



Weeks 2-3 Global Tropics Hazards Outlook

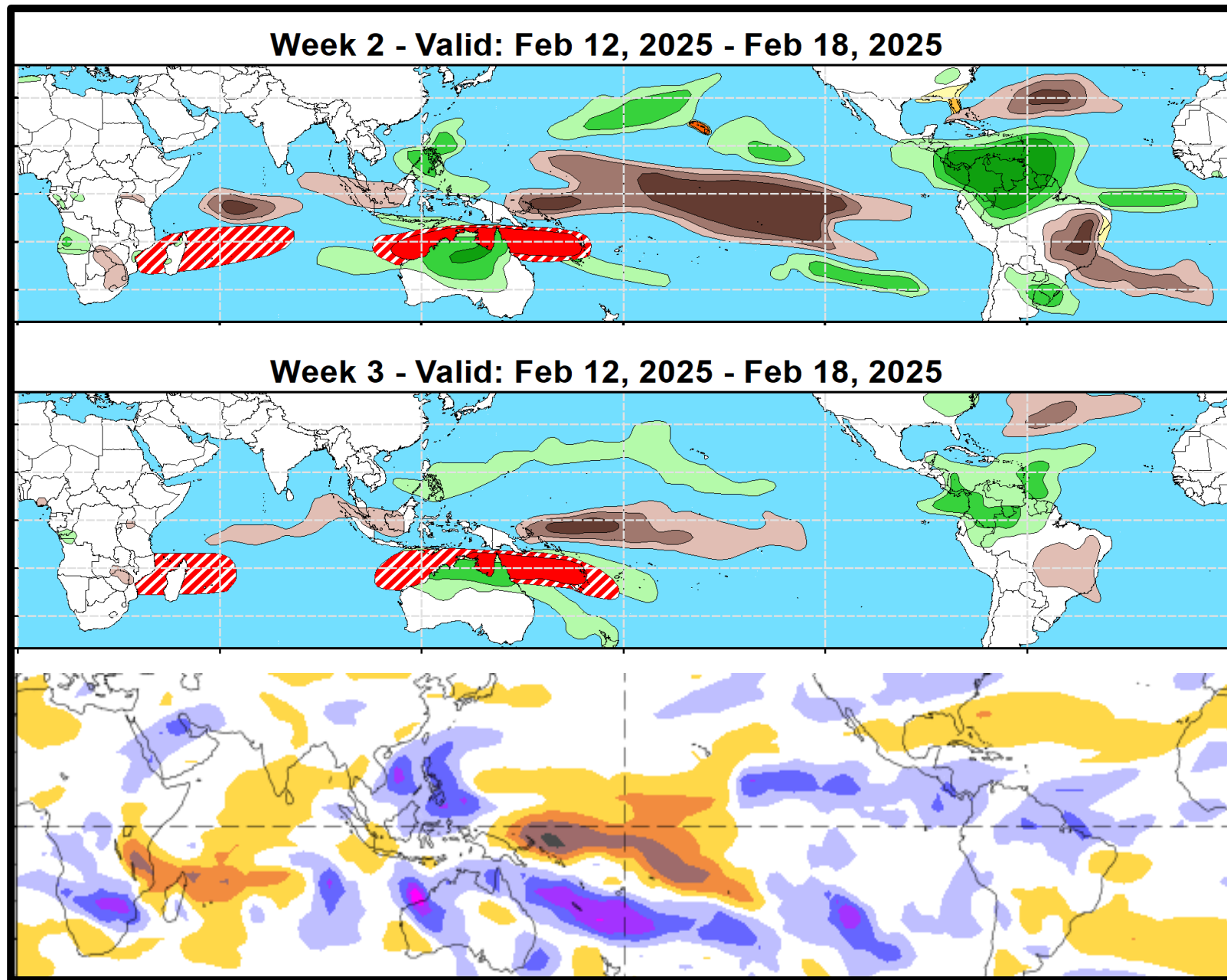
2/18/2025

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- No TCs formed since Wed 2/12
- SEIO: 99S (low)
- SPAC: 98P (med)



Synopsis of Climate Modes:

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

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña conditions are expected to persist in the near-term, with a transition to ENSO-neutral likely during Mar-May (66% chance).

MJO and other subseasonal tropical variability:

- The MJO remains active, having crossed the Western Pacific and entered the Western Hemisphere during the past week. More recently, RMM observations show a slowed signal while wavering in amplitude likely due to competing interference with an equatorial Rossby wave activity.
- Destructive interference with the MJO is favored to continue during week-1, however there is support for a more coherent MJO reemerging that propagates from the Western Hemisphere and into the Indian Ocean heading into March.
- Favorable conditions for Tropical Cyclogenesis are expected over the Southern Indian Ocean, with decreasing chances for development in the South Pacific.
- A potential extratropical response associated with an MJO propagating into the Indian Ocean during late winter features a retrogression of the mean longwave trough over North America, which may lead to warming temperatures over the eastern U.S. as well as enhanced onshore flow over portions of the West Coast.

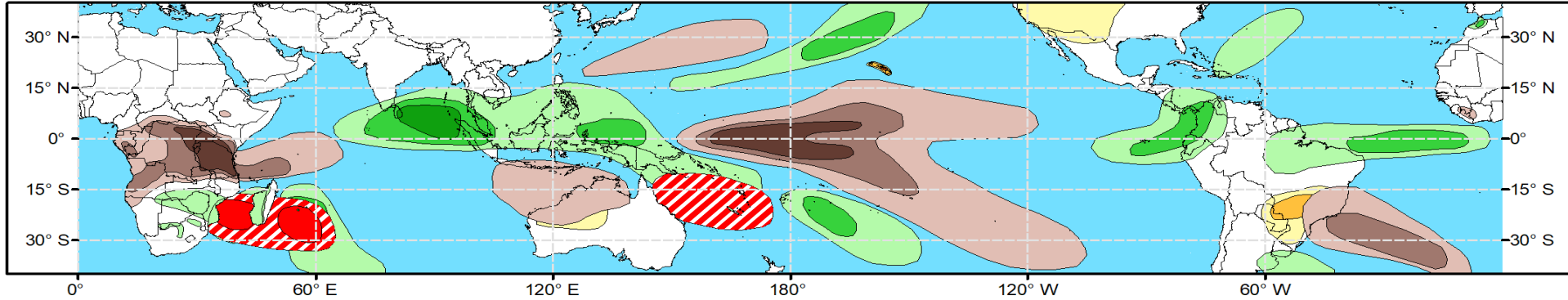
GTH Outlook:



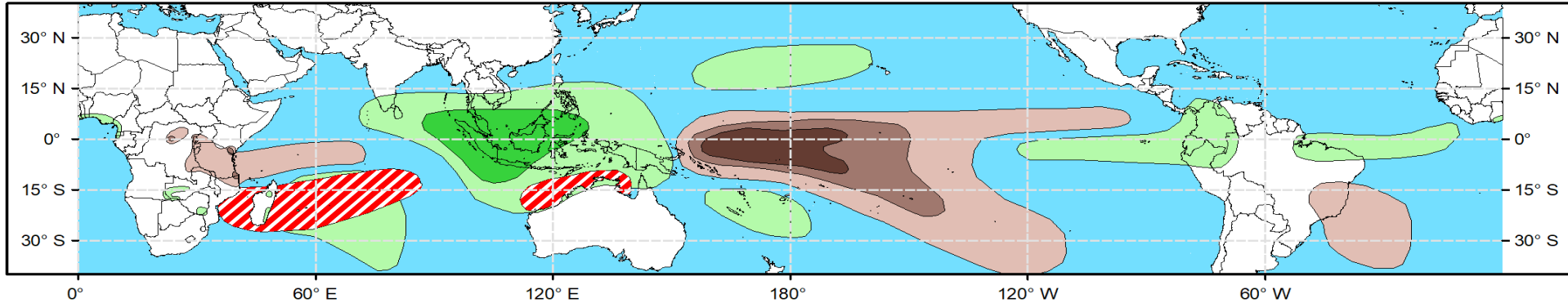
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Feb 26, 2025 - Mar 04, 2025



Week 3 - Valid: Mar 05, 2025 - Mar 11, 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*

