



Weeks 2-3 Global Tropics Hazards Outlook

11/28/2023

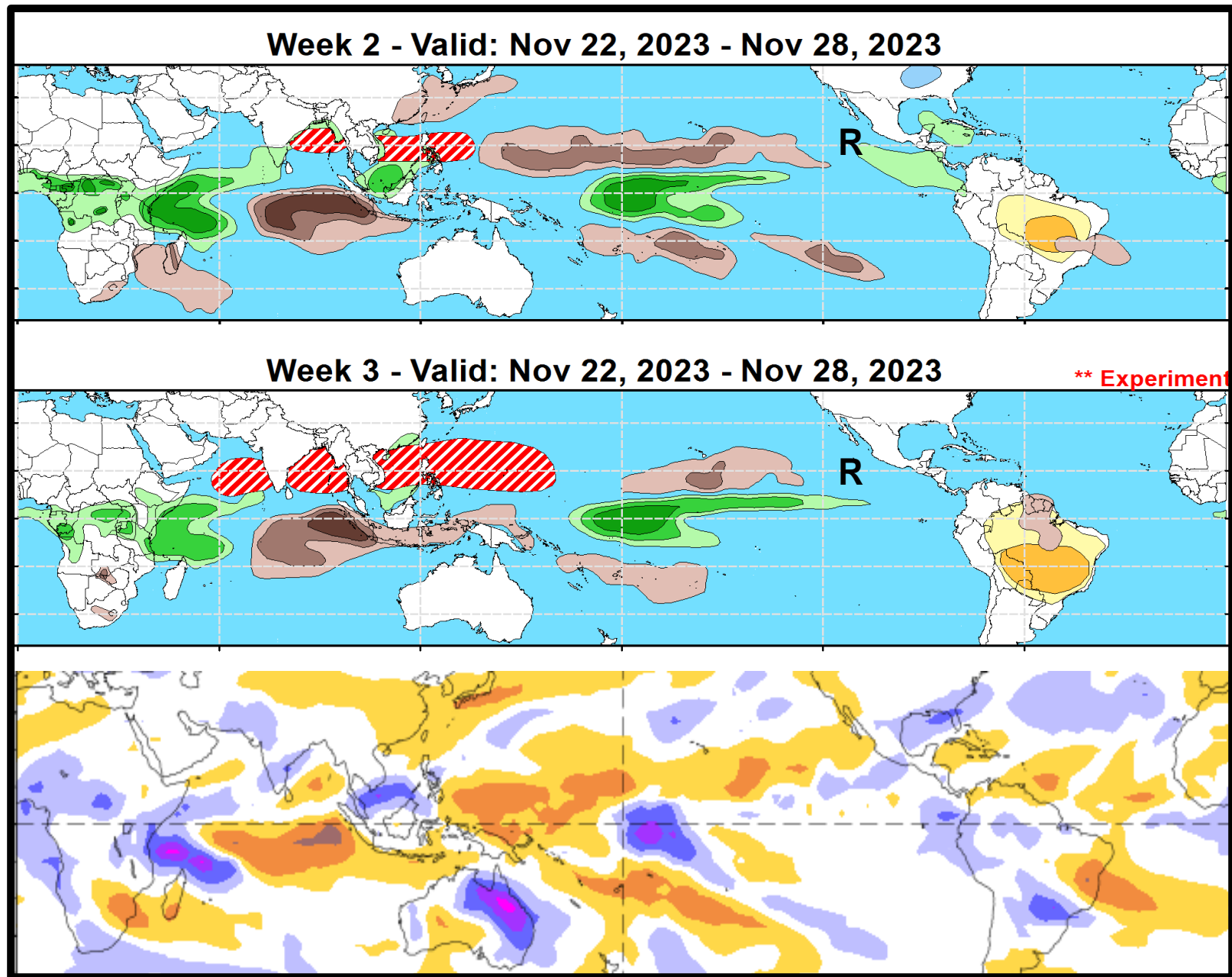
Thomas Collow

NWS / NCEP / Climate Prediction Center

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

TCs formed in the past week

- Ramon (East Pacific, 11/23)



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:

- An amplified RMM-based MJO continues to propagate eastward across the Indian Ocean
- The MJO, along with other competing modes of tropical variability, has resulted in a weakening of the canonical El Niño pattern across the global tropics.
- This is forecast to be short-lived given the increasing sea surface temperatures (SSTs) over the Central Pacific, and the MJO possibly beginning to constructively interfere with El Niño by week-2 as the intraseasonal signal propagates eastward into the Pacific.
- Although MJO events propagating from the Indian Ocean to the Western Pacific typically lead to more ridging and warmer temperatures across the continental U.S., El Niño conditions are likely to modulate this response, especially across the East.

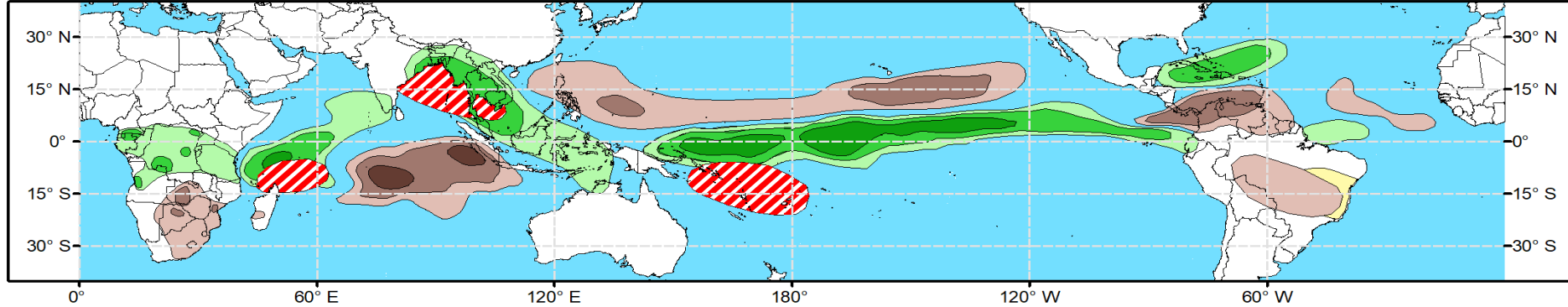
GTH Outlook:



Global Tropics Hazards Outlook Climate Prediction Center

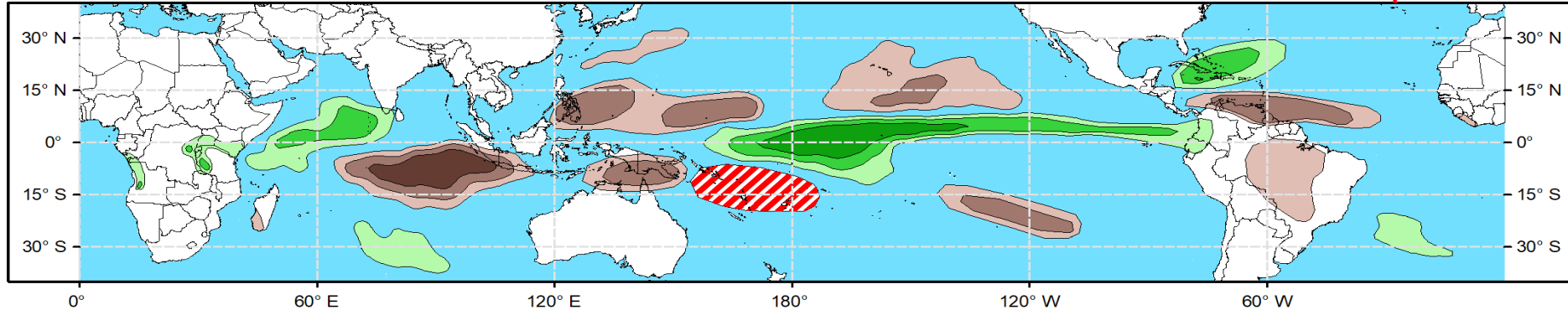


Week 2 - Valid: Dec 06, 2023 - Dec 12, 2023



Week 3 - Valid: Dec 13, 2023 - Dec 19, 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**



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Weekly total rainfall in the
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**Above-Average
Temperatures Probability**



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7-day max temperatures in the
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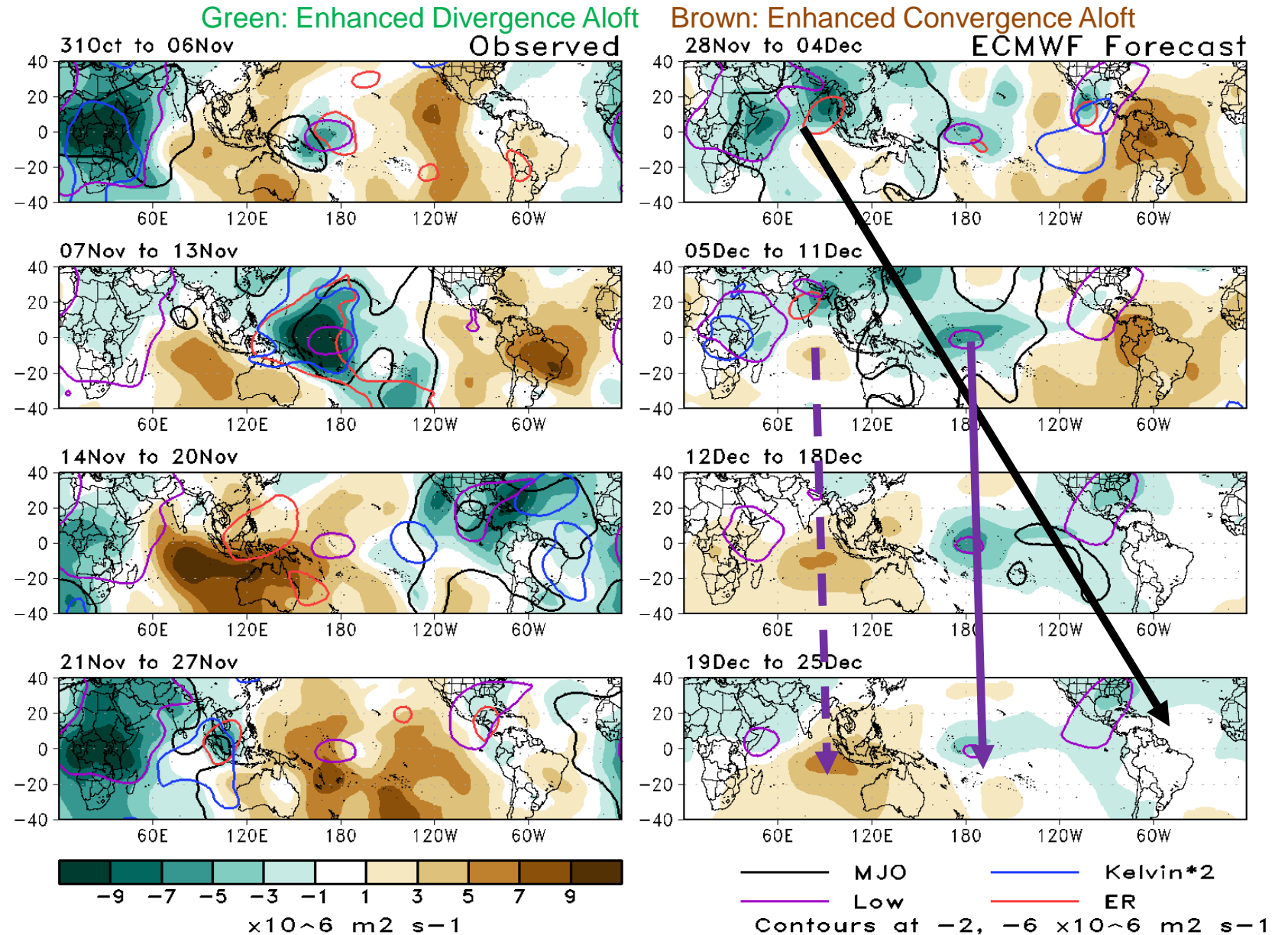
Issued: 11/28/2023

