



# Weeks 2-3 Global Tropics Hazards Outlook

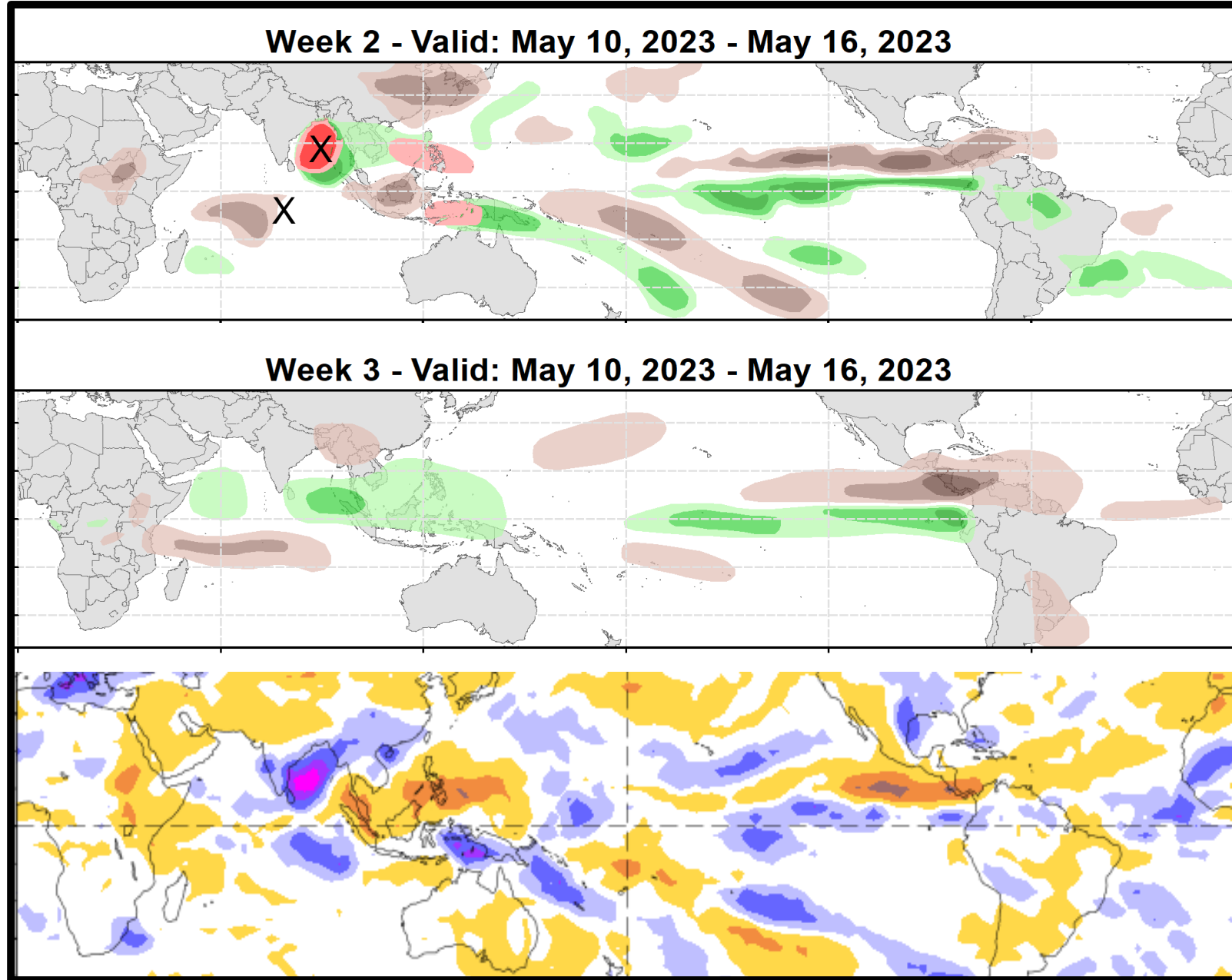
5/16/2023

Nick Novella

NWS / NCEP / Climate Prediction Center

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

- NIO: TC Mocha (5/11)
- SIO: TC Fabien (5/14)



# Synopsis of Climate Modes:

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**ENSO:** (May 11, 2023 Update)      *next update on Thursday, Jun 8<sup>th</sup>*

- ENSO Alert System Status: [El Niño Watch](#)
- A transition from ENSO-neutral is expected in the next couple of months, with greater than a 90% chance of El Niño persisting into the Northern Hemisphere winter.

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

- The MJO propagated from the Maritime Continent into the western Pacific where it became less coherent after experiencing destructive interference with other tropical modes of variability.
- Following an uptick in amplitude favored over the western Pacific during week-1, there is a greater degree of disagreement in the RMM forecasts in regards to the eventual strength and evolution of the MJO heading into late May and early June.
- While the MJO is less likely to be as robust as it was earlier this spring, the outlook favors continued eastward propagation of the MJO into the Western Hemisphere. Conditions are expected to be favorable (unfavorable) for tropical cyclogenesis across the western Pacific (Indian Ocean).

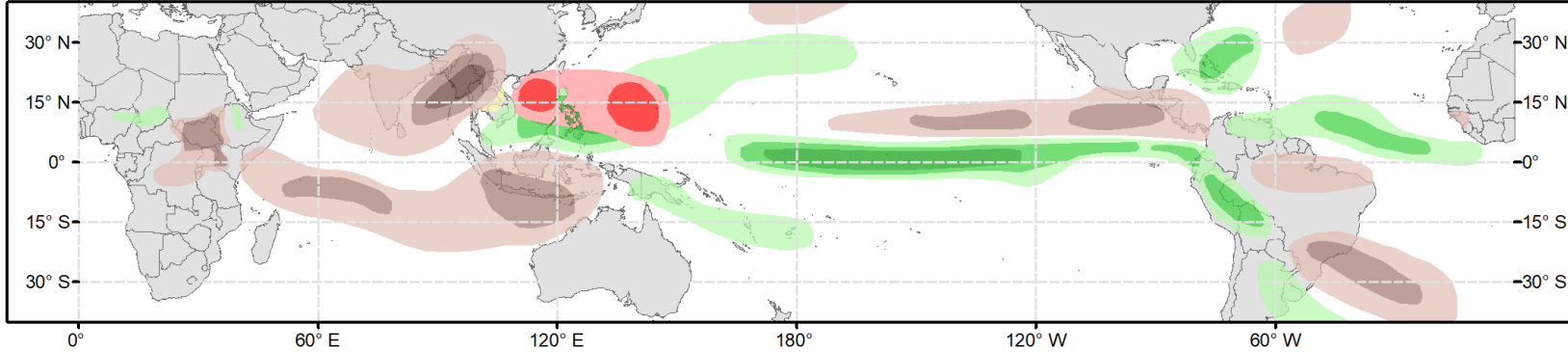
# GTH Outlook:



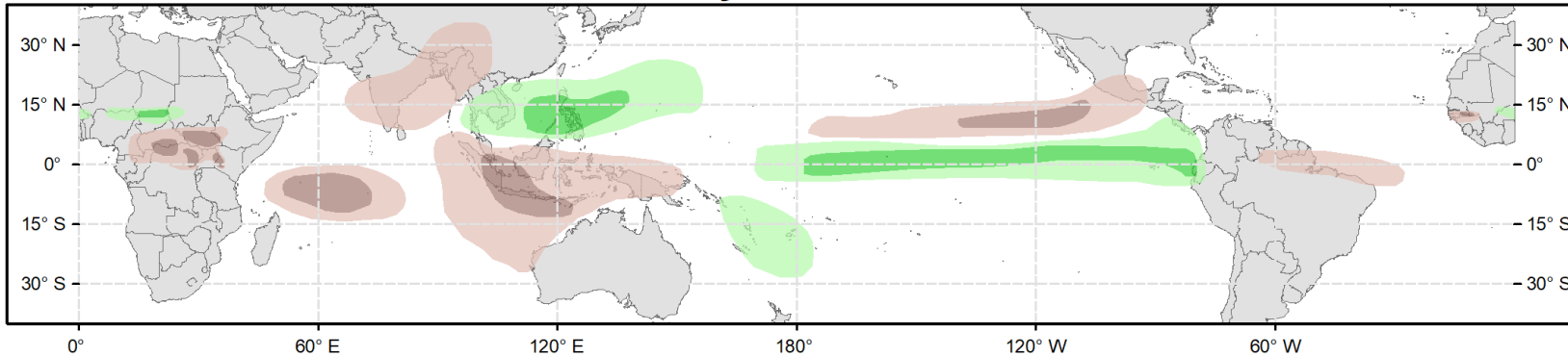
## Global Tropics Hazards Outlook Climate Prediction Center



**Week 2 - Valid: May 24, 2023 - May 30, 2023**



**Week 3 - Valid: May 31, 2023 - Jun 06, 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%

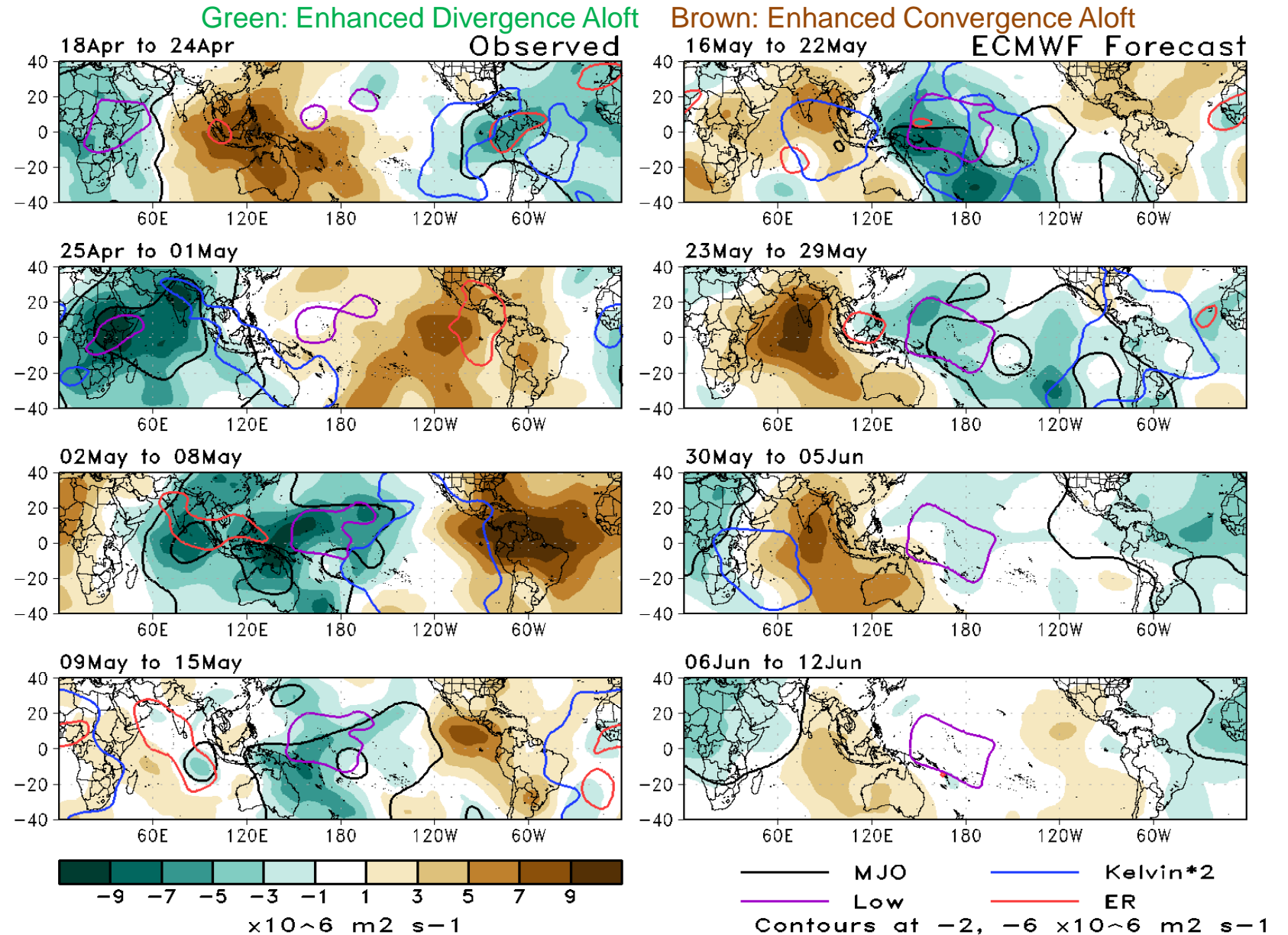
*7-day min temperatures in the Lower third of the historical range*

