



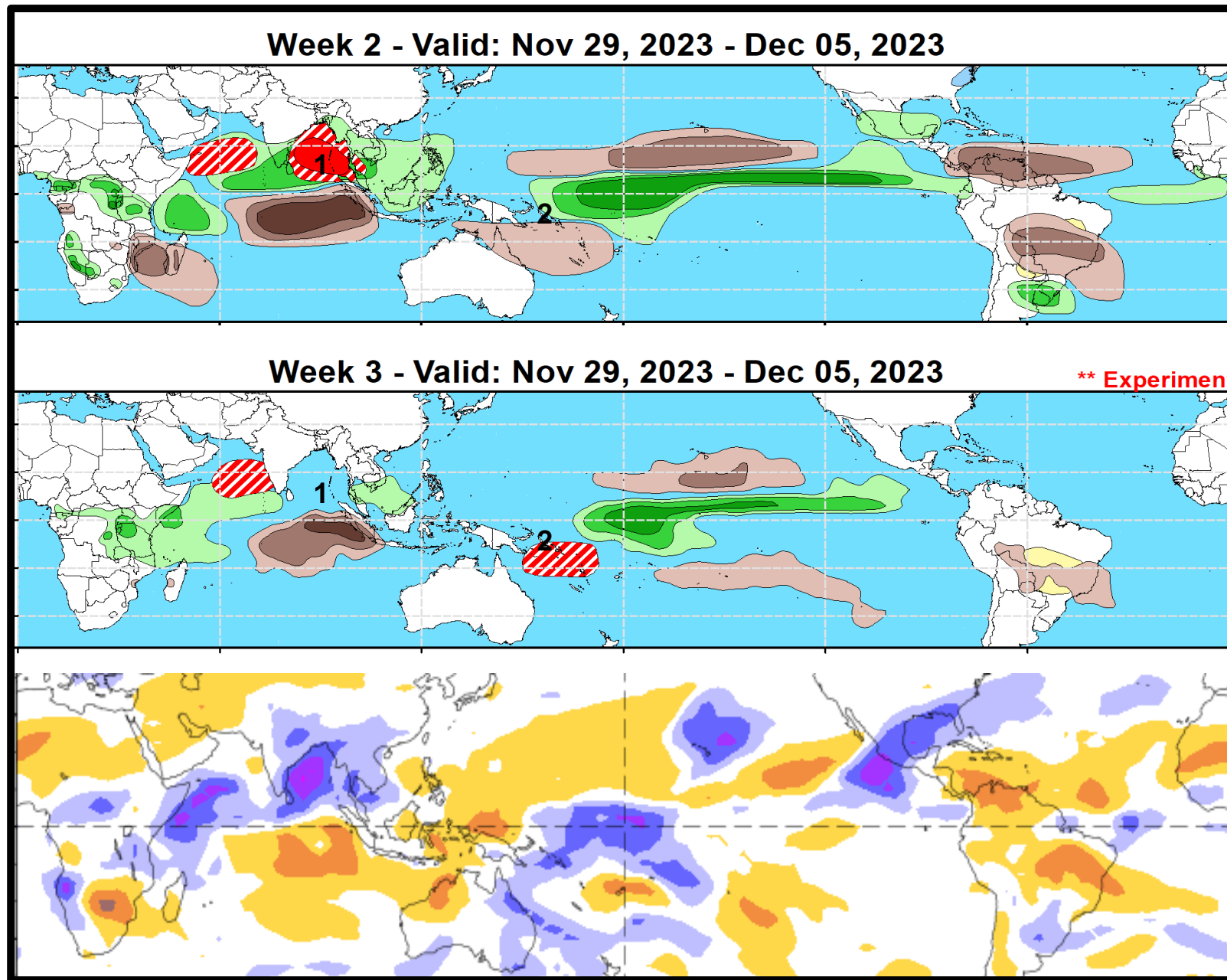
Weeks 2-3 Global Tropics Hazards Outlook

12/05/2023

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- 1: Michaung, 12/3
- 2: Jasper, 12/4



Synopsis of Climate Modes:

ENSO: (Nov 9, 2023 Update) *next update on Thursday, Dec 14th*

- ENSO Alert System Status: [El Niño Advisory](#)
- El Niño is expected to continue through the Northern Hemisphere spring (with a 62% chance during Apr-Jun 2024).

MJO and other subseasonal tropical variability:

- The dominance of low-frequency modes (ENSO, IOD) has been declining over the last several weeks as the MJO has become stronger and more coherent.
- The RMM-based MJO signal continues to remain amplified, with the enhanced convective envelope approaching the Maritime Continent. Dynamical models depict continued eastward propagation during the next 2-3 weeks.
- Dynamical models indicate a generally quiet period for tropical cyclone (TC) development, with enhanced TC activity favored for the South Pacific only during the coming forecast period.

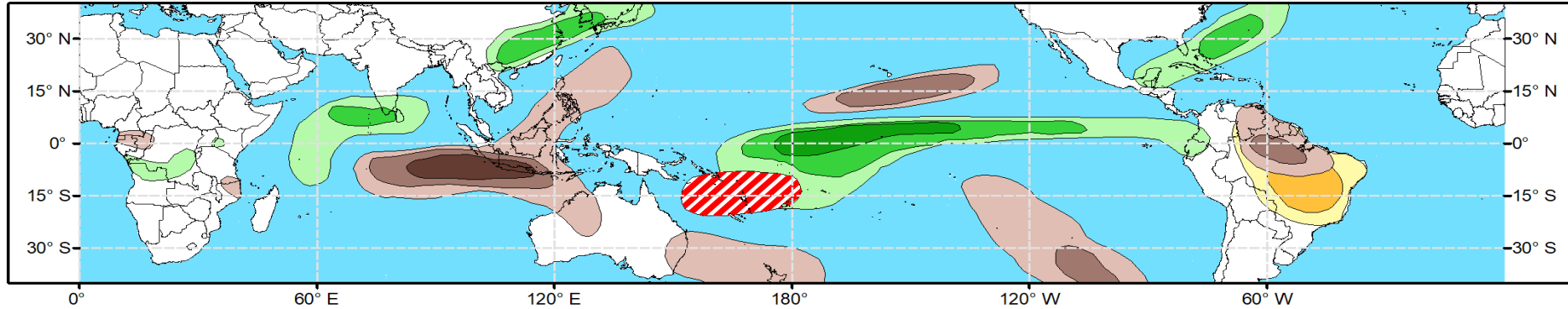
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

