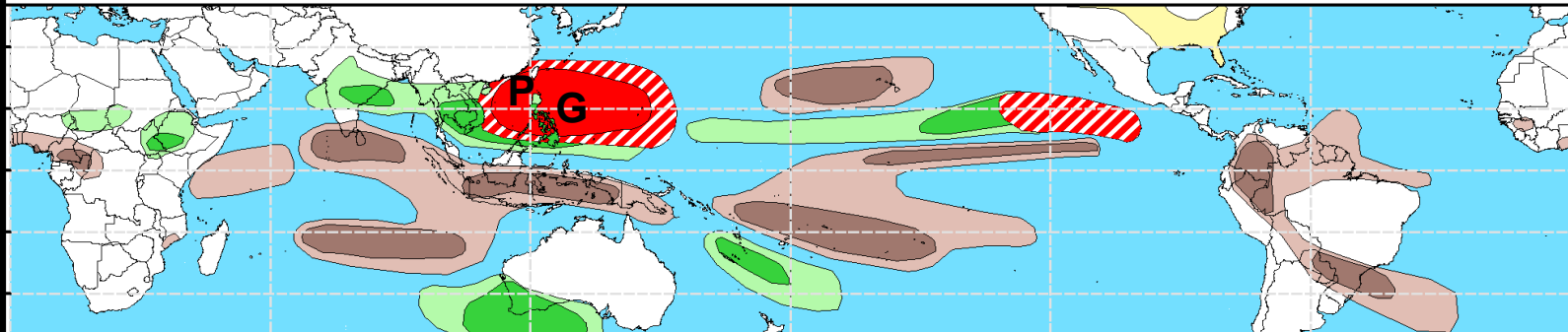
NWS / NCEP / Climate Prediction Center

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

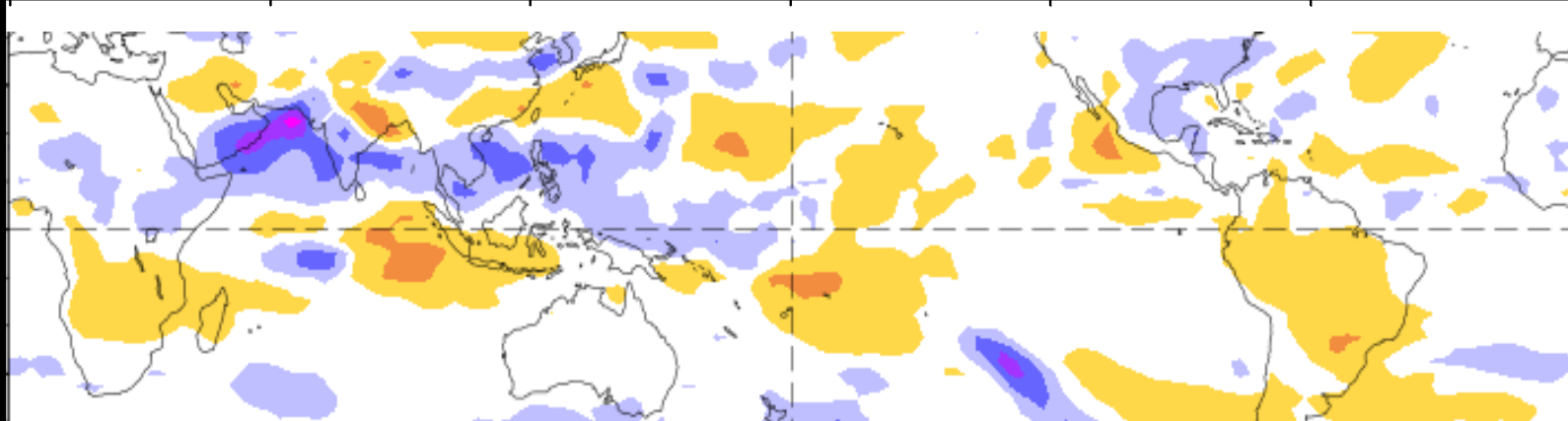
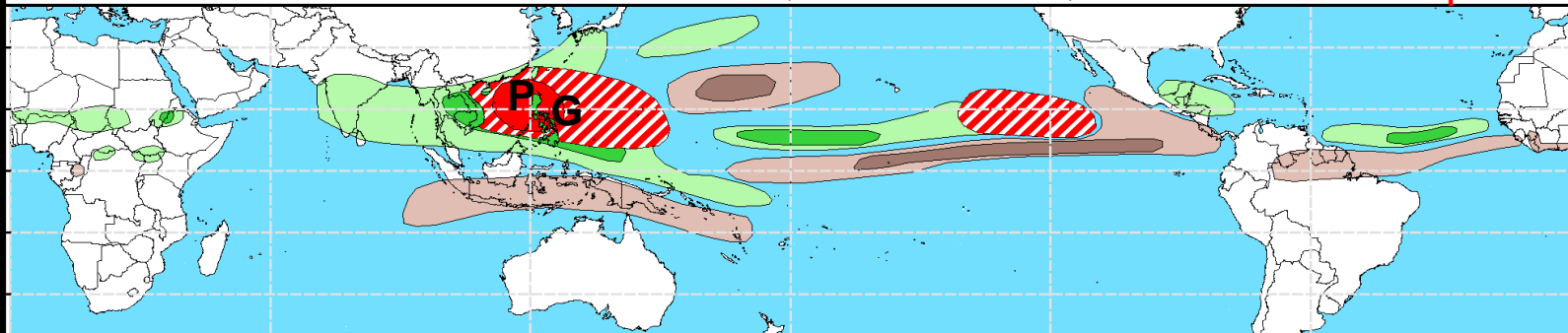
Western Pacific

- Tropical Storm Prapiroon (7/20)
- Typhoon Gaemi (7/20)

Week 2 - Valid: Jul 17, 2024 - Jul 23, 2024



Week 3 - Valid: Jul 17, 2024 - Jul 23, 2024



Synopsis of Climate Modes:

ENSO: (Jul 11, 2024 Update) *next update on Thursday, Aug 8th*

- 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 August-October (70% chance) and persist into the Northern Hemisphere winter 2024-25 (79% chance during November-January).

MJO and other subseasonal tropical variability:

- The MJO has remained weak since June, staying within the RMM-based unit circle aside from occasional short bursts of activity. Despite this, the global upper-level velocity potential pattern is more coherent.
- Destructive interference with enhanced equatorial Rossby Wave activity has resulted in reduced MJO amplification across the Eastern Hemisphere.
- Dynamical models predict the MJO to remain weak, although some convective enhancement across the Western Hemisphere is depicted by week-2 in several GEFS and ECMWF ensemble members related to a Convectively-Coupled Kelvin Wave (CCKW).

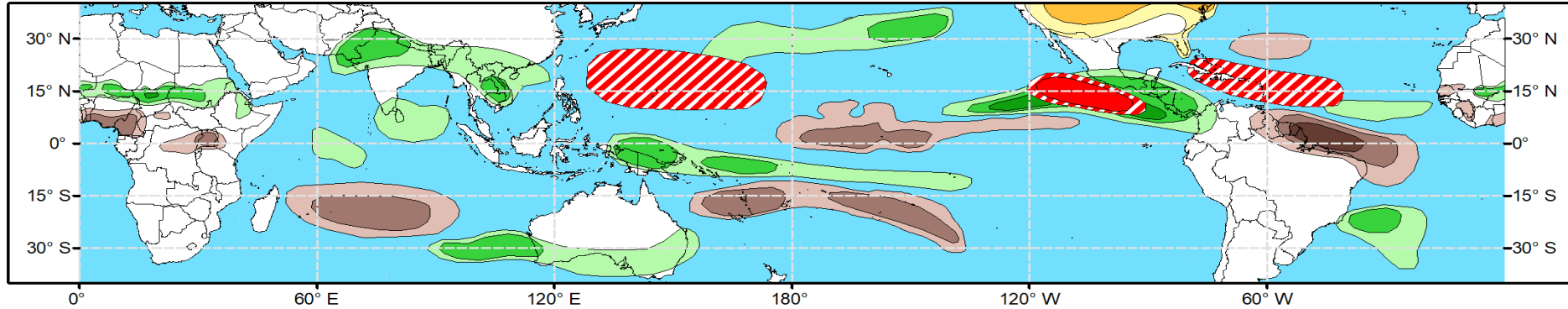
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

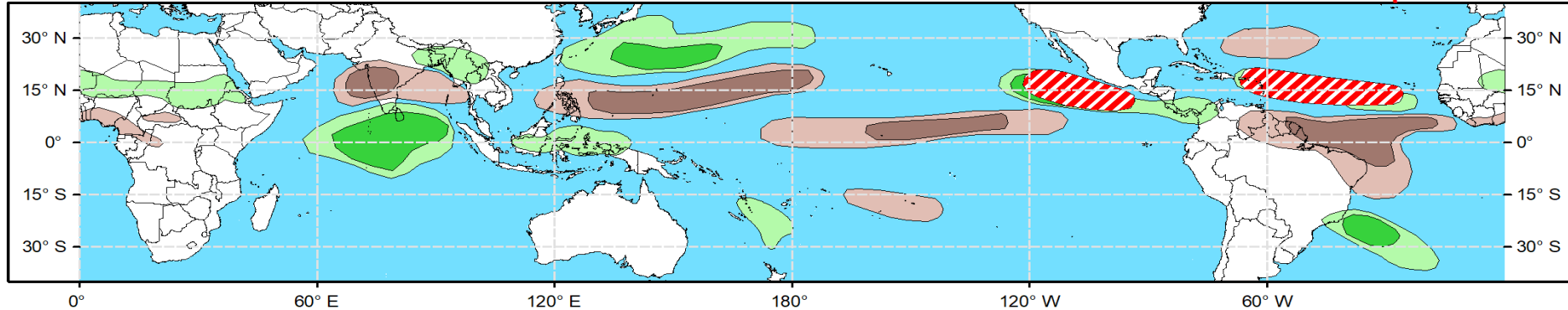


Week 2 - Valid: Jul 31, 2024 - Aug 06, 2024



Week 3 - Valid: Aug 07, 2024 - Aug 13, 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
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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**Below-Average
Temperatures Probability**



