

# Global Tropics Hazards And Benefits Outlook

6/8/2021

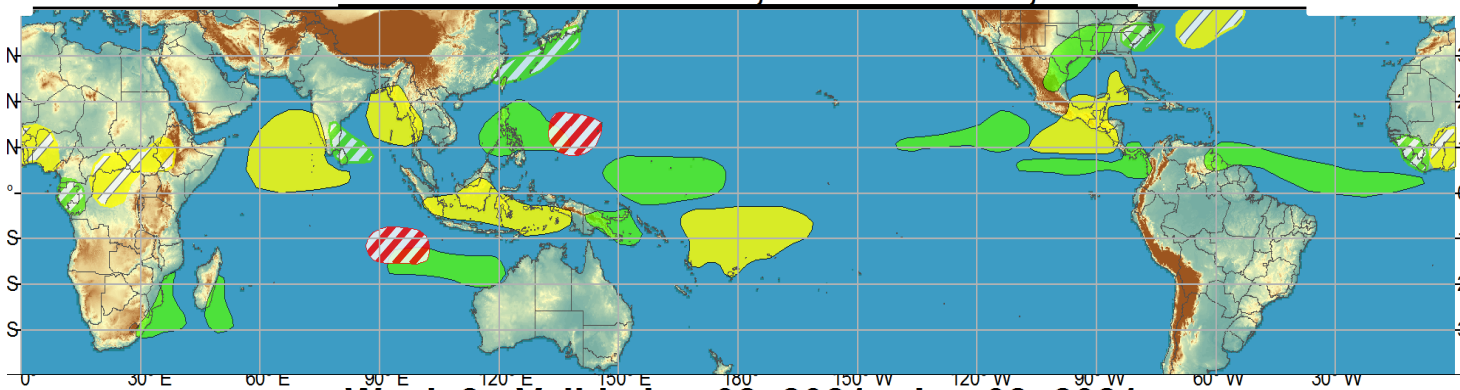
Nick Novella

## Outline

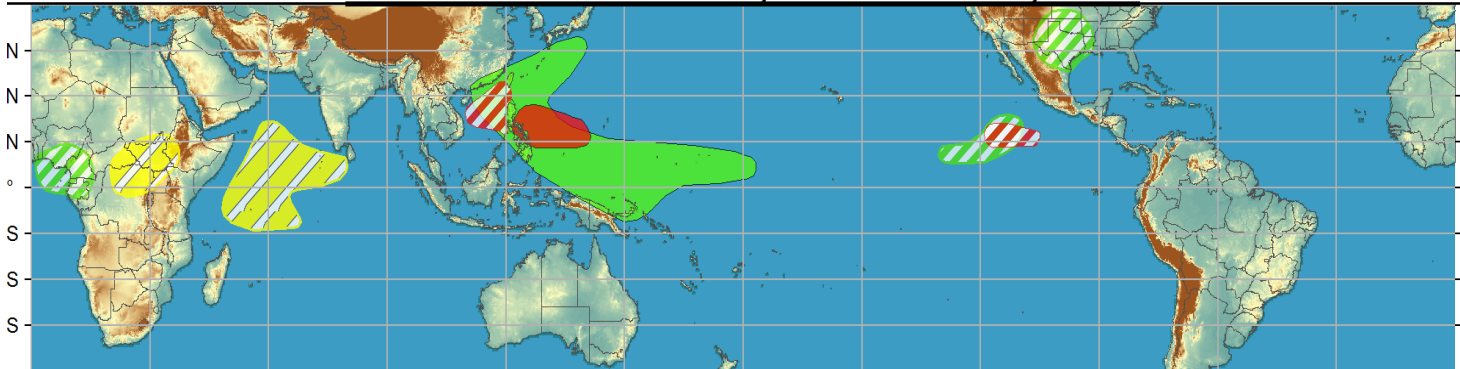
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

**Week 1 - Valid: Jun 02, 2021 - Jun 08, 2021**

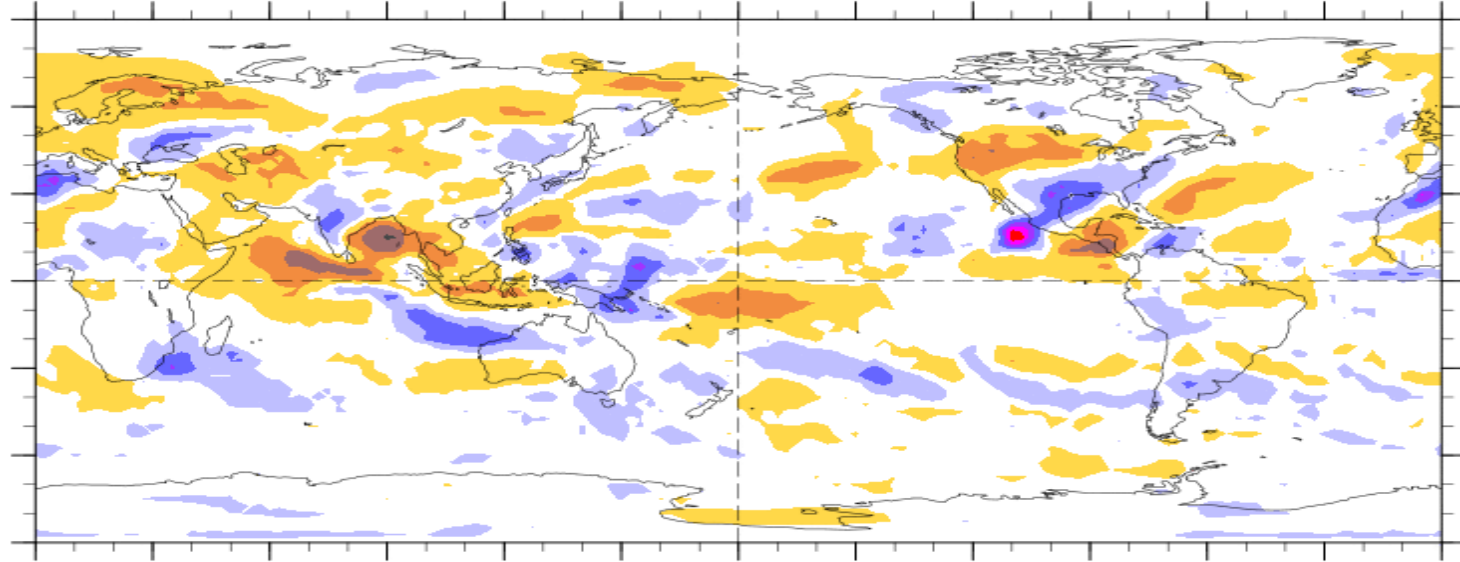


**Week 2 - Valid: Jun 02, 2021 - Jun 08, 2021**



7-Day Average OLR Anomaly

2021/05/31 - 2021/06/06



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (September 10, 2020 Update)**

*next update on 10<sup>th</sup> of June!*

- ENSO Alert System Status: [Final La Niña Advisory](#)
- La Niña has ended, with ENSO-neutral likely to continue through the Northern Hemisphere summer (67% chance in June-August 2021).

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

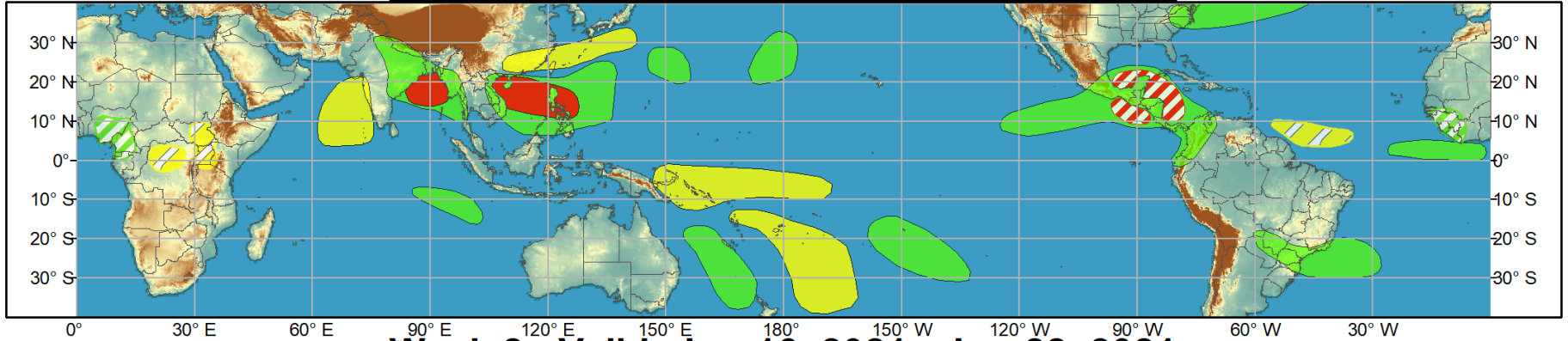
- The RMM index indicates a less coherent MJO remains over the West Pacific, where destructive interference with subseasonal and low frequency variability have limited eastward propagation since early June.
- There is general agreement in the dynamical model RMM index forecasts depicting eastward propagation of the MJO, but maintain a low amplitude during week-1 with increasing uncertainty relative to its strength and evolution by week-2.
- The active phase of the MJO is likely to contribute to TC activity across the eastern Pacific and western Atlantic through mid-June, with other subseasonal variability elevating chances for TC formation in the Eastern Hemisphere.