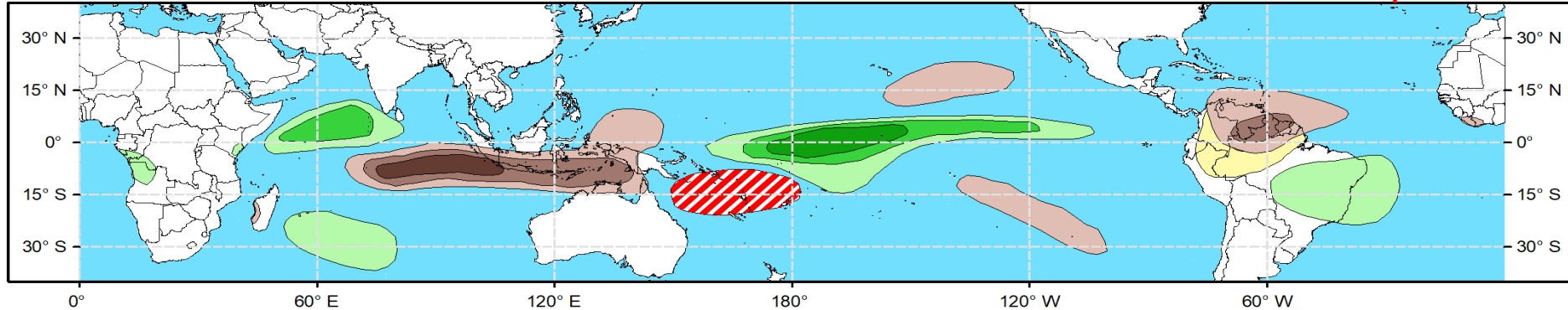


Week 2 - Valid: Dec 13, 2023 - Dec 19, 2023



Week 3 - Valid: Dec 20, 2023 - Dec 26, 2023

**** 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**



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

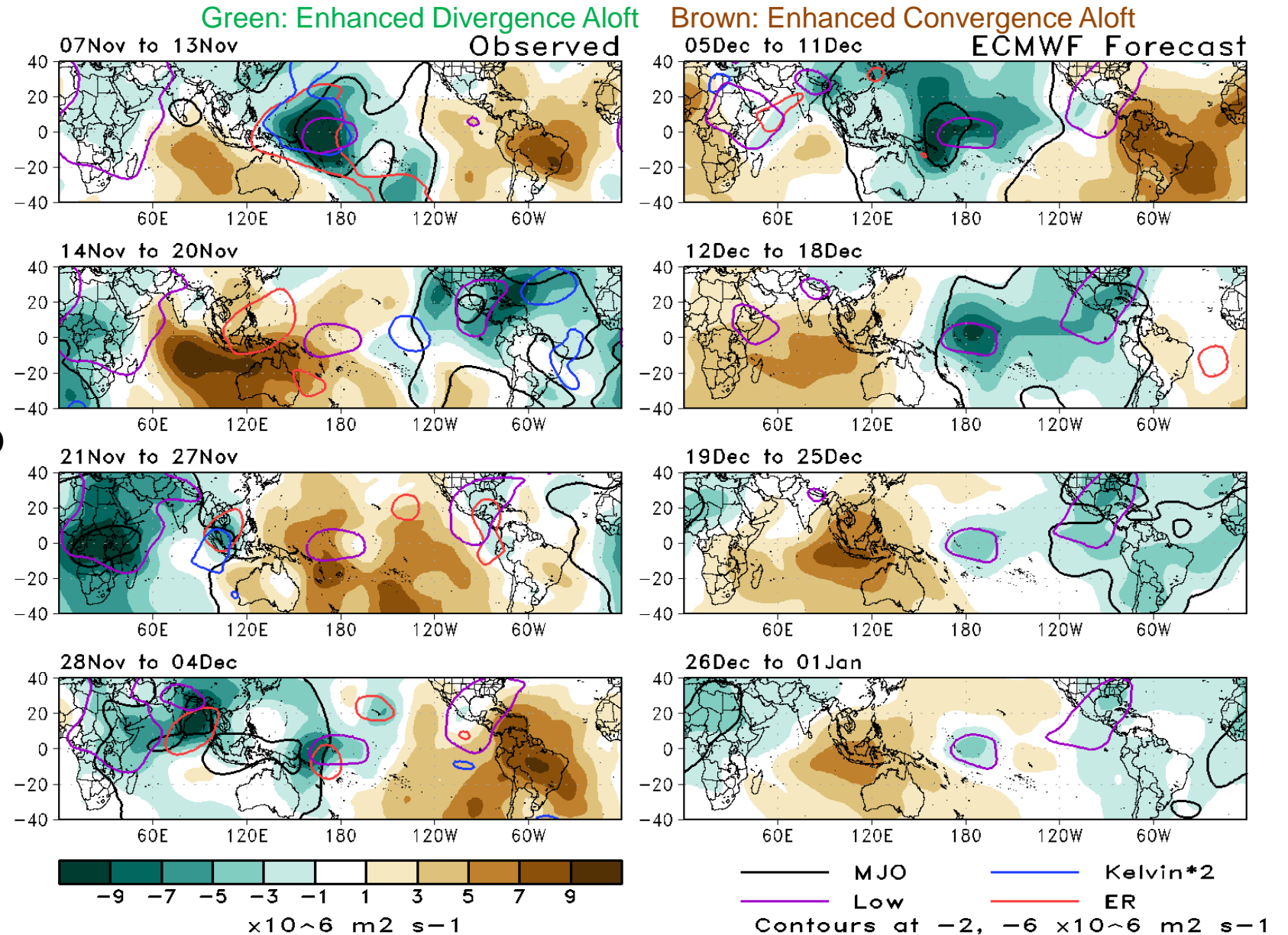
Issued: 12/05/2023

Forecaster: Barandiaran

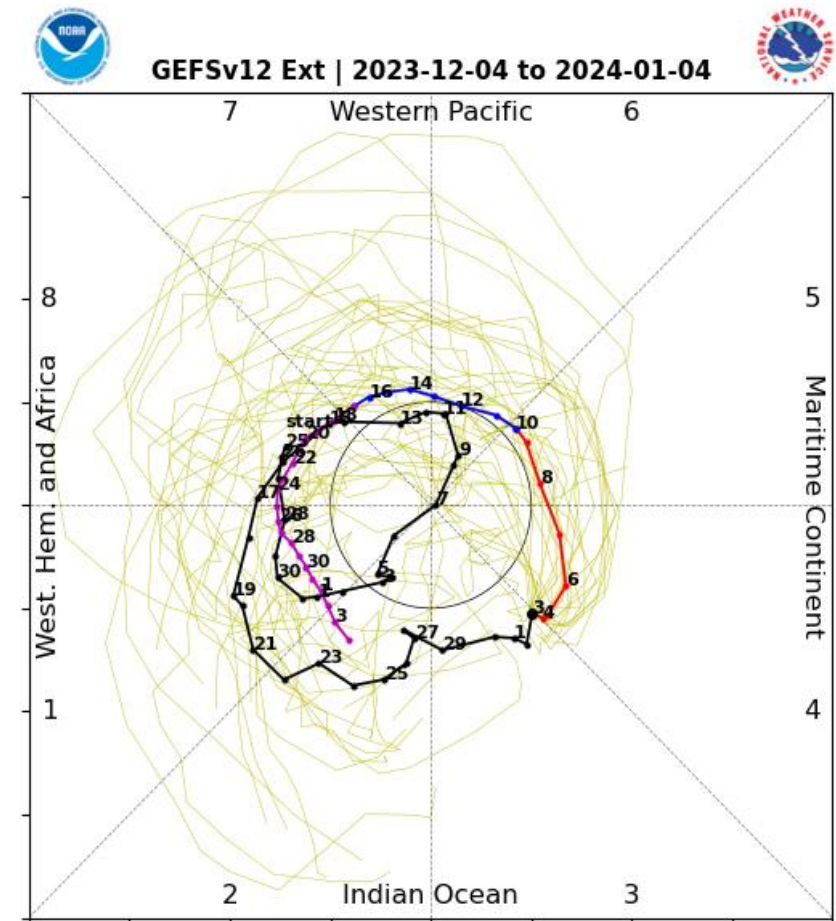
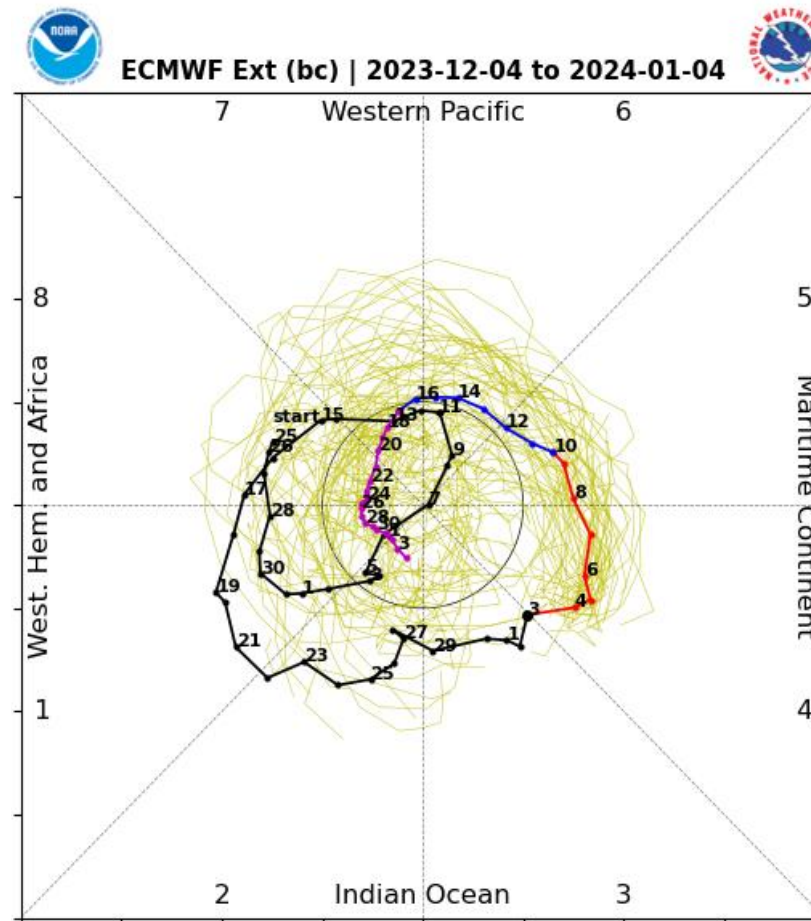
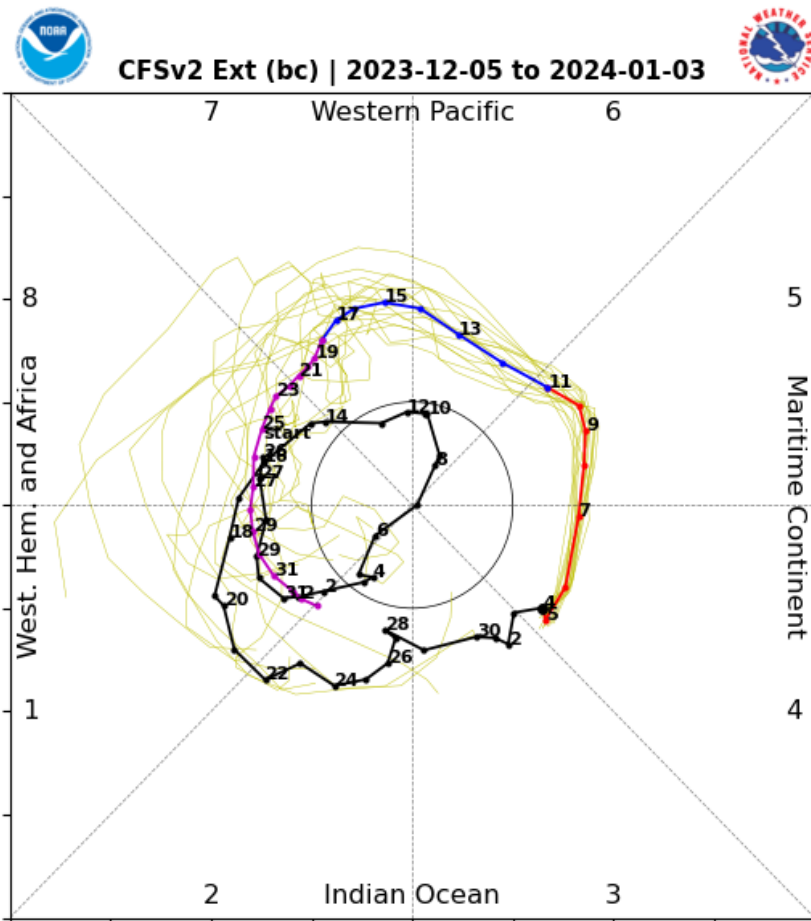
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200-hPa Velocity Potential Anomaly Maps:

- Coherent MJO activity is becoming much more apparent as both wet and dry phases are holding together through interference from the ENSO/+IOD footprint.
- Over the coming weeks the MJO is favored to continue to propagate east, moving out of the Maritime Continent by week-2 and into the Western Hemisphere late in the forecast period.

