

# Global Tropics Hazards And Benefits Outlook

6/14/2022

Nick Novella

## Outline

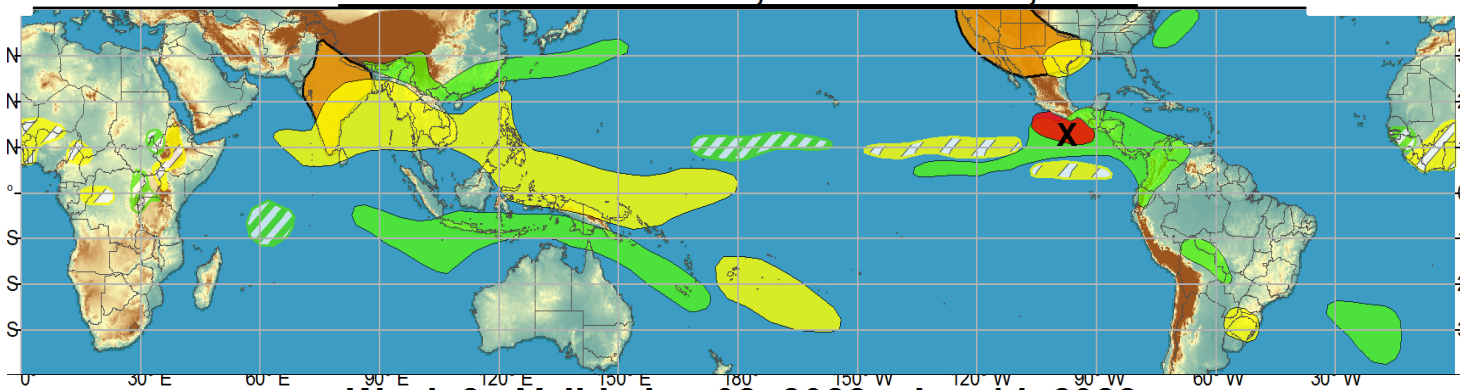
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

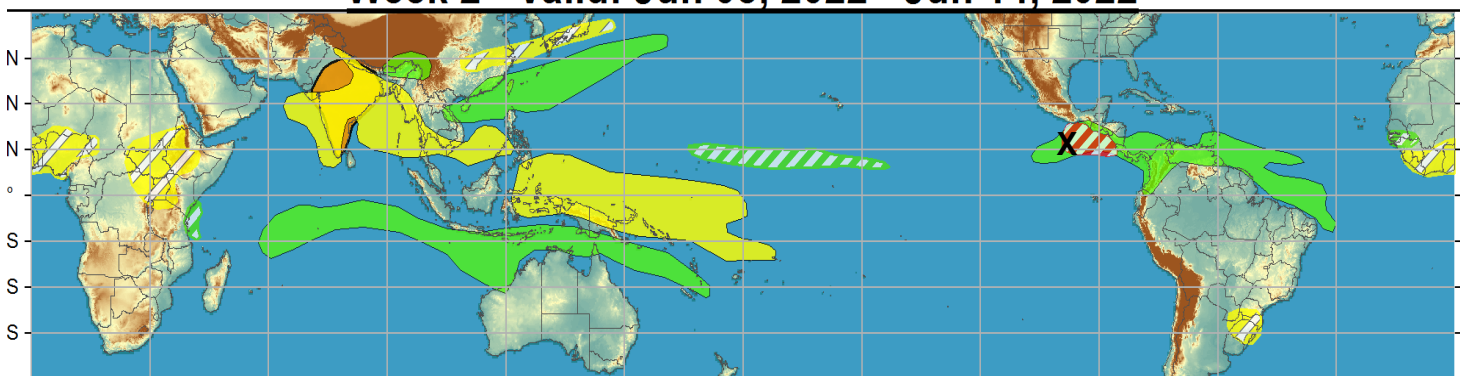
A = Tropical Storm  
Blas (6/14)

\* Pretty good  
consistency in  
forecasts during  
last 2 weeks

**Week 1 - Valid: Jun 08, 2022 - Jun 14, 2022**

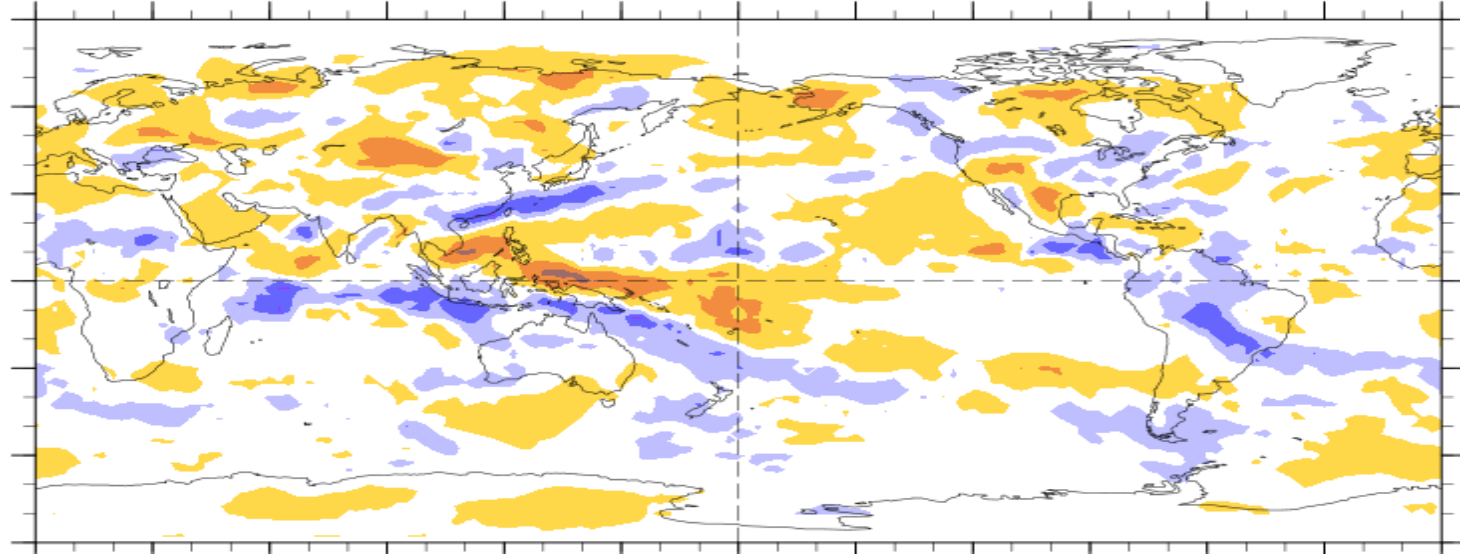


**Week 2 - Valid: Jun 08, 2022 - Jun 14, 2022**



7-Day Average OLR Anomaly

2022/06/06 - 2022/06/12



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

**ENSO:** (Jun 9, 2022 Update)

*next update on Thursday, July 14<sup>th</sup>*

- ENSO Alert System Status: [La Niña Advisory](#)
- Though La Niña is favored to continue, the odds for La Niña decrease into the Northern Hemisphere late summer (52% chance in JAS 2022) before slightly increasing through the Northern Hemisphere fall and early winter 2022 (58-59% chance)

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

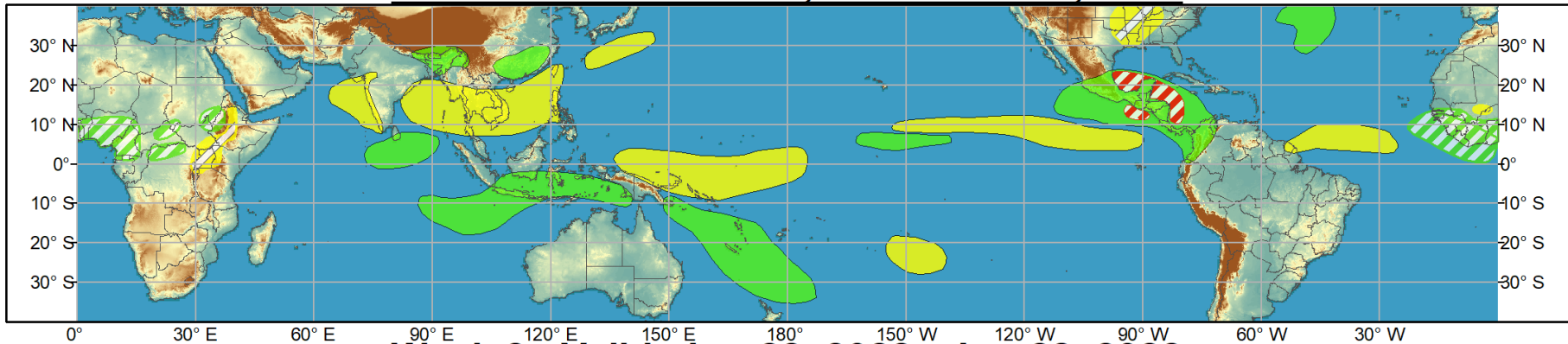
- Both velocity potential and RMM based MJO indices indicate a weakening of the intraseasonal signal during the last seven days.
- There is general agreement in the dynamical model RMM forecasts featuring an uptick in amplitude in short-term, followed by a re-weakening of the signal for the remainder of the outlook period. The renewed activity is likely tied to Rossby wave activity aiding the convective pattern over the western Hemisphere.
- Regardless of a disorganized MJO in the forecast, the interaction of tropical waves, and the persistence of anomalous lower-level westerlies over the tropical Americas is expected to increase chances for tropical cyclone formation over the eastern Pacific and Atlantic basins during the next two weeks.