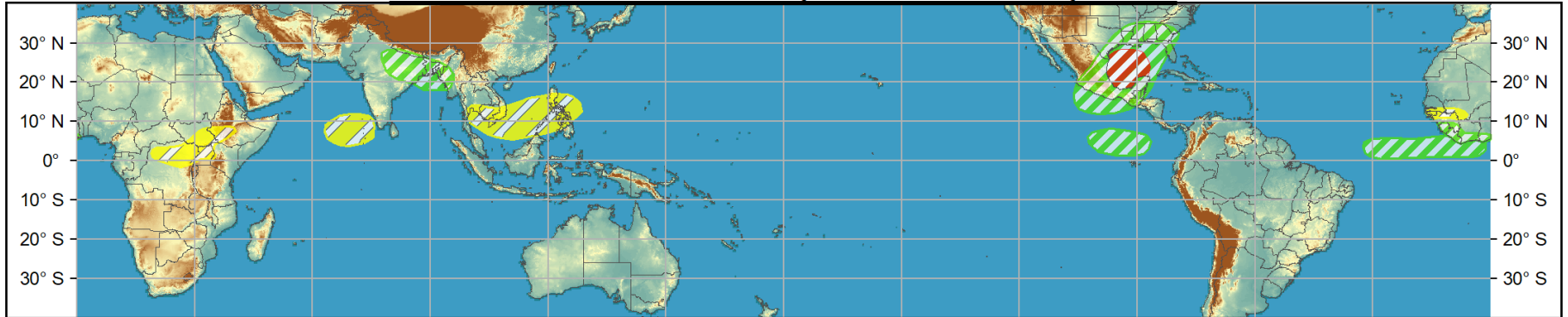
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Jun 09, 2021 - Jun 15, 2021



## Week 2 - Valid: Jun 16, 2021 - Jun 22, 2021



### 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: 06/08/2021

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

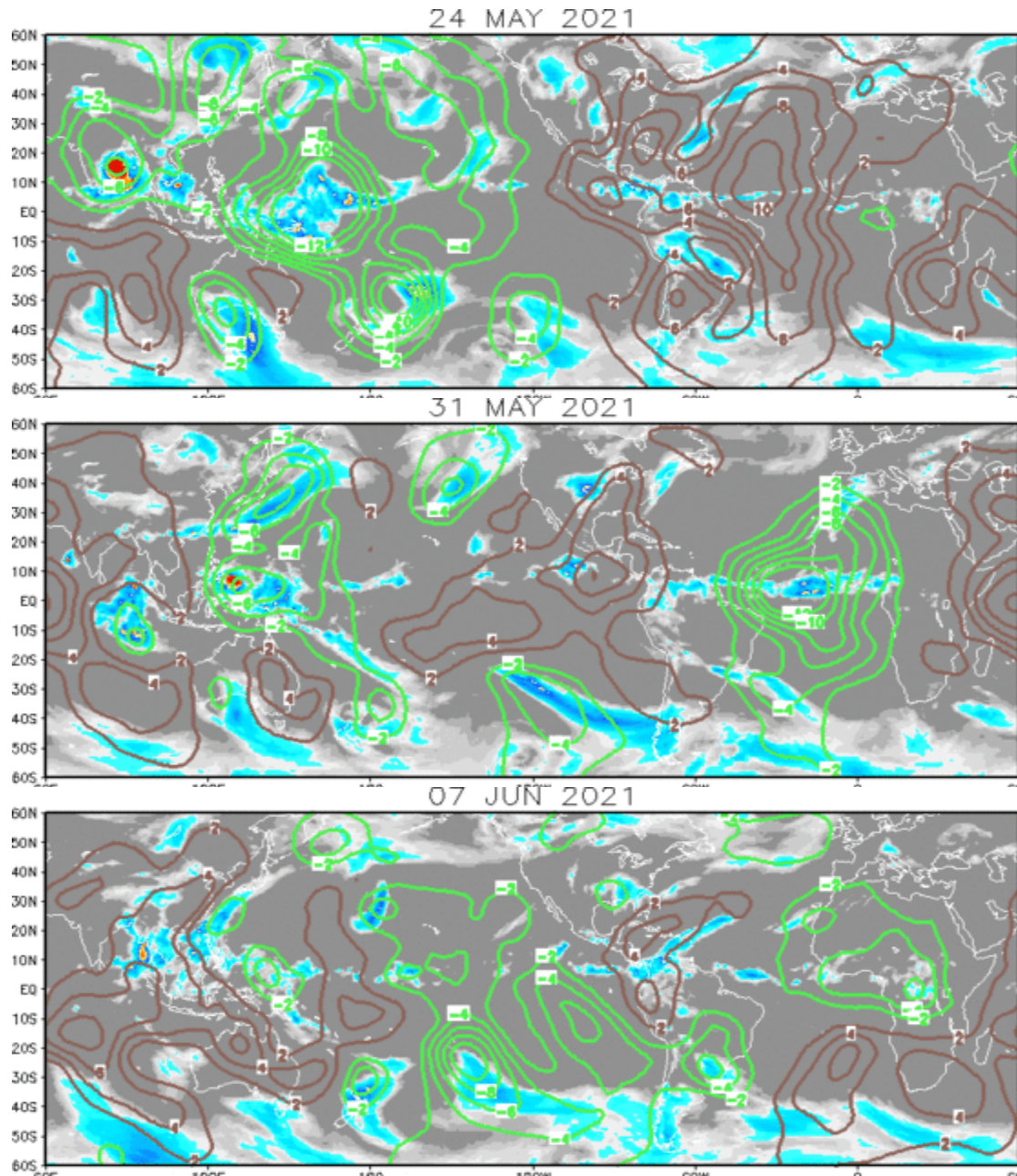
Green: Enhanced Divergence

Brown: Enhanced Convergence

Generally Wave-1 structure, with enhanced phase over the Maritime Continent and West Pacific

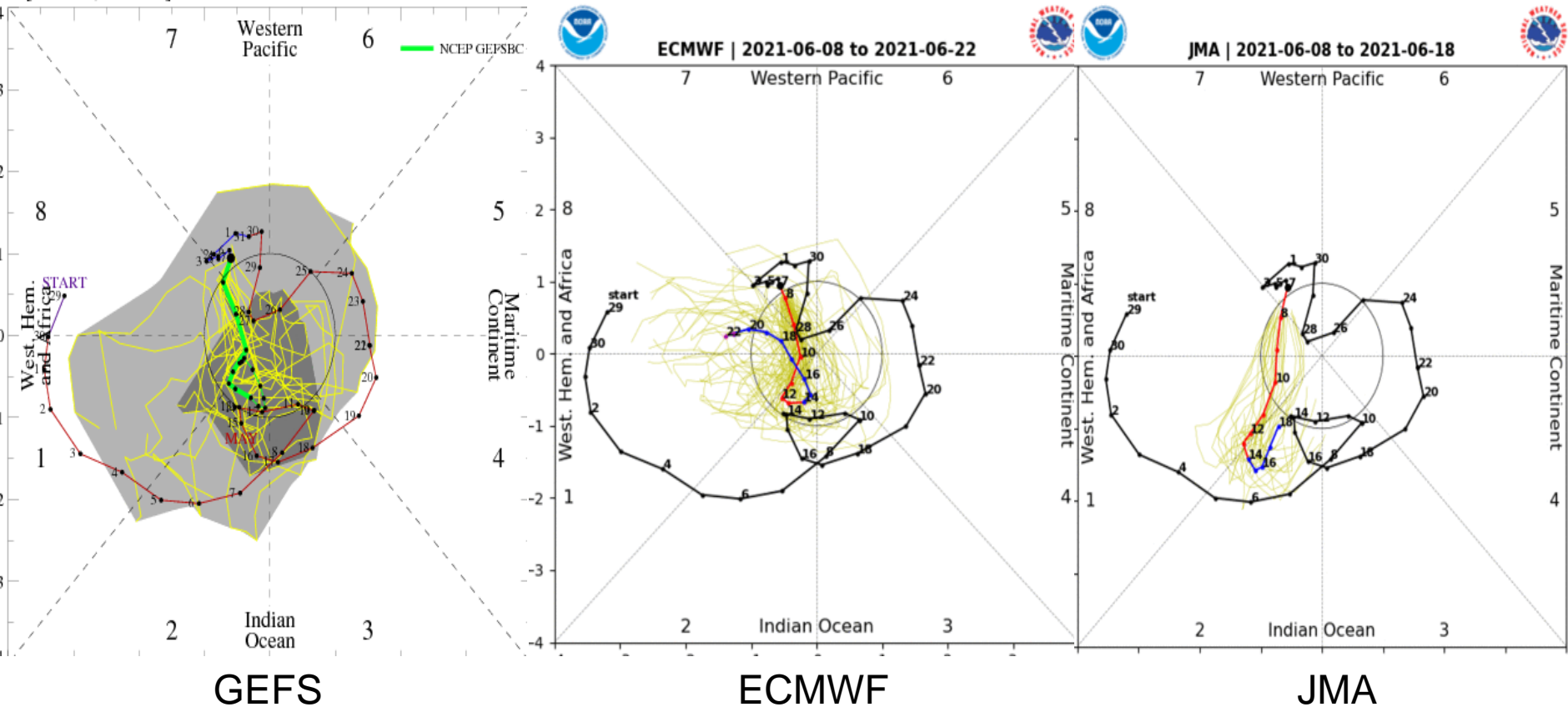
Wave-2 asymmetry as a strong Kelvin wave approaches Africa and Rossby waves interfere with the Pacific enhanced phase.

Intraseasonal signal resuming to propagate eastward into Western Hemisphere but at low amplitude.



