

# Global Tropics Hazards And Benefits Outlook

03/12/2019

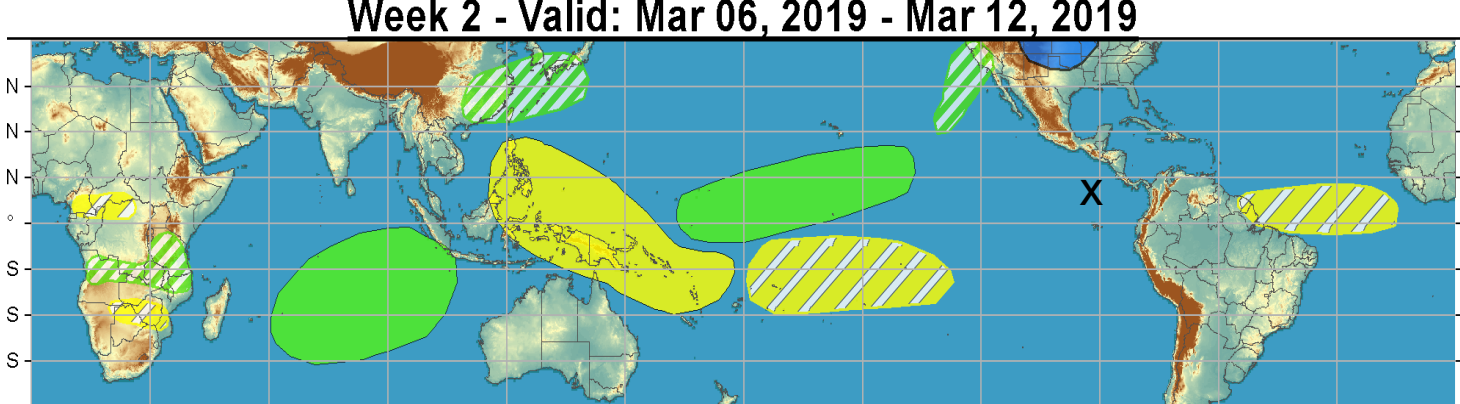
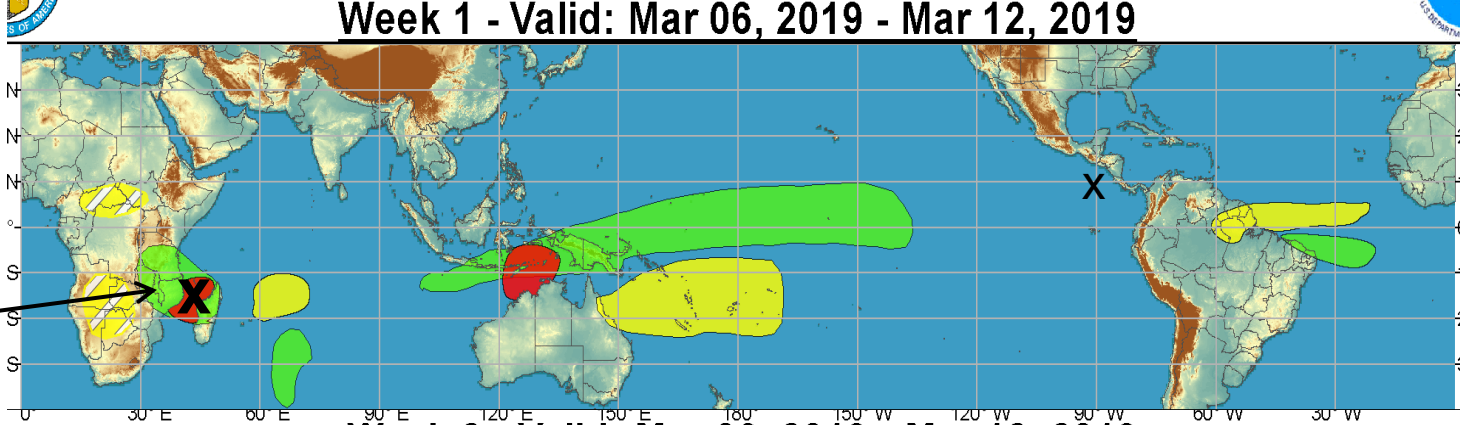
Kyle MacRitchie

## Outline

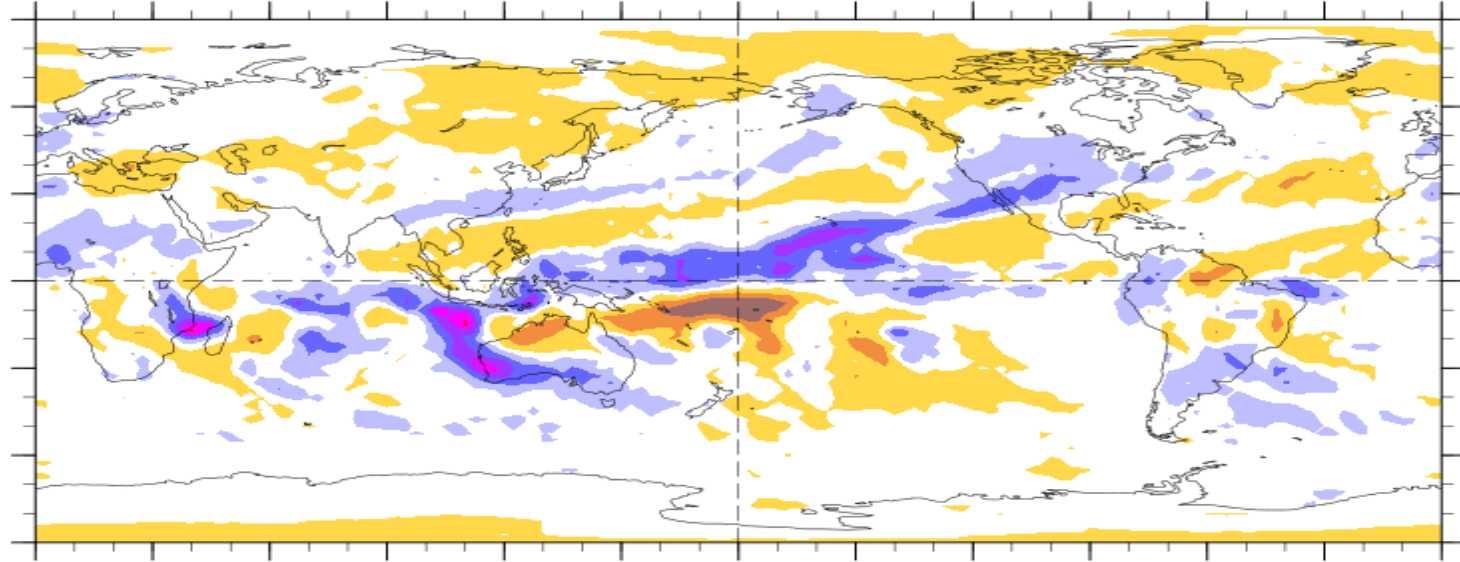
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

TC Idai  
Formed: March 9



7-Day Average OLR Anomaly 2019/03/04 - 2019/03/10



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (February 14, 2019 Update)**

- ENSO Alert System Status: El Niño Advisory
- Weak El Niño conditions are present and are expected to continue through the Northern Hemisphere spring 2019 (~55% chance).

