



Weeks 2-3 Global Tropics Hazards Outlook

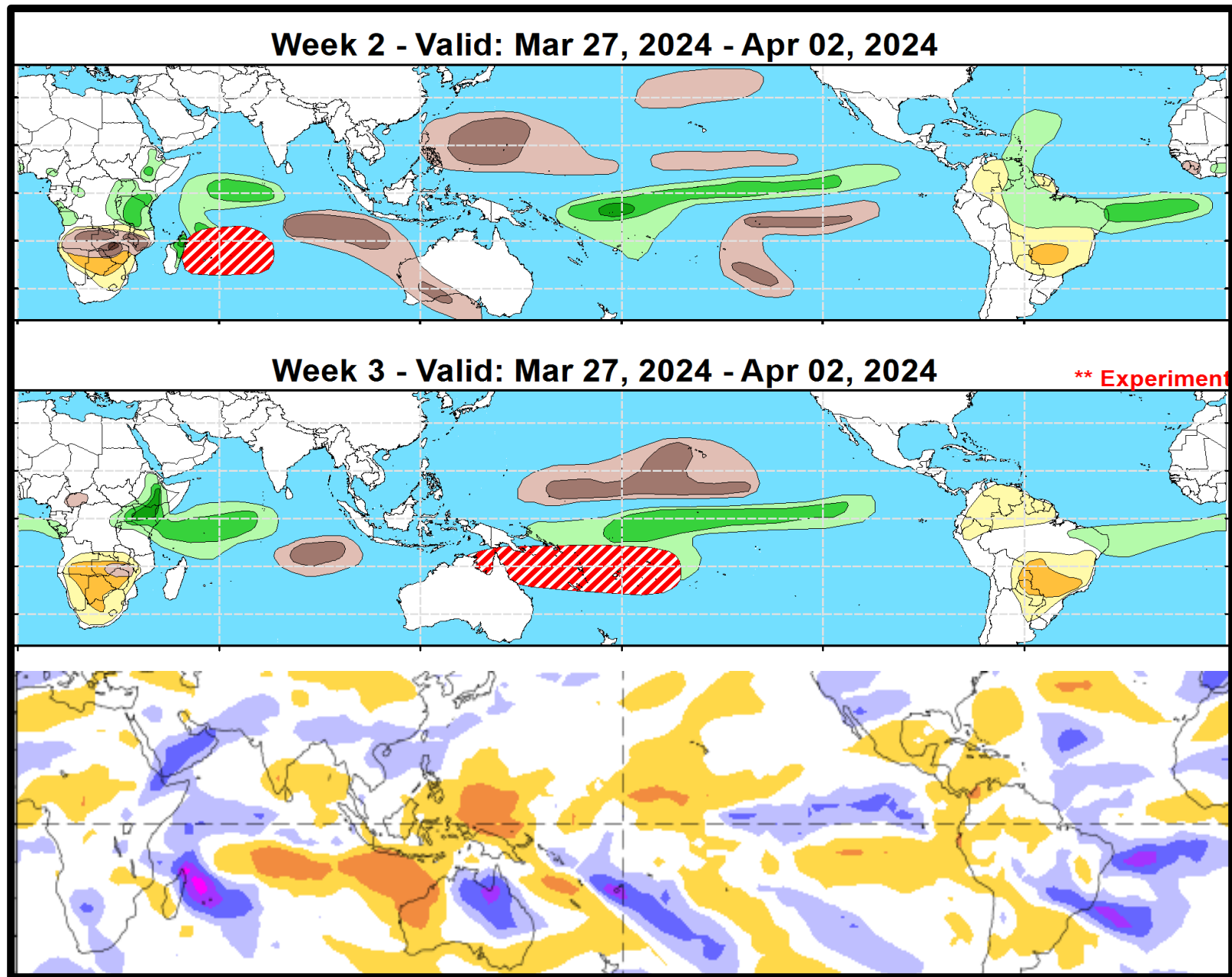
4/2/2024

Thomas Collow

NWS / NCEP / Climate Prediction Center

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

No new TCs developed during the past week.



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 remains active, but has slowed down and weakened as it crossed back into the Eastern Hemisphere.
- The MJO is forecast to resume its eastward propagation into the Indian Ocean and Western Pacific during the first half of April, with some constructive interference with equatorial Rossby Wave activity possible as the MJO nears the Date Line.
- Persistent enhanced convection is noted across eastern Africa and the western Indian Ocean. This low frequency signal may be attributed to the MJO slowing down over the region, destructive interference with other higher frequency modes of variability, and the transition out of El Niño.

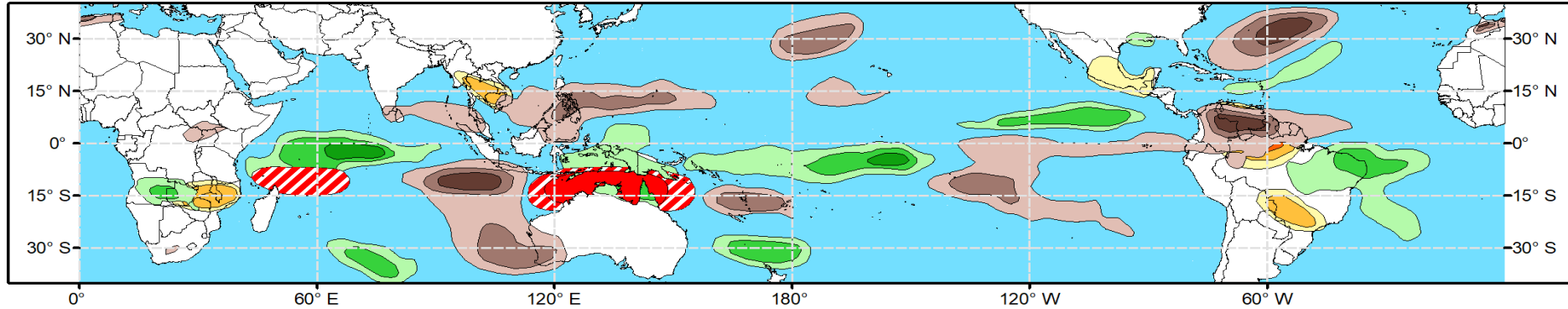
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

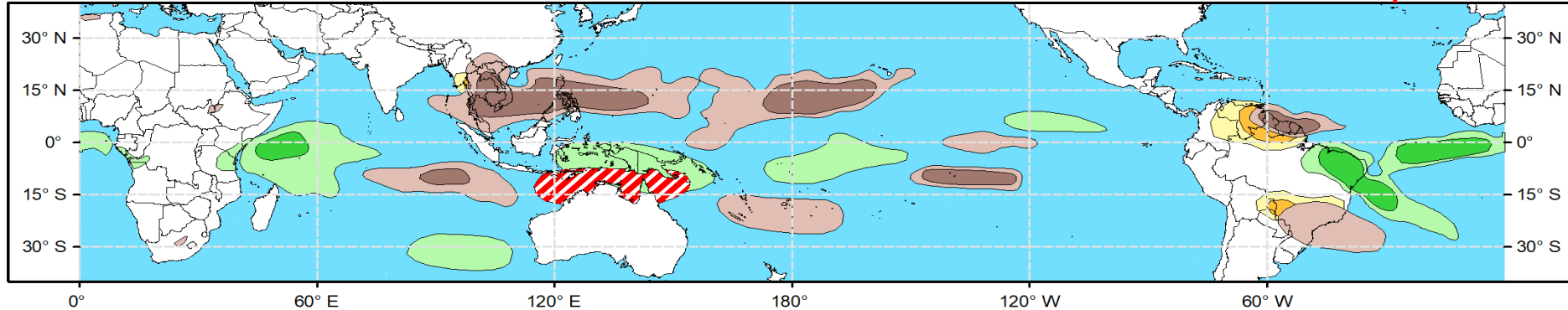


Week 2 - Valid: Apr 10, 2024 - Apr 16, 2024



Week 3 - Valid: Apr 17, 2024 - Apr 23, 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**



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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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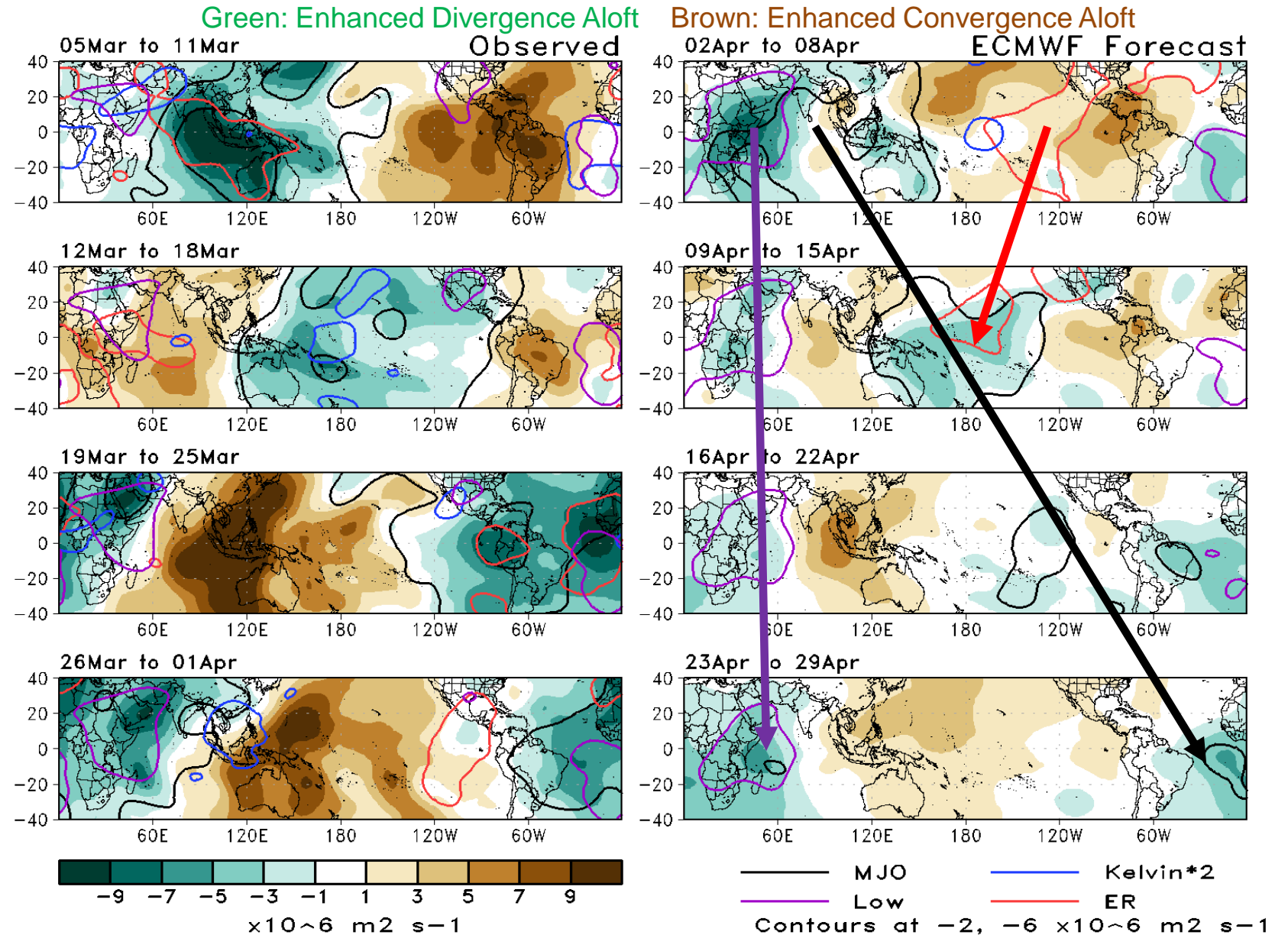
Issued: 04/02/2024