# MJO Observation/Forecast

[RMM1, RMM2] forecast for Jun-08-2021 to Jun-22-2021

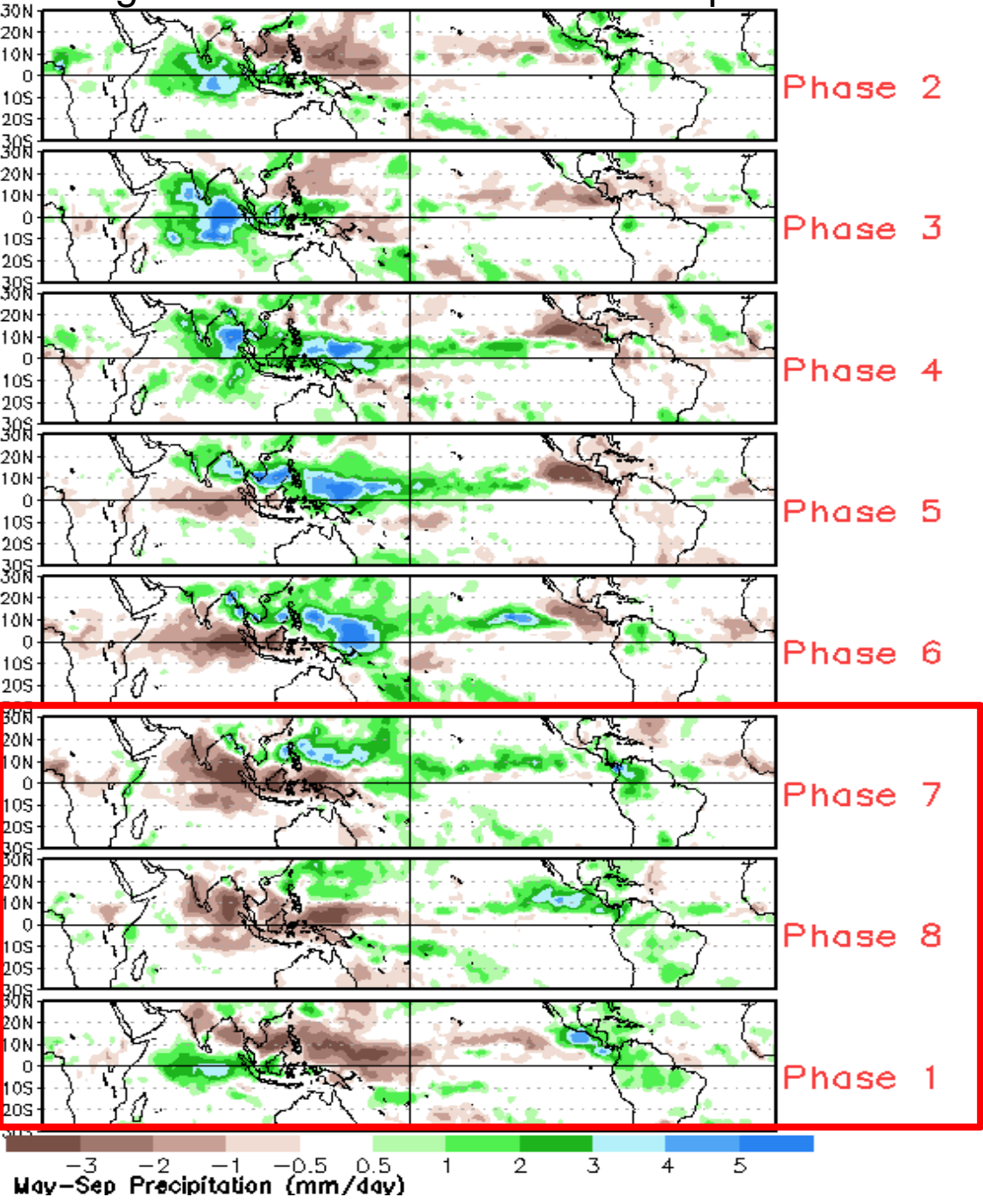


GEFS and ECWFM depict rapid weakening with values falling within the unit circle while it continues to propagate eastward through the Western Hemisphere.

Similar to previous forecasts, considerable spread is noted during the week-2 period.

JMA is most robust with signal compared to other dynamical models.

# Average Conditions when the MJO is present



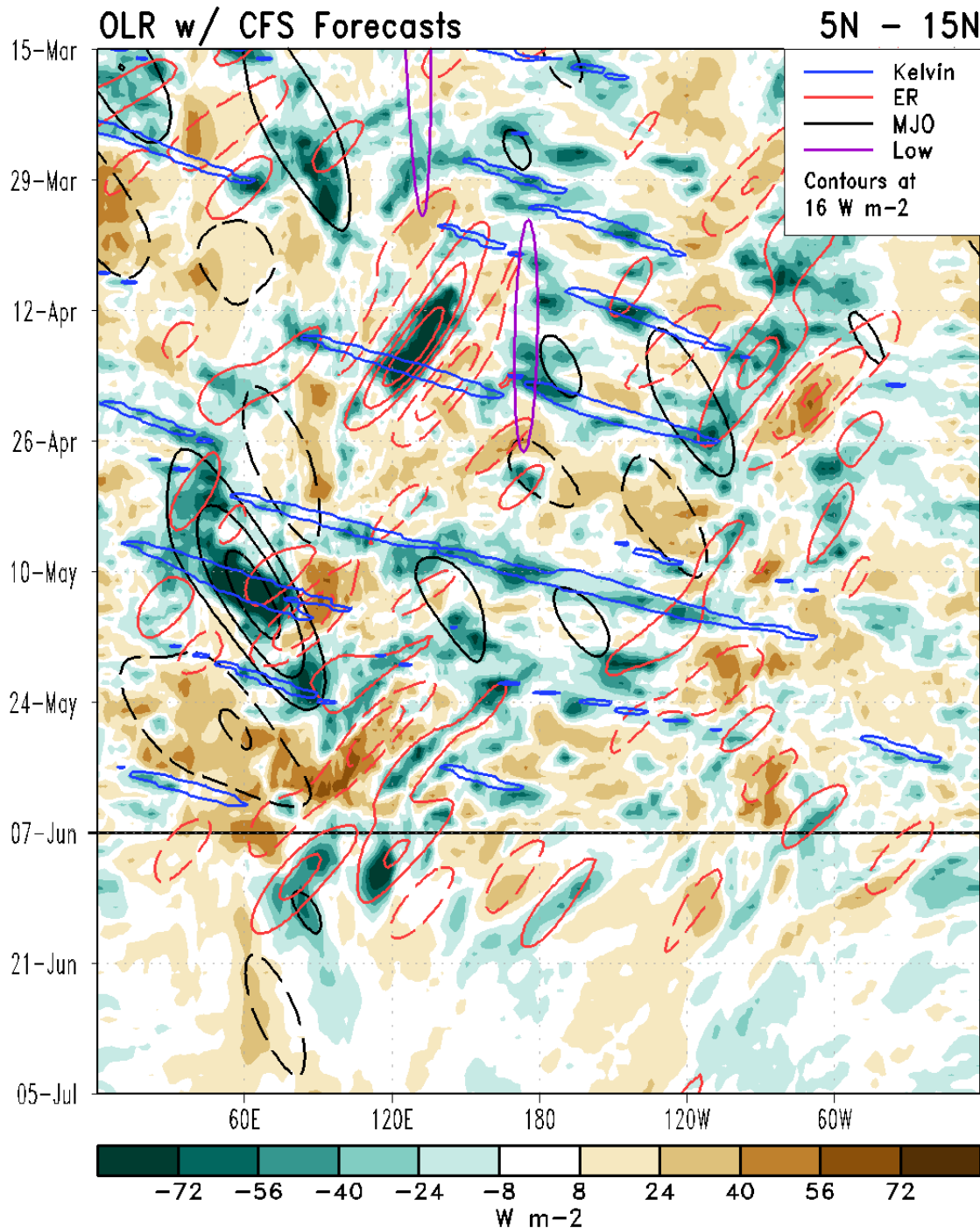
CAVEAT: These panels are representative of robust MJO events.

In OLR field, **MJO** activity ceased coming through the filtering in late May.

