



Weeks 2-3 Global Tropics Hazards Outlook

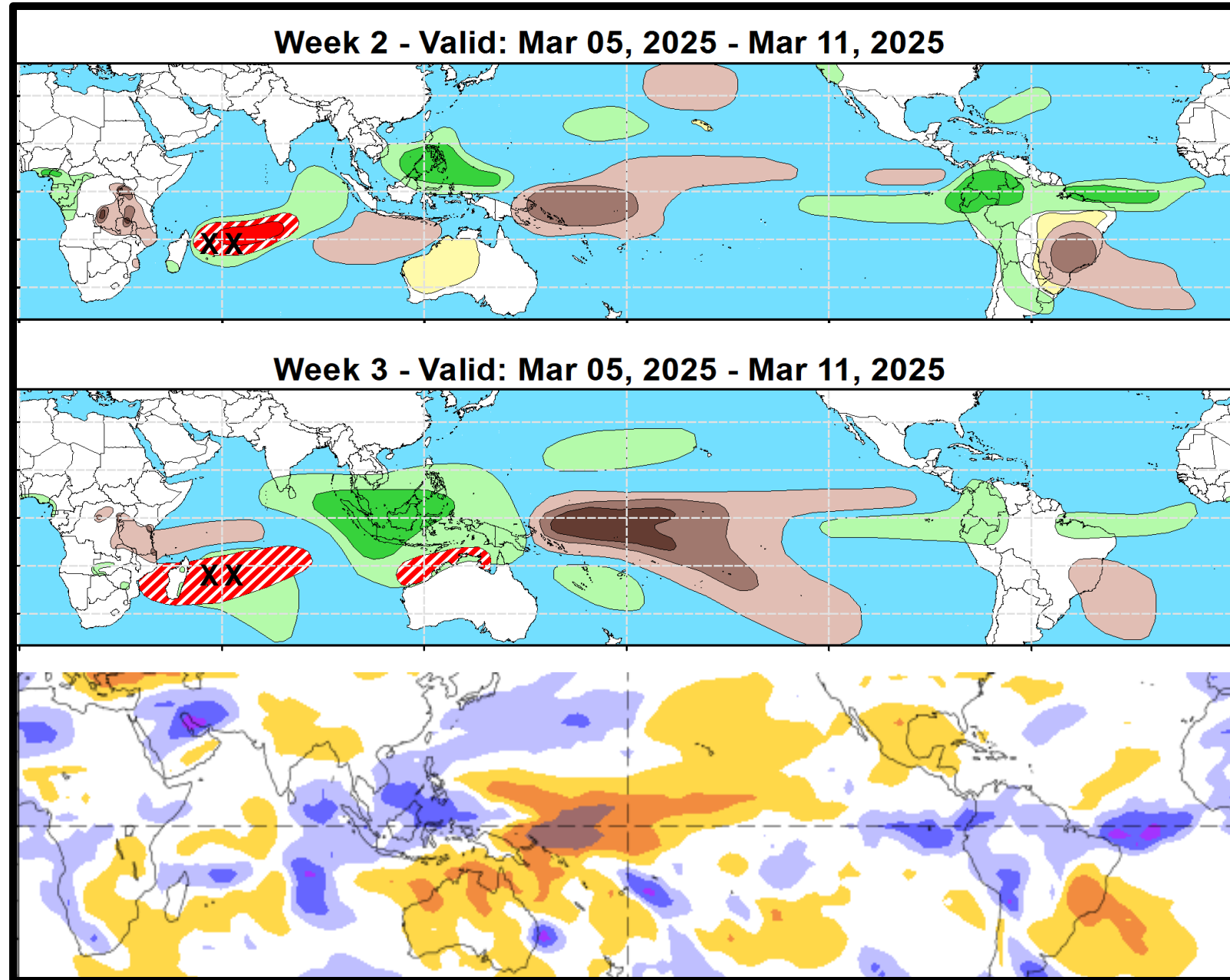
3/11/2025

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- Two tropical cyclones formed on 8 March: TS Ivone (right X), and Cat 1 Jude (left X). Jude brought widespread impacts to northern Madagascar and Mozambique.
- The break in enhanced precipitation over the southern Maritime Continent was well captured by Week-2.
- Enhanced equatorial East Pac, western South America well forecast as well.



Synopsis of Climate Modes:

ENSO: (Feb 13, 2025 Update) *next update on Thursday, Mar 13th*

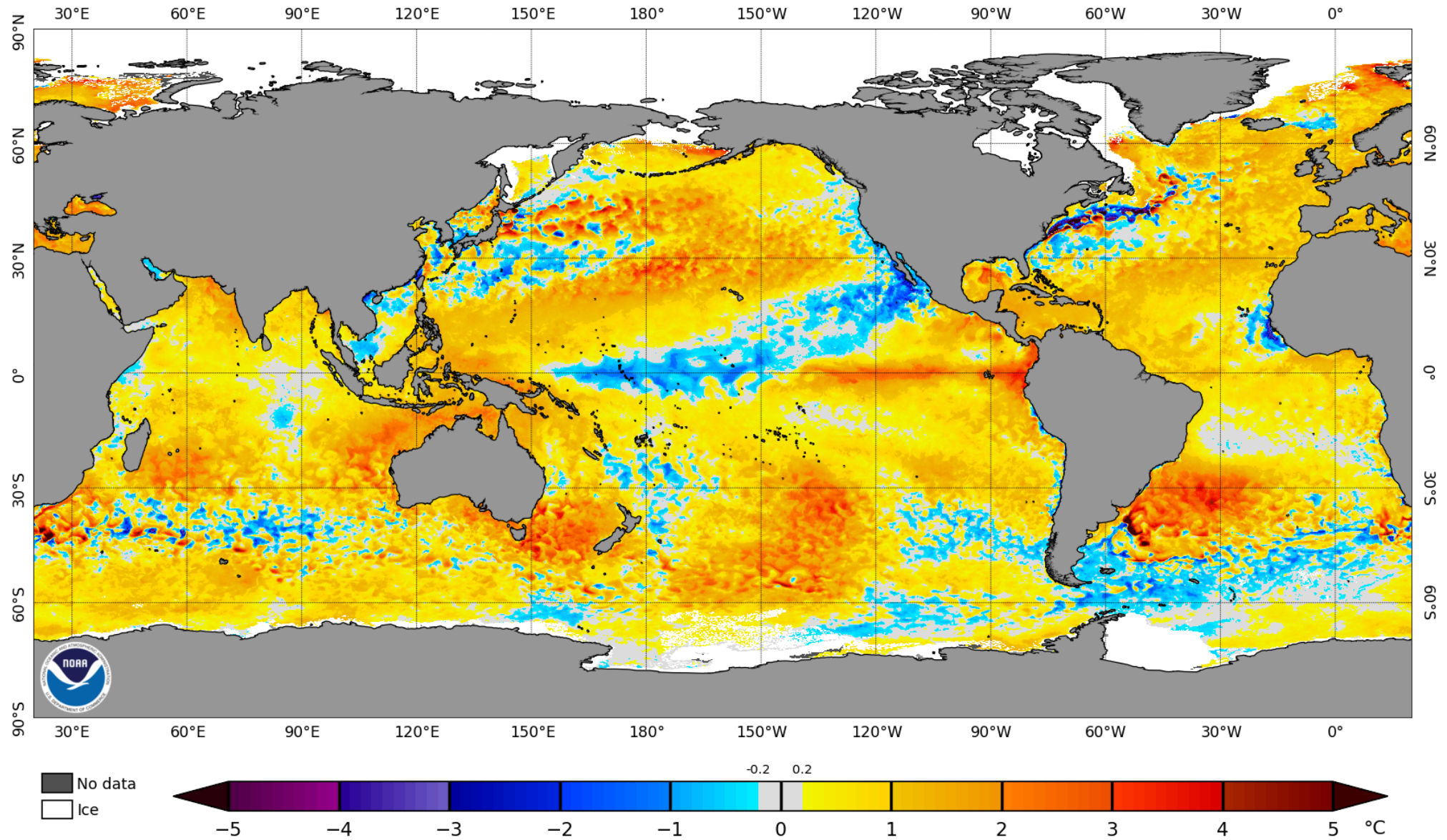
- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña conditions are expected to persist in the near-term, with a transition to ENSO-neutral likely during March-May 2025 (66% chance).
- A very unusual ENSO structure is currently present, with warm anomalies east of 150W

MJO and other subseasonal tropical variability:

- Following a period of incoherence during late February and early March due to Rossby wave interference and other modes, the MJO has re-emerged as a significant driver of the global tropical circulation.
- The enhanced convective phase is currently centered over Africa.
- Dynamical model MJO index forecasts favor eastward propagation across the Indian Ocean and Maritime Continent during the next two weeks, with uncertainty increasing by Week-3.
- Interference between the MJO and the unusual Pacific base state may explain part of the weakened MJO presentation in some model runs.
- Forecast MJO activity increases the potential for tropical cyclone development in the vicinity of Australia during the outlook period.

An Unusual Pacific ENSO Structure

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 10 Mar 2025



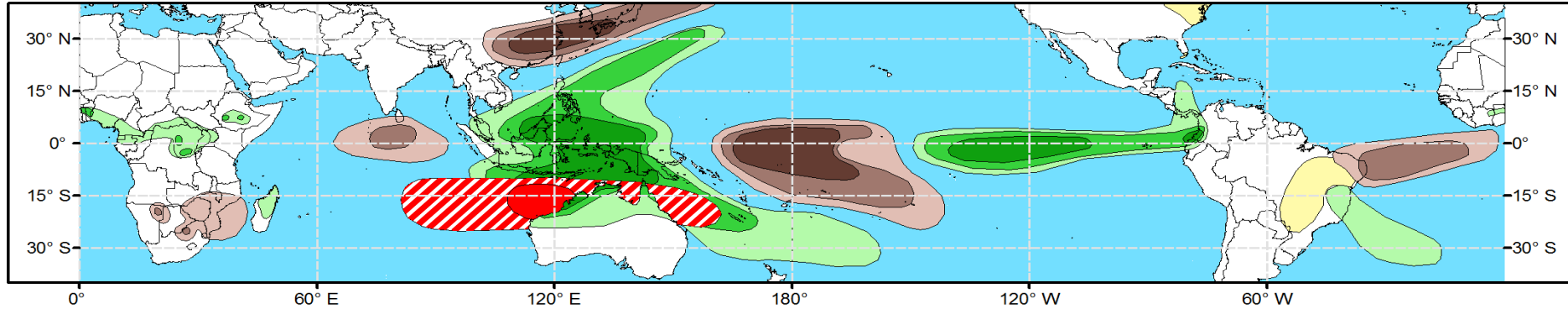
GTH Outlook:



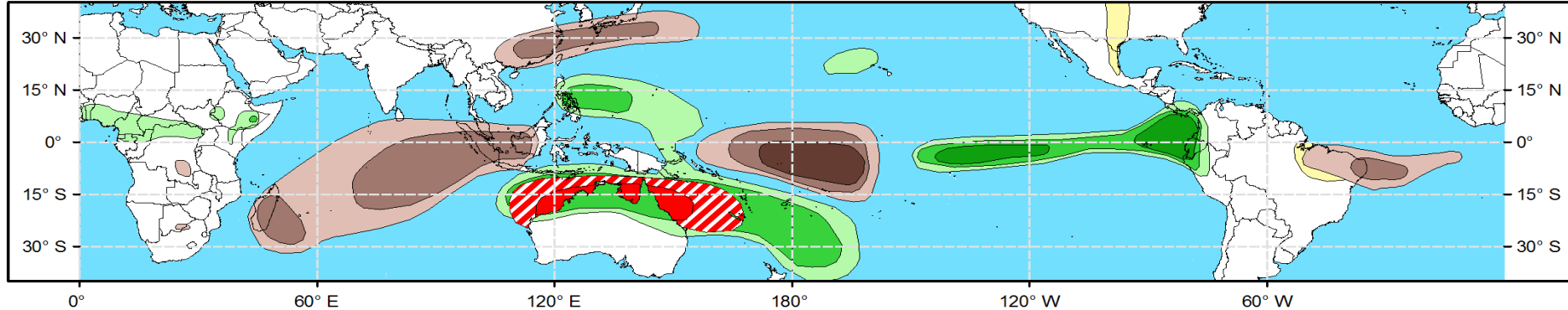
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Mar 19, 2025 - Mar 25, 2025



Week 3 - Valid: Mar 26, 2025 - Apr 01, 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**



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*Weekly total rainfall in the
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**Above-Average
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*7-day max temperatures in the
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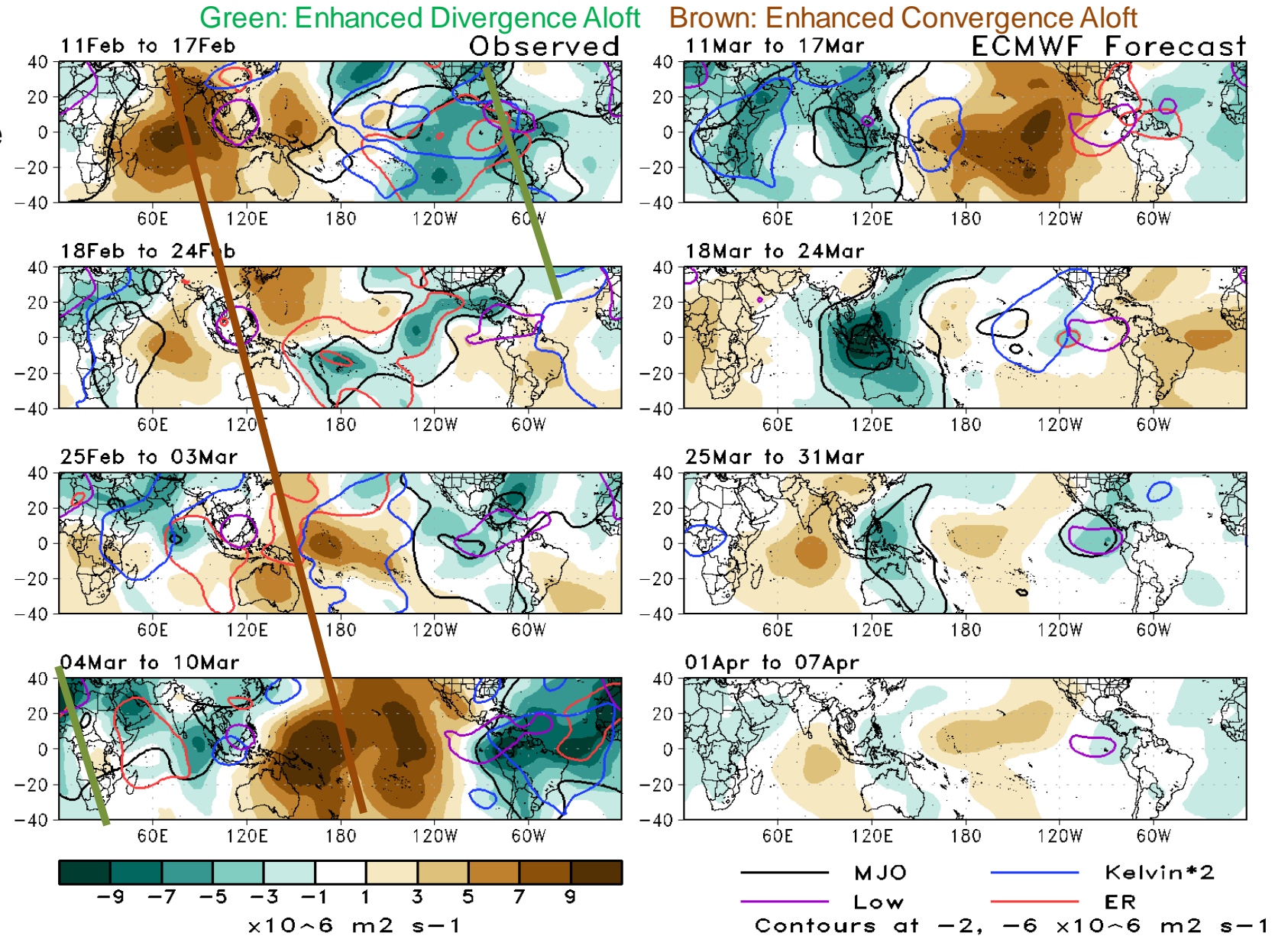
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**Issued: 03/11/2025
Forecaster: Allgood**

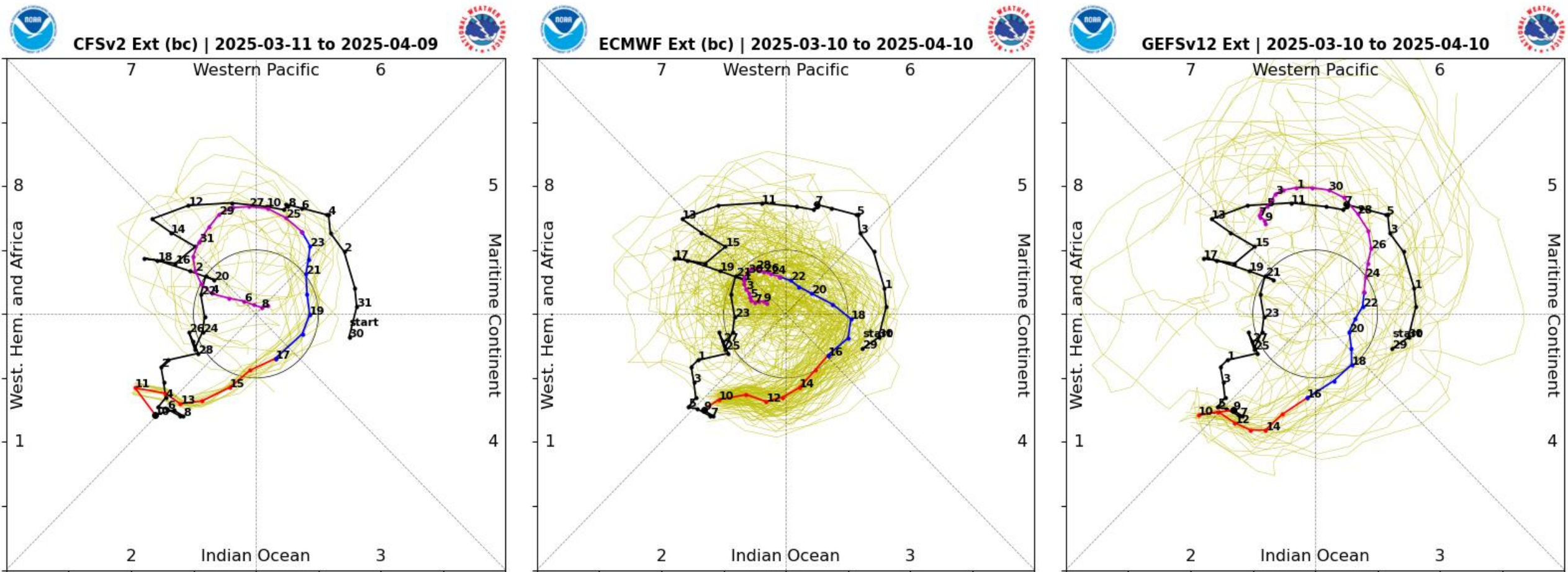
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200-hPa Velocity Potential Anomaly Maps:

- A coherent Western Hemisphere MJO in mid-February (top left) became incoherent towards late February and early March.
- A more coherent Wave-1 MJO-like structure re-emerged during early March (bottom left)
- The ECMWF depicts robust MJO evolution to the Maritime Continent, followed by interference with the Pacific base state by Week-3/4 (two bottom right figures)

