

# Global Tropics Hazards And Benefits Outlook

1/16/2018

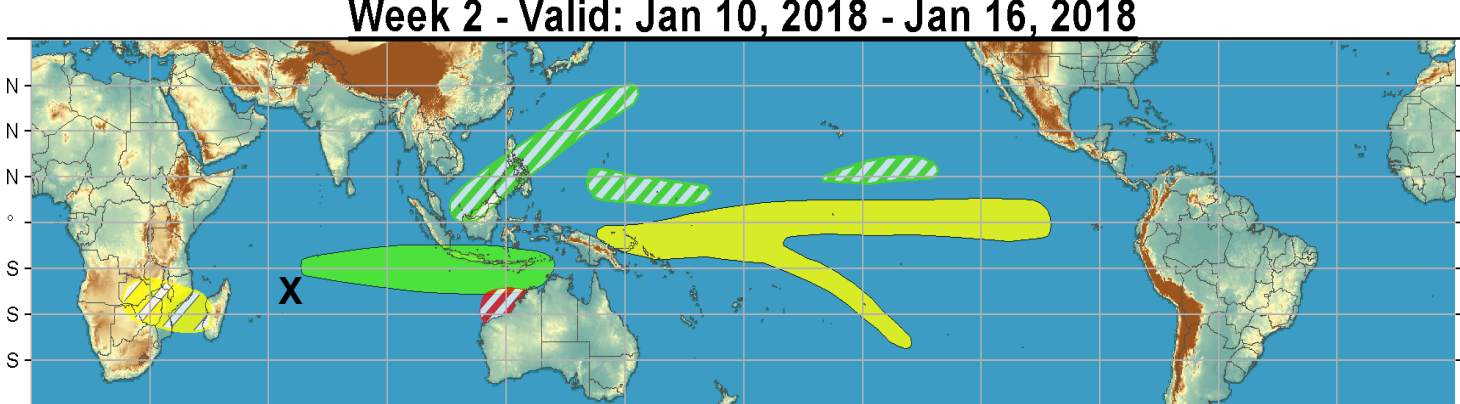
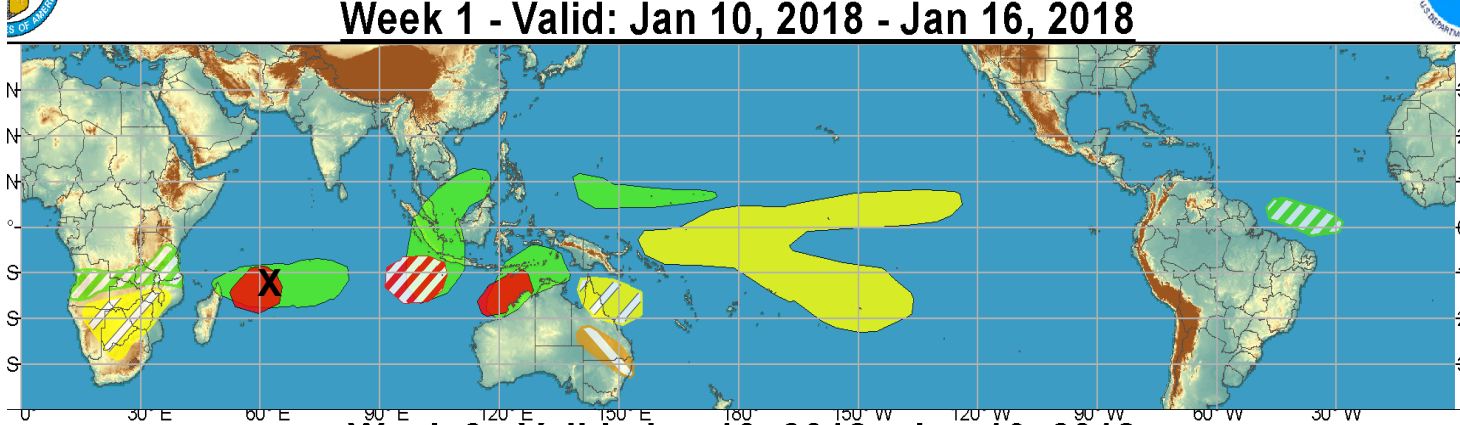
Christina Finan

## Outline

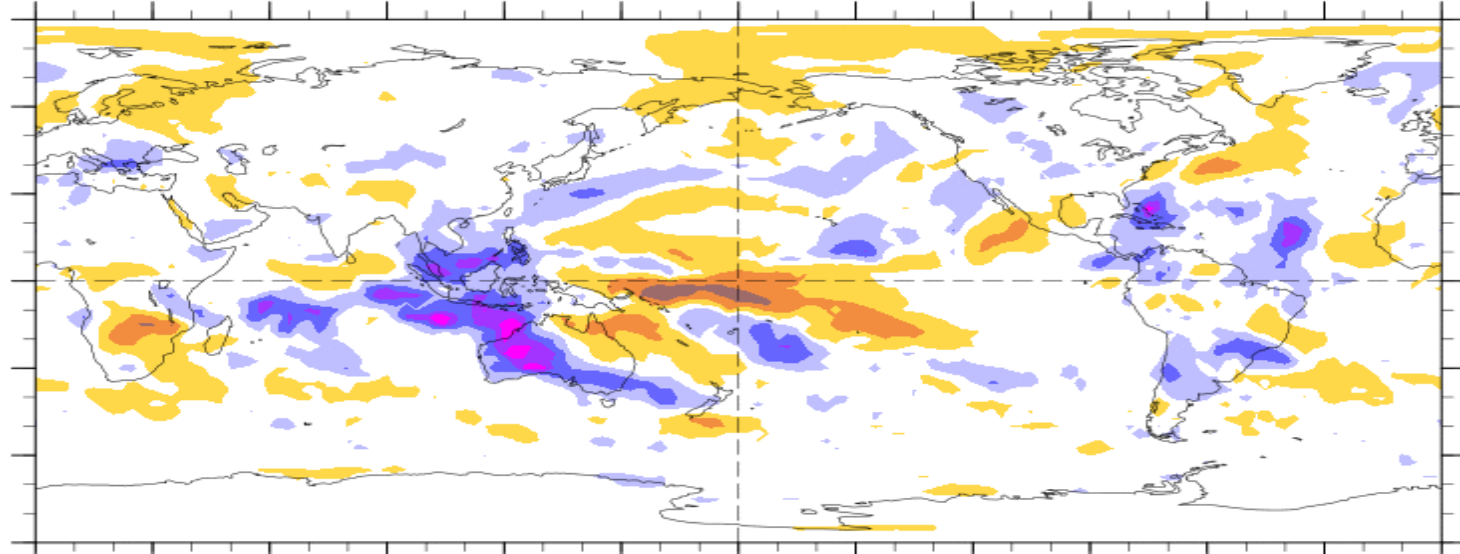
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

S. Ind: TC  
Berguitta  
1/11-Present



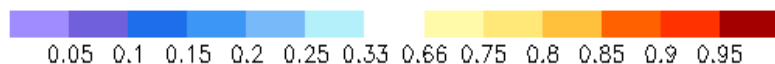
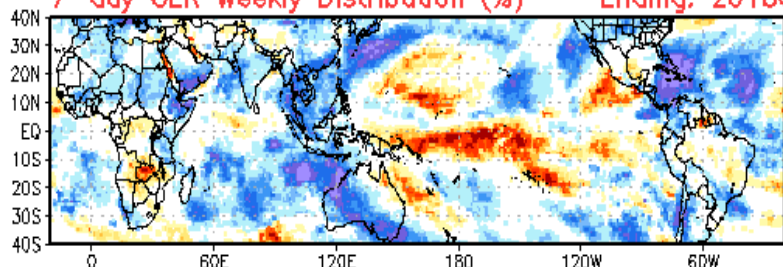
7-Day Average OLR Anomaly 2018/01/08 - 2018/01/14



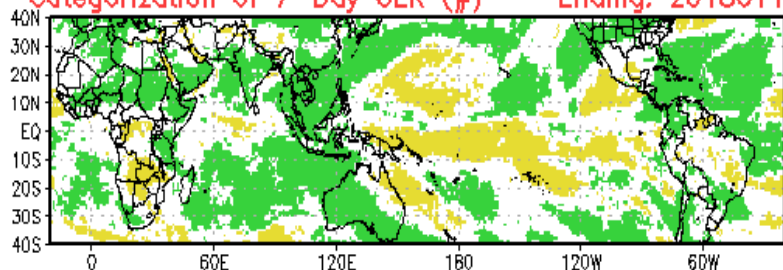
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

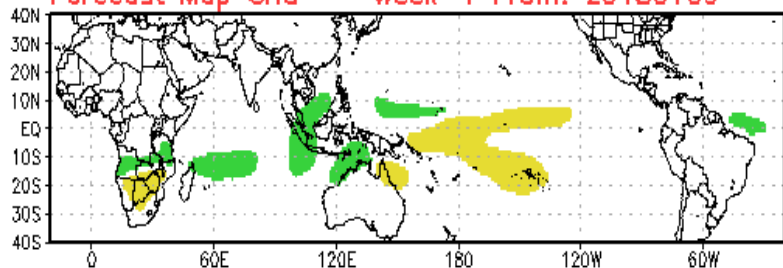
7-day OLR Weekly Distribution (%) -- Ending: 20180116



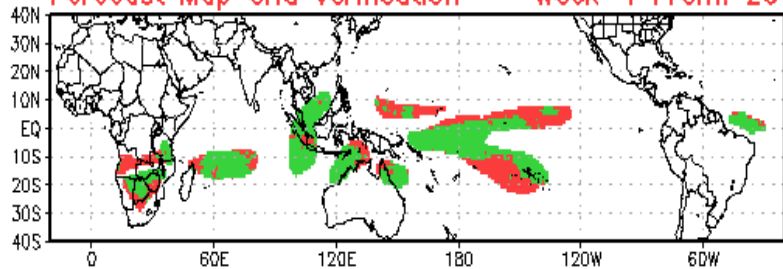
Categorization of 7-Day OLR (#) -- Ending: 20180116



Forecast Map Grid -- Week-1 From: 20180109

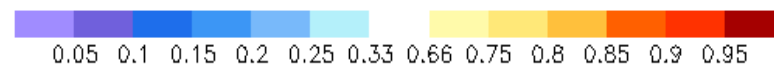
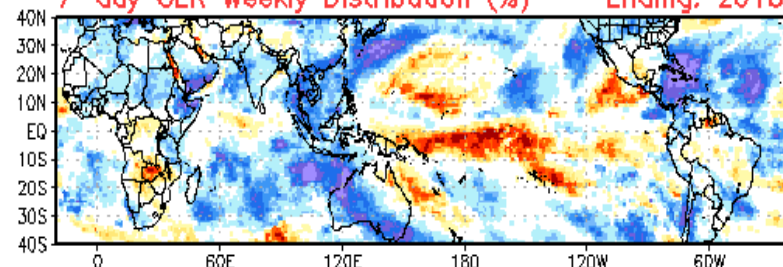


