

# Global Tropics Hazards And Benefits Outlook

6/13/2017

Dan Harnos

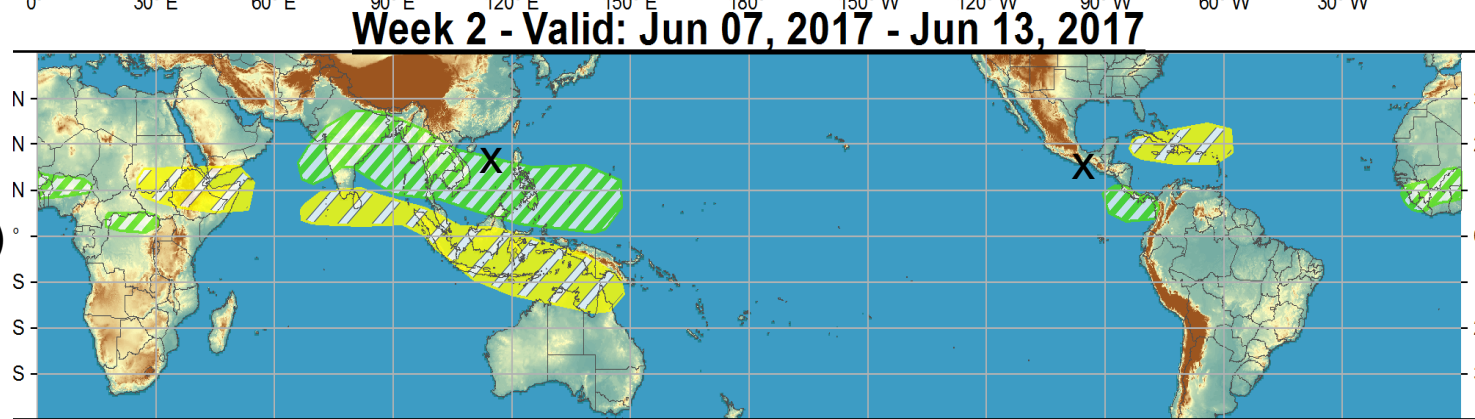
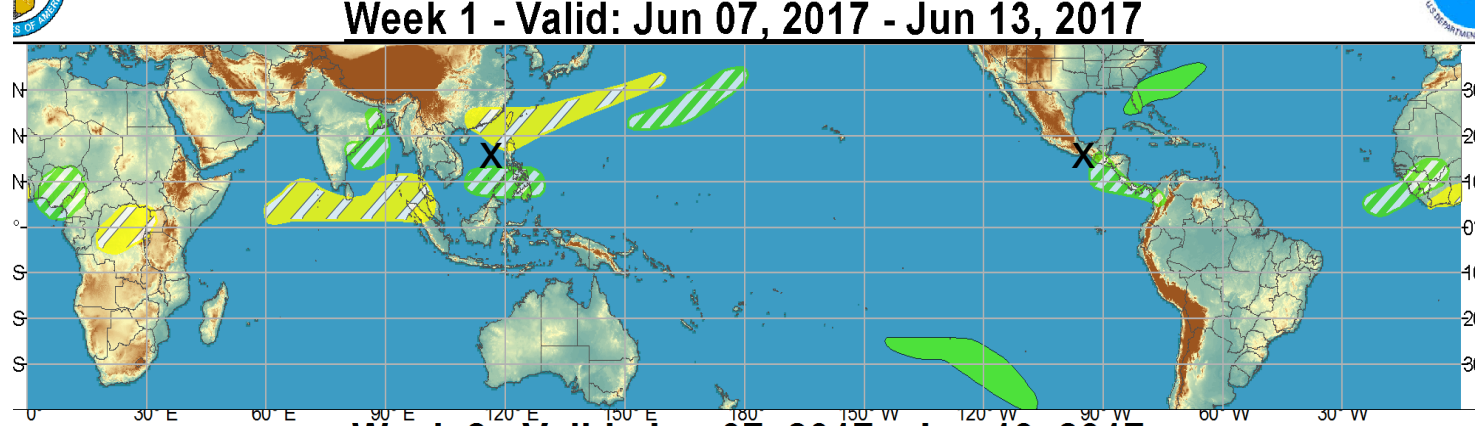
## Outline

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

# Outlook Review

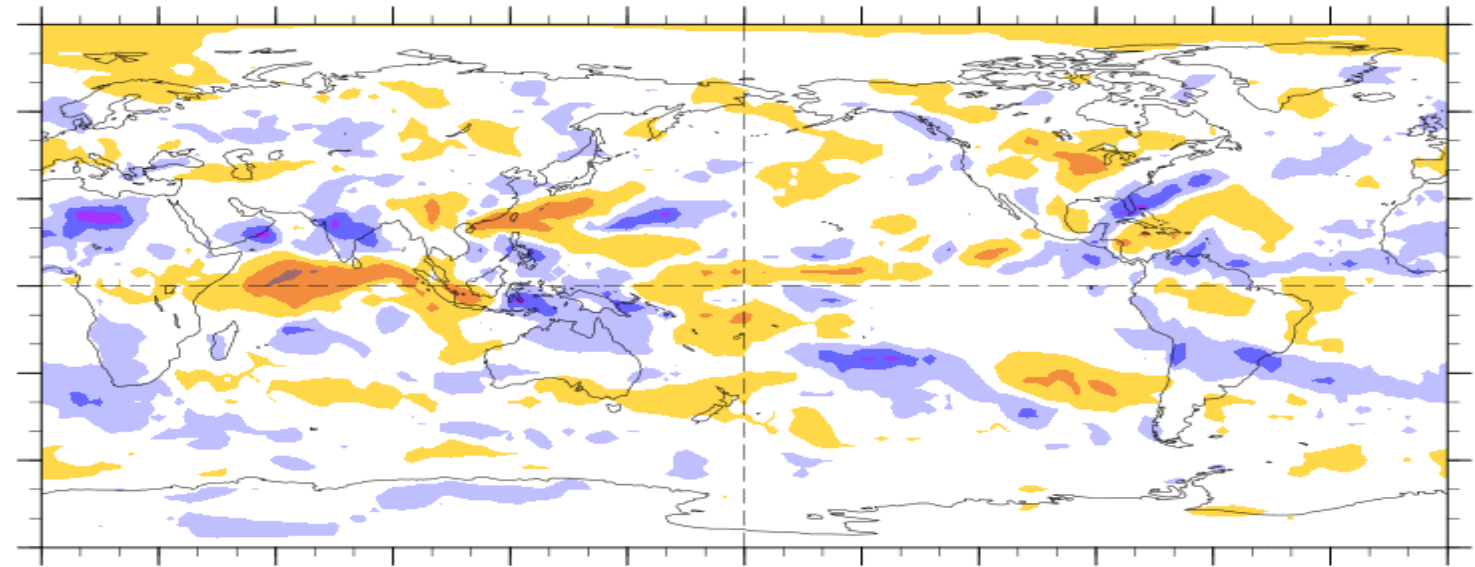
TS Calvin (E. Pac)  
Peak: 40 mph  
June 11-13

TS Merbok (W. Pac)  
Peak: 50 mph  
June 11-12



7-Day Average OLR Anomaly

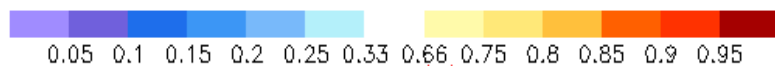
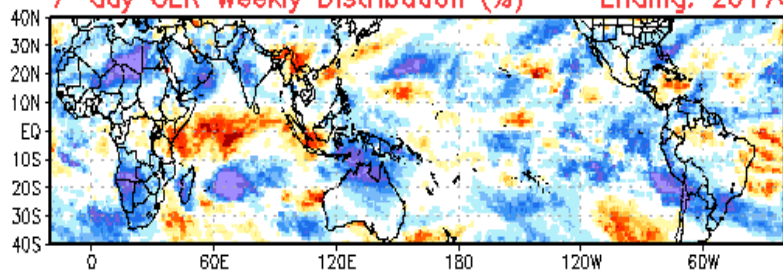
2017/06/05 - 2017/06/11



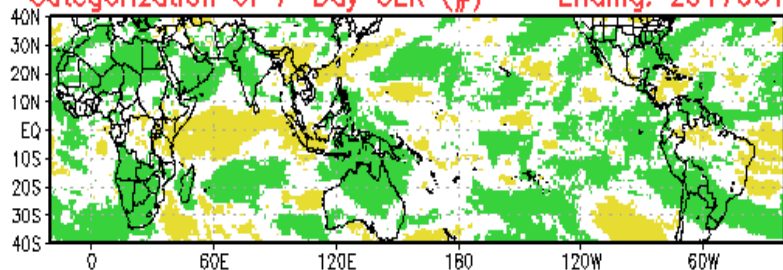
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

