

# Global Tropics Hazards And Benefits Outlook

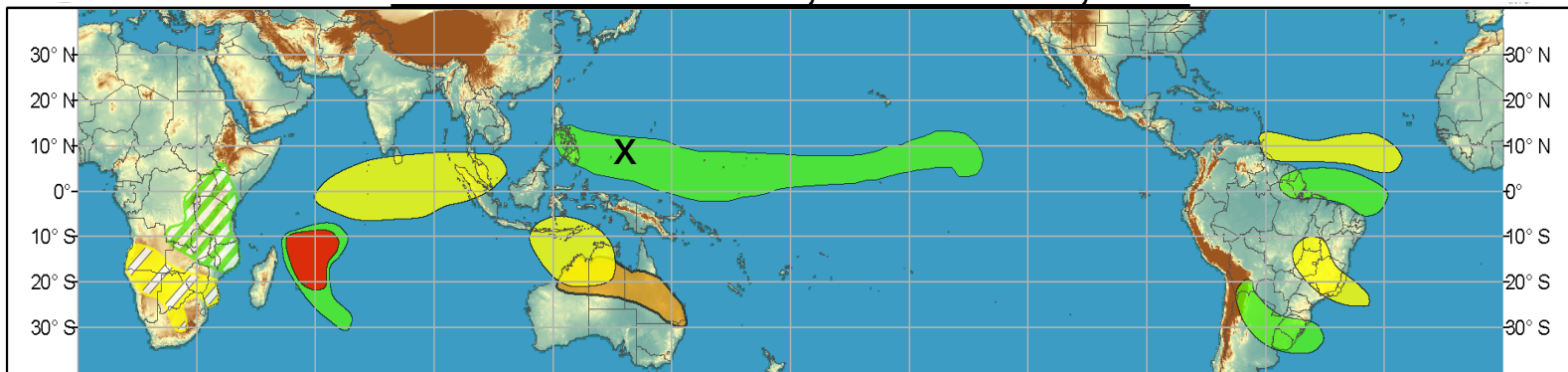
12/25/2018

Adam Allgood

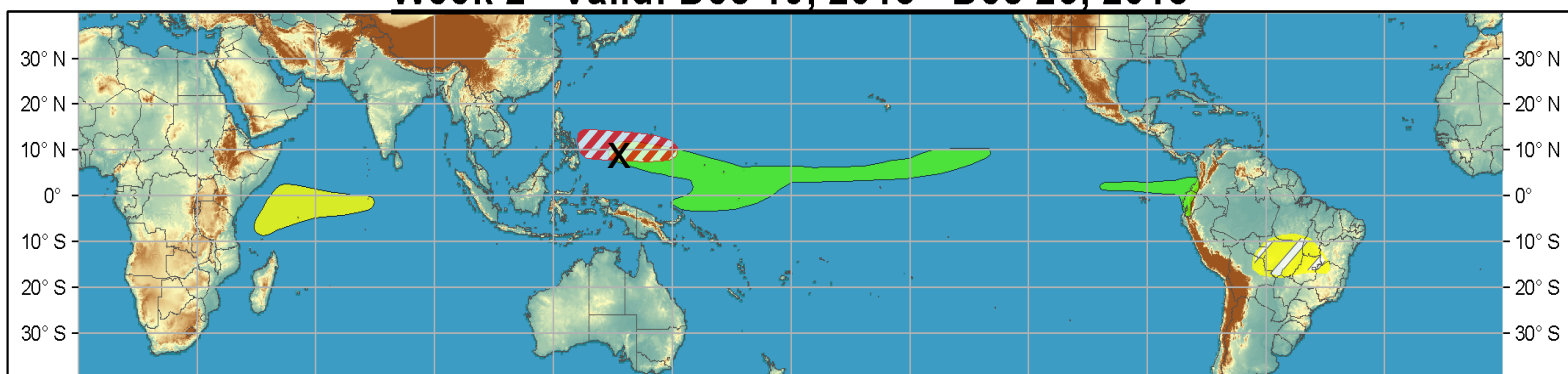
## Outline

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: Dec 19, 2018 - Dec 25, 2018**

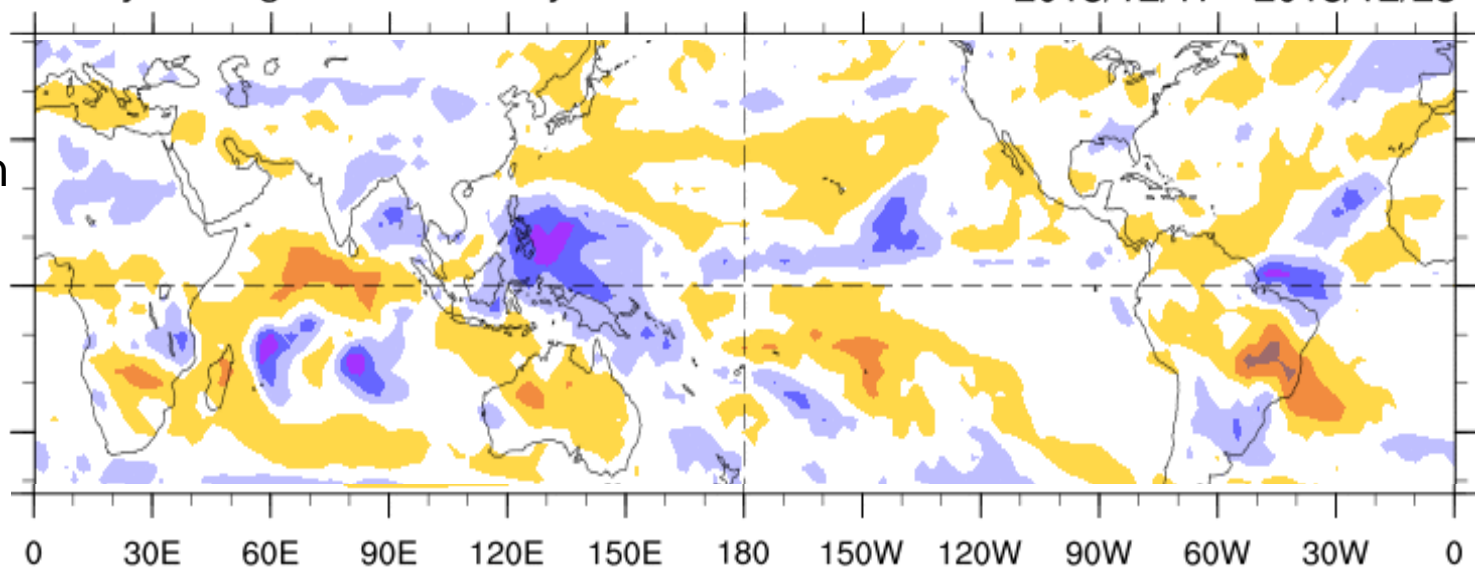


**Week 2 - Valid: Dec 19, 2018 - Dec 25, 2018**



7-Day Average OLR Anomaly

2018/12/17 - 2018/12/23



# Outlook Review

Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (July 12, 2018 Update)**

- ENSO Alert System Status: [El Niño Watch](#)
- El Niño is expected to form and continue through the Northern Hemisphere winter 2018-19 (~90% chance) and through spring (~60% chance).

