

# Global Tropics Hazards And Benefits Outlook

2/26/2019

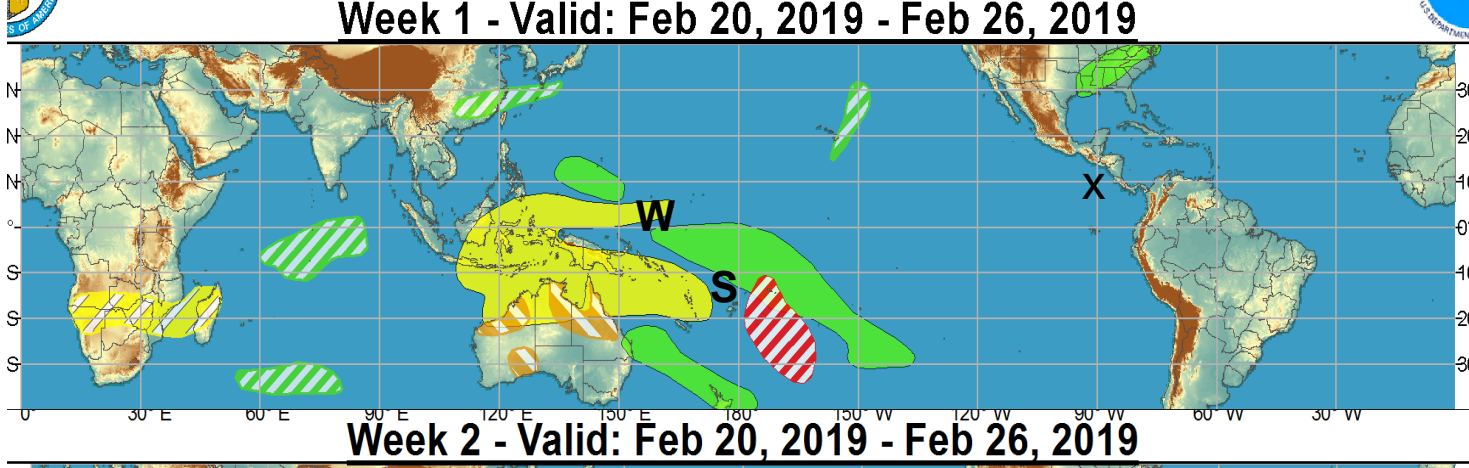
Christina Maurin

## Outline

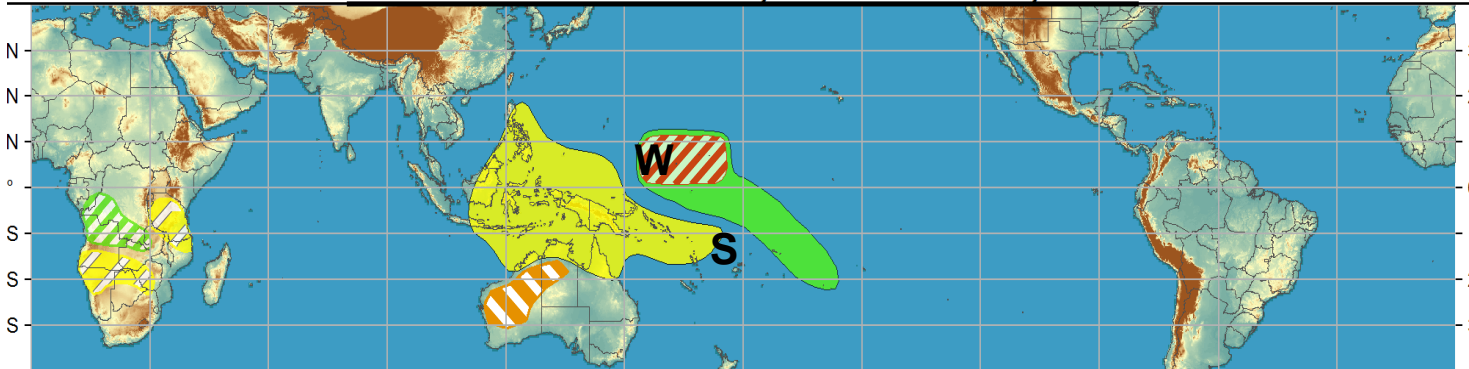
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

**Typhoon Wutip**  
2/19- Present



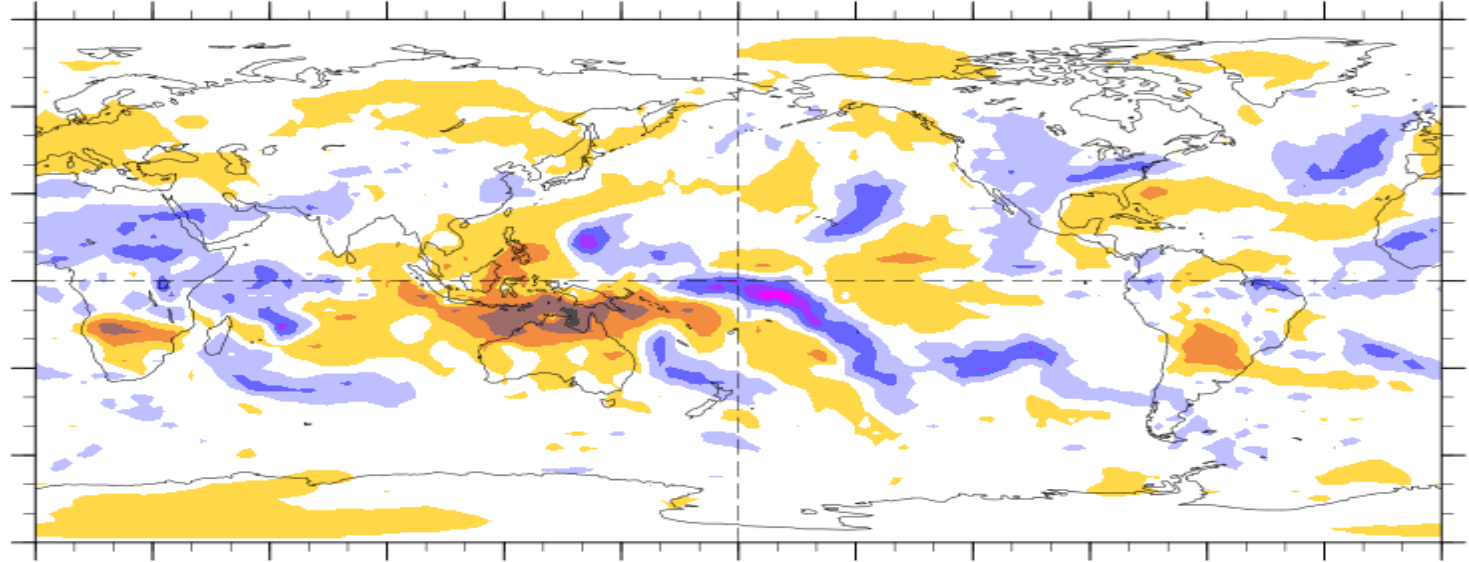
**TC Sixteen**  
2/26-Present



7-Day Average OLR Anomaly 2019/02/18 - 2019/02/24

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 continued slow eastward propagation over the Pacific, starting to shift toward the Western Hemisphere with a moderate amplitude.
- Dynamical and statistical model guidance indicate that the signal is expected to re-emerge over the Indian Ocean late in Week-1, moving at a fairly fast phase speed. Into Week-2, the signal is expected to maintain amplitude and shift toward the western Maritime Continent.

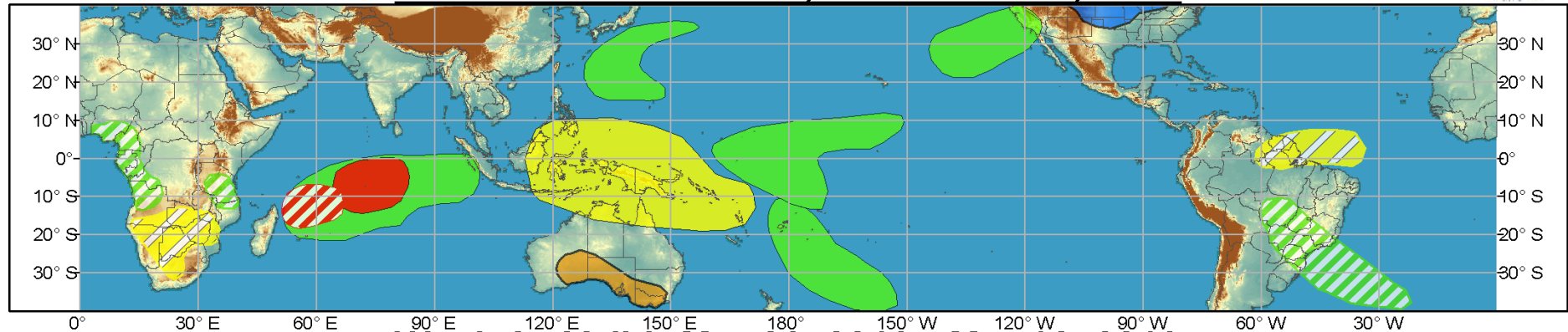
## **Extratropics:**

- With the MJO signal moving over the Western Hemisphere in Week-1, composites show amplified troughing and cold temperatures over the contiguous U.S., which is currently being seen in the extended range forecast. Influences from MJO and El Niño are also expected to lead to possible atmospheric river activity for parts of the West Coast.