Forecast Map Grid Verification -- Week-1 From: 20180109

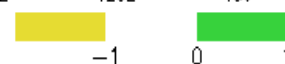
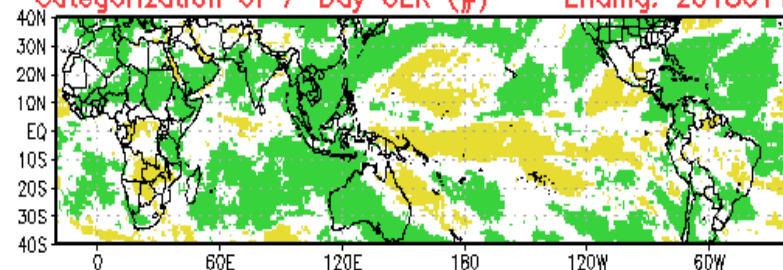


Hit: Green, Miss: Red  
Heidke Skill Score: 44.9709

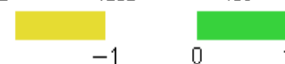
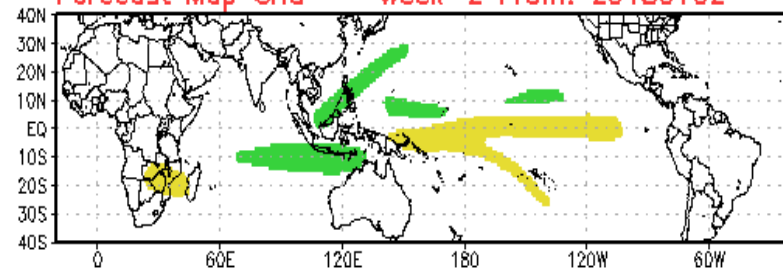
7-day OLR Weekly Distribution (%) -- Ending: 20180116



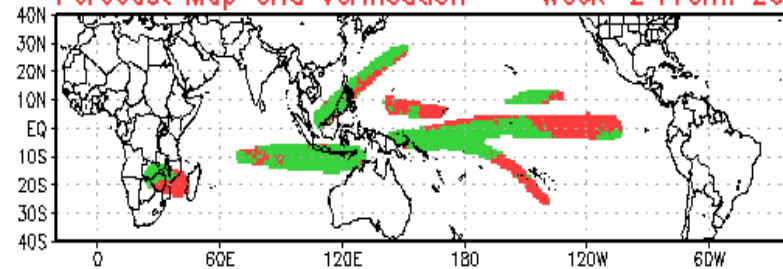
Categorization of 7-Day OLR (#) -- Ending: 20180116



Forecast Map Grid -- Week-2 From: 20180102



Forecast Map Grid Verification -- Week-2 From: 20180102



Hit: Green, Miss: Red  
Heidke Skill Score: 45.0124

# Synopsis of Climate Modes

## ENSO:

- ENSO Alert System Status: **La Niña Advisory**
- La Niña is likely (~85-95%) through the Northern Hemisphere winter 2017-18, with a transition to ENSO-neutral most likely during the mid-to-late spring.

## MJO and other subseasonal tropical variability:

- The active phase of the MJO is currently over the Maritime Continent.
- Dynamical models portray continued eastward propagation of the MJO envelope across the Maritime Continent and into the western Pacific over the next two weeks, with possible interference from Rossby wave activity which will reduce the strength of the signal.

## Extratropics:

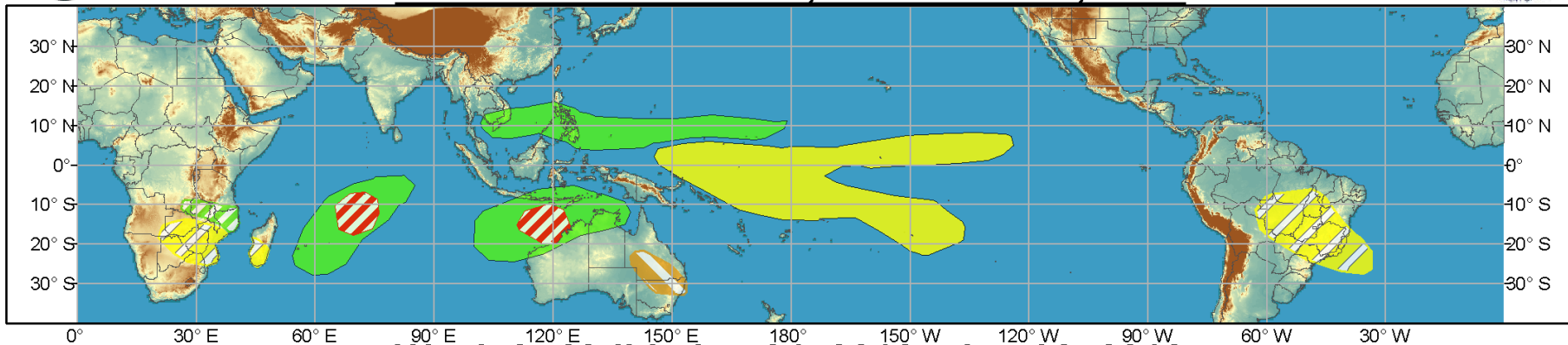
- Circulation responses across North America from MJO presence over the Maritime Continent are fairly common during boreal winter. Ridging over the continental US and North America is favored, with warming likely for the eastern US.



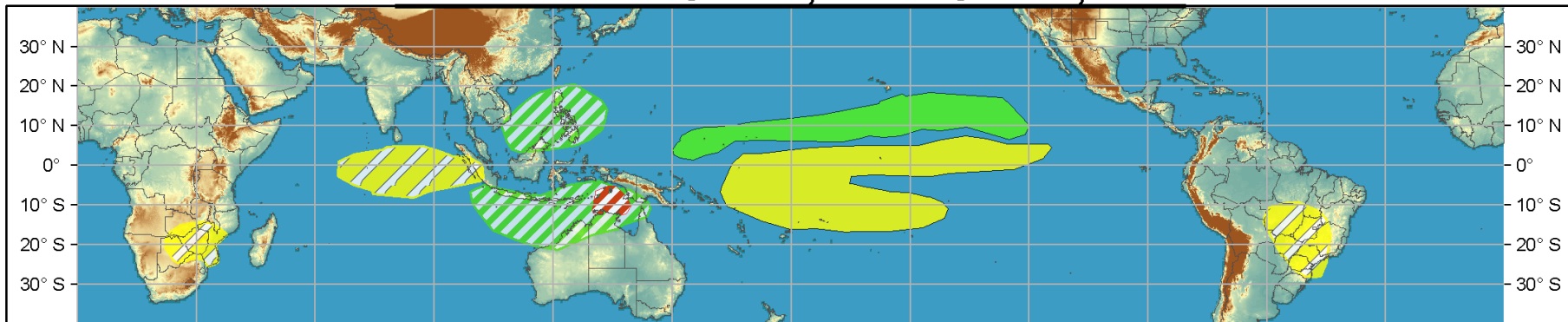
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Jan 17, 2018 - Jan 23, 2018



## Week 2 - Valid: Jan 24, 2018 - Jan 30, 2018



**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: 01/16/2018

Forecaster: Finan

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.

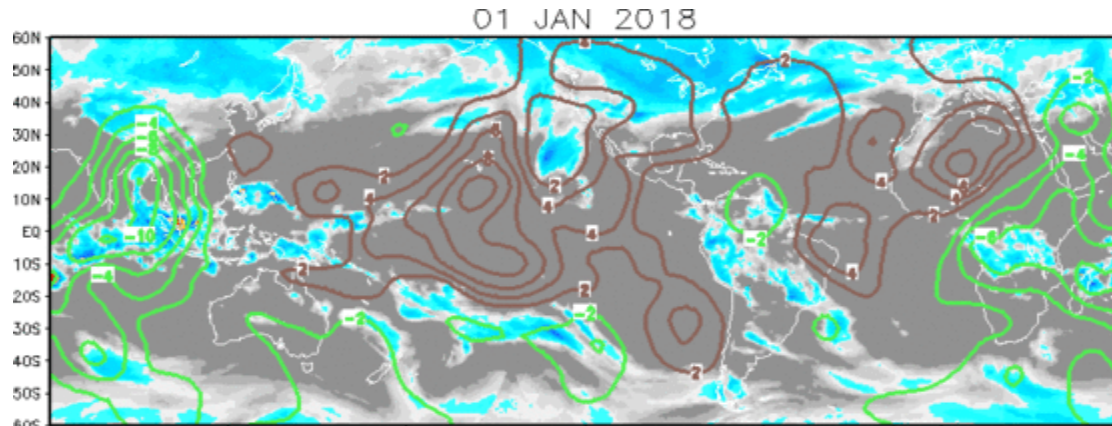


# IR Satellite & 200-hpa Velocity Potential Anomalies

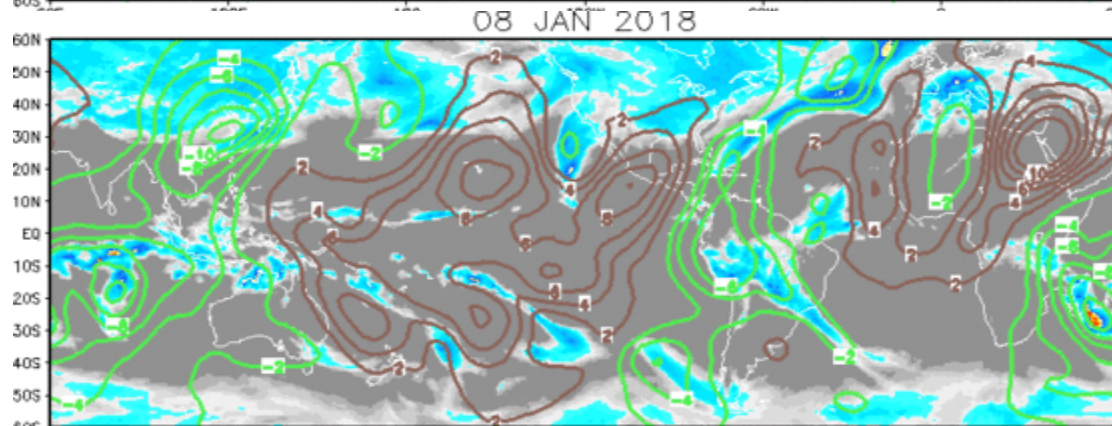
Green: Enhanced Divergence

Brown: Enhanced Convergence

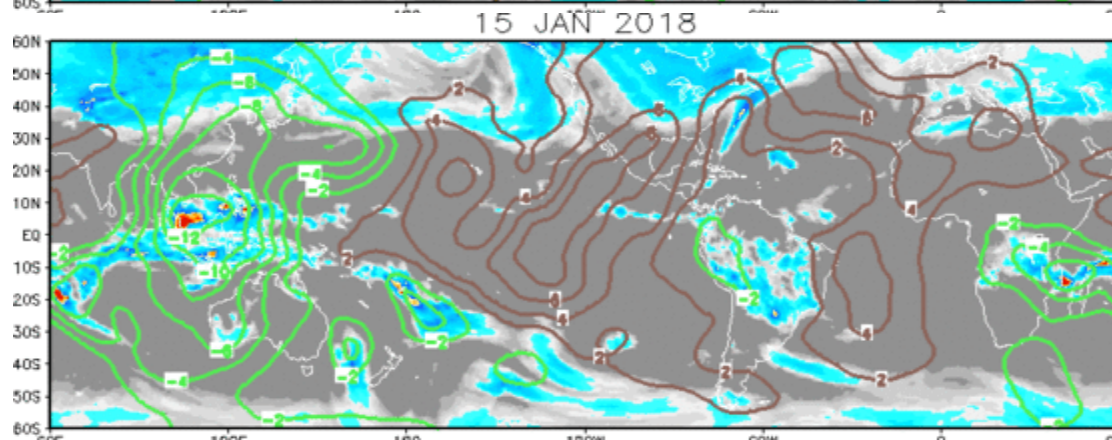
Wave-1 projection with the enhanced convection over Africa and the Indian Ocean.



