



Weeks 2-3 Global Tropics Hazards Outlook

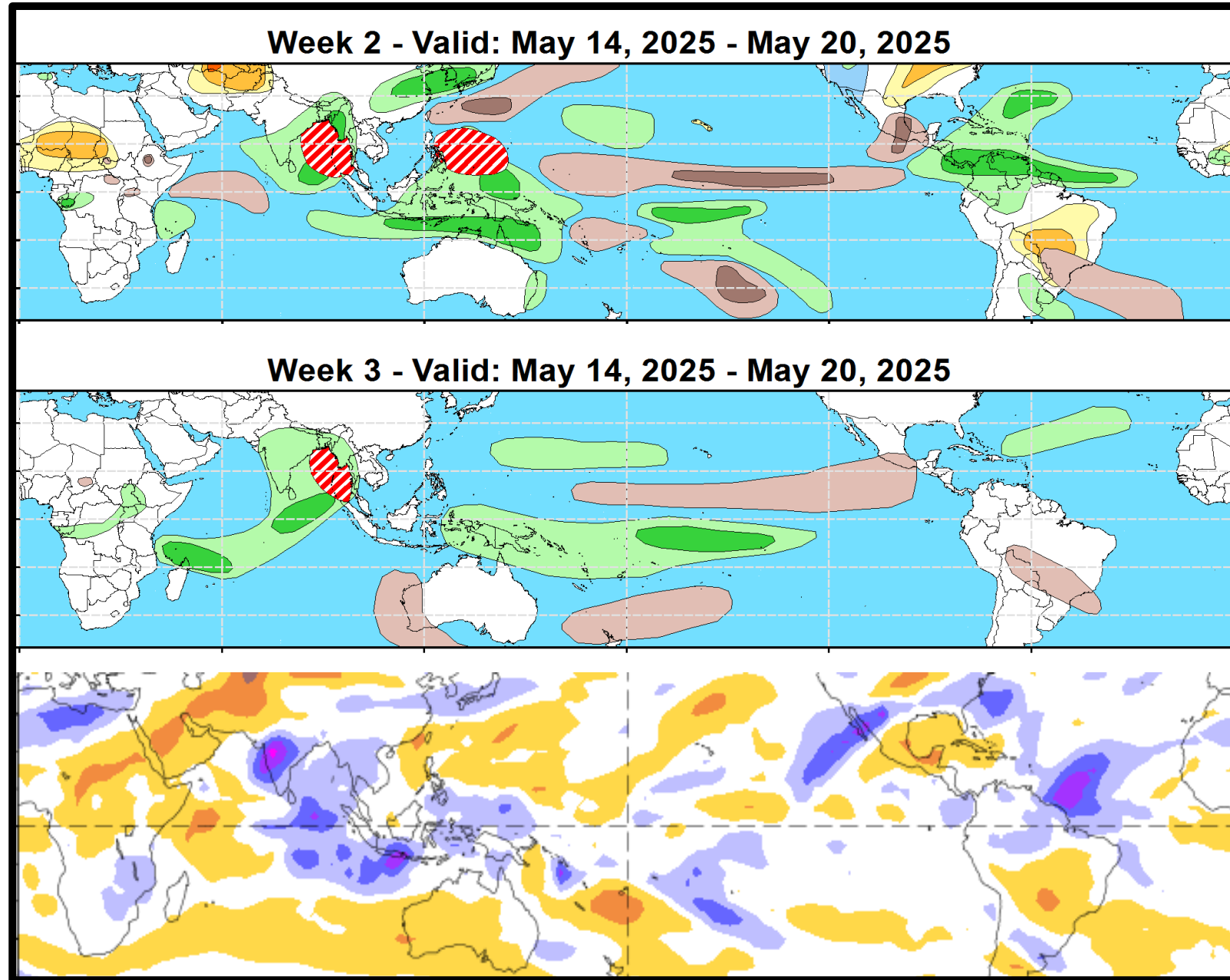
5/20/2025

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- No TCs formed during the past week



Synopsis of Climate Modes:

ENSO: (May 8, 2025 Update) *next update on Thursday, June 12th*

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored through the Northern Hemisphere summer 2025 (74% chance during June-August), with chances exceeding 50% through August-October 2025.

MJO and other subseasonal tropical variability:

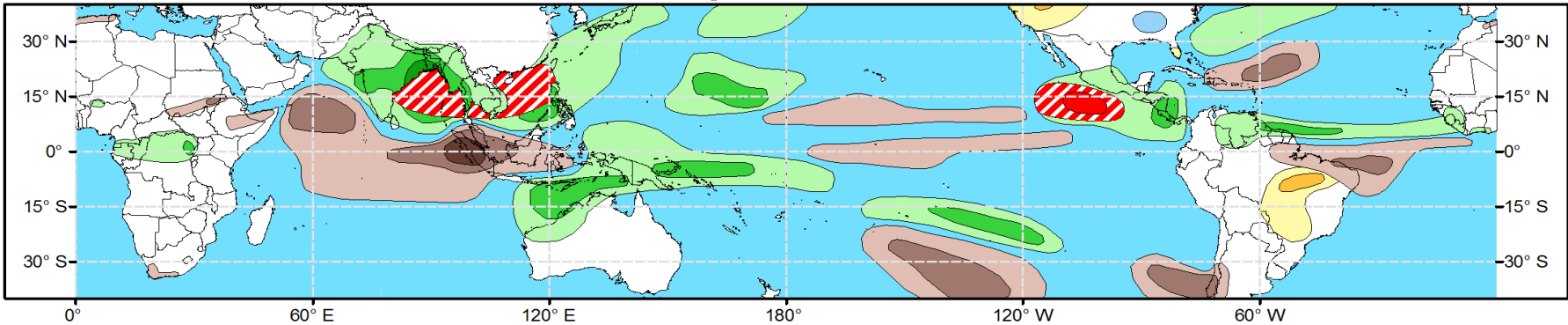
- The MJO remains incoherent, as other modes of tropical variability, namely equatorial Kelvin Wave activity and a low frequency convective response over the Maritime Continent, have been predominantly responsible for driving convection and circulation anomalies in the tropics.
- In the absence of an active MJO, higher frequency tropical modes look to continue during the next few weeks, however there is some support in the extended range solutions for more coherent subseasonal activity emerging over the Western Pacific and Western Hemisphere by the start of June.
- Tropical cyclogenesis is favored in the northern Indian Ocean and western Pacific, with increased chances for the first TC of the season to form over the eastern Pacific.



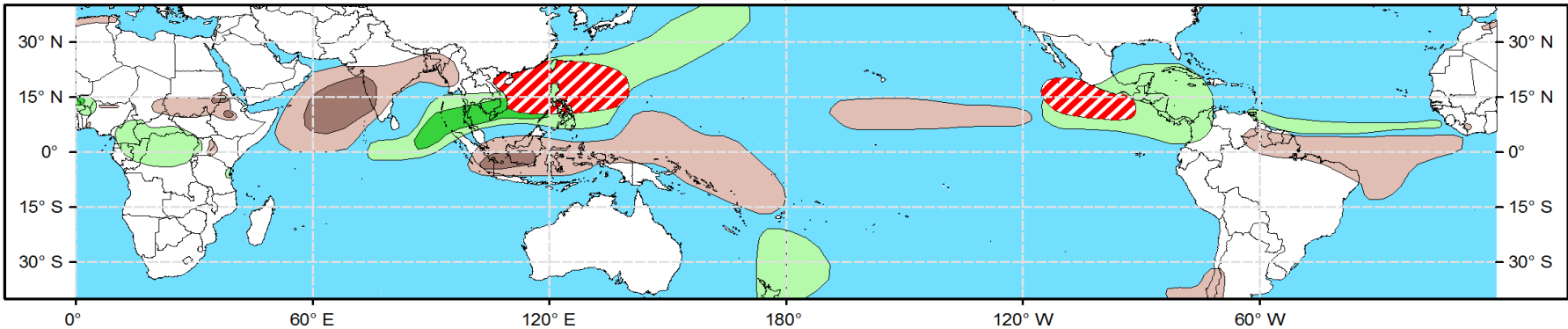
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: May 28, 2025 - Jun 03, 2025



Week 3 - Valid: Jun 04, 2025 - Jun 10, 2025



**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
Upper third of the historical range*

**Below-Average
Temperatures Probability**



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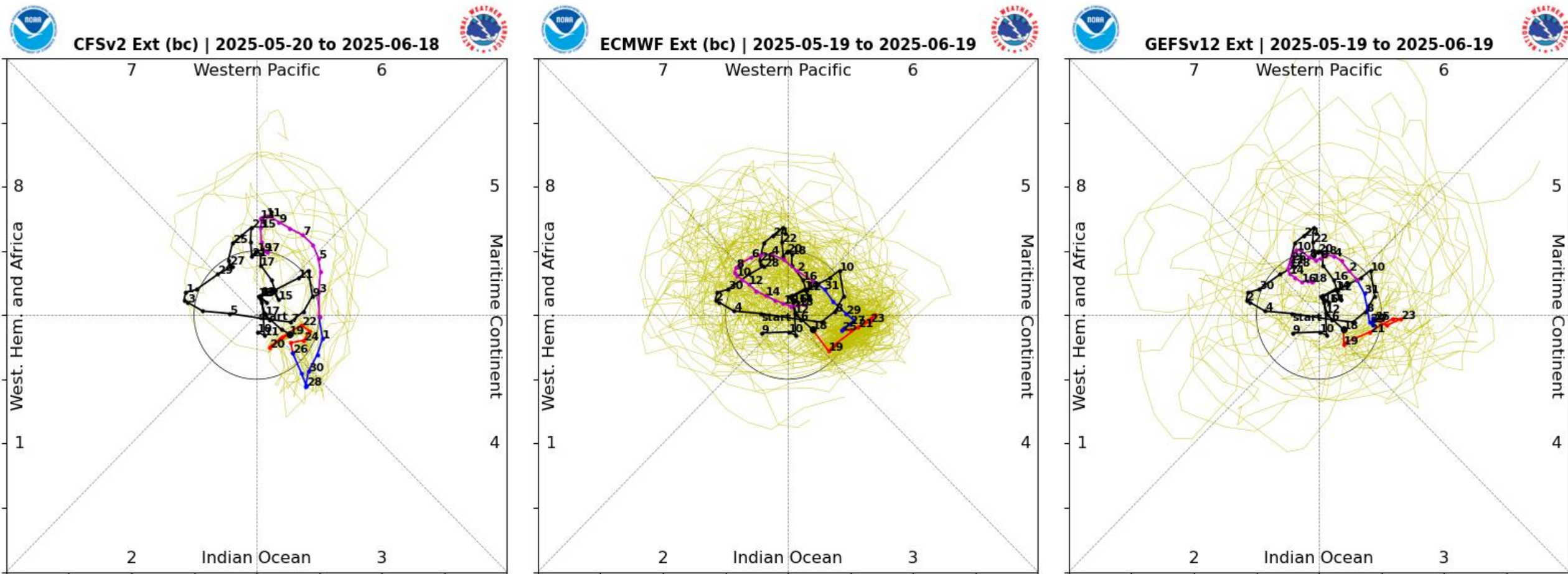
*7-day min temperatures in the
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Issued: 05/20/2025