Forecaster: Collow

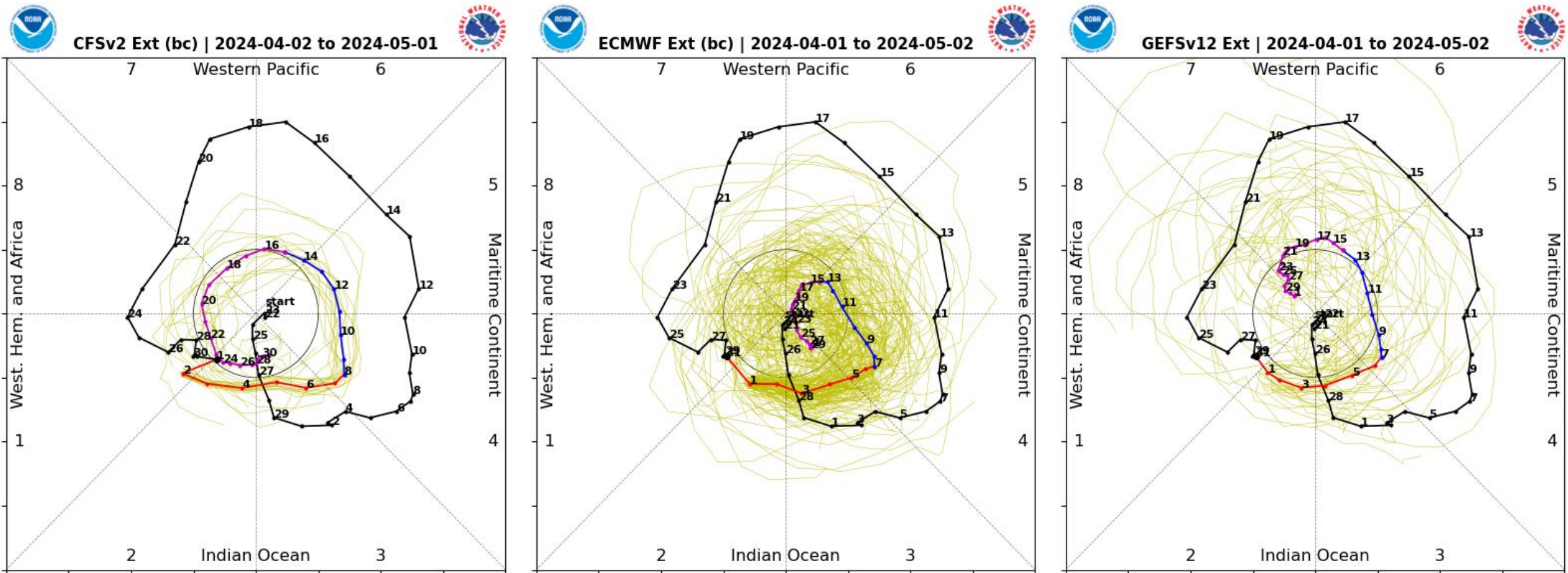
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200-hPa Velocity Potential Anomaly Maps:

- Well-defined wave-1 asymmetry is apparent in the global upper-level velocity potential pattern.
- Enhanced divergence aloft extends from South America to the eastern Indian Ocean, with enhanced convergence aloft over much of the Pacific ocean.
- The ECMWF ensemble mean depicts a **low frequency** convective signal over eastern Africa and the western Indian Ocean, along with an eastward propagating **MJO** constructively interfering with equatorial **Rossby Wave** activity near the Date Line.

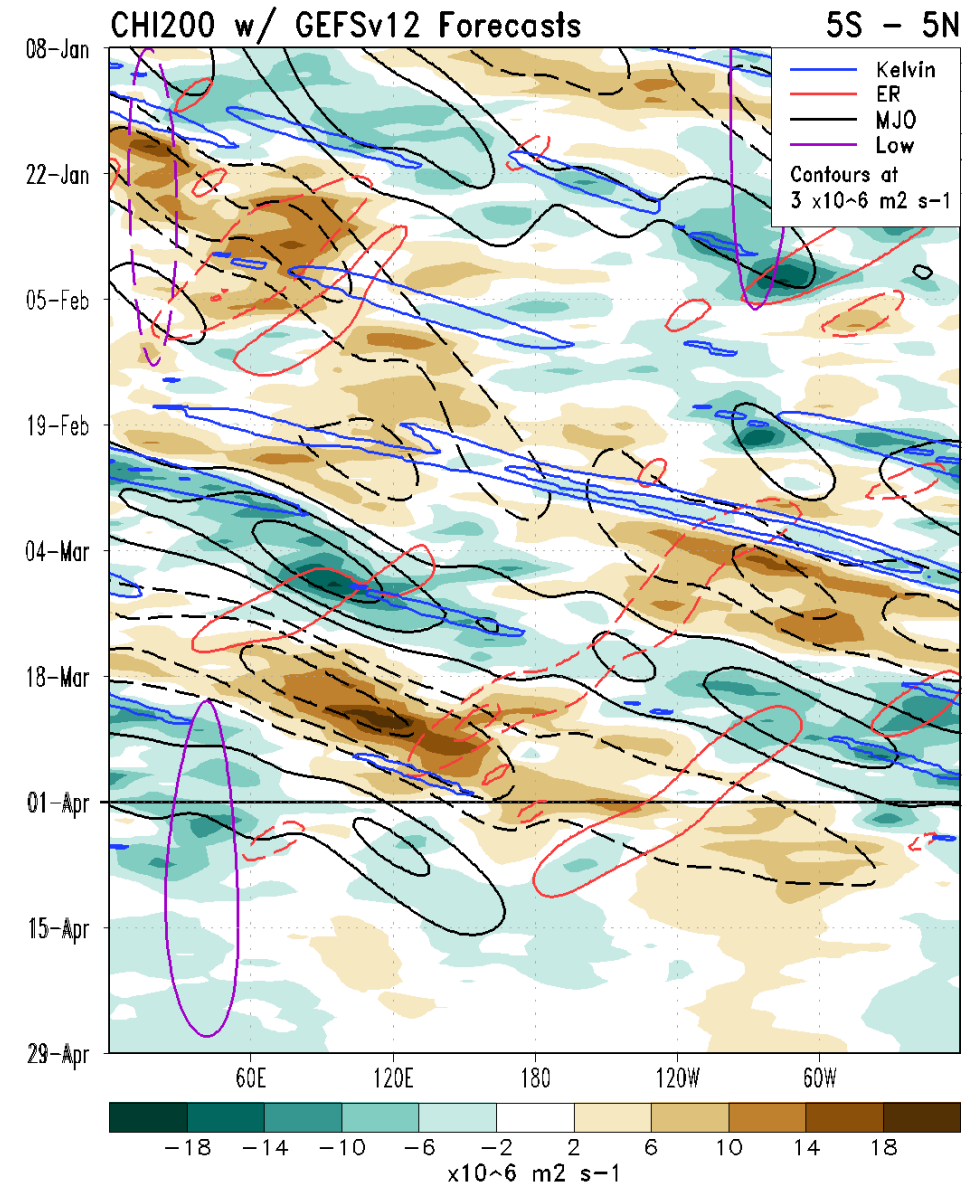
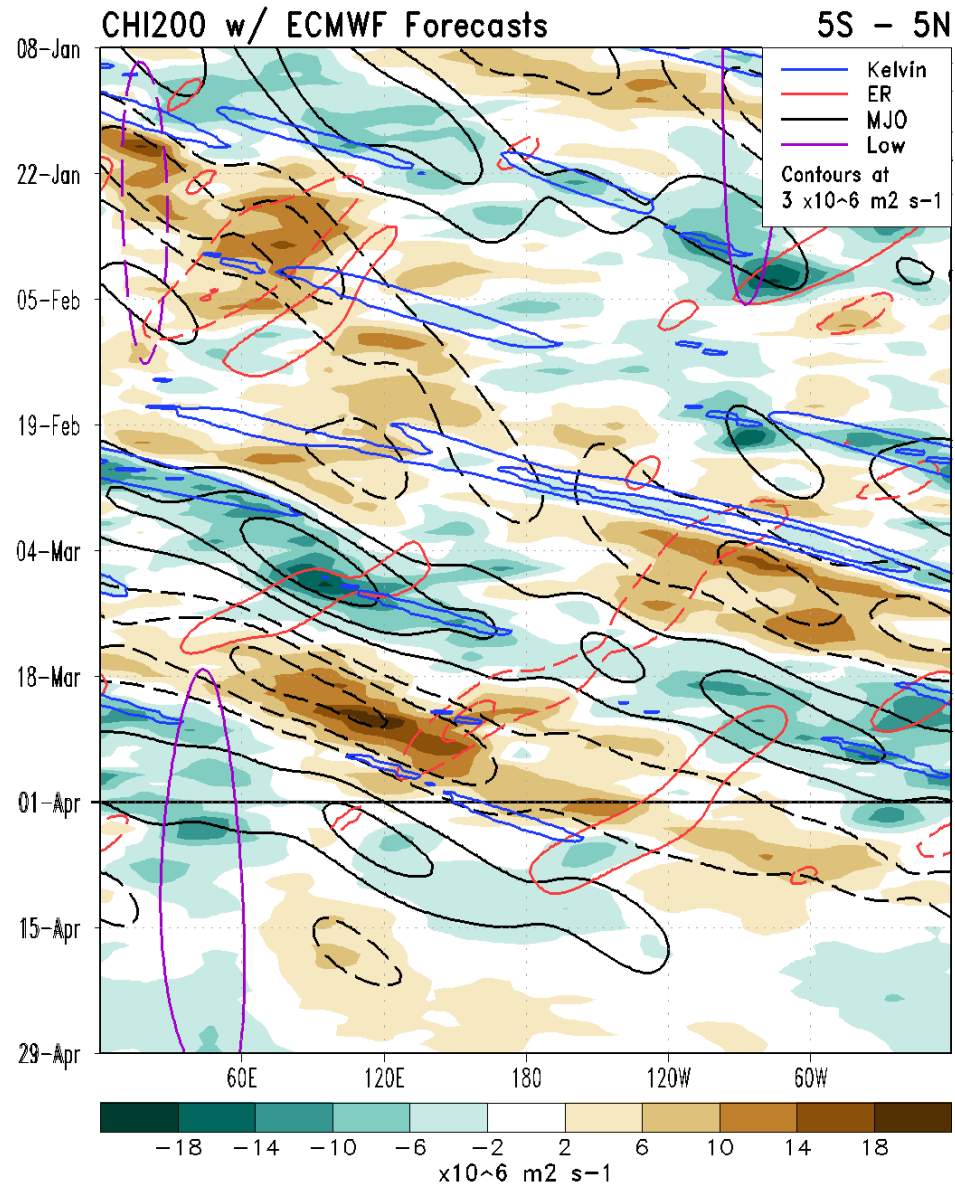


RMM Index Observations & Forecasts:



- Good agreement exists between the CFS, GEFS, and the ECMWF ensembles regarding the MJO propagating across from the Indian Ocean to the western Pacific during the first half of April.
- The amplitude of the MJO becomes more uncertain later in April, with large ensemble spread and the means eventually weakening the signal into the RMM-based unit circle.

