



Weeks 2-3 Global Tropics Hazards Outlook

3/26/2024

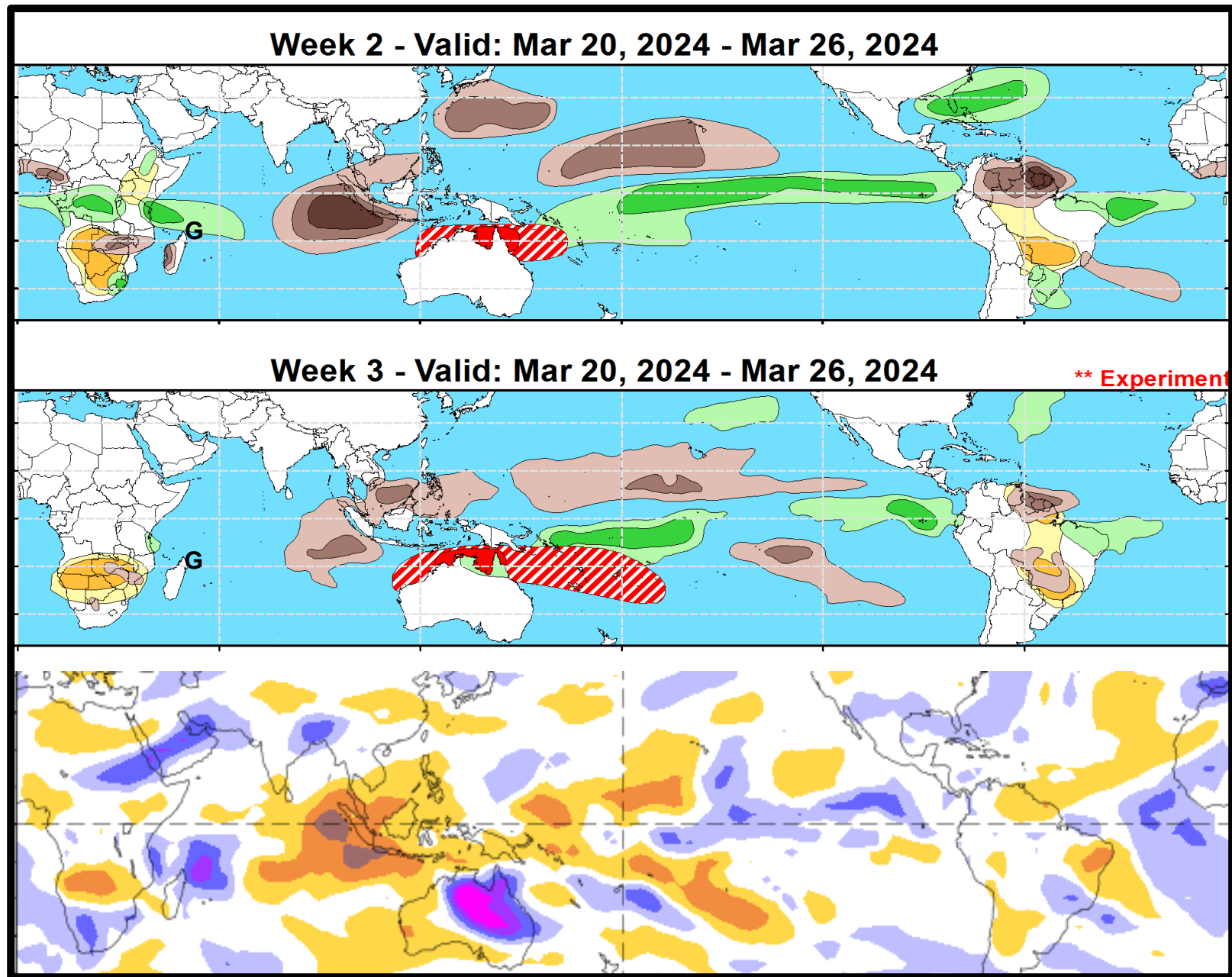
Thomas Collow

NWS / NCEP / Climate Prediction Center

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

TCs formed in the past week

- Gamane (3/26; Southern IO)



Synopsis of Climate Modes:

ENSO: (Mar 14, 2024 Update) *next update on Thursday, Apr 11th*

- ENSO Alert System Status: [El Niño Advisory](#) / [La Niña Watch](#)
- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (83% chance), with the odds of La Niña developing by June-August 2024 (62% chance).

MJO and other subseasonal tropical variability:

- The MJO has nearly completed a circumnavigation of the globe since late February, and is now over the Western Hemisphere (phase 1).
- The MJO is forecast to return to the Indian Ocean by early April, with the CFS, GEFS, and ECMWF ensembles indicating a continued eastward propagation toward the Maritime Continent and far Western Pacific by week-3.
- Ensemble variability increases in the models, with some members weakening the MJO into the RMM-based unit circle, although others maintain a higher amplitude into mid-April.

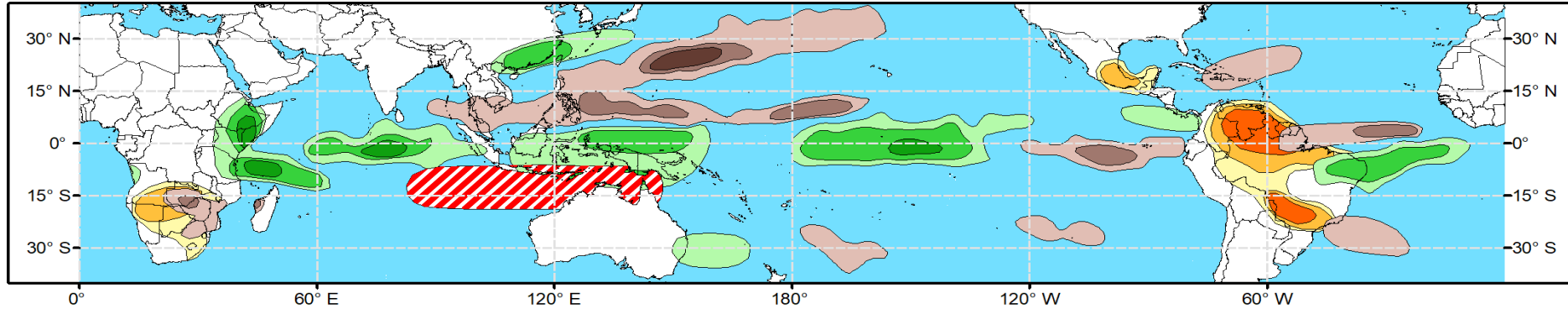
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

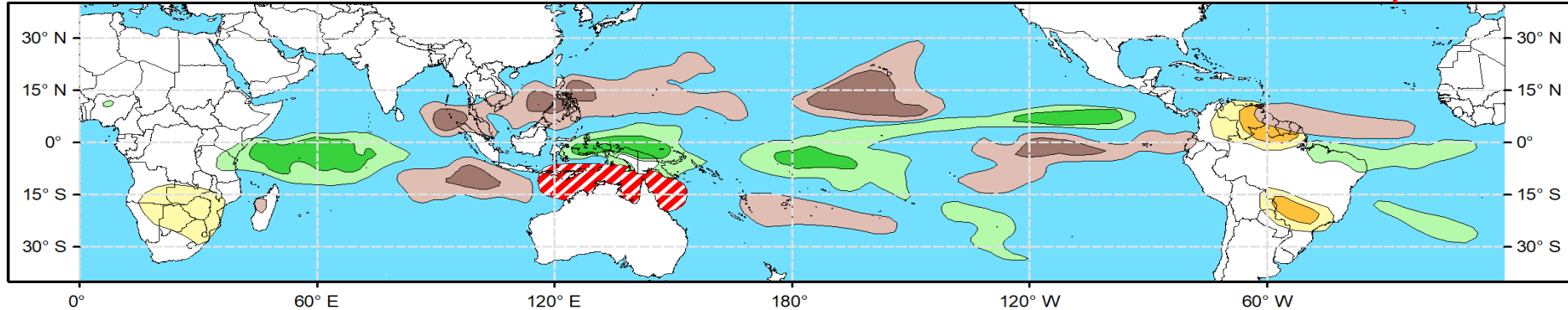


Week 2 - Valid: Apr 03, 2024 - Apr 09, 2024



Week 3 - Valid: Apr 10, 2024 - Apr 16, 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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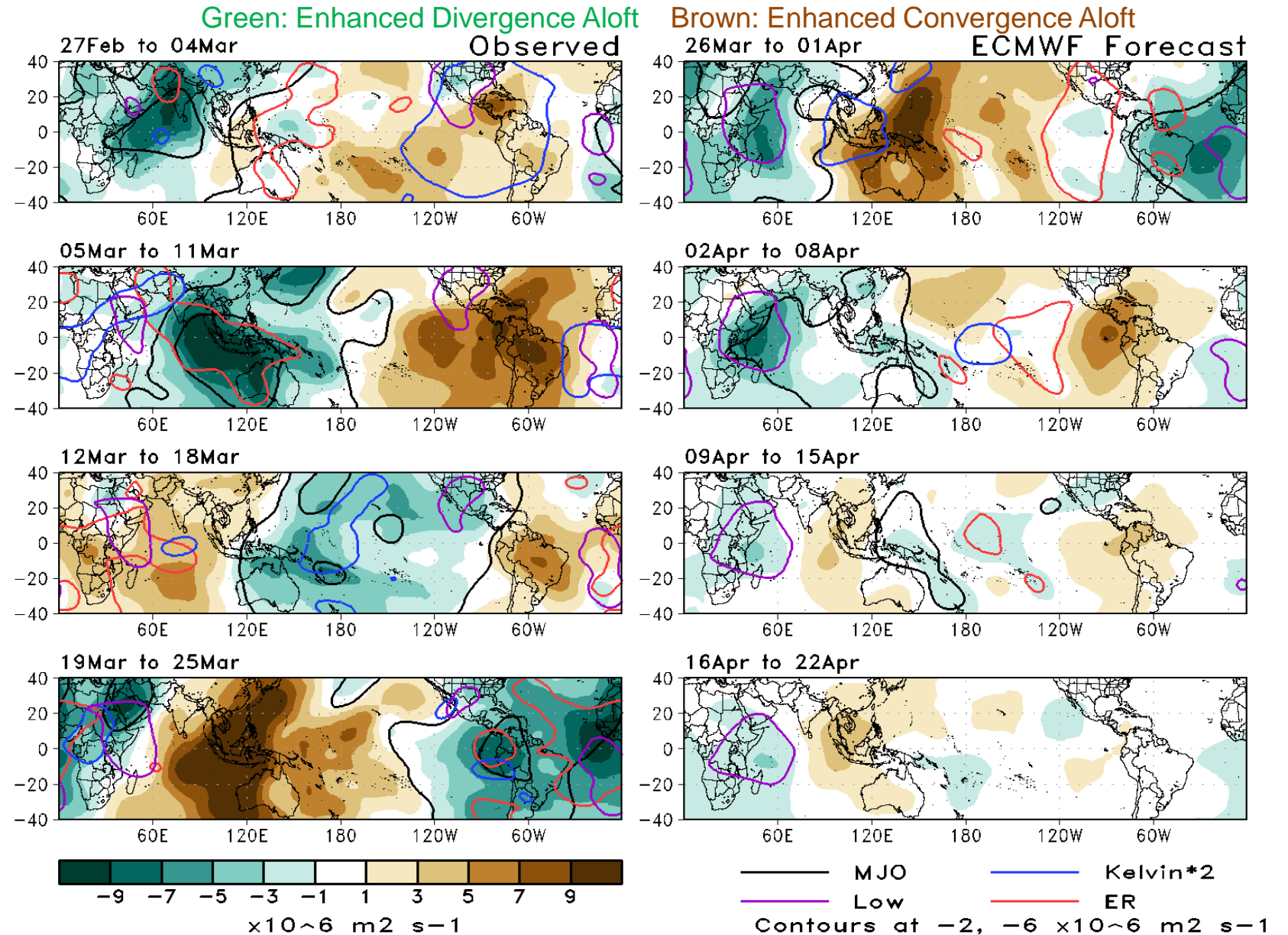
Issued: 03/26/2024