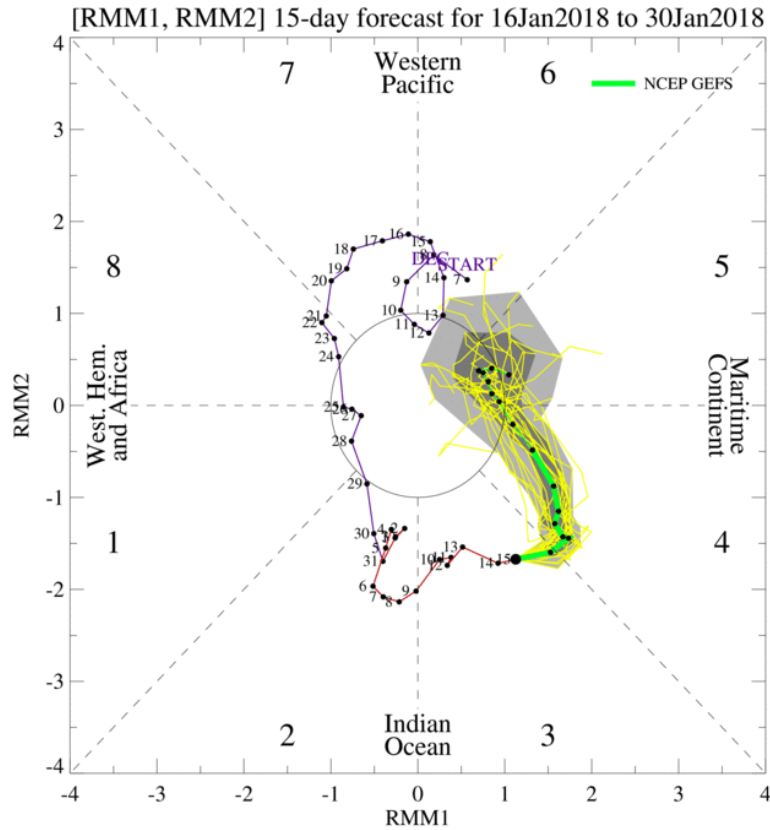
Wave-2 structure with the continued enhanced convection over Indian Ocean, and interference in the Atlantic due to Rossby wave activity.



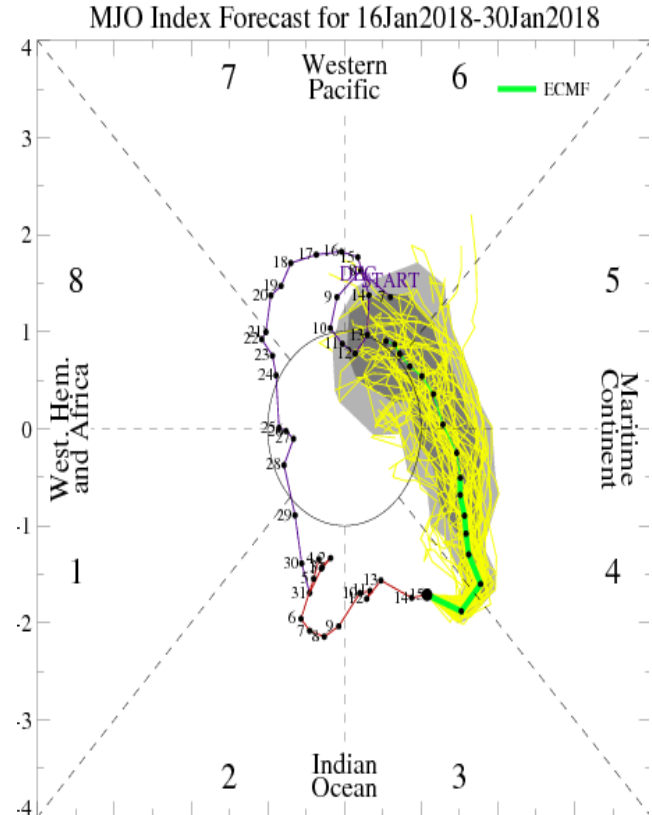
Return to a wave-1 structure with enhanced convection over the Maritime Continent. Some noise over the Americas due to Kelvin and Rossby wave activity.