**Issued: 05/16/2023**  
**Forecaster: Novella**

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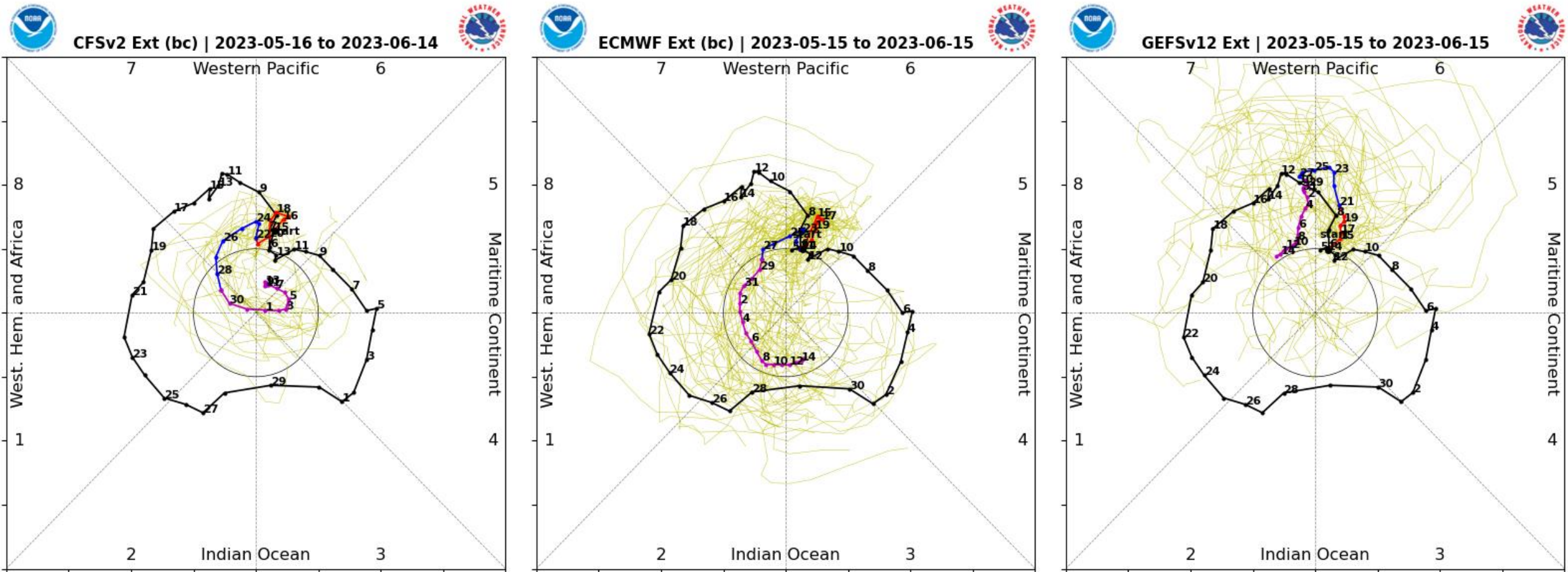
# 200-hPa Velocity Potential Anomaly Maps:

- Anomalous upper-level divergence aloft is favored throughout the tropical Pacific during the next two weeks, with the enhanced phase of the MJO (black contours) shifting into the Western Hemisphere heading into June.
- Suppressed upper-level conditions are largely favored over the Indian Ocean, which is a reversal from the enhanced convective pattern observed earlier in May, along with TC activity.



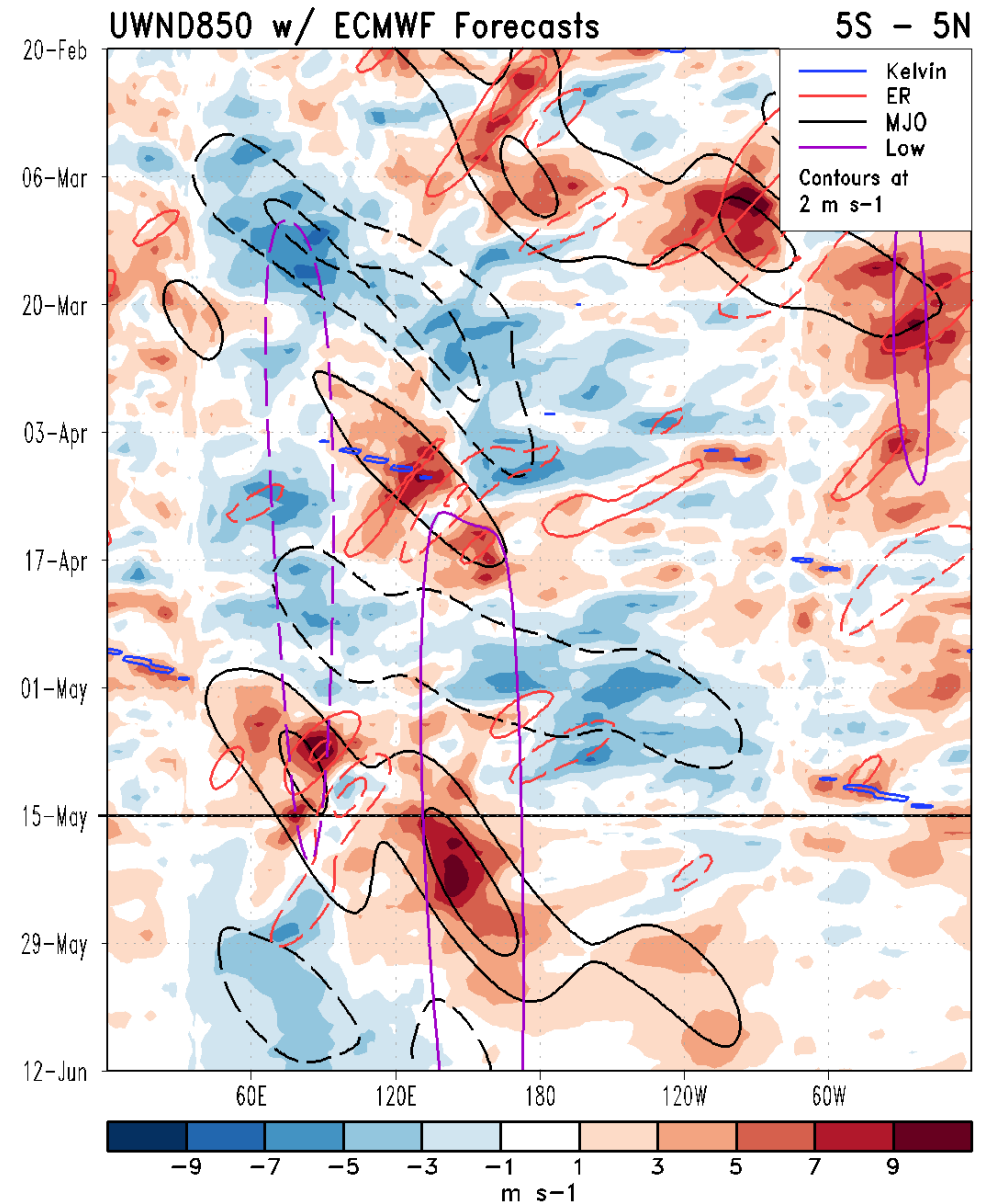
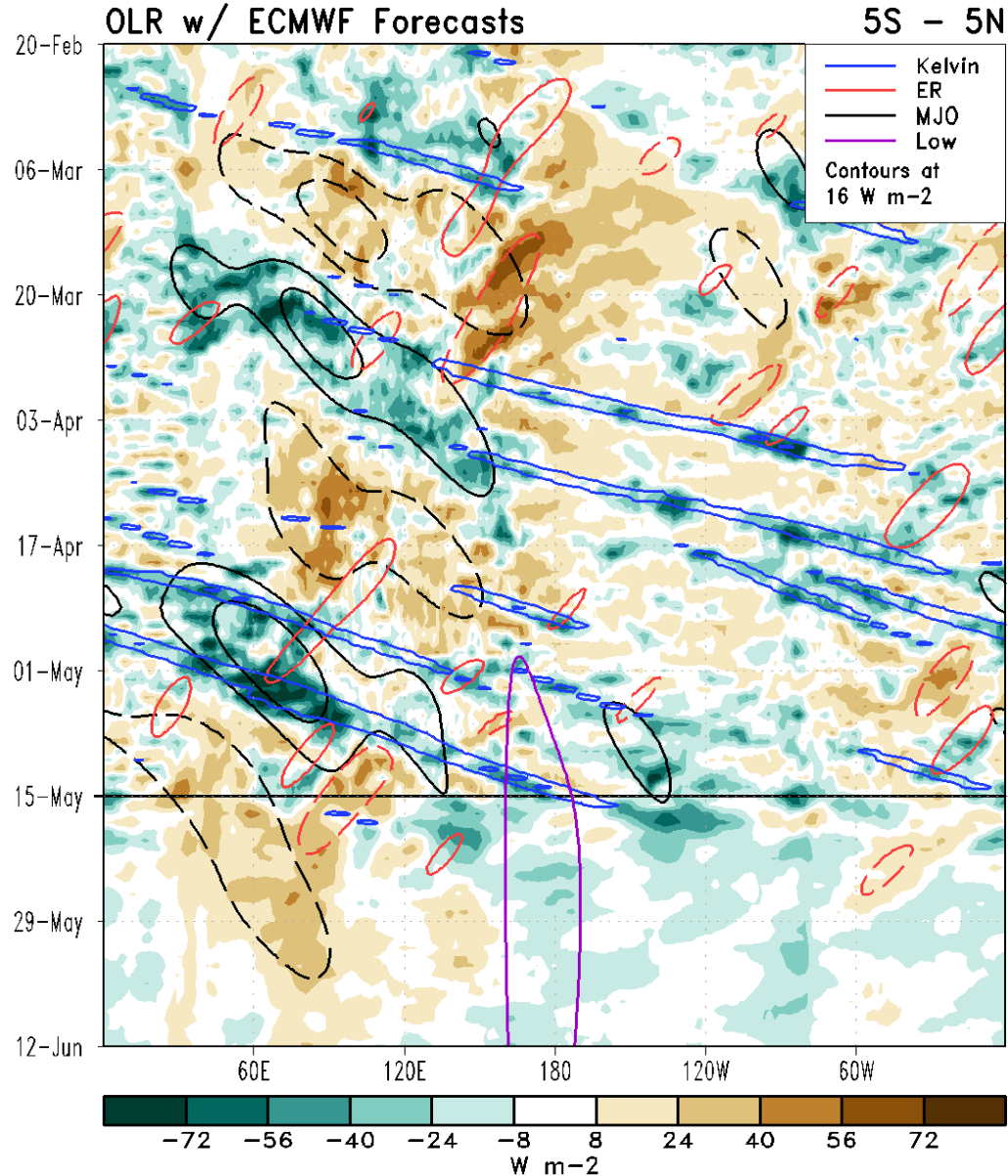


# RMM Index Observations & Forecasts:



- Following an uptick in the amplitude during week-1, RMM forecasts disagree in regards to the strength and phasing of the MJO
- The GEFS is most sluggish with the MJO signal, maintaining a western Pacific event during the next 3 weeks, whereas the CFS and ECMWF are more progressive.

