



Weeks 2-3 Global Tropics Hazards Outlook

2/6/2024

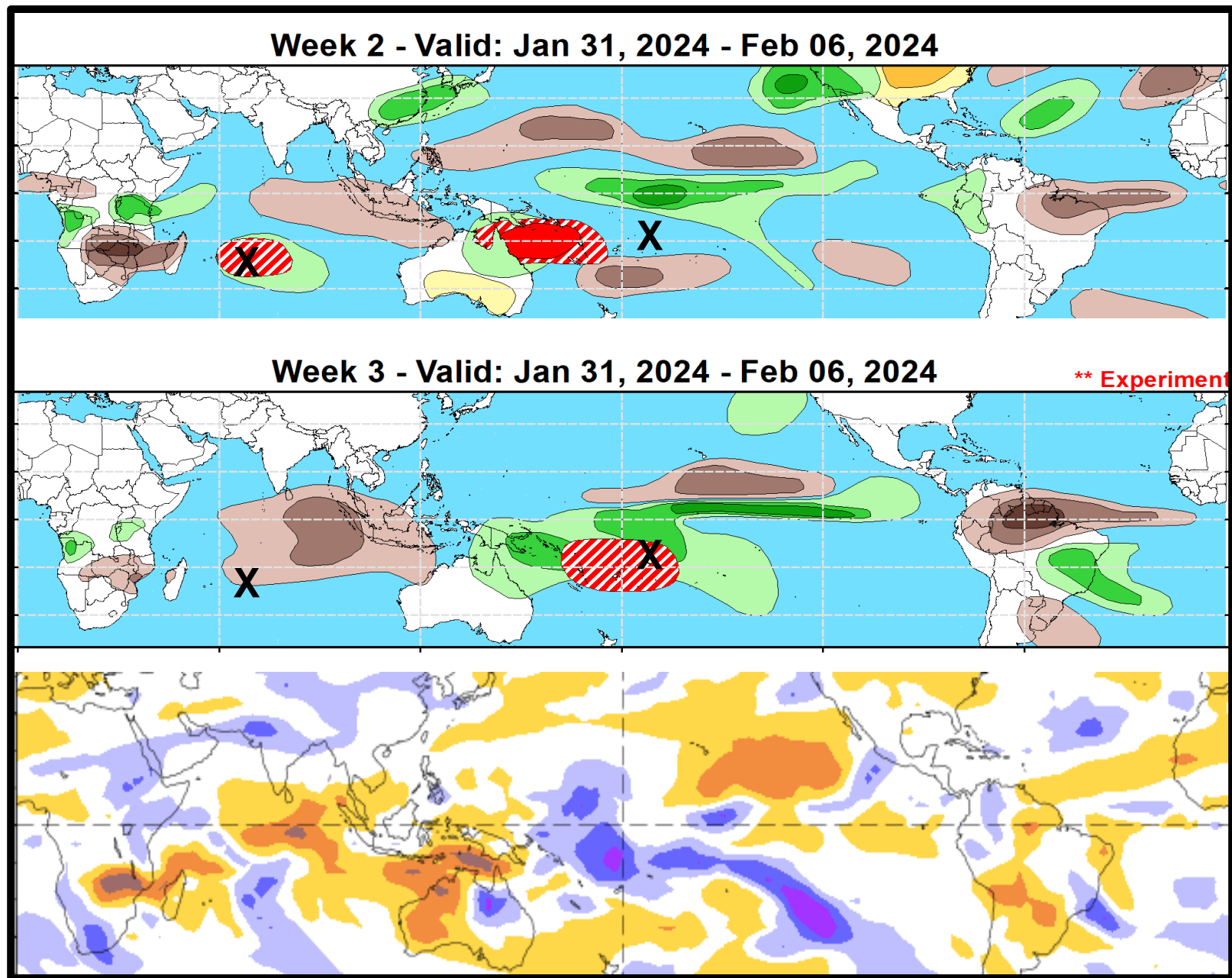
Thomas Collow

NWS / NCEP / Climate Prediction Center

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

TCs formed in the past week

- TD Nine (Southern IO, 1/31)
- TC Nat (South Pacific, 2/5)



Synopsis of Climate Modes:

ENSO: (Jan 11, 2024 Update) *next update on Thursday, Feb 8th*

- ENSO Alert System Status: [El Niño Advisory](#)
- El Niño is expected to continue for the next several seasons, with ENSO-neutral favored during April-June, 2024 (73% chance).

MJO and other subseasonal tropical variability:

- The MJO remains active, and has almost completed a circumnavigation of the globe since late December, currently residing in Phase 7 (Western Pacific).
- The MJO has slowed near the Date Line during the past few days as it interacts with the low frequency El Niño footprint, as well as enhanced Rossby Wave activity.
- Enhanced convection and strong low level westerlies, combined with the seasonal climatology, support high chances of tropical cyclone development across the southern tropical Pacific during the next few weeks.
- The MJO meandering through phases 7 and 8 may help induce a relatively colder pattern across eastern and southern portions of the U.S. by late February.

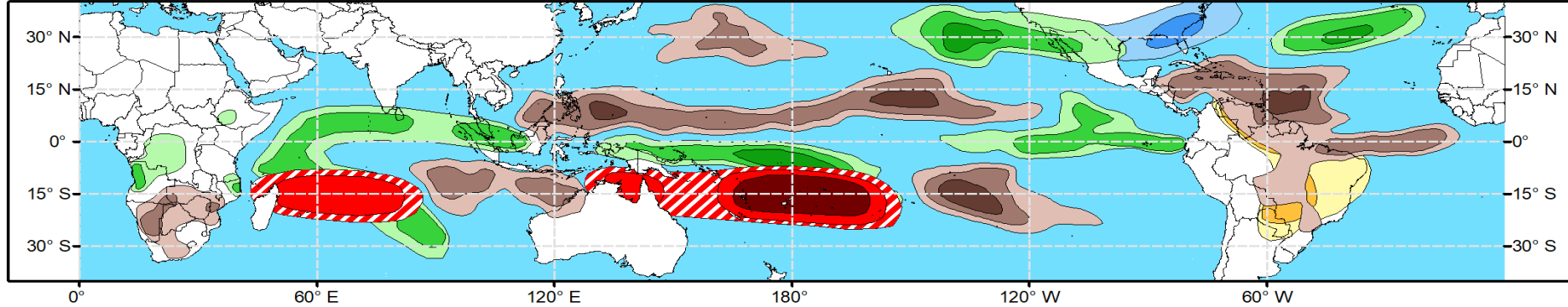
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

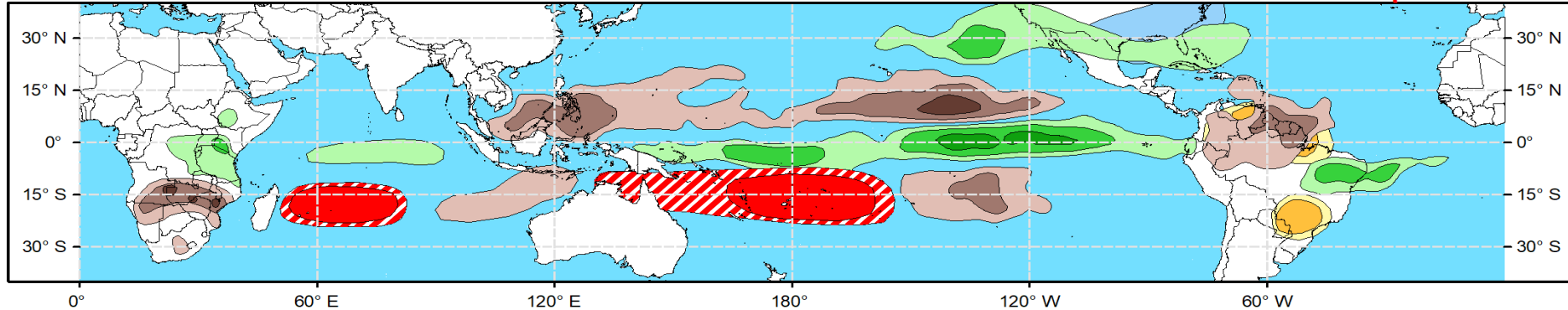


Week 2 - Valid: Feb 14, 2024 - Feb 20, 2024



Week 3 - Valid: Feb 21, 2024 - Feb 27, 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
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**Below-Average
Temperatures Probability**



>50% >65% >80%

7-day min temperatures in the
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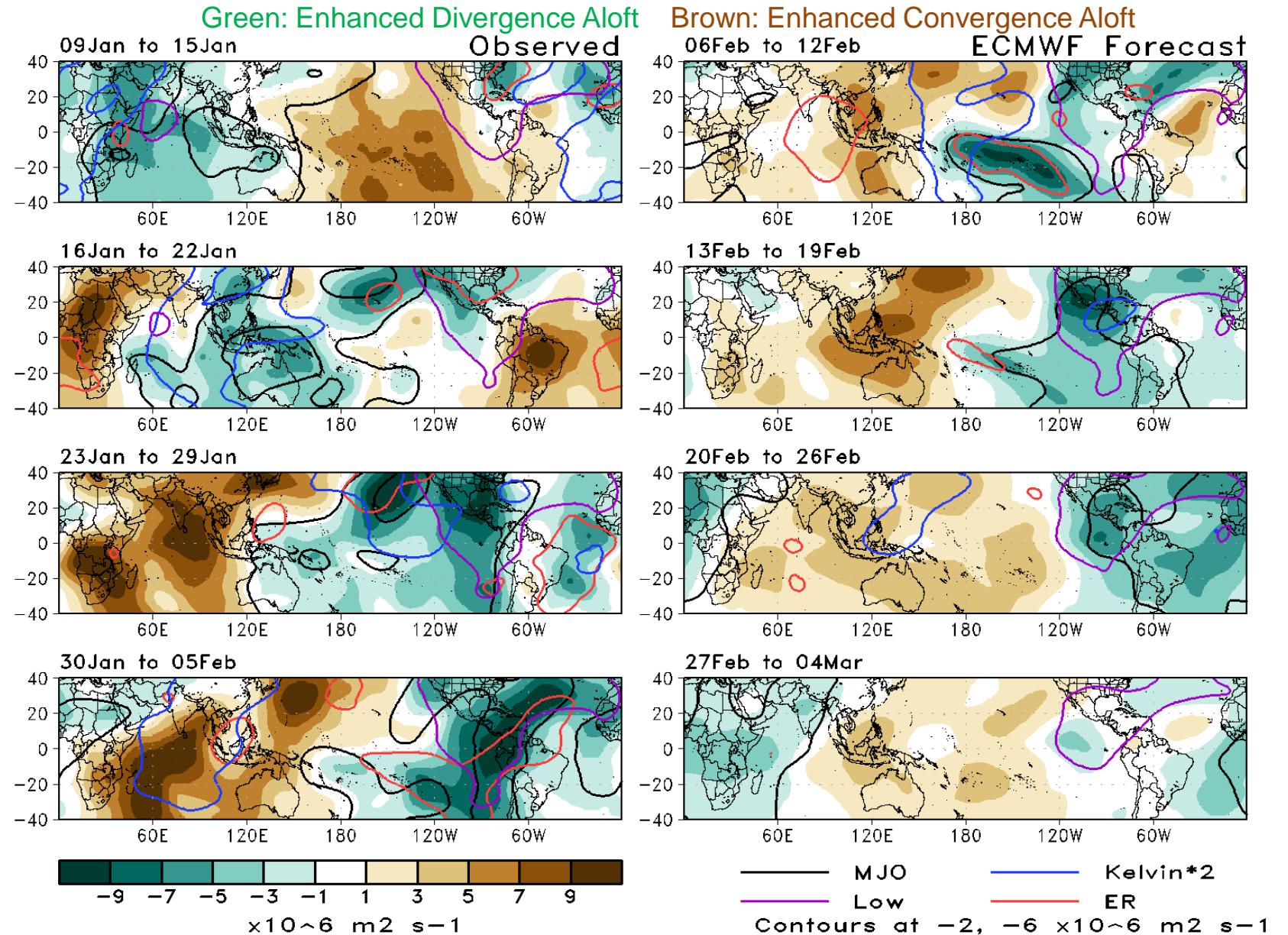
Issued: 02/06/2024