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

- The MJO remained active, with the enhanced phase currently over the Maritime Continent.
- Strong Rossby wave activity over the Indian Ocean and Maritime Continent has slowed the eastward propagation of the MJO signal during the past week.
- Dynamical model and statistical guidance favor continued MJO activity, with the enhanced phase propagating across the Pacific over the next two weeks.

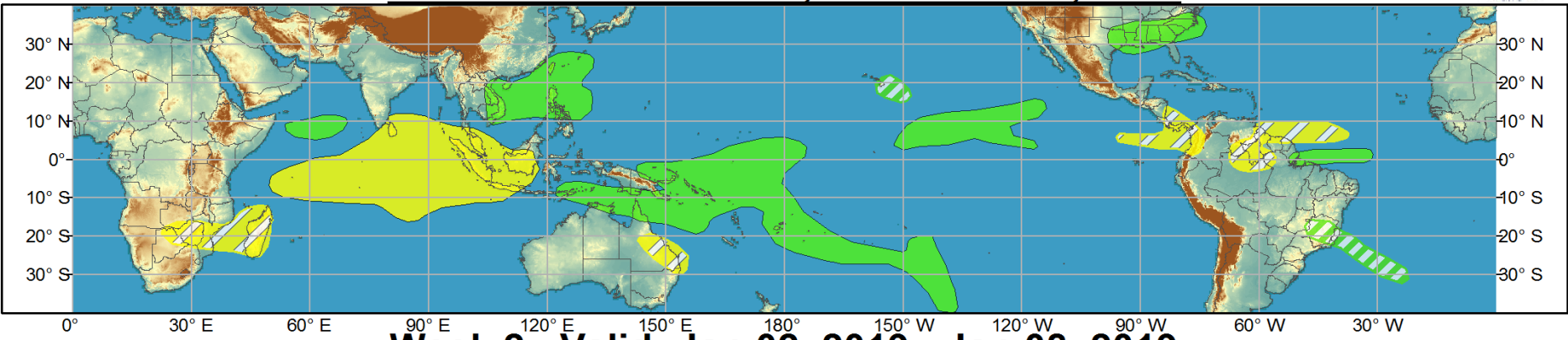
## **Extratropics:**

- Pacific MJO events teleconnect well with the midlatitude pattern over the Northern Hemisphere, and tend to favor a transition towards a negative AO pattern and an increased potential for cold air outbreaks over the central or eastern CONUS.

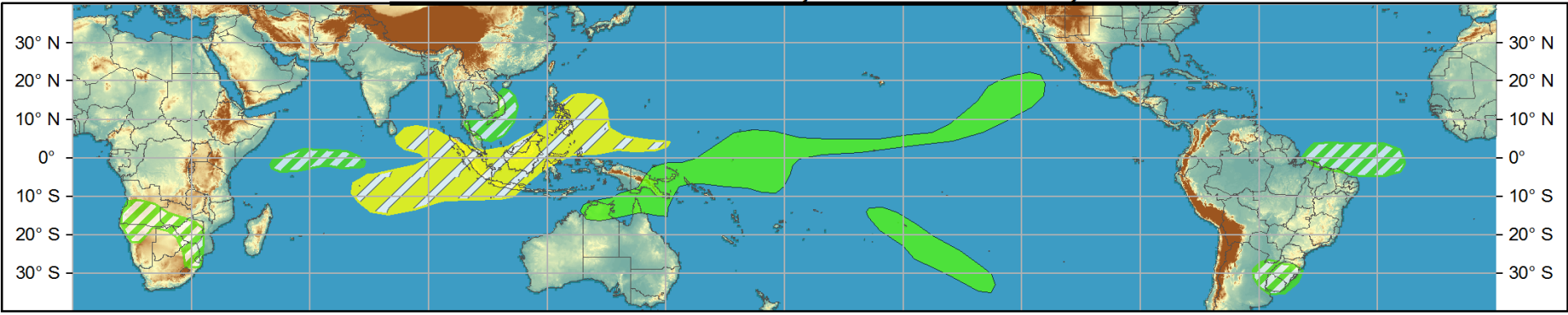


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Dec 26, 2018 - Jan 01, 2019



## Week 2 - Valid: Jan 02, 2019 - Jan 08, 2019



Produced: 12/25/2018  
Forecaster: Allgood

Confidence		
High	Moderate	
		<b>Tropical Cyclone Formation</b> Development of a tropical cyclone (tropical depression - TD, or greater strength).
		<b>Above-average rainfall</b> Weekly total rainfall in the upper third of the historical range.
		<b>Below-average rainfall</b> Weekly total rainfall in the lower third of the historical range.
		<b>Above-normal temperatures</b> 7-day mean temperatures in the upper third of the historical range.
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# IR Satellite & 200-hpa Velocity Potential Anomalies