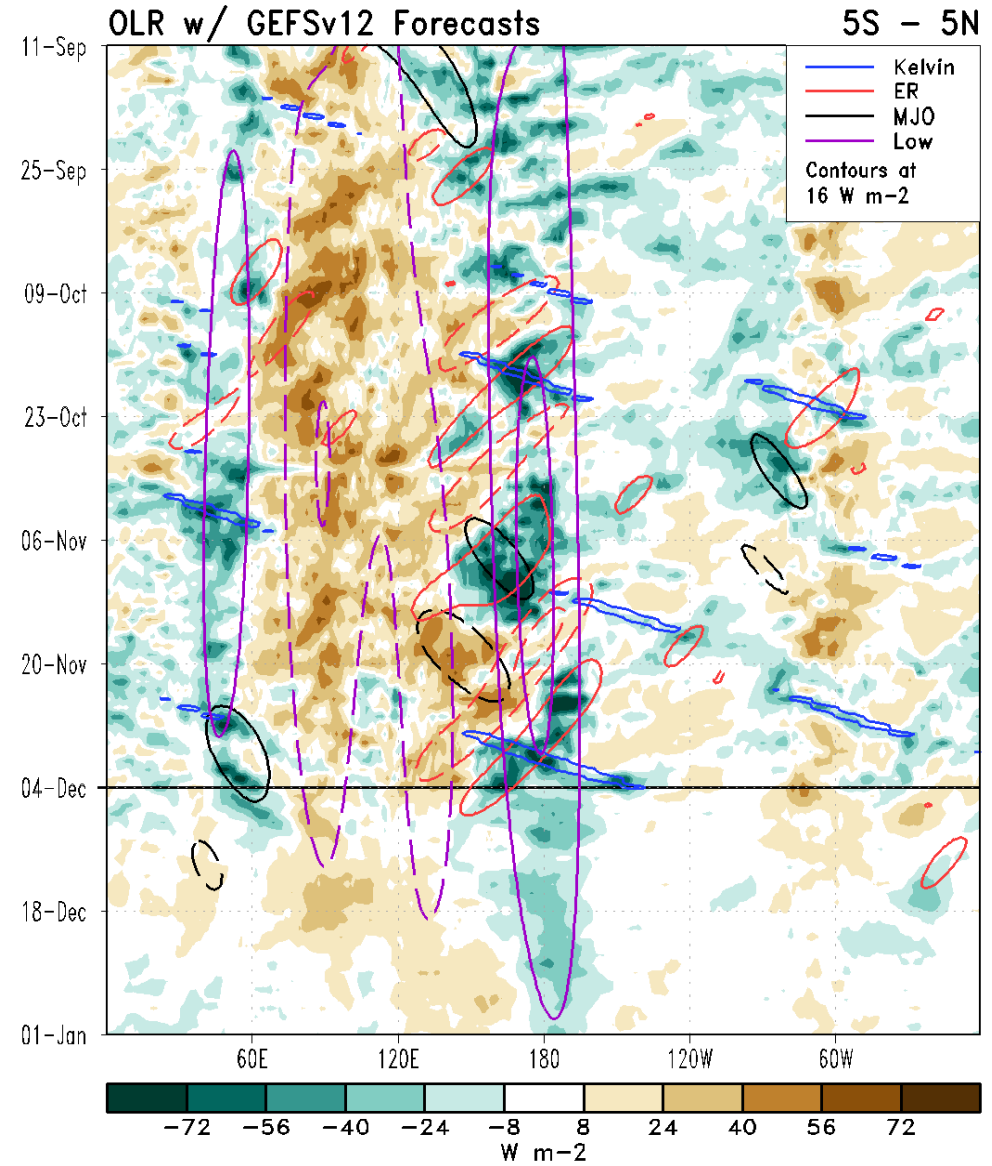
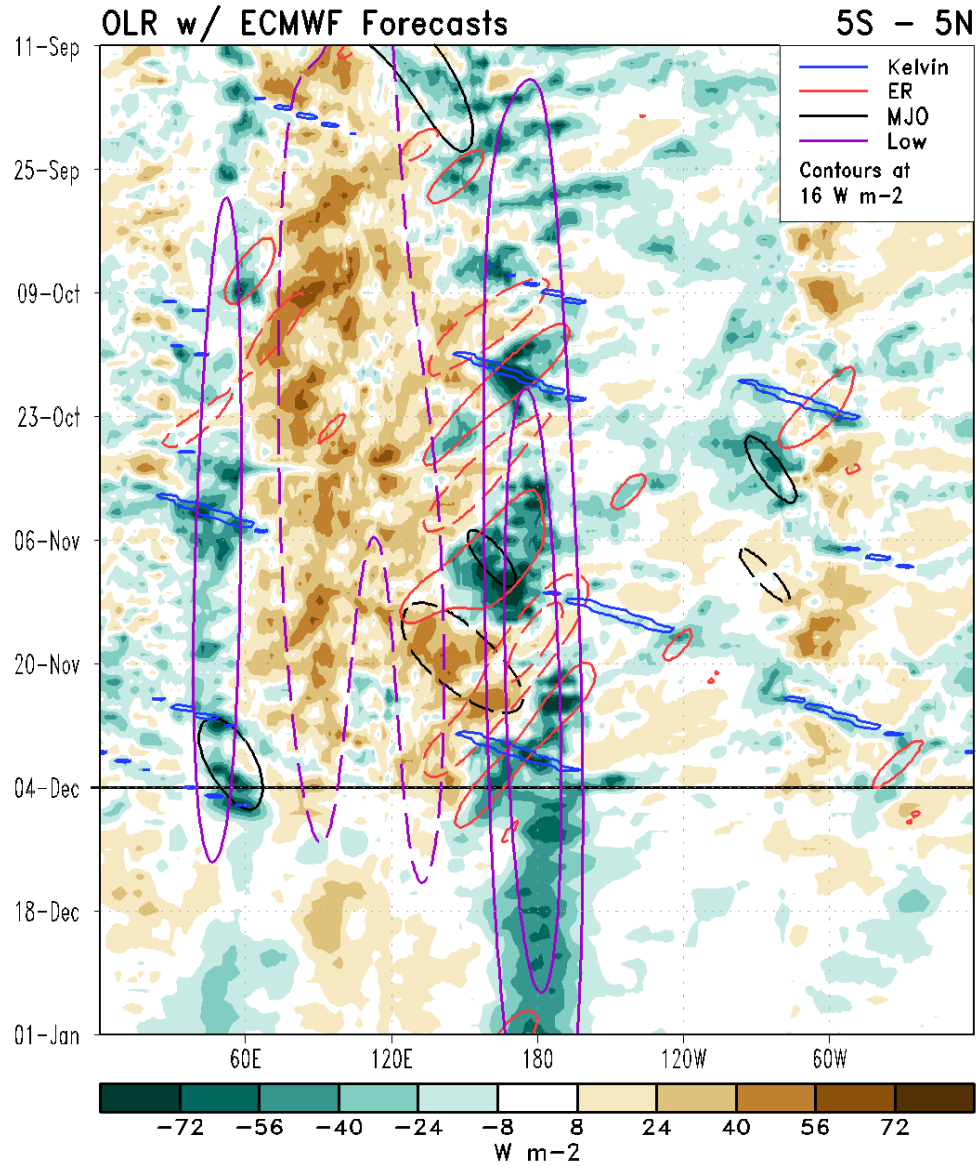


RMM Index Observations & Forecasts:



- Most forecast ensembles are in good agreement that the MJO will remain amplified and propagate eastward across the Maritime Continent and Western Pacific during the next 2 weeks.
- In the near-term, the MJO is forecast to destructively interfere with El Niño, with more constructive interference becoming possible as the intraseasonal signal moves toward the Date Line.

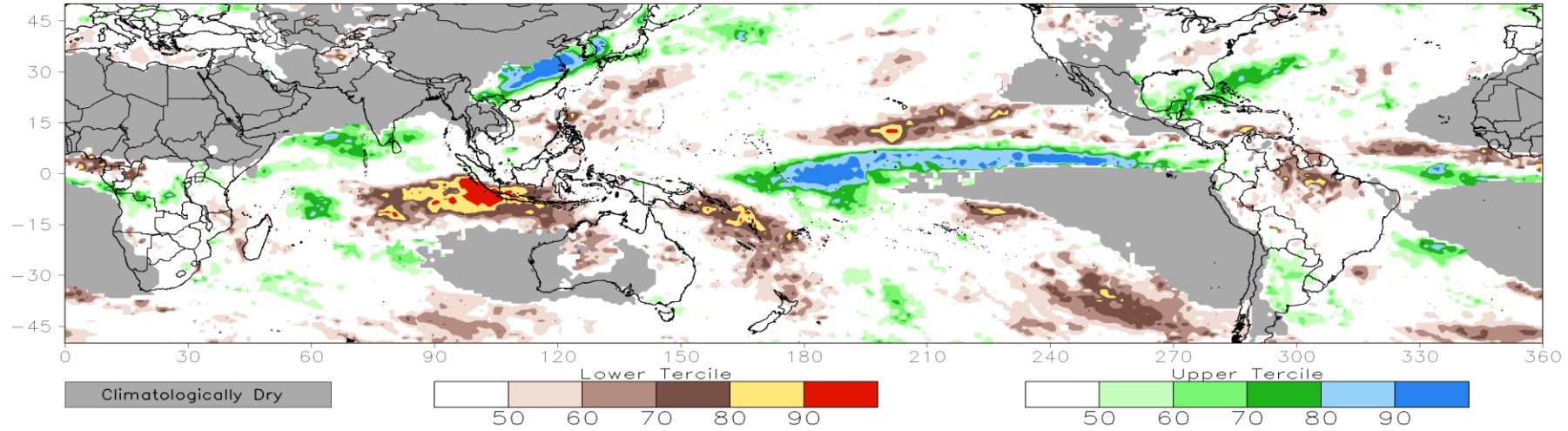
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

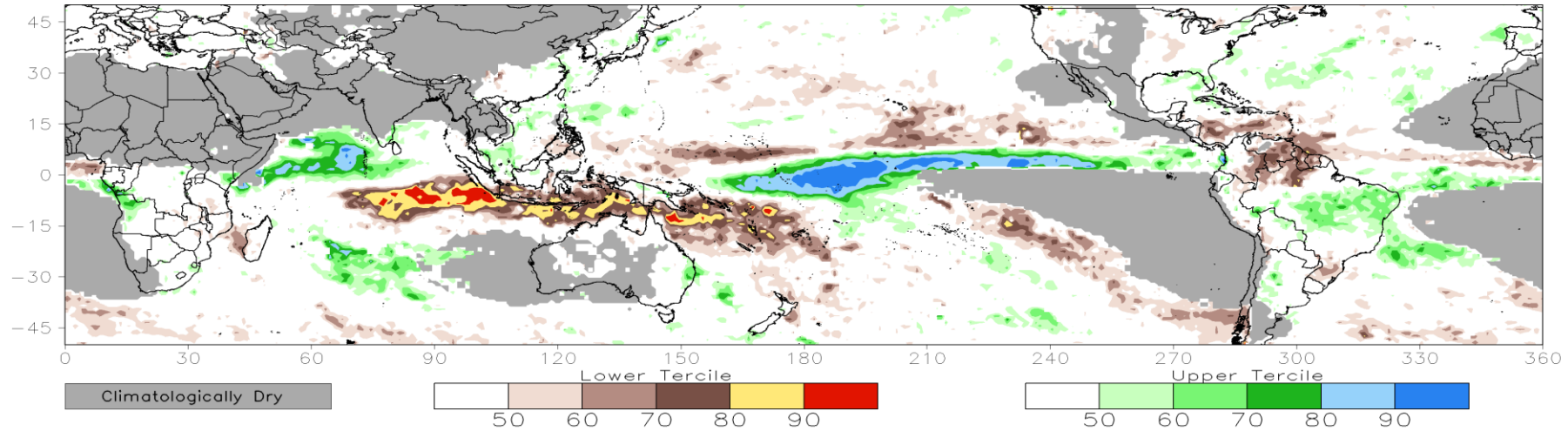
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 13Dec2023–19Dec2023



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

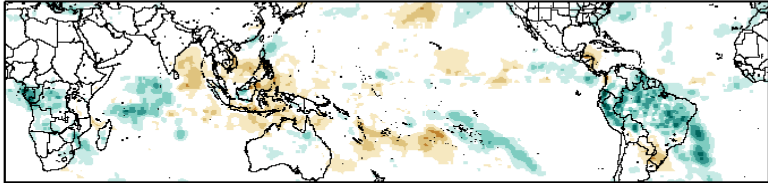
Valid: 20Dec2023–26Dec2023



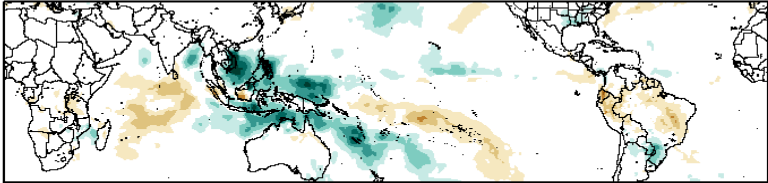
Historical Precipitation Anomalies By MJO Phase:

NDJ MJO Composite: GPCP1DD (mm/day)