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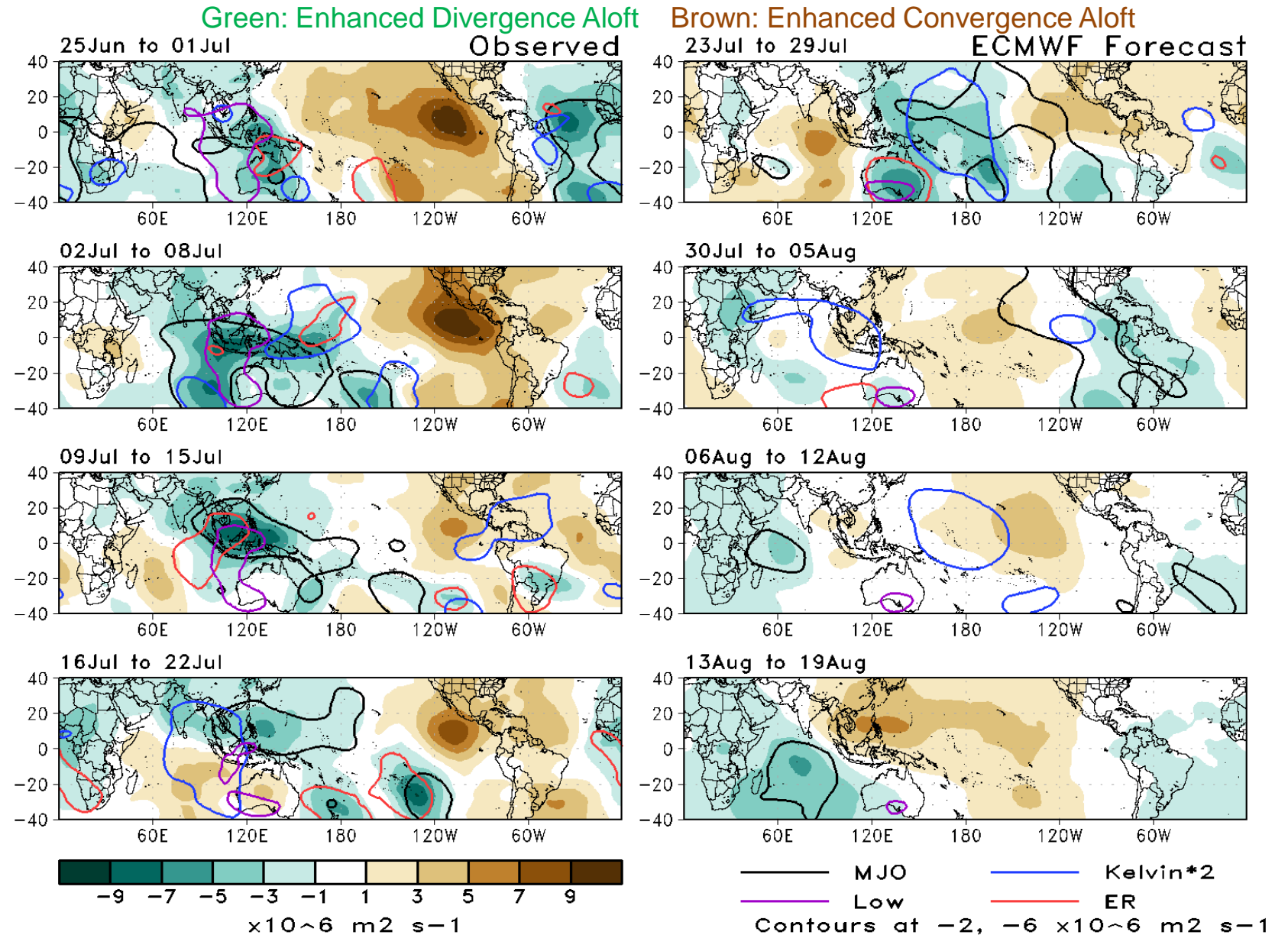
*7-day min temperatures in the
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**Issued: 07/23/2024
Forecaster: Collow**

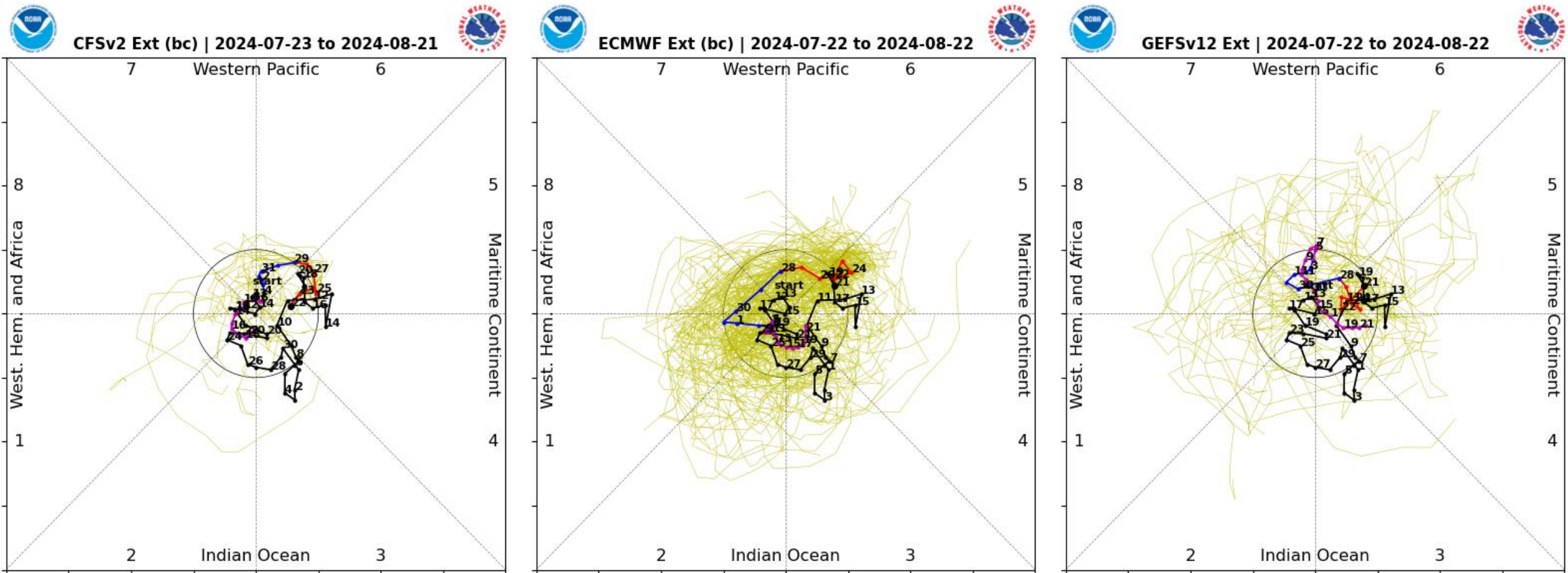
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Consult your local responsible forecast agency.**

200-hPa Velocity Potential Anomaly Maps:

- A fairly coherent wave-1 asymmetry pattern is noted in the spatial upper-level velocity potential field, with the main convective envelope currently situated over the Western Pacific.
- Over the next 2 weeks, the ECMWF favors enhanced convection to reach the Americas.
- A more suppressed convective pattern is evident over the Western Pacific by mid-August in the ECMWF guidance.

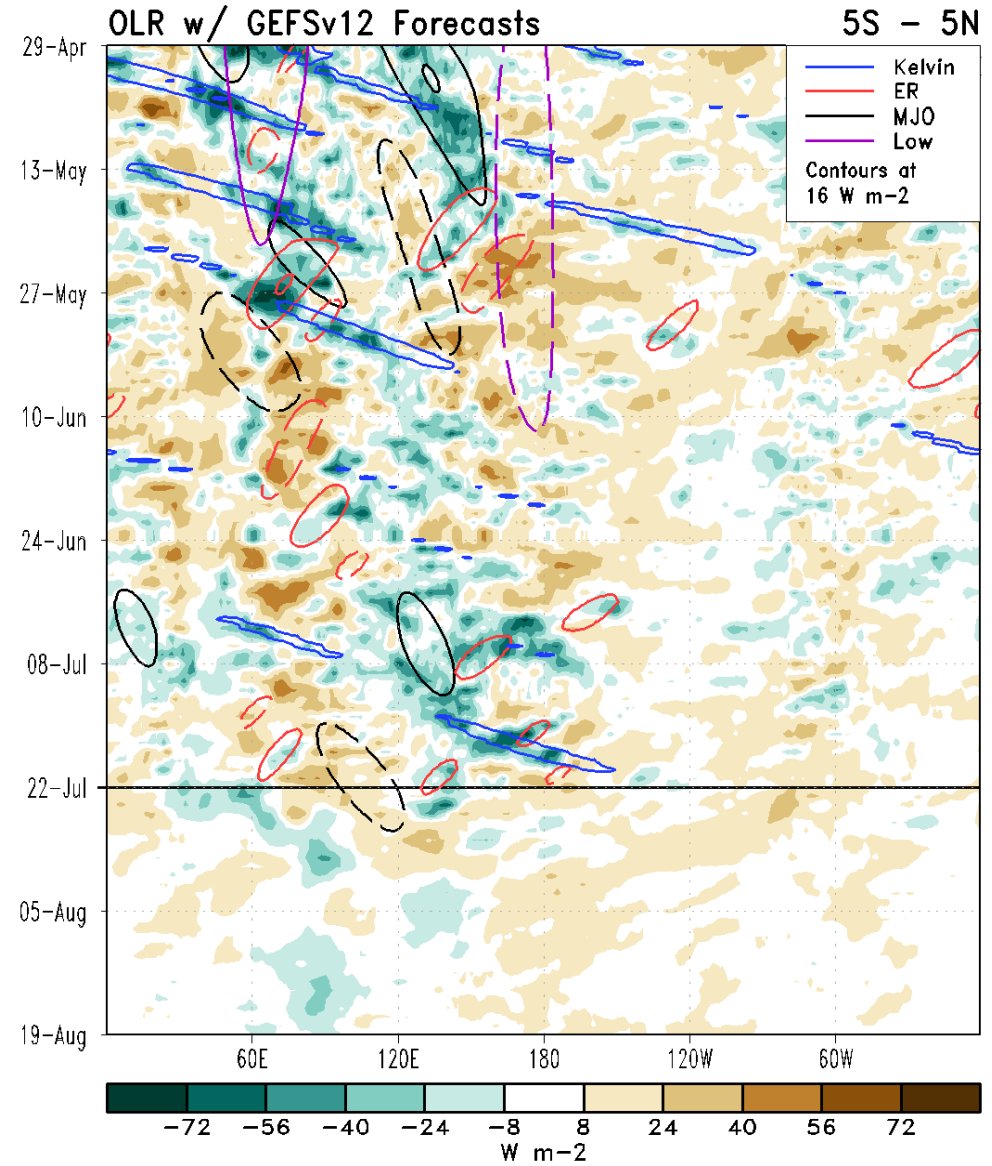
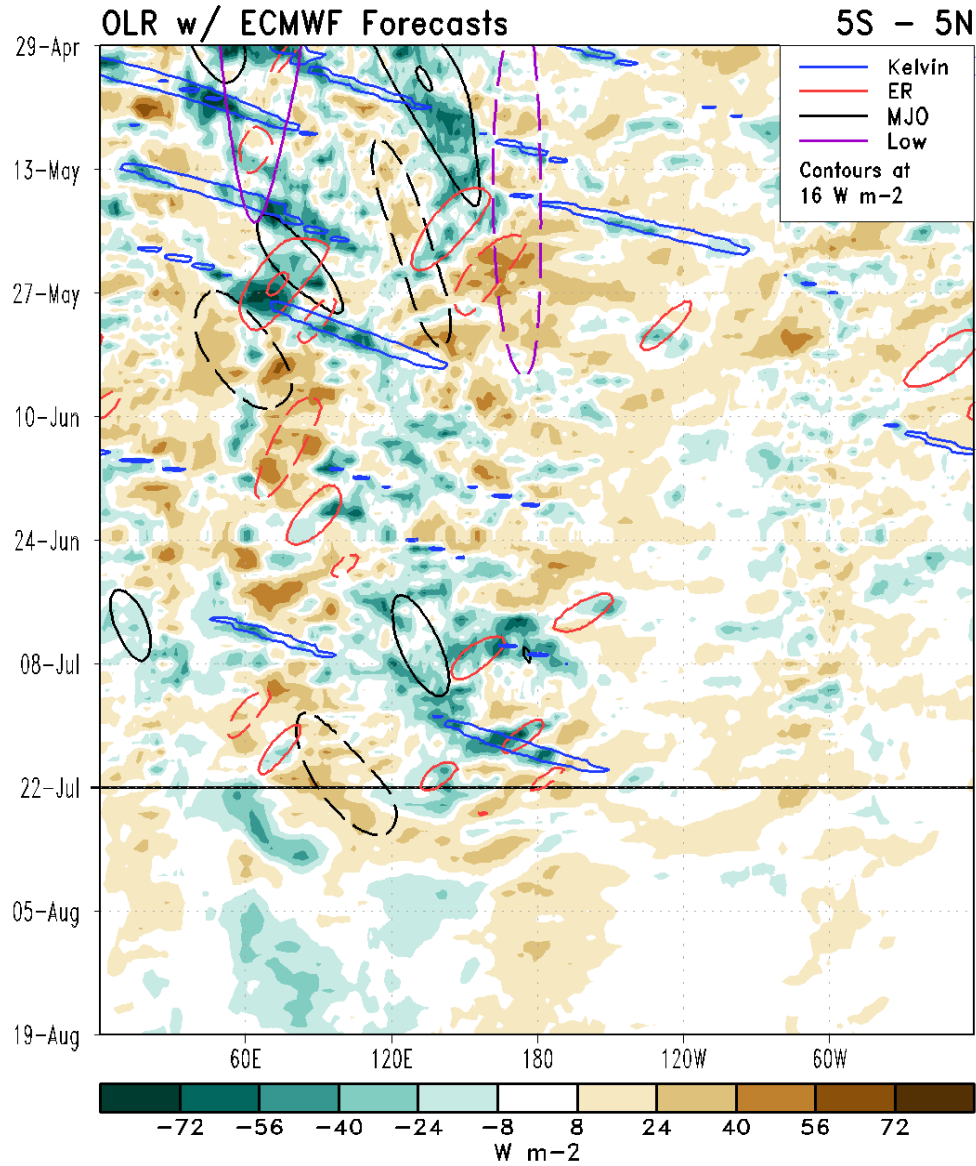


RMM Index Observations & Forecasts:



- The long-range model ensembles above are incoherent in terms of MJO propagation.
- Short-range ensembles (not pictured) depict some evidence of increased convection across the Western Hemisphere, particularly the ECMWF.
- This may be more tied to Kelvin Wave propagation rather than a true MJO.