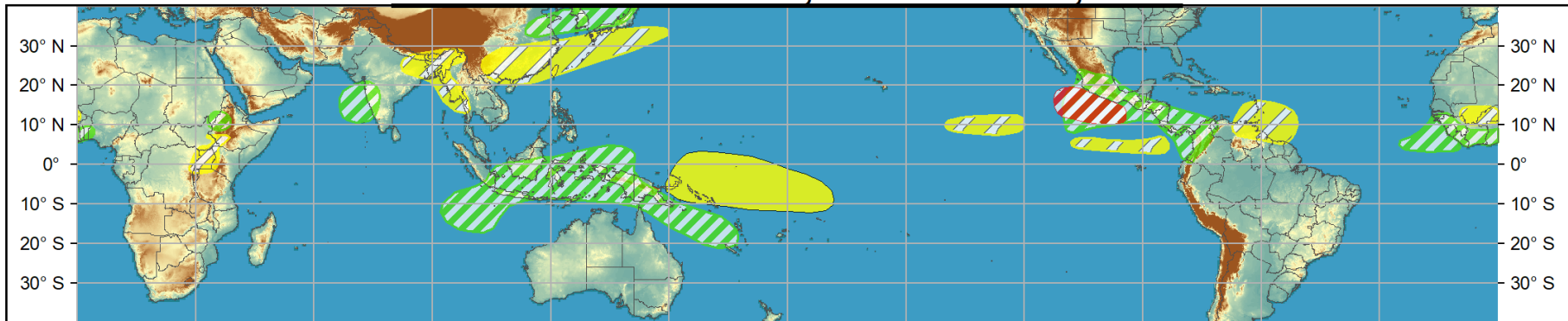
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Jun 15, 2022 - Jun 21, 2022



## Week 2 - Valid: Jun 22, 2022 - Jun 28, 2022



**Confidence**  
 High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Produced: 06/14/2022

Forecaster: Novella

**Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.**





# IR Satellite & 200-hpa Velocity Potential Anomalies

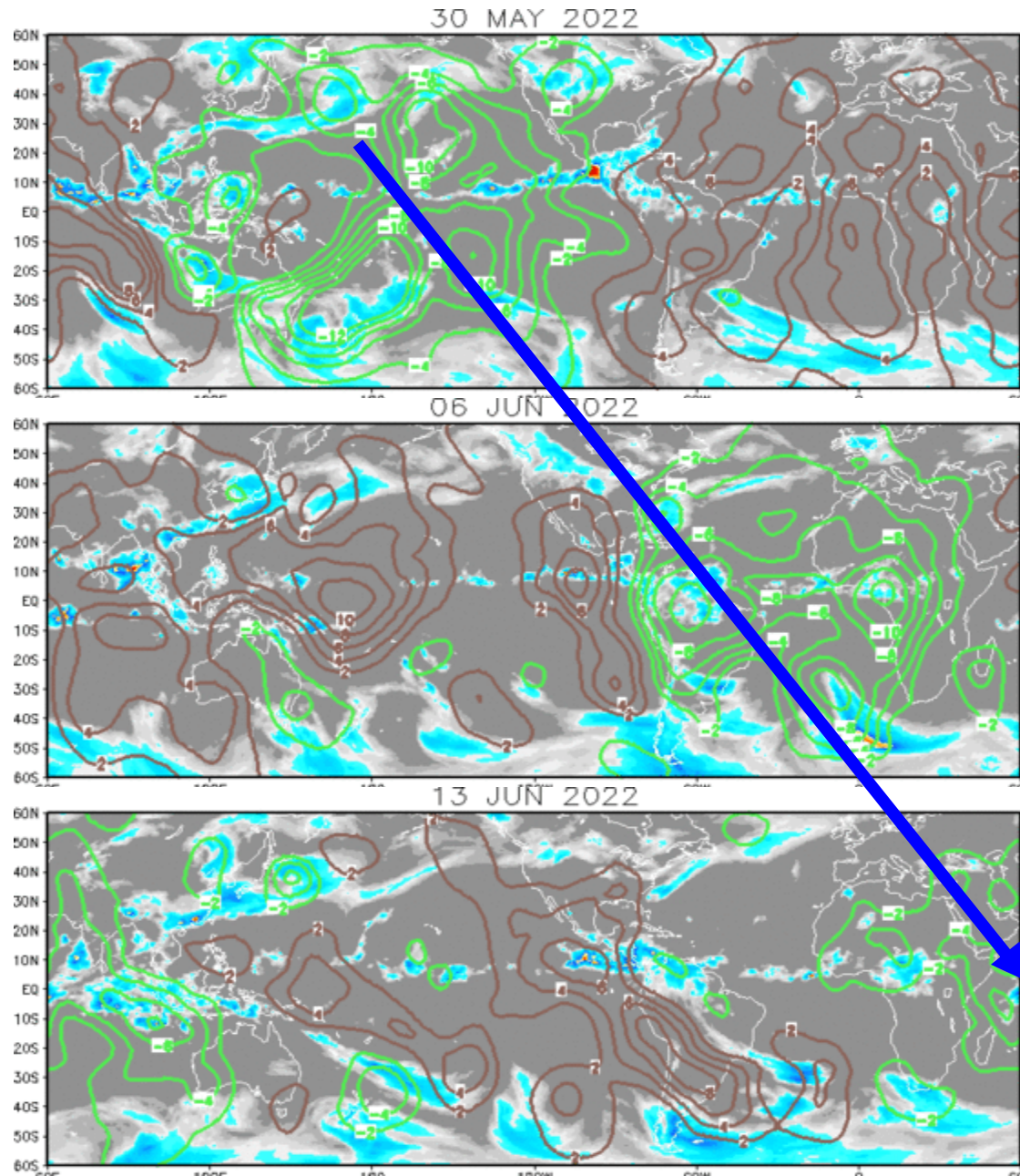
Green: Enhanced Divergence

Brown: Enhanced Convergence

Enhanced convection quickly shifted from Asia and the Maritime Continent to the Pacific, indicative of a Kelvin Wave.

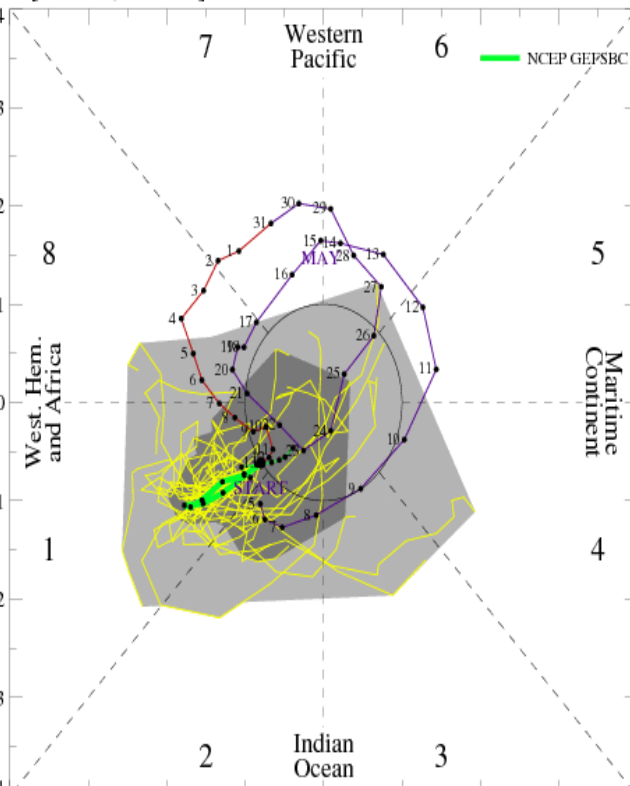
Enhanced convection is now observed across the Atlantic and extending into Africa, with suppressed convection over Asia and much of the Pacific.

Although envelopes of enhanced and suppressed convection continued to shift eastward, the wave-1 pattern has become less coherent.

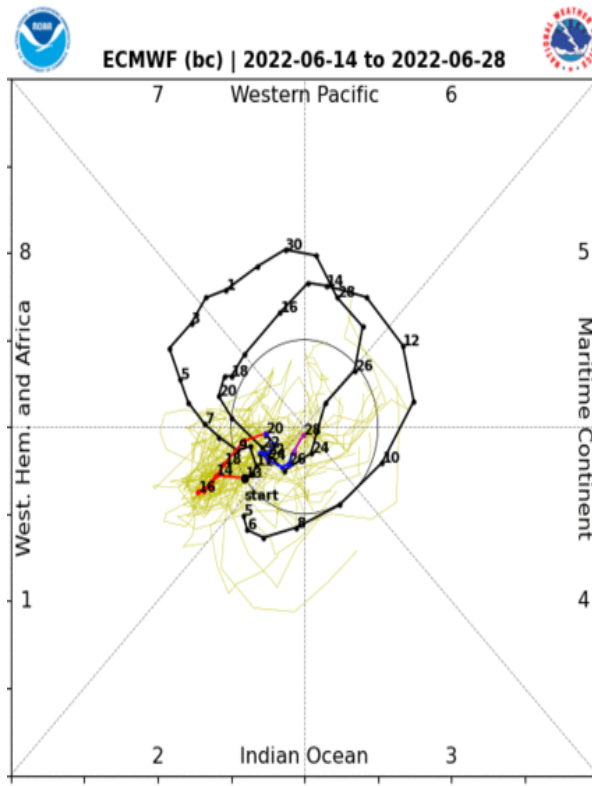


# MJO Observation/Forecast

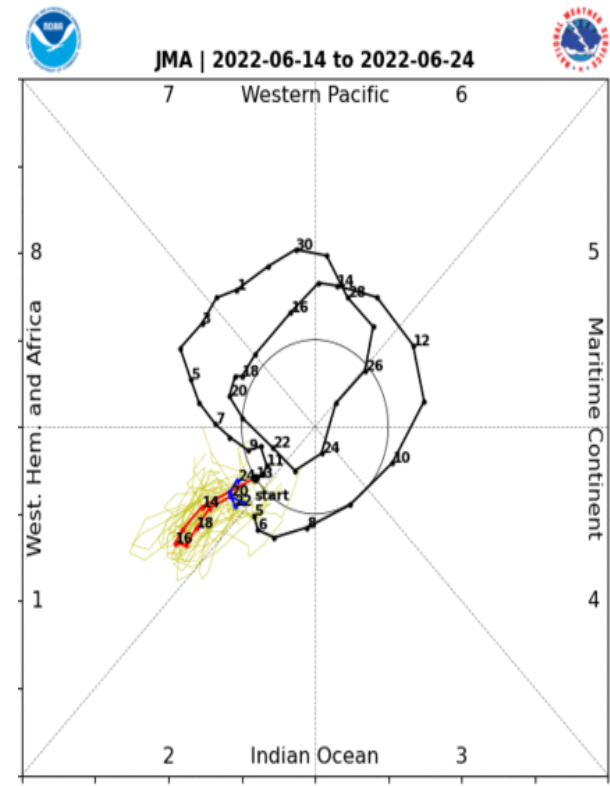
[RMM1, RMM2] forecast for Jun-14-2022 to Jun-28-2022



GEFS



ECMWF



JMA

There is good agreement in dynamical models depicting an increase of the signal in RMM space on the near-term, followed by a re-weakening with little eastward propagation for the remainder of the period.

