

# Global Tropics Hazards And Benefits Outlook

5/11/2021

Nick Novella

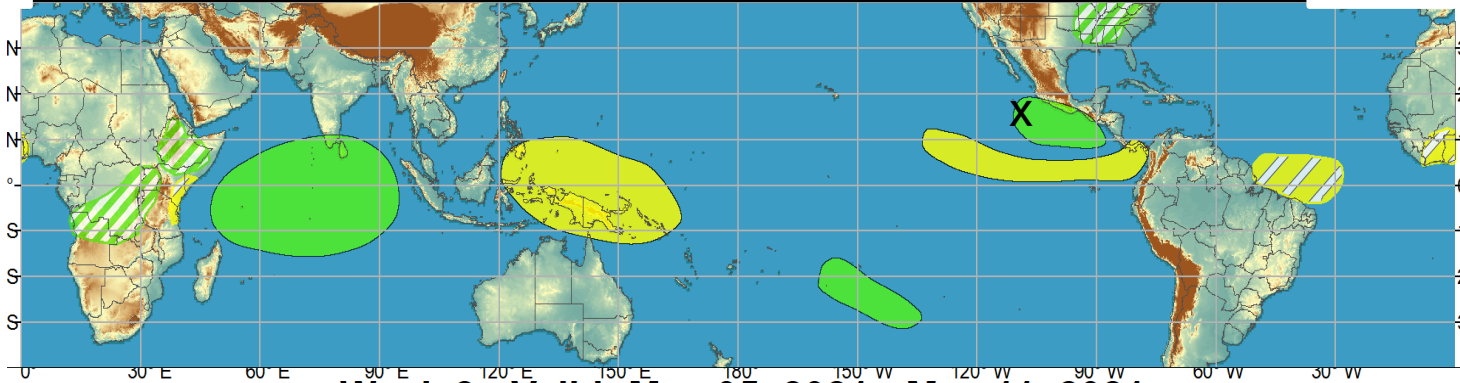
## Outline

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

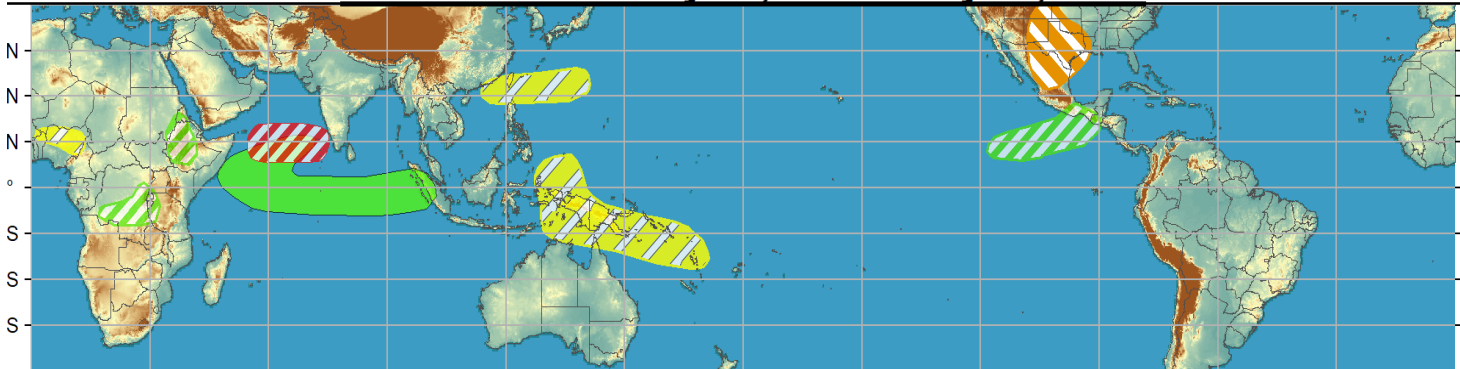
# Outlook Review

TC's formed (x):  
- Andres (EPAC) 5/9

**Week 1 - Valid: May 05, 2021 - May 11, 2021**

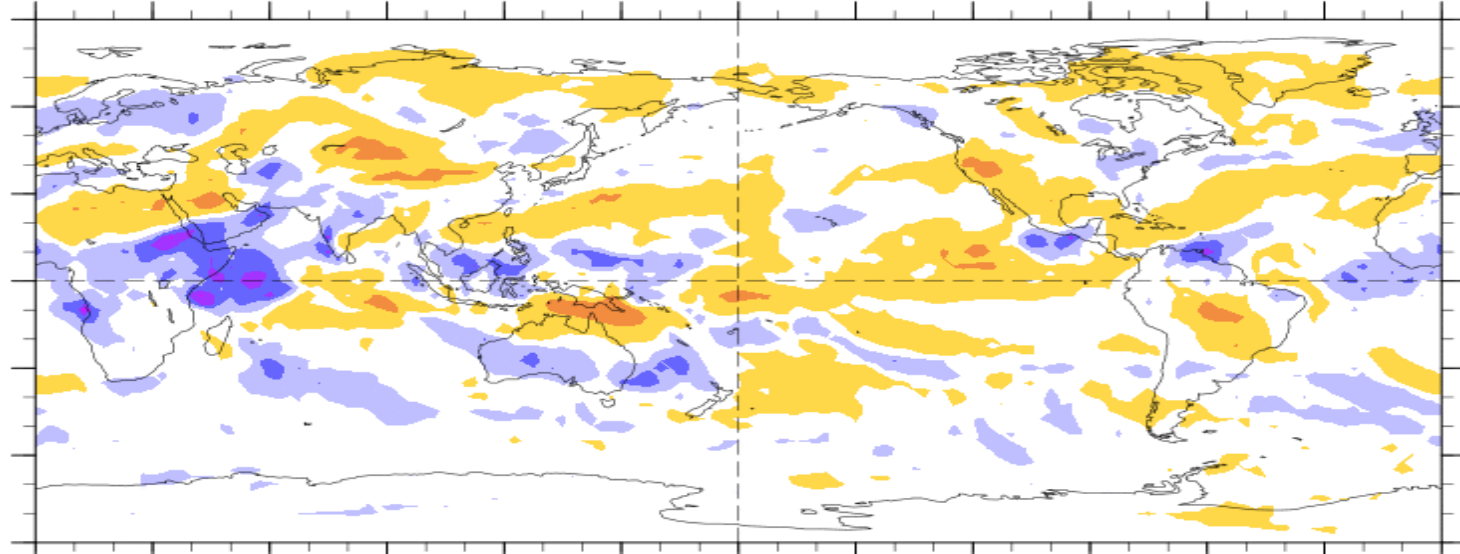


**Week 2 - Valid: May 05, 2021 - May 11, 2021**



7-Day Average OLR Anomaly

2021/05/03 - 2021/05/09



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (April 8, 2021 Update)**

*next update on May 13, 2021*

- ENSO Alert System Status: [La Niña Advisory](#)
- A transition from La Niña to ENSO-Neutral is likely in the next month or so, with an 80% chance of ENSO-neutral during May-July 2021.

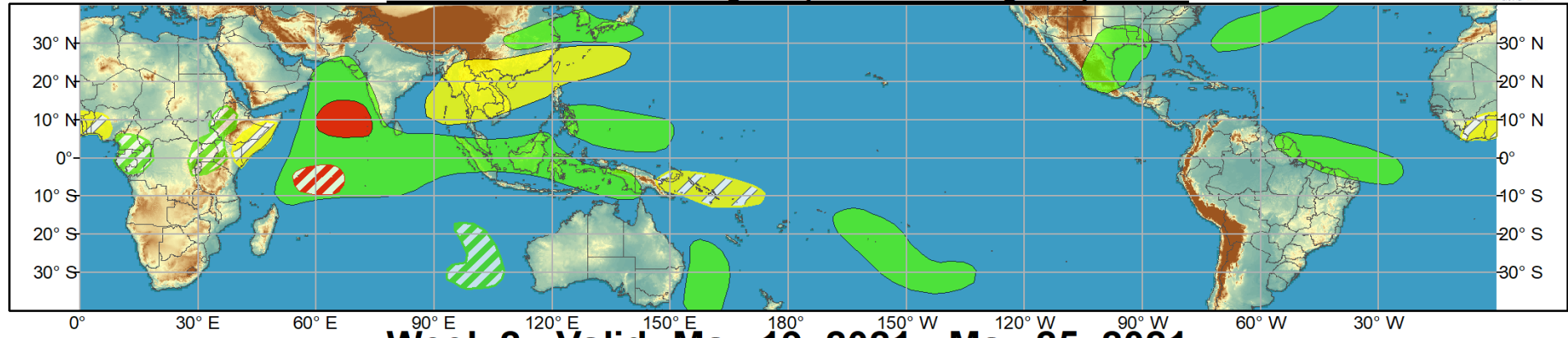
## **MJO and other subseasonal tropical variability:**

- The MJO remains active over the Indian Ocean and has nearly completed two full global circumnavigations since late February.
- RMM forecasts from the dynamical models have grown less supportive of a continued, well-defined intraseasonal event. However, these forecasts need to be taken with caution based on a number of caveats / considerations.
- The enhanced phase of the MJO, and Rossby wave activity is likely to contribute to an uptick in TC activity over the Indian Ocean. There is uncertainty regarding potential extratropical impacts from the MJO, which is typical during spring.

