



Weeks 2-3 Global Tropics Hazards Outlook

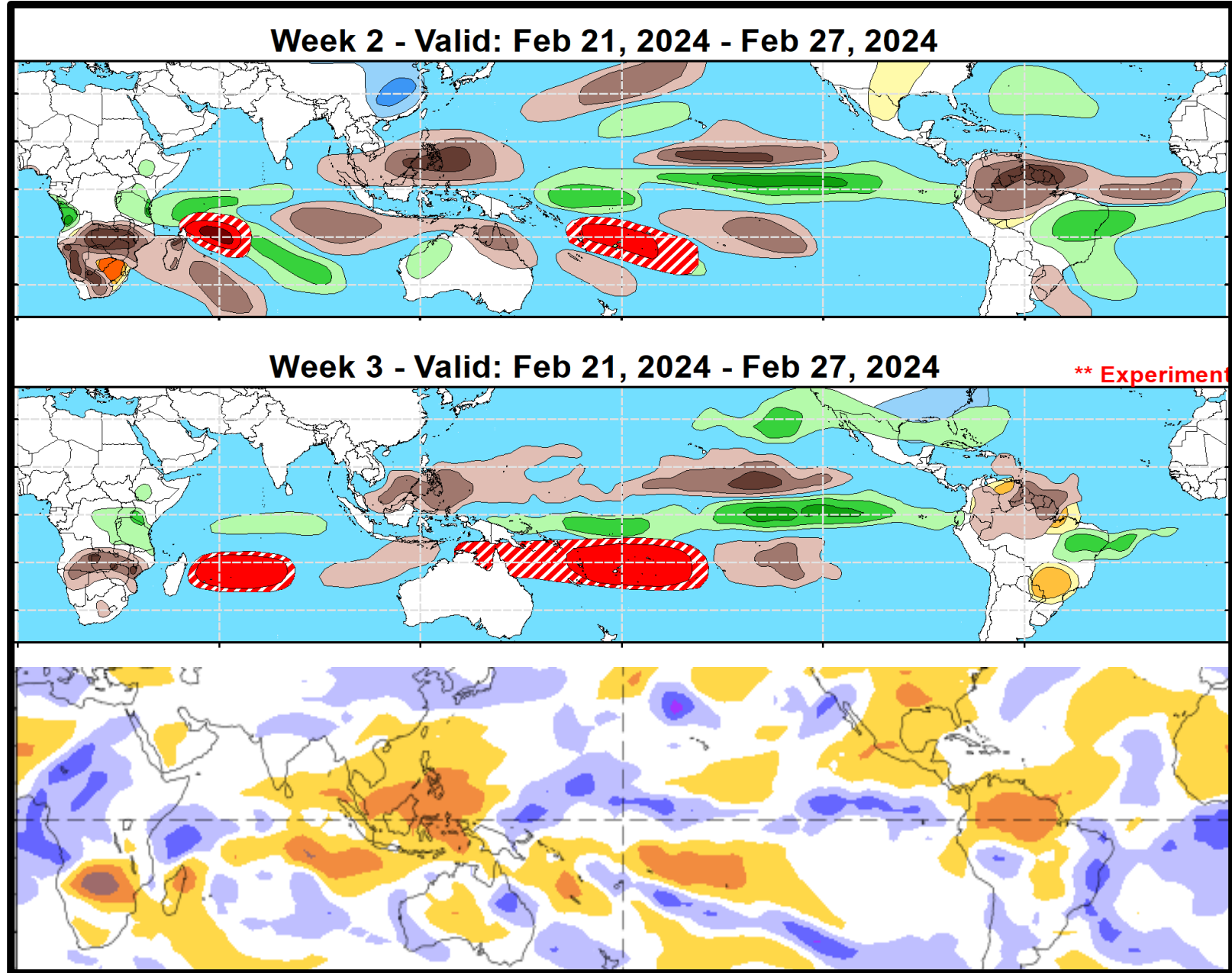
2/27/2024

Thomas Collow

NWS / NCEP / Climate Prediction Center

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

No new tropical cyclones developed during the past week.



Synopsis of Climate Modes:

ENSO: (Feb 8, 2024 Update) *next update on Thursday, Mar 14th*

- ENSO Alert System Status: [El Niño Advisory](#) / [La Niña Watch](#)
- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (79% chance), with increasing odds of La Niña developing in June-August 2024 (55% chance).

MJO and other subseasonal tropical variability:

- RMM-based observations depict the MJO weakening into the unit circle during the past week.
- However, removal of the 120-day running mean may be skewing the RMM-based plots to the right, and the observed upper-level velocity potential anomaly fields are more indicative of an active MJO across Africa and crossing into the western Indian Ocean.
- There is good agreement in the dynamical model guidance that the MJO will quickly propagate through the Indian Ocean and into the Maritime Continent during the next 2 weeks, with some uncertainty in its amplitude due to the aforementioned bias in the RMM-based forecasts.

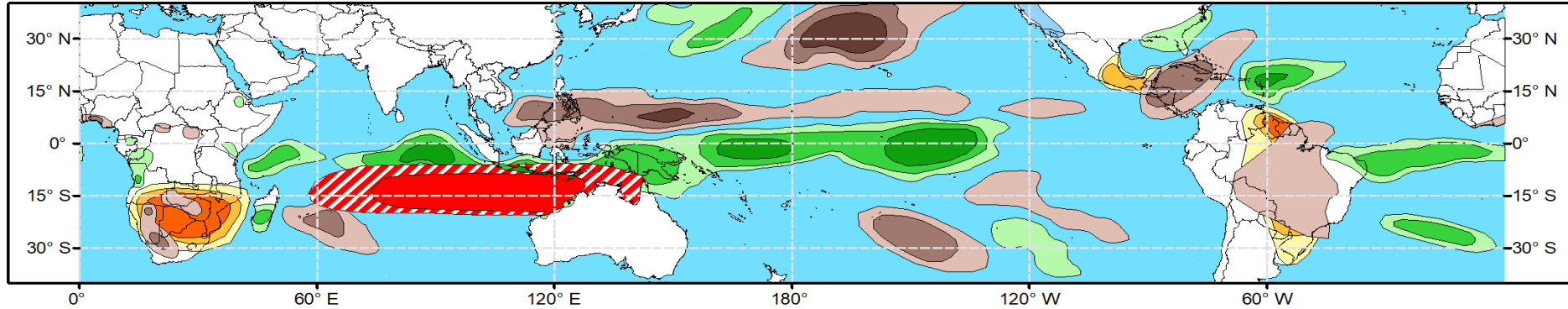
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

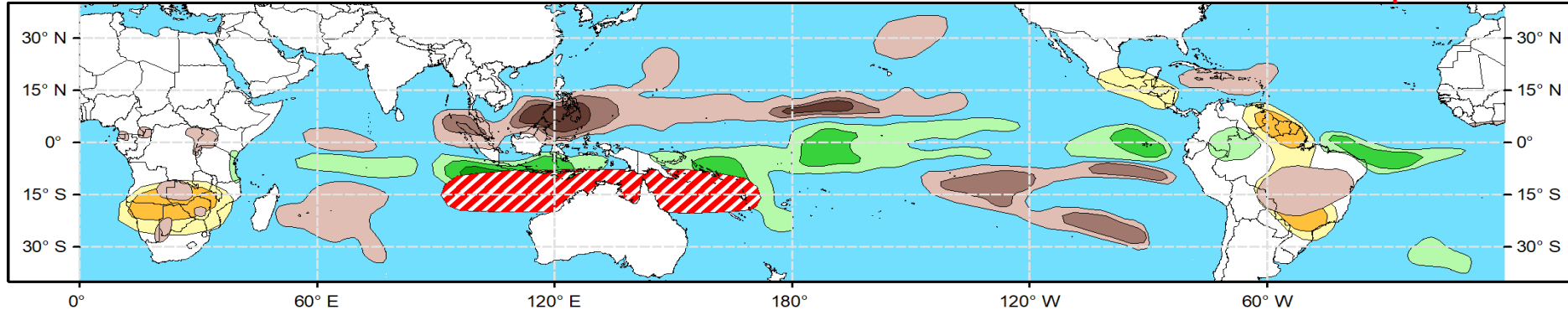


Week 2 - Valid: Mar 06, 2024 - Mar 12, 2024



Week 3 - Valid: Mar 13, 2024 - Mar 19, 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**



>50% >65% >80%

7-day max temperatures in the
Upper third of the historical range

**Below-Average
Temperatures Probability**



>50% >65% >80%

7-day min temperatures in the
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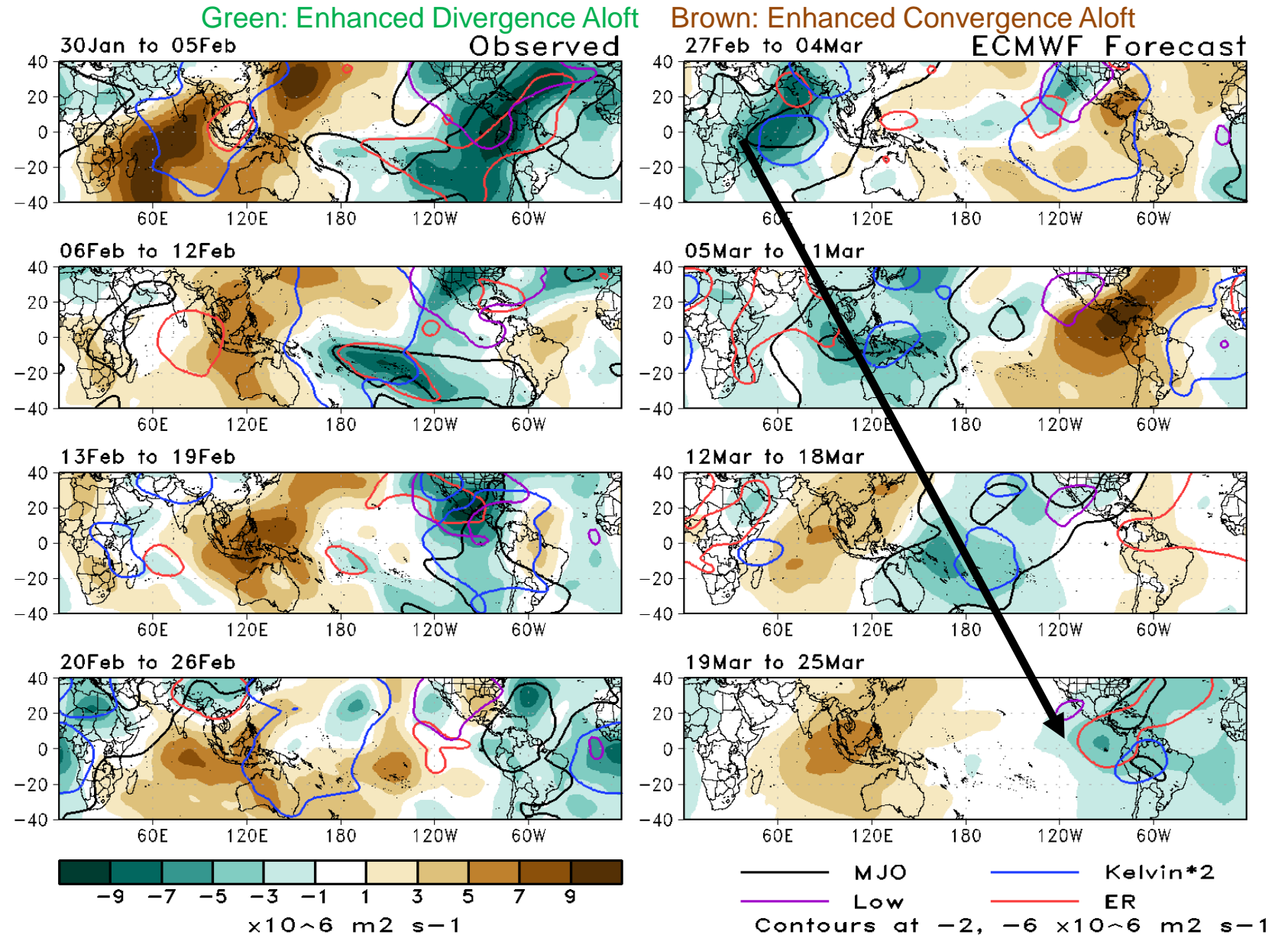
Issued: 02/27/2024

