



# Weeks 2-3 Global Tropics Hazards Outlook

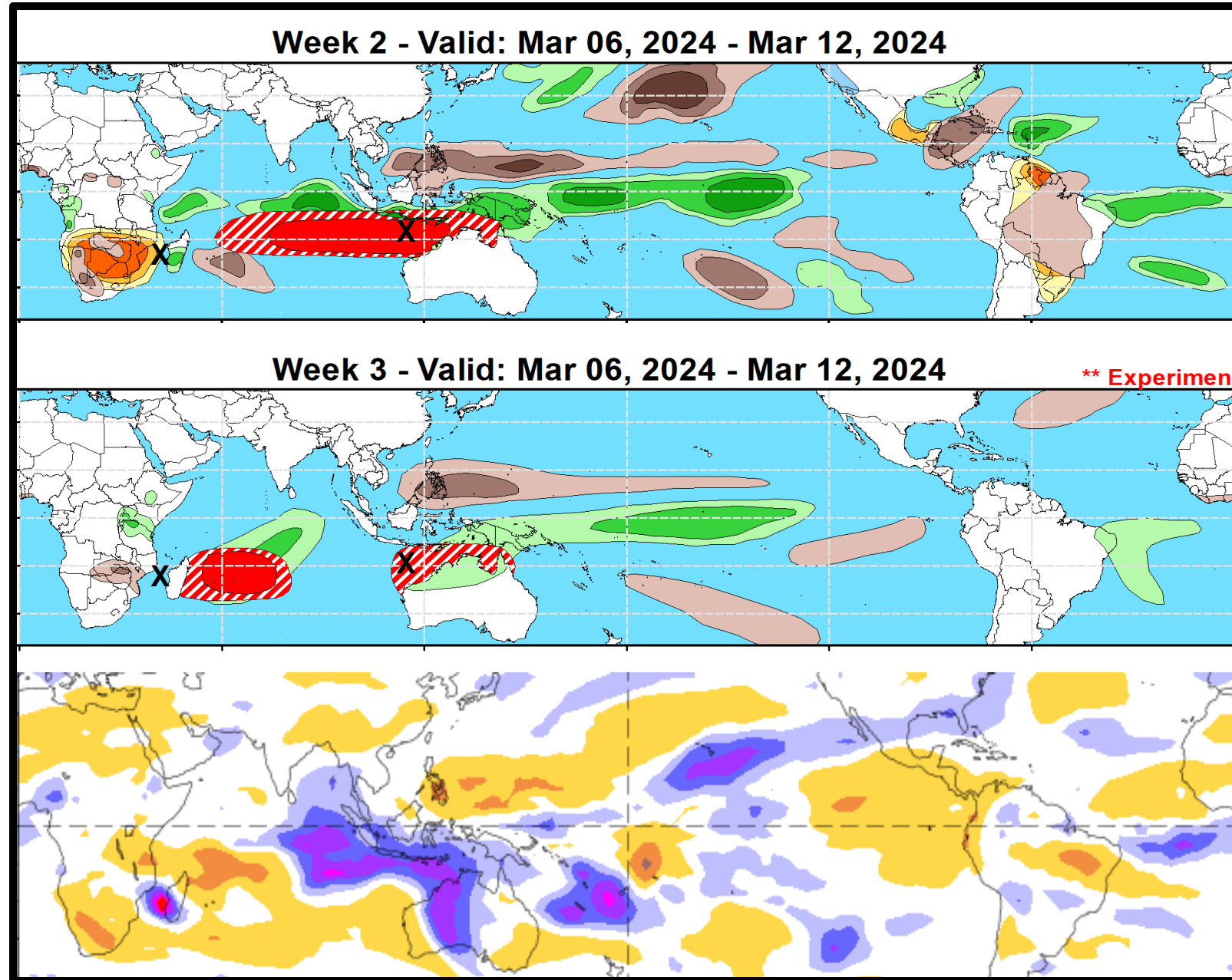
3/12/2024

Adam Allgood

NWS / NCEP / Climate Prediction Center

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

- TS Filipo formed on 10 March over the Mozambique Channel
- TS 18S formed northwest of Australia
- Enhanced convection over the eastern IO/MT was well captured on the Week-2 outlook



# Synopsis of Climate Modes:

---

**ENSO:** (Aug 11, 2022 Update)      *next update on Thursday, Sep 8<sup>th</sup>*

- ENSO Alert System Status: [El Niño Advisory/La Niña Watch](#)
- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (79% chance), with increasing odds of La Niña developing in June-August 2024 (55% chance).

## **MJO and other subseasonal tropical variability:**

- The MJO remains active, with a robust signal propagating across the Maritime Continent after helping to generate widespread enhanced convection across the eastern Indian Ocean.
- The MJO helped generate a TC, 18S, which may bring impacts to Australia's Kimberley Coast during late Week-1.
- Dynamical model MJO index forecasts are remarkably consistent showing continued strong activity, with a fast transition to the Pacific during Week-1 and Week-2, and reaching the Western Hemisphere by Week-3.
- The MJO is favored to play a substantive role in the evolution of the tropical (and extra-tropical) patterns, briefly constructively interfering with the decaying ENSO, and teleconnecting with a potential pattern change towards more troughing for the central and eastern CONUS.

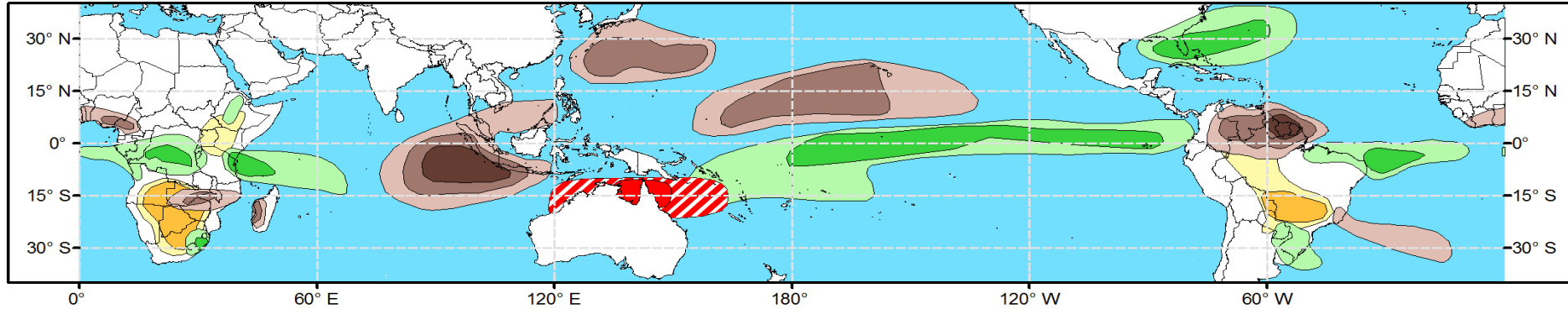
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

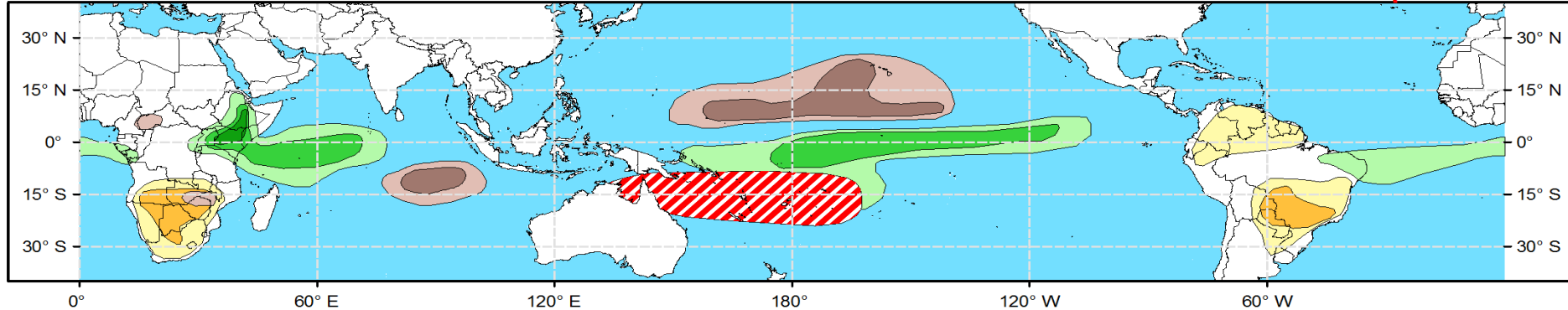


**Week 2 - Valid: Mar 20, 2024 - Mar 26, 2024**



**Week 3 - Valid: Mar 27, 2024 - Apr 02, 2024**

**\*\* Experimental \*\***



**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%

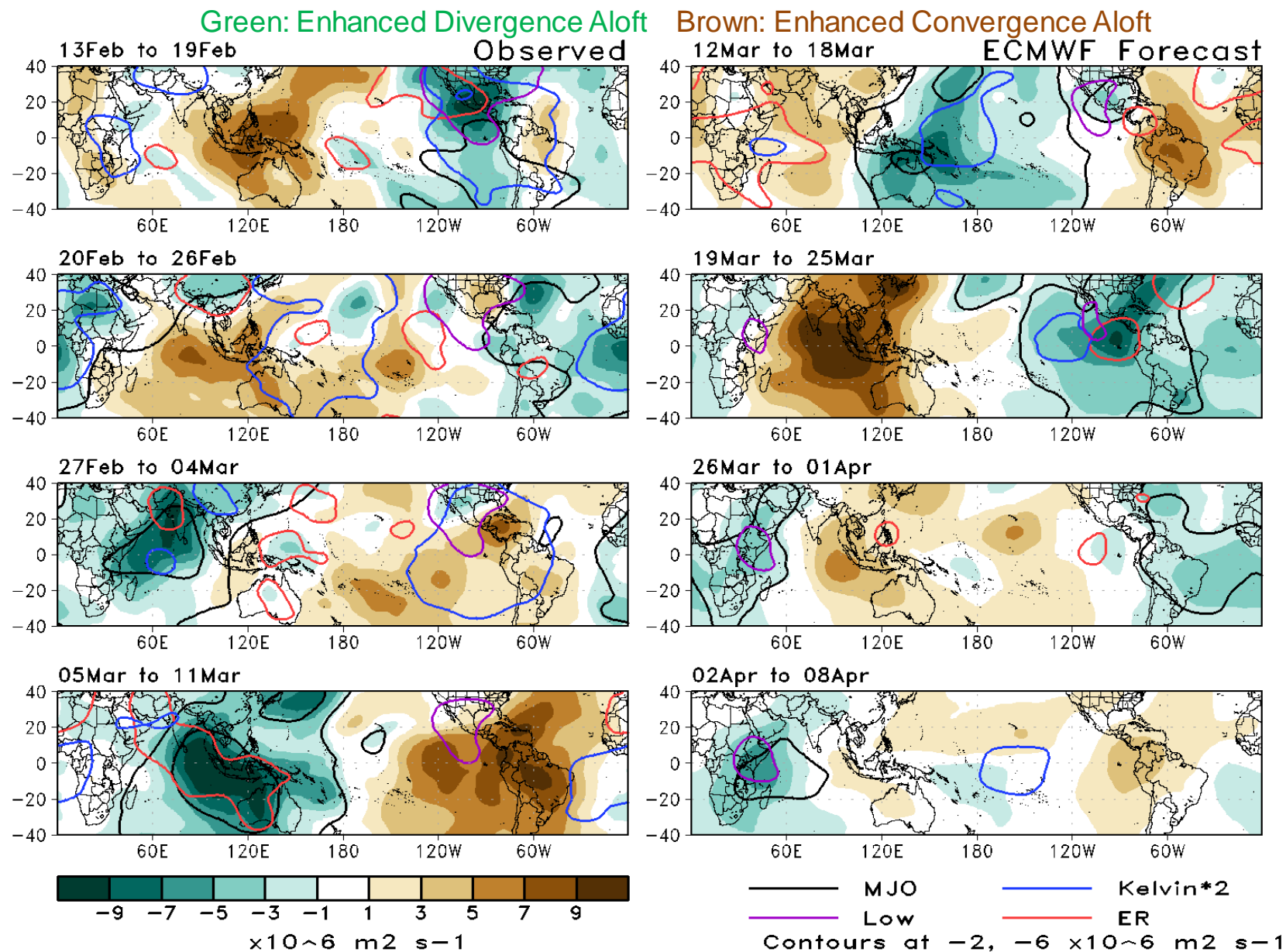
7-day min temperatures in the  
Lower third of the historical range

