



Weeks 2-3 Global Tropics Hazards Outlook

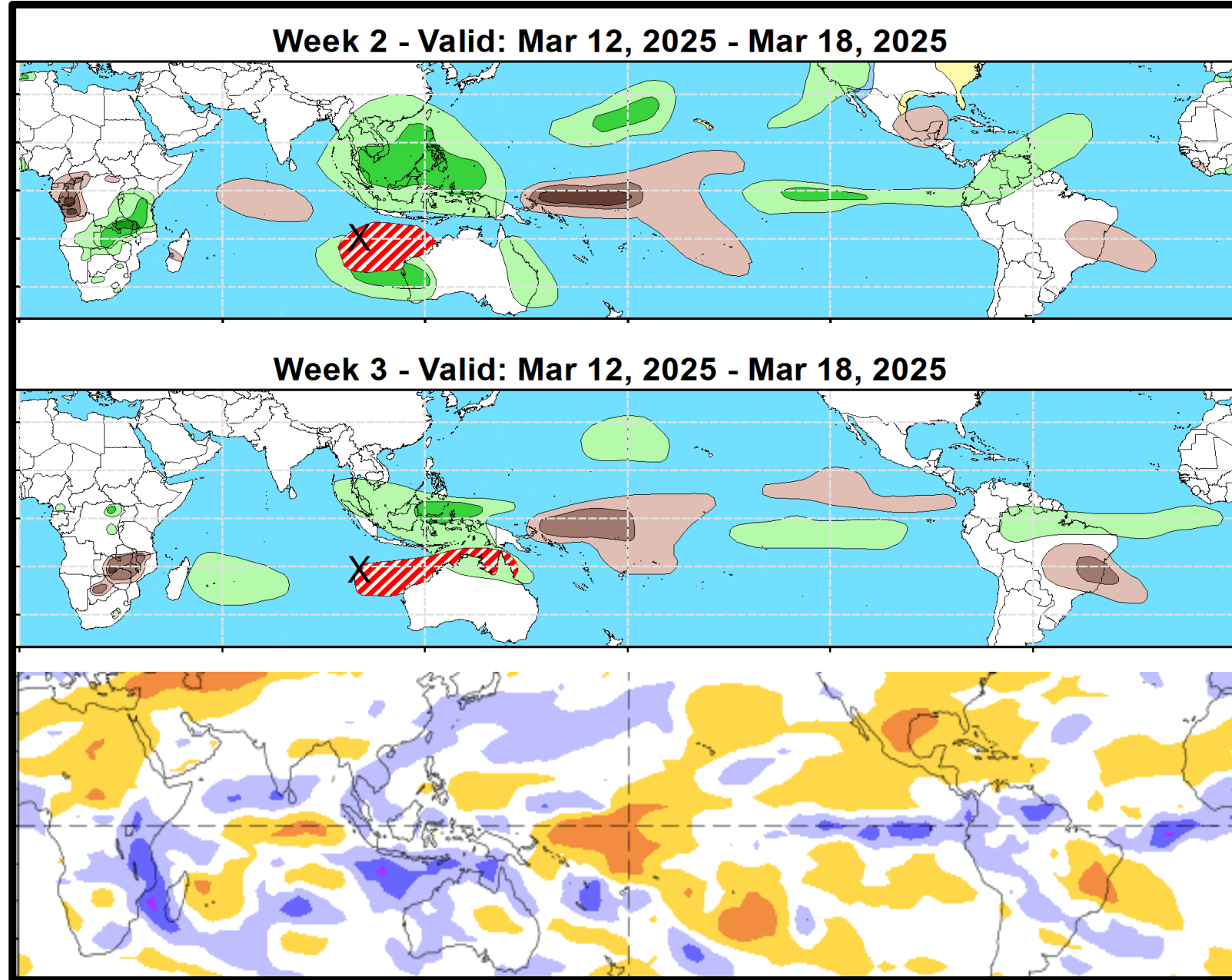
3/18/2025

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- No TCs formed during the past week
- Invest 91S (high chances within next 24hrs)



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:

- RMM observations show the MJO losing amplitude while propagating over the Indian Ocean, with other tools indicating the enhanced convective MJO envelope actually residing closer to the Maritime Continent and Western Pacific.
- Dynamical model RMM forecasts and other guidance are in disagreement in regards to the strength and evolution of the MJO. Combined with a unusual low frequency base state, there is a higher degree of uncertainty in the outlook.
- There is good support in the tools for additional tropical cyclone formation over the southeastern Indian Ocean and South Pacific, with decreased chances for development over the southwestern Indian Ocean.

GTH Outlook:

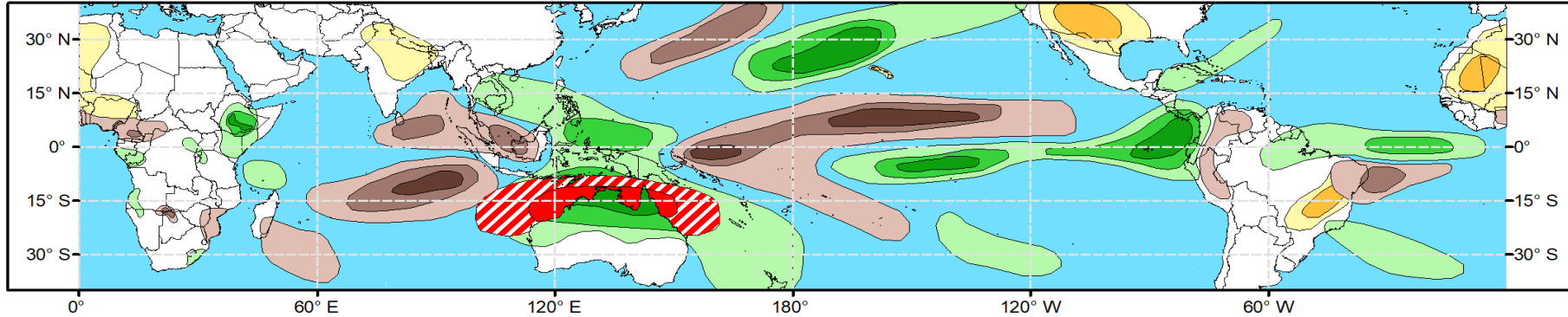


Global Tropics Hazards Outlook

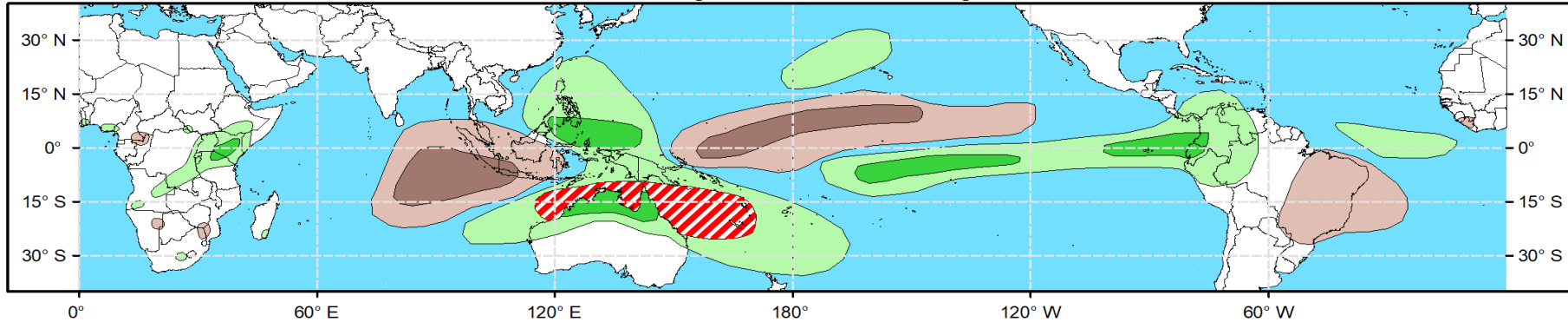
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Week 2 - Valid: Mar 26, 2025 - Apr 01, 2025



Week 3 - Valid: Apr 02, 2025 - Apr 08, 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**



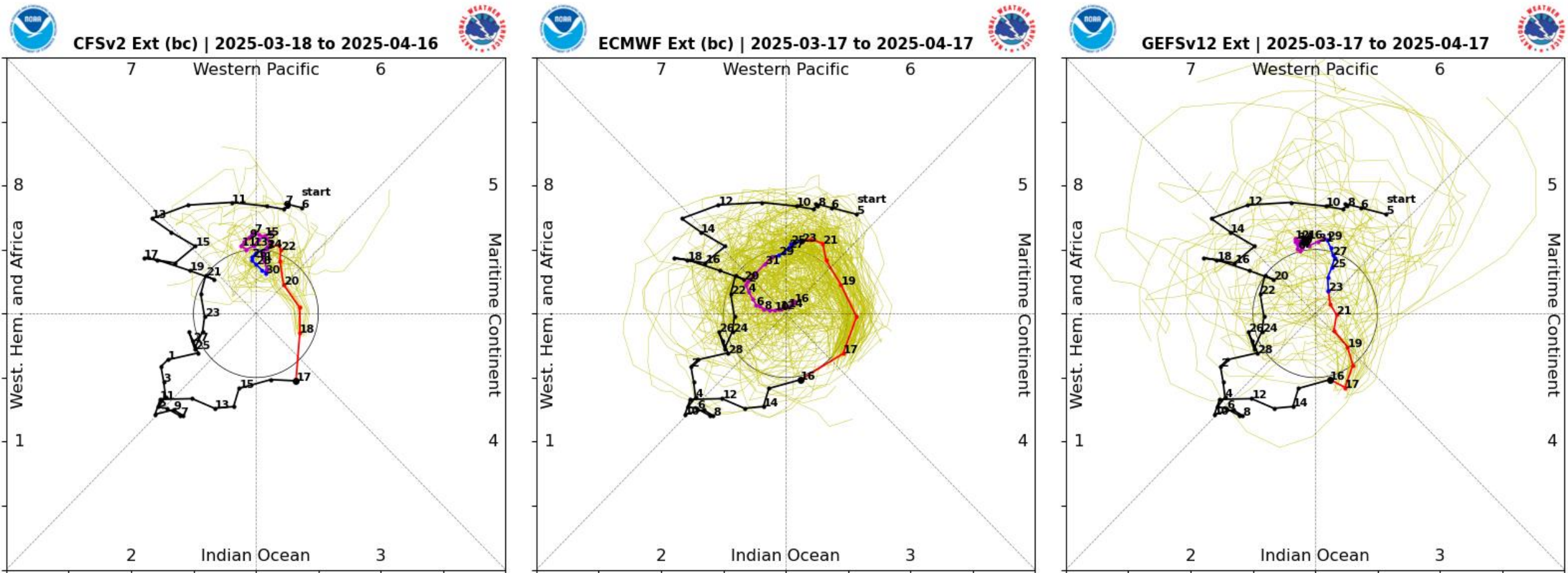
>50% >65% >80%

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

**Issued: 03/18/2025
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.**

RMM Index Observations & Forecasts:

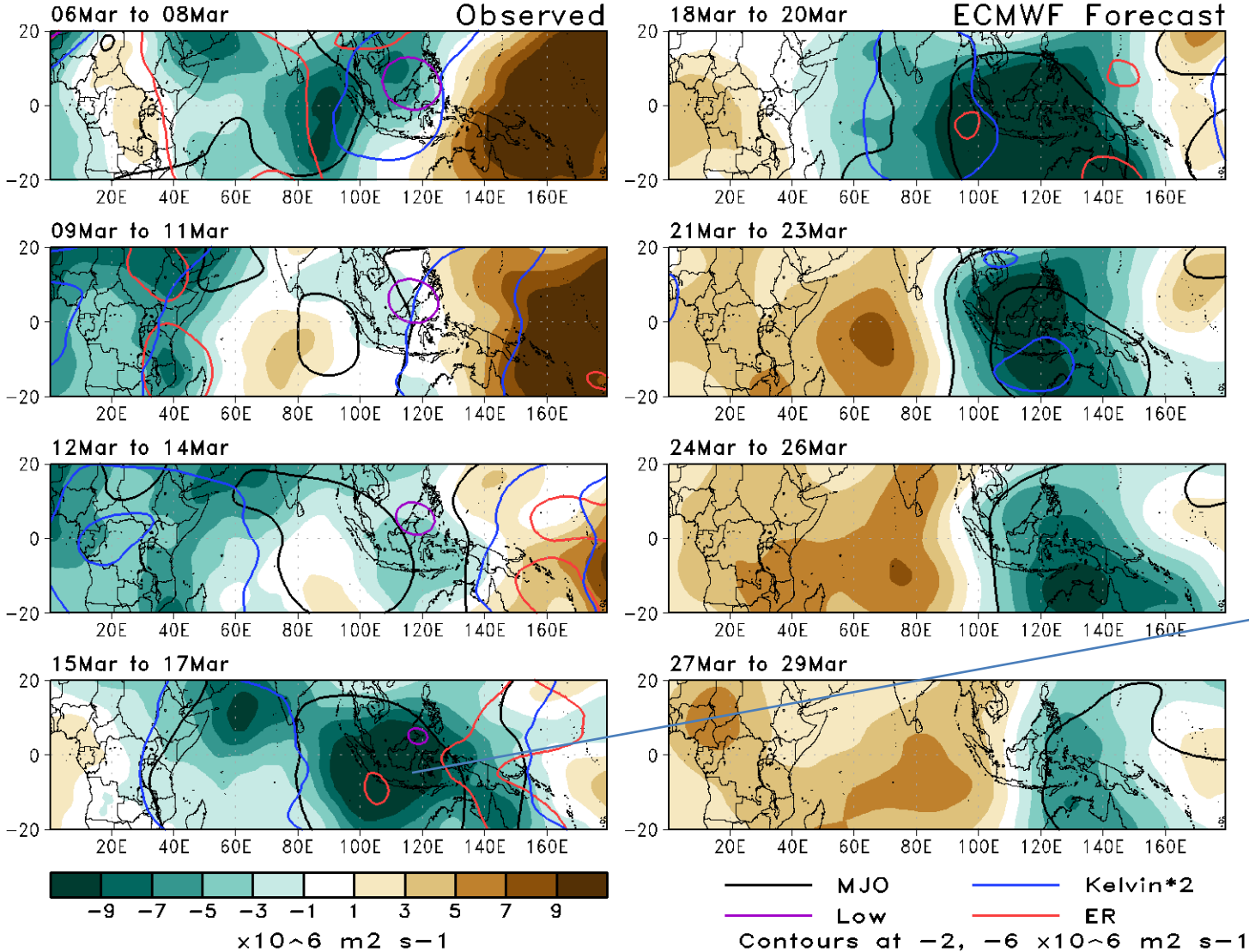


- Models depict a weakened MJO signal, that darts from the Indian Ocean to the western Pacific in less than a 7-day span.
- The fast phase speed appears to be related to an abrupt development of suppressed conditions aloft over the western Indian Ocean, where the RMM index is “catching up” to the enhanced convective MJO envelope that actually resides closer to western Pacific in the near-term.

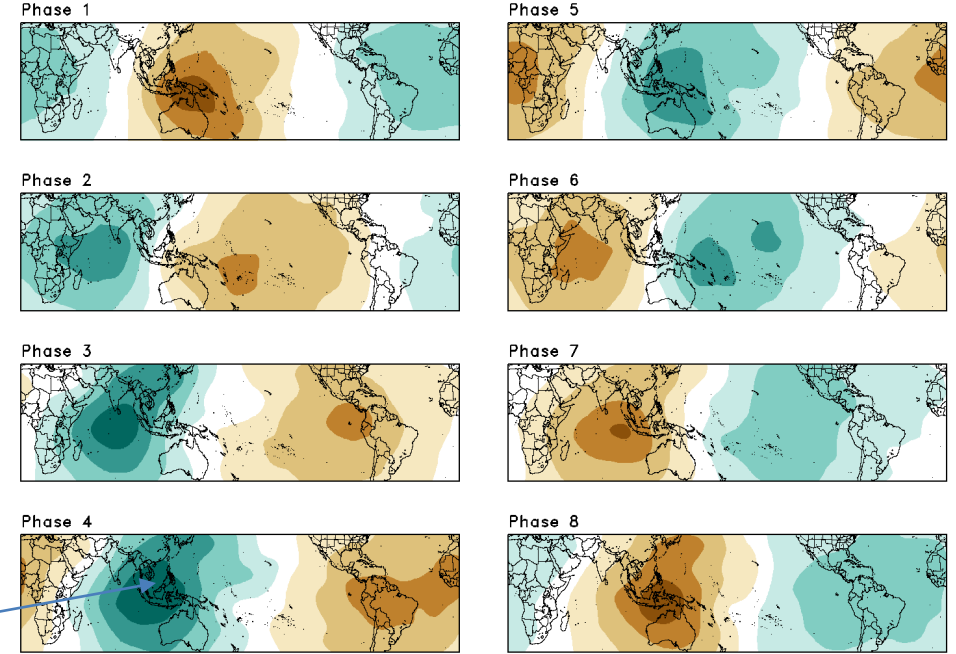
200-hPa Velocity Potential Anomaly Maps:

Green: Enhanced Divergence Aloft Brown: Enhanced Convergence Aloft

CHI200 3-Day Means

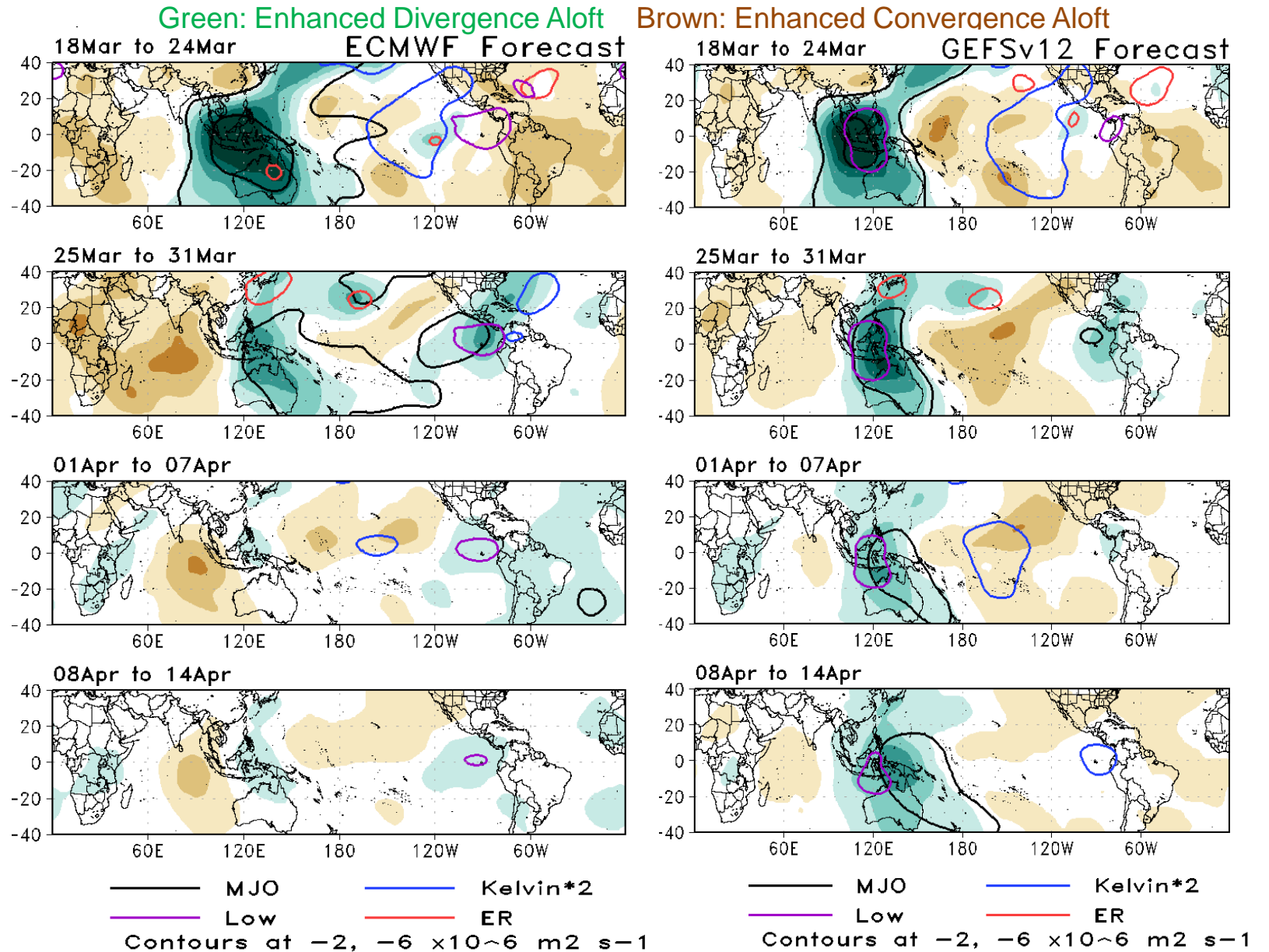


FMA MJO Composite: CDAS 200-hPa VPOT ($\times 10^{-6} \text{ m}^2/\text{s}$)



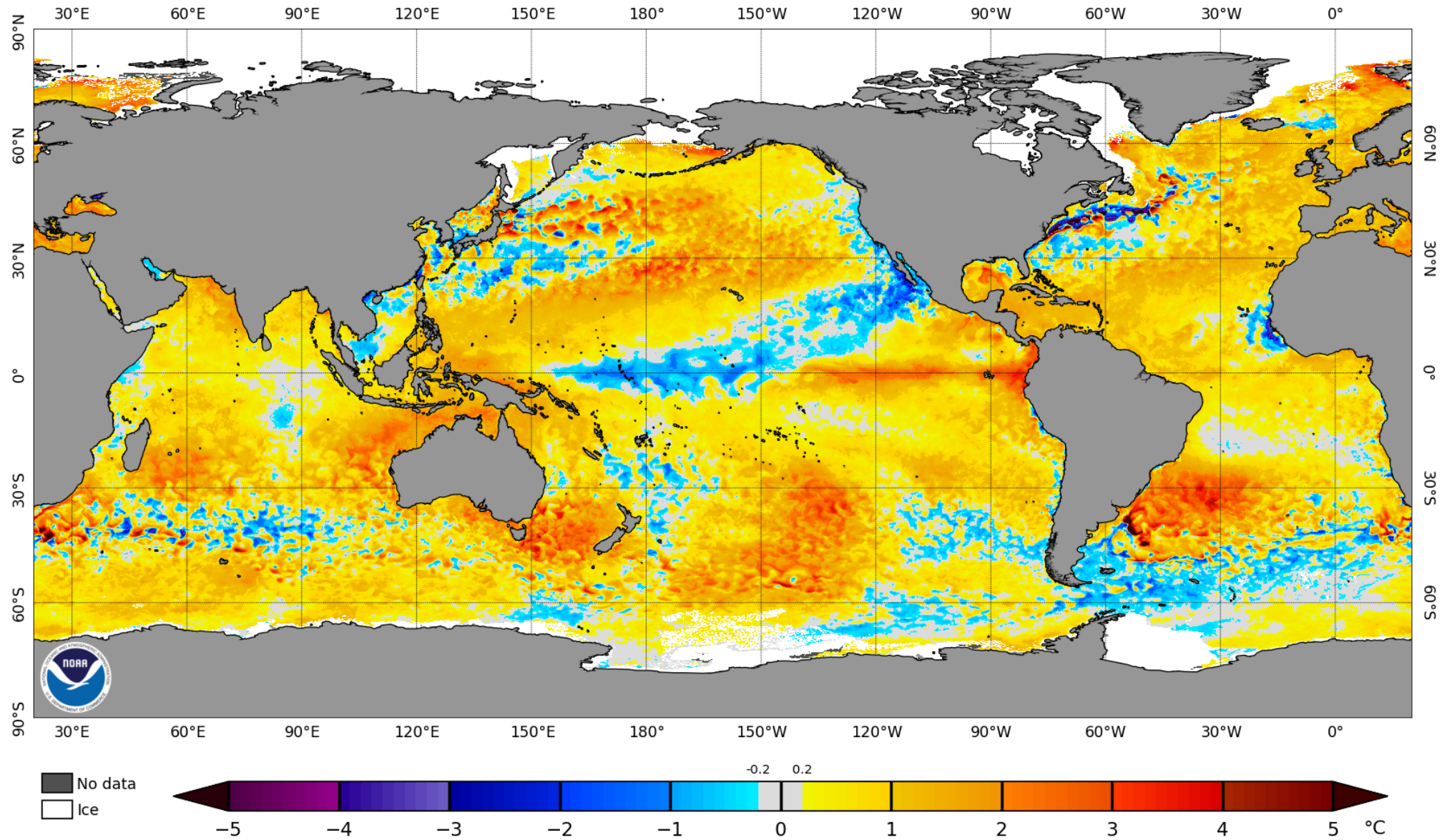
200-hPa Velocity Potential Anomaly Maps:

- The ECWMF devolves to a multiple wave pattern over time where **MJO activity** is no longer coming through the filtering, while favoring by week-3.
- The GEFS favors a more of a wave-1 pattern over time, but struggles to fully propagate the enhanced **MJO phase** across the Western Pacific.
- A secondary **Low frequency signal** is emerging over the eastern Pacific, where models are divided on its persistence and how it interferes with the MJO.

