

# Global Tropics Hazards And Benefits Outlook

8/11/2020

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

TS Jangmi  
August 8-11  
Peak: 40 kt

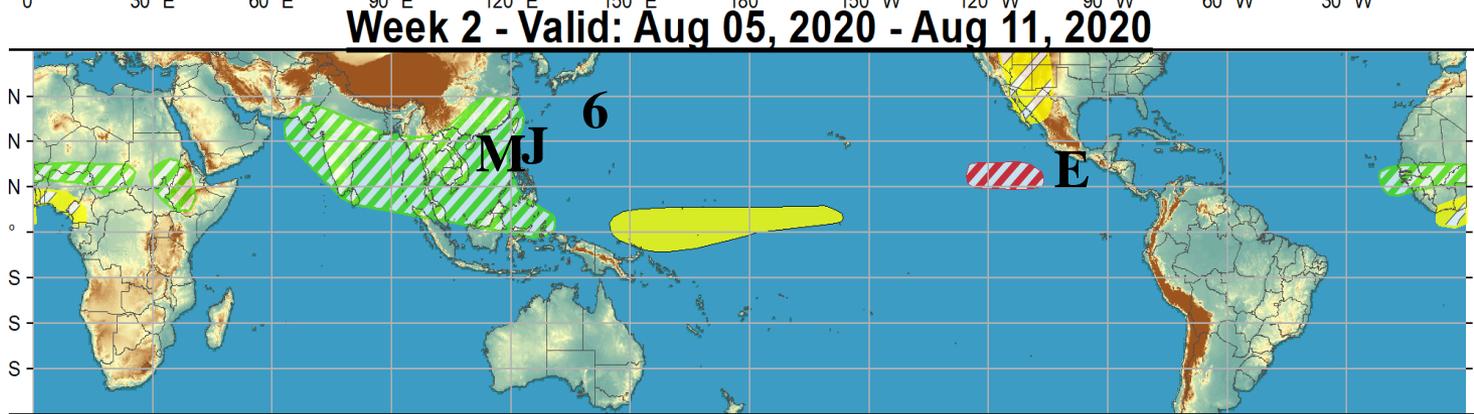
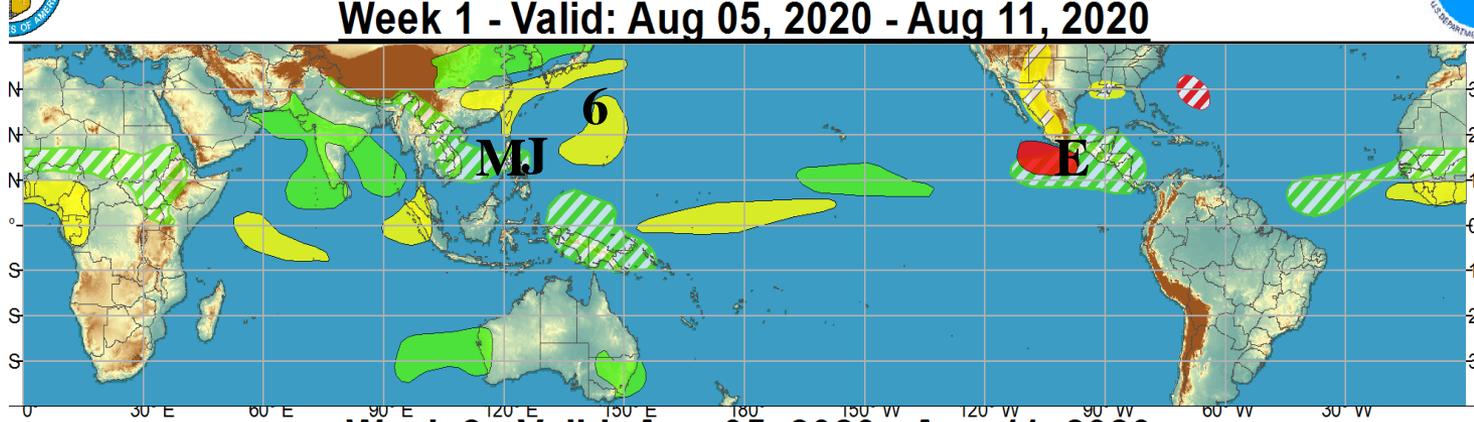
TS Six  
August 9-present  
Peak: 45 kt

Typhoon Mekkhala  
August 9-present  
Peak: 70 kt

Hurricane Elida  
August 9-present  
Peak: 85 kt

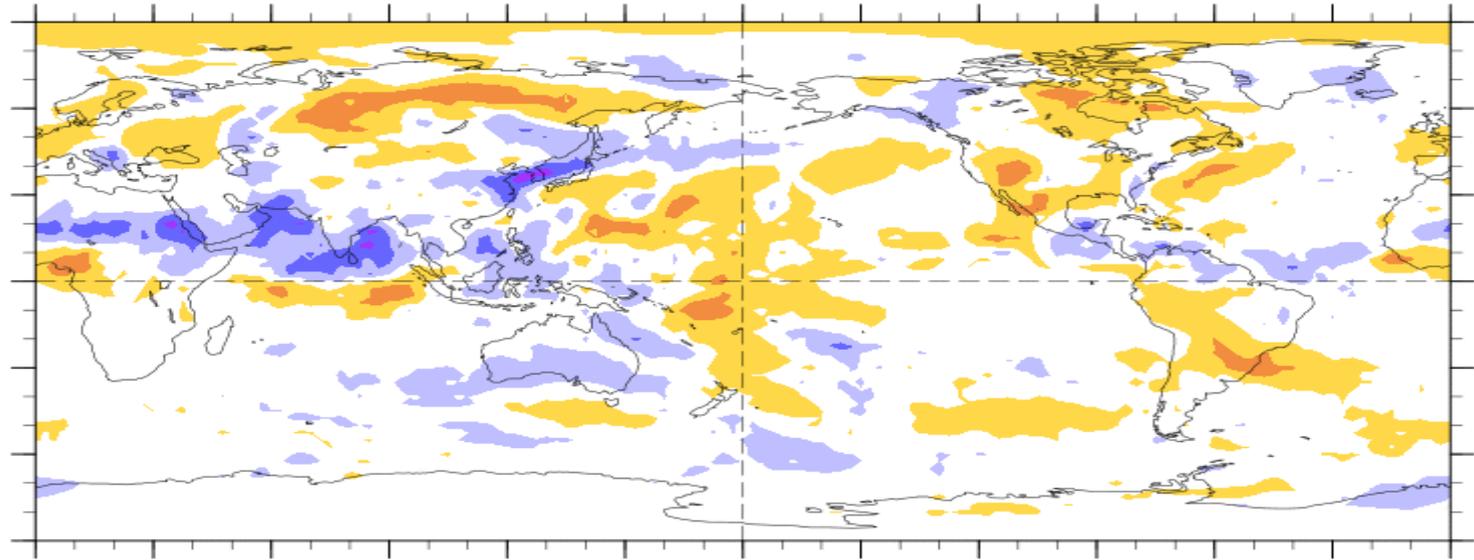
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain



7-Day Average OLR Anomaly

2020/08/03 - 2020/08/09



# Synopsis of Climate Modes

**ENSO: (9 July, 2020 Update)**

*next update on 13<sup>th</sup> of Aug.!*

- ENSO Alert System Status: [La Niña Watch](#)
- ENSO-neutral is favored to continue through the summer, with a 50-55% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~50% chance).

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

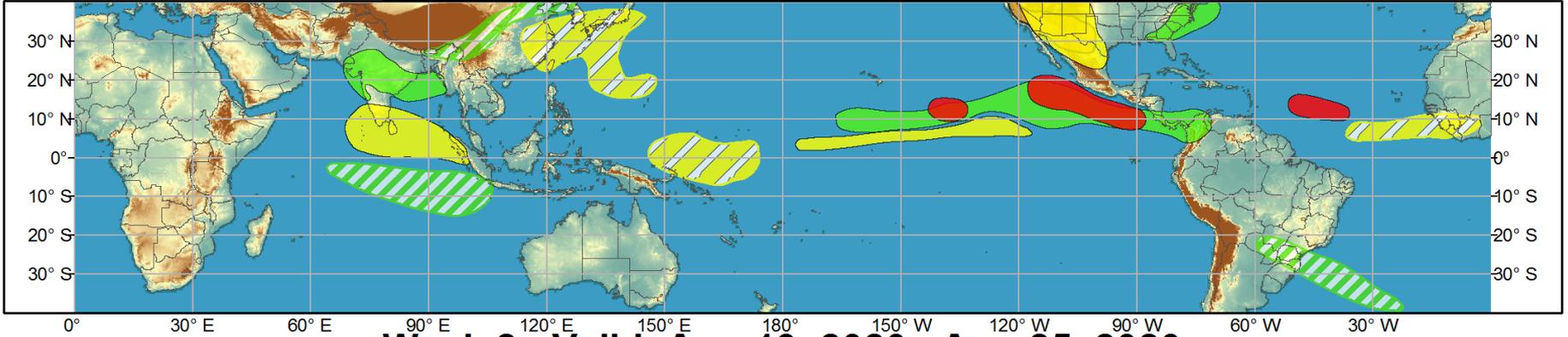
- The MJO is presently over the Maritime Continent, with a pair of Kelvin waves over the Central Pacific and Atlantic.
- RMM forecasts track intraseasonal activity to the Western Hemisphere during the next two weeks, likely tied to the Kelvin wave responses.
- The Kelvin waves are likely to improve TC formation odds over the East Pacific the next week, and the Atlantic the following. The MJO is likely to prolong the favorable conditions a subsequent week for each basin.



# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Aug 12, 2020 - Aug 18, 2020



## Week 2 - Valid: Aug 19, 2020 - Aug 25, 2020



**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: 08/11/2020

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

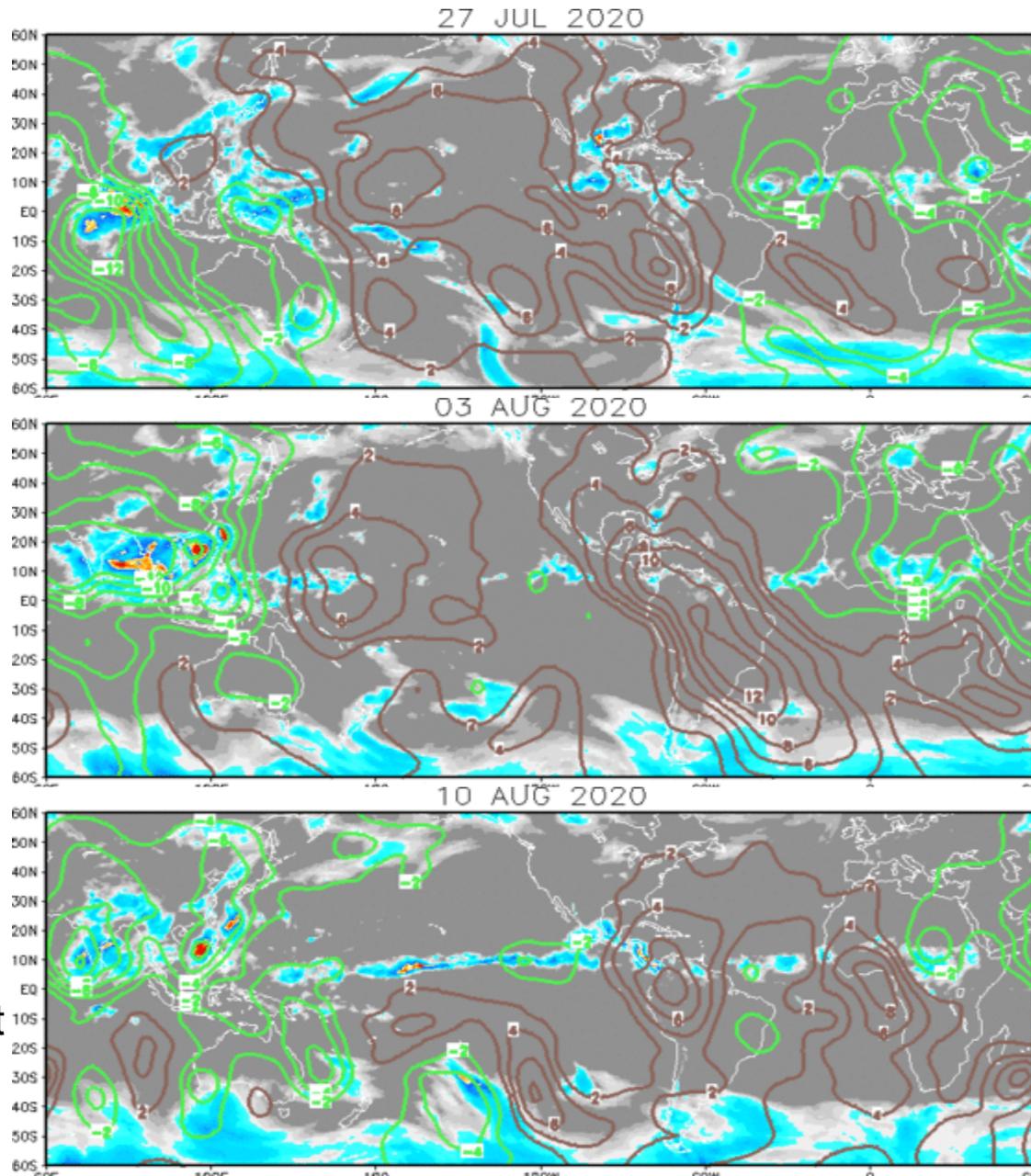
Green: Enhanced Divergence

Brown: Enhanced Convergence

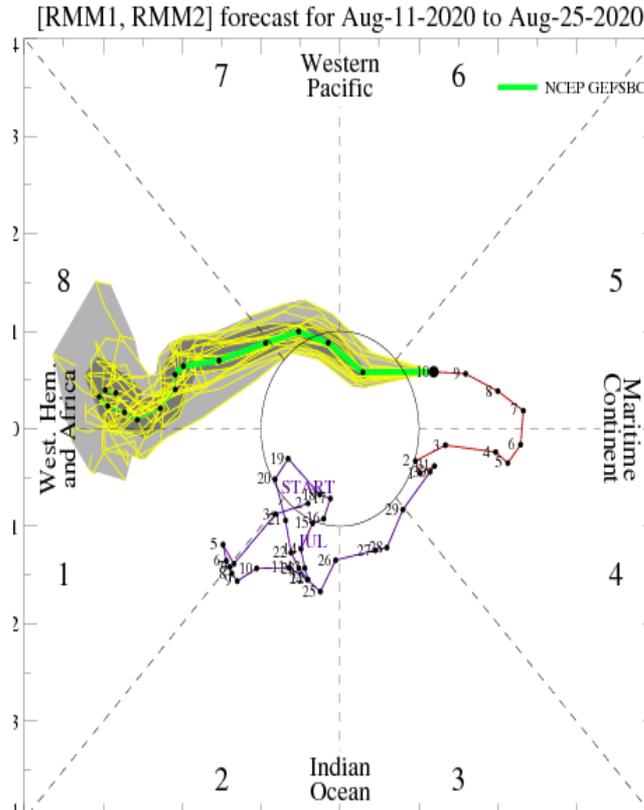
Wave-1 MJO-like structure with a Kelvin wave superimposed with low frequency enhancement of convection over the Indian Ocean.

Eastward propagation of the signal to the Maritime Continent is evident, with increased South/Southeast Asia Monsoon activity. A break in suppressed convection over the East Pacific is tied to a Kelvin wave.

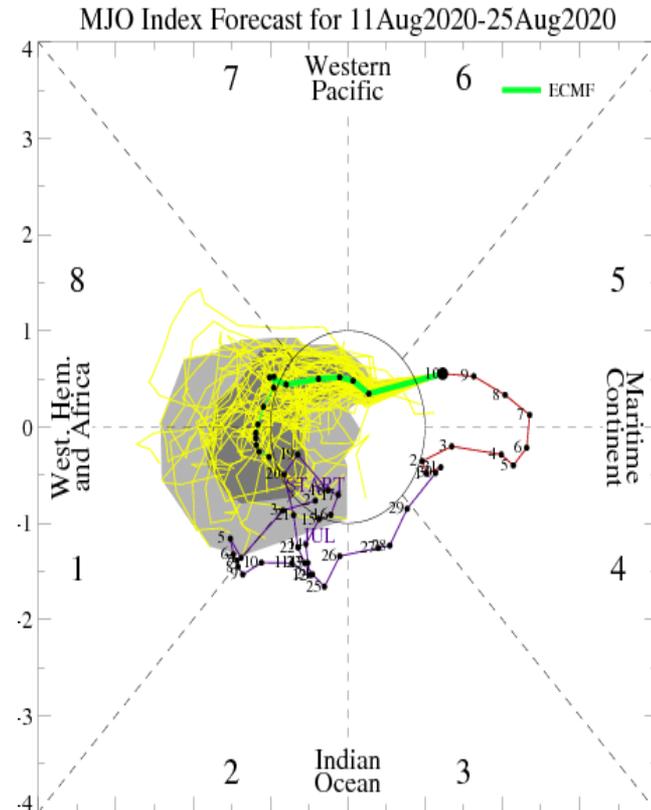
Continued eastward progression, with a Kelvin wave now apparent over the East Pacific and another approaching the Prime Meridian that destructively interfere with the suppressed signal from the MJO.



# MJO Observation/Forecast



**GEFS**

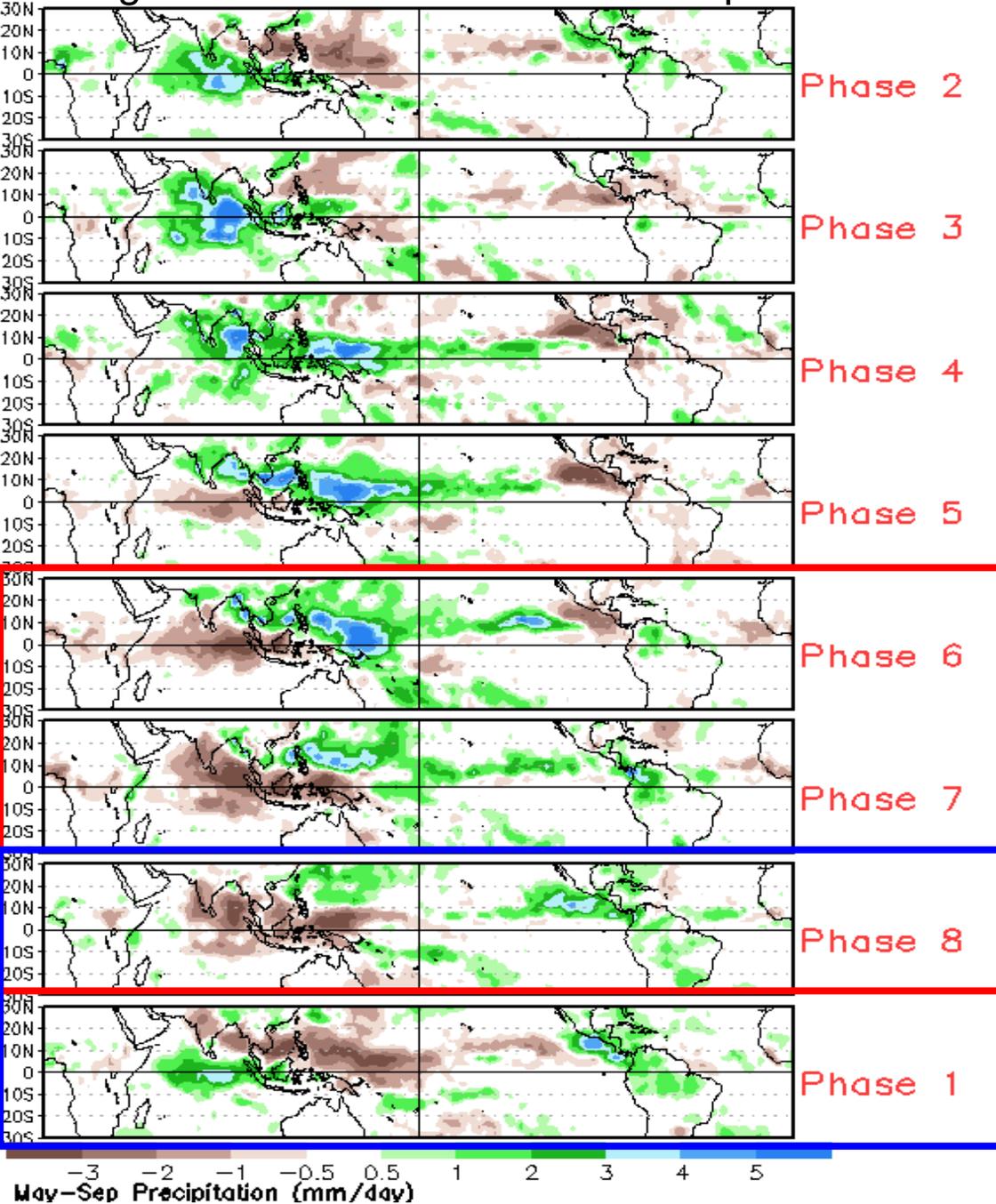


**ECMWF**

Both models show rapid eastward progression across the Pacific the next two weeks, with the intraseasonal signal becoming established over the Western Hemisphere by the end of Week-2.

