

Global Tropics Hazards And Benefits Outlook

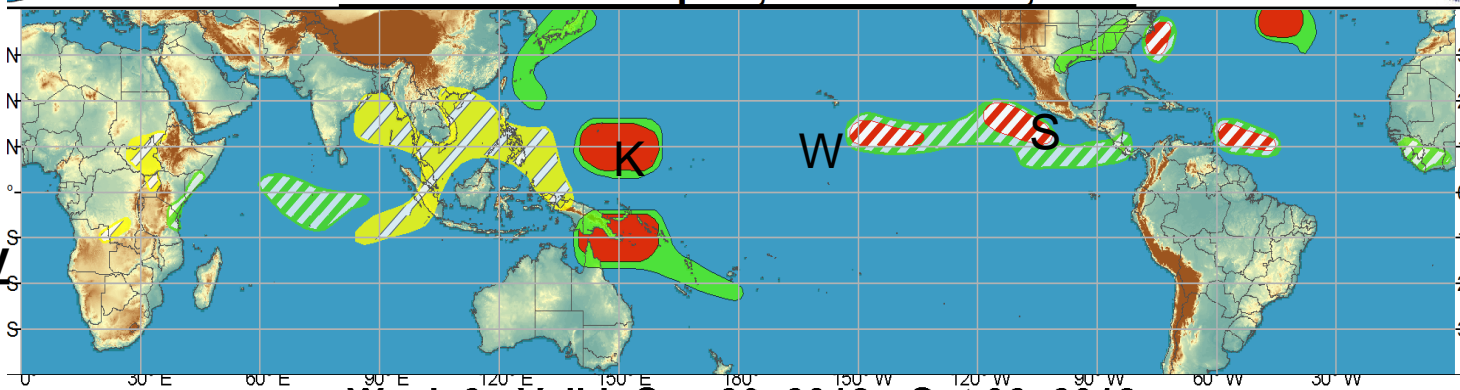
10/2/2018

Dan Harnos

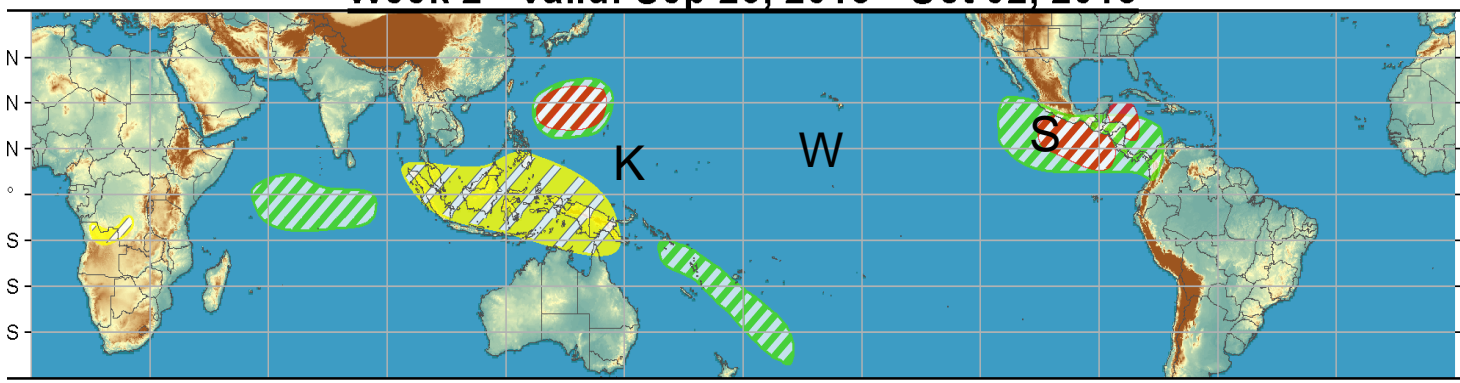
Outline

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

Week 1 - Valid: Sep 26, 2018 - Oct 02, 2018

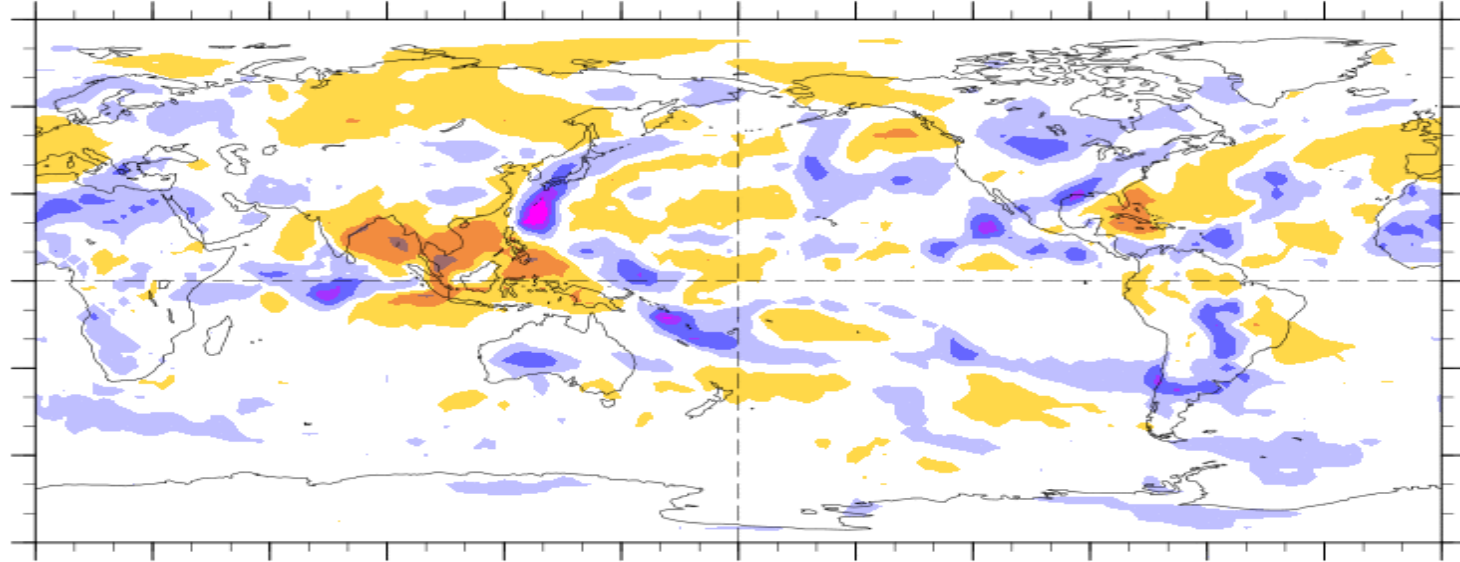


Week 2 - Valid: Sep 26, 2018 - Oct 02, 2018



7-Day Average OLR Anomaly

2018/09/24 - 2018/09/30



Outlook Review

Typhoon Kong-Rey

9/28 – present
135 kt winds

Hurricane Walaka

9/29 – present
140 kt winds

Hurricane Sergio

9/29 – present
85 kt winds

Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO:

- ENSO Alert System Status as of 13 September: [*El Niño Watch*](#)
 - There is a 50-55% chance of El Niño onset during NH Fall (SON) 2018, increasing to 65-70% during winter 2018-19.
- The strong westerly wind burst east of New Guinea the last few weeks is likely to improve these odds for the next release (11 October).

MJO and other subseasonal tropical variability:

- The MJO was present across the Western Hemisphere the past week, although it appears largely forced by the extratropics. A Kelvin wave is presently over the Indian Ocean.
- Models support the MJO presence in Phase 1 during Week-1, and a combination of Phase 1 and 2 during Week-2. RMM forecasts of decreasing amplitude late in Week-2 are to be taken with substantial caution, as they are likely tied to the transition towards El Niño conditions that biases the RMM index towards Phases 7 and 8.

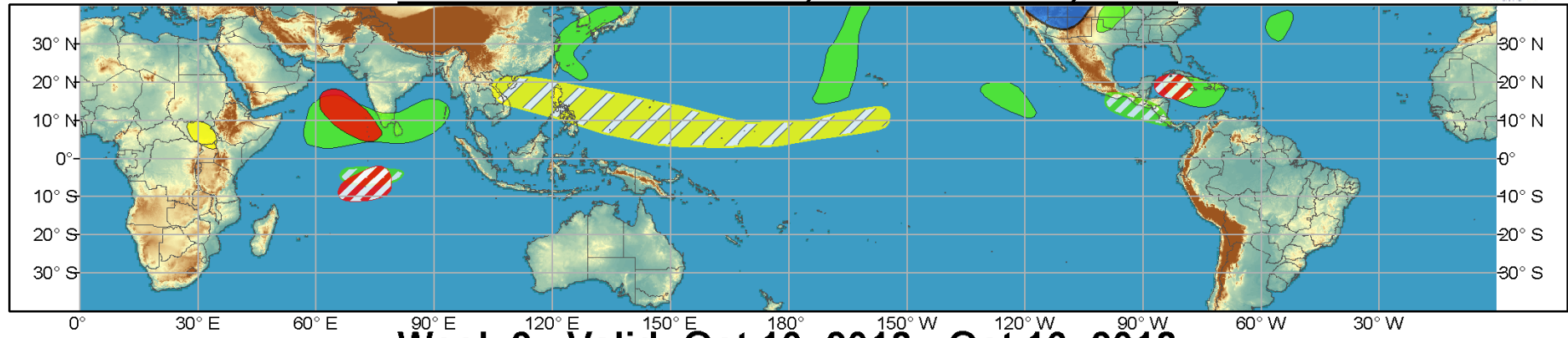
Extratropics:

- The extratropics appear to be largely forcing the tropics, rather than the other way around at present, with a wave train across the Pacific crashing equatorward over the Western Hemisphere. Given this scenario, tropical cyclone activity appears the most likely tropical influence on the extratropics during the next two weeks.