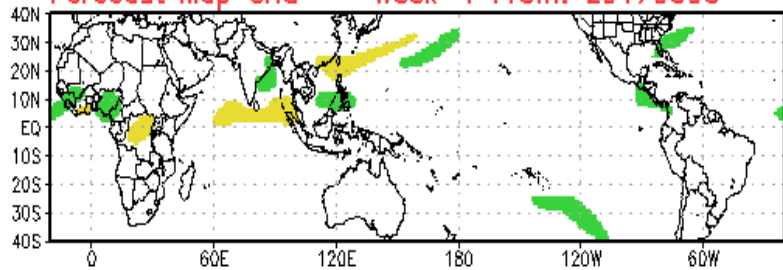
7-day OLR Weekly Distribution (%) -- Ending: 20170613



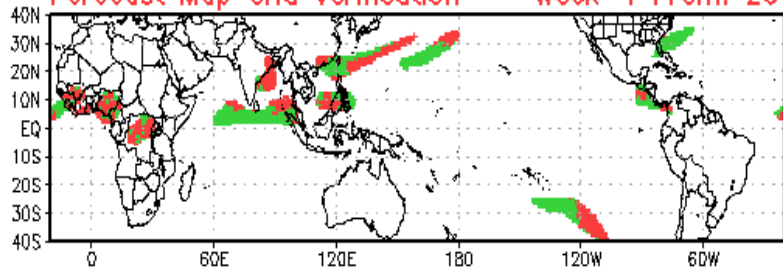
Categorization of 7-Day OLR (#) -- Ending: 20170613



Forecast Map Grid -- Week-1 From: 20170606

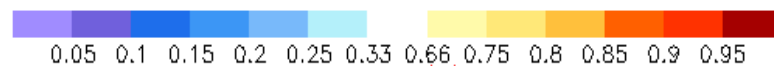
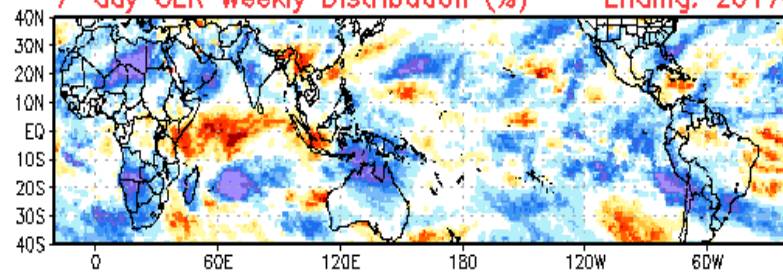


Forecast Map Grid Verification -- Week-1 From: 20170606

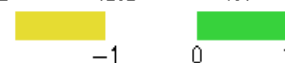
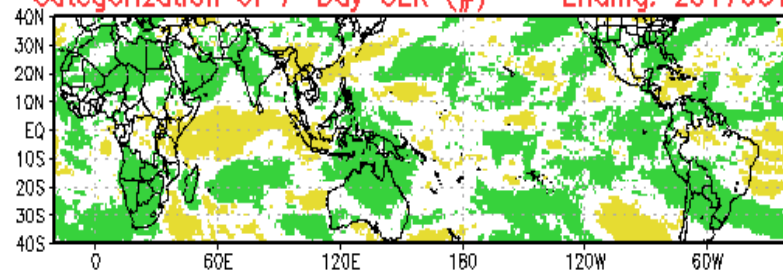


Hit: Green, Miss: Red  
Heidke Skill Score: 28.3479

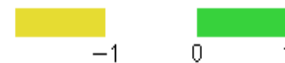
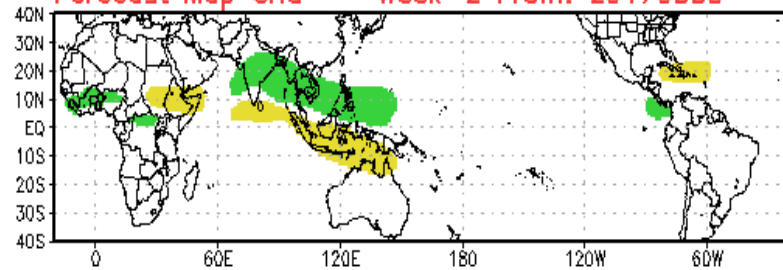
7-day OLR Weekly Distribution (%) -- Ending: 20170613



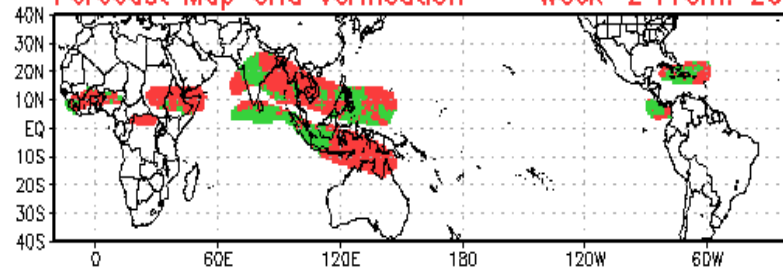
Categorization of 7-Day OLR (#) -- Ending: 20170613



Forecast Map Grid -- Week-2 From: 20170530



Forecast Map Grid Verification -- Week-2 From: 20170530



Hit: Green, Miss: Red  
Heidke Skill Score: -2.2977

# Synopsis of Climate Modes

## **ENSO:**

- ENSO-neutral is favored (50-55%) through Northern Hemisphere fall 2017
- The next ENSO diagnostic discussion release will be 13 July.

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

- The RMM index suggests an emerging MJO over Africa, other analyses support this signal being instead tied to Kelvin wave activity.
- Lower frequency signals are drifting eastward in the Indian Ocean and possibly over the Maritime Continent (potentially masked by westward moving variability).
- ECMWF guidance is favored for the outlook period, which continues a pair of ongoing Kelvin waves, with one currently near the Date Line and another near the Prime Meridian.

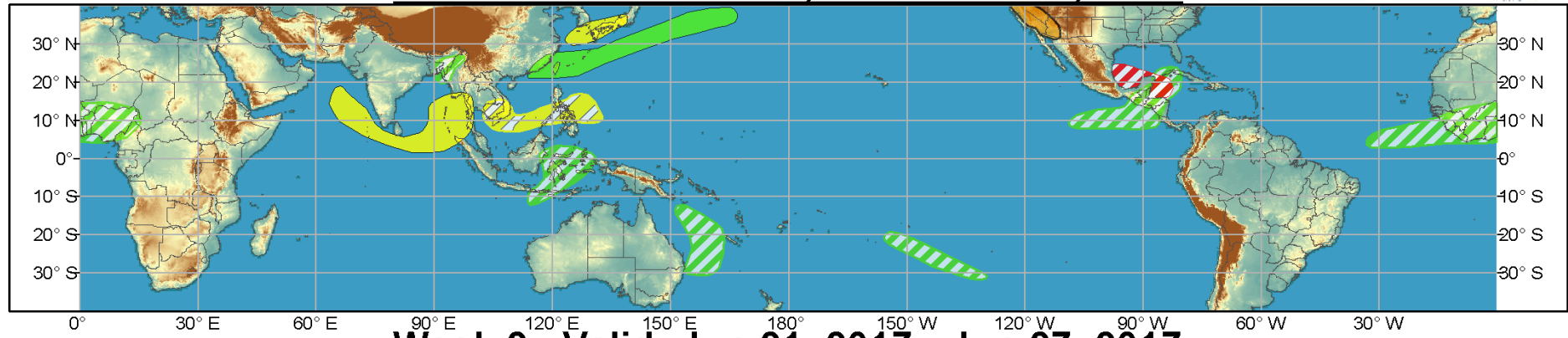
## **Extratropics:**

- The extended range temperature and precipitation forecasts for the U.S. are not likely to be impacted by MJO activity. A passing Kelvin wave could help initiate tropical cyclogenesis near the Yucatan late in Week-1 or early in Week-2.

