



Weeks 2-3 Global Tropics Hazards Outlook

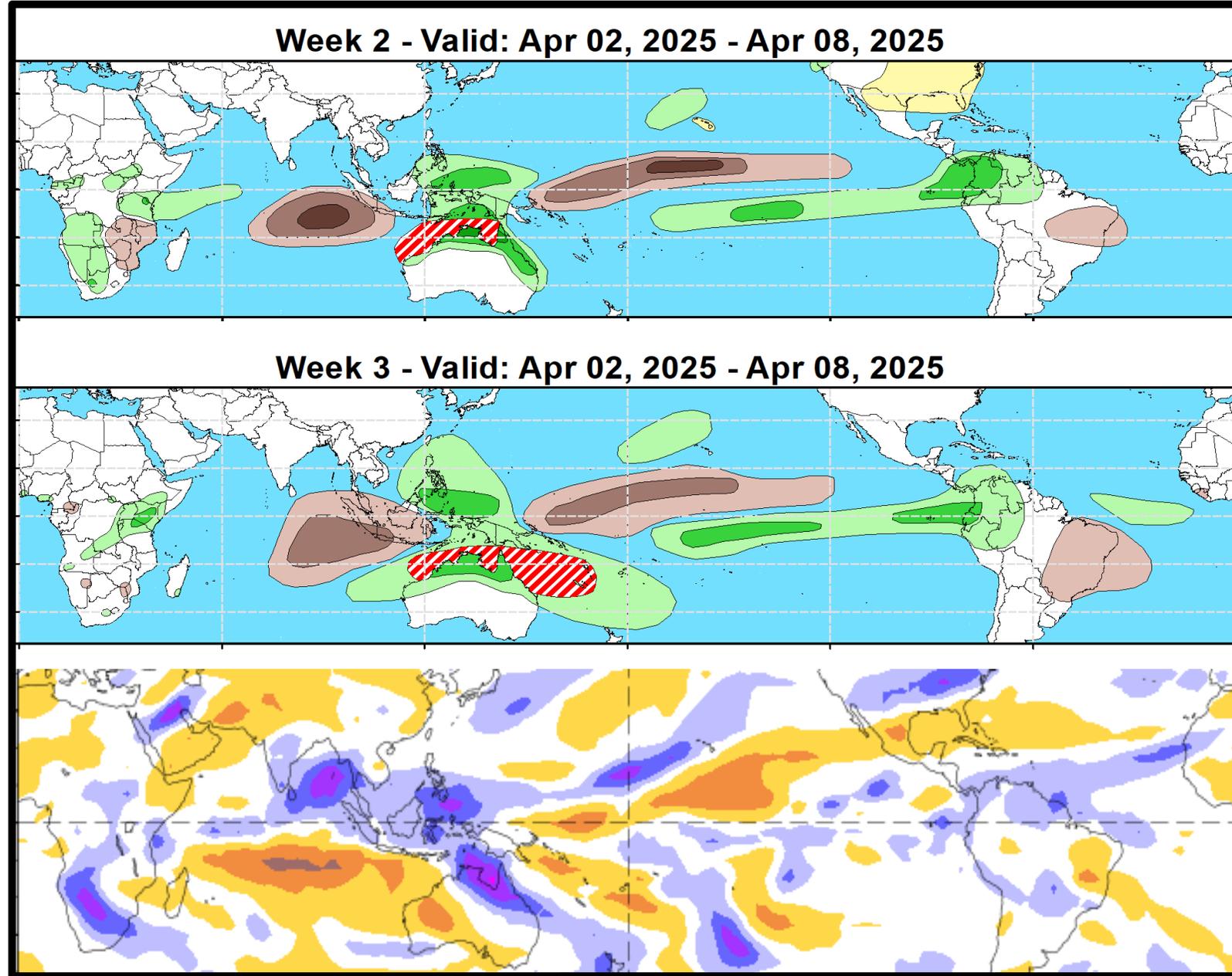
4/8/2025

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- No TCs
- 92B (low)



Synopsis of Climate Modes:

ENSO: (Mar 13, 2025 Update) *next update on Thursday, Apr 10th*

- ENSO Alert System Status: [La Niña Advisory](#)
- ENSO-neutral is favored to develop in the next month and persist through the Northern Hemisphere summer (62% chance in JJA, 2025).

MJO and other subseasonal tropical variability:

- Since entering the Western Pacific last month, the MJO remains incoherent while exhibiting erratic behavior in RMM space likely due to other modes of variability playing a more predominant role in the tropics.
- Differing perspectives are presented between the RMM and wave filtered velocity potential based forecasts contributing to uncertainty in the outlook, however there is growing support in the model tools for a more coherent MJO unfolding later in April.
- The highest chances for Tropical Cyclone (TC) development are favored over the southeastern Indian Ocean and South Pacific, but outlook confidence is tempered due to a quiet TC genesis climatology, especially during late April.

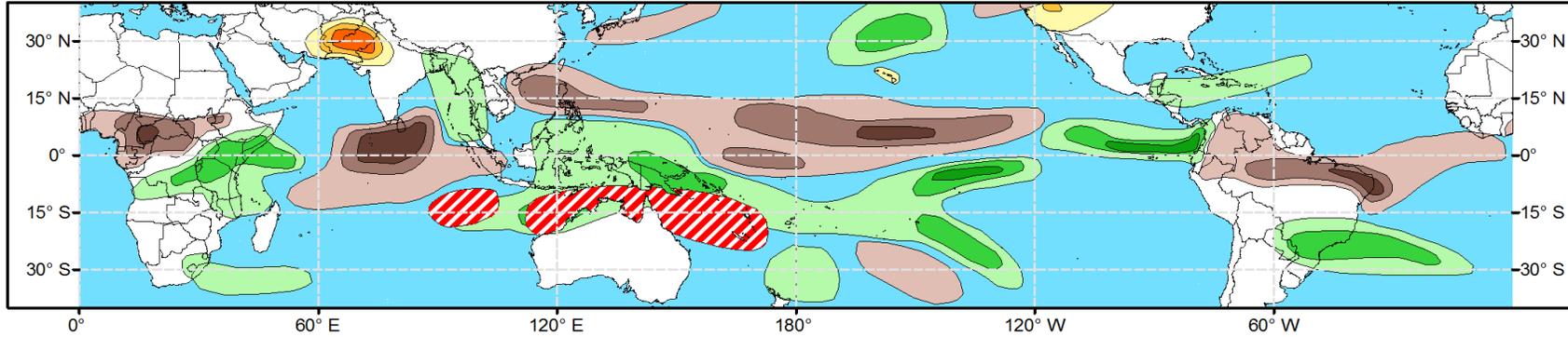
GTH Outlook:



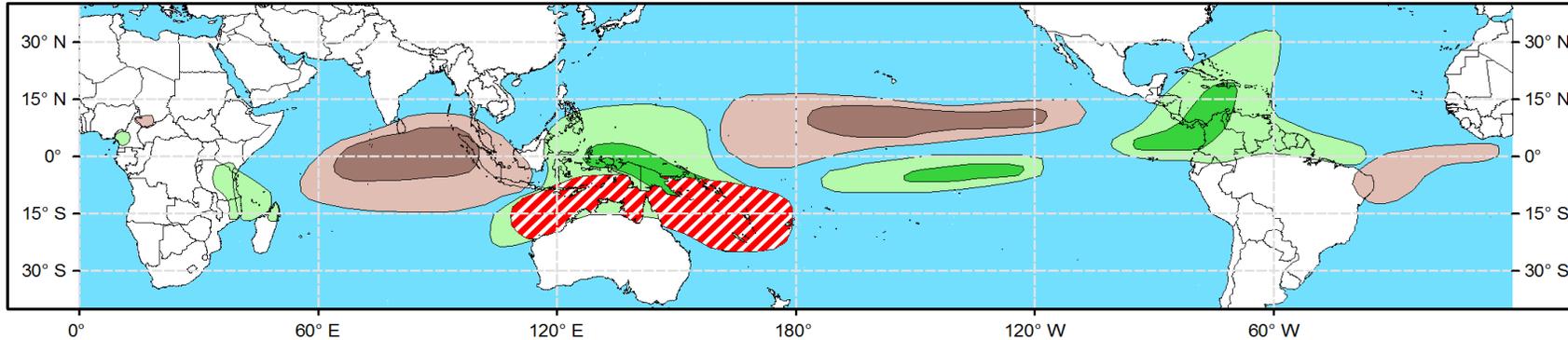
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Apr 16, 2025 - Apr 22, 2025



Week 3 - Valid: Apr 23, 2025 - Apr 29, 2025



**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%

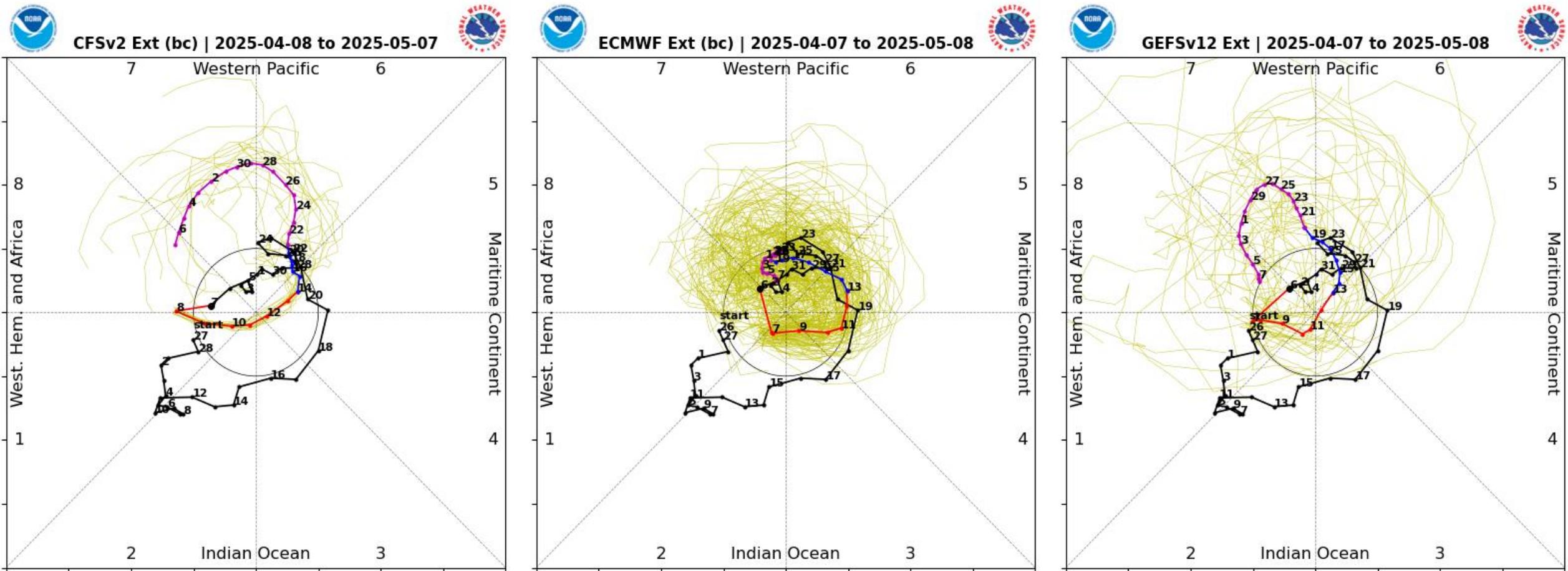
*7-day min temperatures in the
Lower third of the historical range*