Forecaster: Collow

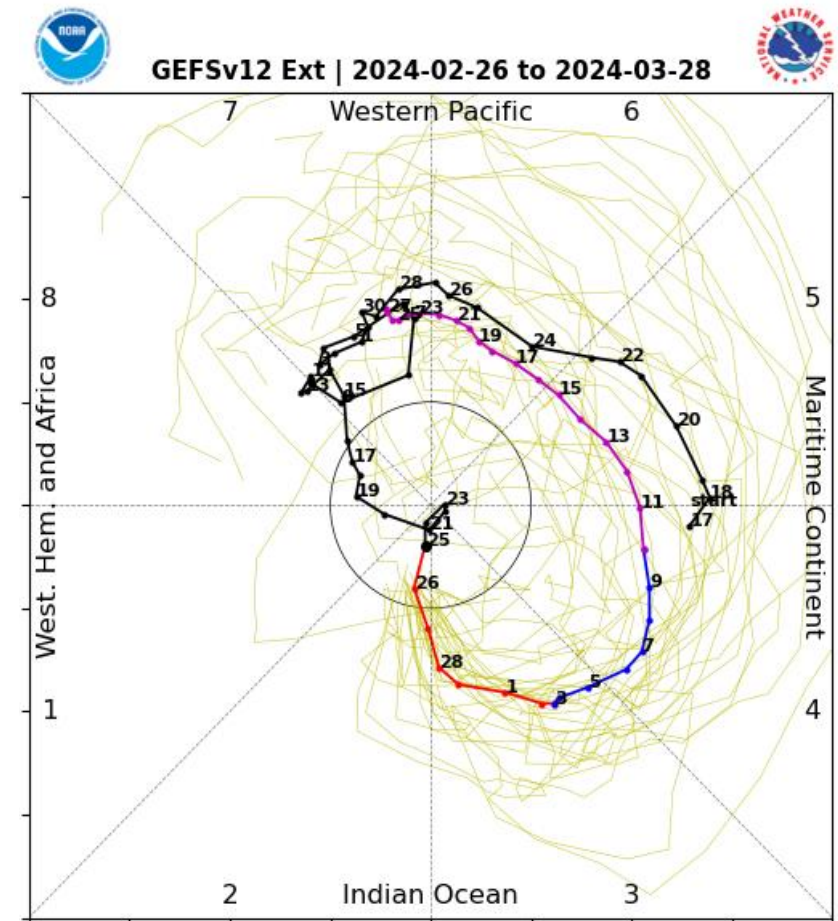
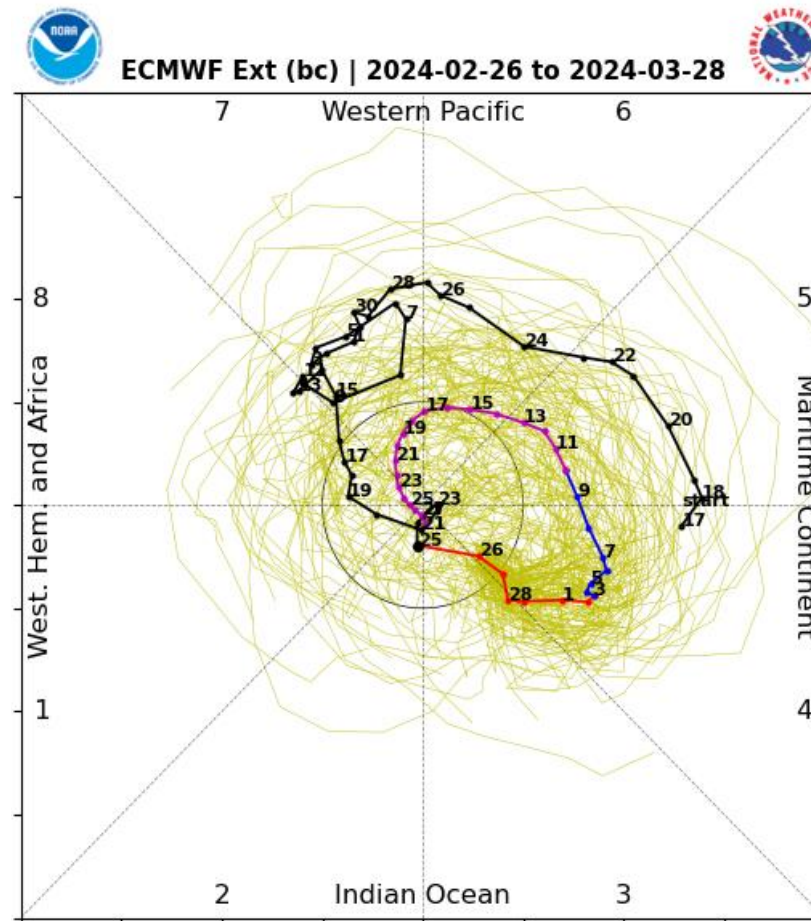
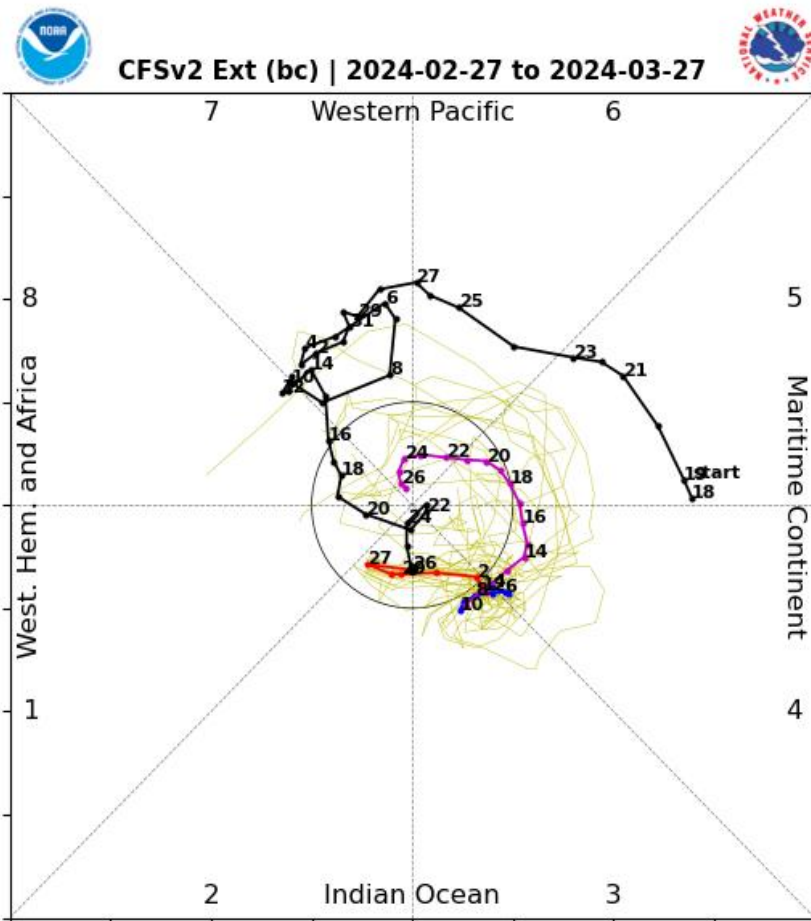
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200-hPa Velocity Potential Anomaly Maps:

- Global upper-level velocity potential pattern has become more incoherent compared to earlier in February.
- Enhanced divergence aloft is noted across the Atlantic and Africa during the past week consistent with the MJO location.
- The ECMWF ensemble depicts a fast eastward propagation of the convective envelope across the Indian and Pacific Oceans through the next several weeks.

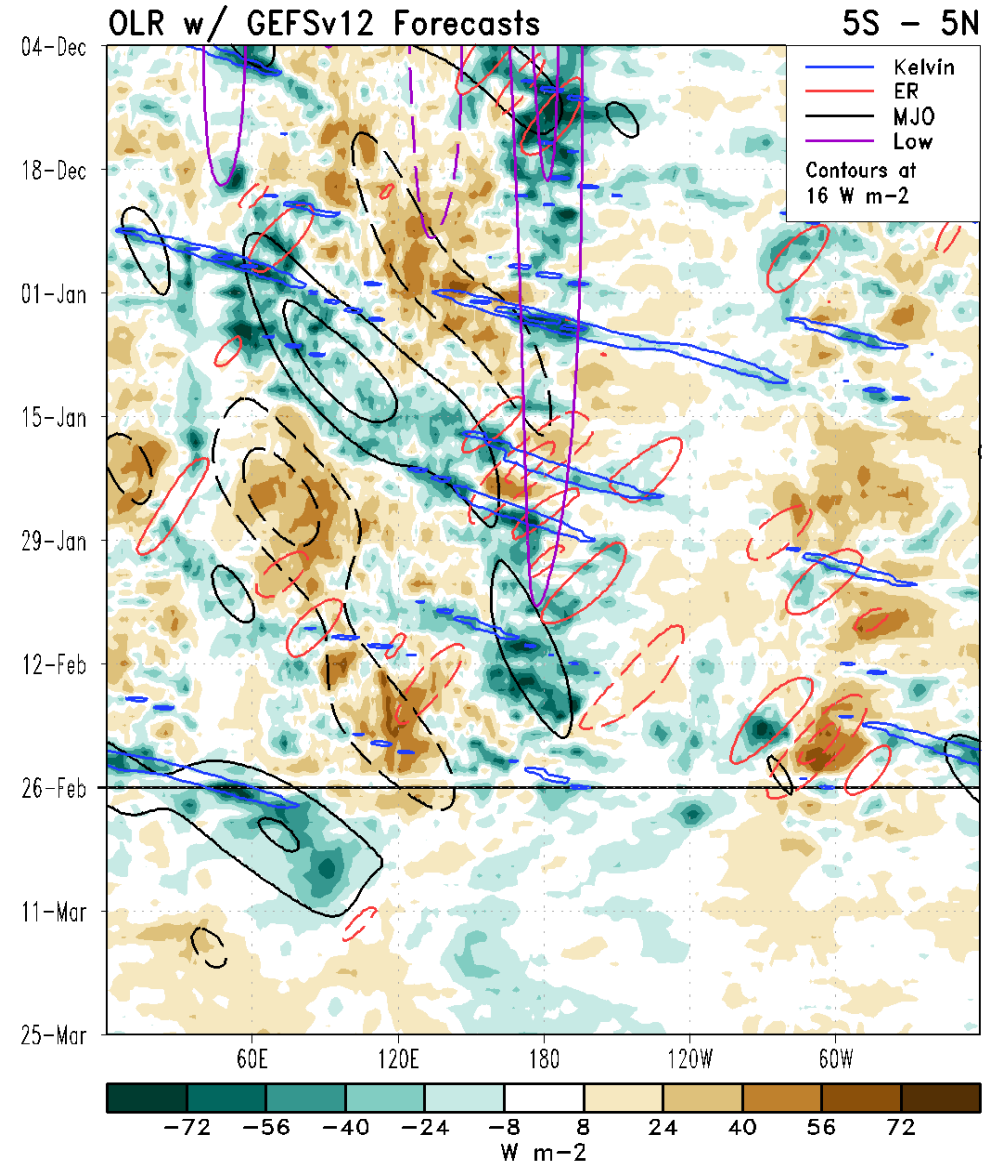
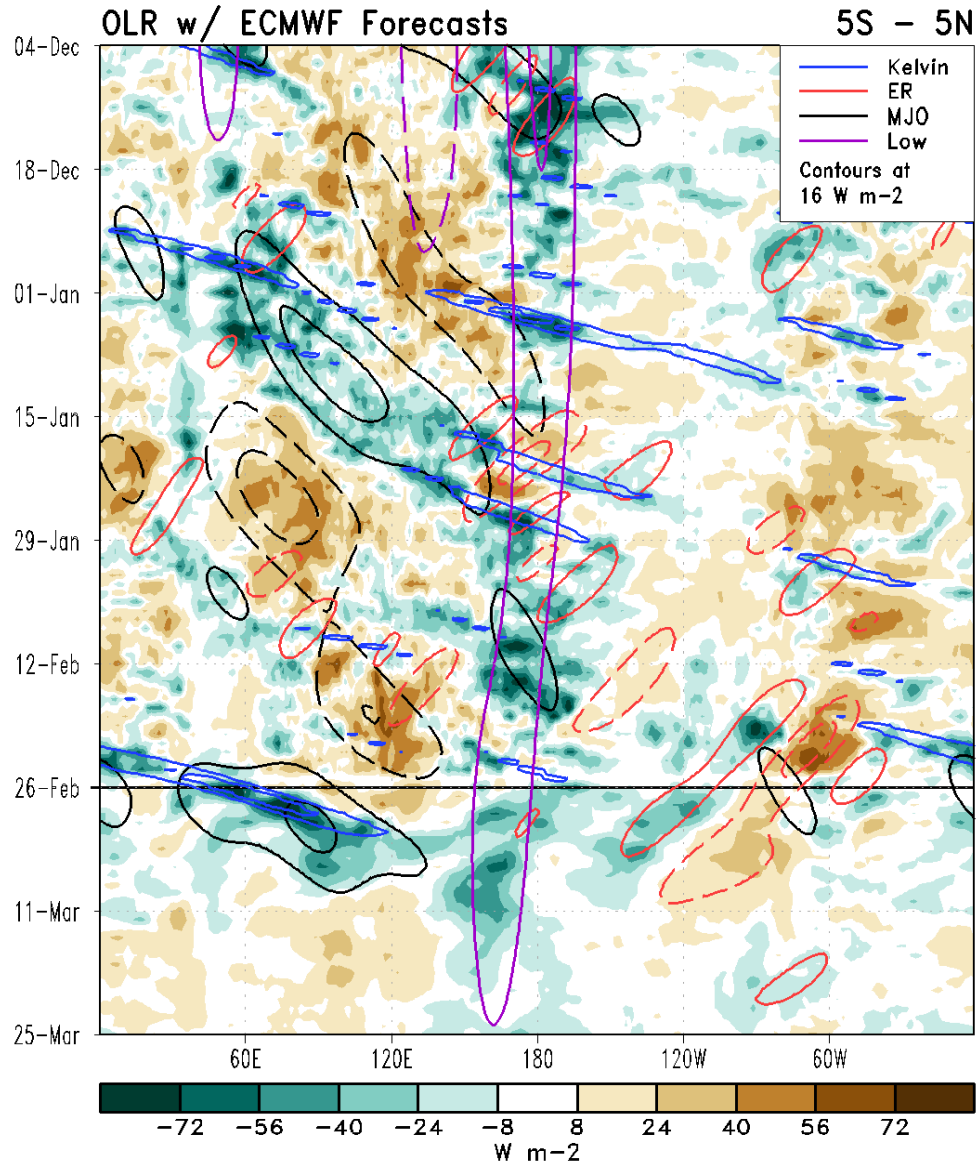