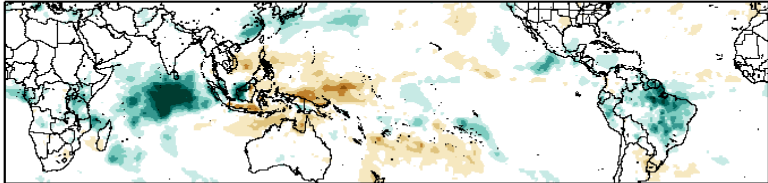
Phase 1



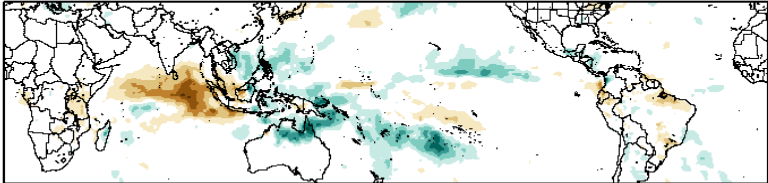
Phase 5



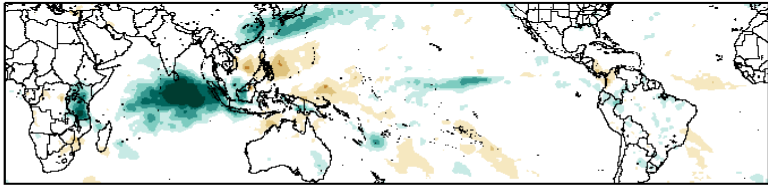
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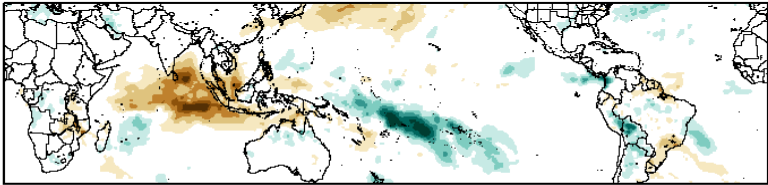
Phase 6



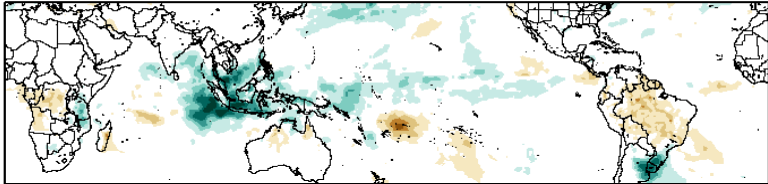
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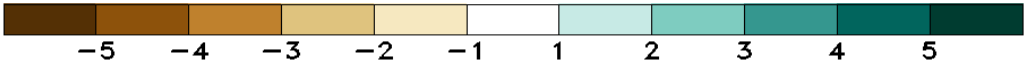
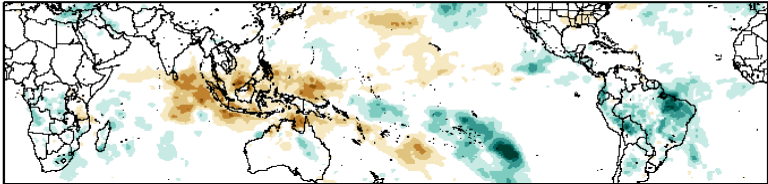
Phase 7



Phase 4

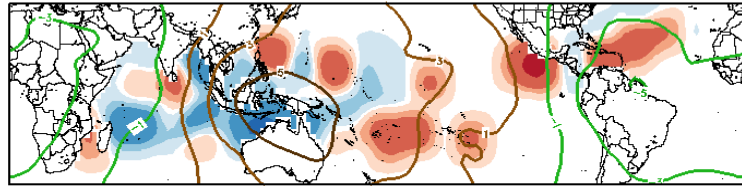


Phase 8

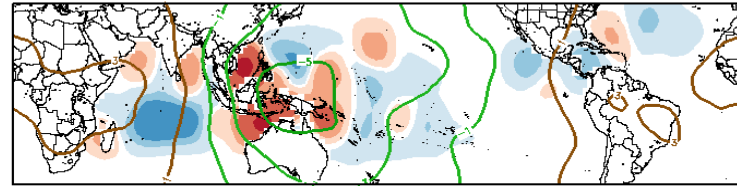


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

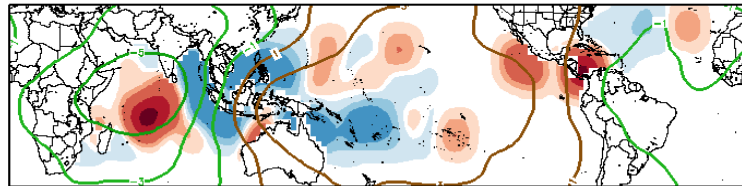
NDJ MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ NDJ CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



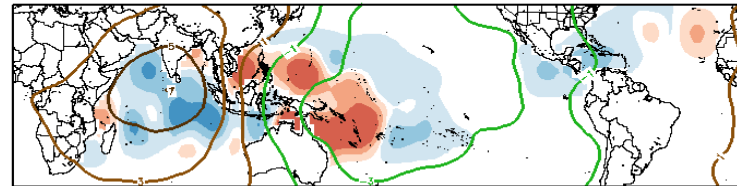
Phase 1



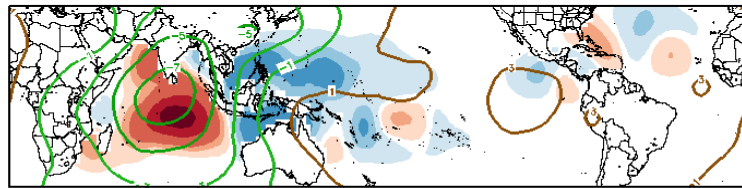
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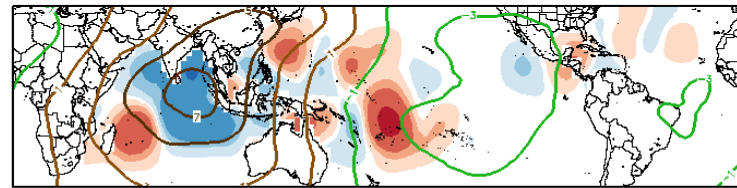
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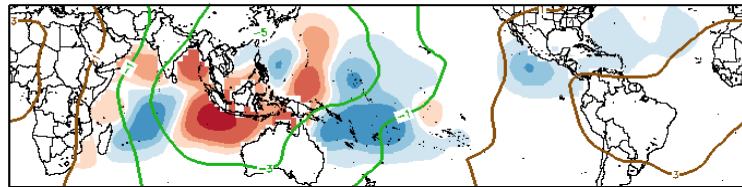
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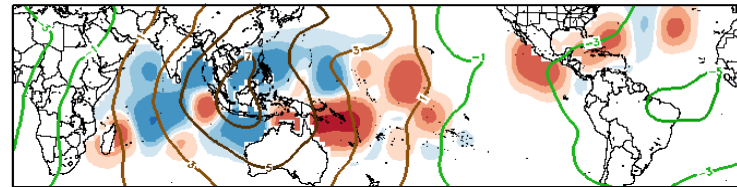
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Phase 7

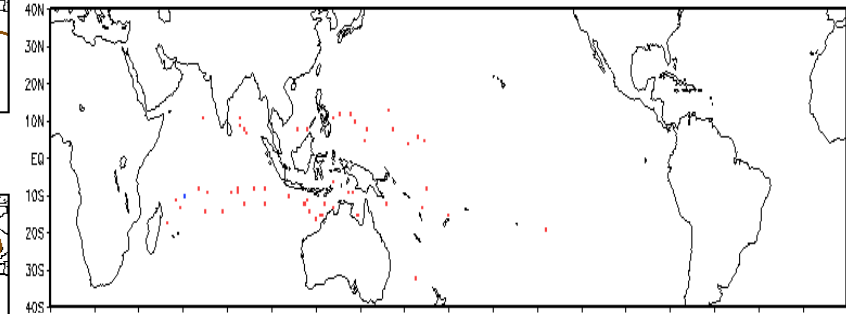


Phase 4

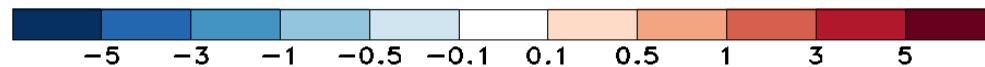
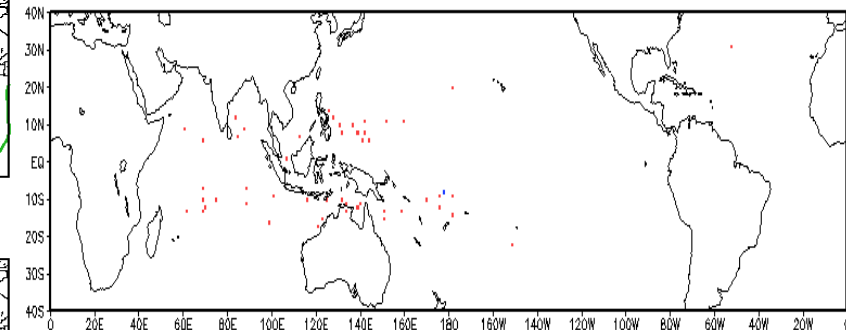


