



Weeks 2-3 Global Tropics Hazards Outlook

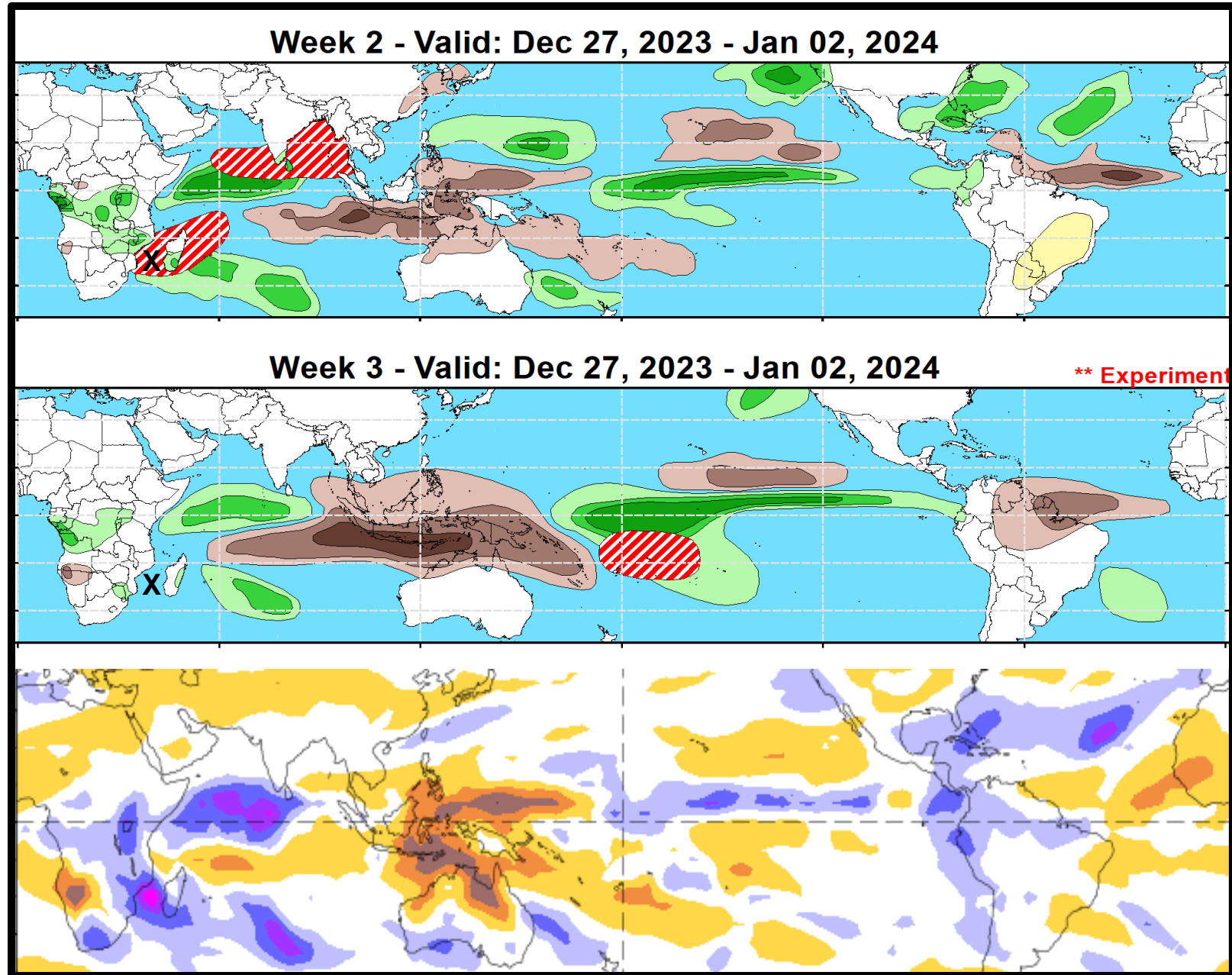
1/2/2024

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- TS Alvaro formed on 1 January over the Mozambique Channel (X)
- No TC activity occurred over the northern IO
- Forecasts for above- and below-normal precipitation appear to be verifying well.



Synopsis of Climate Modes:

ENSO: (Dec 14, 2023 Update) *next update on Thursday, Jan 11th*

- ENSO Alert System Status: [El Niño Advisory](#)
- El Niño is expected to continue through the Northern Hemisphere winter, with a transition to ENSO-neutral favored during April-June 2024 (60% chance).

MJO and other subseasonal tropical variability:

- The MJO remains active, with the enhanced convective phase now crossing the Indian Ocean, where it is helping produce widespread enhanced convection.
- The MJO will destructively interfere with both the +IOD and ENSO base states, with the +IOD response weakening, while El Niño enhanced convection will likely continue unabated across the Pacific.
- An enhanced period of tropical cyclone activity is favored for the southern IO during Week-2, due to MJO activity.
- During Week-3, a broad region of favorability is likely in the vicinity of Australia, though models are not pinpointing specific regions for formation.
- Dynamical model forecasts show continued MJO activity during the next several weeks, following some interference during Week-1.

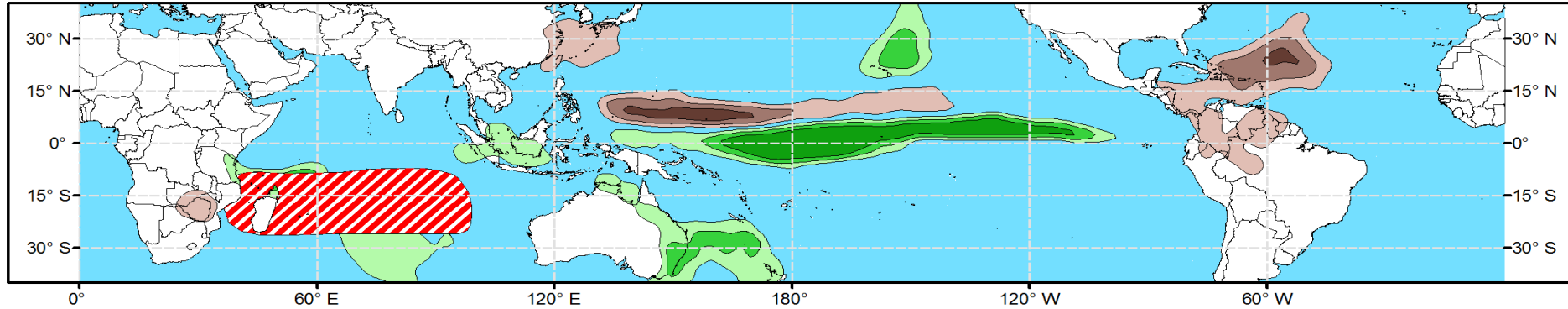
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

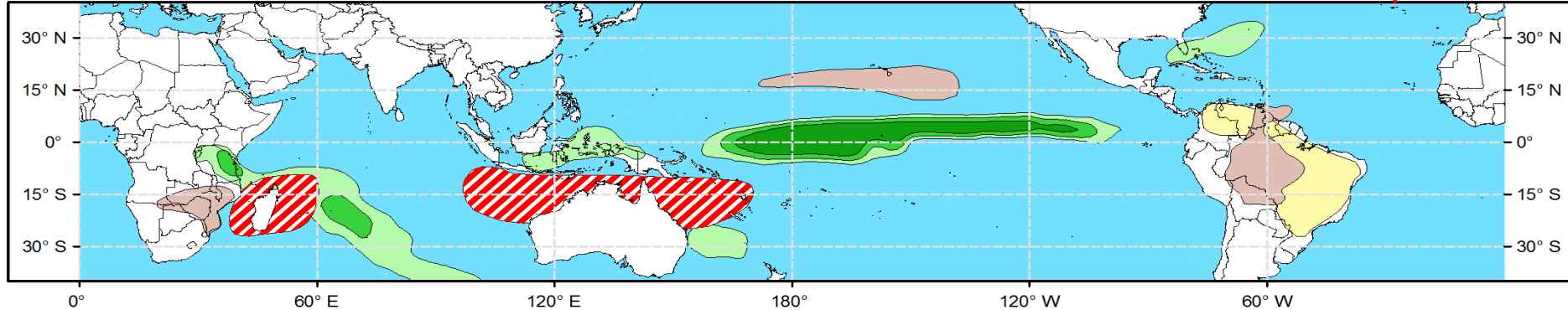


Week 2 - Valid: Jan 10, 2024 - Jan 16, 2024



Week 3 - Valid: Jan 17, 2024 - Jan 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**



>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%

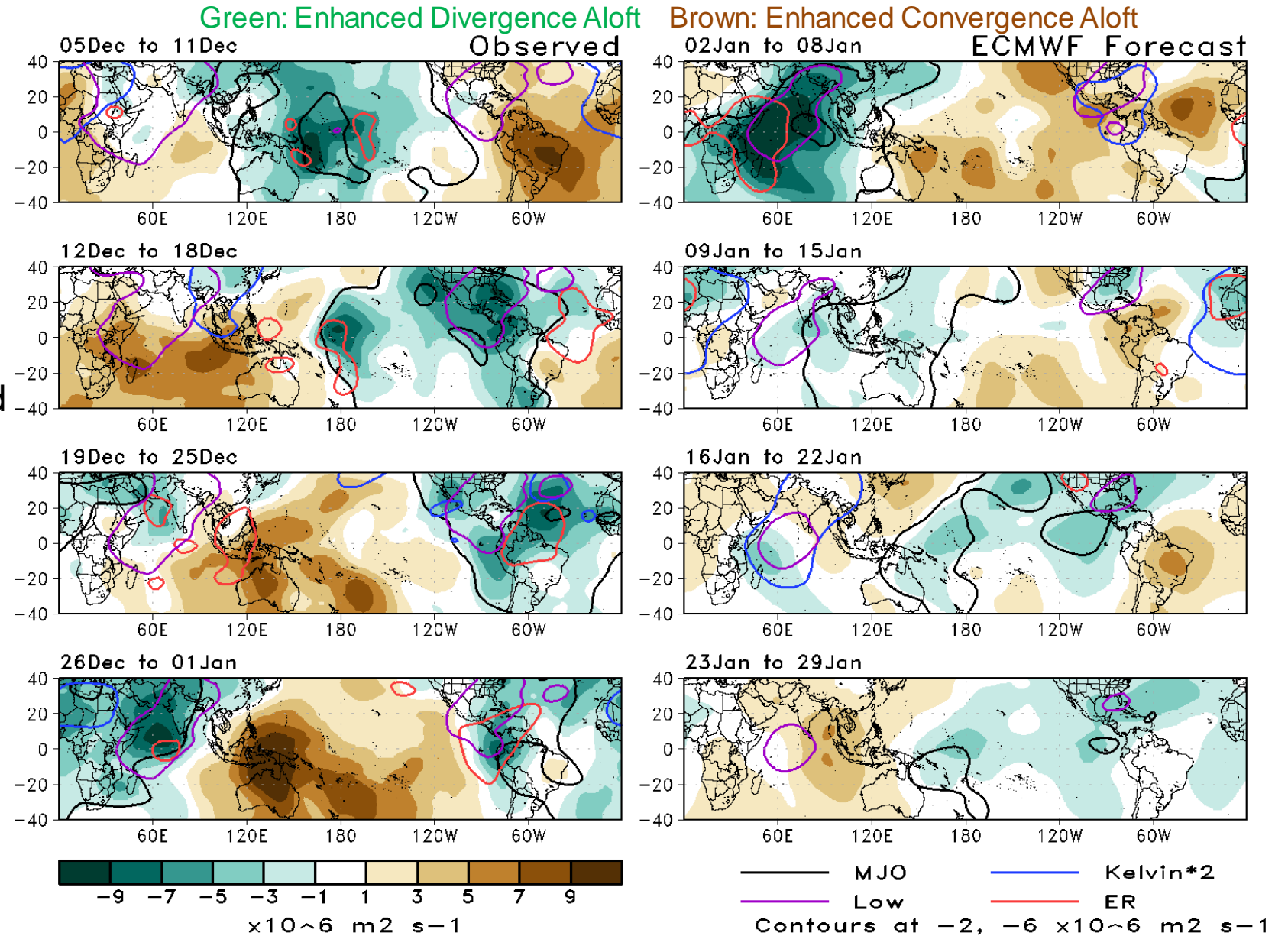
7-day min temperatures in the
Lower third of the historical range

