

# Global Tropics Hazards And Benefits Outlook

May 13, 2013

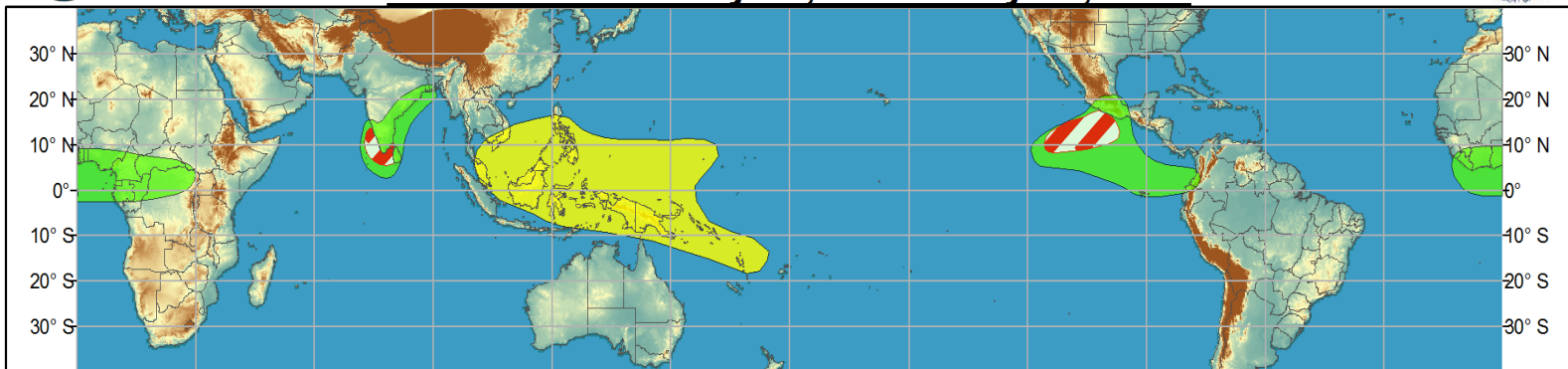
Adam Allgood

## Outline

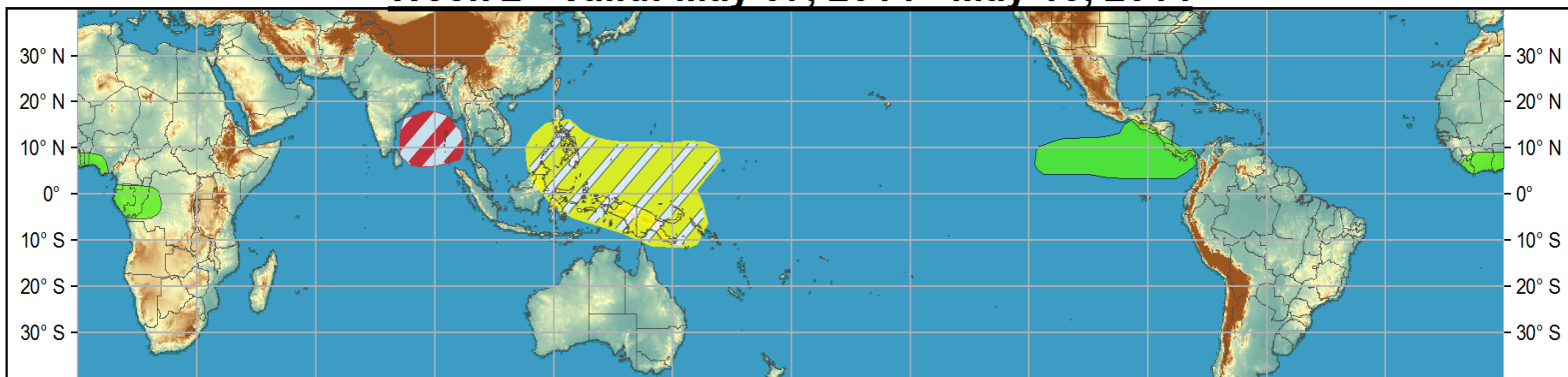
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts



**Week 1 - Valid: May 07, 2014 - May 13, 2014**



**Week 2 - Valid: May 07, 2014 - May 13, 2014**

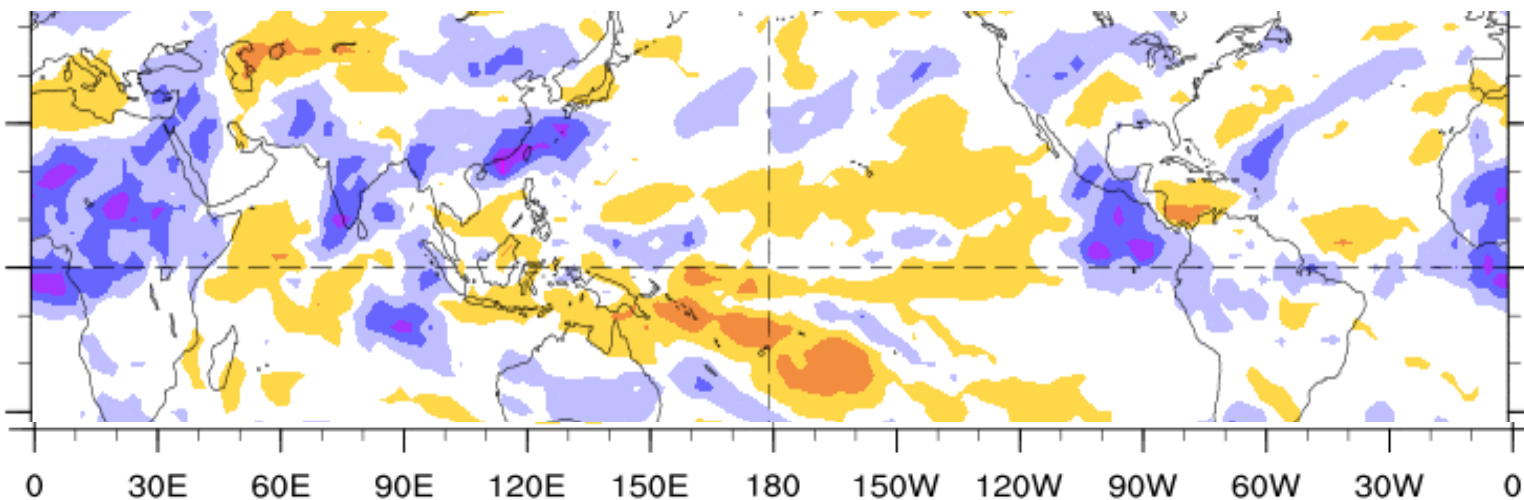


7-Day Average OLR Anomaly

2014/05/05 - 2014/05/11

Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain



# Synopsis of Climate Modes

## ENSO:

- Chance of El Niño increases during the remainder of the year, exceeding 65% during summer.