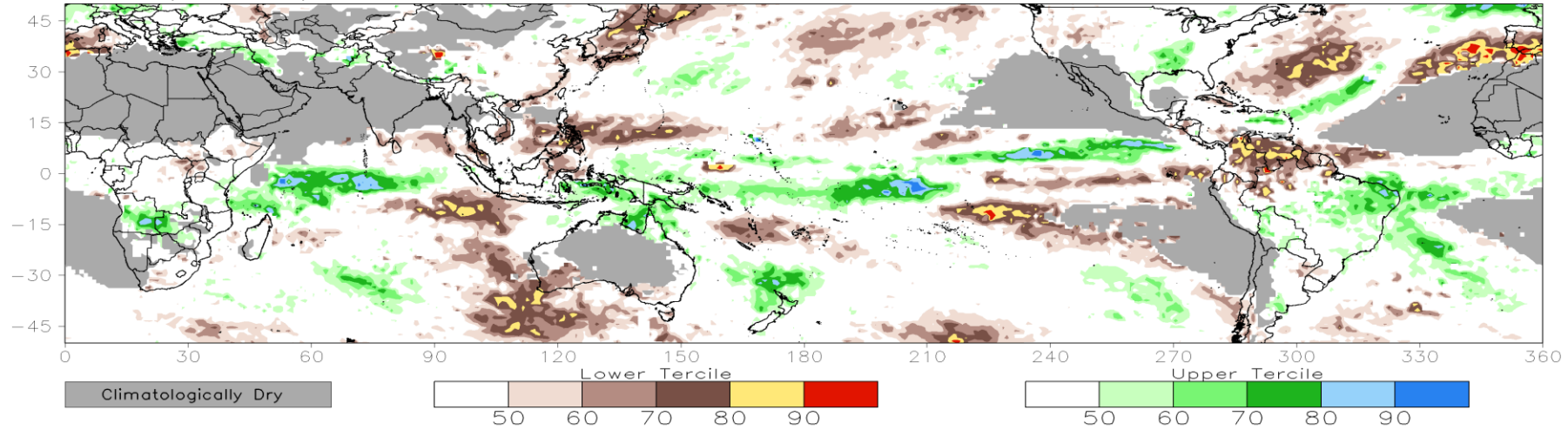
200-hPa Velocity Potential Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

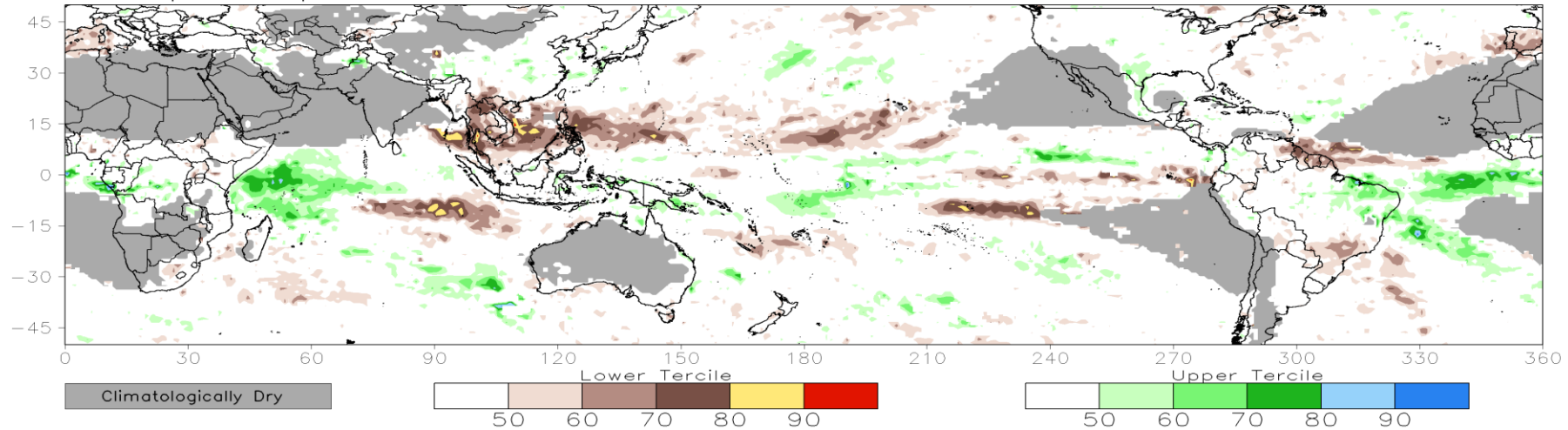
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 10Apr2024–16Apr2024



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

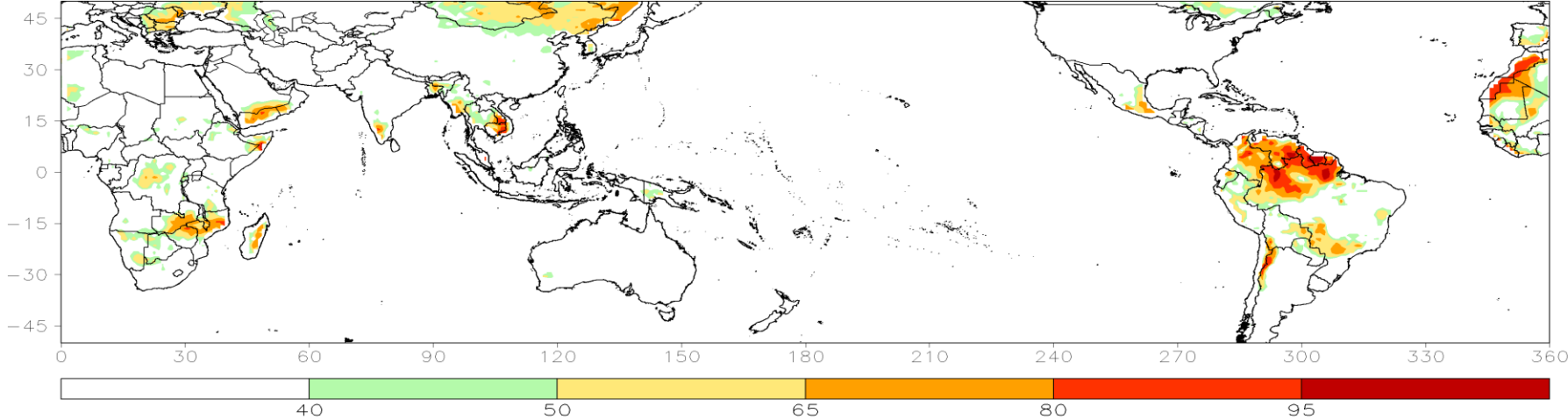
Valid: 17Apr2024–23Apr2024



Consolidated Probabilistic Temperatures: Week-2

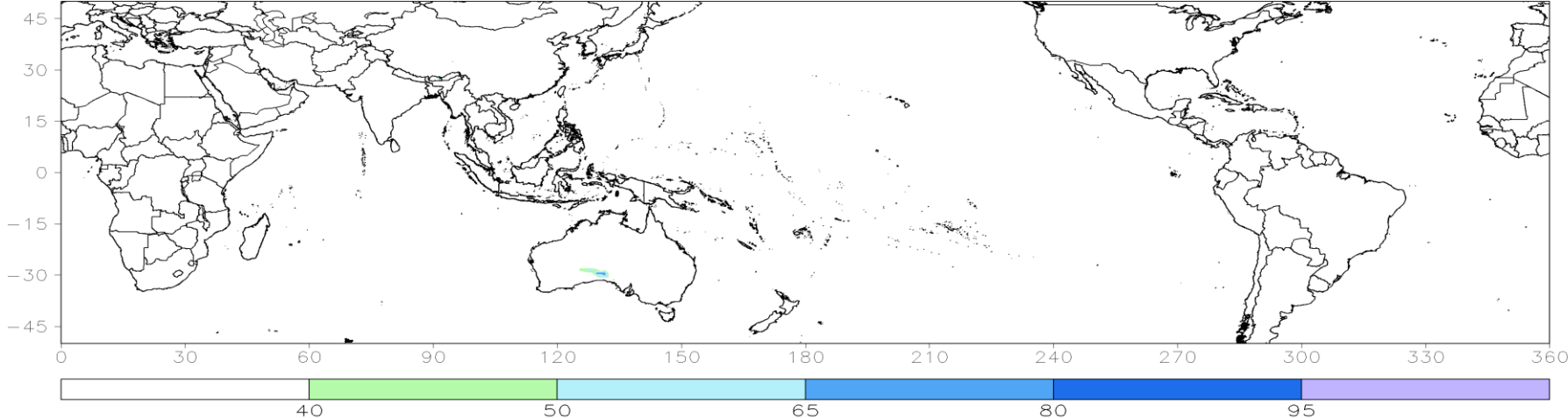
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 10Apr2024-16Apr2024



