



Weeks 2-3 Global Tropics Hazards Outlook

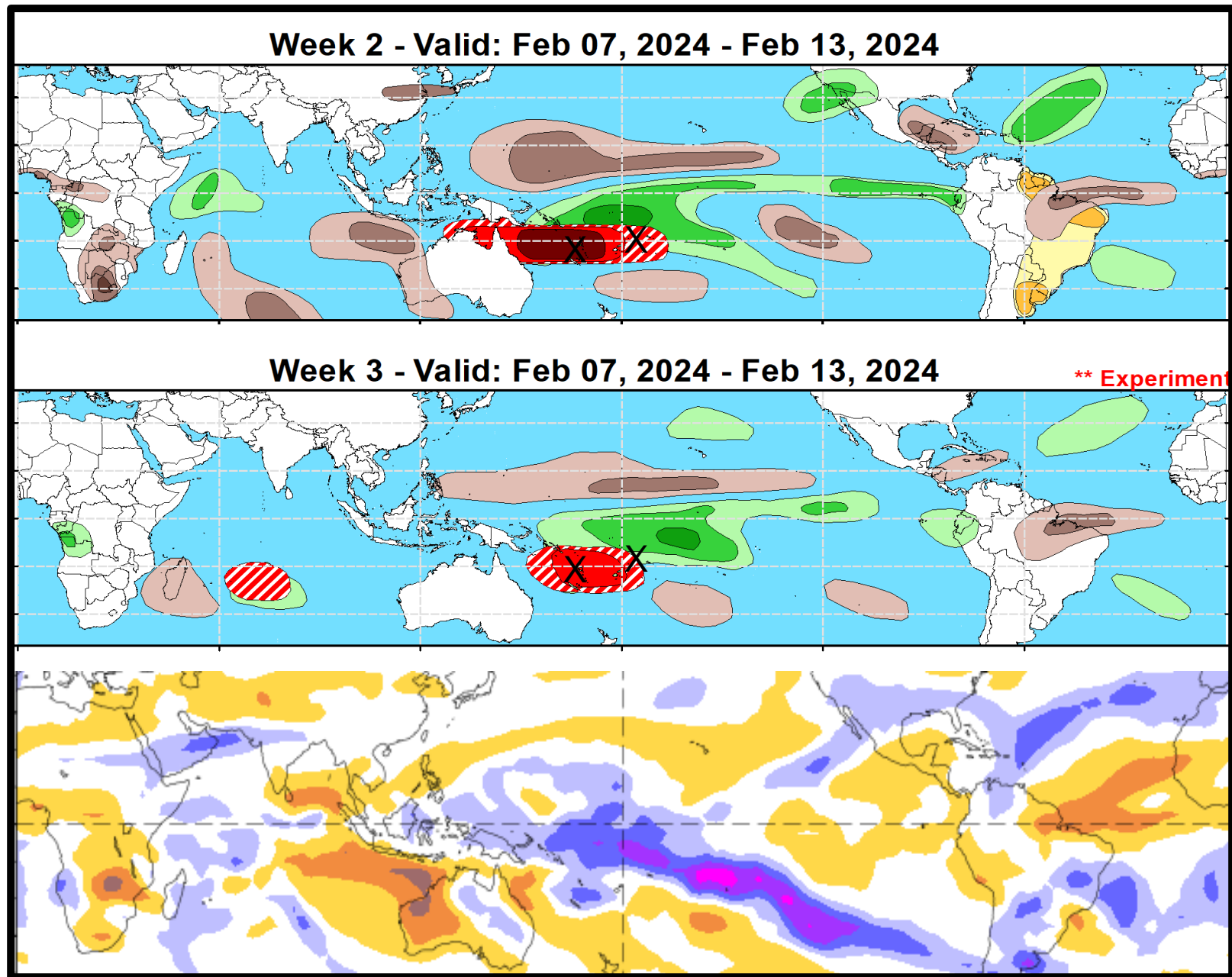
2/13/2023

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- SPAC: OSAI (2/7)
- SPAC: TC12 (2/8)



Synopsis of Climate Modes:

ENSO: (Aug 11, 2022 Update) *next update on Thursday, Sep 8th*

- 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:

- Since early February, the MJO became more disorganized over the western Pacific likely tied to interfering Rossby wave activity, but has since resumed propagating eastward and currently is located in the Western Hemisphere (phase 8).
- RMM forecasts favor a fairly rapid disorganization of MJO through late February, however this predicted weakening appears to be an undesired effect of RMM computation related to a shift of the low frequency state (+IOD). A healthier MJO is forecast in the outlook, which is supported in the upper-level velocity potential forecasts, though there remains uncertainty in the propagation speed as it returns to the eastern Hemisphere.
- The large-scale environment is expected to be favorable for tropical cyclogenesis over the southern Indian Ocean, with increasingly less favorable conditions for additional development over the South Pacific heading into early March.

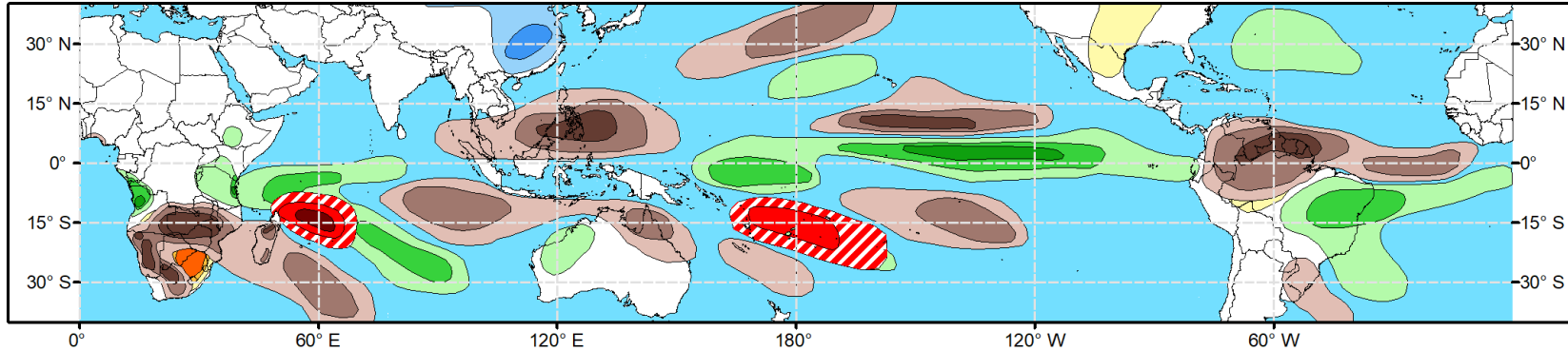
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

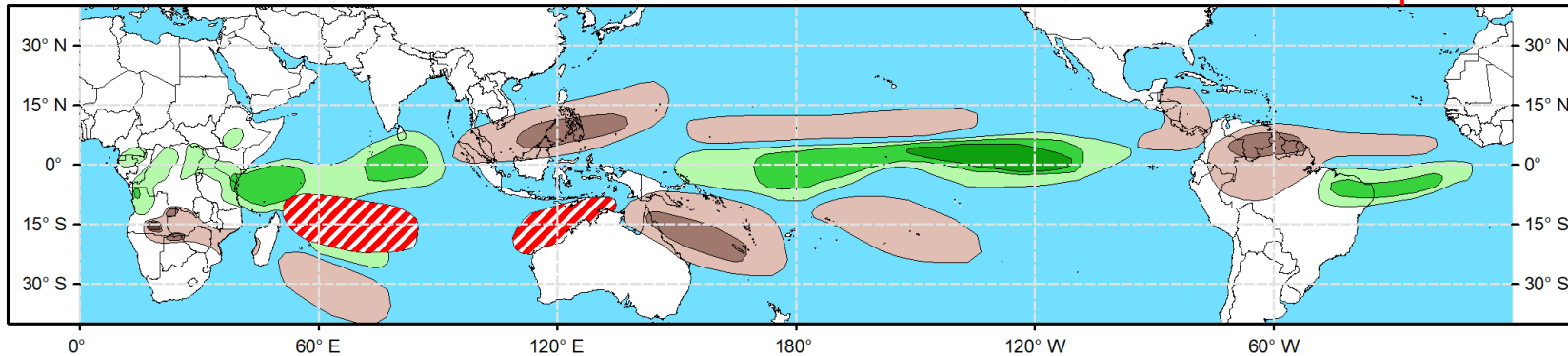


Week 2 - Valid: Feb 21, 2024 - Feb 27, 2024



Week 3 - Valid: Feb 28, 2024 - Mar 05, 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
Upper third of the historical range*

**Below-Average
Temperatures Probability**



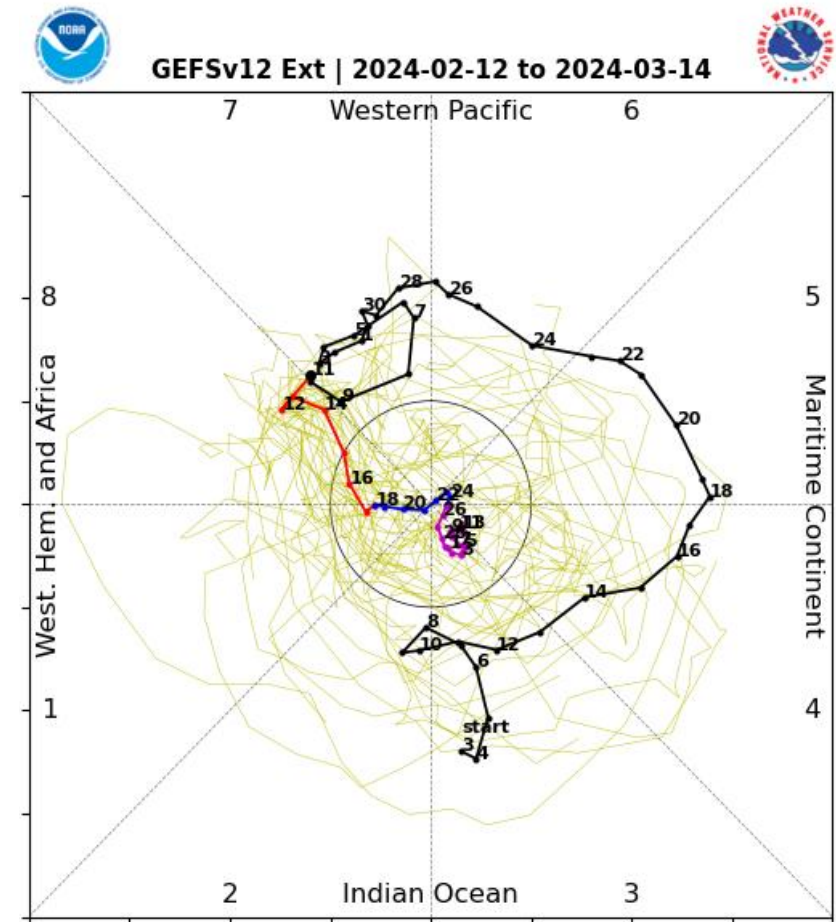
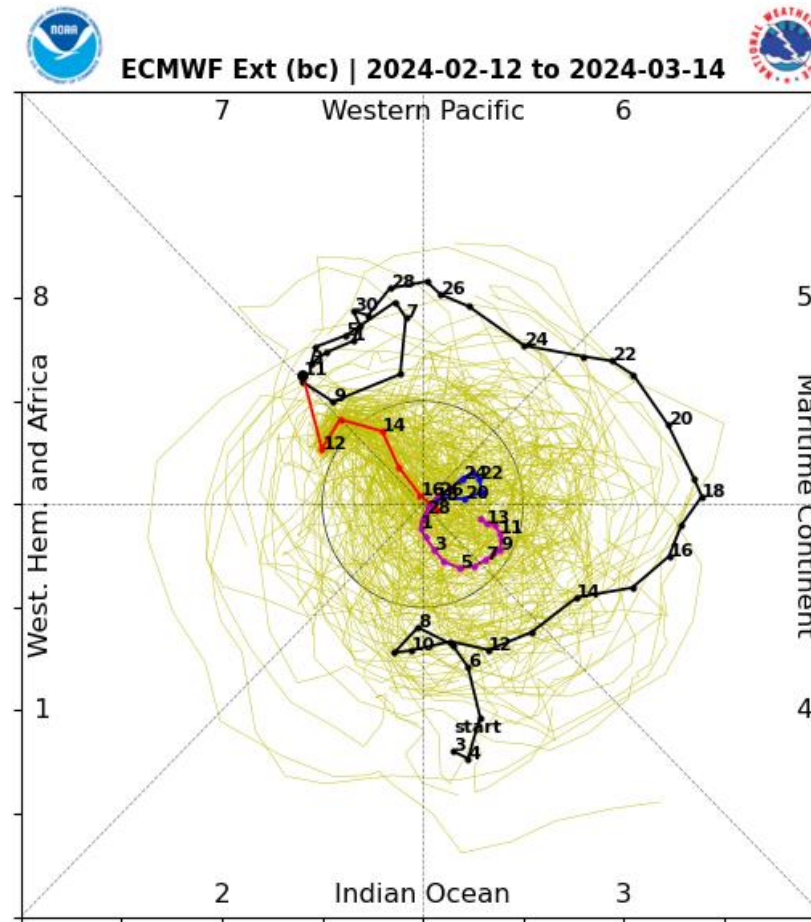
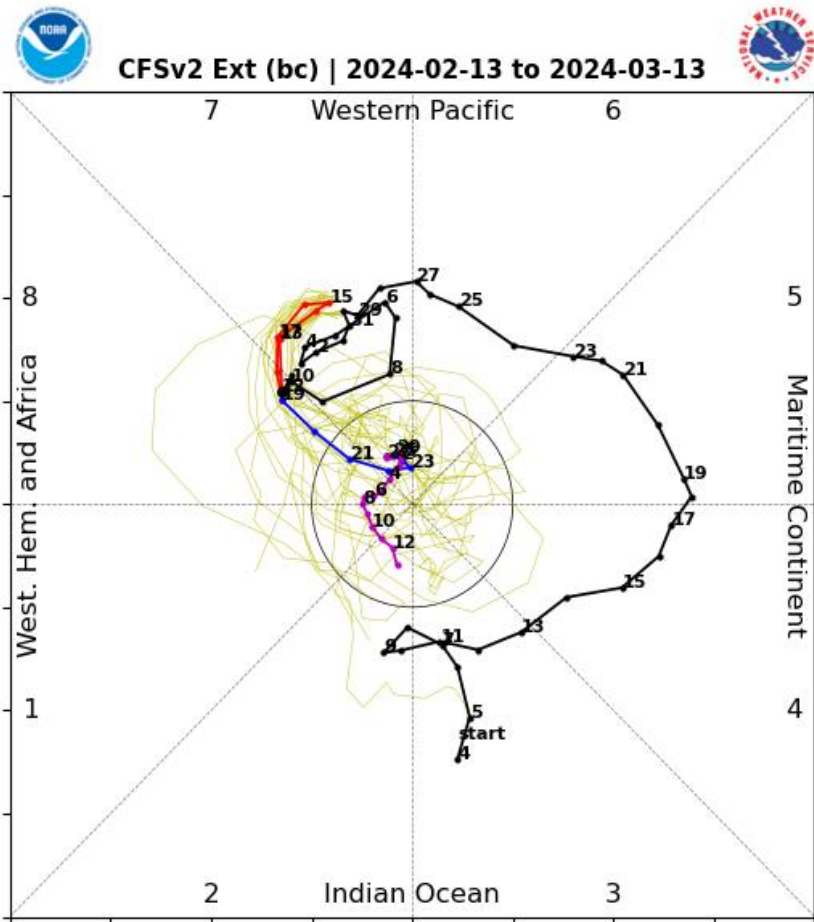
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*7-day min temperatures in the
Lower third of the historical range*

