



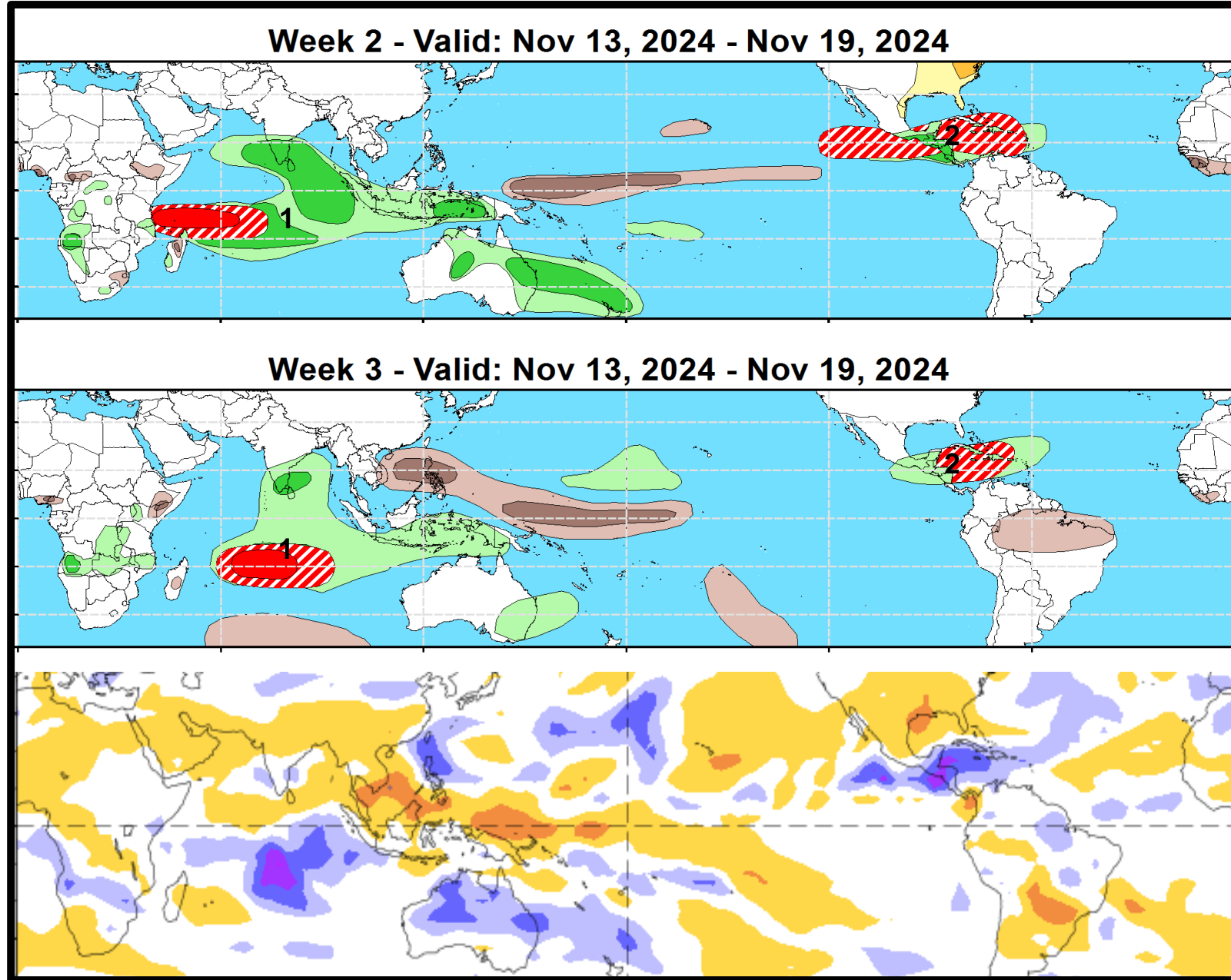
Weeks 2-3 Global Tropics Hazards Outlook

11/19/2024

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- 1: TS Sara, 11/14
- 2: TC Bheki, 11/14



Synopsis of Climate Modes:

ENSO: (Nov 14, 2024 Update) *next update on Thursday, Dec 12th*

- ENSO Alert System Status: [La Niña Watch](#)
- La Niña is most likely to emerge in October-December 2024 (57% chance) and is expected to persist through January-March 2025.

MJO and other subseasonal tropical variability:

- The MJO has been quite active over the last month, completing a full circumnavigation of the globe during that period, and at a high amplitude as the enhanced convective envelope moved over the Maritime Continent and Western Pacific.
- The MJO has slowed and weakened somewhat as the enhanced convective envelope moved over the Indian Ocean during the last week, likely the result of interactions with the emerging La Nina footprint and other modes of tropical variability.
- This forecast slowing of the enhanced convective envelope is likely to promote enhanced TC activity across the Bay of Bengal throughout the forecast period. TC activity is also possible in week-3 over the southeast Indian Ocean, as well as the Western Pacific due to MJO forcing despite the basin being less active in December.

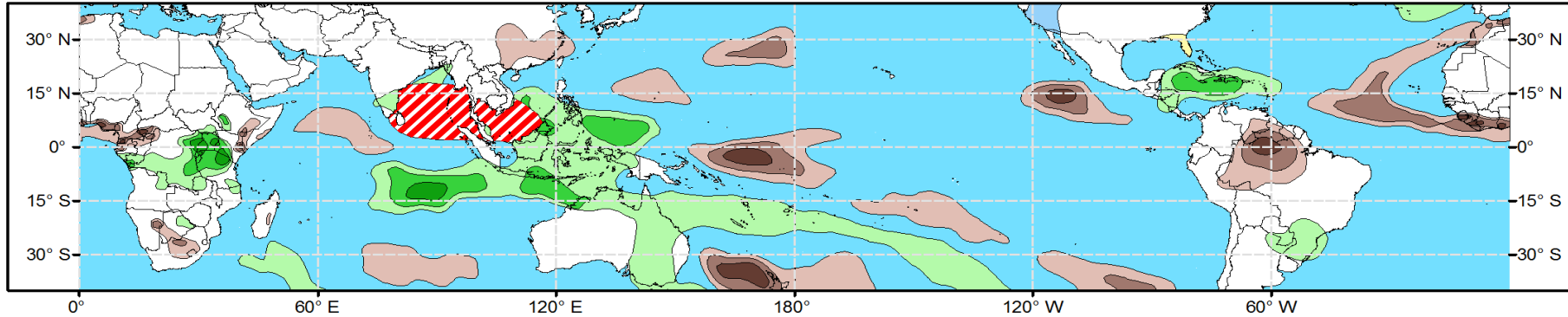
GTH Outlook:



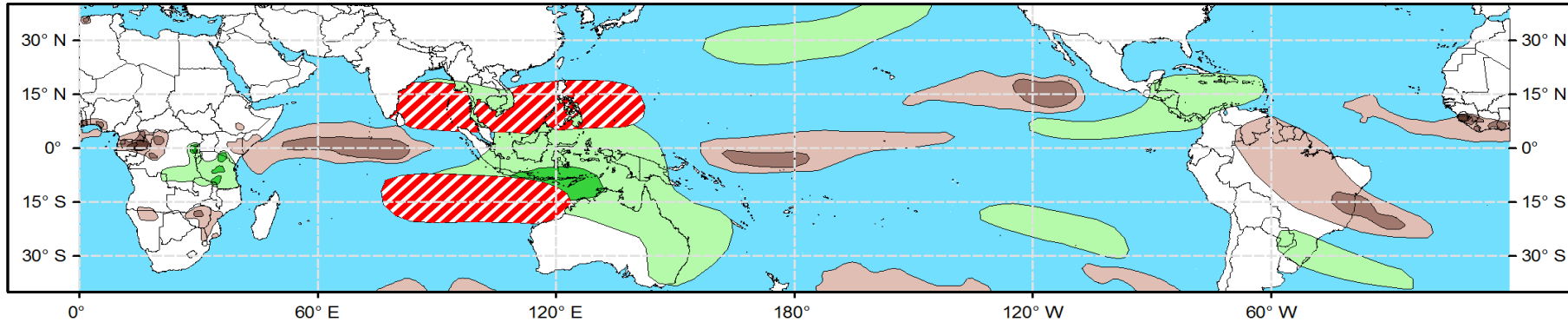
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Nov 27, 2024 - Dec 03, 2024



Week 3 - Valid: Dec 04, 2024 - Dec 10, 2024



**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*

**Below-Average
Temperatures Probability**



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*7-day min temperatures in the
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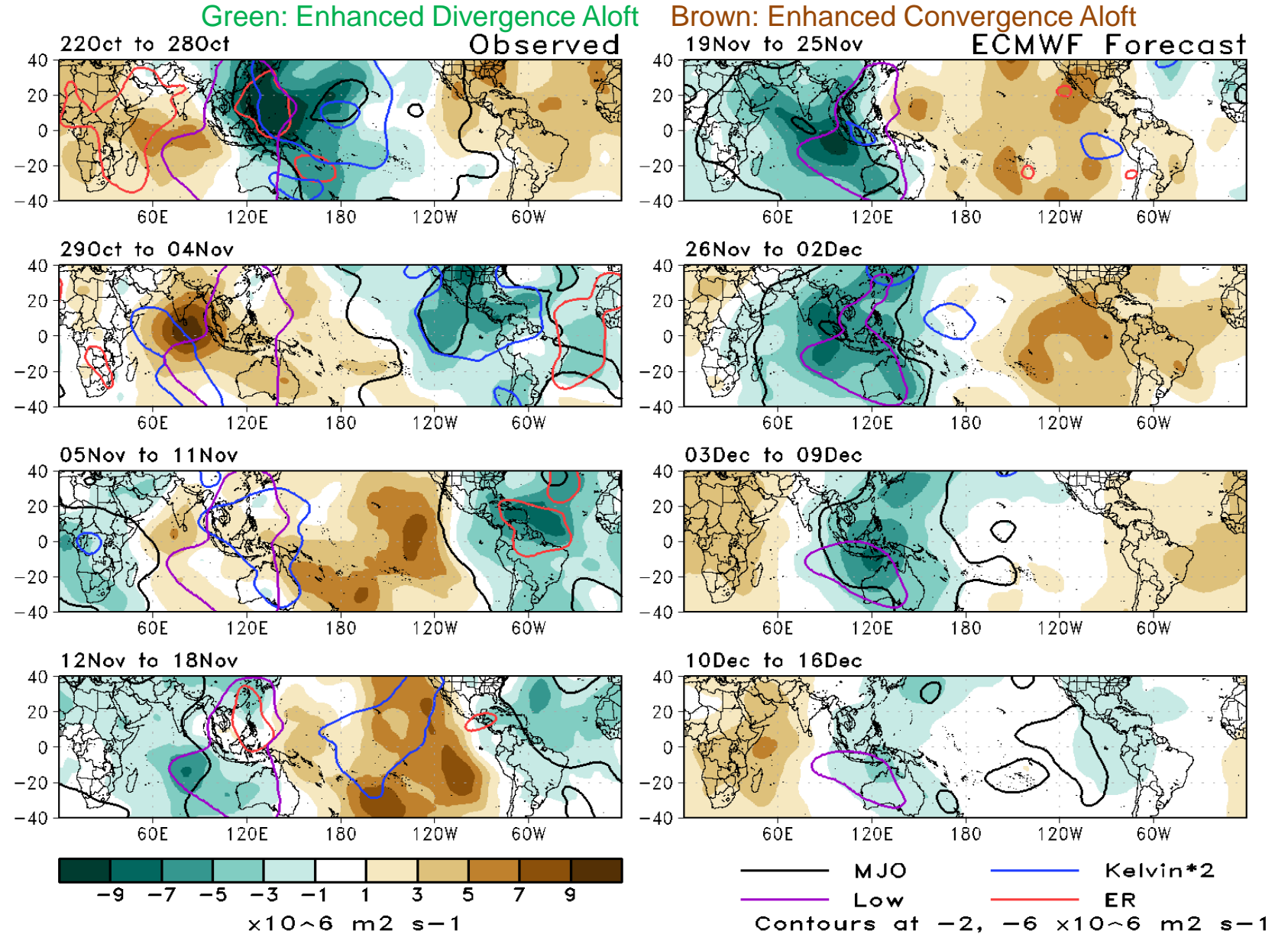
Issued: 11/19/2024