Forecaster: Collow

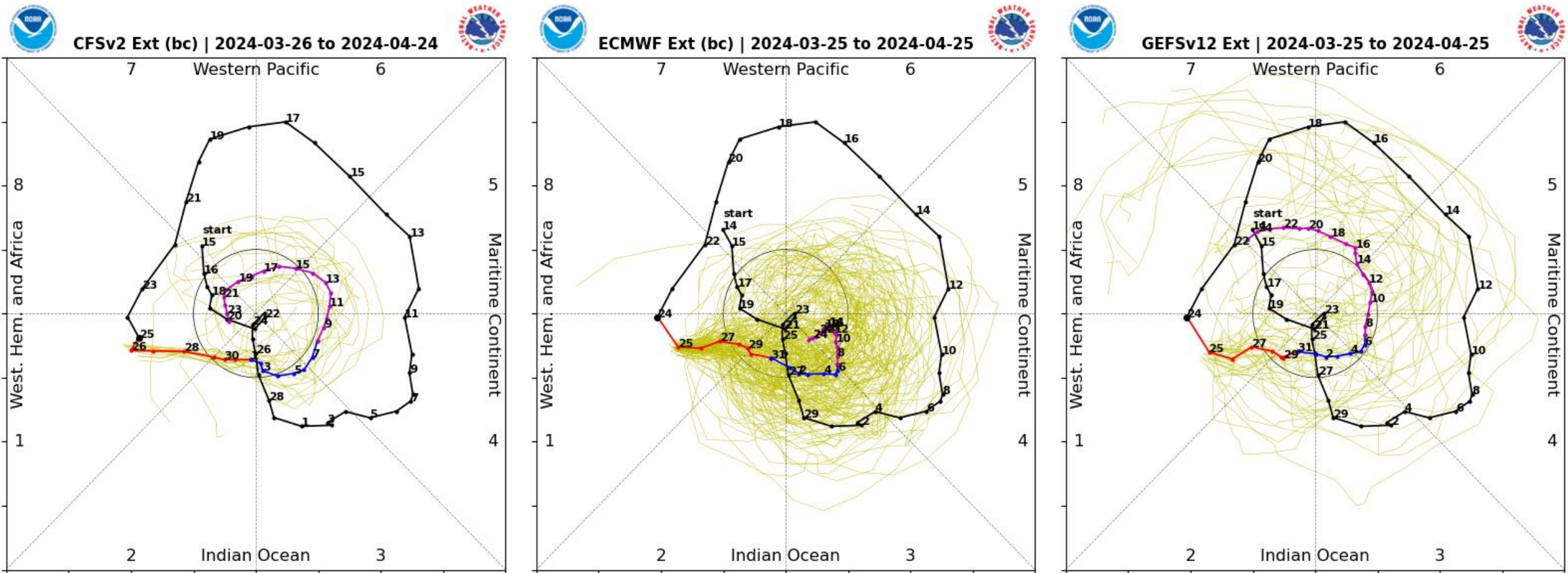
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200-hPa Velocity Potential Anomaly Maps:

- Well-defined wave-1 asymmetry is apparent in the global upper-level velocity potential pattern.
- Enhanced divergence aloft is currently noted across the Americas, Atlantic, and Africa, with enhanced convergence aloft over much of the Indian and Pacific oceans.
- The ECMWF ensemble mean forecast indicates a break-down of this pattern by mid-April, although the GEFS and CFS maintain a healthier MJO over the Pacific.

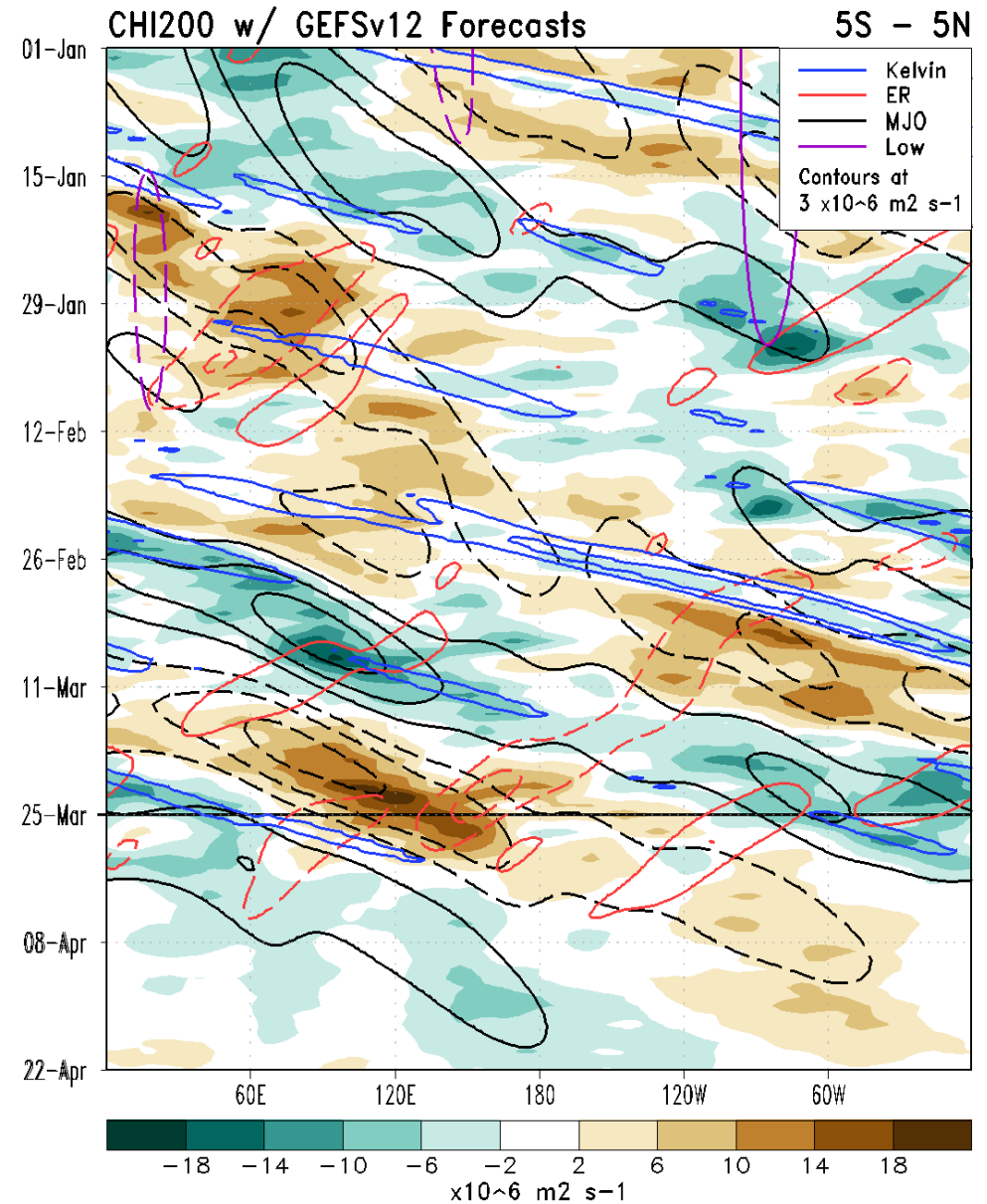
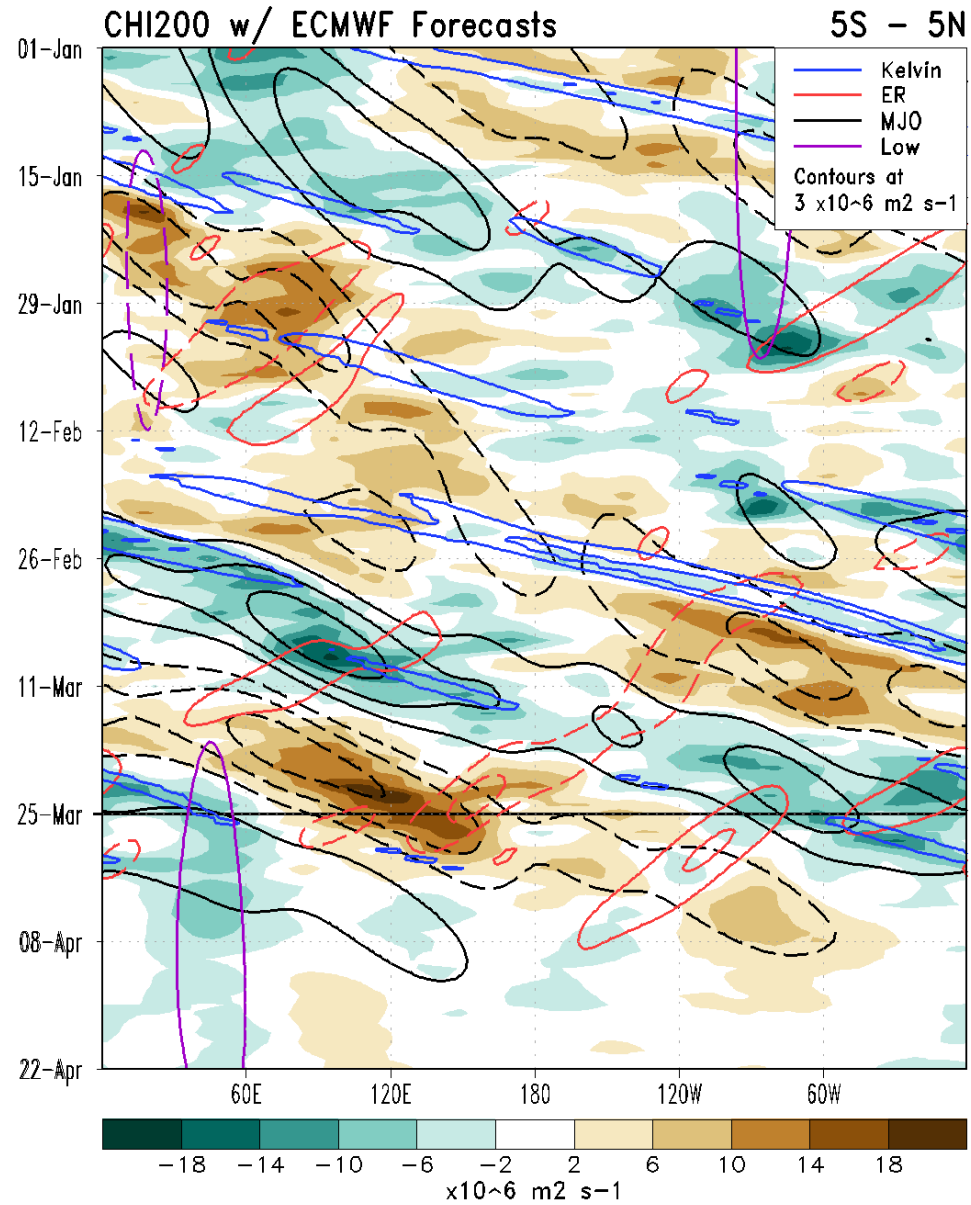


RMM Index Observations & Forecasts:



- Good agreement exists between the CFS, GEFs, and the ECMWF ensembles regarding the MJO returning to the Indian Ocean by early April.
- A decrease in phase speed and amplitude are possible, but large ensemble variability reduces confidence in the forecast.