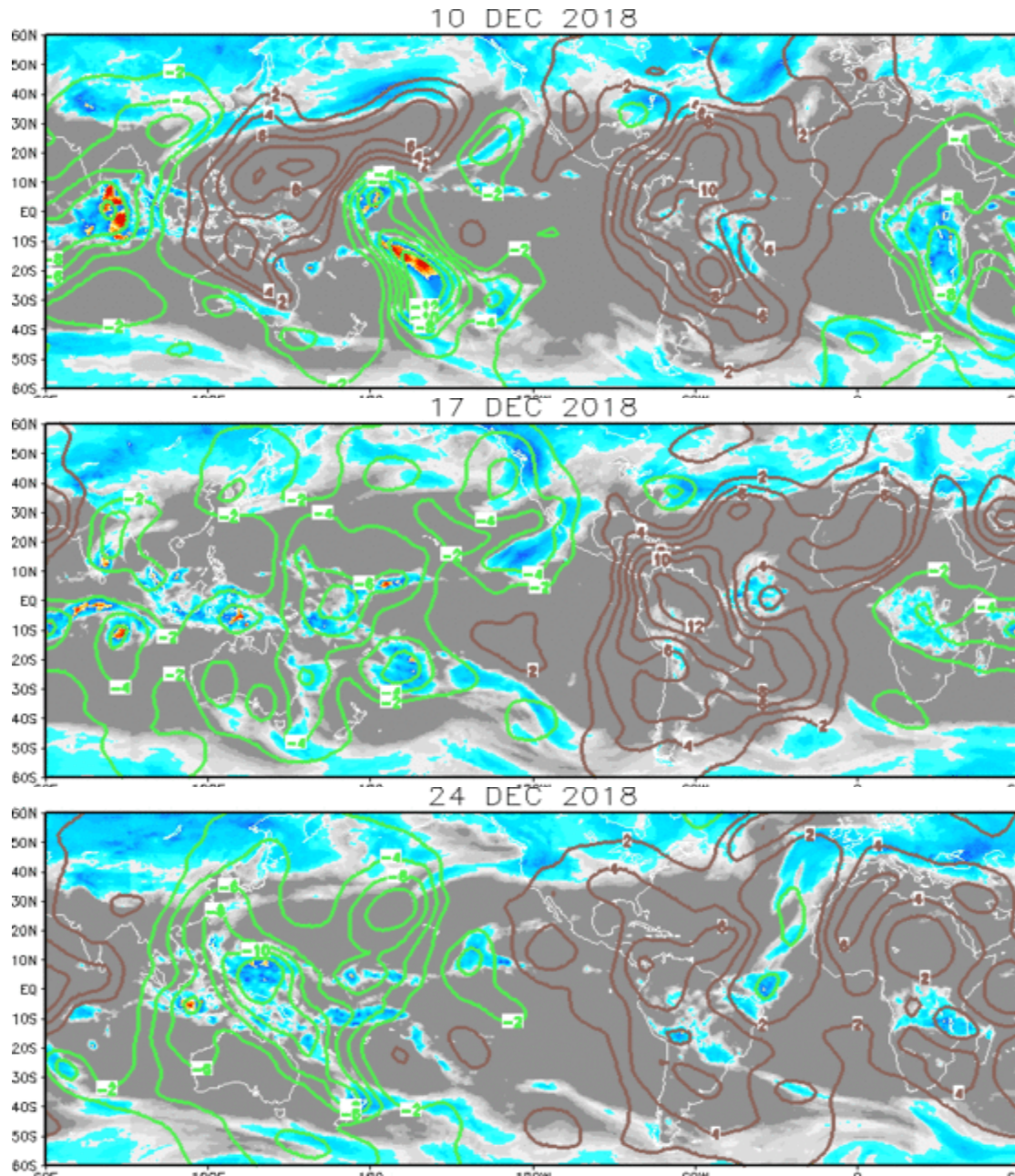
Green: Enhanced Divergence

Brown: Enhanced Convergence

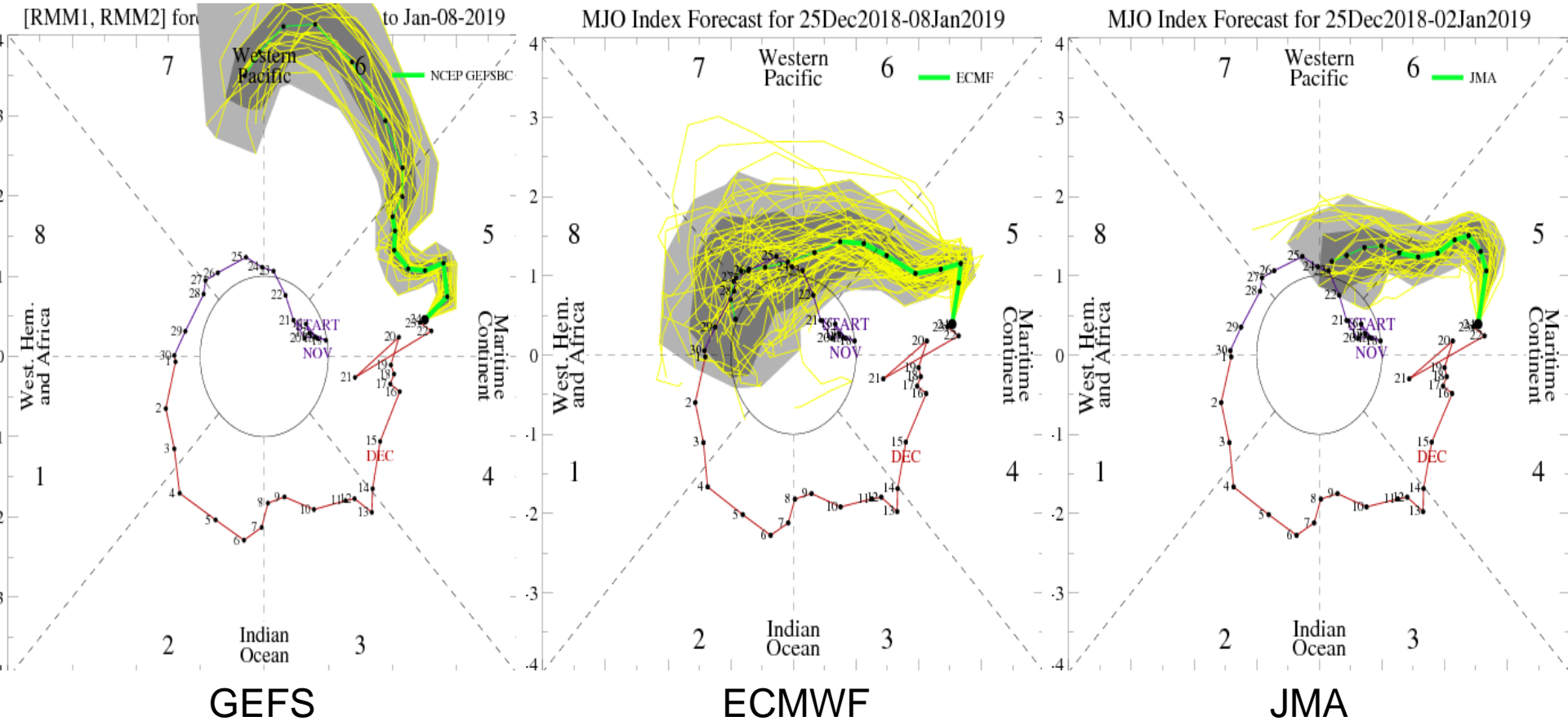
Wave-2 asymmetry as other modes, including possibly the low frequency state, interfered with the MJO signal.

By mid-December, the upper-level field became increasingly consistent with canonical MJO anomalies.

The upper-level field remains organized, with a Wave-1 pattern indicative of continued MJO activity.