**Kelvin wave** activity apparent near Africa.

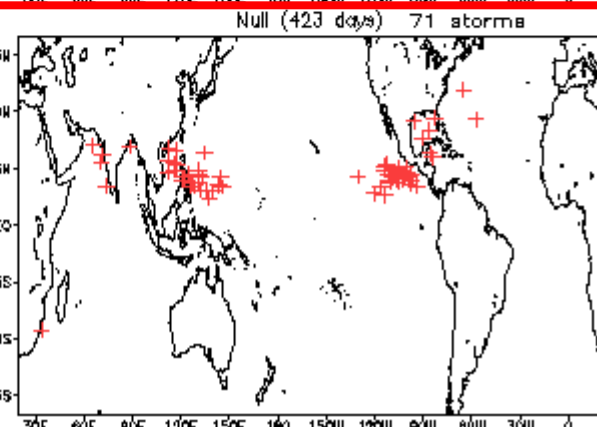
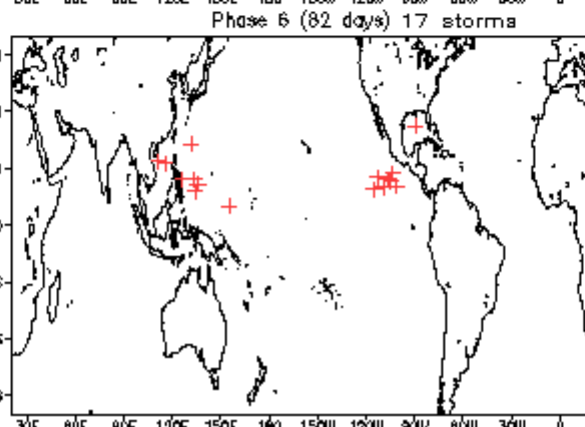
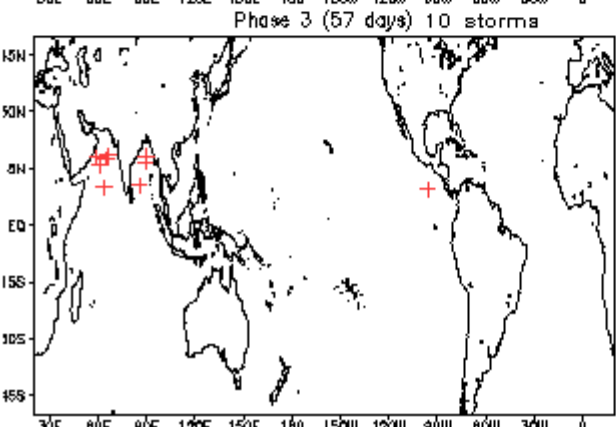
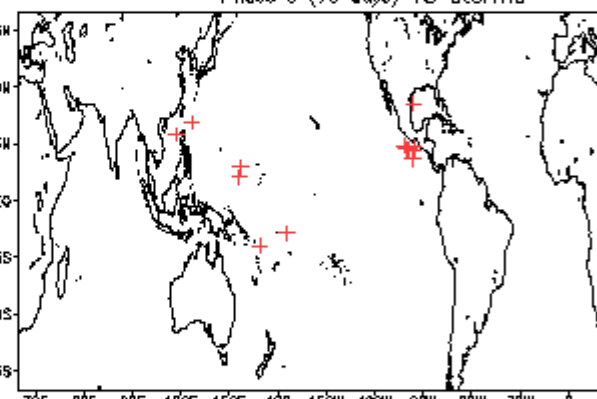
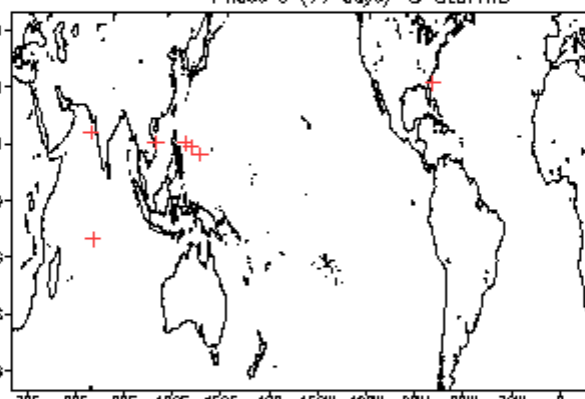
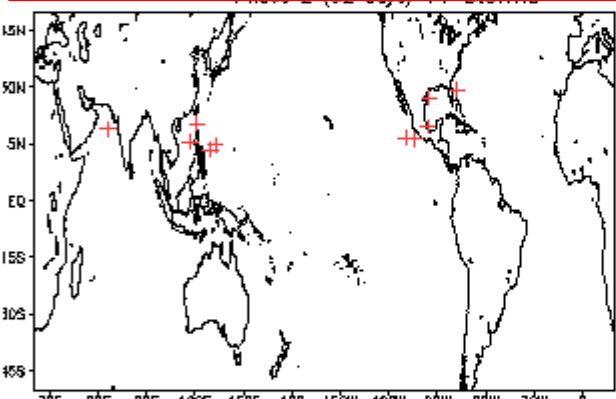
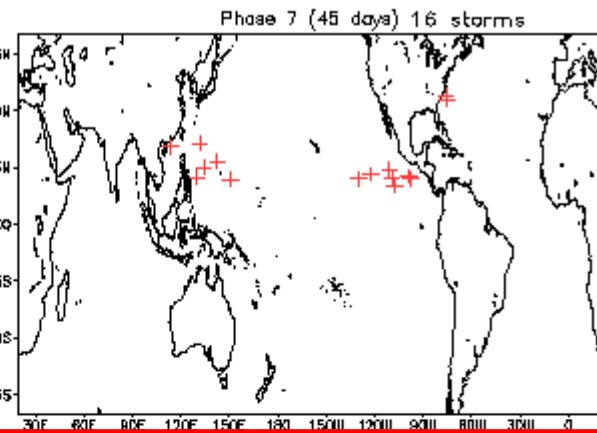
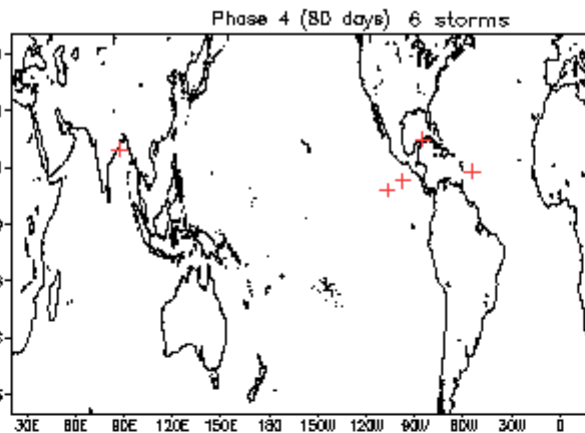
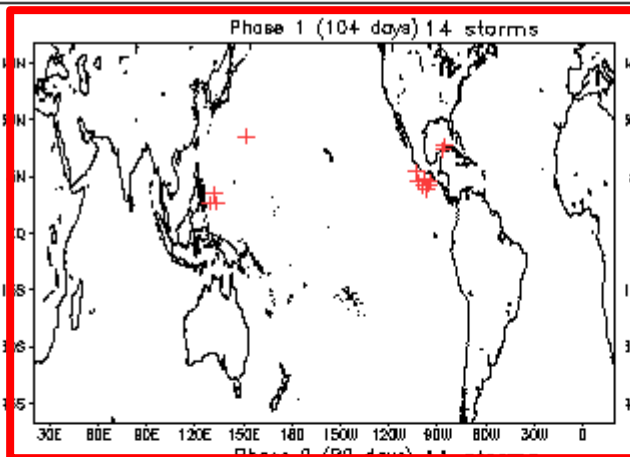
**Rosby wave** activity is analyzed in forecast OLR field near 120E and 90E during week-1.

**Low frequency** is no longer analyzed on the objective wave monitoring.





# June Tropical Storm Formation by MJO phase





# JOINT TYPHOON WARNING CENTER



Naval Research Laboratory  
Marine Meteorology Division  
Cloud Layer Product  
Valid: 2021-06-08 04:00:00

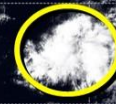
## ABIO

## ABPW

Please refer to CPHC  
(<https://www.nhc.noaa.gov/cphc/>)

**NO SUSPECT AREAS  
(ABIO)**

**91W**



**ISSUE TIME: 08/0600Z**  
(PRODUCT OF JTWC/SATOPS)

**LOW**

TC development unlikely  
within 24 hours

**MEDIUM**

TC development likely, but  
expected to occur beyond  
24 hours

**HIGH**

TC development likely within  
24 hours  
(Reference TCFA)

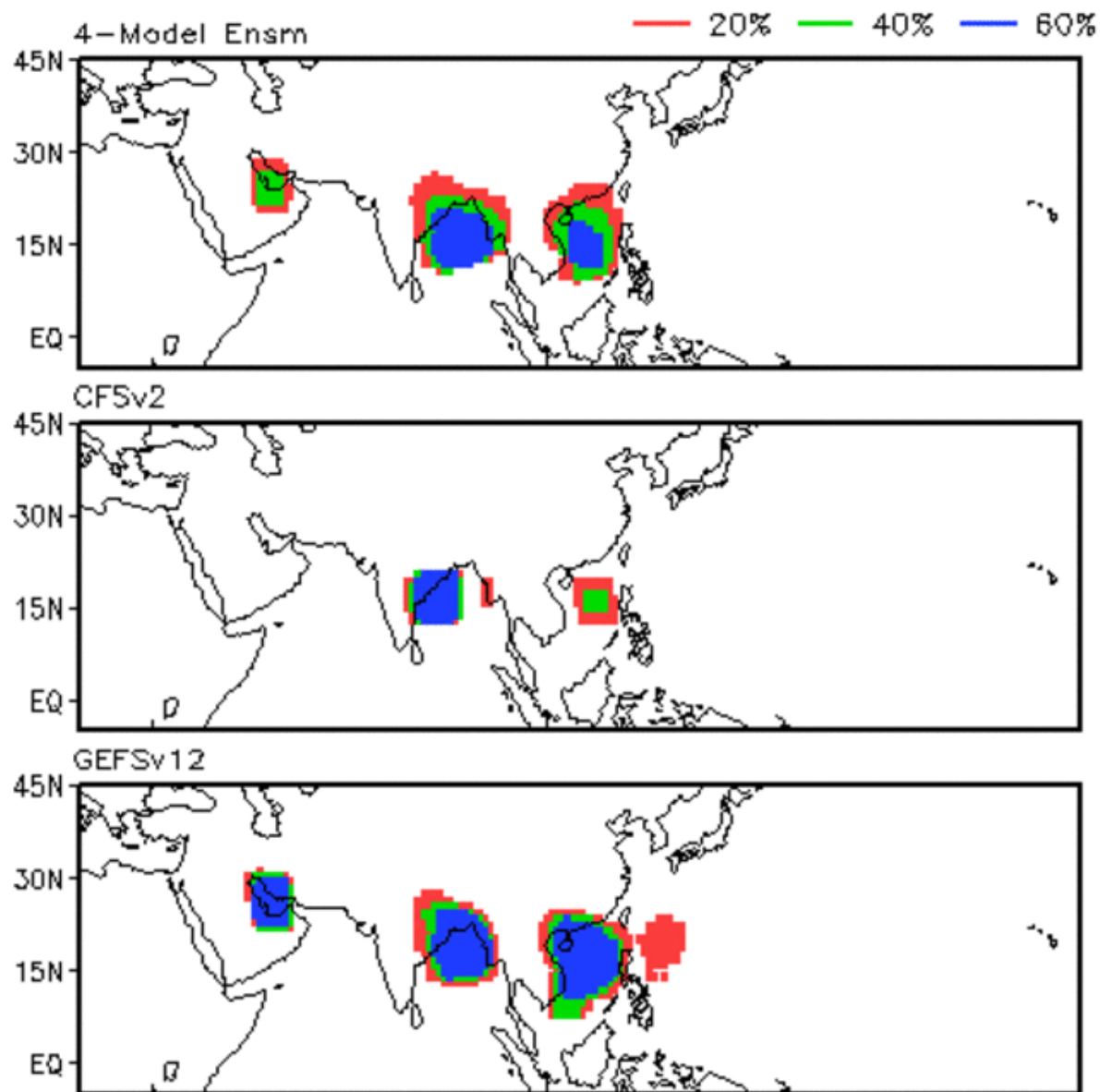
**SUB  
TROPICAL**

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

Tropical Cyclone  
(Reference Warning)