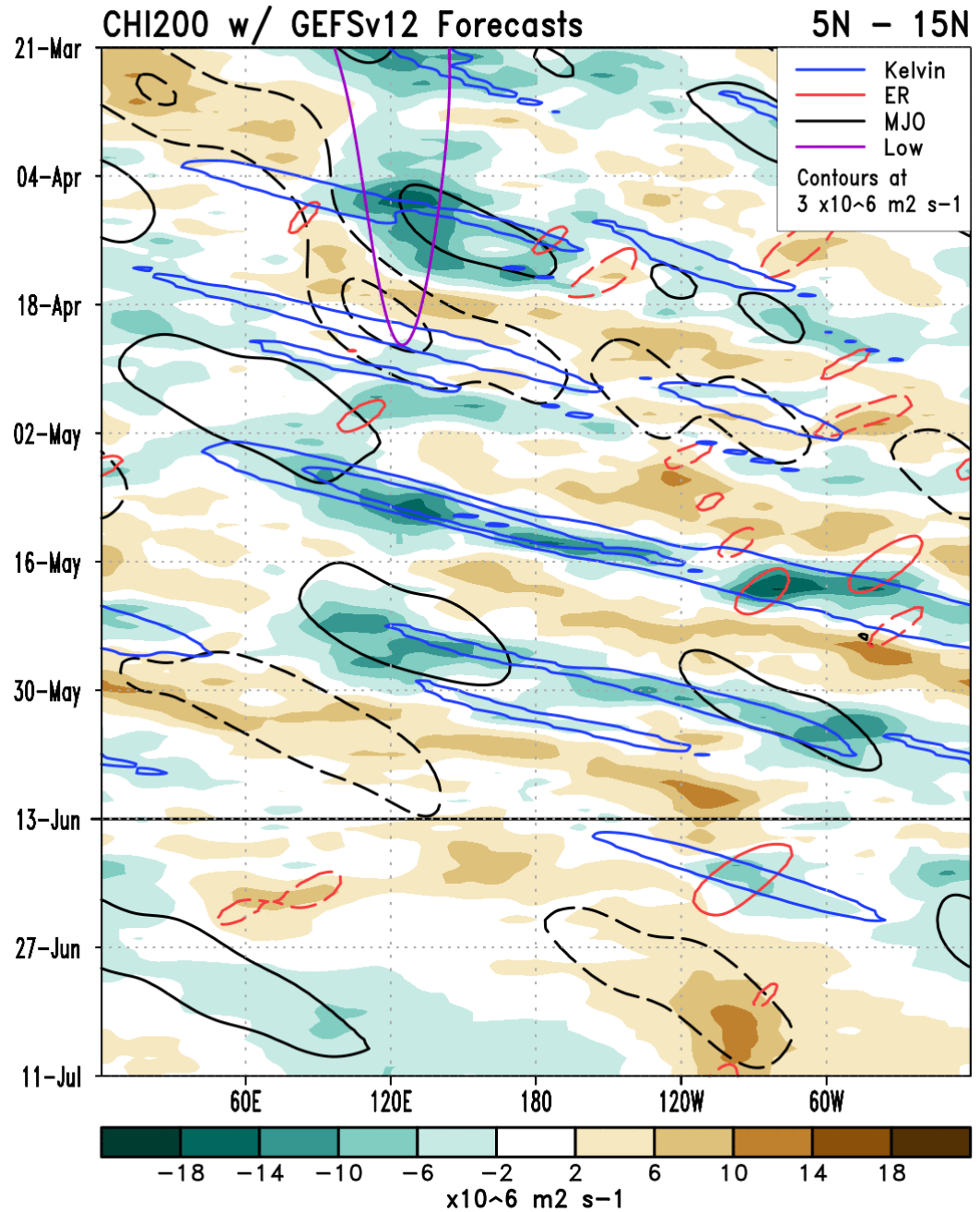
This renewed signal is likely tied to other modes of tropical variability.

There are several ensemble members in the GEFS and ECMWF suggesting possible renewed MJO activity late in week-2.

Robust convectively coupled **Kelvin wave** activity was the dominant mode of activity during May and early June.

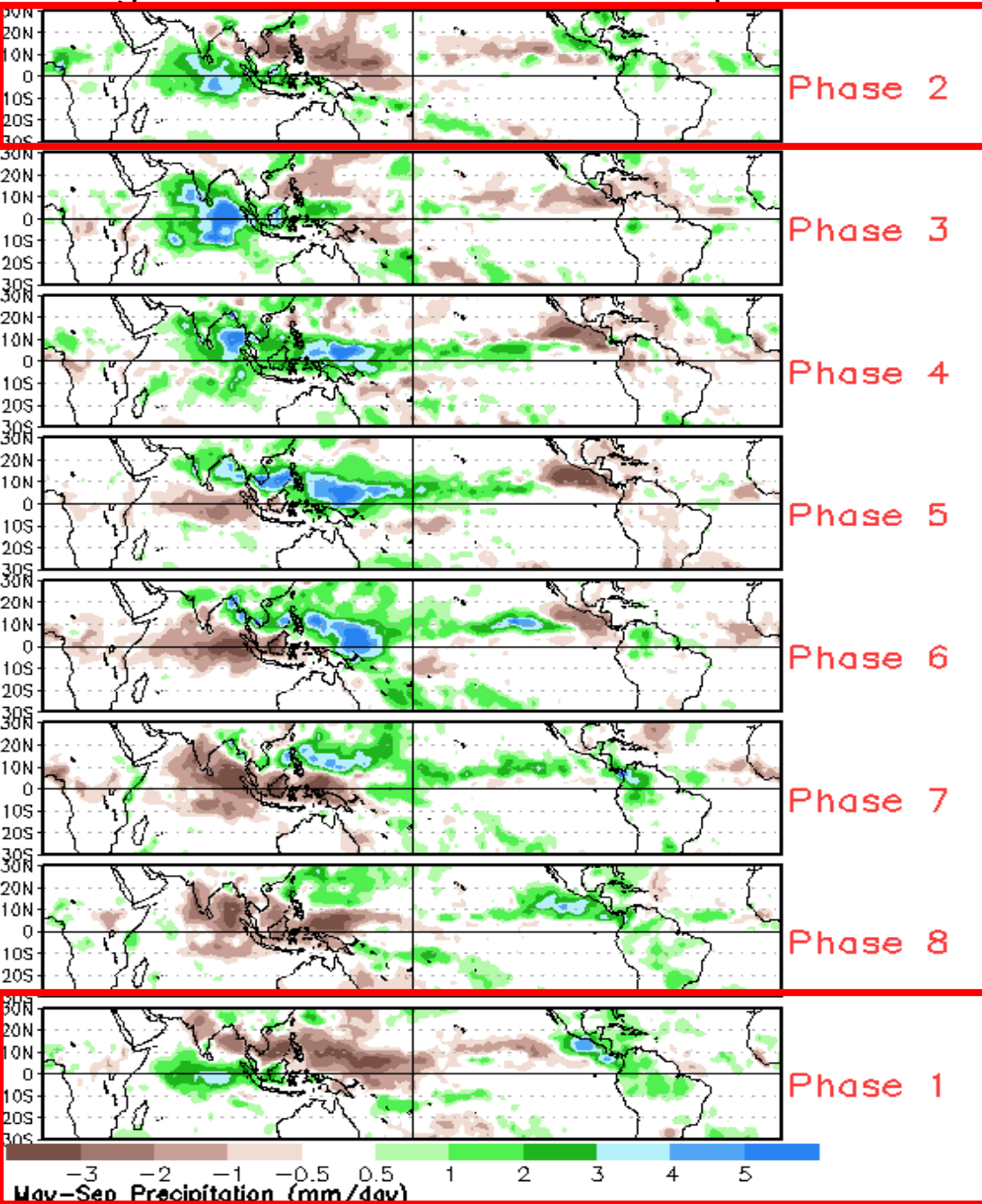
Constructive interference with predicted **Rossby Wave** activity results in favorable conditions for enhanced convection and potential TC activity over and near the Americas during the next two weeks.

More coherent **MJO activity** is coming through the filtering in the GEFS by late June and into the week-3 period.





# Average Conditions when the MJO is present

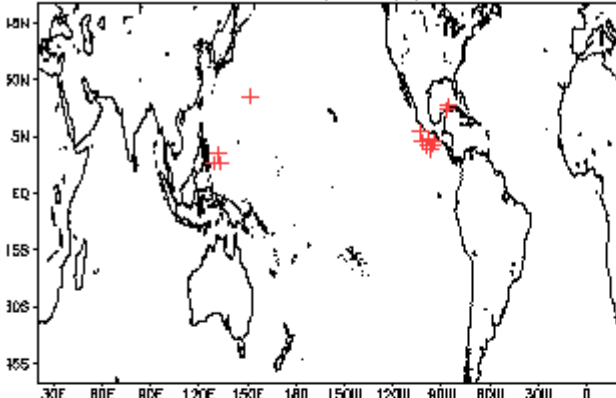


CAVEAT: These panels are representative of robust MJO events.