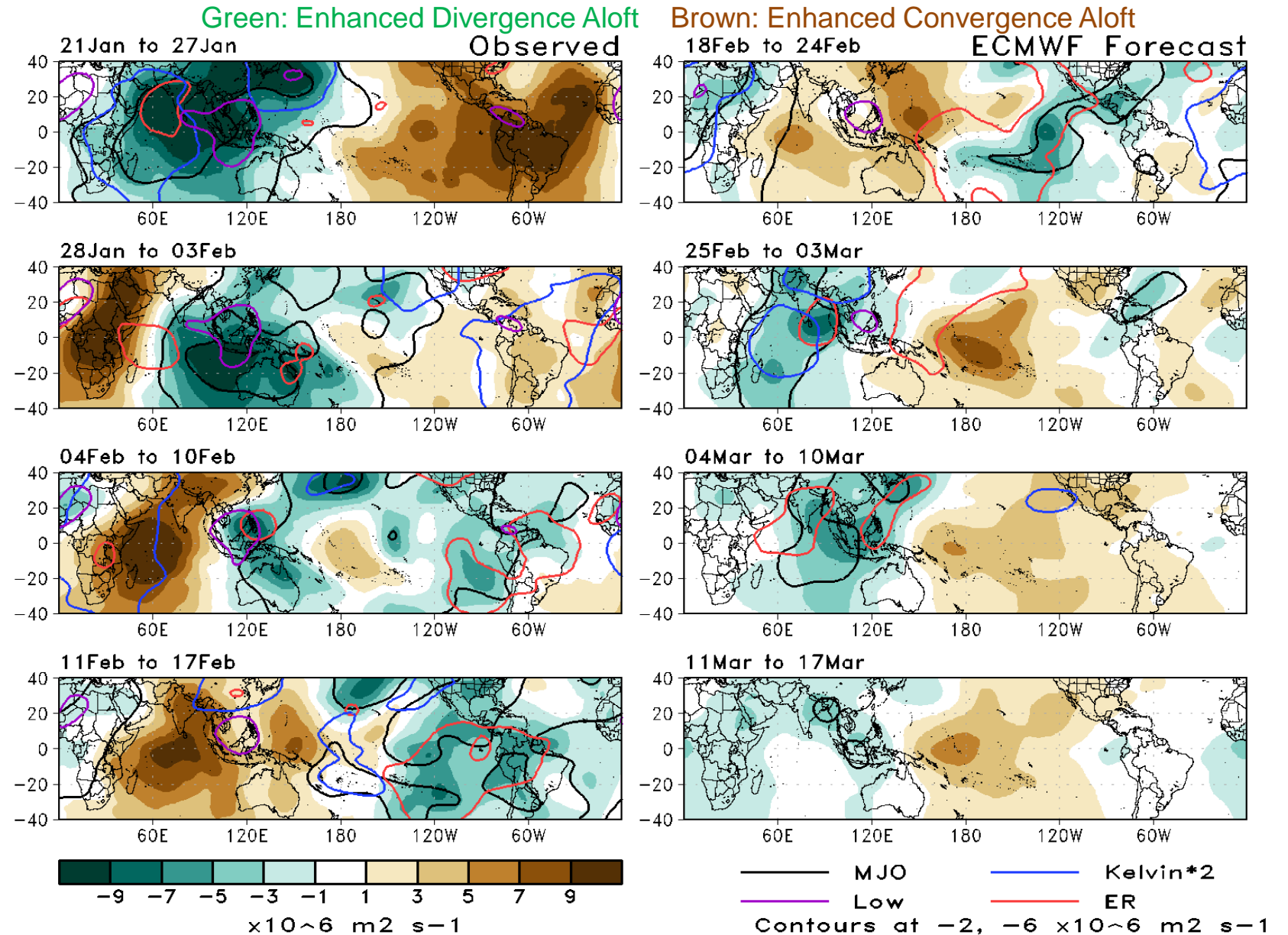
Issued: 02/18/2025

Forecaster: Novella

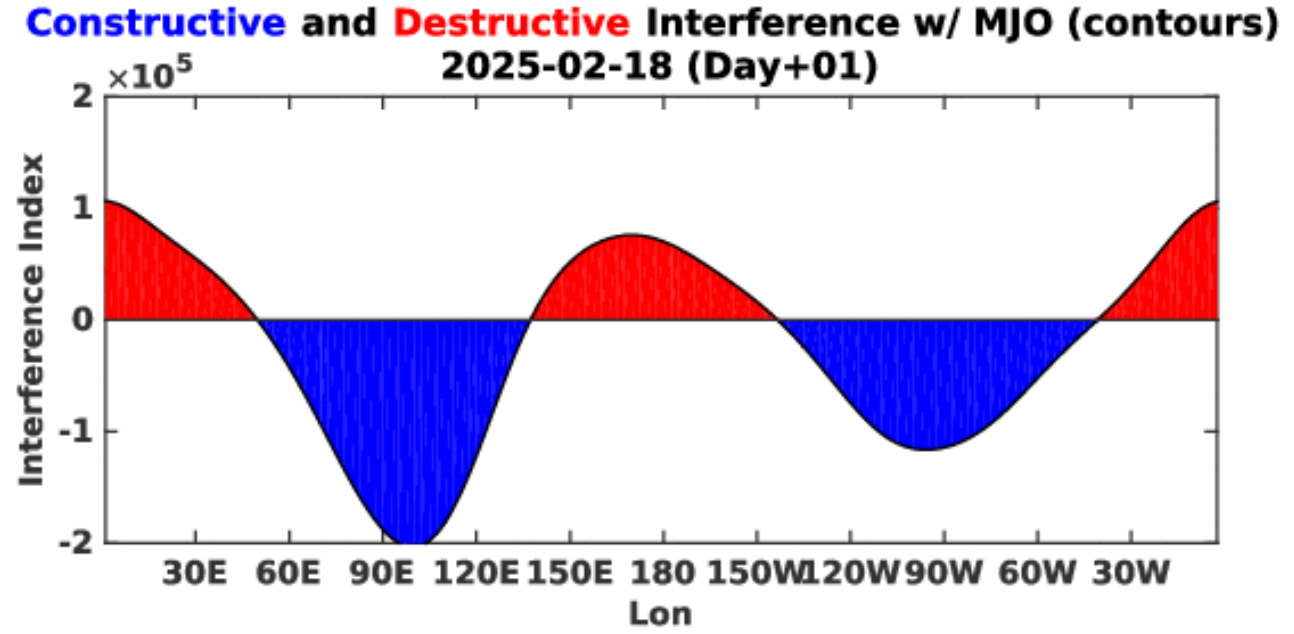
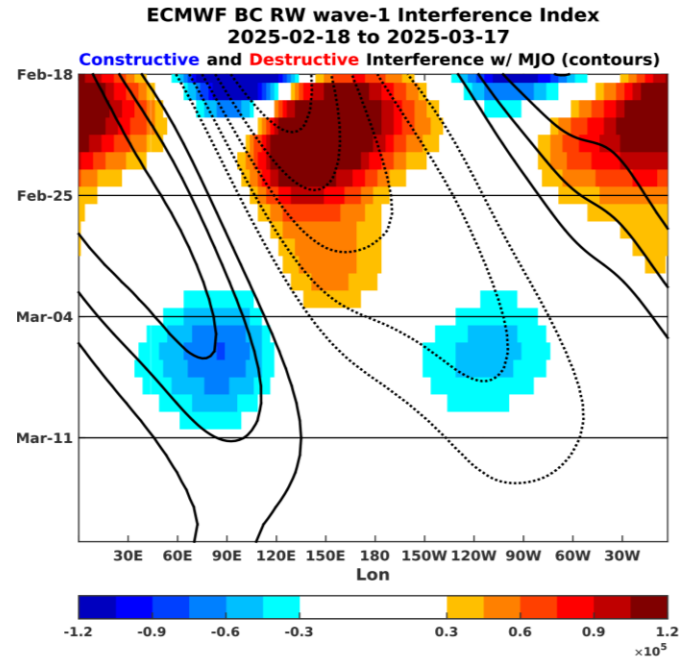
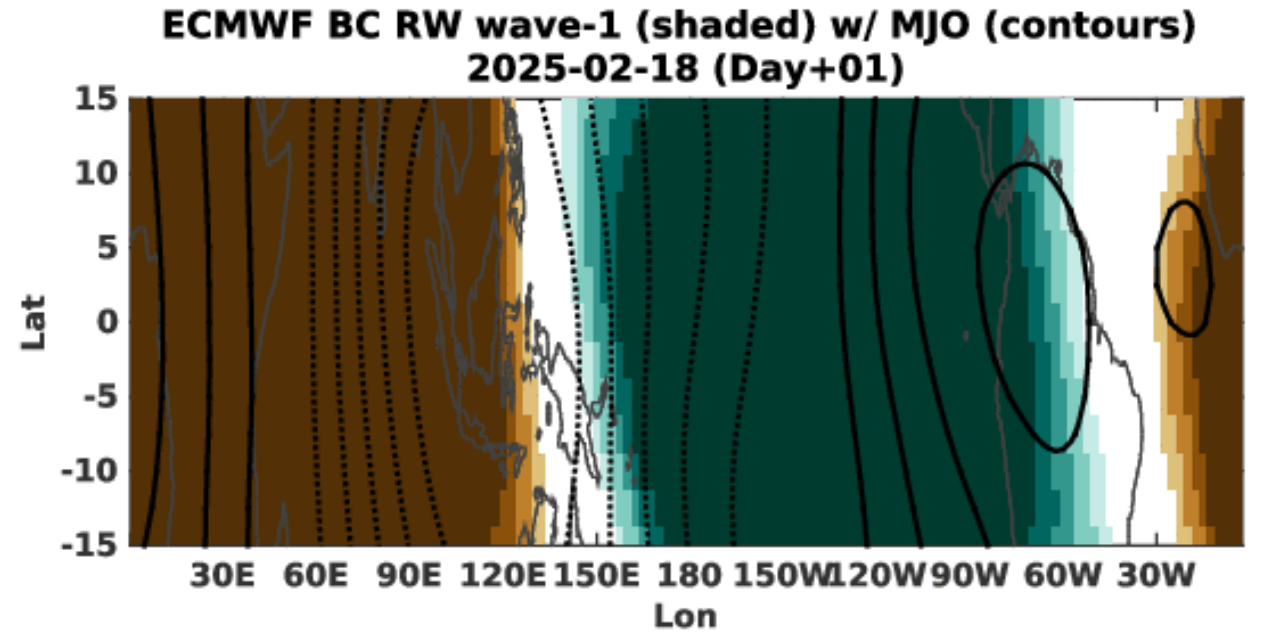
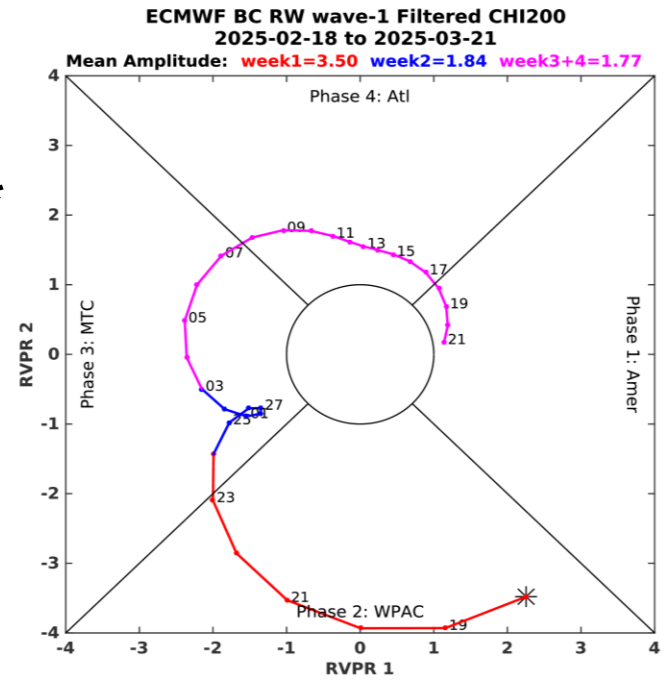
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

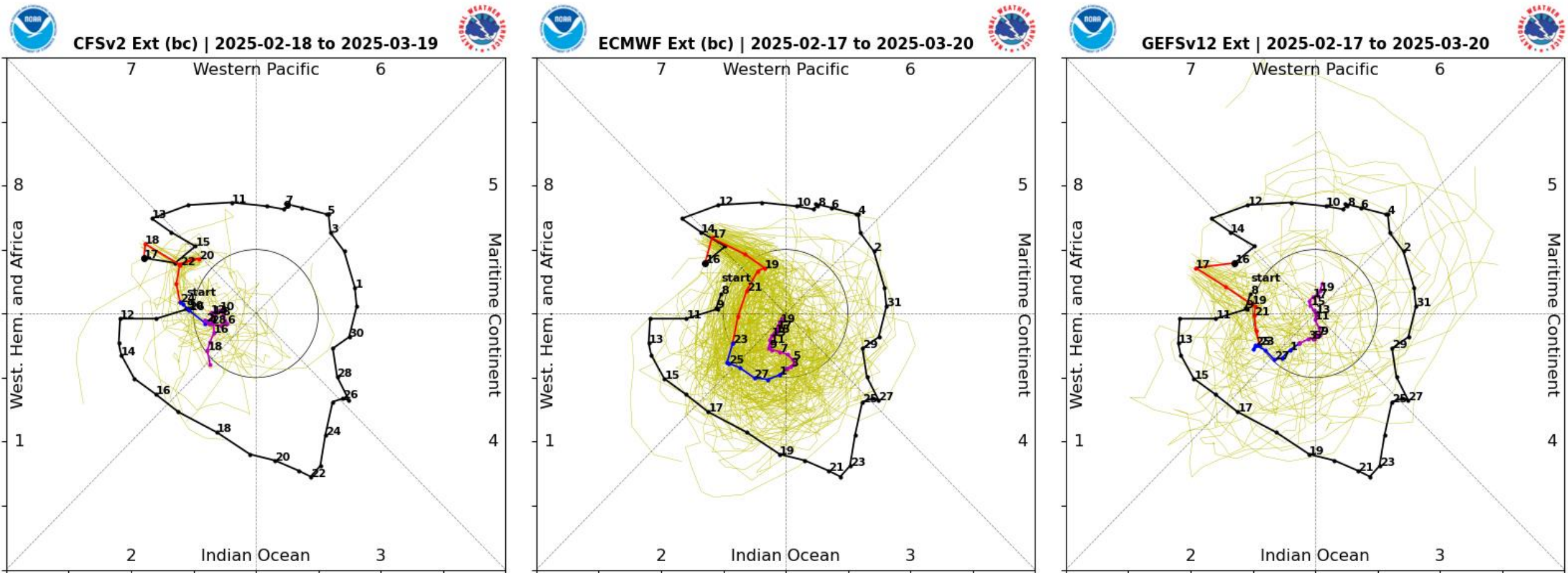
- The leading edge of the enhanced divergence envelope of the **MJO** crossed the Prime Meridian in the past week.
- During weeks 1 and 2, strong **Rossby wave** activity is favored to propagate westward over the equatorial Pacific, colliding with the eastward propagating suppressed phase of the **MJO**.
- By week-3, a better defined wave-1 pattern is favored, consistent with a reorganizing **MJO**, with a reversal towards constructive interference with the approaching **Rossby wave**, as well as **Low frequency** variability