RMM Index Observations & Forecasts:



- The CFSv2, GEFS, and ECMWF RMM-based forecasts indicate a quick eastward propagation of the MJO, with a full circumnavigation of the globe possible by the end of March.
- A removal of the 120-day running mean in RMM computation may be resulting in a rightward shift in the RMM-based forecasts, suggesting that the current forecast may be over-amplifying the MJO signal.

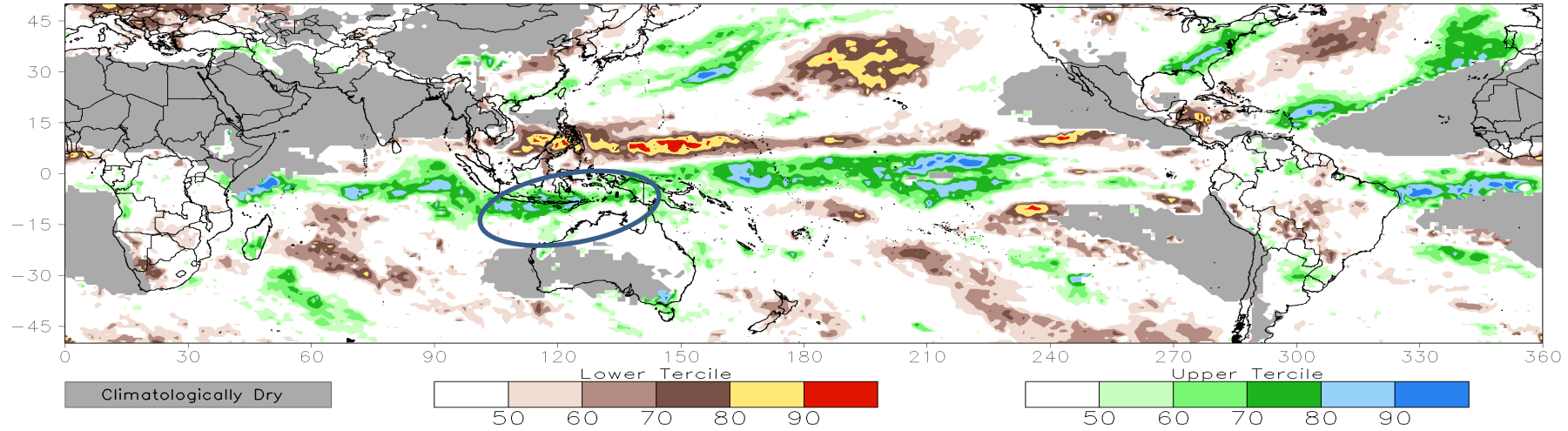
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

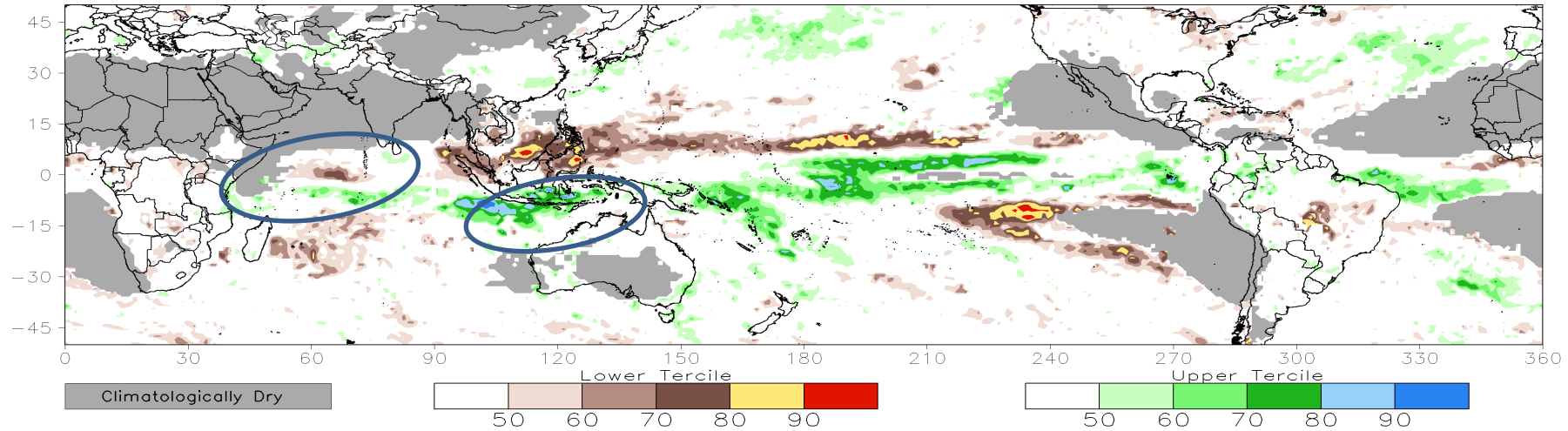
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 06Mar2024–12Mar2024



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

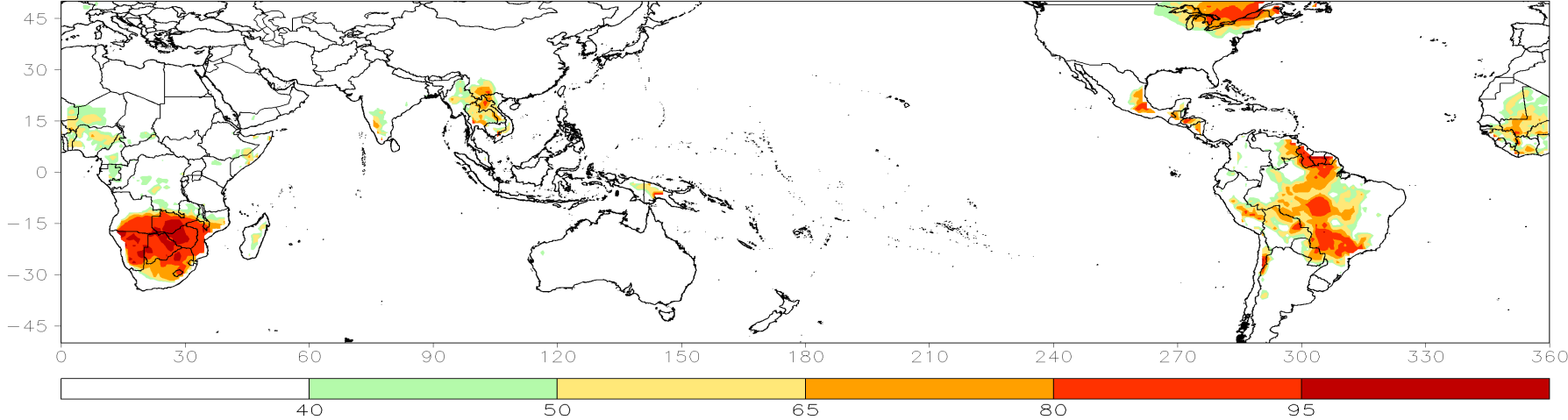
Valid: 13Mar2024–19Mar2024



Consolidated Probabilistic Temperatures: Week-2

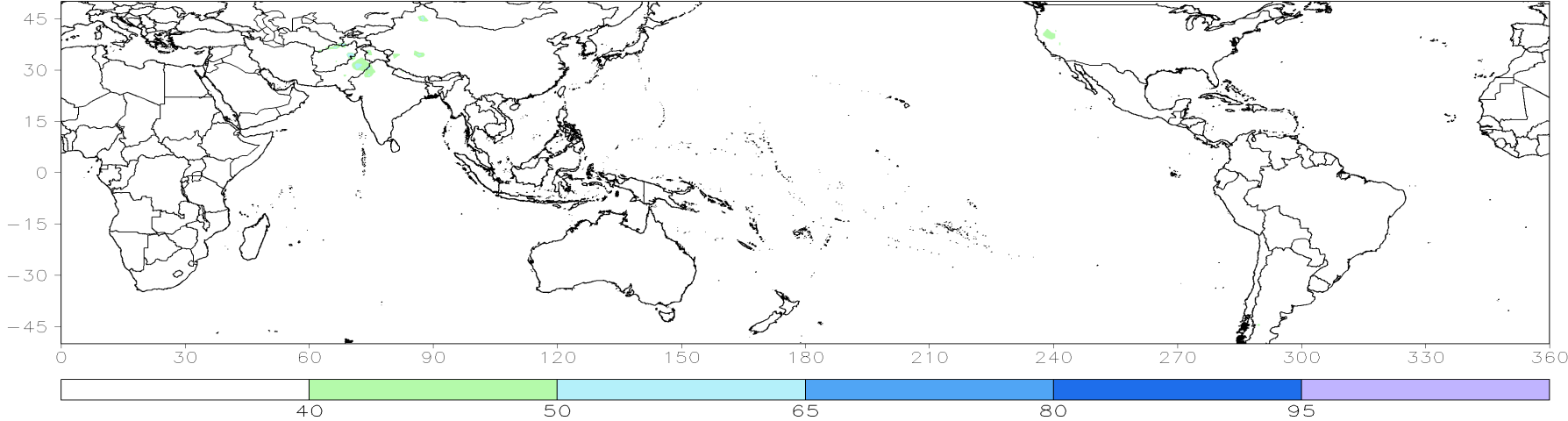
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 06Mar2024-12Mar2024