Forecaster: Collow

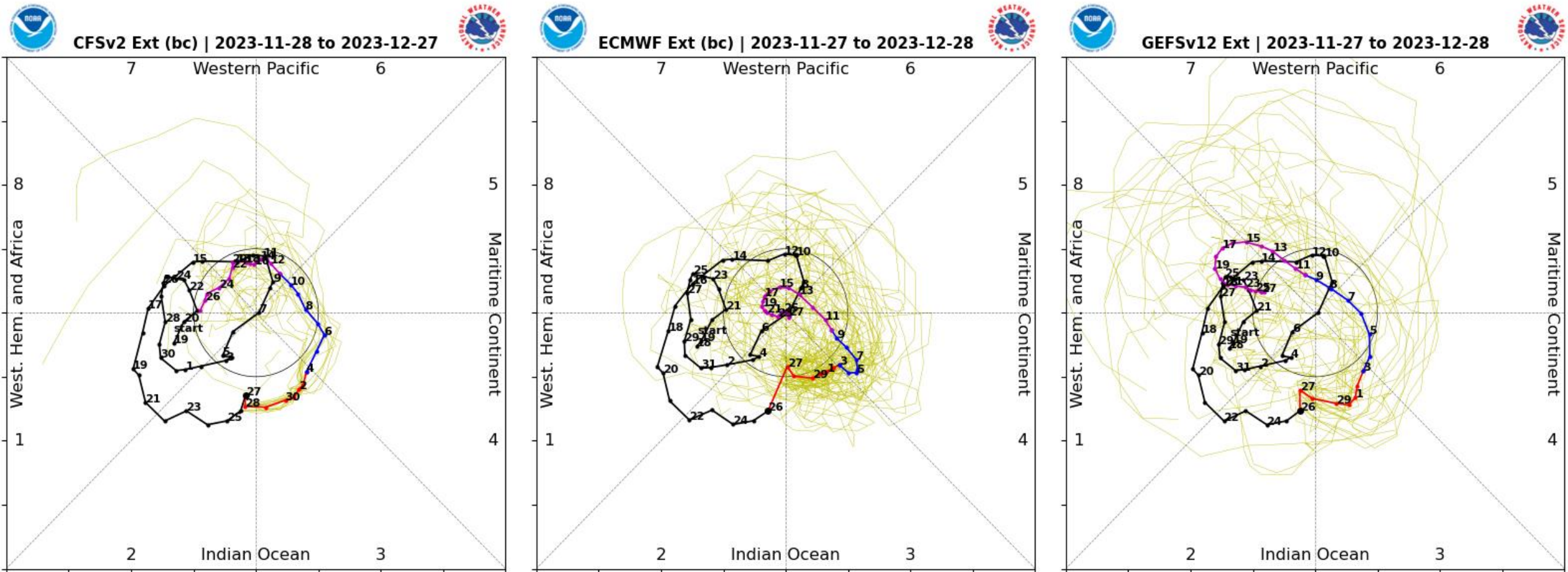
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200-hPa Velocity Potential Anomaly Maps:

- A wave-1 asymmetry pattern continues to be evident in the upper-level spatial velocity potential field during late November.
- **MJO** propagation across the Pacific and into the Western Hemisphere is depicted during December.
- Convective pattern typically associated with the **low frequency El Niño** base state is forecast to reemerge in the next 2 weeks following the MJO propagation.

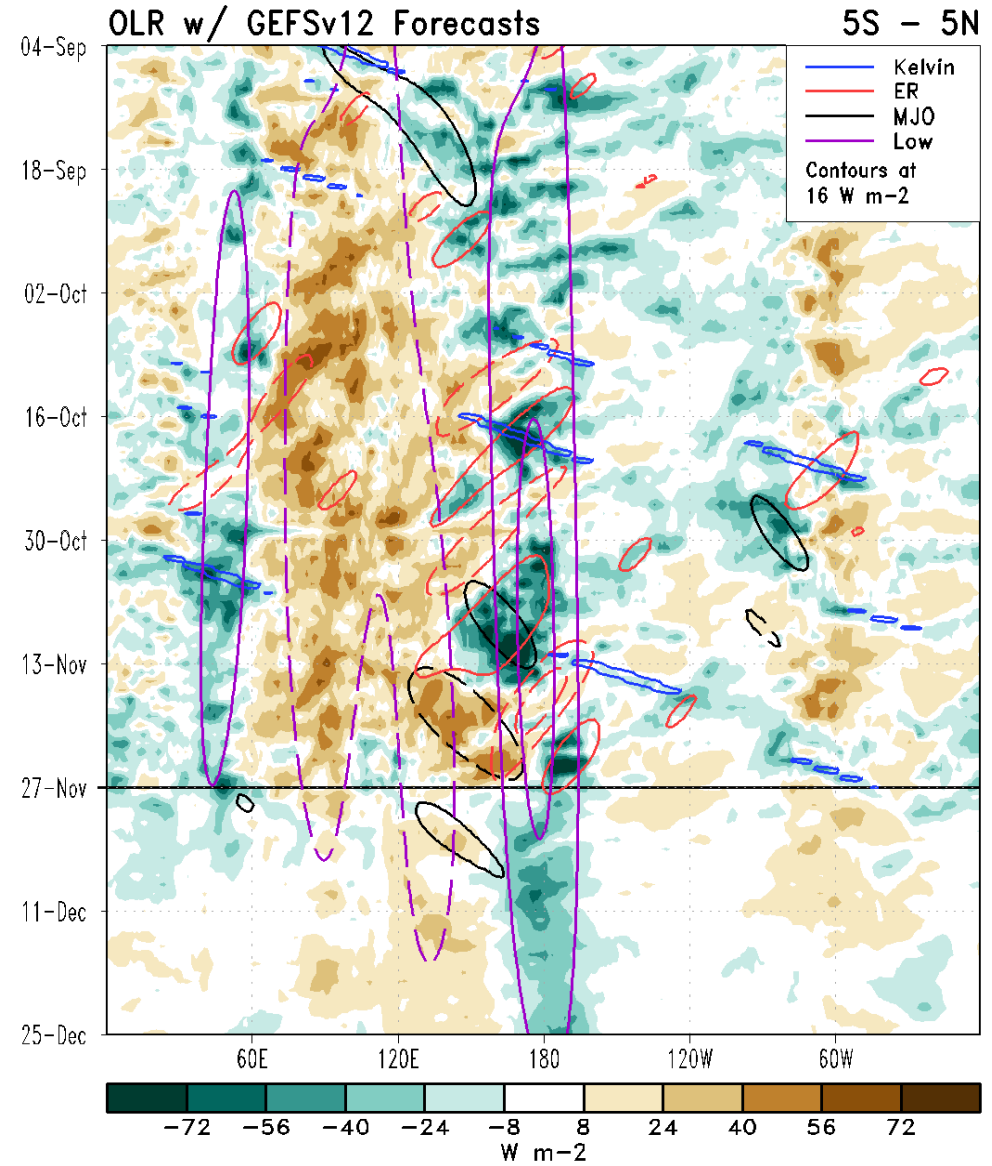
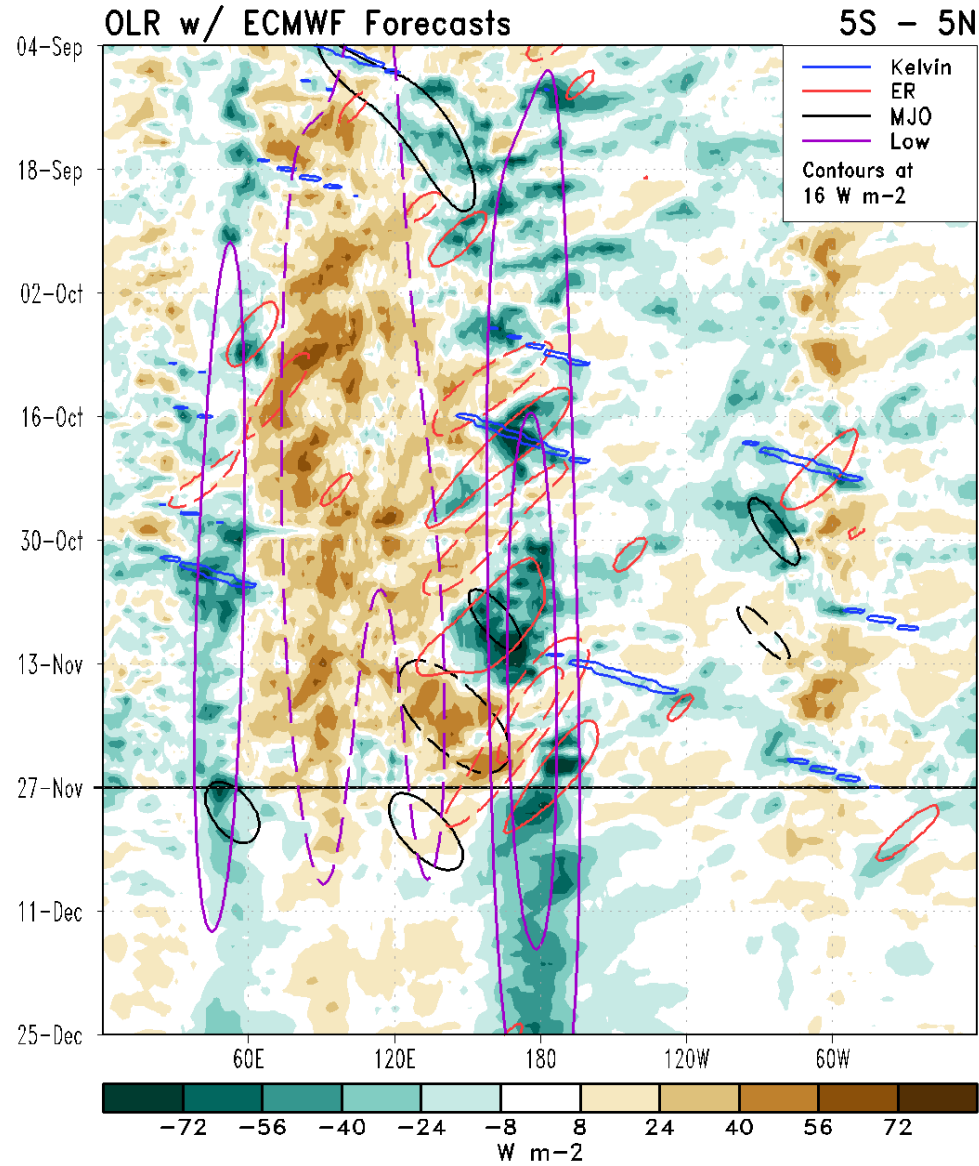


RMM Index Observations & Forecasts:



- The CFSv2, ECMWF, and GFS ensembles are in good agreement that the MJO will remain amplified and propagate eastward into the Maritime Continent and Pacific during the next 2-3 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.