RVPI *Experimental*

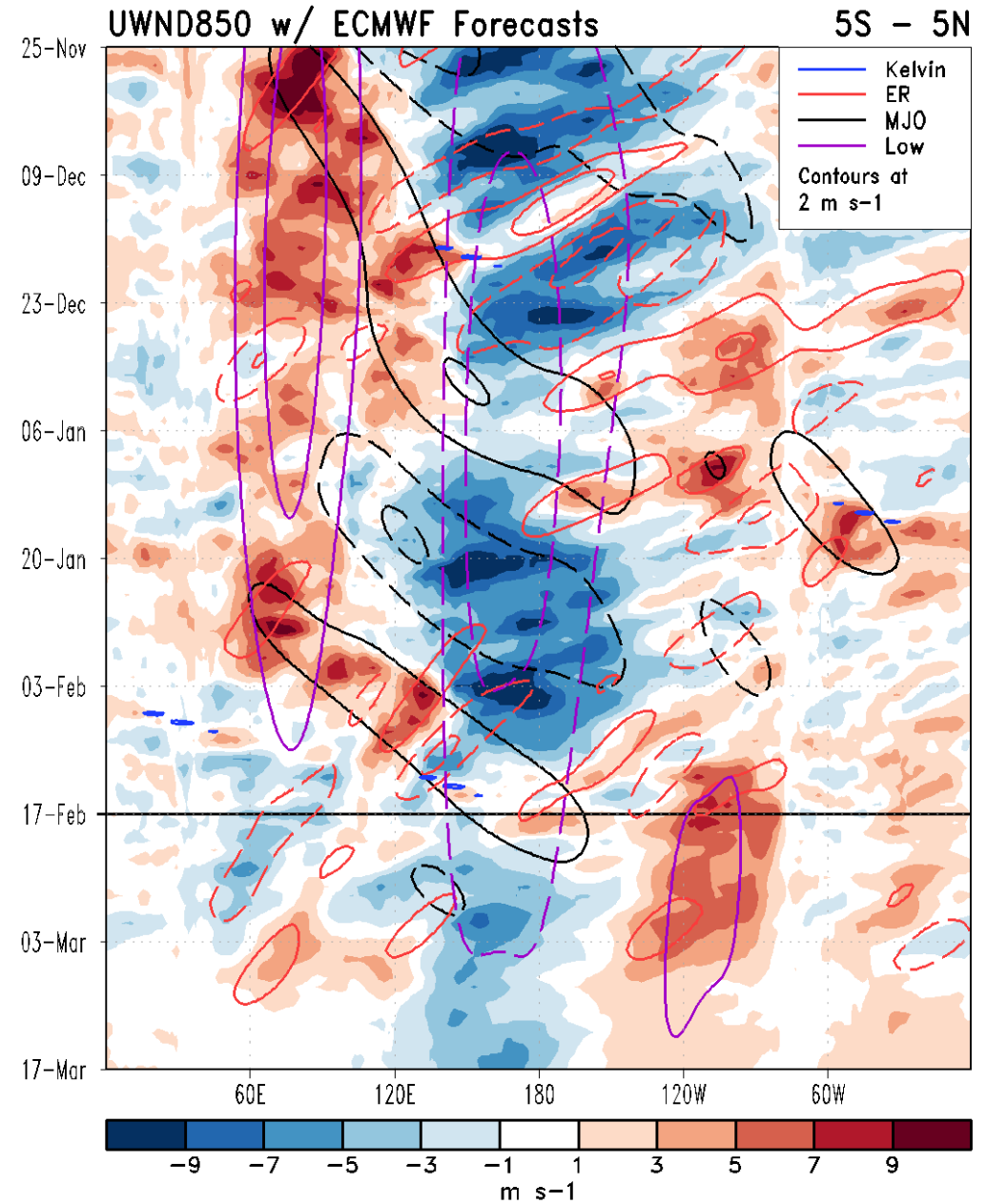
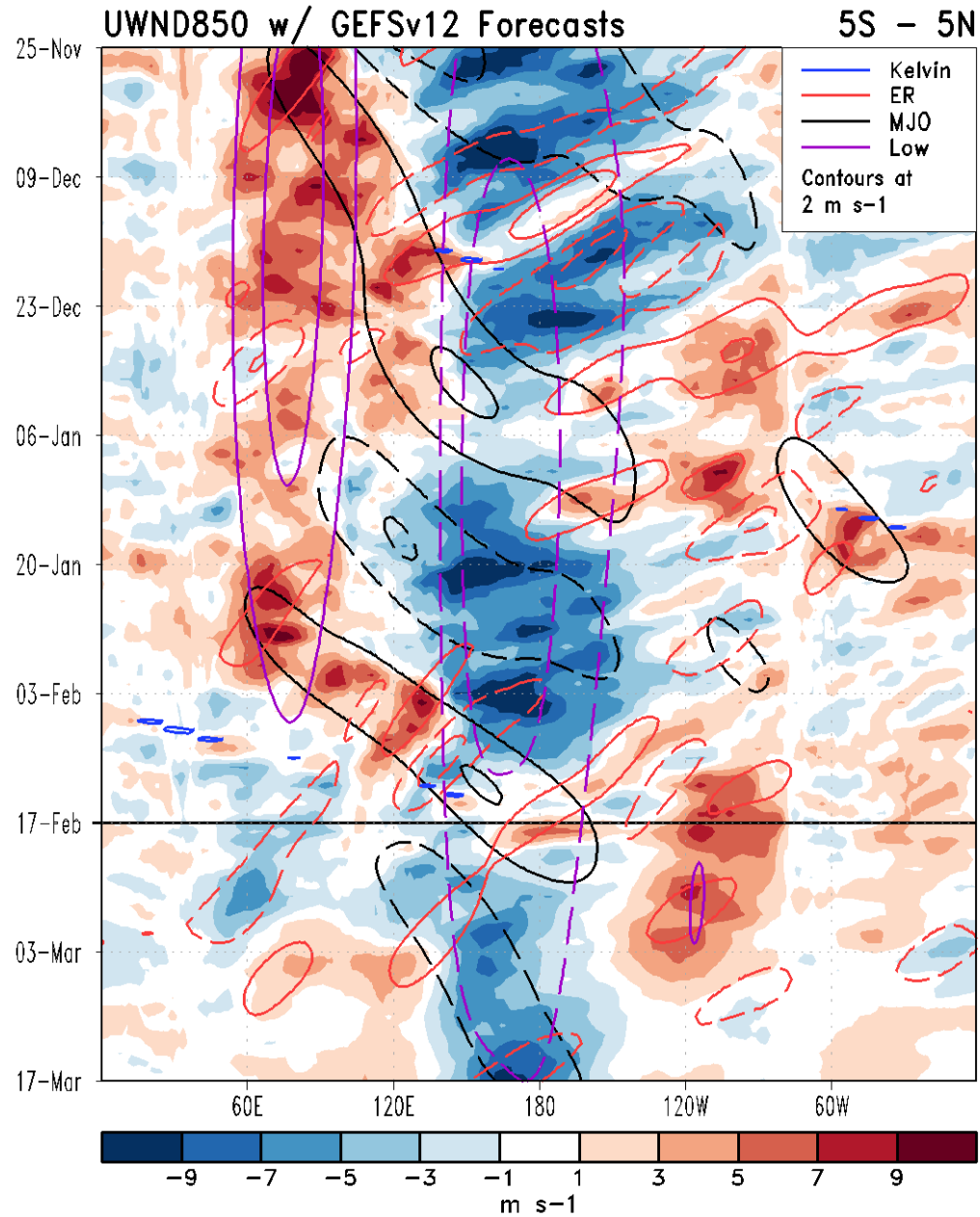


RMM Index Observations & Forecasts:



- RMM forecasts are generally erratic during week-1, followed by a more steady eastward propagation of the signal into the Indian Ocean while weakening in amplitude

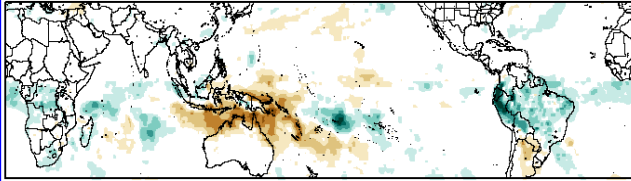
850mb Zonal Wind Anomaly Time/Lon Plots:



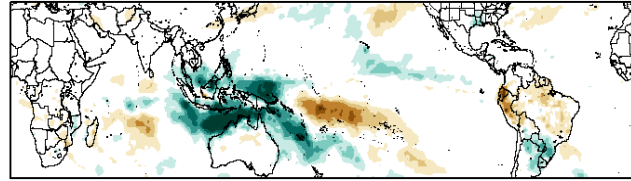
Historical Precipitation Anomalies By MJO Phase:

JFM MJO Composite: GPCP1DD (mm/day)

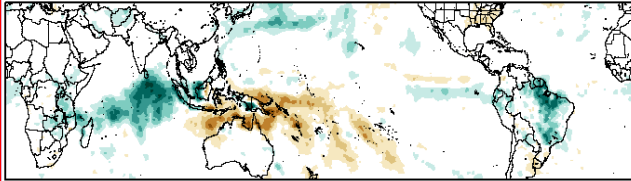
Phase 1



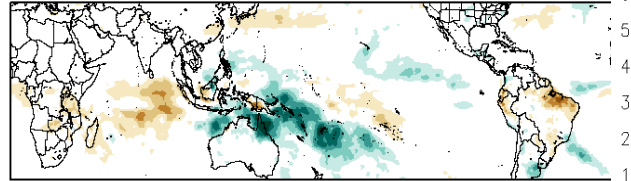
Phase 5



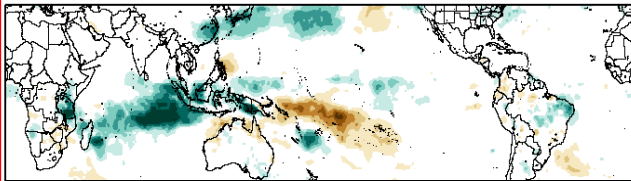
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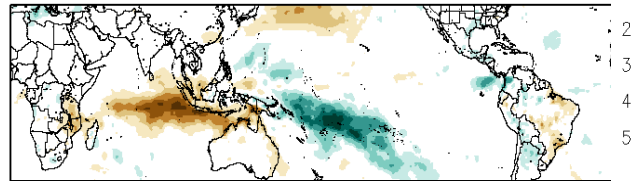
Phase 6



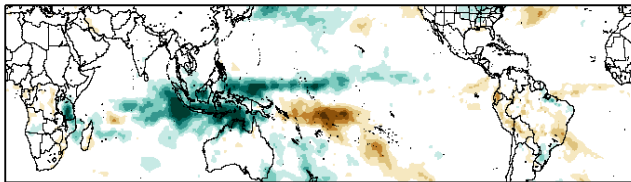
Phase 3



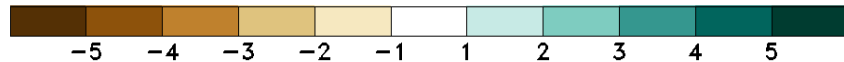
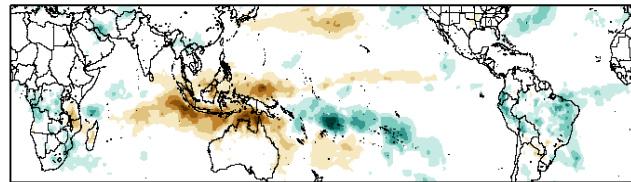
Phase 7



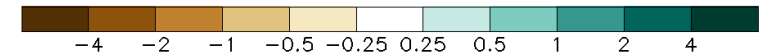
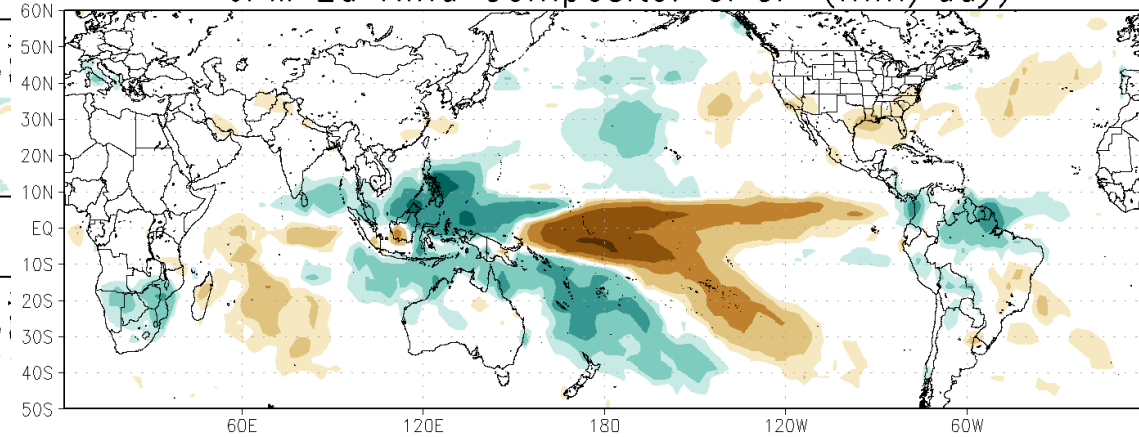
Phase 4



Phase 8

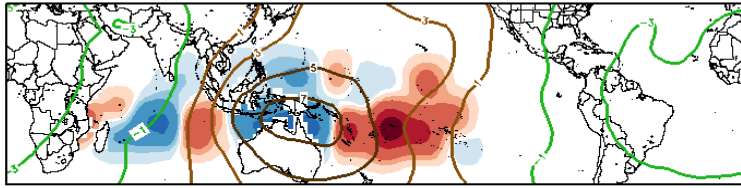


JFM La Nina Composite: GPCP (mm/day)

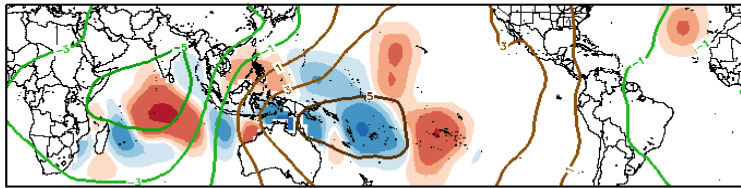


Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

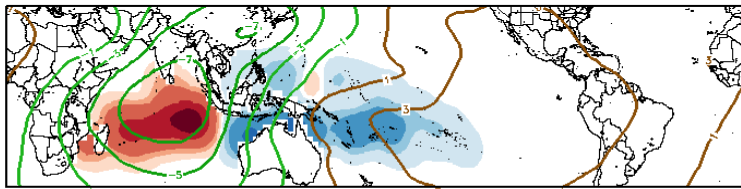
JFM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JFM CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



