

Global Tropics Hazards And Benefits Outlook

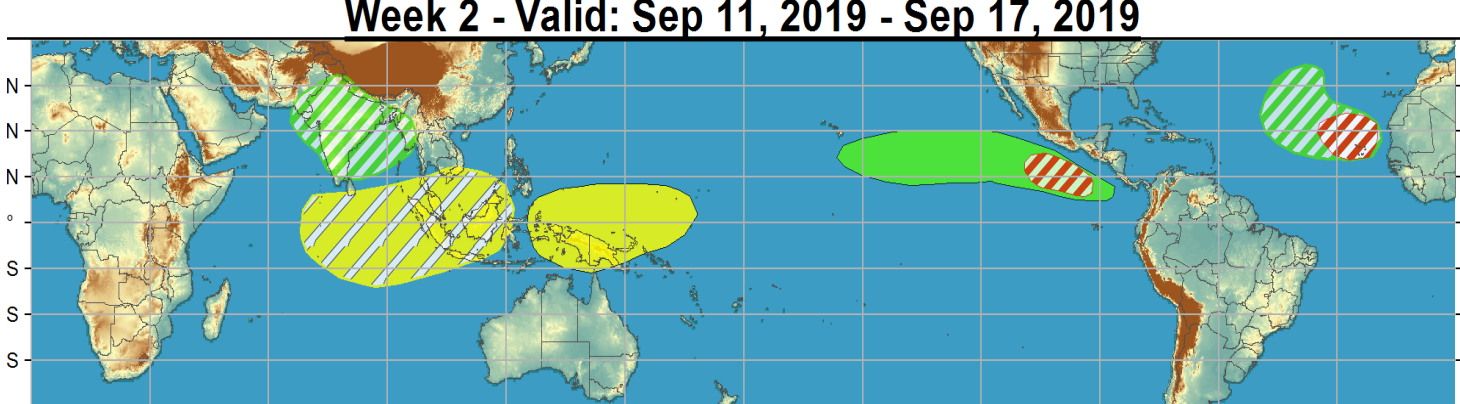
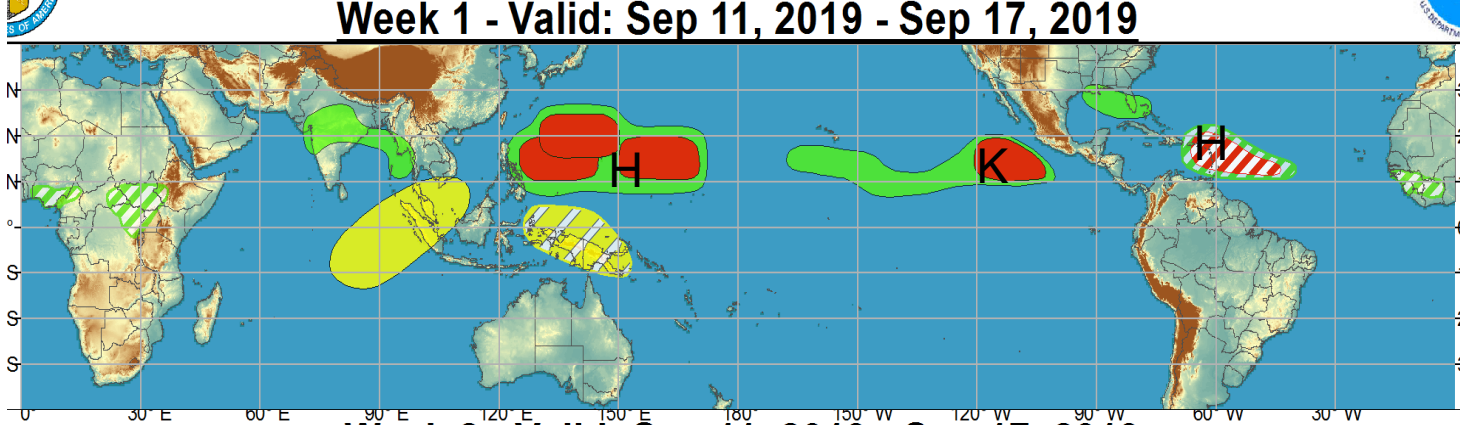
9/17/2019

Kyle MacRitchie

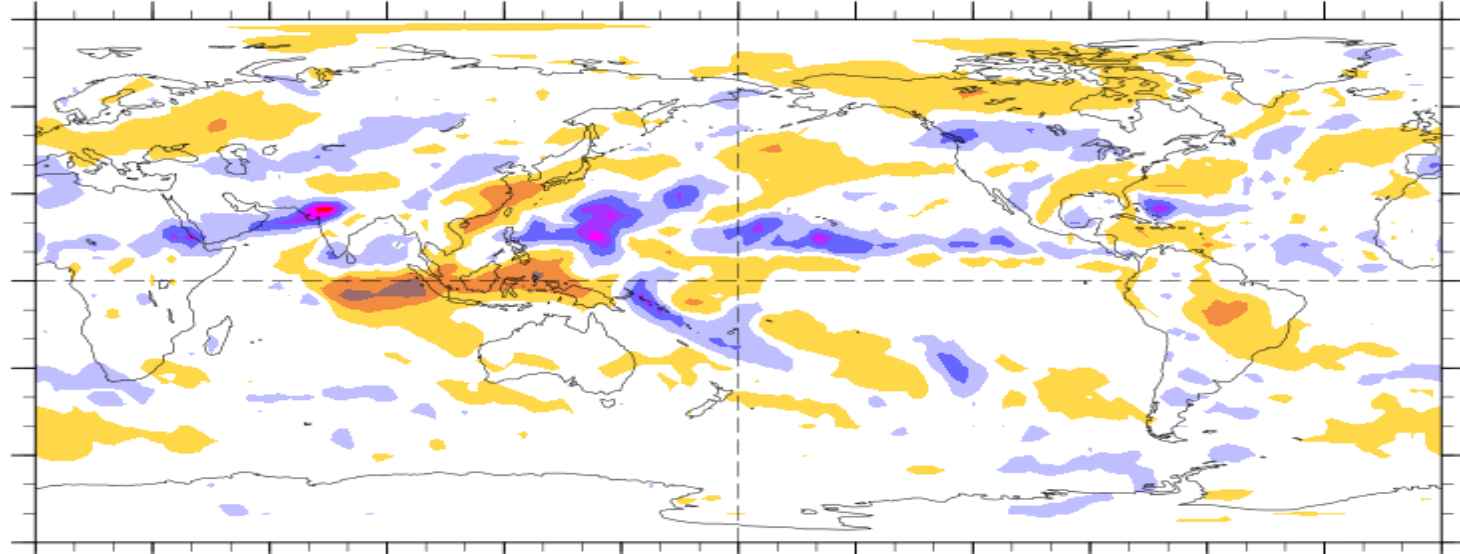
Outline

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 2019/09/09 - 2019/09/15



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (Last Update: Sept 12, 2019)

- ENSO Alert System Status: ENSO-neutral
- ENSO-neutral is favored during the Northern Hemisphere fall 2019 (~75% chance) continuing through spring 2020 (55-60% chance)

MJO and other subseasonal tropical variability:

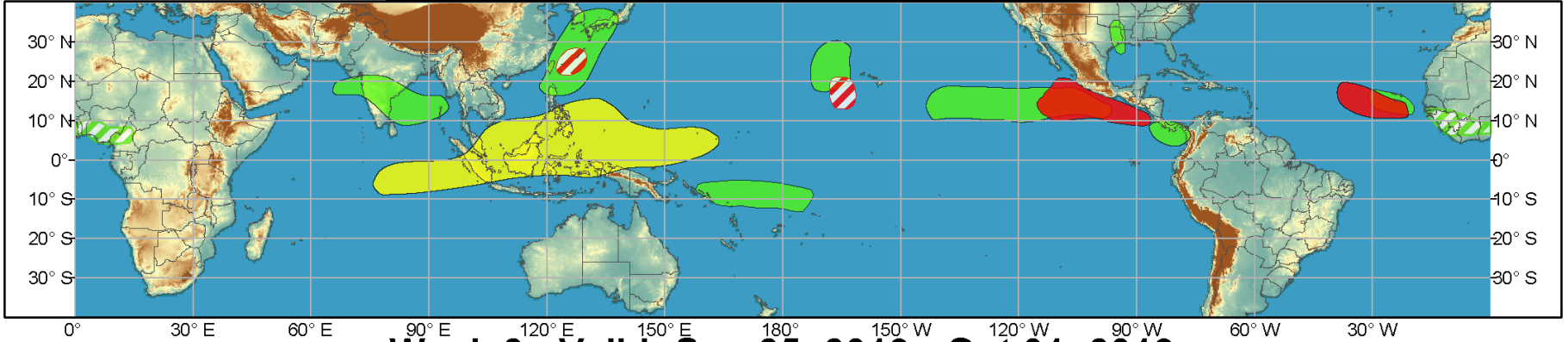
- The RMM signal is weak, but convection moving northward over the western Pacific is similar to a summer MJO event.
- Models suggest that the positive phase of the IOD will develop over the next two weeks, which may fool the RMM index.
- There are Kelvin and equatorial Rossby waves over the central Pacific; these are likely to enhance TC genesis probabilities as they propagate over the eastern Pacific and Atlantic.