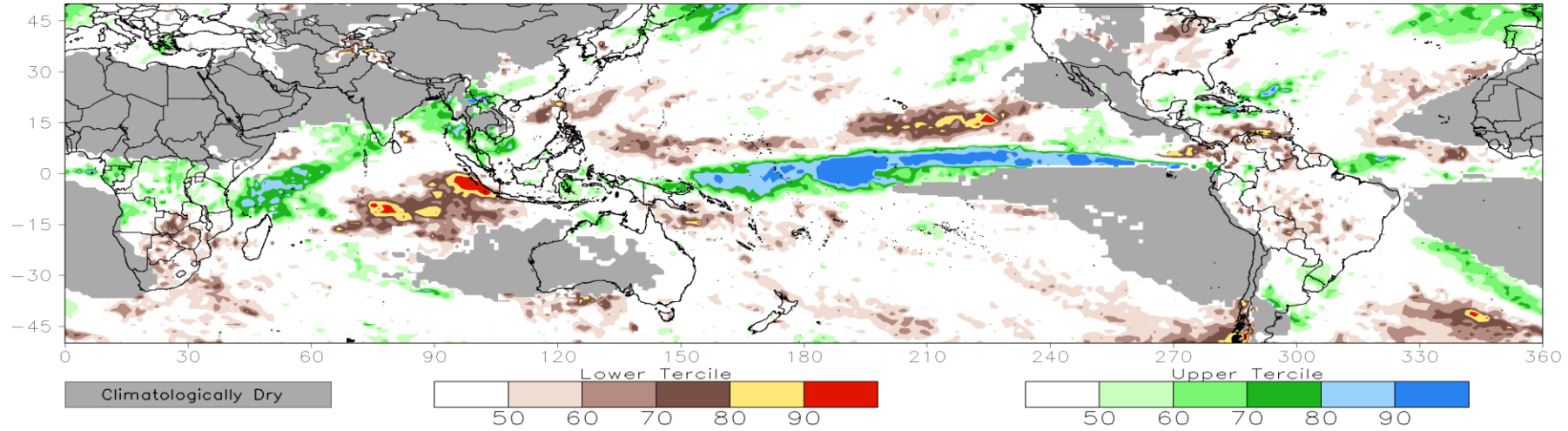
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

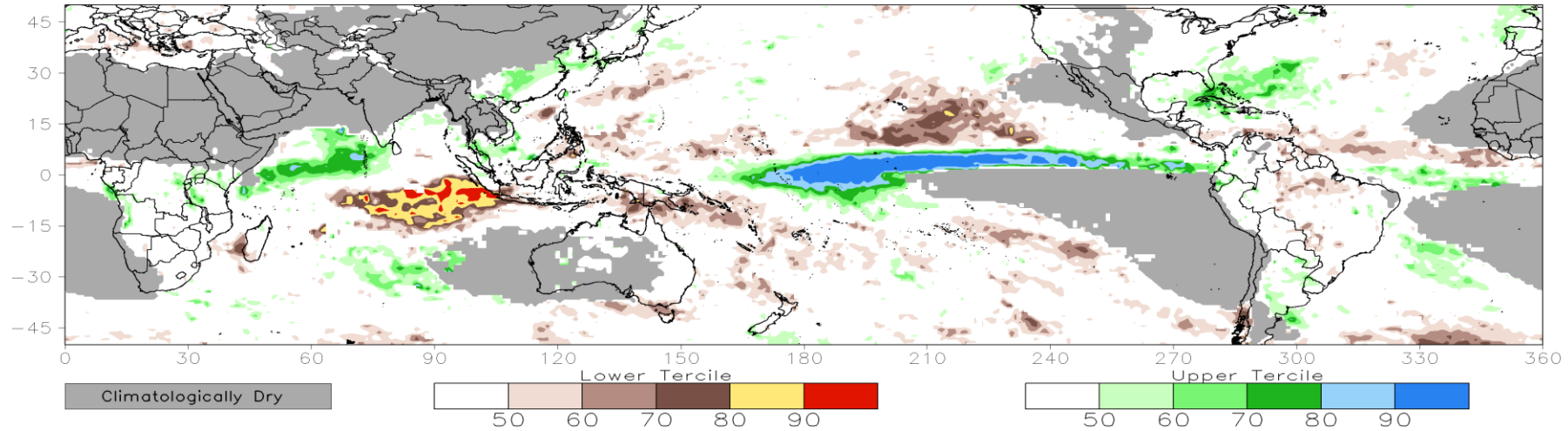
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 06Dec2023–12Dec2023



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

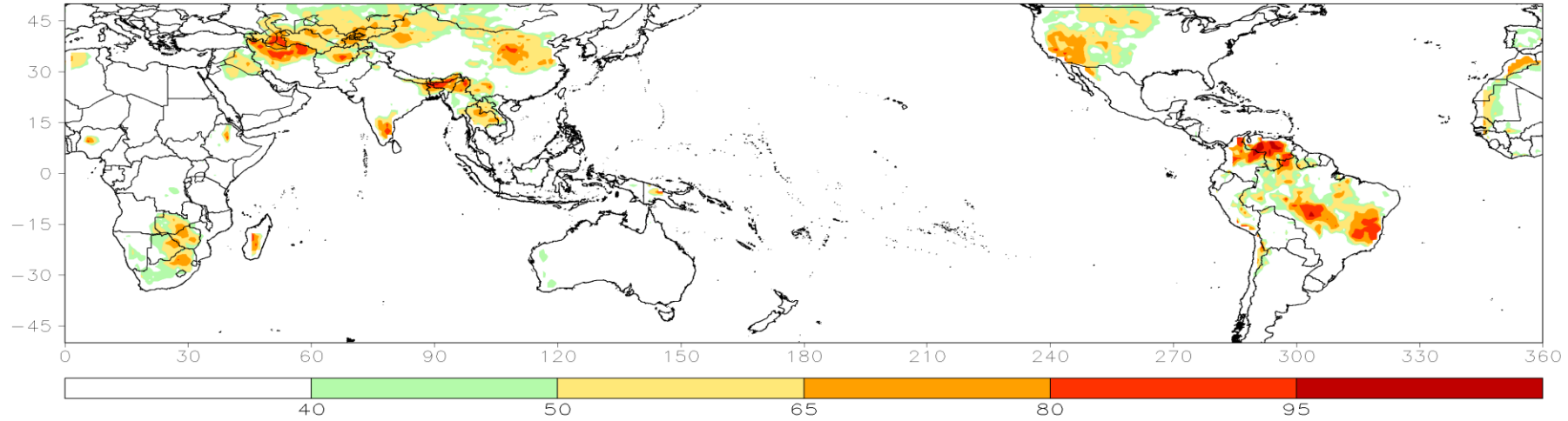
Valid: 13Dec2023–19Dec2023



Consolidated Probabilistic Temperatures: Week-2

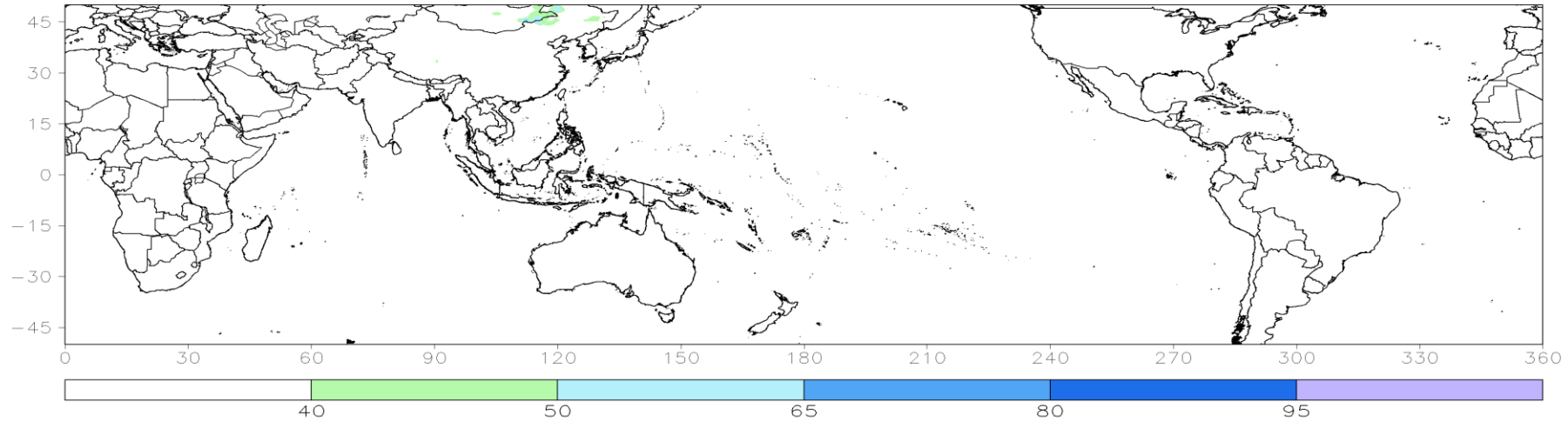
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 06Dec2023–12Dec2023



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

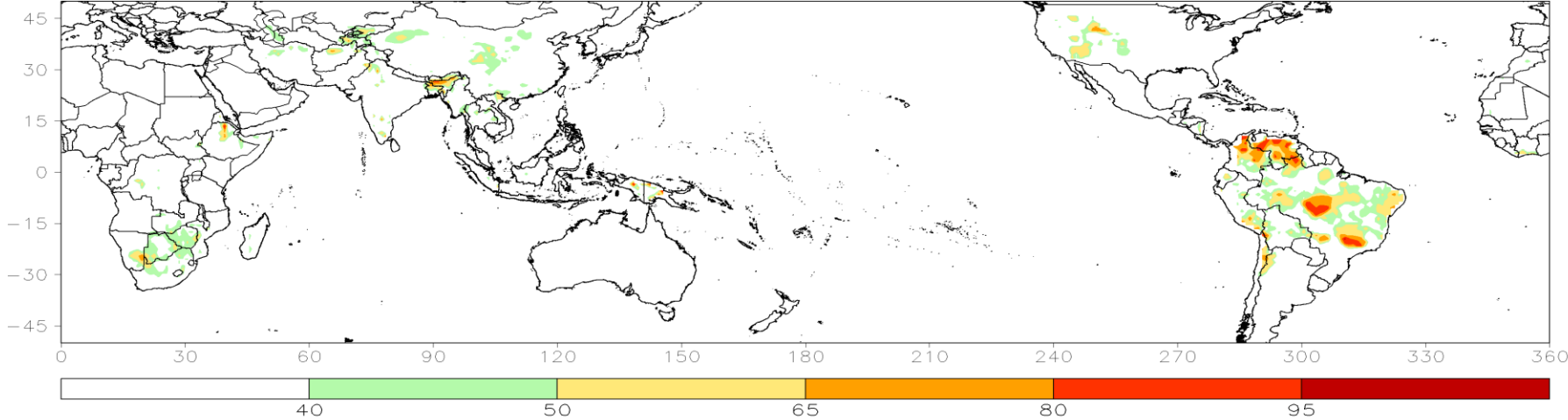
Valid: 06Dec2023–12Dec2023



Consolidated Probabilistic Temperatures: Week-3

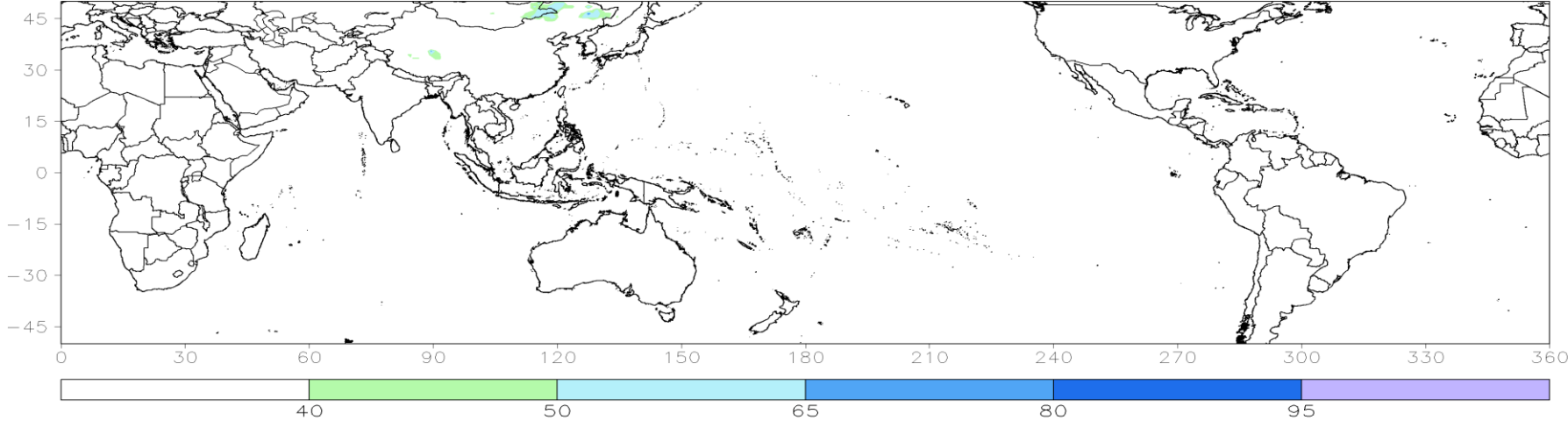
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 13Dec2023-19Dec2023



