



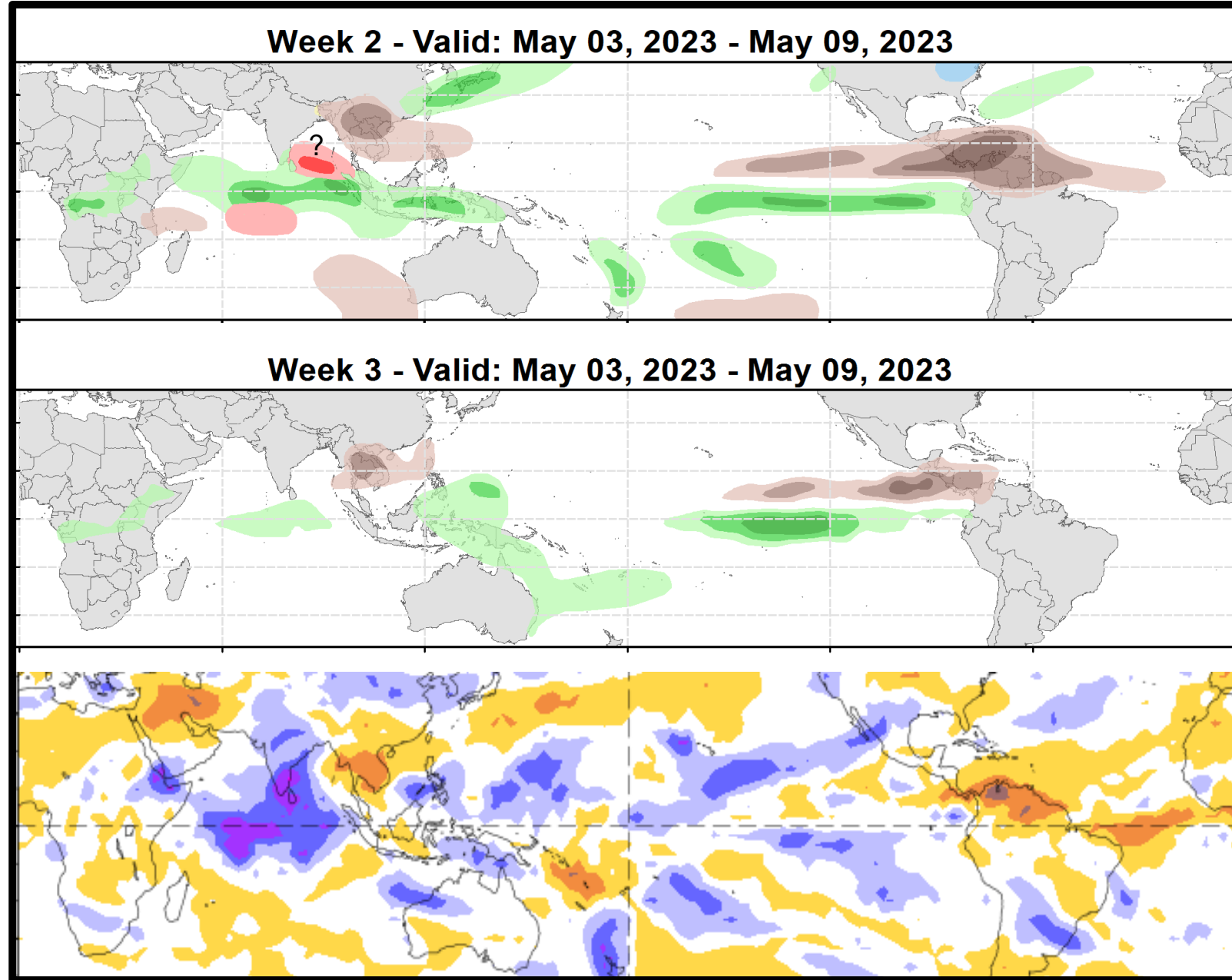
Weeks 2-3 Global Tropics Hazards Outlook

5/9/2023

Danny Barandiaran
NWS / NCEP / Climate Prediction Center

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

- ? – Invest 91B



Synopsis of Climate Modes:

ENSO: (Apr 13, 2023 Update) *next update on Thursday, May 11th*

- ENSO Alert System Status: [El Niño Watch](#)
- ENSO neutral conditions are expected to continue through the Northern Hemisphere spring, followed by a 62% chance of El Niño developing during May-July 2023.

MJO and other subseasonal tropical variability:

- Robust MJO activity continues and has largely supplanted ENSO as the dominant mode of variability in the Tropics.
- Dynamical models depict continued MJO activity, with enhanced convective envelope moving from the Maritime Continent into the Western Pacific during the coming two weeks and suppressed convection emerging over the Indian Ocean by week-2.
- The enhanced MJO phase moving into phase 6 favors increased probabilities of tropical cyclone (TC) formation over the Western Pacific coinciding with a climatological uptick in TC activity over the basin.

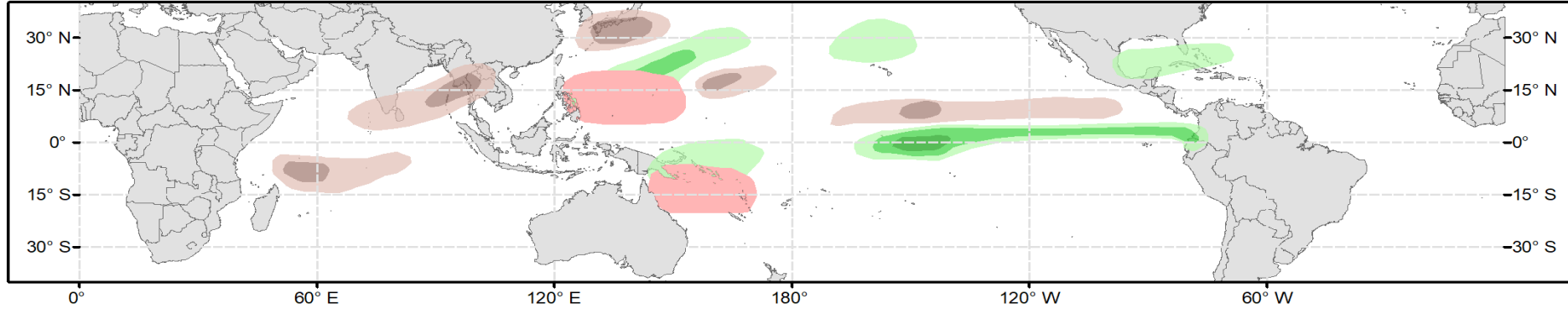
GTH Outlook:



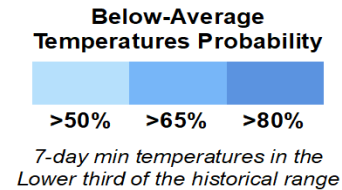
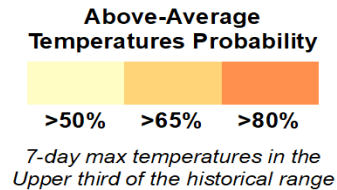
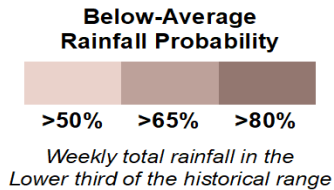
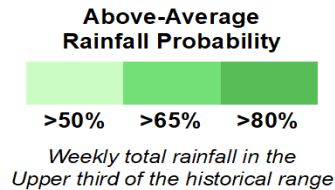
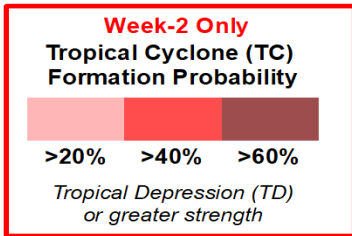
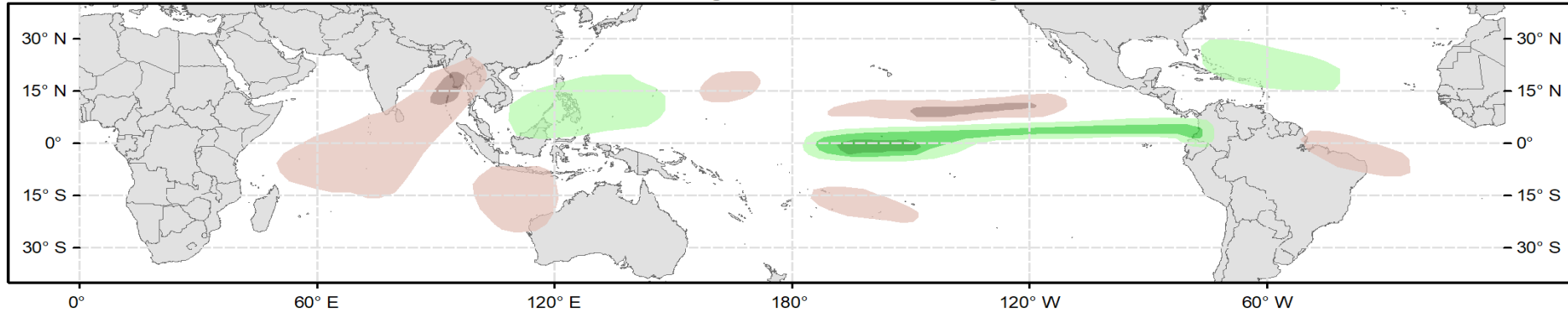
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: May 17, 2023 - May 23, 2023