Forecaster: Collow

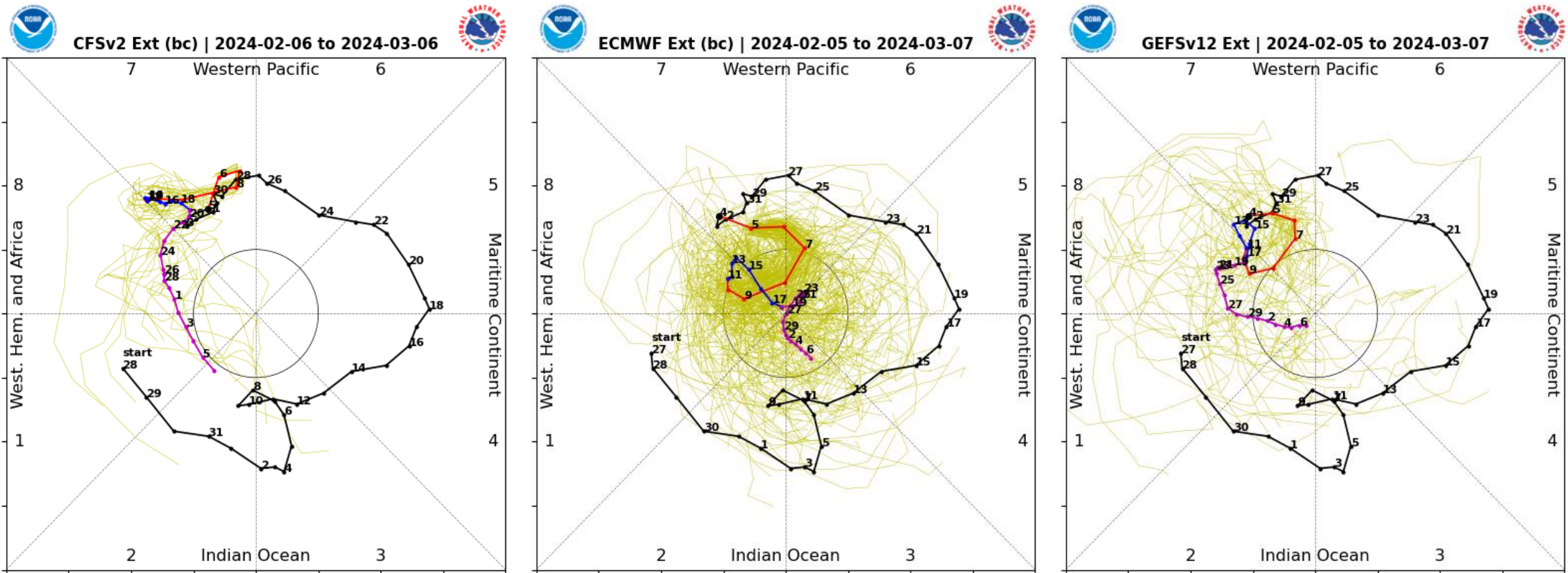
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200-hPa Velocity Potential Anomaly Maps:

- Anomalous divergence aloft is forecast to increase near and east of the Date Line over the southern tropical Pacific.
- Enhanced upper level convergence is favored to build across the Maritime Continent and Pacific as the **MJO** weakens and shifts eastward.
- Several **Kelvin** and **Rossby** Waves are apparent through the filtering which will help drive TC activity even in a suppressed convective pattern.

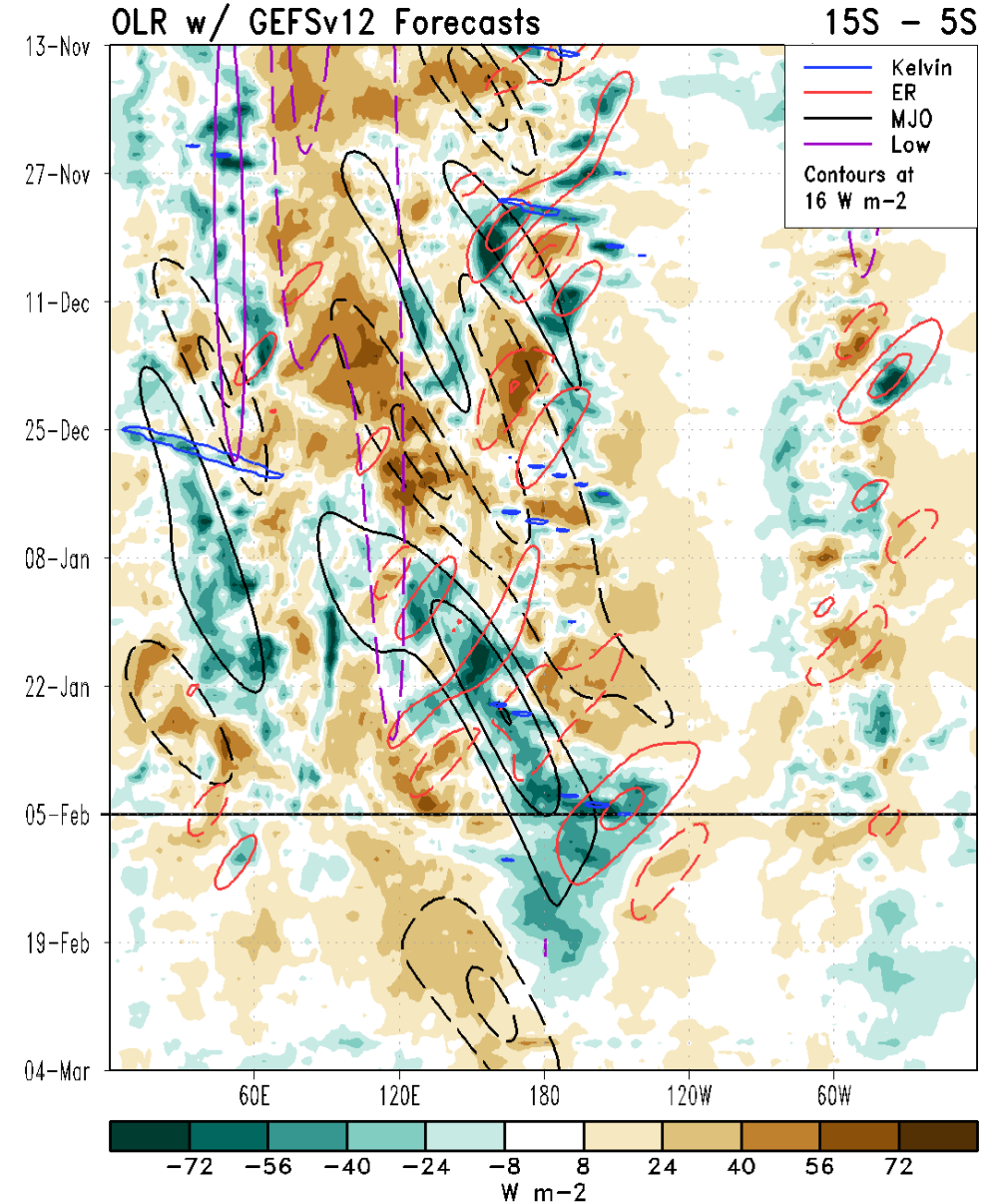
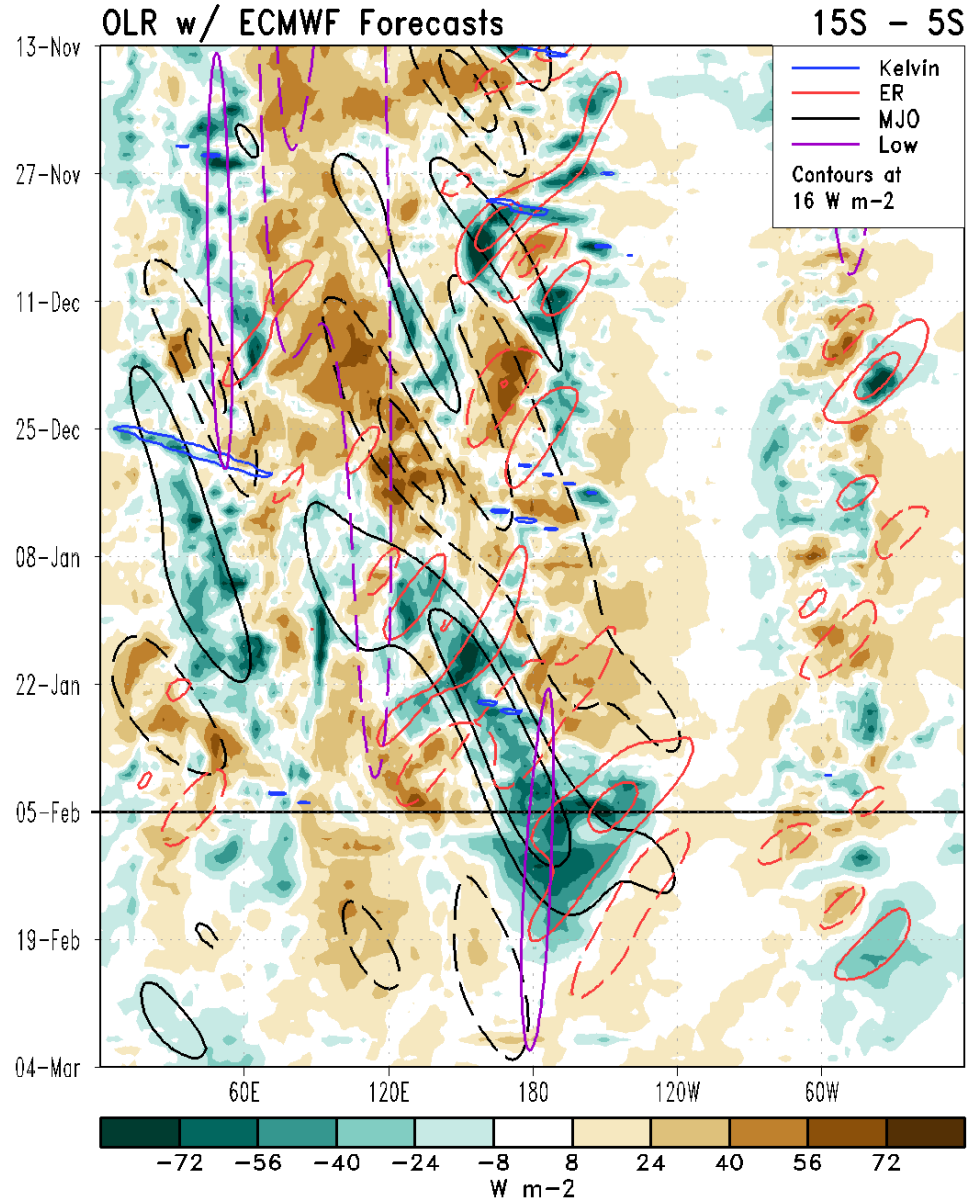


RMM Index Observations & Forecasts:



- In the near term, the CFSv2, ECMWF, and GEFS ensembles depict a meandering MJO signal near the Date Line (Phases 7 and 8) as several competing modes of tropical variability interact.
- There is considerable uncertainty among the ensembles during late-February, with some individual members depicting the MJO weakening into the RMM unit circle, while others depict a healthier propagation into the Western Hemisphere.

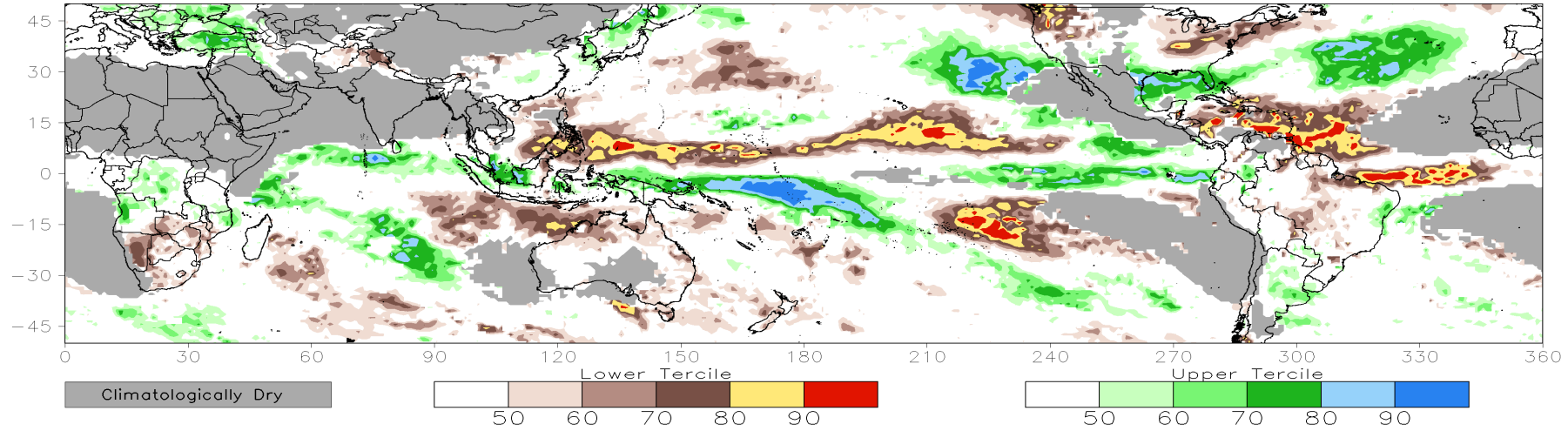
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