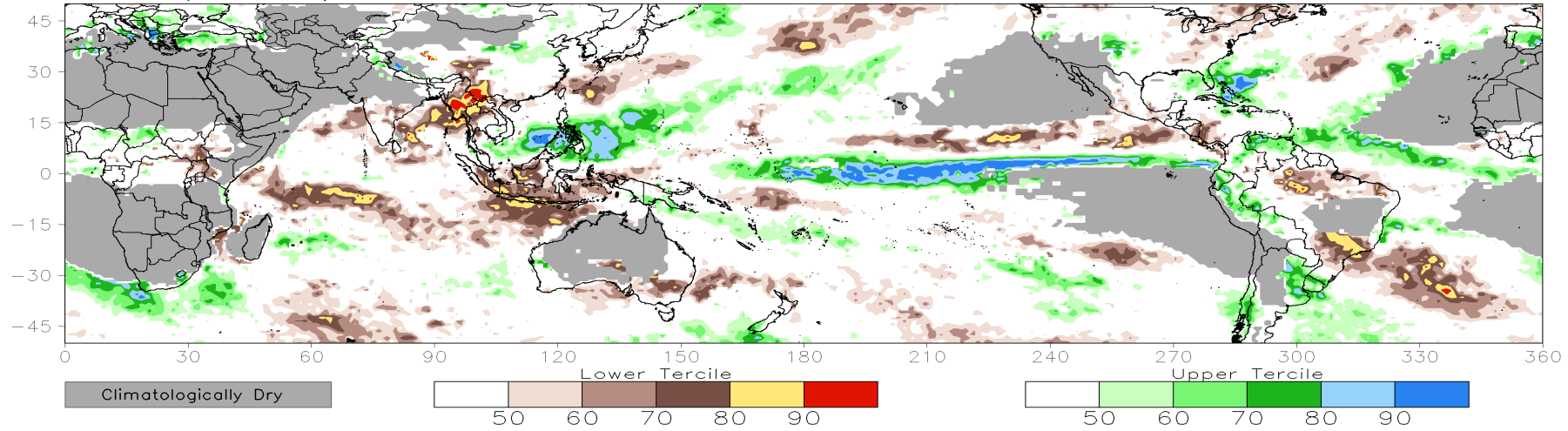
# Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



# Consolidated Probabilistic Precipitation: Weeks 2 & 3

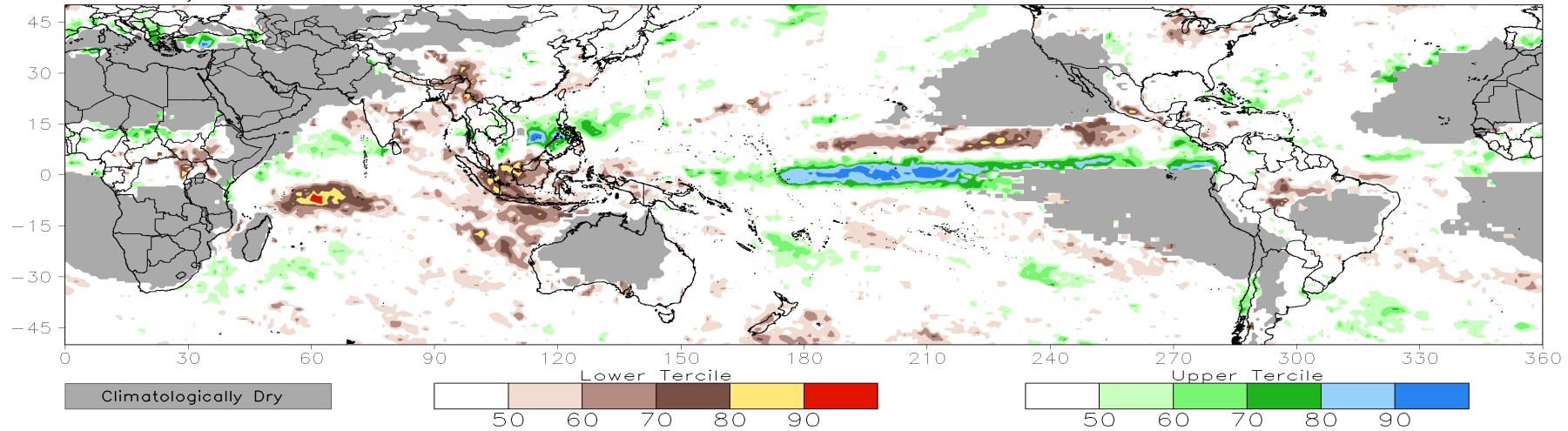
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 24May2023–30May2023



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

Valid: 31May2023–06Jun2023

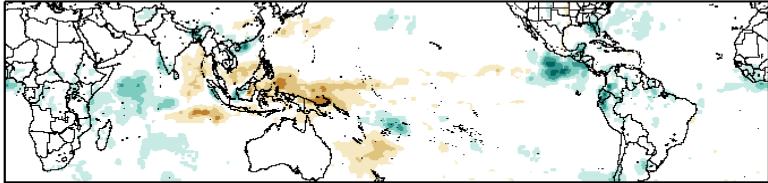




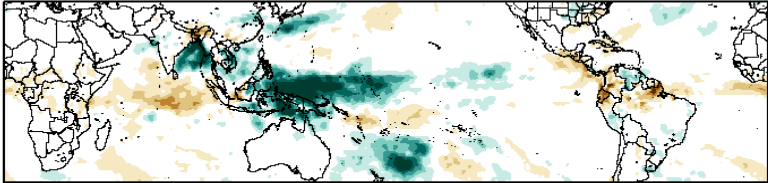
# Historical Precipitation Anomalies By MJO Phase:

AMJ MJO Composite: GPCP1DD (mm/day)

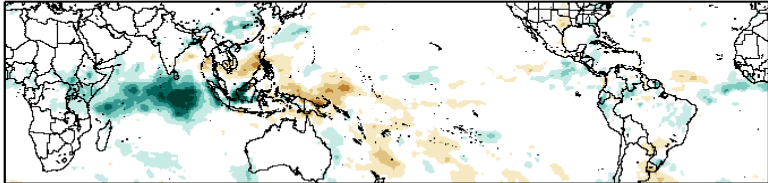
Phase 1



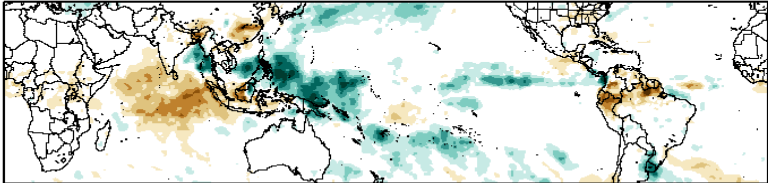
Phase 5



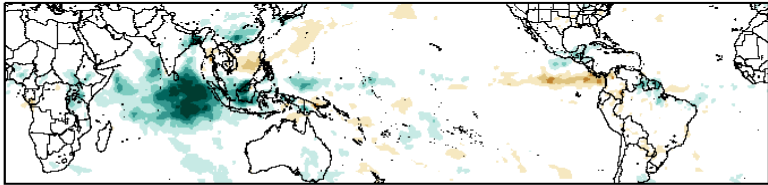
Phase 2



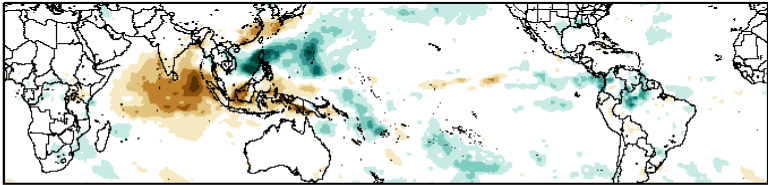
Phase 6



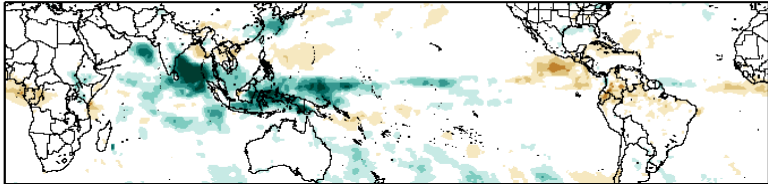
Phase 3



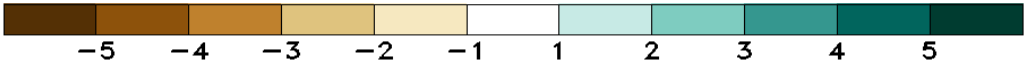
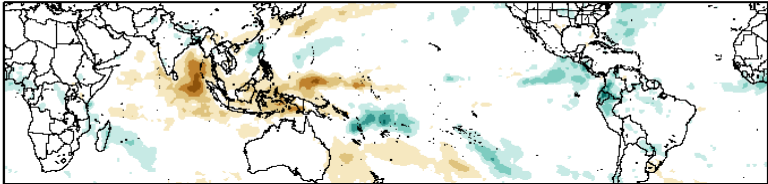
Phase 7



Phase 4

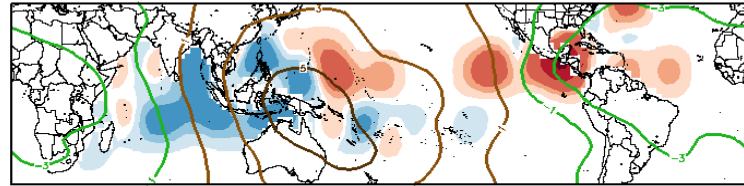


Phase 8

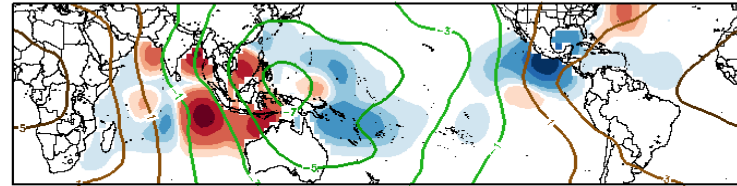


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

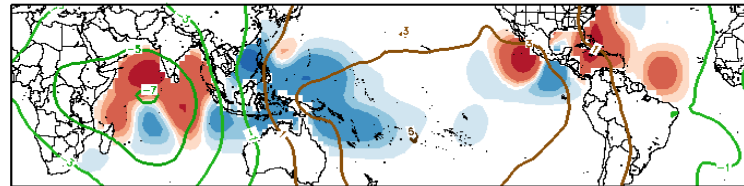
AMJ MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ AMJ CHI200 ( $\times 10^6 m^2 s^{-1}$ ) / Contours every  $2 \times 10^6 m^2 s^{-1}$



