



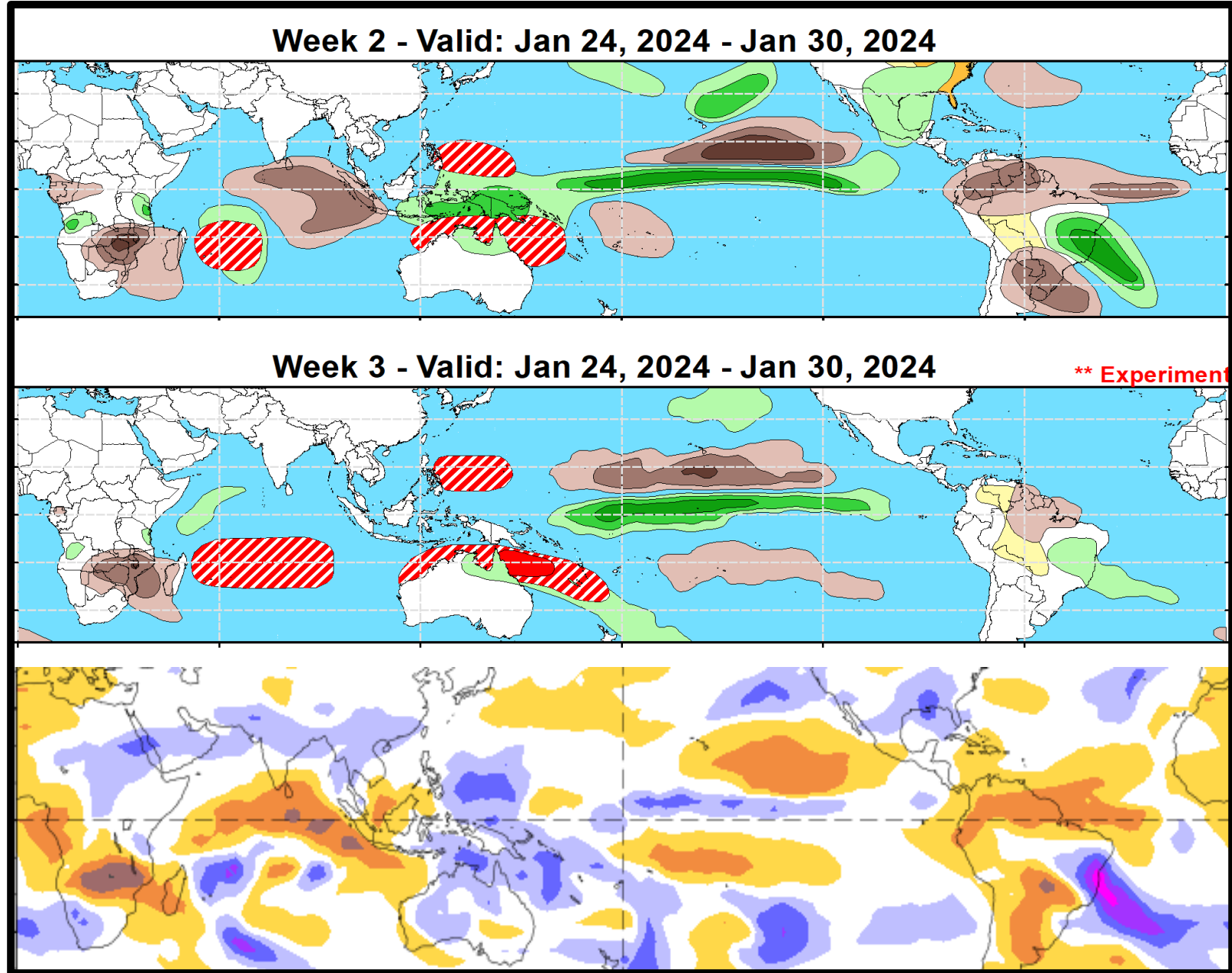
Weeks 2-3 Global Tropics Hazards Outlook

1/30/2024

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- No TCs this week



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:

- A strong MJO event continues as the RMM-index has moved into phase 7 (Western Pacific).
- Dynamical model solutions diverge more this week, but generally portray a weakening signal in the near future as the MJO is favored to encounter competing interference with other modes of tropical variability.
- Enhanced convection associated with MJO activity and a westerly wind burst (WWB) is expected to provide favorable conditions for Tropical Cyclone (TC) development over the South Pacific Ocean throughout the coming forecast period.
- Strong subtropical westerly flow is forecast both near the surface and aloft, potentially leading to an atmospheric river event to affect the West Coast of the U.S. during the week-2 period.

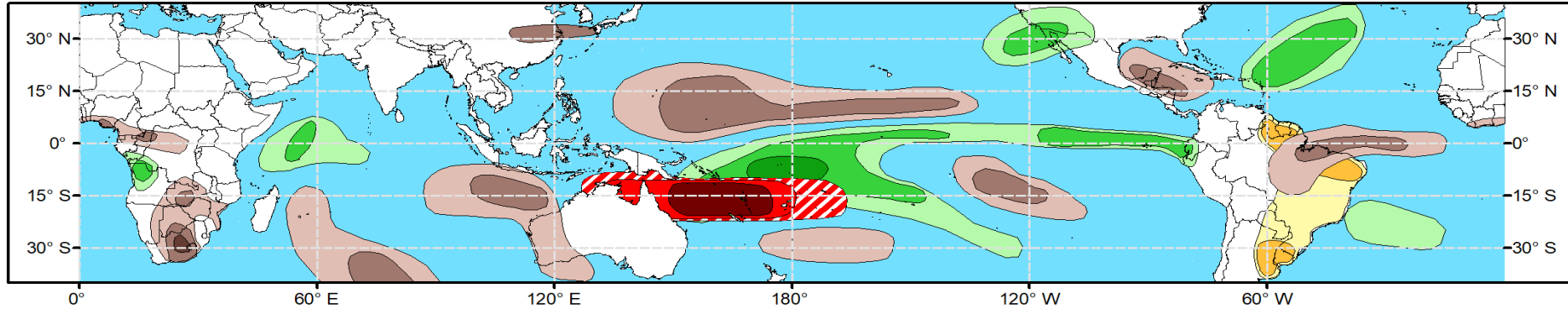
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

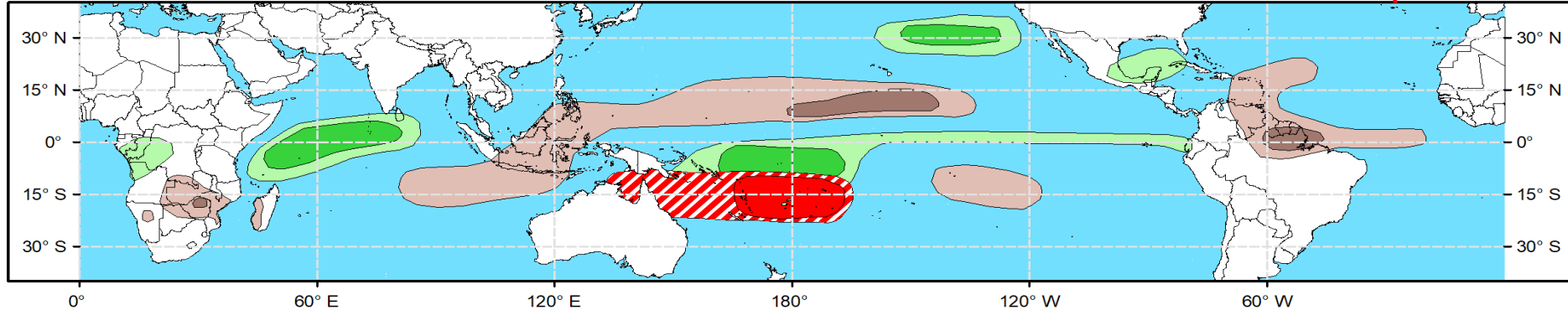


Week 2 - Valid: Feb 07, 2024 - Feb 13, 2024



Week 3 - Valid: Feb 14, 2024 - Feb 20, 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
Lower third of the historical range

**Above-Average
Temperatures Probability**



>50% >65% >80%

7-day max temperatures in the
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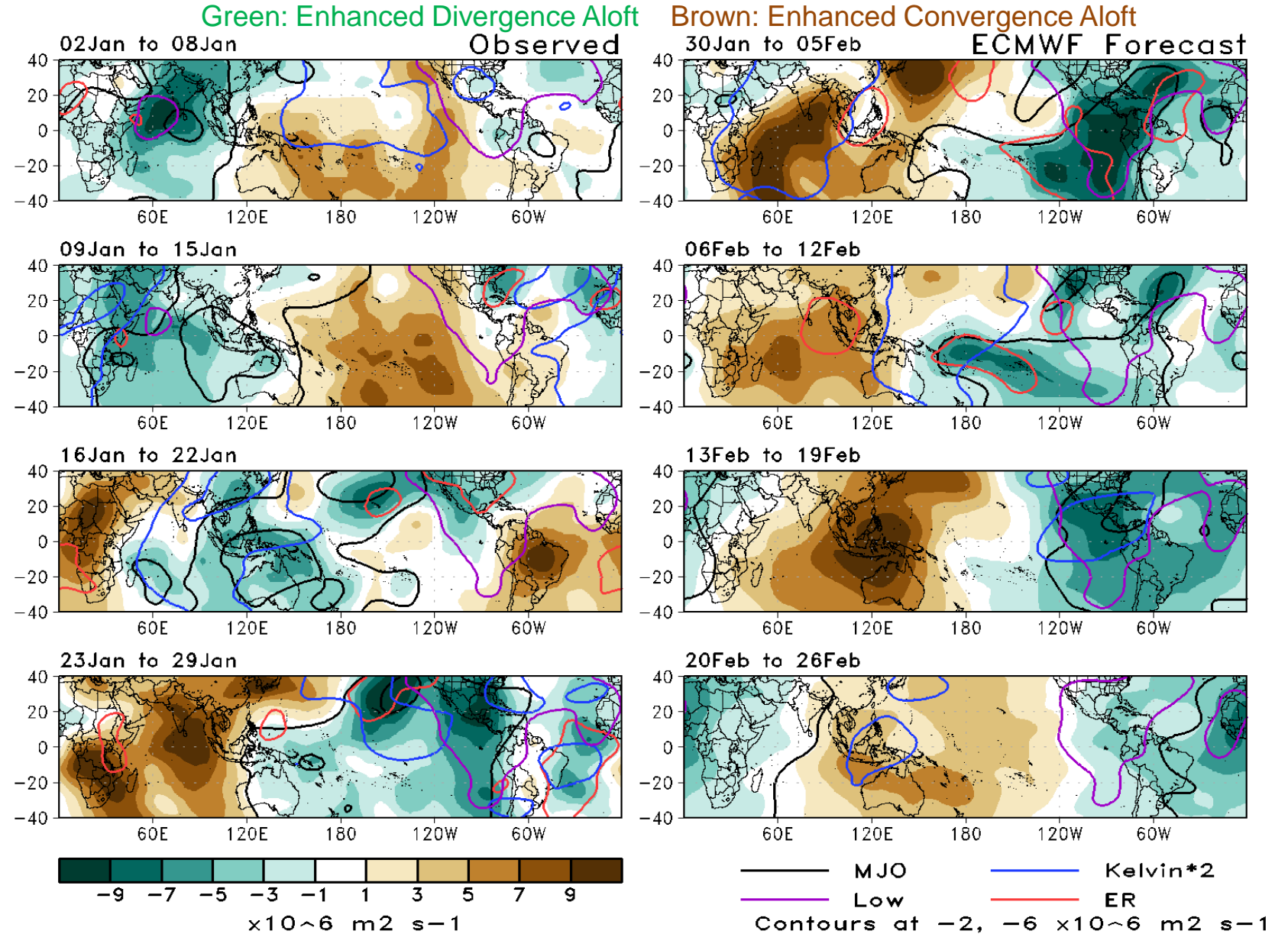
Issued: 01/30/2024