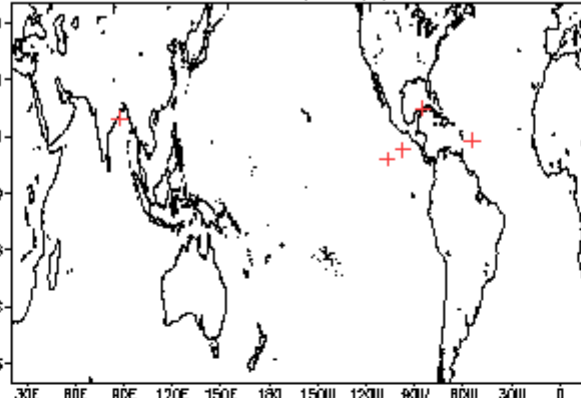


# June Tropical Storm Formation by MJO phase

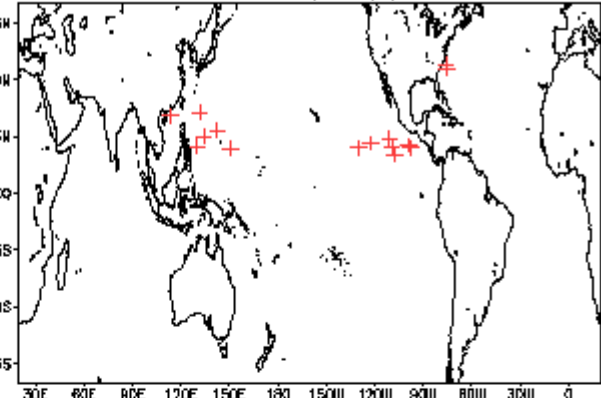
Phase 1 (104 days) 14 storms



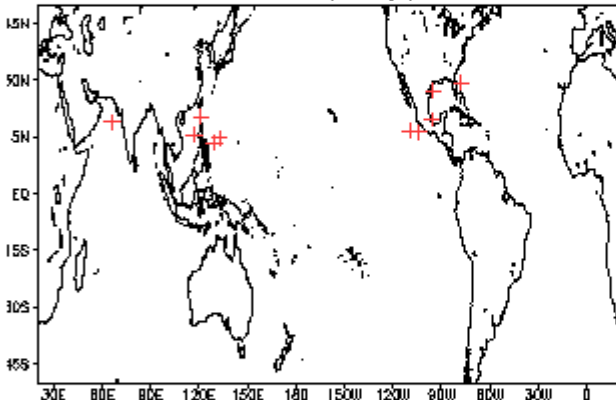
Phase 4 (80 days) 6 storms



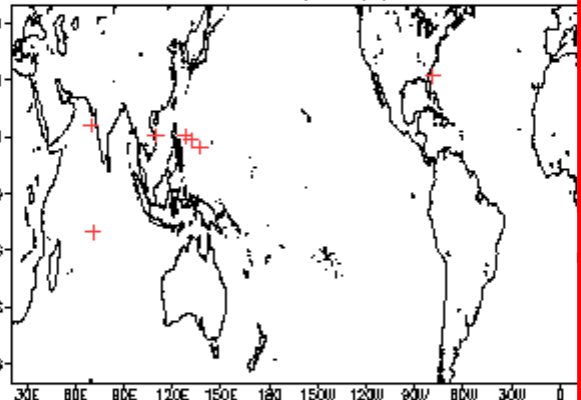
Phase 7 (45 days) 16 storms



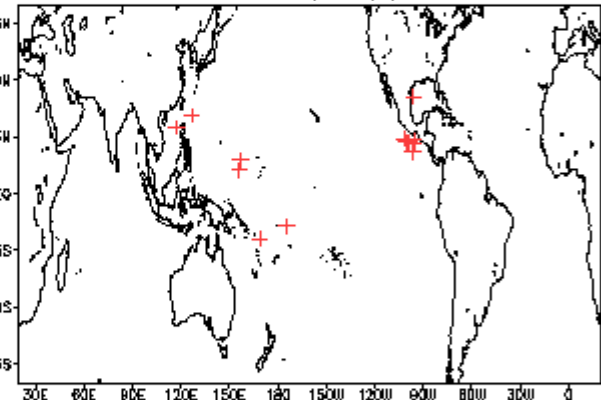
Phase 2 (82 days) 11 storms



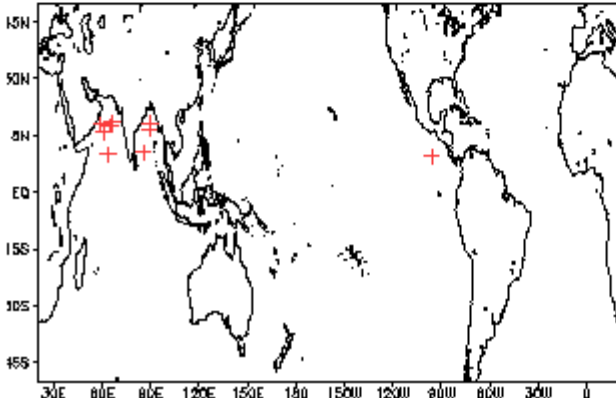
Phase 5 (77 days) 8 storms



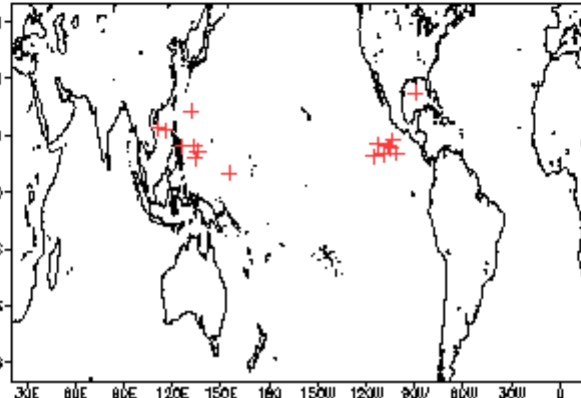
Phase 8 (70 days) 15 storms



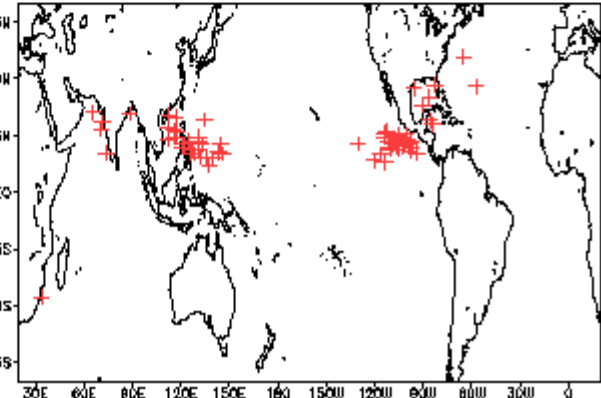
Phase 3 (57 days) 10 storms



Phase 6 (82 days) 17 storms

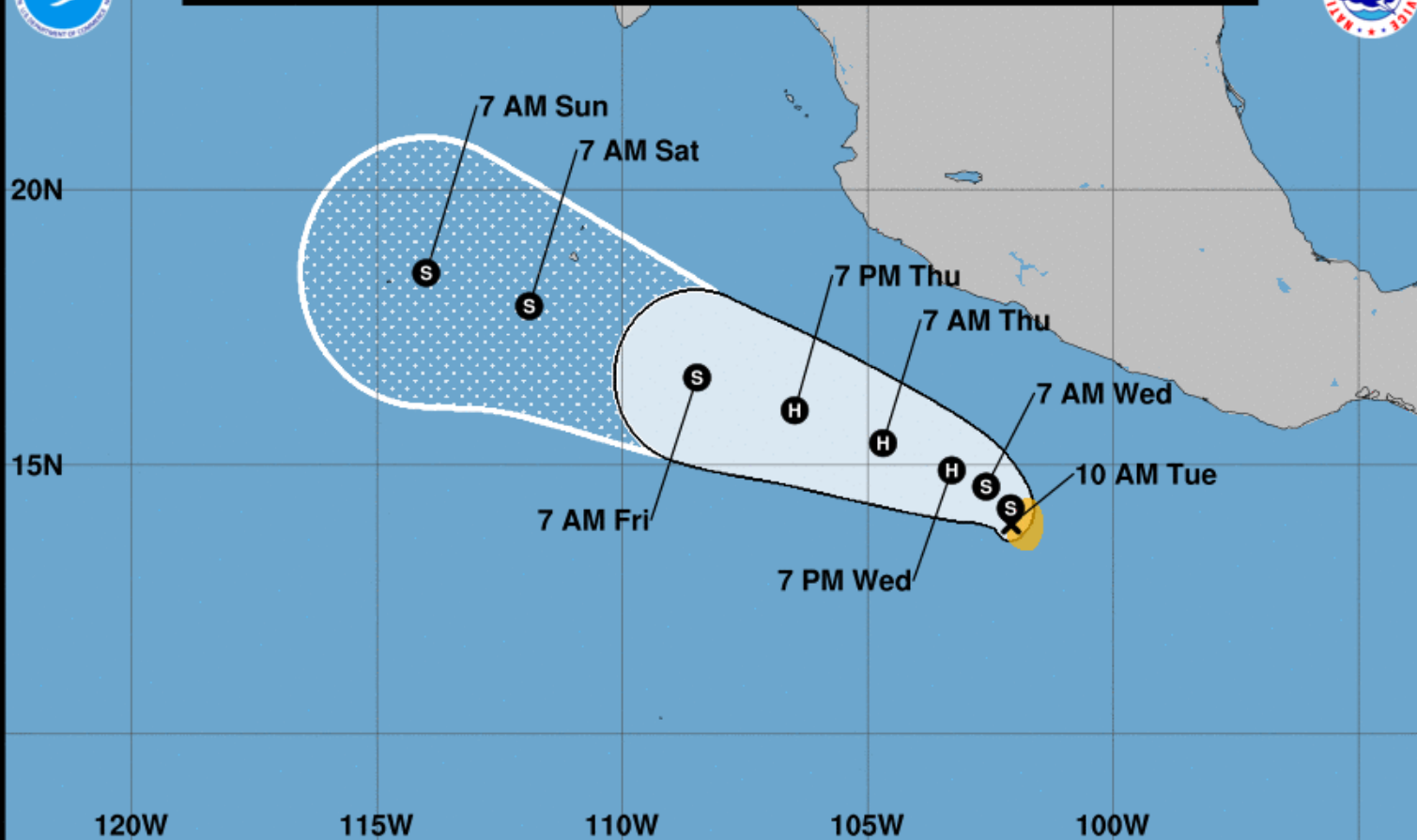


Null (423 days) 71 storms





**Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.**



**Tropical Storm Blas**  
 Tuesday June 14, 2022  
 10 AM CDT Advisory 2  
 NWS National Hurricane Center

**Current information: x**  
 Center location 13.9 N 102.1 W  
 Maximum sustained wind 45 mph  
 Movement N at 2 mph

**Forecast positions:**  
 ● Tropical Cyclone ○ Post/Potential TC  
 Sustained winds: D < 39 mph  
 S 39-73 mph H 74-110 mph M > 110 mph