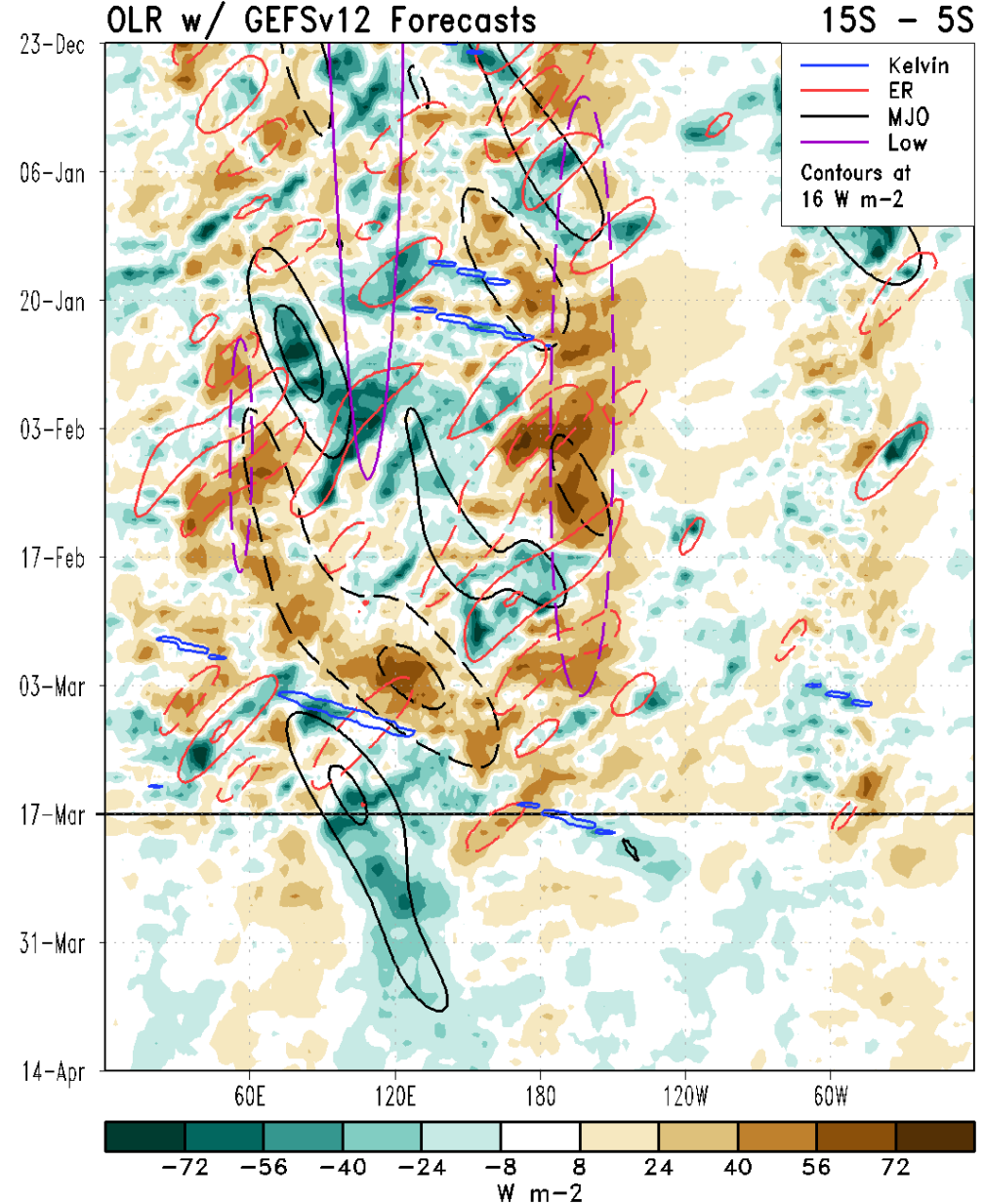
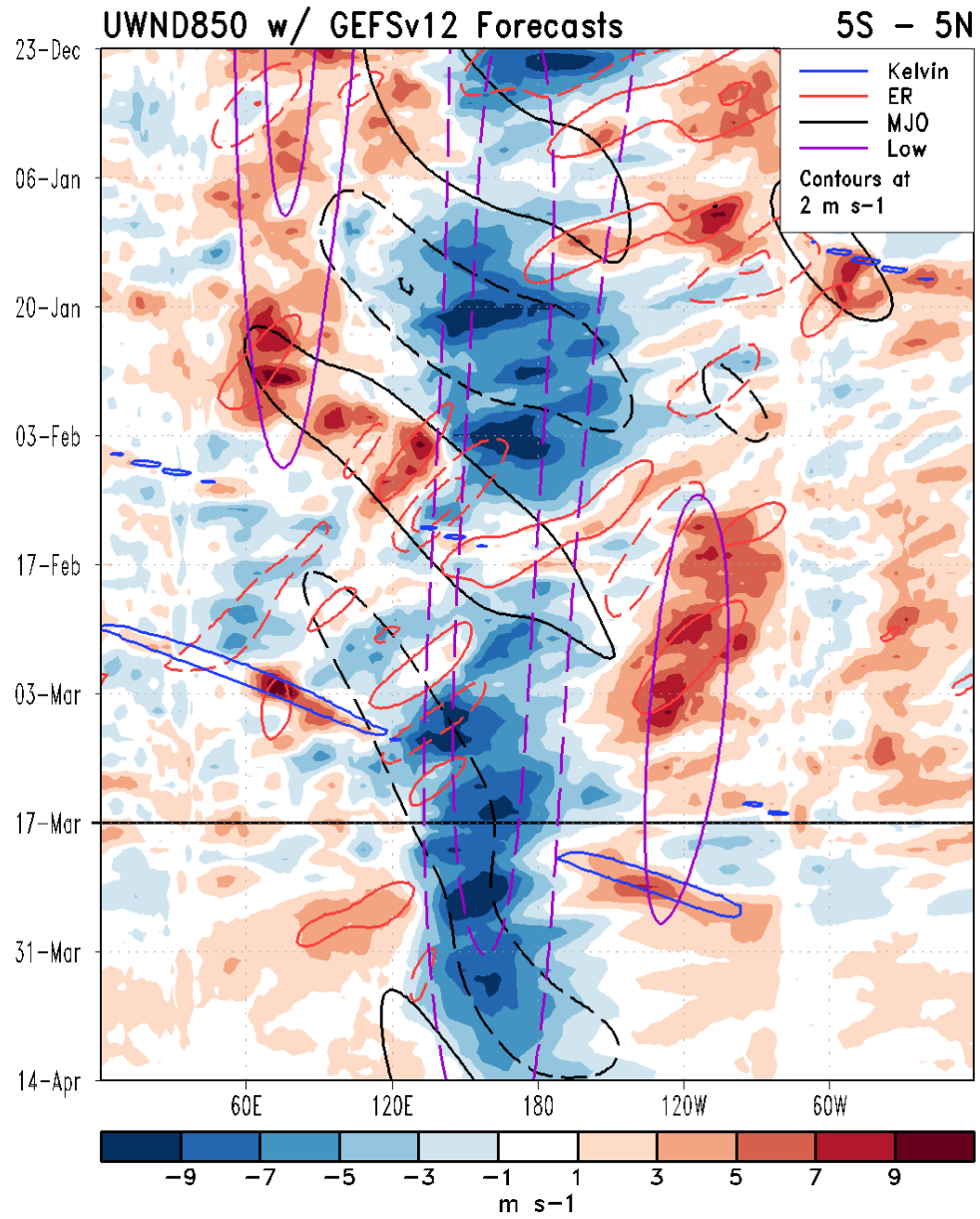


An Unusual Pacific ENSO Structure

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 10 Mar 2025



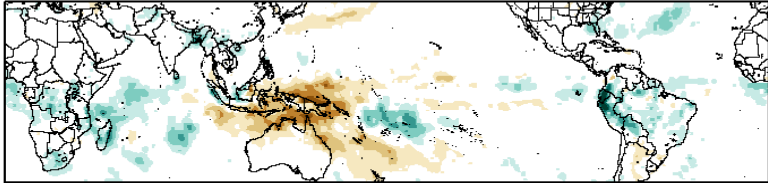
OLR and 850-hPa Zonal Wind Anomaly Time/Lon Plots:



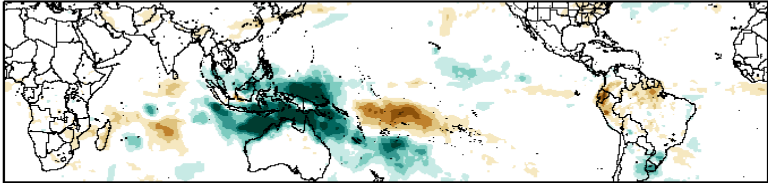
Historical Precipitation Anomalies By MJO Phase:

FMA MJO Composite: GPCP1DD (mm/day)

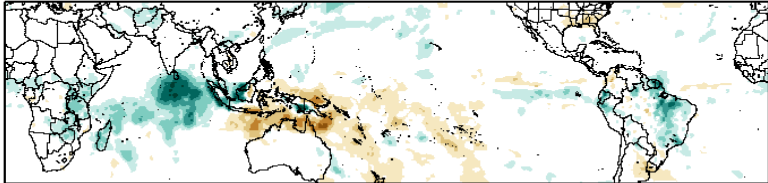
Phase 1



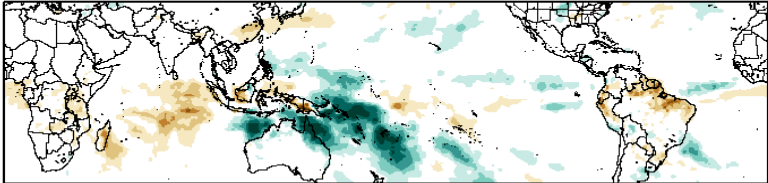
Phase 5



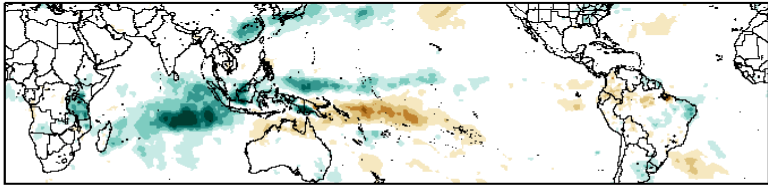
Phase 2



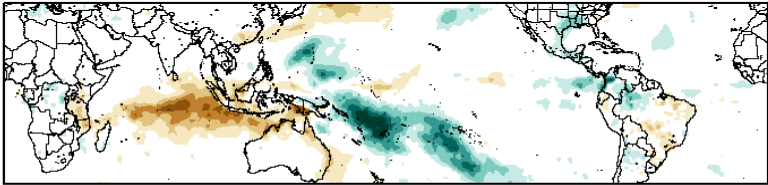
Phase 6



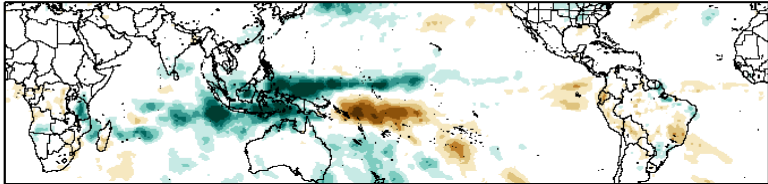
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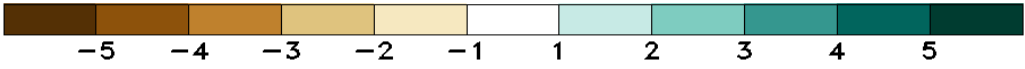
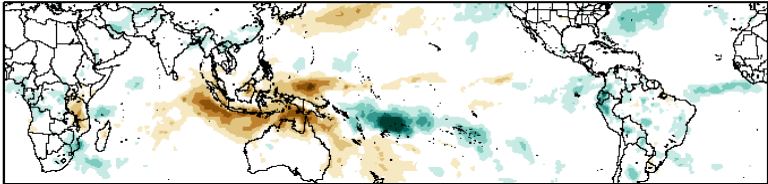
Phase 7



Phase 4

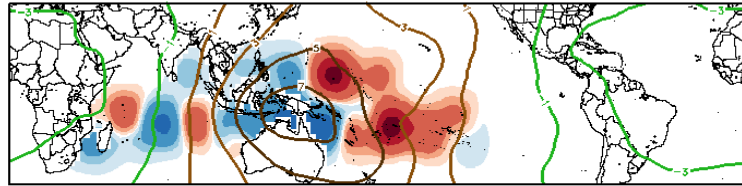


Phase 8

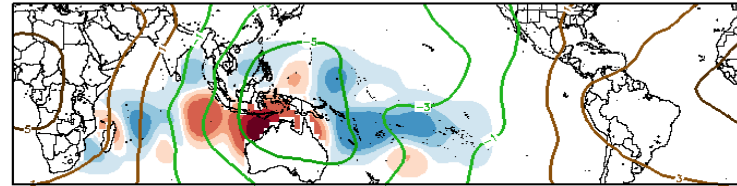


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

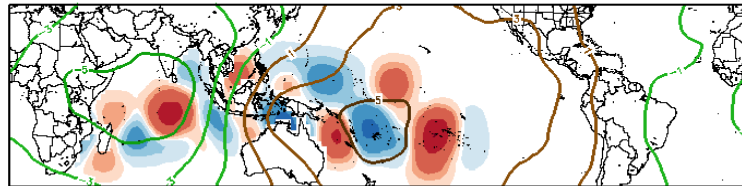
FMA MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ FMA CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