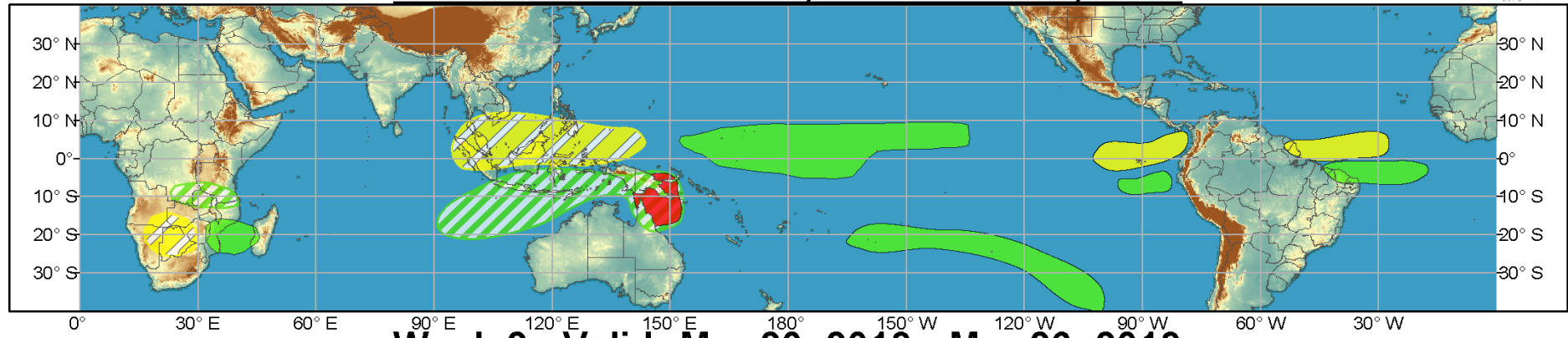
## **MJO and other subseasonal tropical variability:**

- The MJO remained outside of the unit circle and is currently in Phase 4.
- Dynamical models forecast the MJO to weaken during the next few days. It's possible that this will occur in an RMM-sense, but the low-frequency state is interfering with the RMM signal, so the RMM index may not be the best measurement of MJO activity right now.
- It's likely that the MJO-related circulation will continue to propagate eastward over the central Pacific and that MJO-related convection will flare up as the circulation propagates over the warm central Pacific SSTs.

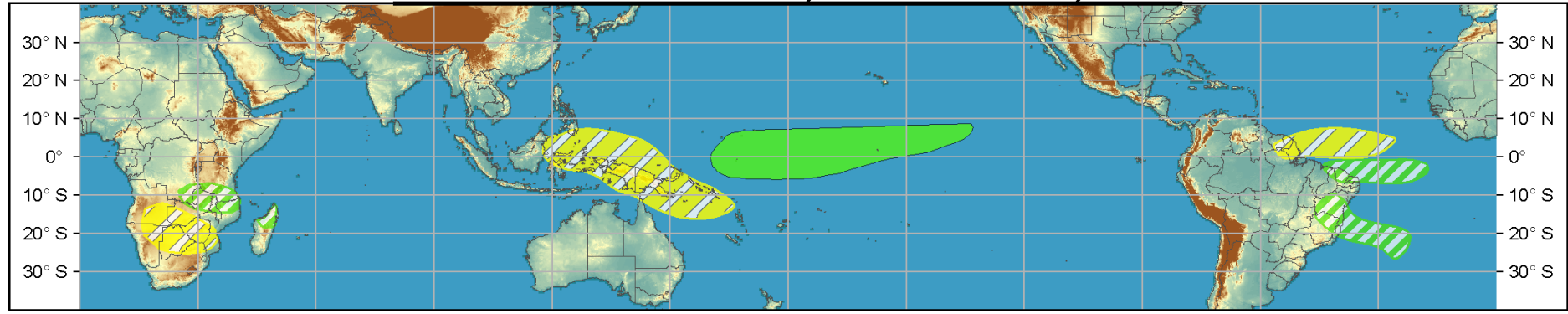


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Mar 13, 2019 - Mar 19, 2019



## Week 2 - Valid: Mar 20, 2019 - Mar 26, 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.
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# IR Satellite & 200-hpa Velocity Potential Anomalies