Issued: 04/08/2025

Forecaster: Novella

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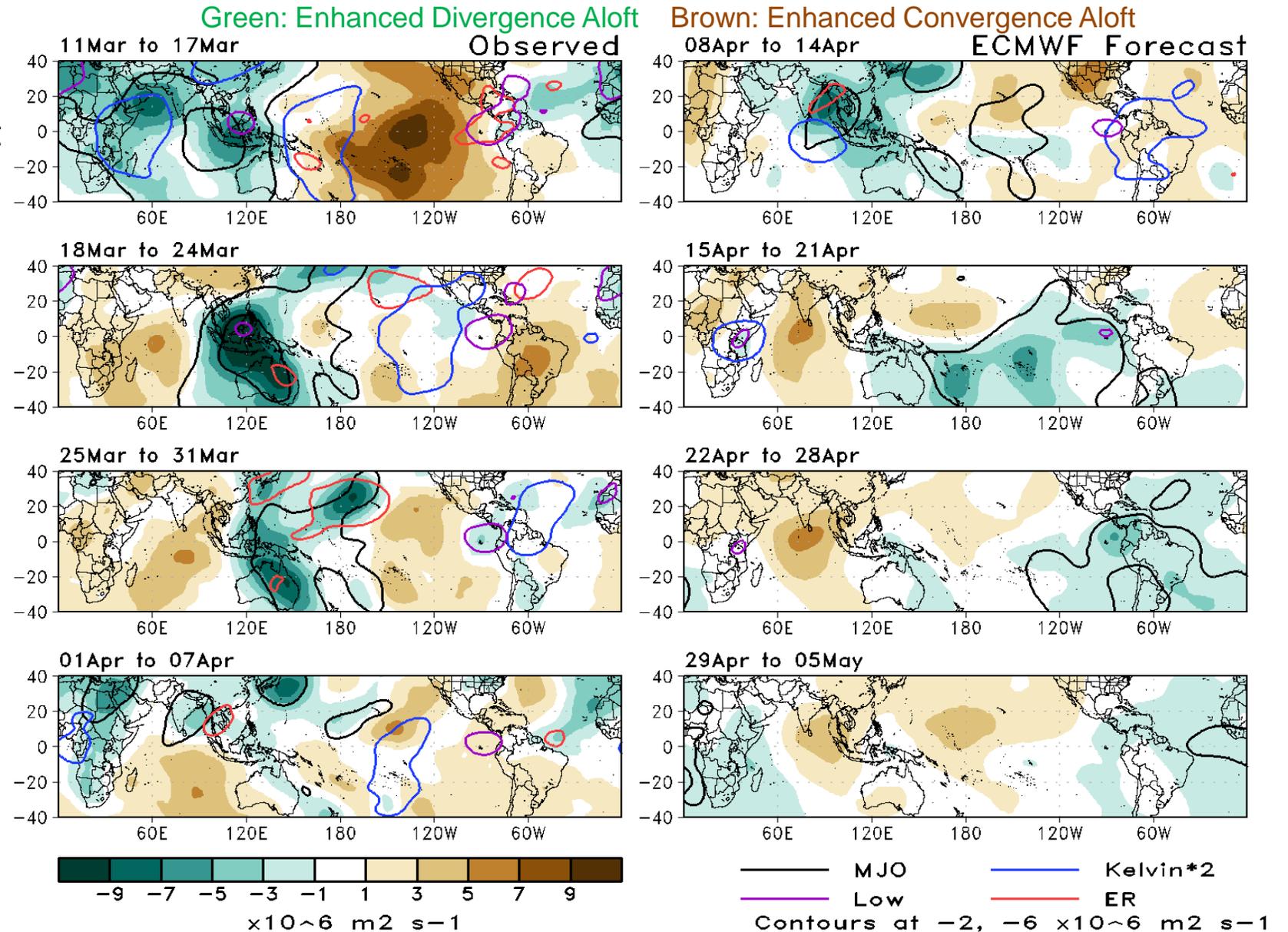
RMM Index Observations & Forecasts:



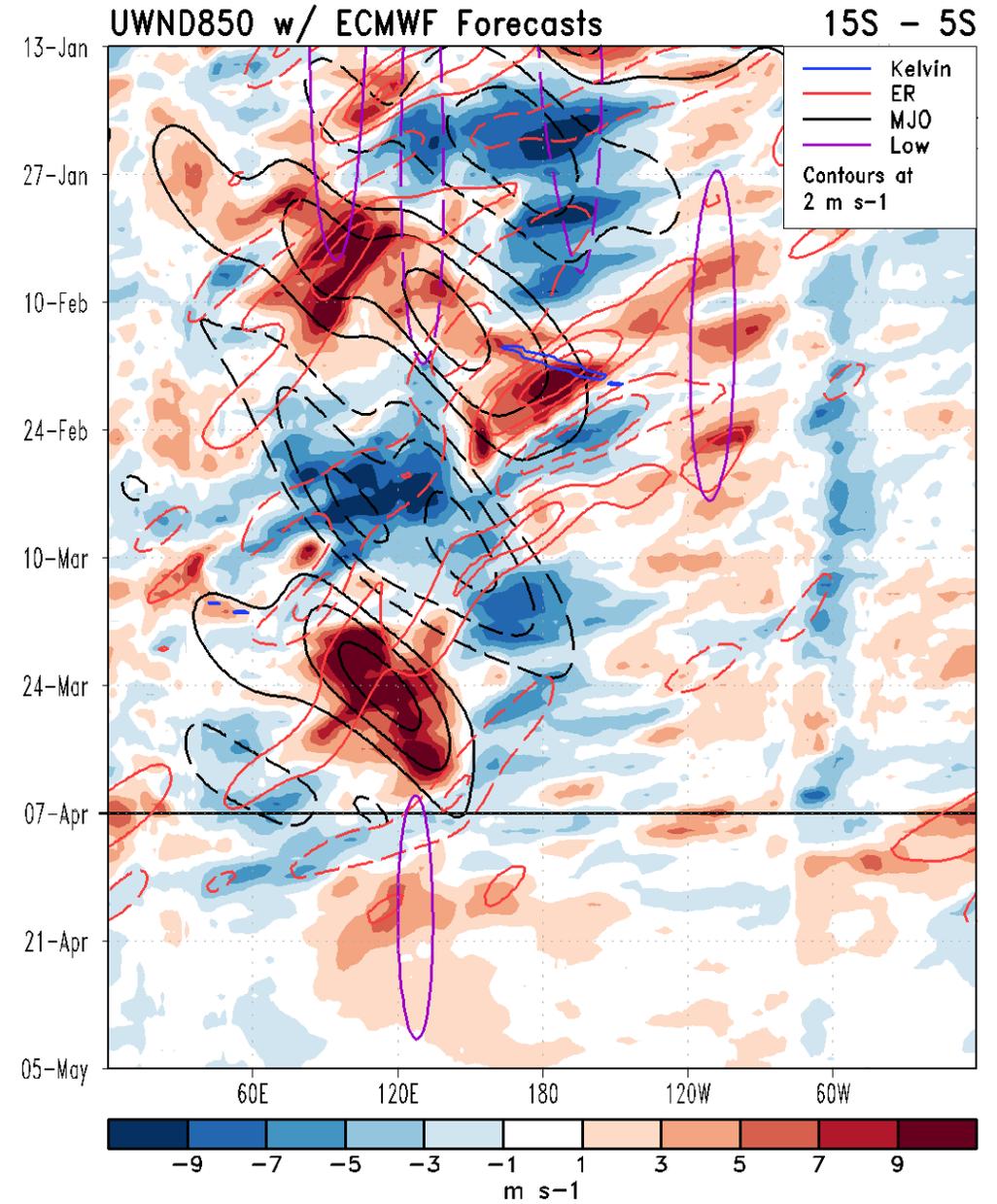
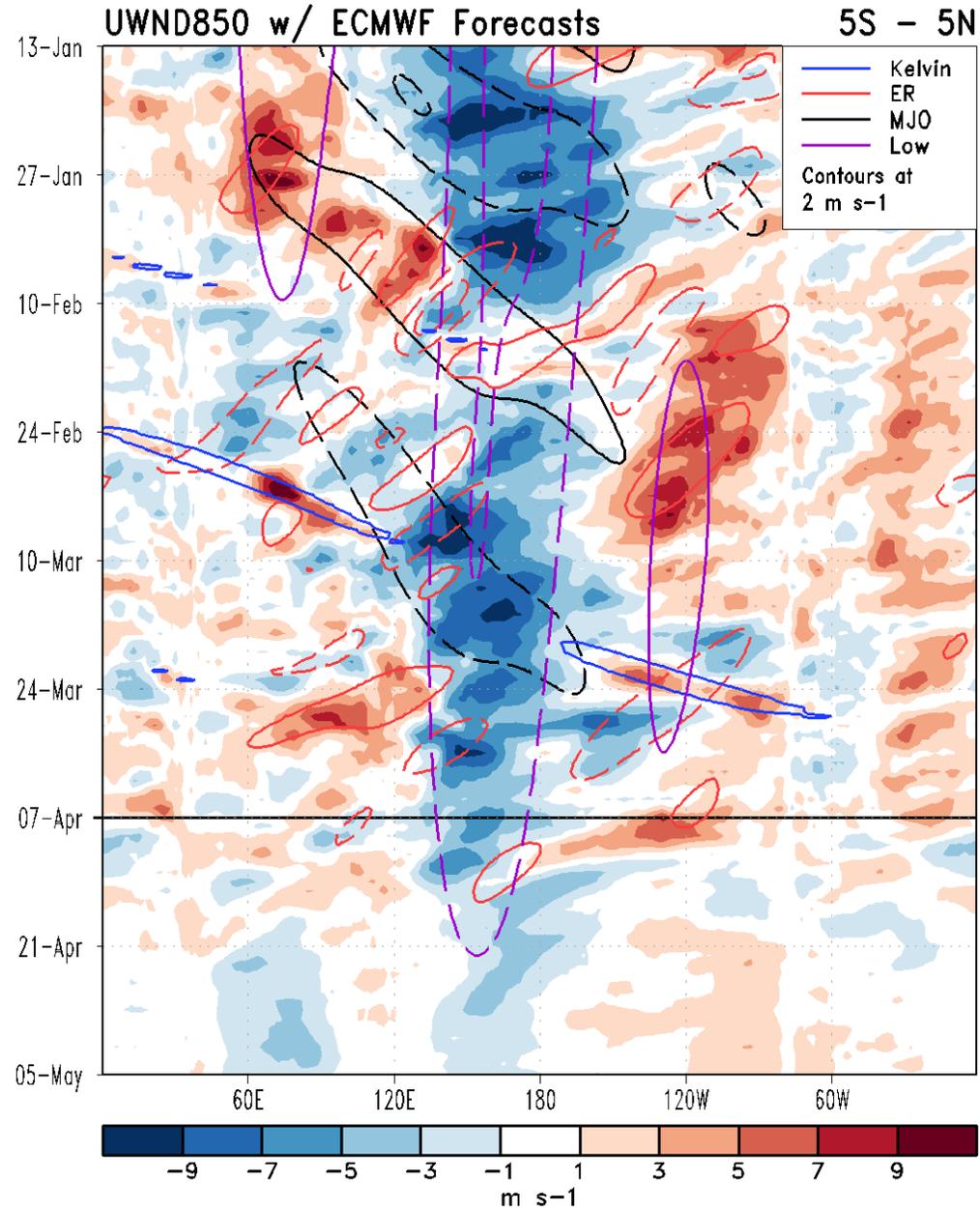
- Models generally show a signal that quickly circumnavigates the RMM origin at a low amplitude, and returning to the western Pacific during the next week or so.
- The RMM index is likely latching onto convectively coupled Kelvin wave activity, as this phase speed is uncharacteristic of the MJO.
- There are an increasing number of ensemble members from GFSv12 and CFSv2 favoring a high amplitude event by week-3

200-hPa Velocity Potential Anomaly Maps:

- The pattern has been incoherent during the past few weeks, due to other interfering modes of tropical variability.
- After **Kelvin wave** activity is favored to relax through mid-April, more **MJO** activity is coming through the filtering.
- The enhanced MJO envelope appears confined south of the equator as it shifts across the Western Pacific, with a better defined wave-1 pattern as it overspreads the Western Hemisphere.