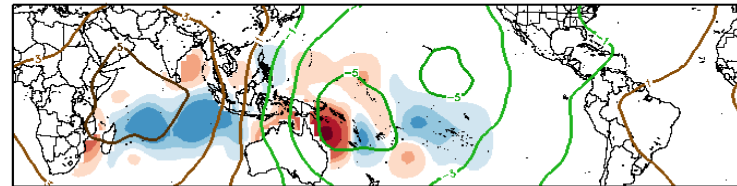
Phase 1



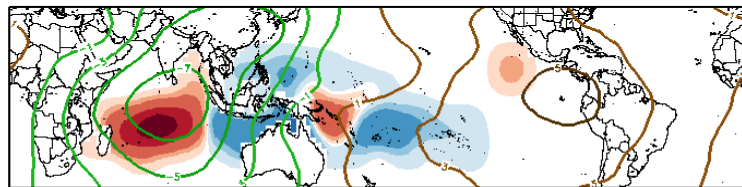
Phase 5



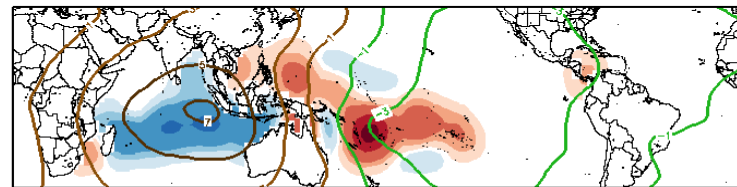
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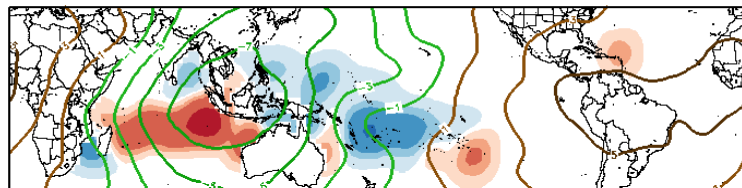
Phase 6



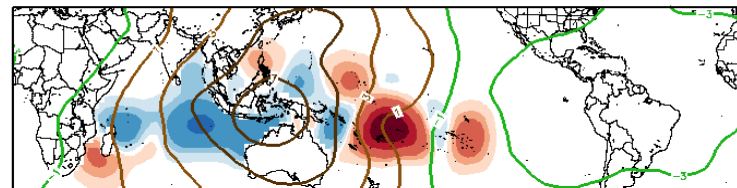
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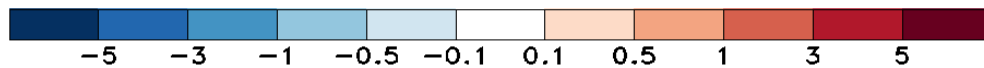
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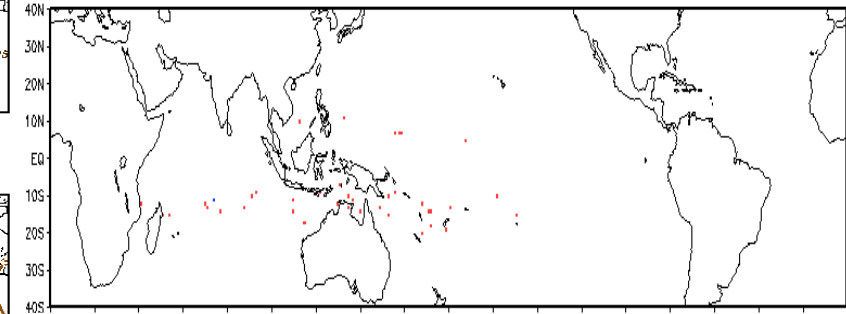
Phase 4



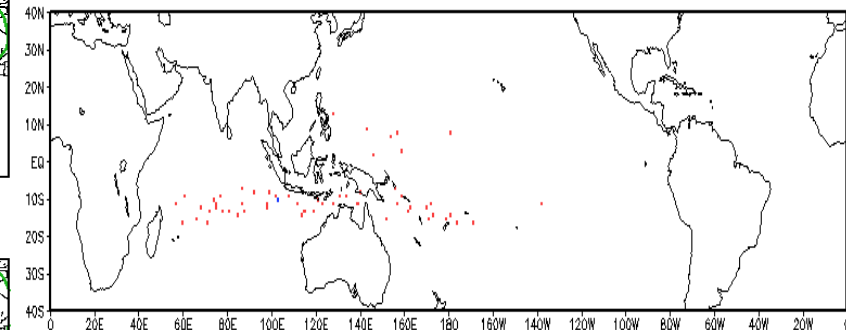
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0326 to 0401