Forecaster: Barandiaran

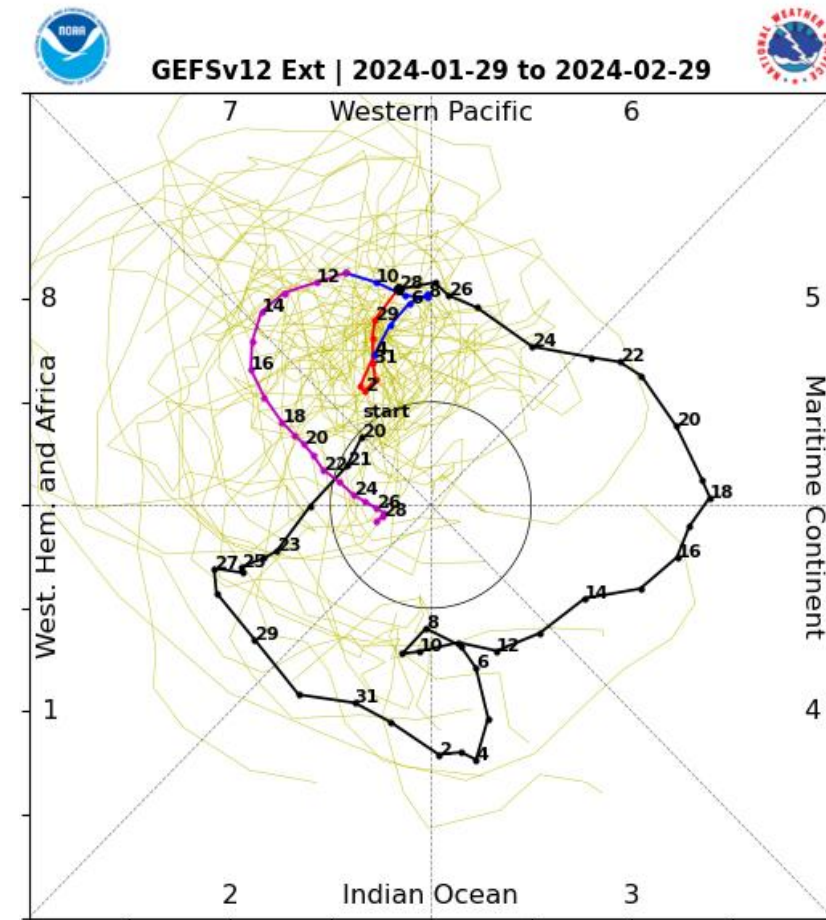
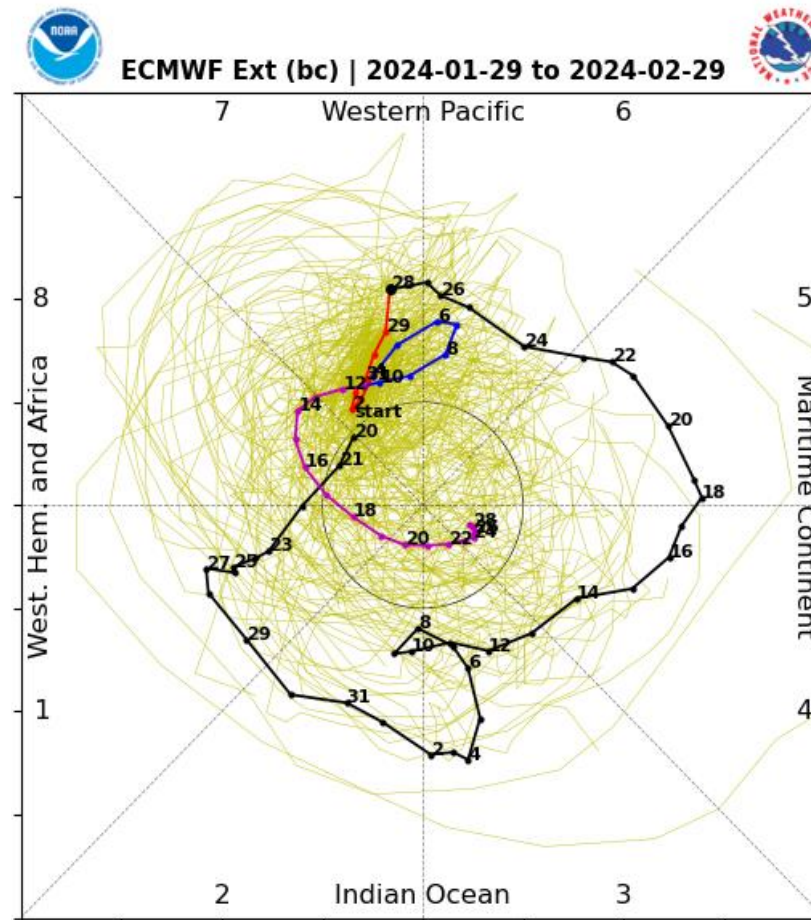
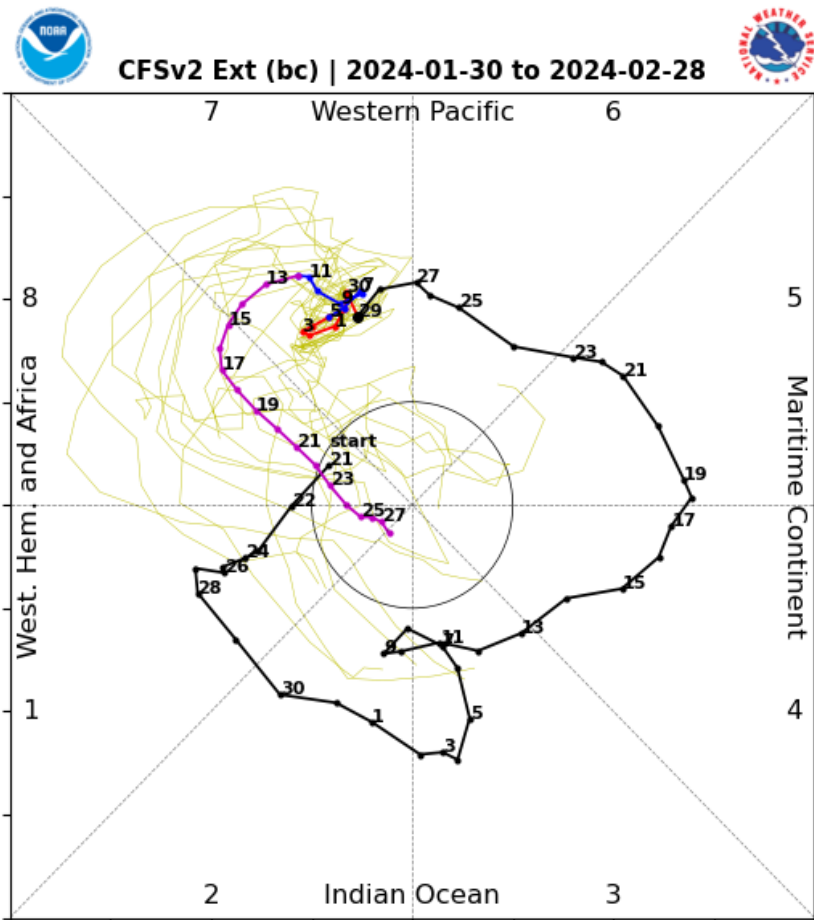
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200-hPa Velocity Potential Anomaly Maps:

- The suppressed phase of the MJO is working its way across the Indian Ocean, while the enhanced phase is favored to move out of the Pacific in the coming weeks.
- Enhanced convergence lingers over the South Pacific and peaks in week-2, providing a favorable environment for TC genesis.

