



Weeks 2-3 Global Tropics Hazards Outlook

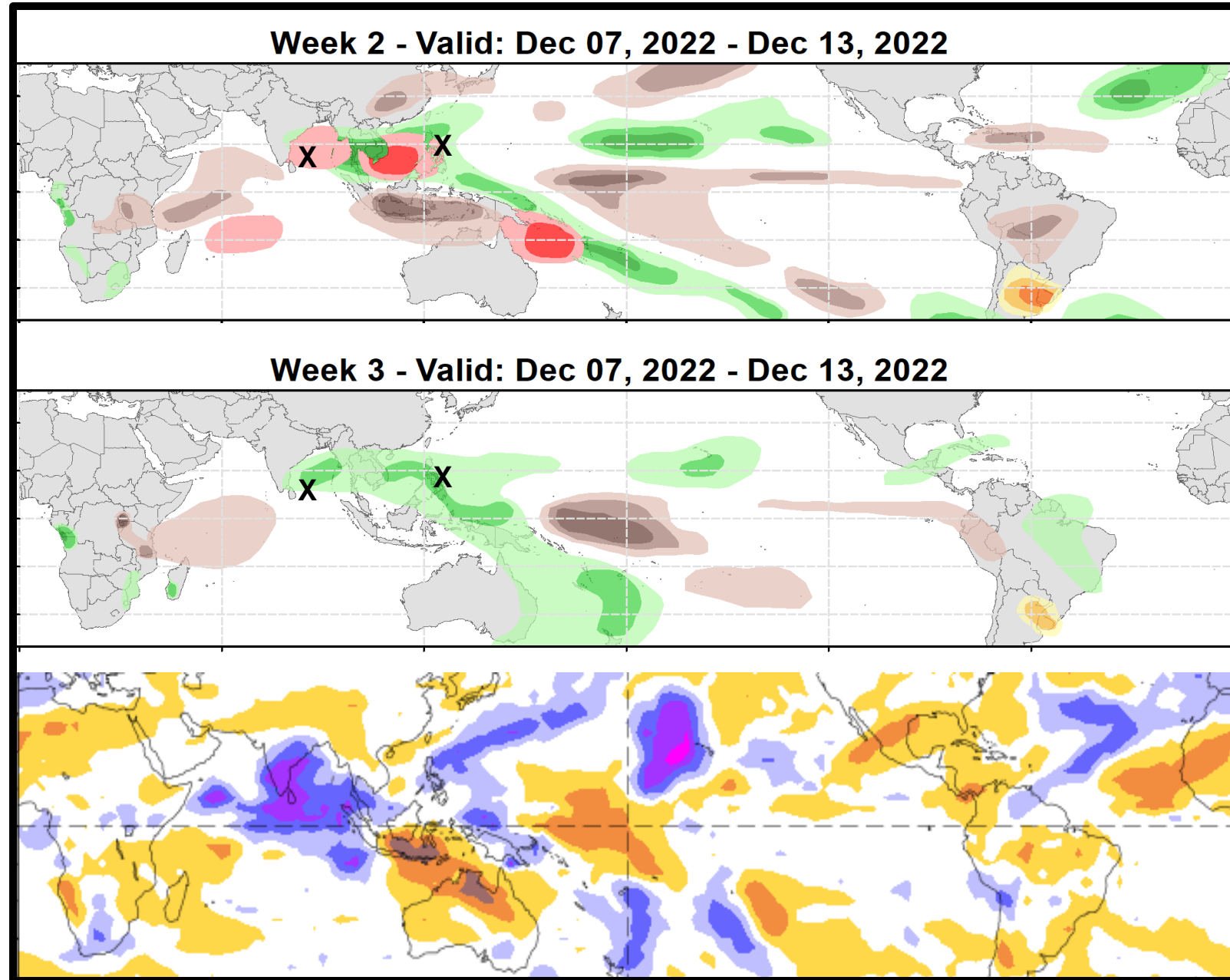
12/13/2022

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- Substantial convection over the eastern Indian Ocean consistent with MJO, TC activity. Better forecasted in Week-3.
- Widespread convection NW Pacific and SPCZ was well forecasted and not related to MJO activity.
- Tropical Storm Mandous (Bay of Bengal)
- Tropical Storm Pakhar (NW Pacific)



Synopsis of Climate Modes:

ENSO: (Dec 8, 2022 Update) *next update on Thursday, Jan 12th, 2023!*

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña is expected to continue into the winter, with equal chances of La Niña and ENSO-neutral during January-March 2023. In February-April 2023, there is a 71% chance of ENSO-neutral.

MJO and other subseasonal tropical variability:

- The MJO remains active, with the enhanced convective phase crossing the Indian Ocean during the past week.
- Enhanced convection over the NW Pacific and SPCZ region may be related to the La Niña response and is weakening the projection of the MJO on the RMM-based index.
- Dynamical model MJO index forecasts favor continued eastward propagation to the Maritime Continent and possibly the West Pacific over the next several weeks.
- The GEFS is slower and amplifies the RMM index over the Indian Ocean before the signal propagates to the Maritime Continent. This could be due to tropical cyclone activity over the southern Indian Ocean.

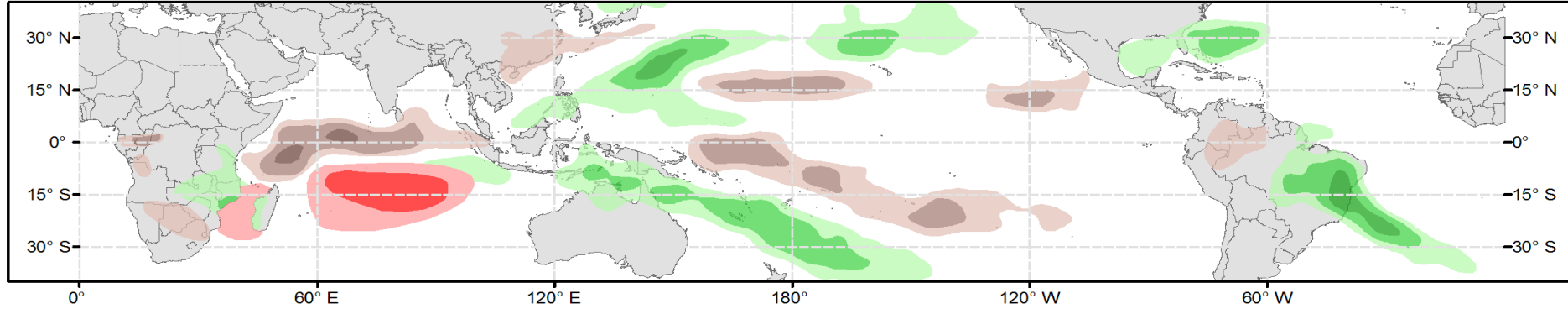
GTH Outlook:



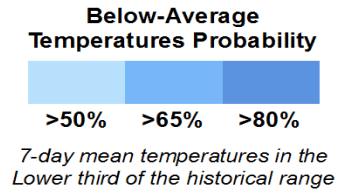
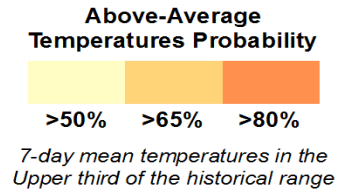
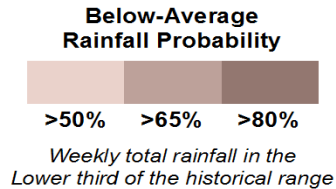
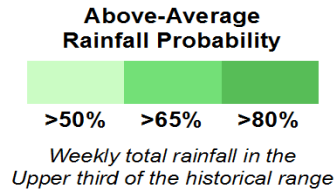
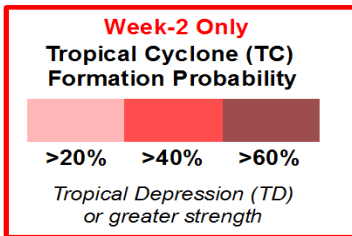
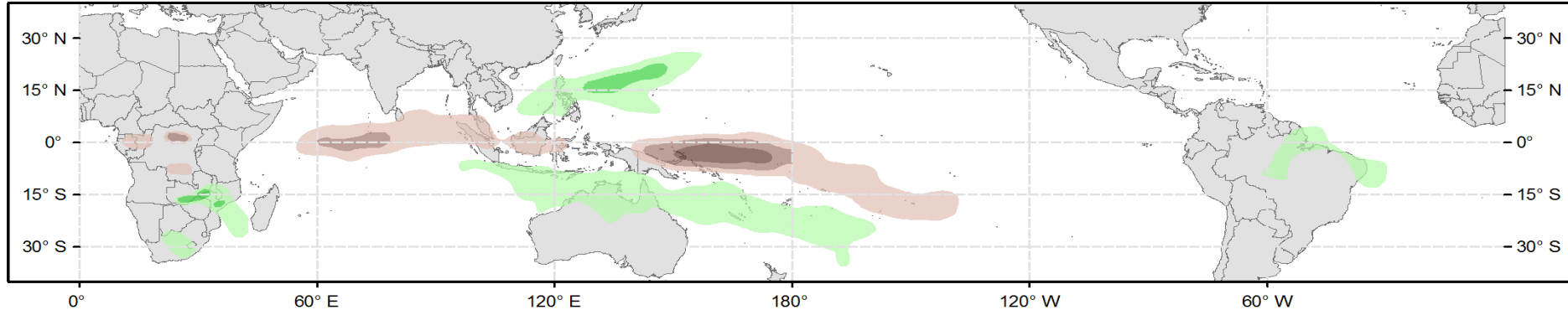
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Dec 21, 2022 - Dec 27, 2022



