



Weeks 2-3 Global Tropics Hazards Outlook

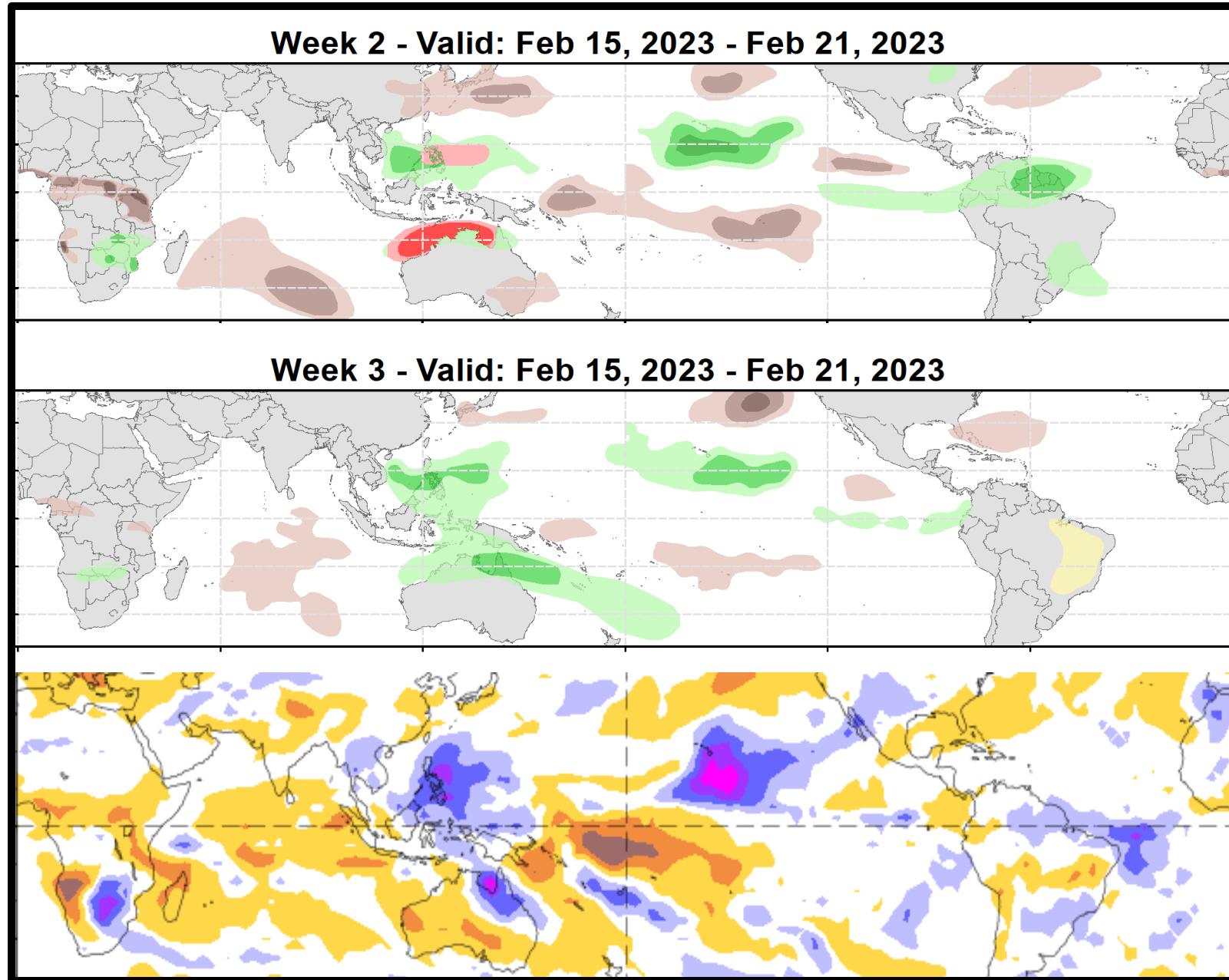
2/21/2023

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- No new TCs formed during the week of Feb 15 – 21, though TC Freddy continued its barrage across the Indian Ocean.
- Dynamical models have underdone the resilience of the suppression near the Date Line.
- Forecasts over Africa have been spot on.



Synopsis of Climate Modes:

ENSO: (February 9, 2023 Update)

next update on Thursday, Mar 9th

- ENSO Alert System Status: [La Niña Advisory](#)
- ENSO-neutral conditions are expected to begin within the next couple of months, and persist through the Northern Hemisphere spring and early summer.

MJO and other subseasonal tropical variability:

- The MJO remains active, with the enhanced convective phase now crossing the Pacific.
- Interference from a Kelvin wave over the Western Hemisphere and La Niña have resulted in a more incoherent presentation of the MJO in various diagnostic fields.
- Dynamical model MJO index forecasts depict a weakening of the MJO signal over Week-1, followed by a resurgent signal over the Pacific in Week-2. This is possibly due to the aforementioned Kelvin wave.
- The Kelvin wave may provide an opportunity for TC formation in the vicinity of Madagascar during Week-2 despite the broader MJO-influenced unfavorable environment. TC formations near Australia or over the Coral Sea are more likely.
- Due to the lack of MJO progression across the Western Hemisphere, the impacts of the current event on the extratropical pattern evolution are uncertain.

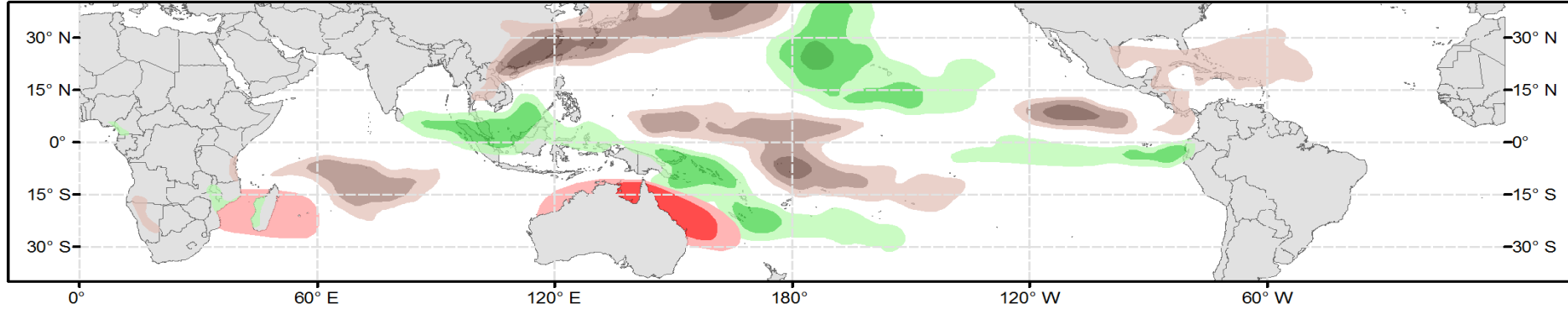
GTH Outlook:



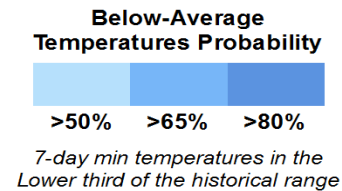
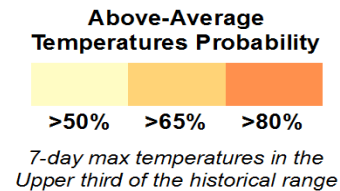
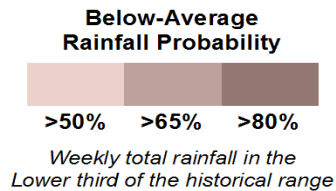
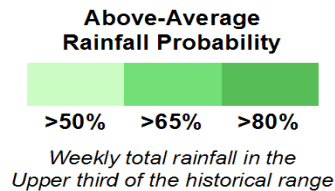
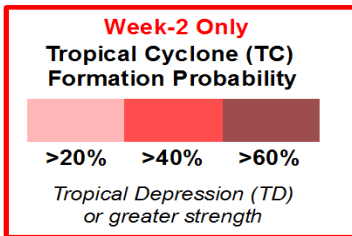
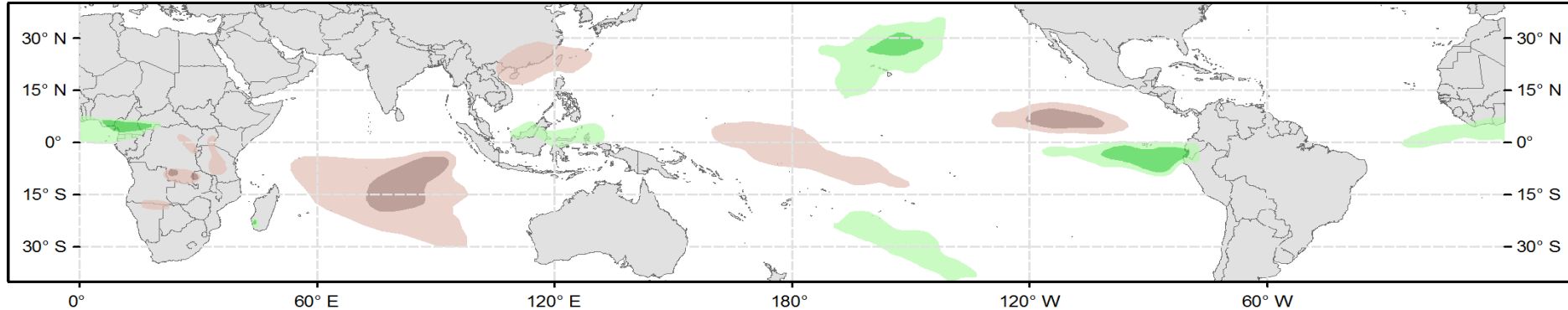
Global Tropics Hazards Outlook Climate Prediction Center