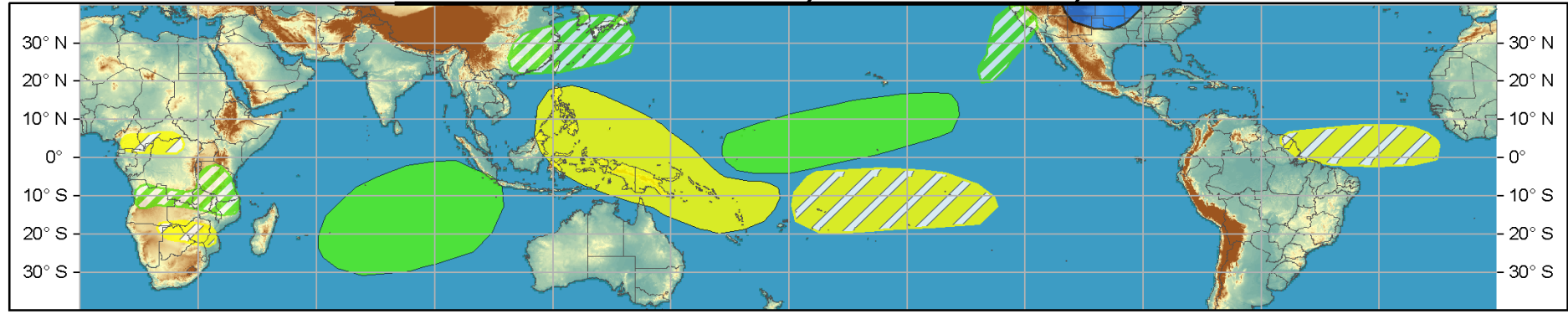


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Feb 27, 2019 - Mar 05, 2019



## Week 2 - Valid: Mar 06, 2019 - Mar 12, 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.
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Produced: 02/26/2019

Forecaster: Maurin

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

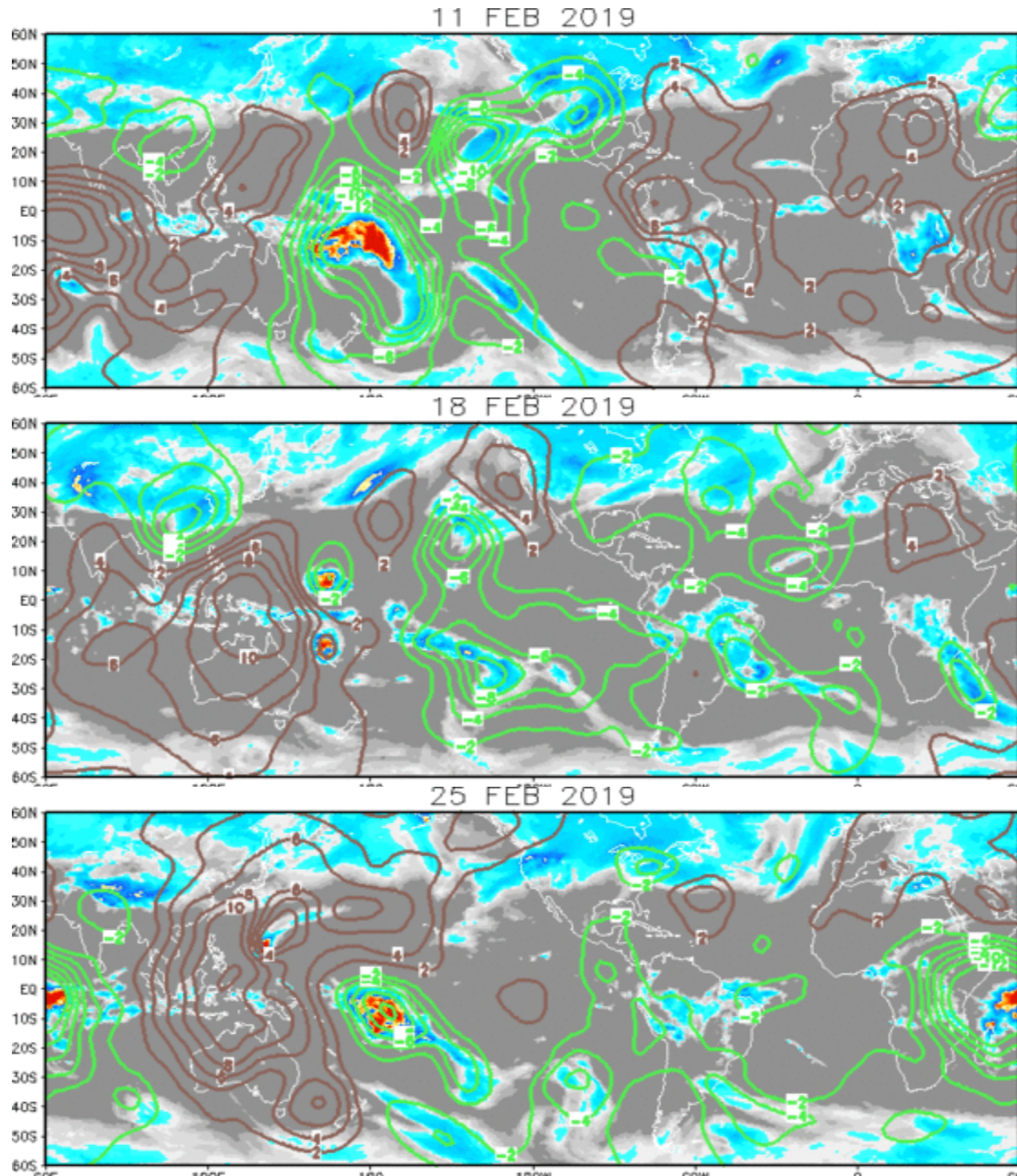
Green: Enhanced Divergence

Brown: Enhanced Convergence

Coherent wave-1 pattern, with constructive interference between MJO, El Niño and Rossby waves over the West Pacific.

Wave-1 pattern starting to break down, much noisier field. Rossby wave activity is evident. MJO has shifted further east over the Pacific; now destructive interference in the West Pacific.

Wave-1 pattern starting to become more coherent. MJO signal re-emerging over the Indian Ocean, with suppressed convection anchored still over the Maritime Continent. Enhanced signal also over parts of the West Pacific likely due to El Niño.