Week 3 - Valid: Dec 28, 2022 - Jan 03, 2023

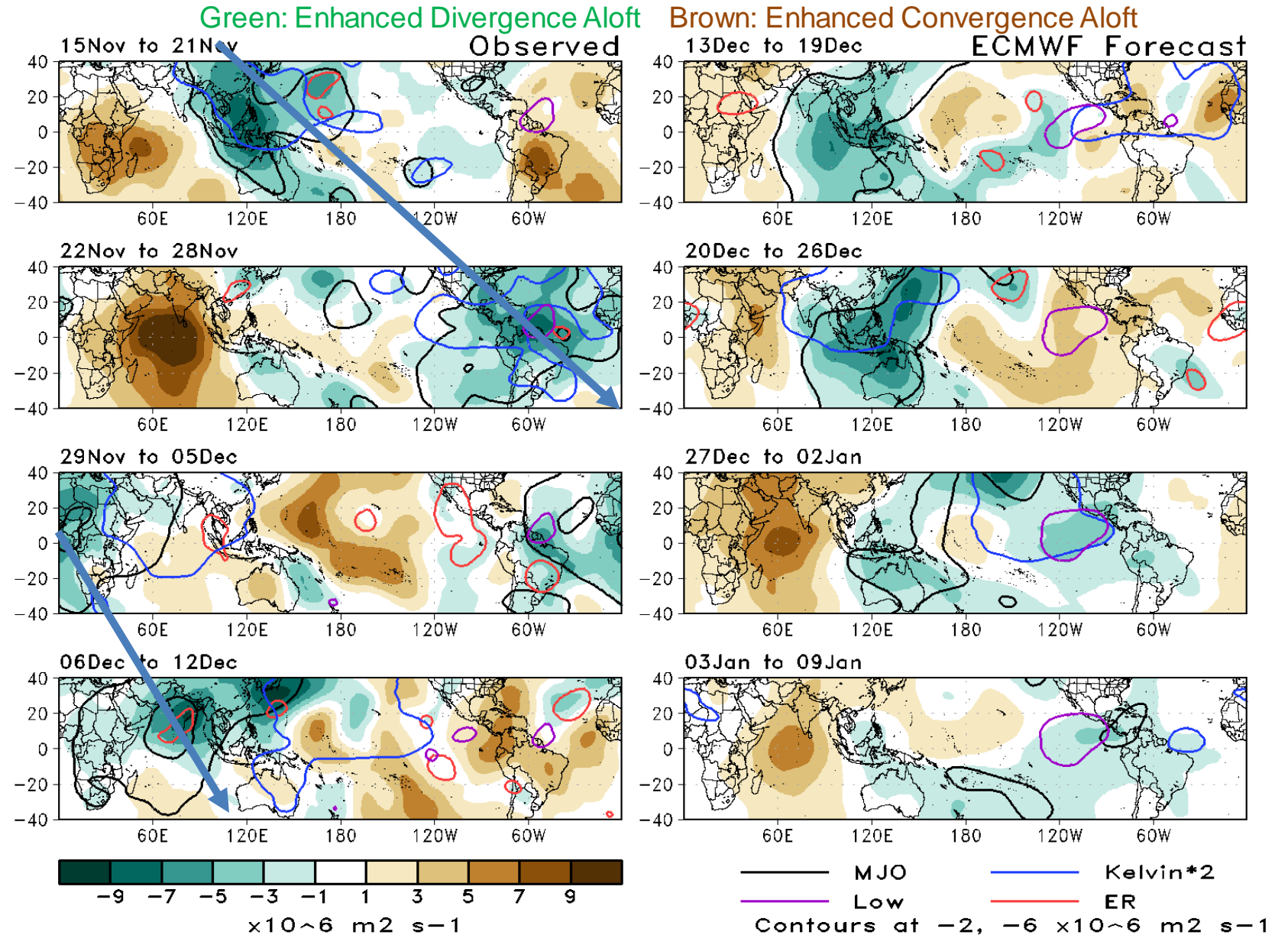


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Forecaster: Allgood

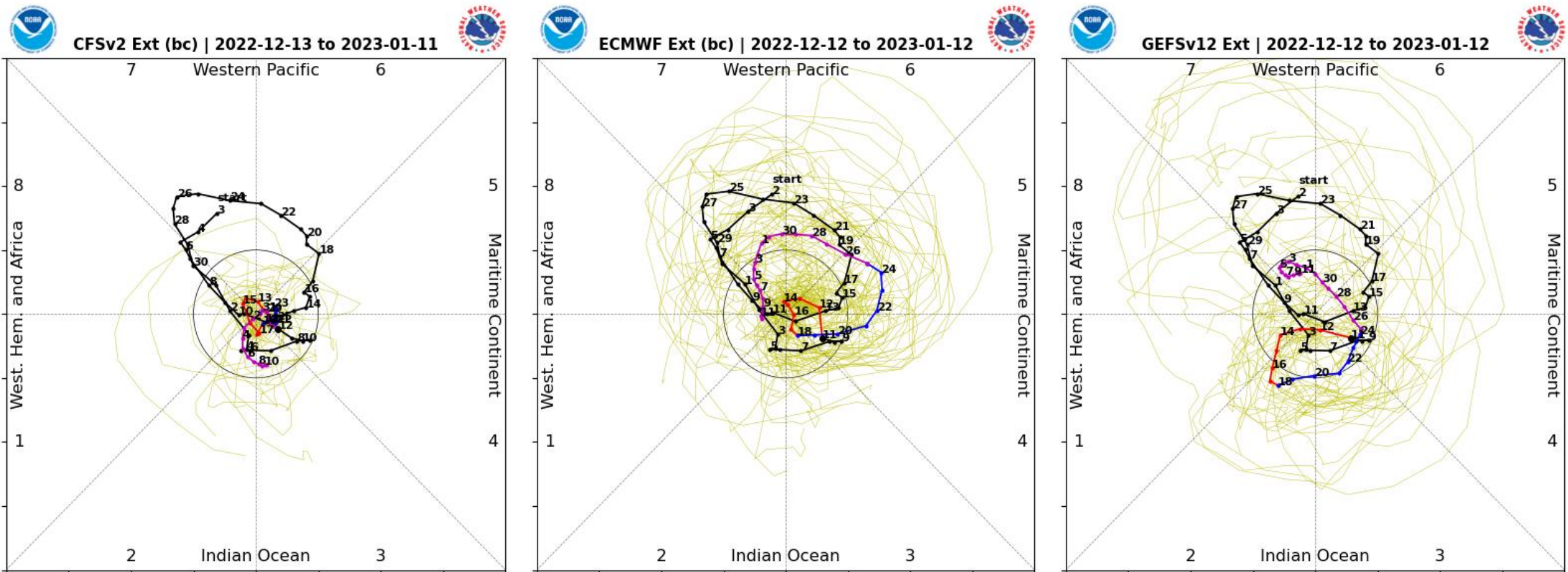
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

- The MJO crossed the Pacific during late November, briefly disrupting the La Niña response.
- The MJO is currently over the eastern Indian Ocean.
- The ECMWF favors continued eastward propagation of the MJO across the Maritime Continent and Pacific through early January.

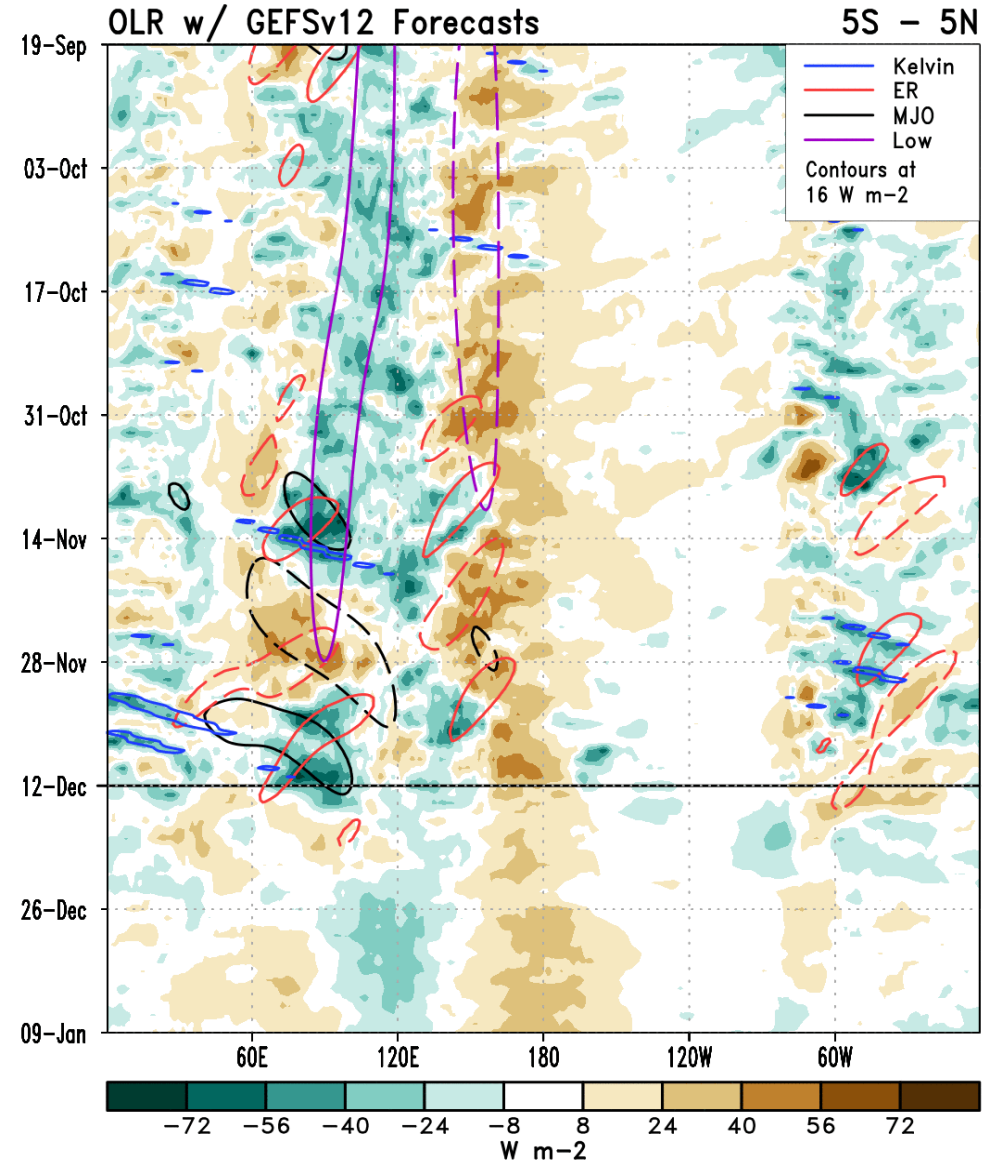
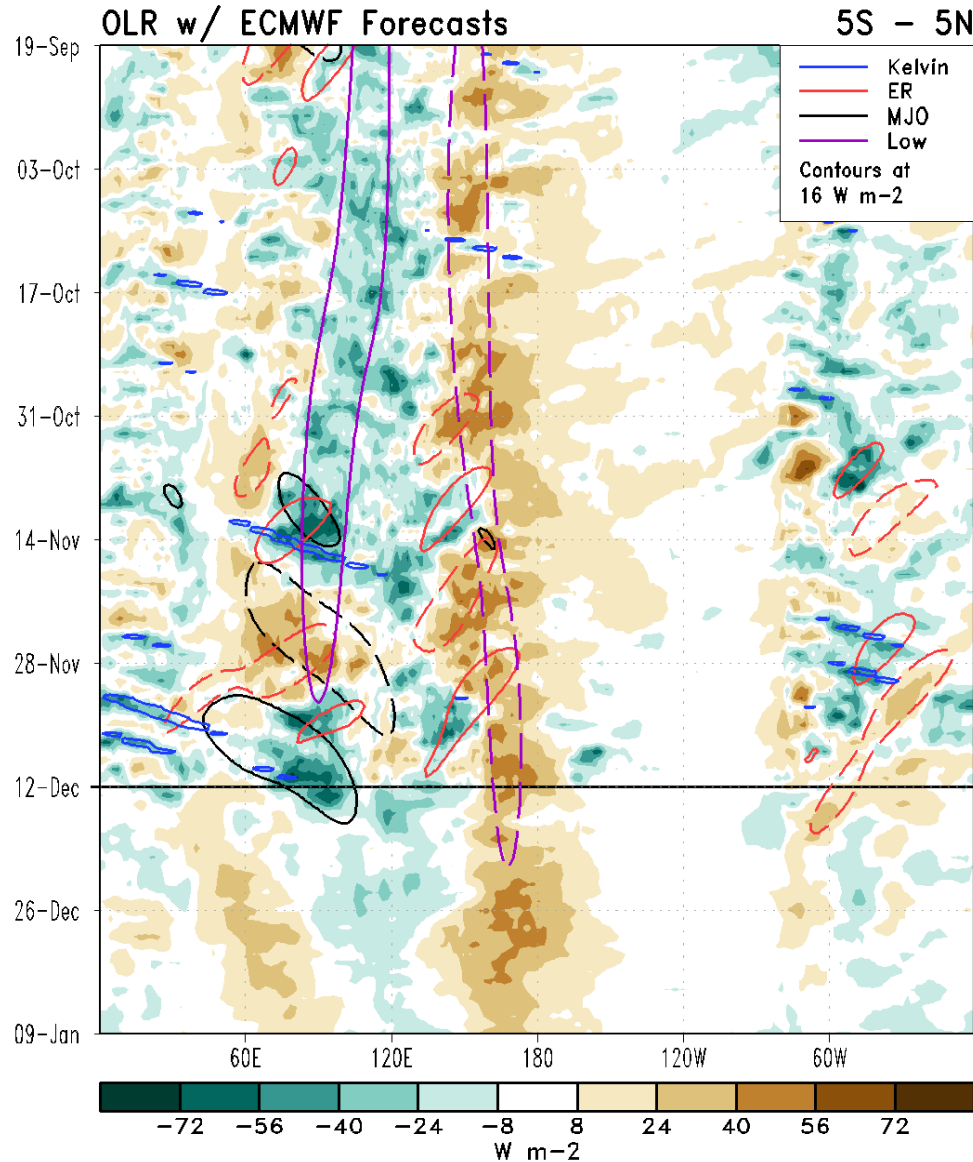


RMM Index Observations & Forecasts:



- Both the GFS and ECMWF ensembles generally favor coherent MJO activity, with greater spread in the GFS.
- Rossby wave/TC activity over the Indian Ocean may cause some retrogression and amplification of the Index during Week-1 per the GFS.
- The CFS has trended weaker over the past several days.

