

# Global Tropics Hazards And Benefits Outlook

10/12/2021

Dan Harnos

## 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

## Hurricane Pamela

Oct 10-Present  
Peak: 70 kt

## TS Lionrock

Oct 7-10  
Peak: 40 kt

## TS Namtheun

Oct 10-Present  
Peak: 50 kt

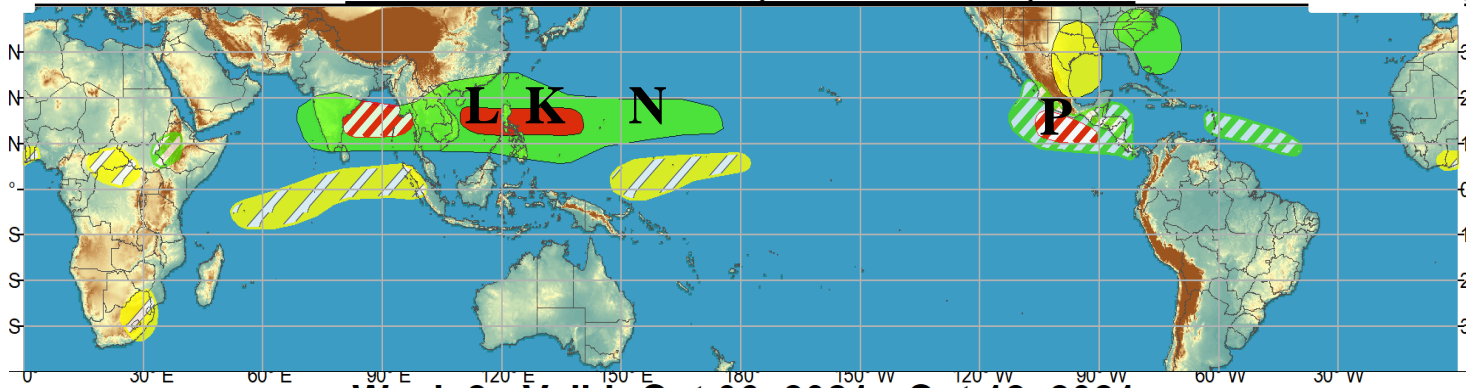
## TS Kompasu

Oct 10-Present  
Peak: 55 kt

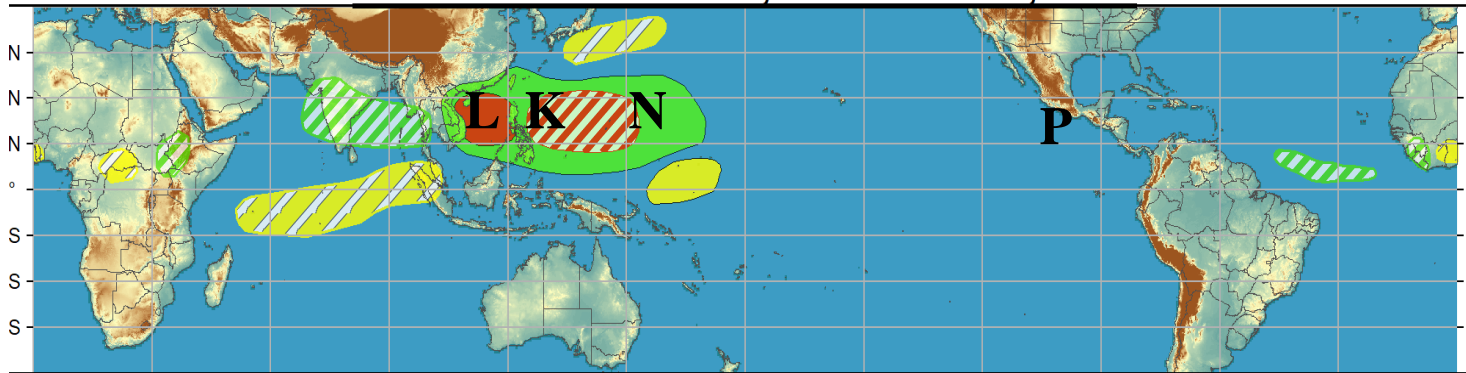
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

Week 1 - Valid: Oct 06, 2021 - Oct 12, 2021

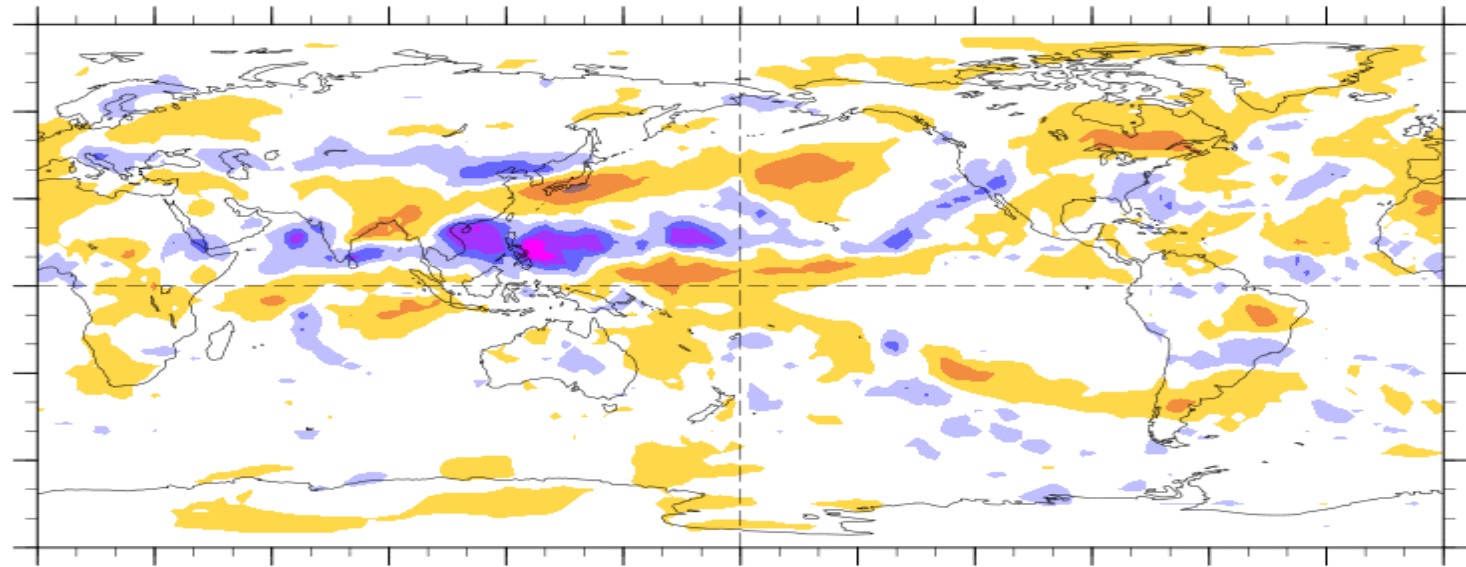


Week 2 - Valid: Oct 06, 2021 - Oct 12, 2021



7-Day Average OLR Anomaly

2021/10/04 - 2021/10/10



# Synopsis of Climate Modes

## **ENSO: (September 9, 2021 Update)**

*next update on 14<sup>th</sup> of Oct.*

- ENSO Alert System Status: [La Niña Watch](#)
- A transition from ENSO-neutral to La Niña is favored in the next couple of months, with a 70-80% chance of La Niña during the Northern Hemisphere winter 2021-22

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

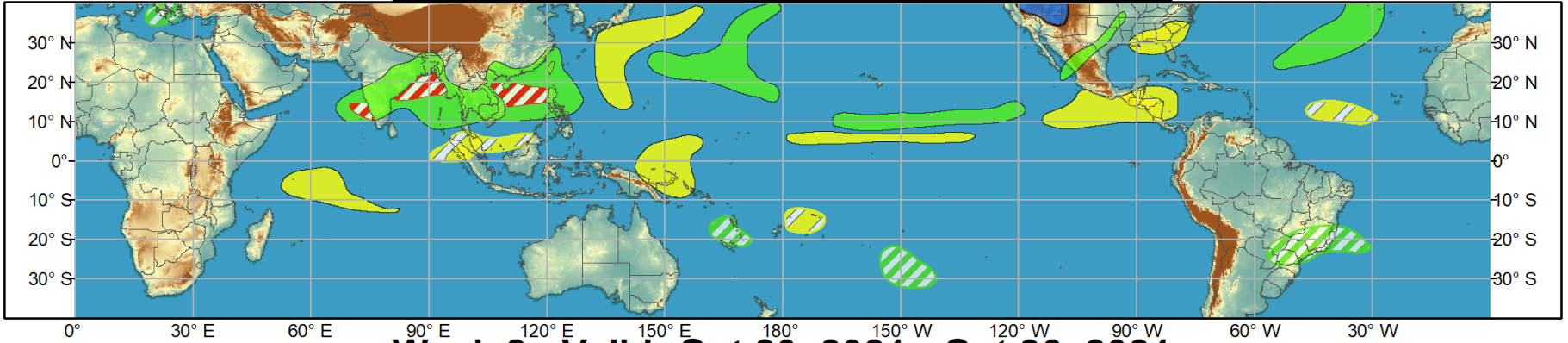
- The RMM index shows the MJO as stalling over the Maritime Continent during the past week, but at least some of this appears tied to the developing La Niña.
- The MJO is anticipated to cross the Pacific during mid-October and reach the Western Hemisphere by late October.
- This transition of the MJO would favor tropical cyclone formation initially across the Eastern Hemisphere, shifting to the East Pacific during Week-2, and possibly over the Caribbean Sea during early November.



