

# Global Tropics Hazards And Benefits Outlook

11/28/2017

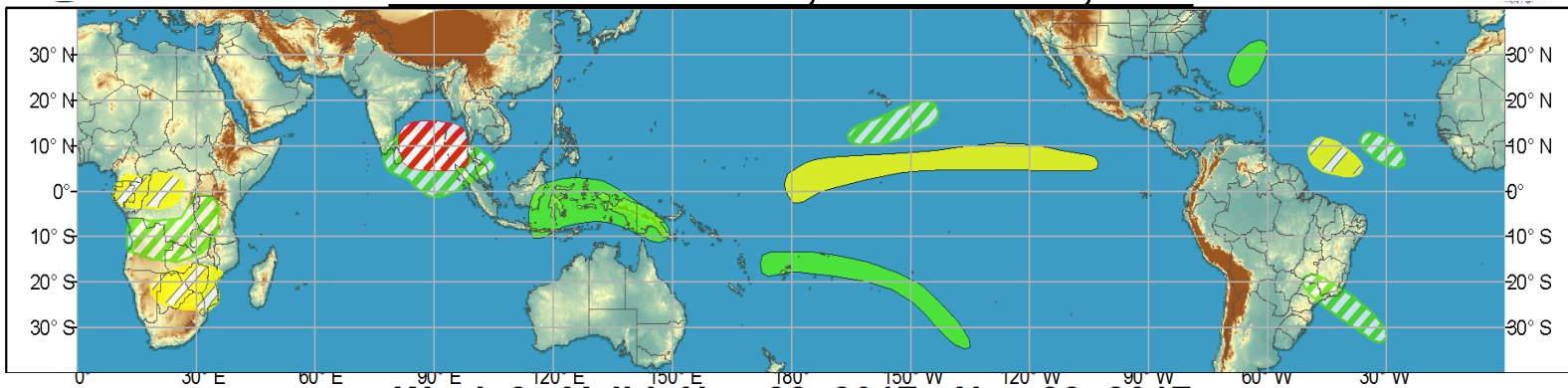
Adam Allgood

## Outline

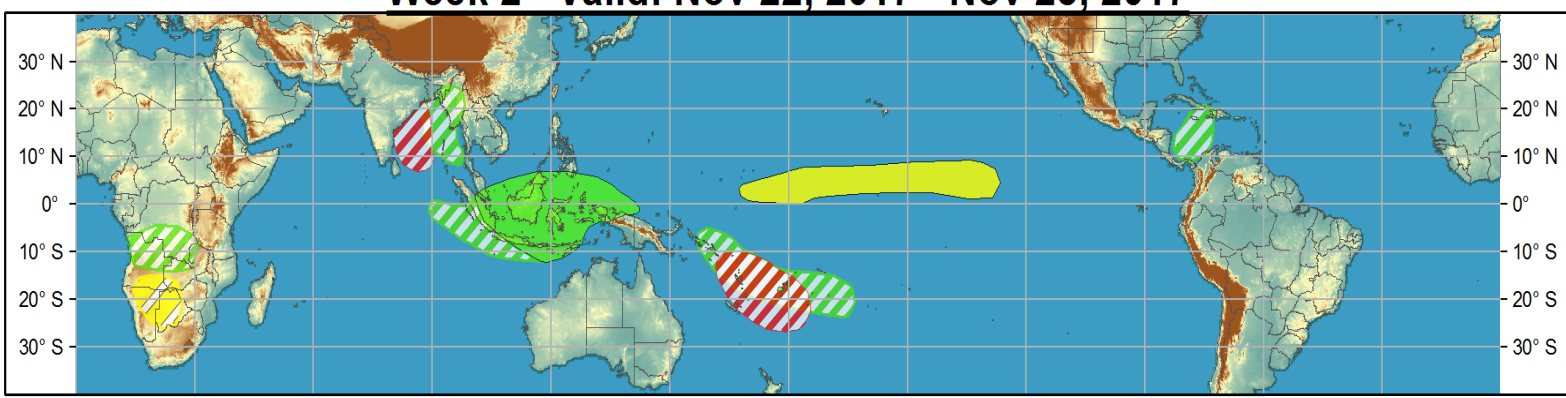
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

**Week 1 - Valid: Nov 22, 2017 - Nov 28, 2017**



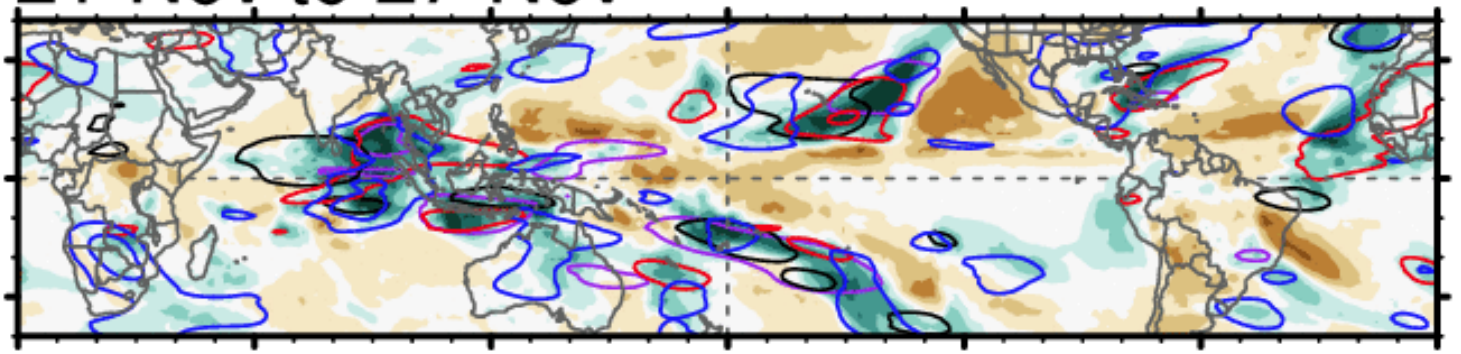
**Week 2 - Valid: Nov 22, 2017 - Nov 28, 2017**



**21-Nov to 27-Nov**

Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain



# Synopsis of Climate Modes

## **ENSO:**

- ENSO Alert System Status: **La Niña Advisory**
- La Niña conditions are predicted to continue (~65-75% chance) at least through the Northern Hemisphere winter 2017-18

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

- Increase in amplitude on both MJO indices – enhanced phase over the eastern I.O./western Maritime Continent.
- Confluence of a robust Rossby wave, Kelvin waves, and the base state may be contributing to this projection.
- Little current eastward propagation.
- The GEFS and ECWMF generally favor a rapid eastward progression of the MJO index to the West Pacific (Kelvin wave?), followed by a slower evolution more consistent with canonical MJO activity.
- An active tropical pattern is favored for the Indian Ocean, West Pacific.

## **Extratropics:**

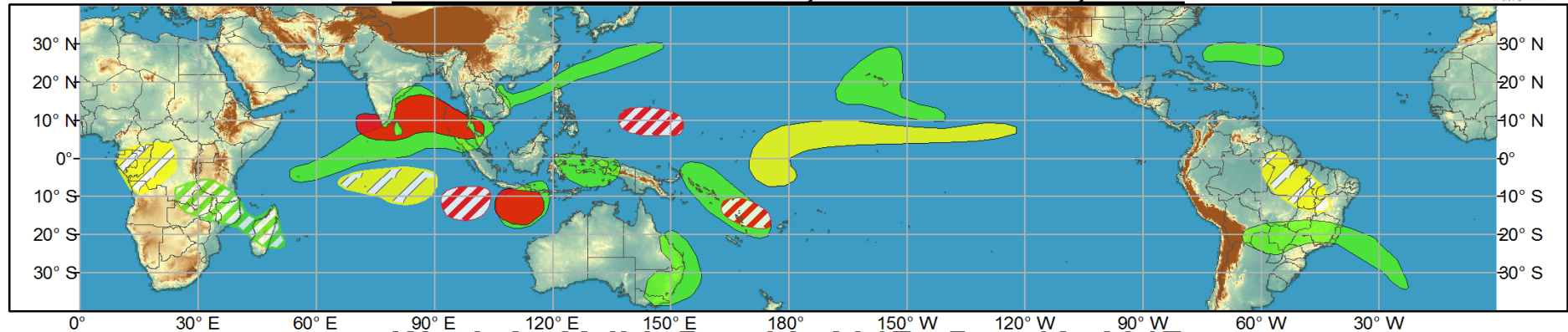
- Upper-level wind field shows substantial mass transport from tropics feeding into the East Asian Jet – would be fairly consistent with an I.O. MJO event.
- Should an MJO signal evolve over the West Pacific, could help effect a pattern change over North America