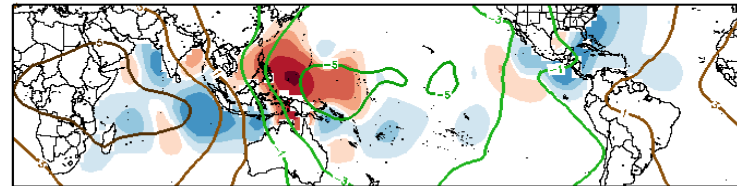
Phase 1



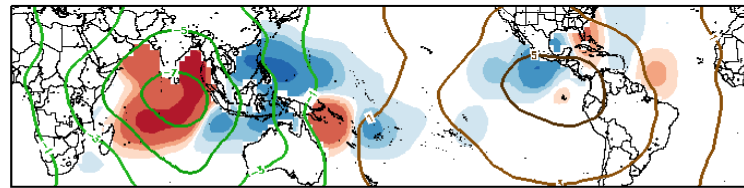
Phase 5



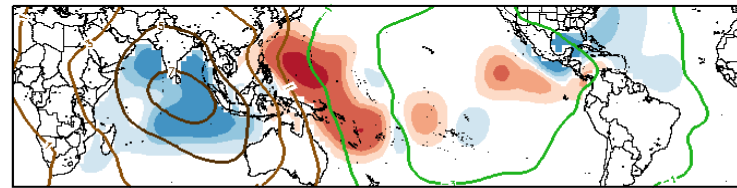
Phase 2



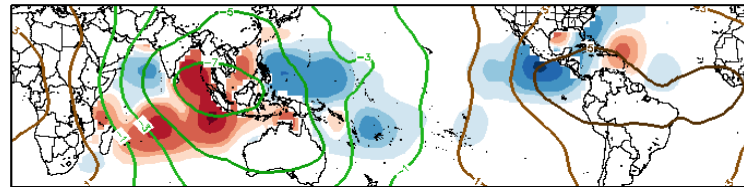
Phase 6



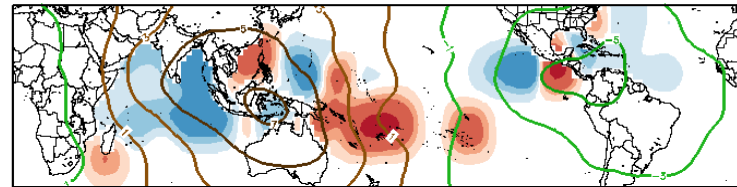
Phase 3



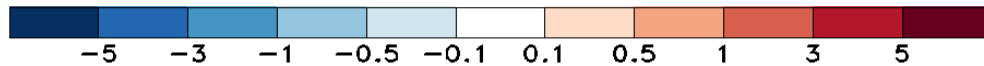
Phase 7



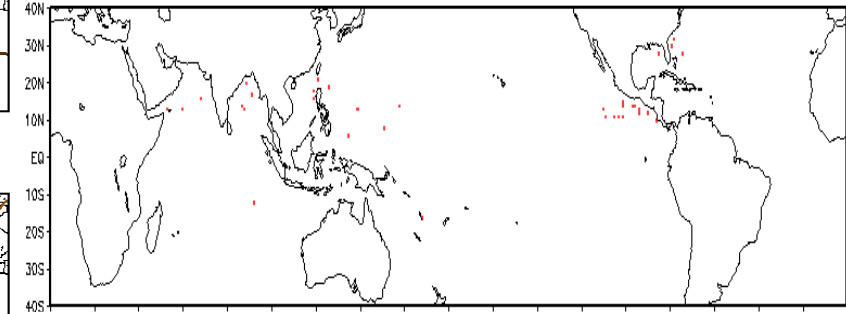
Phase 4



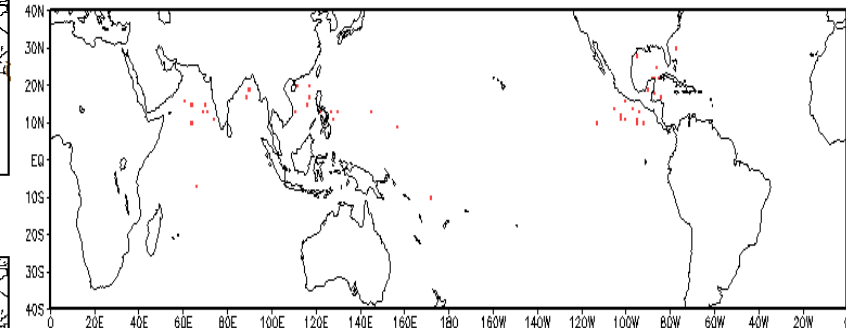
Phase 8



Observed TC Genesis, 1979-2021  
7-day Period 0524 to 0530

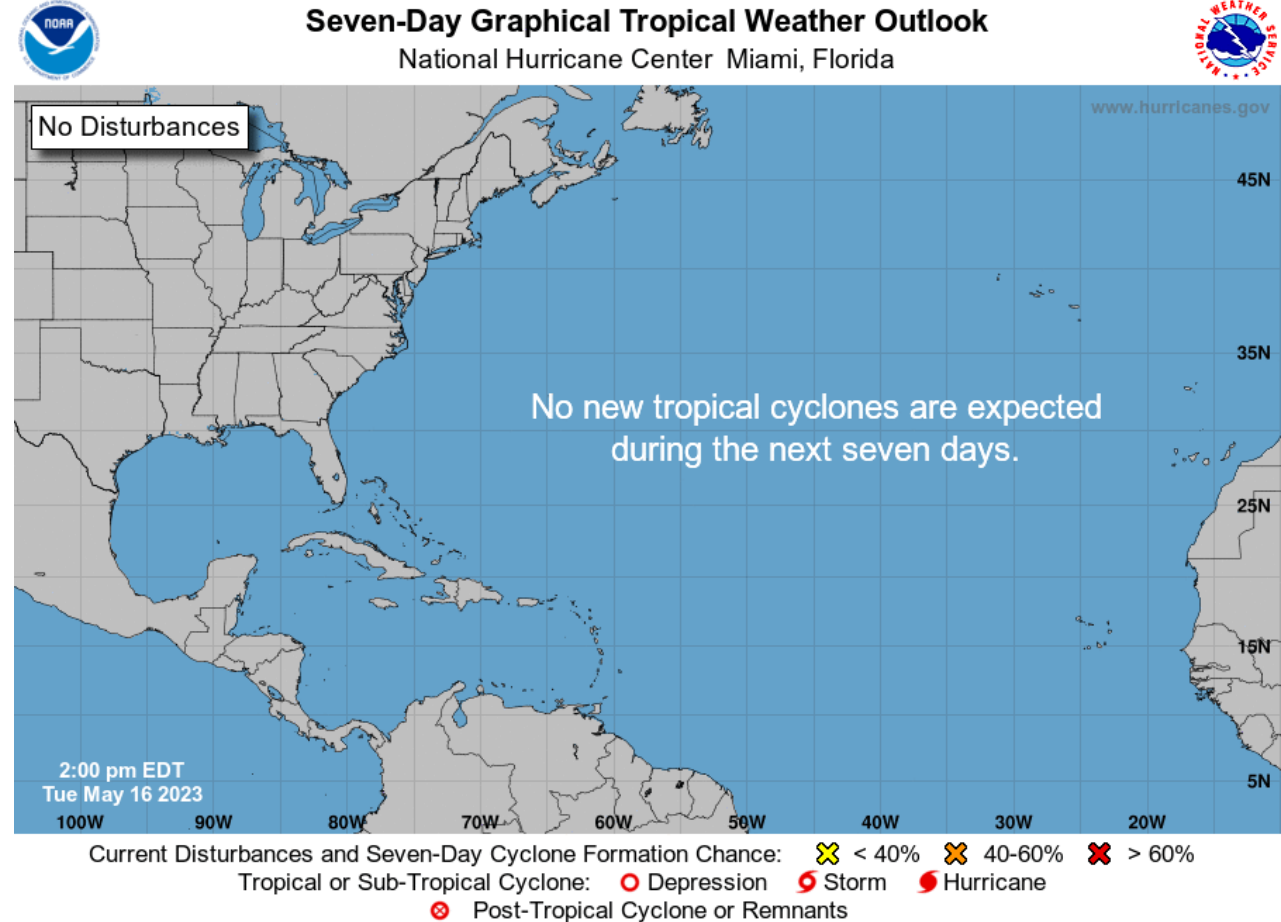
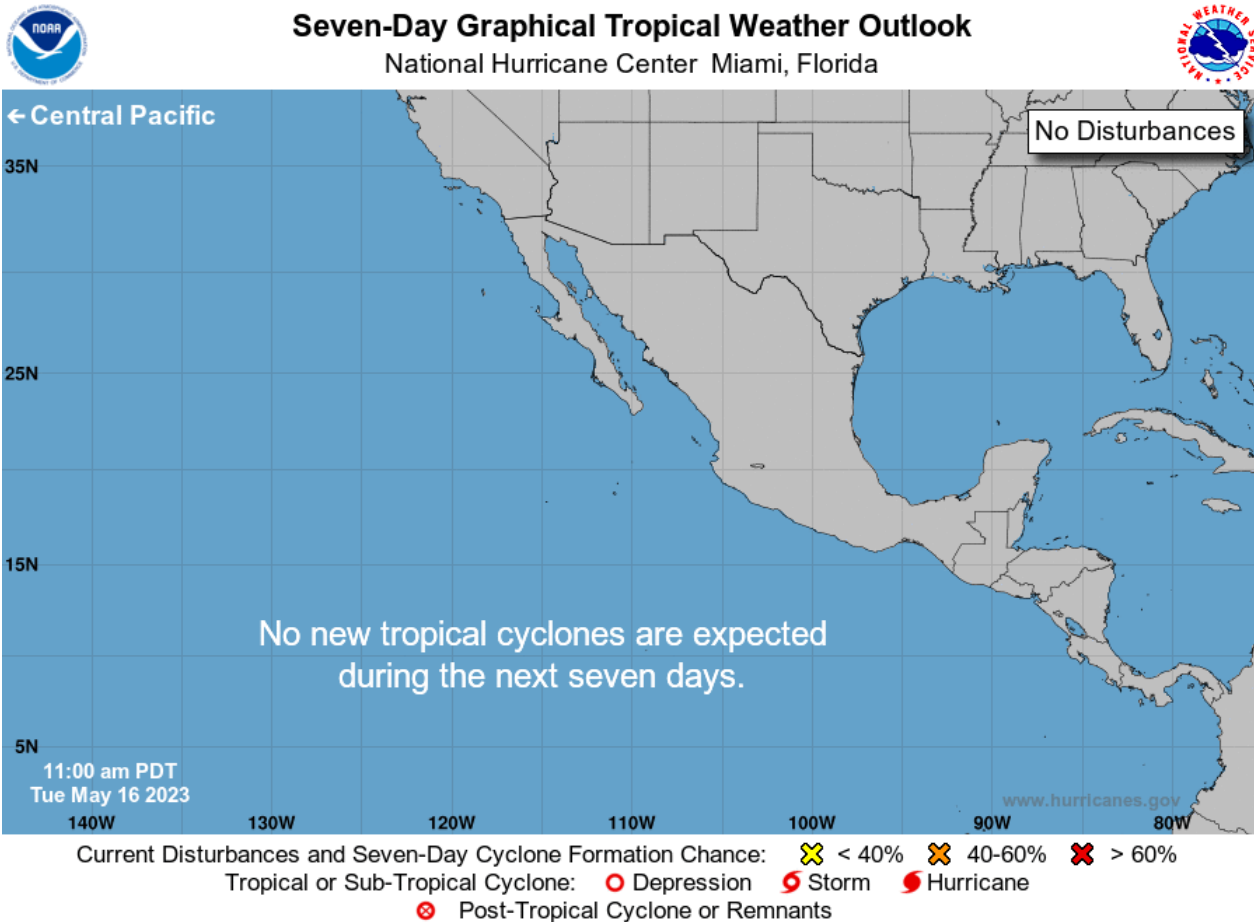