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

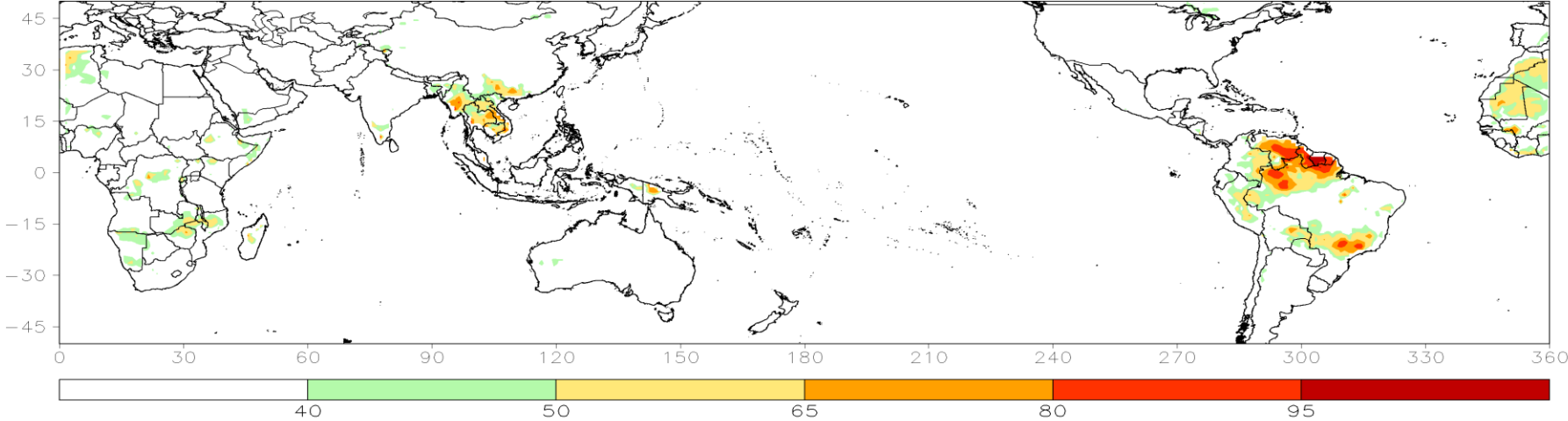
Valid: 10Apr2024-16Apr2024



Consolidated Probabilistic Temperatures: Week-3

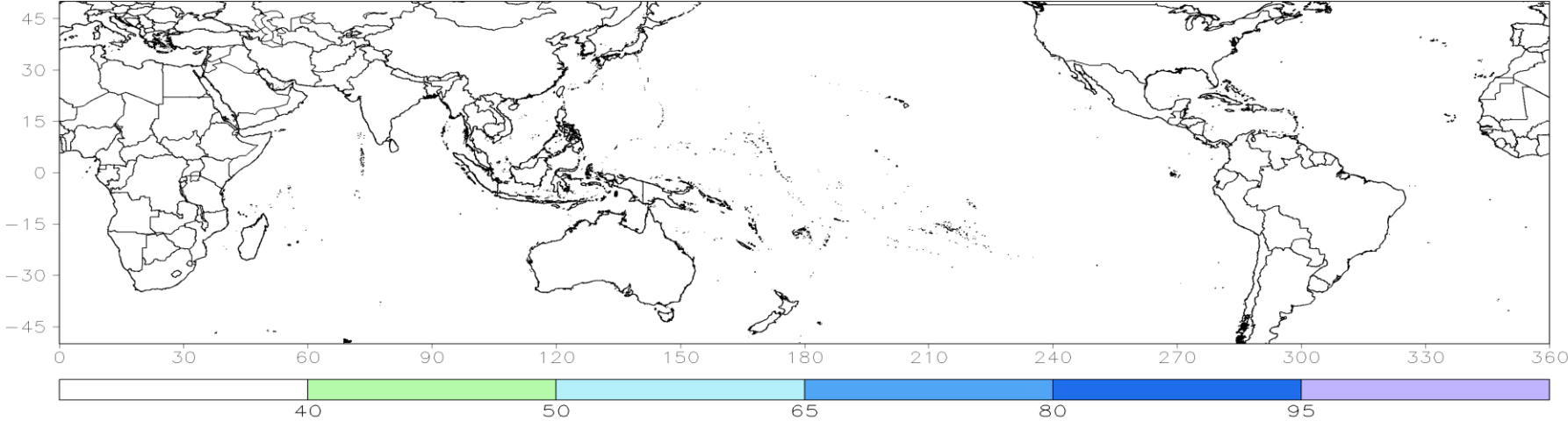
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 17Apr2024-23Apr2024



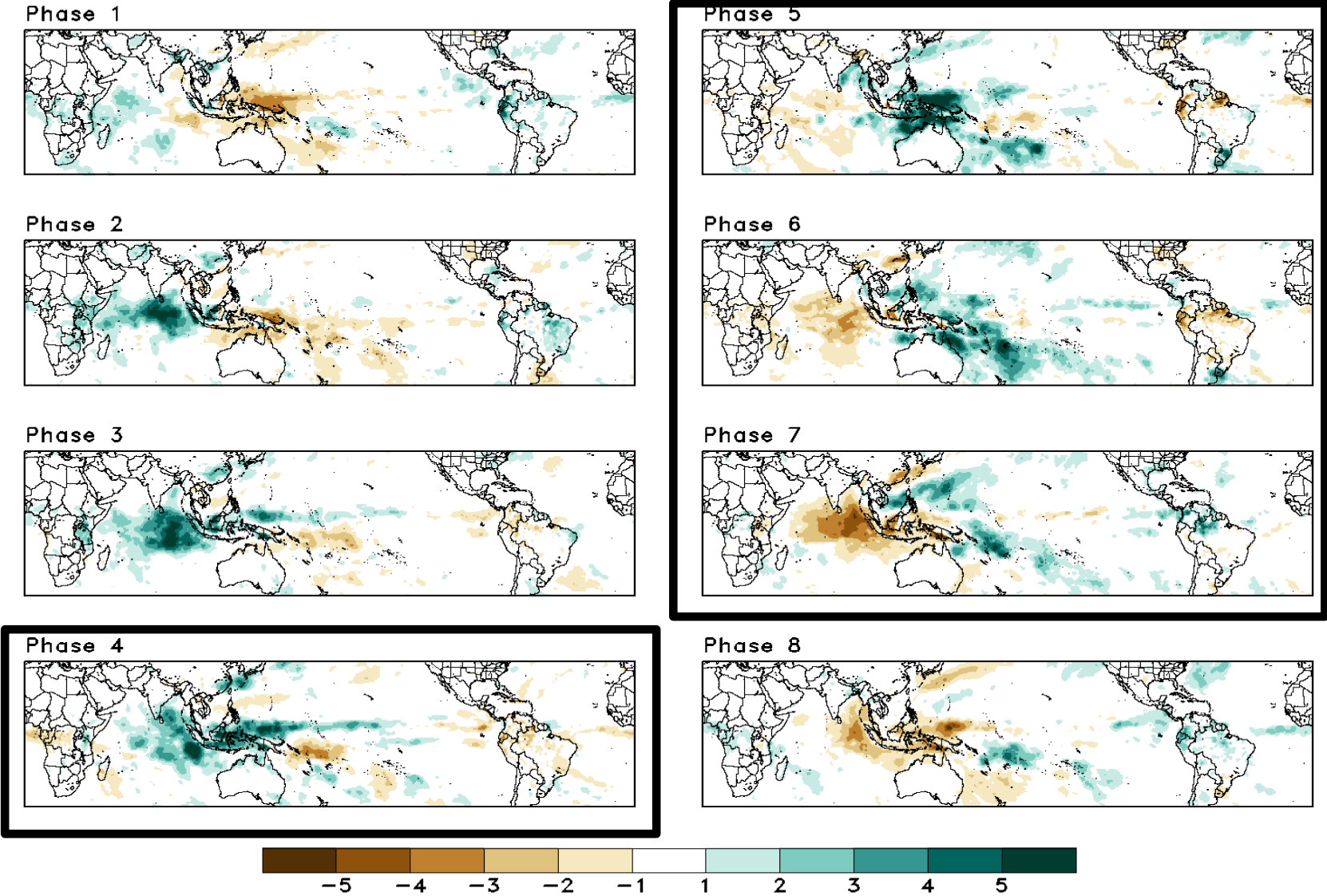
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmin Below Lower Tercile (%)

Valid: 17Apr2024-23Apr2024



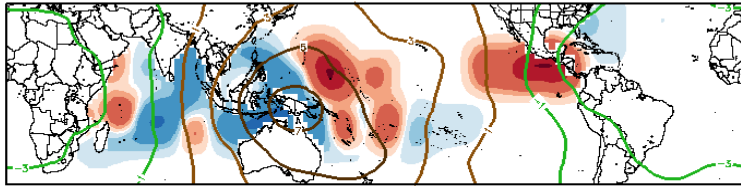
Historical Precipitation Anomalies By MJO Phase:

MAM MJO Composite: GPCP1DD (mm/day)

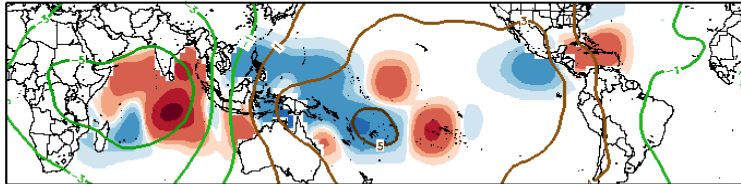


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

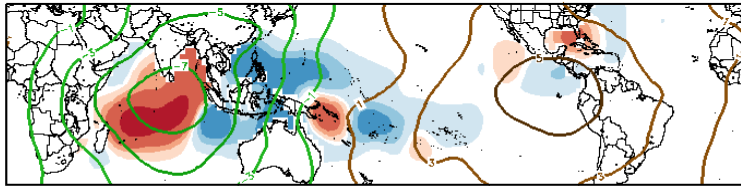
MAM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ MAM CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