# MJO Observation/Forecast



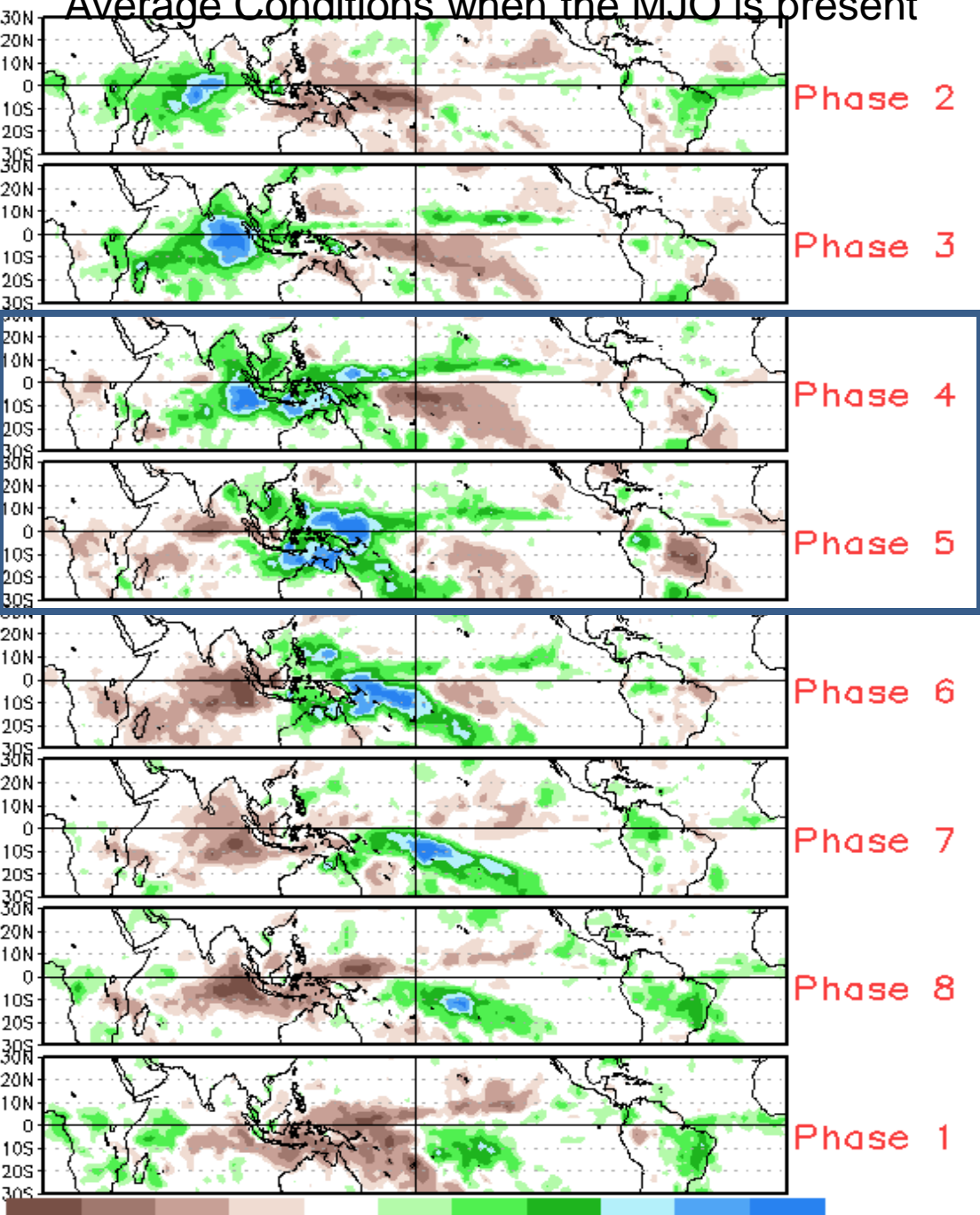
GEFS



ECMWF

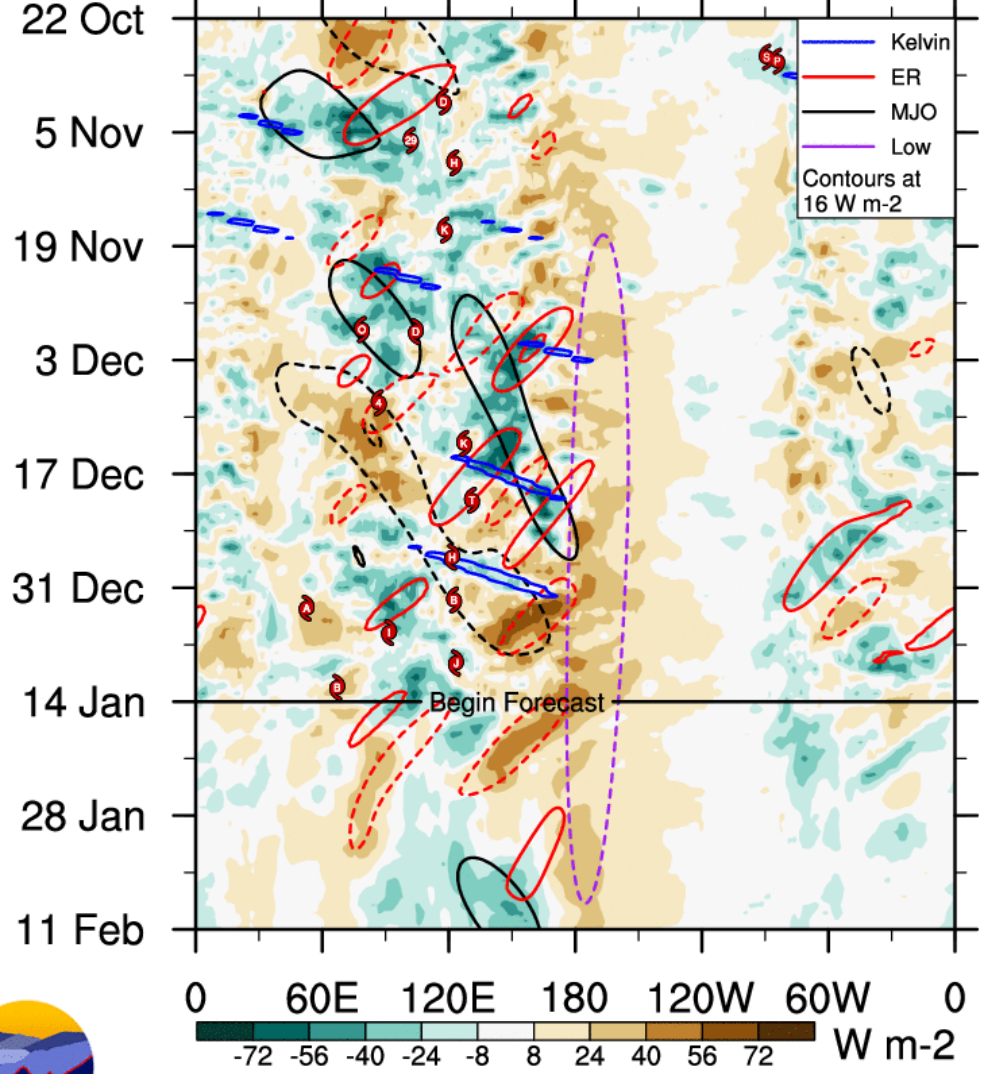
The MJO Index forecast eastward propagation into Phase 4 for Week-1 and into Phase 5 for the latter half of Week-2. There is likely to be decay in the signal strength as the MJO moves through Phase 4. The GEFS solution is slightly slower and has a greater reduction to the amplitude than the ECMWF solution.

# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.



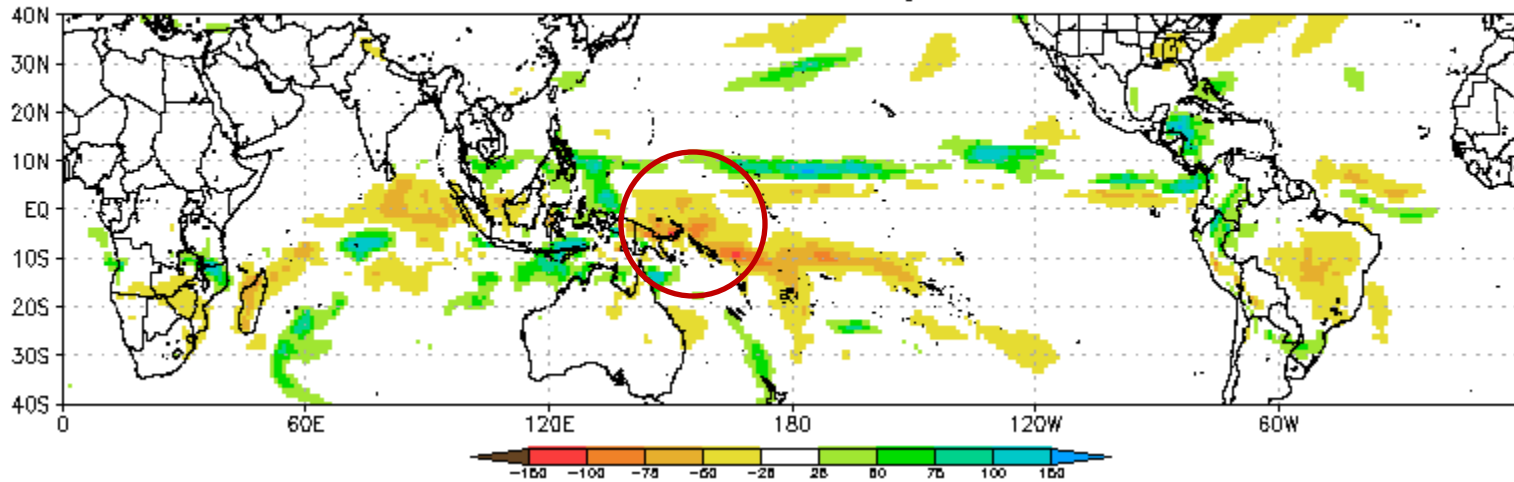


**MJO** continues over the Maritime Continent into the western Pacific. **Equatorial Rossby wave activity** is likely over the Pacific, and expected to interfere with the MJO signal.

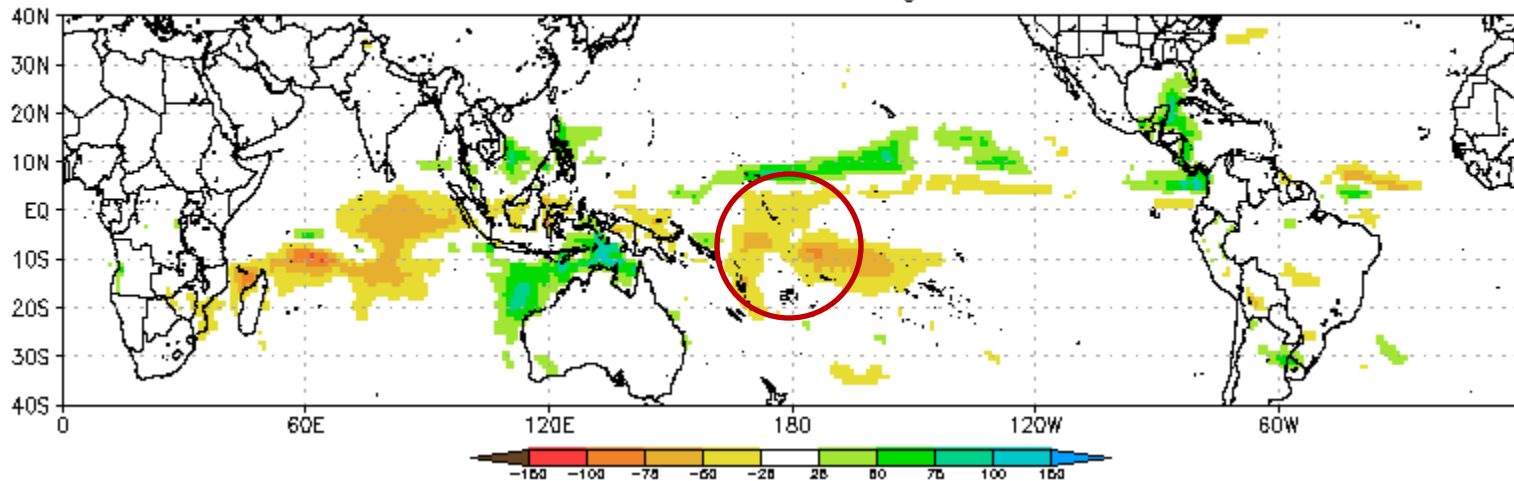
**Low frequency** La Niña footprint remains anchored near the Date Line.



CFS Precipitation Anomalies (mm) Issued 15Jan2018  
Week-1 Forecast Ending 23Jan2018

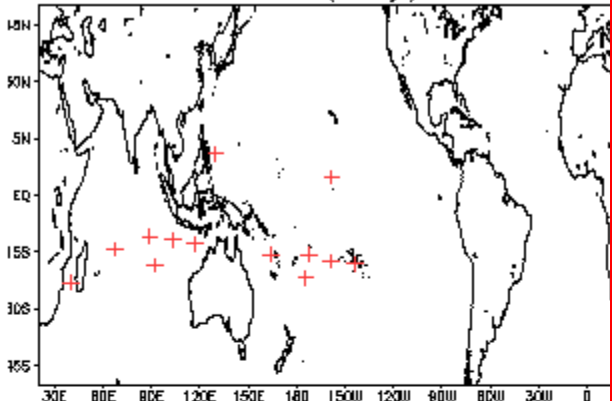


CFS Precipitation Anomalies (mm) Issued 15Jan2018  
Week-2 Forecast Ending 30Jan2018

