



Weeks 2-3 Global Tropics Hazards Outlook

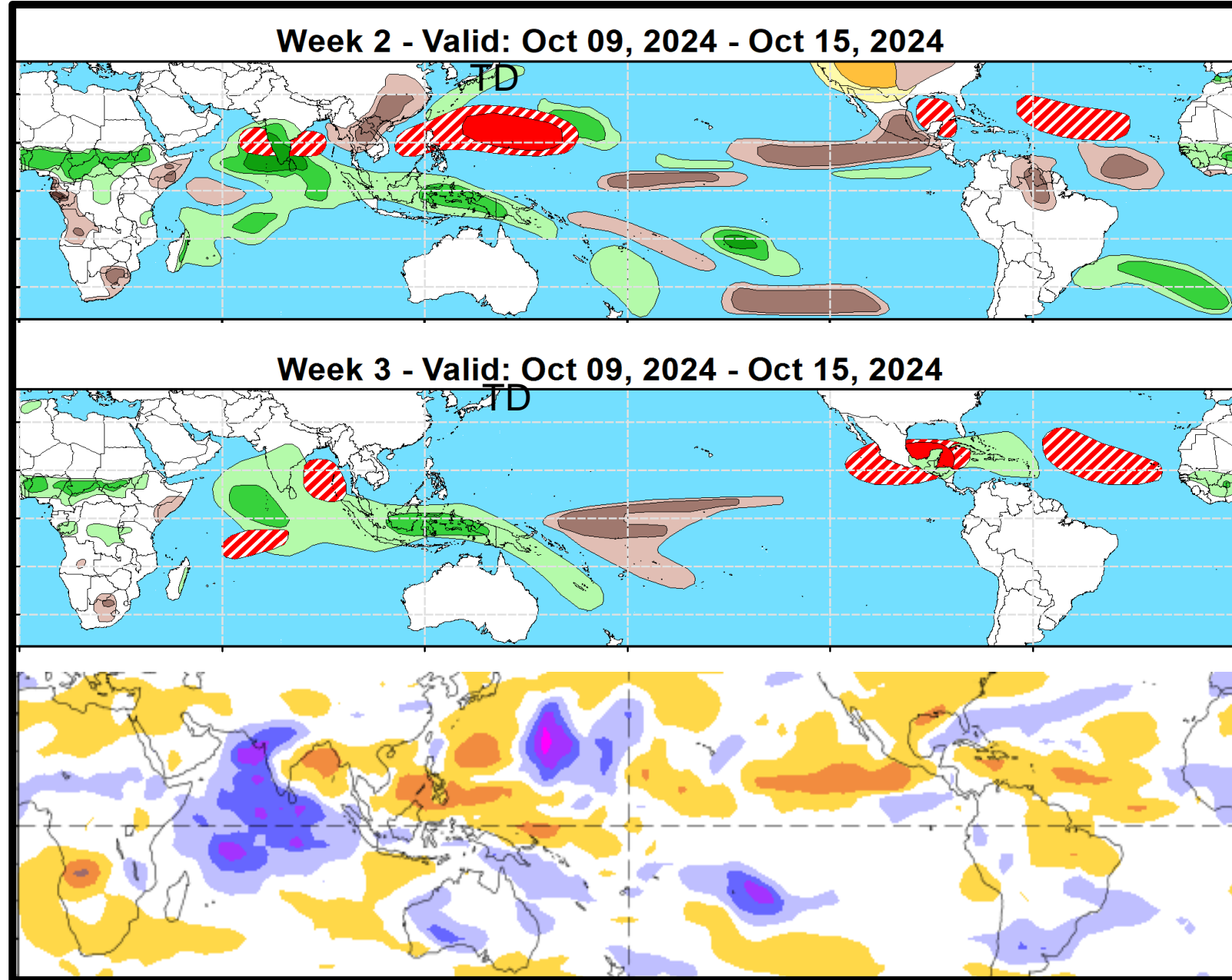
10/15/2024

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- Unnamed TD (10/12)



Synopsis of Climate Modes:

ENSO: (Oct 10, 2024 Update) *next update on Thursday, Nov 14th*

- ENSO Alert System Status: [La Niña Watch](#)
- La Niña is favored to emerge in September-November (60% chance) and is expected to persist through January-March 2025.

MJO and other subseasonal tropical variability:

- Despite some weakening and slowing in RMM observations, the MJO has remained fairly coherent over the Indian Ocean based on upper-level velocity potential anomaly fields.
- Models have been consistent in favoring an amplifying MJO over the Maritime Continent and propagating eastward into the Western Hemisphere towards the end of week-2. Beyond this time, uncertainty increases due to varying subseasonal phase speeds favored in the models.
- Regardless of the uncertainty with the evolution of the MJO, the large-scale environment is expected to be favorable for Tropical Cyclone (TC) formation in the Indian Ocean (week-1 into week-2), and Western Pacific (week 2 and 3).
- Conversely, decreased chances for TC genesis are favored over the Western Hemisphere, though the outlook is not ruling out late-seasonal development initiated by higher frequency variability in the Atlantic and Eastern Pacific over the next several weeks.

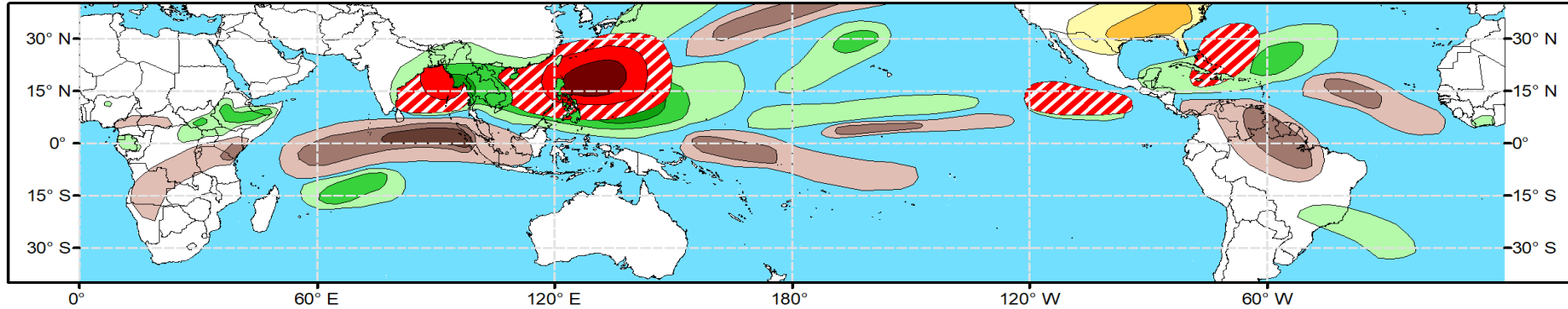
GTH Outlook:



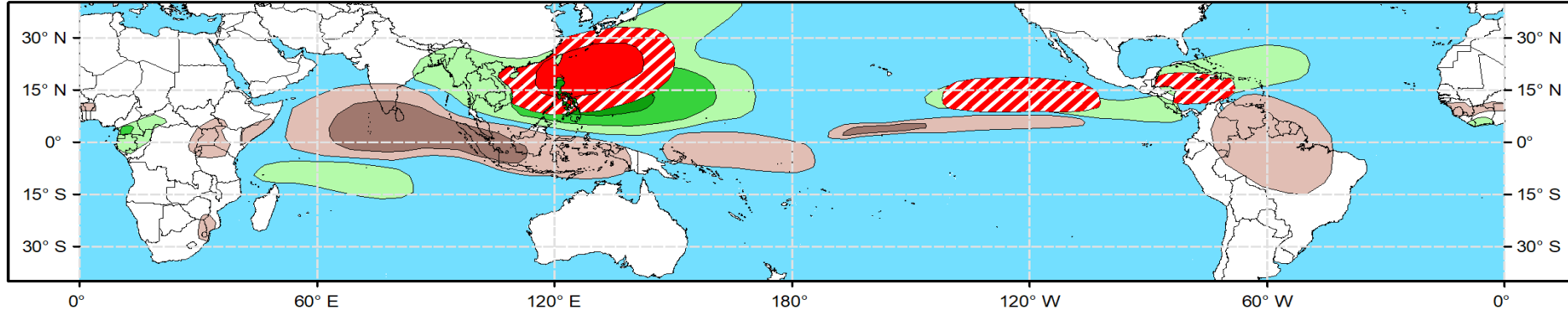
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Oct 23, 2024 - Oct 29, 2024



Week 3 - Valid: Oct 30, 2024 - Nov 05, 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**



>50% >65% >80%

*7-day max temperatures in the
Upper third of the historical range*

**Below-Average
Temperatures Probability**



>50% >65% >80%

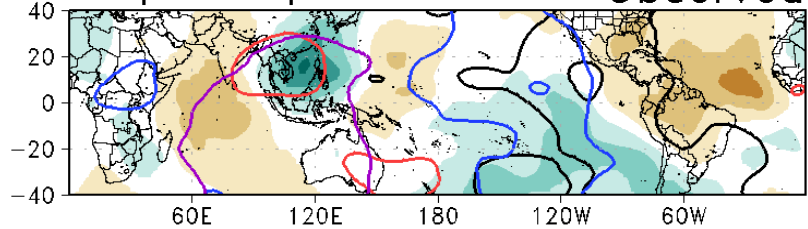
*7-day min temperatures in the
Lower third of the historical range*

**Issued: 10/15/2024
Forecaster: Novella**

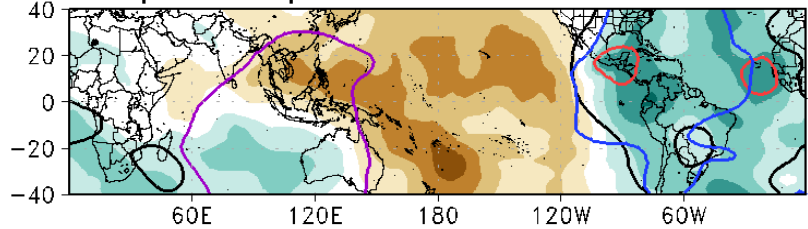
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

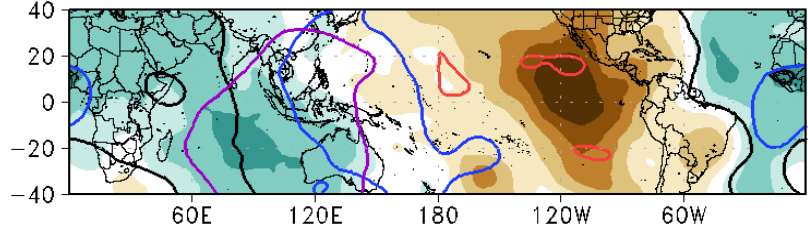
17Sep to 23Sep Observed



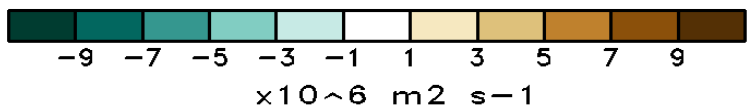
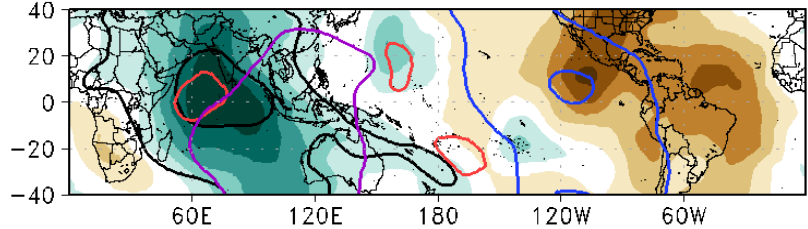
24Sep to 30Sep



