



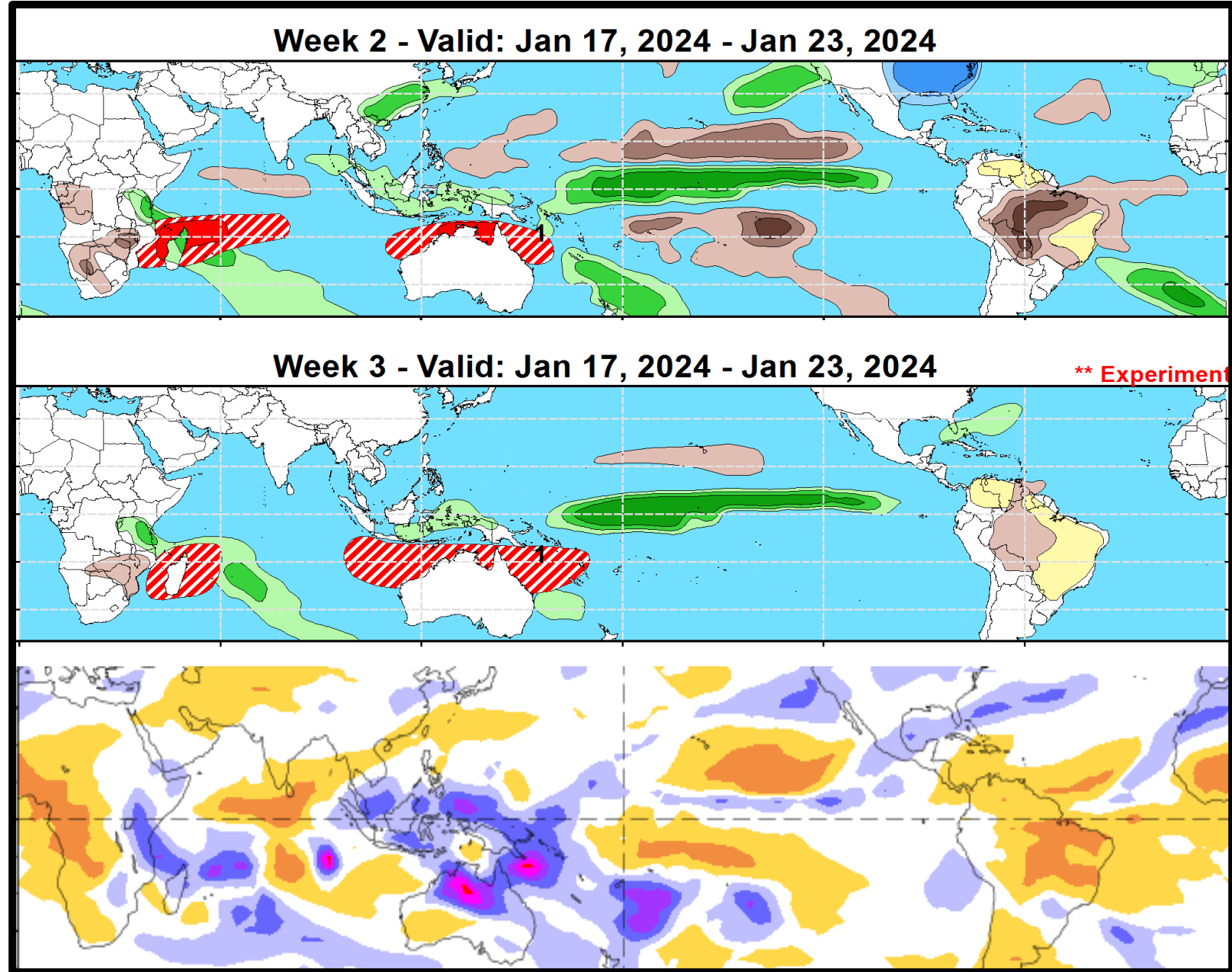
Weeks 2-3 Global Tropics Hazards Outlook

1/23/2024

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- 1: TC 07P



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 became more coherent as it propagated eastward over the Maritime Continent and into the Western Pacific. Good agreement exists in the dynamical models looking ahead, which initially favor a high amplitude MJO signal over the Western Pacific that weakens and slows after the week-1 period.
- Enhanced convection associated with MJO activity is expected to provide favorable conditions for Tropical Cyclone (TC) development over the South Pacific Ocean.
- The extratropical response with wintertime West Pacific MJO events can be the development of warmer than normal temperatures over the central and eastern U.S. 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.

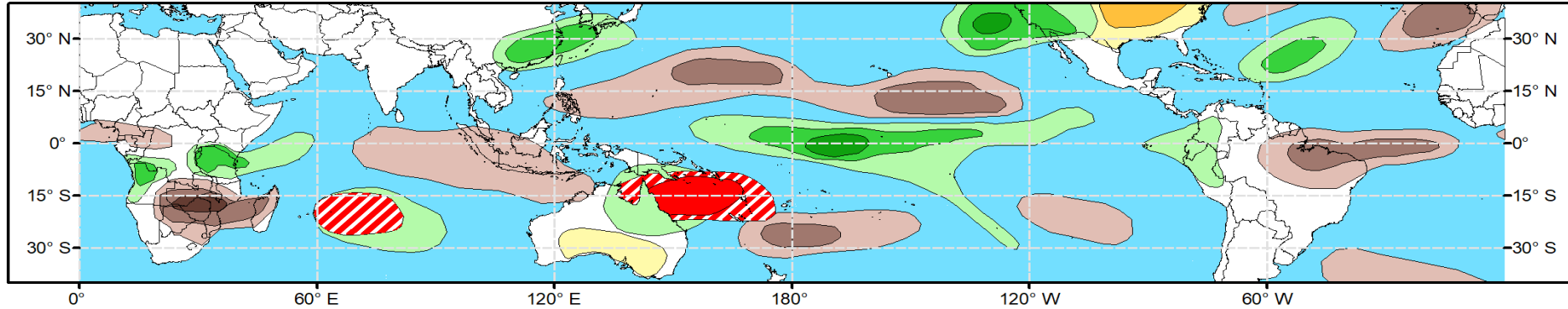
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

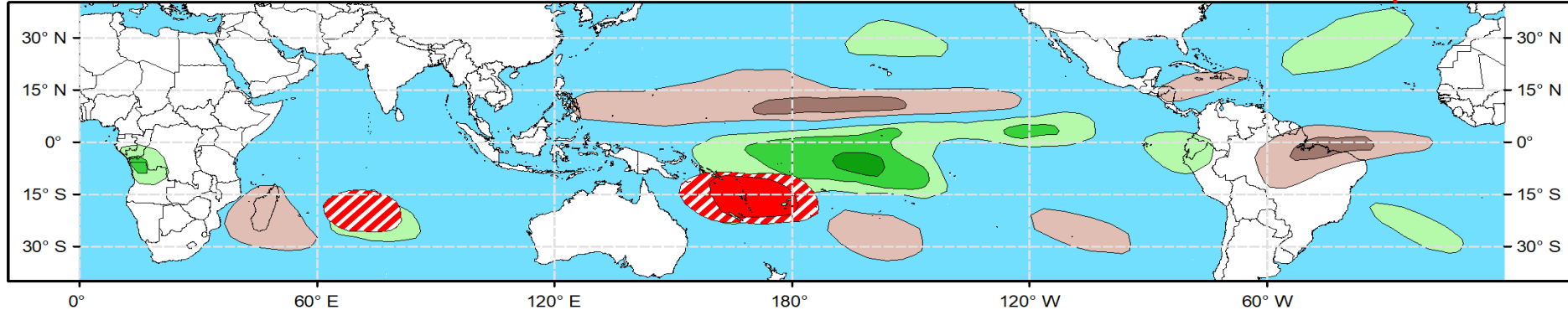


Week 2 - Valid: Jan 31, 2024 - Feb 06, 2024



Week 3 - Valid: Feb 07, 2024 - Feb 13, 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

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Temperatures Probability**



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7-day min temperatures in the
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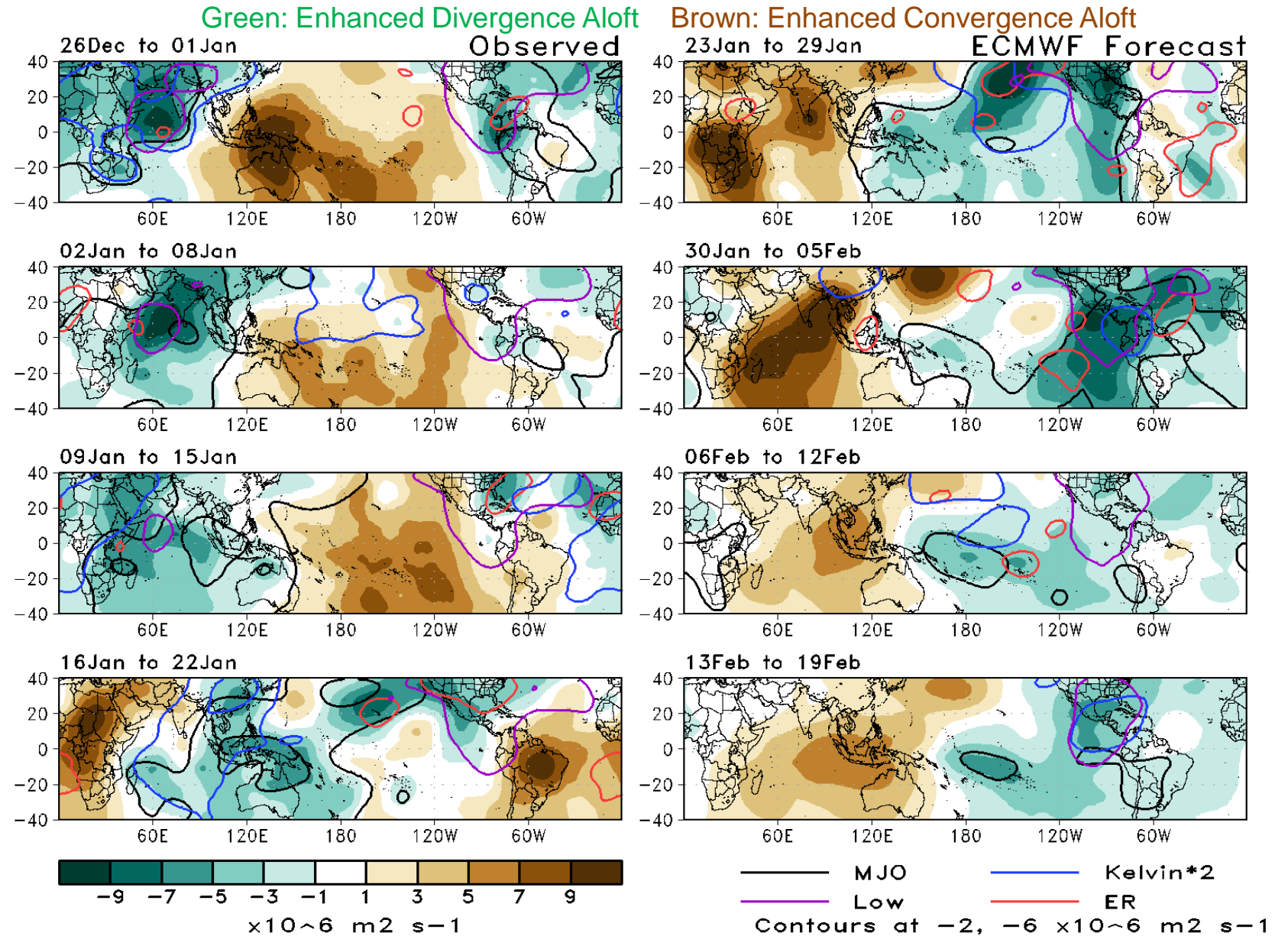
Issued: 01/23/2024