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

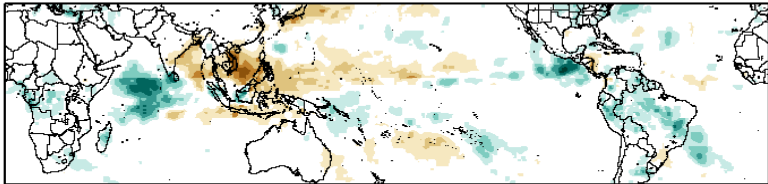
Valid: 13Dec2023-19Dec2023



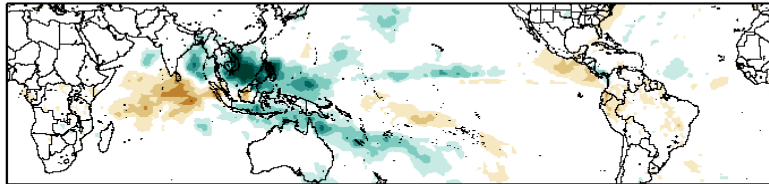
Historical Precipitation Anomalies By MJO Phase:

OND MJO Composite: GPCP1DD (mm/day)

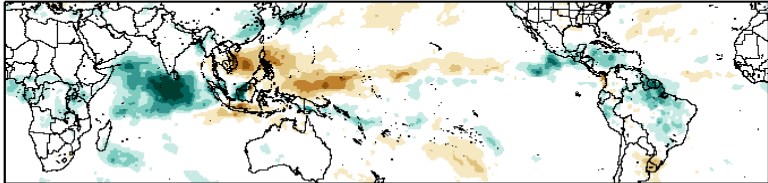
Phase 1



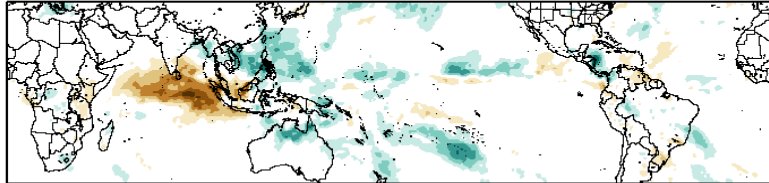
Phase 5



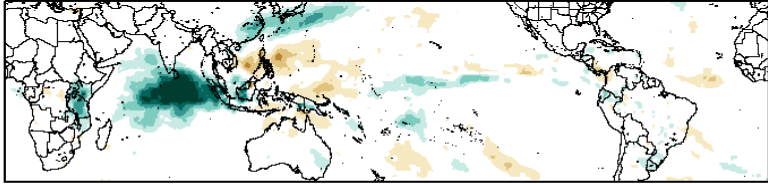
Phase 2



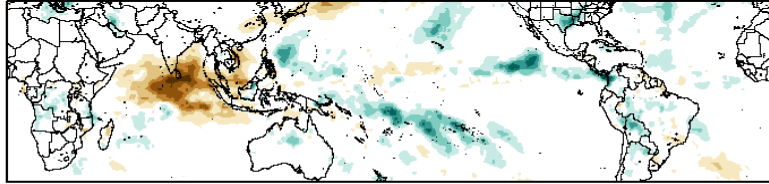
Phase 6



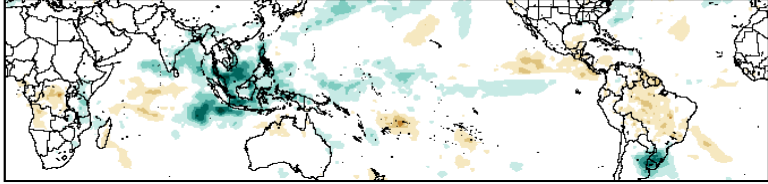
Phase 3



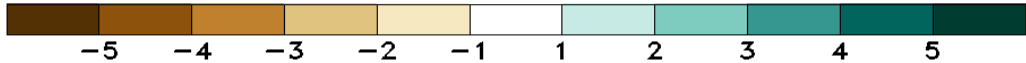
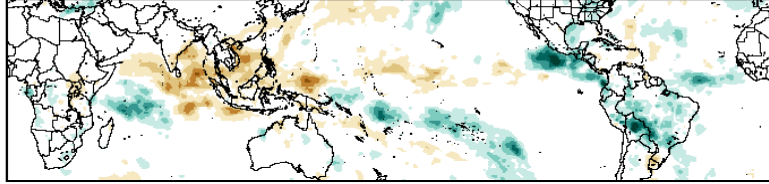
Phase 7



Phase 4

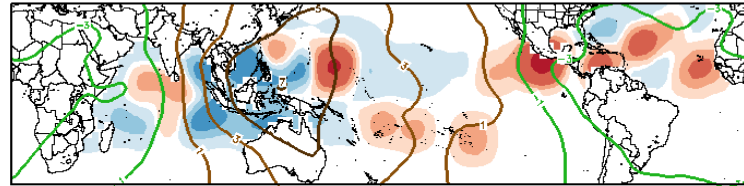


Phase 8

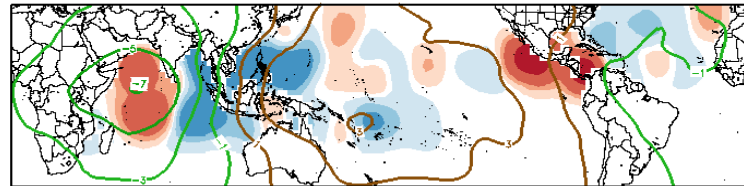


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

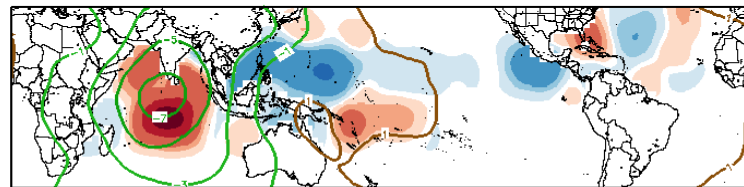
OND MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ OND CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