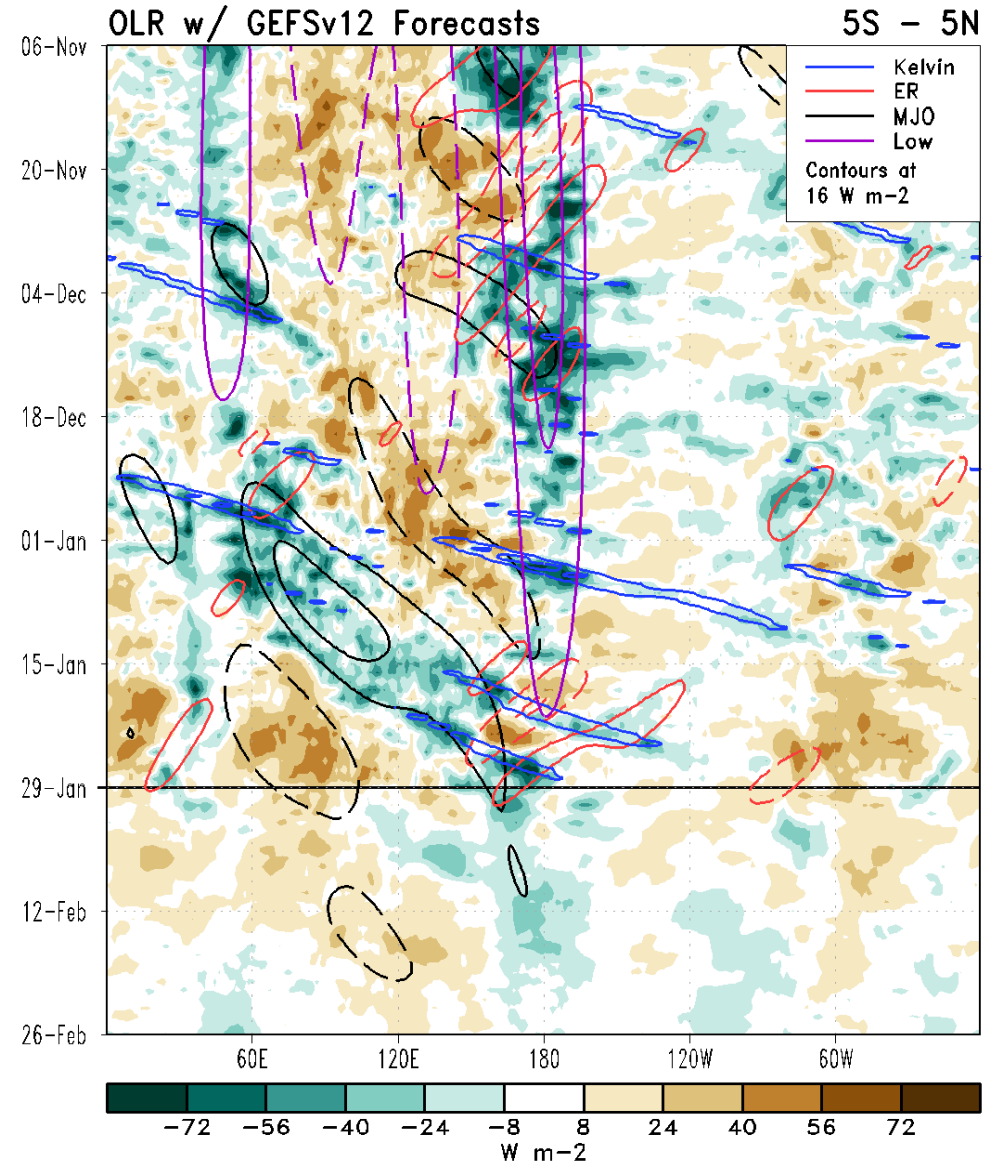
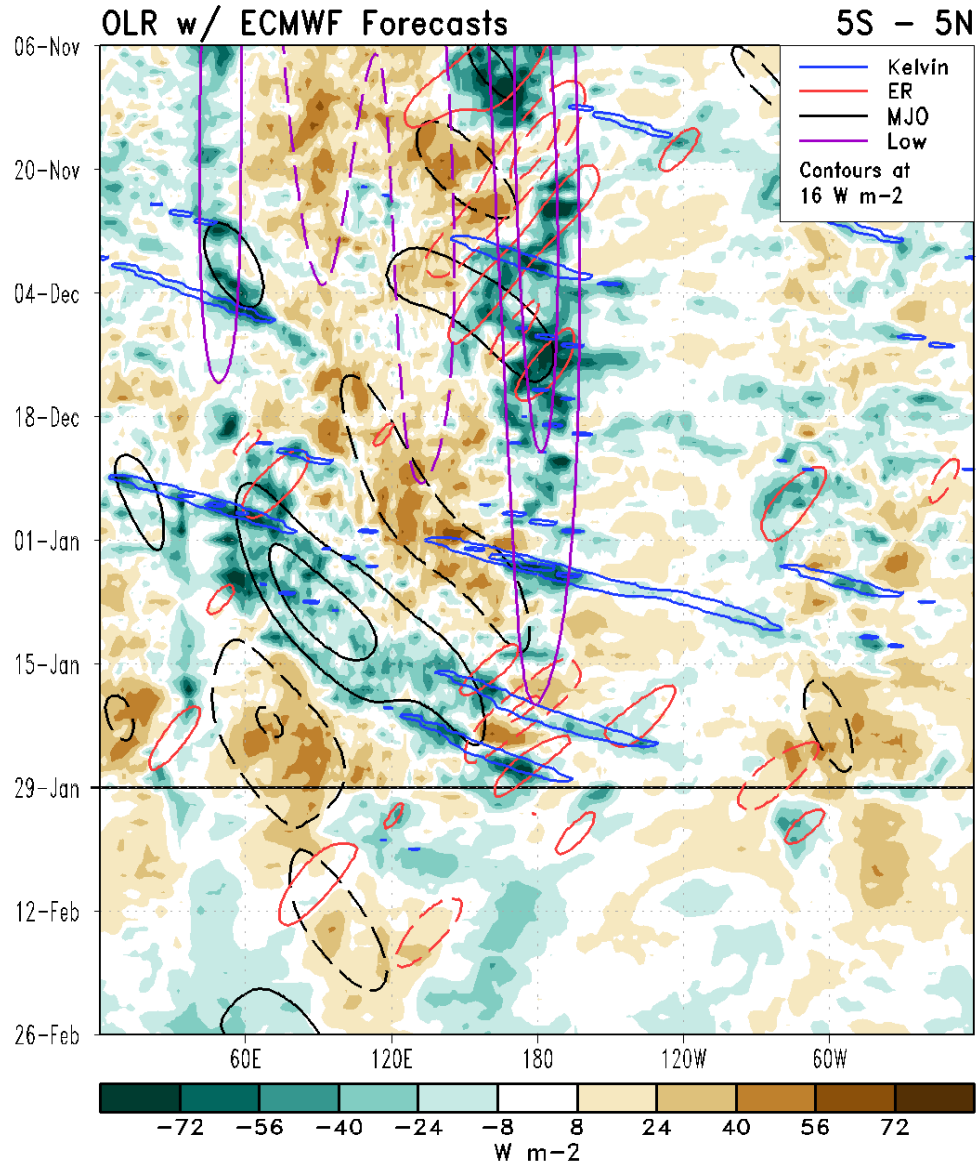


RMM Index Observations & Forecasts:



- Model solutions show less agreement than last week, but generally indicate a weakening of the RMM signal with a slower phase speed during weeks 1&2. This tracks well with forecasts from last week, both in terms of the general picture portrayed and the increased model spread.
- This has a similar appearance to the “hiccup” in early January as the MJO encountered interference with the El Nino footprint, and likely has a similar explanation as the dry phase of the MJO begins to interact with the ENSO-enhanced precipitation near the Date Line.

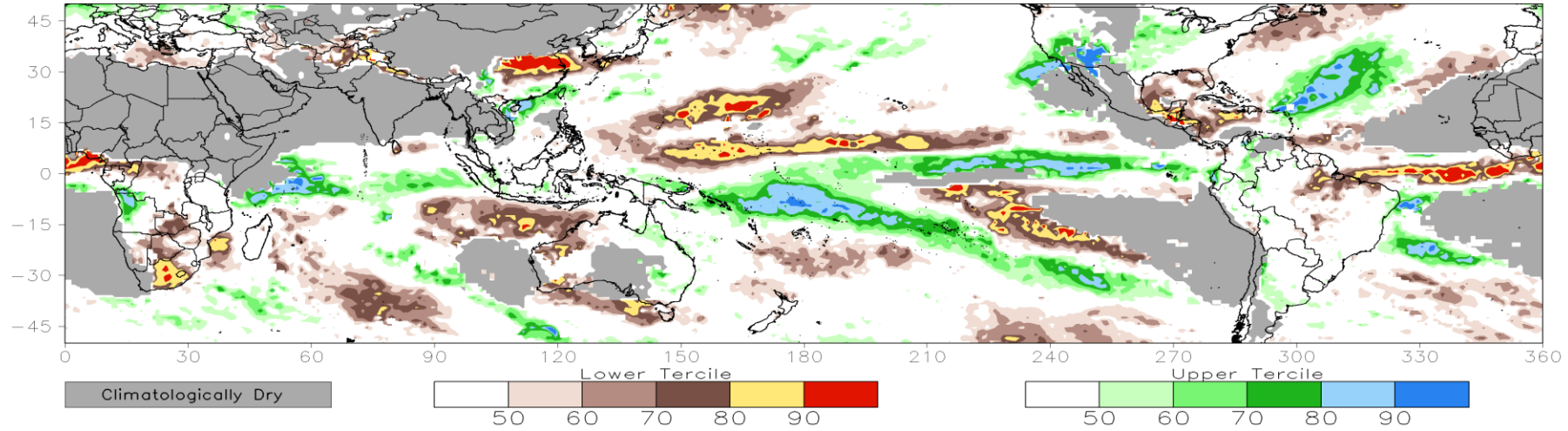
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

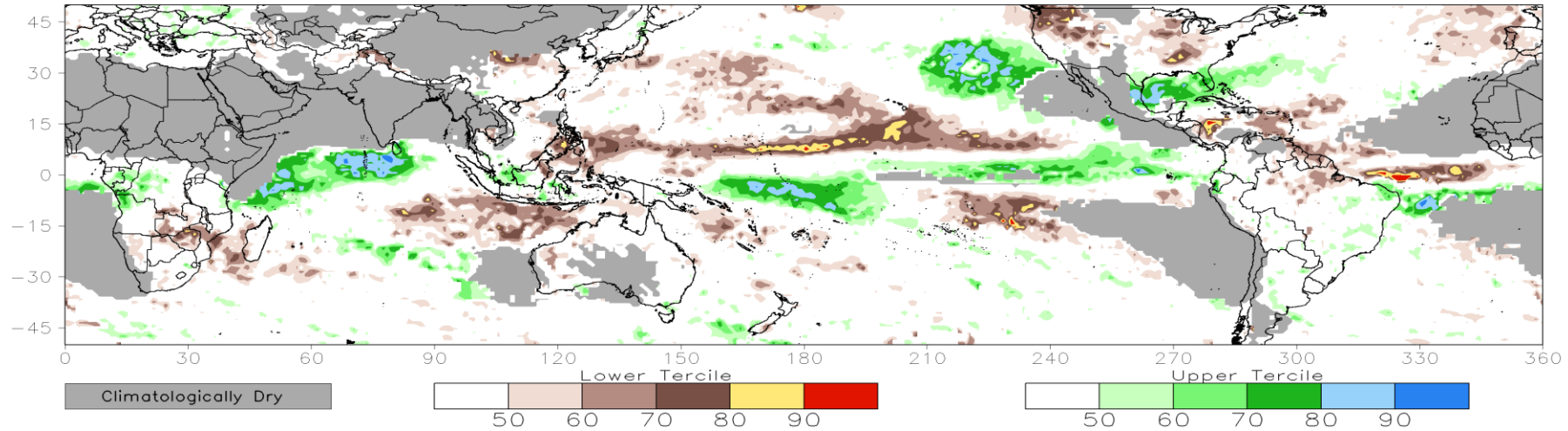
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 07Feb2024–13Feb2024



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

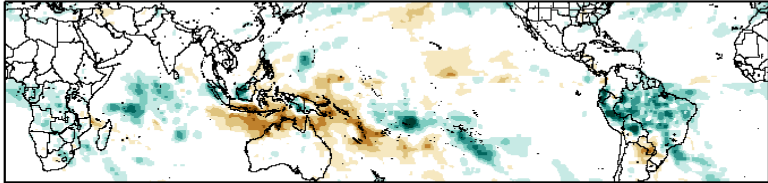
Valid: 14Feb2024–20Feb2024



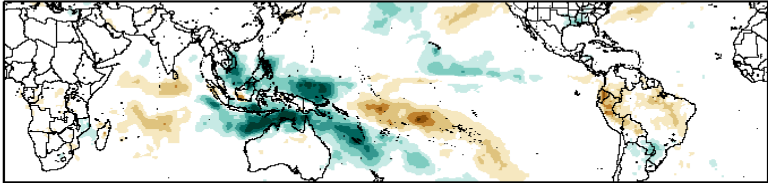
Historical Precipitation Anomalies By MJO Phase:

DJF MJO Composite: GPCP1DD (mm/day)