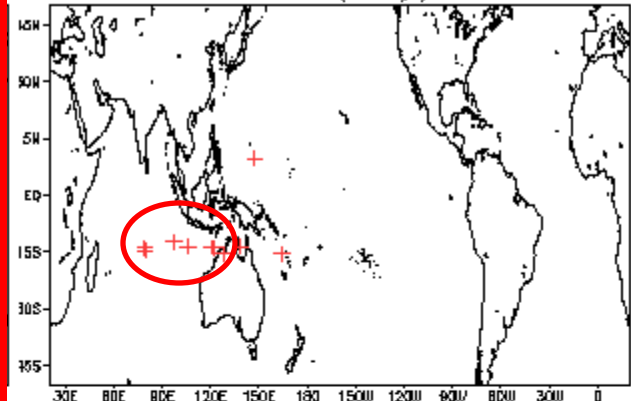


# January Tropical Storm Formation by MJO phase

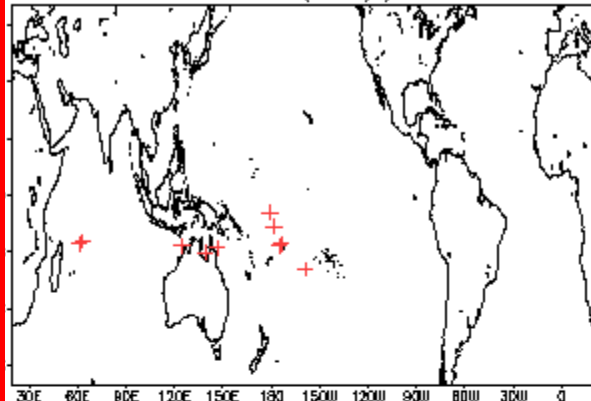
Phase 1 (67 days) 14 storms



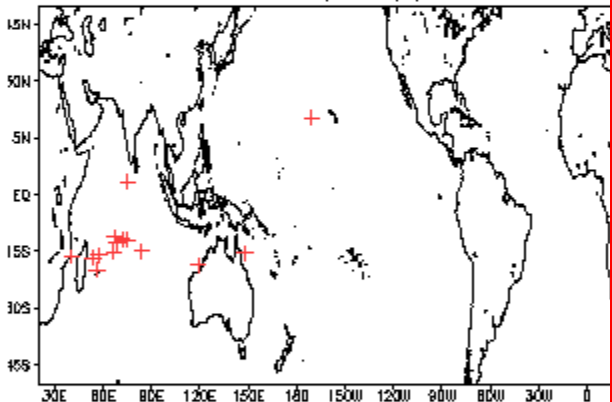
Phase 4 (89 days) 11 storms



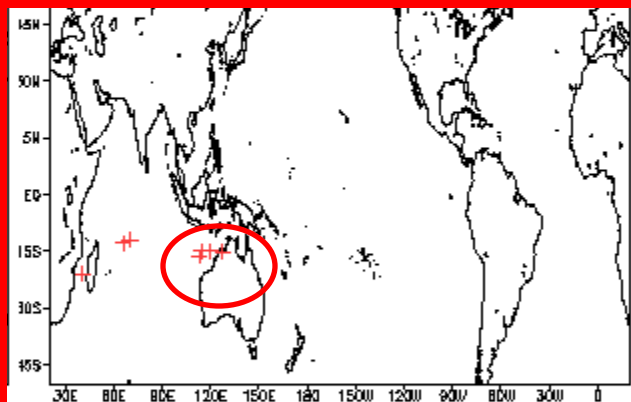
Phase 7 (81 days) 11 storms



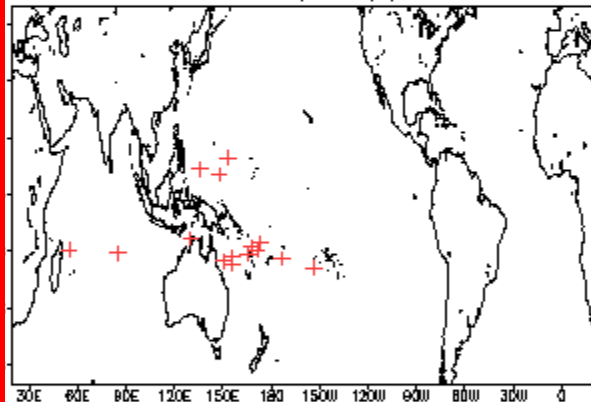
Phase 2 (101 days) 15 storms



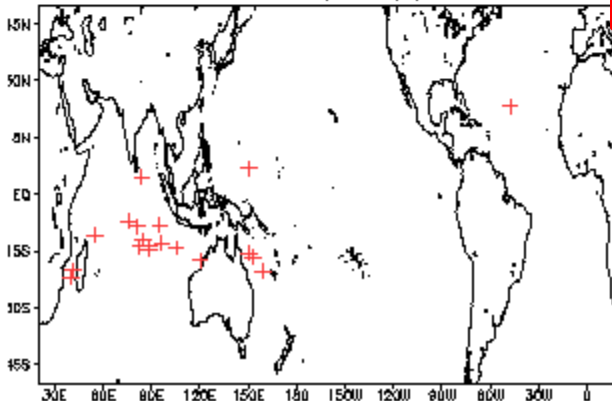
Phase 5 (67 days) 8 storms



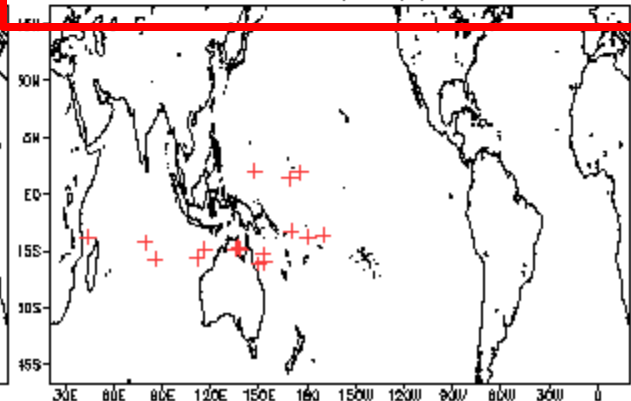
Phase 8 (105 days) 16 storms



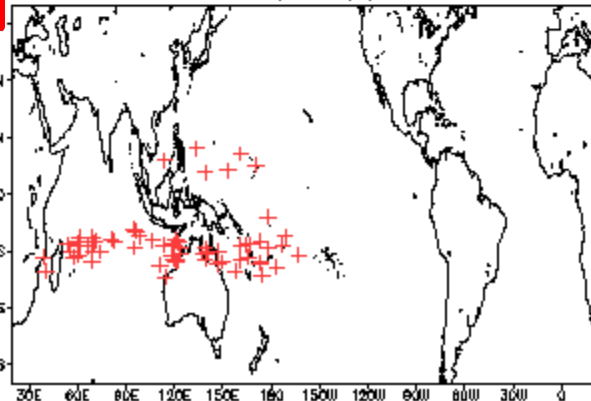
Phase 3 (112 days) 20 storms

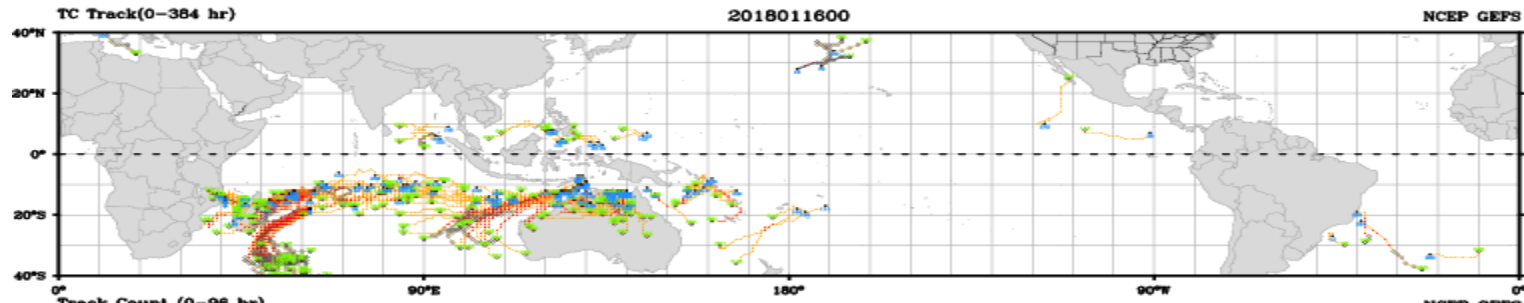


Phase 6 (88 days) 18 storms



Null (364 days) 67 storms



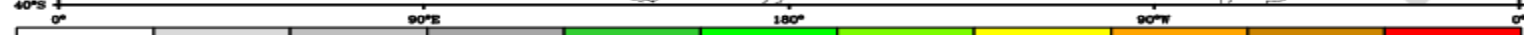
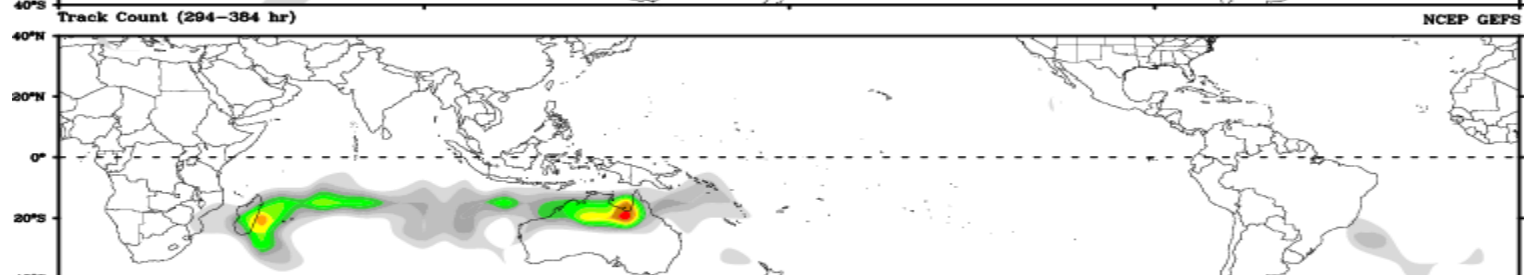
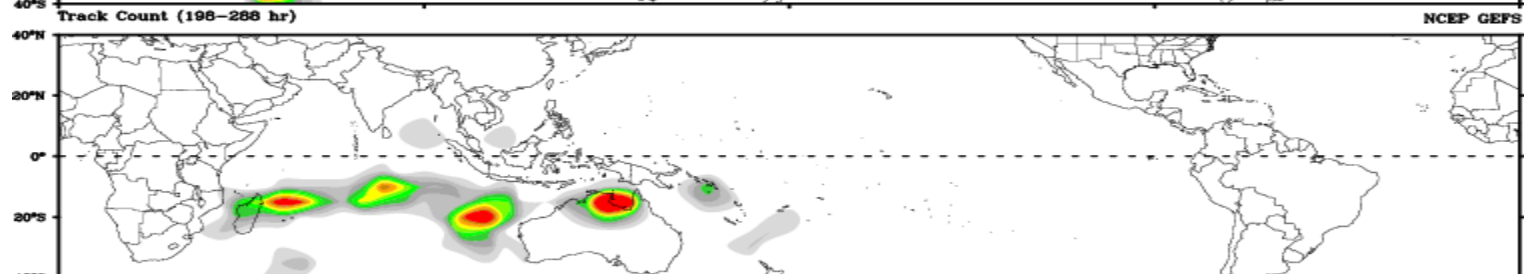
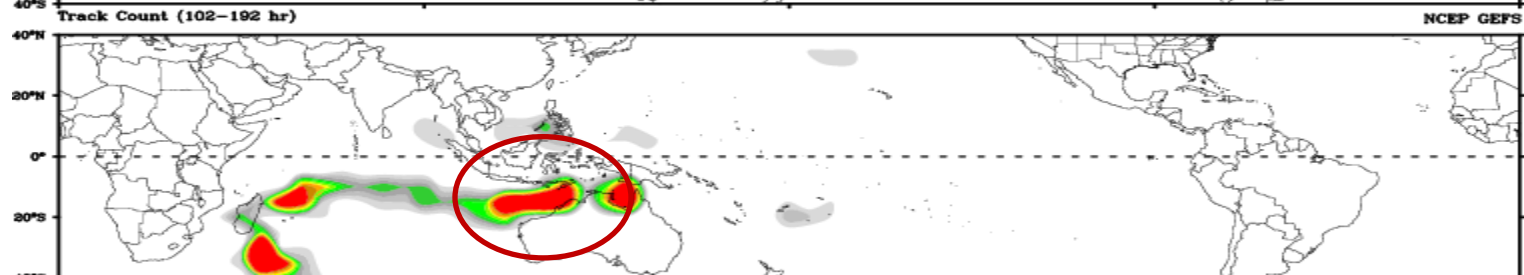
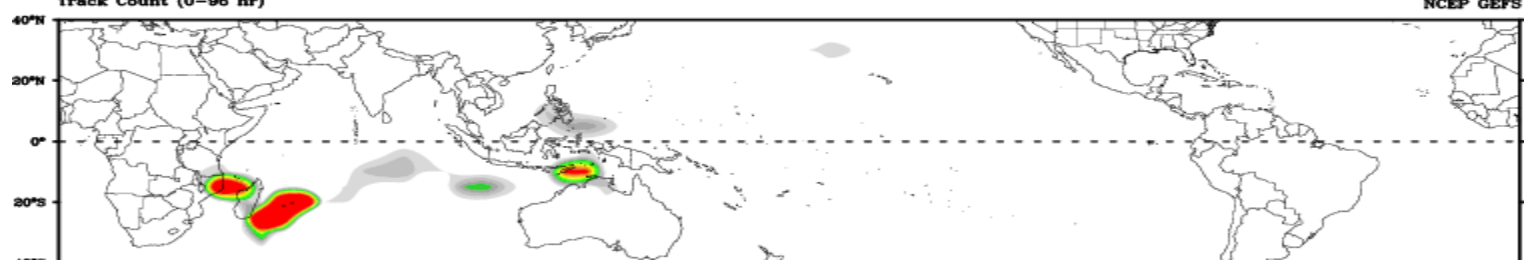