The GEFS is faster initially and at higher amplitude over the Western Hemisphere, likely emphasizing the Kelvin wave initially and then Rossby wave activity. The ECMWF is a likely combination of the Kelvin wave and MJO contributions.

# Average Conditions when the MJO is present



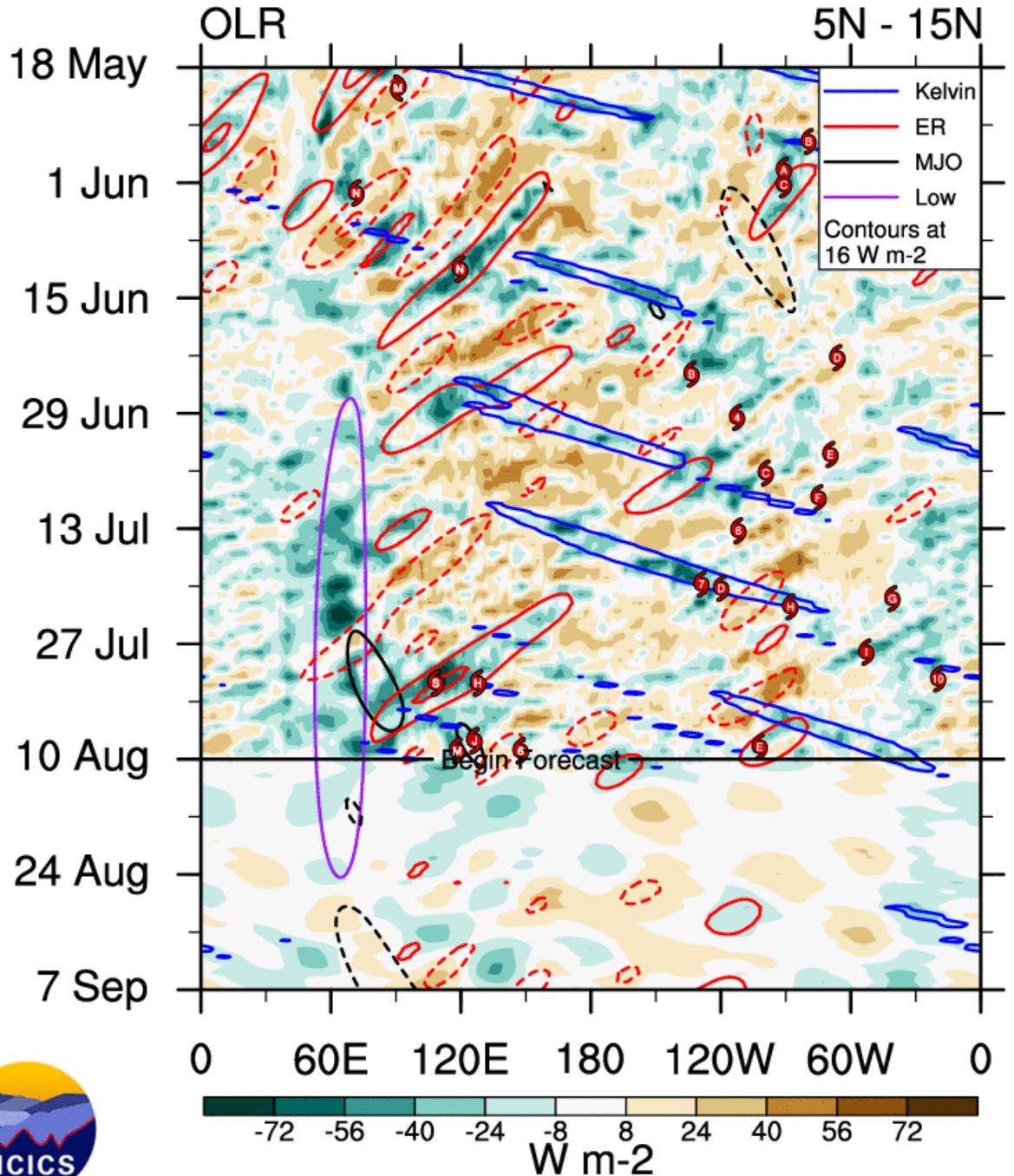
Week-1: Phases 6-8  
Week-2: Phases 8, 1

CAVEAT: These panels are representative of robust MJO events.

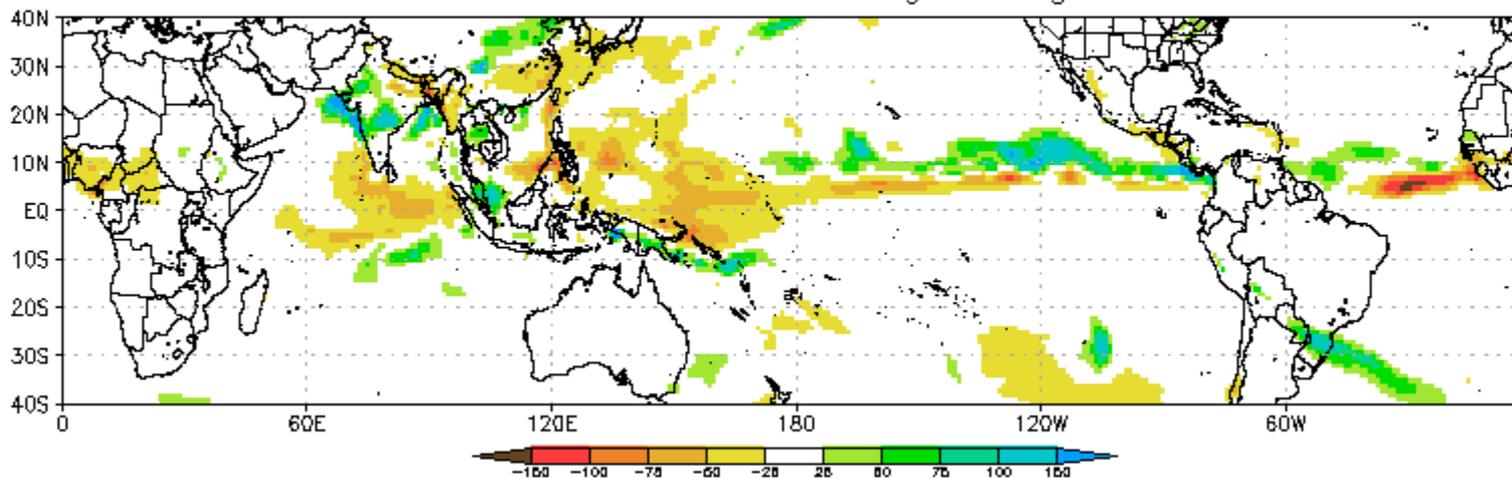
The **MJO** is analyzed near 120E, but may well be further east than this analysis suggests.

Multiple **Kelvin waves** are analyzed over the Western Hemisphere, with the most prominent one currently over the Atlantic.

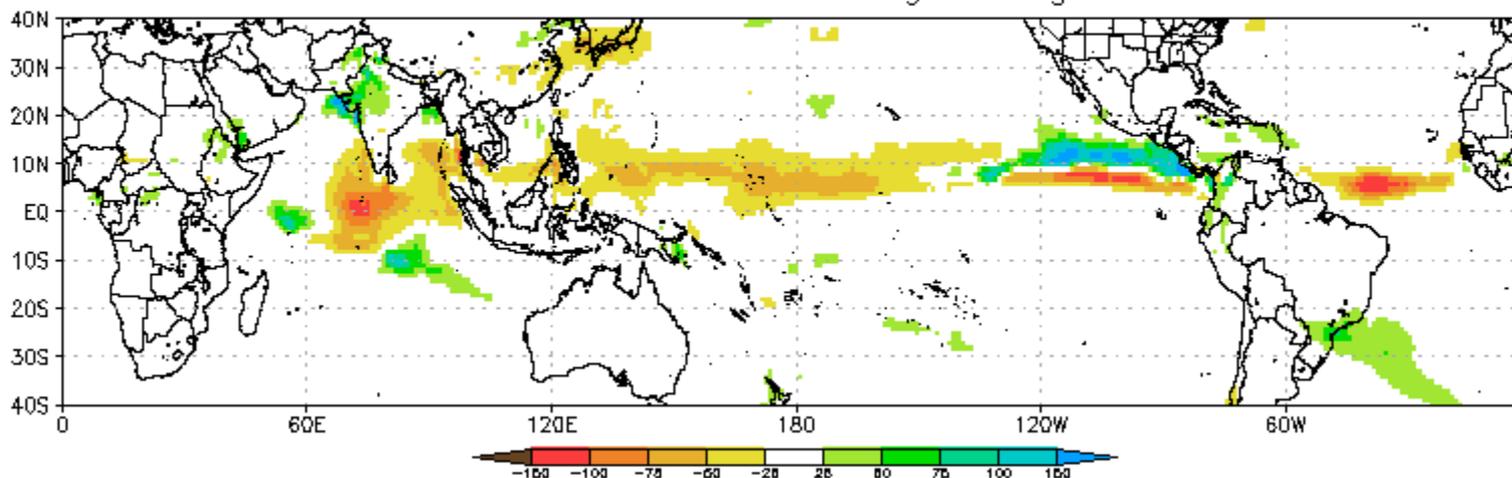
The **low frequency** state continues to enhance convection over the Indian Ocean, and suppress it near the Date Line.