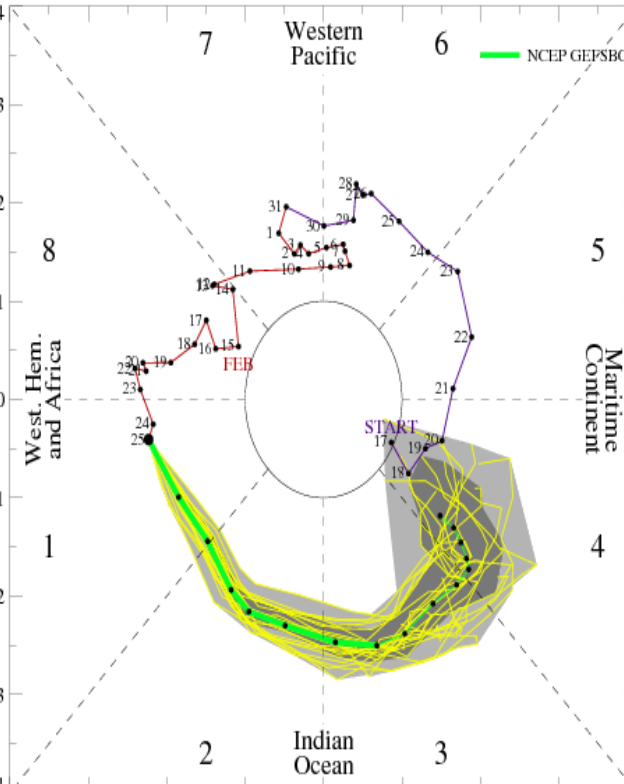


# MJO Observation/Forecast

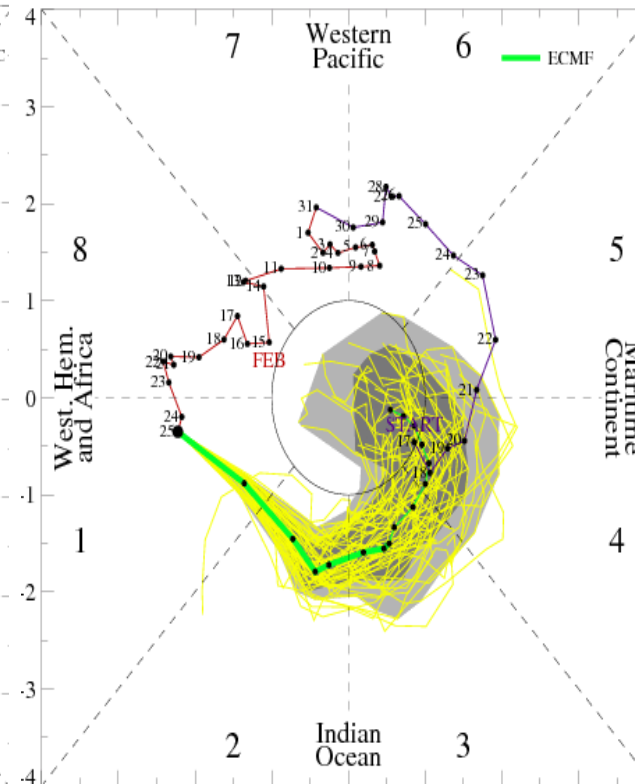
[RMM1, RMM2] forecast for Feb-26-2019 to Mar-12-2019

MJO Index Forecast for 26Feb2019-12Mar2019

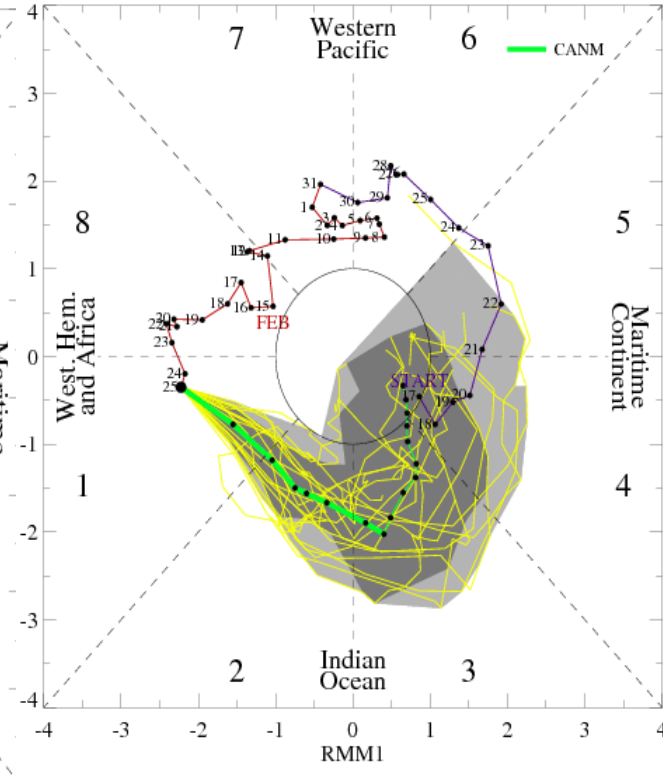
MJO Index Forecast for 26Feb2019-12Mar2019



GEFS



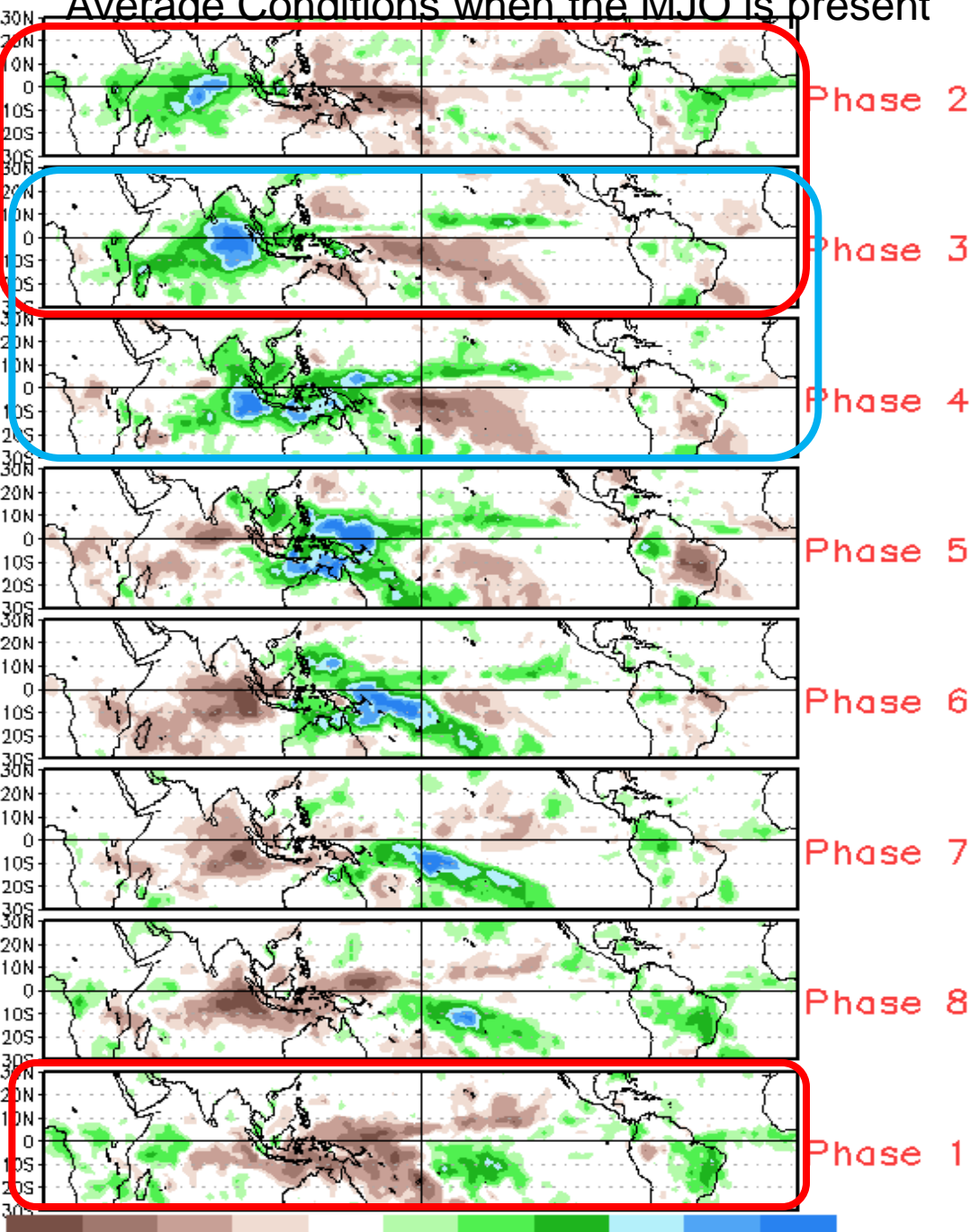
ECMWF



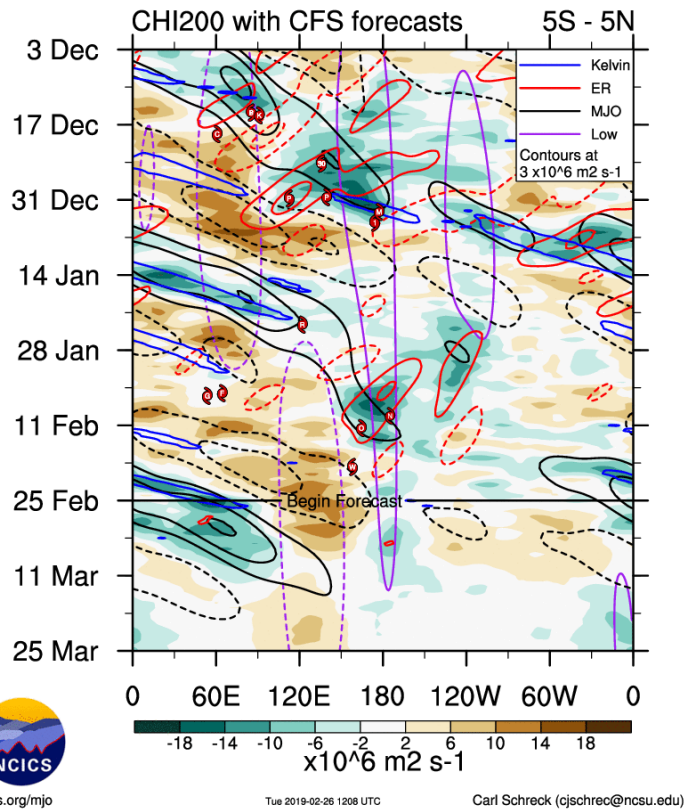
CAN

Dynamical model guidance shows good agreement for the eastward propagation of the signal through weeks 1 and 2. The signal is expected to transition over the Western Hemisphere and into the Indian Ocean for Week 1, with a shift toward the western Maritime Continent in Week-2.