# Storm Track Probabilities, IC=20210607

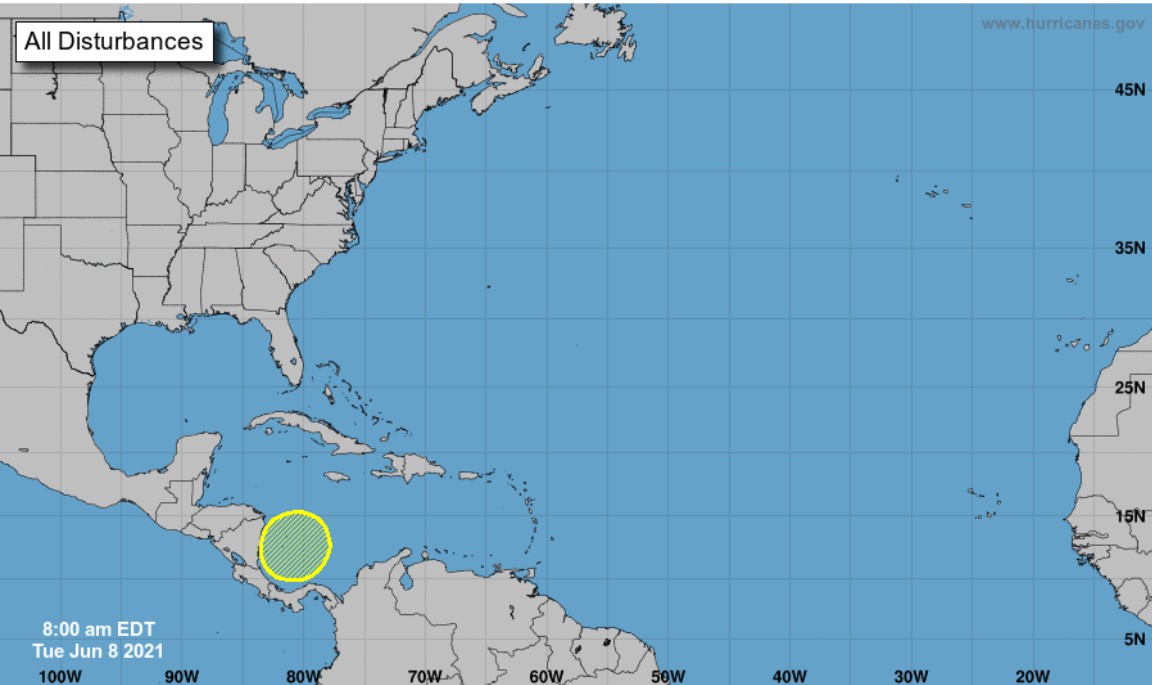
Week 1: 0609 - 0615





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



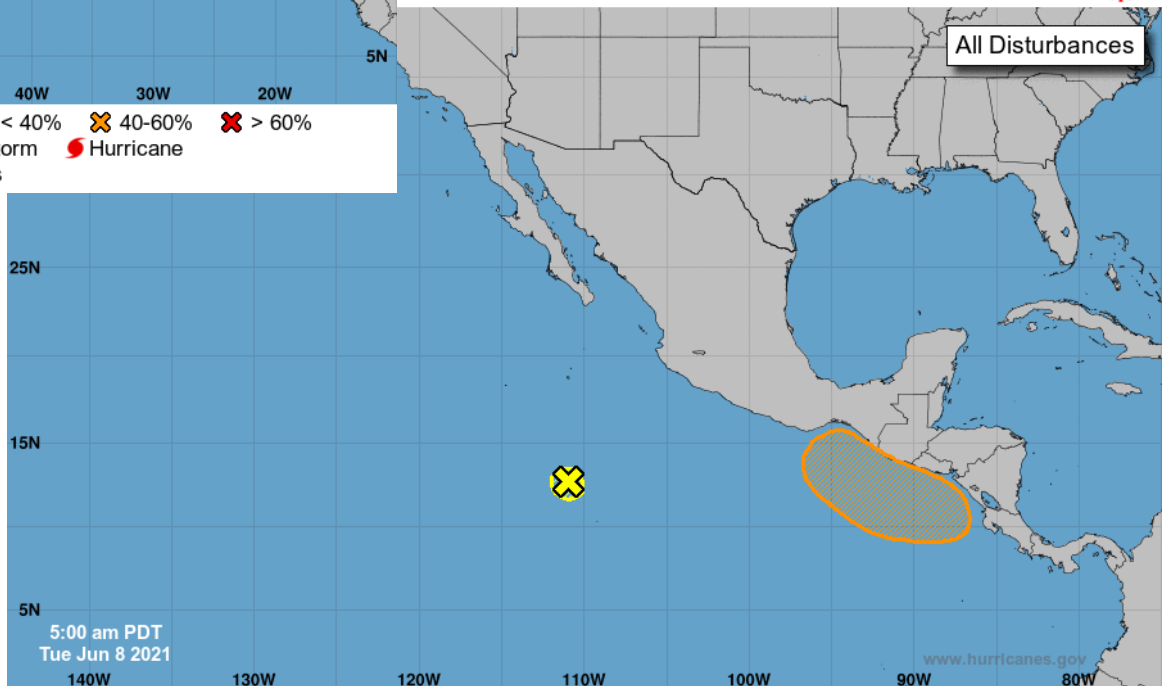
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

# Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



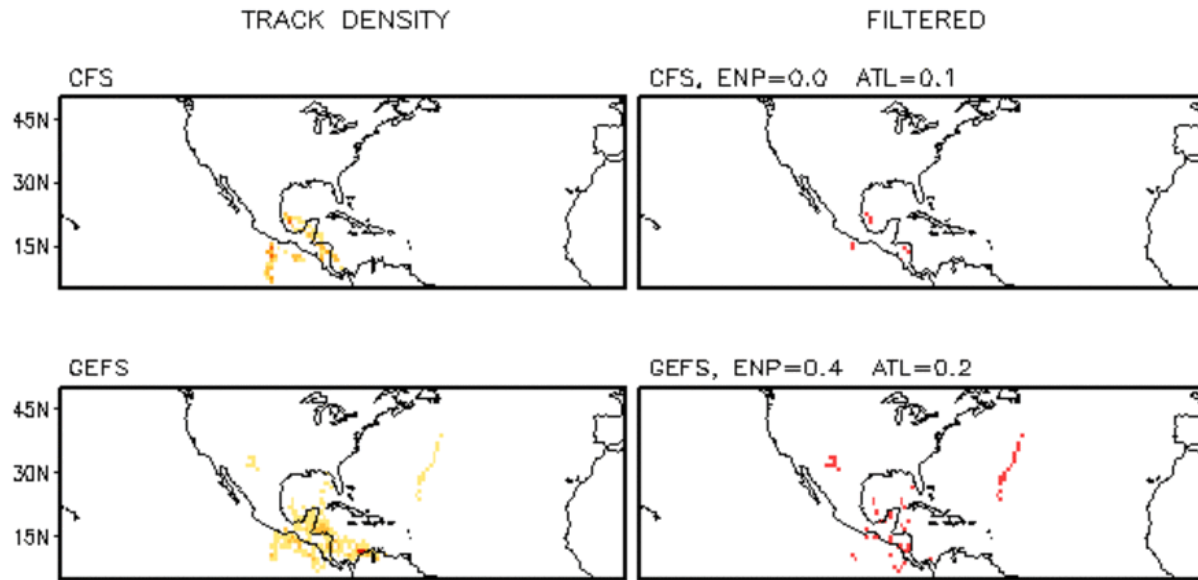
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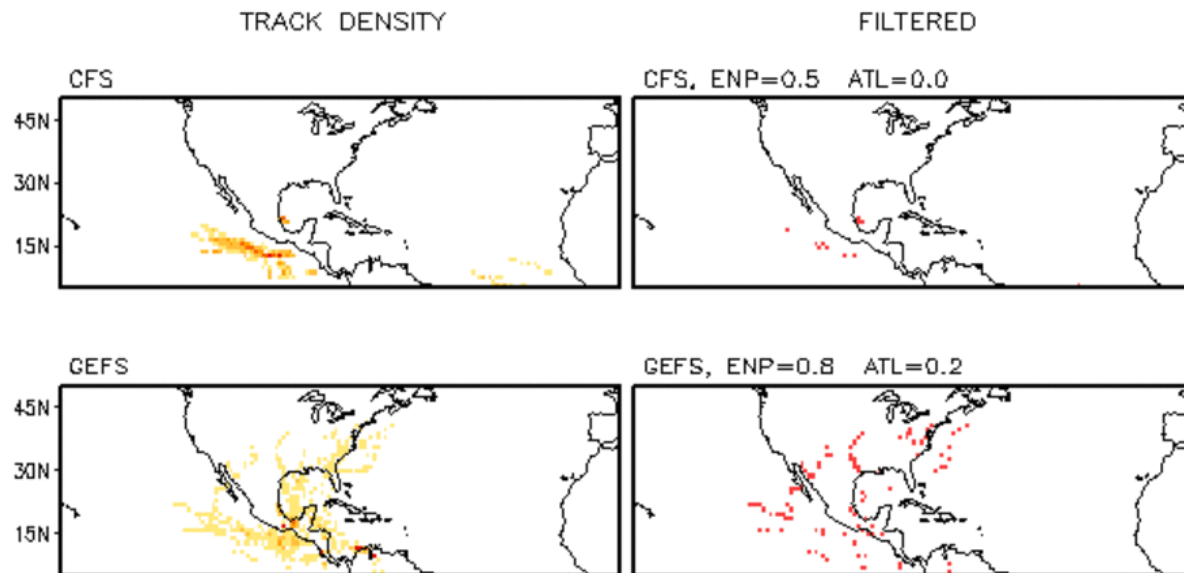
Storm Track Density Distribution, IC=20210607