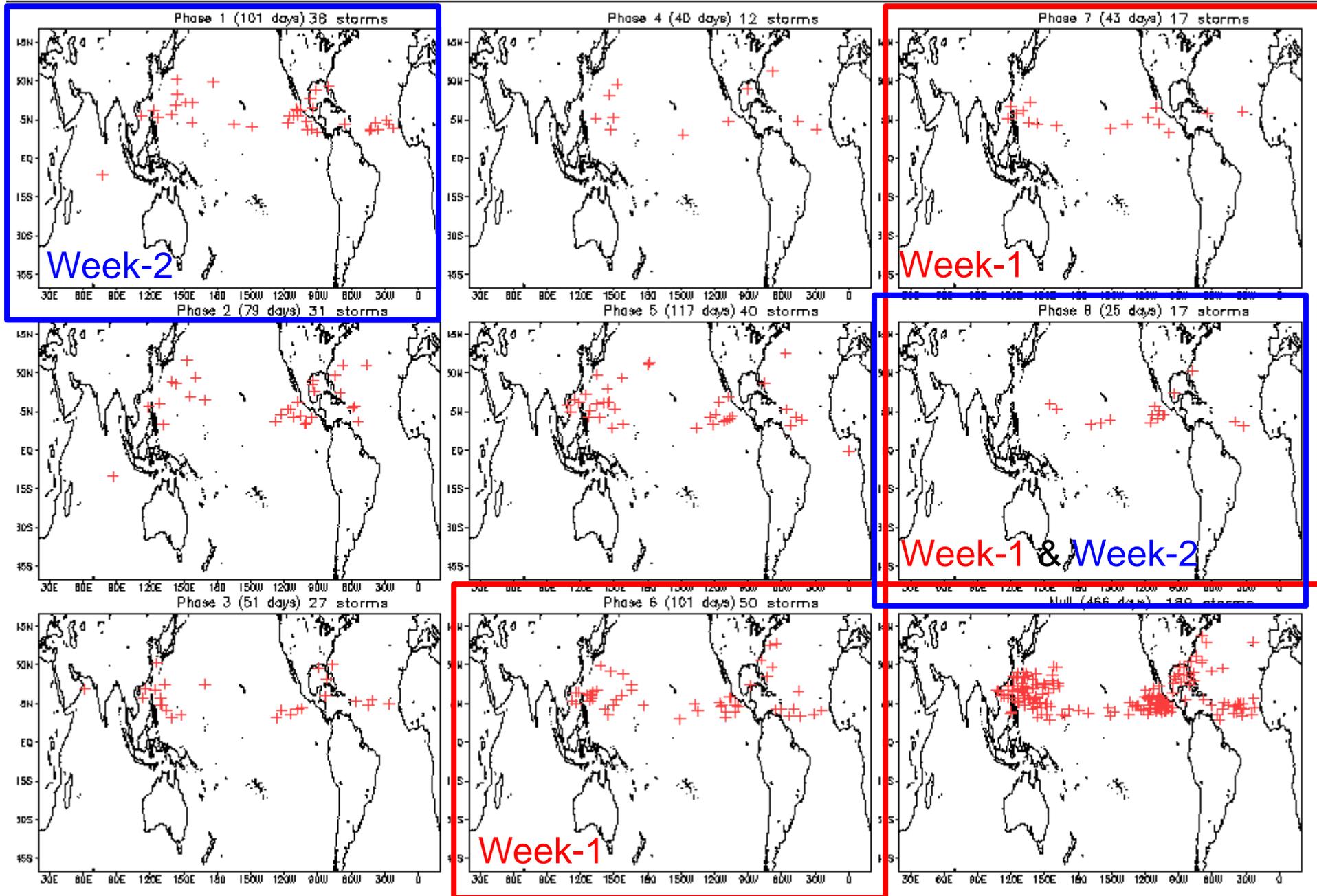
CFS Precipitation Anomalies (mm) Issued 10Aug2020  
Week-1 Forecast Ending 18Aug2020



CFS Precipitation Anomalies (mm) Issued 10Aug2020  
Week-2 Forecast Ending 25Aug2020



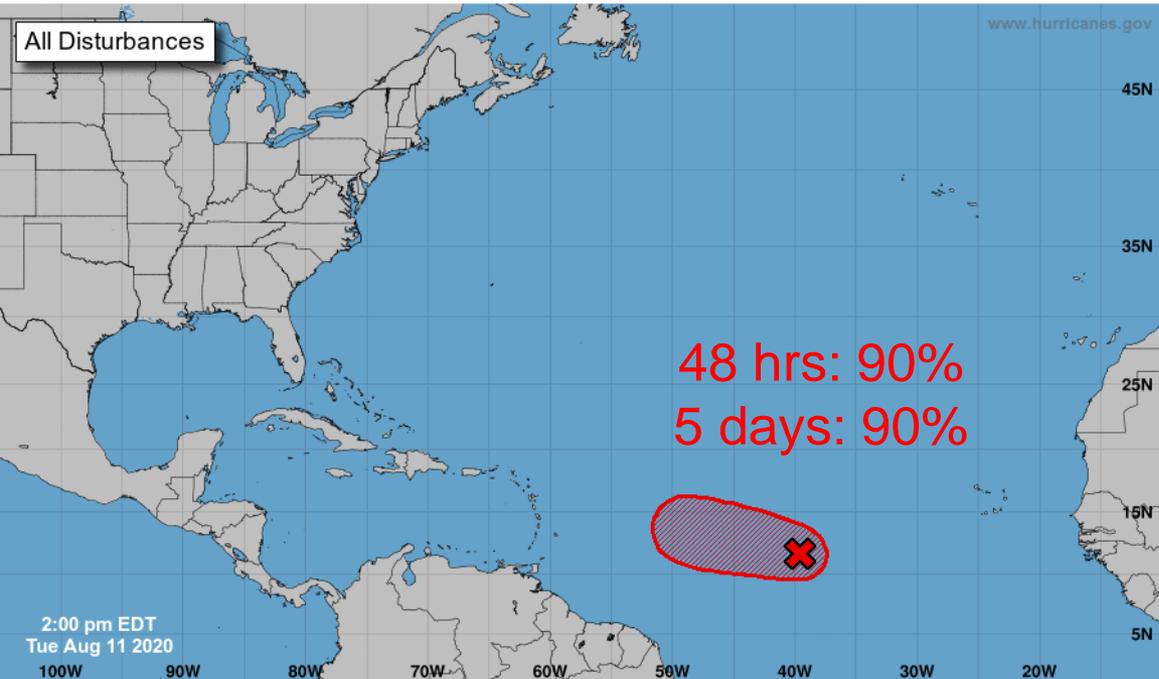
# August Tropical Storm Formation by MJO phase





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



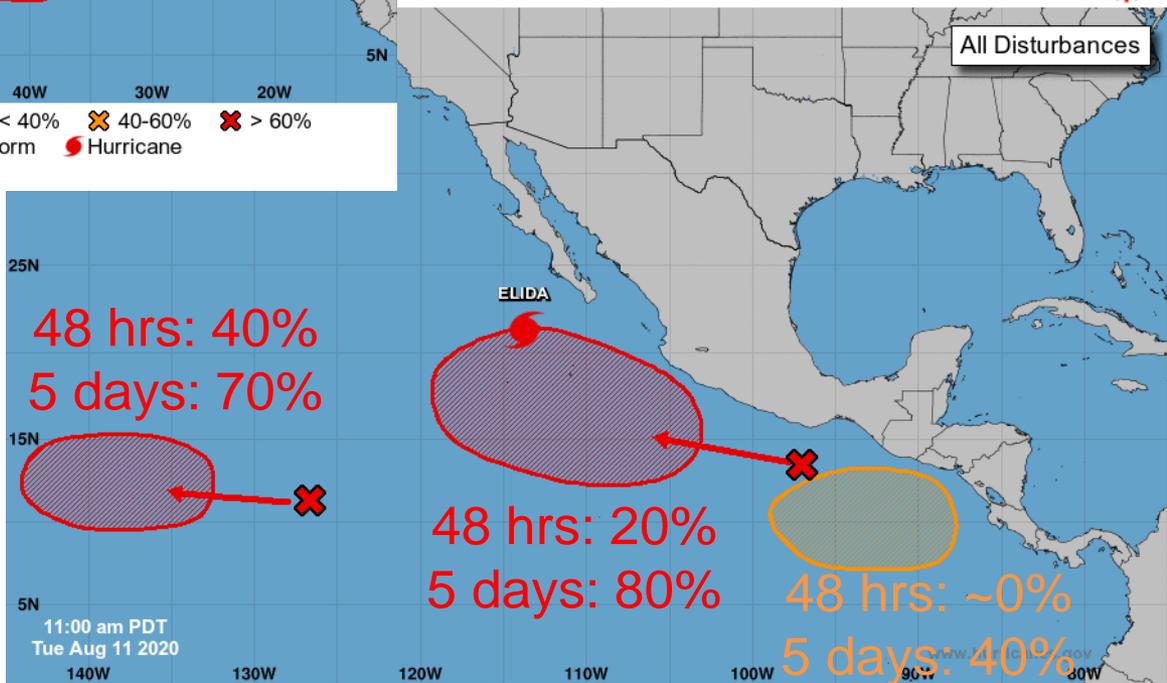
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

## Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



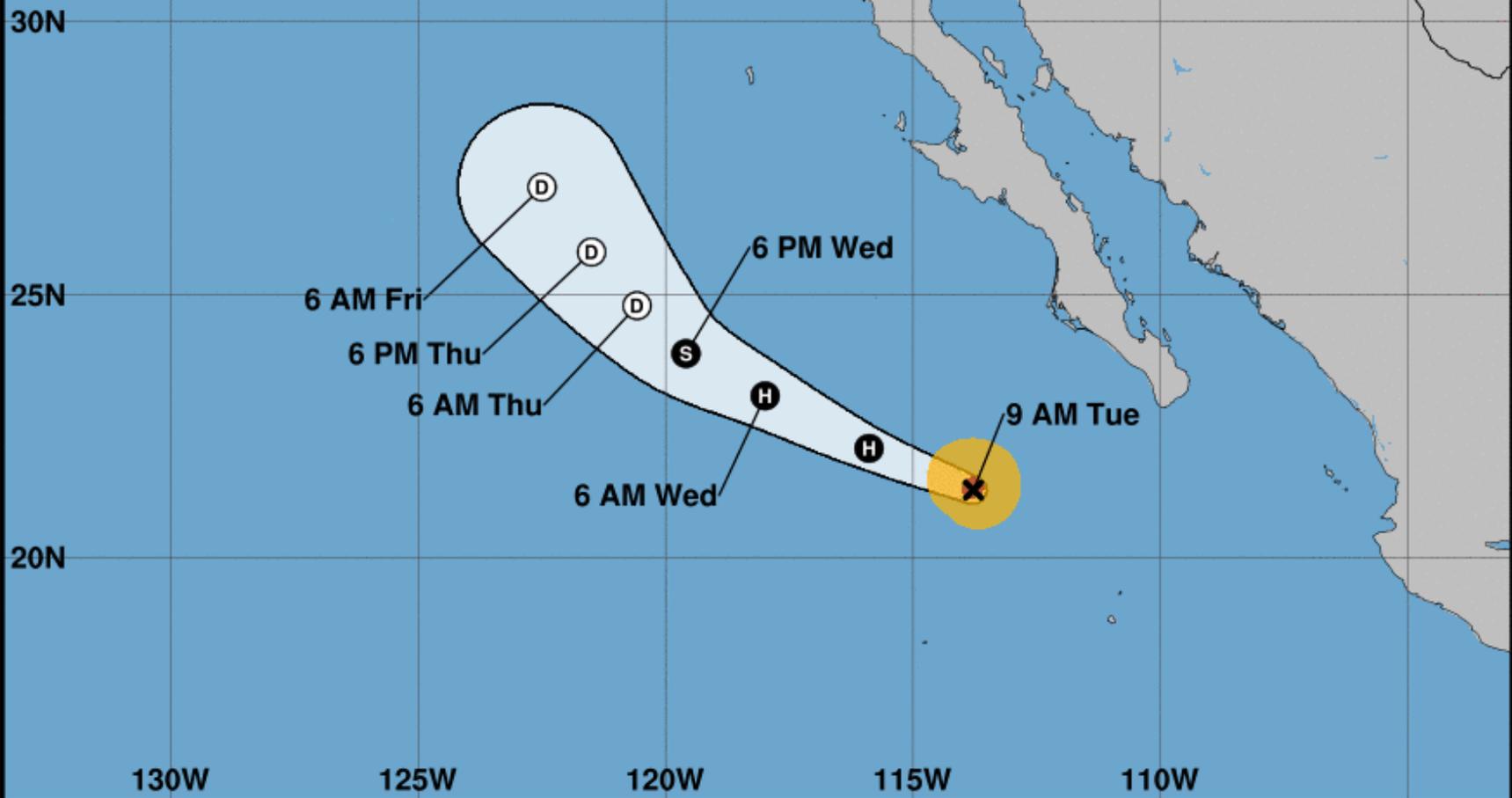
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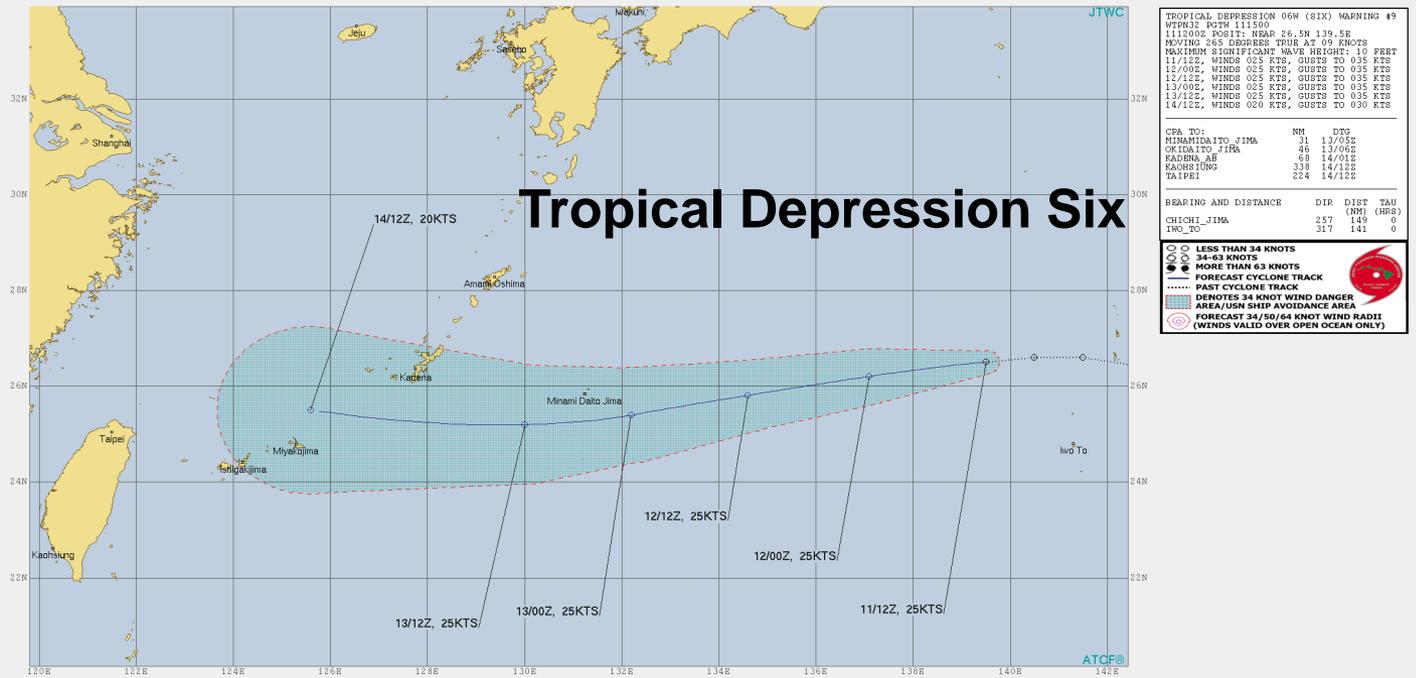


**Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.**



<p><b>Hurricane Elida</b>          Tuesday August 11, 2020          9 AM MDT Advisory 11          NWS National Hurricane Center</p>	<p><b>Current information: x</b>          Center location 21.3 N 113.8 W          Maximum sustained wind 100 mph          Movement NW at 14 mph</p>	<p><b>Forecast positions:</b>          ● Tropical Cyclone ○ Post/Potential TC          Sustained winds: D &lt; 39 mph          S 39-73 mph H 74-110 mph M &gt; 110 mph</p>
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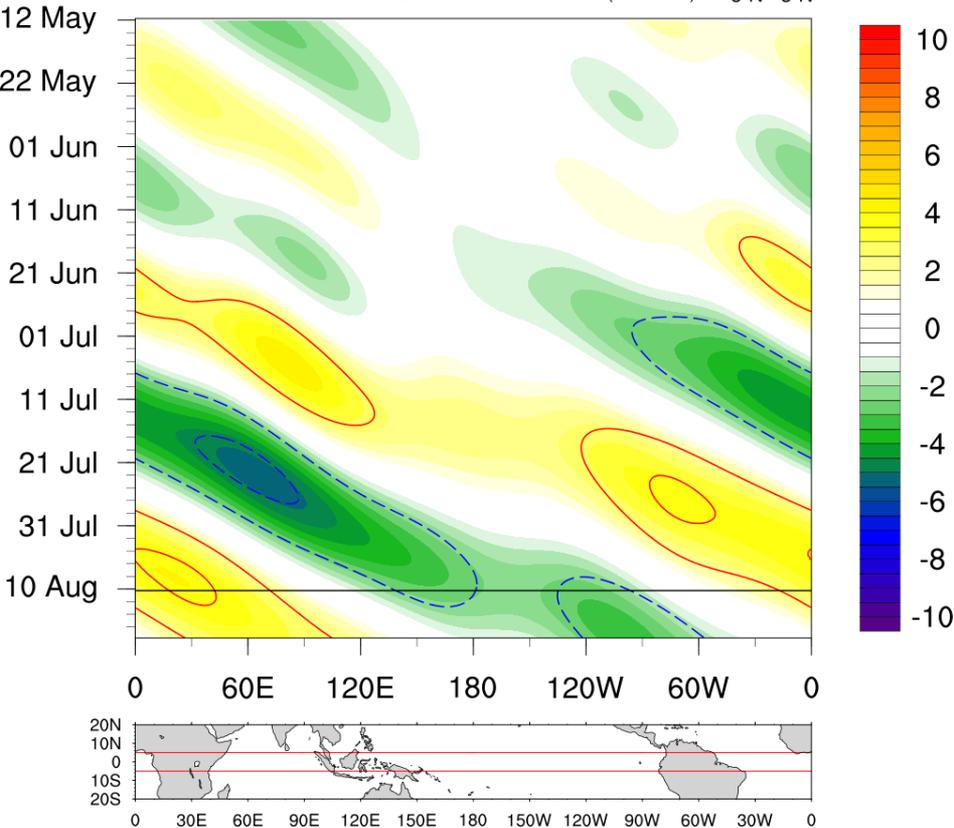
<p><b>Potential track area:</b>   Day 1-3   Day 4-5</p>	<p><b>Watches:</b>   Hurricane   Trop Stm</p>	<p><b>Warnings:</b>   Hurricane   Trop Stm</p>	<p><b>Current wind extent:</b>   Hurricane   Trop Stm</p>
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# MJO circulation contributions