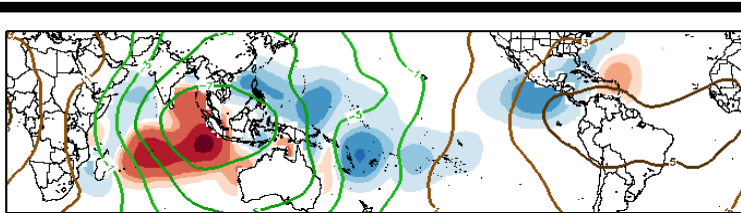
Phase 1



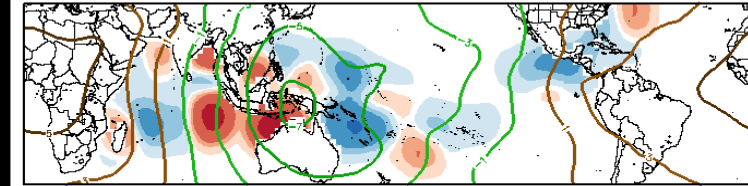
Phase 2



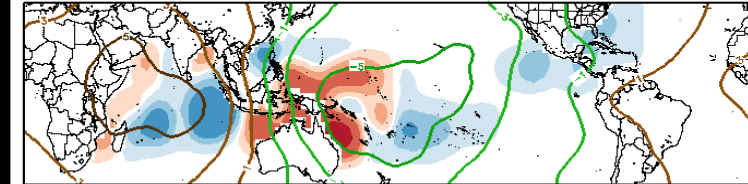
Phase 3



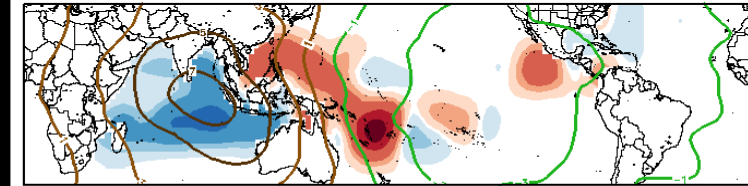
Phase 4



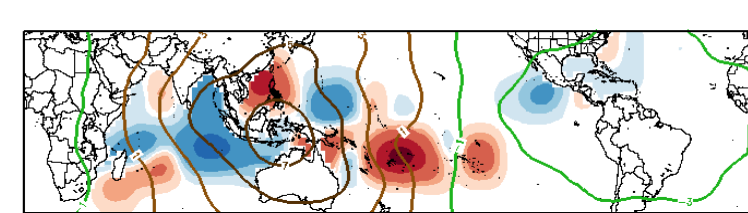
Phase 5



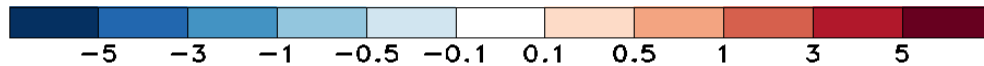
Phase 6



Phase 7

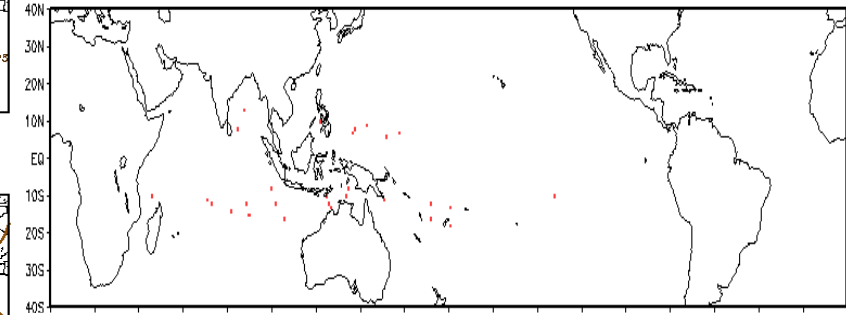


Phase 8



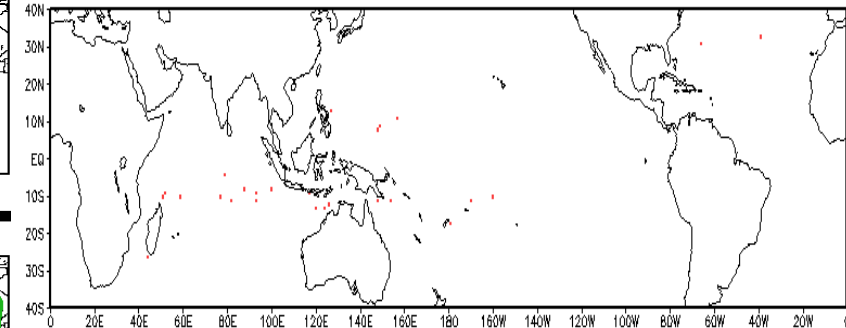
Observed TC Genesis, 1979-2021

7-day Period 0410 to 0416



Observed TC Genesis, 1979-2021

7-day Period 0417 to 0423

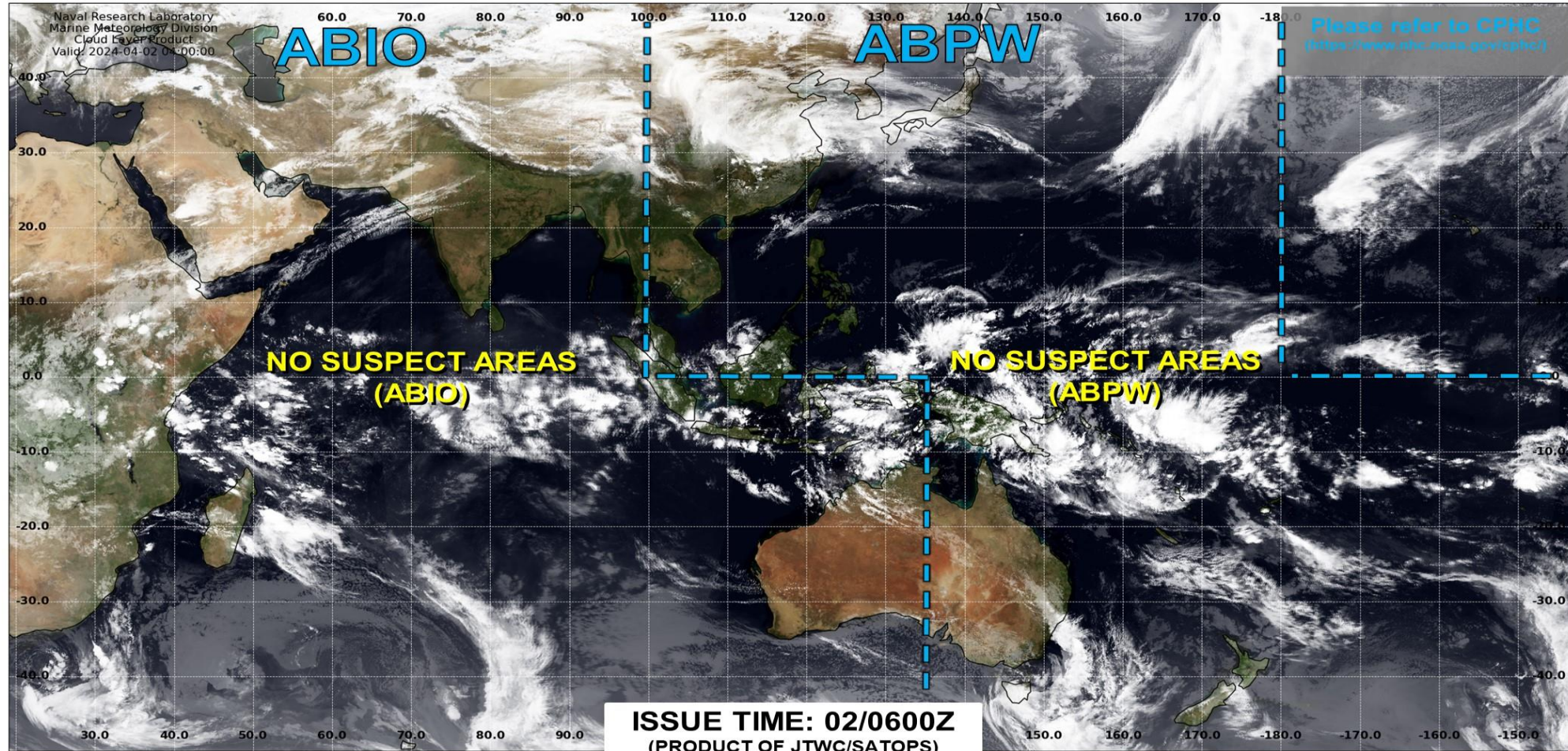


Experimental

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)



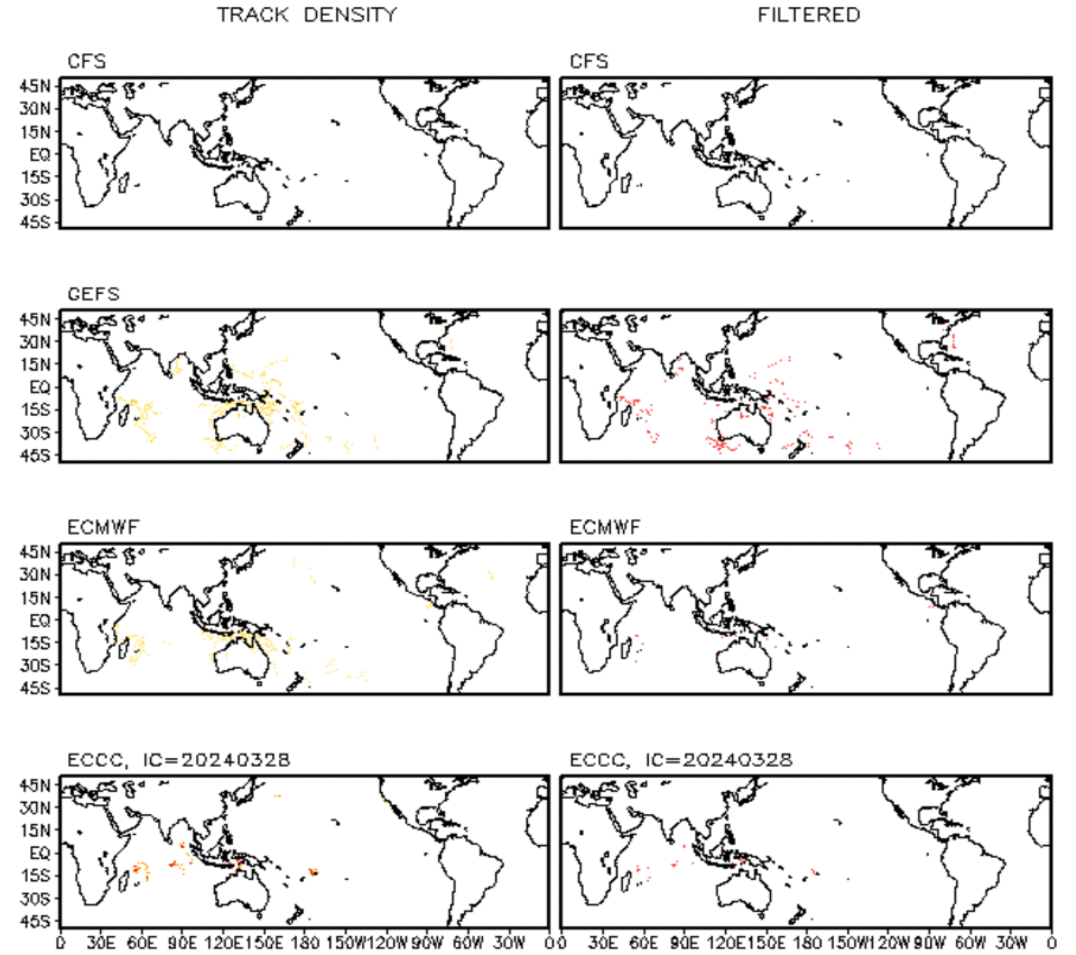
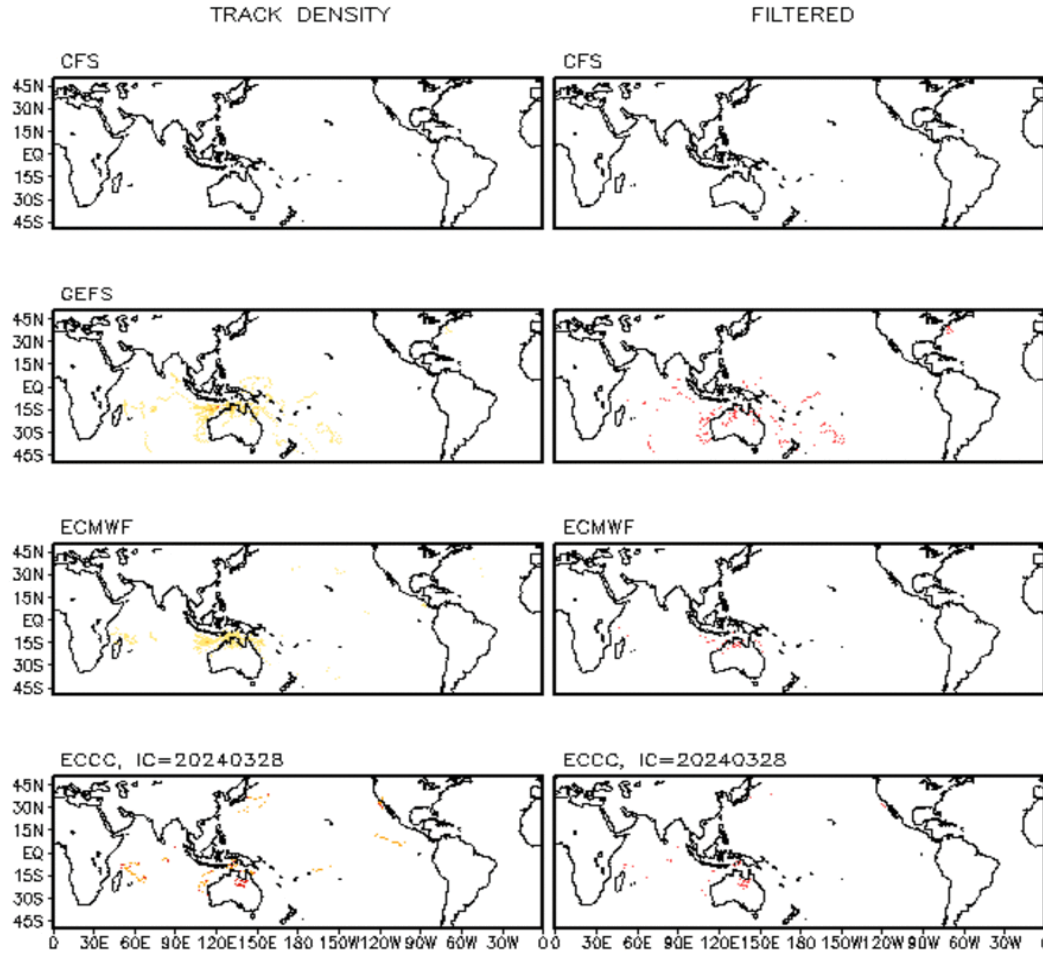
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