# Average Conditions when the MJO is present

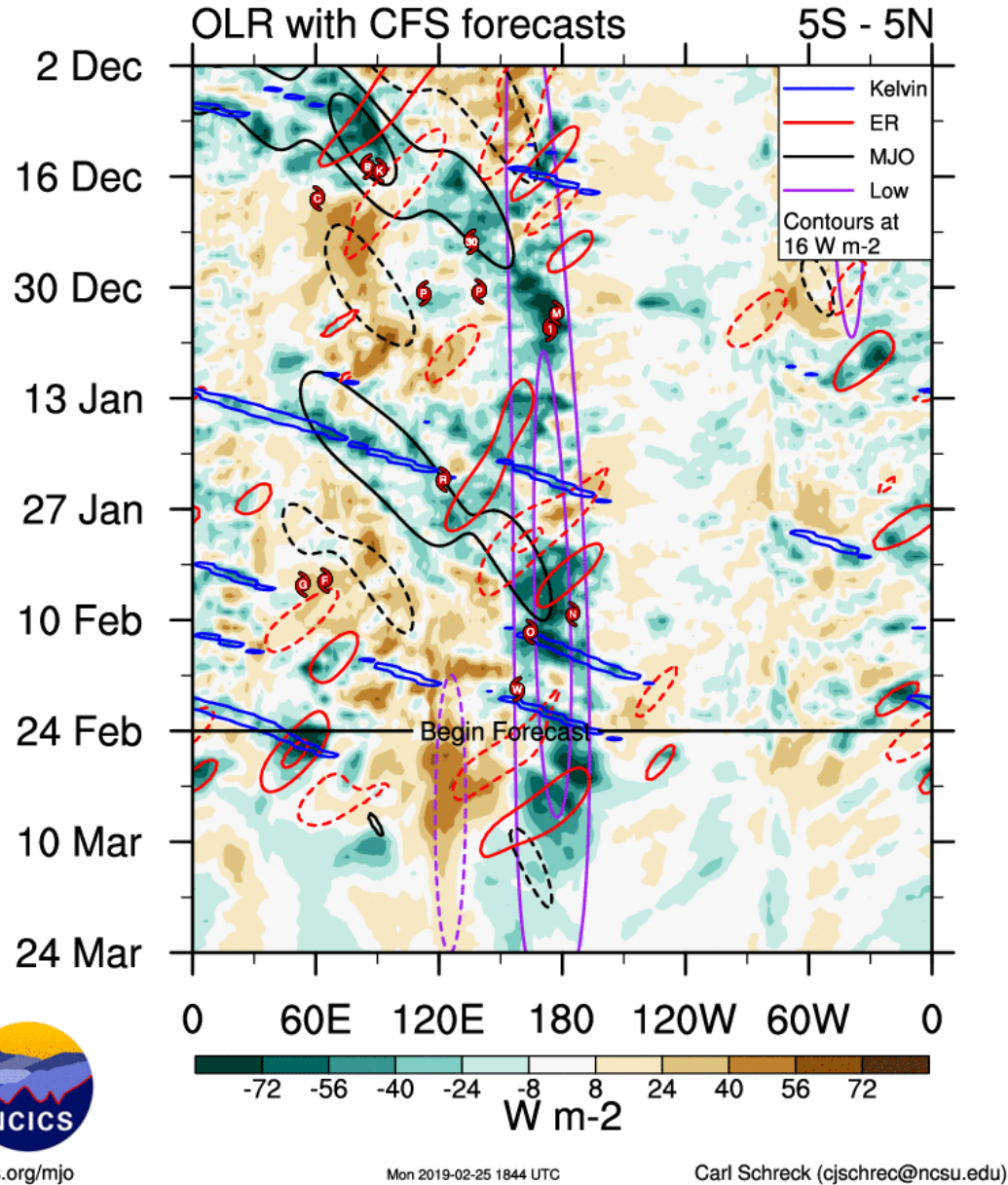


CAVEAT: These panels are representative of robust MJO events.



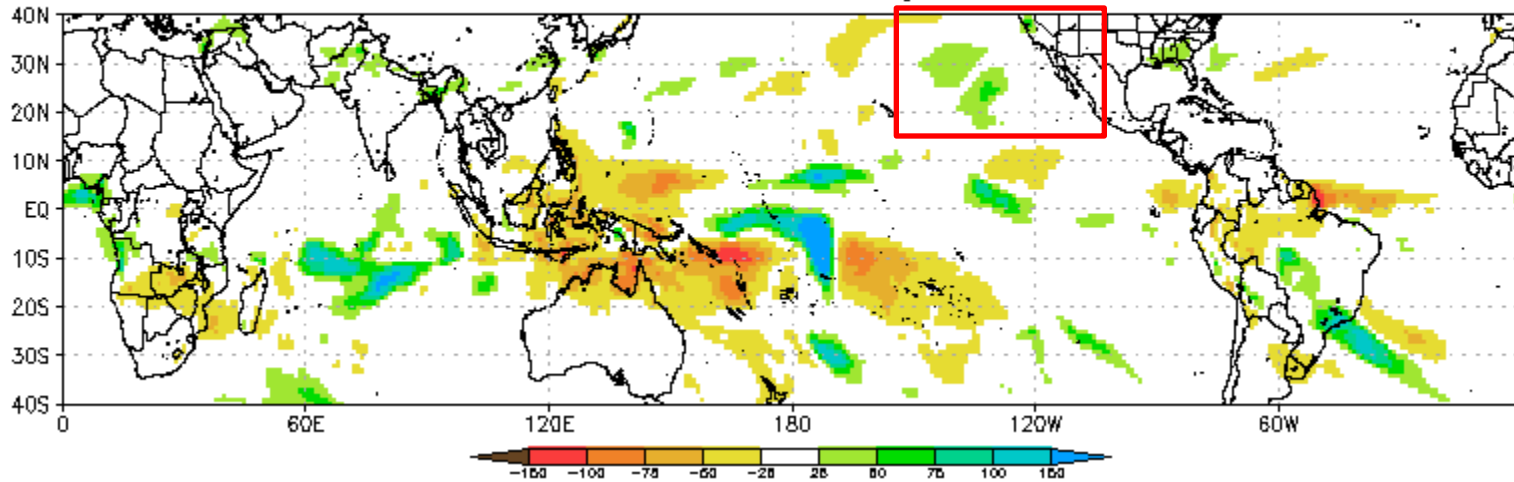
MJO footprint seen better in the upper-level fields in the eastern Pacific, crossing WH. Continued **Rossby wave** and **Kelvin wave** activity having an influence

**Low-frequency pattern** influence has become established along the Date Line.

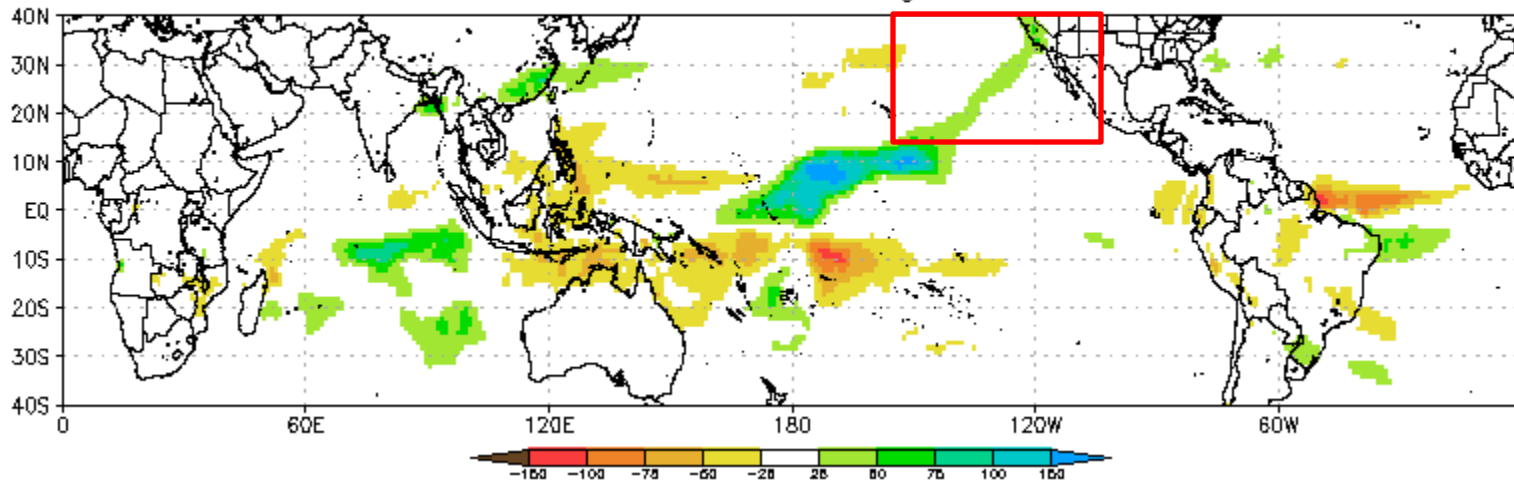




CFS Precipitation Anomalies (mm) Issued 25Feb2019  
Week-1 Forecast Ending 05Mar2019