Week 1 Forecast: 0609-0615



Storm Track Density Distribution, IC=20210607

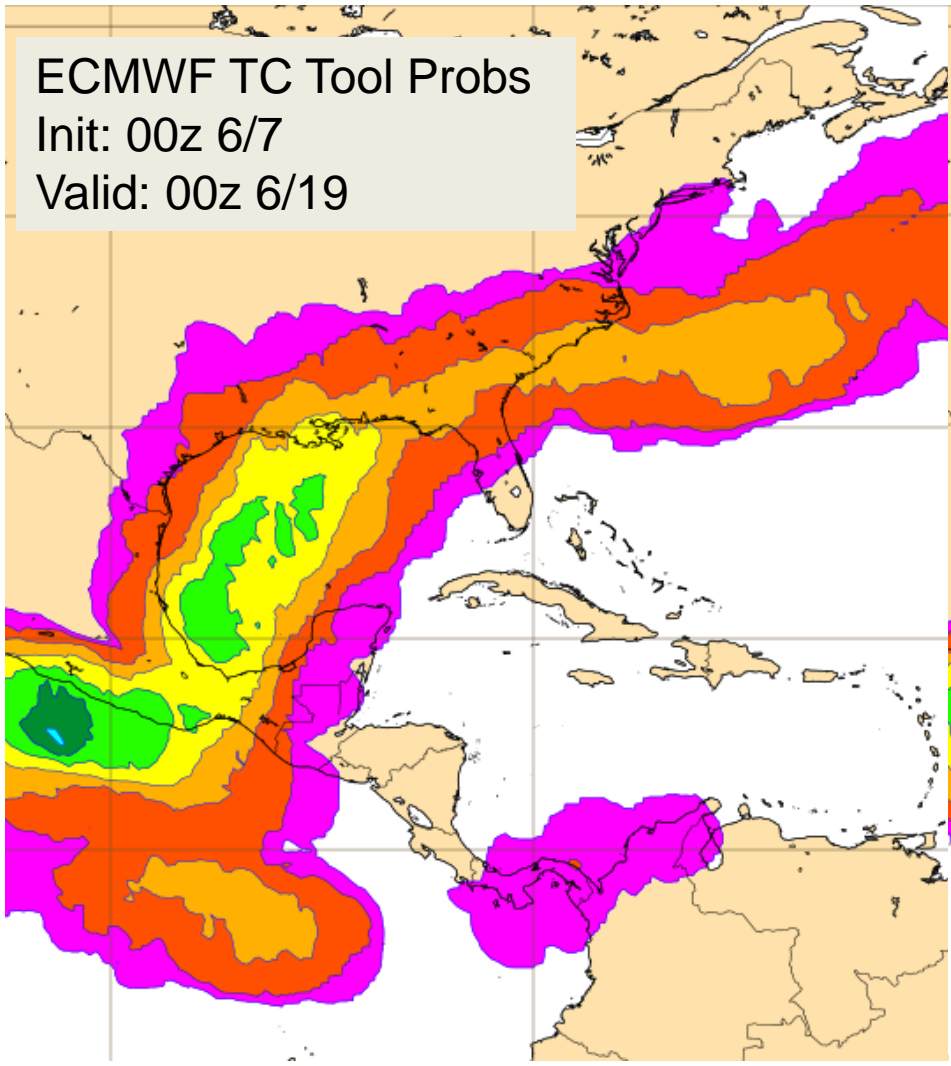
Week 2 Forecast: 0616-0622



ECMWF TC Tool Probs

Init: 00z 6/7

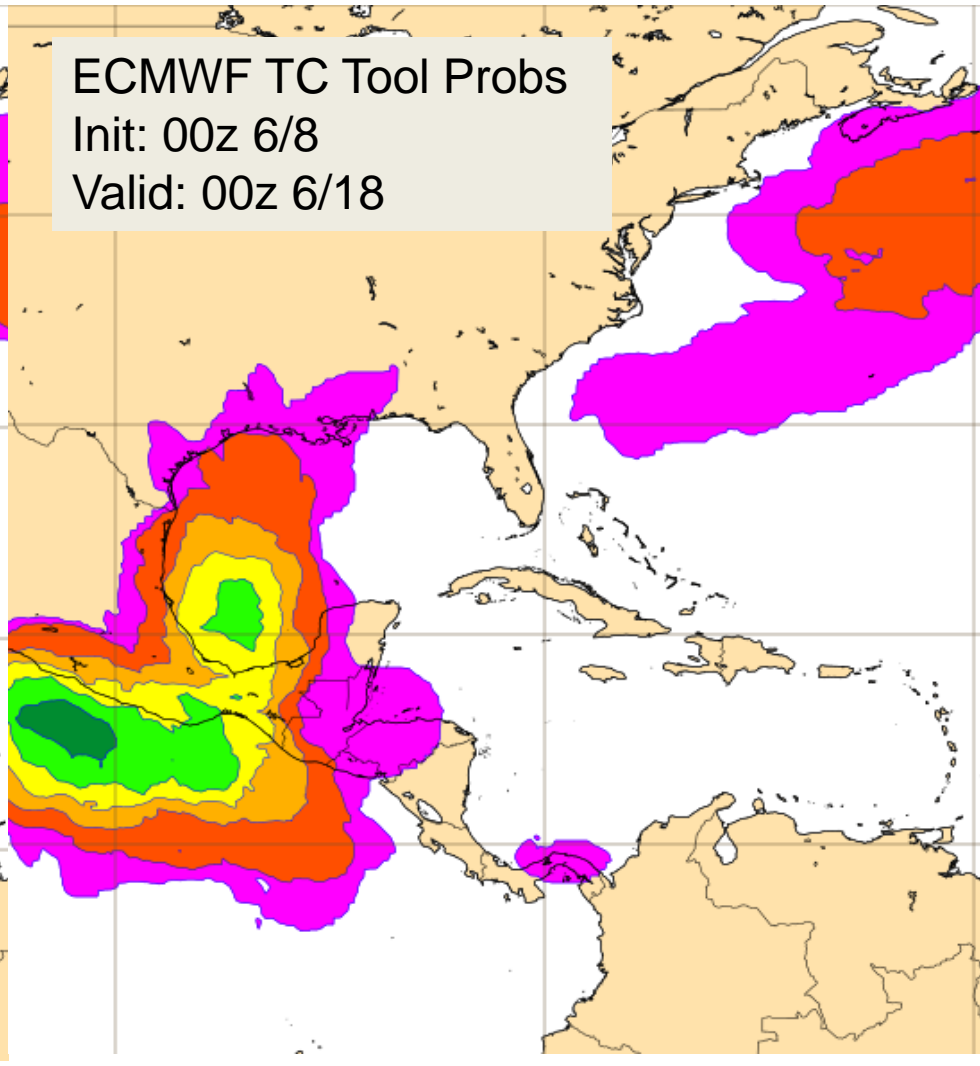
Valid: 00z 6/19



ECMWF TC Tool Probs

Init: 00z 6/8

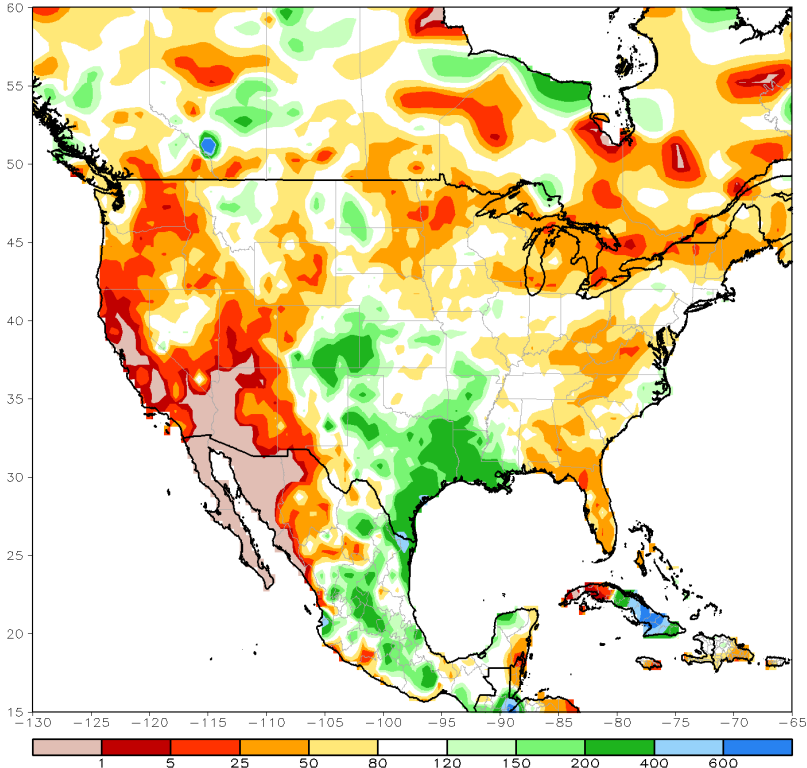
Valid: 00z 6/18



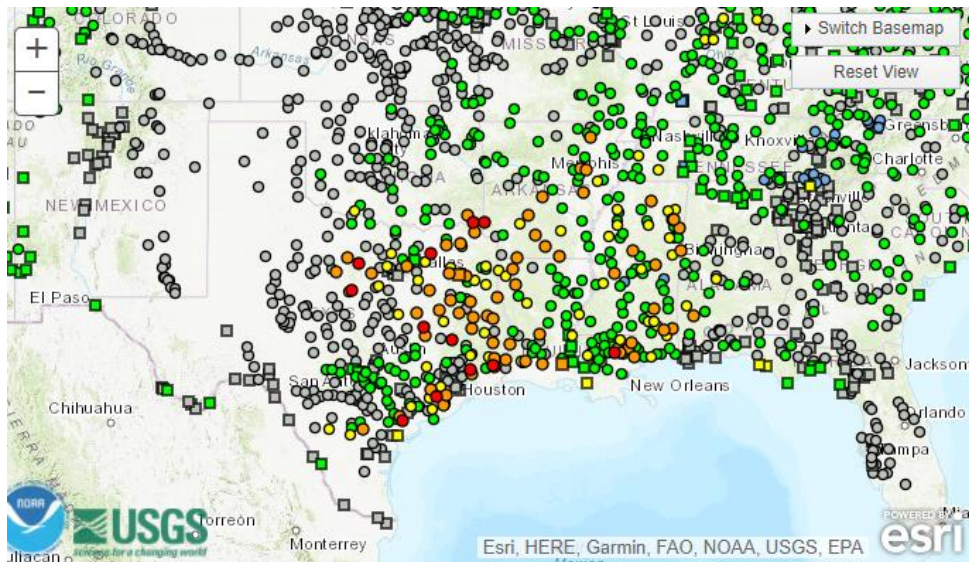
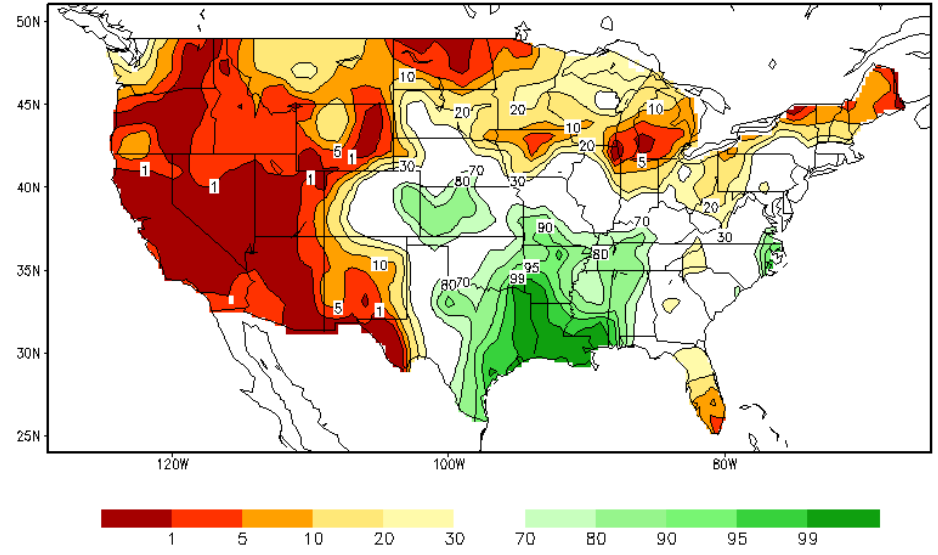
Tropical cyclone strike probability (%)

