

# Global Tropics Hazards And Benefits Outlook

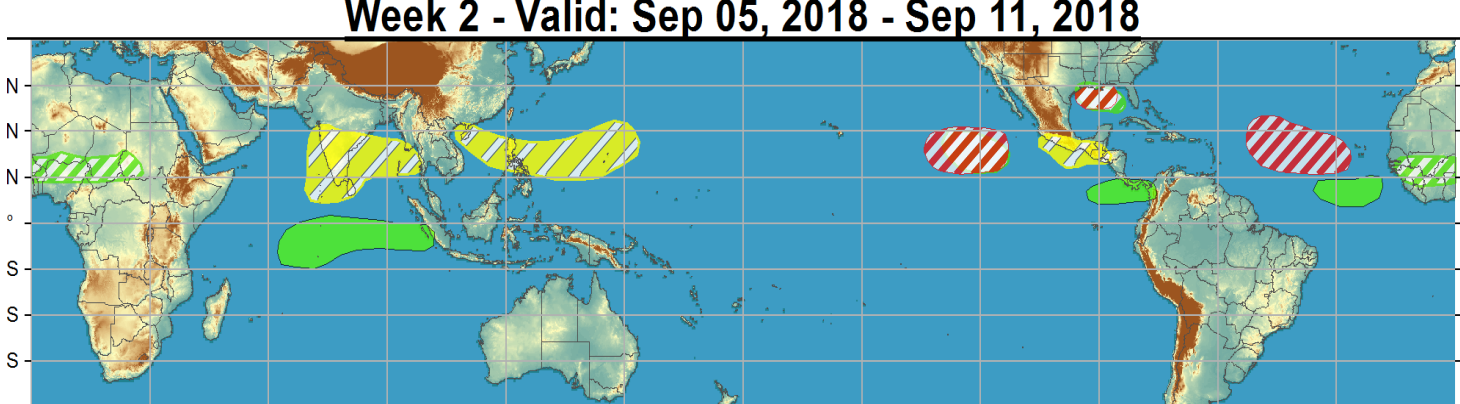
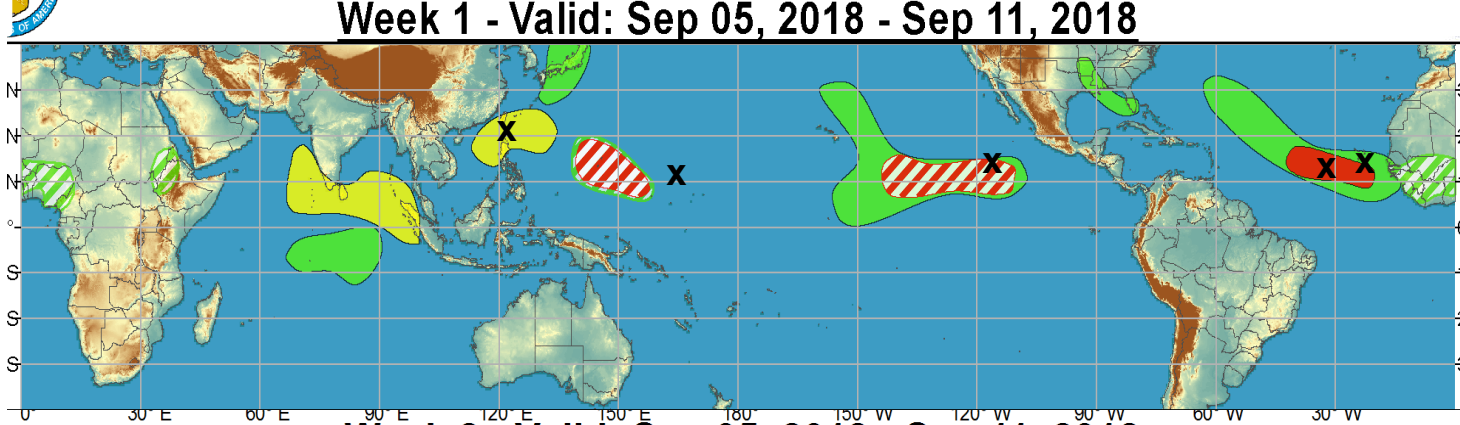
09/11/2018

Stephen Baxter

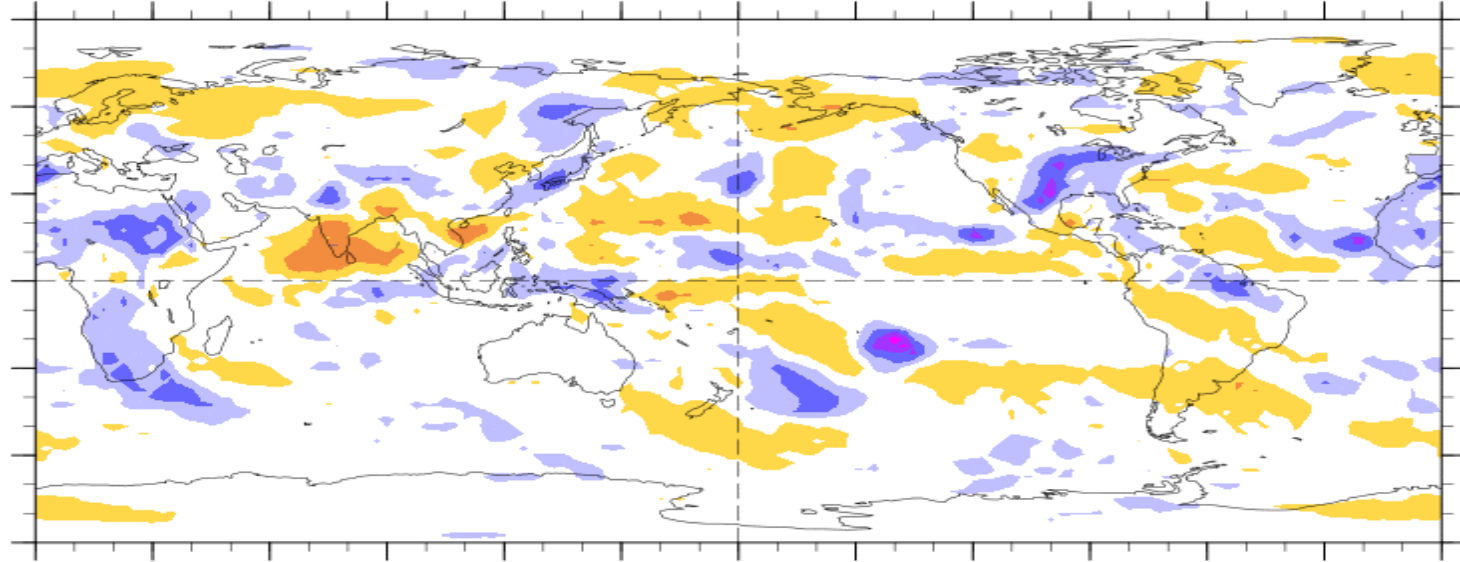
## Outline

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

# Outlook Review



7-Day Average OLR Anomaly 2018/09/03 - 2018/09/09



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (August 9, 2018 Update)**

- ENSO Alert System Status: [El Niño Watch](#)
- There is ~60% chance of El Niño in the Northern Hemisphere fall 2018 (September-November), increasing to ~70% during winter 2018-19.

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

- The MJO is still fairly weak, in spite of an increase in the amplitude of the RMM index over the past week.
- Equatorial Rossby wave activity and a transition to an El Niño base state are the primary drivers along with several active TCs. There is some evidence of a Kelvin wave propagating from the Pacific to the Atlantic over the past one to two weeks.

## **Extratropics:**

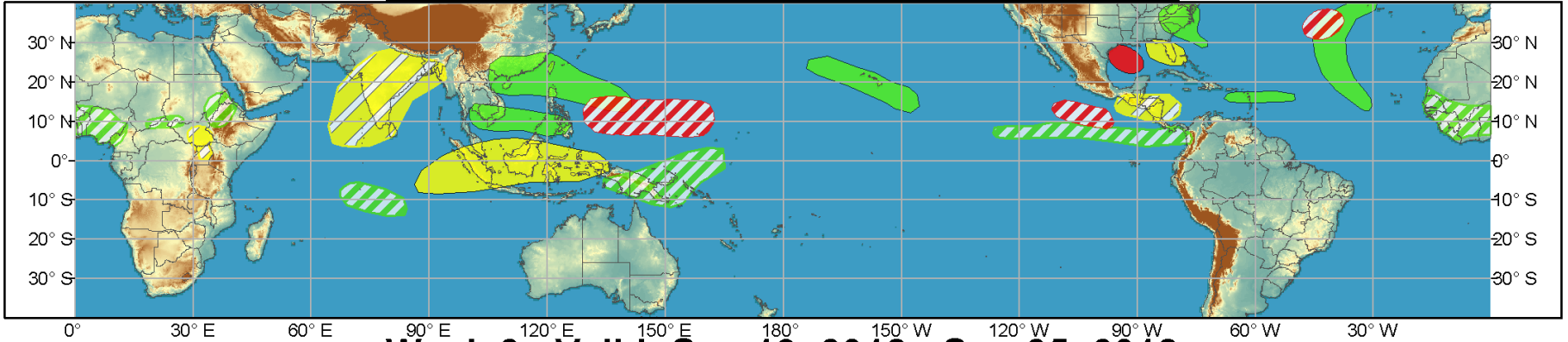
- The MJO is not likely to play a substantial role in the extratropical pattern over the next several weeks. The primary tropical/extratropical impacts will come from tropical cyclones or disturbances.