**Issued: 03/12/2024  
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.**

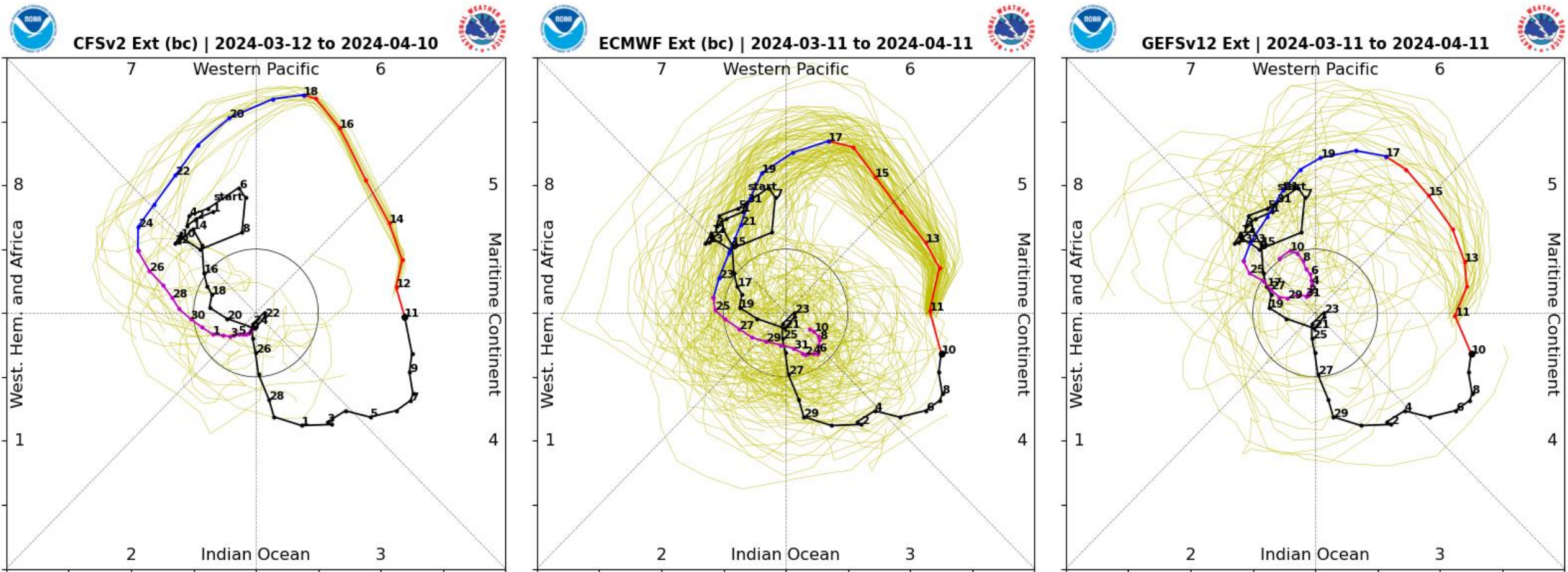
# 200-hPa Velocity Potential Anomaly Maps:

- Following a minor disruption of the signal during late February, a clear Wave-1 pattern re-emerged in the upper-level VP field by March.
- ECMWF forecasts show a strong and fast moving signal crossing the Pacific and Western Hemisphere over the next few weeks.



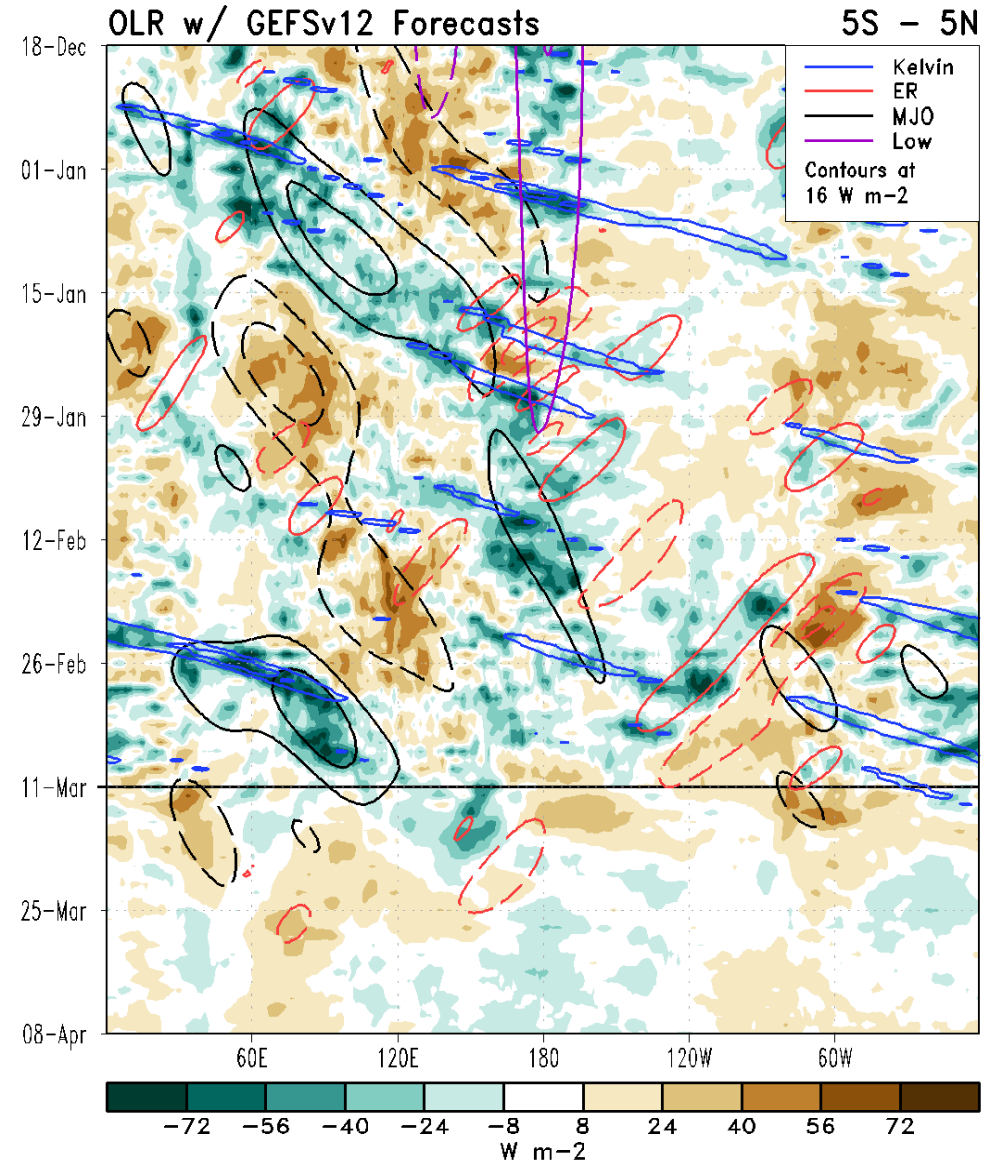
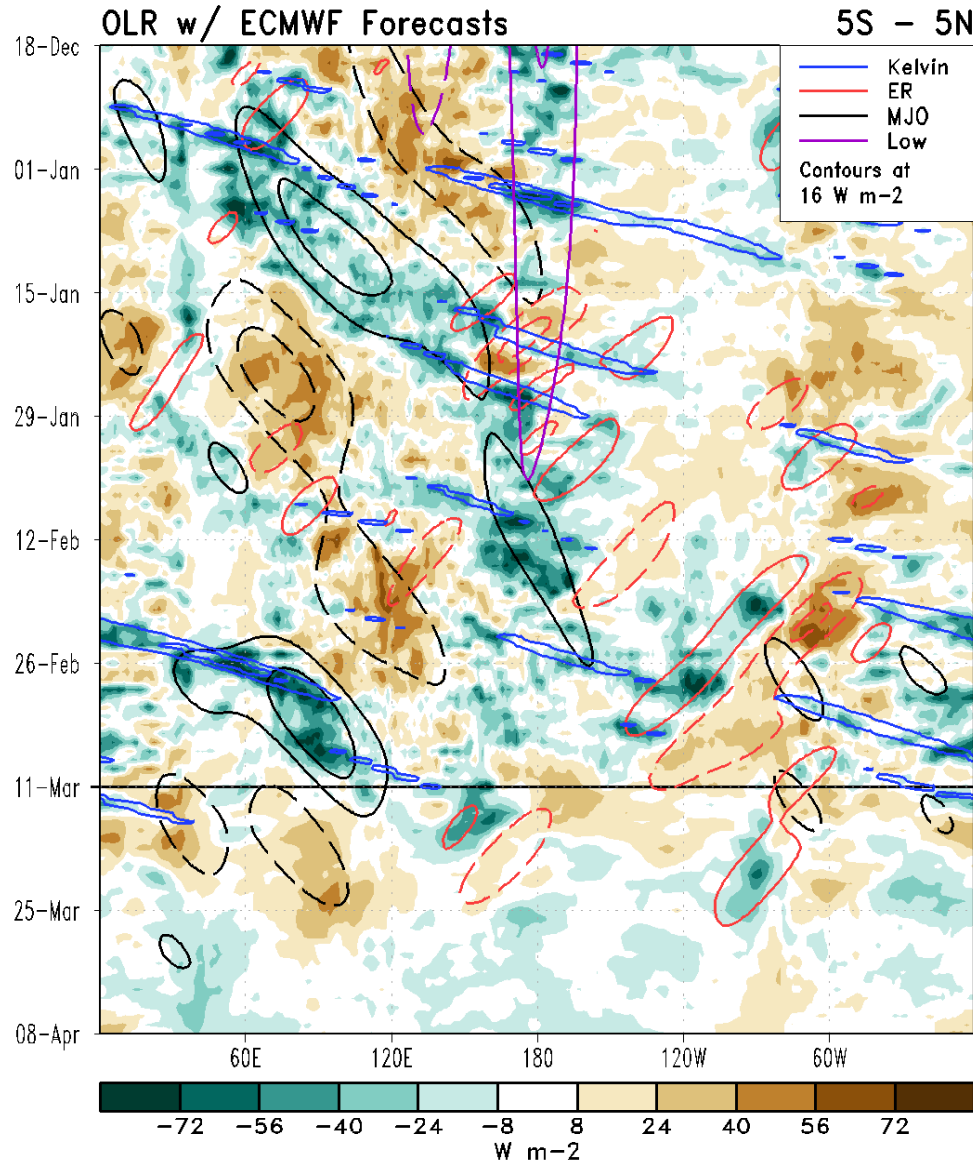


# RMM Index Observations & Forecasts:



- Dynamical model forecasts are remarkably consistent, both among the different model systems and within the individual ensemble members.
- Strong projection over the West Pacific, with a phase speed more consistent with convectively coupled KW activity.
- Although weaker and more spread, MJO activity is favored to persist into Week-3 and likely beyond.