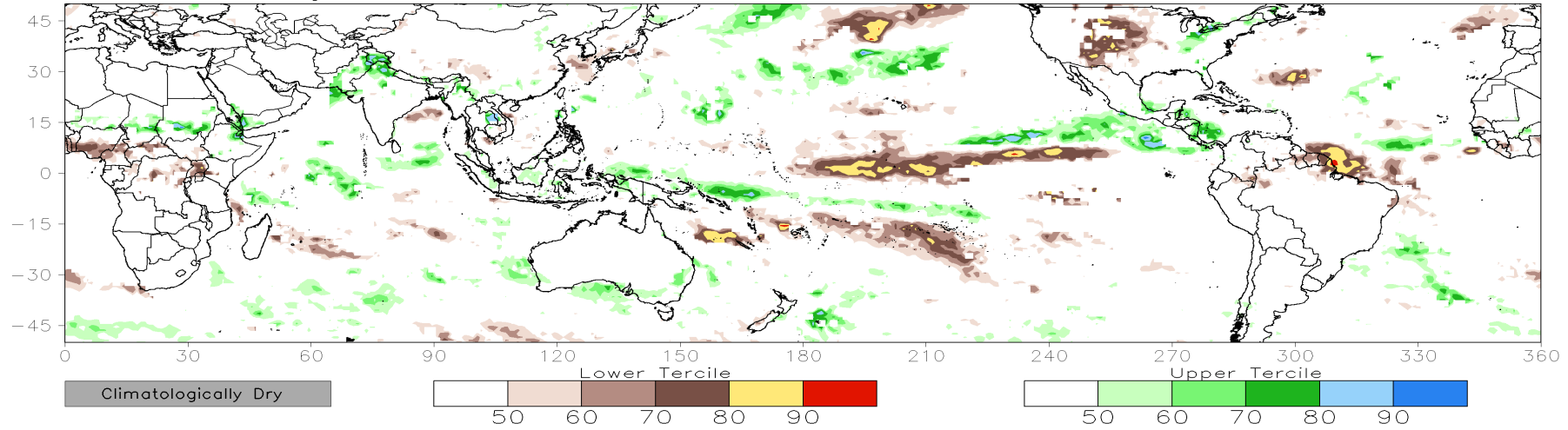
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

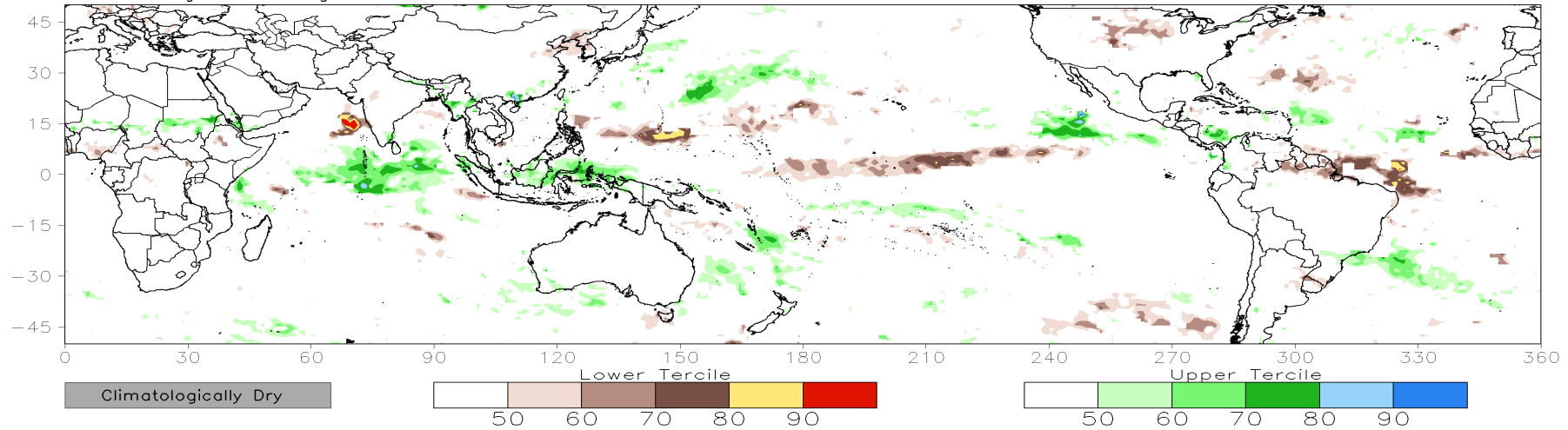
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 31Jul2024–06Aug2024



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

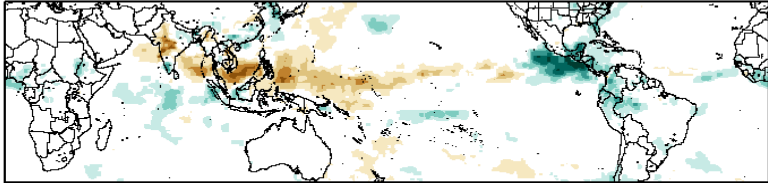
Valid: 07Aug2024–13Aug2024



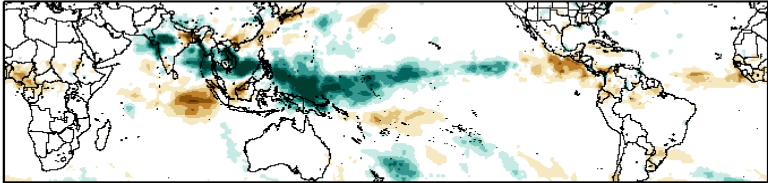
Historical Precipitation Anomalies By MJO Phase:

JJA MJO Composite: GPCP1DD (mm/day)

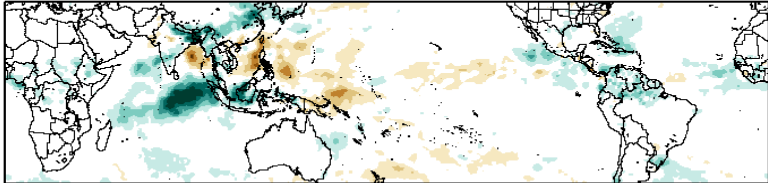
Phase 1



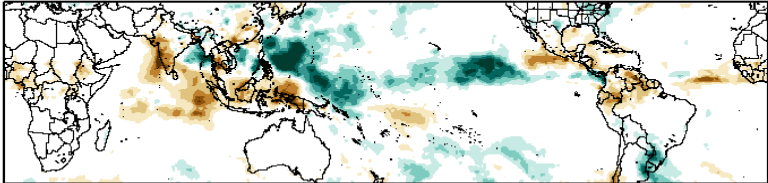
Phase 5



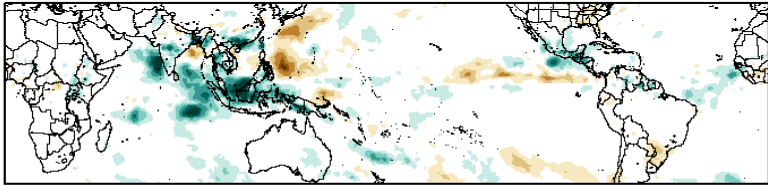
Phase 2



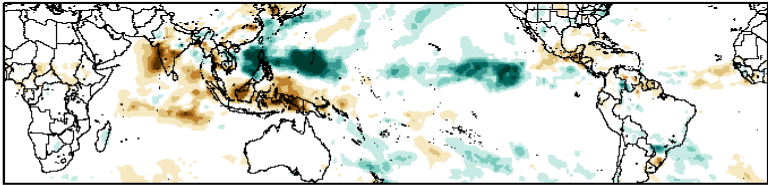
Phase 6



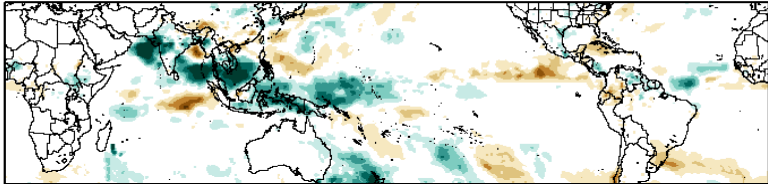
Phase 3



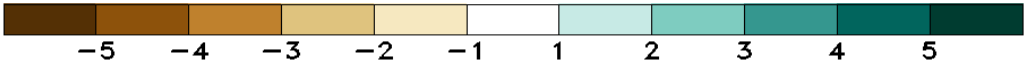
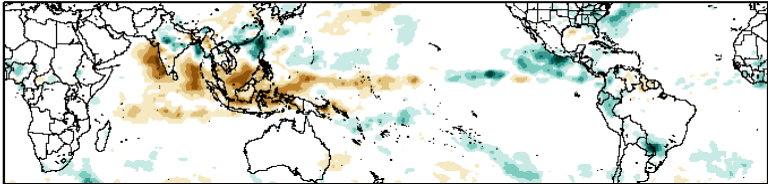
Phase 7



Phase 4

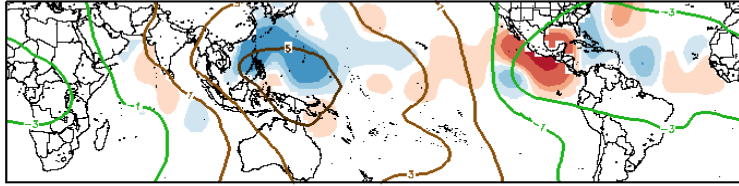


Phase 8

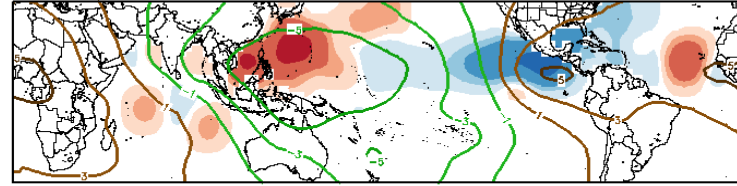


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

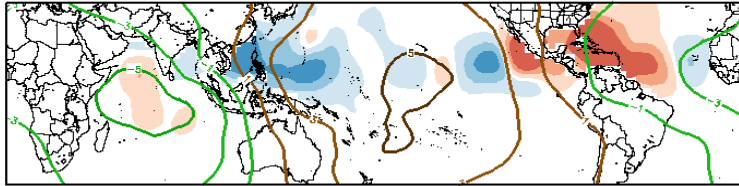
JJA MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JJA CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