Week 2 - Valid: Mar 01, 2023 - Mar 07, 2023



Week 3 - Valid: Mar 08, 2023 - Mar 14, 2023

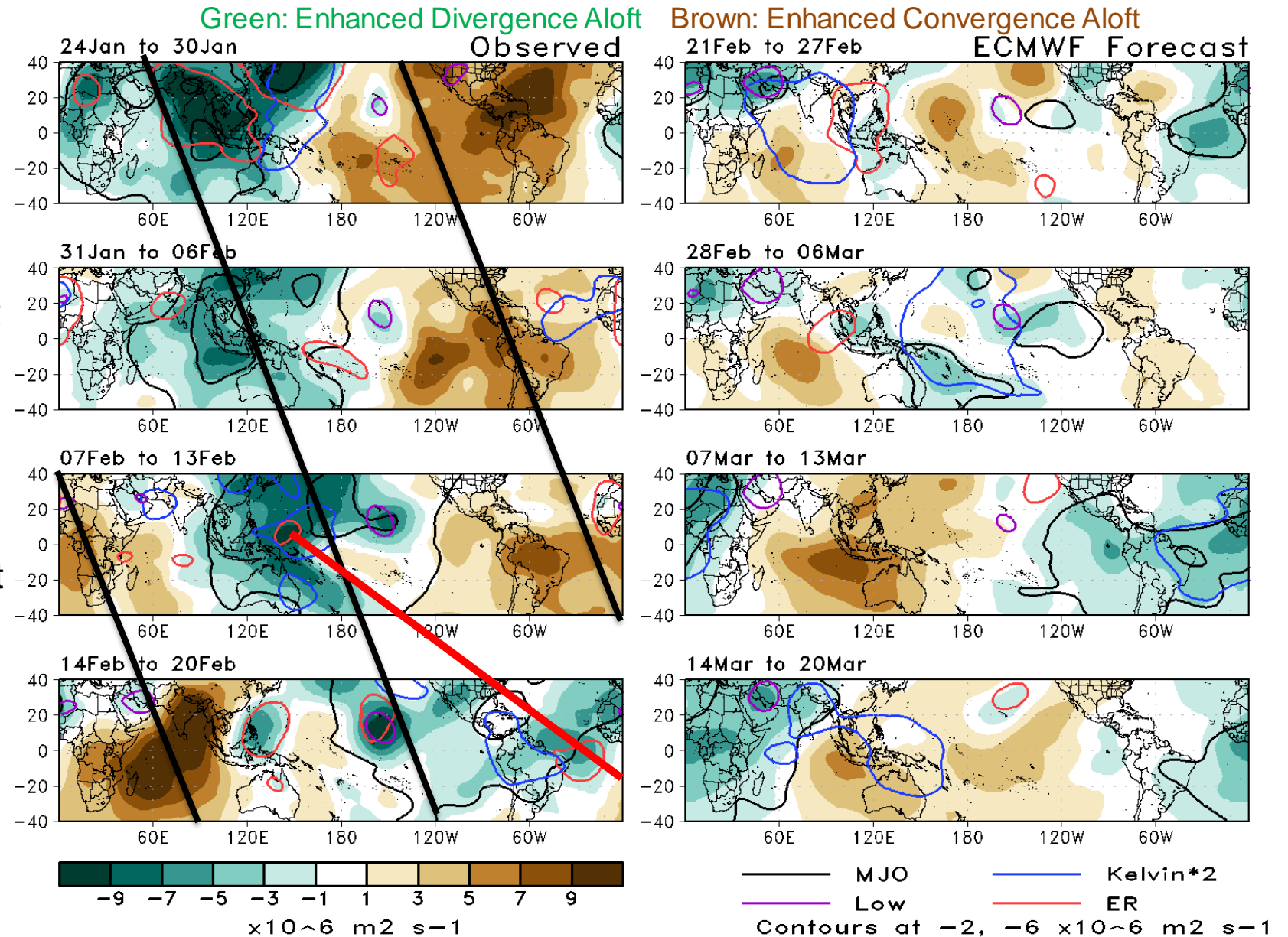


Issued: 02/21/2023
Forecaster: Allgood

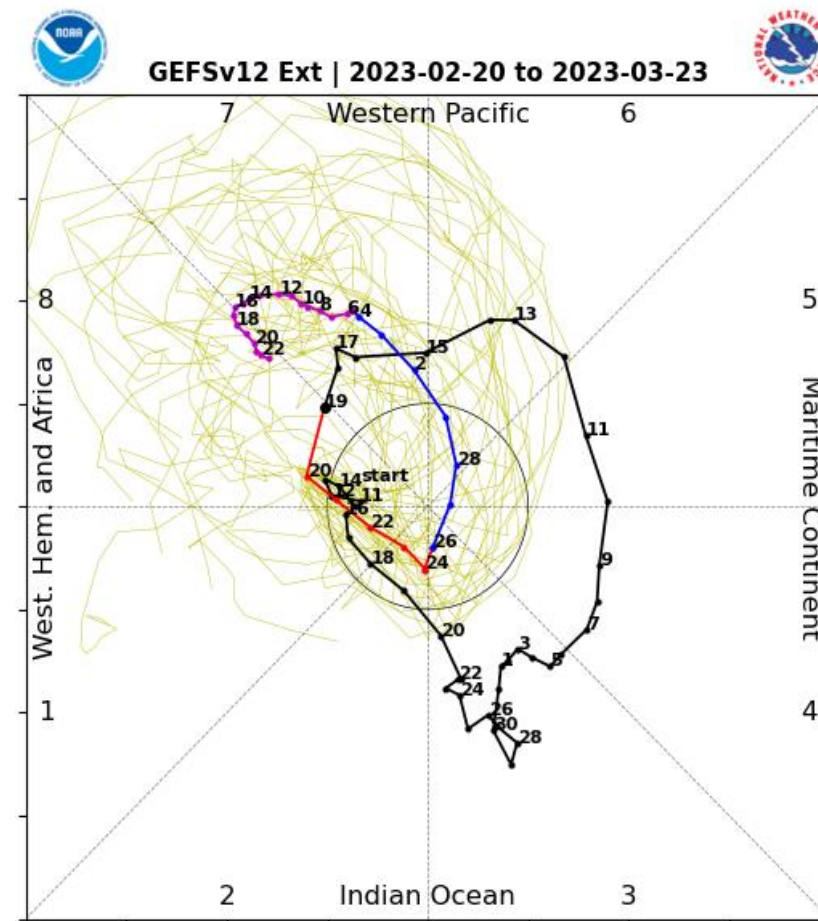
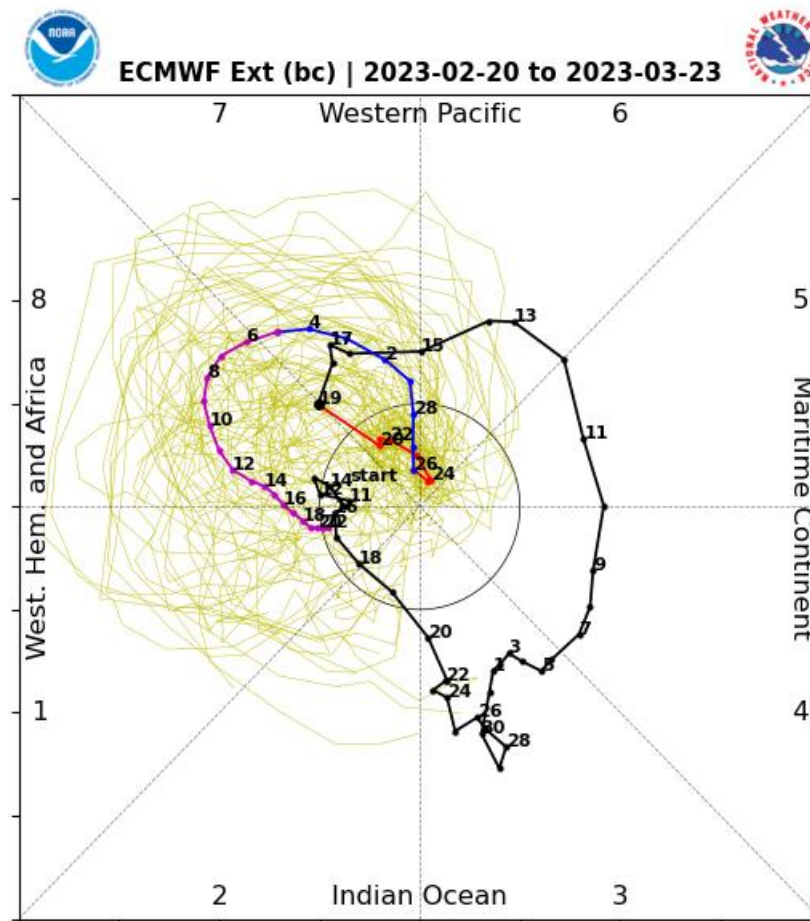
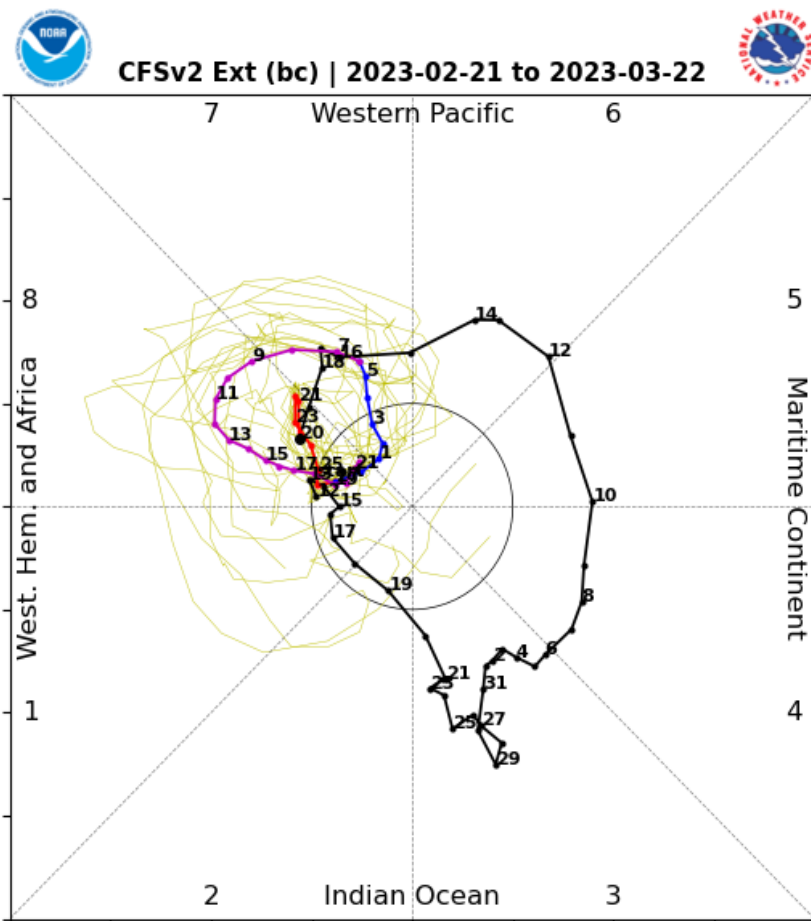
This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

200-hPa Velocity Potential Anomaly Maps:

- Late January through mid-February was characterized by robust Wave-1 MJO generated anomalies.
- The field has become somewhat more incoherent and “stretched” due to KW activity crossing the Western Hemisphere.
- Forecasts over the next 4 weeks show a weaker presentation, but still a well defined MJO crossing from the Pacific (Weeks 2-3) to the Western Hemisphere (Weeks 3-4).
- This is out of phase with the current event, likely triggered by the KW.

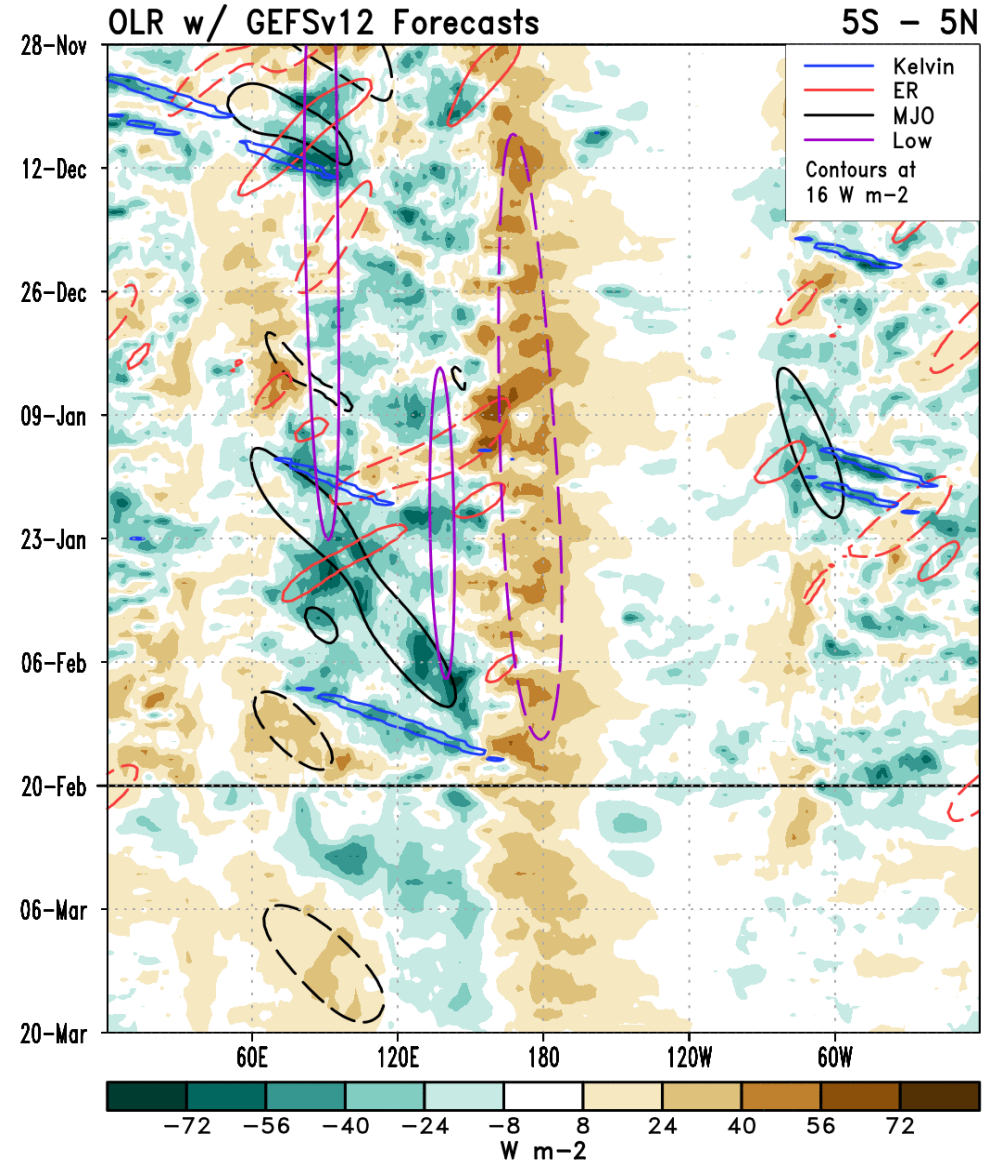
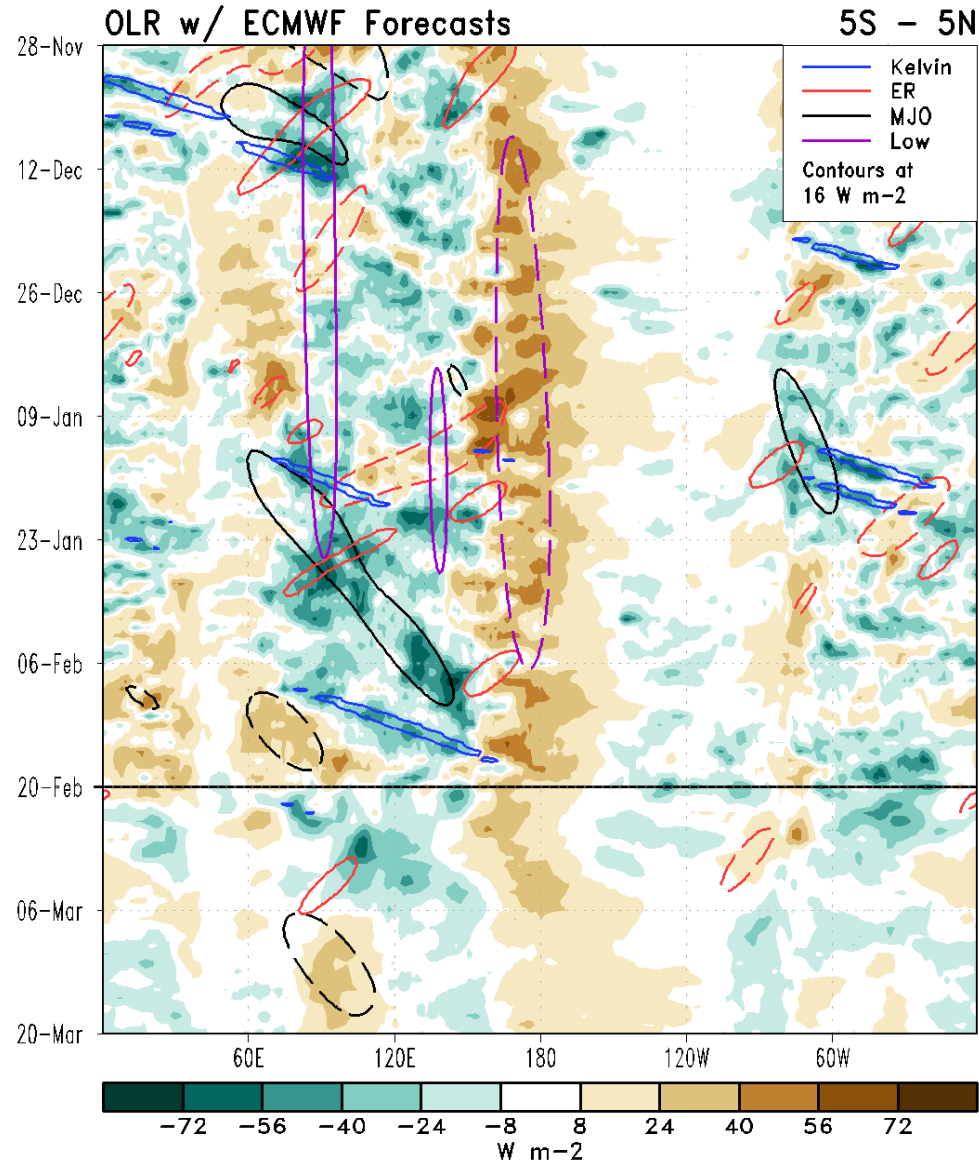


RMM Index Observations & Forecasts:



- The dynamical models generally favor fast propagation and weakening of the current MJO event, followed by a resurging signal over the West Pacific by Week-2 that subsequently propagates over the Western Hemisphere.
- The GEFS has greater spread, while the ECMWF is a bit more progressive.