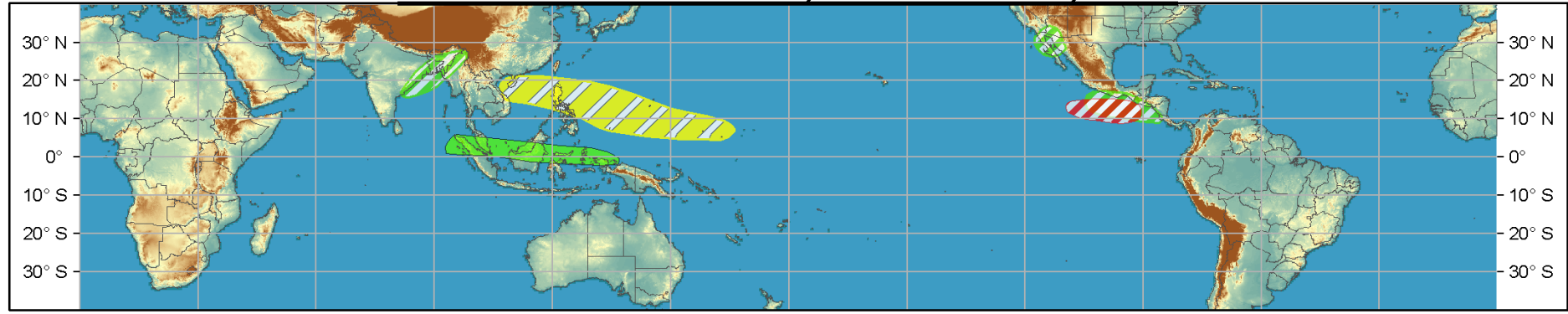


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Oct 03, 2018 - Oct 09, 2018



Week 2 - Valid: Oct 10, 2018 - Oct 16, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Produced: 10/02/2018

Forecaster: D.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

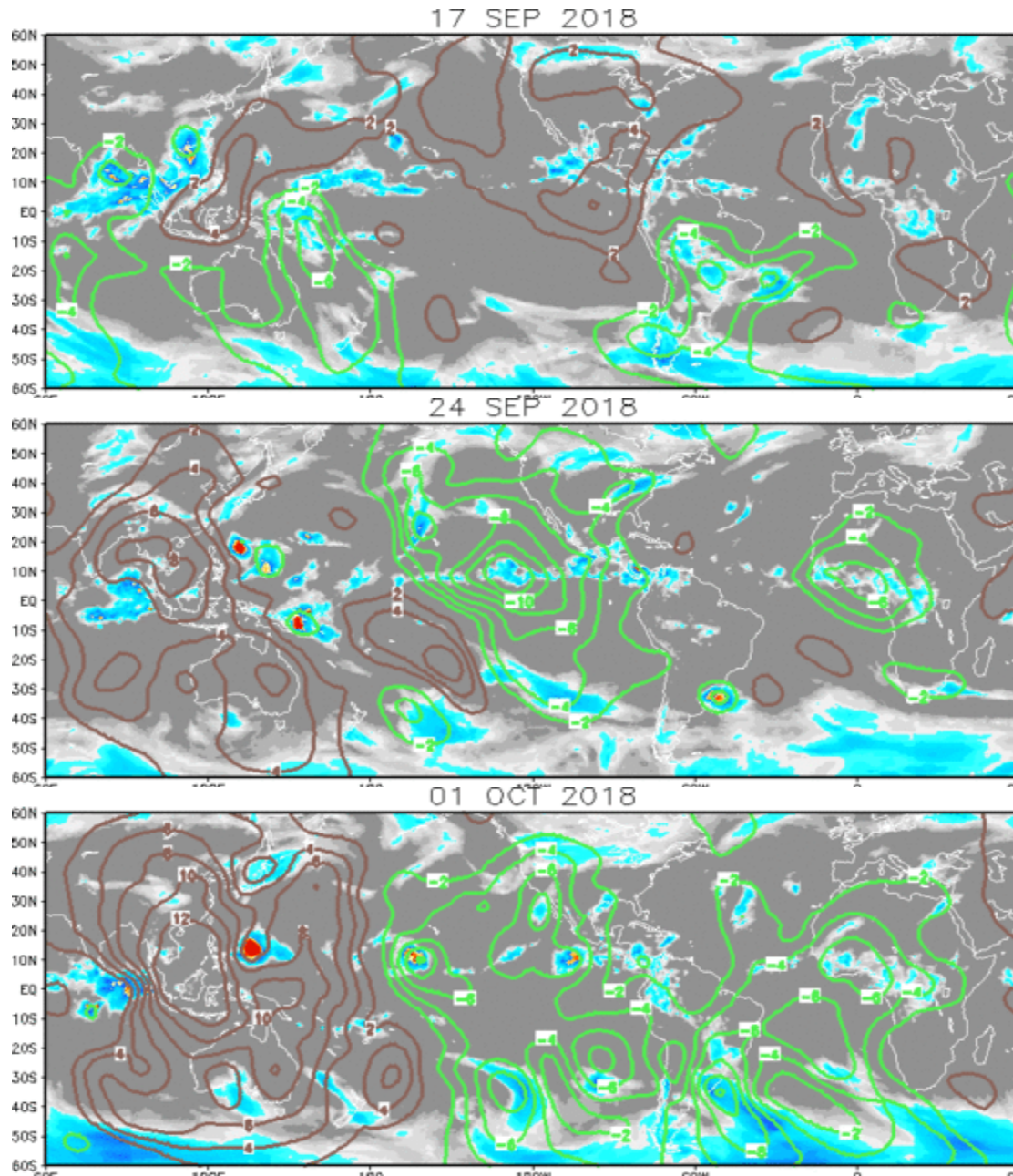
Green: Enhanced Divergence

Brown: Enhanced Convergence

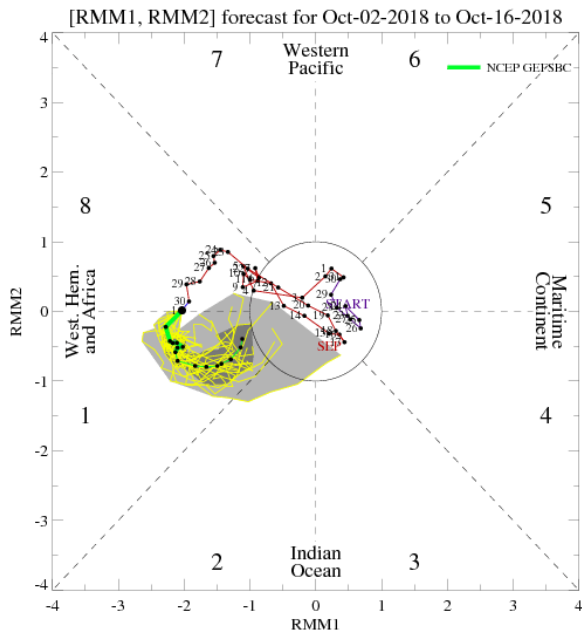
Mixed Wave-2 to Wave-1 pattern.

Full transition to a Wave-1 pattern, consistent with the MJO.

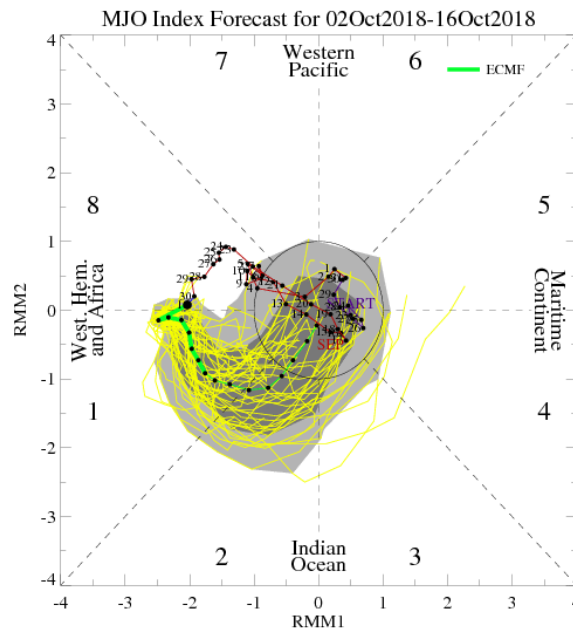
Slight eastward propagation, of the Wave-1 pattern. Kong-Rey shows up well despite the hostile large-scale conditions.