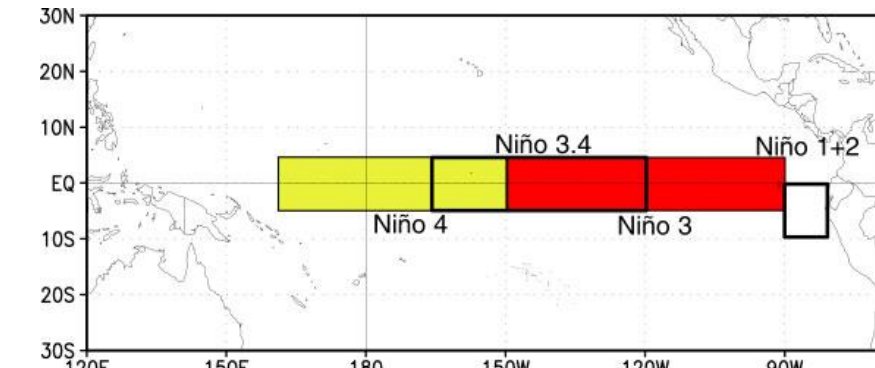
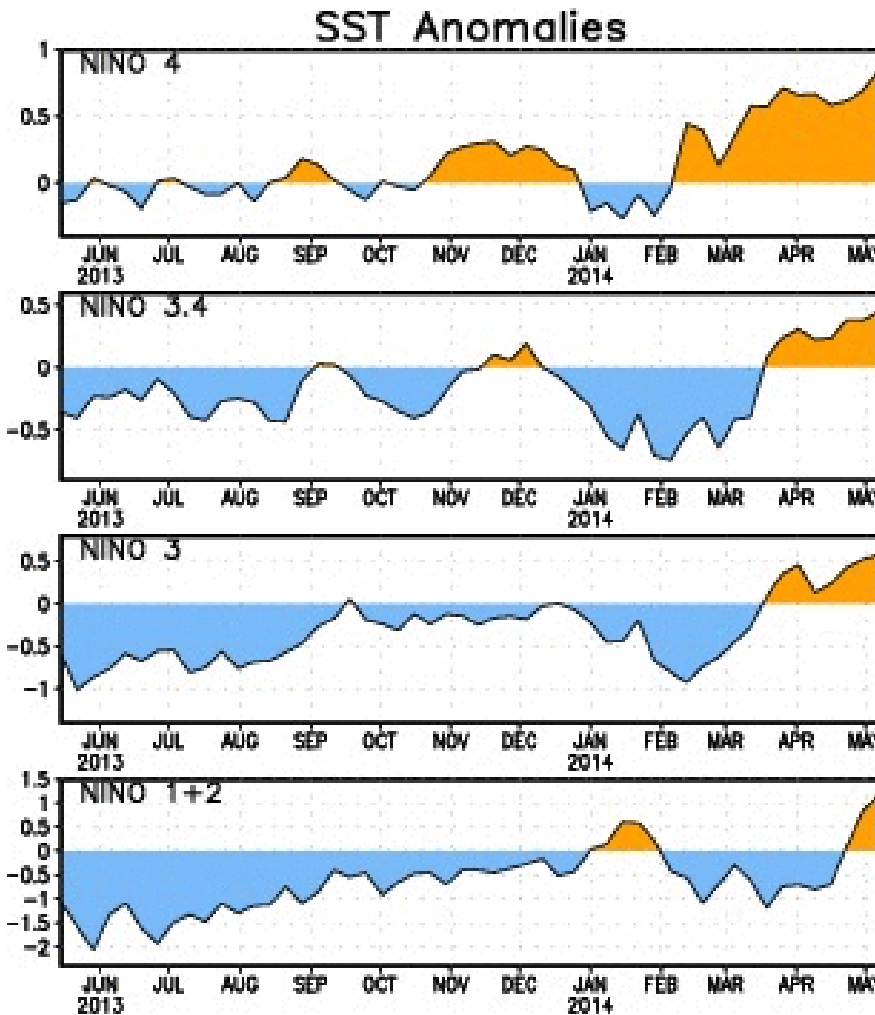
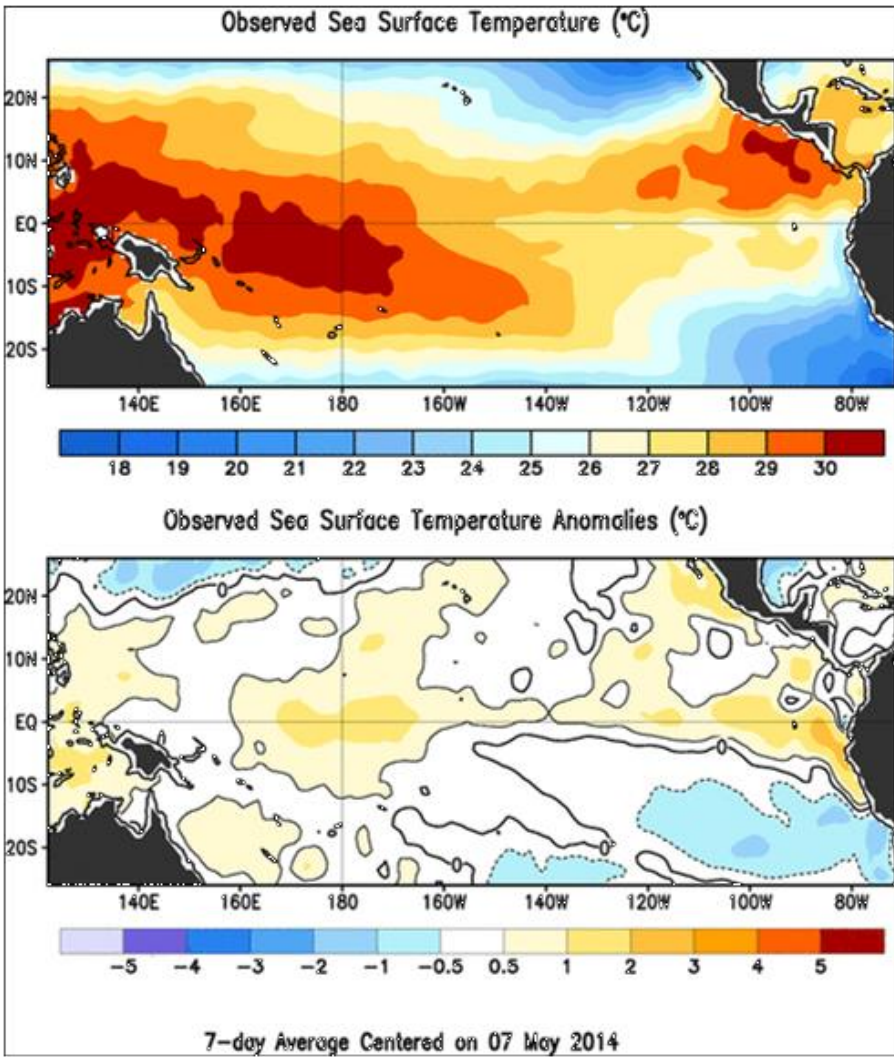
## MJO and other subseasonal tropical variability:

- The MJO remained active during the past two weeks, with the enhanced phase currently propagating over Africa.
- A Kelvin Wave propagating ahead of the main MJO envelope over the Maritime Continent has made some indicators less coherent during the past several days.
- Dynamical model MJO forecasts present varying solutions as the MJO enhanced phase interacts with the slowly evolving base state towards potential El Niño conditions that favors suppressed convection over the Indian Ocean and Maritime Continent. Statistical models support continued MJO activity.

## Extratropics:

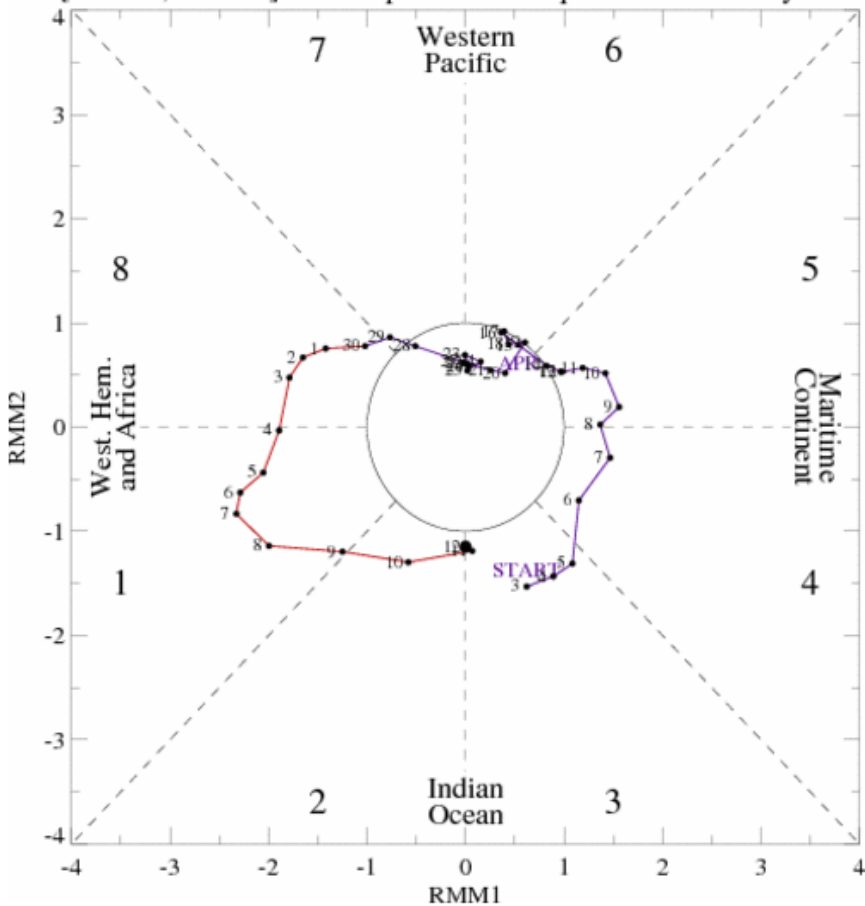
- It is challenging to discern extratropical impacts from the MJO during the Spring season; however, an MJO enhanced phase departing the Western Hemisphere is associated with enhanced precipitation over the Gulf Coast states, and lagged composites support the eastward progression of a trough over the CONUS.