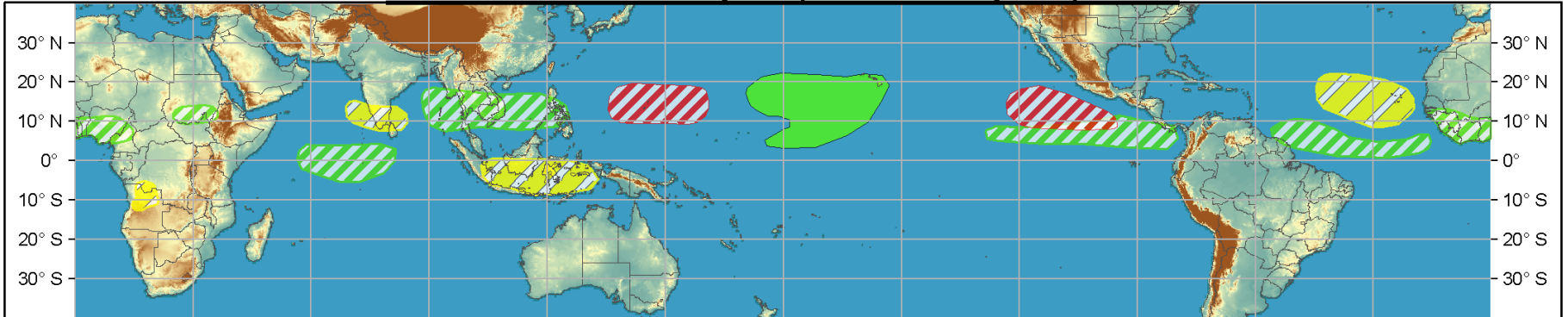
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Sep 12, 2018 - Sep 18, 2018



## Week 2 - Valid: Sep 19, 2018 - Sep 25, 2018



### 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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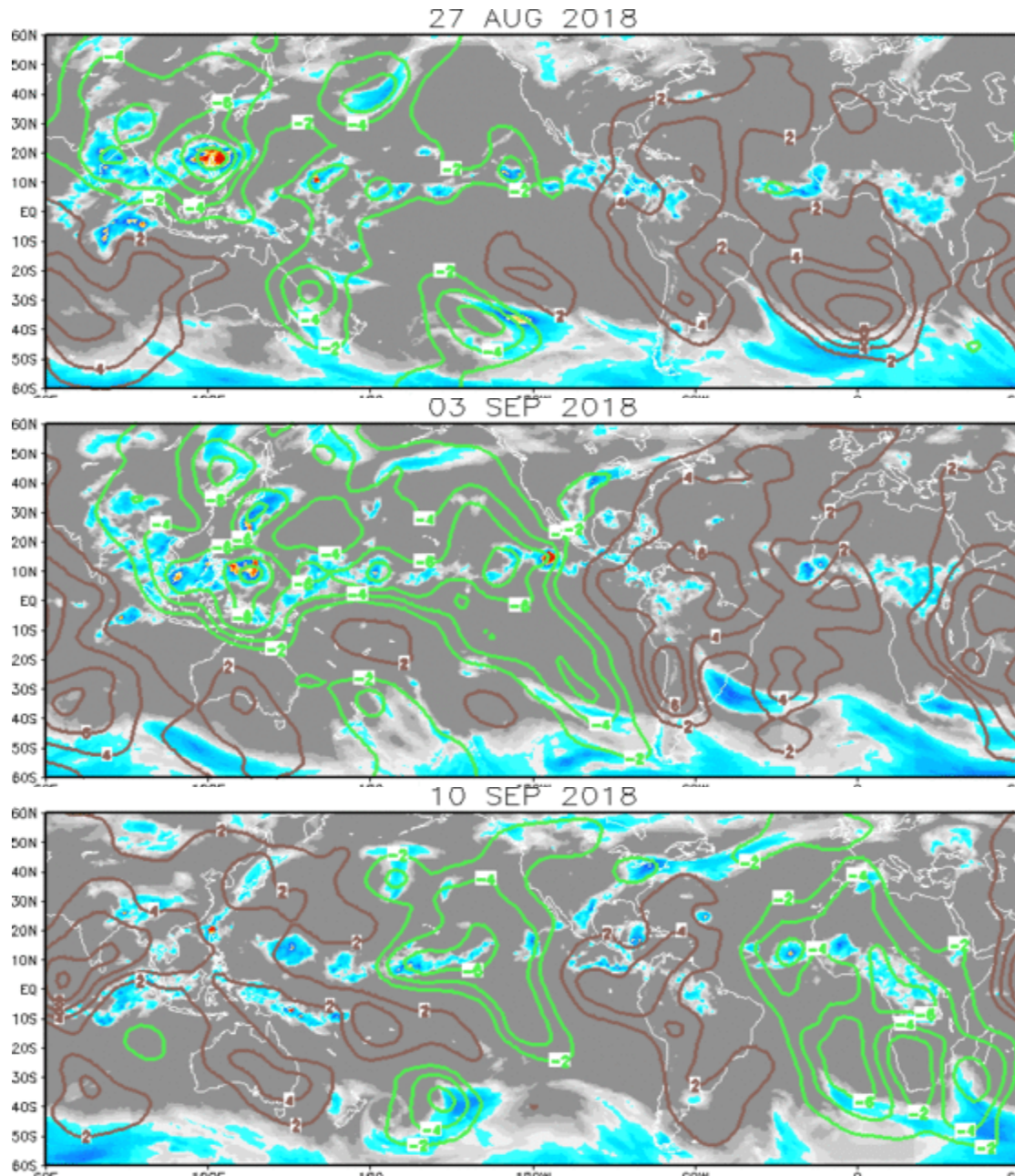


# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

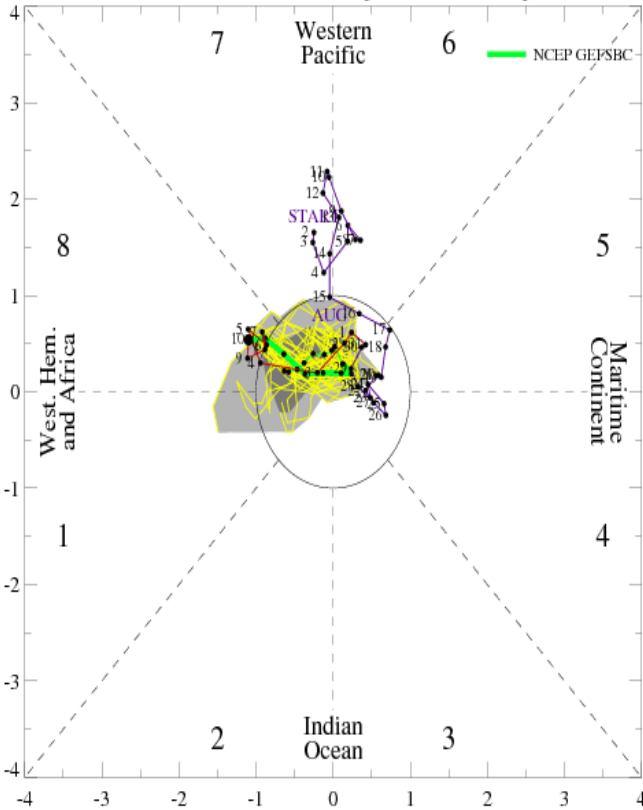
Brown: Enhanced Convergence

A stationary pattern is evident over the Pacific, with rapid eastward propagation of an enhanced convective signal over the Western Hemisphere.



