

Global Tropics Hazards And Benefits Outlook

9/19/2017

Brad Pugh

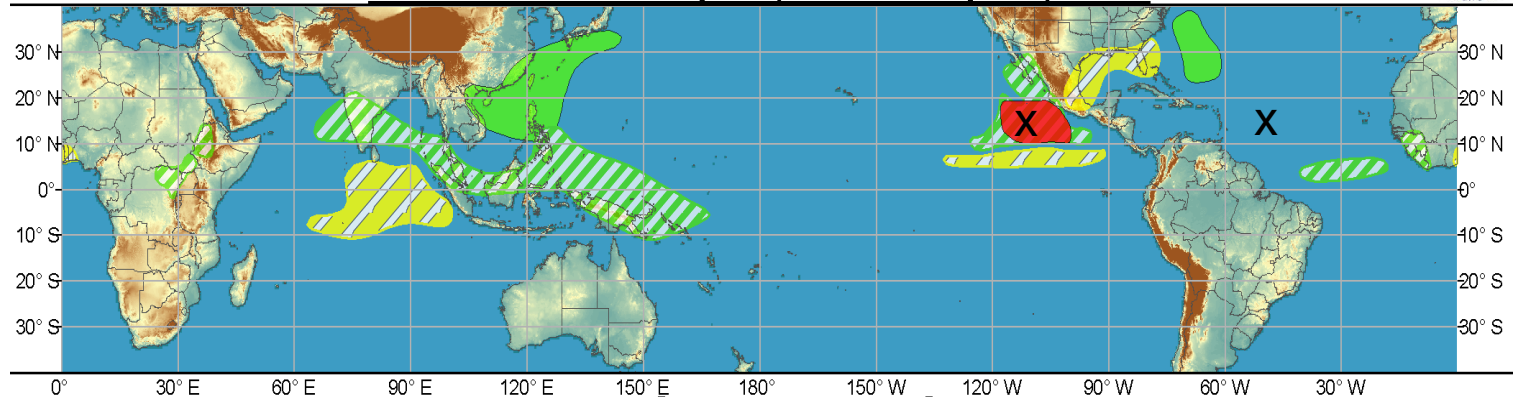
Outline

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: Sep 13, 2017 - Sep 19, 2017



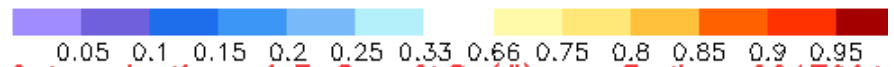
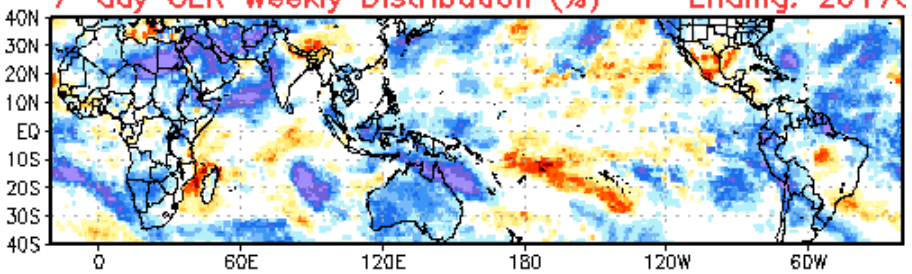
Week 2 - valid: Sep 13, 2017 - Sep 19, 2017



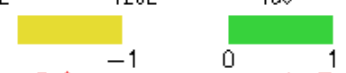
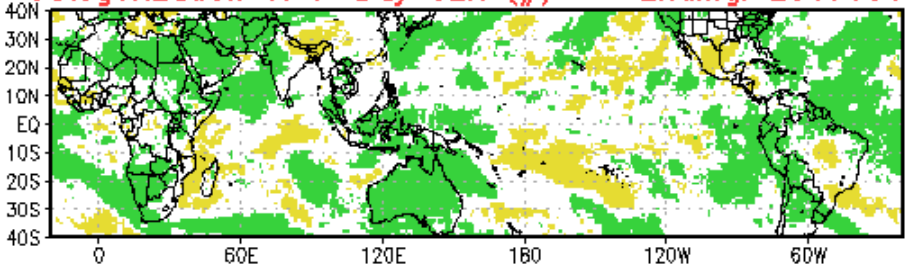
Atlantic: Hurricane Maria (became 2nd Cat 5 of 2017)

East Pacific: Hurricane Norma

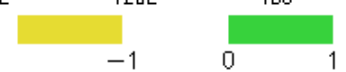
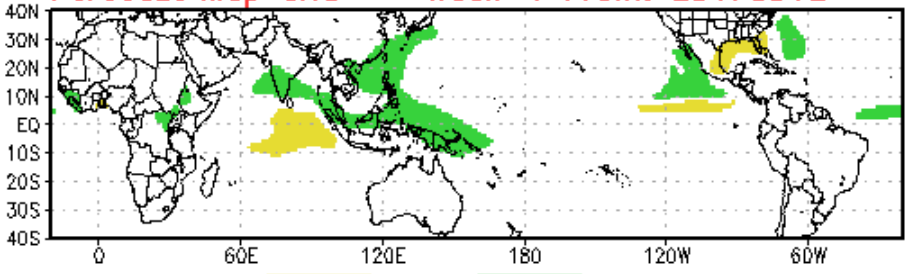
7-day OLR Weekly Distribution (%) -- Ending: 20170910



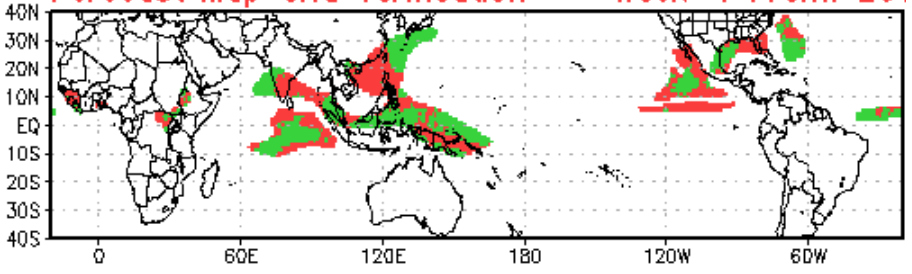
Categorization of 7-Day OLR (#) -- Ending: 20170910



Forecast Map Grid -- Week-1 From: 20170912

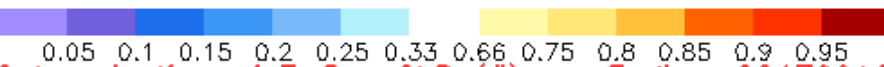
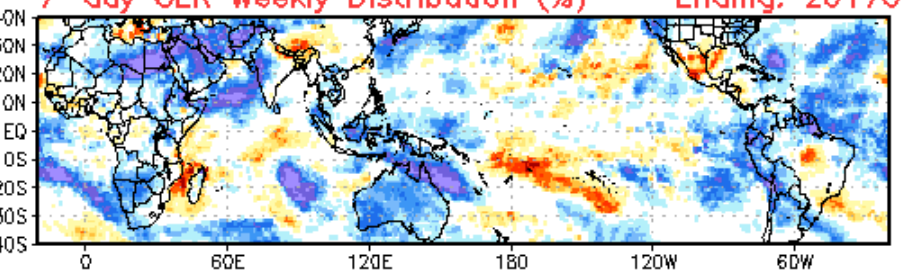


Forecast Map Grid Verification -- Week-1 From: 20170912

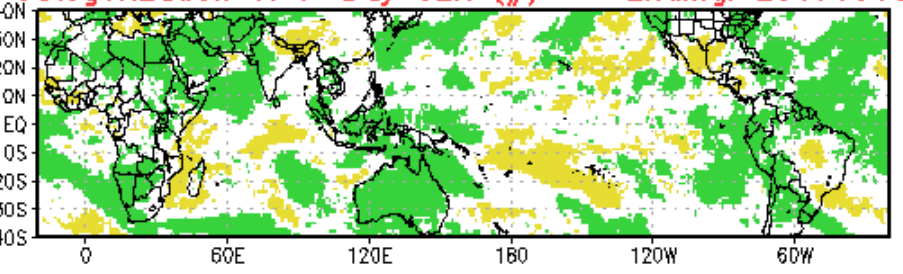


Hit: Green, Miss: Red
Heidke Skill Score: 20.6340

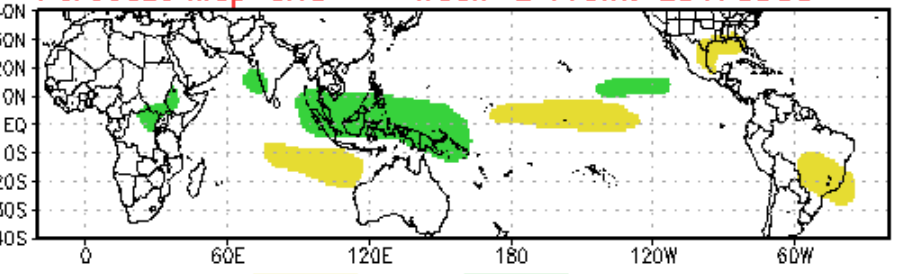
7-day OLR Weekly Distribution (%) -- Ending: 20170919