Forecaster: Barandiaran

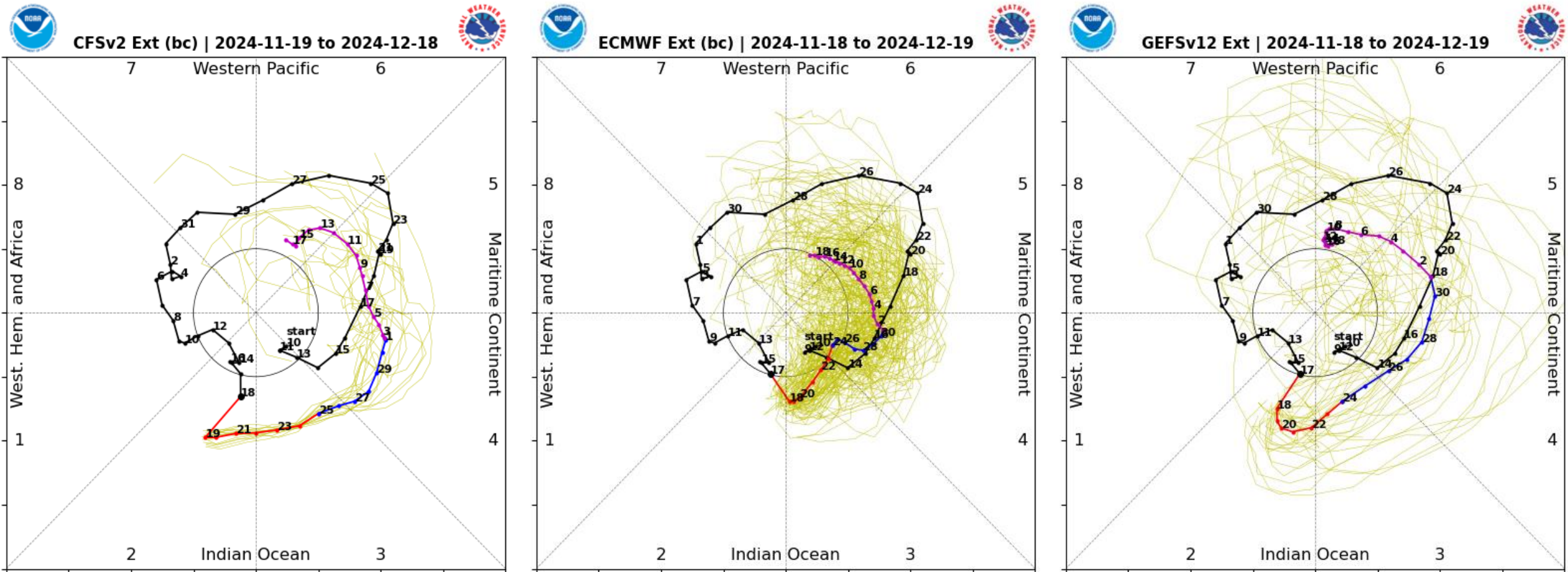
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200-hPa Velocity Potential Anomaly Maps:

- Wave-1 asymmetry in global upper-air divergence is evident over the last month with the MJO moving over the Pacific and Americas and finally over Africa and into the Indian Ocean.
- The ECMWF depicts enhanced divergence associated with the MJO over the Indian Ocean during week-1 with a slow eastward propagation over the Maritime Continent over weeks 2-3.

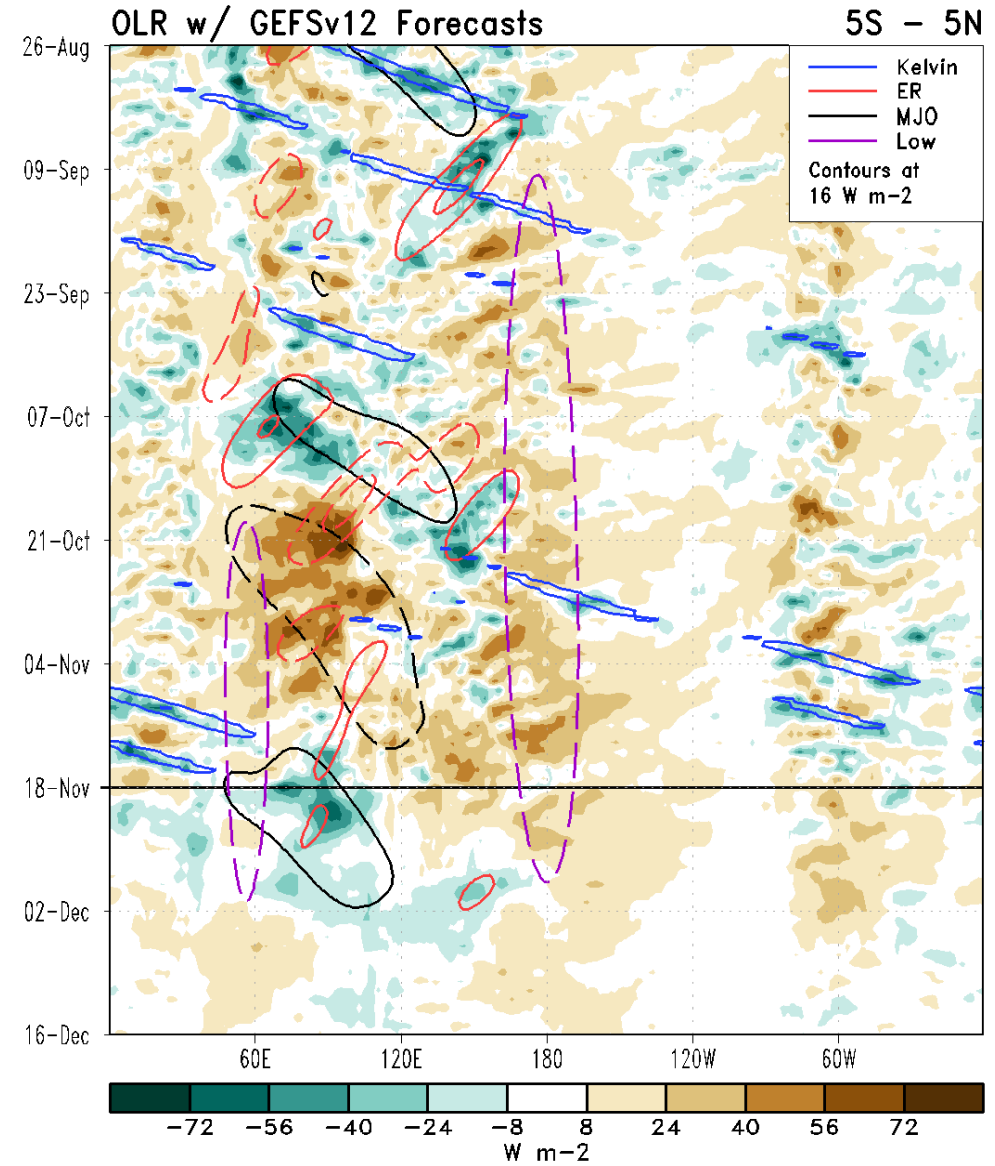
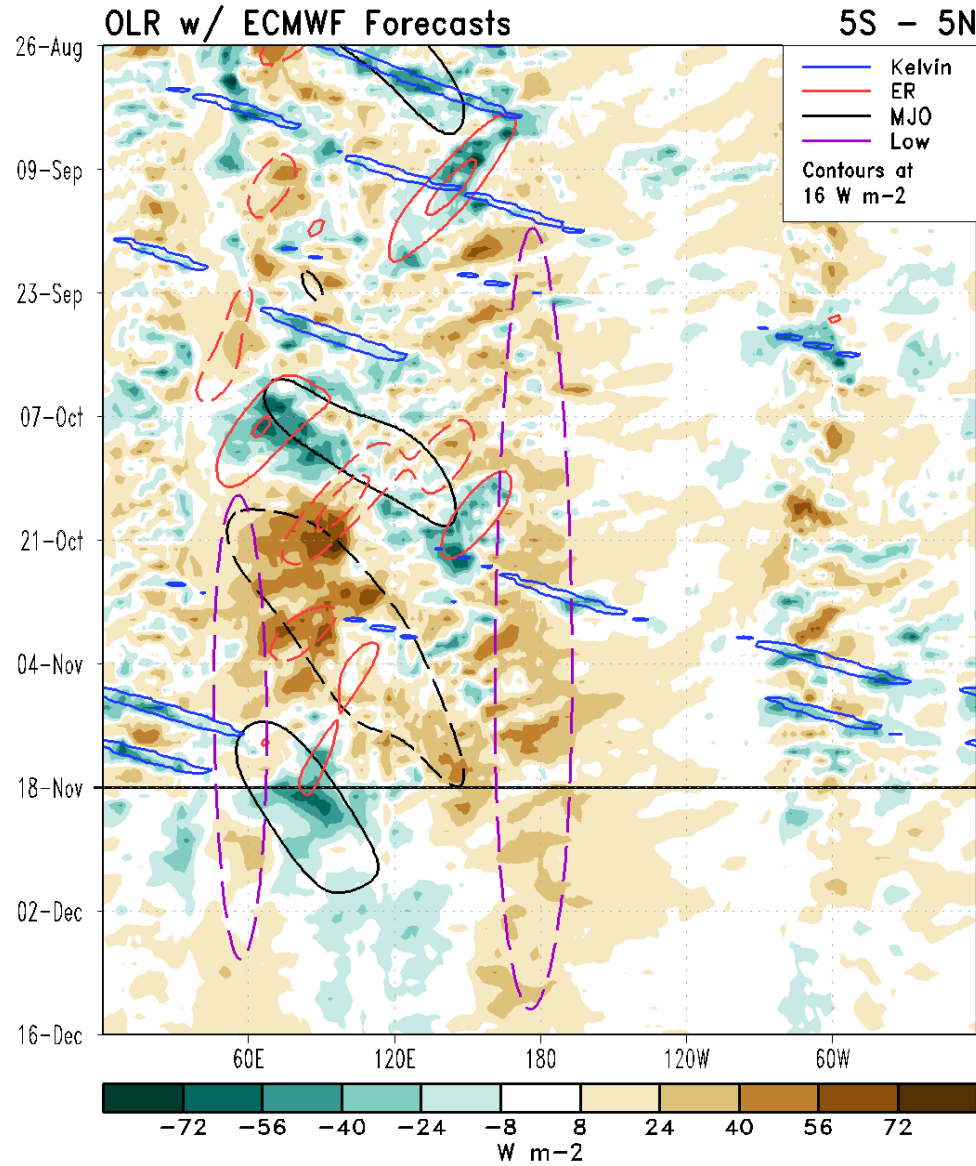


RMM Index Observations & Forecasts:



- The GEFS, CFS and ECMWF models all depict the RMM-based MJO index stalling over the Indian Ocean during week-1, likely a reflection of the convective envelope beginning to constructively interact with the emerging low-frequency La Nina footprint.
- The ECMWF indicates a faster progression through phases 2 & 3 but is a bit of an outlier in that regard, with model consensus on RMM forecasts more in line with the GEFS and CFS solutions.