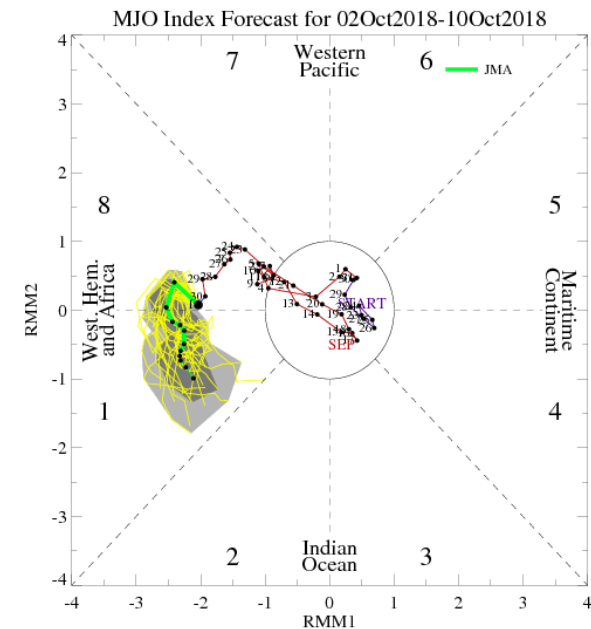
MJO Observation/Forecast



GEFS



ECMWF

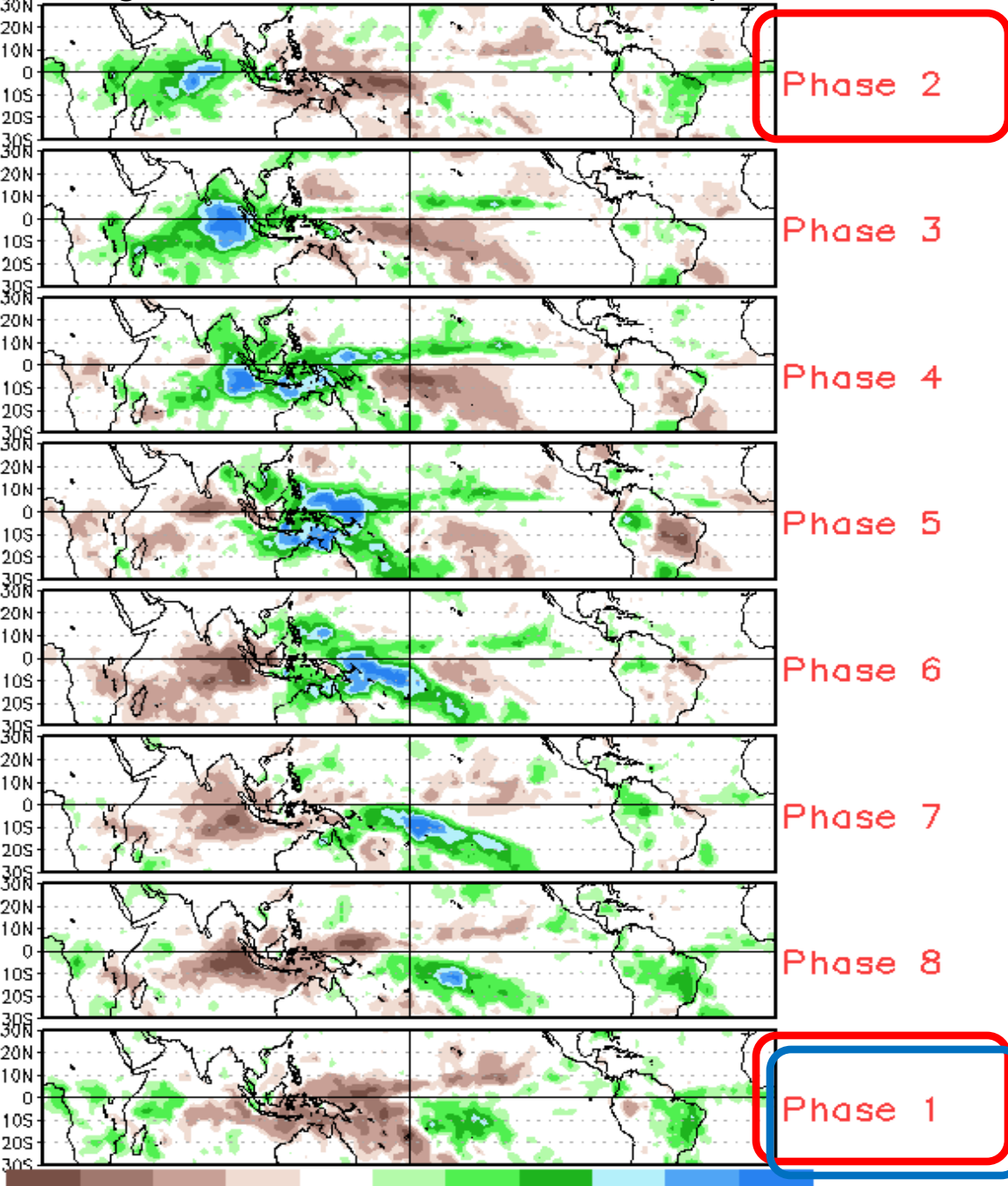


JMA

RMM index forecasts indicate the signal to be in Phase 1 this week, with possible transition into Phase 2 late in Week-2.

The GEFS and ECMWF weaken the signal substantially during Week-2, which may be tied to the building El Niño conditions in the Pacific that bias the RMM index towards Phases 7 and 8, rather than the MJO actually weakening.

Average Conditions when the MJO is present

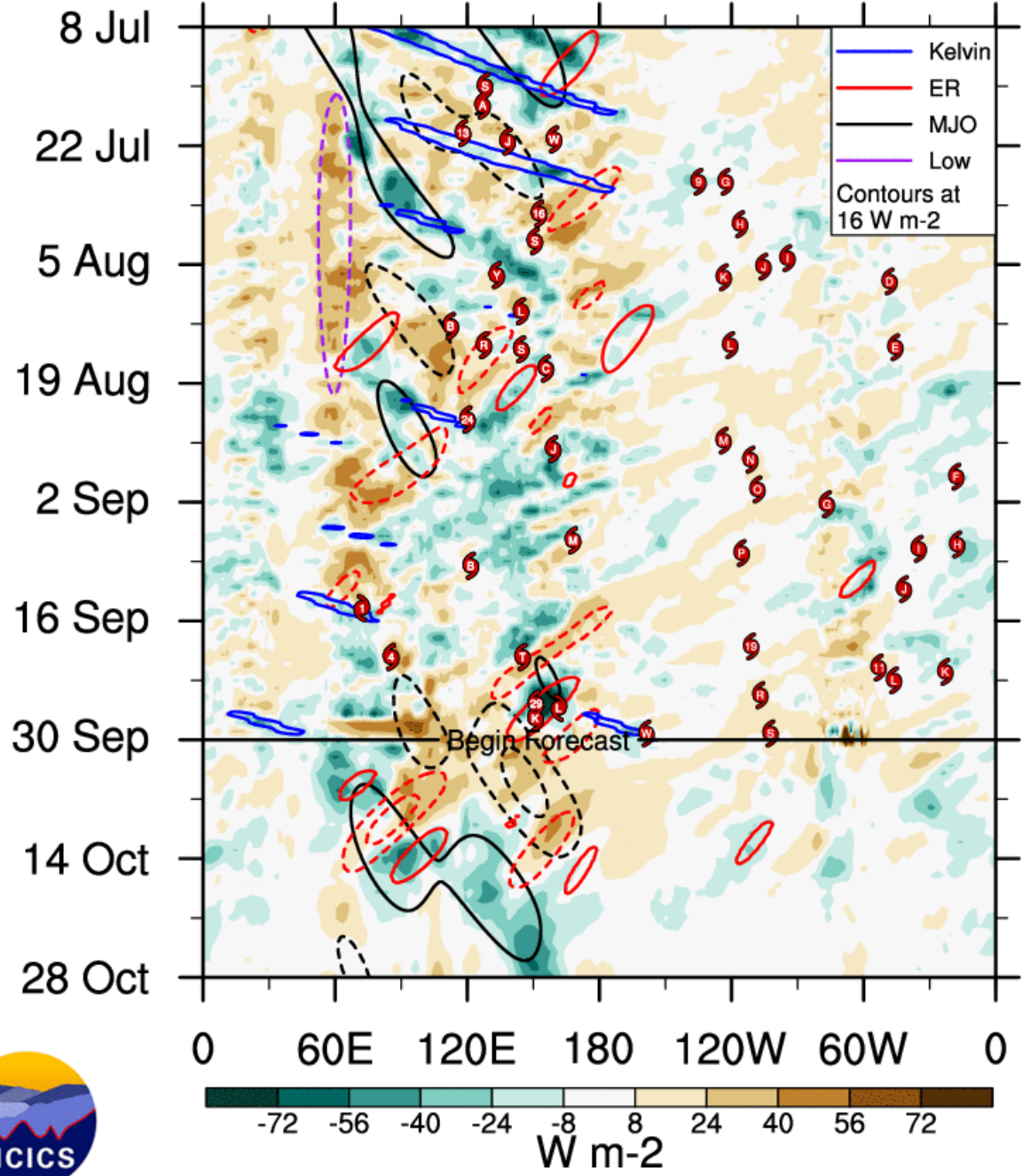


Week-1
Week-2

CAVEAT: These panels are representative of robust MJO events.