Week 3 - Valid: May 24, 2023 - May 30, 2023

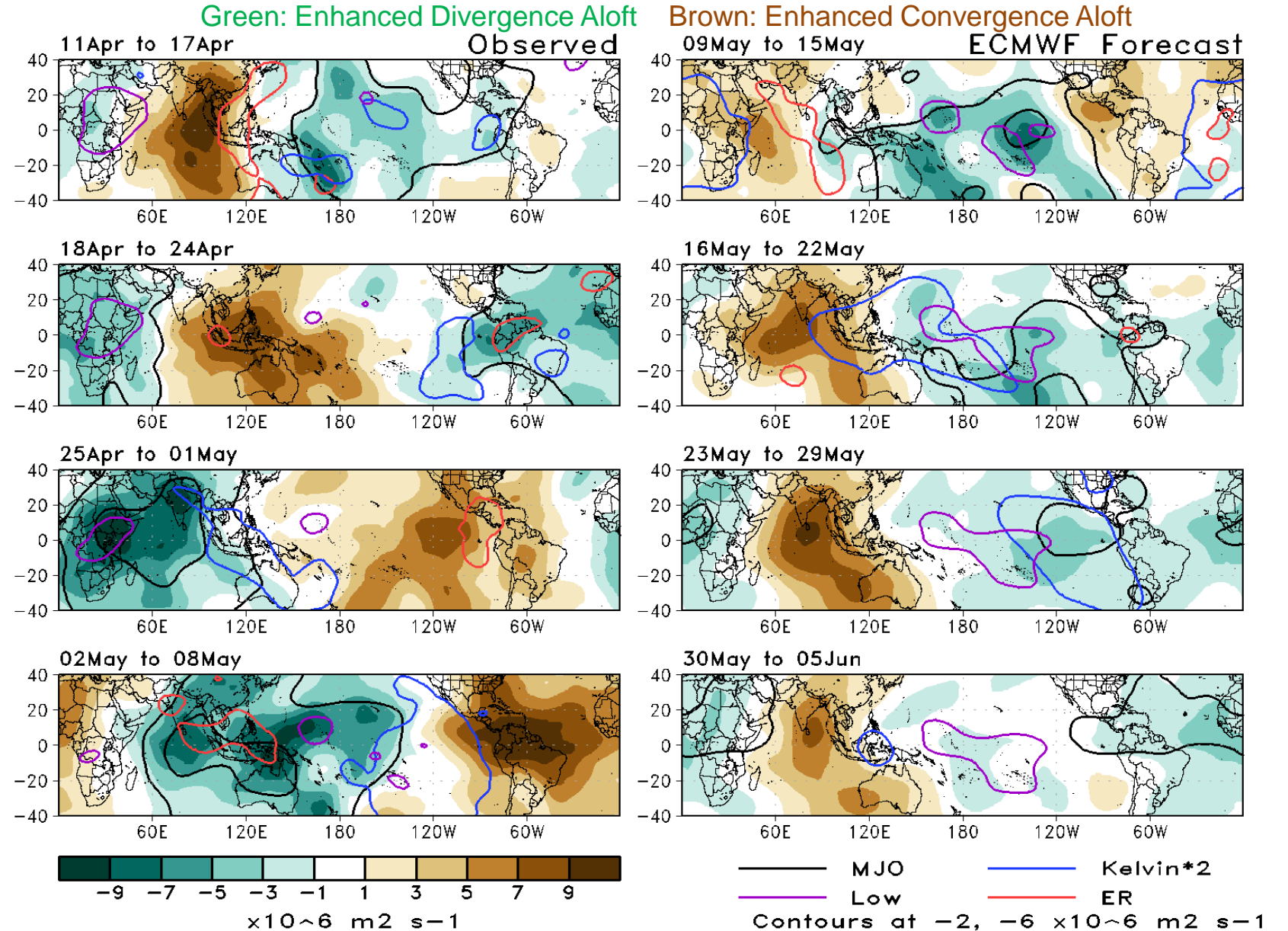


Issued: 05/09/2023
Forecaster: Barandiaran

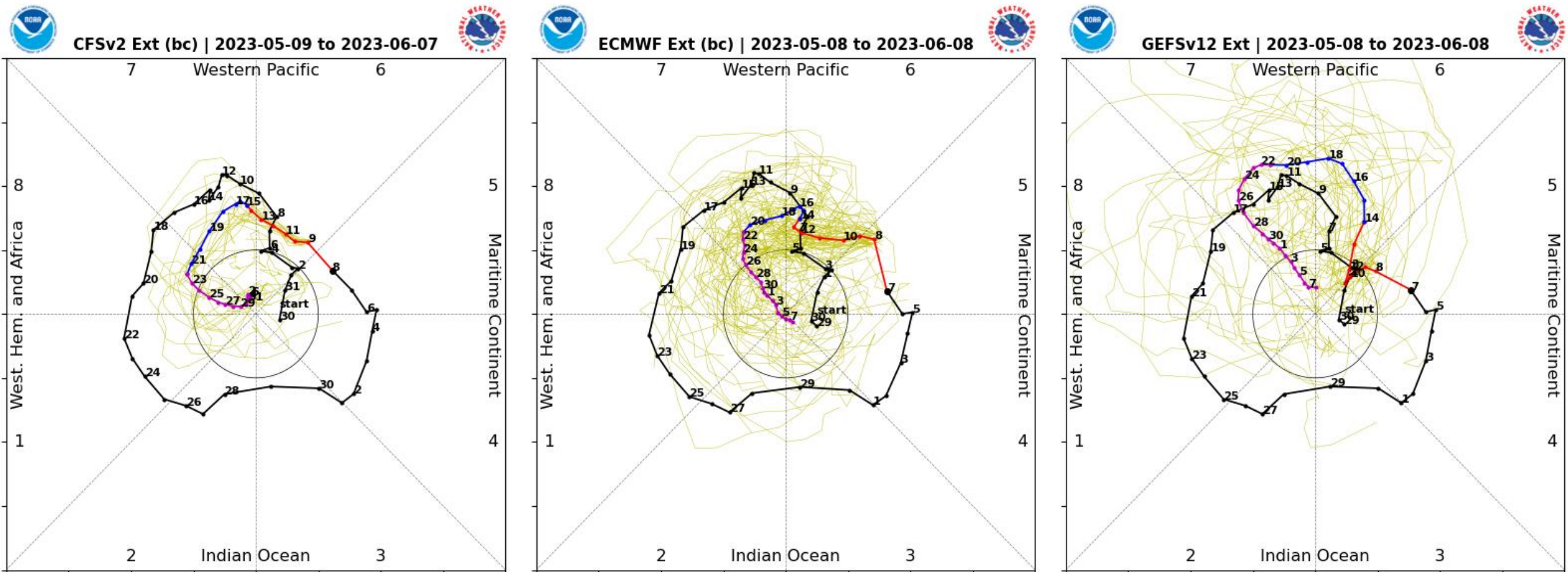
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

- Recent robust MJO activity is evident with a well-defined wave-1 symmetry strengthening over the last few weeks up to present. Steady eastward propagation is also clear.
- Looking ahead, the ECMWF depicts steady eastward propagation of the enhanced convective envelope into the Western Hemisphere and the Americas by week-3, while suppressed convection tracks more slowly but moves into the Maritime Continent by week-3.

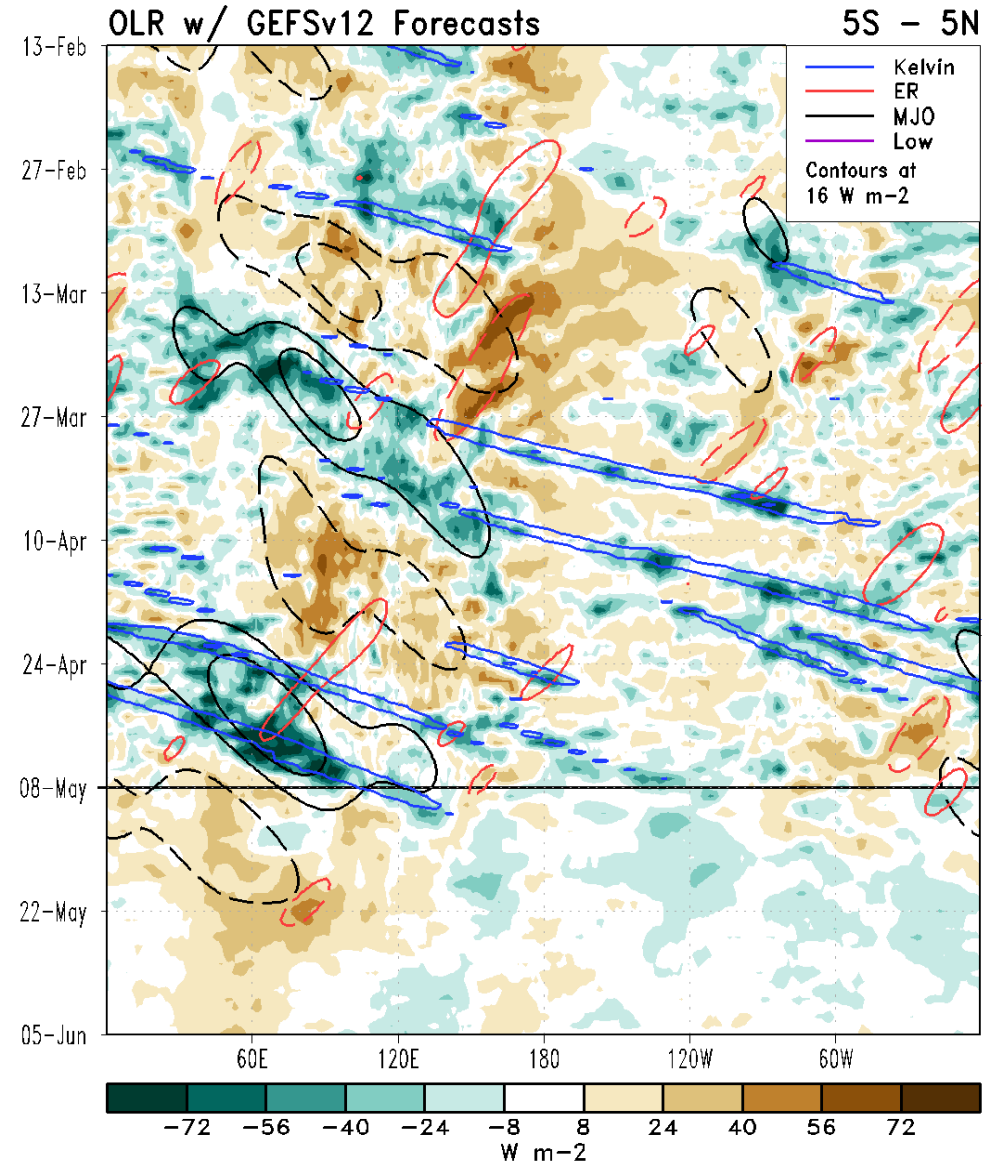
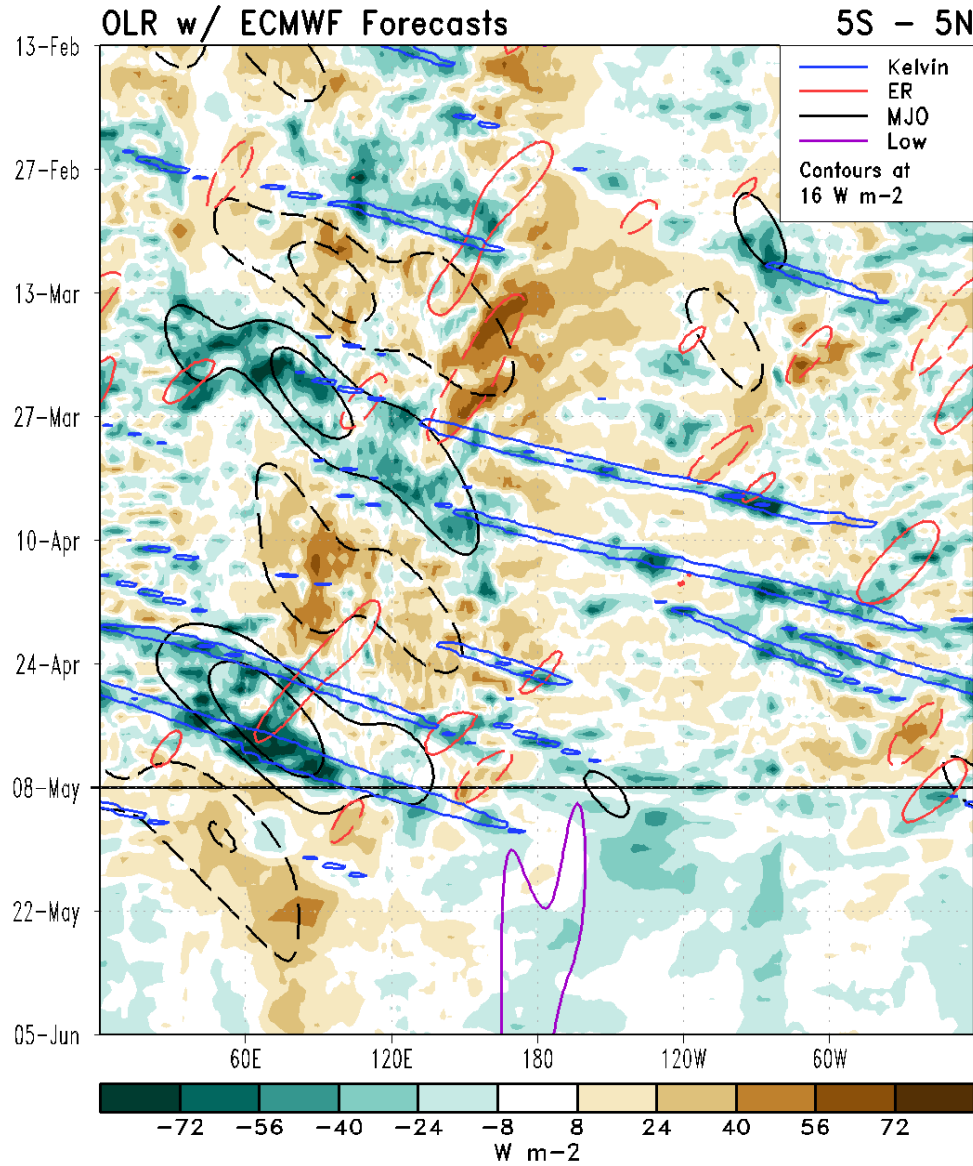