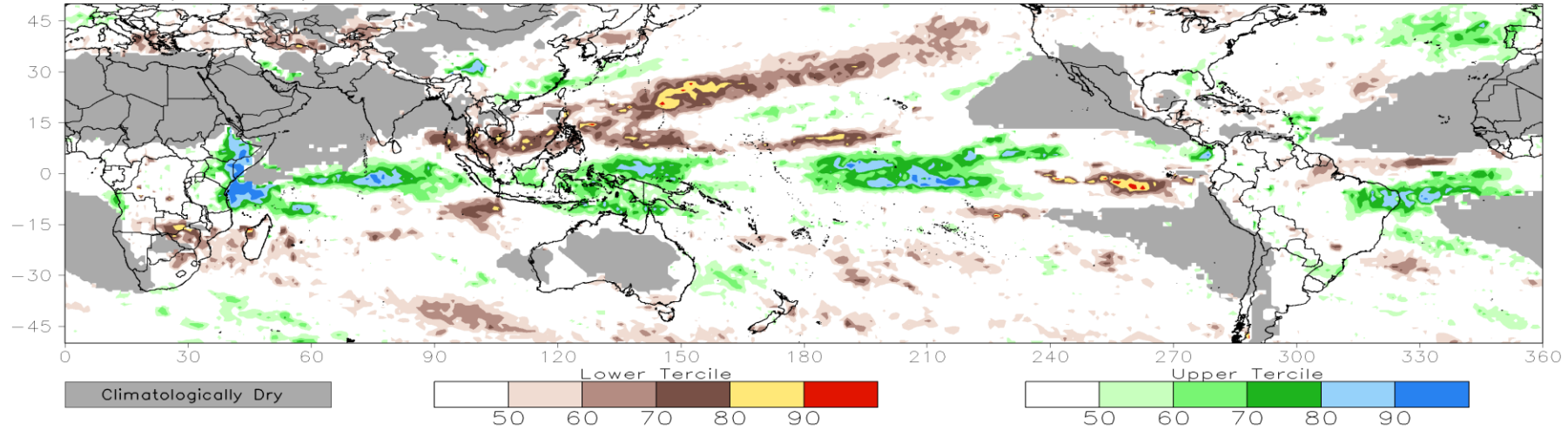
200-hPa Velocity Potential Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

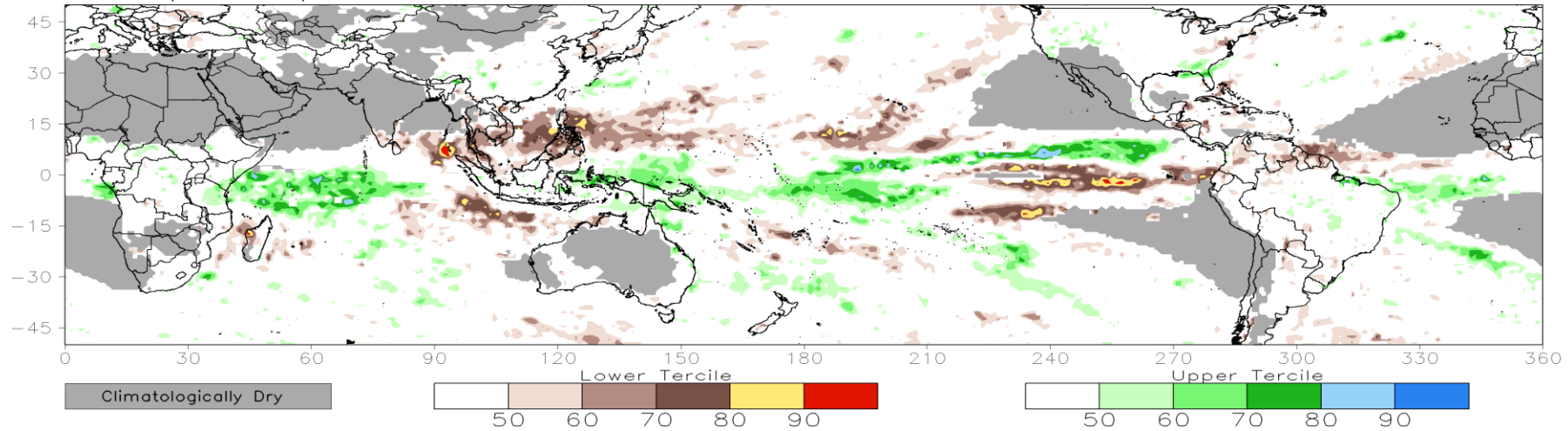
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 03Apr2024-09Apr2024



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

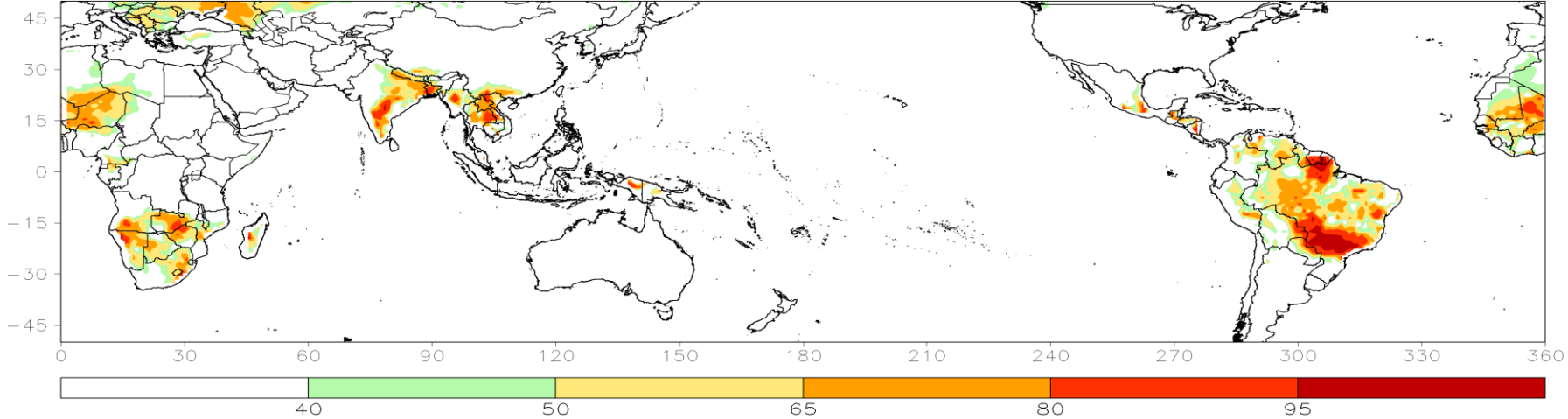
Valid: 10Apr2024-16Apr2024



Consolidated Probabilistic Temperatures: Week-2

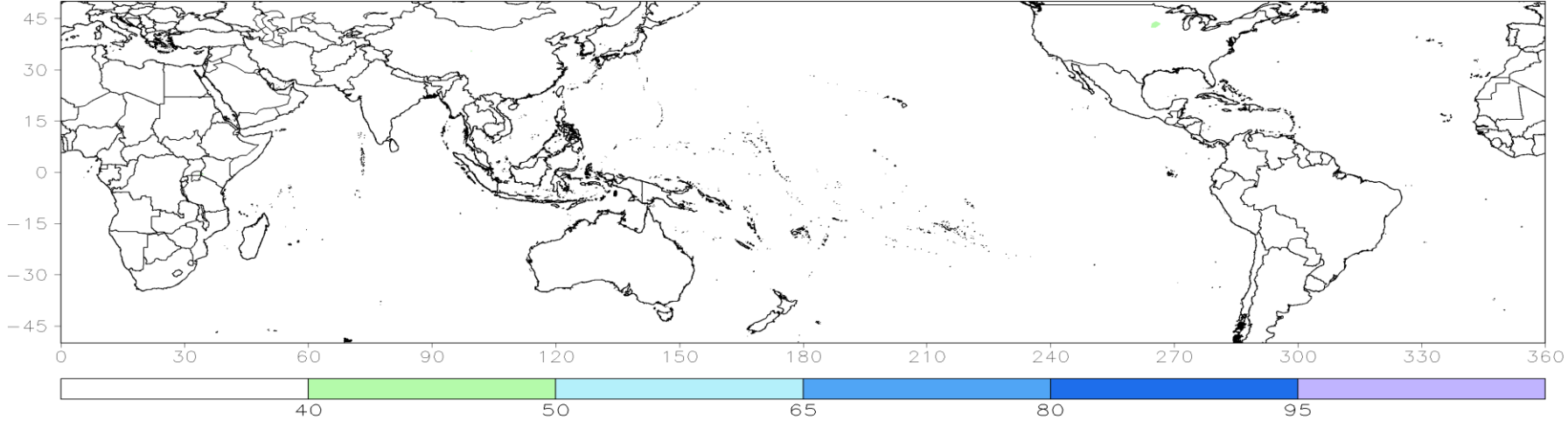
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 03Apr2024-09Apr2024