**Issued: 01/02/2024
Forecaster: Allgood**

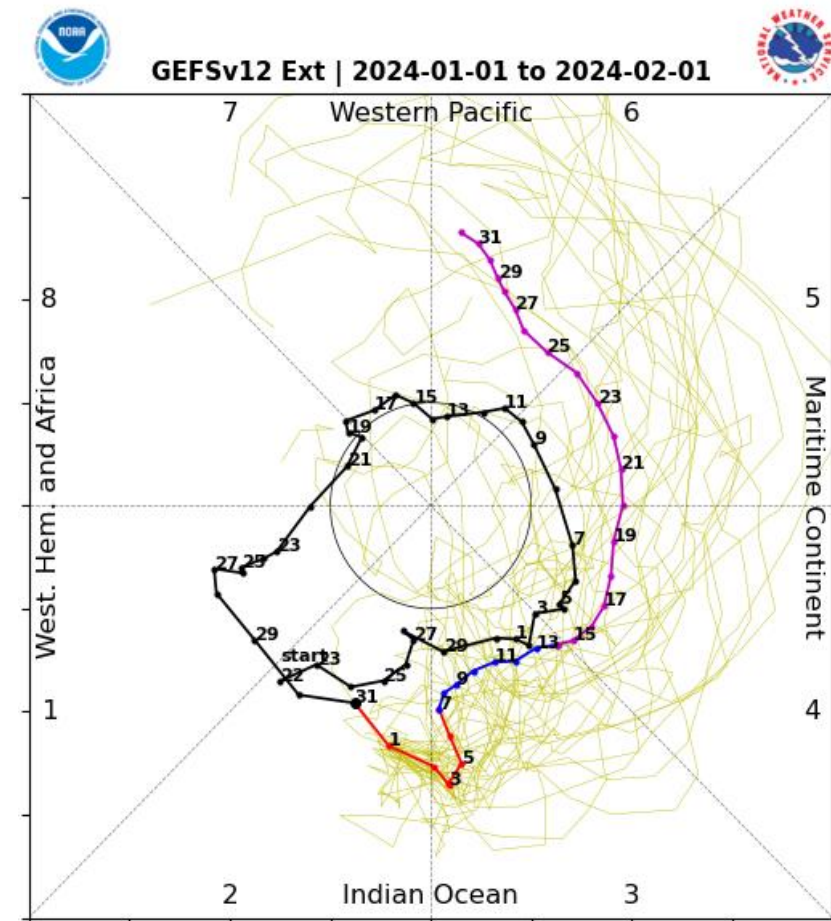
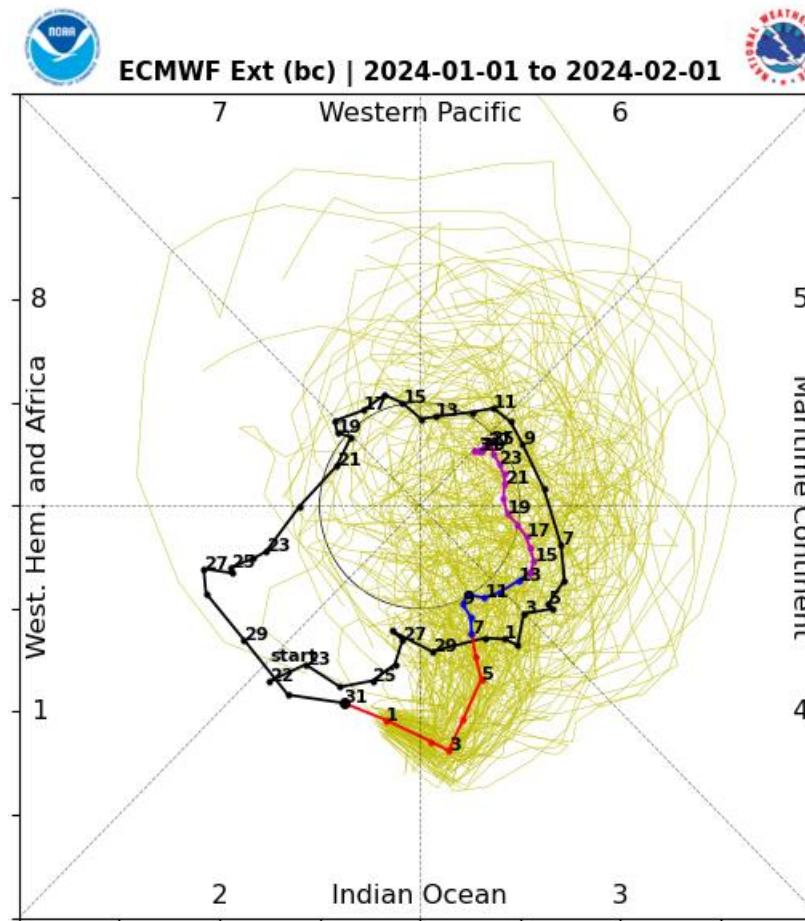
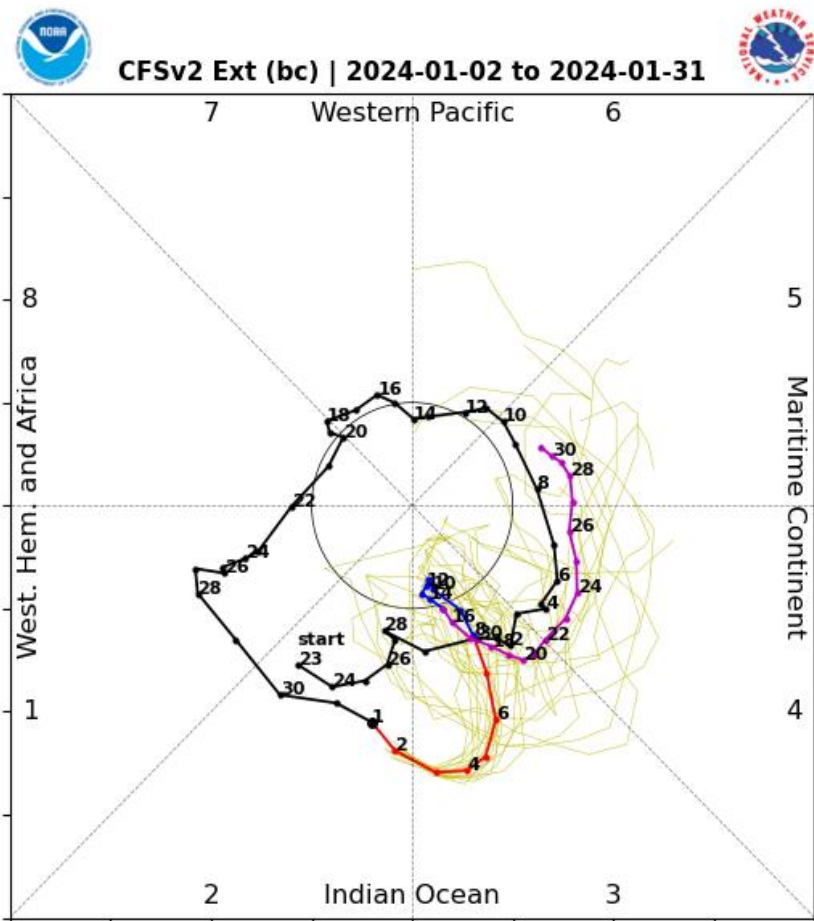
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200-hPa Velocity Potential Anomaly Maps:

- Robust MJO activity is apparent in the upper-level velocity potential field.
- ECMWF forecasts show continued MJO activity over the next 4 weeks, with the enhanced phase crossing the Maritime Continent and returning to the West Pacific by late January.

