

# Global Tropics Hazards And Benefits Outlook

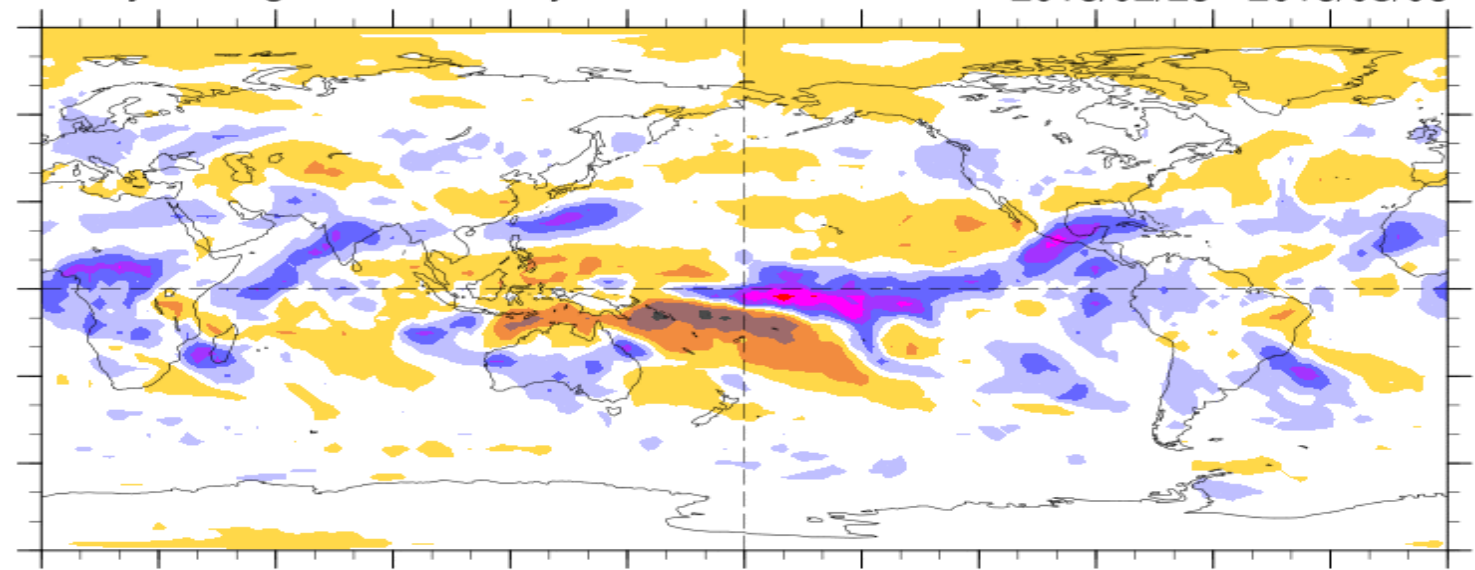
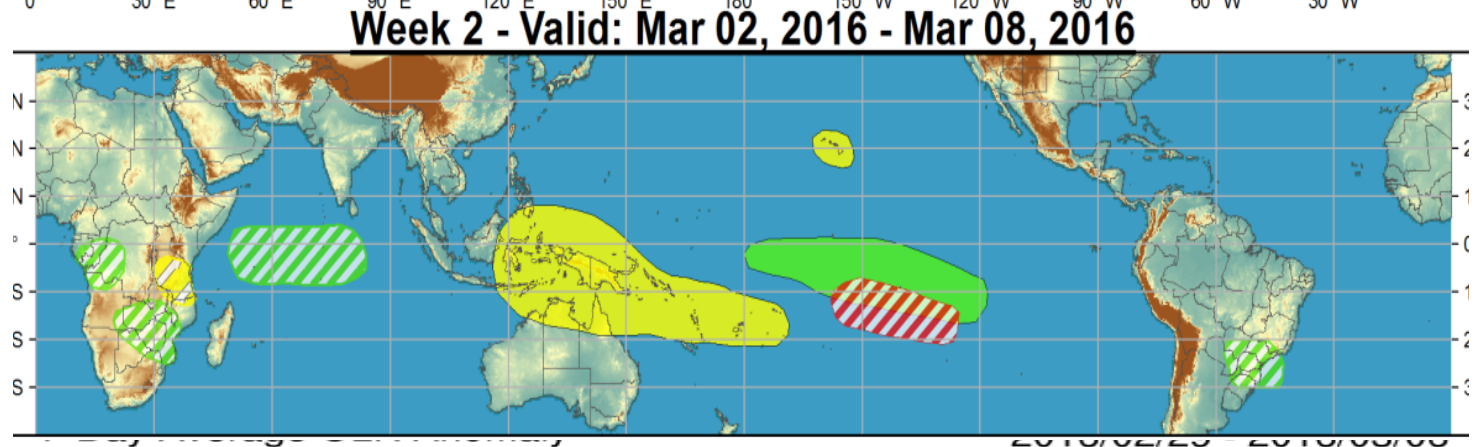
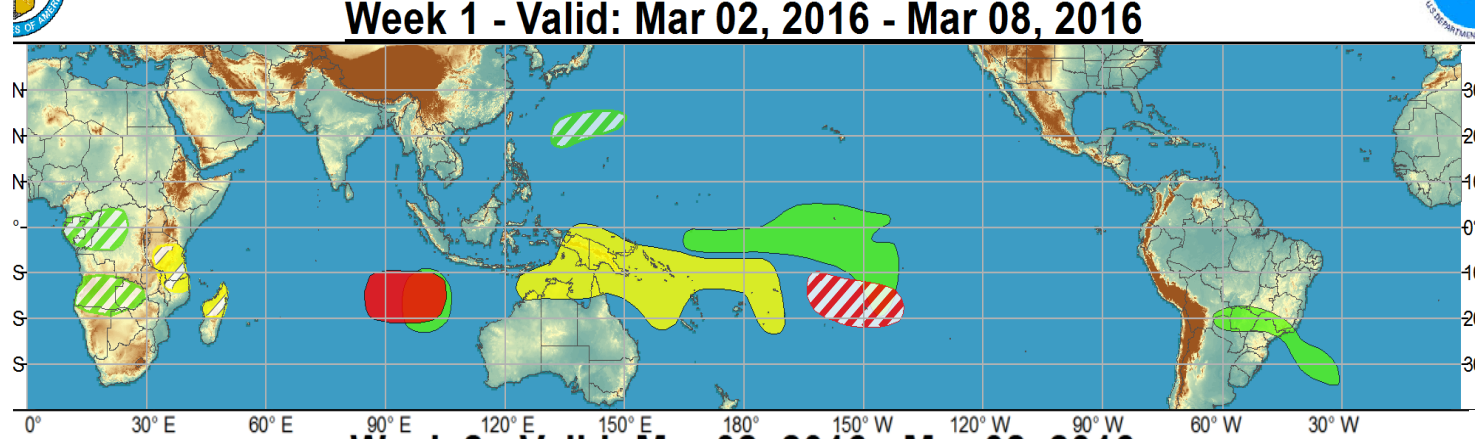
March 8, 2015

Matthew Rosencrans

## Outline

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

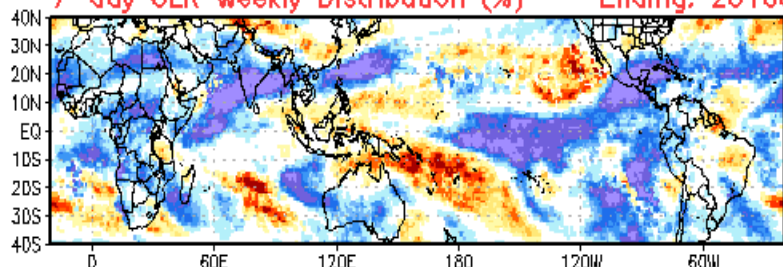
# Outlook Review



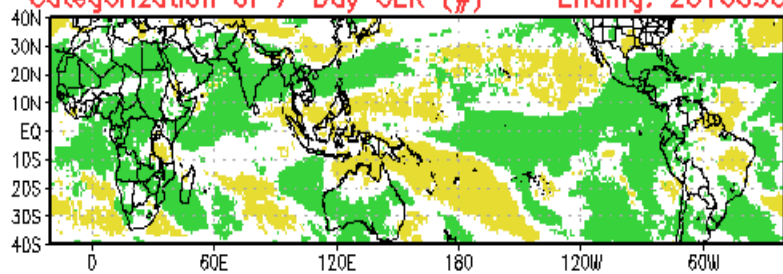
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