Forecaster: Barandiaran

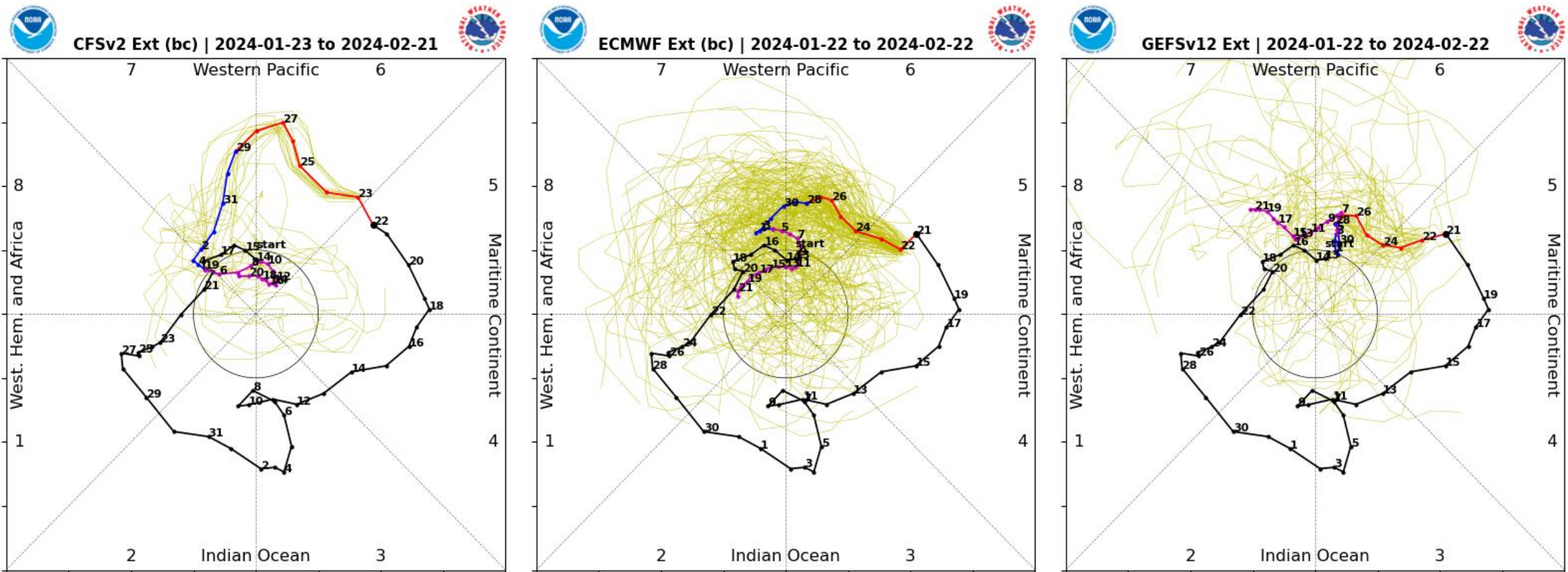
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200-hPa Velocity Potential Anomaly Maps:

- As the MJO moves into the Western Pacific interaction with the El Niño footprint switches from destructive in constructive interference.
- Suppressed convection becomes established in the Indian Ocean and moves steadily into the Maritime Continent in week-3 and beyond.

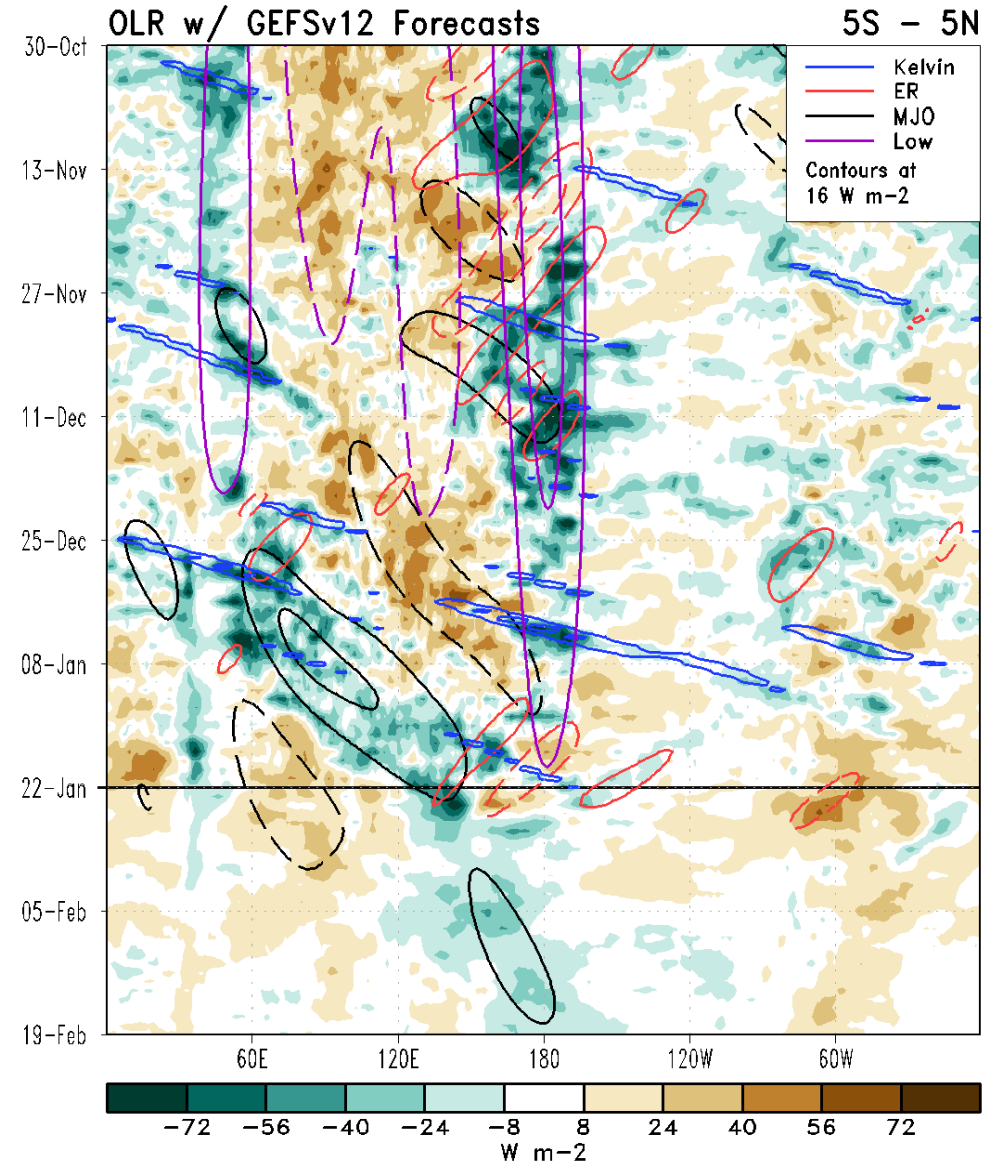
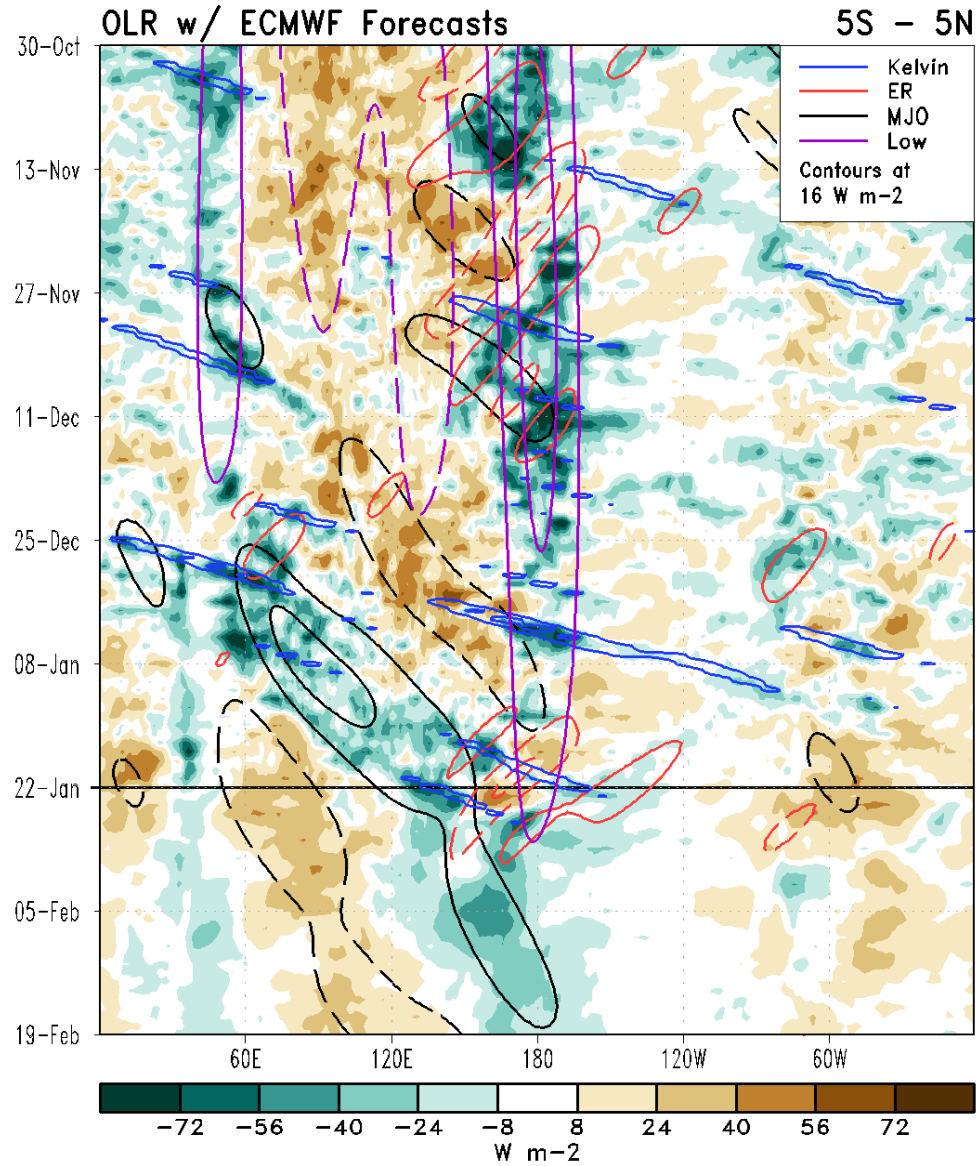


RMM Index Observations & Forecasts:



- There is good model consensus depicting continued eastward propagation of the RMM-signal during week-1.
- Solutions diverge during week-2 and beyond, but generally indicate a weakening of the RMM-signal and less orderly propagation, potentially due to interference with low-frequency forcing.