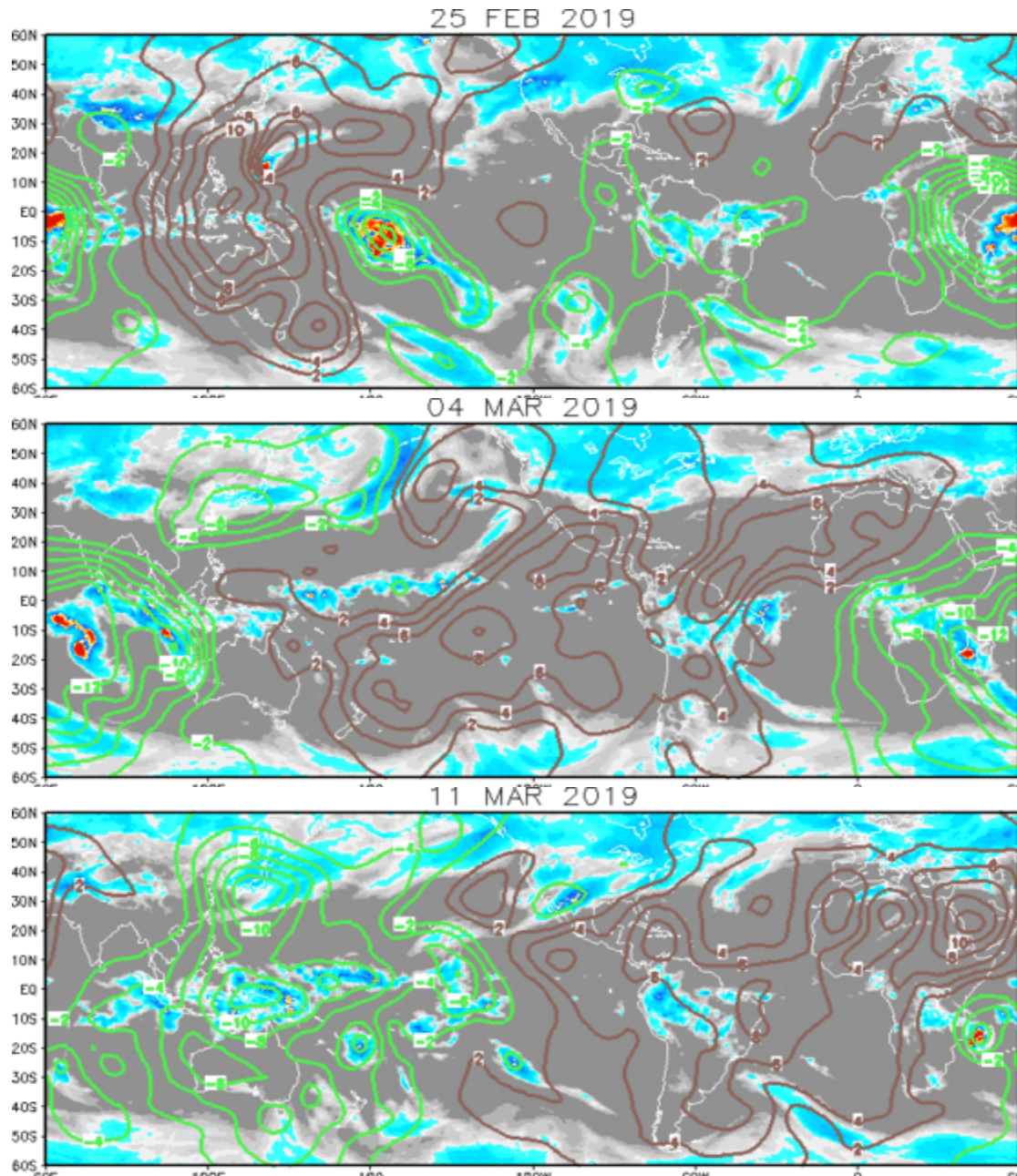
Green: Enhanced Divergence

Brown: Enhanced Convergence

MJO-related convection over the Indian Ocean dominates the upper-level velocity potential anomalies. There is a secondary anchor related to the SPCZ.

Wave-1 pattern developed as the MJO became more established.

Still a Wave-1 pattern, but the amplitude of the convection over the eastern Indian Ocean weakened once the Kelvin wave moved through.

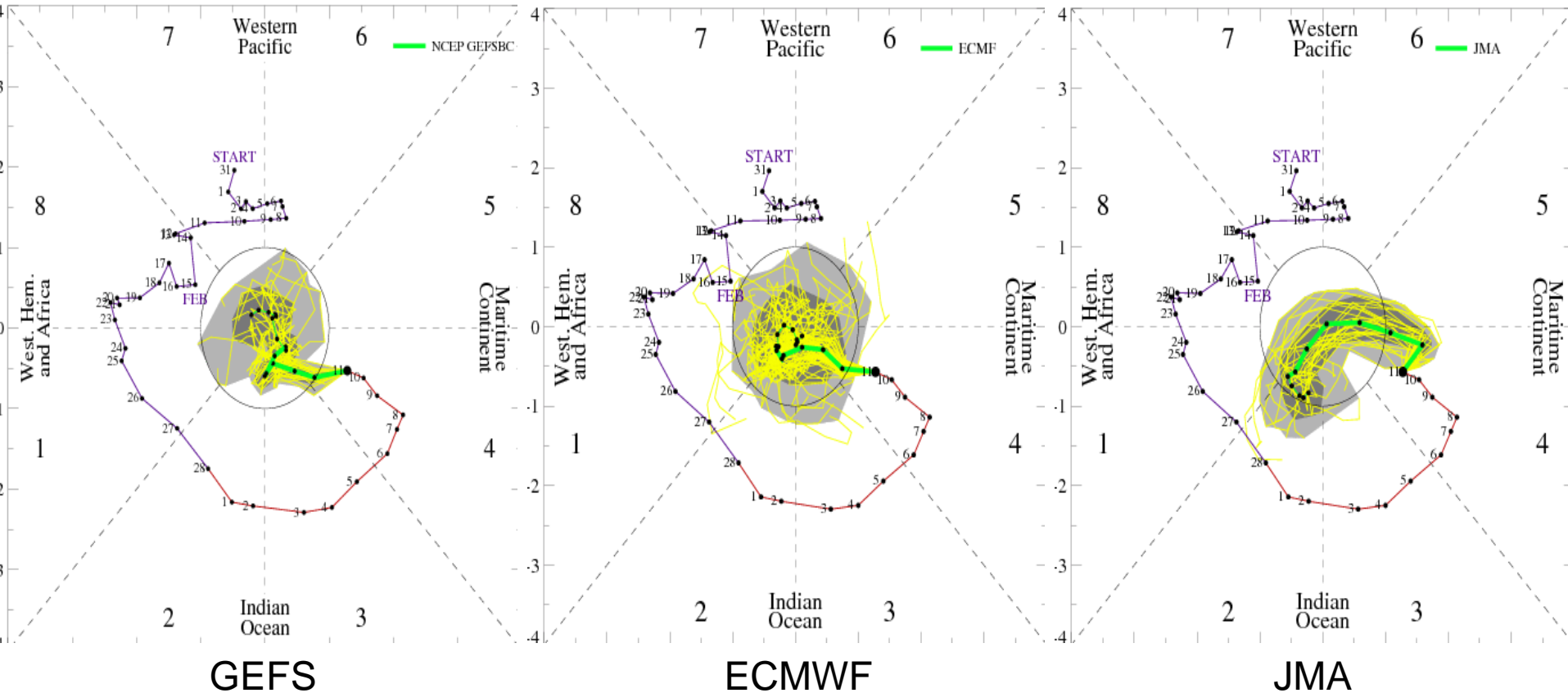


# MJO Observation/Forecast

[RMM1, RMM2] forecast for Mar-12-2019 to Mar-26-2019

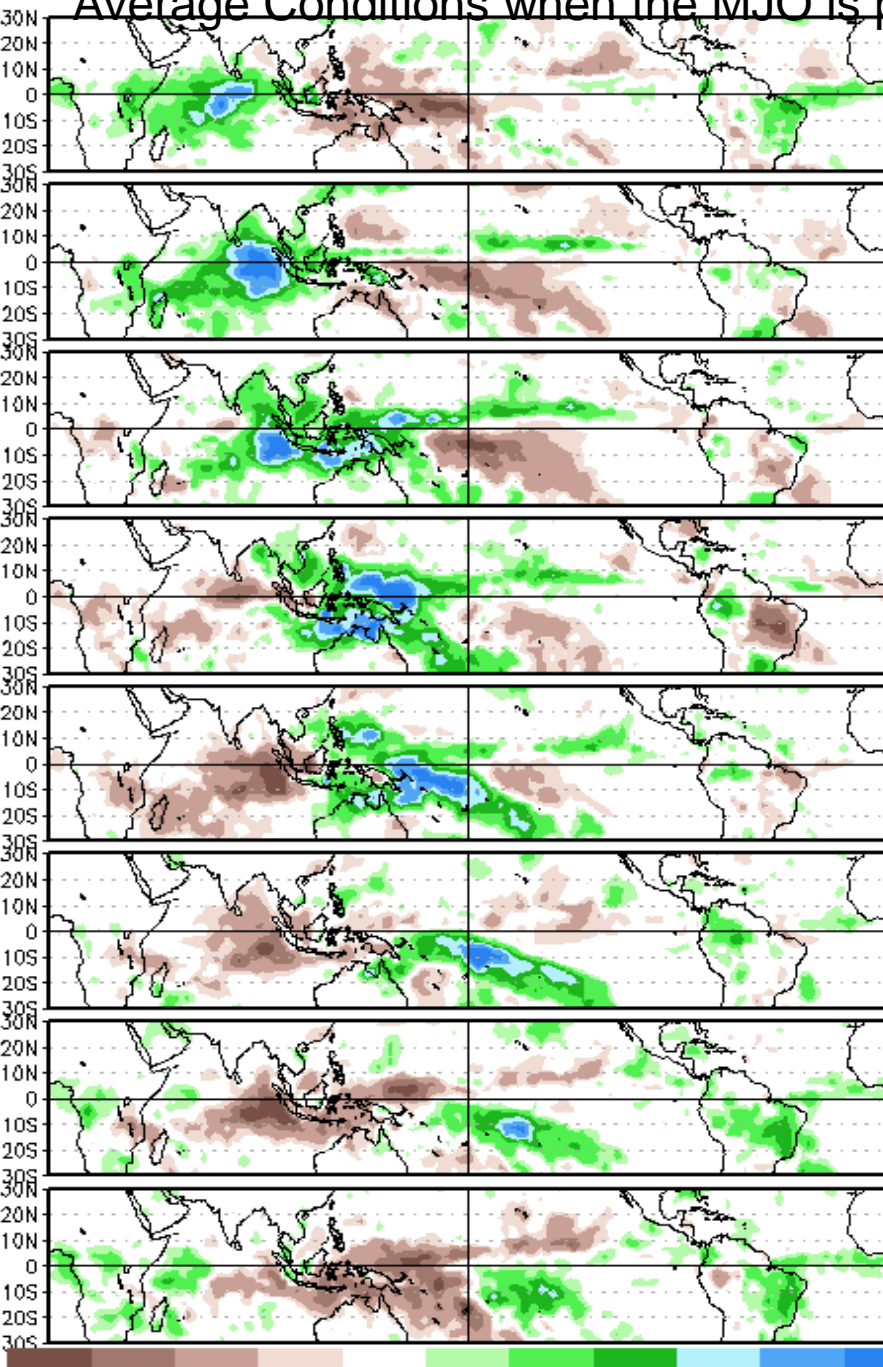
MJO Index Forecast for 12Mar2019-26Mar2019