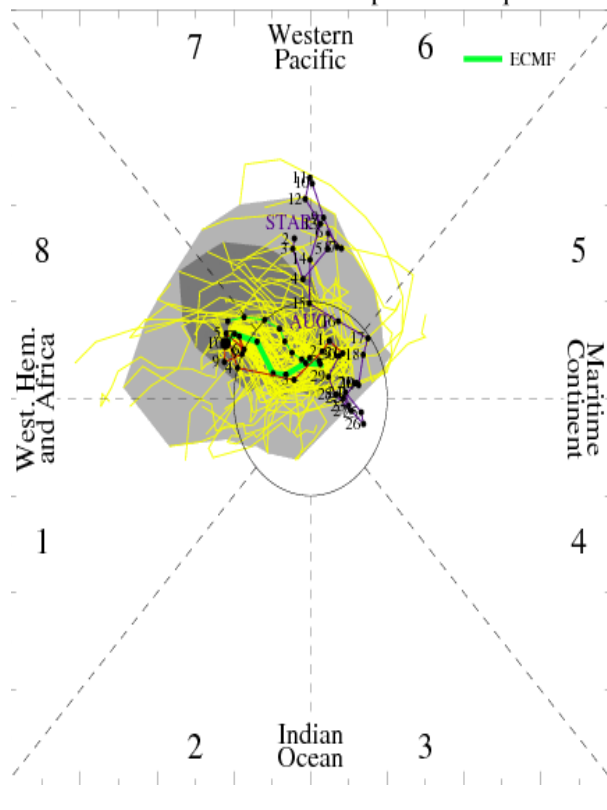
# MJO Observation/Forecast

[RMM1, RMM2] forecast for Sep-11-2018 to Sep-25-2018



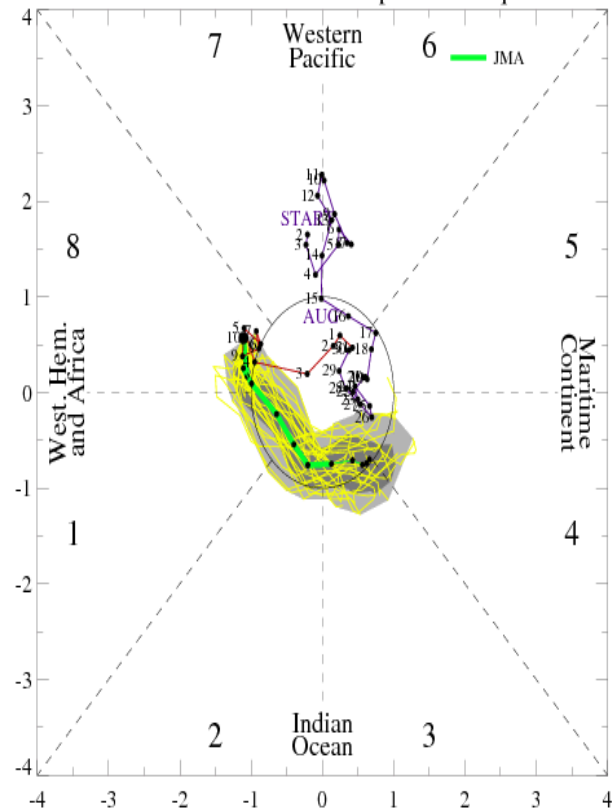
GEFS

MJO Index Forecast for 11 Sep 2018-25 Sep 2018



ECMWF

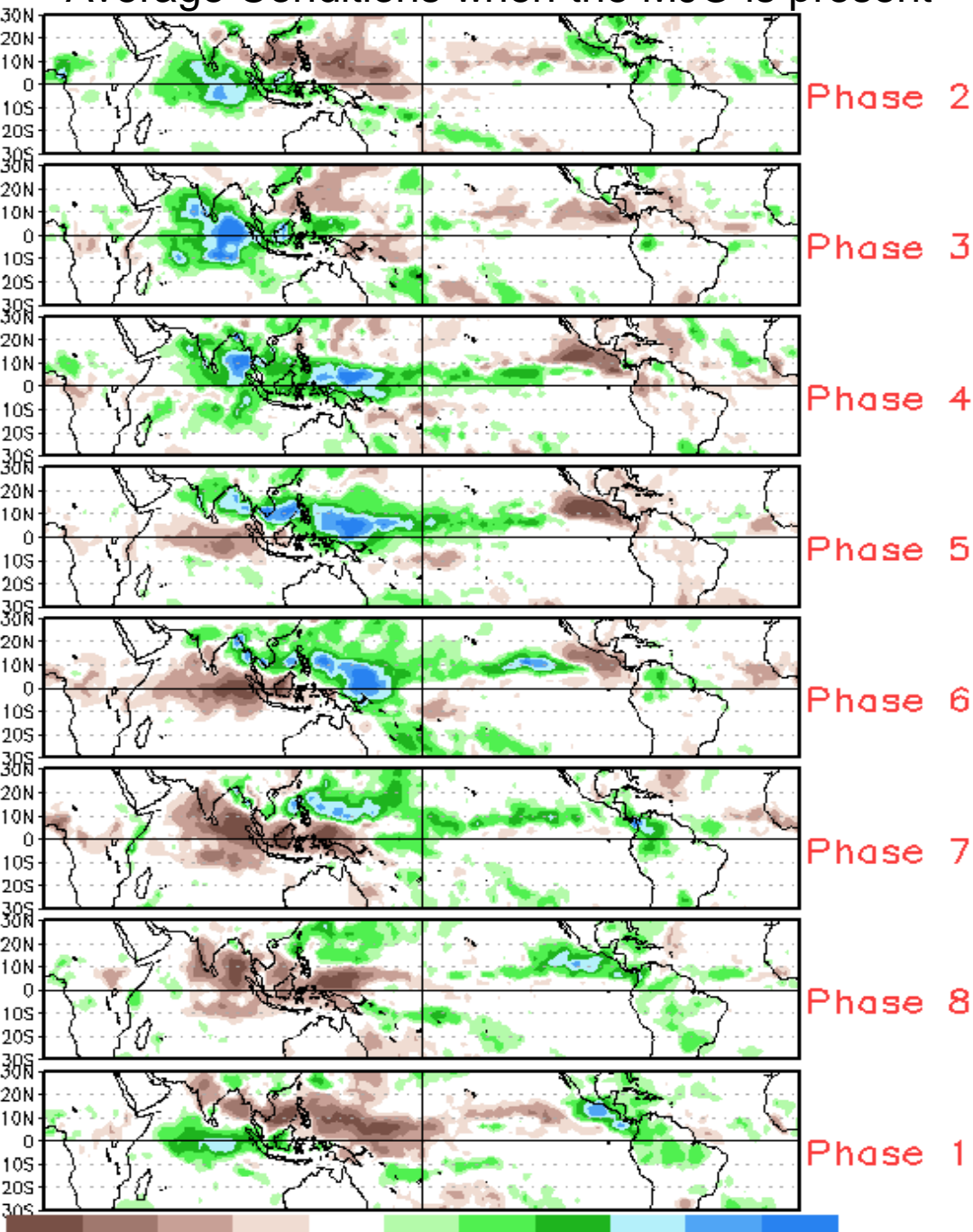
MJO Index Forecast for 11 Sep 2018-19 Sep 2018



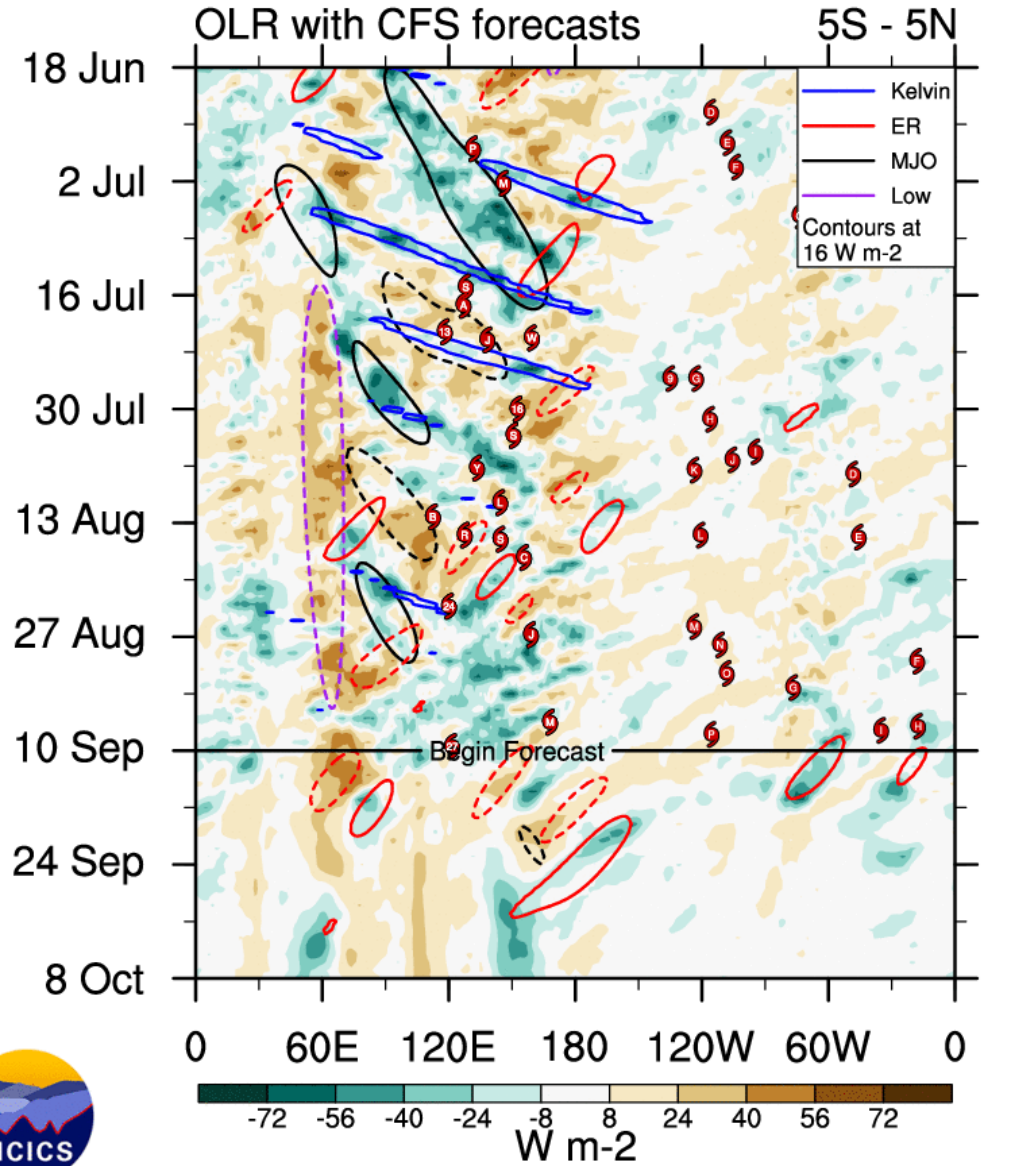
JMA

RMM index forecasts diverge substantially over the next two weeks. The ECMWF emphasizes the low-frequency state, while the JMA continues to emphasize an atmospheric Kelvin wave.

# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.



ncics.org/mjo

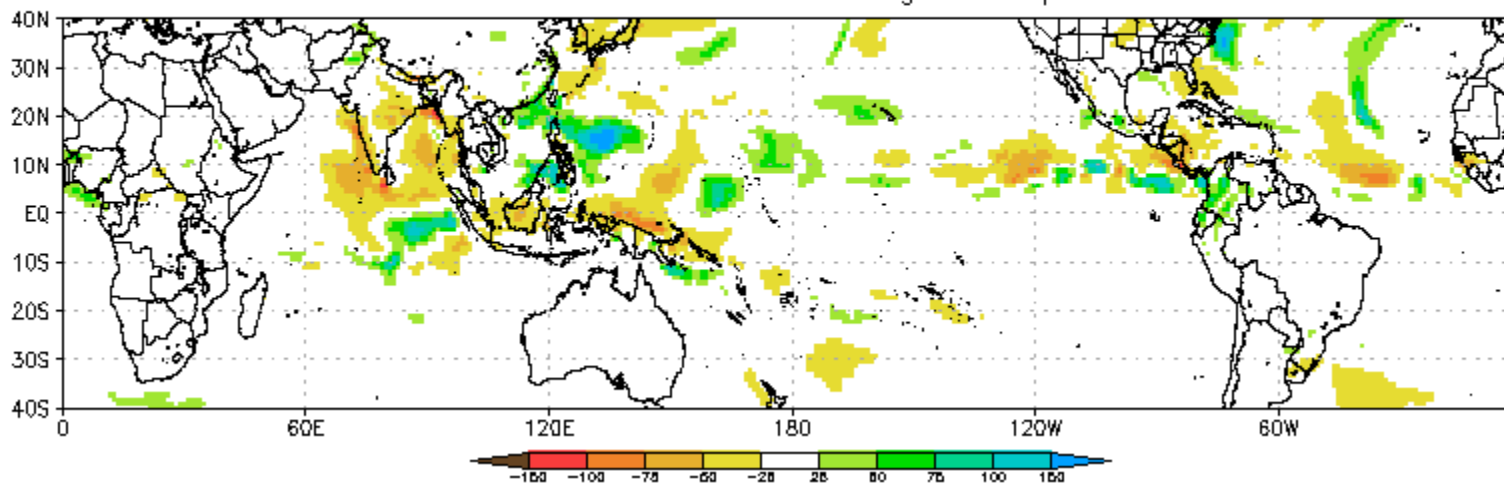
Tue 2018-09-11 15:27 UTC

Carl Schreck (cjschrec@ncsu.edu)

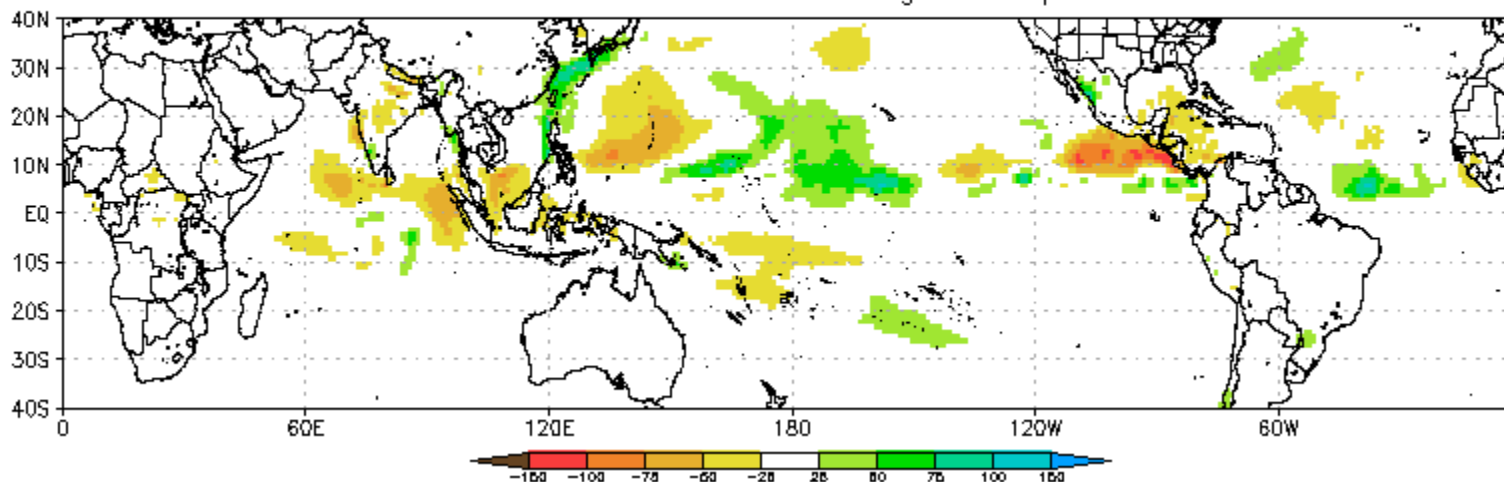
The MJO signal is quite weak but there is some evidence of ER activity. The low-frequency (mostly ENSO) base state appears to be evolving towards El Niño.



CFS Precipitation Anomalies (mm) Issued 10Sep2018  
Week-1 Forecast Ending 18Sep2018

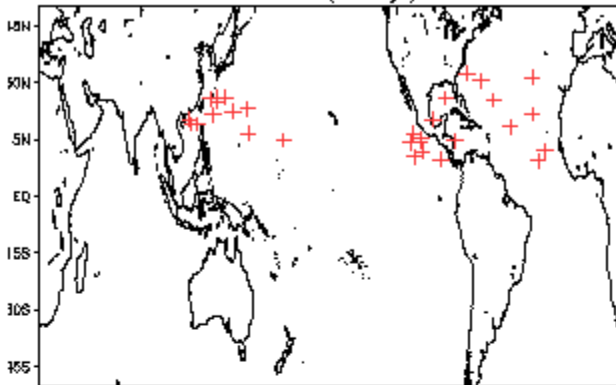


CFS Precipitation Anomalies (mm) Issued 10Sep2018  
Week-2 Forecast Ending 25Sep2018