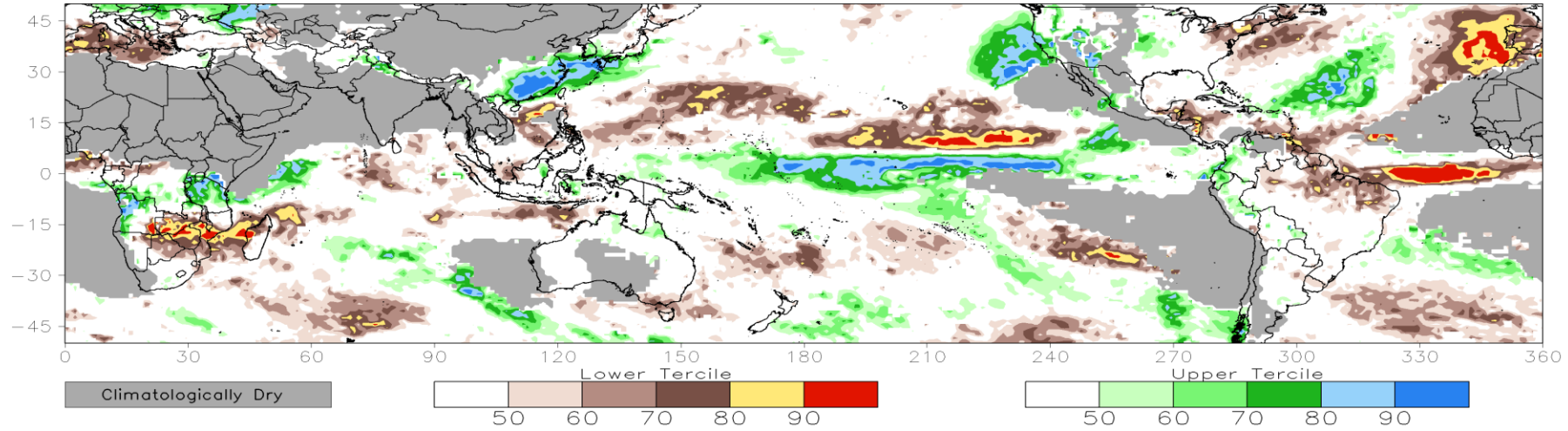
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

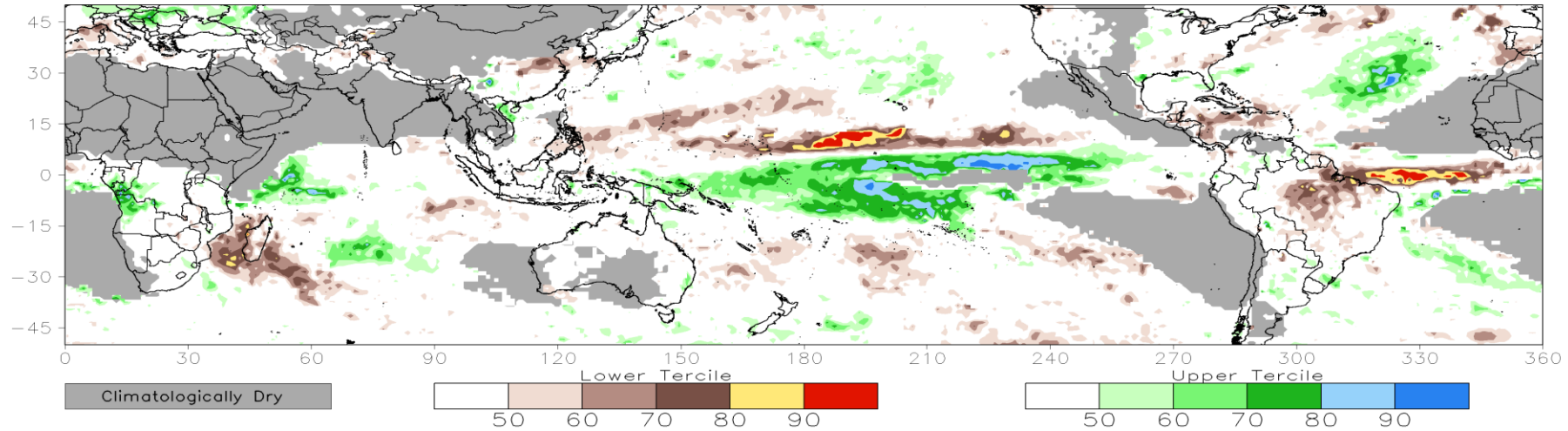
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 31Jan2024–06Feb2024



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

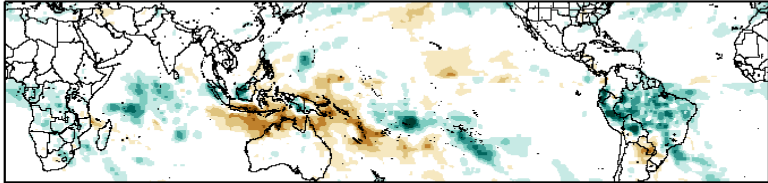
Valid: 07Feb2024–13Feb2024



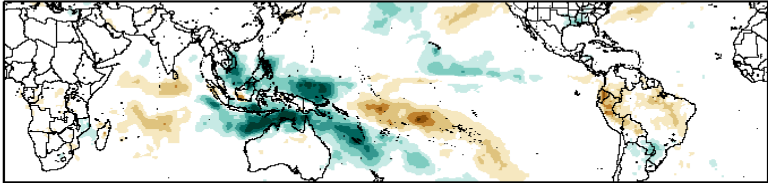
Historical Precipitation Anomalies By MJO Phase:

DJF MJO Composite: GPCP1DD (mm/day)

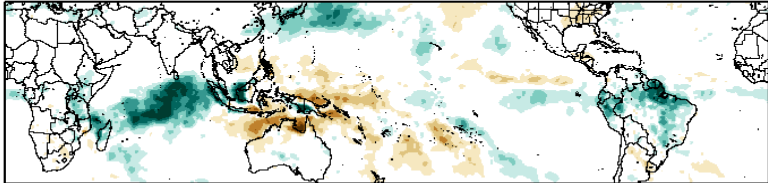
Phase 1



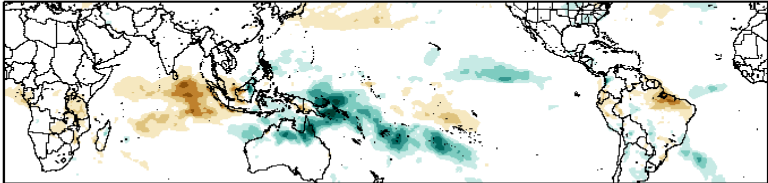
Phase 5



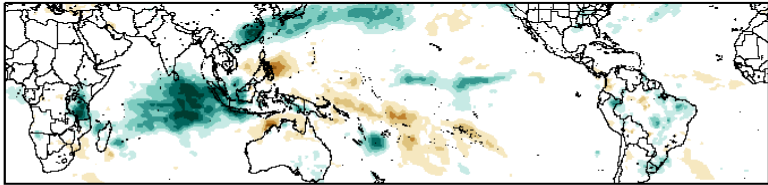
Phase 2



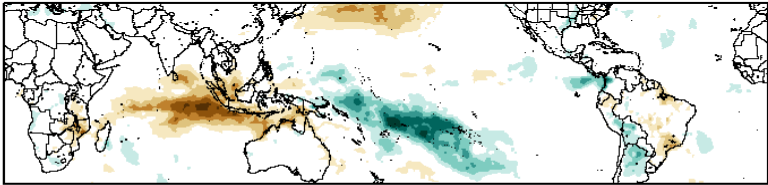
Phase 6



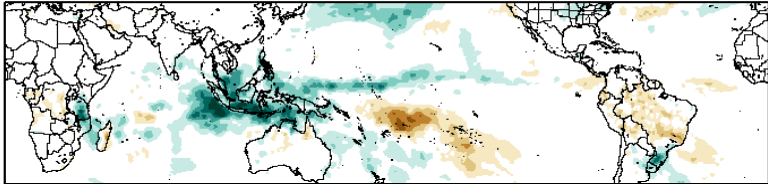
Phase 3



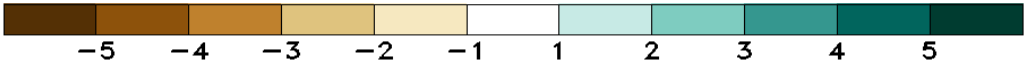
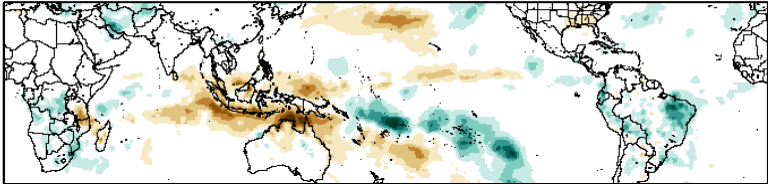
Phase 7



Phase 4

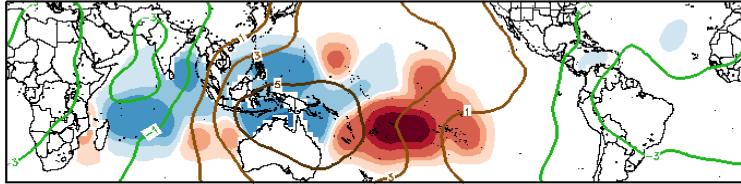


Phase 8

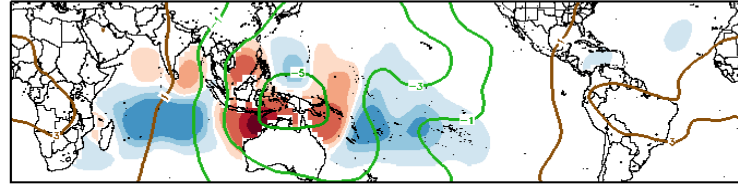


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

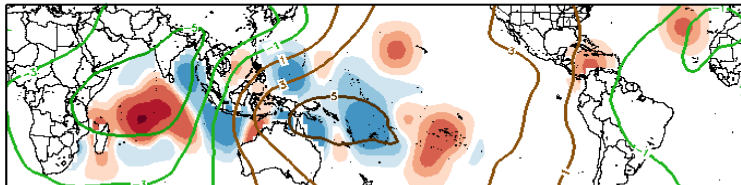
DJF MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ DJF CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



