



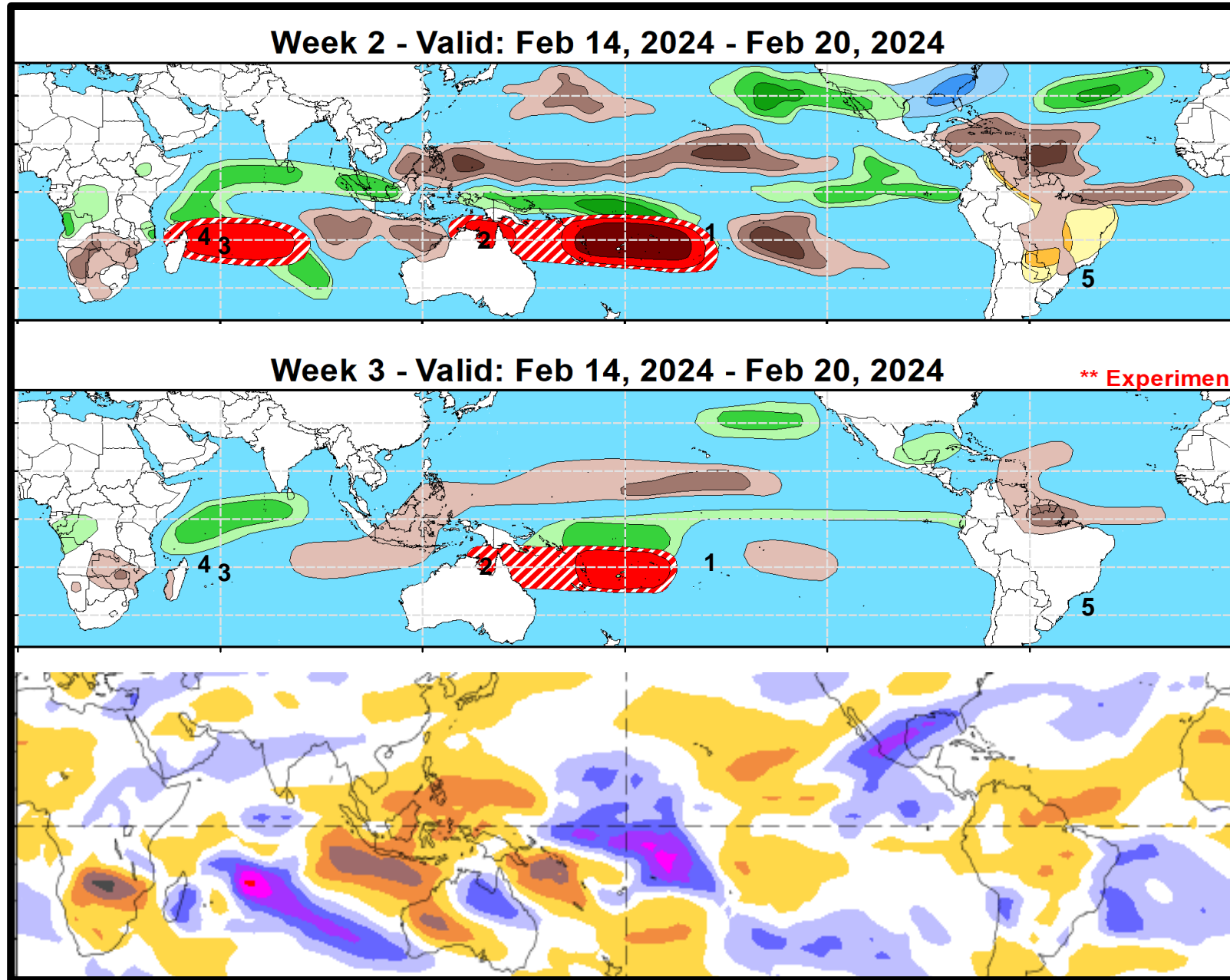
Weeks 2-3 Global Tropics Hazards Outlook

2/20/2023

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- 1, SPAC: 15P (2/15)
- 2, SPAC: TC Lincoln (2/15)
- 3, SIO: TC Djoungou (2/17)
- 4, SIO: TC Eleanor (2/18)
- 5, SA: TC Akara (2/18)



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 observations show a westward retreat of the MJO signal over the Western Pacific earlier this month, but the MJO has since resumed its eastward propagation and has moved into phase 8 (Western Hemisphere) in RMM space.
- Consistent with model guidance since last week, a much weakened MJO is generally favored in the RMM forecasts, with model solutions showing the signal mostly remaining within the unit circle during the next two weeks.
- However, there is some question as to whether this weakening is reflective of a disorganizing MJO or the removal of the 120-day mean which is strongly skewing the MJO signal to the right in RMM space. Upper-level velocity potential anomaly and OLR forecasts suggest the latter, which depict a more coherent MJO moving forward.

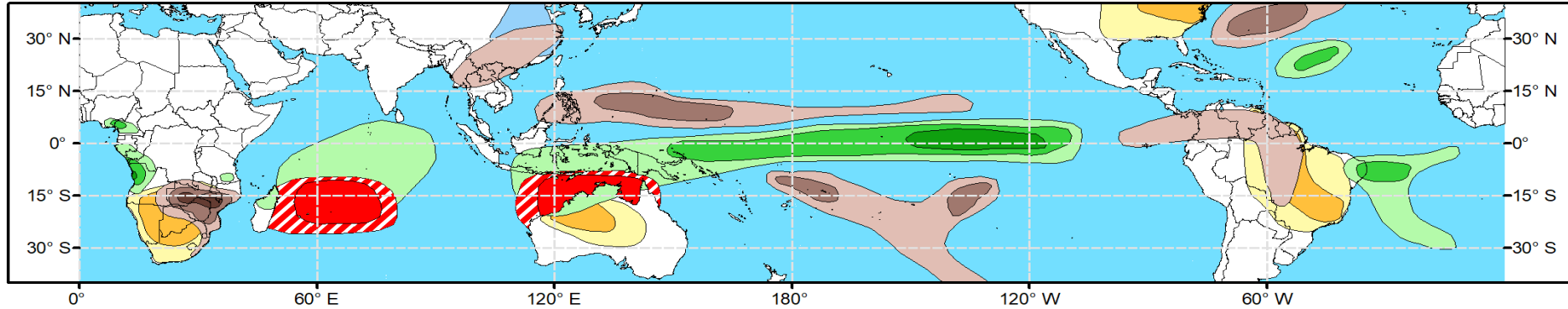
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

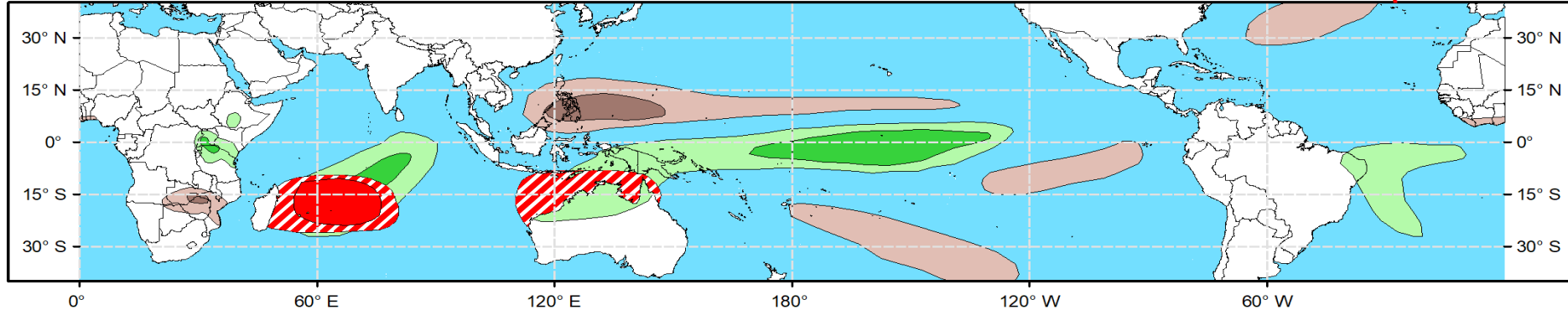


Week 2 - Valid: Feb 28, 2024 - Mar 05, 2024



Week 3 - Valid: Mar 06, 2024 - Mar 12, 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
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**Above-Average
Temperatures Probability**



>50% >65% >80%

7-day max temperatures in the
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Issued: 02/20/2024