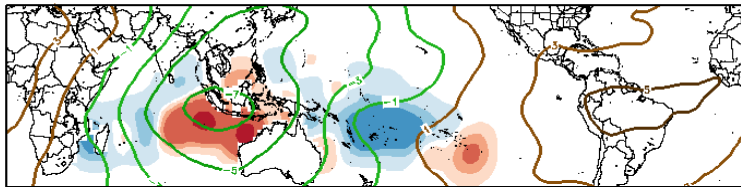
Phase 1



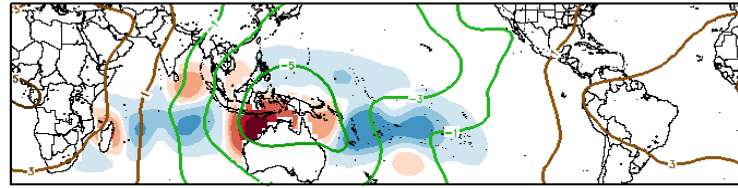
Phase 2



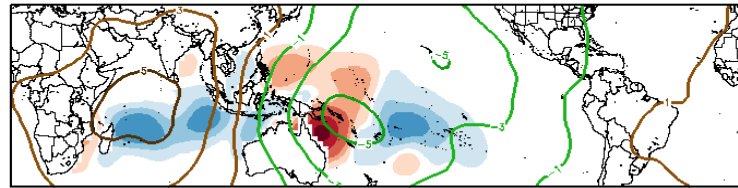
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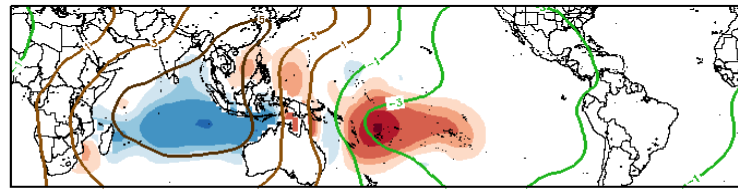
Phase 4



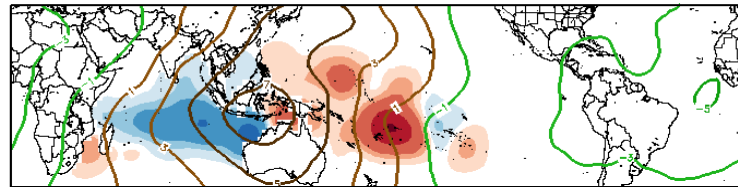
Phase 5



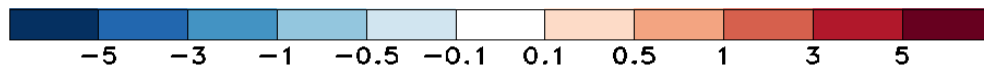
Phase 6



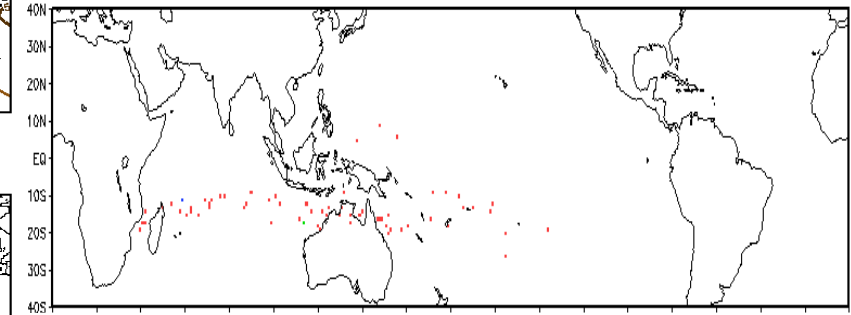
Phase 7



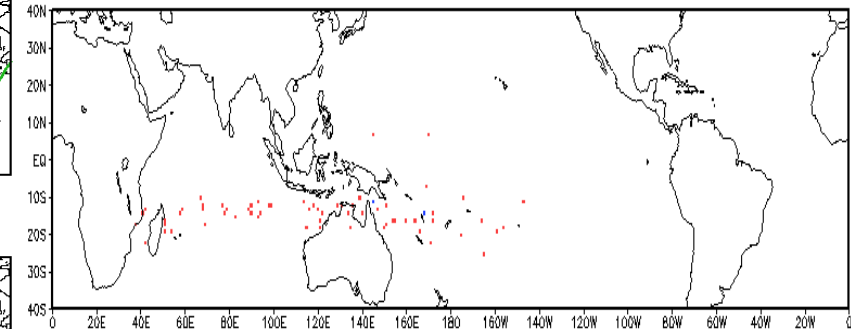
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0226 to 0304



Observed TC Genesis, 1979–2021
7-day Period 0305 to 0311

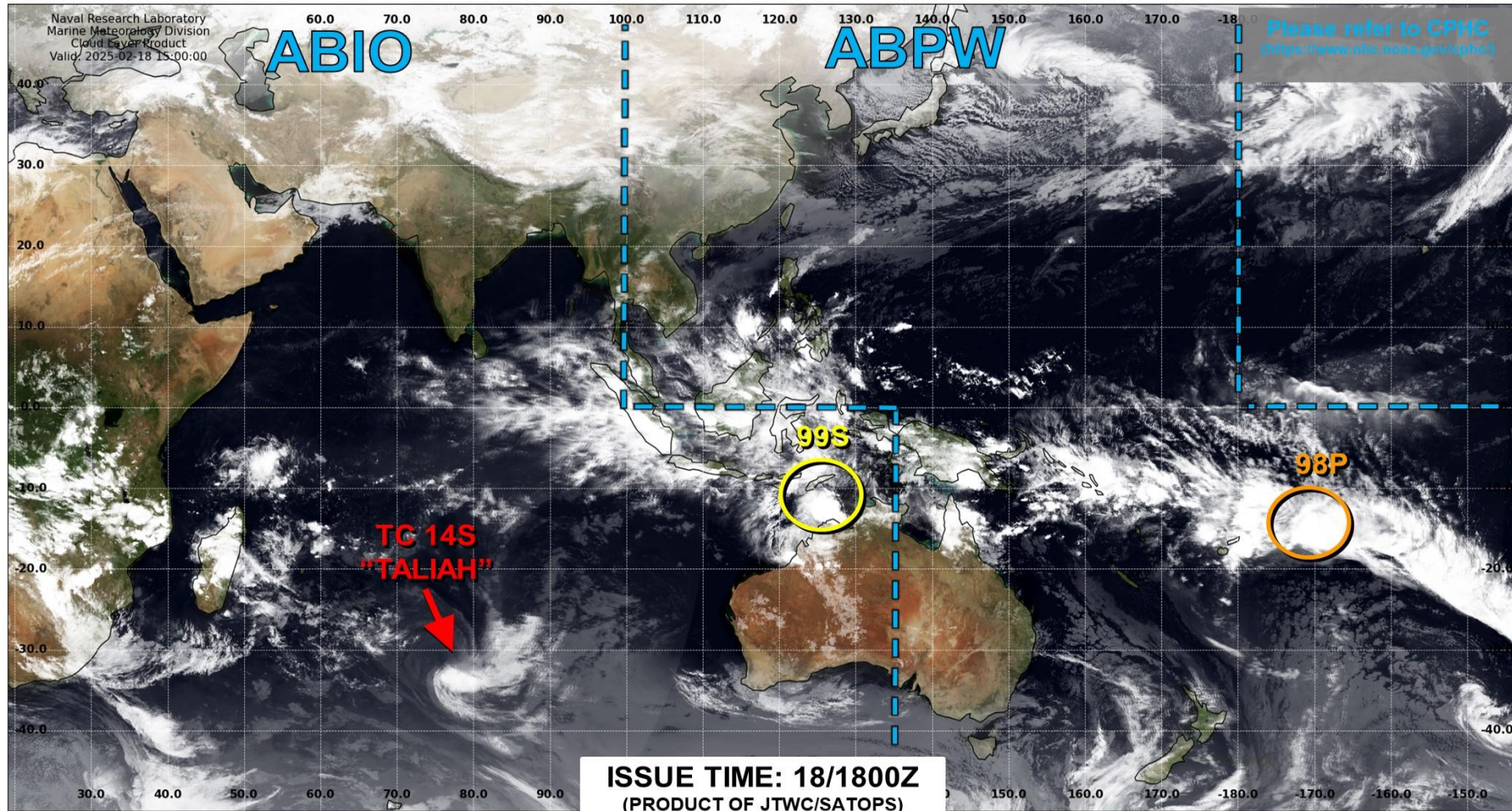


Experimental

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)

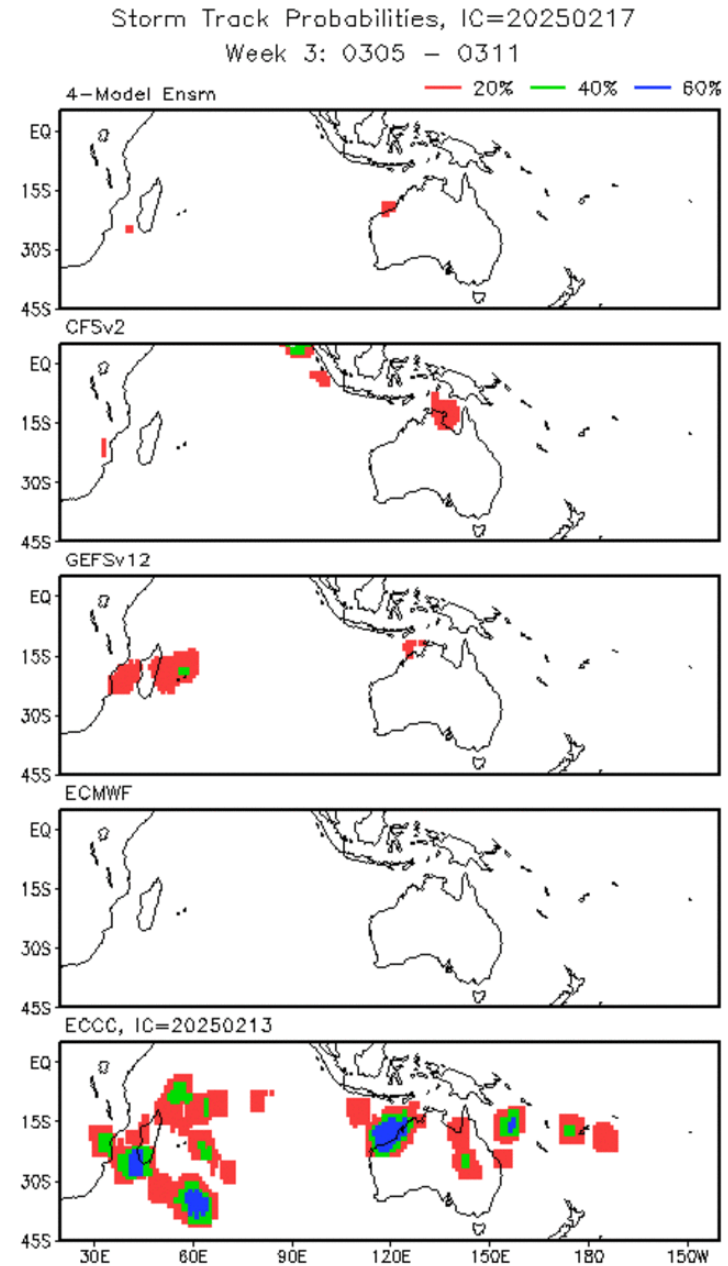
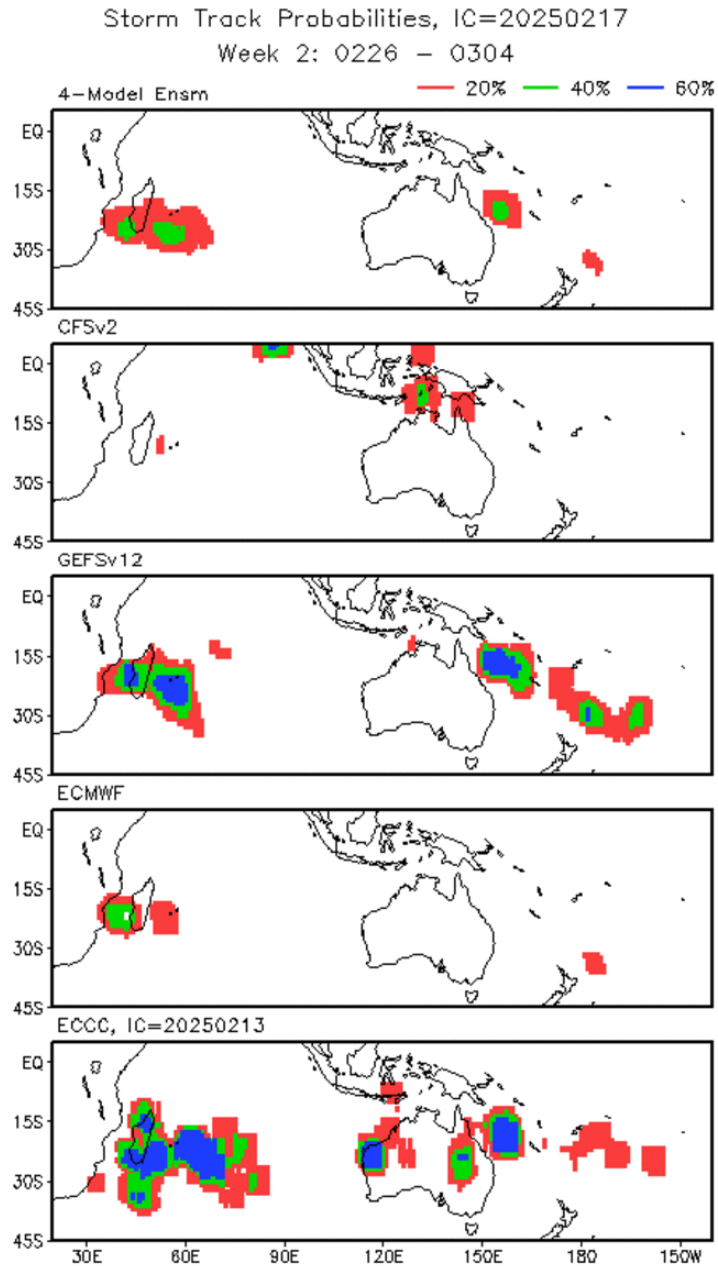