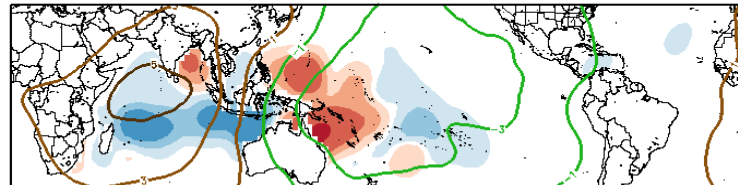
Phase 1



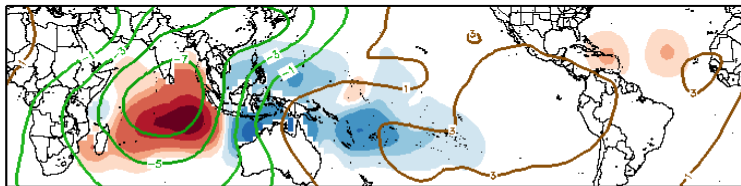
Phase 5



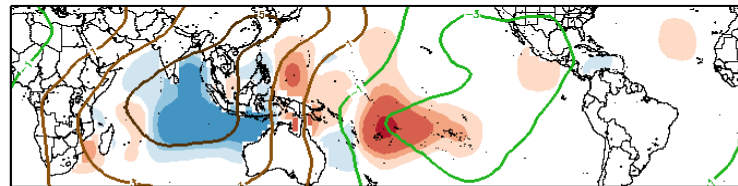
Phase 2



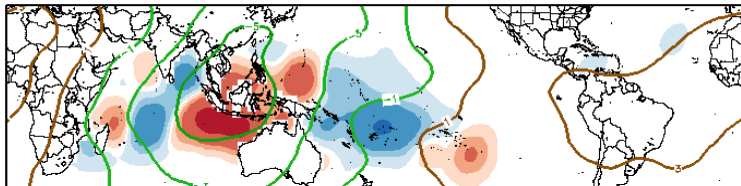
Phase 6



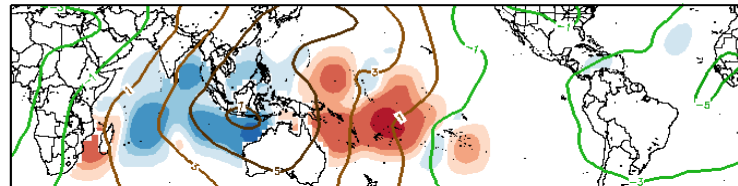
Phase 3



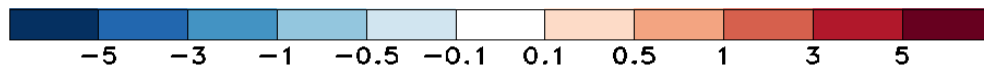
Phase 7



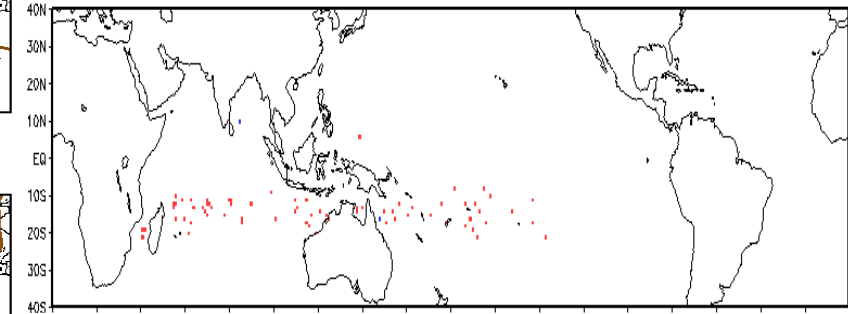
Phase 4



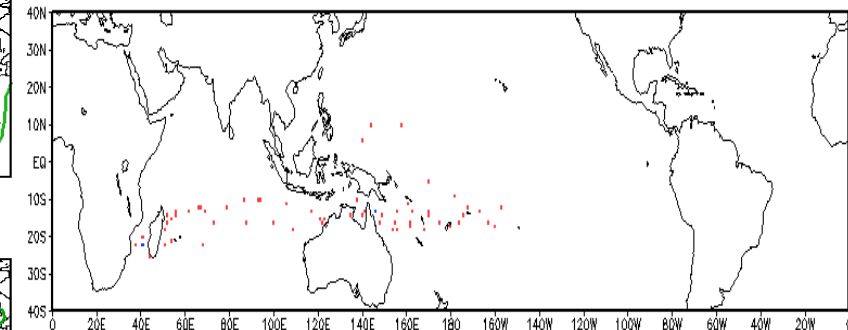
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0131 to 0206

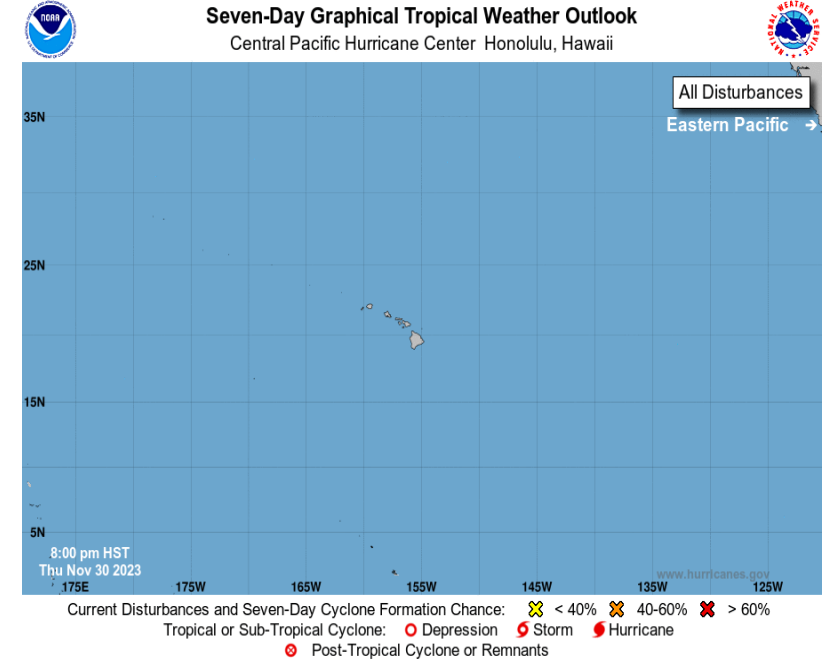
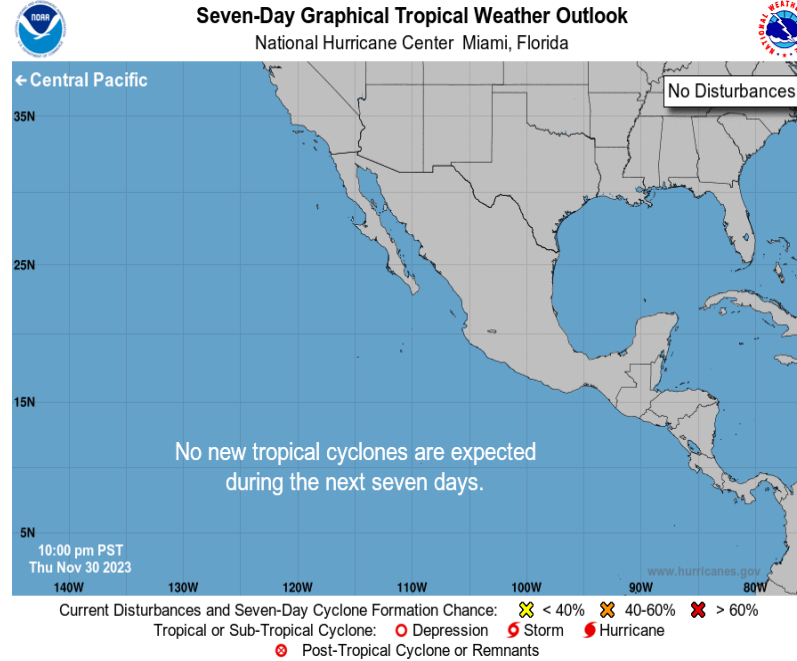
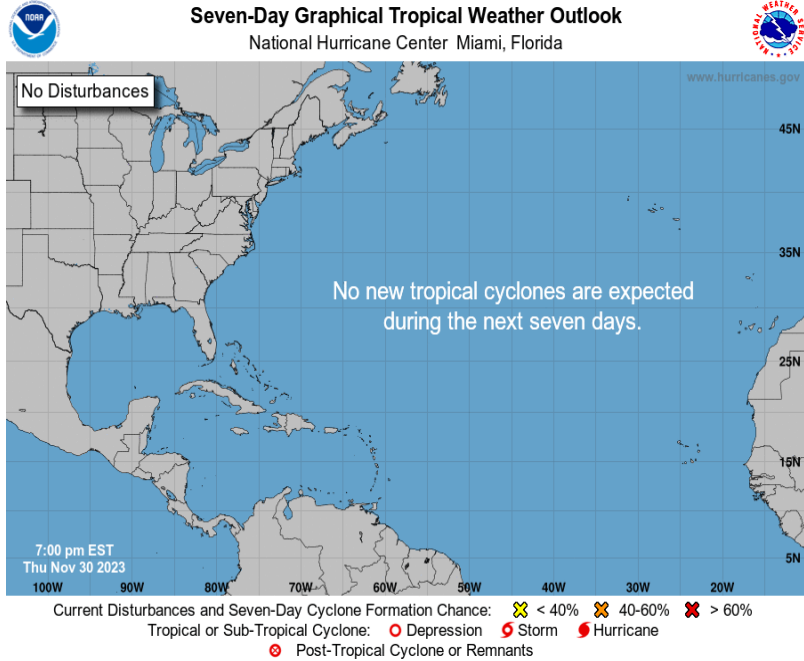