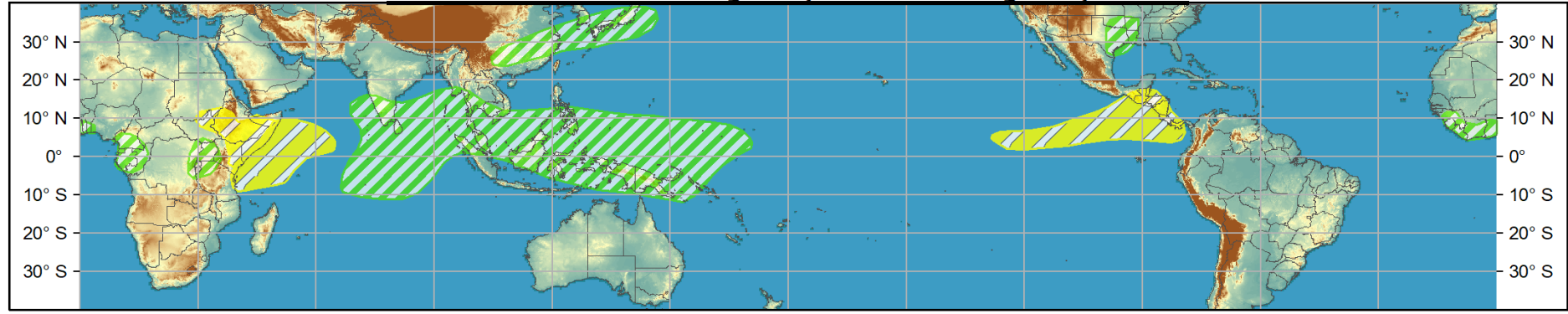


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: May 12, 2021 - May 18, 2021



## Week 2 - Valid: May 19, 2021 - May 25, 2021



Produced: 05/11/2021  
Forecaster: Novella

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.
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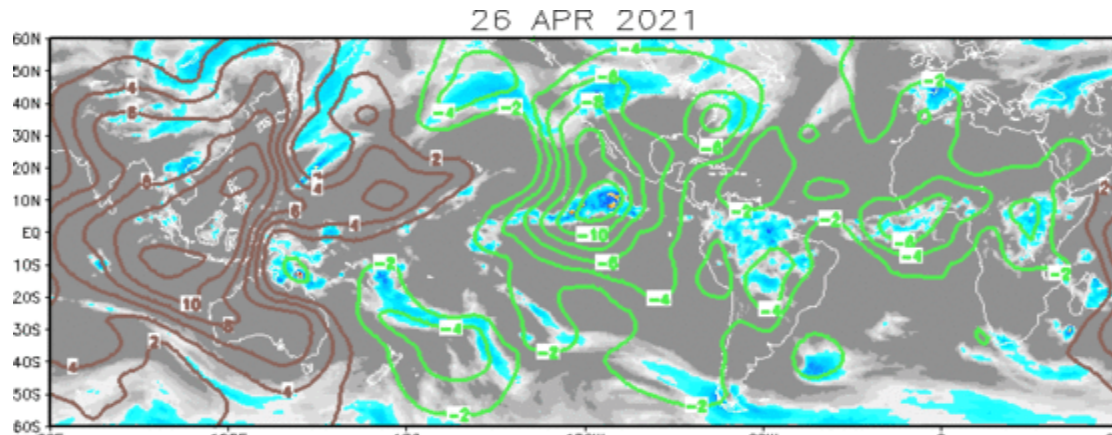


# IR Satellite & 200-hpa Velocity Potential Anomalies

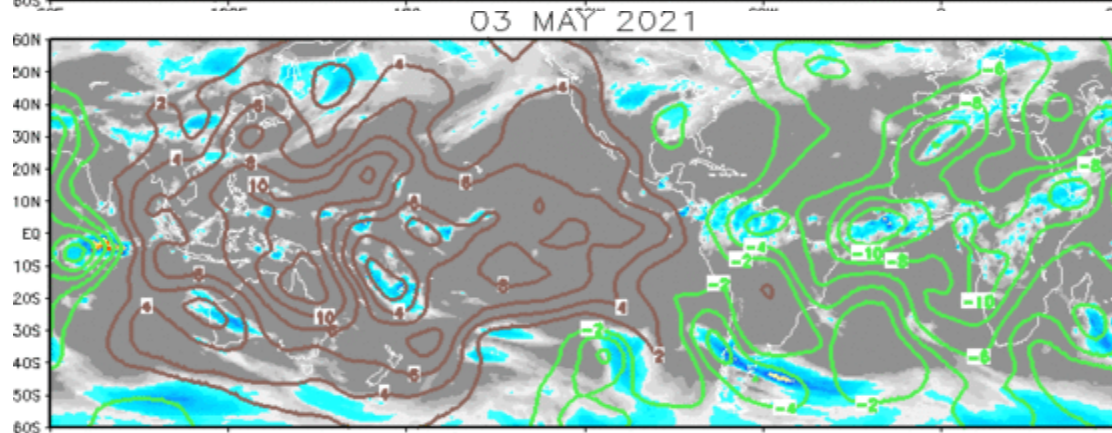
Green: Enhanced Divergence

Brown: Enhanced Convergence

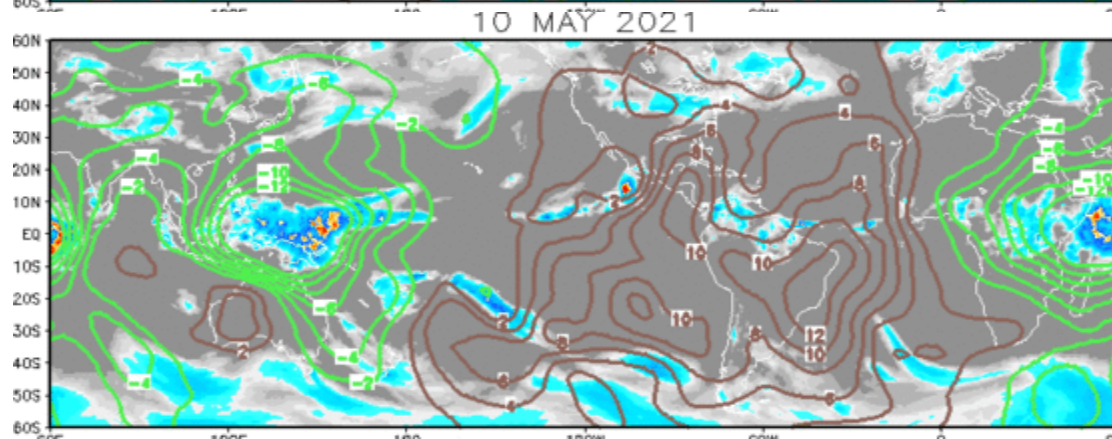
Wave-1 pattern locks in as MJO strengthens.



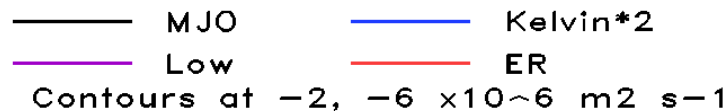
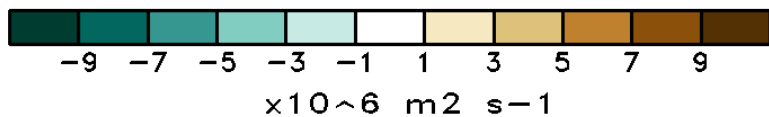
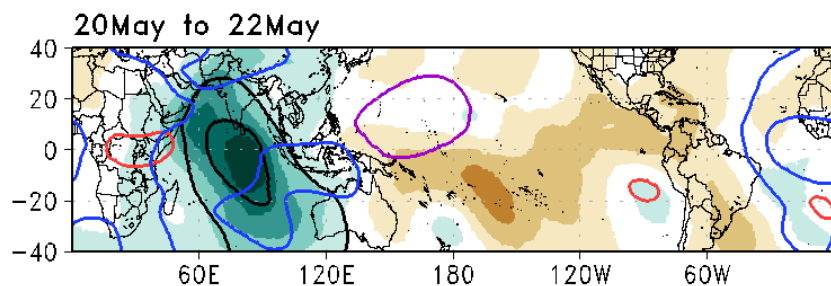
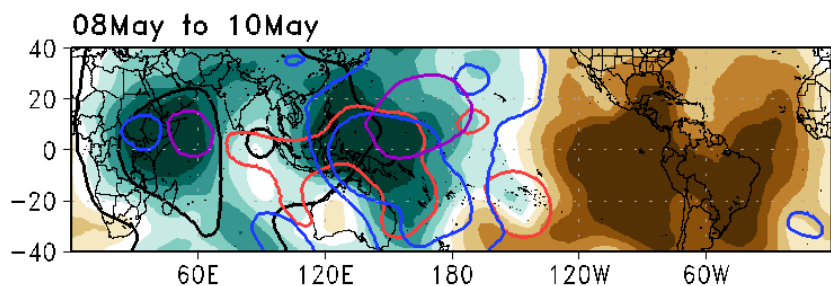
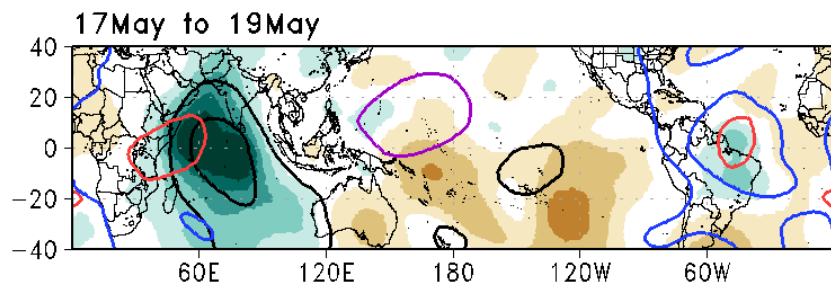
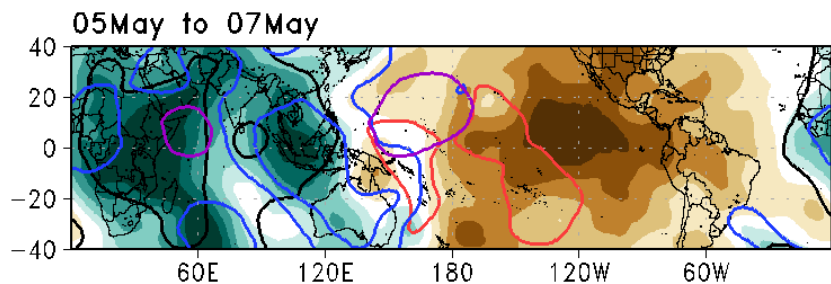
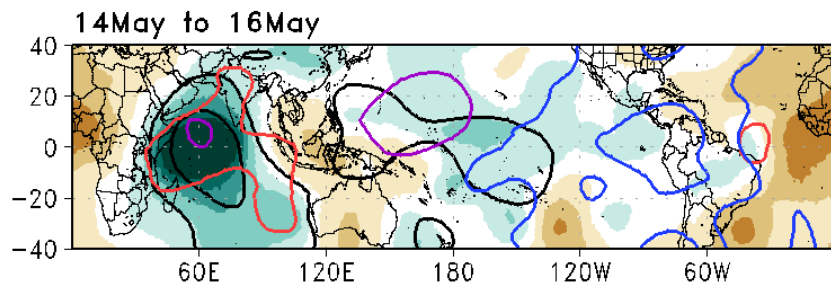
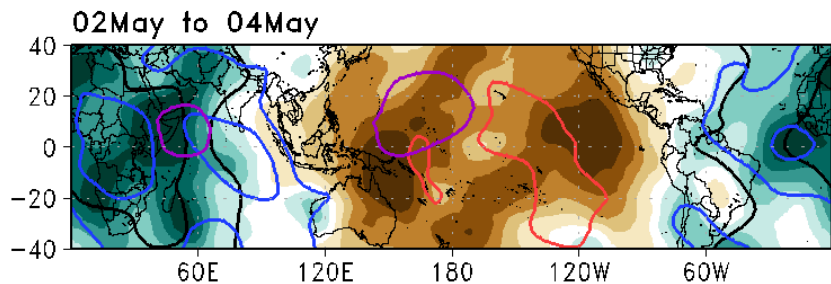
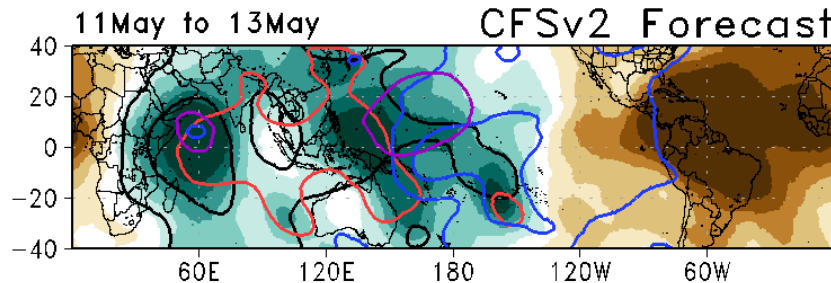
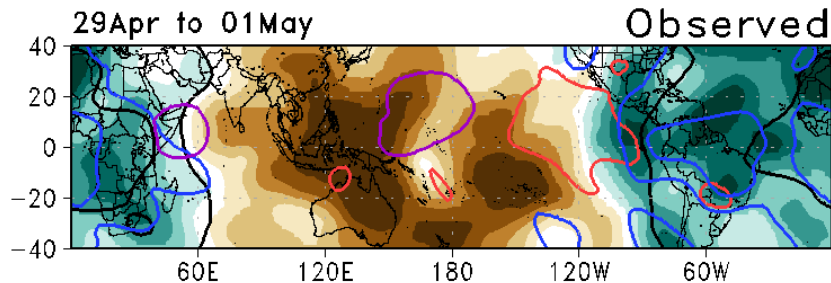
A strong Wave-1 pattern associated with a strong MJO moving into the Indian Ocean.



