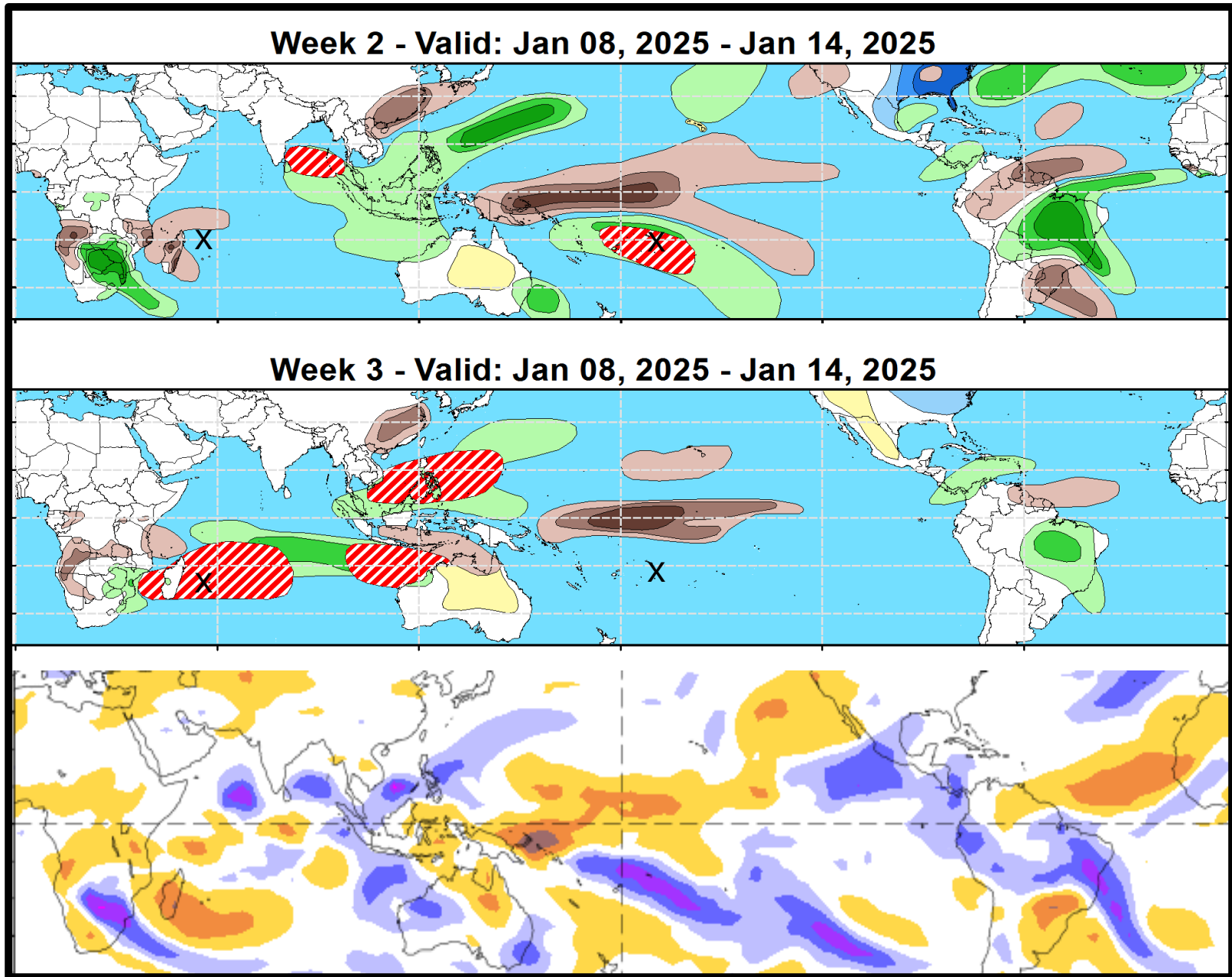
Weeks 2-3 Global Tropics Hazards Outlook

1/14/2023

Nick Novella
NWS / NCEP / Climate Prediction Center

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

- SPAC: Pita (1/11)
- SIO: Dikeledi (1/9)



Synopsis of Climate Modes:

ENSO: (Jan 9, 2024 Update) ***next update on Thursday, Feb 13th***

- ENSO Alert System Status: La Niña Advisory

- La Niña conditions are *present* and are expected to persist through Feb-Apr 2025 (59% chance), with a transition to ENSO-neutral likely during Mar-May 2025 (60% chance)

MJO and other subseasonal tropical variability:

- Following a brief period where the MJO became disorganized, subseasonal activity has become more coherent over the Western Hemisphere.

- Looking ahead, there is excellent agreement among the models favoring a high amplitude MJO event that propagates from the Western Hemisphere, across the Indian Ocean and into the Maritime Continent towards the end of January.

- Given constructive interference with other tropical modes, the large scale environment is expected to be favorable for Tropical Cyclone (TC) development in the Indian Ocean, with decreased chances for genesis in the South Pacific.

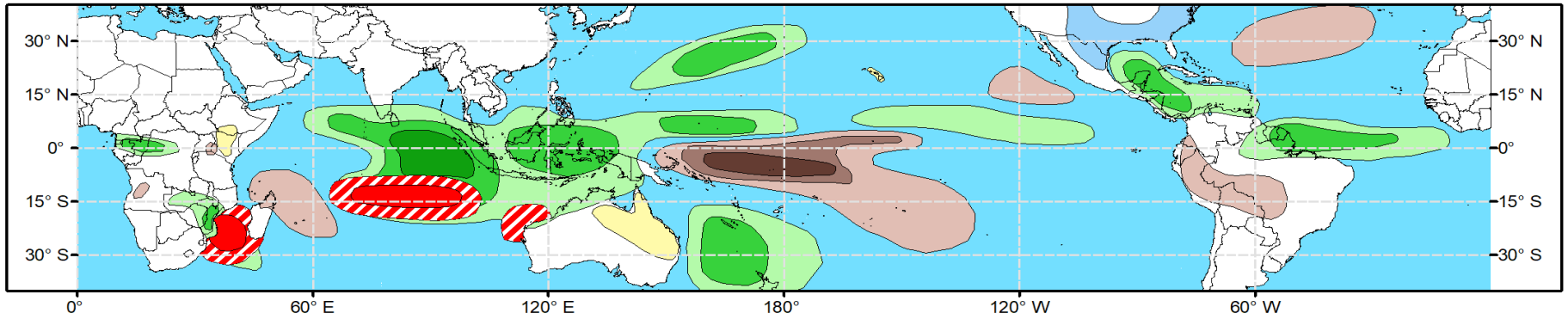
- High amplitude Indian Ocean and Maritime Continent wintertime MJO events historically bring a warmer temperature response over portions of the CONUS, but this is somewhat at odds with the model guidance.

GTH Outlook:

Global Tropics Hazards Outlook

Climate Prediction Center

Week 2 - Valid: Jan 22, 2025 - Jan 28, 2025



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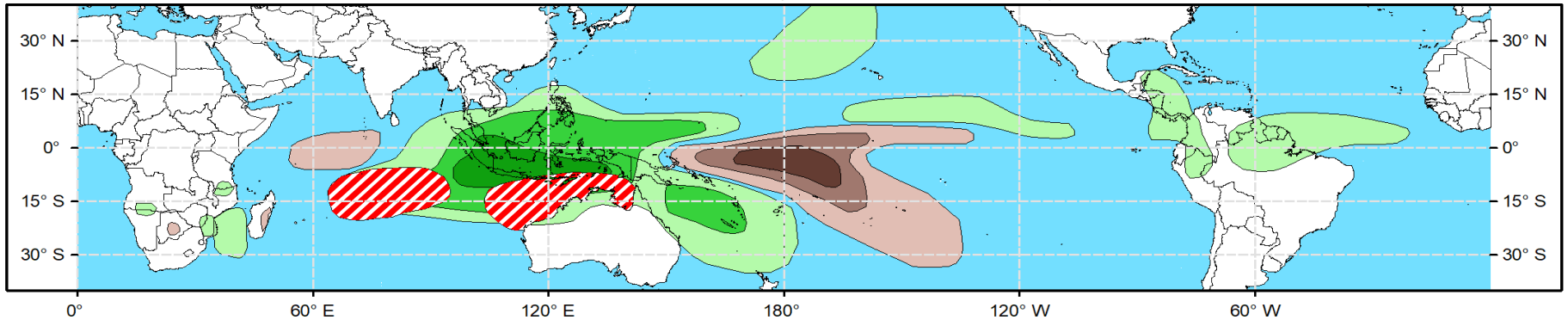

Tropical Cyclone (TC) Formation Probability

>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

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

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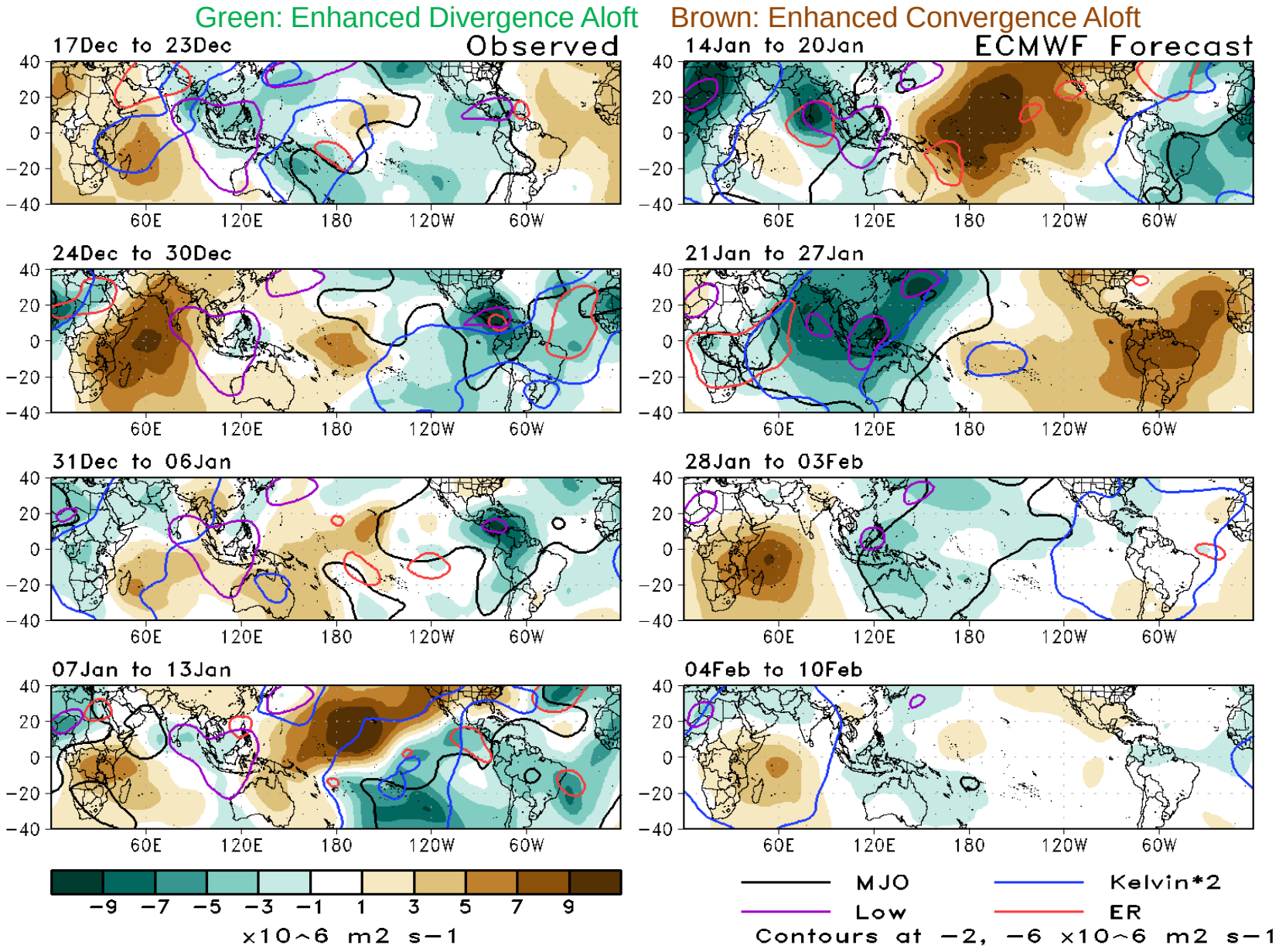
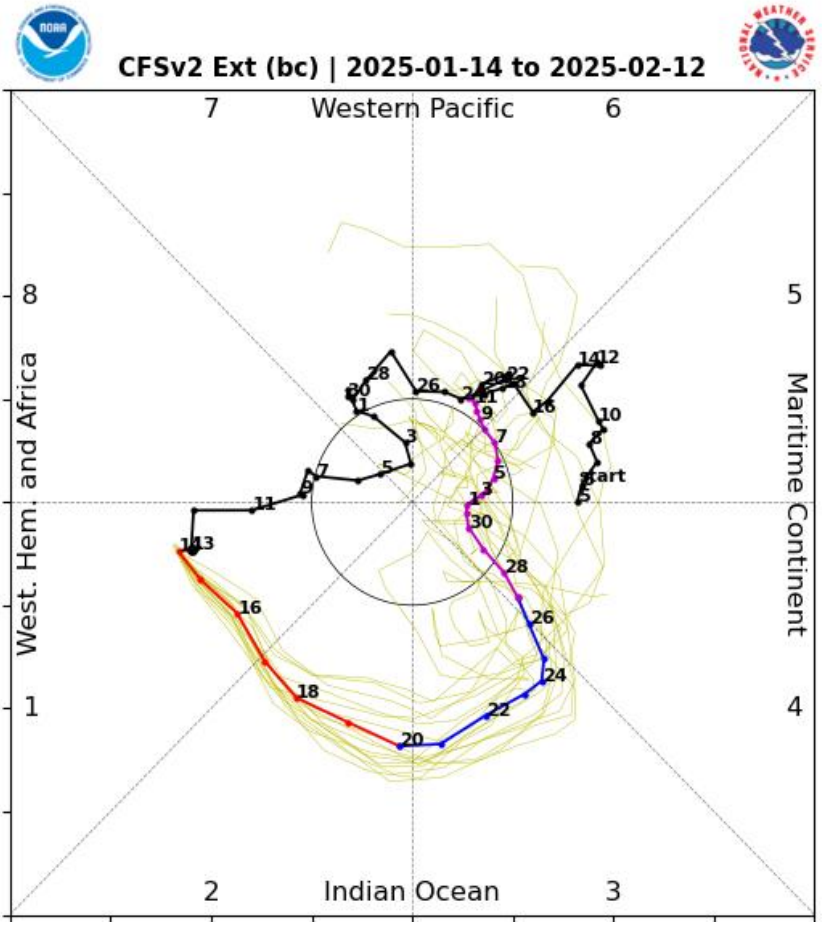
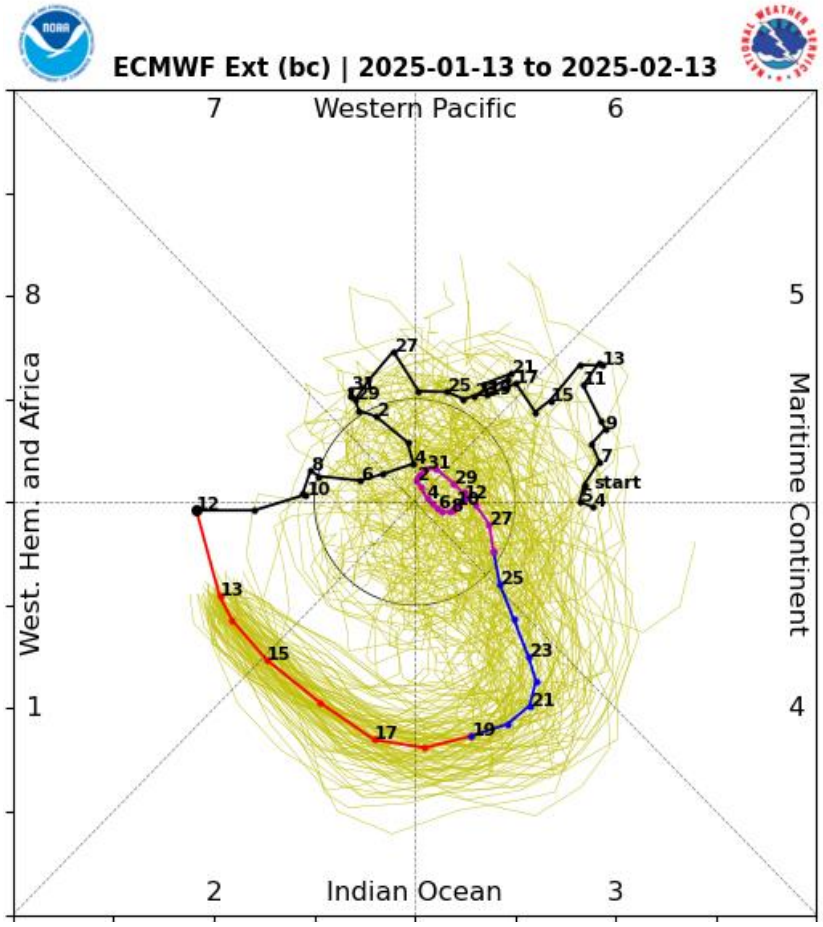
200-hPa Velocity Potential Anomaly Maps:

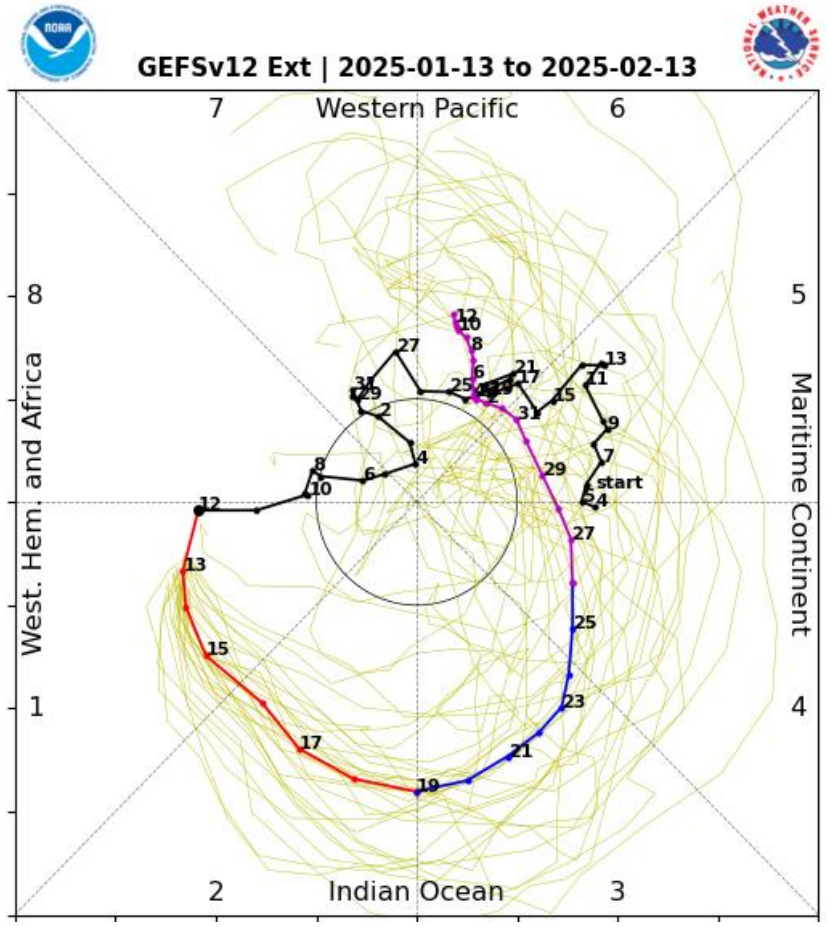
- The upper-level pattern became disorganized during early January, but has since show signs of reorganizing.
- This reorganizing is coupled with **Kelvin** Wave activity, which is aiding in the strengthening amplitude of the **MJO** recently.
- As the **MJO** propagates into the Indian Ocean and Maritime Continent, it looks to also constructively interfere with both **Rossby** Wave activity and the **Low Frequency** signals tied to the emerging La Nina.



RMM Index Observations & Forecasts:

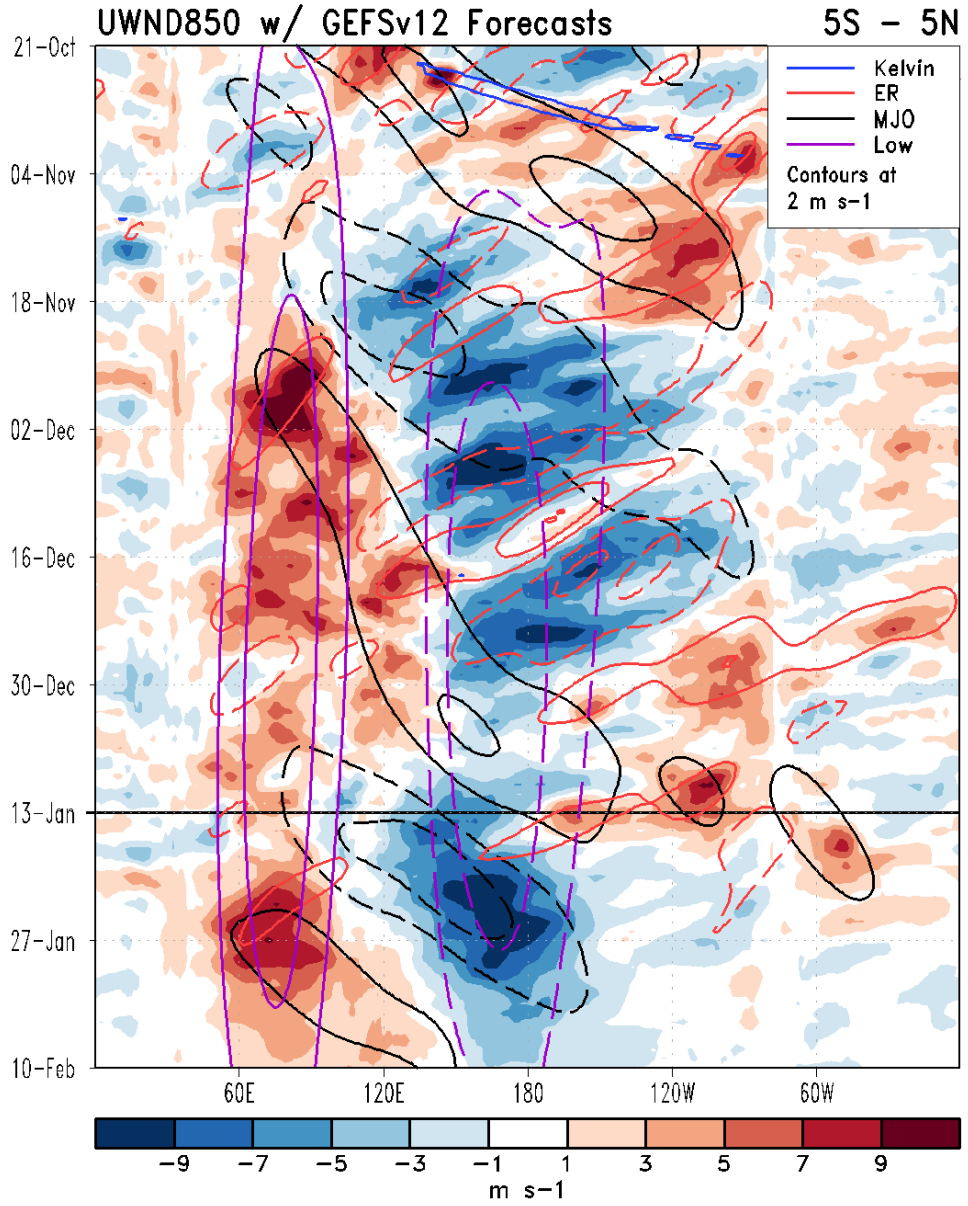


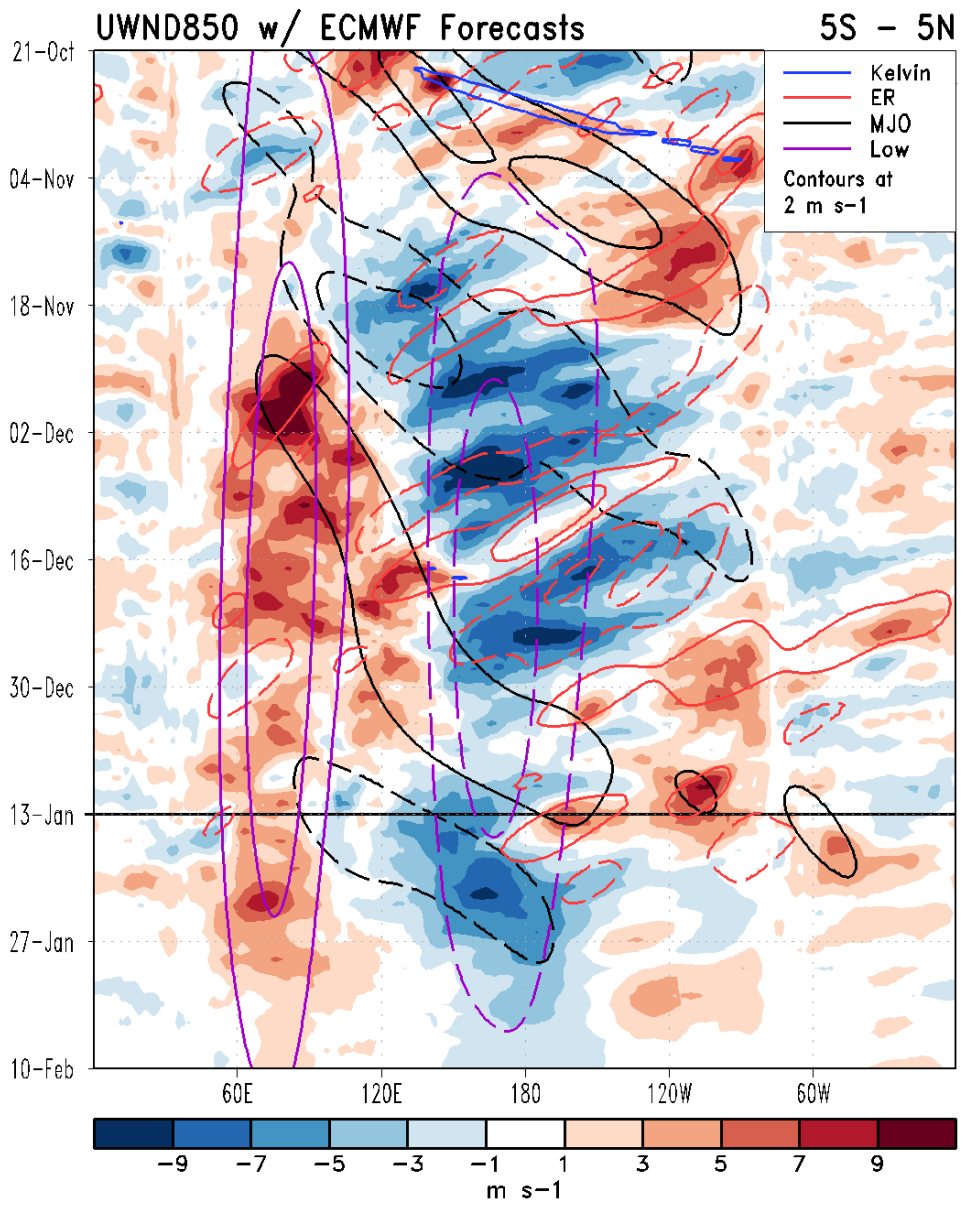




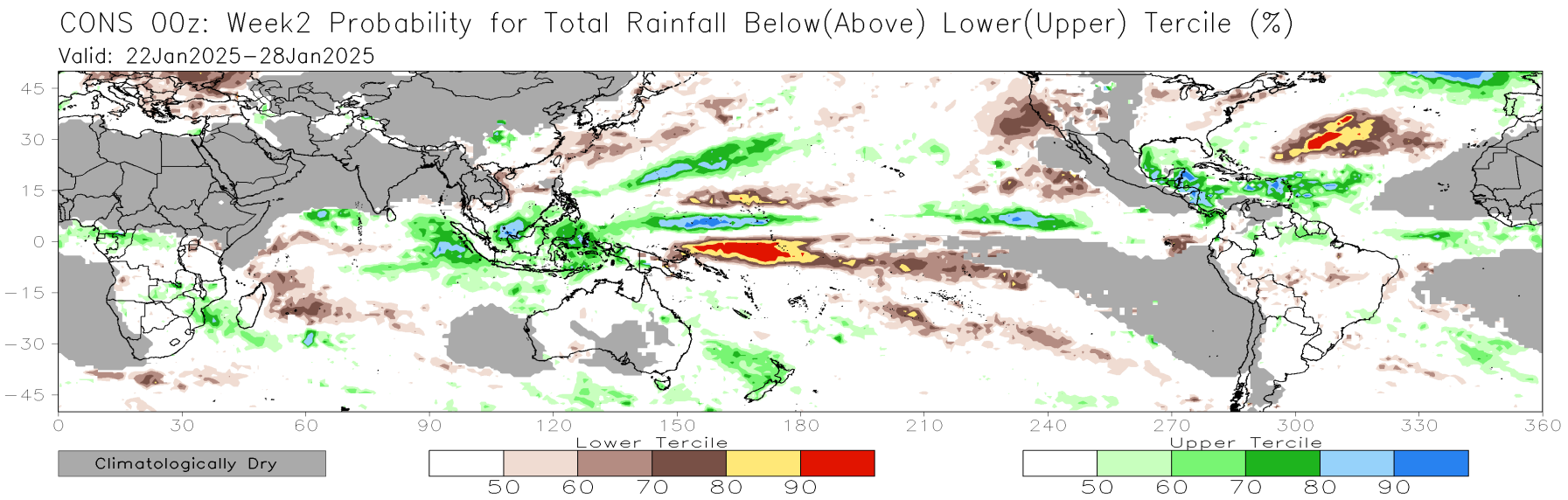
- In addition to the high amplitude consensus among the models, there is an accelerated eastward propagation of the MJO signal, which points to Convectively Coupled Kelvin Wave activity at play (as supported by the previous objectively filtered velocity potential maps)
- By week-3, there is some uncertainty in regards to amplitude of the MJO, but all models favor continued eastward propagation into the Western Pacific by early February.

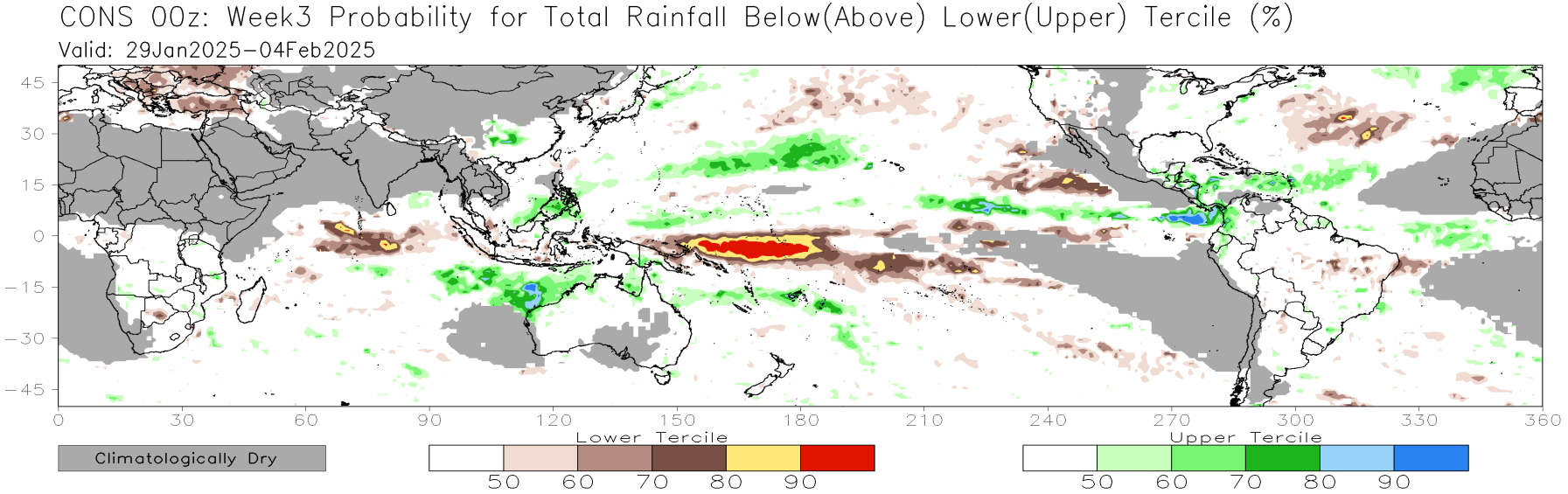
Zonal Lower-level Wind Anomaly Time/Lon Plots:



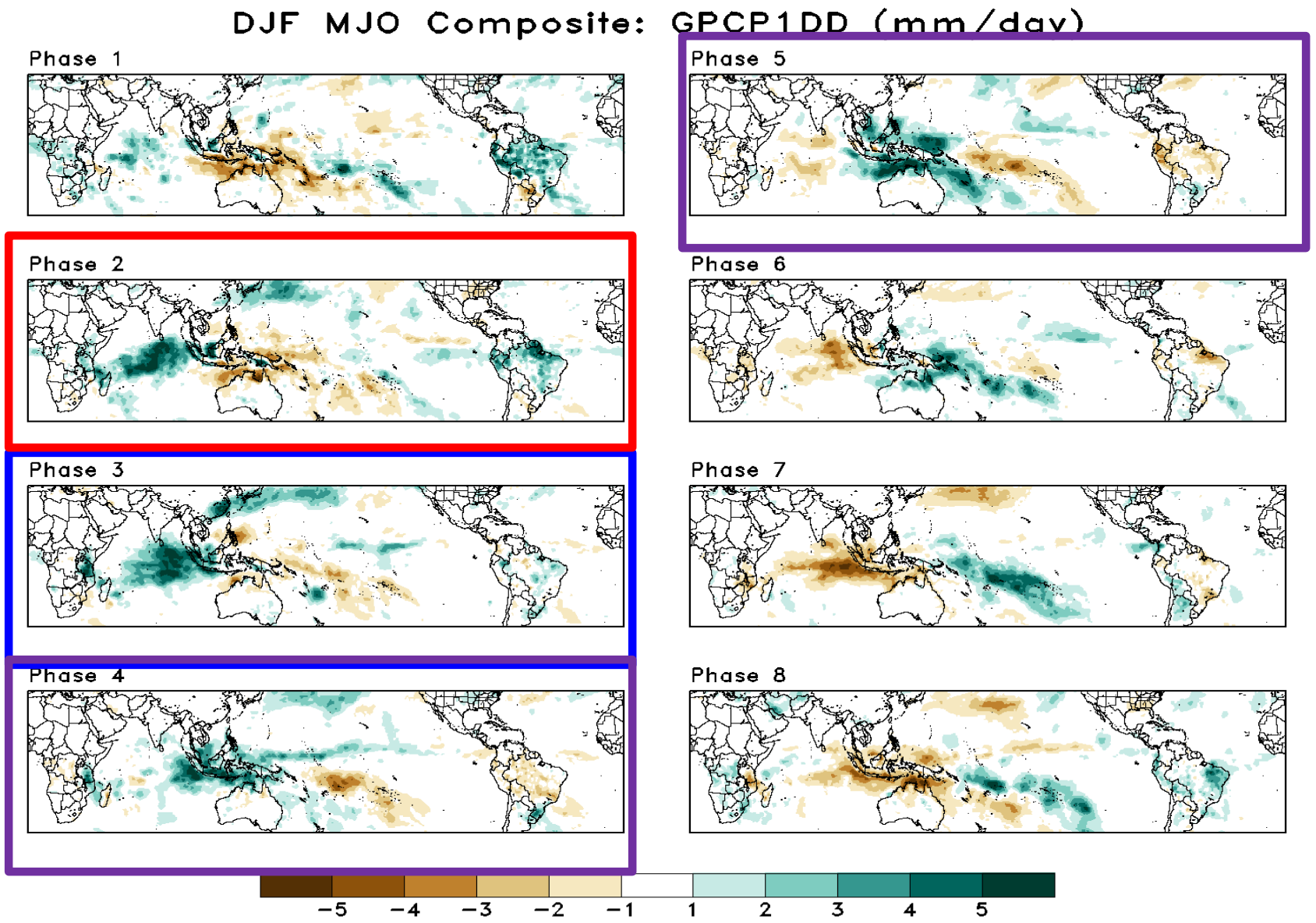


Consolidated Probabilistic Precipitation: Weeks 2 & 3

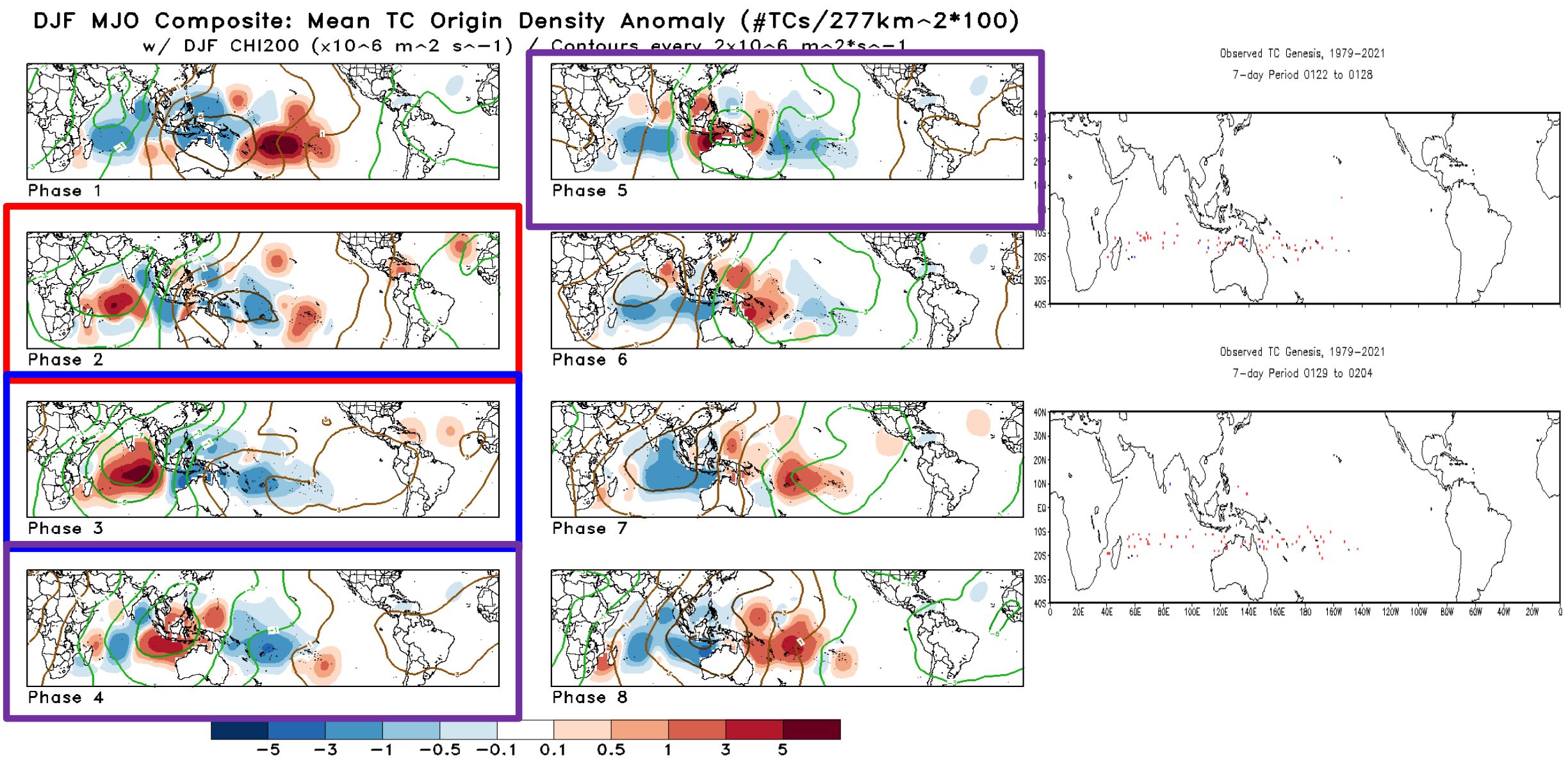




Historical Precipitation Anomalies By MJO Phase:

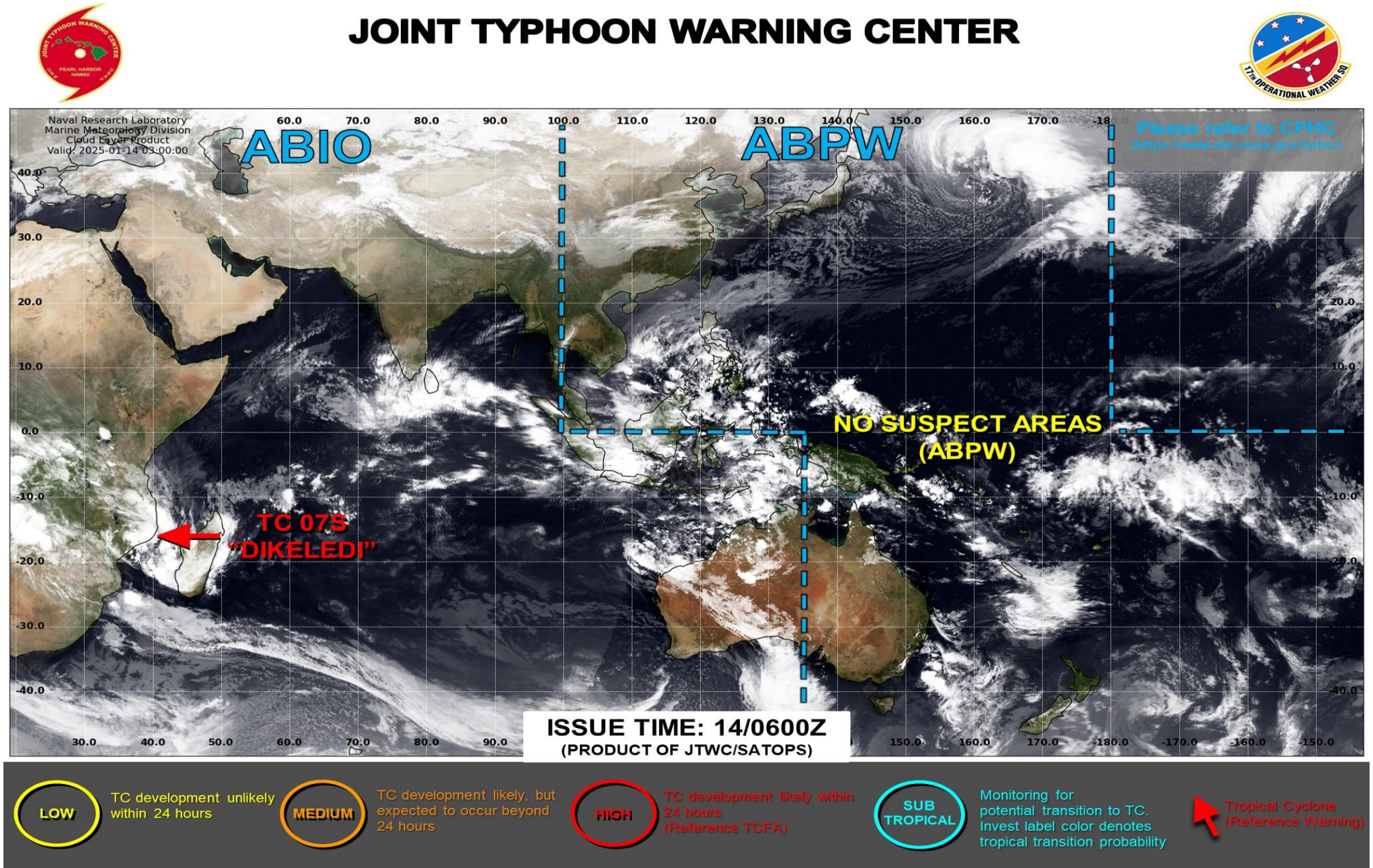


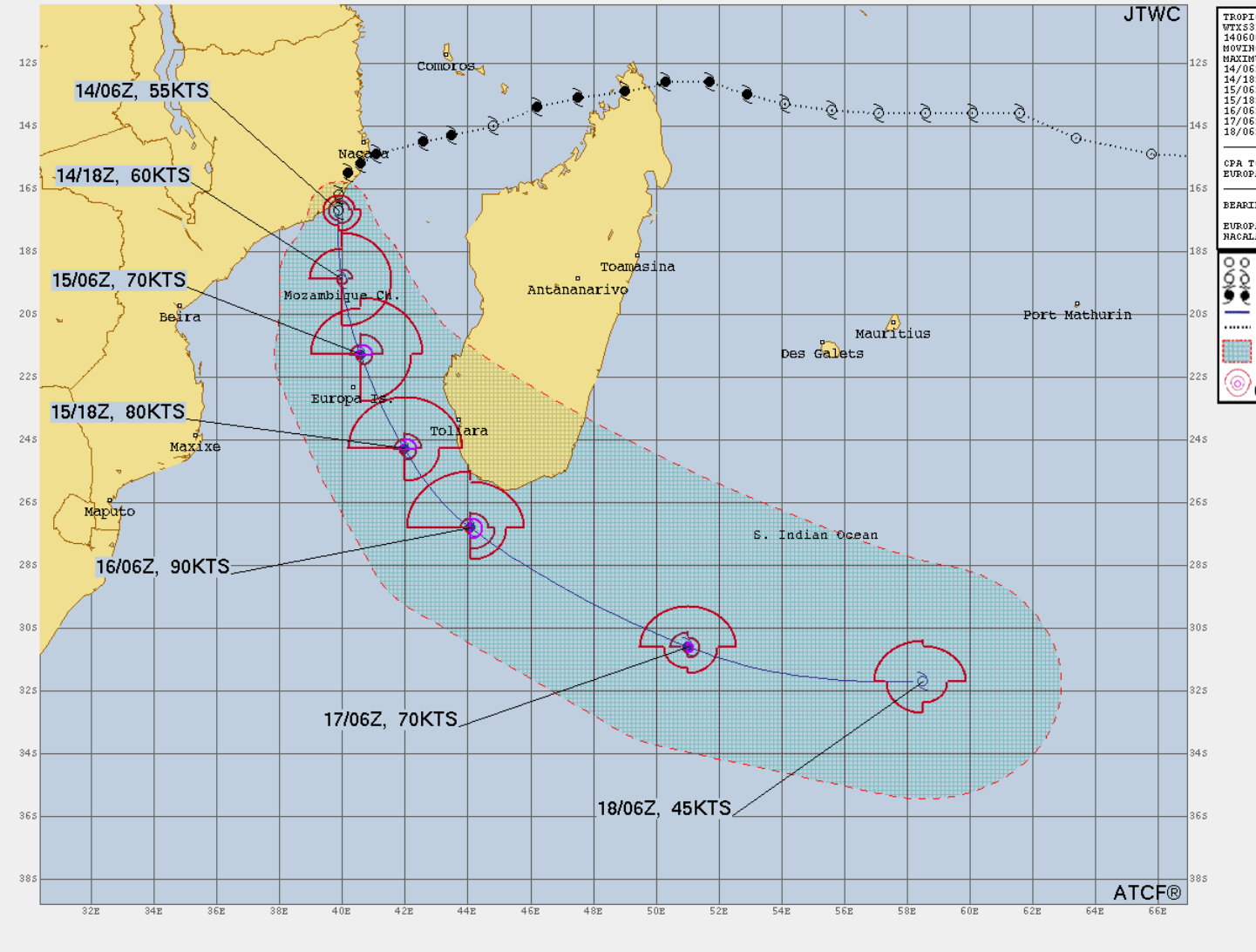
Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:



Experimental

Tropical Cyclone Monitoring/Forecast: JTWC



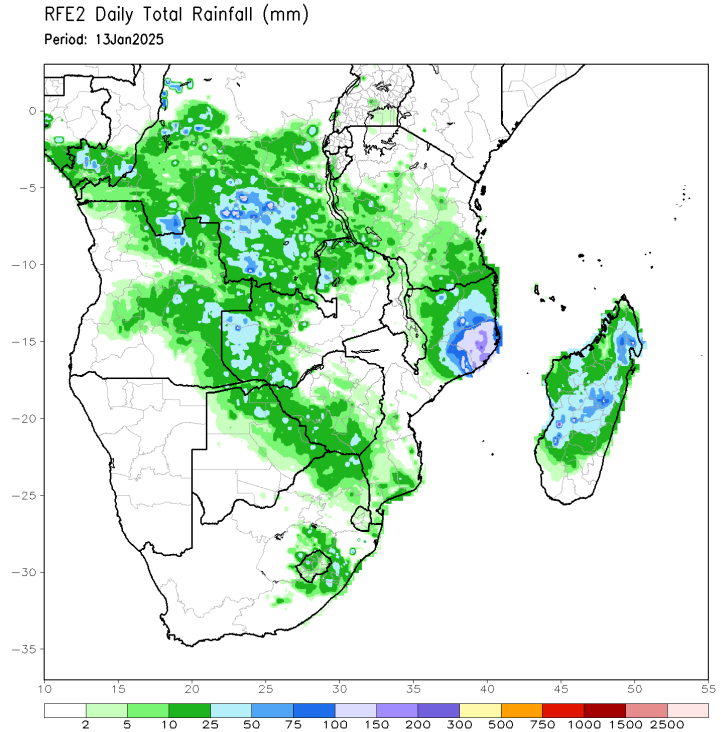


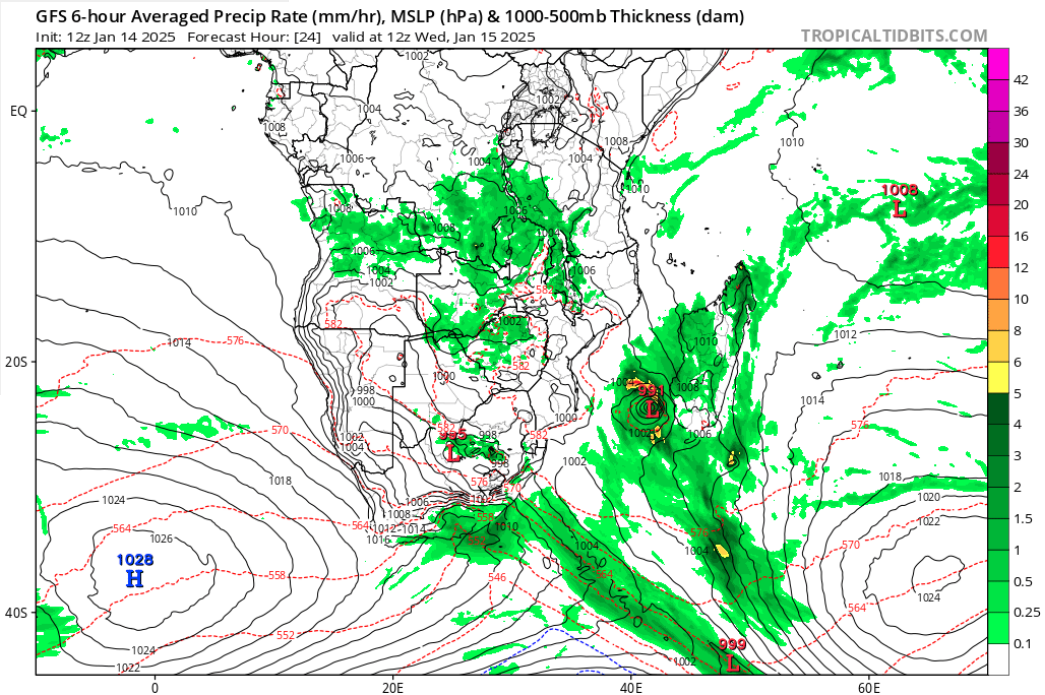
TROPICAL CYCLONE 07S (DIKELEDI) WARNING #10
WTXS31 PGTW 140900
140600Z POSIT: NEAR 16.7S 39.9E
MOVING 180 DEGREES TRUE AT 05 KNOTS
MAXIMUM SIGNIFICANT WAVE HEIGHT: 25 FEET
14/06Z, WINDS 055 KTS, GUSTS TO 070 KTS
14/18Z, WINDS 060 KTS, GUSTS TO 075 KTS
15/06Z, WINDS 070 KTS, GUSTS TO 085 KTS
15/18Z, WINDS 080 KTS, GUSTS TO 100 KTS
16/06Z, WINDS 090 KTS, GUSTS TO 110 KTS
17/06Z, WINDS 070 KTS, GUSTS TO 085 KTS
18/06Z, WINDS 045 KTS, GUSTS TO 055 KTS