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

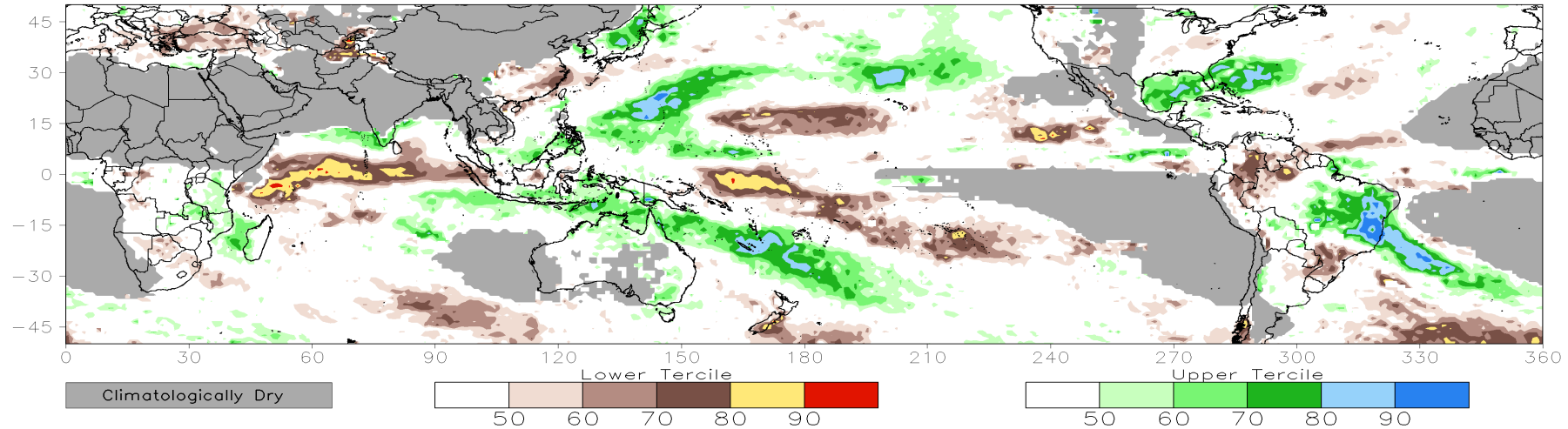


Some eastward propagation is depicted, but La Niña likely to overcome the MJO footprint near the Equator.

Consolidated Probabilistic Precipitation: Weeks 2 & 3

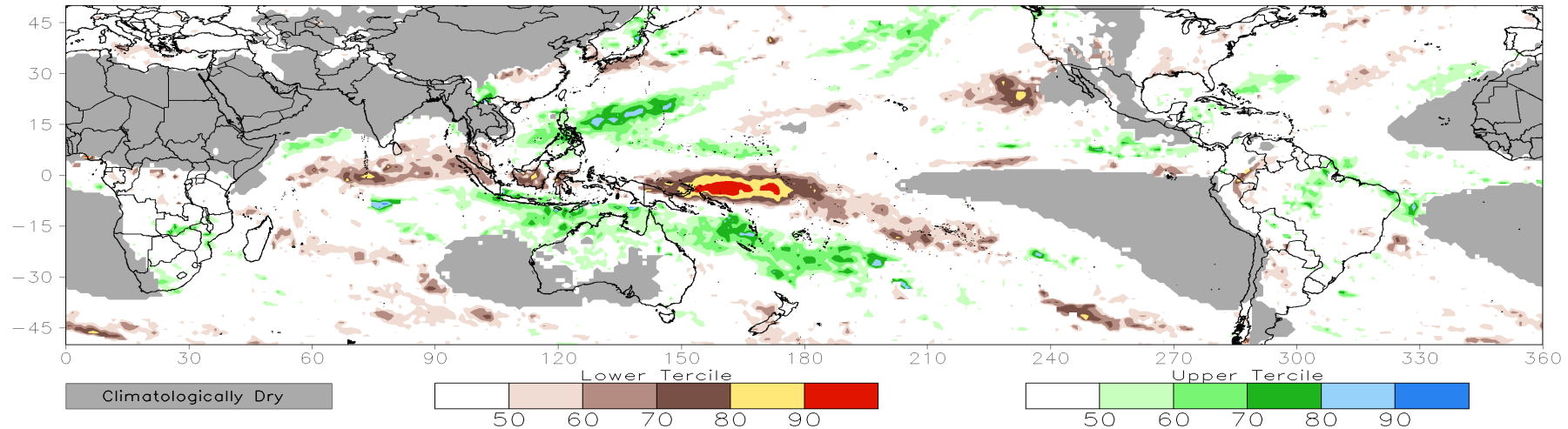
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 21Dec2022–27Dec2022



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

Valid: 28Dec2022–03Jan2023

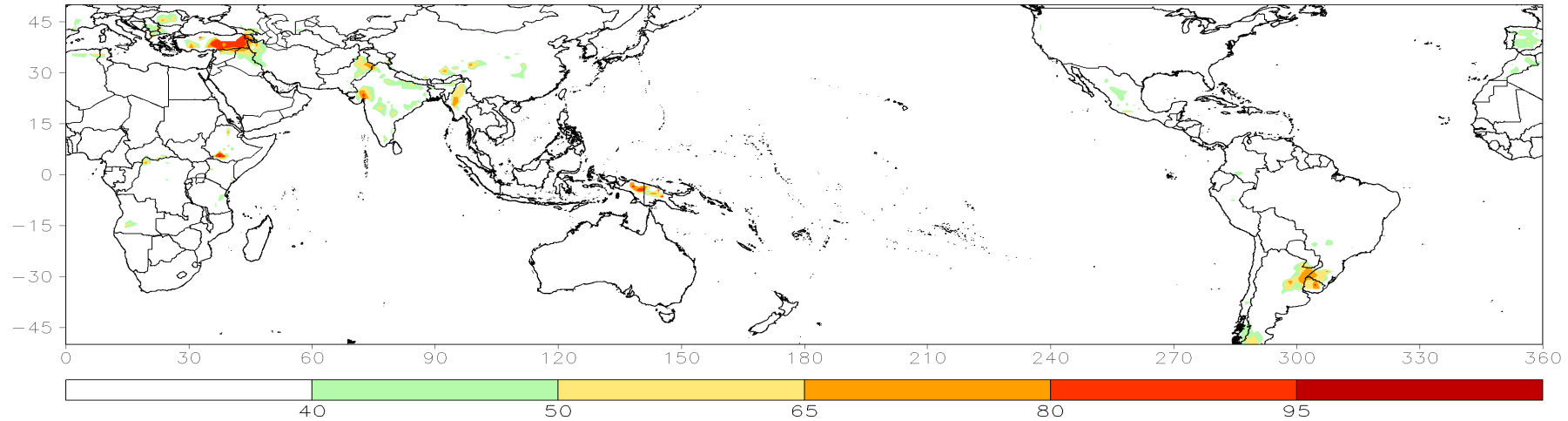


Note the “U” shaped band of convection over the NW/SW Pacific off-Equator.

Consolidated Probabilistic Temperatures: Week-2

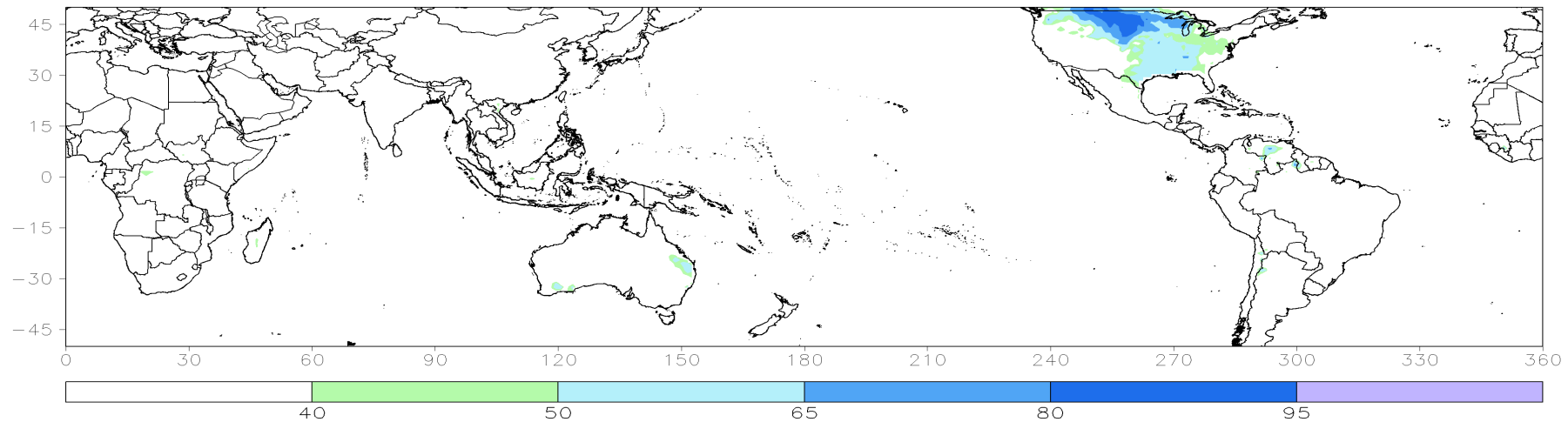
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 21Dec2022–27Dec2022



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

Valid: 21Dec2022–27Dec2022

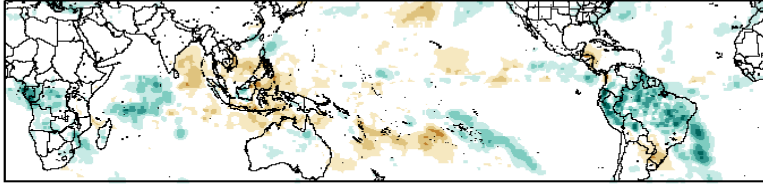


Large cold-air outbreak into the CONUS during Week-2, though no strong signal for So. TX or FL freezes.