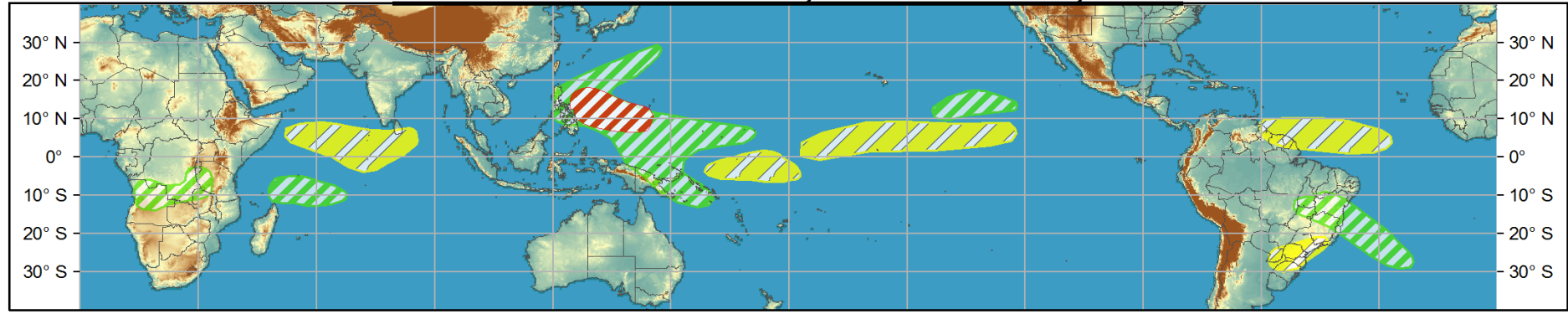
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Nov 29, 2017 - Dec 05, 2017



## Week 2 - Valid: Dec 06, 2017 - Dec 12, 2017



Produced: 11/28/2017  
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

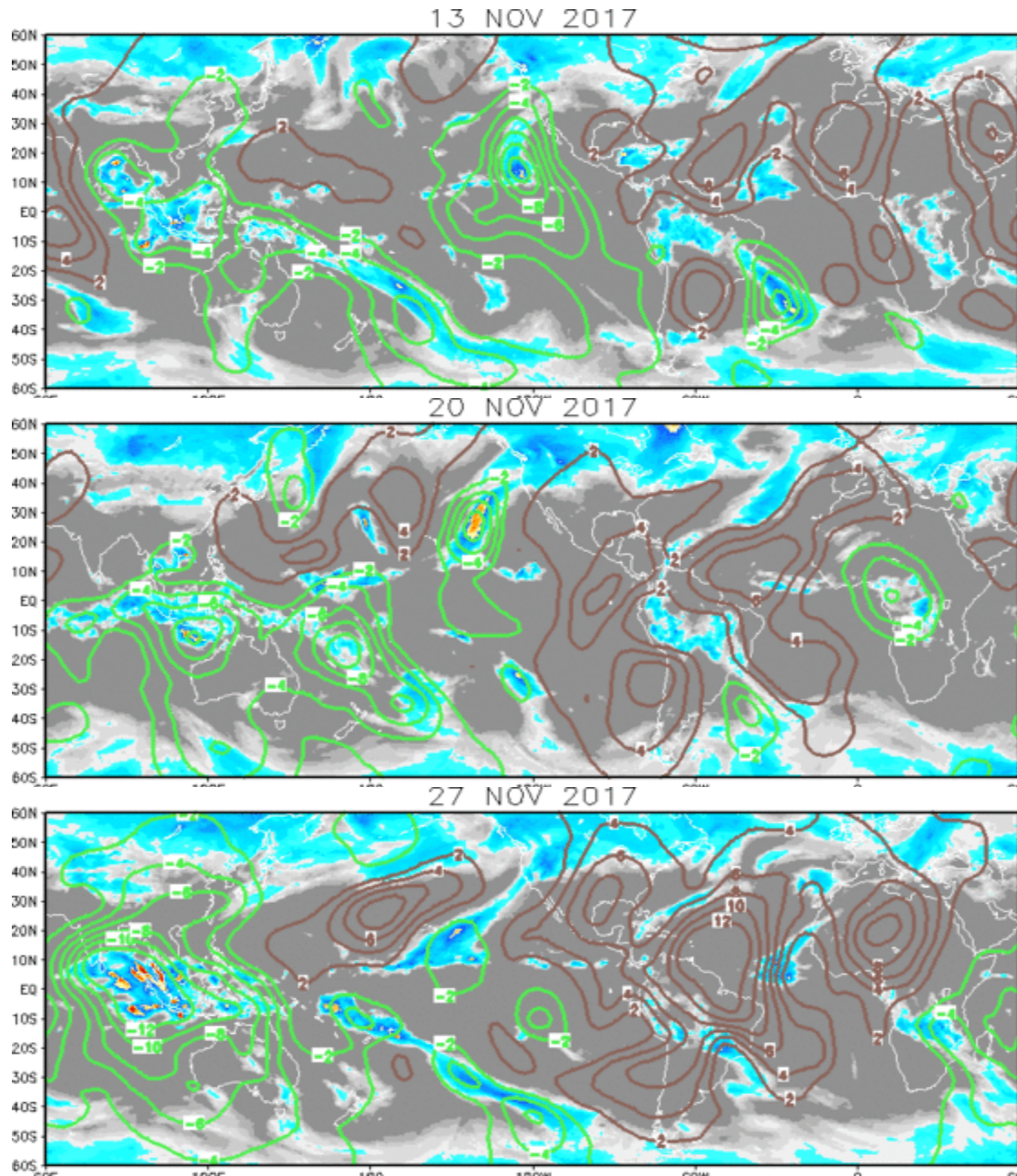
Green: Enhanced Divergence

Brown: Enhanced Convergence

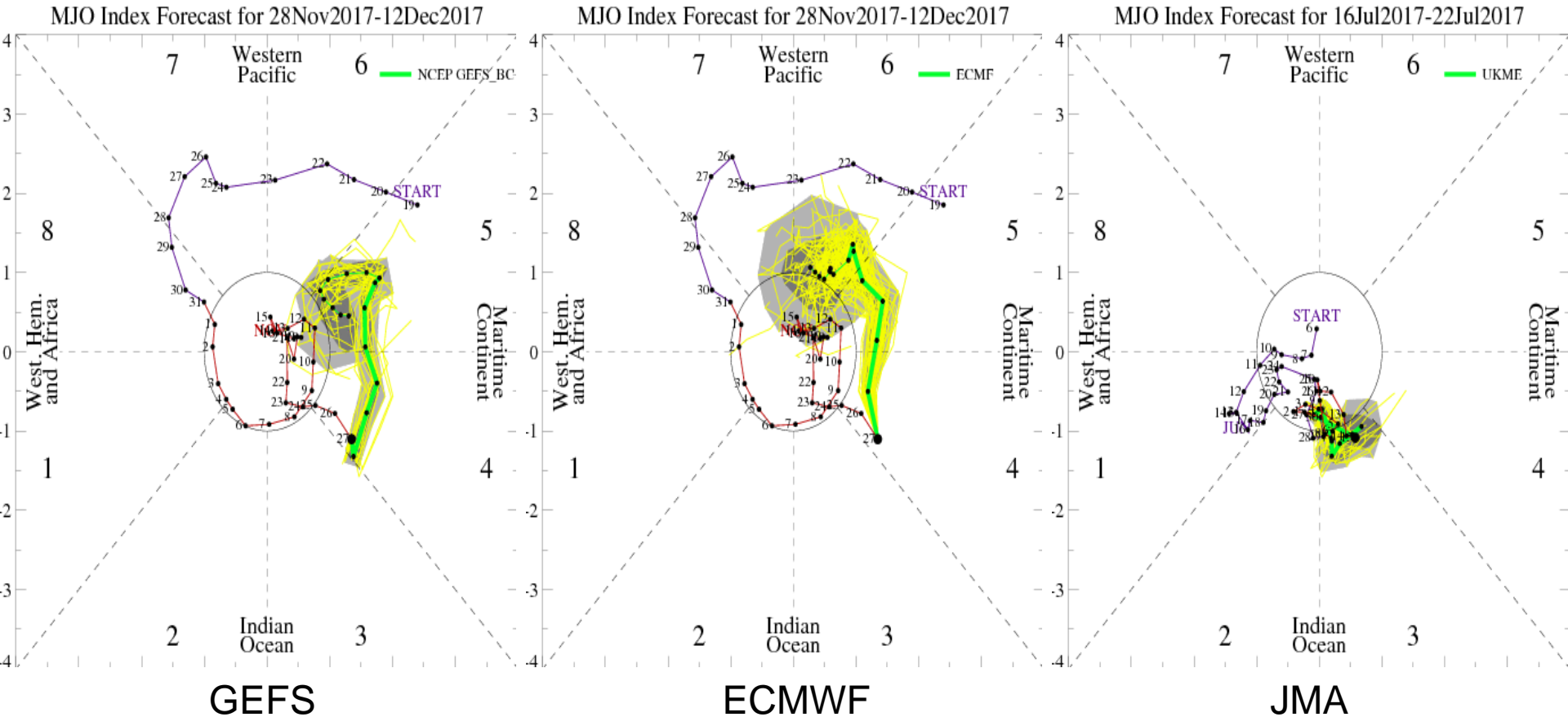
MJO signal largely broken down,  
with remnant enhanced phase  
over Maritime Continent.

Enhanced convection remains  
over Maritime Continent, Rossby  
wave evident West Pacific,  
Kelvin wave over Africa.

Projection attaining more Wave-1  
asymmetry, very enhanced  
convection over eastern I.O.