Observed TC Genesis, 1979–2021
7-day Period 0402 to 0408

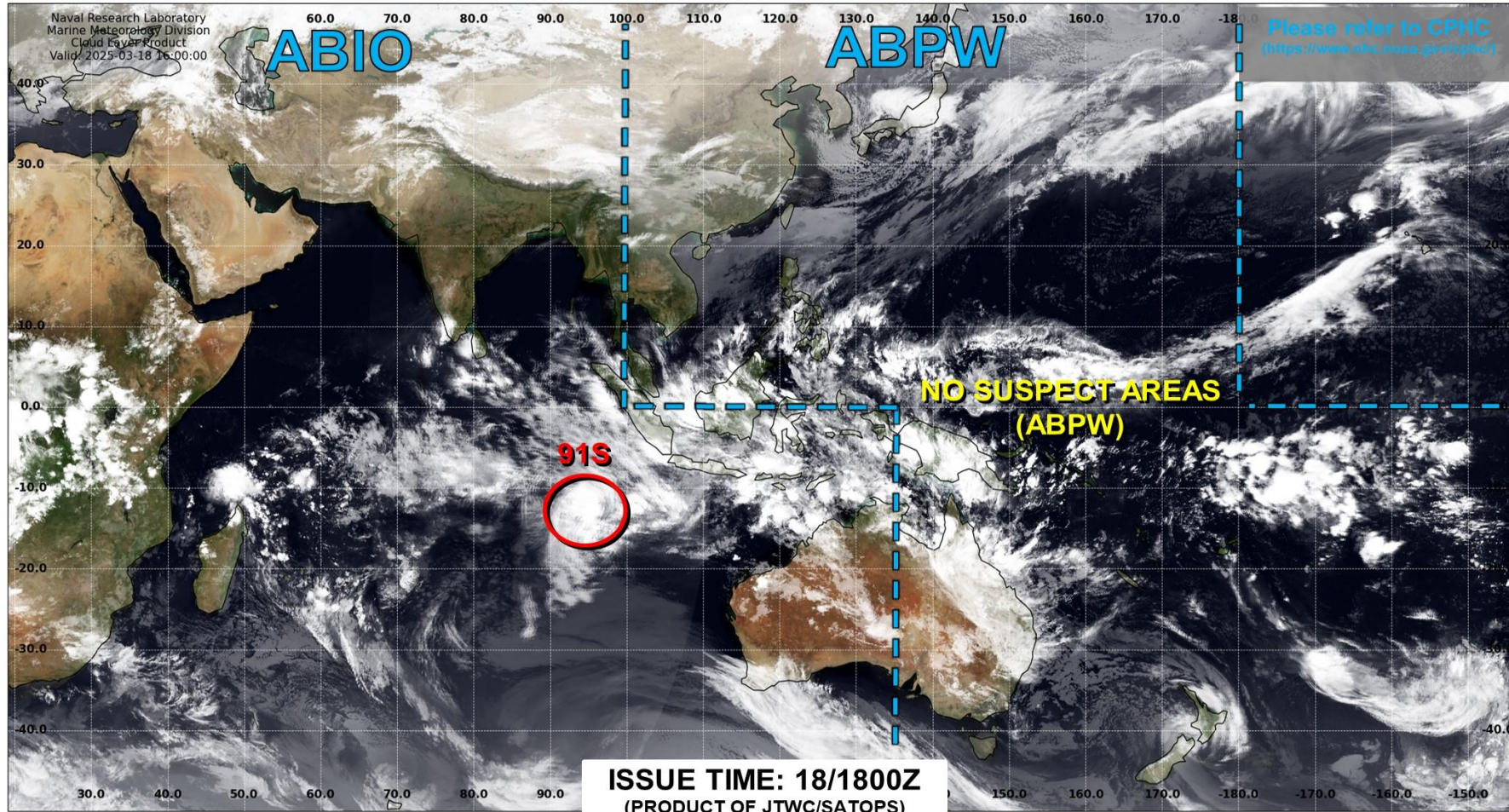


Experimental

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

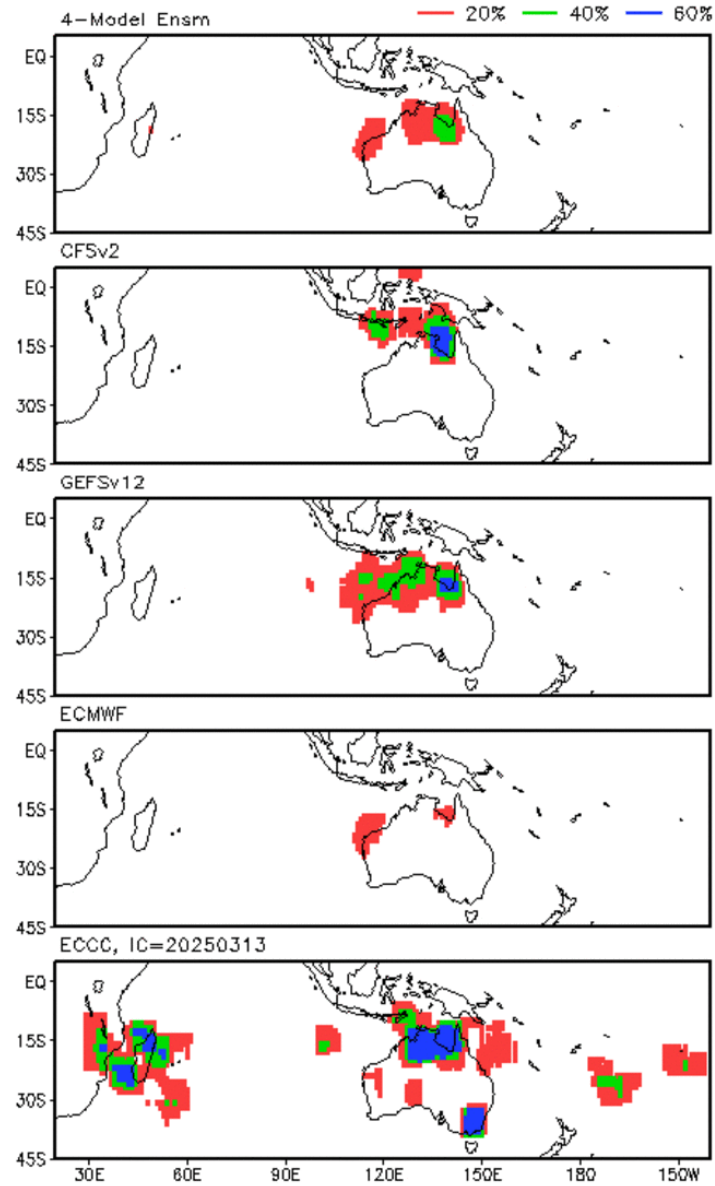


Tropical Cyclone (Reference Warning)

Multi-Model TC Track Probabilities: Weeks 2+3

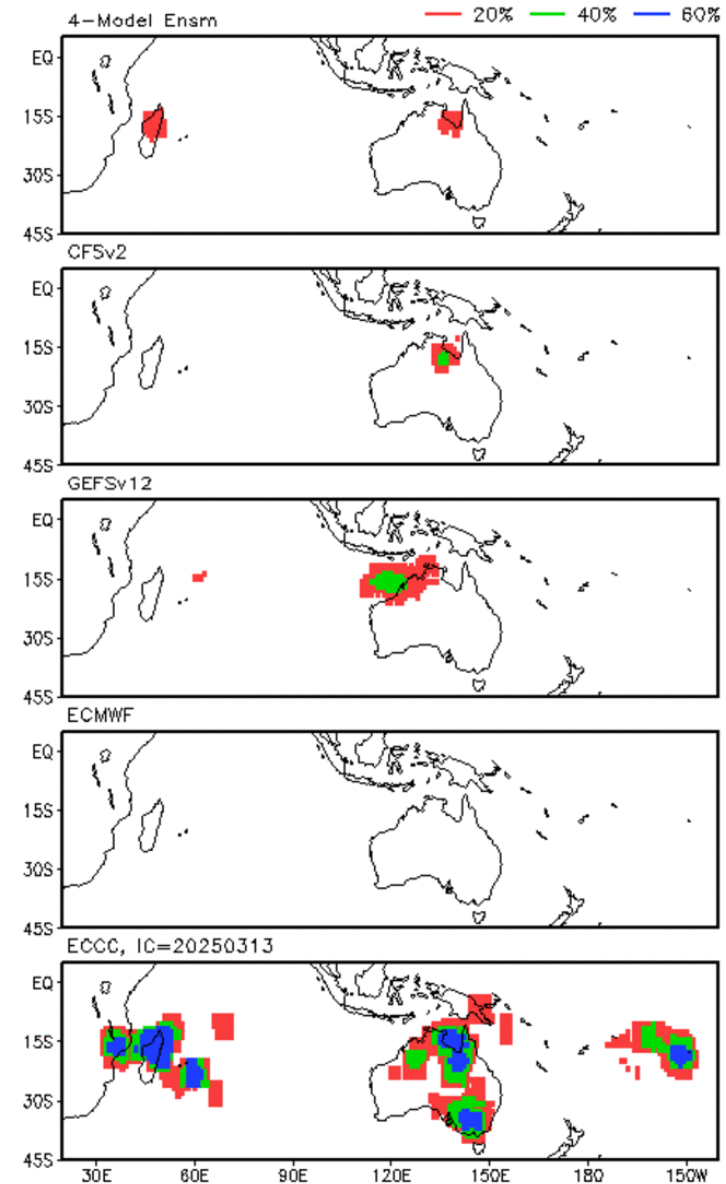
Storm Track Probabilities, IC=20250317

Week 2: 0326 - 0401

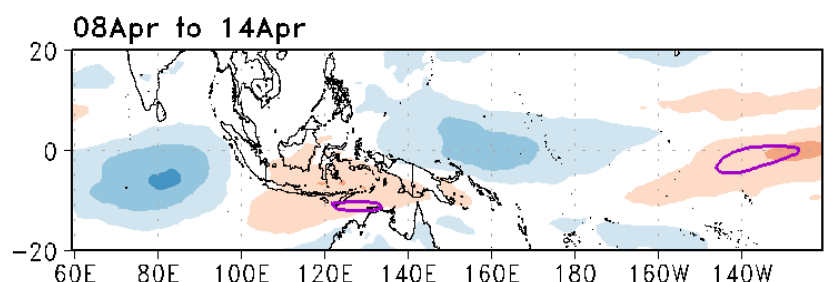
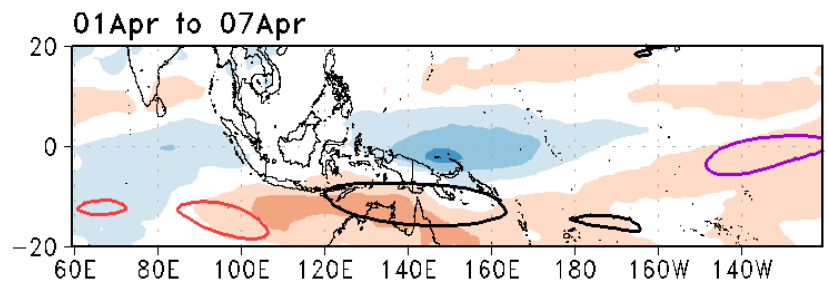
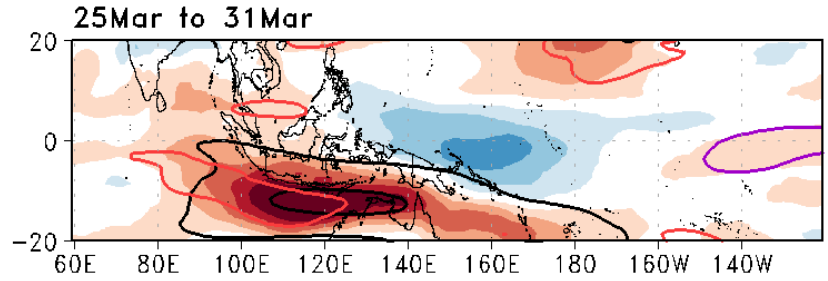
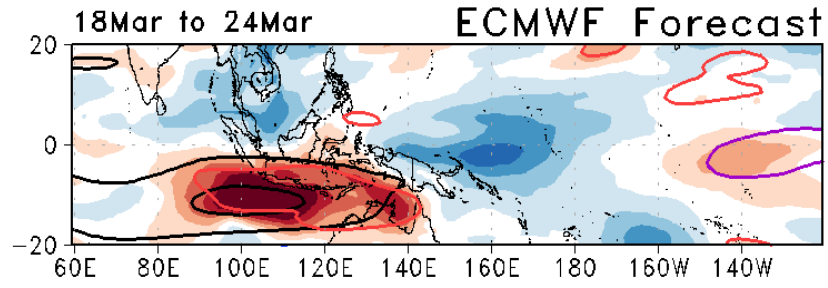


Storm Track Probabilities, IC=20250317

Week 3: 0402 - 0408

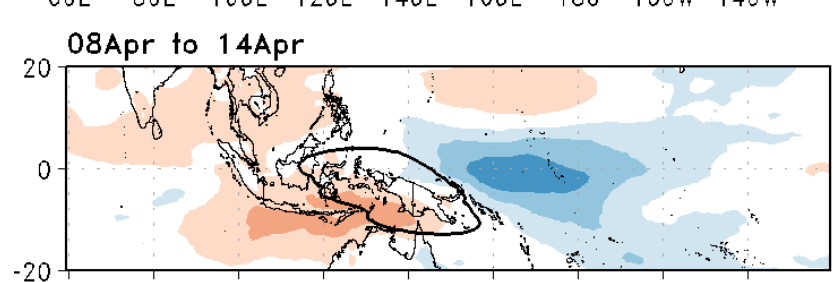
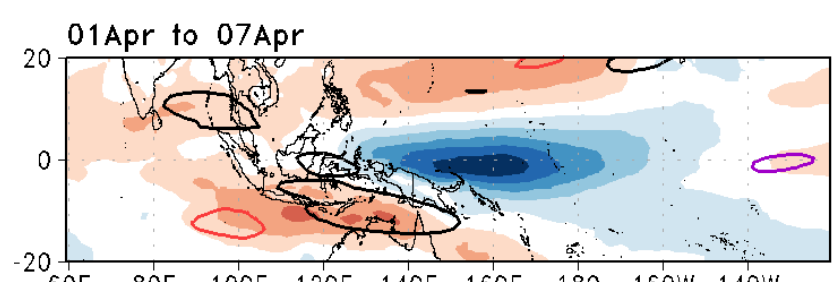
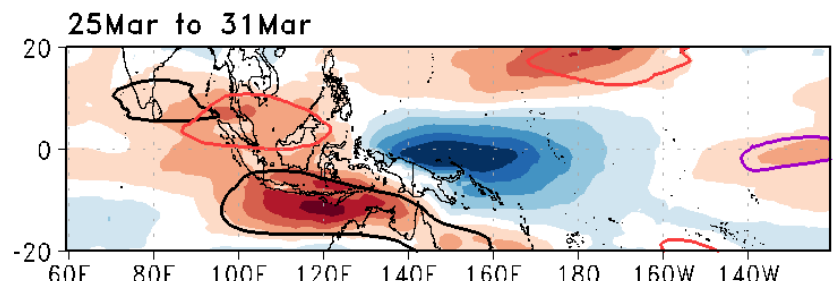
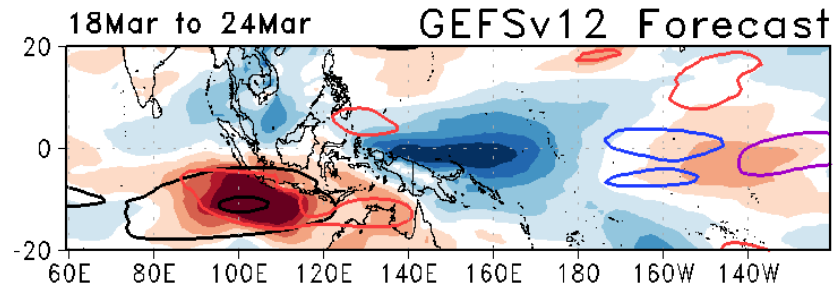