GFS Forecast  
2020-08-11 0000

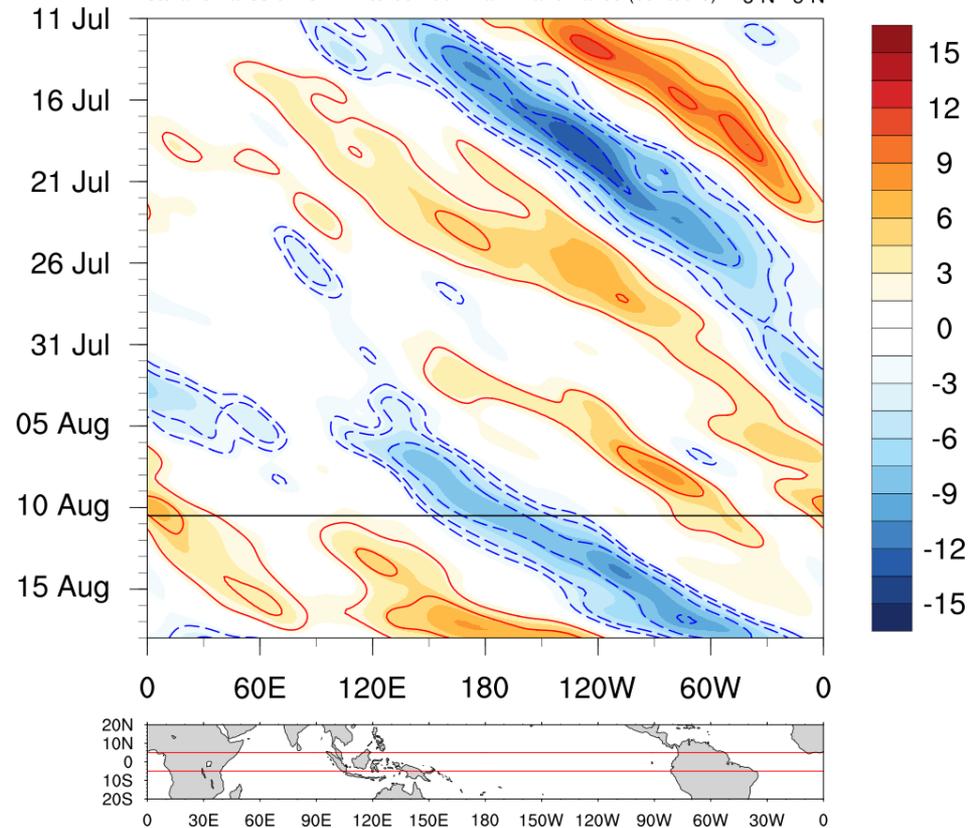
MJO-filtered 200 hPa VP anomalies (shaded) [ $10^6 \text{ m}^2 \text{ s}^{-1}$ ]  
std anomalies of MJO-filtered 200 hPa VP anomalies (contours)  $-5^\circ \text{N} - 5^\circ \text{N}$



# Kelvin wave circulation contributions

GFS Forecast  
2020-08-11 0600

kelvin-filtered 200 hPa VP anomalies (shaded) [ $10^6 \text{ m}^2 \text{ s}^{-1}$ ]  
std anomalies of kelvin-filtered 200 hPa VP anomalies (contours)  $-5^\circ \text{N} - 5^\circ \text{N}$



Green/Blue: Favorable for convection  
Yellow/Red: Unfavorable for convection

## Take home messages:

East Pacific likely to be active the next two weeks.

Likely one more quiet week in the Atlantic, before things pick up in late August.

# Storm Track Density Distribution, IC=20200810

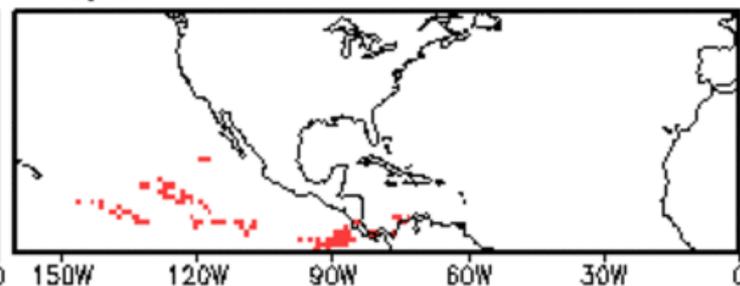
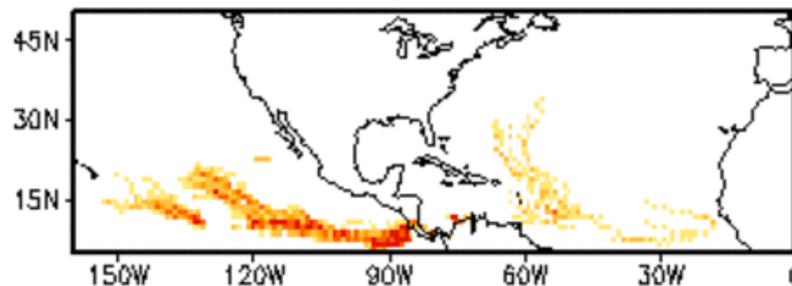
Week 1 Forecast: 0812-0818

TRACK DENSITY

FILTERED

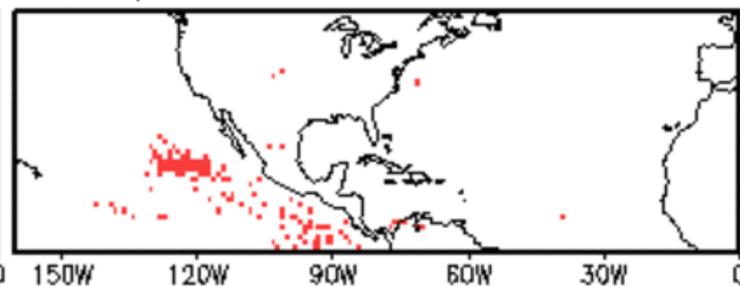
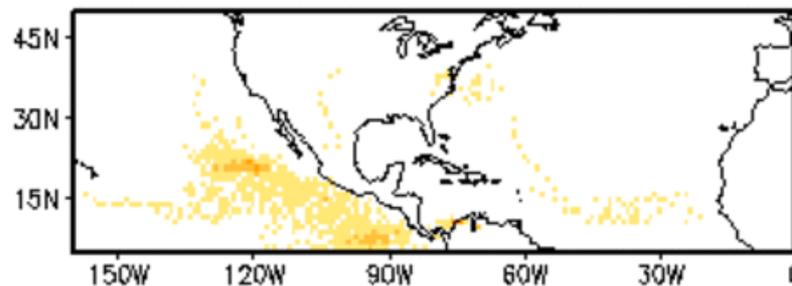
CFS

CFS, ENP=2.5 ATL=1.6



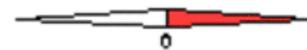
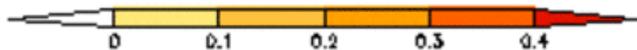
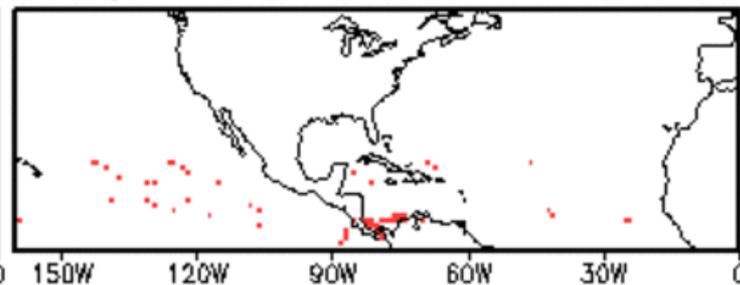
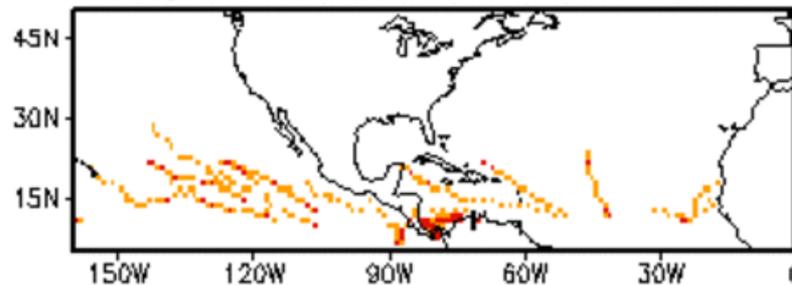
ECMWF

ECMWF, ENP=2.6 ATL=1.1



ECCC, IC=20200806

ECCC, ENP=2.6 ATL=2.5

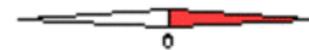
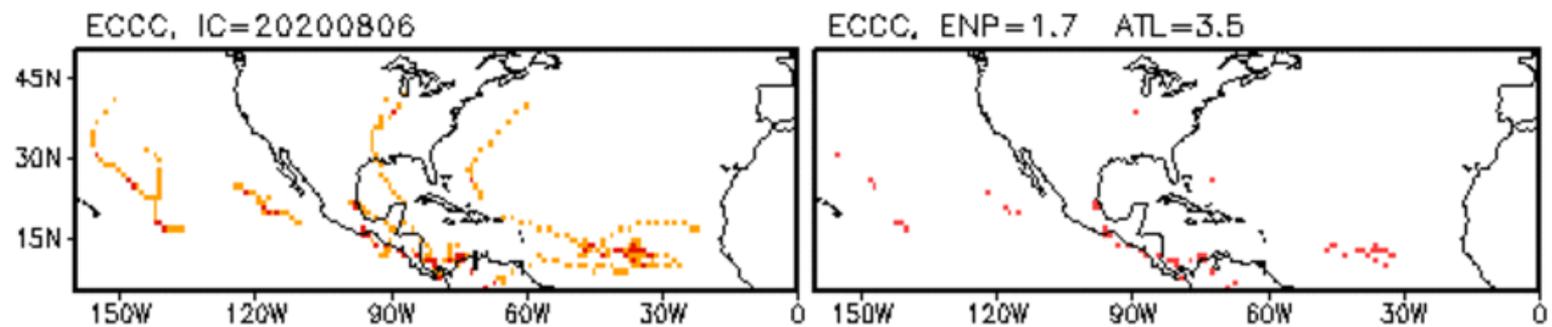
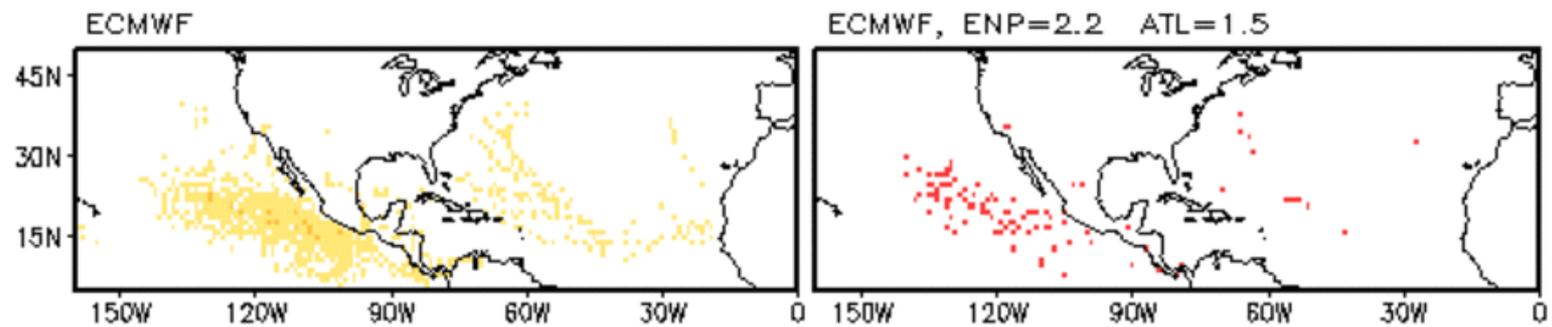
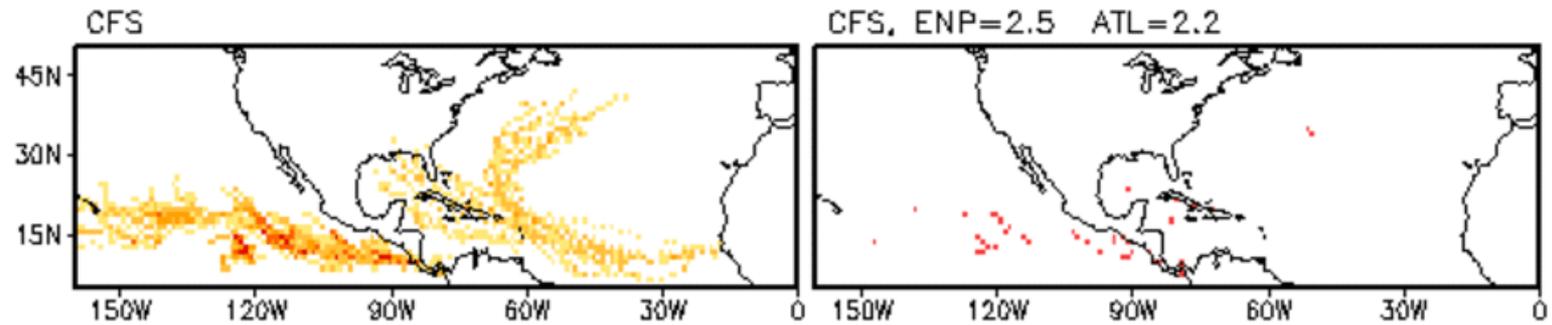