Two centers of action are becoming evident tied to the MJO and a convectively coupled Kelvin wave

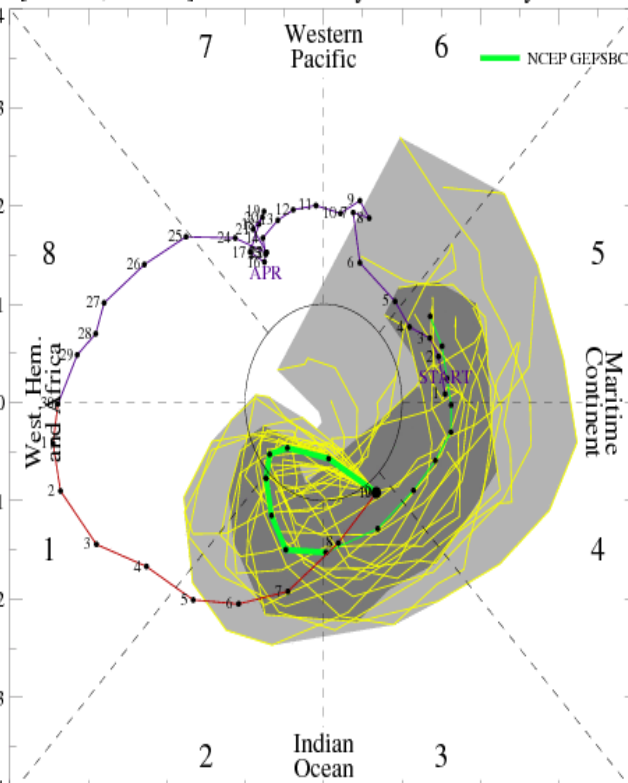


# CHI200 3-Day Means

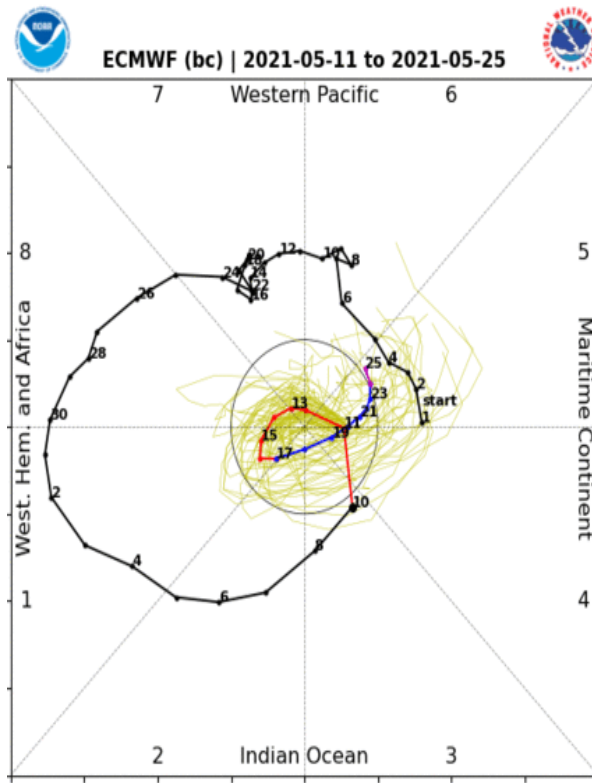


# MJO Observation/Forecast

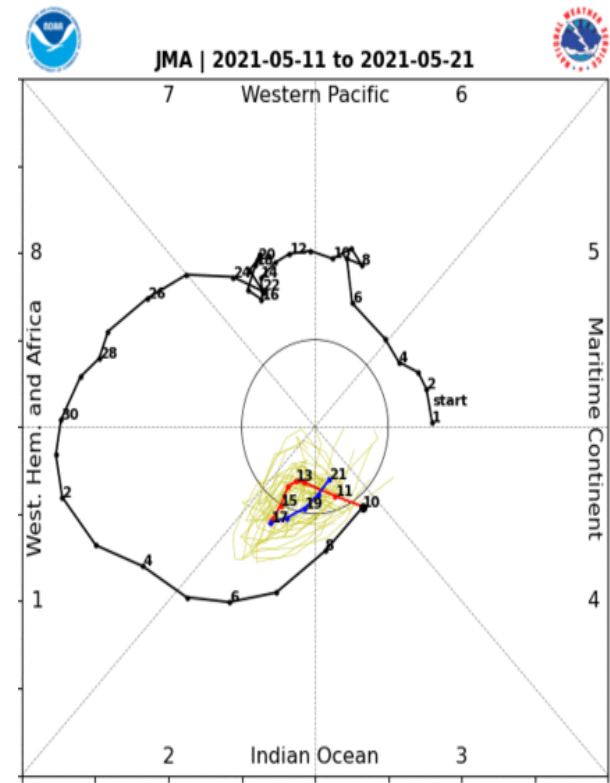
[RMM1, RMM2] forecast for May-11-2021 to May-25-2021



GEFS



ECMWF

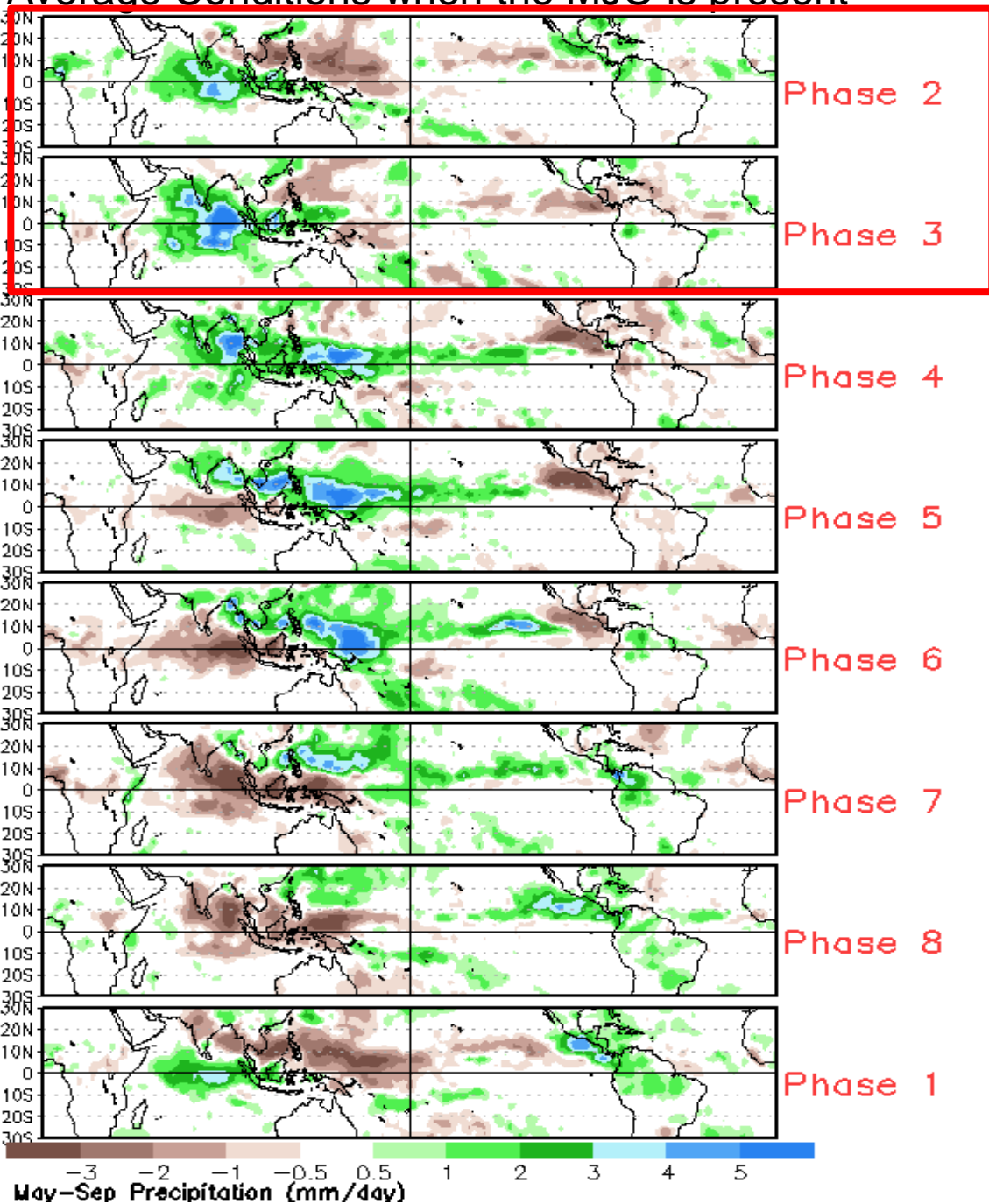


JMA

All models generally favor the MJO to weaken while shifting westward during week-1, followed by strengthening and eastward propagation of the signal during week-2.