**Potential track area:**  
 Day 1-3 (solid line) Day 4-5 (dotted pattern)

**Watches:**  
 Hurricane (pink) Trop Stm (yellow)

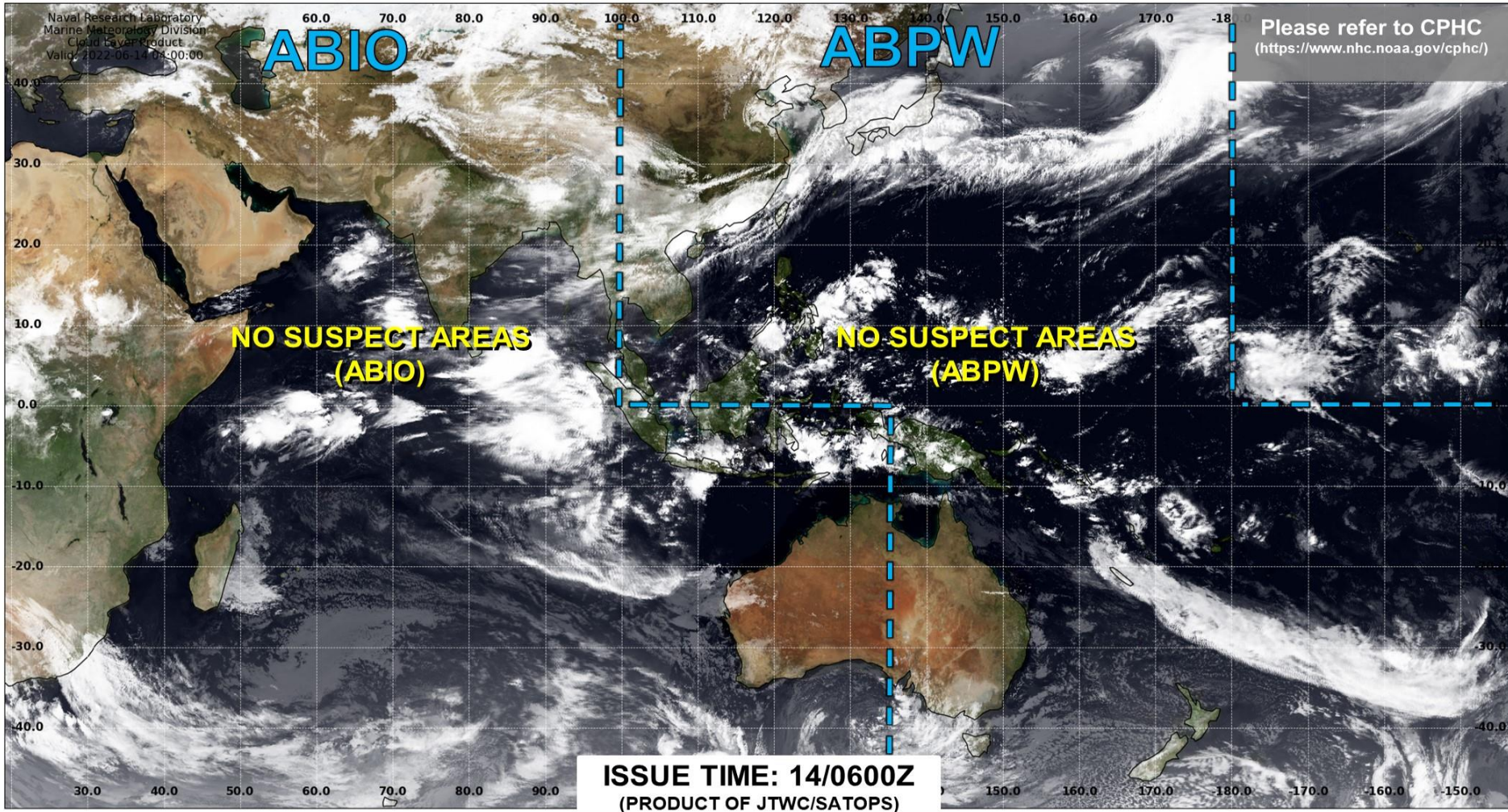
**Warnings:**  
 Hurricane (red) Trop Stm (blue)