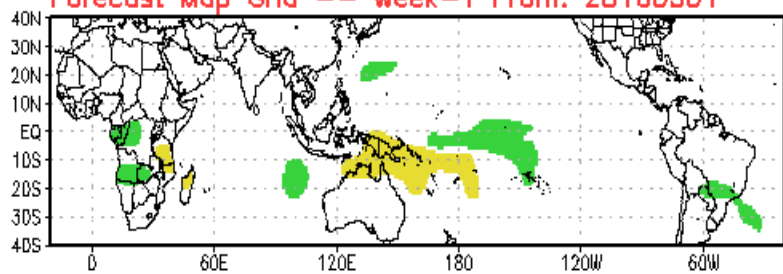
7-day OLR Weekly Distribution (%) -- Ending: 20160308



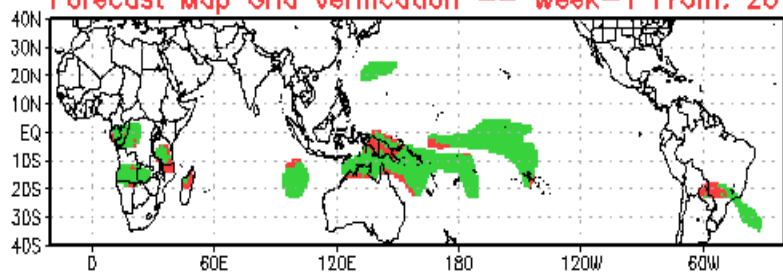
Categorization of 7-Day OLR (#) -- Ending: 20160308



Forecast Map Grid -- Week-1 From: 20160301

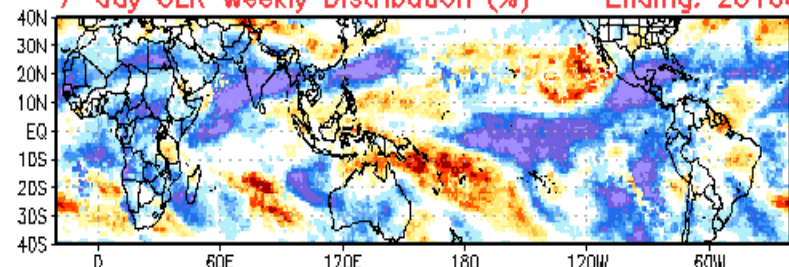


Forecast Map Grid Verification -- Week-1 From: 20160301

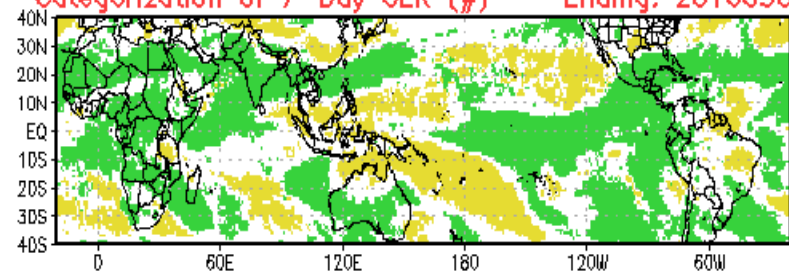


Hit: Green, Miss: Red  
Heidke Skill Score: 77.7046

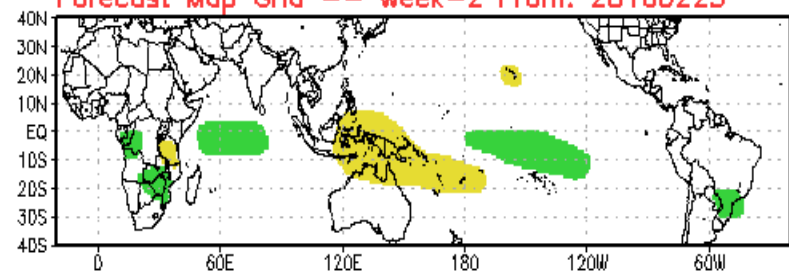
7-day OLR Weekly Distribution (%) -- Ending: 20160308



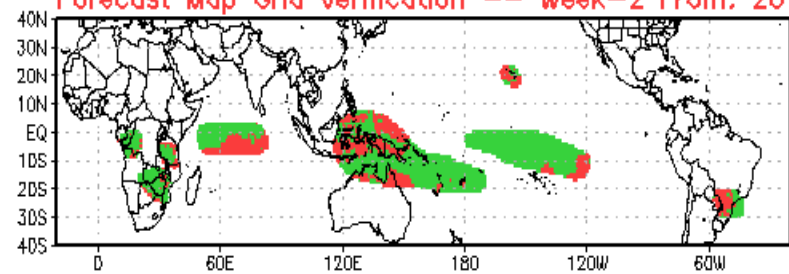
Categorization of 7-Day OLR (#) -- Ending: 20160308



Forecast Map Grid -- Week-2 From: 20160223



Forecast Map Grid Verification -- Week-2 From: 20160223



Hit: Green, Miss: Red  
Heidke Skill Score: 55.5611

# Synopsis of Climate Modes

## ENSO:

- Current: [El Niño Advisory](#)
- Nino 3.4 – 1.9C - down from 2.1, continuing a down trend. Nino 1.2 – uptick
- Outlook: A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.

## MJO and other subseasonal tropical variability:

- MJO indices indicate the enhanced convective phase over Africa.
- Most dynamical model MJO index forecasts depict some eastward movement and a weakening signal through Week-1. Model solution divergence increases dramatically after that, with some indicating no signal versus others with an intensification over the Maritime Continent.

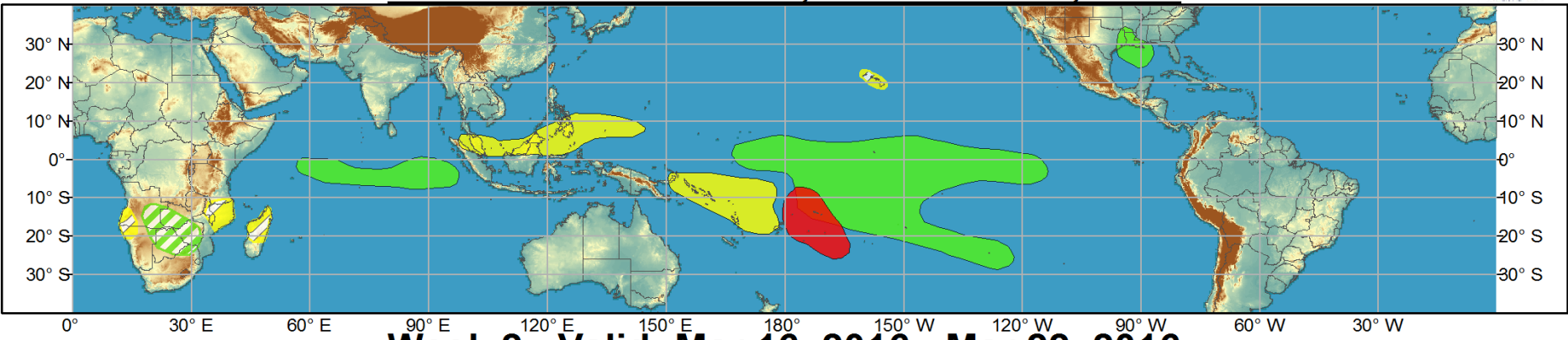
## Extratropics:

- The extended range temperature and precipitation forecasts for the U.S. are likely to be impacted, as the MJO is likely to destructively interfere with the El Niño in Week-2.