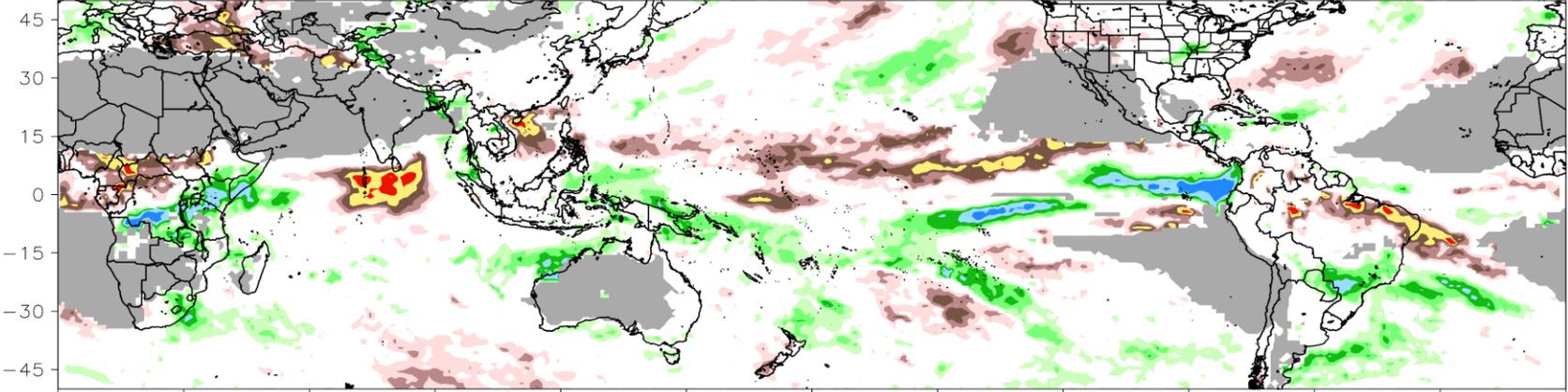


Lower-Level Zonal Wind Anomaly Time/Lon Plots:

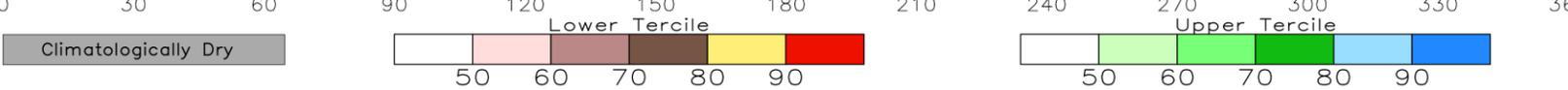
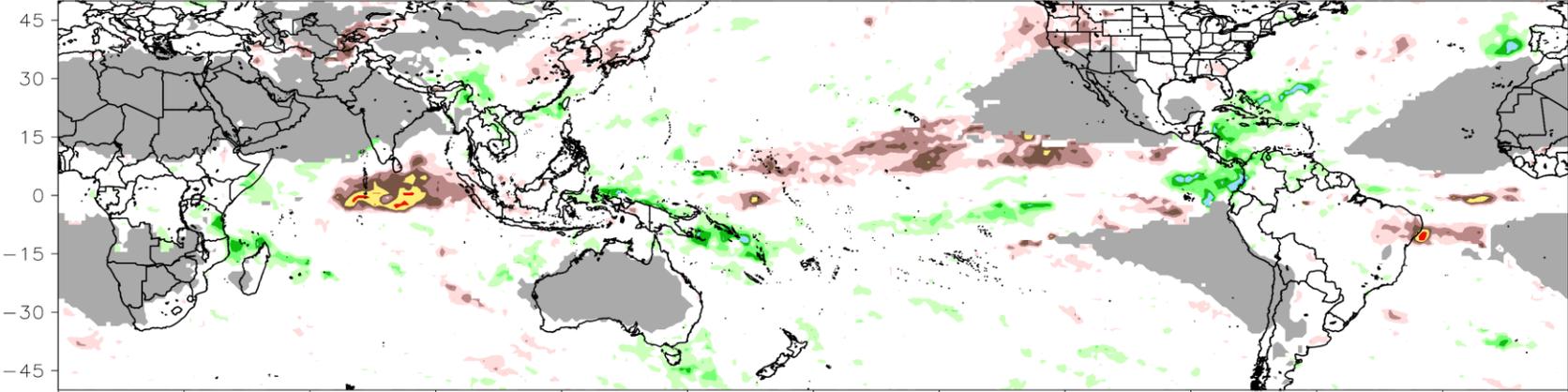


Consolidated Probabilistic Precipitation: Weeks 2 & 3

CONS (CFS+ECMWF+GEFS): Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)
Valid: 16Apr2025–22Apr2025



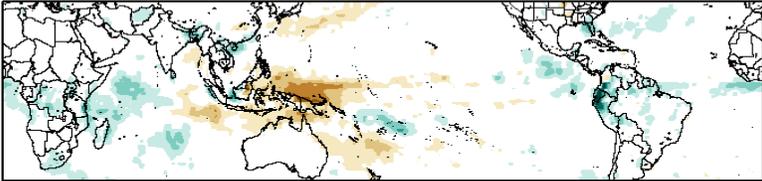
CONS (CFS+ECMWF+GEFS): Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)
Valid: 23Apr2025–29Apr2025



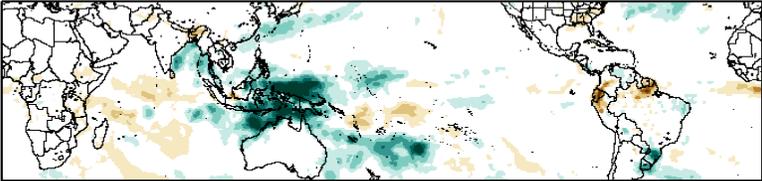
Historical Precipitation Anomalies By MJO Phase:

MAM MJO Composite: GPCP1DD (mm/day)

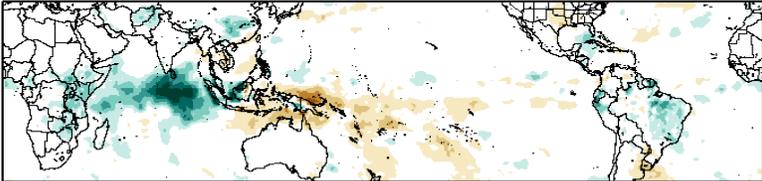
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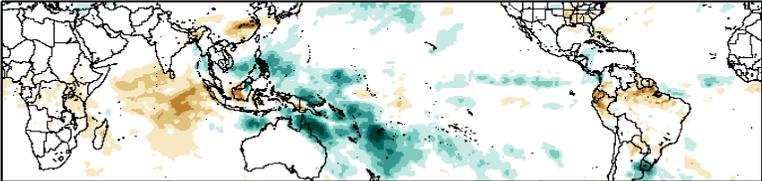
Phase 5



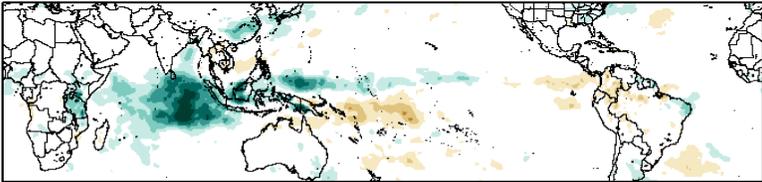
Phase 2



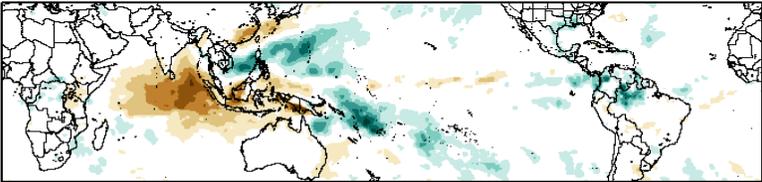
Phase 6



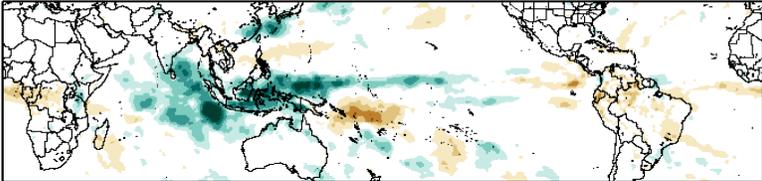
Phase 3



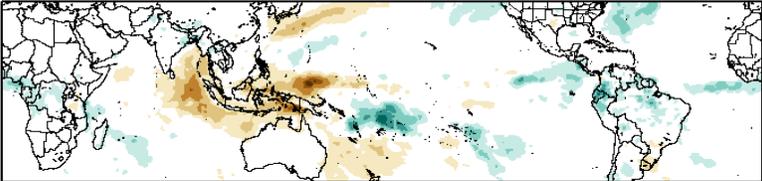
Phase 7



Phase 4

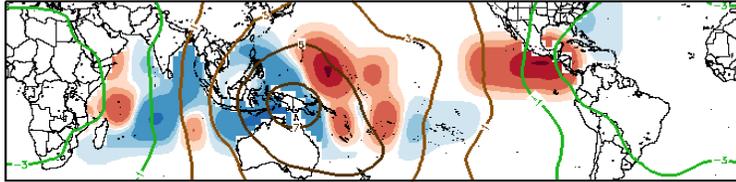


Phase 8

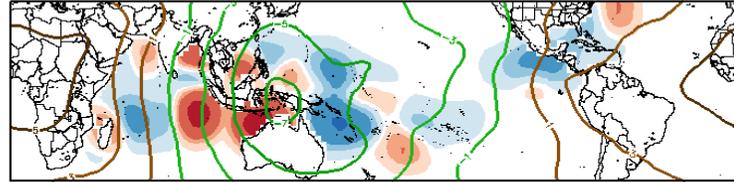


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

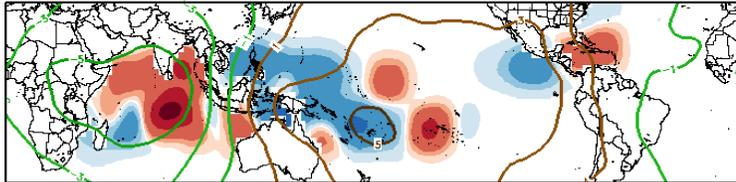
MAM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ MAM CHI200 ($\times 10^{-6} m^{-2} s^{-1}$) / Contours every $2 \times 10^{-6} m^{-2} s^{-1}$