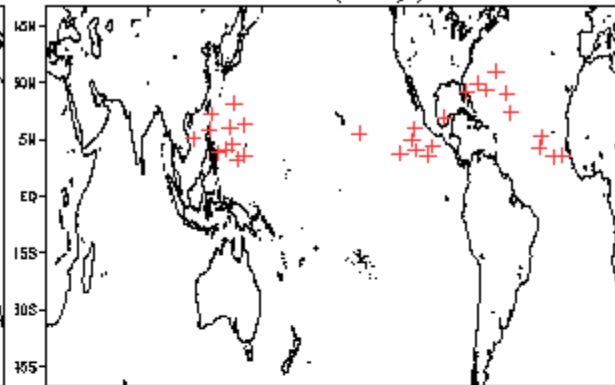


# September Tropical Storm Formation by MJO phase

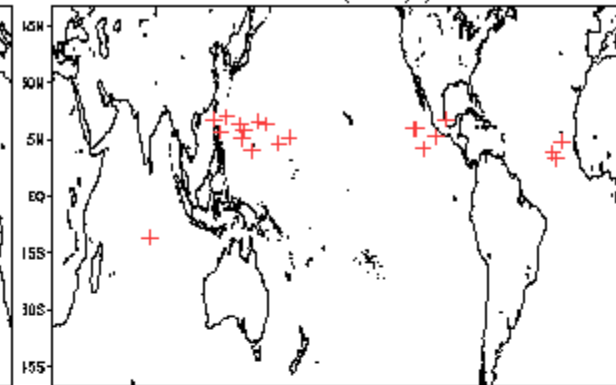
Phase 1 (81 days) 31 storms



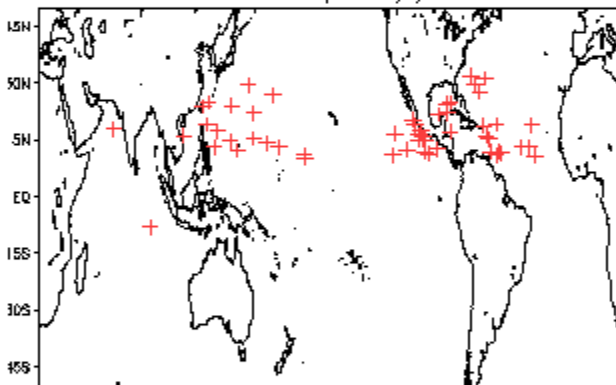
Phase 4 (70 days) 30 storms



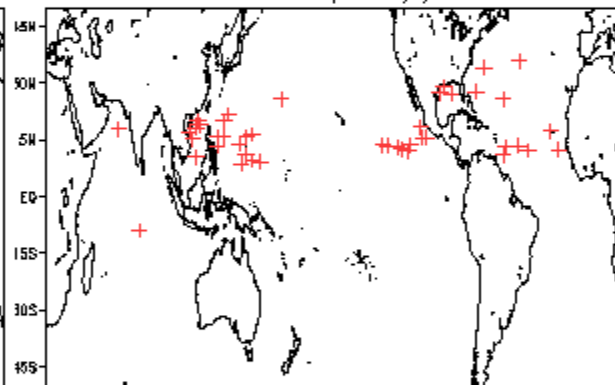
Phase 7 (38 days) 22 storms



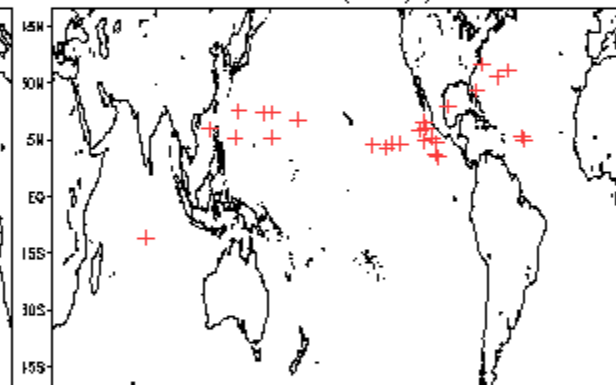
Phase 2 (122 days) 56 storms



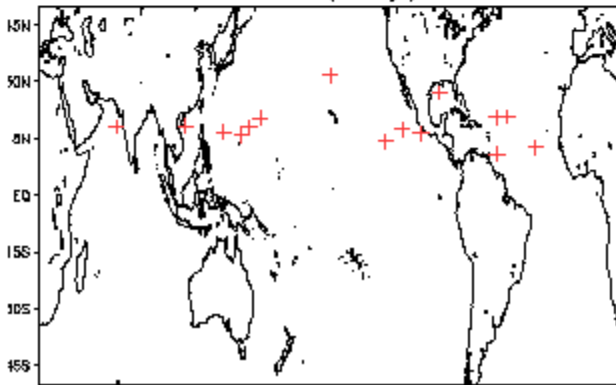
Phase 5 (106 days) 45 storms



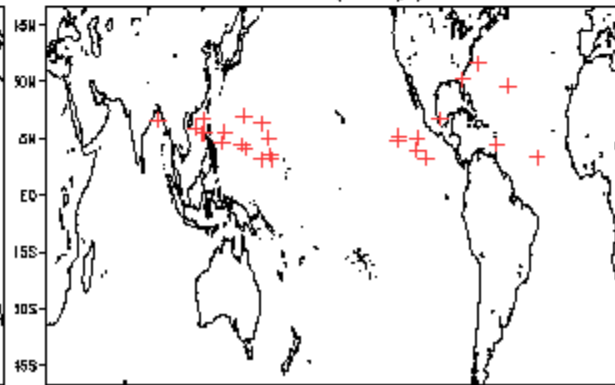
Phase 8 (67 days) 29 storms



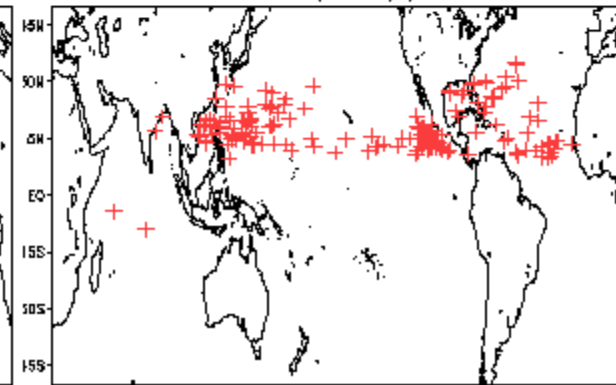
Phase 3 (51 days) 16 storms



Phase 6 (61 days) 27 storms



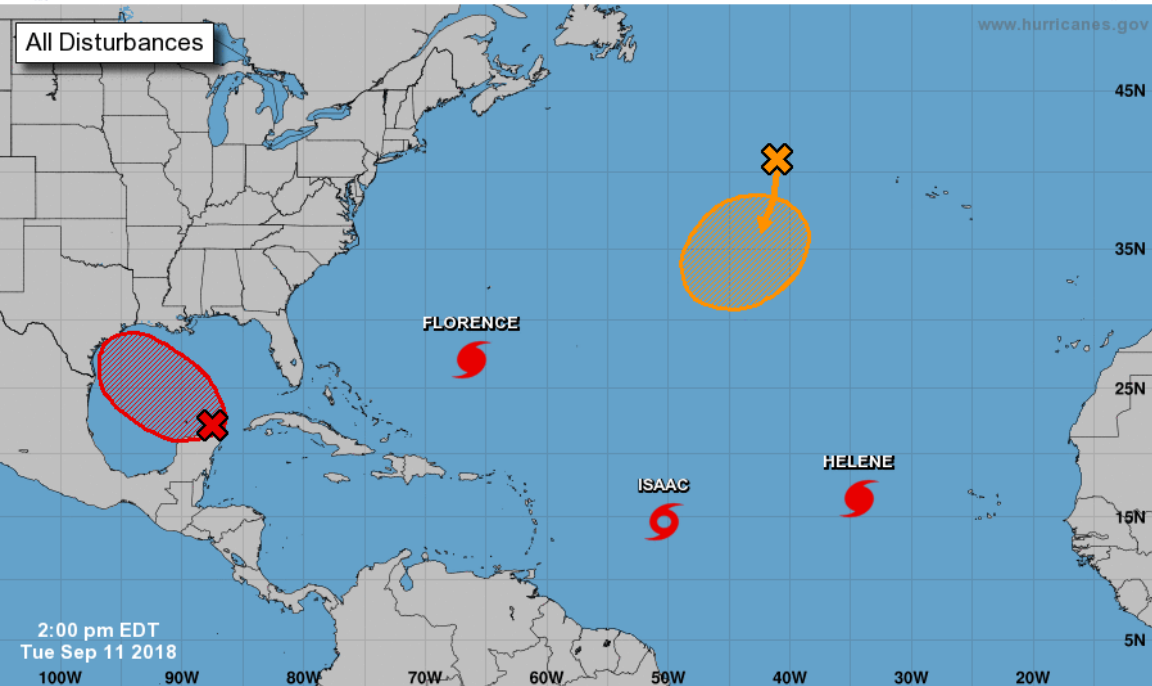
Null (393 days) 189 storms





# Five-Day Graphical Tropical Weather Outlook

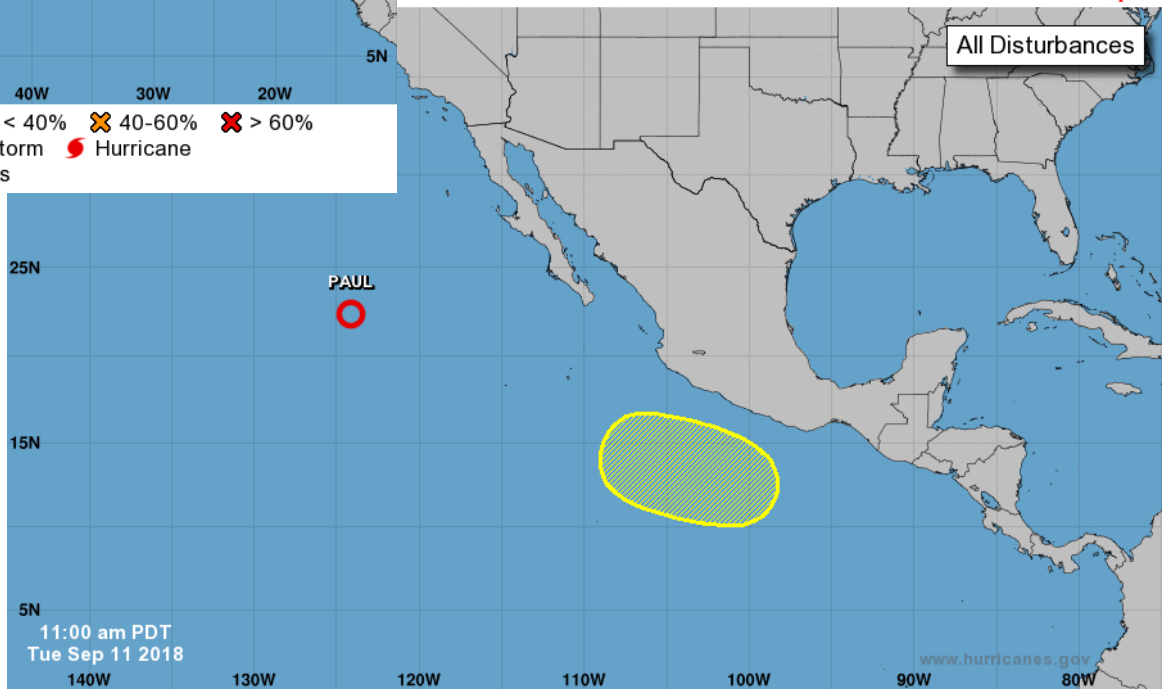
National Hurricane Center Miami, Florida



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

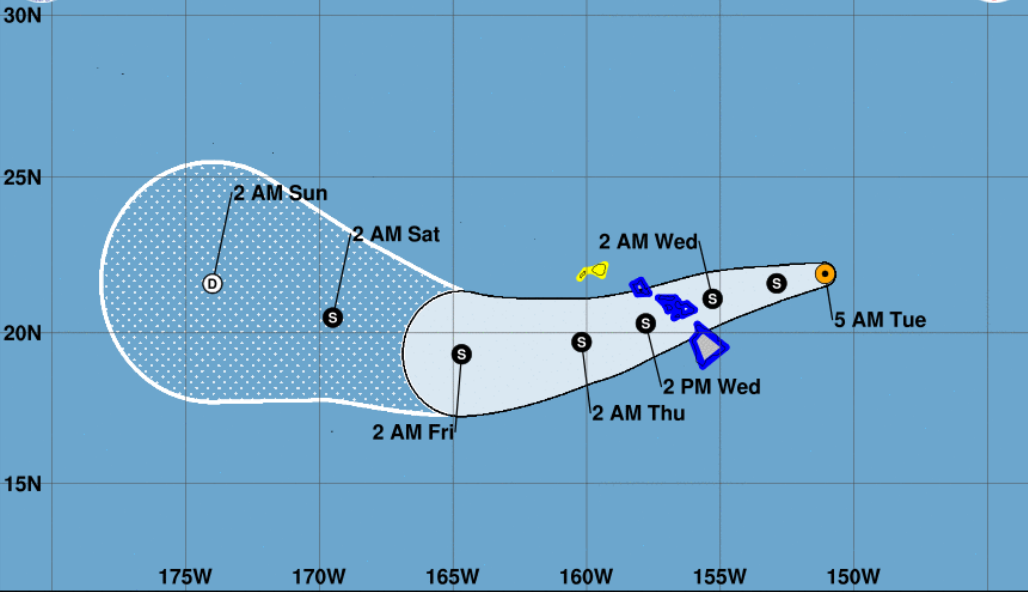
National Hurricane Center Miami, Florida



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.