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

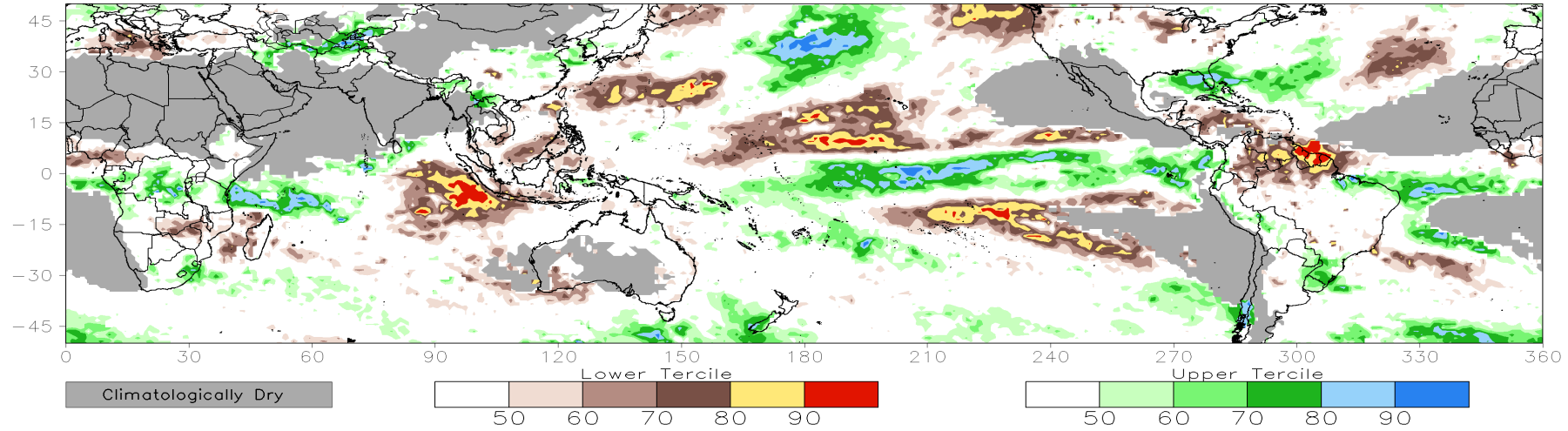




# Consolidated Probabilistic Precipitation: Weeks 2 & 3

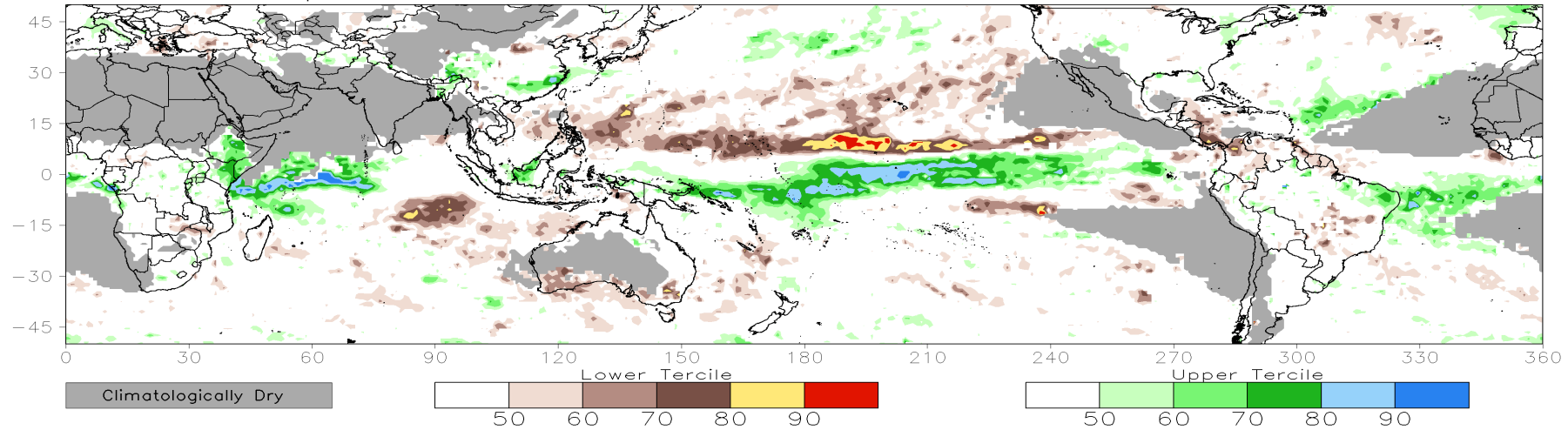
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 20Mar2024–26Mar2024



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

Valid: 27Mar2024–02Apr2024

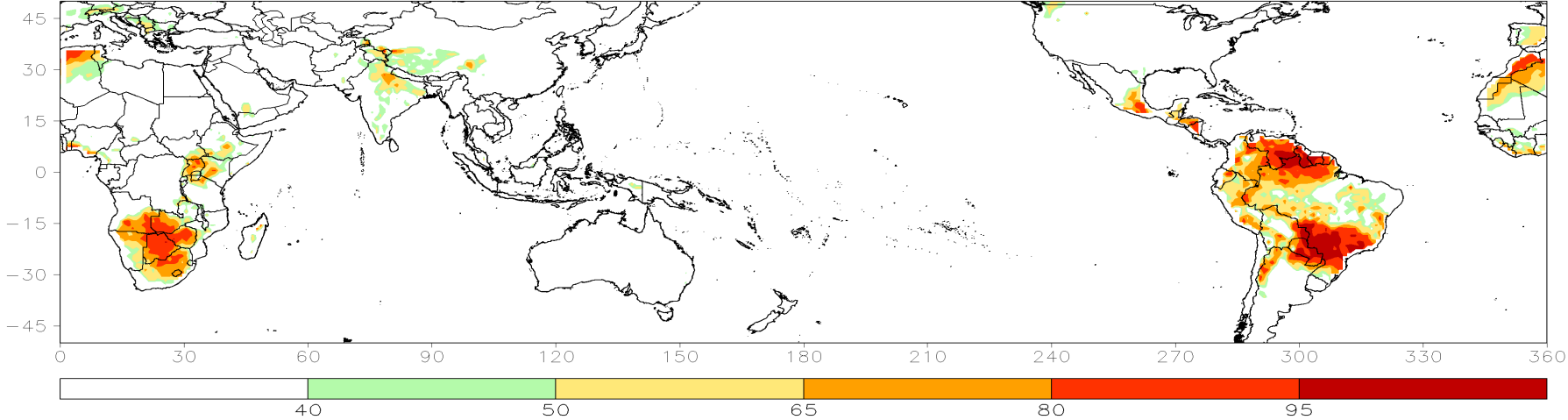




# Consolidated Probabilistic Temperatures: Week-2

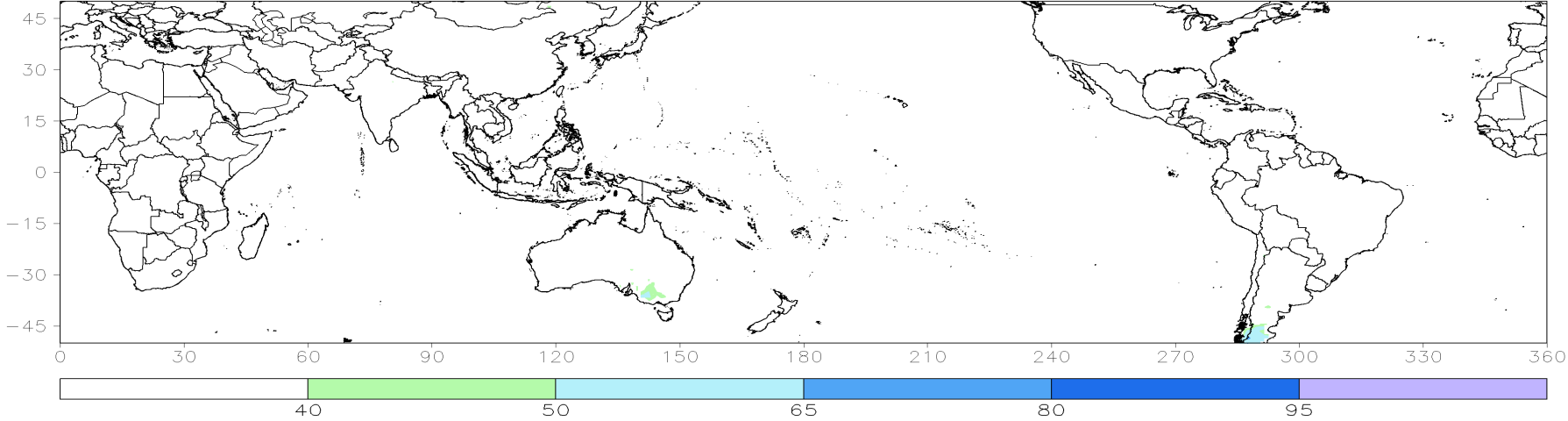
CFS/ECMWF/GEFS Correlation Weighted: Week2 Probability for Tmax Above Upper Tercile (%)

Valid: 20Mar2024-26Mar2024



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

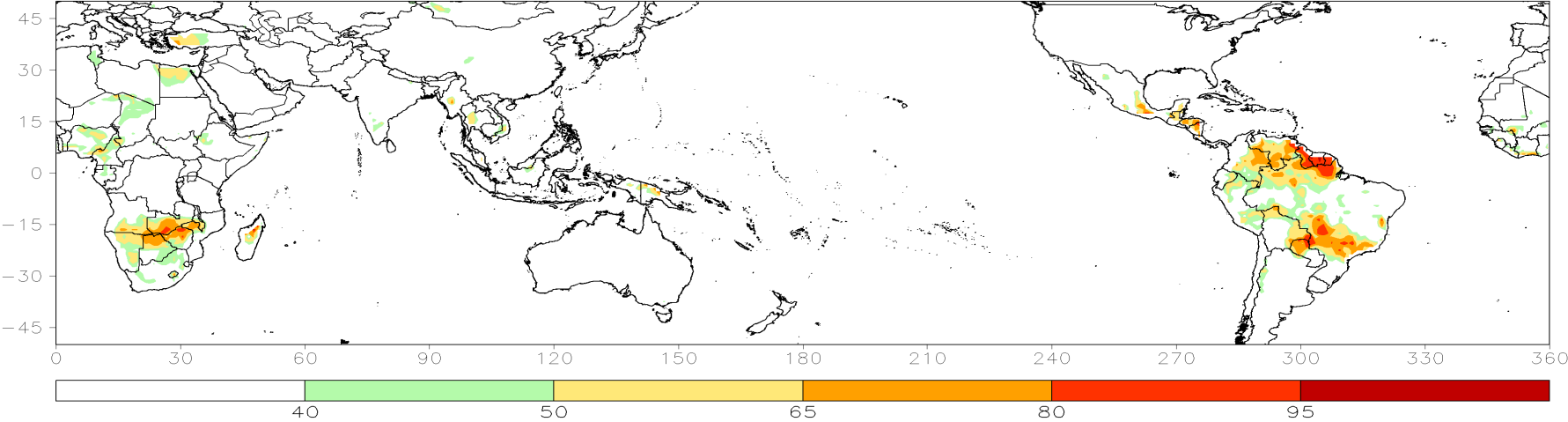
Valid: 20Mar2024-26Mar2024



# Consolidated Probabilistic Temperatures: Week-3

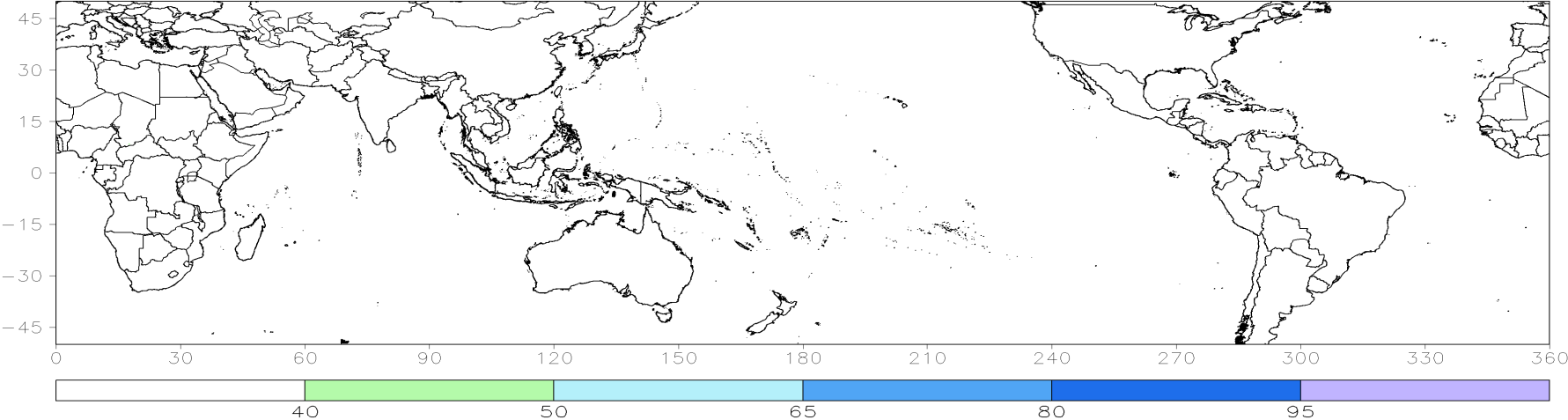
CFS/ECMWF/GEFS Correlation Weighted: Week3 Probability for Tmax Above Upper Tercile (%)