Days 1-4

Day 5-8

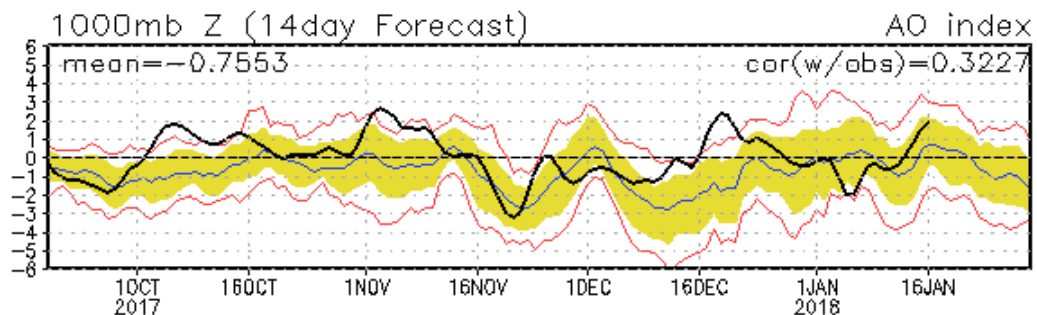
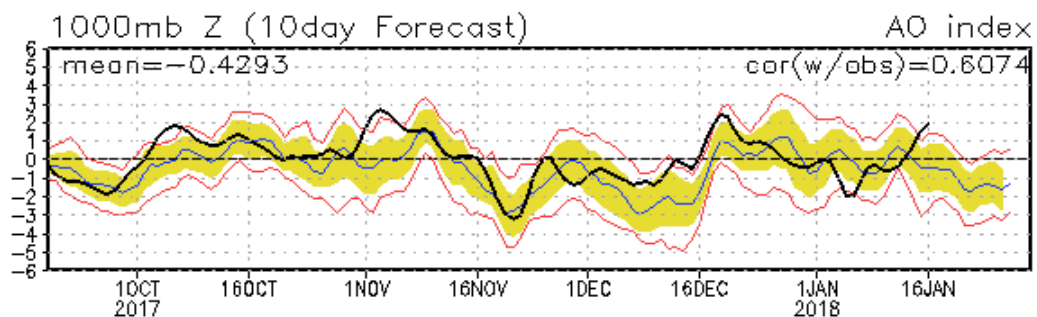
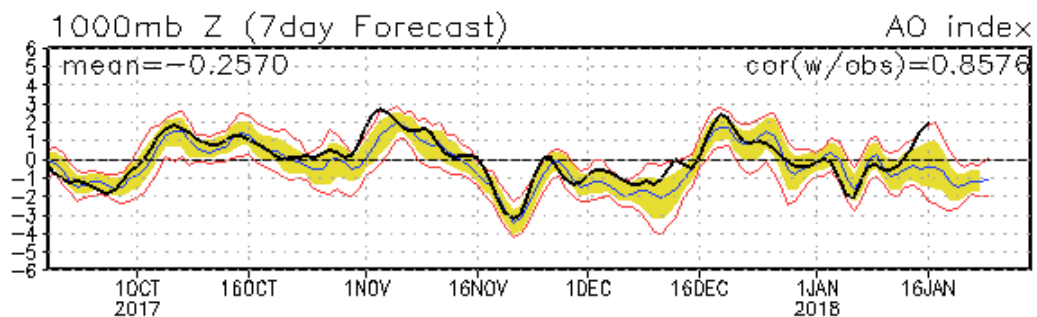
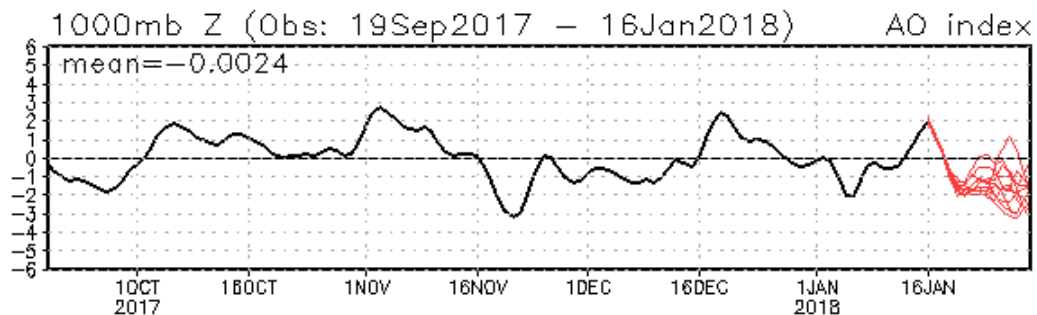
Day 9-12