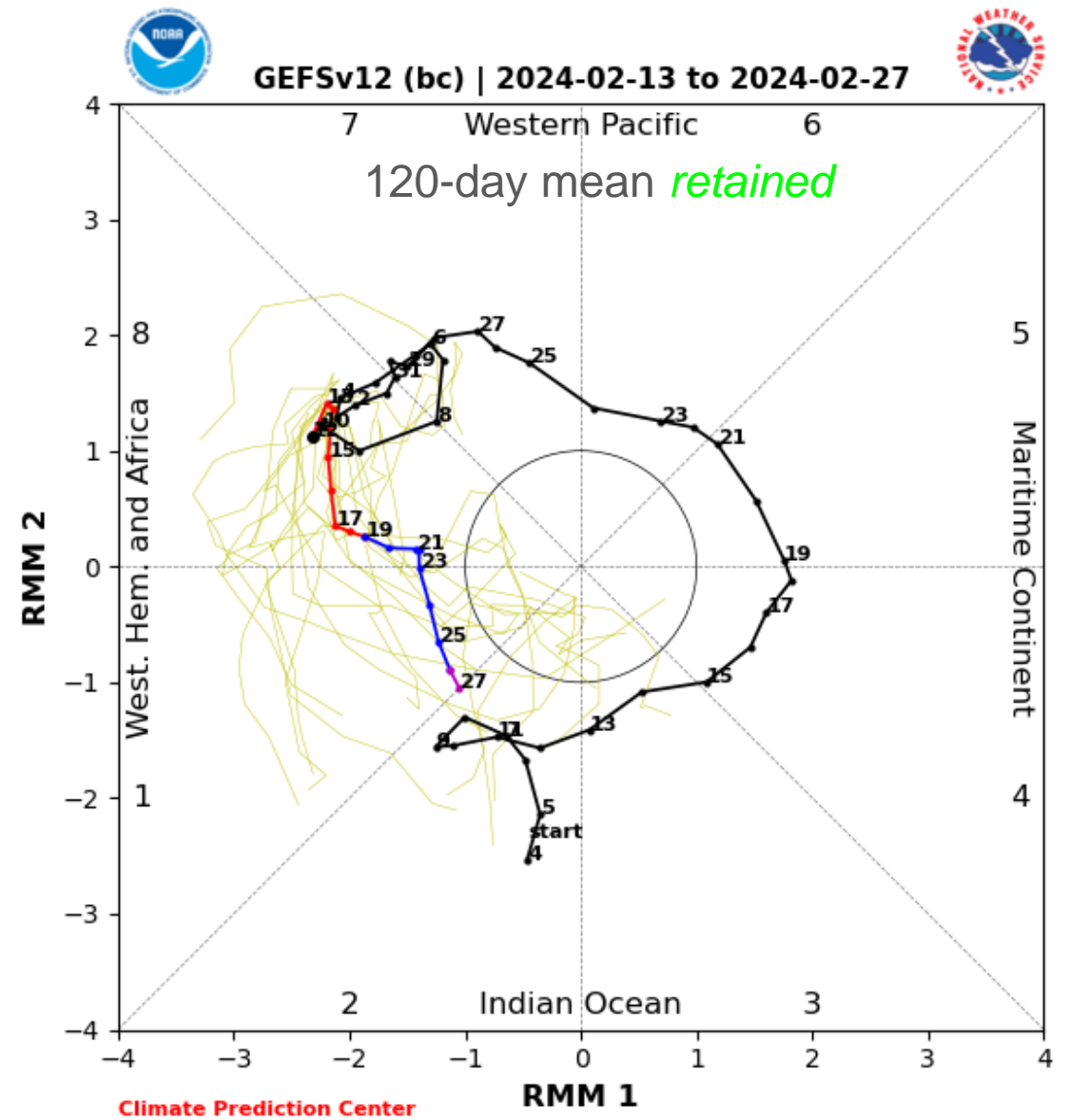
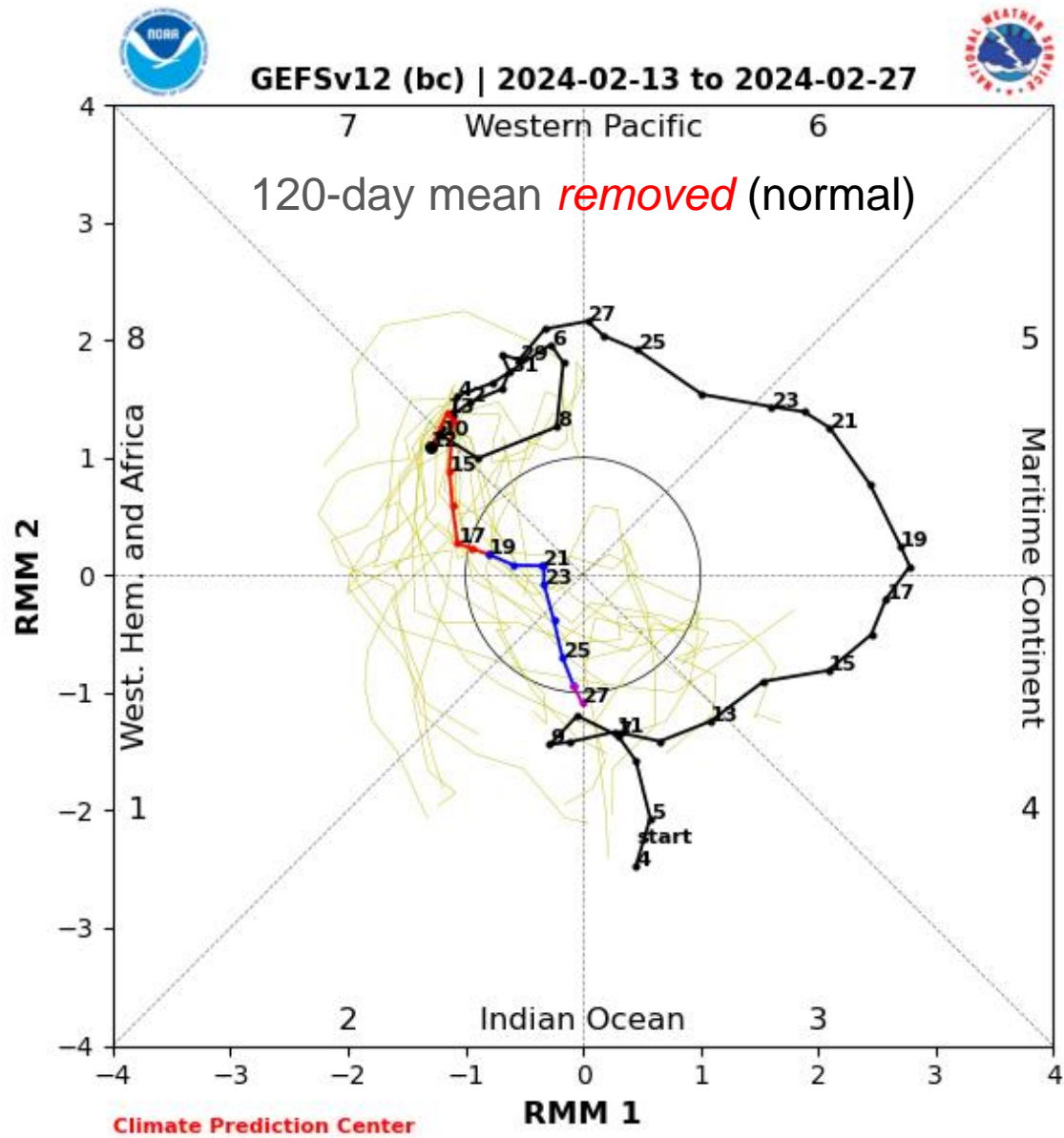
**Issued: 02/13/2024
Forecaster: Novella**