Forecaster: Novella

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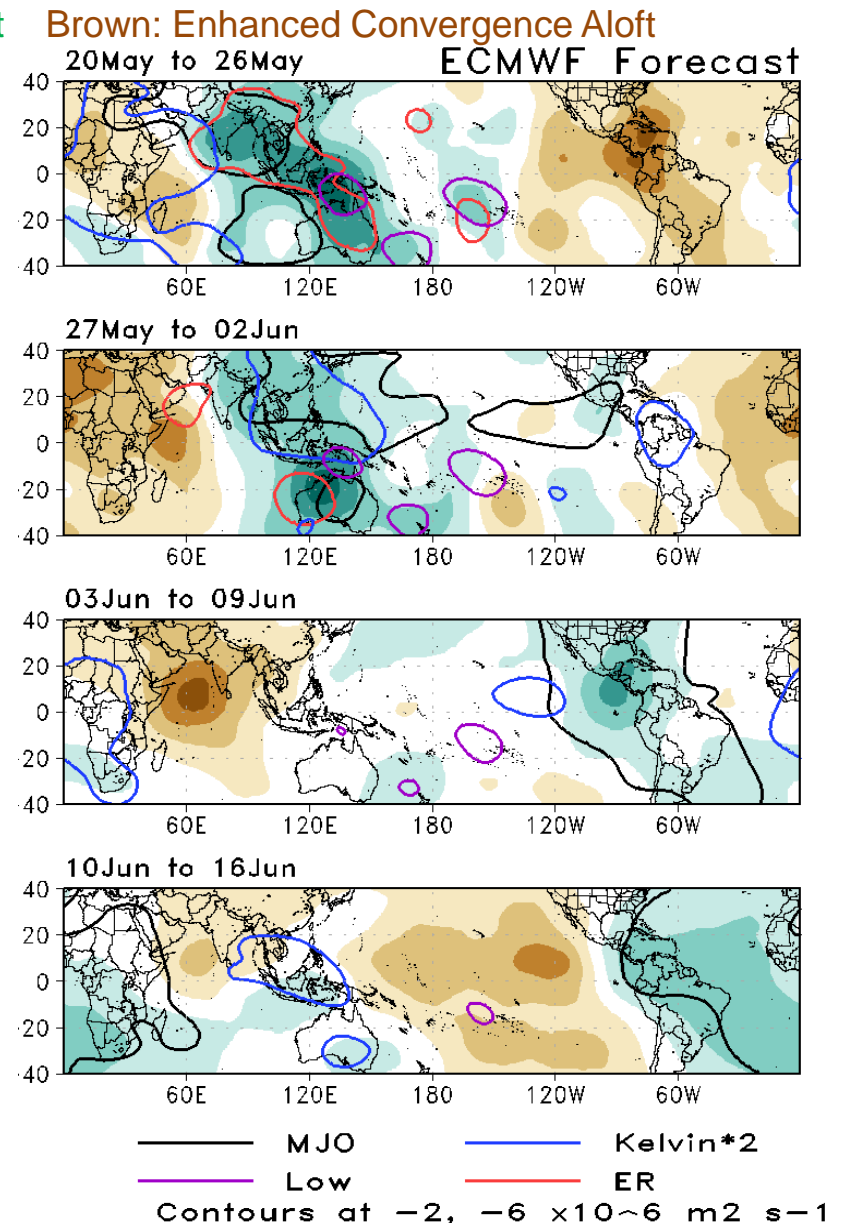
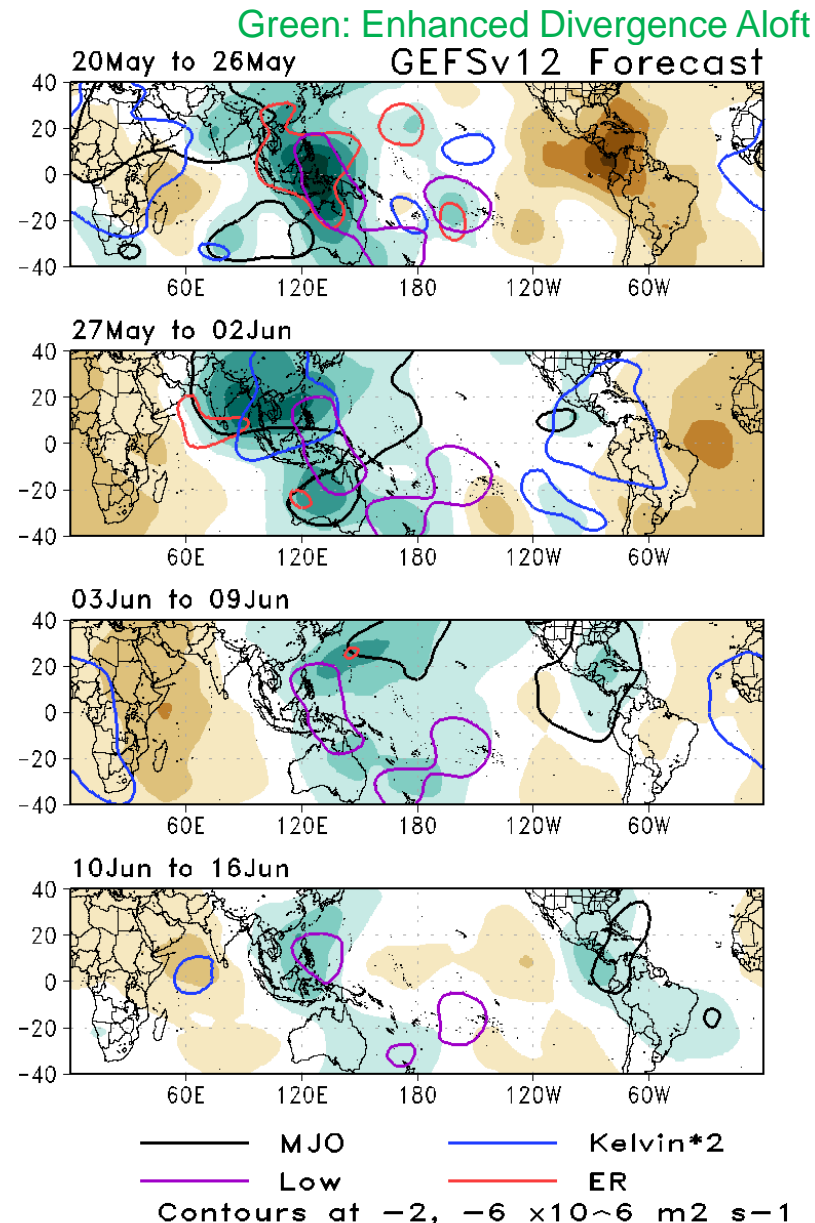
RMM Index Observations & Forecasts:



- RMM-index forecasts favor a strengthening signal over the Maritime Continent, but any renewal is short-lived and absent of any sustained eastward propagation, which is likely tied to other modes of tropical variability.
- There is some support in the extended range CFSv2 and ECMWF forecasts, for a more canonical eastward propagating signal in the western Pacific, though its amplitude remains low.

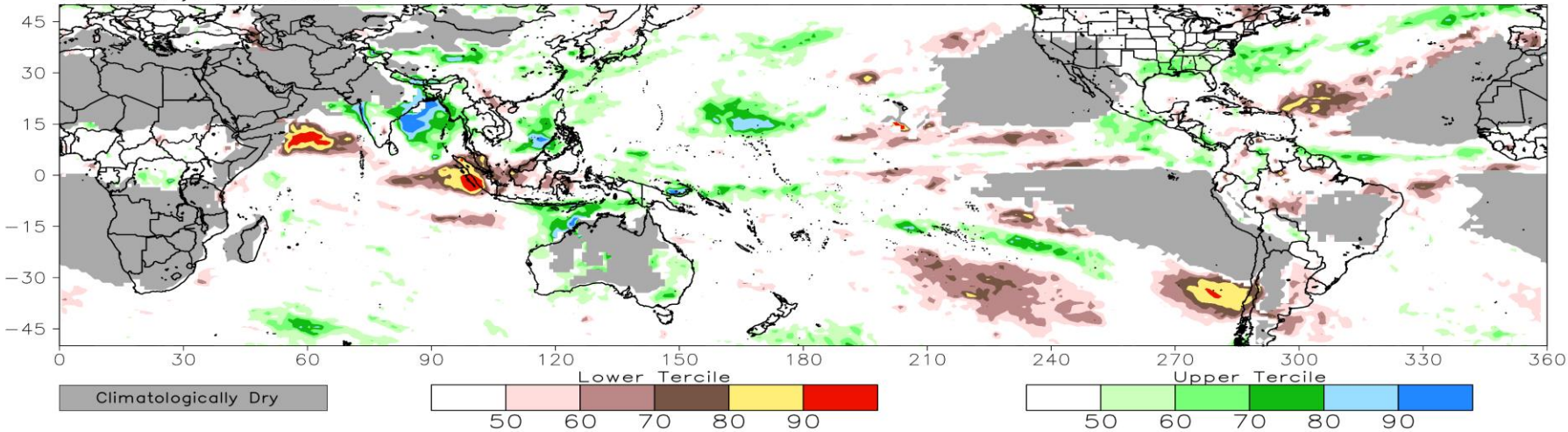
200-hPa Velocity Potential Anomaly Maps:

- Both GEFS and ECMWF agree well with the pattern and higher frequency **Kelvin** and **Rossby** wave activity during the next few weeks.
- The intersection of these waves results in a region with enhanced divergence aloft, favorable for TC development.
- A secondary **Kelvin** wave over the tropical Americas appears to be the main forcing feature for TC development in the eastern Pacific.
- By week-3, the ECWMF favors a more coherent **MJO** reemerging whereas the GEFS maintains more of multiple wave pattern.

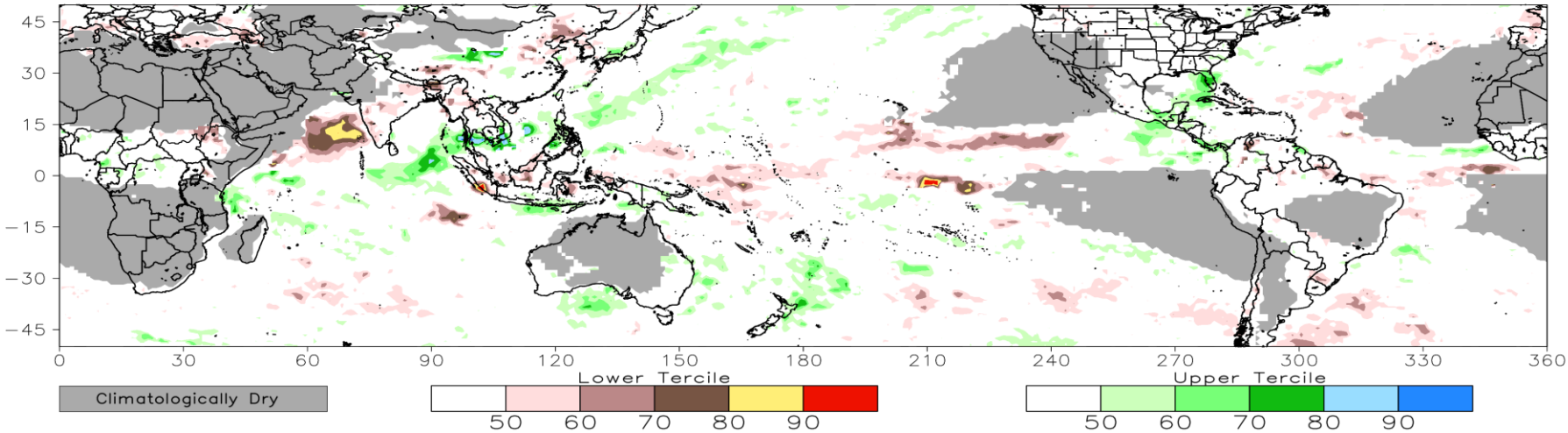


Consolidated Probabilistic Precipitation: Weeks 2 & 3

CONS (CFS+ECMWF+GEFS): Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)
Valid: 28May2025–03Jun2025

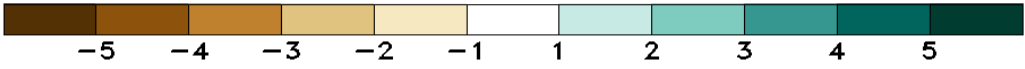
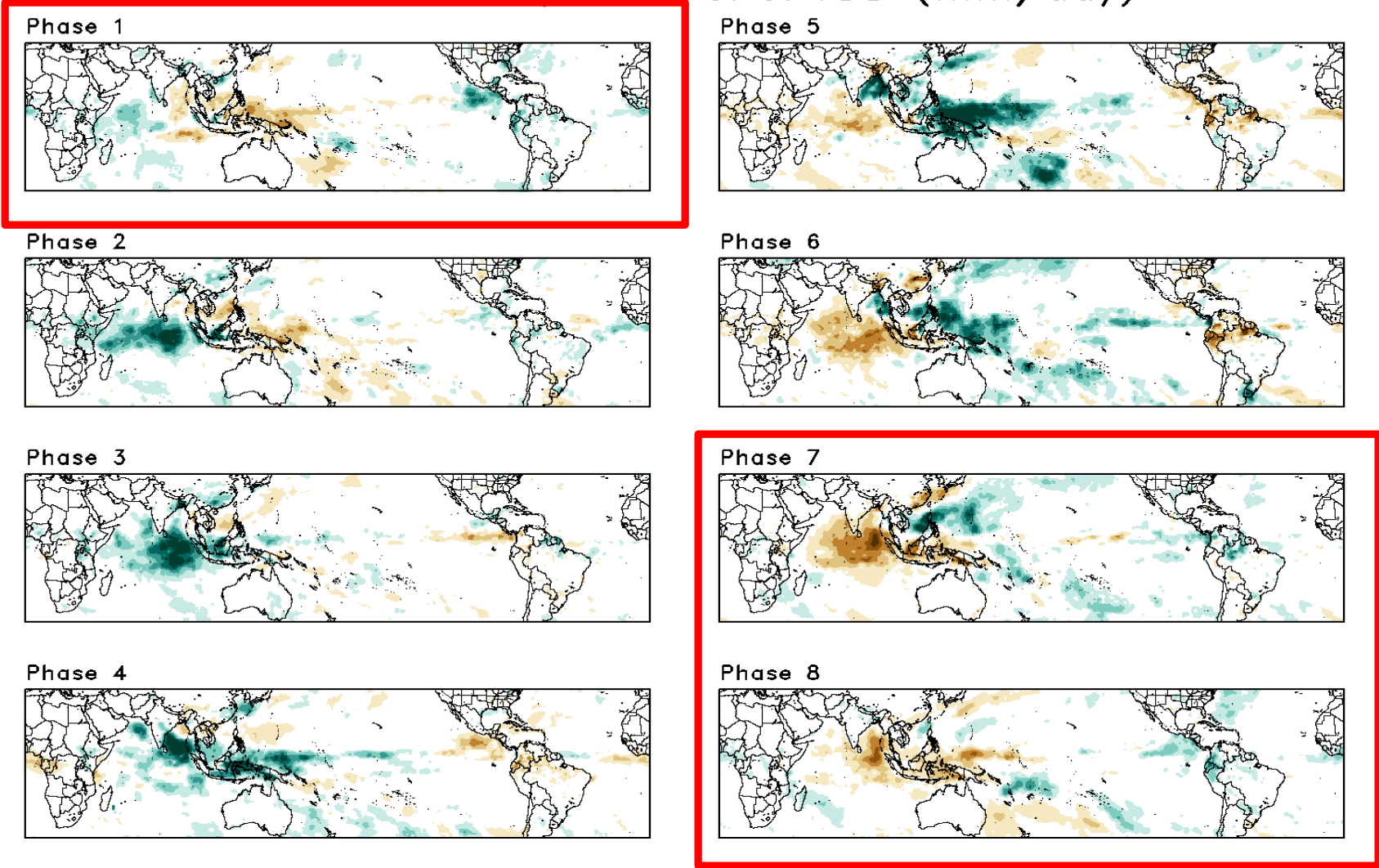