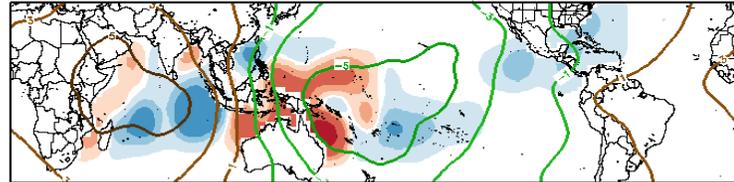
Phase 1



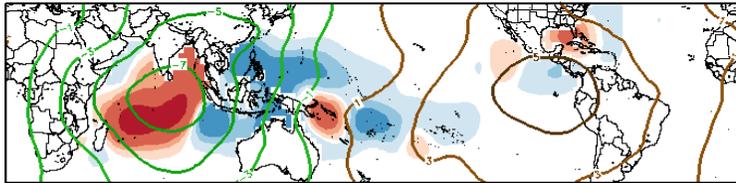
Phase 5



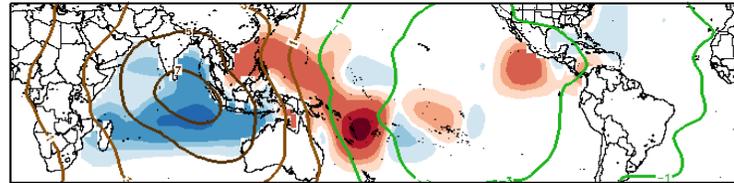
Phase 2



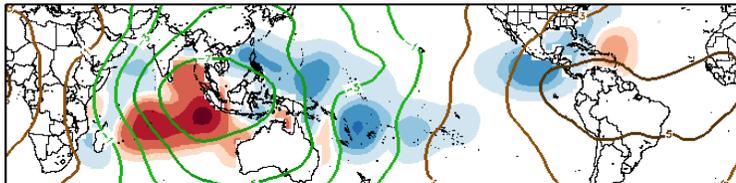
Phase 6



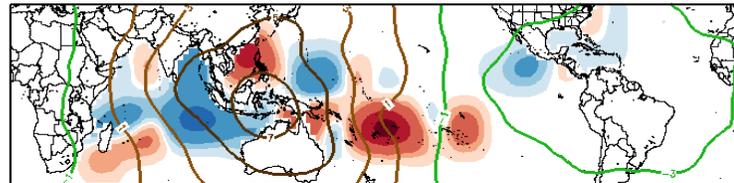
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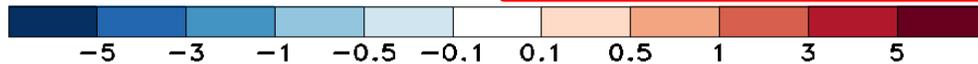
Phase 7



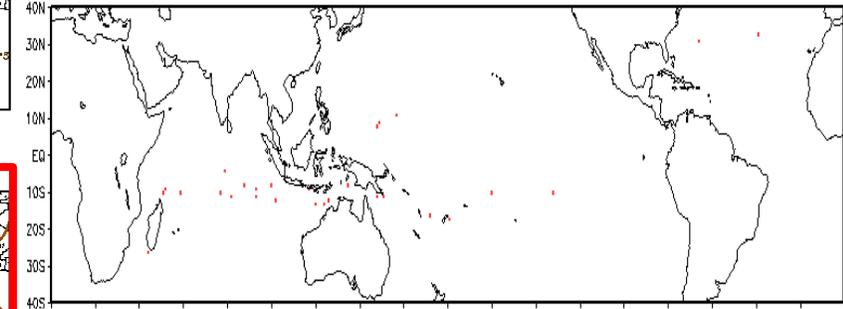
Phase 4



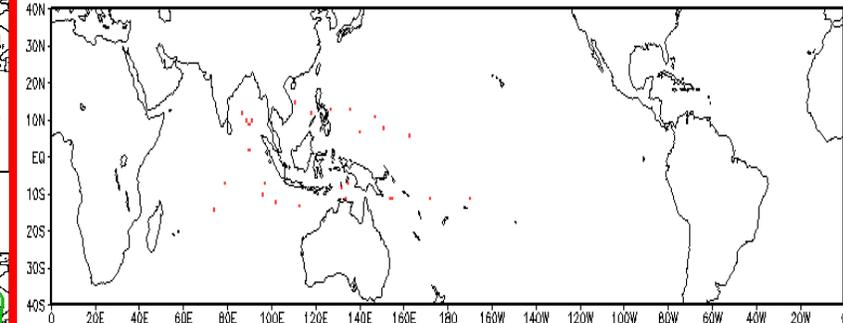
Phase 8



Observed TC Genesis, 1979-2021
7-day Period 0416 to 0422

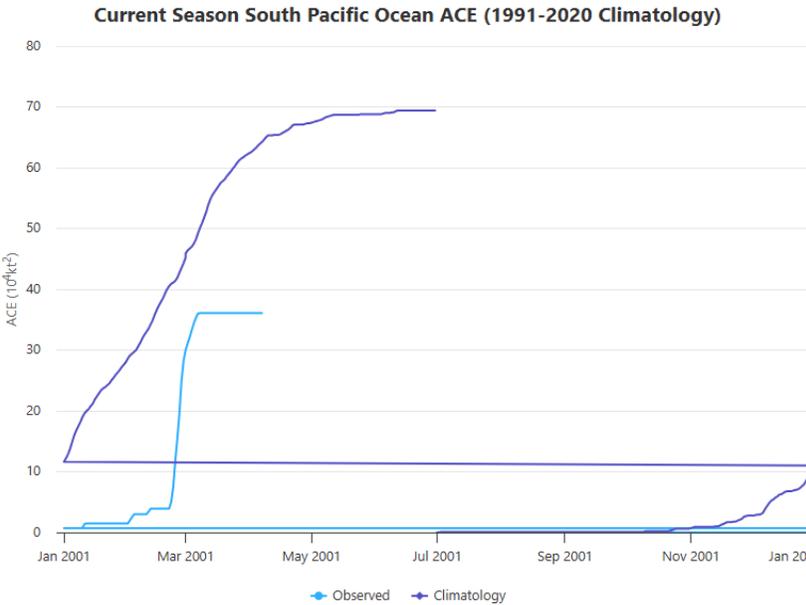
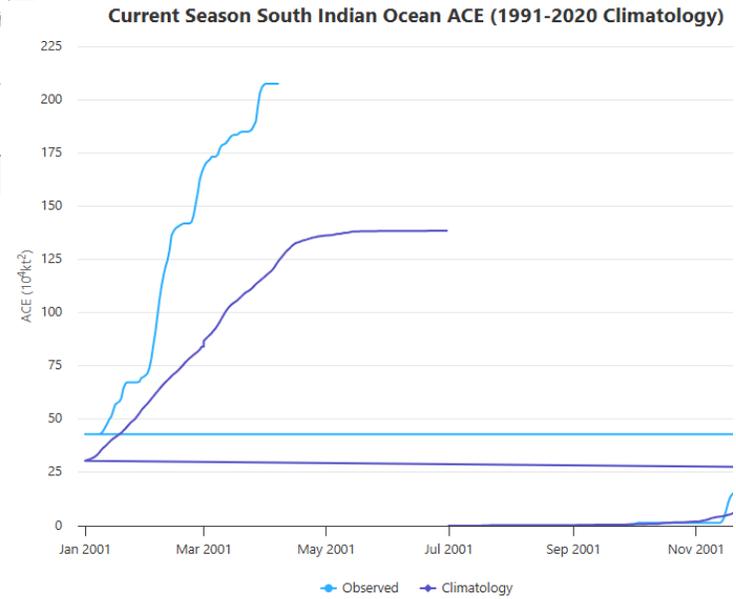
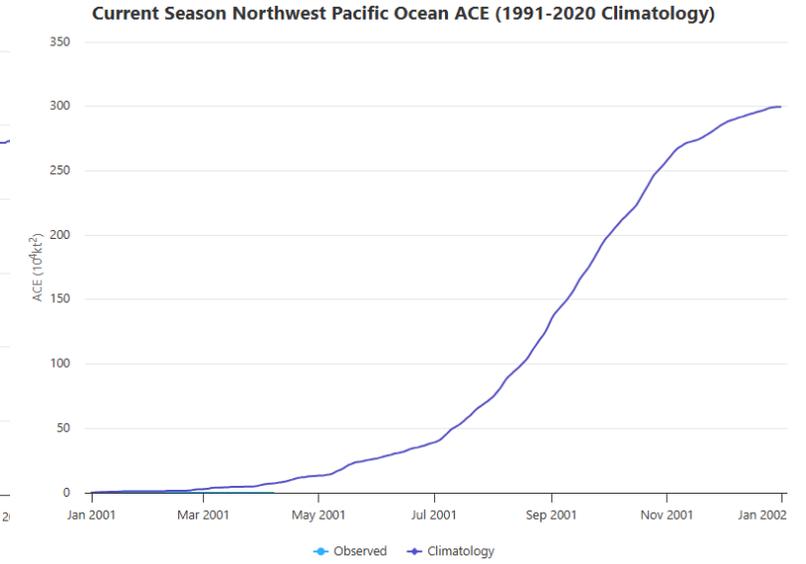
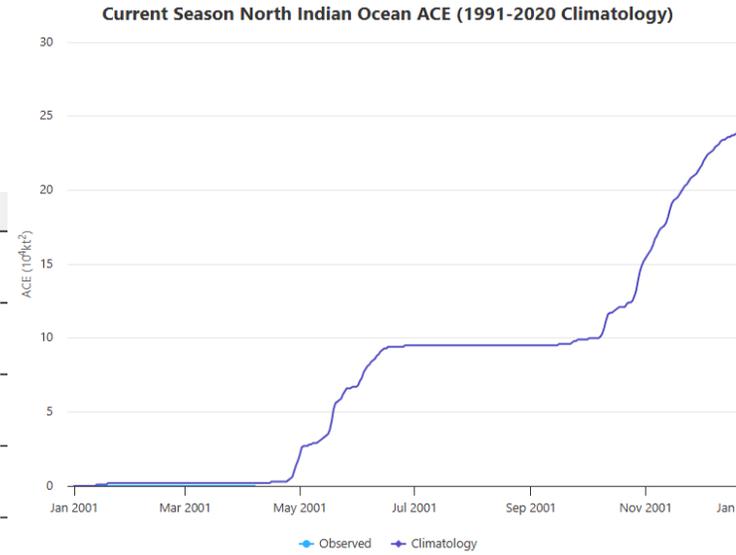