RMM Index Observations & Forecasts:



- Both the GEFs and ECMWF ensembles depict continued propagation of the MJO signal into week-3. The GEFs increases signal strength in week-2 after being initially weaker than the ECMWF, which favors a more consistent amplitude. The CFS has a similar solution to the ECMWF.
- The ECMWF and CFS ensemble spreads are lower than the GEFs, but all models have solutions ranging from very low MJO activity to continued a robust MJO, with extreme events depicted by some GEFs members.

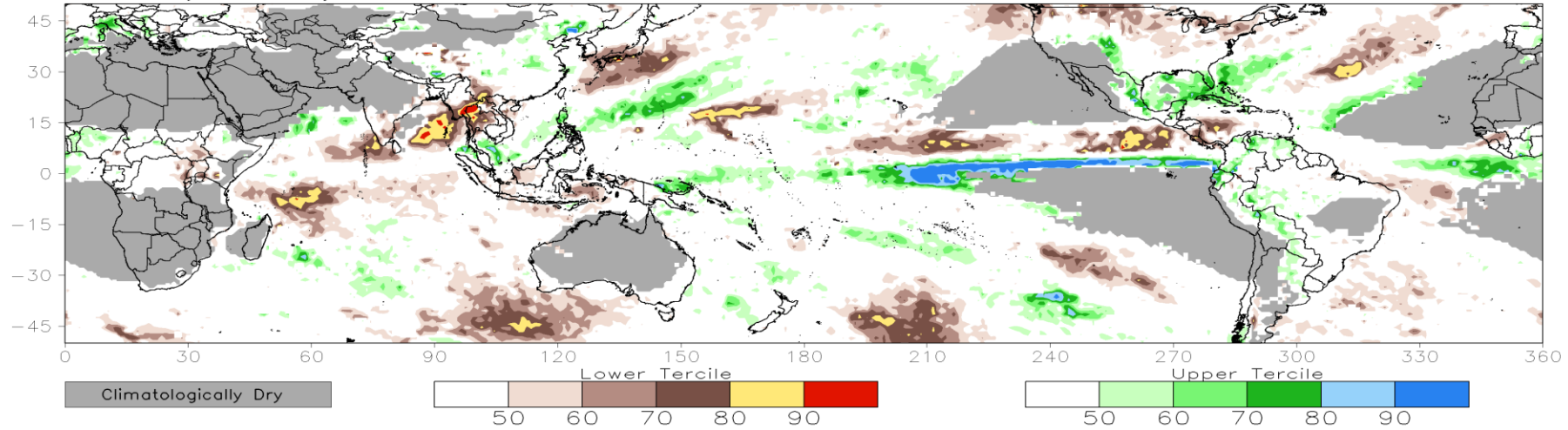
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

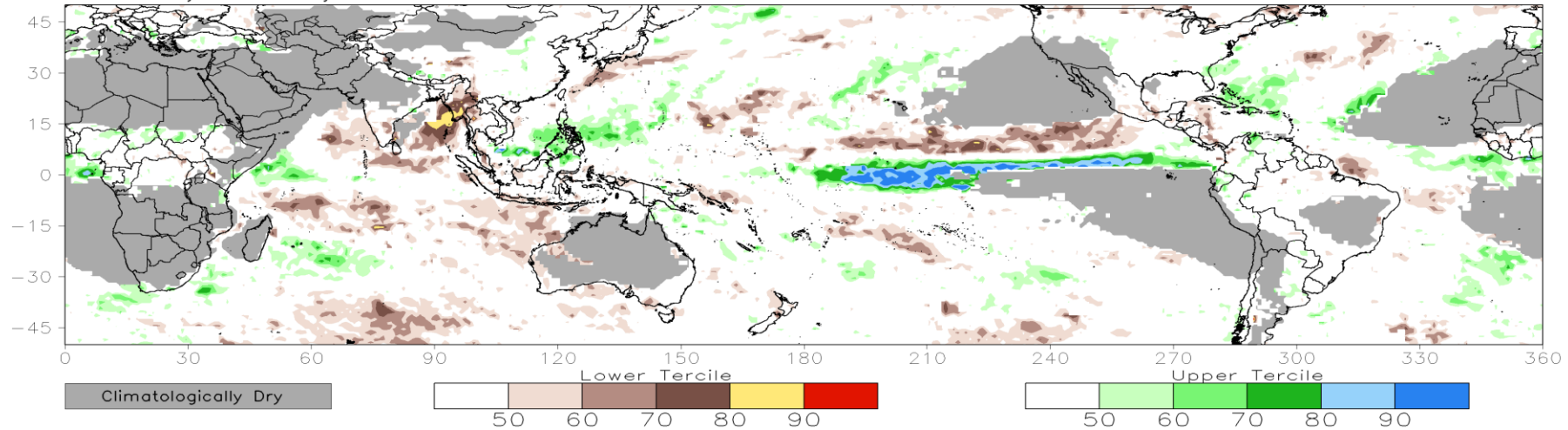
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 17May2023–23May2023



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

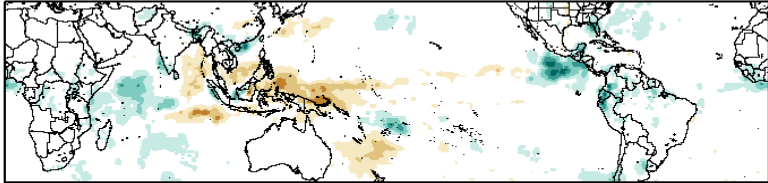
Valid: 24May2023–30May2023



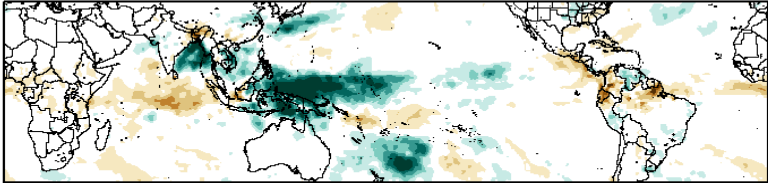
Historical Precipitation Anomalies By MJO Phase:

AMJ MJO Composite: GPCP1DD (mm/day)

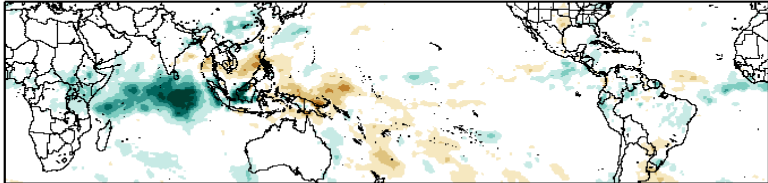
Phase 1



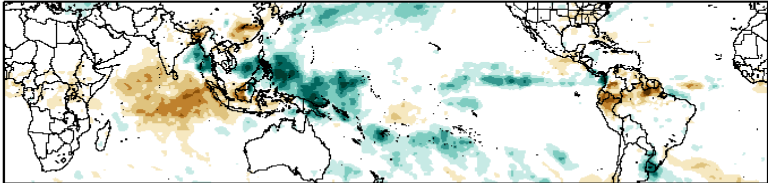
Phase 5



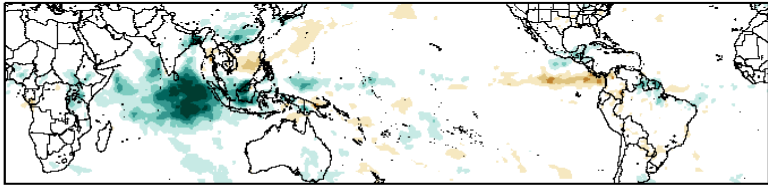
Phase 2



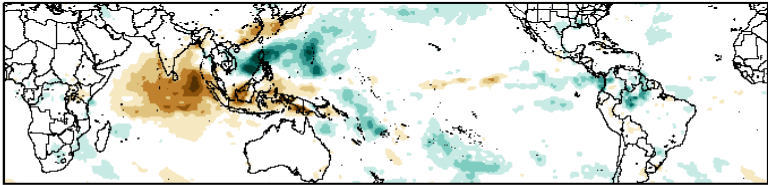
Phase 6



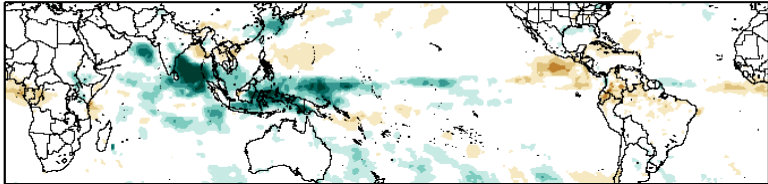
Phase 3



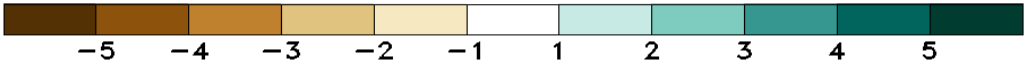
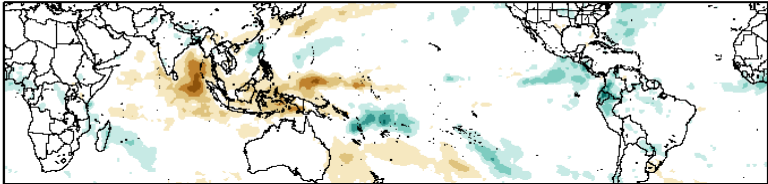
Phase 7