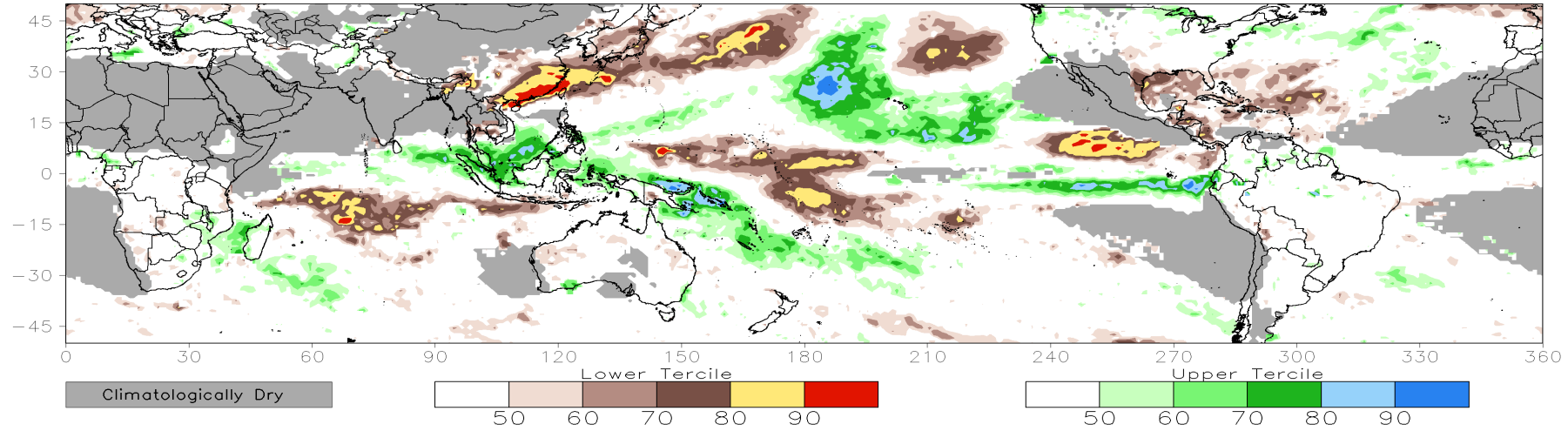
Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



Consolidated Probabilistic Precipitation: Weeks 2 & 3

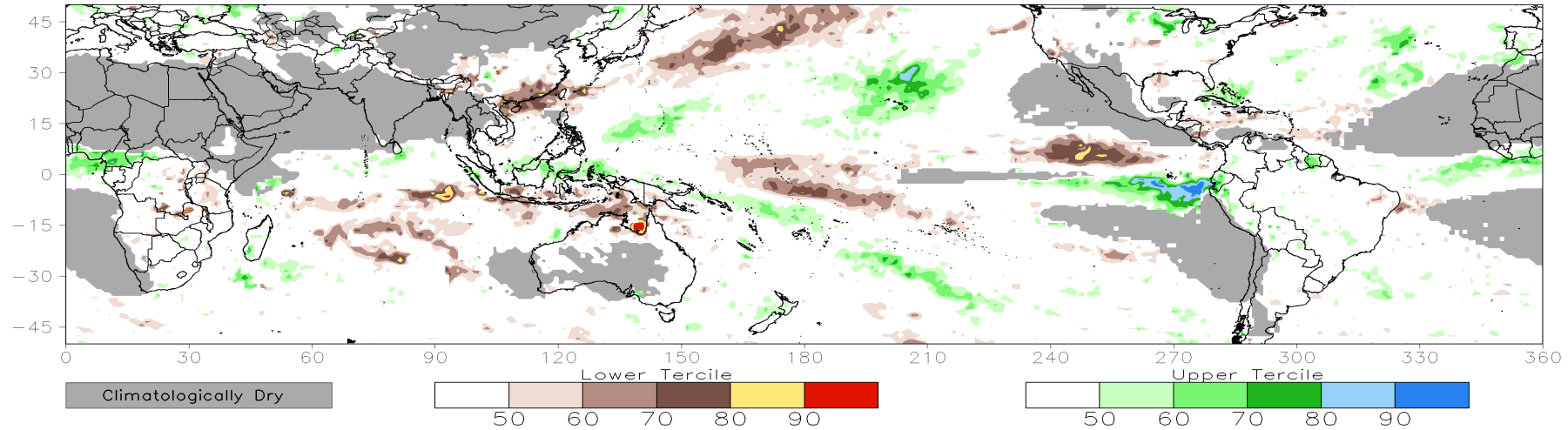
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 01Mar2023–07Mar2023



CONS 00z: Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

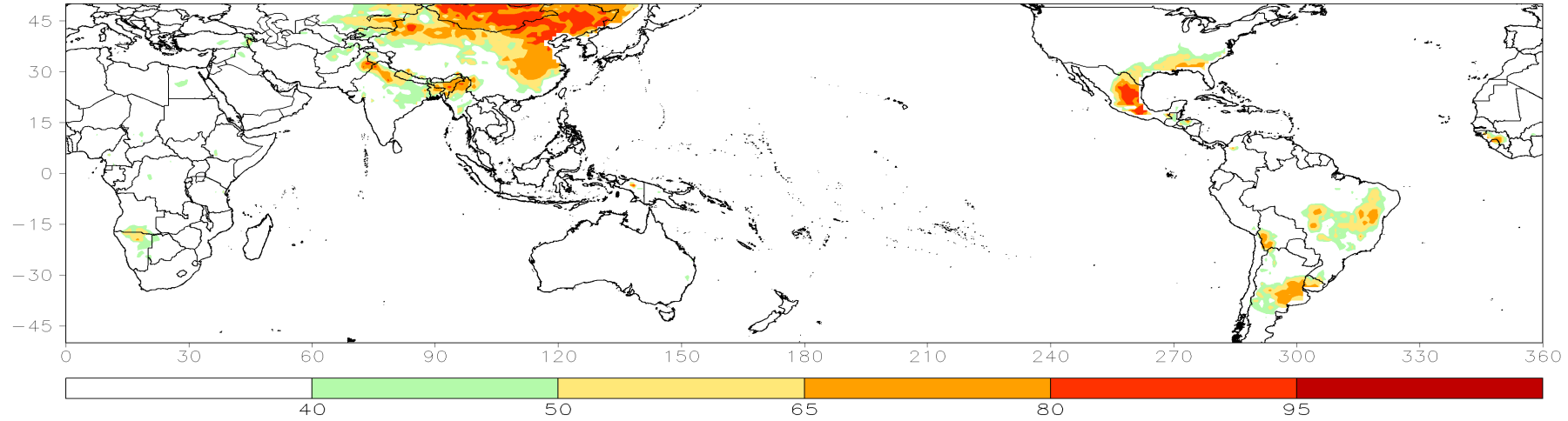
Valid: 08Mar2023–14Mar2023



Consolidated Probabilistic Temperatures: Week-2

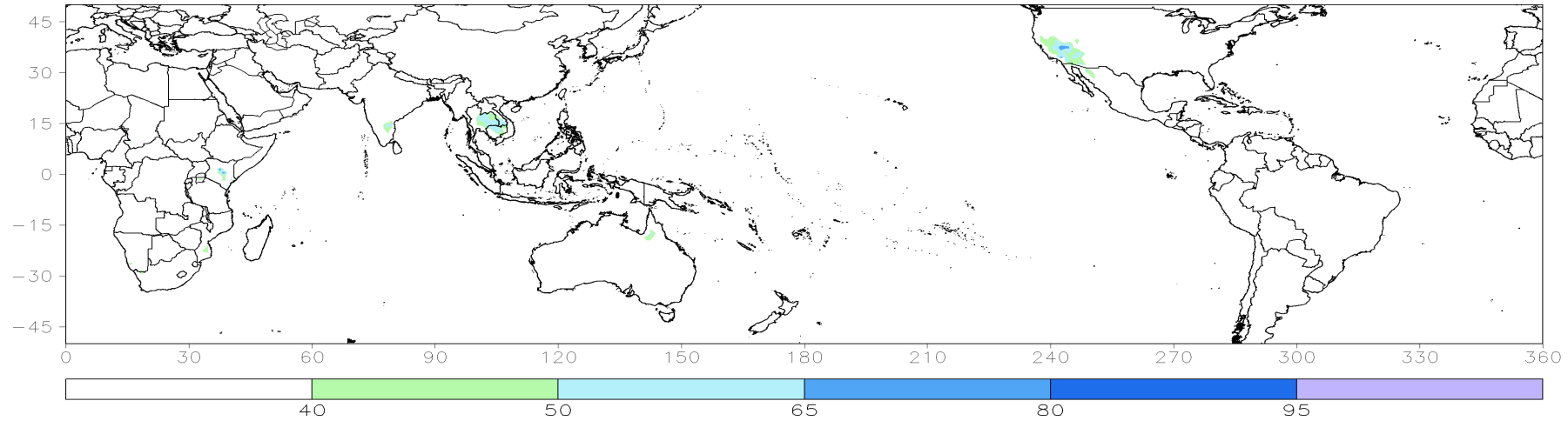
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 01Mar2023-07Mar2023



CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmin Below Lower Tercile (%)

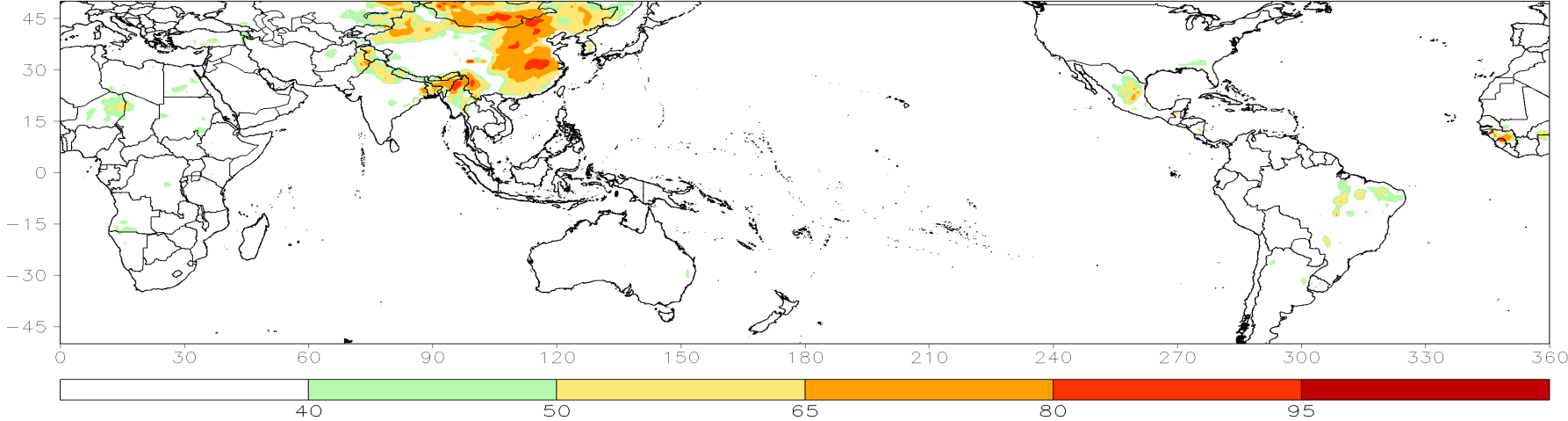
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Consolidated Probabilistic Temperatures: Week-3