Phase 8

Observed TC Genesis, 1979-2021
7-day Period 1213 to 1219

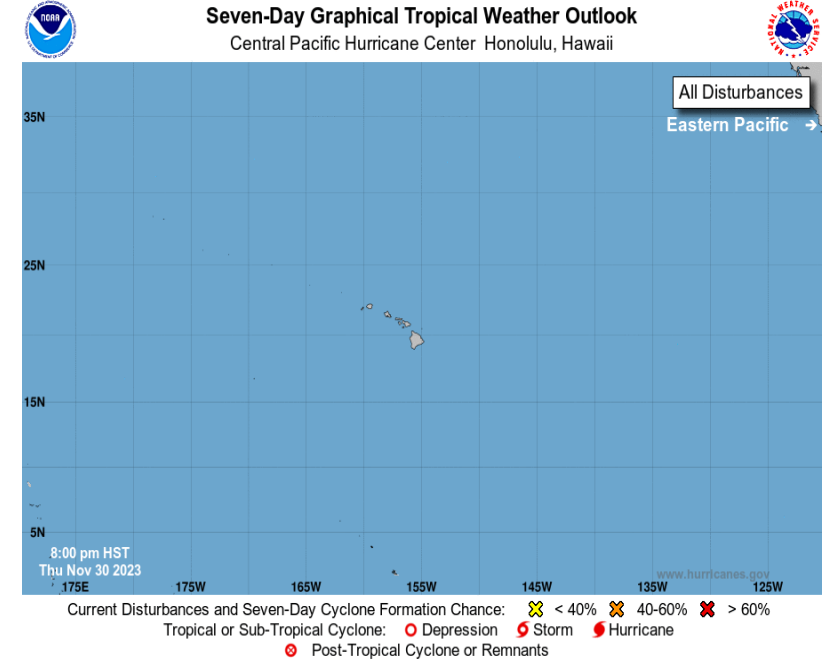
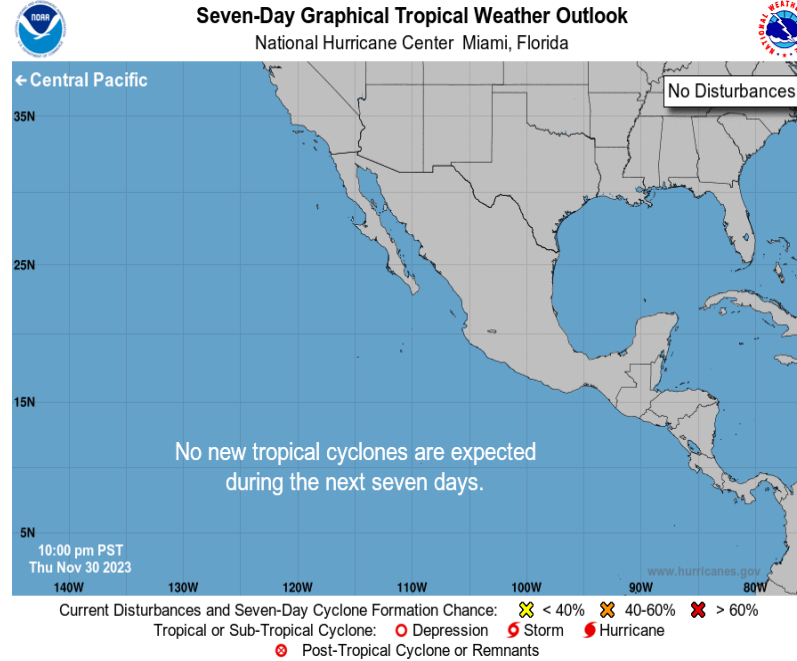
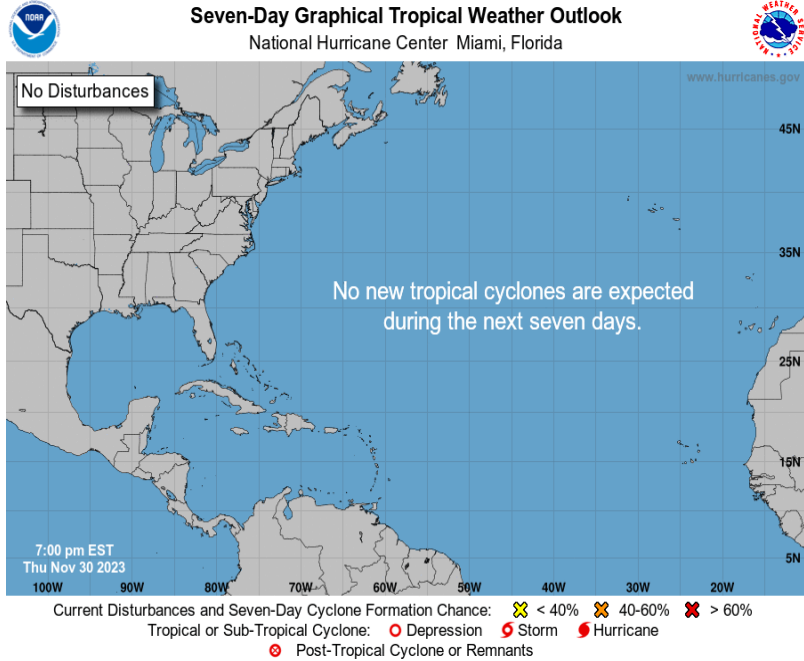


Observed TC Genesis, 1979-2021
7-day Period 1220 to 1226



Experimental

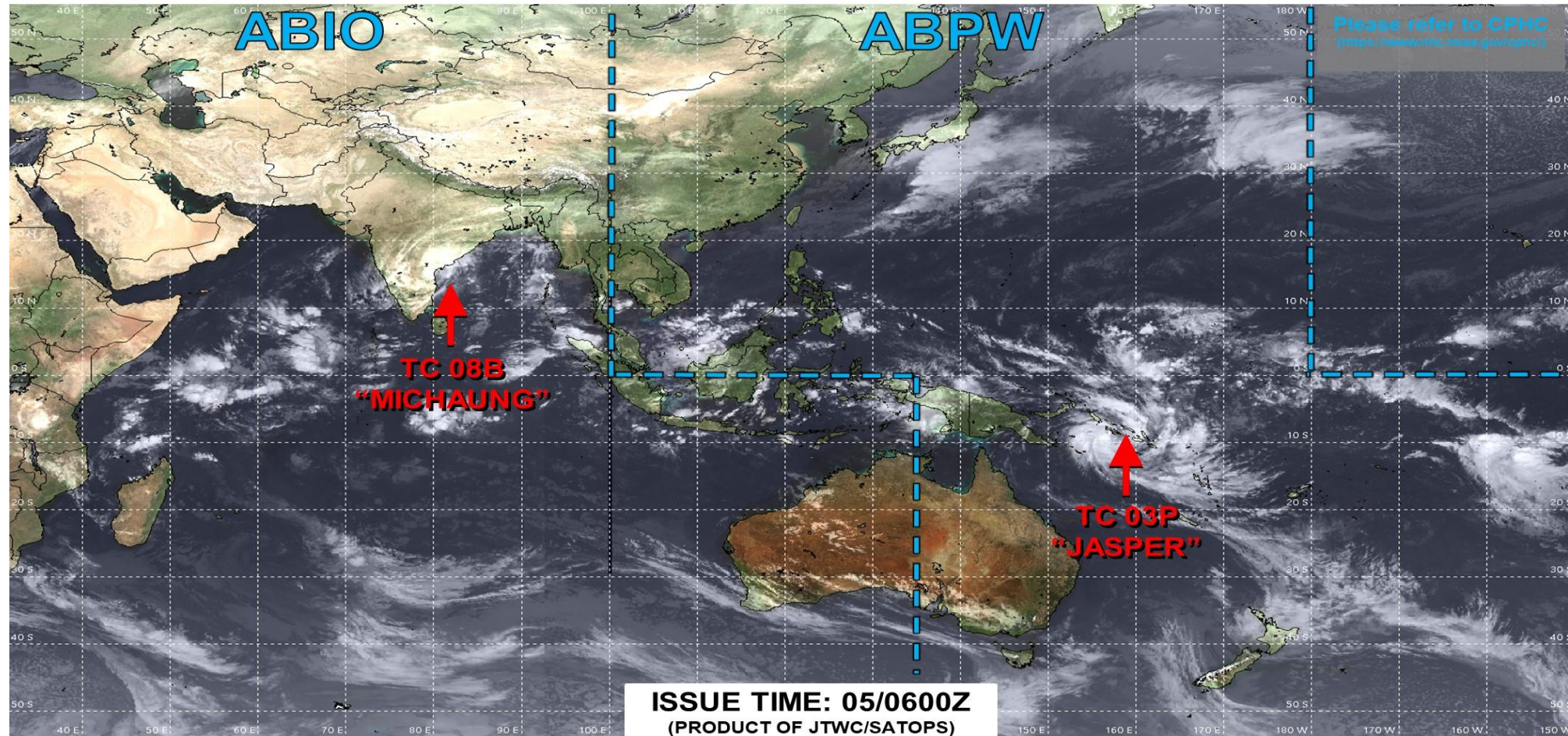
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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