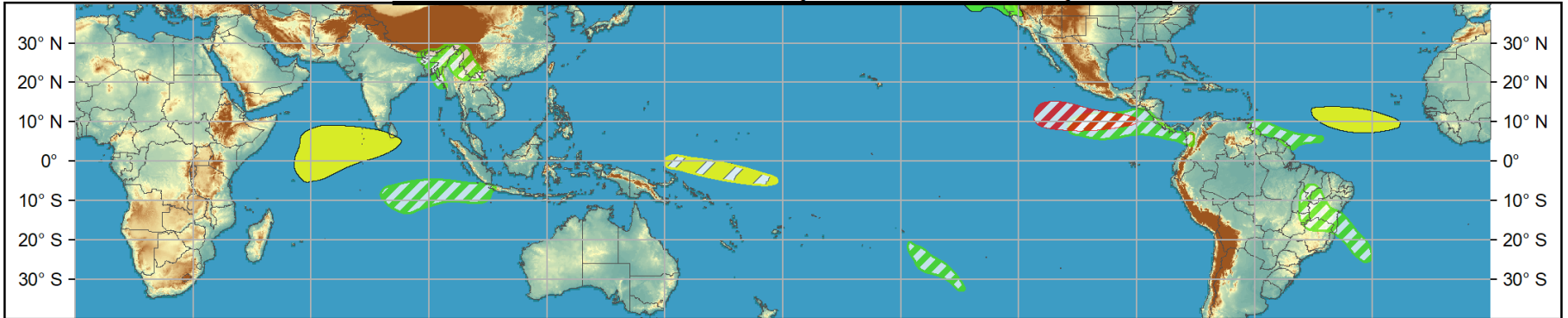
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Oct 13, 2021 - Oct 19, 2021



## Week 2 - Valid: Oct 20, 2021 - Oct 26, 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: 10/12/2021  
Forecaster: Harnos

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

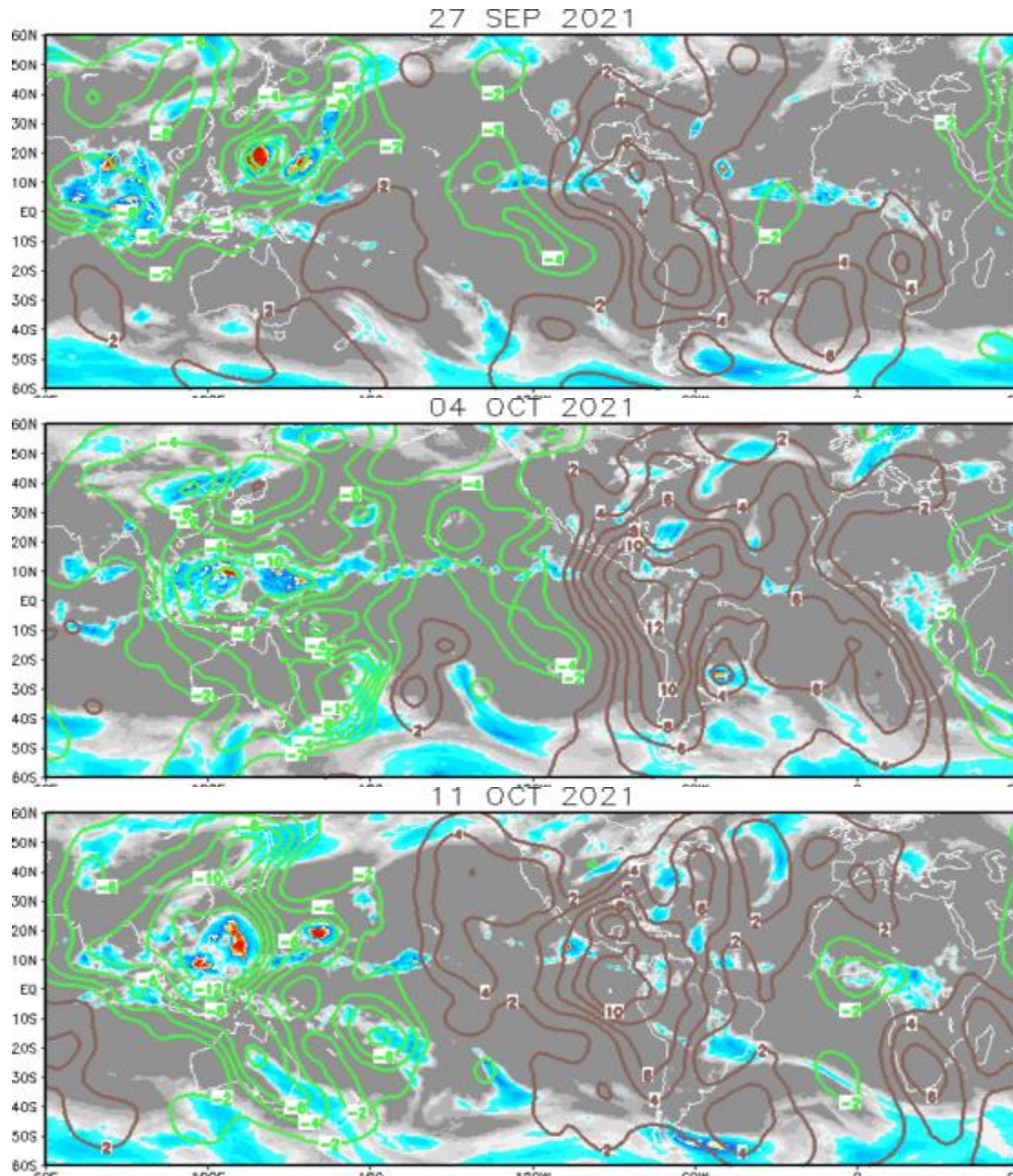
Green: Enhanced Divergence

Brown: Enhanced Convergence

A poorly organized pattern, with a Kelvin wave approaching the eastern Pacific.