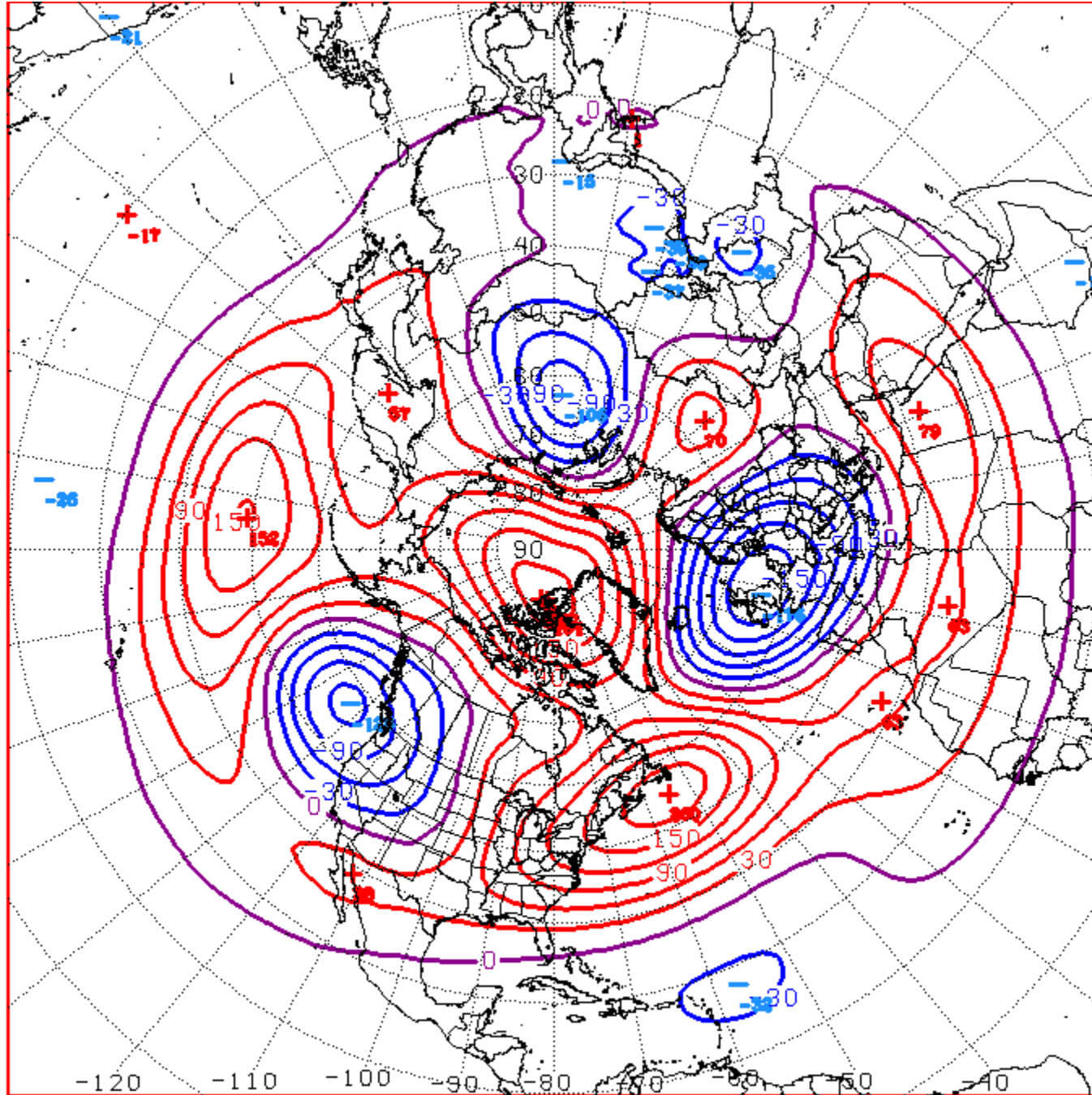
Day 13-15



# Connections to U.S. Impacts

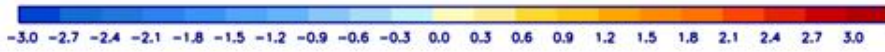
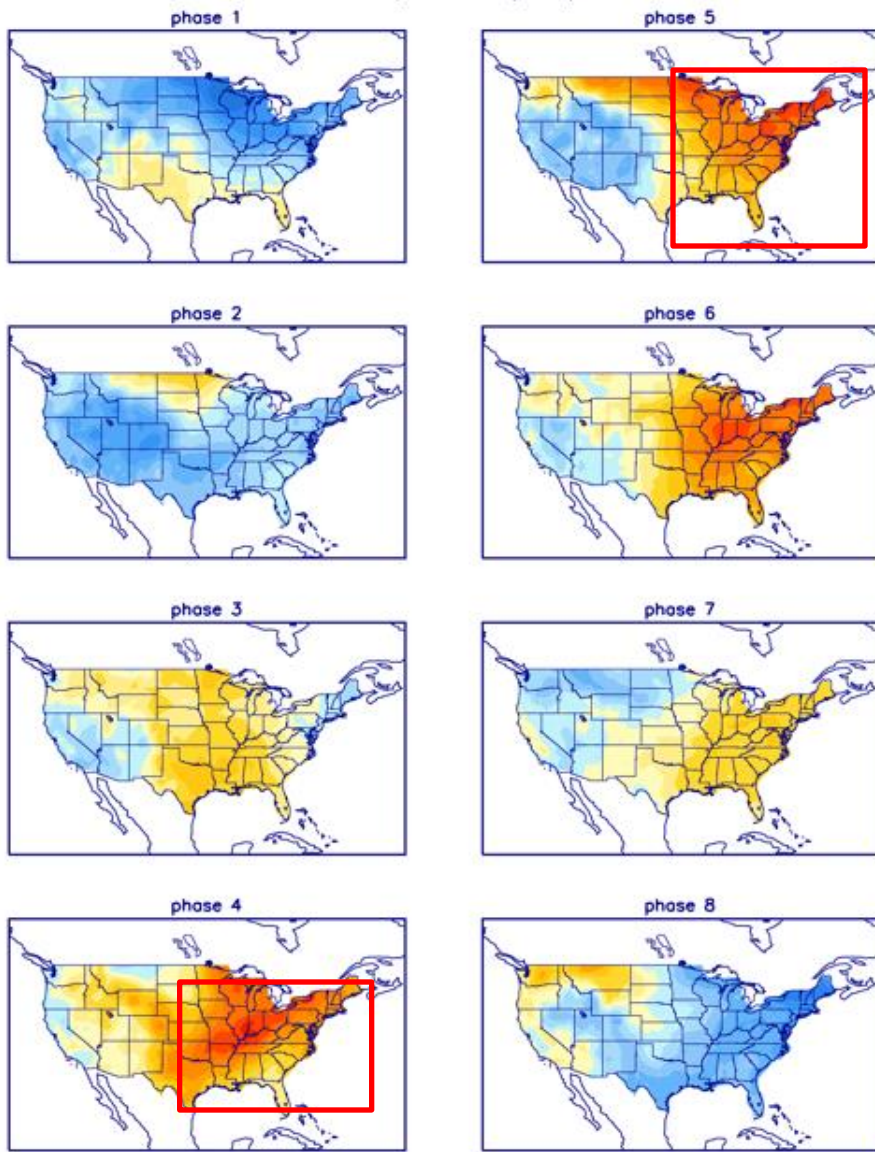
## AO: Observed & ENSM forecasts