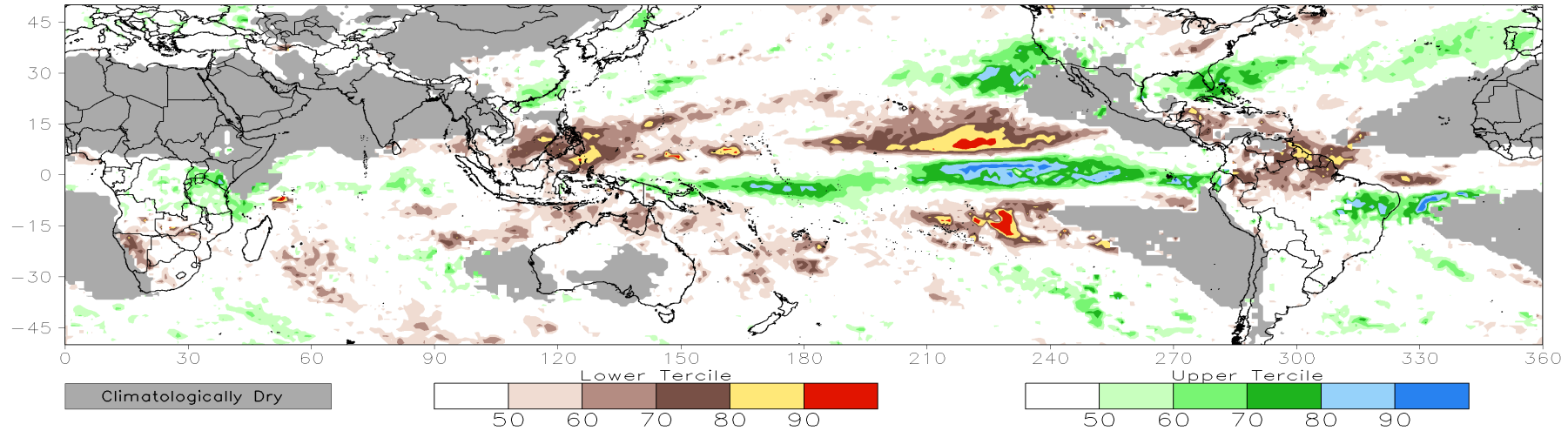
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 14Feb2024–20Feb2024



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

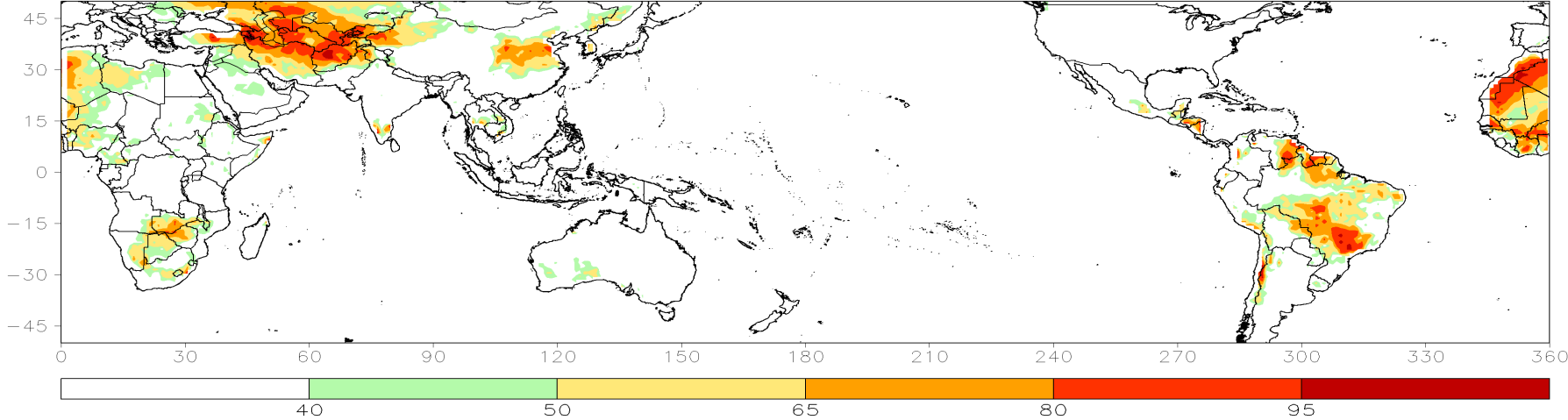
Valid: 21Feb2024–27Feb2024



Consolidated Probabilistic Temperatures: Week-2

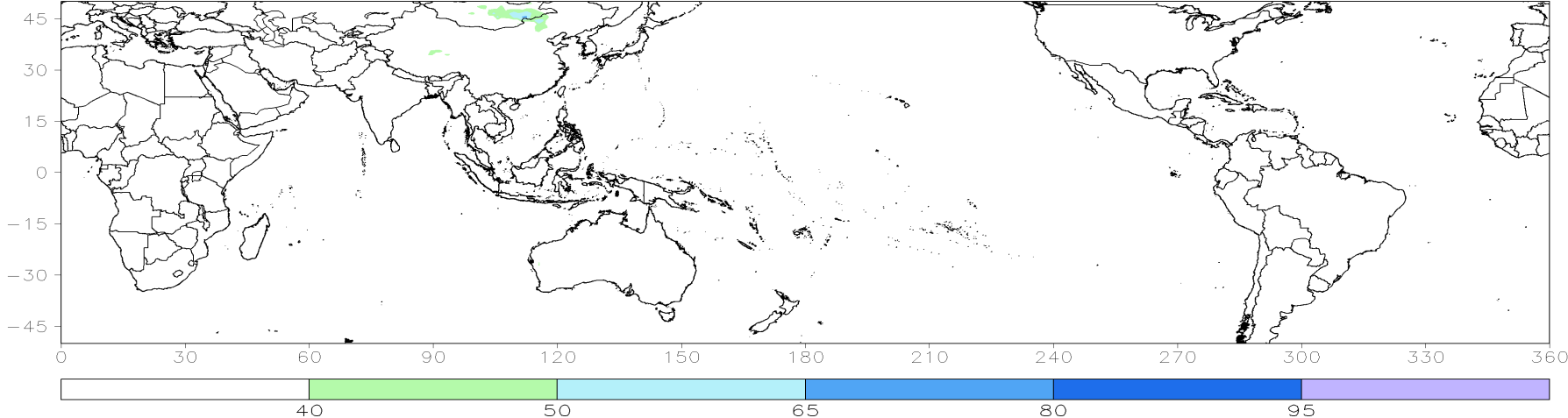
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 14Feb2024-20Feb2024



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

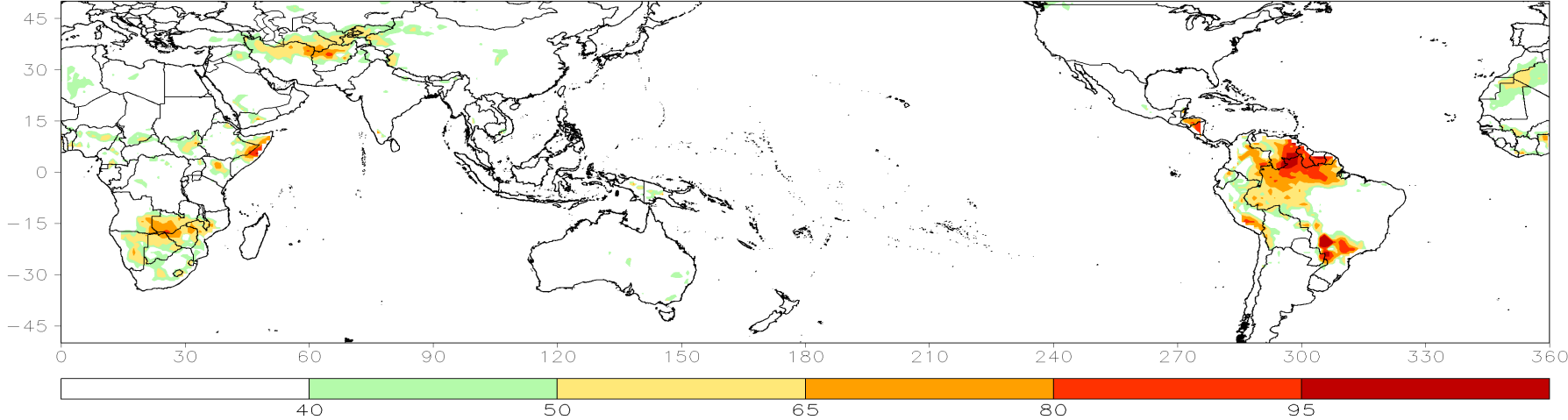
Valid: 14Feb2024-20Feb2024



Consolidated Probabilistic Temperatures: Week-3

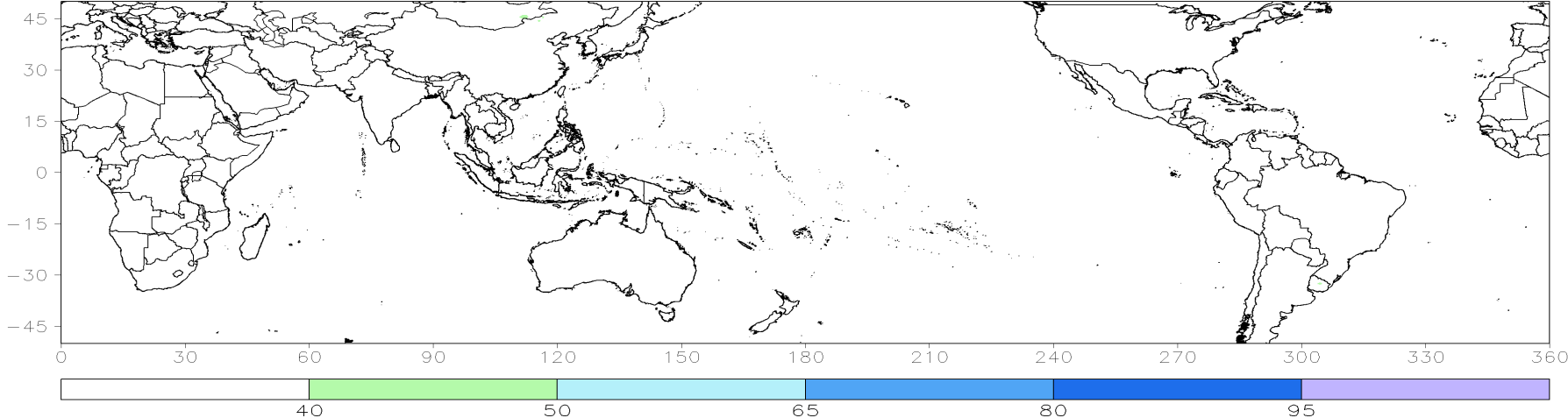
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 21Feb2024-27Feb2024



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

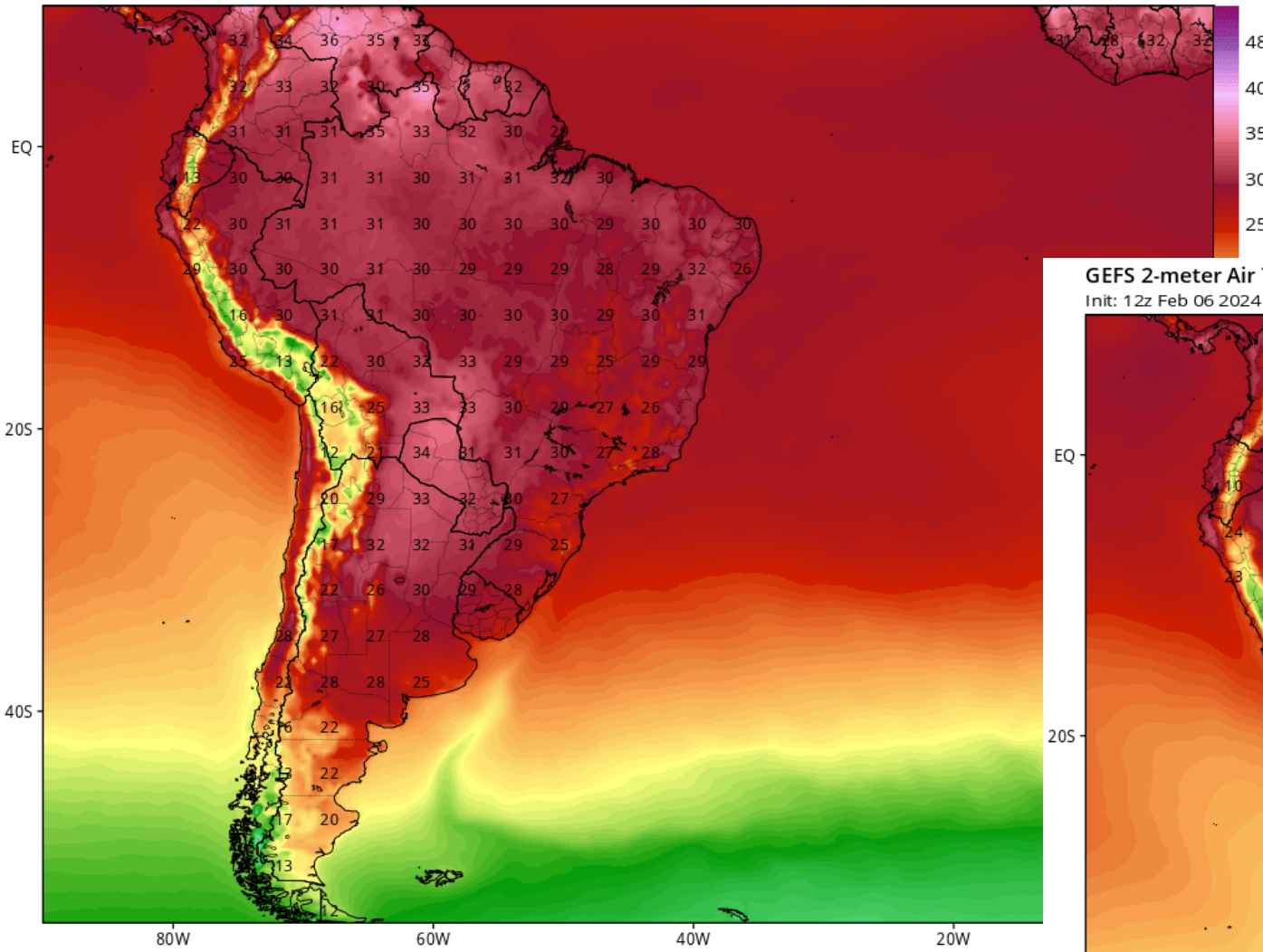
Valid: 21Feb2024-27Feb2024



EPS 2-meter Air Temperature (°C)