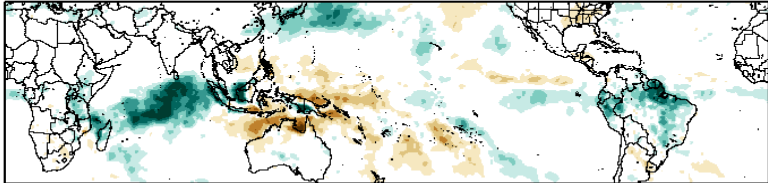
Phase 1



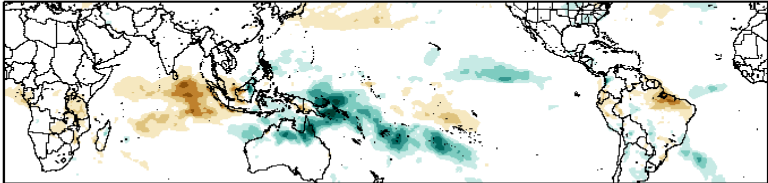
Phase 5



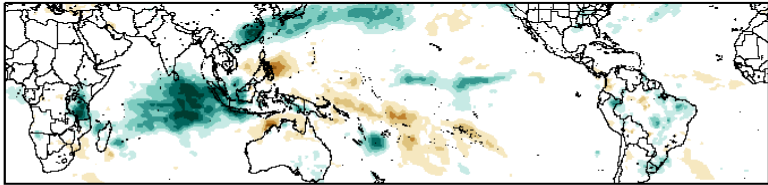
Phase 2



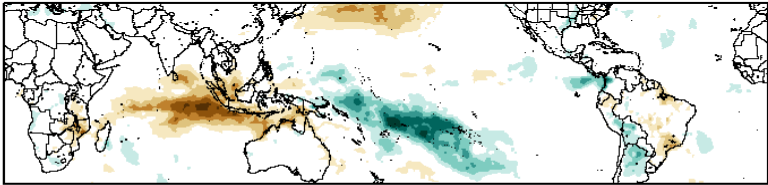
Phase 6



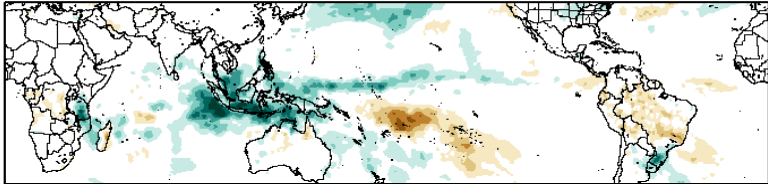
Phase 3



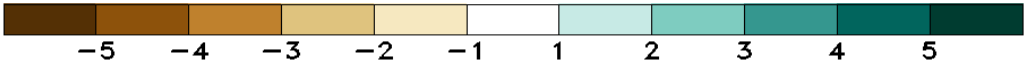
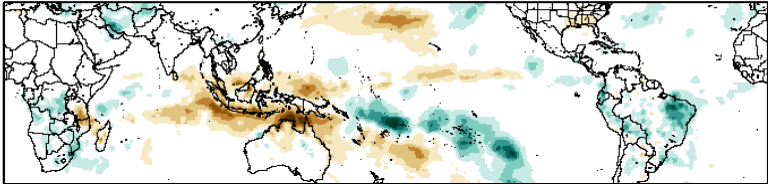
Phase 7



Phase 4

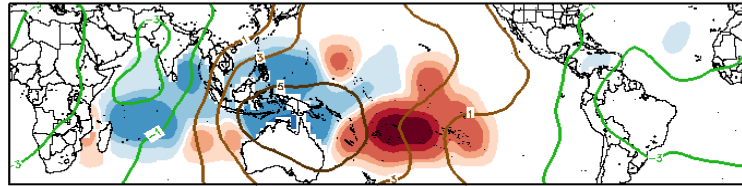


Phase 8

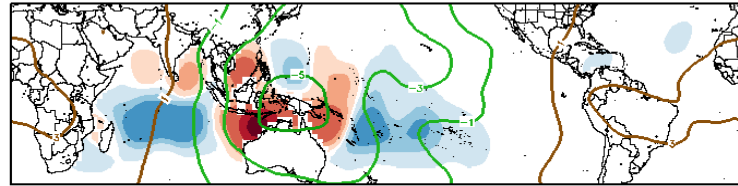


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

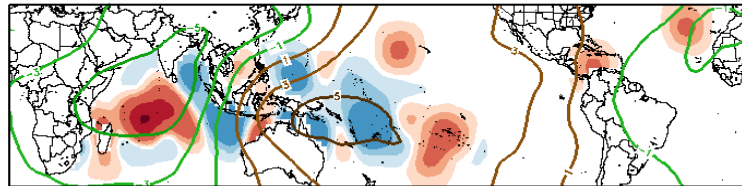
DJF MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ DJF CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



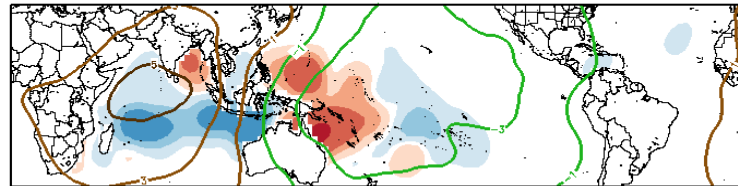
Phase 1



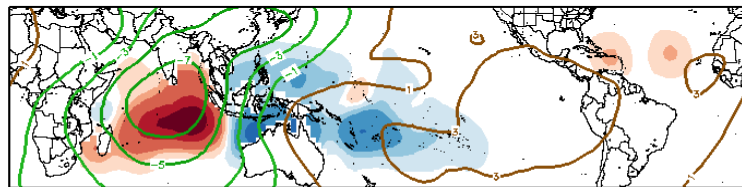
Phase 5



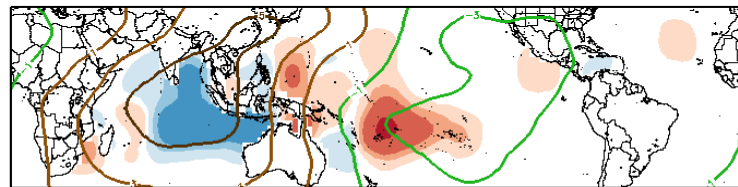
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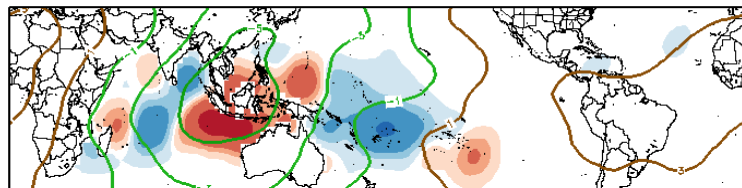
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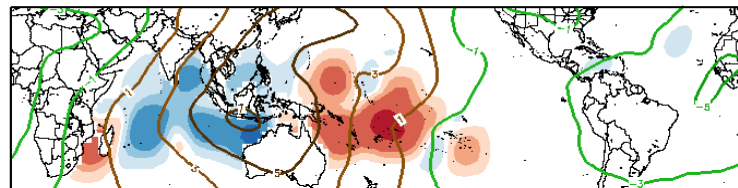
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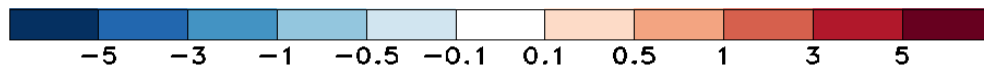
Phase 7



Phase 4

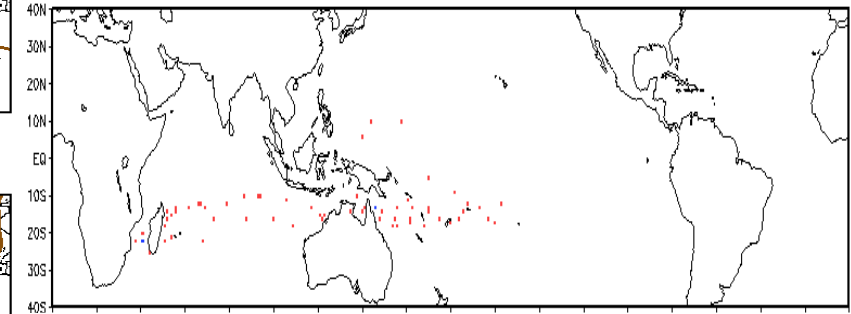


Phase 8



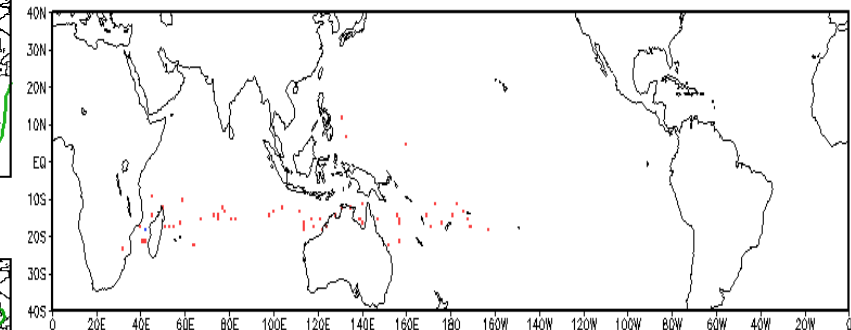
Observed TC Genesis, 1979–2021

7-day Period 0207 to 0213



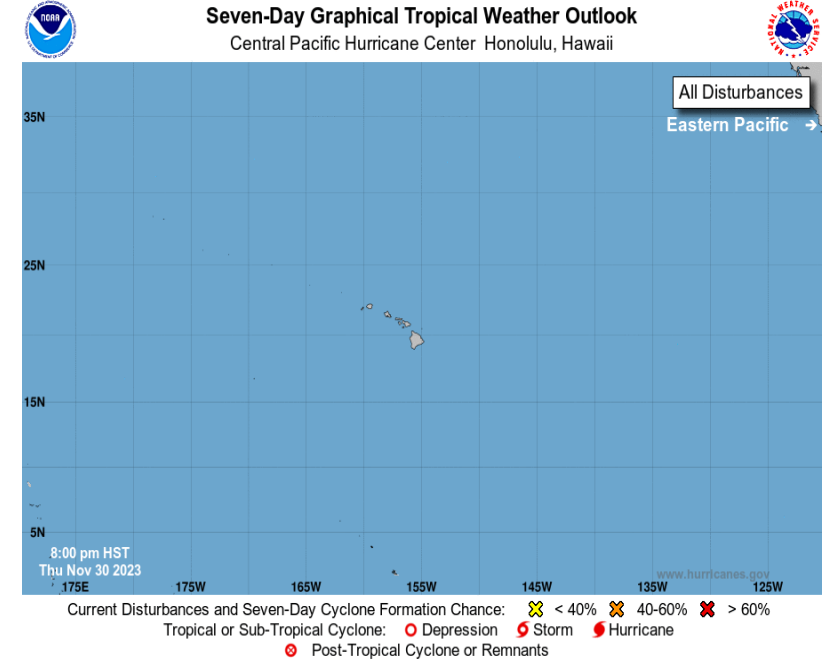
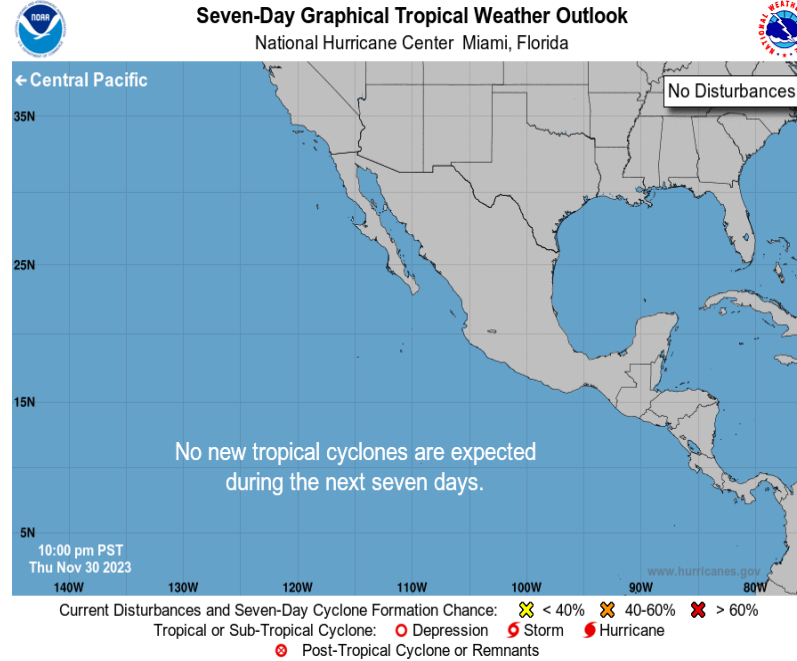
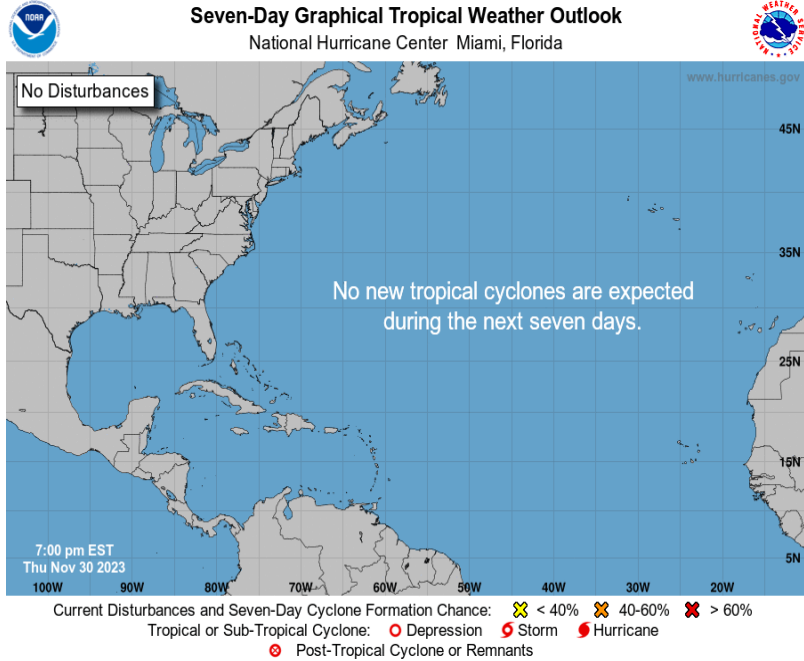
Observed TC Genesis, 1979–2021