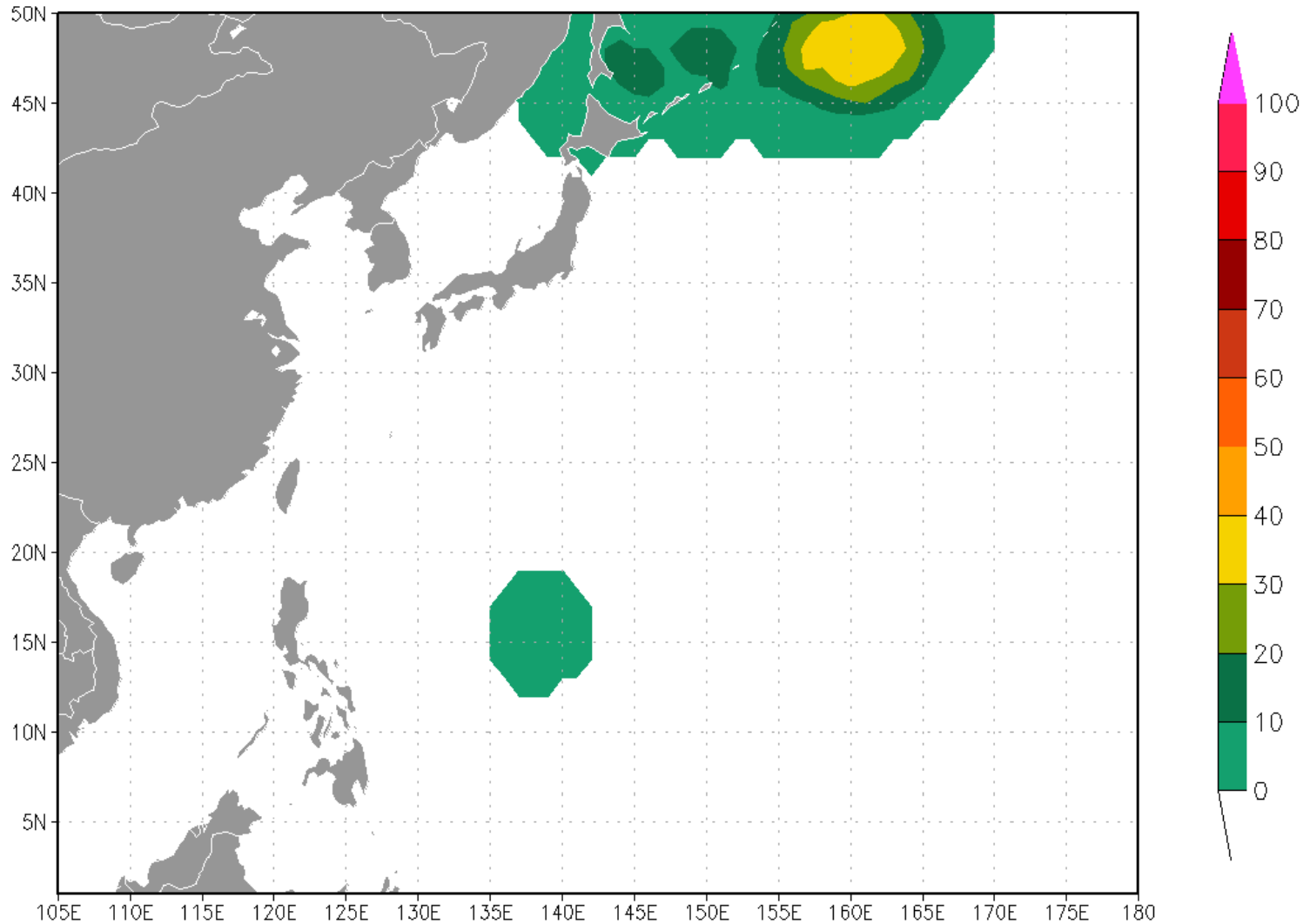


CFS Precipitation Anomalies (mm) Issued 25Feb2019  
Week-2 Forecast Ending 12Mar2019



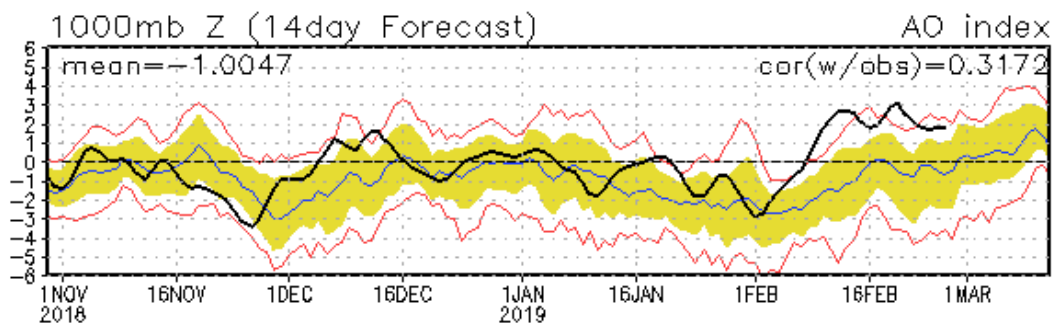
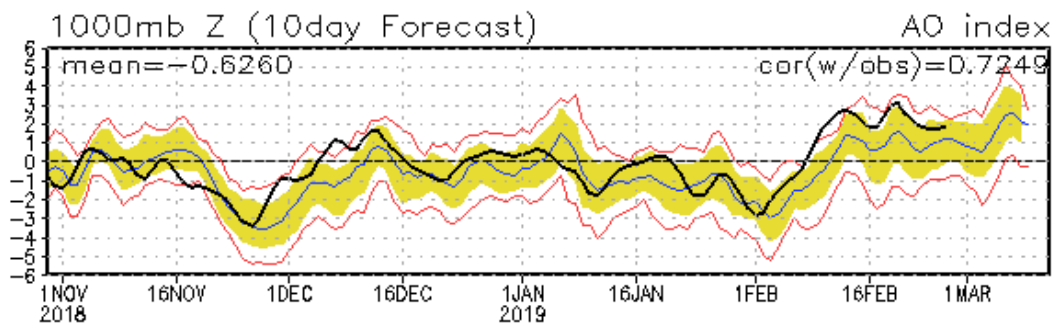
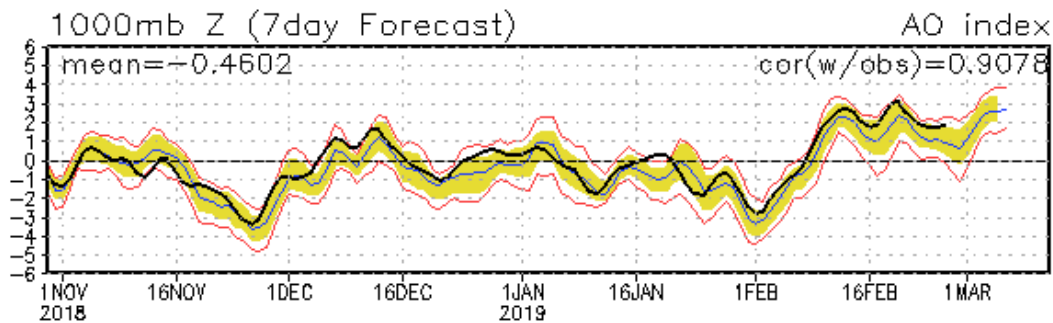
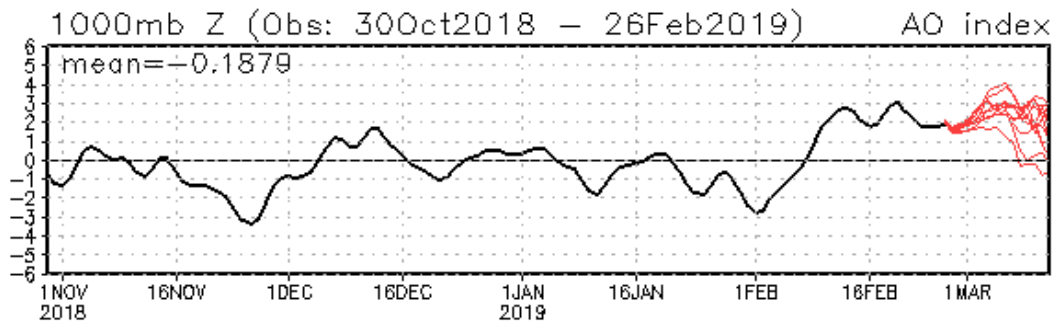
Ensemble-based Probability (%) of TC genesis  
using these global ensembles: NCEP ECMWF