CONS (CFS+ECMWF+GEFS): Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)
Valid: 04Jun2025–10Jun2025



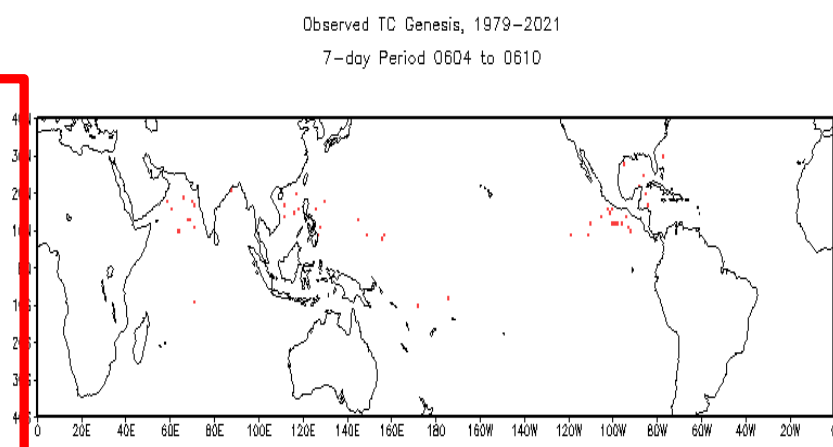
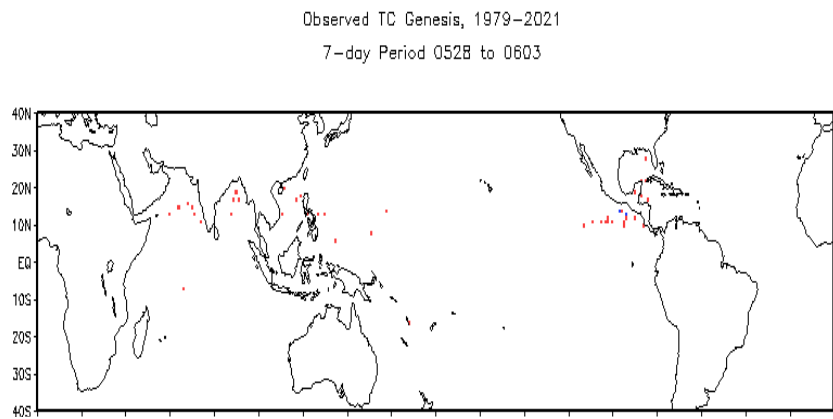
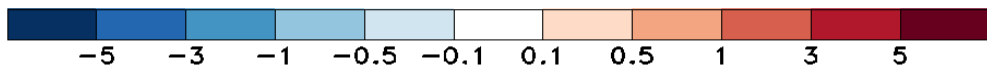
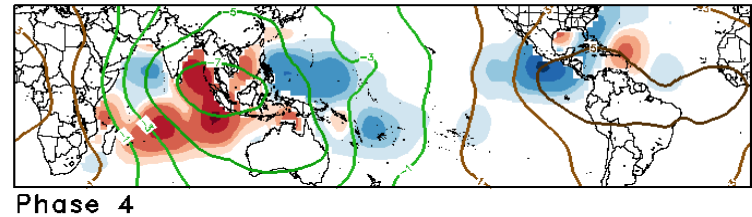
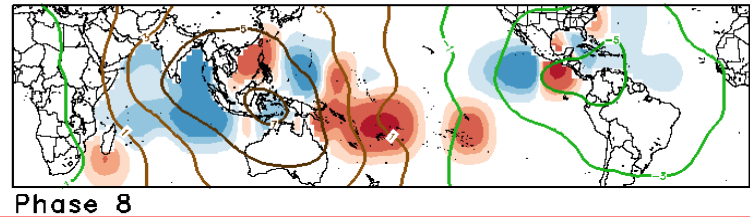
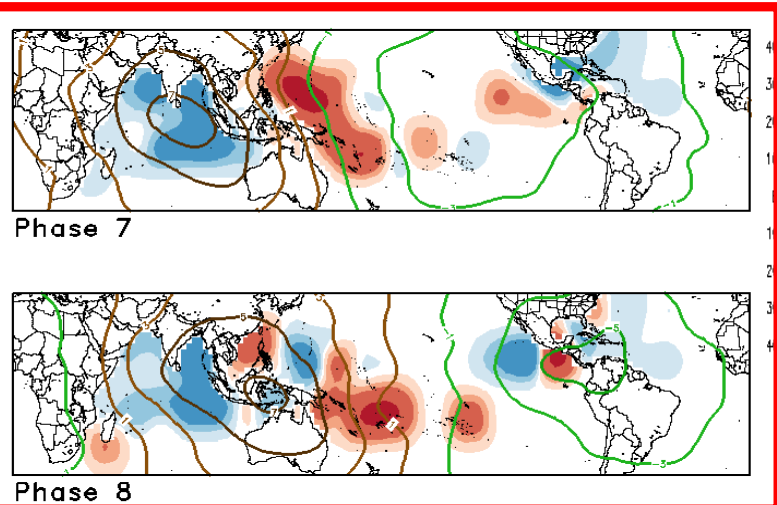
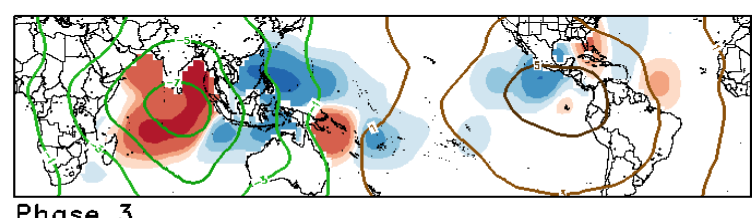
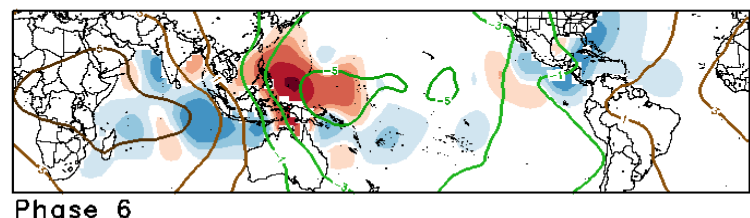
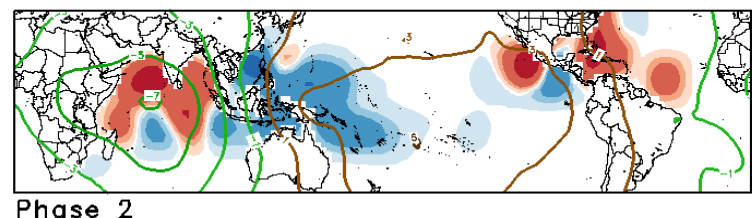
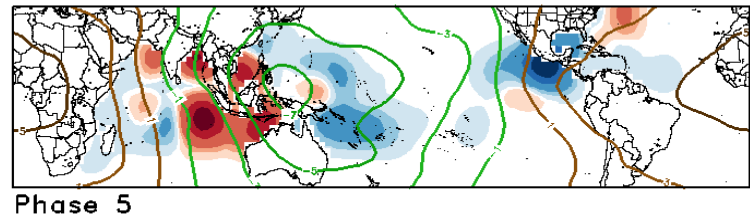
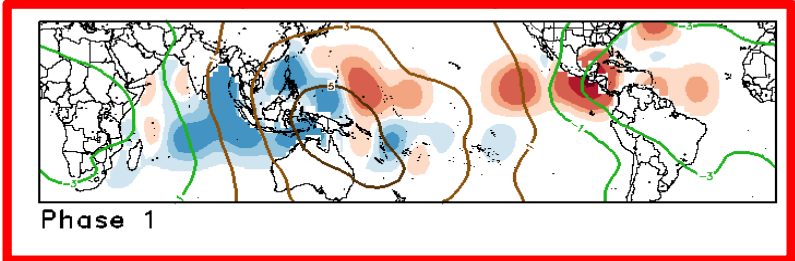
Historical Precipitation Anomalies By MJO Phase:

AMJ MJO Composite: GPCP1DD (mm/day)



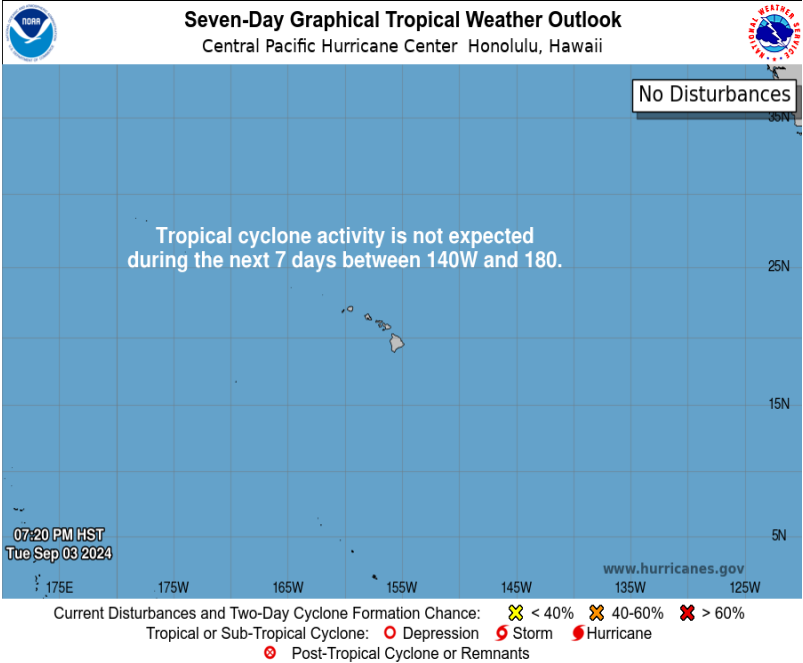
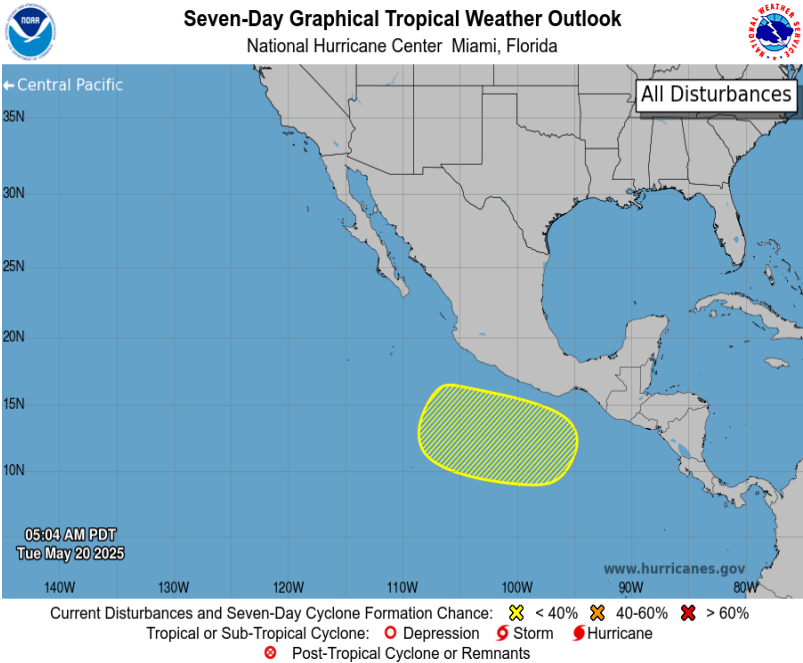
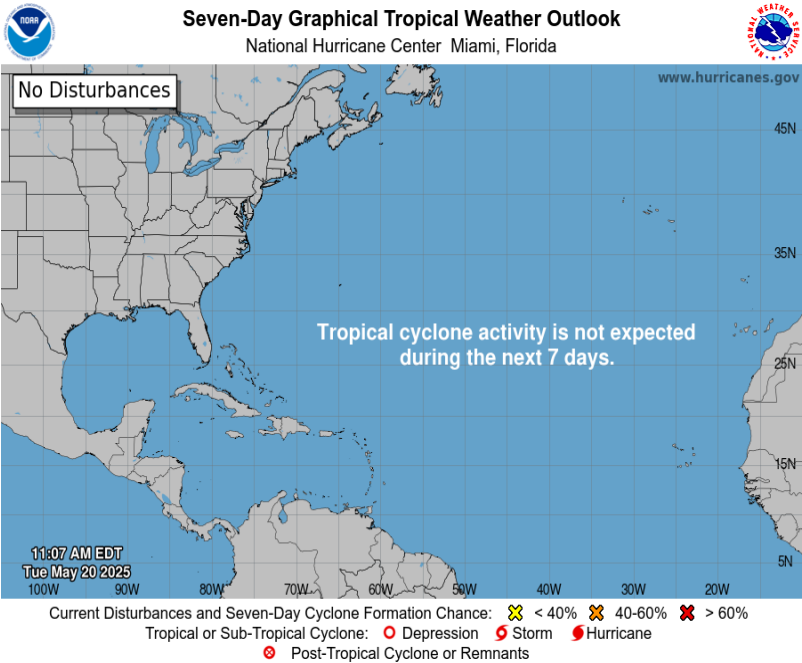
Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