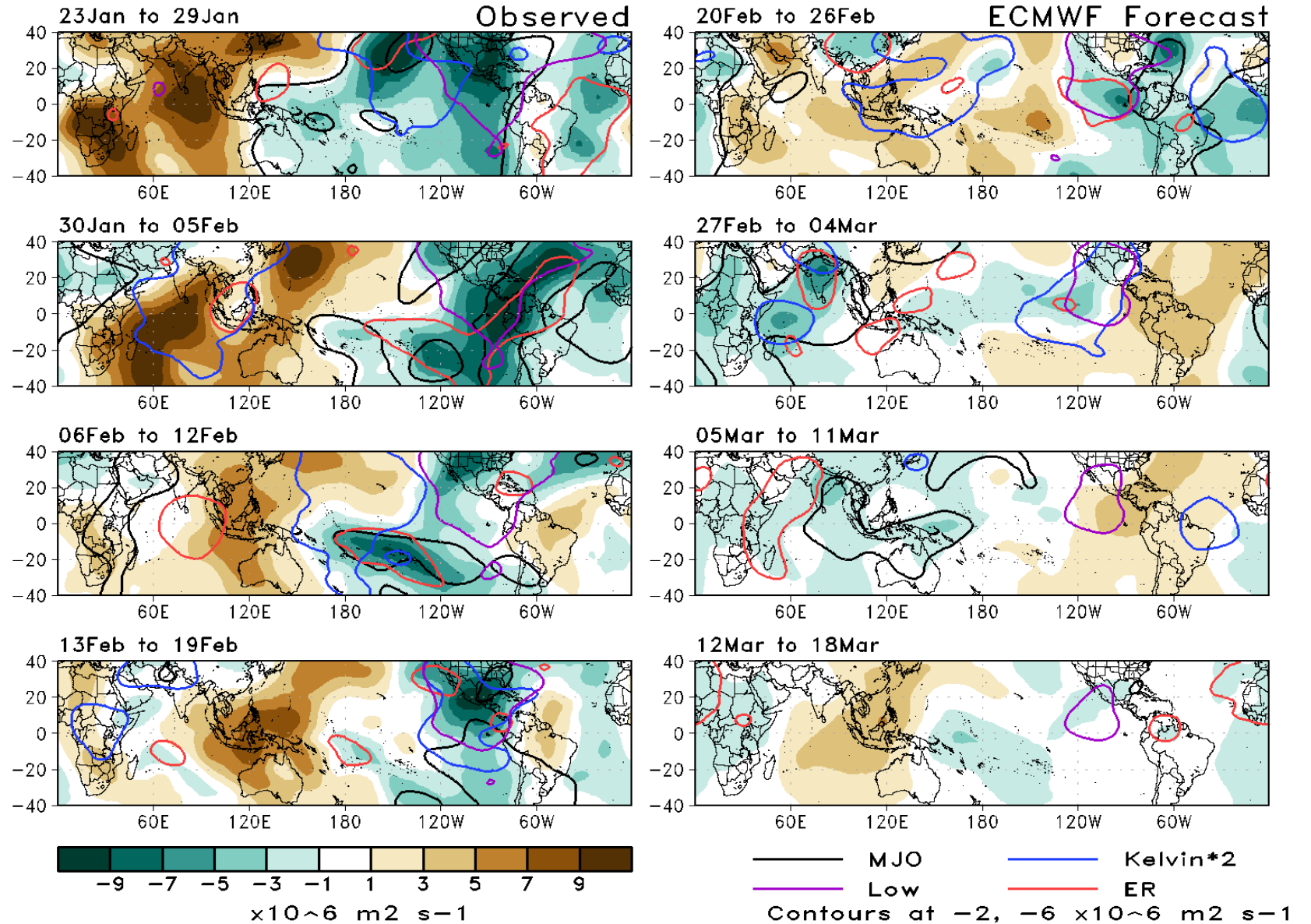
Forecaster: Barandiaran

**This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only.
Consult your local responsible forecast agency.**

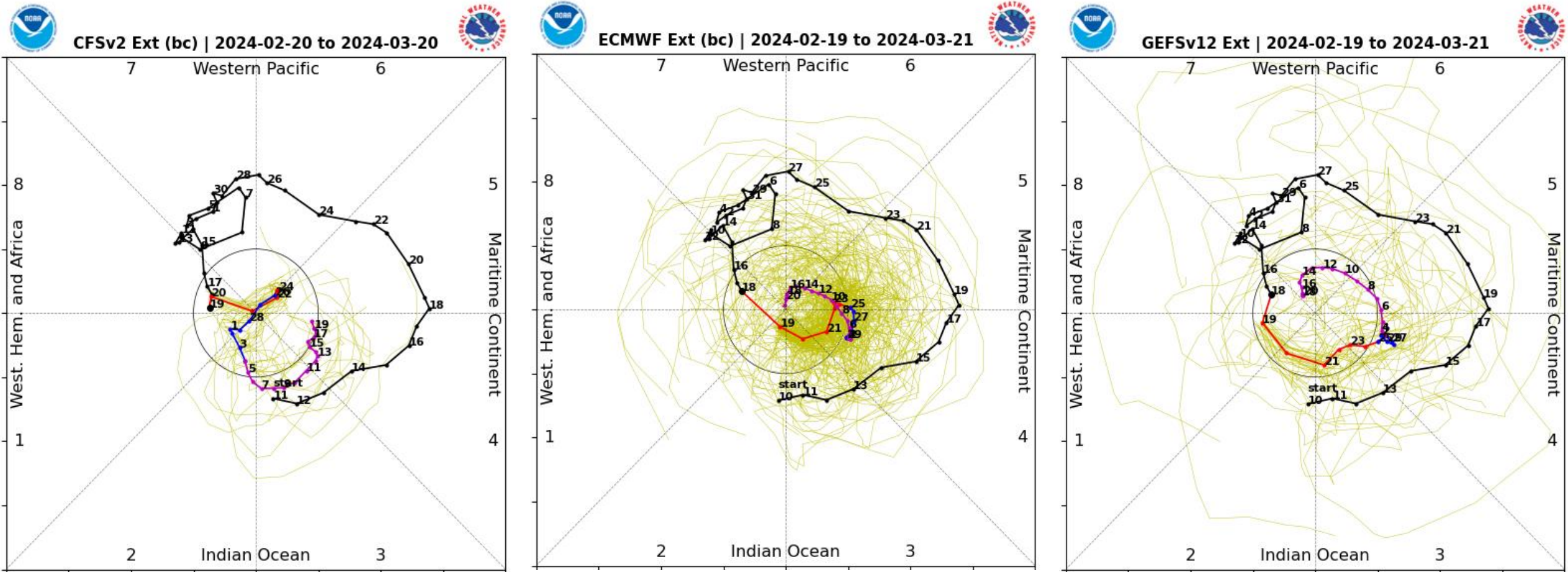
RMM Index Observations & Forecasts:

- The Western Hemisphere phase of the MJO has been very robust, with multiple modes of variability converging over the Americas.

- Wave-1 symmetry is favored to become better-defined during week-1, and the enhanced phase of the MJO is depicted moving into the Indian Ocean by week-2.

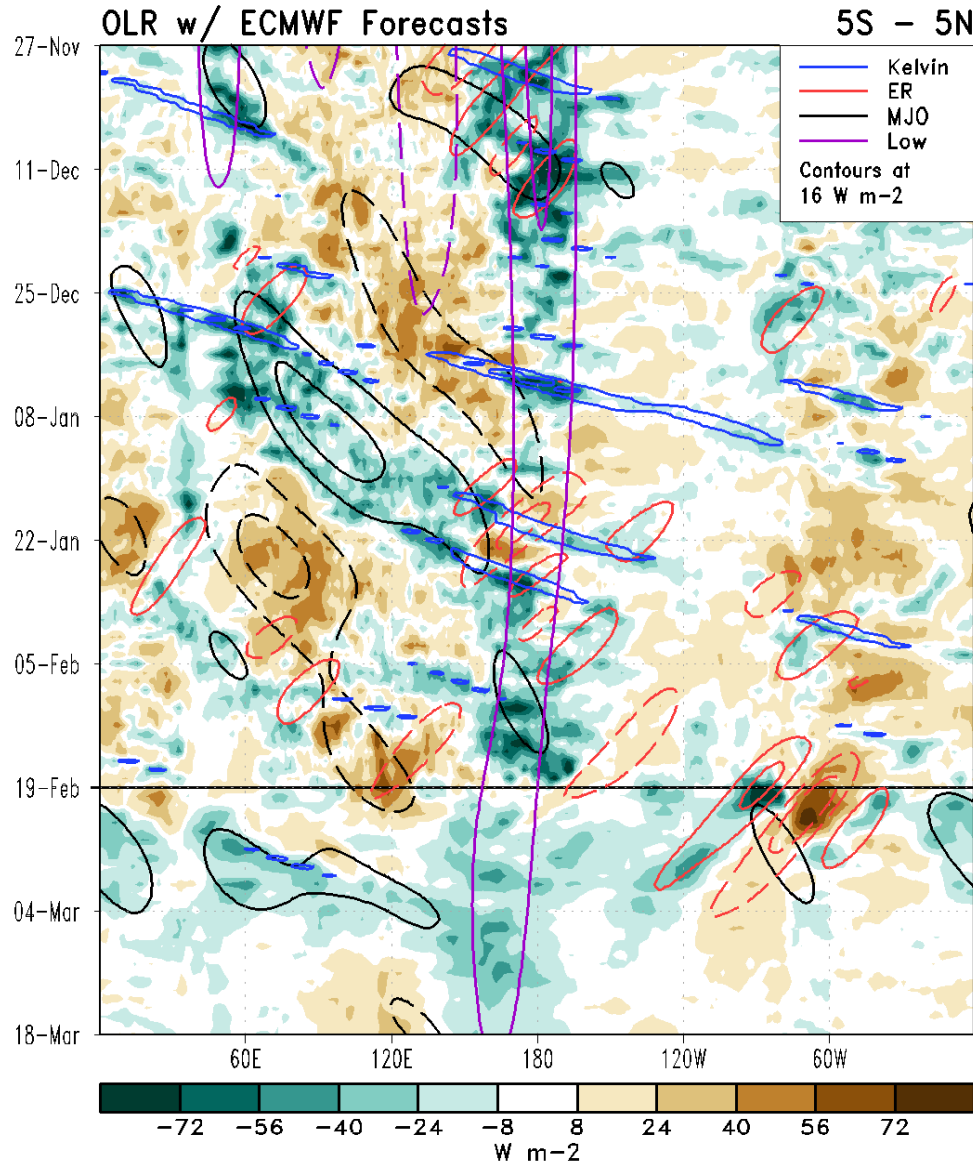


Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:

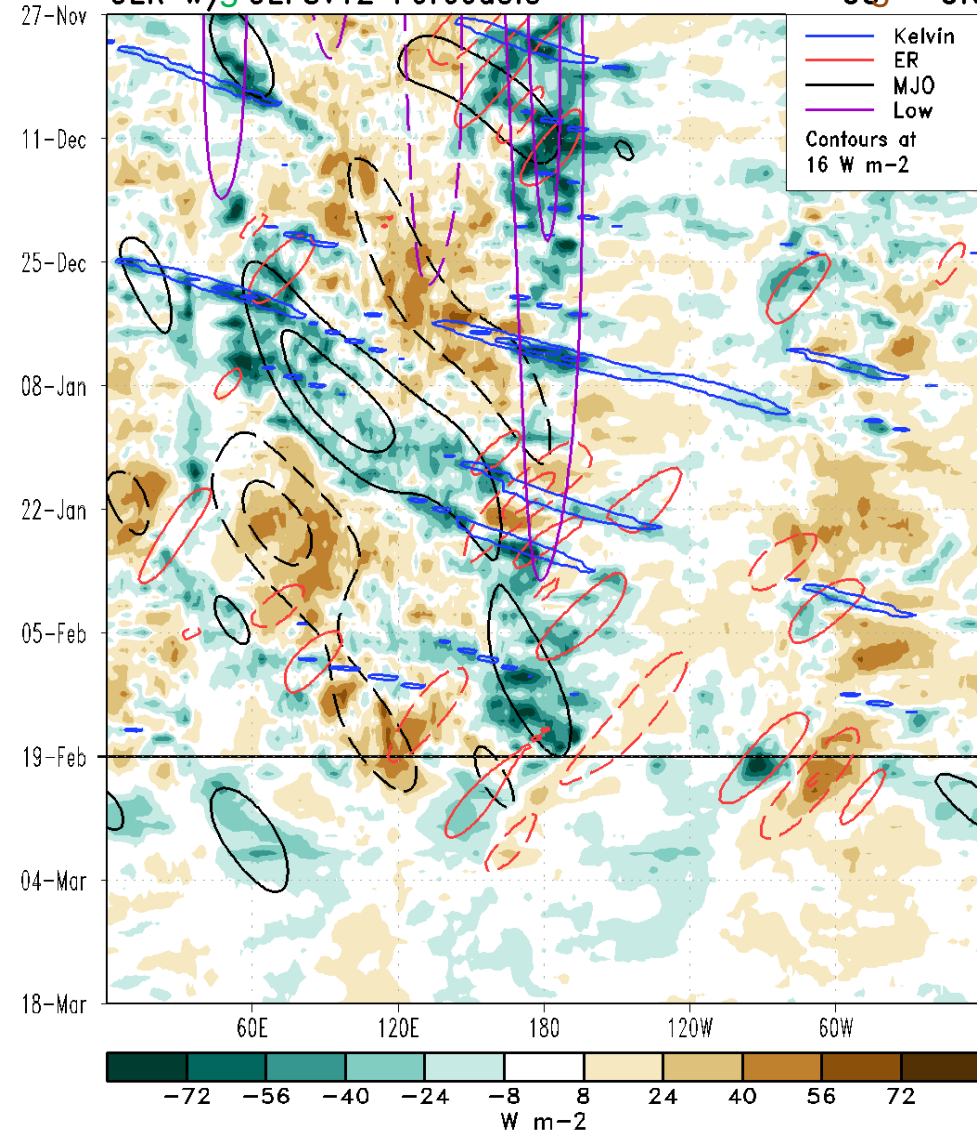


- Both the GEFS and ECMWF RMM forecasts indicate a more orderly eastward propagation of the MJO over the coming weeks albeit at a low amplitude, remaining mostly confined to the unit circle.
- However, a retention of the 120-day running mean in RMM computation shows indices are heavily skewed to the right to correct for a strong +IOD event this past fall. Because this low frequency response is no longer evident in the tropical circulation, this suggests the RMM forecasts need to be taken with caution.

200-hPa Velocity Potential Anomaly Maps:



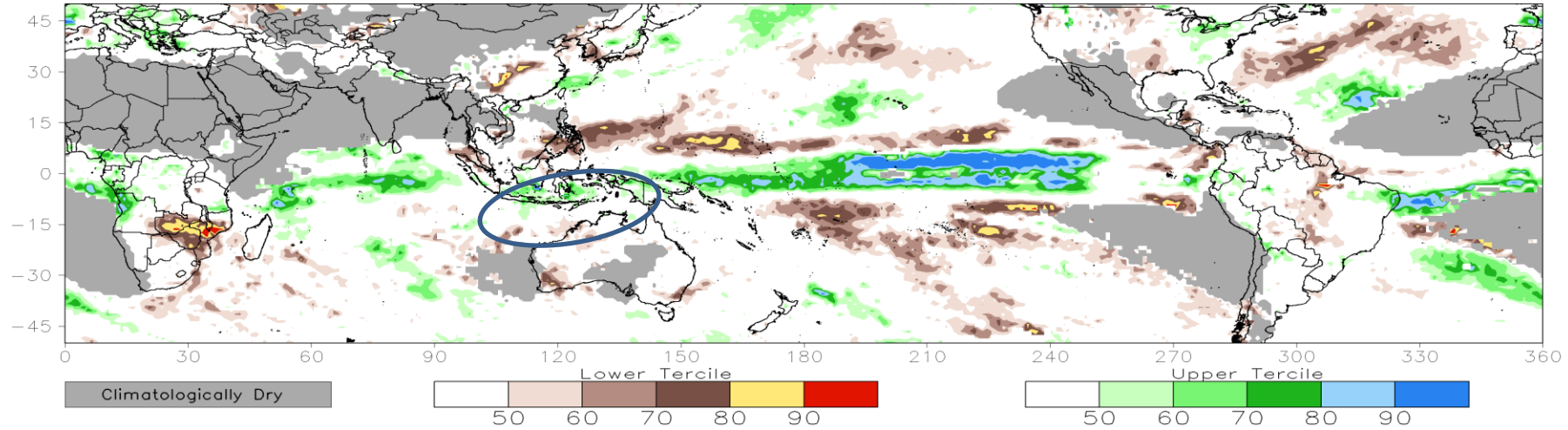
Green: Enhanced Divergence Aloft Brown: Enhanced Convergence Aloft



Consolidated Probabilistic Precipitation: Weeks 2 & 3

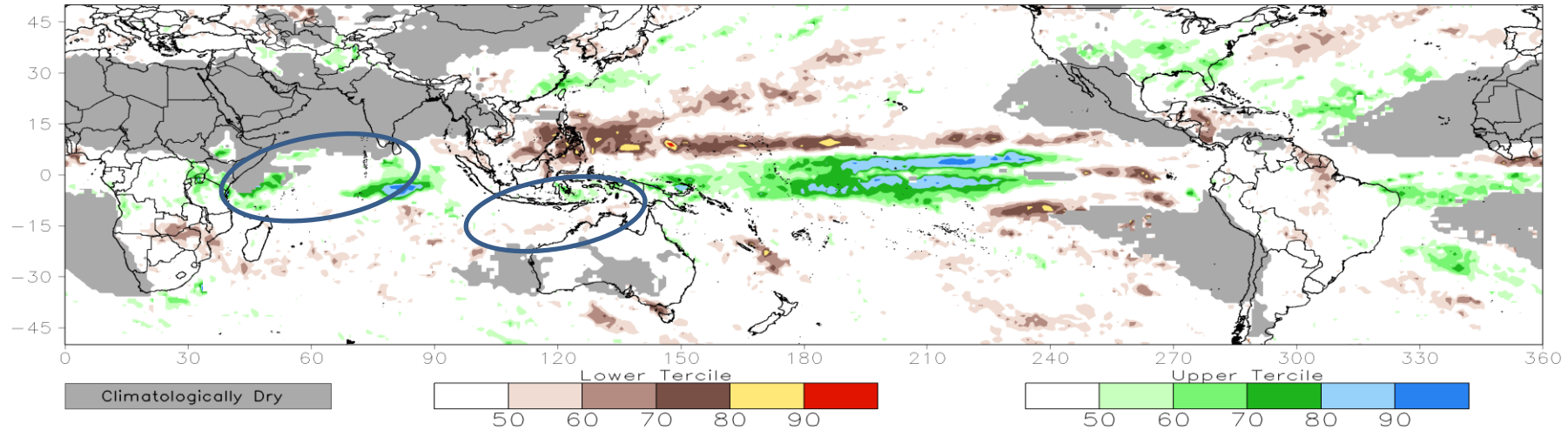
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 28Feb2024–05Mar2024



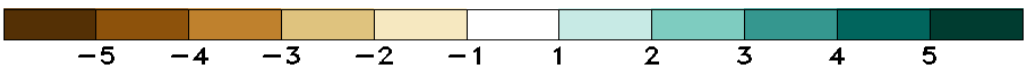
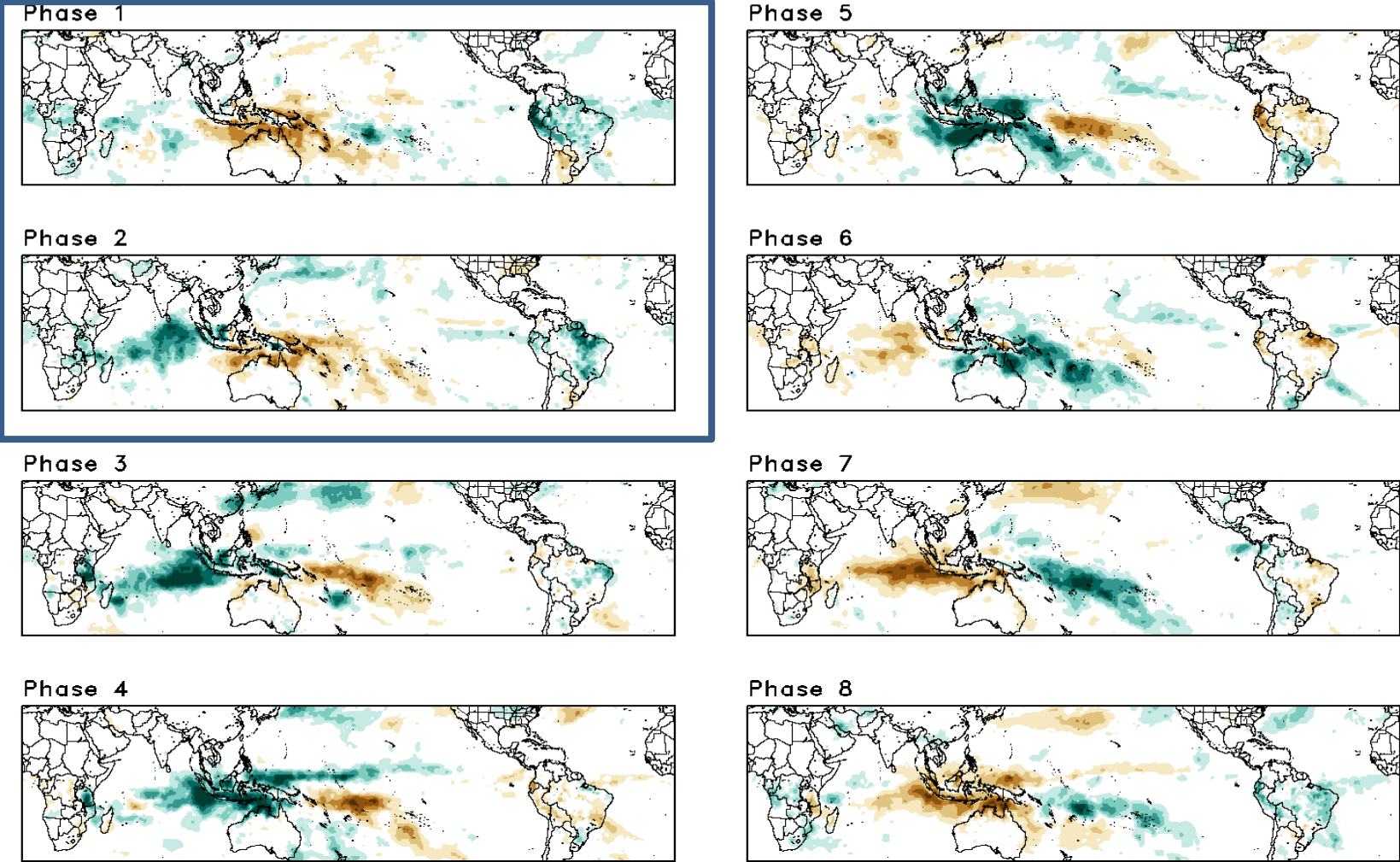
CONS 00z: Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 06Mar2024–12Mar2024