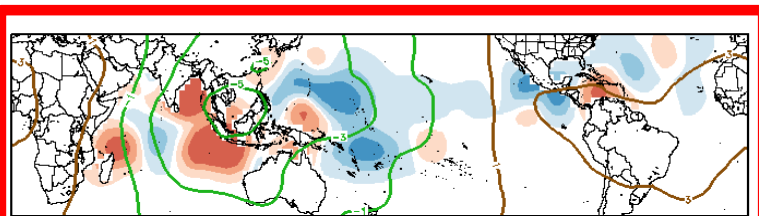
Phase 1



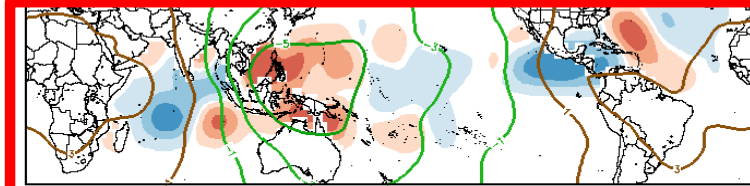
Phase 2



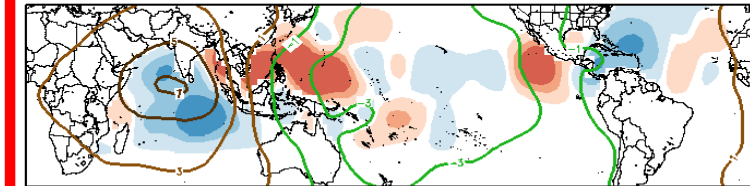
Phase 3



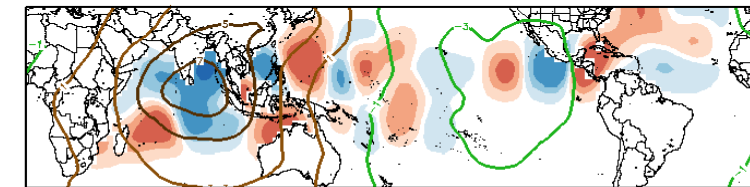
Phase 4



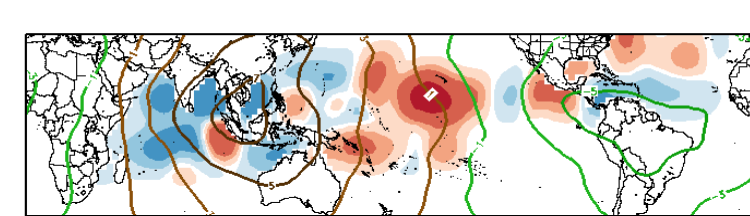
Phase 5



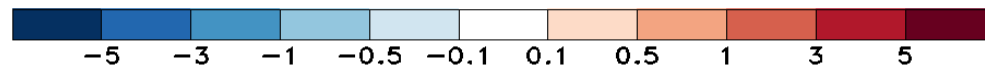
Phase 6



Phase 7

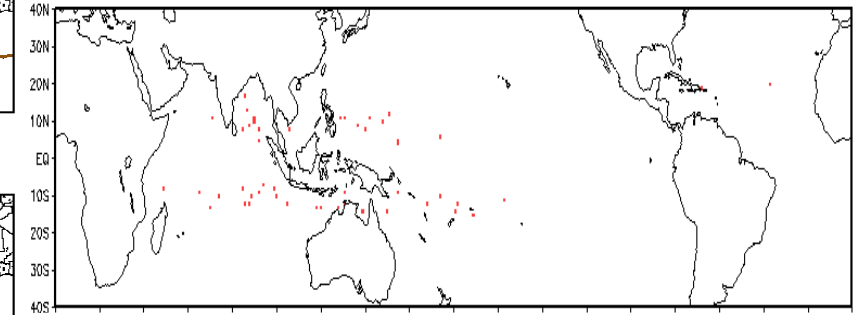


Phase 8

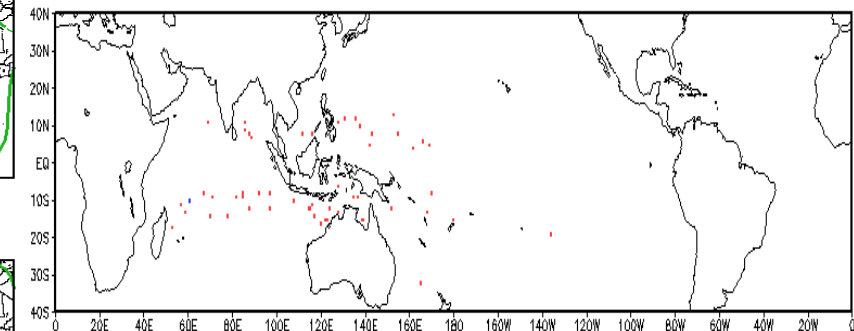


Experimental

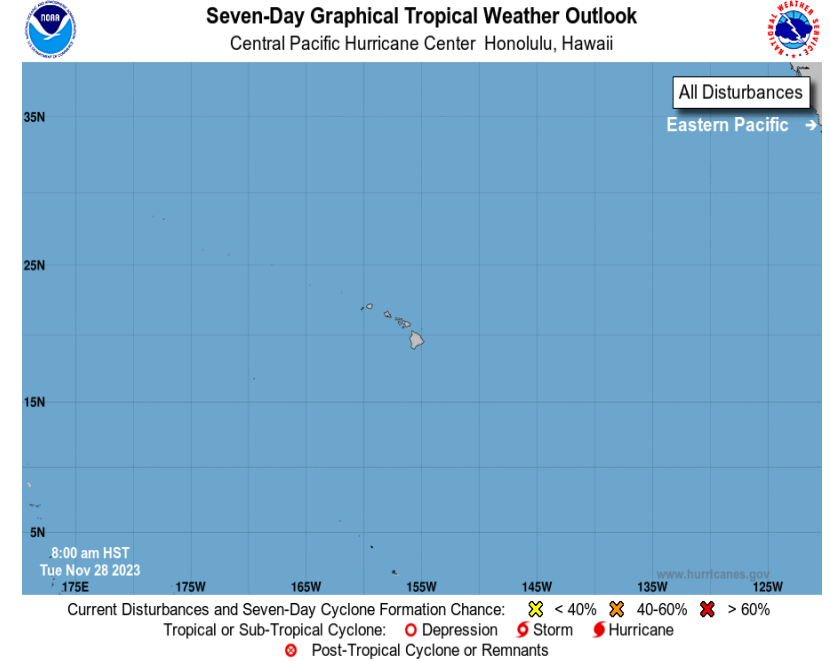
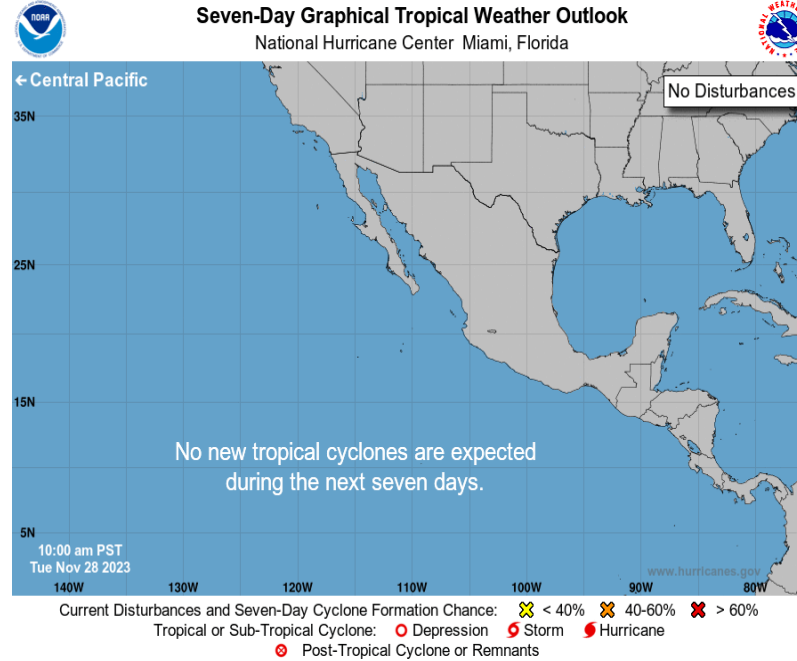
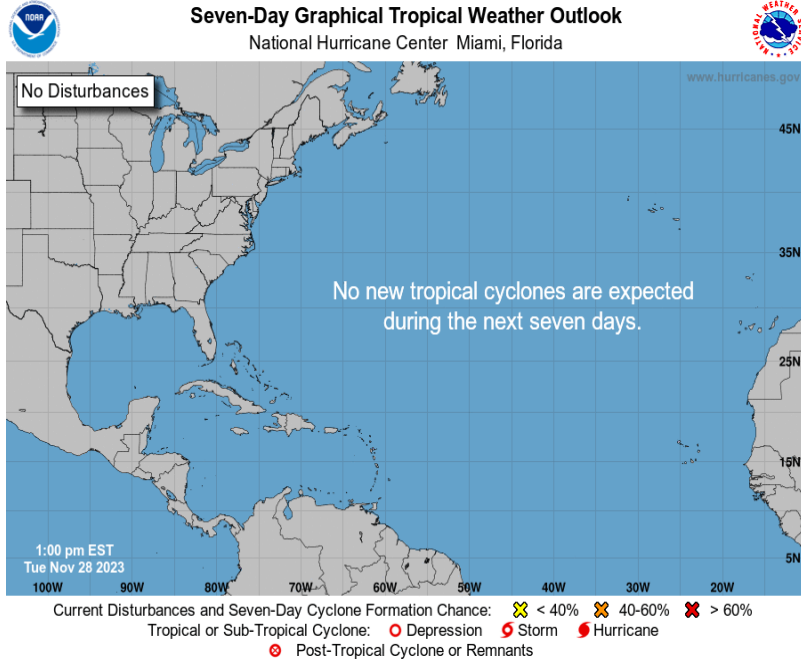
Observed TC Genesis, 1979-2021
7-day Period 1206 to 1212



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



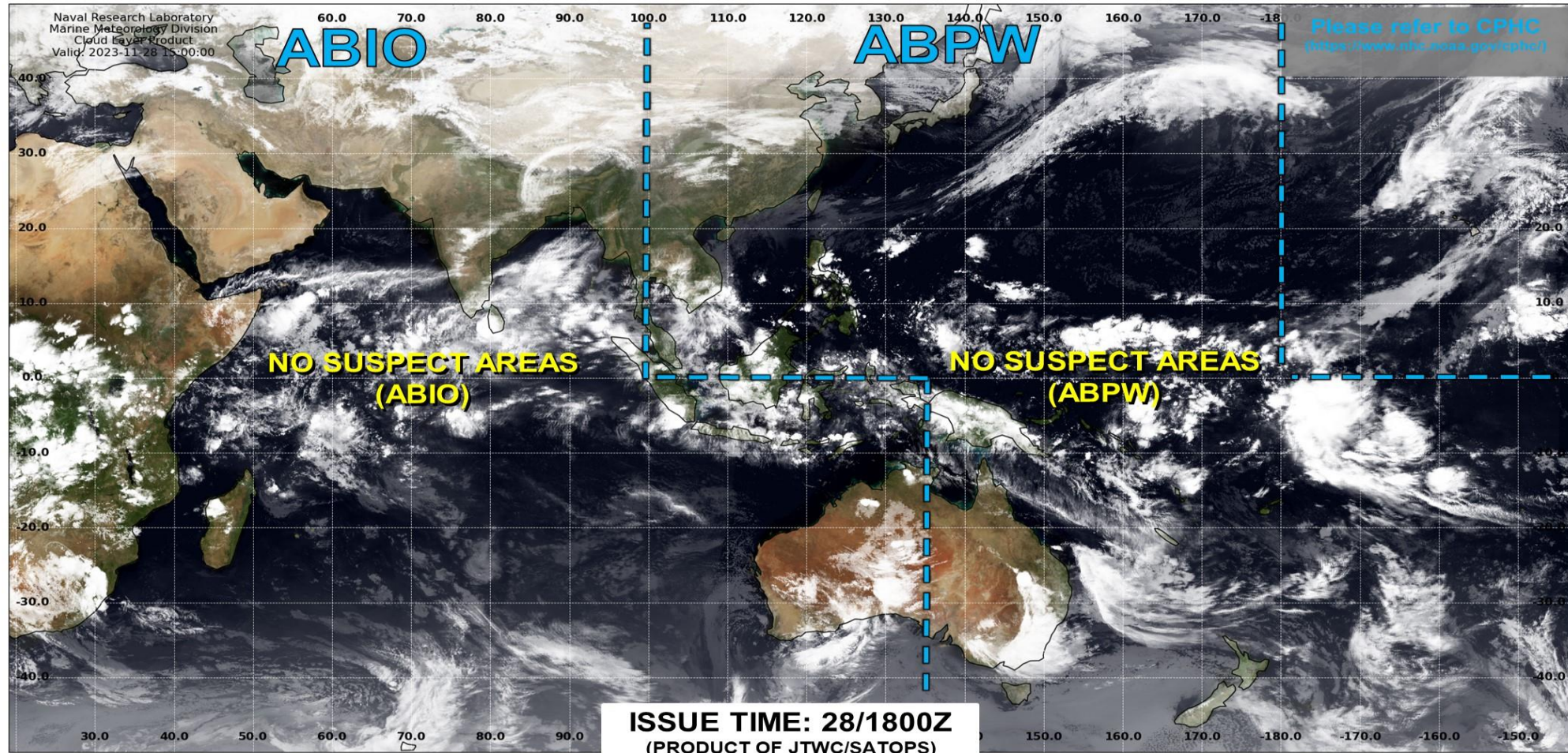
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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



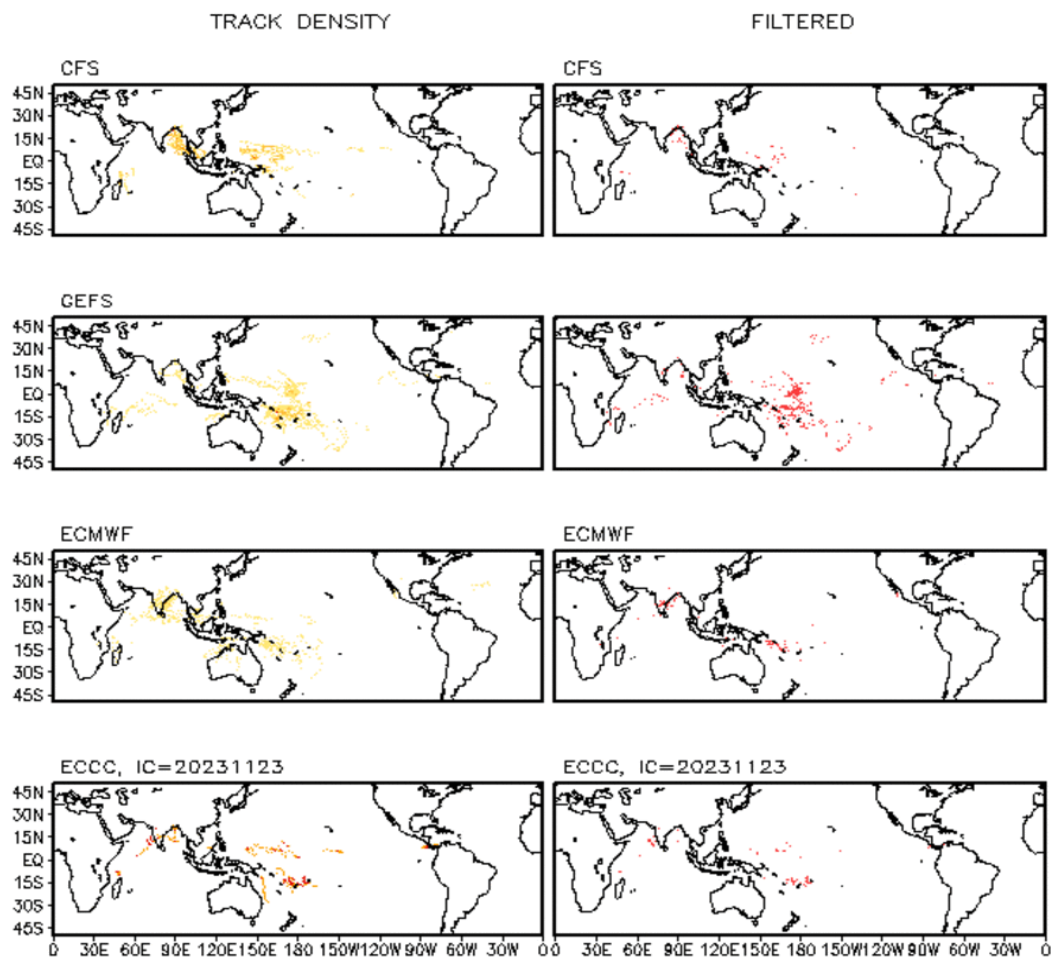
TC development likely within 24 hours (Reference TCFA)