OLR with CFS forecasts

5S - 5N



MJO competing with Rossby waves and TC's

Low-frequency pattern less of an influence

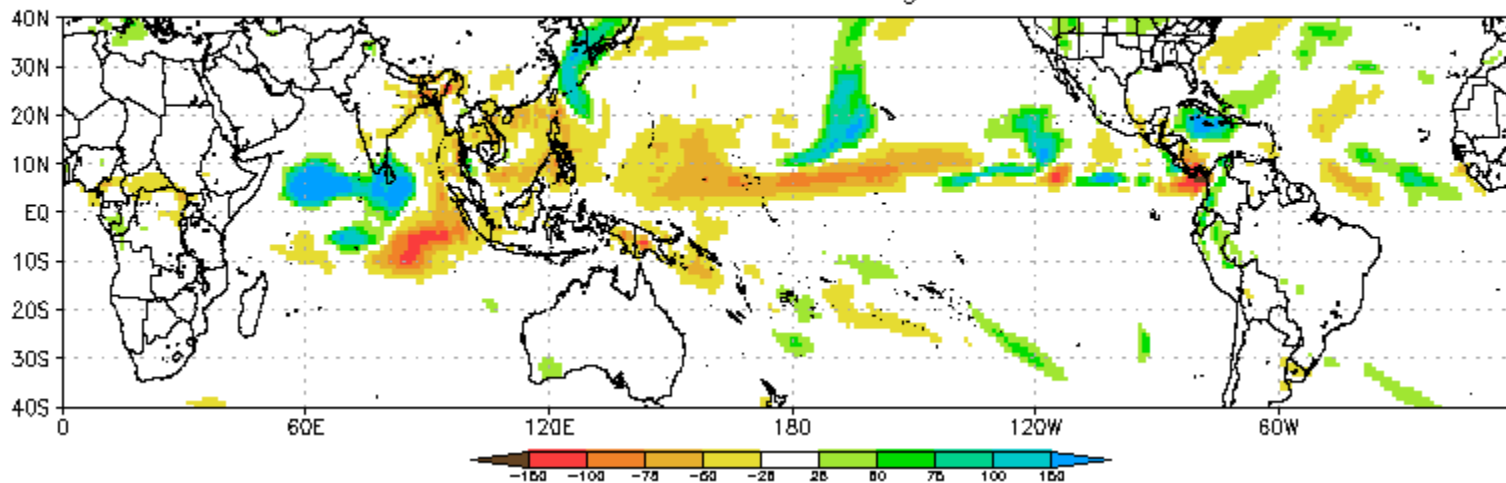


ncics.org/mjo

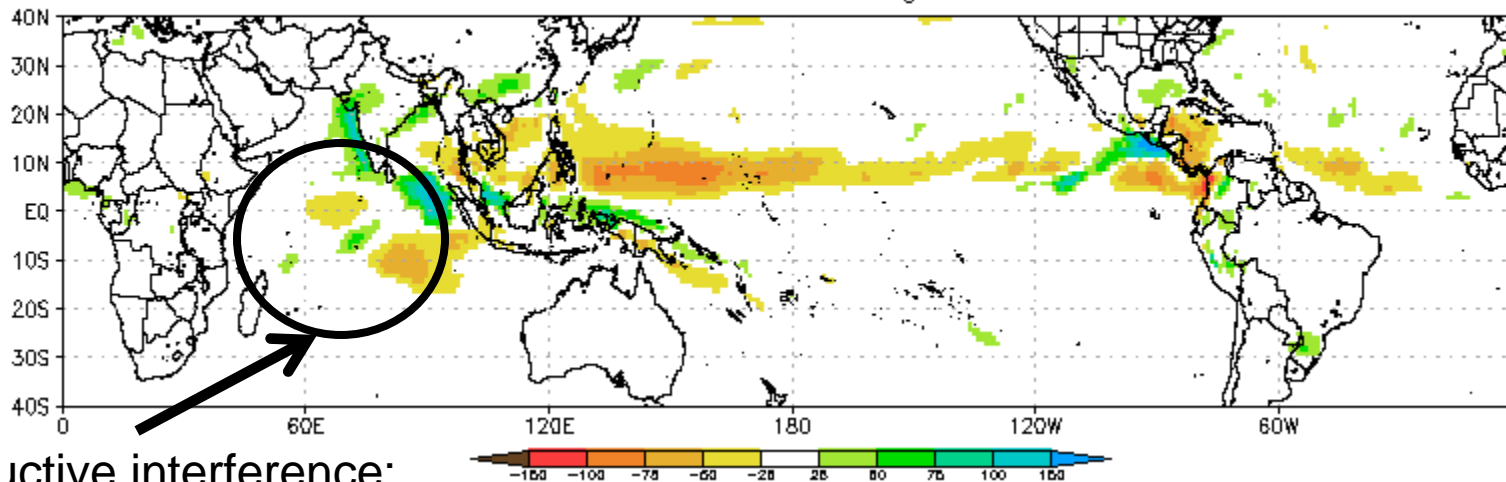
Mon 2018-10-01 1512 UTC

Carl Schreck (cjschrec@ncsu.edu)

CFS Precipitation Anomalies (mm) Issued 01Oct2018
Week-1 Forecast Ending 09Oct2018



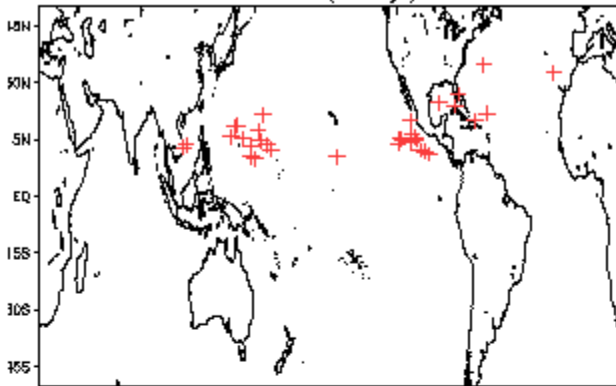
CFS Precipitation Anomalies (mm) Issued 01Oct2018
Week-2 Forecast Ending 16Oct2018



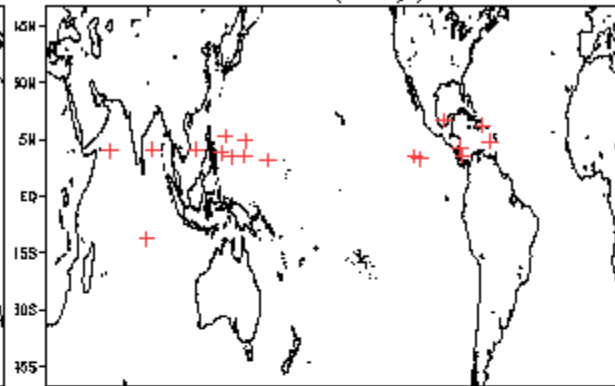
Destructive interference:
MJO versus low frequency
and equatorial Rossby wave