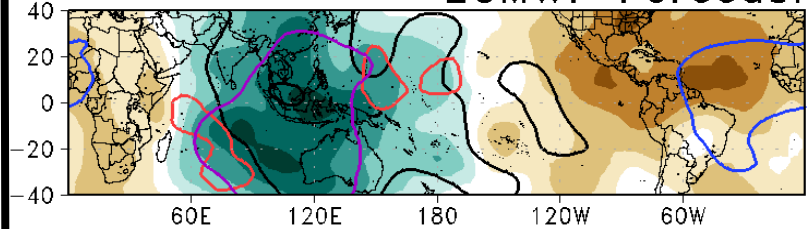
01Oct to 07Oct



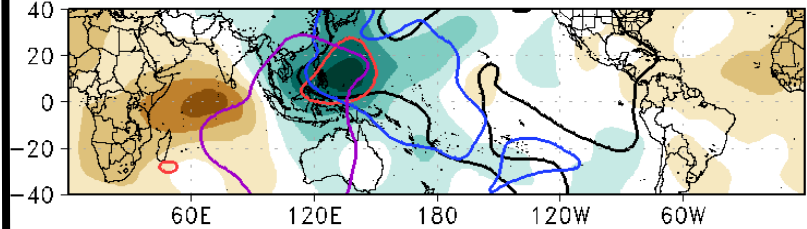
08Oct to 14Oct



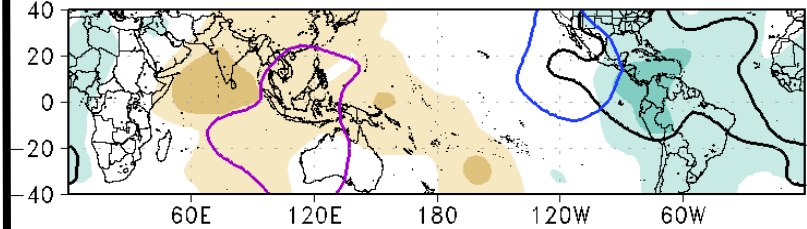
Green: Enhanced Divergence Aloft
150Oct to 210ct ECMWF Forecast



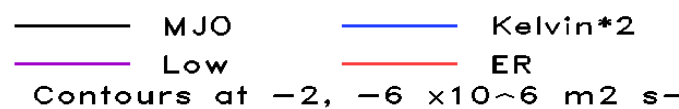
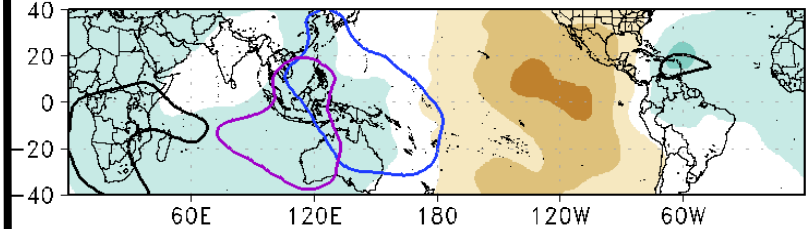
220Oct to 280ct



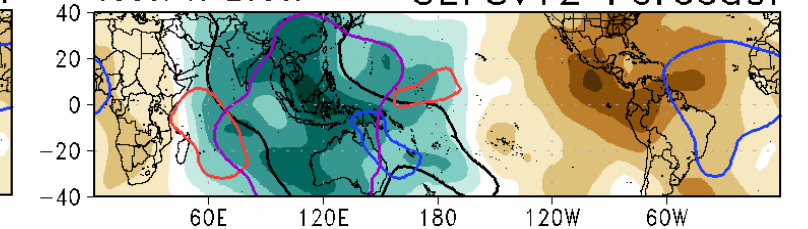
290Oct to 04Nov



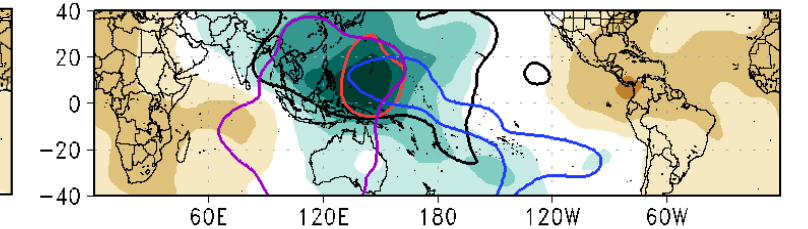
05Nov to 11Nov



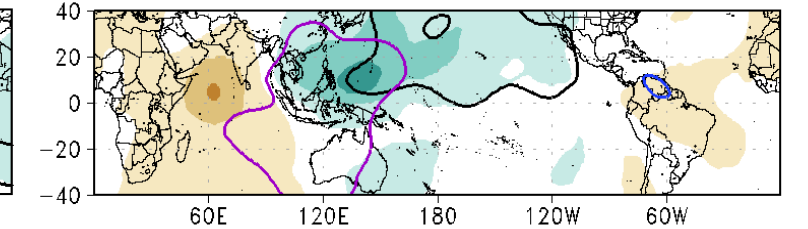
Brown: Enhanced Convergence Aloft
150Oct to 210ct GEFSv12 Forecast



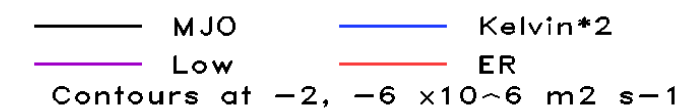
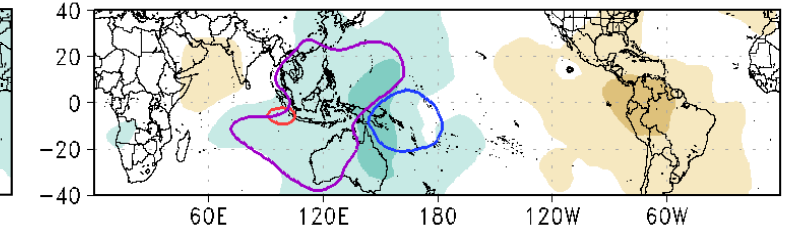
220Oct to 280ct



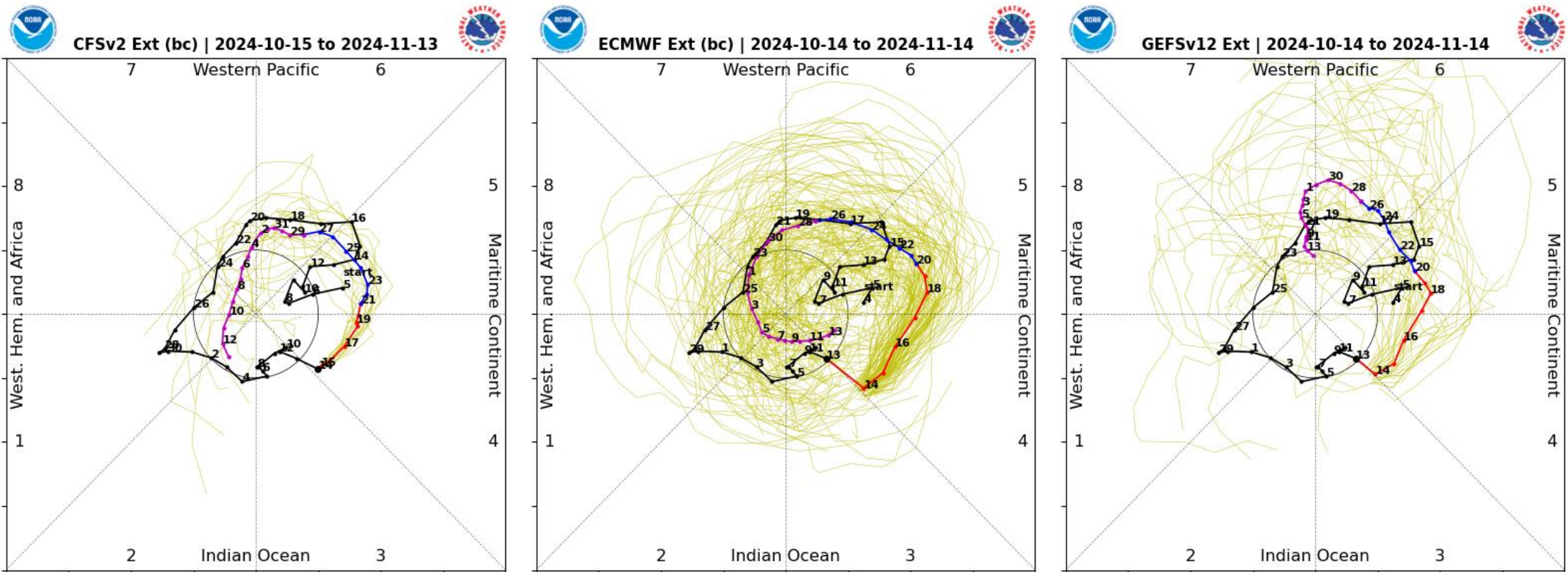
290Oct to 04Nov



05Nov to 11Nov

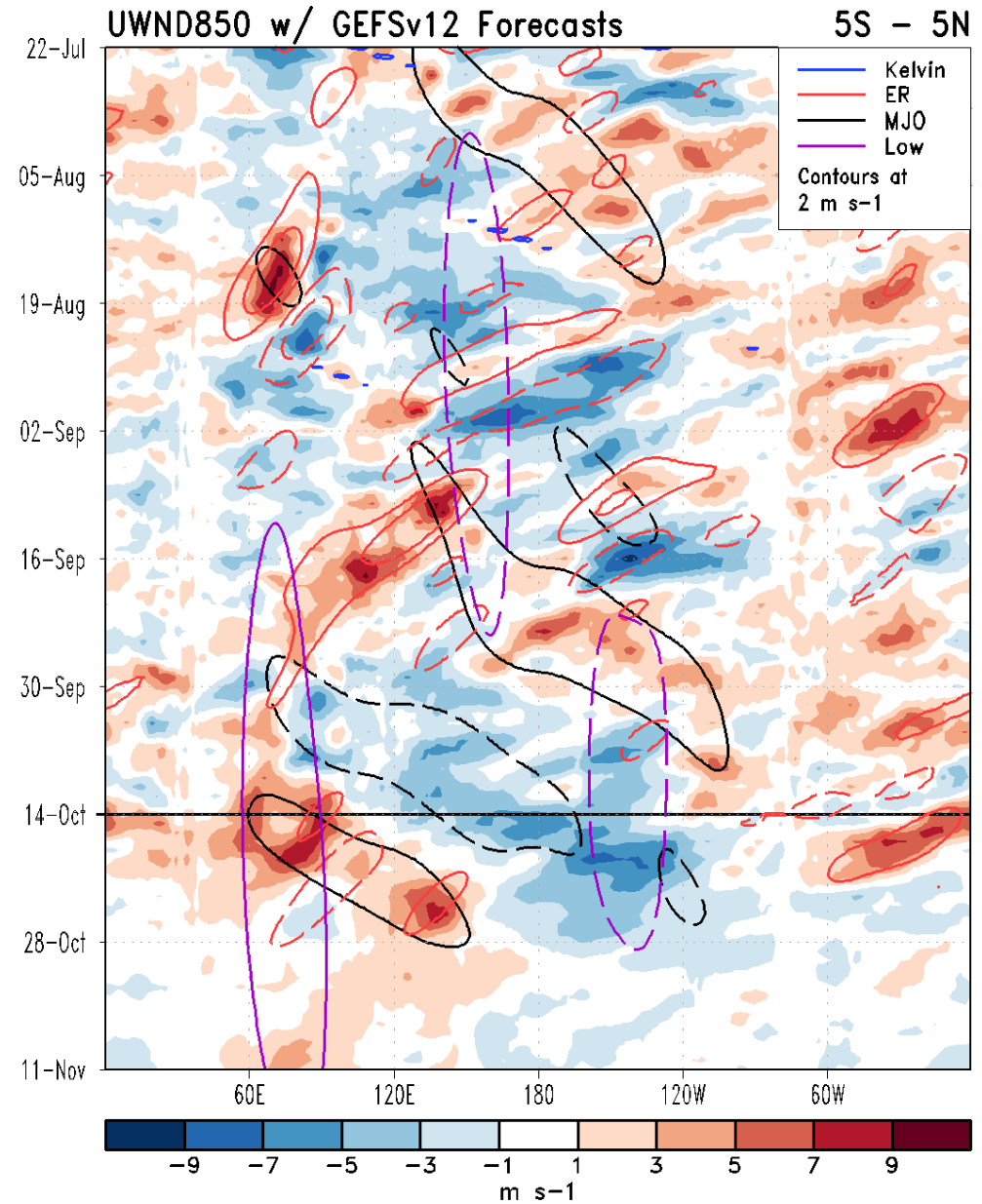
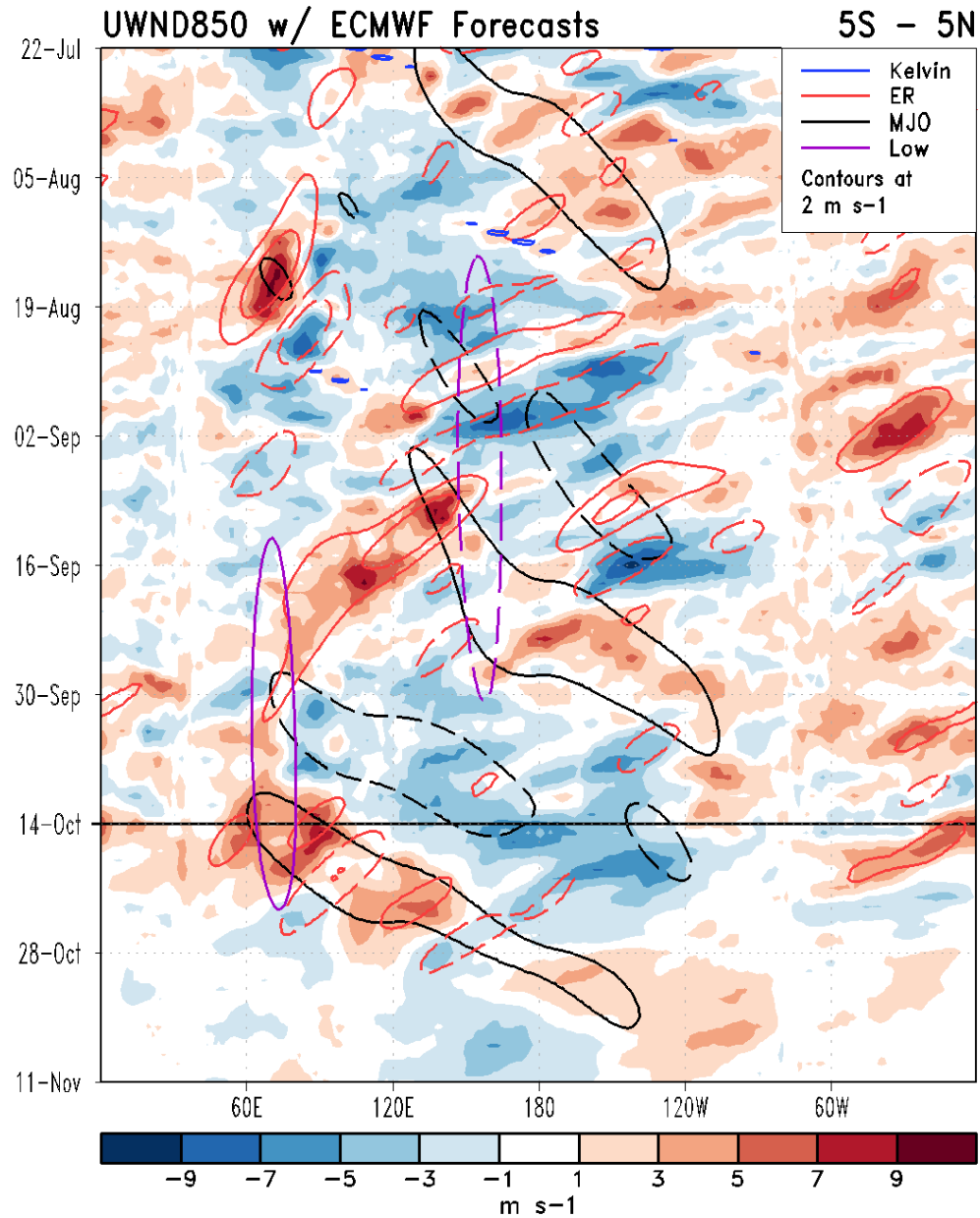