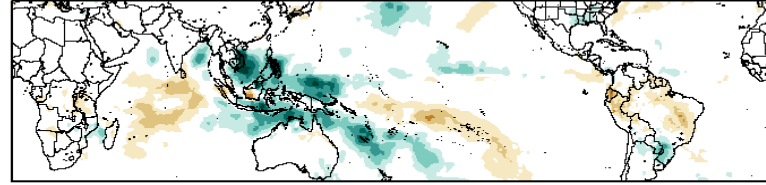
Historical Precipitation Anomalies By MJO Phase:

NDJ MJO Composite: GPCP1DD (mm/day)

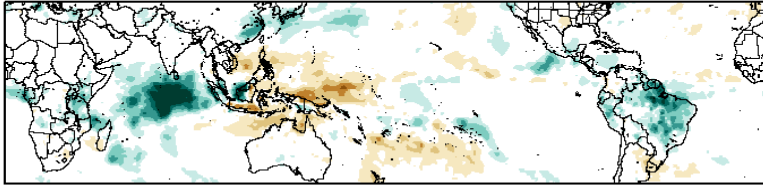
Phase 1



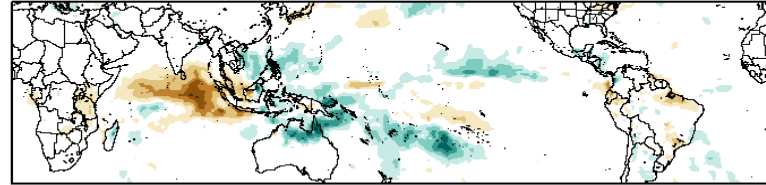
Phase 5



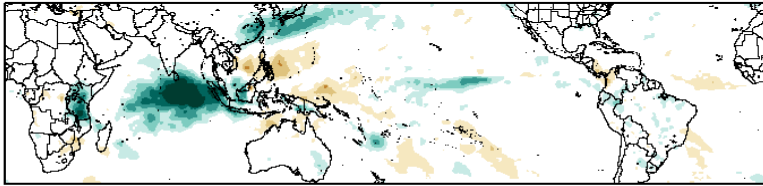
Phase 2



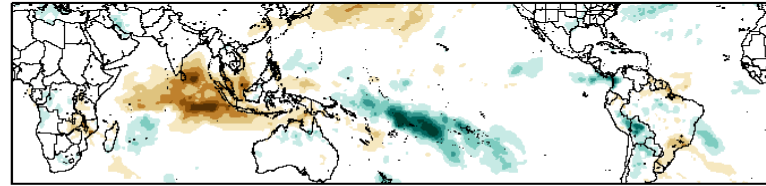
Phase 6



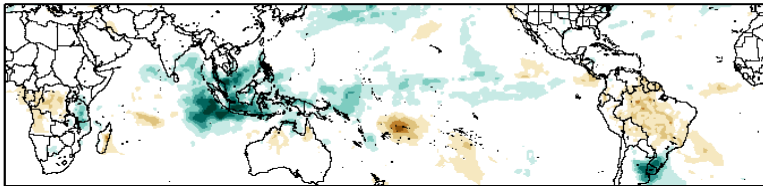
Phase 3



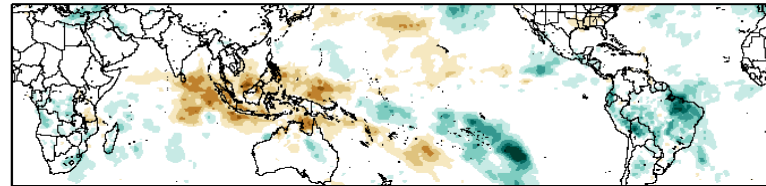
Phase 7



Phase 4



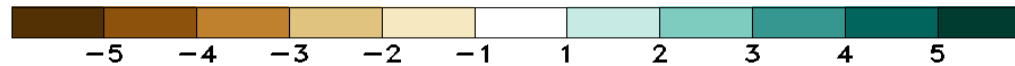
Phase 8



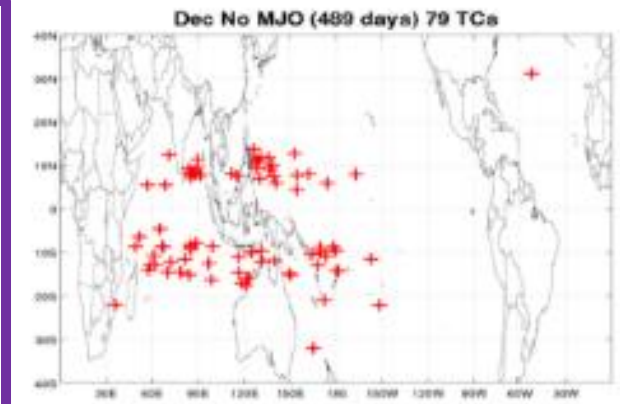
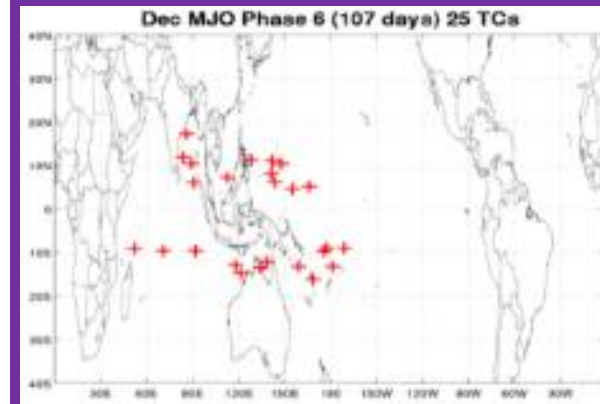
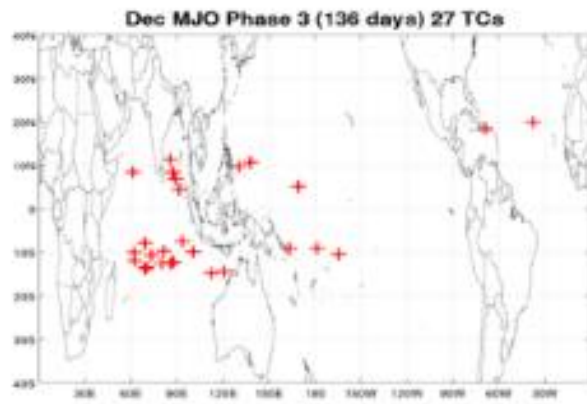
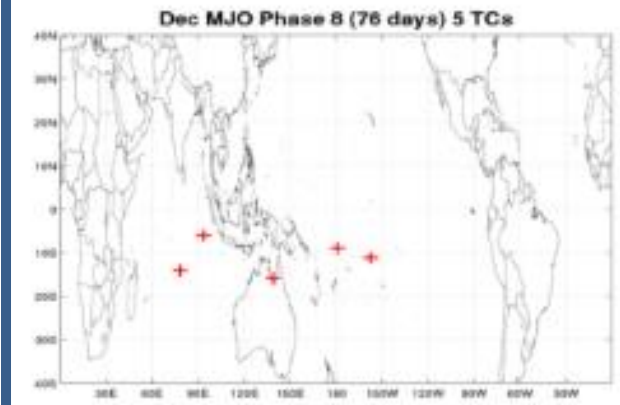
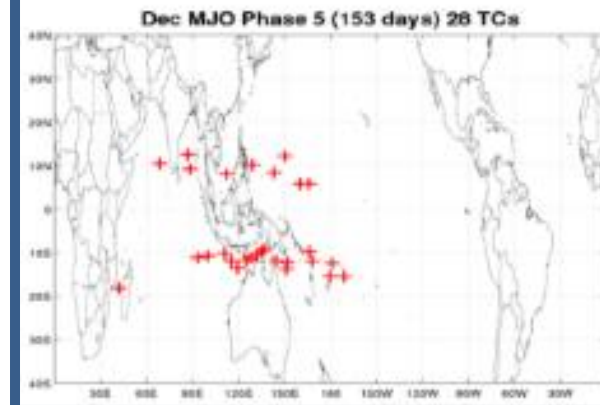
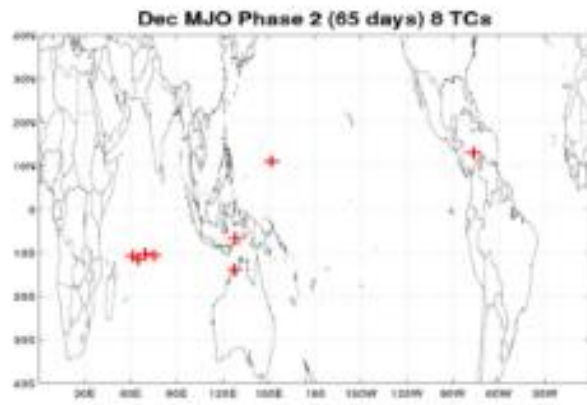
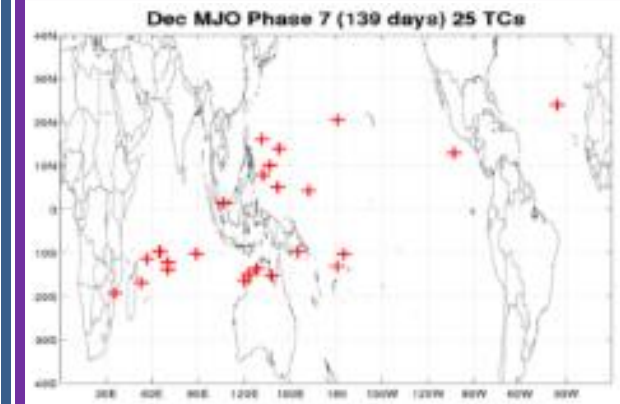
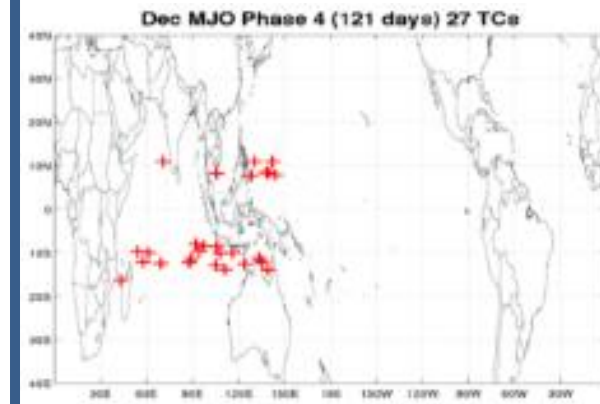
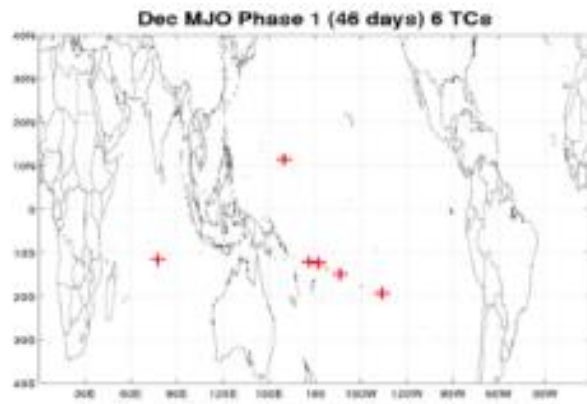
Week-2

Week-3?