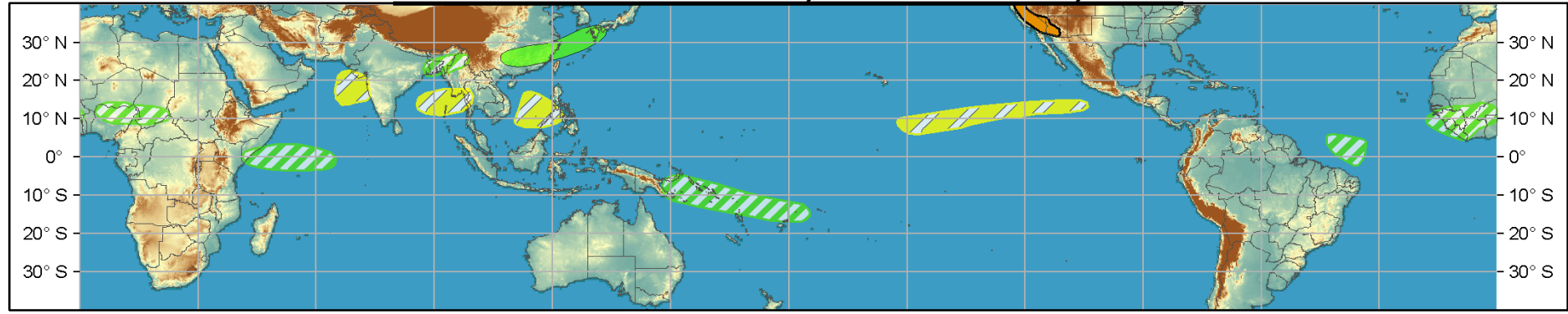


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Jun 14, 2017 - Jun 20, 2017



## Week 2 - Valid: Jun 21, 2017 - Jun 27, 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.
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- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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Produced: 06/13/2017  
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

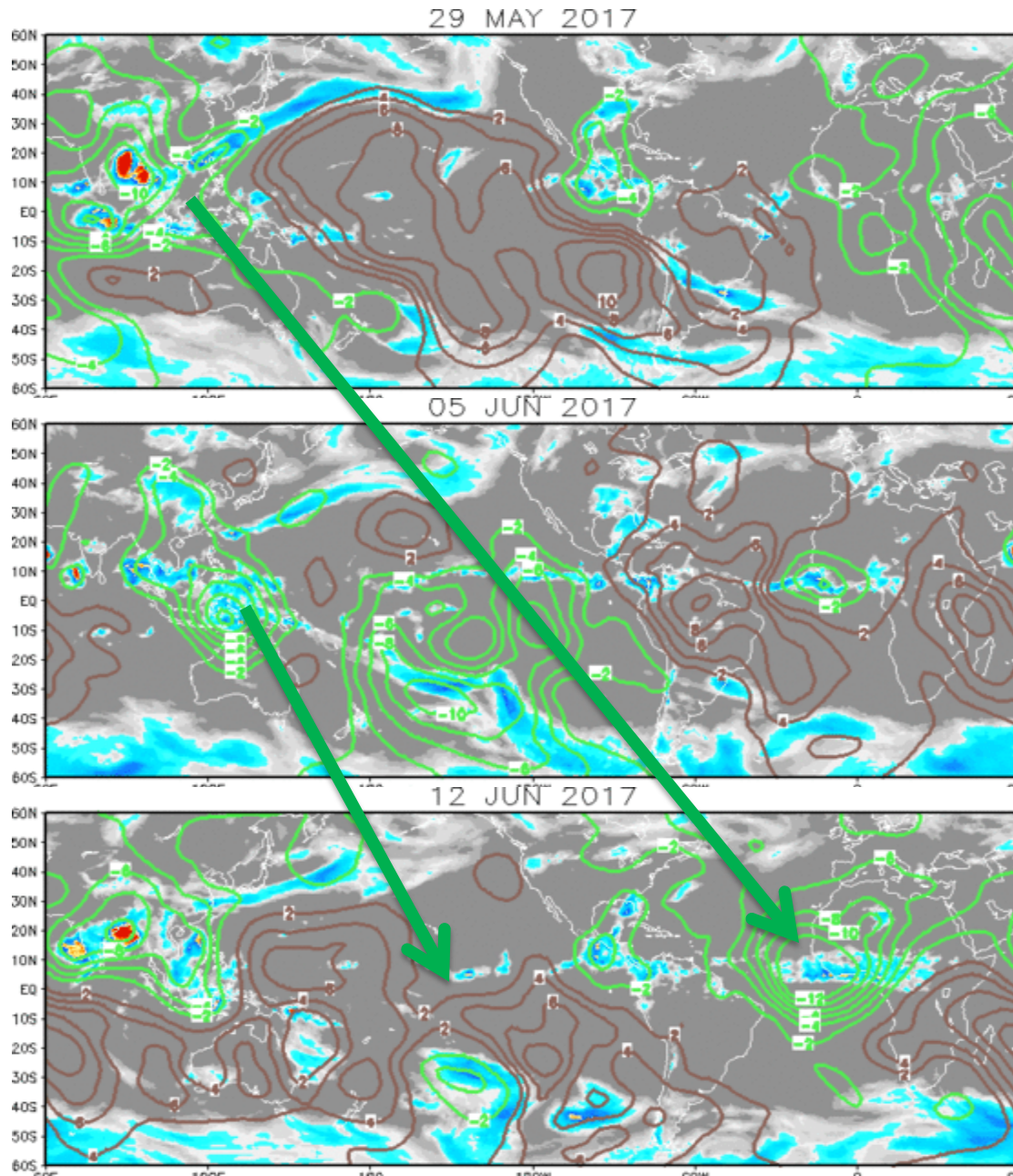
Green: Enhanced Divergence

Brown: Enhanced Convergence

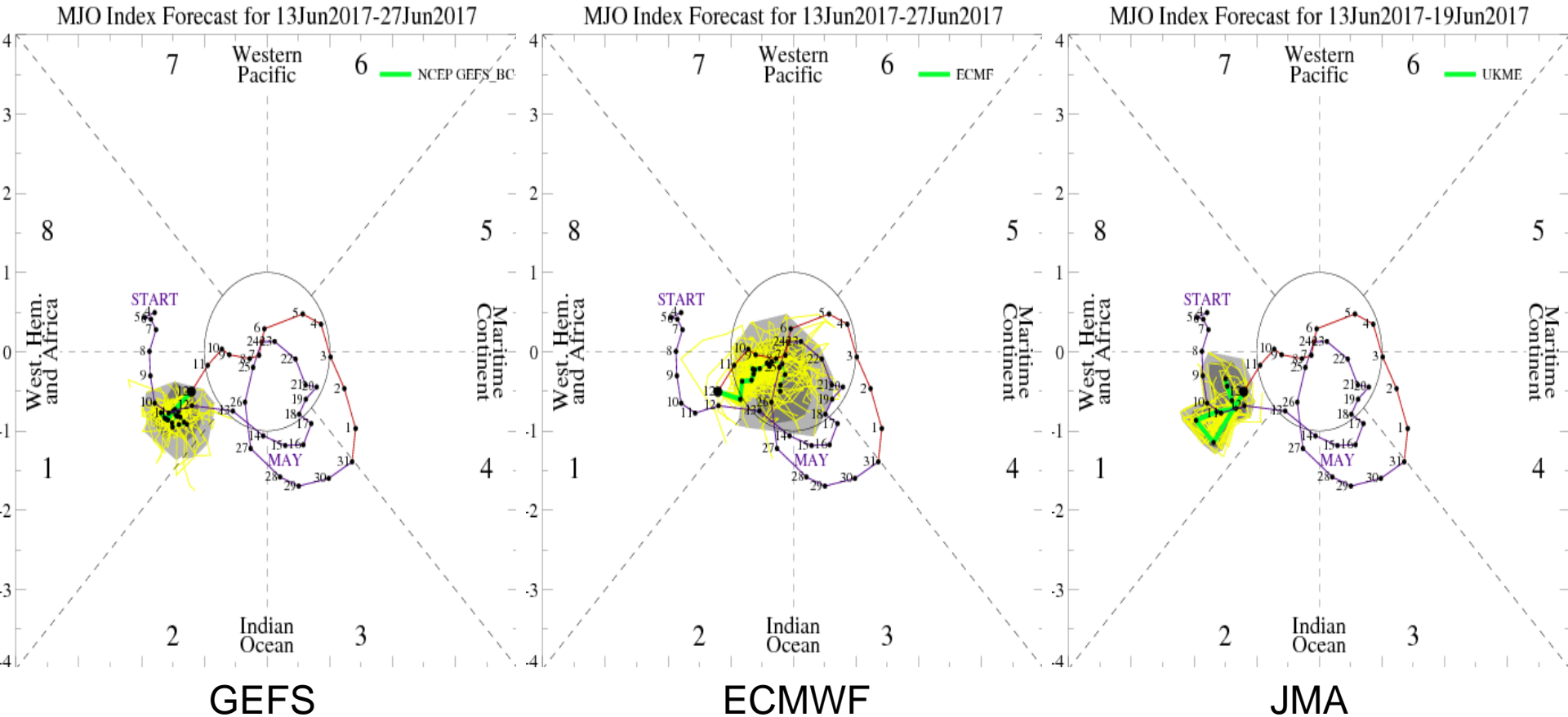
Broadly wave-1 pattern, Kelvin wave over Indian Ocean.

Broadly wave-1 pattern, Kelvin wave over Maritime Continent and another in the East Pacific.

Wave-2 pattern with two centers of action over SE Asia (monsoon, TS Merbok) and Atlantic (Kelvin wave).