RMM Index Observations & Forecasts:



- Models agree that the MJO signal will gain amplitude over the Maritime Continent and reach the Western Pacific during mid to late week-2.
- However, models disagreement in regards to the phase speed of the MJO, where the GEFS (ECMWF and CFS) favors more of slower (faster) mean solution.
- There is also some concern as to “Maritime Continent Barrier” effect, based on its previous two trips over this part of the tropics.

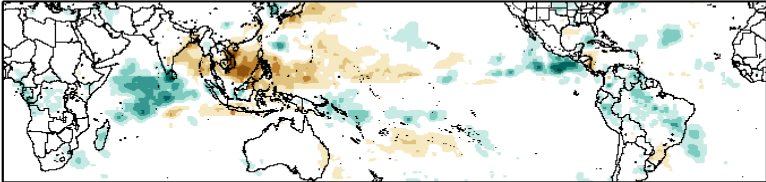
850-hPa Zonal Wind Anomaly Time/Lon Plots:



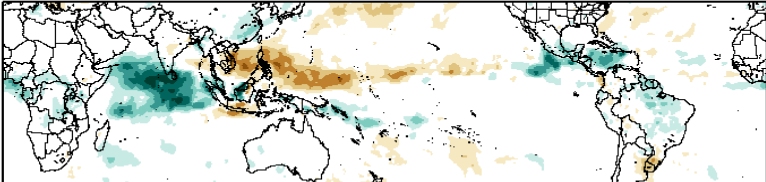
Historical Precipitation Anomalies By MJO Phase:

SON MJO Composite: GPCP1DD (mm/day)

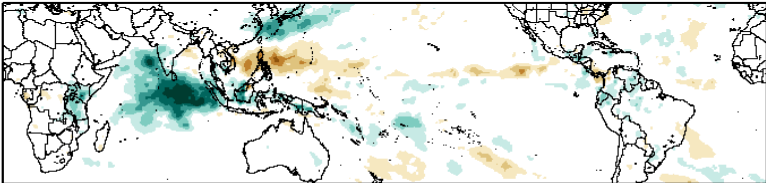
Phase 1



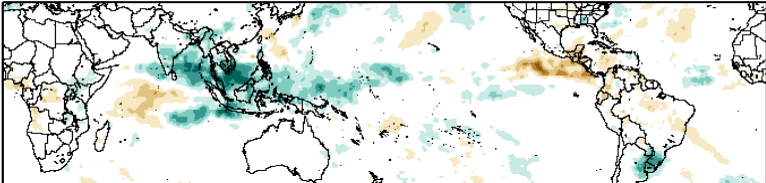
Phase 2



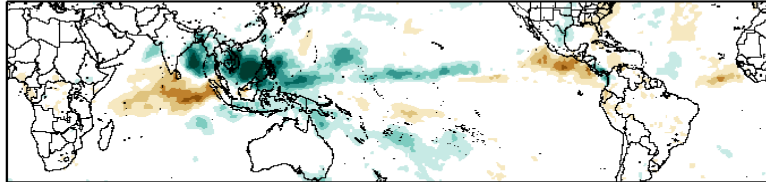
Phase 3



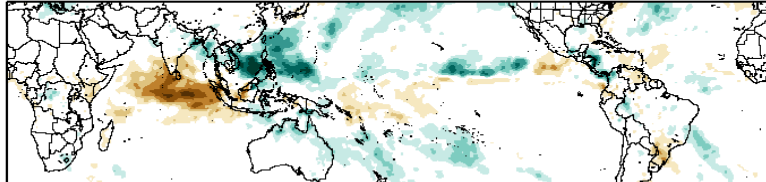
Phase 4



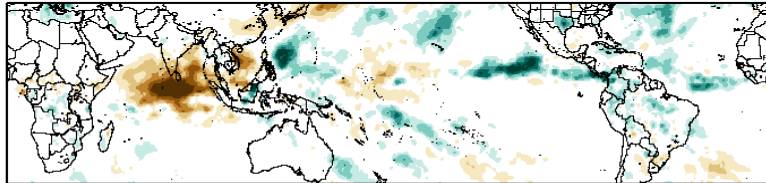
Phase 5



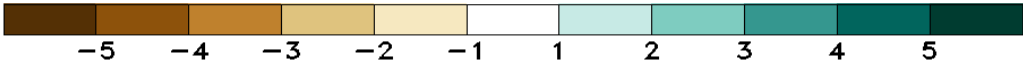
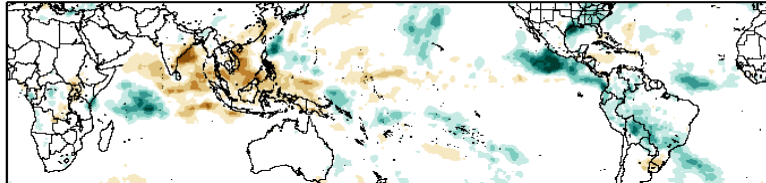
Phase 6



Phase 7

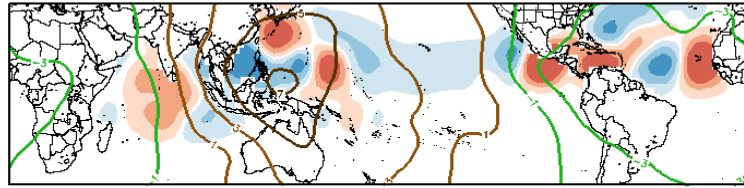


Phase 8

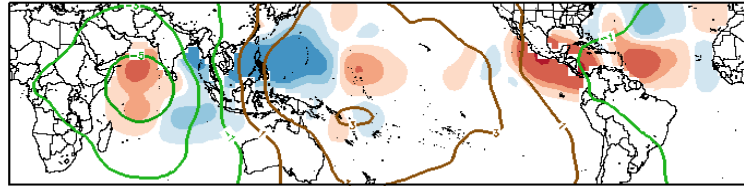


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

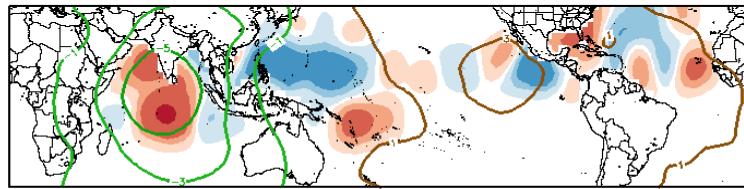
SON MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ SON CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



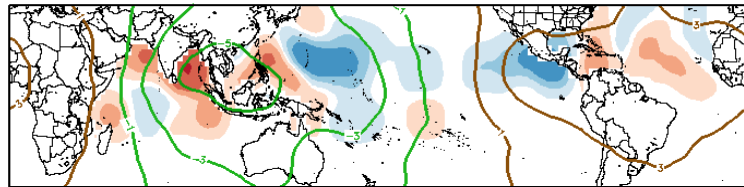
Phase 1



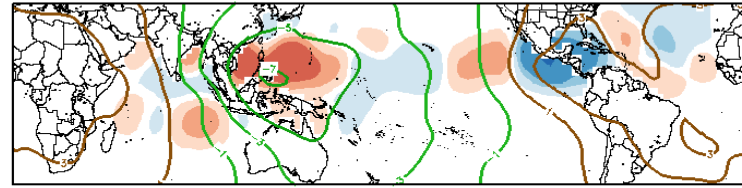
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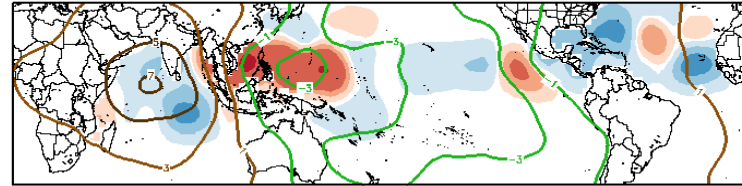
Phase 3