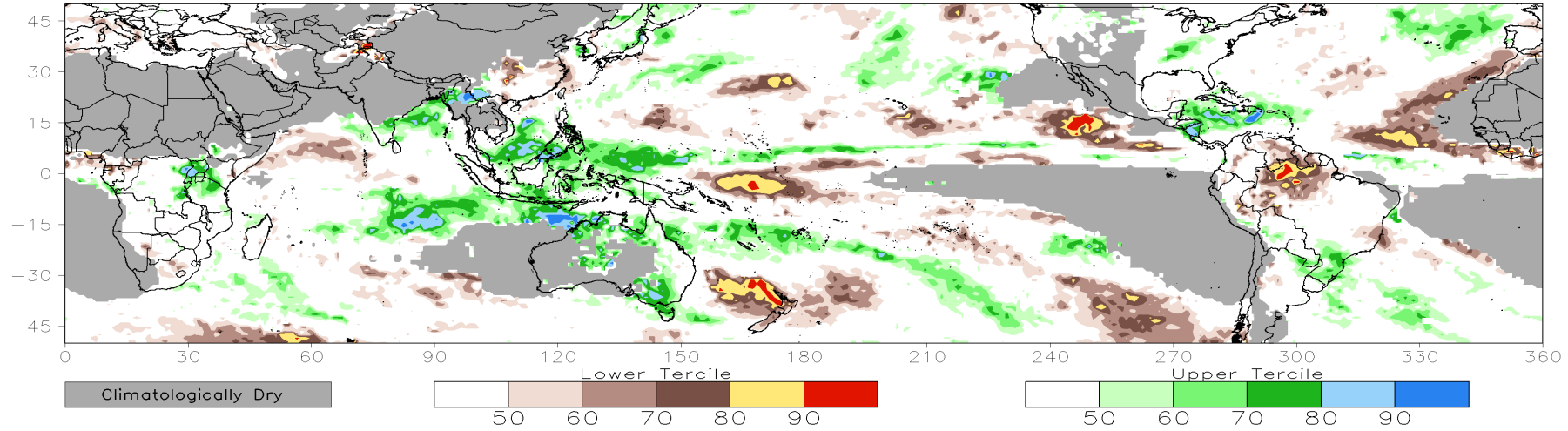
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

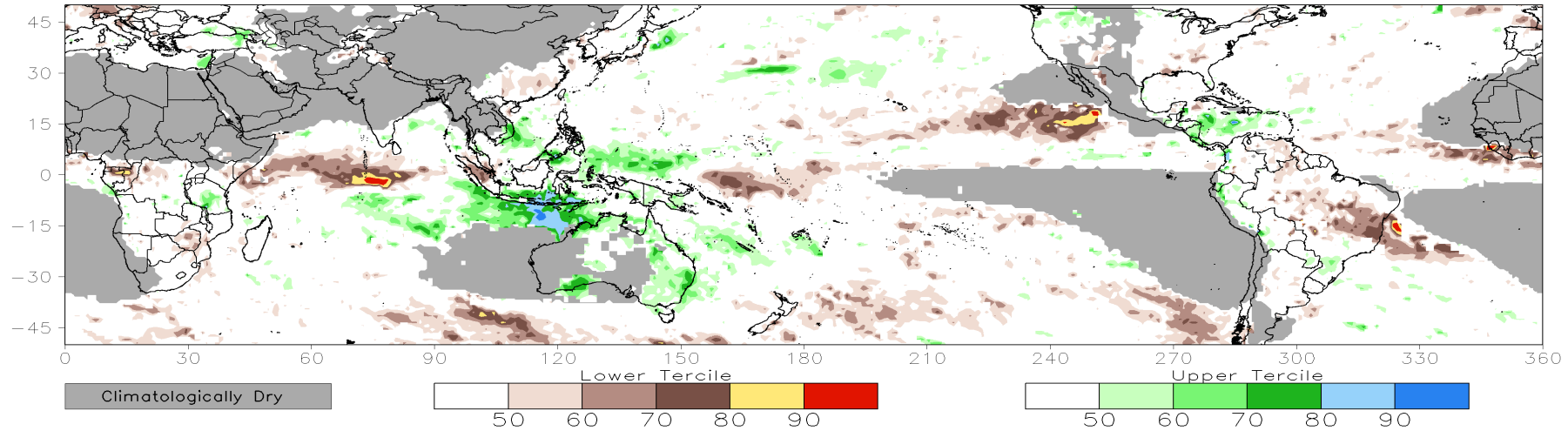
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 27Nov2024–03Dec2024



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

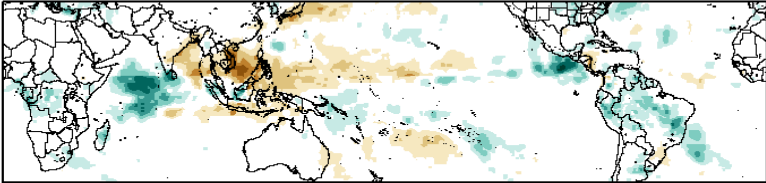
Valid: 04Dec2024–10Dec2024



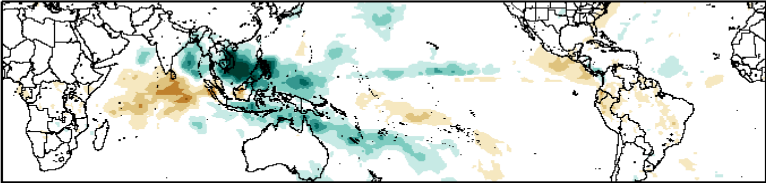
Historical Precipitation Anomalies By MJO Phase:

OND MJO Composite: GPCP1DD (mm/day)

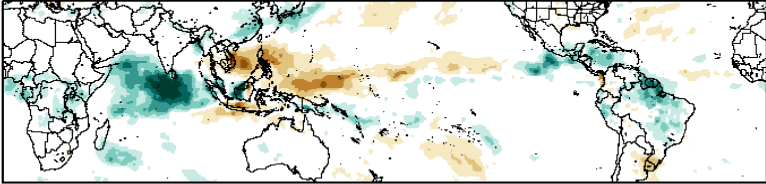
Phase 1



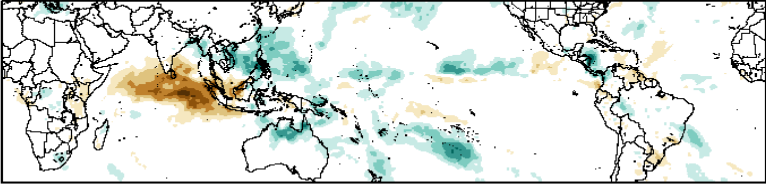
Phase 5



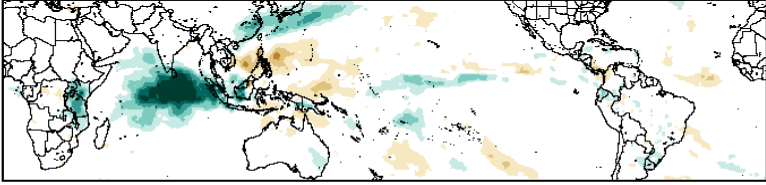
Phase 2



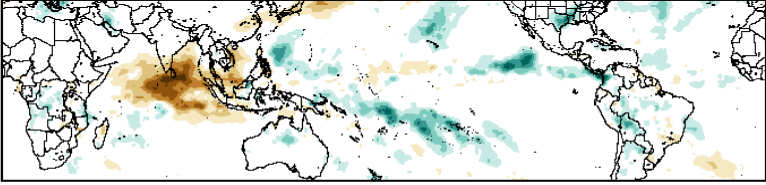
Phase 6



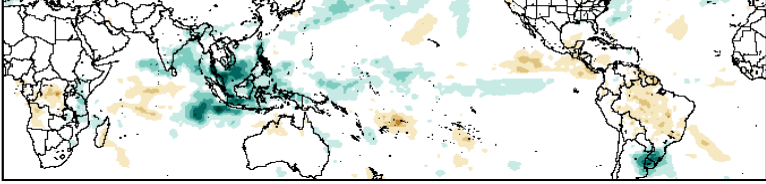
Phase 3



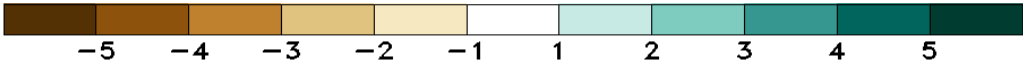
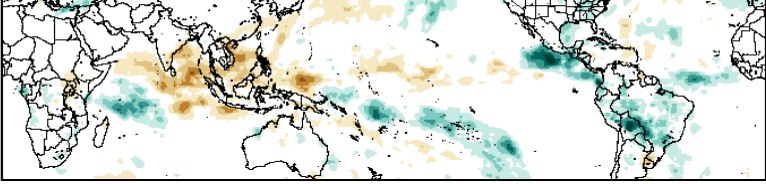
Phase 7