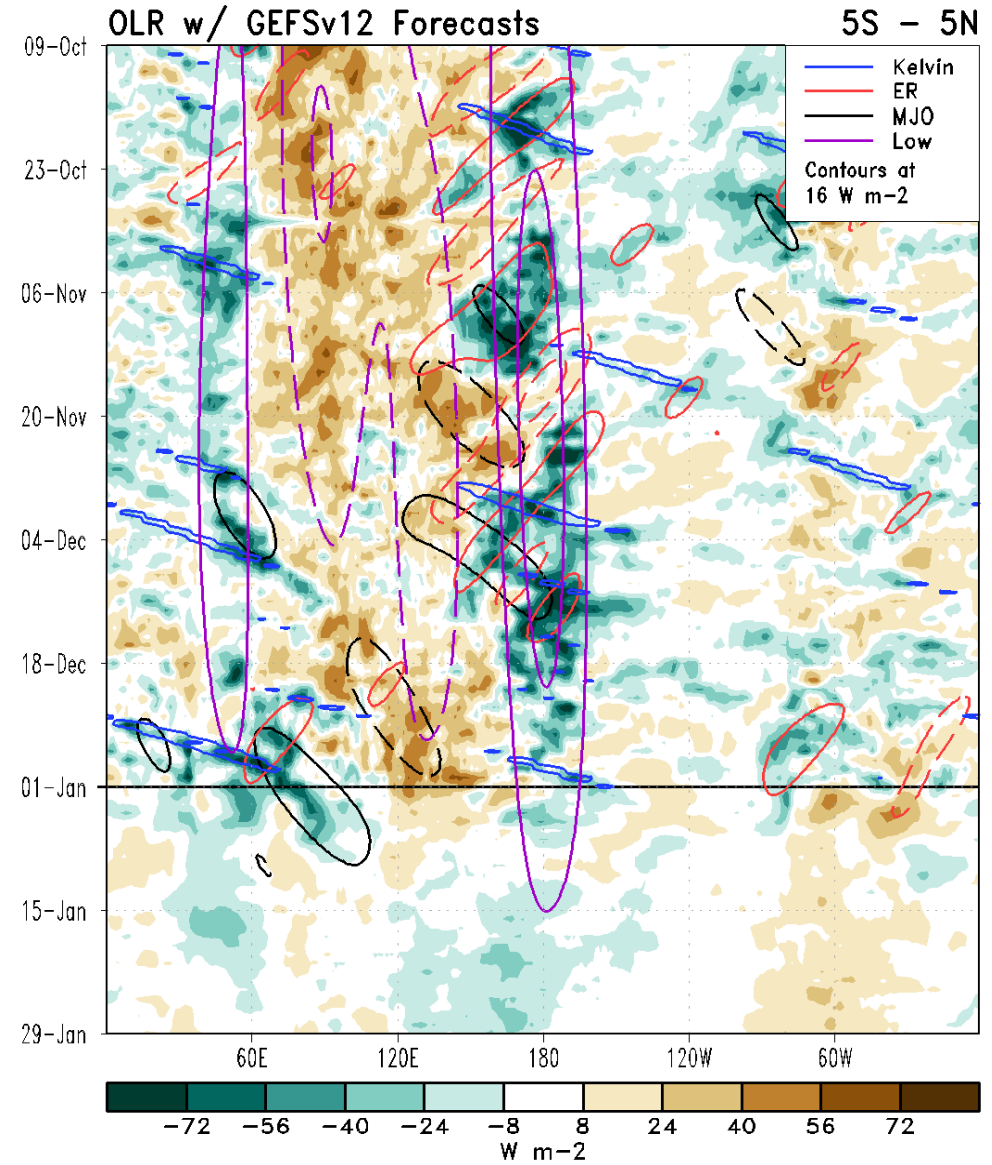
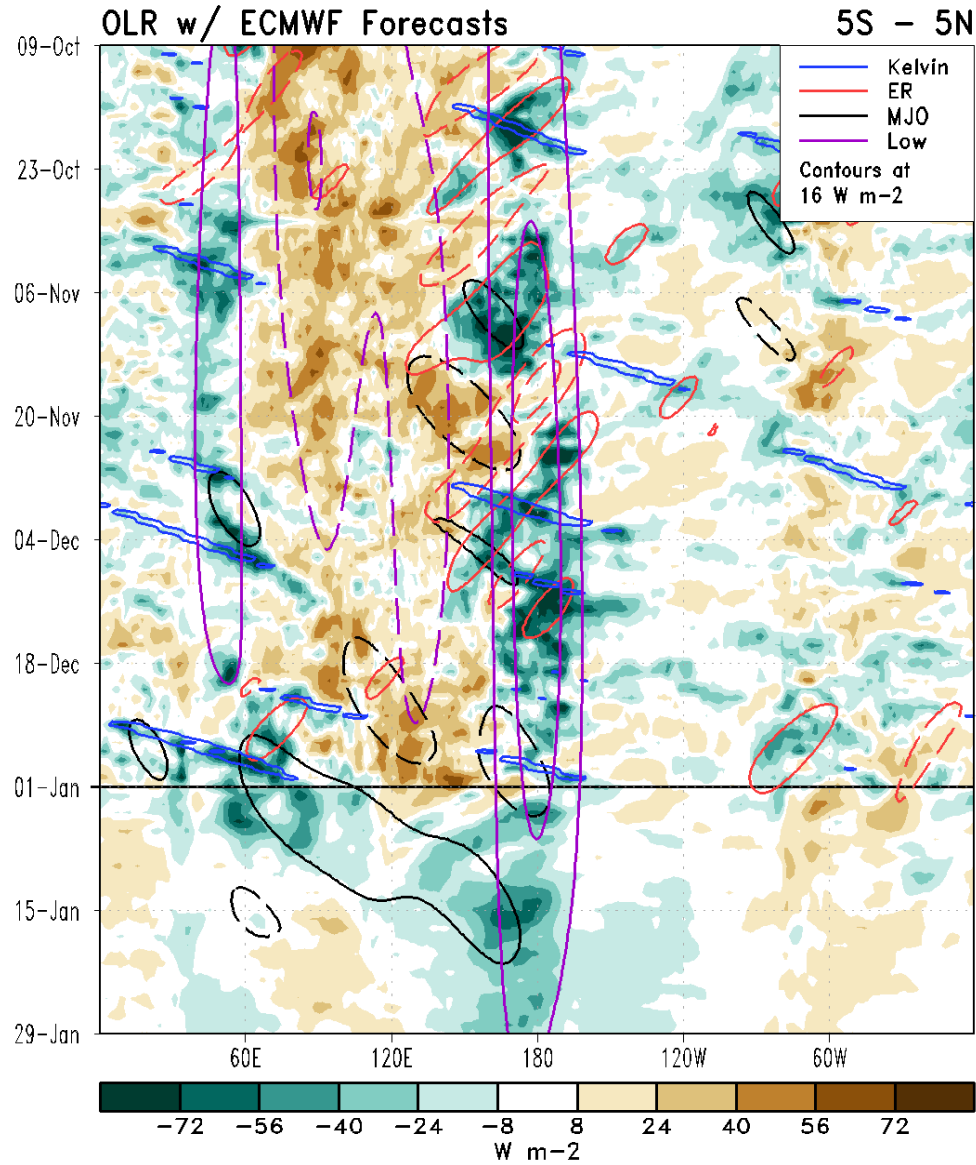


RMM Index Observations & Forecasts:



- Dynamical model forecasts depict continued MJO activity over the next few weeks.
- The GEFS depicts a high-amplitude MJO event.

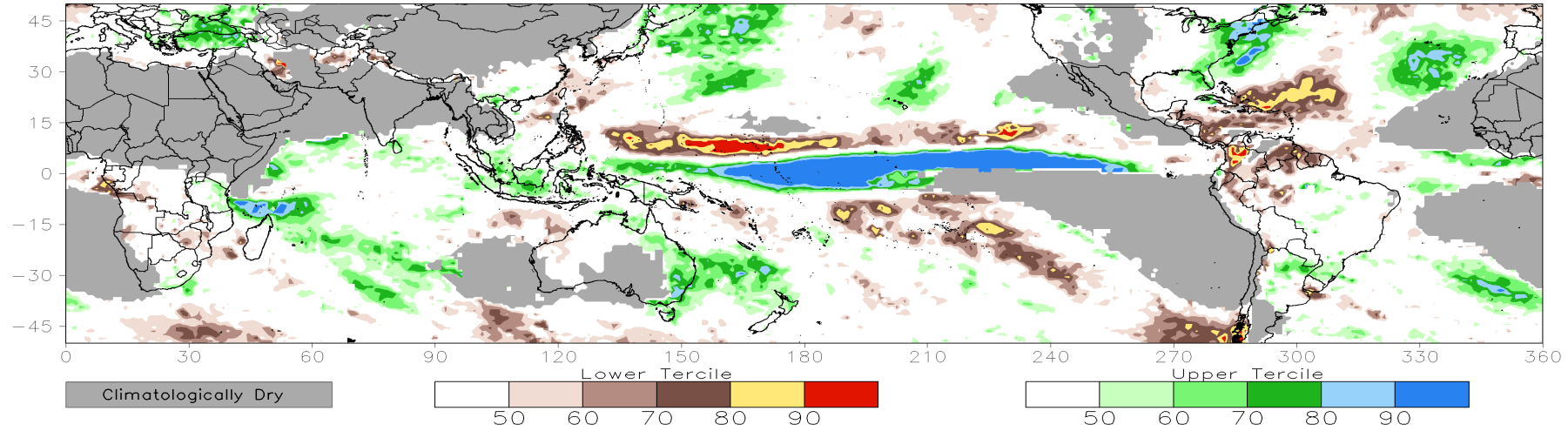
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

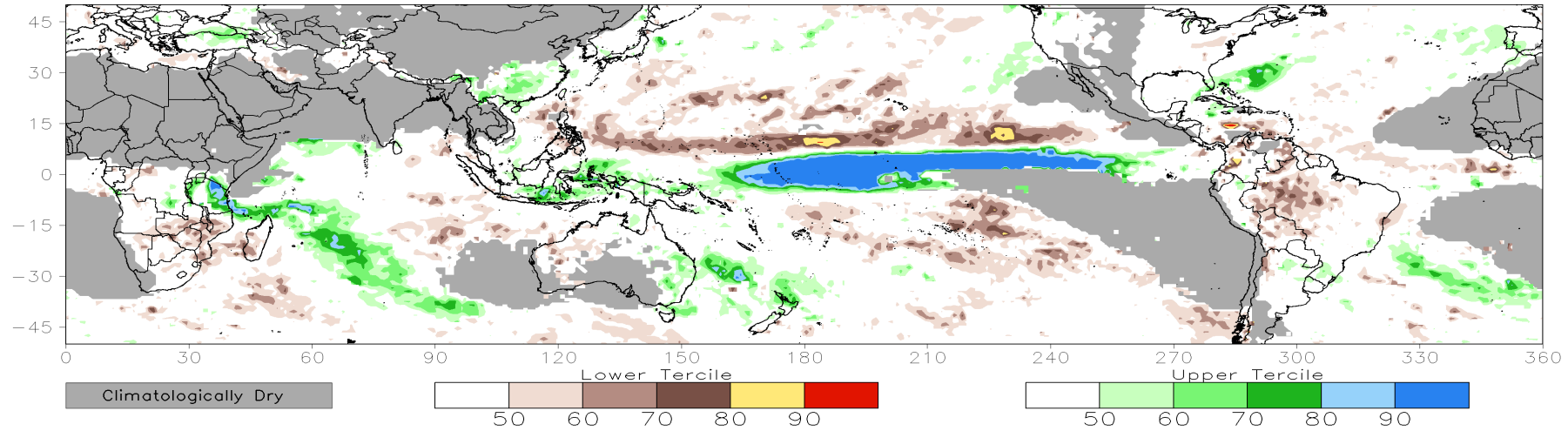
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 10Jan2024–16Jan2024



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

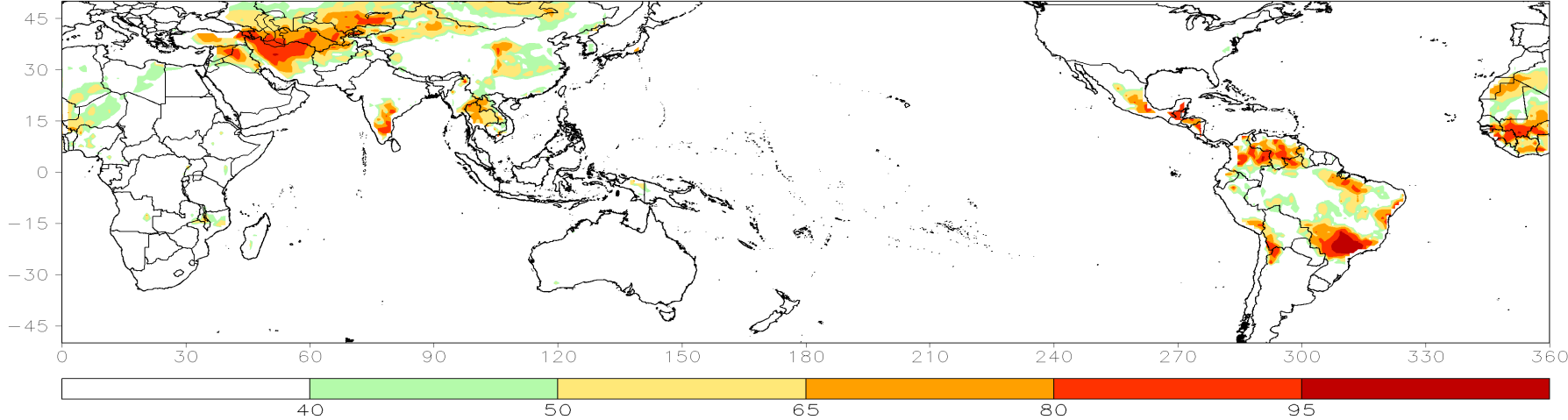
Valid: 17Jan2024–23Jan2024



Consolidated Probabilistic Temperatures: Week-2

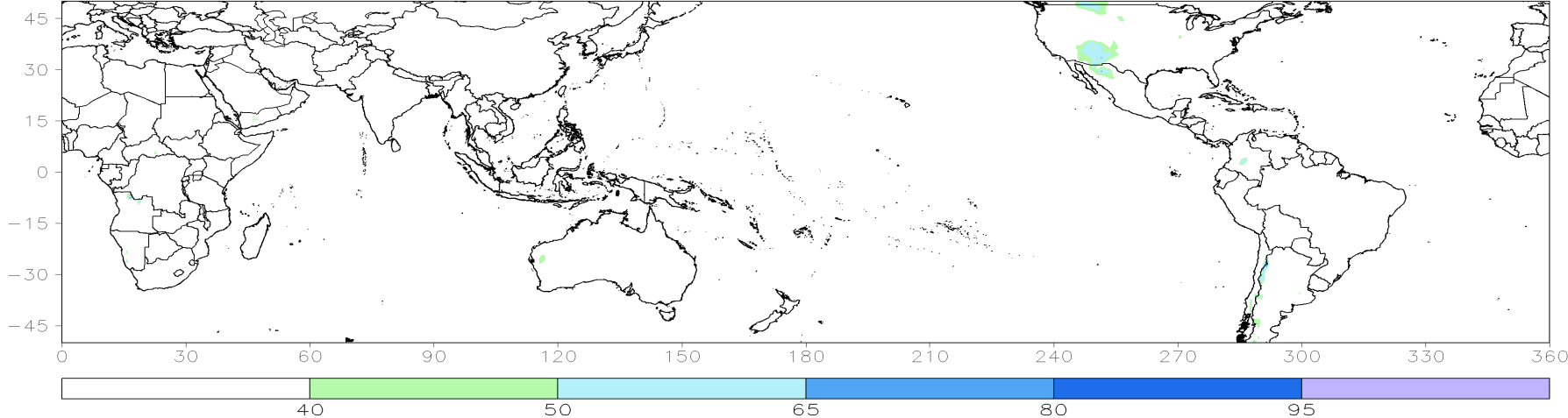
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 10Jan2024-16Jan2024