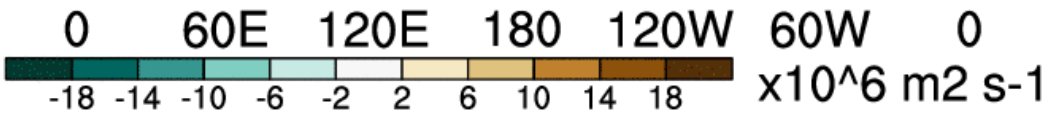
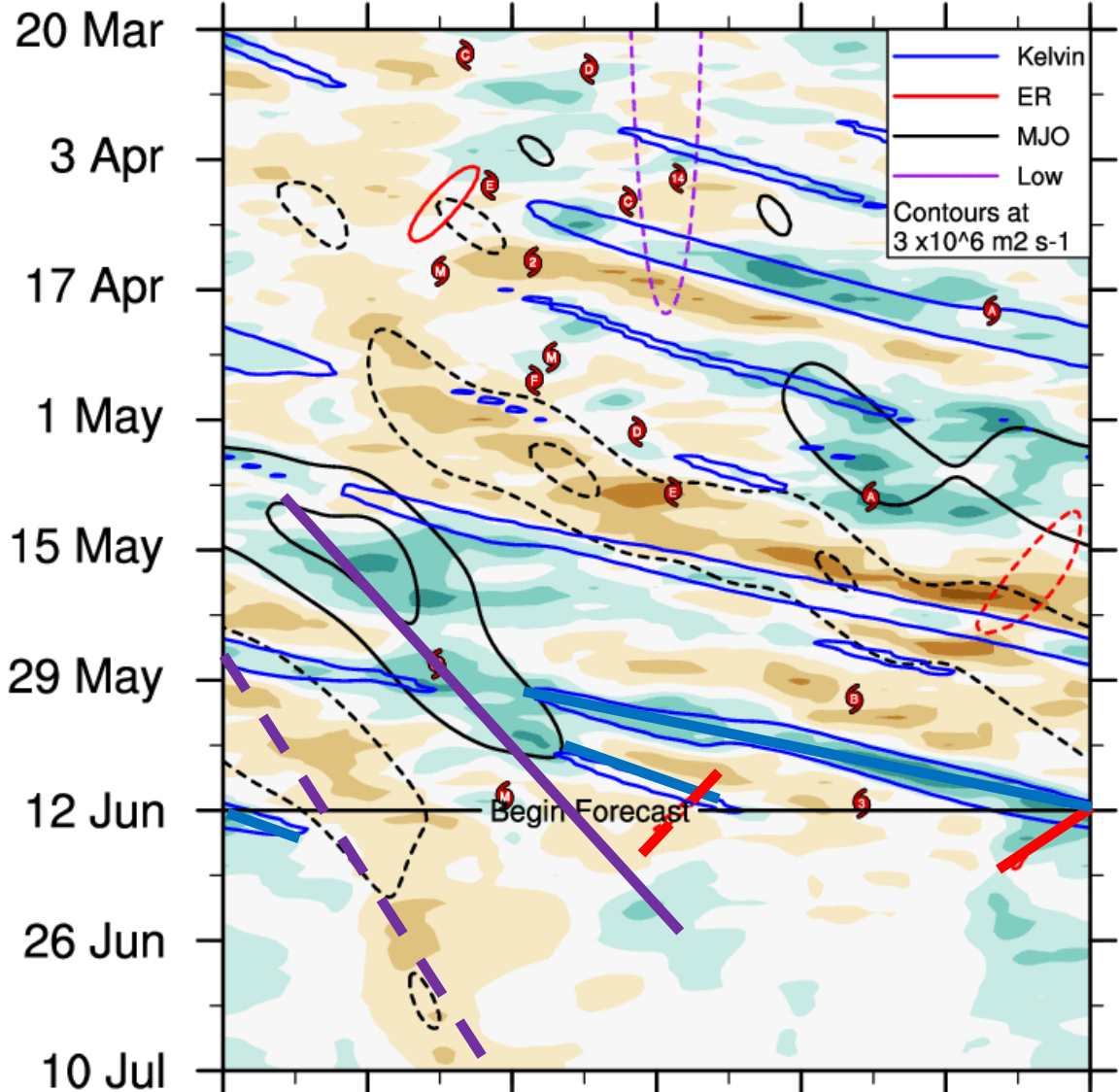
# MJO Observation/Forecast



GEFS likes the Kelvin wave over Africa initially then remains relatively stationary as other Kelvin wave's influence grows.

ECMWF shows weak intraseasonal signal, as two Kelvin waves interfere with RMM signal.

JMA supports uncharacteristic westward propagation of signal linked to a Rossby wave.



**Kelvin waves** the big players with secondary impact from **Rossby waves**.

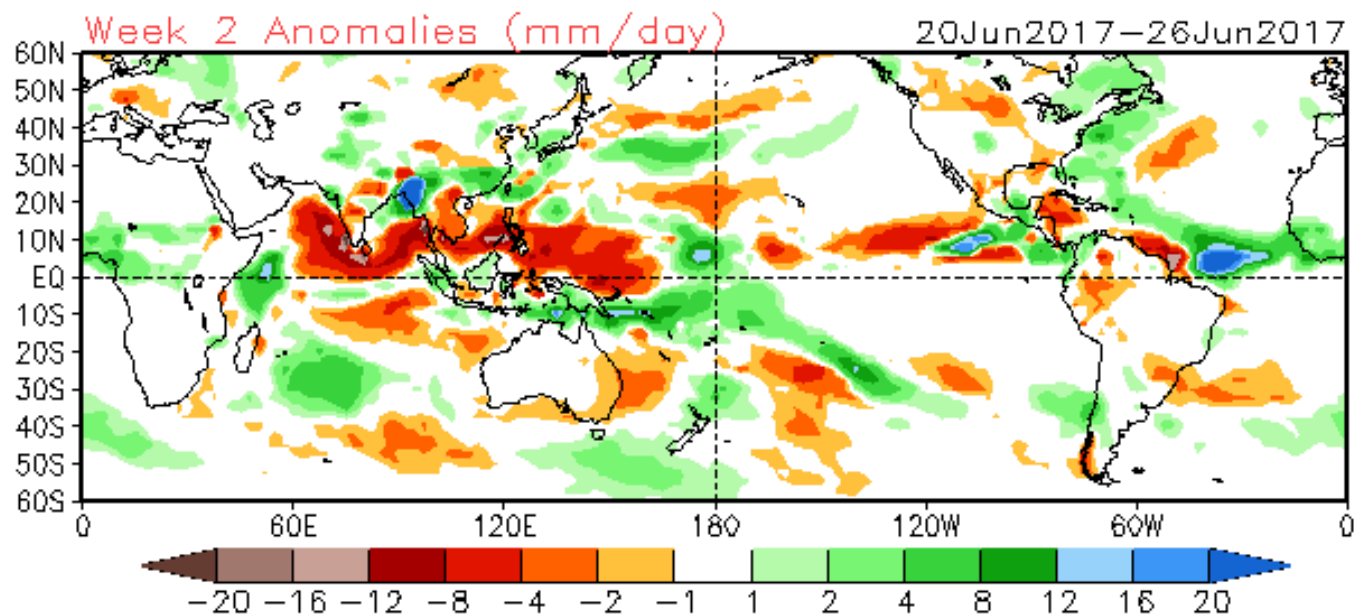
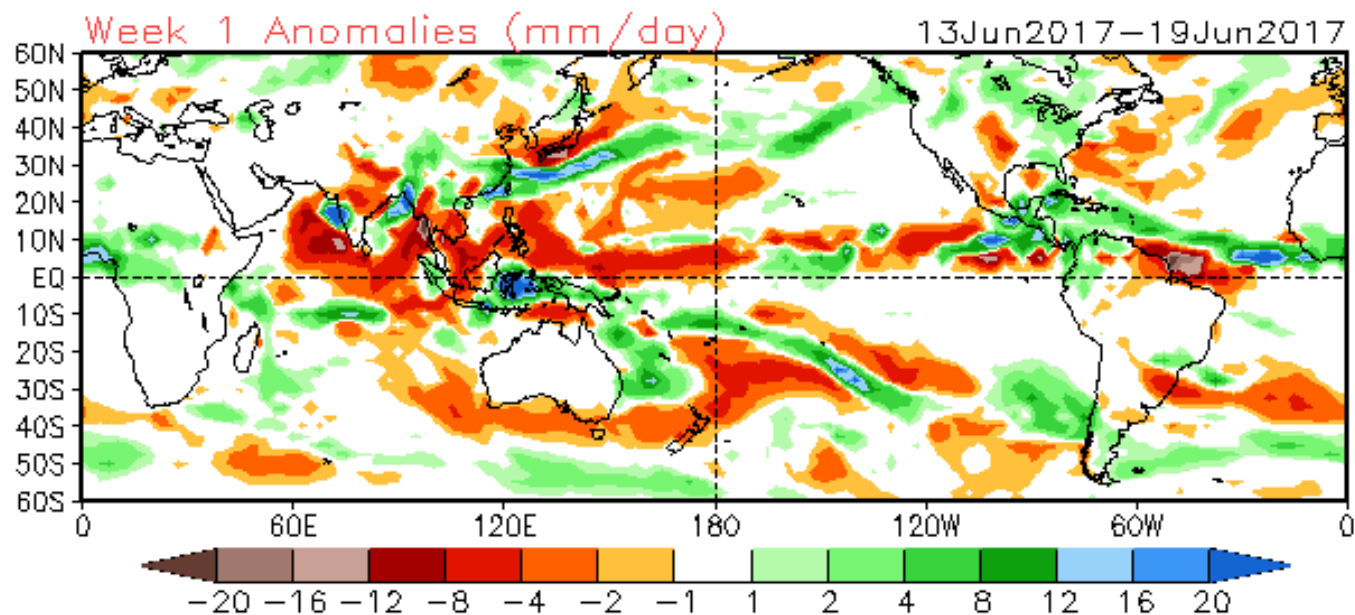
**Low-frequency pattern** showing up here (filtered as MJO by algorithm, but time scale appears too long).