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

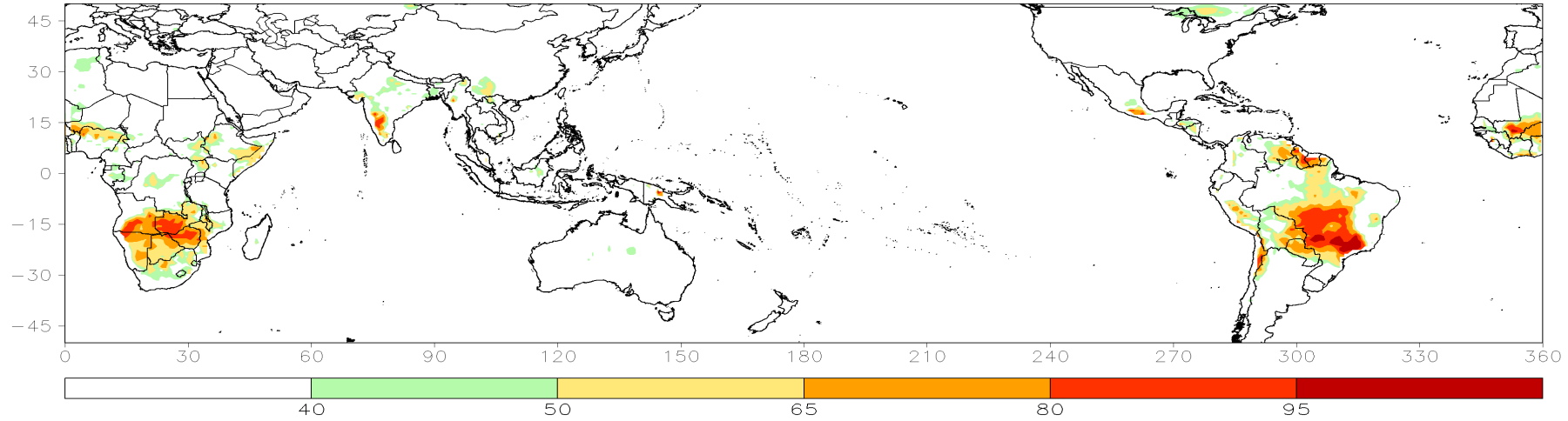
Valid: 06Mar2024-12Mar2024



Consolidated Probabilistic Temperatures: Week-3

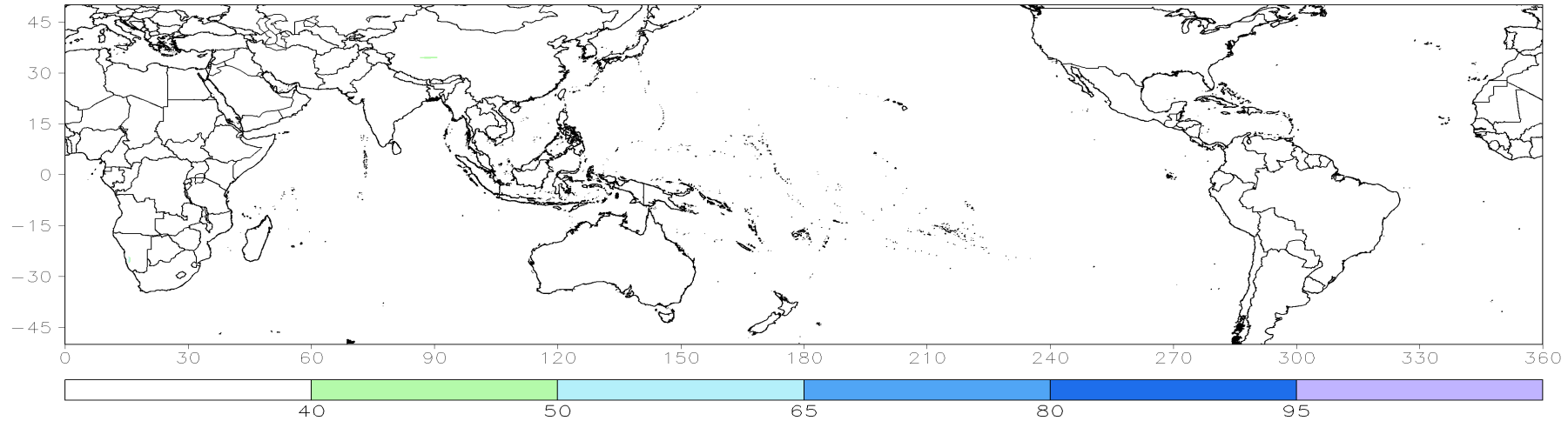
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 13Mar2024–19Mar2024



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

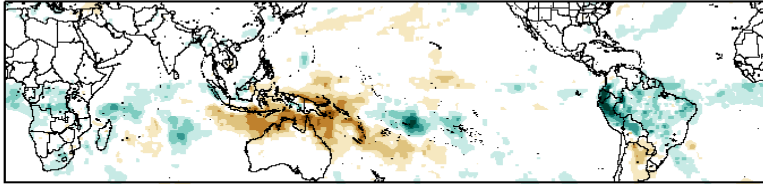
Valid: 13Mar2024–19Mar2024



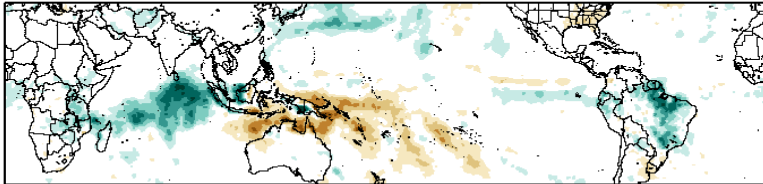
Historical Precipitation Anomalies By MJO Phase:

JFM MJO Composite: GPCP1DD (mm/day)

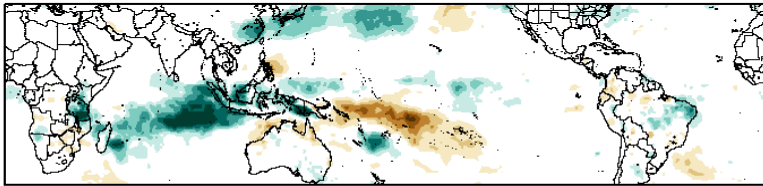
Phase 1



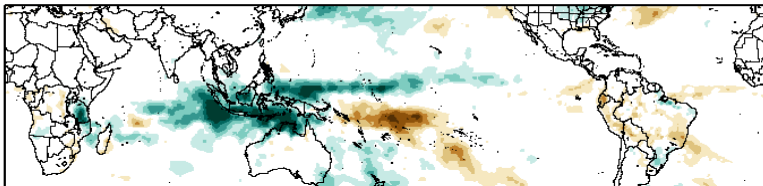
Phase 2



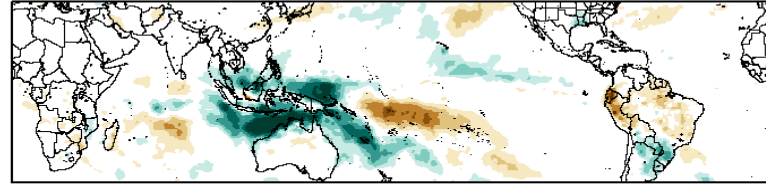
Phase 3



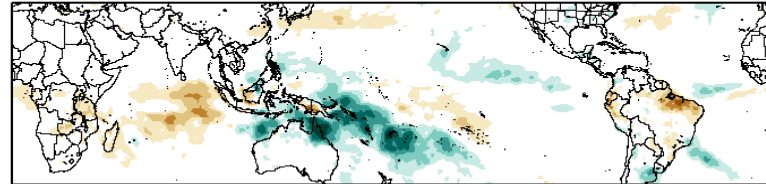
Phase 4



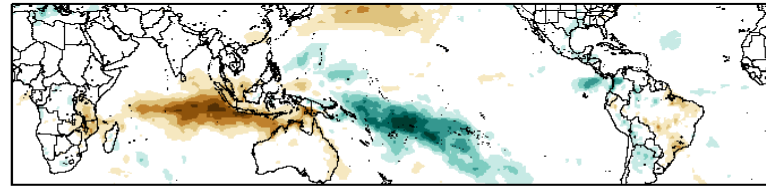
Phase 5



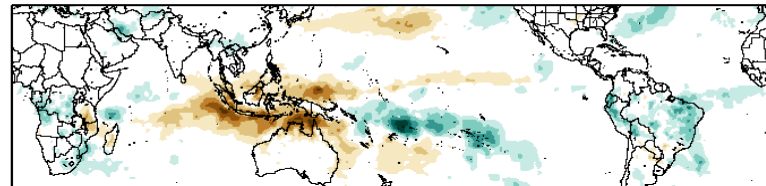
Phase 6



Phase 7

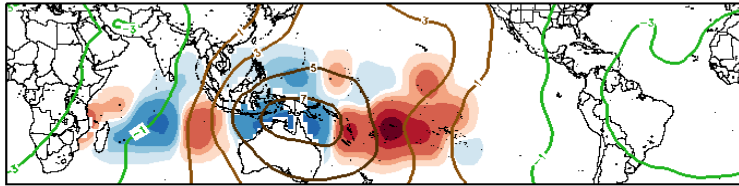


Phase 8

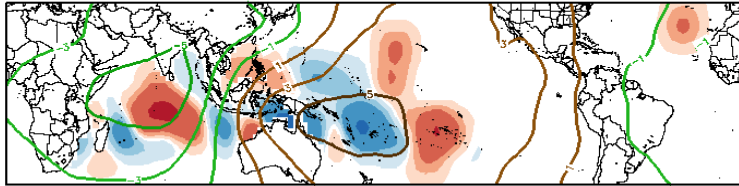


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

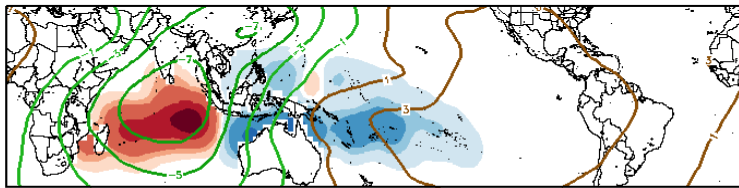
JFM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JFM CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