Init: 00z Feb 06 2024 Forecast Hour: [306] valid at 18z Sun, Feb 18 2024

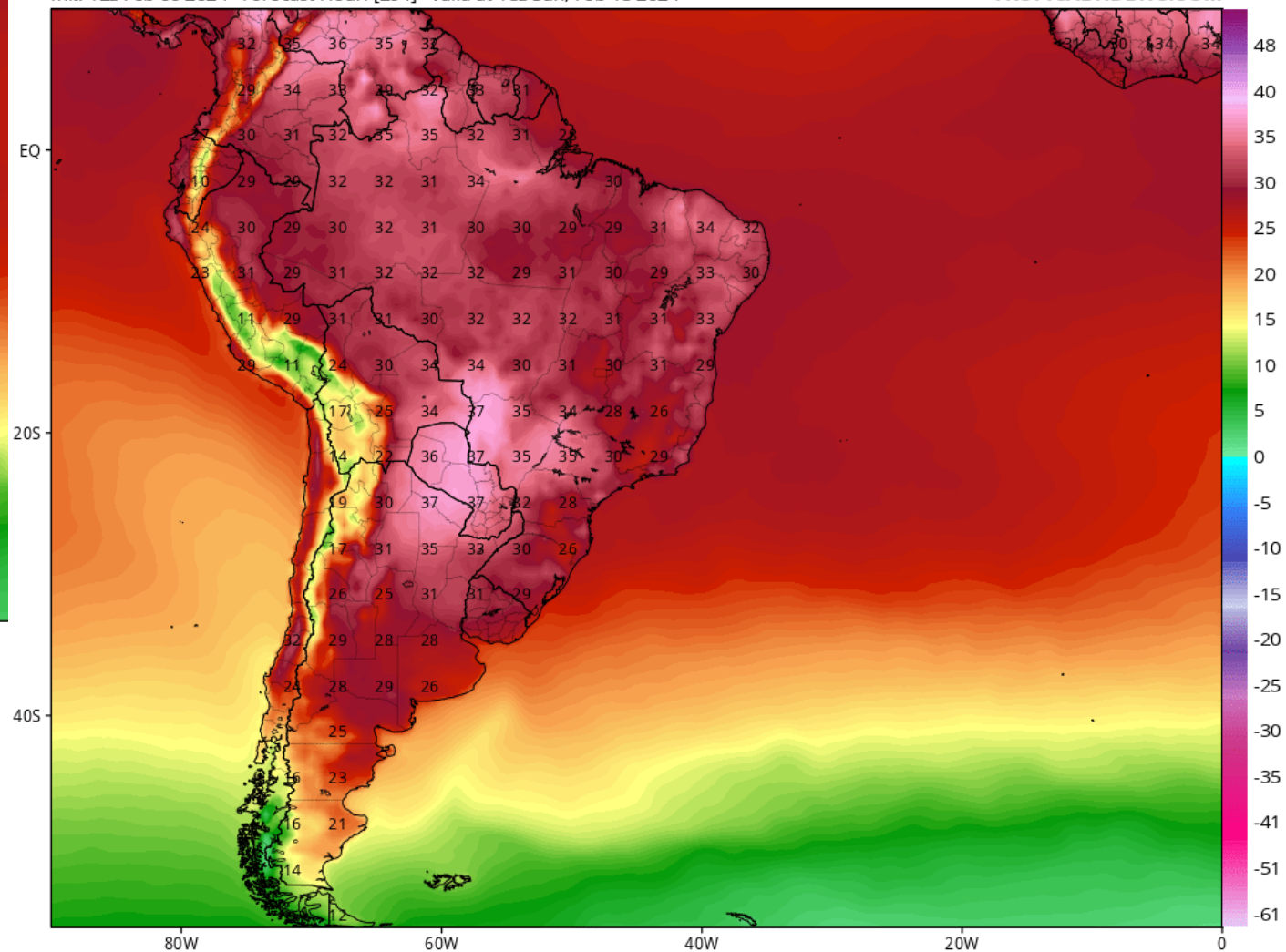
TROPICALTIDBITS.COM



GEFS 2-meter Air Temperature (°C)

Init: 12z Feb 06 2024 Forecast Hour: [294] valid at 18z Sun, Feb 18 2024

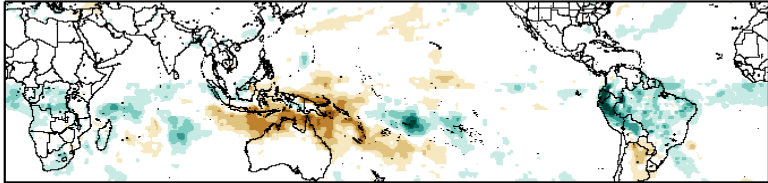
TROPICALTIDBITS.COM



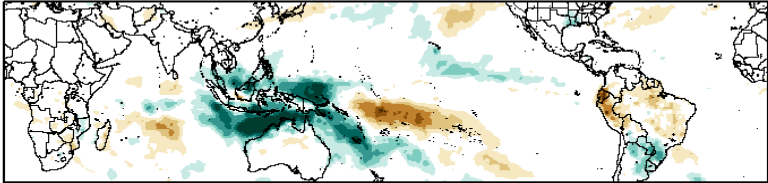
Historical Precipitation Anomalies By MJO Phase:

JFM MJO Composite: GPCP1DD (mm/day)

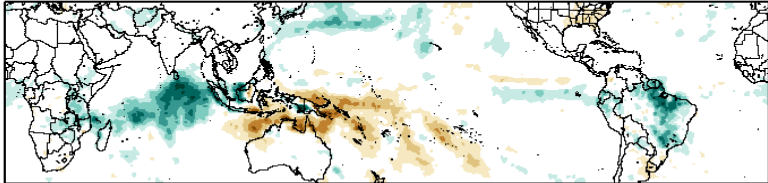
Phase 1



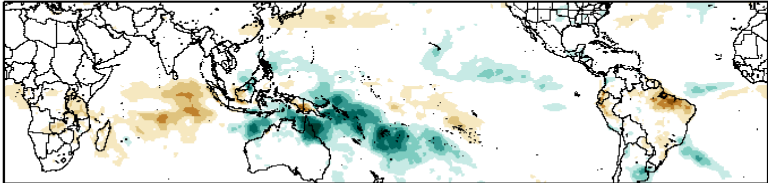
Phase 5



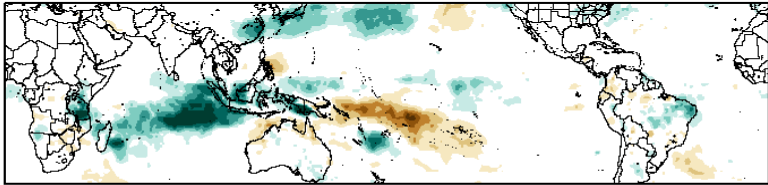
Phase 2



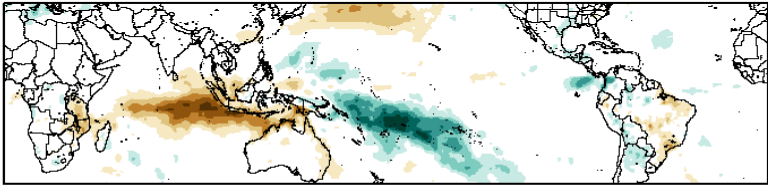
Phase 6



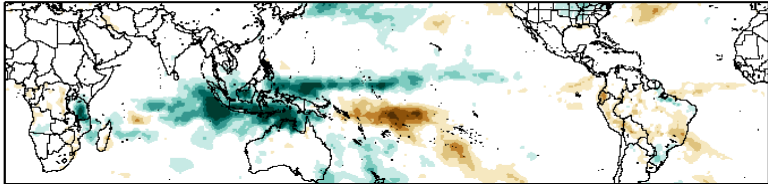
Phase 3



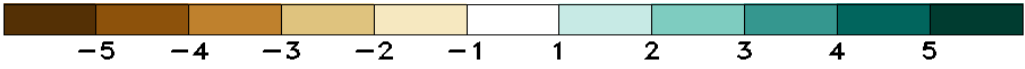
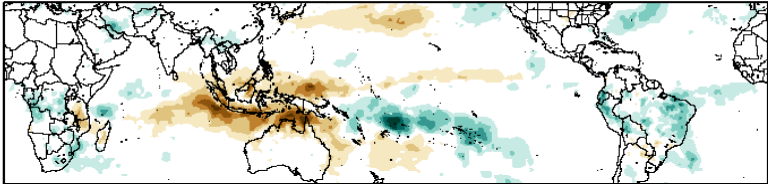
Phase 7



Phase 4

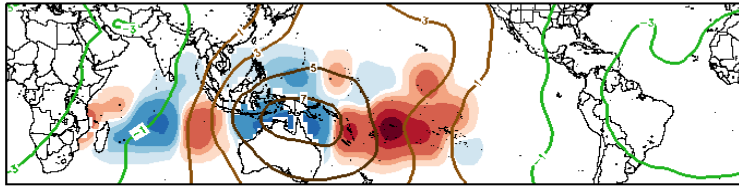


Phase 8

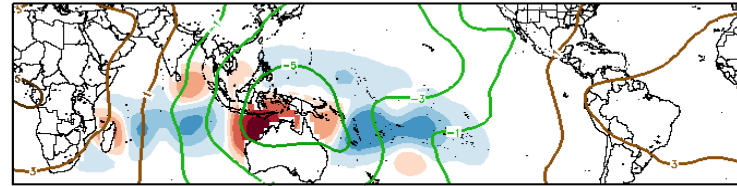


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

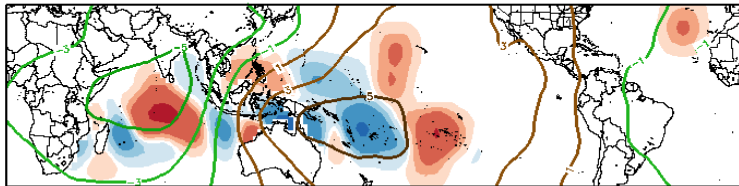
JFM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JFM CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