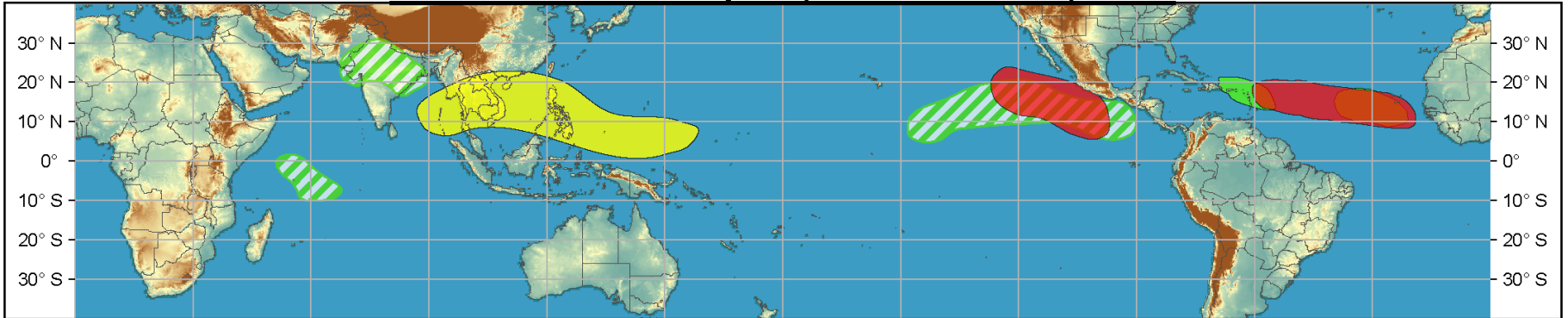
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Sep 18, 2019 - Sep 24, 2019



Week 2 - Valid: Sep 25, 2019 - Oct 01, 2019



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: 09/17/2019

Forecaster: MacRitchie

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.

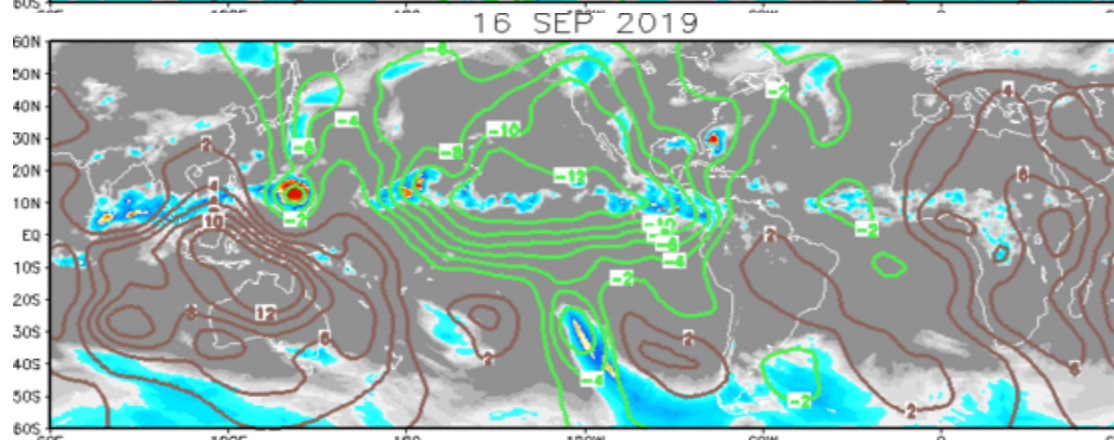
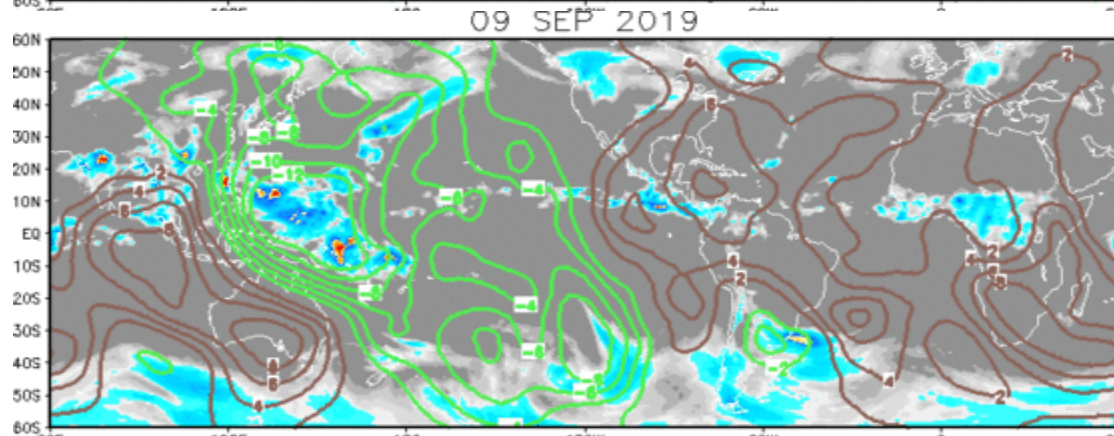
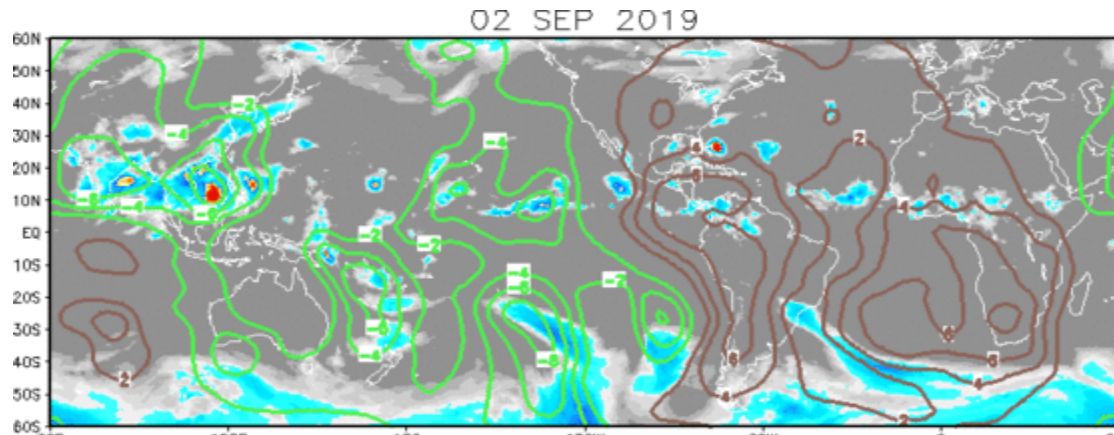


IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

Brown: Enhanced Convergence

Wave-1 patten showing convection anchored over the northern Indian Ocean and southeastern China.



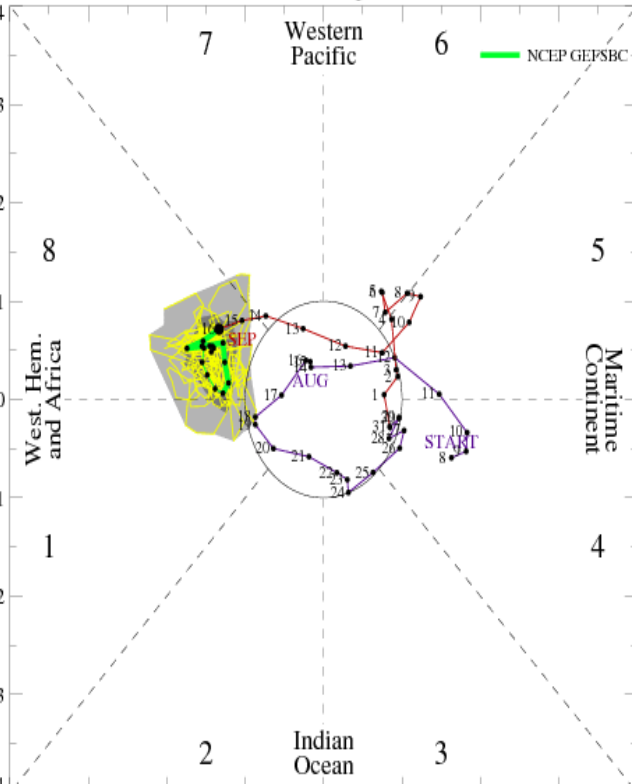
The convection and associated pattern propagate slightly eastward; an enhanced band of convection over the central Pacific is largely due to ER and Kelvin waves.