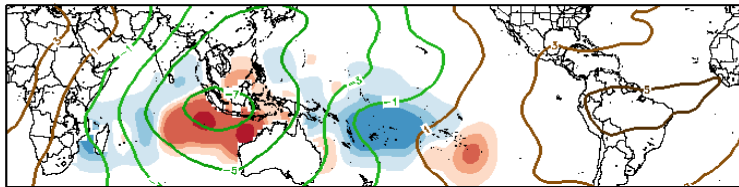
Phase 1



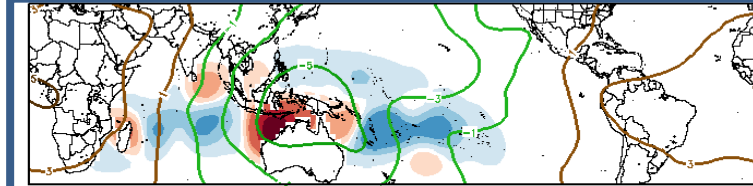
Phase 2



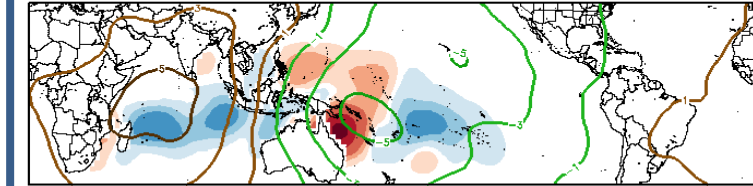
Phase 3



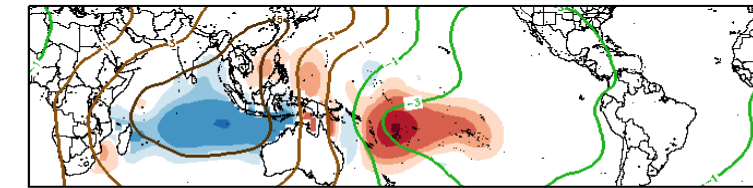
Phase 4



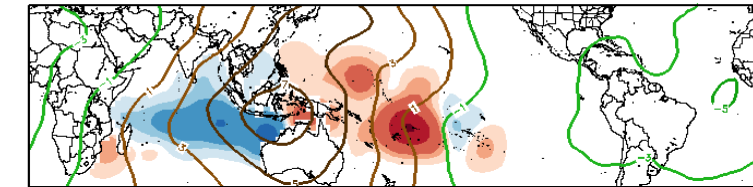
Phase 5



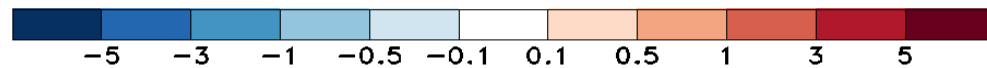
Phase 6



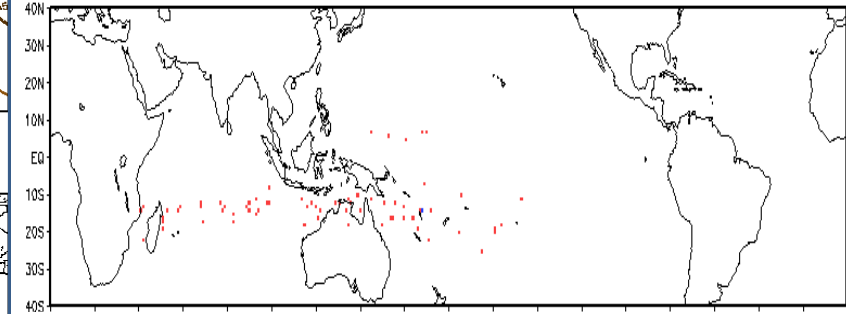
Phase 7



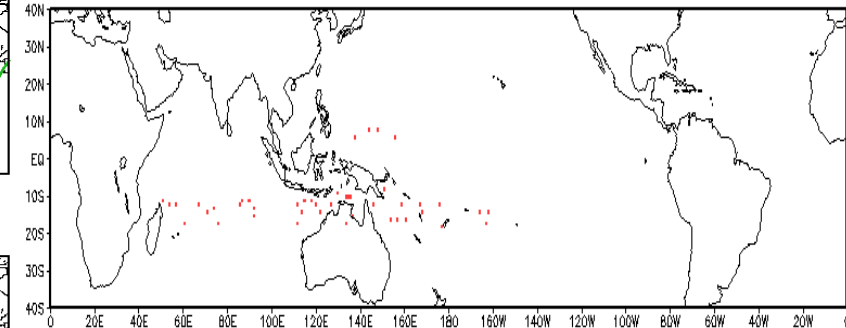
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0306 to 0312



Observed TC Genesis, 1979–2021
7-day Period 0313 to 0319

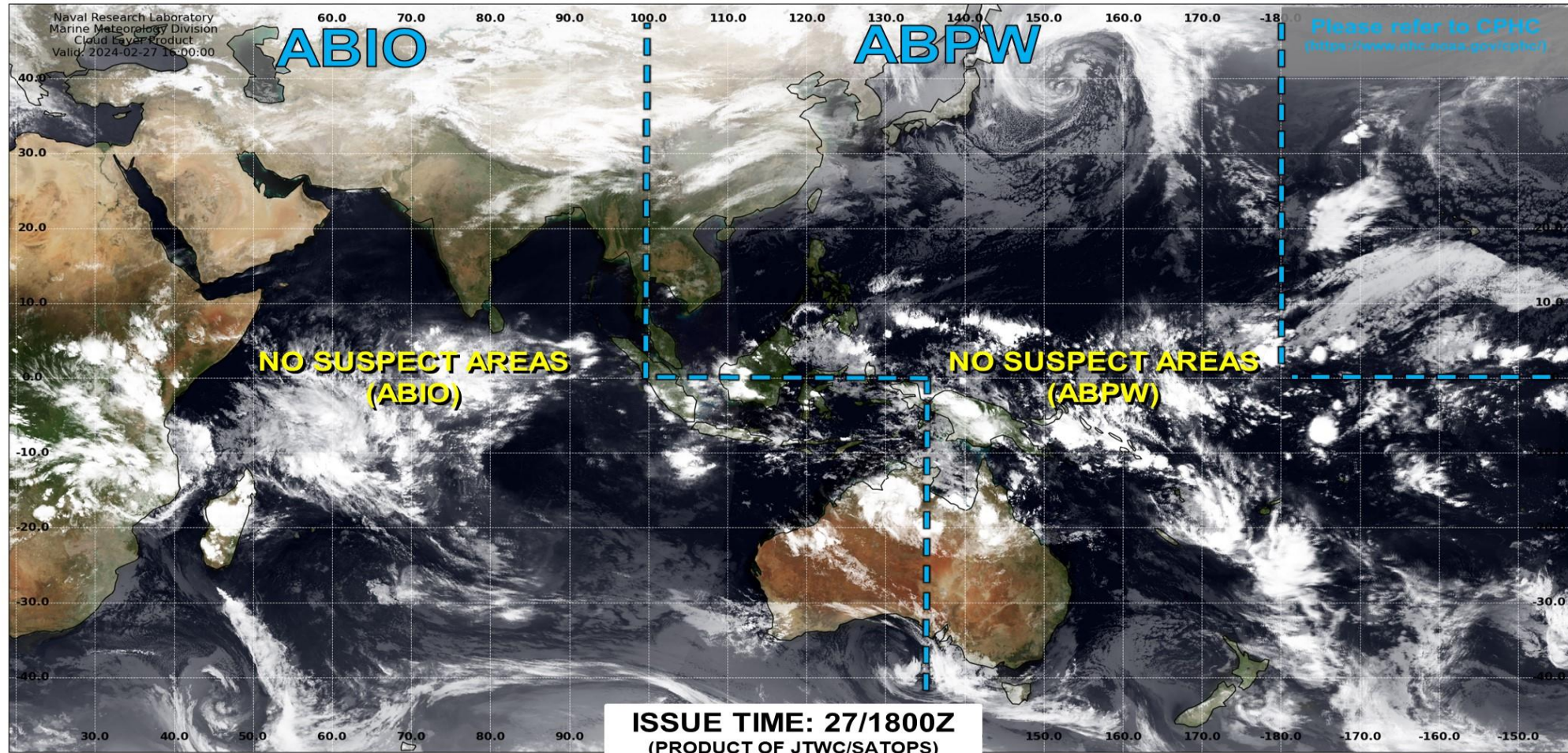


Experimental

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)



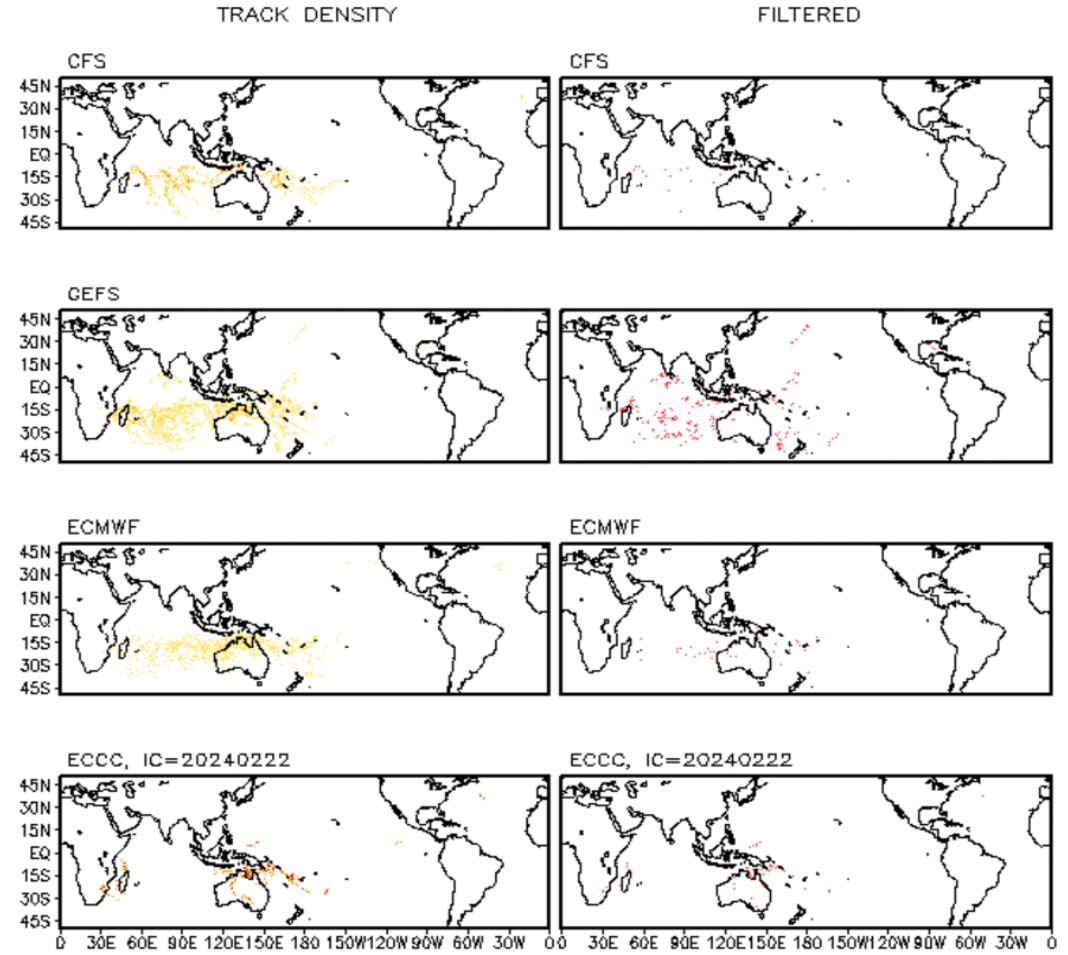
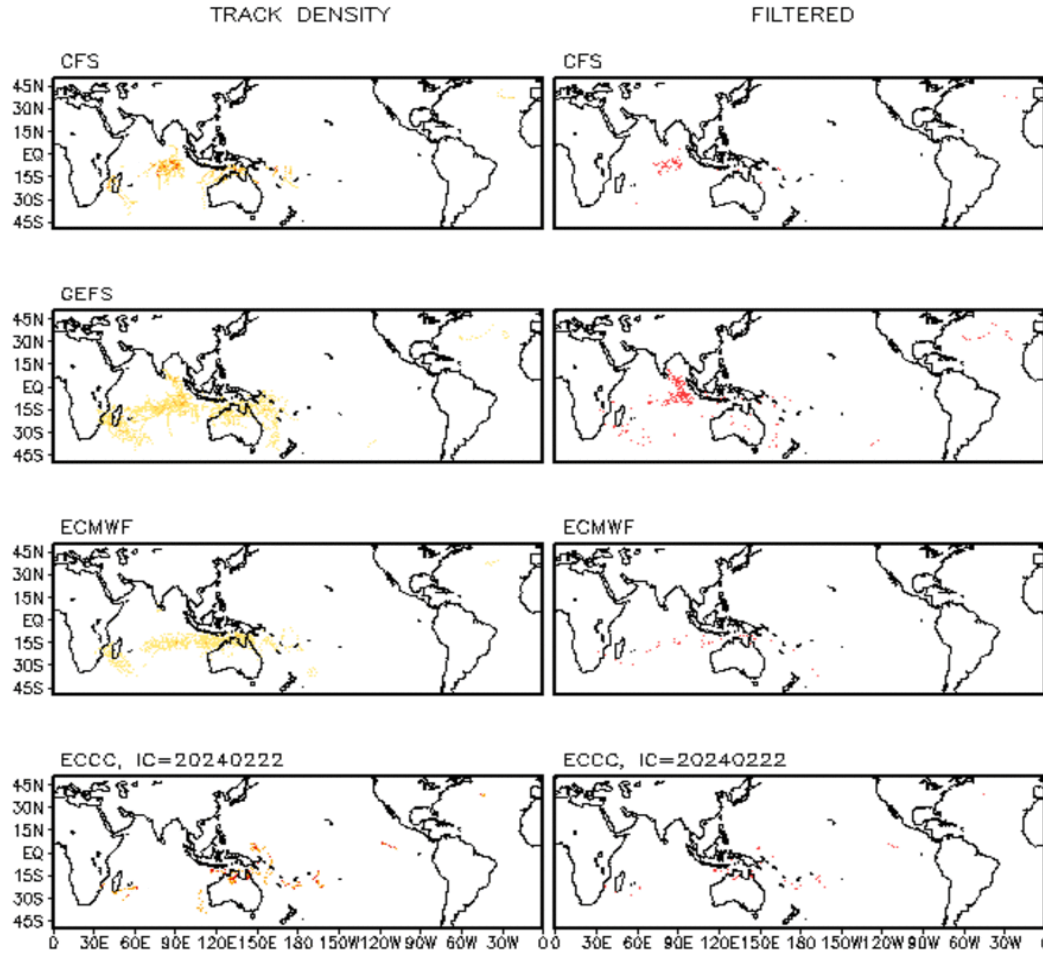
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