SSTs are increasing over the equatorial Pacific

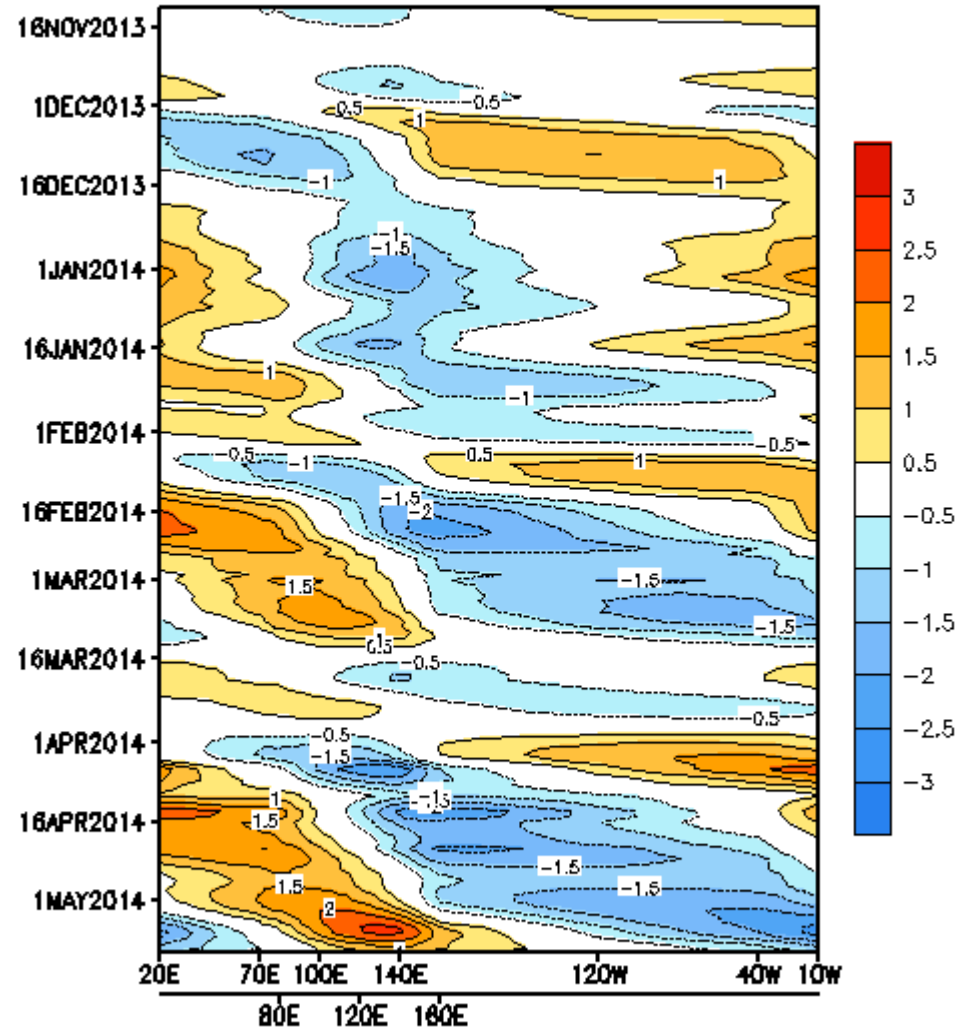


# MJO Indices

[RMM1, RMM2] Phase Space for 03-Apr-2014 to 12-May-2014



5 -day Running Mean



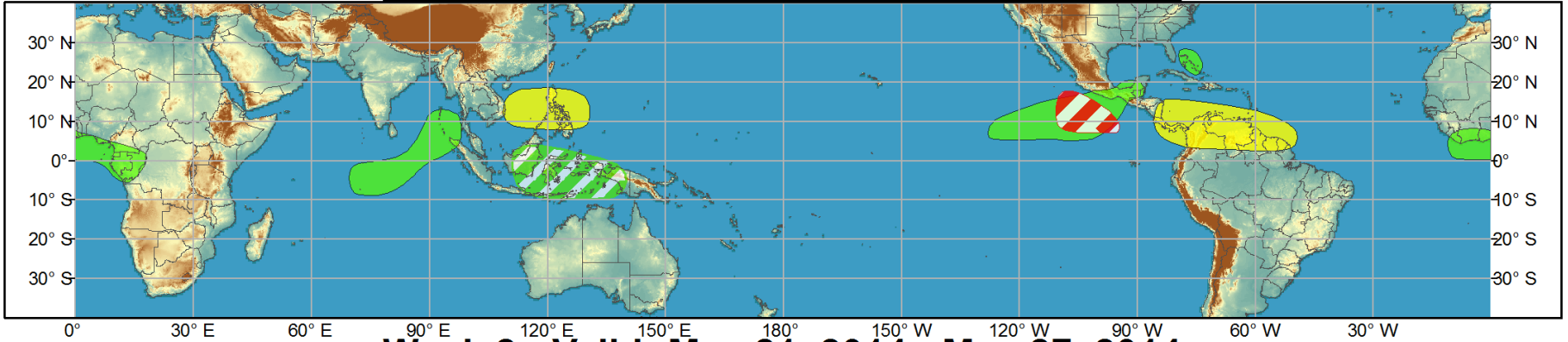
Data updated through 13 May 2014



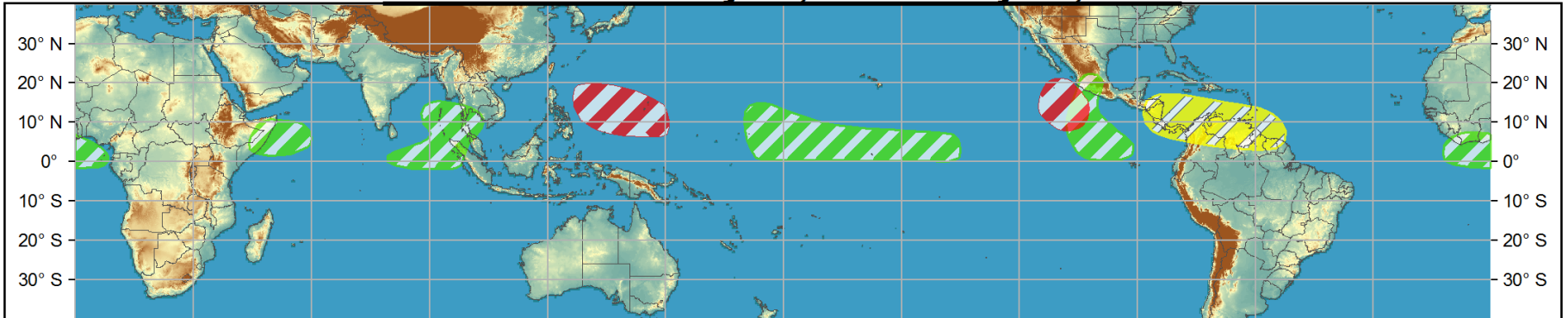
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: May 14, 2014 - May 20, 2014

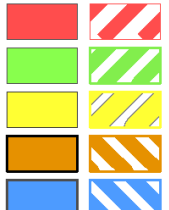


## Week 2 - Valid: May 21, 2014 - May 27, 2014



**Confidence**  
High Moderate

- Tropical Cyclone Formation**
- Above-average rainfall**
- Below-average rainfall**
- Above-normal temperatures**
- Below-normal temperatures**



- Development of a tropical cyclone that eventually reaches tropical storm/cyclone strength.
- Weekly total rainfall in the upper third of the historical range.
- Weekly total rainfall in the lower third of the historical range.
- 7-day mean temperatures in the upper third of the historical range.
- 7-day mean temperatures in the lower third of the historical range.

Produced: 05/13/2014  
Forecaster: Allgood

Product is updated once per week. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



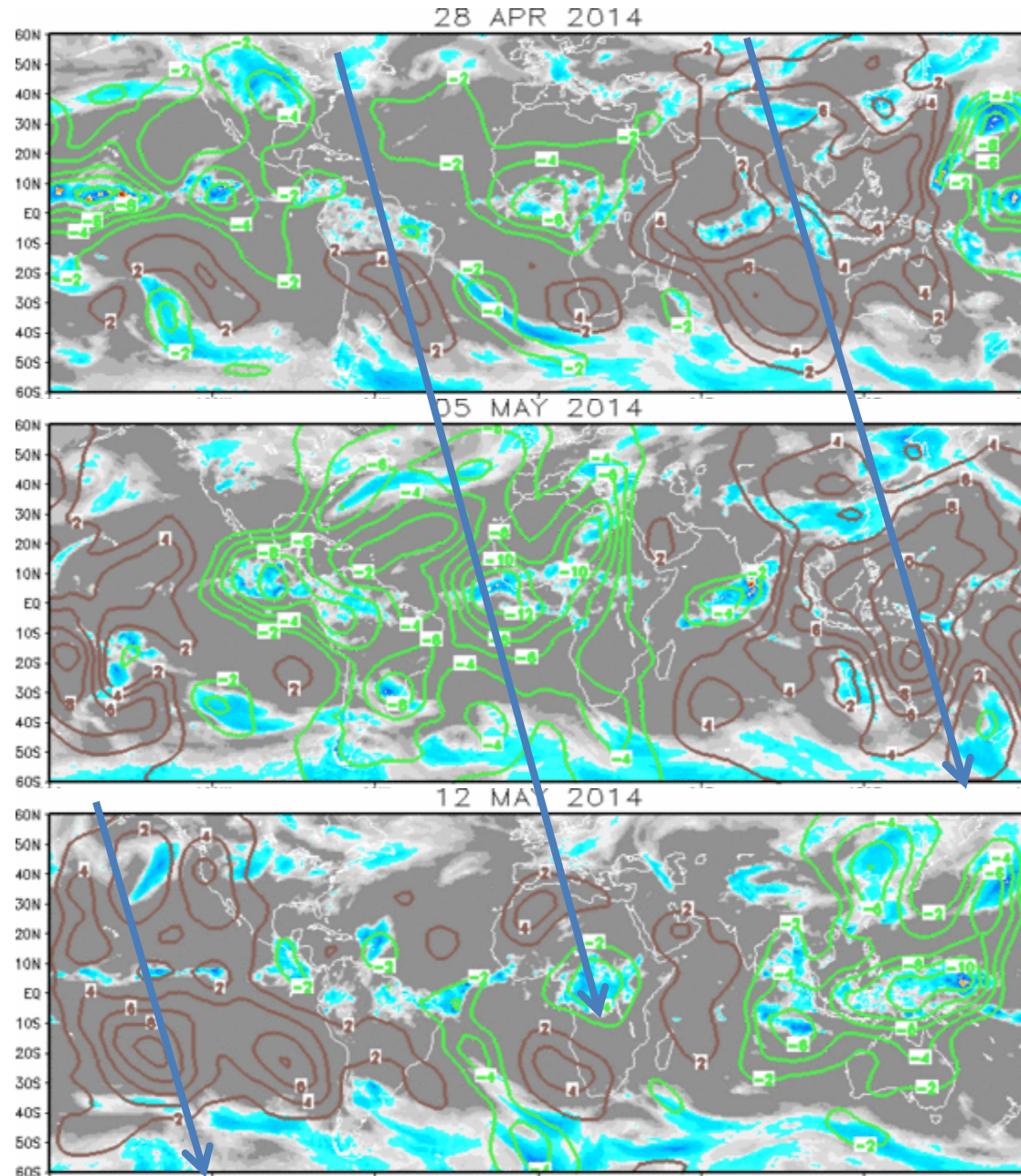
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