# CFSv2 Weeks 1 & 2 Precipitation

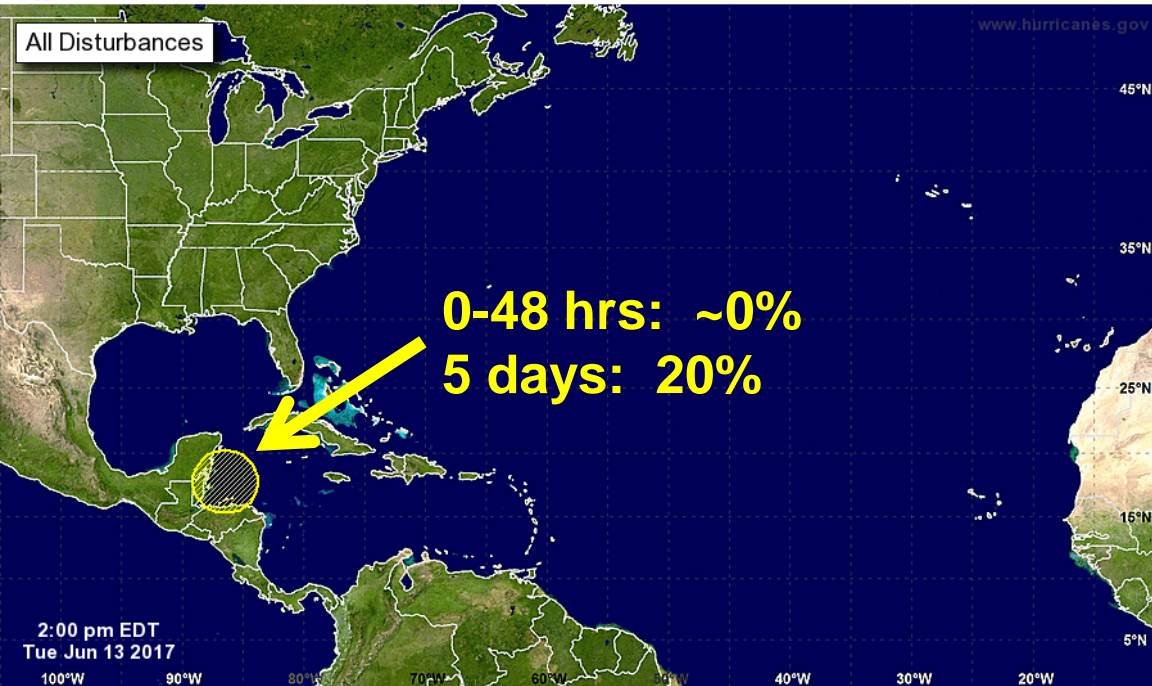
16 Member Ensemble Mean Forecast from 12Jun2017





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



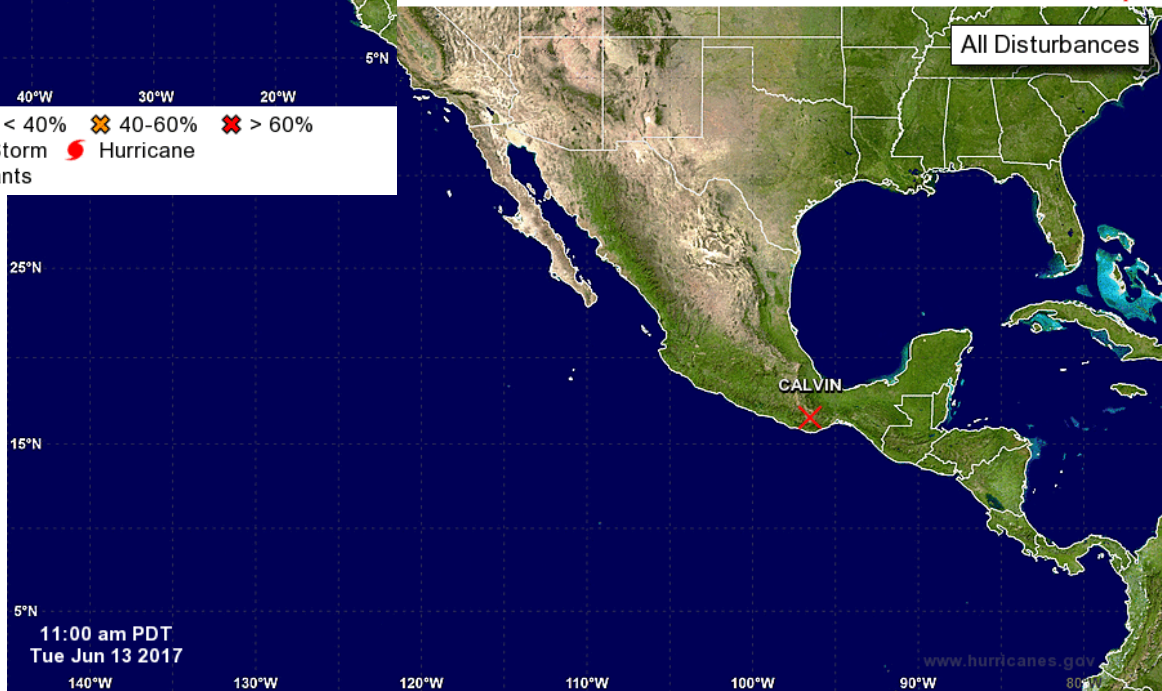
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone Remnants

# Graphical Tropical Weather Outlook

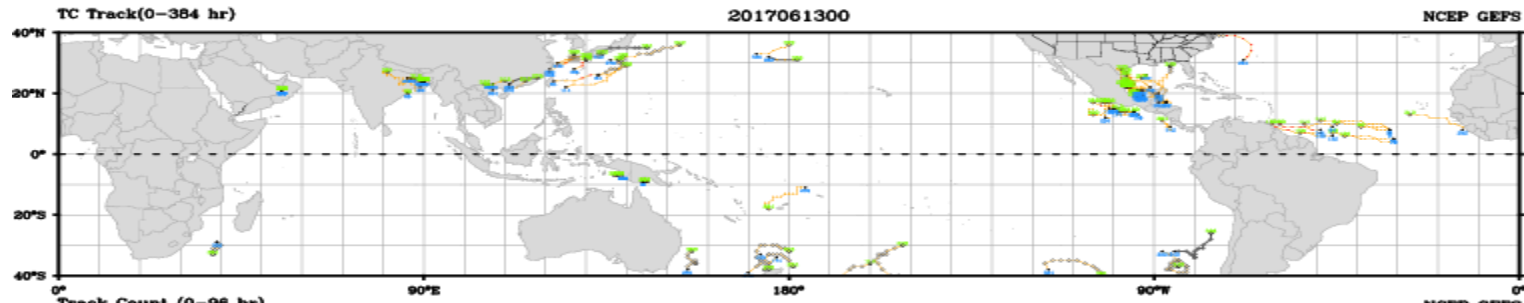
National Hurricane Center Miami, Florida