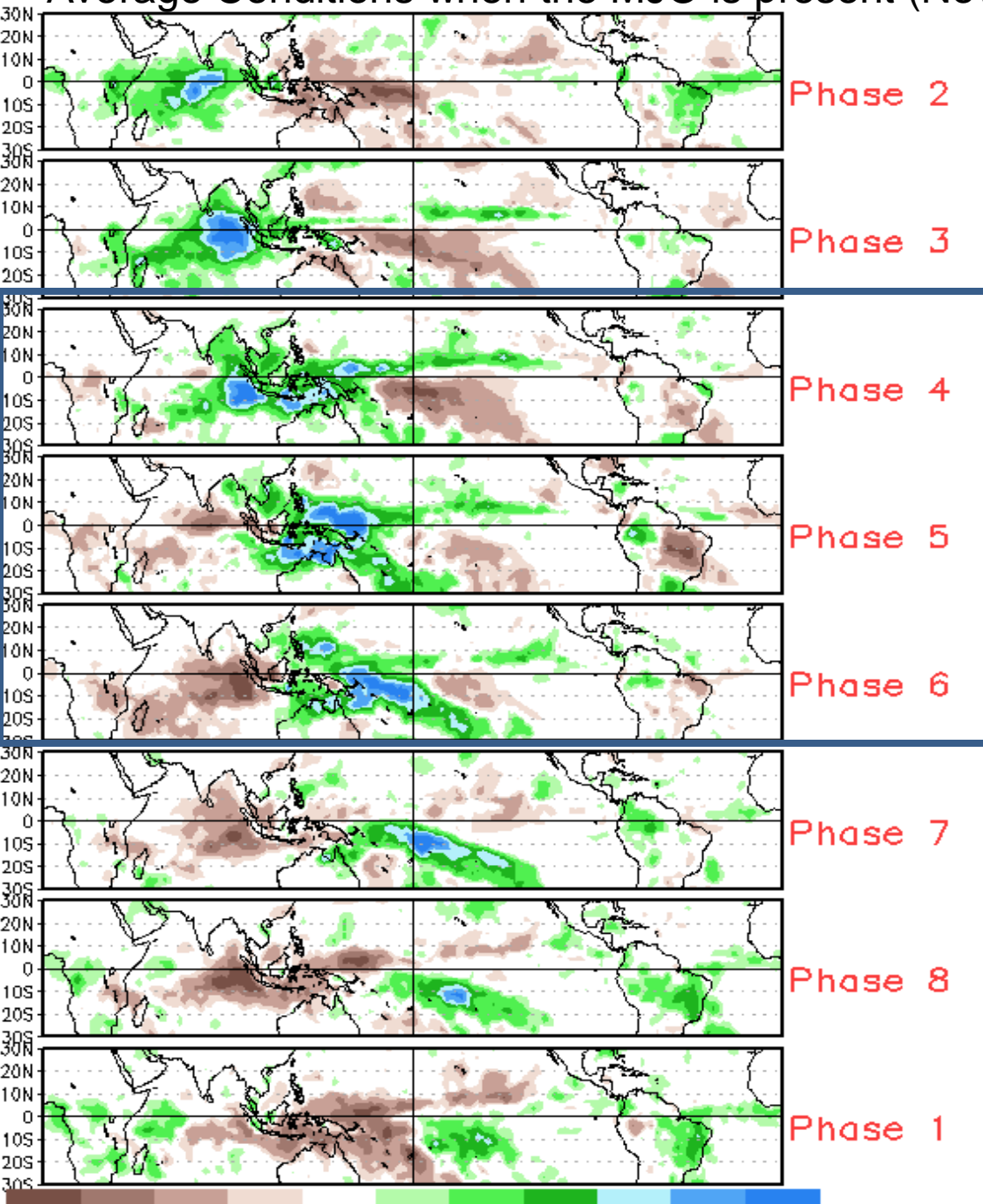


# MJO Observation/Forecast



Both the GEFS and ECMWF ensembles show rapid eastward propagation across the Maritime Continent (Kelvin wave phase speed), followed by a slower evolution over the eastern Maritime Continent (GEFS) or West Pacific (ECMWF).

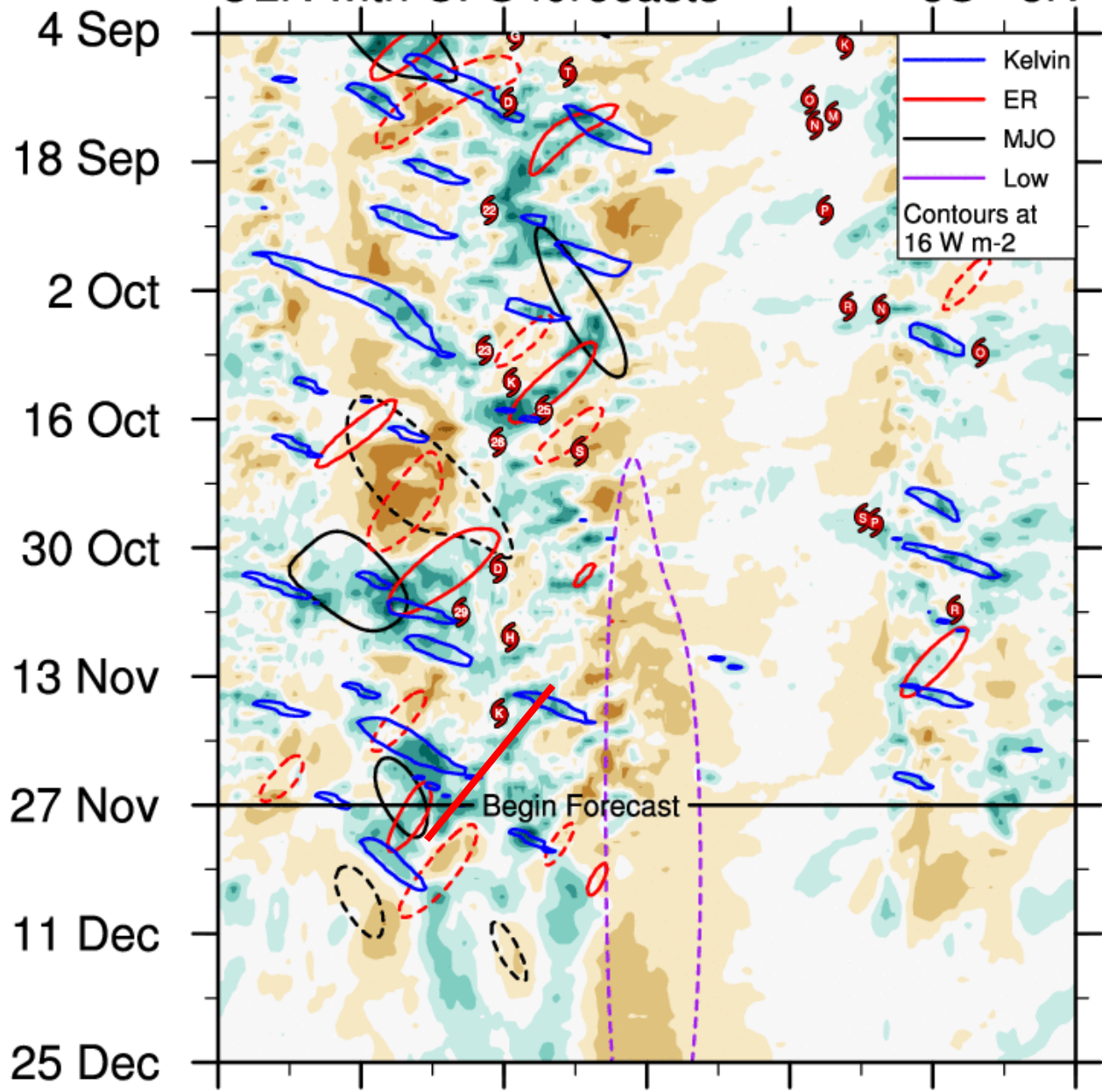
# Average Conditions when the MJO is present (Nov-Mar)



CAVEAT: These panels are representative of robust MJO events.

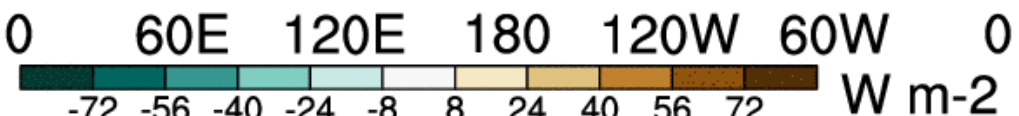
OLR with CFS forecasts

5S - 5N



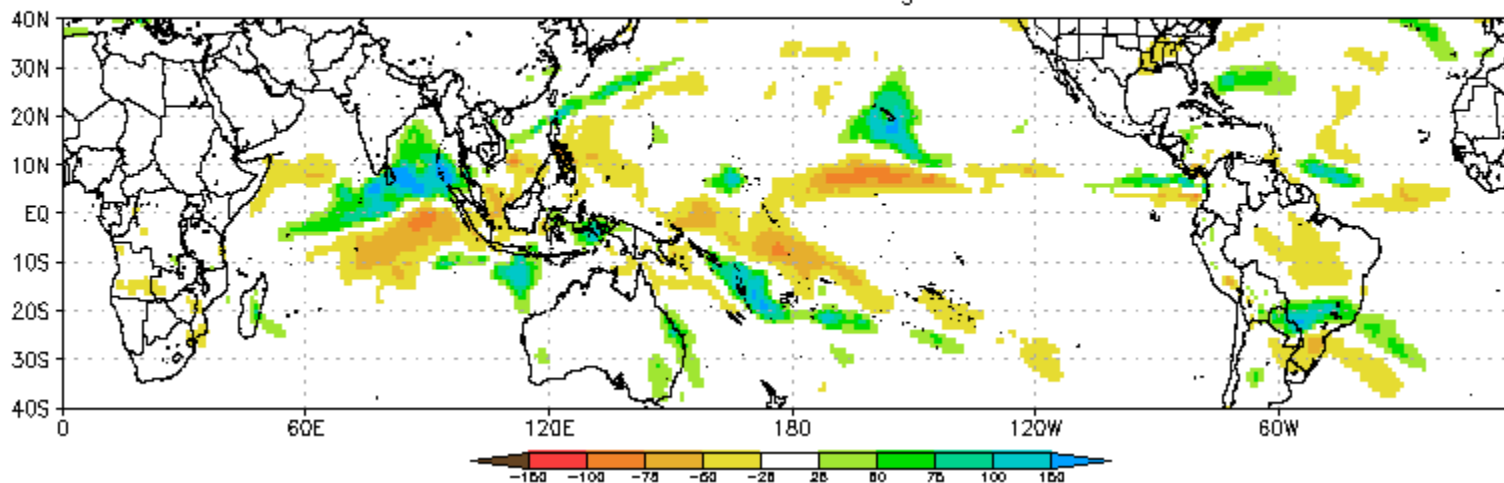
**Rossby wave** and **Kelvin waves** contributing to East I.O. convection