7-Day Means



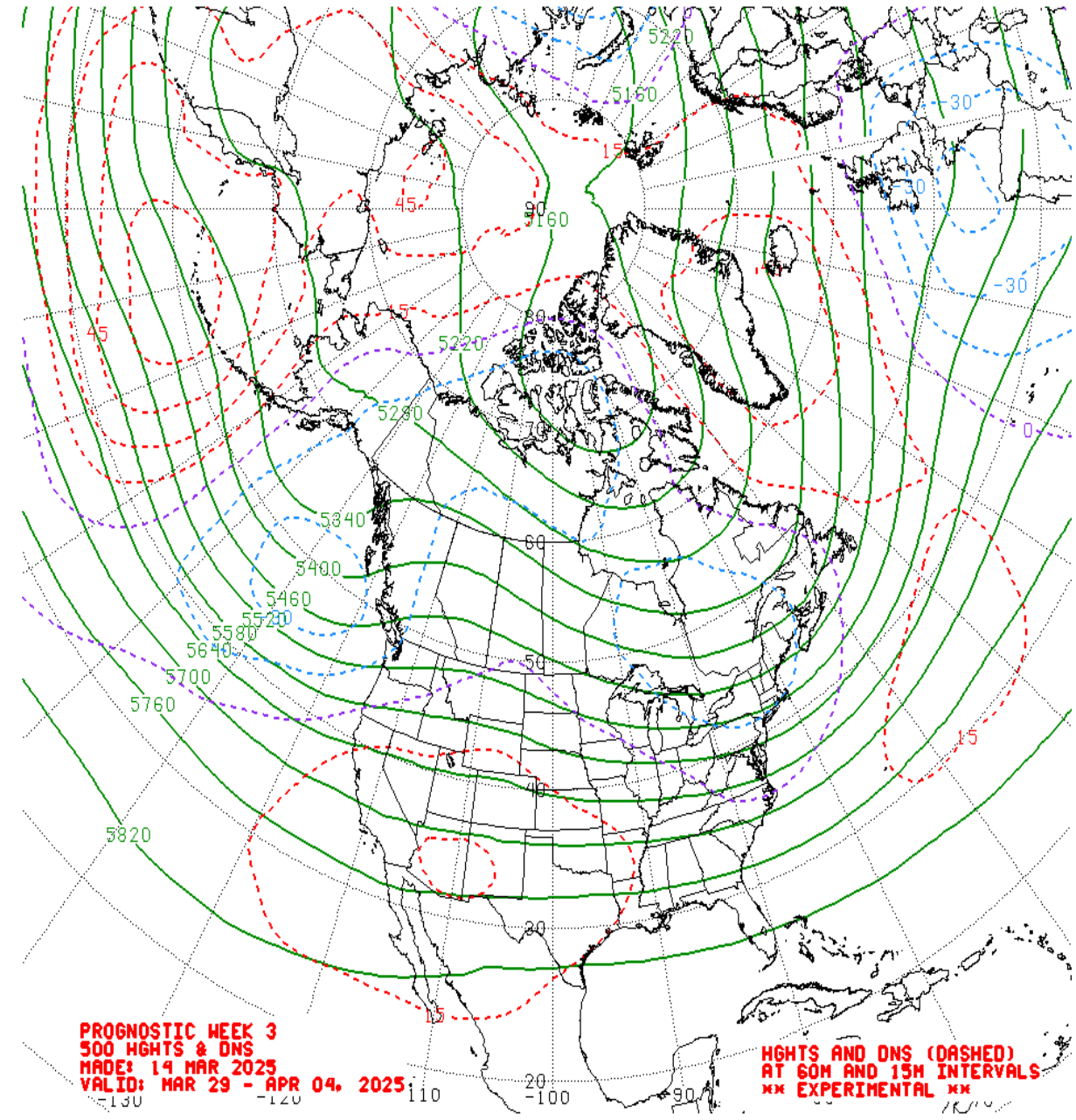
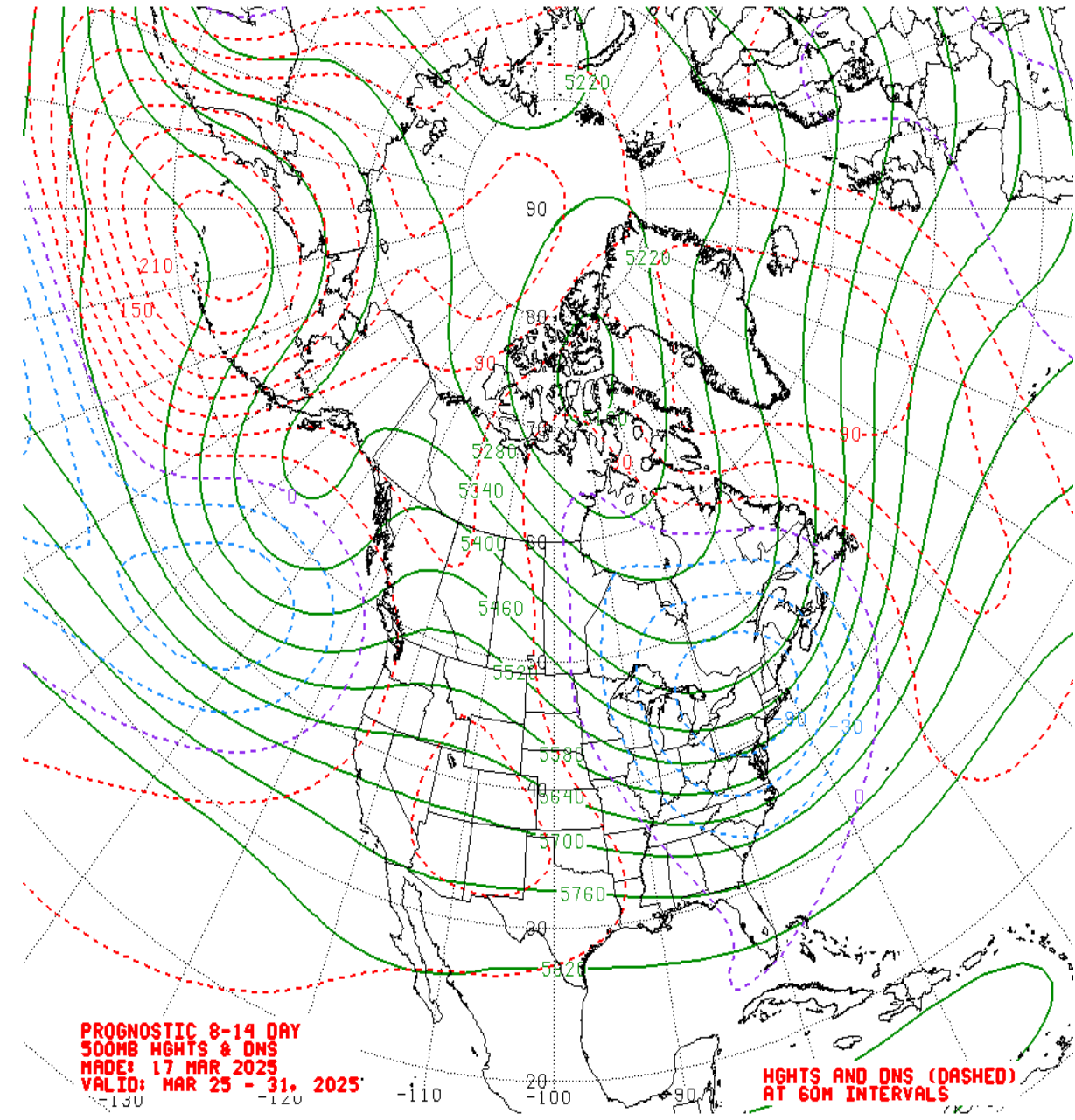
— MJO — Kelvin*2
— Low — ER
Contours at 2, 6 m s⁻¹