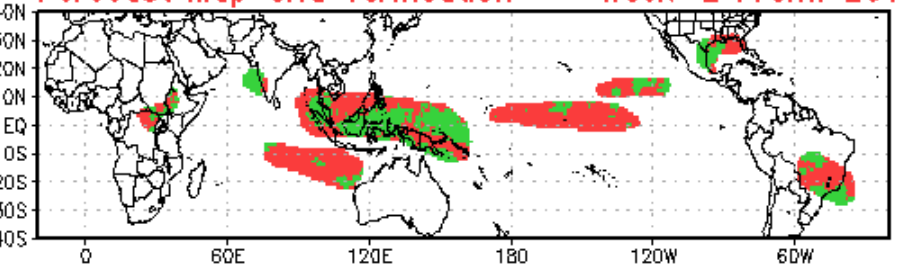
Categorization of 7-Day OLR (#) -- Ending: 20170919



Forecast Map Grid -- Week-2 From: 20170905



Forecast Map Grid Verification -- Week-2 From: 20170905



Hit: Green, Miss: Red
Heidke Skill Score: 4.8534

Synopsis of Climate Modes

ENSO:

- Increasing chance (~55-60%) of La Nina during the Northern Hemisphere fall and winter 2017-18.
- Forecasters favor latest CFS model due to recent cooling of sea surface temperatures across equatorial central Pacific.

MJO and other subseasonal tropical variability:

- Diagnostic tools indicate a weak MJO signal during the past week.
- Although MJO is expected to remain weak during the next two weeks, models have an increase in amplitude over the West Pacific.
- Atmospheric Kelvin wave and tropical cyclones are likely to play a major role in anomalous rainfall throughout the global tropics.

Extratropics:

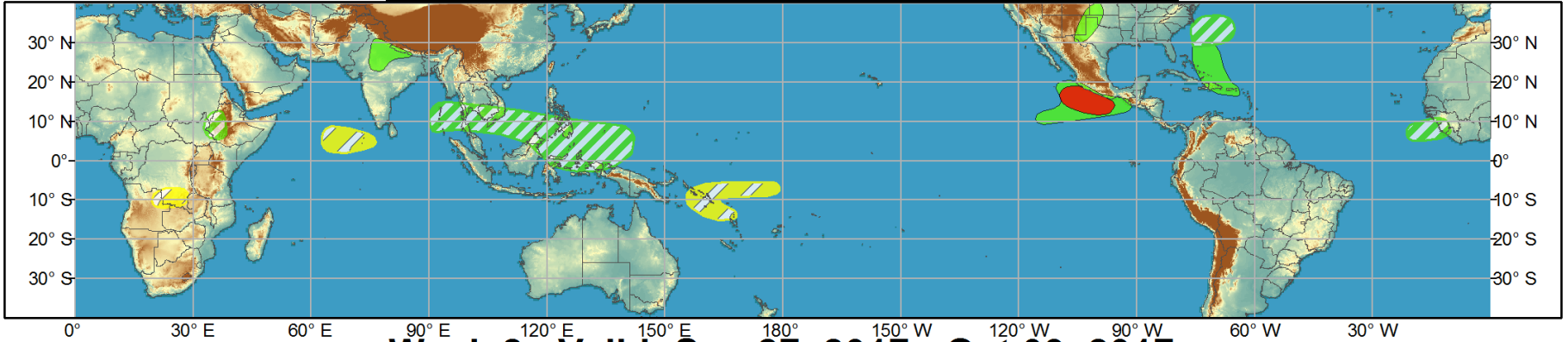
- The extended range temperature and precipitation forecasts for the U.S. are not likely to be impacted by a MJO.



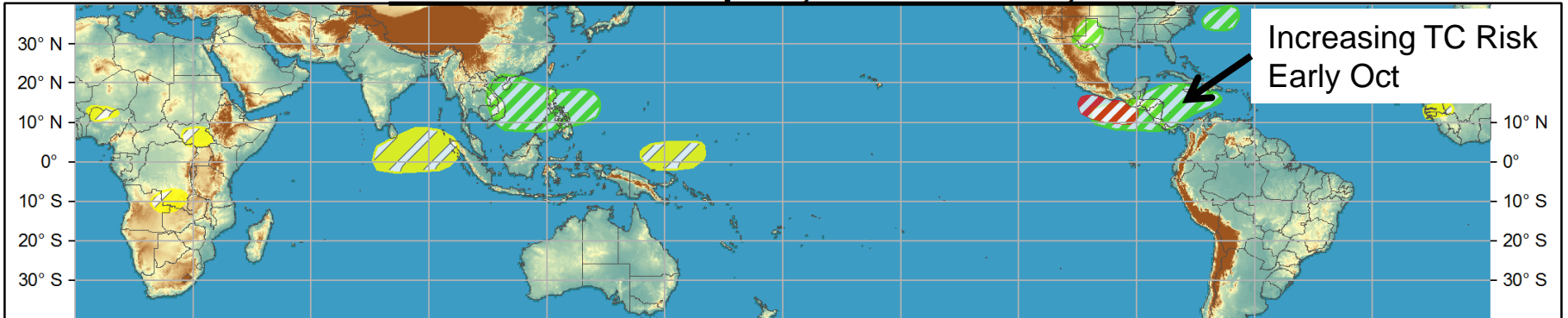
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Sep 20, 2017 - Sep 26, 2017



Week 2 - Valid: Sep 27, 2017 - Oct 03, 2017



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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Produced: 09/19/2017
Forecaster: Pugh

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.