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



Tropical Cyclone (Reference Warning)

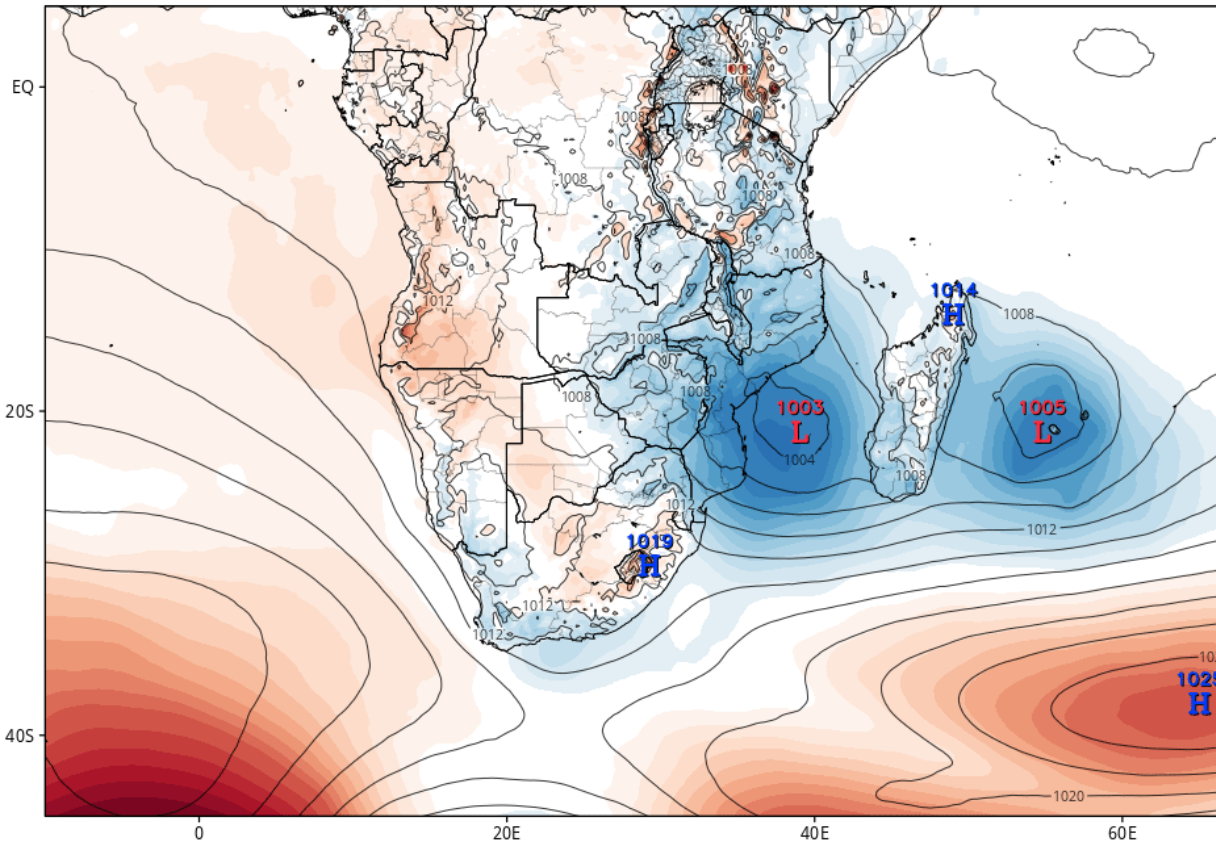
Multi-Model TC Track Probabilities: Weeks 2+3



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

Init: 00z Feb 18 2025 Forecast Hour: [156] valid at 12z Mon, Feb 24 2025

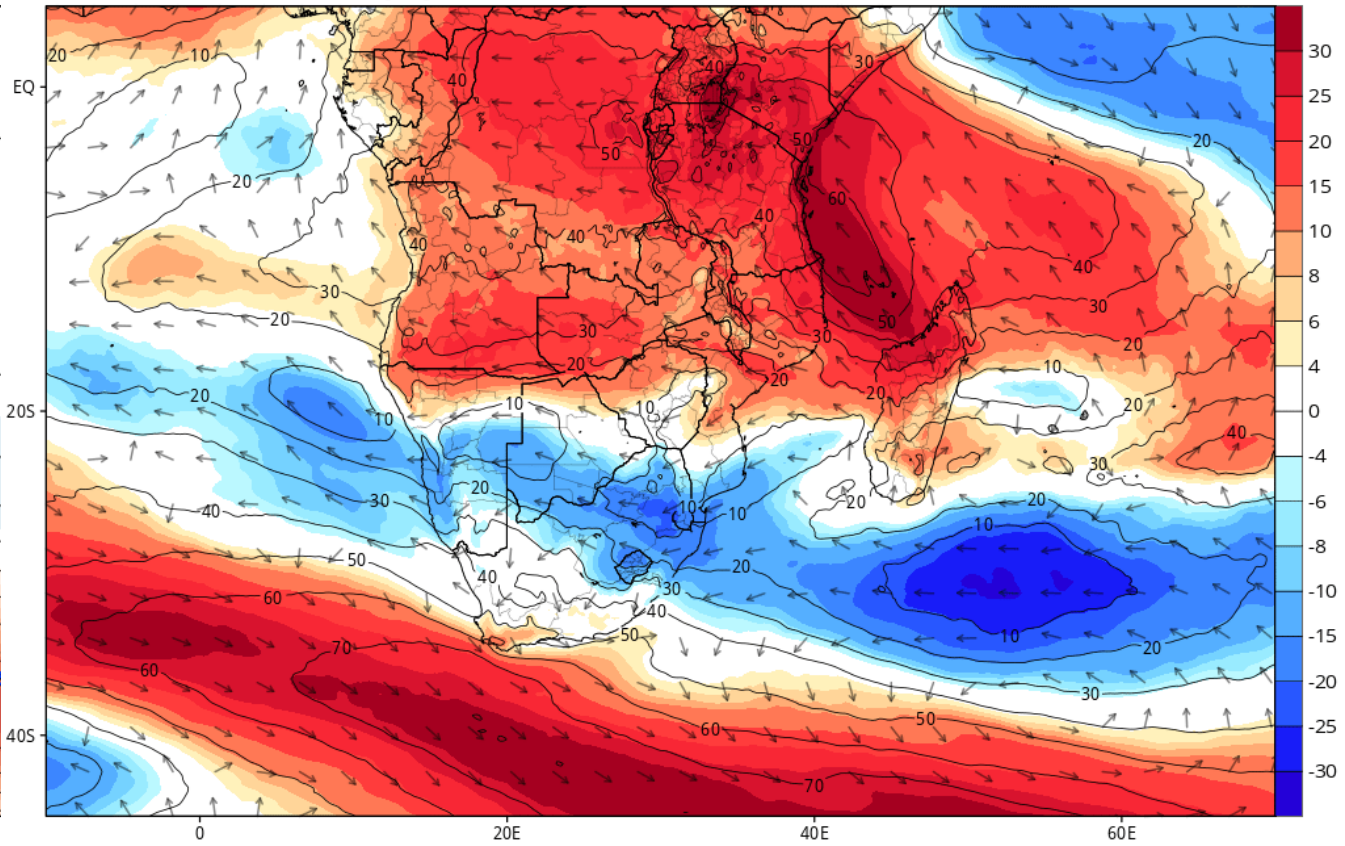
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EPS 850-200 hPa Bulk Shear (kt, contour) and Anomaly (kt, shaded/vector)

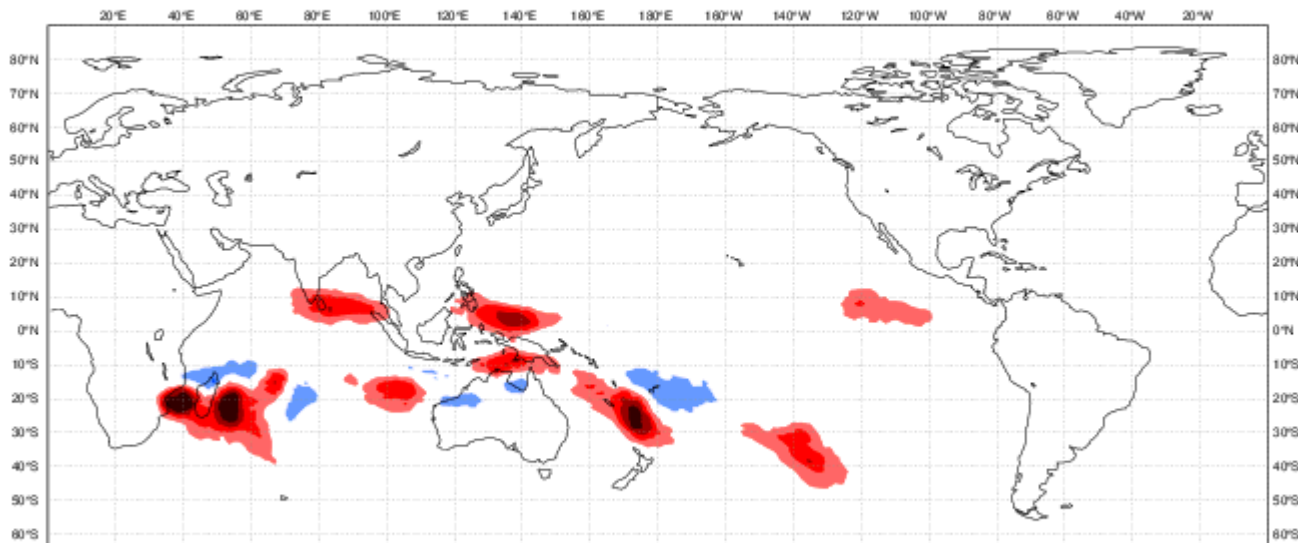
Init: 00z Feb 18 2025 Forecast Hour: [156] valid at 12z Mon, Feb 24 2025

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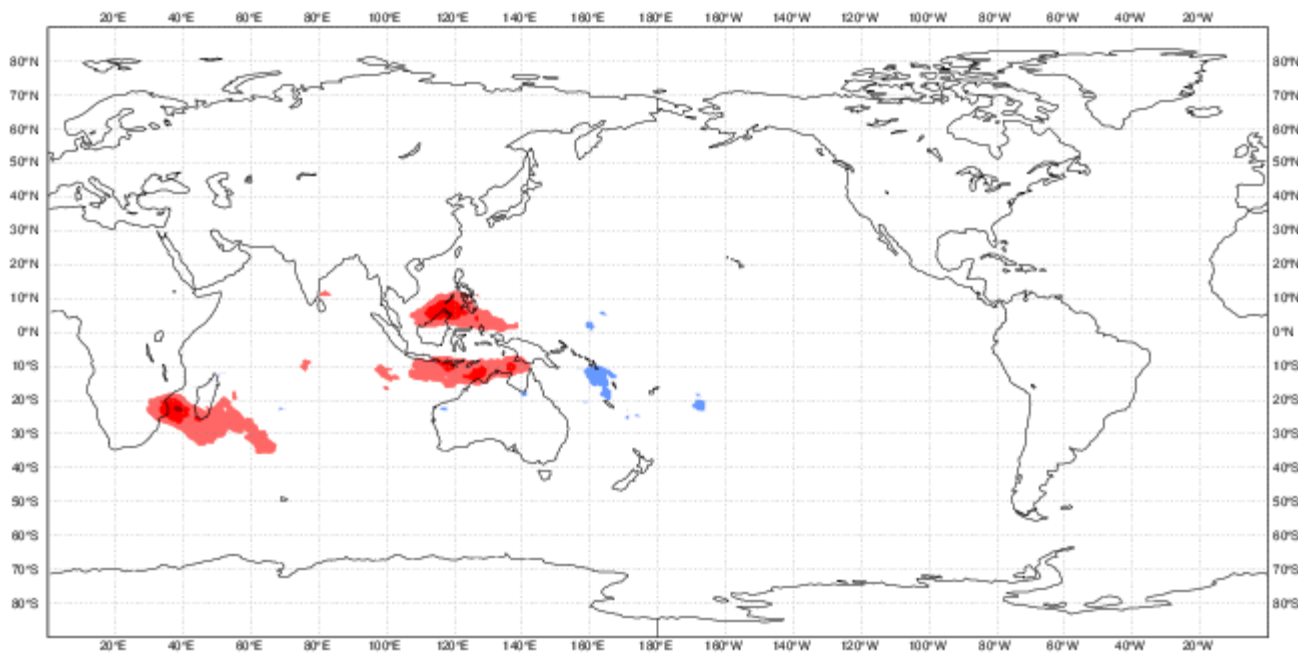
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20250217 0 UTC \pm (168-336)
Probability of a TC passing within 300km radius