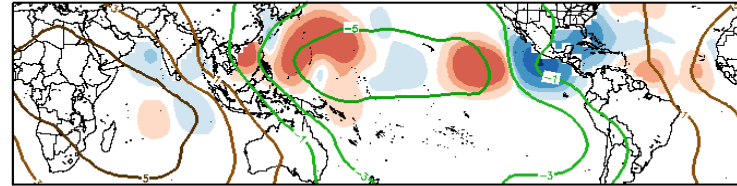
Phase 1



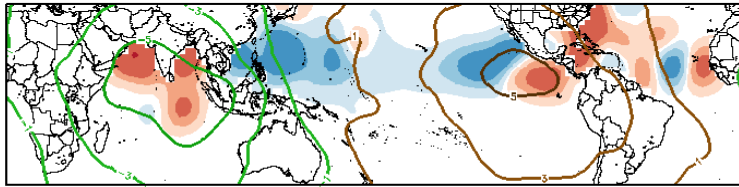
Phase 5



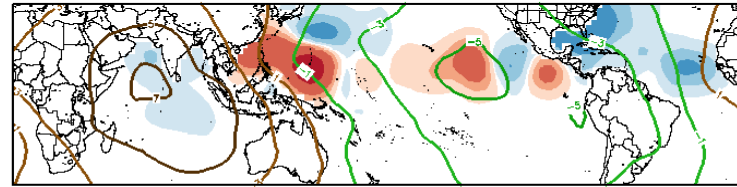
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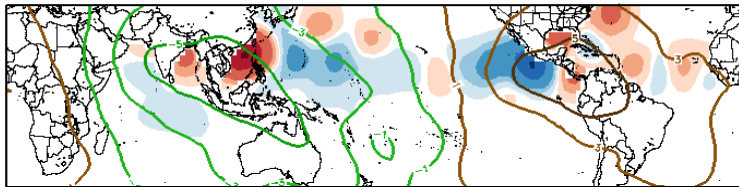
Phase 6



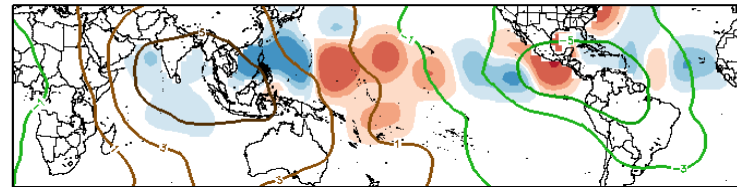
Phase 3



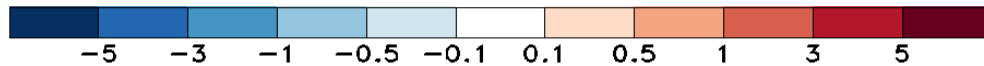
Phase 7



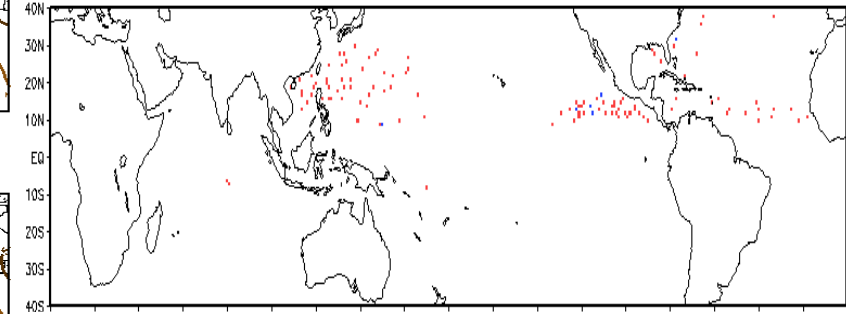
Phase 4



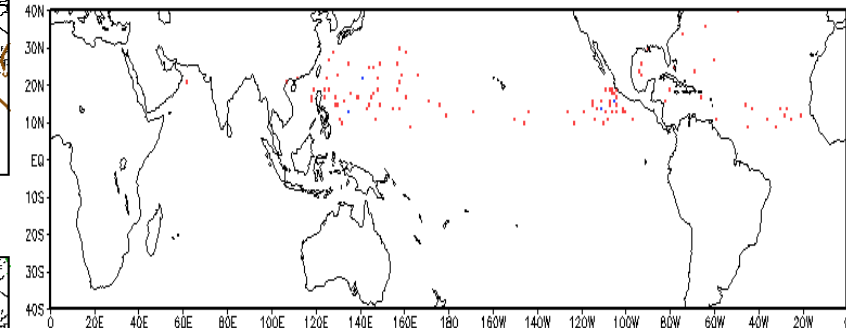
Phase 8



Observed TC Genesis, 1979-2021
7-day Period 0731 to 0806

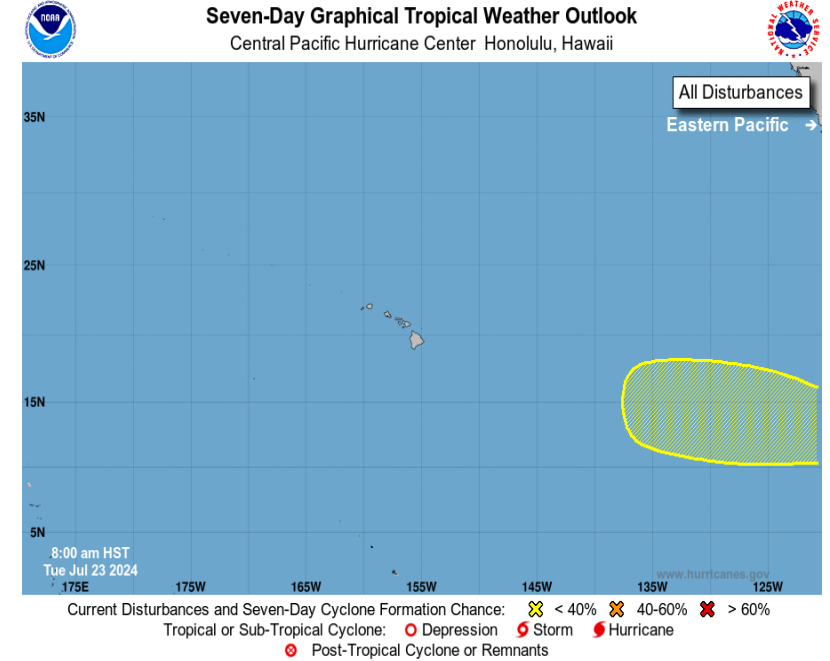
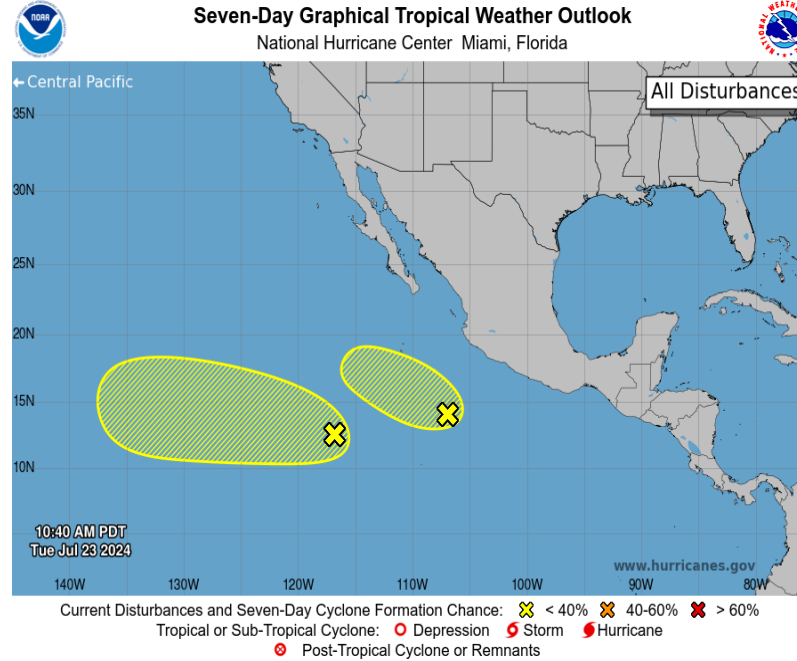
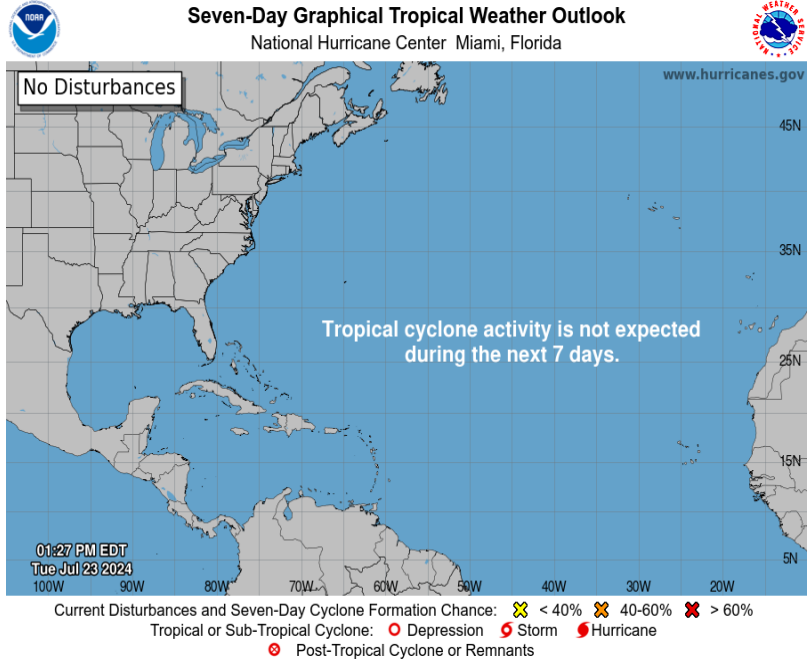


Observed TC Genesis, 1979-2021
7-day Period 0807 to 0813



Experimental

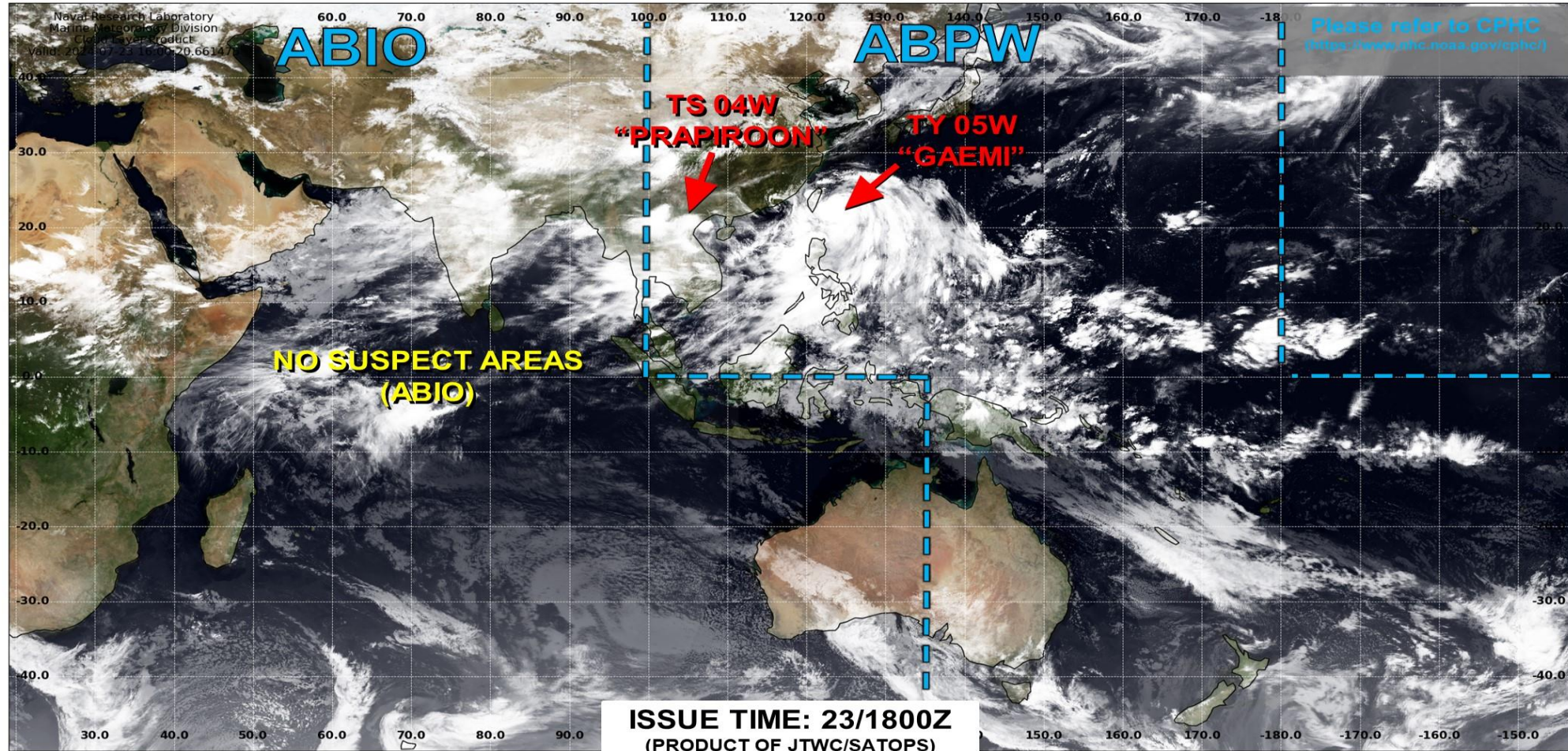
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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)