October Tropical Storm Formation by MJO phase

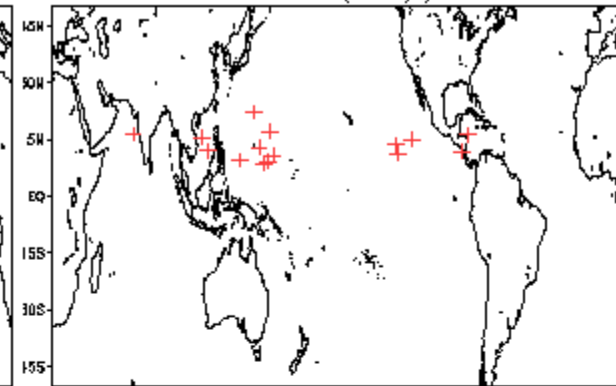
Phase 1 (94 days) 34 storms



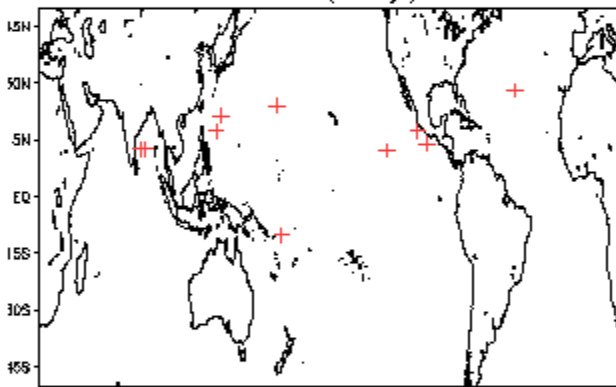
Phase 4 (85 days) 18 storms



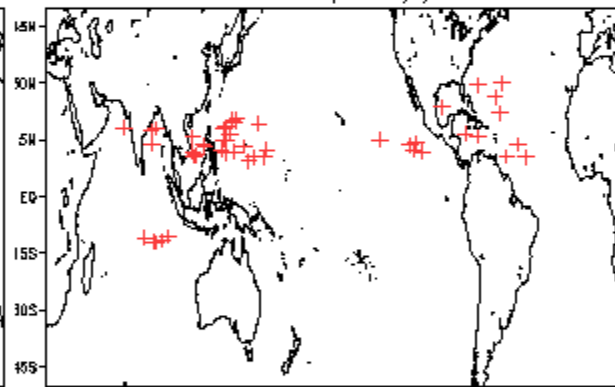
Phase 7 (48 days) 16 storms



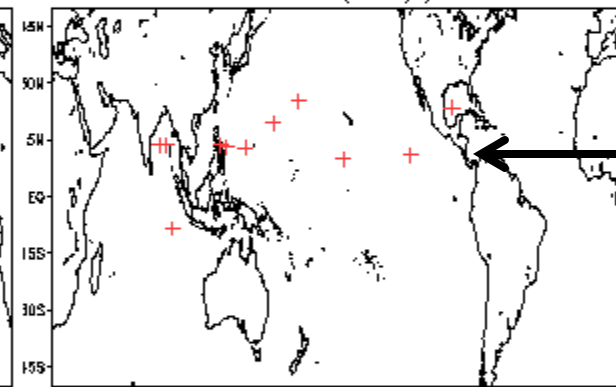
Phase 2 (75 days) 11 storms



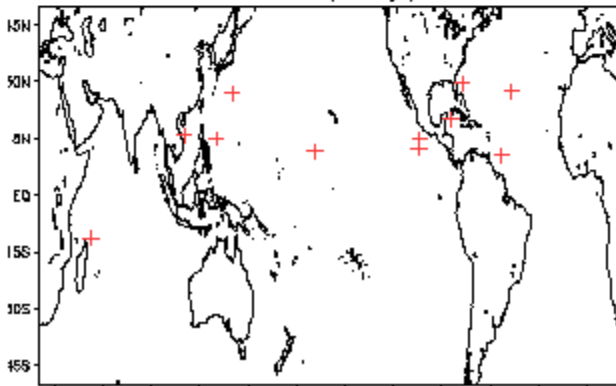
Phase 5 (133 days) 48 storms



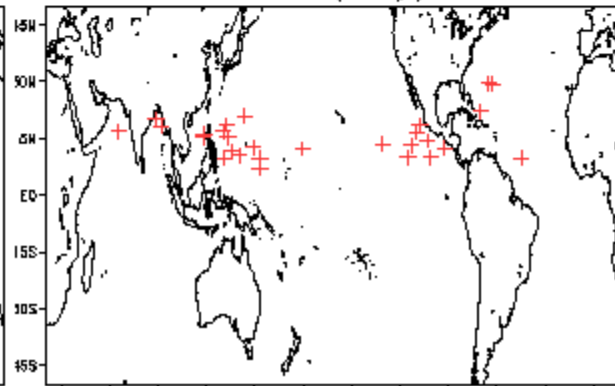
Phase 8 (66 days) 12 storms



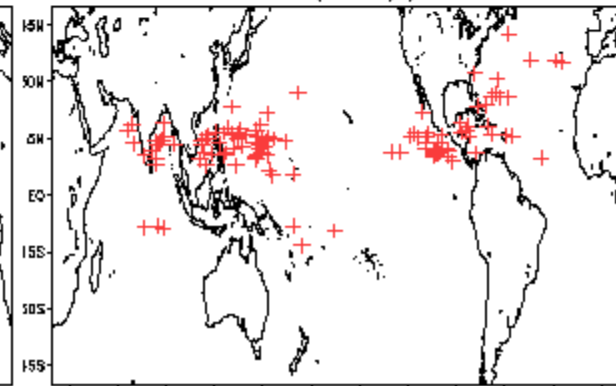
Phase 3 (41 days) 12 storms



Phase 6 (78 days) 30 storms



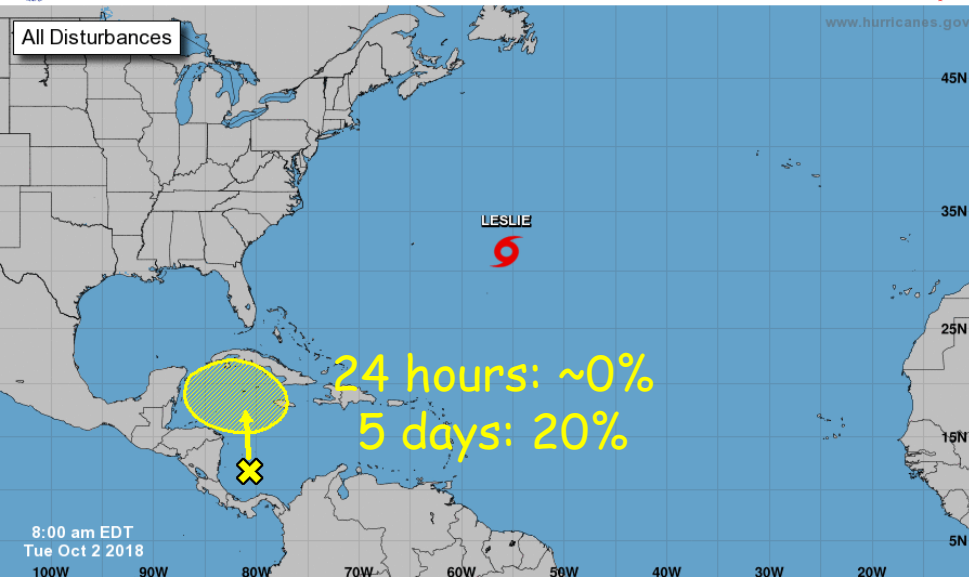
Null (422 days) 119 storms





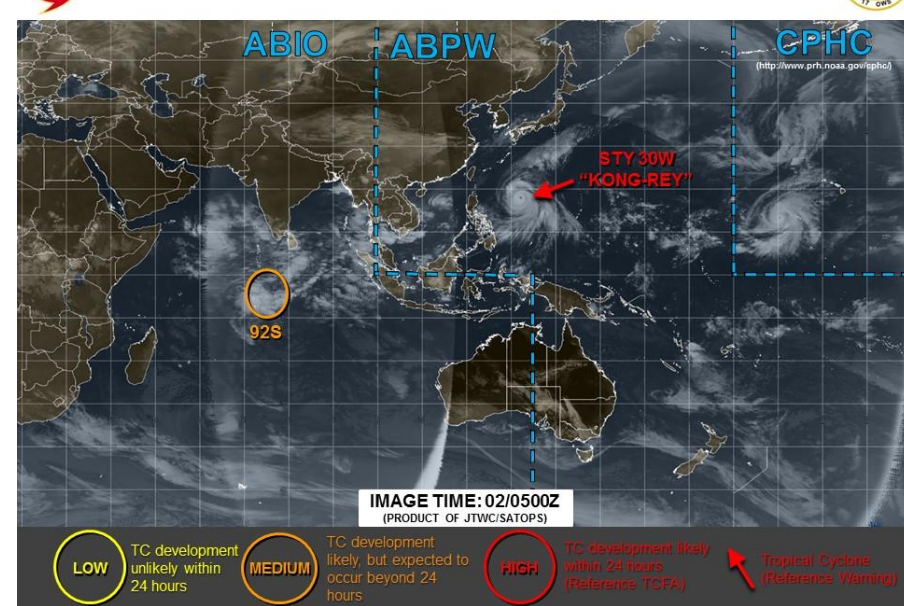
Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



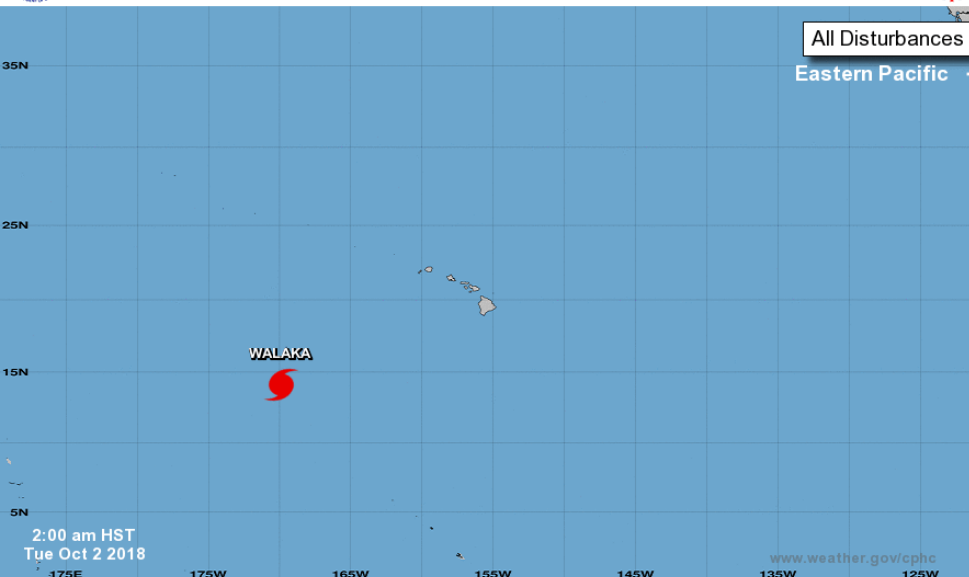
Current Disturbances and Five-Day Cyclone Formation Chance: **X** < 40% **X** 40-60% **X** > 60%
 Tropical or Sub-Tropical Cyclone: ○ Depression ● Storm ● Hurricane
 ○ Post-Tropical Cyclone or Remnants

JOINT TYPHOON WARNING CENTER



Five-Day Graphical Tropical Weather Outlook

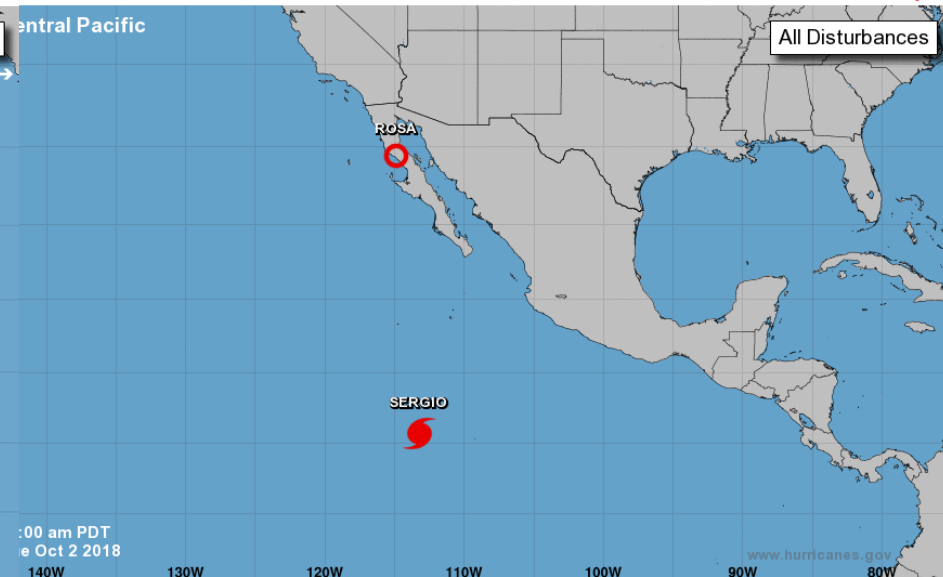
Central Pacific Hurricane Center Honolulu, Hawaii