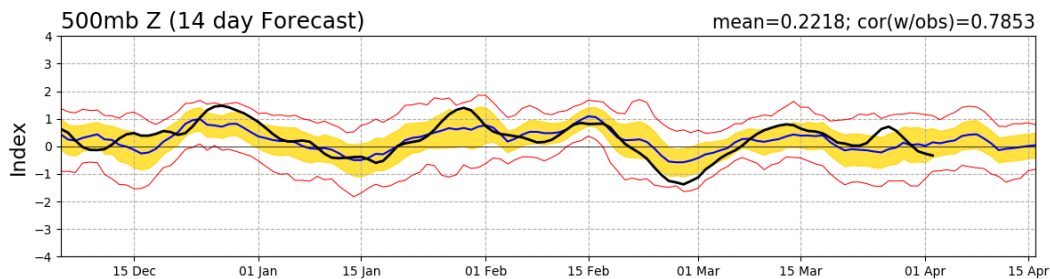
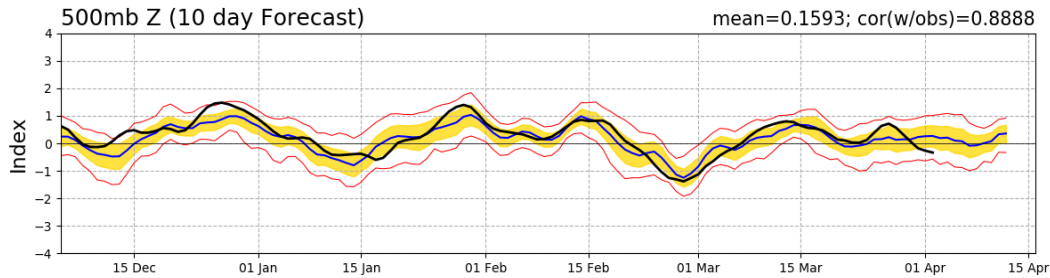
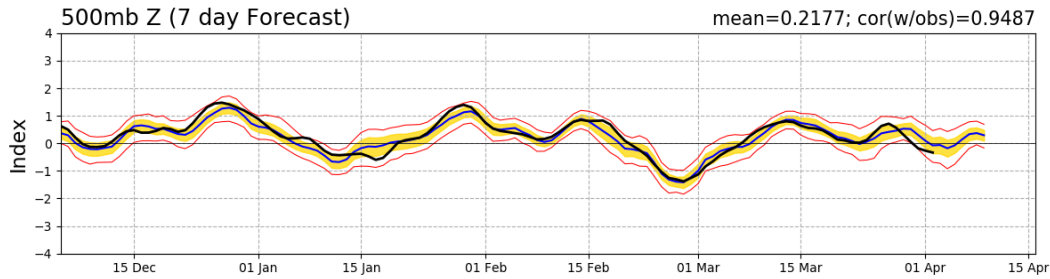
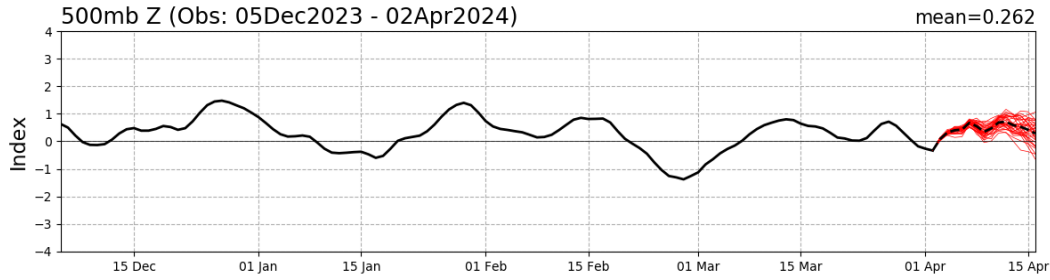
Storm Track Density Distribution, IC=20240401
Week 2 Forecast: 0410-0416

Storm Track Density Distribution, IC=20240401
Week 3 Forecast: 0417-0423

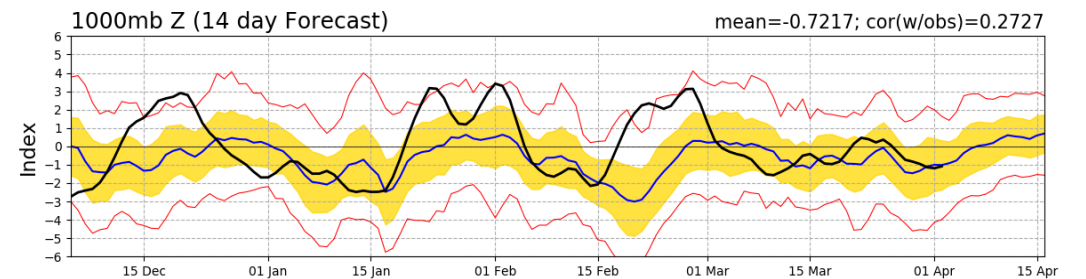
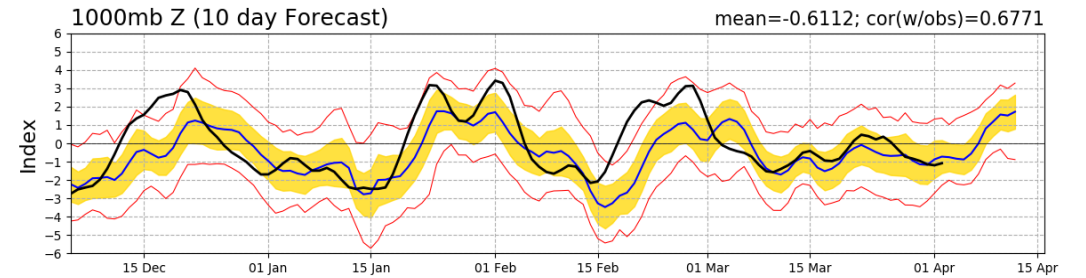
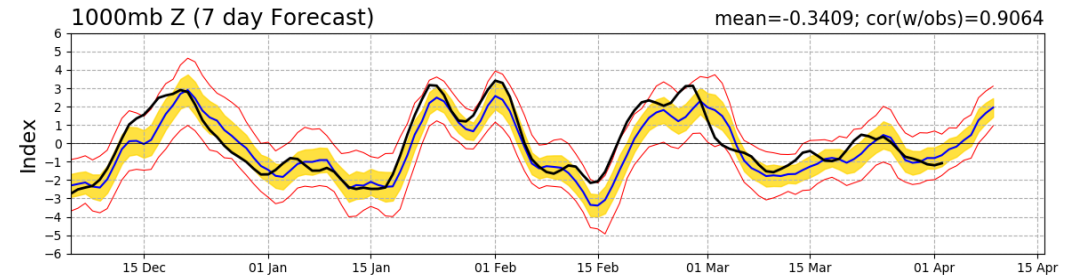
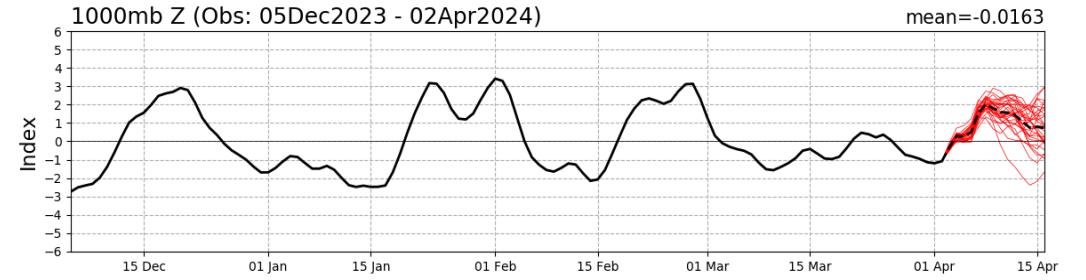