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

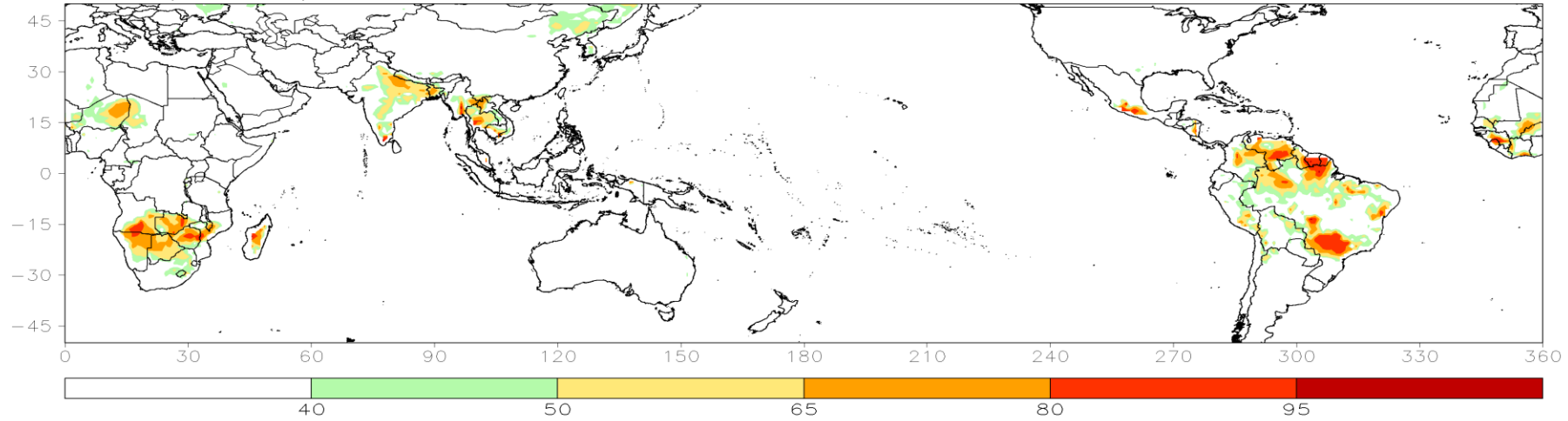
Valid: 03Apr2024-09Apr2024



Consolidated Probabilistic Temperatures: Week-3

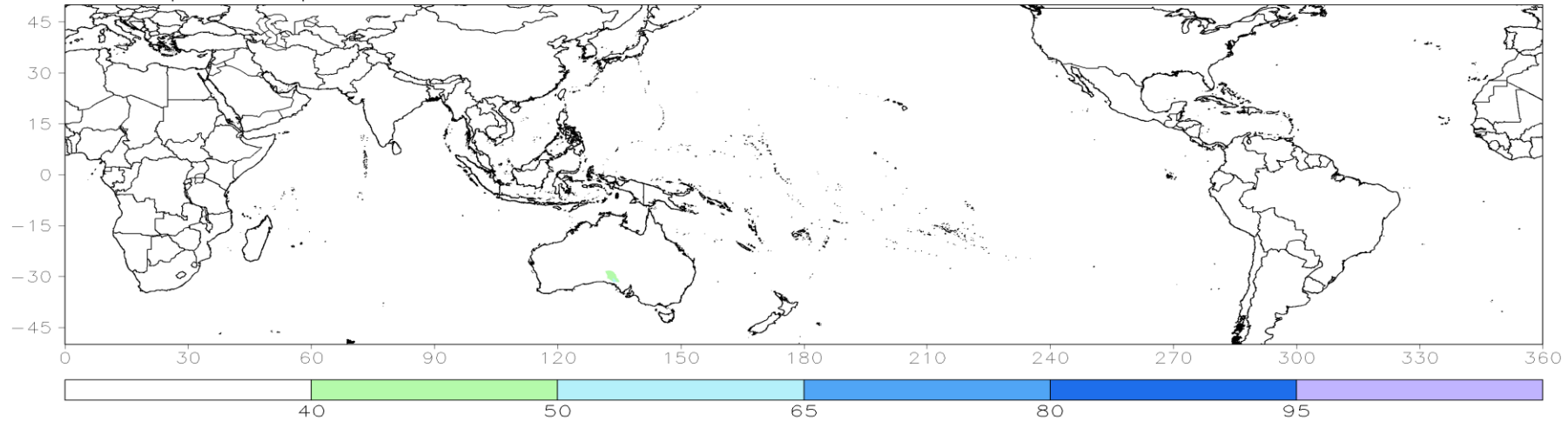
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 10Apr2024–16Apr2024



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

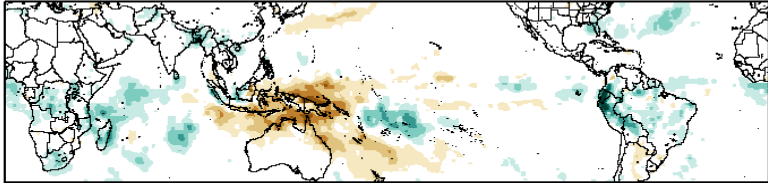
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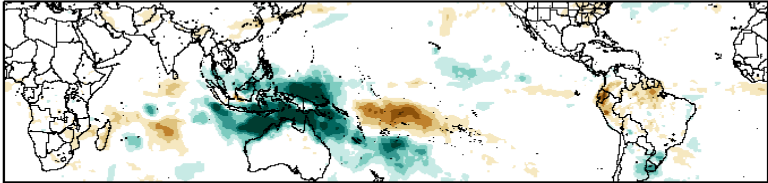
Historical Precipitation Anomalies By MJO Phase:

FMA MJO Composite: GPCP1DD (mm/day)

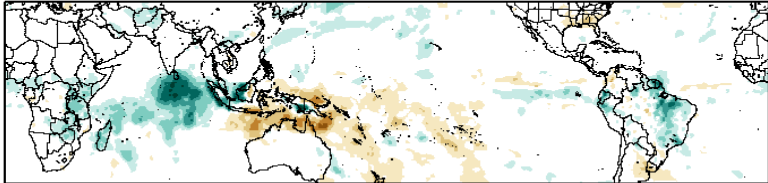
Phase 1



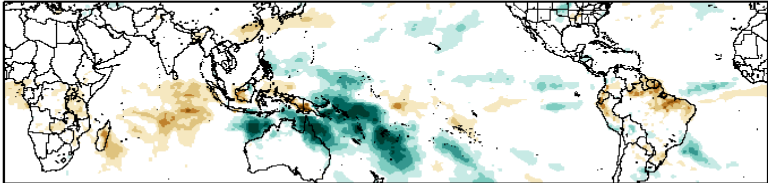
Phase 5



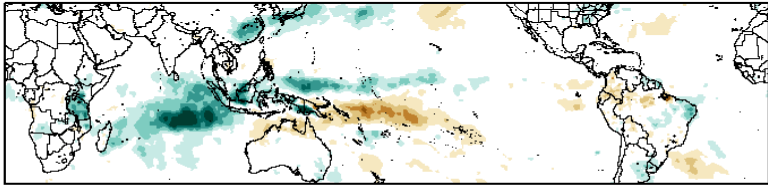
Phase 2



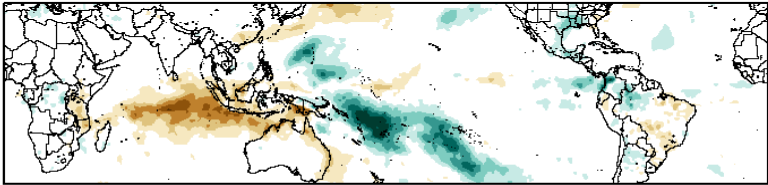
Phase 6



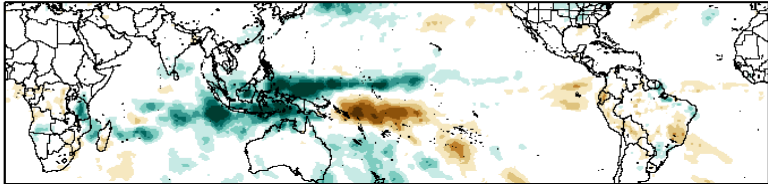
Phase 3



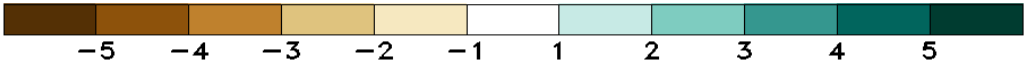
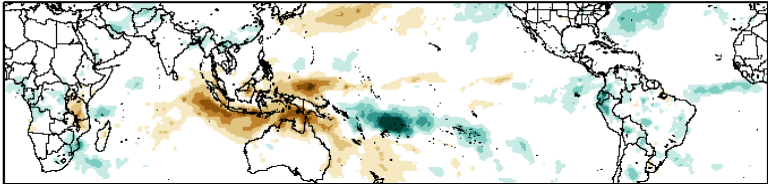
Phase 7



Phase 4

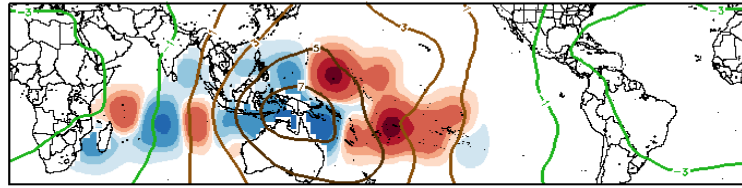


Phase 8

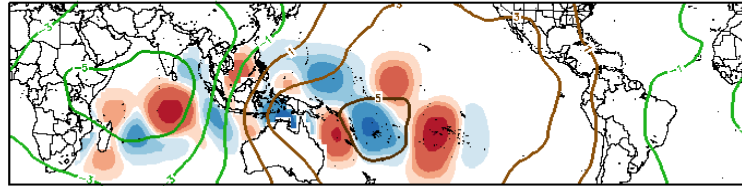


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

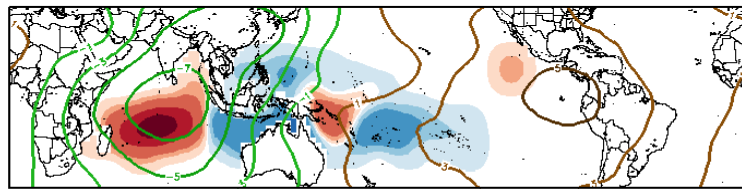
FMA MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ FMA CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