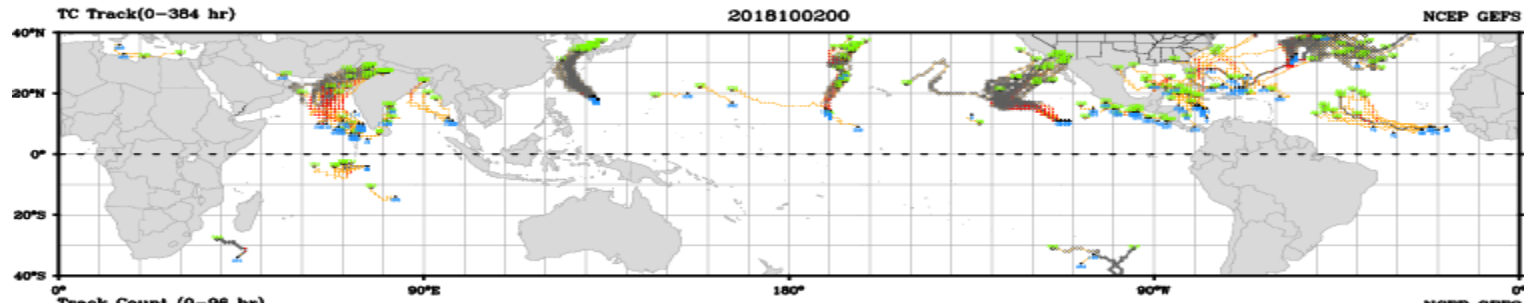
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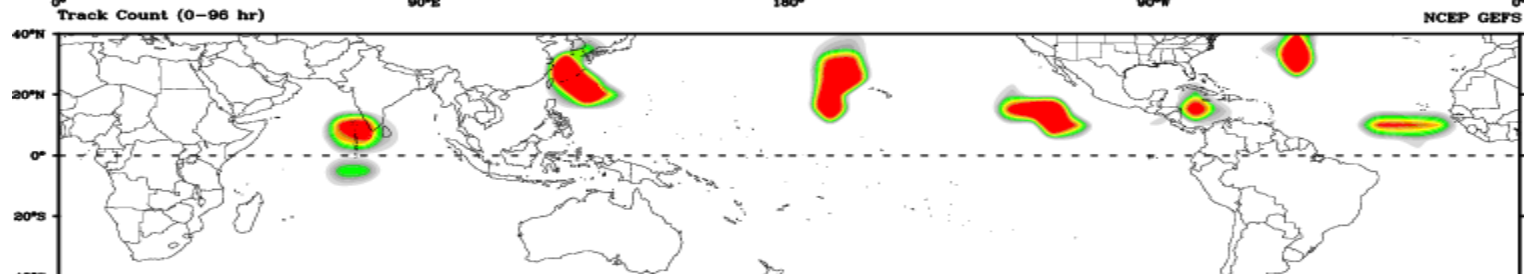
National Hurricane Center Miami, Florida



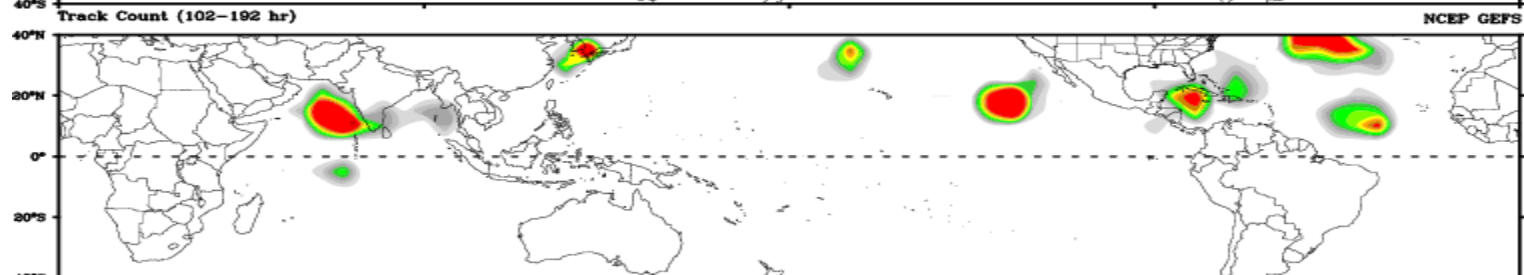
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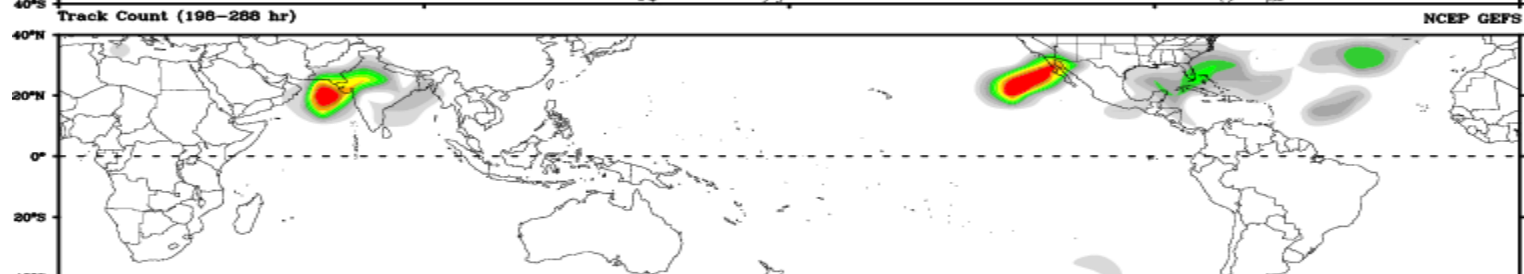
Days 1-4



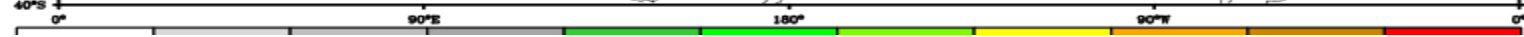
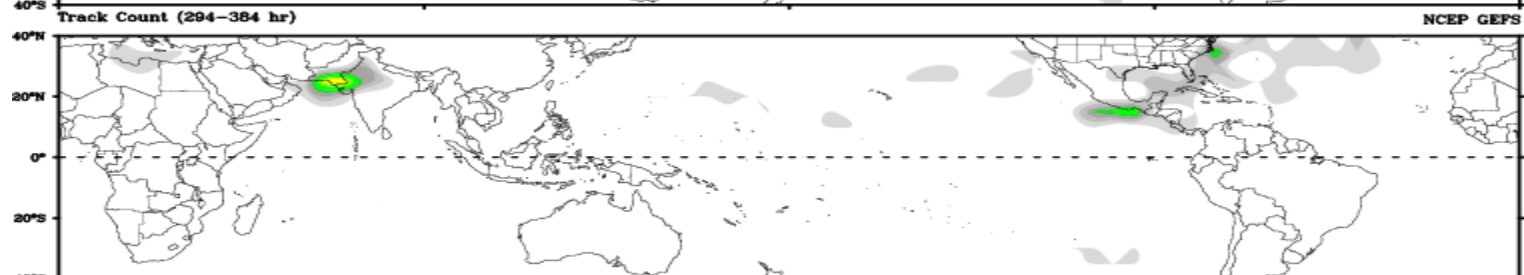
Day 5-8



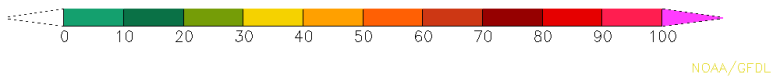
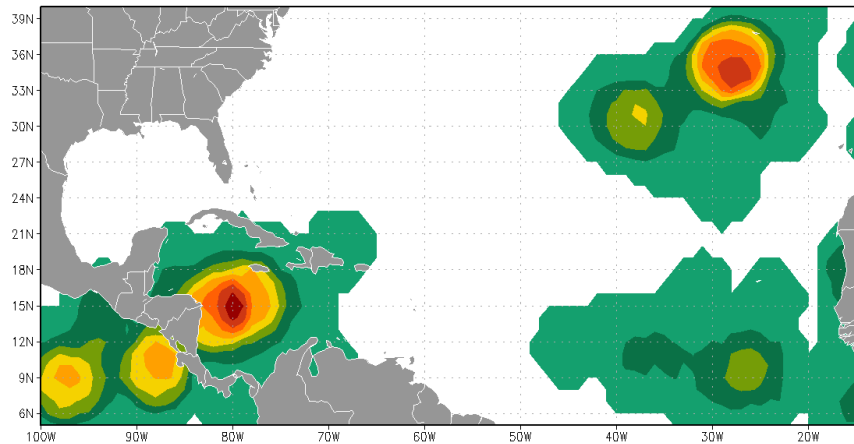
Day 9-12



Day 13-15



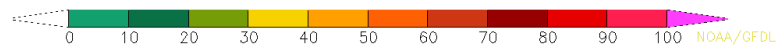
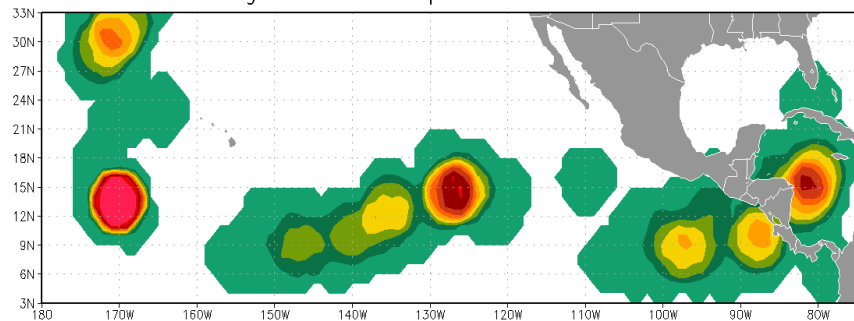
Ensemble-based Probability (%) of TC genesis
 using these global ensembles: NCEP FNMOC ECMWF
 For forecasts during the 00–120h period from initial time = 2018100200