7-day Period 0214 to 0220



Experimental

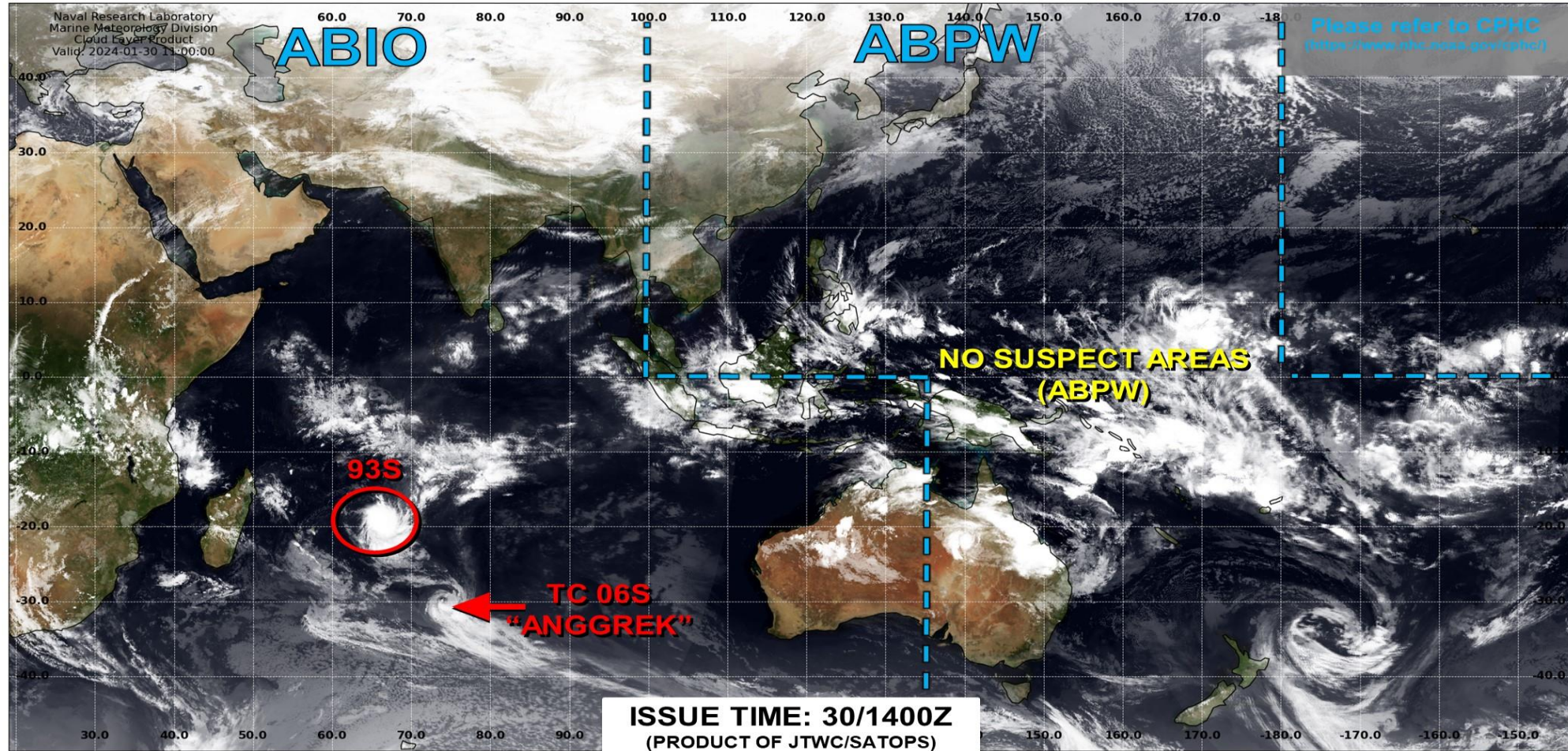
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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)



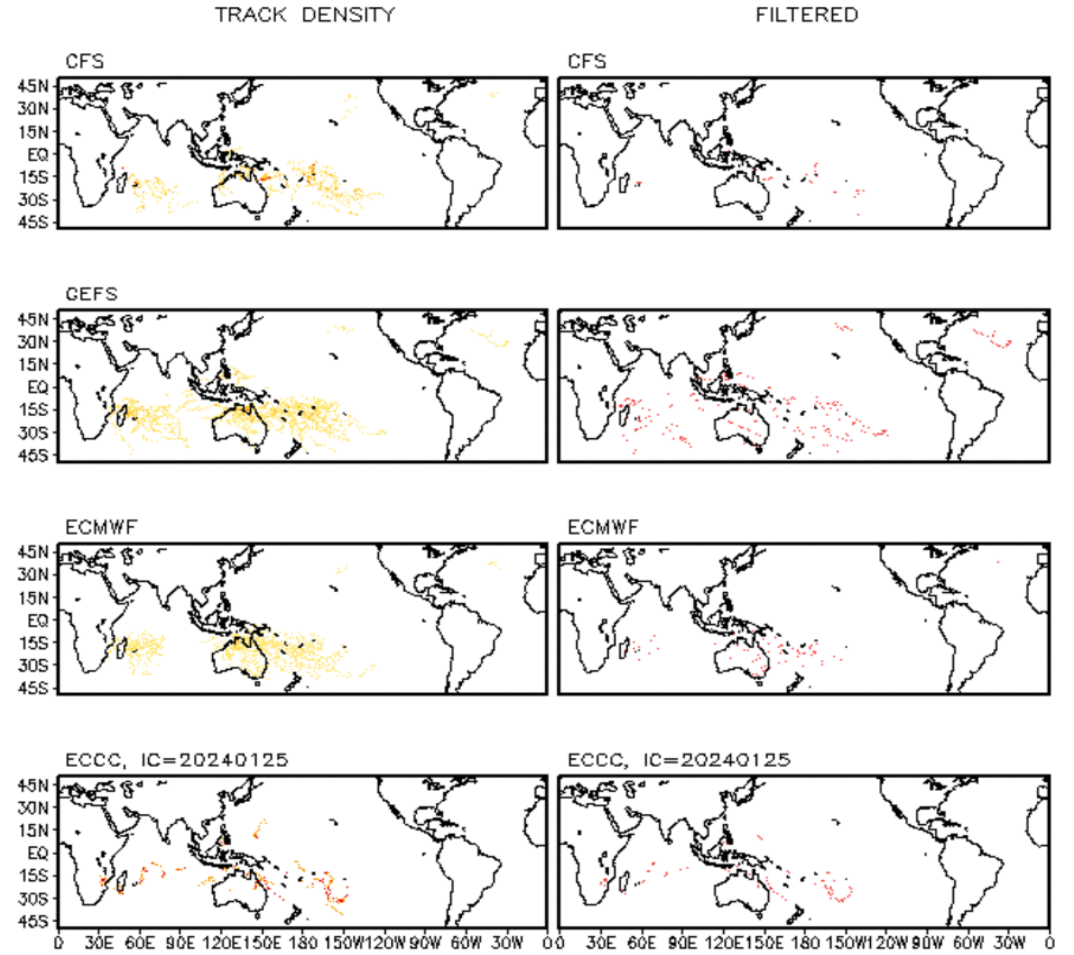
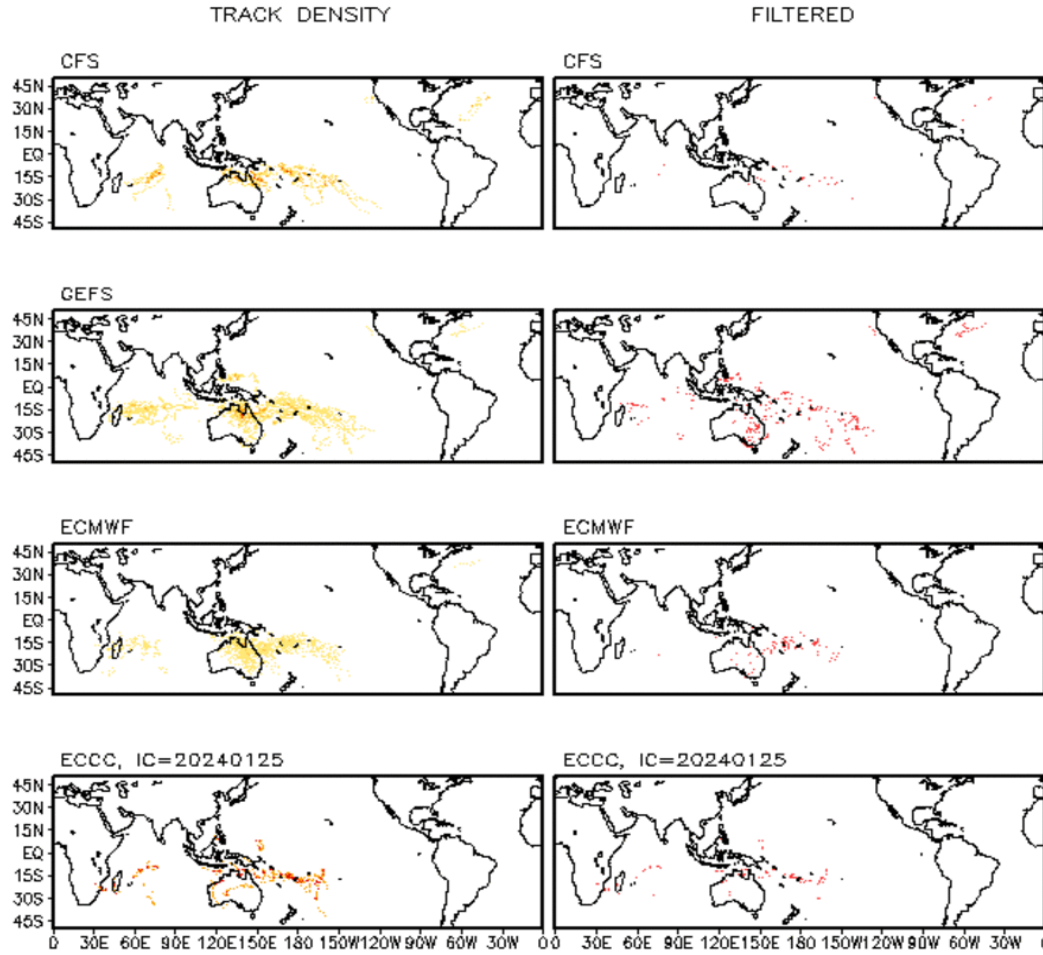
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