Valid: 27Mar2024-02Apr2024



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

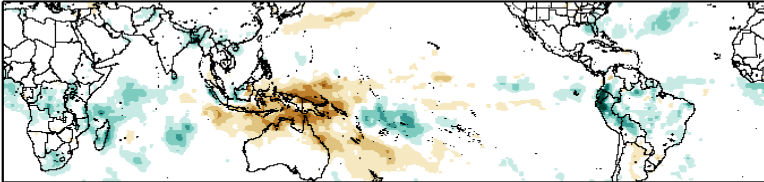
Valid: 27Mar2024-02Apr2024



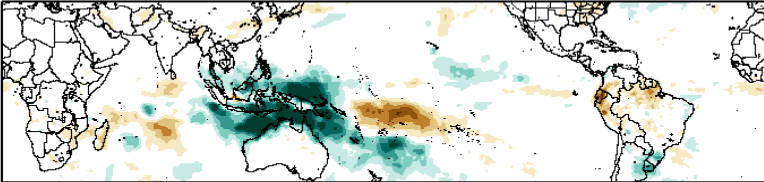
# Historical Precipitation Anomalies By MJO Phase:

FMA MJO Composite: GPCP1DD (mm/day)

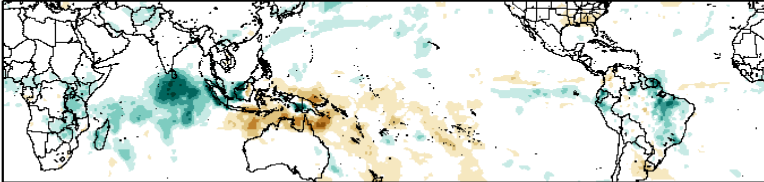
Phase 1



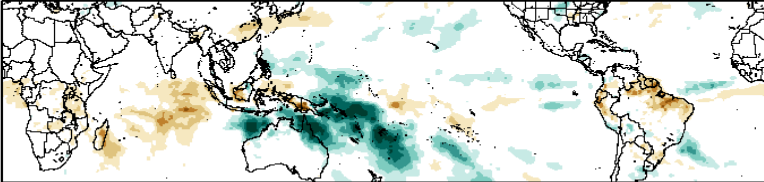
Phase 5



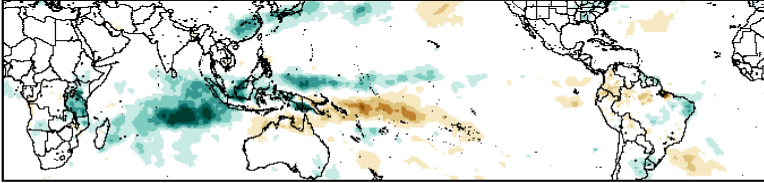
Phase 2



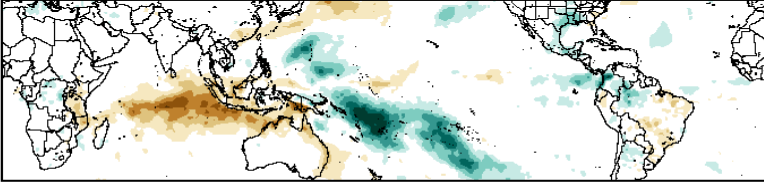
Phase 6



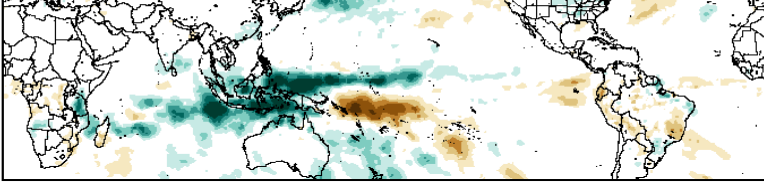
Phase 3



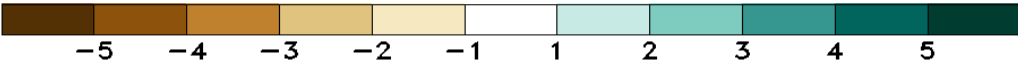
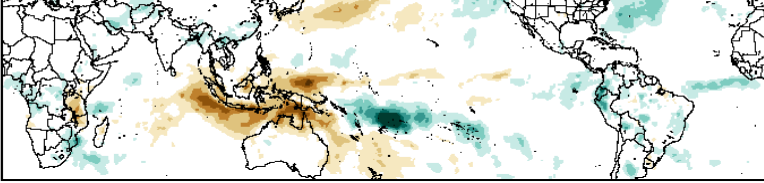
Phase 7



Phase 4

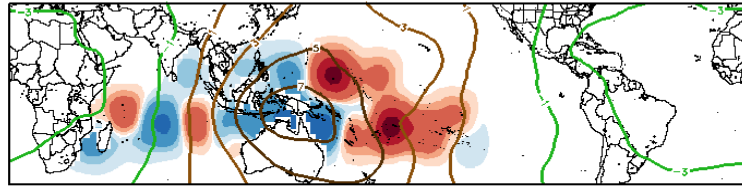


Phase 8

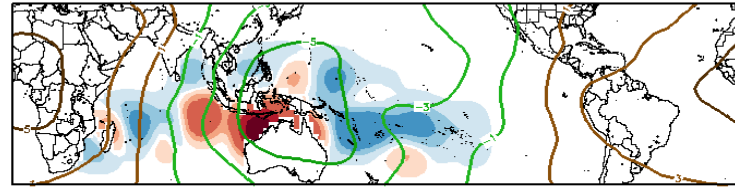


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

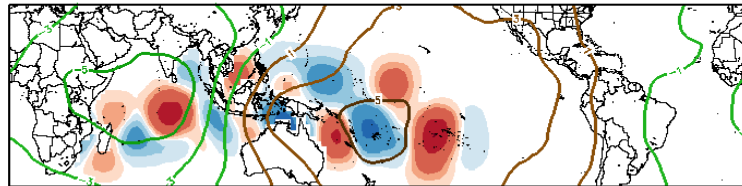
FMA MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ FMA CHI200 ( $\times 10^6 m^2 s^{-1}$ ) / Contours every  $2 \times 10^6 m^2 s^{-1}$