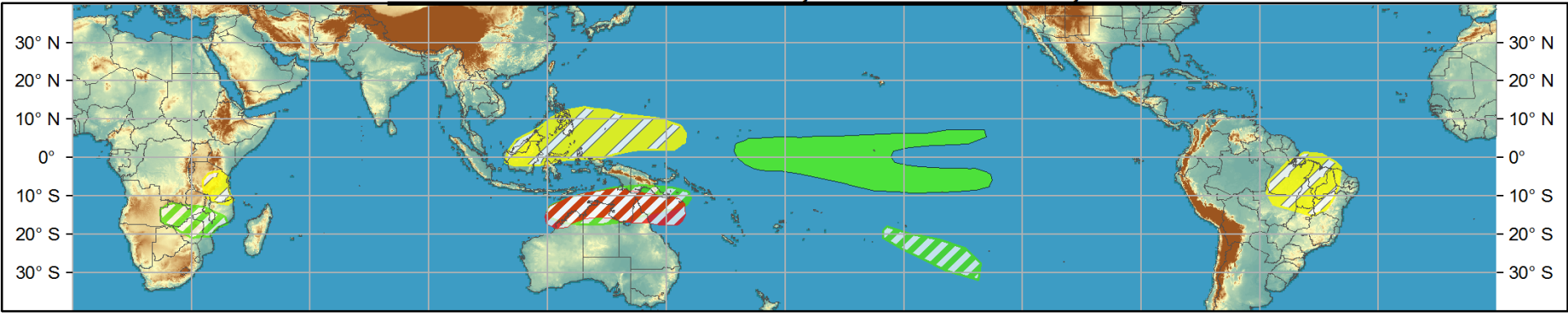


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Mar 09, 2016 - Mar 15, 2016



## Week 2 - Valid: Mar 16, 2016 - Mar 22, 2016



**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: 03/08/2016

Forecaster: Rosencrans

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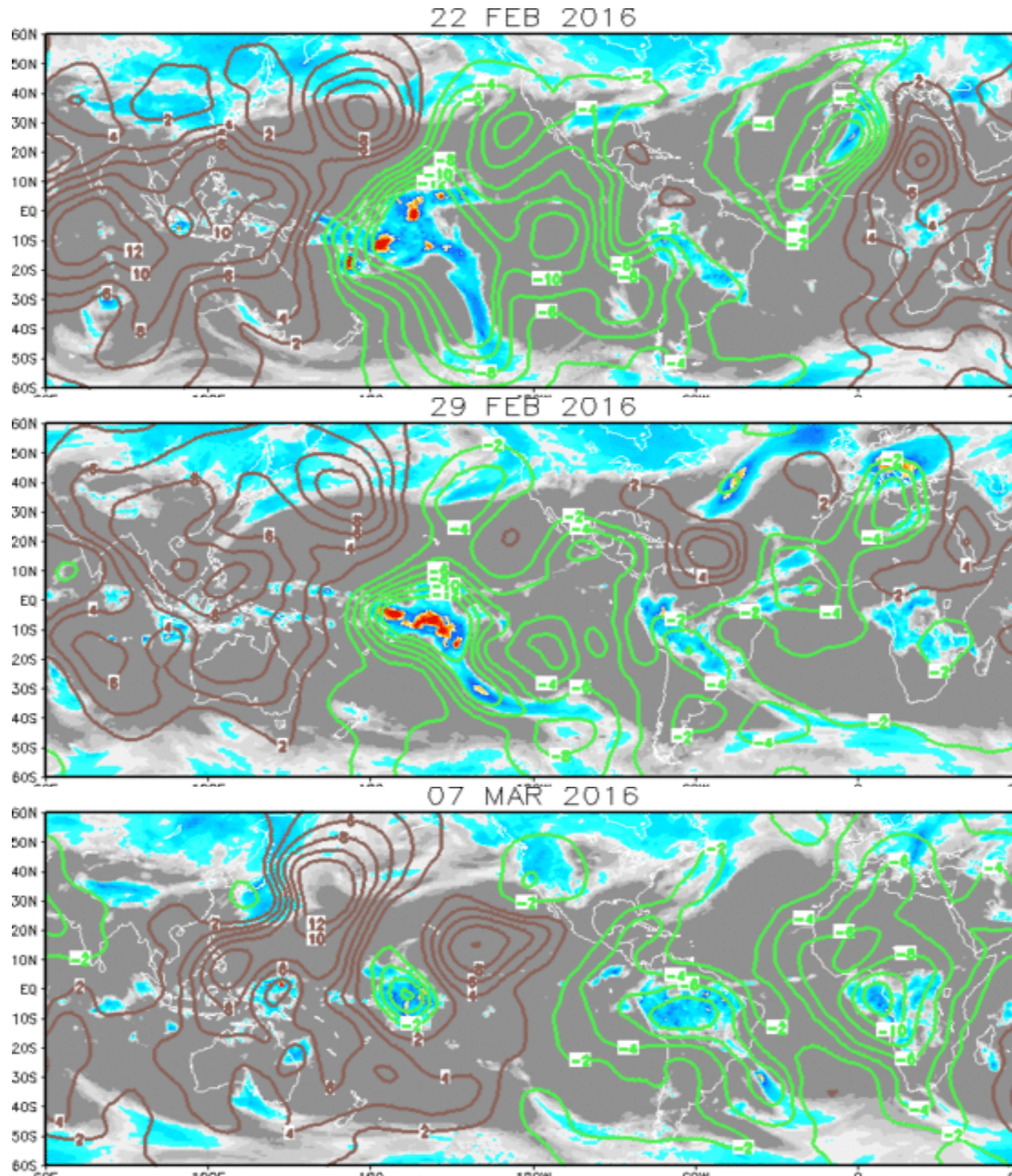
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence    Brown: Enhanced Convergence

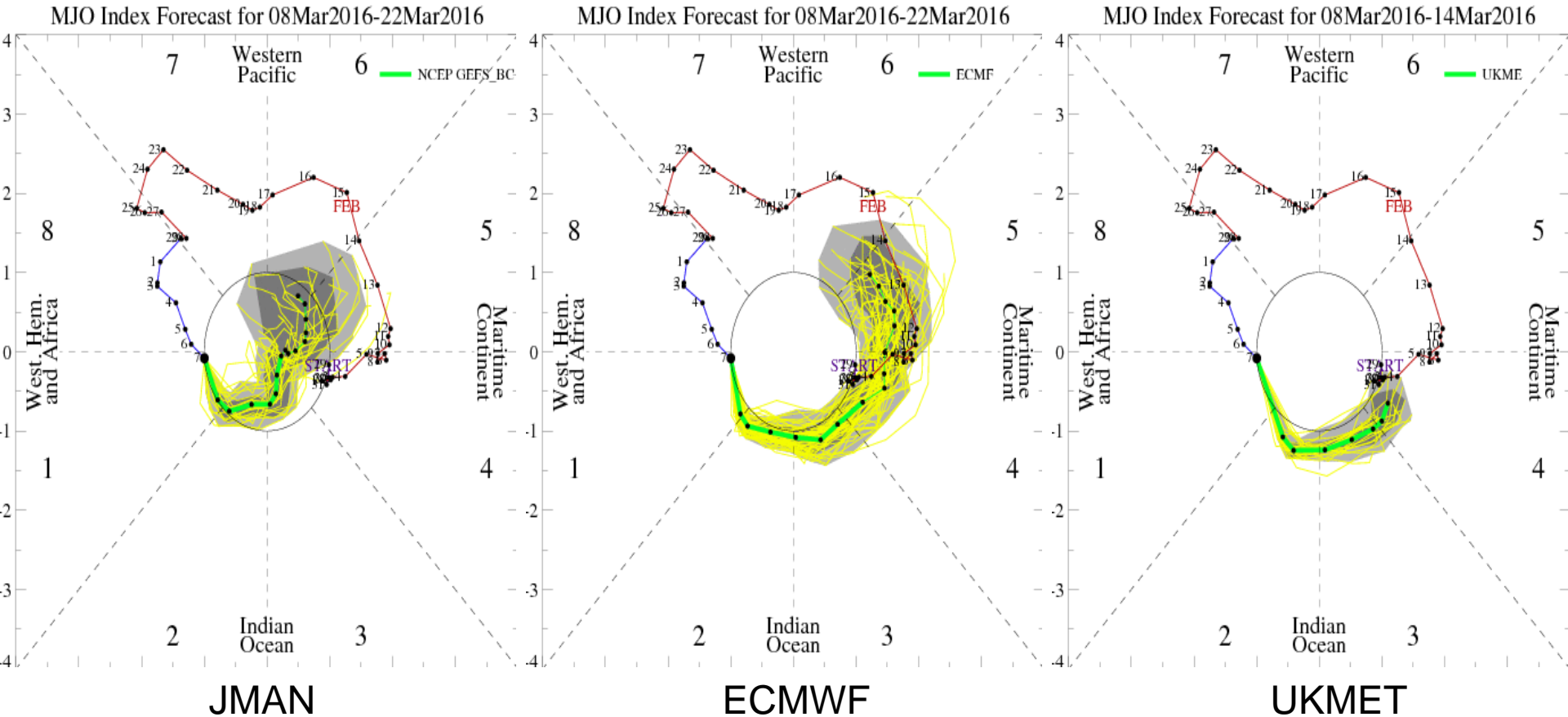
Base state  
emerged again.

MJO and ENSO  
destructively  
interfering.

Interference  
likely to  
increase.