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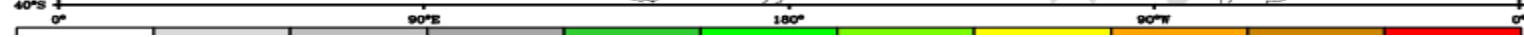
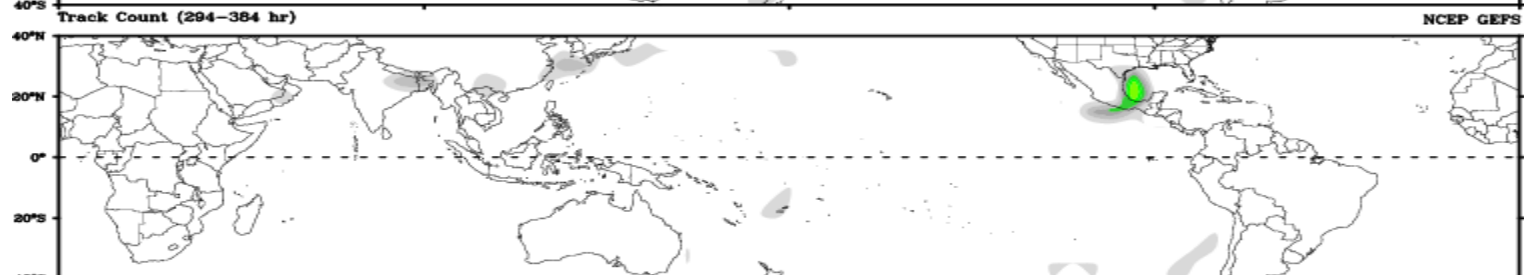
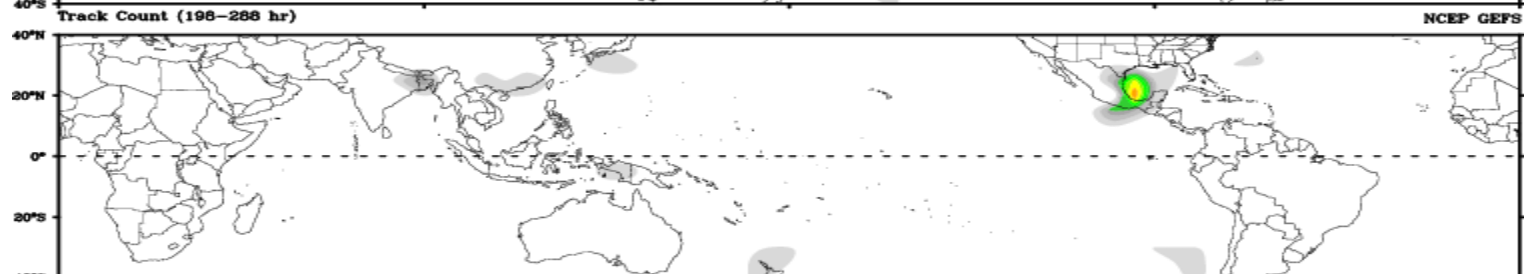
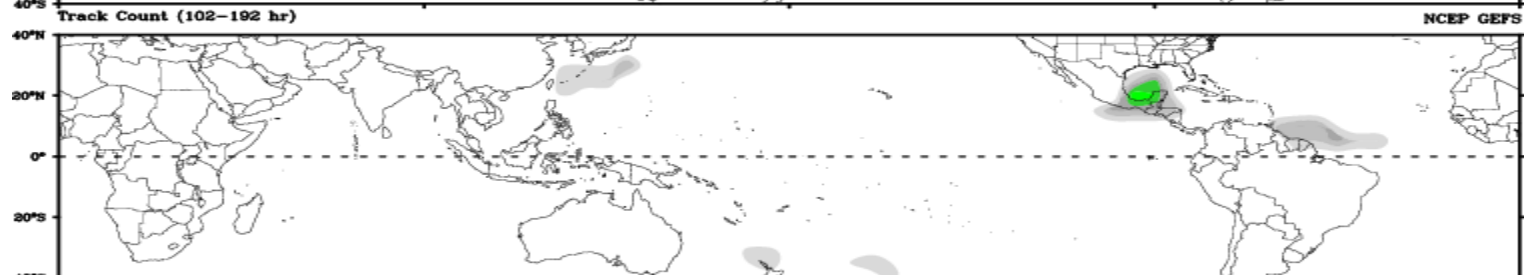
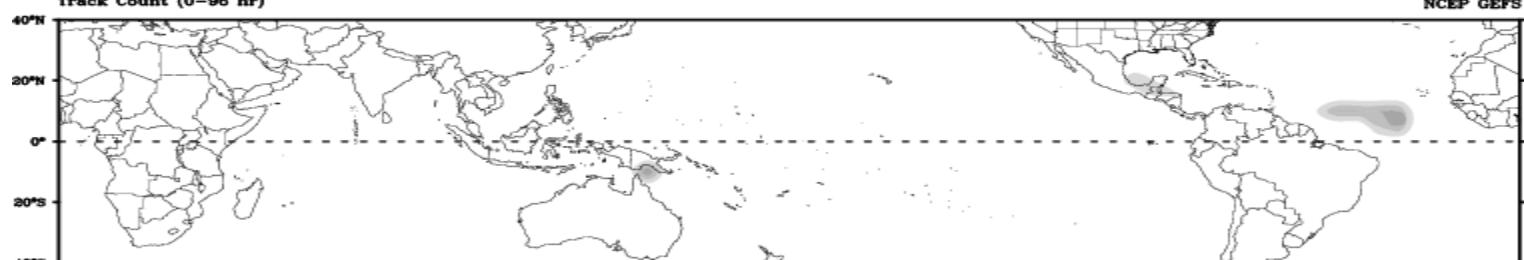


Days 1-4

Day 5-8

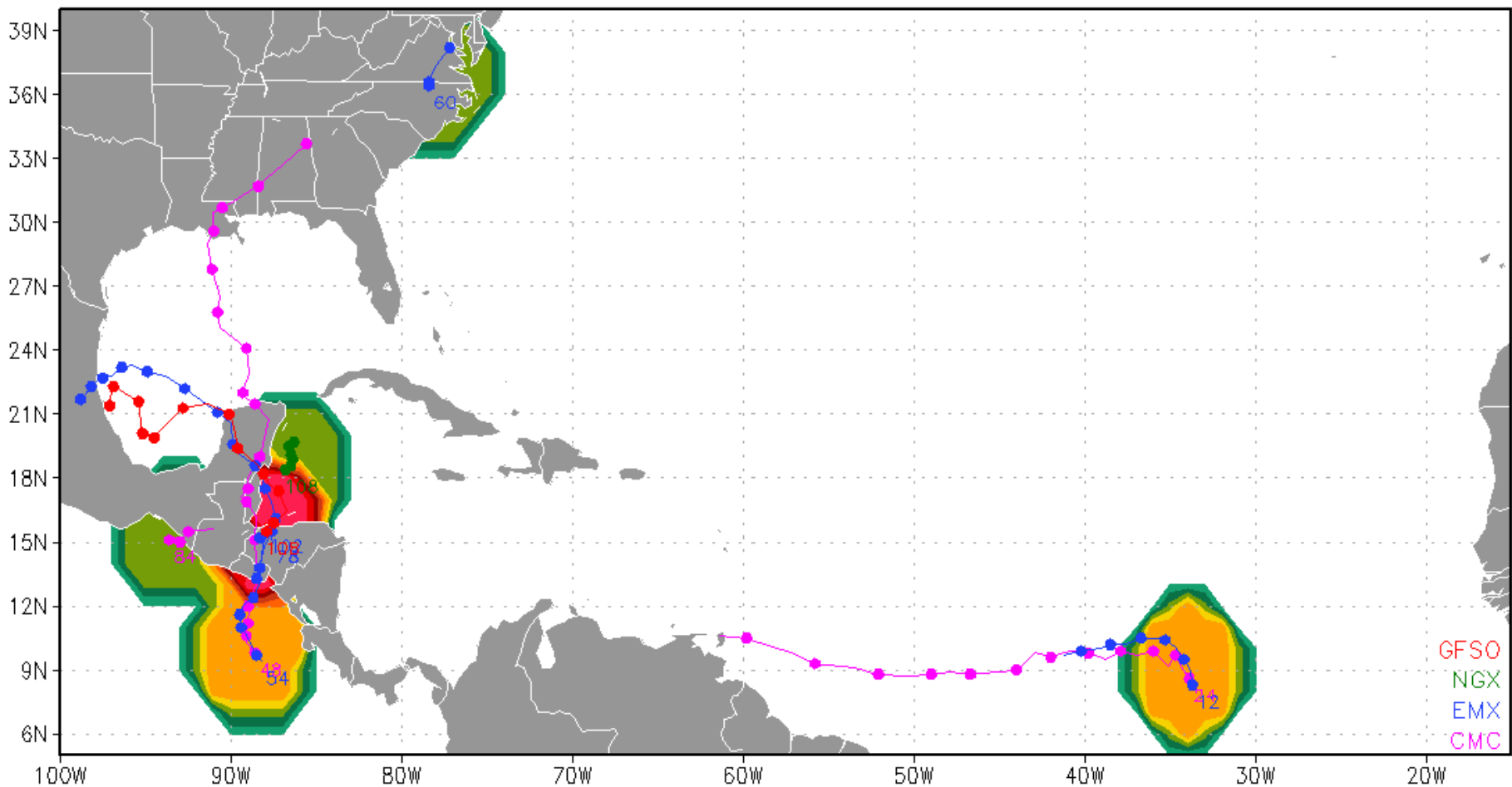
Day 9-12

Day 13-15



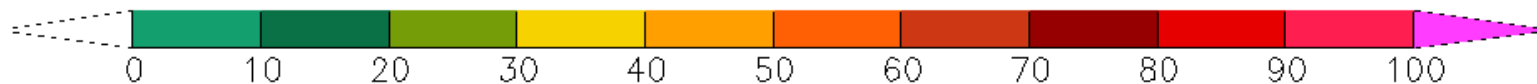
# Consensus-based Probability (%) of TC genesis using deterministic models: GFS, NAVGEM, CMC, ECMWF