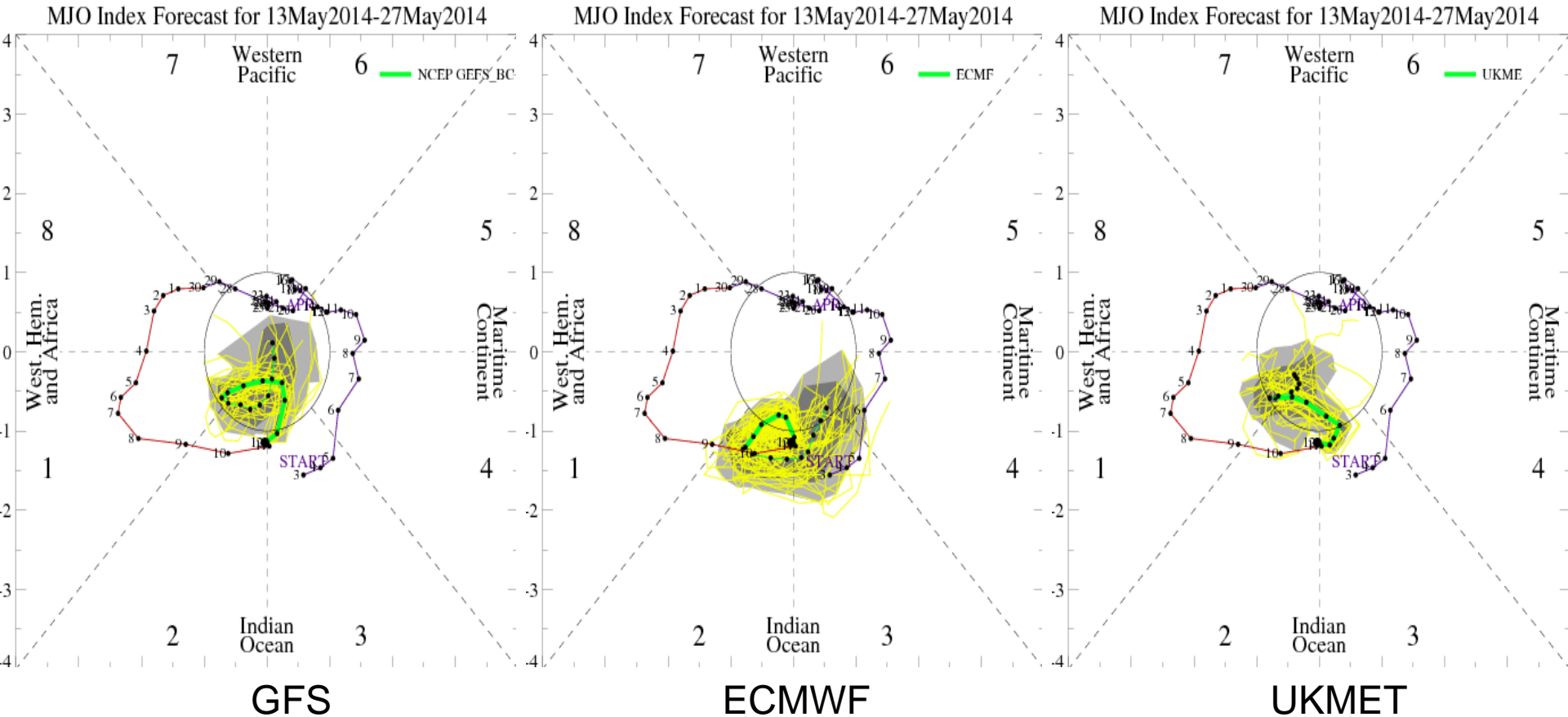
Brown: Enhanced Convergence

Features of note:

1. Eastward progression of anomalies associated with MJO
2. Lingering convection over the central Pacific associated with above normal SSTs (top panel)
3. Enhanced convection over the eastern Indian Ocean/Maritime Continent associated with a KW (bottom panel)



# MJO Observation/Forecast

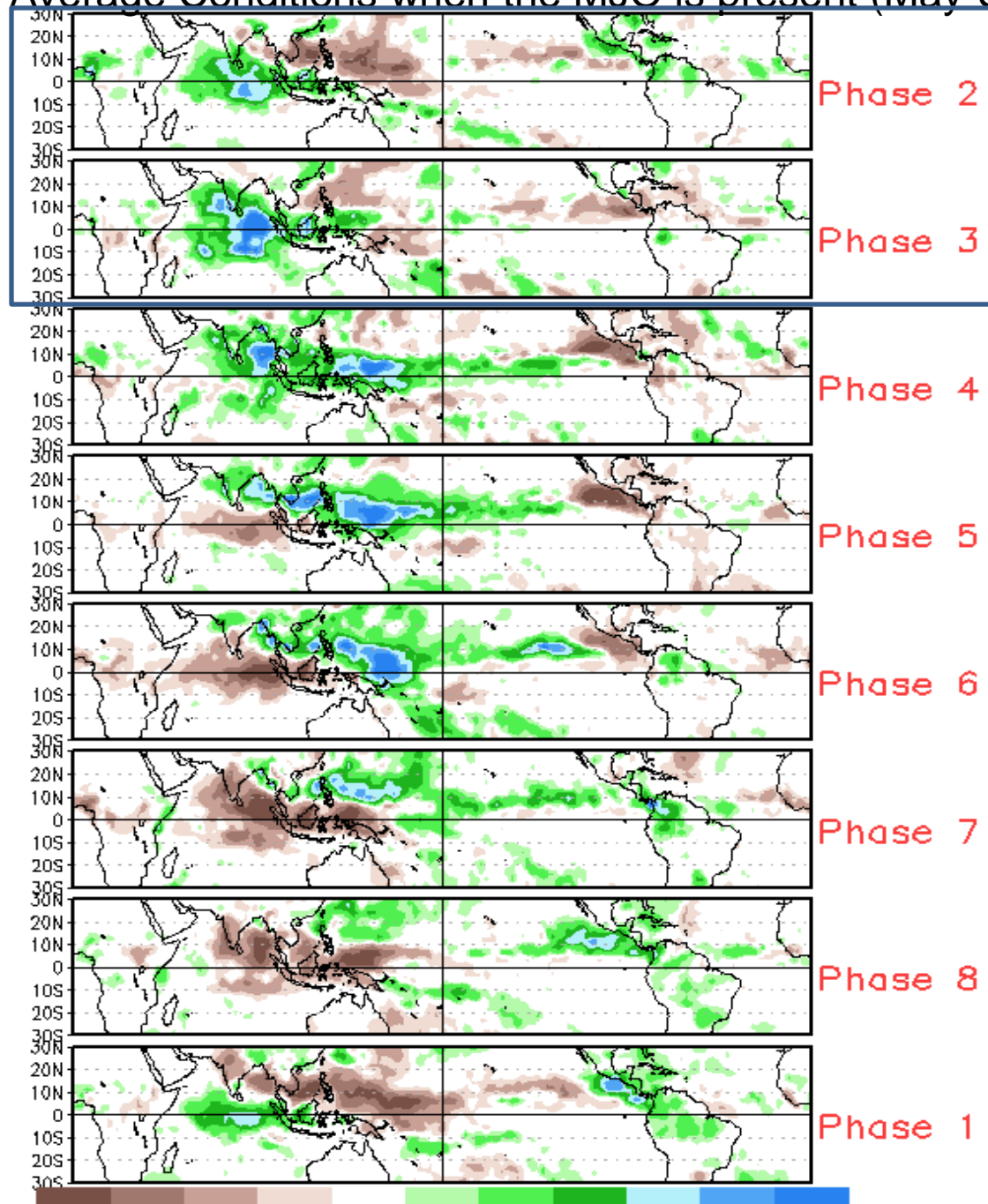


Each model “loops” the index back as the MJO enhanced phase enters the Indian Ocean.