**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:

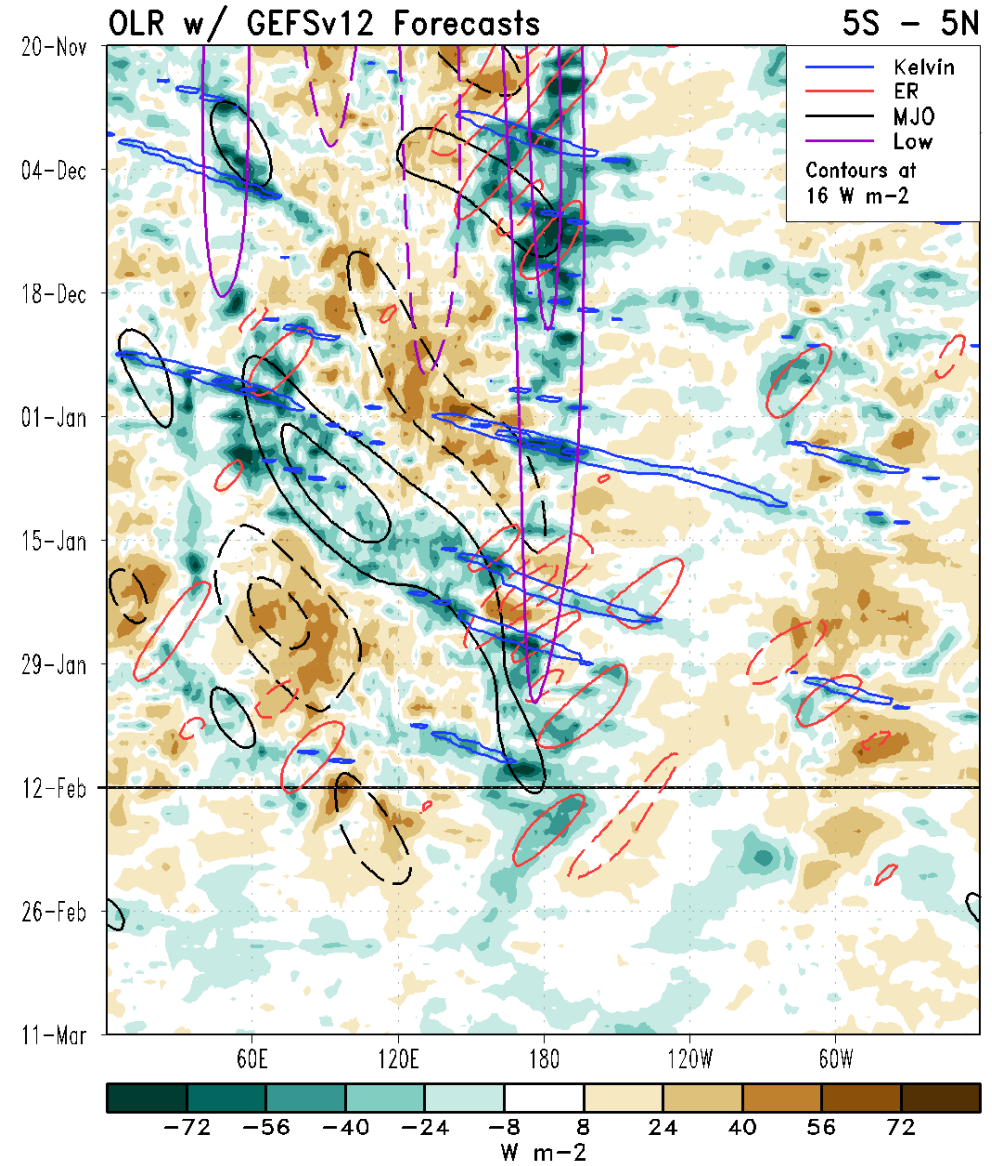
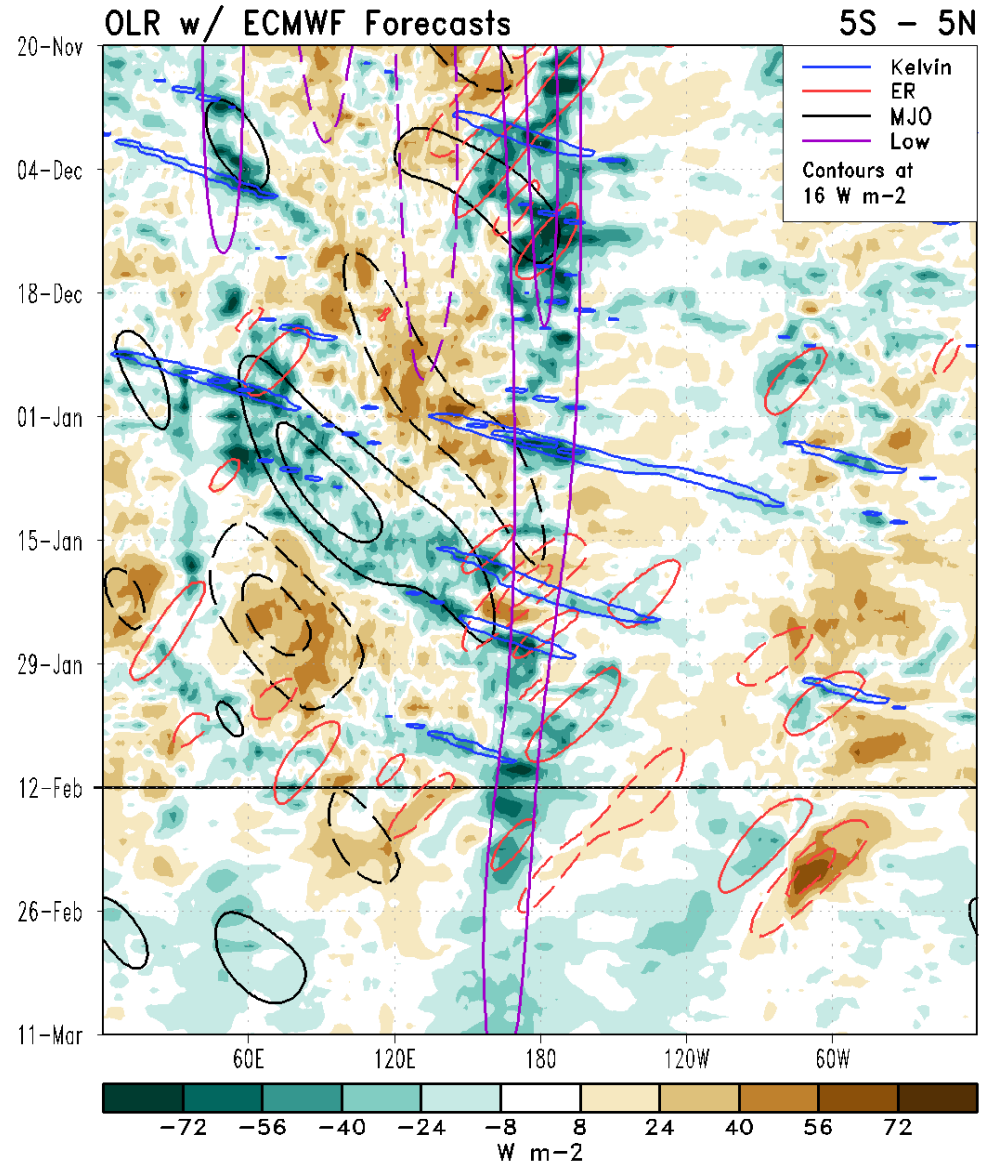


- Some models meander the signal during week-1, but all weaken the signal within the next two weeks.



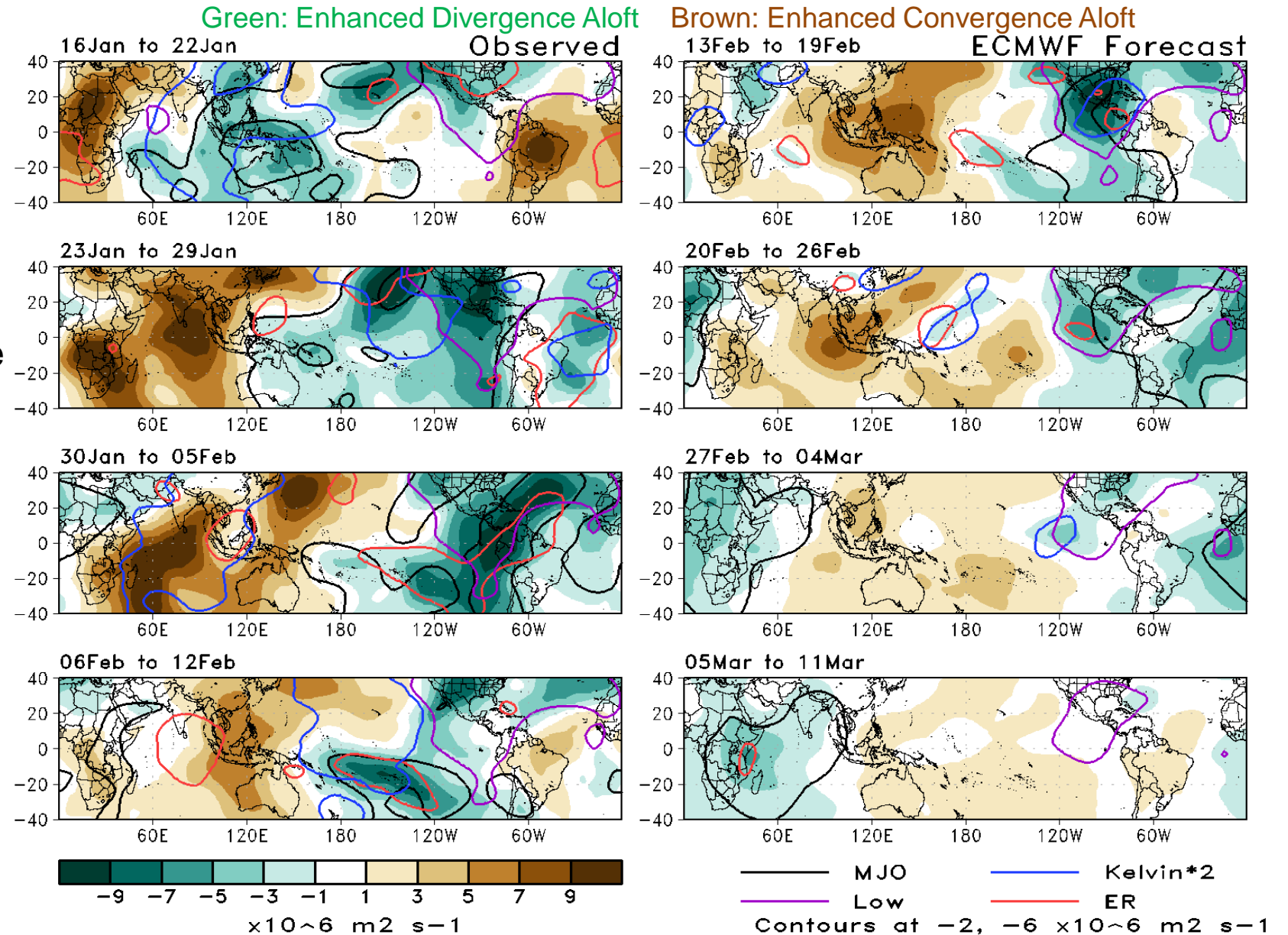
The strong +IOD from past fall appears to exerting a dominating influence on the mean resulting in a left to right shift of RMM values (RMM1). Because the +IOD response is no longer evident in the tropical circulation, the eastward propagating signals forecast over phases 8+1 are likely to be higher in amplitude

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



200-hPa Velocity Potential Anomaly Maps:

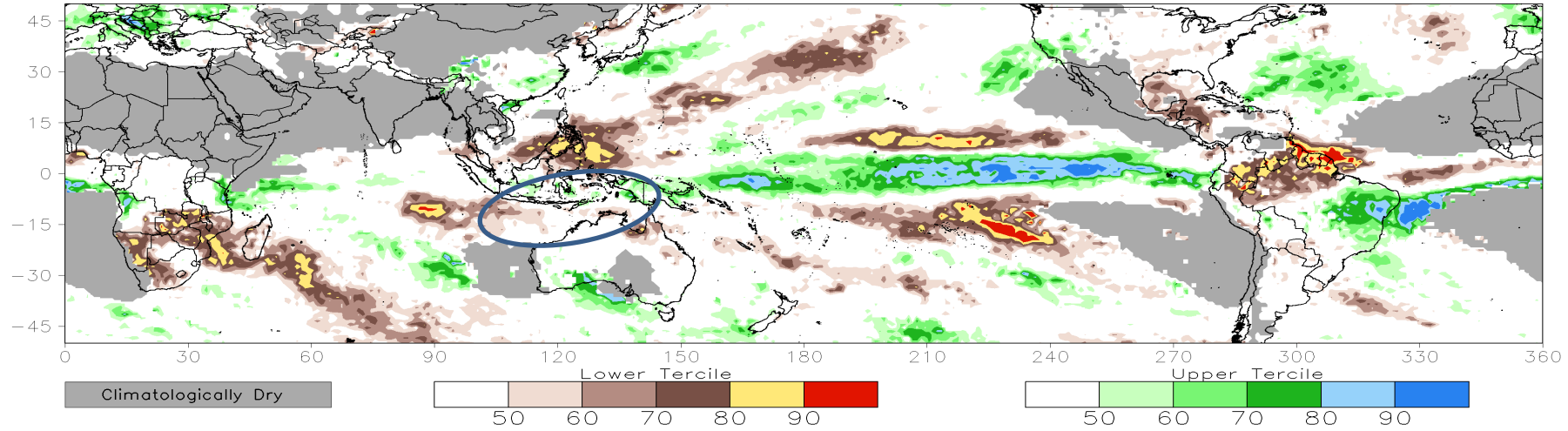
- Competing interference with **Rossby wave** activity led to a more disorganized pattern during the past week.
- Even with continued interference with other tropical modes in the coming weeks, forecasts maintain **MJO activity** coming through the filtering. A wave-1 pattern takes better shape, with the enhanced phase reaching the Indian Ocean by early October.
- The GEFS favors a faster evolution in the VP forecasts.