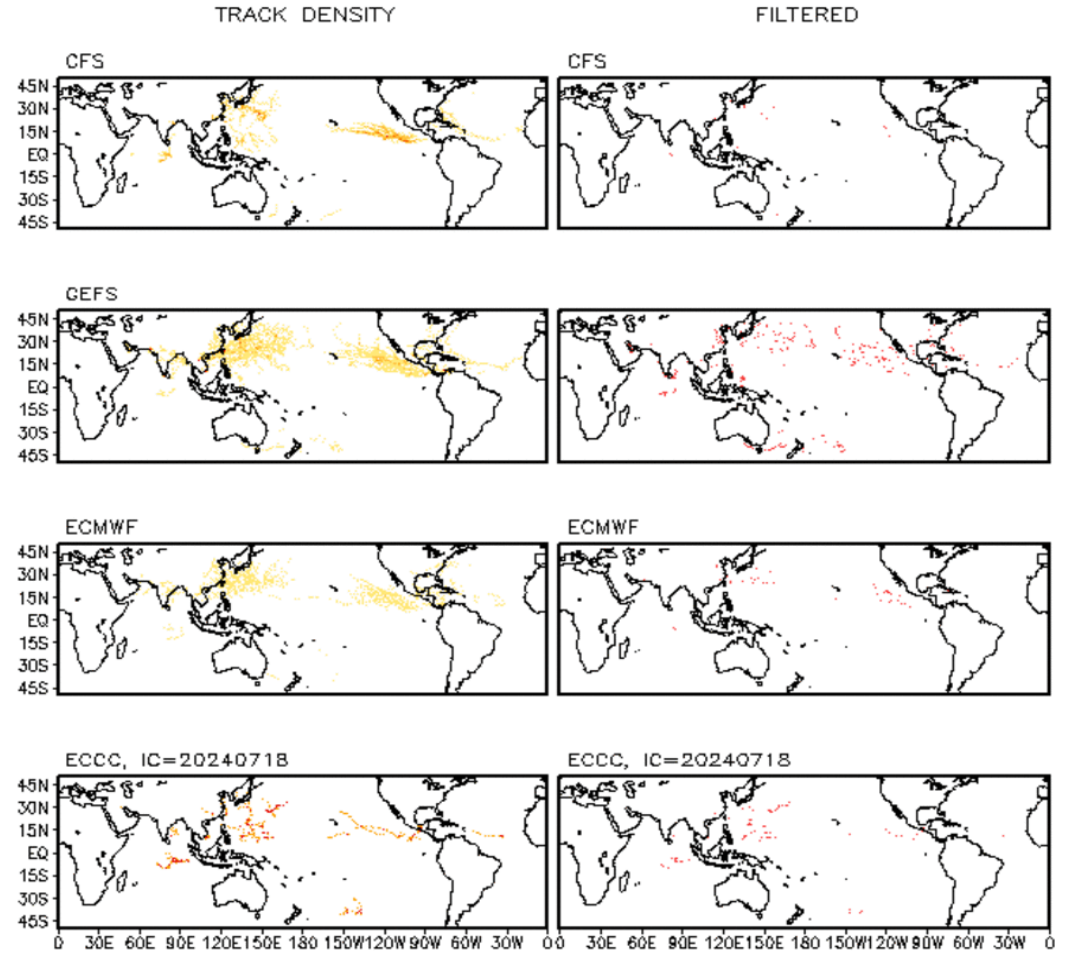
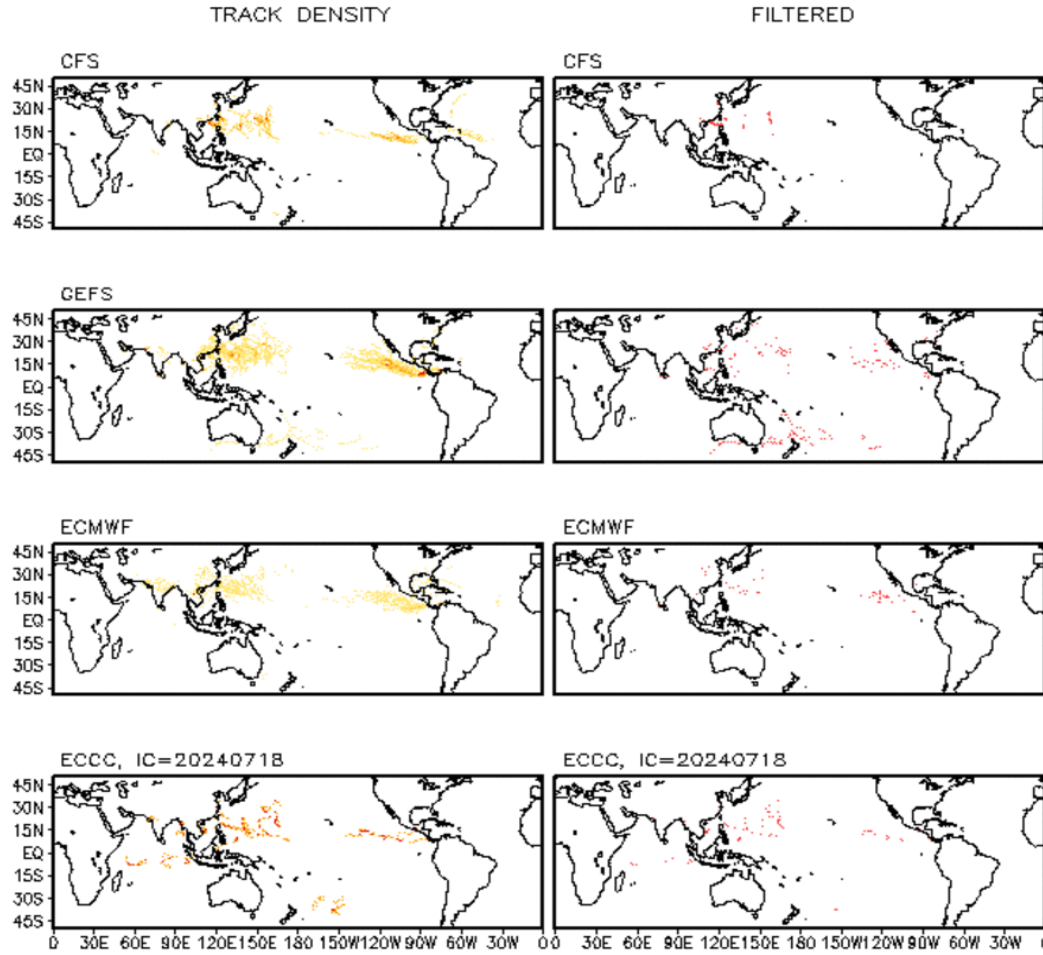
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

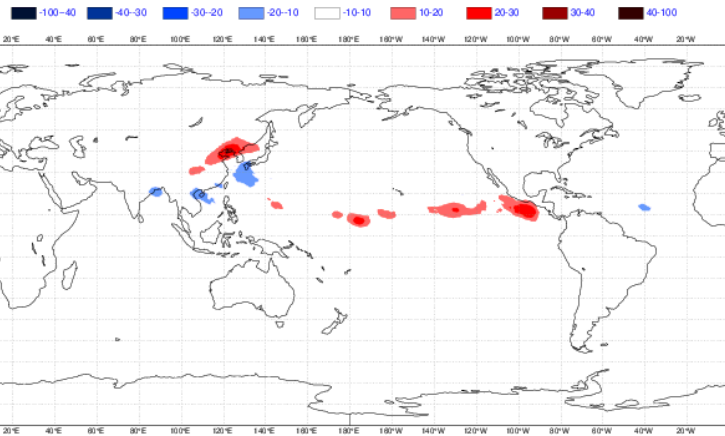
Storm Track Density Distribution, IC=20240722
Week 2 Forecast: 0731-0806

Storm Track Density Distribution, IC=20240722
Week 3 Forecast: 0807-0813



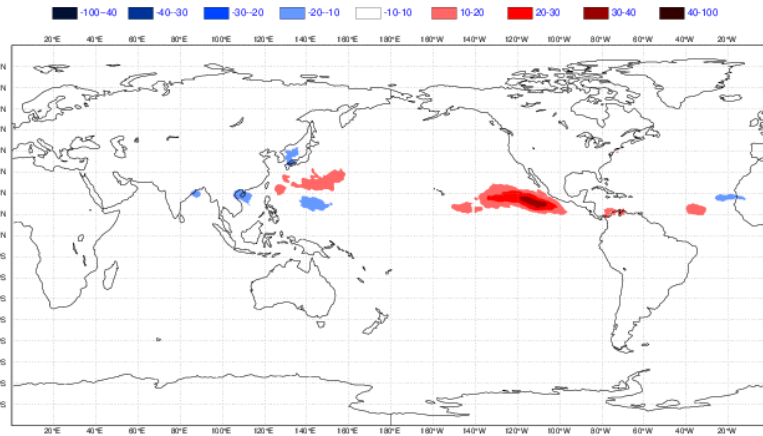
Jul 29 – Aug 5

Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20240722 0 UTC t+(168-336)
Probability of a TC passing within 300km radius



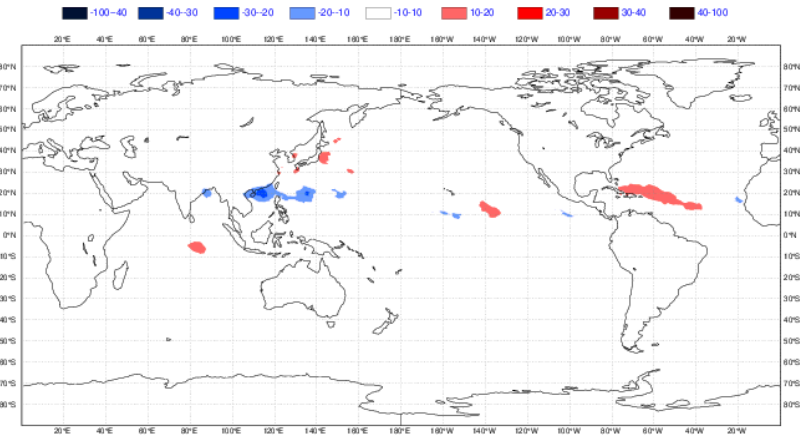
Aug 5-12

Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20240722 0 UTC t+(336-504)
Probability of a TC passing within 300km radius