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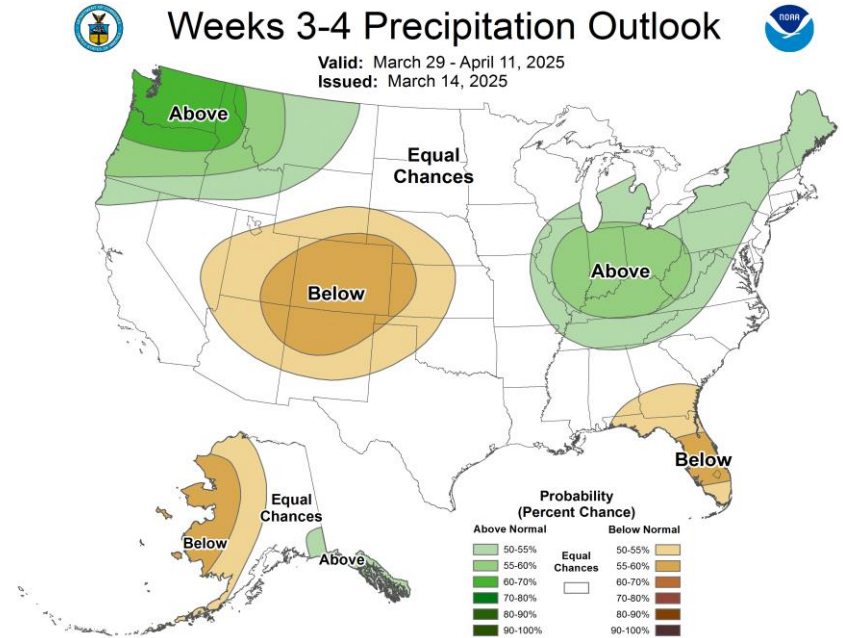
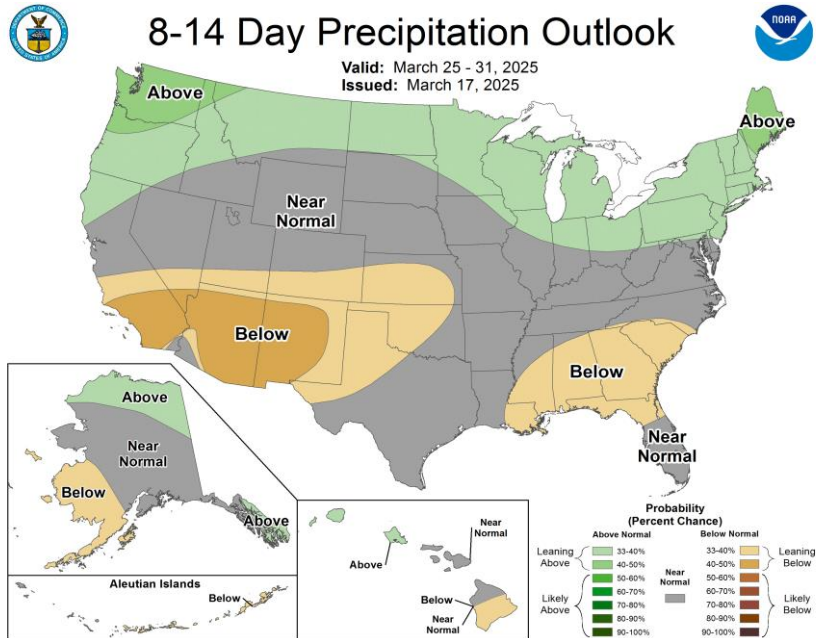
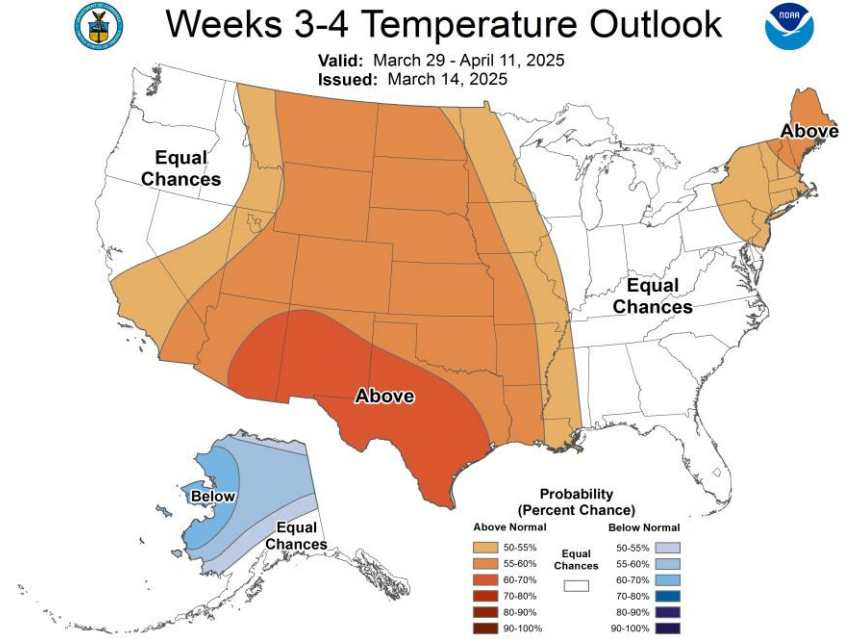
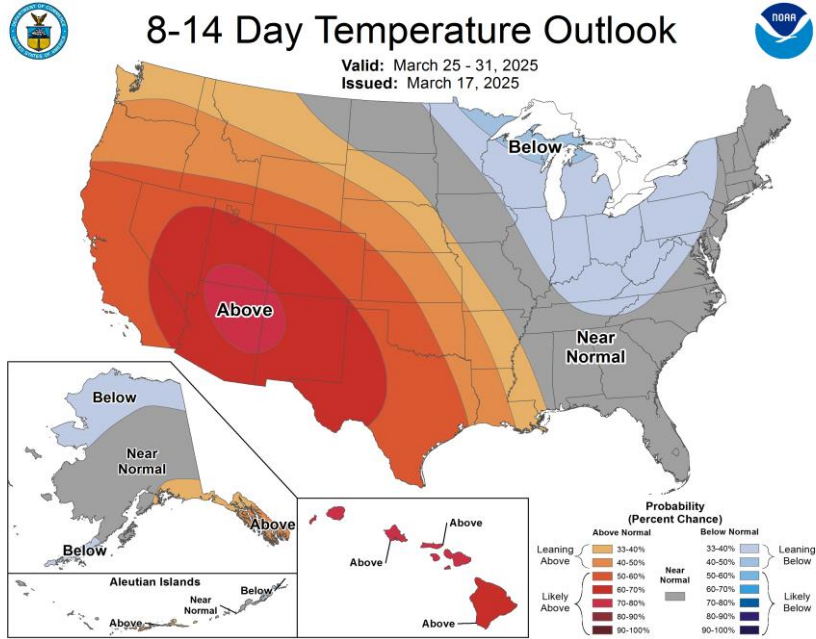


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Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3



Official Temperature & Precipitation Forecasts:



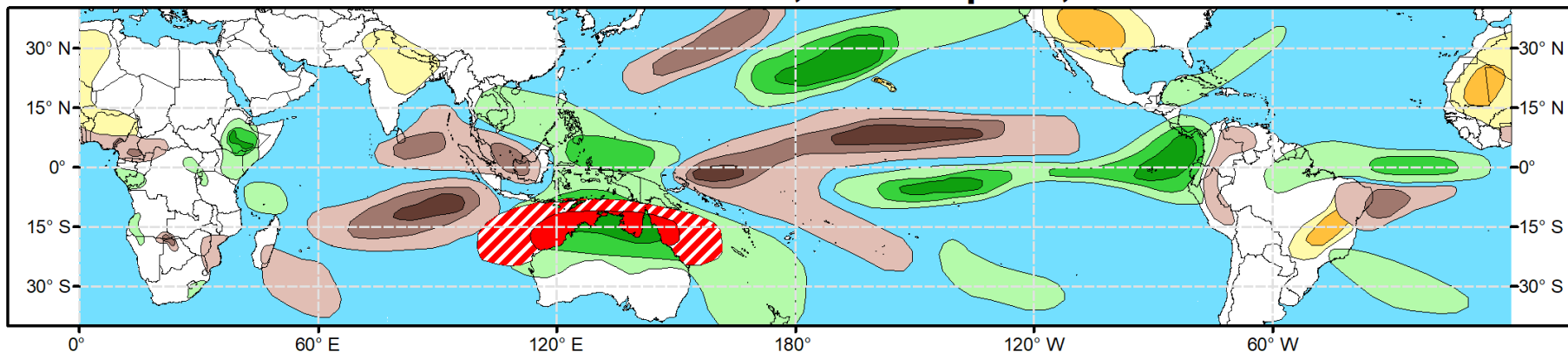


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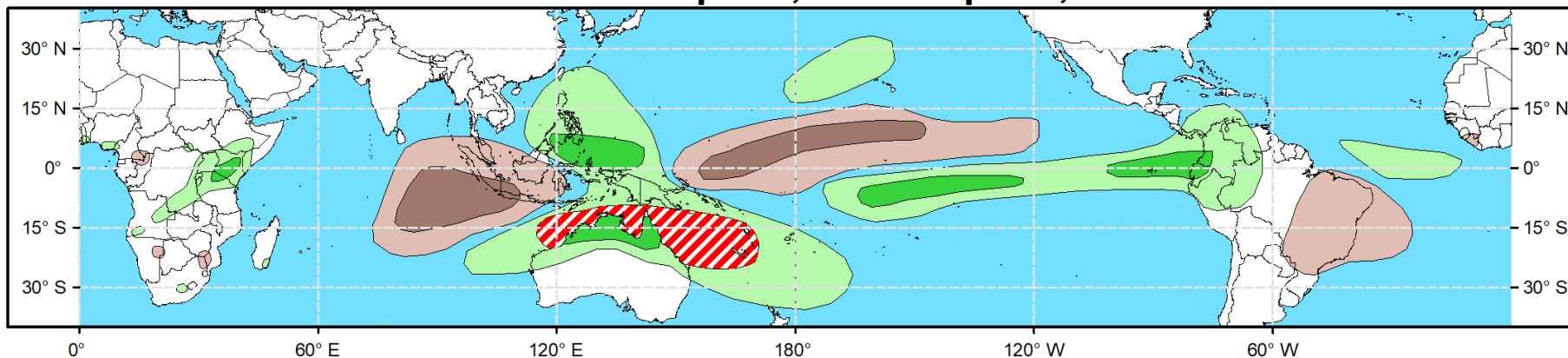
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