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

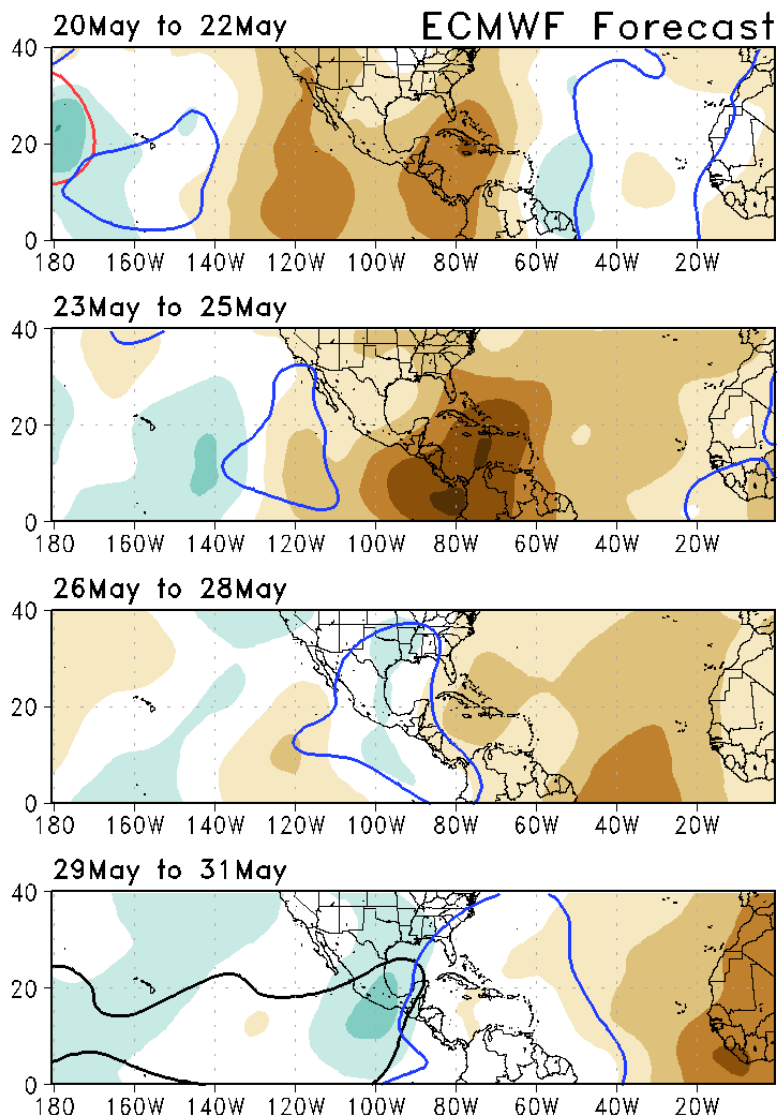


Experimental

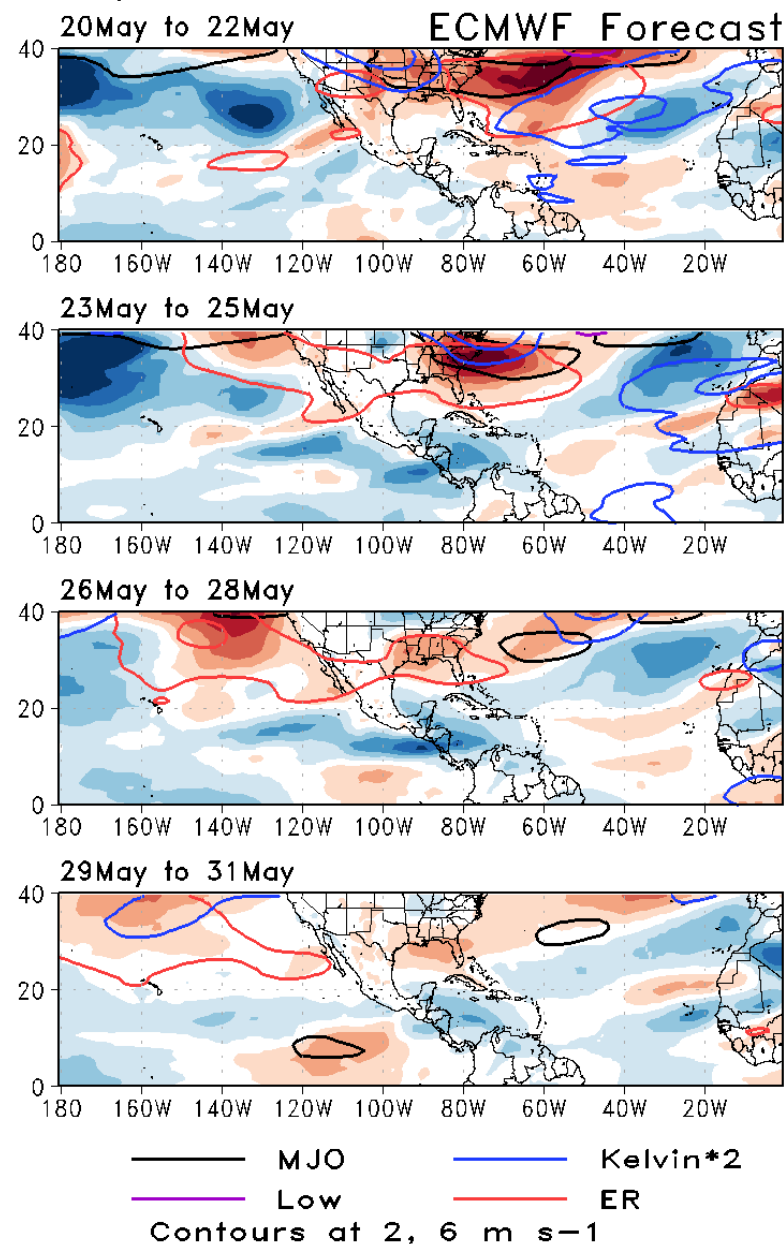
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



-Day Means

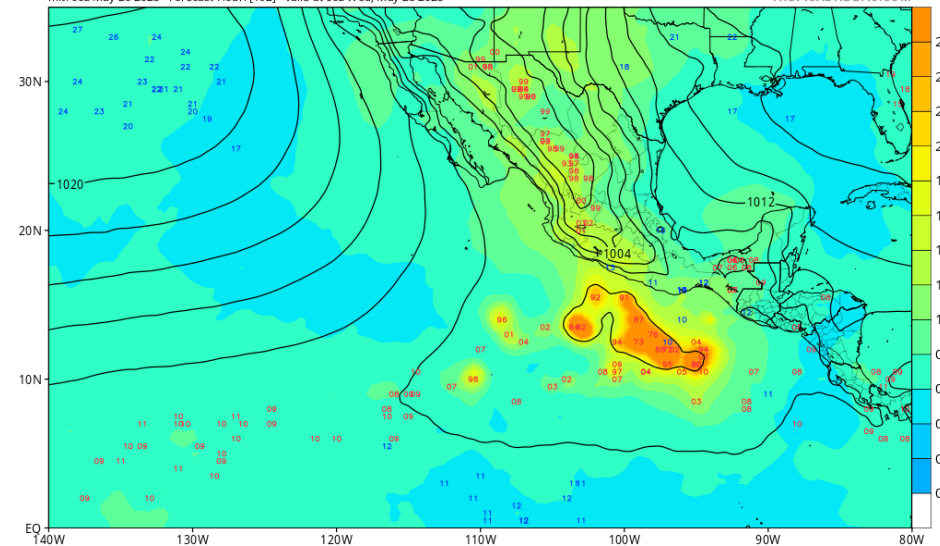


3-Day Means



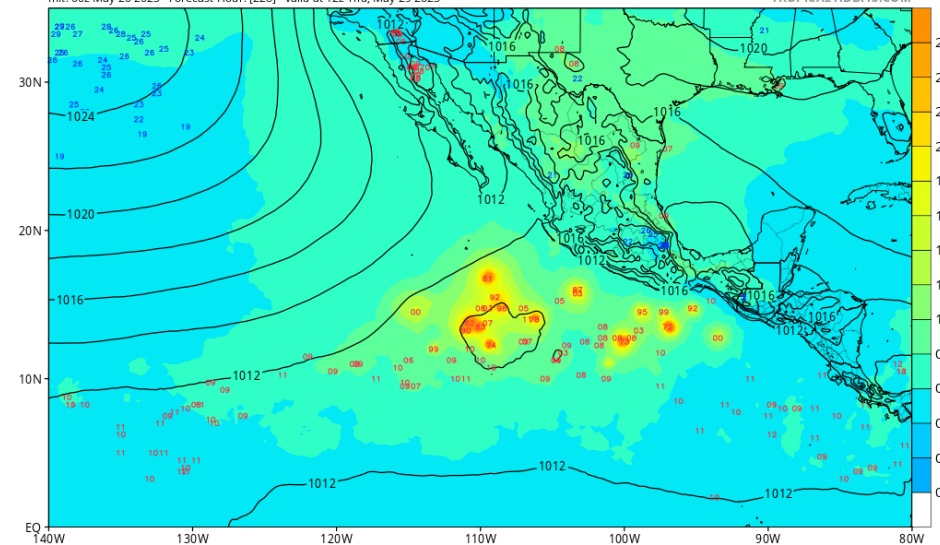
GEFS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)

Init: 00z May 20 2025 Forecast Hour: [192] valid at 00z Wed, May 28 2025



EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)

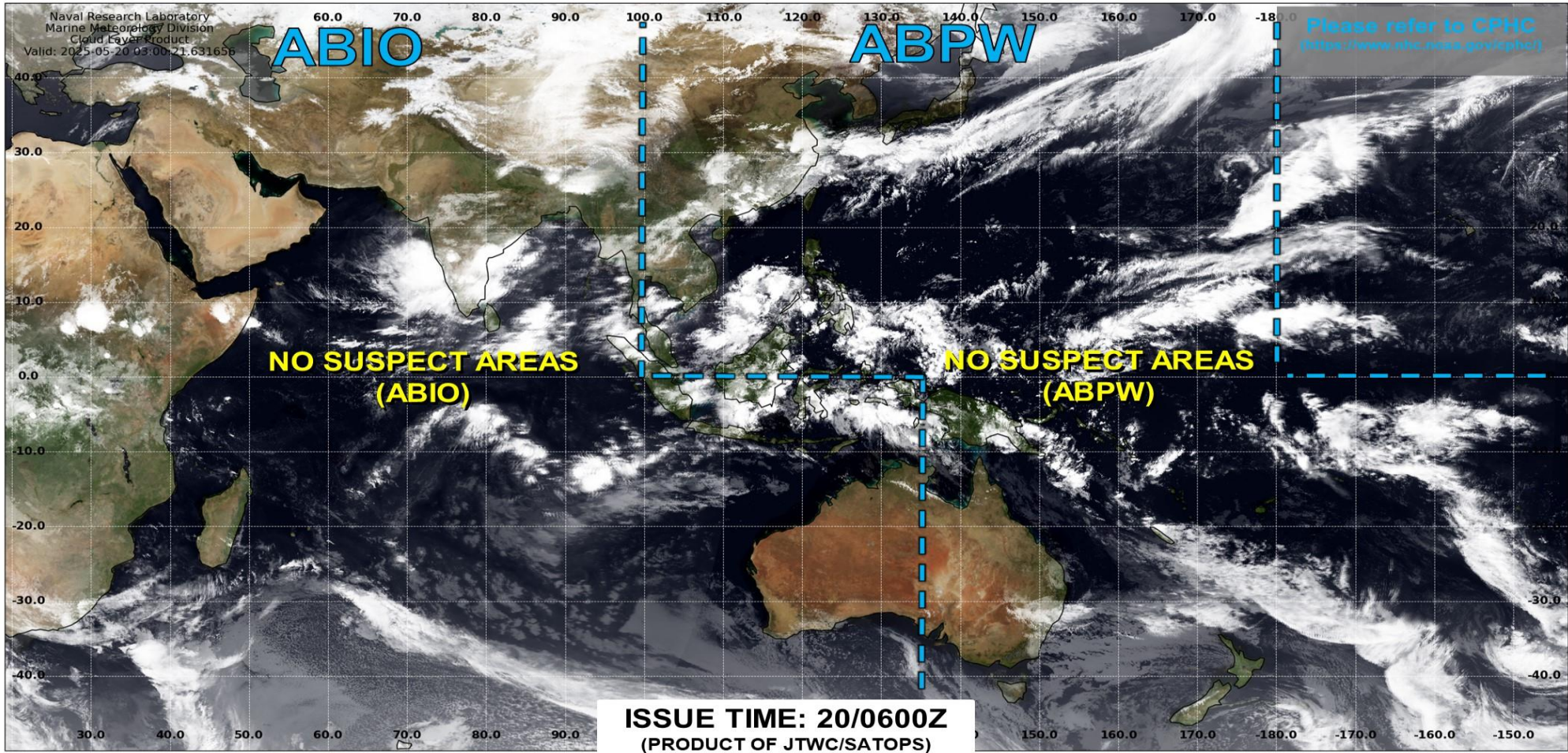
Init: 00z May 20 2025 Forecast Hour: [228] valid at 12z Thu, May 29 2025