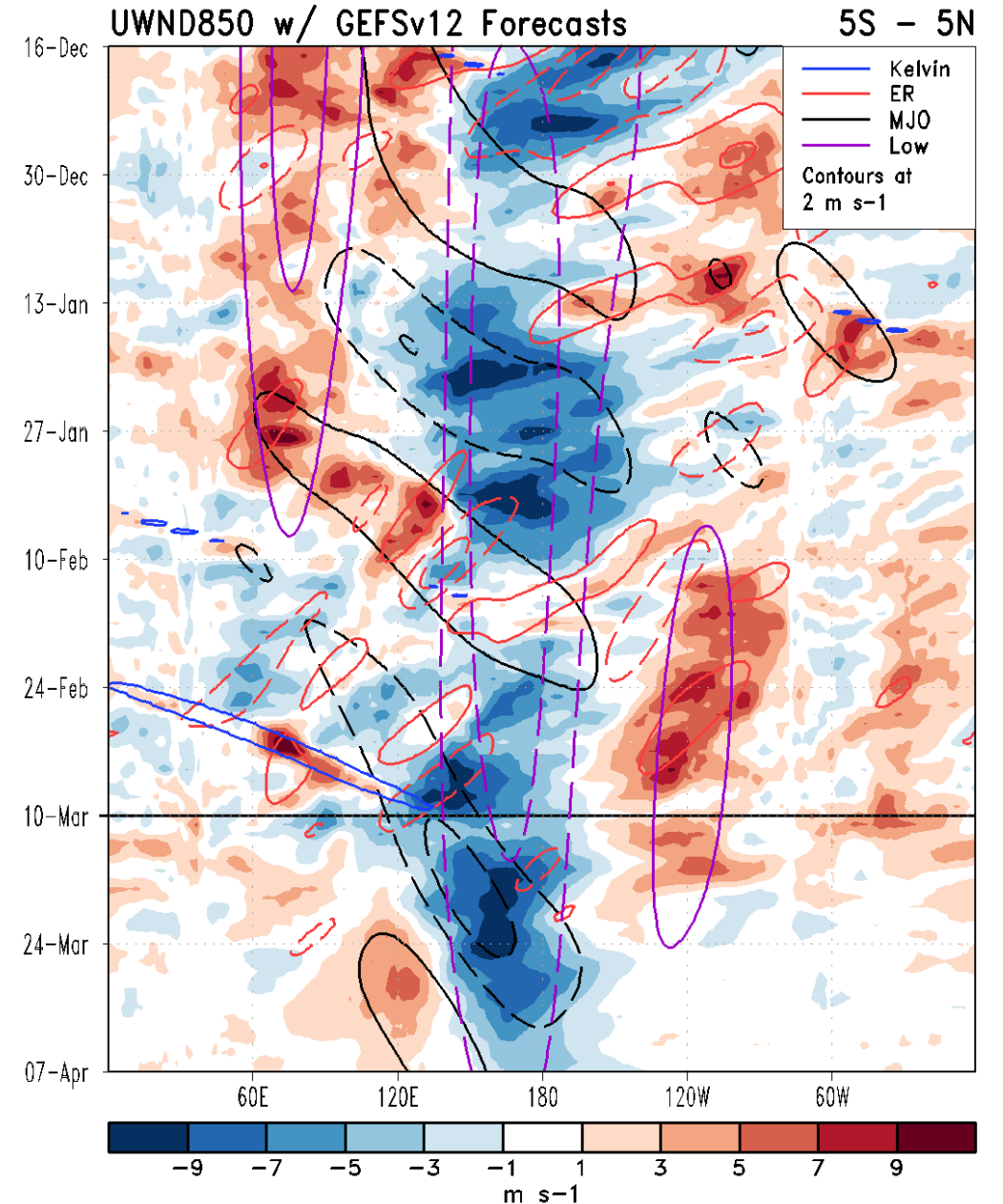
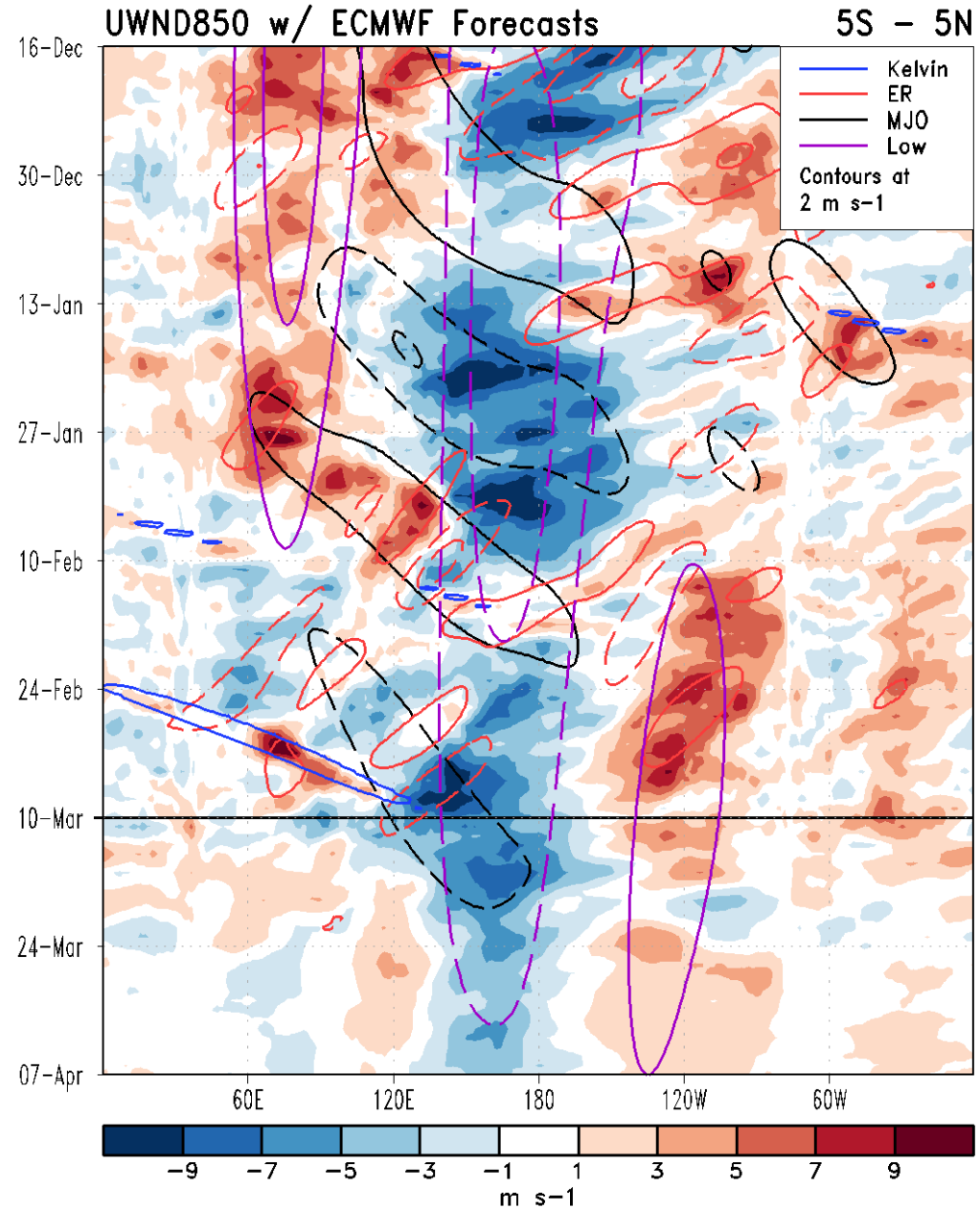


RMM Index Observations & Forecasts:



- All of the dynamical model systems depict coherent MJO evolution during the next few weeks.
- Significant differences exist between the GFS (stronger) and ECMWF (weaker) Pacific evolution during Week-3, possibly due to how the base state is resolved in the model systems.

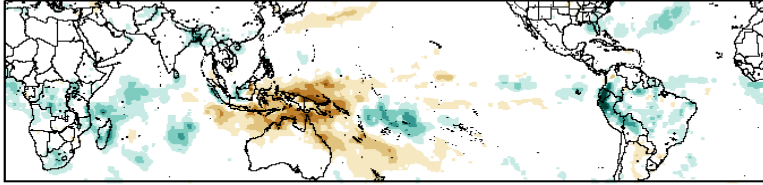
Zonal Wind Anomalies at 850mb Time/Lon Plots:



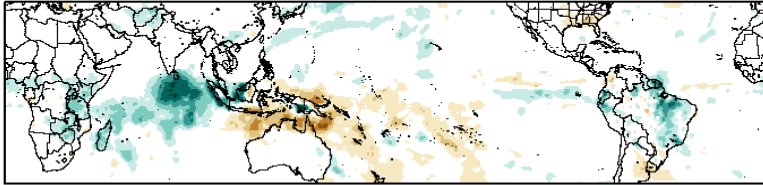
Historical Precipitation Anomalies By MJO Phase:

FMA MJO Composite: GPCP1DD (mm/day)

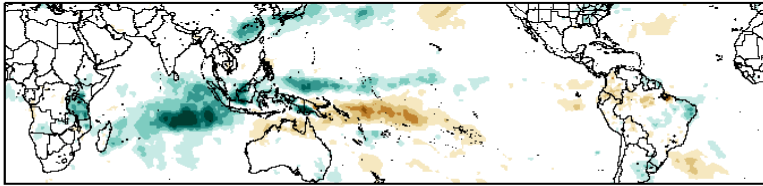
Phase 1



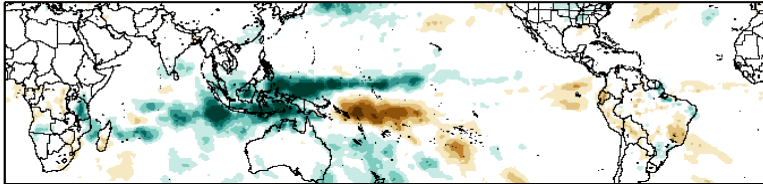
Phase 2



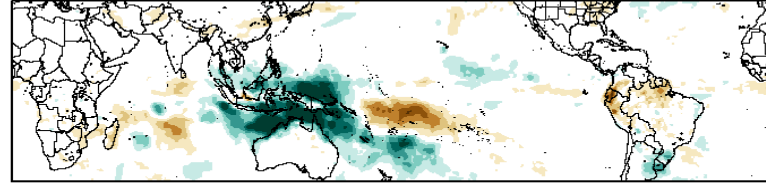
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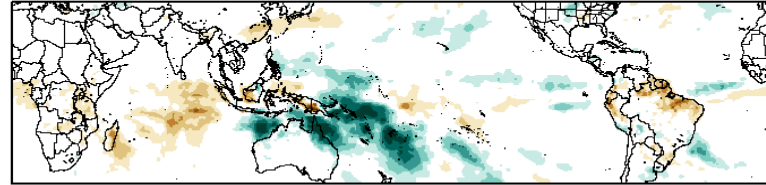
Phase 4



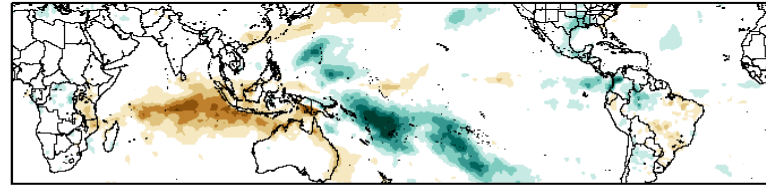
Phase 5



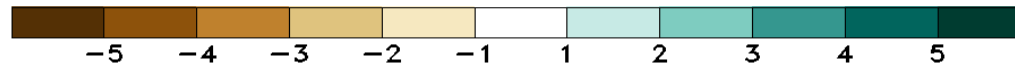
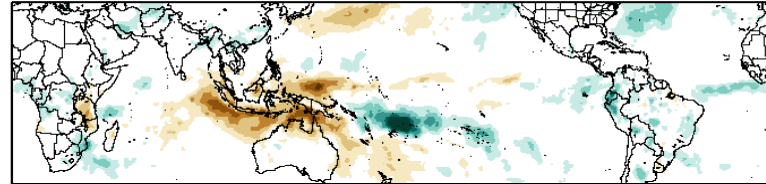
Phase 6



Phase 7

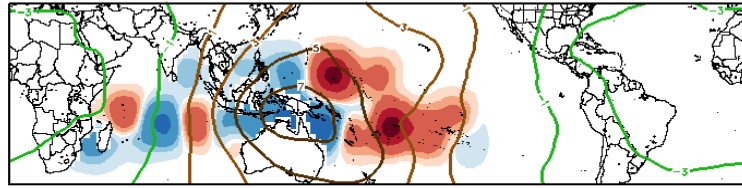


Phase 8

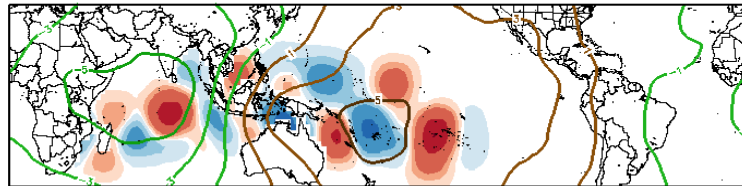


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

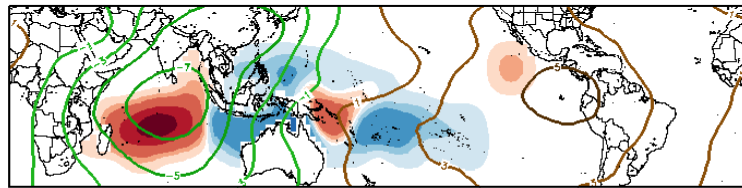
FMA MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ FMA CHI200 ($\times 10^6 m^{-2} s^{-1}$) / Contours every $2 \times 10^6 m^{-2} s^{-1}$