**Tropical Storm Olivia**  
 Tuesday September 11, 2018  
 5 AM HST Advisory 44  
 NWS Central Pacific Hurricane Center

**Current information:** ●  
 Center location 21.9 N 151.1 W  
 Maximum sustained wind 65 mph  
 Movement W at 10 mph

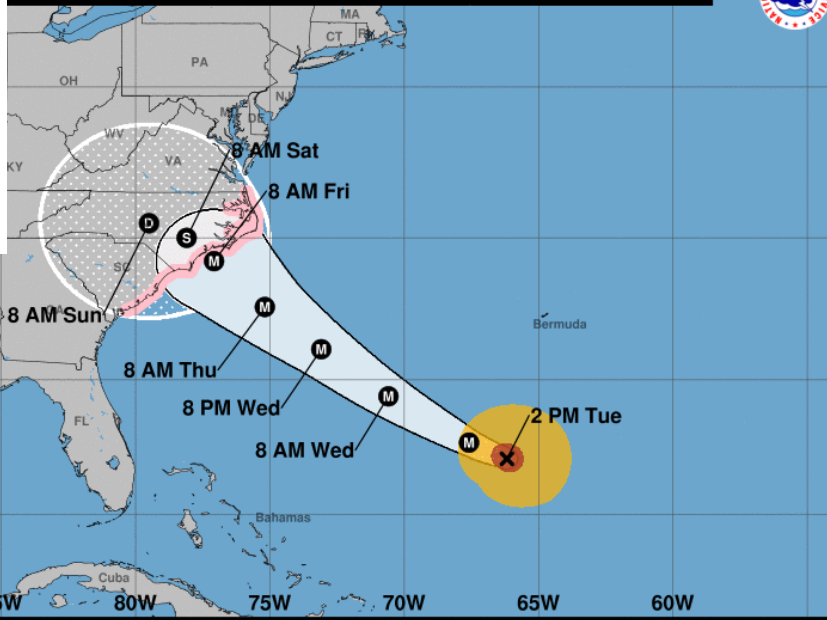
**Forecast positions:**  
 ● Tropical Cyclone ○ Post/Potential TC  
 Sustained winds: D < 39 mph  
 S 39-73 mph H 74-110 mph M > 110 mph

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

**Watches:**  
 Hurricane Trop Storm

**Warnings:**  
 Hurricane Trop Storm

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 Florence**  
 Tuesday September 11, 2018  
 2 PM AST Intermediate Advisory 49A  
 NWS National Hurricane Center

**Current information: x**  
 Center location 27.1 N 66.2 W  
 Maximum sustained wind 130 mph  
 Movement WNW at 17 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