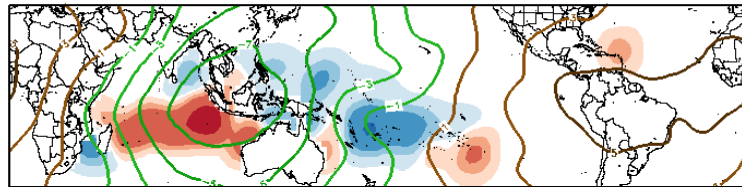
Phase 1



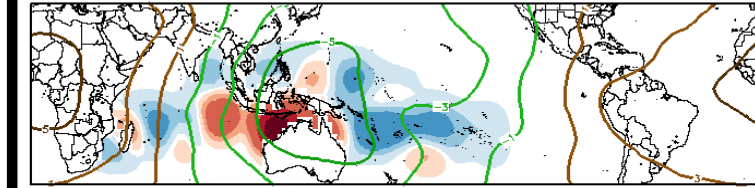
Phase 2



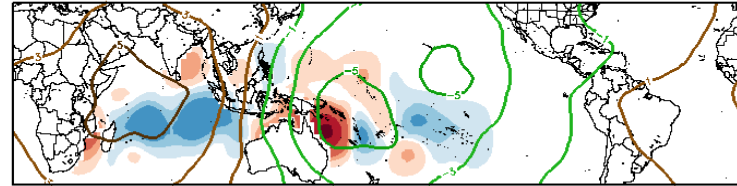
Phase 3



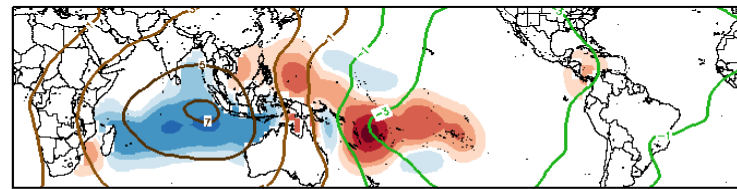
Phase 4



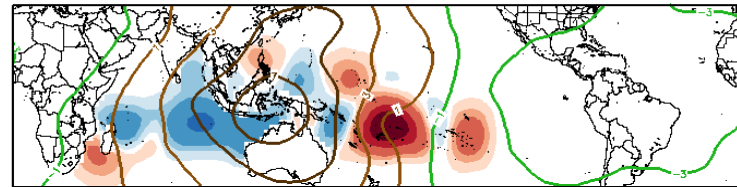
Phase 5



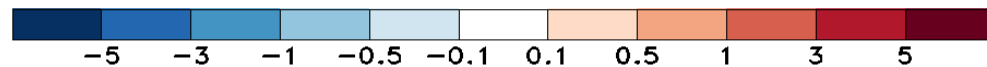
Phase 6



Phase 7



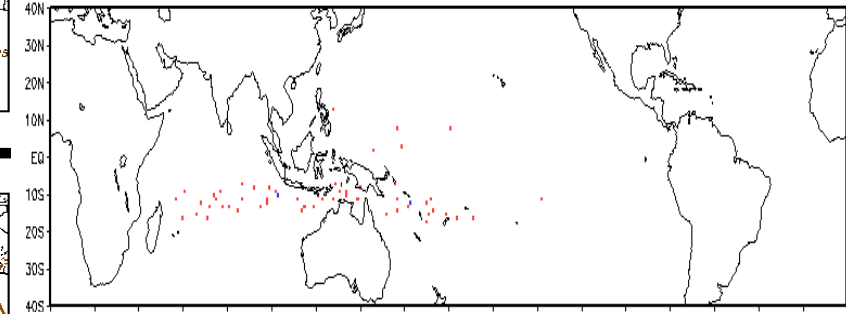
Phase 8



Experimental

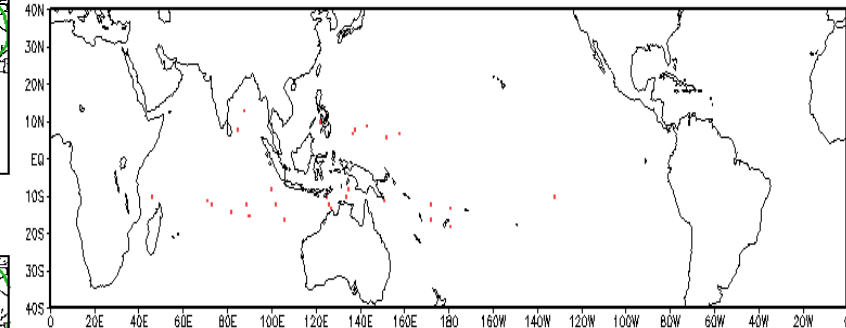
Observed TC Genesis, 1979-2021

7-day Period 0403 to 0409



Observed TC Genesis, 1979-2021

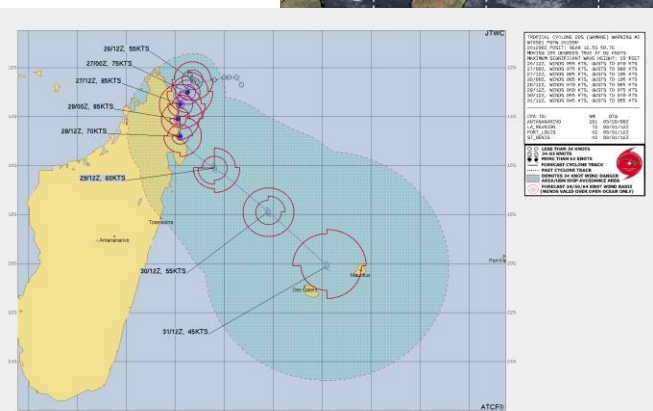
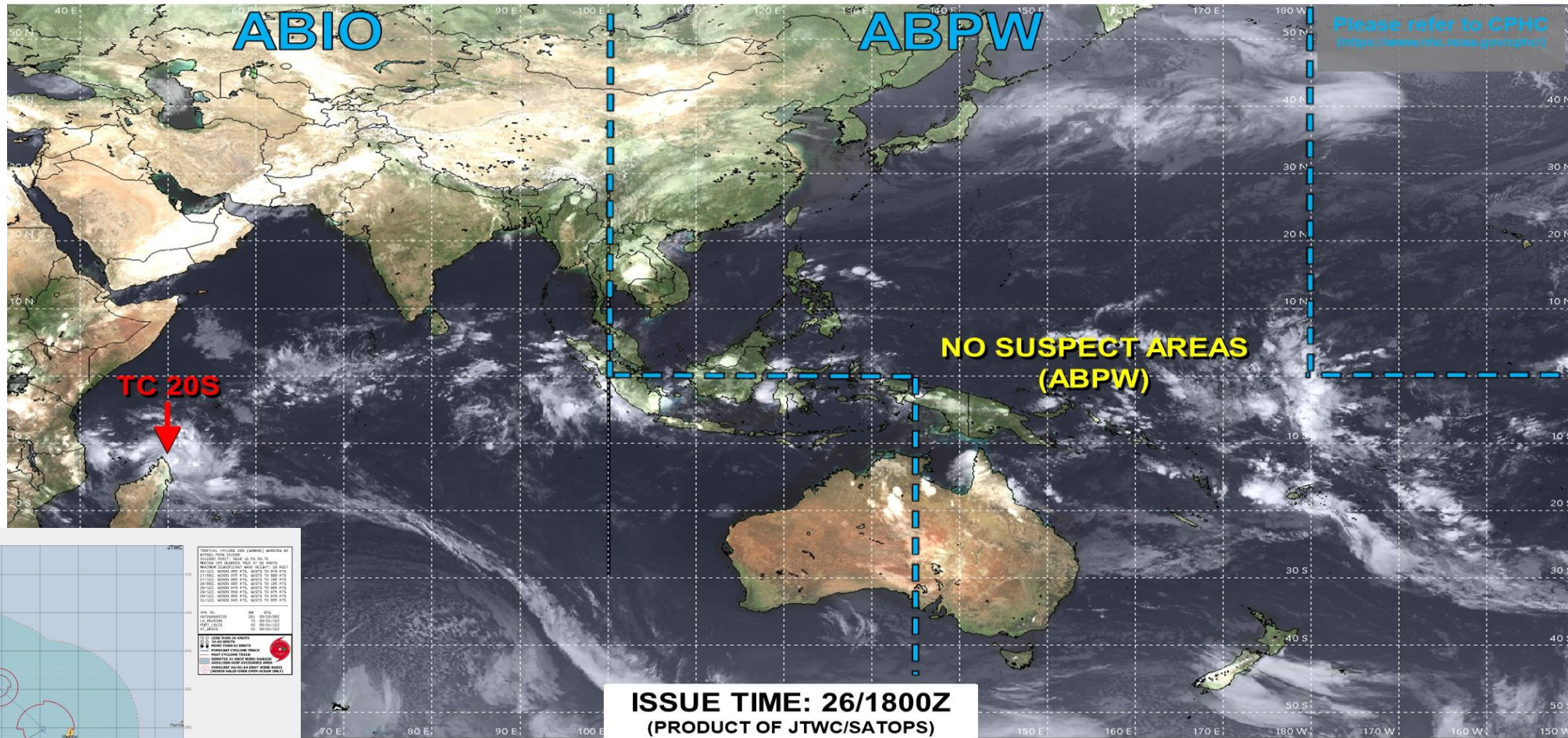
7-day Period 0410 to 0416



Tropical Cyclone Monitoring/Forecast: JTWC



JOINT TYPHOON WARNING CENTER



TC development likely, but expected to occur beyond 24 hours



TC development likely within 24 hours (Reference TCFA)

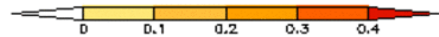
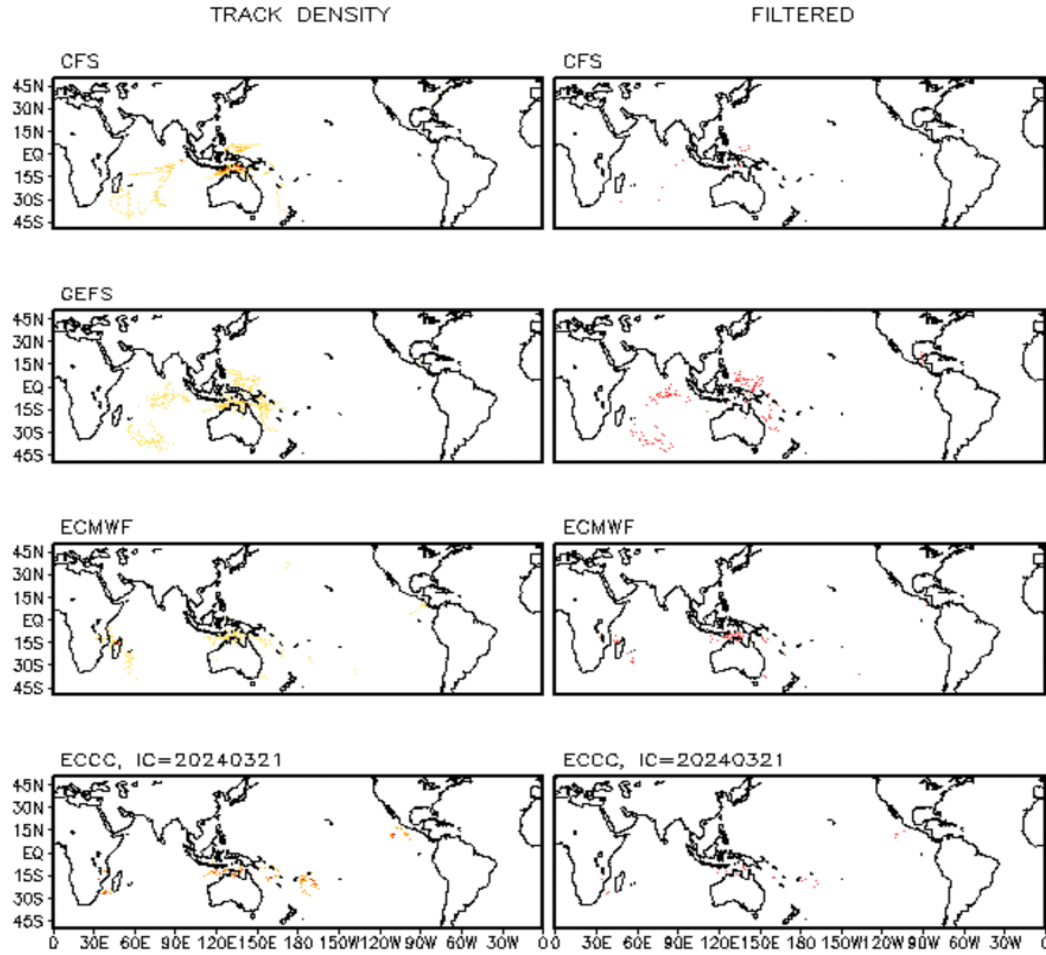