# MJO Observation/Forecast

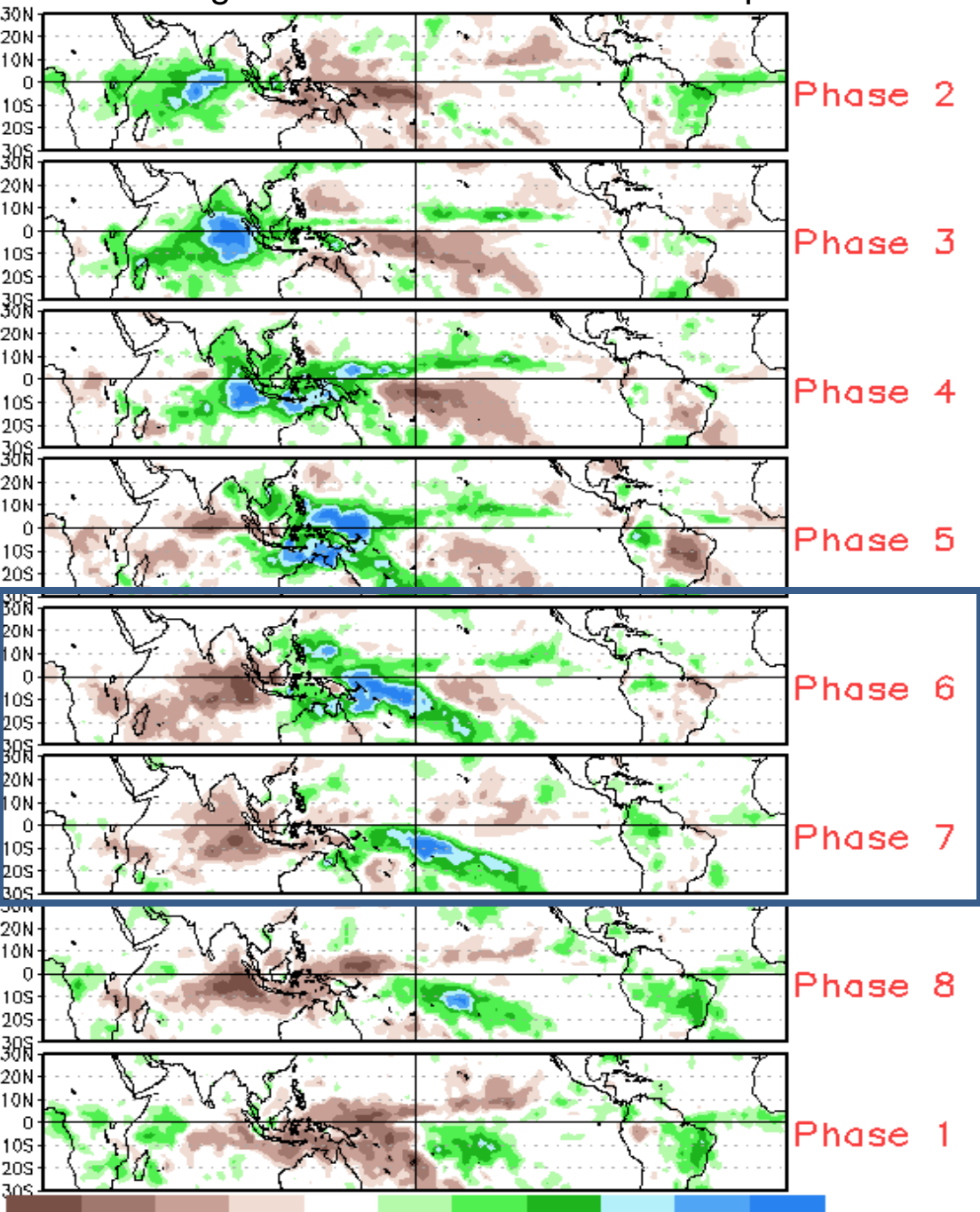


GEFS – very high amplitude Pacific MJO event.

ECMWF – lower amplitude Pacific MJO event, with faster propagation.

JMA – Week-1 similar to ECWFMF.

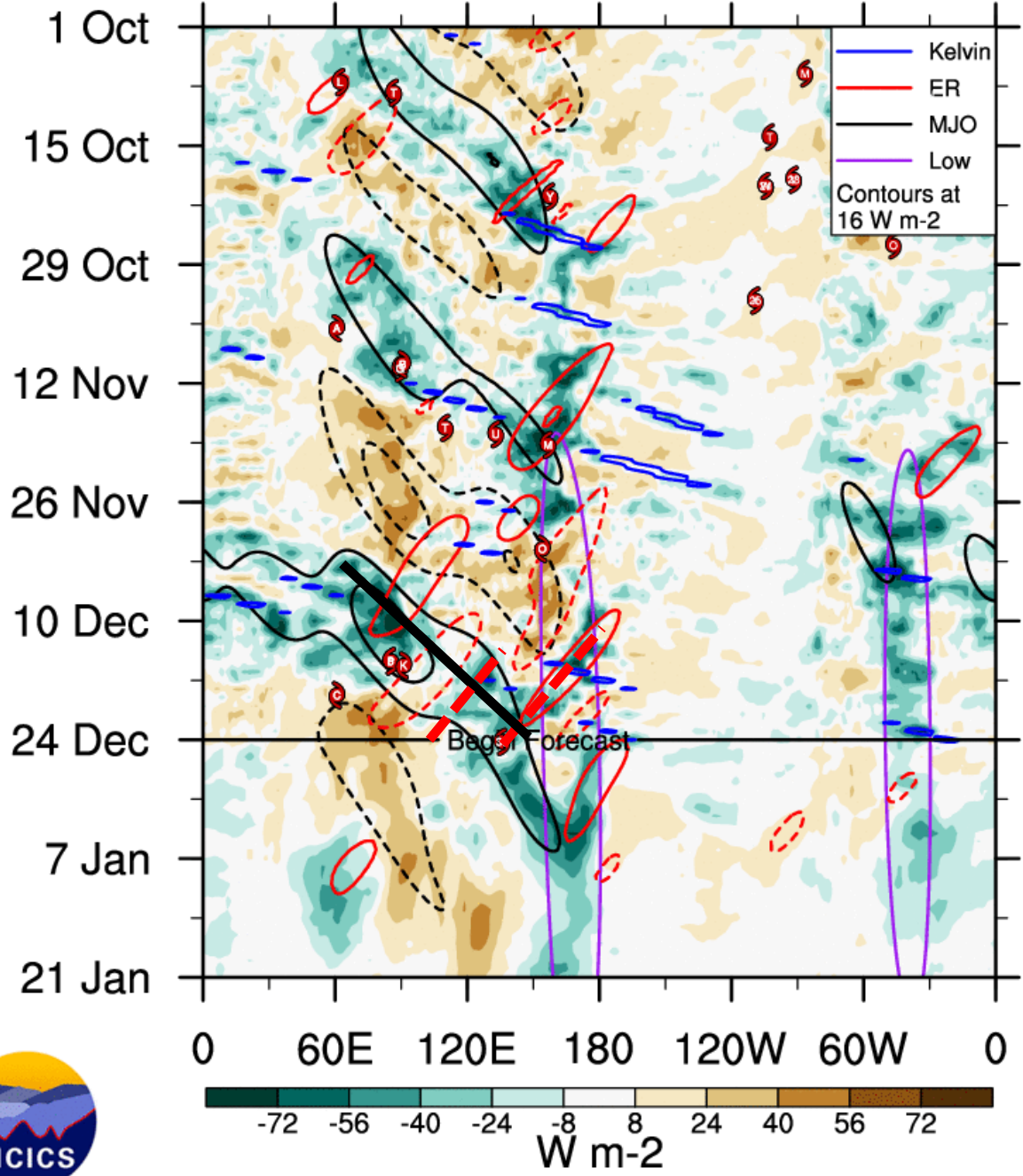
# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.

OLR with CFS forecasts

5S - 5N



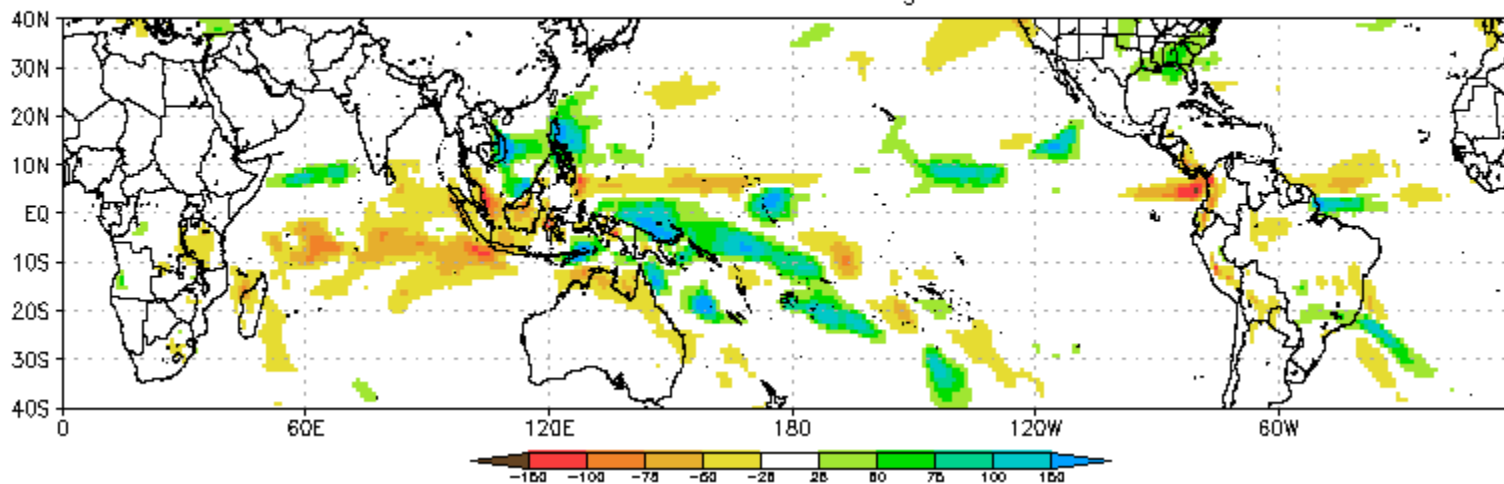
Interactions between the **MJO** and **Rossby waves** are the dominant influencer of the large scale convective pattern