The forecast evolution is likely misplaced due to: 1) “left shifting” RMM values during transition to ENSO neutral conditions, 2) detachment of Kelvin wave signal in RMM space that decouples during week-1, and 3) general model difficulty of propagating the MJO over the Maritime Continent islands.

# Average Conditions when the MJO is present

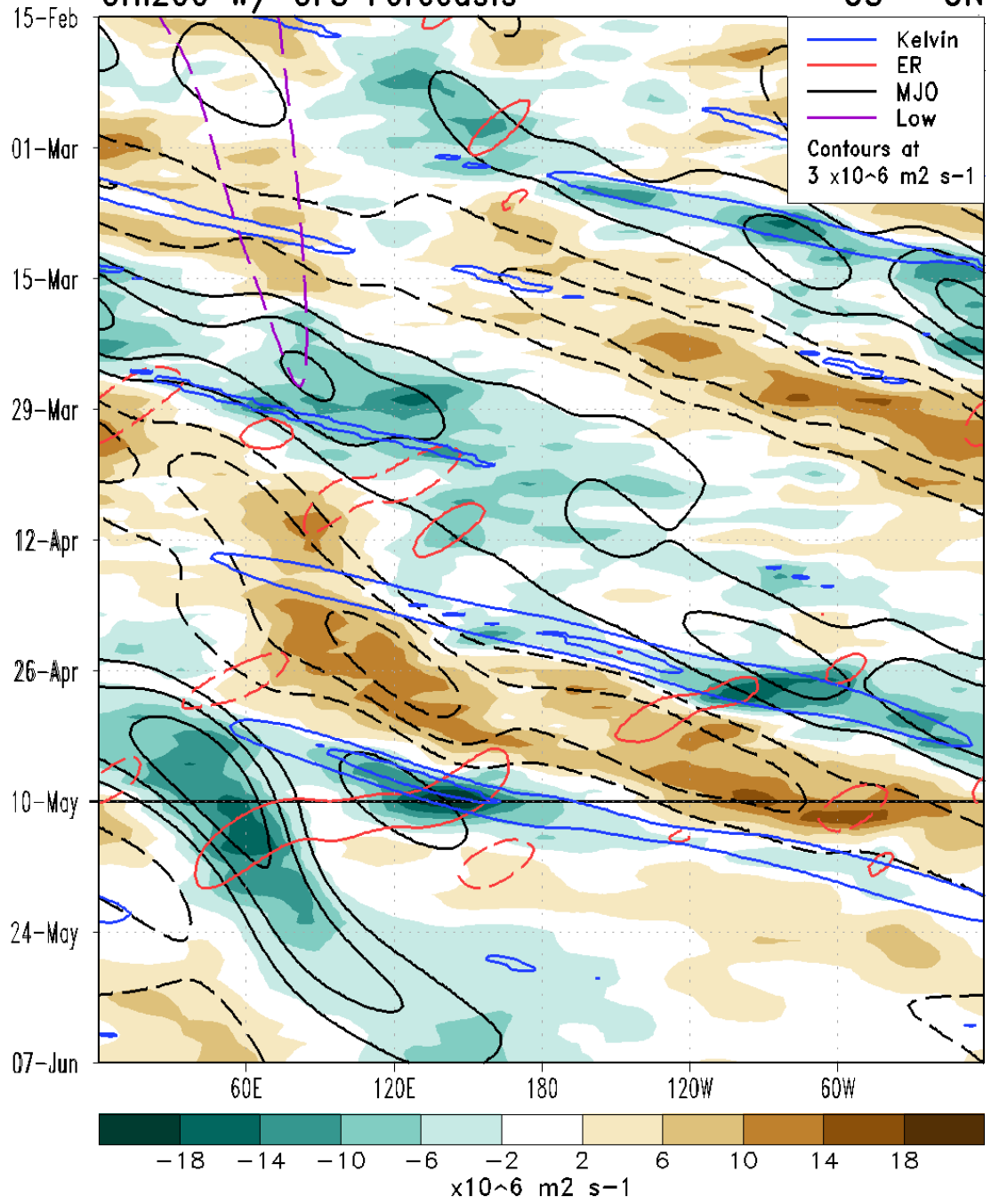


CAVEAT: These panels are representative of robust MJO events.



# CHI200 w/ CFS Forecasts

5S - 5N



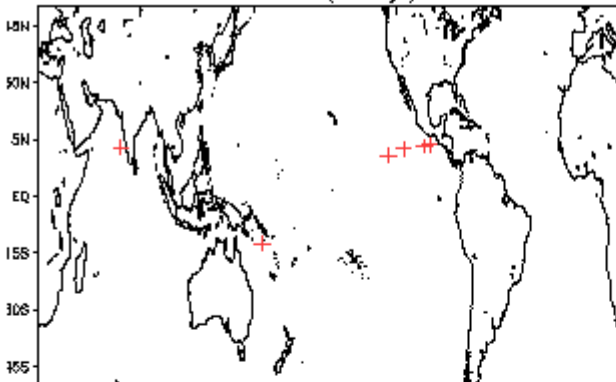
A strong **MJO** is seen crossing the Indian Ocean.

**Rossby wave** activity is indicated over the Indian Ocean and West Pacific.

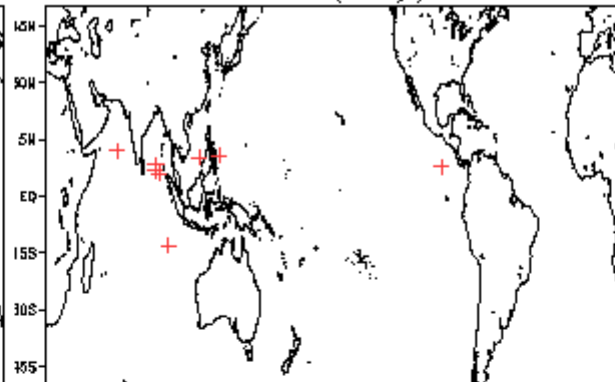
**Kelvin wave** activity is seen separating from the MJO signal.