Observed TC Genesis, 1979-2021  
7-day Period 0531 to 0606



\*Experimental\*

# Tropical Cyclone Monitoring/Forecast: NHC



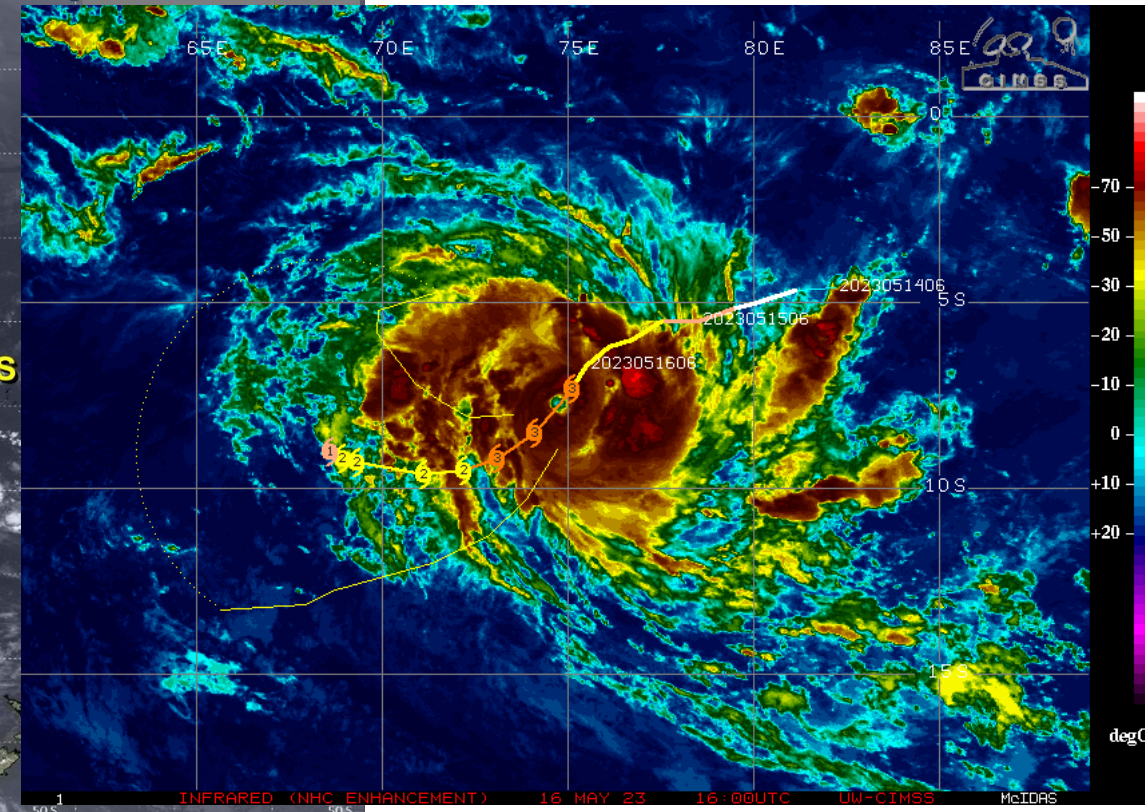
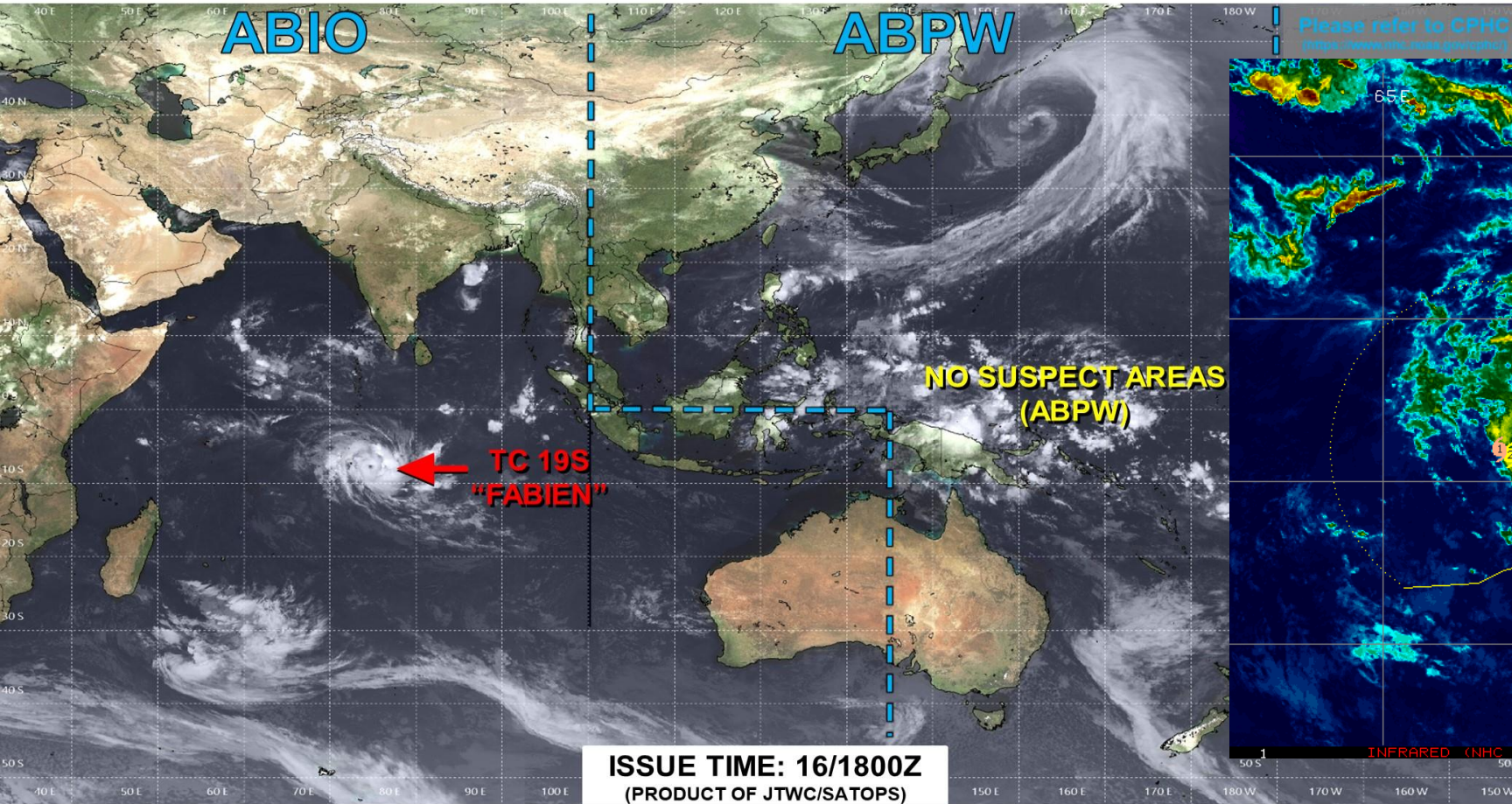
Seasons Greetings!