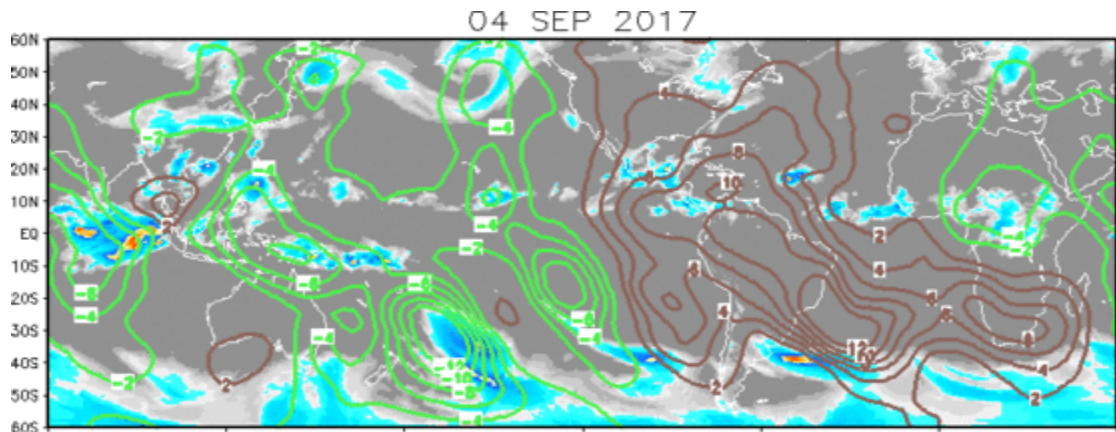


IR Satellite & 200-hpa Velocity Potential Anomalies

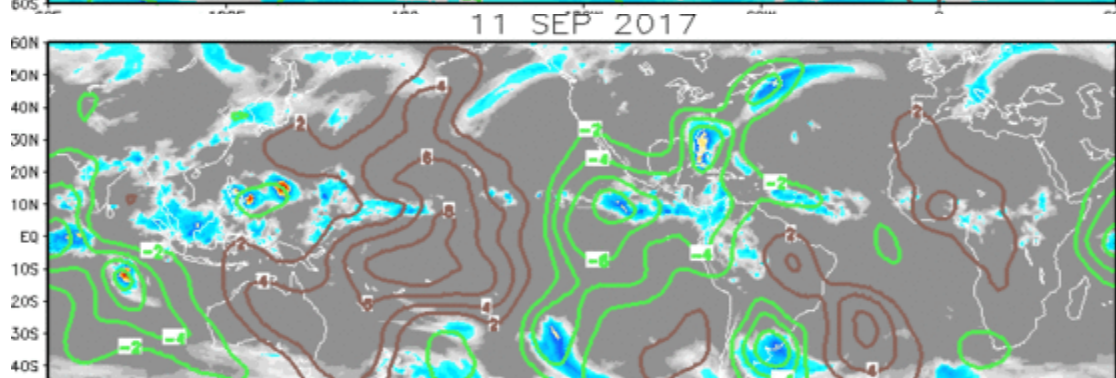
Green: Enhanced Divergence

Brown: Enhanced Convergence

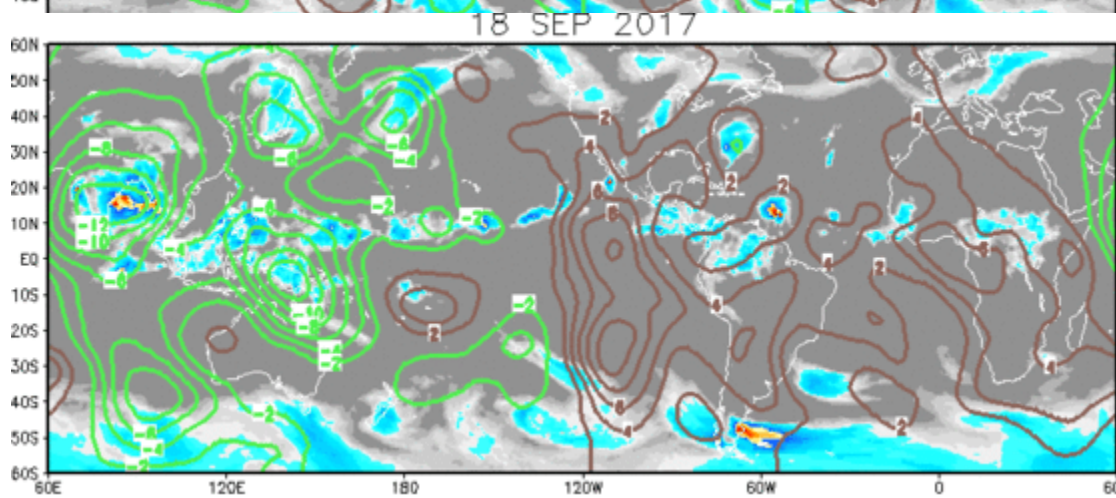
Wave-1 to Wave-2 pattern

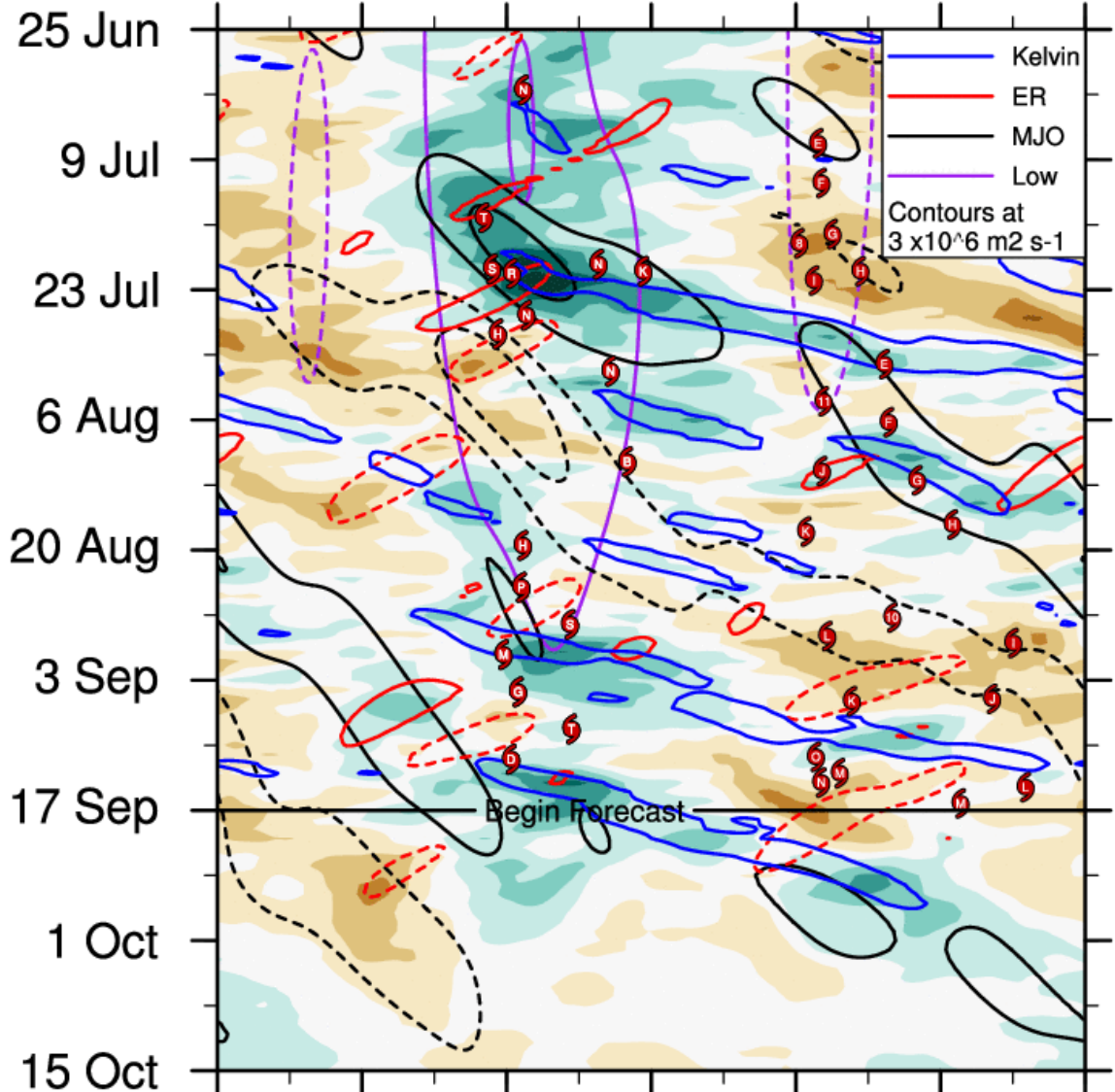


Wave-2 pattern

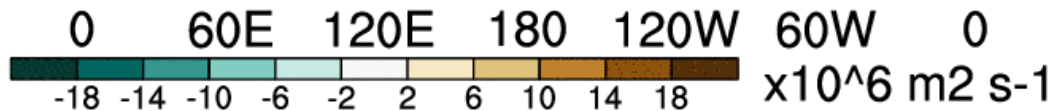


Wave-2 to Wave-1 pattern
although magnitude of
anomalies are unorganized

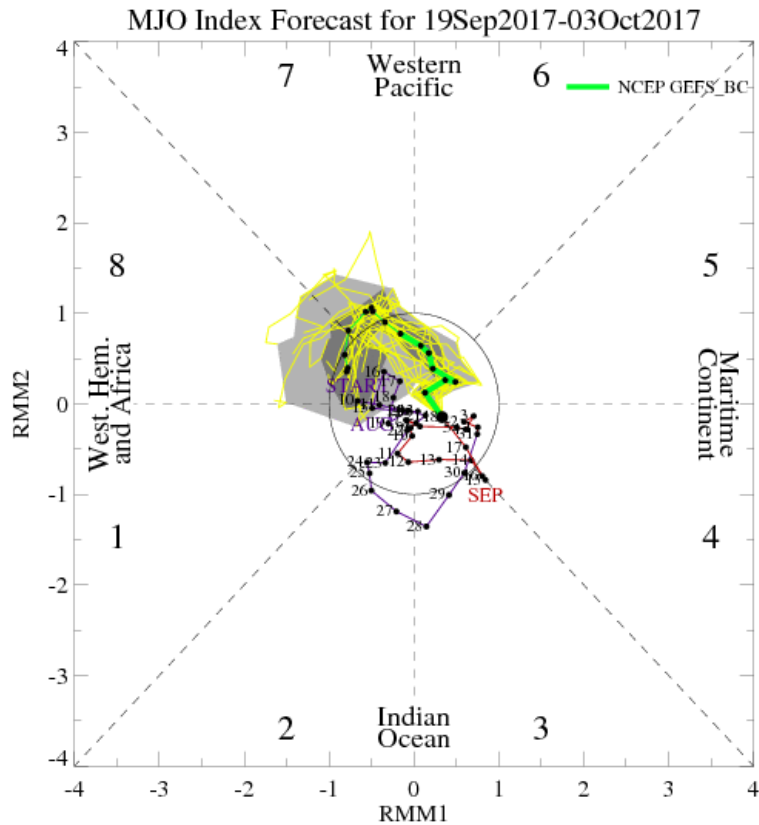




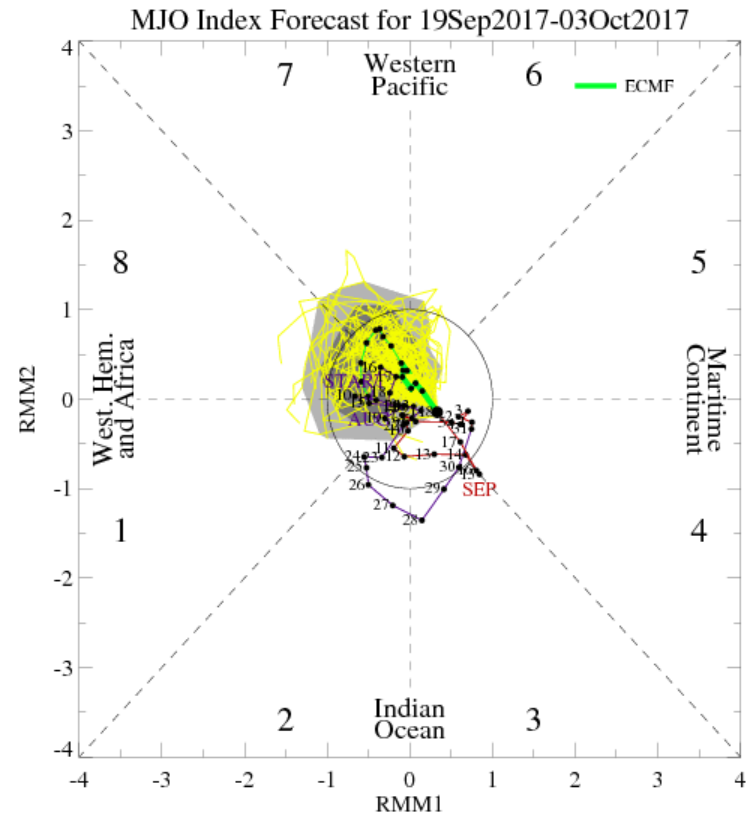