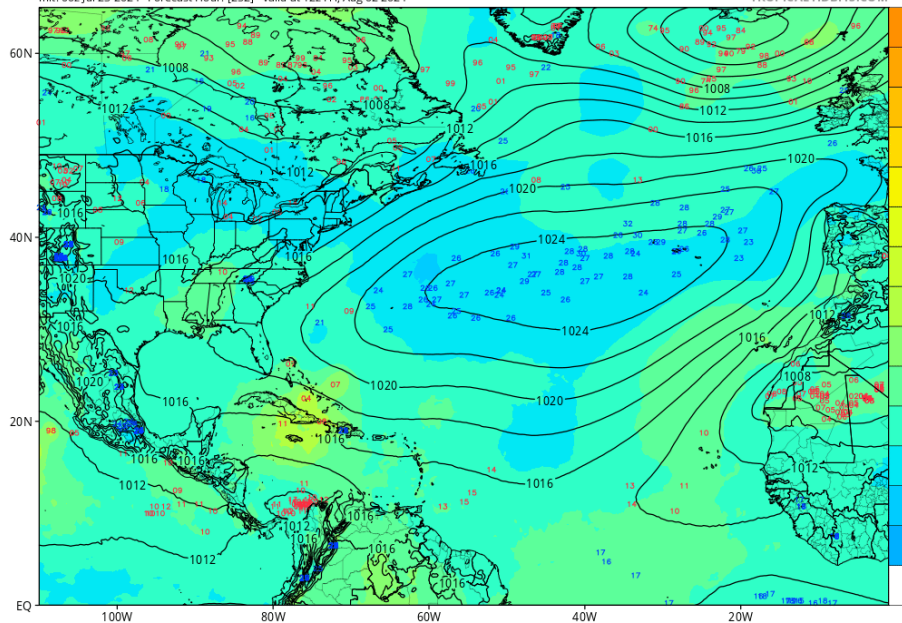


Aug 12-19

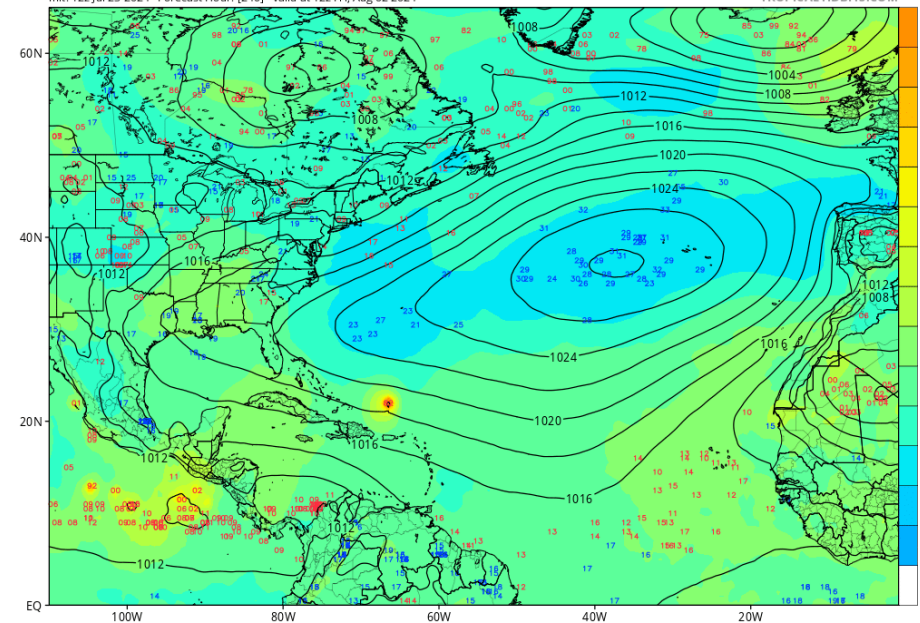
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20240722 0 UTC t+(504-672)
Probability of a TC passing within 300km radius



EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)
Init: 00z Jul 23 2024 Forecast Hour: [252] valid at 12z Fri, Aug 02 2024

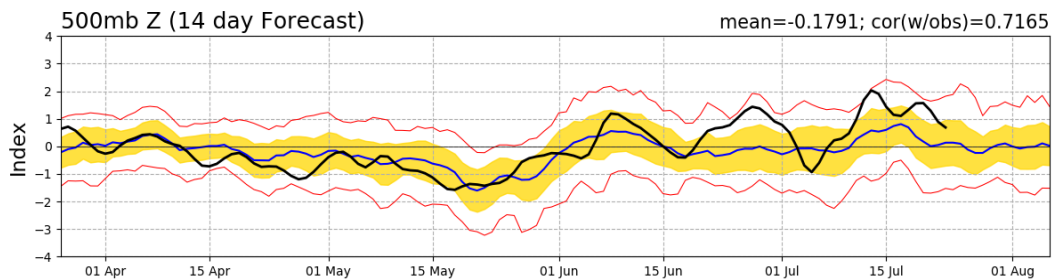
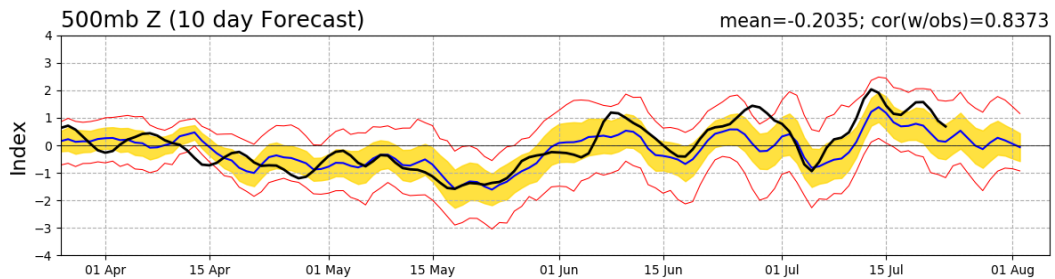
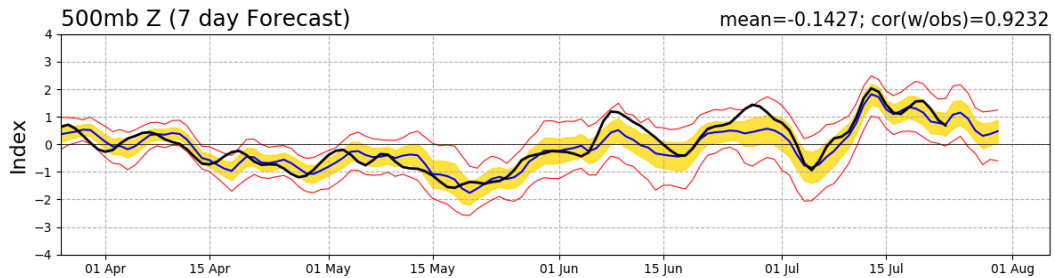
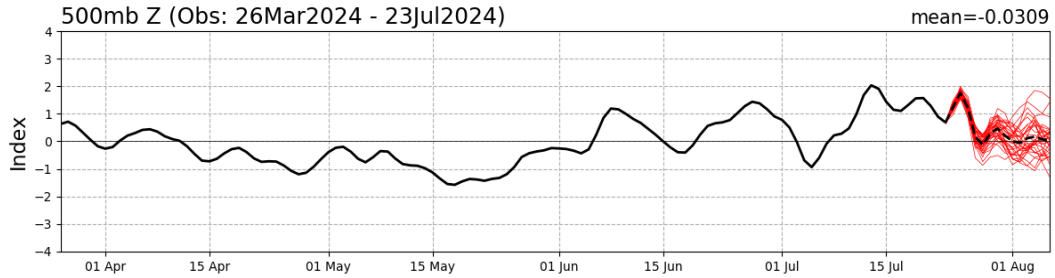


GEFS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)
Init: 12z Jul 23 2024 Forecast Hour: [240] valid at 12z Fri, Aug 02 2024

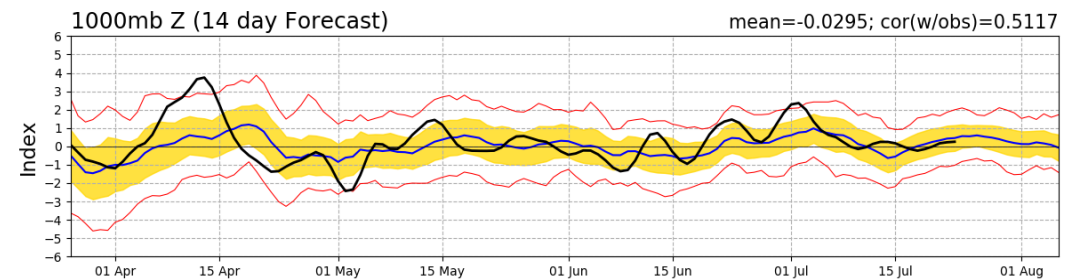
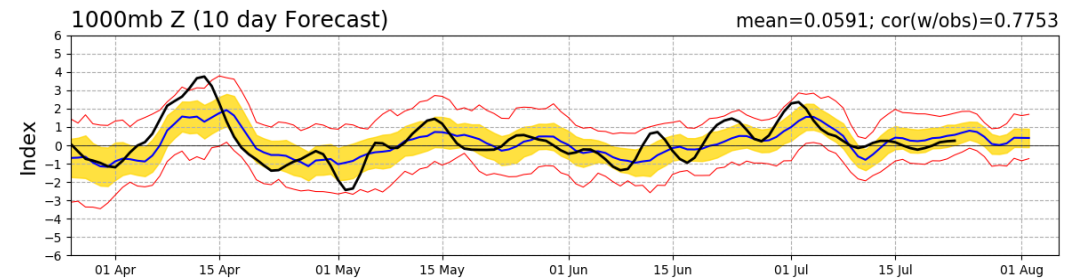
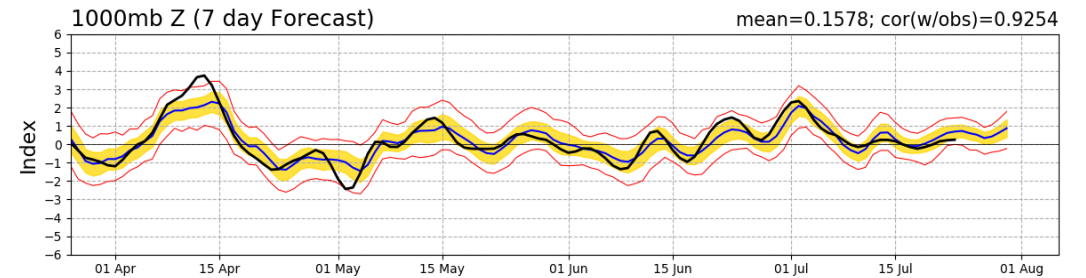
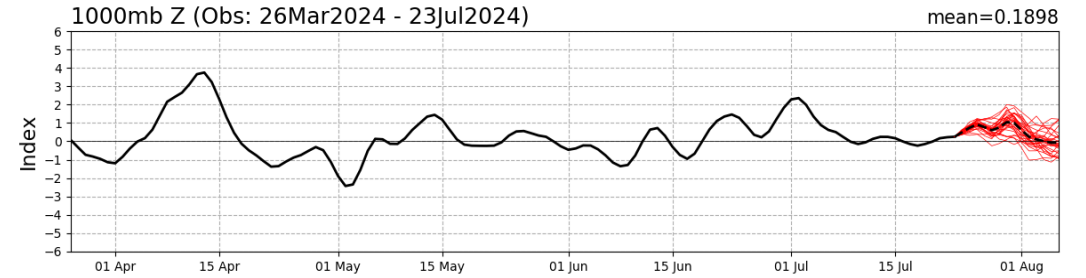