The European Model (center) maintains the most active MJO signal.



# Average Conditions when the MJO is present (May-Sep)

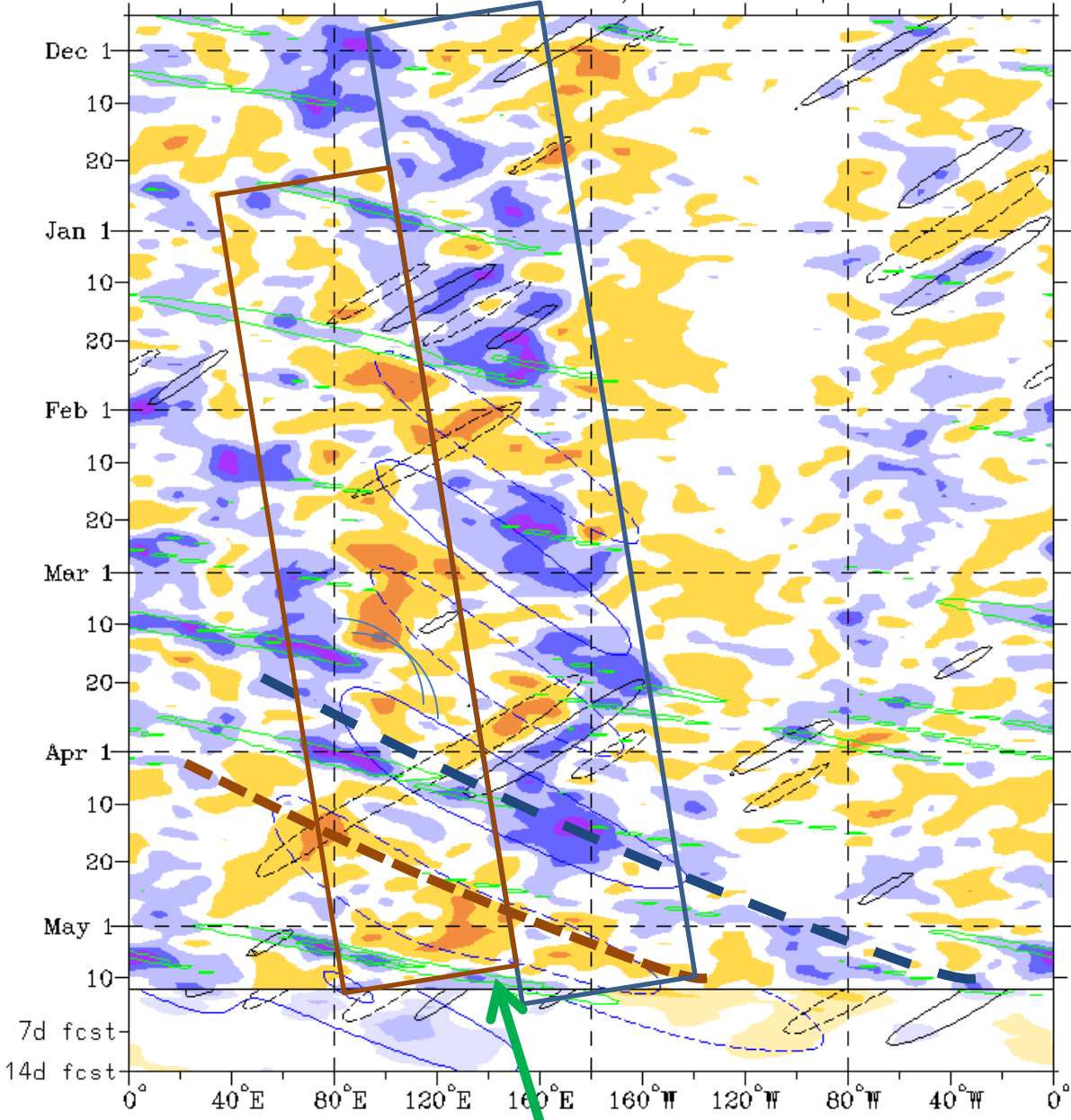


Active MJO pattern  
(dashed/dotted lines)

Low frequency base state  
(boxes)

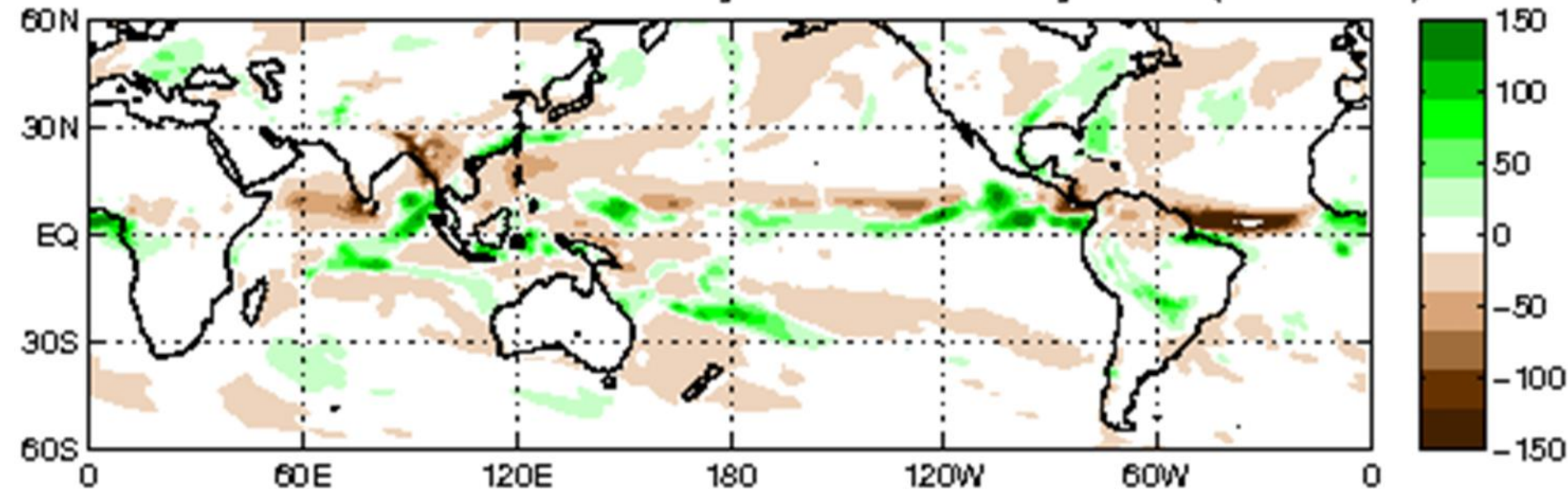
The low frequency signal has  
been modulated by subseasonal  
signals (e.g., MJO, Kelvin  
Waves)

The MJO is currently  
destructively interfering with the  
low frequency state.