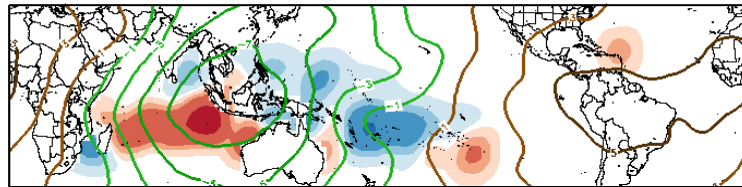
Phase 1



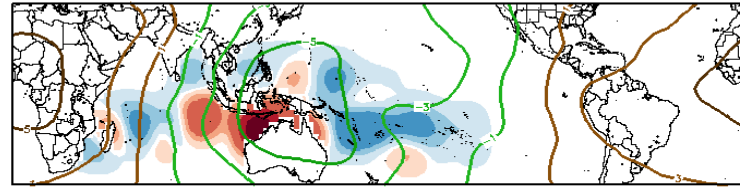
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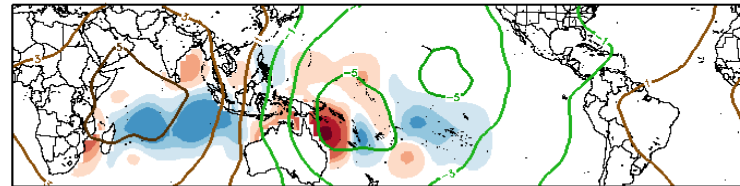
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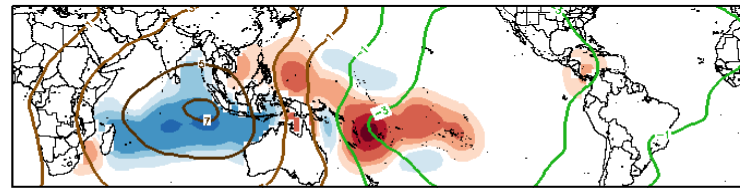
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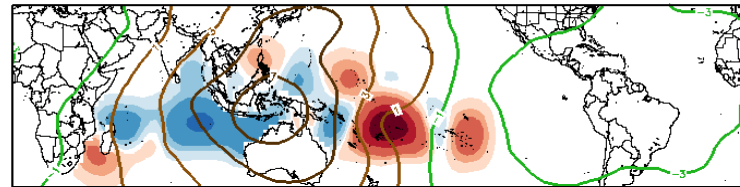
Phase 5



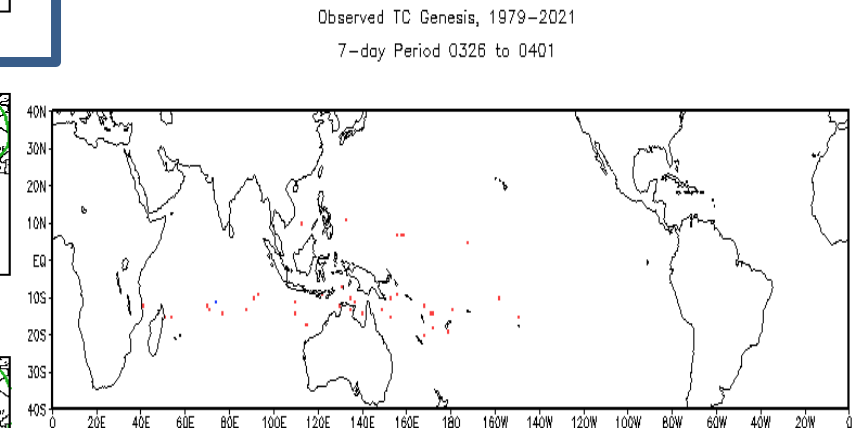
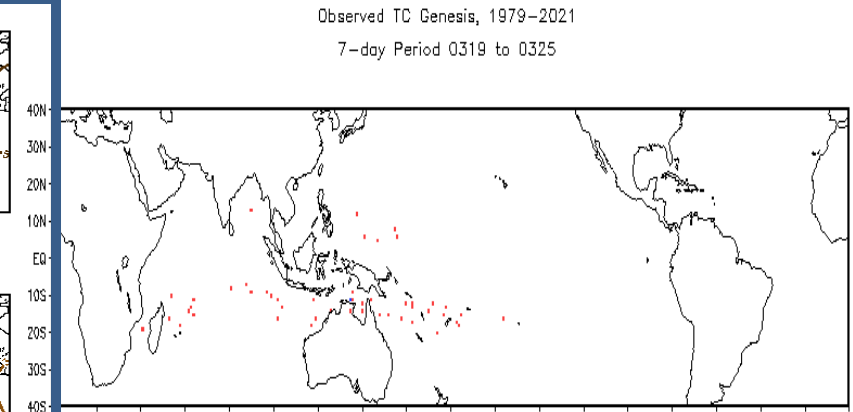
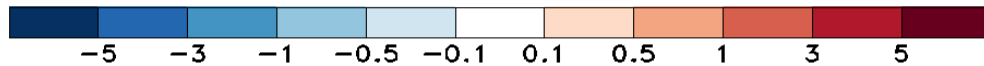
Phase 6



Phase 7

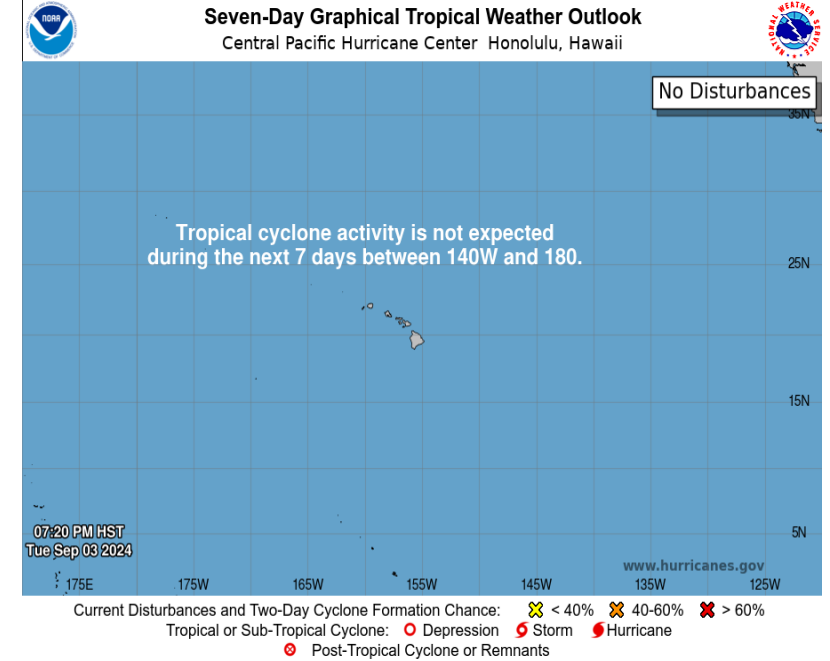
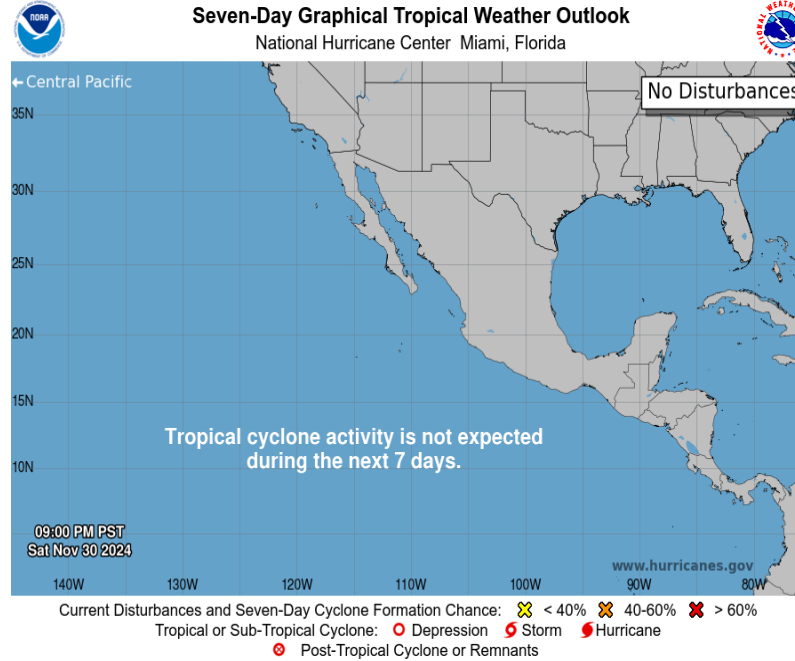
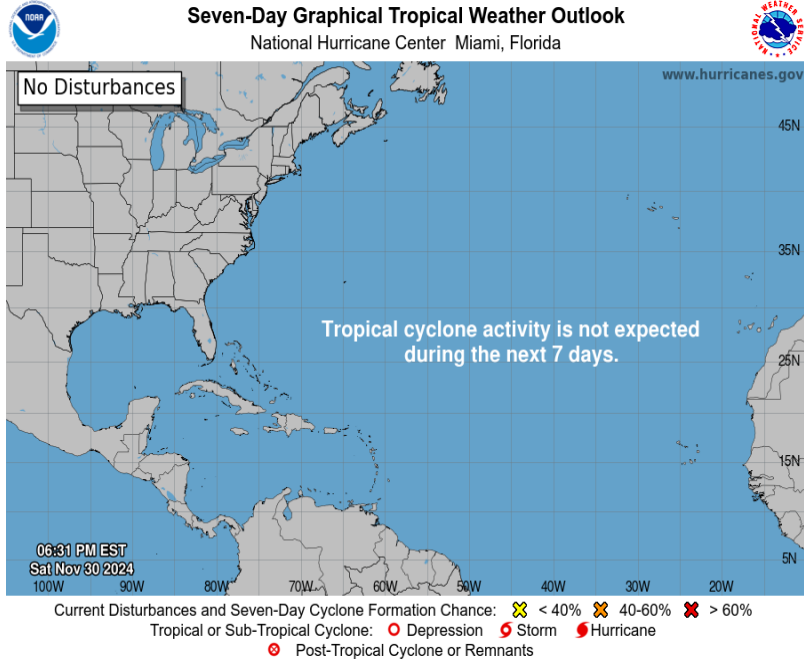