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

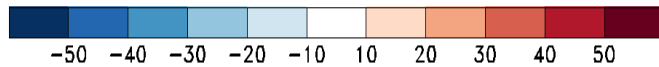
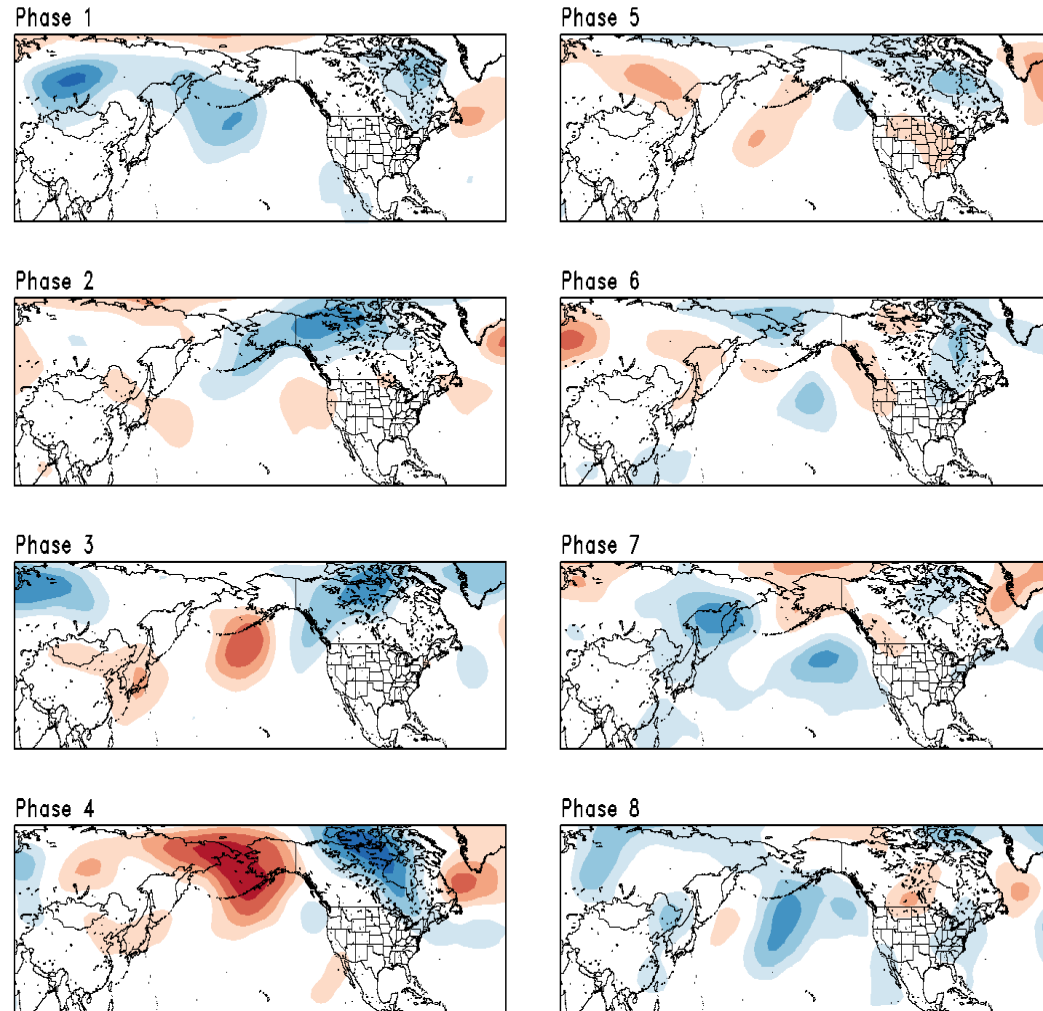


AO Index: Observed & GEFS Forecasts

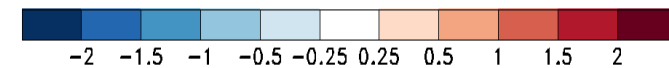
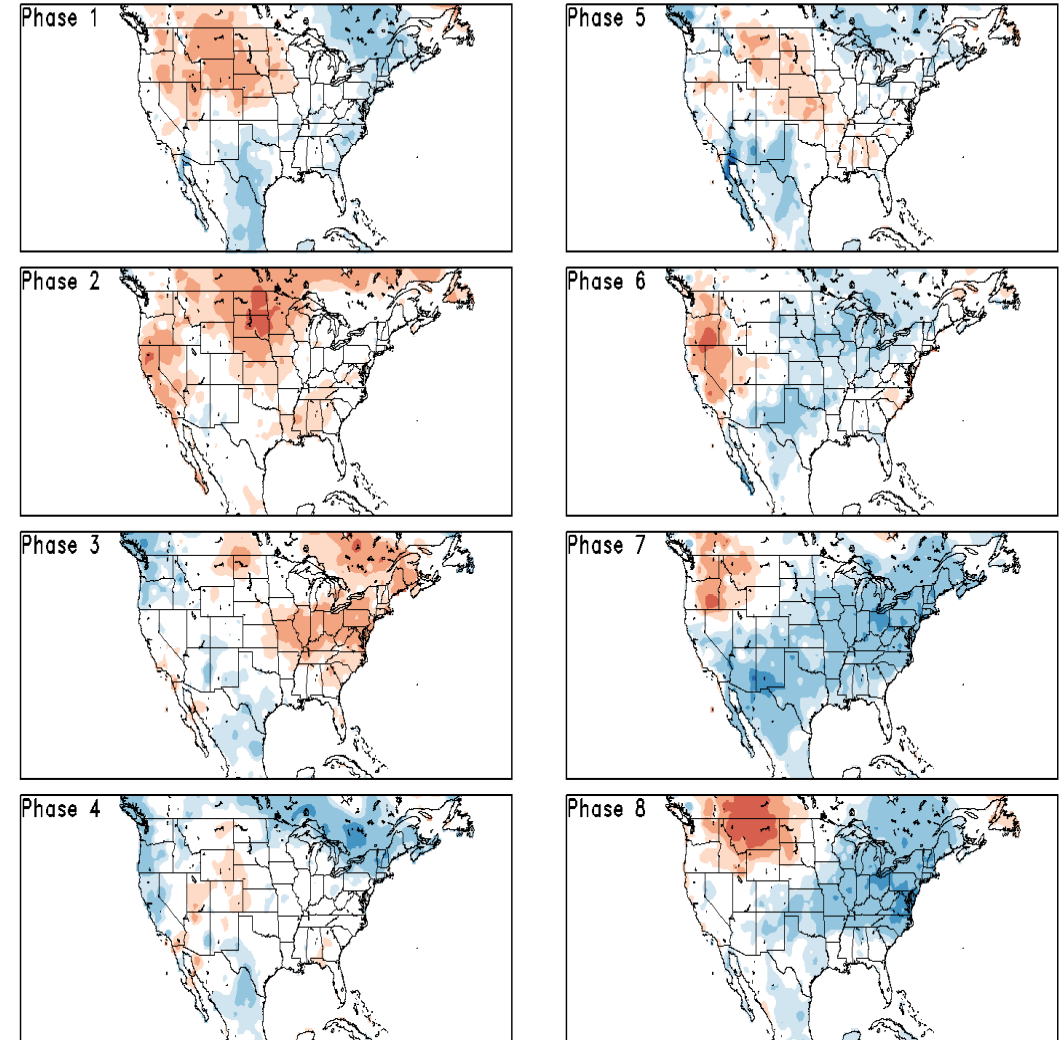


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

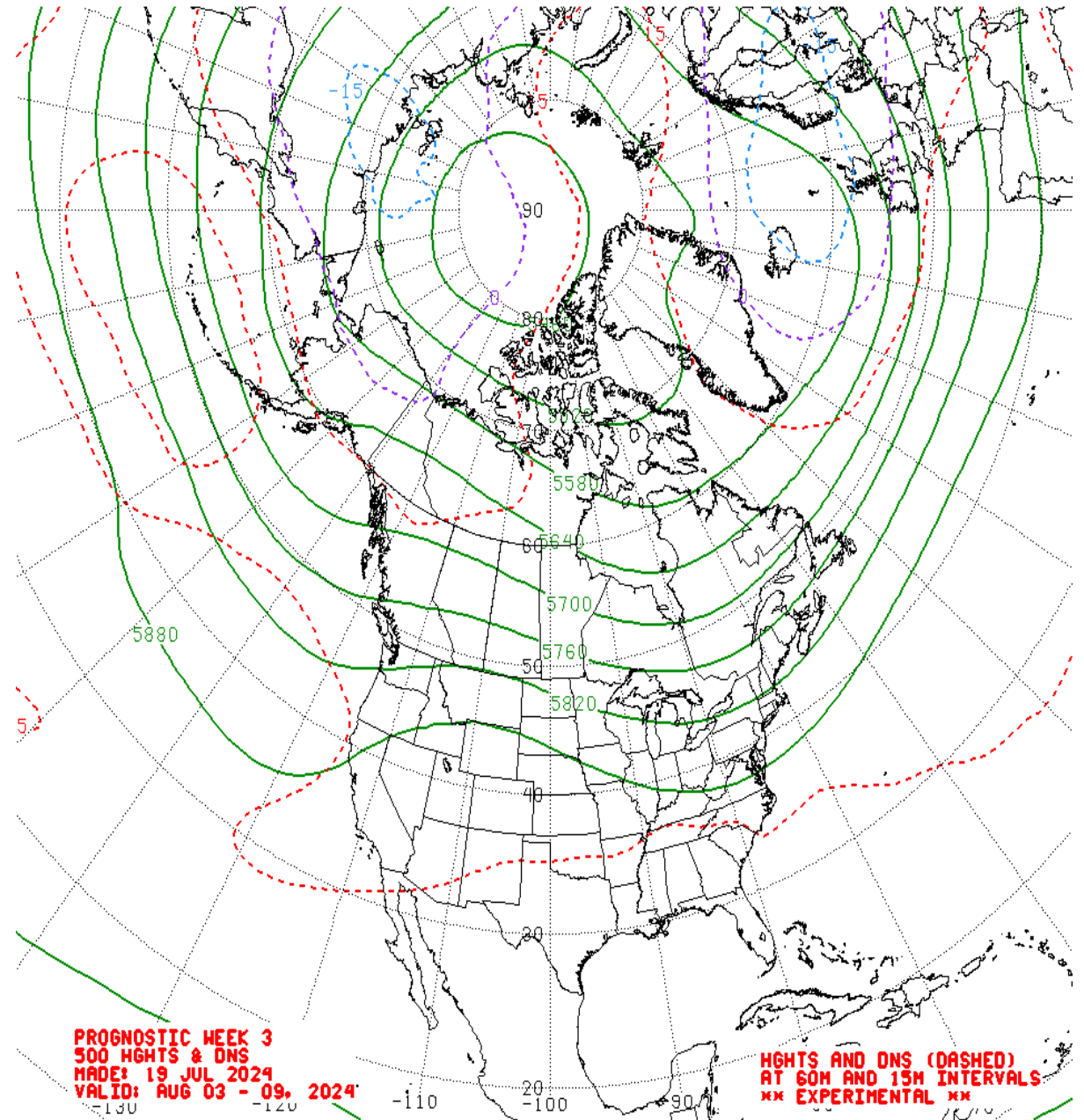
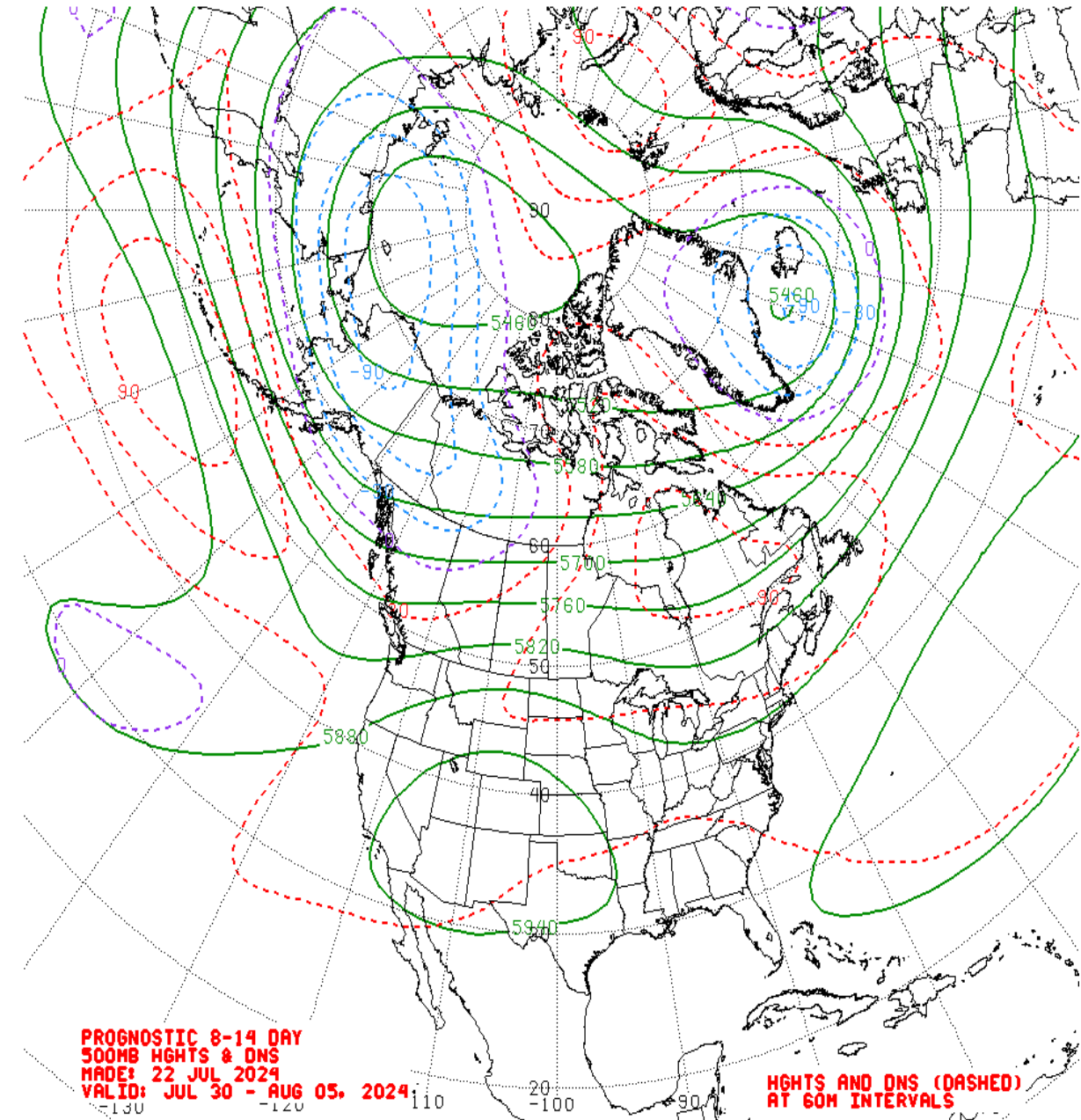
JJA MJO Composite: CDAS 500-hPa Height (m)