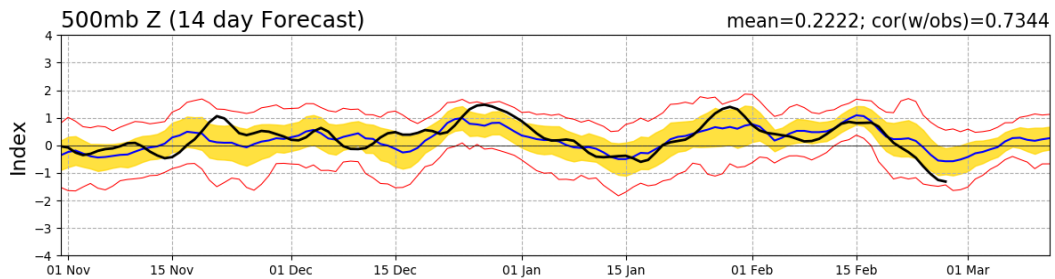
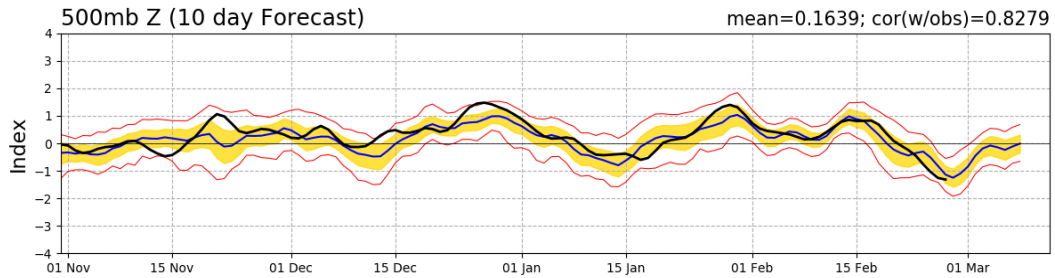
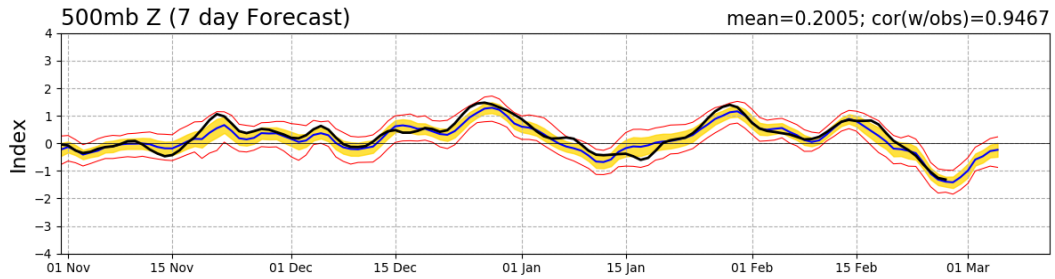
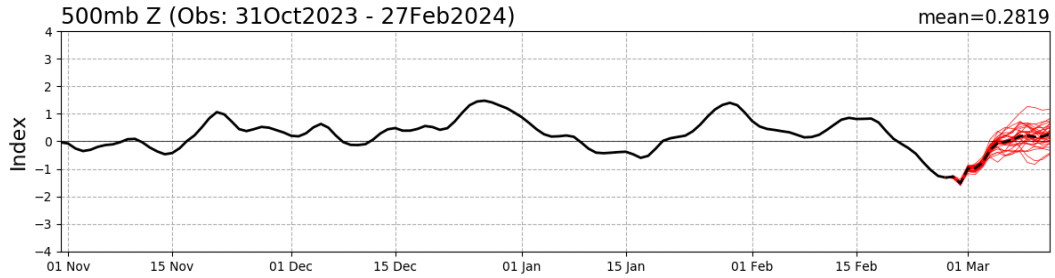
Storm Track Density Distribution, IC=20240226
Week 2 Forecast: 0306-0312

Storm Track Density Distribution, IC=20240226
Week 3 Forecast: 0313-0319

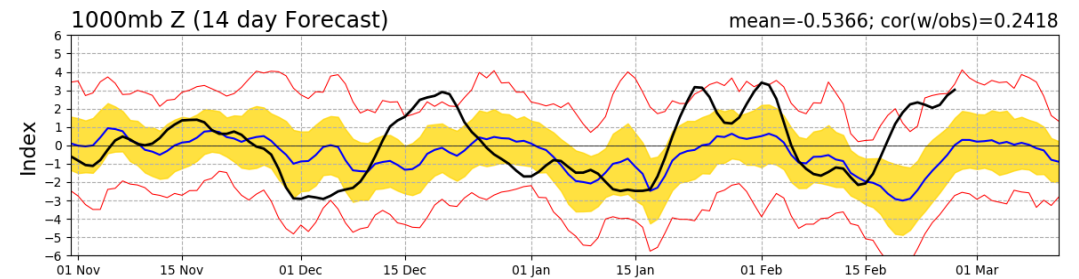
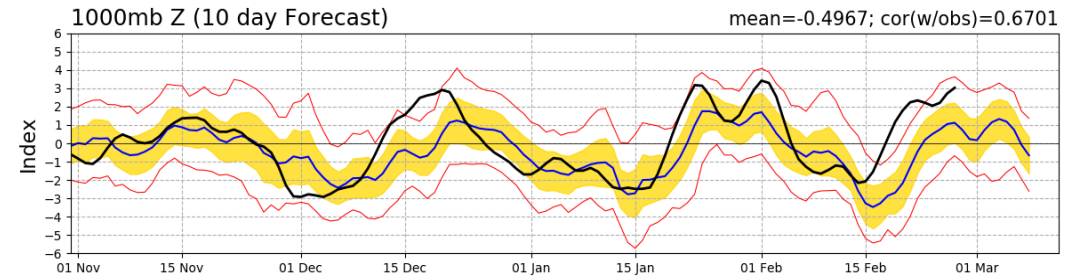
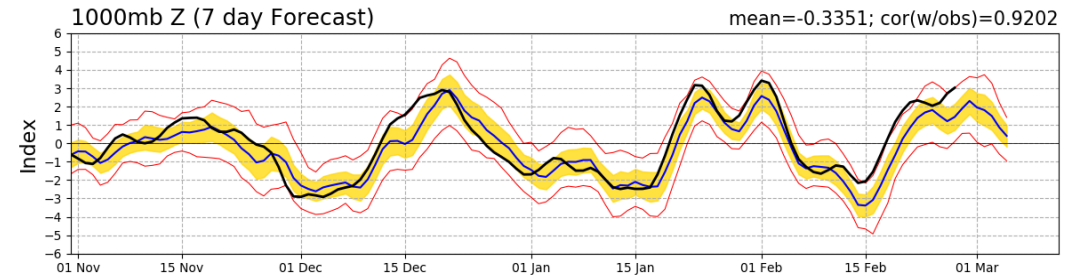
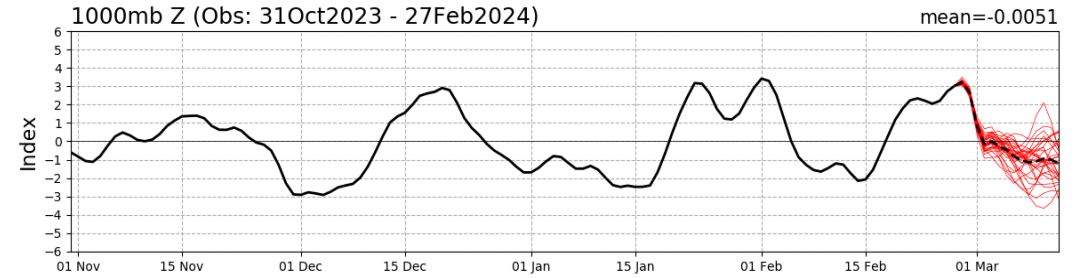