Multi-Model TC Track Densities: Weeks 2+3

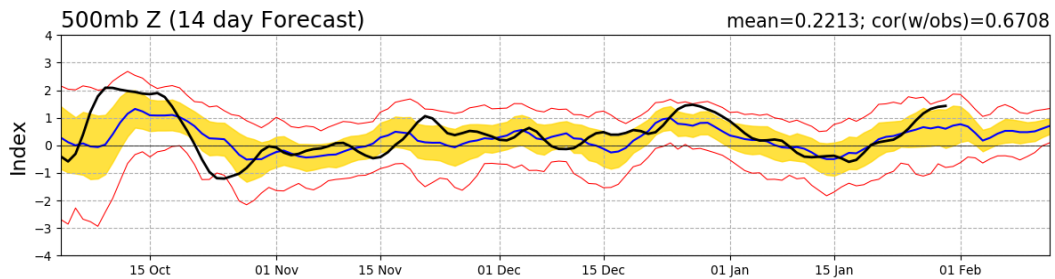
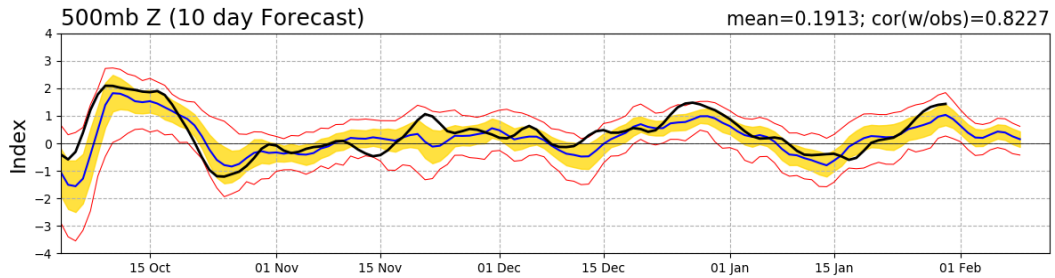
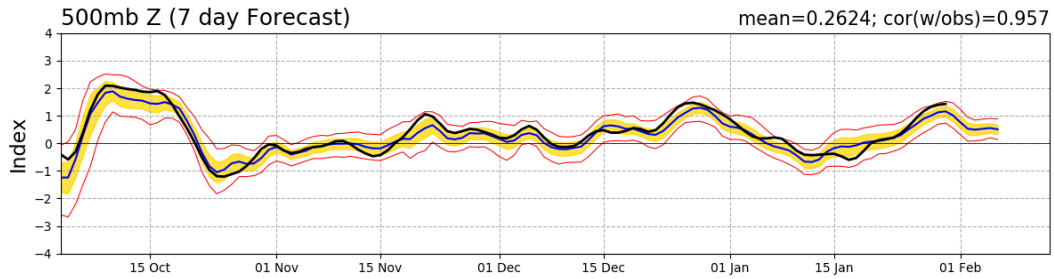
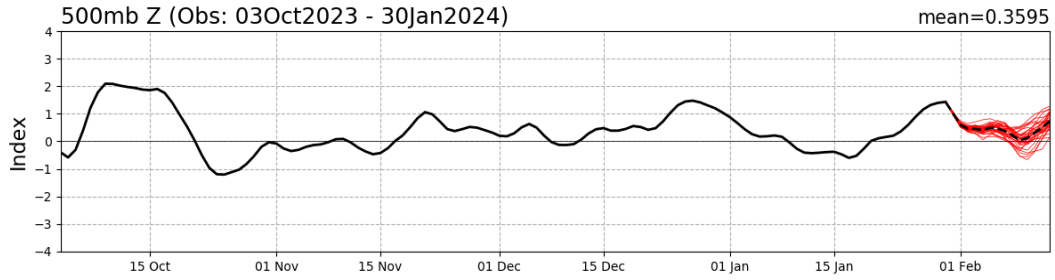
Storm Track Density Distribution, IC=20240129
Week 2 Forecast: 0207-0213

Storm Track Density Distribution, IC=20240129
Week 3 Forecast: 0214-0220

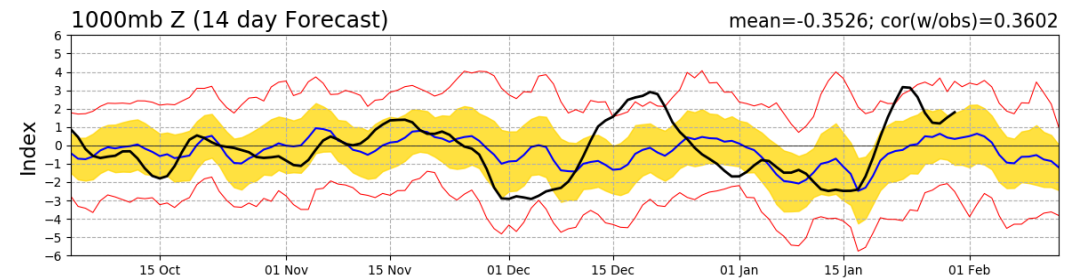
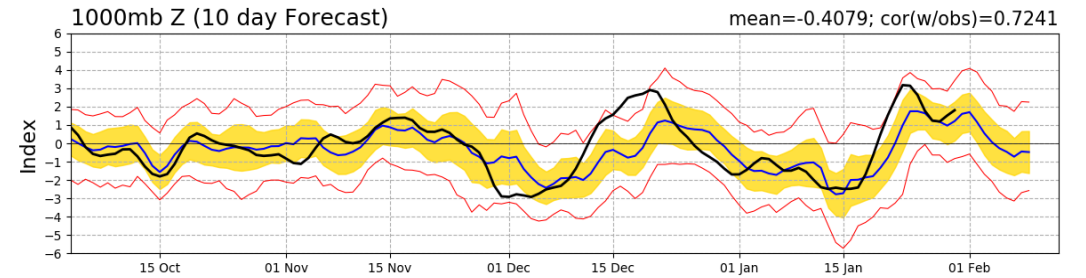
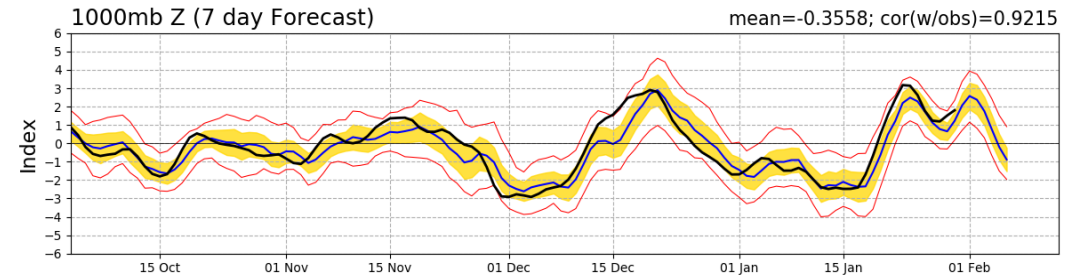
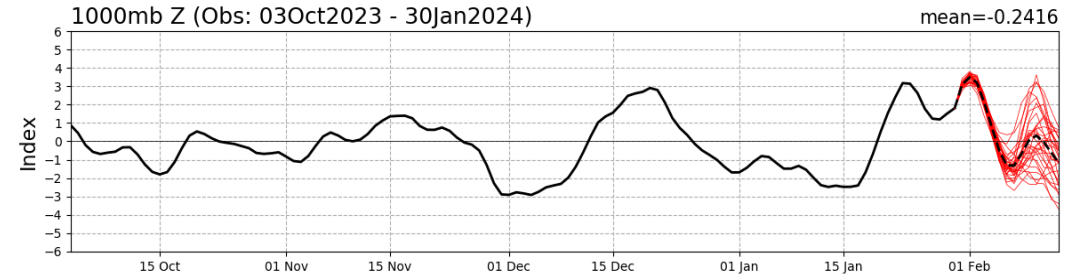