# MJO Observation/Forecast

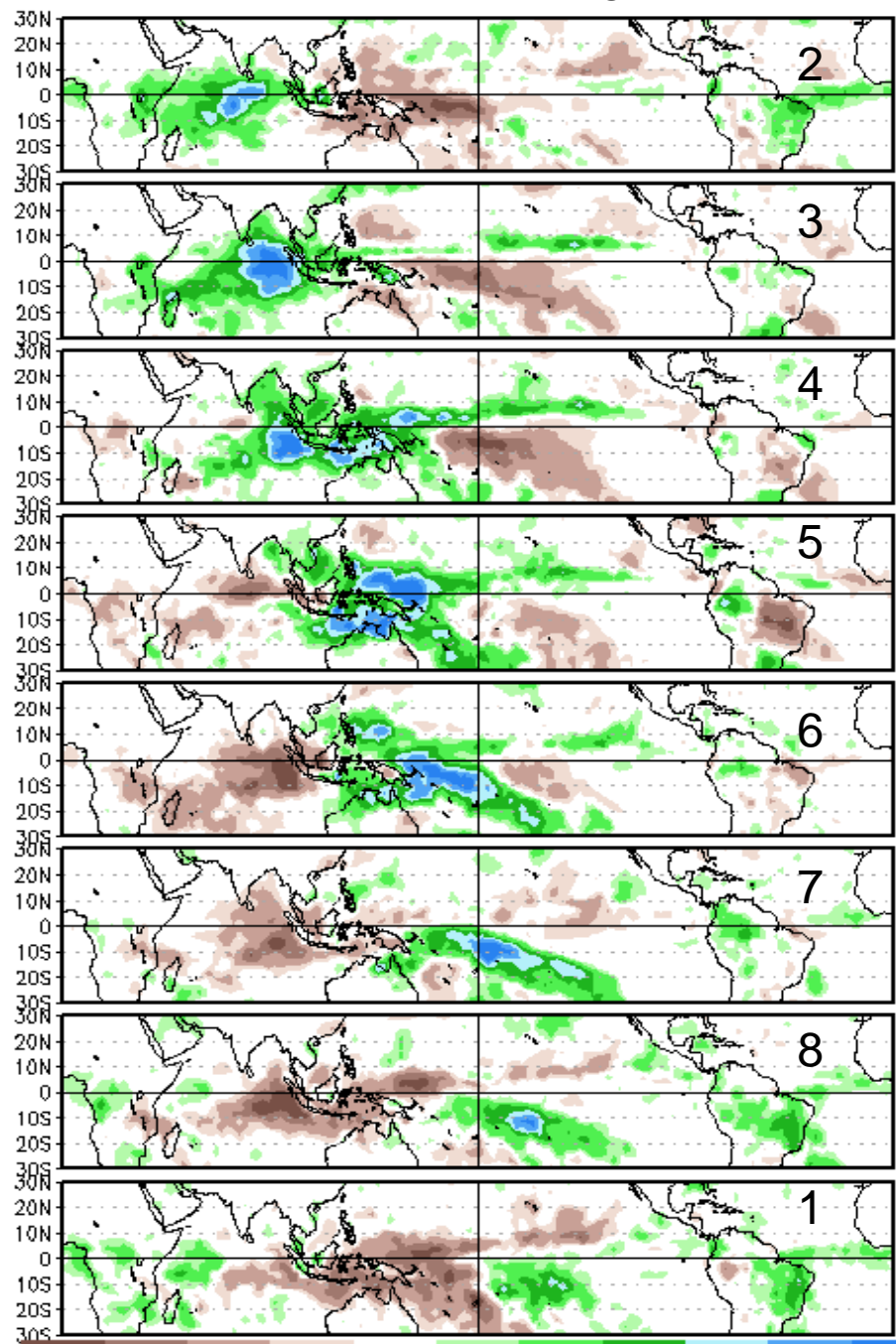


Wheeler-Hendon based analyses of model forecasts indicate an signal moving into the Indian Ocean.

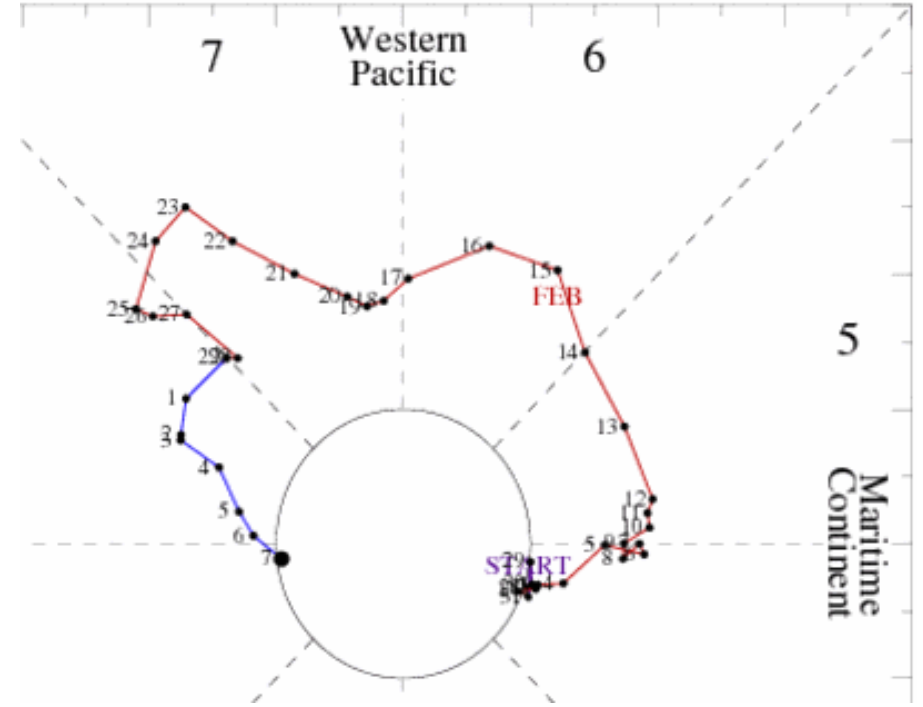
Most models depict an ongoing signal, but some depict weakening.

Uncertainty about emergence in phase 4/5 is high.

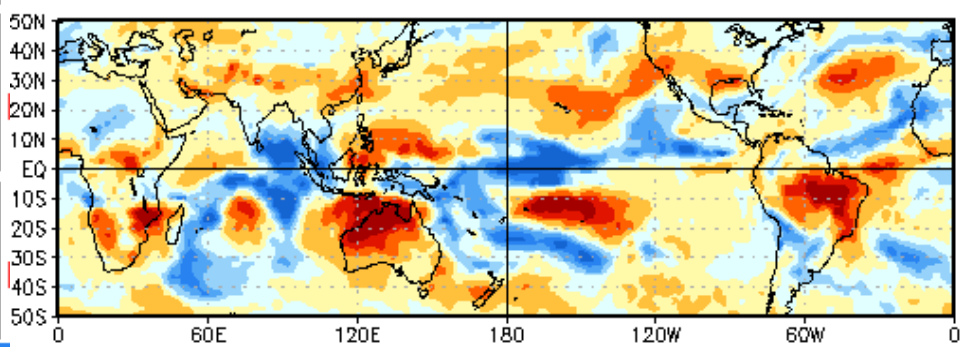
# Average Conditions when the MJO is present