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



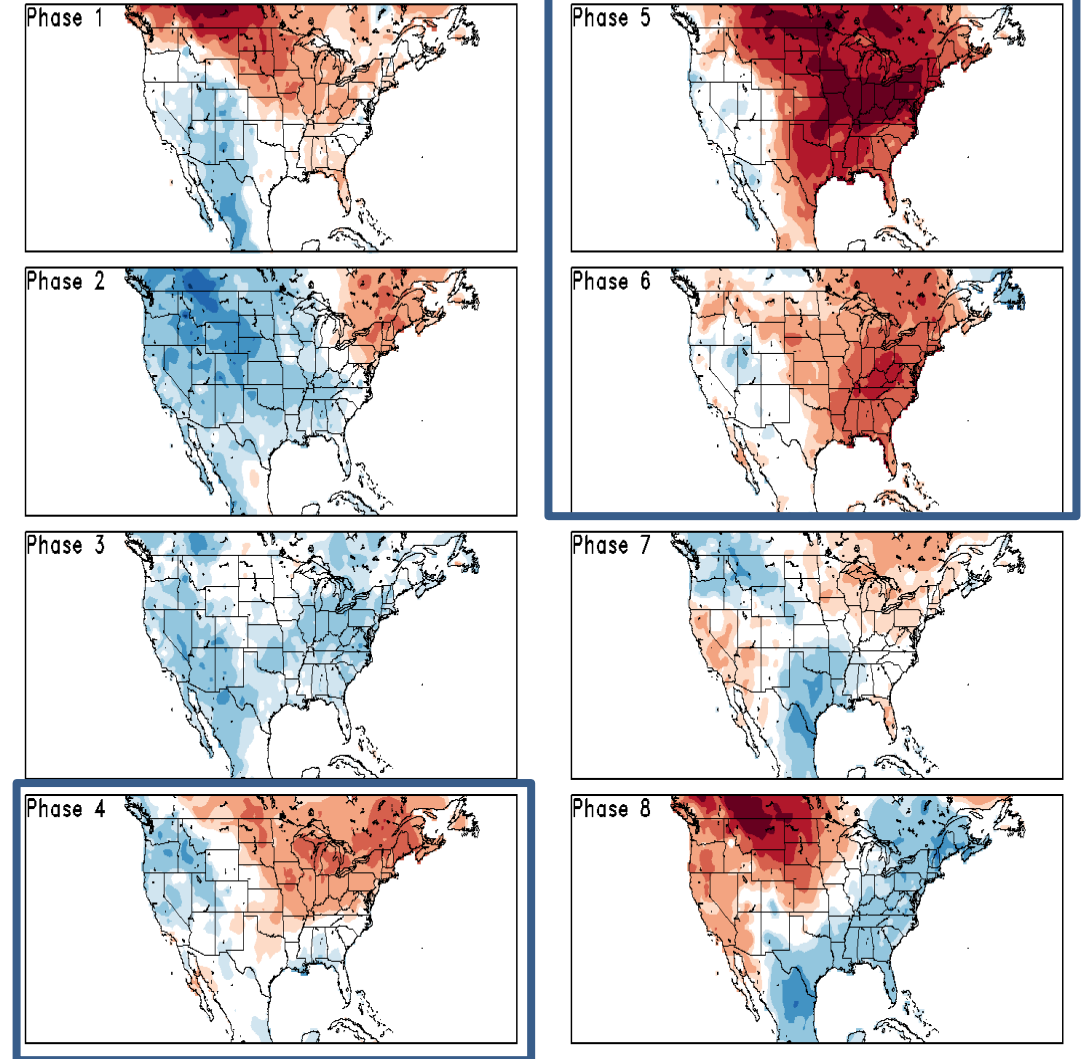
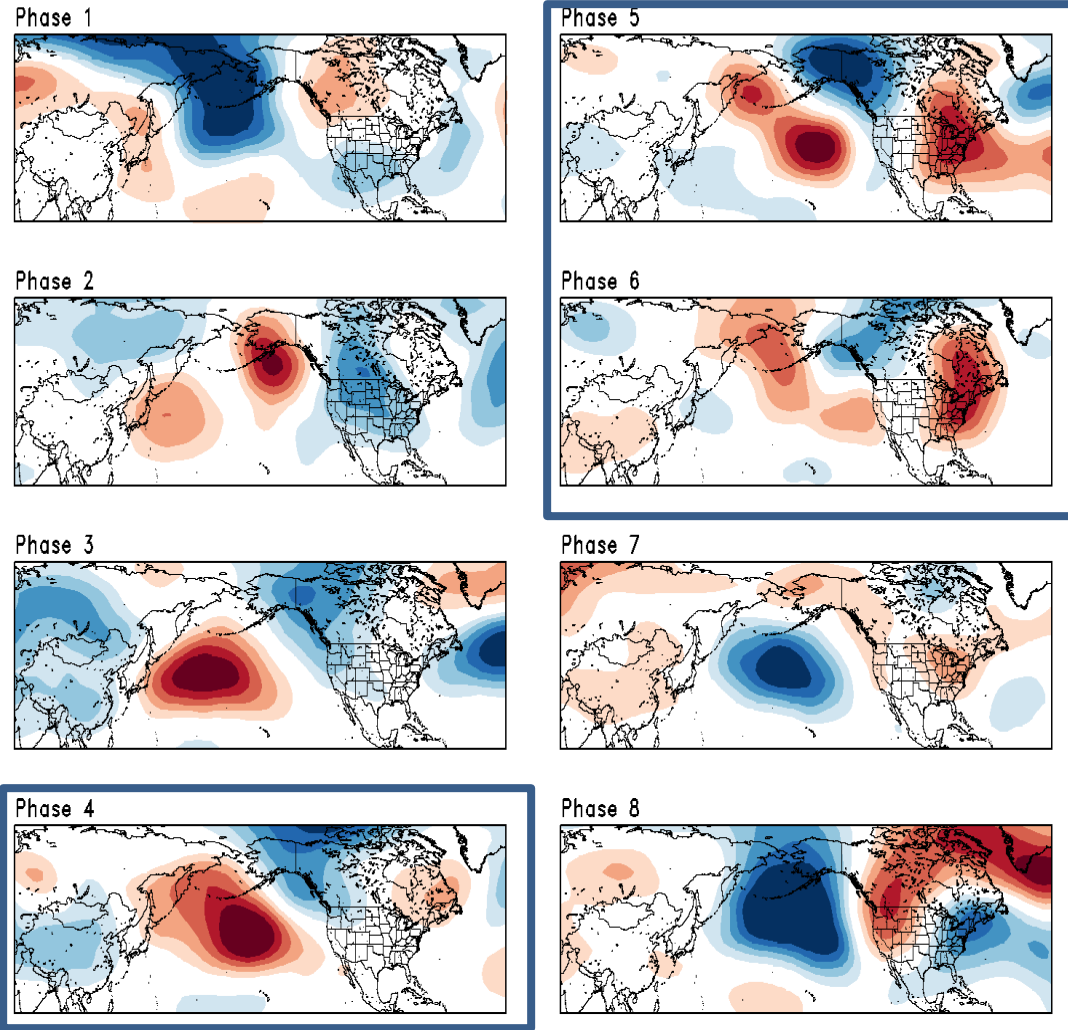
AO Index: Observed & GEFS Forecasts



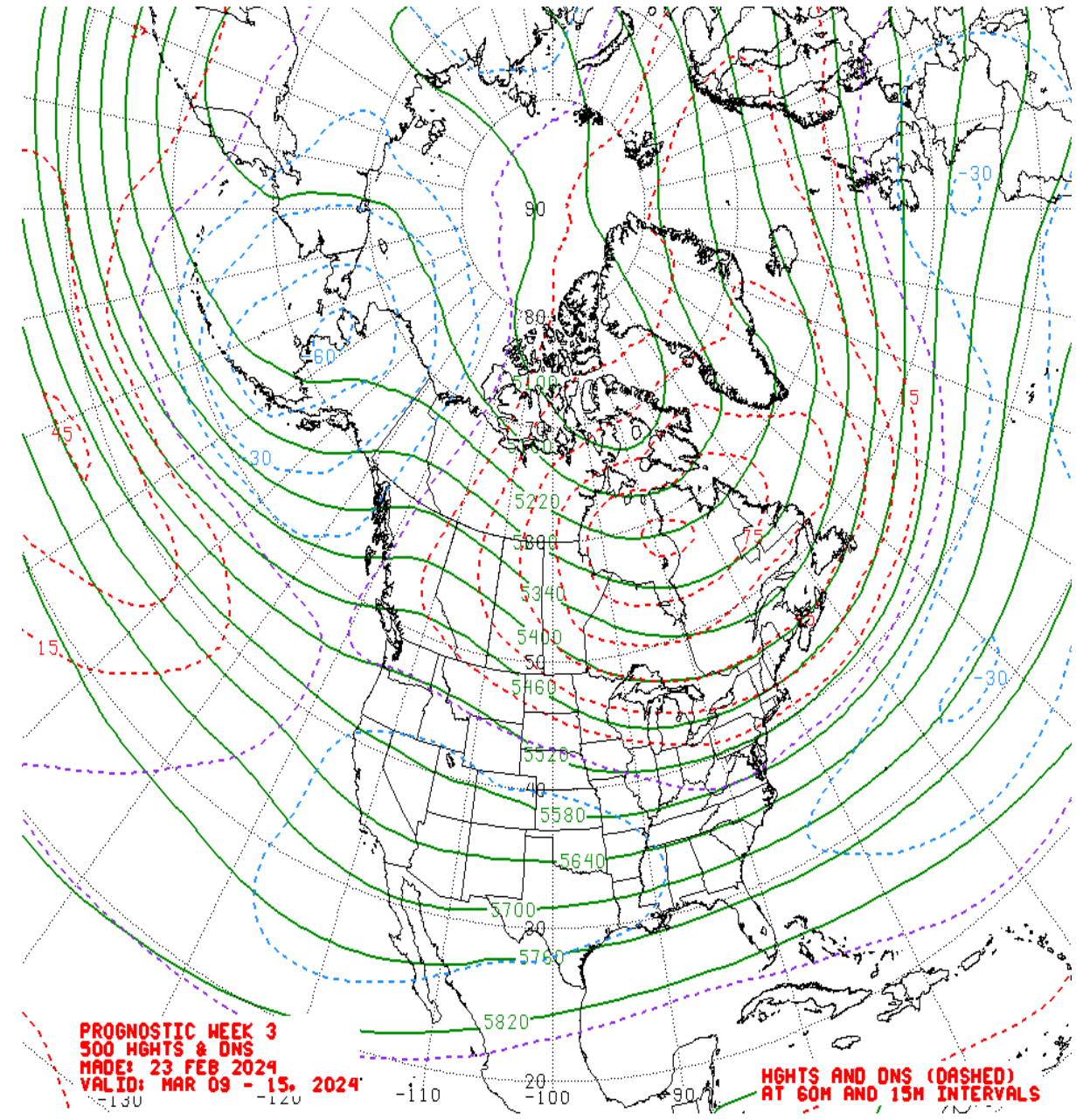
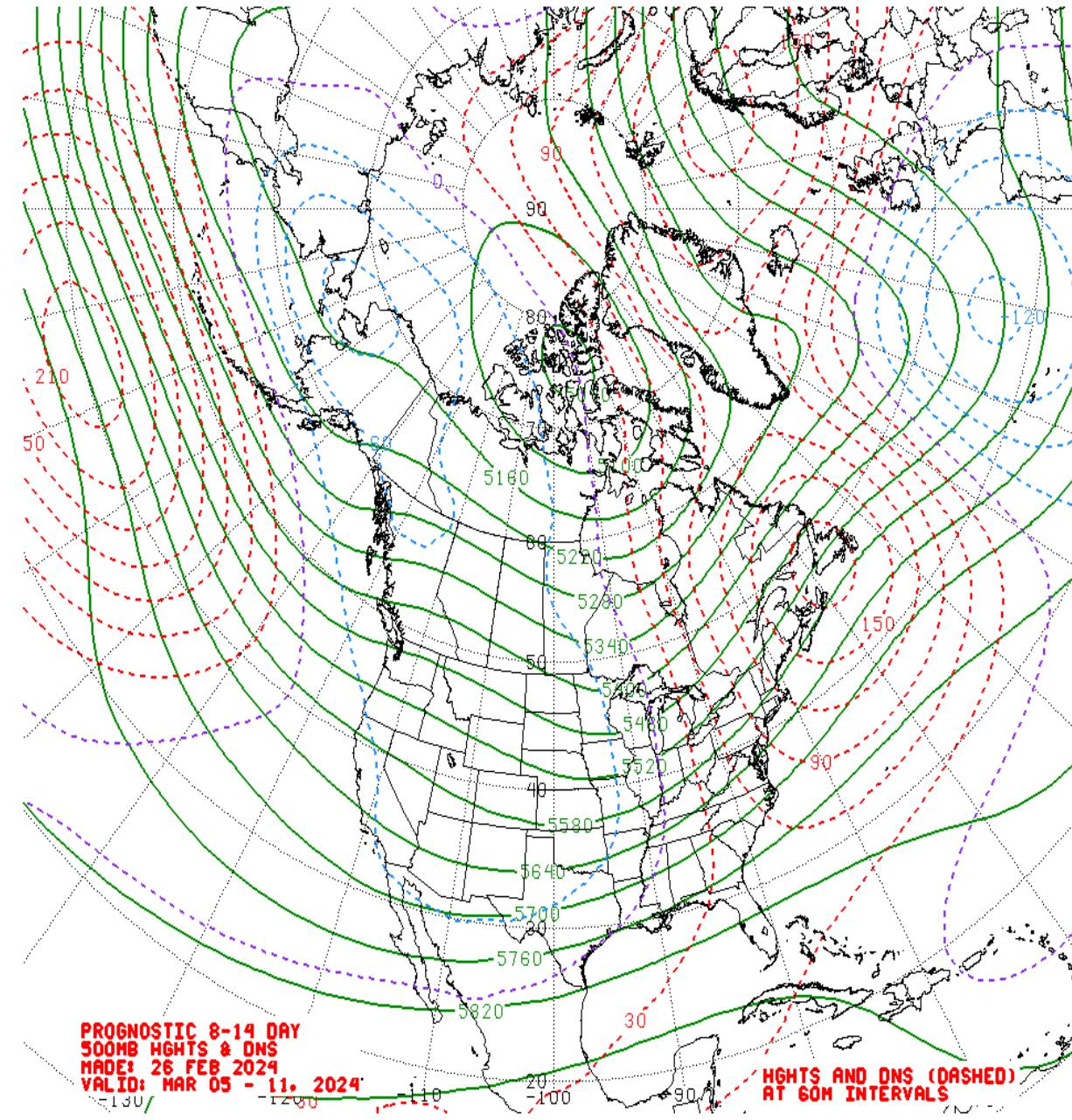
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