Observed TC Genesis, 1979-2021
7-day Period 0423 to 0429



Experimental

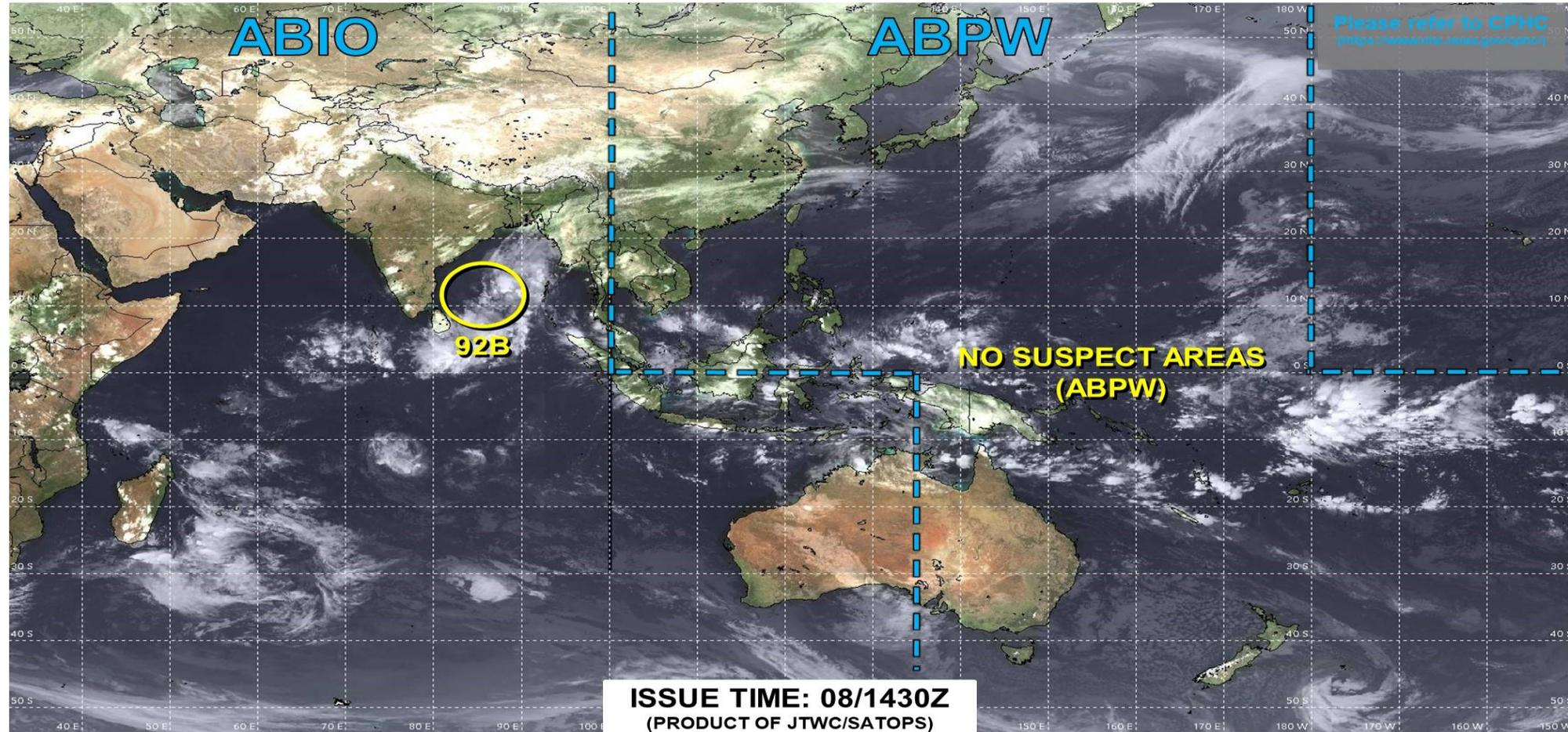
TC Climatological Genesis



Tropical Cyclone Monitoring/Forecast: JTWC



JOINT TYPHOON WARNING CENTER



LOW TC development unlikely within 24 hours



MEDIUM TC development likely, but expected to occur beyond 24 hours



HIGH TC development likely within 24 hours (Reference TCFA)



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

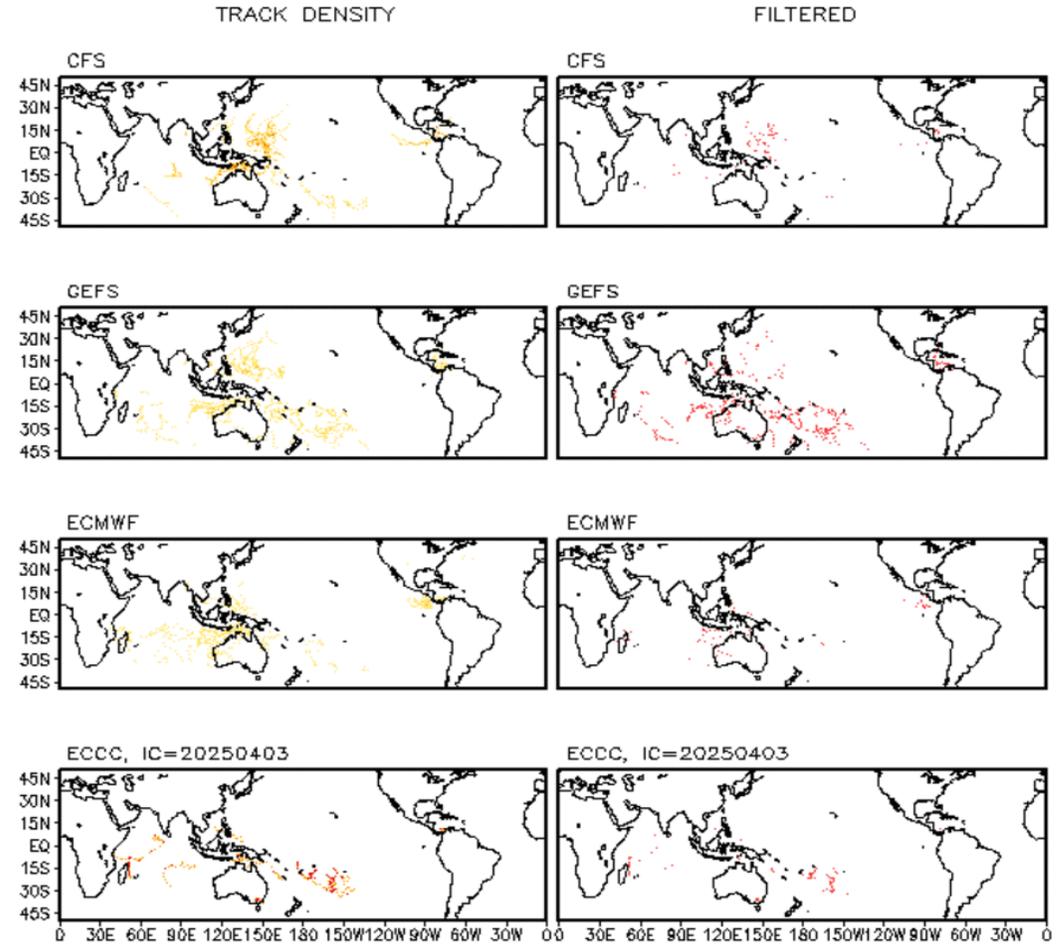
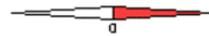
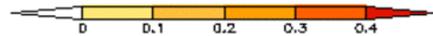
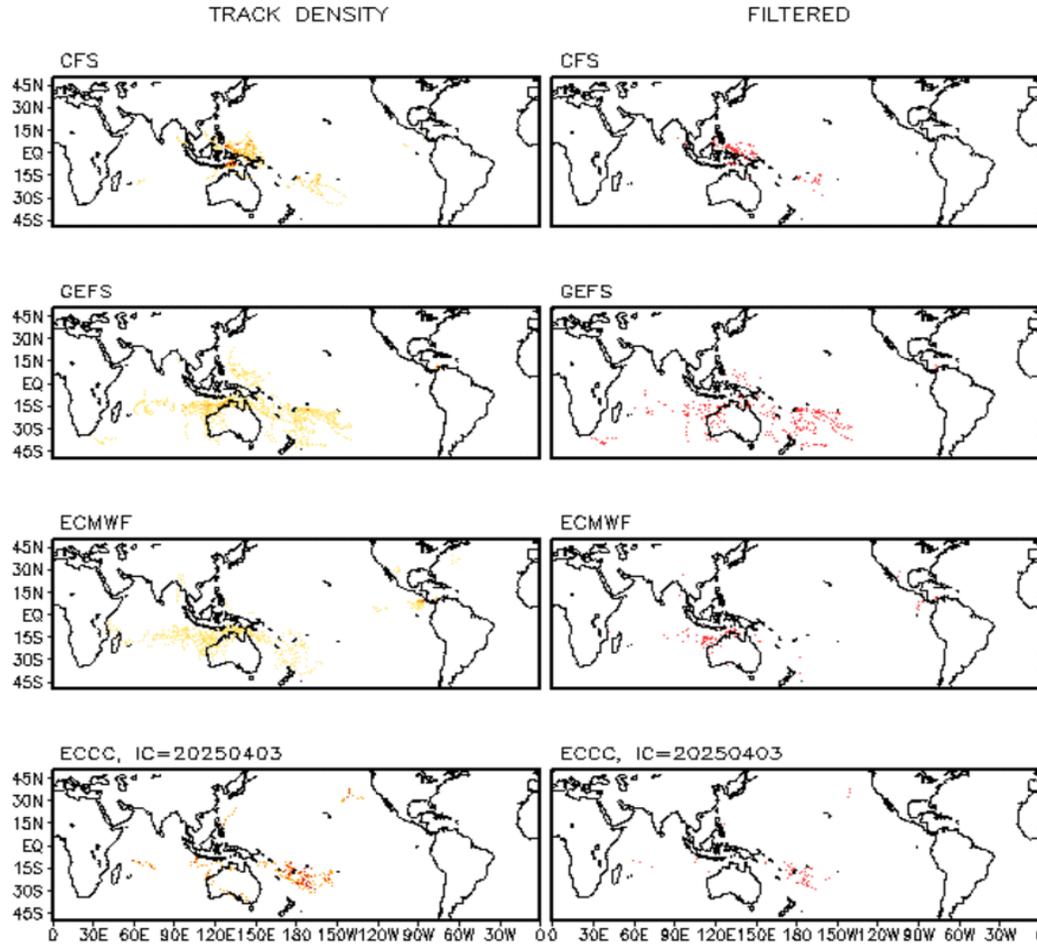


Tropical Cyclone (Reference Warning)

Multi-Model TC Track Densities: Weeks 2+3

Storm Track Density Distribution, IC=20250407
Week 2 Forecast: 0416-0422

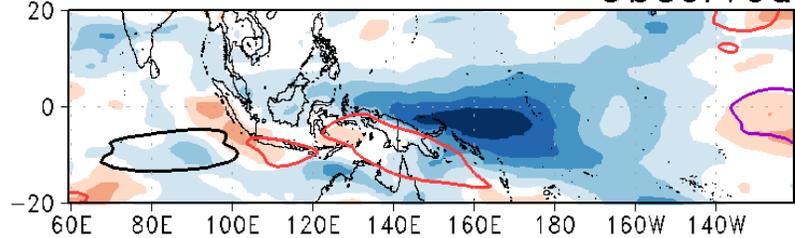
Storm Track Density Distribution, IC=20250407
Week 3 Forecast: 0423-0429