# May Tropical Storm Formation by MJO phase

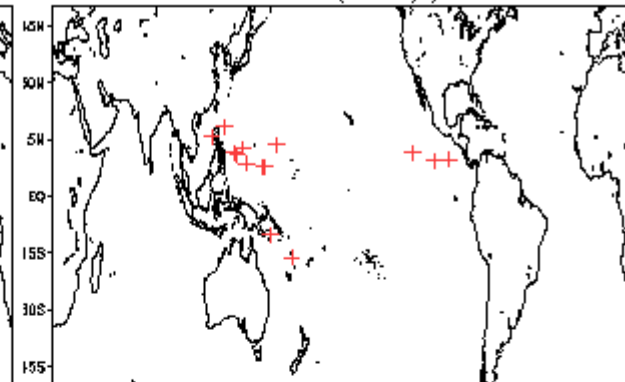
Phase 1 (85 days) 7 storms



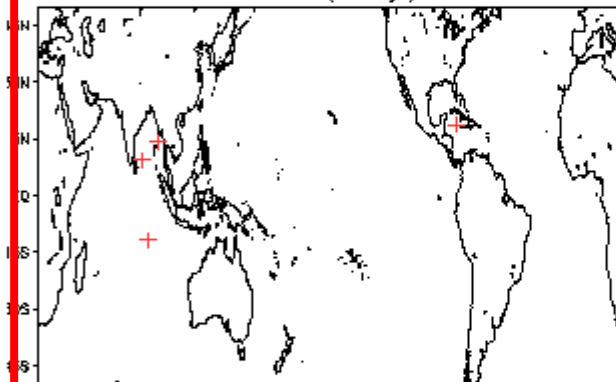
Phase 4 (85 days) 9 storms



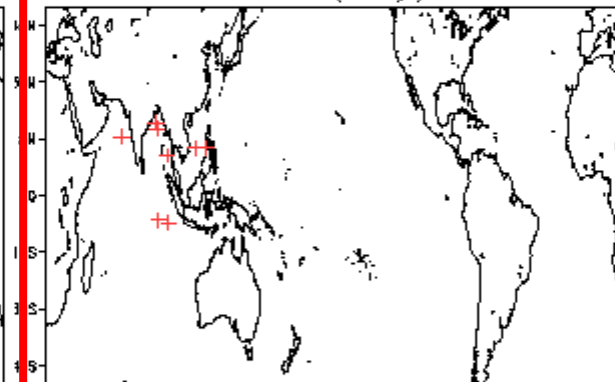
Phase 7 (111 days) 15 storms



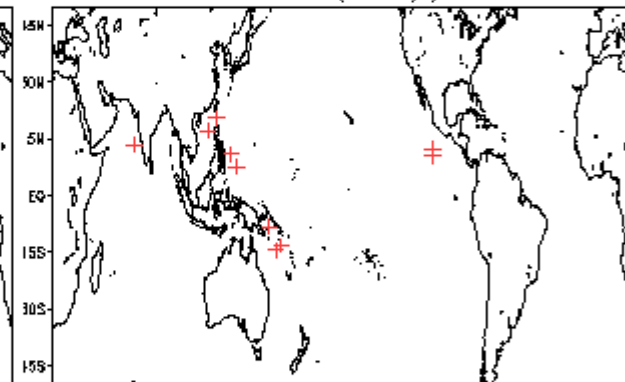
Phase 2 (76 days) 5 storms



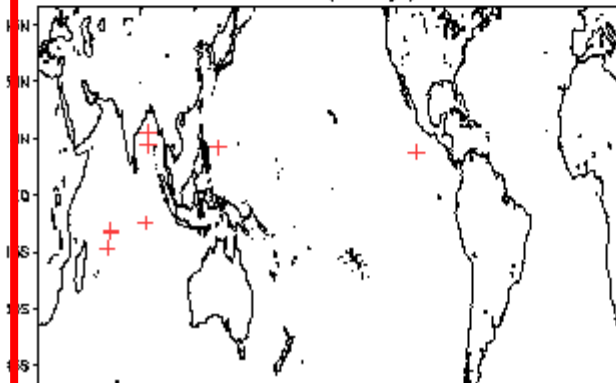
Phase 5 (66 days) 9 storms



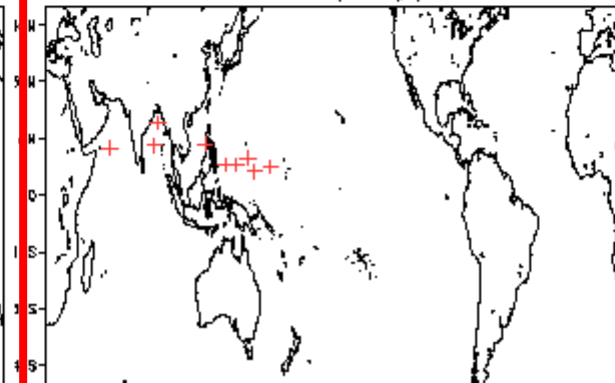
Phase 8 (111 days) 11 storms



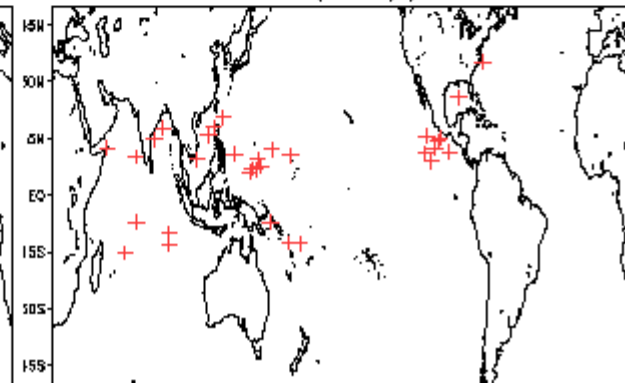
Phase 3 (73 days) 9 storms



Phase 6 (87 days) 10 storms



Null (349 days) 33 storms



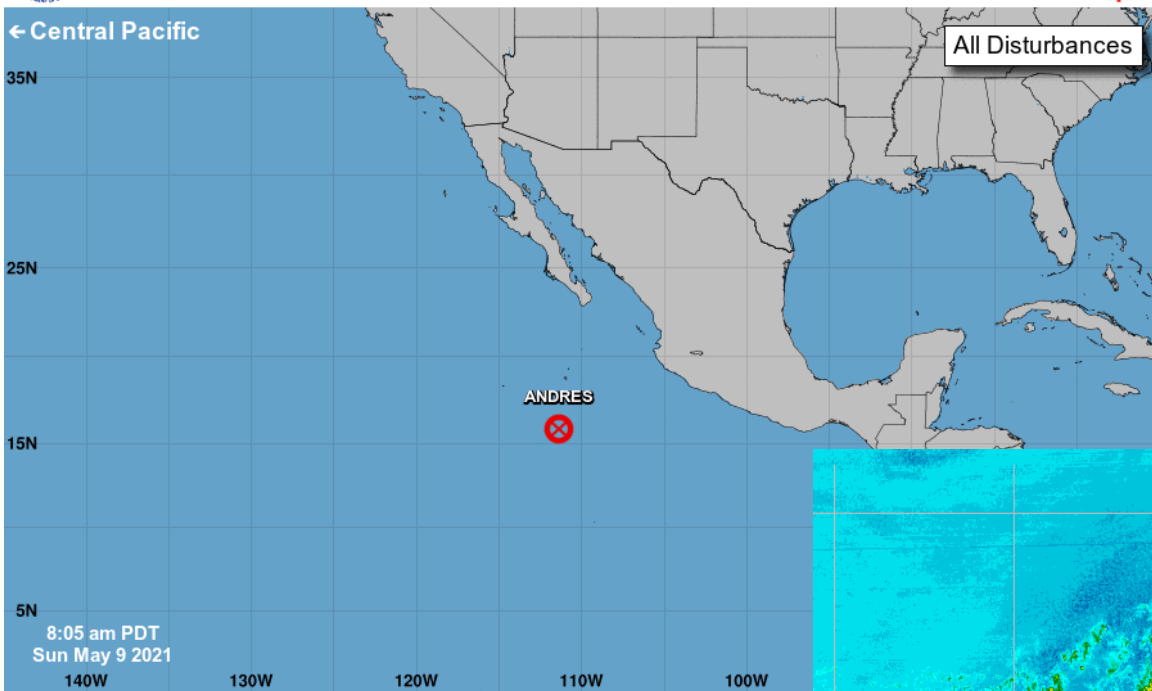


# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



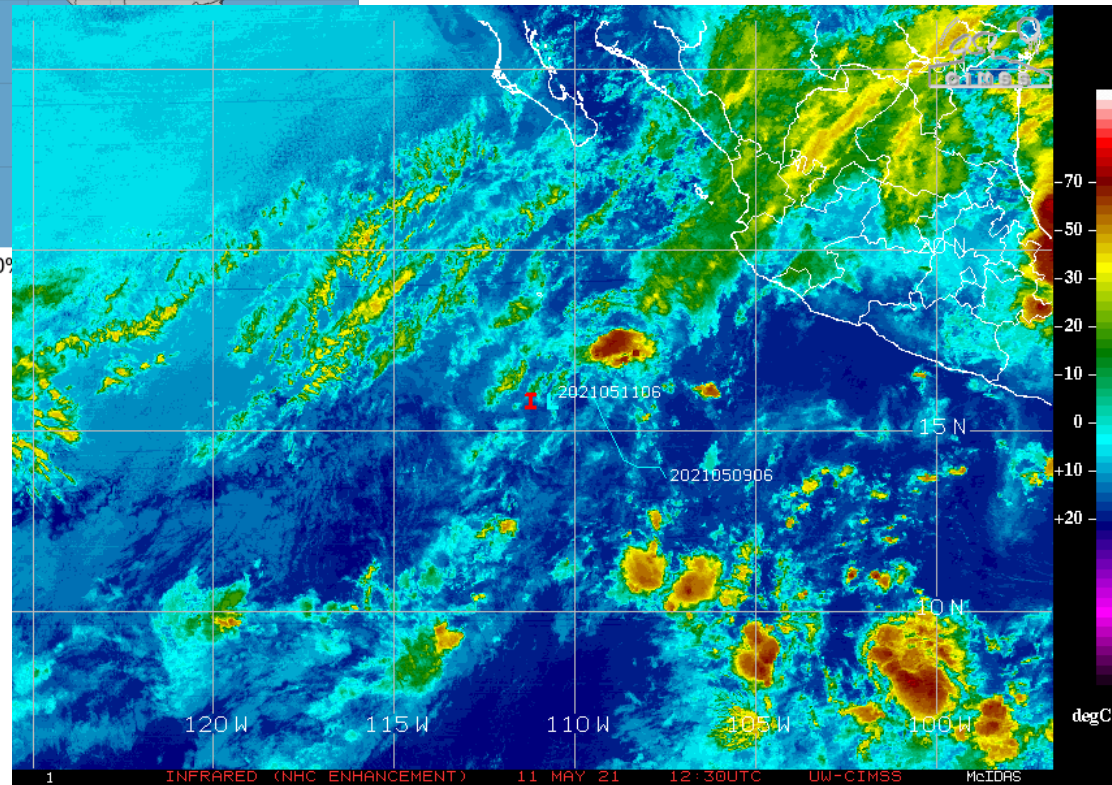
← Central Pacific



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

Tropical or Sub-Tropical Cyclone: Depression Storm

Post-Tropical Cyclone or Remnants



— Low/High  
— Tropical Depr  
— Tropical Storm  
— Category 1  
— Category 2  
— Category 3  
— Category 4  
— Category 5

**I** - Invest Area  
**L** - Tropical Depression  
**S** - Tropical Storm  
**H** - Hurricane/Typhoon (w/ category)



# JOINT TYPHOON WARNING CENTER



Naval Research Laboratory  
Marine Meteorology Division  
Cloud Layer Product  
Valid: 2021-05-11 03:00:00