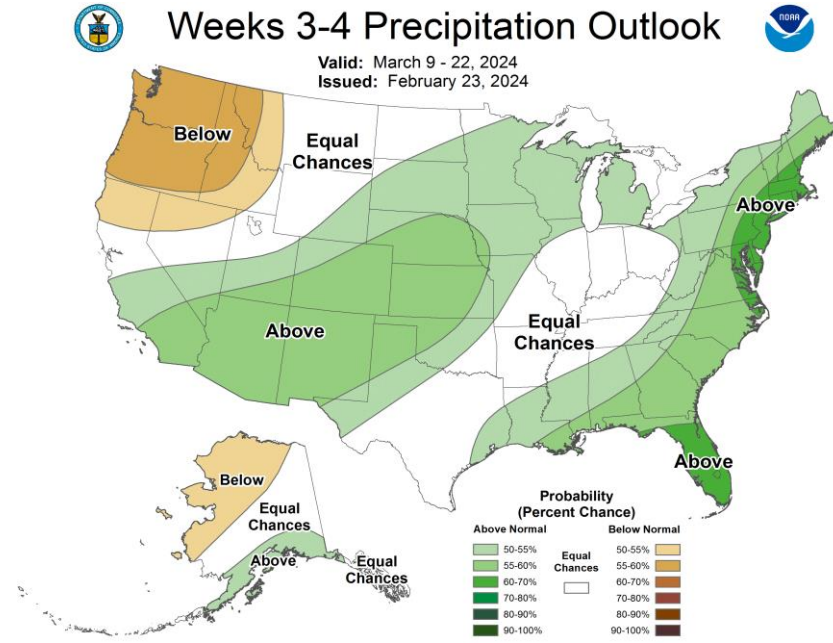
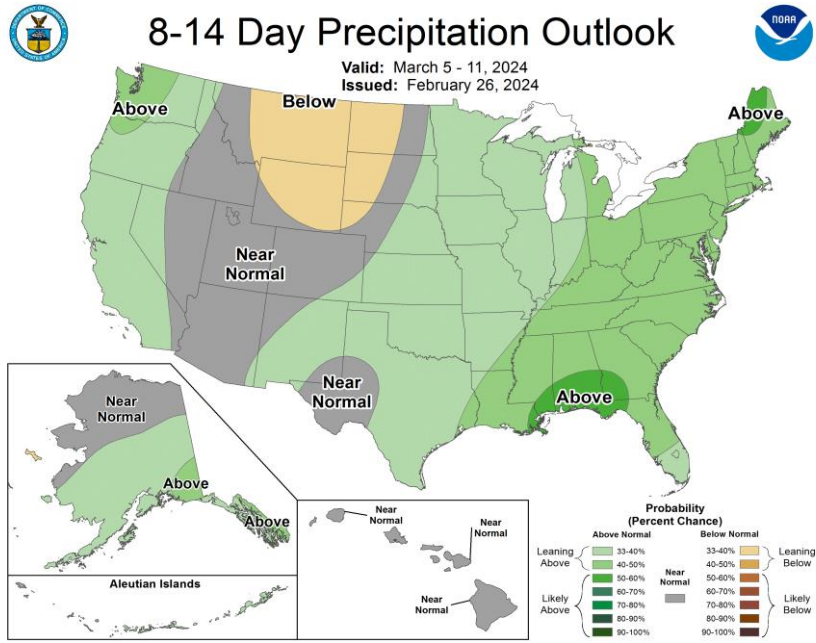
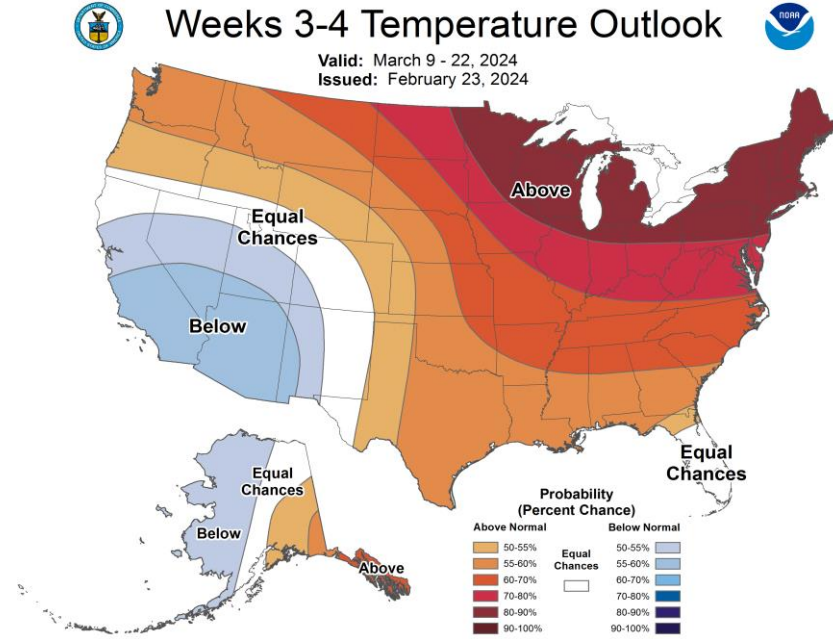
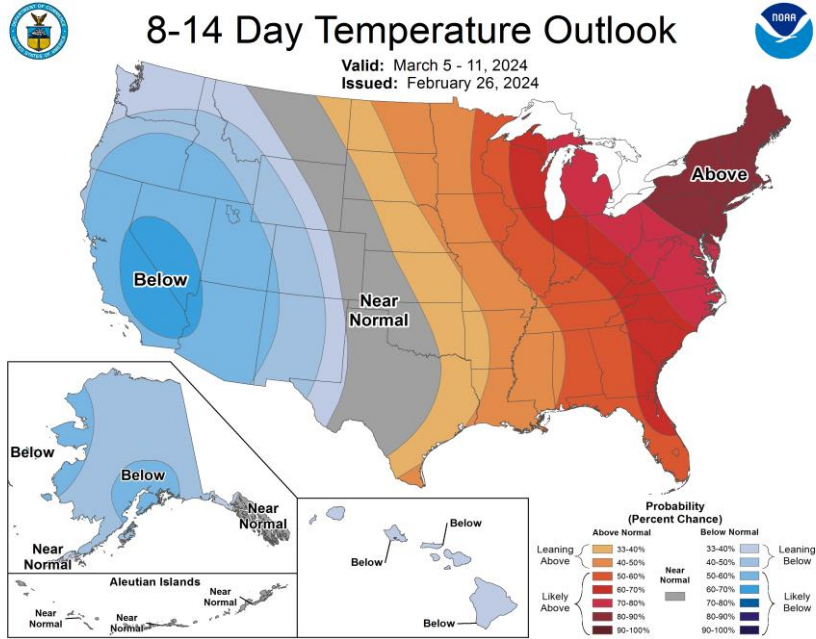
JFM MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



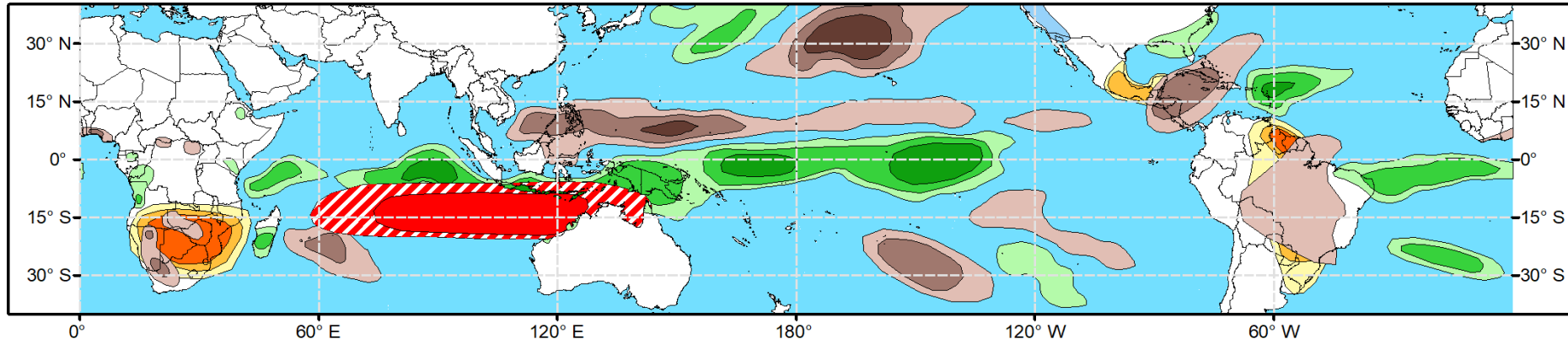


Global Tropics Hazards Outlook

Climate Prediction Center

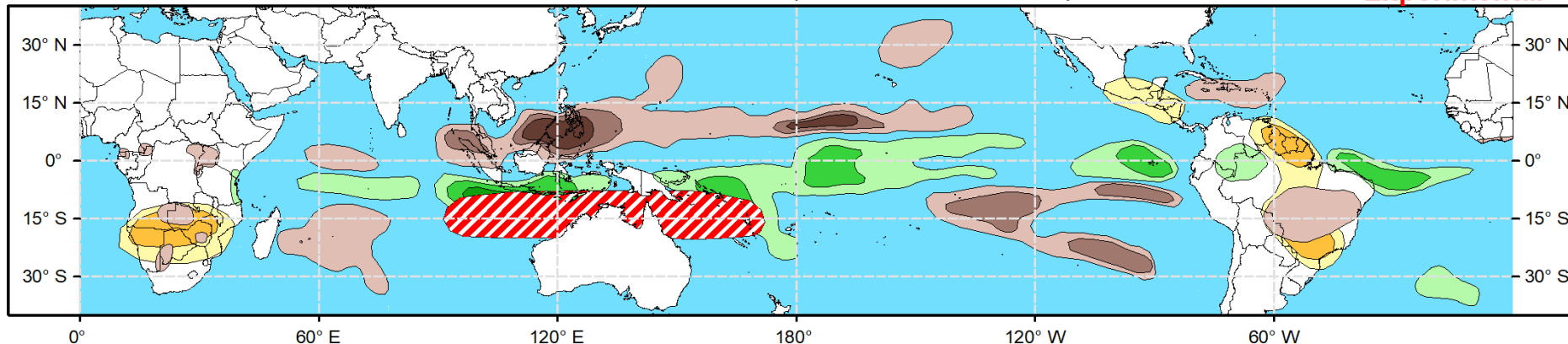


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