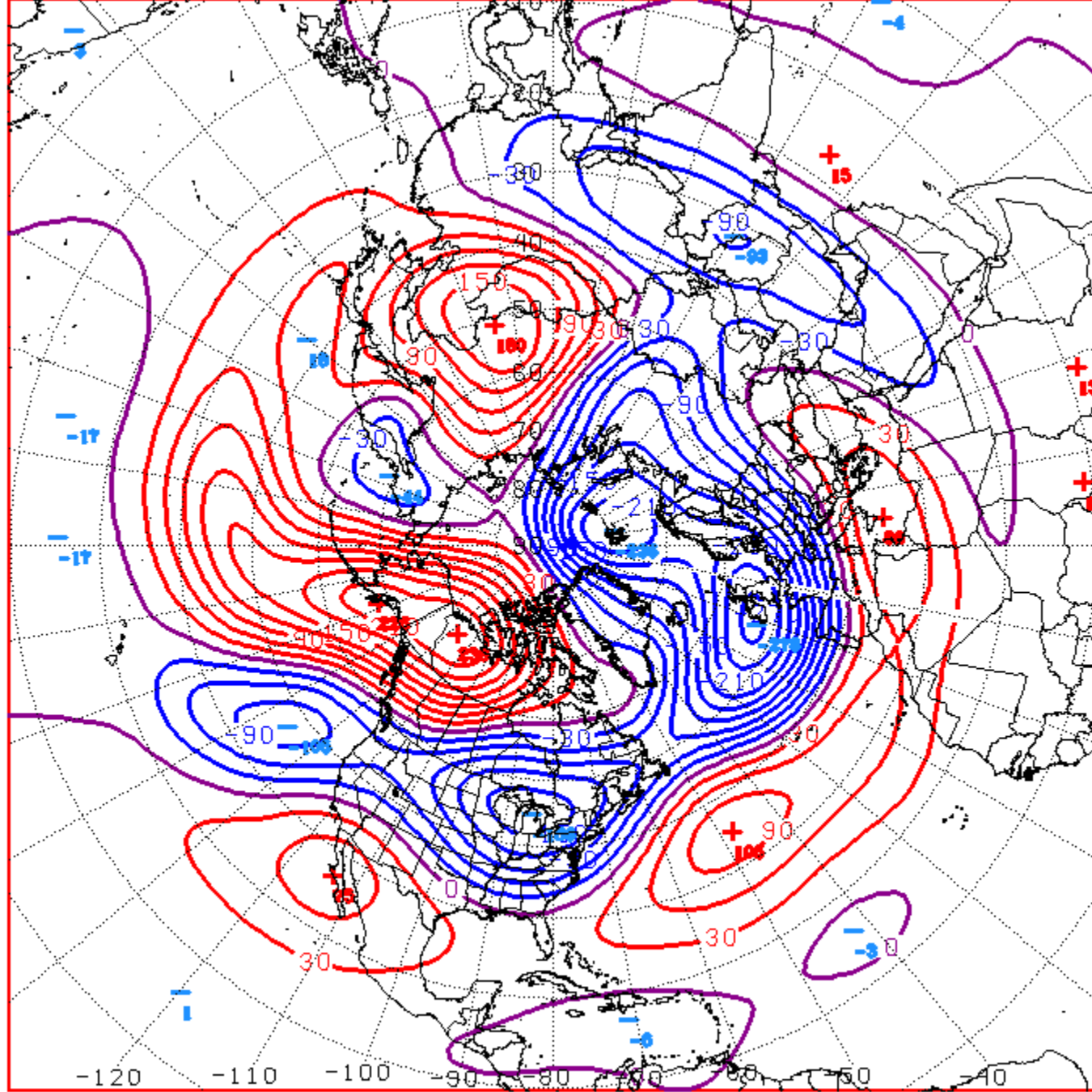
For forecasts during the 00–120h period from initial time = 2019022512



# Connections to U.S. Impacts

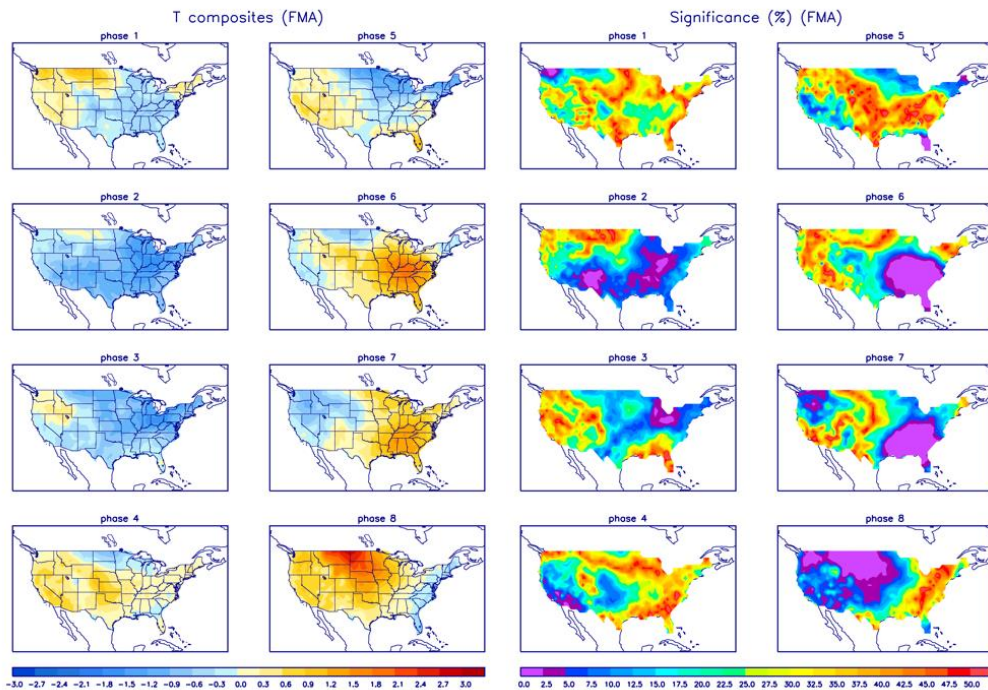
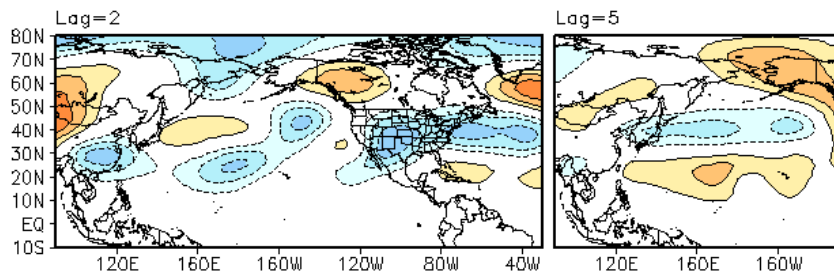
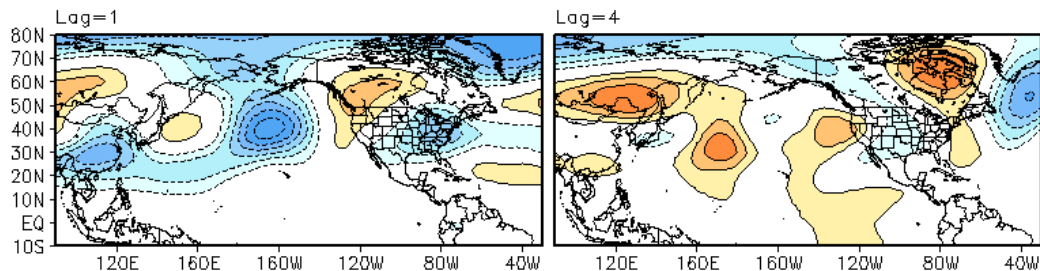
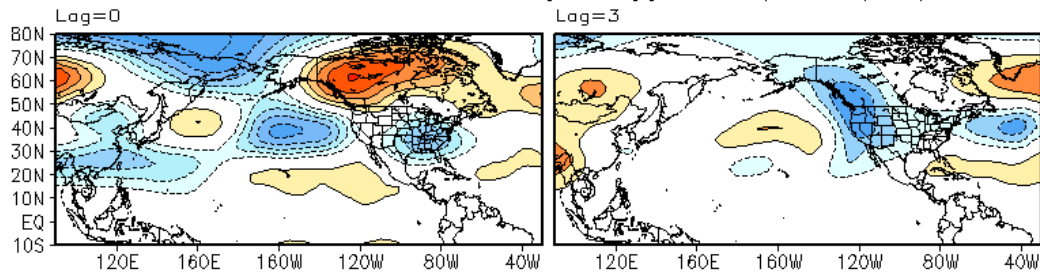
## AO: Observed & ENSM forecasts