Phase 8



Experimental

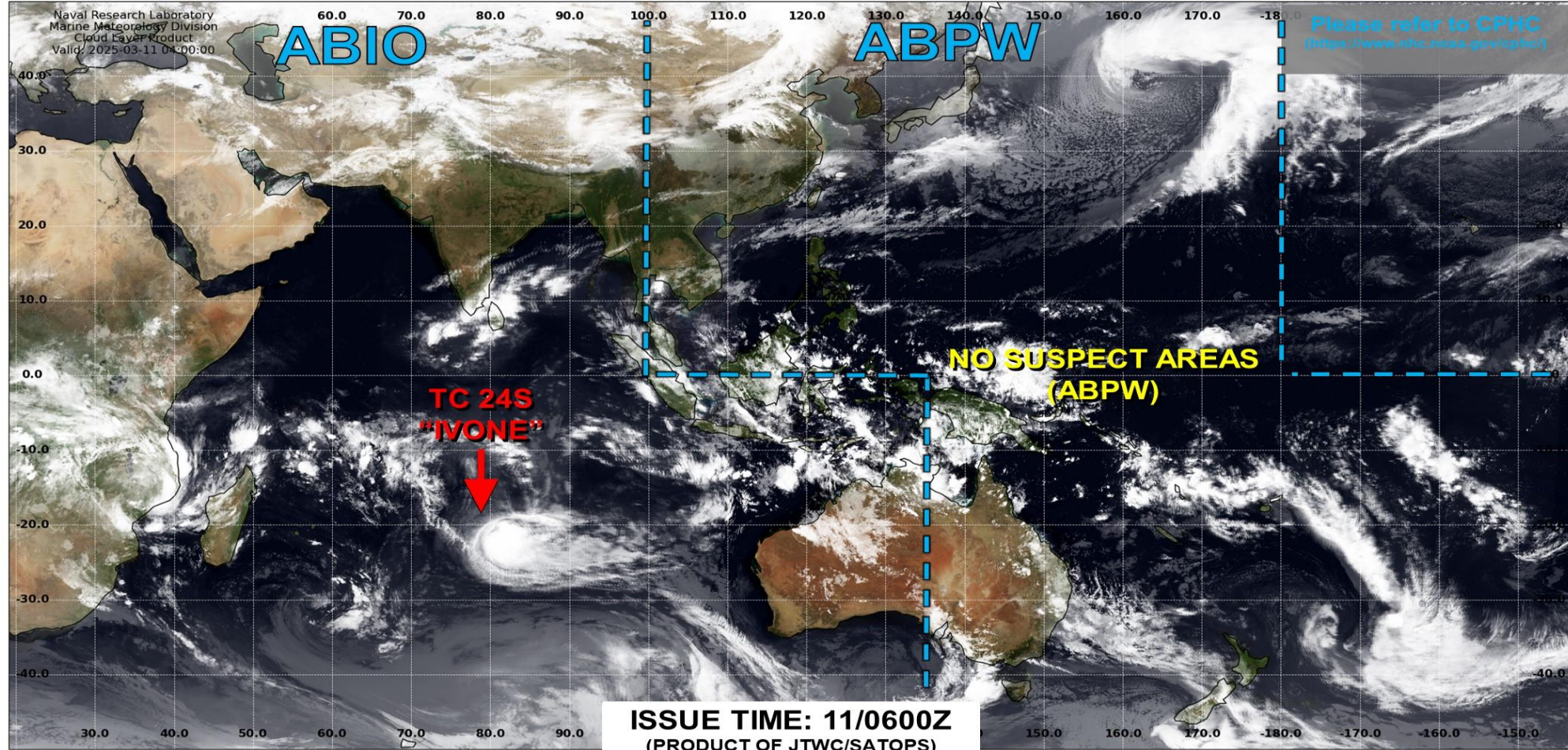
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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



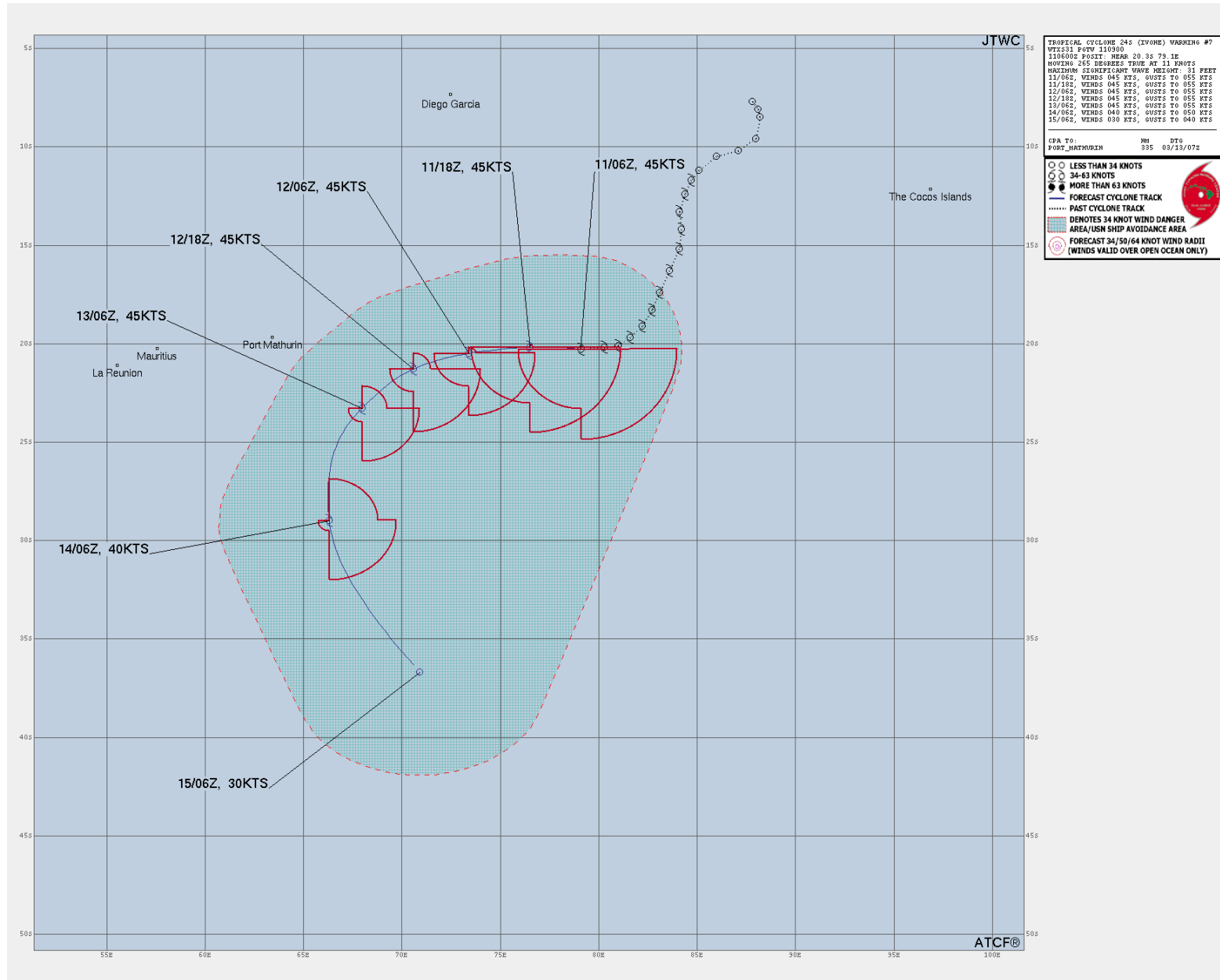
TC development likely within 24 hours (Reference TCFA)



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



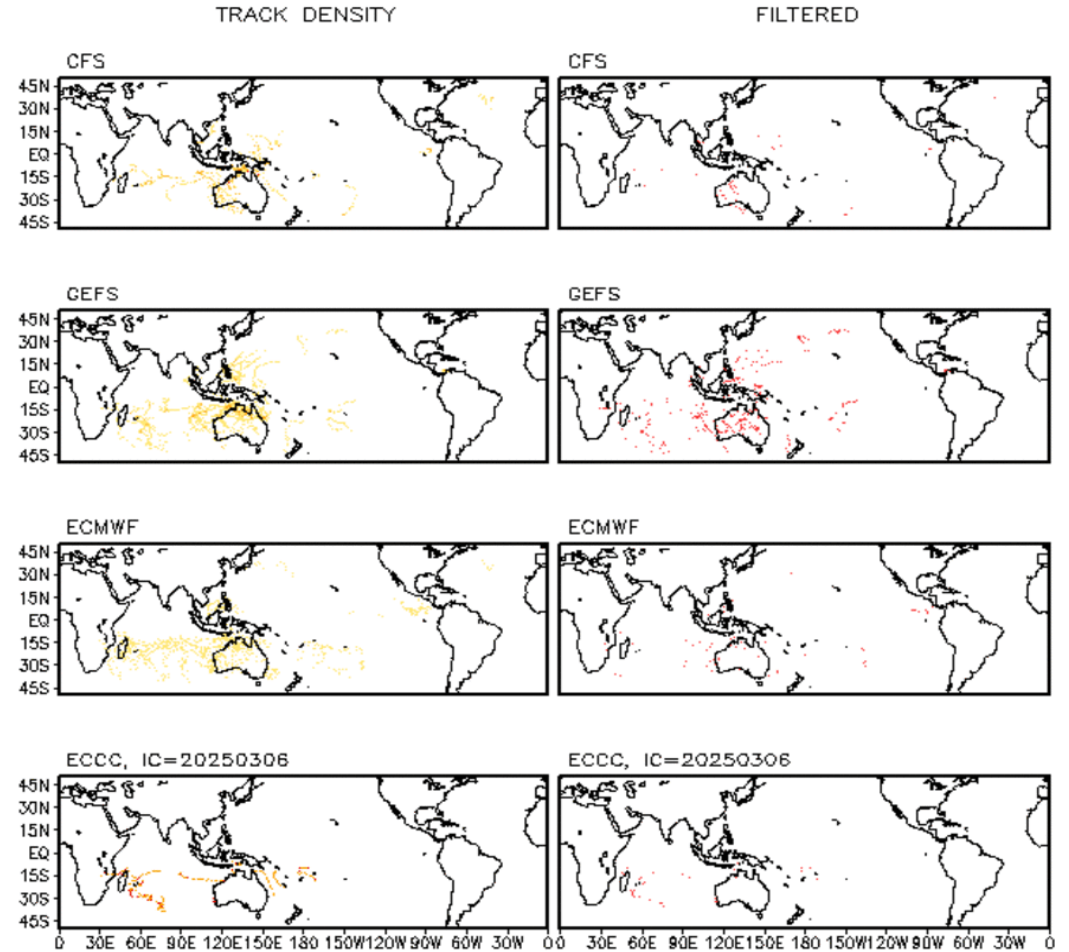
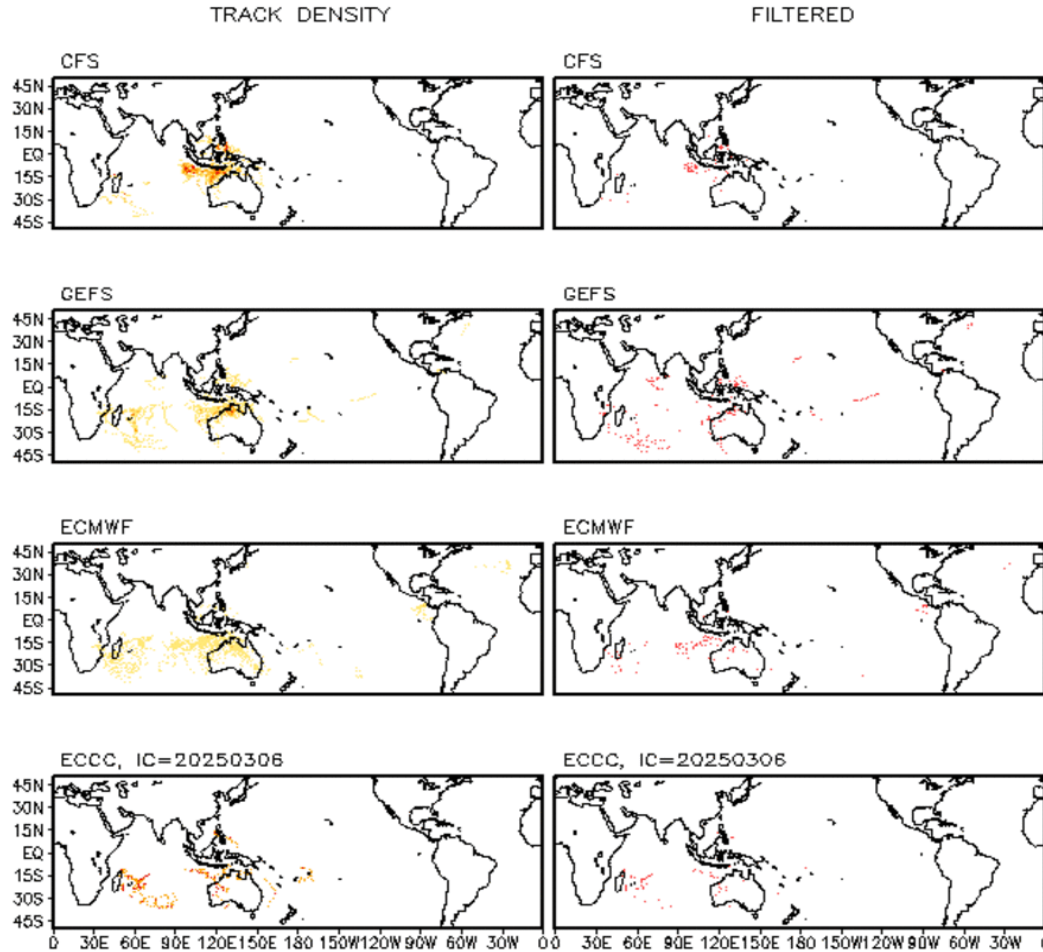
Tropical Cyclone Ivone: JTWC Forecast