Phase 4

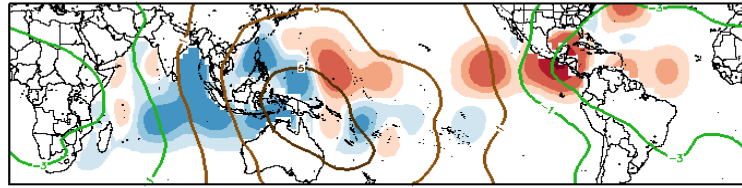


Phase 8

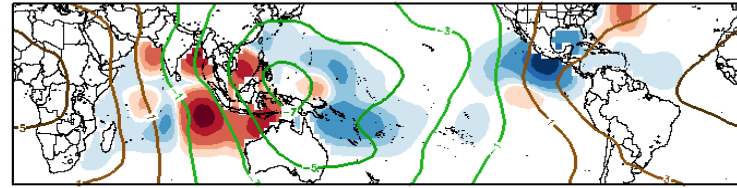


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

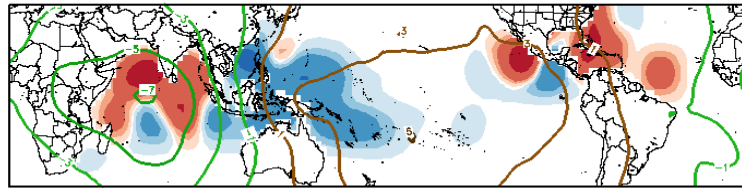
AMJ MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ AMJ CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



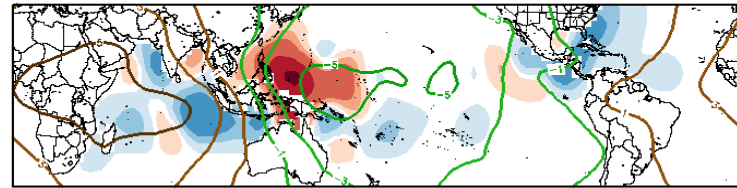
Phase 1



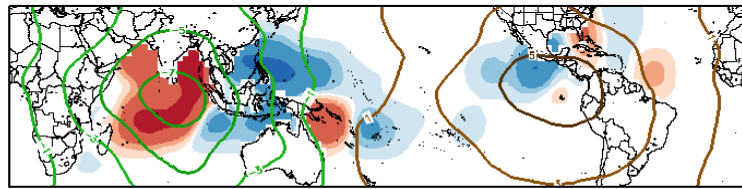
Phase 5



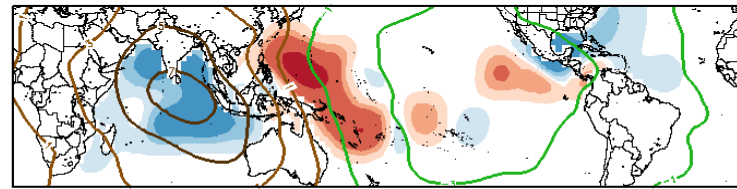
Phase 2



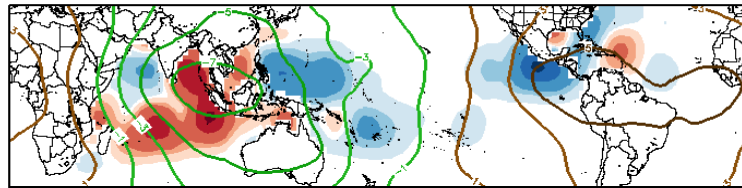
Phase 6



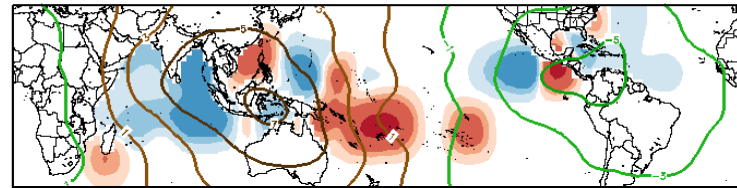
Phase 3



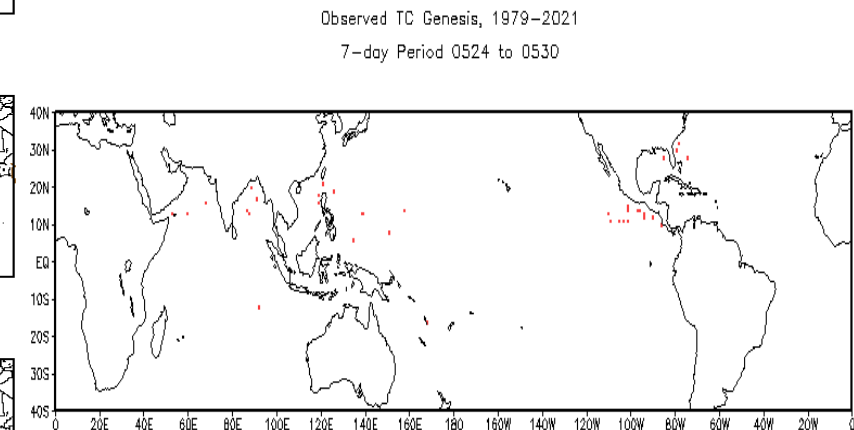
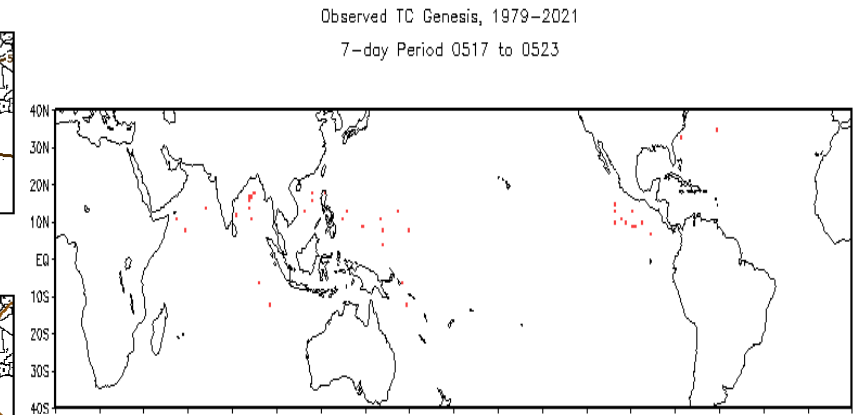
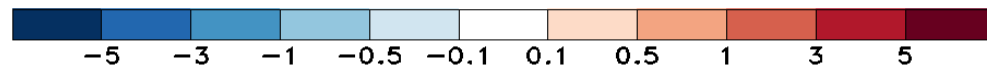
Phase 7



Phase 4

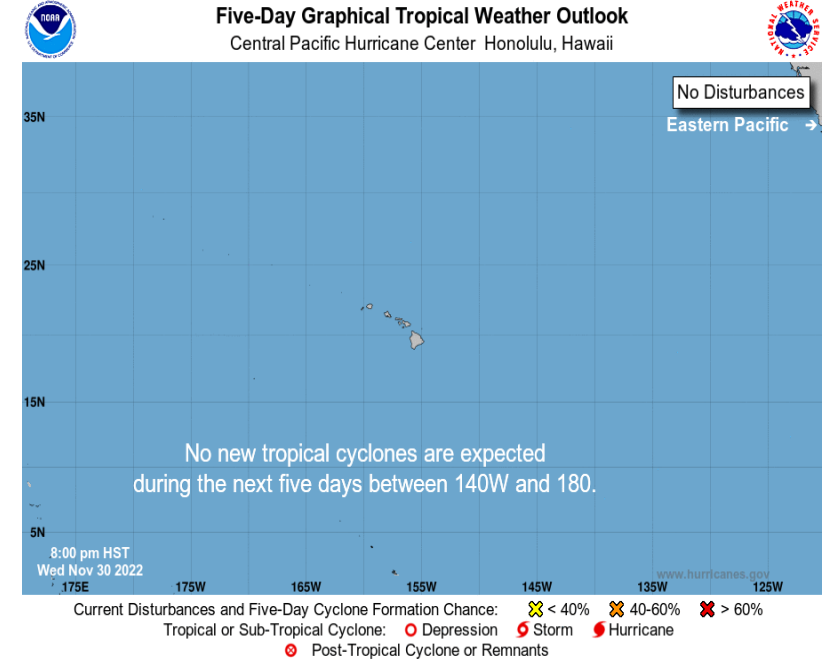
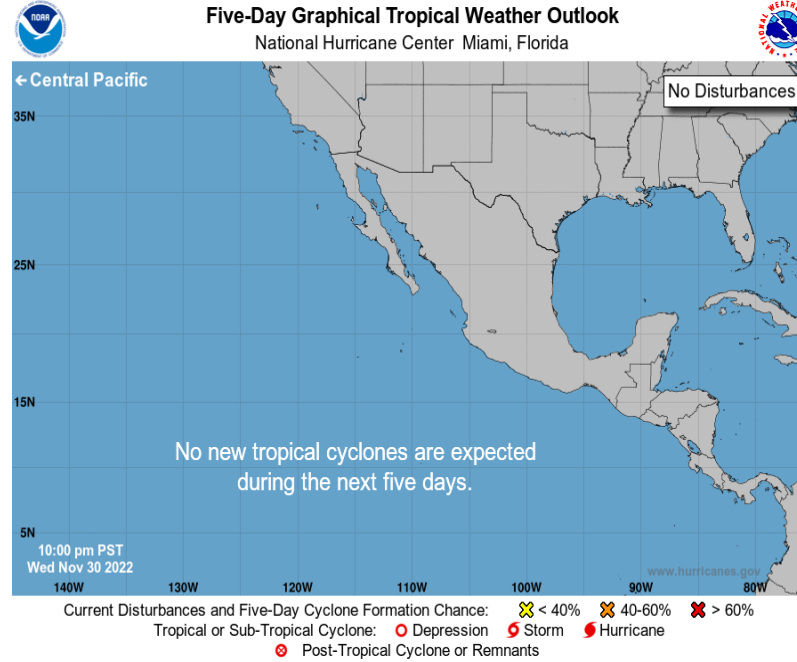
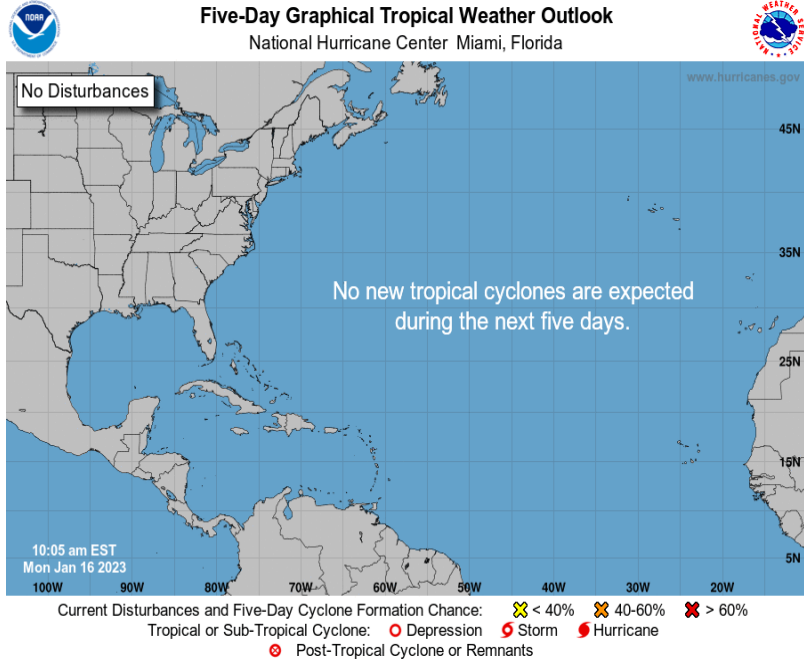