**Low-frequency pattern** continues

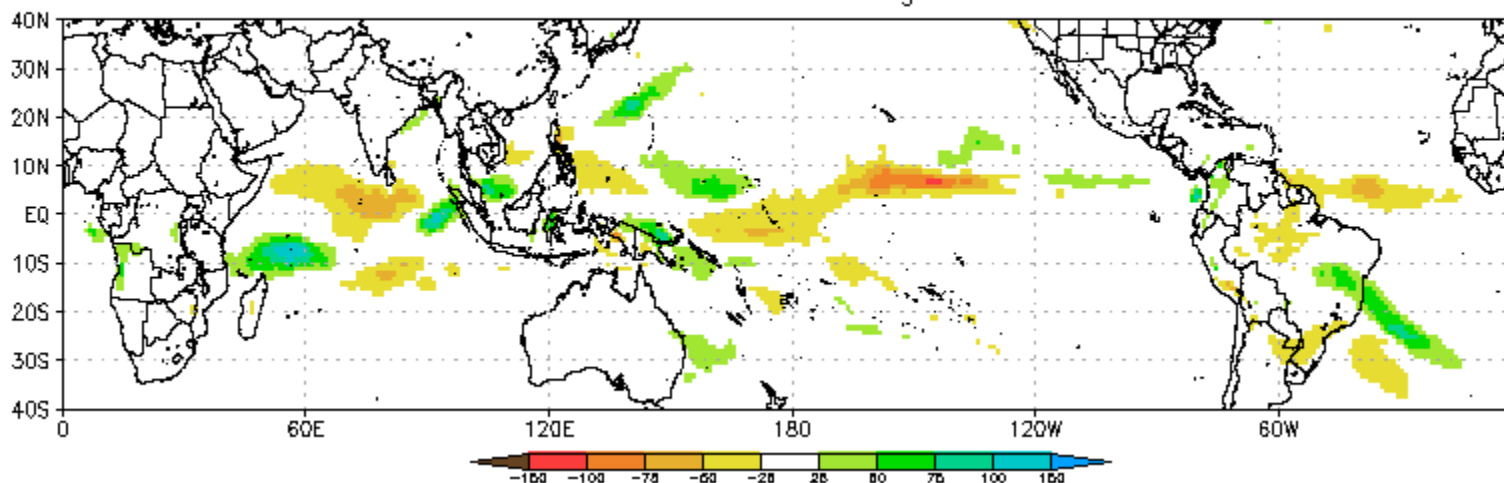




CFS Precipitation Anomalies (mm) Issued 27Nov2017  
Week-1 Forecast Ending 05Dec2017

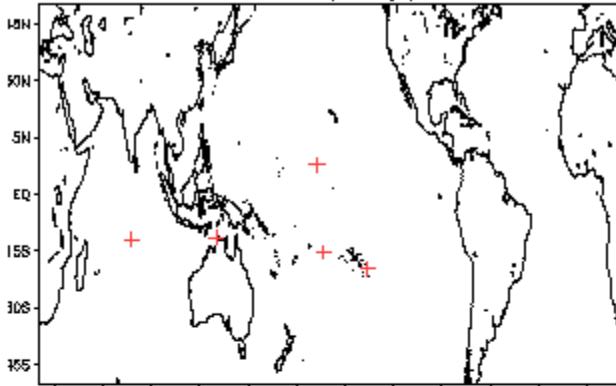


CFS Precipitation Anomalies (mm) Issued 27Nov2017  
Week-2 Forecast Ending 12Dec2017