Week-2



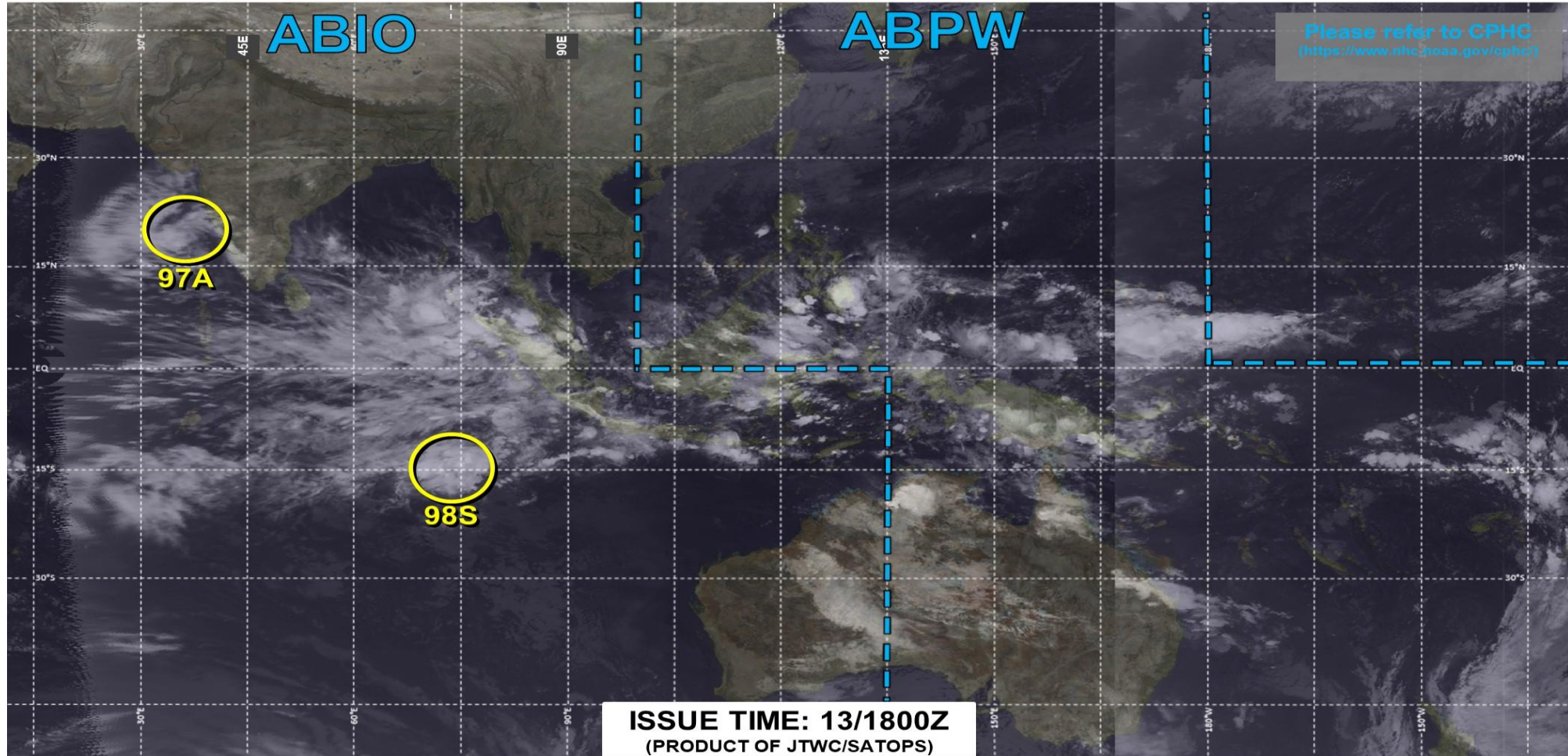
Historical TC Genesis Origins By MJO Phase:



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)



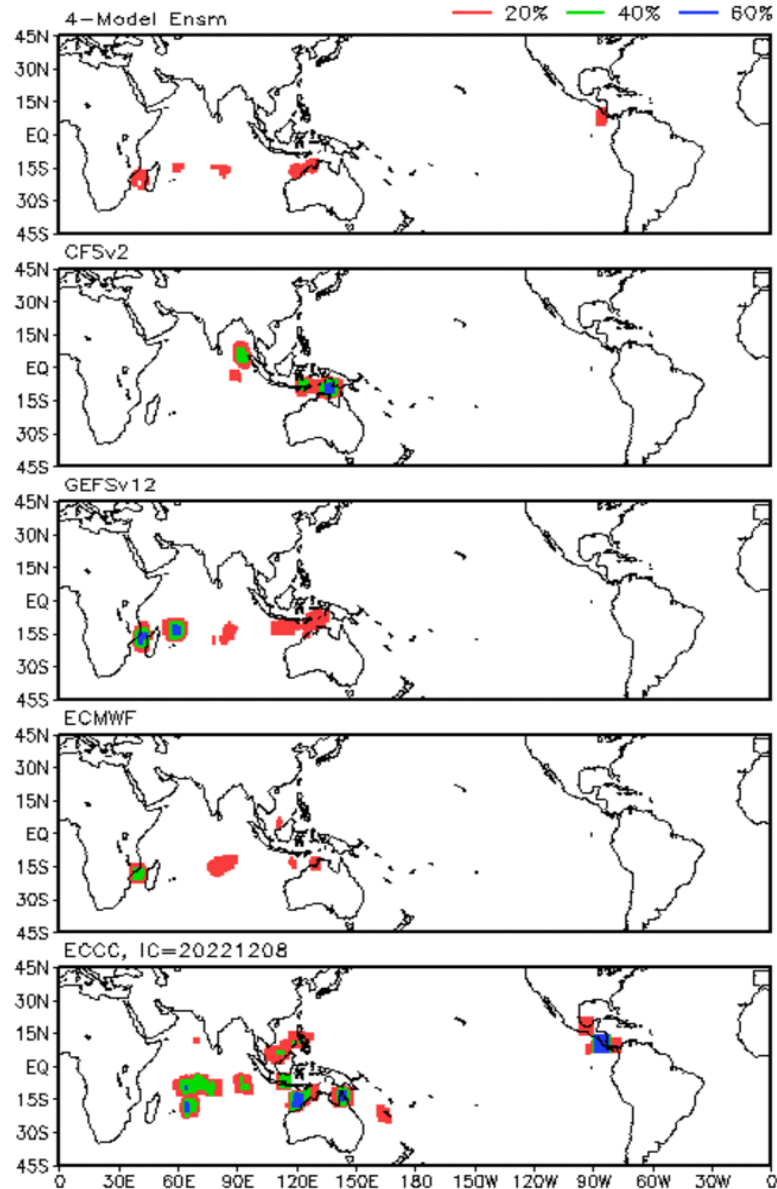
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



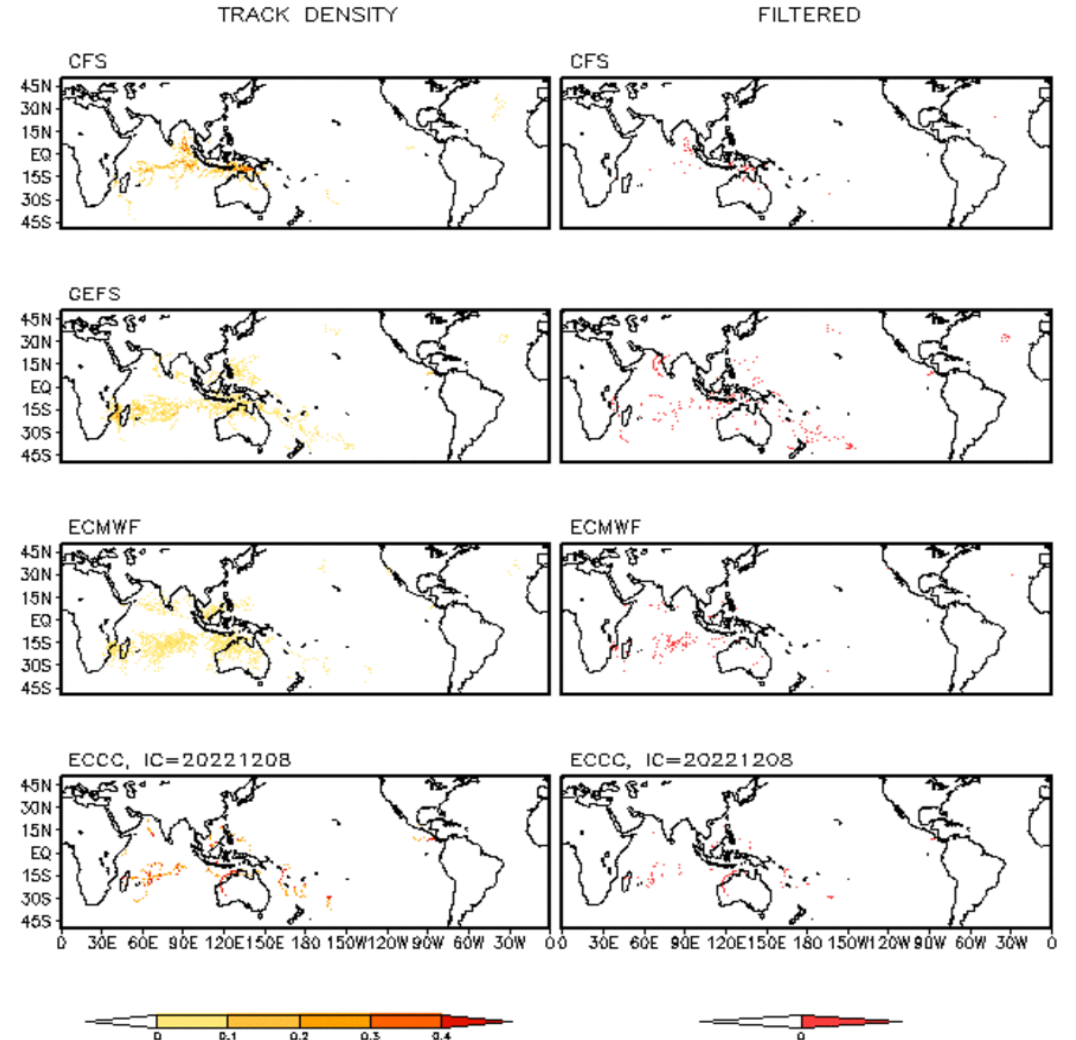
Tropical Cyclone (Reference Warning)

Multi-Model TC Track Probabilities/Densities: Week-2

Storm Track Probabilities, IC=20221212
Week 2: 1221 - 1227



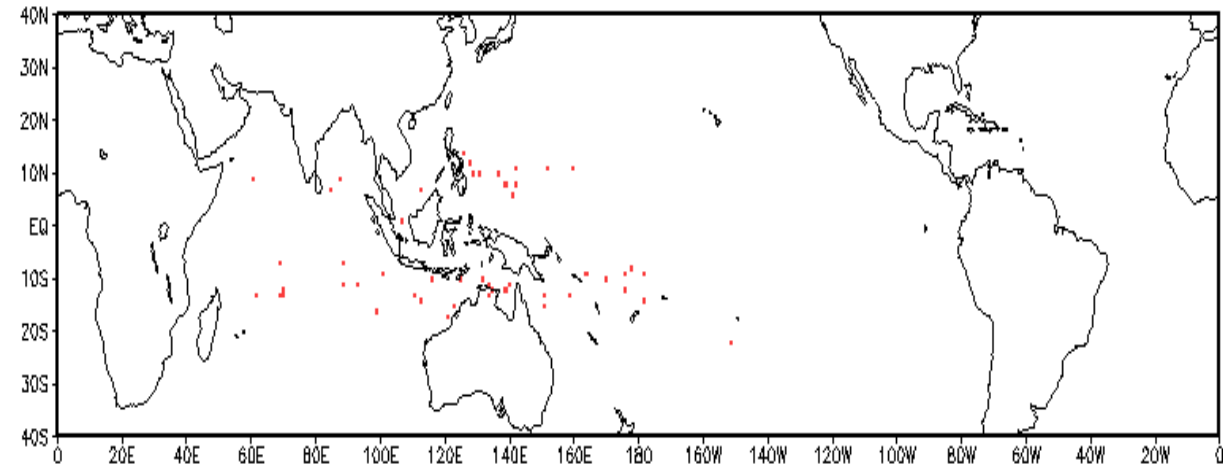
Storm Track Density Distribution, IC=20221212
Week 2 Forecast: 1221-1227