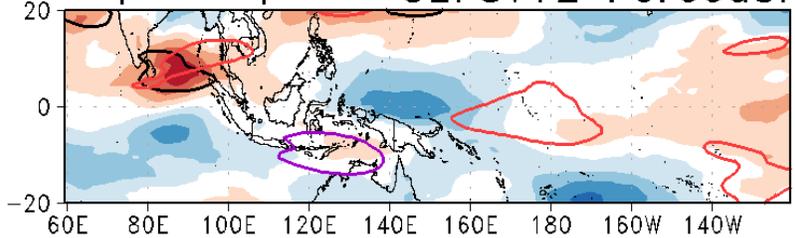
UWND850 7-Day Means

-Day Means

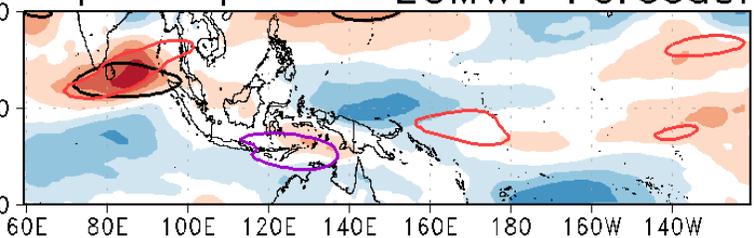
11Mar to 17Mar Observed



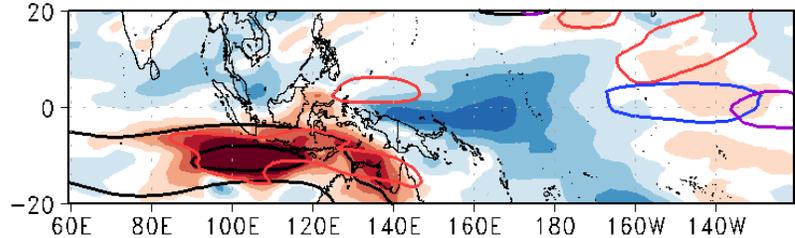
08Apr to 14Apr GEFSv12 Forecast



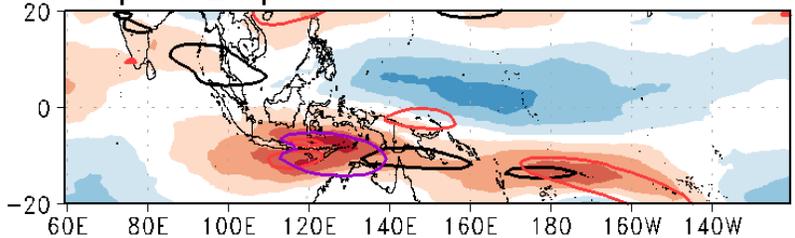
08Apr to 14Apr ECMWF Forecast



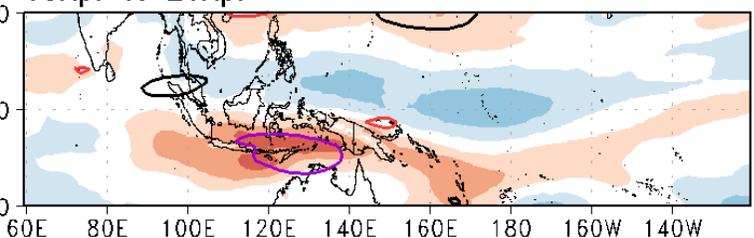
18Mar to 24Mar



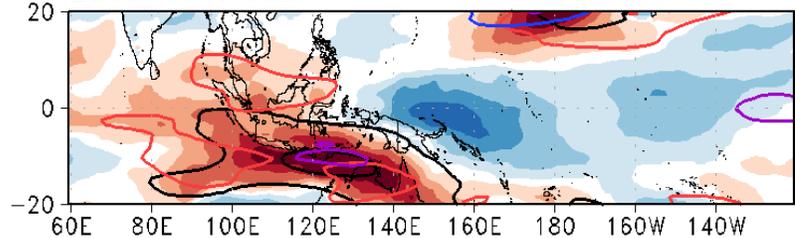
15Apr to 21Apr



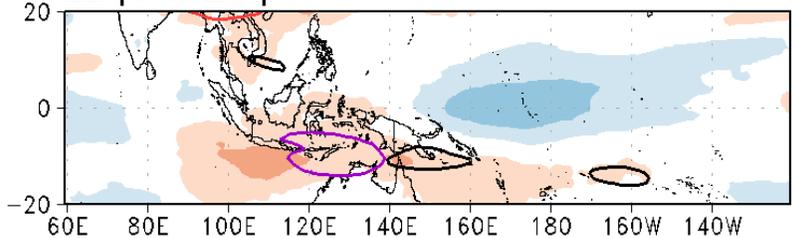
15Apr to 21Apr



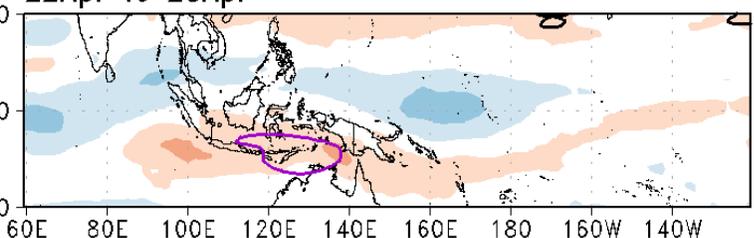
25Mar to 31Mar



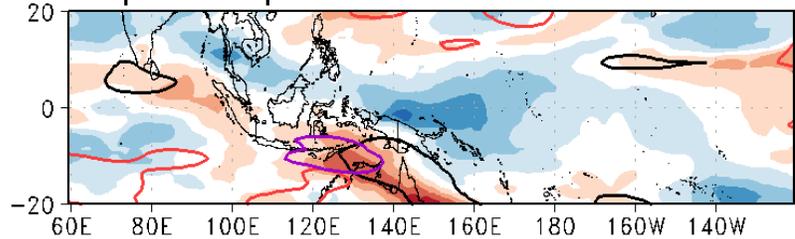
22Apr to 28Apr



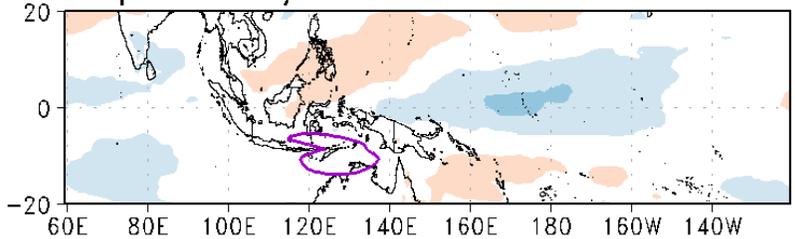
22Apr to 28Apr



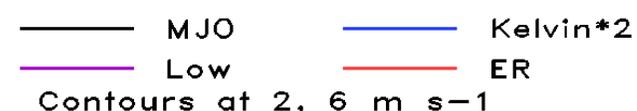
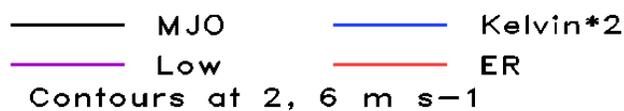
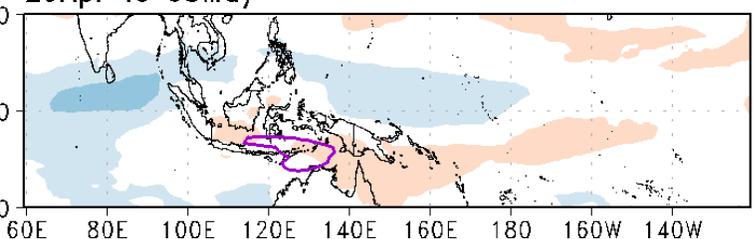
01Apr to 07Apr



29Apr to 05May

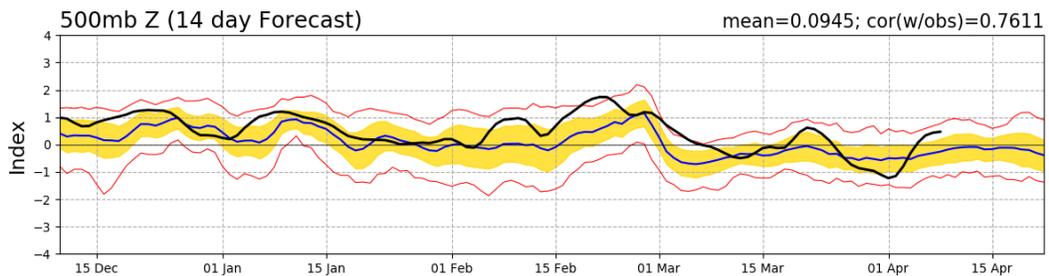
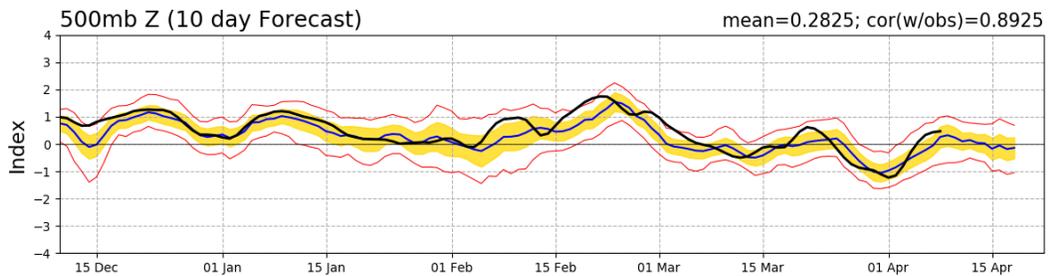
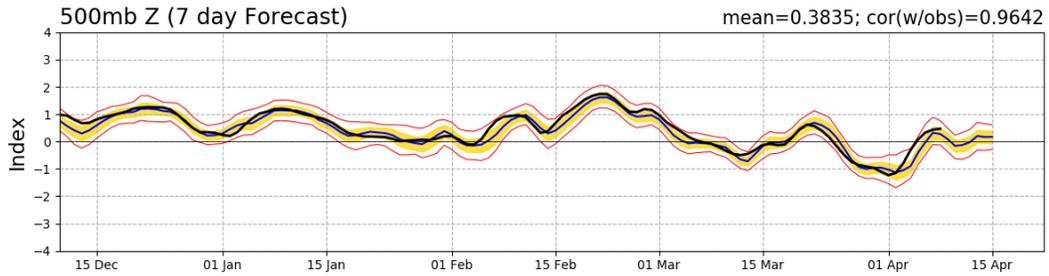
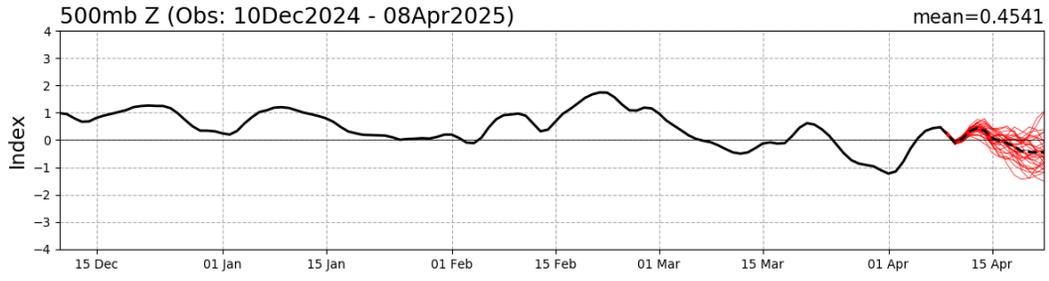