Kelvin wave is forecast to cross East Pacific



MJO Observation/Forecast



GEFS



ECMWF

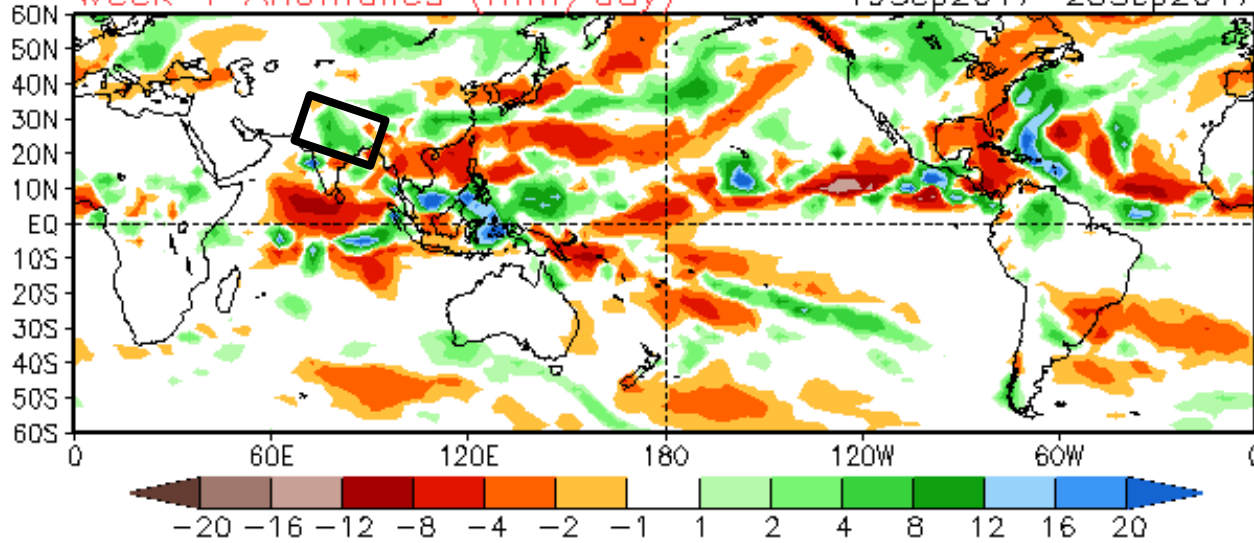
GEFS and ECMWF agree in amplitude increase at Phase 7
Unclear if organized MJO will develop

CFSv2 Weeks 1 & 2 Precipitation

16 Member Ensemble Mean Forecast from 18Sep2017

Week 1 Anomalies (mm/day)

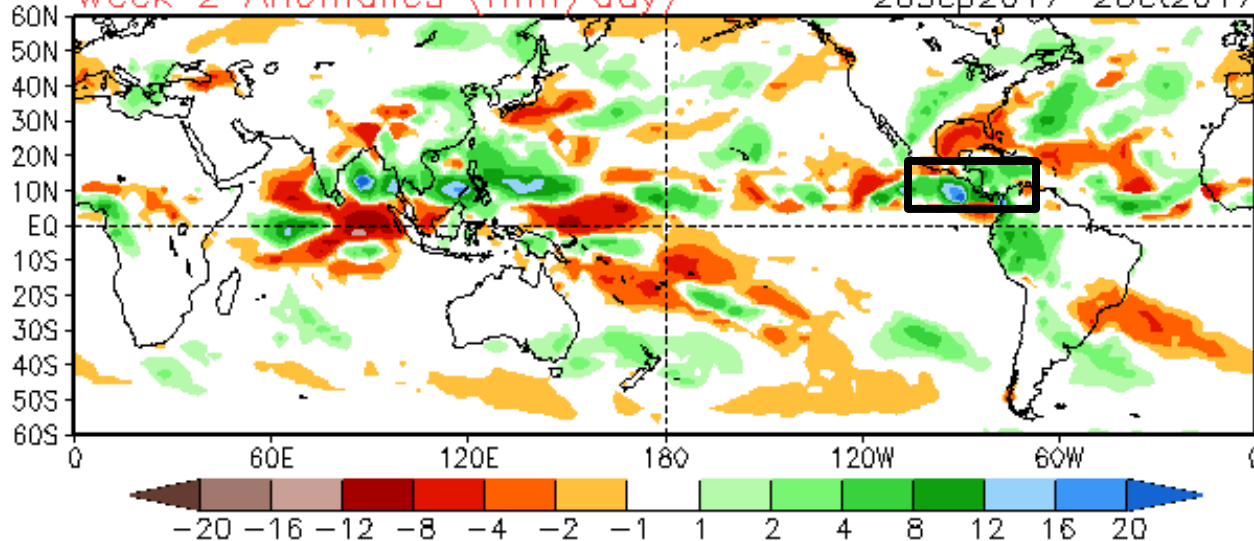
19Sep2017–25Sep2017



Week-1: Monsoon low over northern India

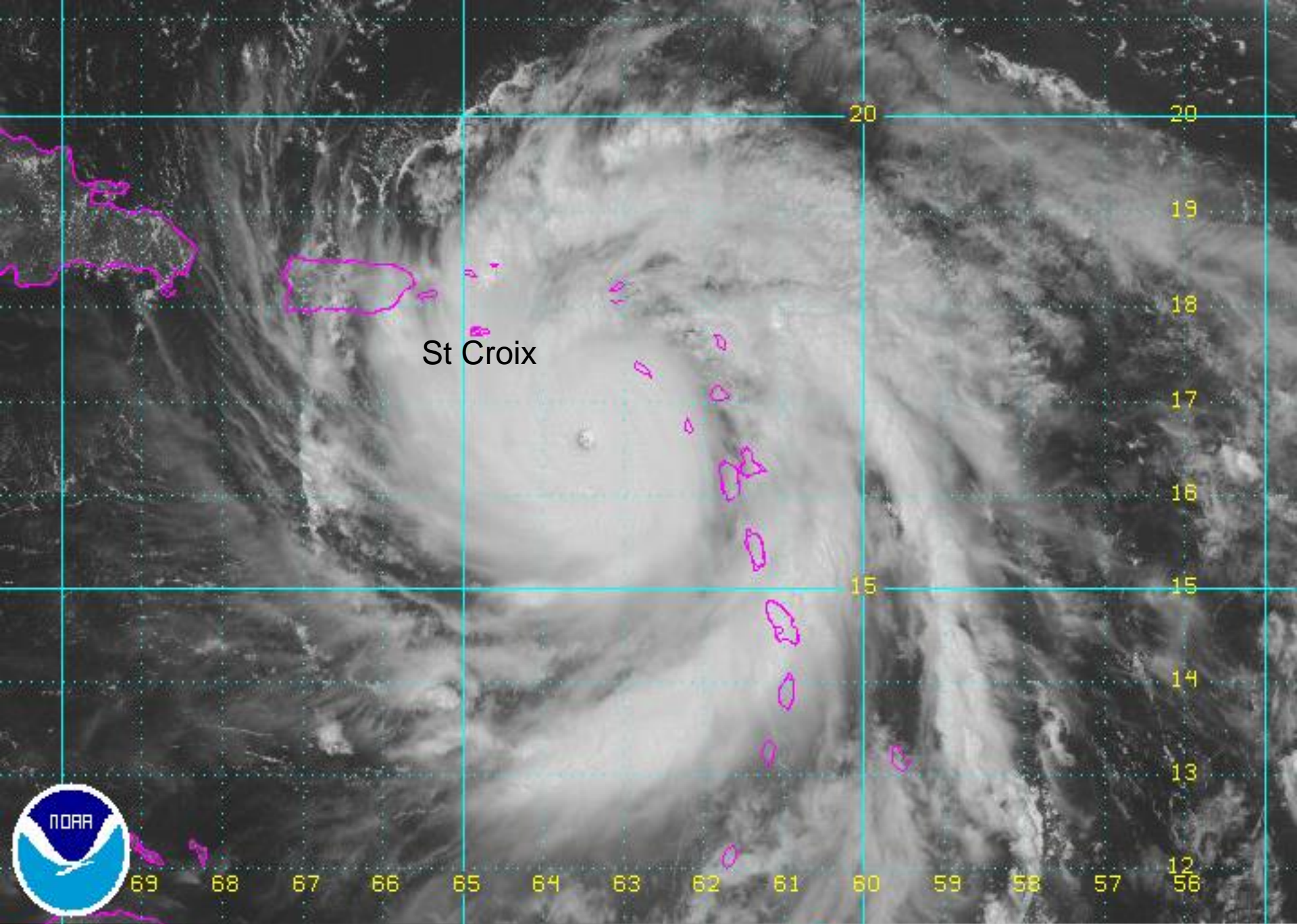
Week 2 Anomalies (mm/day)