Phase 4

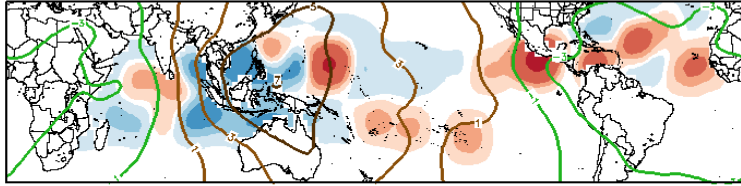


Phase 8

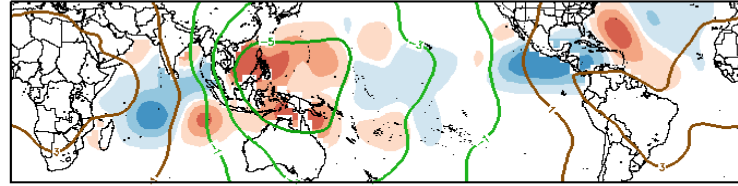


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

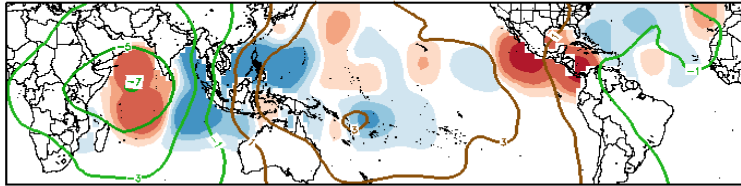
OND MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ OND CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



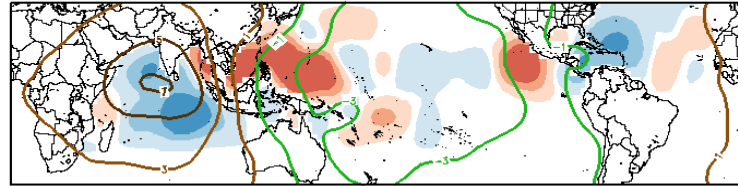
Phase 1



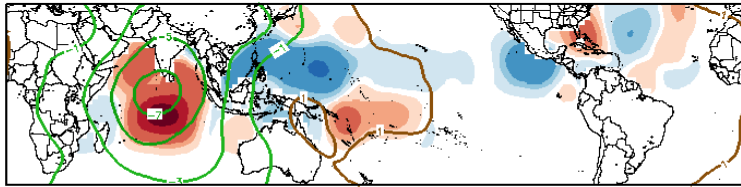
Phase 5



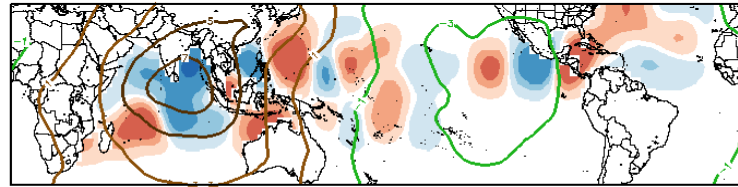
Phase 2



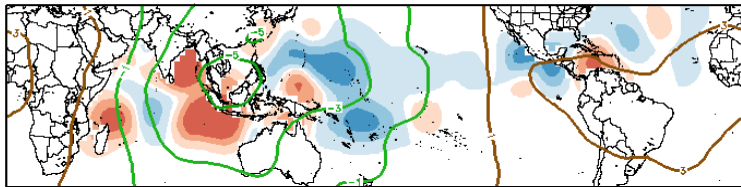
Phase 6



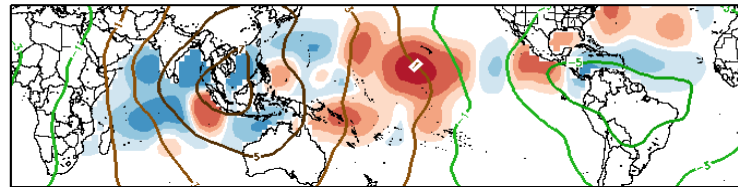
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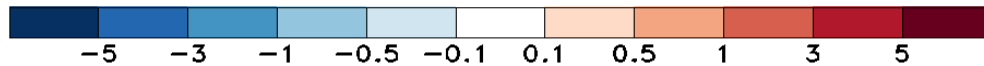
Phase 7



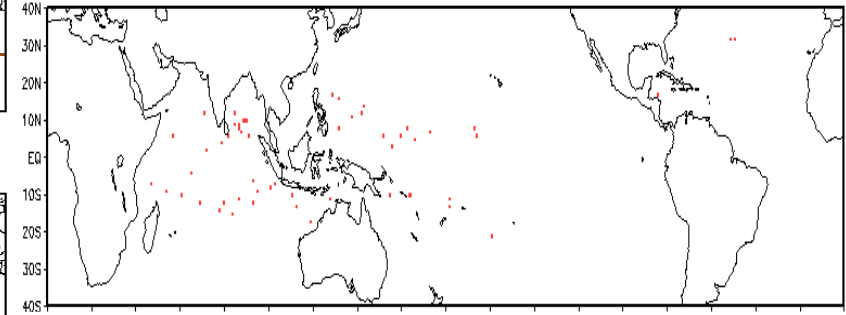
Phase 4



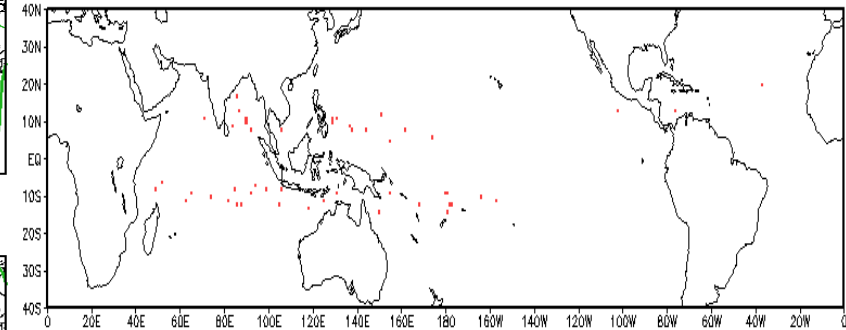
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 1127 to 1203

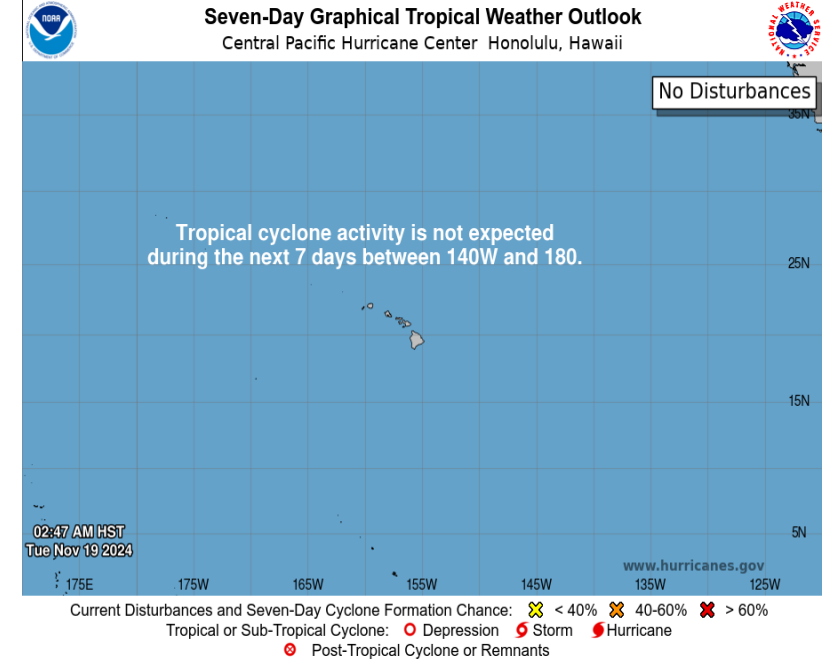
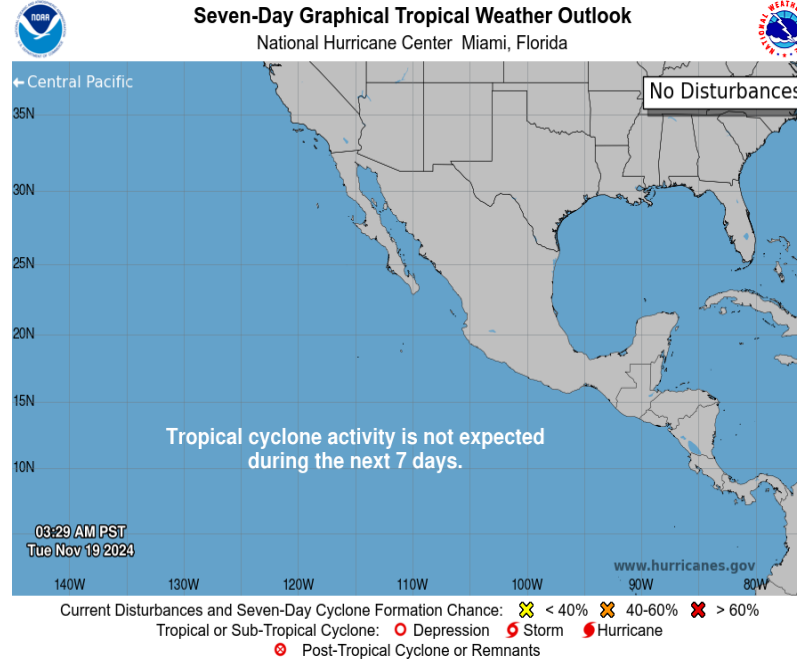
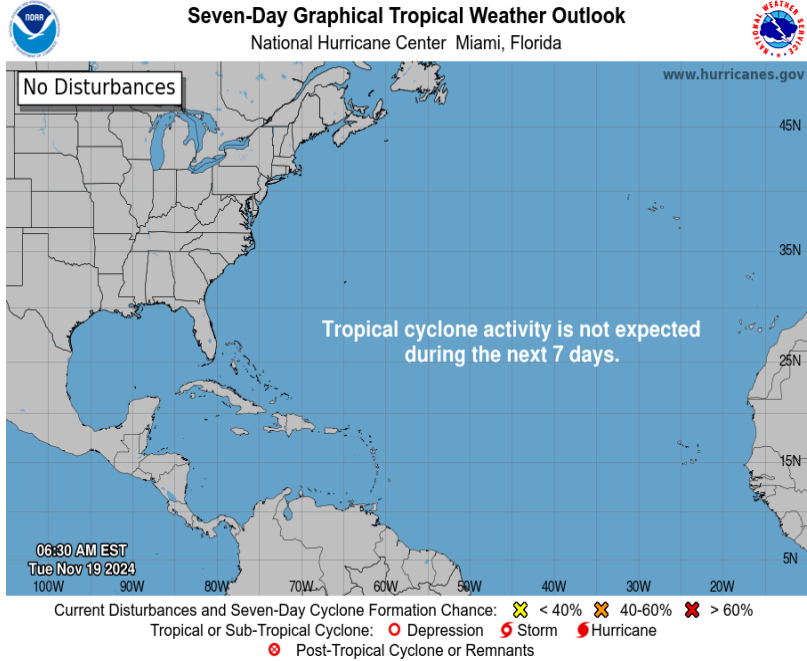