MJO Index Forecast for 12Mar2019-20Mar2019



Dynamical models predict the MJO to weaken soon. This may happen in an RMM-sense, but it's likely that aspects of the MJO circulation will continue to propagate eastward.

# Average Conditions when the MJO is present



Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Phase 7

Phase 8

Phase 1

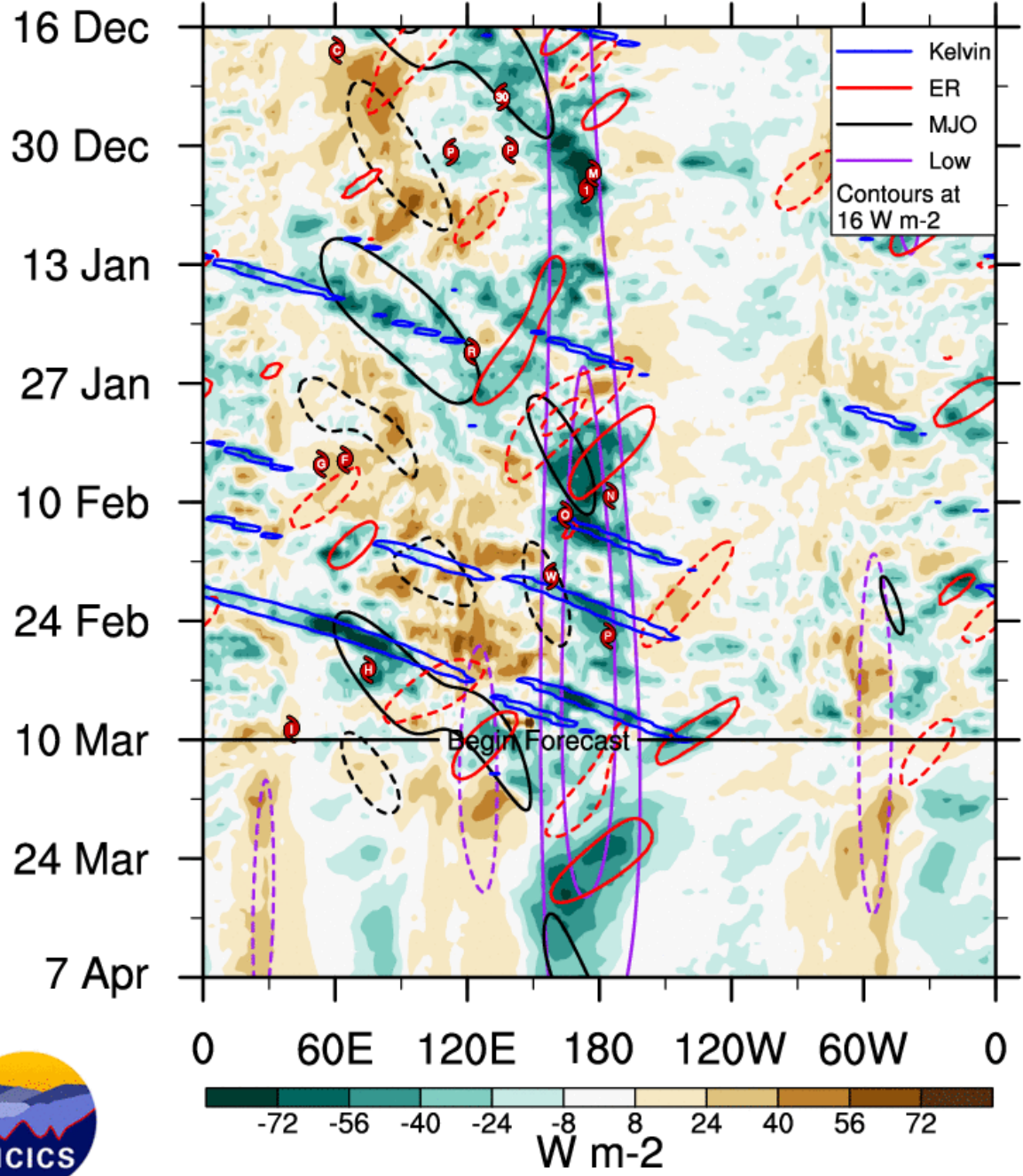
First few days of Week-1

Maybe the rest of Week-1 and early Week-2?

CAVEAT: These panels are representative of robust MJO events.