TC Climatological Genesis: Weeks 2 & 3

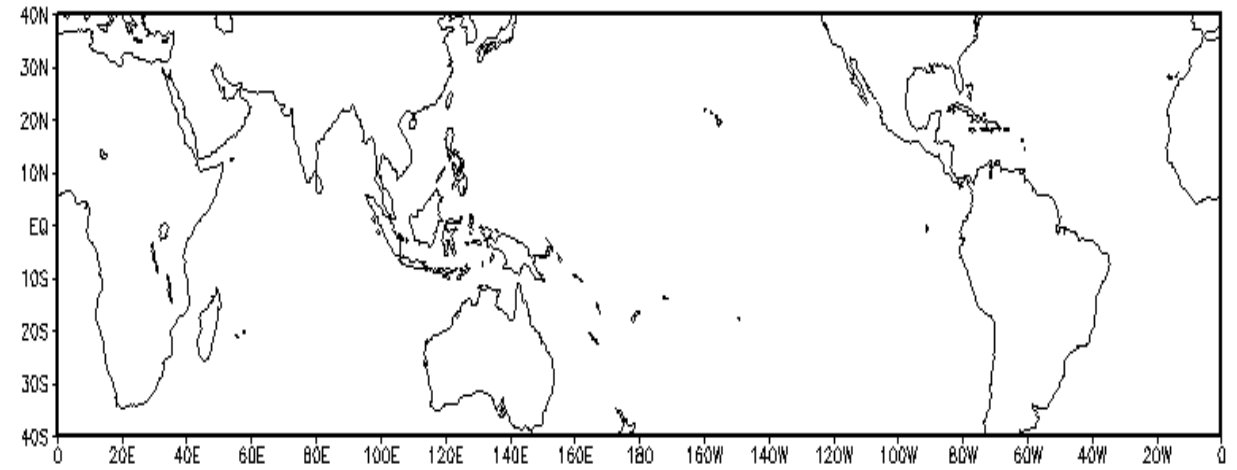
Observed TC Genesis, 1979–2021

7-day Period 1221 to 1227



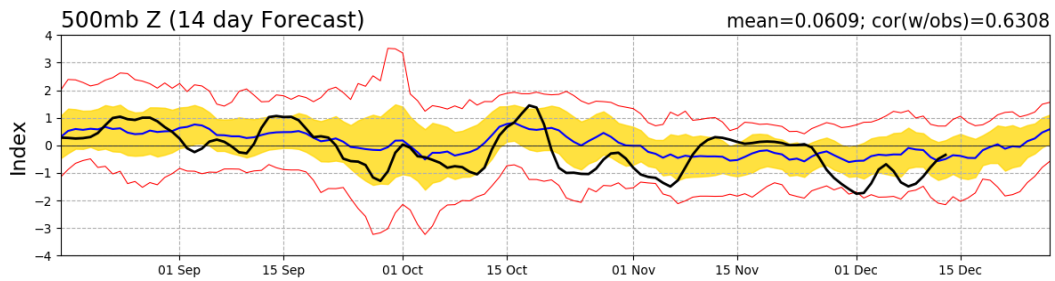
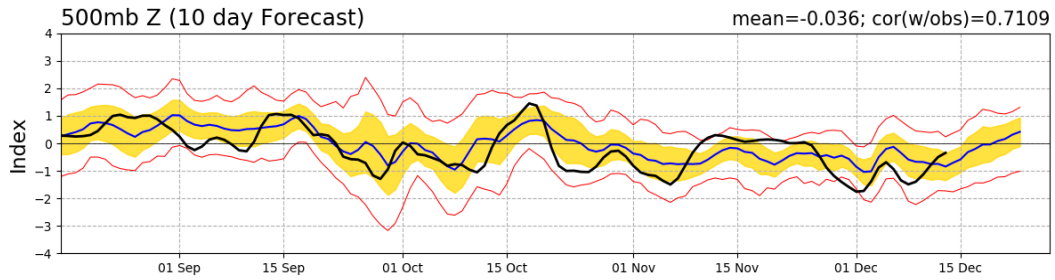
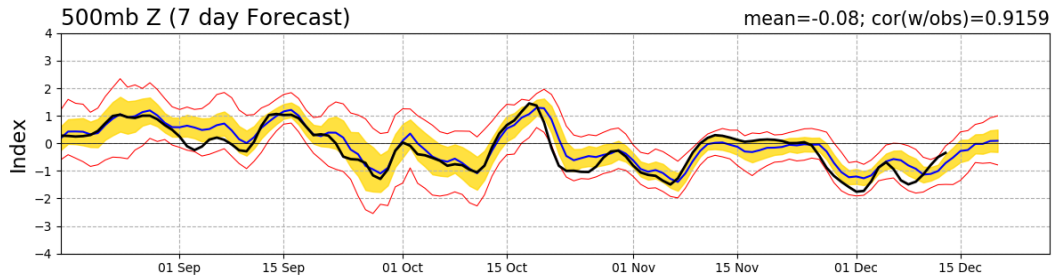
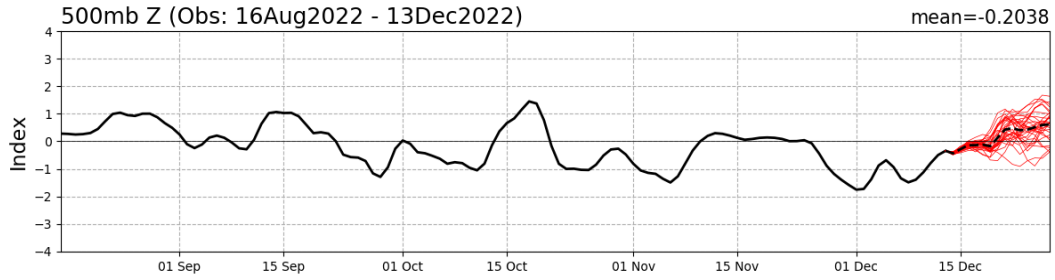
Observed TC Genesis, 1979–2021

7-day Period 1228 to 0103

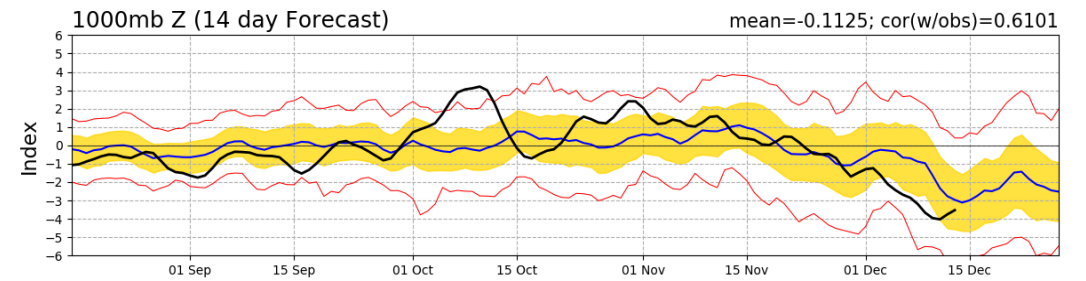
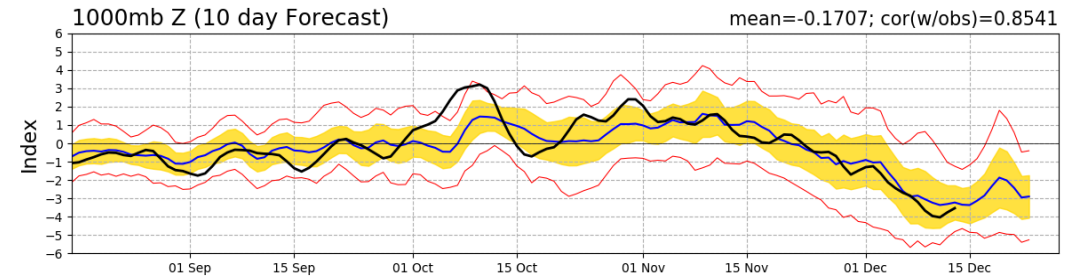
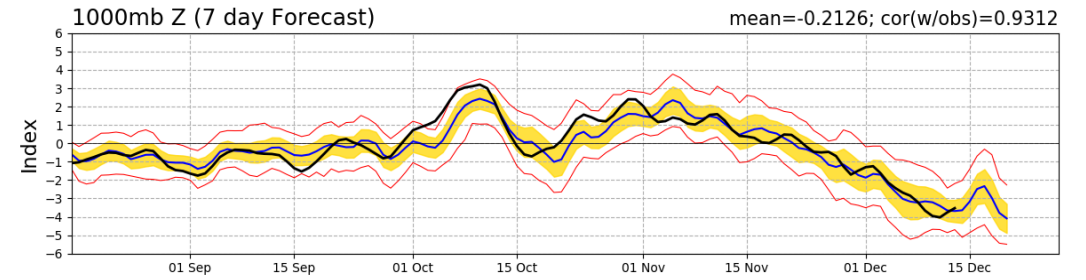
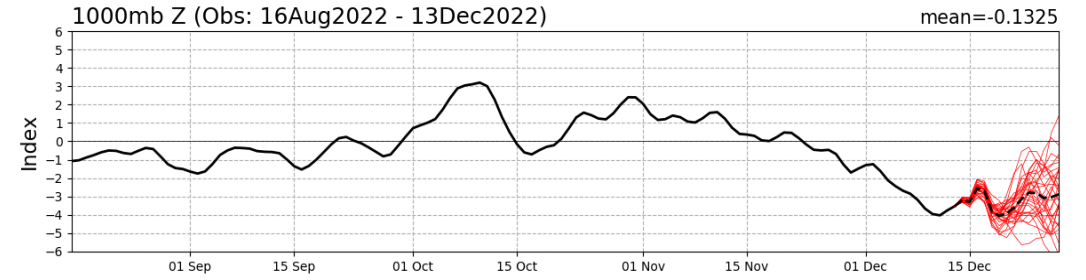