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

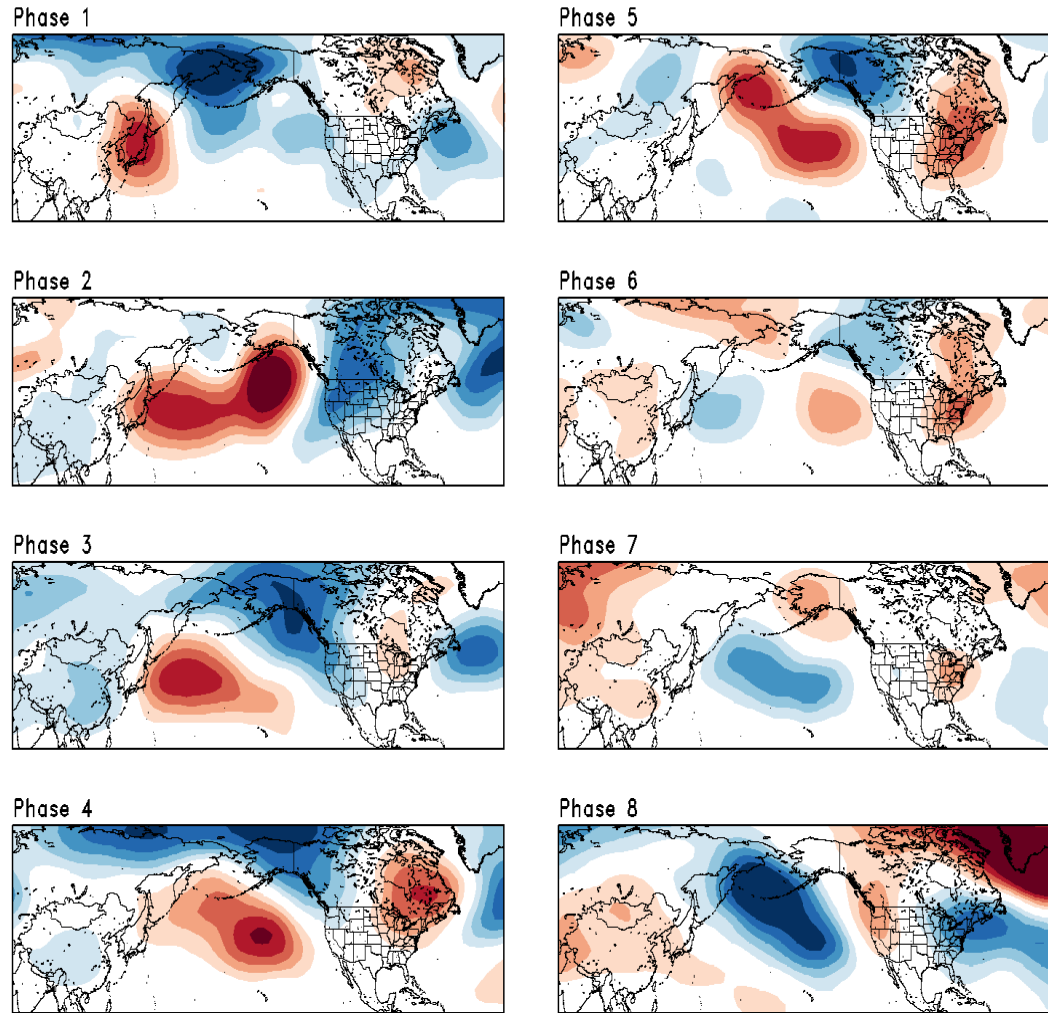


AO Index: Observed & GEFS Forecasts

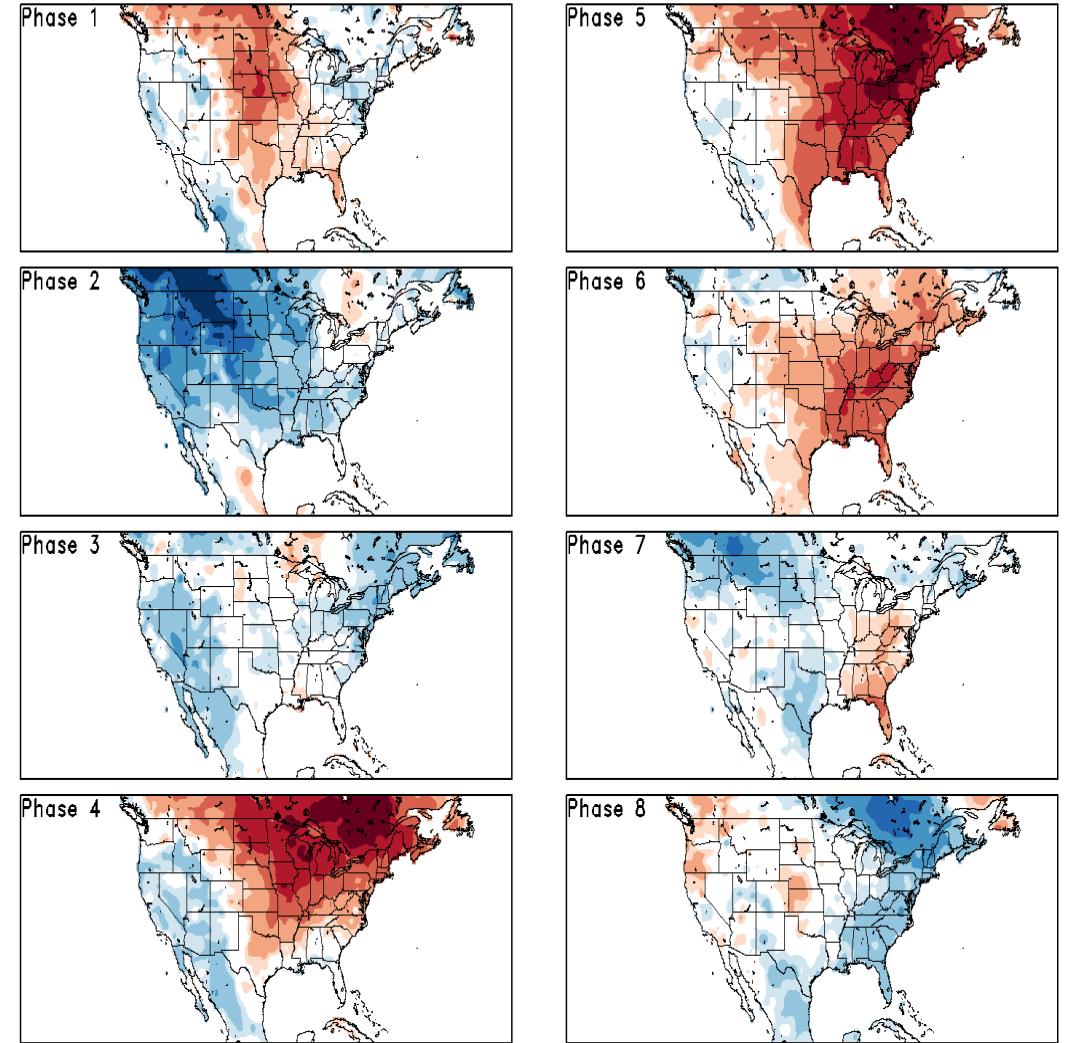


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

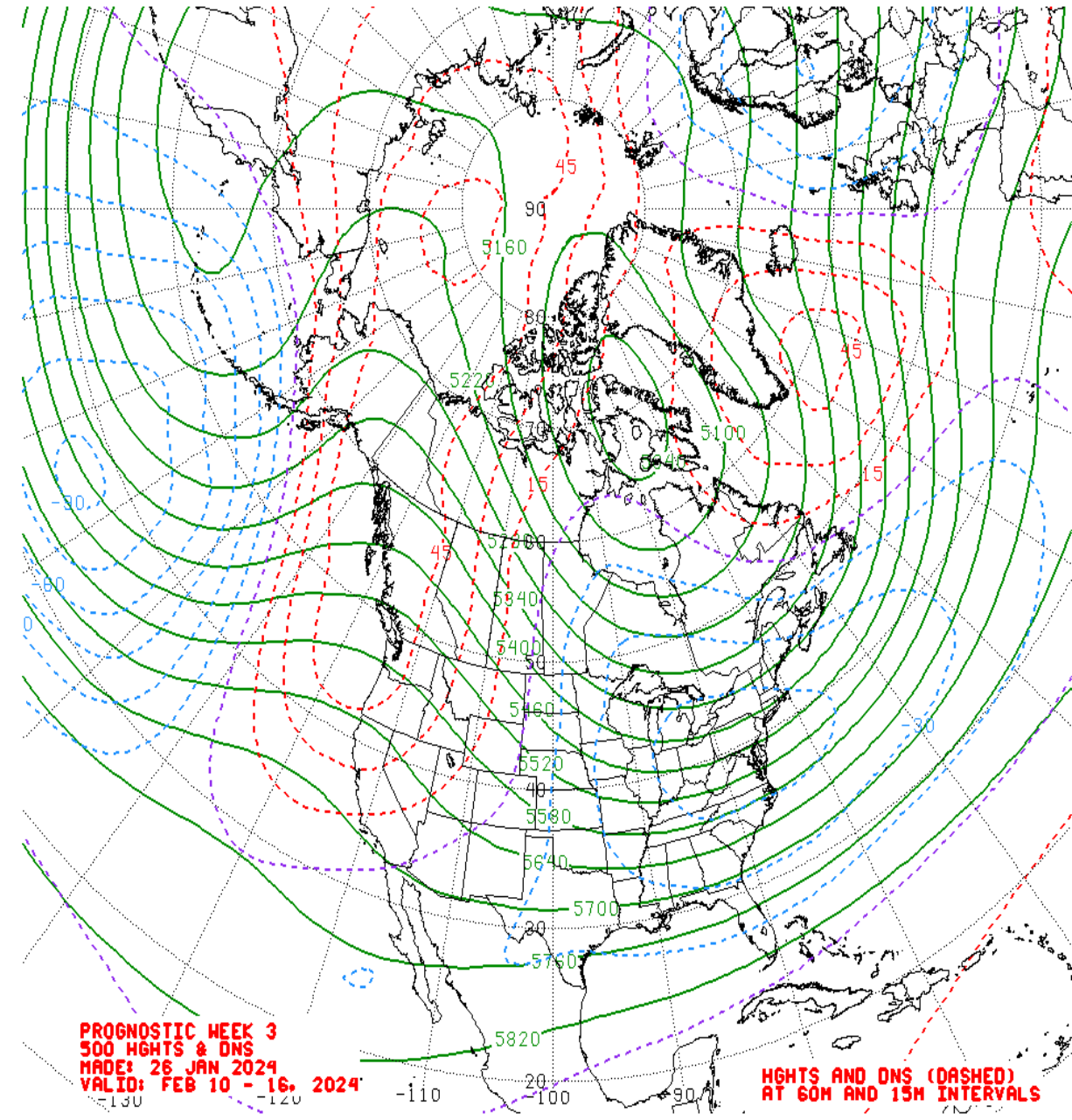
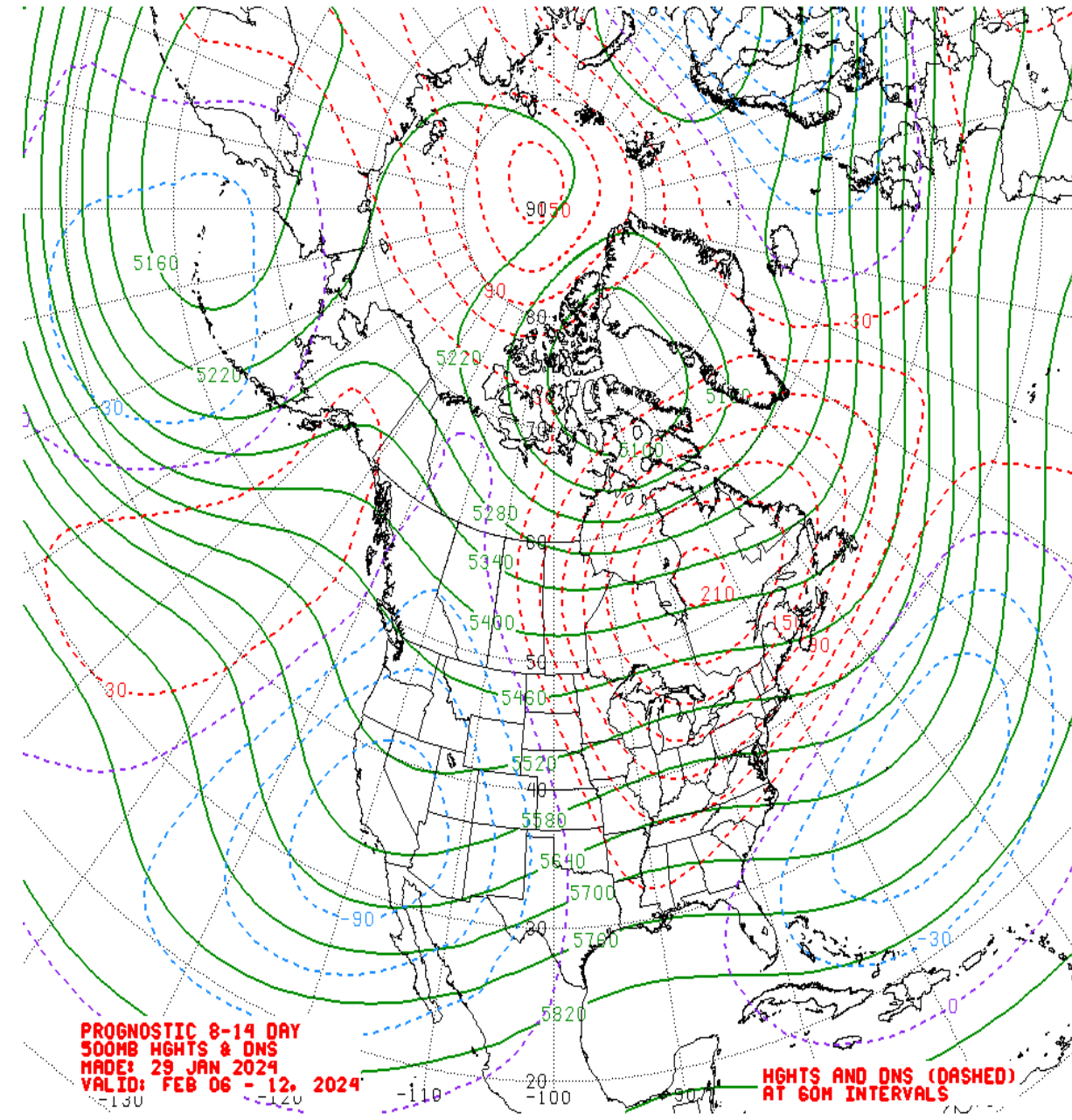
DJF MJO Composite: CDAS 500-hPa Height (m)