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



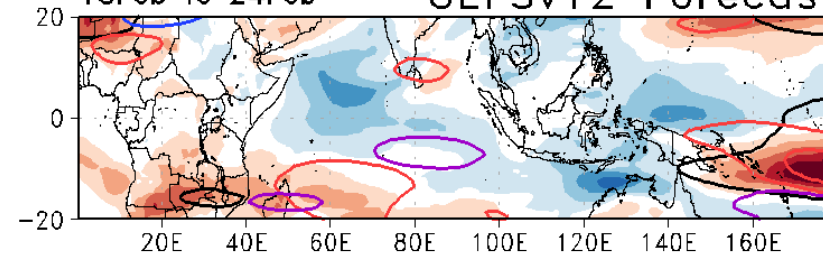
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20250217 0 UTC \pm (336-504)
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■ -100-40 ■ -40-30 ■ -30-20 ■ -20-10 ■ -10-10 ■ 10-20 ■ 20-30 ■ 30-40 ■ 40-100

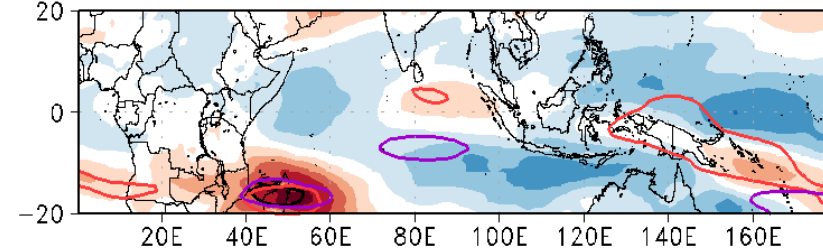


7-Day Means

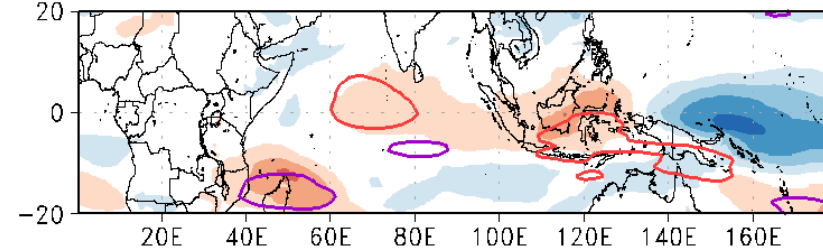
18Feb to 24Feb GEFSv12 Forecast



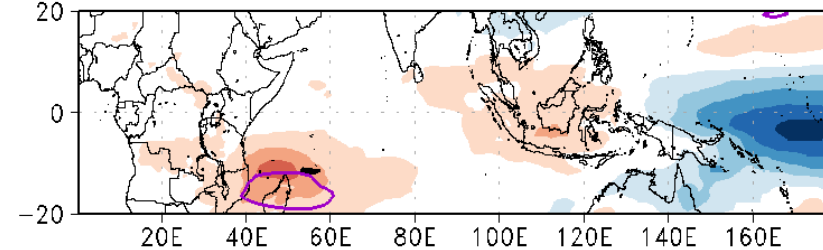
25Feb to 03Mar



04Mar to 10Mar



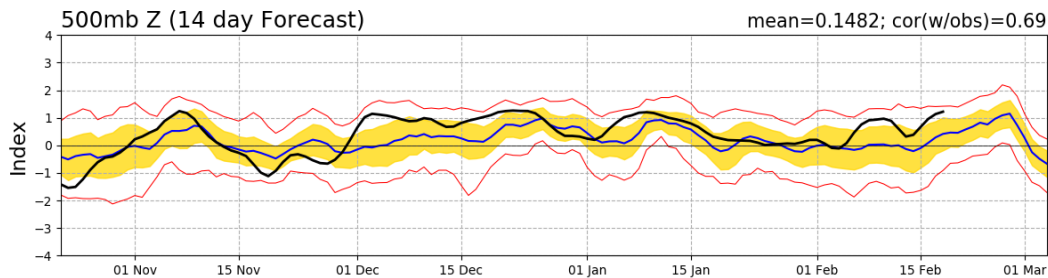
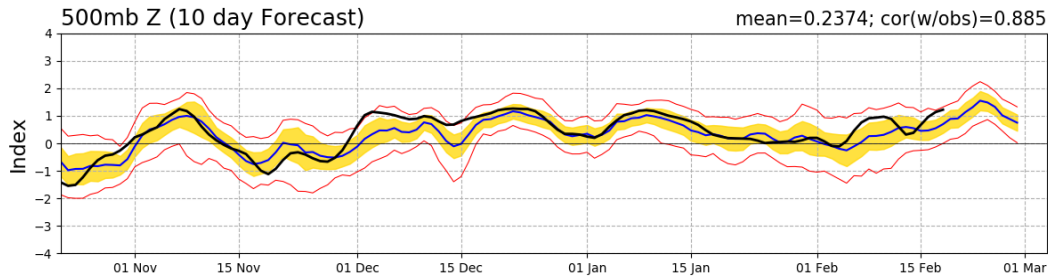
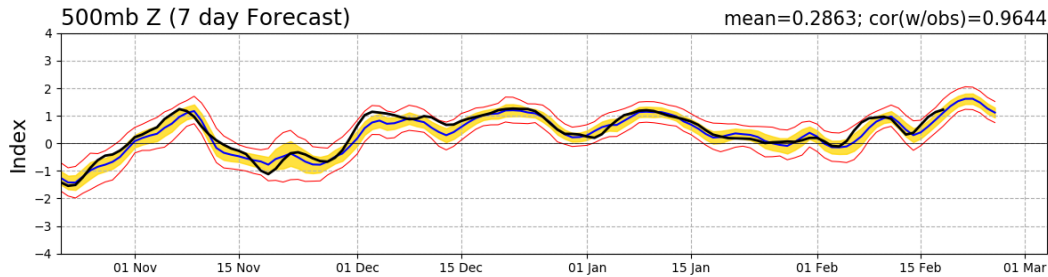
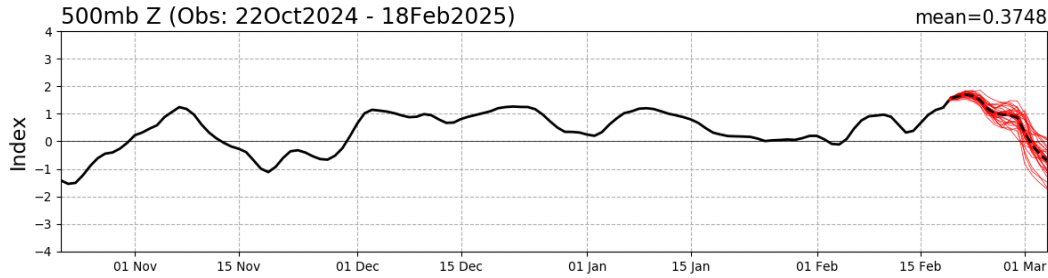
11Mar to 17Mar



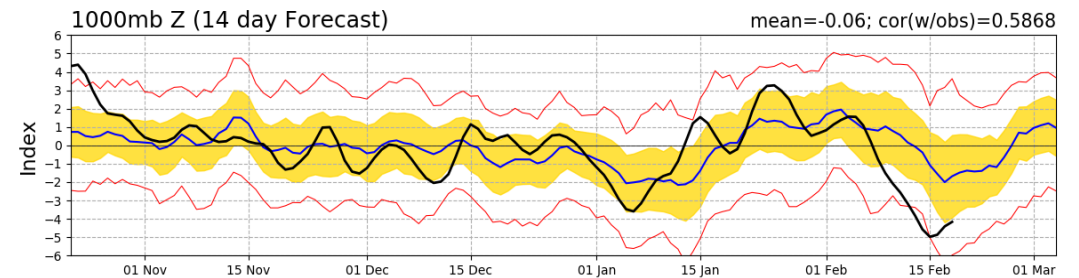
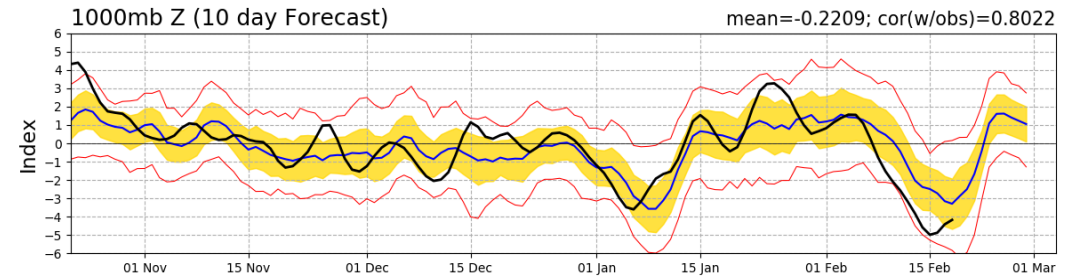
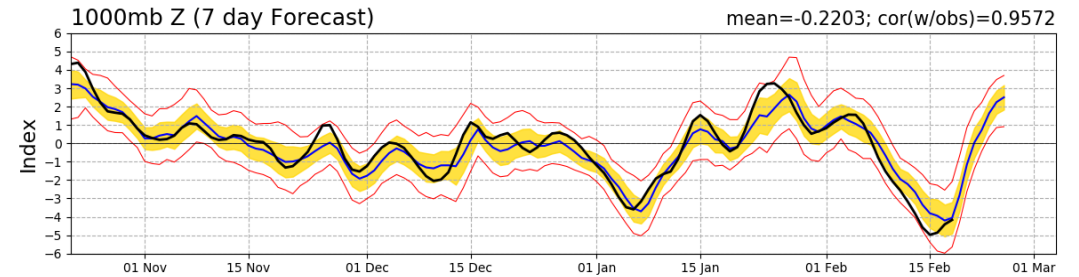
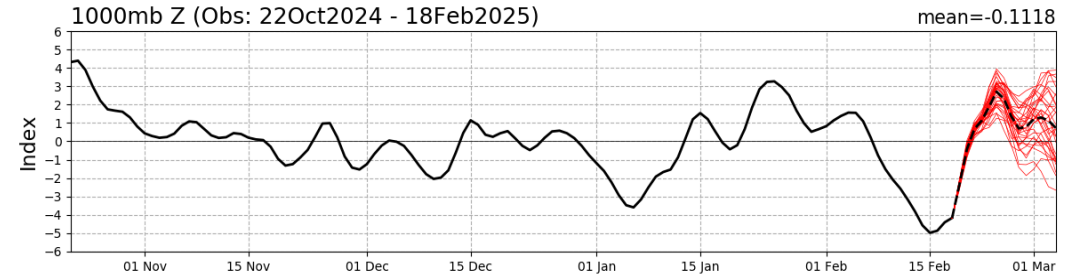
— MJO — Kelvin*2
— Low — ER
Contours at 2, 6 m s⁻¹

Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts



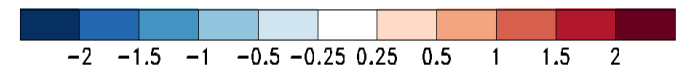
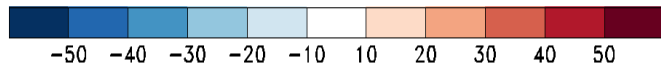
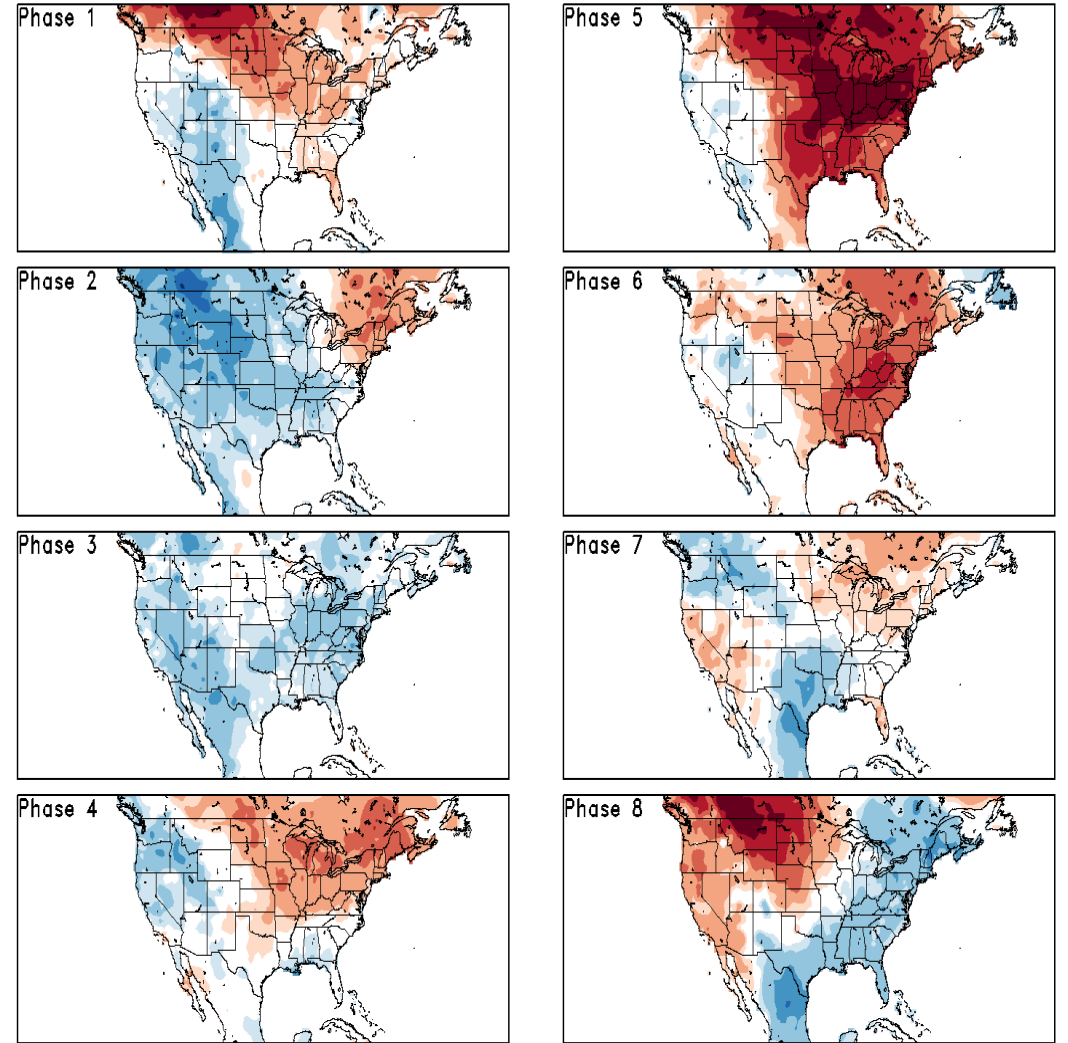
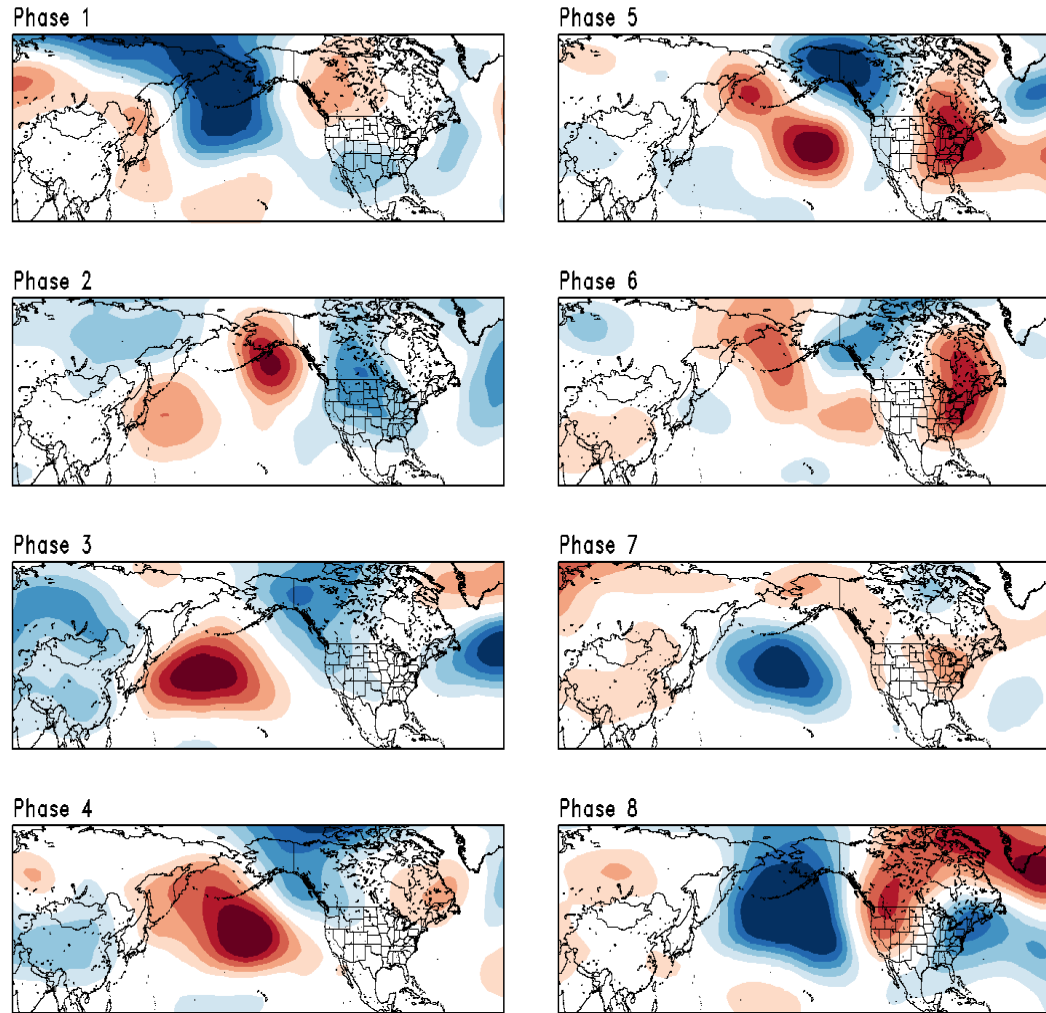
AO Index: Observed & GEFS Forecasts



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

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

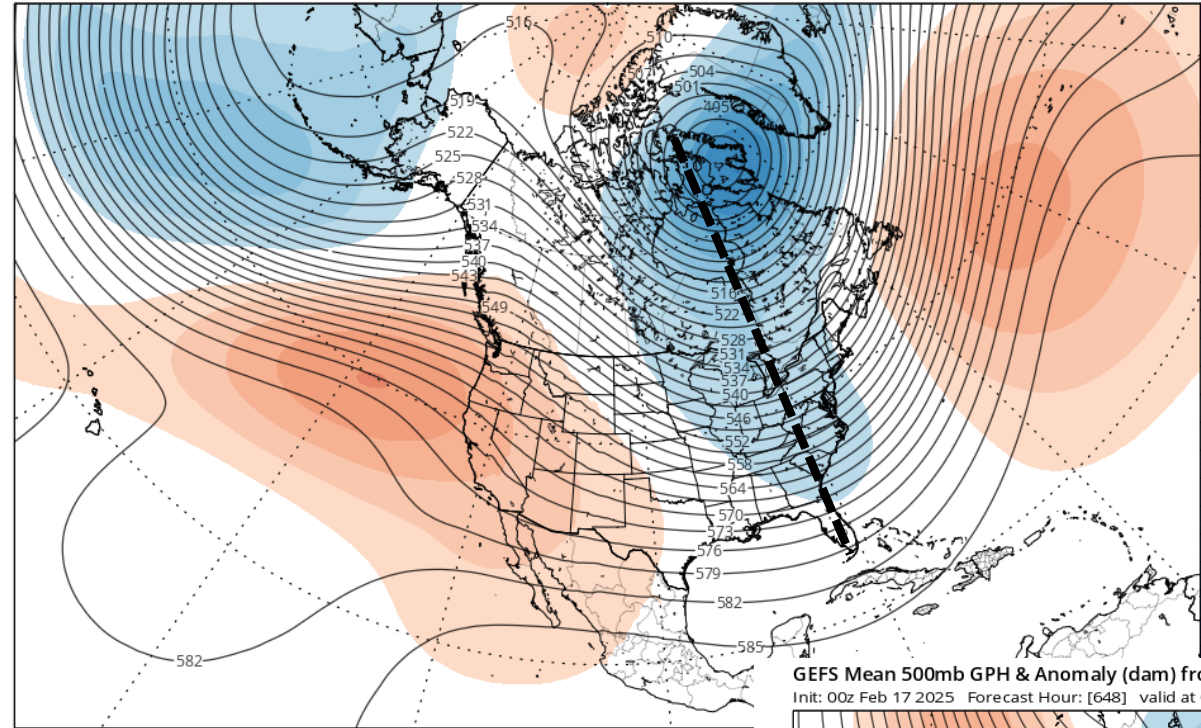
JFM MJO Composite: GLBT (degC)



GEFS Mean 500mb GPH & Anomaly (dam) from 00z25Feb2025 to 00z02Mar2025 (Days 9-13)

Init: 00z Feb 17 2025 Forecast Hour: [312] valid at 00z Sun, Mar 02 2025

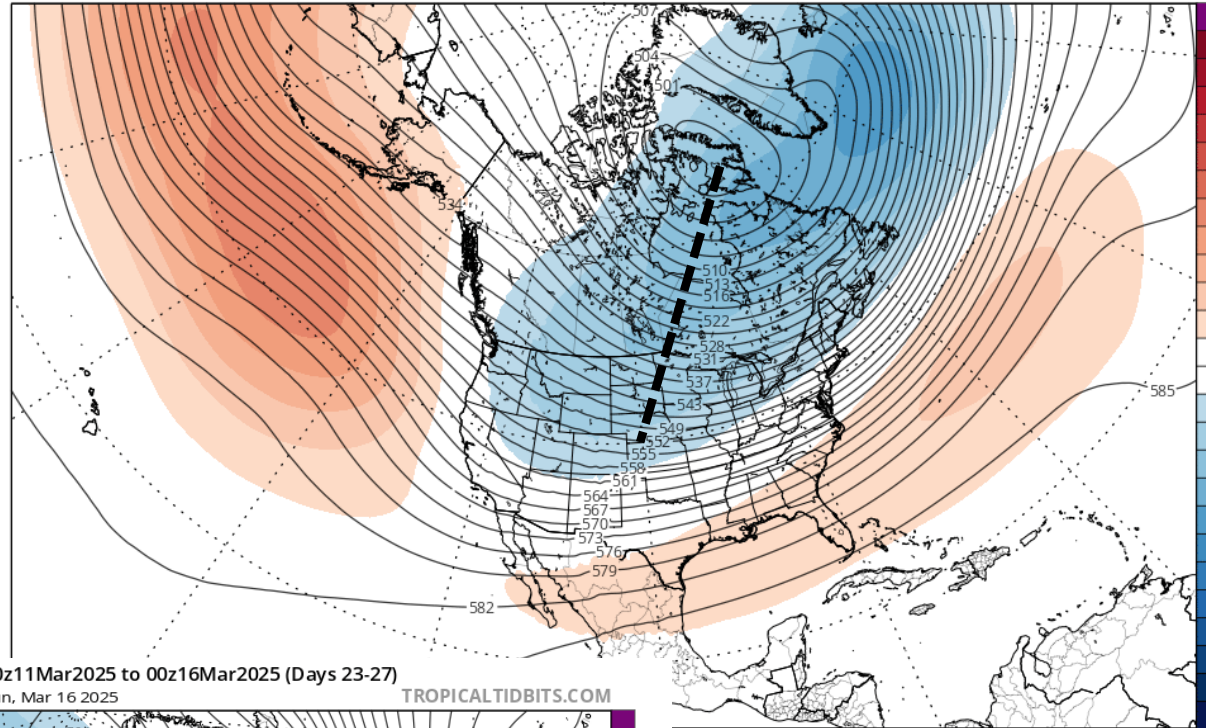
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GEFS Mean 500mb GPH & Anomaly (dam) from 00z03Mar2025 to 00z08Mar2025 (Days 15-19)