# Tropical Cyclone Monitoring/Forecast: JTWC



## JOINT TYPHOON WARNING CENTER

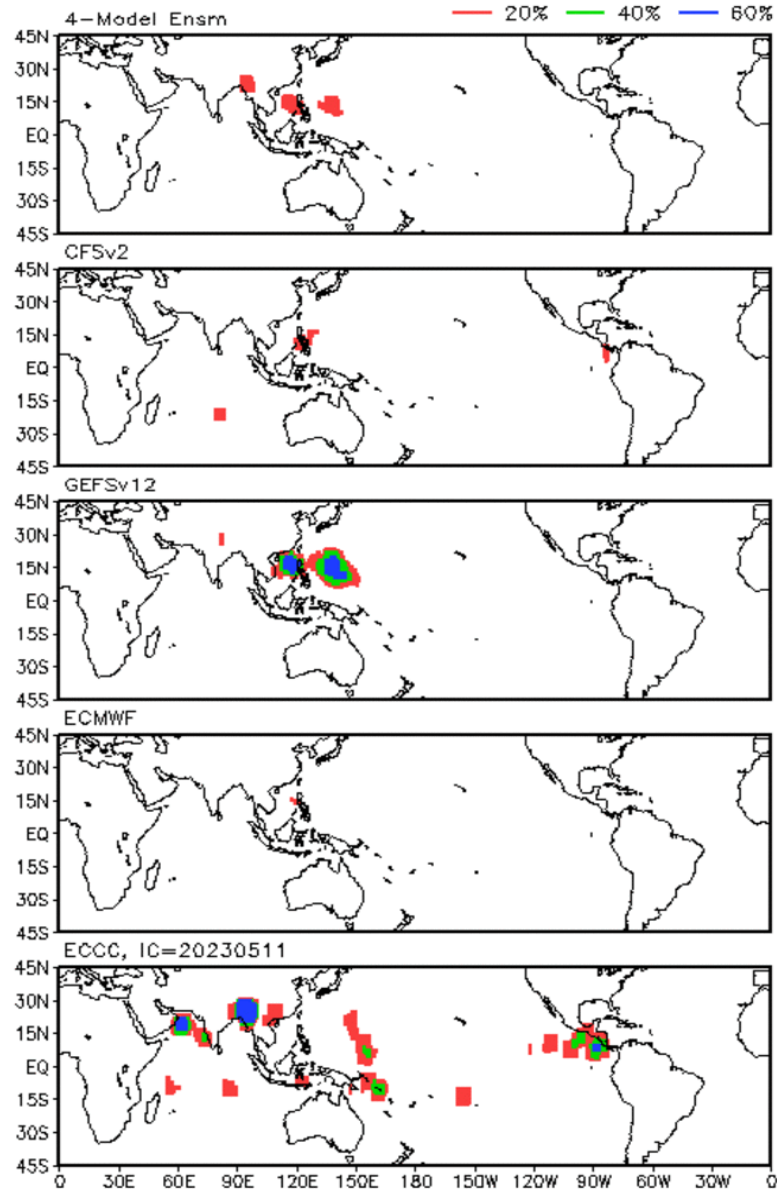


<p><b>LOW</b> TC development unlikely within 24 hours</p>	<p><b>MEDIUM</b> TC development likely, but expected to occur beyond 24 hours</p>	<p><b>HIGH</b> TC development likely within 24 hours (Reference TCFA)</p>	<p><b>SUB TROPICAL</b> Monitoring for potential transition to TC. Invest label color denotes tropical transition probability</p>	<p><b>Tropical Cyclone (Reference Warning)</b></p>
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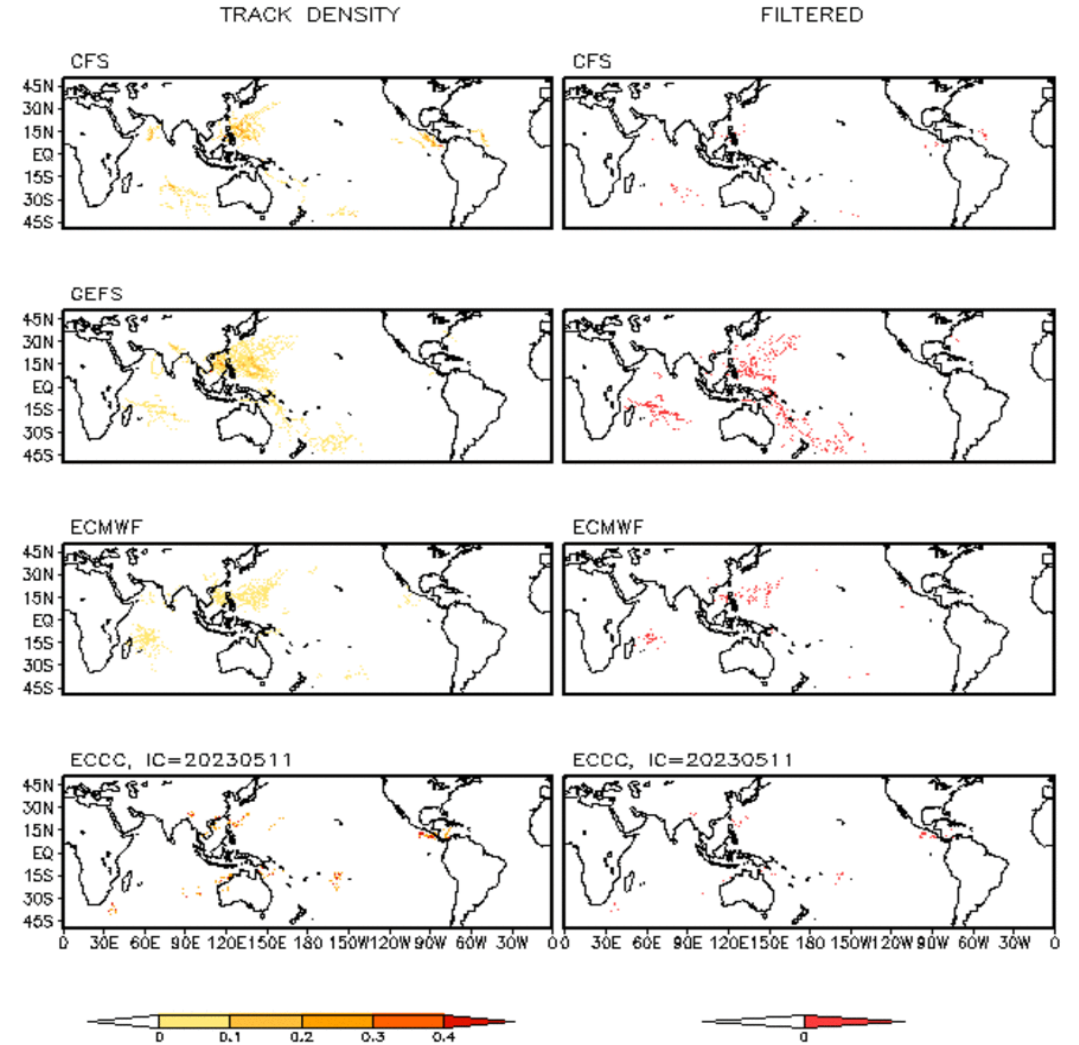


# Multi-Model TC Track Probabilities/Densities: Week-2

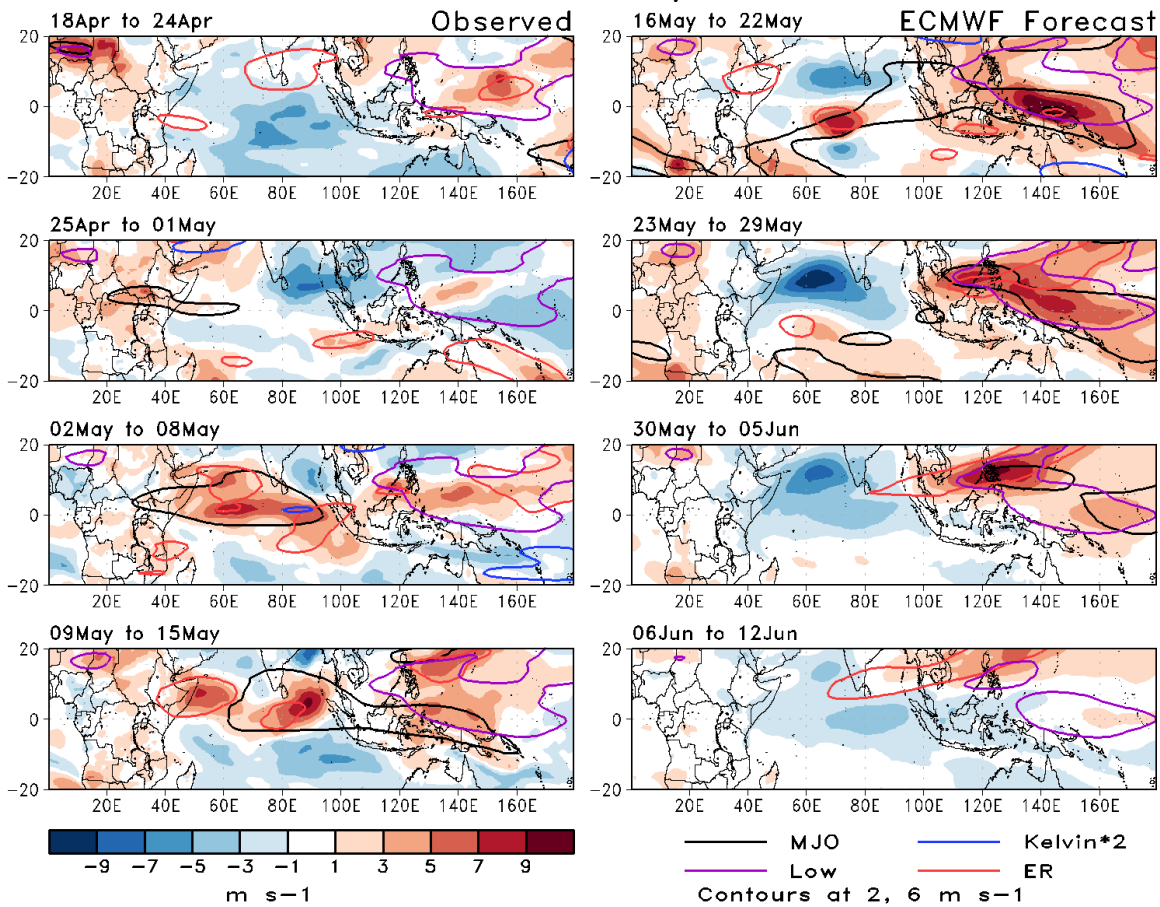
Storm Track Probabilities, IC=20230515  
Week 2: 0524 - 0530



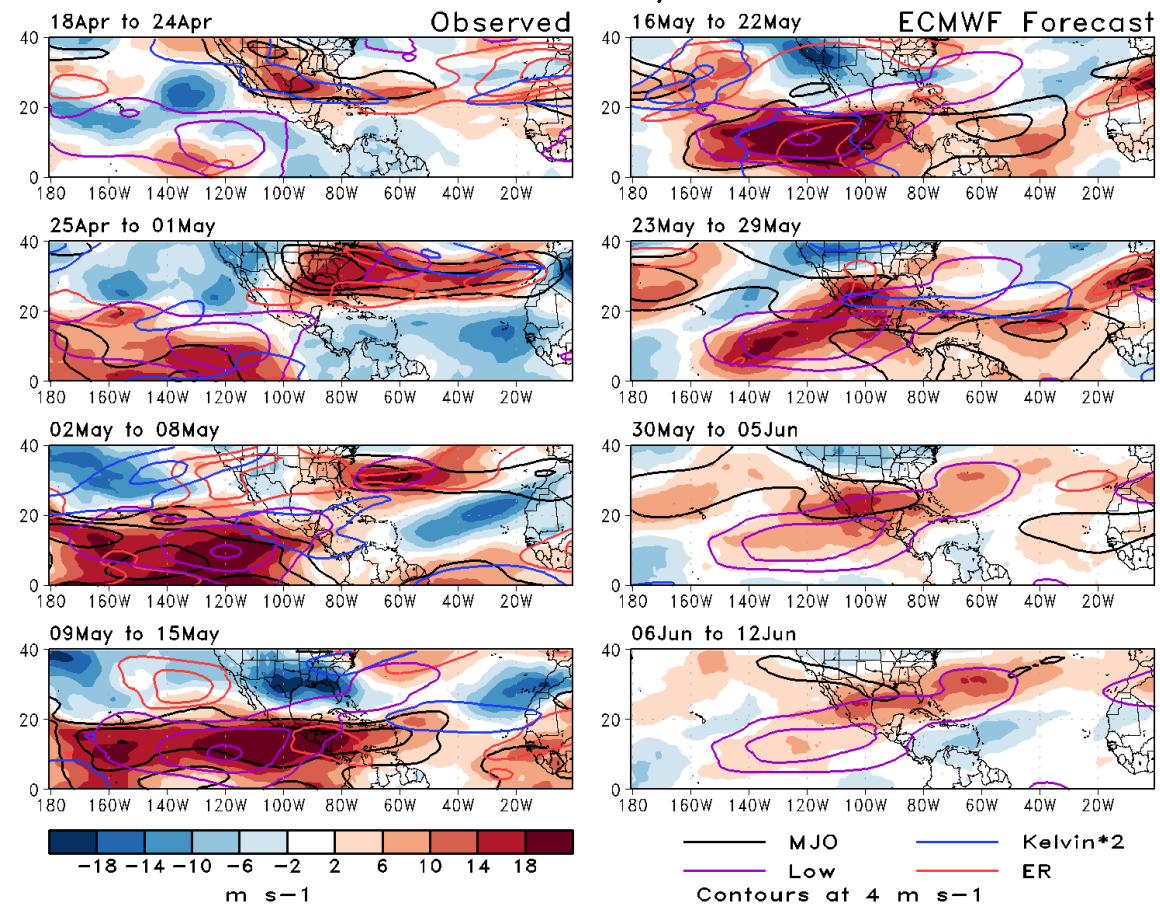
Storm Track Density Distribution, IC=20230515  
Week 2 Forecast: 0524-0530



### UWIND850 7-Day Means

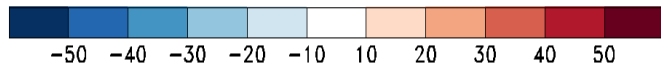
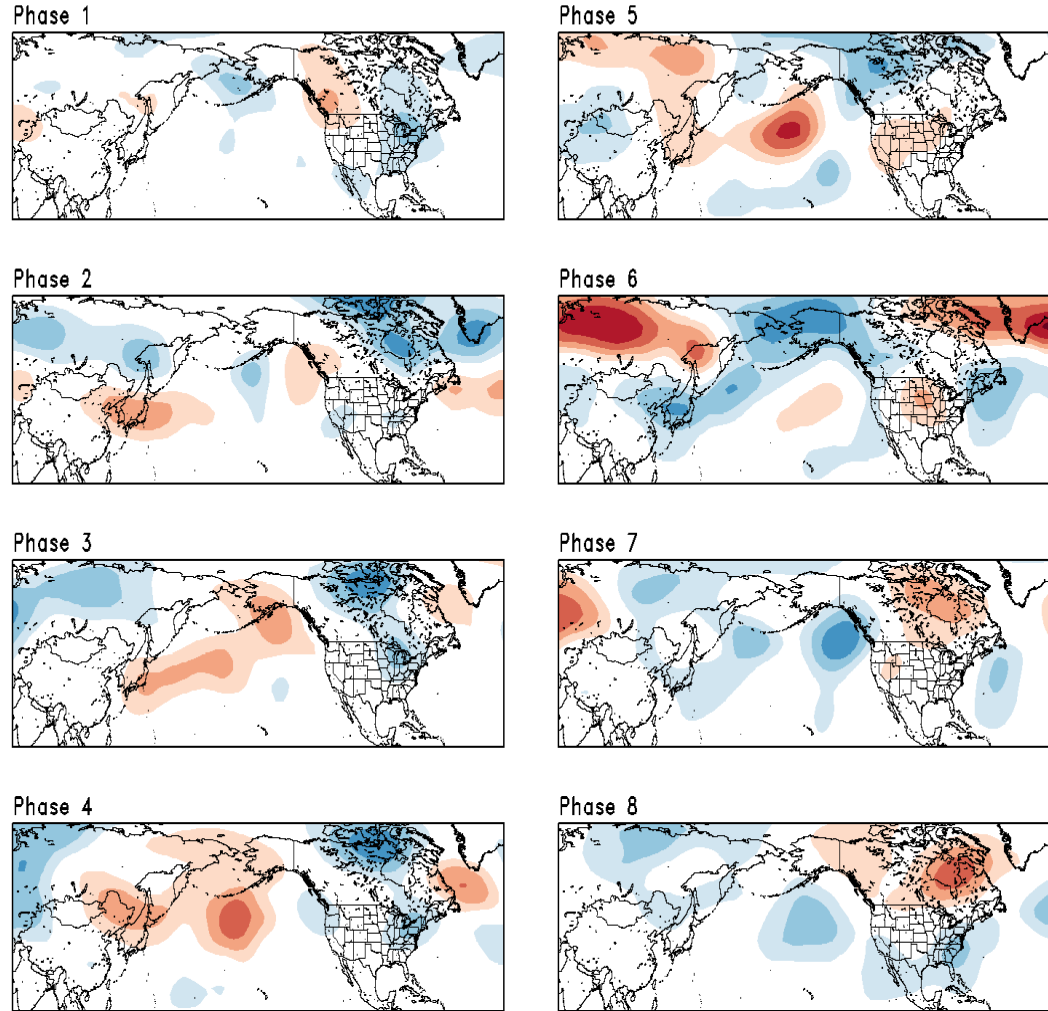