Historical Precipitation Anomalies By MJO Phase:

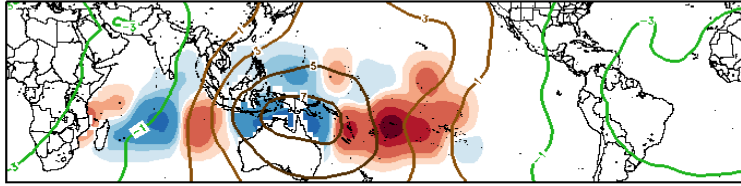
JFM MJO Composite: GPCP1DD (mm/day)



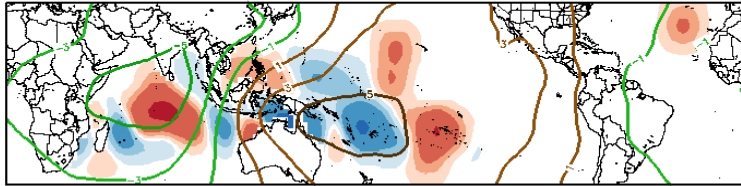
Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

JFM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)

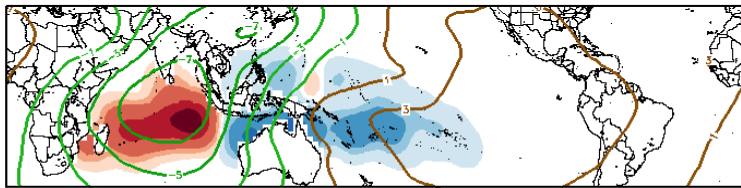
w/ JFM CH200 ($\times 10^{-6} m^2 s^{-1}$) / Contours every $2 \times 10^{-6} m^2 s^{-1}$



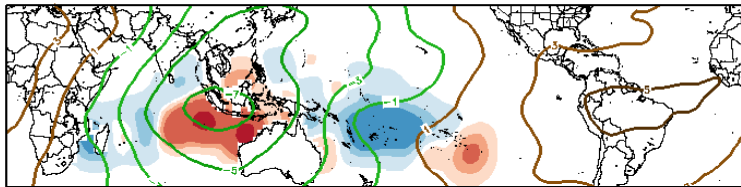
Phase 1



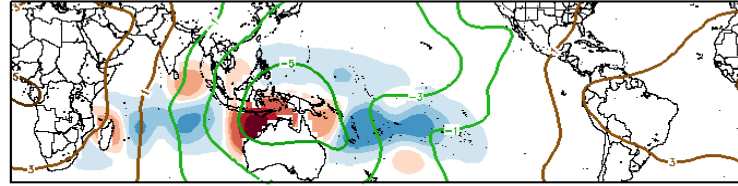
Phase 2



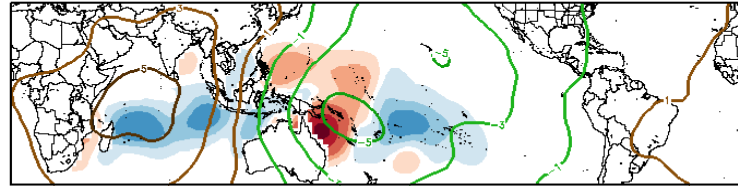
Phase 3



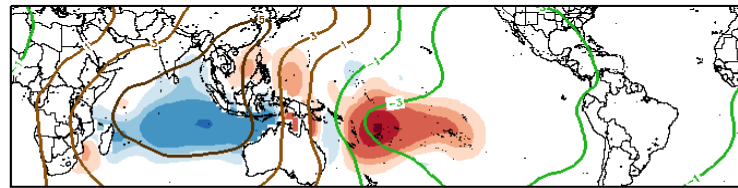
Phase 4



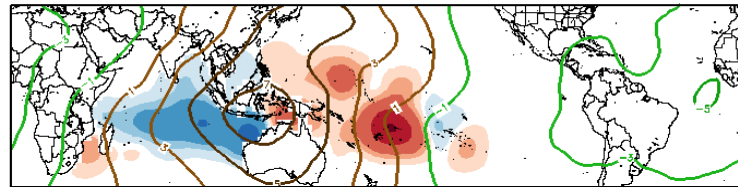
Phase 5



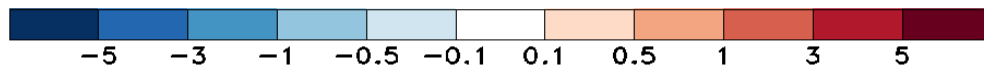
Phase 6



Phase 7

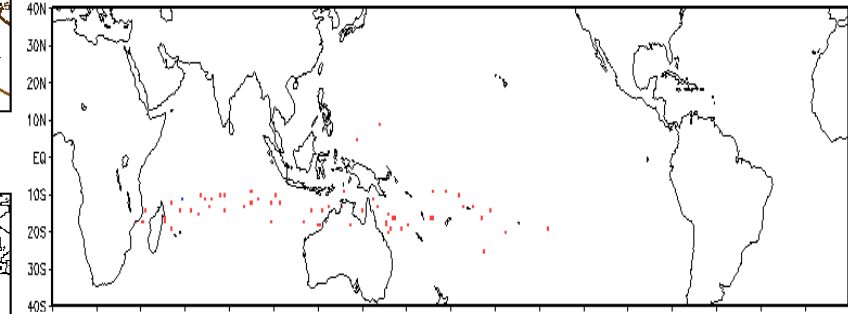


Phase 8



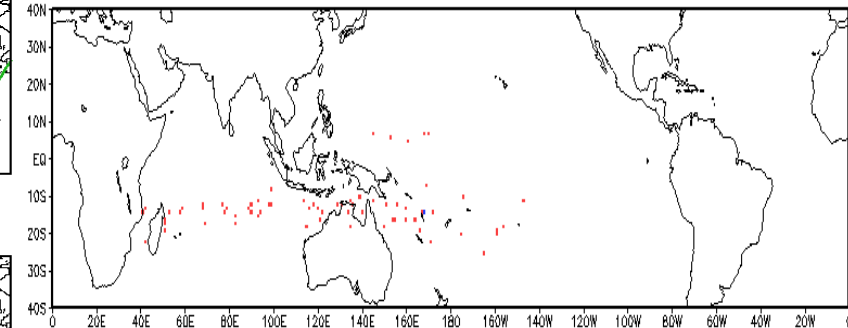
Observed TC Genesis, 1979-2021

7-day Period 0228 to 0306



Observed TC Genesis, 1979-2021

7-day Period 0306 to 0312

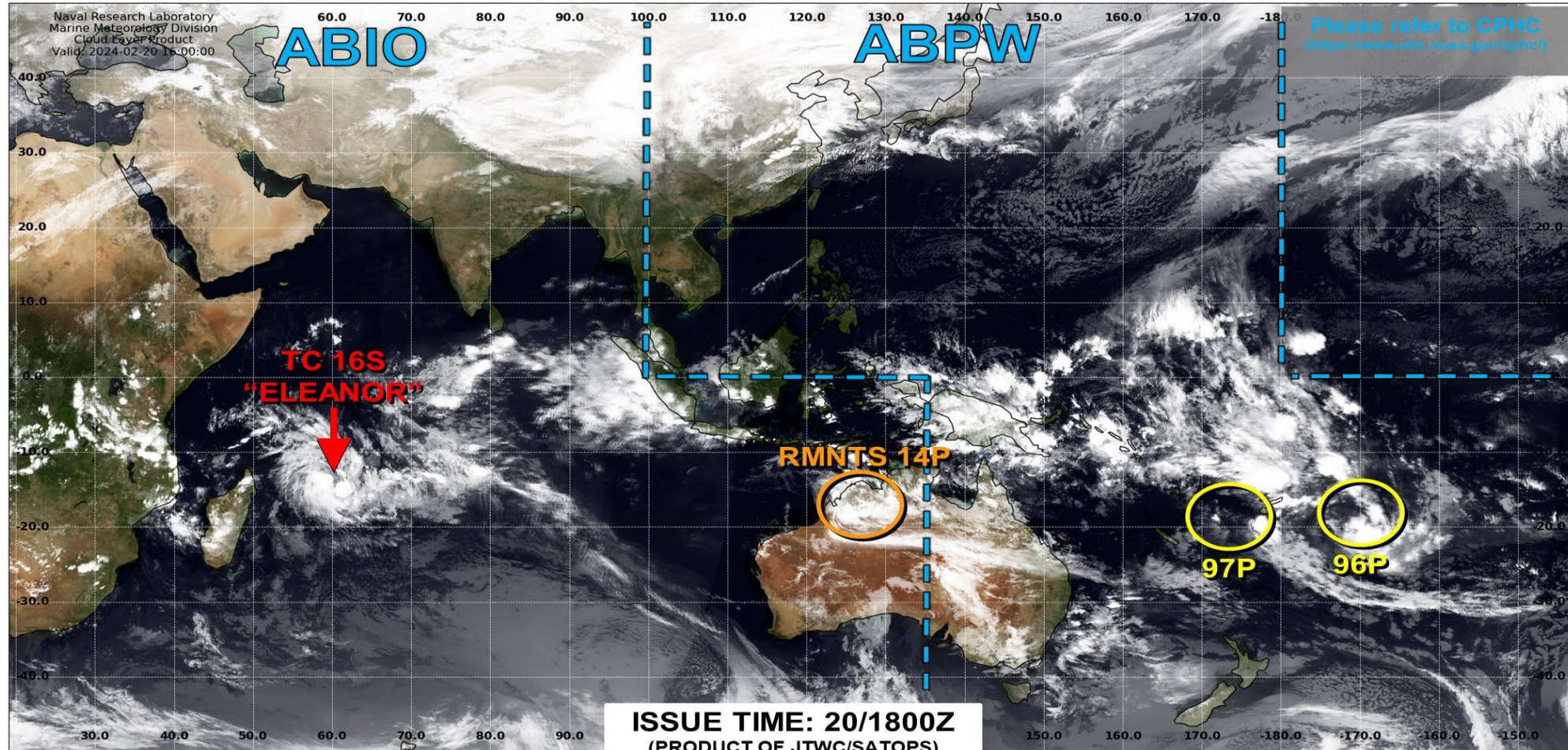


Experimental

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)