**Current wind extent:**  
 Hurricane (brown) Trop Stm (yellow)





# 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)

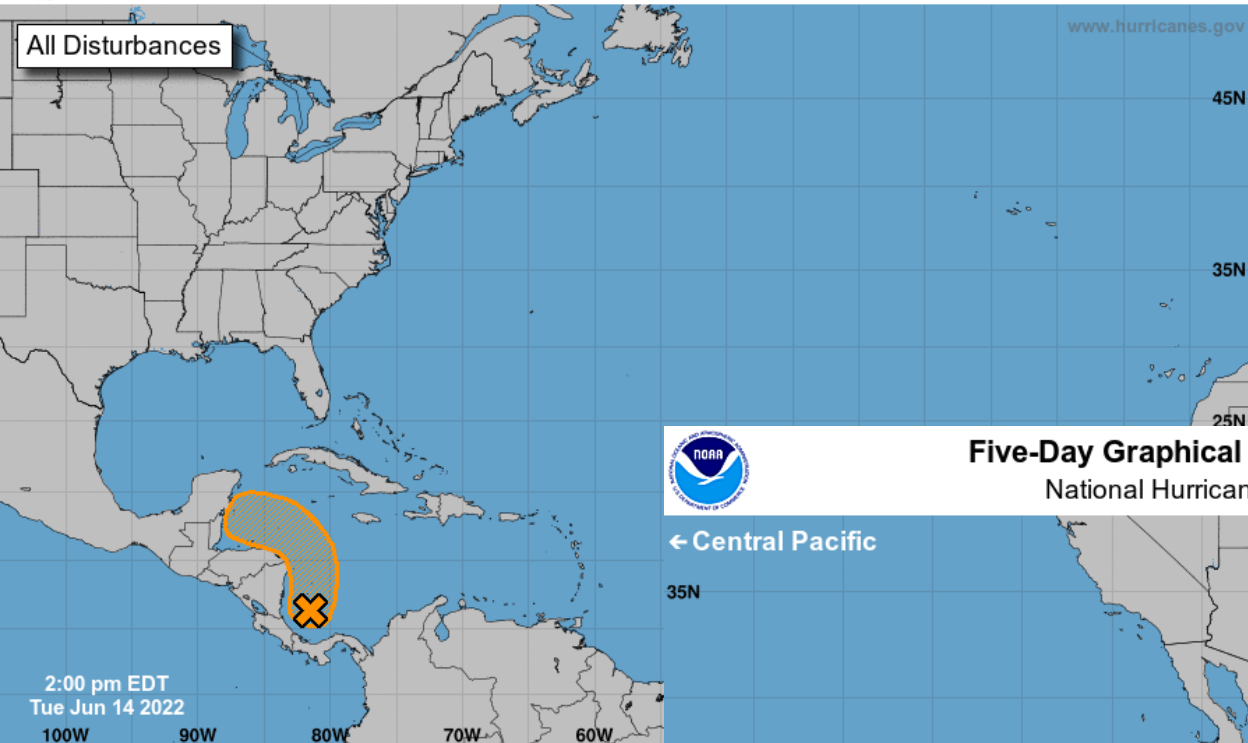


# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



www.hurricanes.gov



2:00 pm EDT  
Tue Jun 14 2022

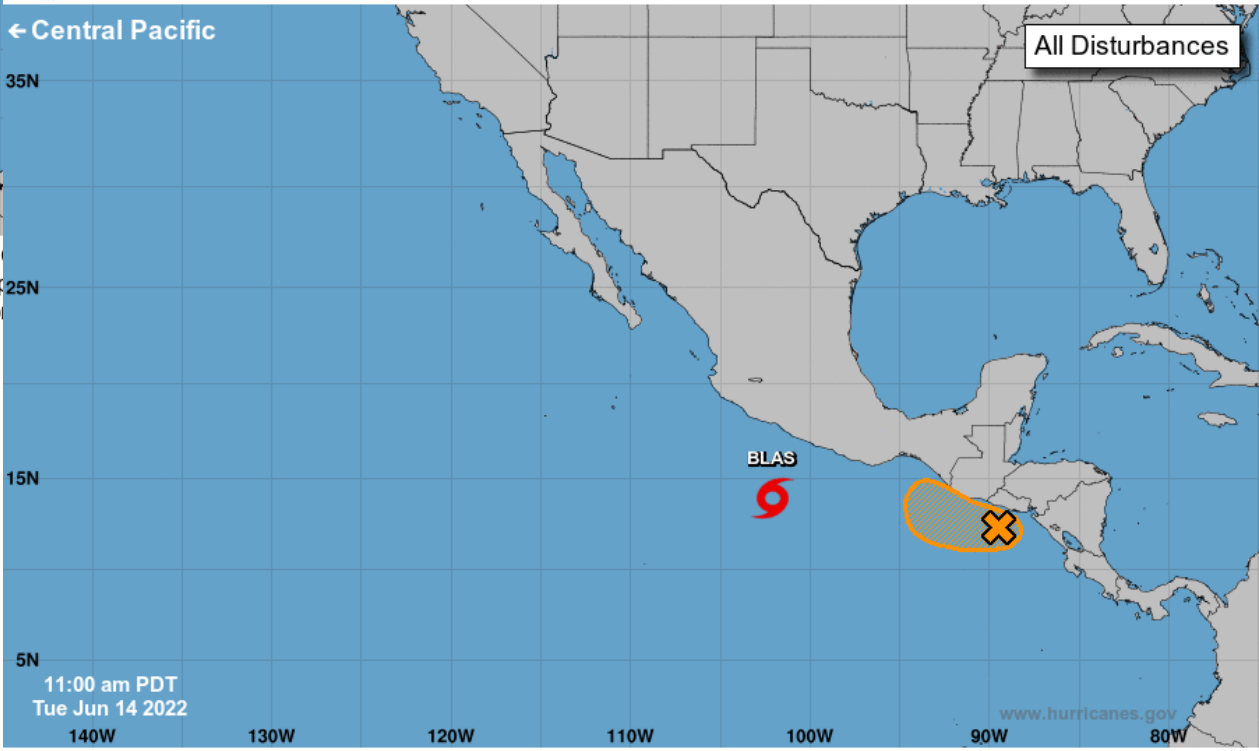


# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



← Central Pacific



11:00 am PDT  
Tue Jun 14 2022

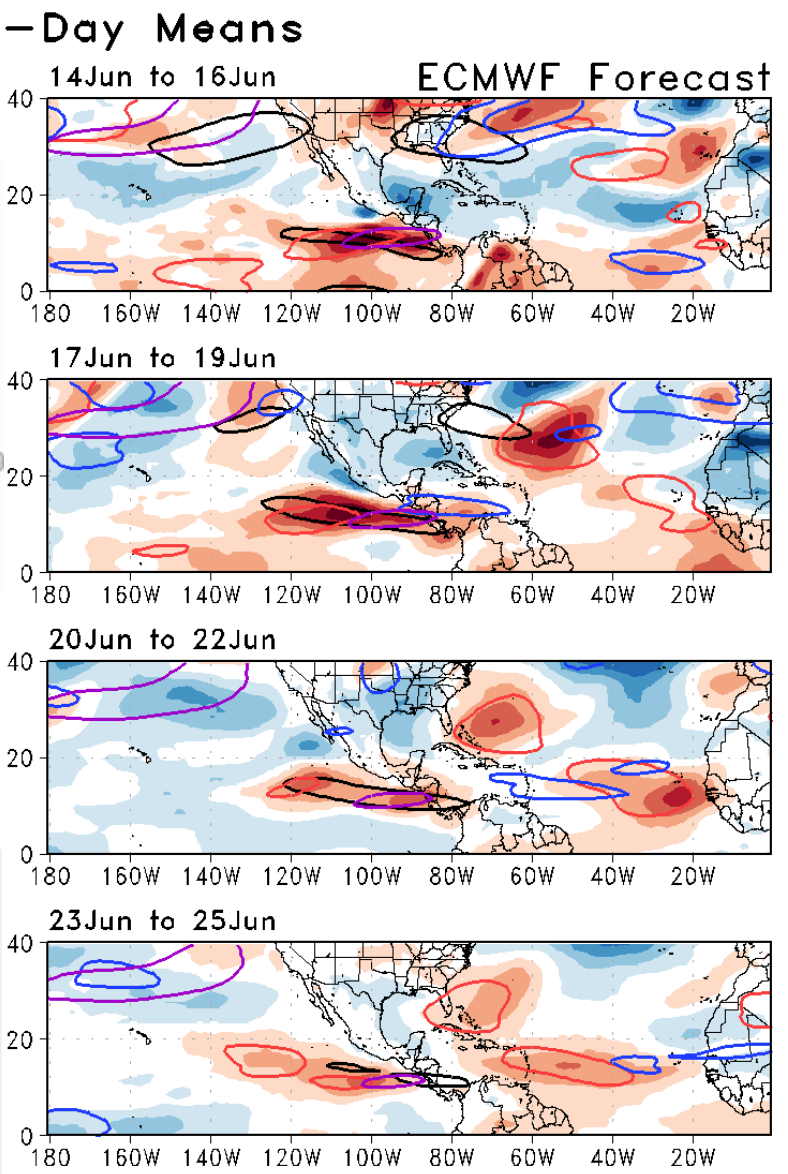
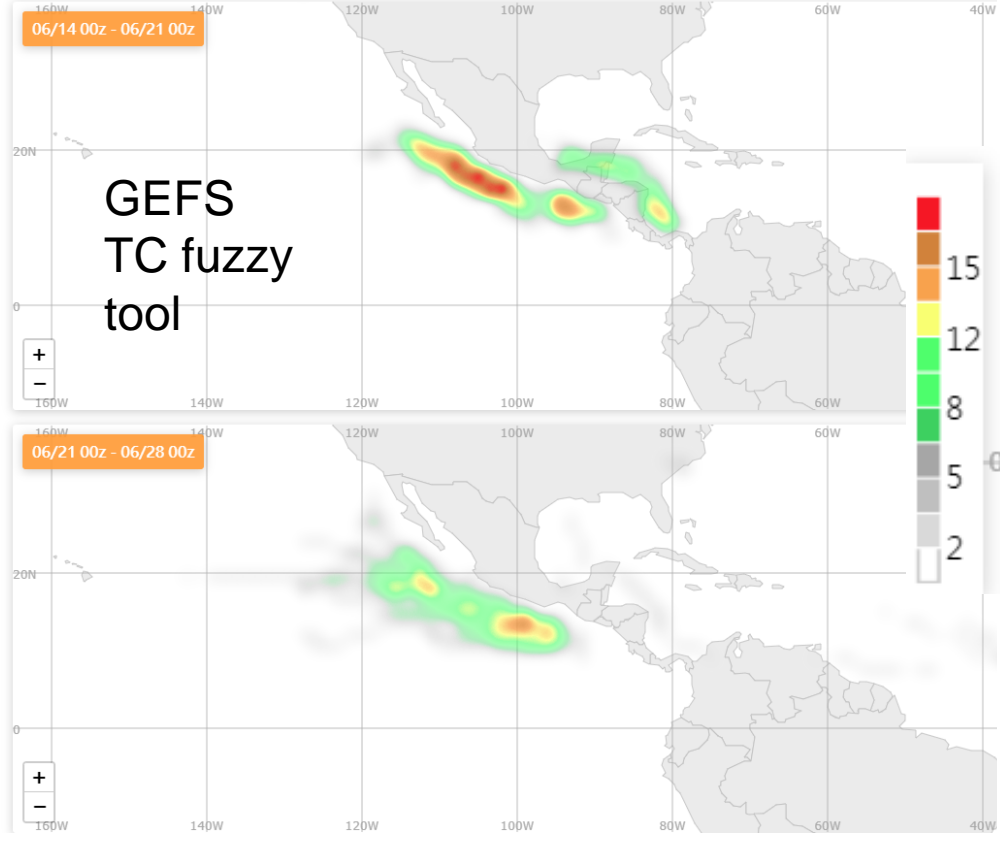
www.hurricanes.gov

Current Disturbances and Five-Day Cyclone Formation Chance:

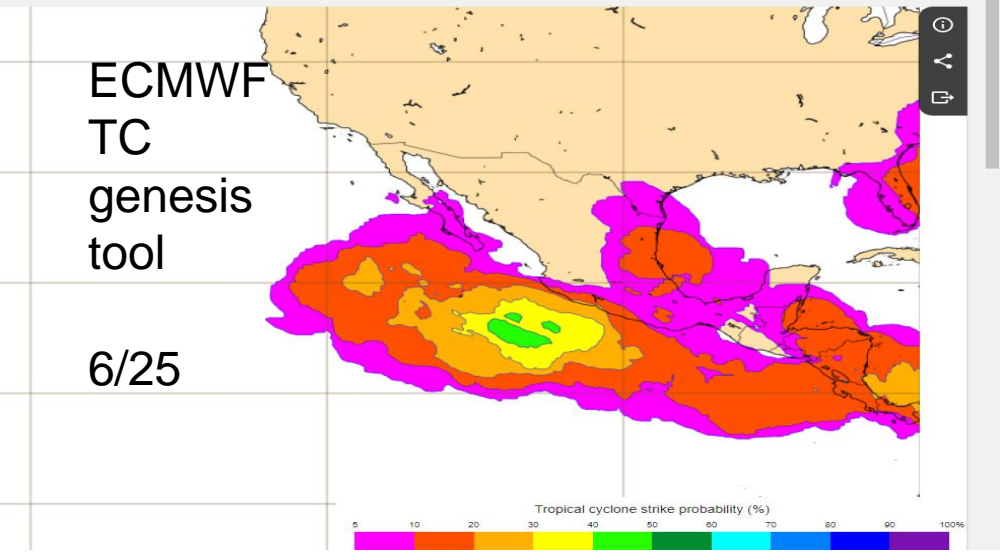
- Tropical or Sub-Tropical Cyclone: ○ Depression
- ⊗ Post-Tropical Cyclone or Remnants

- Current Disturbances and Five-Day Cyclone Formation Chance:
  - < 40%
  - ⊗ 40-60%
  - ⊗ > 60%
- Tropical or Sub-Tropical Cyclone:
  - Depression
  - ⊗ Storm
  - ⊗ Hurricane
  - ⊗ Post-Tropical Cyclone or Remnants