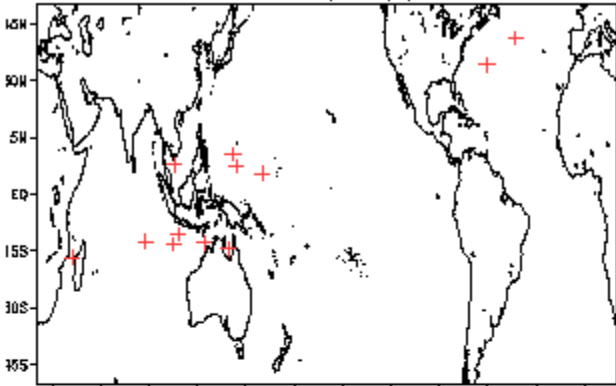


# December Tropical Storm Formation by MJO phase

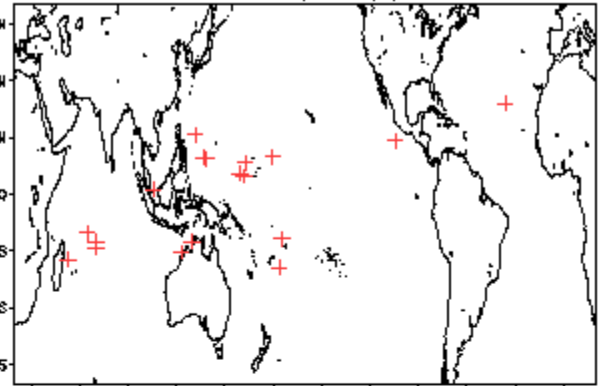
Phase 1 (48 days) 7 storms



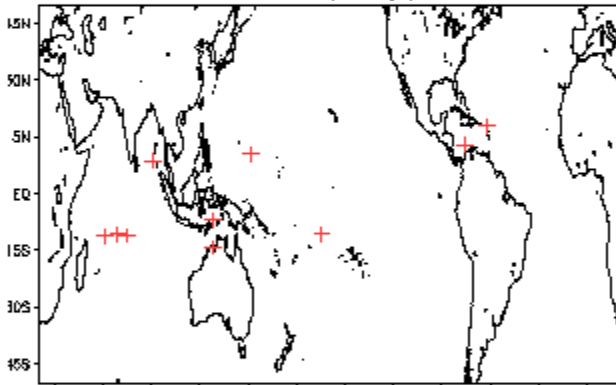
Phase 4 (72 days) 13 storms



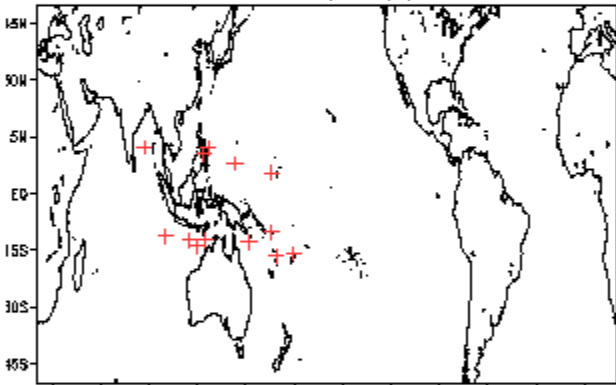
Phase 7 (103 days) 19 storms



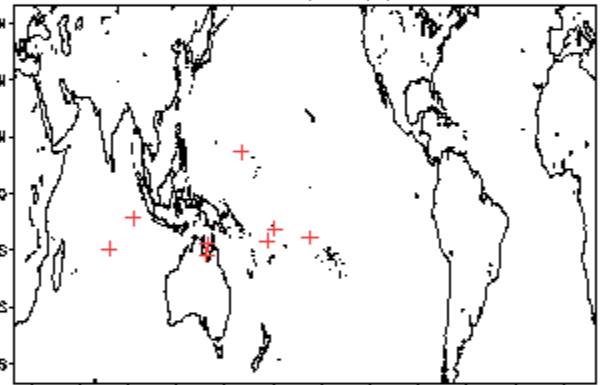
Phase 2 (67 days) 11 storms



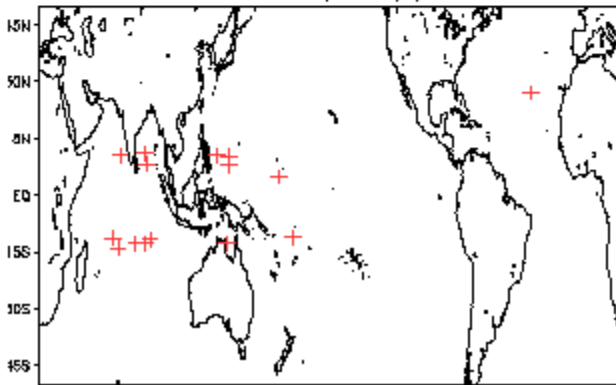
Phase 5 (73 days) 14 storms



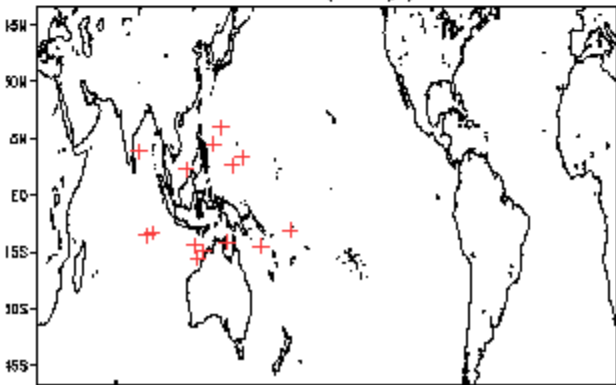
Phase 8 (76 days) 9 storms



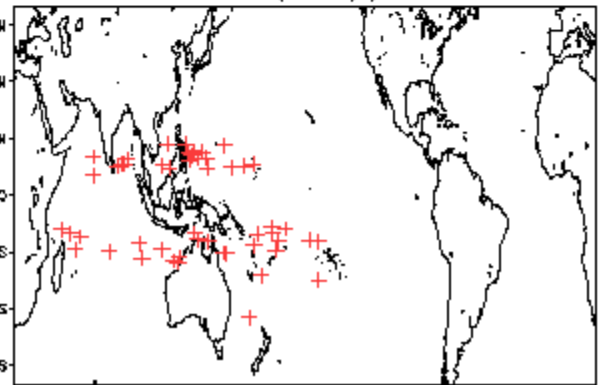
Phase 3 (101 days) 16 storms



Phase 6 (69 days) 15 storms



Null (416 days) 52 storms





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



1:00 pm EST  
Tue Nov 28 2017

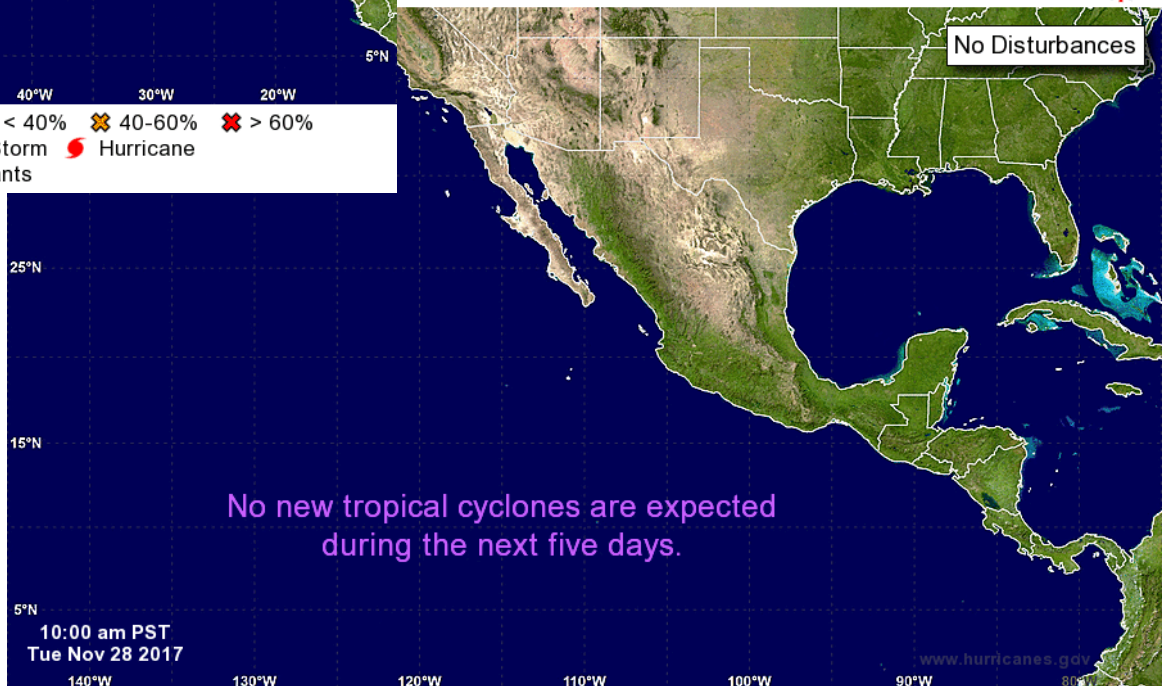
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone Remnants

# Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



10:00 am PST  
Tue Nov 28 2017

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

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

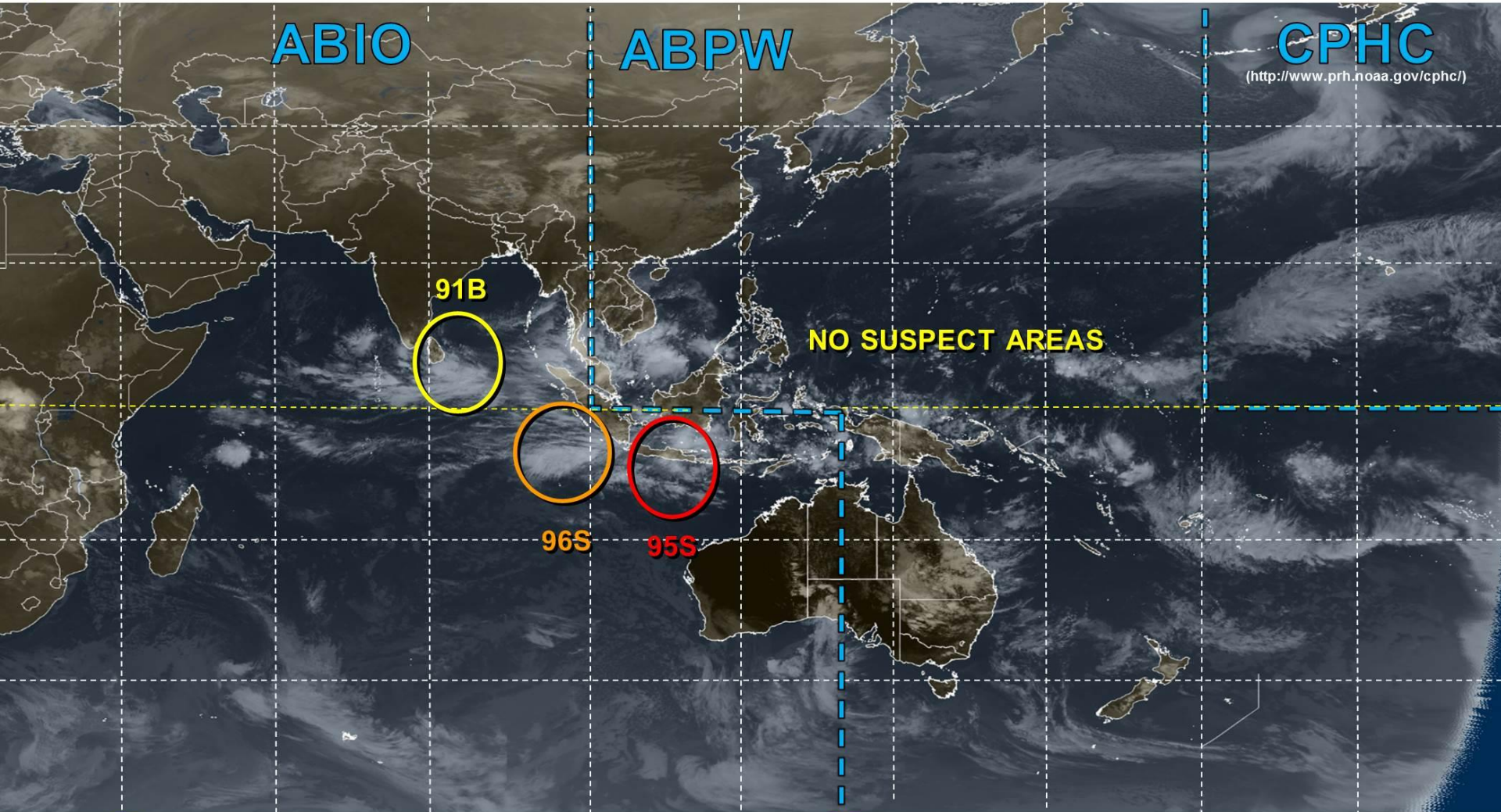
Post-Tropical Cyclone Remnants



# Tropical Cyclone Development Potential

IMAGE TIME 28/0500Z

(PRODUCT OF JTWC/SATOPS)