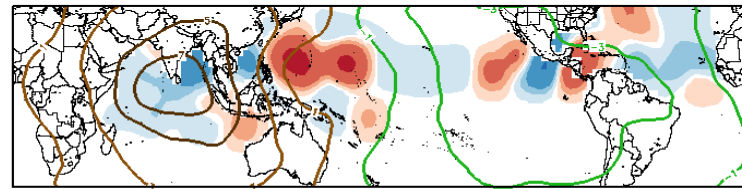
Phase 4



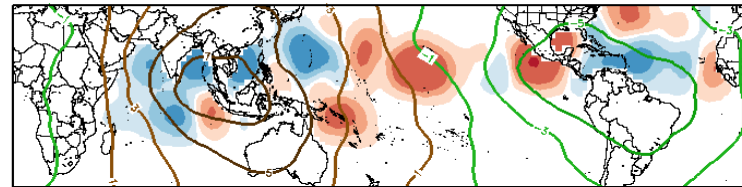
Phase 5



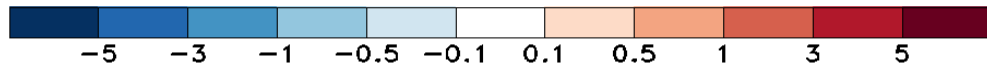
Phase 6



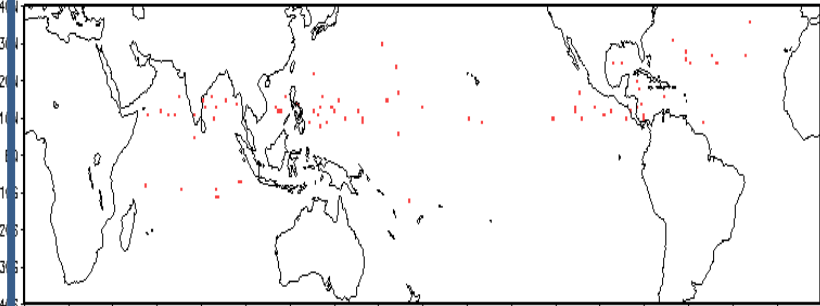
Phase 7



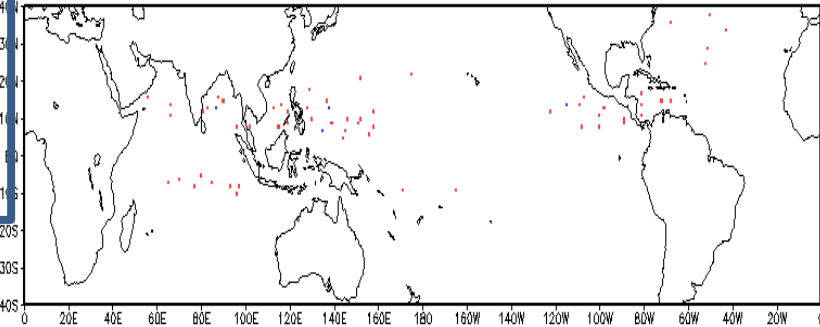
Phase 8



Observed TC Genesis, 1979-2021
7-day Period 1023 to 1029

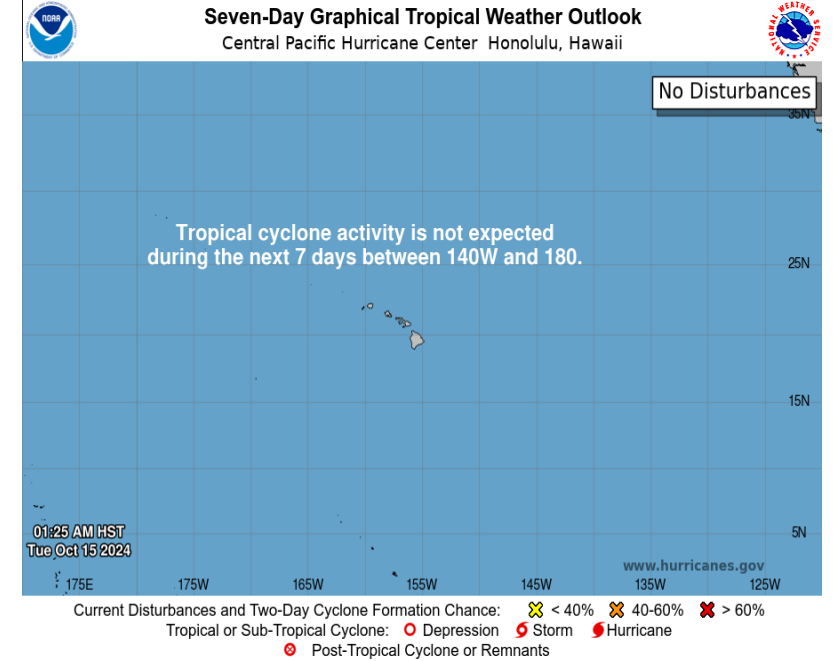
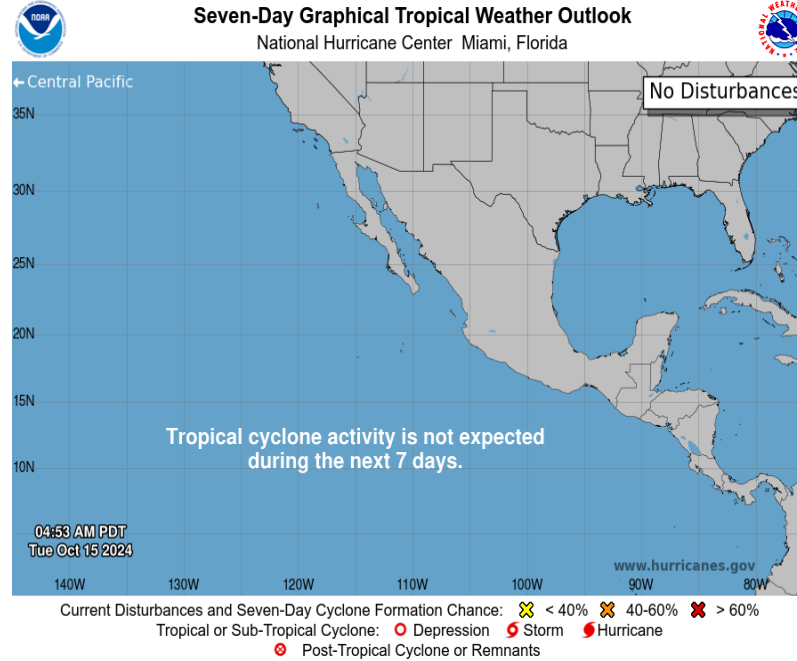
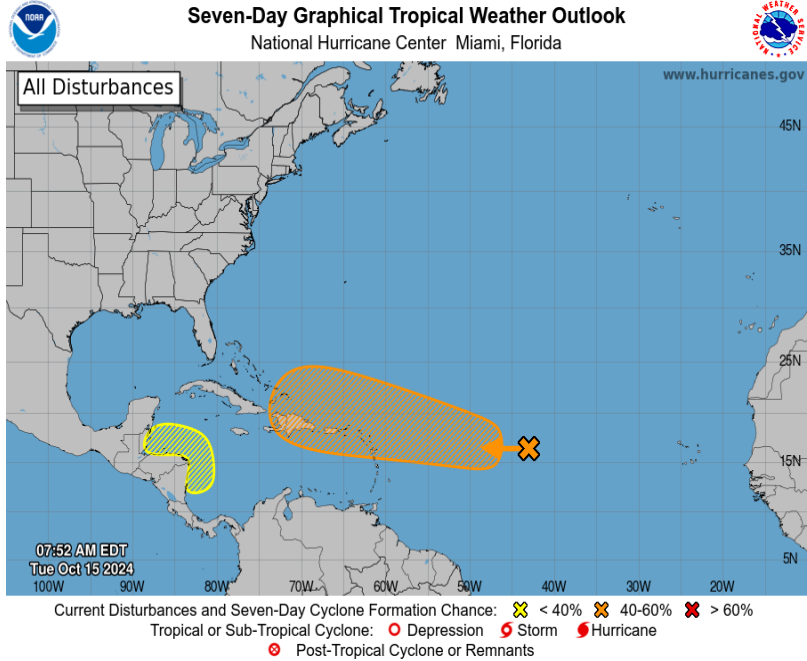


Observed TC Genesis, 1979-2021
7-day Period 1030 to 1105



Experimental

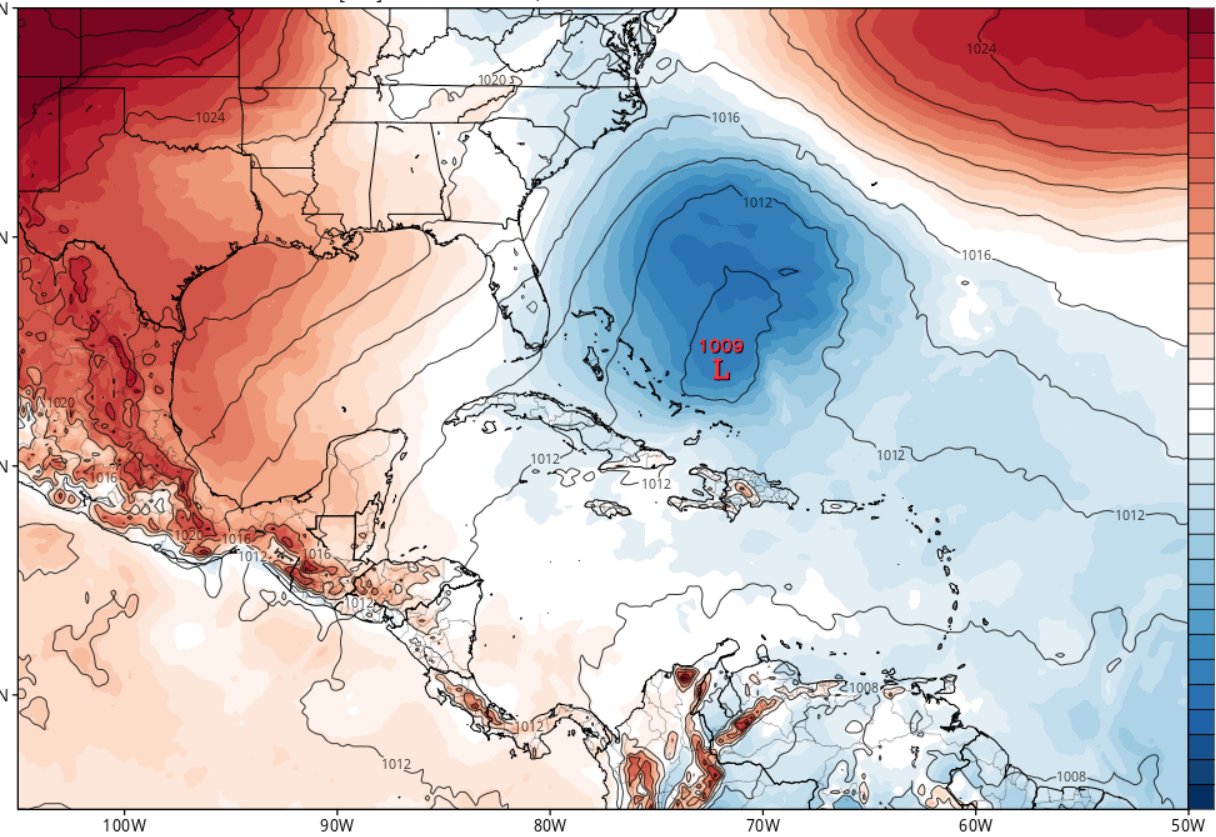
Tropical Cyclone Monitoring/Forecast: NHC / CPHC



ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 00z Oct 15 2024 Forecast Hour: [210] valid at 18z Wed, Oct 23 2024