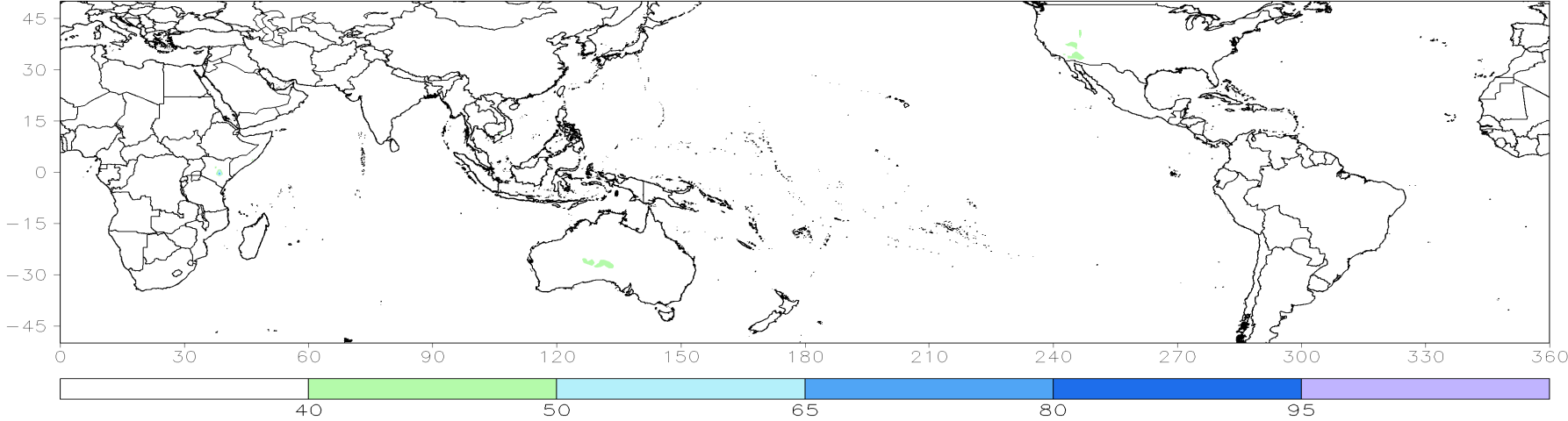
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 08Mar2023-14Mar2023



CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmin Below Lower Tercile (%)

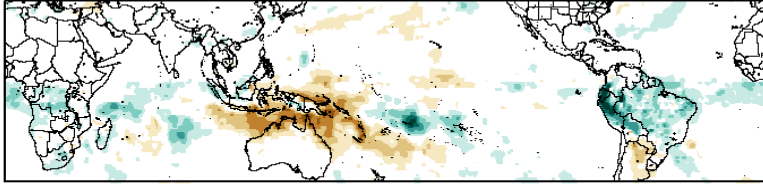
Valid: 08Mar2023-14Mar2023



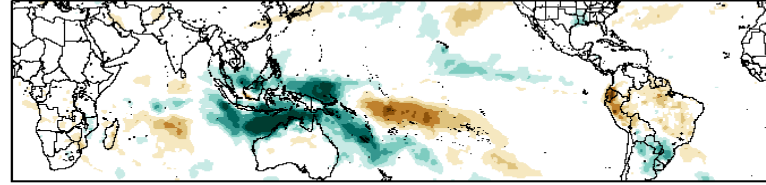
Historical Precipitation Anomalies By MJO Phase:

JFM MJO Composite: GPCP1DD (mm/day)

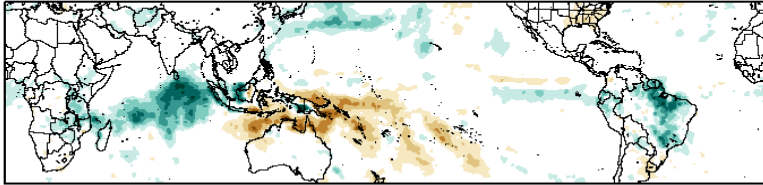
Phase 1



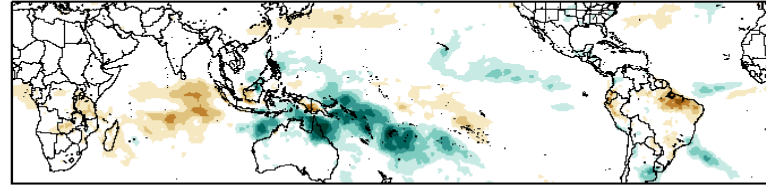
Phase 5



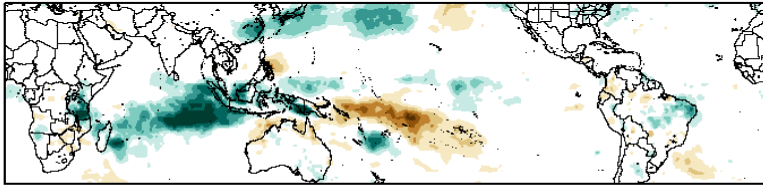
Phase 2



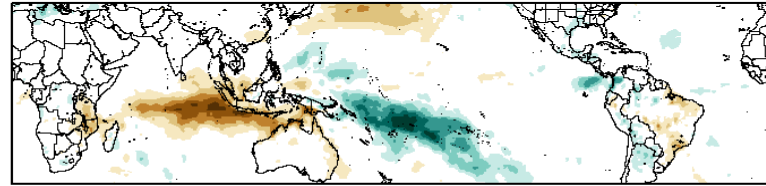
Phase 6



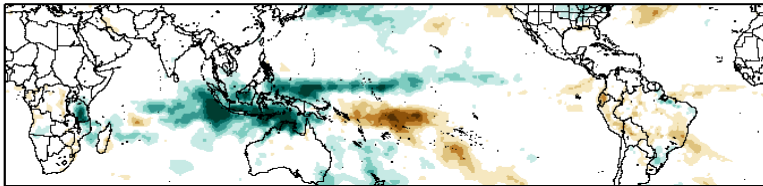
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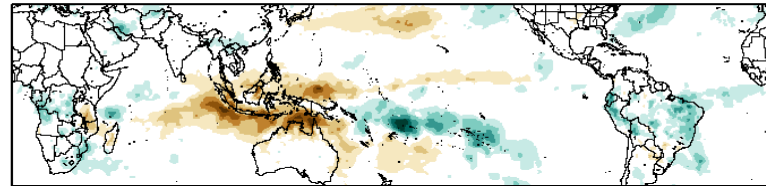
Phase 7



Phase 4



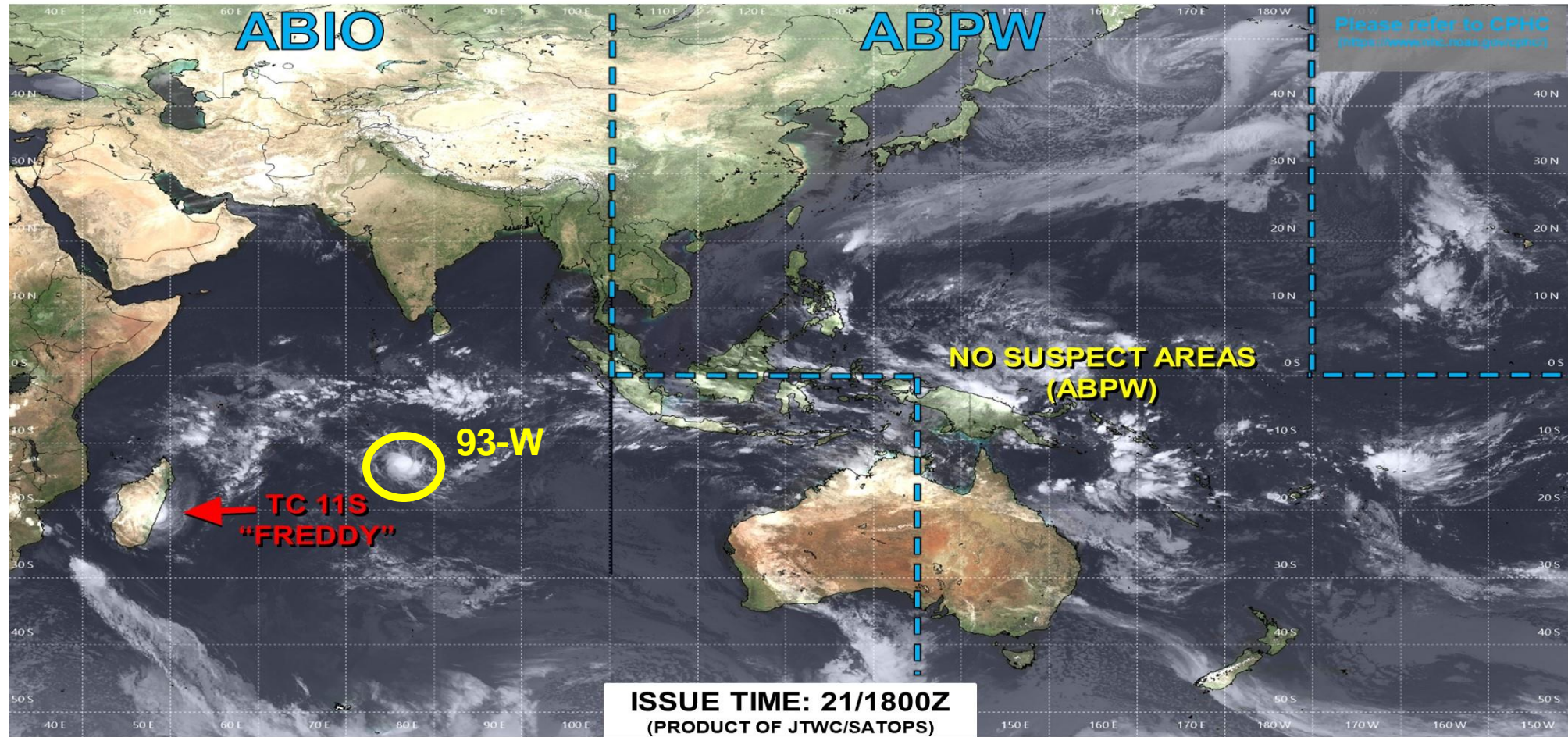
Phase 8



Tropical Cyclone Monitoring/Forecast: JTWC



JOINT TYPHOON WARNING CENTER



ISSUE TIME: 21/1800Z
(PRODUCT OF JTWC/SATOPS)



TC development unlikely within 24 hours



TC development likely, but expected to occur beyond 24 hours

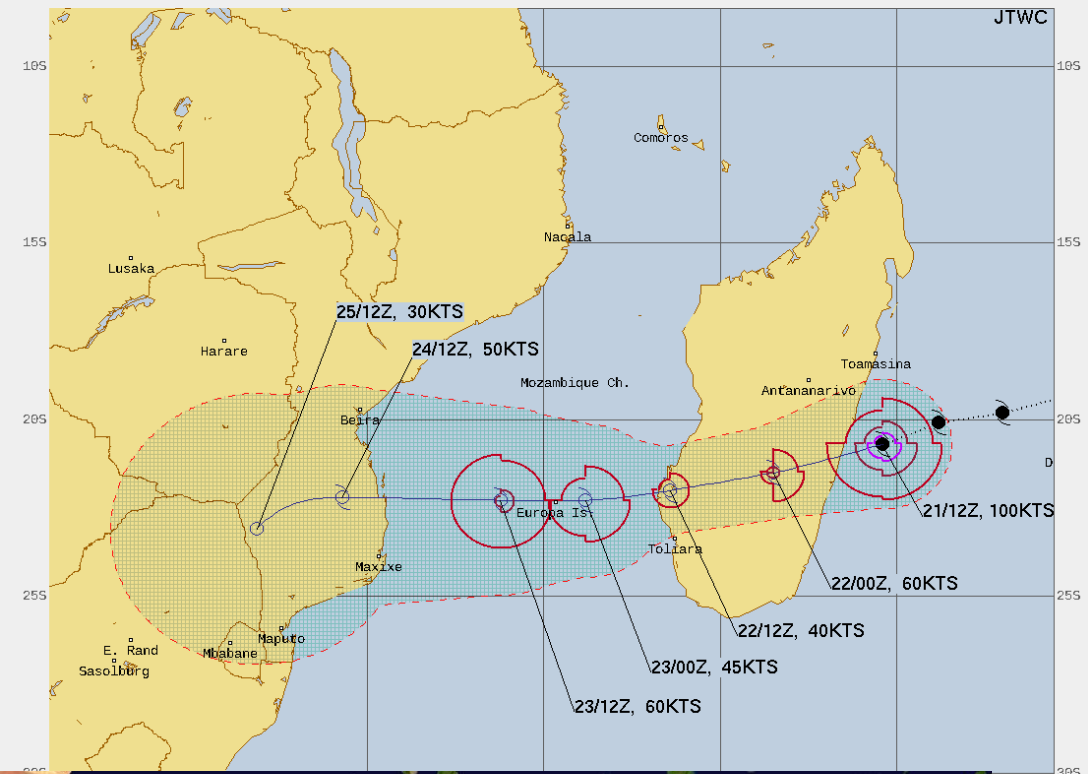


TC development likely within 24 hours (Reference TCFA)



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

 Tropical Cyclone (Reference Warning)



TROPICAL CYCLONE 11S (FREDDY) WARNING #38
 WTXS31 PGTW 211500
 211200Z POSIT: NEAR 20.7S 49.6E
 MOVING 250 DEGREES TRUE AT 16 KNOTS
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 45 FEET