Tropical Cyclone Monitoring/Forecast: JTWC



JOINT TYPHOON WARNING CENTER



LOW

TC development unlikely within 24 hours

MEDIUM

TC development likely, but expected to occur beyond 24 hours

HIGH

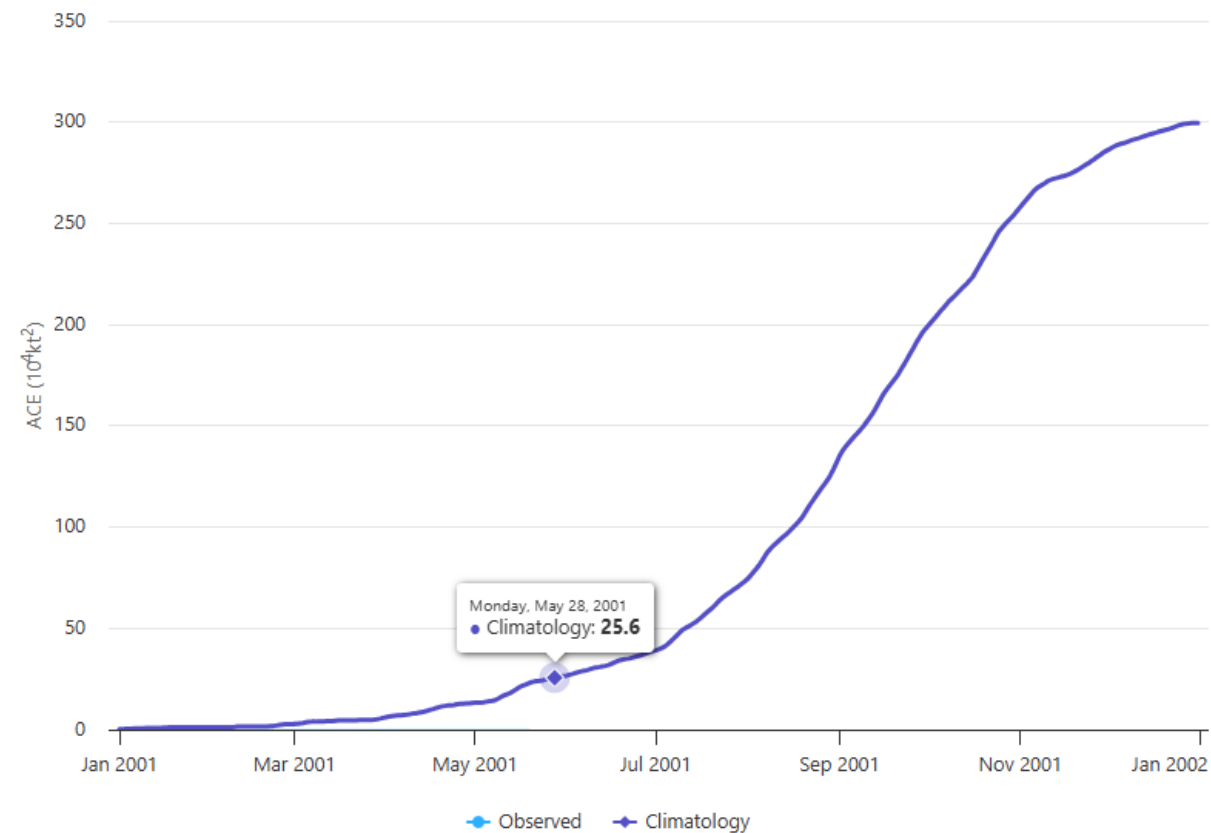
TC development likely within 24 hours (Reference TCFA)

SUB TROPICAL

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

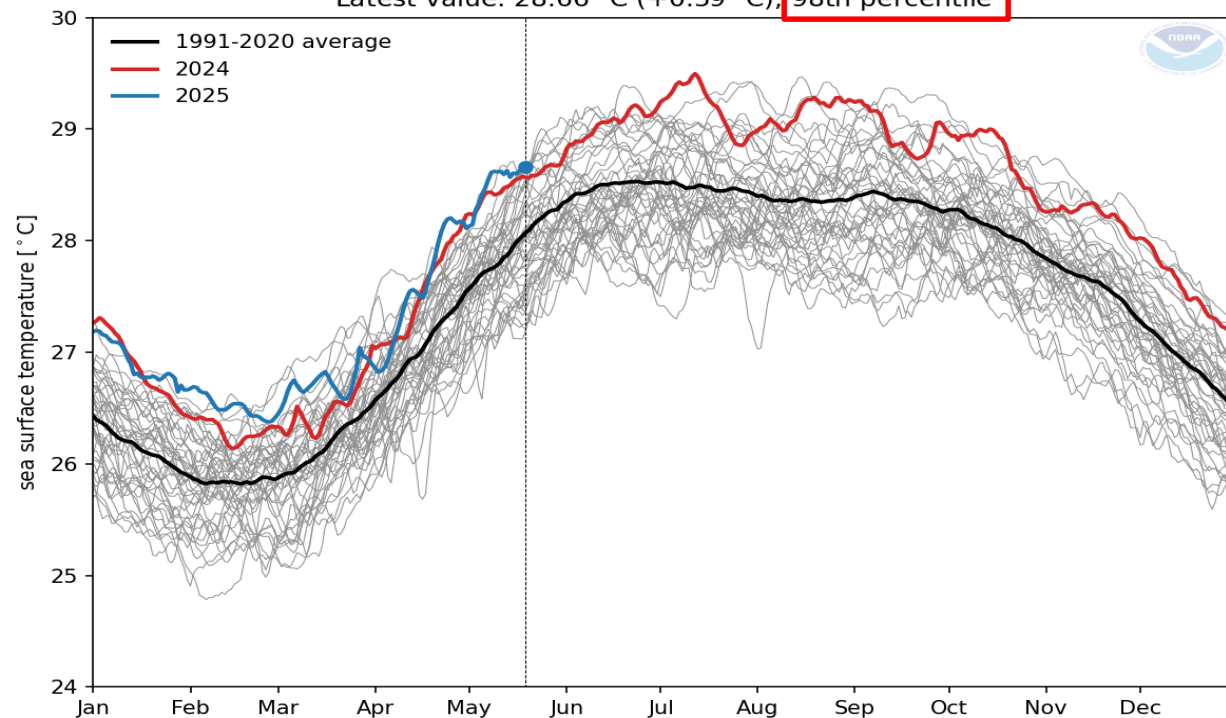
Tropical Cyclone (Reference Warning)

Current Season Northwest Pacific Ocean ACE (1991-2020 Climatology)

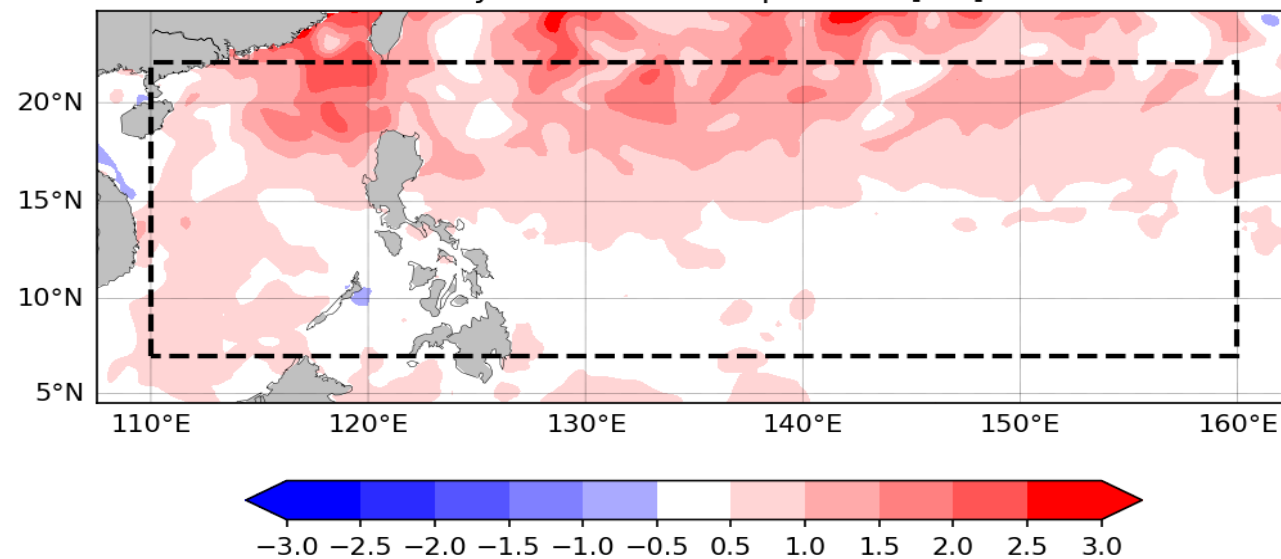


Highcharts.com

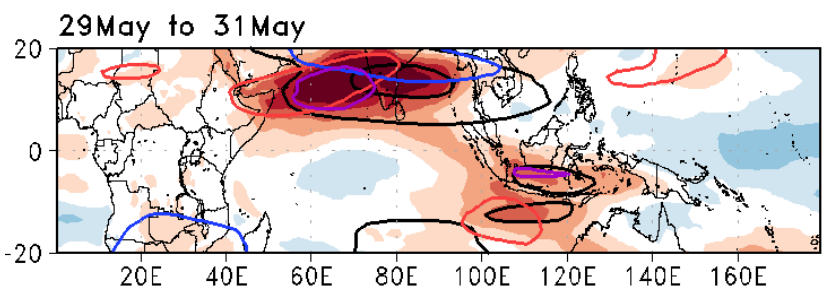
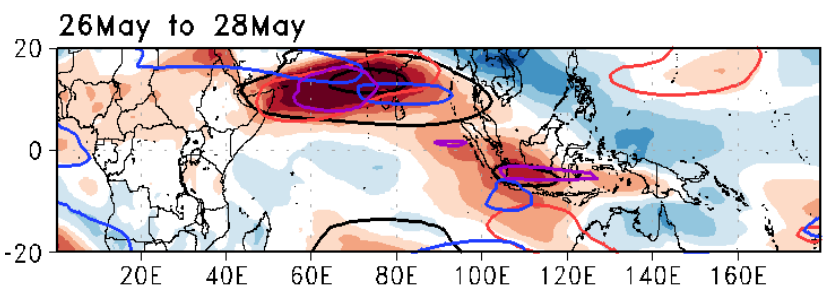
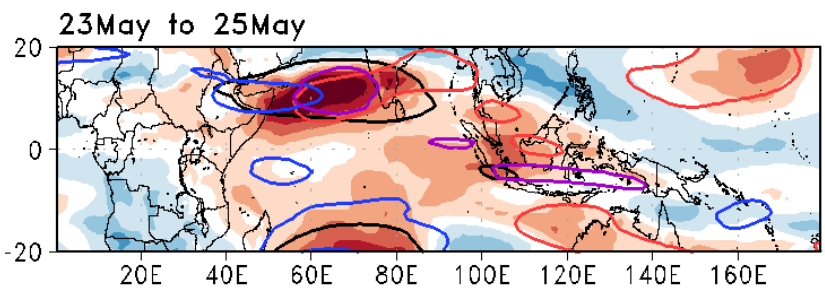
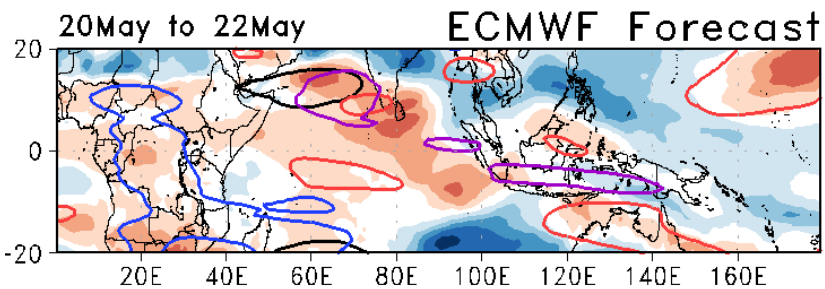
OISSTv2.1: western North Pacific (7-22° N, 110-160° E) as of 19-May-2025
Latest value: 28.66 °C (+0.59 °C), 98th percentile