29Apr to 05May

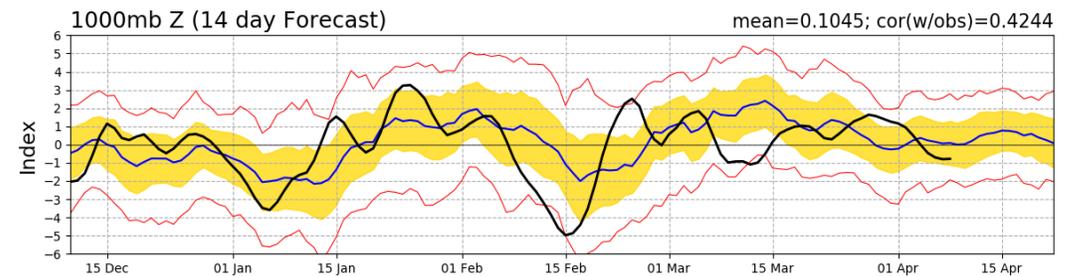
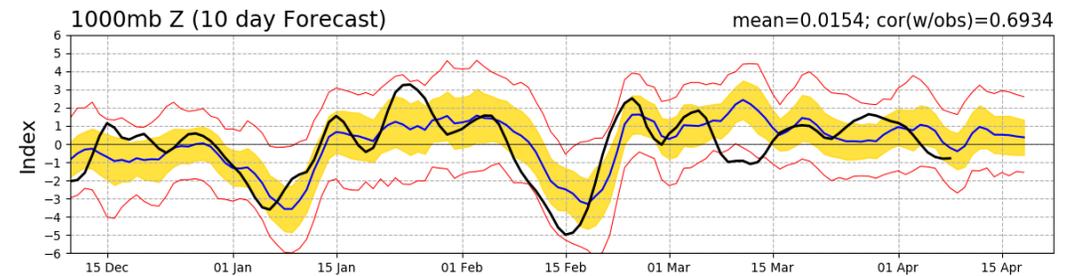
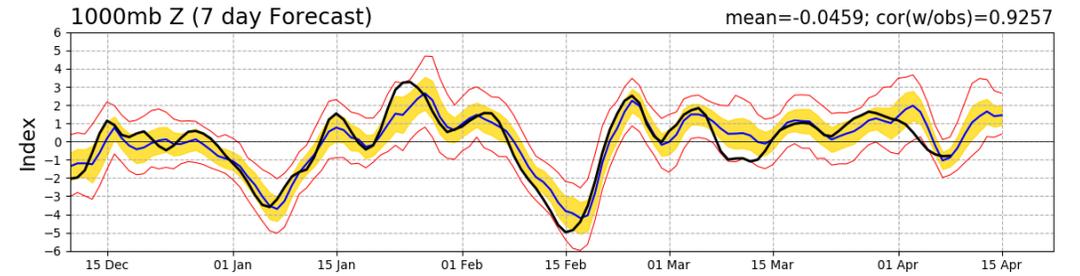
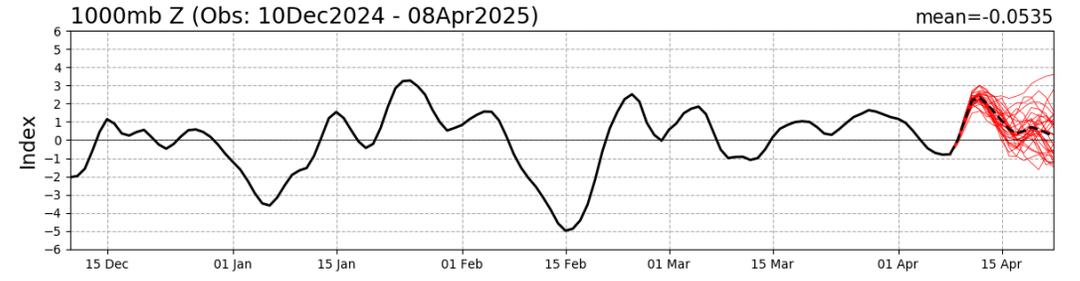


Teleconnection Indices: PNA / AO:

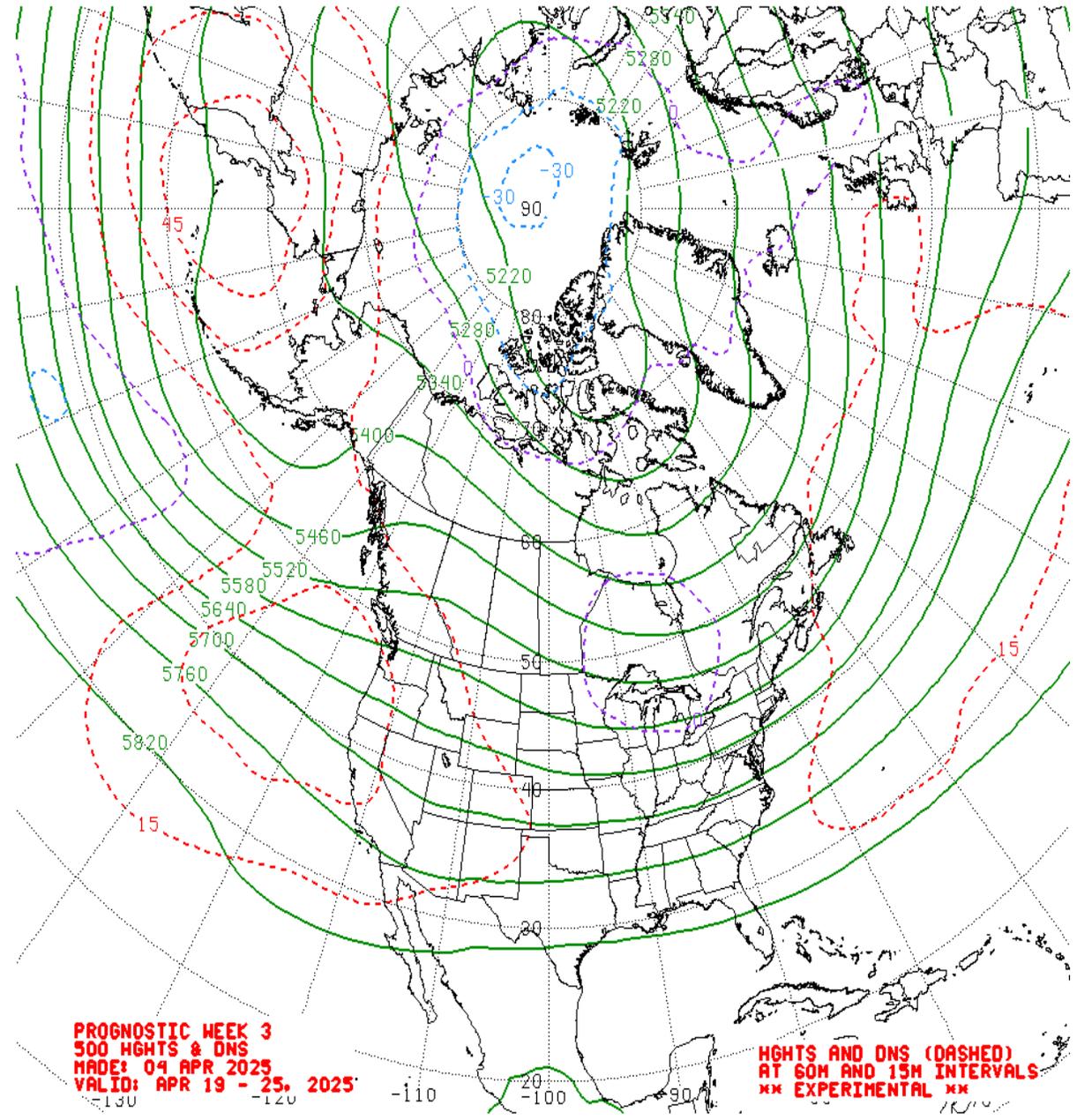
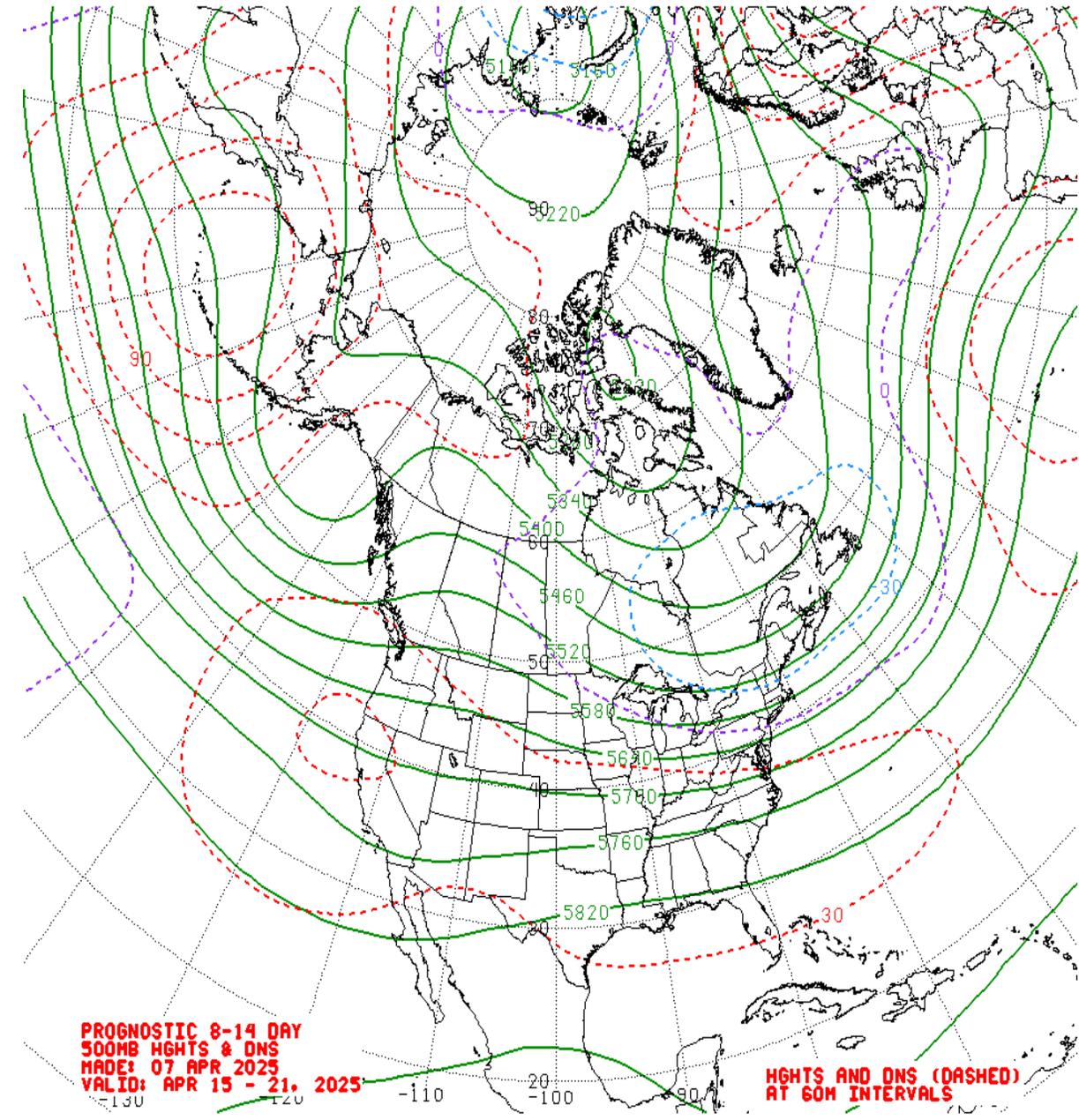
PNA Index: Observed & GEFS Forecasts