**Low-frequency pattern** less of an influence

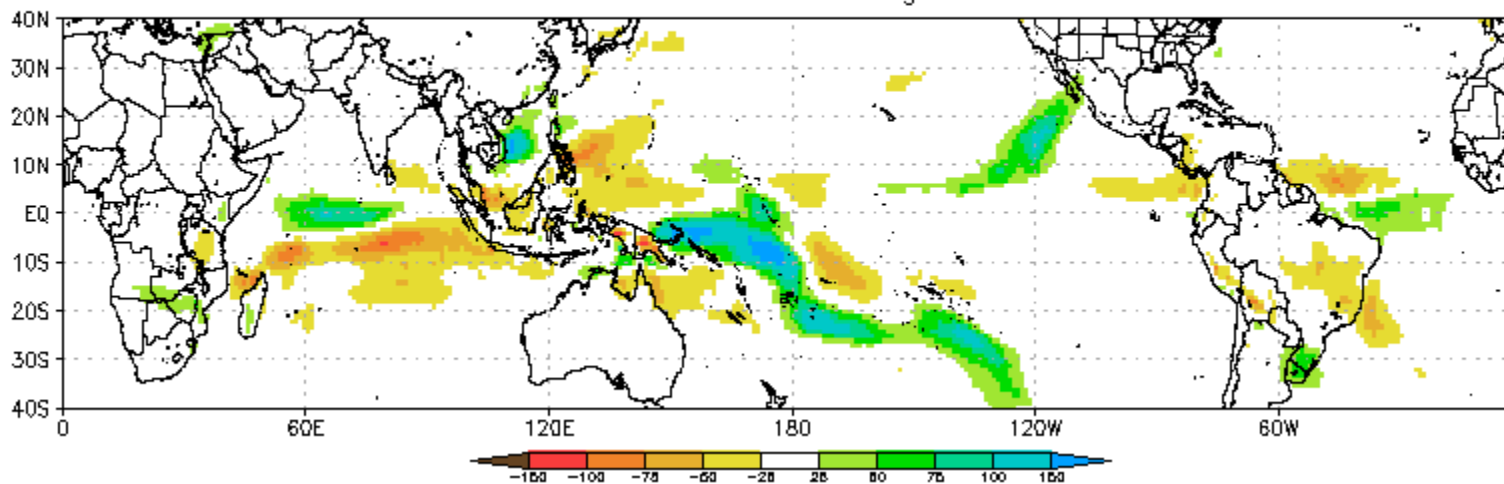




CFS Precipitation Anomalies (mm) Issued 24Dec2018  
Week-1 Forecast Ending 01Jan2019

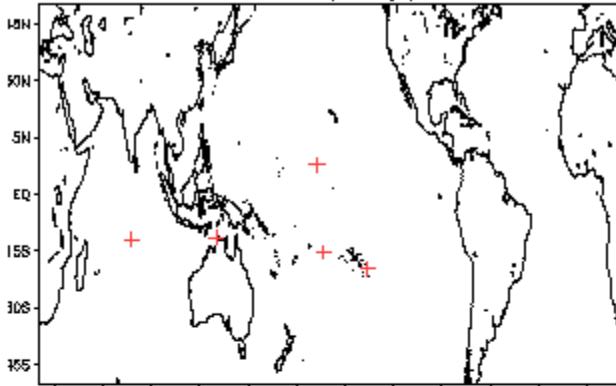


CFS Precipitation Anomalies (mm) Issued 24Dec2018  
Week-2 Forecast Ending 08Jan2019