**CPHC**  
(<http://www.prh.noaa.gov/cphc/>)

**ABIO**

**ABPW**

**91B**

**NO SUSPECT AREAS**

**96S**

**95S**

**LOW**

TC formation unlikely within 24 hours

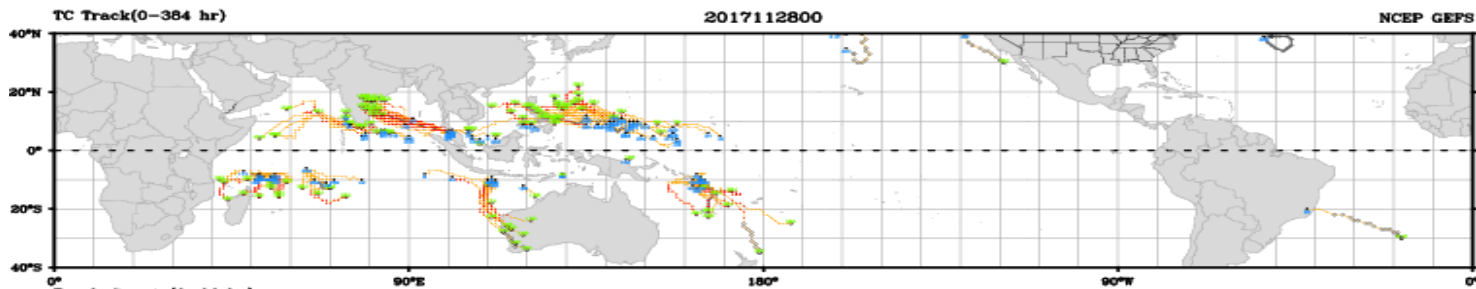
**MEDIUM**

TC development likely, but expected to occur beyond 24 hours

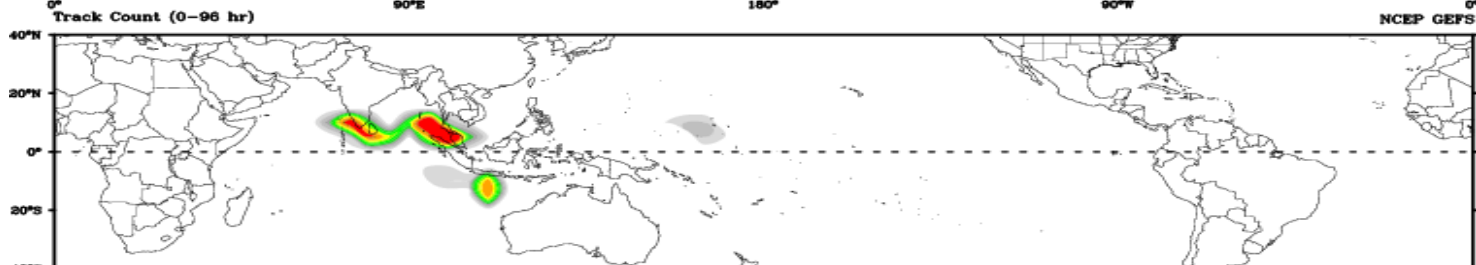
**HIGH**

TC development likely within 24 hours (Reference TCFA)

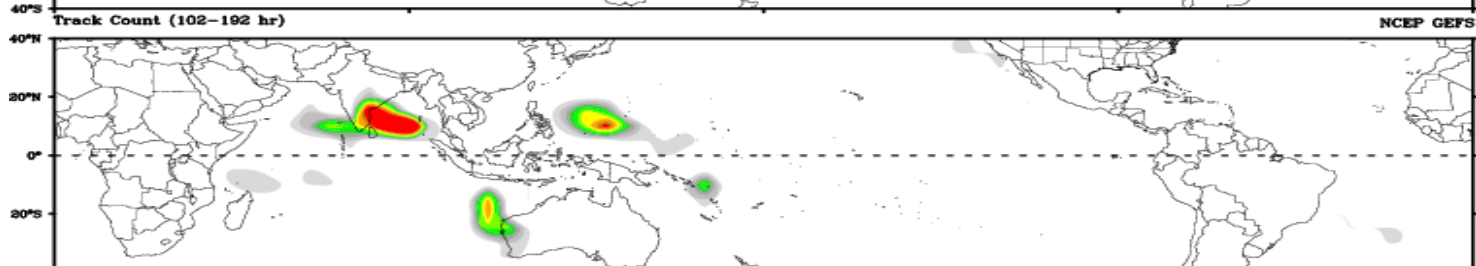
**Tropical Cyclone (Reference Warning)**



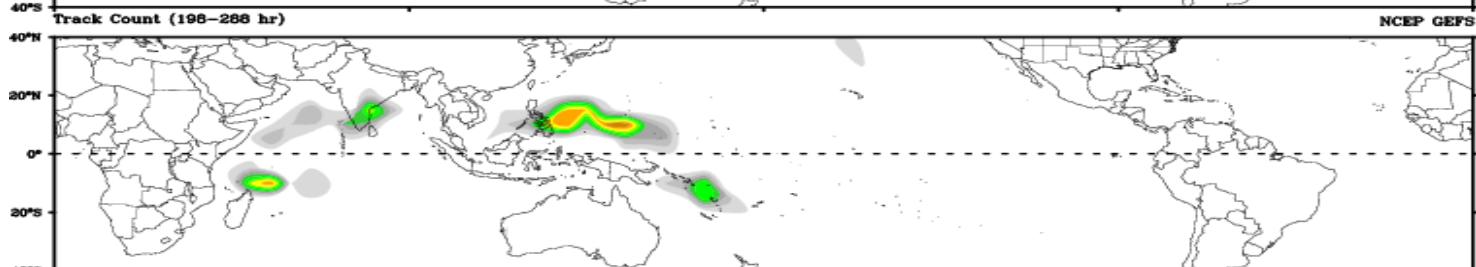
Days 1-4



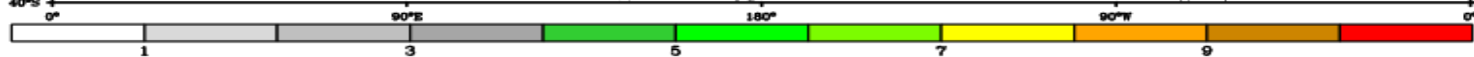
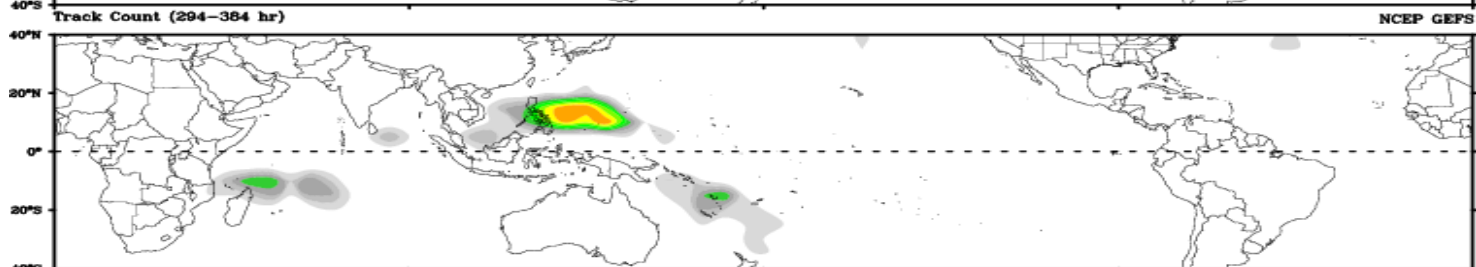
Day 5-8



Day 9-12



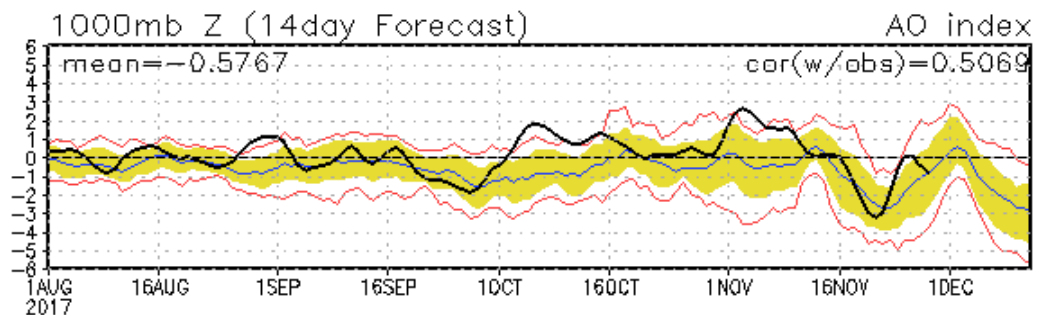
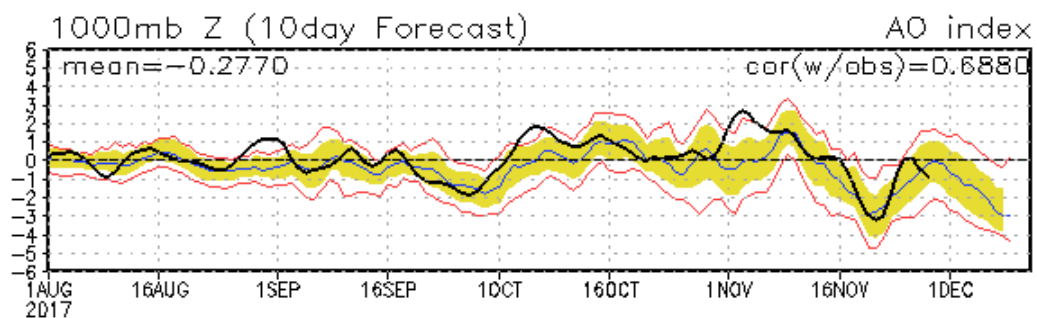
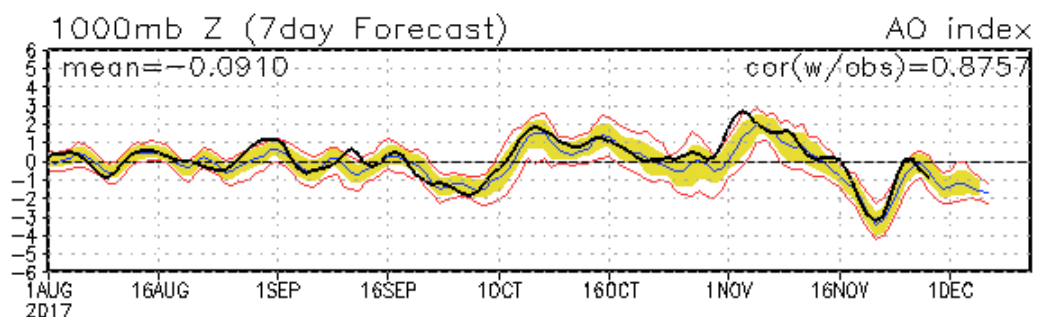
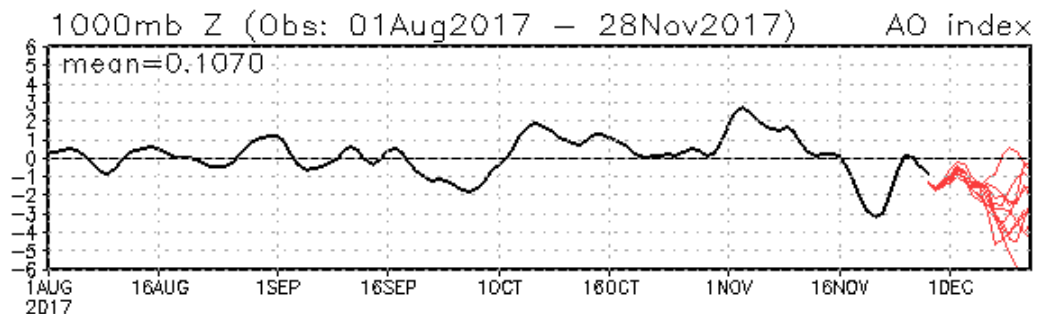
Day 13-15