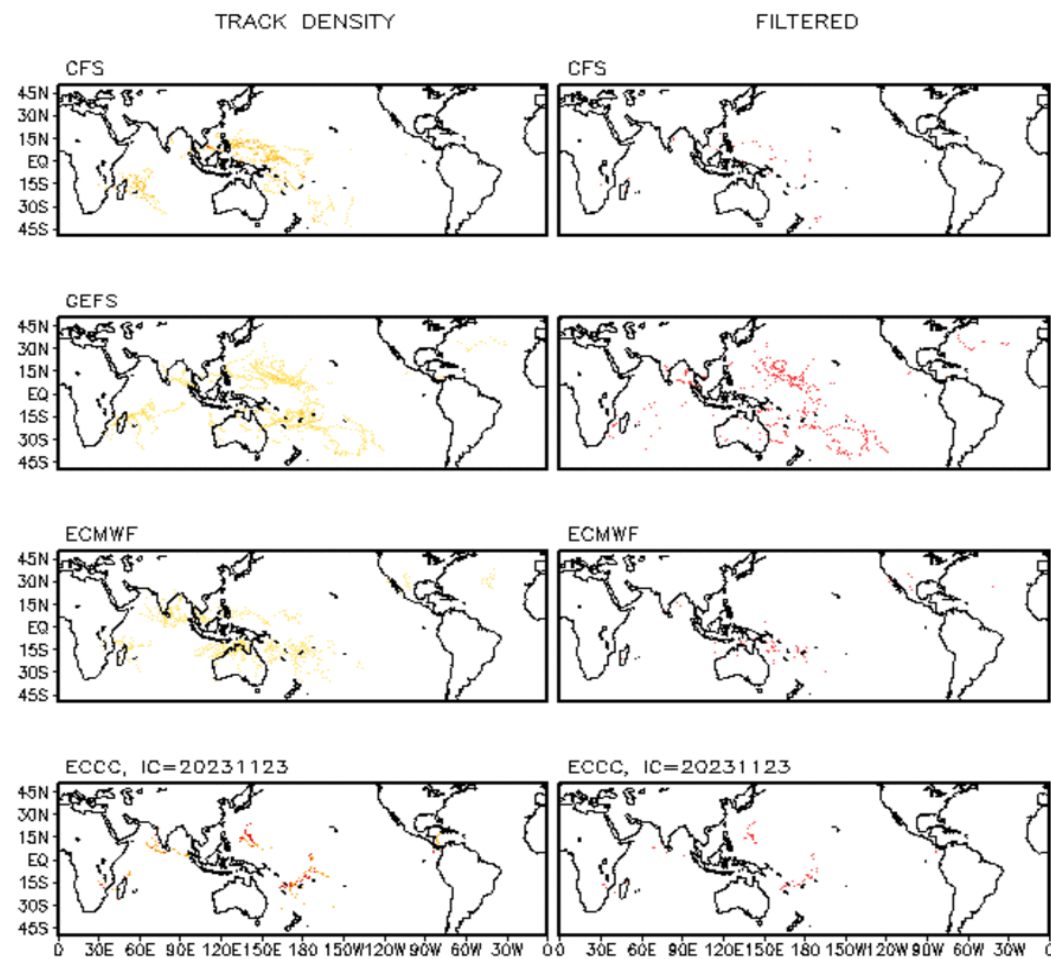
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



Storm Track Density Distribution, IC=20231127
Week 2 Forecast: 1206-1212

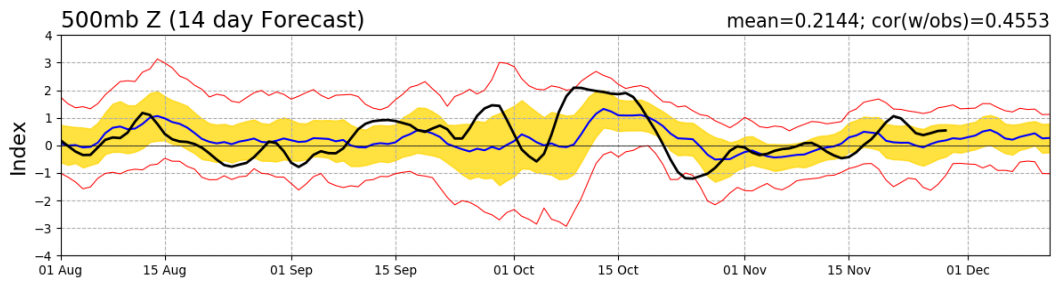
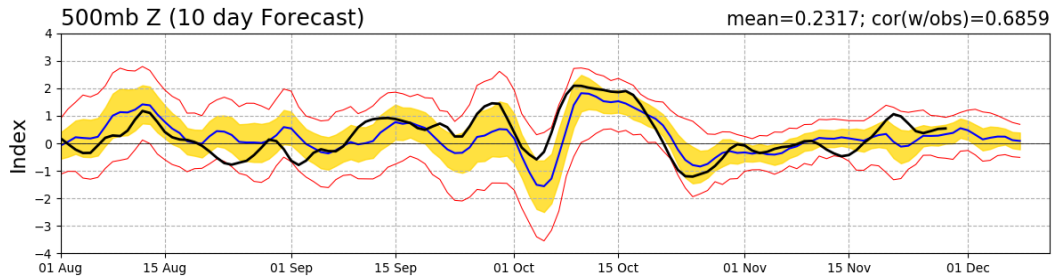
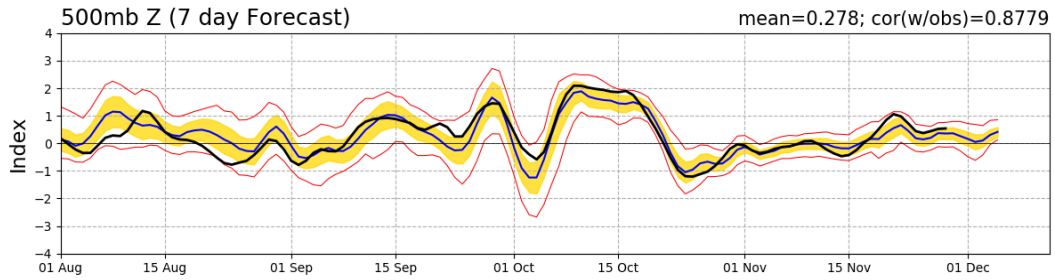
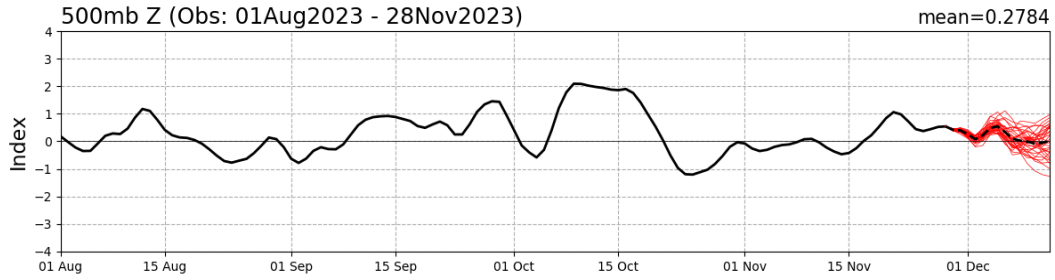


Storm Track Density Distribution, IC=20231127
Week 3 Forecast: 1213-1219

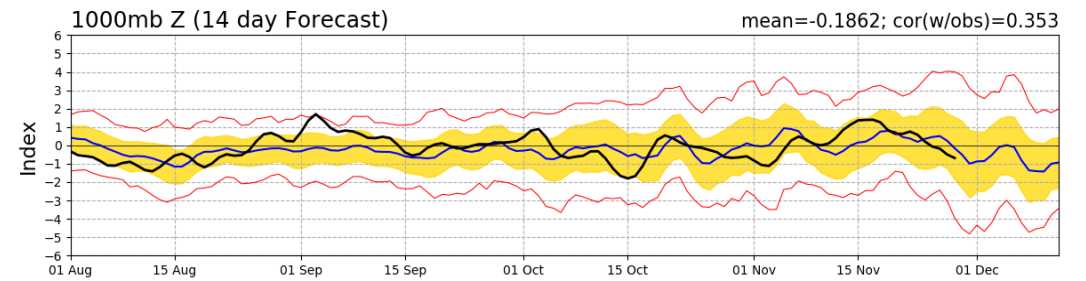
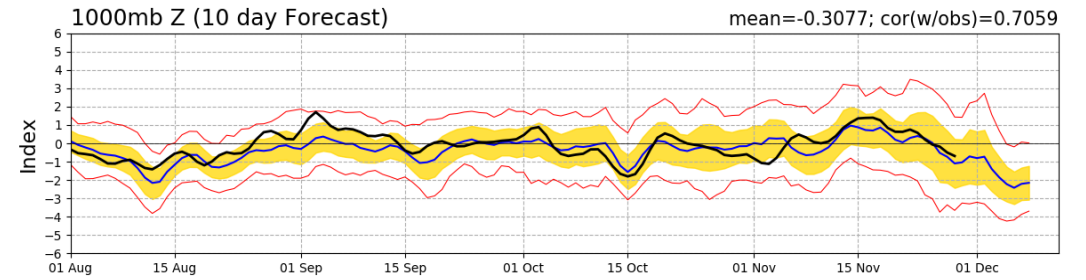
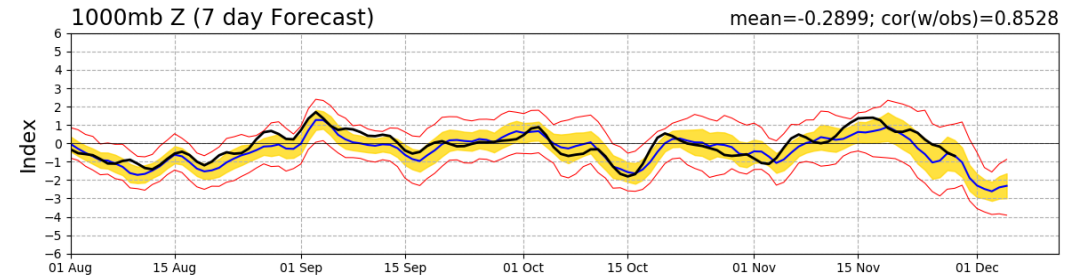
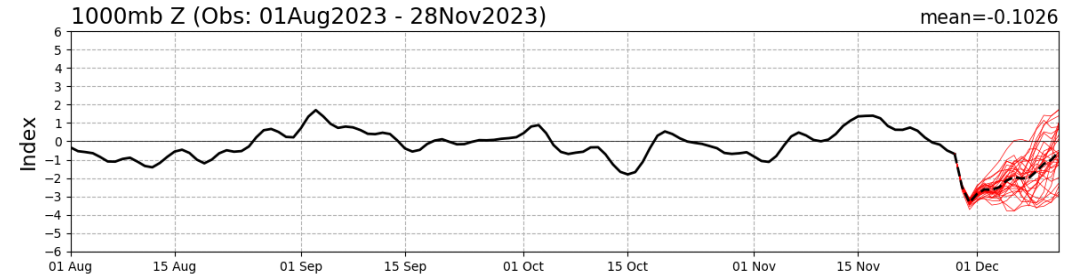