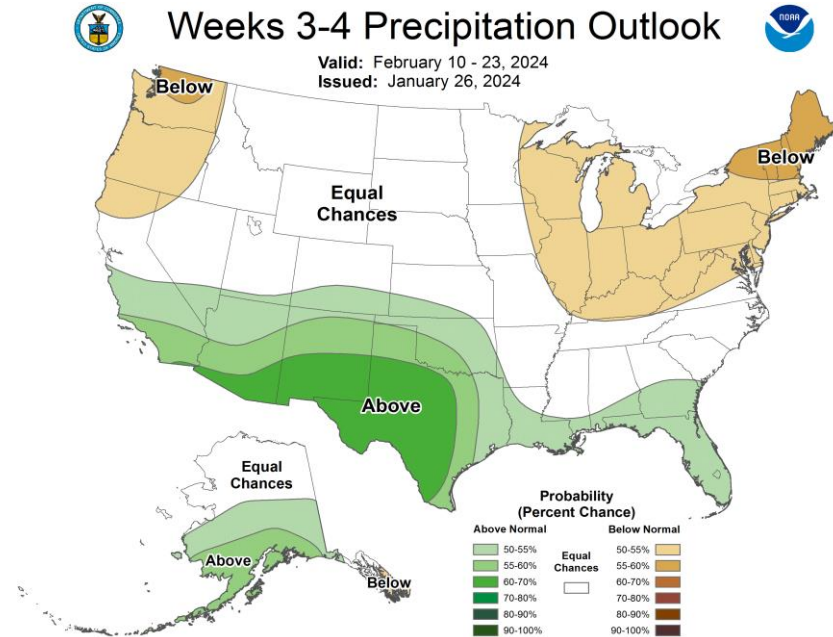
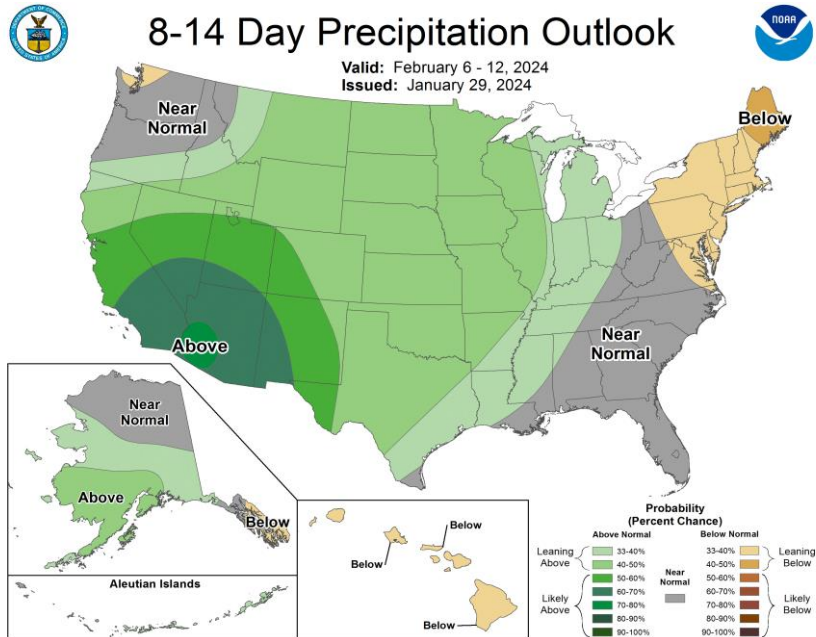
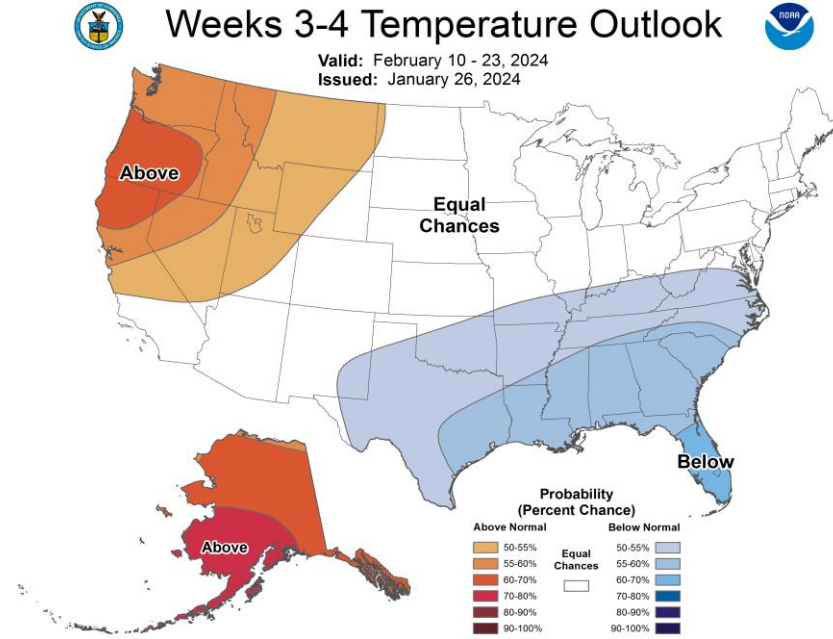
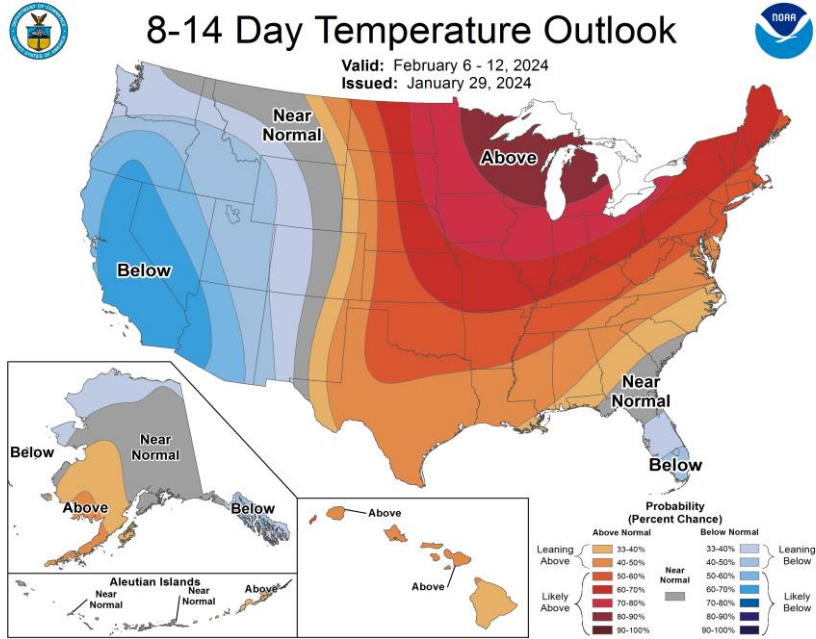
DJF MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



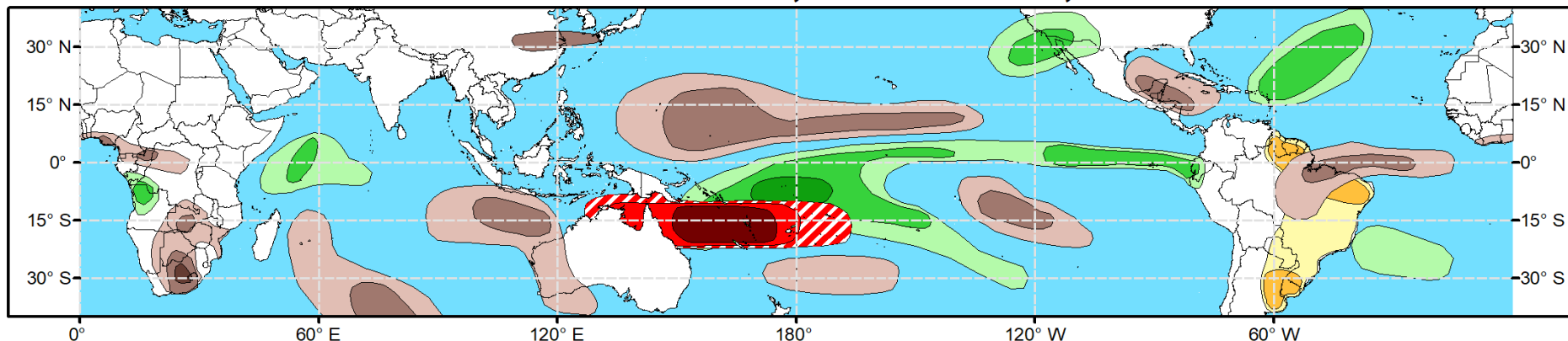


Global Tropics Hazards Outlook

Climate Prediction Center

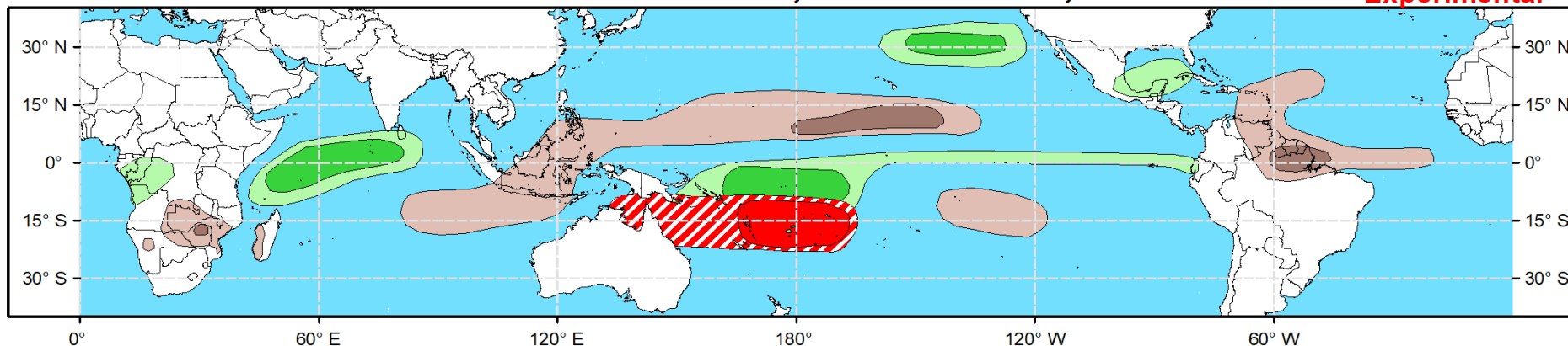


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