Observed TC Genesis, 1979–2021
7-day Period 1204 to 1210



Experimental

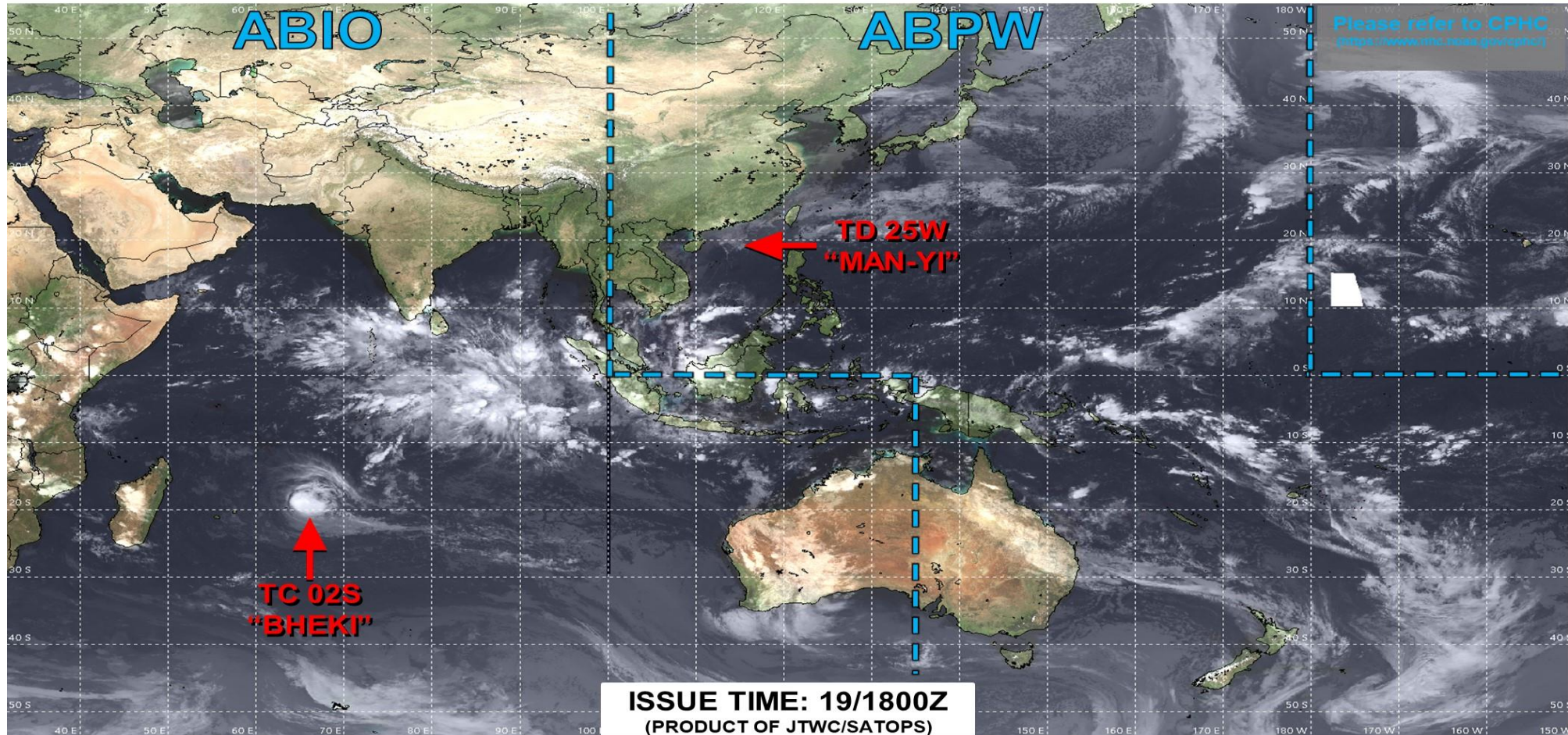
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



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)



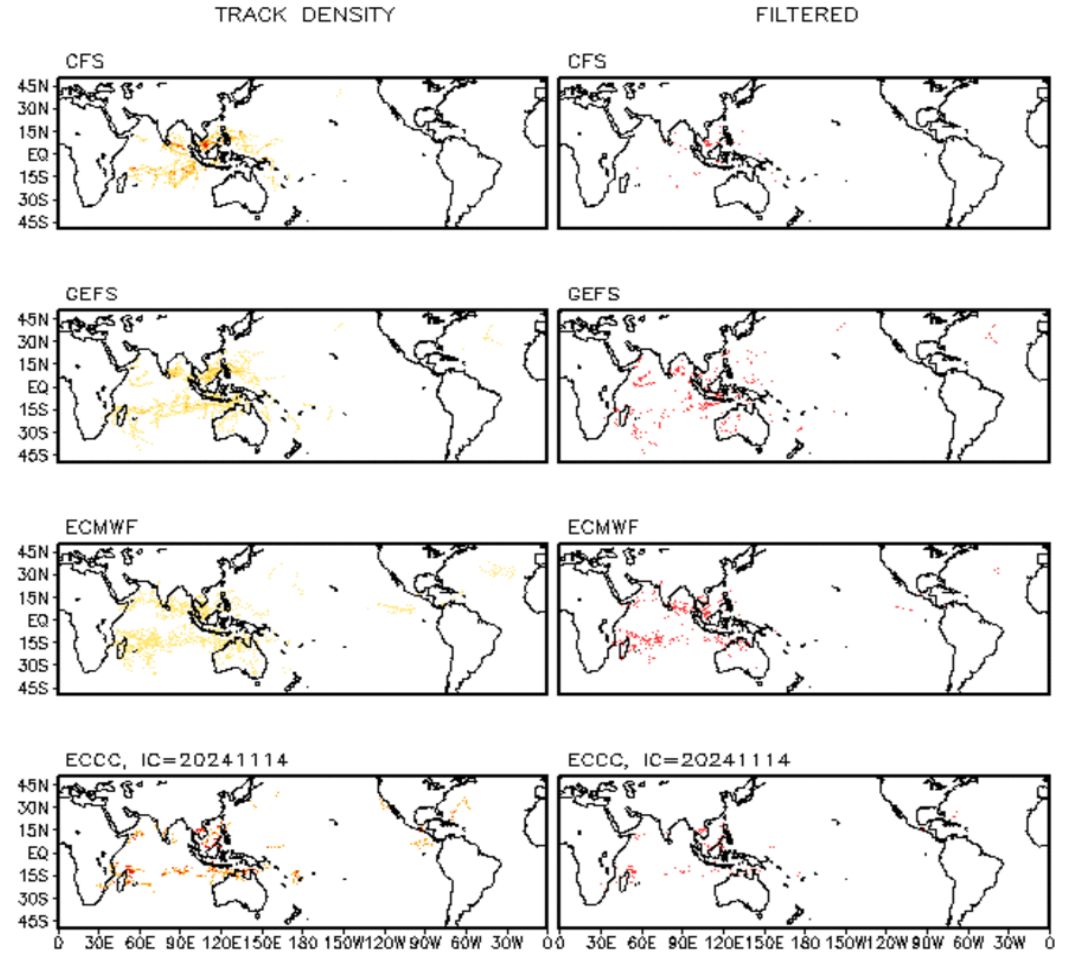
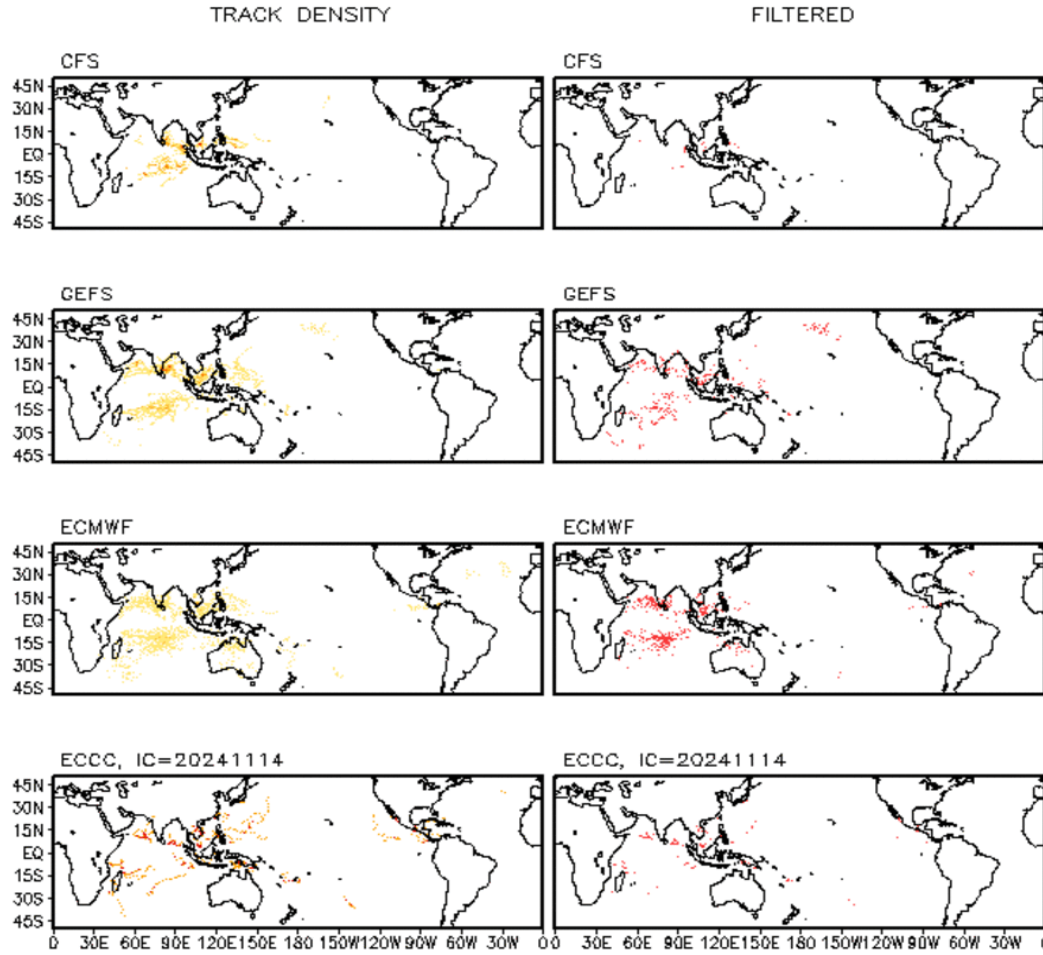
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