### USHEAR 7-Day Means

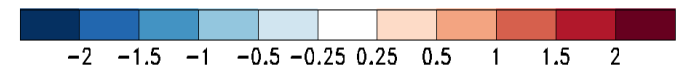
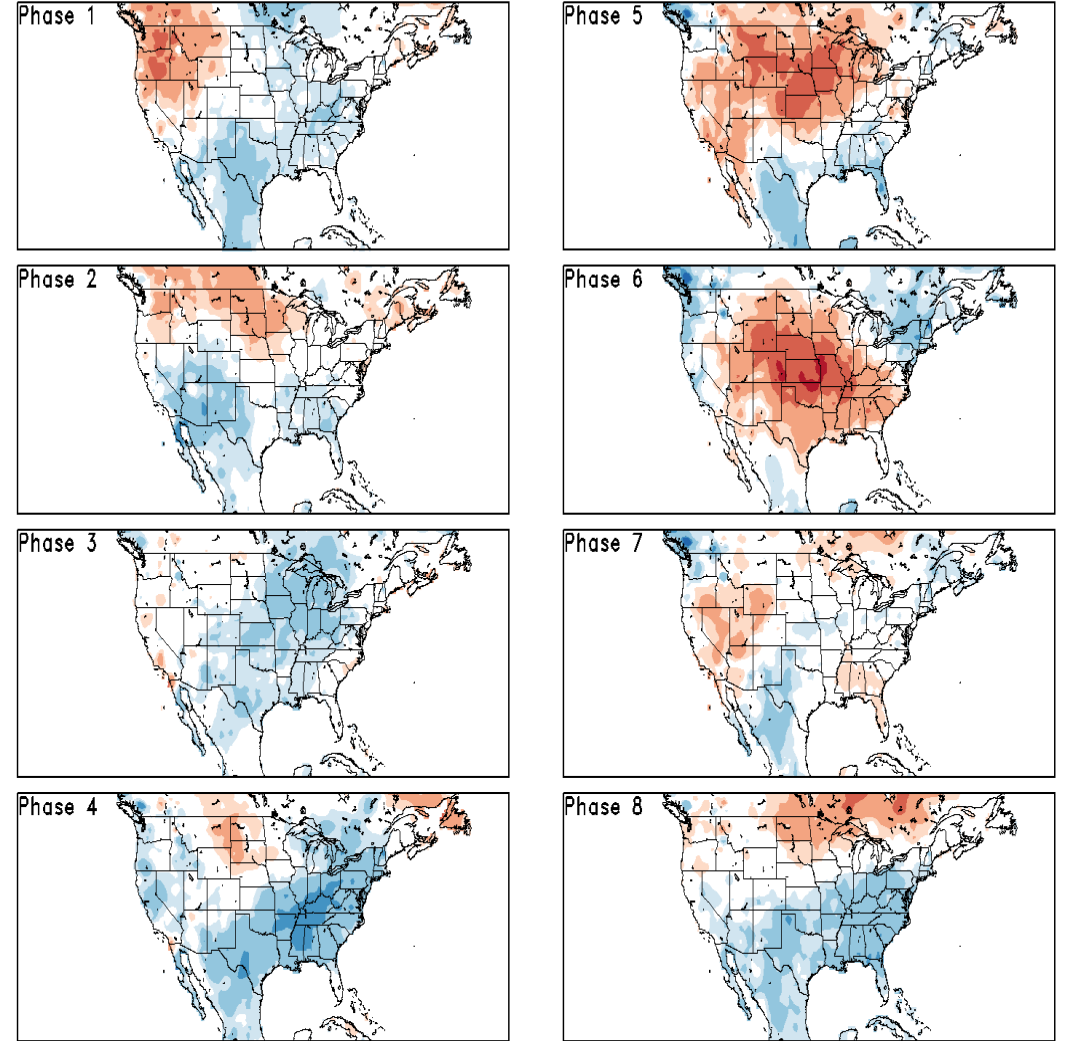


# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

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

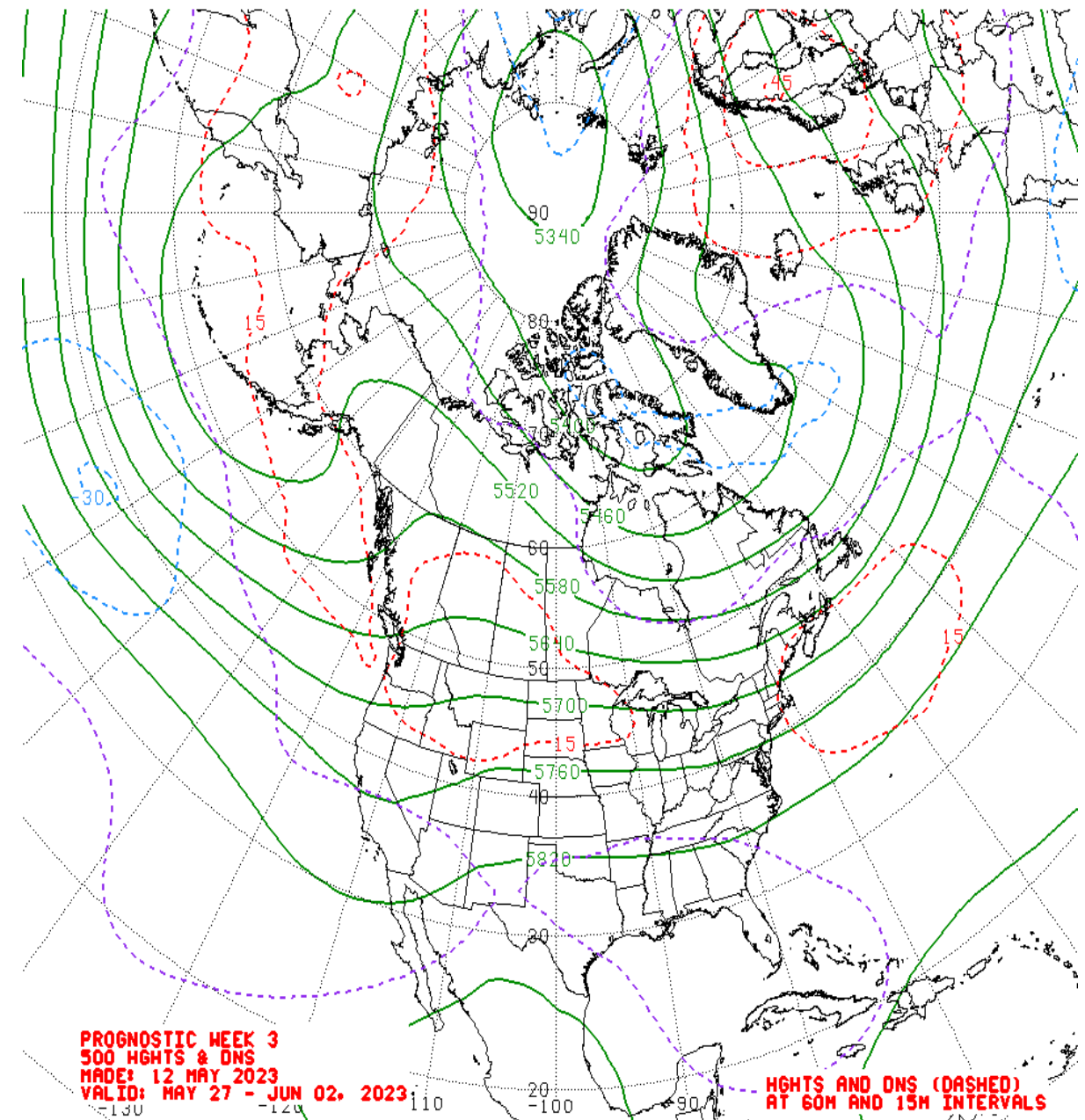
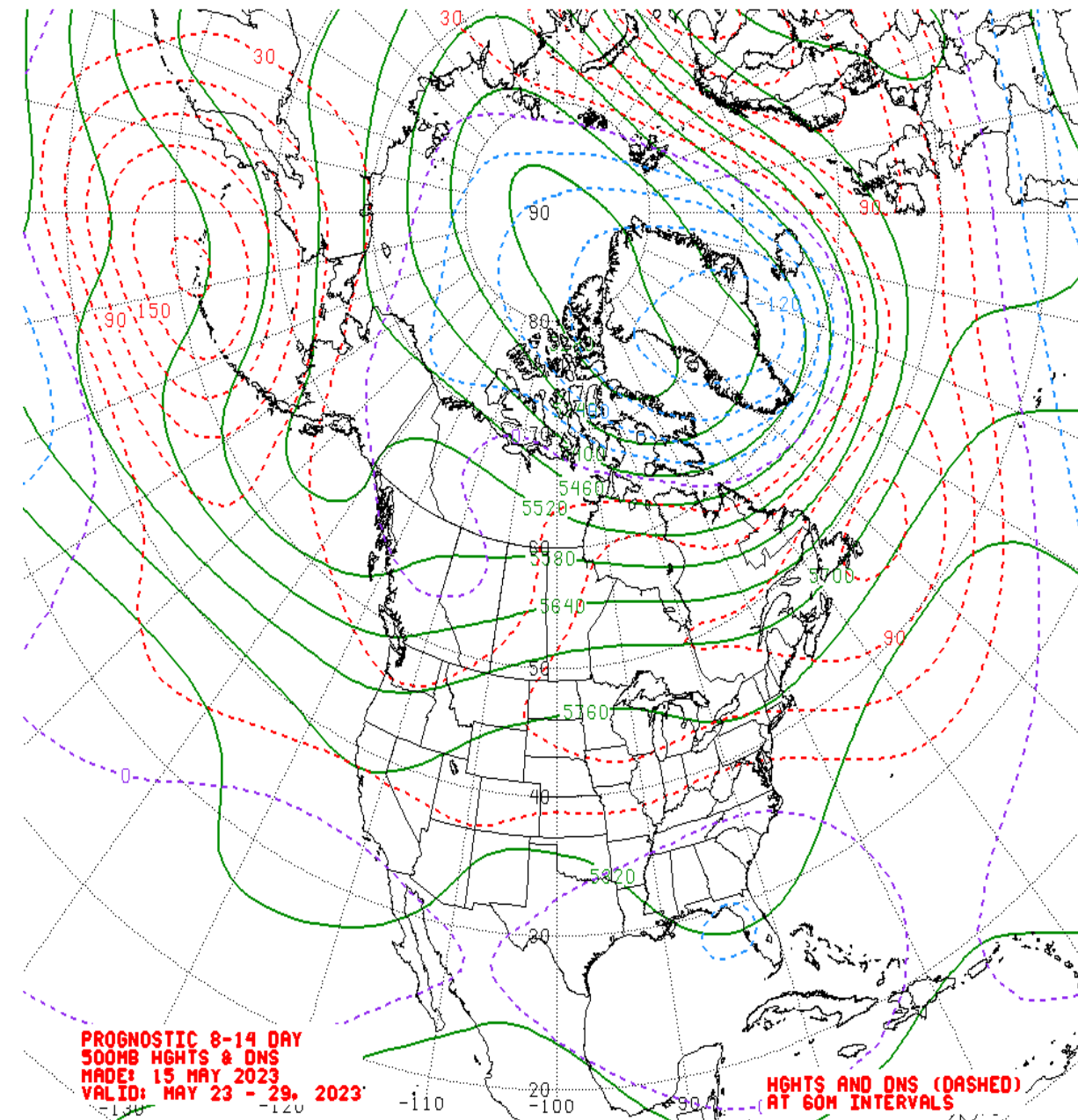