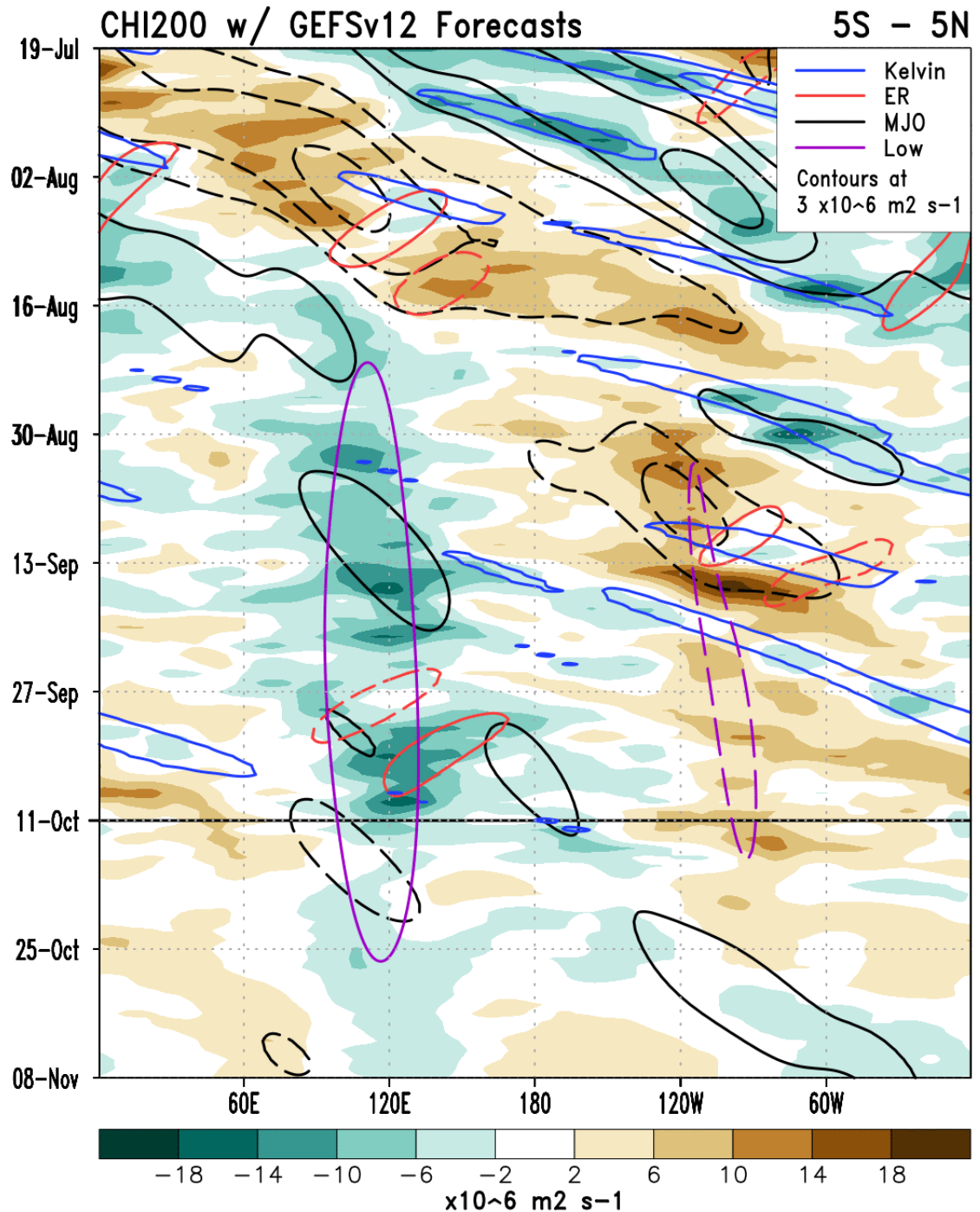
A more coherent wave-1 pattern becoming established, with another Kelvin wave over the East Pacific.

The wave-1 pattern persists with limited propagation. The Kelvin wave formerly over the East Pacific is now near the Prime Meridian.



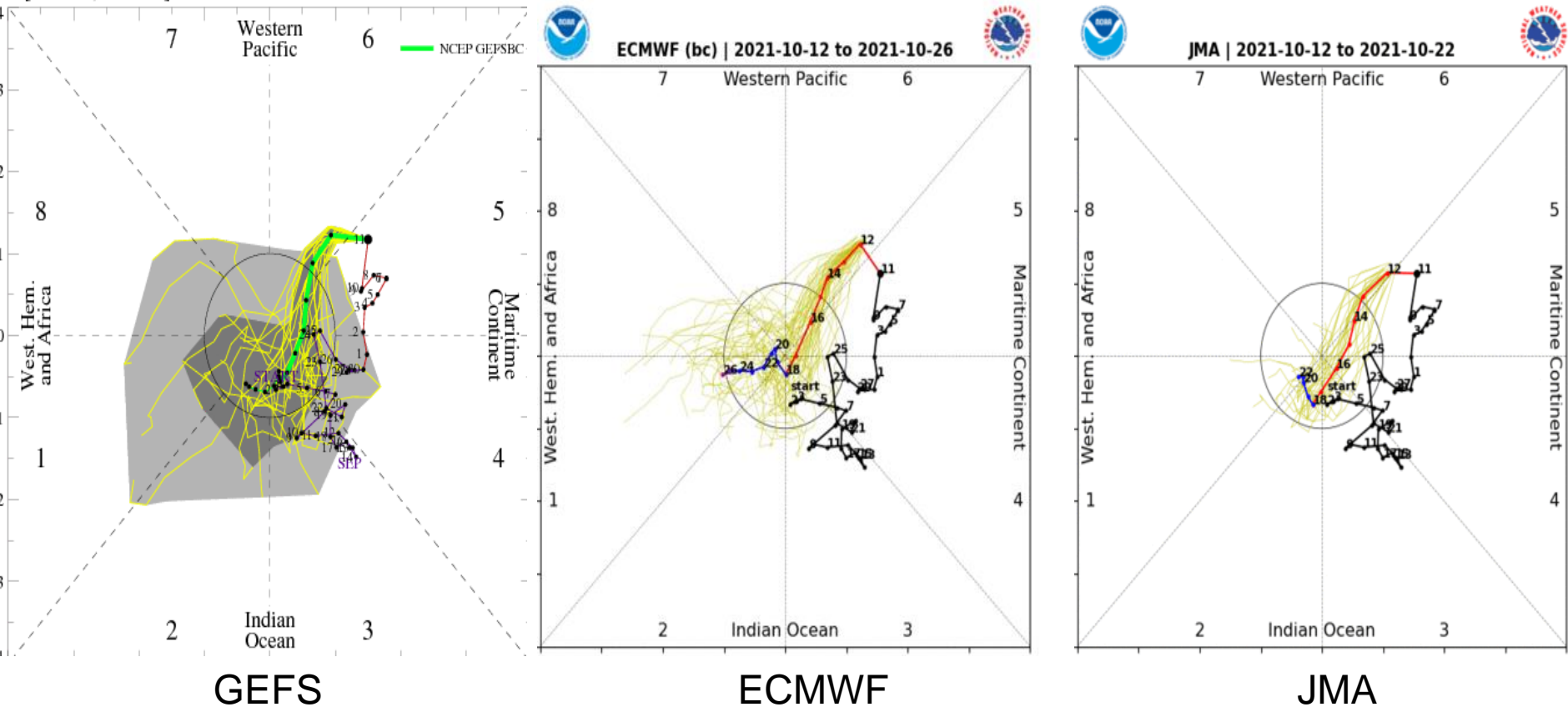
**MJO** activity is analyzed near the Date Line, with its suppressed phase likely destructively interfering with the **low frequency** state over the Maritime Continent in the coming days.

A **Kelvin wave** is also analyzed near the **MJO** envelope.



# MJO Observation/Forecast

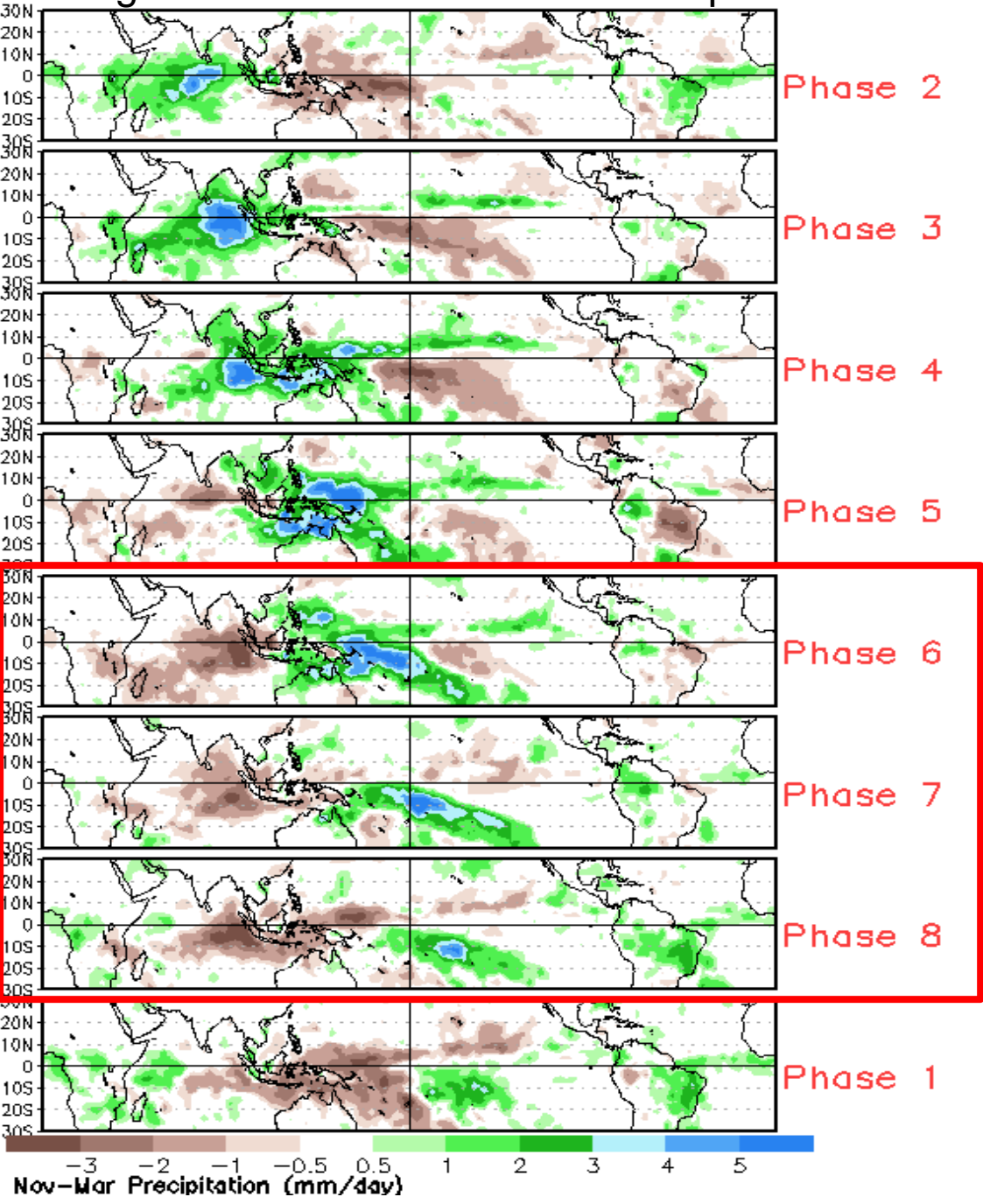
[RMM1, RMM2] forecast for Oct-12-2021 to Oct-26-2021