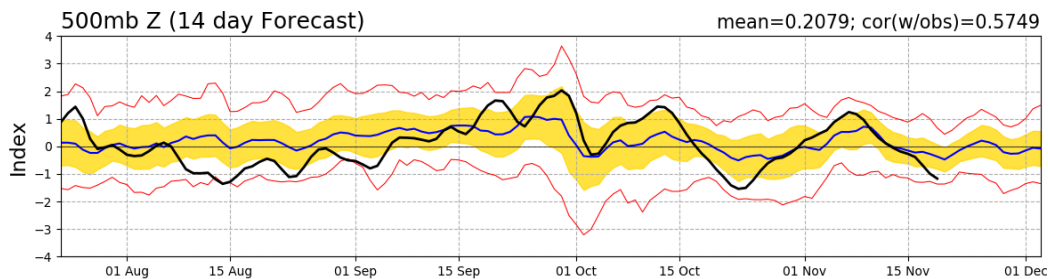
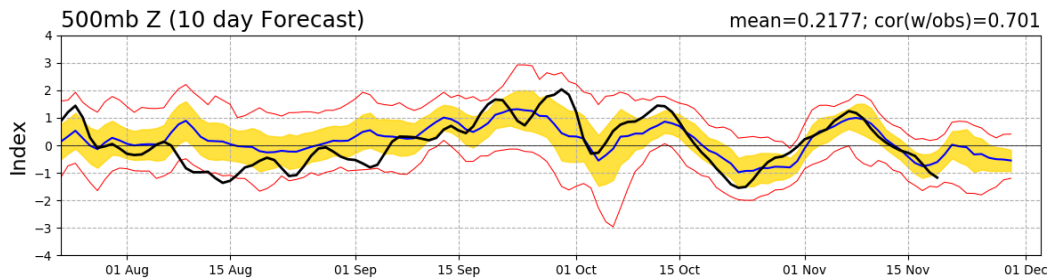
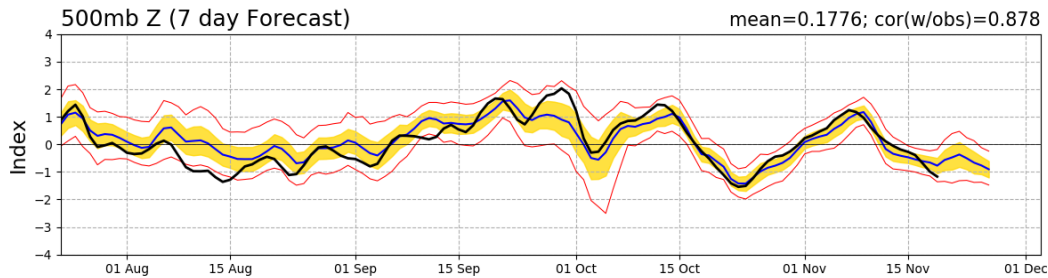
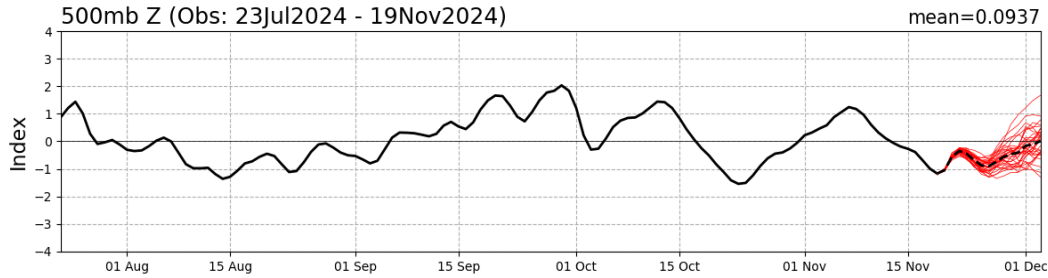
Storm Track Density Distribution, IC=20241118
Week 2 Forecast: 1127-1203

Storm Track Density Distribution, IC=20241118
Week 3 Forecast: 1204-1210

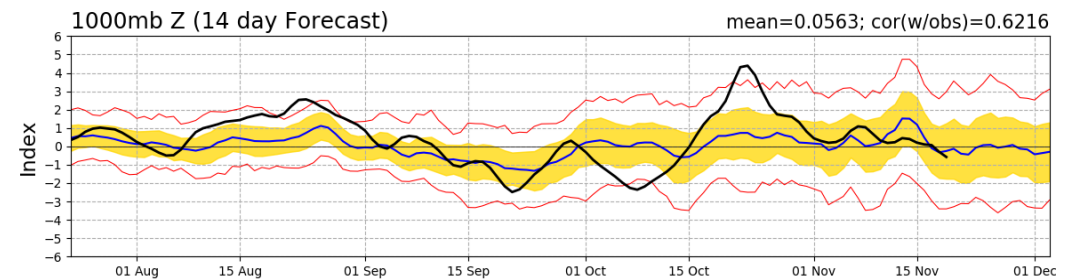
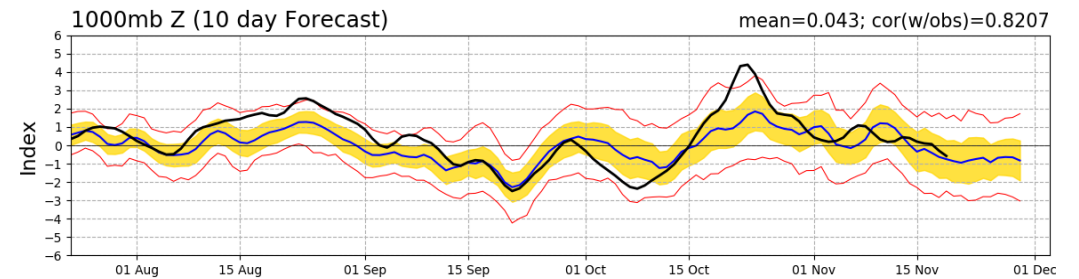
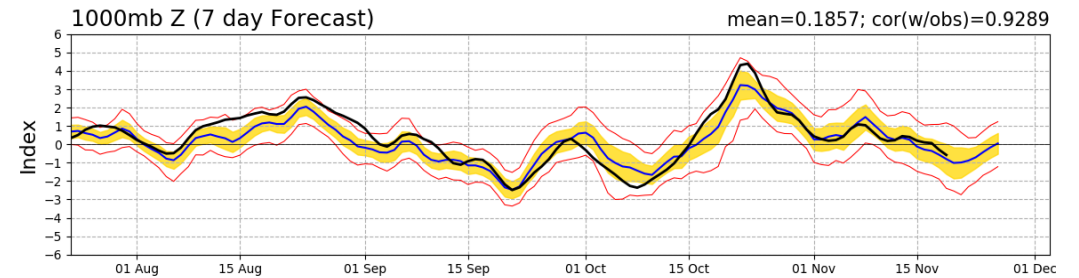
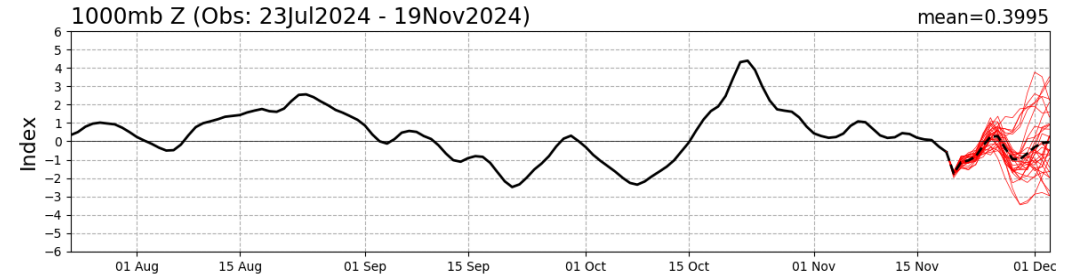


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

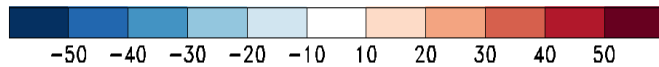
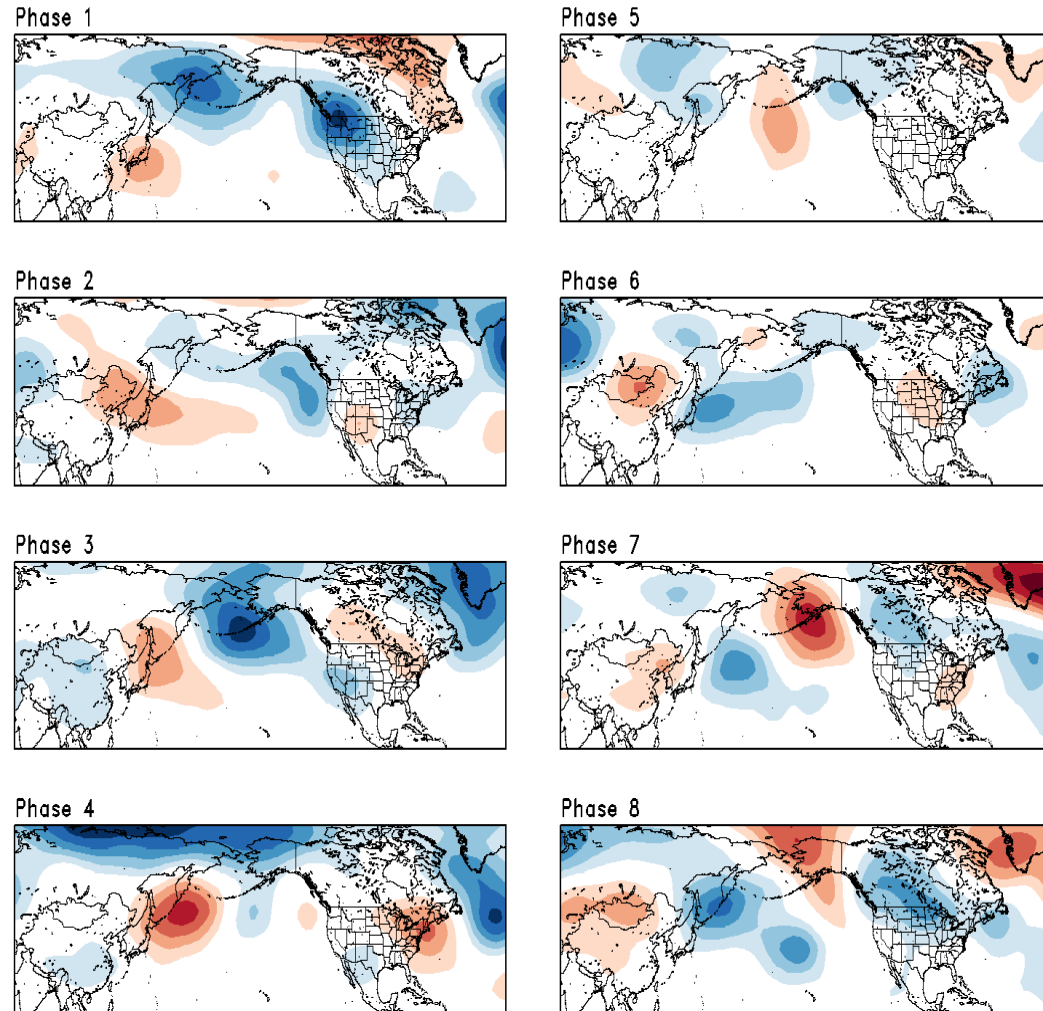