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

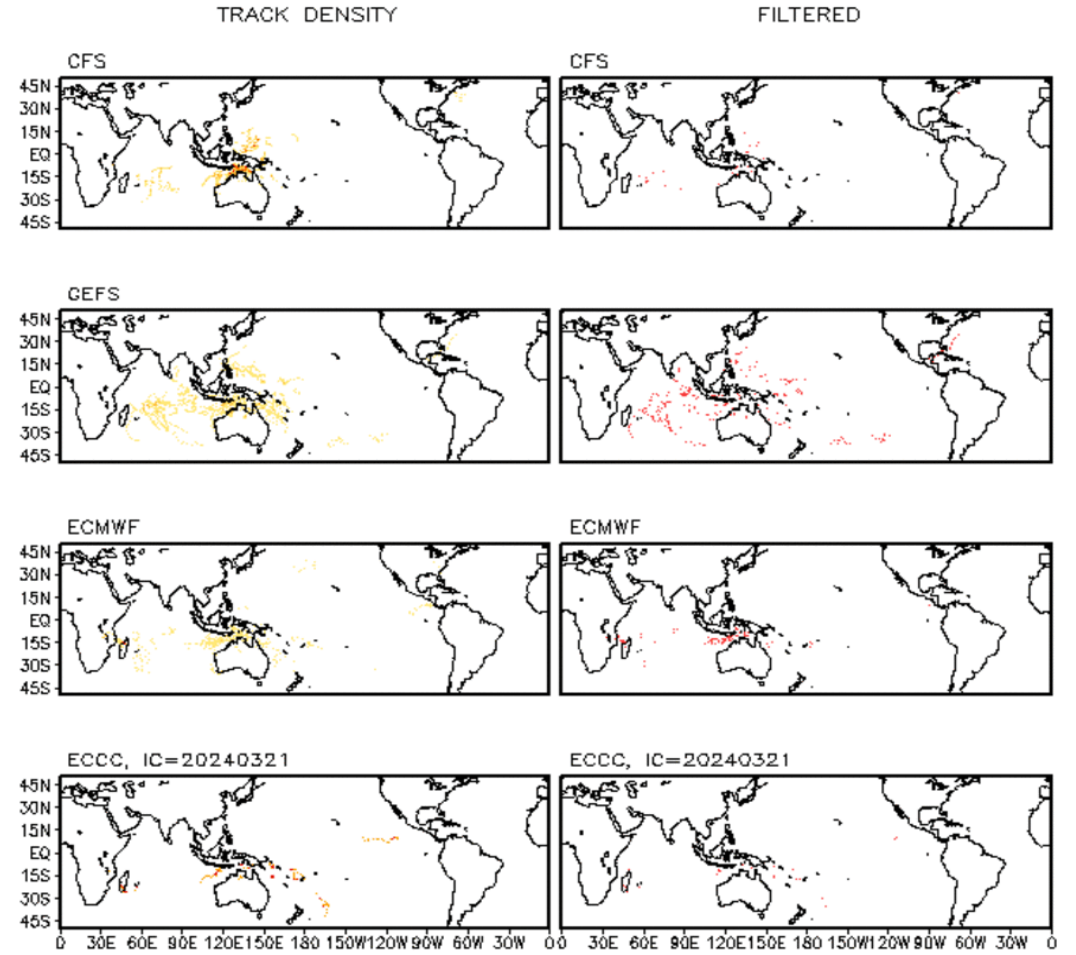


Multi-Model TC Track Densities: Weeks 2+3

Storm Track Density Distribution, IC=20240325
Week 2 Forecast: 0403-0409

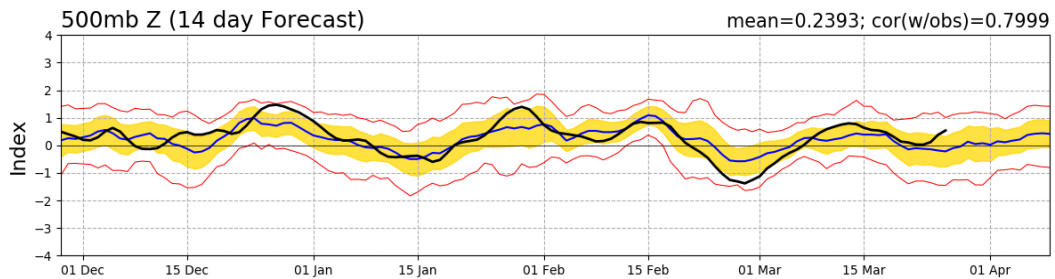
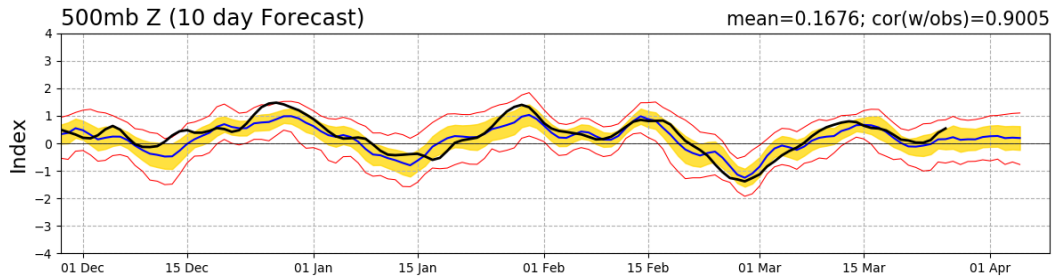
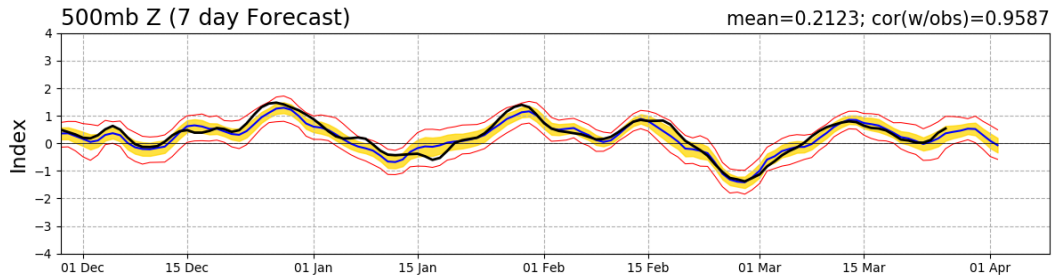
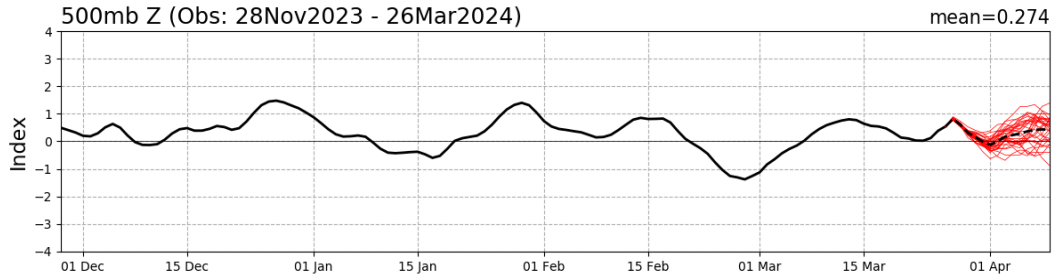


Storm Track Density Distribution, IC=20240325
Week 3 Forecast: 0410-0416

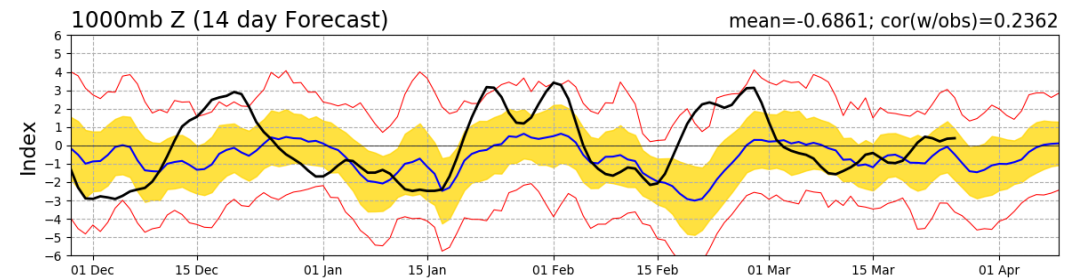
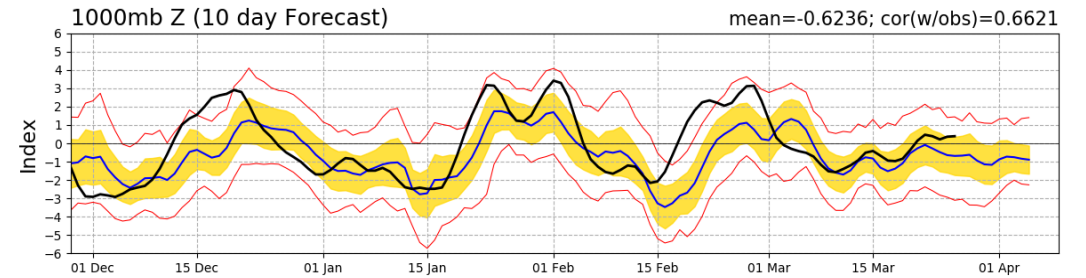
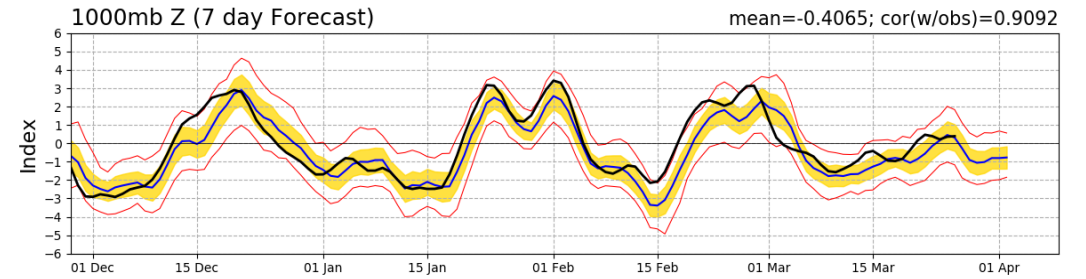
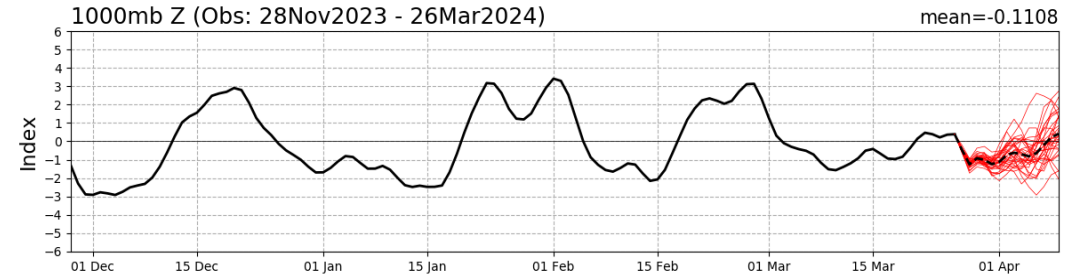