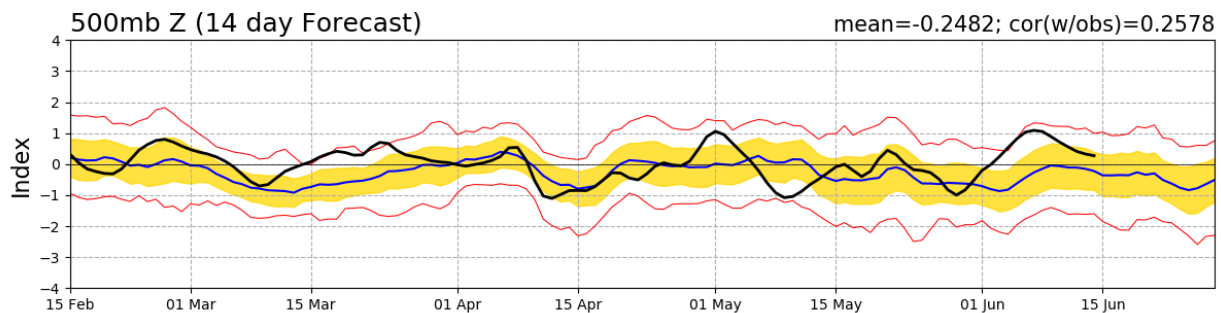
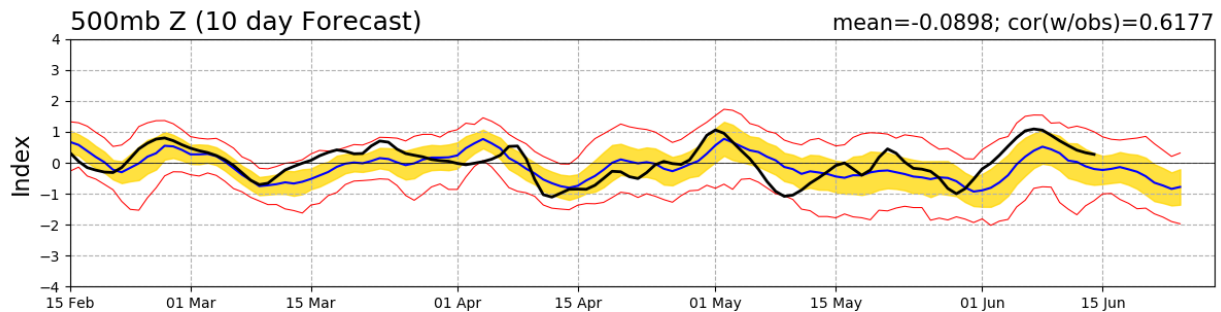
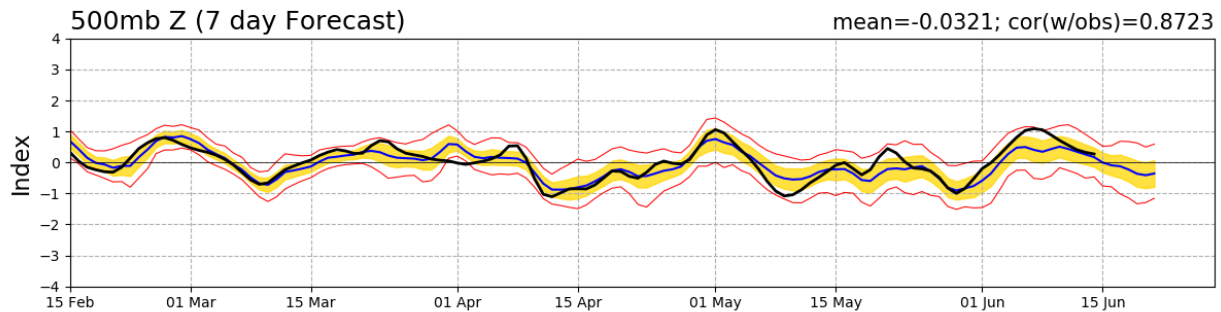
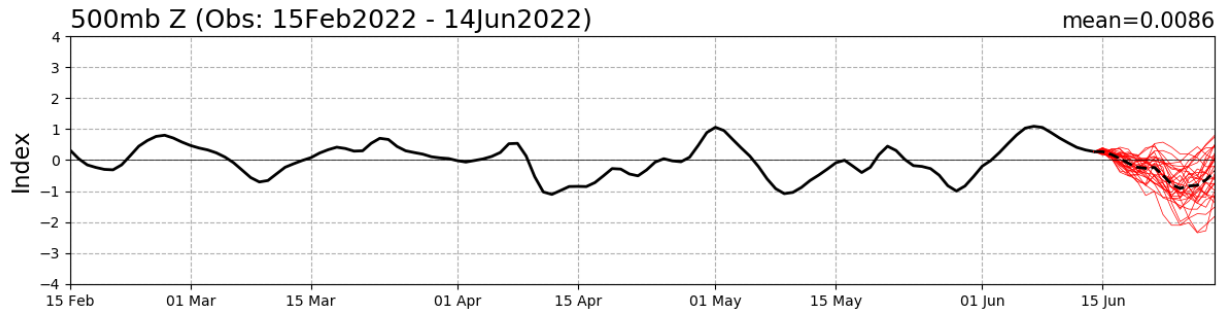


— MJO      — Kelvin\*2  
 — Low      — ER  
 Contours at 2, 6 m s<sup>-1</sup>

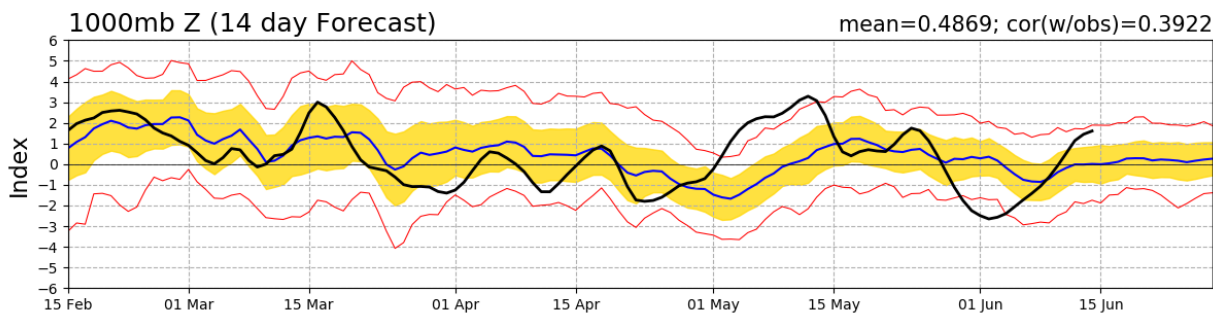
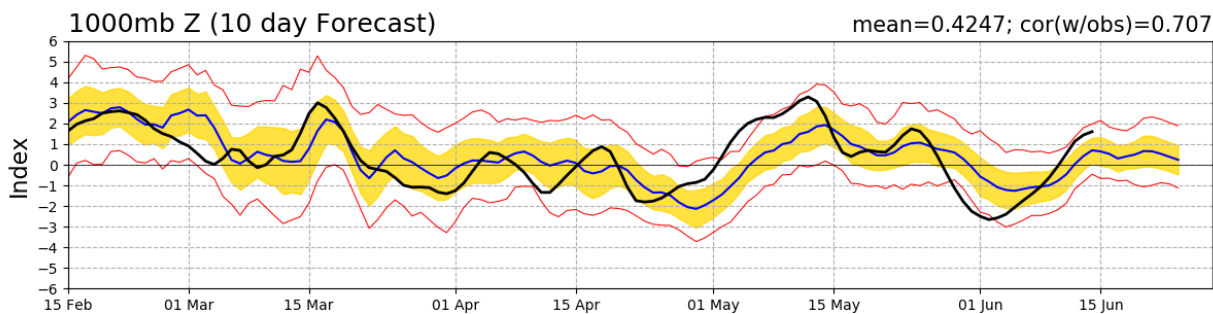
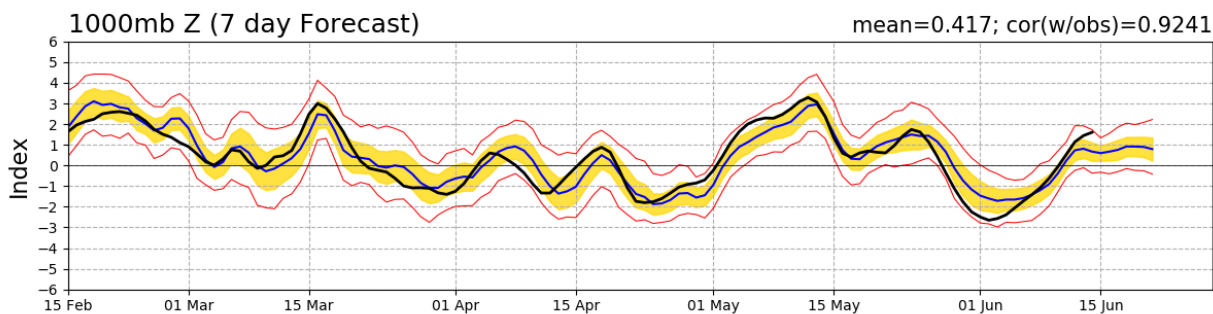
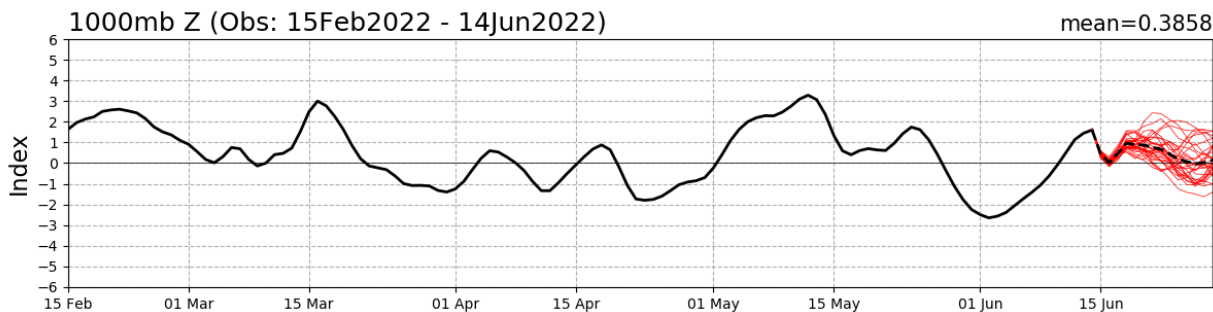