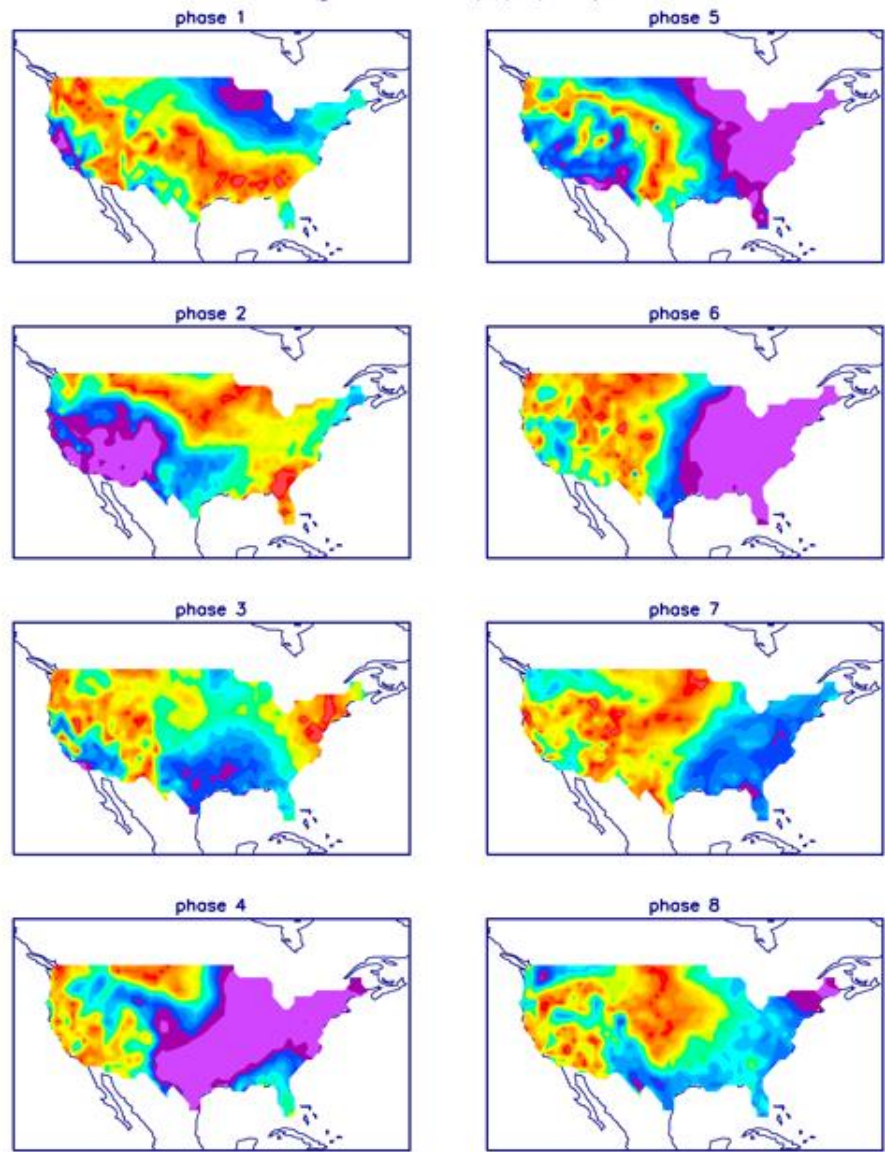


D+11 500 MB ANOMALIES FROM ALZ ENSM  
CPC MAP MADE JAN 09 2018 1308 UTC CNTD JAN 20 2018

### T composites (DJF)

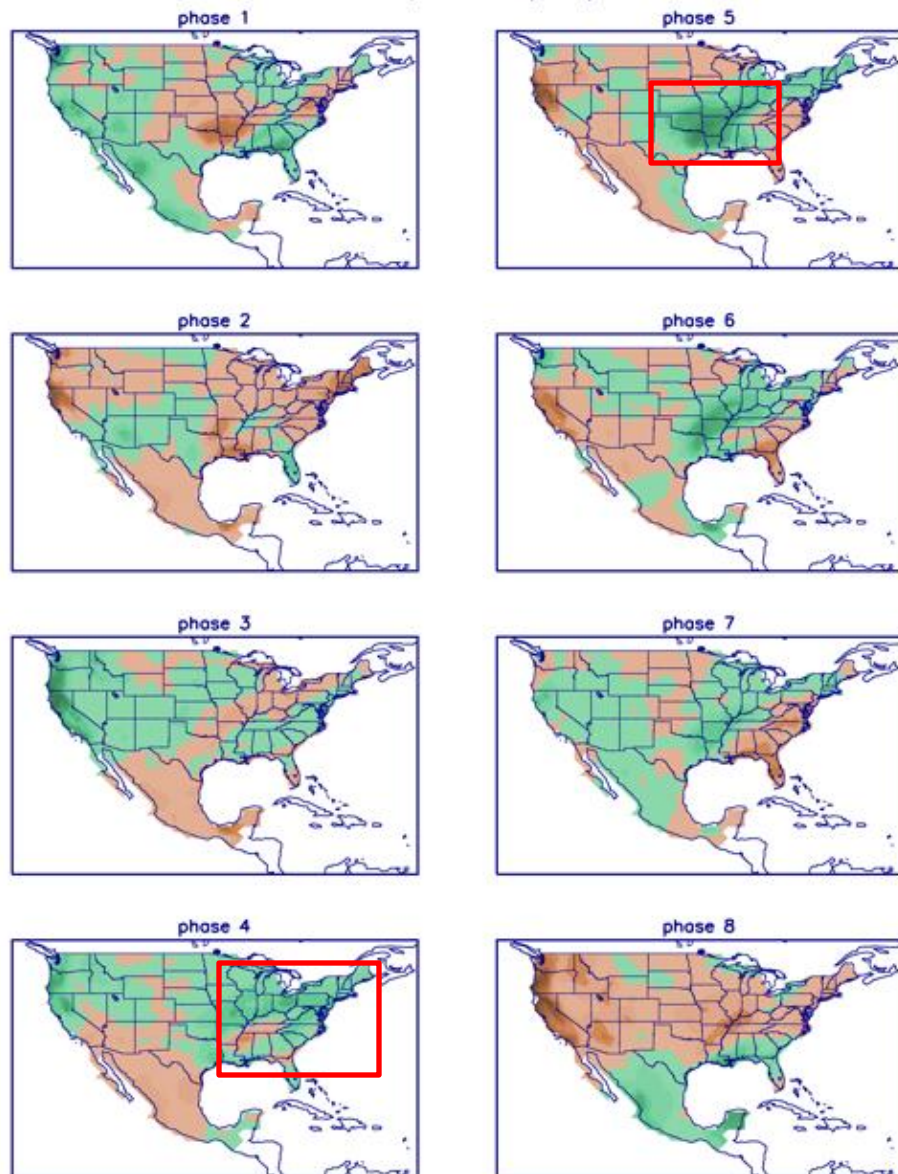


### Significance (%) (DJF)

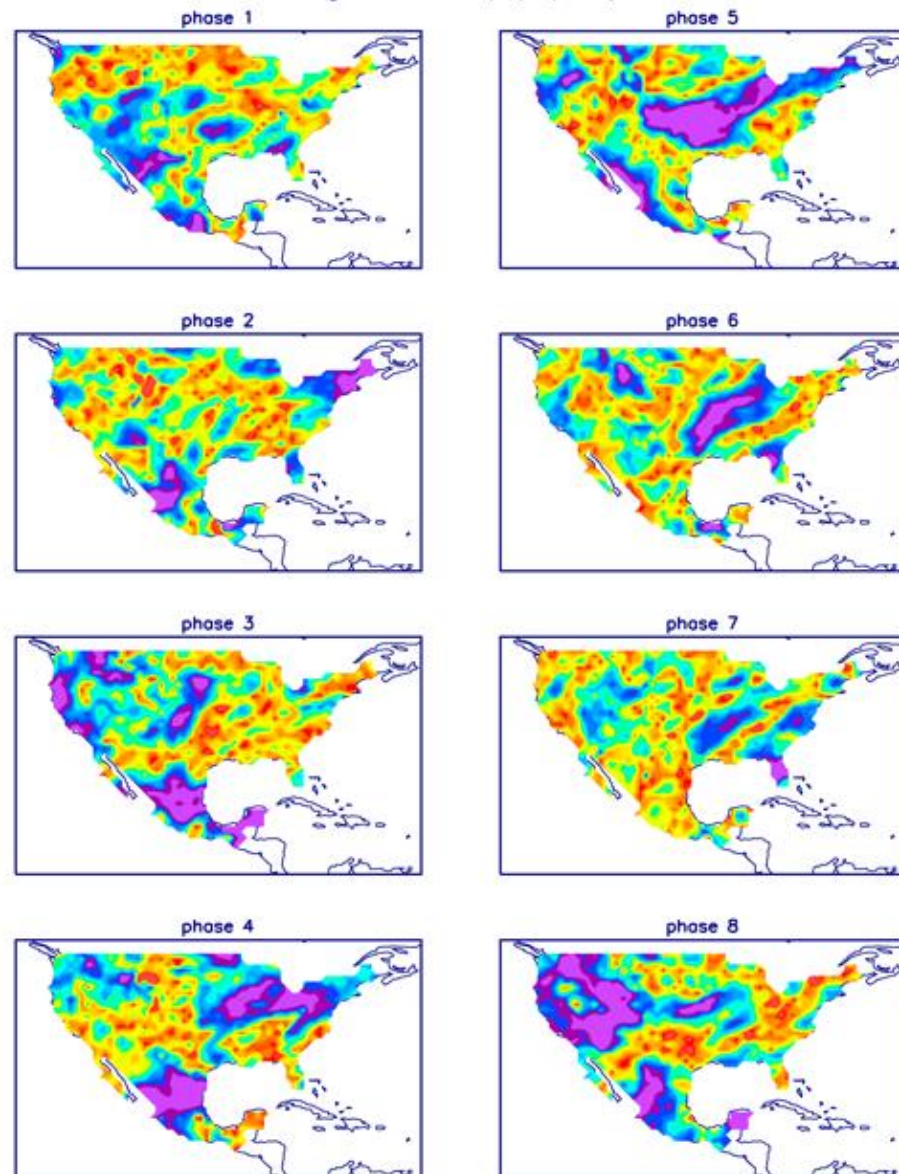




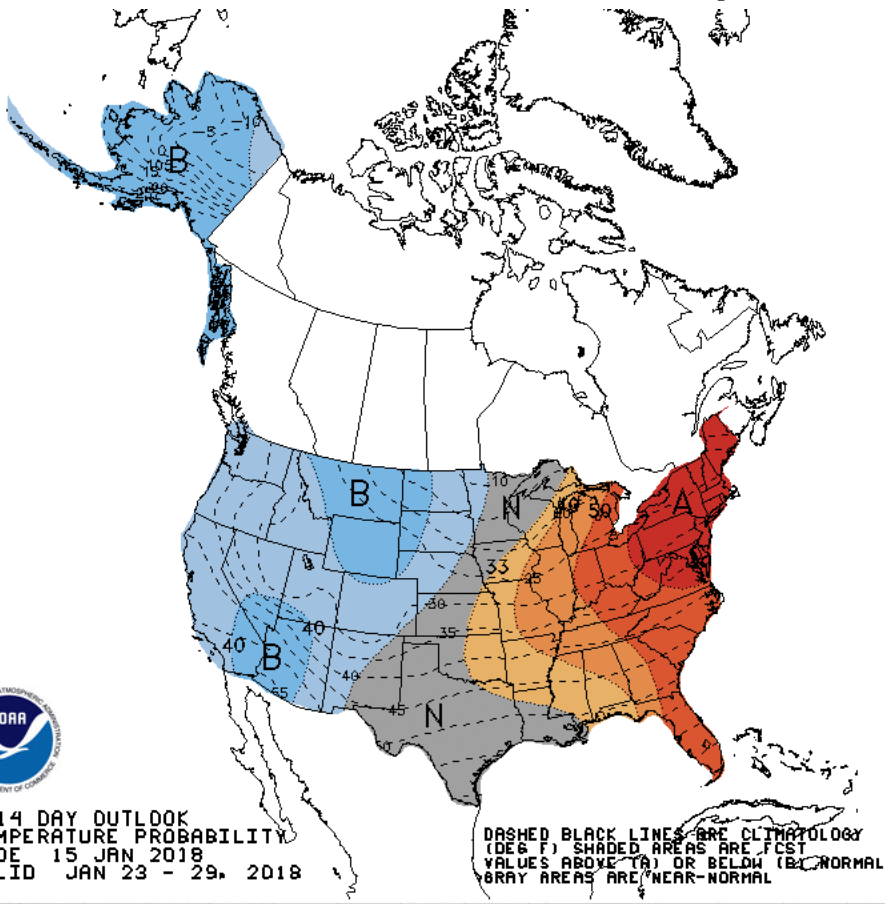
P composites (DJF)



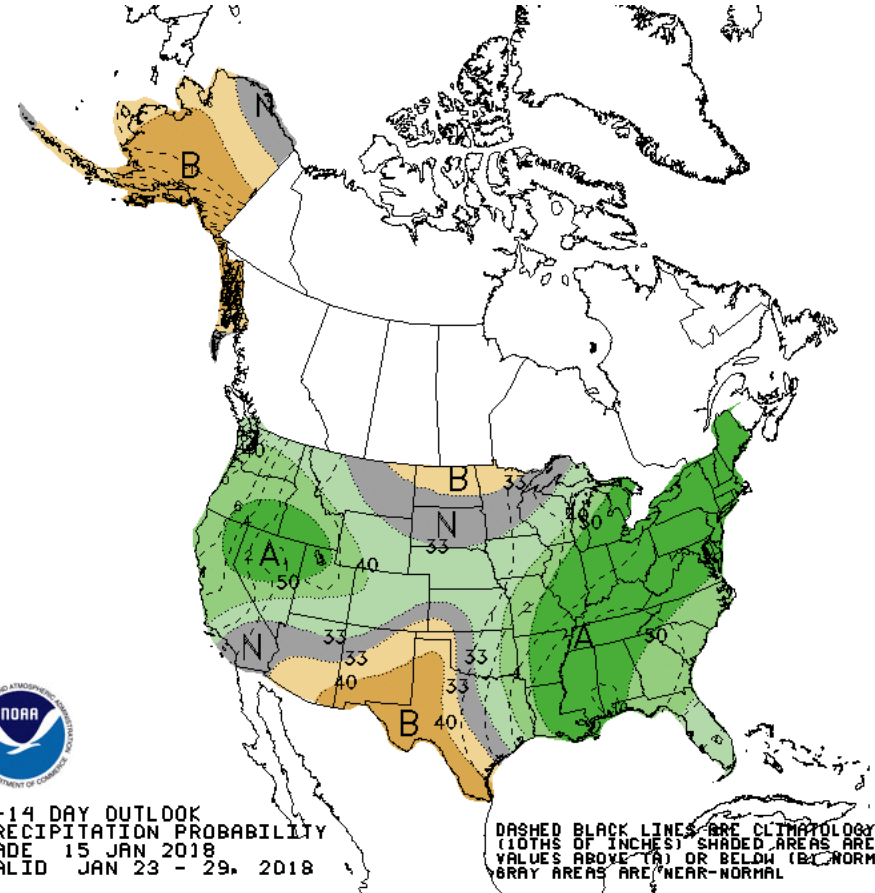
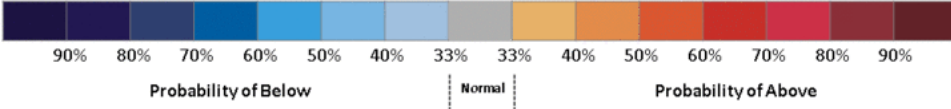
Significance (%) (DJF)



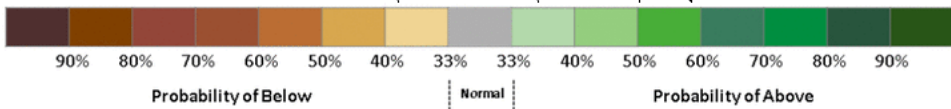
# Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 15 JAN 2018  
VALID JAN 23 - 29, 2018



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 15 JAN 2018  
VALID JAN 23 - 29, 2018

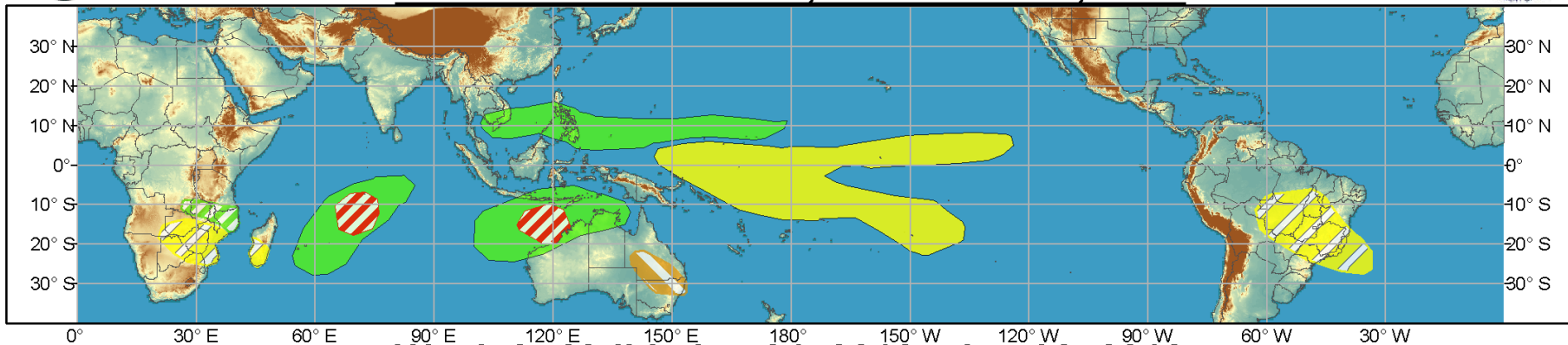




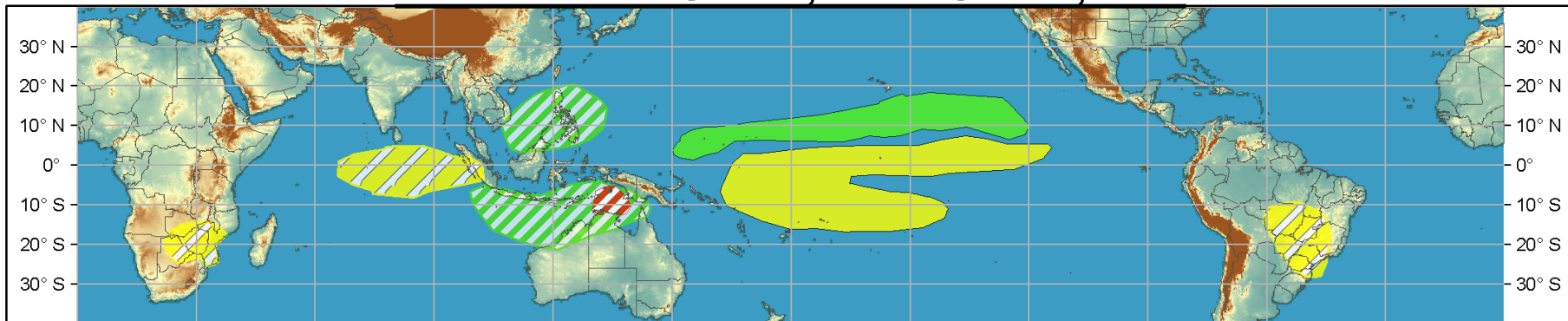
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### Confidence

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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.

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