OISSTv2.1: western North Pacific as of 19-May-2025
daily sea surface temperature [°C]



—Day Means

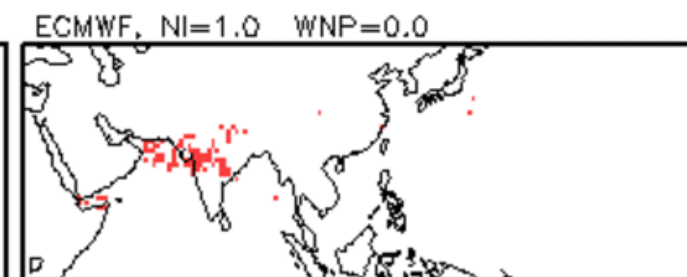
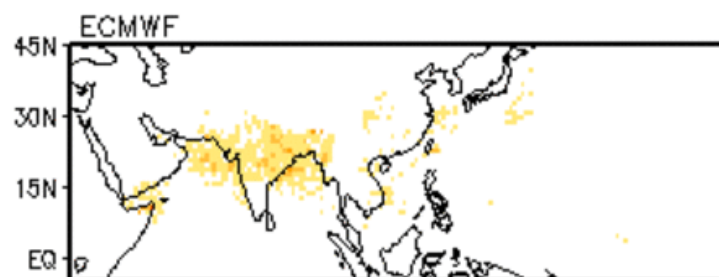
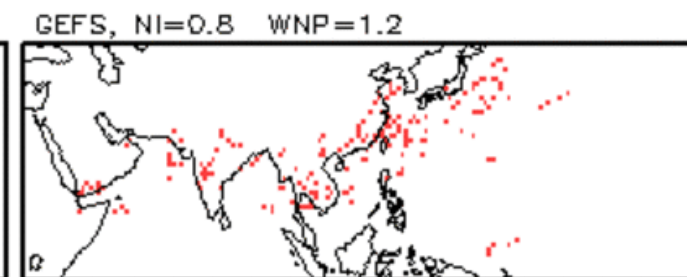
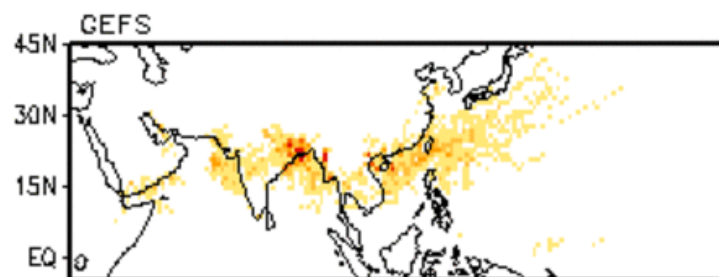
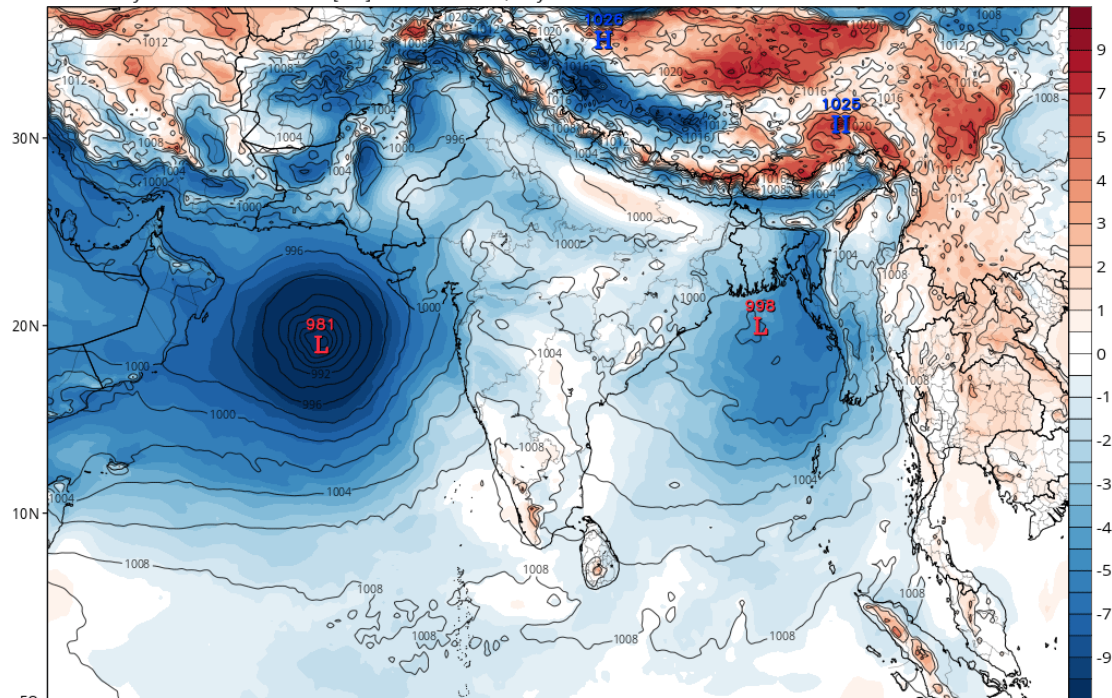


— MJO — Kelvin*2
 — Low — ER
 Contours at 2, 6 m s⁻¹

ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

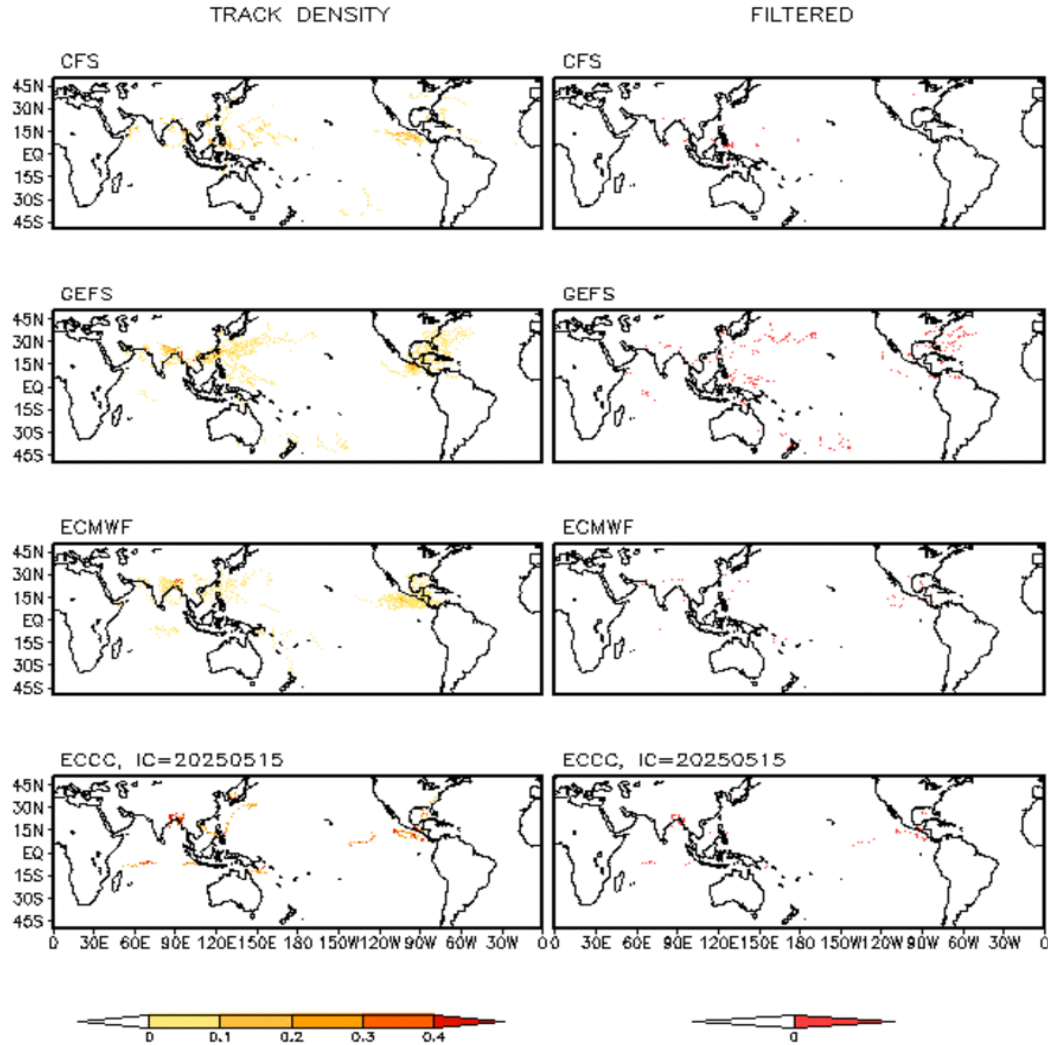
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TROPICALTIDBITS.COM