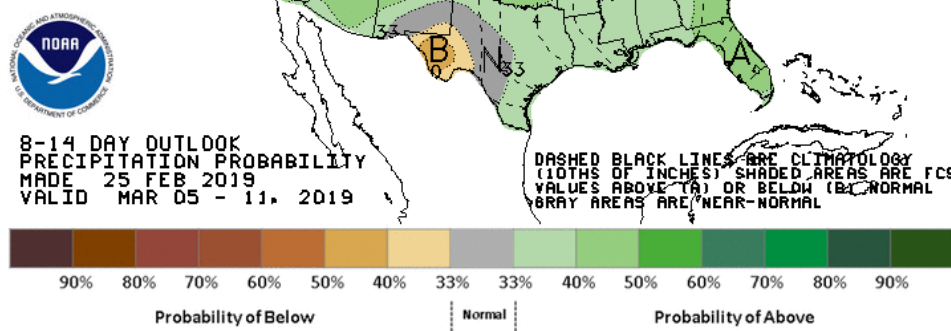
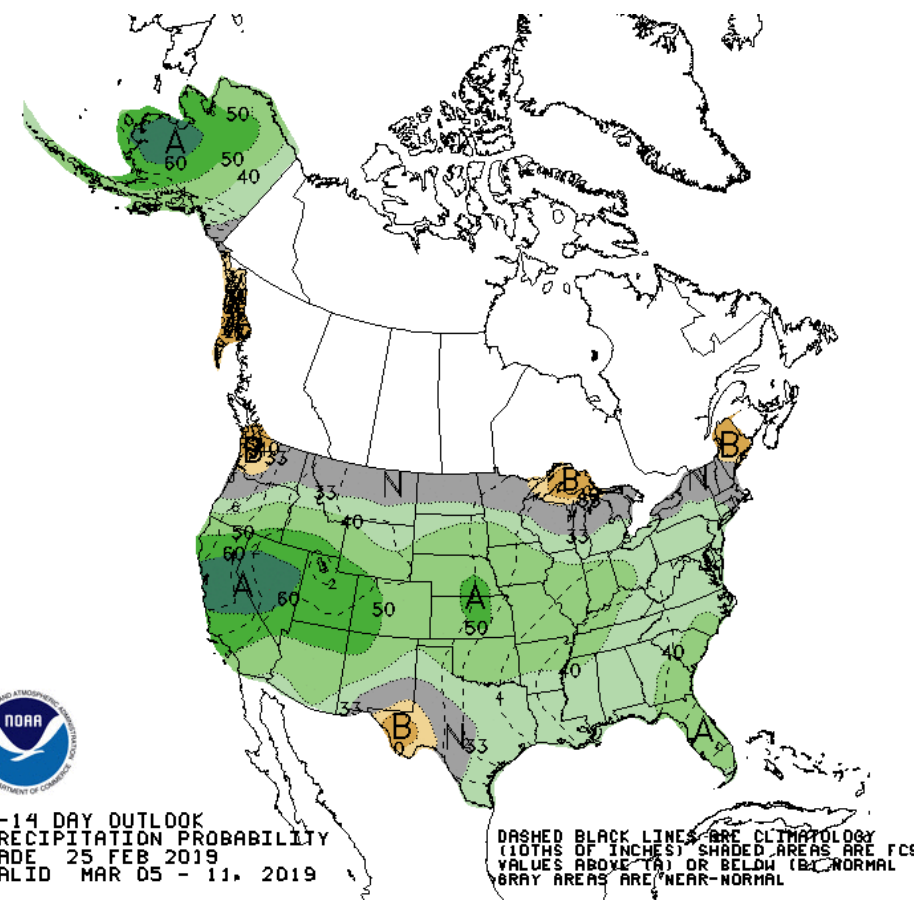
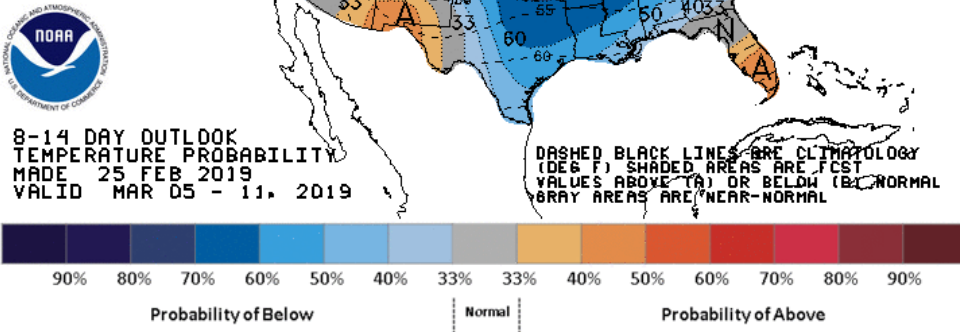
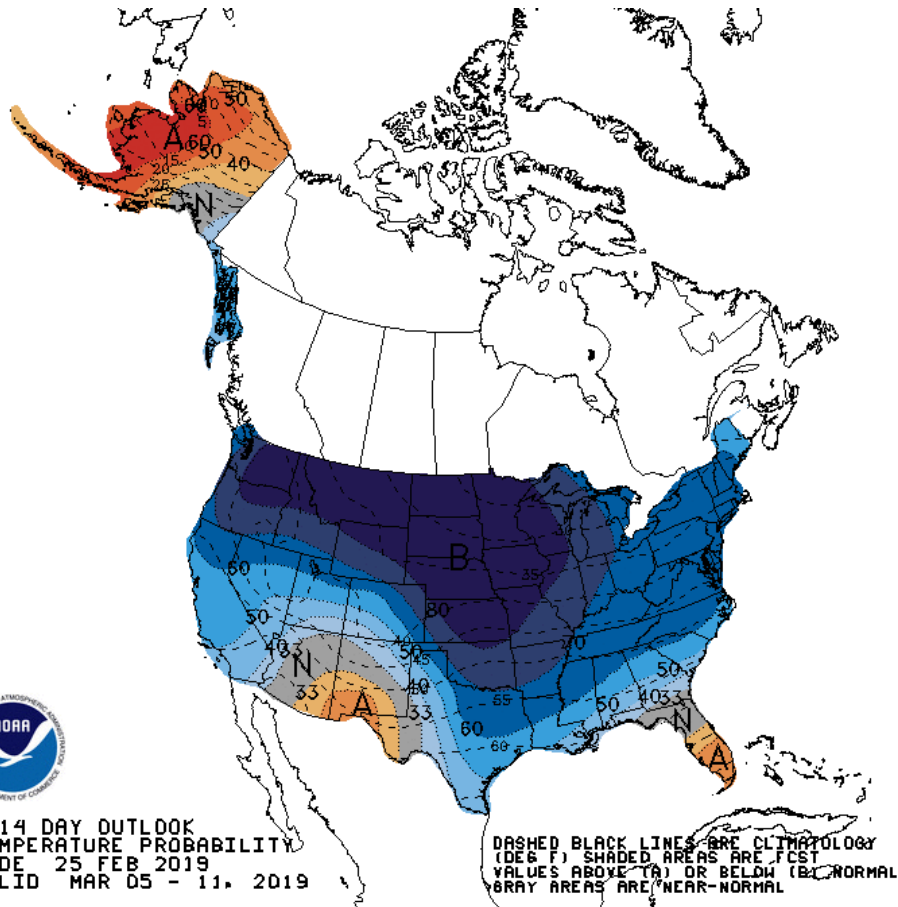