# Connections to U.S. Impacts

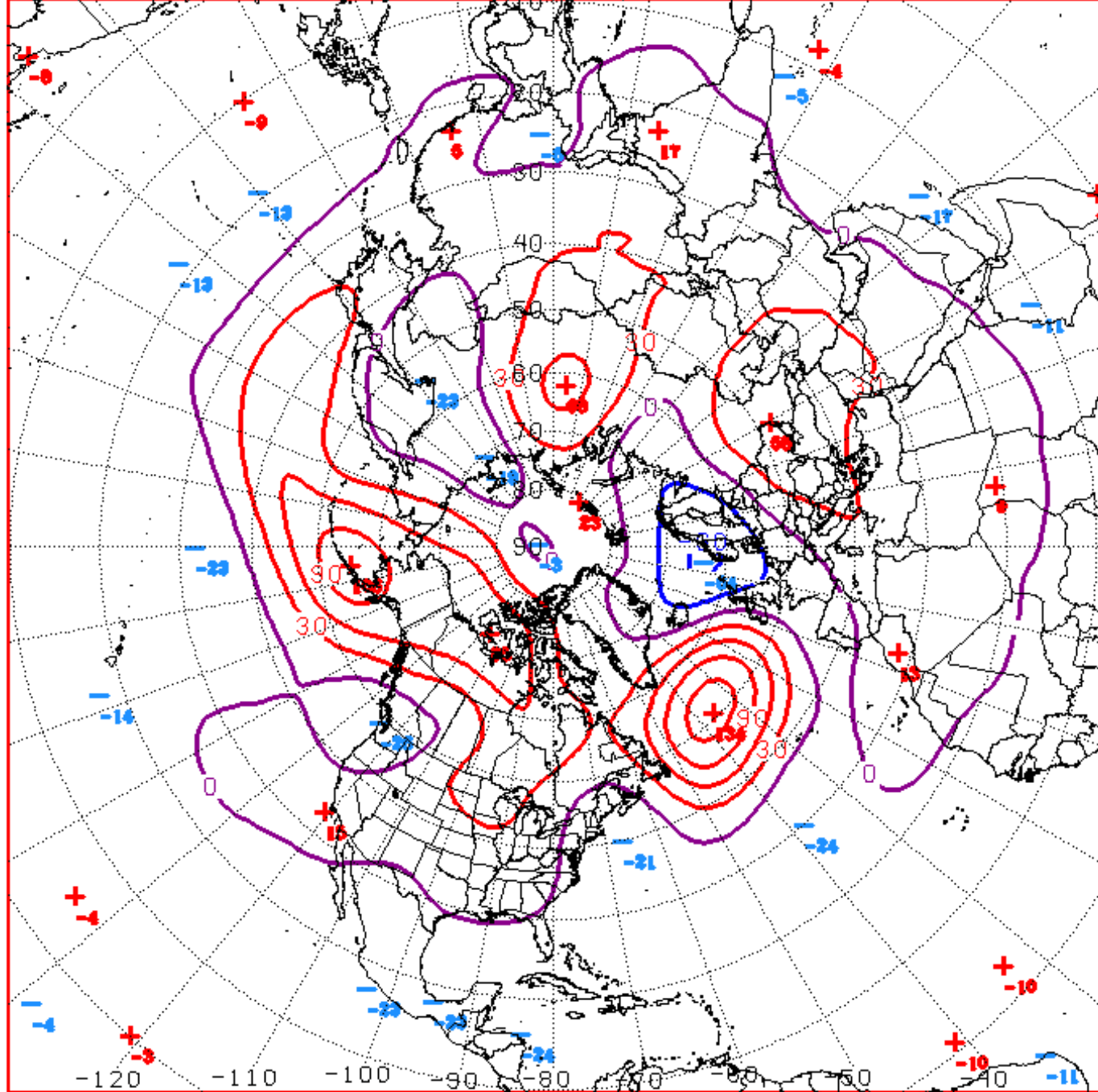
# PNA Index: Observed & GEFS Forecasts



# AO Index: Observed & GEFS Forecasts







D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE JUN 14 2022 1353 UTC CNTD JUN 25 2022

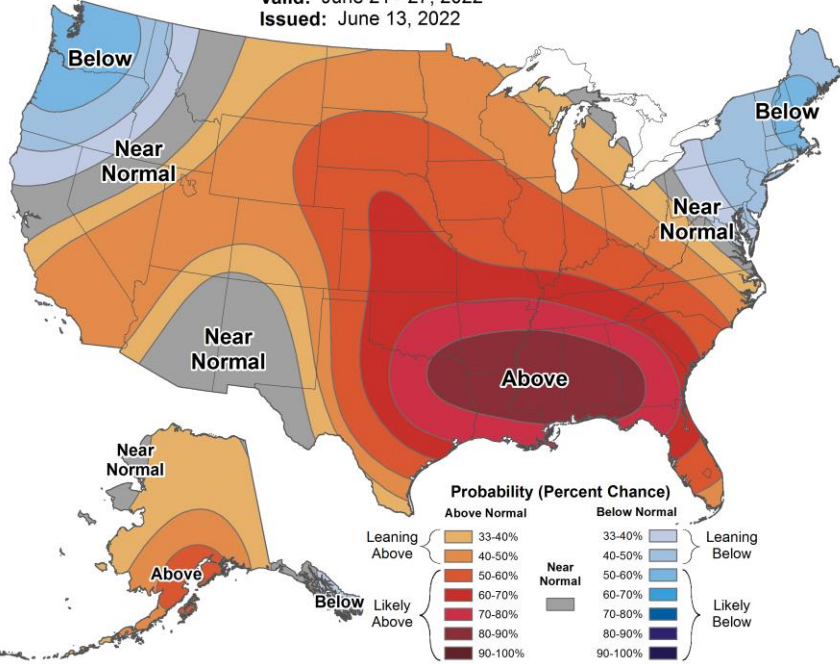
# Week 2 – Temperature and Precipitation



## 8-14 Day Temperature Outlook



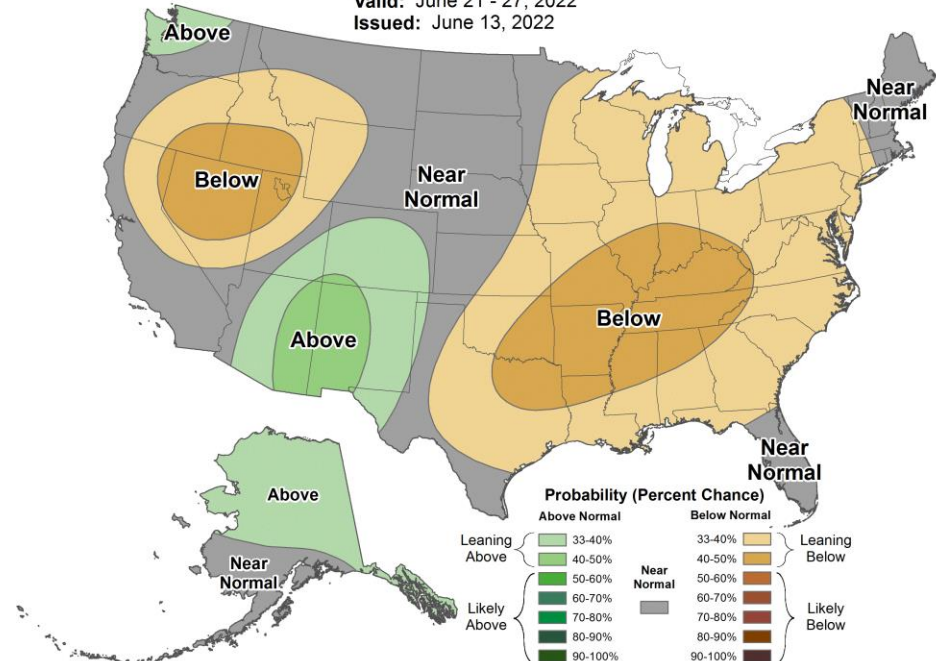
Valid: June 21 - 27, 2022  
Issued: June 13, 2022



## 8-14 Day Precipitation Outlook



Valid: June 21 - 27, 2022  
Issued: June 13, 2022

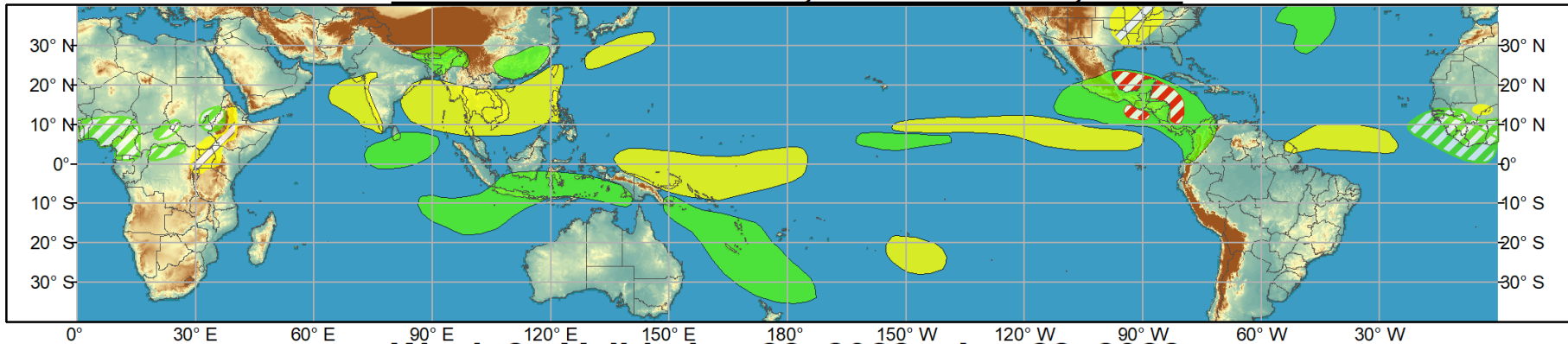




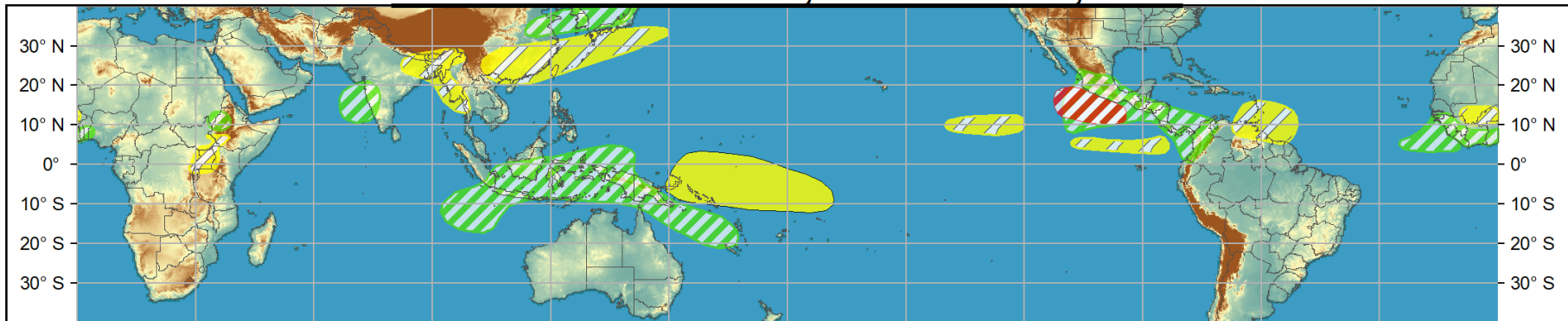
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## Week 2 - Valid: Jun 22, 2022 - Jun 28, 2022



### Confidence

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**Tropical Cyclone Formation**



Development of a tropical cyclone (tropical depression - TD, or greater strength).

**Above-average rainfall**



Weekly total rainfall in the upper third of the historical range.

**Below-average rainfall**



Weekly total rainfall in the lower third of the historical range.

**Above-normal temperatures**



7-day mean temperatures in the upper third of the historical range.

**Below-normal temperatures**



7-day mean temperatures in the lower third of the historical range.

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