Models are unanimous in forecasting eastward propagation of the intraseasonal signal during the next two weeks. Note these plots are “shifted right” due to the building La Nina conditions, favoring phases 4/5 (and not favoring phases 8/1).

Most GEFS members, the ECMWF, and JMA propagate the MJO to the Western Hemisphere by the end of Week-2. A handful of GEFS members emphasize La Nina instead and end up near Phase 3/4

# Average Conditions when the MJO is present

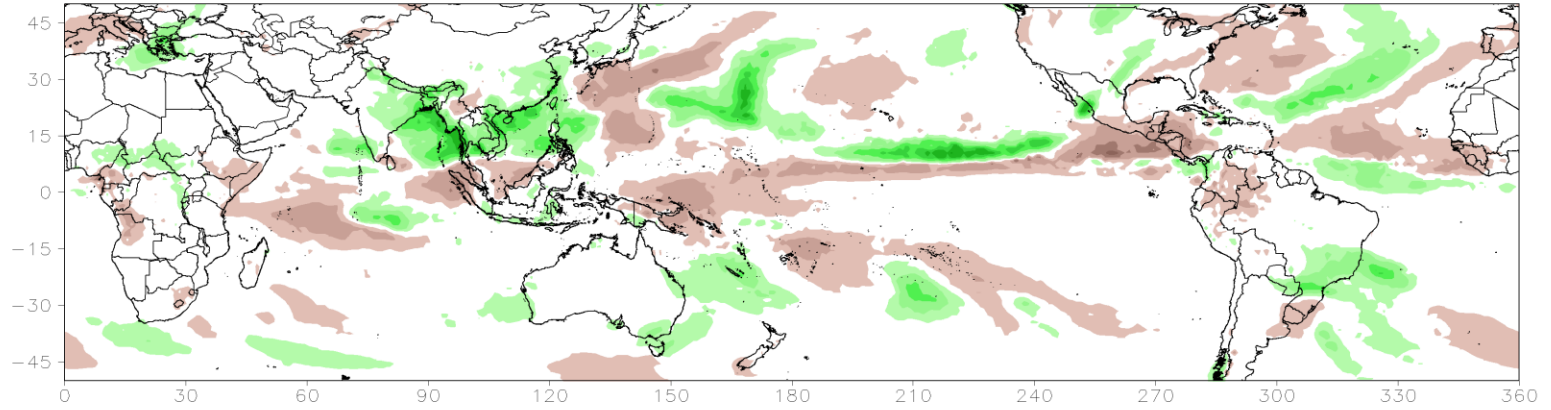


CAVEAT: These panels are representative of robust MJO events.



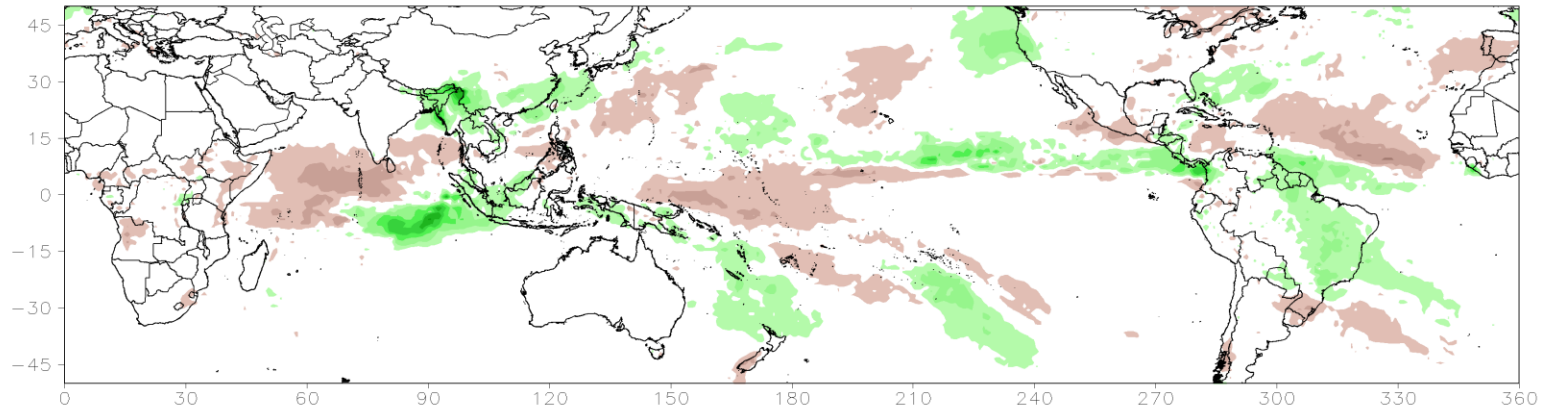
### CONS 00z: Week1 Total Rainfall Anomaly (mm)

Valid: 130ct2021-190ct2021



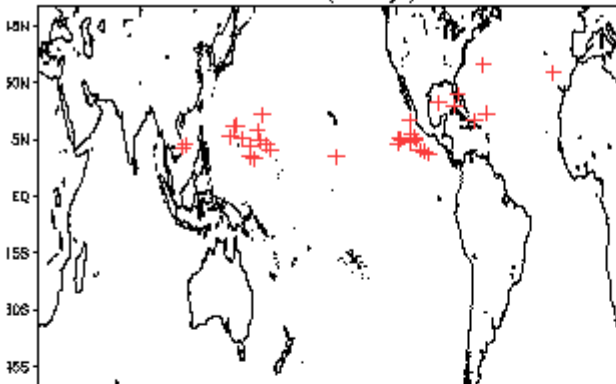
### CONS 00z: Week2 Total Rainfall Anomaly (mm)