AO Index: Observed & GEFS Forecasts

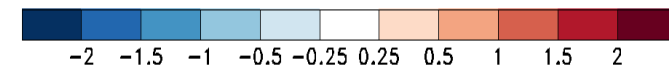
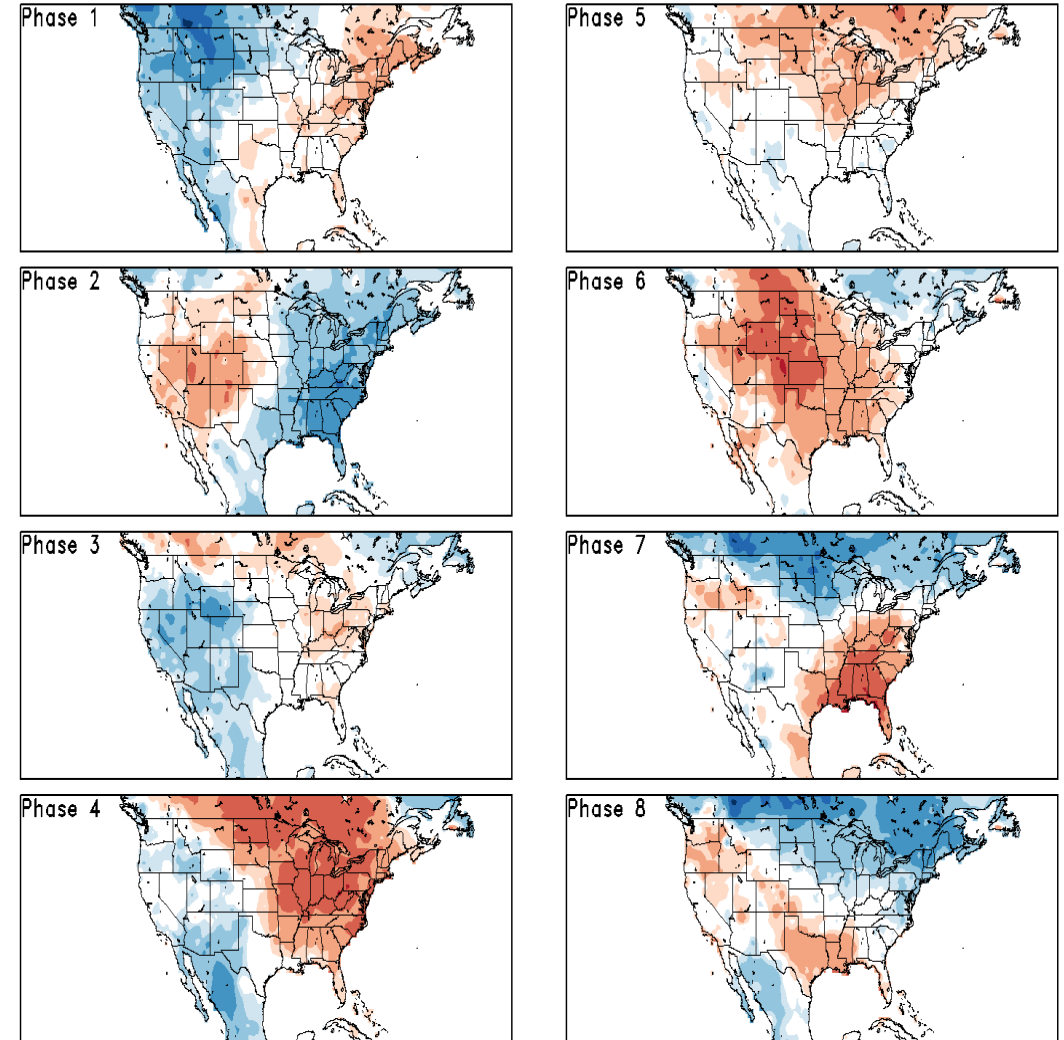


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

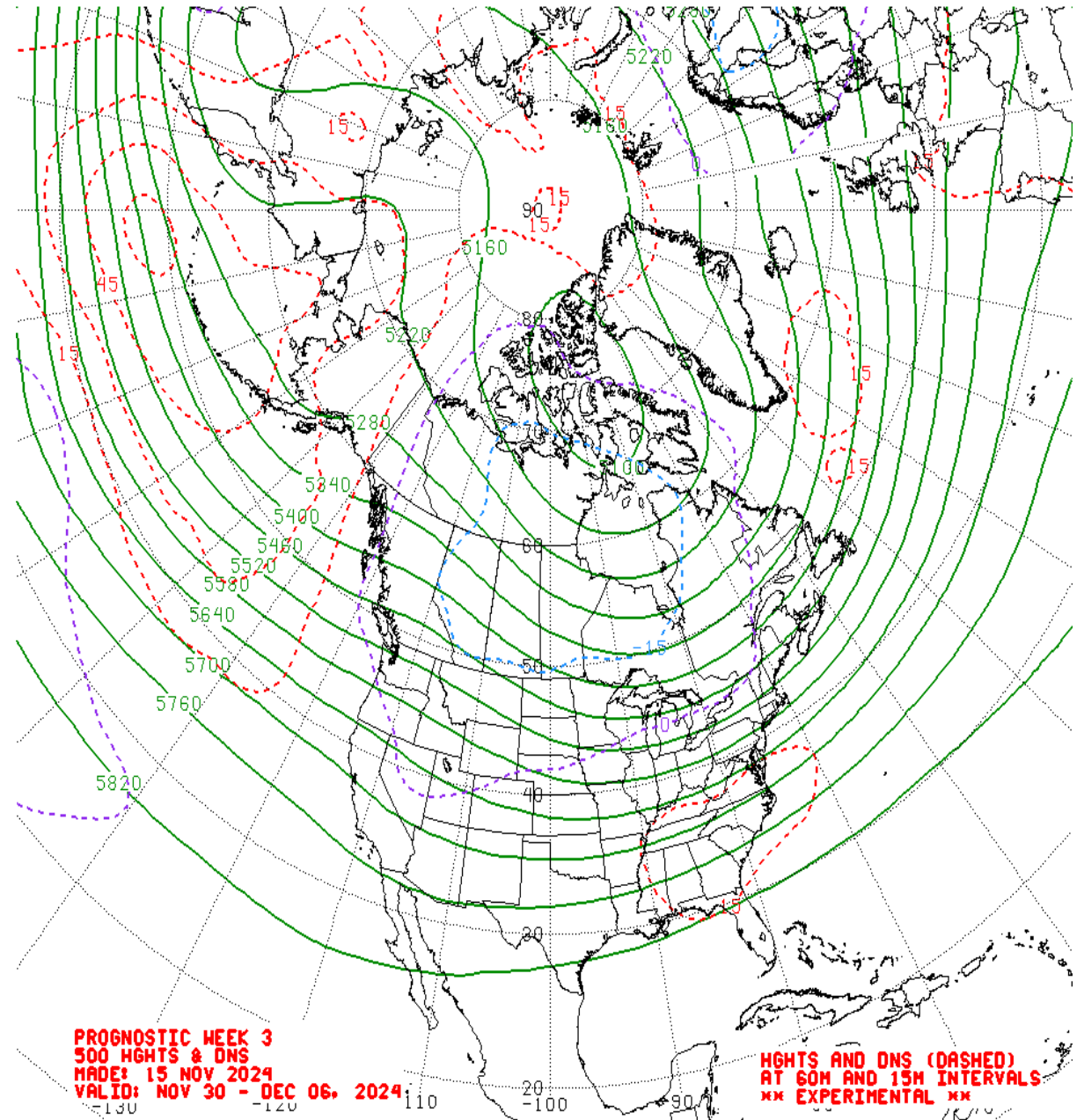
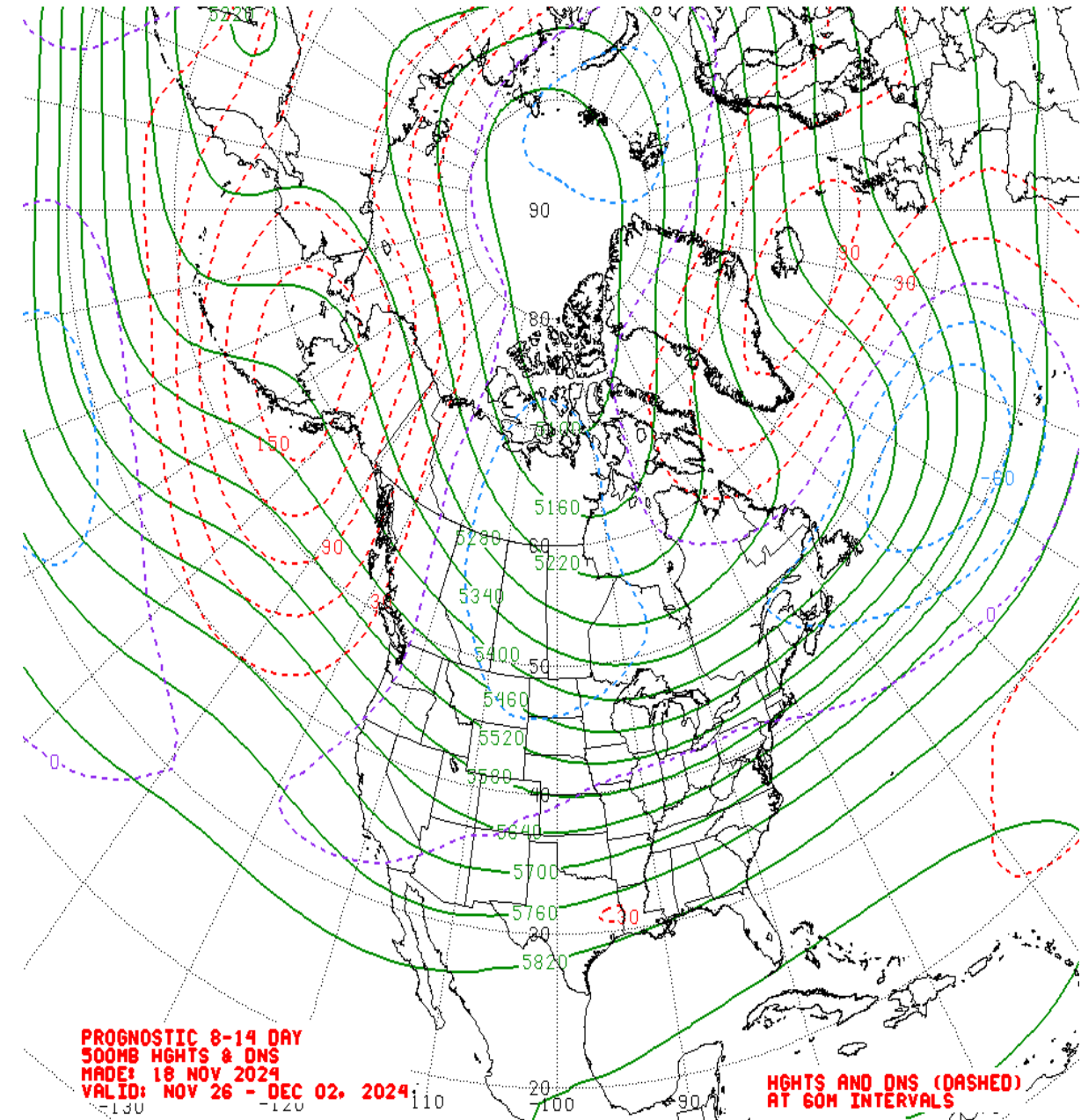
OND MJO Composite: CDAS 500-hPa Height (m)