[RMM2] Phase Space for 28-Jan-2016 to 07-Mar-2016

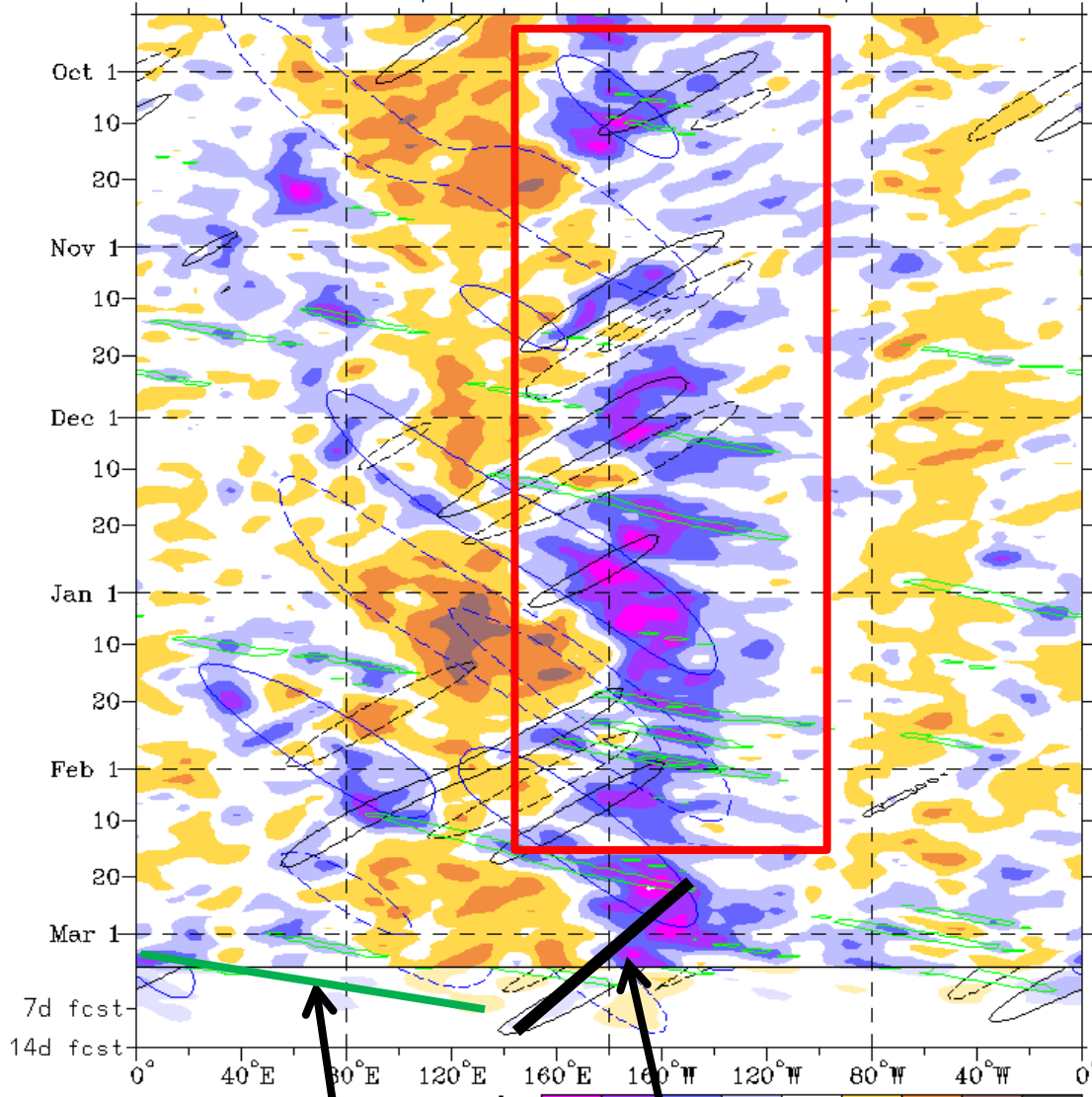


OLR Anomalies  
5 FEB 2016 to 14 FEB 2016





Real-time filtering superimposed upon 1-2-1filt, R21, OLR Anoms  
MJO blue CINT=10; n1ER black CINT=10; Kelvin green CINT=15  
Negative contours solid, positive dashed (excluding Kelvin)  
21-Sep-2015 to 7-Mar-2016 + 14 days

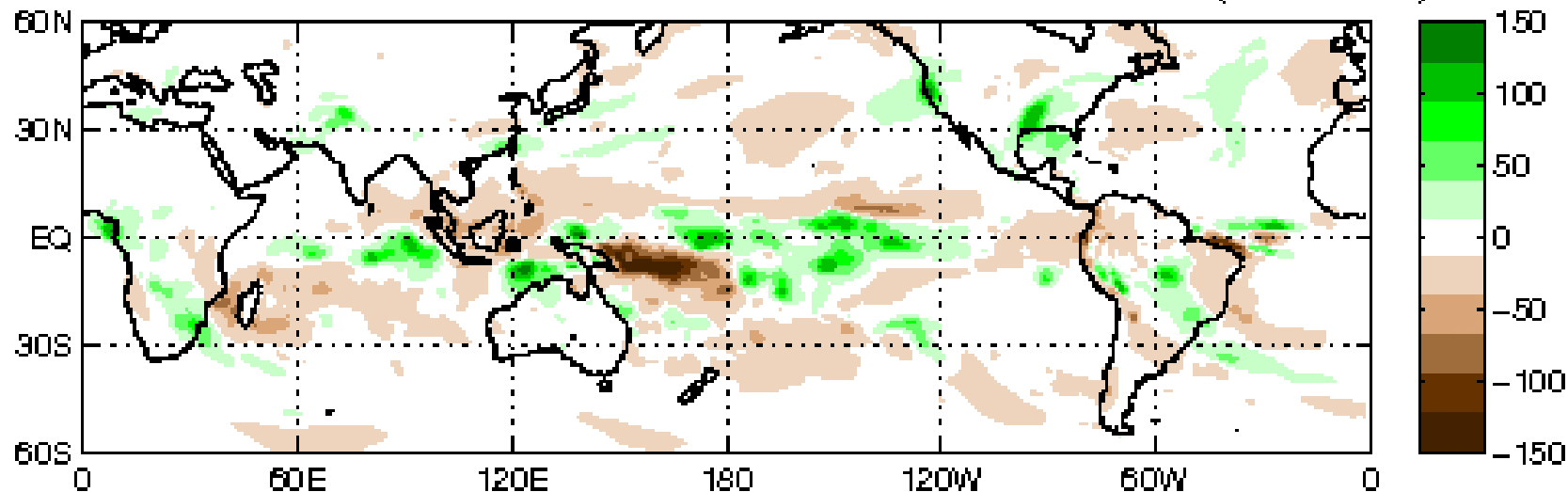


Low frequency to heavily influence the pattern, but MJO likely to interfere.

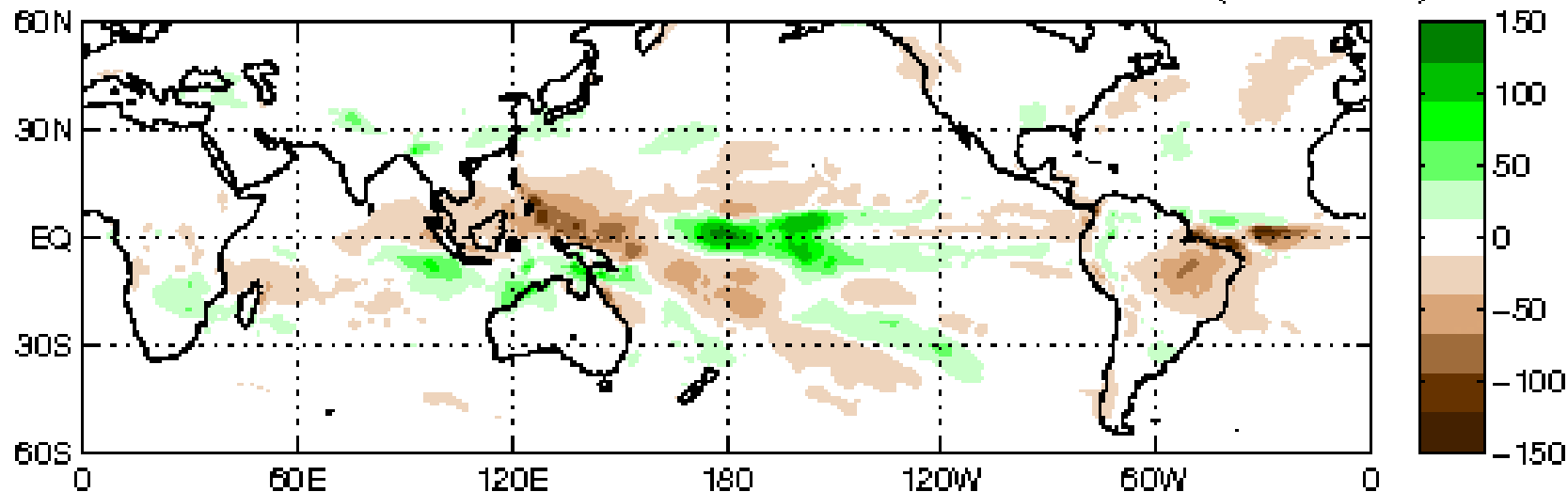
Rossby Wave and Kelvin wave recently aligned with El Nino. Not going to remain so, but ENSO likely the strongest signal.