Valid: 200ct2021-260ct2021

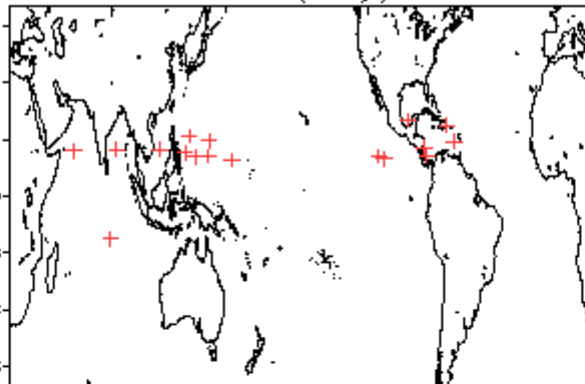


# October Tropical Storm Formation by MJO phase

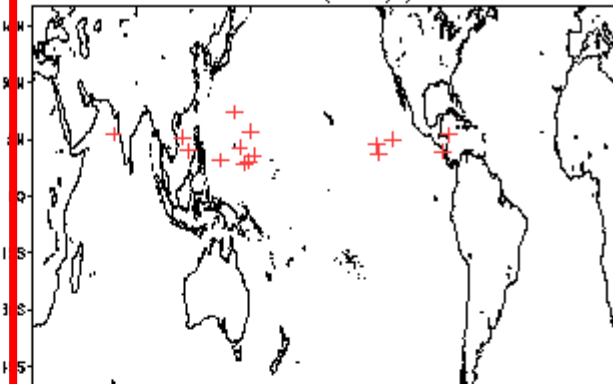
Phase 1 (94 days) 34 storms



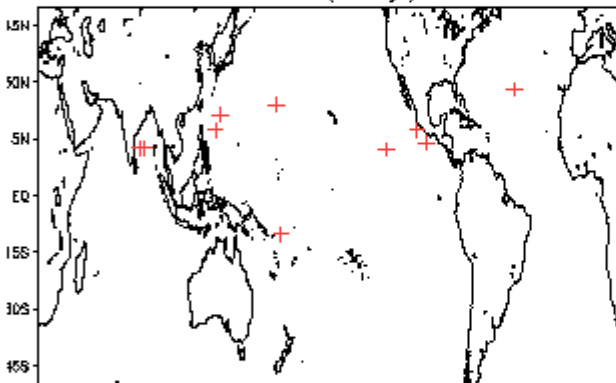
Phase 4 (85 days) 18 storms



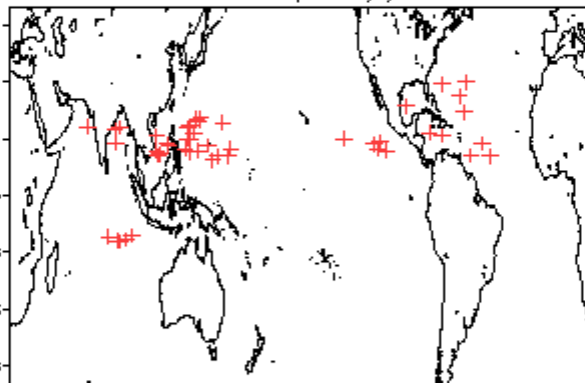
Phase 7 (49 days) 16 storms



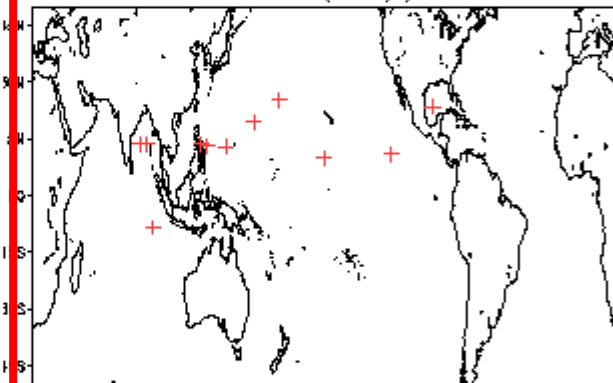
Phase 2 (75 days) 11 storms



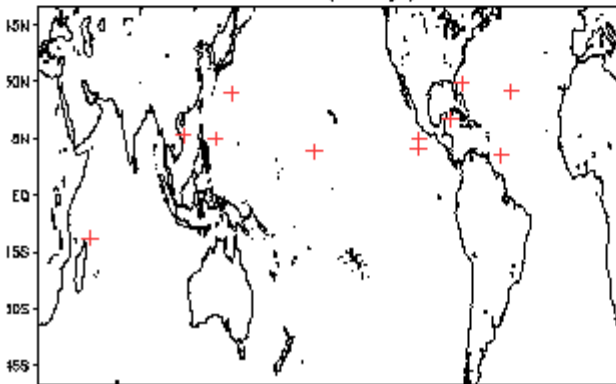
Phase 5 (133 days) 48 storms



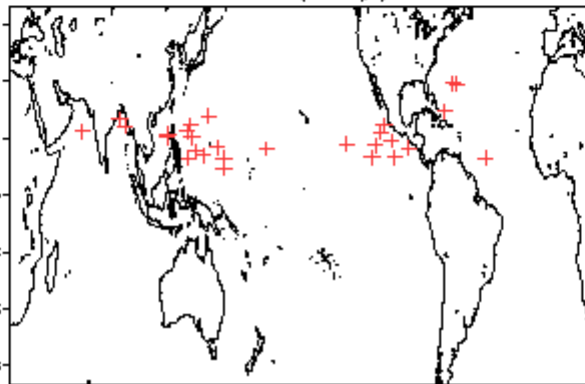
Phase 8 (66 days) 12 storms



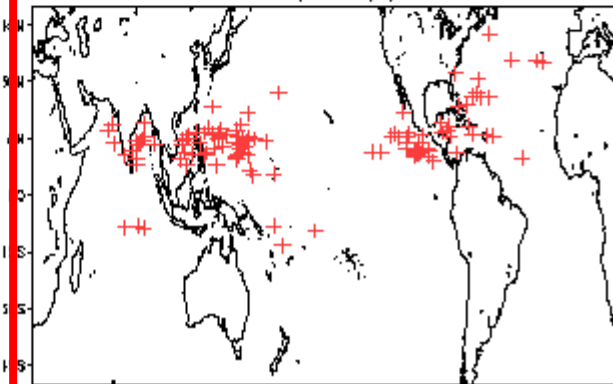
Phase 3 (41 days) 12 storms

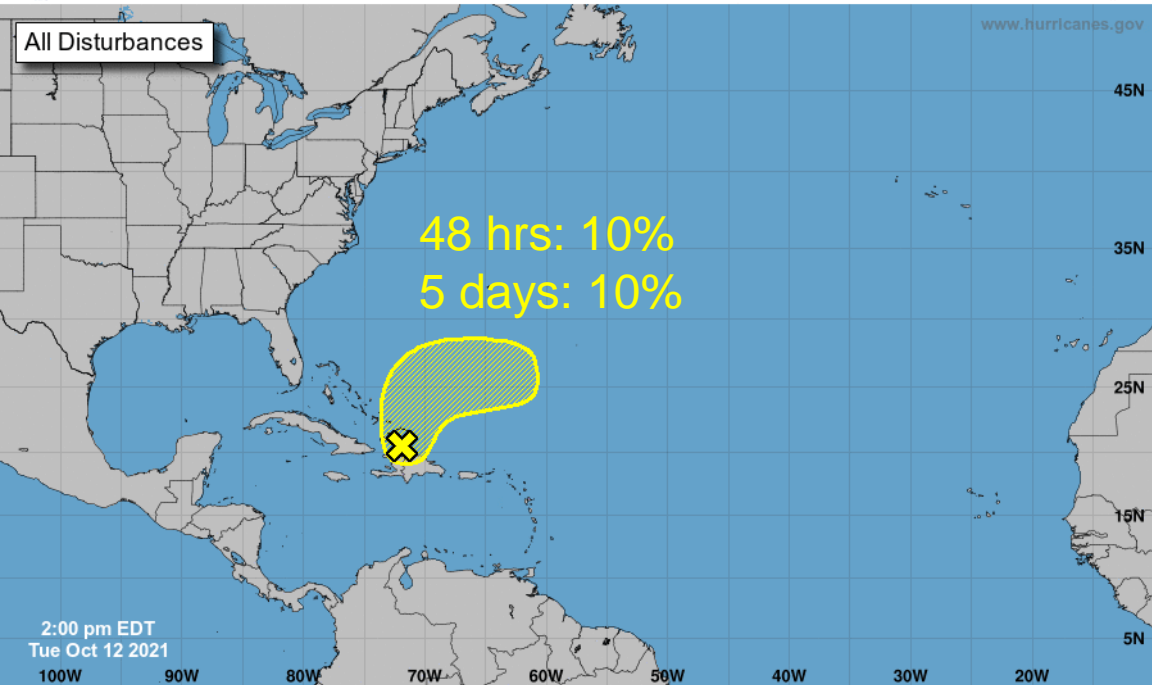


Phase 6 (78 days) 30 storms



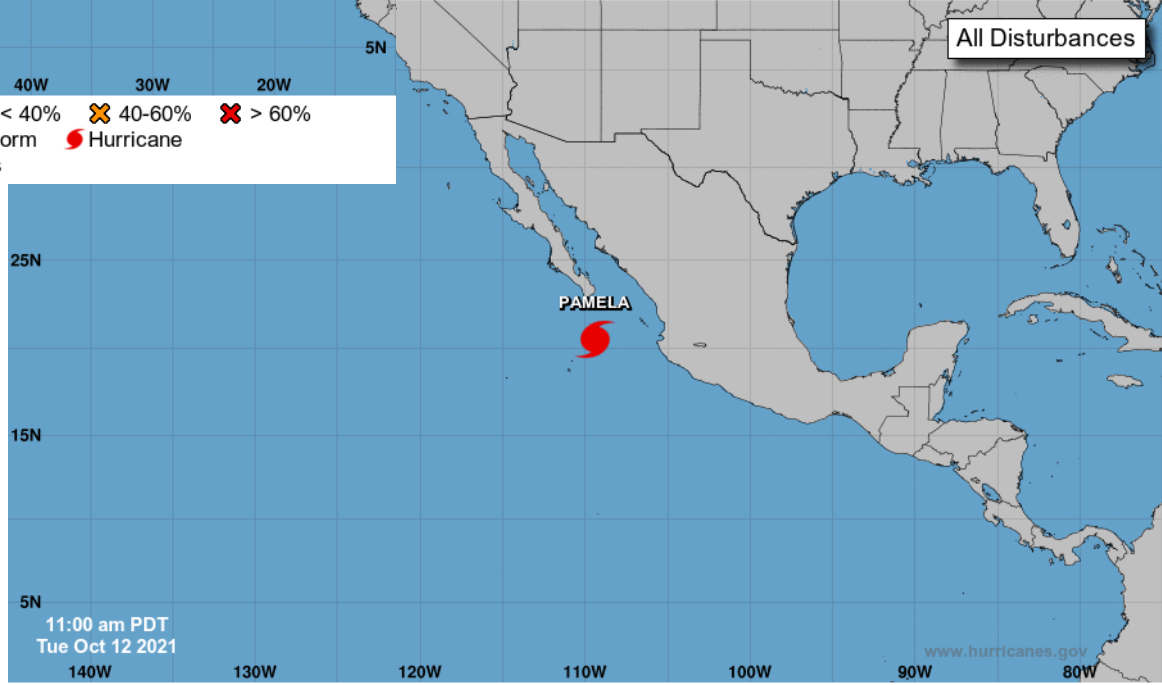
Null (422 days) 119 storms





2:00 pm EDT  
Tue Oct 12 2021

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



11:00 am PDT  
Tue Oct 12 2021

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



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.



**Hurricane Pamela**  
 Tuesday October 12, 2021  
 12 PM MDT Intermediate Advisory 10A  
 NWS National Hurricane Center

**Current information: x**  
 Center location 20.5 N 109.4 W  
 Maximum sustained wind 80 mph  