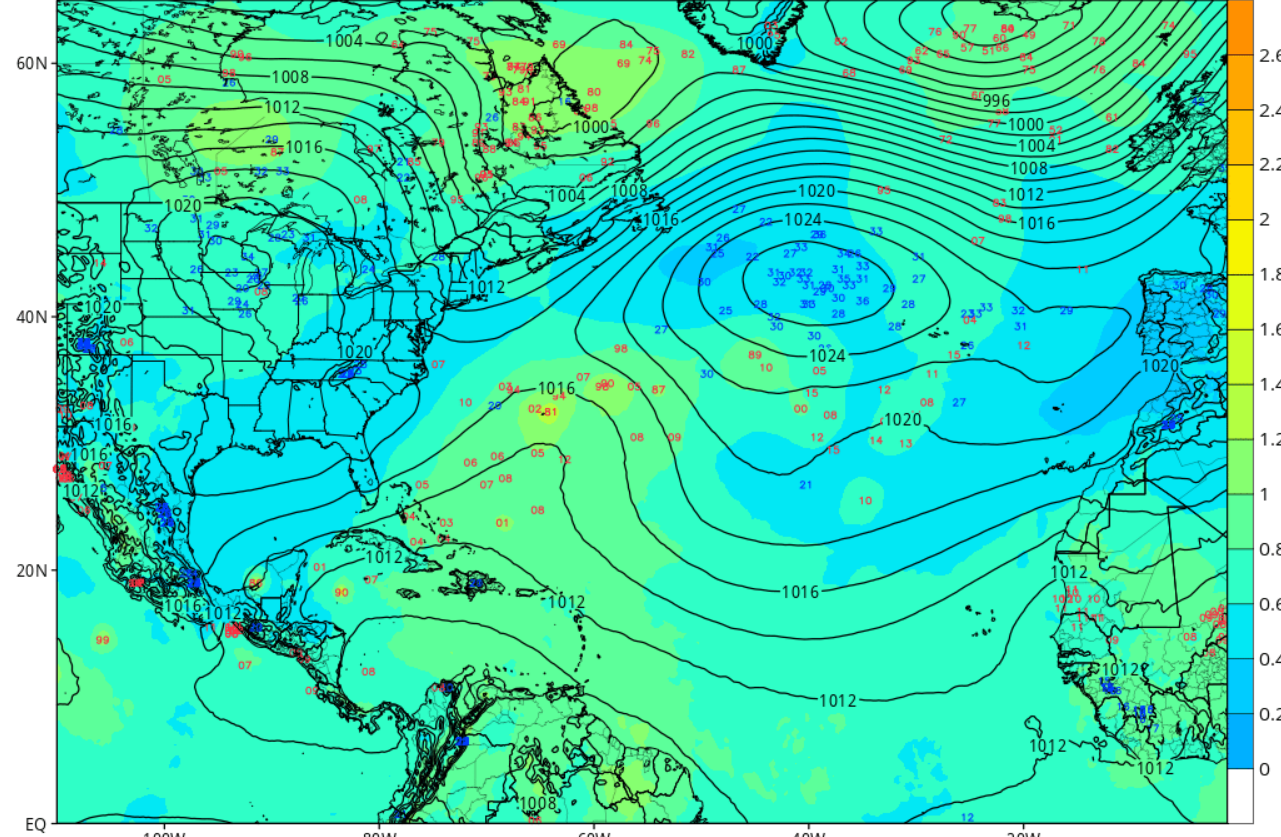
TROPICALTIDBITS.COM

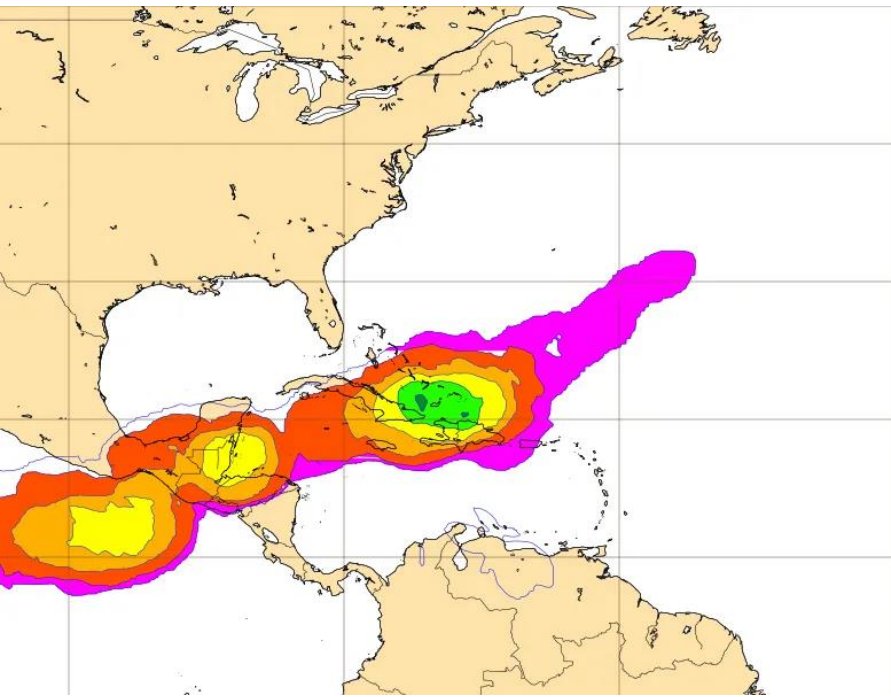


EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | High: blue), & Normalized Spread (σ)

Init: 00z Oct 15 2024 Forecast Hour: [216] valid at 00z Thu, Oct 24 2024

TROPICALTIDBITS.COM

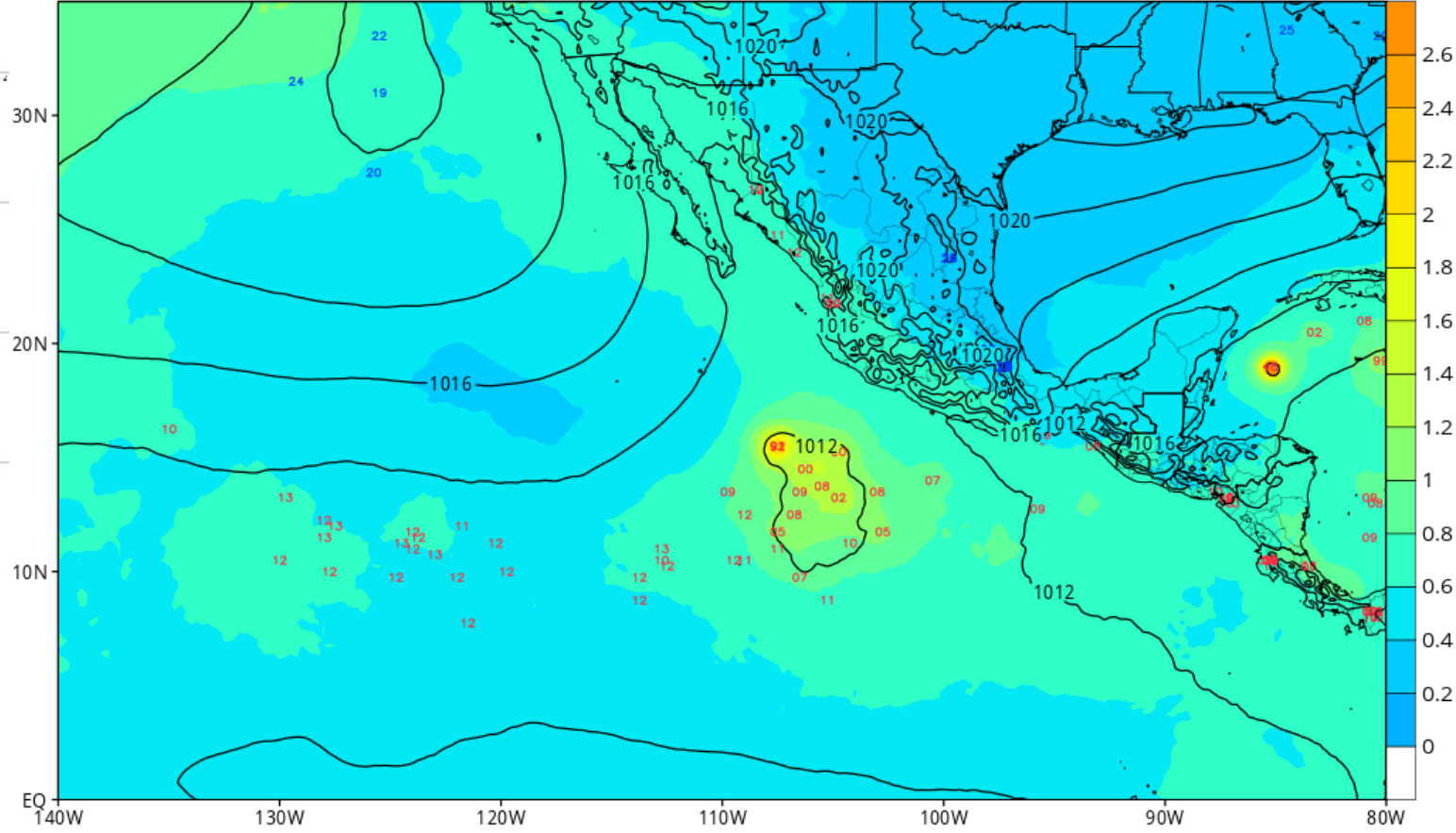




EPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)

Init: 00z Oct 15 2024 Forecast Hour: [186] valid at 18z Tue, Oct 22 2024

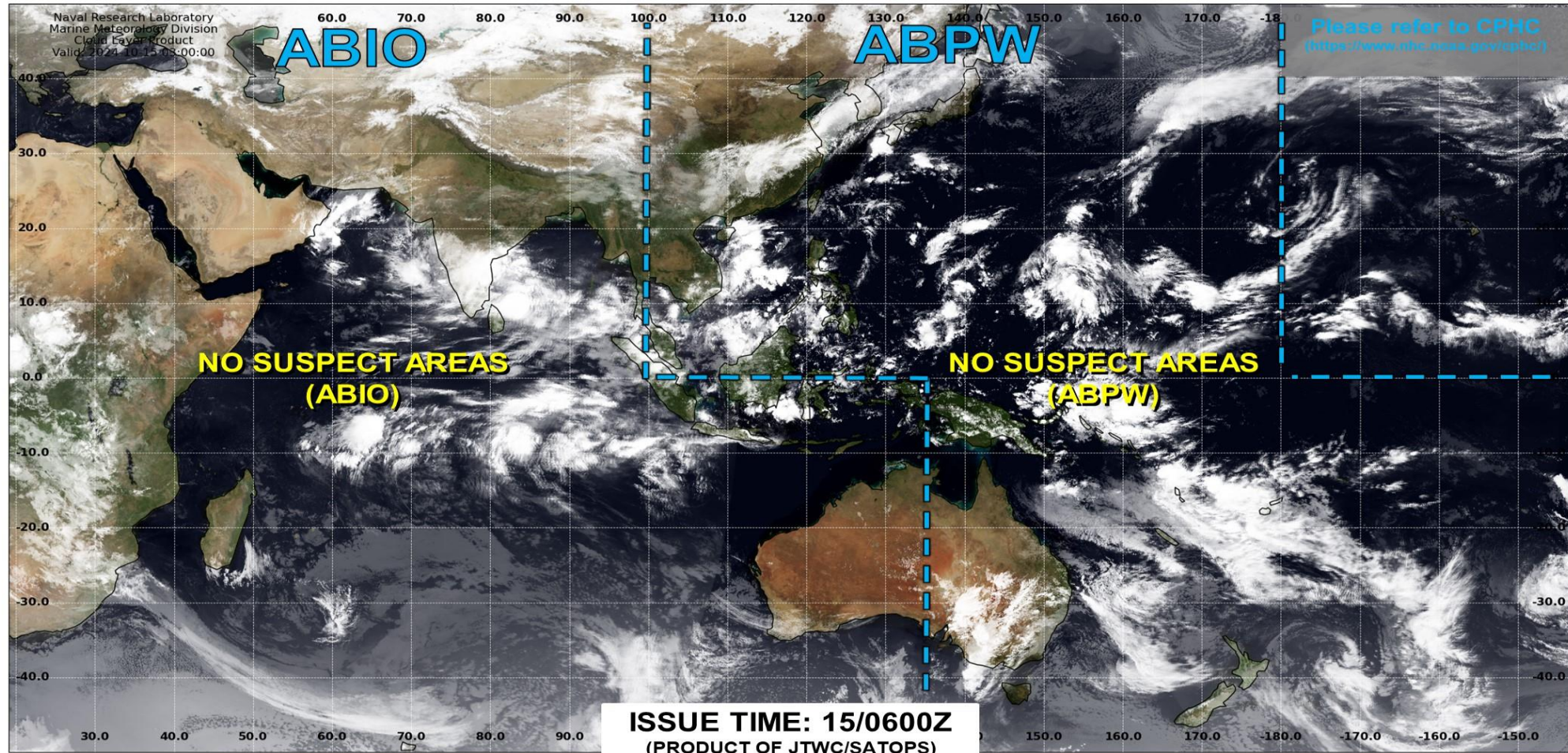
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Tropical Cyclone Monitoring/Forecast: JTWC



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)