5 10 20 30 40 50 60 70 80 90 100%





Calculated Soil Moisture Ranking Percentile  
JUN 07, 2021



Click on the map or select one of the data views below:

- United States
- NWS Weather Forecast Offices
- NWS River Forecast Centers
- Water Resources Regions

- Probability and forecasts available
- Forecasts available

**3811 total gauges**  
**Show all locations in flood (80)**

- 0 Gauges: Major Flooding
- 12 Gauges: Moderate Flooding
- 68 Gauges: Minor Flooding
- 75 Gauges: Near Flood Stage
- 1678 Gauges: No Flooding
- 202 Flood Category Not Defined
- 1 At or Below Low Water Threshold
- 1763 Gauges: Forecasts Are Not Current
- 3 Gauges: No forecast within selected timeframe
- 9 Gauges: Out of Service

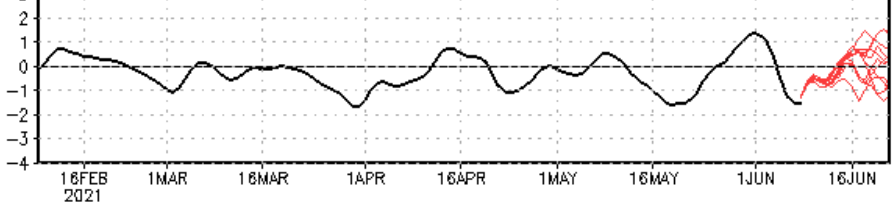
# Connections to U.S. Impacts



## PNA: Observed & ENSM forecasts

500mb Z (Obs: 09Feb2021 – 08Jun2021) PNA index

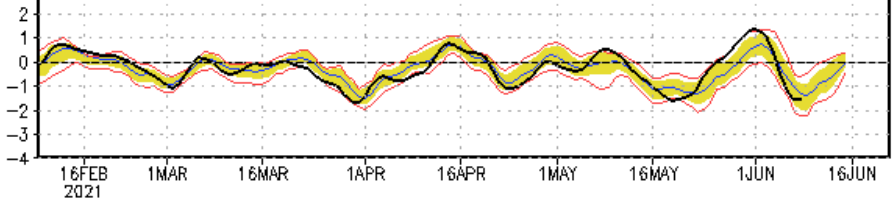
mean=-0.2918



500mb Z (7day Forecast) PNA index

mean=-0.2850

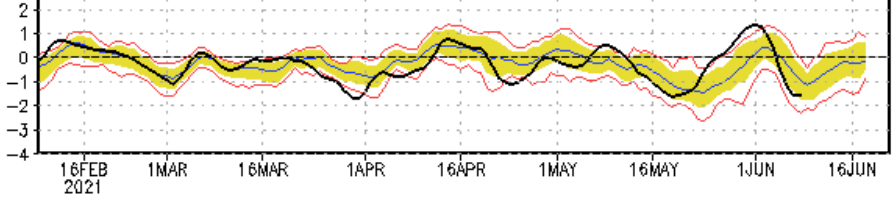
cor(w/obs)=0.8468



500mb Z (10day Forecast) PNA index