D+8 500 MB ANOMALIES FROM 00Z ECMM  
CPC MAP MADE FEB 26 2019 1051 UTC CNTD MAR 06 2019

# RMM Phase 1 200-hPa Height Lagged Composite (fma)



# Week 2 – Temperature and Precipitation



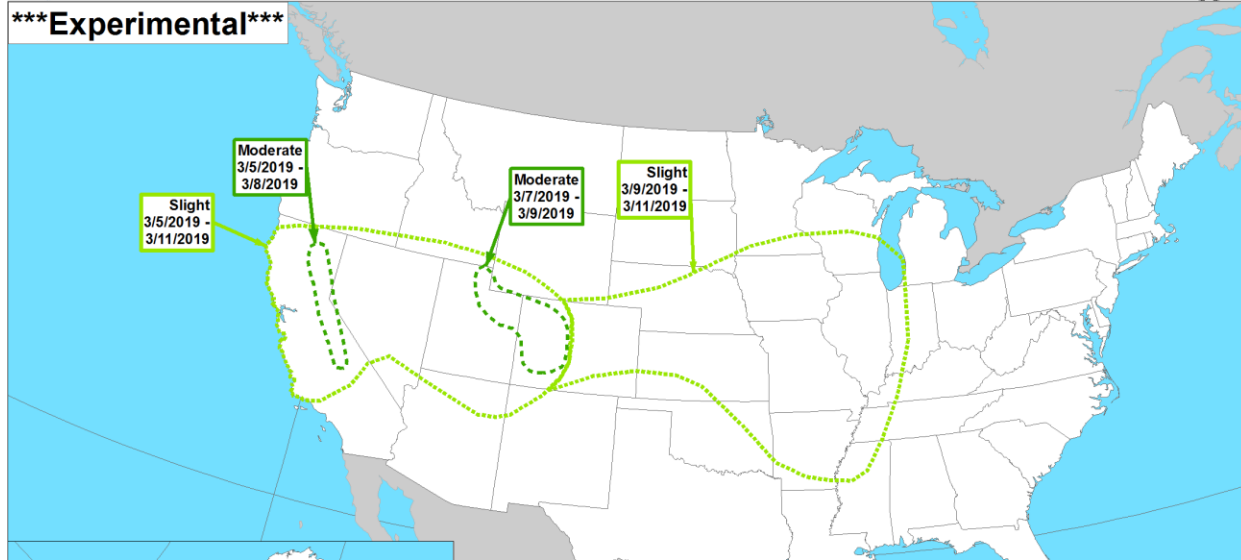


# Risk of Heavy Precipitation

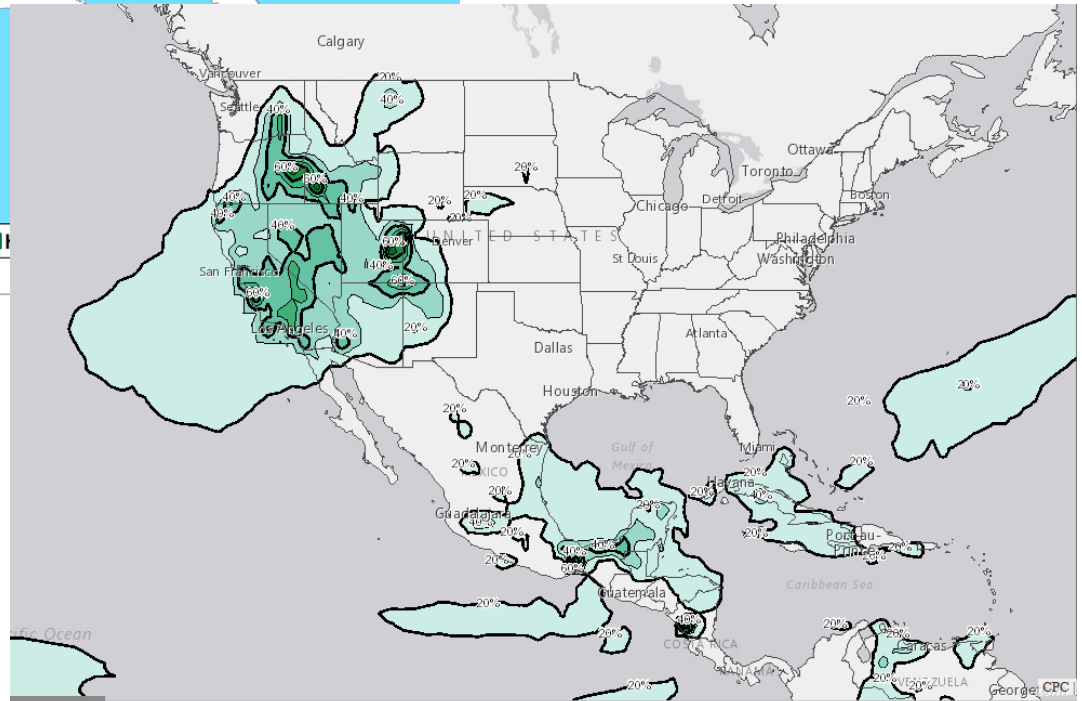
Valid: 03/05/2019-03/11/2019



\*\*\*Experimental\*\*\*



Climate Prediction Center  
Made: 02/25/2019 3PM EST



Day 8-10  
3/6/2019-3/8/2019

Day 10-12  
3/8/2019-3/10/2019

Day 12-14  
3/10/2019-3/12/2019

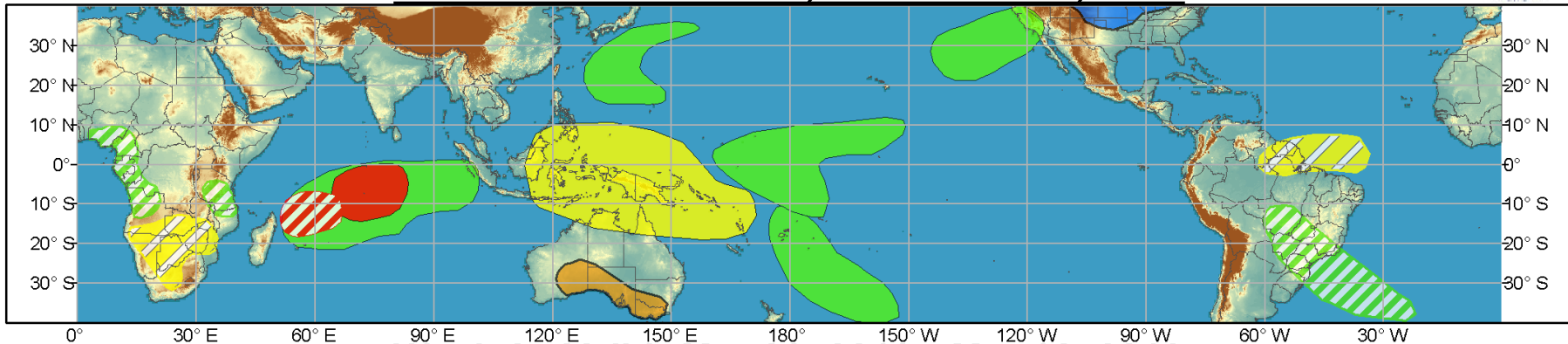




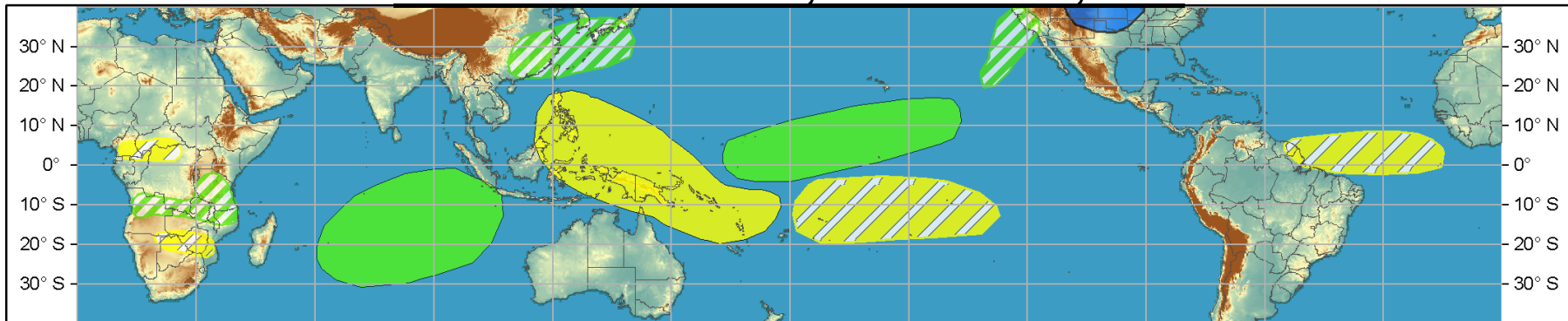
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