MJO Observation/Forecast

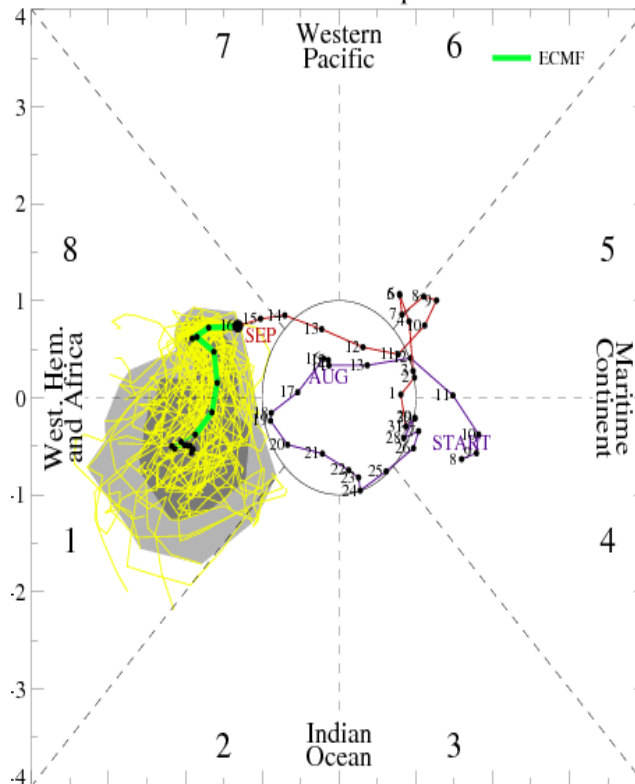
[RMM1, RMM2] forecast for Sep-17-2019 to Oct-01-2019

MJO Index Forecast for 17Sep2019-01Oct2019

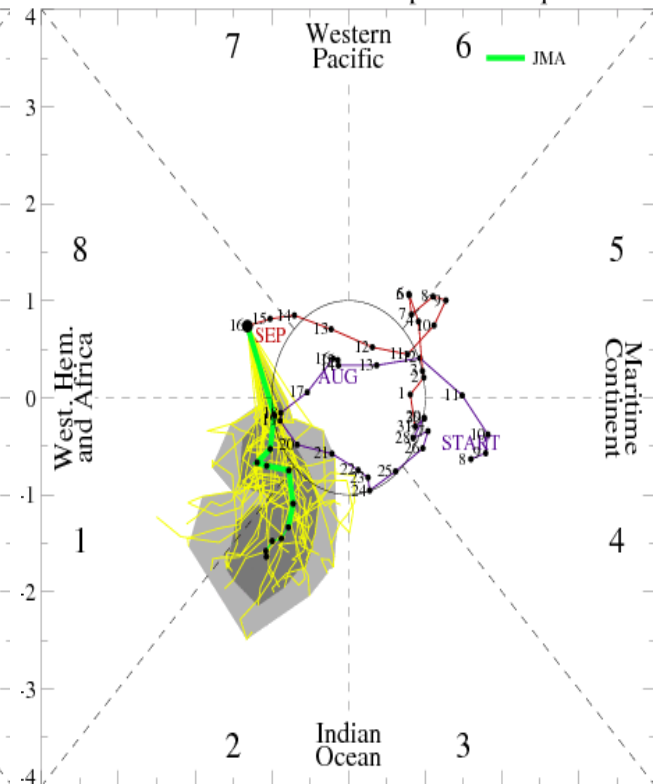
MJO Index Forecast for 17Sep2019-25Sep2019