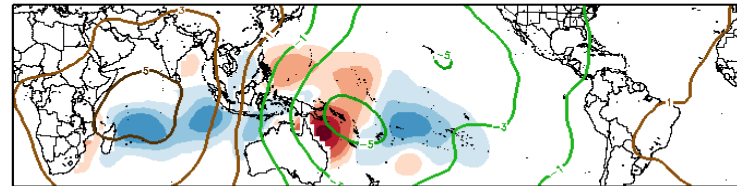
Phase 1



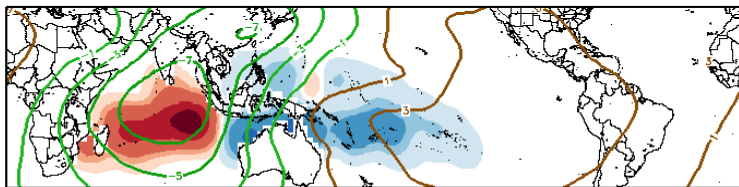
Phase 5



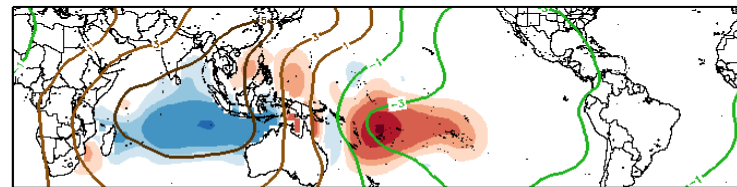
Phase 2



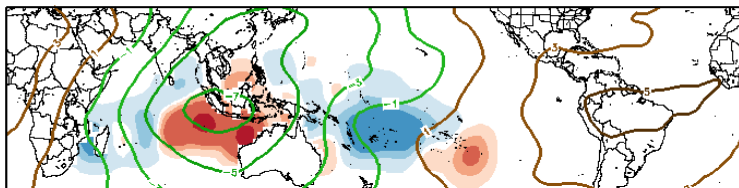
Phase 6



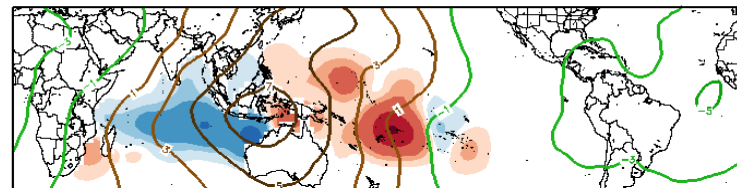
Phase 3



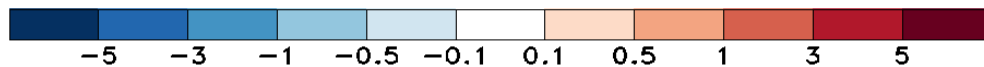
Phase 7



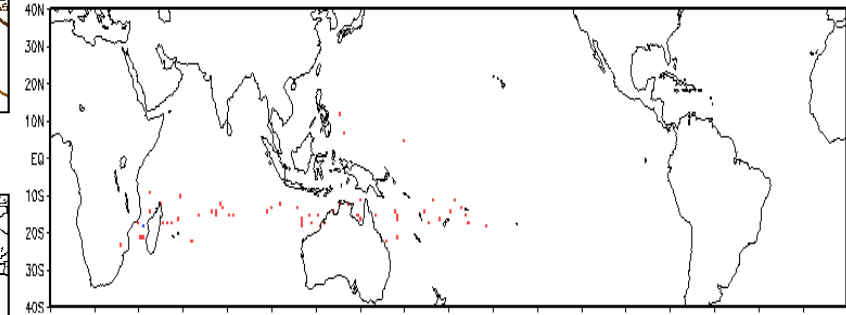
Phase 4



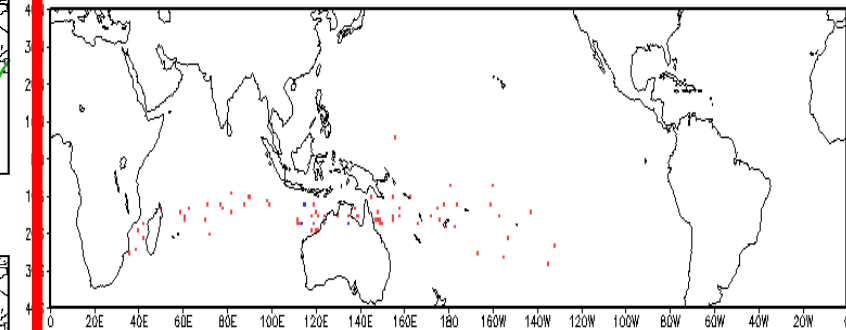
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0214 to 0220



Observed TC Genesis, 1979–2021
7-day Period 0221 to 0227

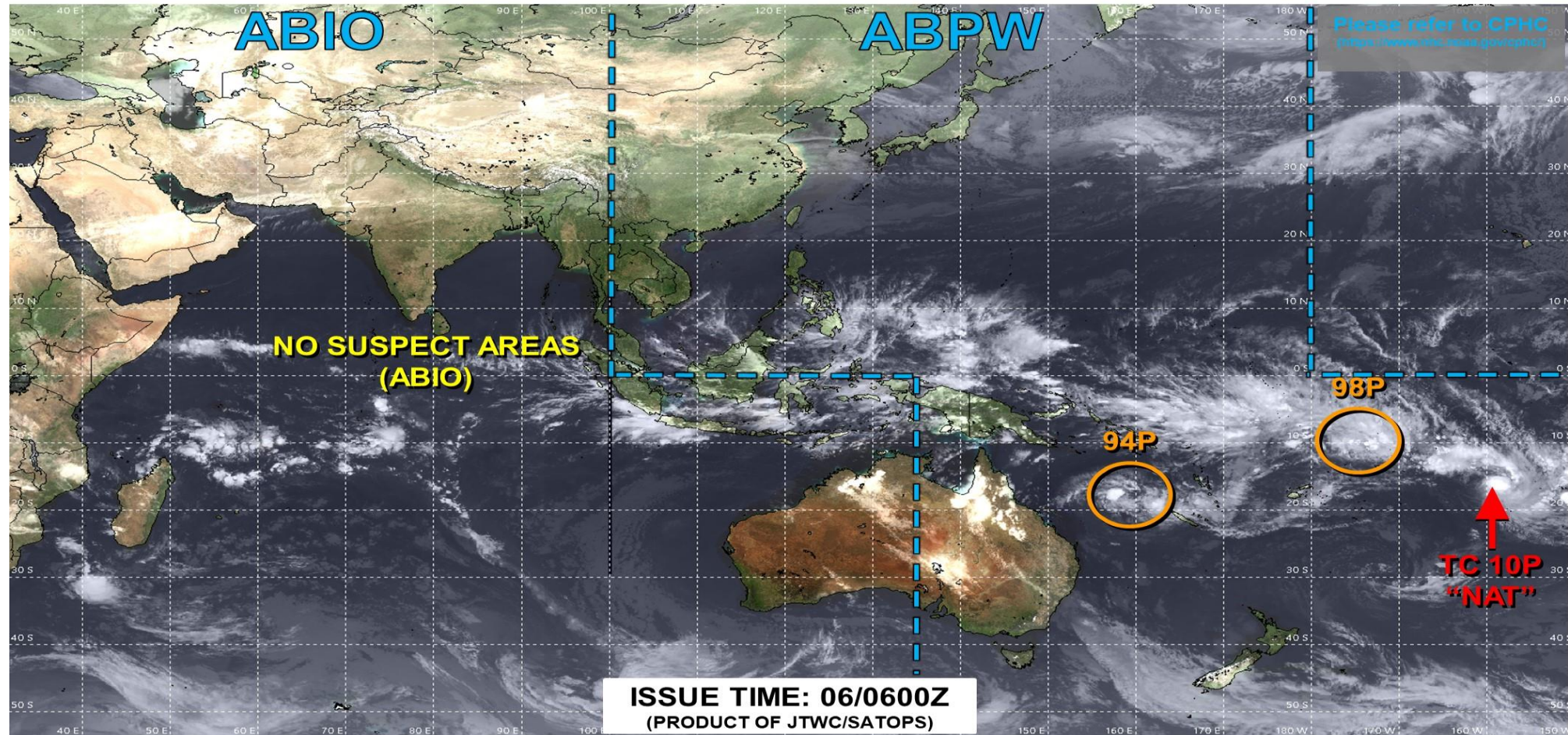


Experimental

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)



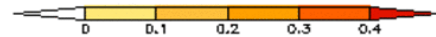
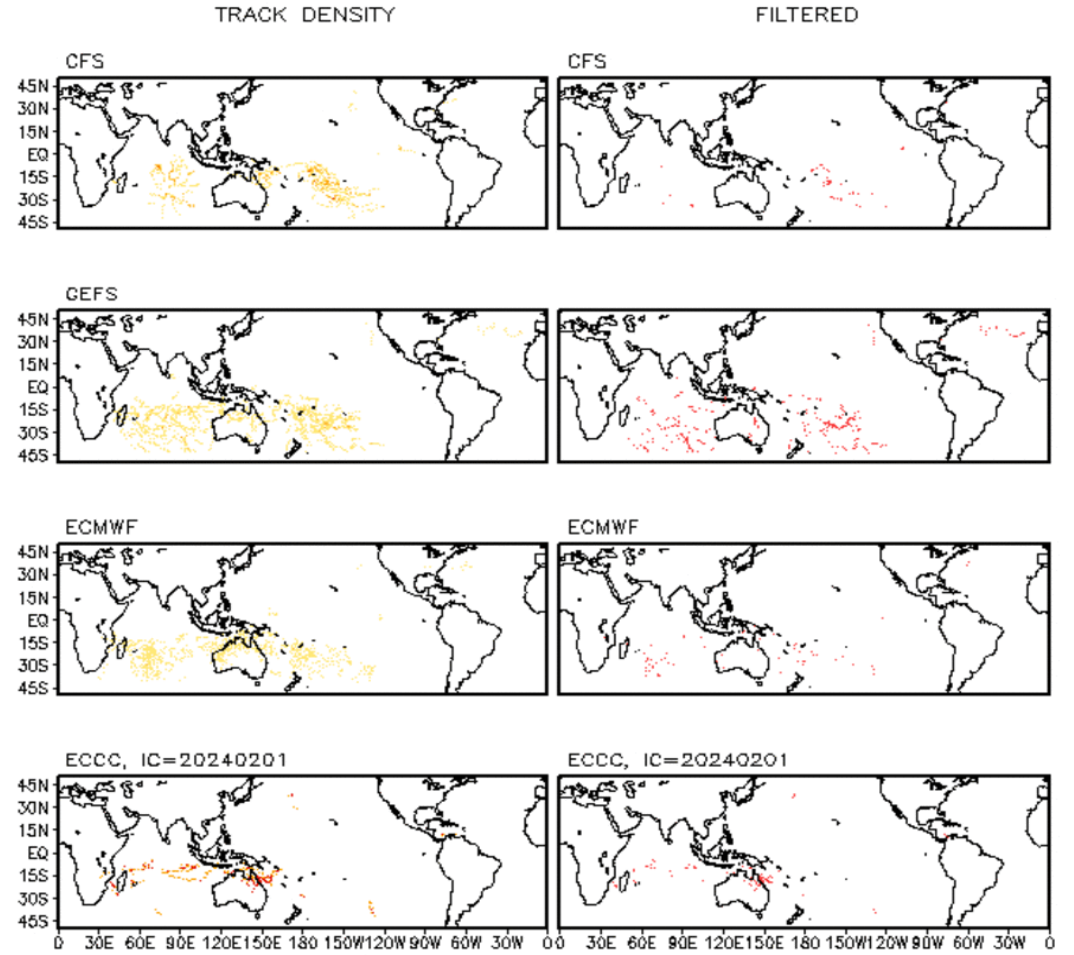
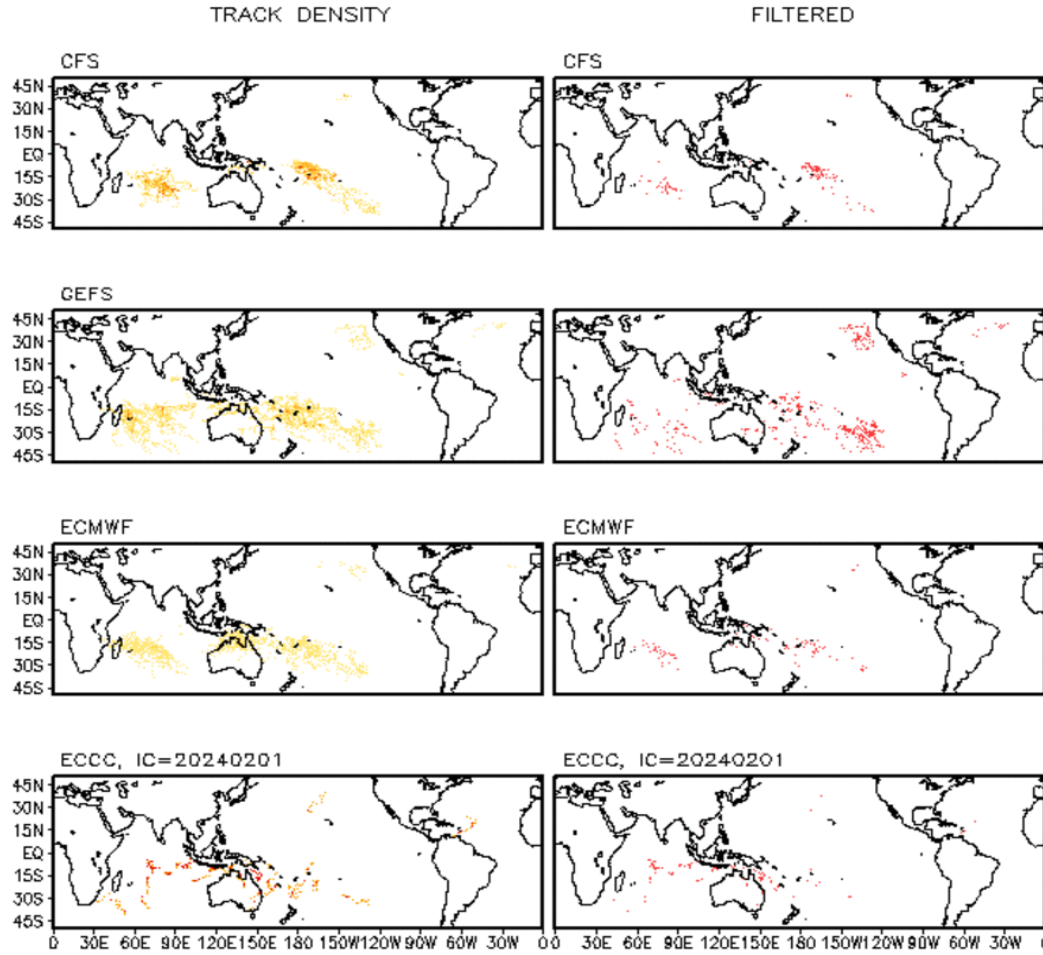
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