 Movement N at 8 mph

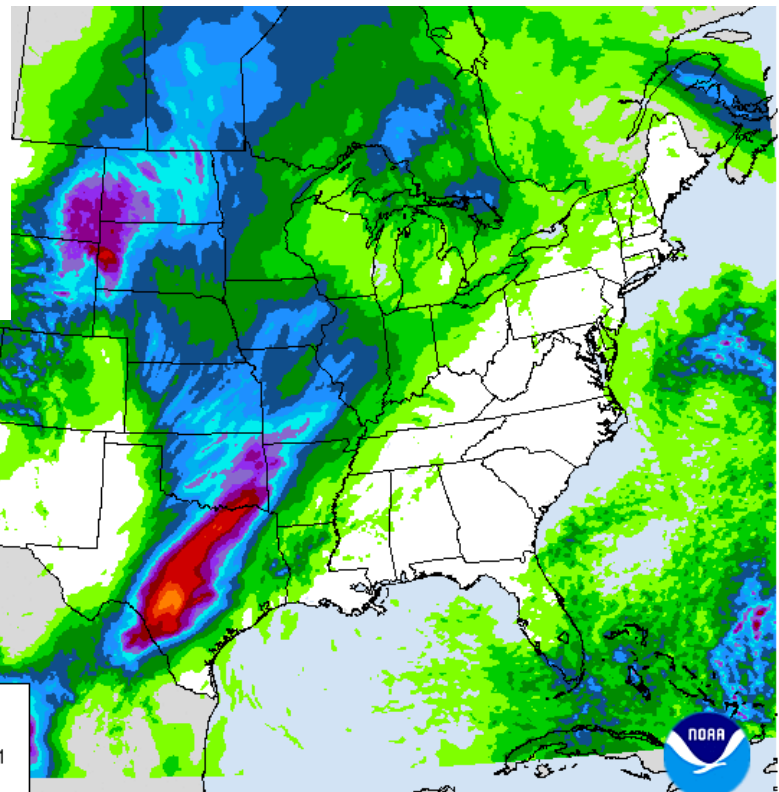
**Forecast positions:**  
 ● Tropical Cyclone ○ Post/Potential TC  
 Sustained winds: D < 39 mph  
 S 39-73 mph H 74-110 mph M > 110 mph

**Potential track area:**  
 Day 1-3 Day 4-5

**Watches:**  
 Hurricane Trop Stm

**Warnings:**  
 Hurricane Trop Stm

**Current wind extent:**  
 Hurricane Trop Stm



**72-Hour Day 1-3 QPF**  
 Valid 12Z Tue Oct 12 2021  
 Thru 12Z Fri Oct 15 2021  
 Issued: 0725Z Tue Oct 12 2021  
 Forecaster: WPC  
 DOC/NOAA/NWS/NCEP/WPC





# JOINT TYPHOON WARNING CENTER



Naval Research Laboratory  
Marine Meteorology Division  
Cloud Layer Product  
Valid: 2021-10-12 06:00:00

## ABJO

## ABPW

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

**TS 24W**  
**"KOMPASU"**

**TS 23W**  
**"NAMTHEUN"**

**96W**

**NO SUSPECT AREAS**  
**(ABJO)**

**ISSUE TIME: 12/0600Z**  
**(PRODUCT OF JTWC/SATOPS)**

**LOW**

TC development unlikely  
within 24 hours

**MEDIUM**

TC development likely, but  
expected to occur beyond  
24 hours

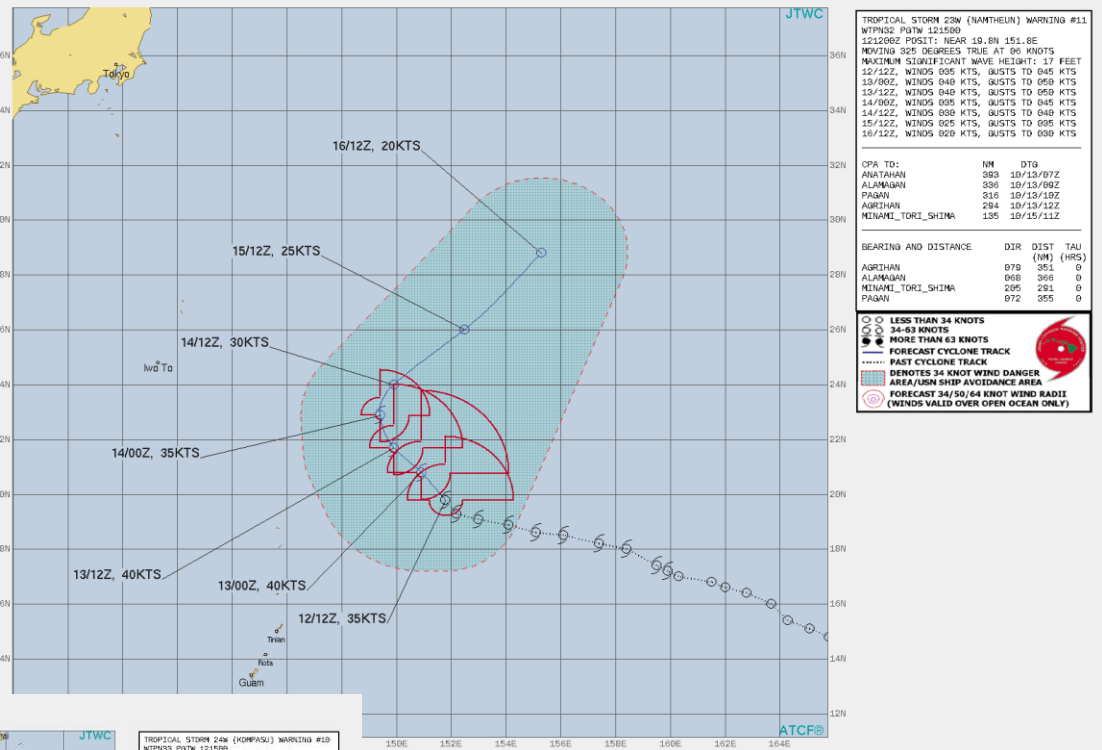
**HIGH**

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 Density Distribution, IC=20211011  
Week 1 Forecast: 1013-1019