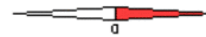
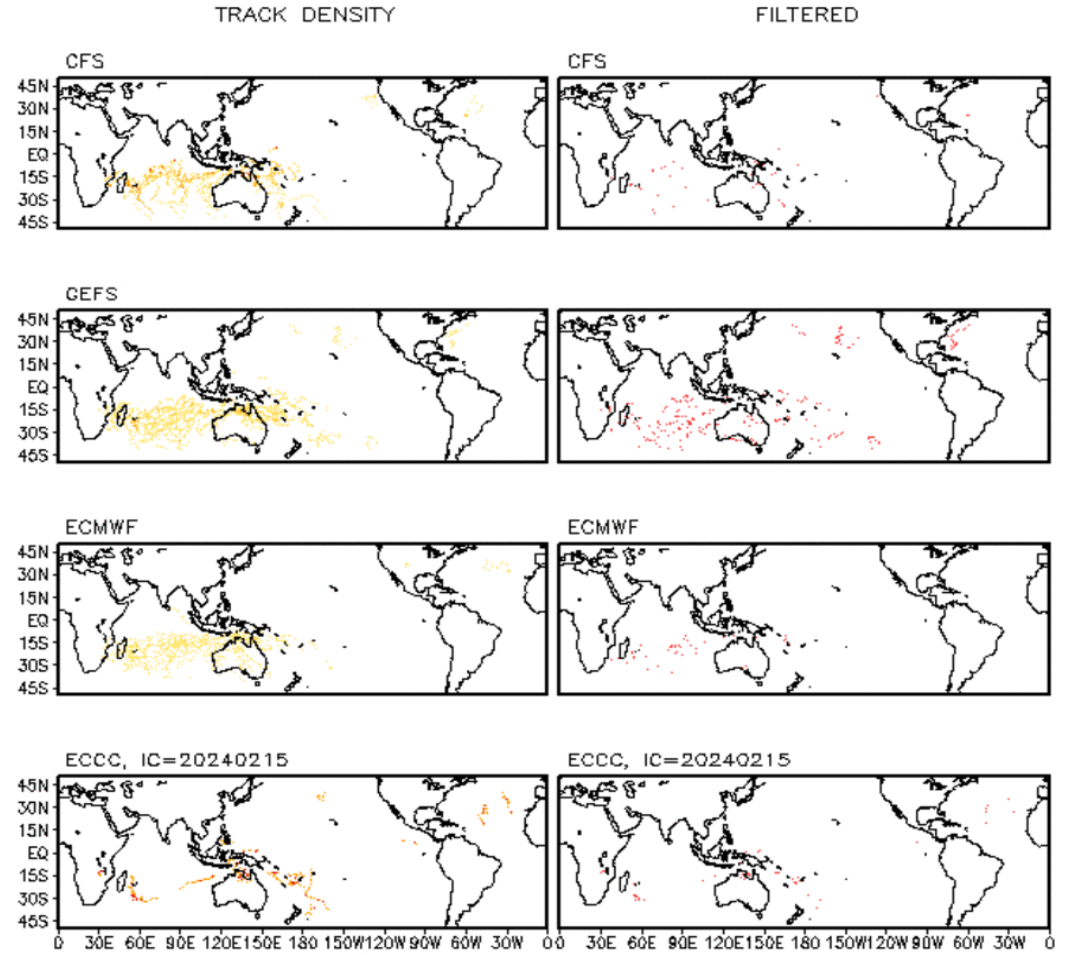
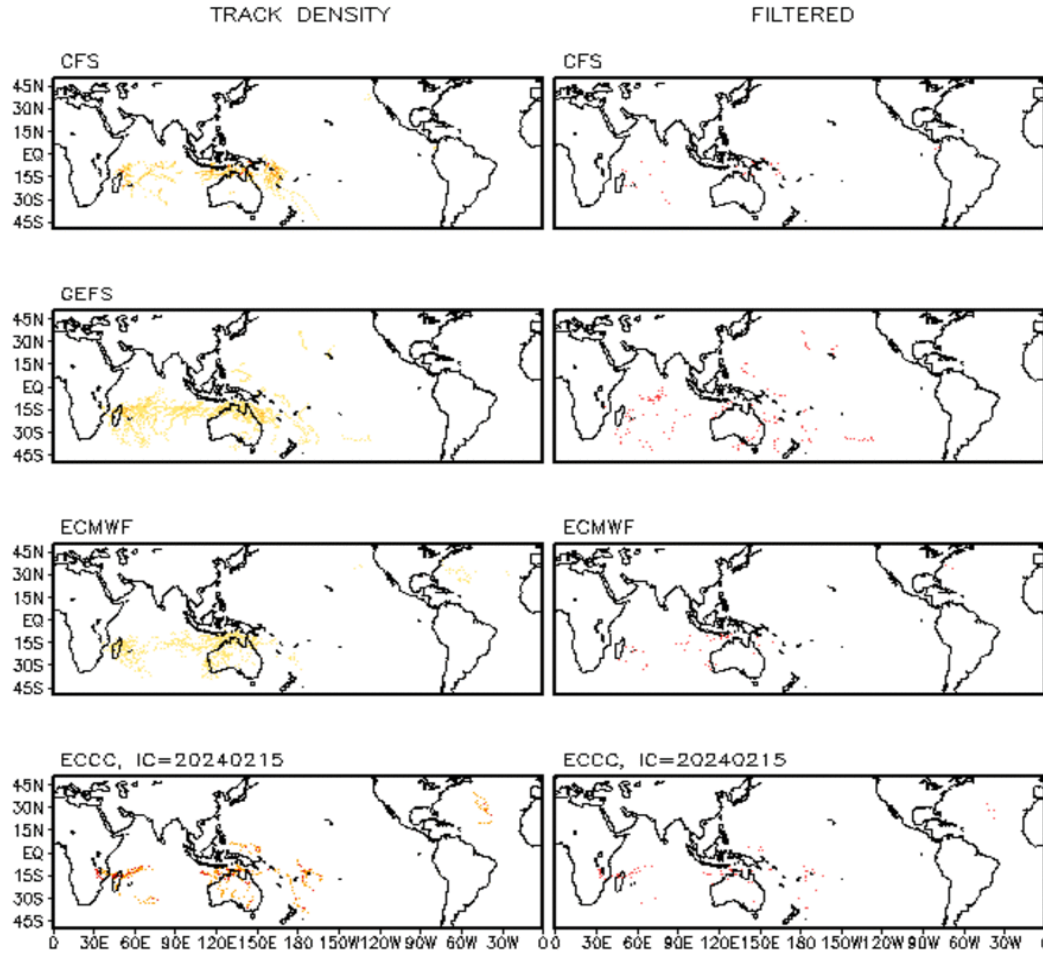
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

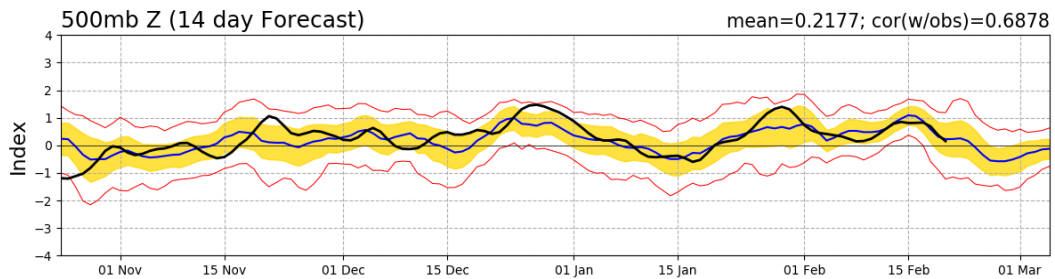
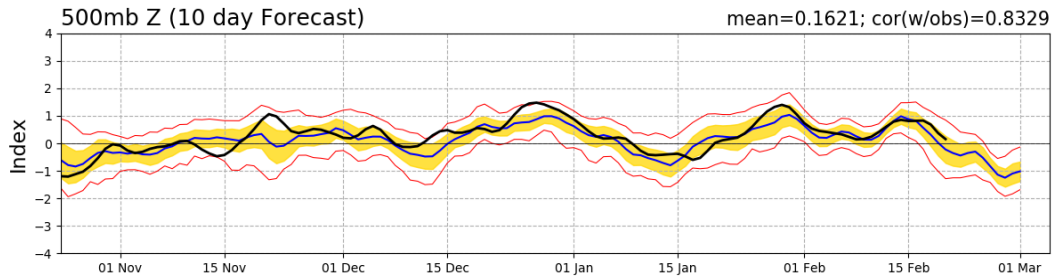
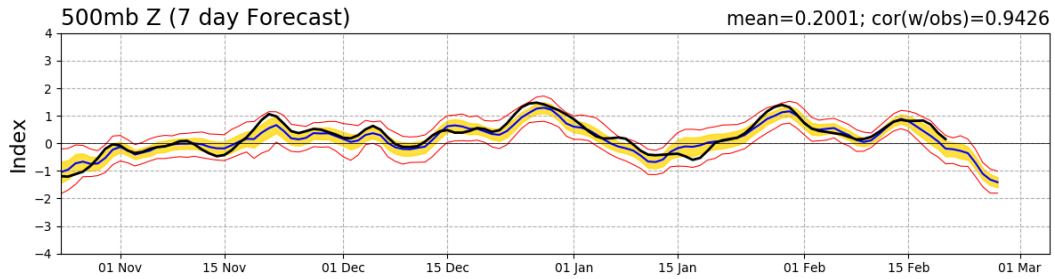
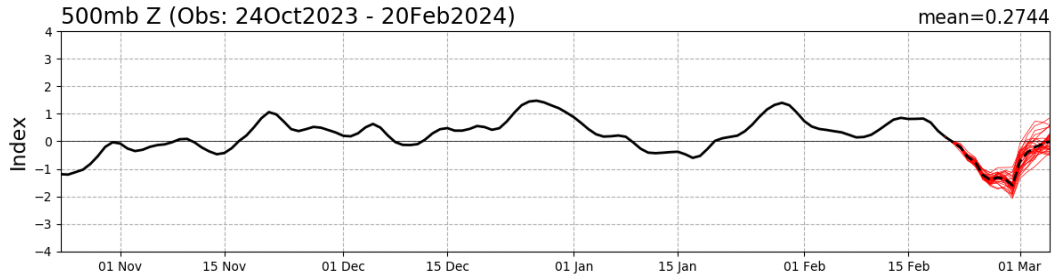
Storm Track Density Distribution, IC=20240219
Week 2 Forecast: 0228-0305