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



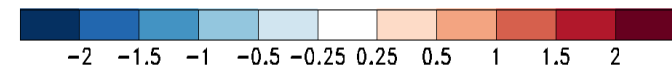
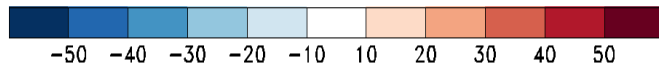
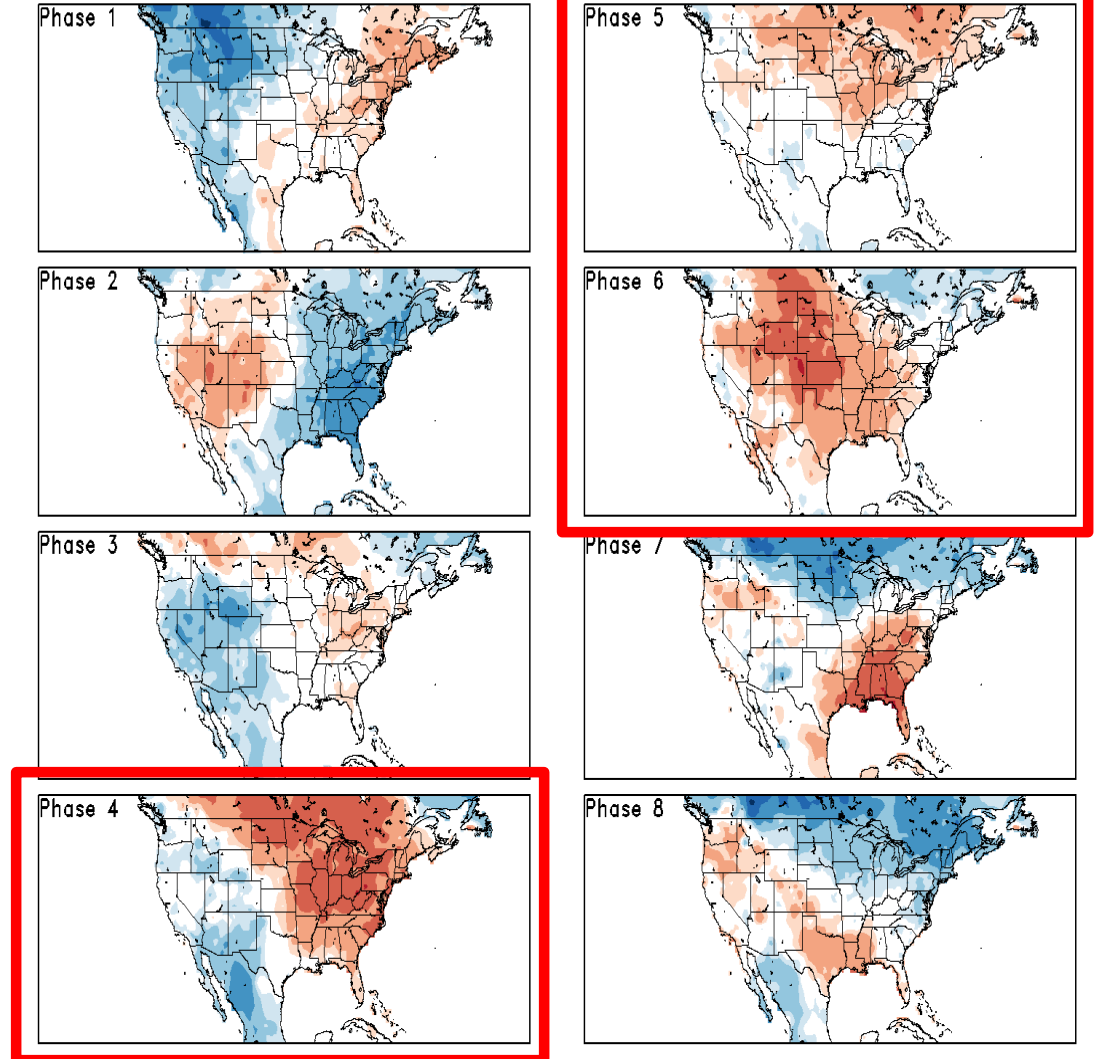
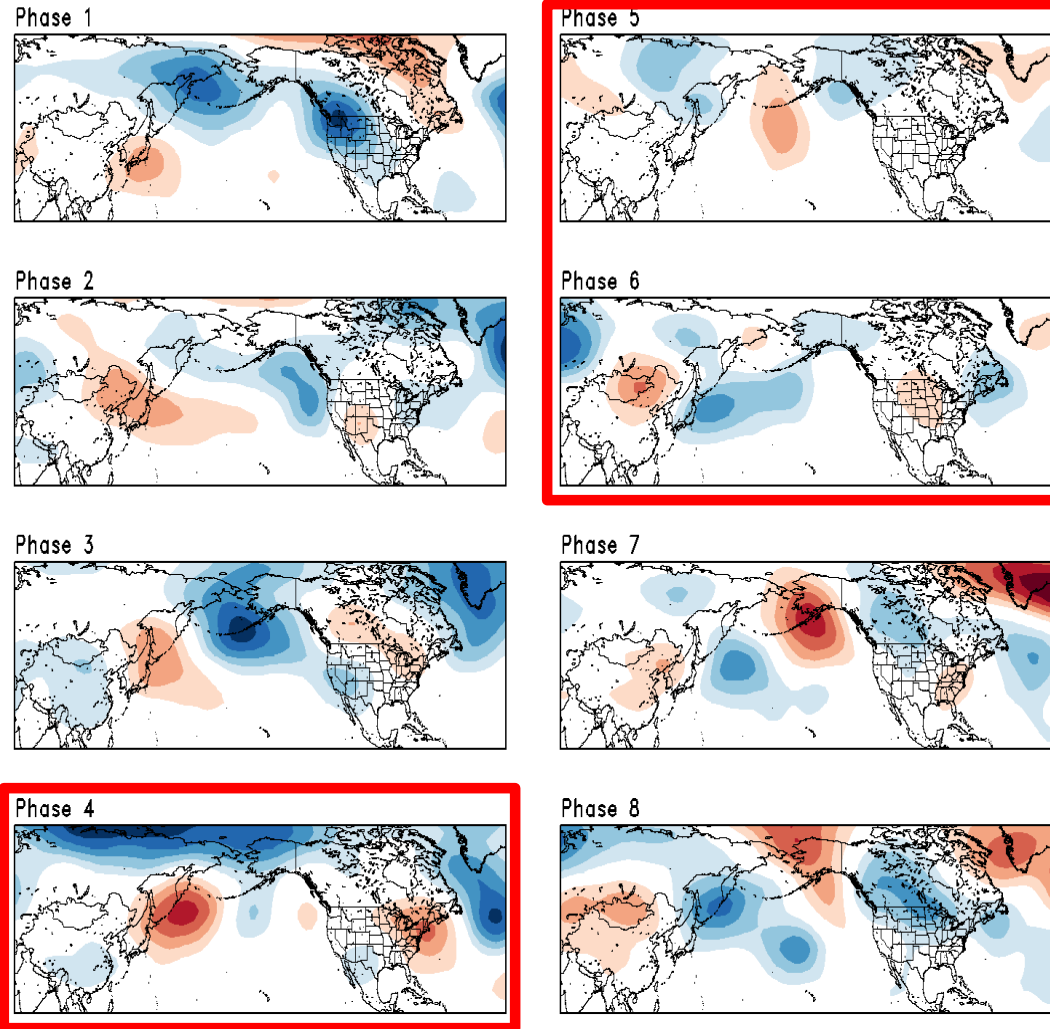
AO Index: Observed & GEFS Forecasts



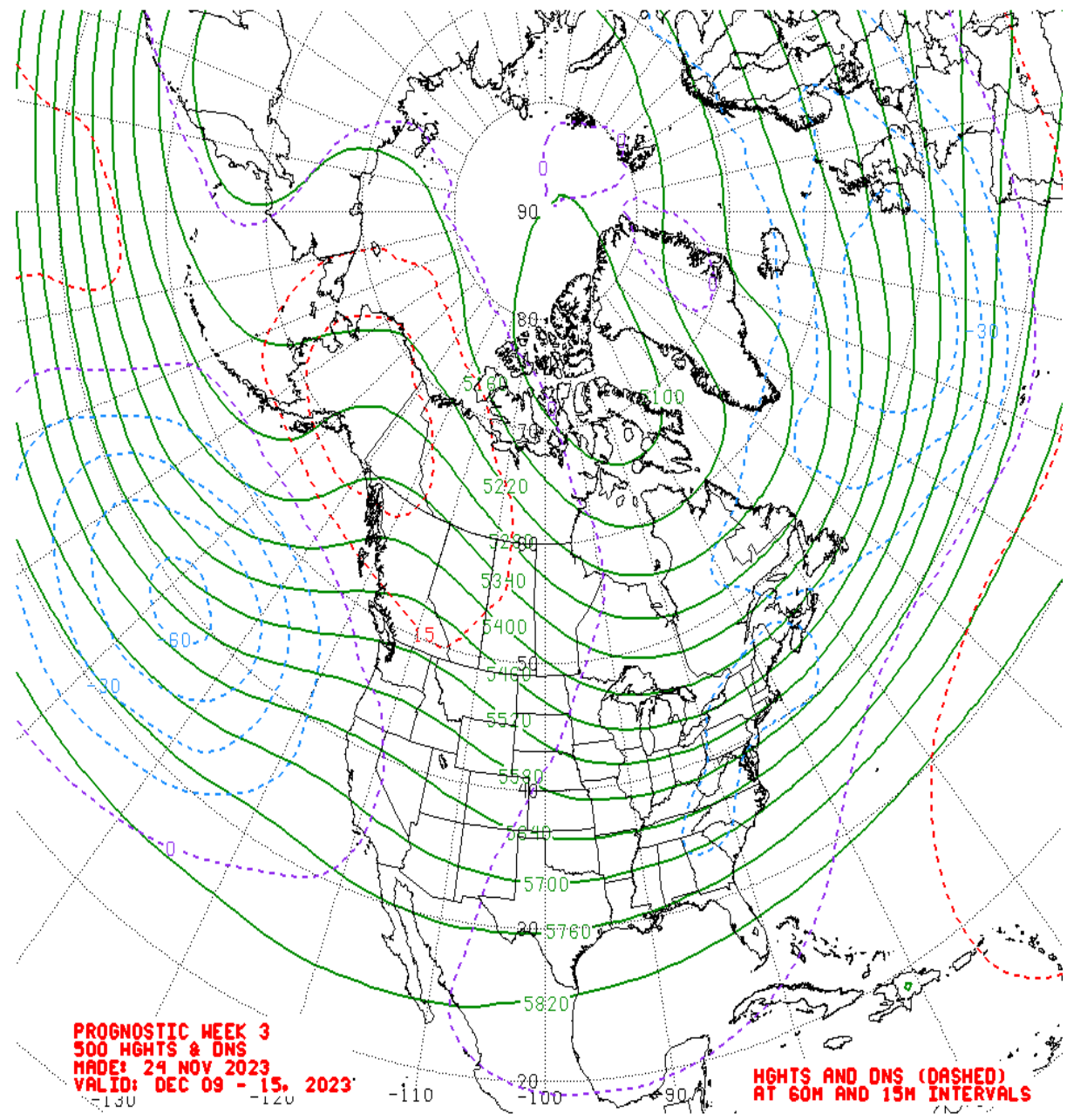
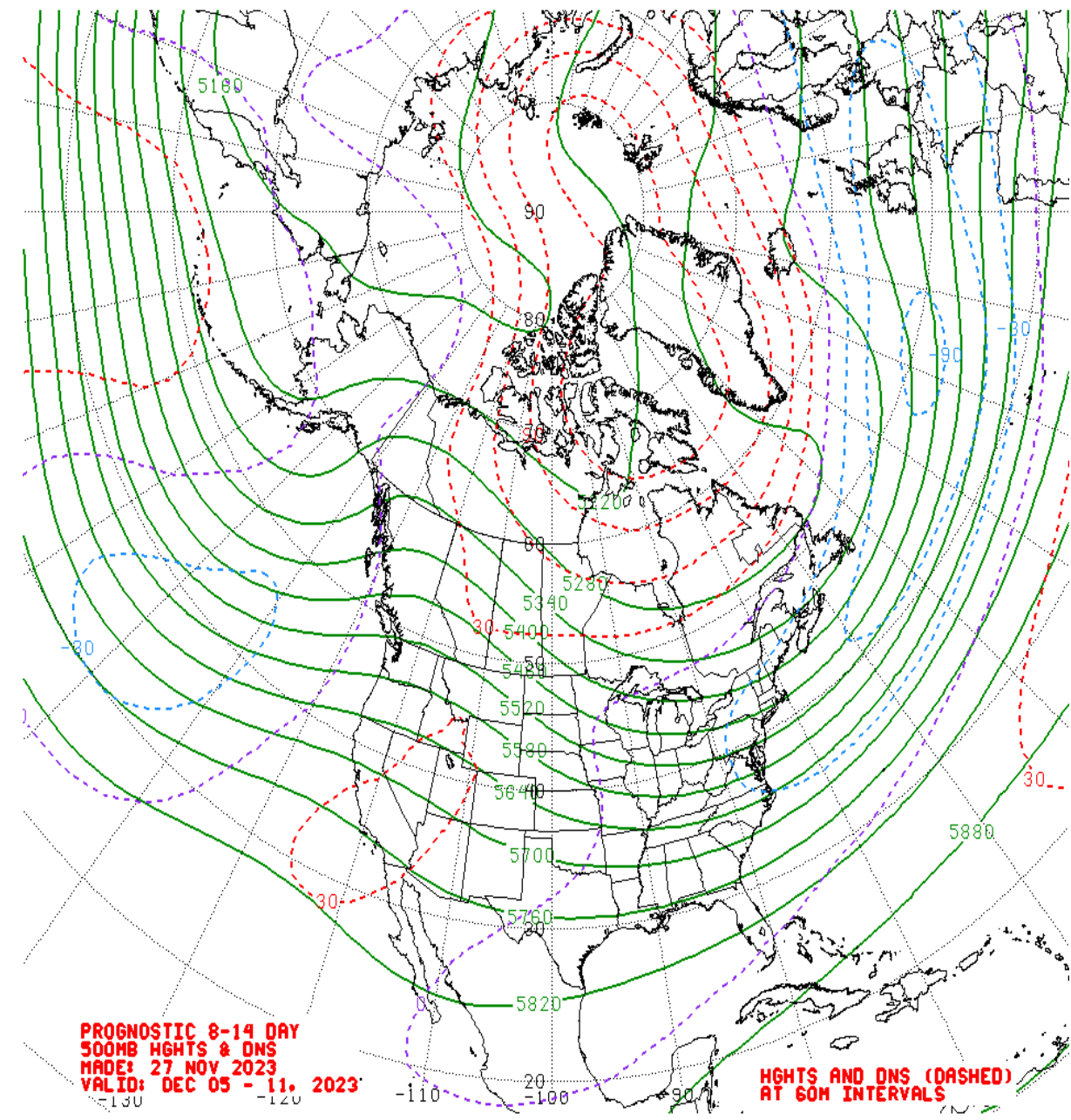
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