OLR with CFS forecasts

5S - 5N

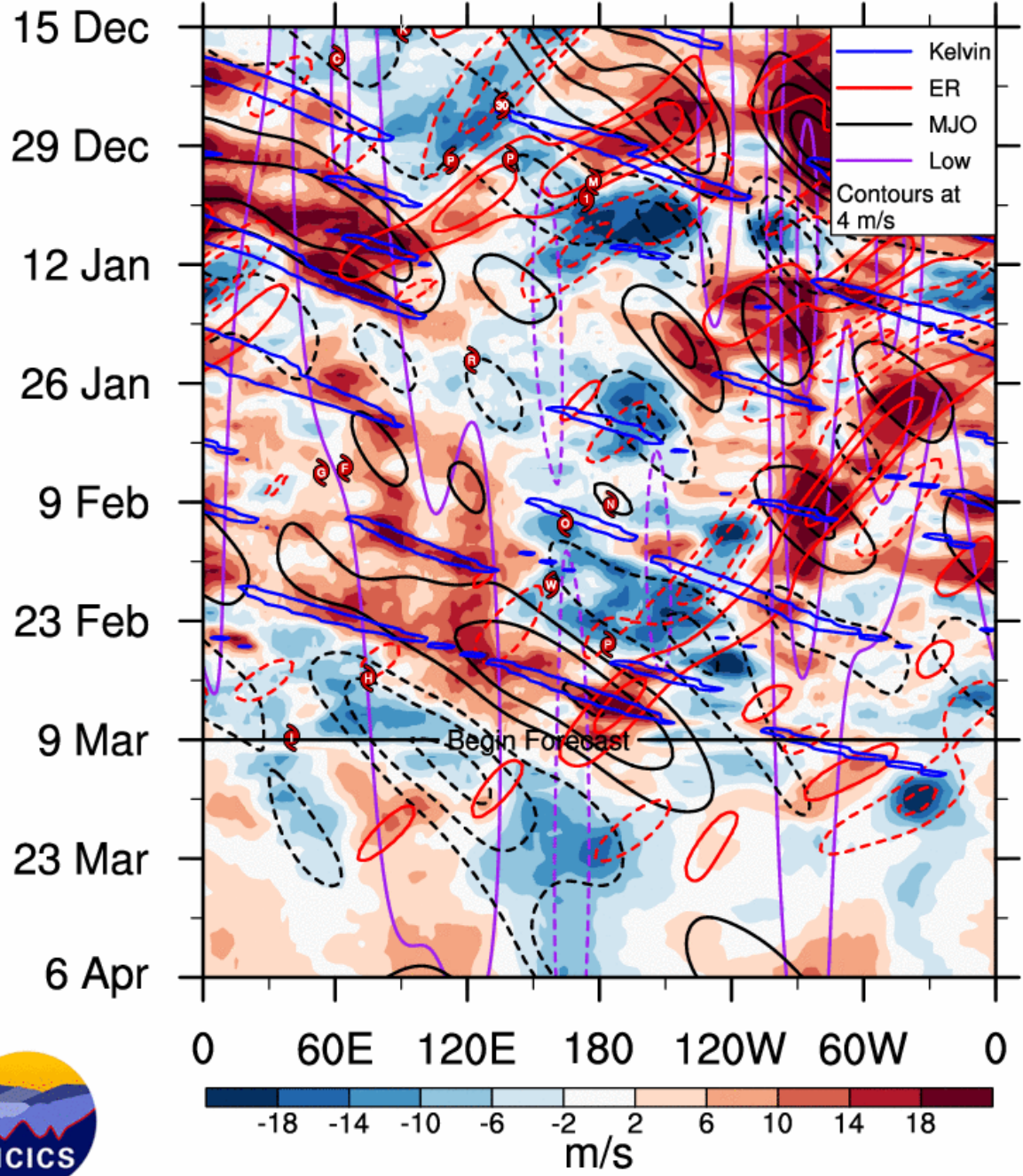


The MJO is over the eastern Indian Ocean/western Maritime Continent now (RMM Phase 4)

High Kelvin and equatorial Rossby wave activity.



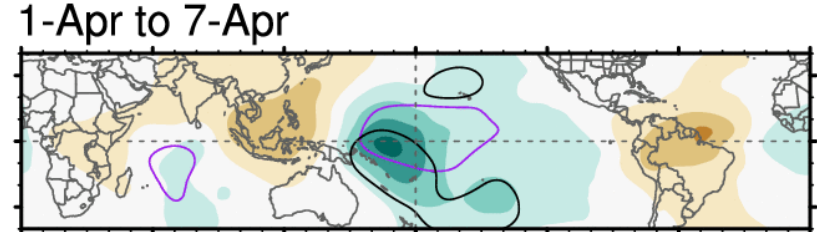
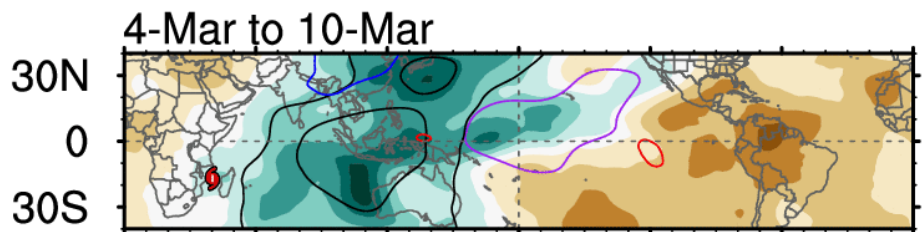
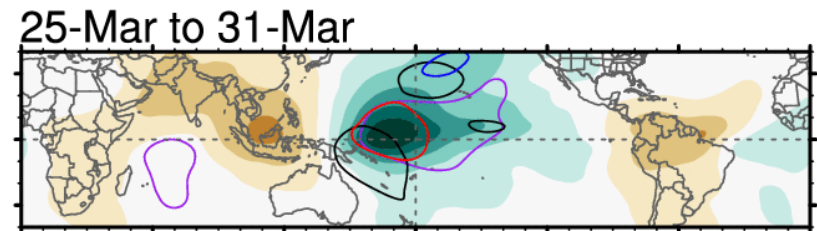
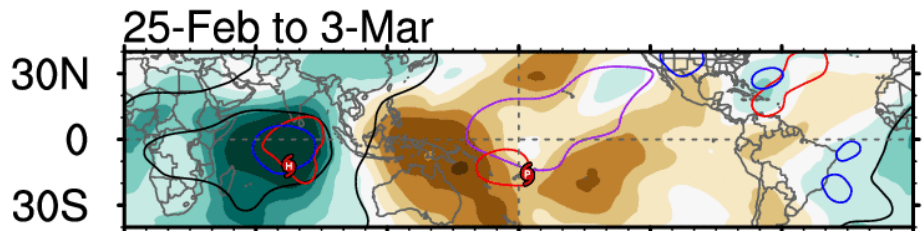
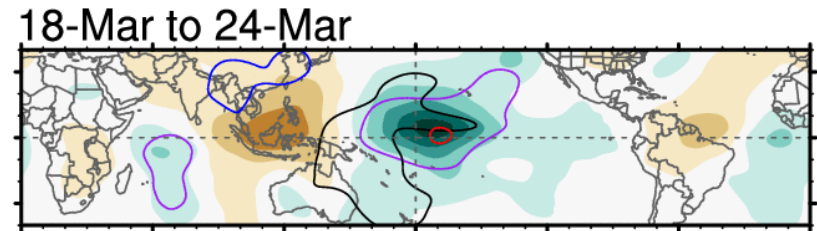
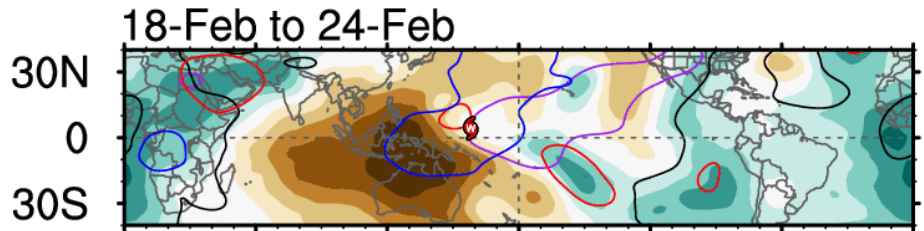
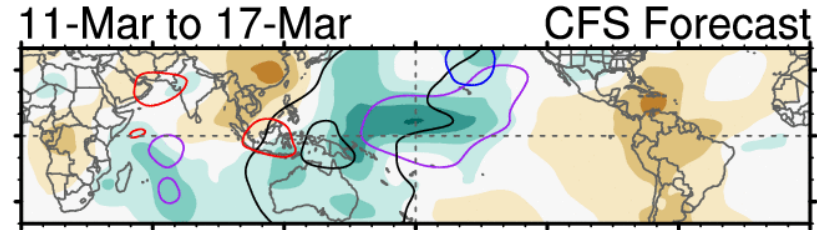
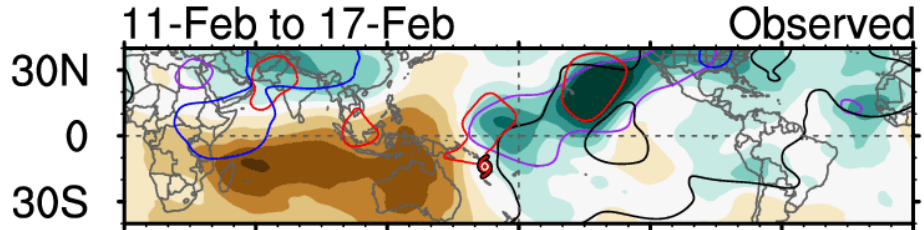