CPA TO:	NM	DTG
EUROPA_ISLAND	36	01/15/09Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
EUROPA_ISLAND	356	337	0
NACALA	200	134	0

LESS THAN 34 KNOTS
34-63 KNOTS
MORE THAN 63 KNOTS
FORECAST CYCLONE TRACK
PAST CYCLONE TRACK
DENOTES 34 KNOT WIND DANGER AREA/USN SHIP AVOIDANCE AREA
FORECAST 34/50/64 KNOT WIND RADII (WINDS VALID OVER OPEN OCEAN ONLY)





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

Init: 12z Jan 14 2025 Forecast Hour: [132] valid at 00z Mon, Jan 20 2025

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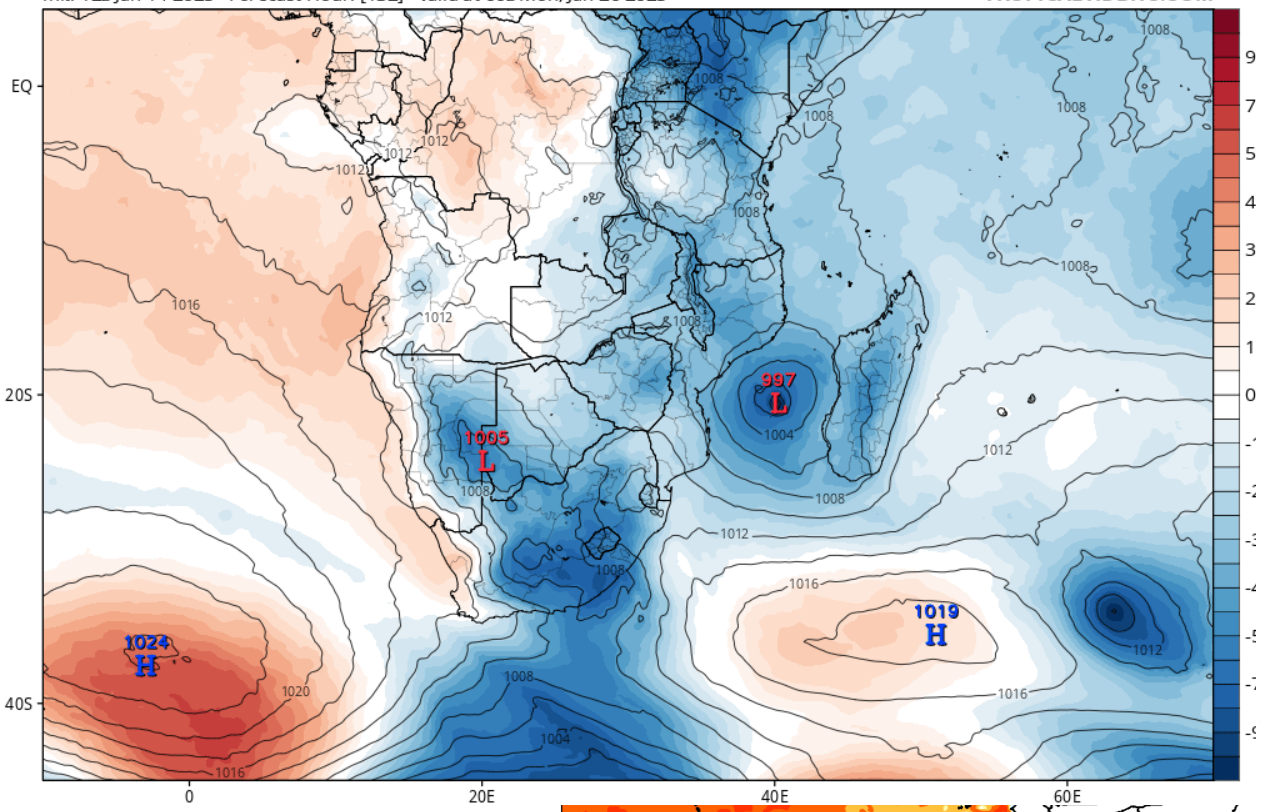

ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 00z Jan 14 2025 Forecast Hour: [216] valid at 00z Thu, Jan 23 2025

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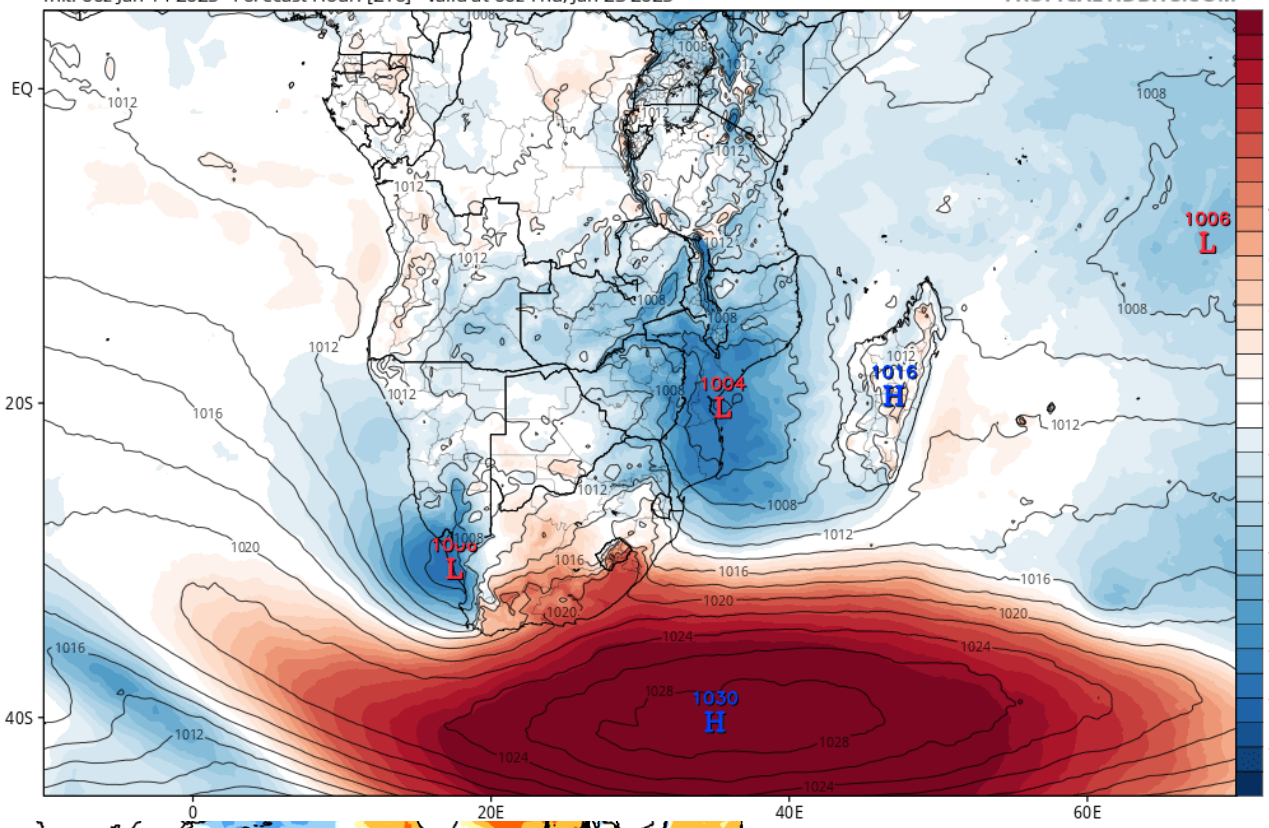
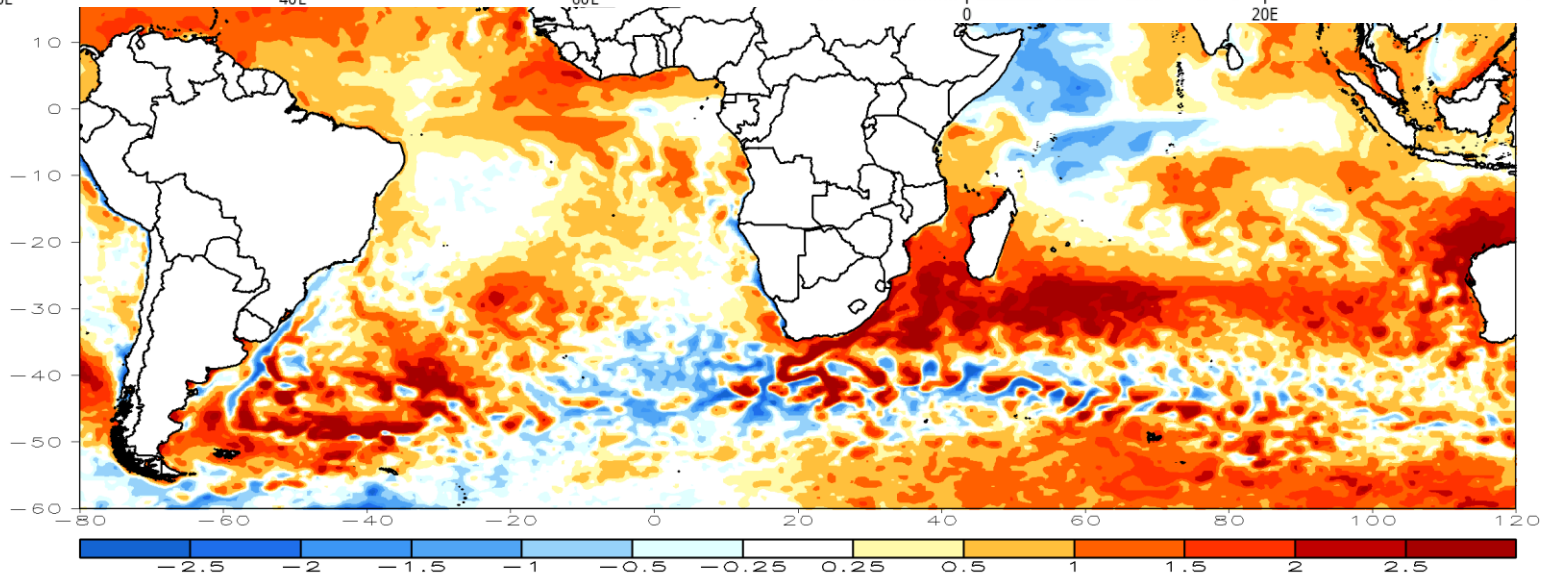
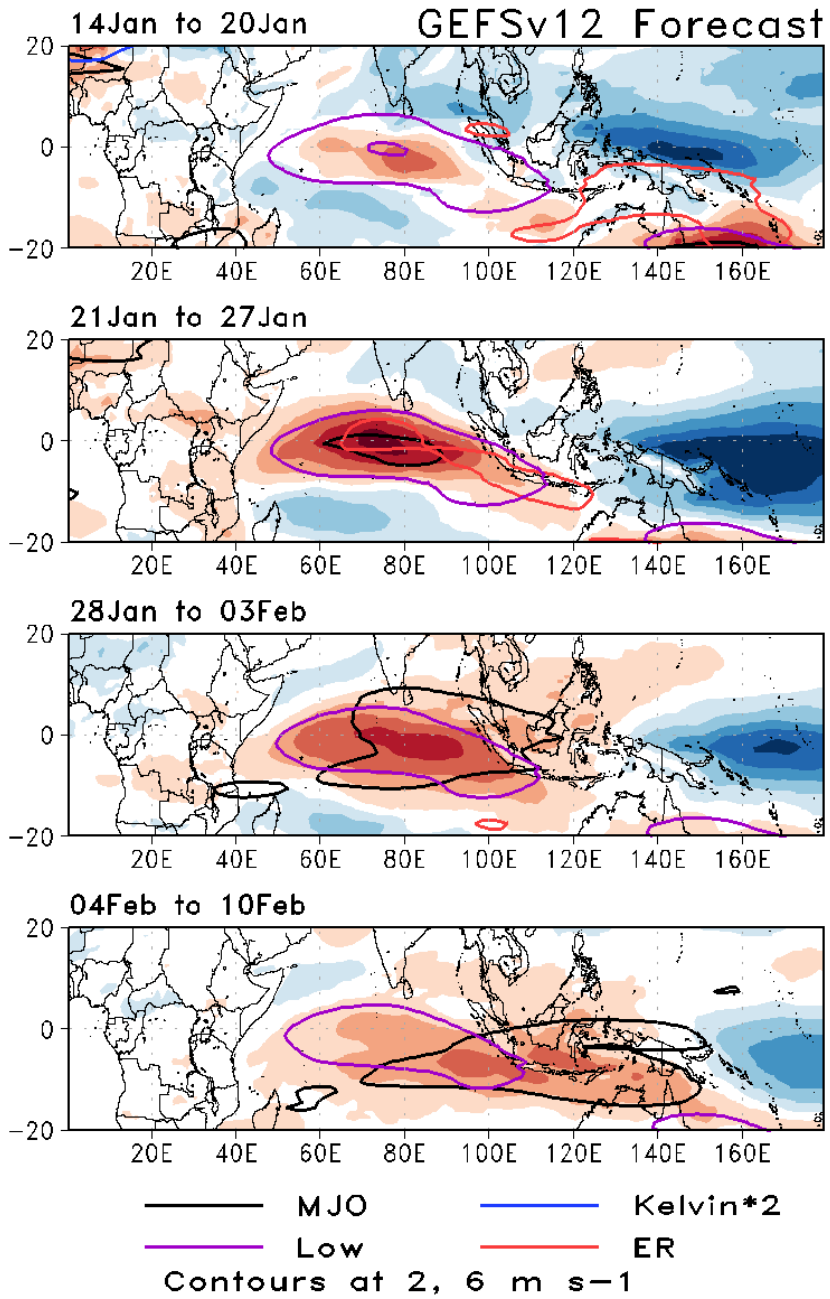
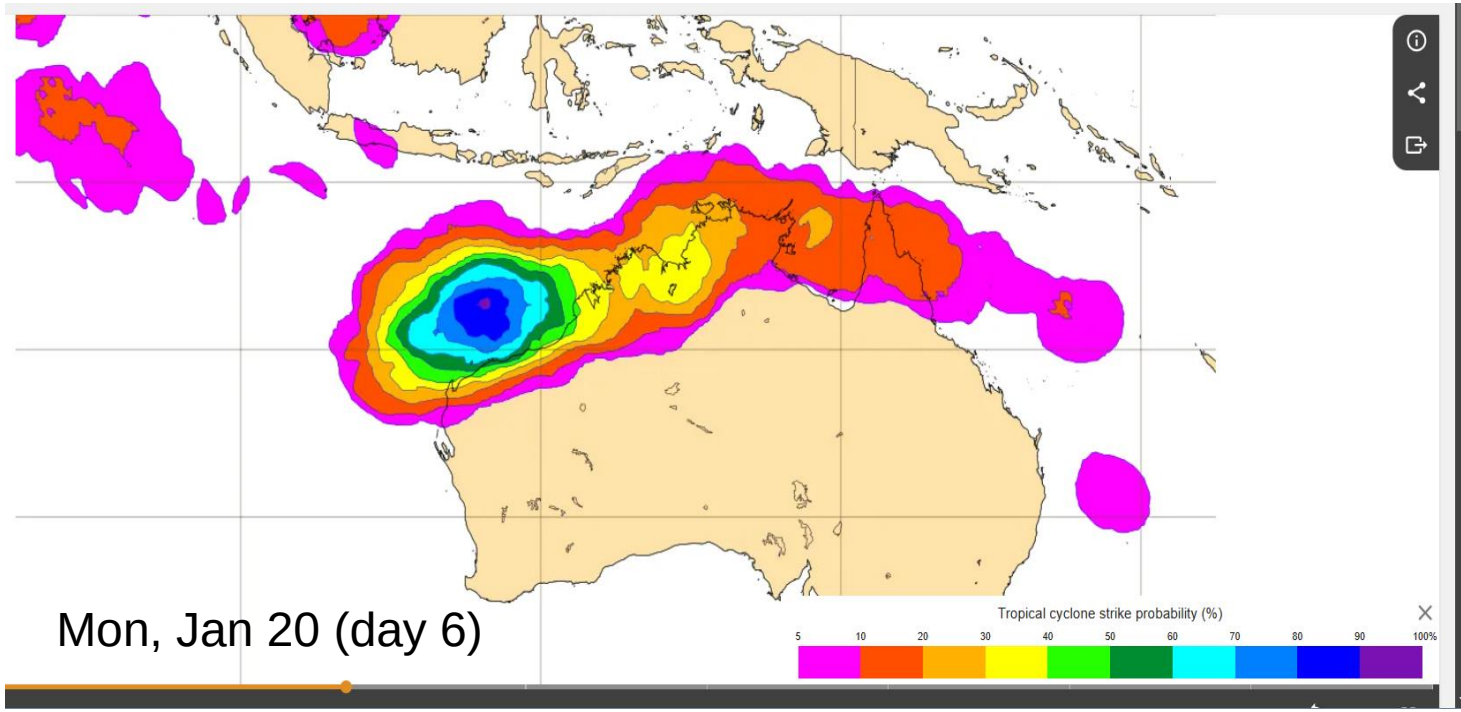