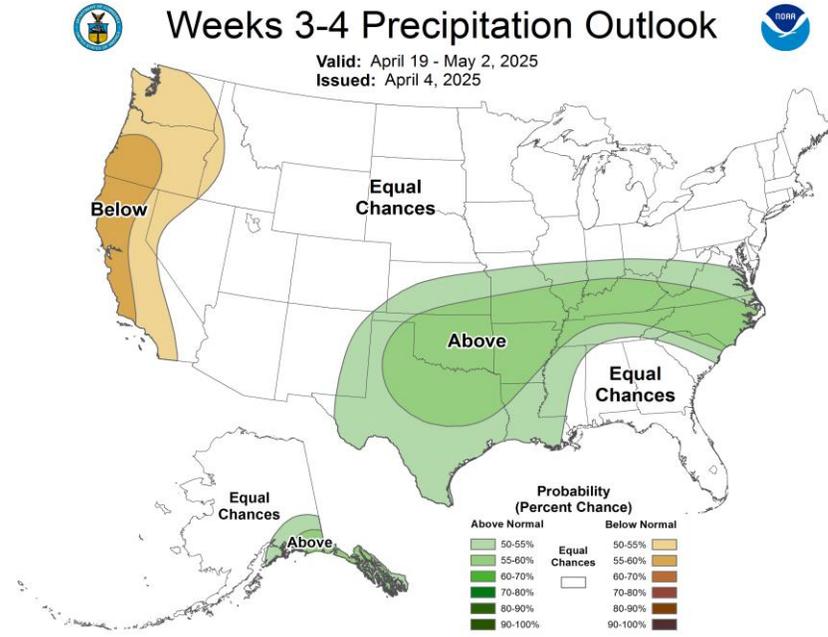
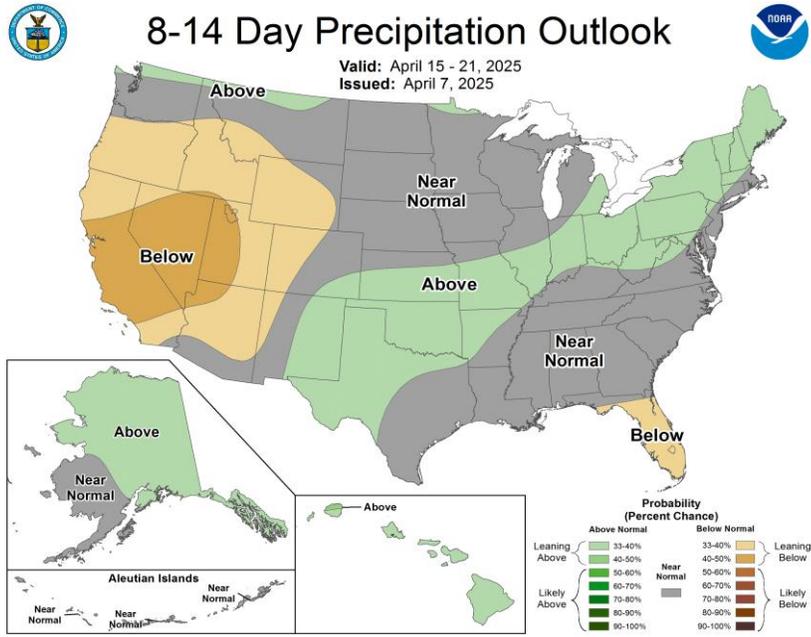
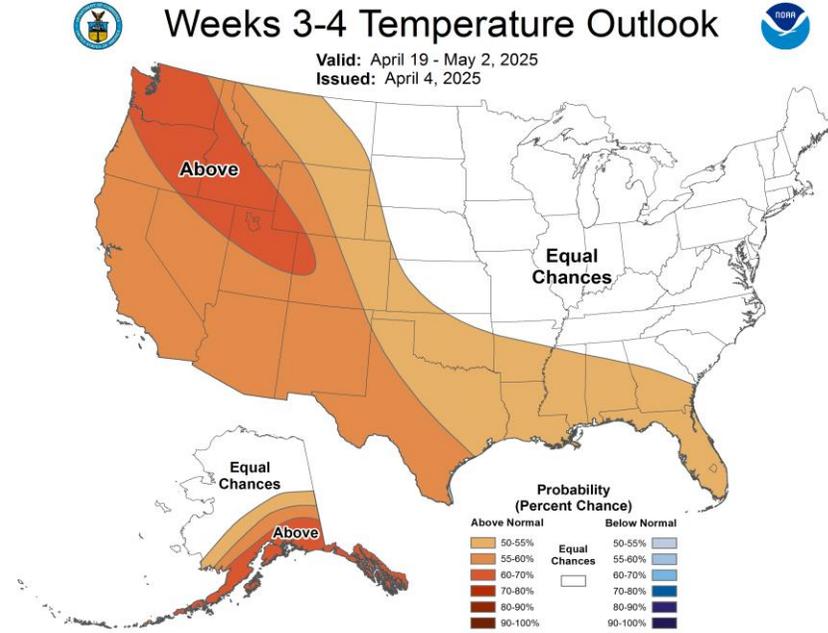
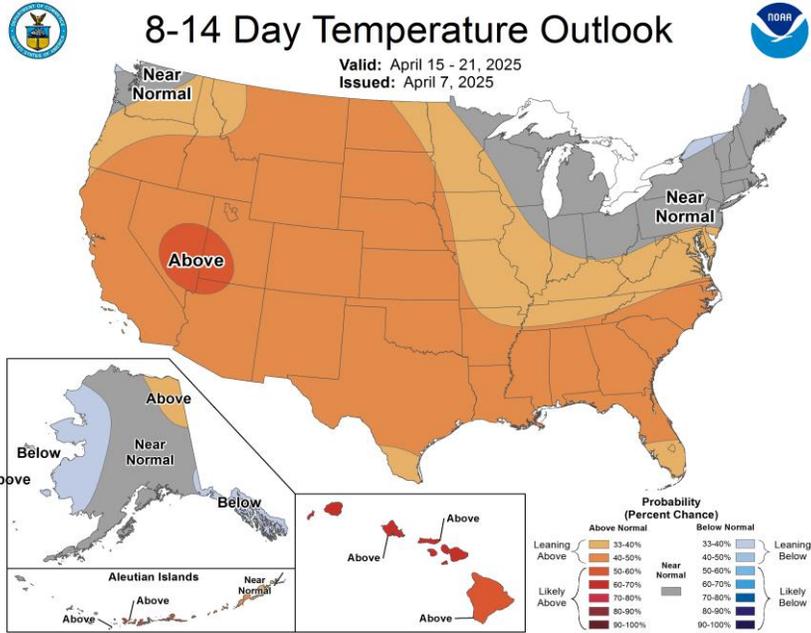
AO Index: Observed & GEFS Forecasts



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



Official Temperature & Precipitation Forecasts:



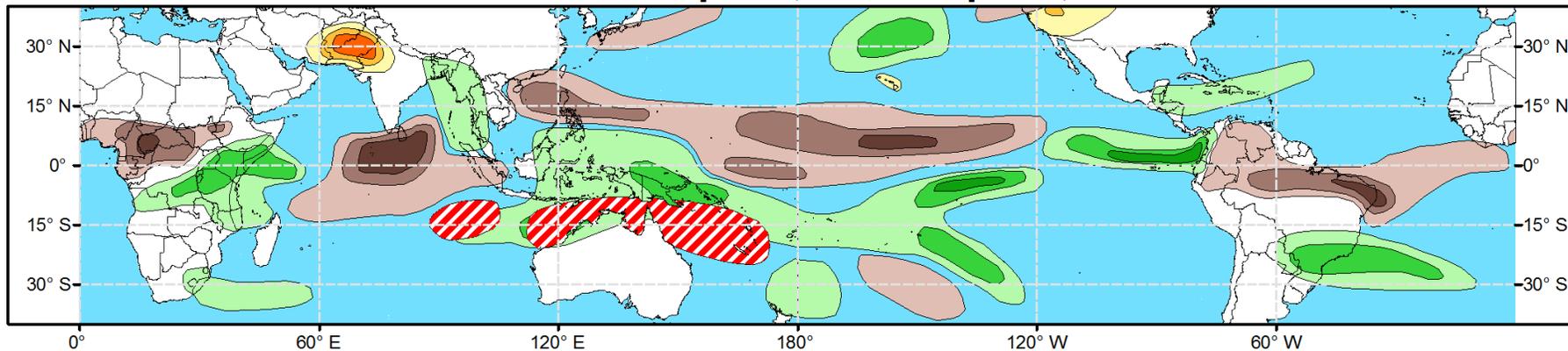


Global Tropics Hazards Outlook

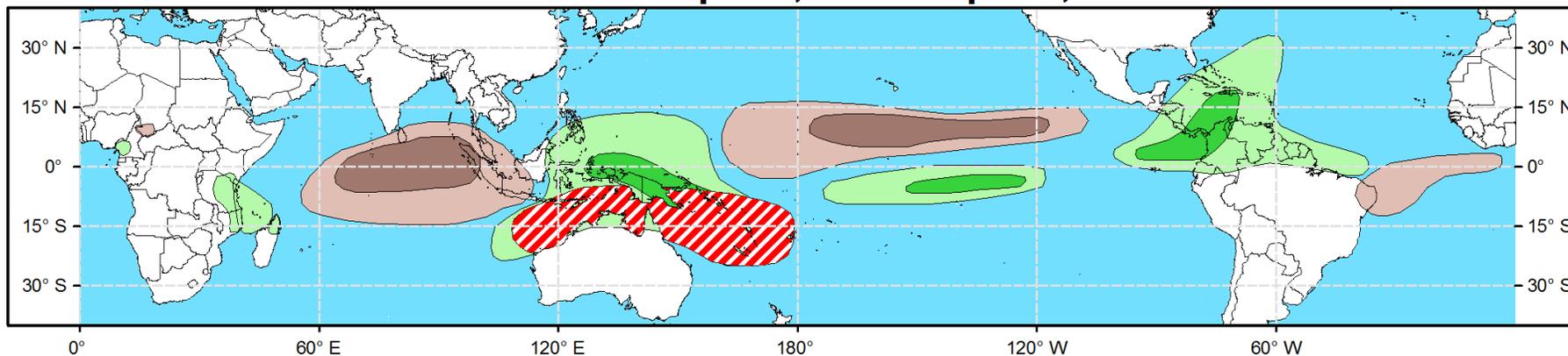
Climate Prediction Center



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Forecaster: Novella**

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