GEFS



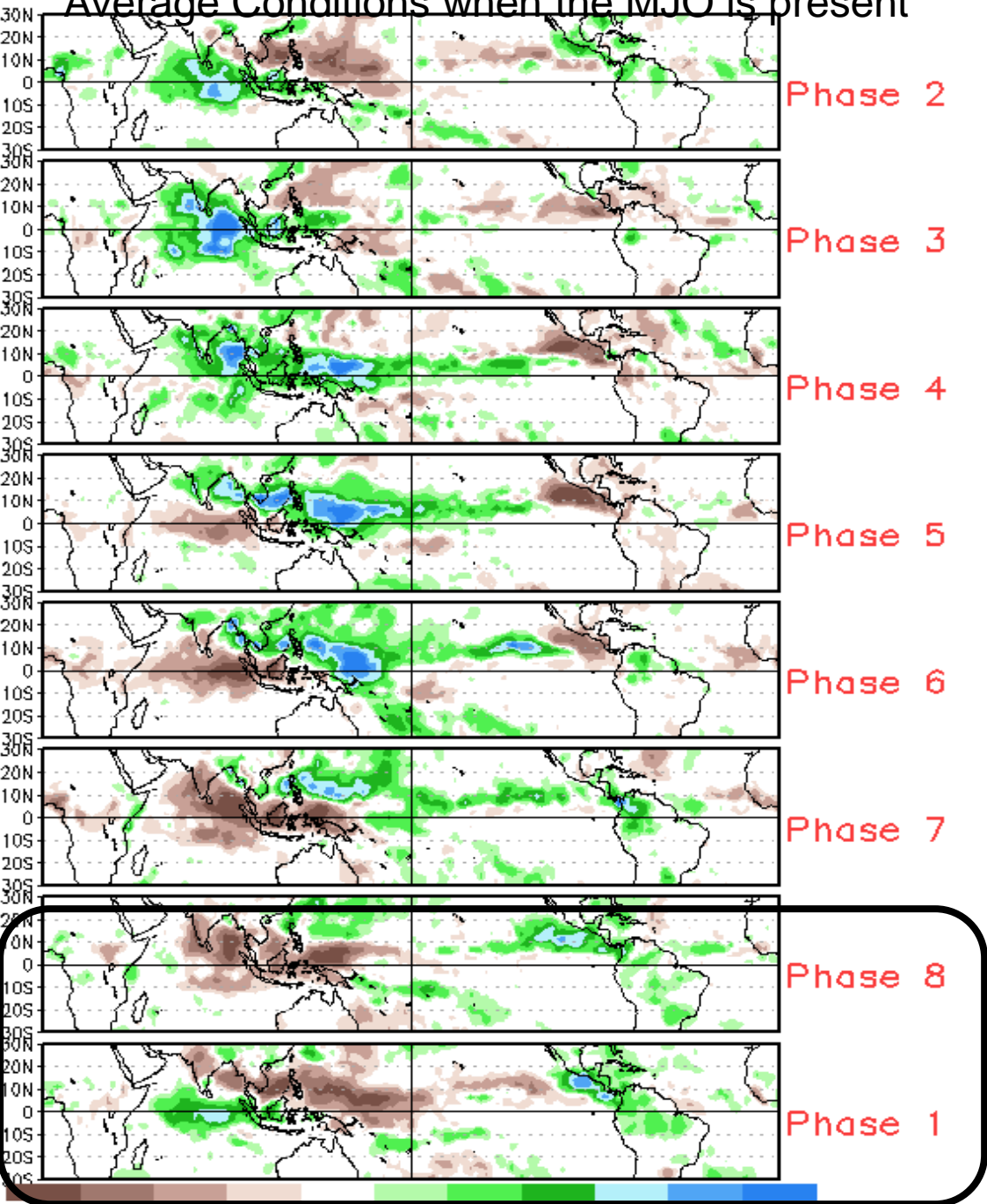
ECMWF



JMA

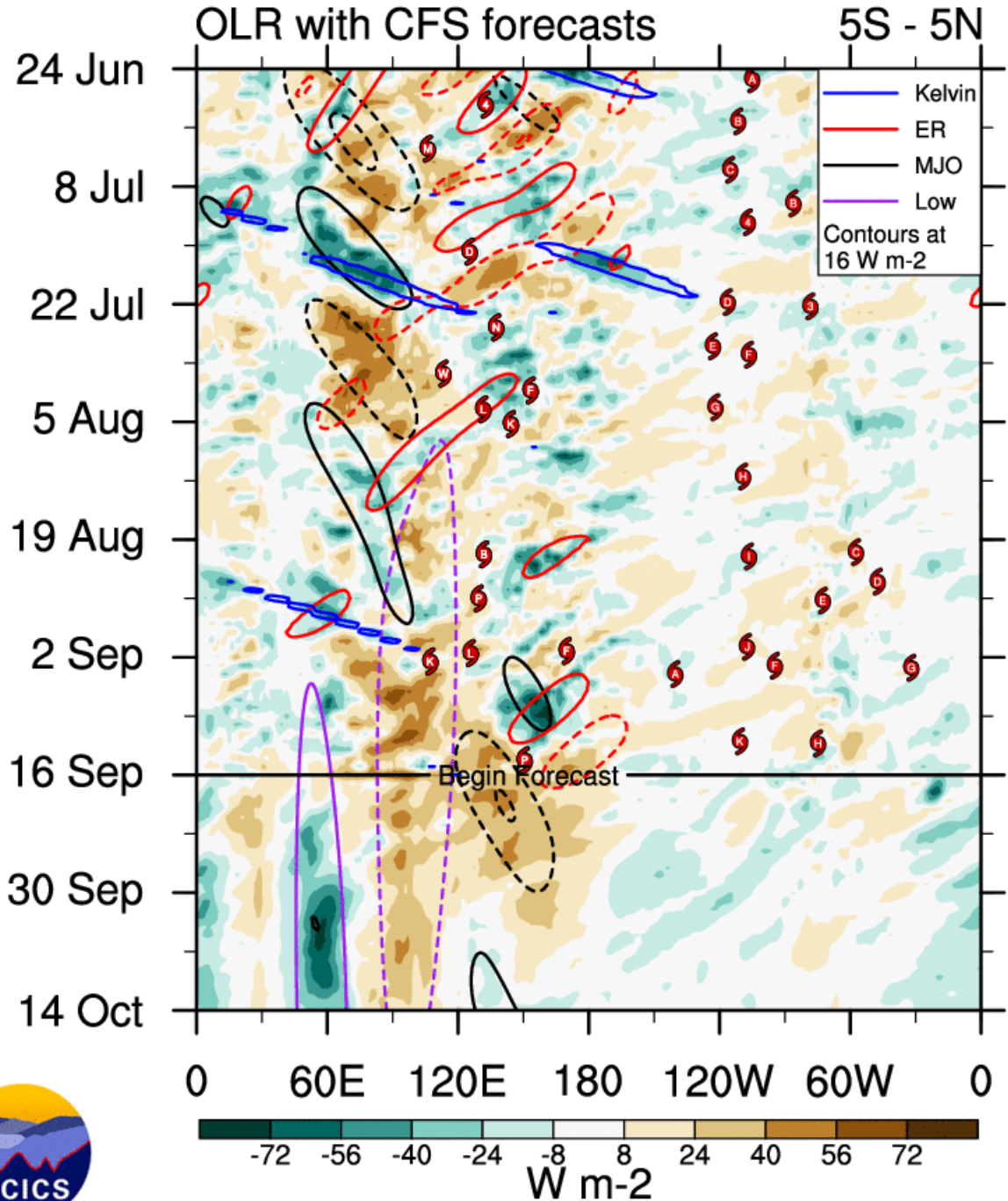
Dynamical models suggest an MJO in phases 8 and 1 over the two weeks, however these signals are quasi-stationary and are probably due to the development of an IOD event in the Indian Ocean.

Average Conditions when the MJO is present



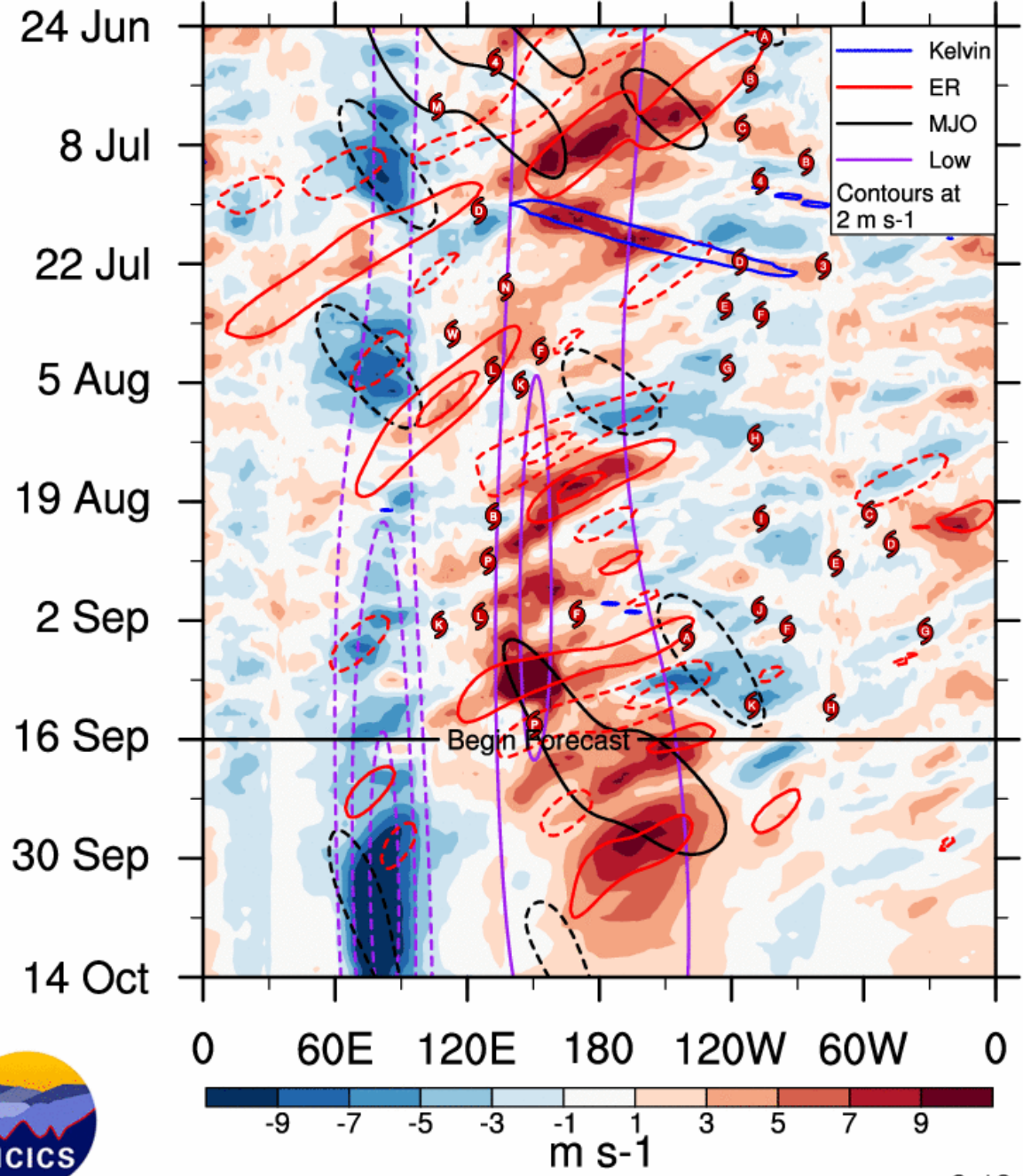
CAVEAT: These panels are representative of robust MJO events.