Observed TC Genesis, 1979–2021
7-day Period 0207 to 0213



Experimental

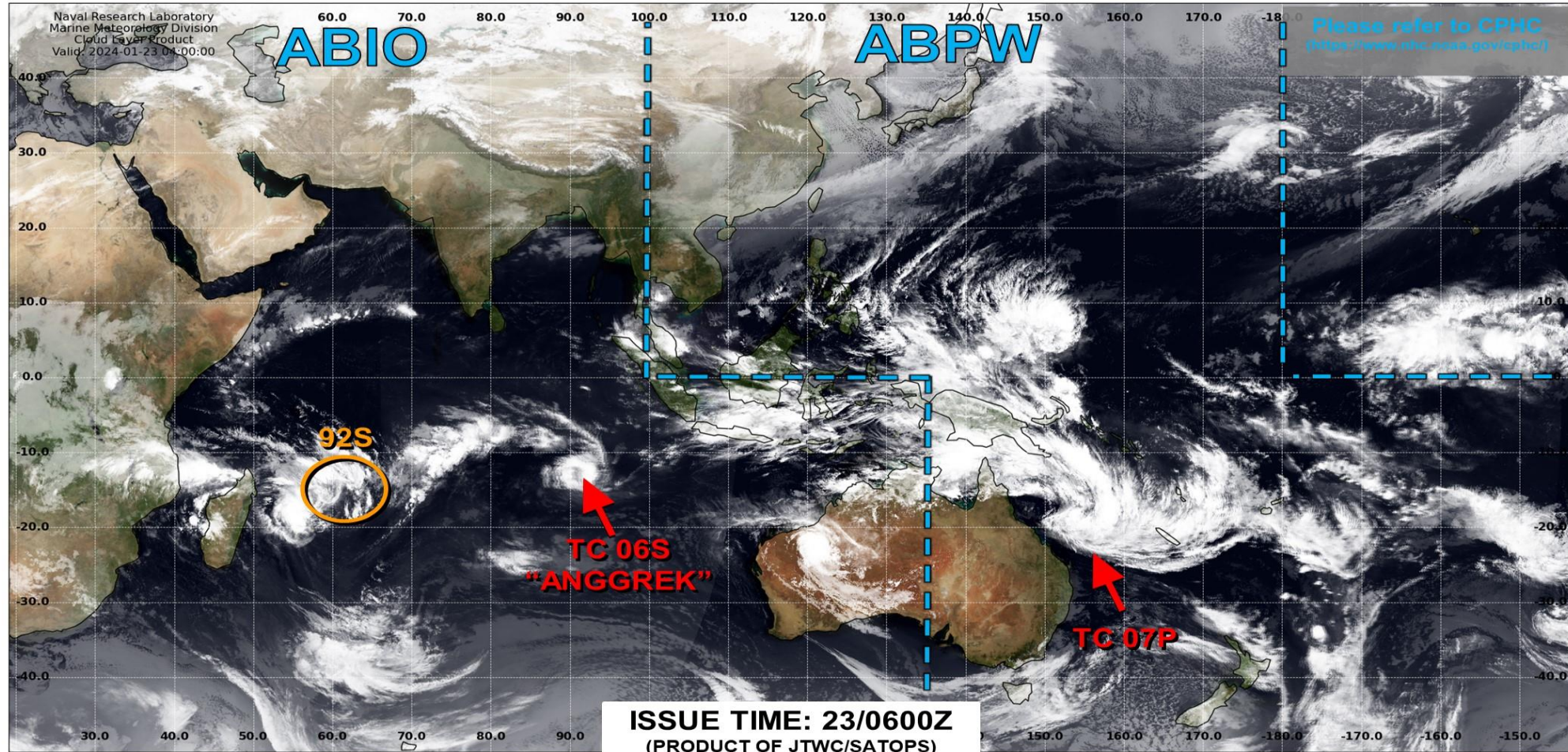
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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)



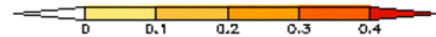
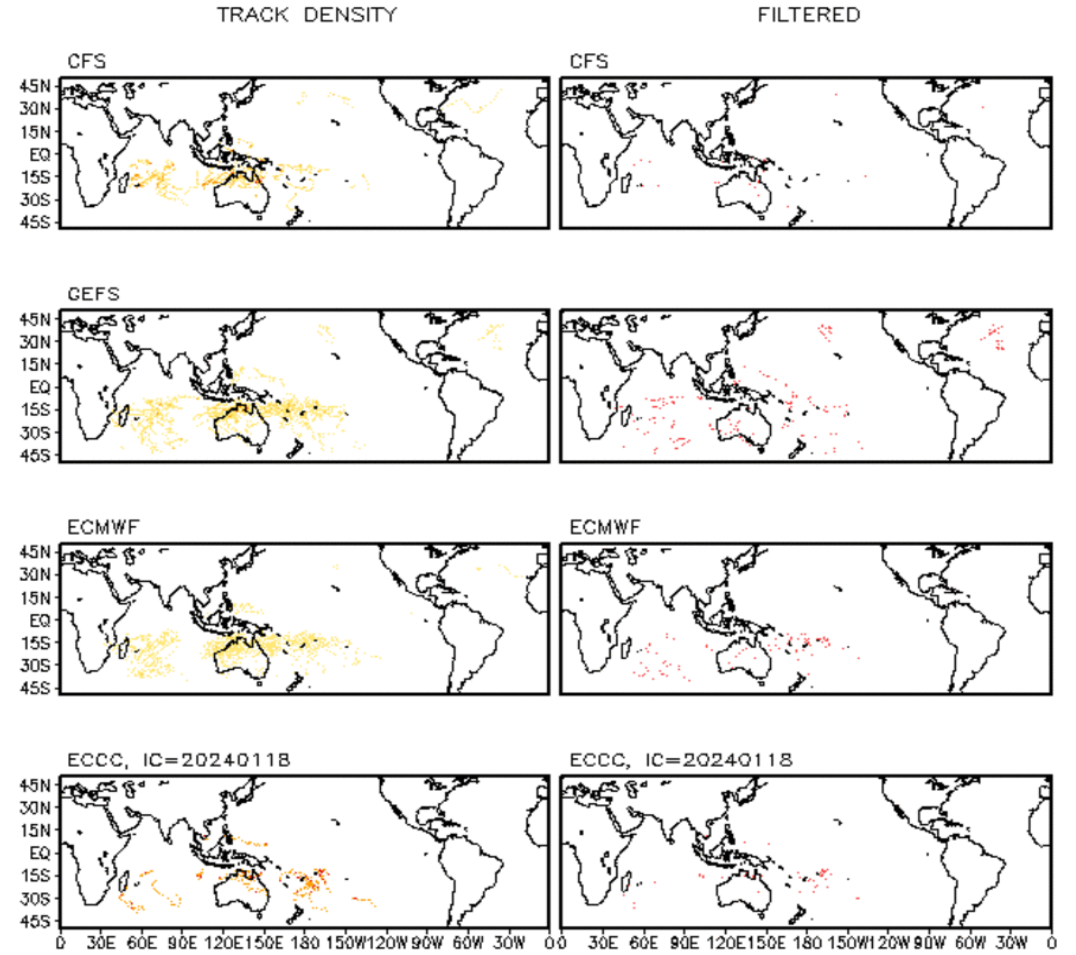
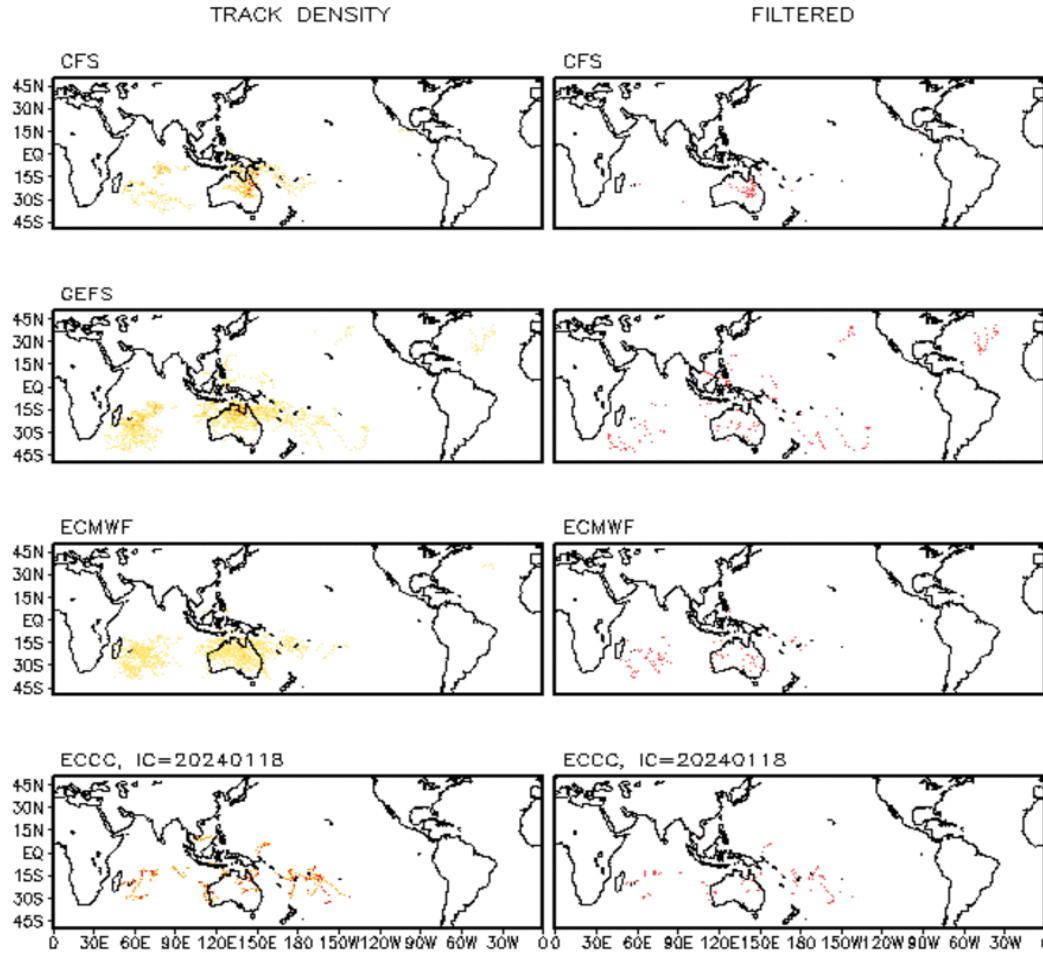
Monitoring for
potential transition to TC.
Invest label color denotes
tropical transition probability