Kelvin wave over Indian Ocean  
Rossby Wave over Central Pacific

**CFS: Anom. PREC Week: 1: 09-Mar-2016 to 15-Mar-2016 (mm/week)**

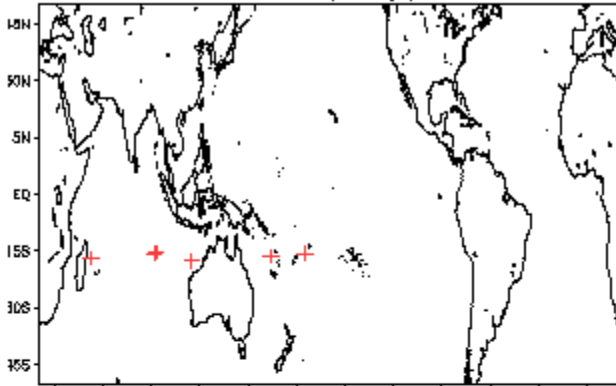


**CFS: Anom. PREC Week: 2: 16-Mar-2016 to 22-Mar-2016 (mm/week)**

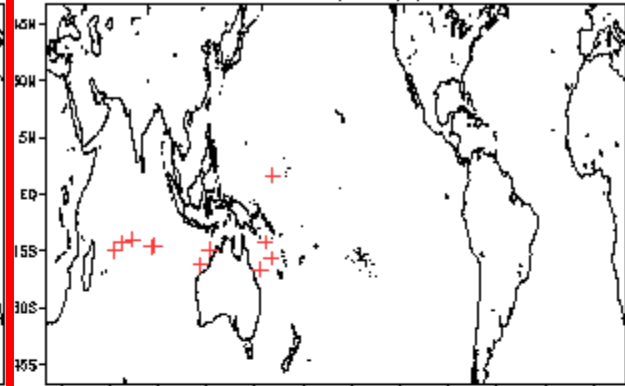


# March Tropical Storm Formation by MJO phase

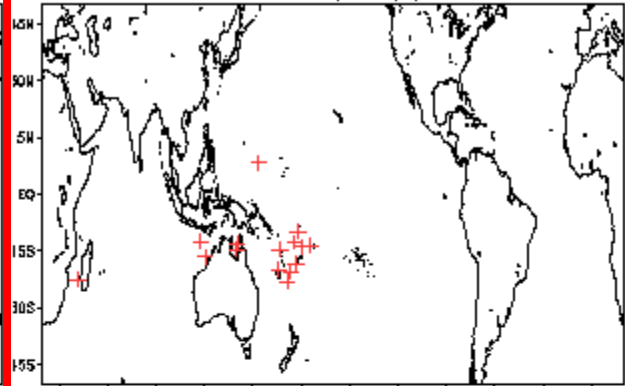
Phase 1 (98 days) 7 storms



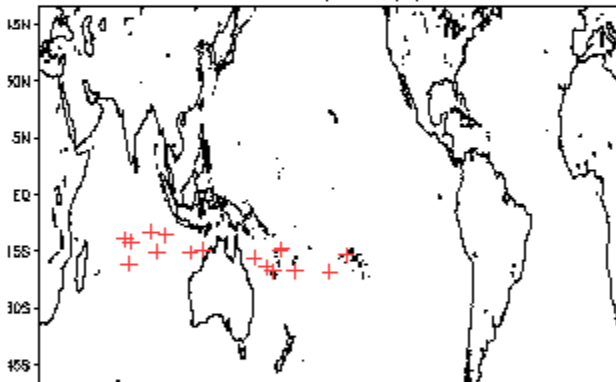
Phase 4 (72 days) 12 storms



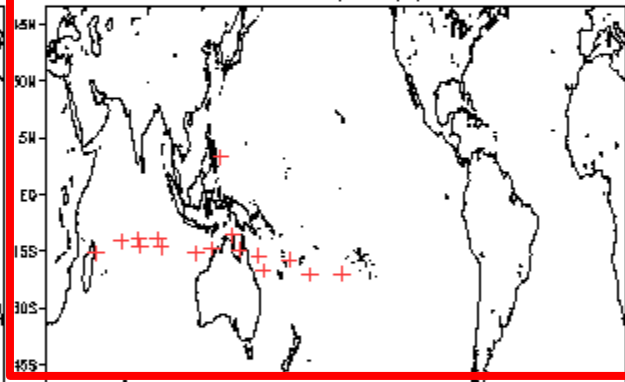
Phase 7 (81 days) 16 storms



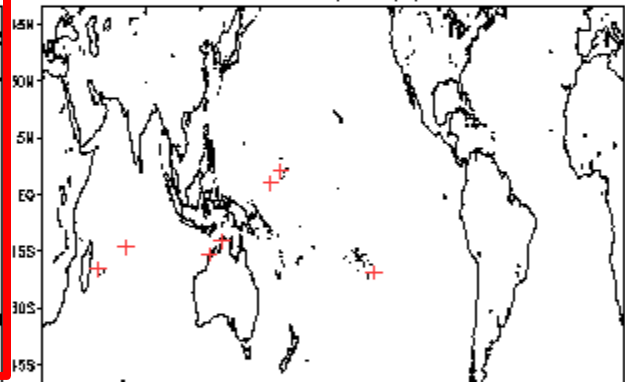
Phase 2 (111 days) 17 storms



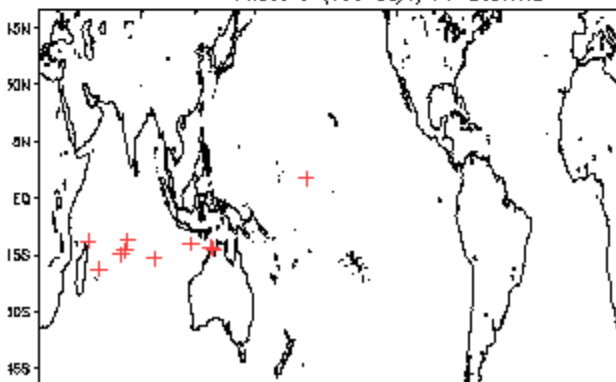
Phase 5 (77 days) 17 storms



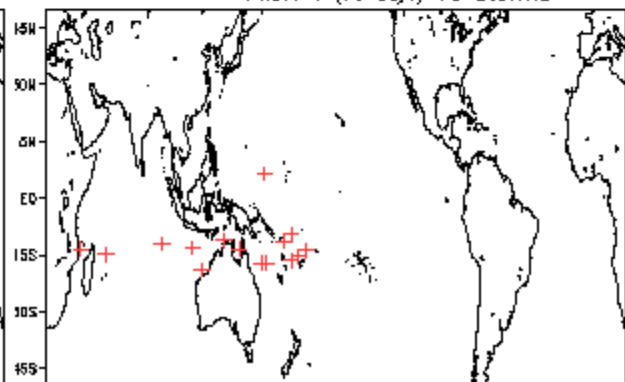
Phase 8 (92 days) 8 storms



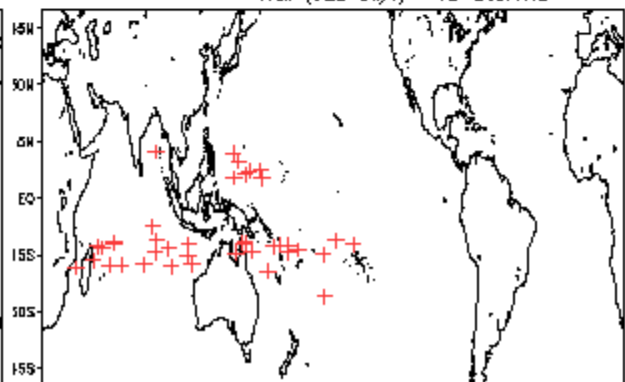
Phase 3 (108 days) 11 storms



Phase 6 (78 days) 16 storms



Null (322 days) 40 storms





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



No new tropical cyclones are expected during the next five days.

## Graphical Tropical Weather Outlook

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National Hurricane Center Miami, Florida



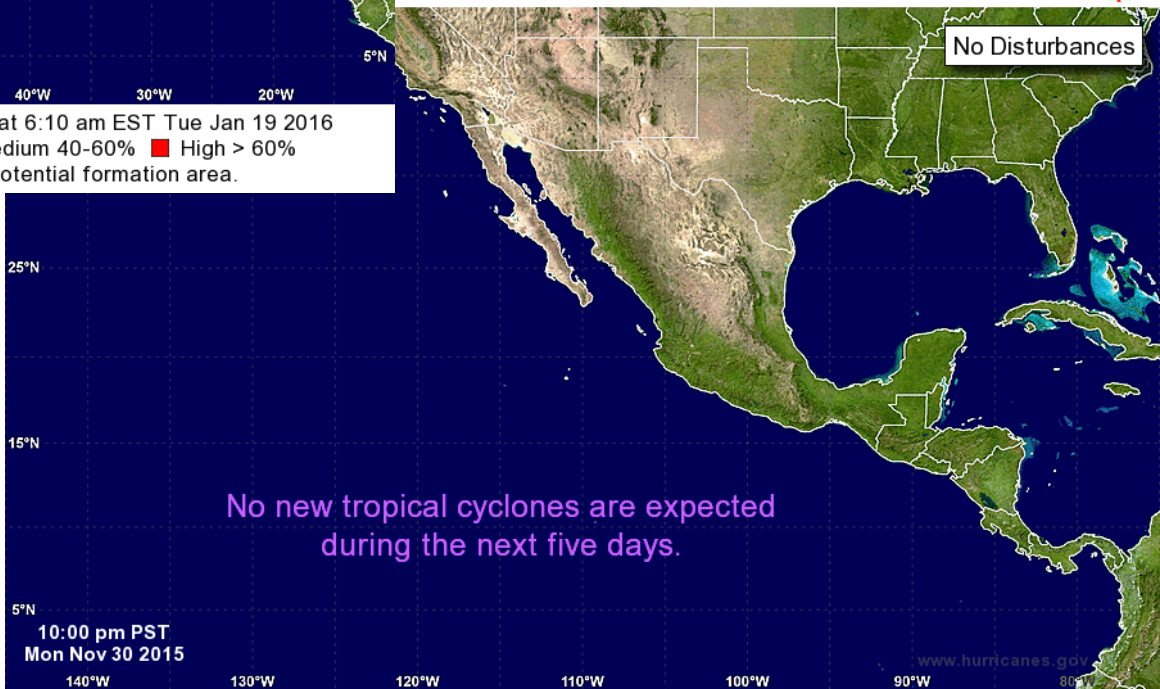
No Disturbances

6:10 am EST  
Thu Jan 14 2016

Tropical Cyclone Formation Potential for the Five-Day Period Ending at 6:10 am EST Tue Jan 19 2016

Chance of Cyclone Formation in Five Days: ■ Low < 40% ■ Medium 40-60% ■ High > 60%

X indicates current disturbance location; shading indicates potential formation area.