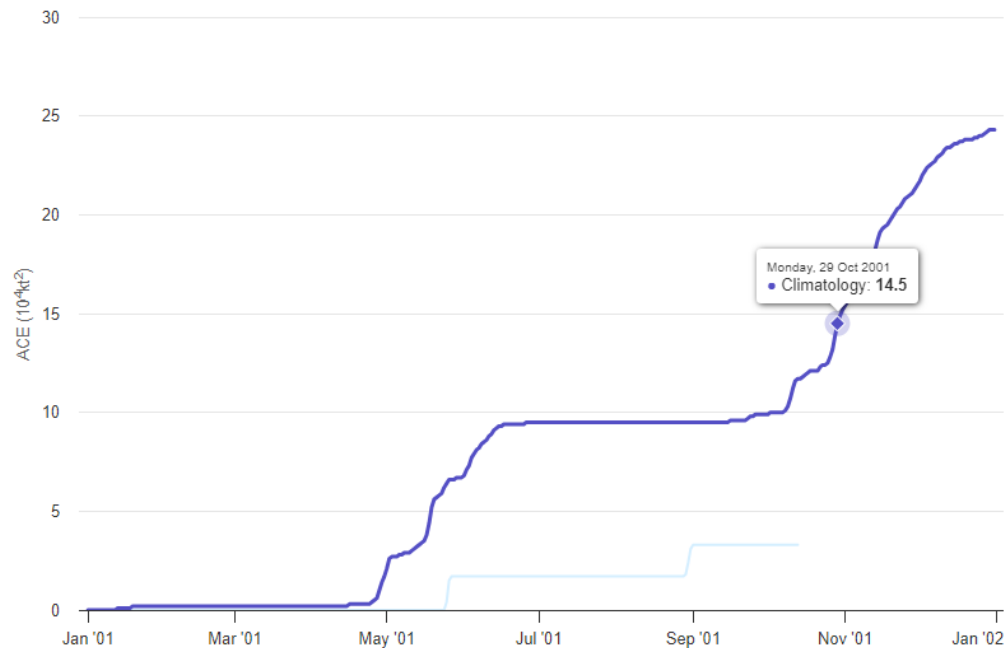


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

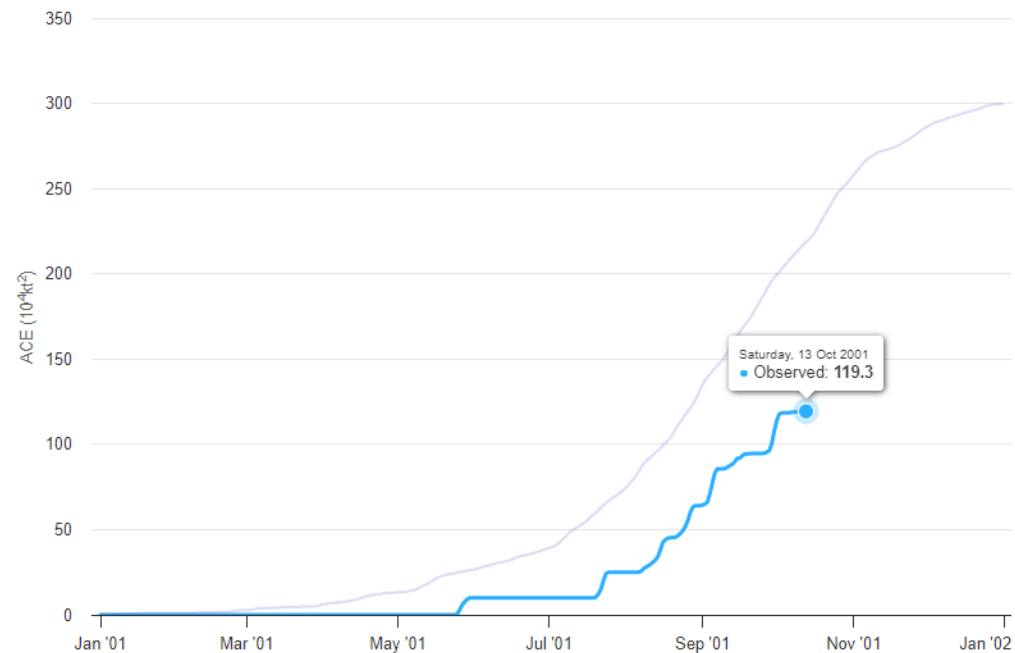


Tropical Cyclone (Reference Warning)

Current Season North Indian Ocean ACE (1991-2020 Climatology)

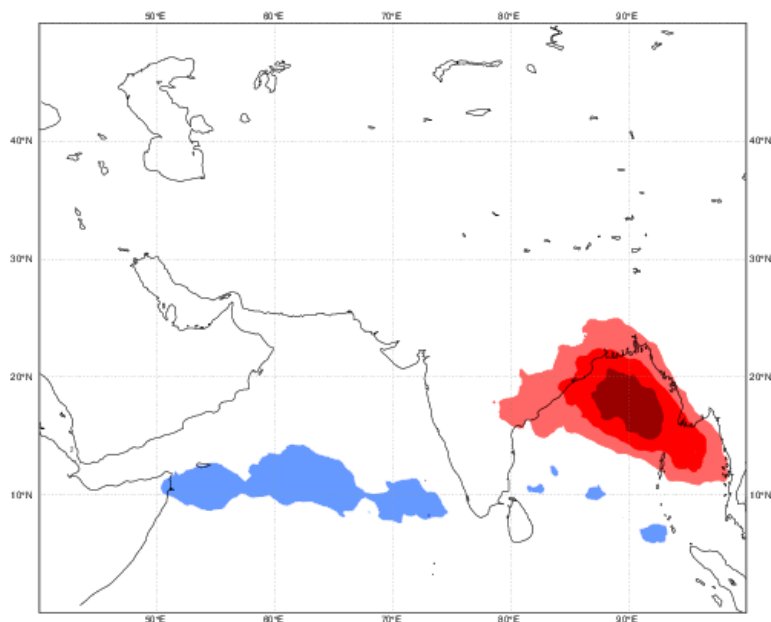


Current Season Northwest Pacific Ocean ACE (1991-2020 Climatology)



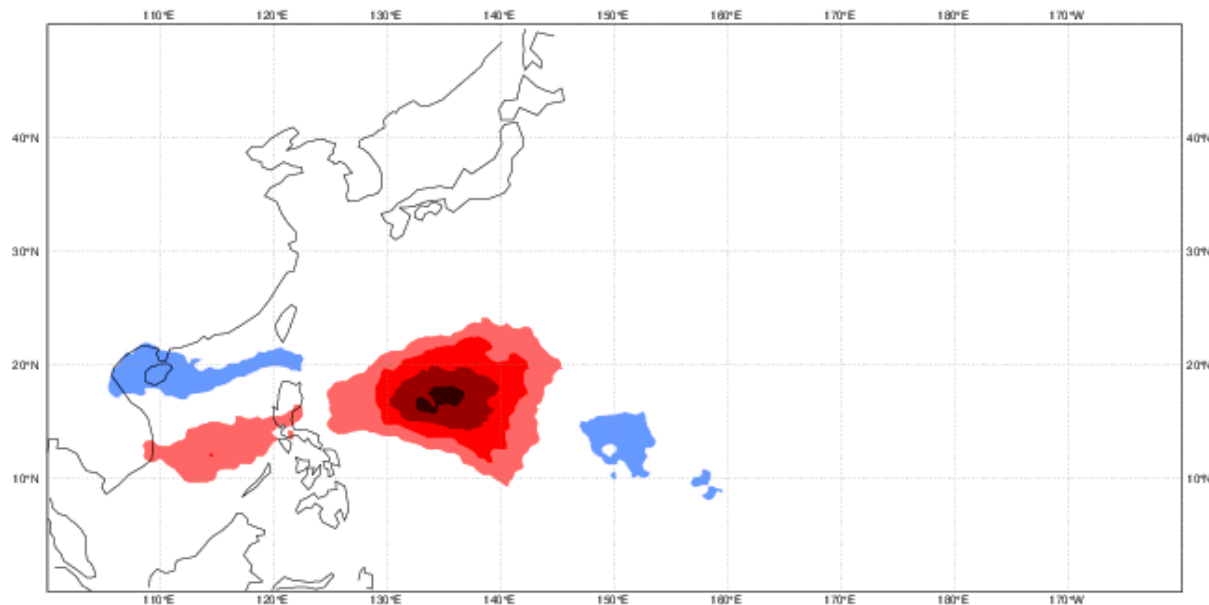
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20241014 0 UTC t+(168-336)
 Probability of a TC passing within 300km radius

■ -100-40 ■ -40-30 ■ 30-20 ■ 20-10 ■ -10-10 ■ 10-20 ■ 20-30 ■ 30-40 ■ 40-100



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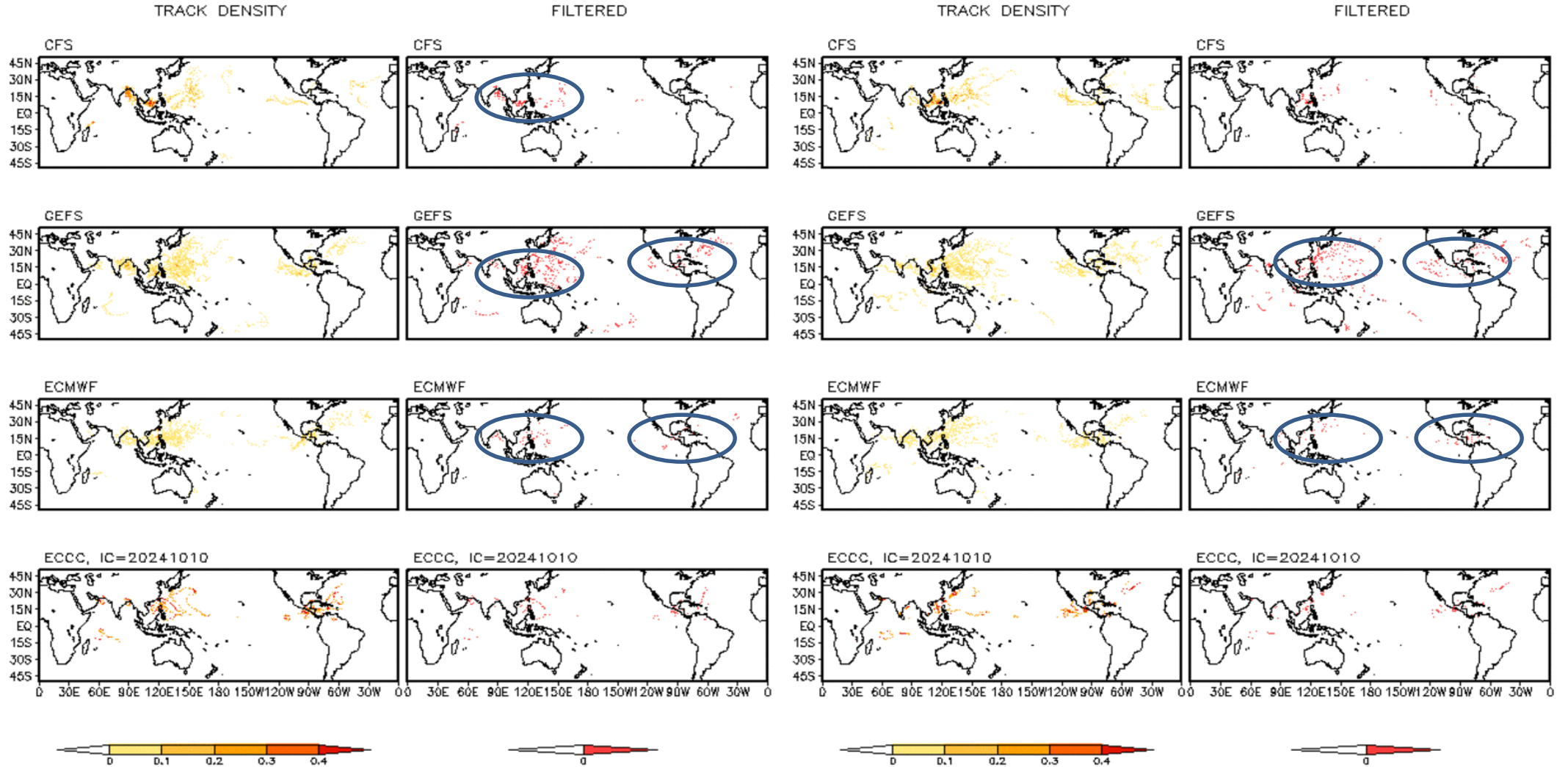
■ -100-40 ■ -40-30 ■ 30-20 ■ 20-10 ■ -10-10 ■ 10-20 ■ 20-30 ■ 30-40 ■ 40-100