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



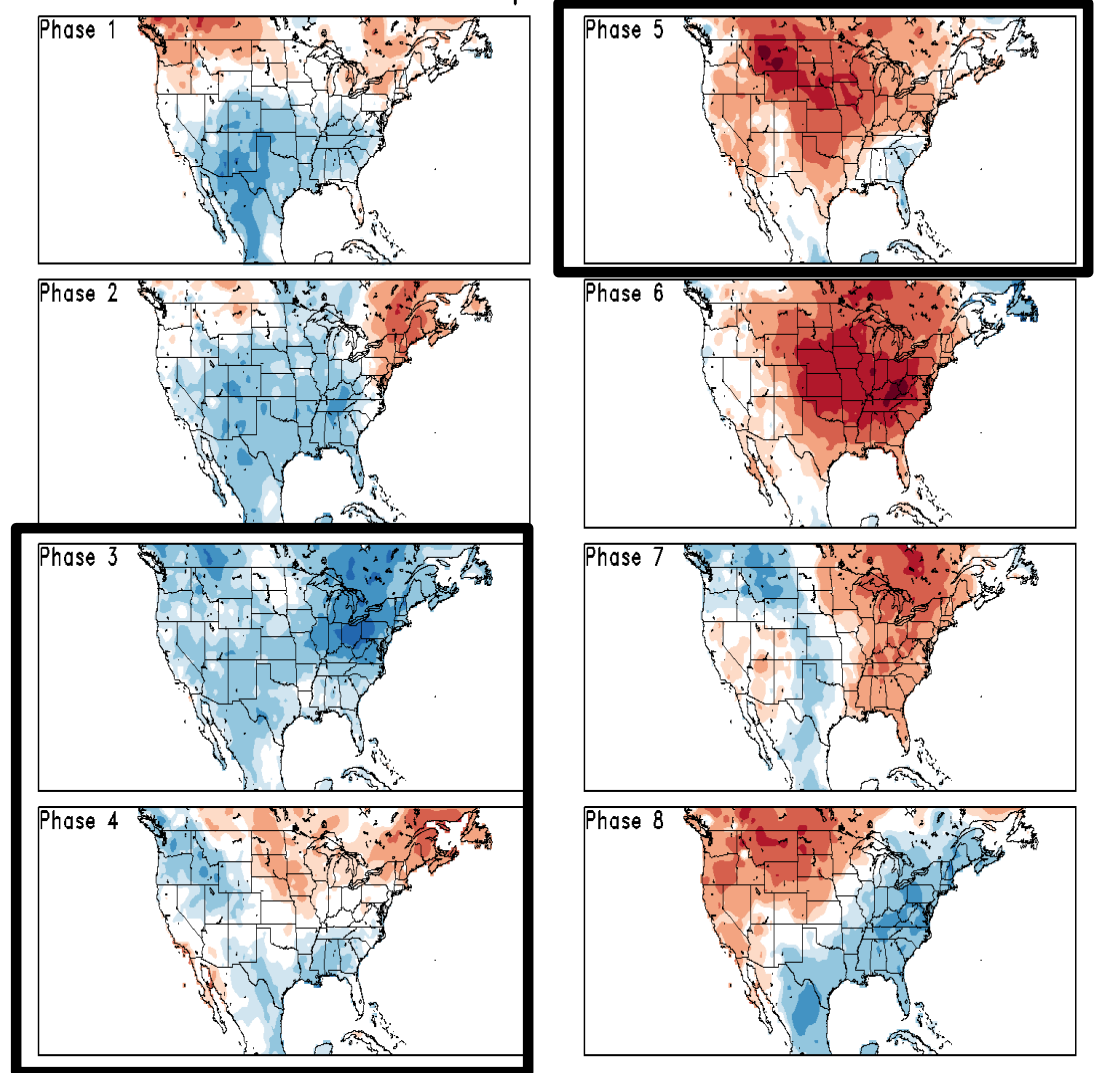
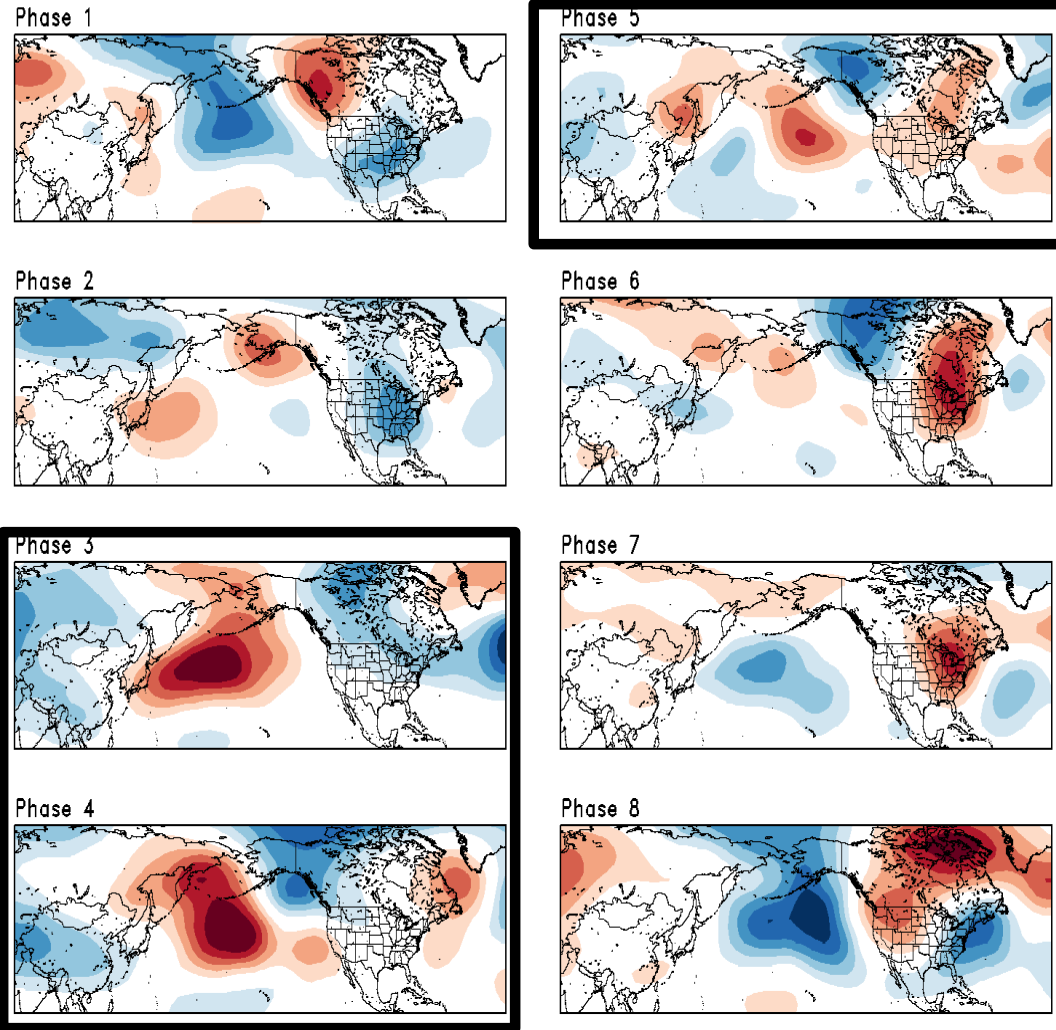
AO Index: Observed & GEFS Forecasts



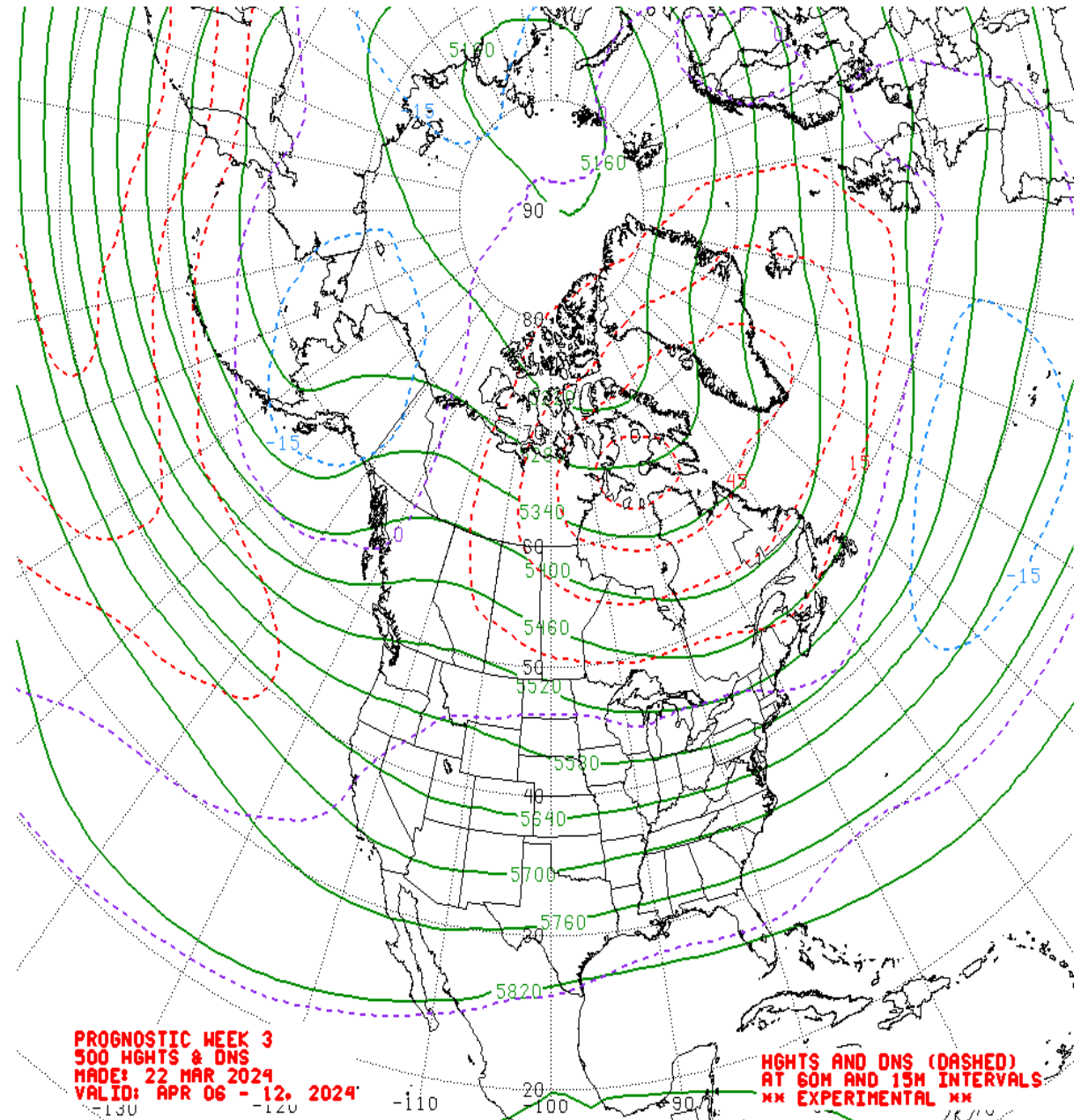
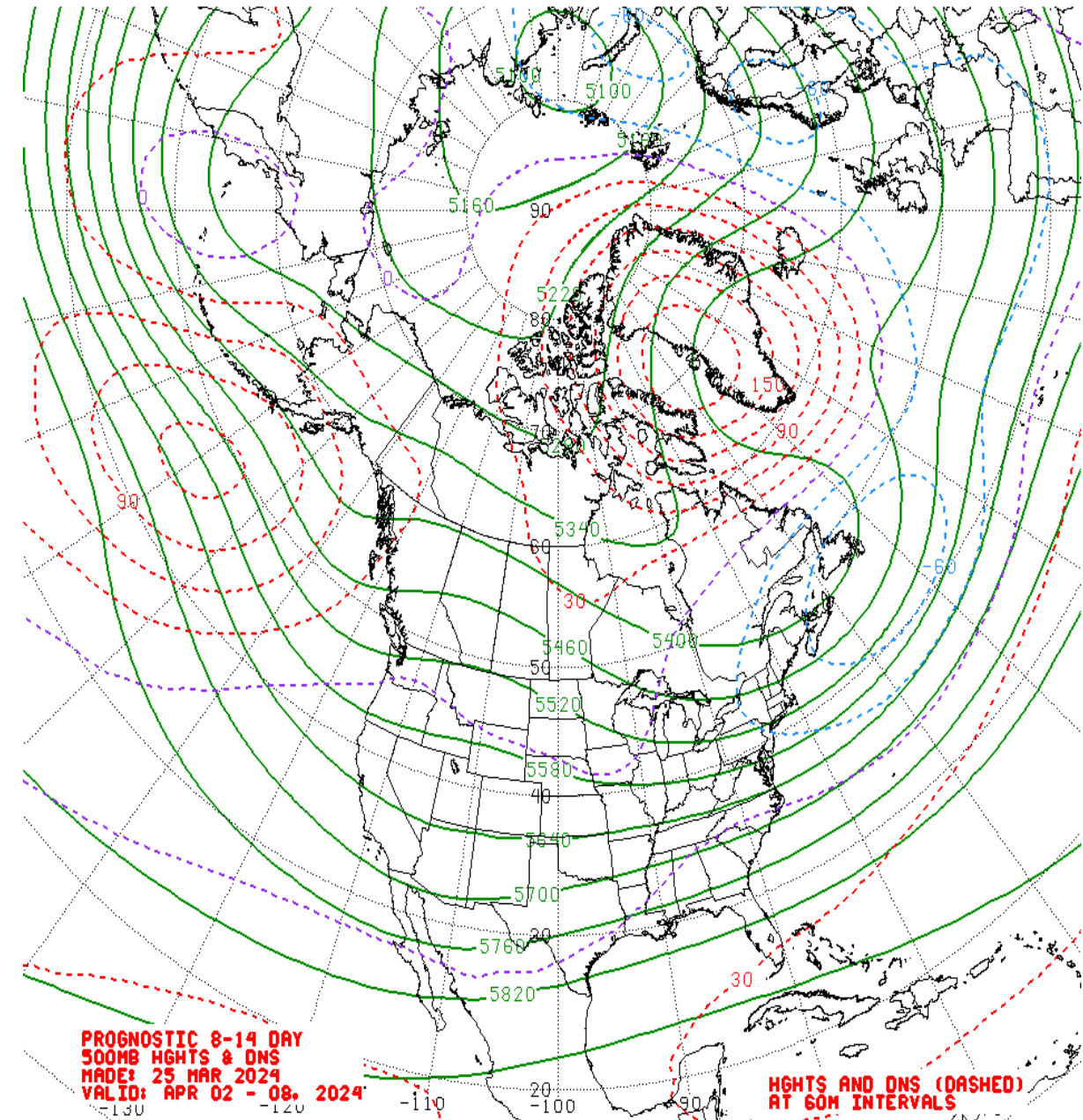
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