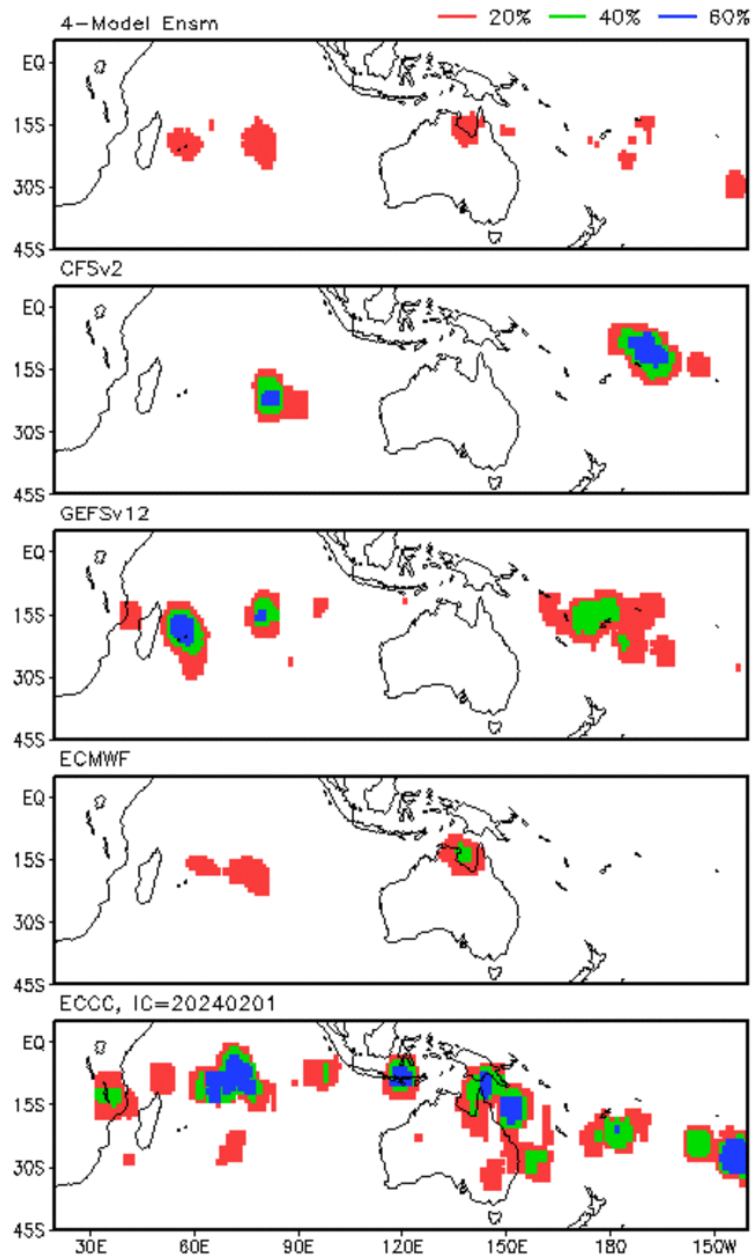
Storm Track Density Distribution, IC=20240205
Week 2 Forecast: 0214-0220

Storm Track Density Distribution, IC=20240205
Week 3 Forecast: 0221-0227



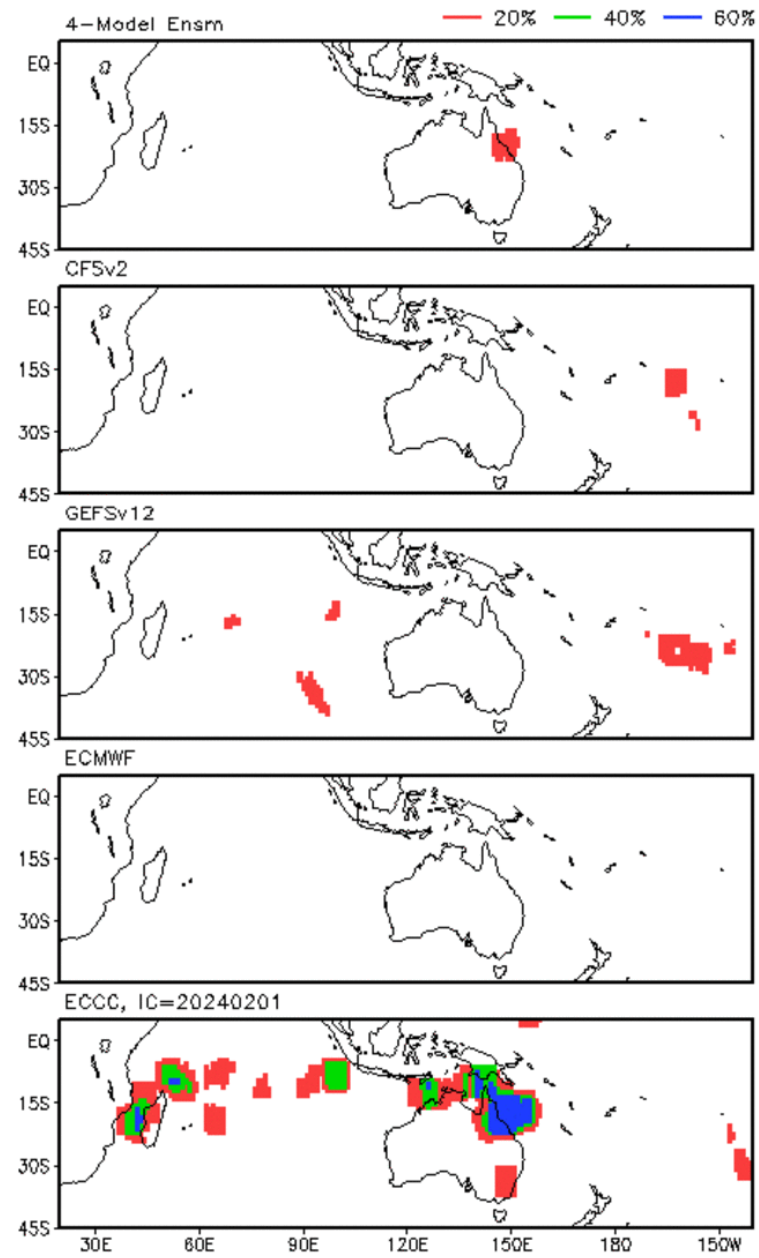
Storm Track Probabilities, IC=20240205

Week 2: 0214 - 0220



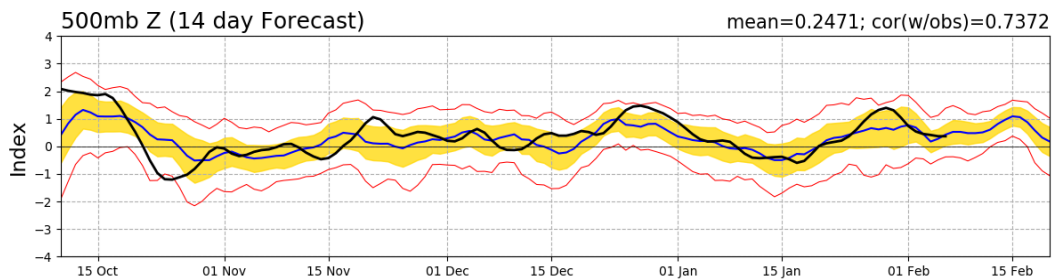
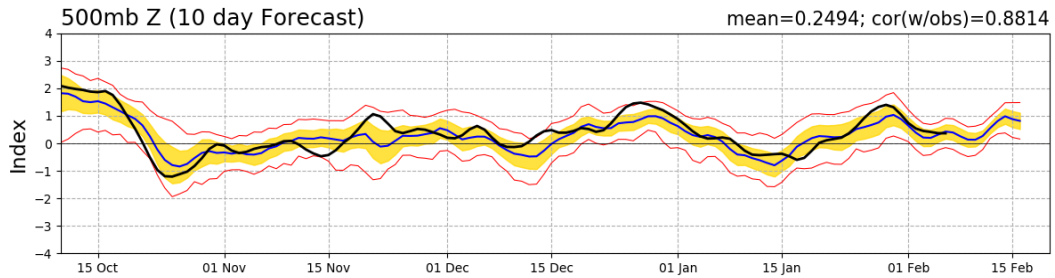
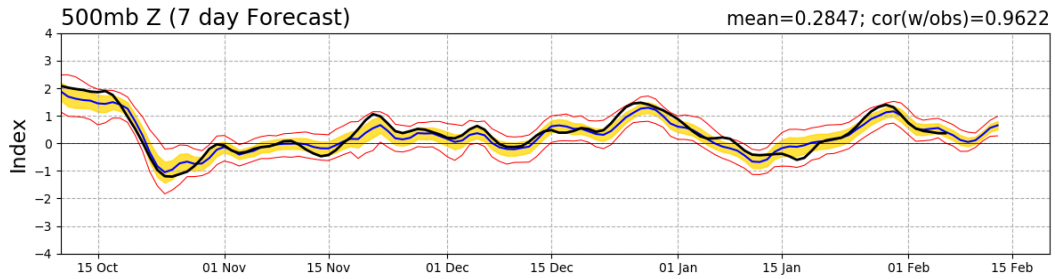
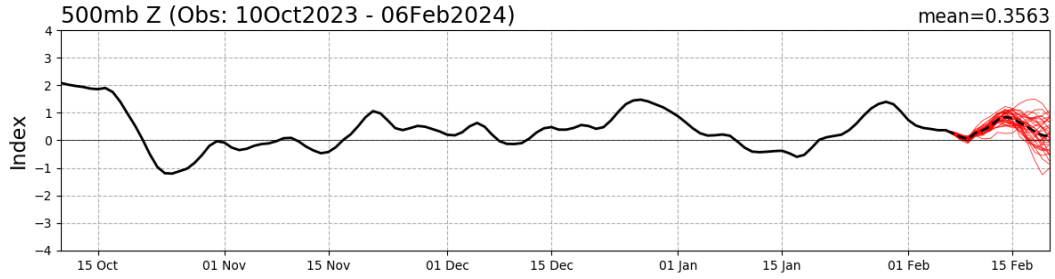
Storm Track Probabilities, IC=20240205

Week 3: 0221 - 0227

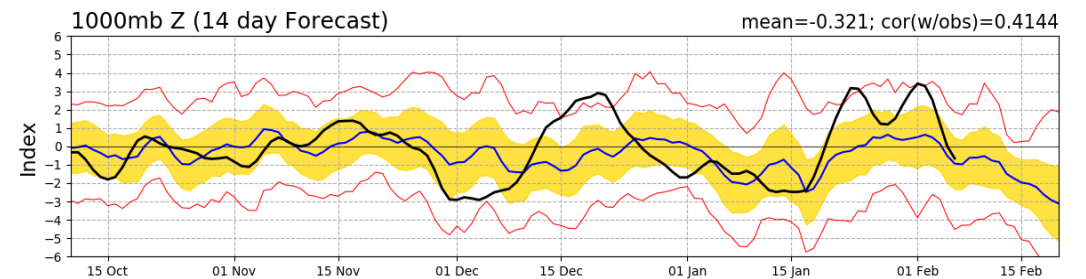
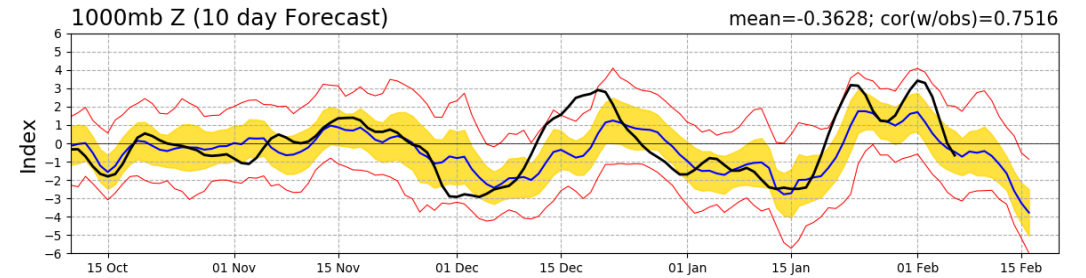
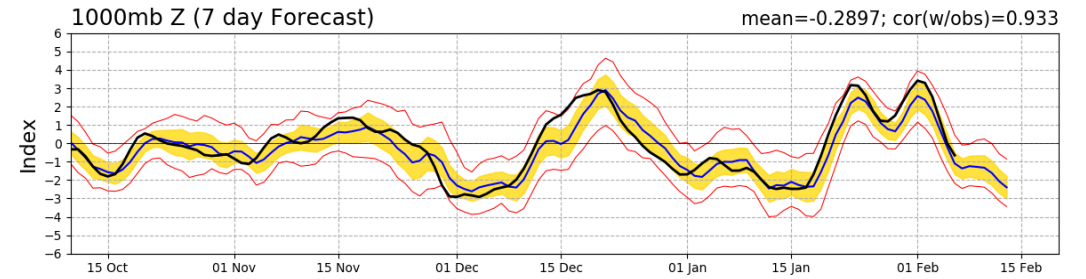
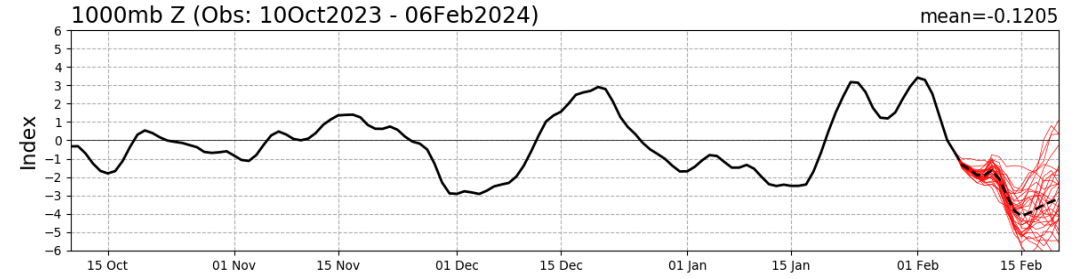