mean=-0.2455

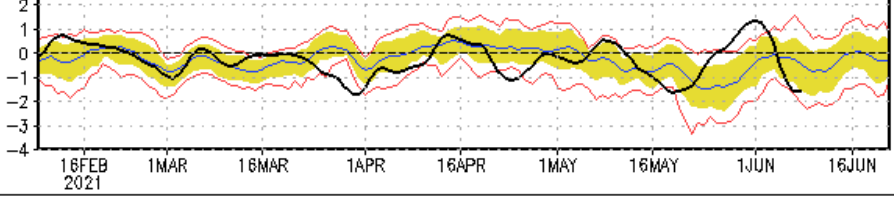
cor(w/obs)=0.5958



500mb Z (14day Forecast) PNA index

mean=-0.2587

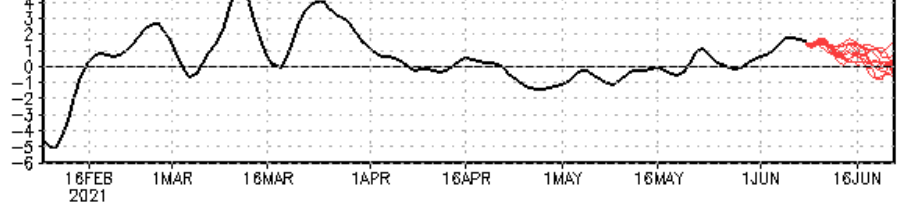
cor(w/obs)=0.1300



## AO: Observed & ENSM forecasts

1000mb Z (Obs: 09Feb2021 – 08Jun2021) AO index

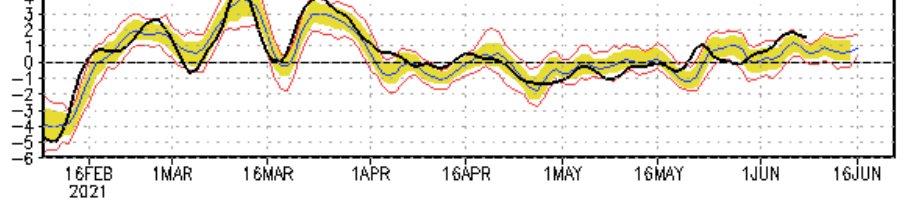
mean=0.4353



1000mb Z (7day Forecast) AO index

mean=0.3519

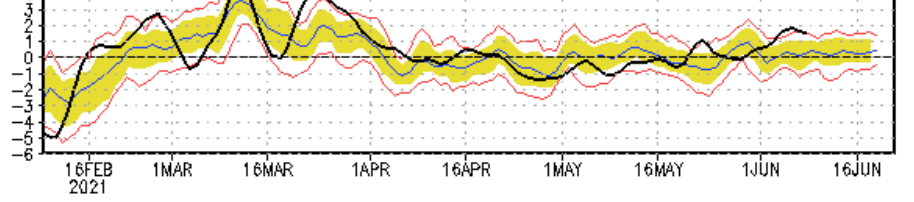
cor(w/obs)=0.8620



1000mb Z (10day Forecast) AO index

mean=0.2496

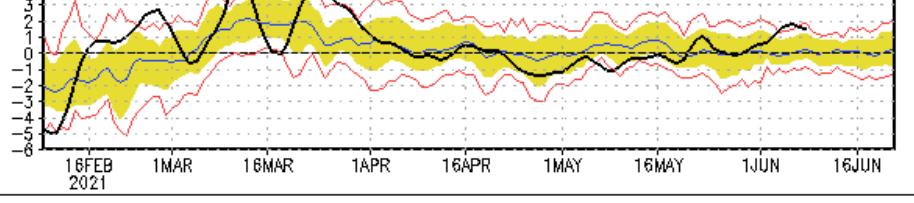
cor(w/obs)=0.6946

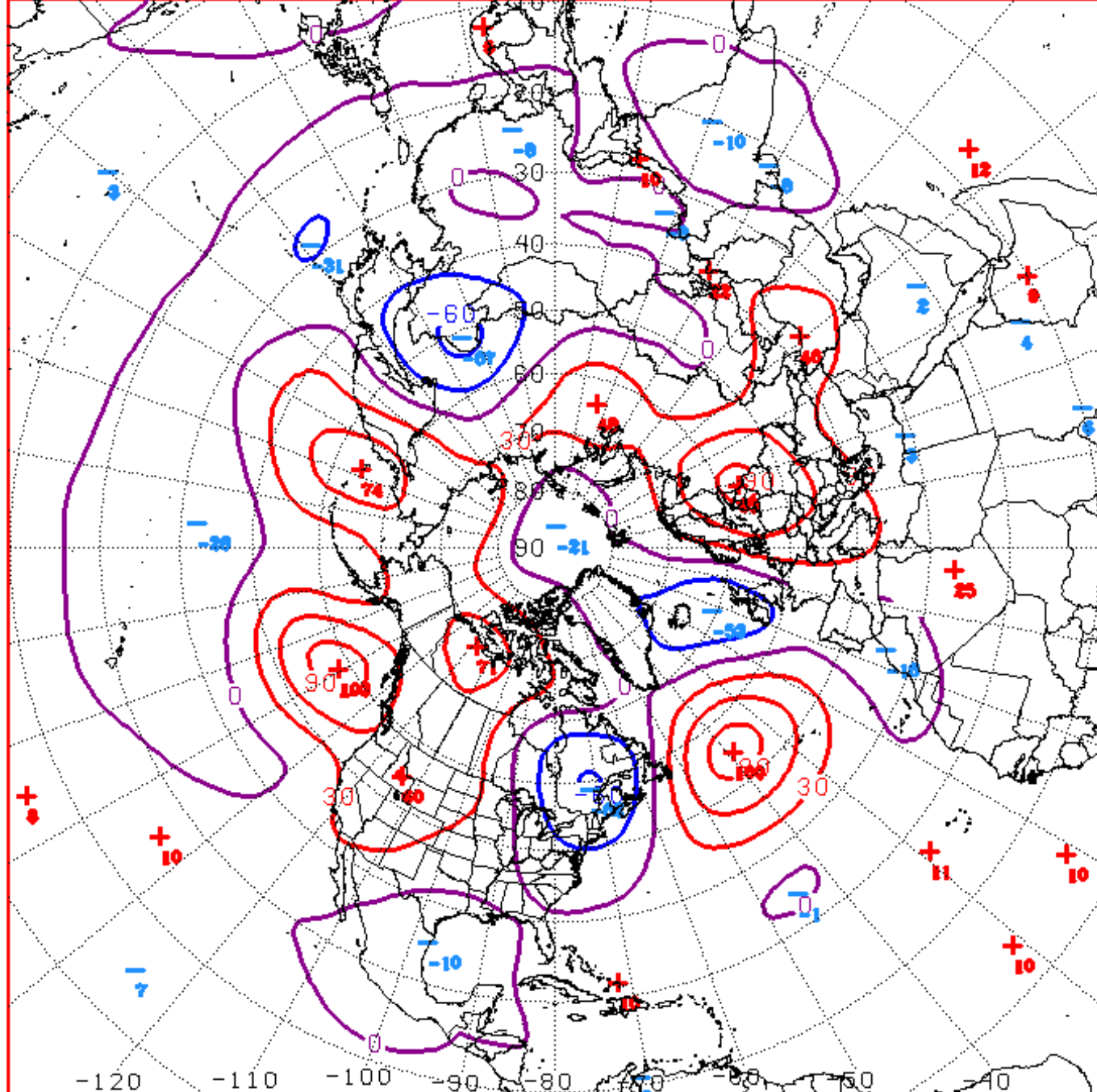


1000mb Z (14day Forecast) AO index

mean=0.1948

cor(w/obs)=0.5473

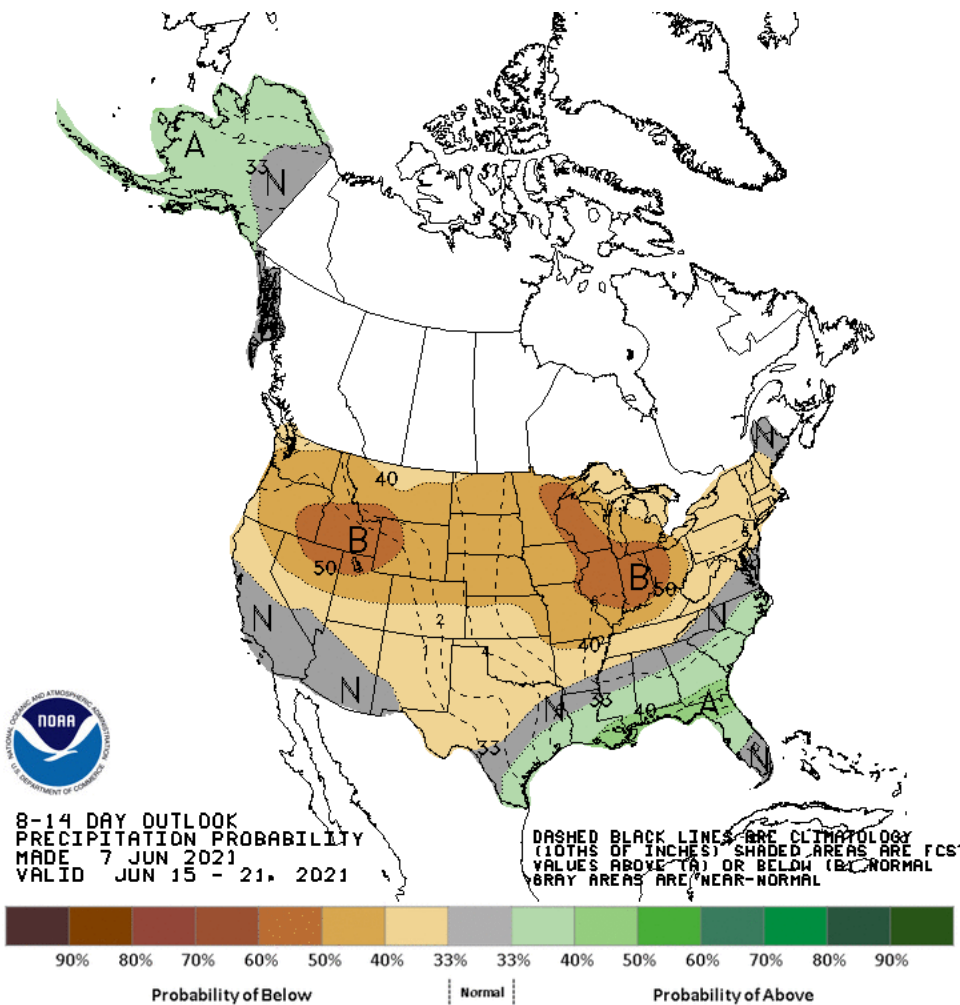
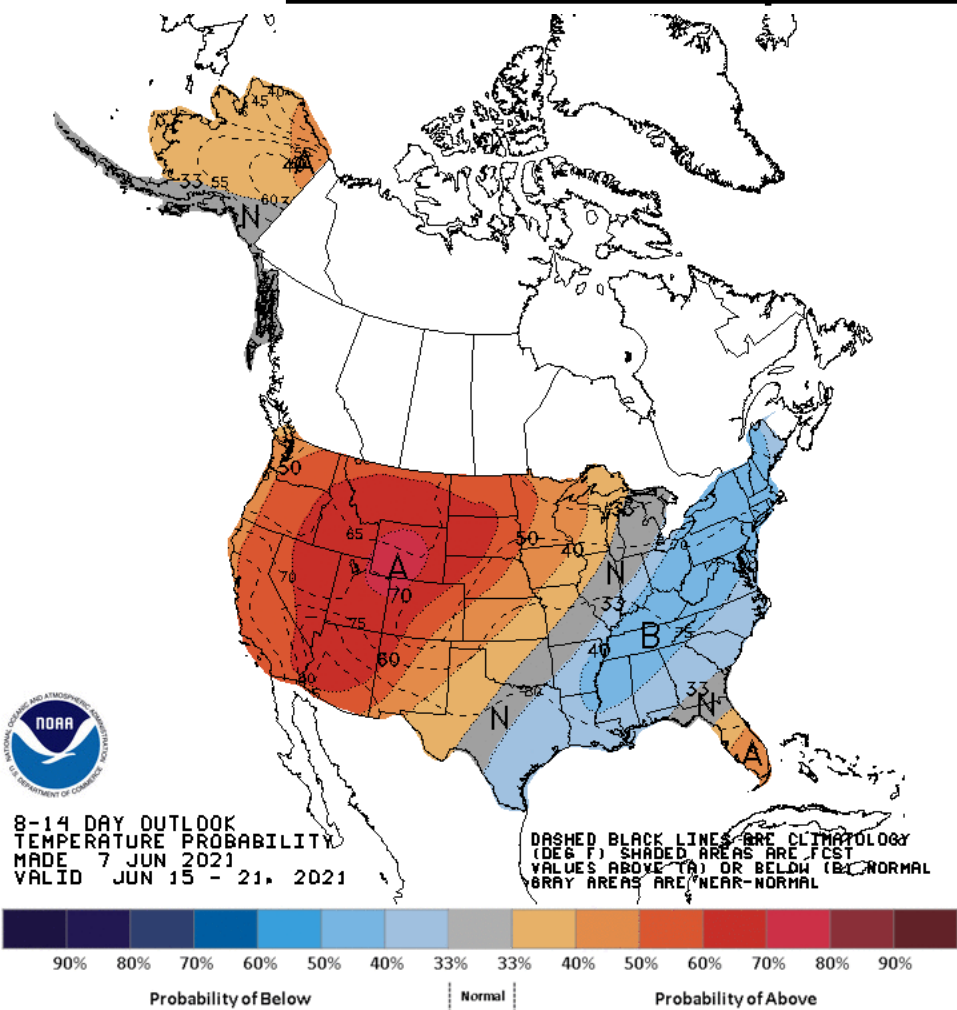




-120 -110 -100 -90 -80 -70 -60 -50

D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE JUN 08 2021 1357 UTC CNTD JUN 19 2021

# Week 2 – Temperature and Precipitation

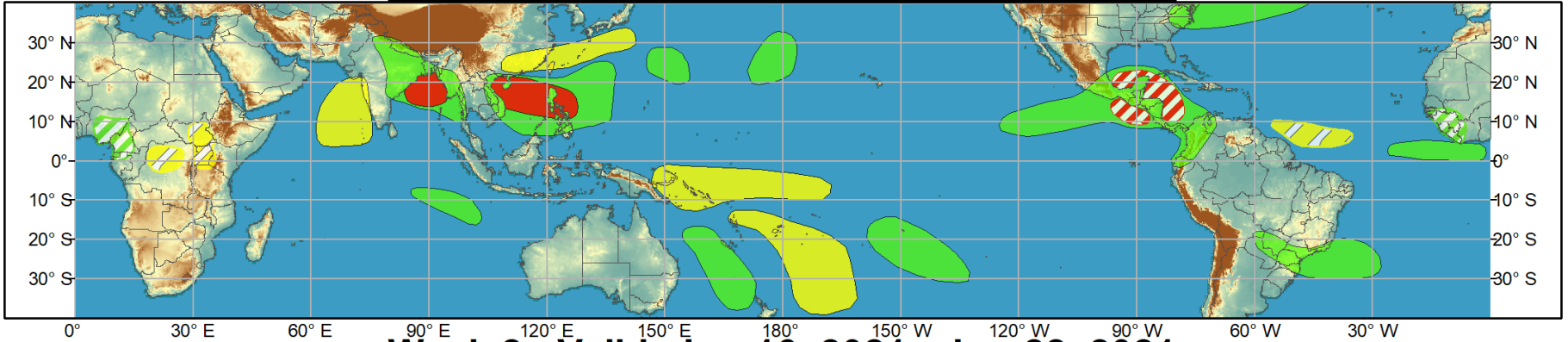




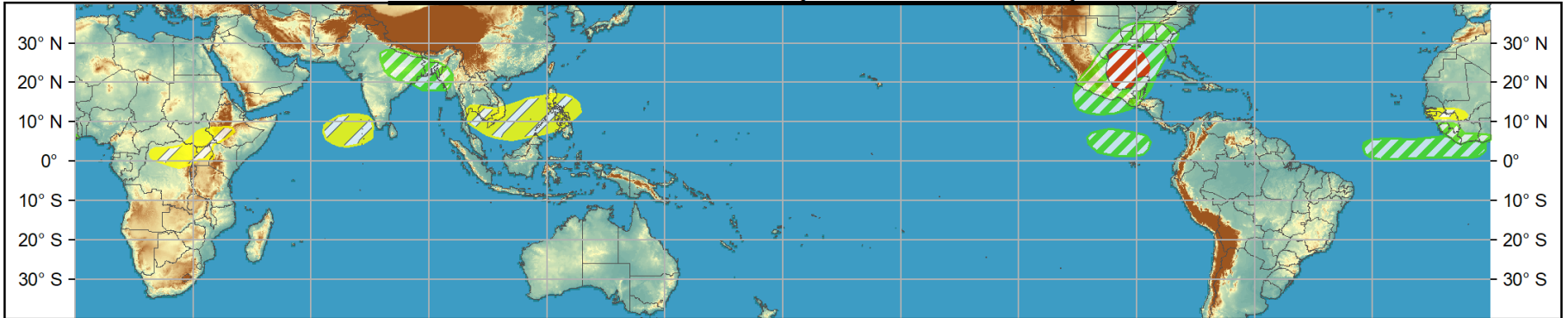
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