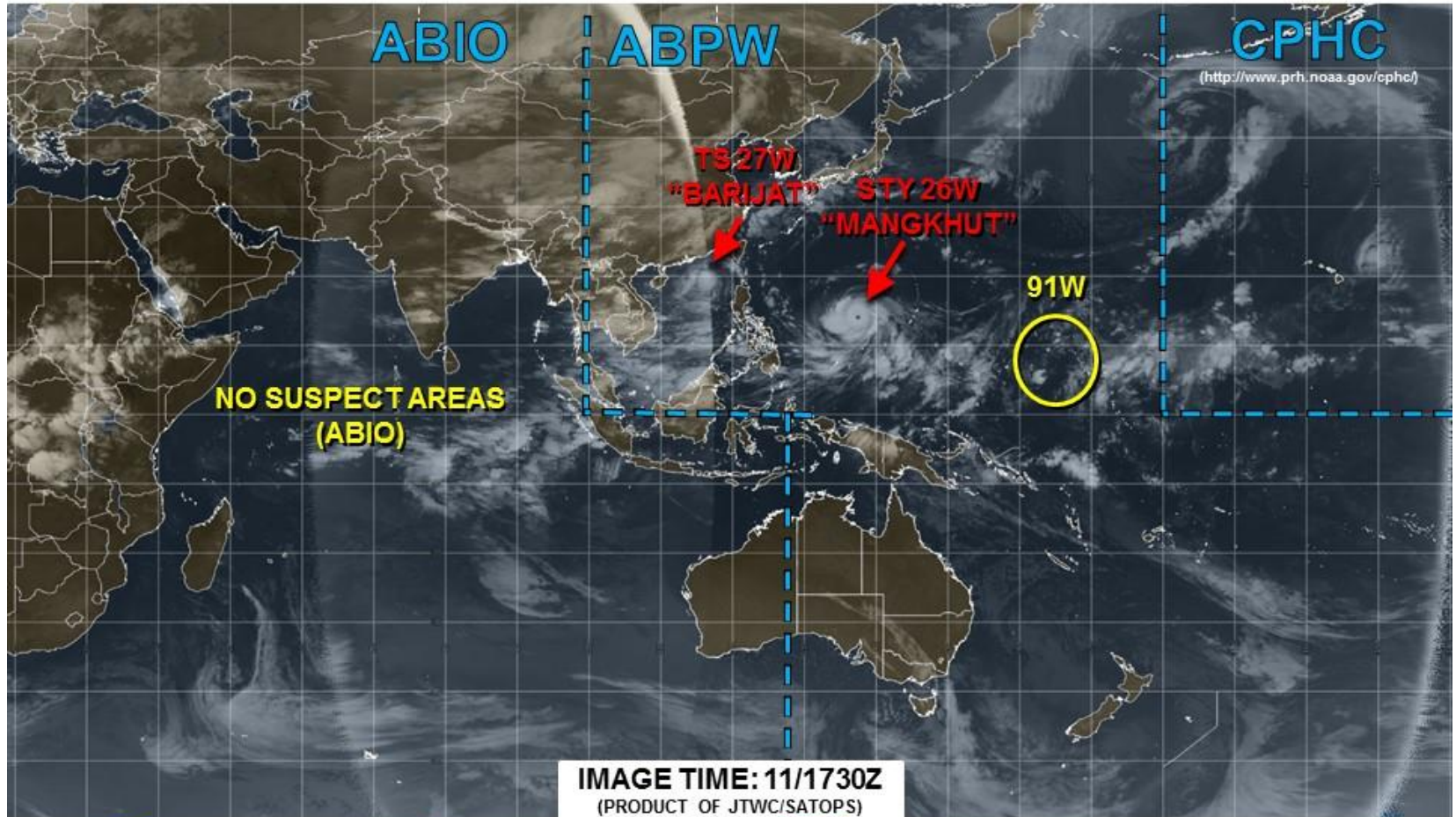
**Warnings:**  
 Hurricane Trop Stm

**Current wind extent:**  
 Hurricane Trop Stm





# JOINT TYPHOON WARNING CENTER



**LOW**

TC development unlikely within 24 hours

**MEDIUM**

TC development likely, but expected to occur beyond 24 hours

**HIGH**

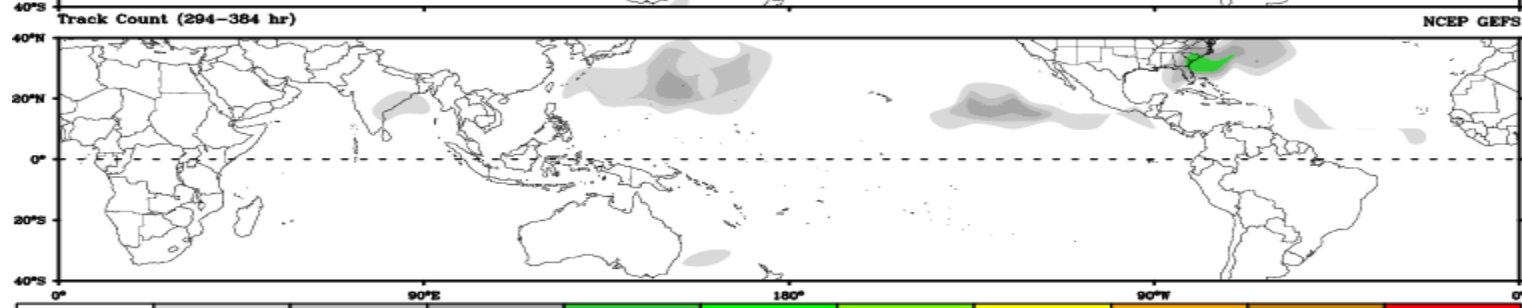
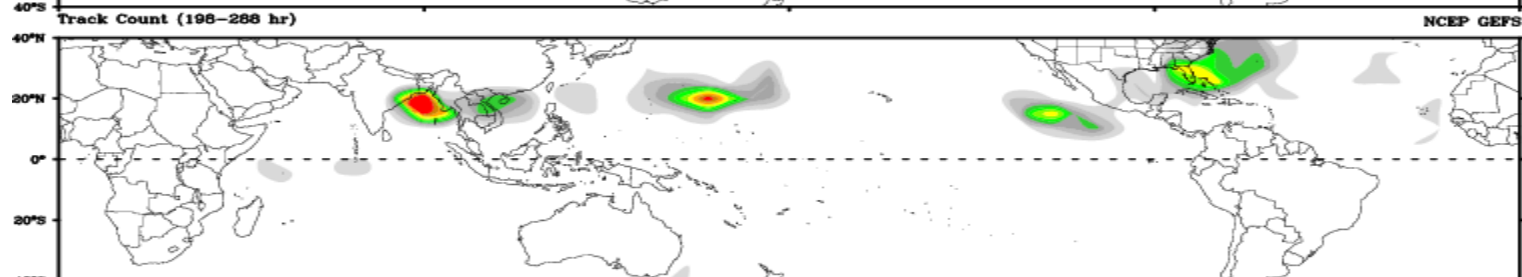
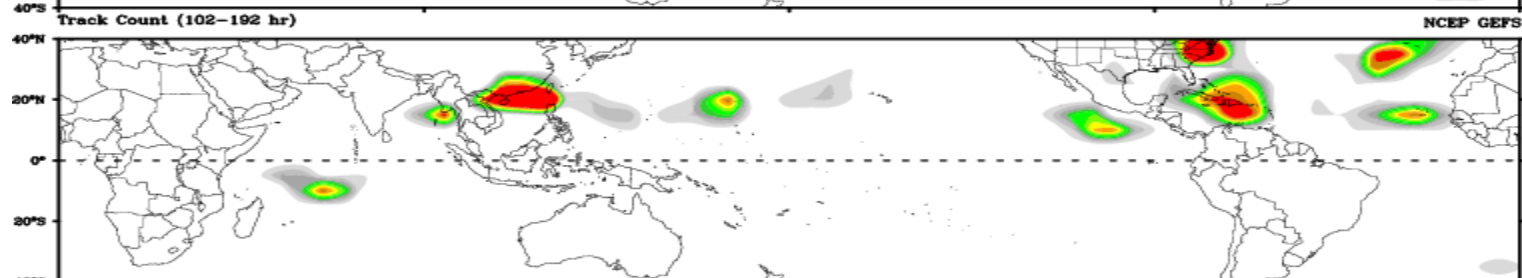
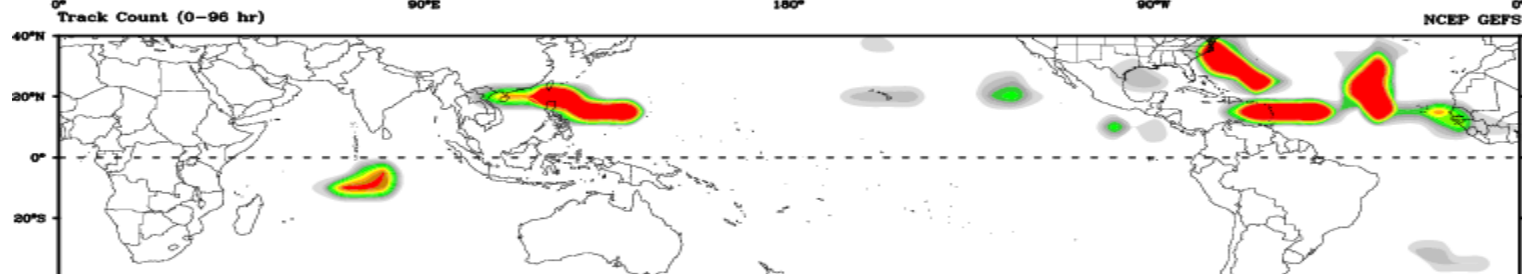
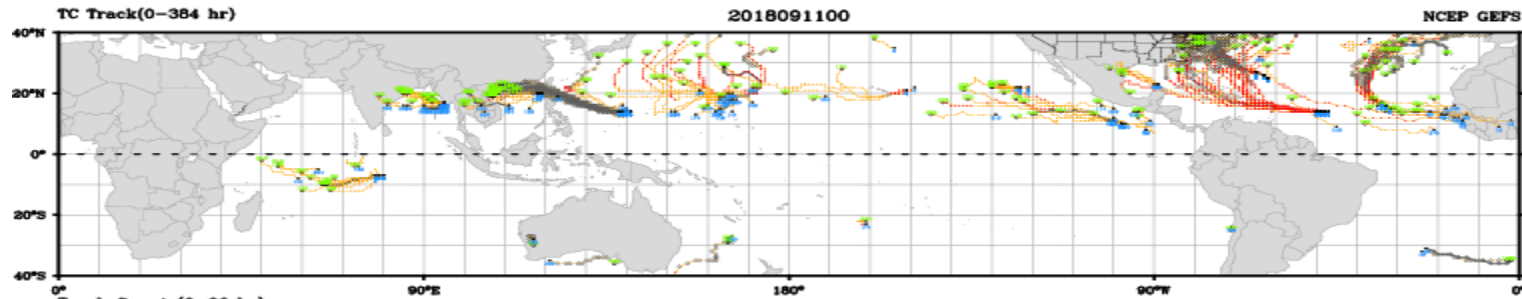
TC development likely within 24 hours (Reference TOFA)

 Tropical Cyclone (Reference Warning)