26Sep2017–20Oct2017



Week-2: Expansion of enhanced rainfall from E Pac to W Carib

Weeks 1-2: Below average rainfall for Southeast

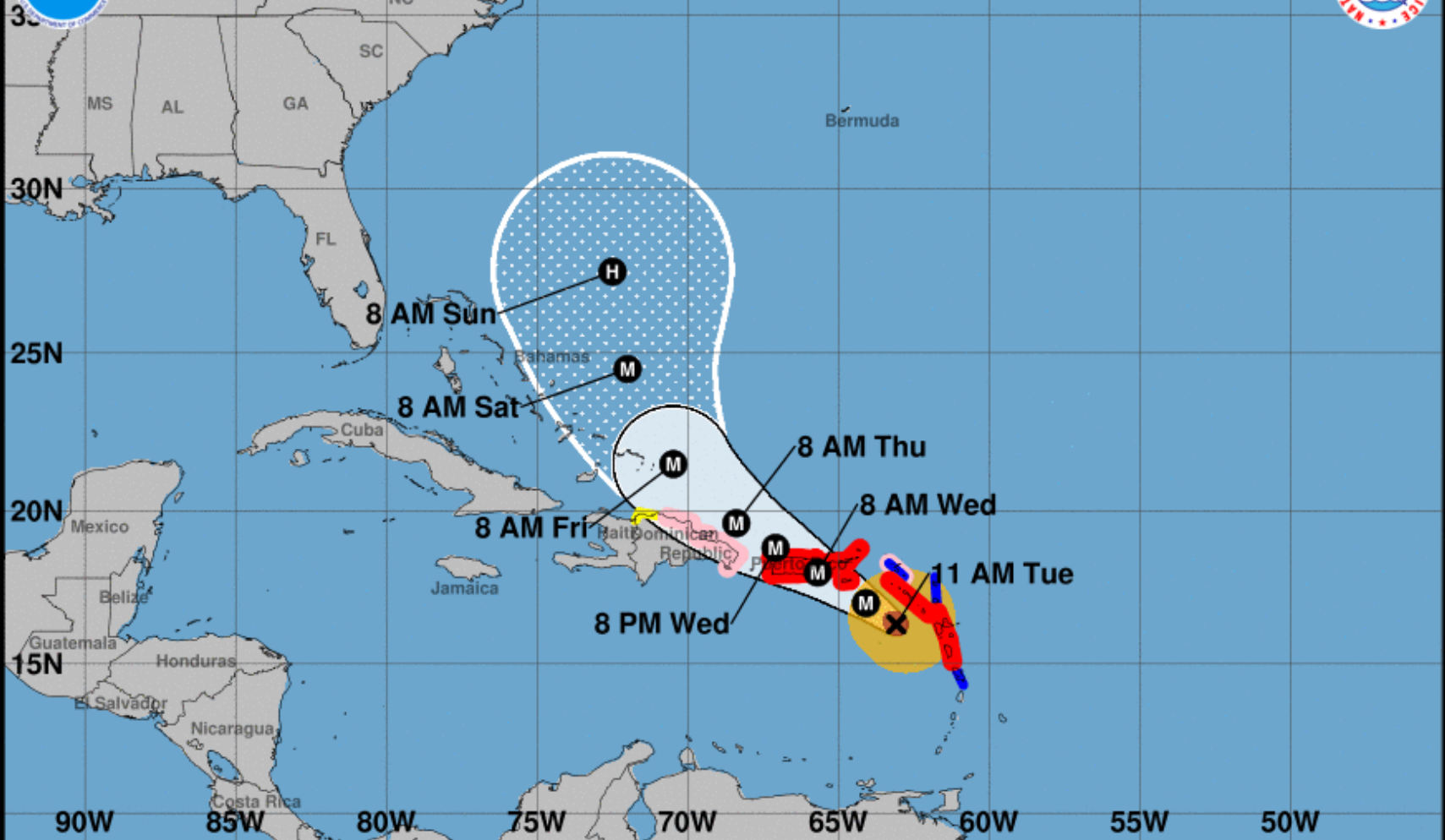


St Croix





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 Maria
 Tuesday September 19, 2017
 11 AM AST Advisory 14
 NWS National Hurricane Center

Current information: x
 Center location 16.3 N 63.1 W
 Maximum sustained wind 160 mph
 Movement WNW 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:



Watches:



Warnings:

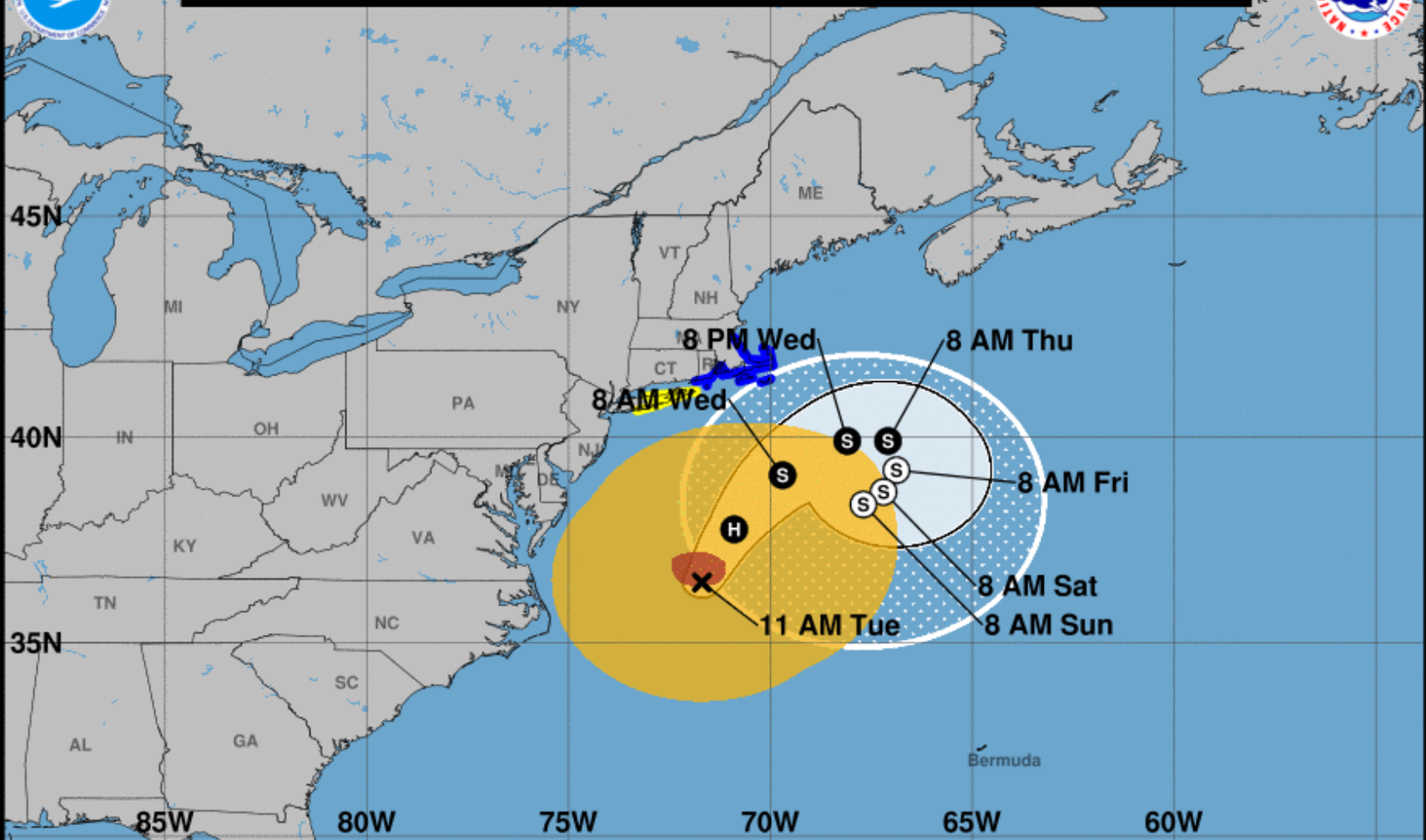


Current wind extent:





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 Jose
 Tuesday September 19, 2017
 11 AM EDT Advisory 57
 NWS National Hurricane Center

Current information: x
 Center location 36.5 N 71.7 W
 Maximum sustained wind 75 mph
 Movement N at 7 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:



Watches:

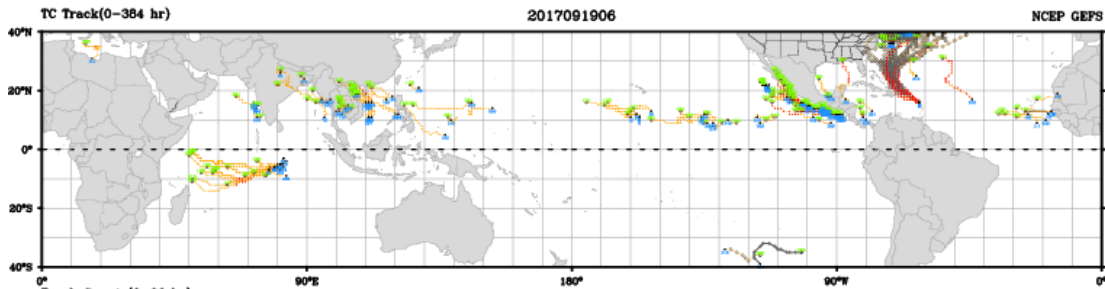


Warnings:

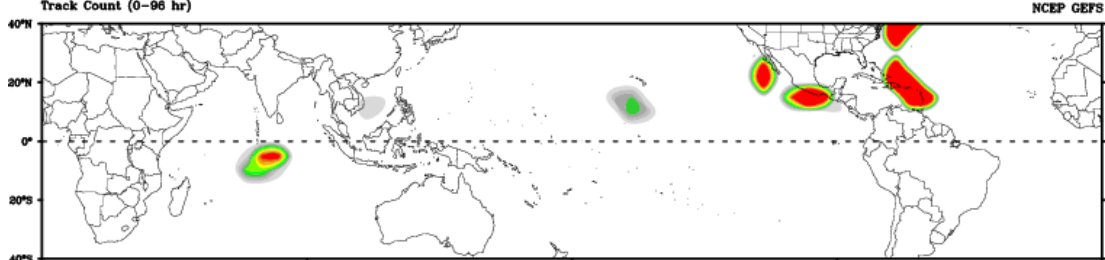


Current wind extent:

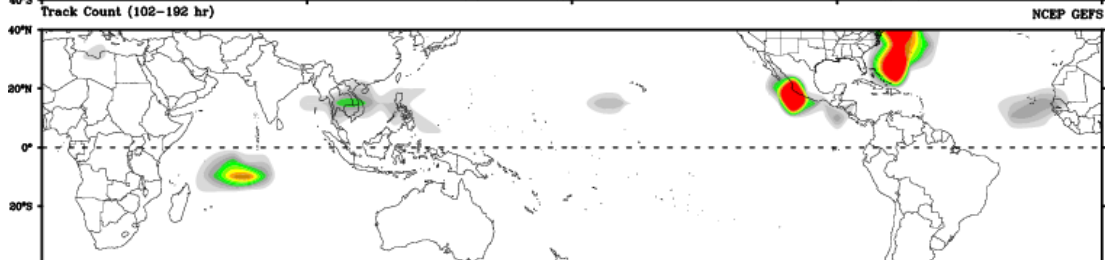




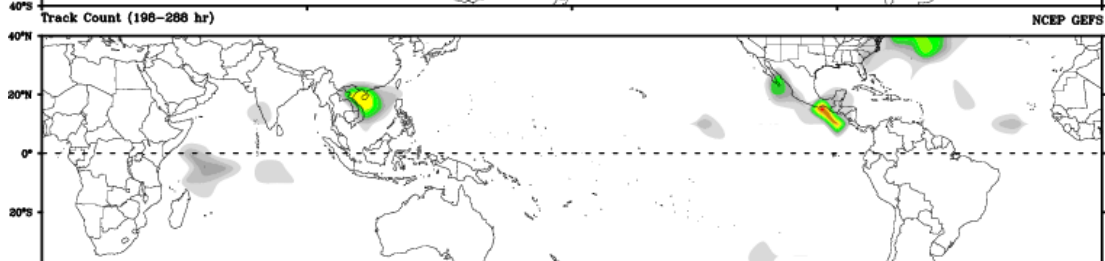
Days 1-4



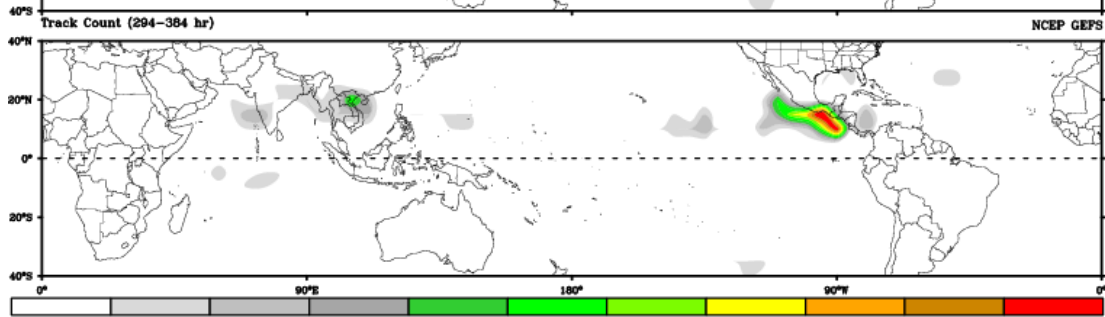
Day 5-8



Day 9-12

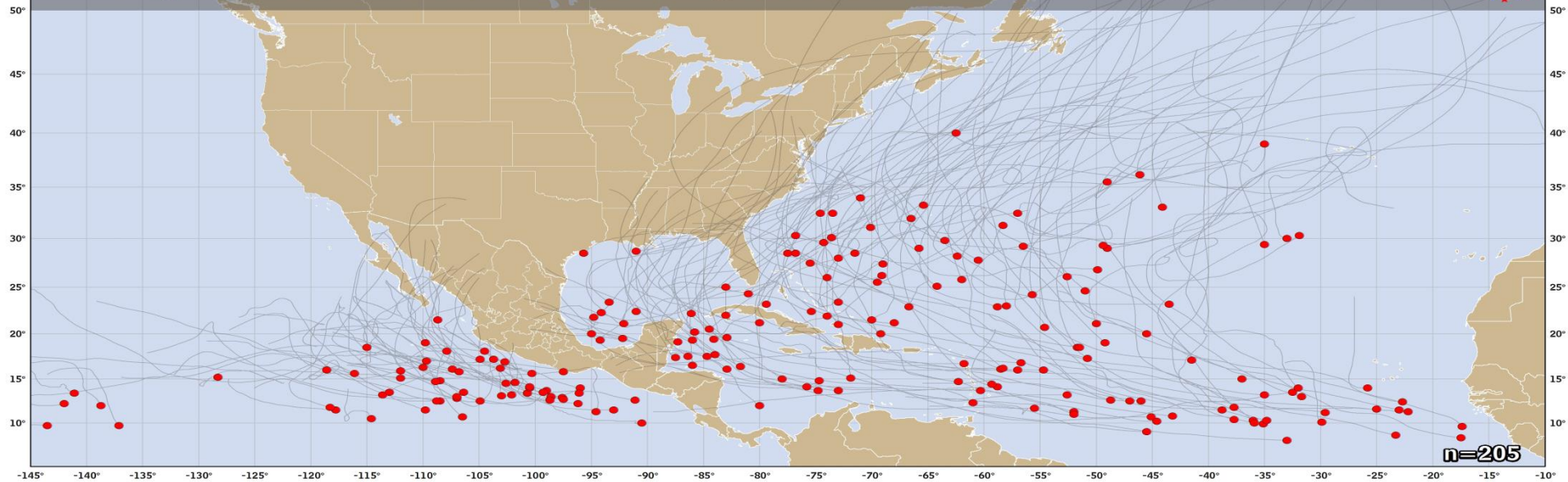


Day 13-15



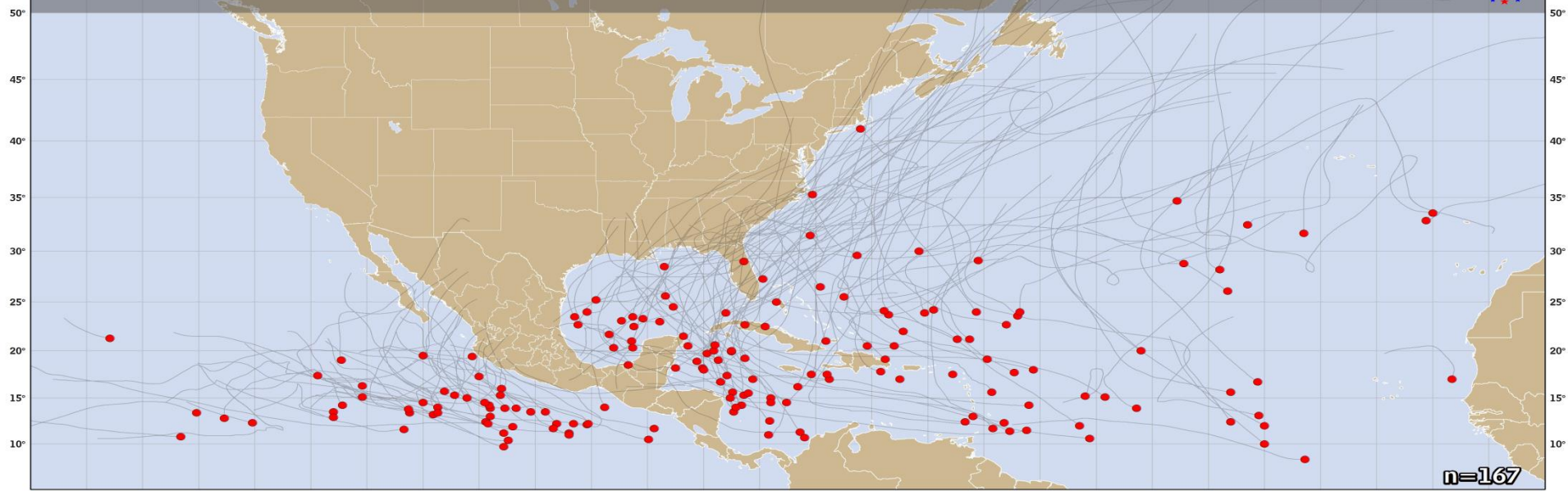
Track Count

September 21-30 Tropical Cyclone Points of Origin, 1851-2015



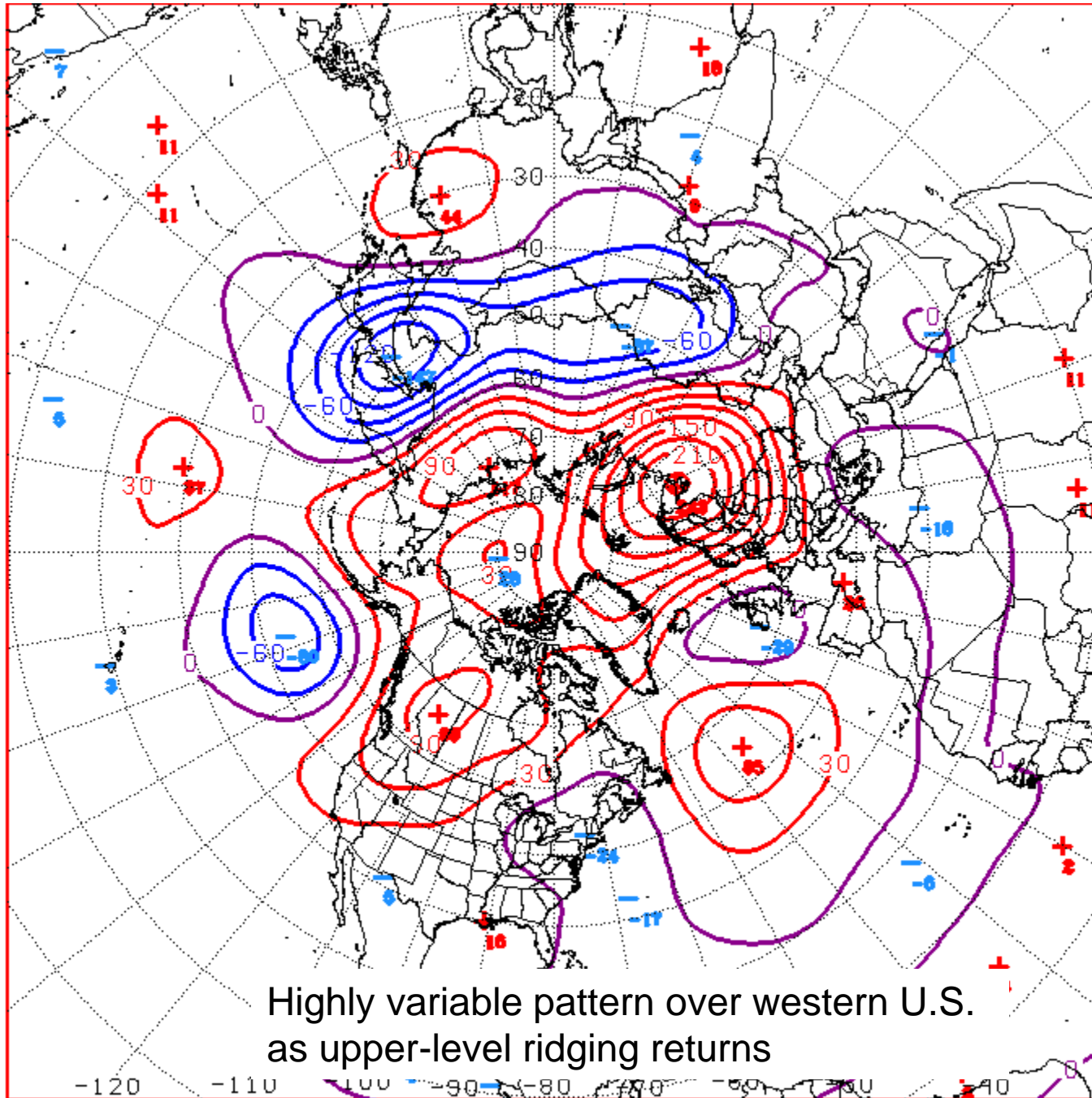
n=205

October 1-10 Tropical Cyclone Points of Origin, 1851-2015



n=167

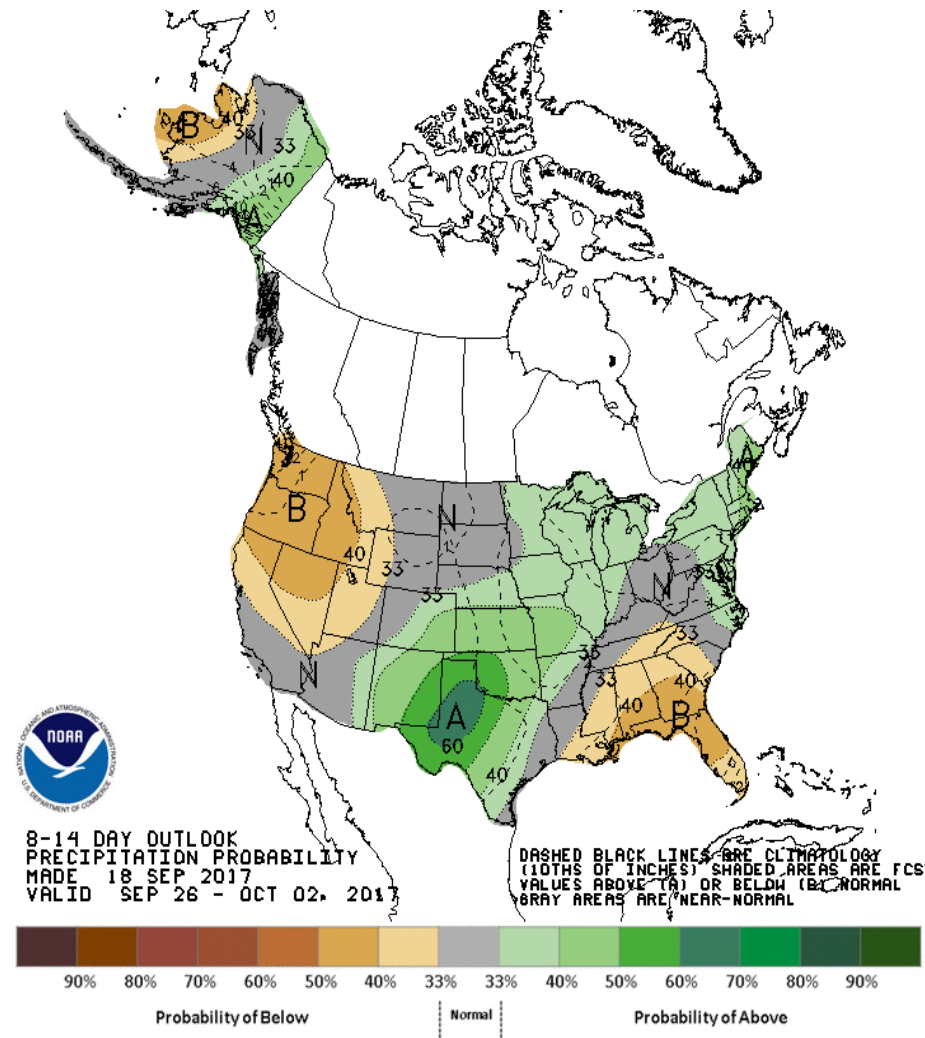
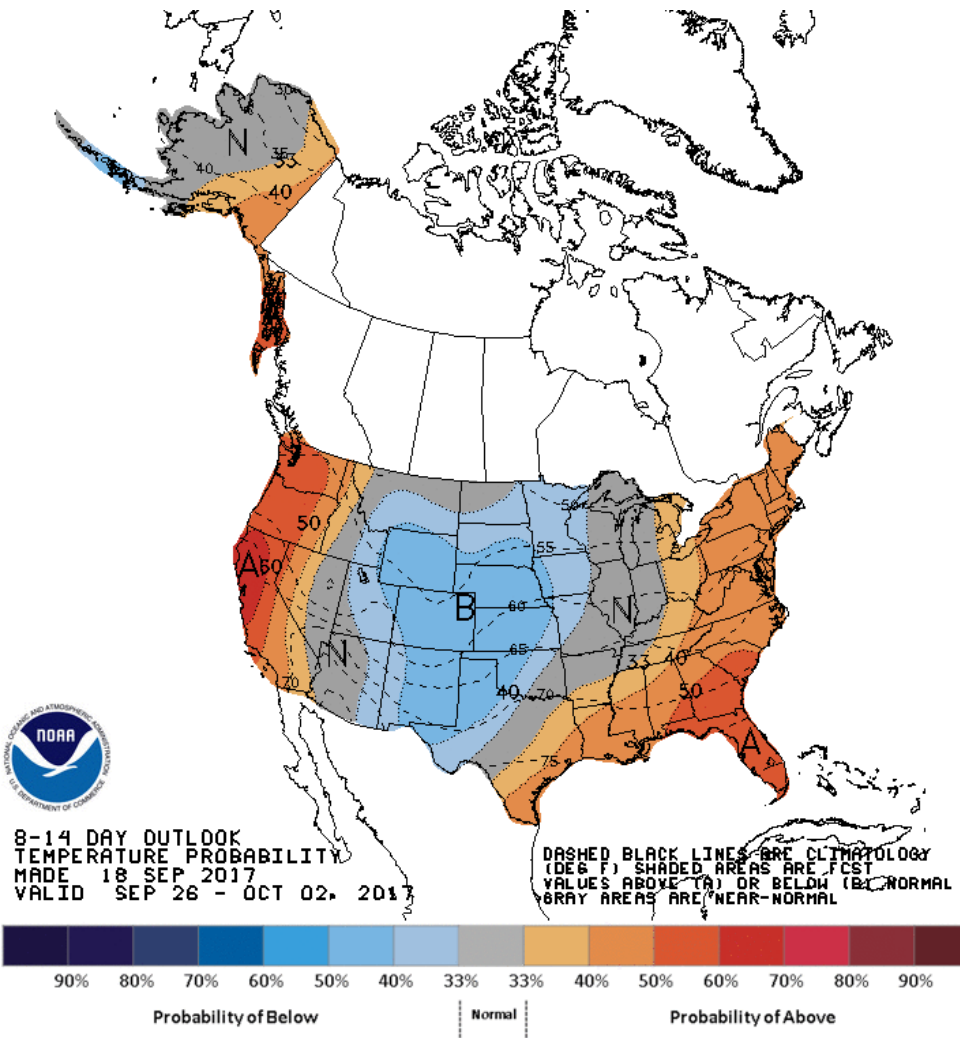
Connections to U.S. Impacts