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

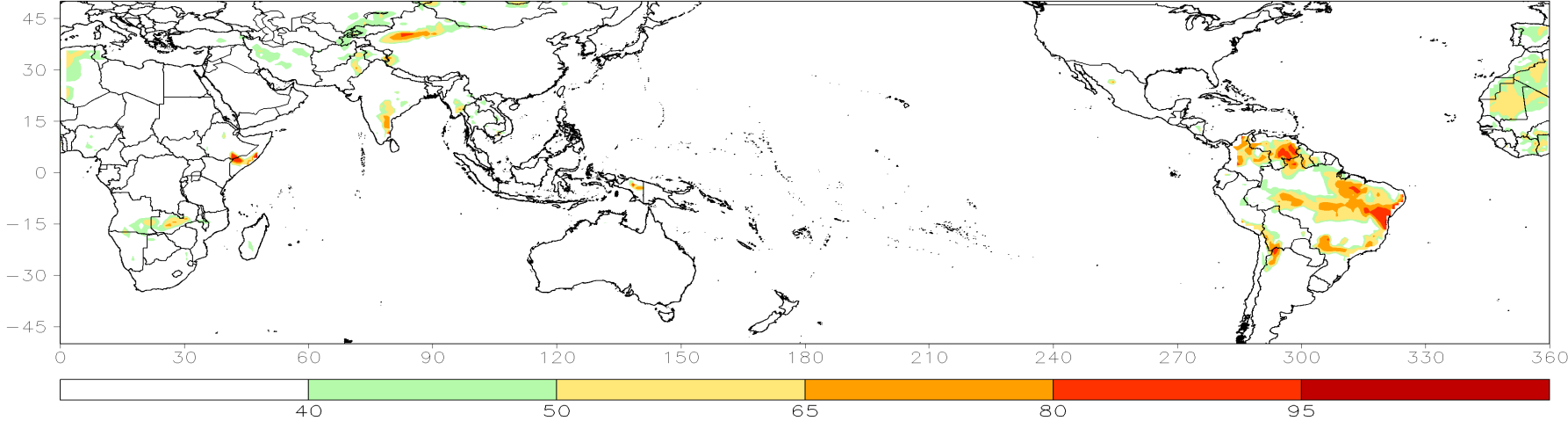
Valid: 10Jan2024-16Jan2024



Consolidated Probabilistic Temperatures: Week-3

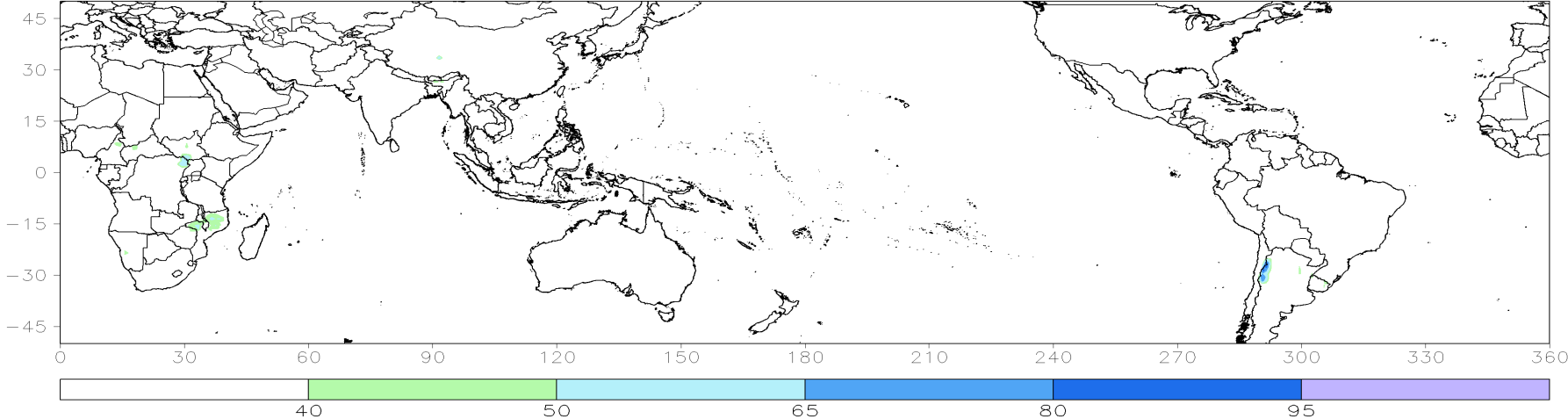
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 17Jan2024-23Jan2024



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

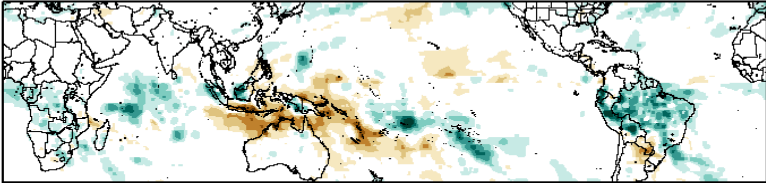
Valid: 17Jan2024-23Jan2024



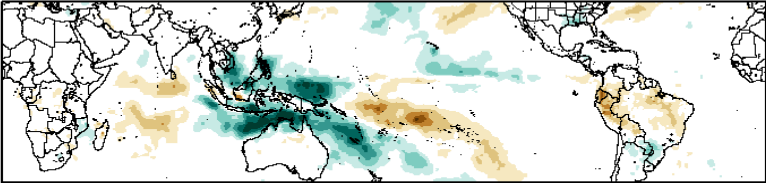
Historical Precipitation Anomalies By MJO Phase:

DJF MJO Composite: GPCP1DD (mm/day)

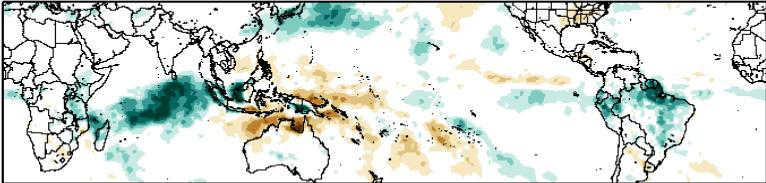
Phase 1



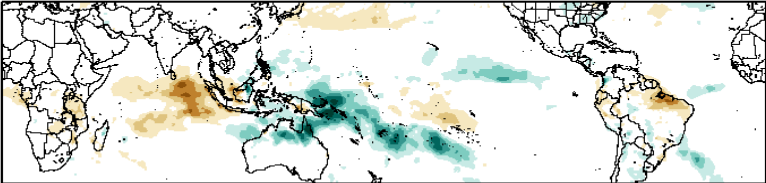
Phase 5



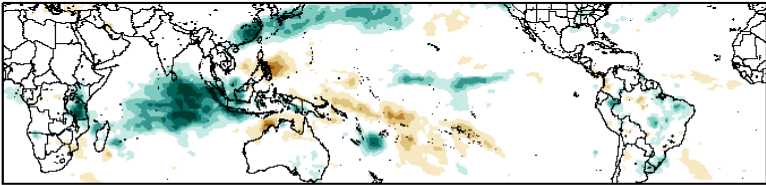
Phase 2



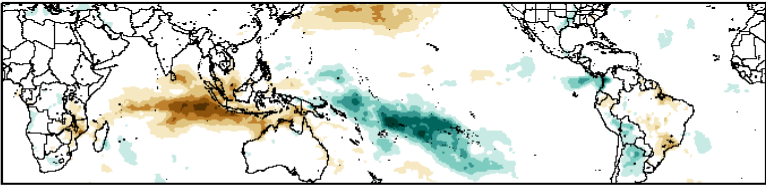
Phase 6



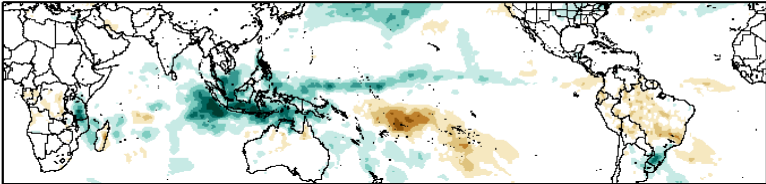
Phase 3



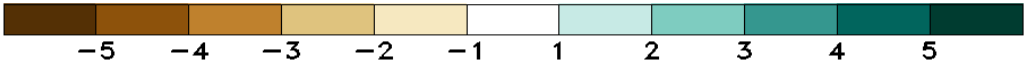
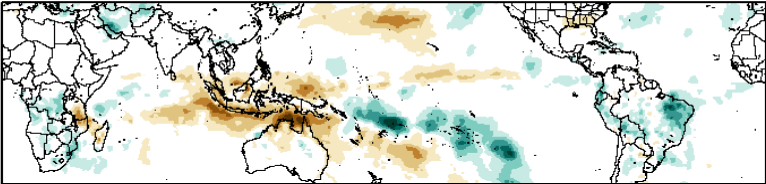
Phase 7



Phase 4

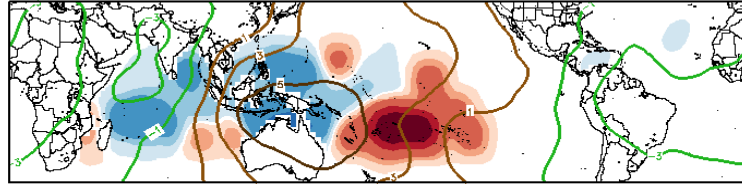


Phase 8

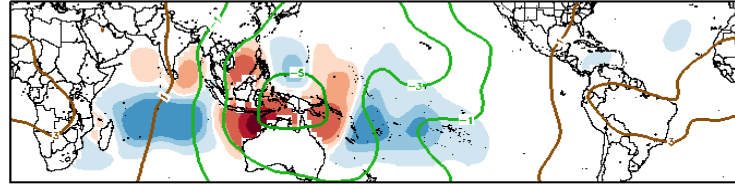


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

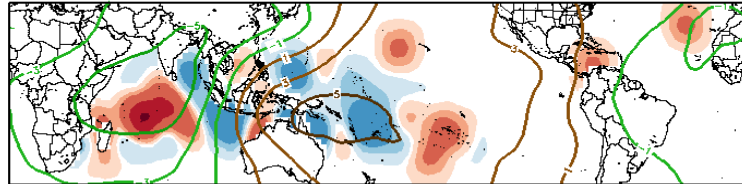
DJF MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ DJF CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