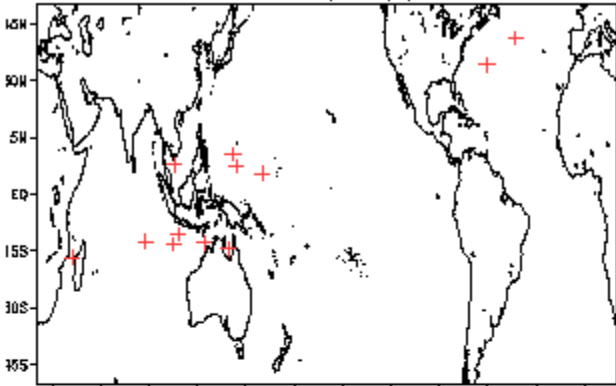


# December Tropical Storm Formation by MJO phase

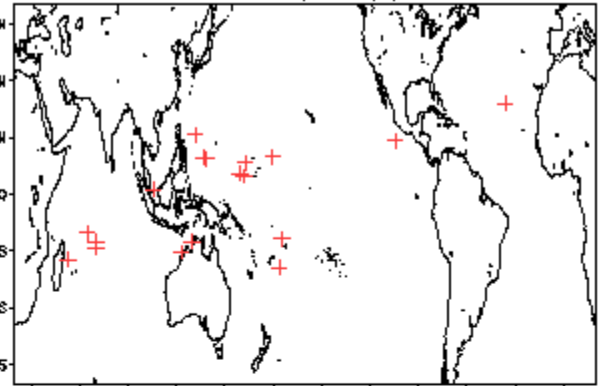
Phase 1 (48 days) 7 storms



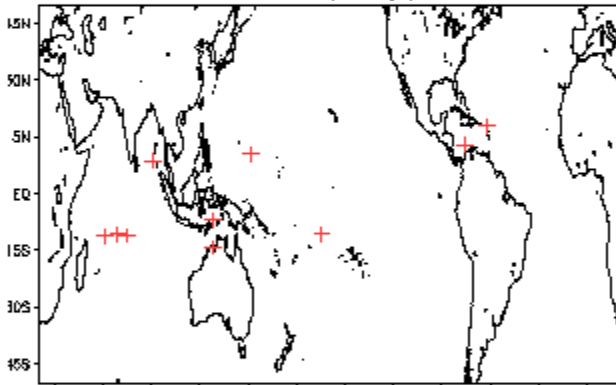
Phase 4 (72 days) 13 storms



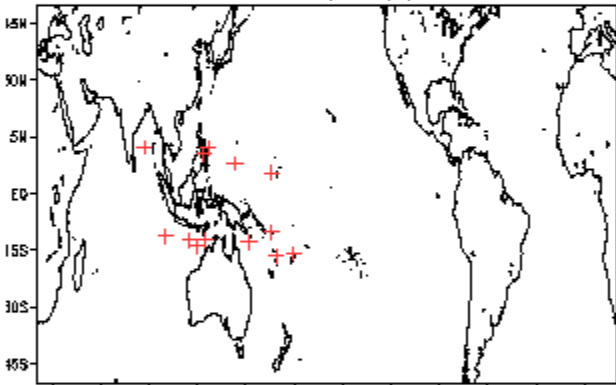
Phase 7 (103 days) 19 storms



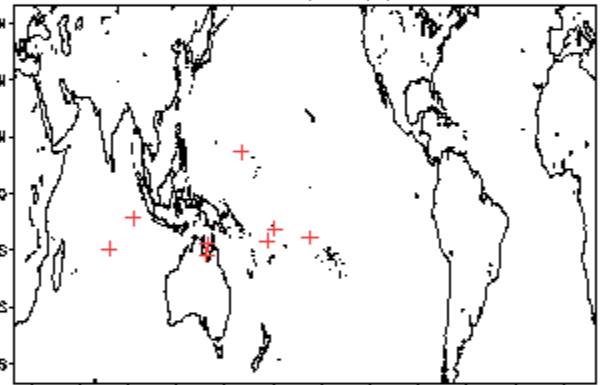
Phase 2 (67 days) 11 storms