Highly variable pattern over western U.S.
as upper-level ridging returns

-120 -110 -100 -90 -80 -70 -60 -50 -40 -30
 D+11 500 MB ANOMALIES FROM 00Z ECMM
 CPC MAP MADE SEP 19 2017 0945 UTC CNTD SEP 30 2017

Week 2 – Temperature and Precipitation



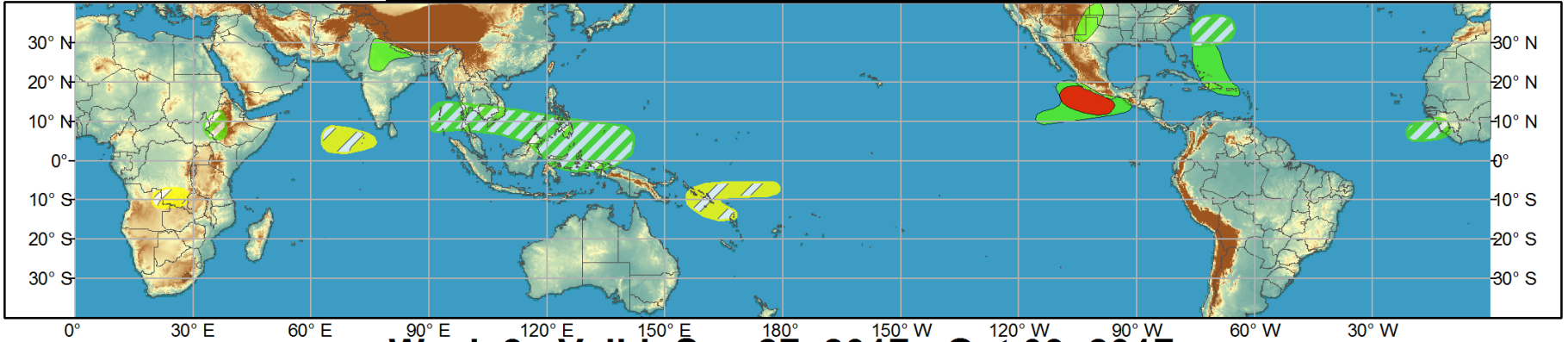
- Increased chances of above precip across southern Plains related to rainfall early in Week-2
- Drier forecast anticipated for eastern U.S. with Maria most likely to remain offshore



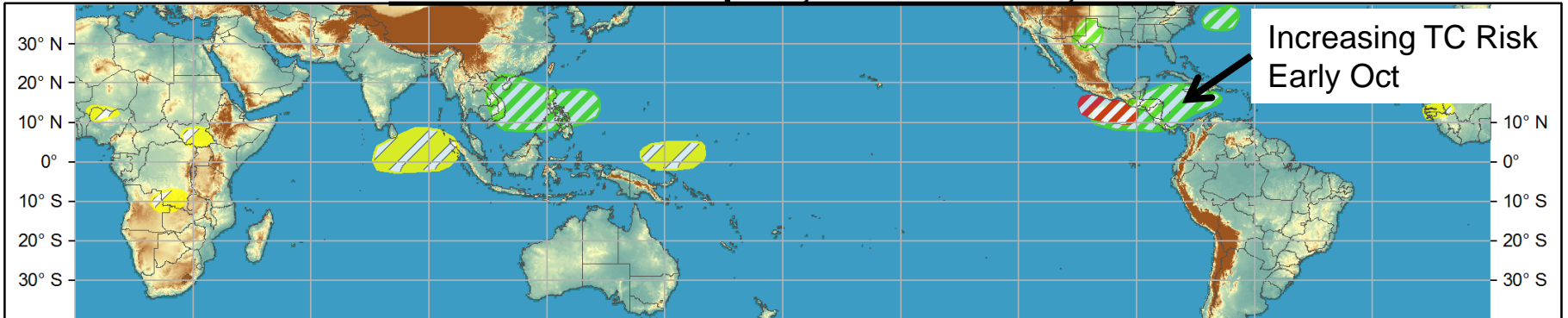
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