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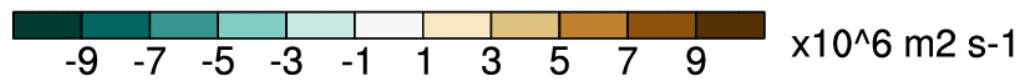


0 60E 120E 180 120W 60W 0

0 60E 120E 180 120W 60W 0



ncics.org/mjo



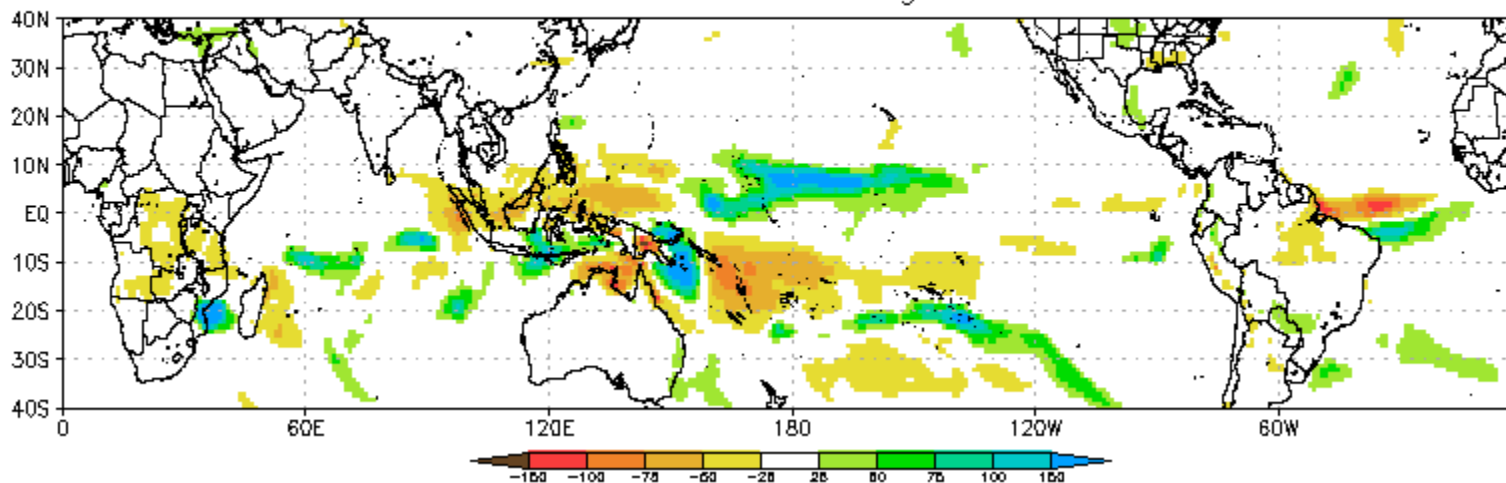
# 7-day CHI200 with CFS forecasts

— MJO      — Kelvin x2  
 — Low      — ER  
 Contours at -2, -6 x10<sup>6</sup> m<sup>2</sup> s<sup>-1</sup>

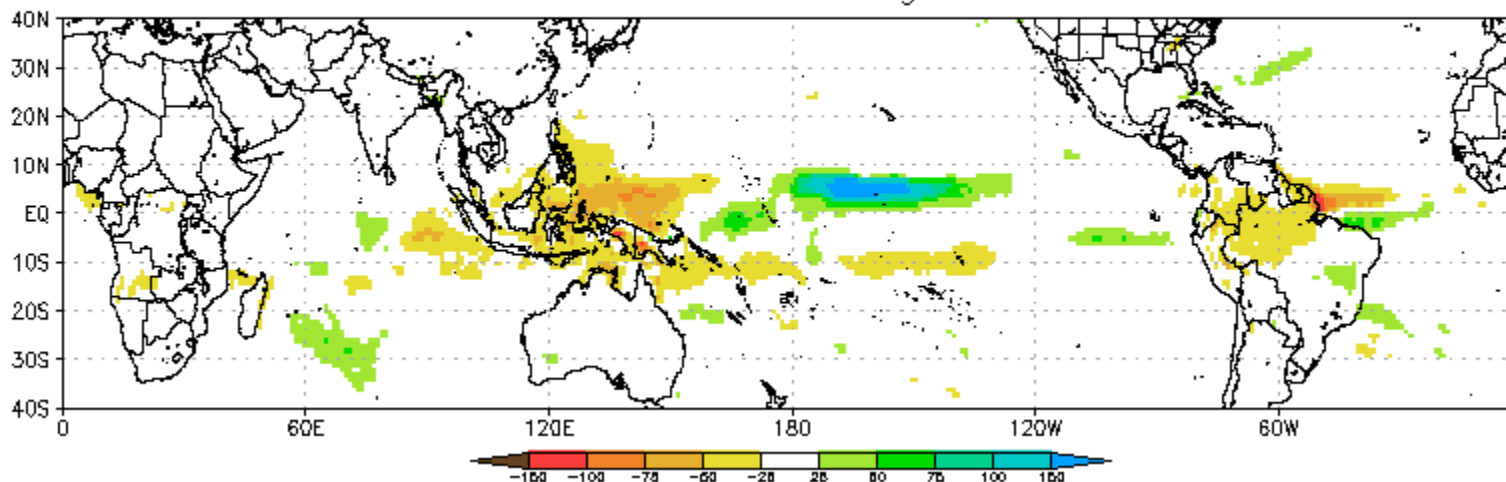
Tue 2019-03-12 1358 UTC

Carl Schreck (cjschrec@ncsu.edu)