Storm Track Density Distribution, IC=20240219
Week 3 Forecast: 0306-0312

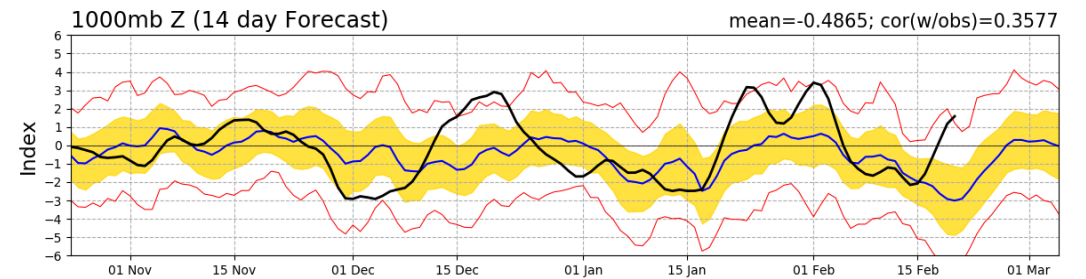
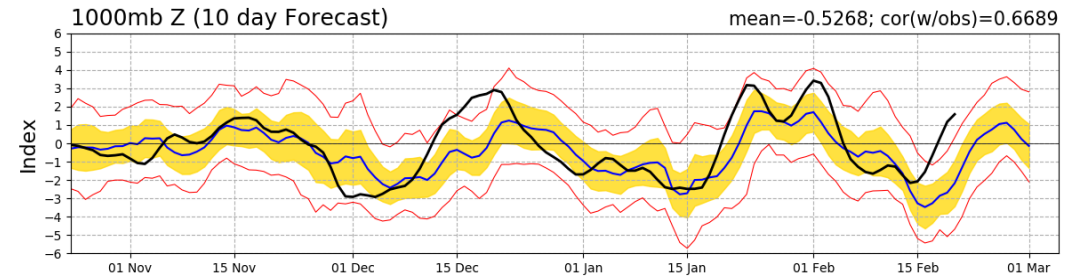
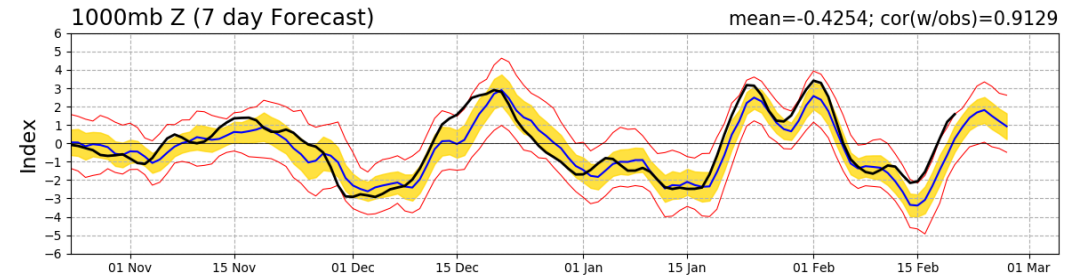
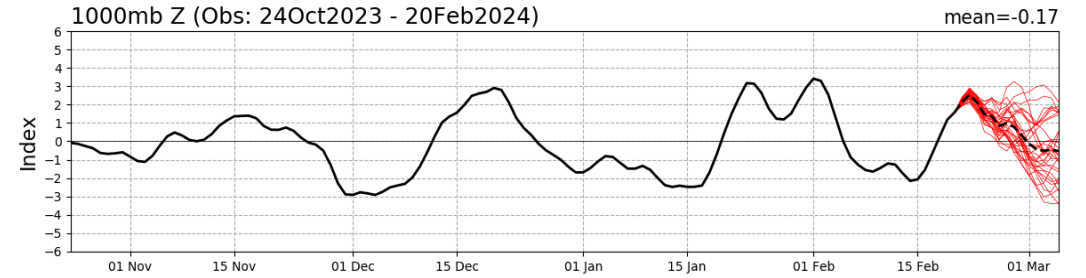


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



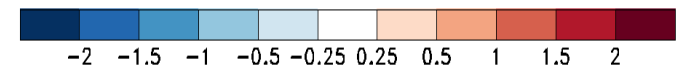
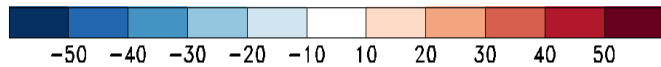
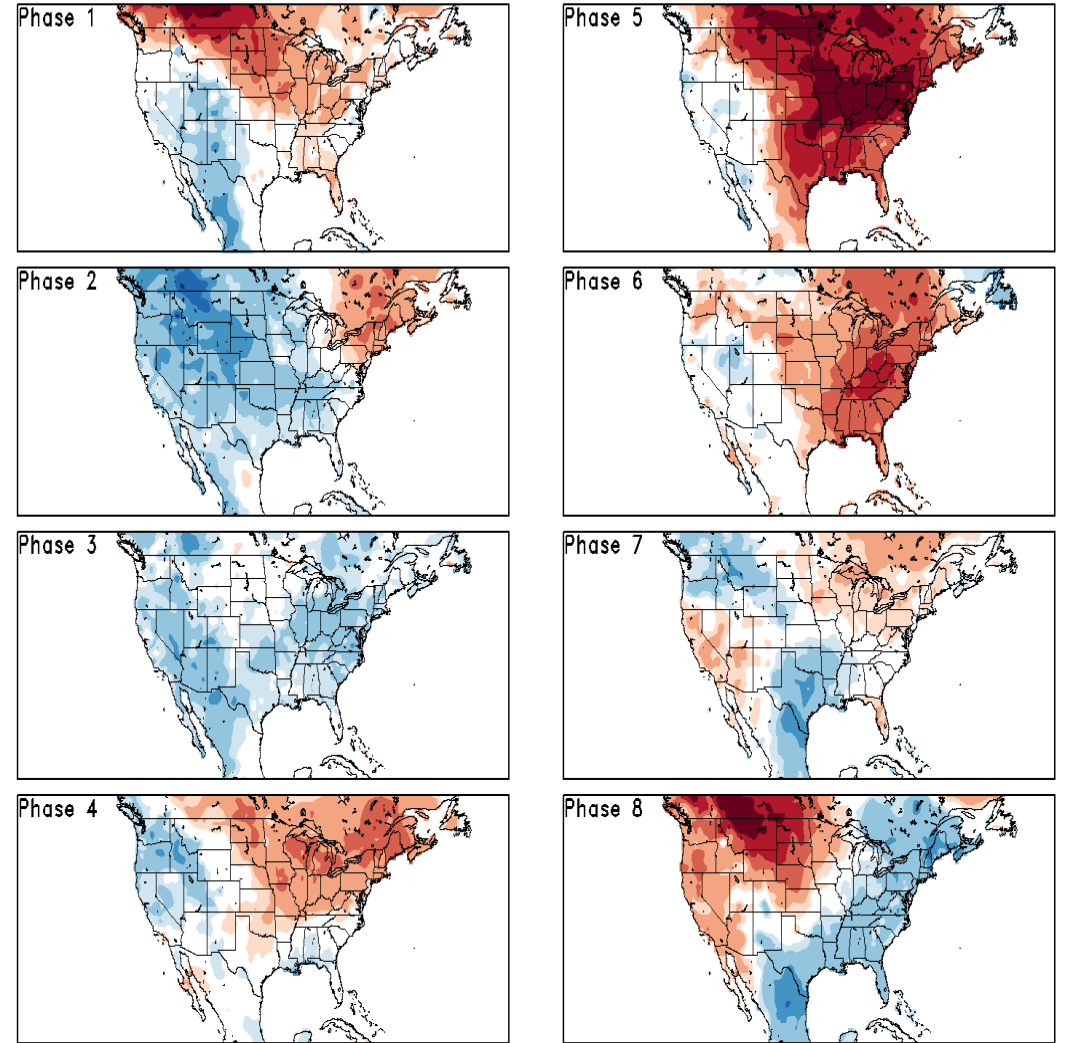
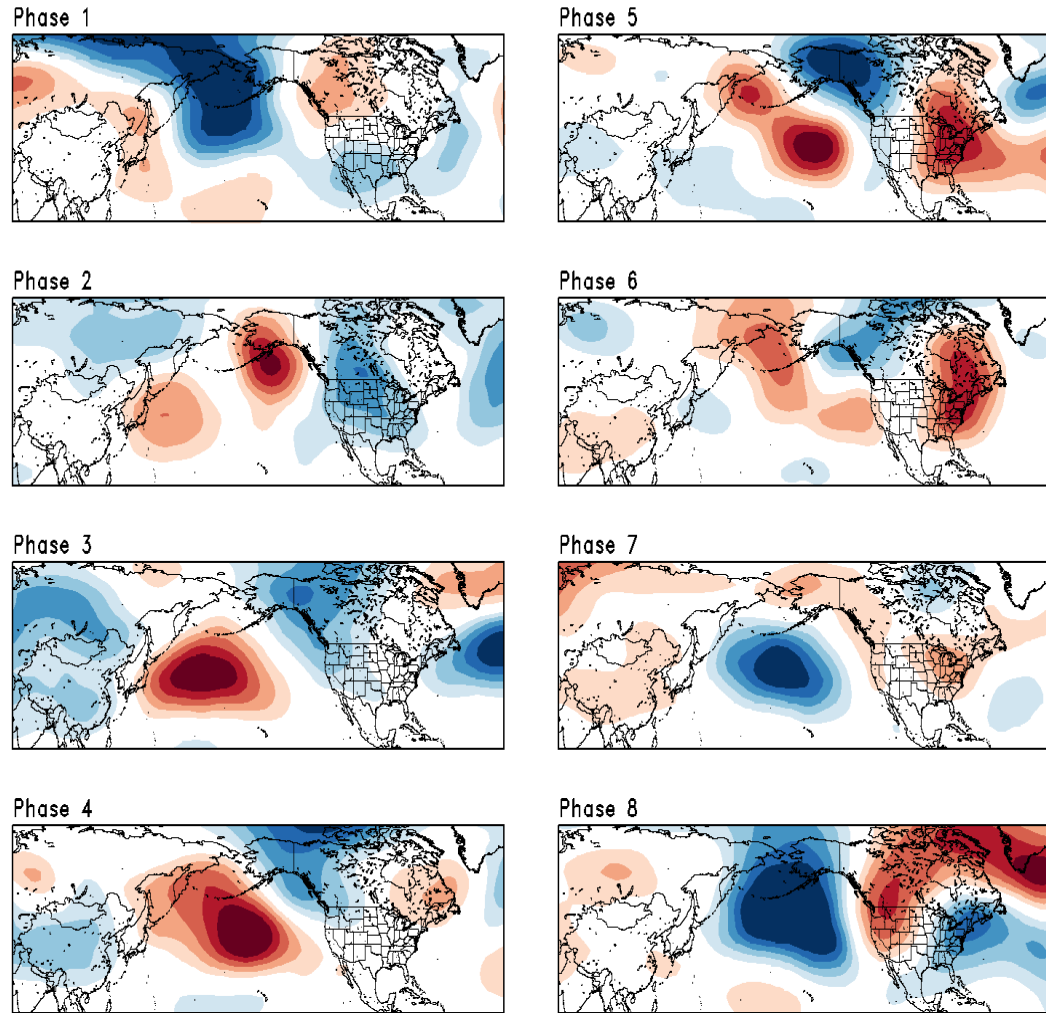
AO Index: Observed & GEFS Forecasts