## FABIO

## ABPW

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

### 92A

### NO SUSPECT AREAS (ABPW)

**ISSUE TIME: 11/0600Z**  
(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**

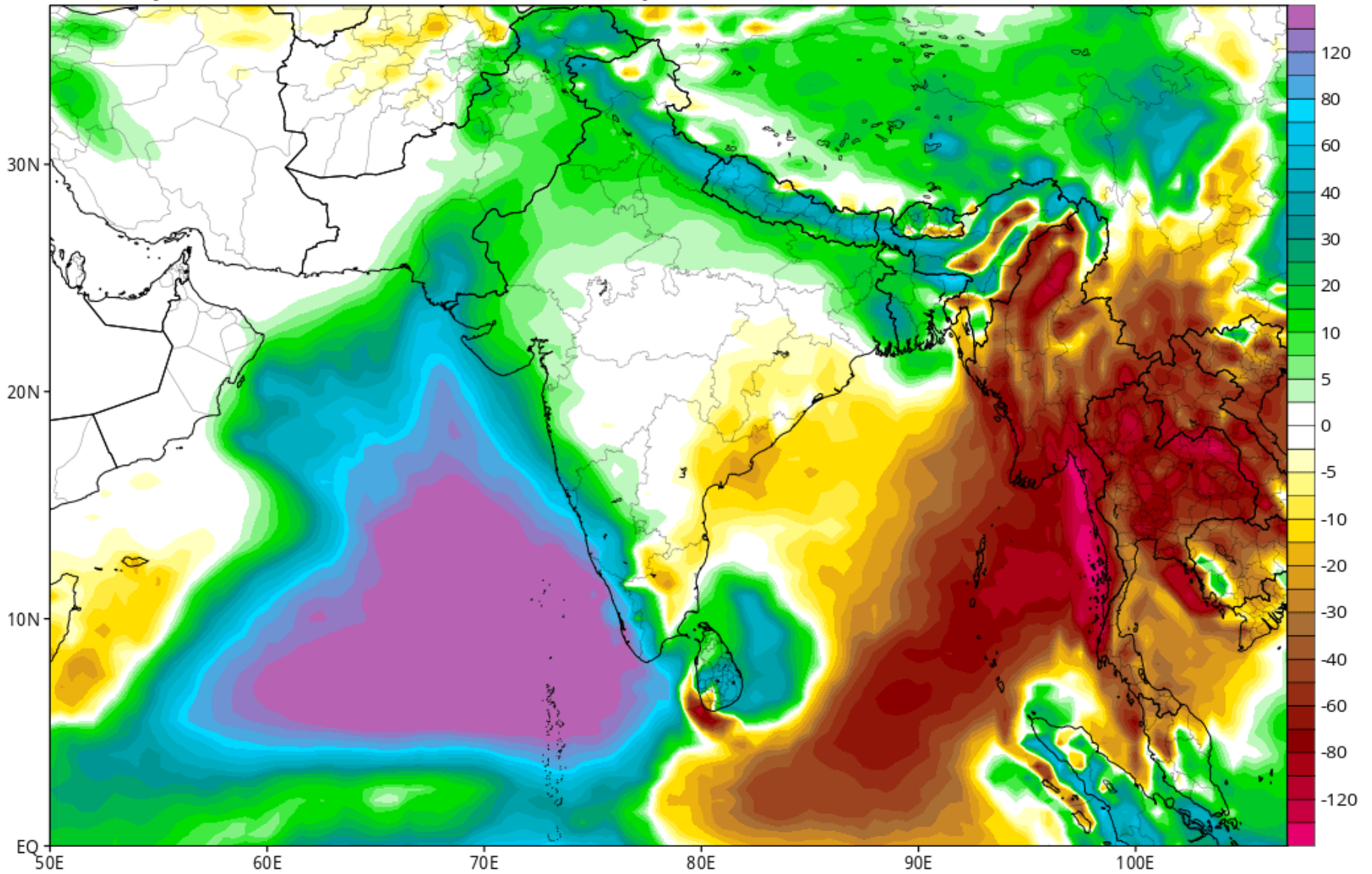
Monitoring for potential transition to TC.  
Invest label color denotes tropical transition probability

Tropical Cyclone  
(Reference Warning)

# GEFS Accumulated Precip. Anomaly (mm) from 00z12May2021 to 00z19May2021 (Days 2-8)

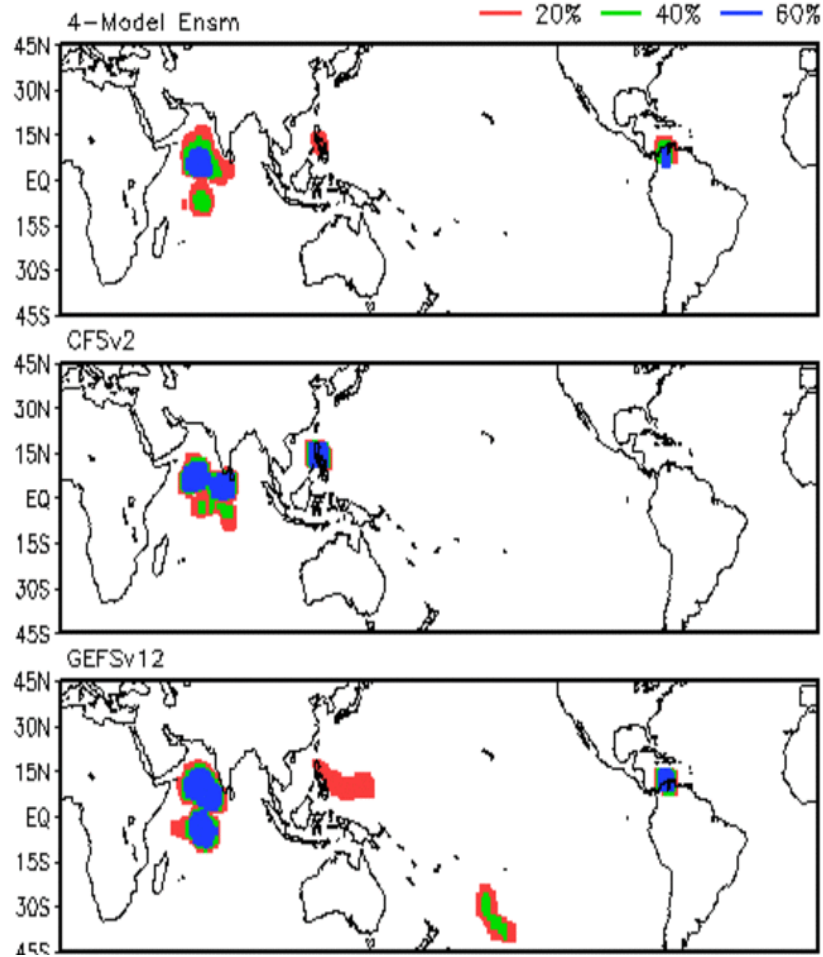
Init: 00z May 11 2021 Forecast Hour: [192] valid at 00z Wed, May 19 2021

TROPICALTIDBITS.COM



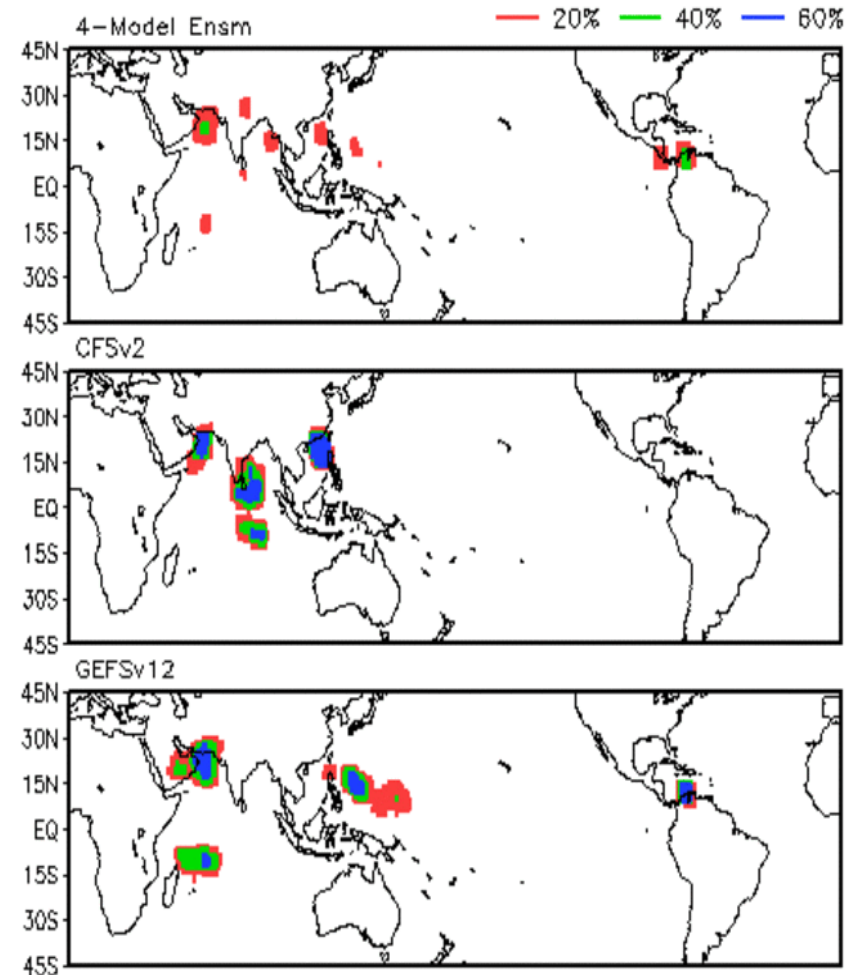
# Storm Track Probabilities, IC=20210510