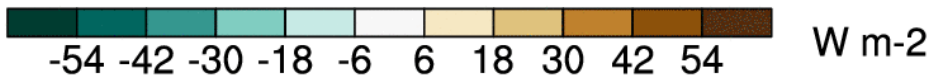
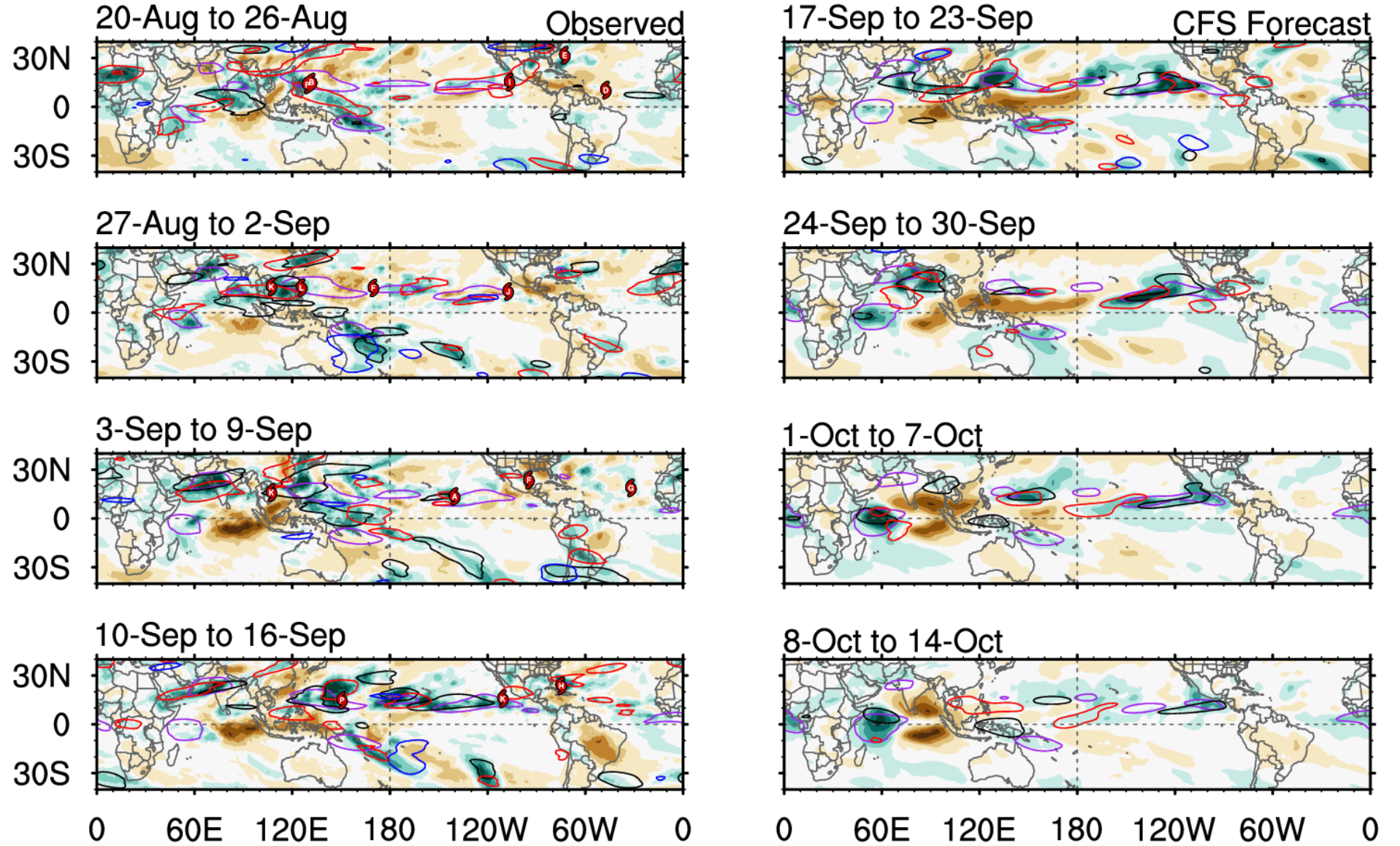
— KW
- - - ERW
— MJO



UWIND850 with CFS forecasts 5S - 5N

- KW
- - - ERW
- MJO





7-day OLR with CFS forecasts

- MJO
- Kelvin x2
- Low
- ER

Contours at -12, -36 W m⁻²

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

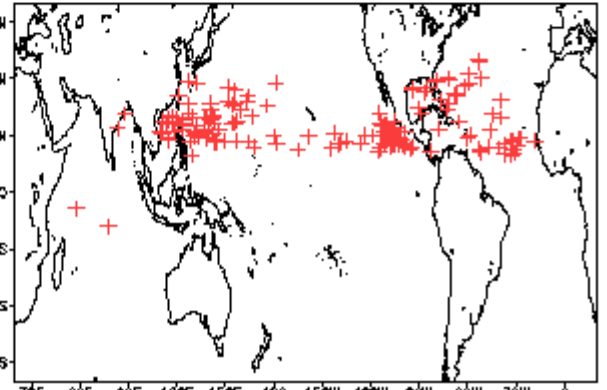
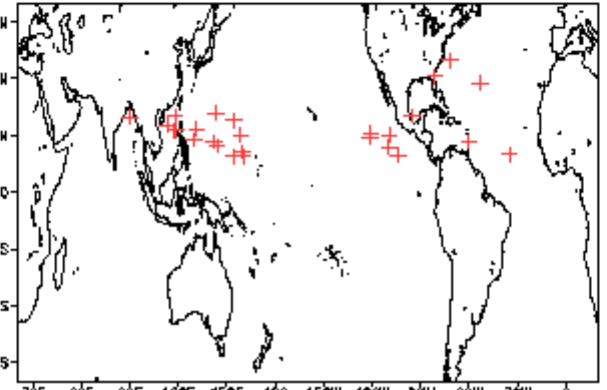
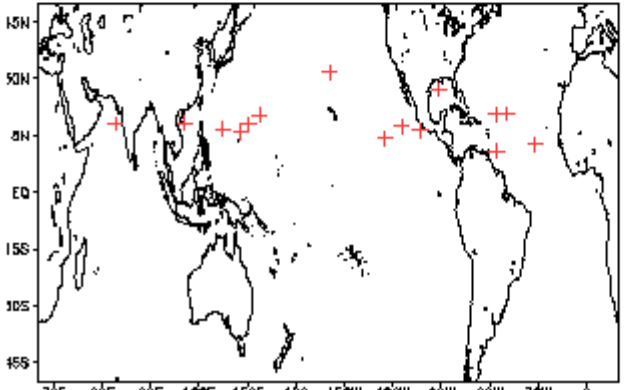
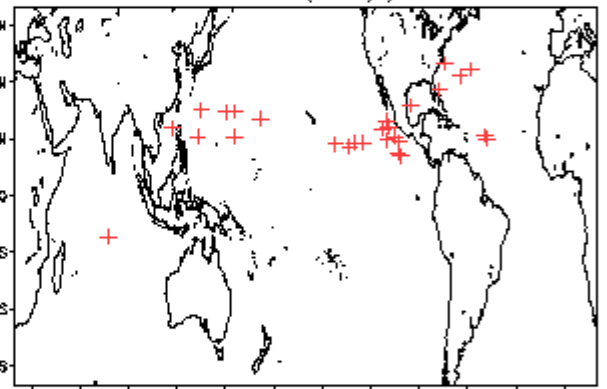
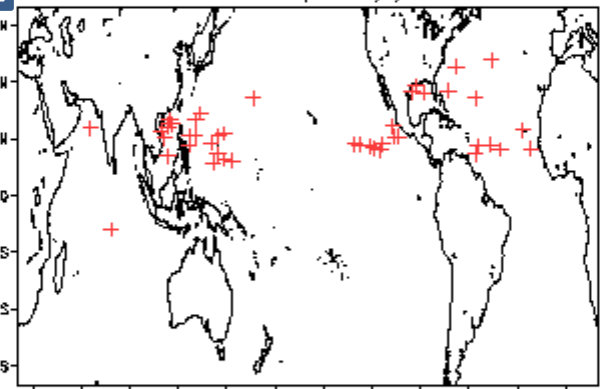
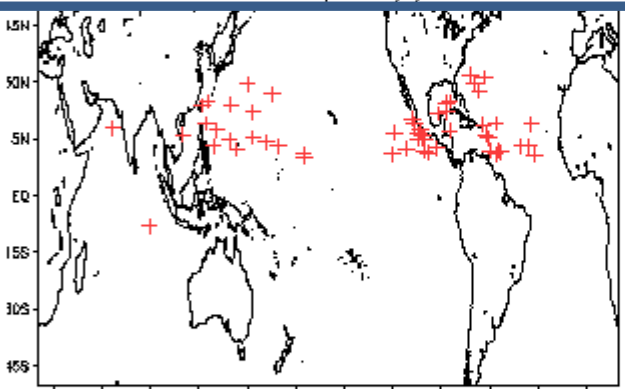
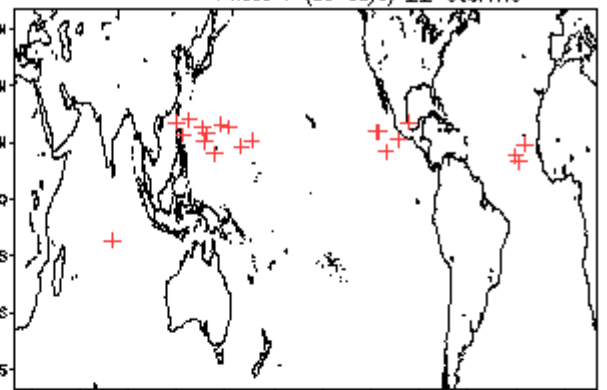
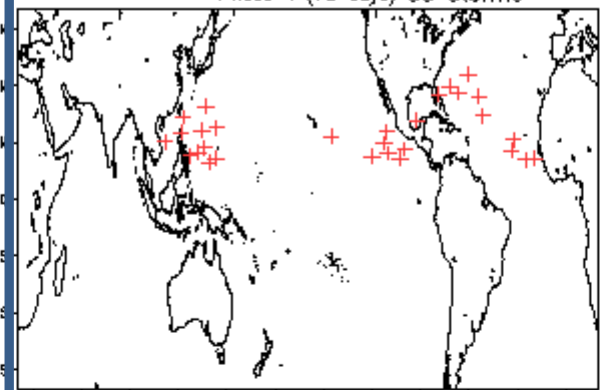
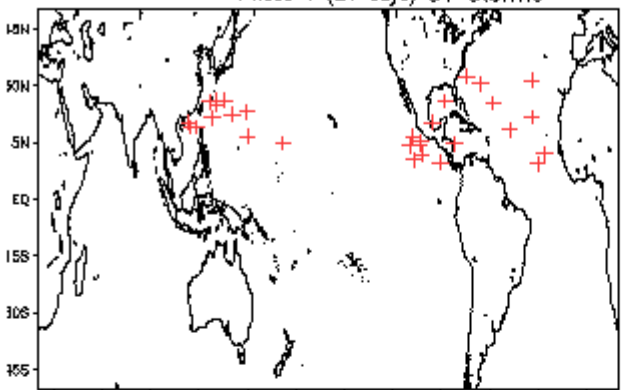
Phase 5 (106 days) 45 storms