Consolidated Probabilistic Precipitation: Weeks 2 & 3

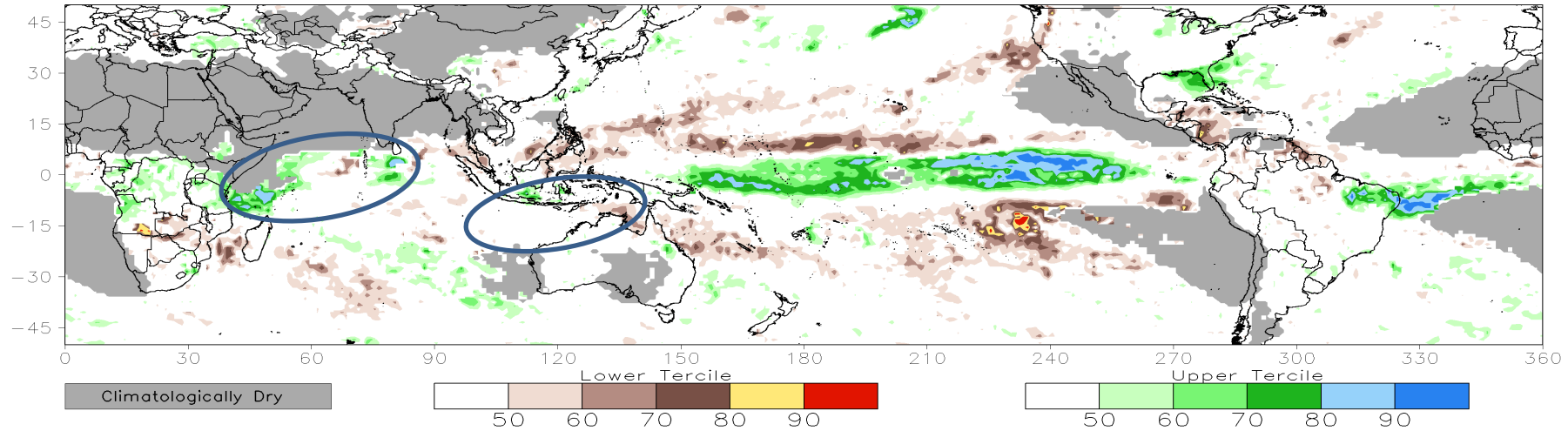
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 21Feb2024–27Feb2024



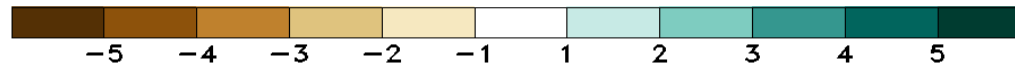
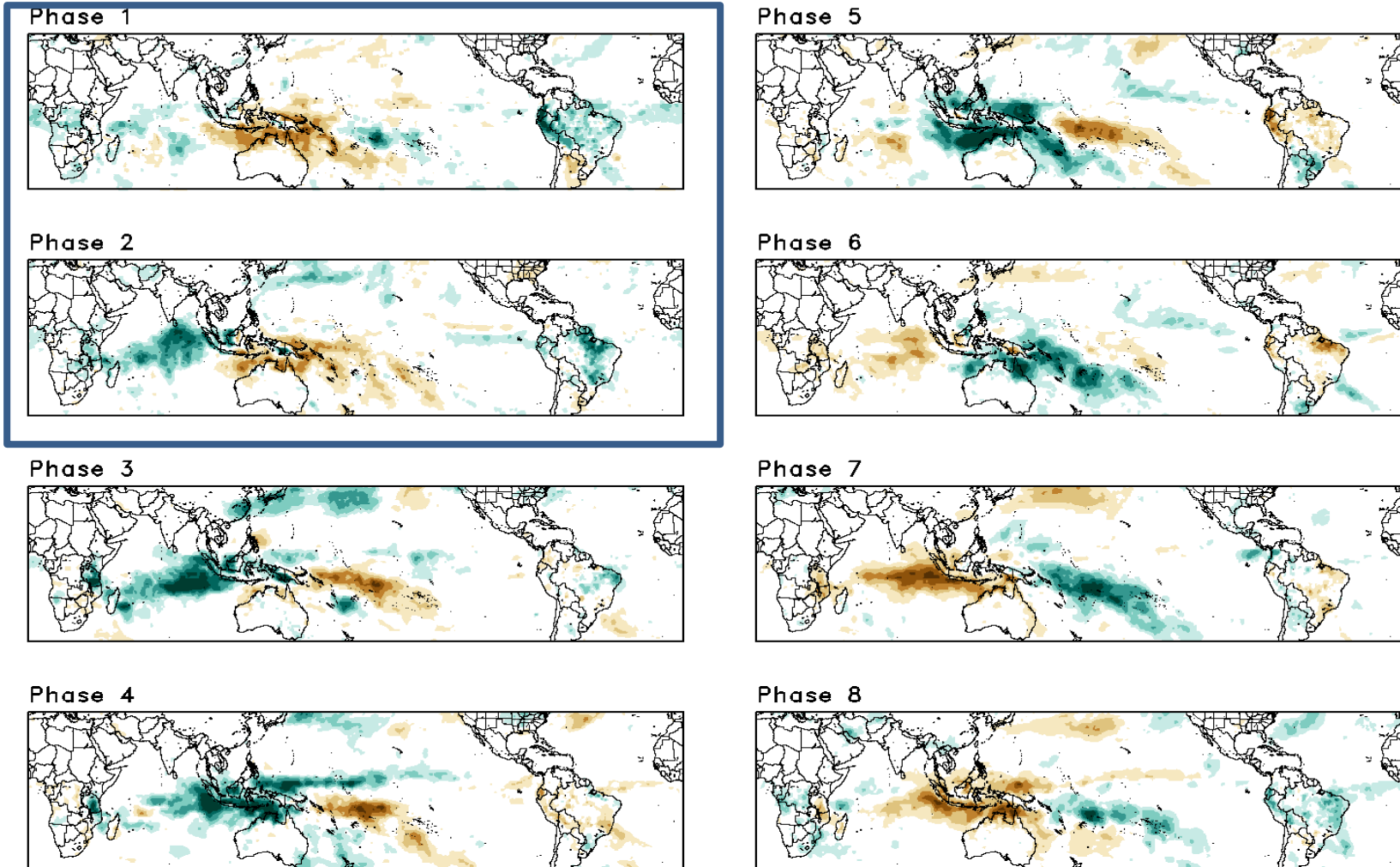
CONS 00z: Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 28Feb2024–05Mar2024



Historical Precipitation Anomalies By MJO Phase:

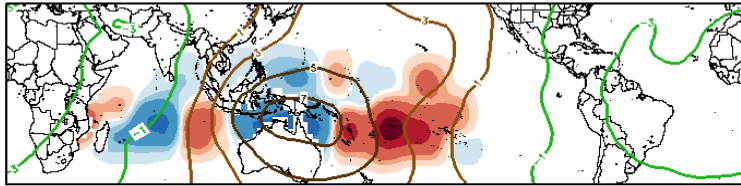
JFM MJO Composite: GPCP1DD (mm/day)



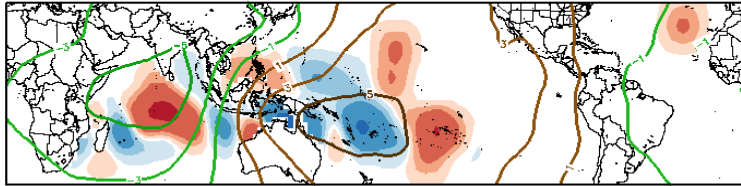
Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

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

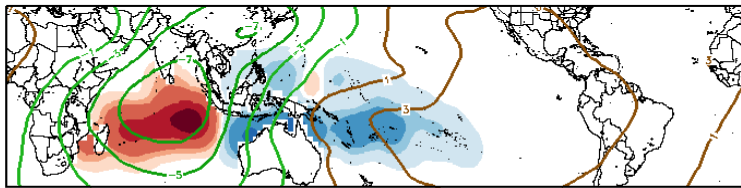
w/ JFM CH200 ($\times 10^{-6} m^2 s^{-1}$) / Contours every $2 \times 10^{-6} m^2 s^{-1}$