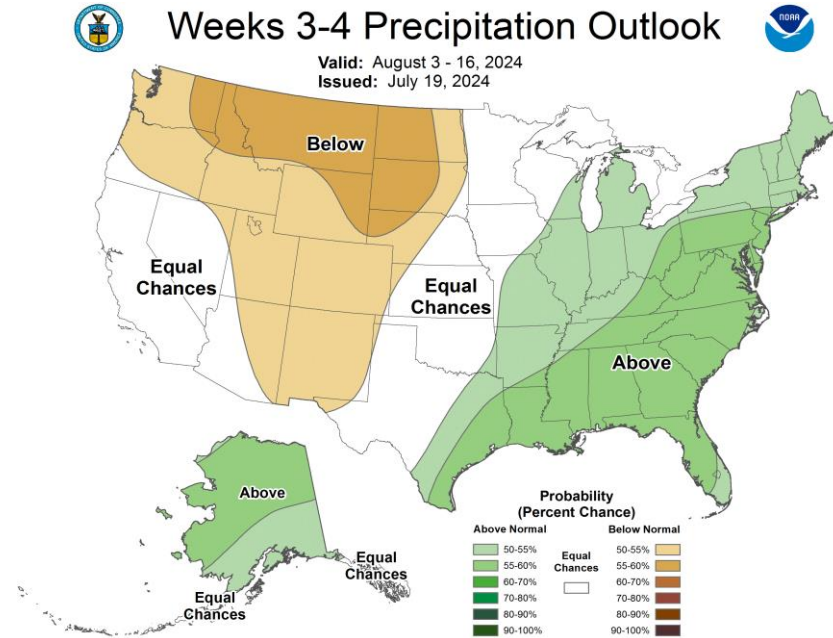
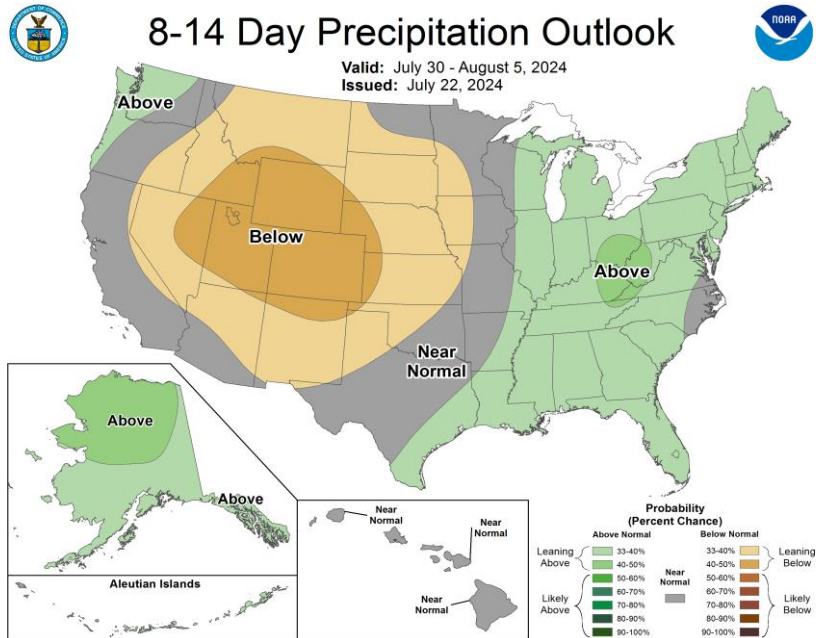
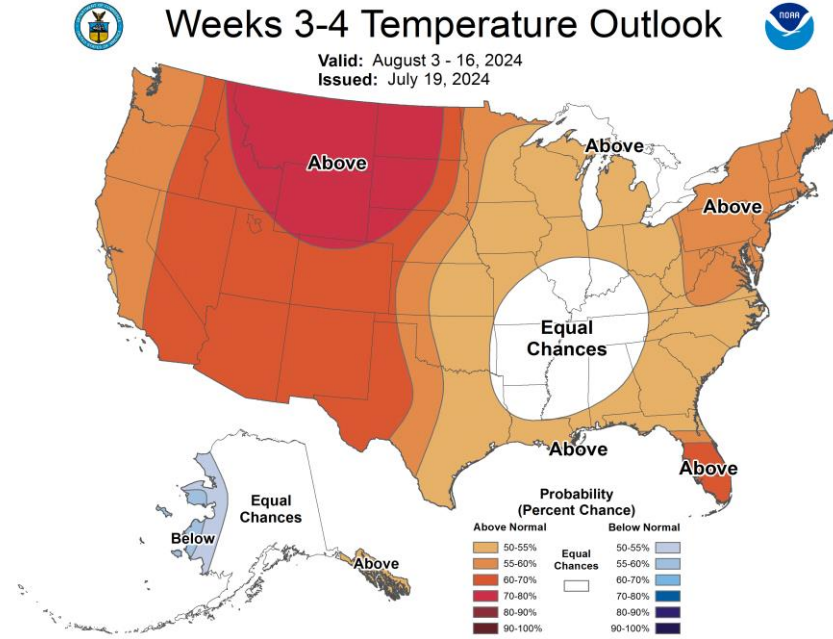
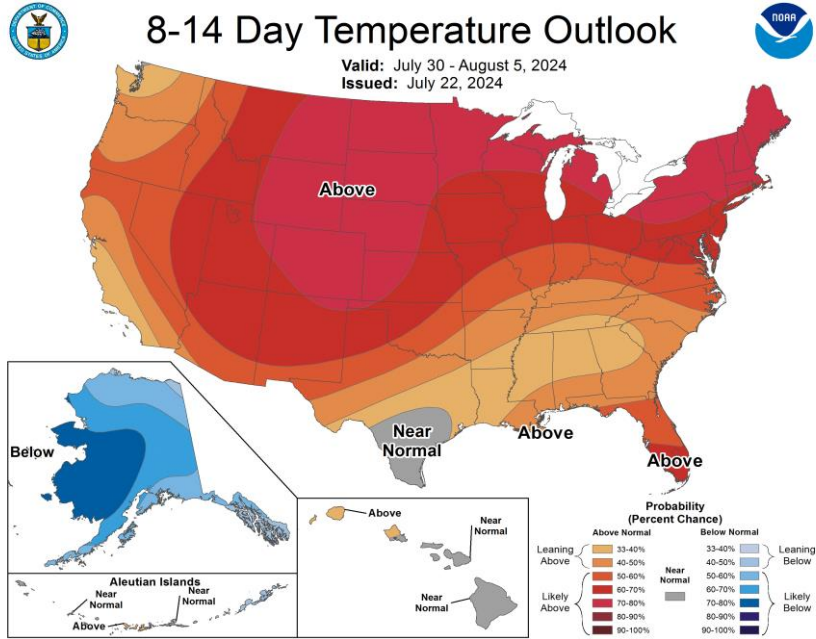
JJA MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



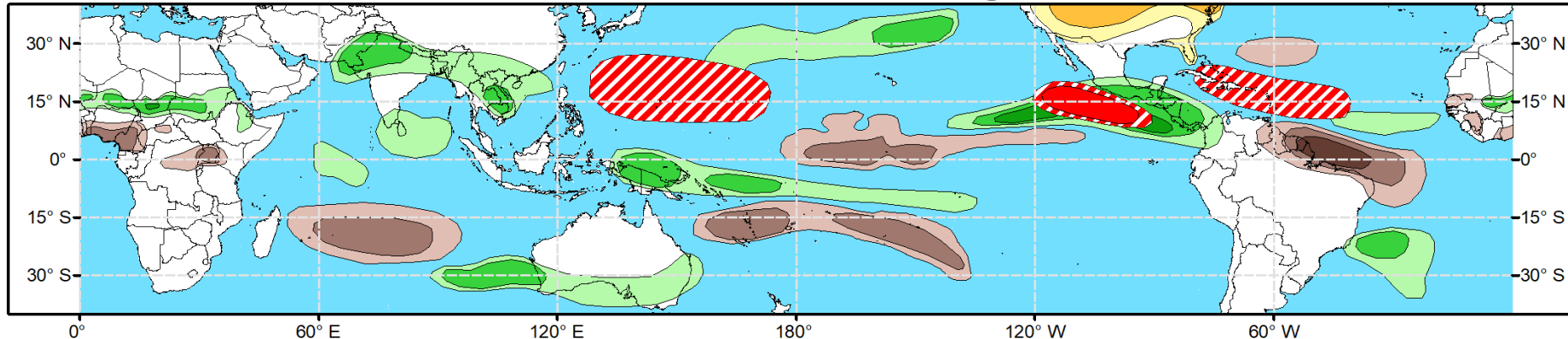


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Climate Prediction Center

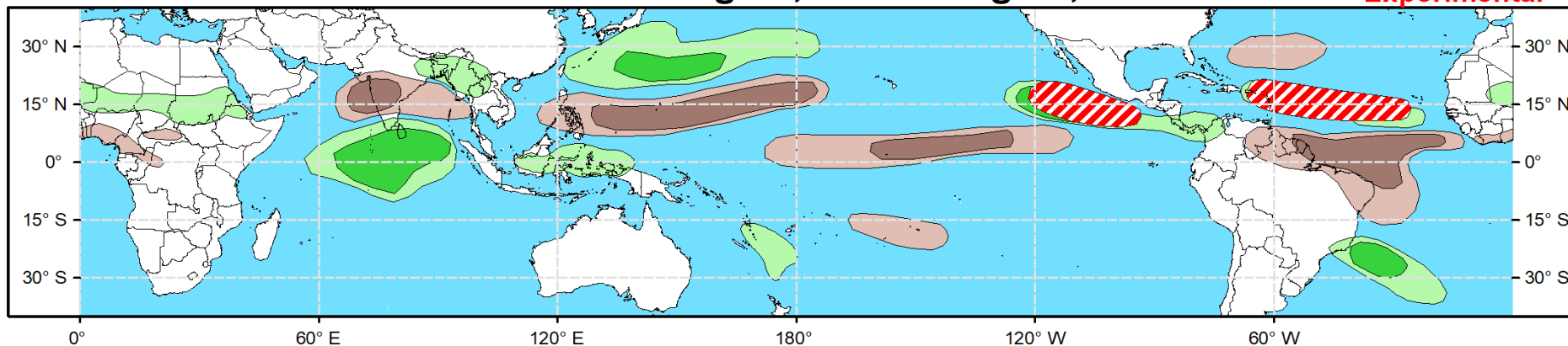


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