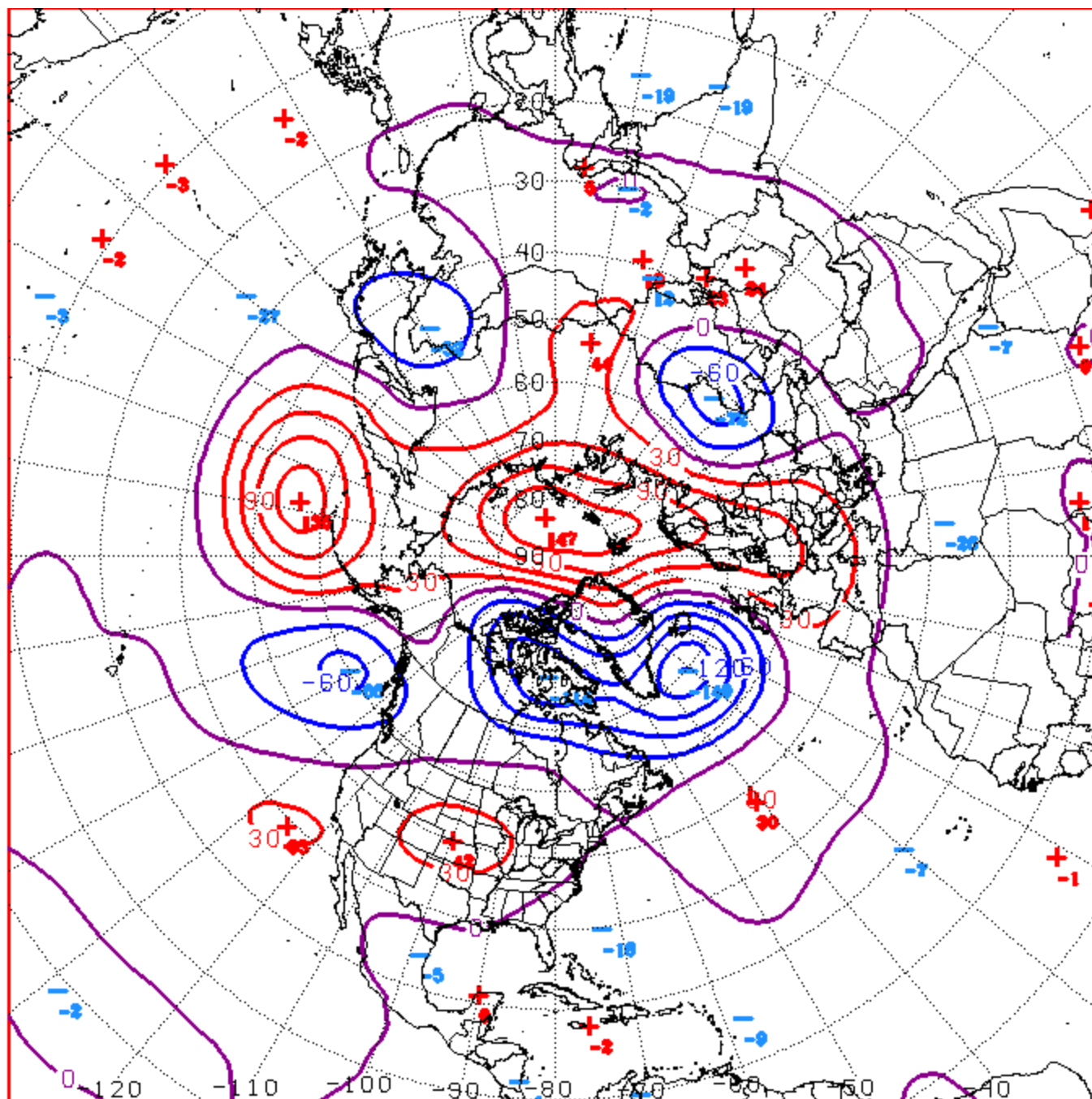
2018091100

NCEP GEFS



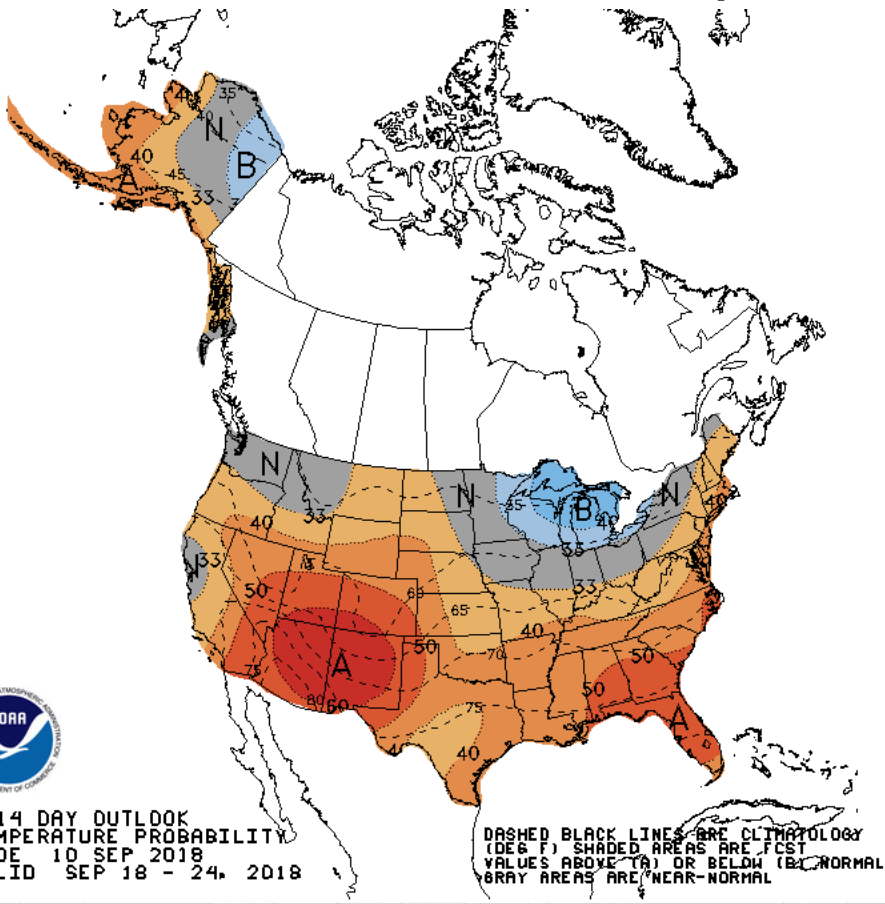
# Connections to U.S. Impacts



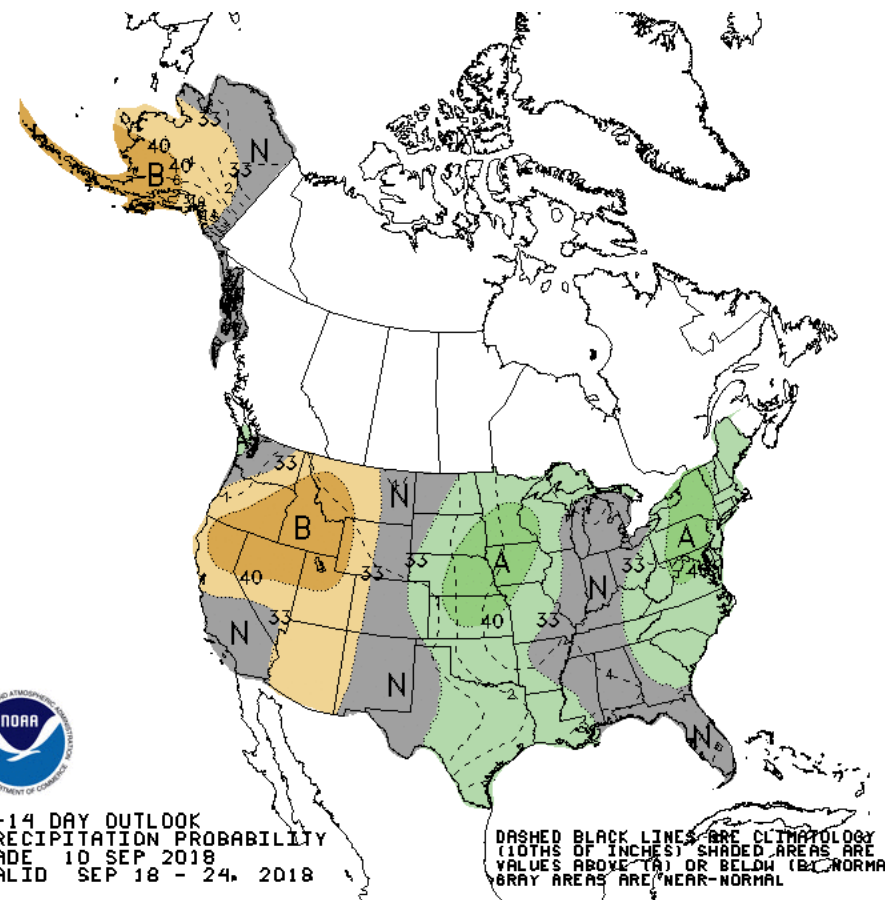
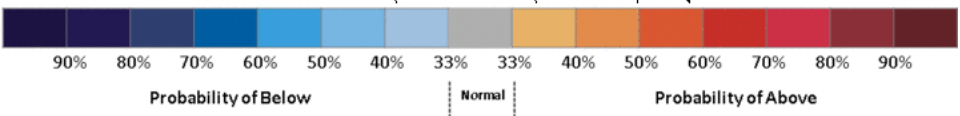


D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE SEP 11 2018 1301 UTC CNTD SEP 22 2018

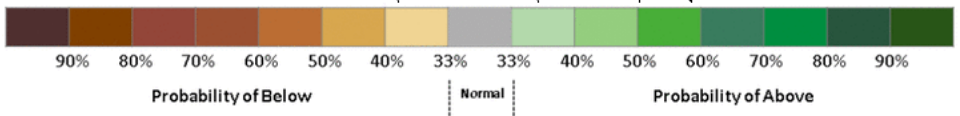
# Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 10 SEP 2018  
VALID SEP 18 - 24, 2018



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 10 SEP 2018  
VALID SEP 18 - 24, 2018

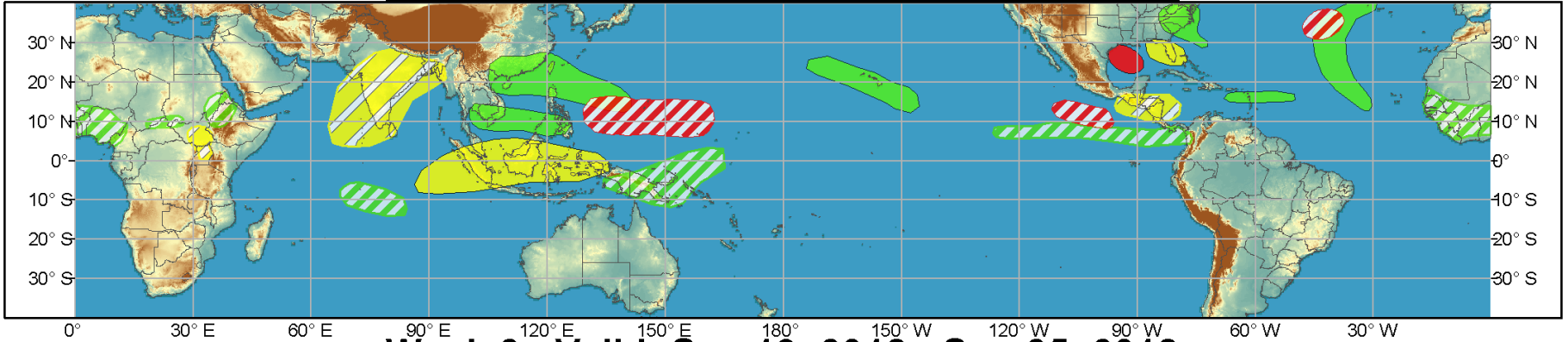




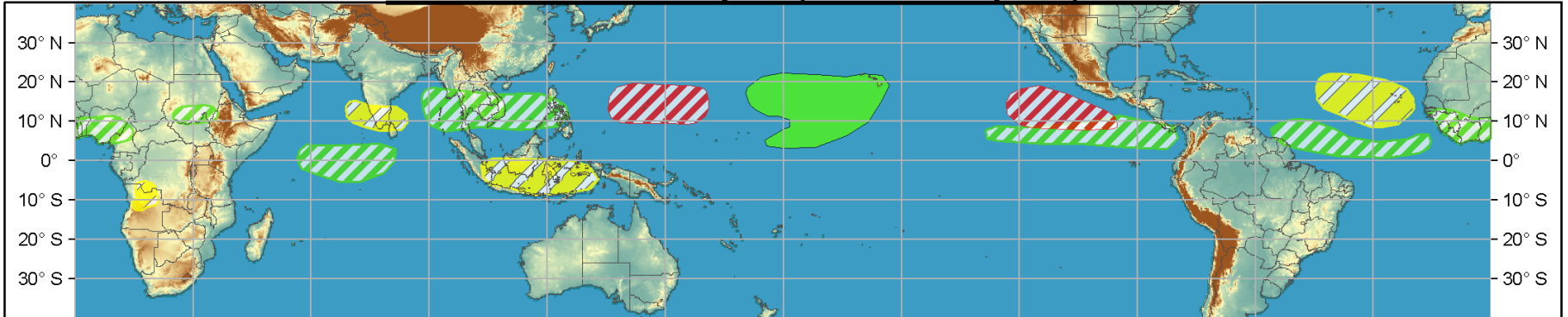
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