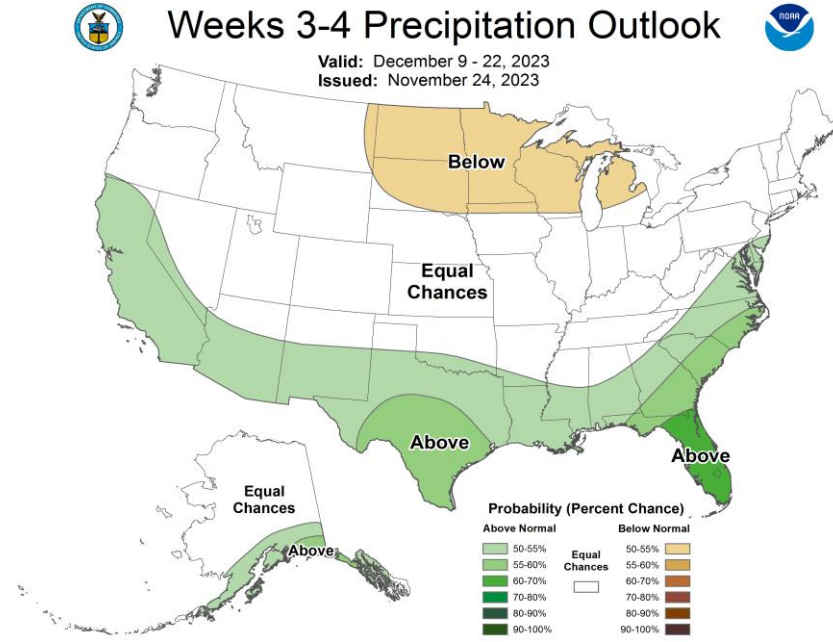
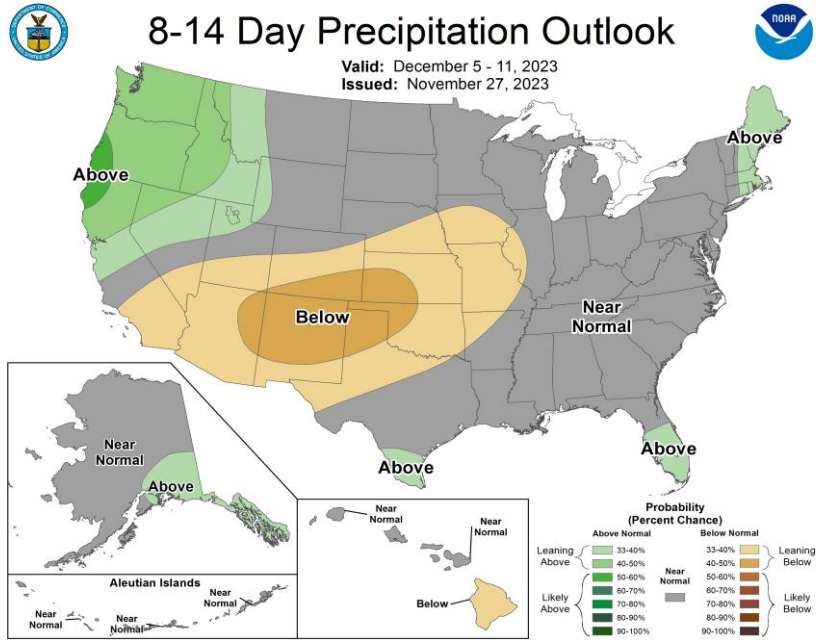
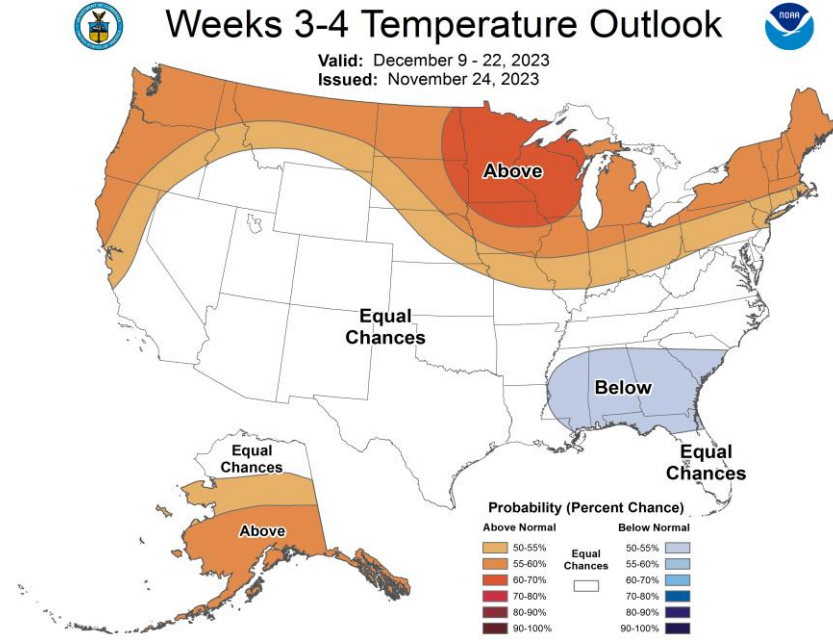
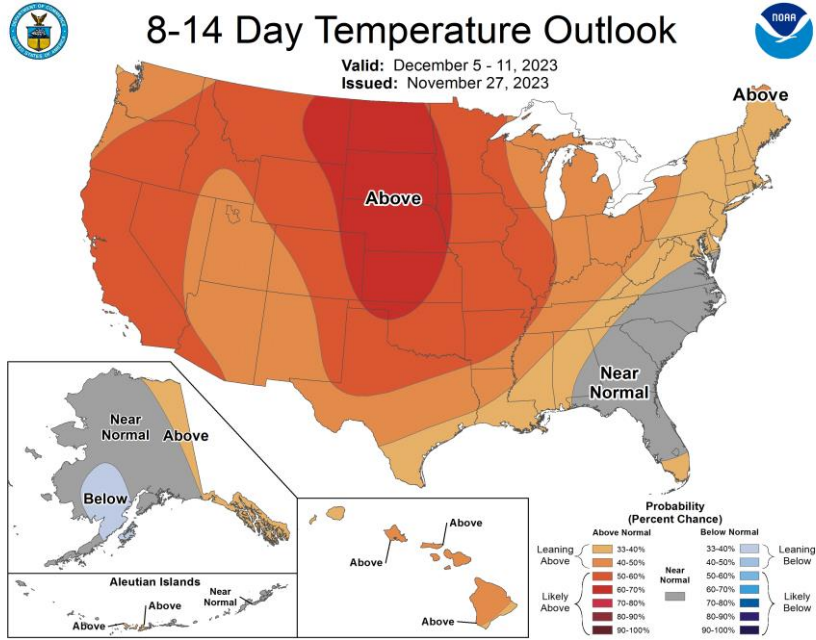
OND MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



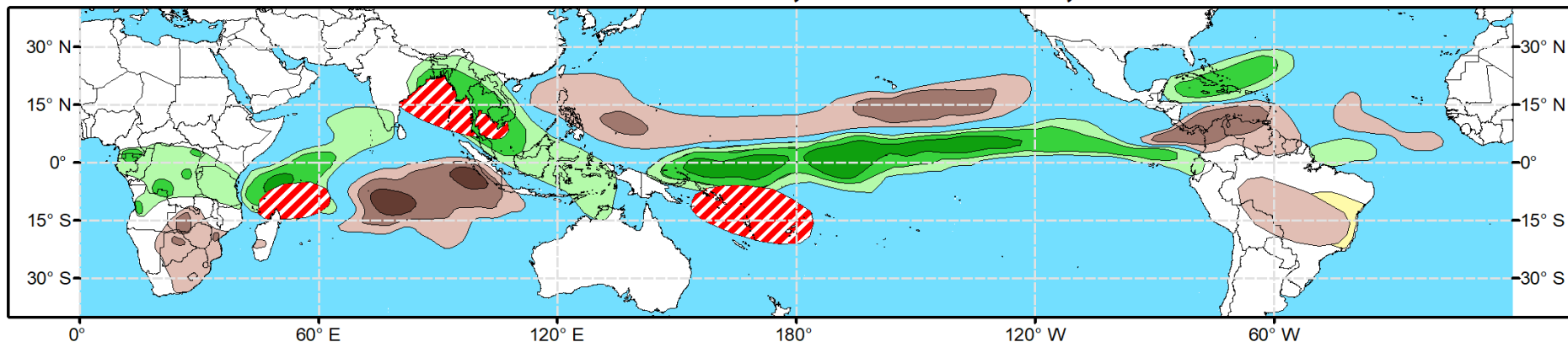


Global Tropics Hazards Outlook

Climate Prediction Center

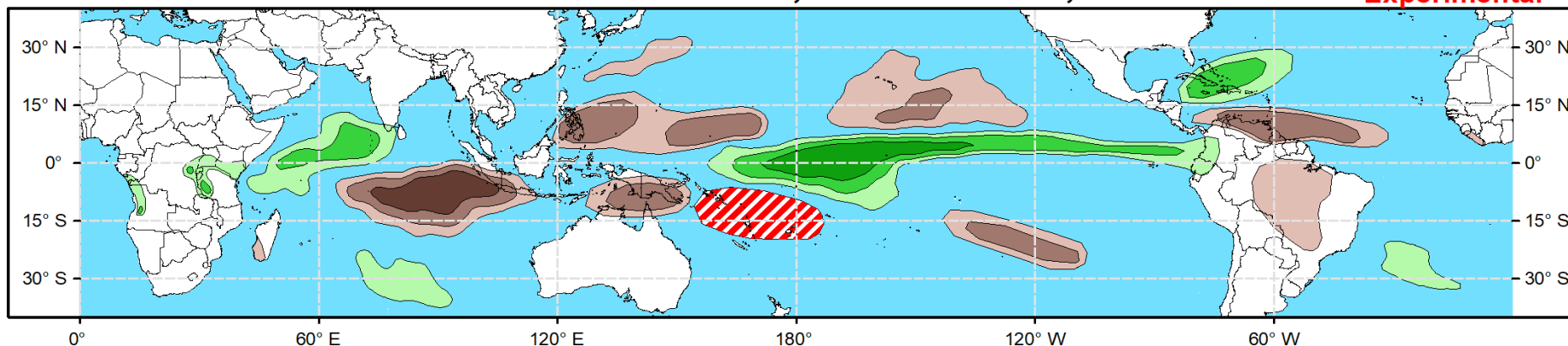


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