21/12Z, WINDS 100 KTS, GUSTS TO 125 KTS
 22/00Z, WINDS 060 KTS, GUSTS TO 075 KTS
 22/12Z, WINDS 040 KTS, GUSTS TO 050 KTS
 23/00Z, WINDS 045 KTS, GUSTS TO 055 KTS
 23/12Z, WINDS 060 KTS, GUSTS TO 075 KTS
 24/12Z, WINDS 050 KTS, GUSTS TO 065 KTS
 25/12Z, WINDS 030 KTS, GUSTS TO 040 KTS

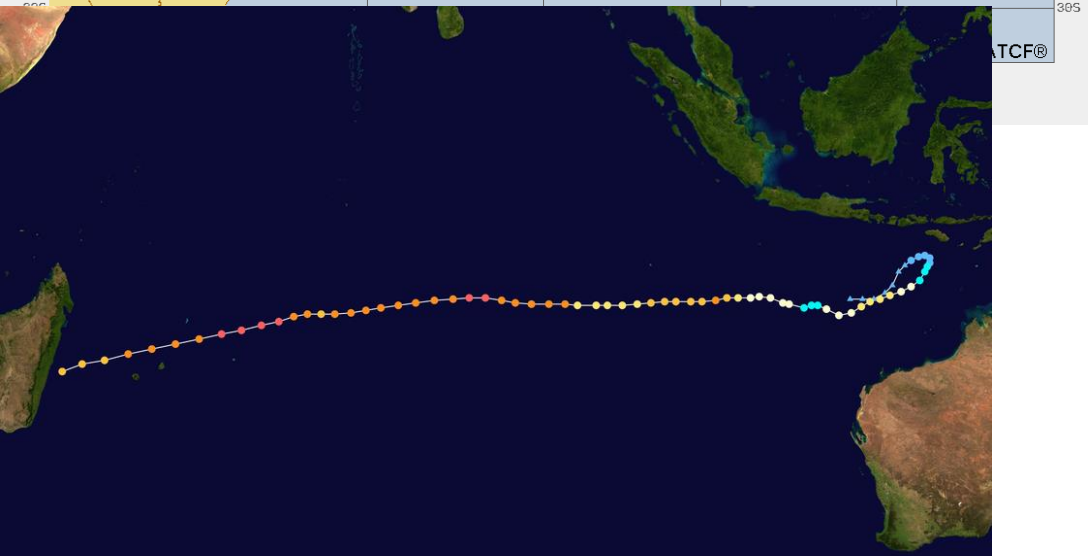
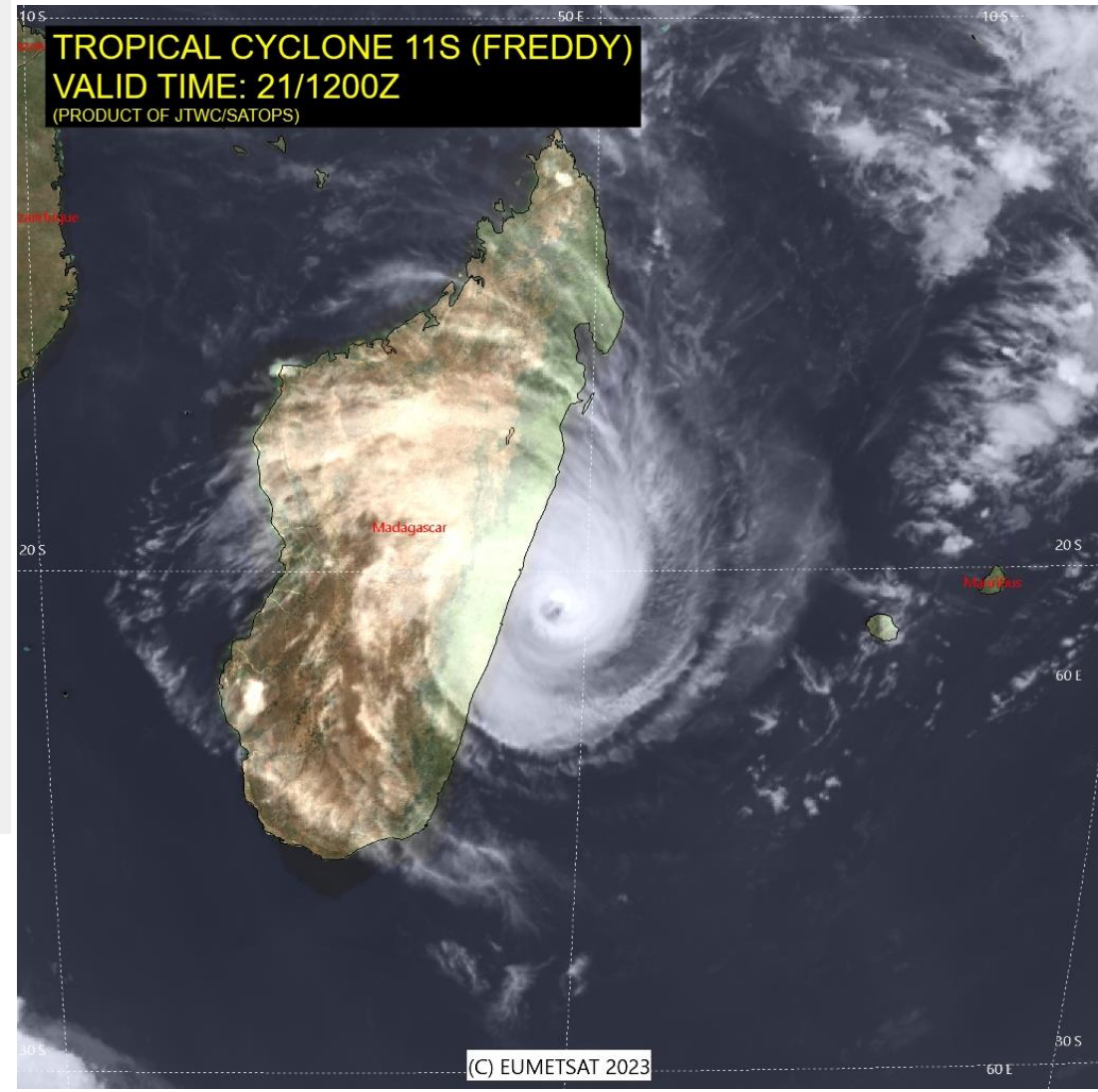
CPA TO:

ANTANANARIVO	NM	DTG
EUROPA_ISLAND	136	02/21/17Z
HARARE	6	02/23/04Z
MAPUTO	300	02/24/23Z
	178	02/25/12Z

BEARING AND DISTANCE

	DIR	DIST	TAU
		(NM)	(HRS)
ANTANANARIVO	133	160	0
ST_DENIS	271	331	0
LA_REUNION	273	332	0

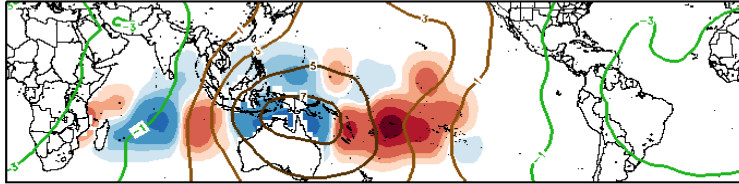
○ LESS THAN 34 KNOTS
 ○ 34-63 KNOTS
 ● MORE THAN 63 KNOTS
 — FORECAST CYCLONE TRACK
 - - - PAST CYCLONE TRACK
 ■ DENOTES 34 KNOT WIND DANGER AREA/USN SHIP AVOIDANCE AREA
 ○ FORECAST 34/50/64 KNOT WIND RADII (WINDS VALID OVER OPEN OCEAN ONLY)



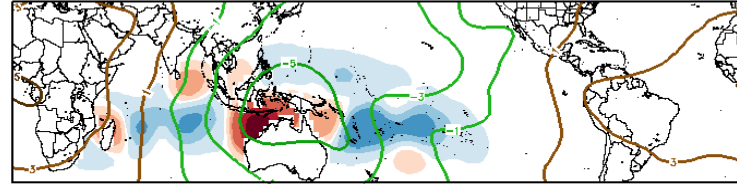
Tropical Cyclone Freddy

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

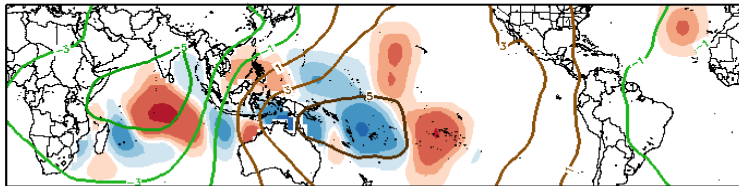
JFM MJO Composite: Mean TC Origin Density Anomaly ($\#TCs/277km^2*100$)
w/ JFM CHI200 ($\times 10^6 m^2 s^{-1}$) / Contours every $2 \times 10^6 m^2 s^{-1}$



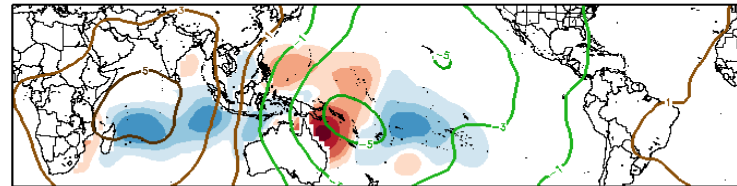
Phase 1



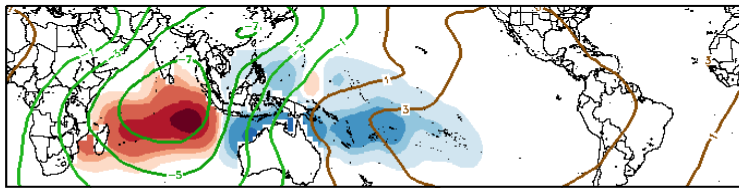
Phase 5



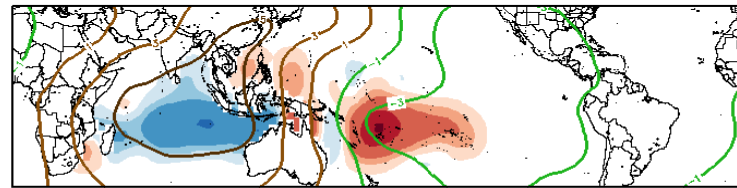
Phase 2



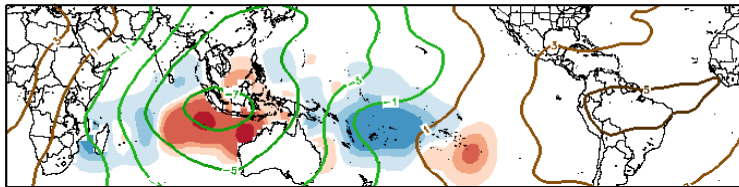
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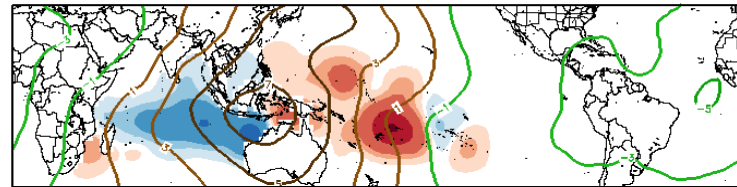
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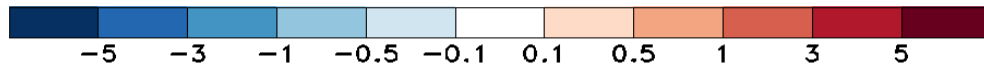
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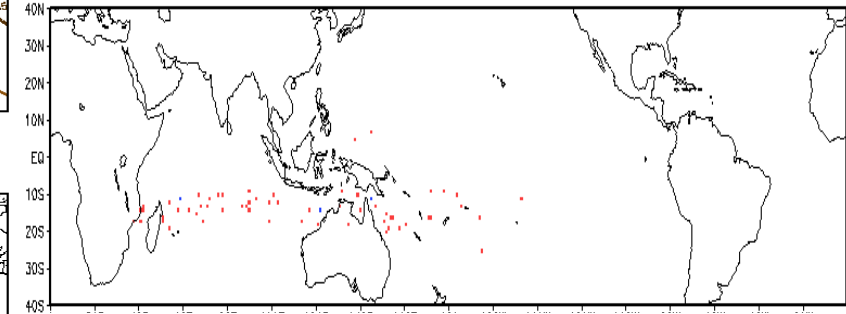
Phase 4