Phase 8



Experimental

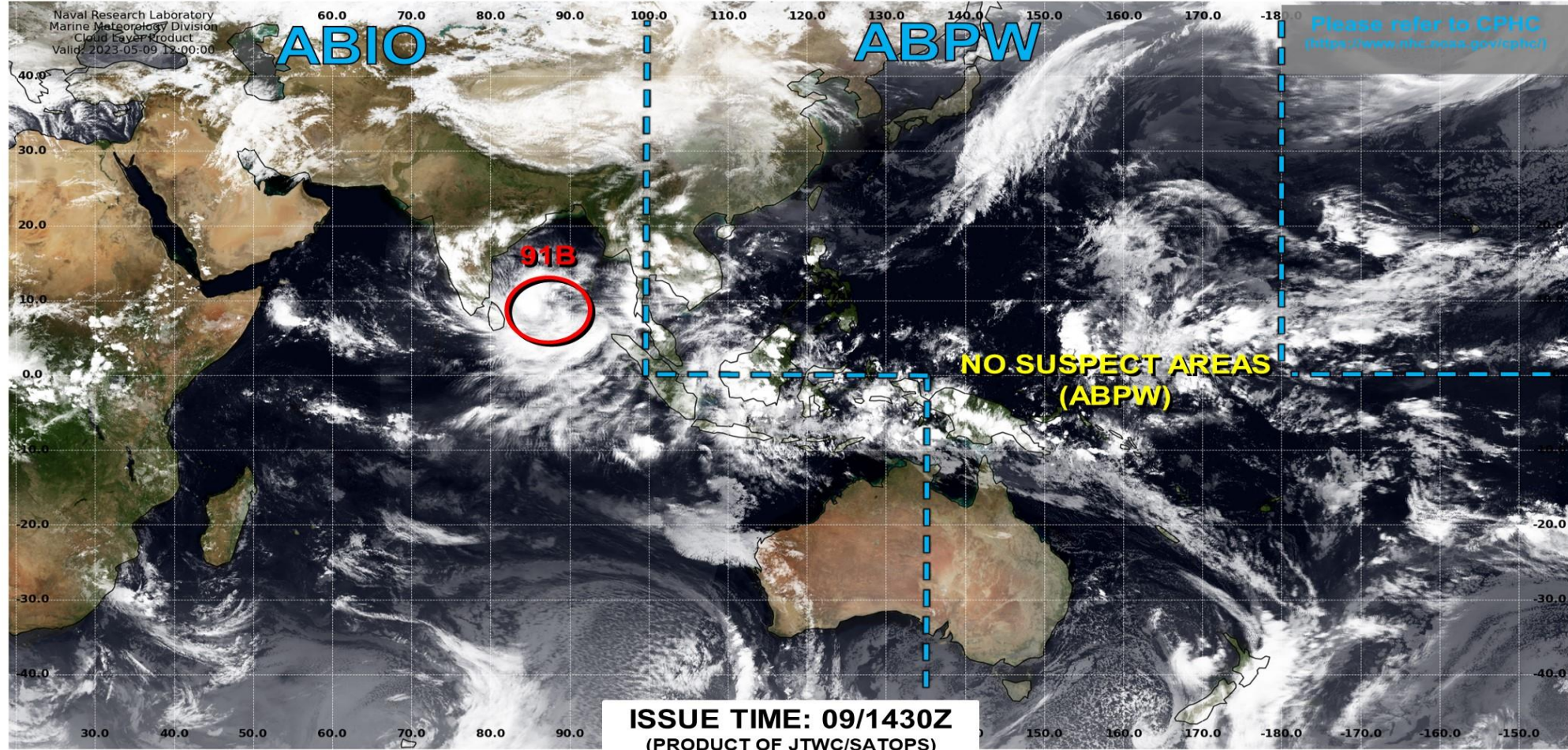
Tropical Cyclone Monitoring/Forecast: NHC



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)