## Week 1: 0512 - 0518



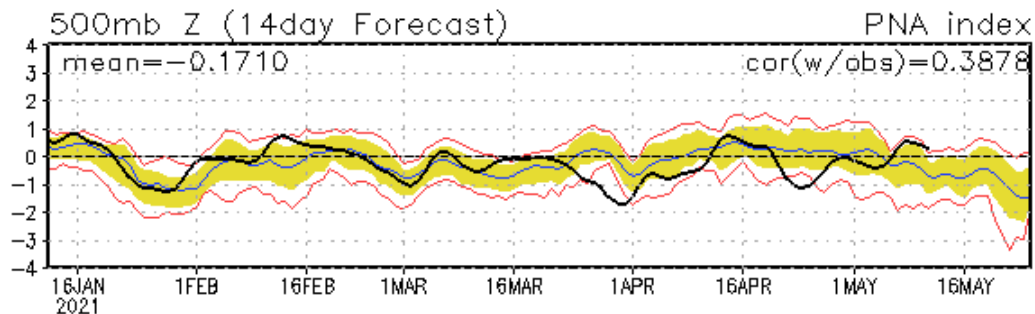
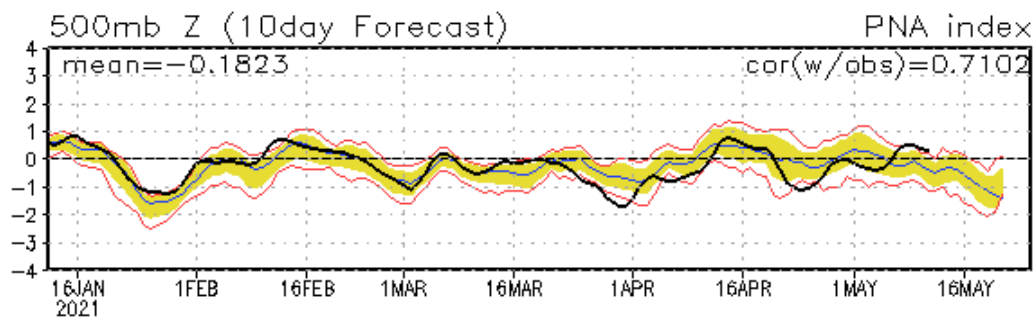
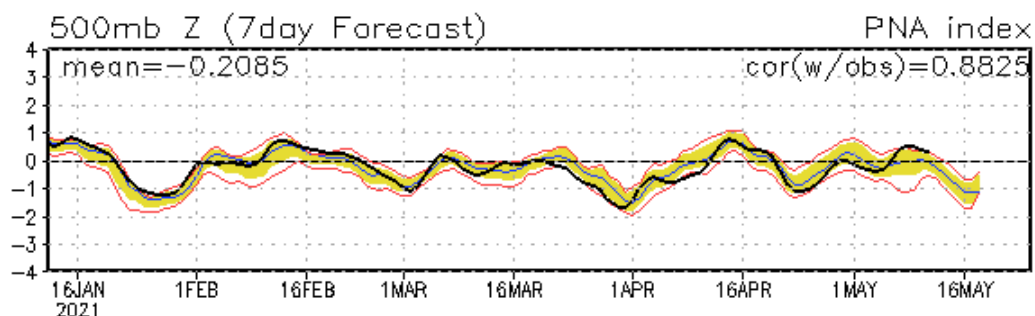
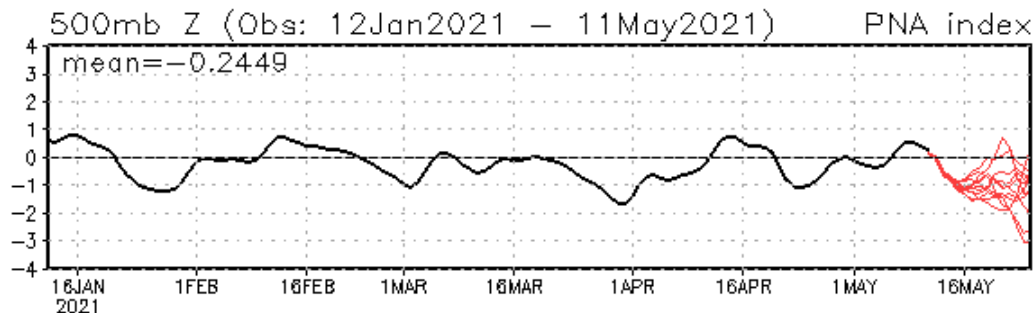
# Storm Track Probabilities, IC=20210510