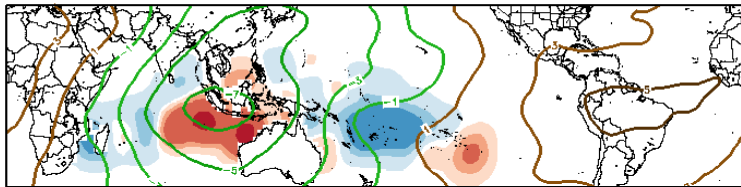
Phase 1



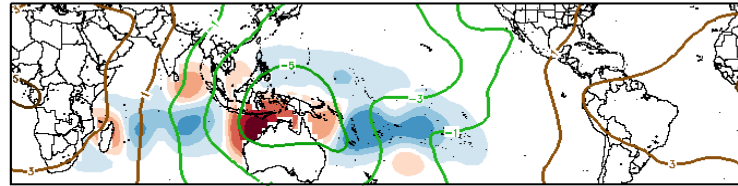
Phase 2



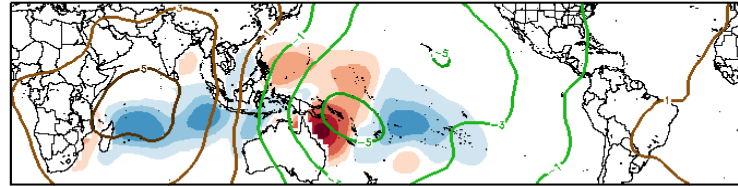
Phase 3



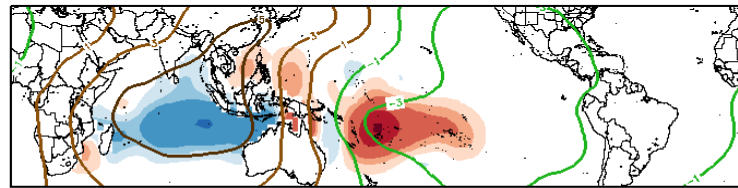
Phase 4



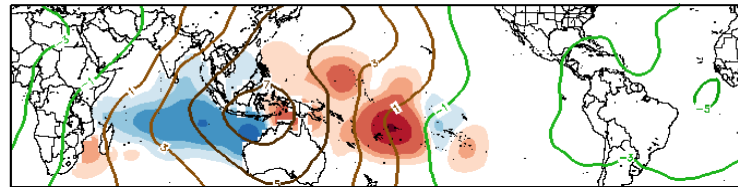
Phase 5



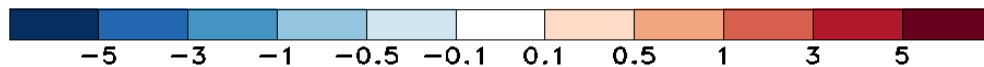
Phase 6



Phase 7

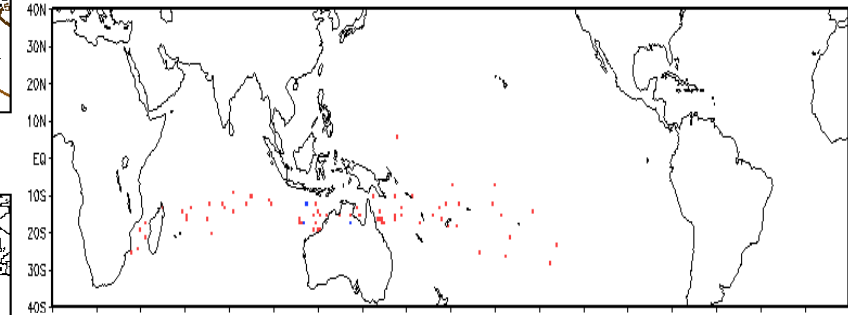


Phase 8



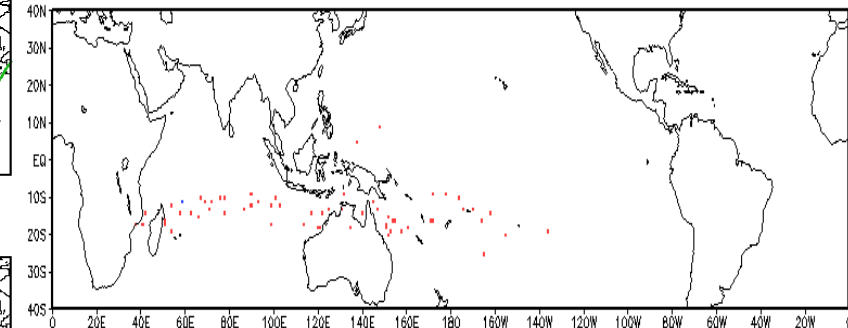
Observed TC Genesis, 1979-2021

7-day Period 0221 to 0227



Observed TC Genesis, 1979-2021

7-day Period 0228 to 0306

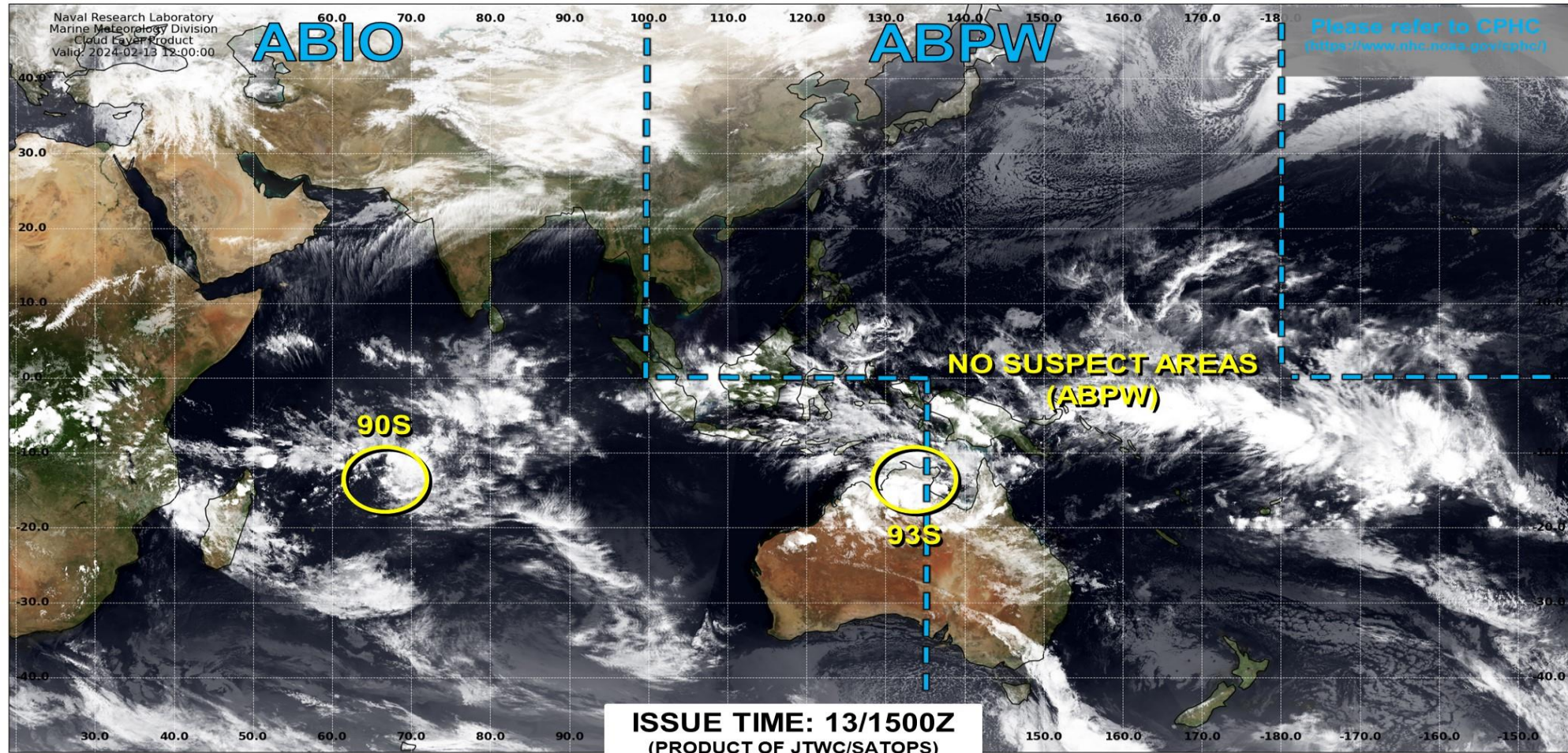


Experimental

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

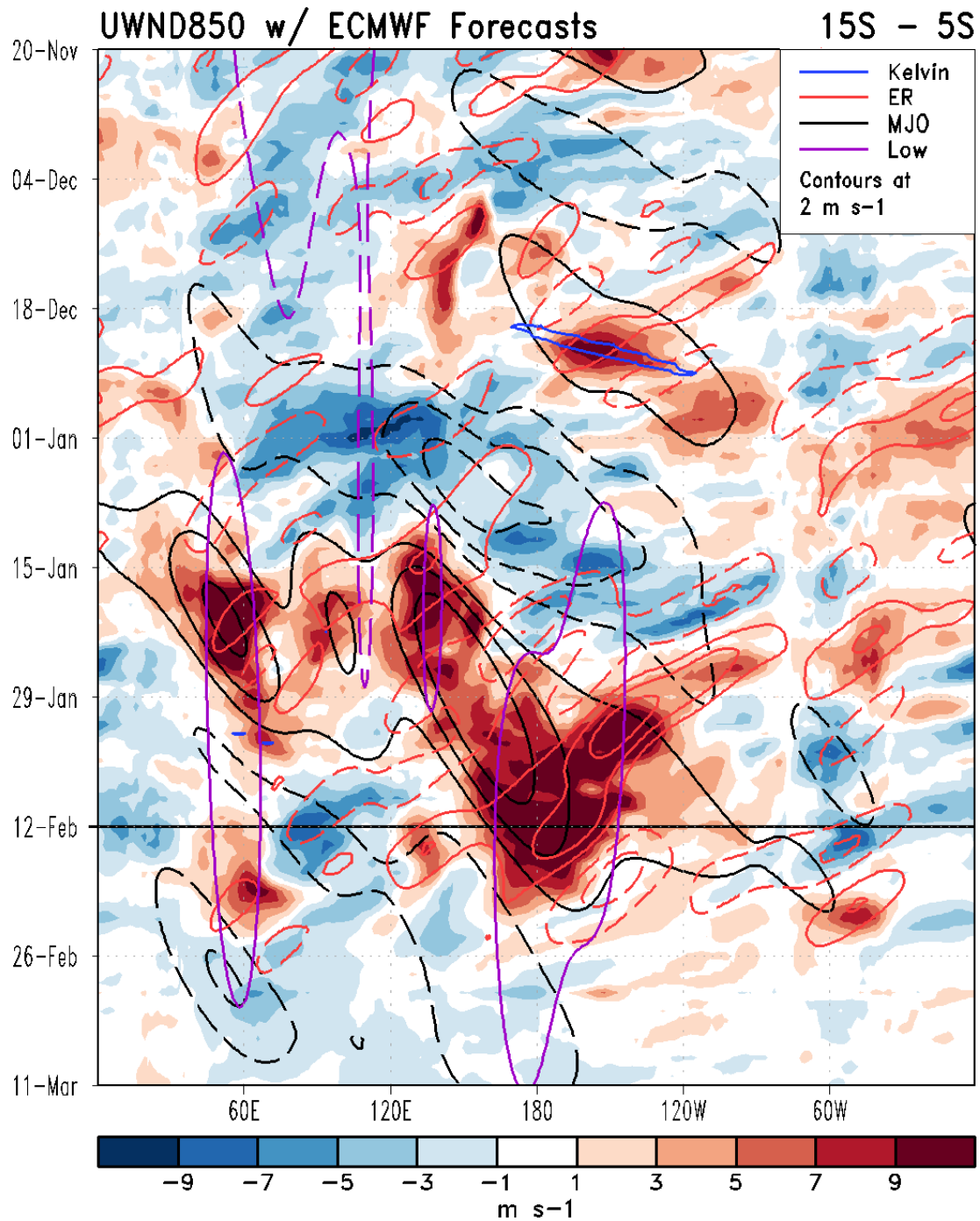


TC development likely within 24 hours (Reference TCFA)