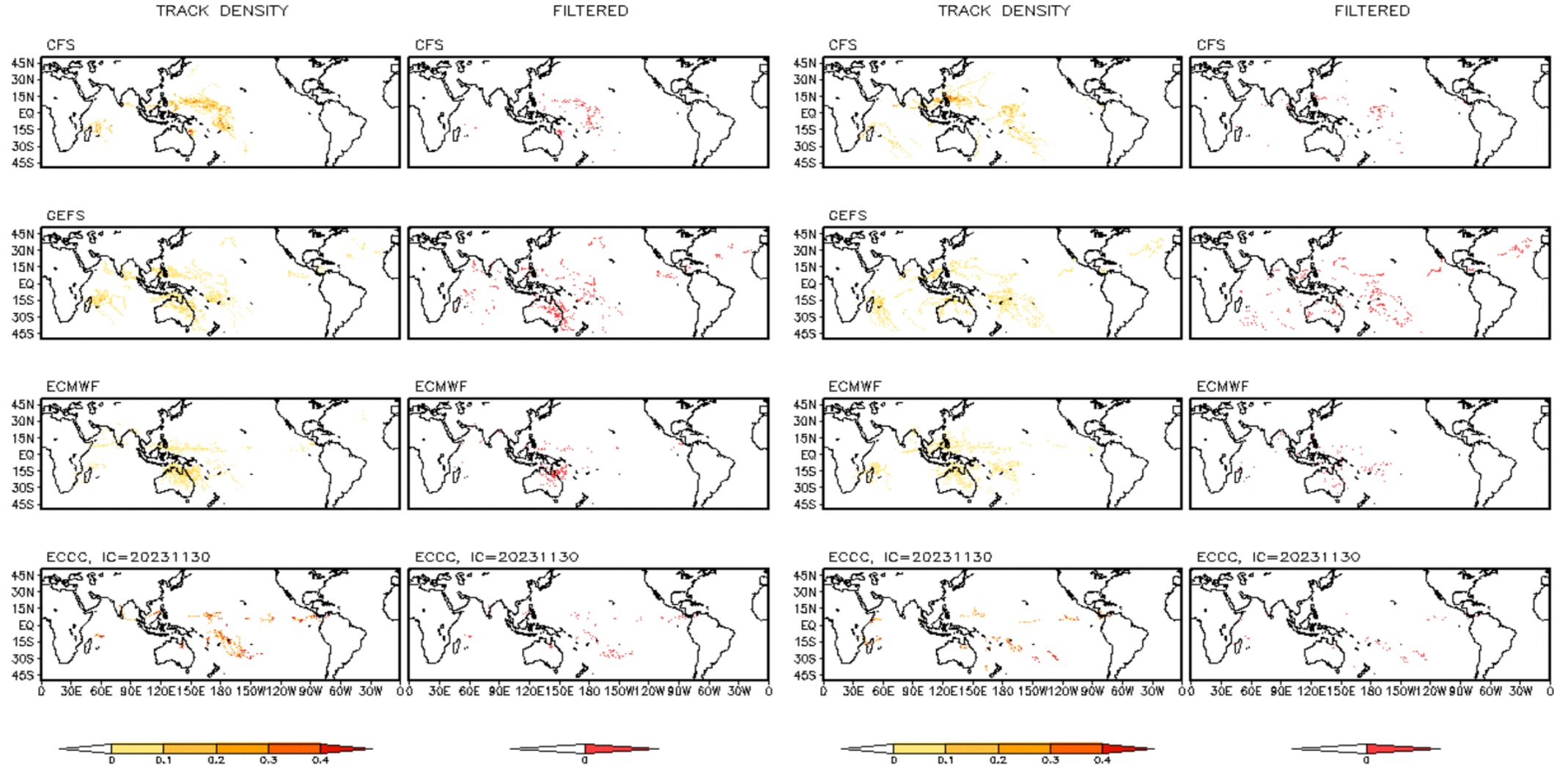


Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

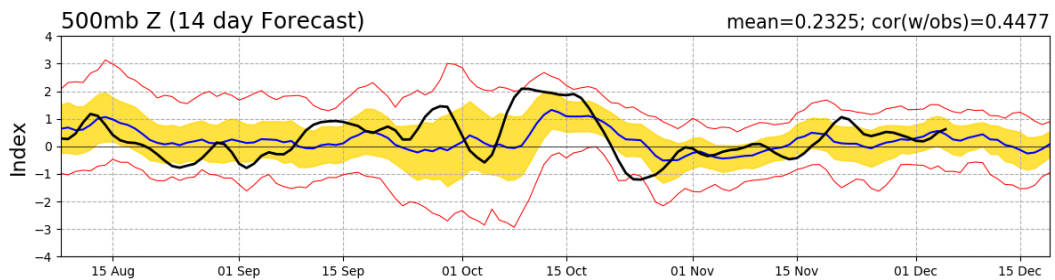
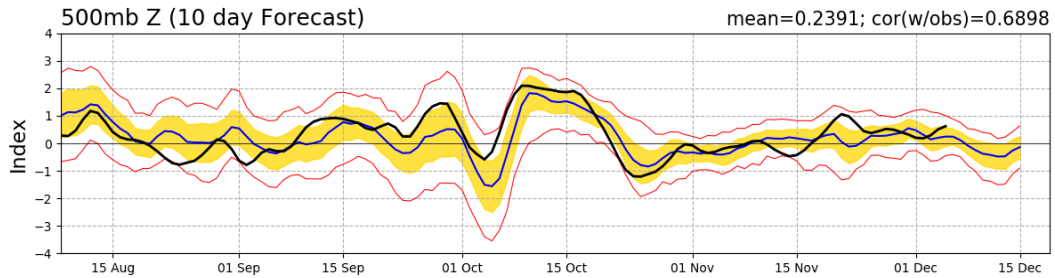
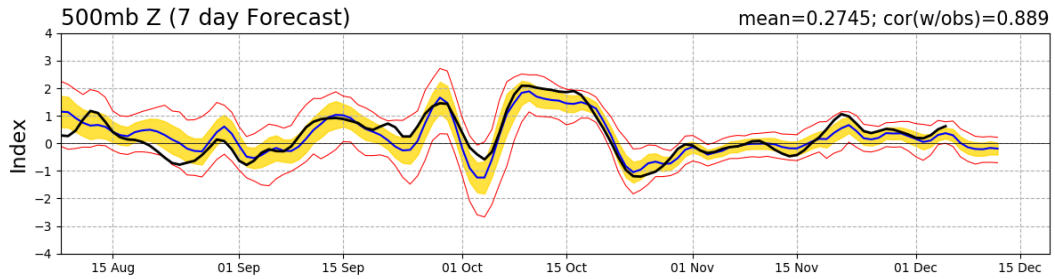
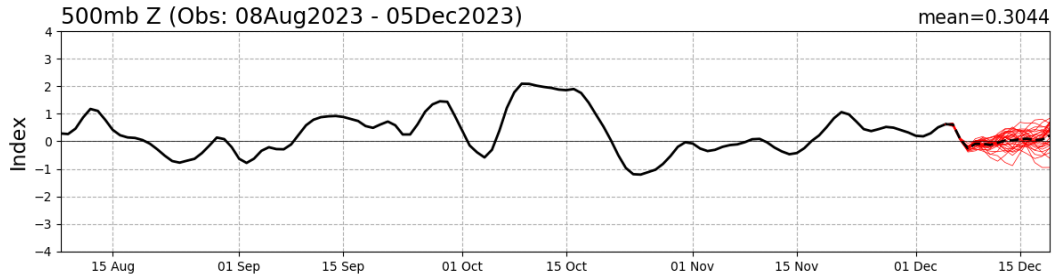
Storm Track Density Distribution, IC=20231204
Week 2 Forecast: 1213-1219

Storm Track Density Distribution, IC=20231204
Week 3 Forecast: 1220-1226

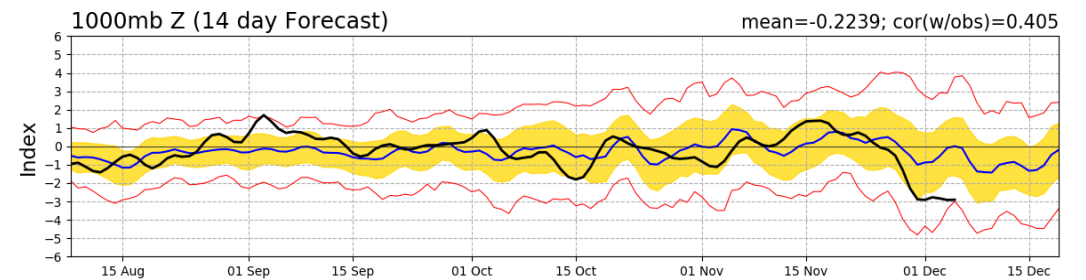
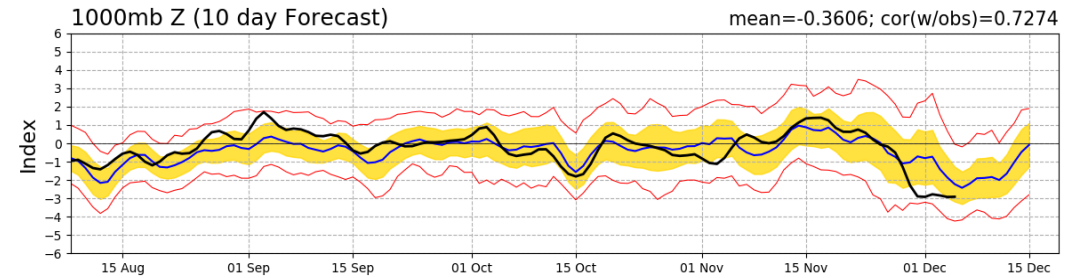
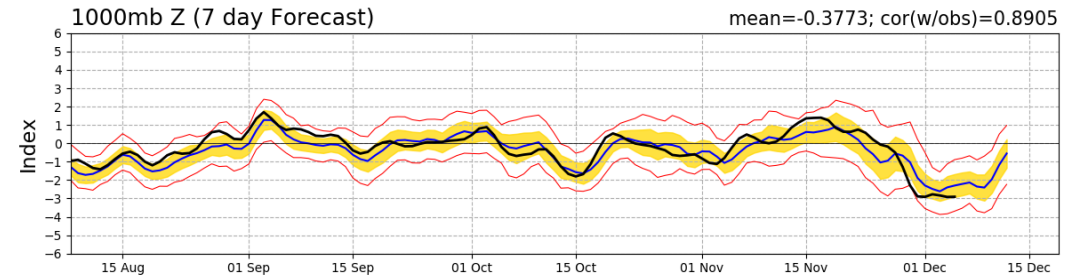
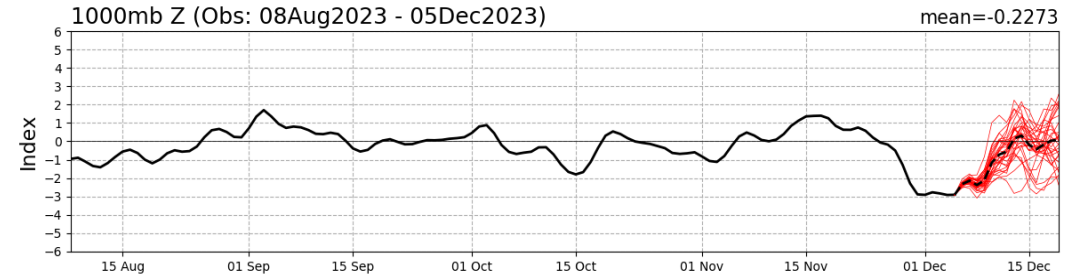


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

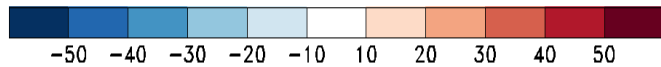
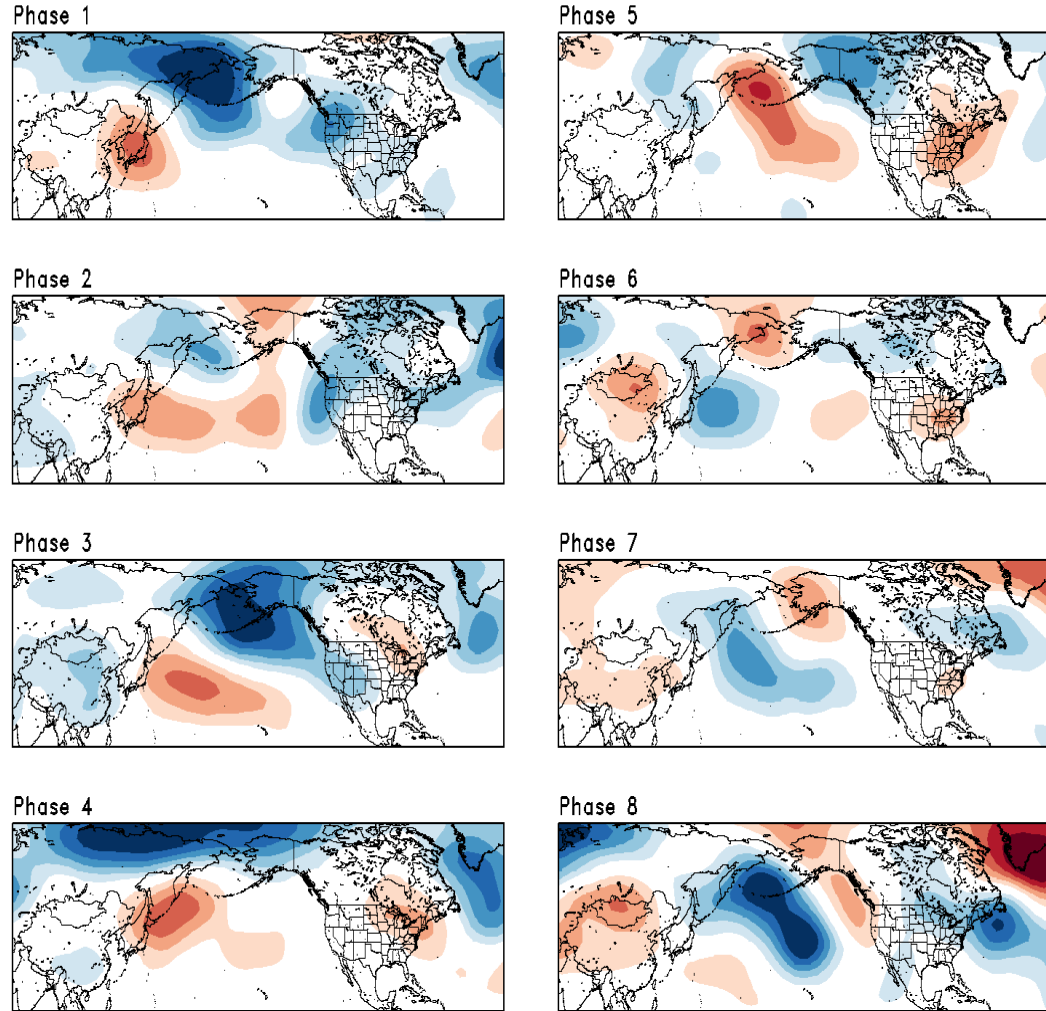