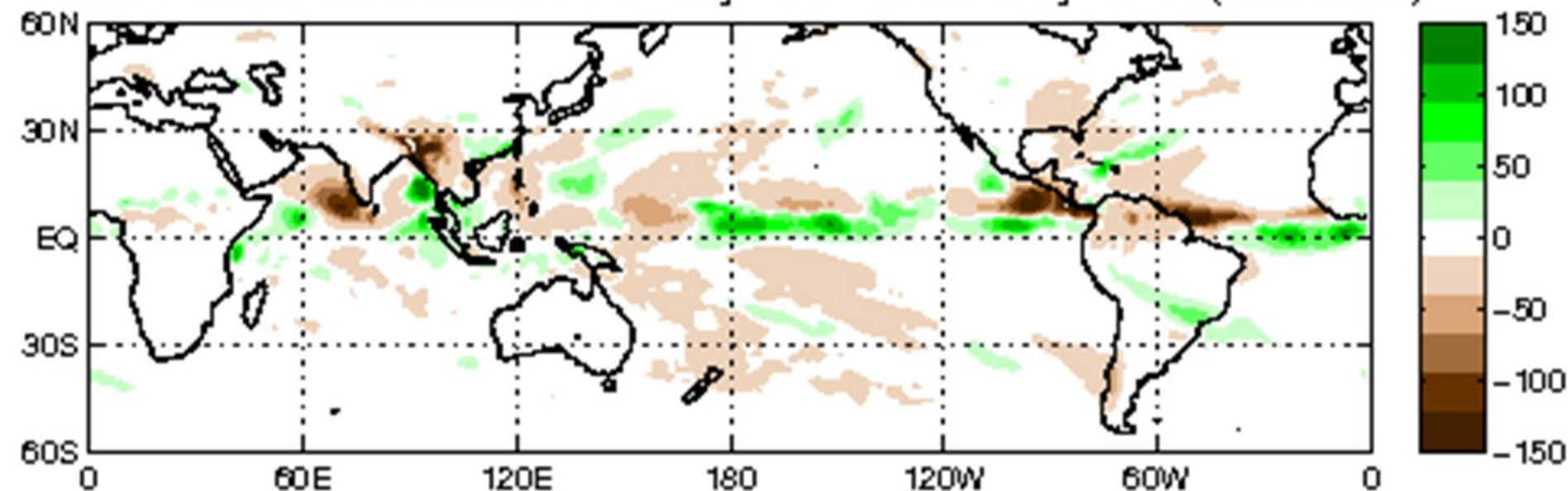


Note the Kelvin Wave propagating  
over the Maritime Continent

**CFS: Anom. PREC Week1: 13-May-2014 to 19-May-2014 (mm/week)**

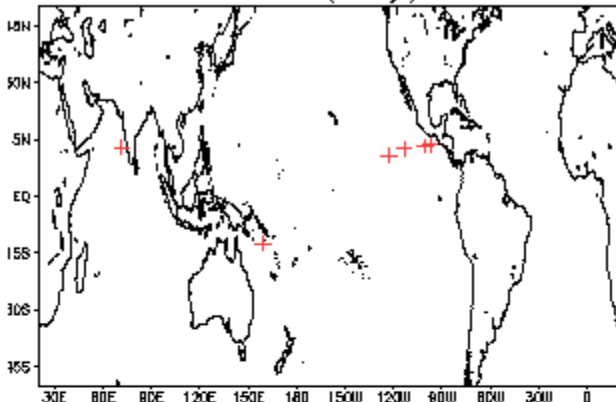


**CFS: Anom. PREC Week2: 20-May-2014 to 26-May-2014 (mm/week)**

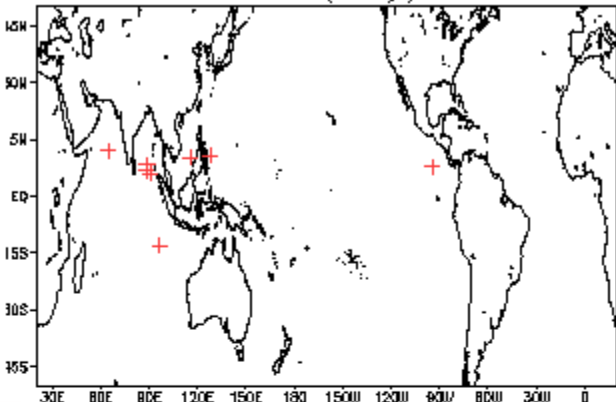


# May Tropical Storm Formation by MJO phase

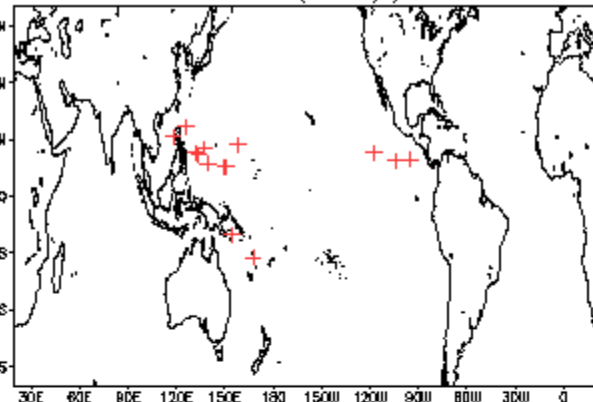
Phase 1 (85 days) 7 storms



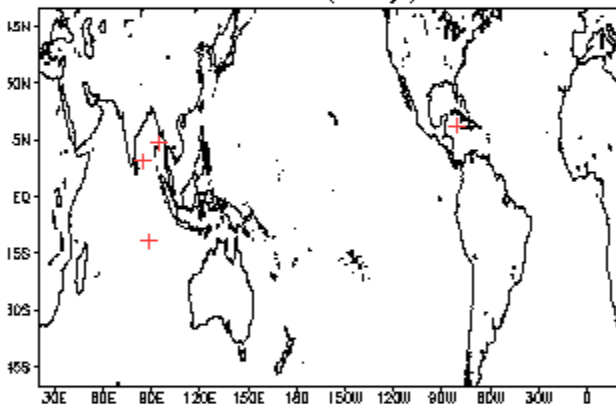
Phase 4 (85 days) 9 storms



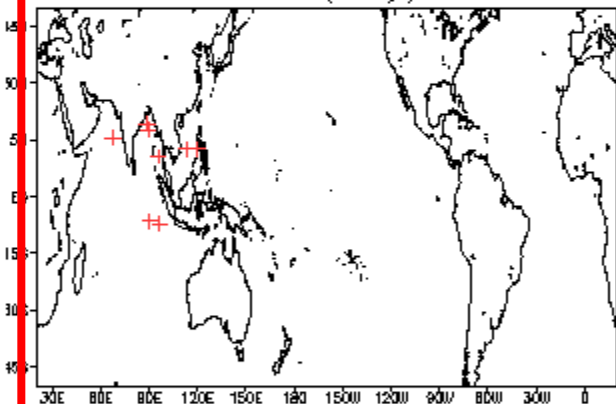
Phase 7 (111 days) 15 storms