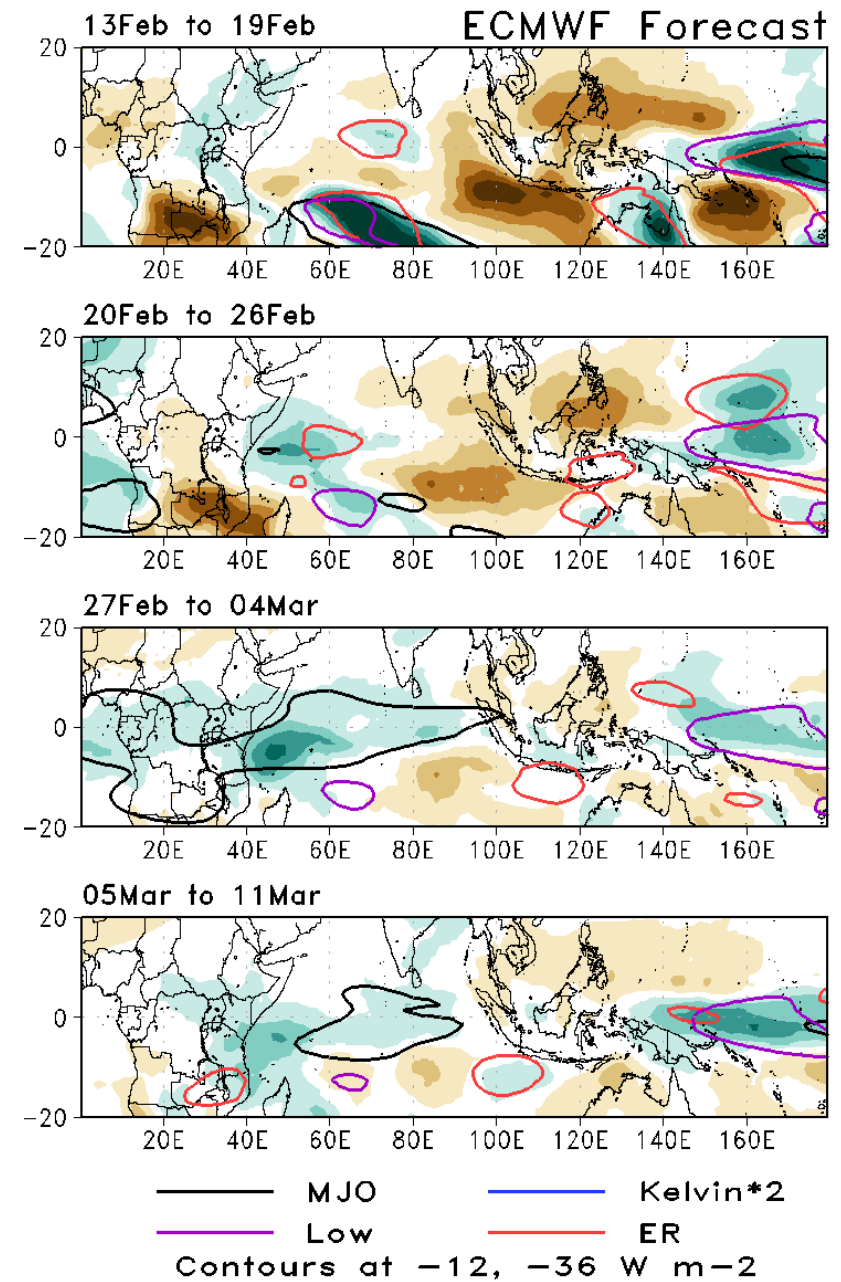


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability





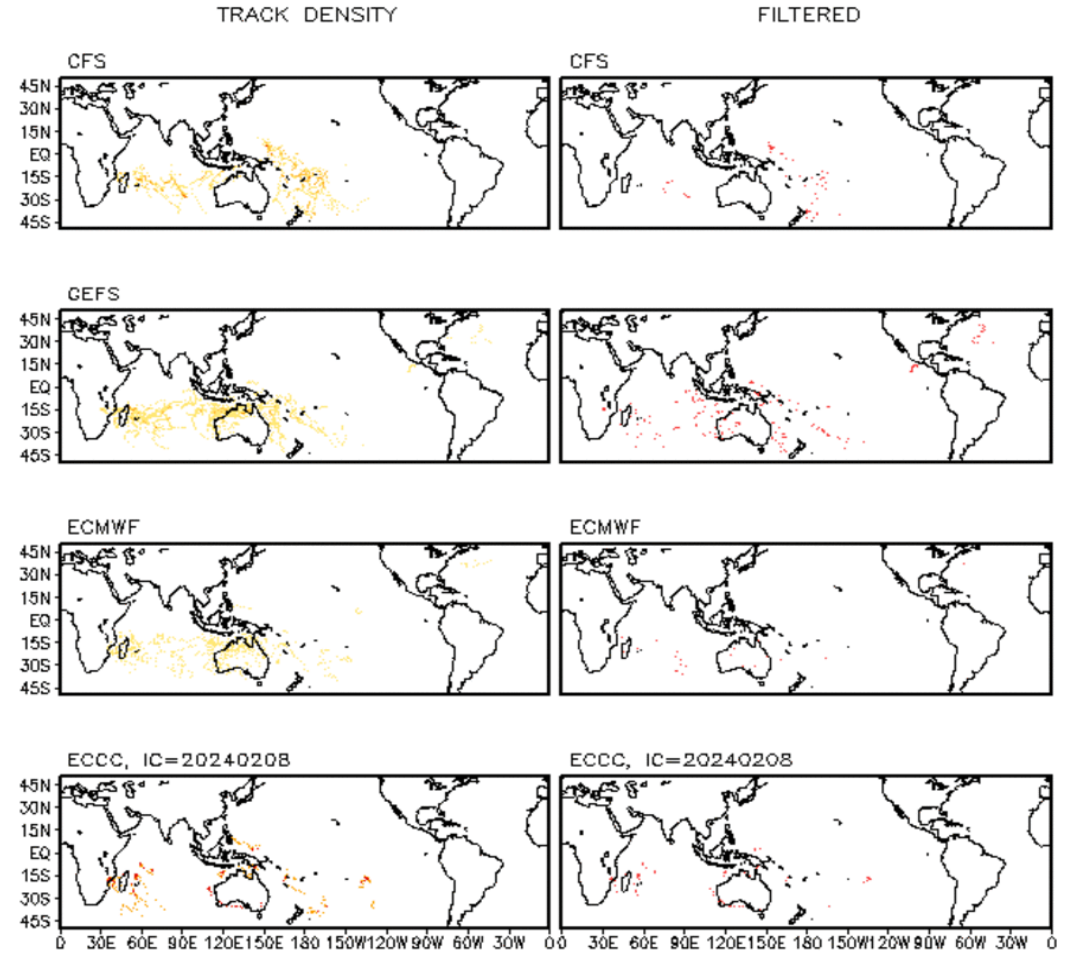
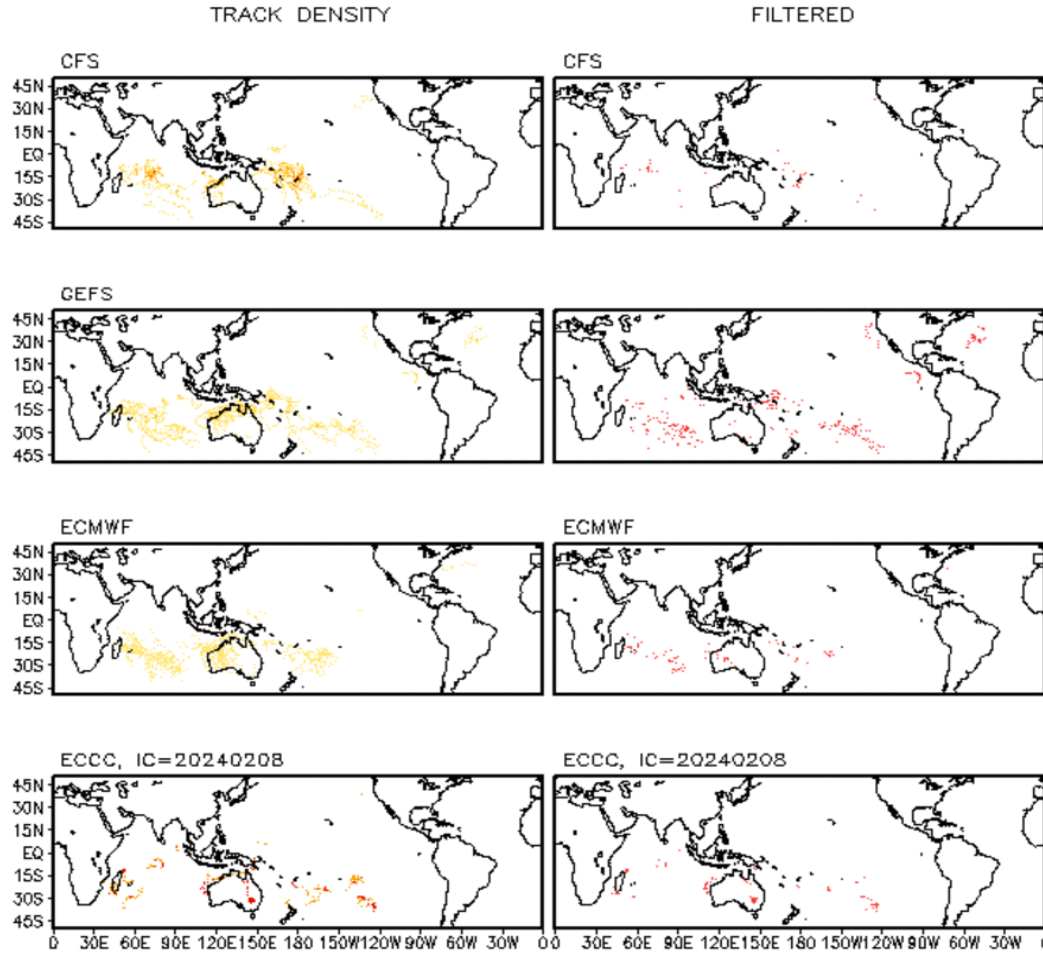
Day Means



Multi-Model TC Track Densities: Weeks 2+3

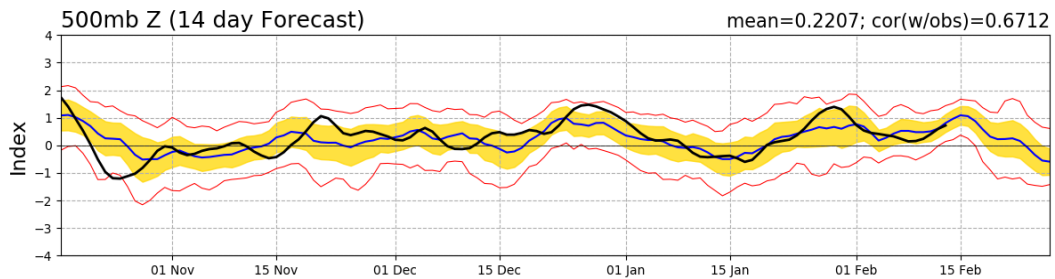
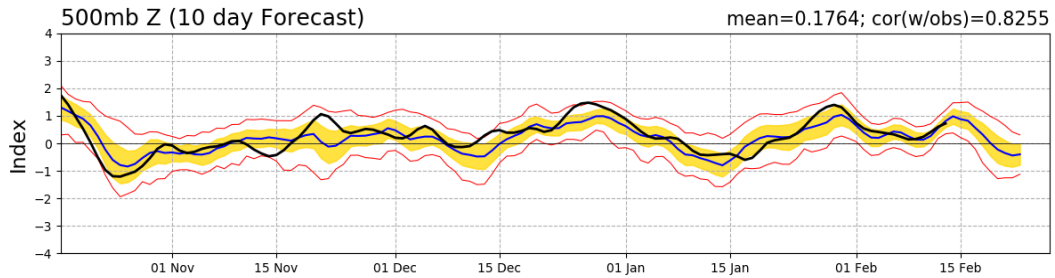
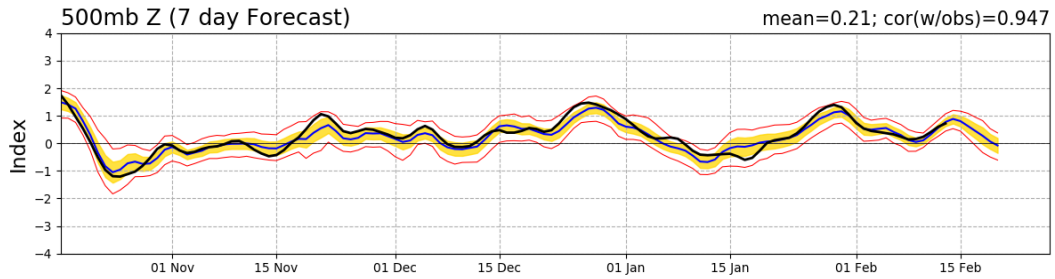
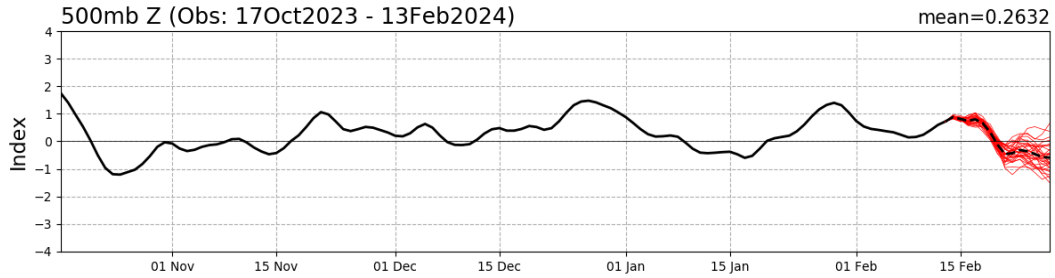
Storm Track Density Distribution, IC=20240212
Week 2 Forecast: 0221-0227

Storm Track Density Distribution, IC=20240212
Week 3 Forecast: 0228-0305

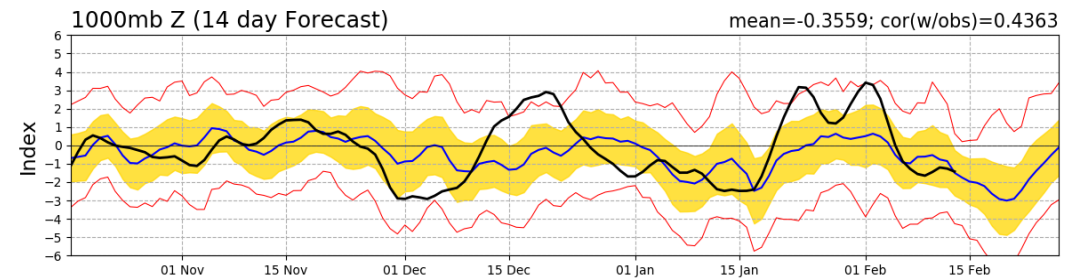
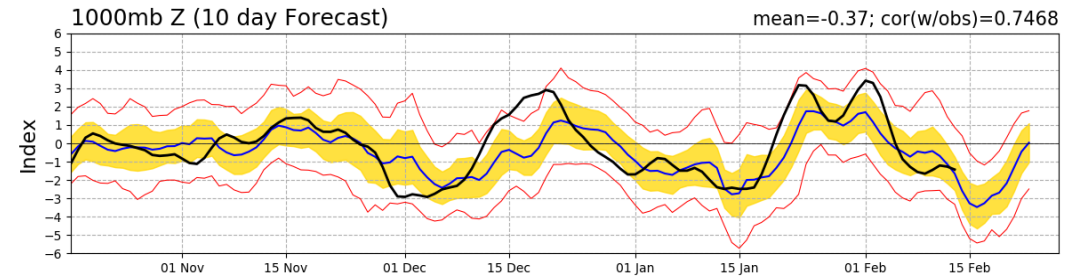
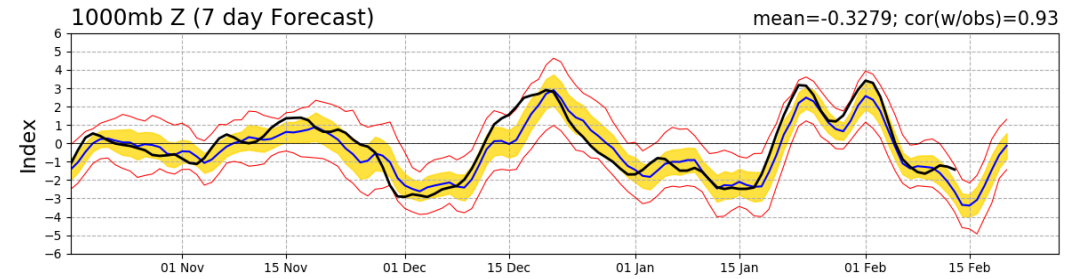
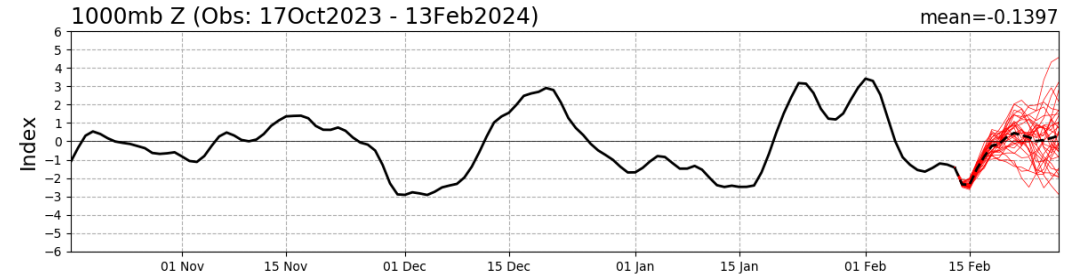