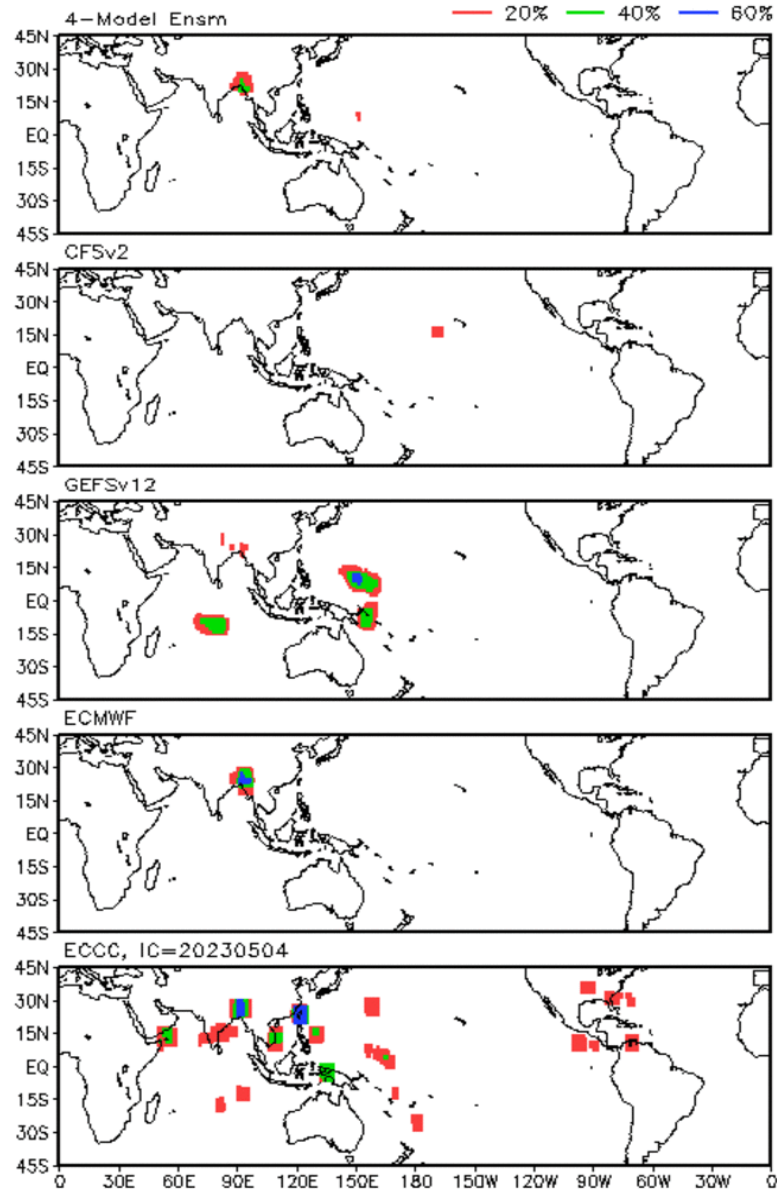


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

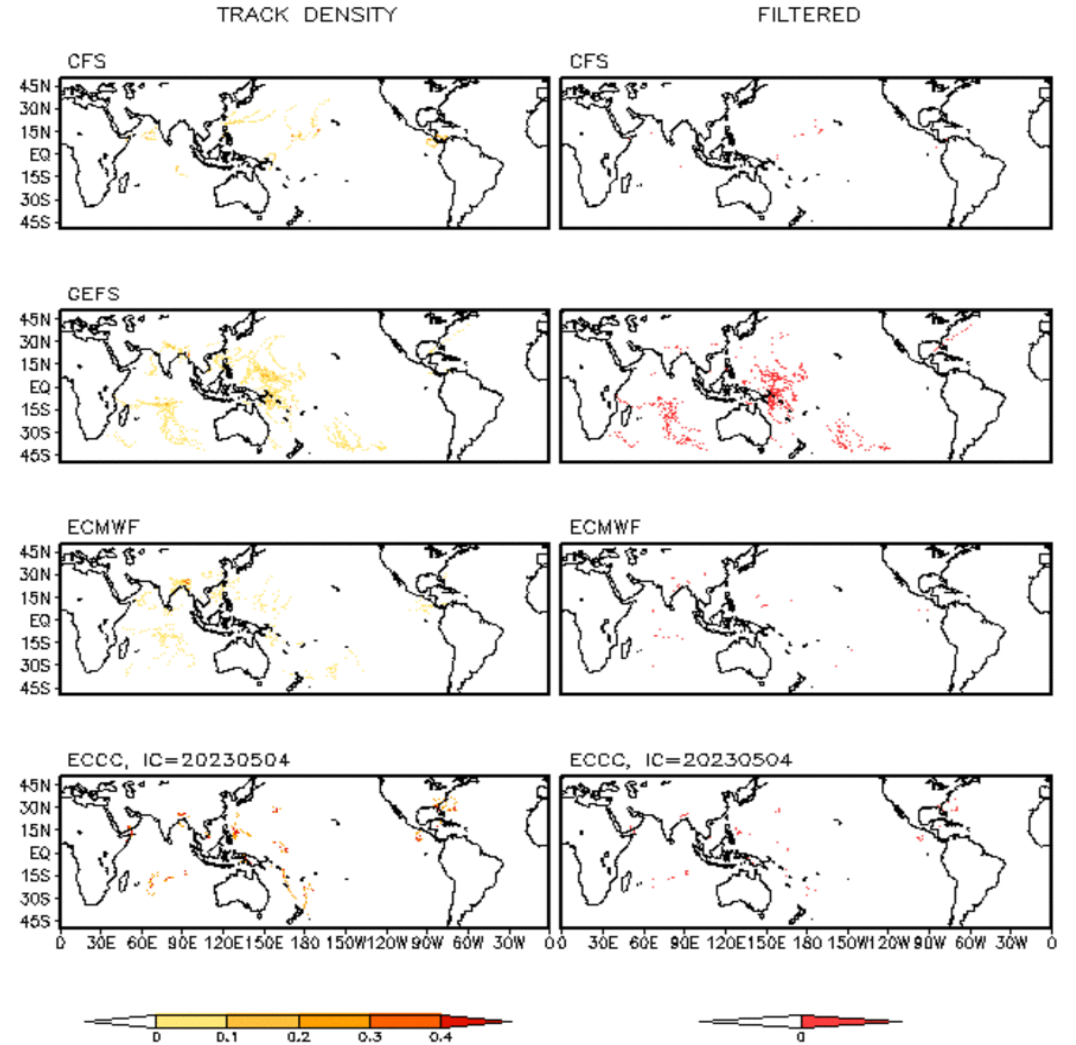


Multi-Model TC Track Probabilities/Densities: Week-2

Storm Track Probabilities, IC=20230508
Week 2: 0517 - 0523

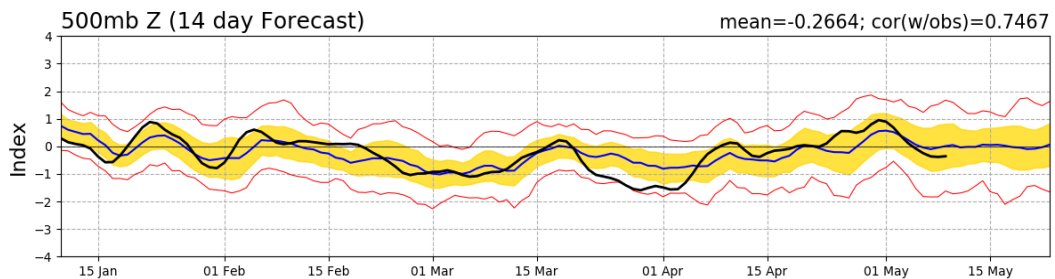
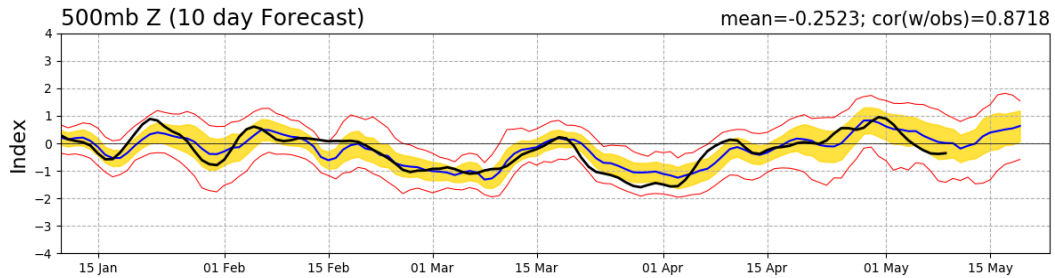
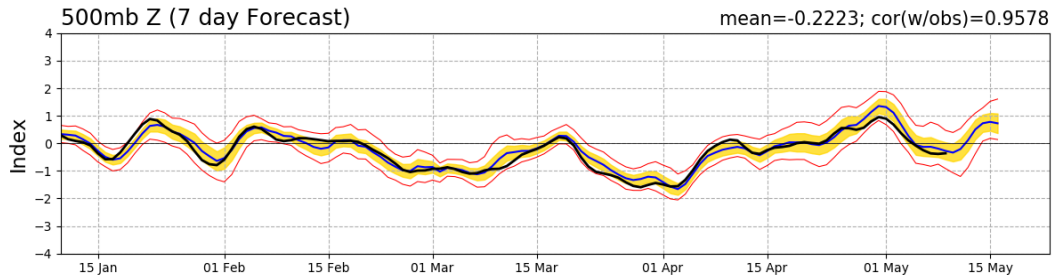
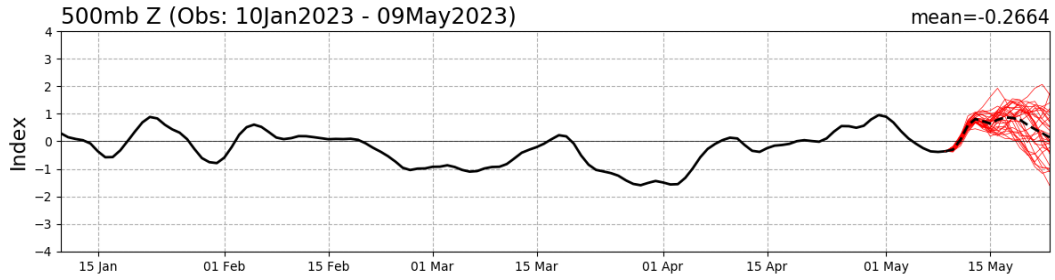


Storm Track Density Distribution, IC=20230508
Week 2 Forecast: 0517-0523

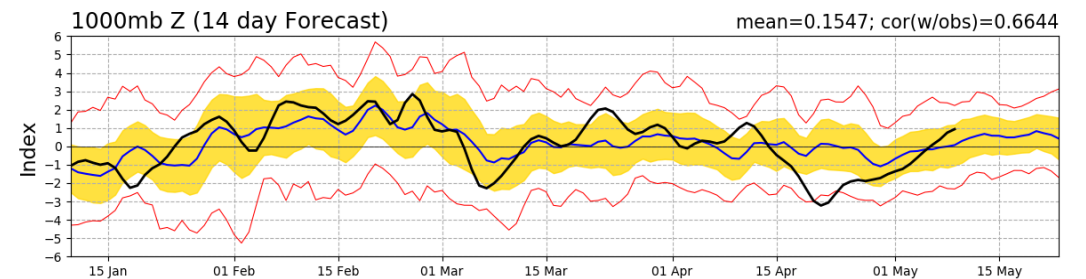
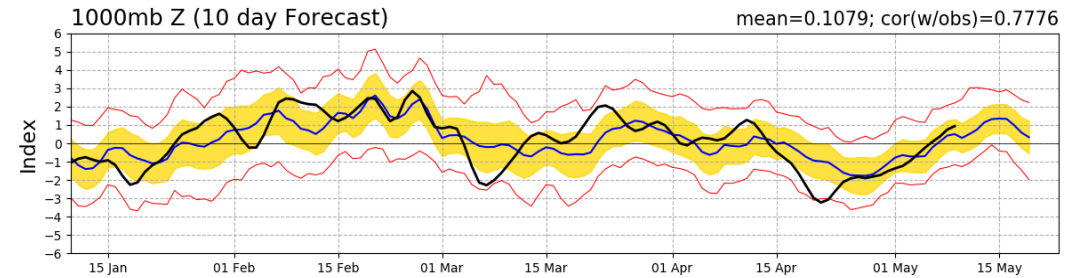
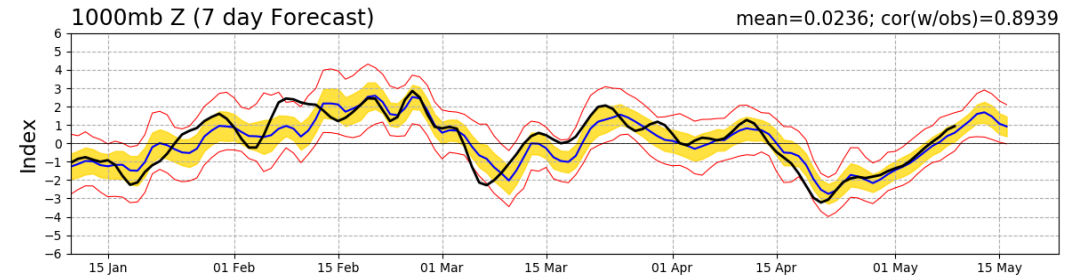
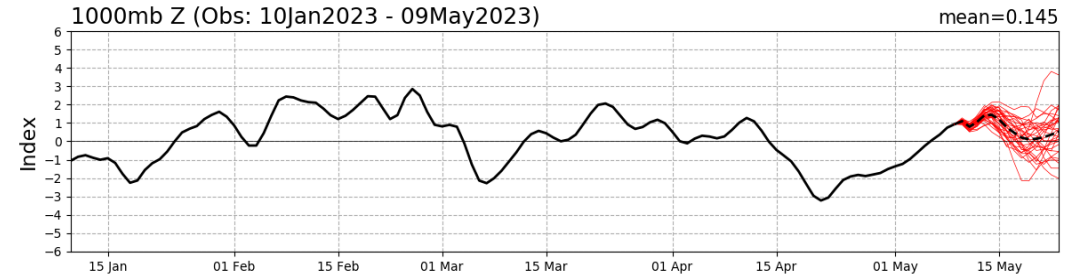


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

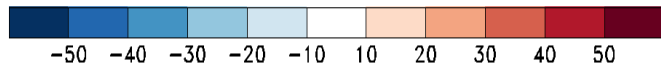
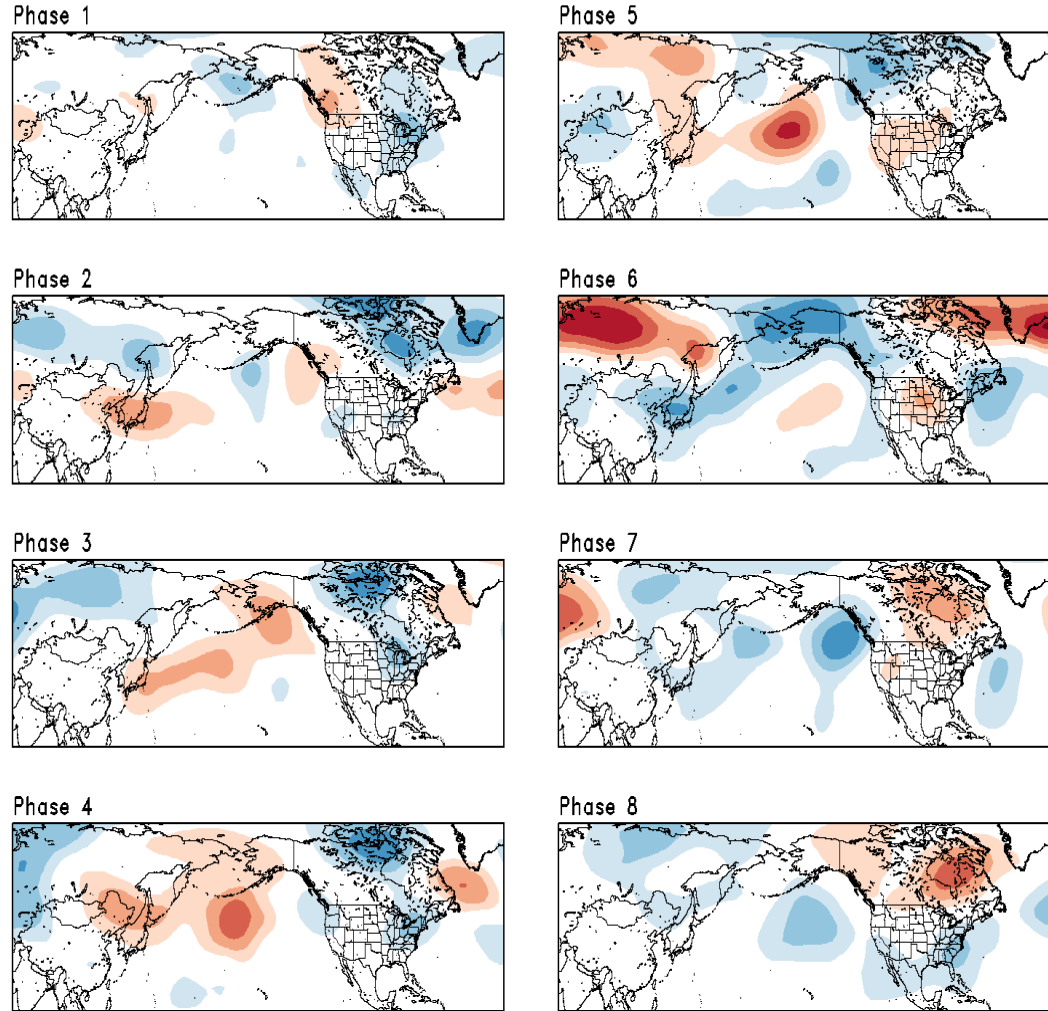