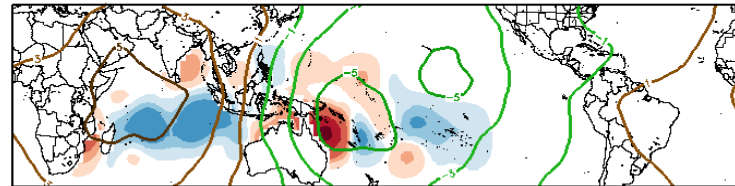
Phase 1



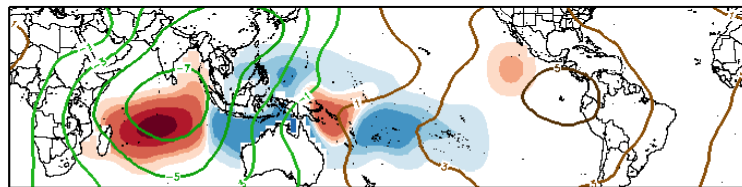
Phase 5



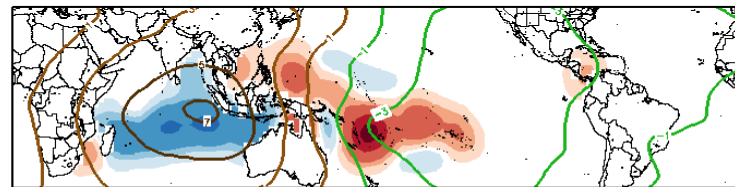
Phase 2



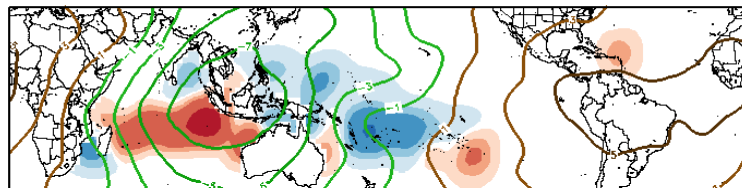
Phase 6



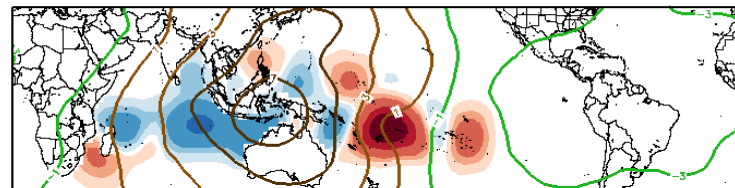
Phase 3



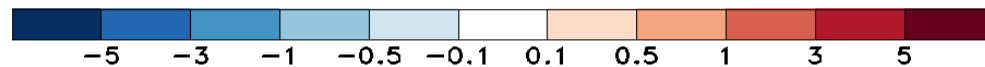
Phase 7



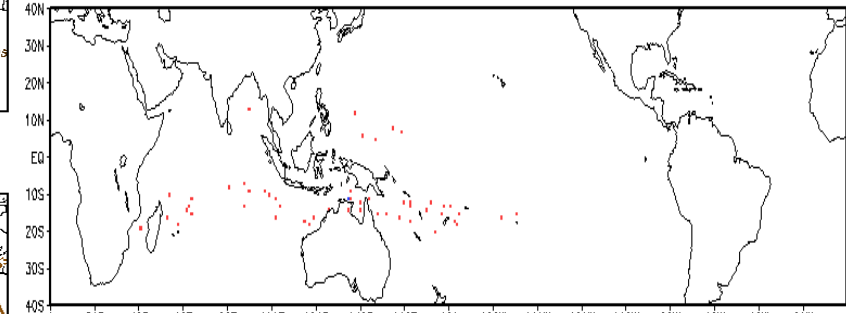
Phase 4



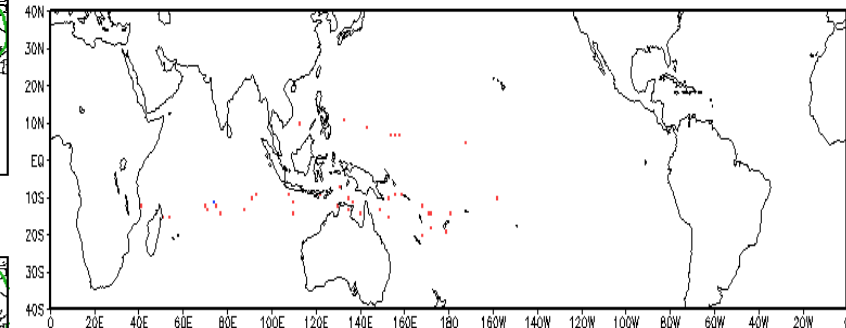
Phase 8



Observed TC Genesis, 1979–2021  
7-day Period 0320 to 0326



Observed TC Genesis, 1979–2021  
7-day Period 0327 to 0402



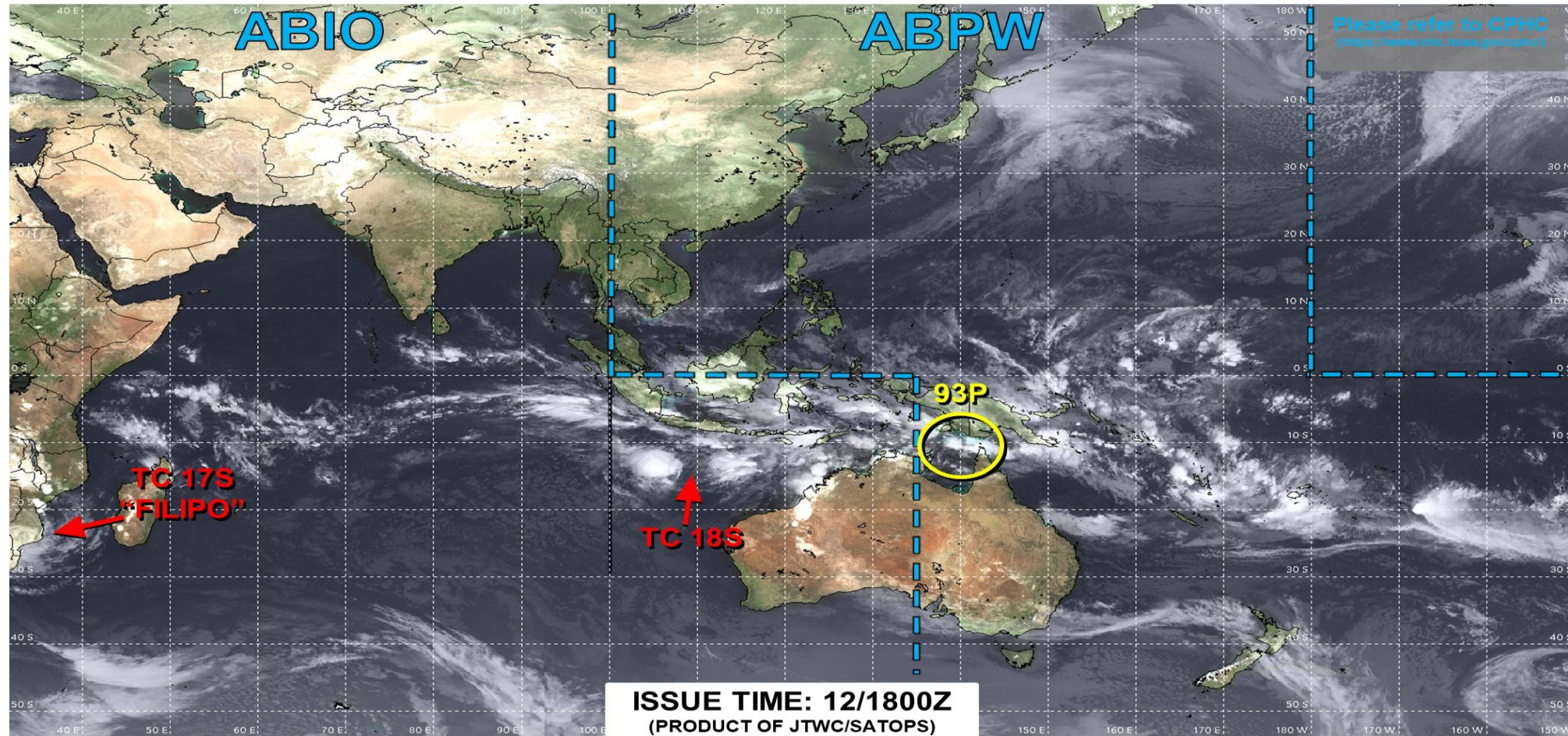
\*Experimental\*



# 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

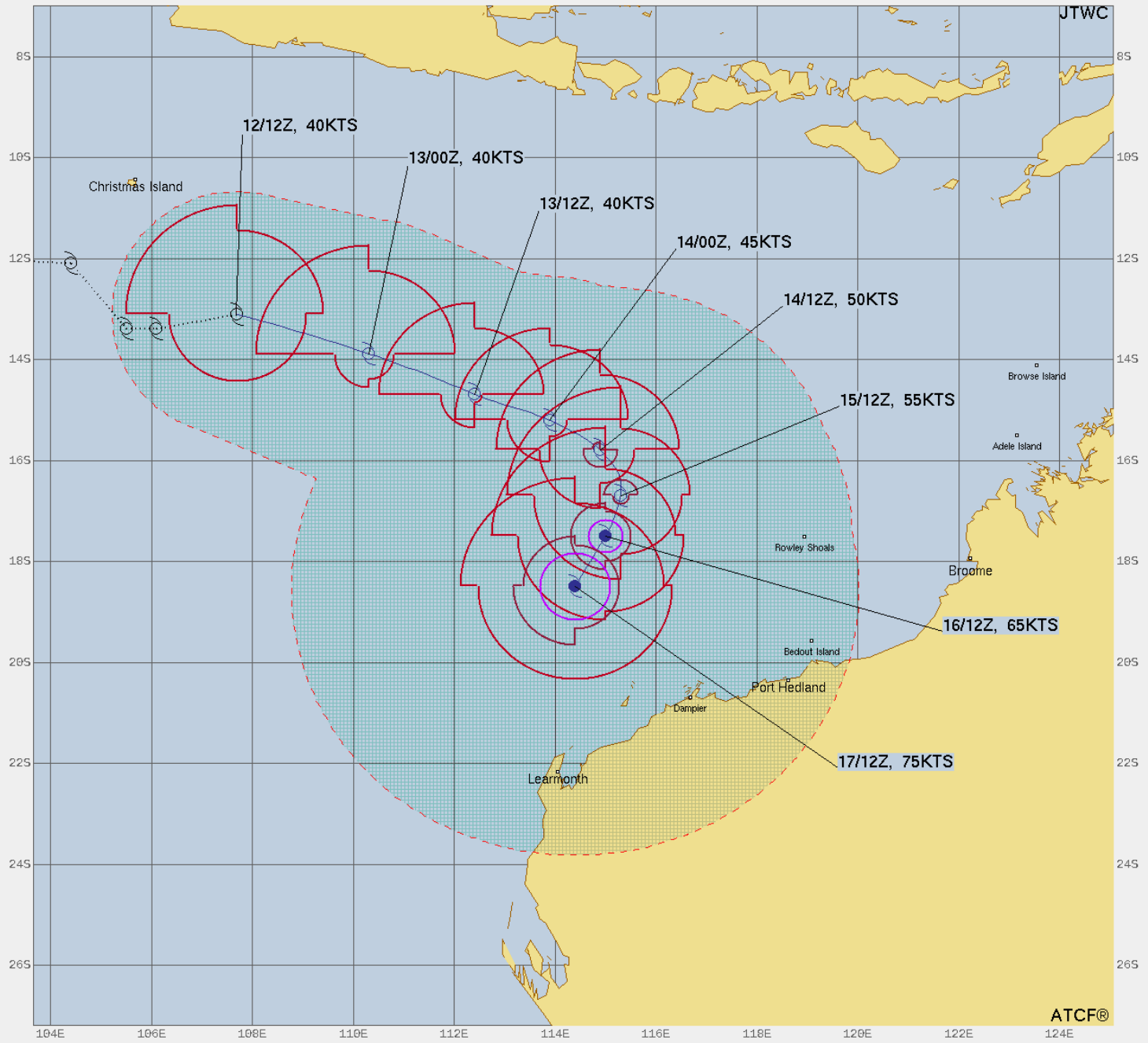


TC development likely within 24 hours (Reference TCFA)



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





TROPICAL CYCLONE 18S (EIGHTEEN) WARNING #6  
 WTXS32 PGTW 121500  
 121200Z POSIT: NEAR 13.1S 107.7E  
 MOVING 080 DEGREES TRUE AT 16 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 20 FEET  
 12/12Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 13/00Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 13/12Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 14/00Z, WINDS 045 KTS, GUSTS TO 055 KTS  
 14/12Z, WINDS 050 KTS, GUSTS TO 065 KTS  
 15/12Z, WINDS 055 KTS, GUSTS TO 070 KTS  
 16/12Z, WINDS 065 KTS, GUSTS TO 080 KTS  
 17/12Z, WINDS 075 KTS, GUSTS TO 090 KTS

CPA TO:	NM	DTG
PORT_HEDLAND	259	03/17/04Z
LEARMONTH	223	03/17/12Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
CHRISTMAS_ISLAND	144	200	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)