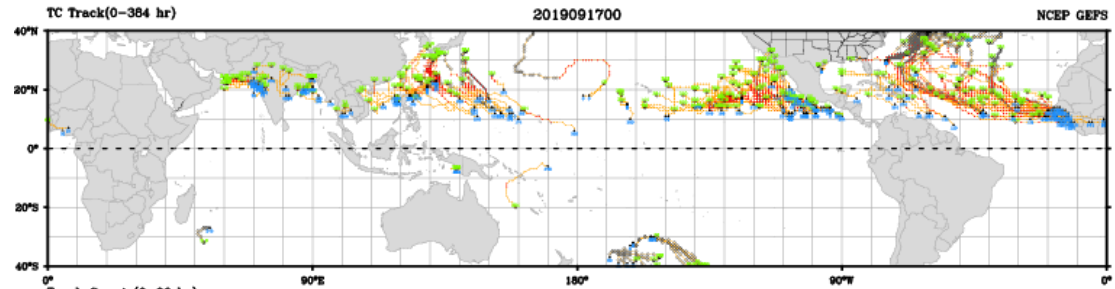
Phase 8 (67 days) 29 storms

Phase 3 (51 days) 16 storms

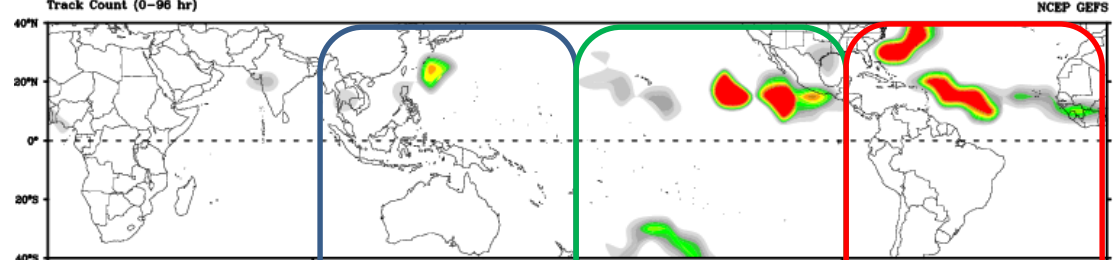
Phase 6 (61 days) 27 storms

Null (393 days) 169 storms

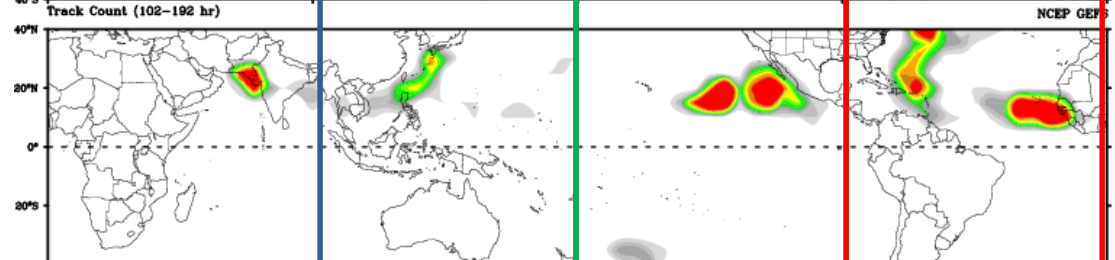




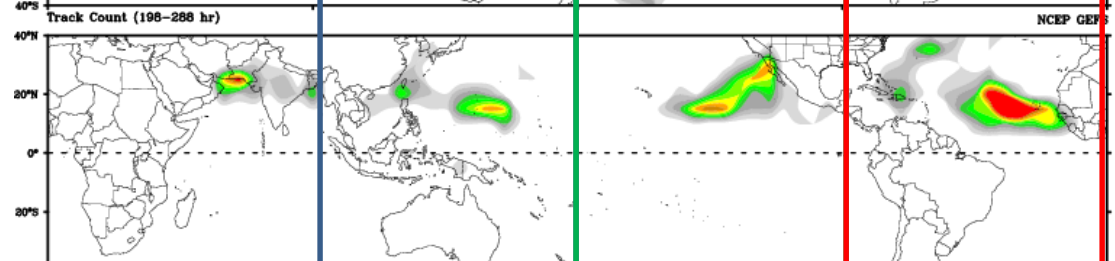
Days 1-4



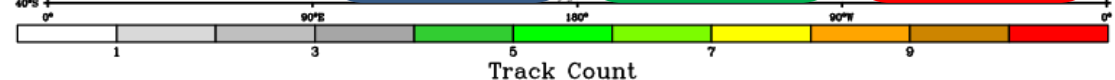
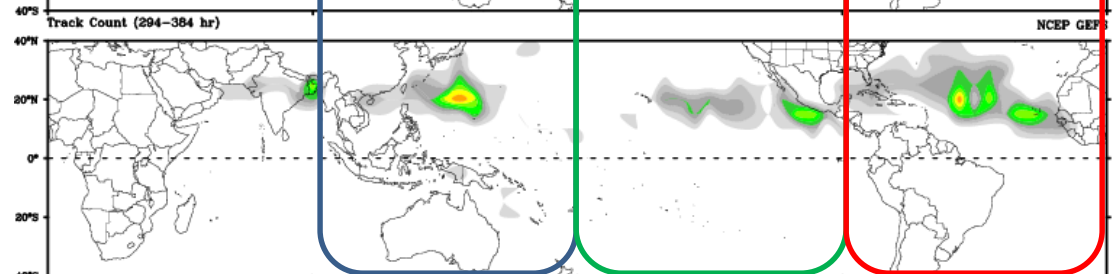
Days 5-8