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

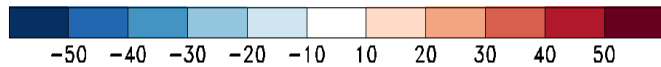
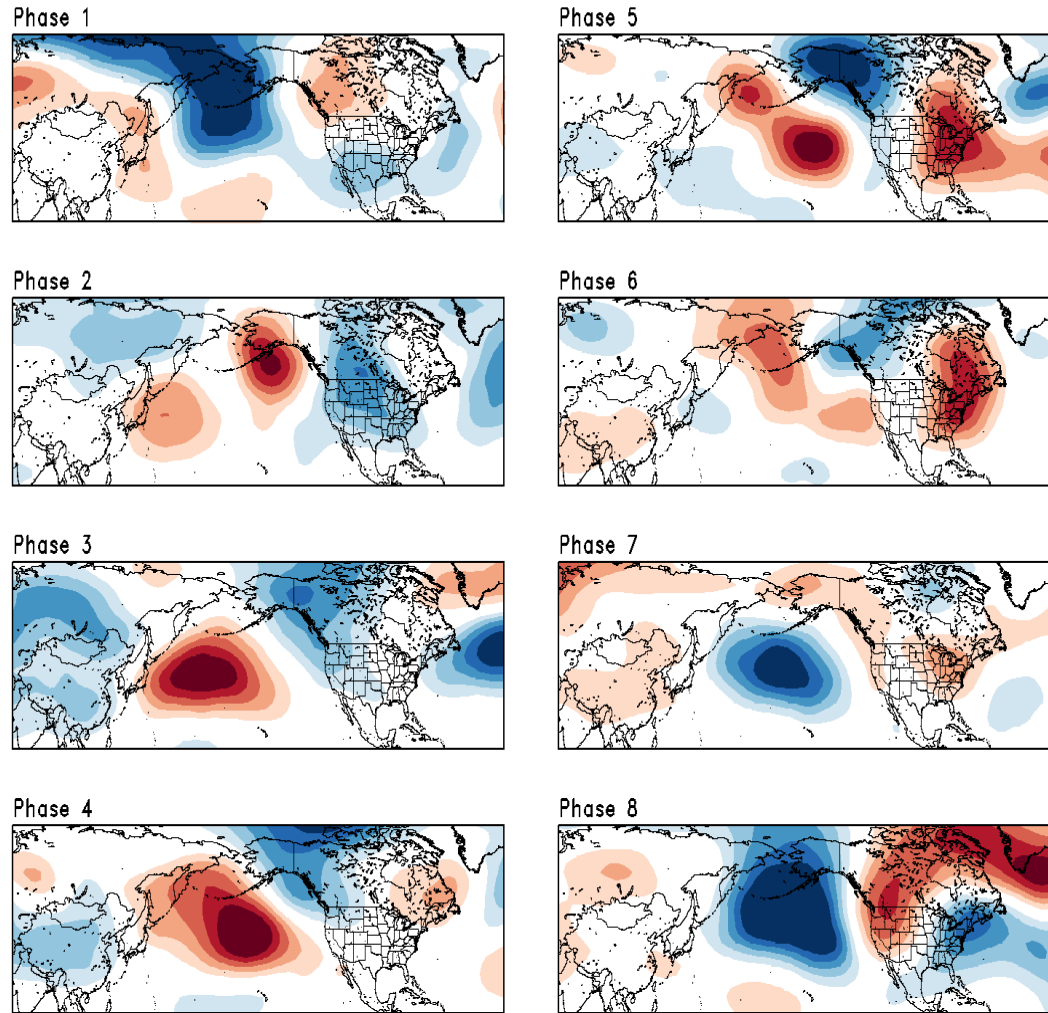


AO Index: Observed & GEFS Forecasts

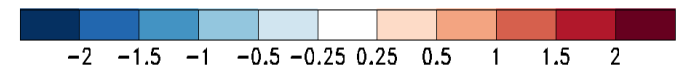
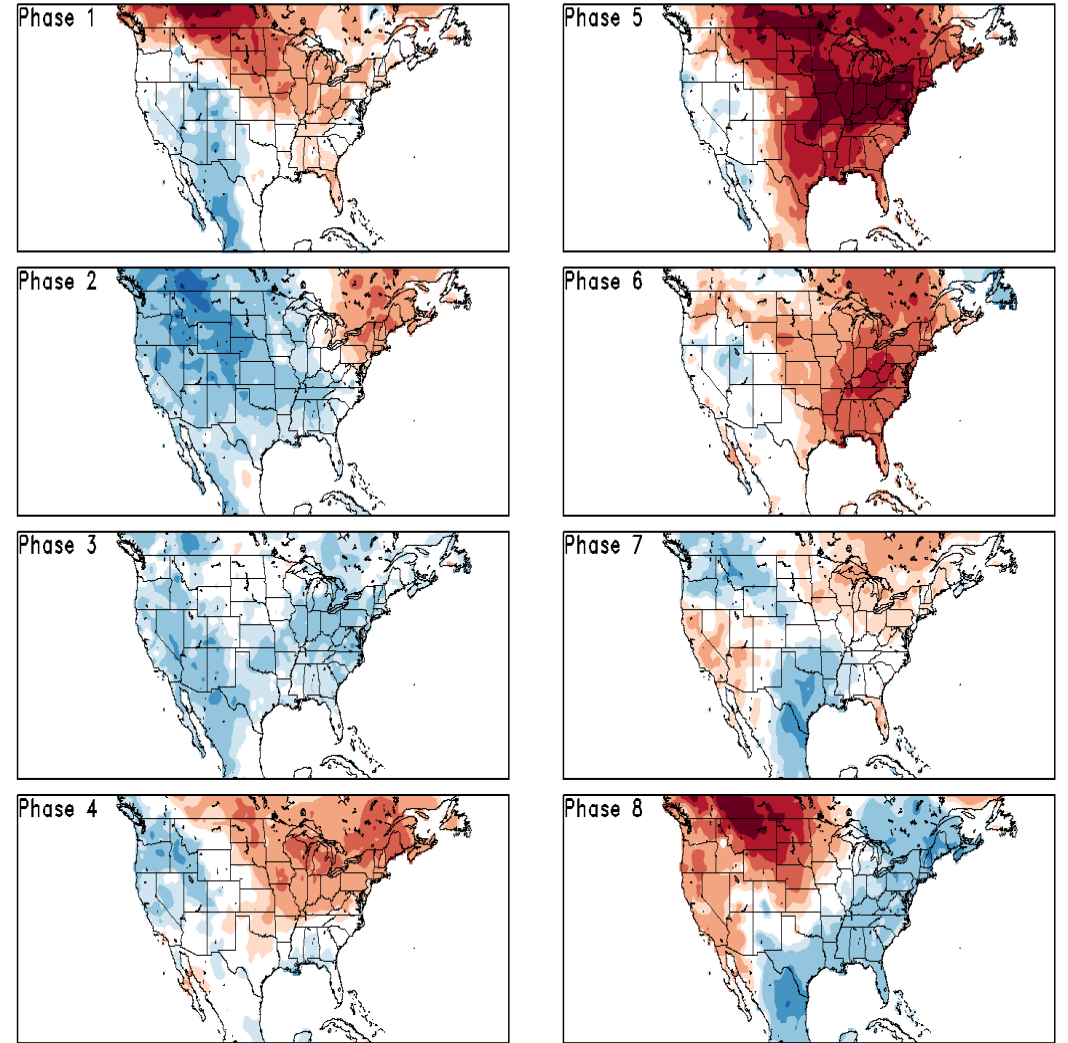


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

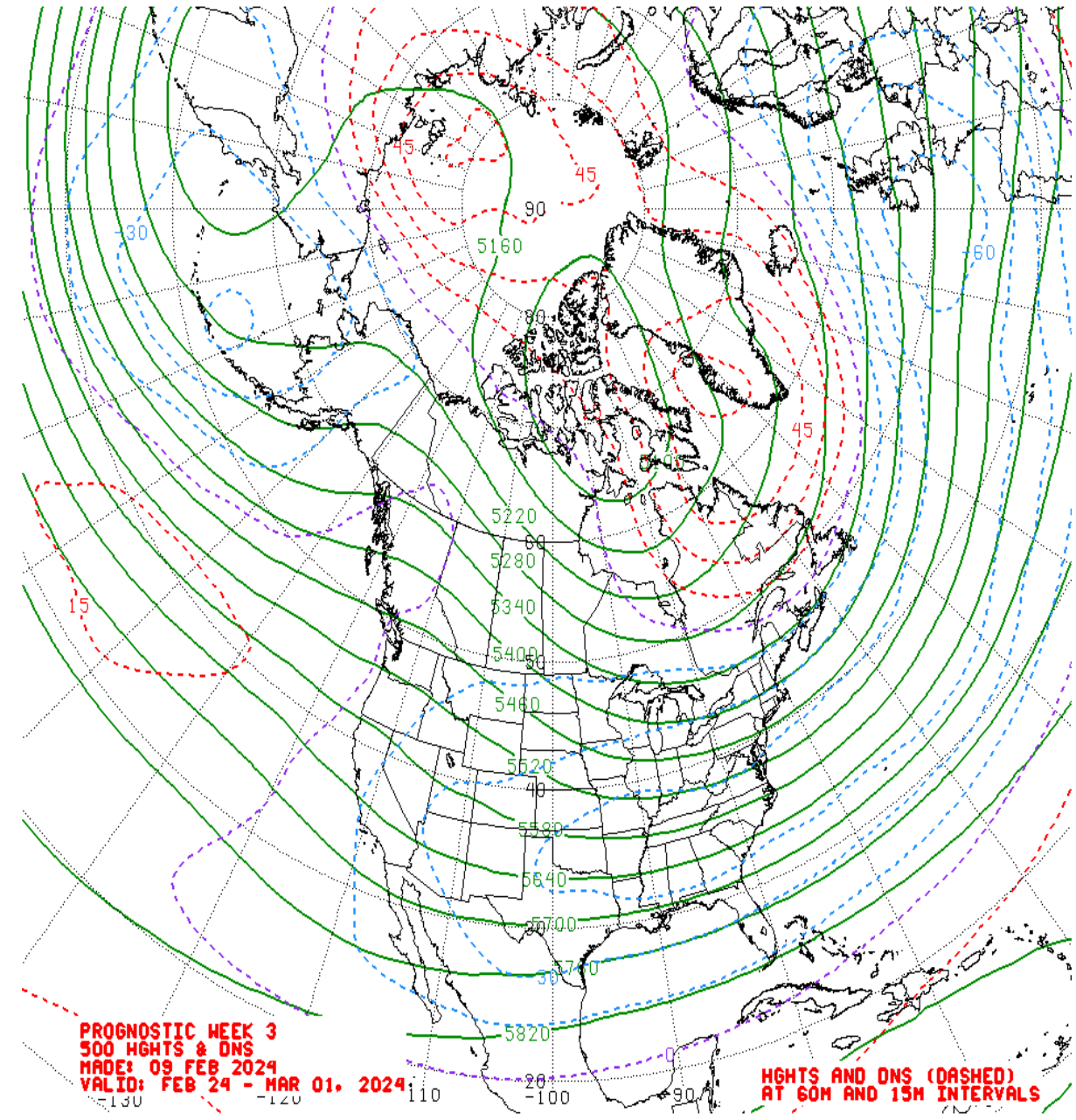
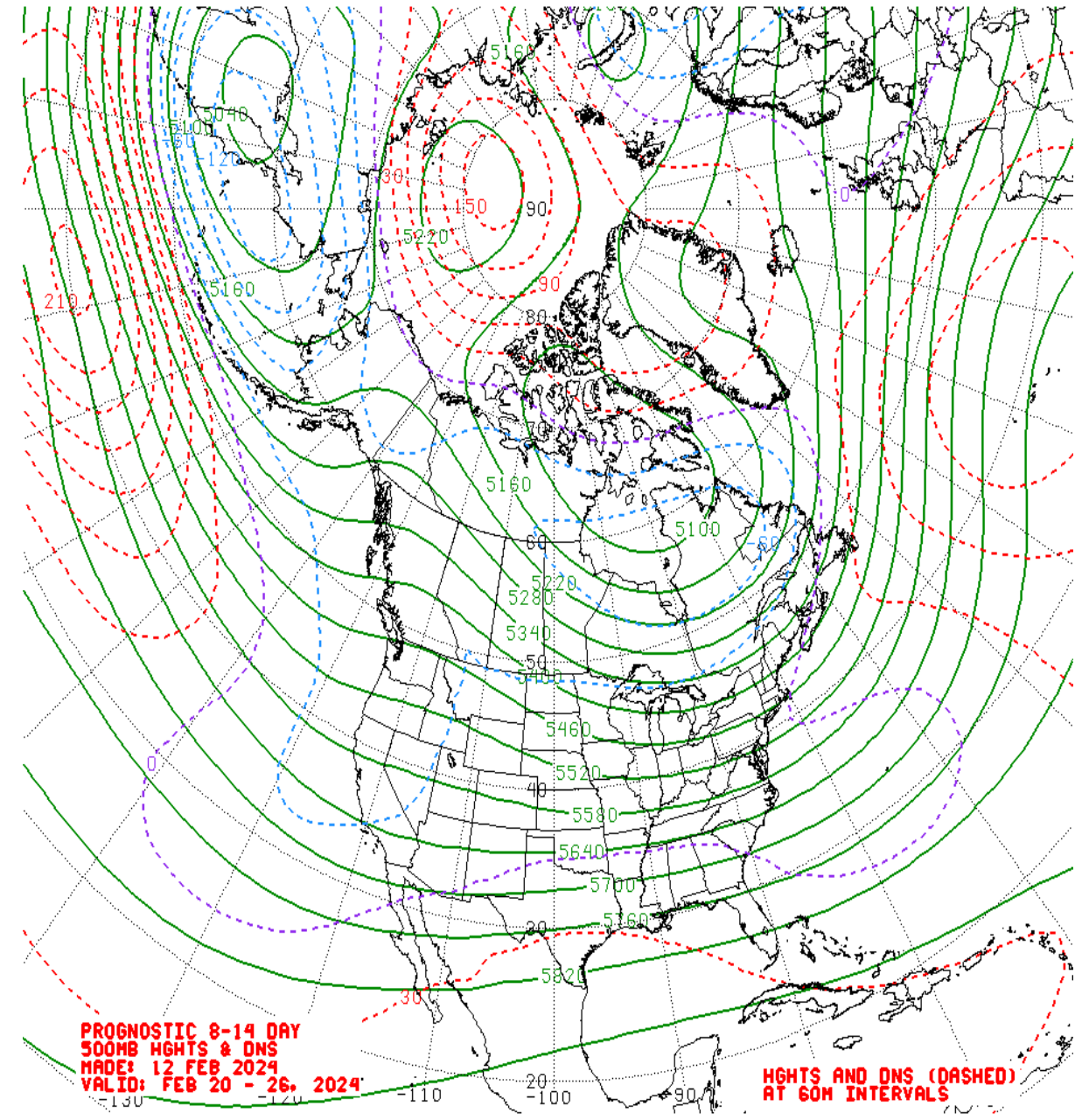
JFM MJO Composite: CDAS 500-hPa Height (m)