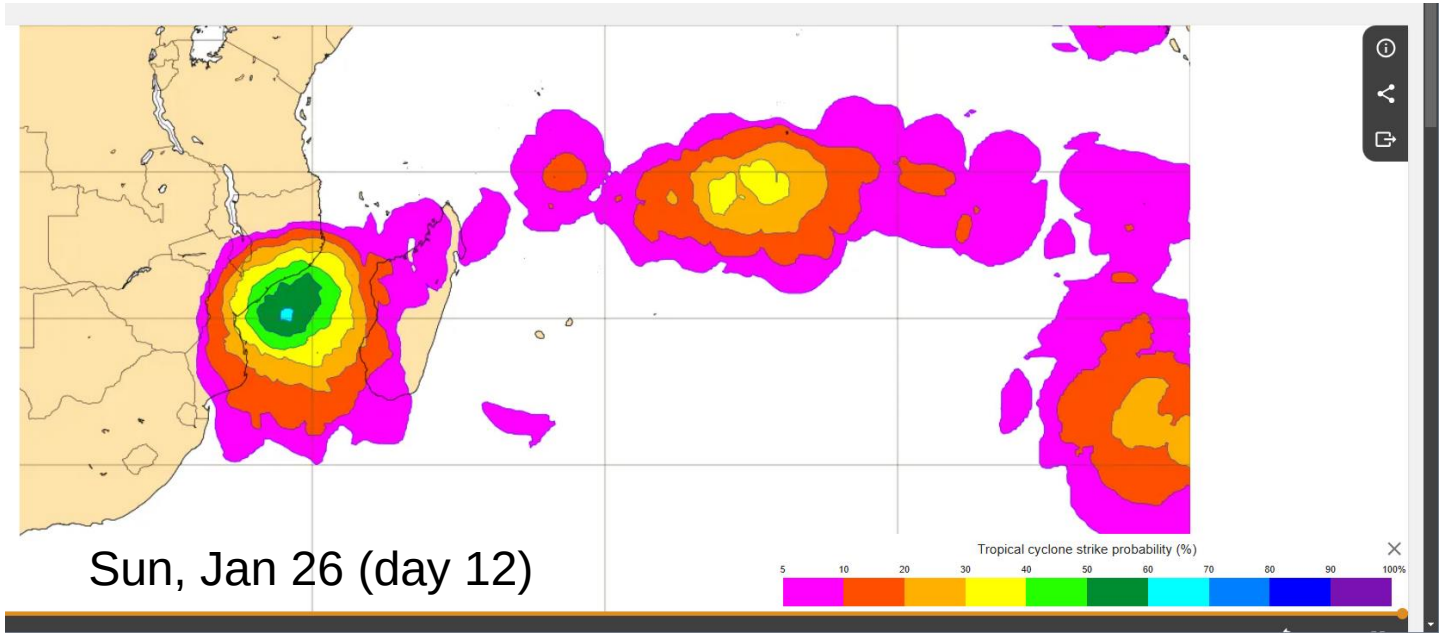


'—Day Means



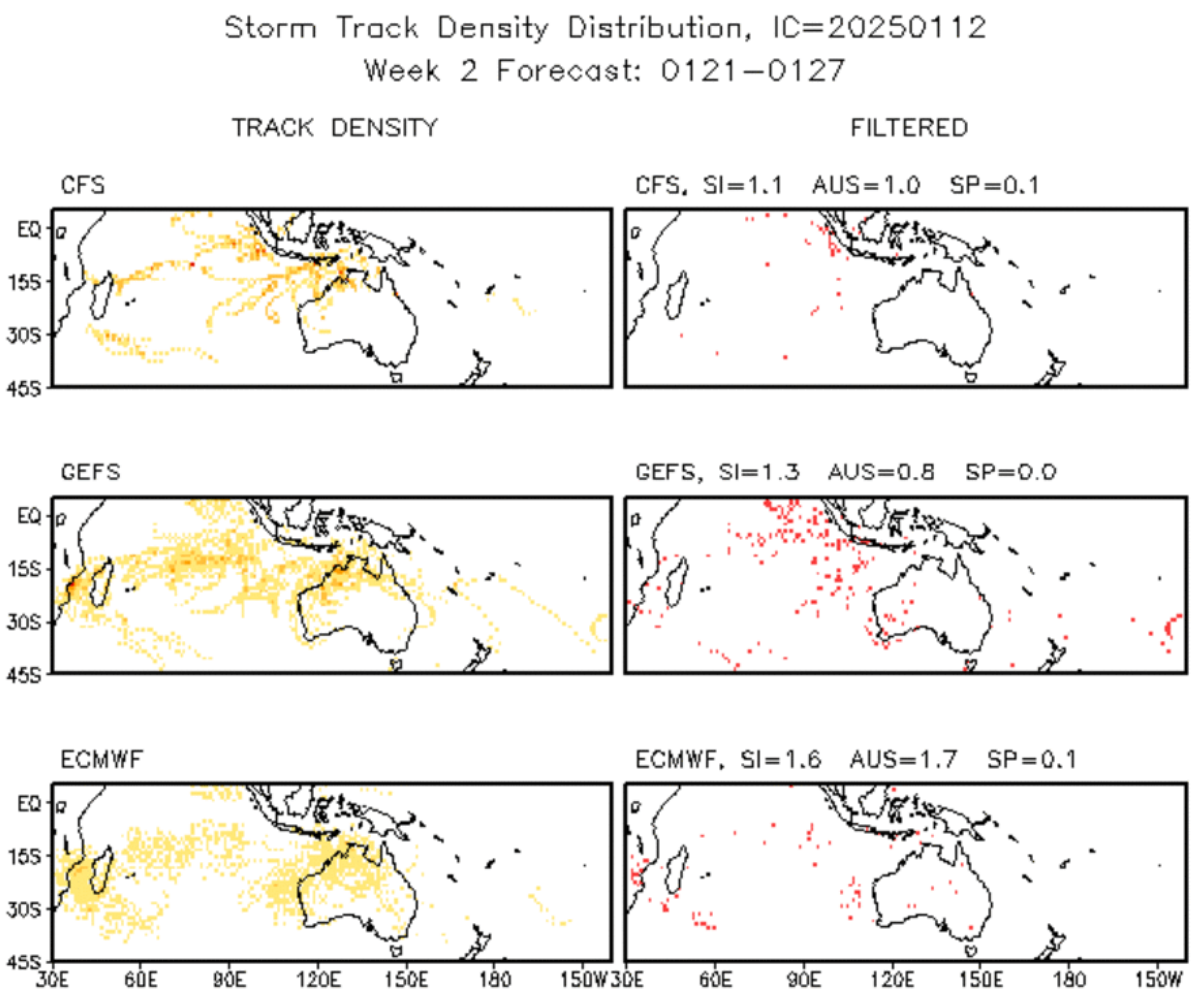


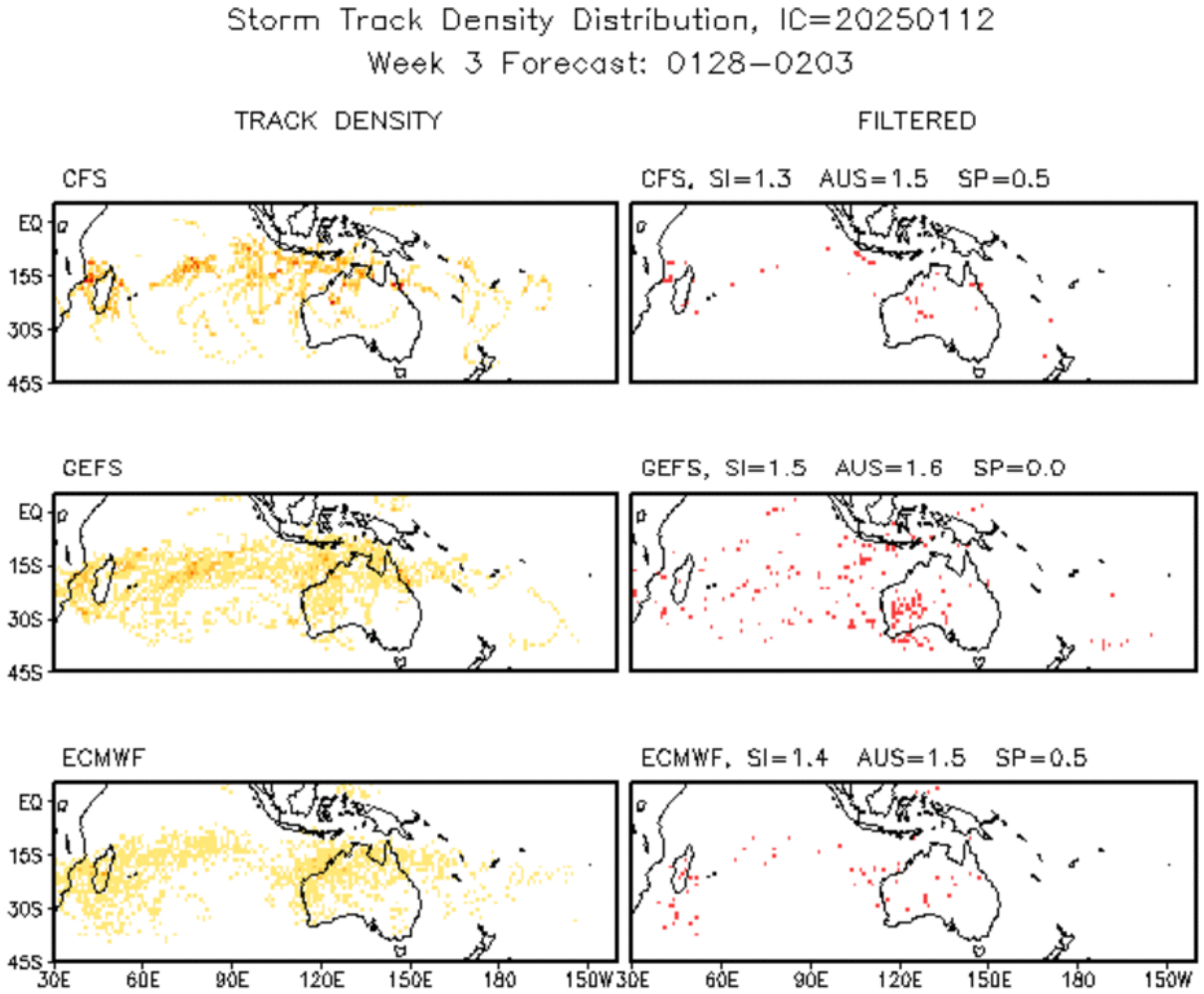
Mon, Jan 20 (day 6)