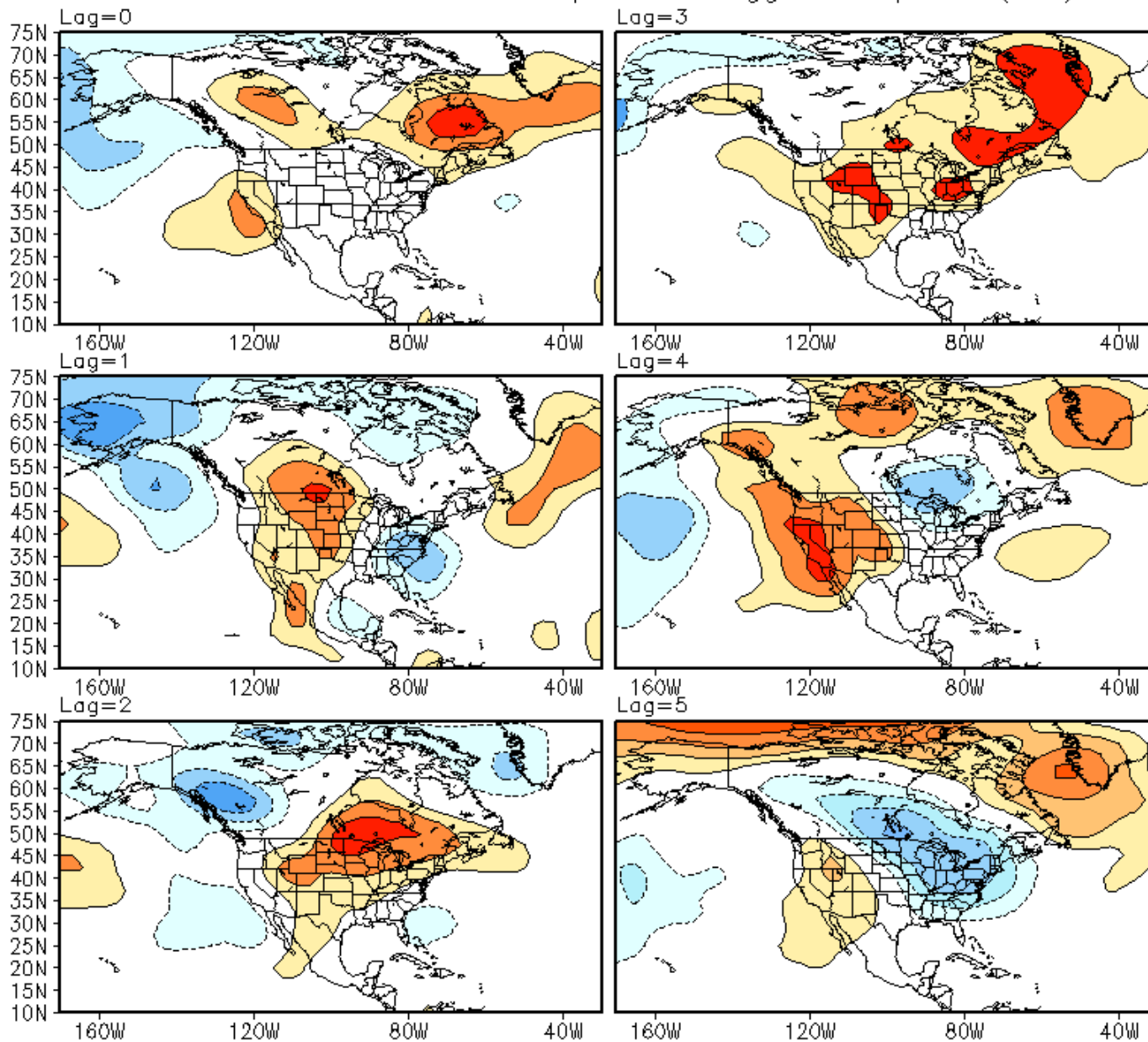
Track Count

# Connections to U.S. Impacts

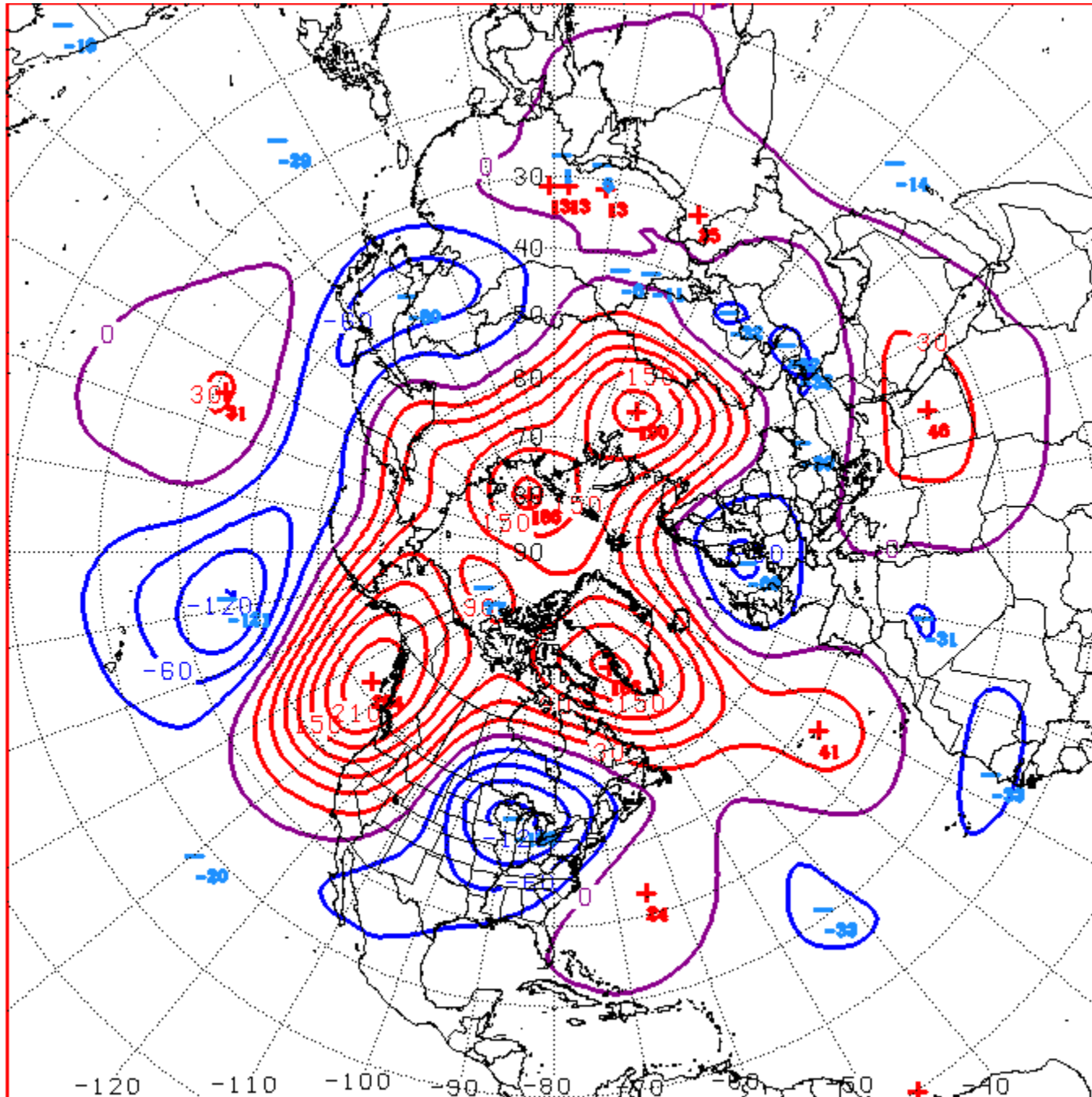
## AO: Observed & ENSM forecasts



# RMM Phase 4 850-hPa Temperature Lagged Composite (and)

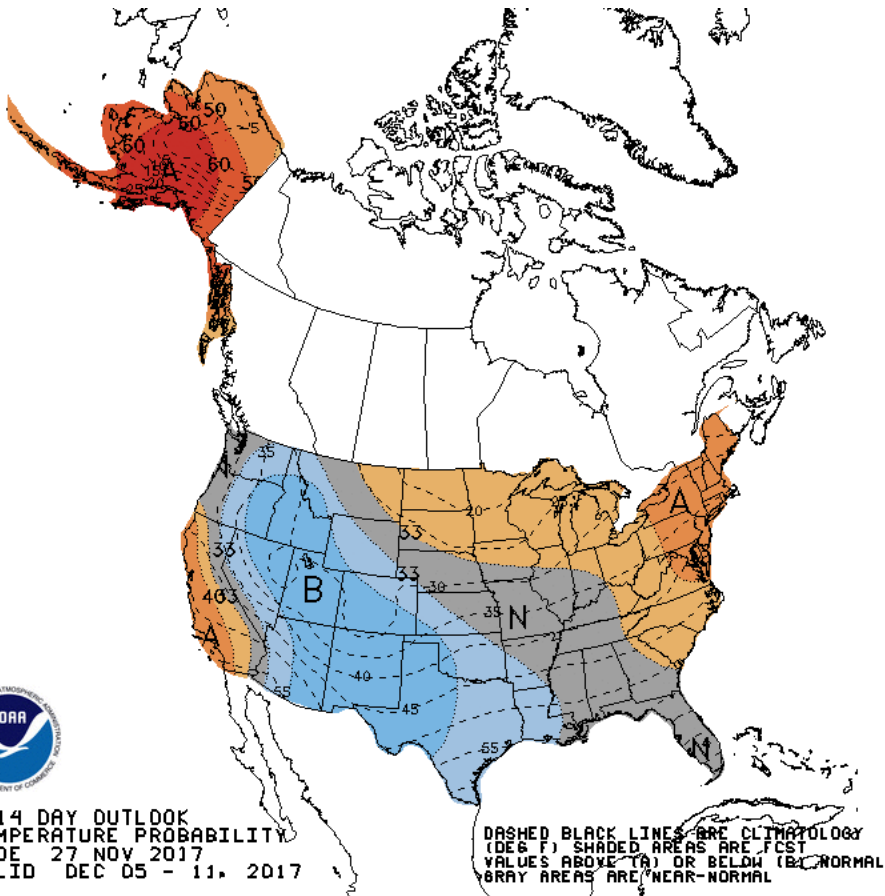






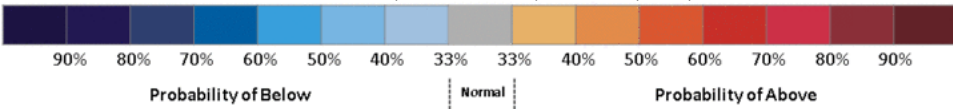
D+11 500 MB ANOMALIES FROM 06Z ENSM  
 CPC MAP MADE NOV 28 2017 1159 UTC CNTD DEC 09 2017

# Week 2 – Temperature and Precipitation

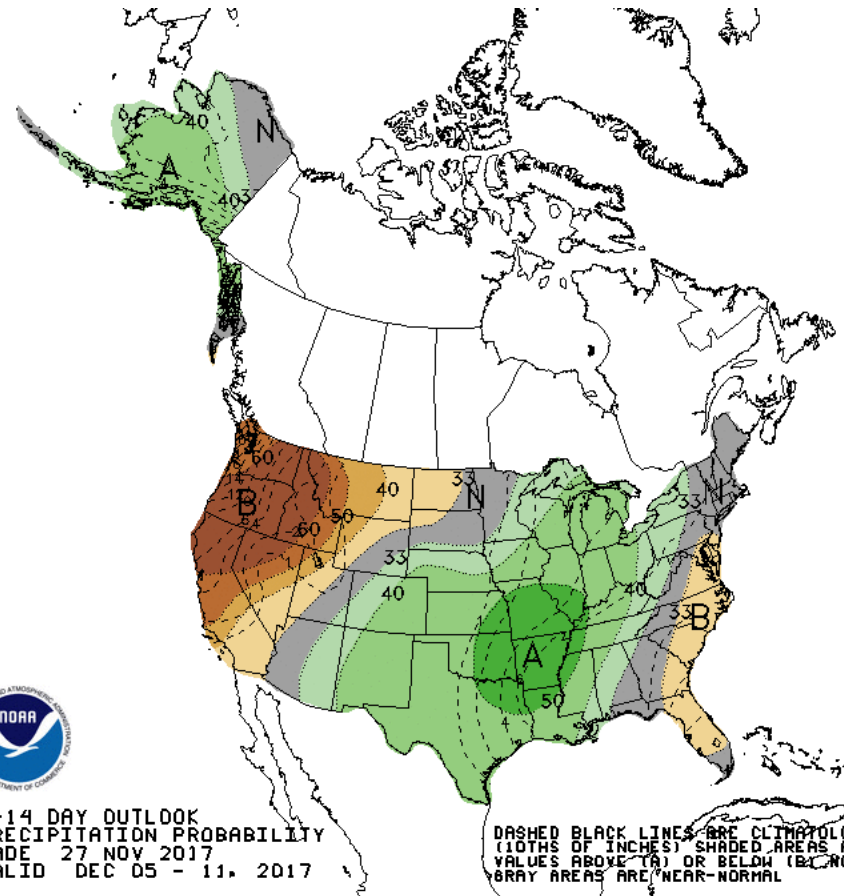


8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 27 NOV 2017  
VALID DEC 05 - 11, 2017