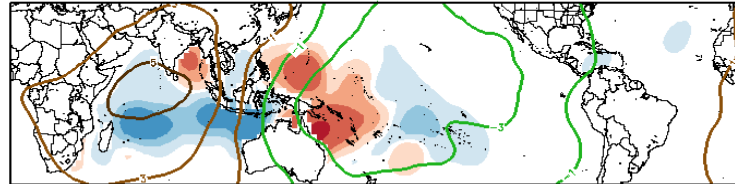
Phase 1



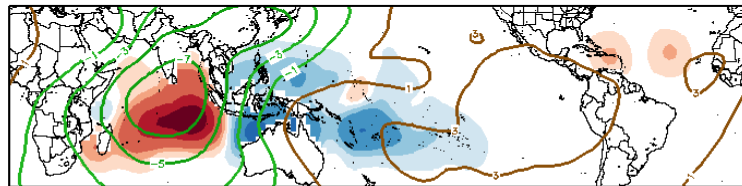
Phase 5



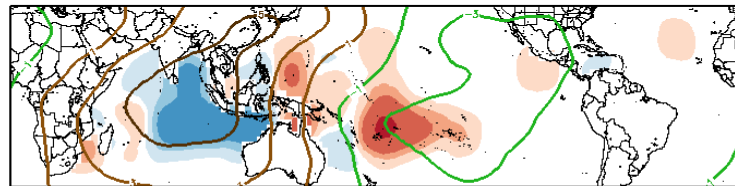
Phase 2



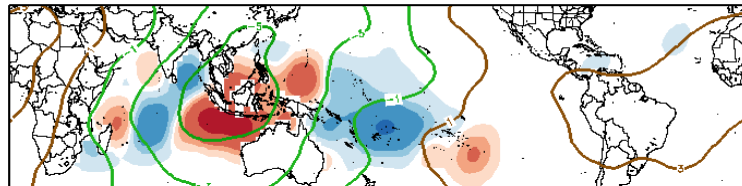
Phase 6



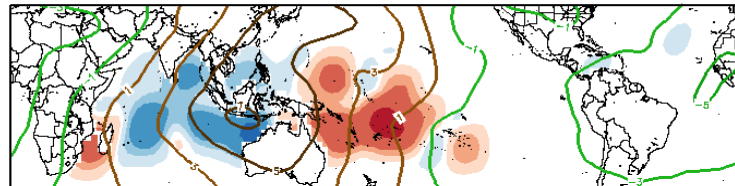
Phase 3



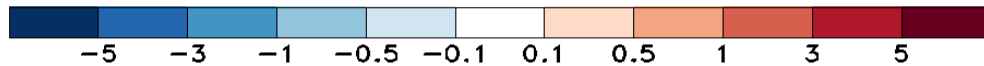
Phase 7



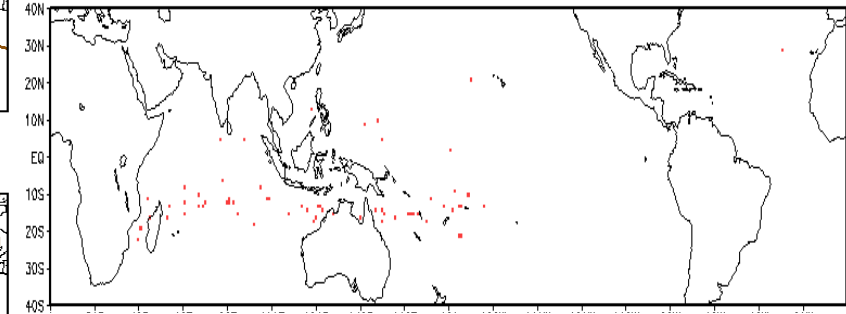
Phase 4



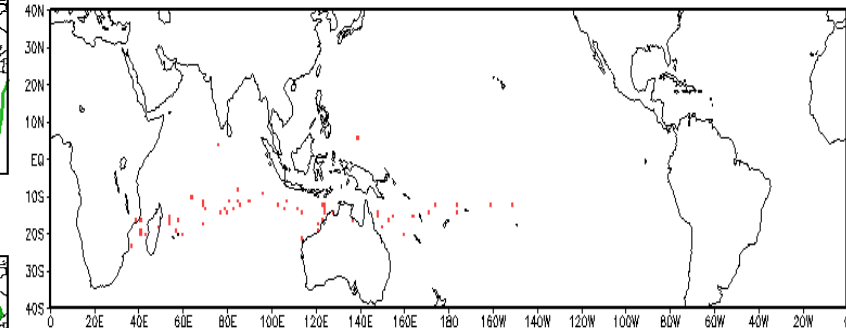
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0110 to 0116



Observed TC Genesis, 1979–2021
7-day Period 0117 to 0123

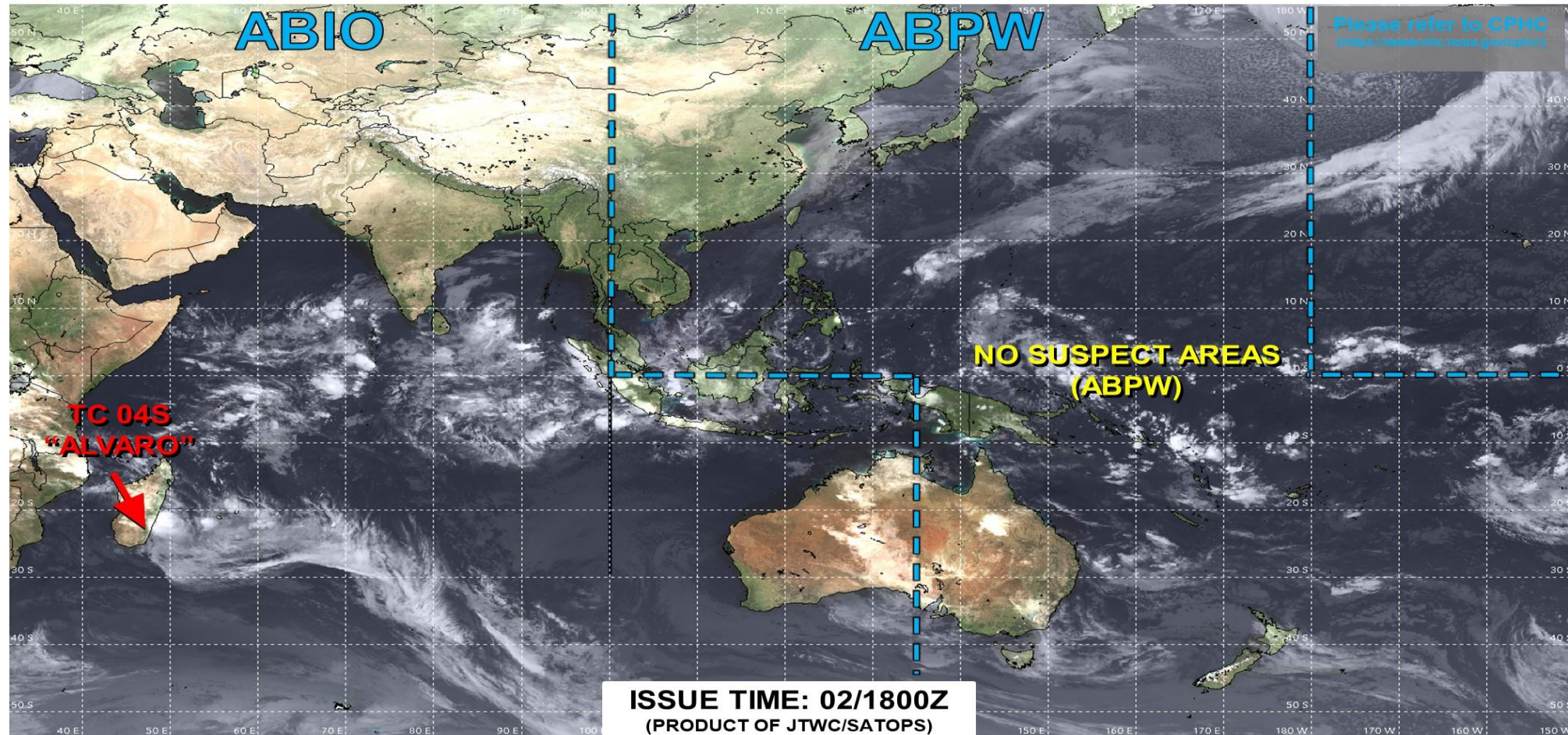


Experimental

Tropical Cyclone Monitoring/Forecast: JTWC



JOINT TYPHOON WARNING CENTER



ISSUE TIME: 02/1800Z
(PRODUCT OF JTWC/SATOPS)