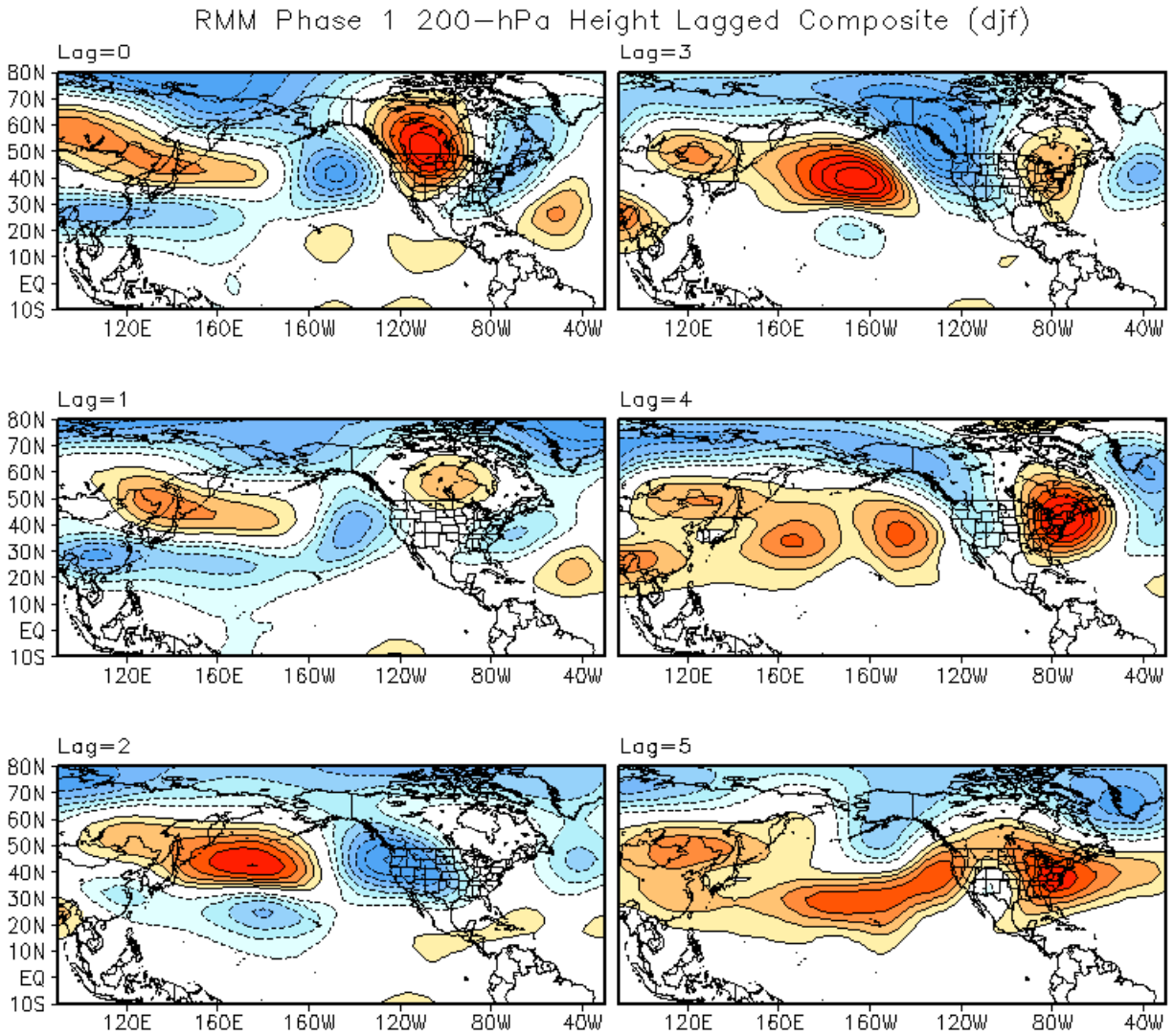
Sun, Jan 26 (day 12)

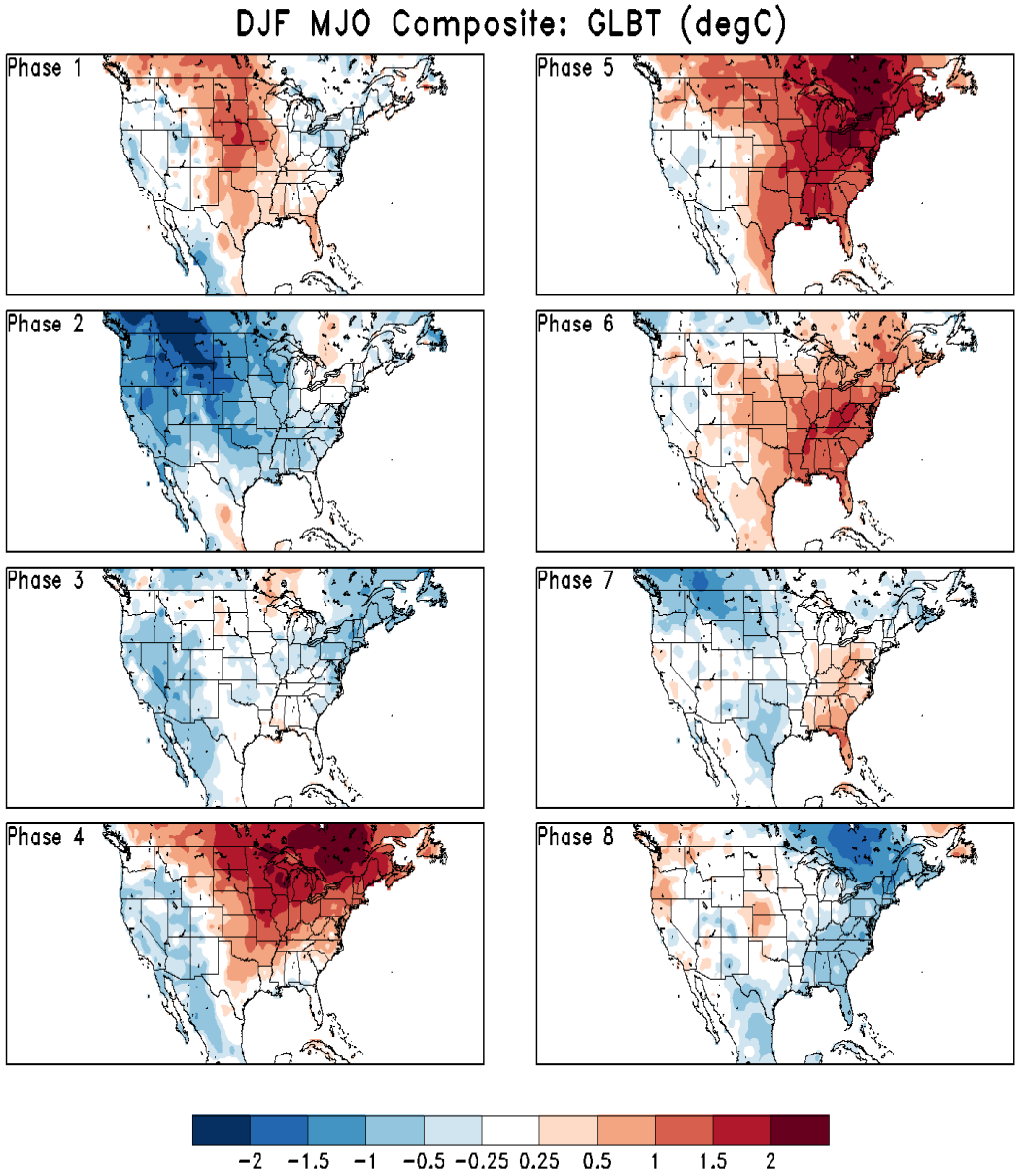
Multi-Model TC Track Densities: Weeks 2+3