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



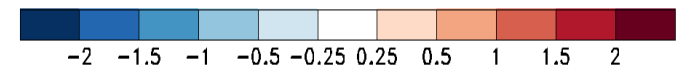
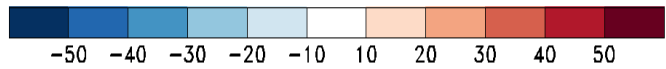
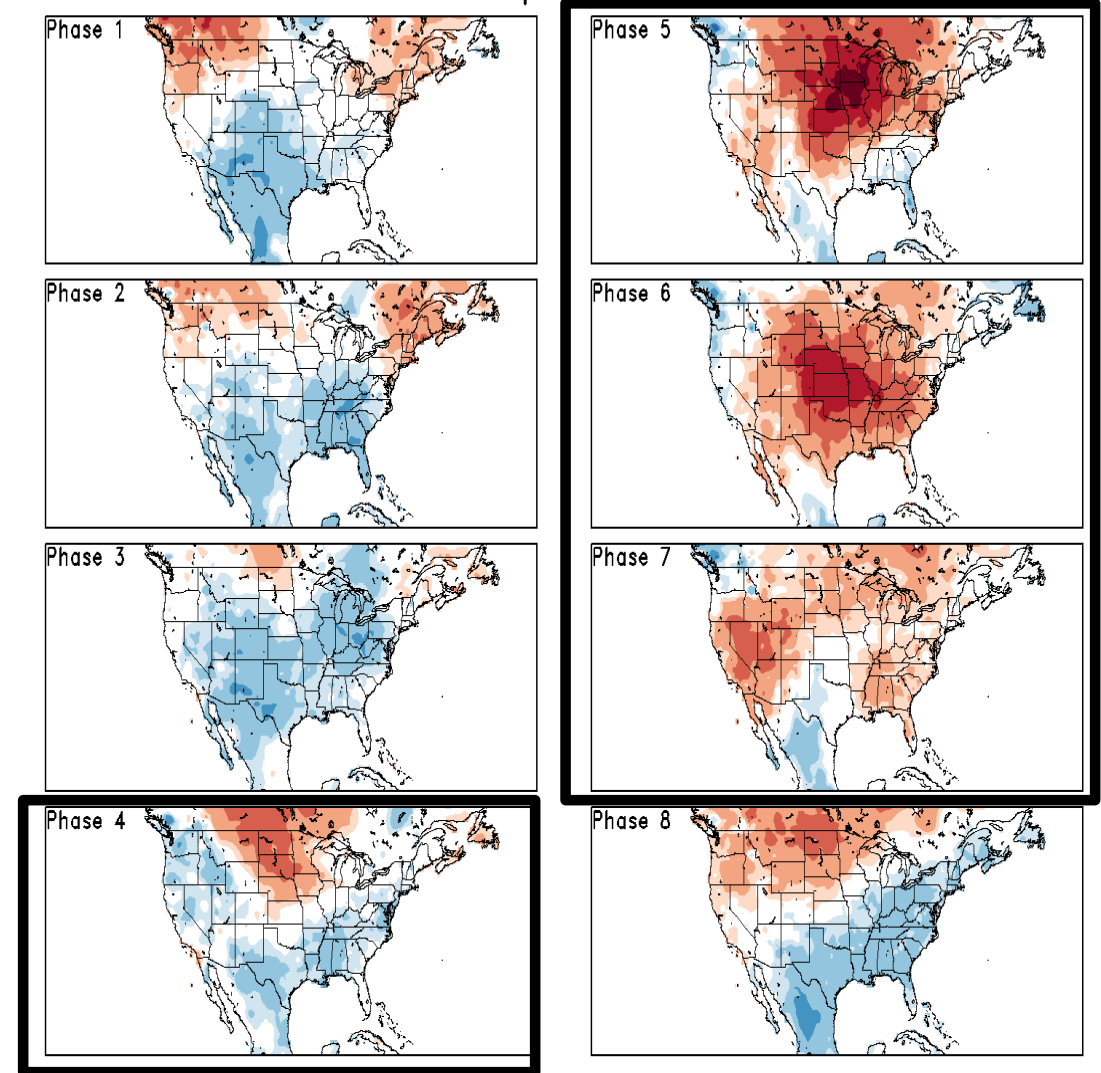
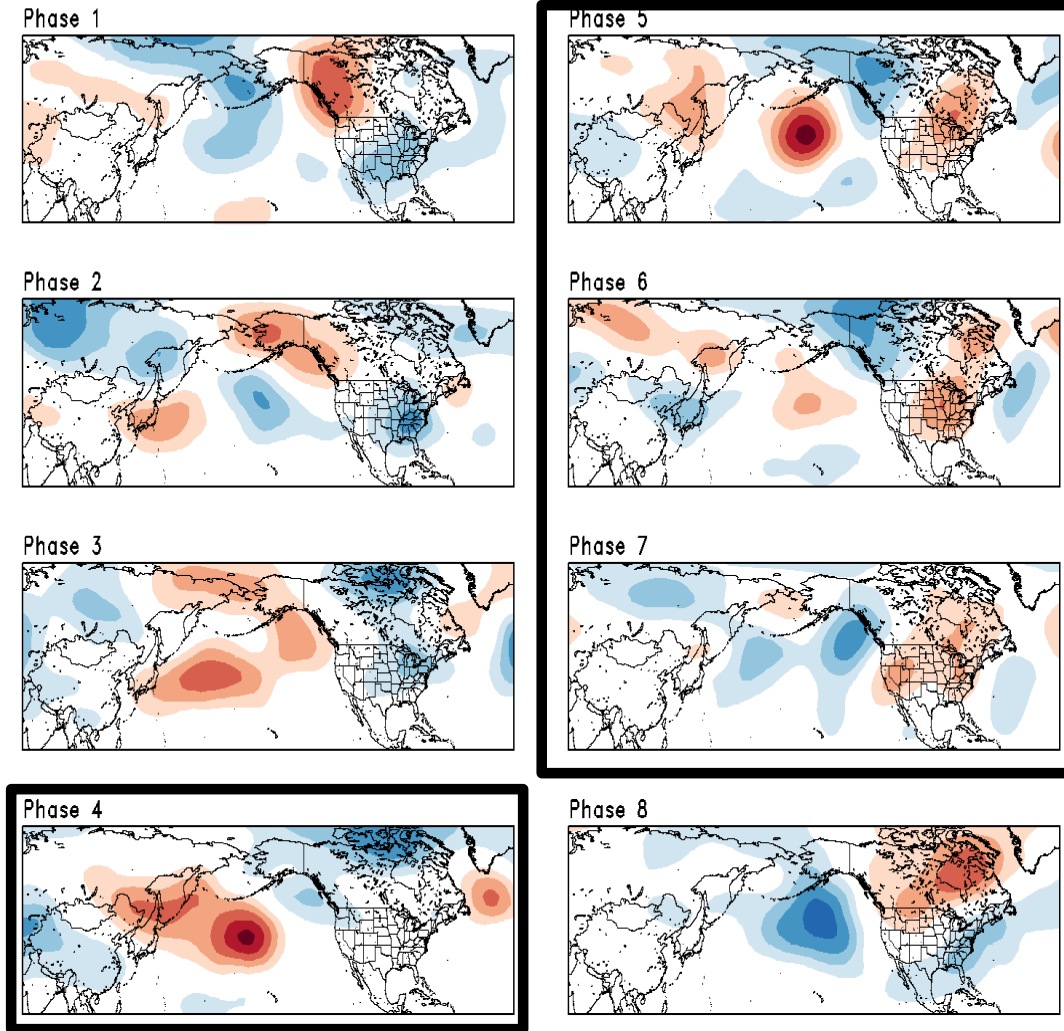
AO Index: Observed & GEFS Forecasts



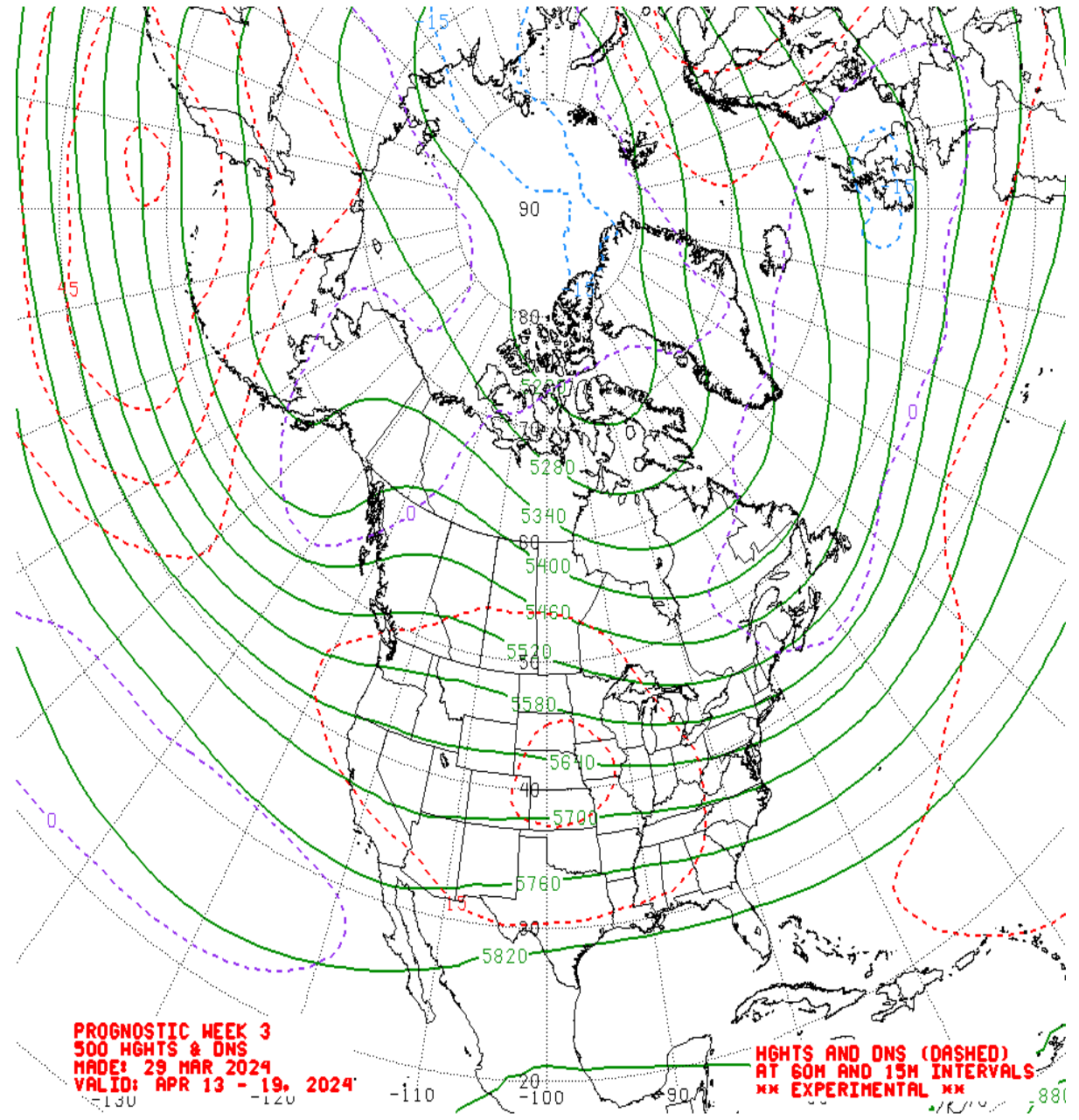
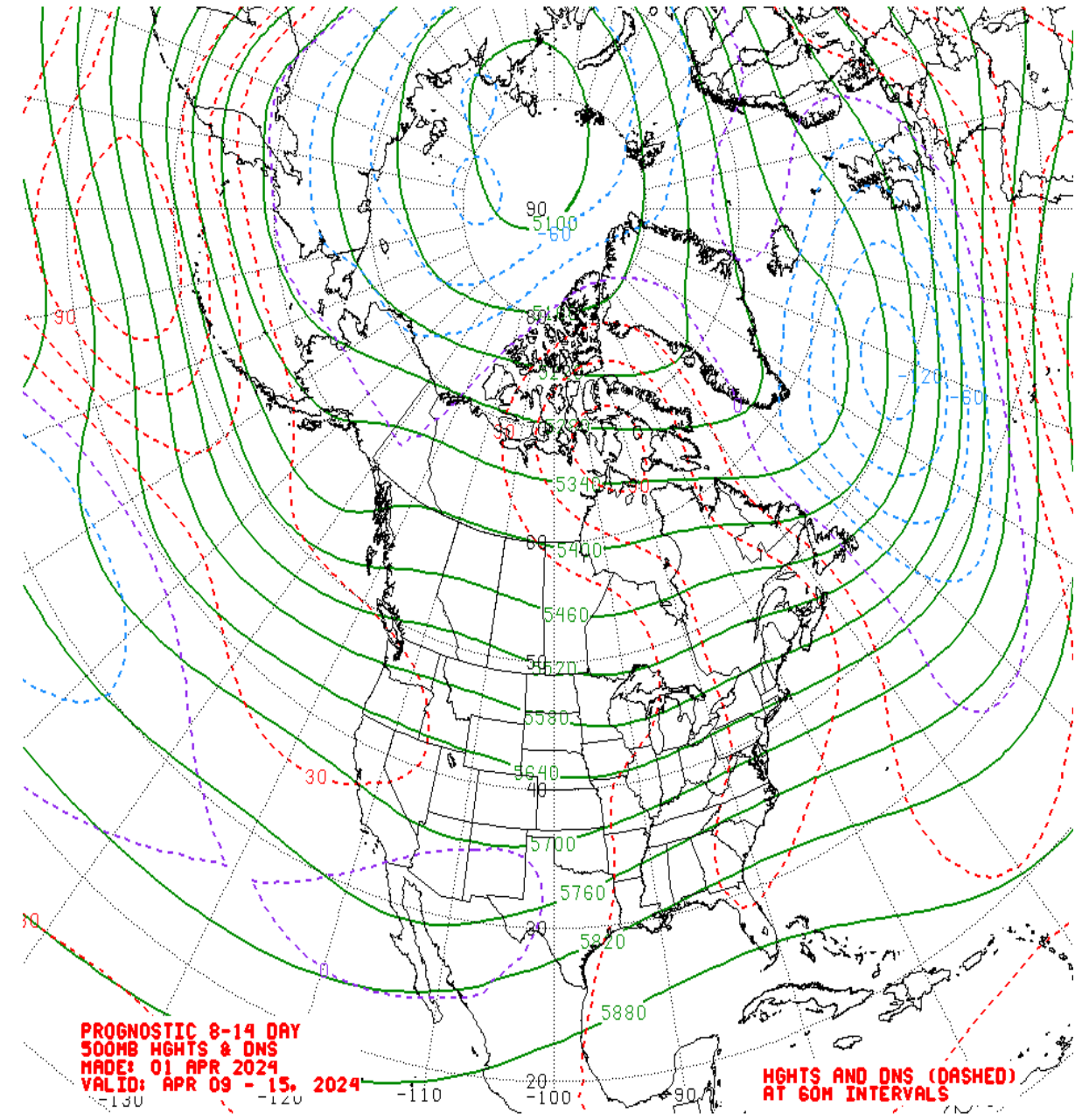
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