## Week 2: 0519 - 0525



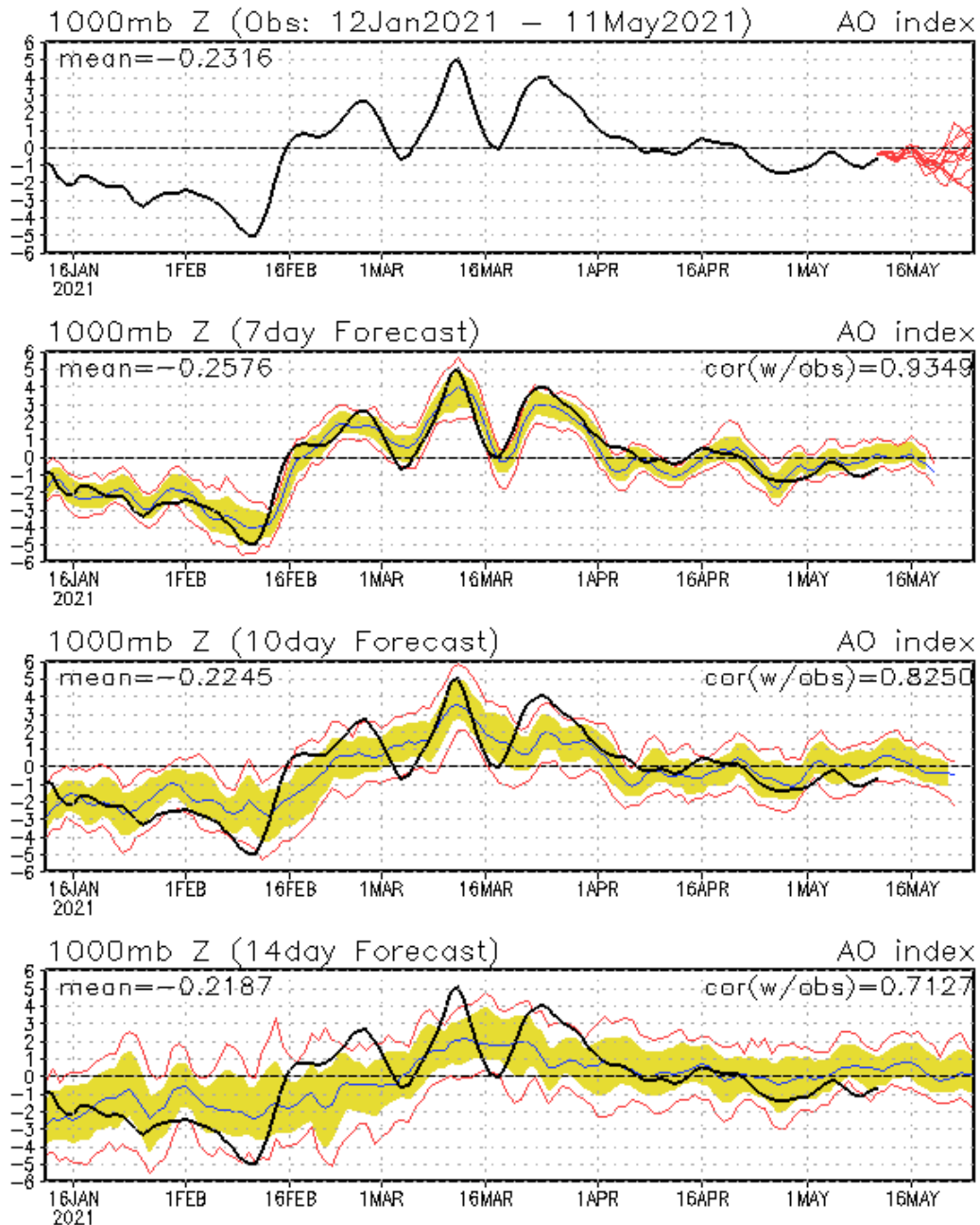
# Connections to U.S. Impacts

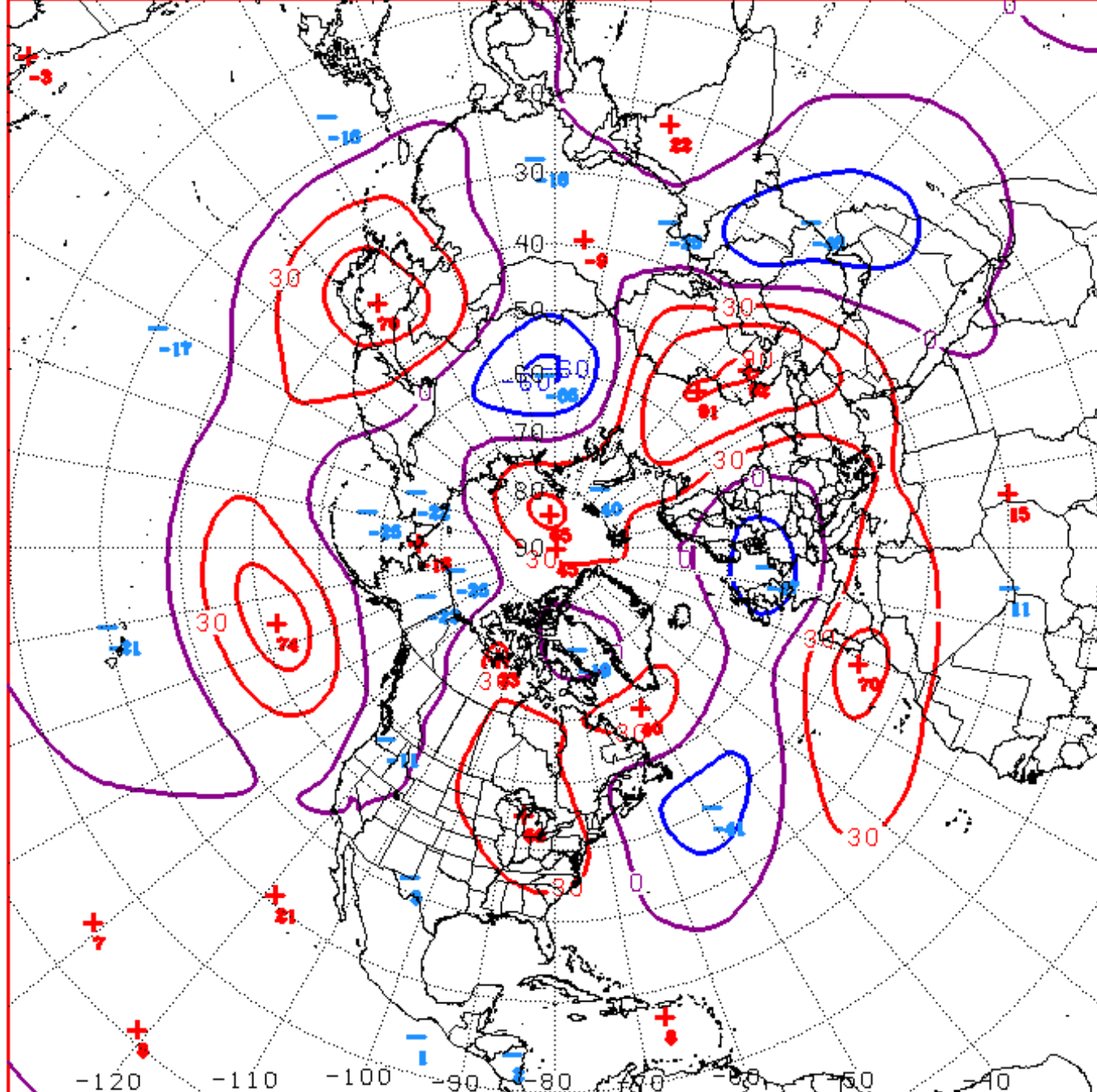
## PNA: Observed & ENSM forecasts





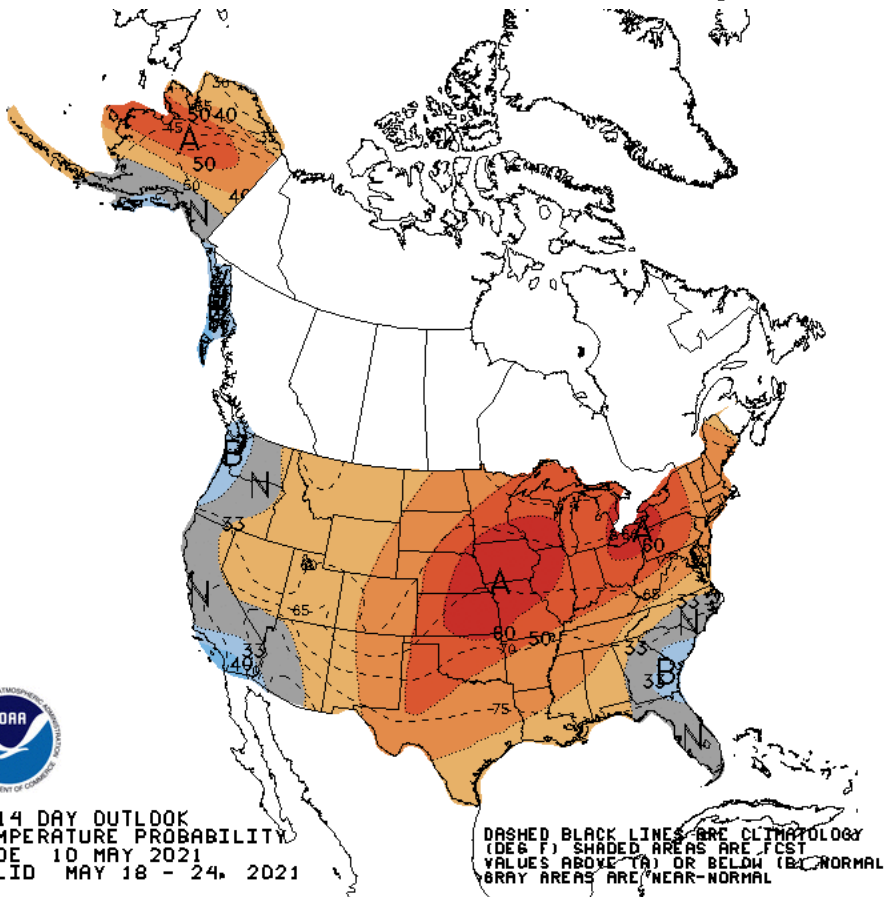
## AO: Observed & ENSM forecasts





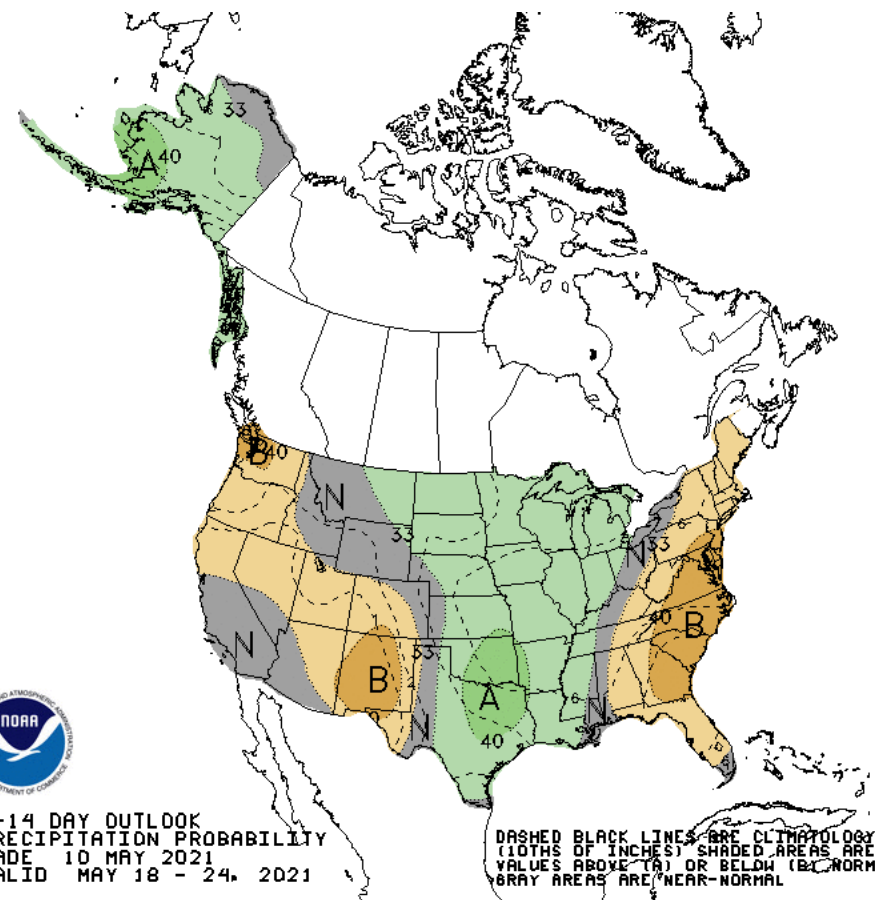
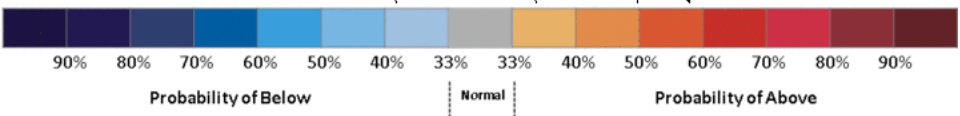
D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE MAY 11 2021 1357 UTC CNTD MAY 22 2021

# Week 2 – Temperature and Precipitation



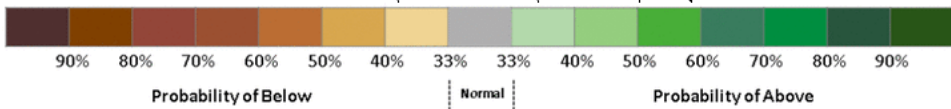
8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 10 MAY 2021  
VALID MAY 18 - 24, 2021

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 10 MAY 2021  
VALID MAY 18 - 24, 2021

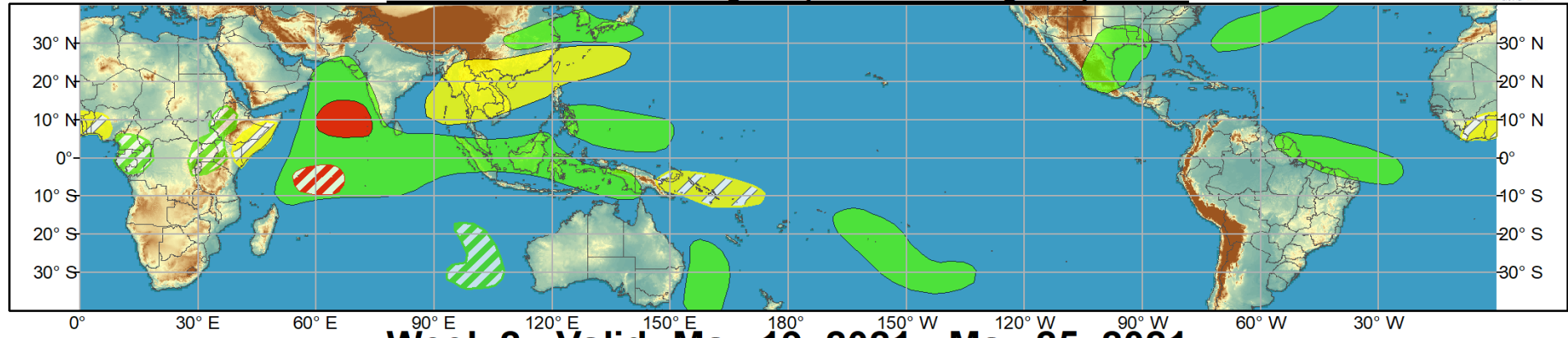
DASHED BLACK LINES ARE CLIMATOLOGY (10THS OF INCHES). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



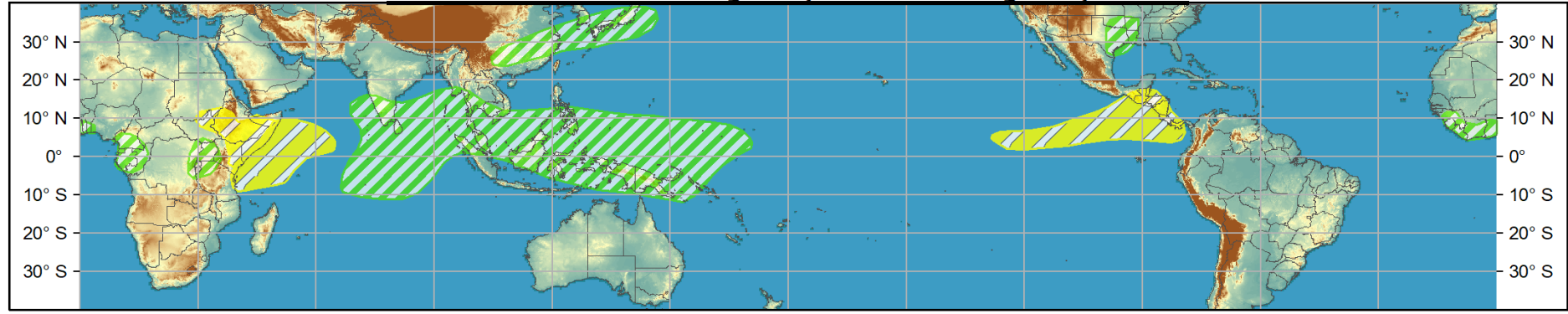


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