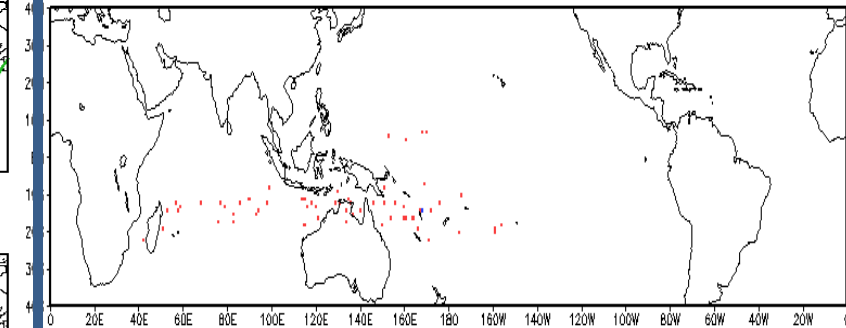
Phase 8



Observed TC Genesis, 1979–2021
7-day Period 0301 to 0307



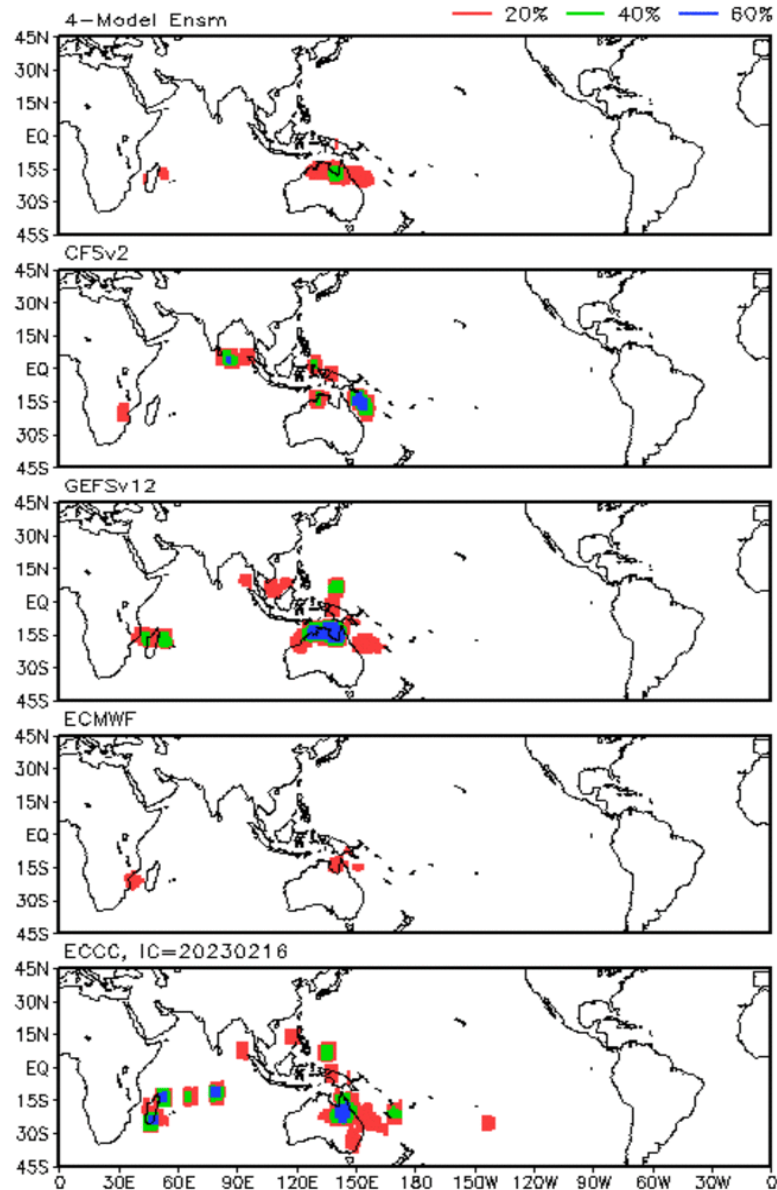
Observed TC Genesis, 1979–2021
7-day Period 0308 to 0314



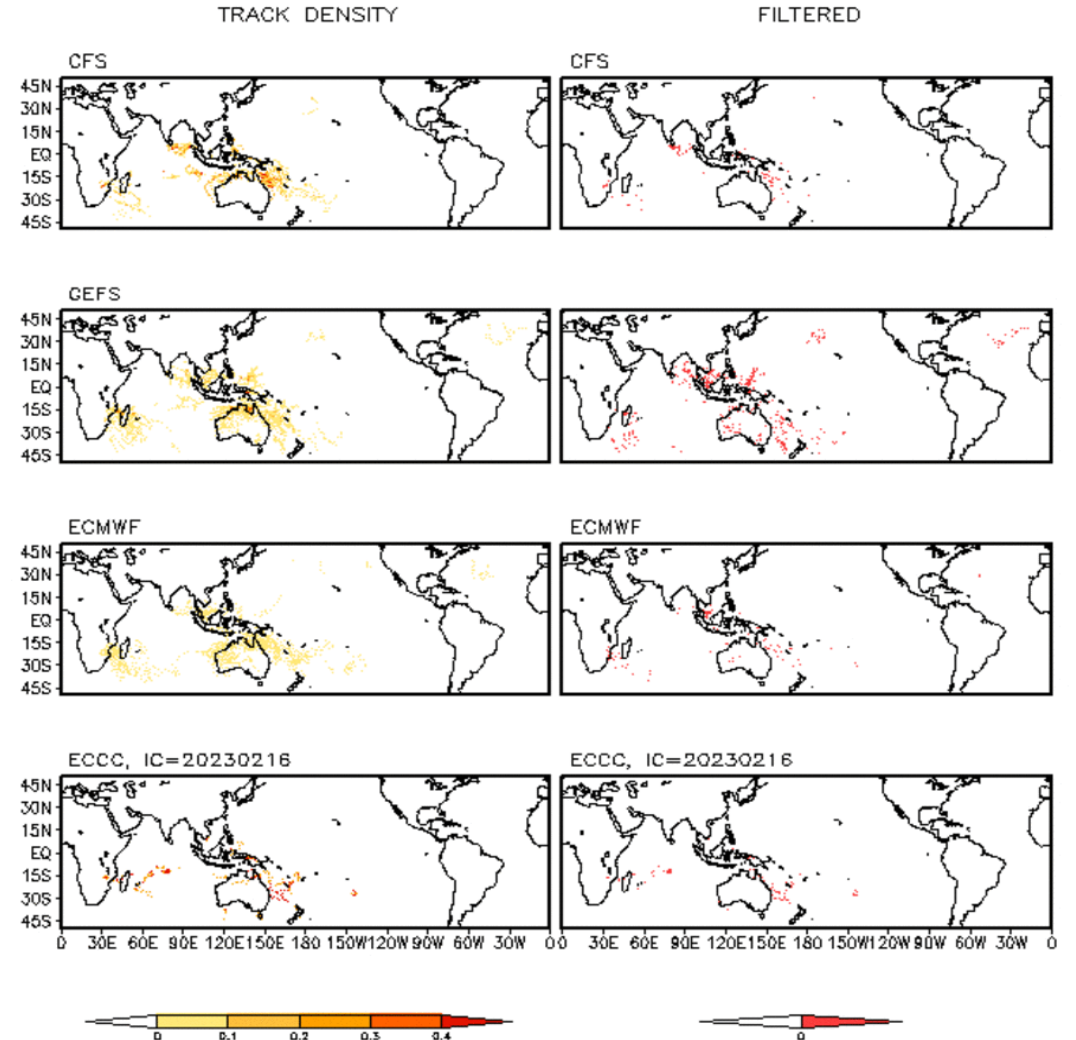
Experimental

Multi-Model TC Track Probabilities/Densities: Week-2

Storm Track Probabilities, IC=20230220
Week 2: 0301 - 0307

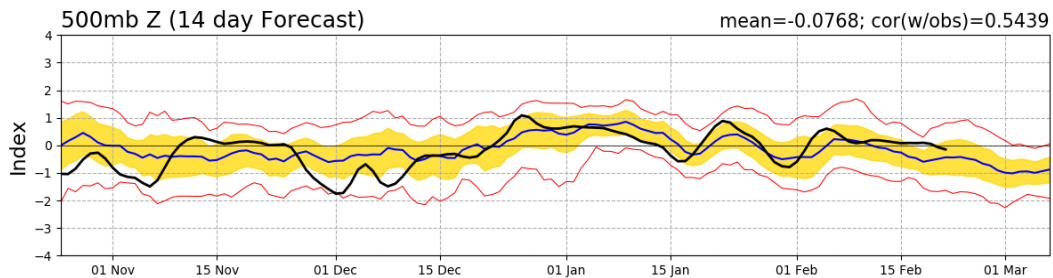
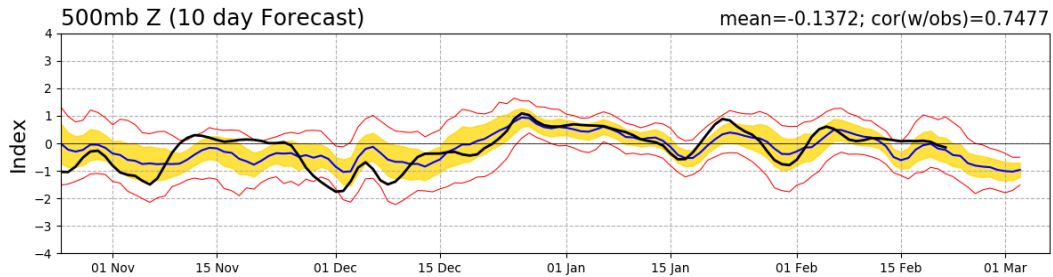
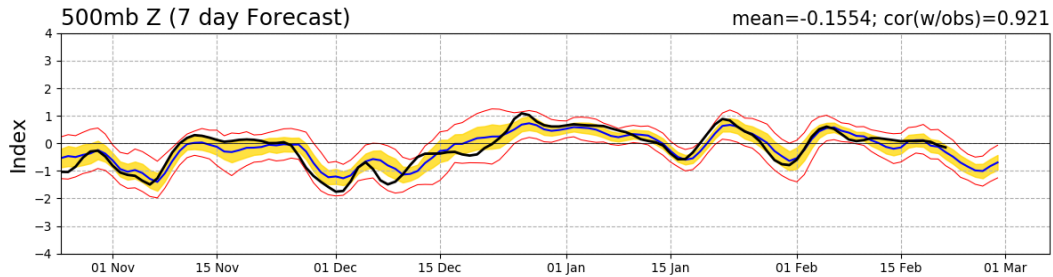
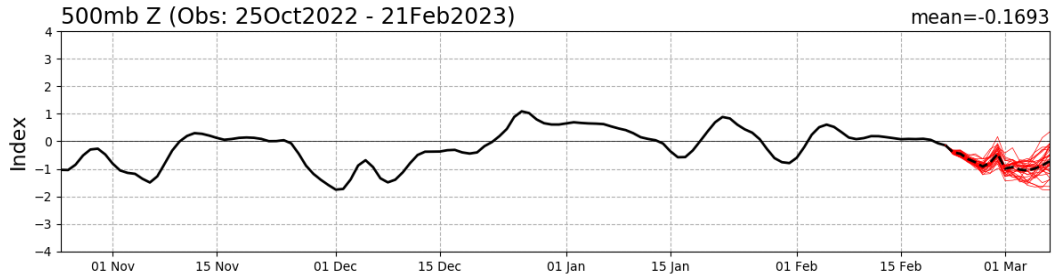


Storm Track Density Distribution, IC=20230220
Week 2 Forecast: 0301-0307

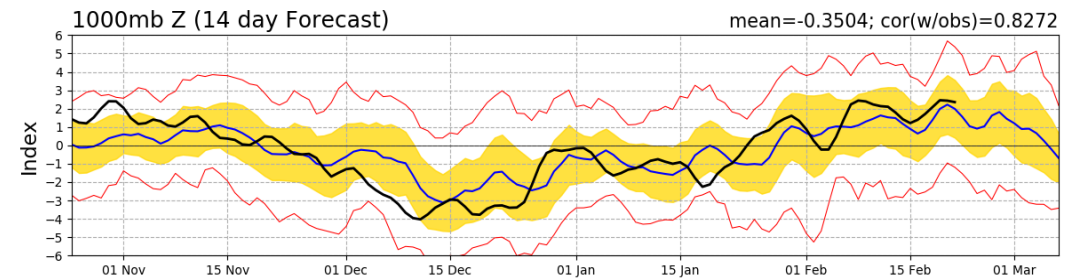
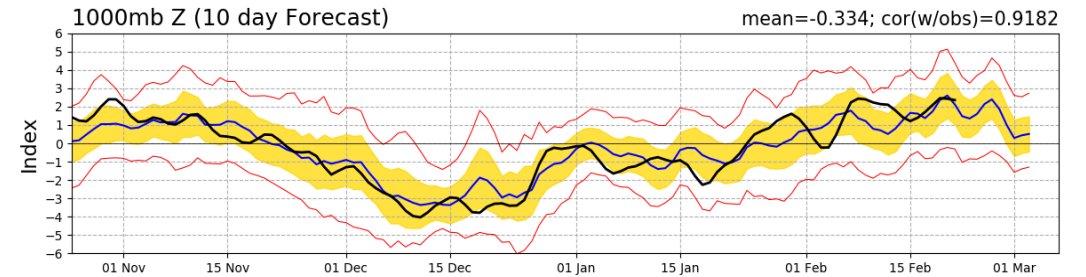
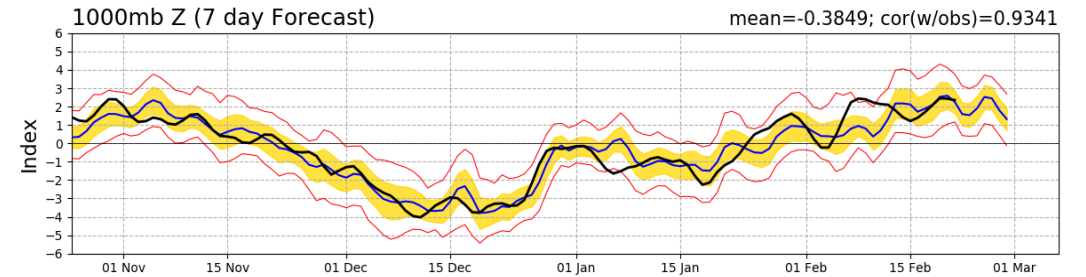
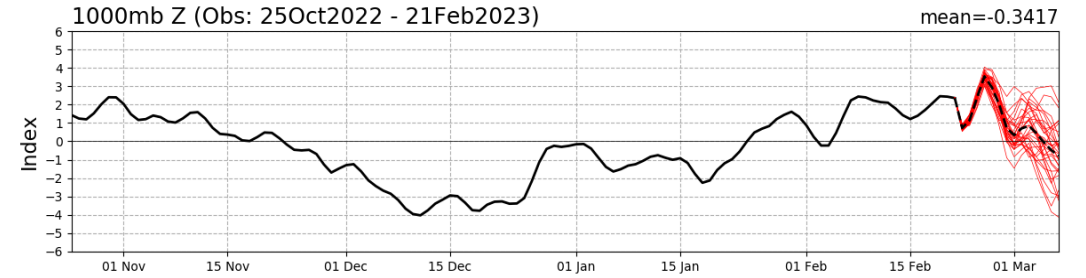