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

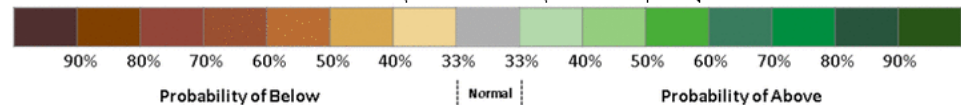


NOTE: Due to extremely progressive pattern change, today's (not yet released) outlooks are quite different. Dry Plains, wet along Gulf Coast/South Atlantic, cold in the East (centered MS Valley)



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 27 NOV 2017  
VALID DEC 05 - 11, 2017

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

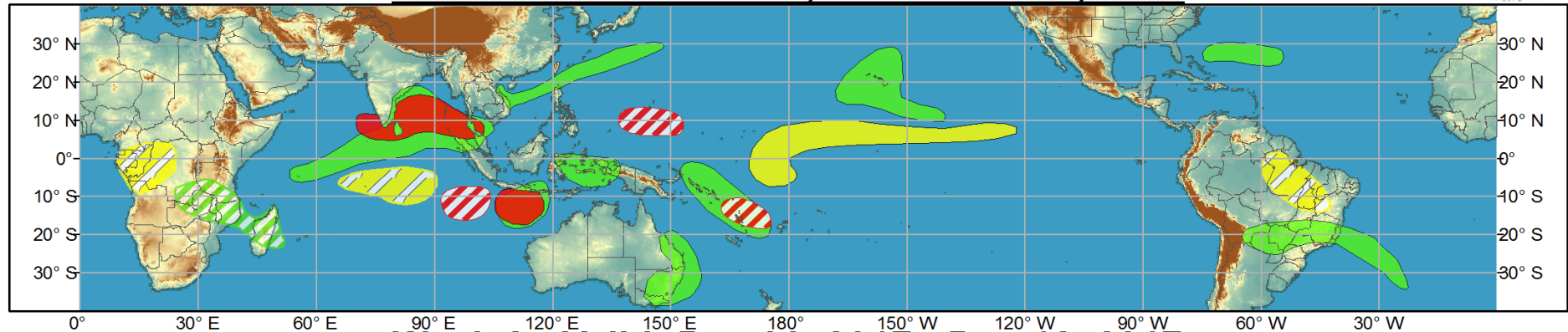




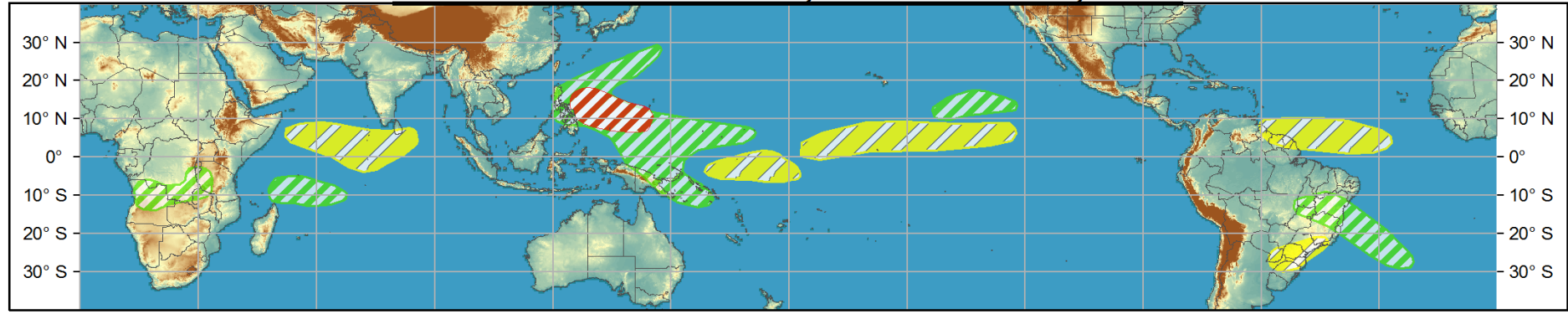
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