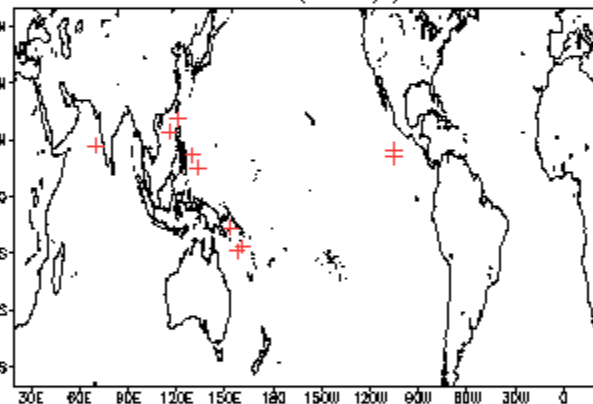
Phase 2 (76 days) 5 storms



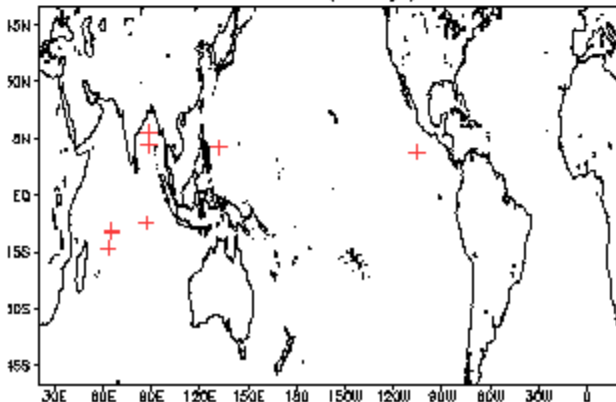
Phase 5 (66 days) 9 storms



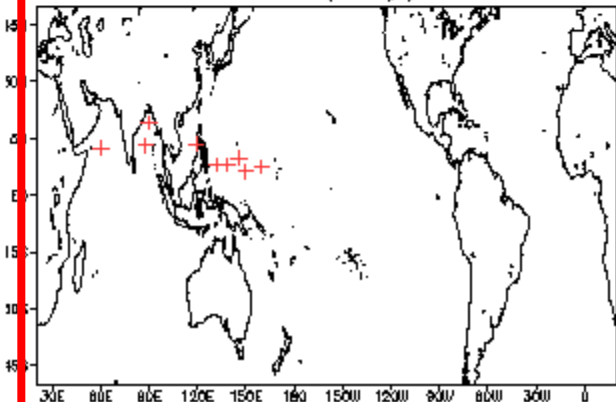
Phase 8 (111 days) 11 storms



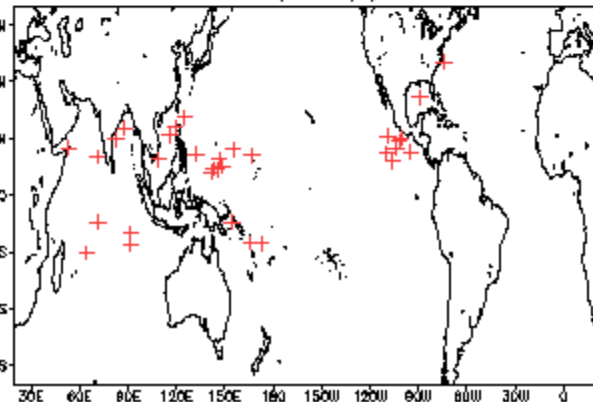
Phase 3 (73 days) 9 storms



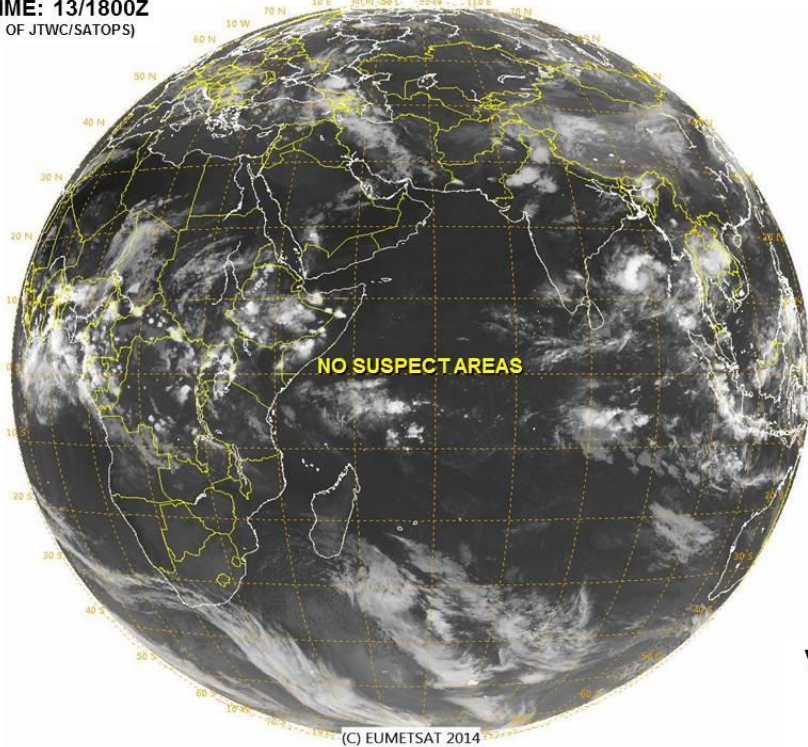
Phase 6 (87 days) 10 storms



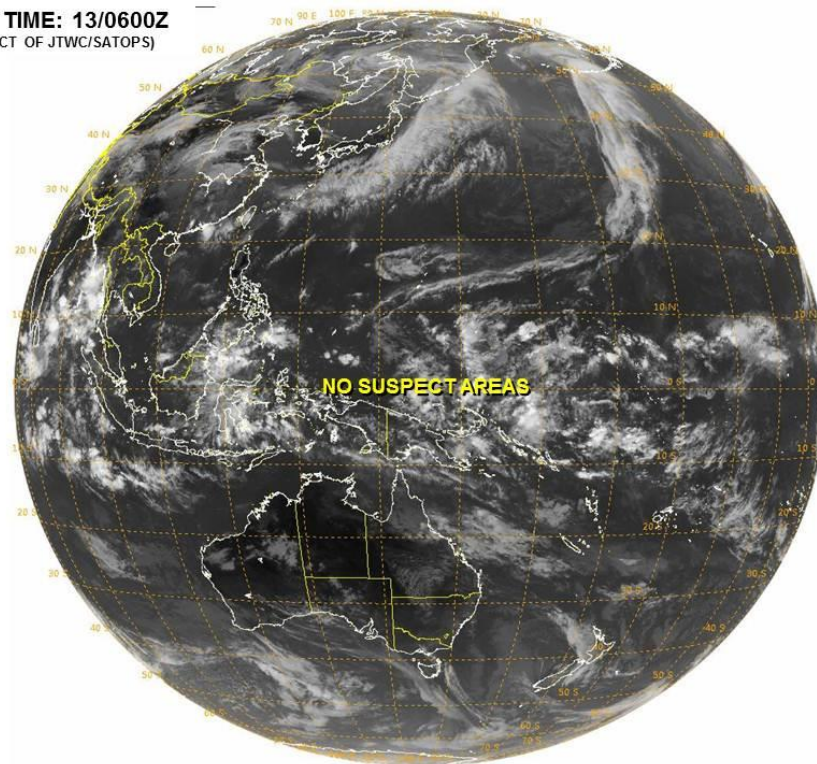
Null (349 days) 33 storms



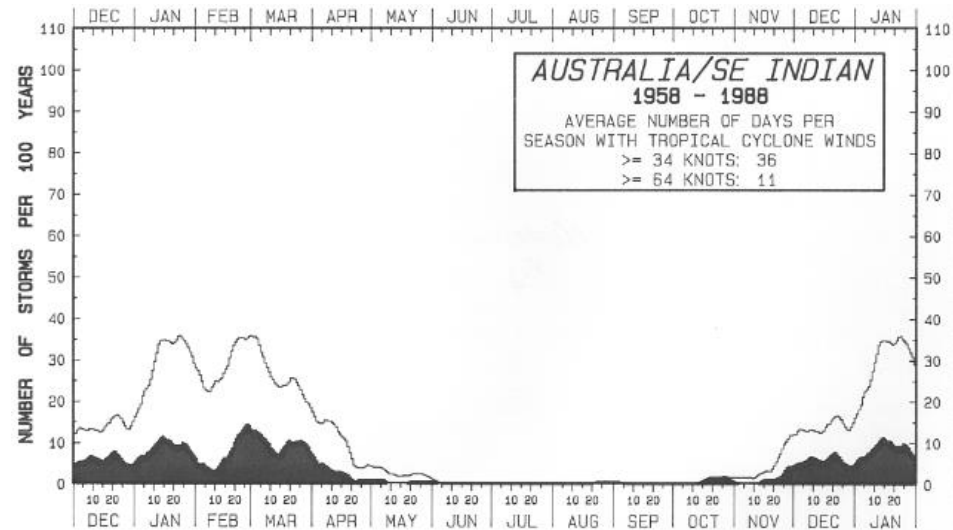
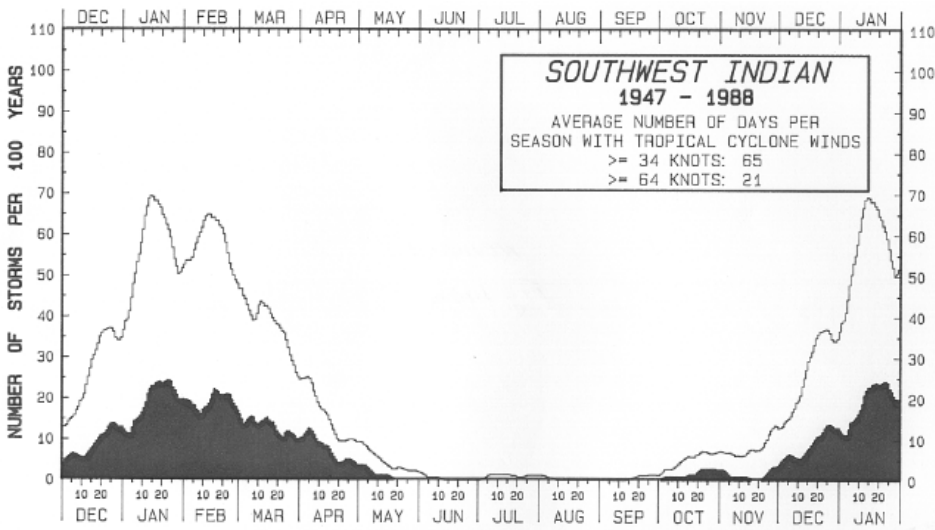
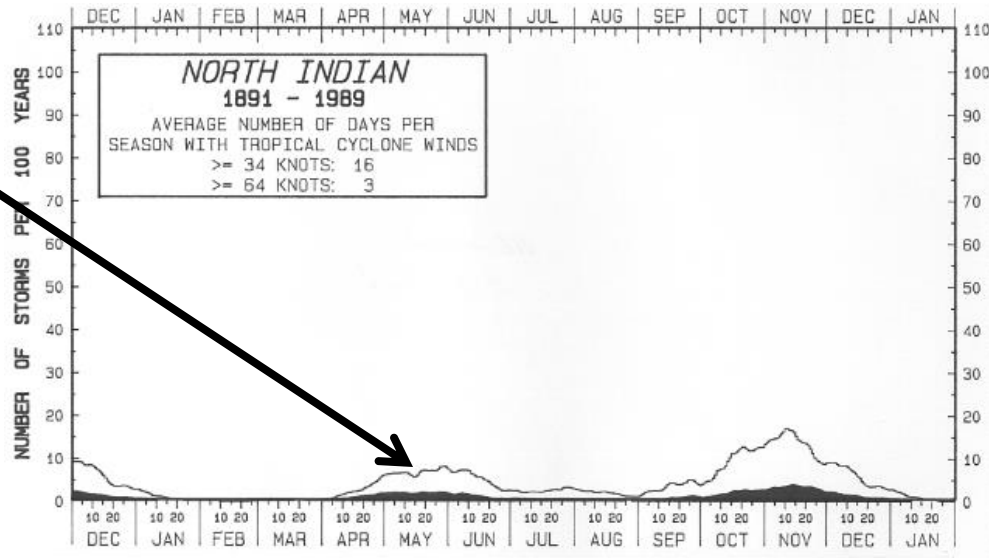
**VALID TIME: 13/1800Z**  
(PRODUCT OF JTWC/SATOPS)