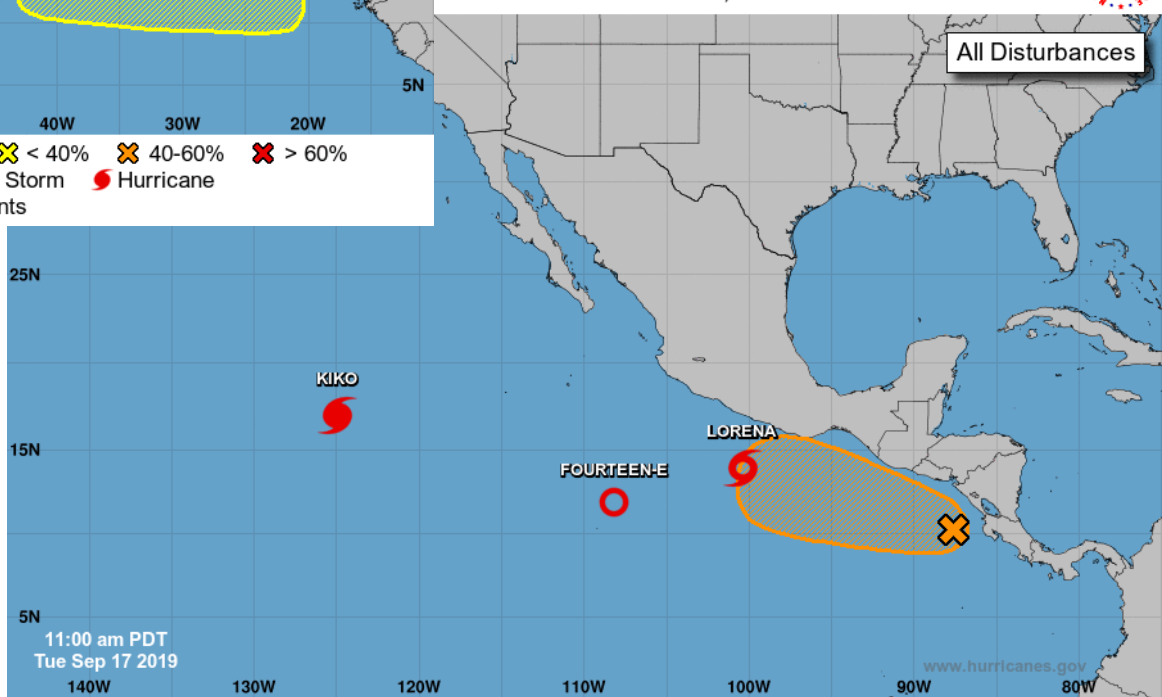
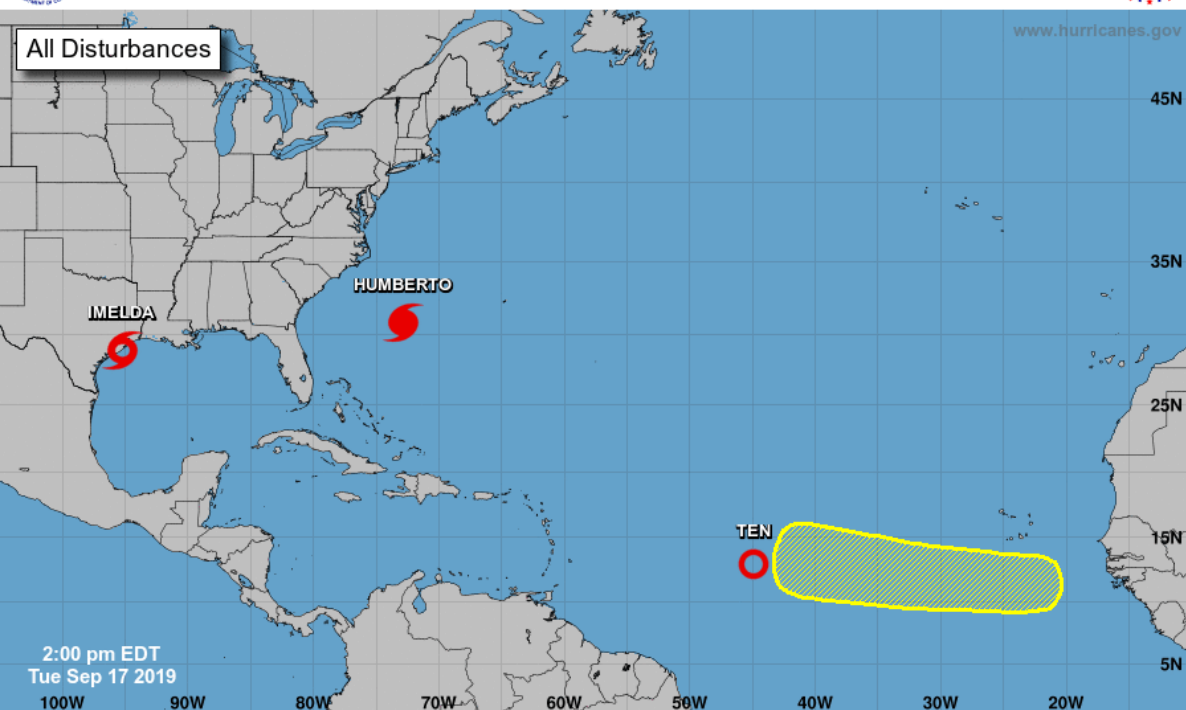