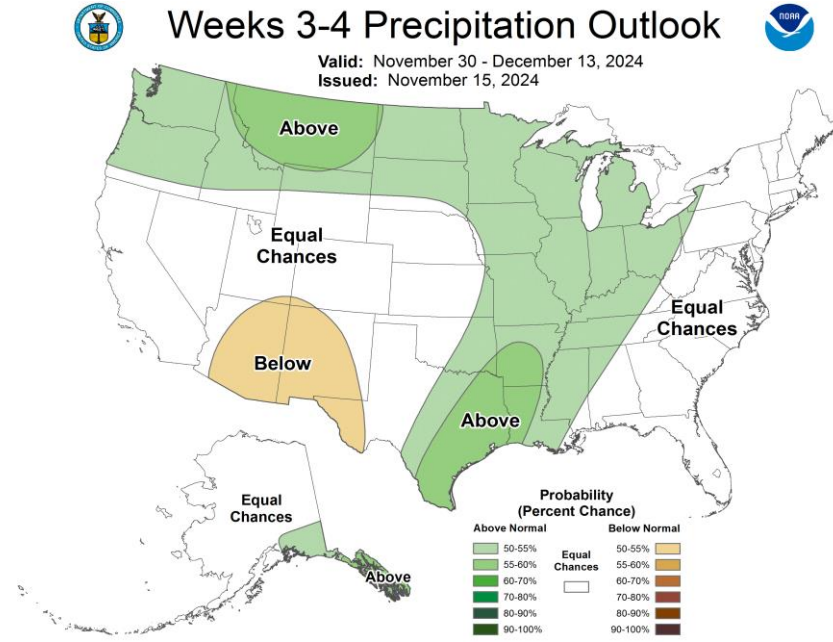
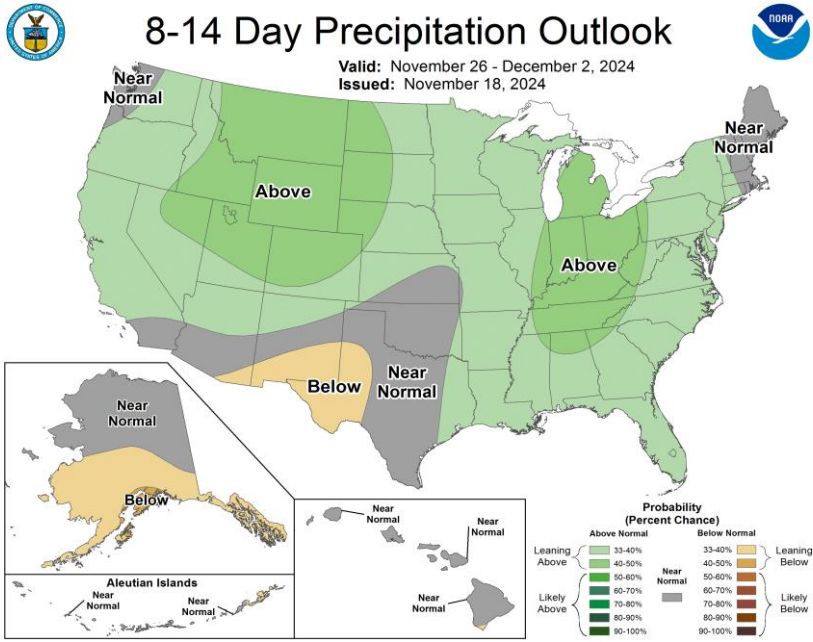
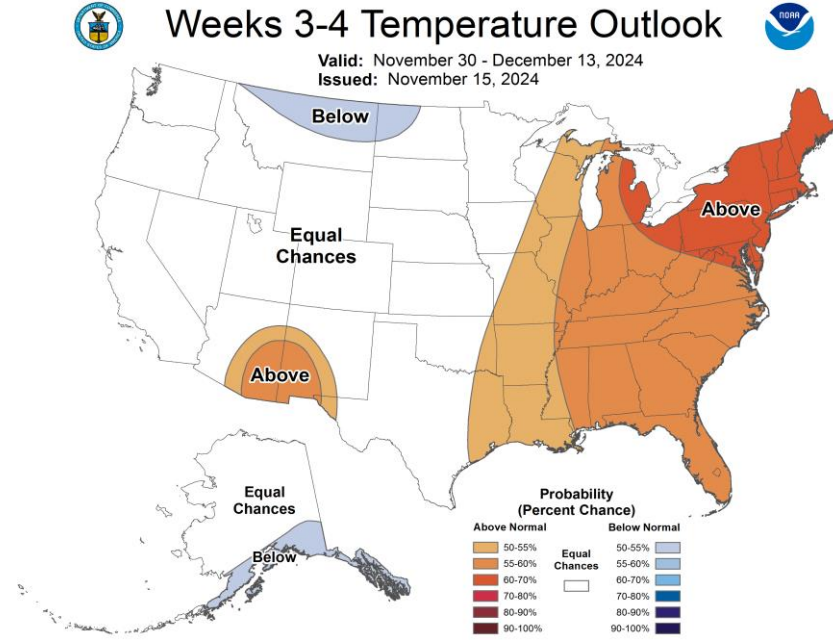
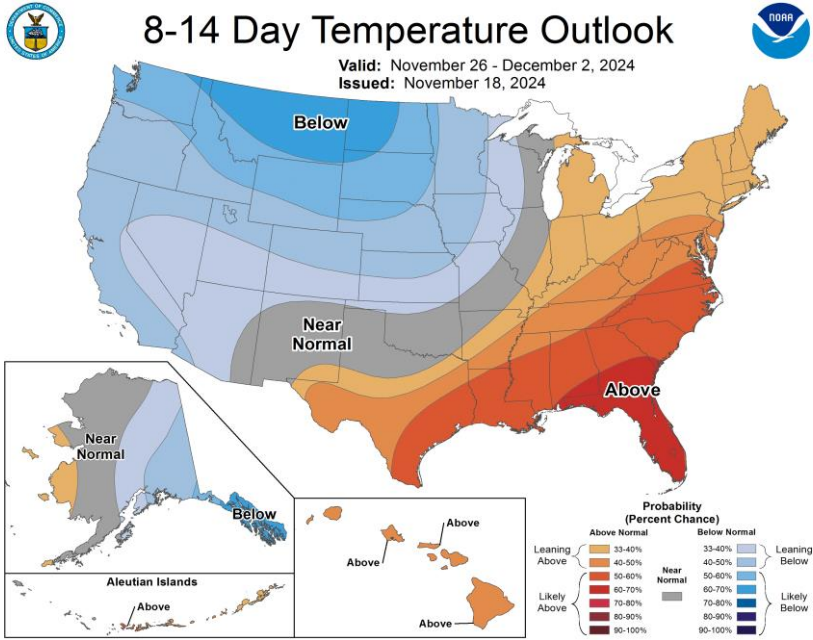
OND MJO Composite: GLBT (degC)



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



Official Temperature & Precipitation Forecasts:



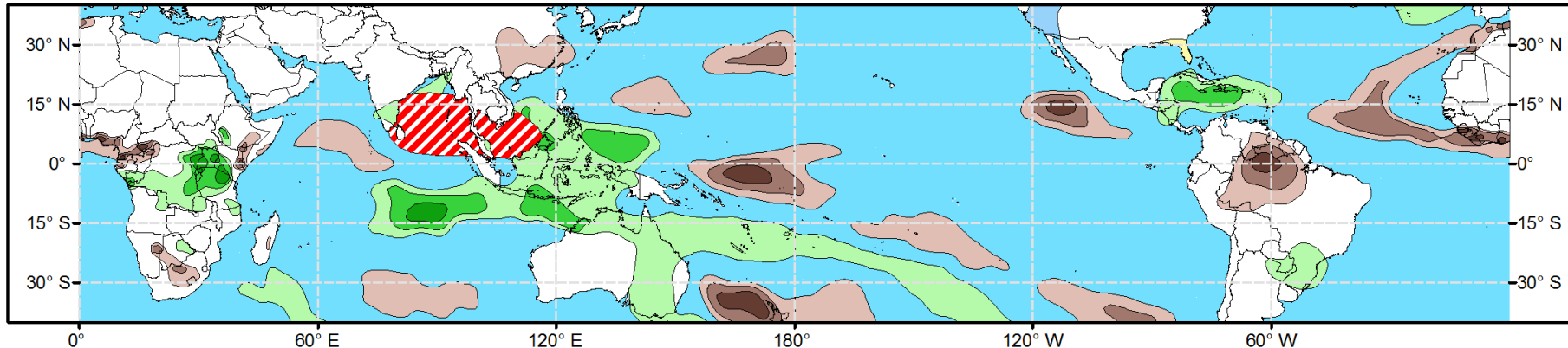


Global Tropics Hazards Outlook

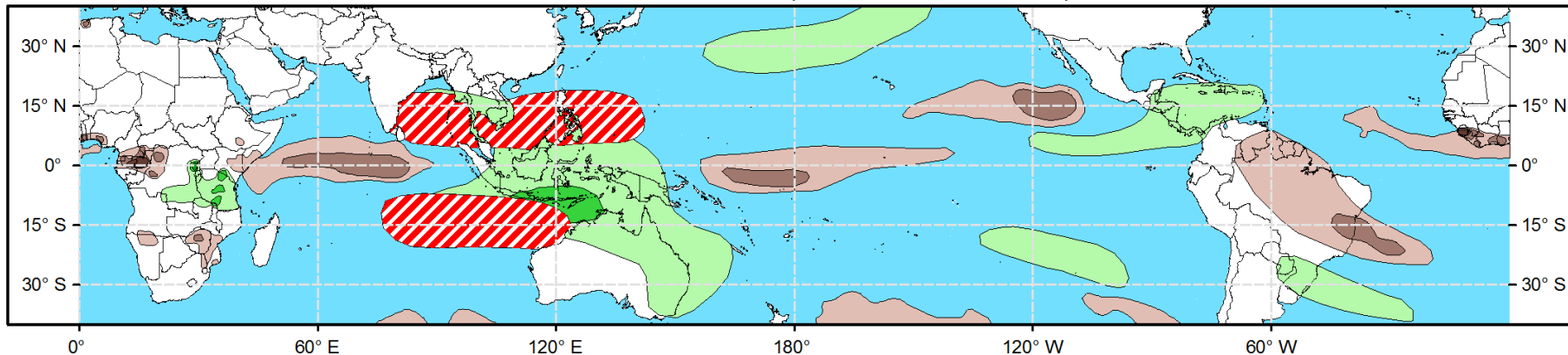
Climate Prediction Center



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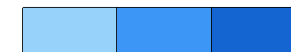
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