AO Index: Observed & GEFS Forecasts

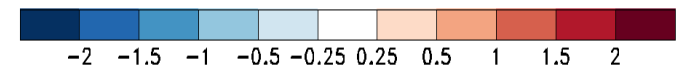
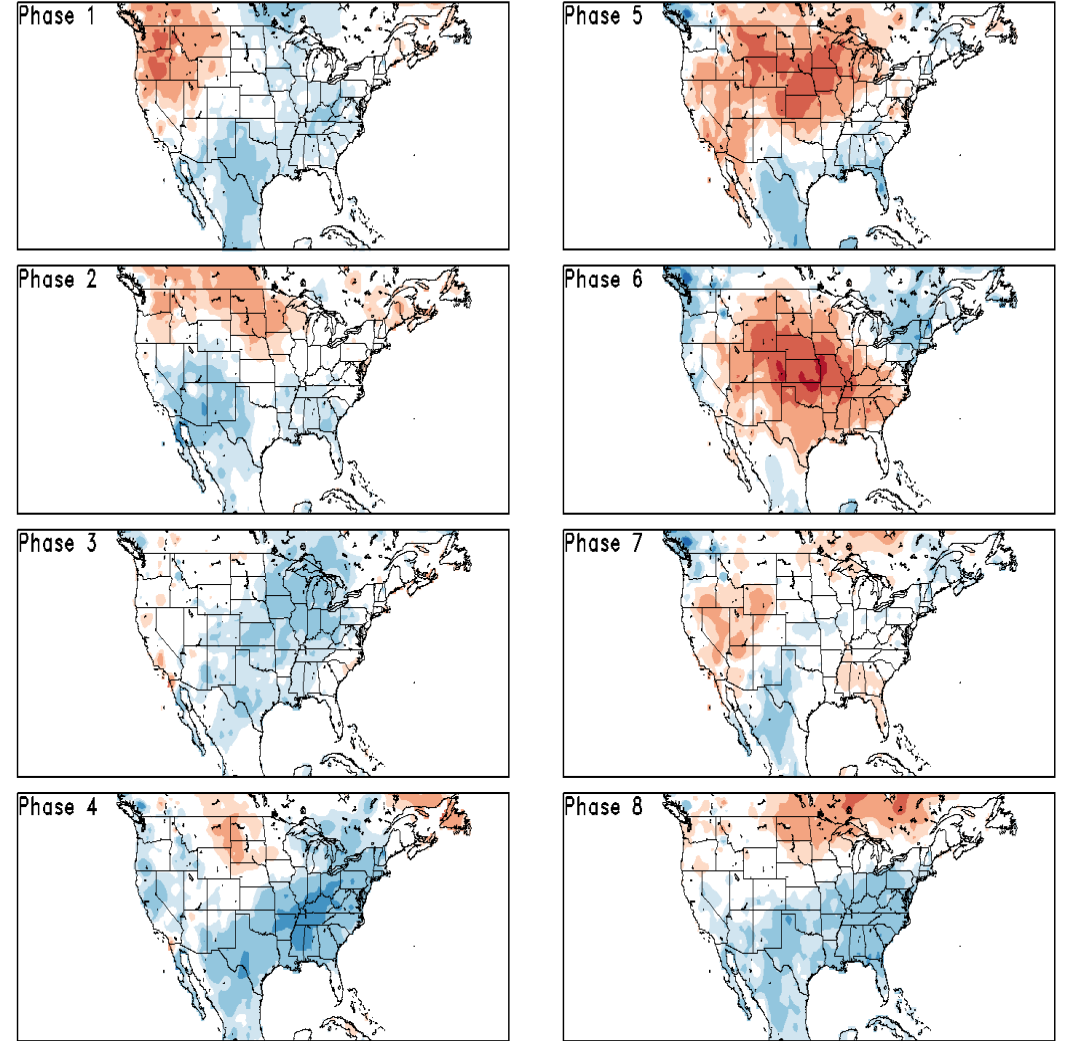


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

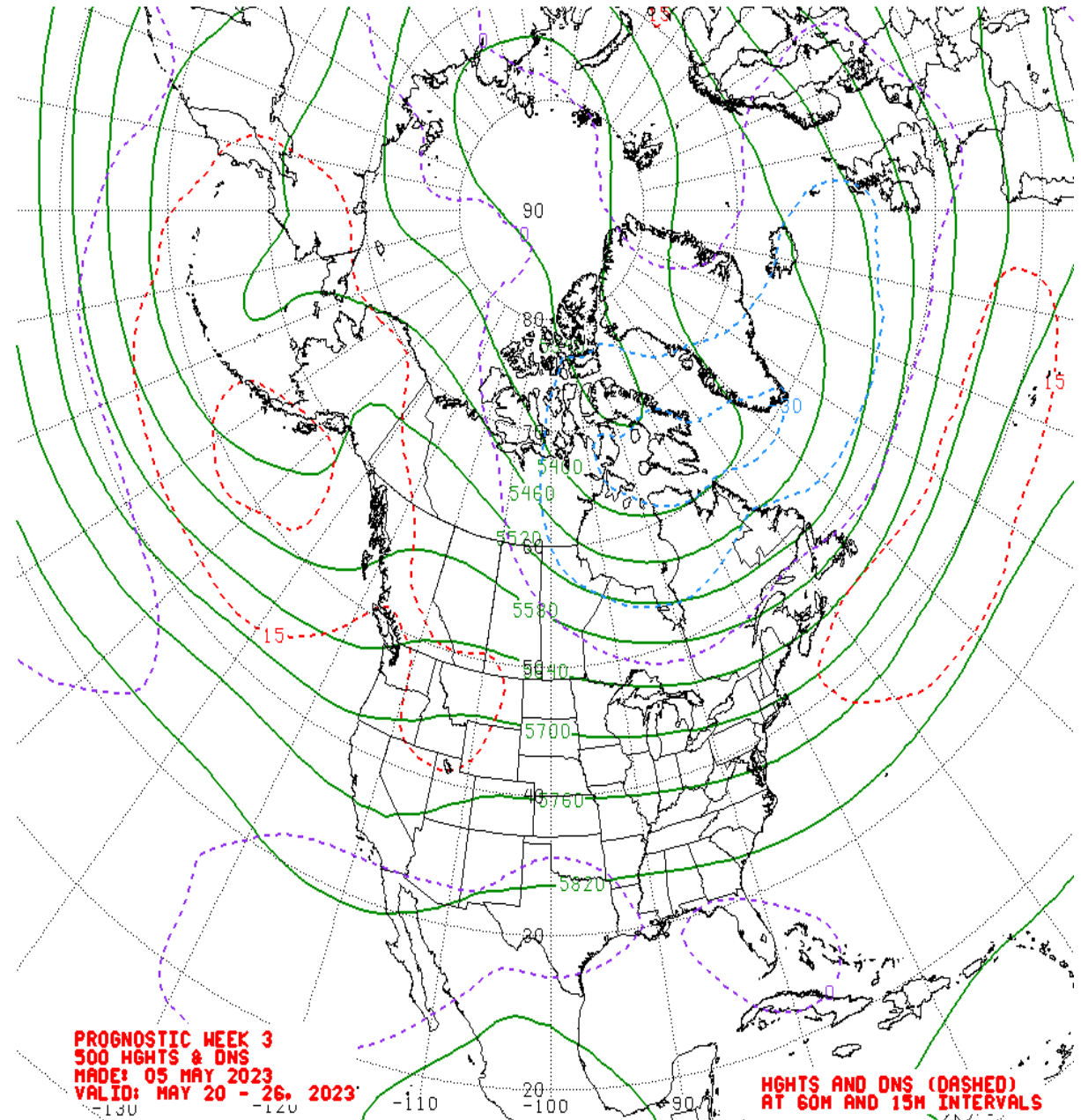
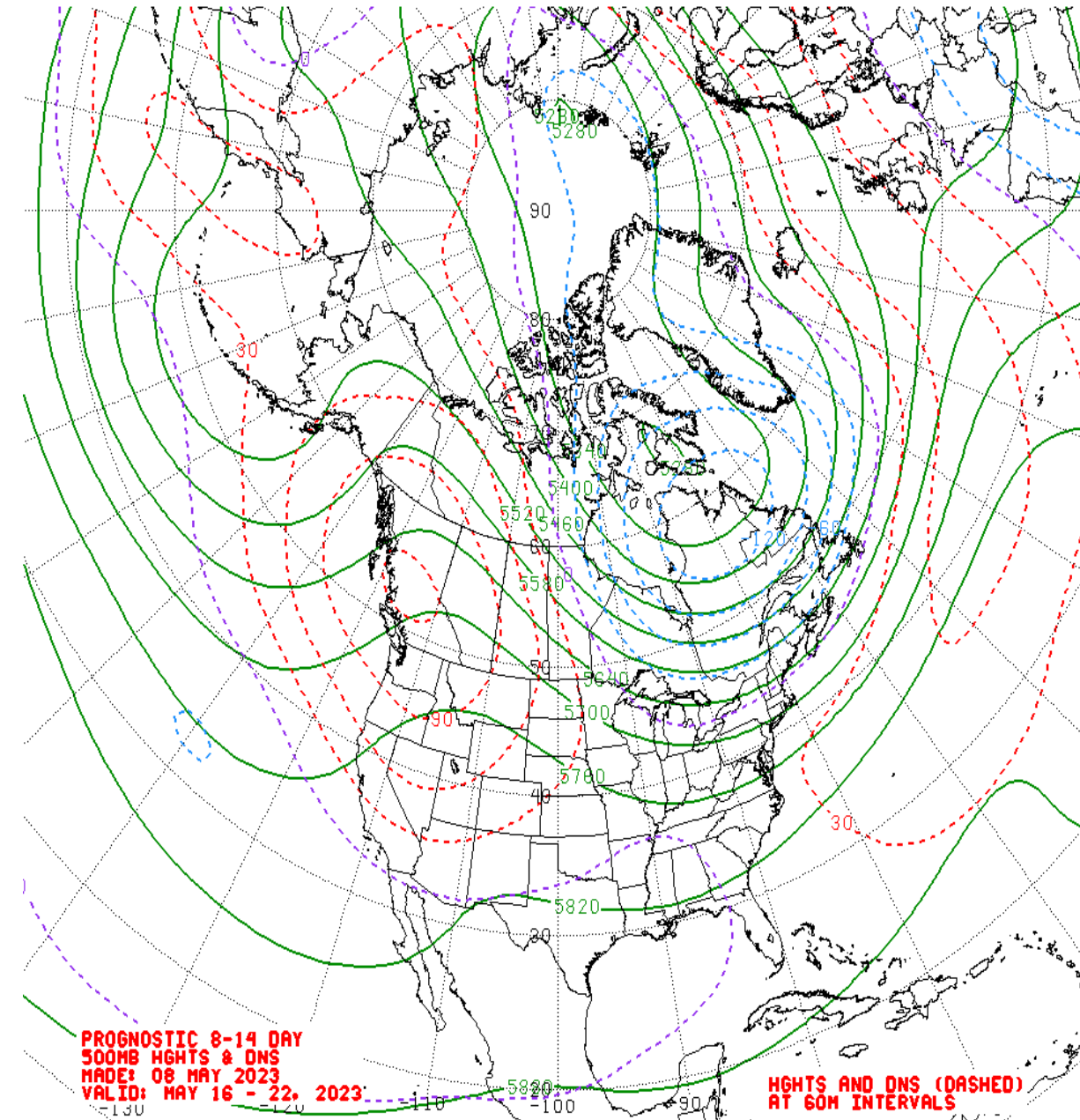
AMJ MJO Composite: CDAS 500-hPa Height (m)