CFS Precipitation Anomalies (mm) Issued 11Mar2019  
Week-1 Forecast Ending 19Mar2019

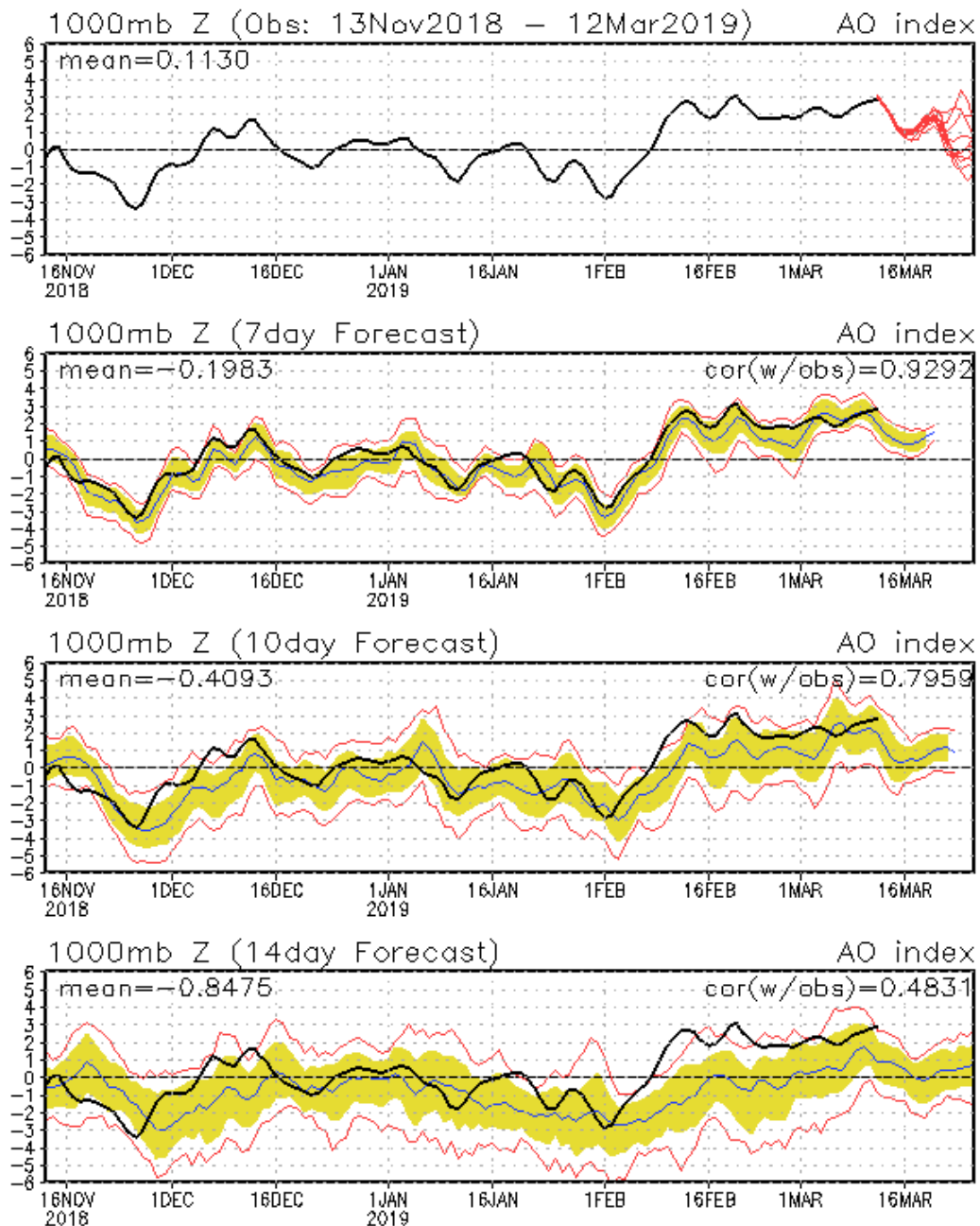


CFS Precipitation Anomalies (mm) Issued 11Mar2019  
Week-2 Forecast Ending 26Mar2019