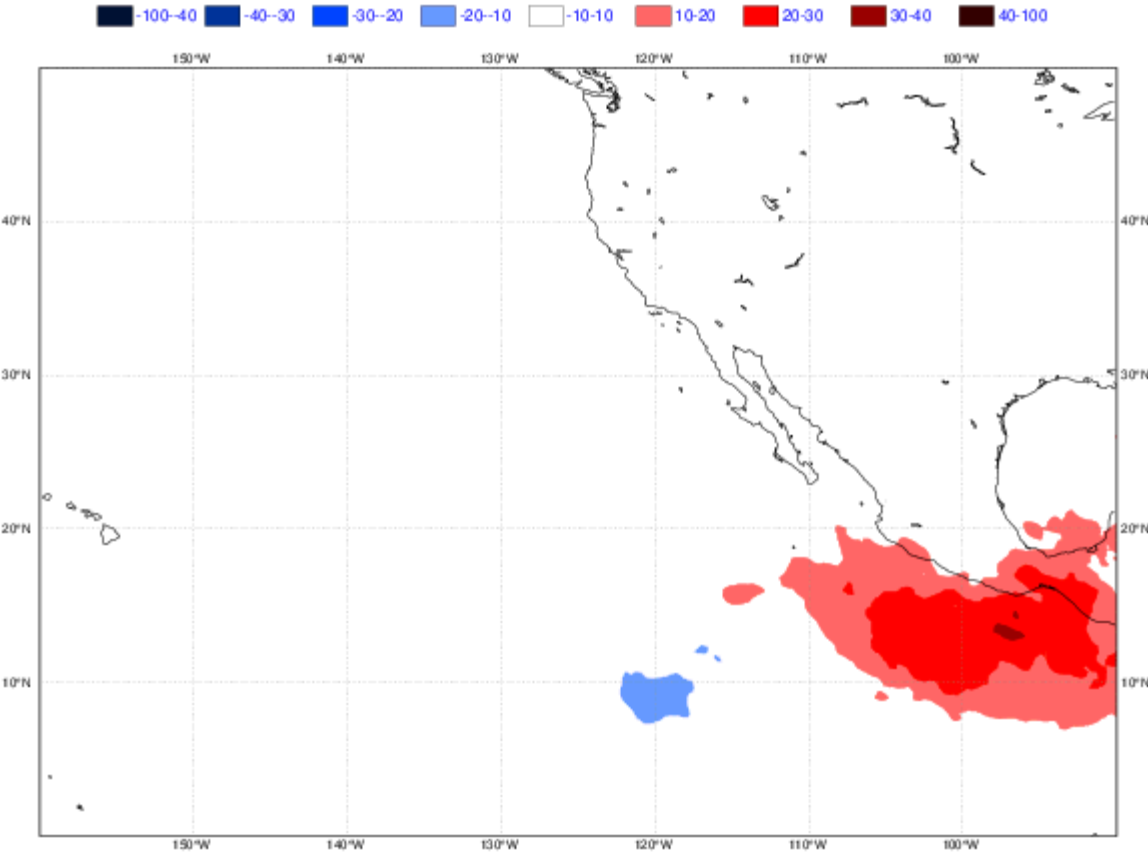


Multi-Model TC Track Densities: Weeks 2+3

Storm Track Density Distribution, IC=20250519
Week 3 Forecast: 0604-0610

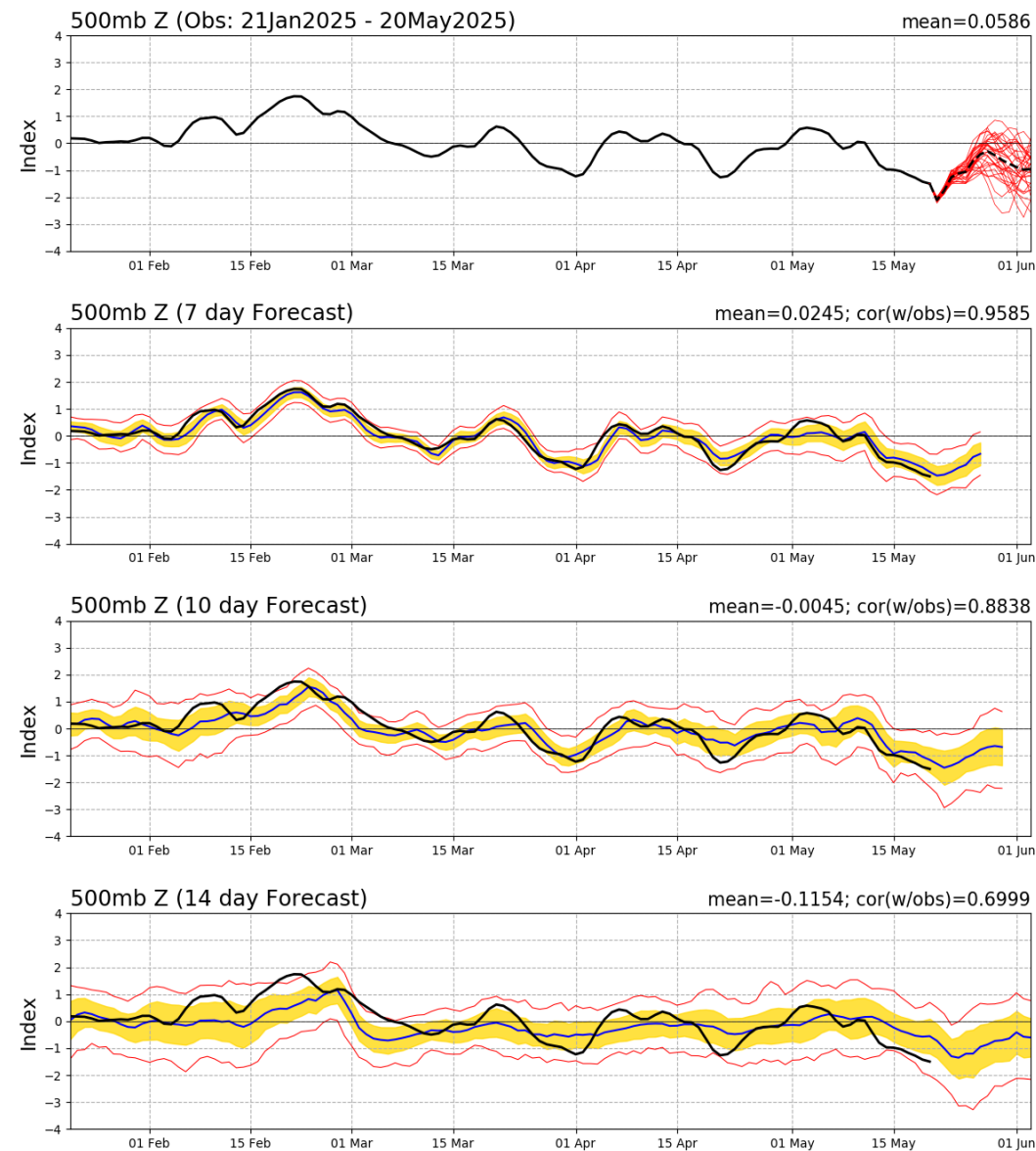


Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20250519 0 UTC t+(336-504)
Probability of a TC passing within 300km radius

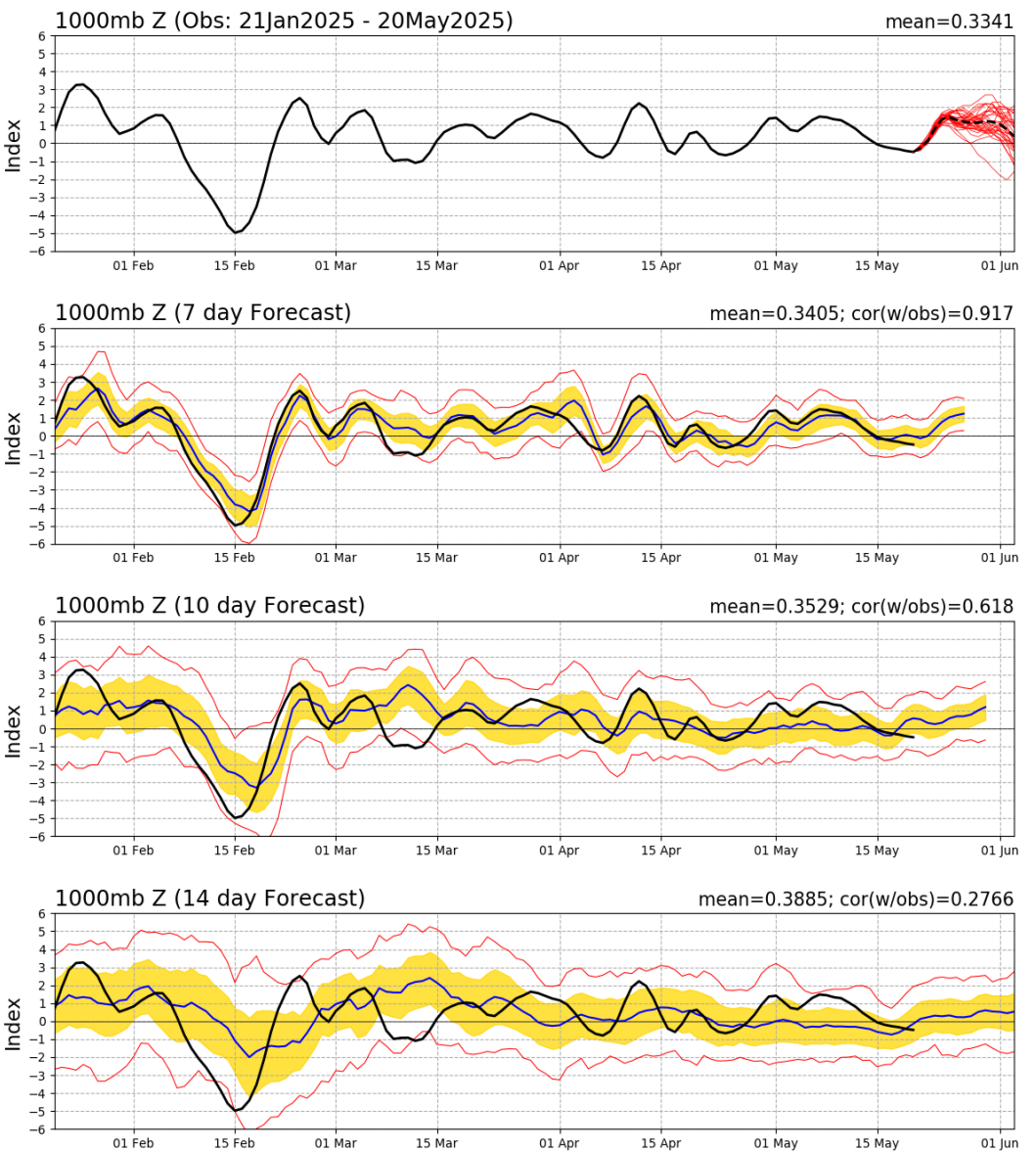


Teleconnection Indices: PNA / AO:

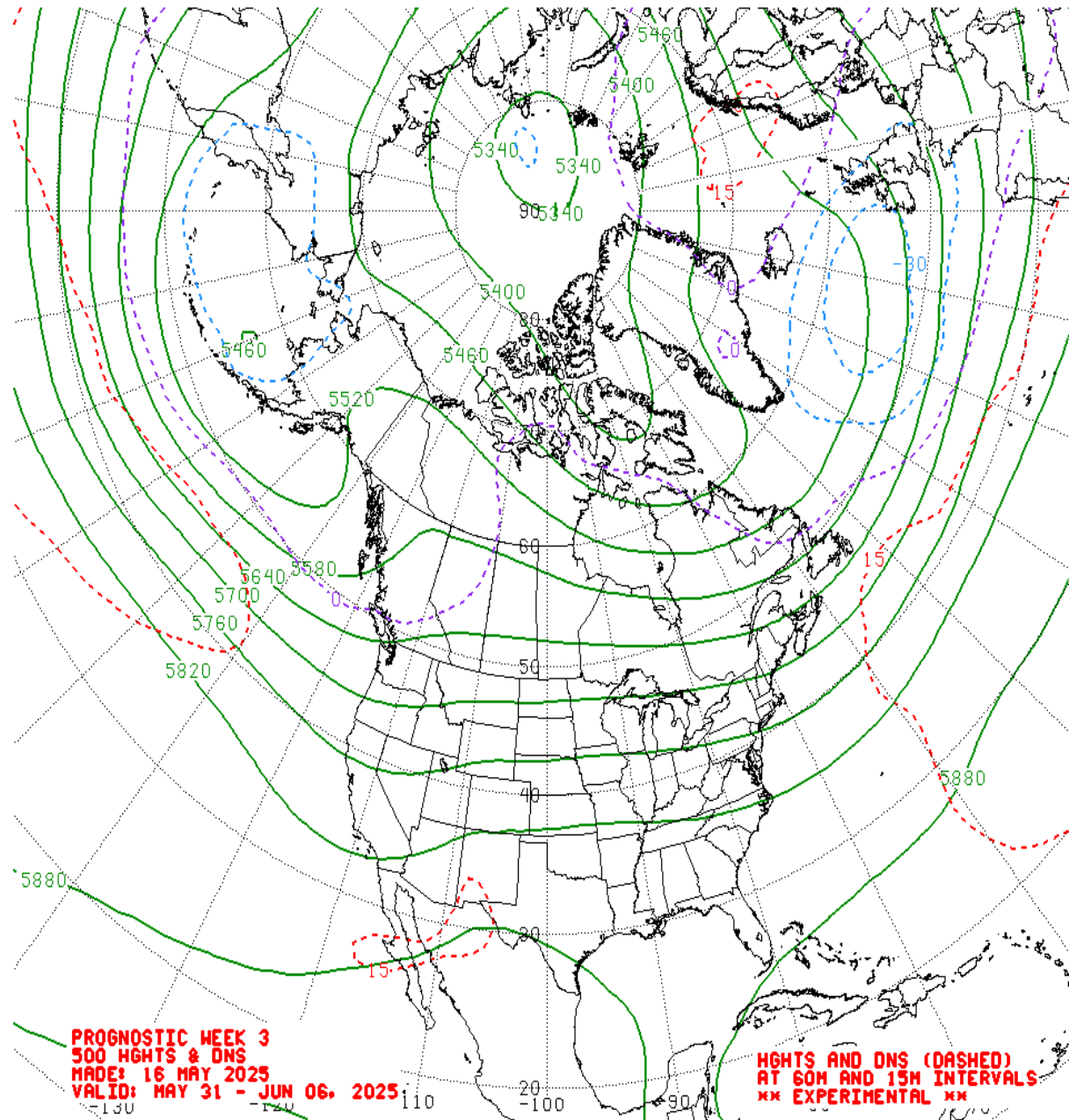
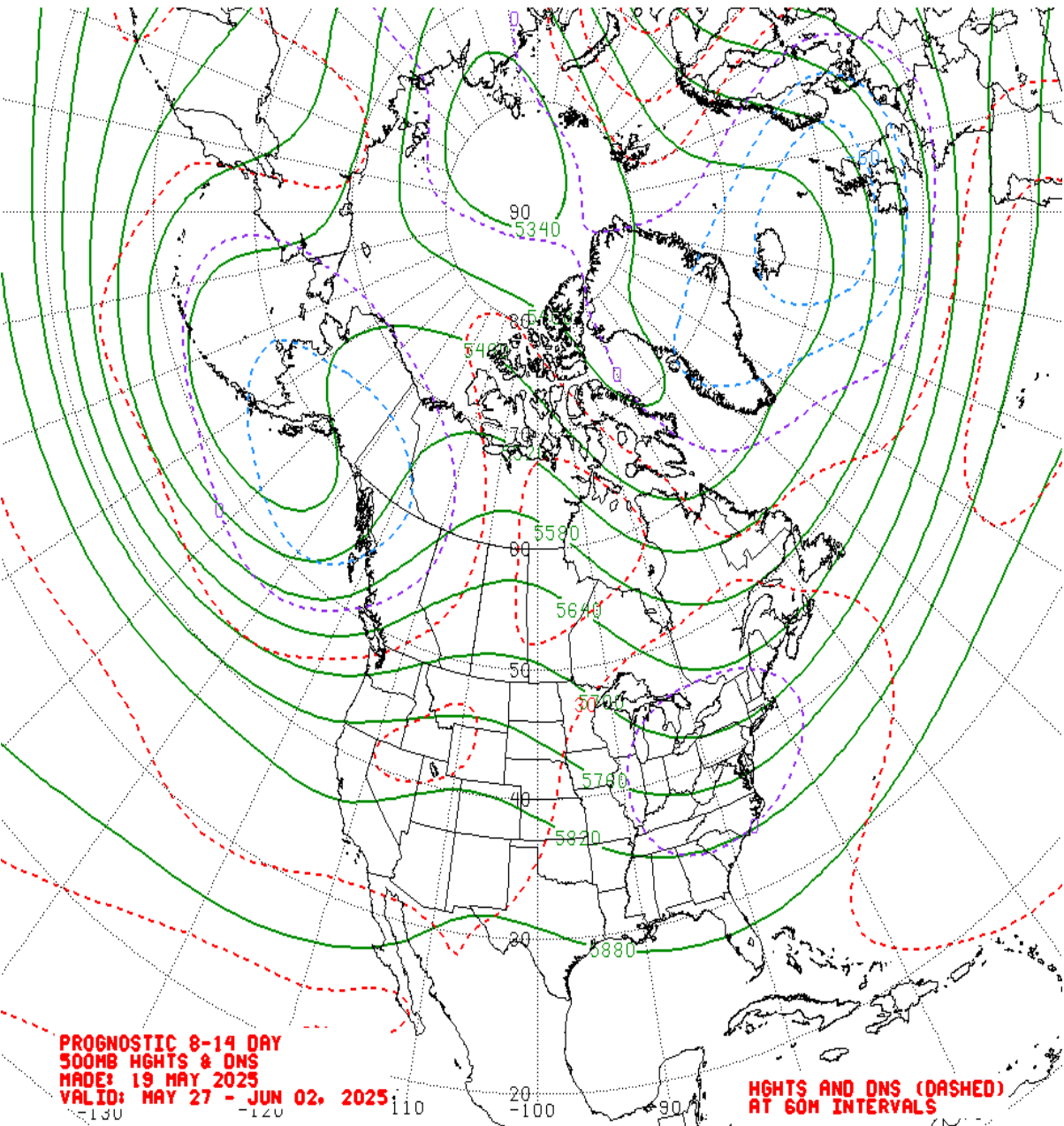
PNA Index: Observed & GEFS Forecasts