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



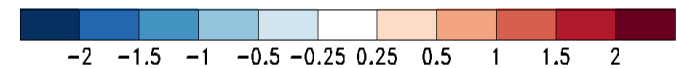
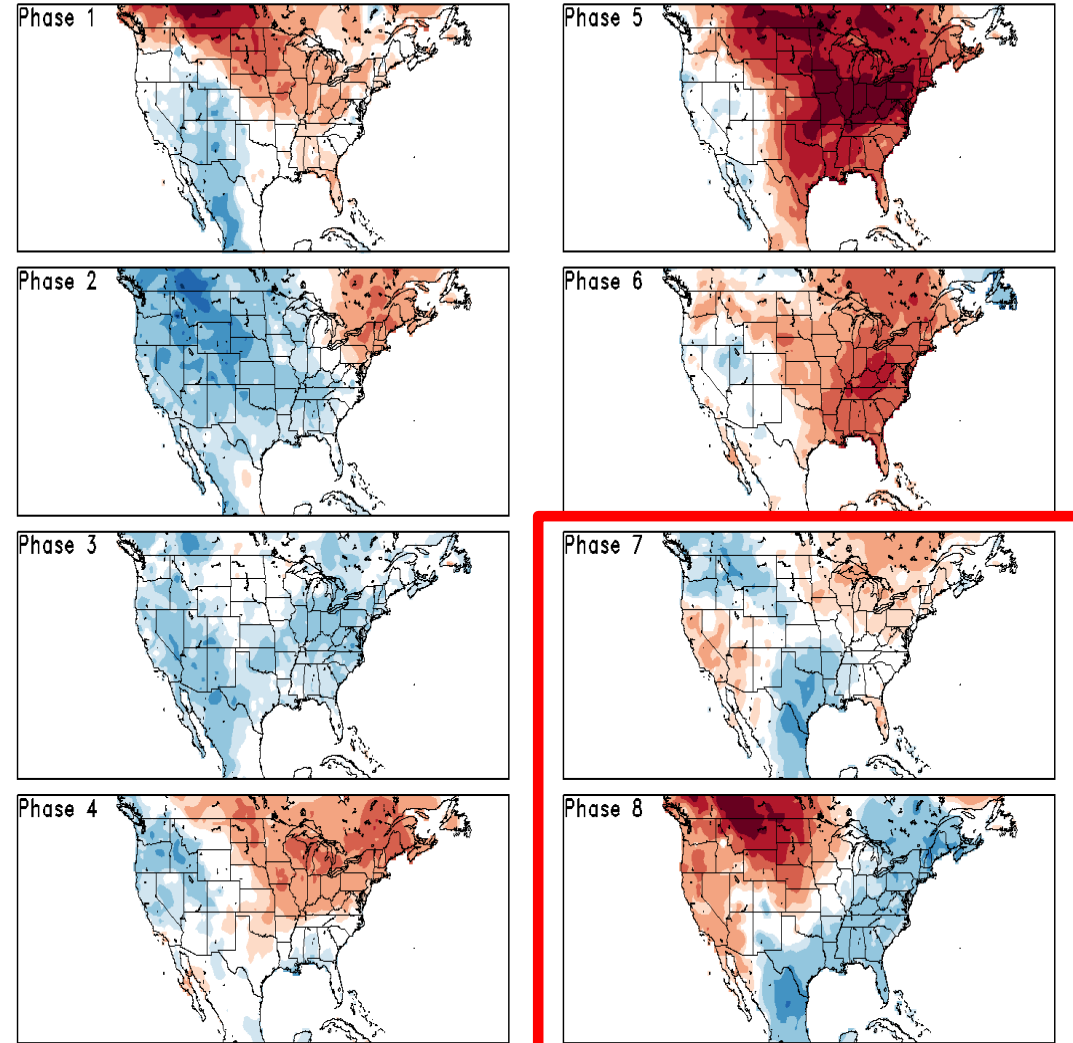
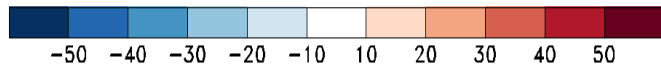
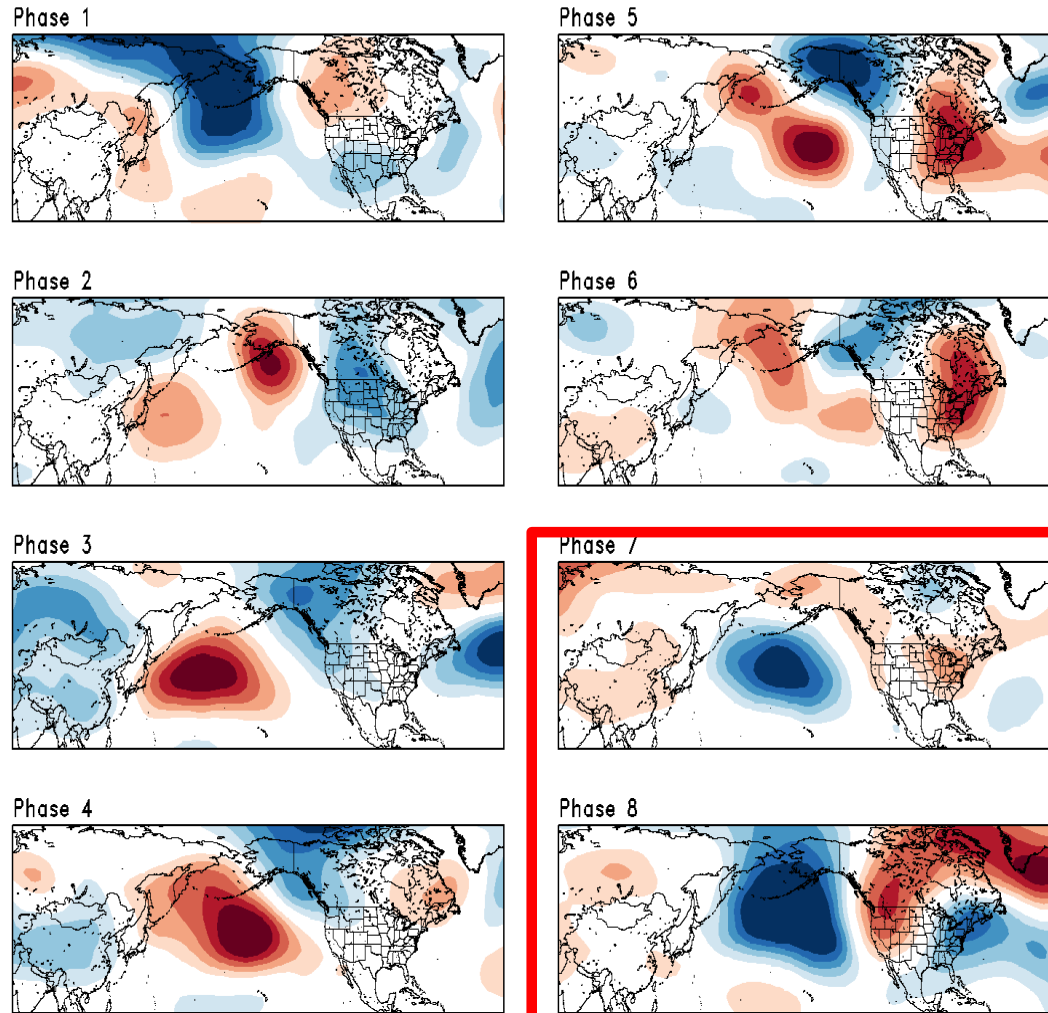
AO Index: Observed & GEFS Forecasts



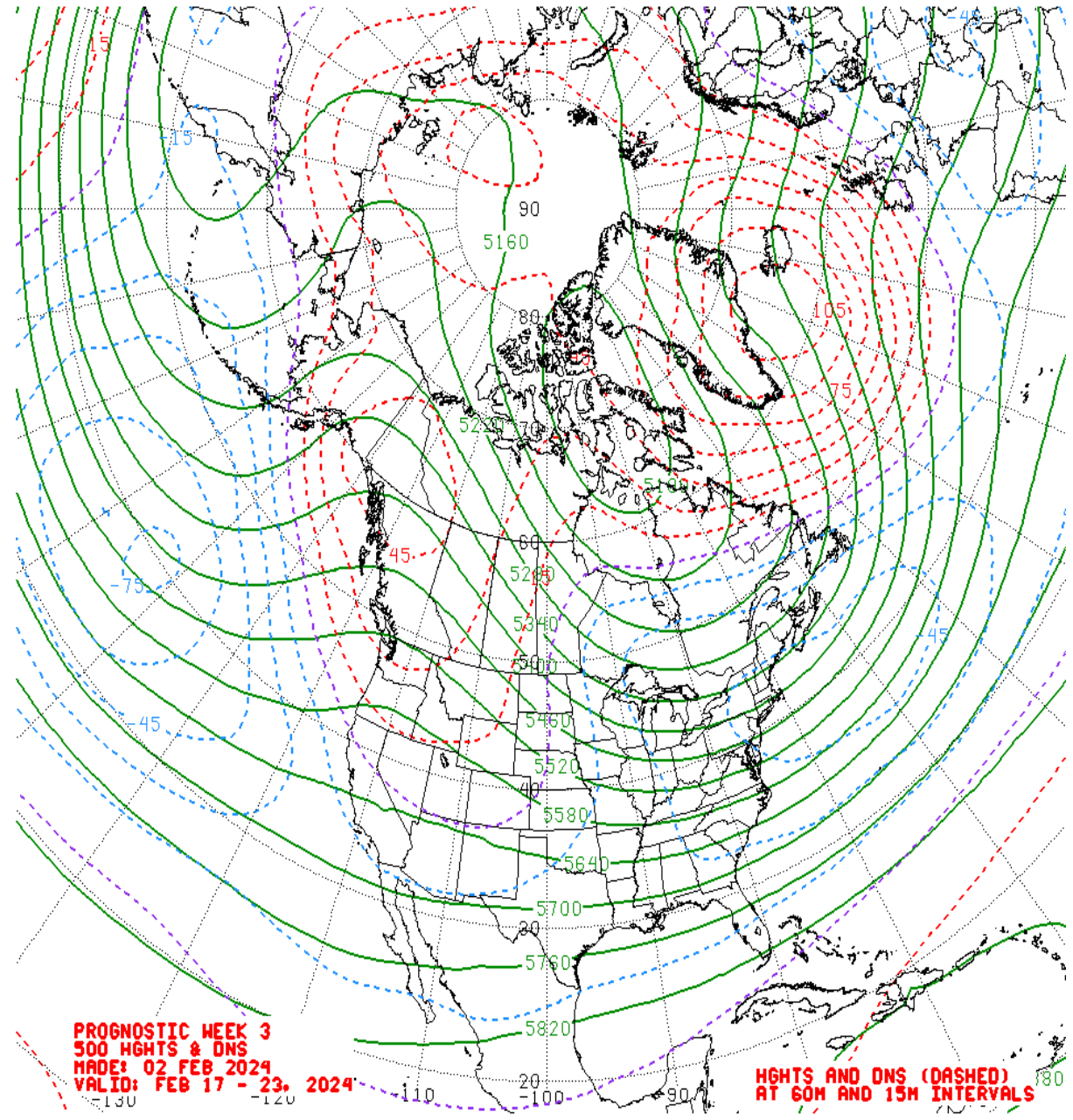
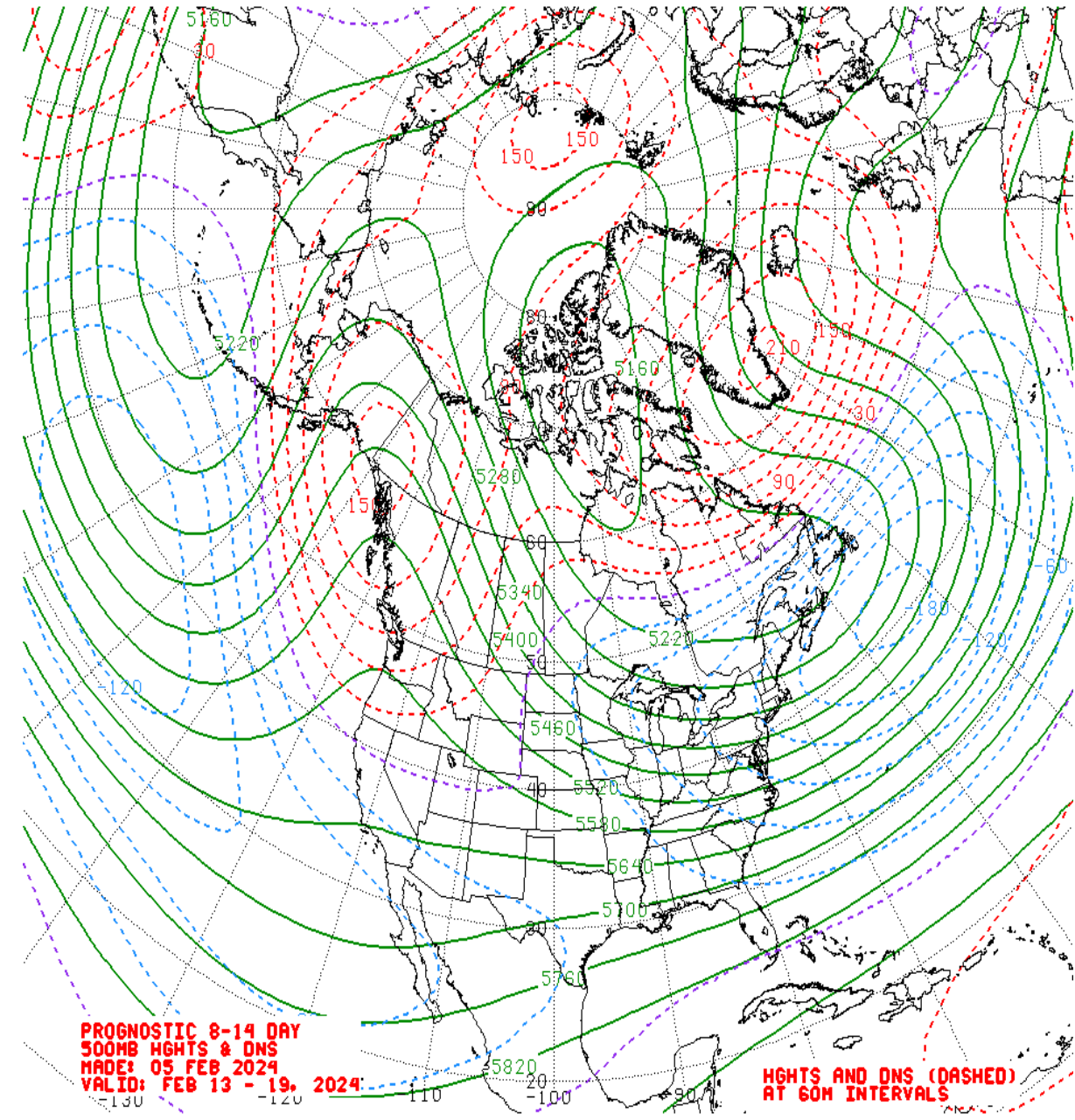
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