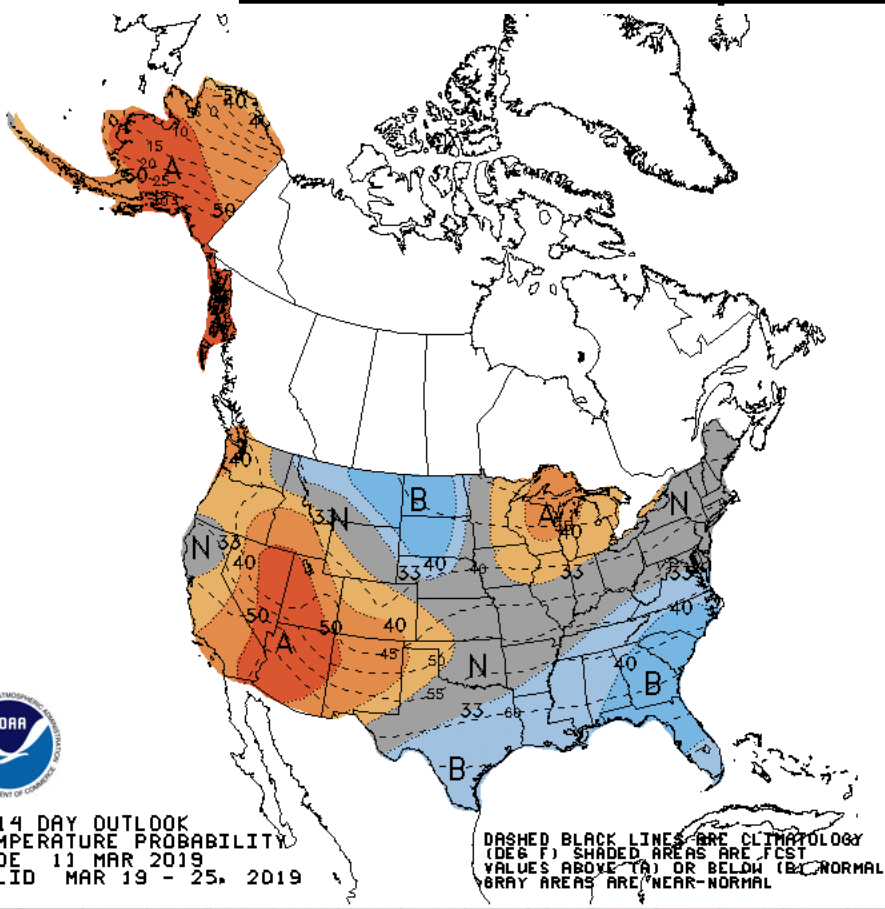


# Connections to U.S. Impacts

## AO: Observed & ENSM forecasts

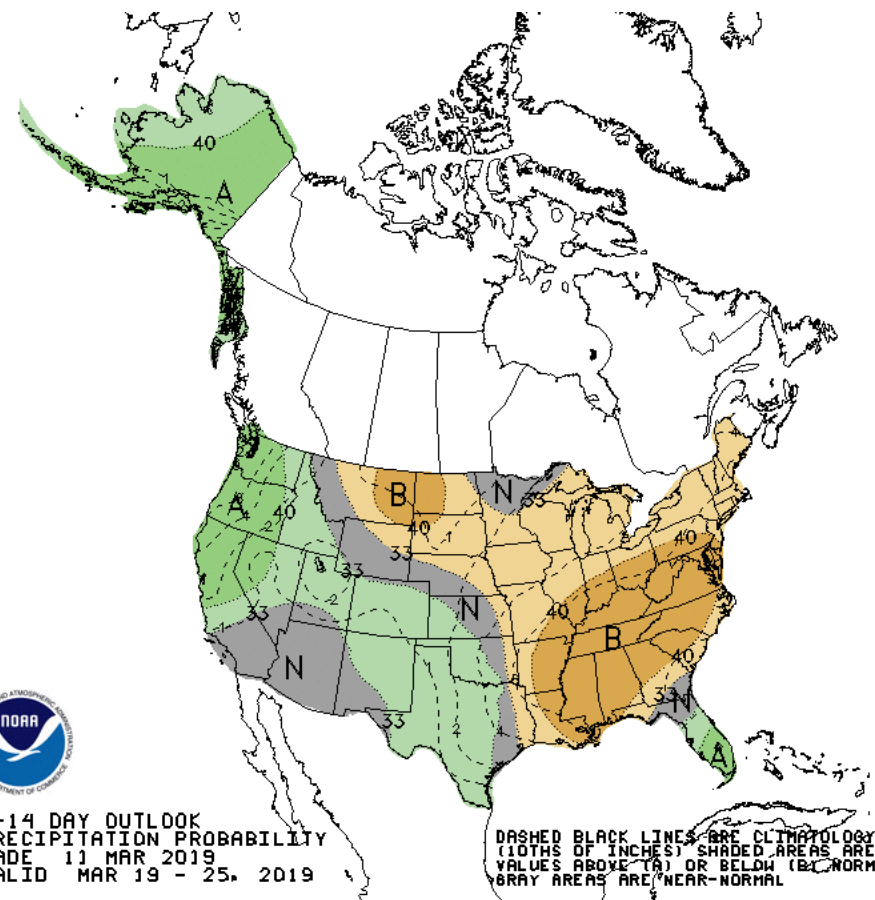
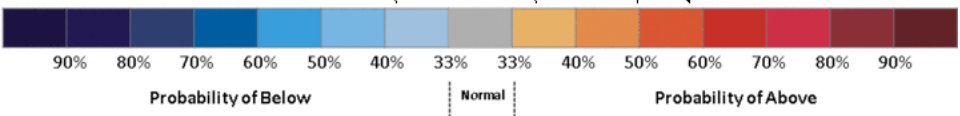


# Week 2 – Temperature and Precipitation



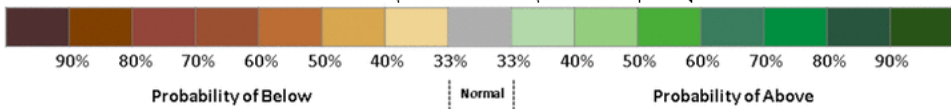
8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 11 MAR 2019  
VALID MAR 19 - 25, 2019

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 11 MAR 2019  
VALID MAR 19 - 25, 2019

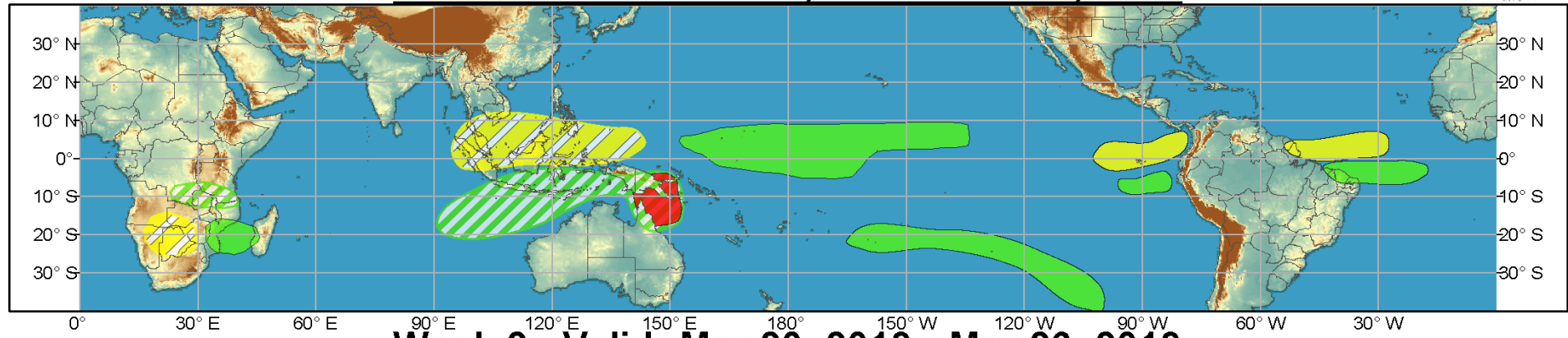
DASHED BLACK LINES ARE CLIMATOLOGY (10THS OF INCHES). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



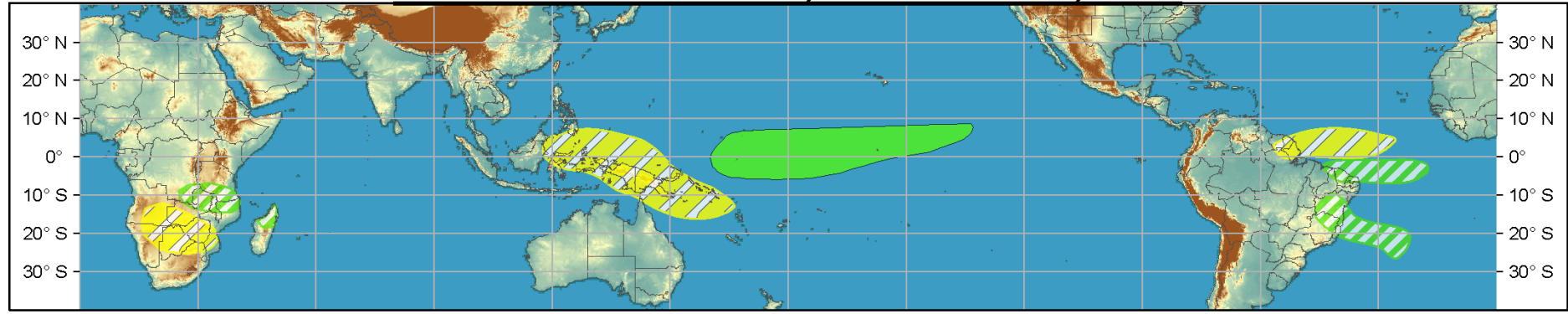


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