NOAA/GFDL

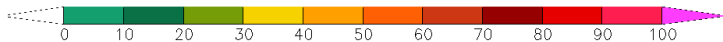
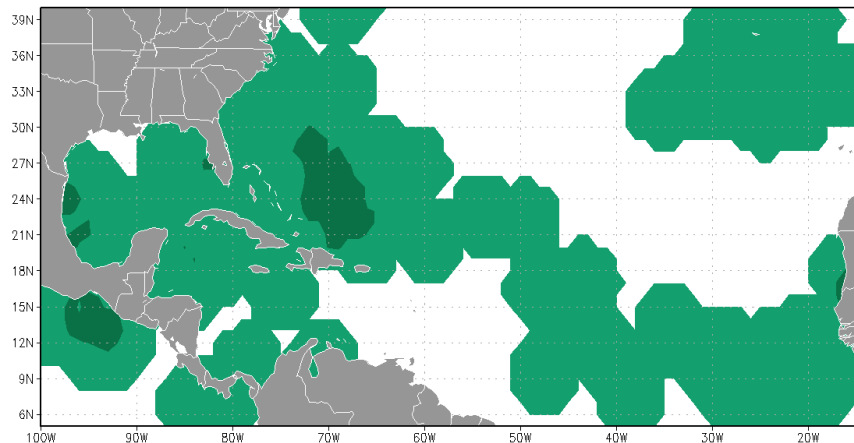
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Days
1-5



NOAA/GFDL

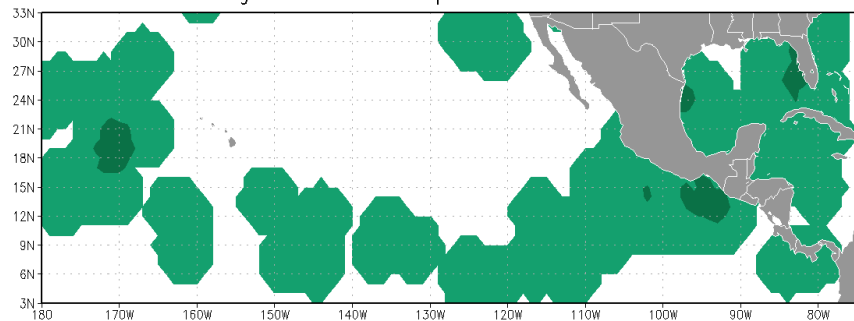
Ensemble-based Probability (%) of TC genesis
 using these global ensembles: NCEP FNMOC ECMWF
 For forecasts during the 120–240h period from initial time = 2018100200



NOAA/GFDL

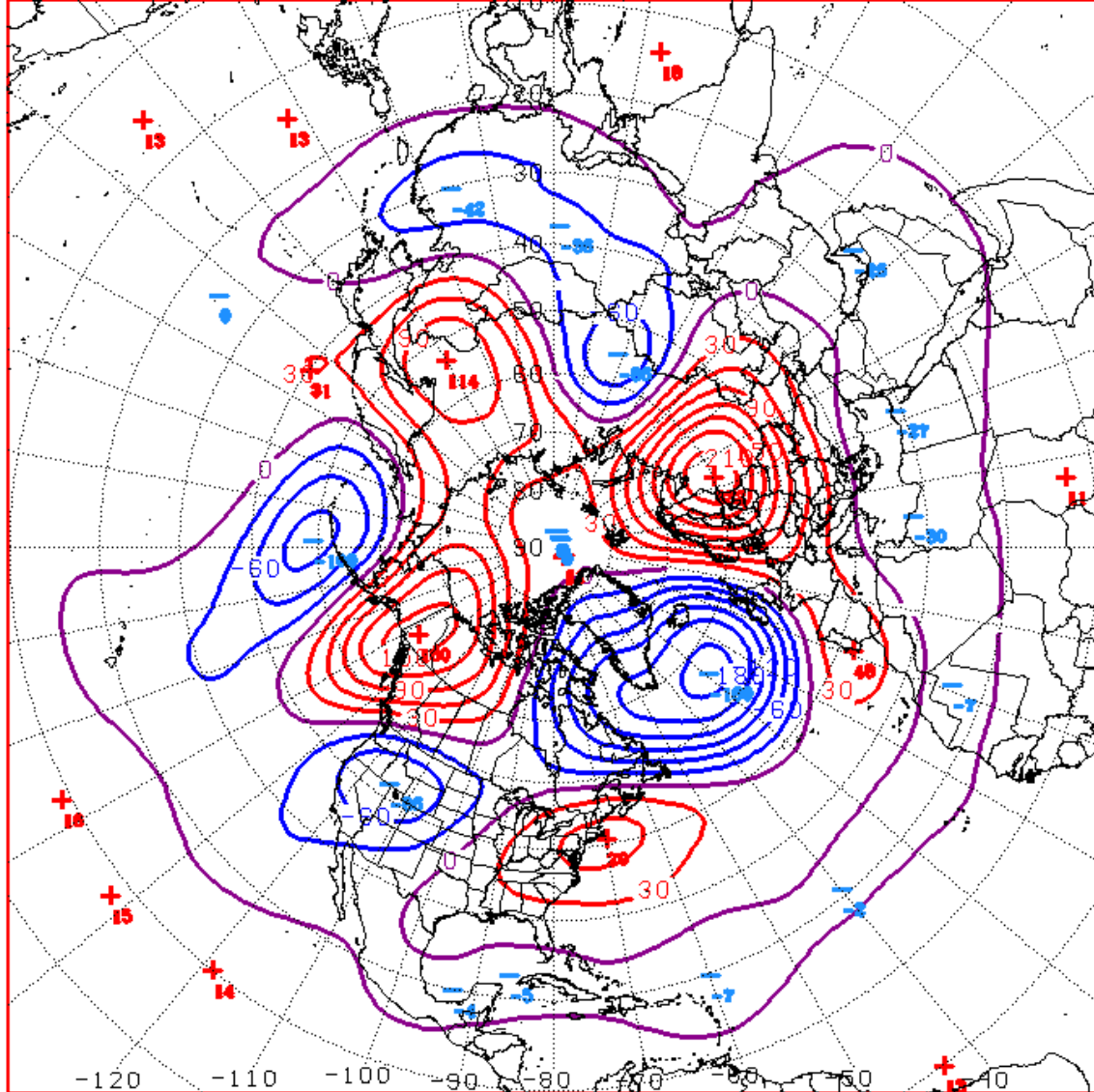
Ensemble-based Probability (%) of TC genesis
 using these global ensembles: NCEP FNMOC ECMWF
 For forecasts during the 120–240h period from initial time = 2018100200

Days
6-10



NOAA/GFDL

Connections to U.S. Impacts



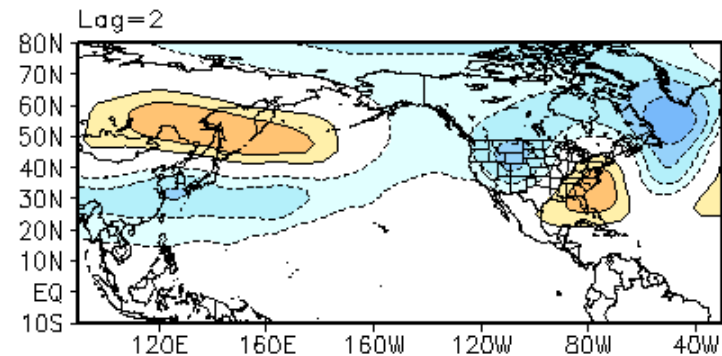
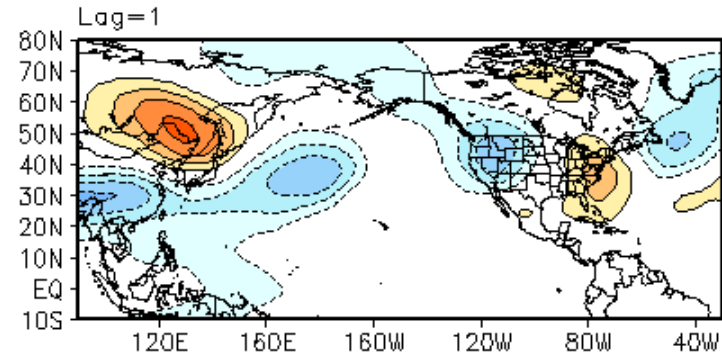
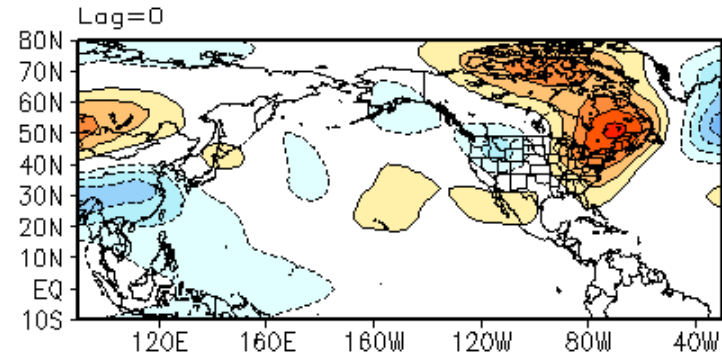
D+11 500 MB ANOMALIES FROM 00Z ECMM
 CPC MAP MADE OCT 02 2018 1020 UTC CNTD OCT 13 2018

Trough for West, ridge for East!