Init: 00z Feb 17 2025 Forecast Hour: [456] valid at 00z Sat, Mar 08 2025

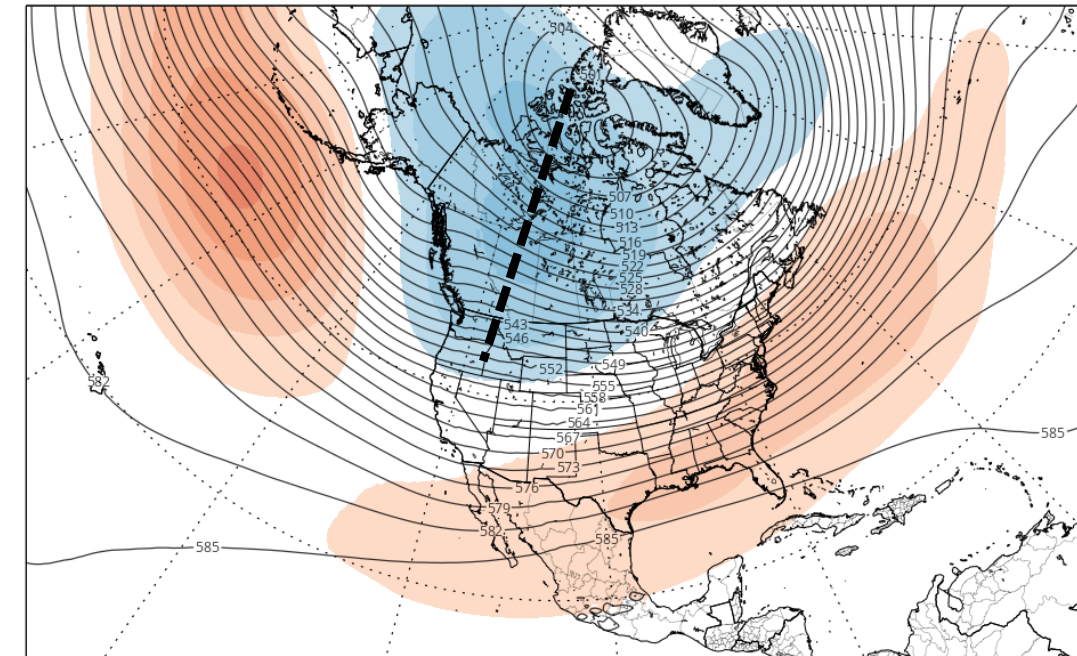
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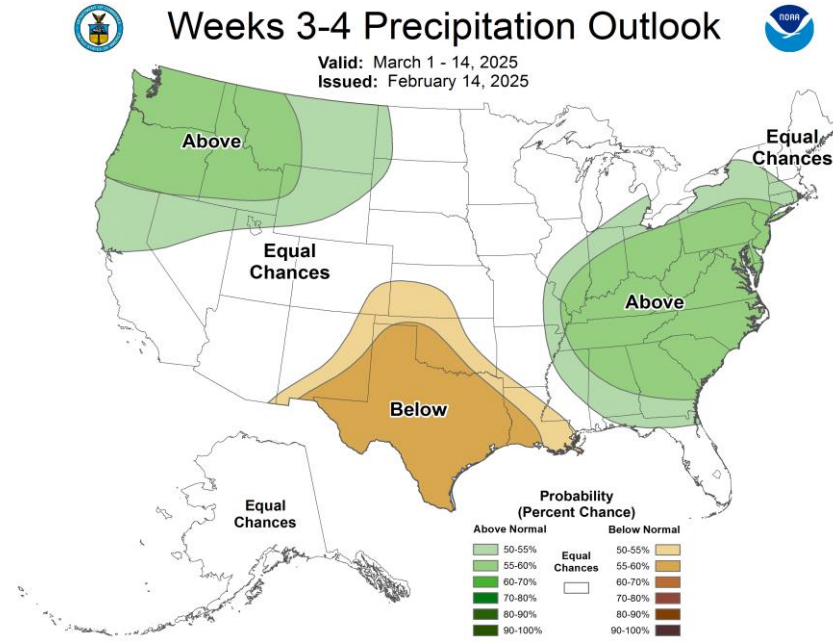
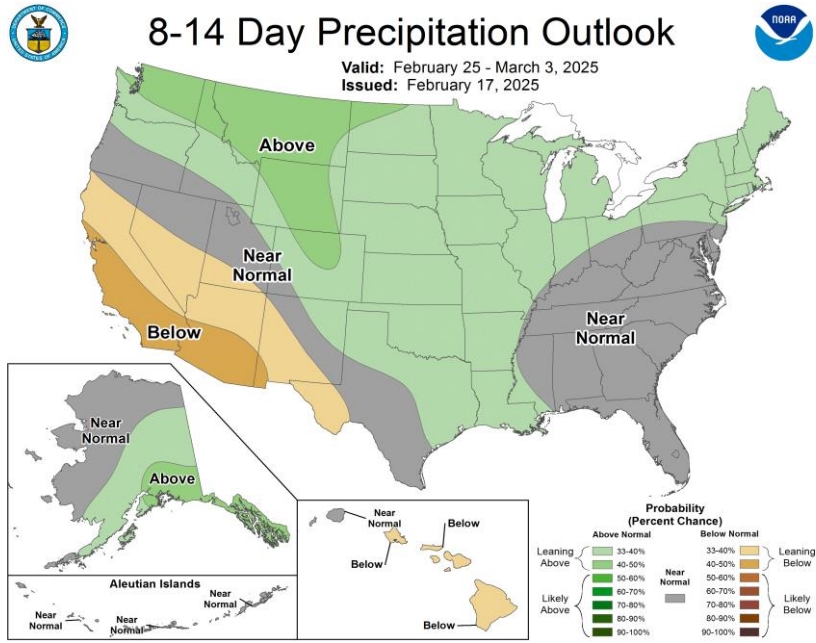
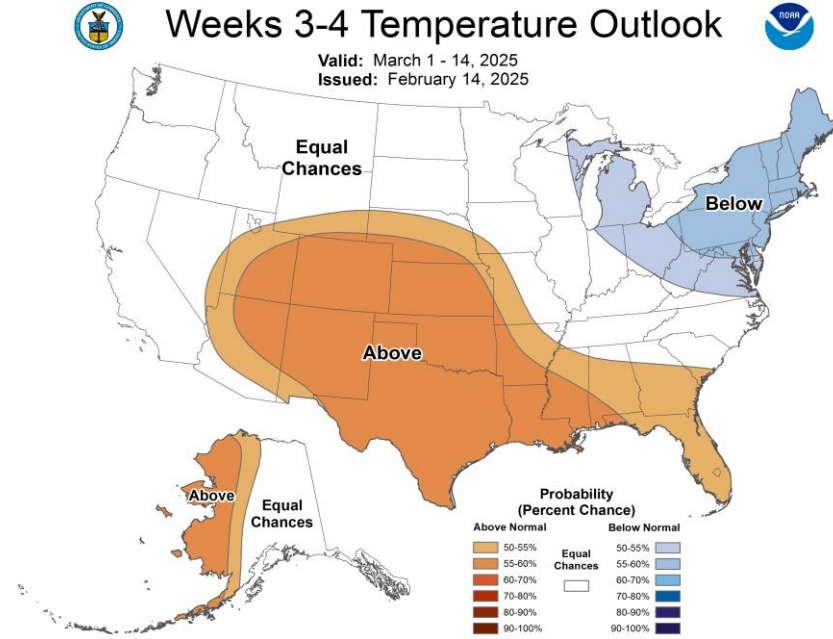
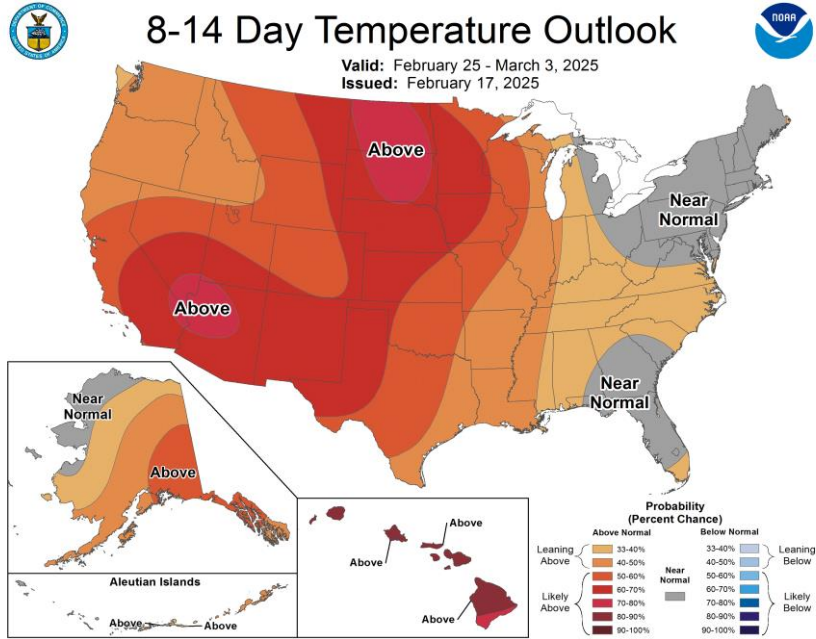
GEFS Mean 500mb GPH & Anomaly (dam) from 00z11Mar2025 to 00z16Mar2025 (Days 23-27)

Init: 00z Feb 17 2025 Forecast Hour: [648] valid at 00z Sun, Mar 16 2025

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Official Temperature & Precipitation Forecasts:



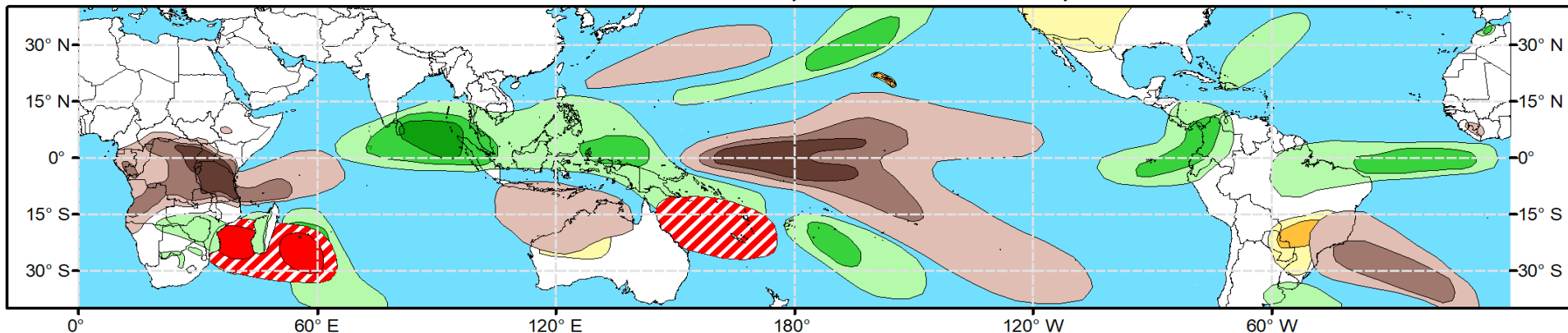


Global Tropics Hazards Outlook

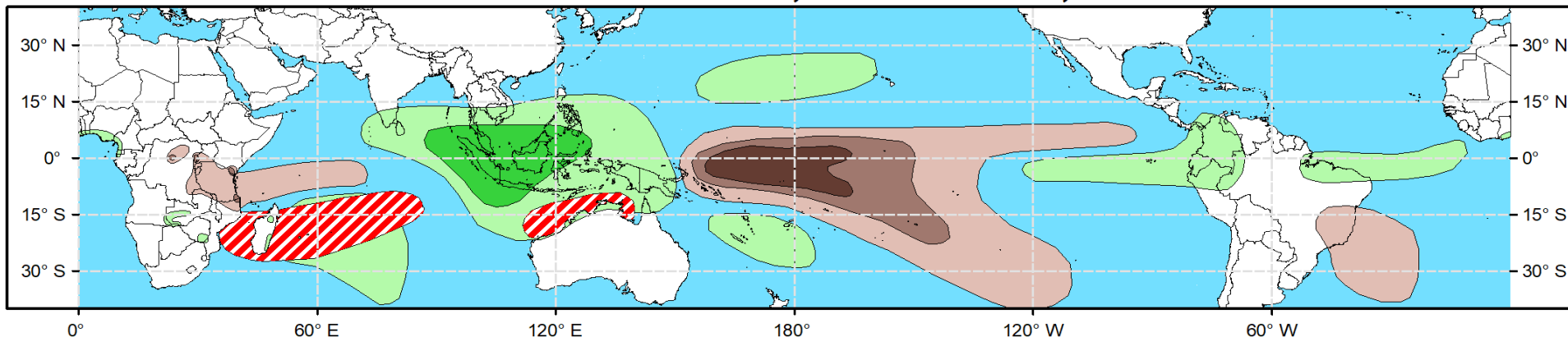
Climate Prediction Center



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