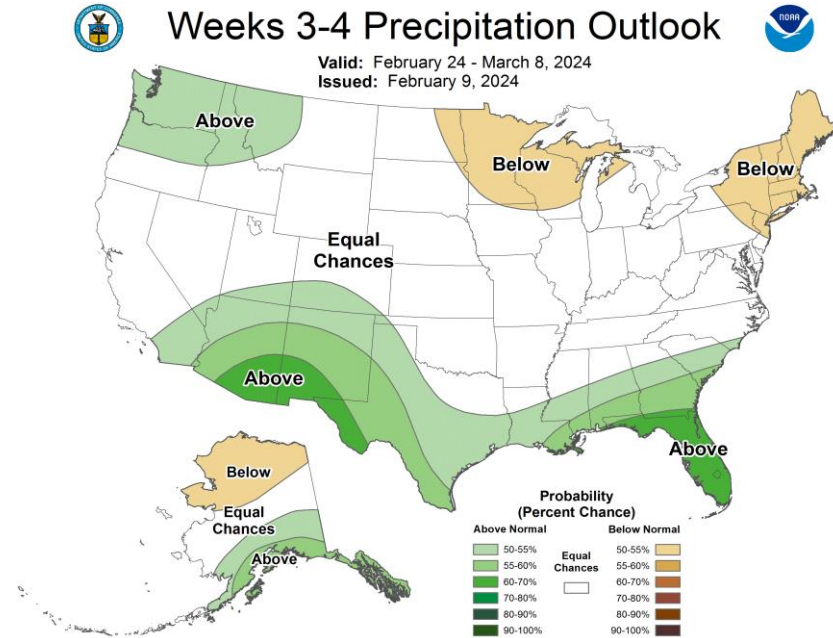
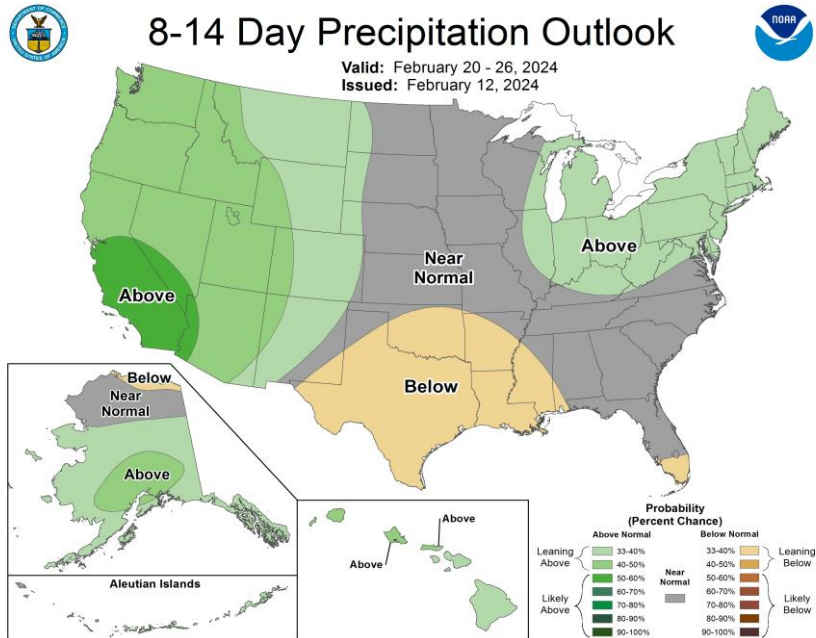
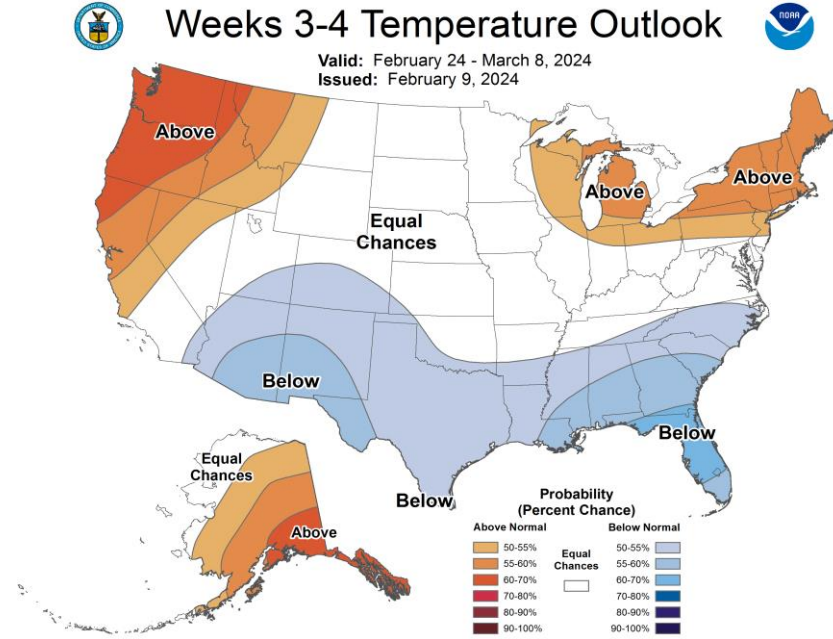
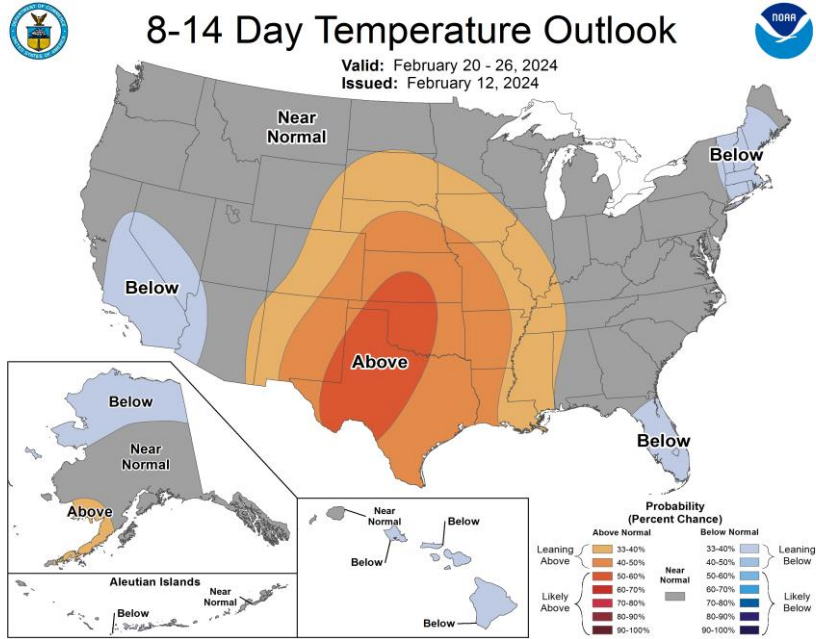
JFM MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



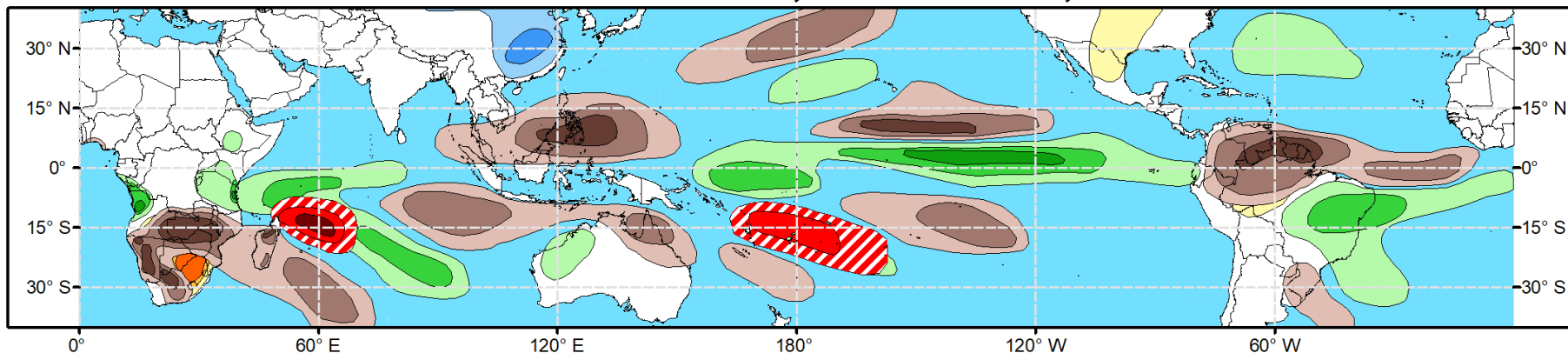


Global Tropics Hazards Outlook

Climate Prediction Center

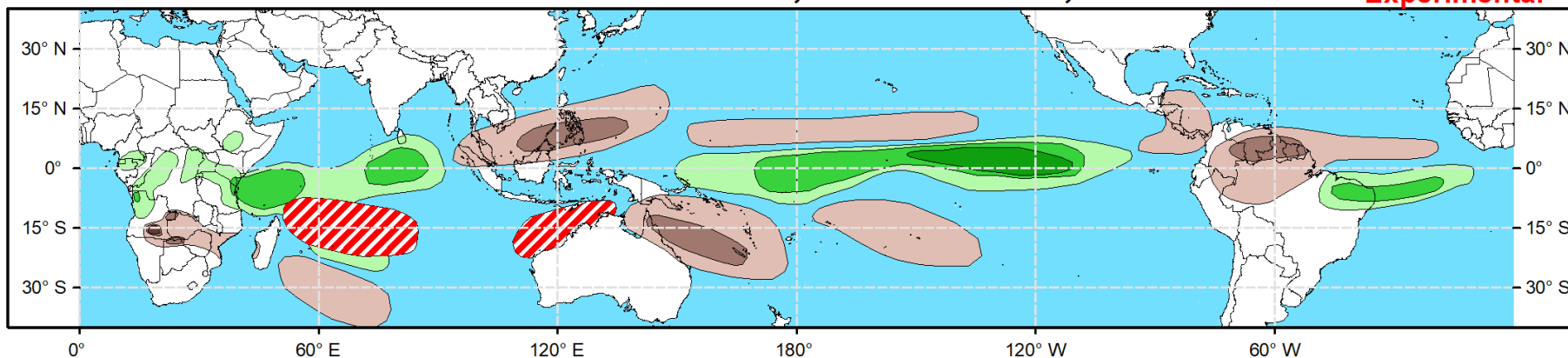


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