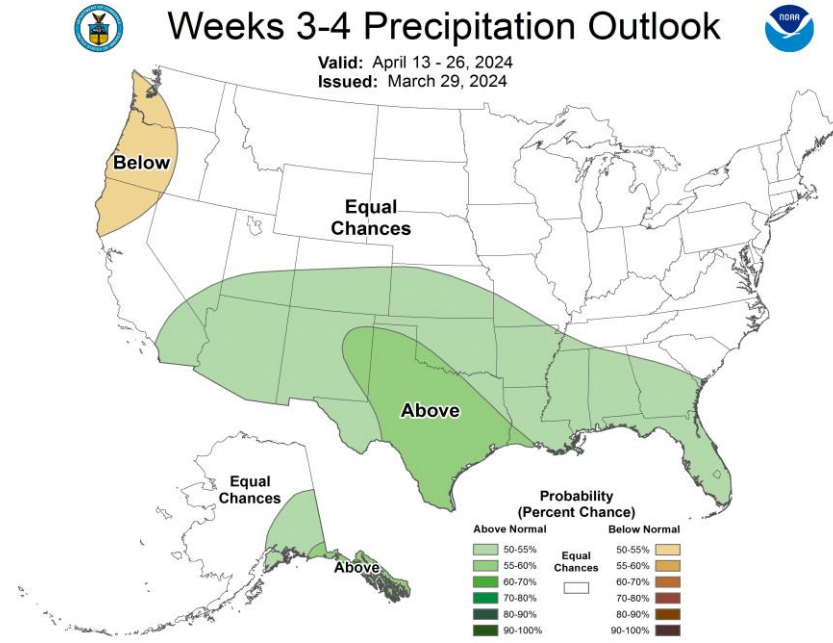
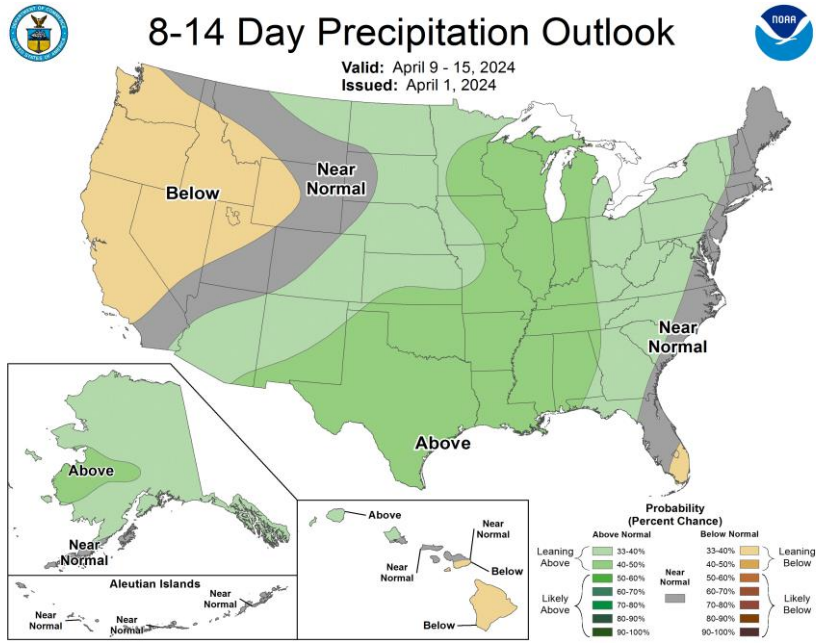
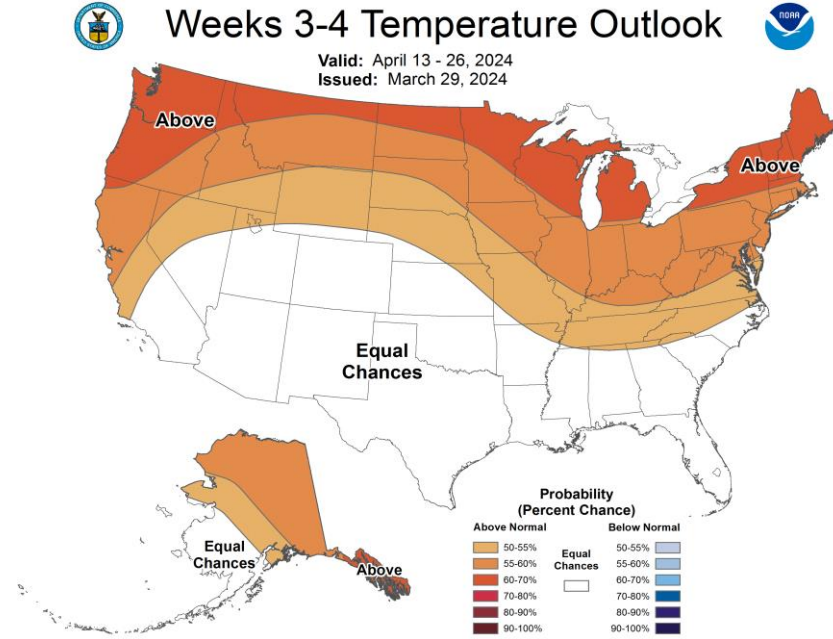
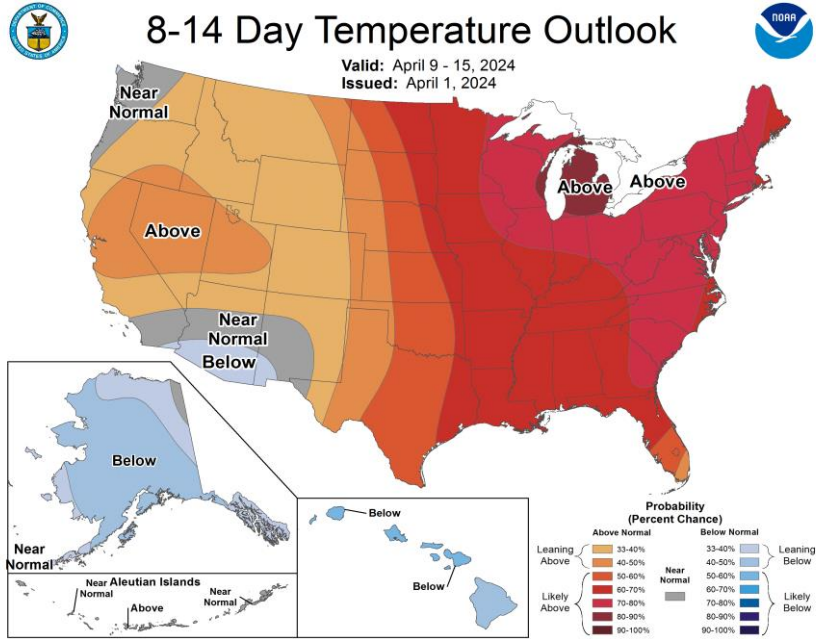
MAM MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



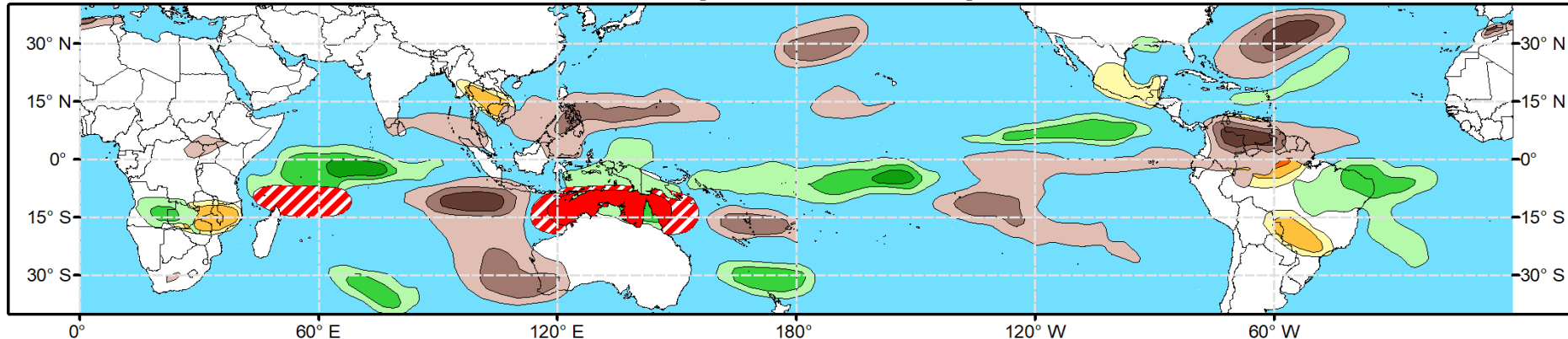


Global Tropics Hazards Outlook

Climate Prediction Center

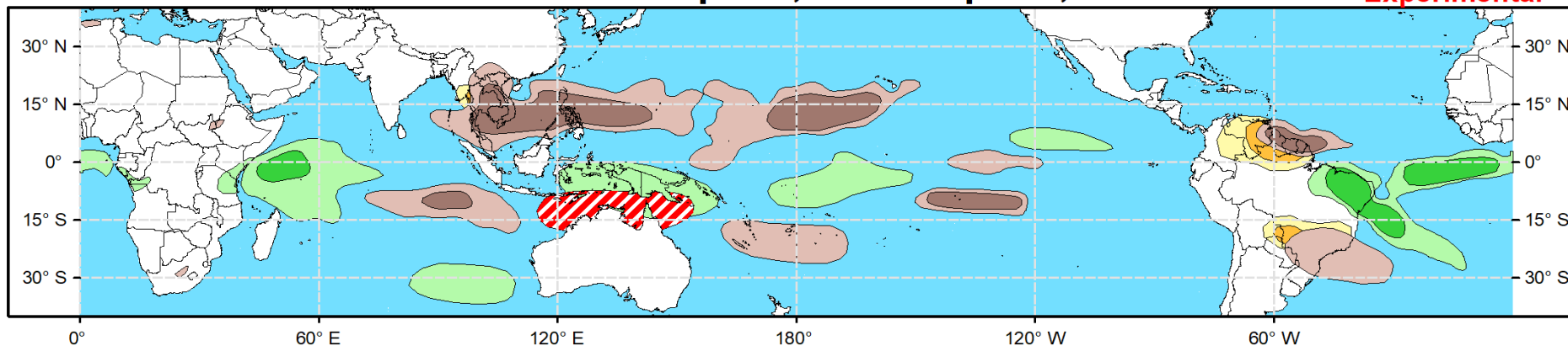


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