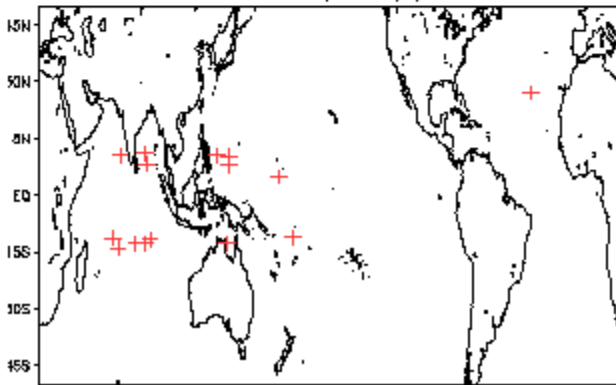
Phase 5 (73 days) 14 storms



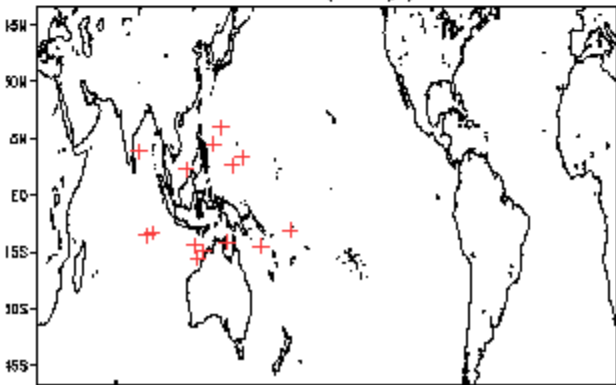
Phase 8 (76 days) 9 storms



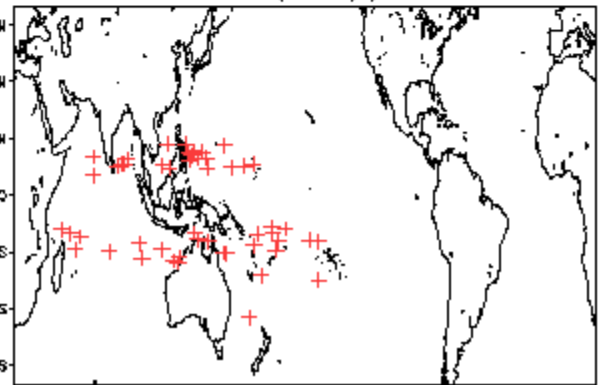
Phase 3 (101 days) 16 storms



Phase 6 (69 days) 15 storms

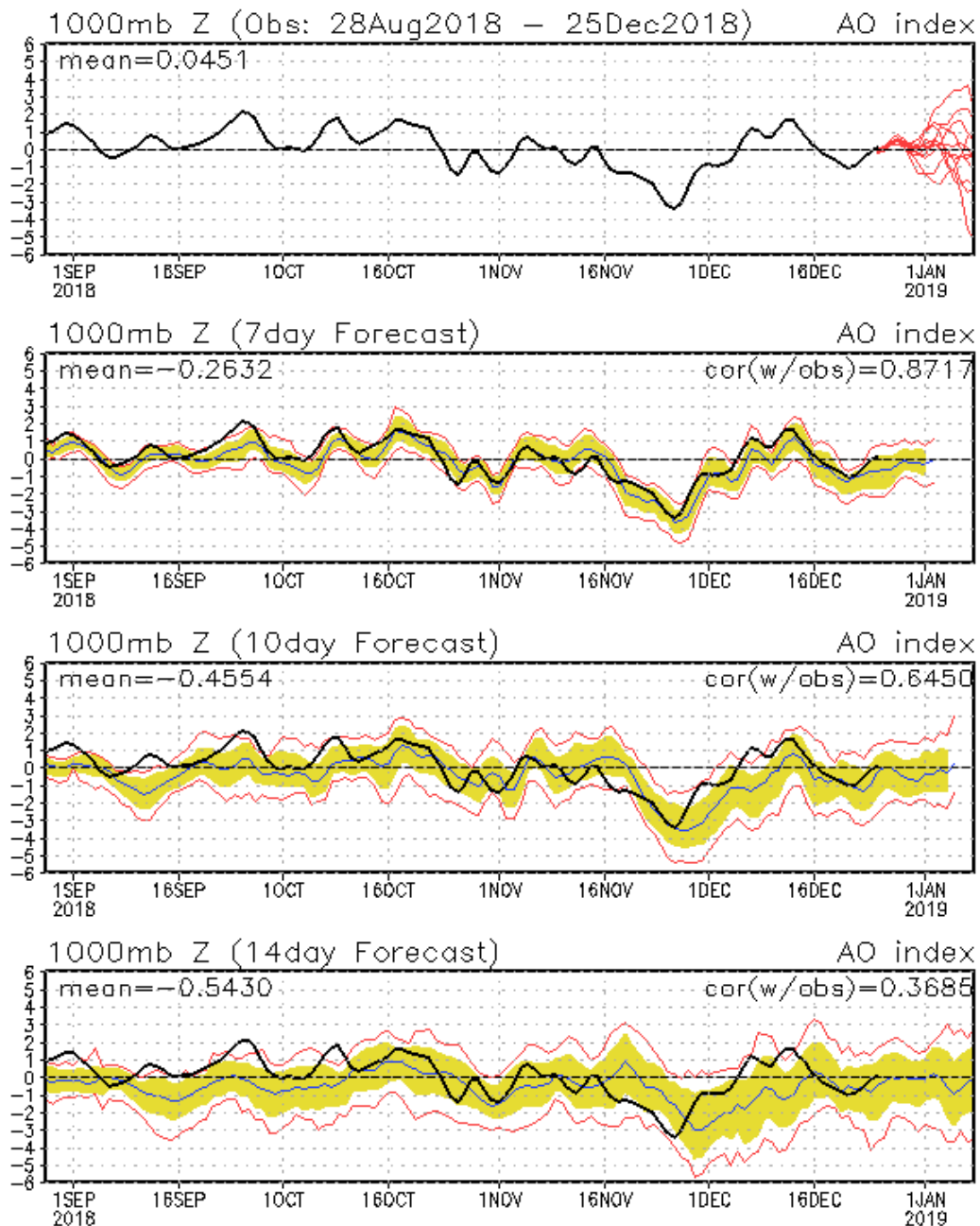


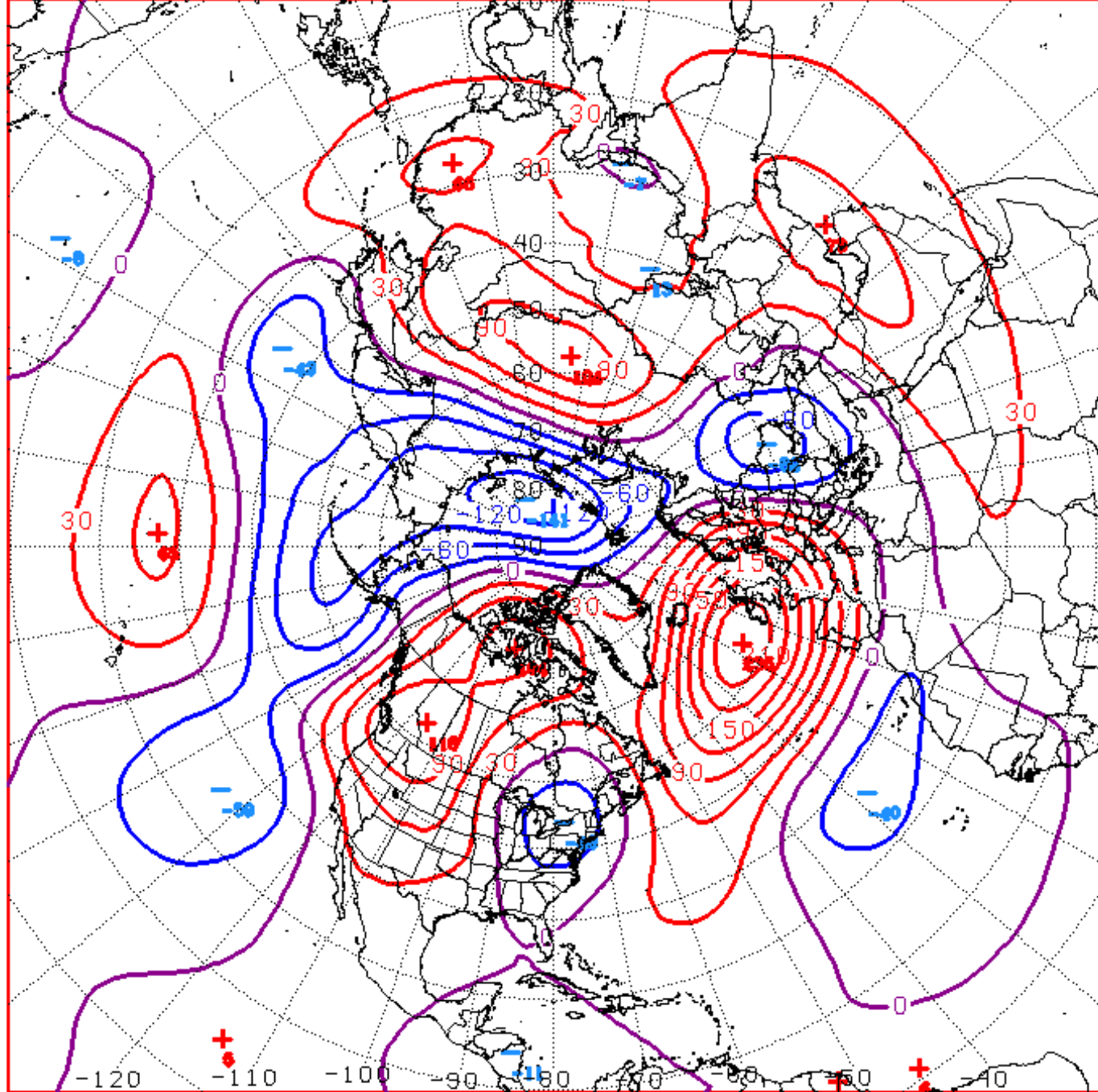
Null (416 days) 52 storms