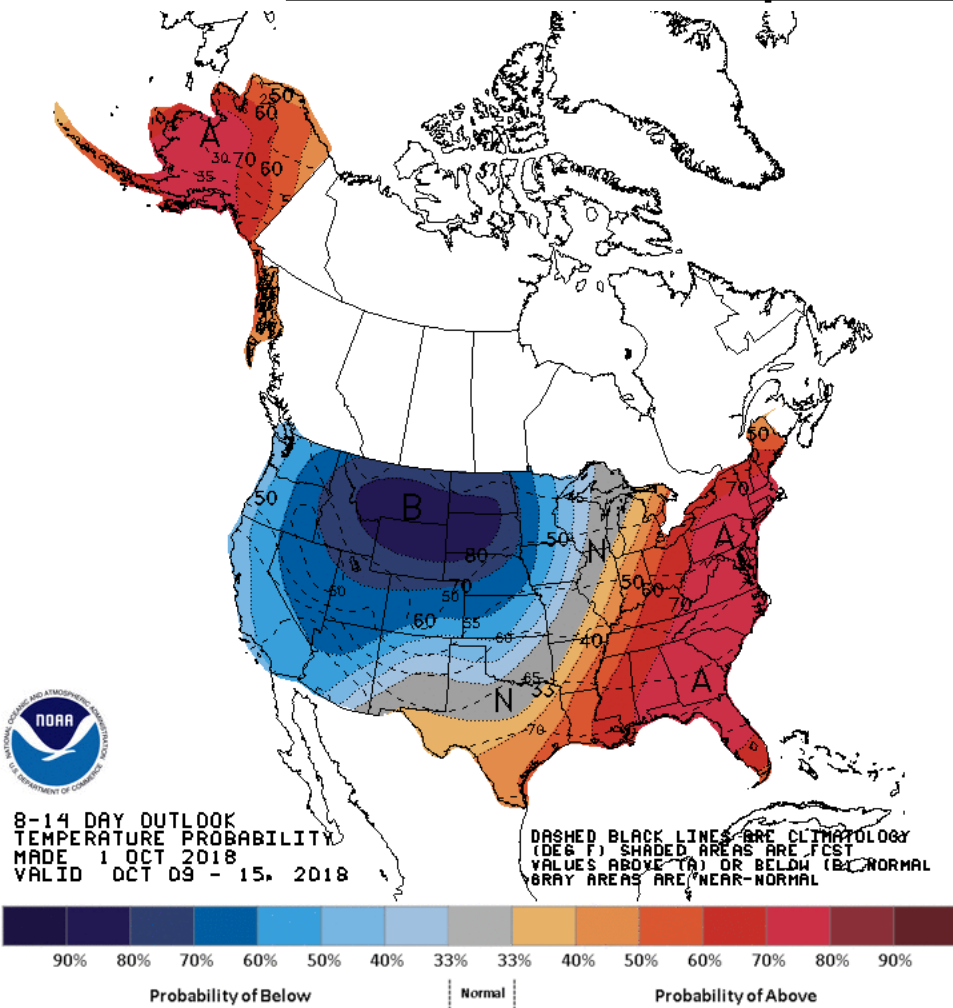
But... Pacific/Alaska look nothing like typical Phase 1

September - November

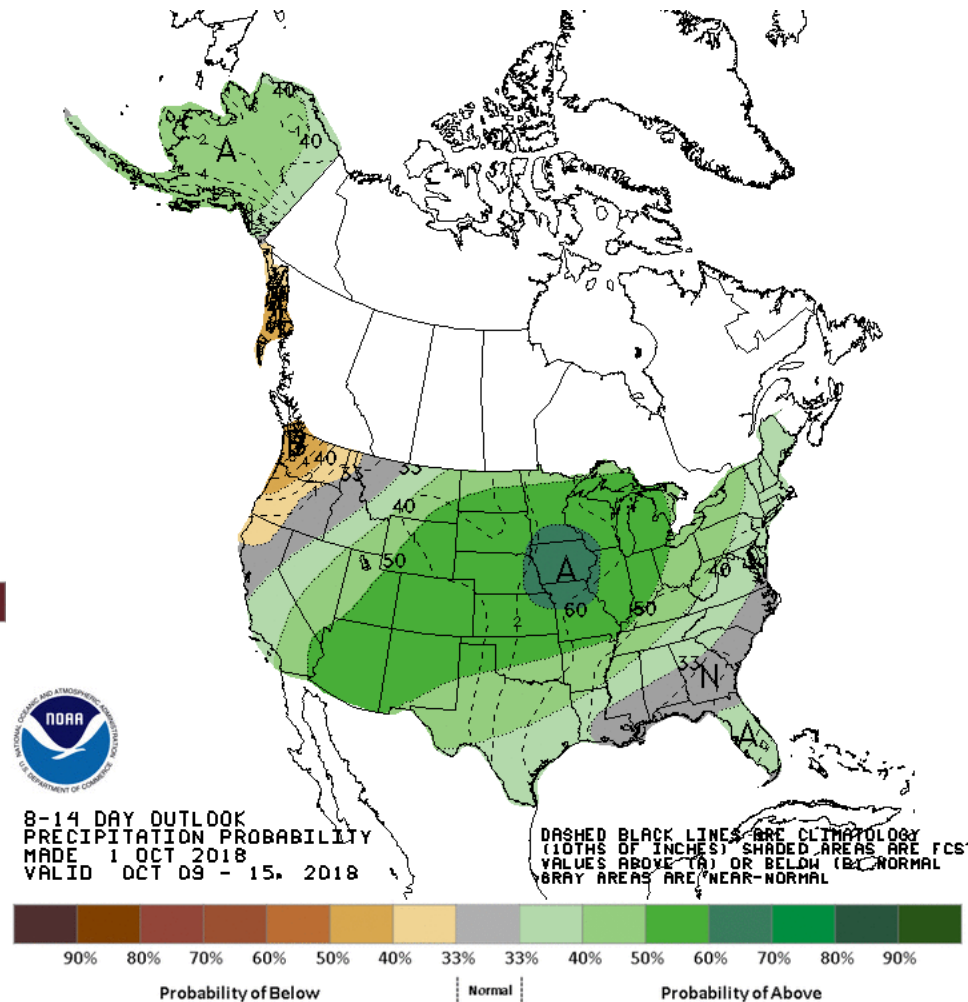
RMM Phase 1 200-hPa Height



Week 2 – Temperature and Precipitation



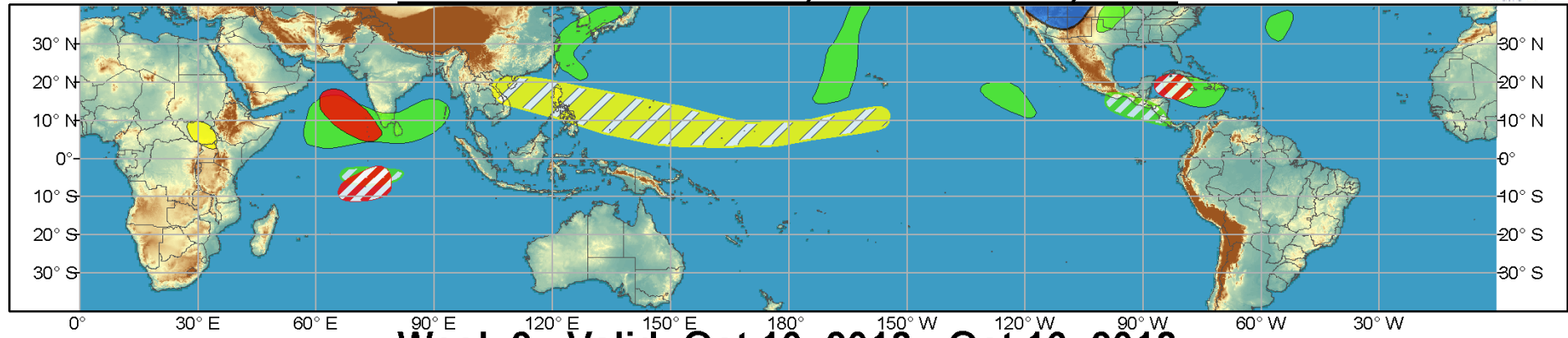
Should be more of the same today given the high-amplitude pattern



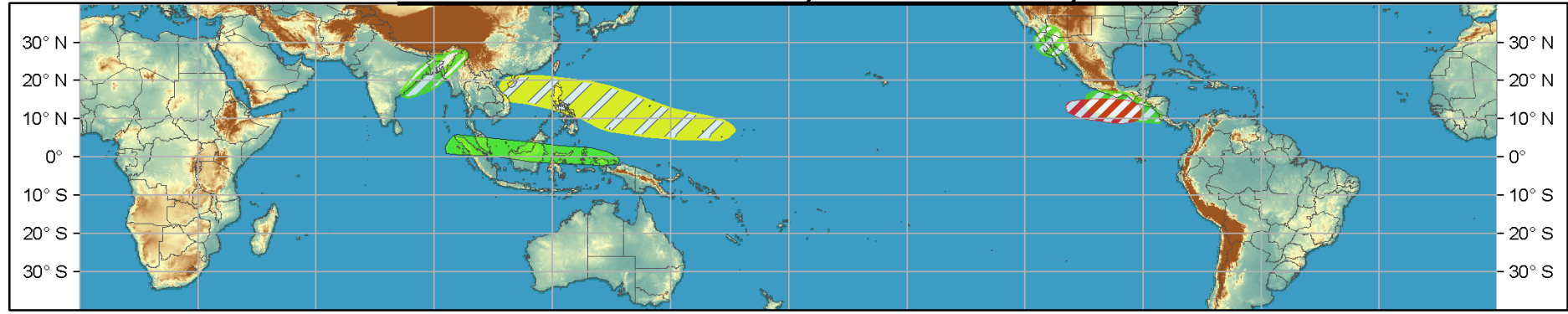


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