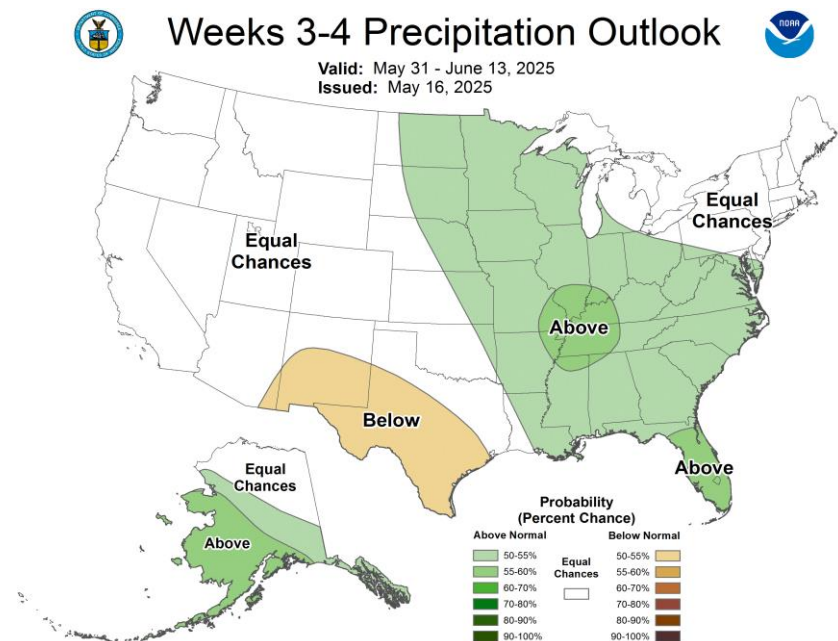
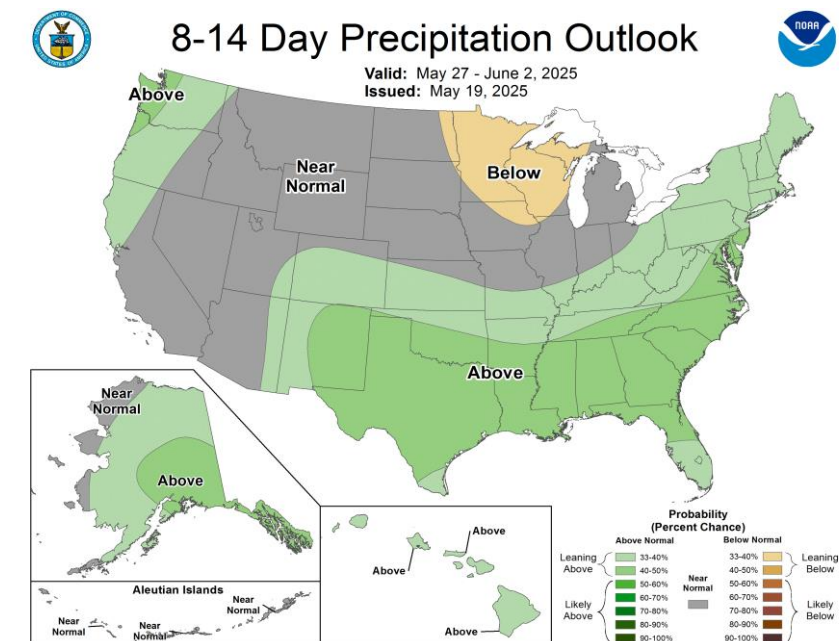
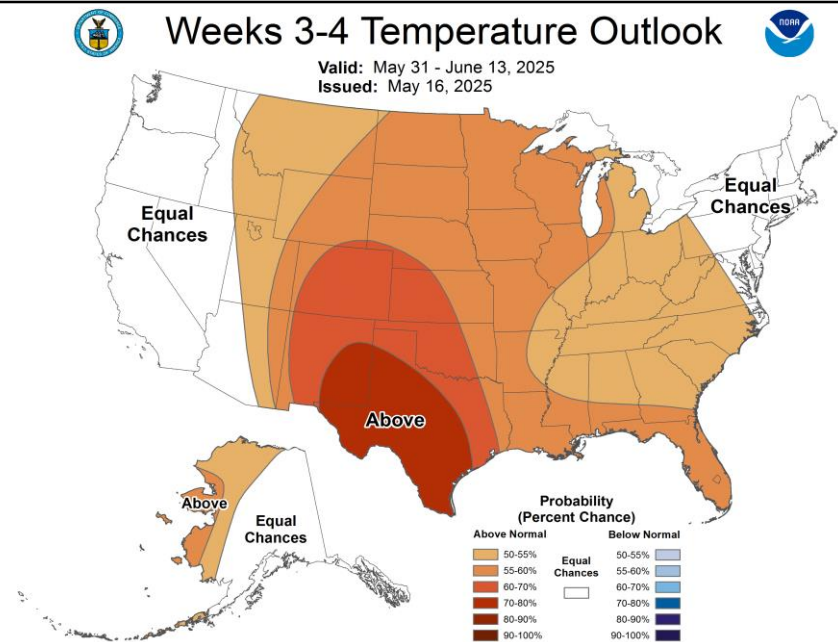
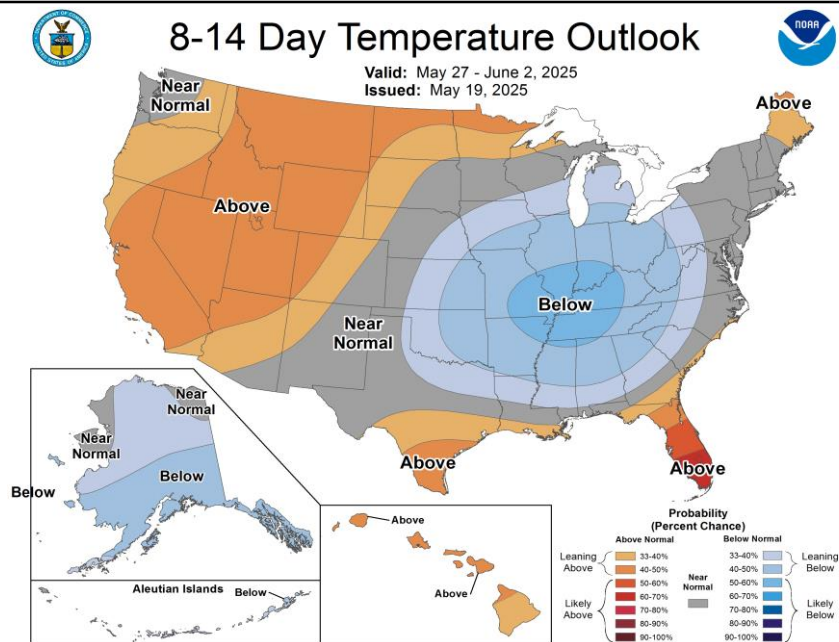
AO Index: Observed & GEFS Forecasts



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



Official Temperature & Precipitation Forecasts:



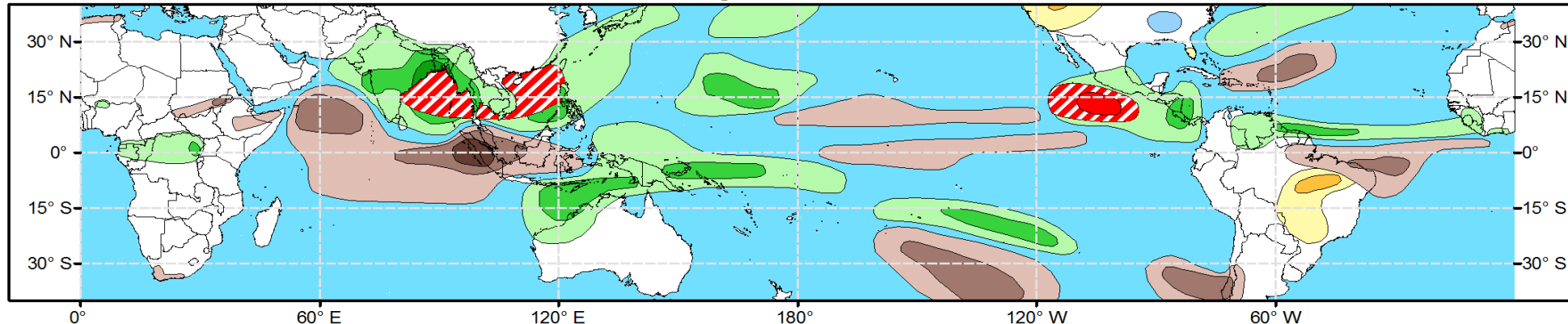


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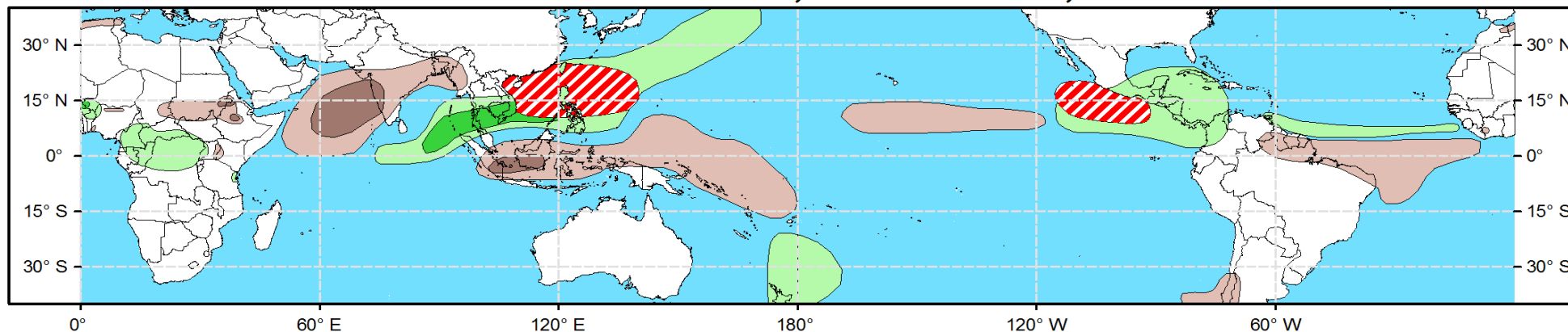
Climate Prediction Center



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