# Connections to U.S. Impacts

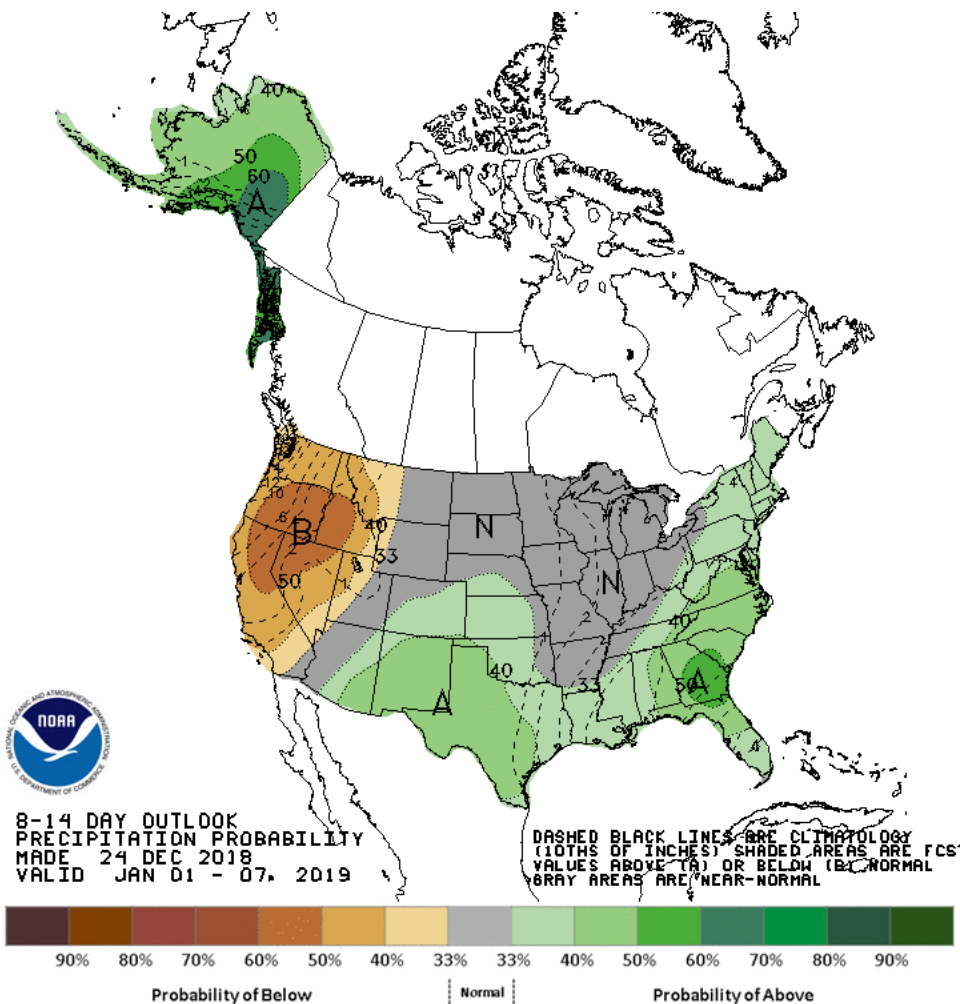
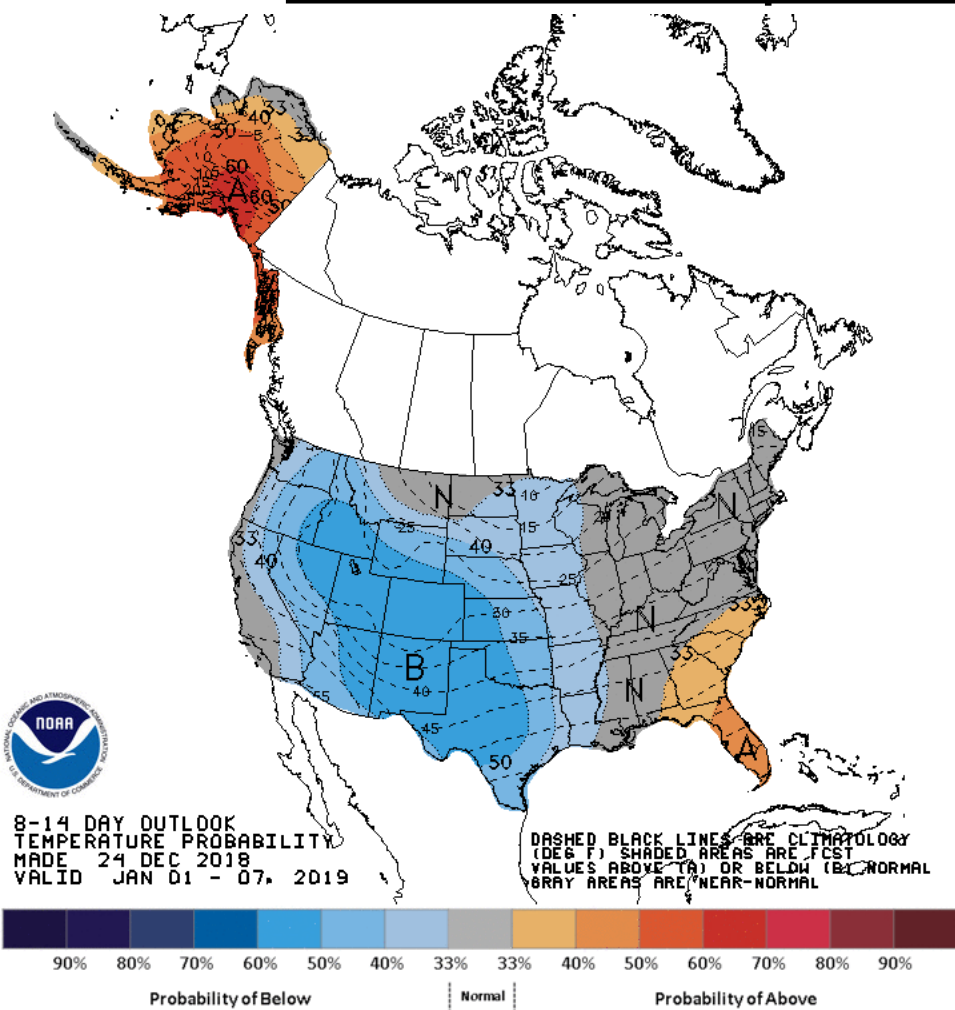
## AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE DEC 25 2018 1303 UTC CNTD JAN 05 2019

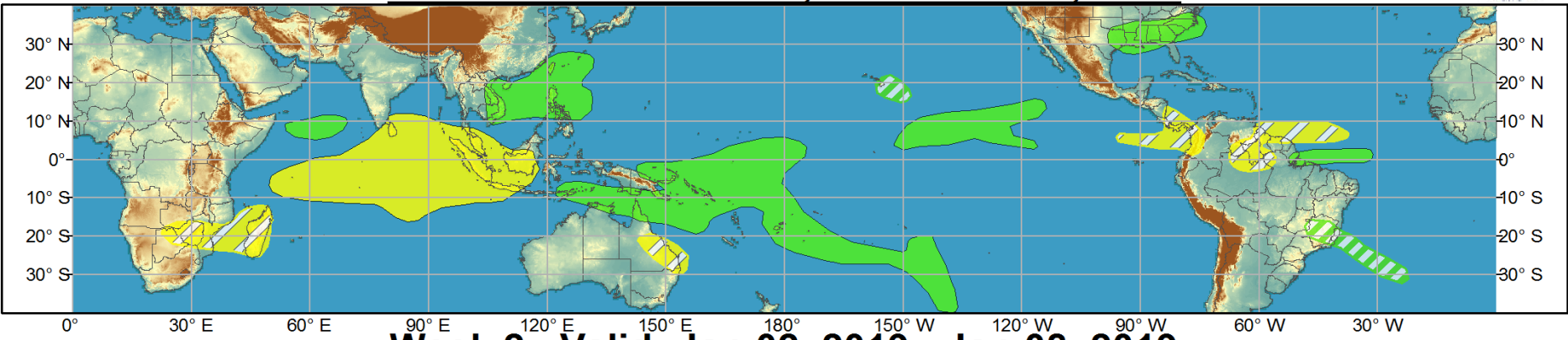
# Week 2 – Temperature and Precipitation



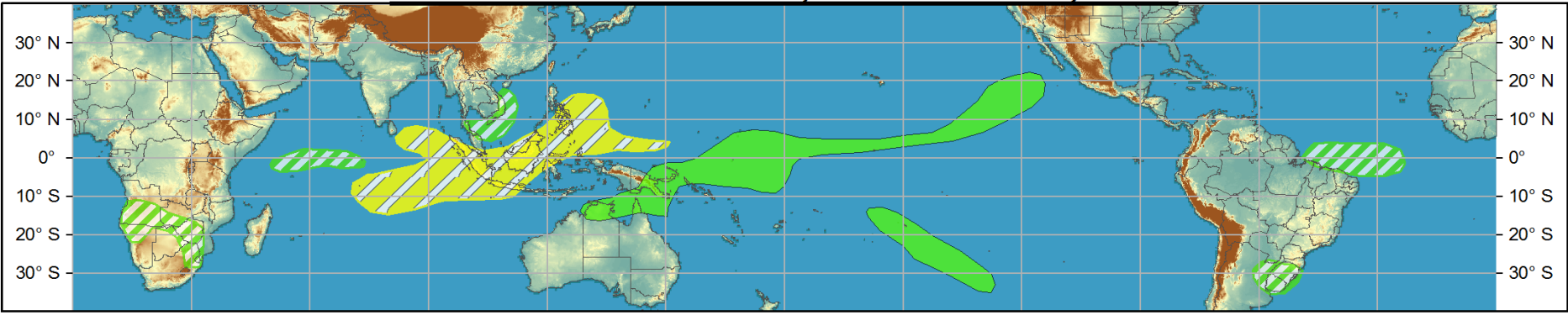


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