Days 9-12



Days 13-15



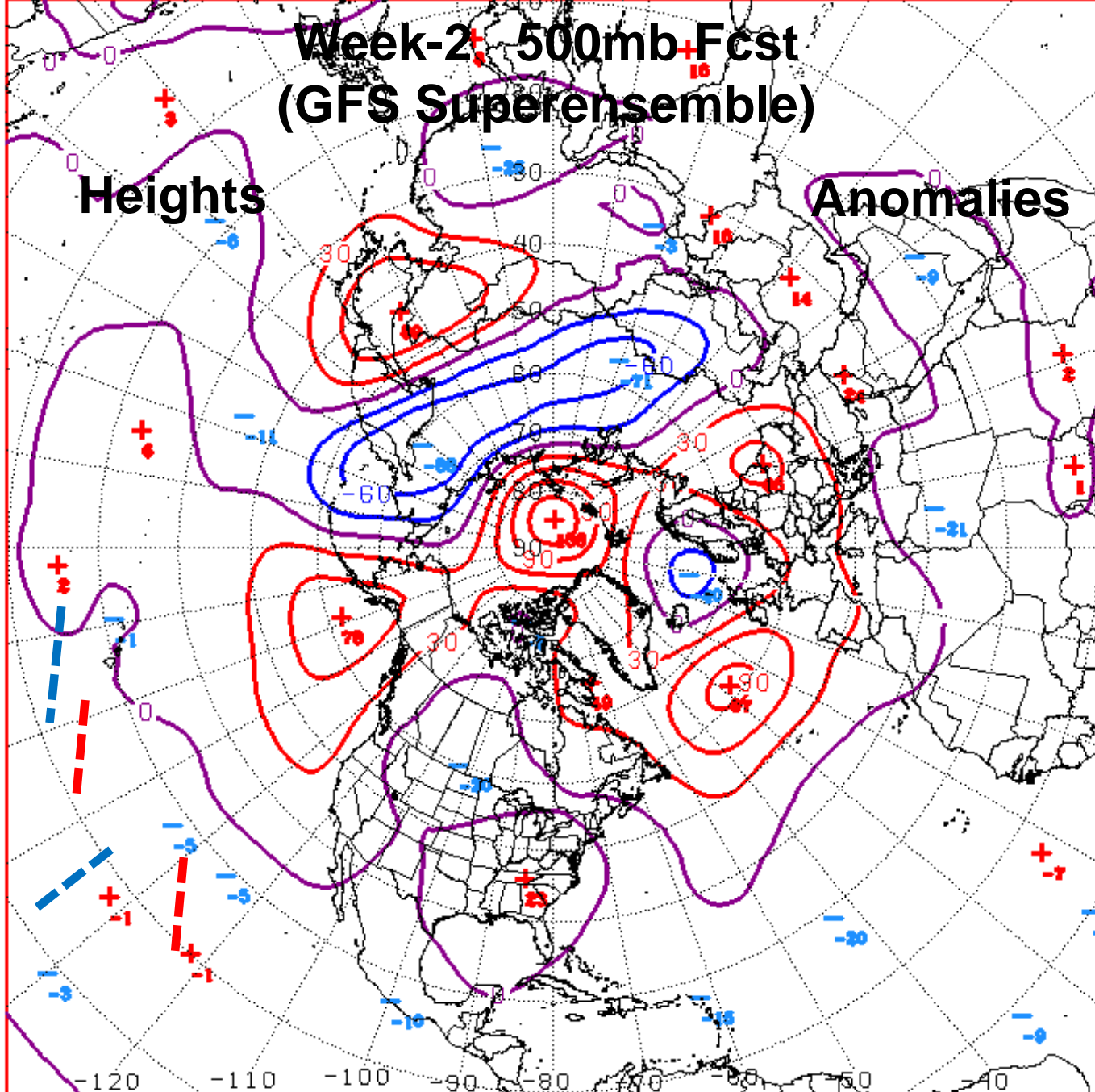


Connections to U.S. Impacts

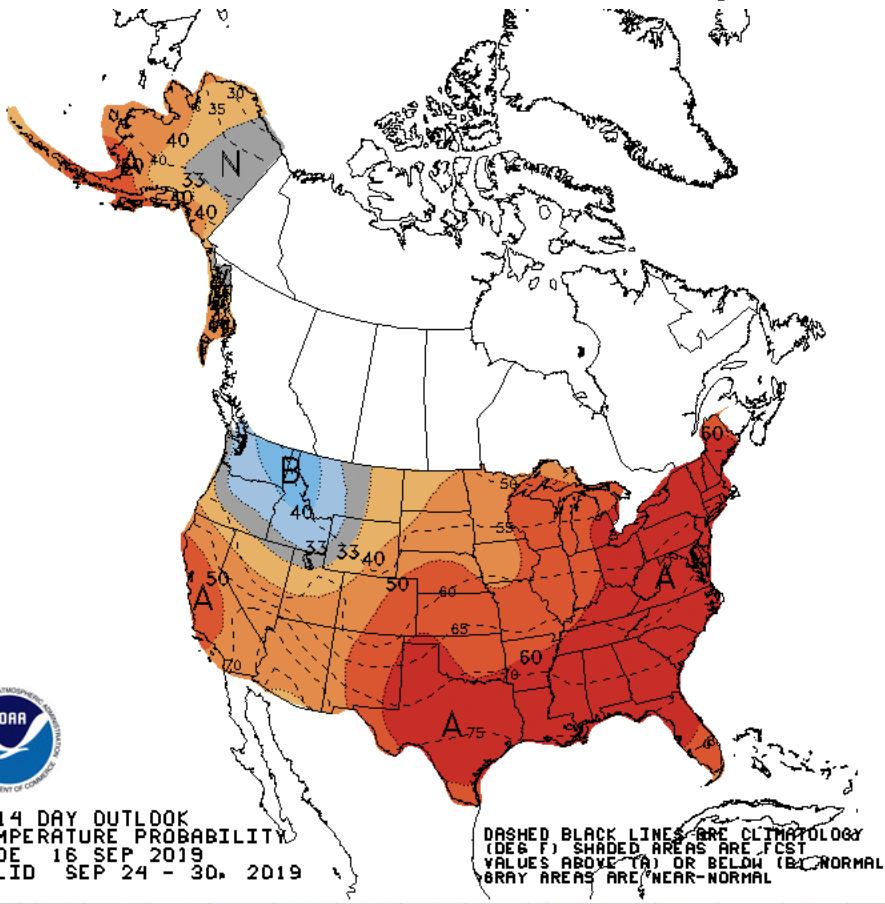
Week-2: 500mb+Fcst (GFS Superensemble)

Heights

Anomalies

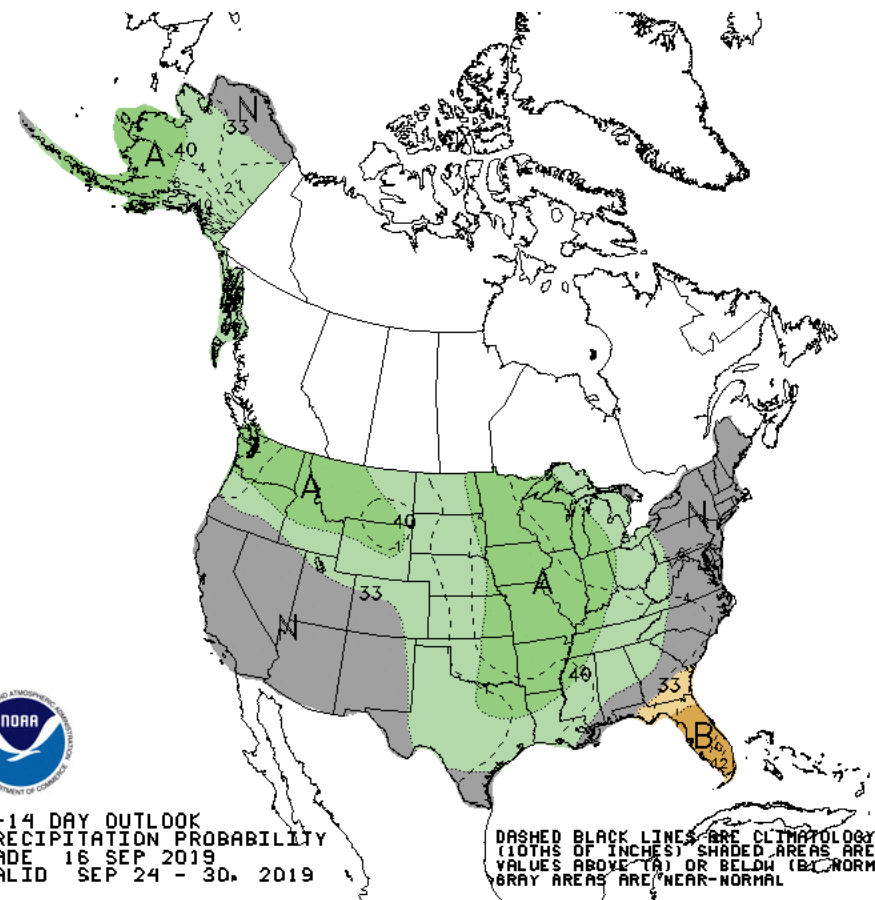
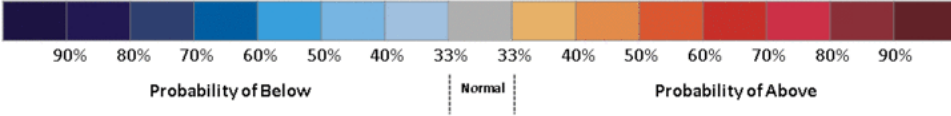


Week 2 – Temperature and Precipitation



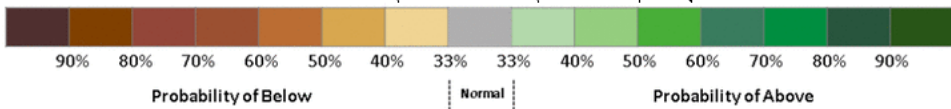
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 16 SEP 2019
VALID SEP 24 - 30, 2019

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 16 SEP 2019
VALID SEP 24 - 30, 2019

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

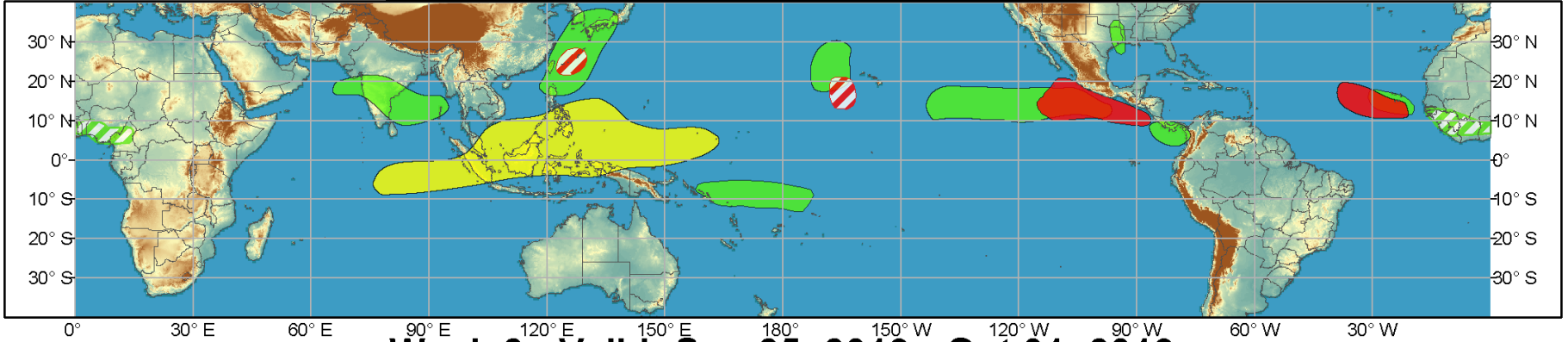




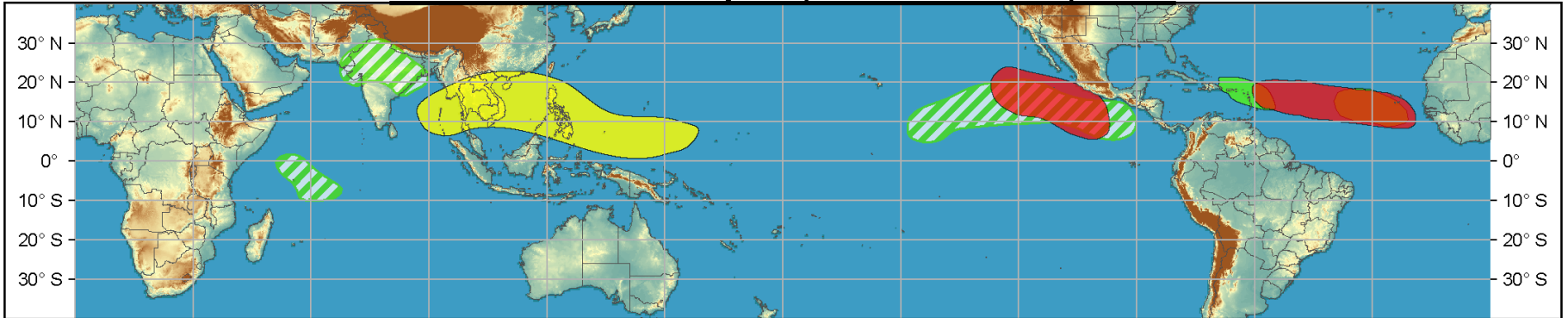
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Sep 18, 2019 - Sep 24, 2019



Week 2 - Valid: Sep 25, 2019 - Oct 01, 2019



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: 09/17/2019

Forecaster: MacRitchie

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.