Teleconnection Indices: PNA / AO:

PNA Index: Observed & GEFS Forecasts

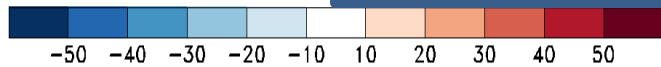
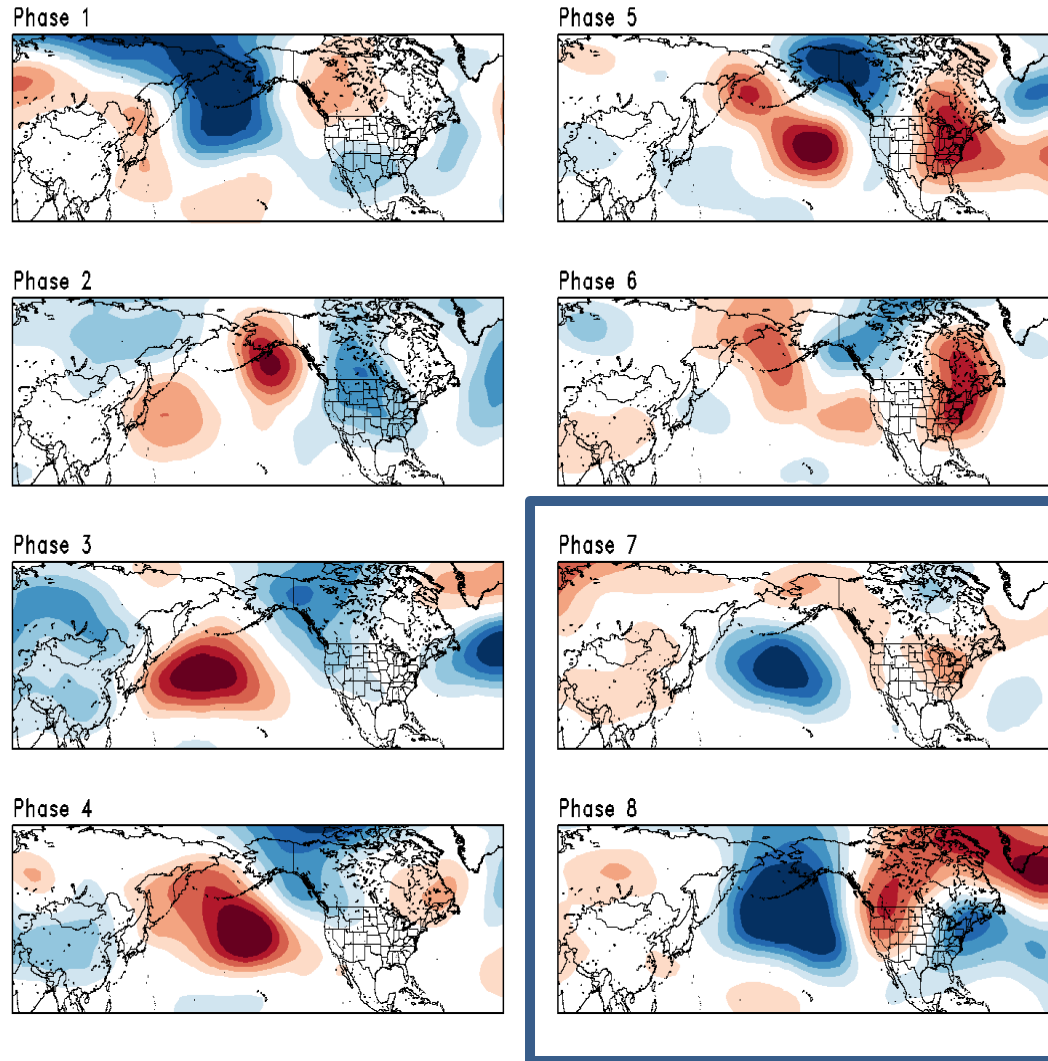


AO Index: Observed & GEFS Forecasts

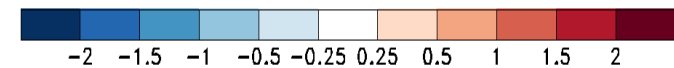
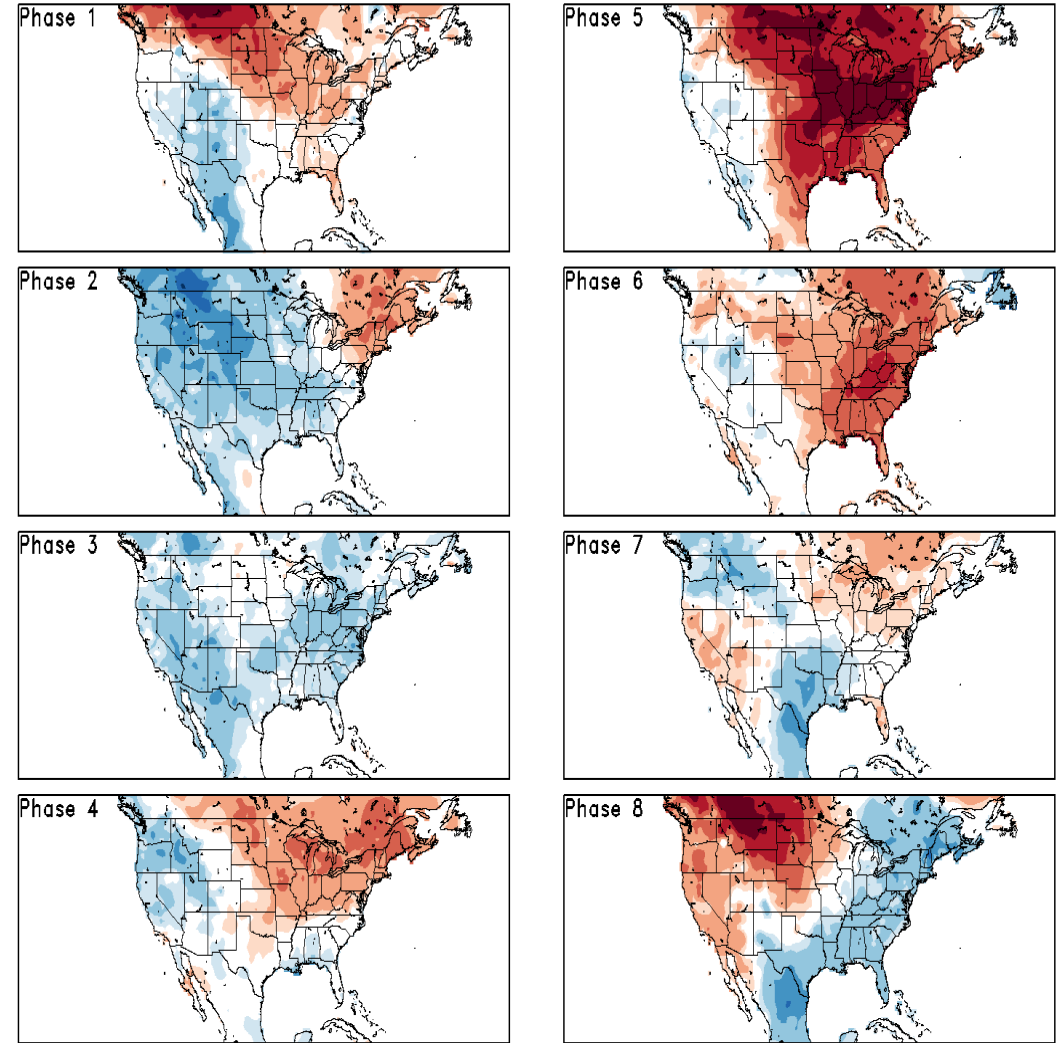


Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

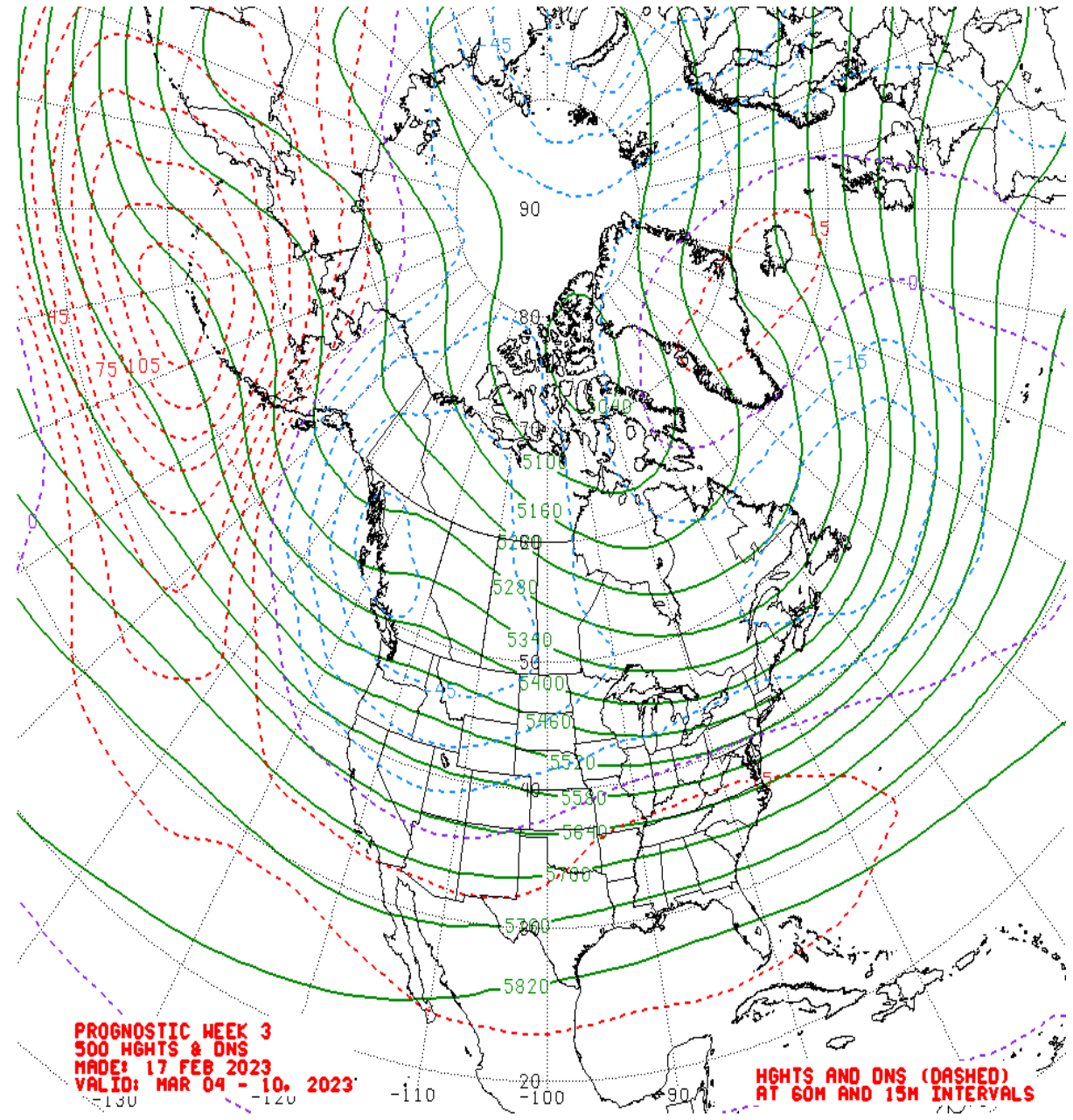
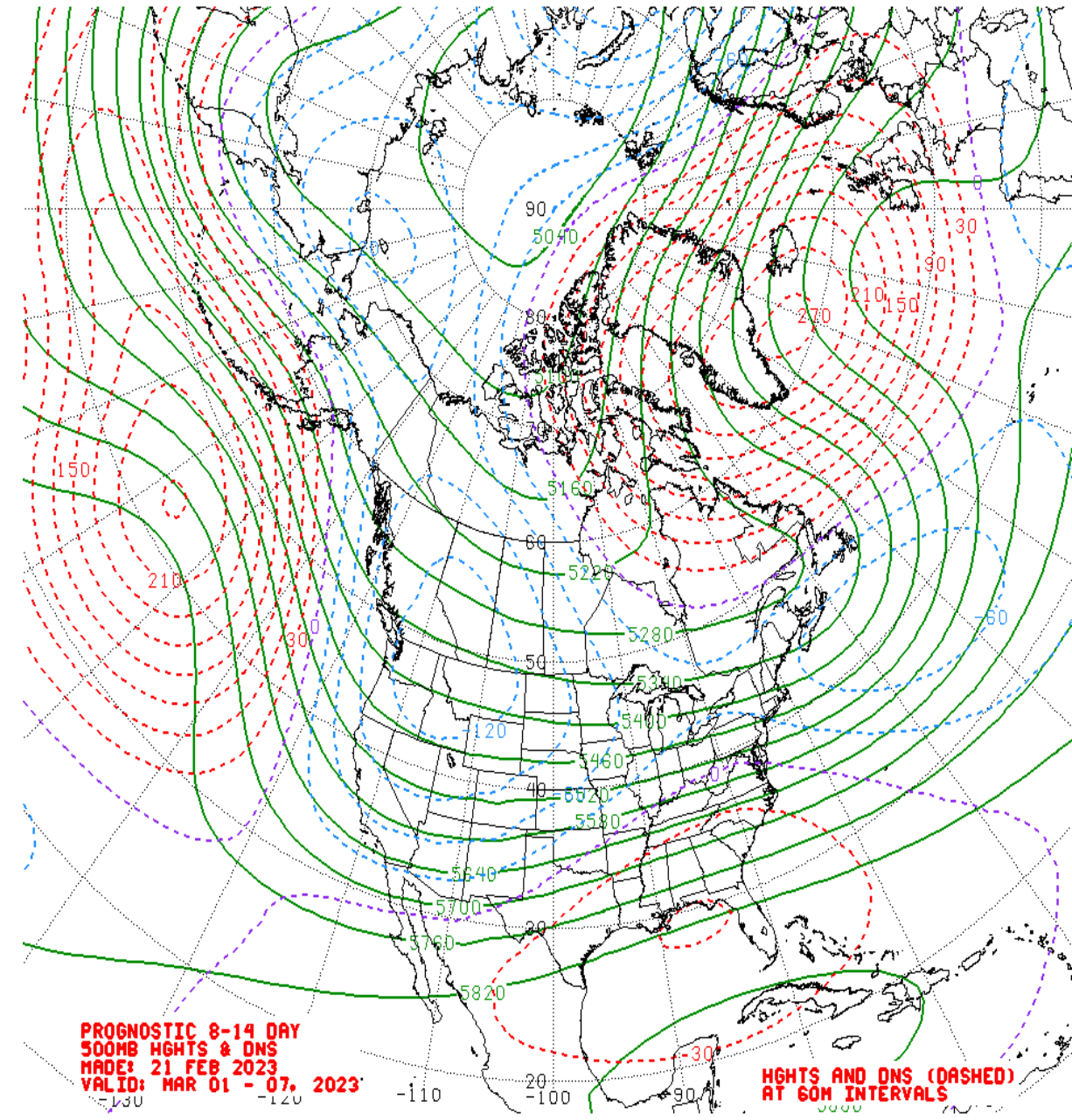
JFM MJO Composite: CDAS 500-hPa Height (m)