For forecasts during the 00–120h period from initial time = 2017061300



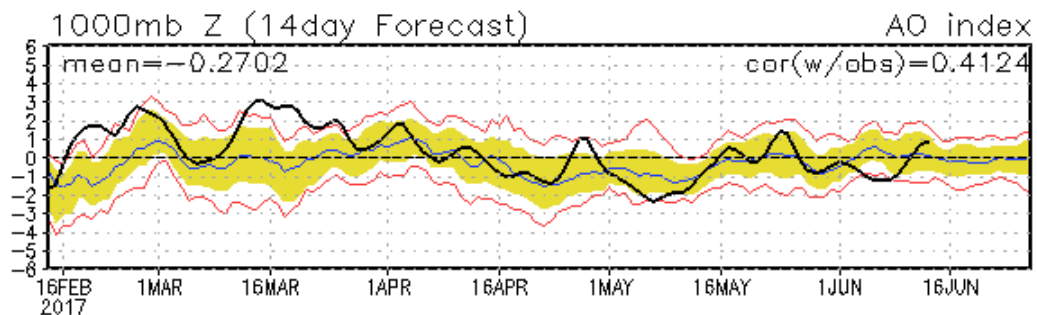
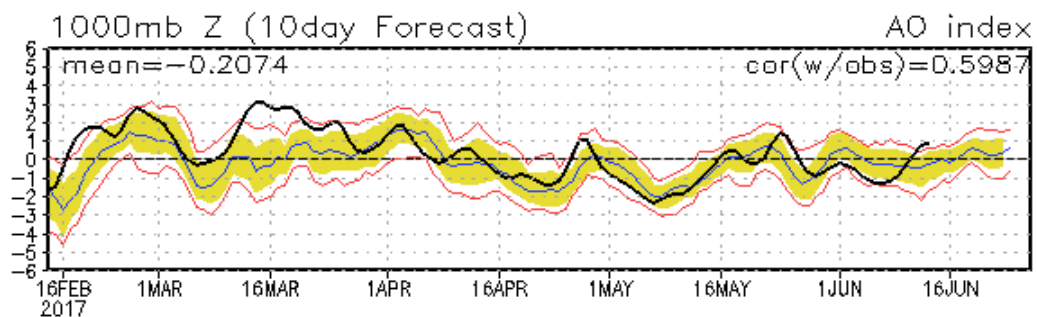
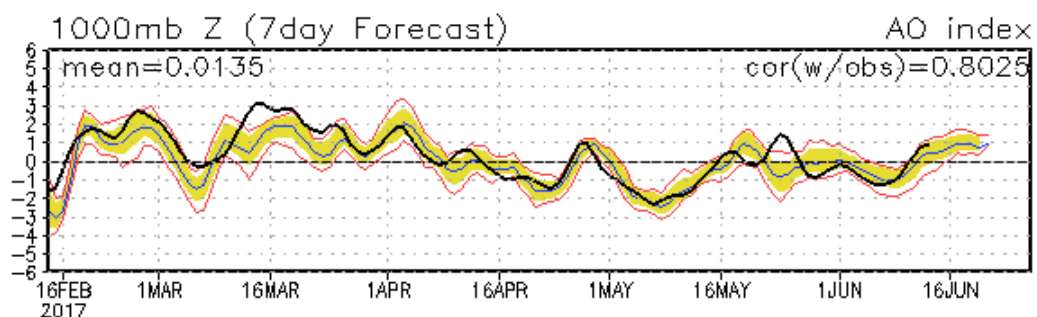
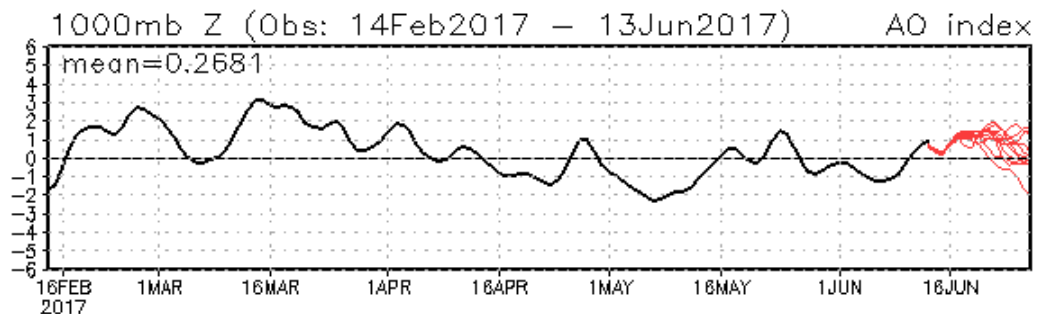
● = position at 00 or 12 UTC

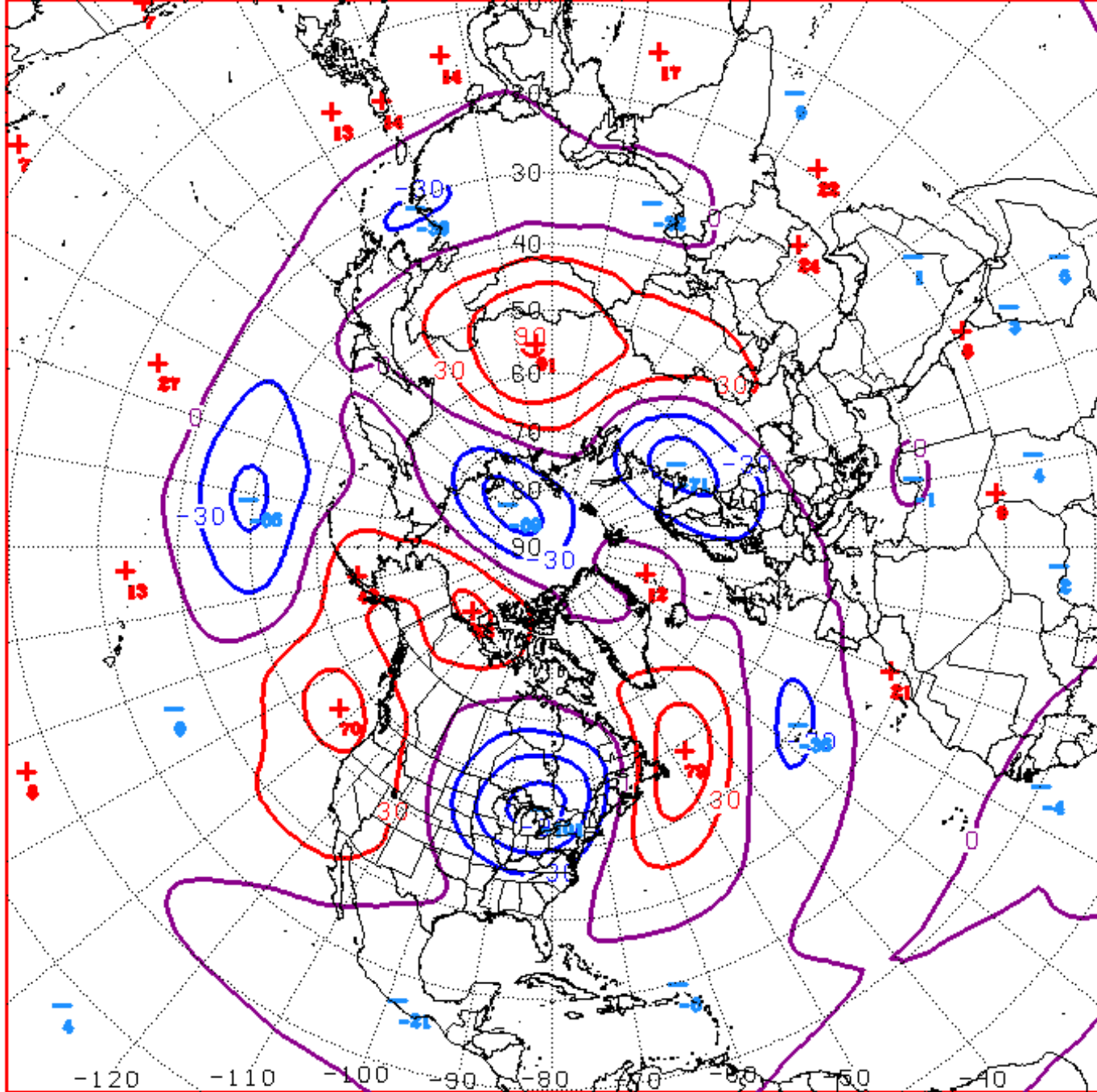
Forecast hour shown at beginning of each track  
is first lead time the storm was detected in model