 Tropical Cyclone
(Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

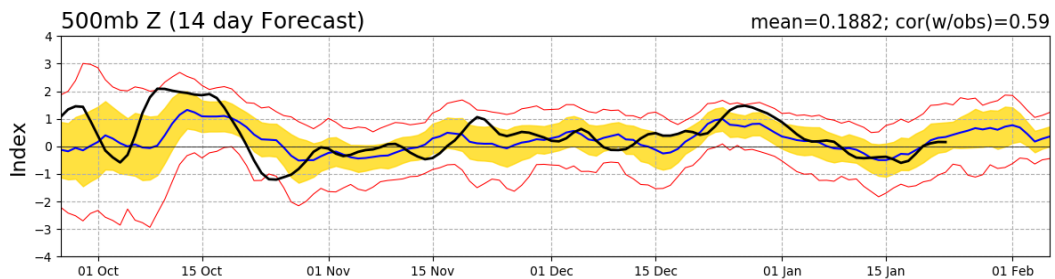
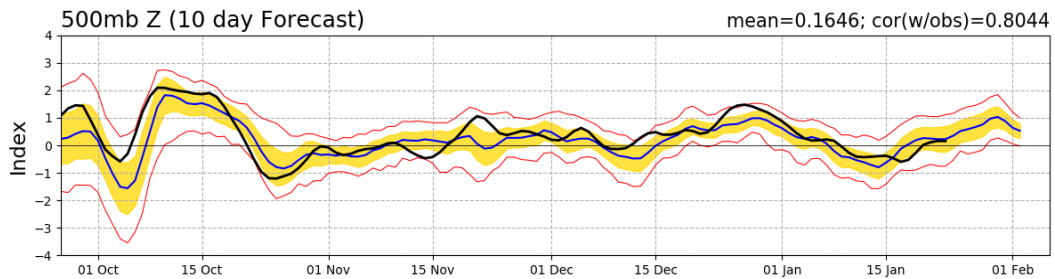
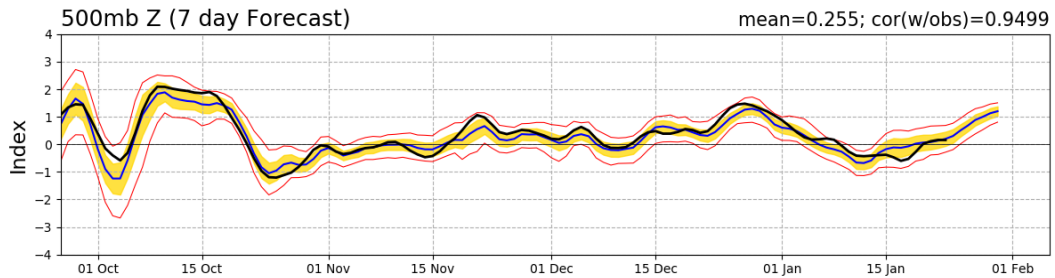
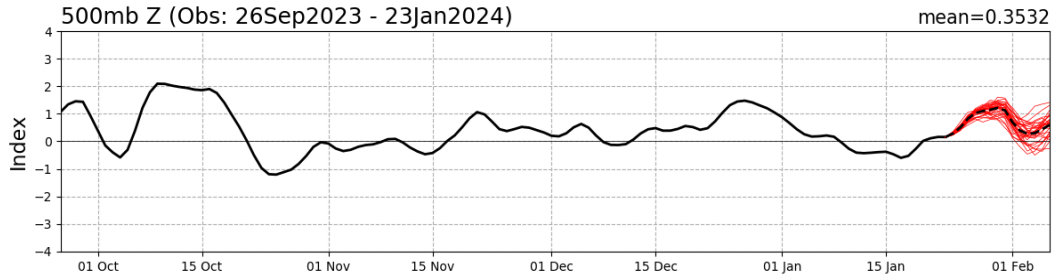
Storm Track Density Distribution, IC=20240122
Week 2 Forecast: 0131-0206

Storm Track Density Distribution, IC=20240122
Week 3 Forecast: 0207-0213

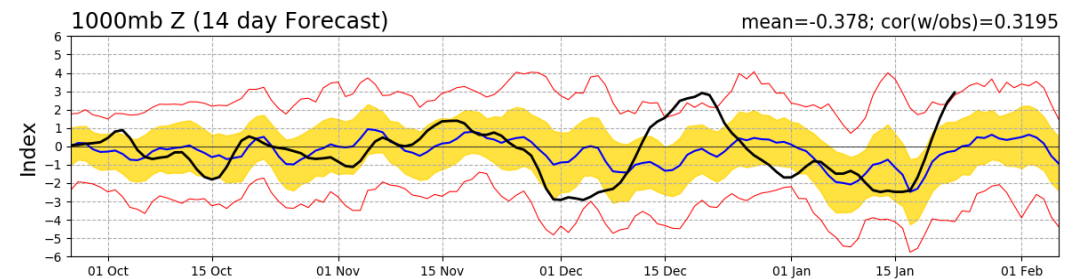
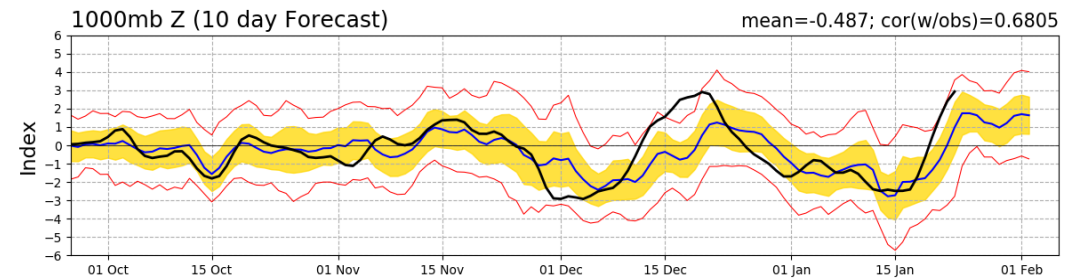
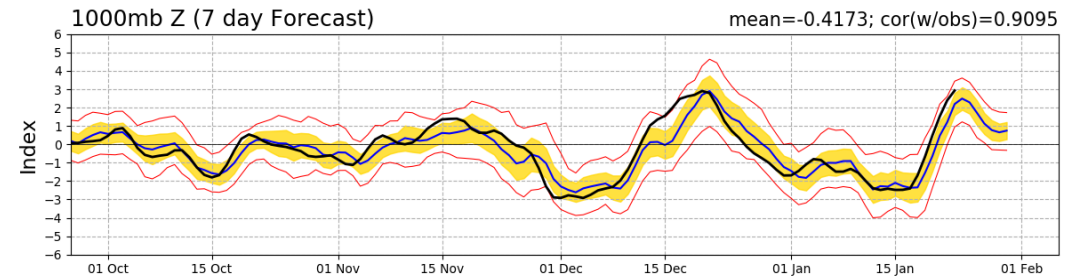
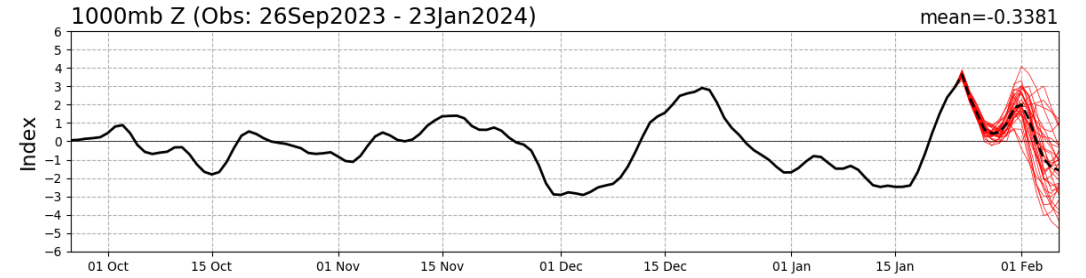


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



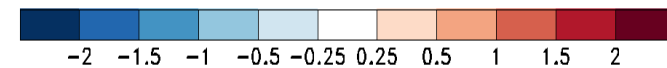
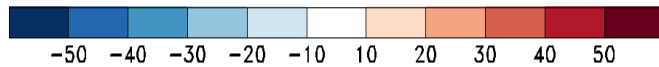
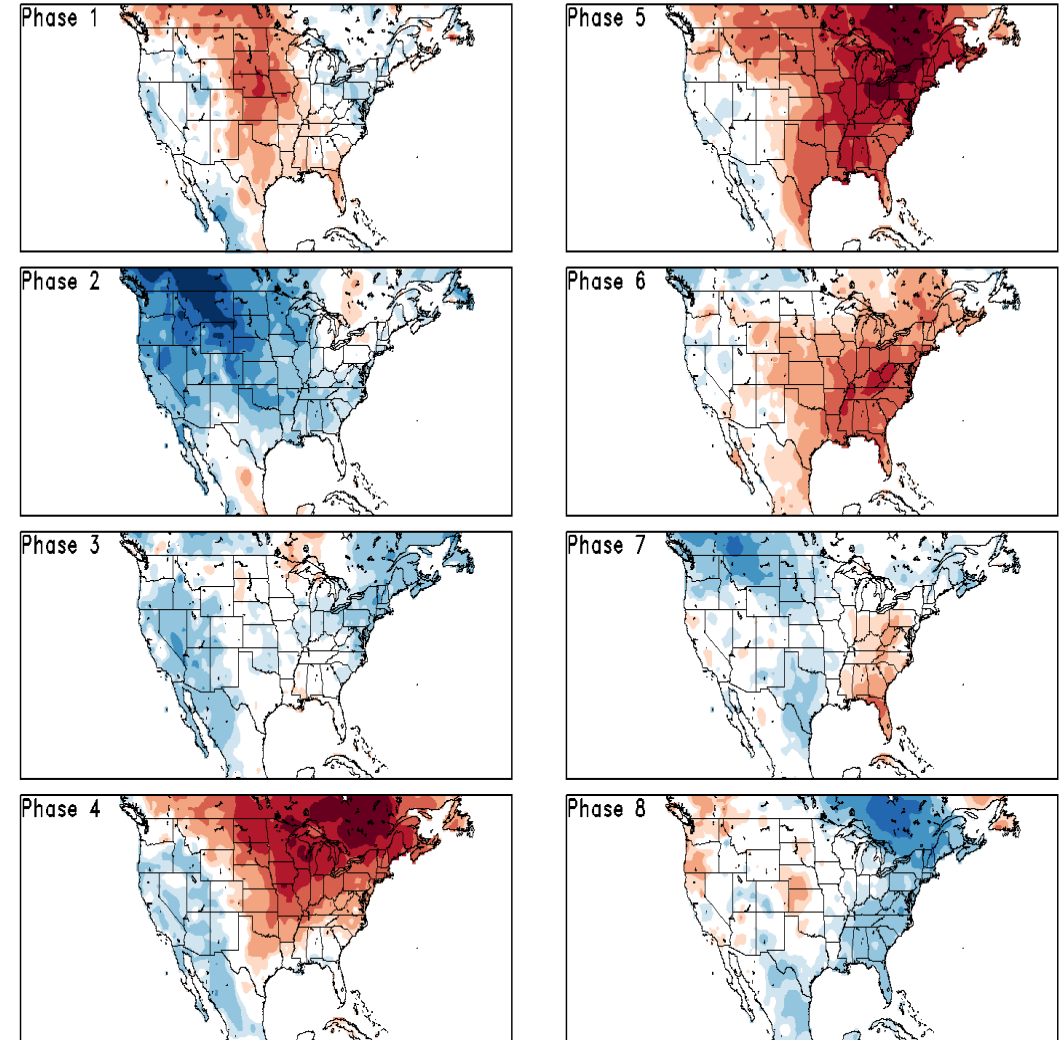
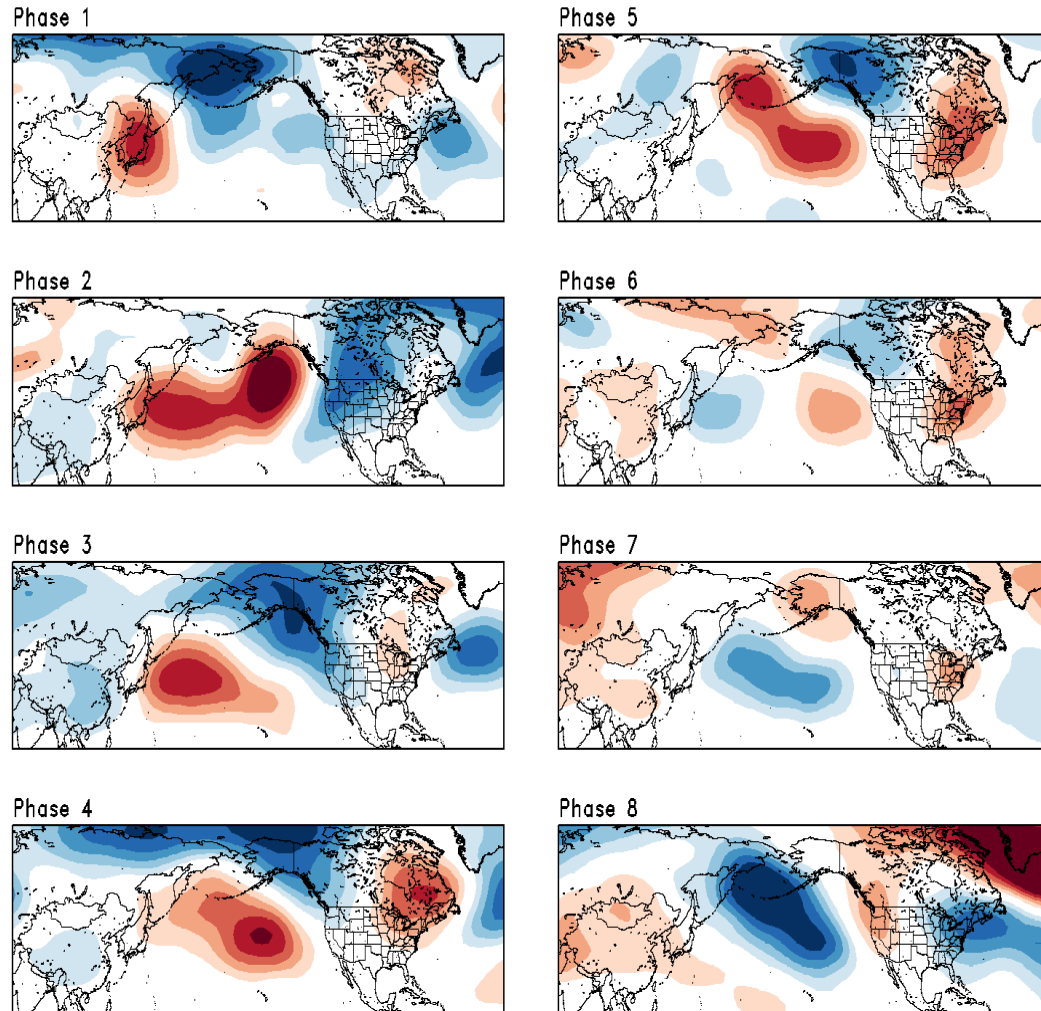
AO Index: Observed & GEFS Forecasts