AMJ MJO Composite: GLBT (degC)





# Mean 500-hPa Height Anomaly Forecasts:

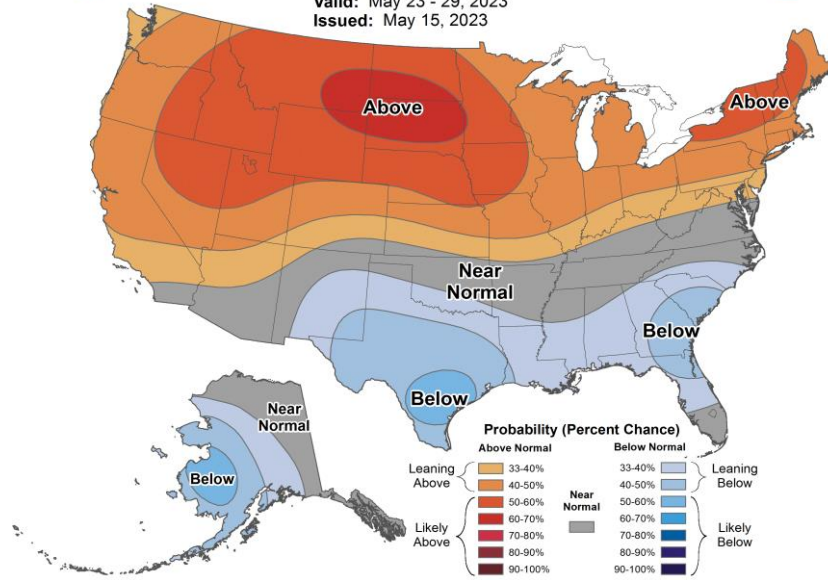




# Official Temperature & Precipitation Forecasts:

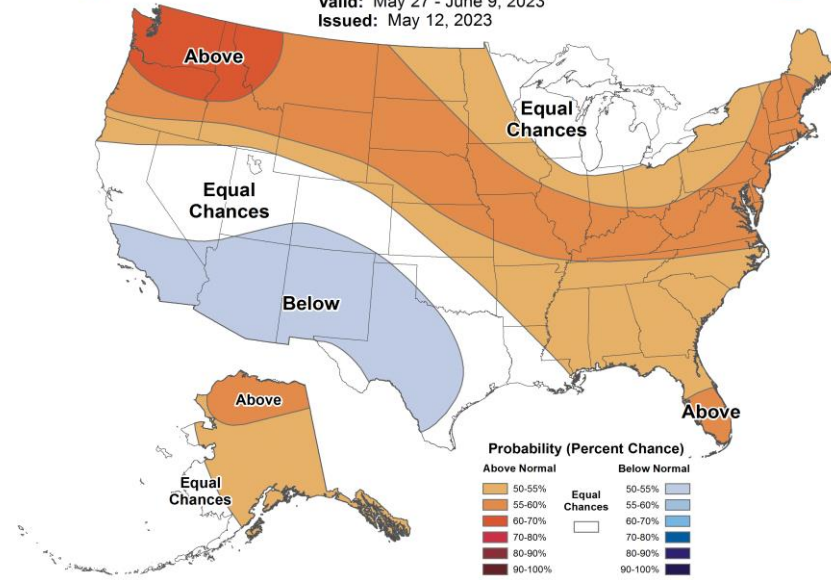
## 8-14 Day Temperature Outlook

Valid: May 23 - 29, 2023  
Issued: May 15, 2023



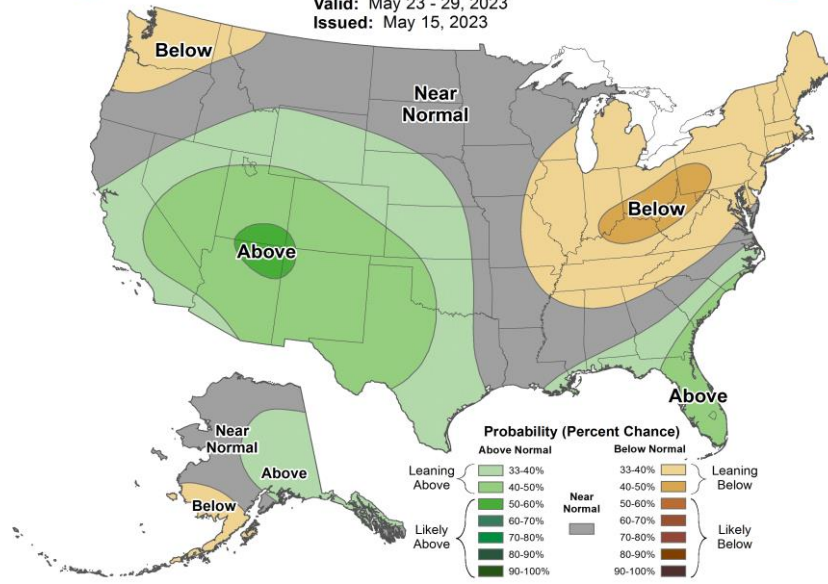
## Weeks 3-4 Temperature Outlook

Valid: May 27 - June 9, 2023  
Issued: May 12, 2023



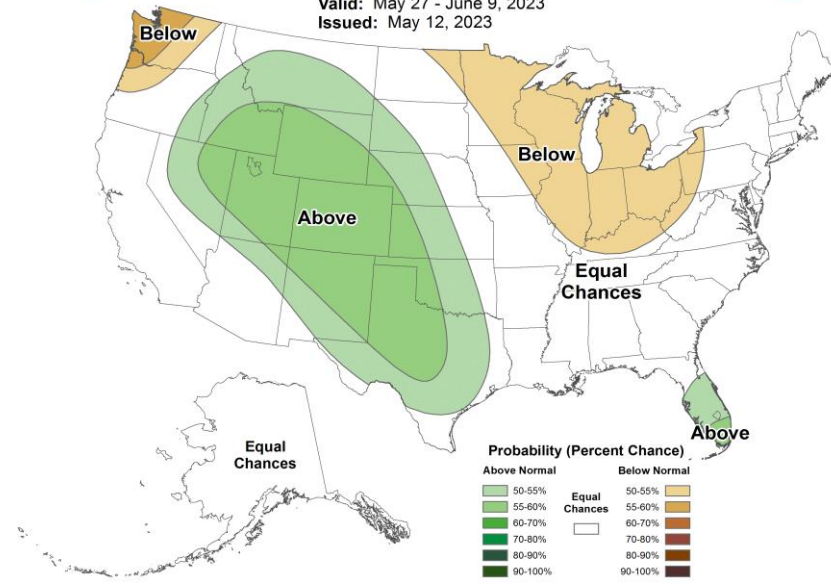
## 8-14 Day Precipitation Outlook

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Valid: May 27 - June 9, 2023  
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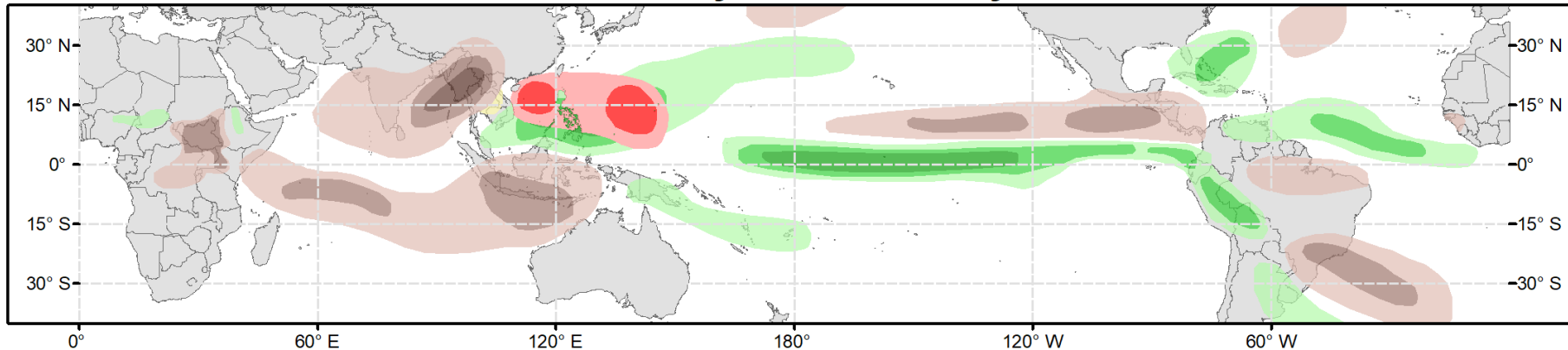


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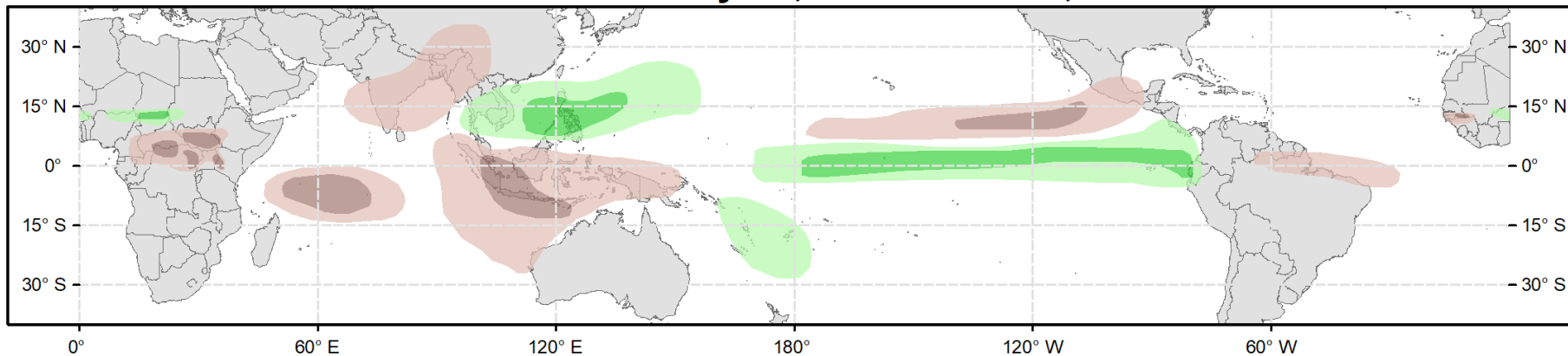
Climate Prediction Center



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