No new tropical cyclones are expected during the next five days.

10:00 pm PST  
Mon Nov 30 2015

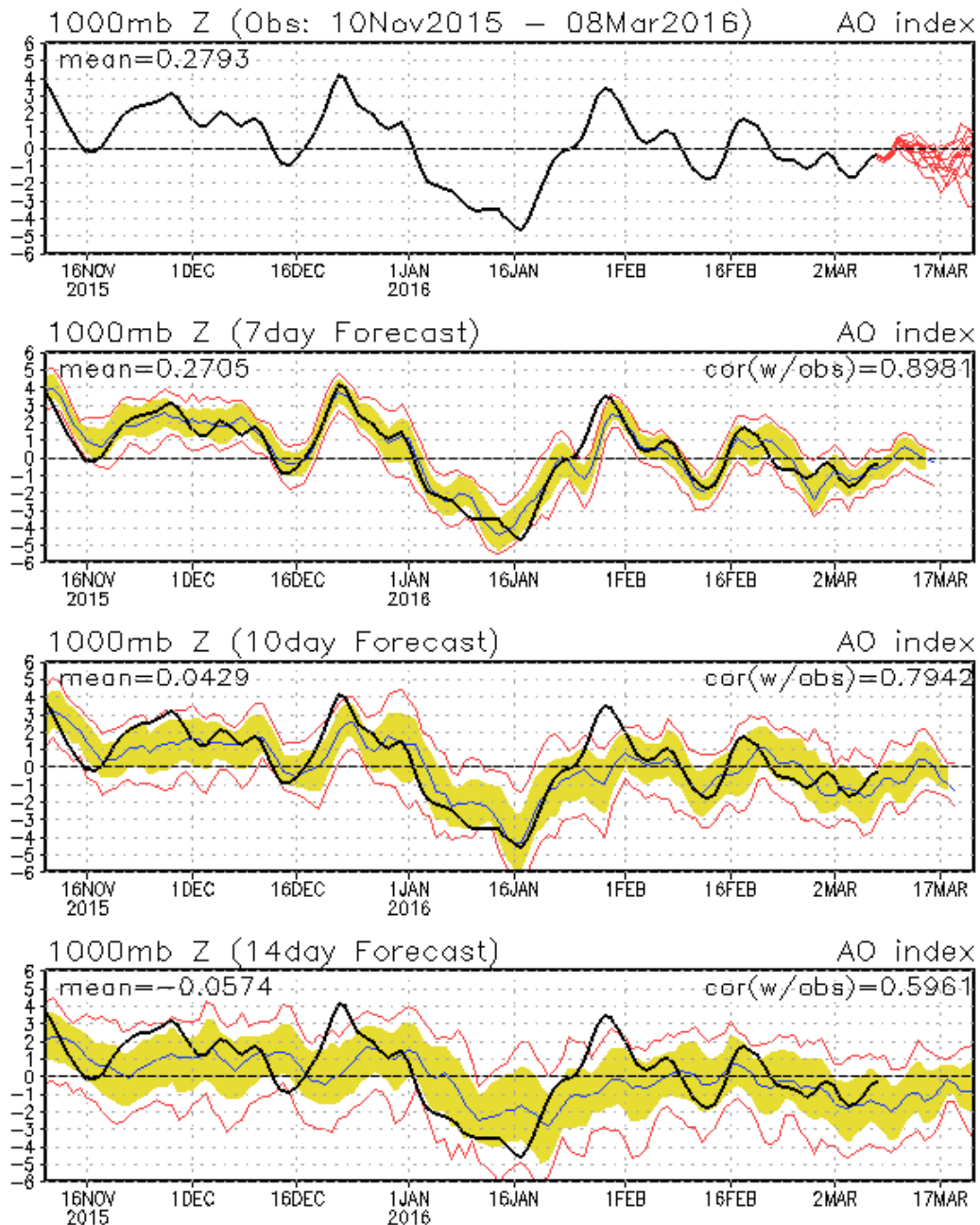
Tropical Cyclone Formation Potential for the Five-Day Period Ending at 10:00 pm PST Sat Dec 5 2015