Multi-Model TC Track Densities: Weeks 2+3

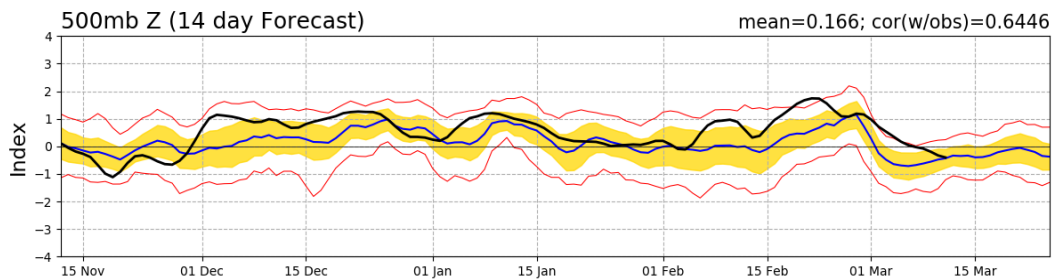
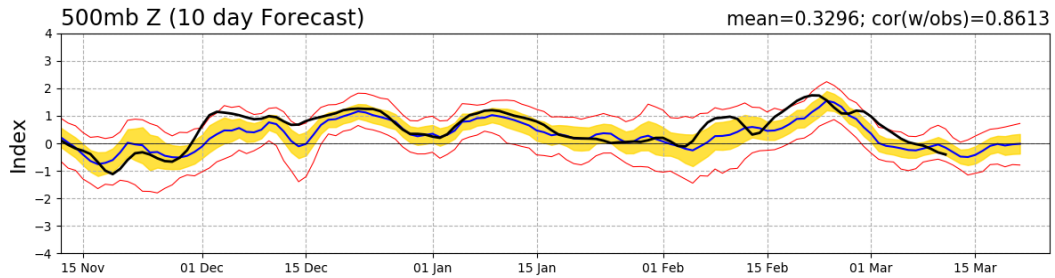
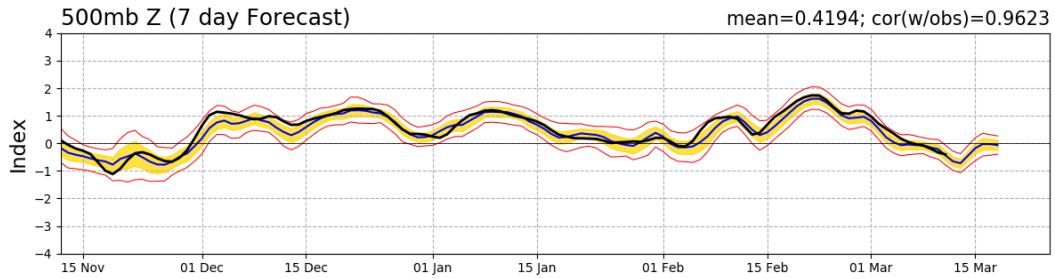
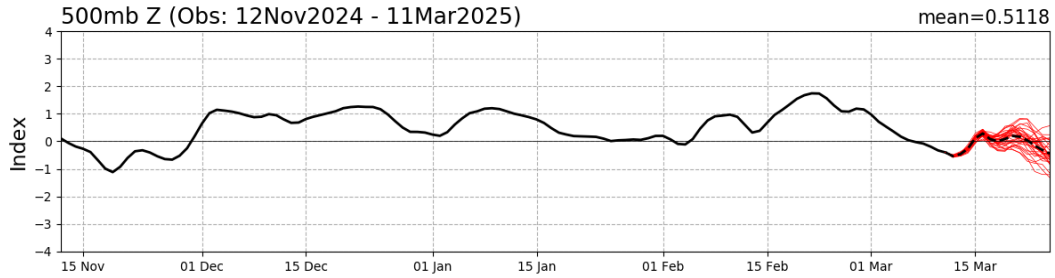
Storm Track Density Distribution, IC=20250310
Week 2 Forecast: 0319-0325

Storm Track Density Distribution, IC=20250310
Week 3 Forecast: 0326-0401

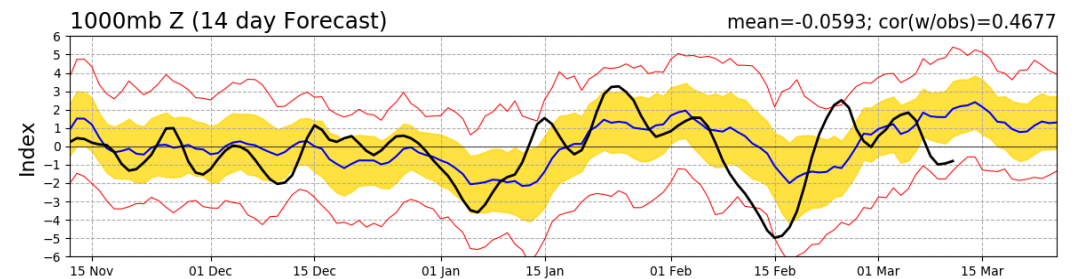
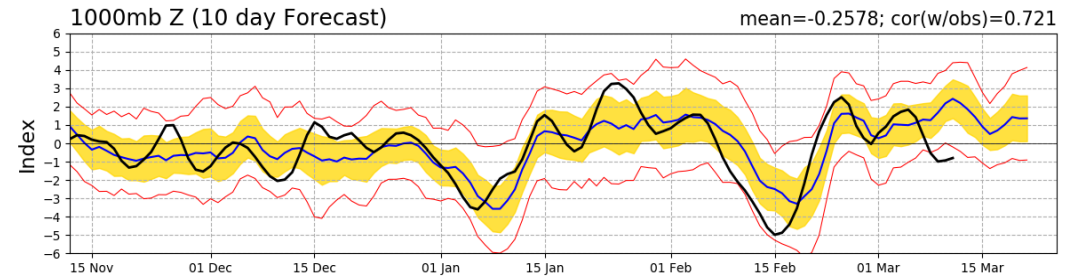
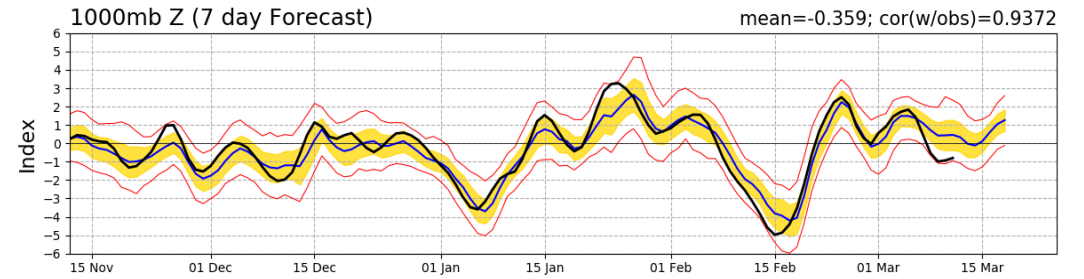
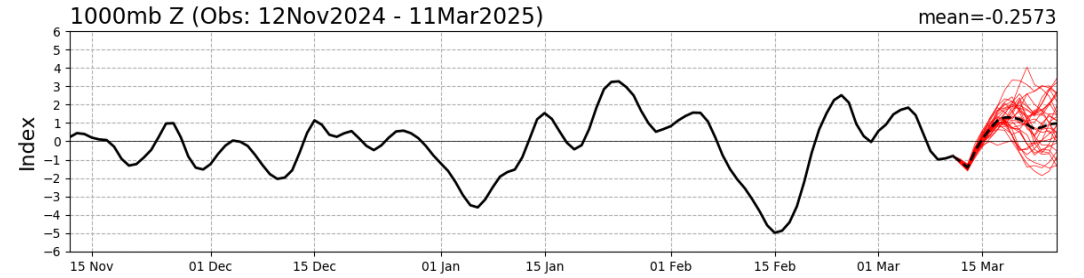


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

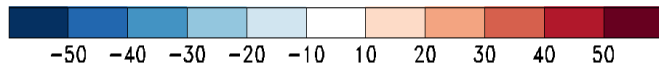
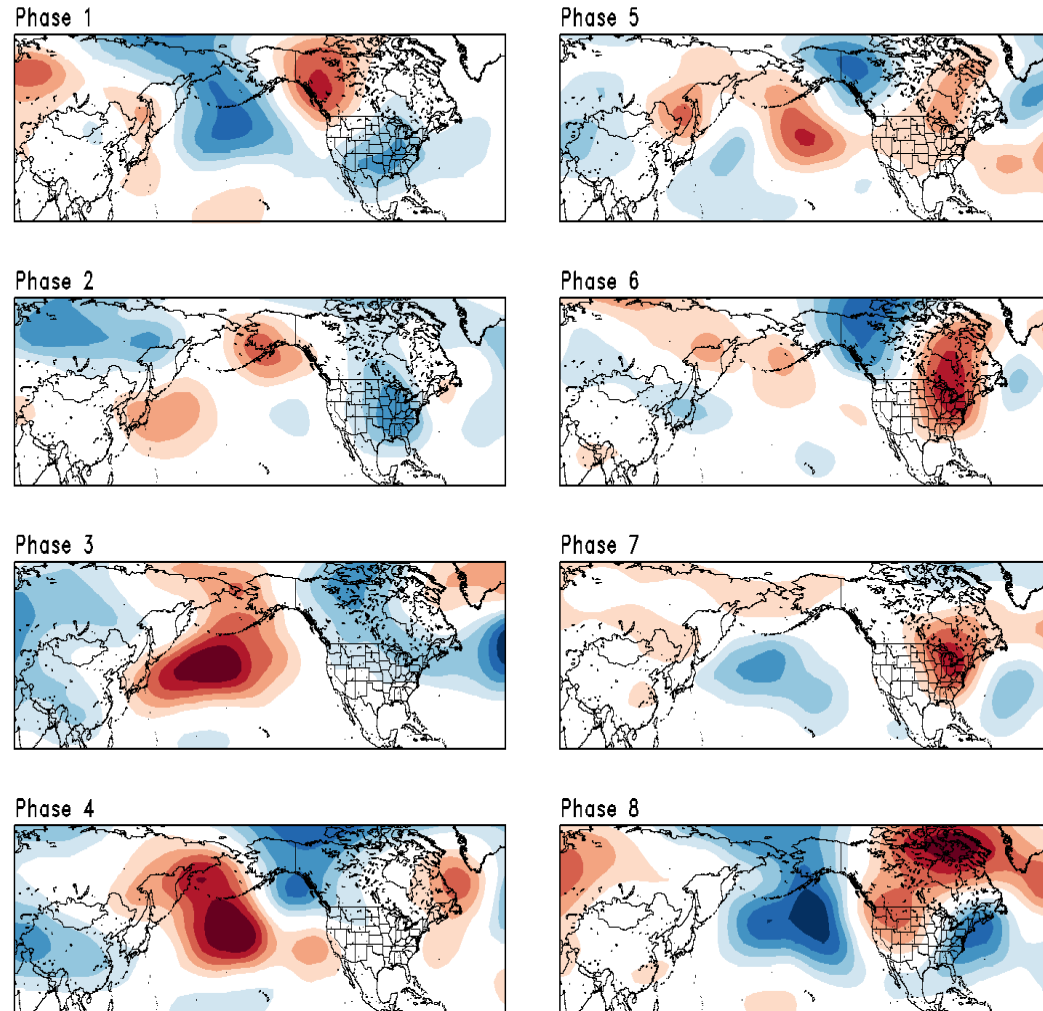