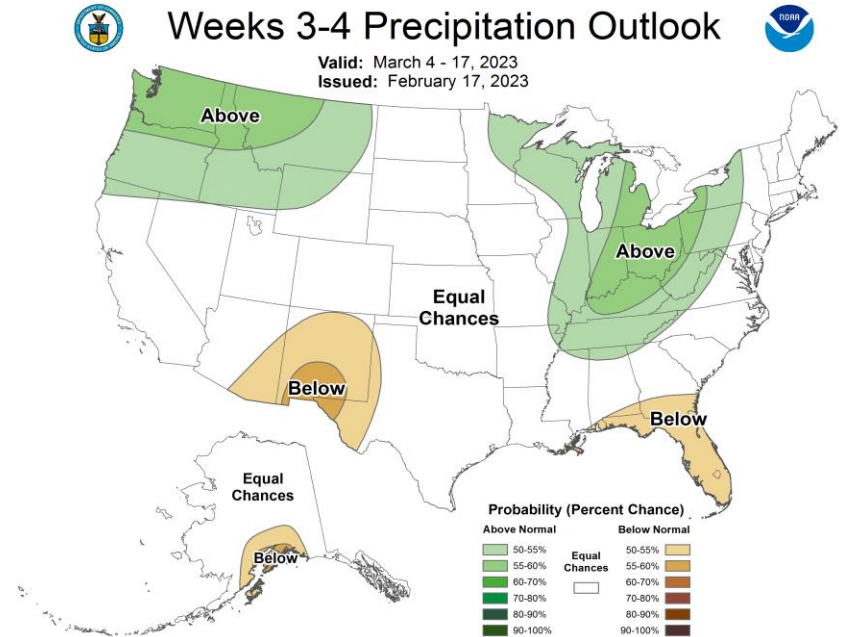
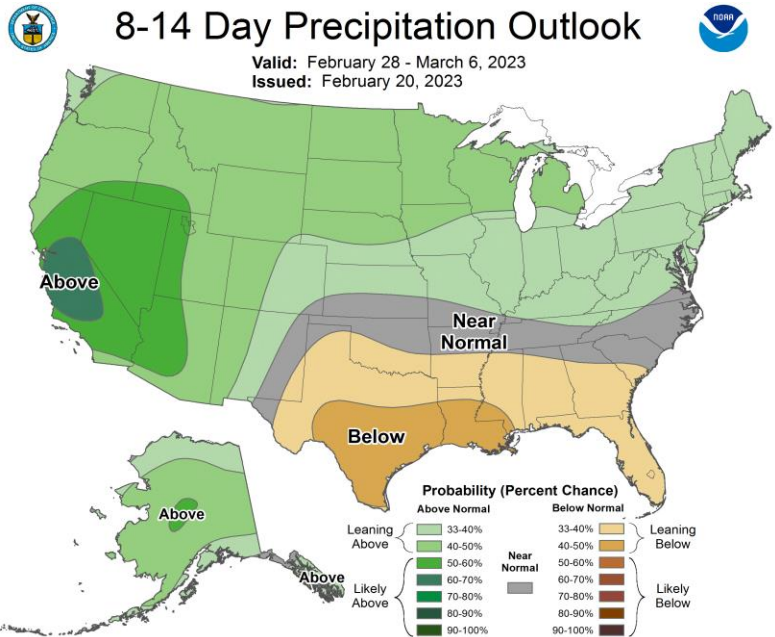
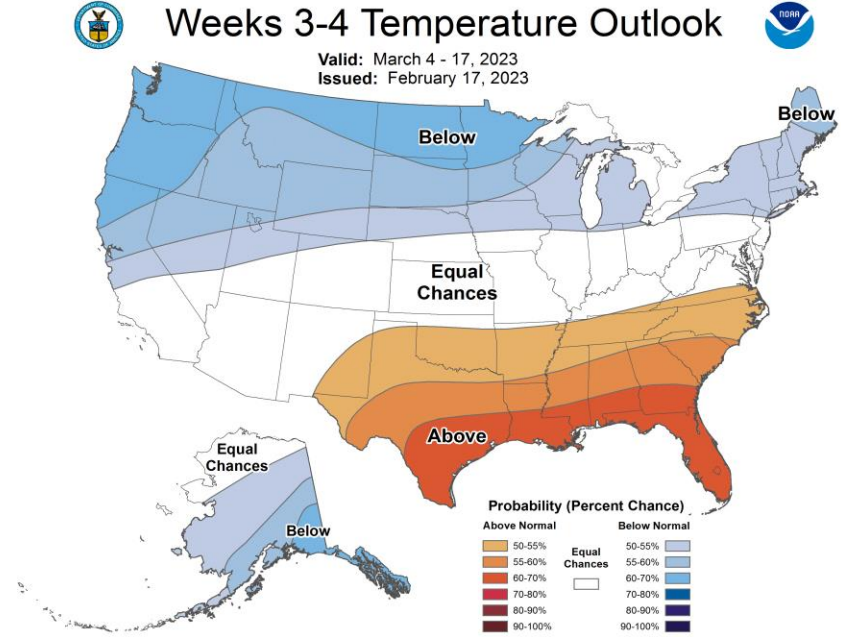
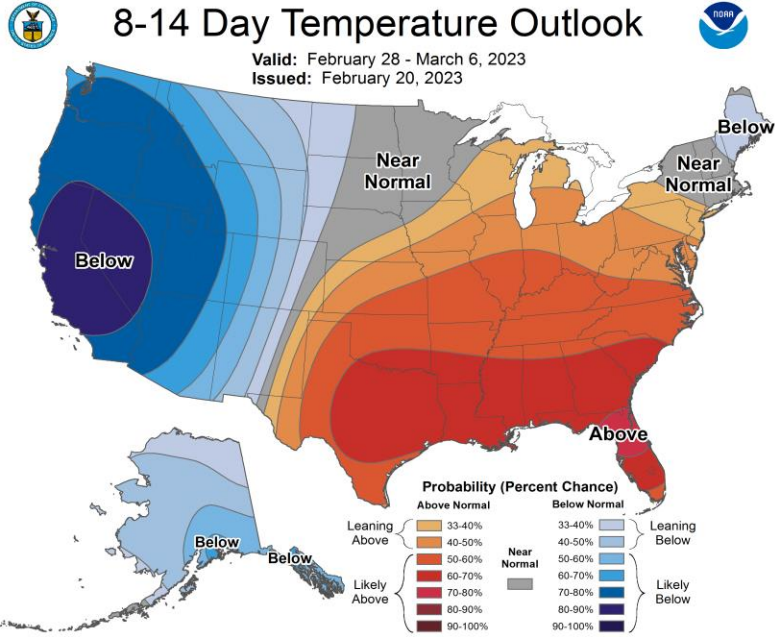
JFM MJO Composite: GLBT (degC)



Mean 500-hPa Height Anomaly Forecasts:



Official Temperature & Precipitation Forecasts:



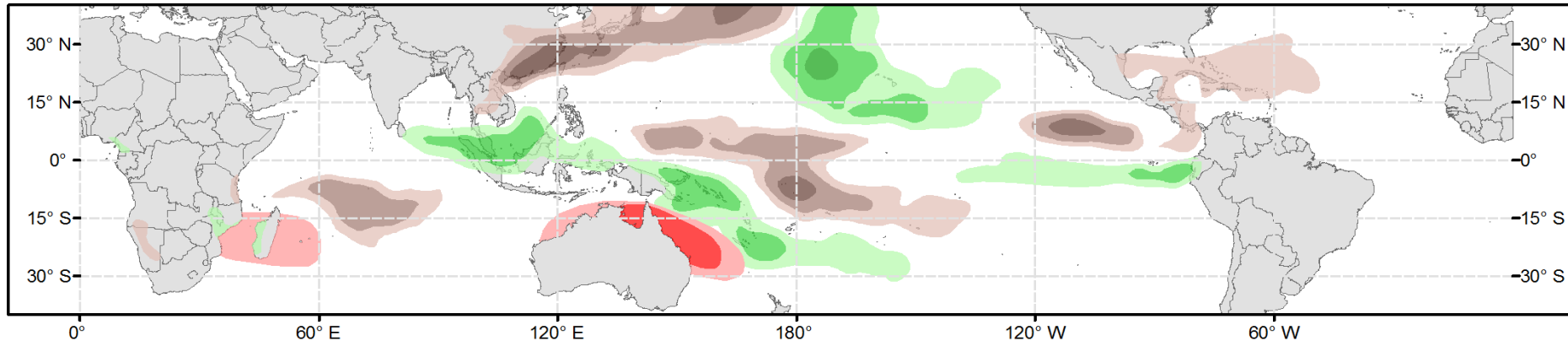


Global Tropics Hazards Outlook

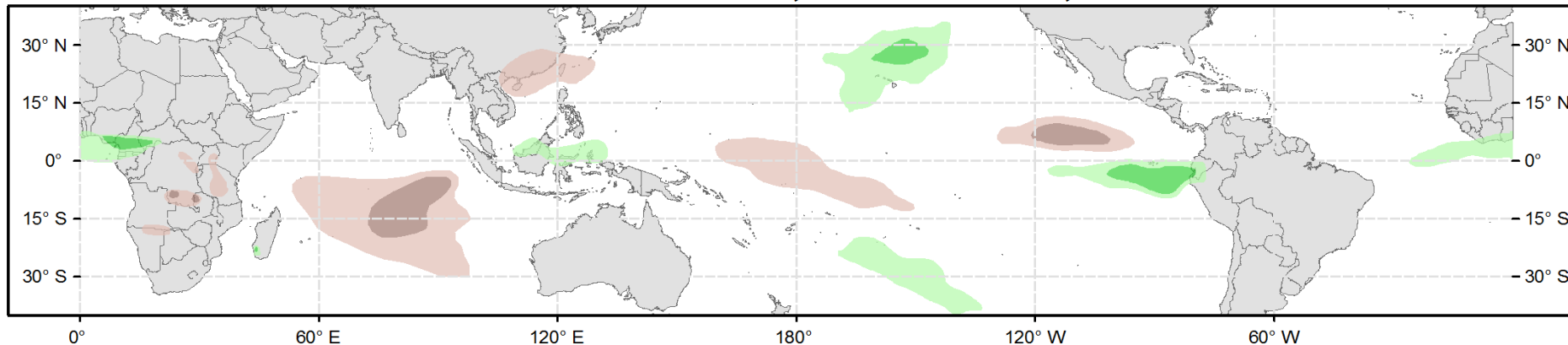
Climate Prediction Center



Week 2 - Valid: Mar 01, 2023 - Mar 07, 2023



Week 3 - Valid: Mar 08, 2023 - Mar 14, 2023



Week-2 Only

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: 02/21/2023
Forecaster: Allgood

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.