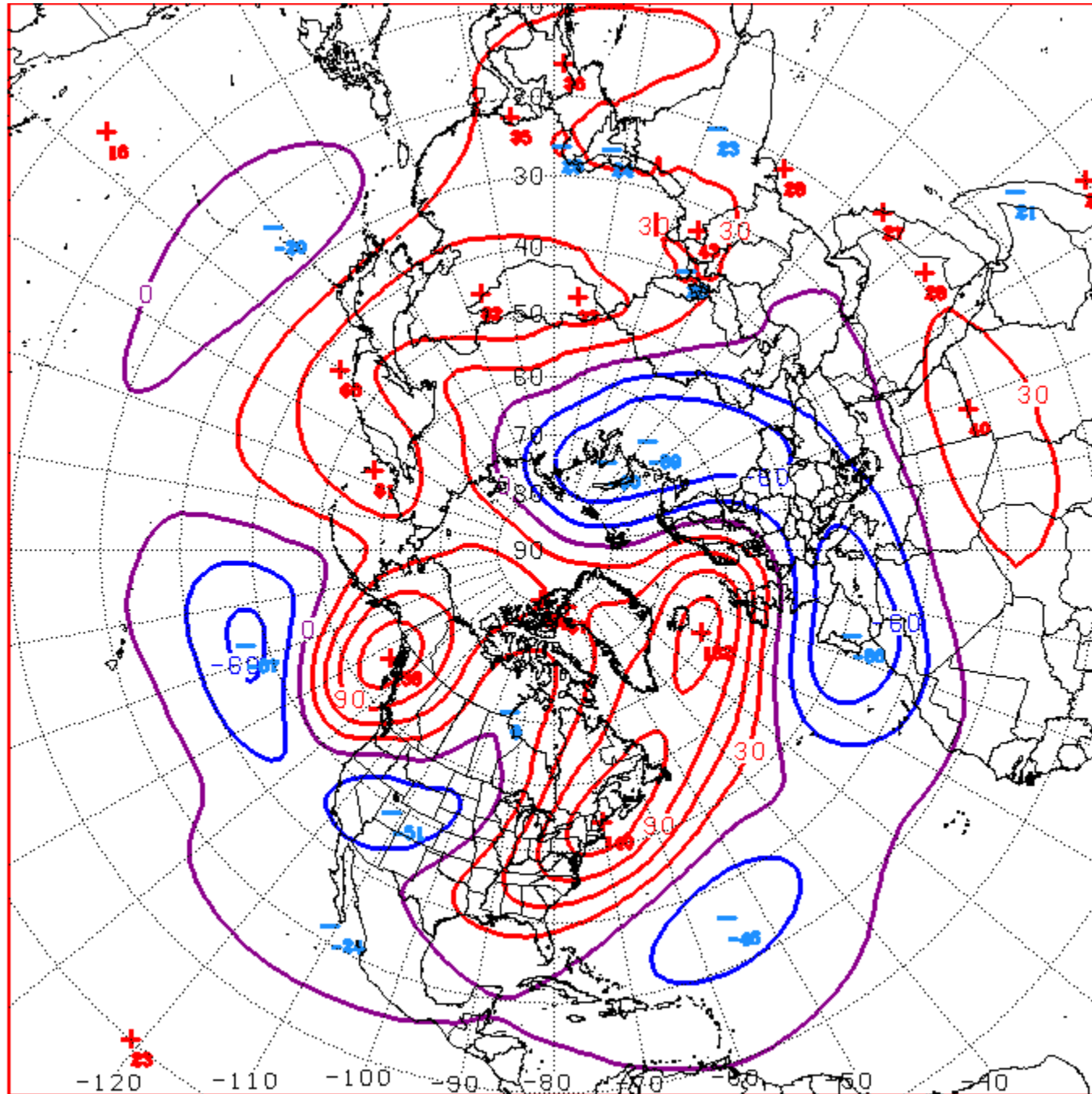
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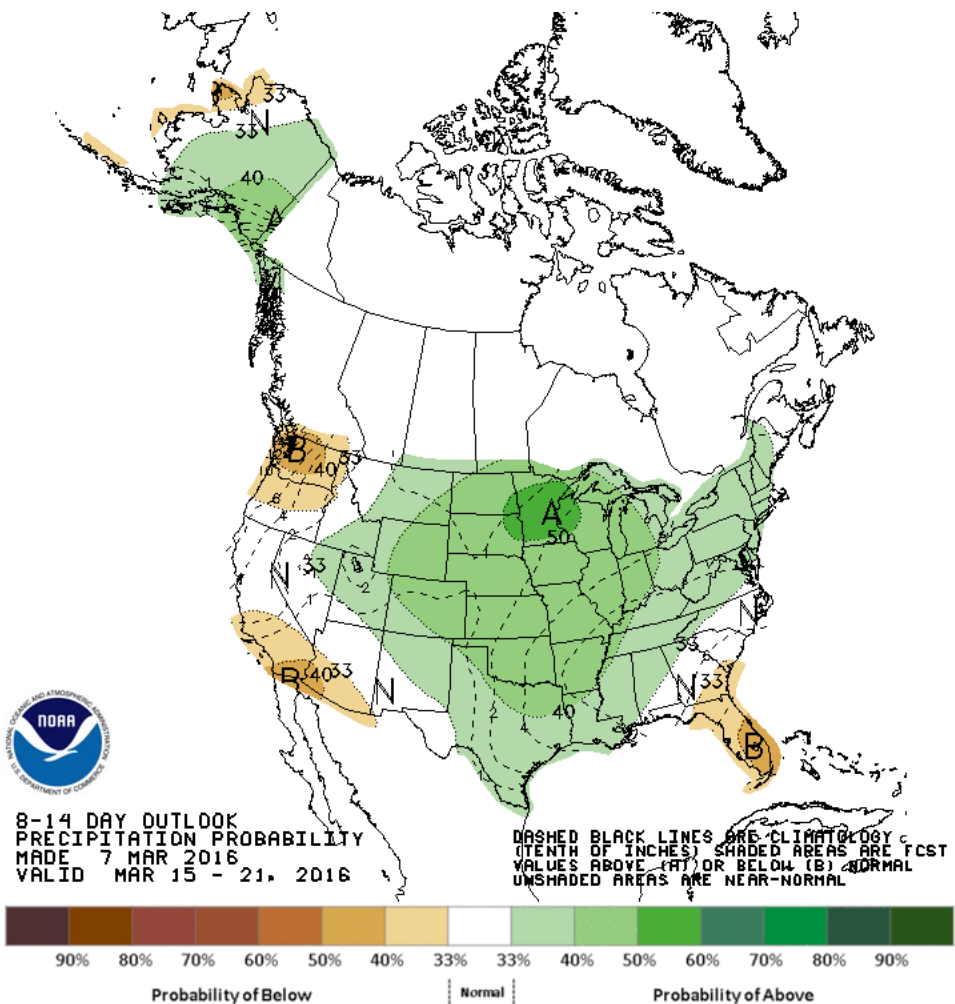
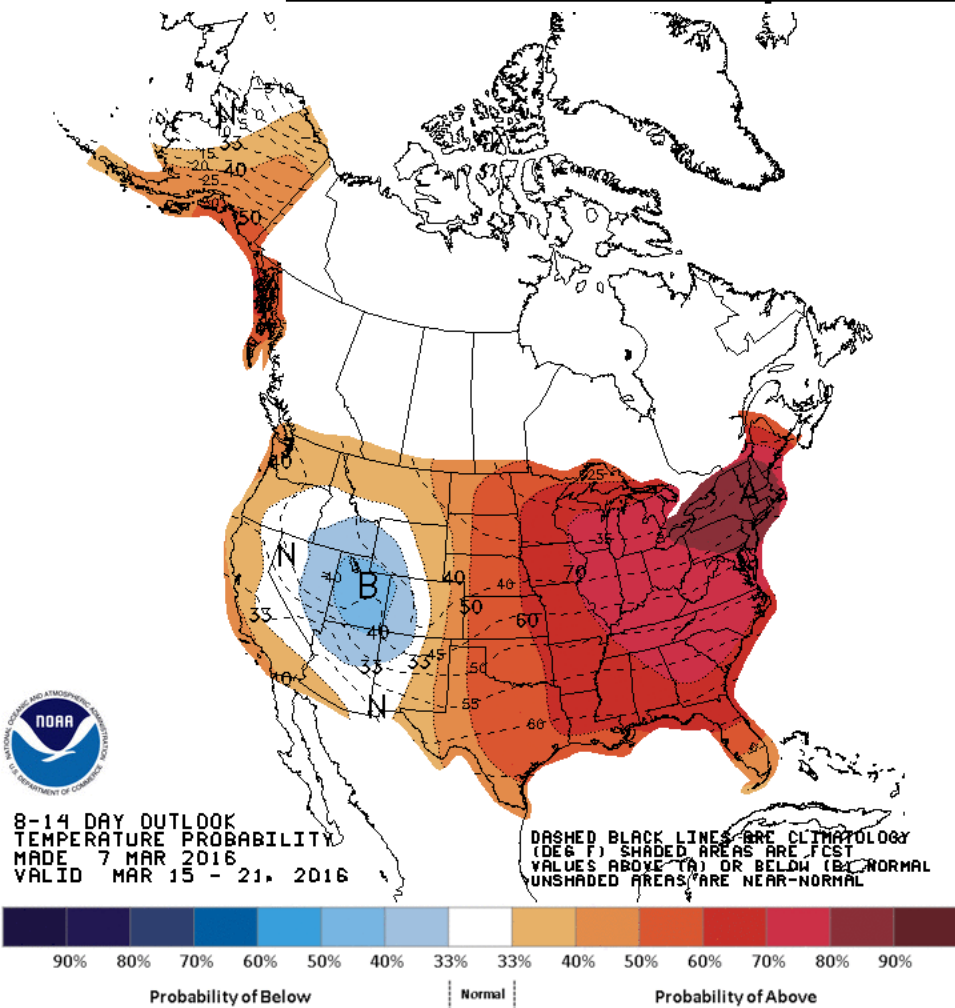
## AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM  
CPC MAP MADE MAR 08 2016 1255 UTC CNTD MAR 19 2016

# Week 2 – Temperature and Precipitation

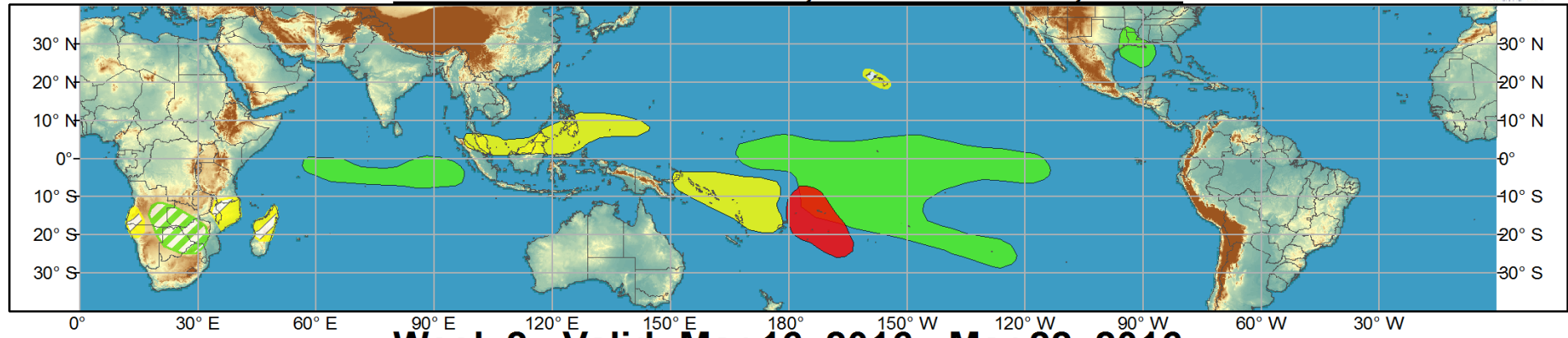




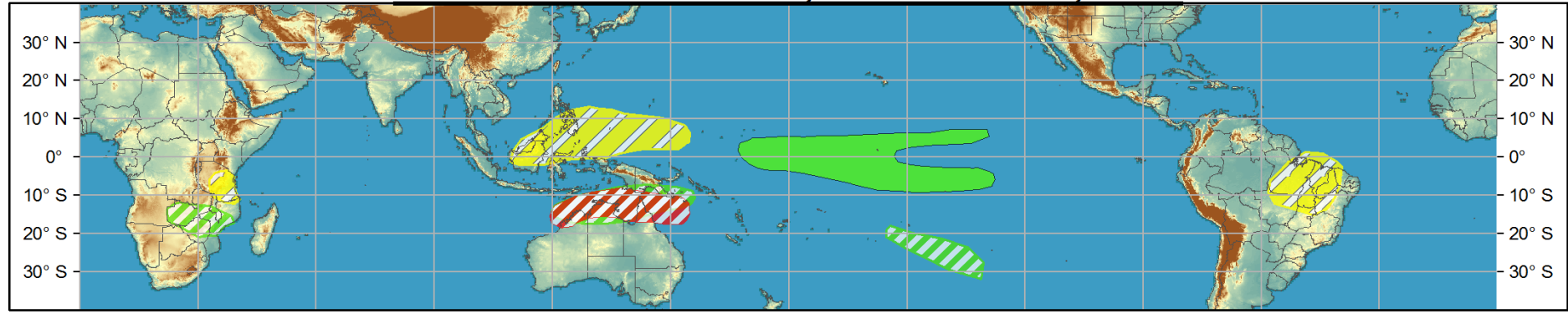


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