# Storm Track Density Distribution, IC=20200810

Week 2 Forecast: 0819-0825

TRACK DENSITY

FILTERED



# Storm Track Density Distribution, IC=20200810

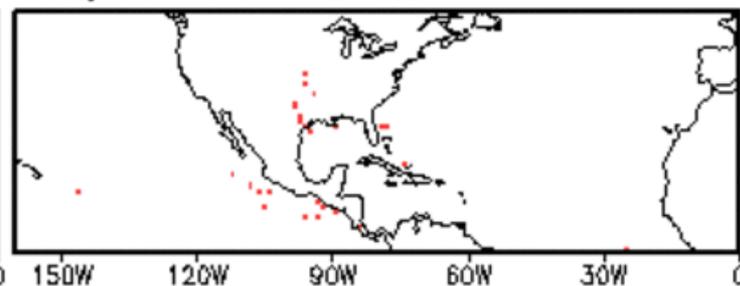
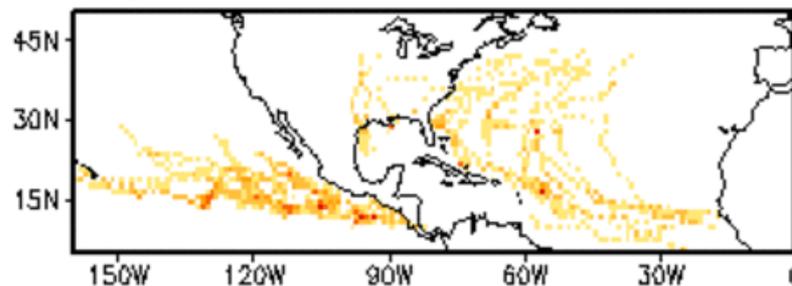
Week 3 Forecast: 0826-0901

TRACK DENSITY

FILTERED

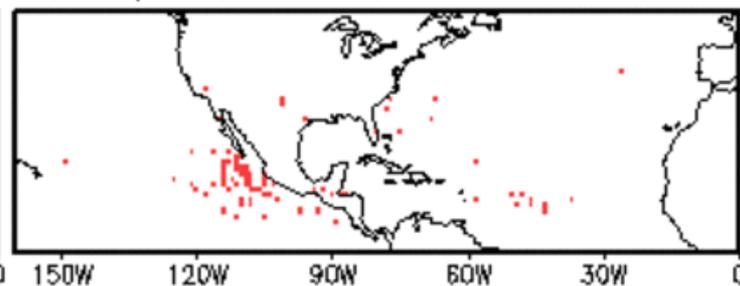
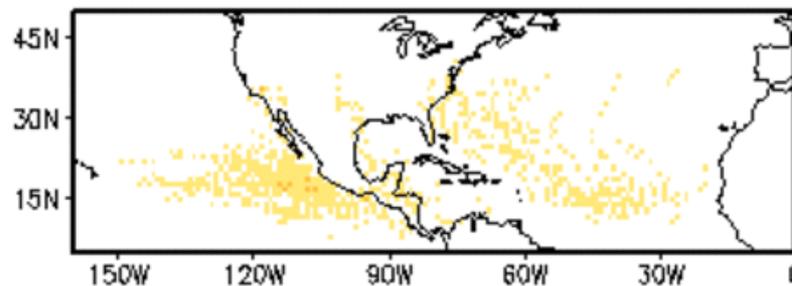
CFS

CFS, ENP=1.9 ATL=2.2



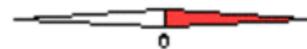
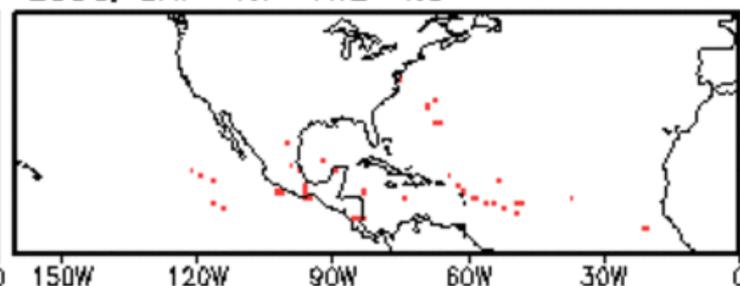
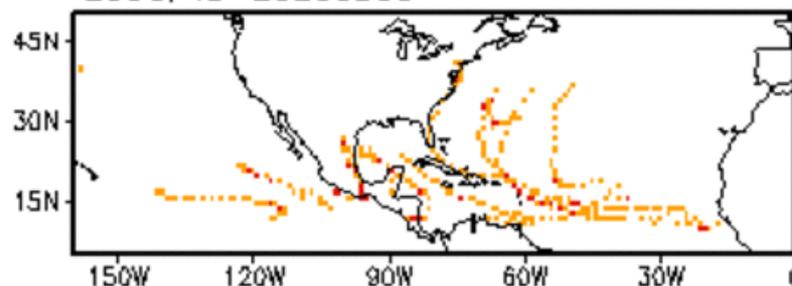
ECMWF