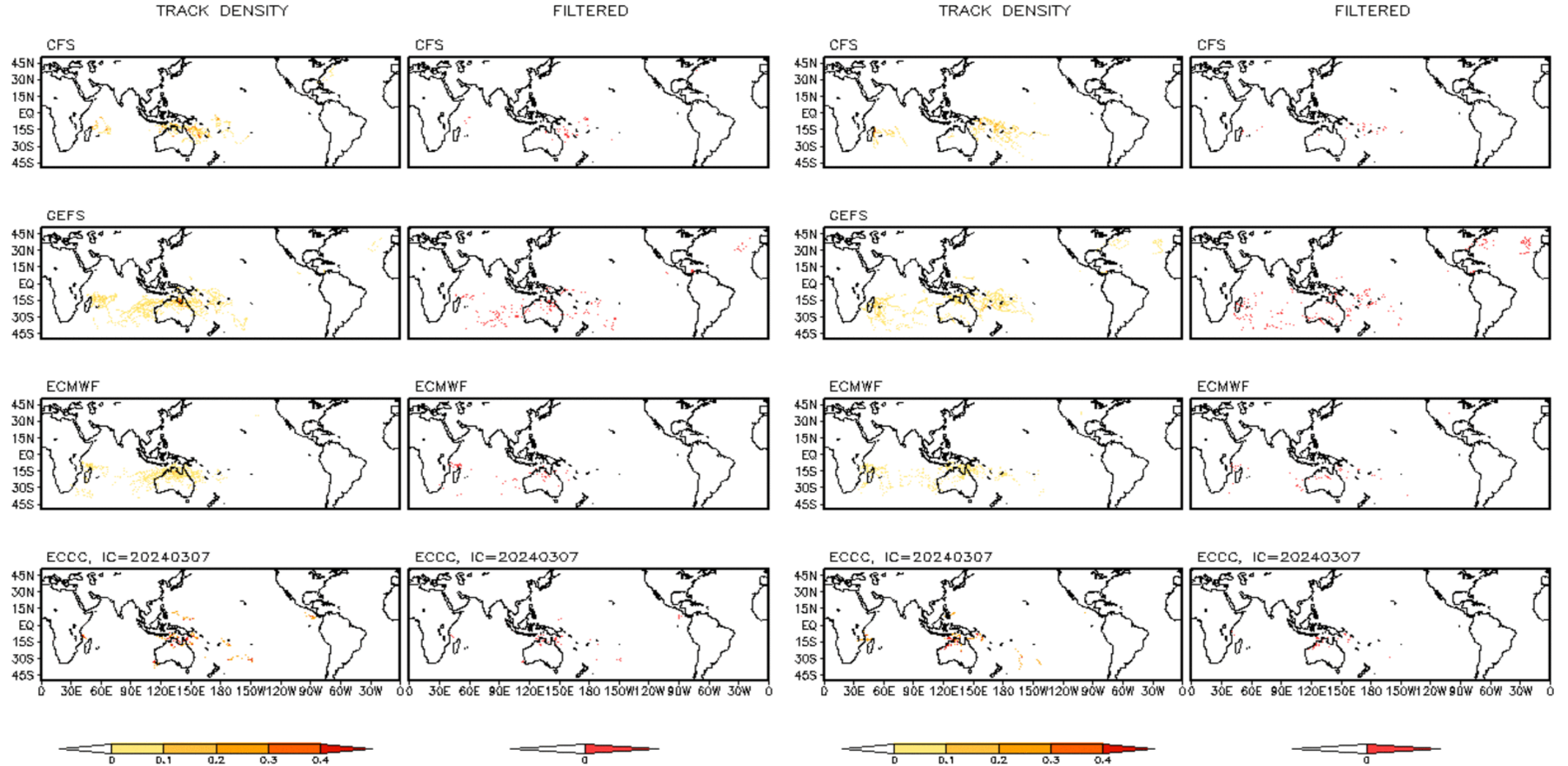




# Multi-Model TC Track Densities: Weeks 2+3

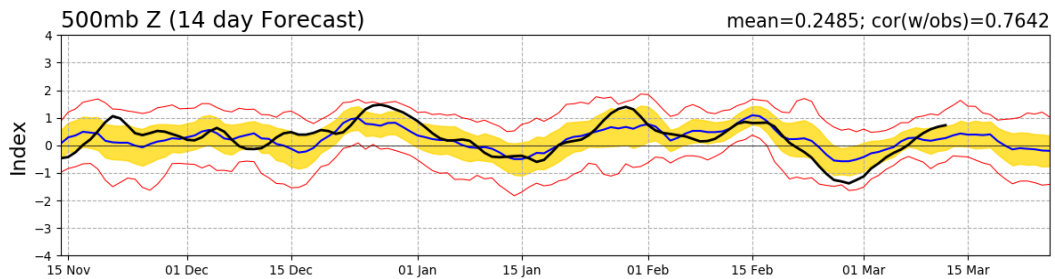
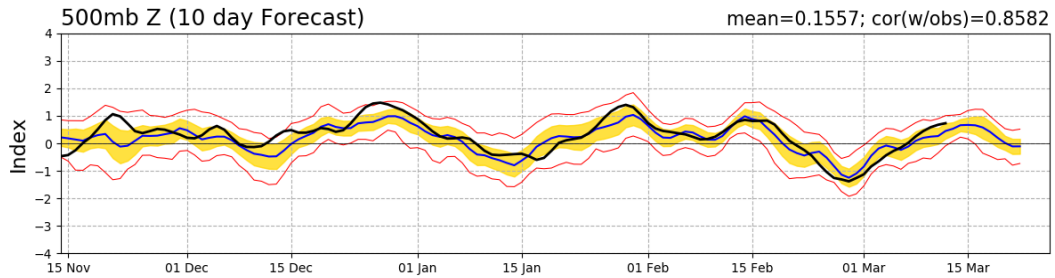
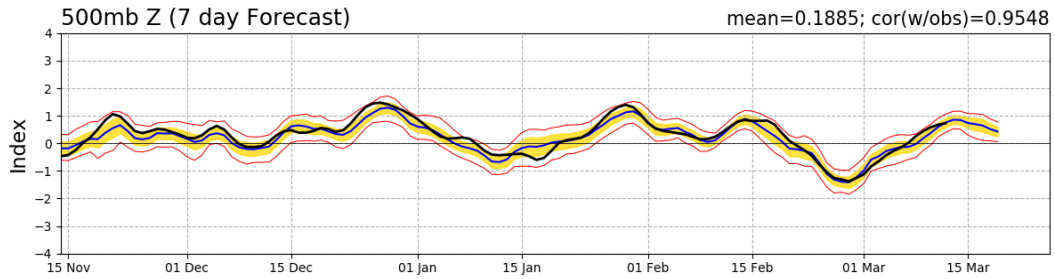
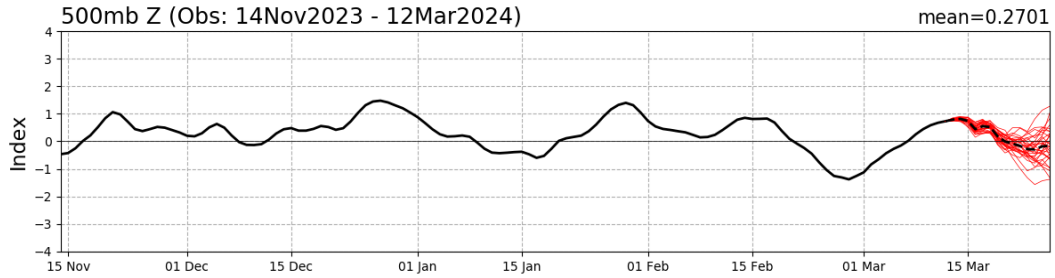
Storm Track Density Distribution, IC=20240311  
Week 2 Forecast: 0320-0326

Storm Track Density Distribution, IC=20240311  
Week 3 Forecast: 0327-0402

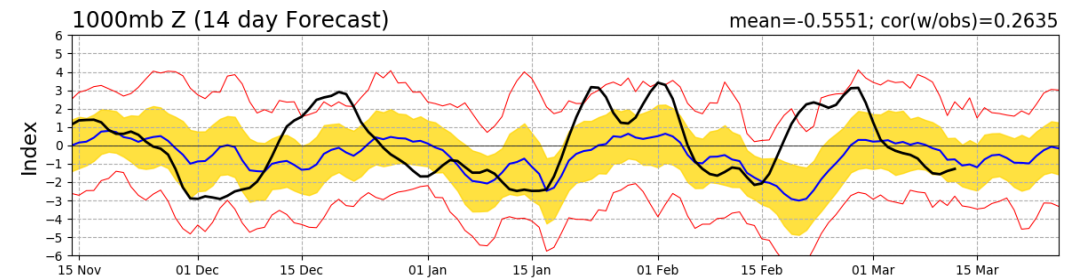
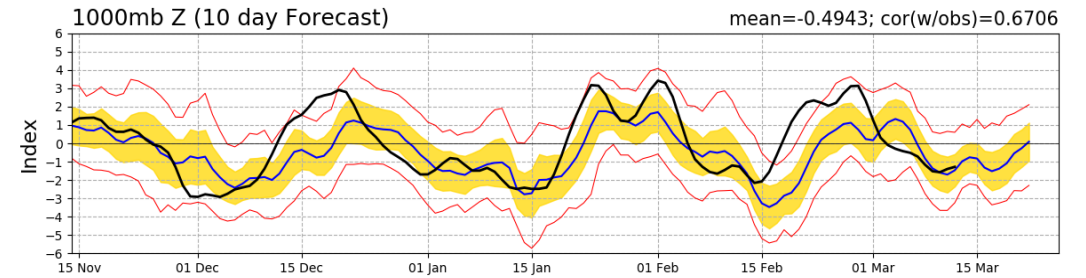
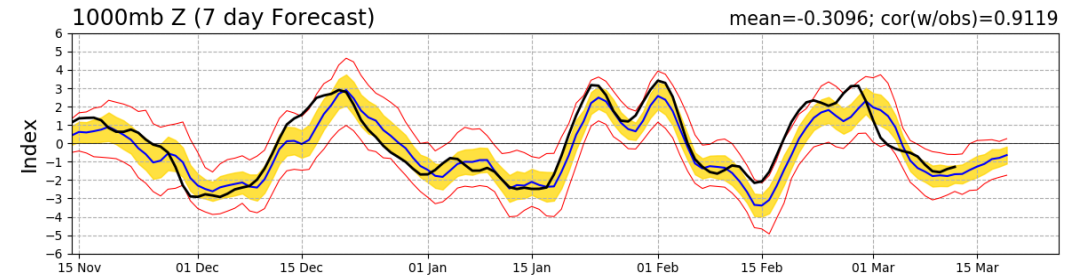
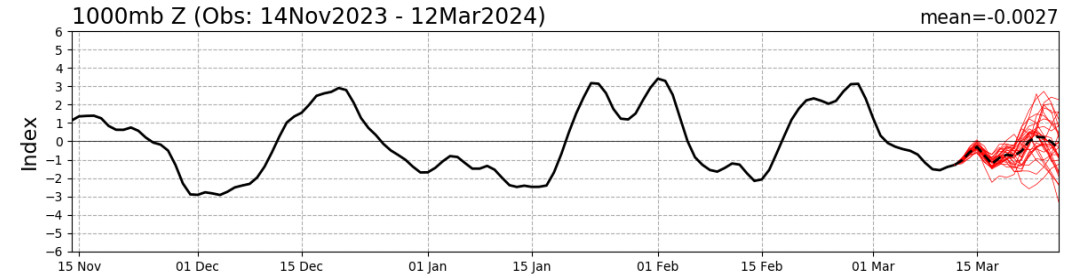


# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts



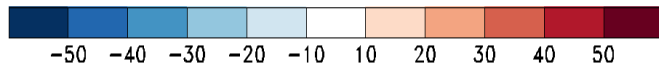
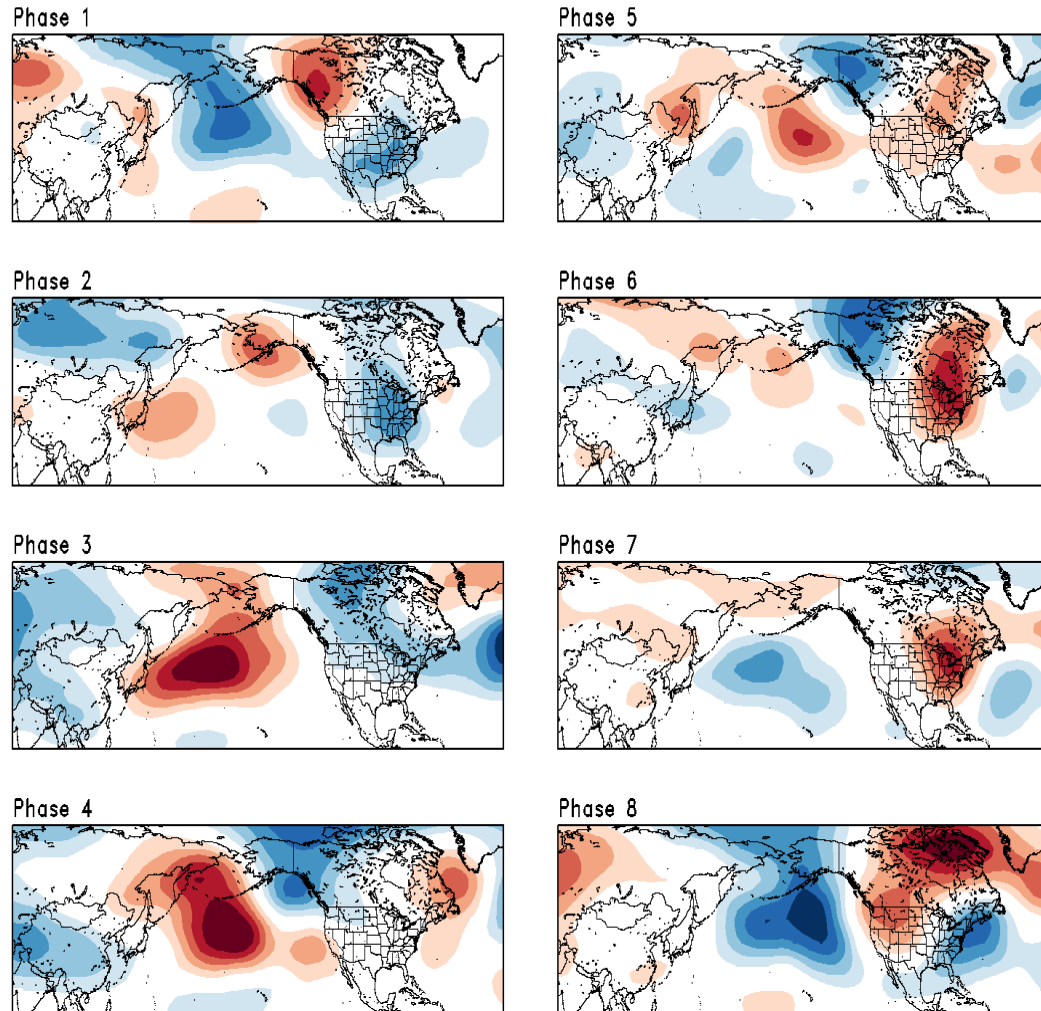
## AO Index: Observed & GEFS Forecasts