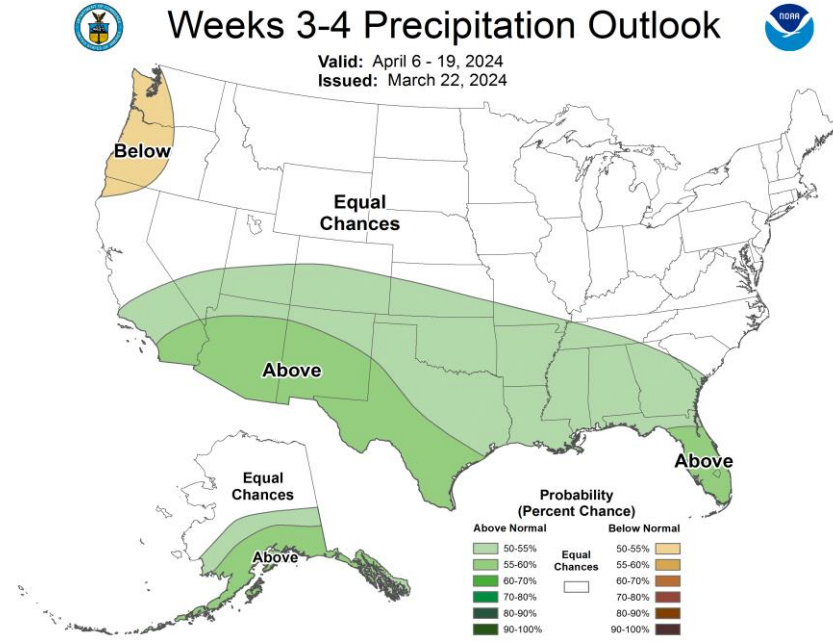
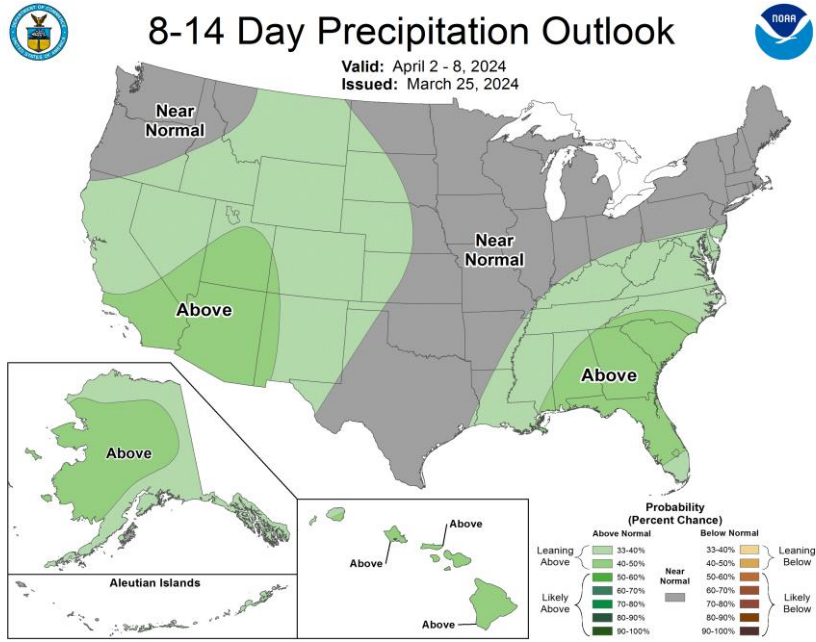
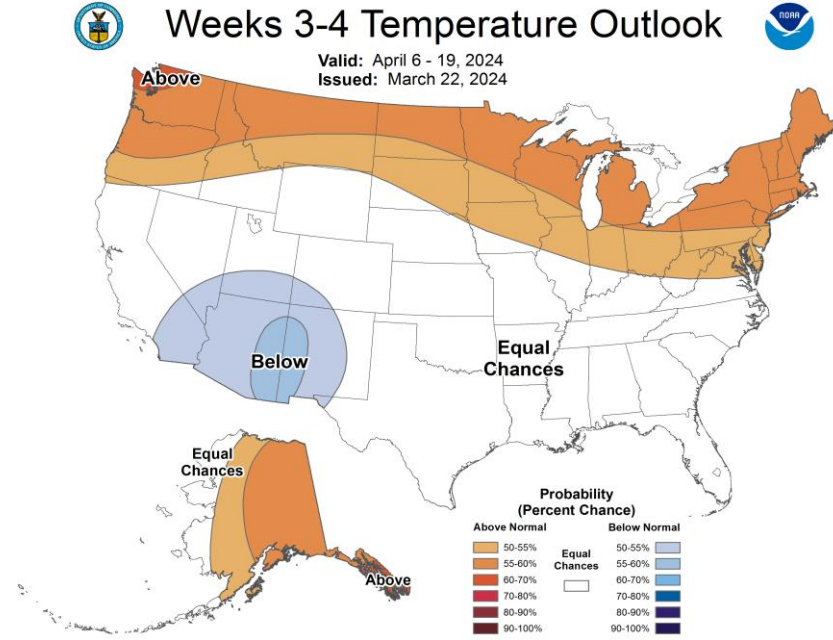
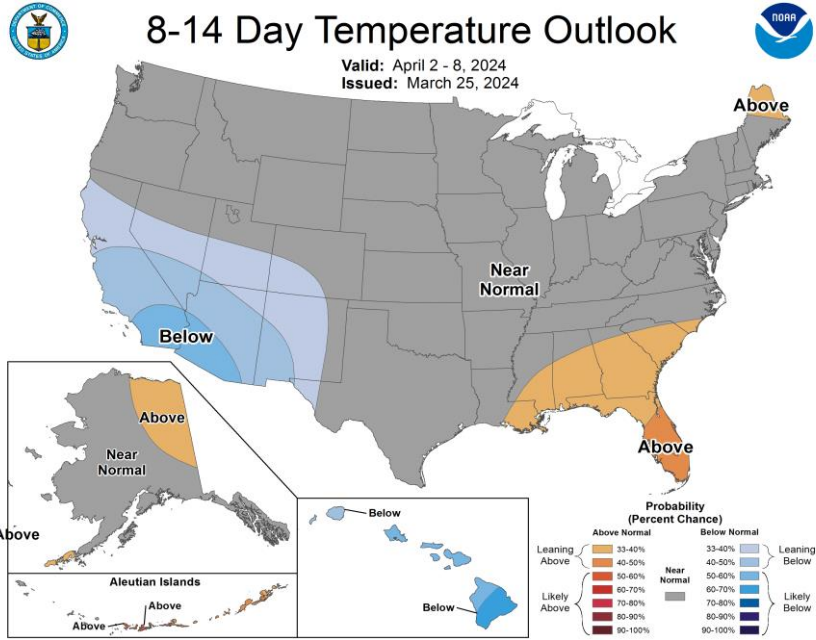
FMA MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



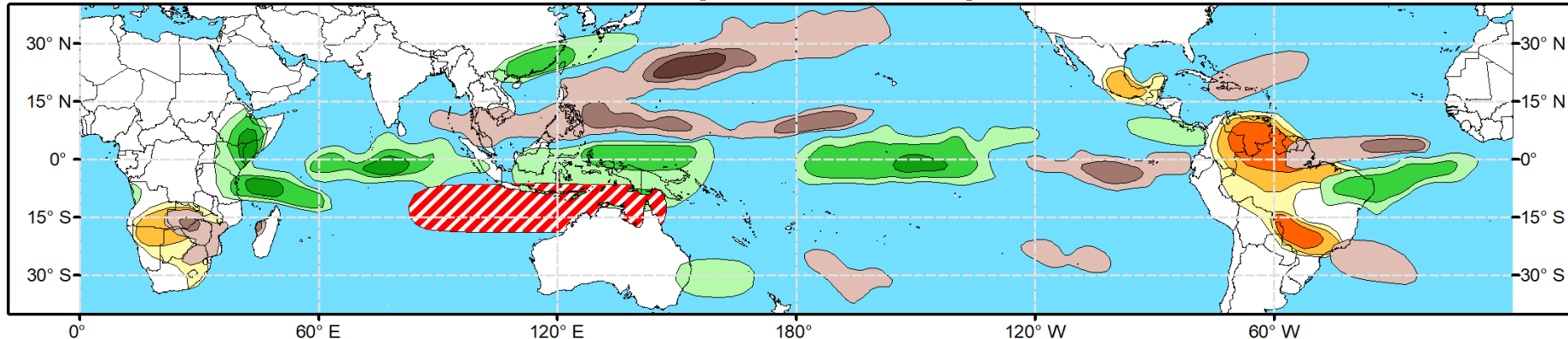


Global Tropics Hazards Outlook

Climate Prediction Center

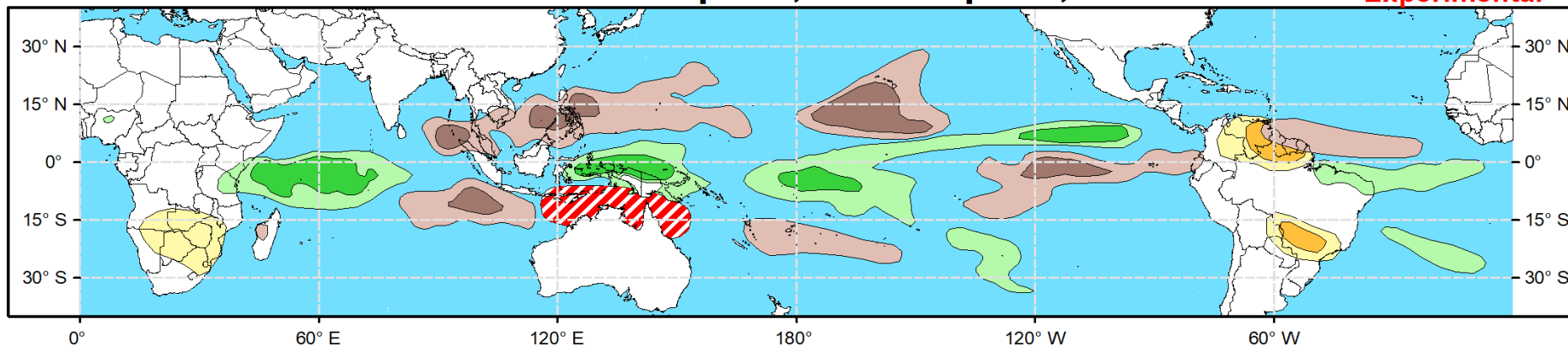


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