AMJ MJO Composite: GLBT (degC)



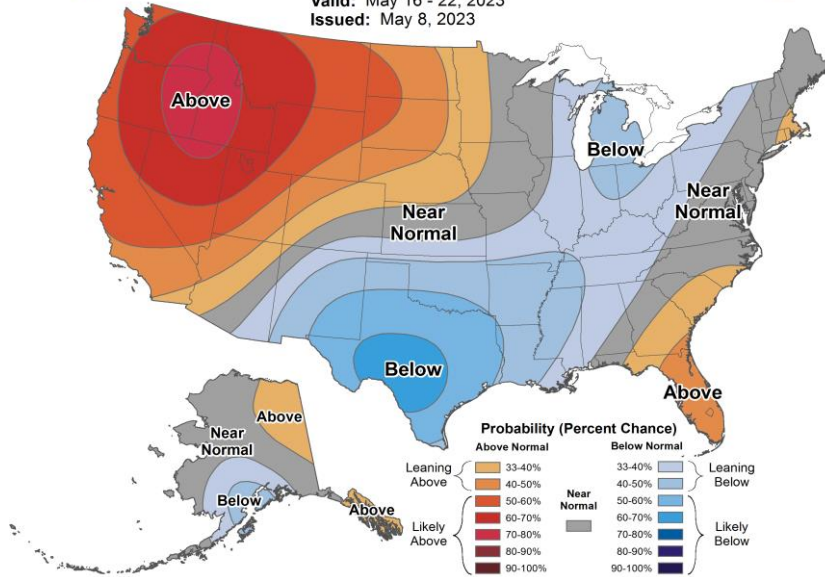
Mean 500-hPa Height Anomaly Forecasts:



Official Temperature & Precipitation Forecasts:

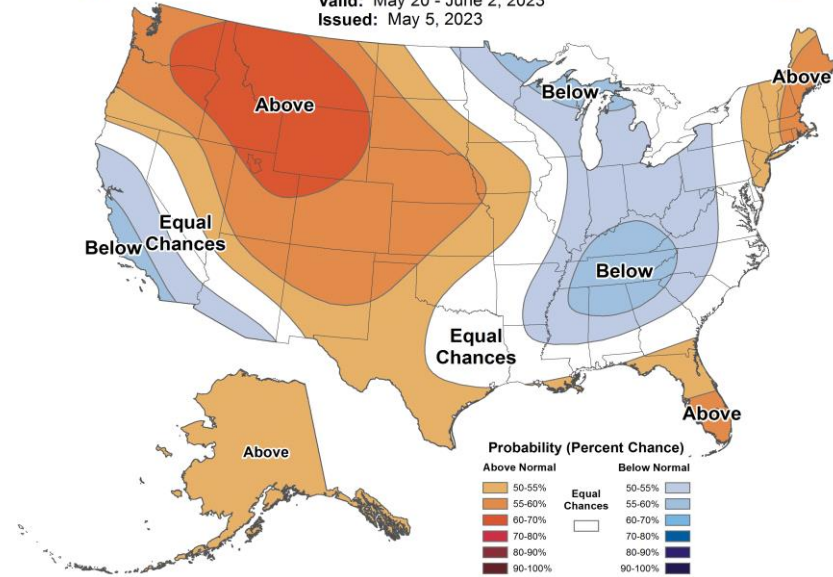
8-14 Day Temperature Outlook

Valid: May 16 - 22, 2023
Issued: May 8, 2023



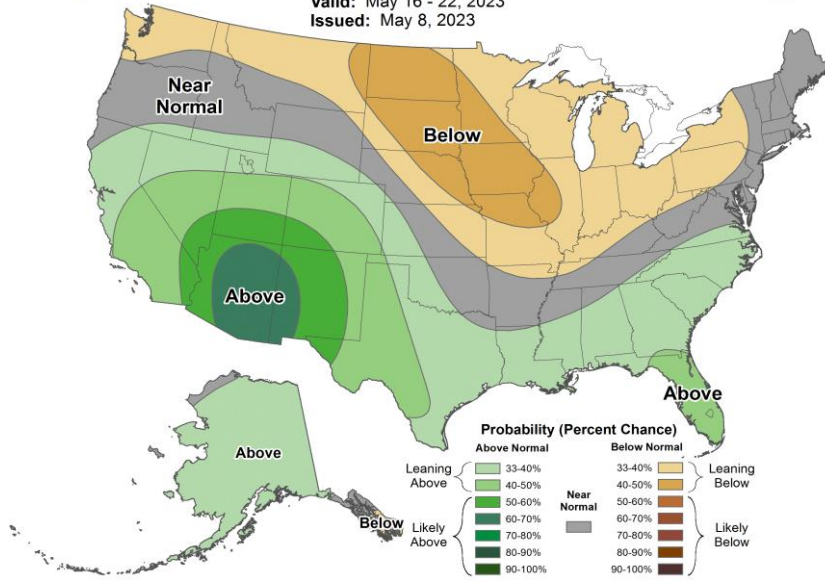
Weeks 3-4 Temperature Outlook

Valid: May 20 - June 2, 2023
Issued: May 5, 2023



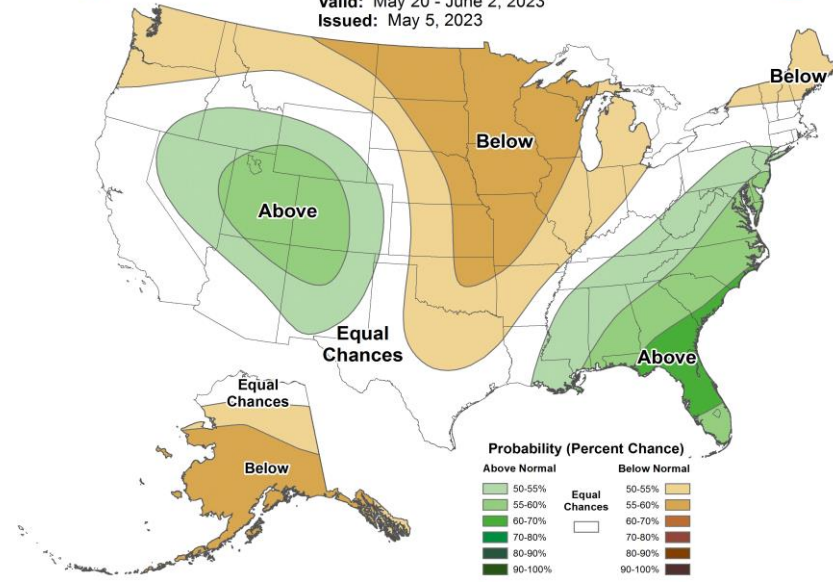
8-14 Day Precipitation Outlook

Valid: May 16 - 22, 2023
Issued: May 8, 2023



Weeks 3-4 Precipitation Outlook

Valid: May 20 - June 2, 2023
Issued: May 5, 2023



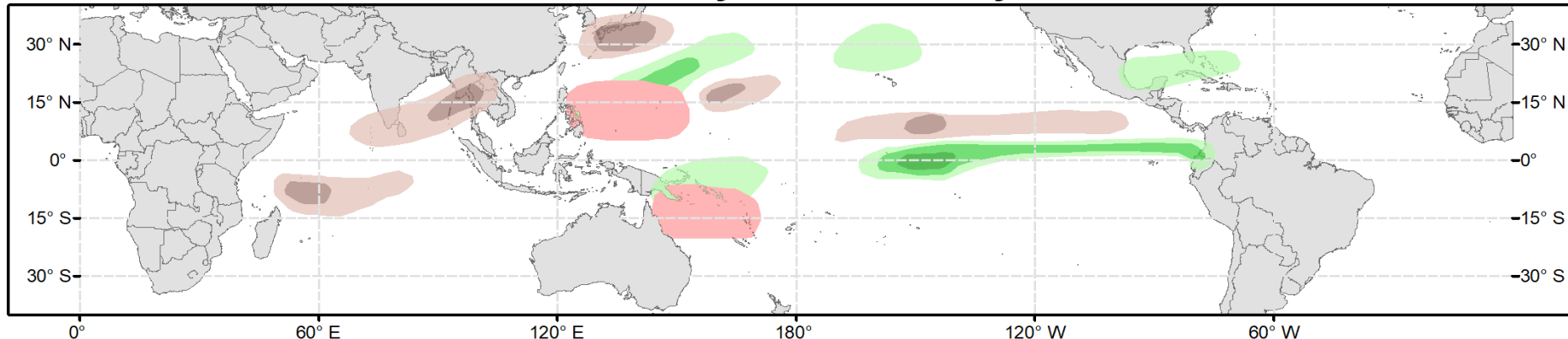


Global Tropics Hazards Outlook

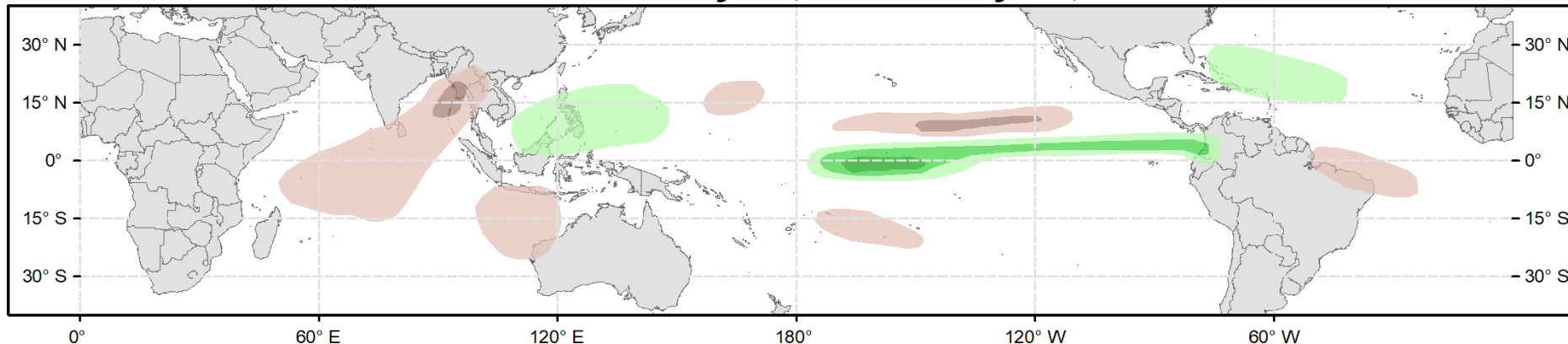
Climate Prediction Center



Week 2 - Valid: May 17, 2023 - May 23, 2023



Week 3 - Valid: May 24, 2023 - May 30, 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 max temperatures in the Upper third of the historical range

Below-Average Temperatures Probability

>50% >65% >80%

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

Issued: 05/09/2023

Forecaster: Barandiaran

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.