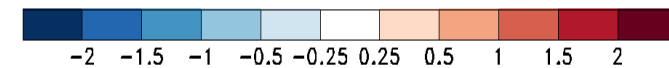
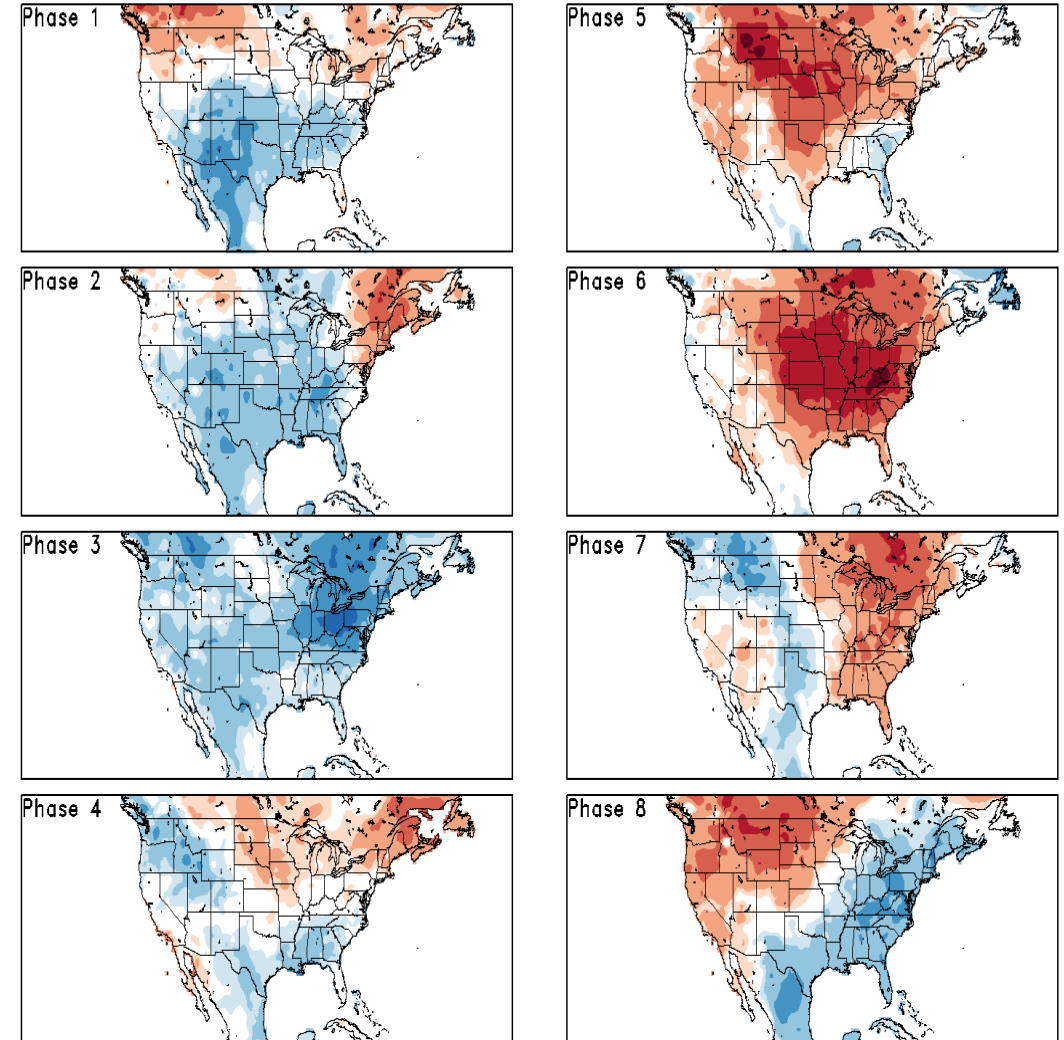


# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

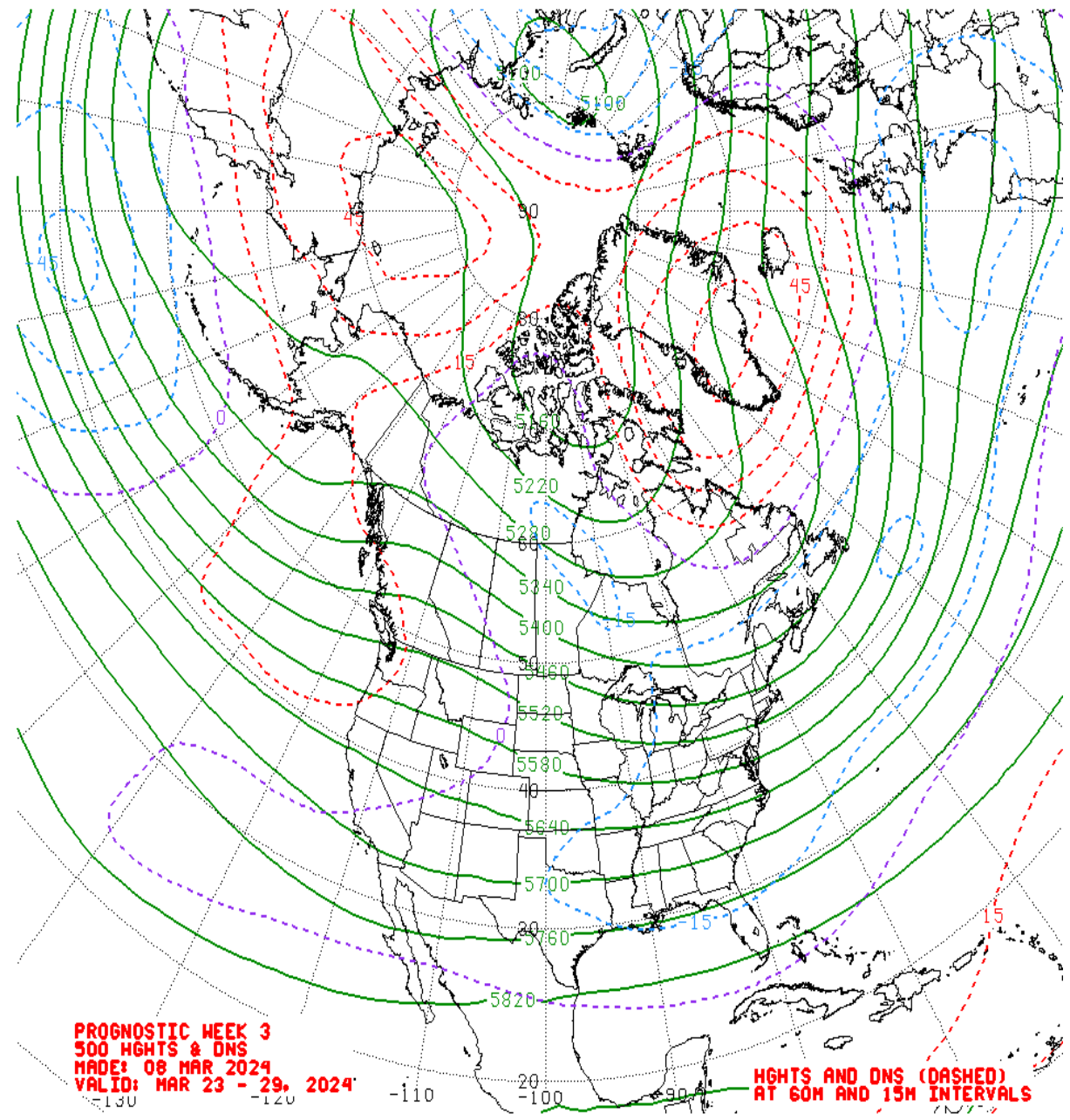
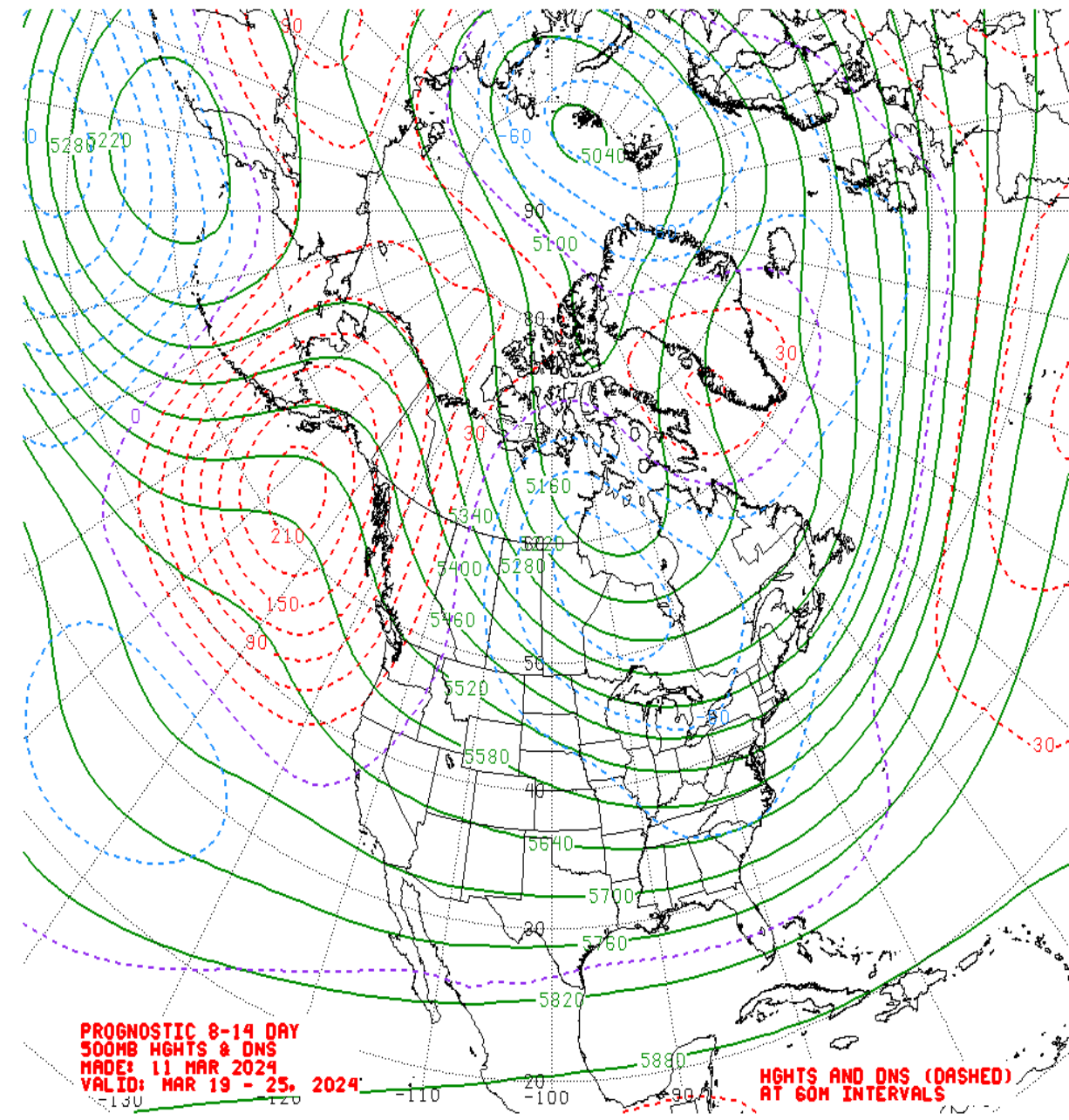
FMA MJO Composite: CDAS 500-hPa Height (m)