Multi-Model TC Track Densities: Weeks 2+3

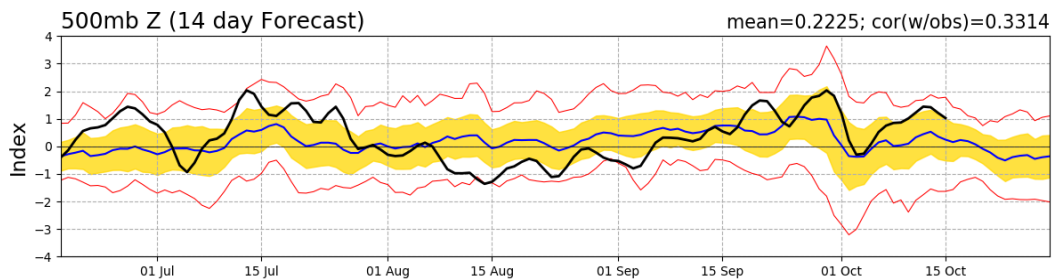
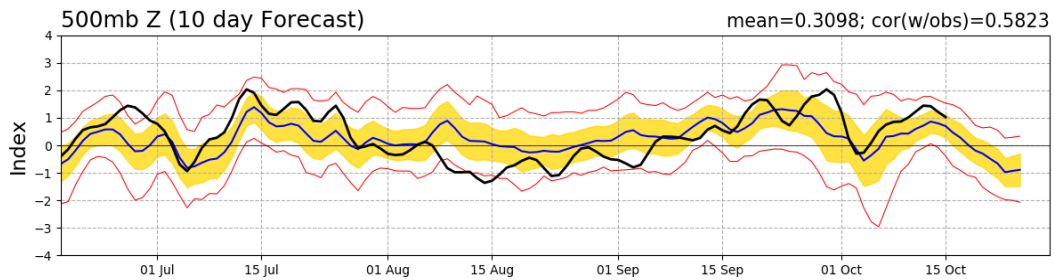
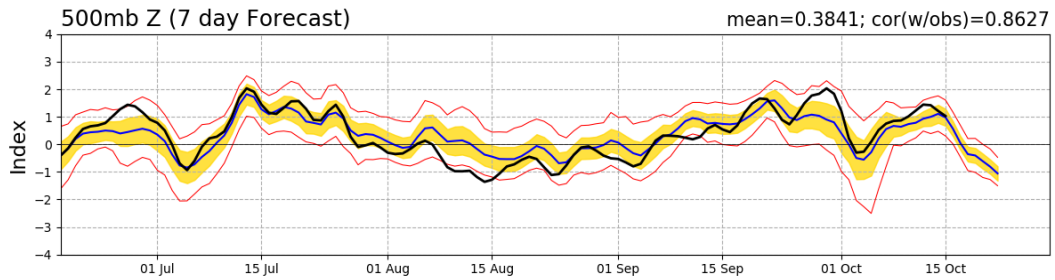
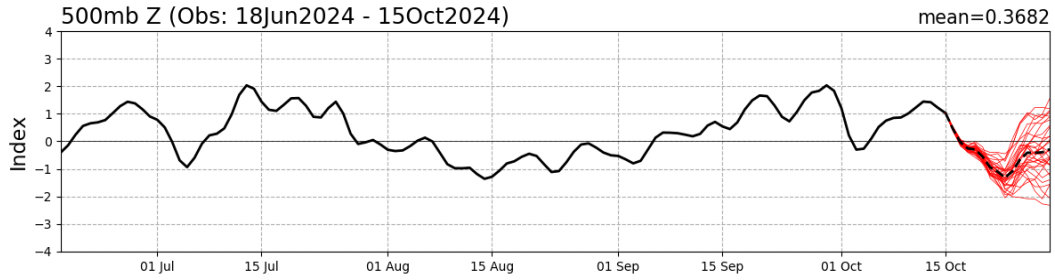
Storm Track Density Distribution, IC=20241014
Week 2 Forecast: 1023-1029

Storm Track Density Distribution, IC=20241014
Week 3 Forecast: 1030-1105

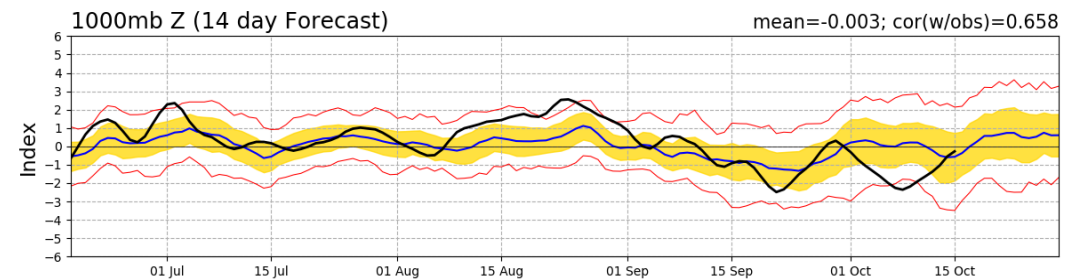
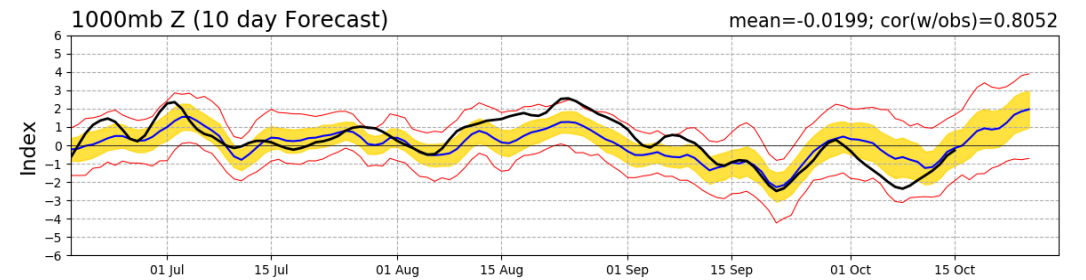
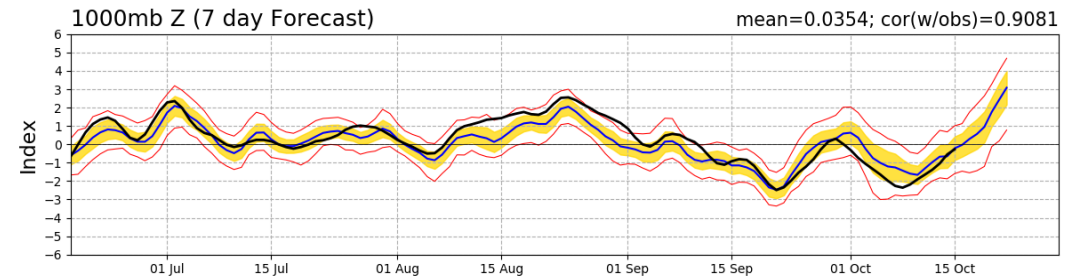
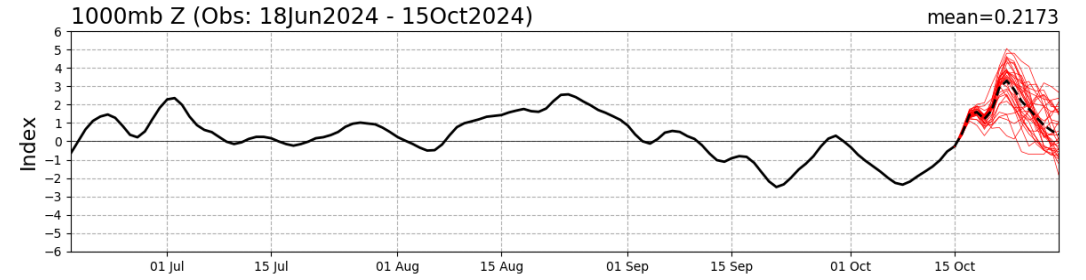


Teleconnection Indices: PNA / AO:

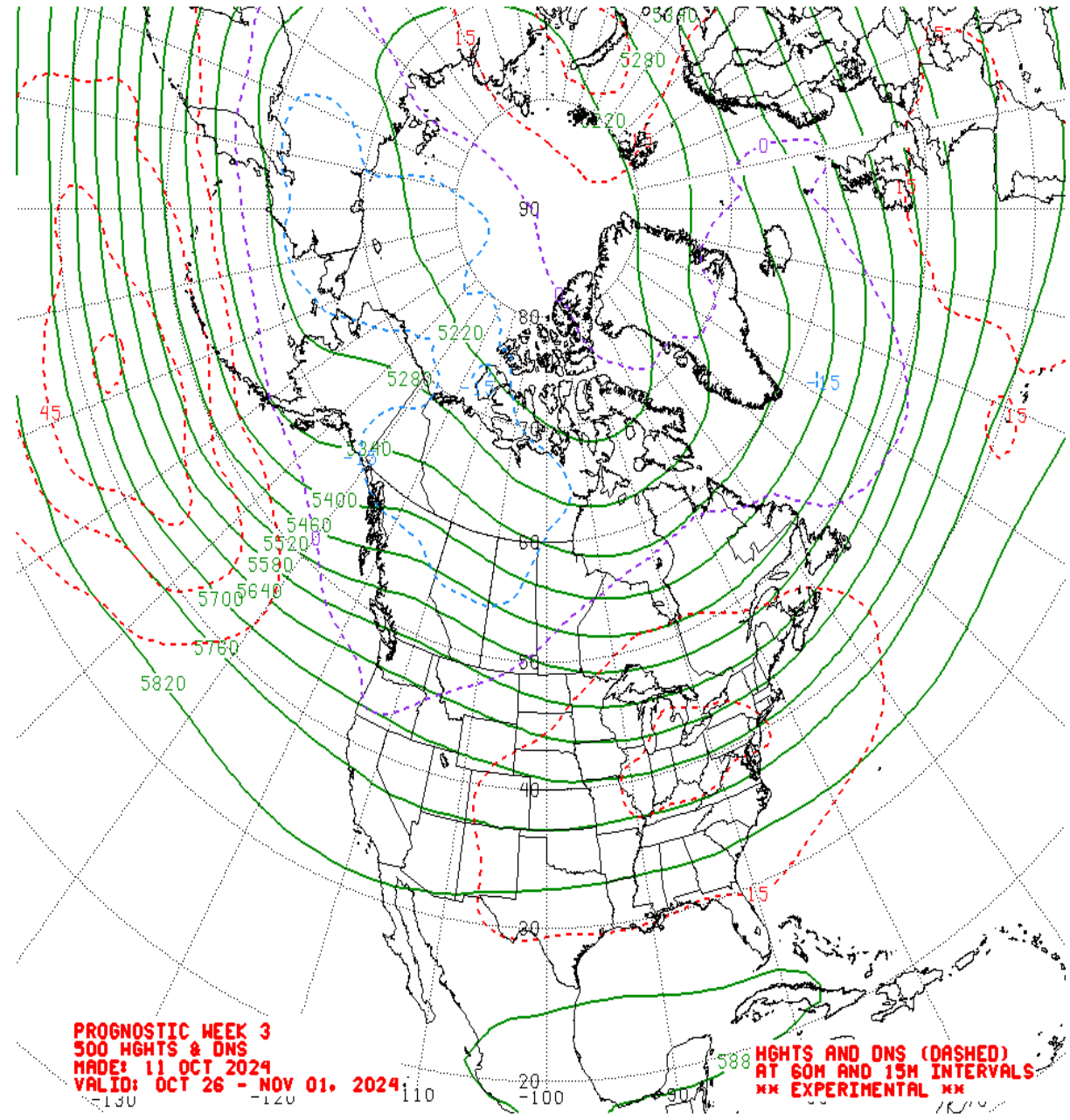
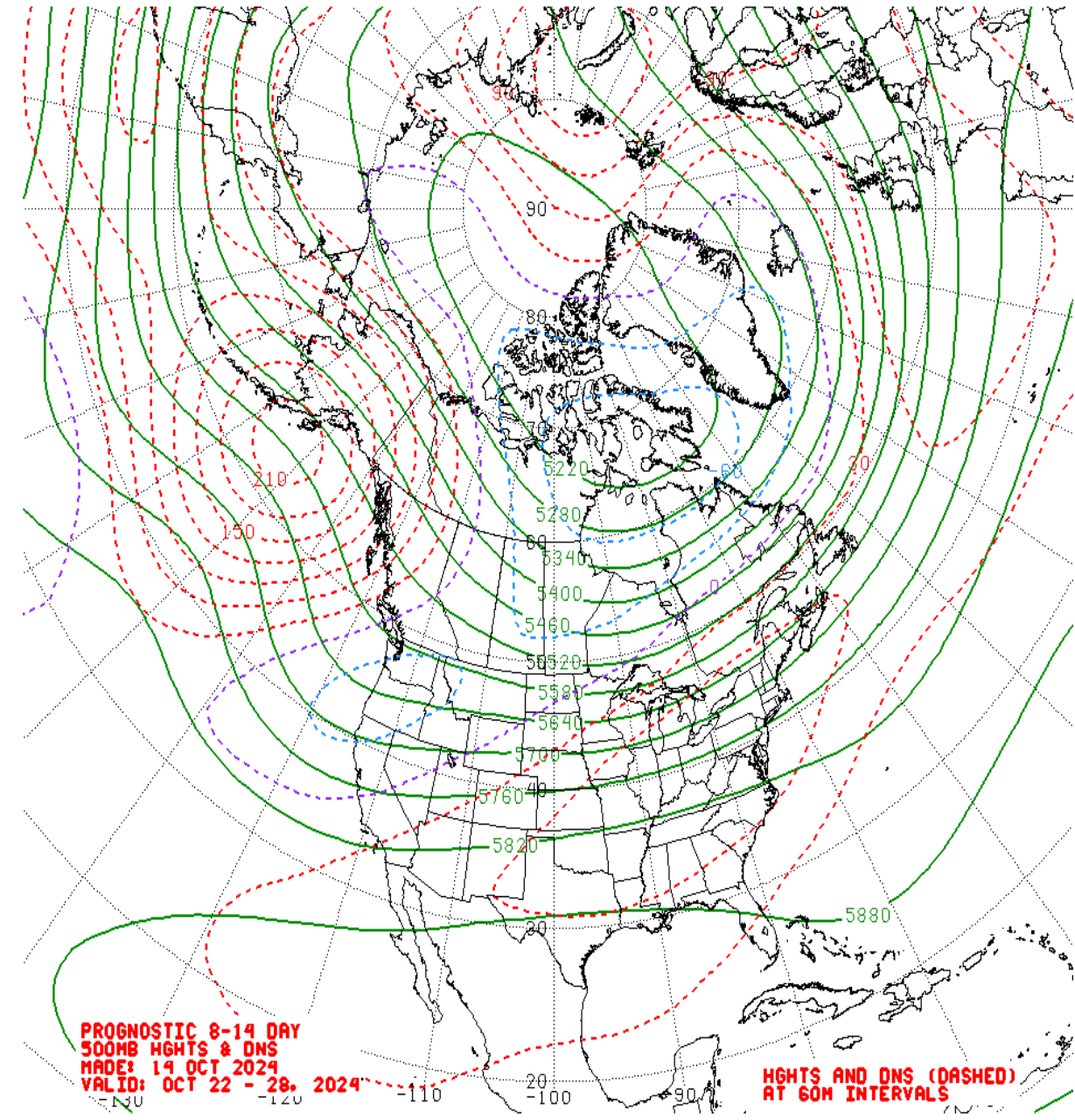
PNA Index: Observed & GEFS Forecasts