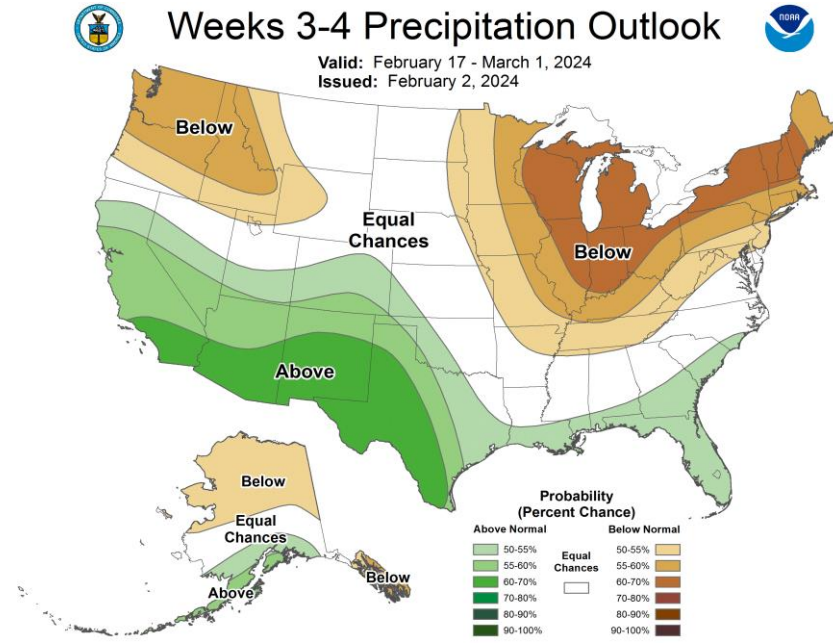
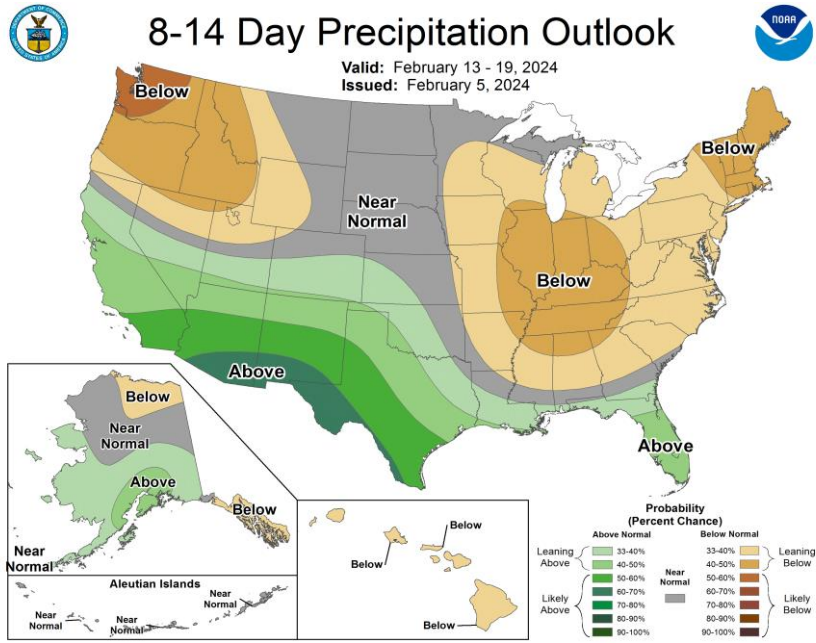
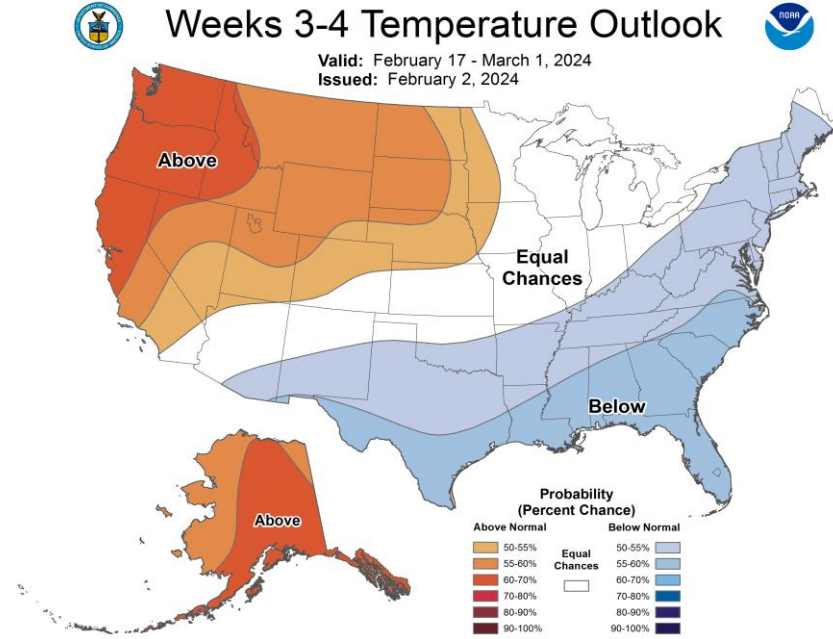
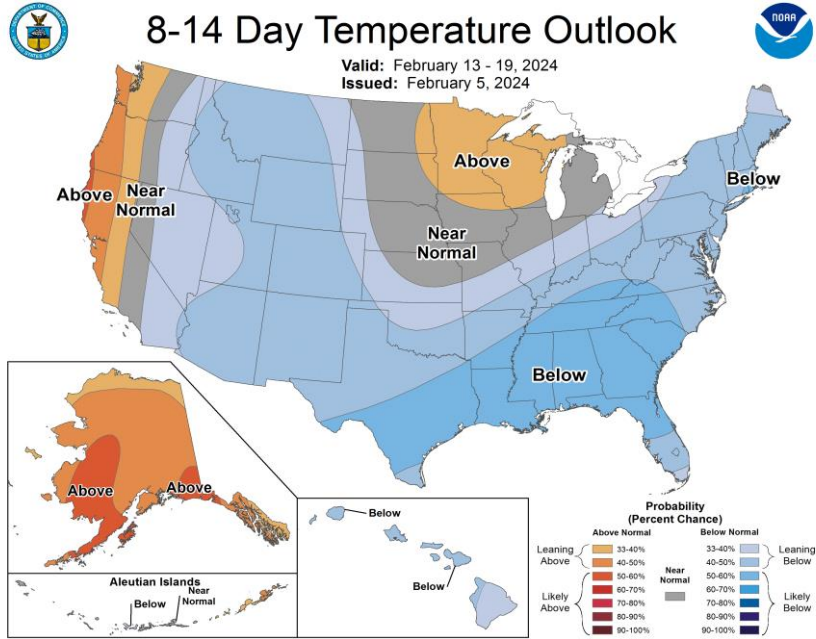
JFM MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



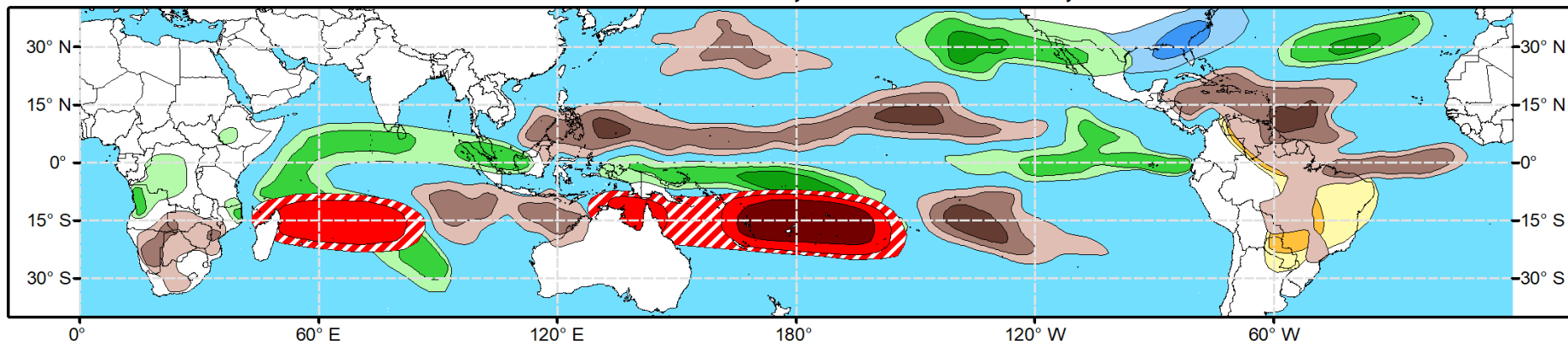


Global Tropics Hazards Outlook

Climate Prediction Center

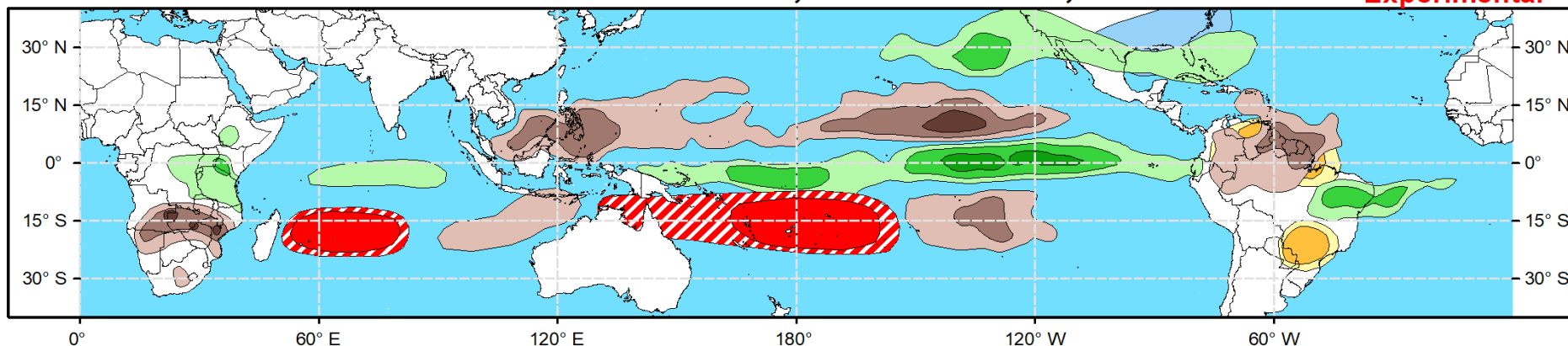


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