AO Index: Observed & GEFS Forecasts

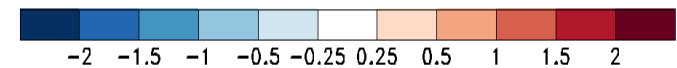
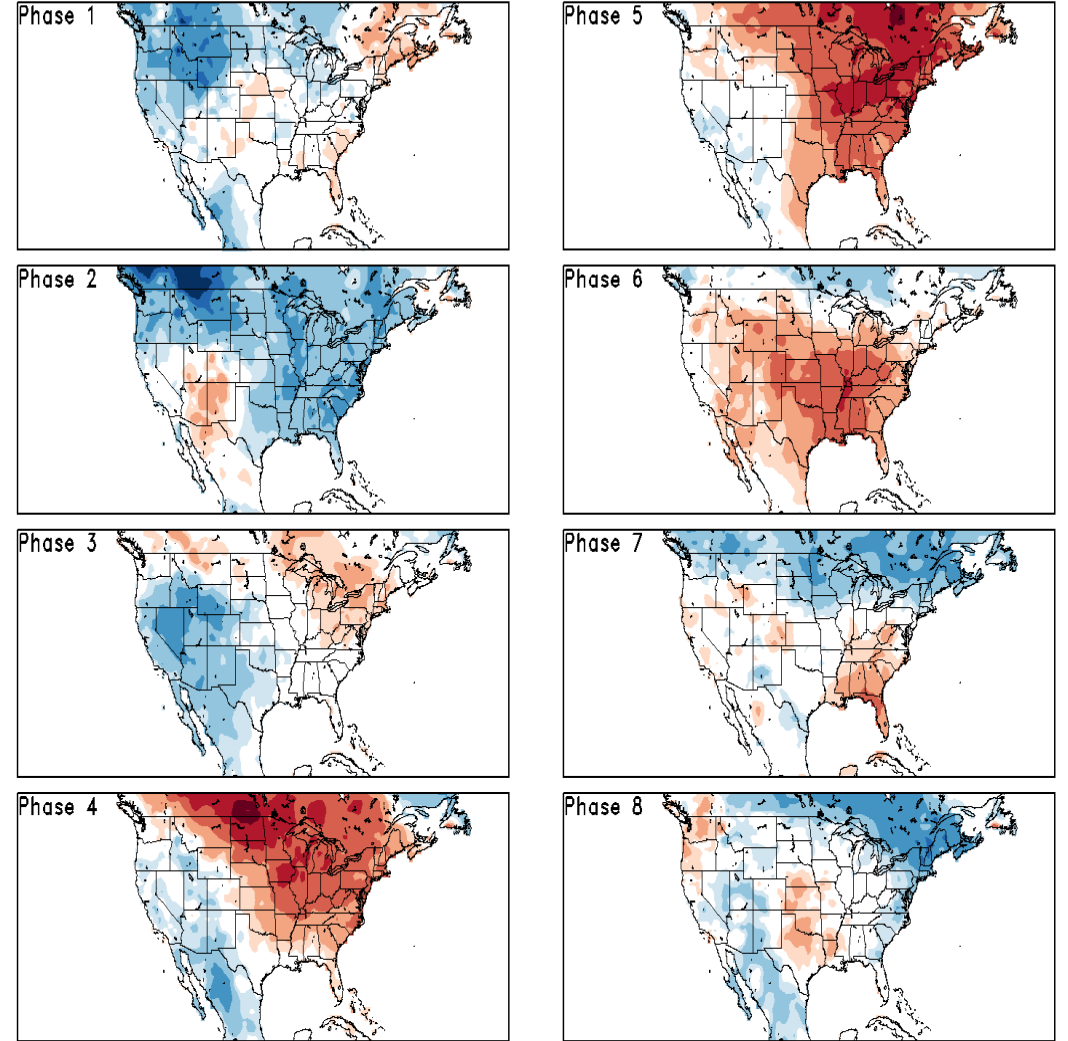


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

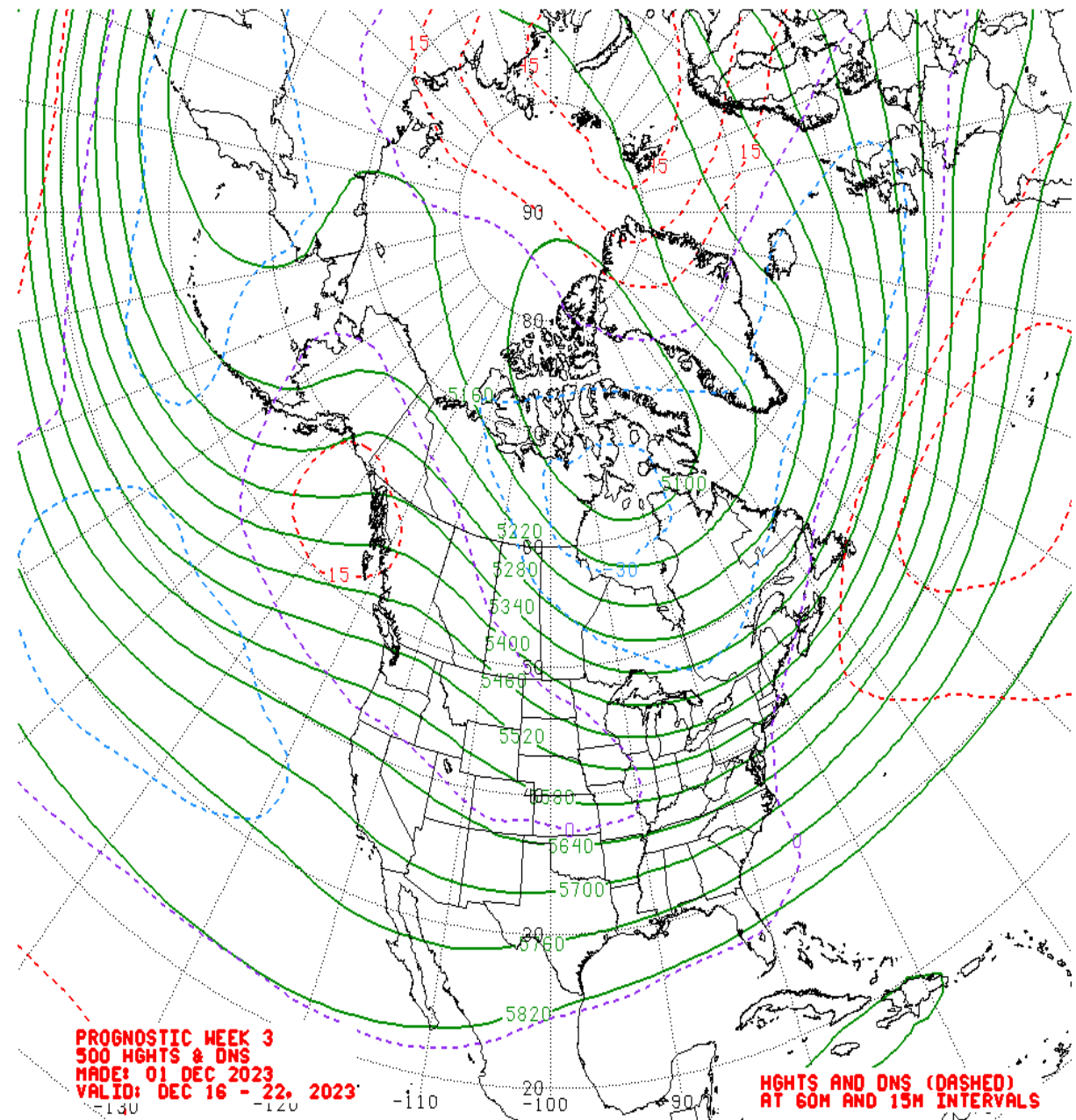
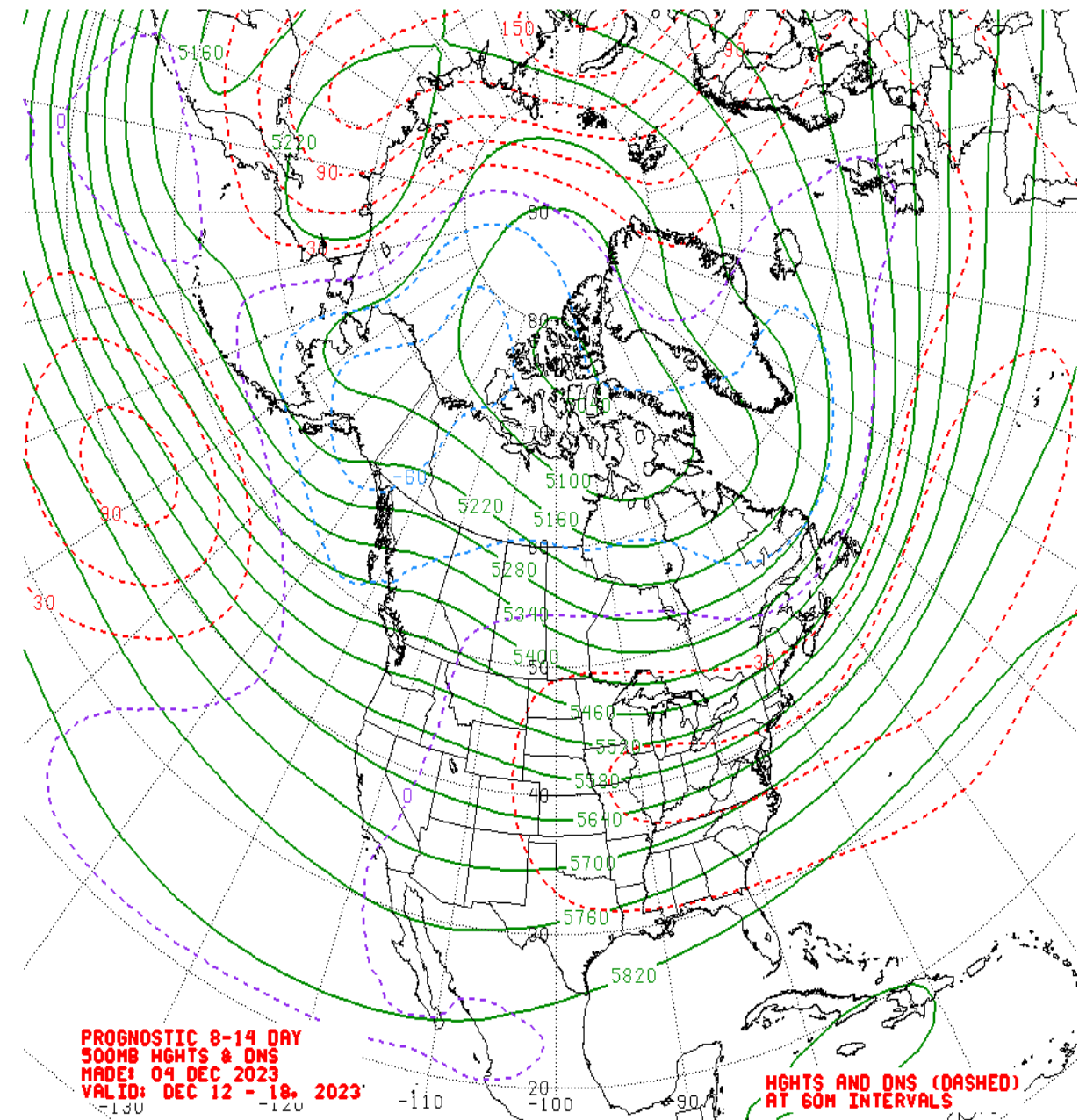
NDJ MJO Composite: CDAS 500-hPa Height (m)