ECMWF, ENP=2.0 ATL=1.6

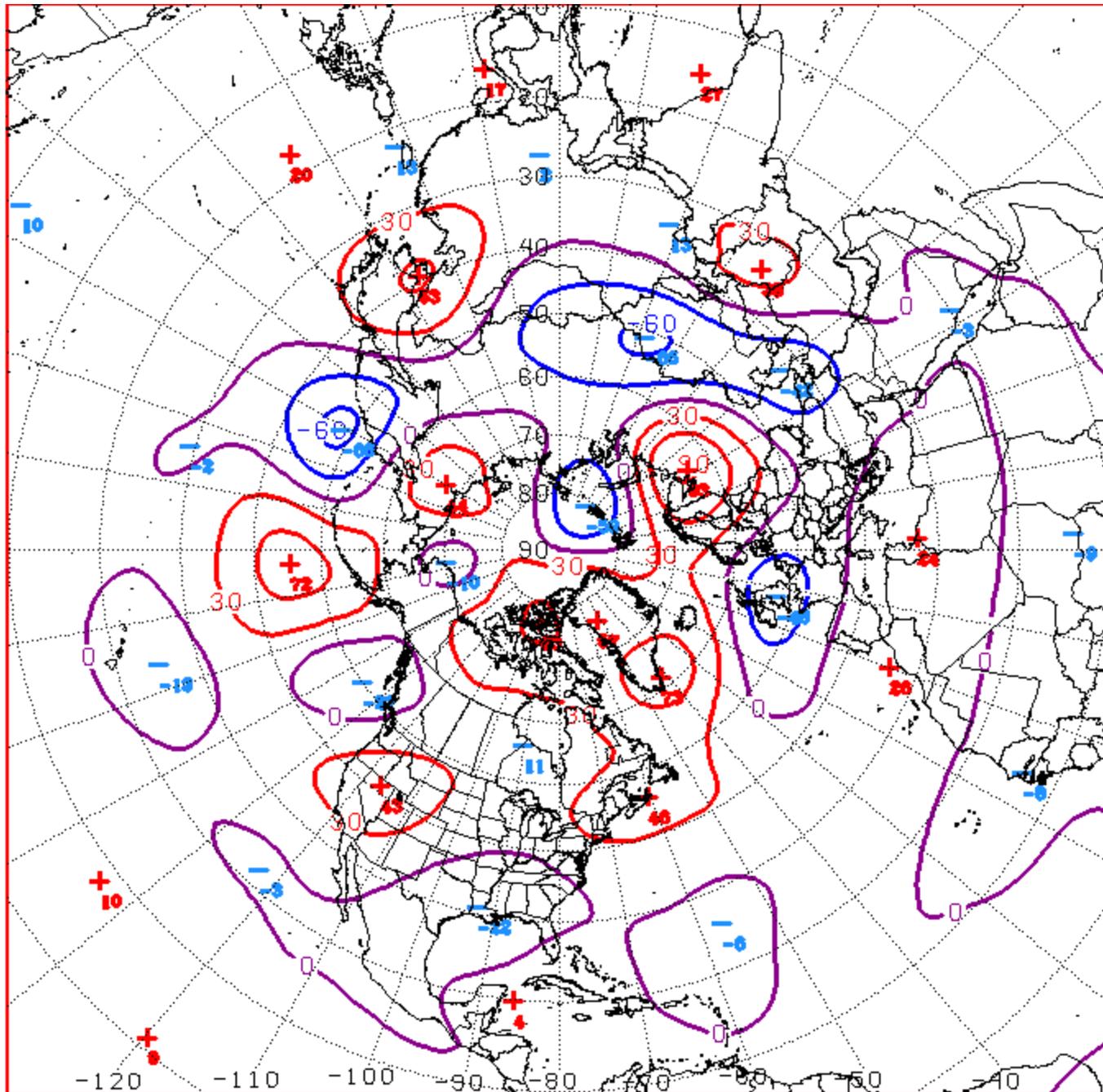


ECCC, IC=20200806

ECCC, ENP=1.7 ATL=4.0

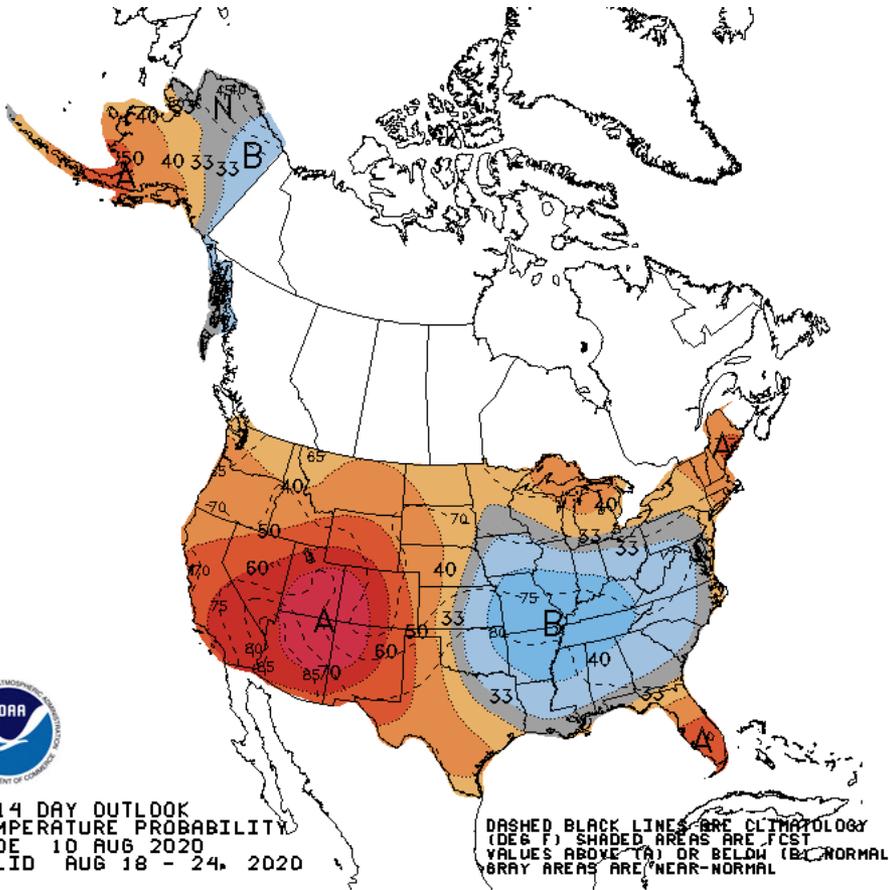


# Connections to U.S. Impacts



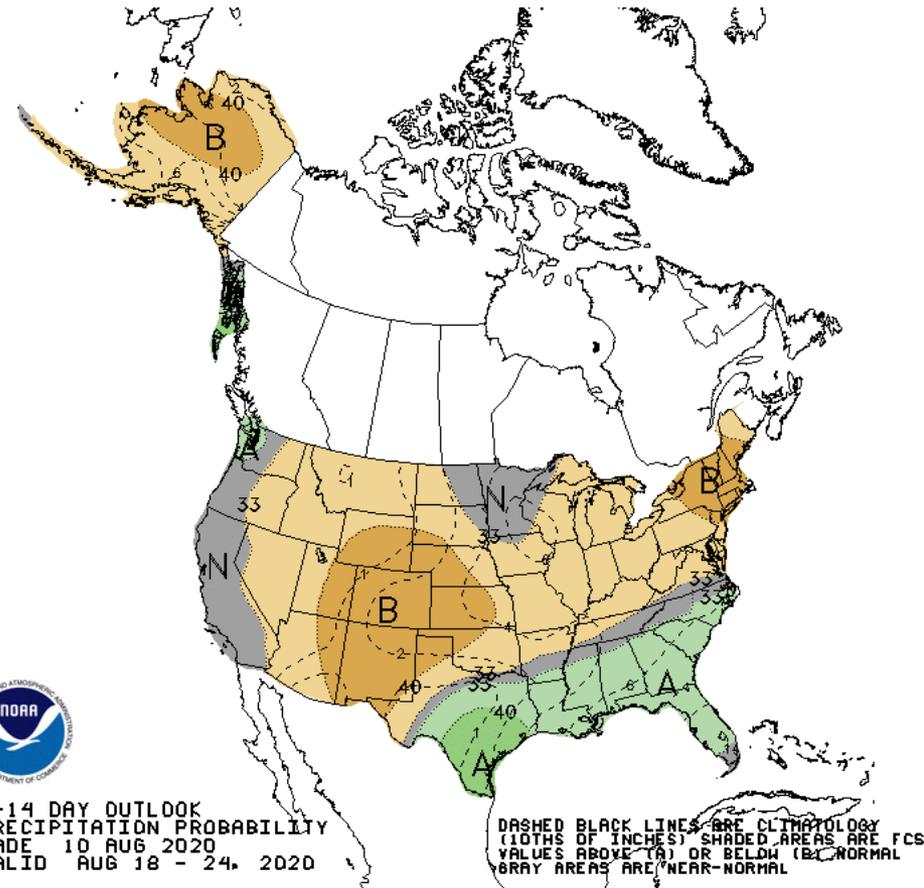
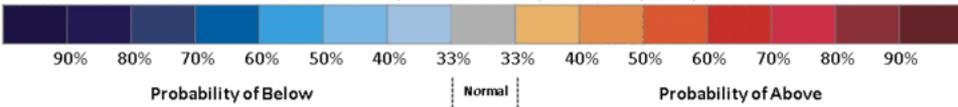
D+11 500 MB ANOMALIES FROM 00Z ECMM  
 CPC MAP MADE AUG 11 2020 1116 UTC CNTD AUG 22 2020

# Week 2 – Temperature and Precipitation



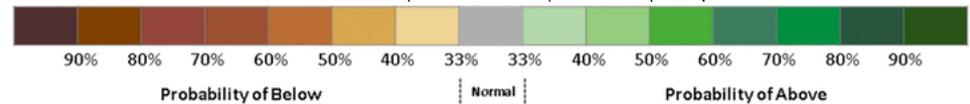
8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 10 AUG 2020  
VALID AUG 18 - 24, 2020

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 AUG 2020  
VALID AUG 18 - 24, 2020

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



Today's forecast likely to be similar.

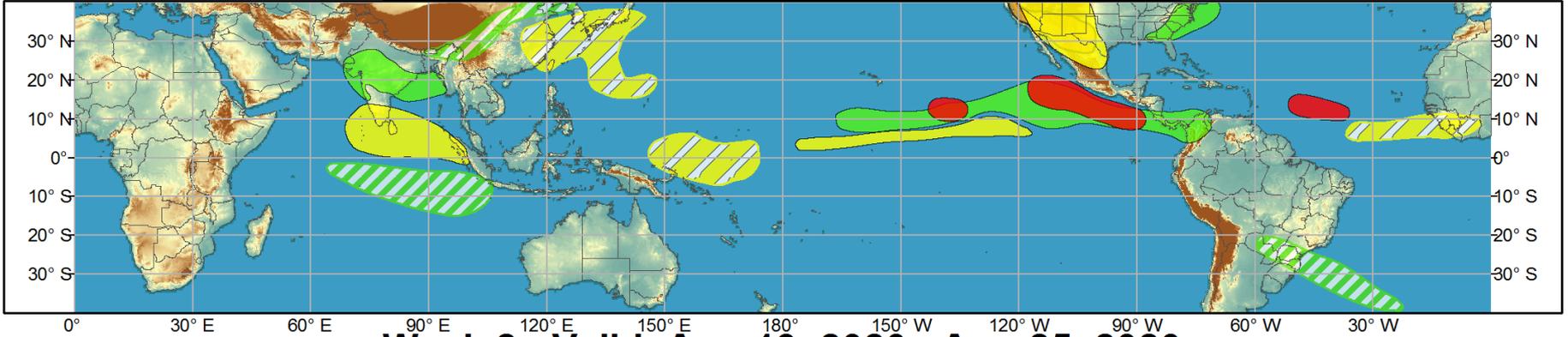
Increased dryness across the Central Lower-48 states the biggest change.



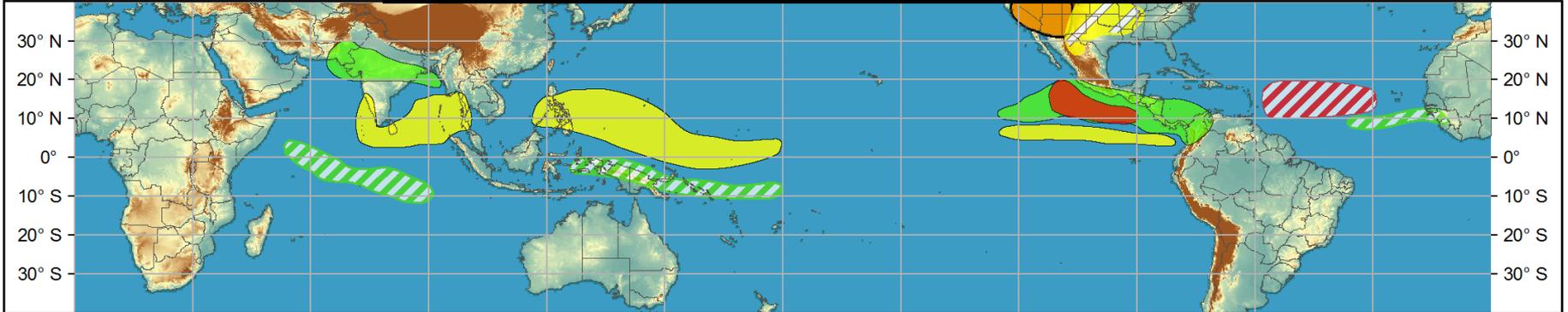
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