AO Index: Observed & GEFS Forecasts

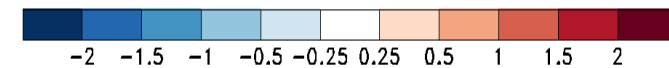
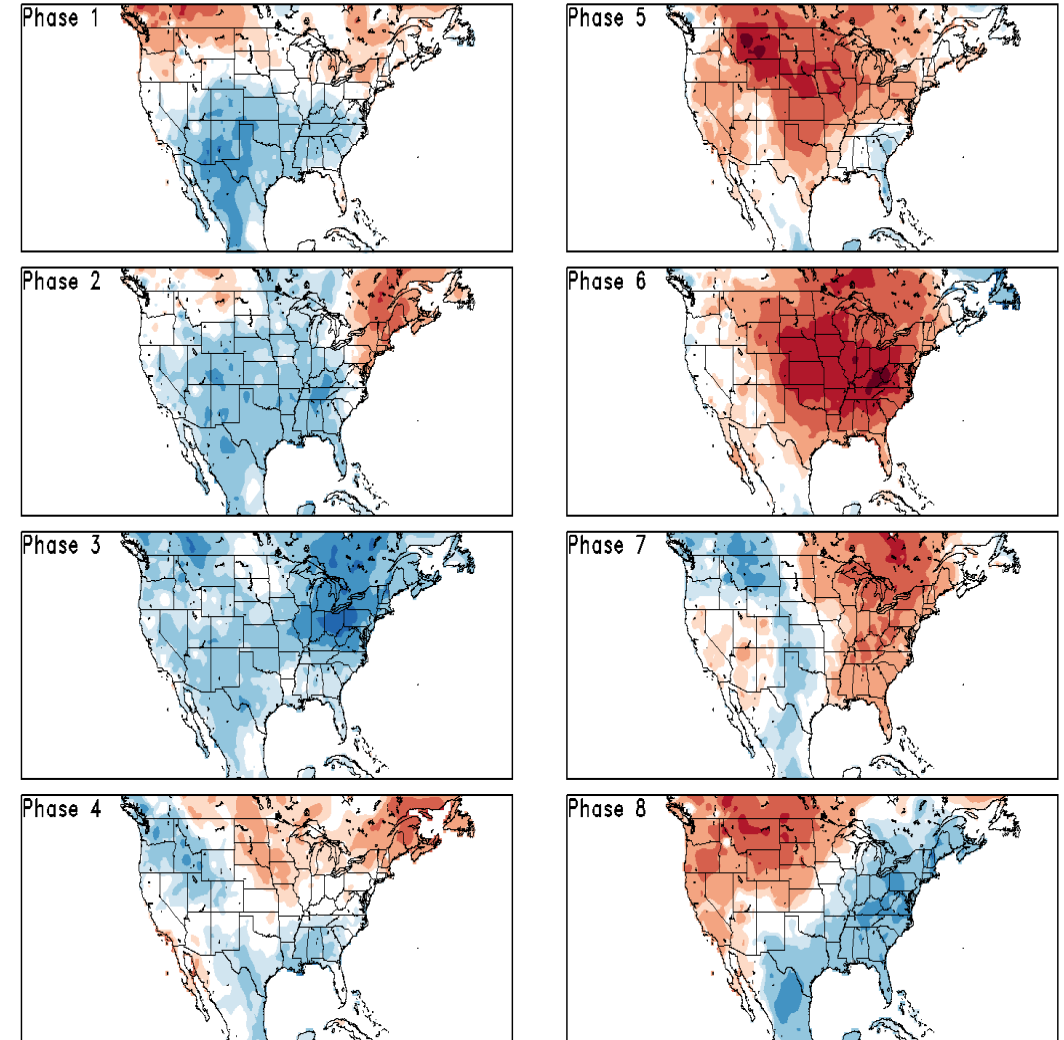


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

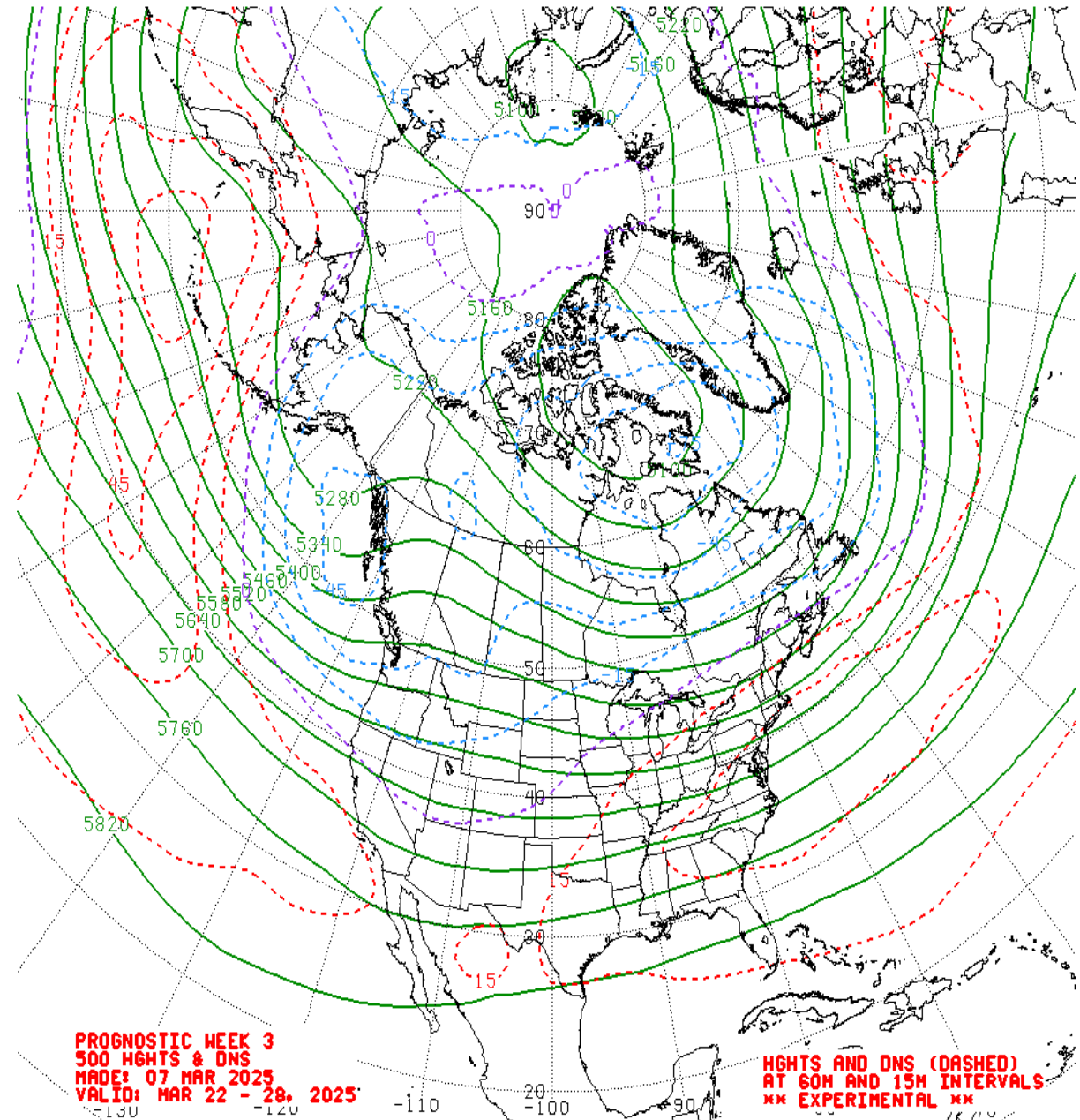
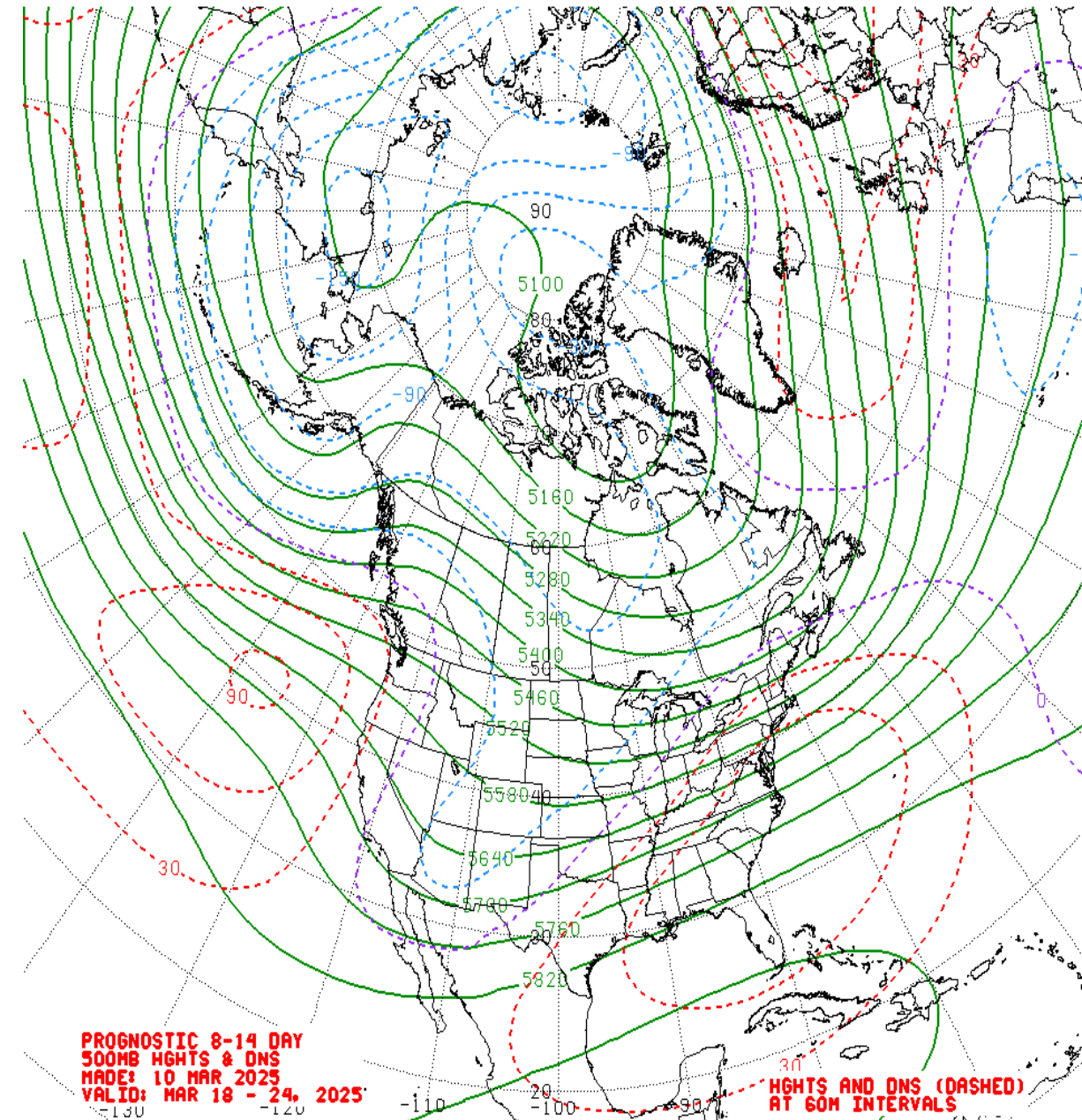
FMA MJO Composite: CDAS 500-hPa Height (m)