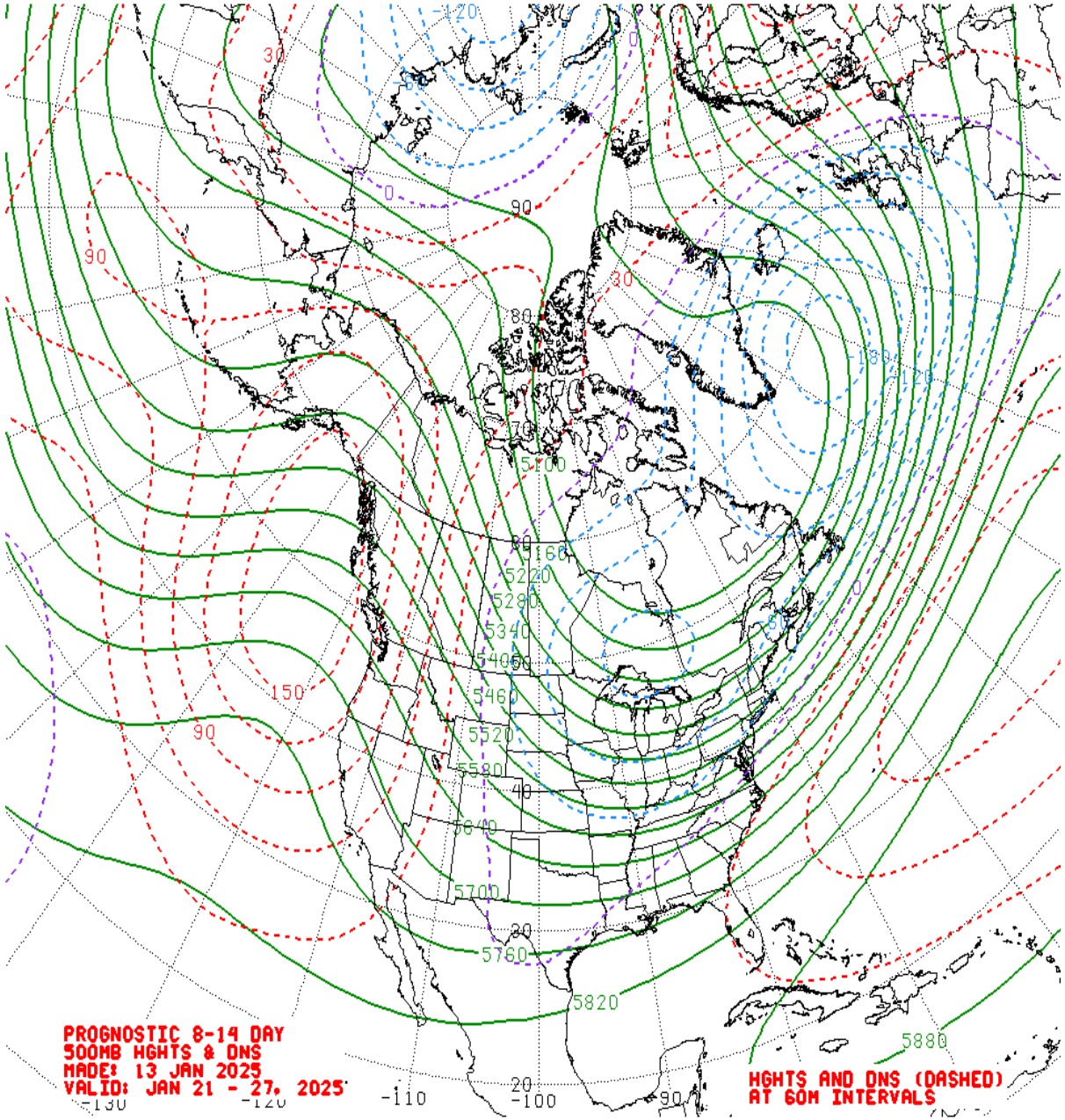


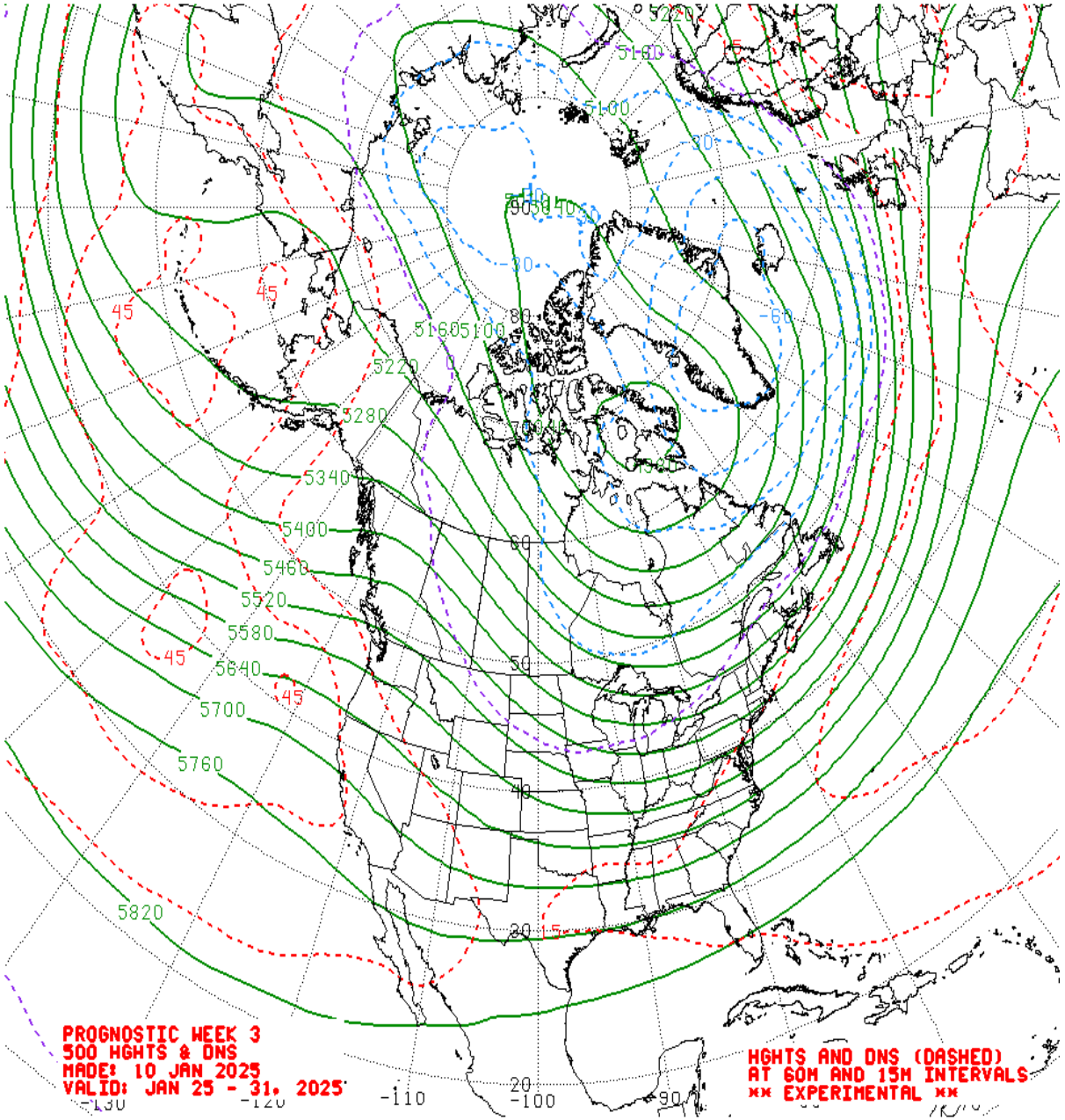
Historical 500-hPa Height & U.S. Temperatures By MJO Phase:



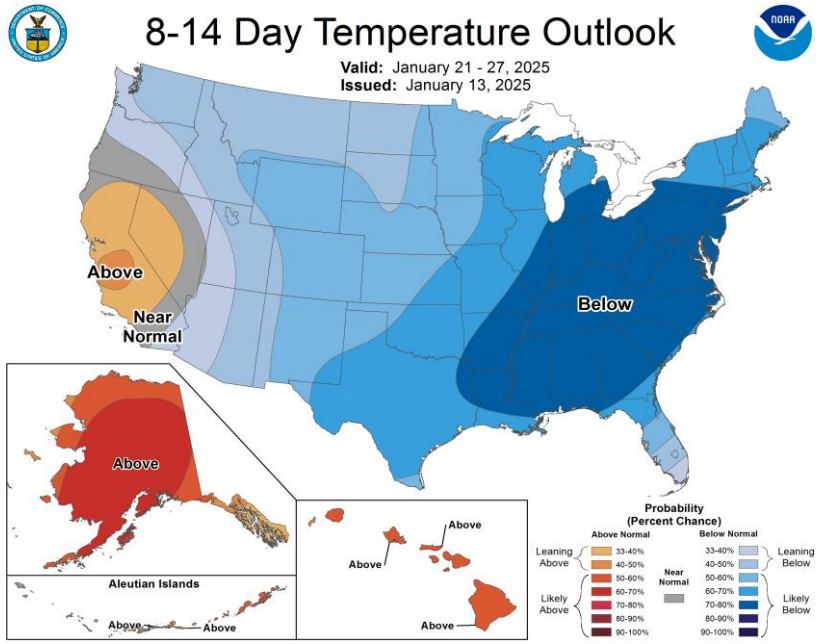


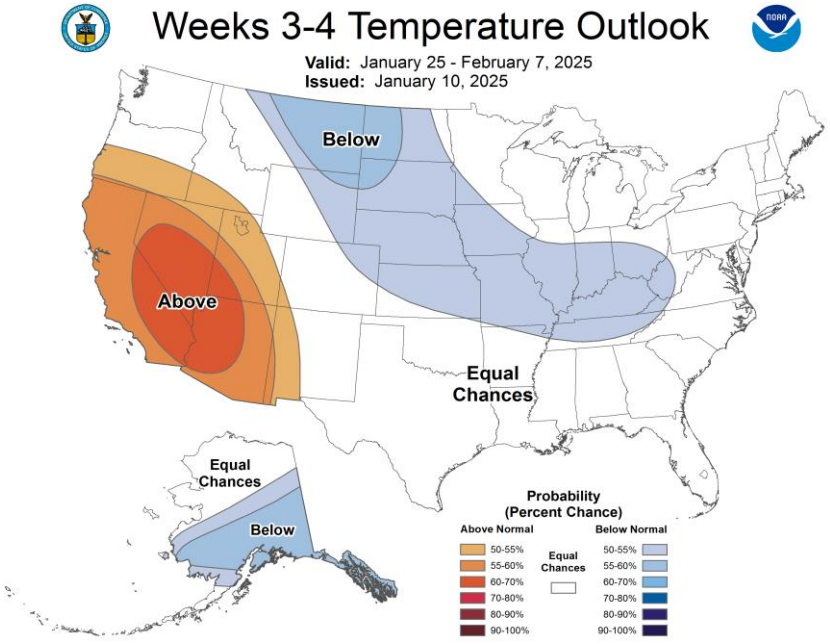
Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3

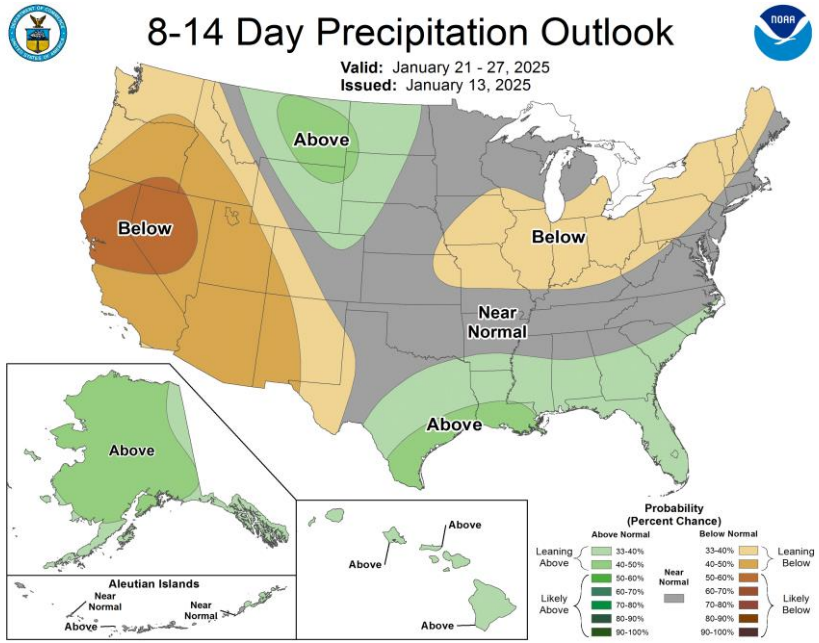


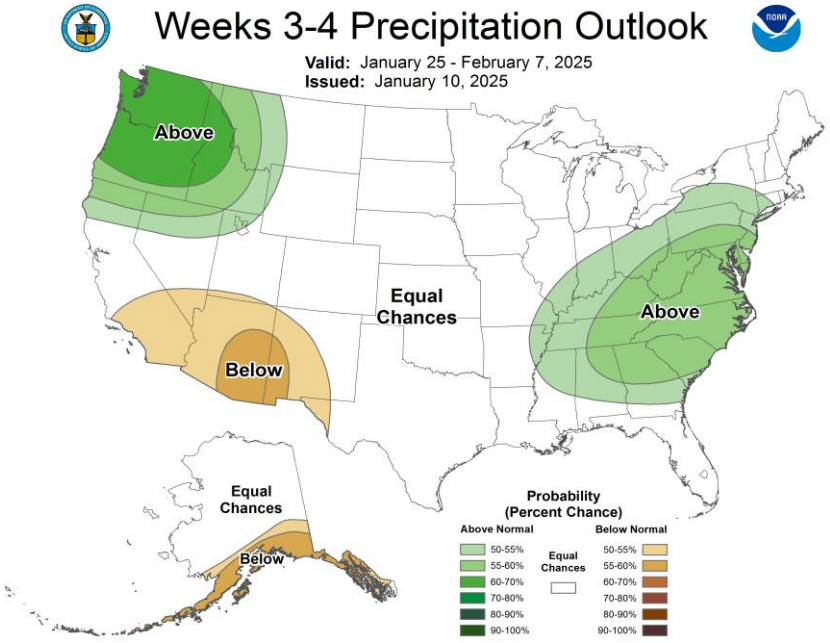


Official Temperature & Precipitation Forecasts:









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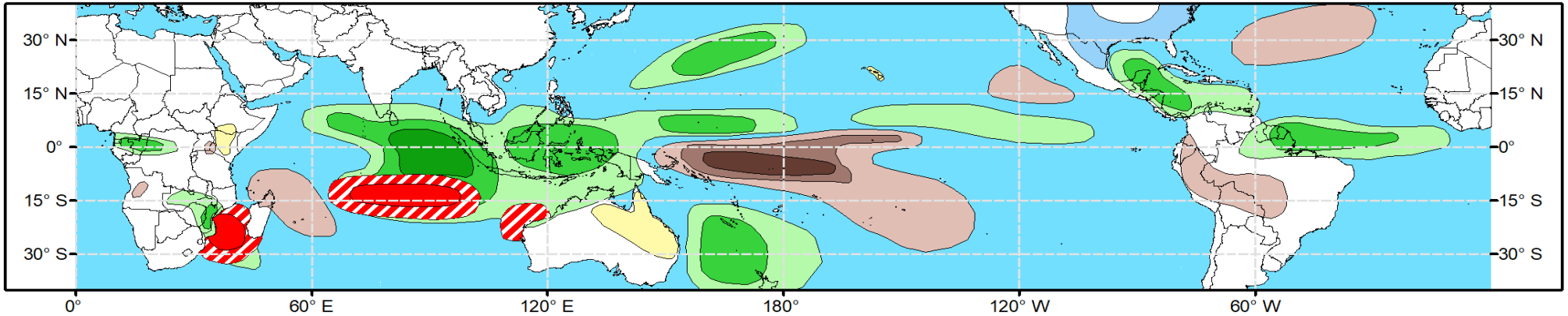

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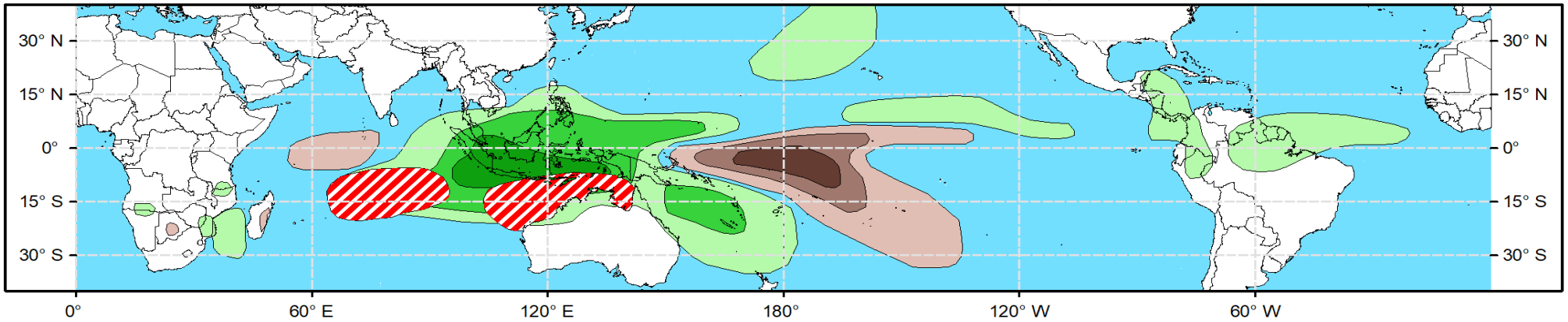

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