FMA MJO Composite: GLBT (degC)

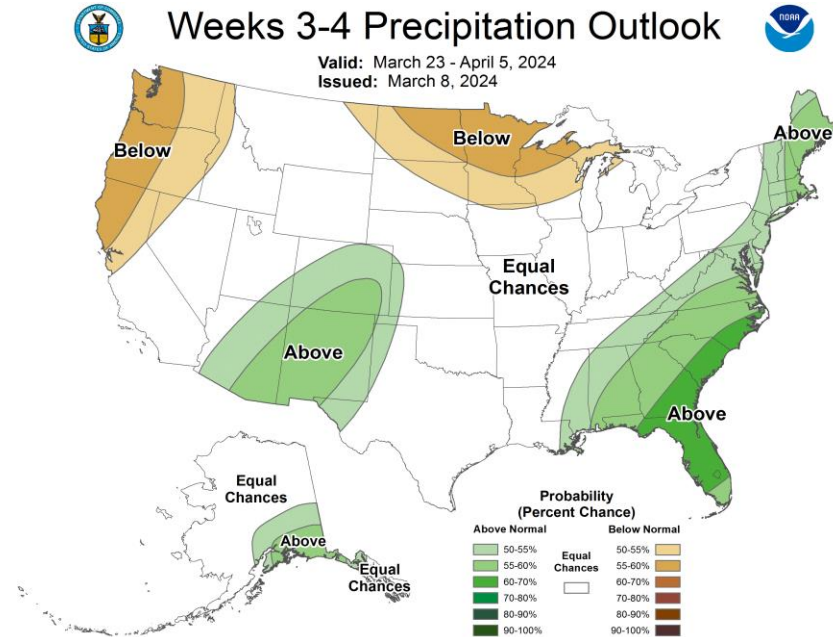
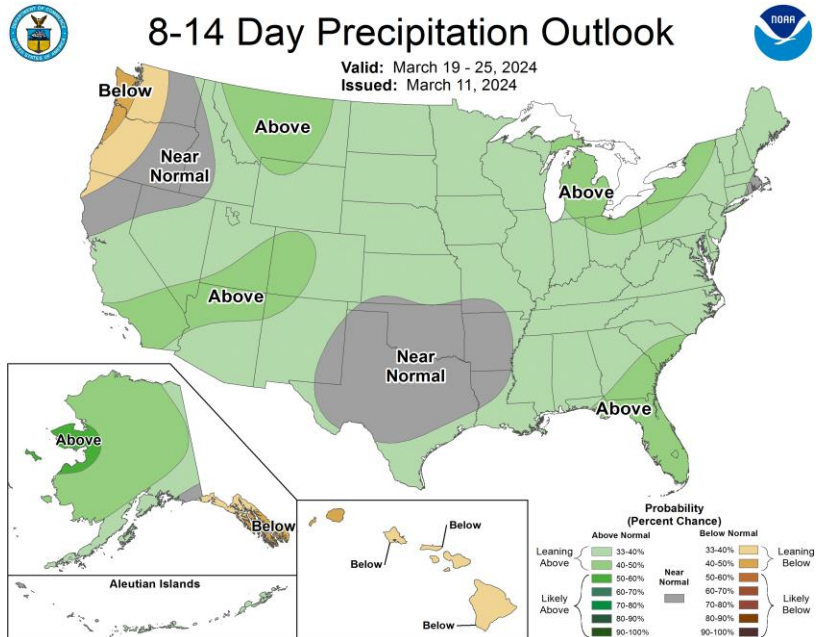
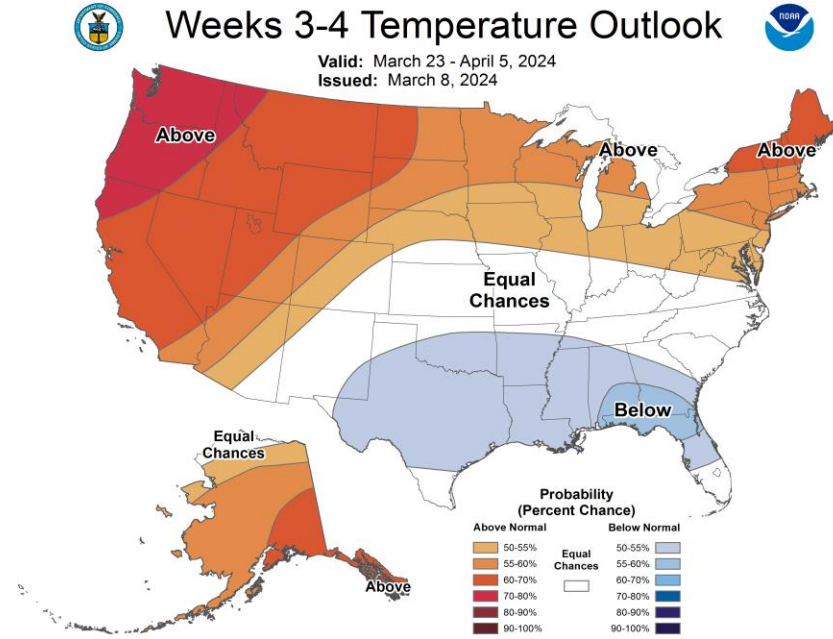
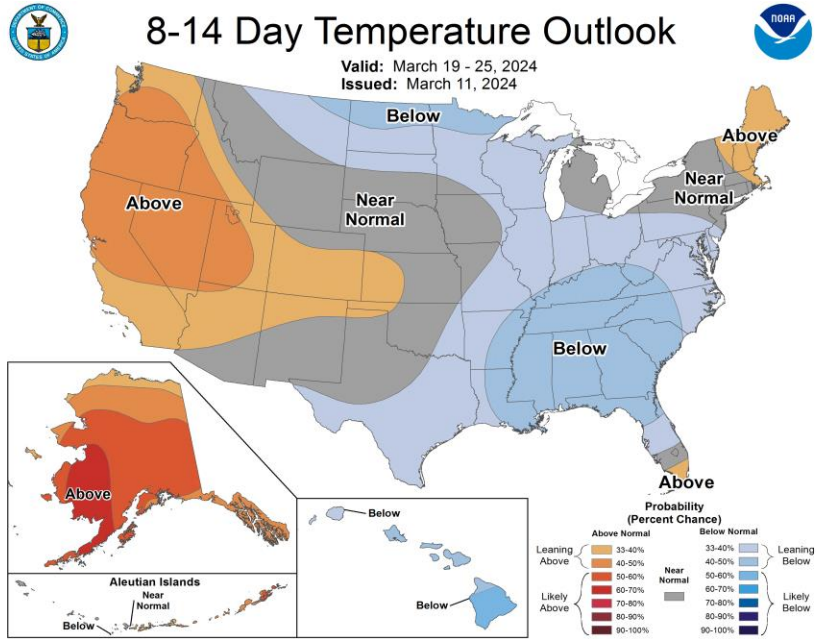


# Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3





# Official Temperature & Precipitation Forecasts:



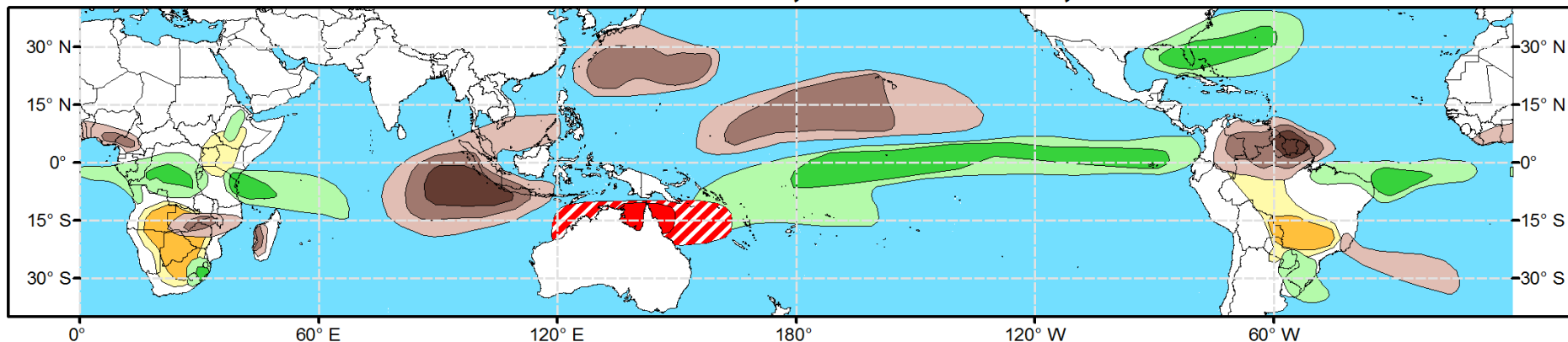


# Global Tropics Hazards Outlook

Climate Prediction Center

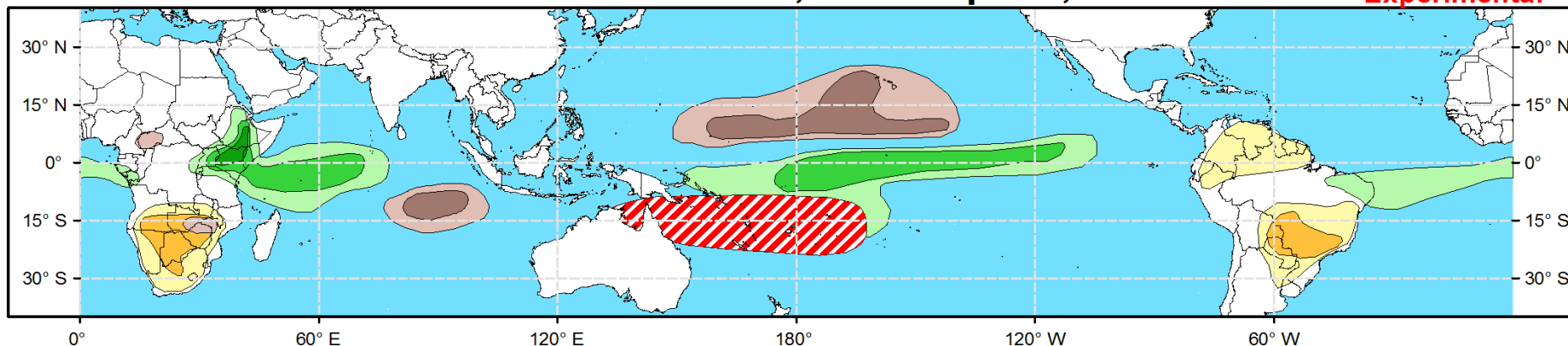


## Week 2 - Valid: Mar 20, 2024 - Mar 26, 2024



## Week 3 - Valid: Mar 27, 2024 - Apr 02, 2024

**\*\* Experimental \*\***



**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: 03/12/2024**

**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.**