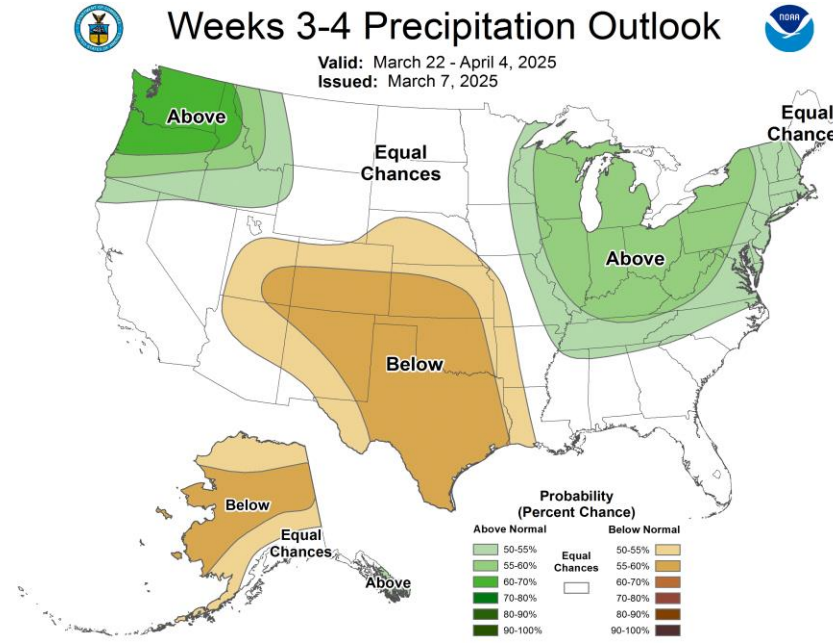
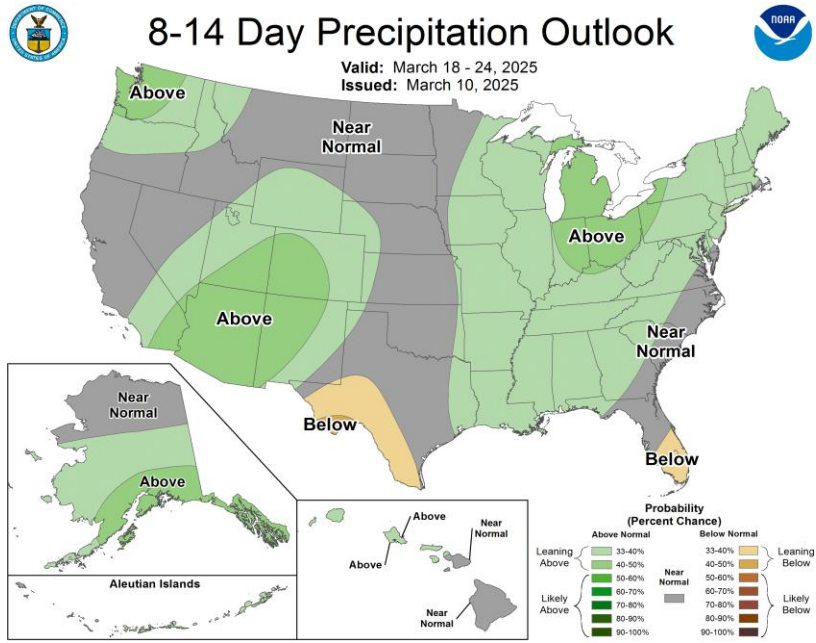
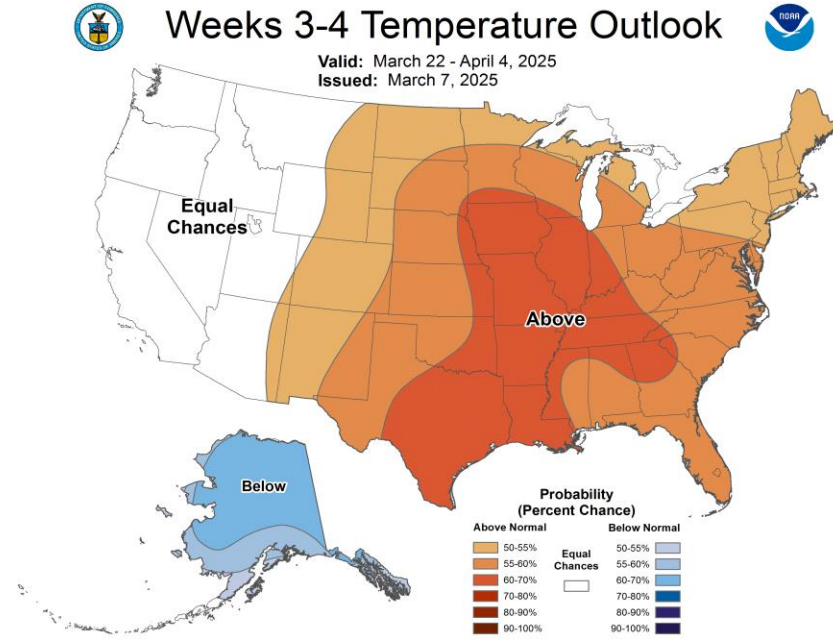
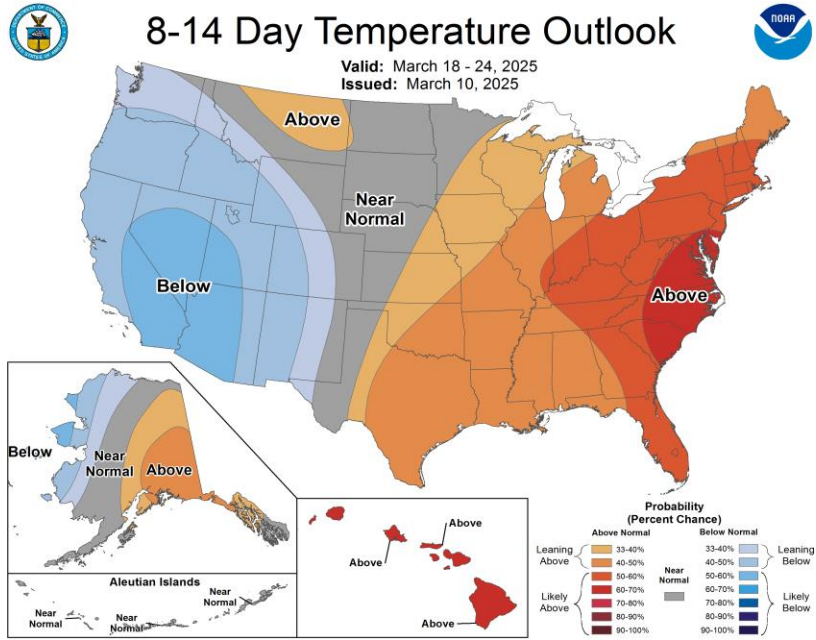
FMA MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



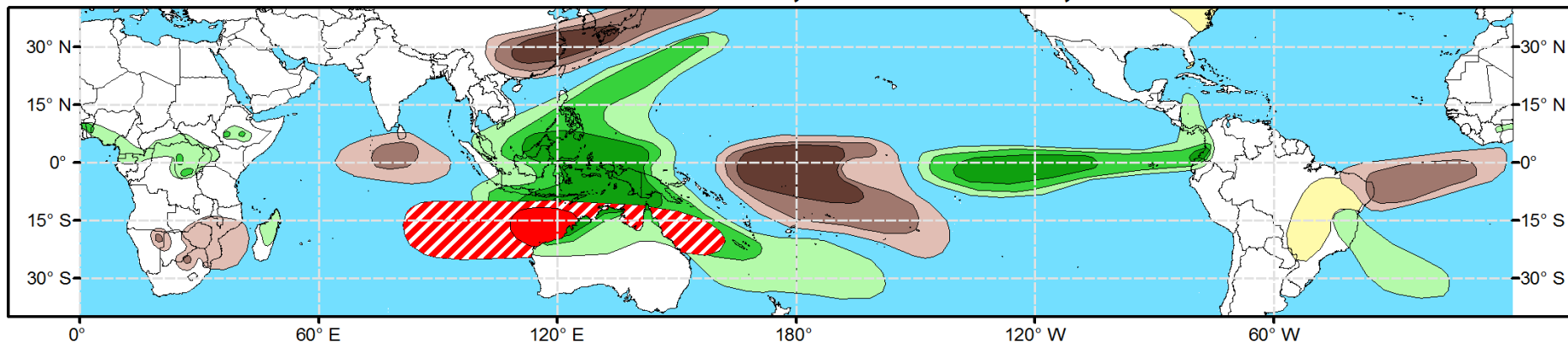


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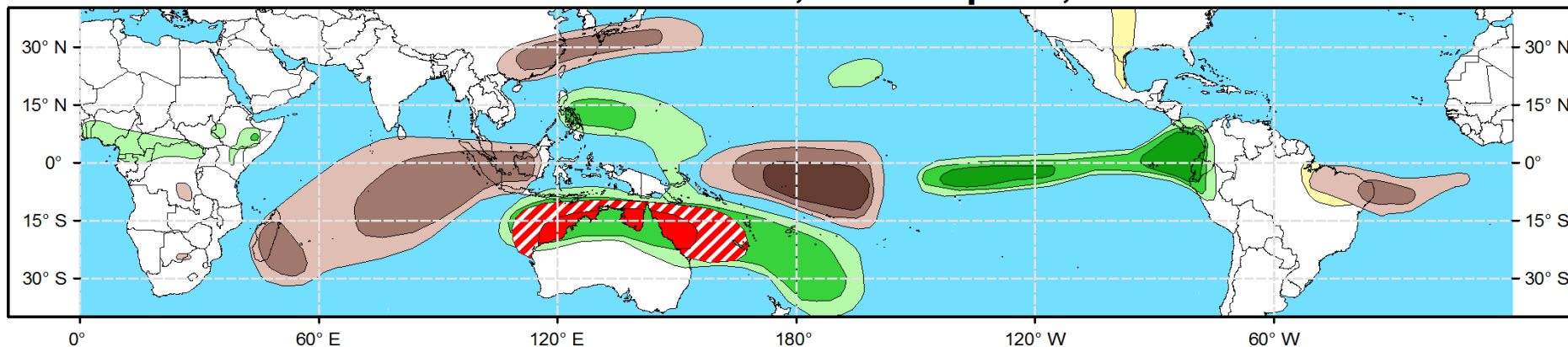
Climate Prediction Center



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