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

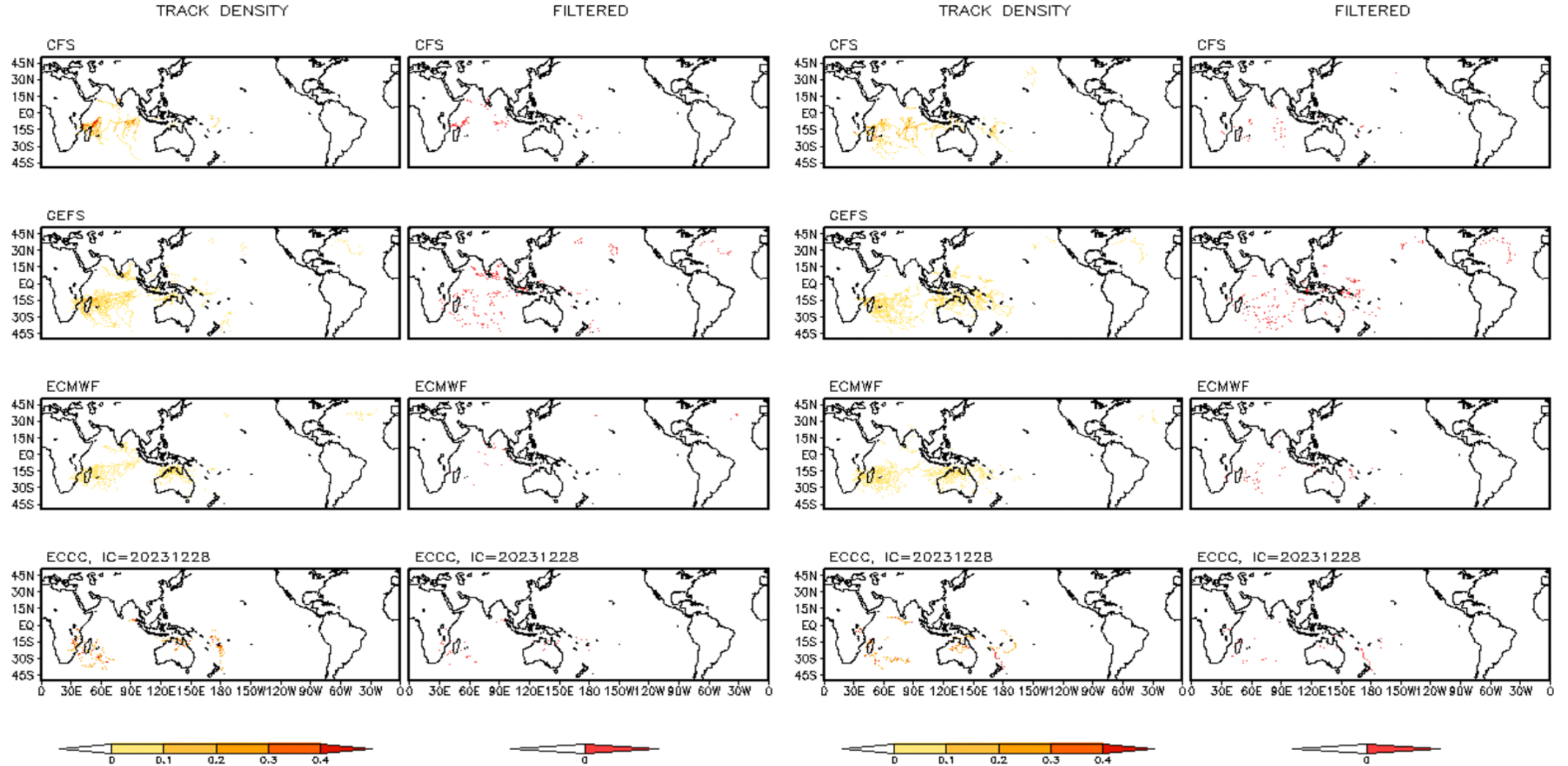


Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

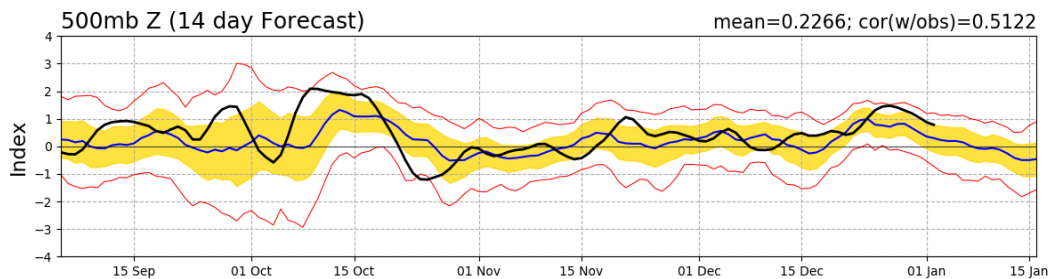
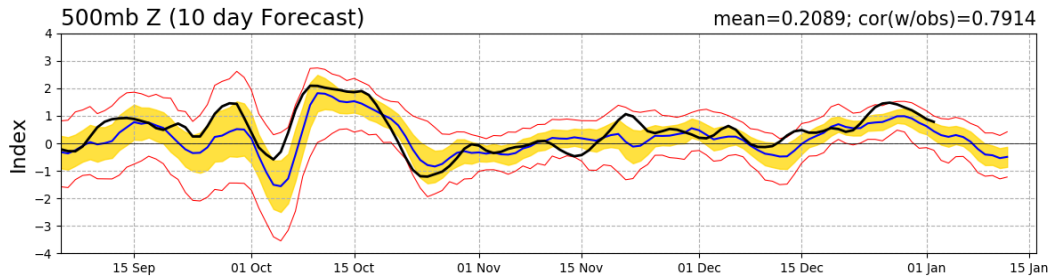
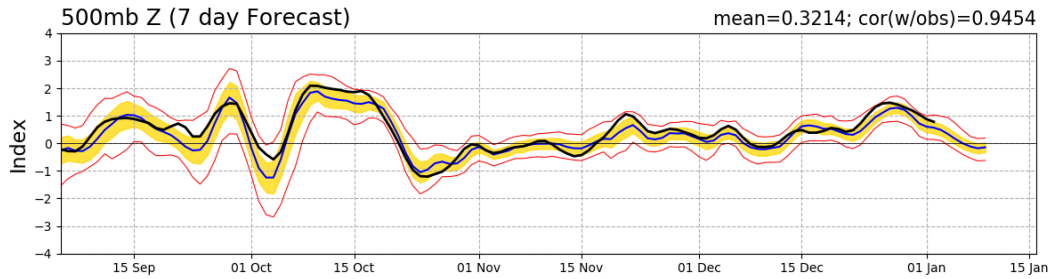
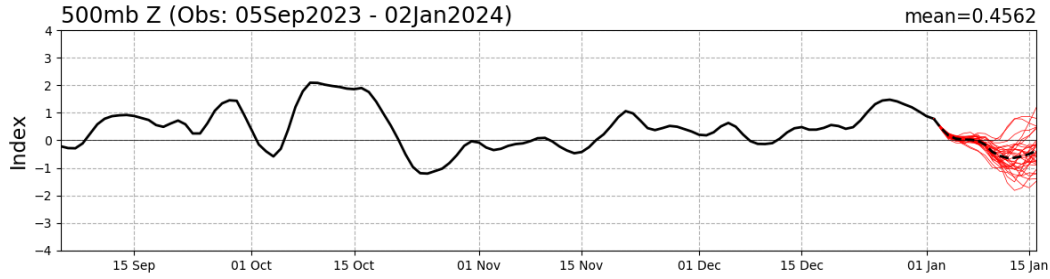
Storm Track Density Distribution, IC=20240101
Week 2 Forecast: 0110-0116

Storm Track Density Distribution, IC=20240101
Week 3 Forecast: 0117-0123

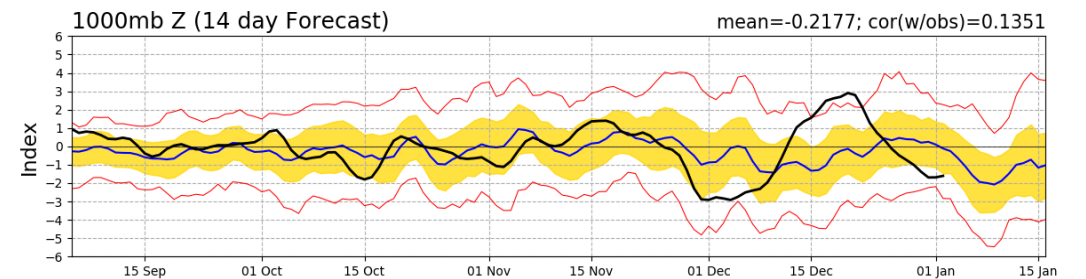
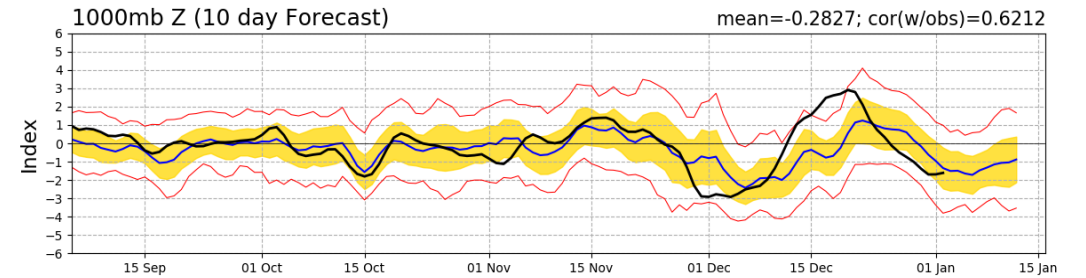
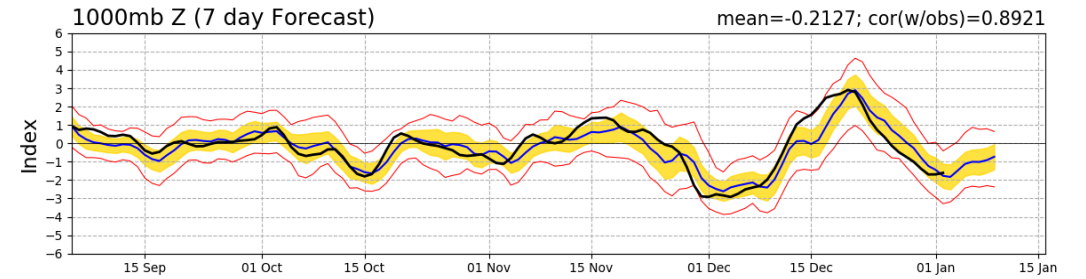
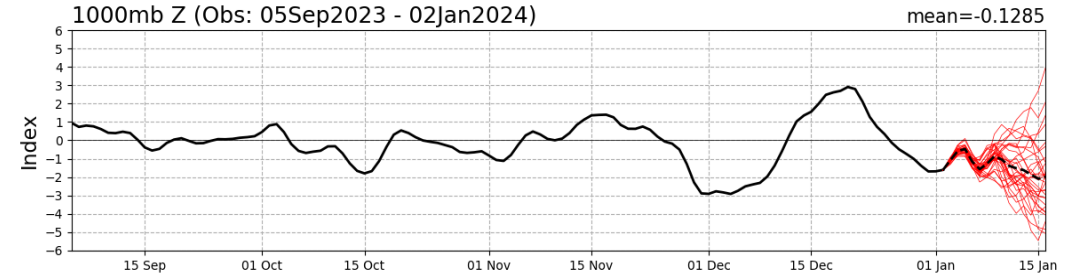