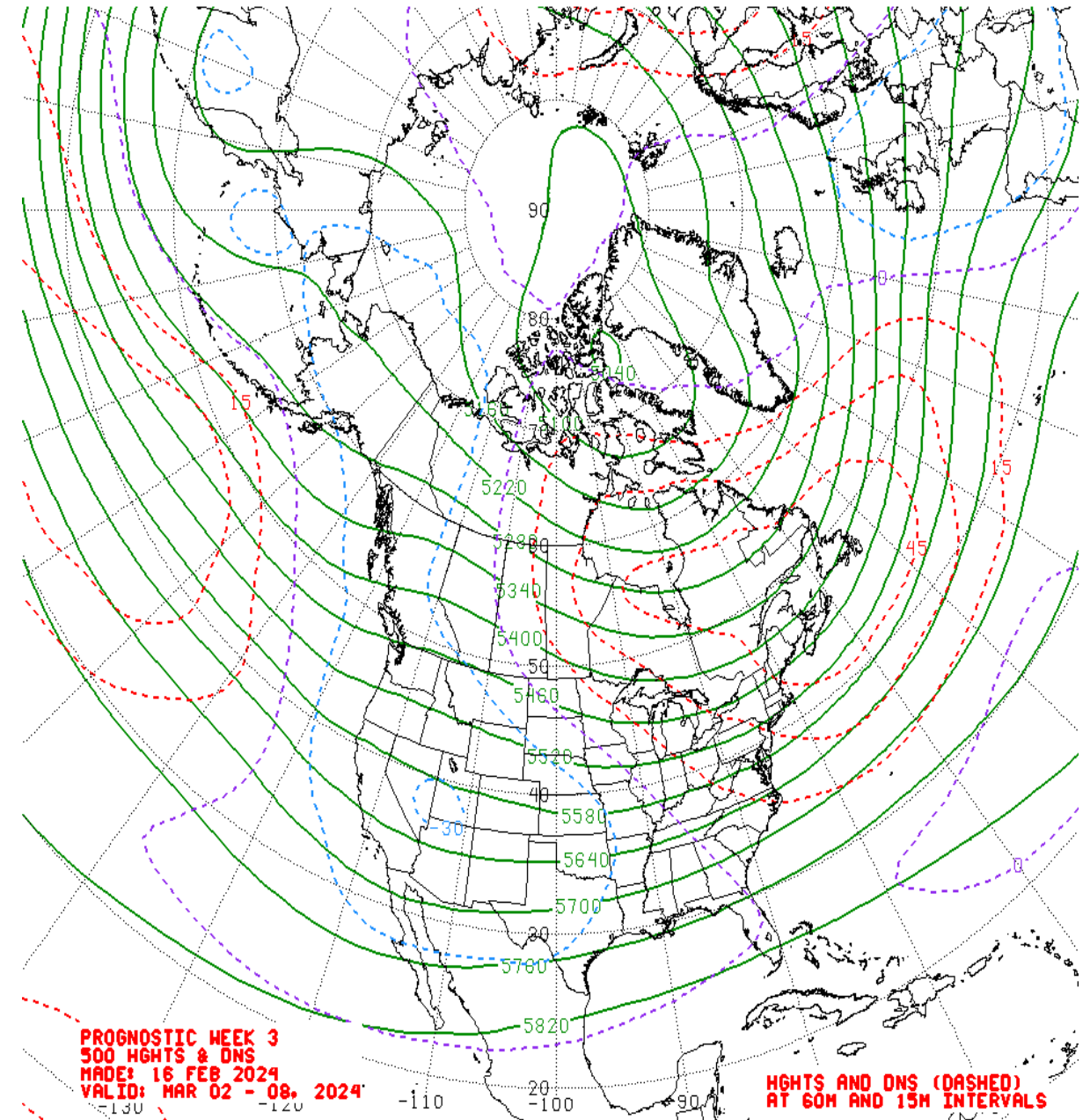
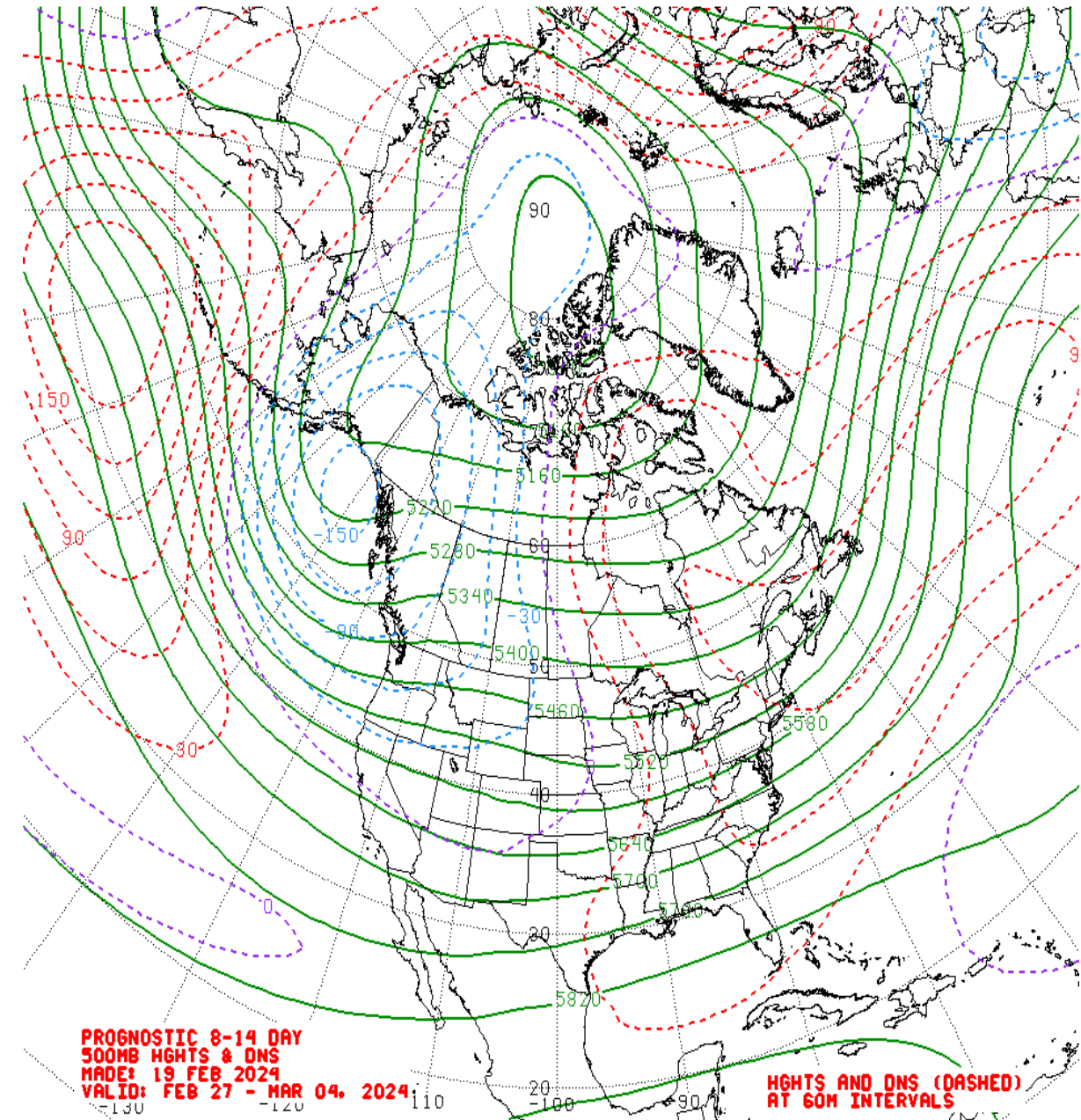
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