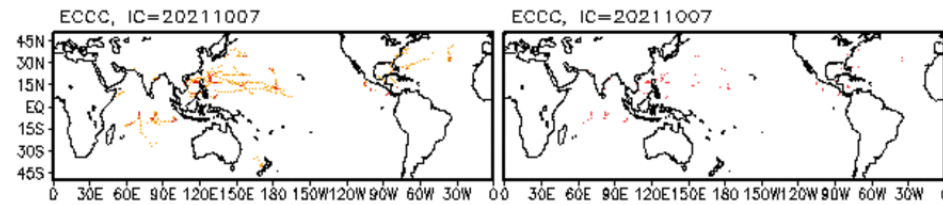
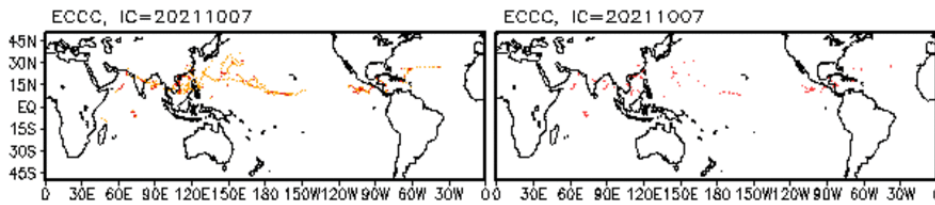
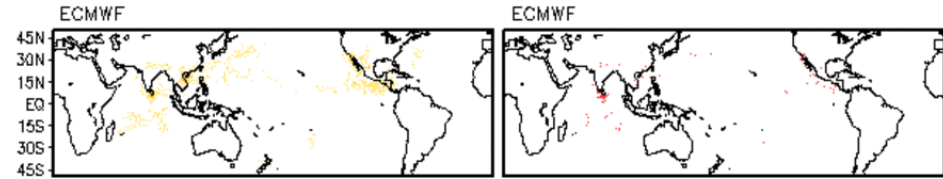
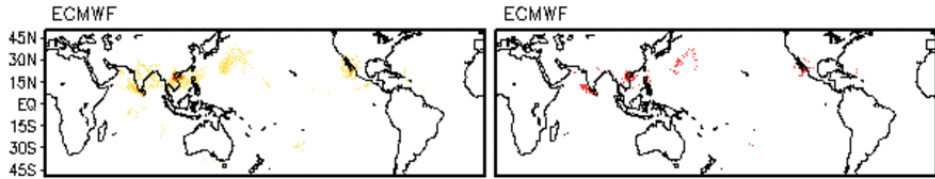
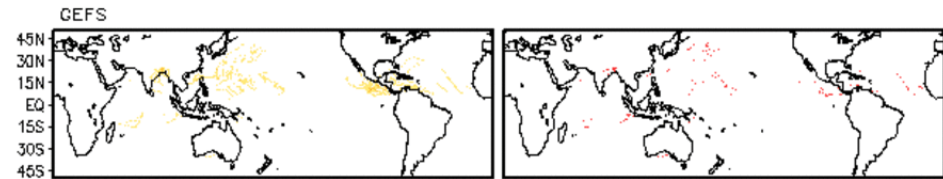
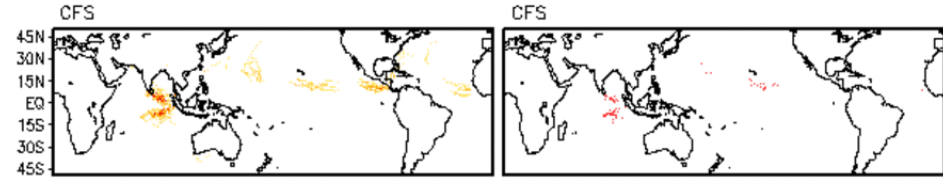
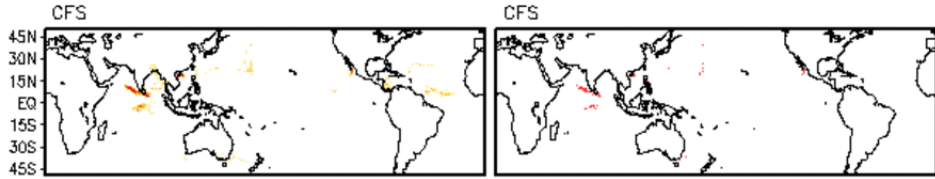
Storm Track Density Distribution, IC=20211011  
Week 2 Forecast: 1020-1026