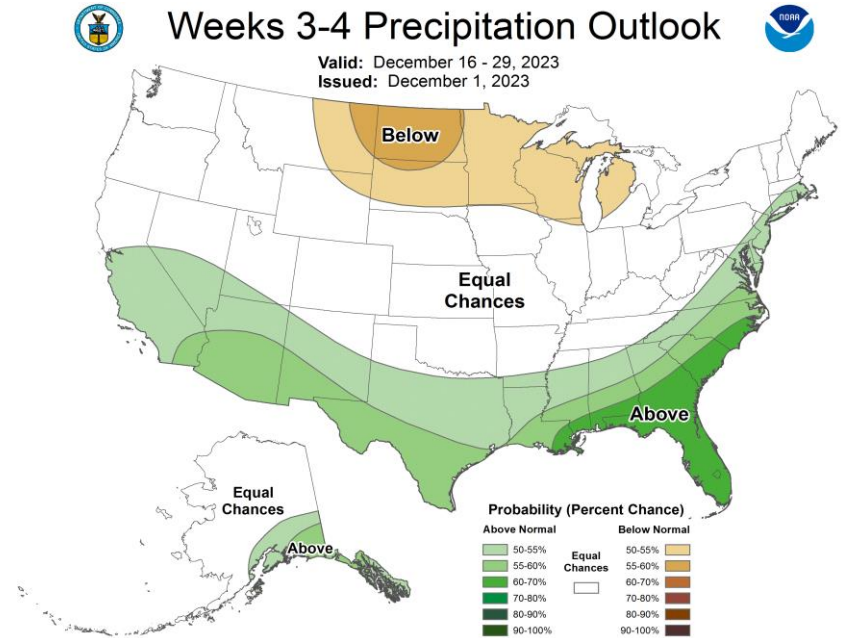
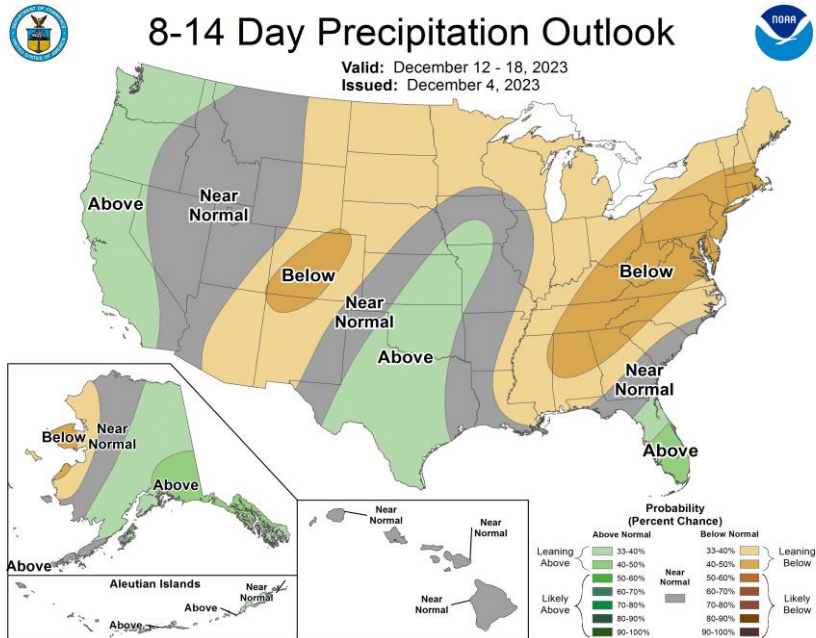
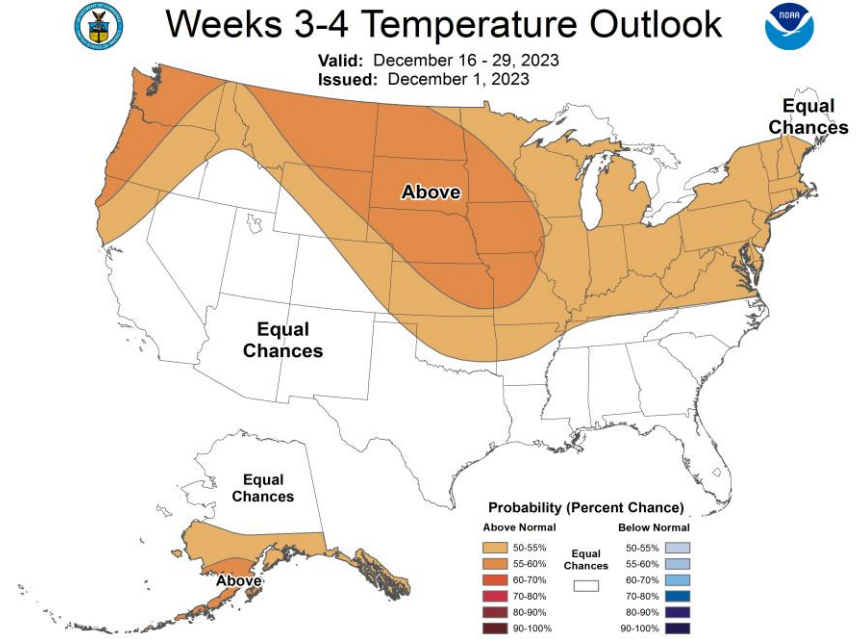
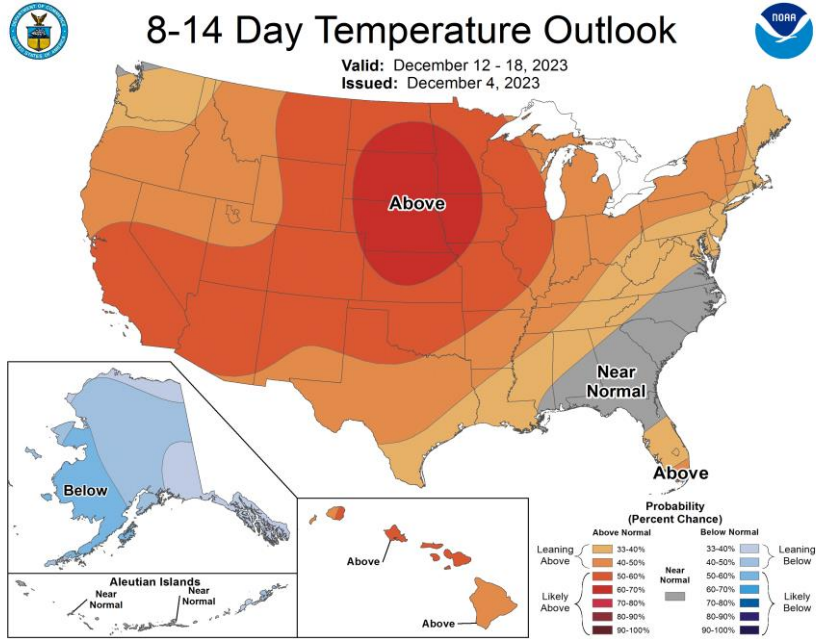
NDJ MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



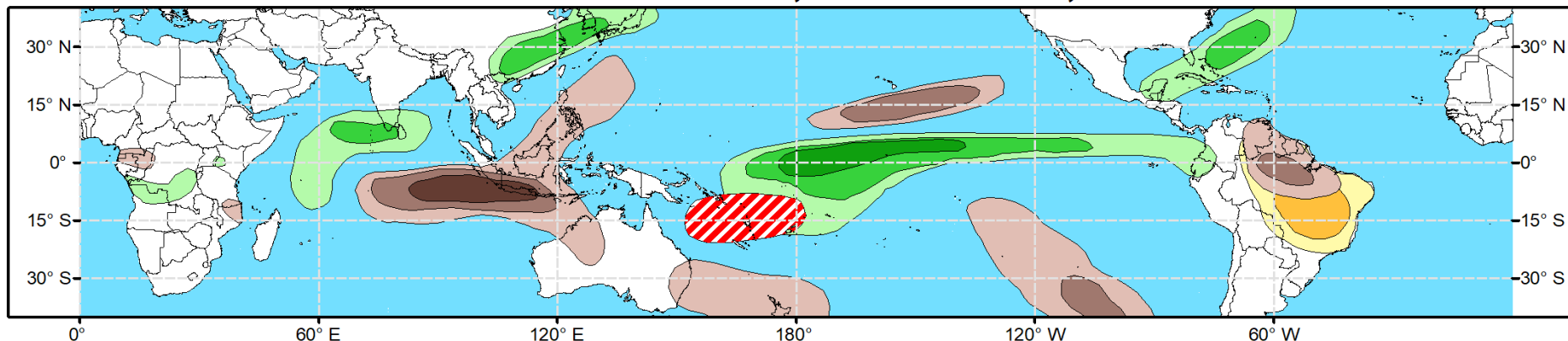


Global Tropics Hazards Outlook

Climate Prediction Center

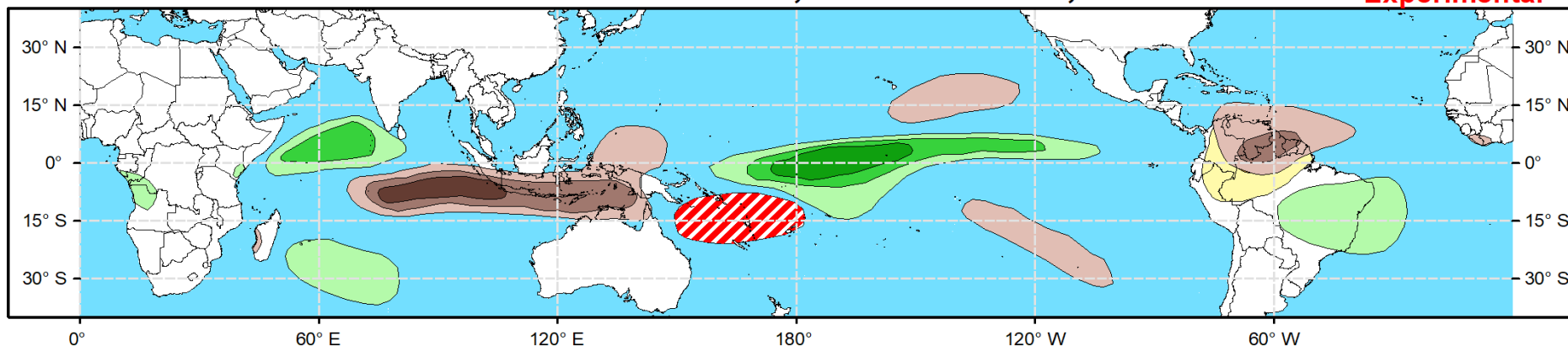


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