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

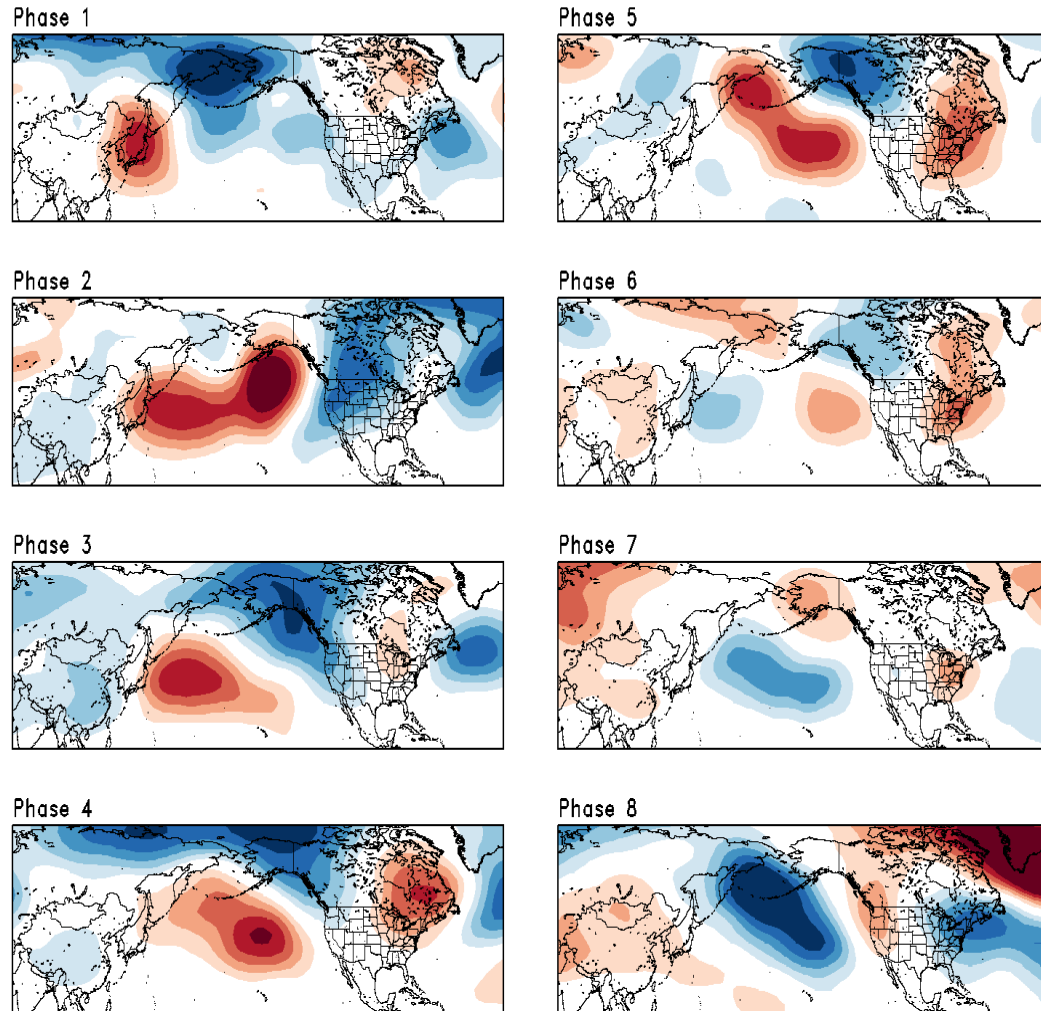


AO Index: Observed & GEFS Forecasts

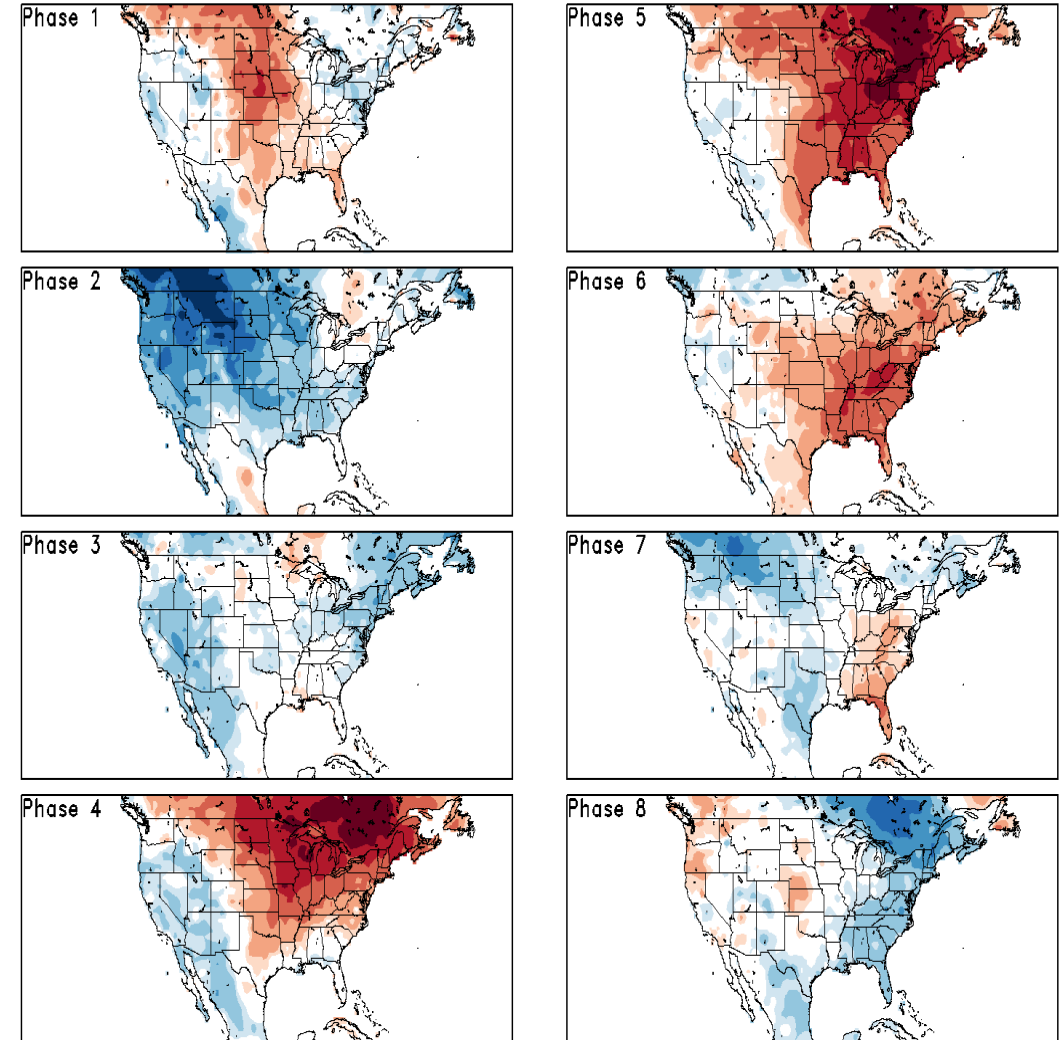


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

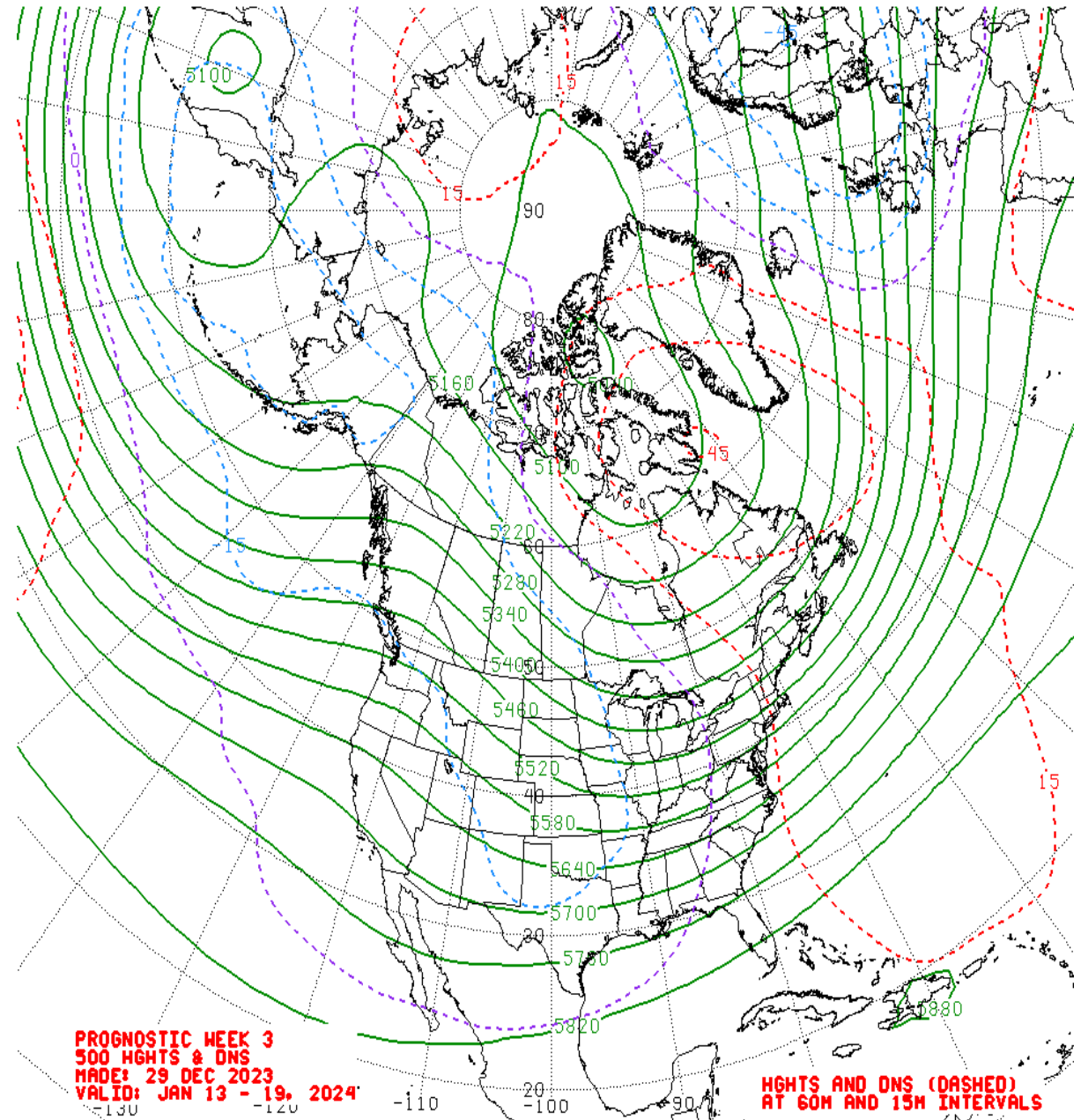
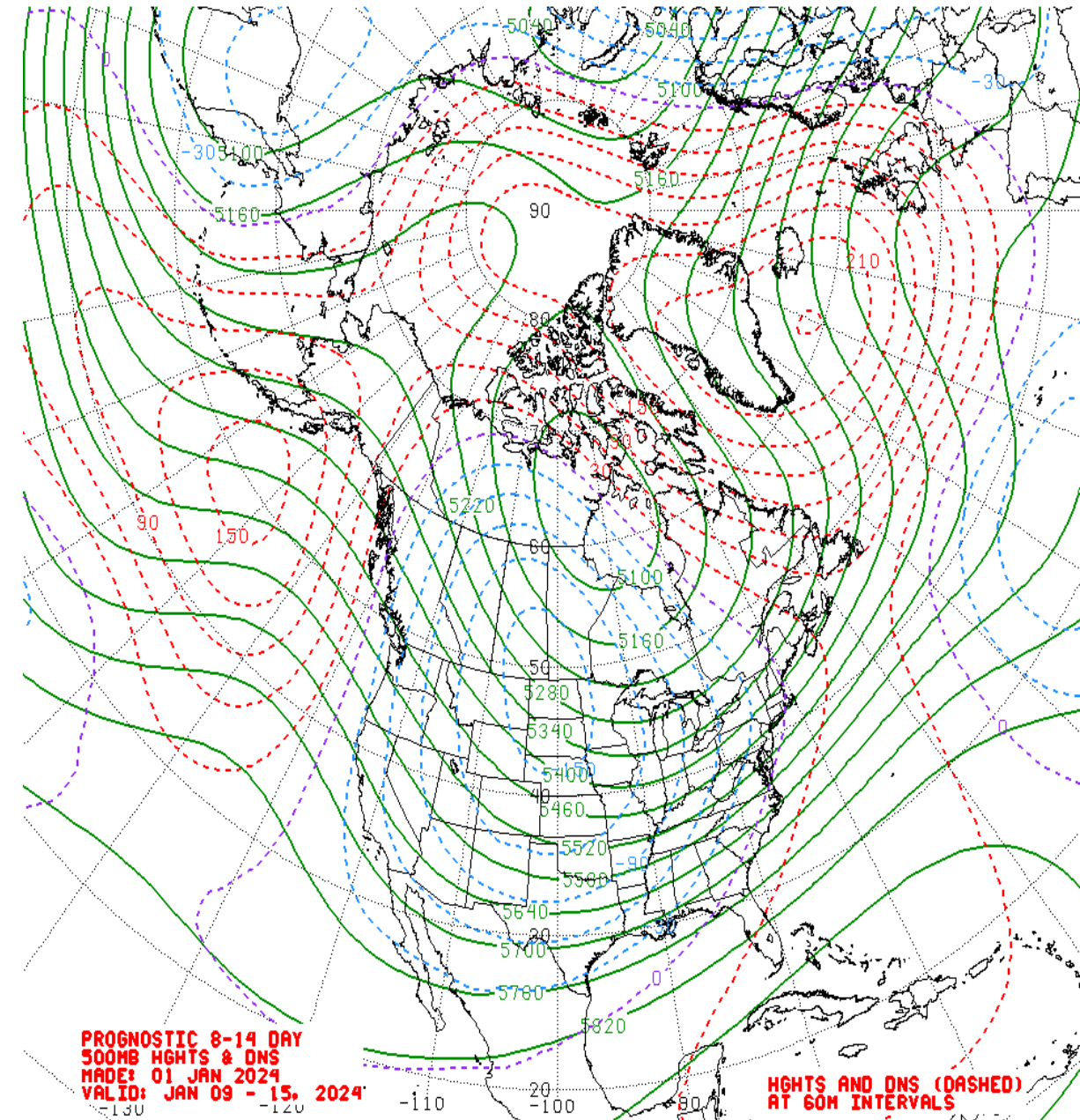
DJF MJO Composite: CDAS 500-hPa Height (m)