# Connections to U.S. Impacts

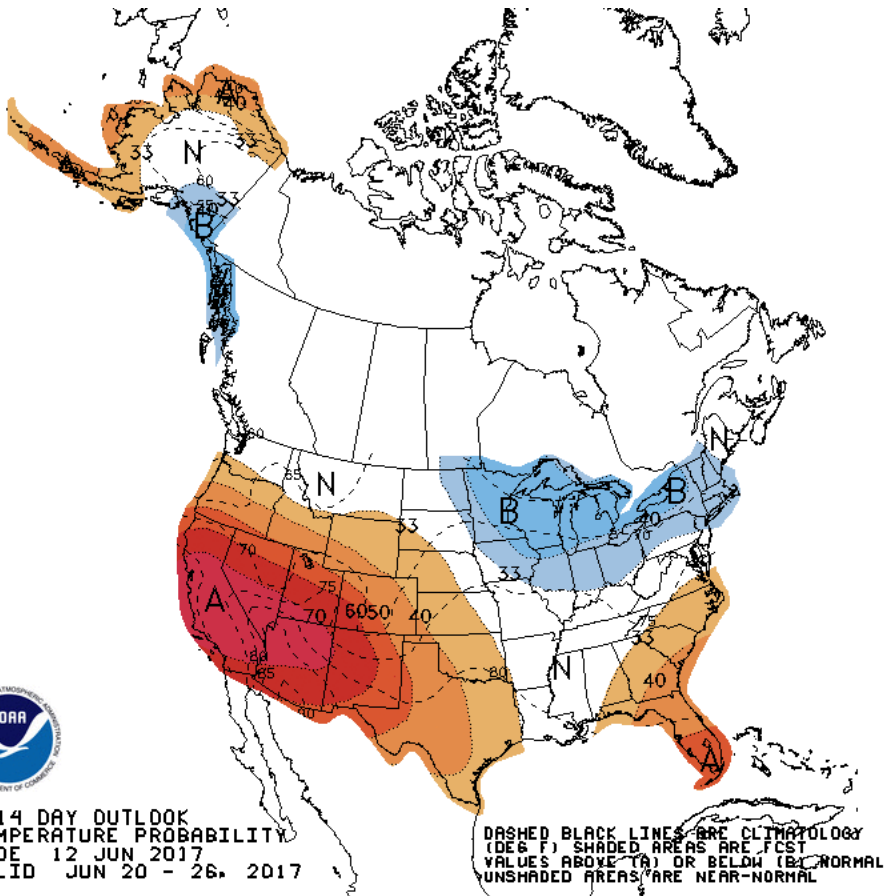
## AO: Observed & ENSM forecasts





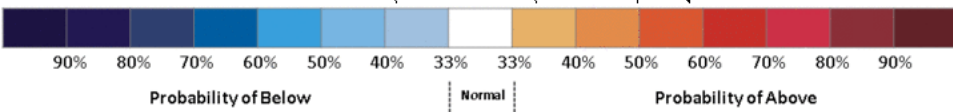
D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE JUN 13 2017 1329 UTC CNTD JUN 24 2017

# Week 2 – Temperature and Precipitation

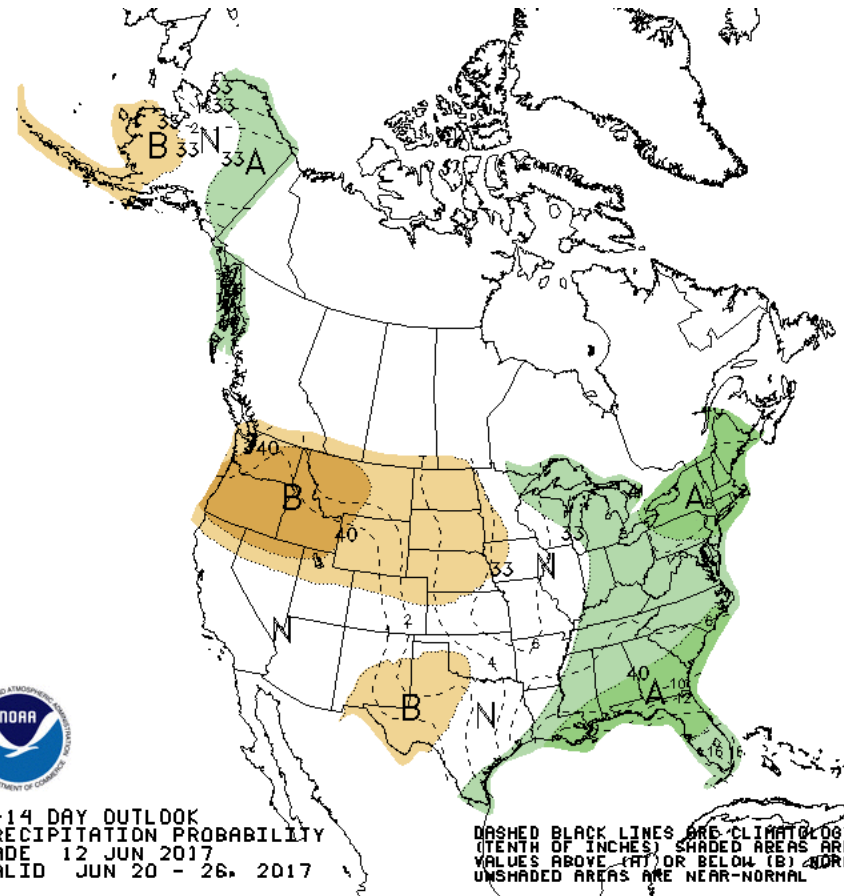


8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 12 JUN 2017  
VALID JUN 20 - 26, 2017

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. UNSHADED AREAS ARE NEAR-NORMAL.

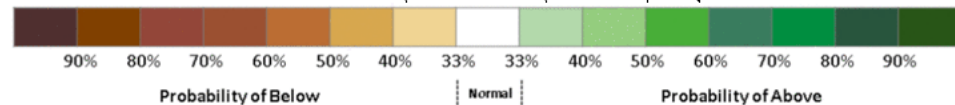


Today: possibly wetter in Southwest - some indications of monsoonal moisture (high over CO, low over Gulf of California, inverted trough/tropical system in Gulf of Mexico)



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 12 JUN 2017  
VALID JUN 20 - 26, 2017

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

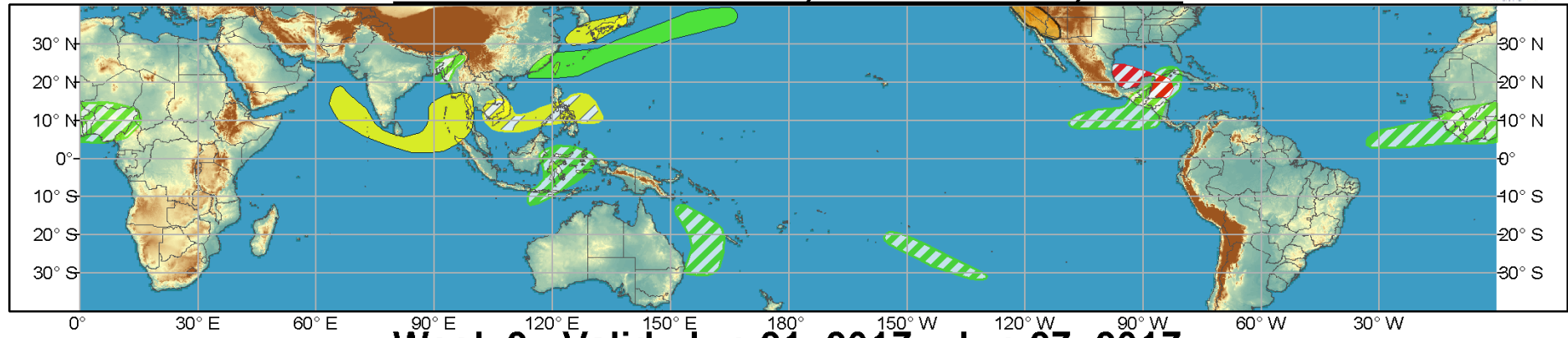




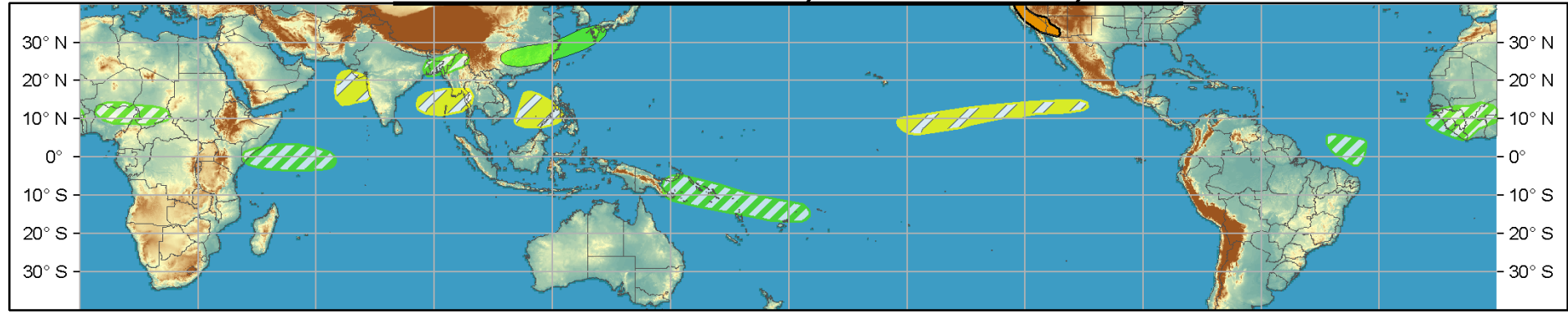


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