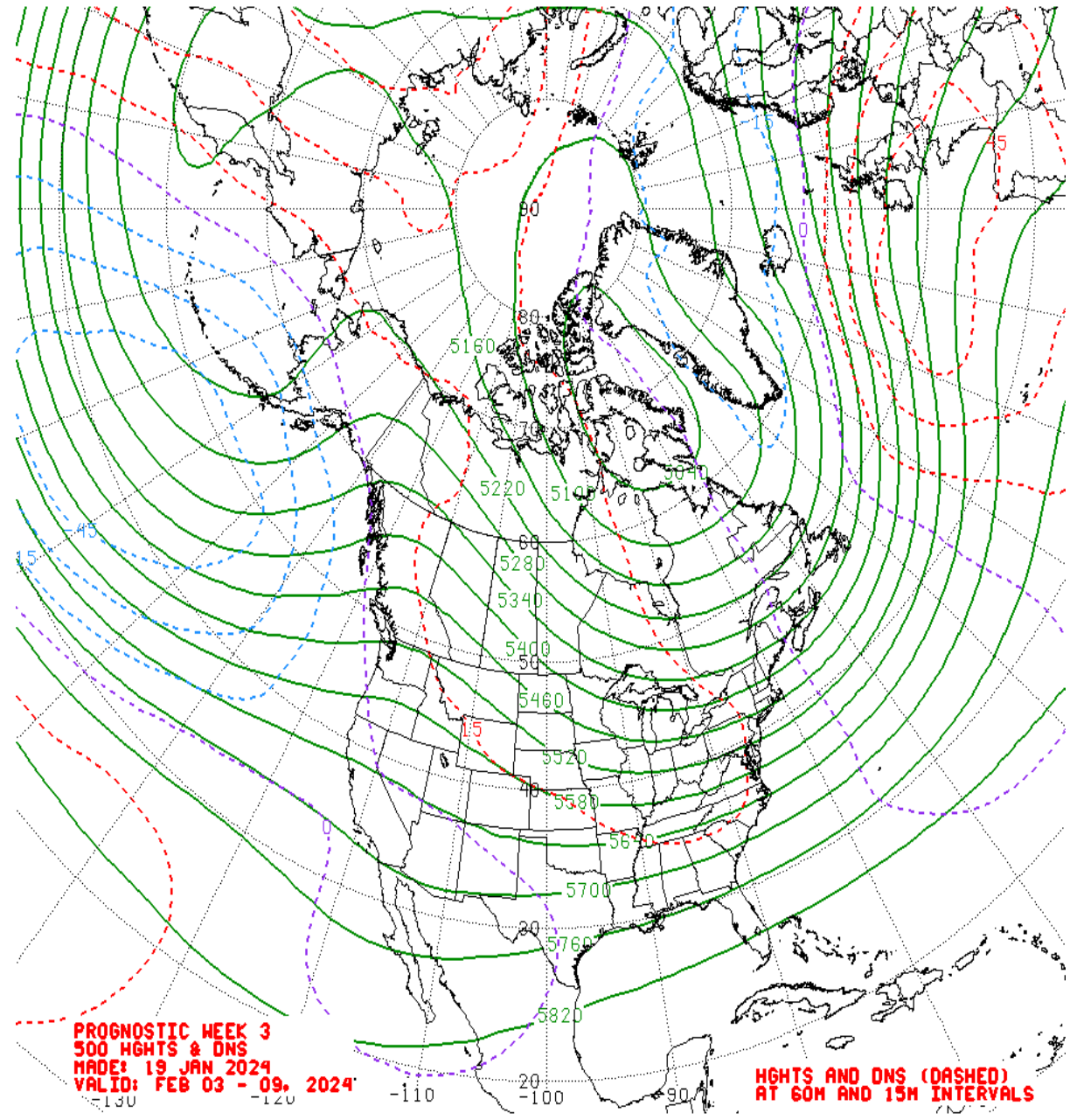
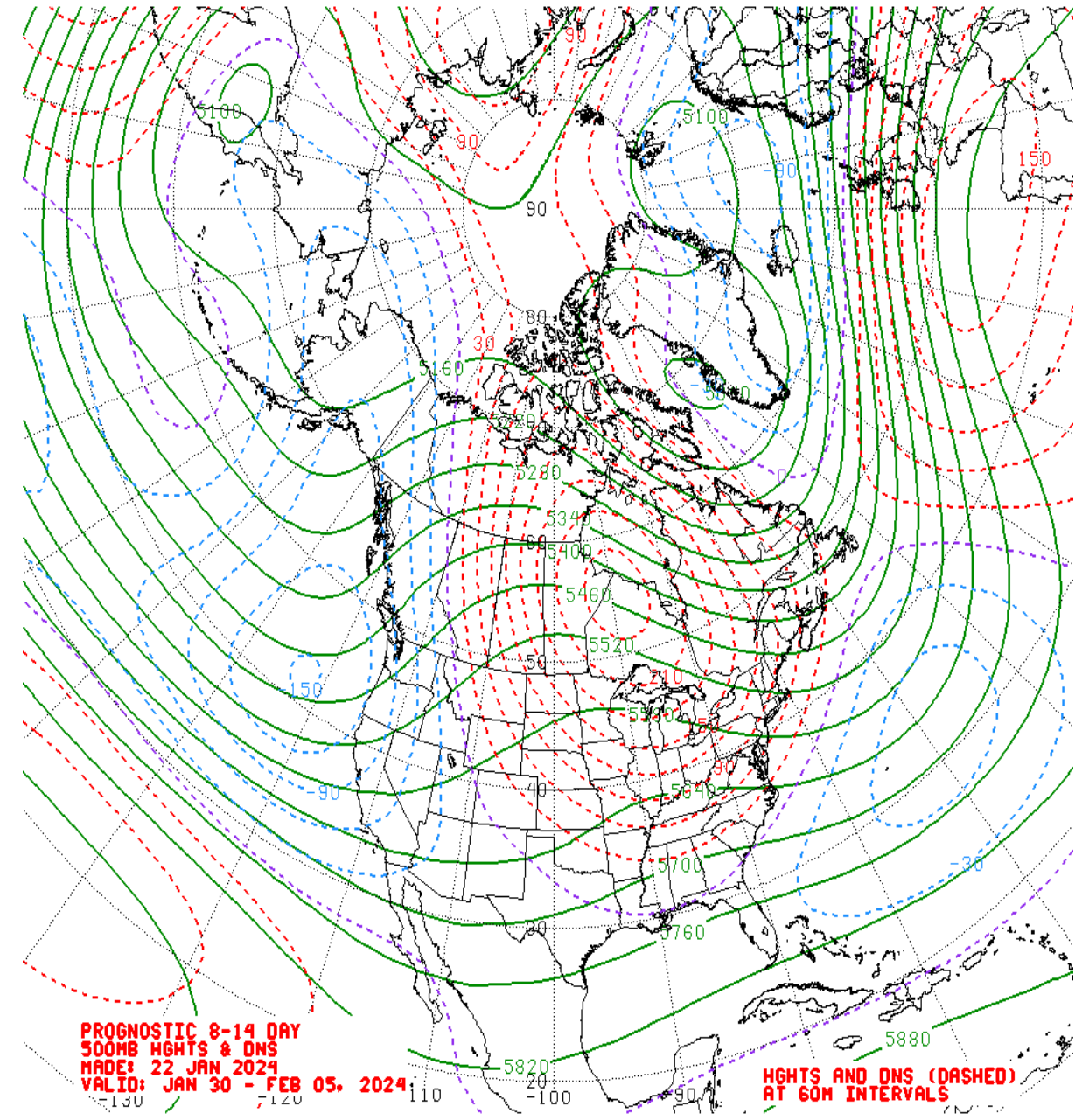
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