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

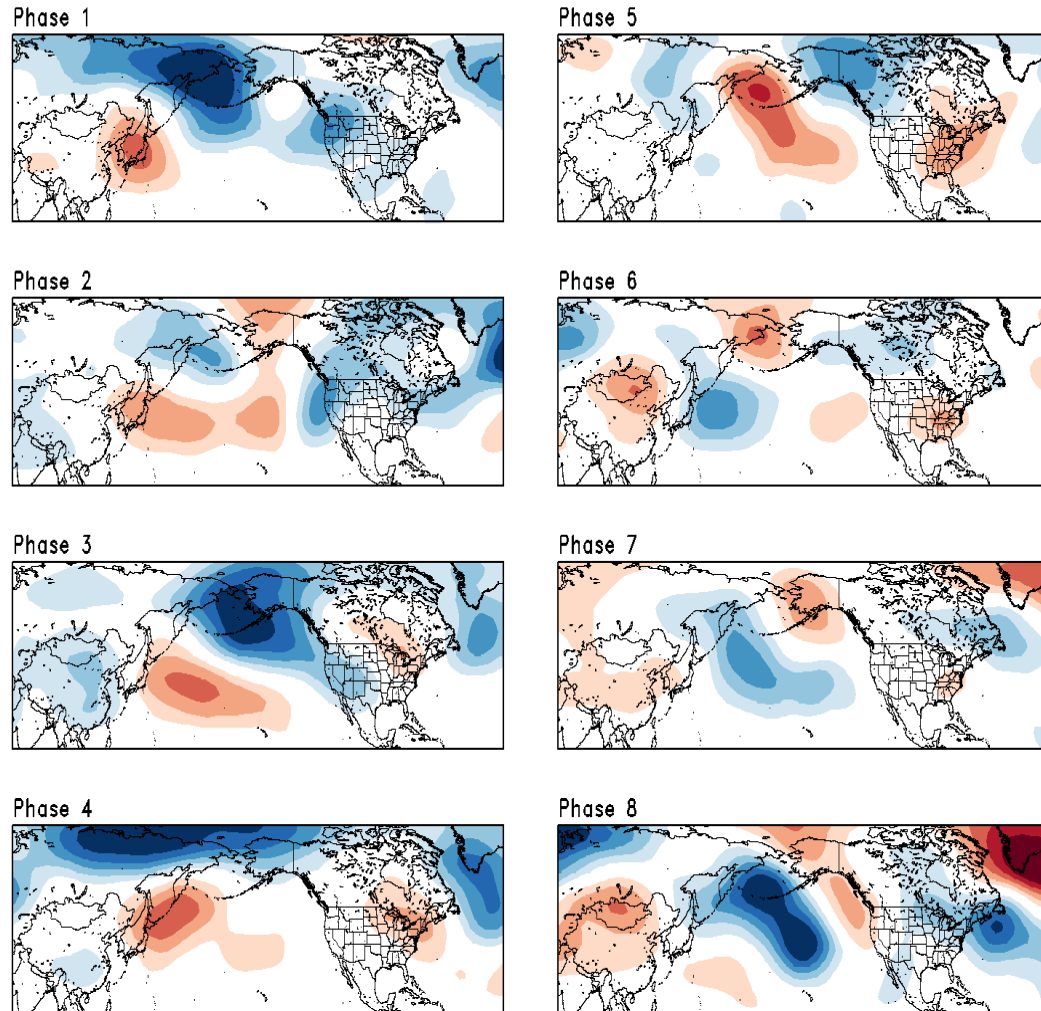


AO Index: Observed & GEFS Forecasts

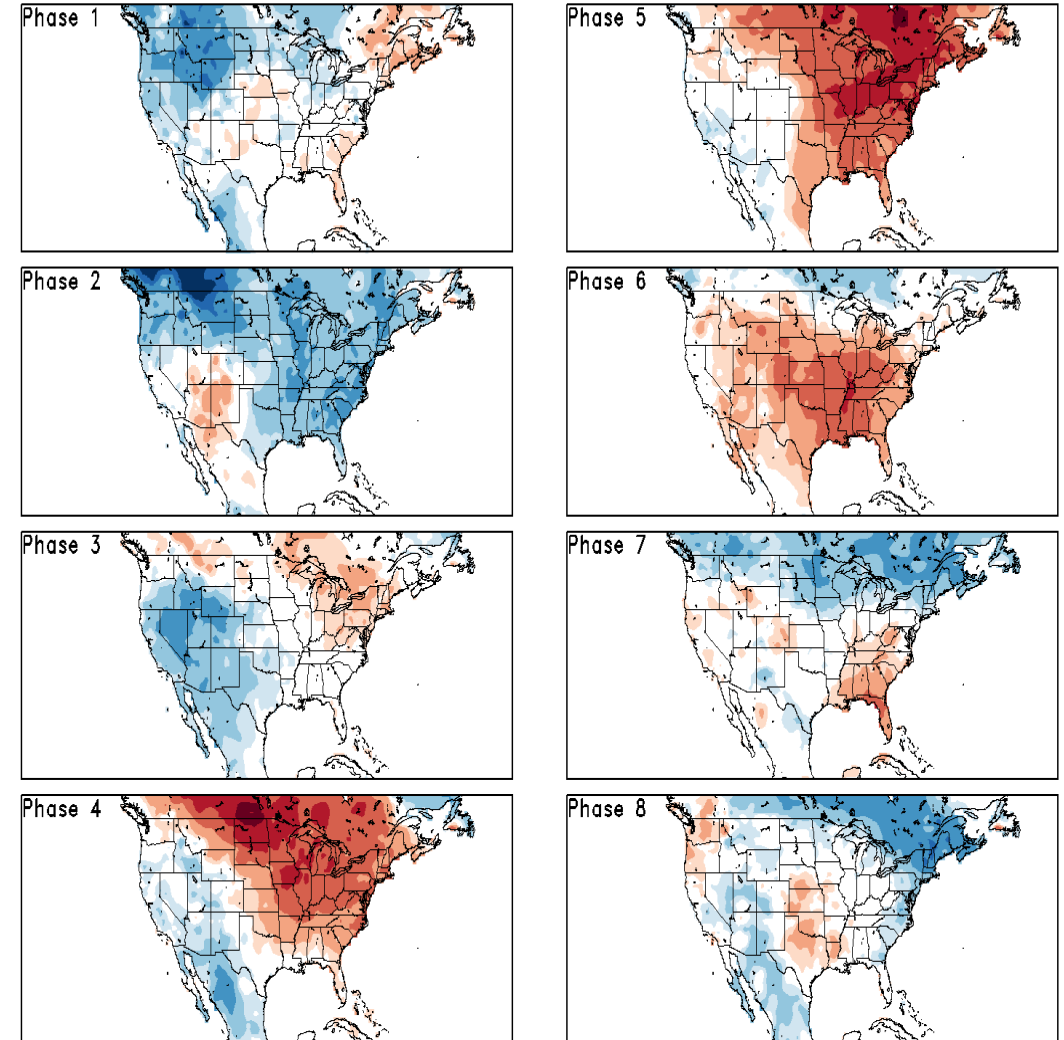


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

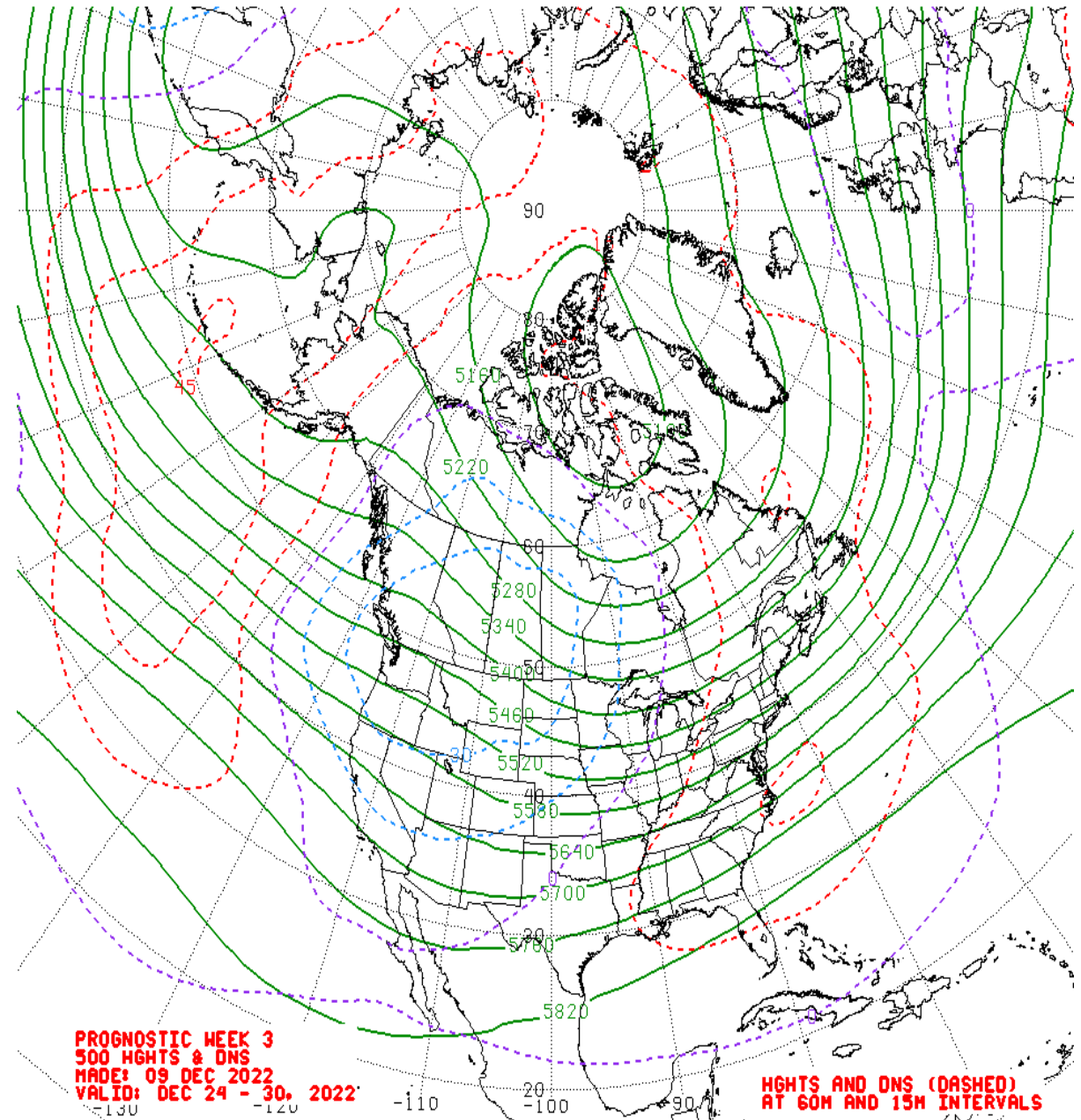
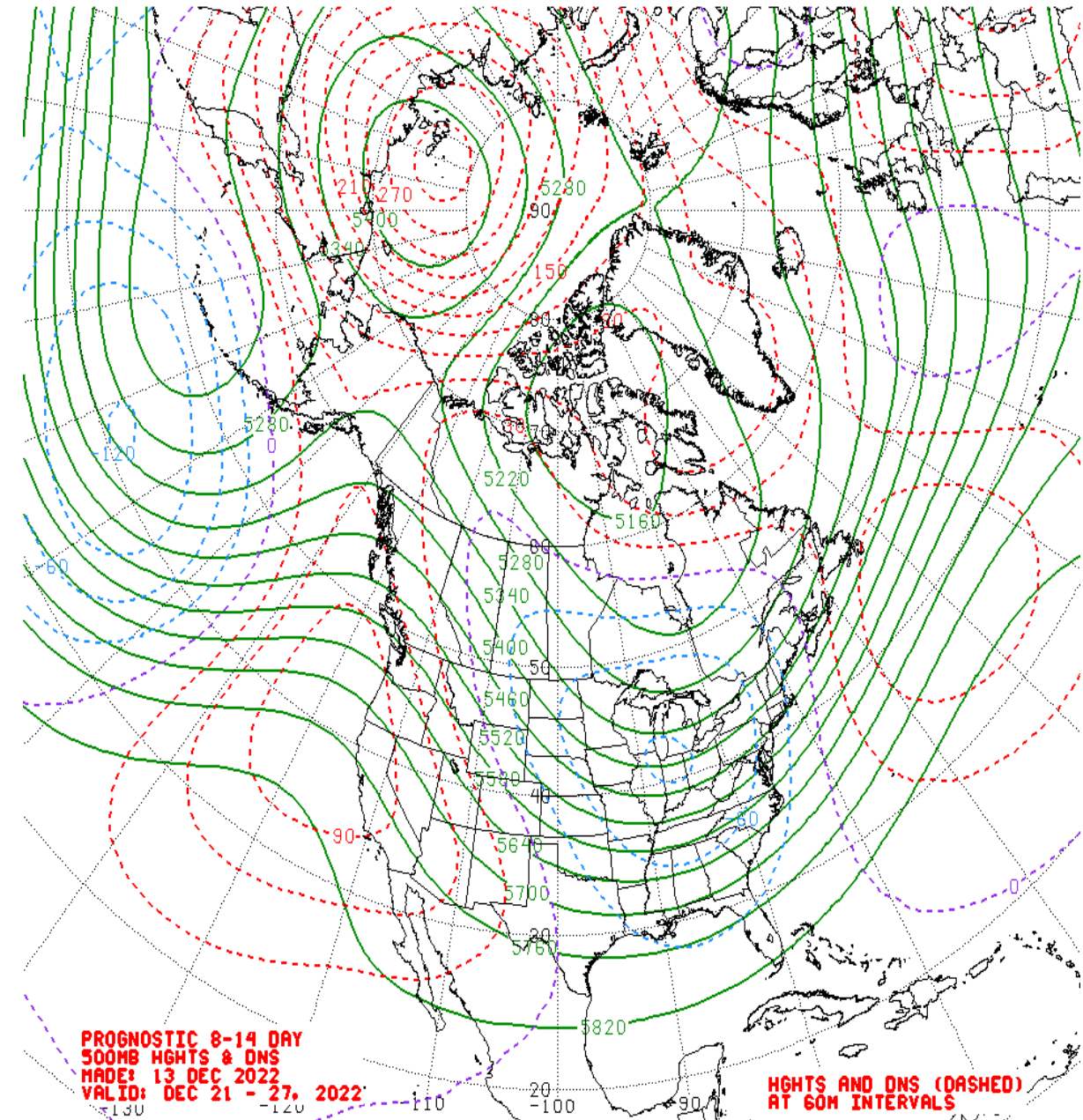
NDJ MJO Composite: CDAS 500-hPa Height (m)