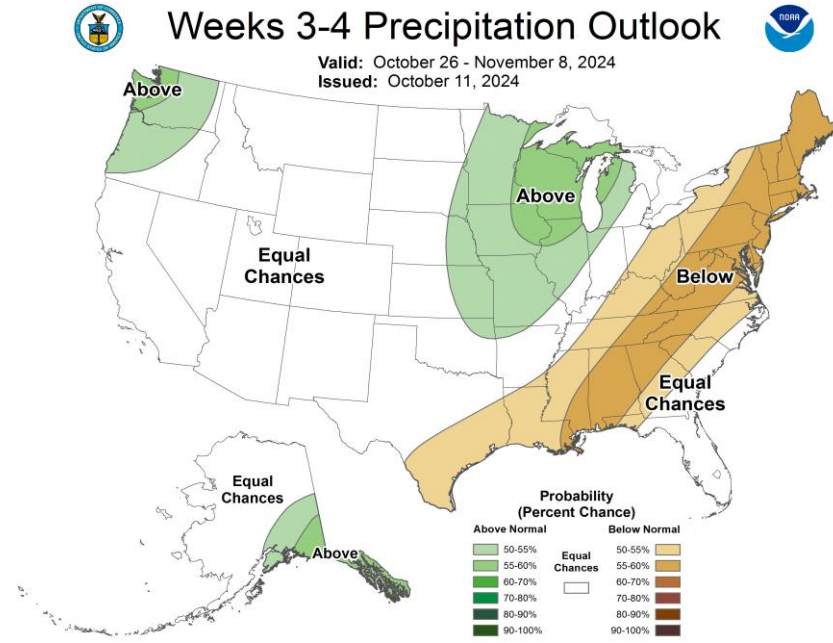
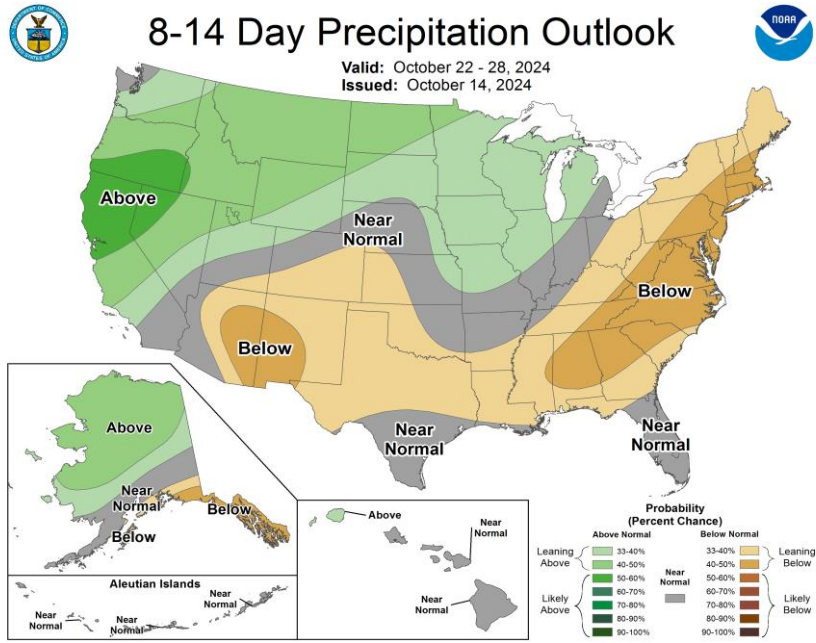
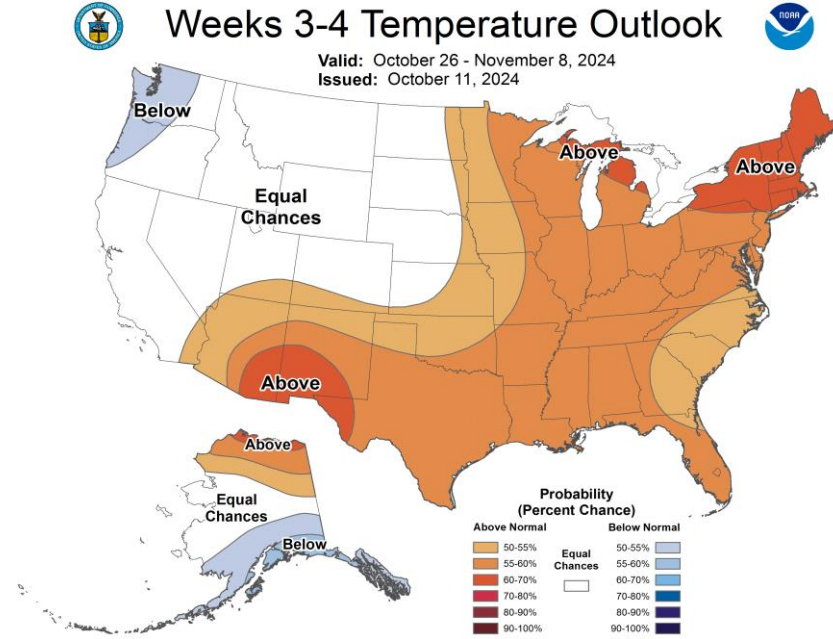
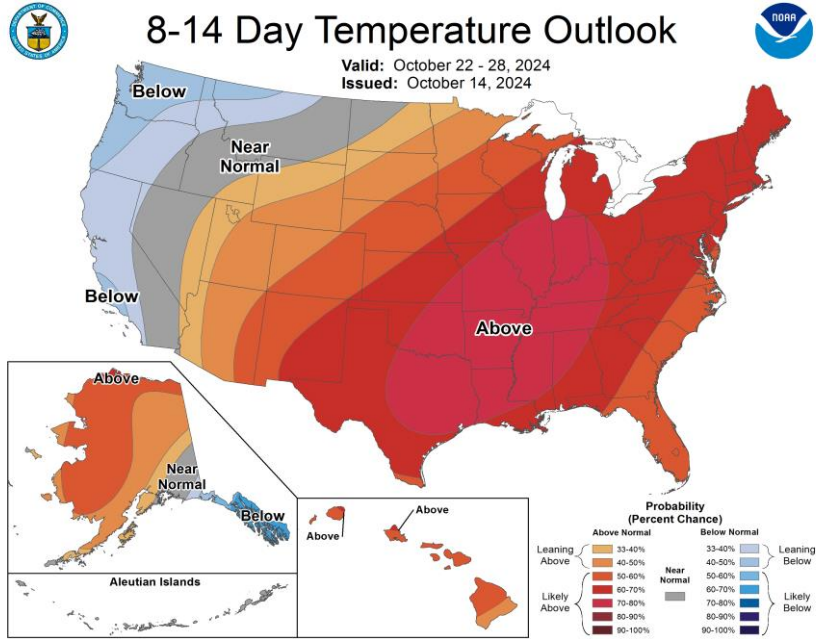
AO Index: Observed & GEFS Forecasts



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



Official Temperature & Precipitation Forecasts:



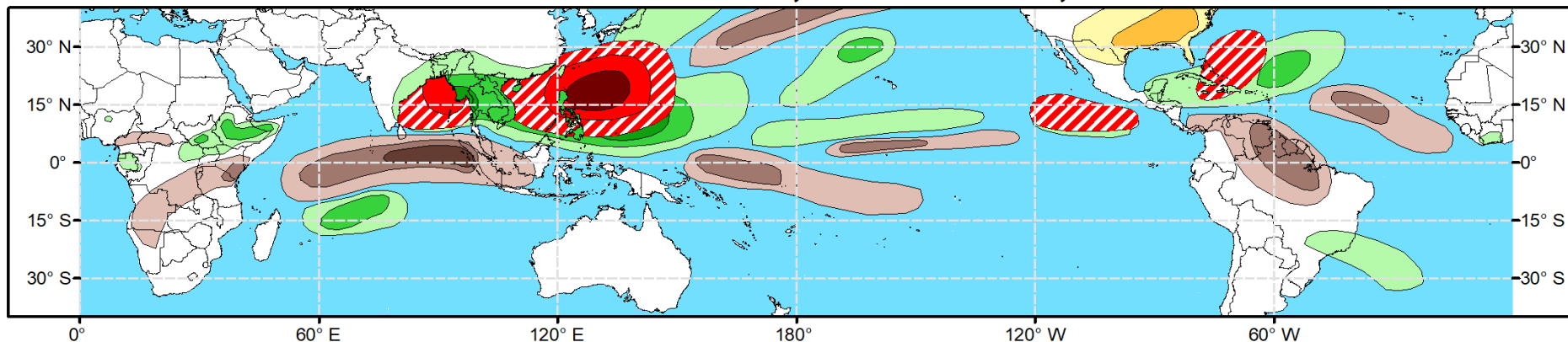


Global Tropics Hazards Outlook

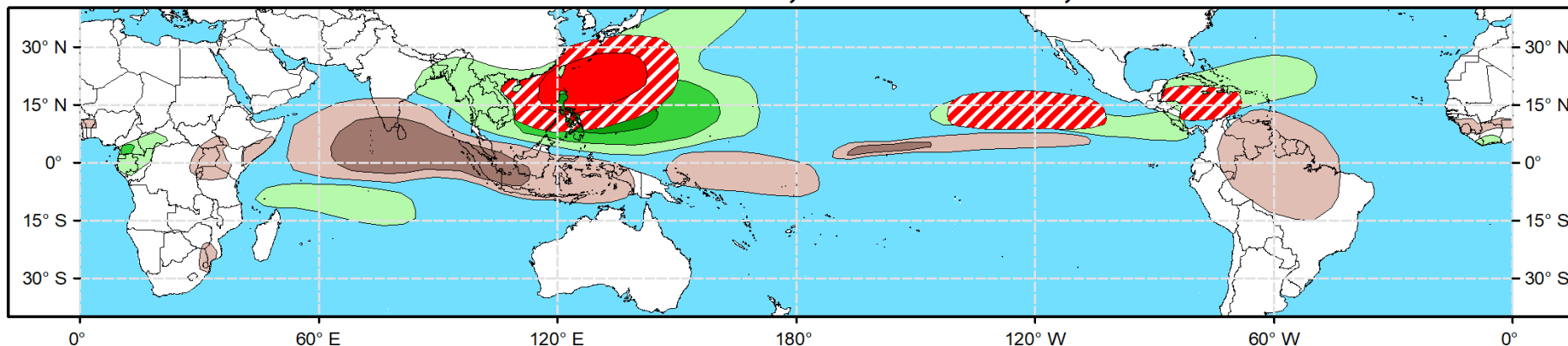
Climate Prediction Center



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