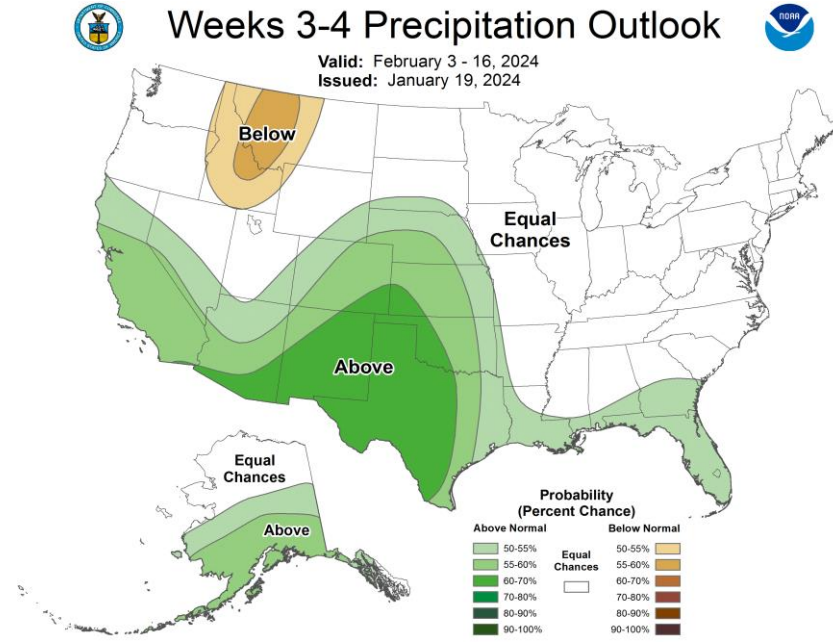
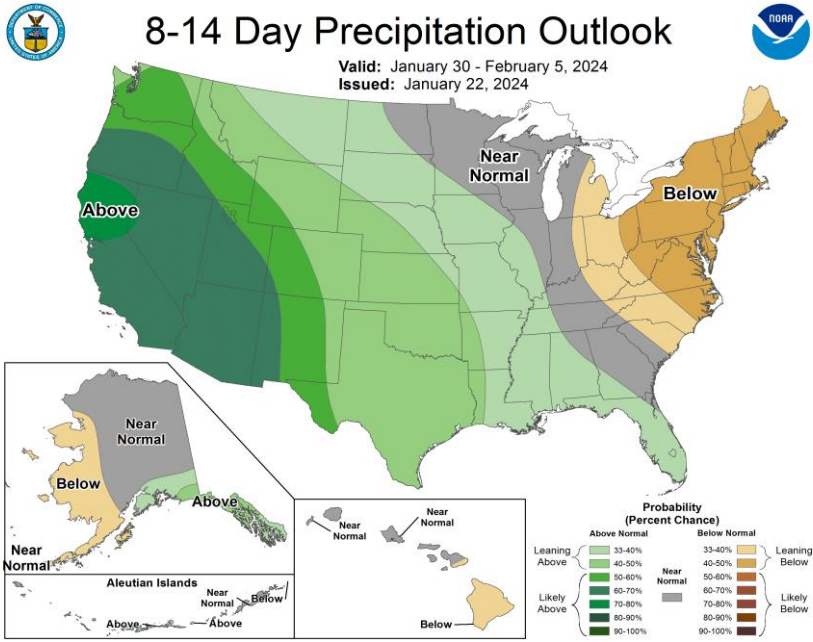
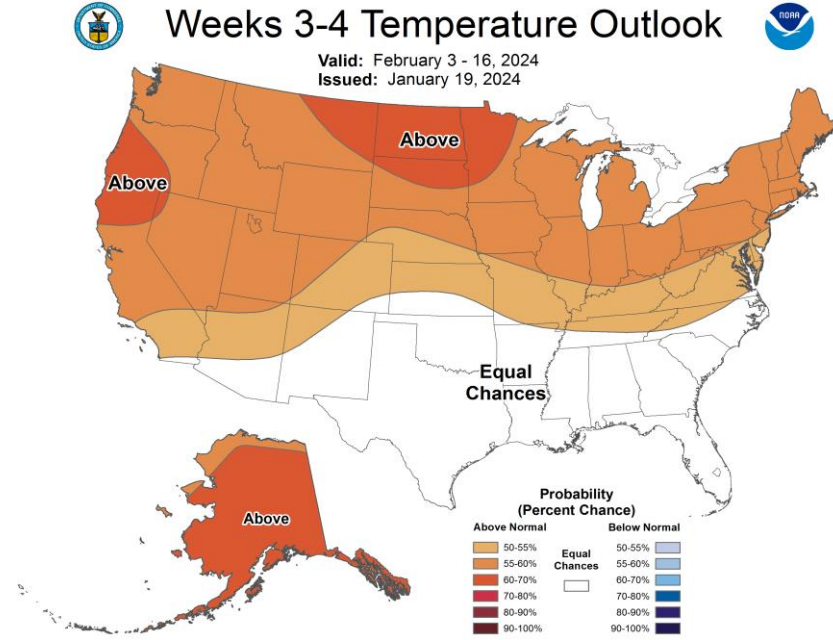
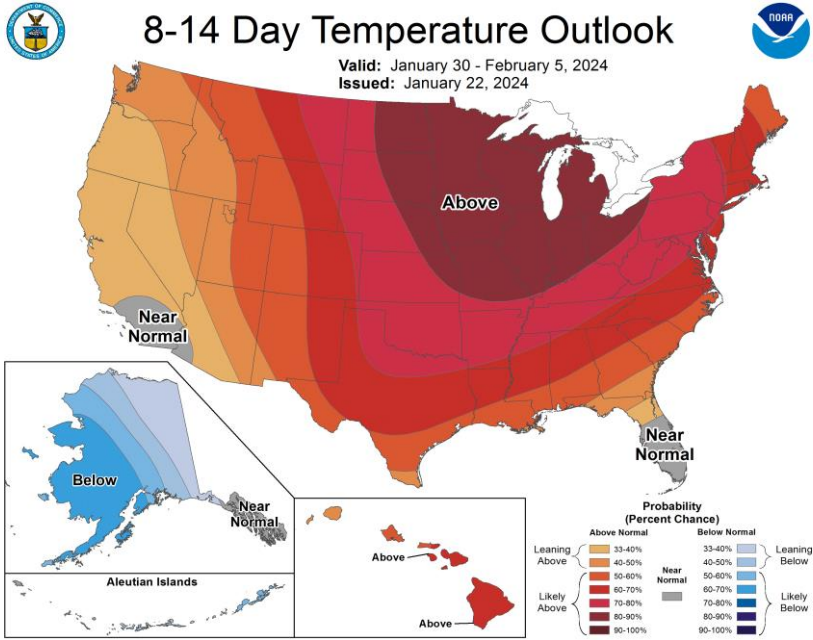
DJF MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



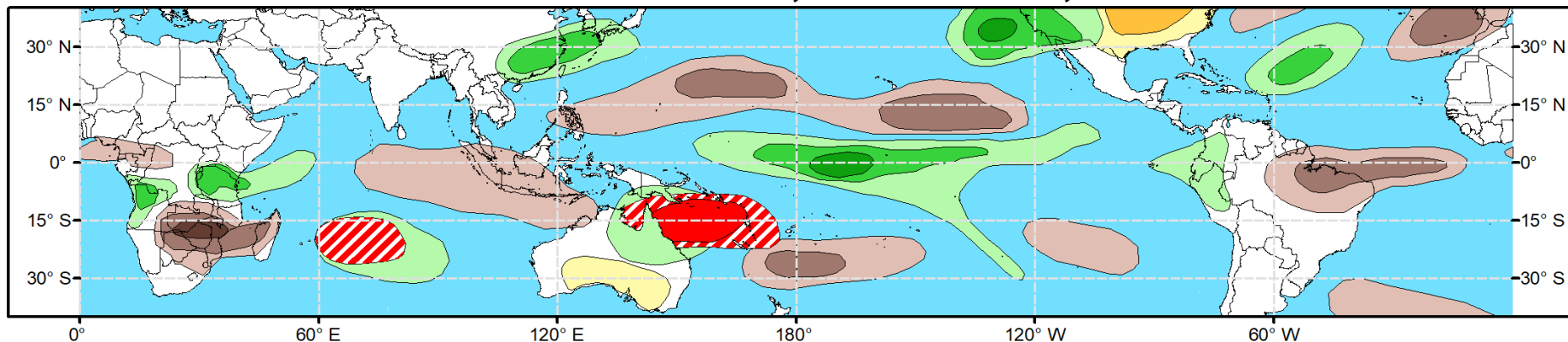


Global Tropics Hazards Outlook

Climate Prediction Center

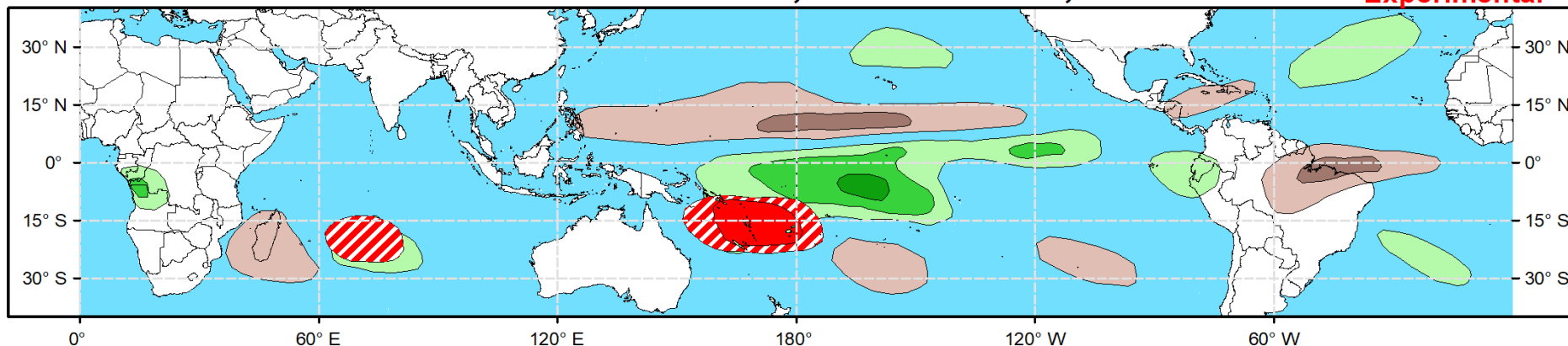


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