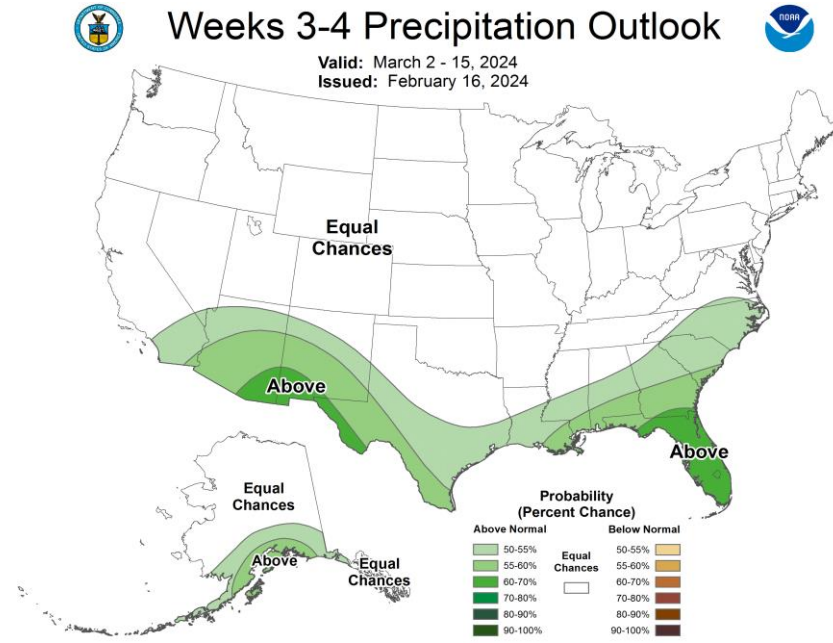
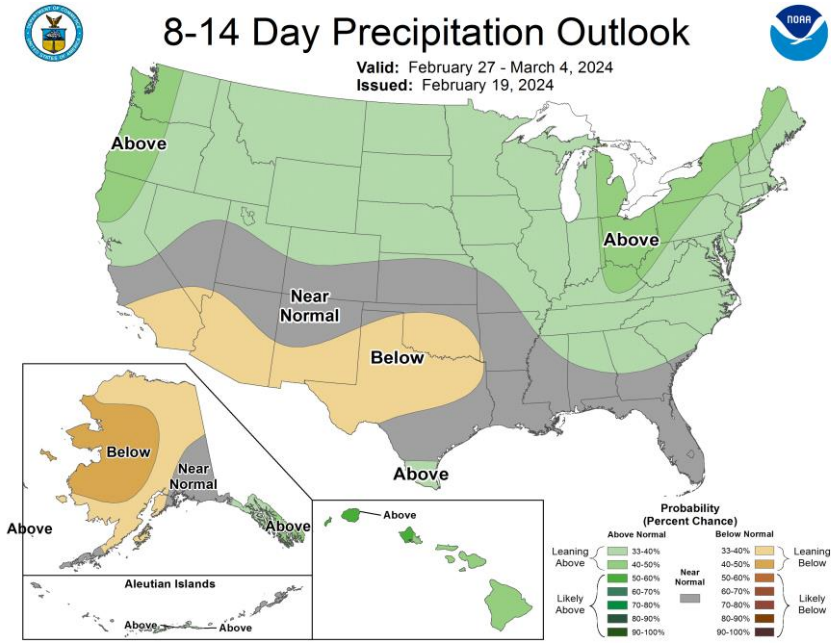
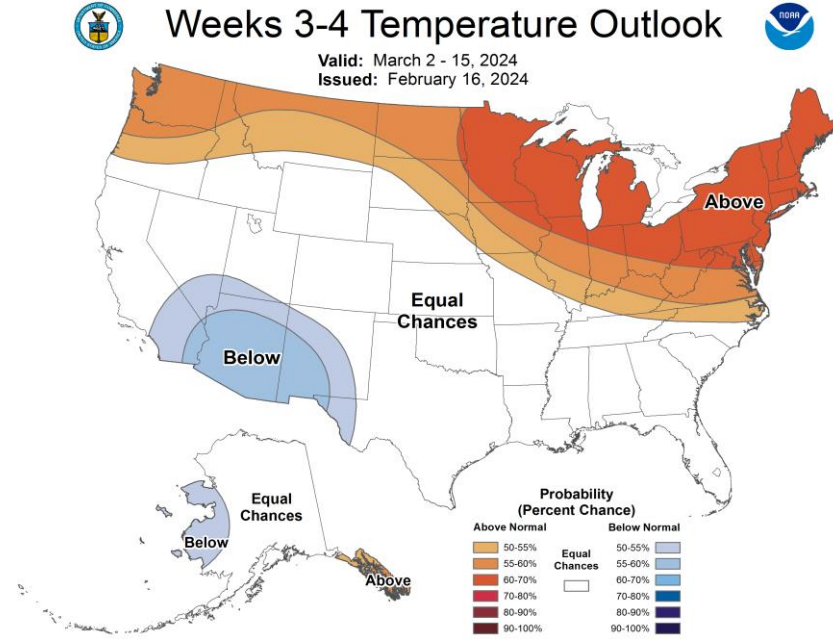
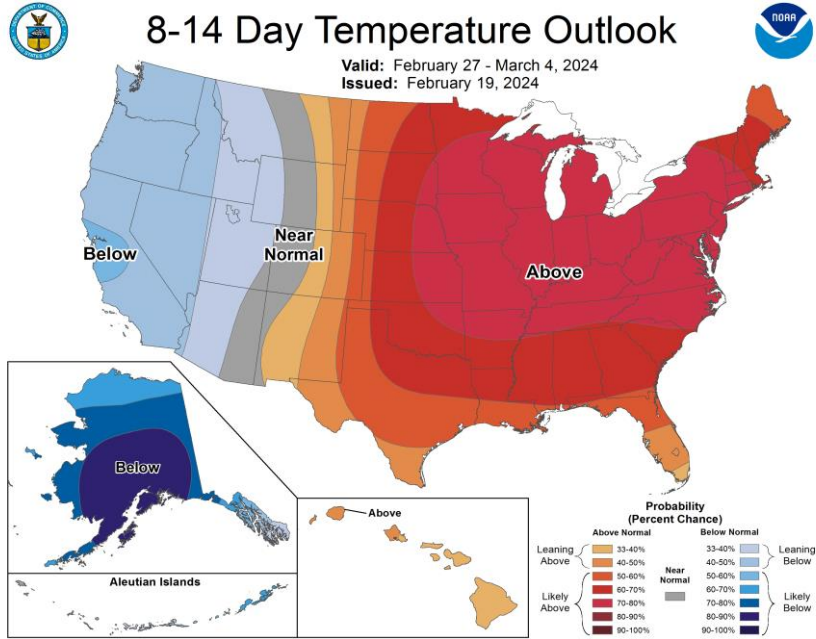
JFM MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



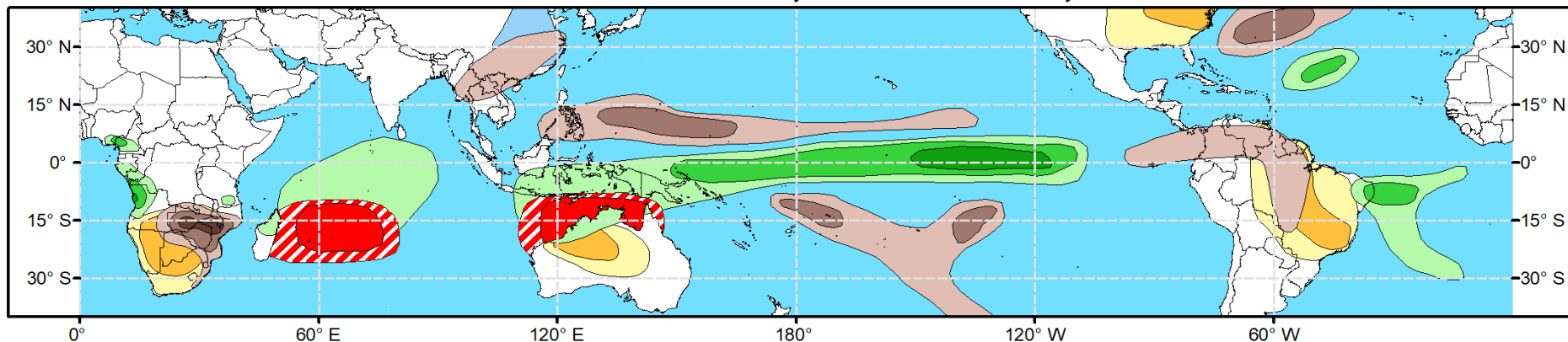


Global Tropics Hazards Outlook

Climate Prediction Center

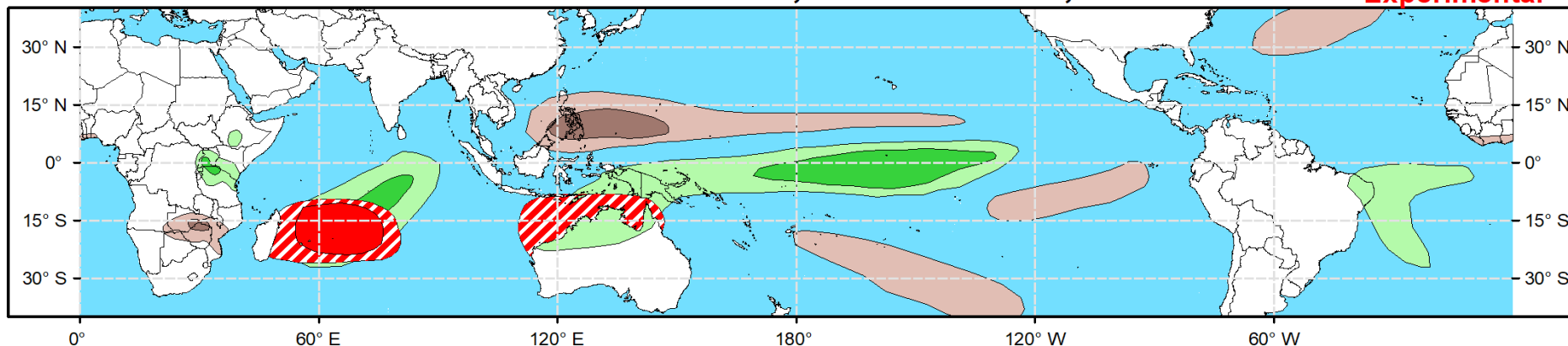


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