TRACK DENSITY

FILTERED

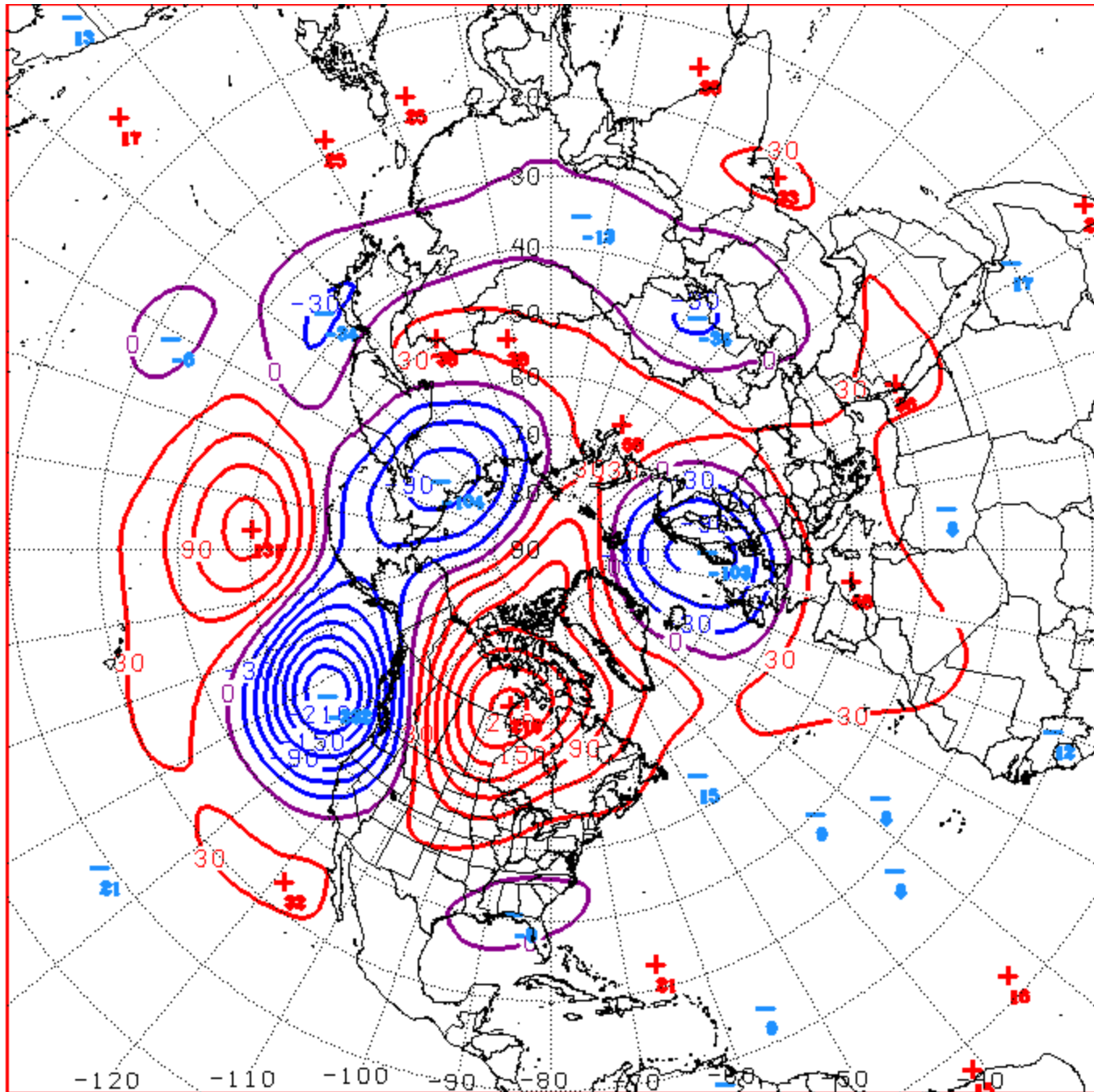
TRACK DENSITY

FILTERED



# Connections to U.S. Impacts





D+11 500 MB ANOMALIES FROM 00Z ECMM  
 CPC MAP MADE OCT 12 2021 0929 UTC CNTD OCT 23 2021

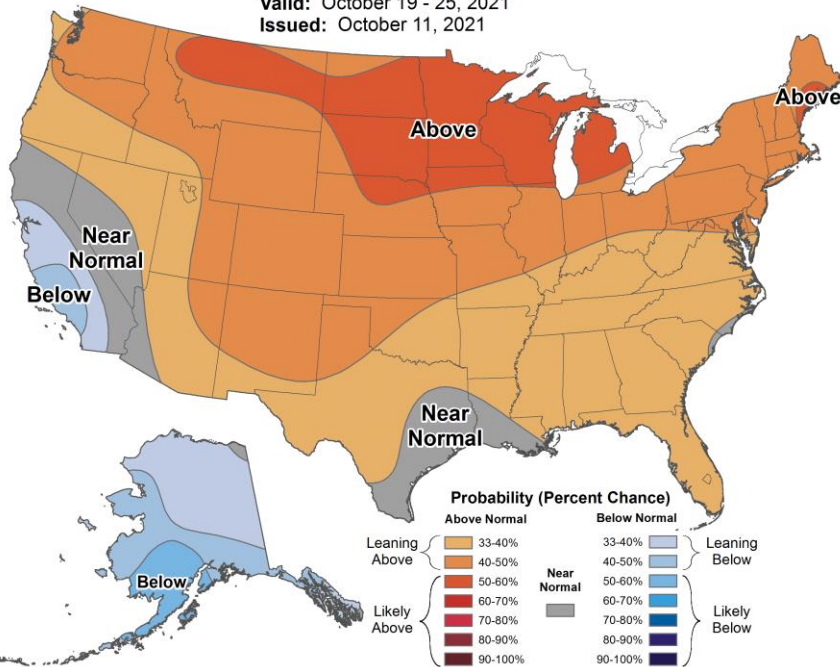
# Week 2 – Temperature and Precipitation



## 8-14 Day Temperature Outlook



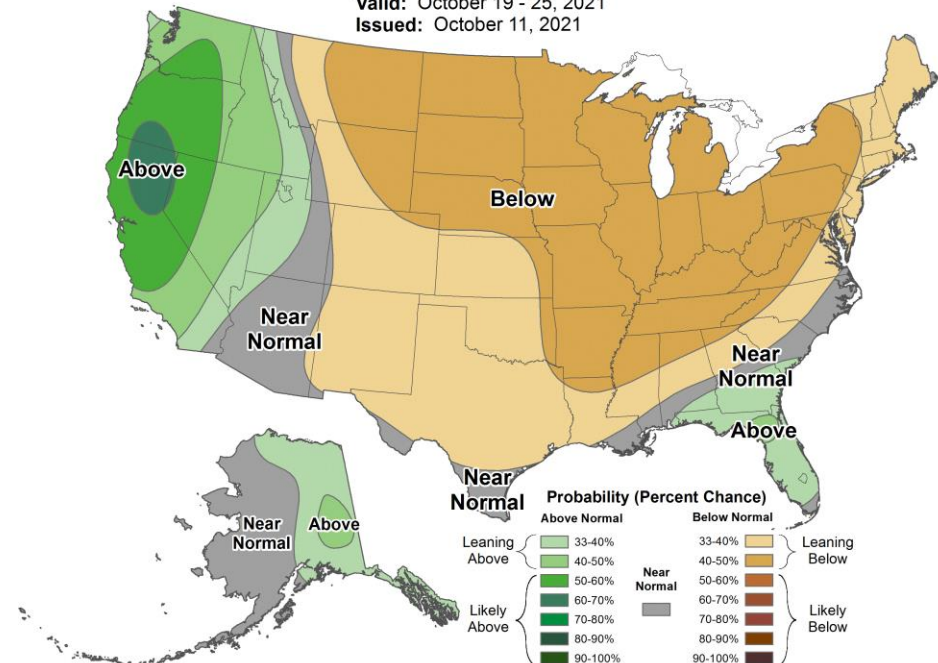
Valid: October 19 - 25, 2021  
Issued: October 11, 2021



## 8-14 Day Precipitation Outlook



Valid: October 19 - 25, 2021  
Issued: October 11, 2021



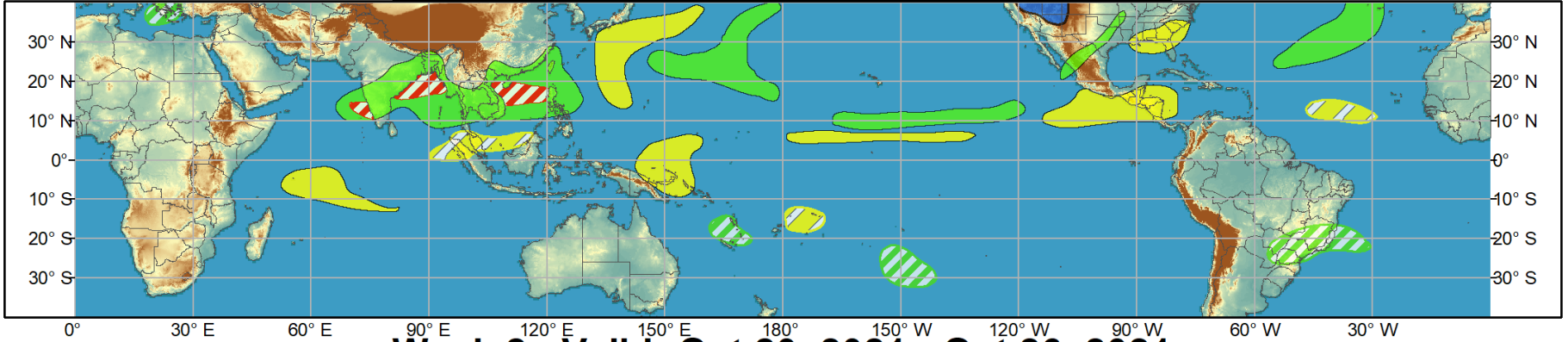
Possibly wetter today across the Southern Plains due to the weakness in the circulation on the prior slide.



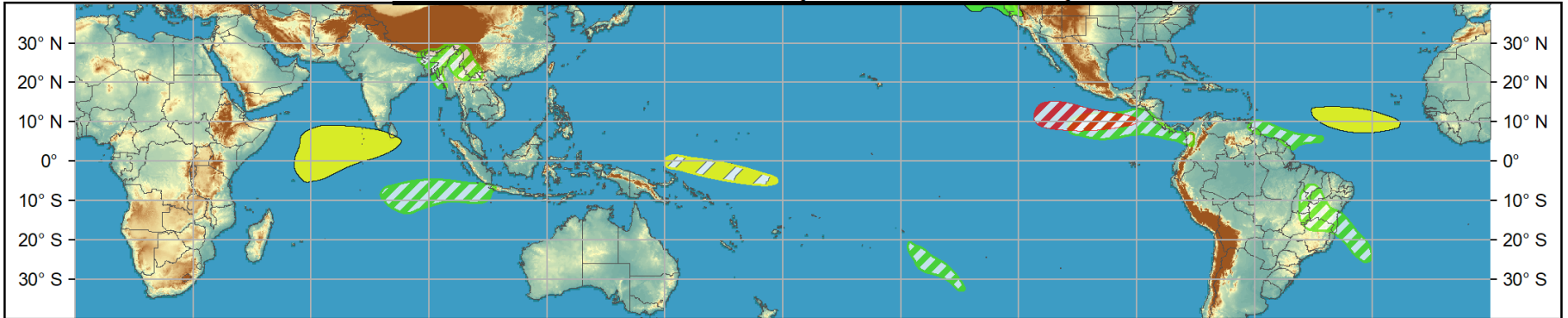
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Oct 13, 2021 - Oct 19, 2021



## Week 2 - Valid: Oct 20, 2021 - Oct 26, 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: 10/12/2021  
Forecaster: Harnos

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.