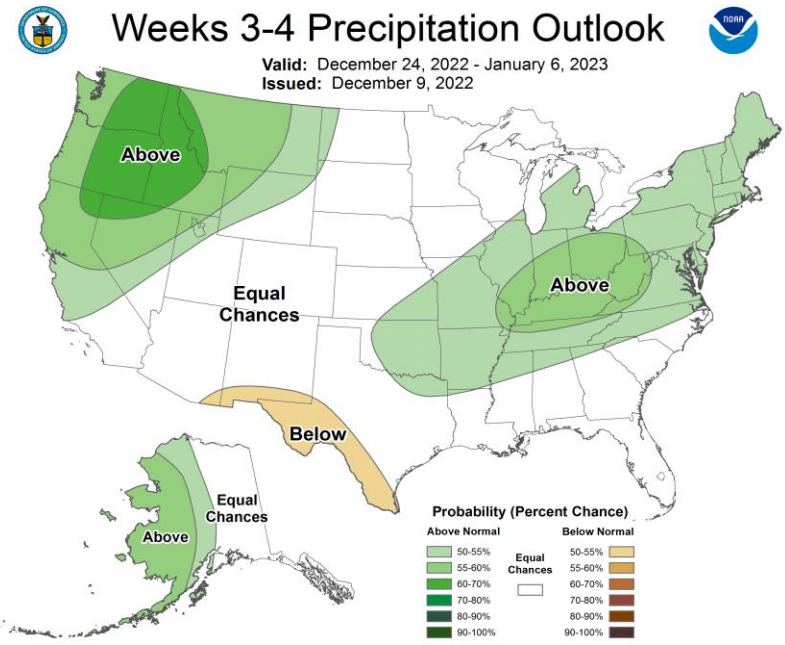
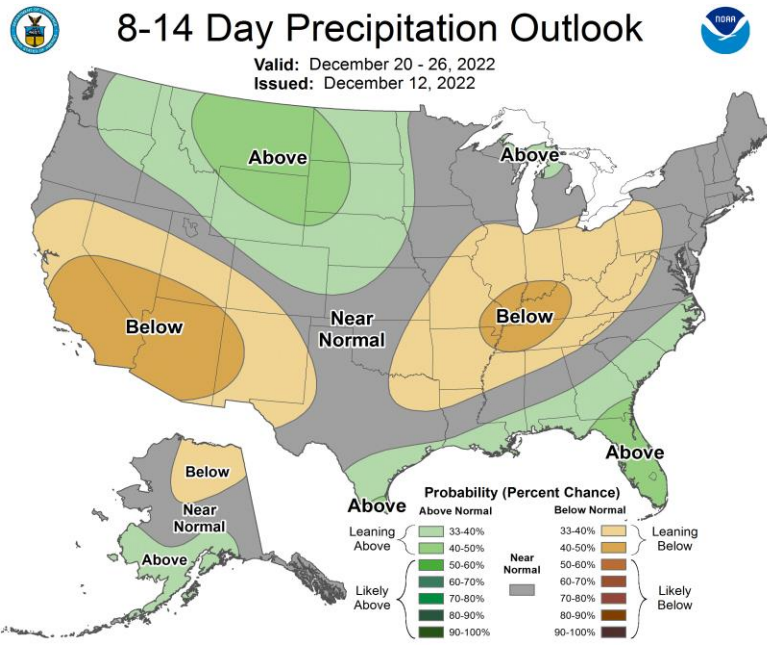
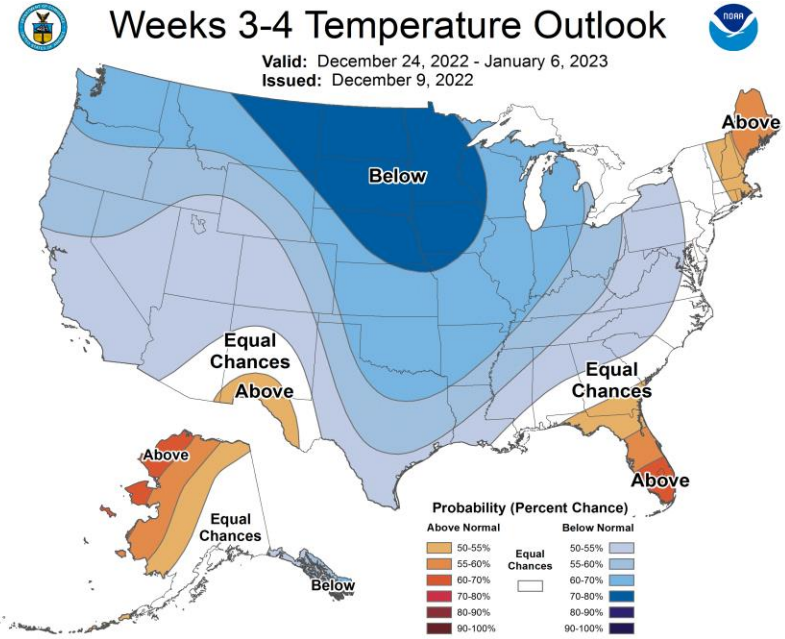
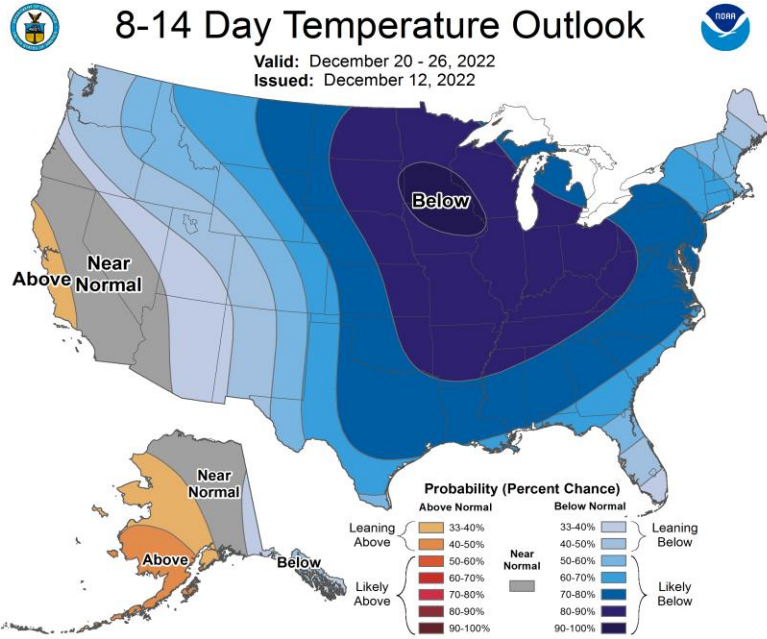
NDJ MJO Composite: GLBT (degC)



Mean 500-hPa Height Anomaly Forecasts:



Official Temperature & Precipitation Forecasts:



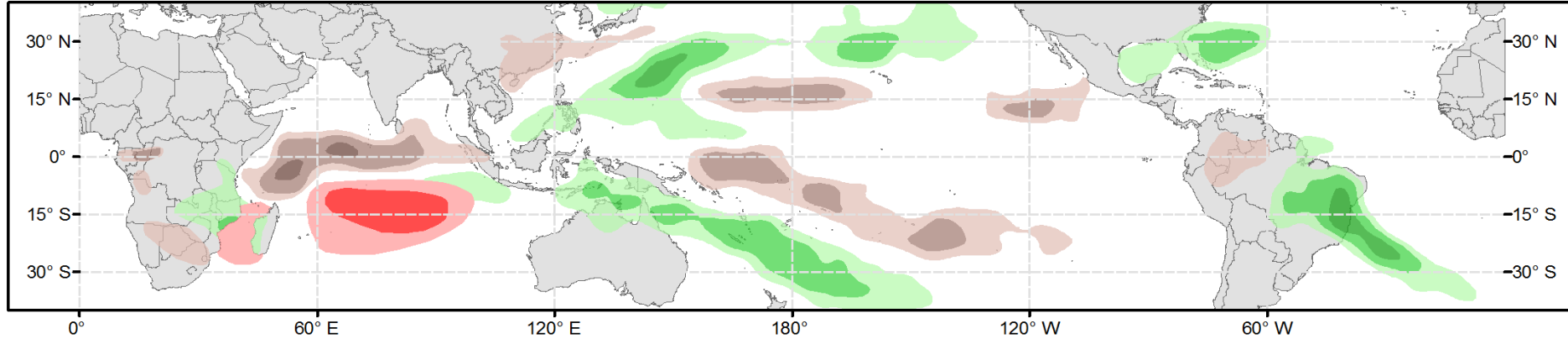


Global Tropics Hazards Outlook

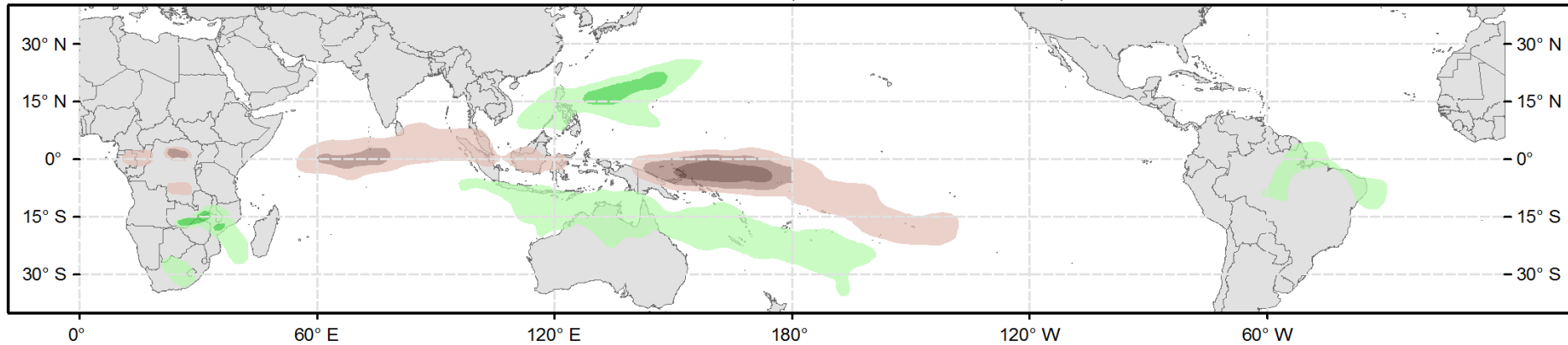
Climate Prediction Center



Week 2 - Valid: Dec 21, 2022 - Dec 27, 2022



Week 3 - Valid: Dec 28, 2022 - Jan 03, 2023



Week-2 Only

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 mean temperatures in the Upper third of the historical range

Below-Average Temperatures Probability

>50% >65% >80%

7-day mean temperatures in the Lower third of the historical range

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