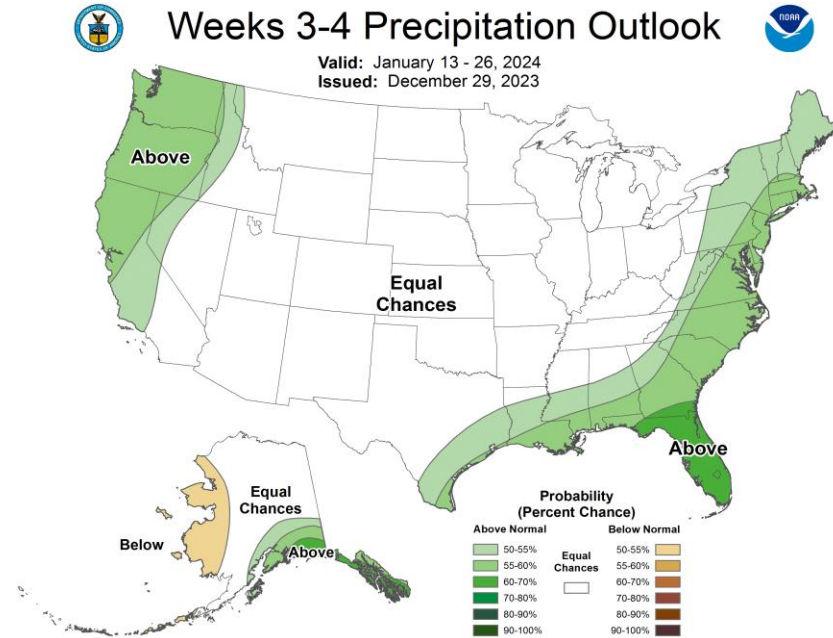
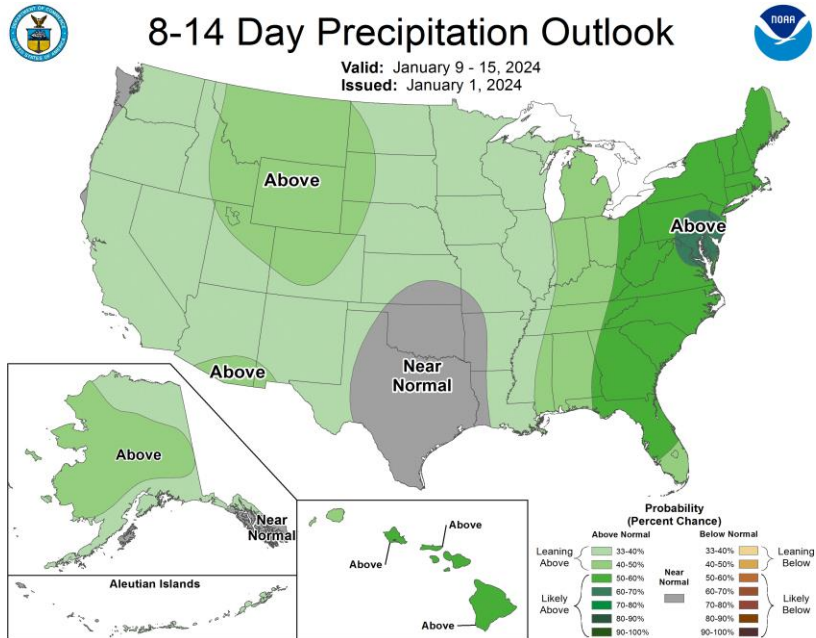
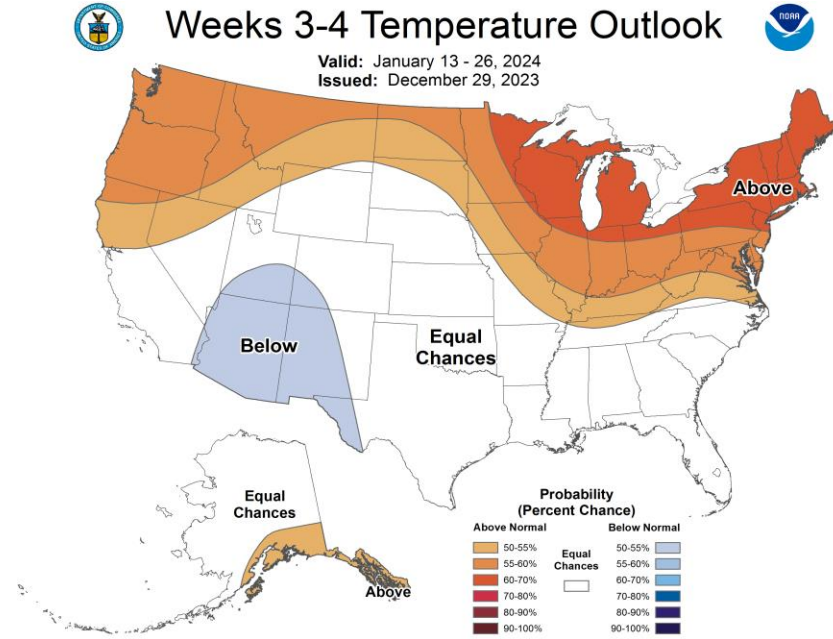
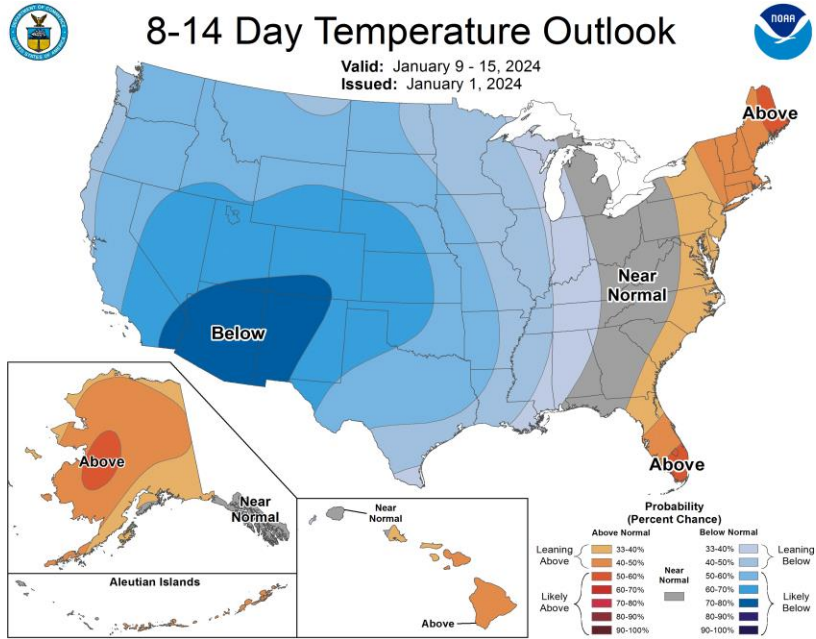
DJF MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



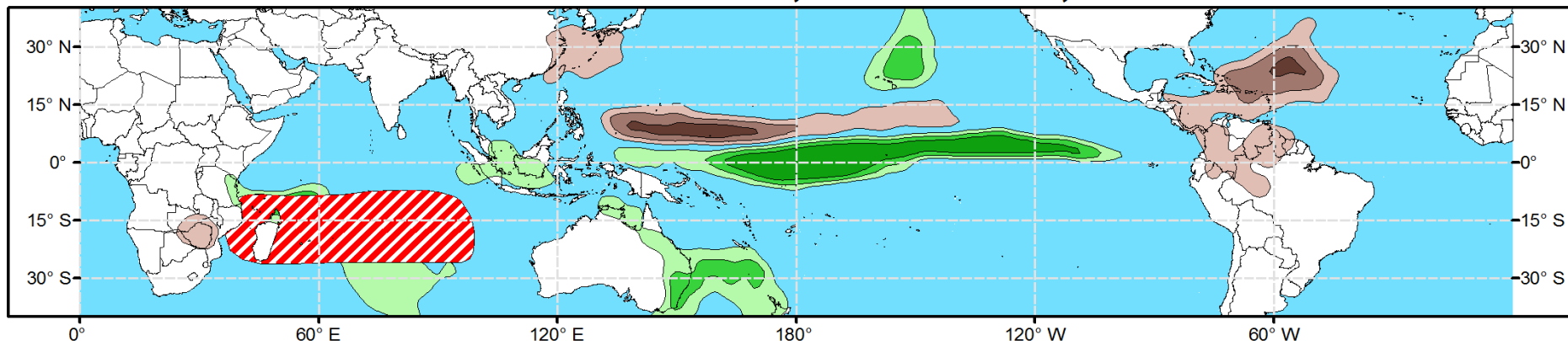


Global Tropics Hazards Outlook

Climate Prediction Center

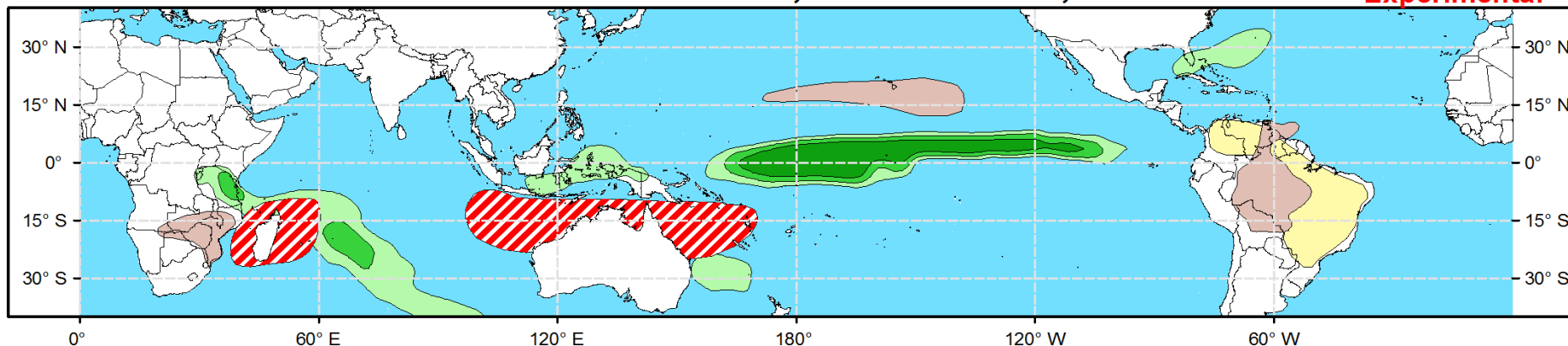


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