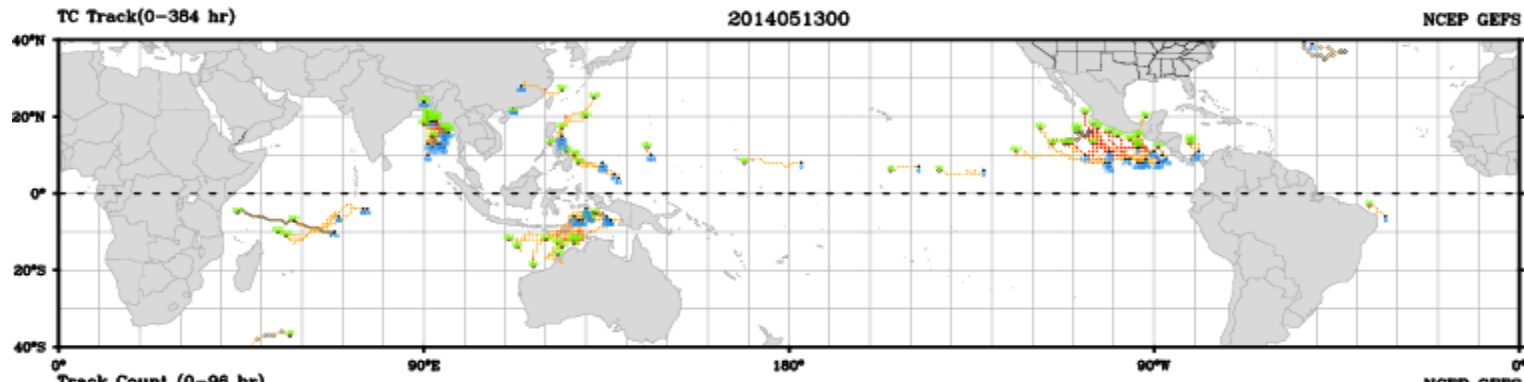


**VALID TIME: 13/0600Z**  
(PRODUCT OF JTWC/SATOPS)

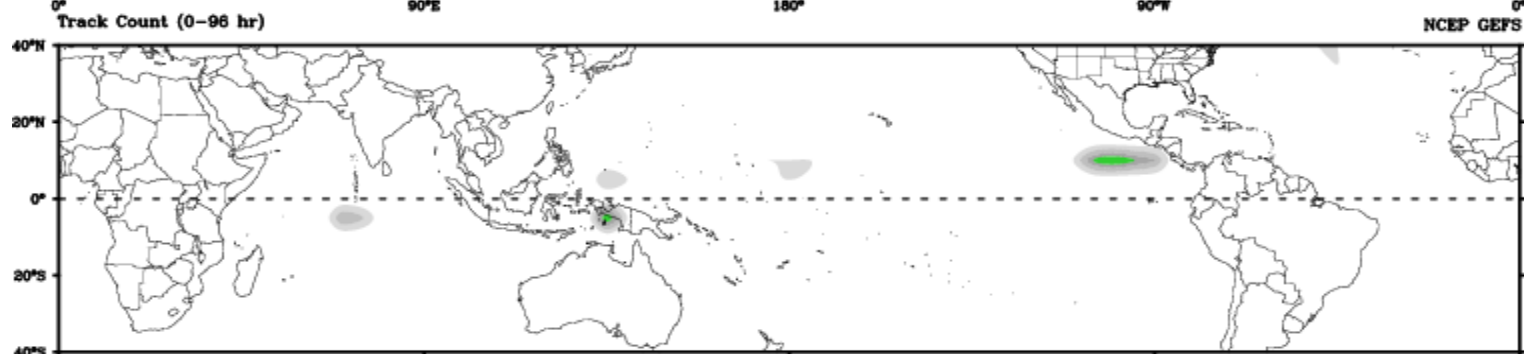


Pre-monsoon TC formations over the North Indian Ocean

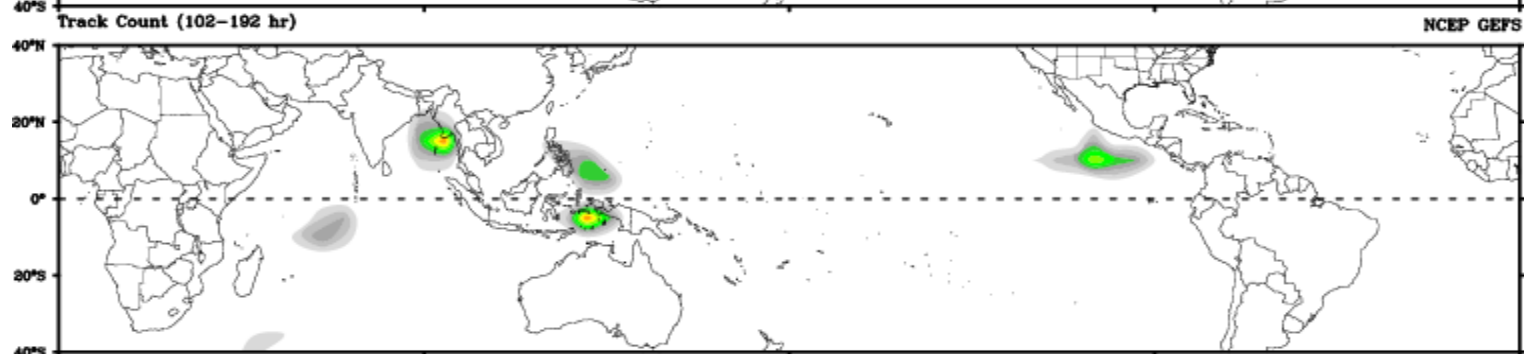




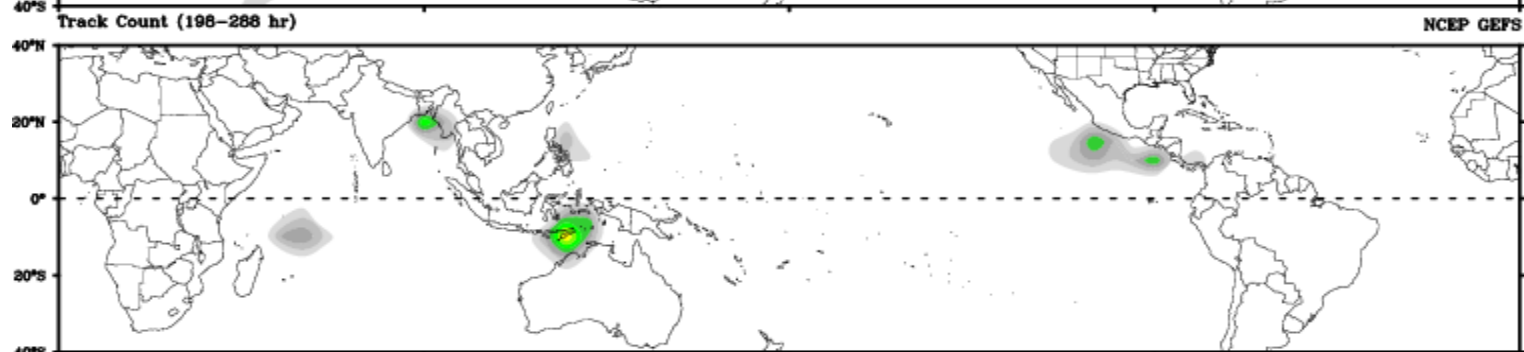
Days 1-4

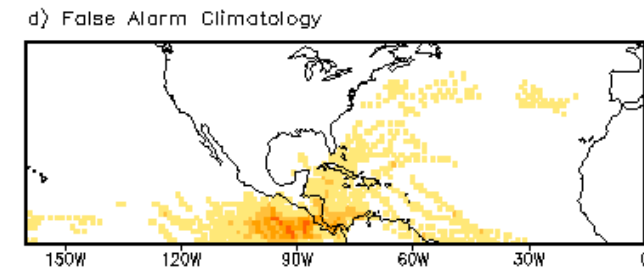
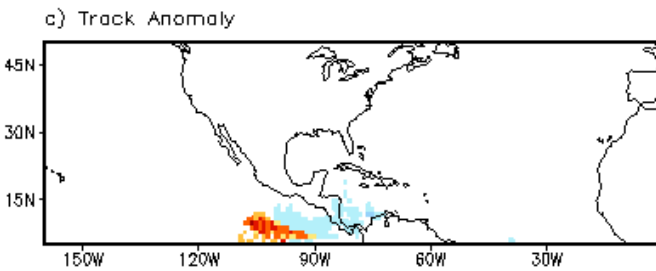
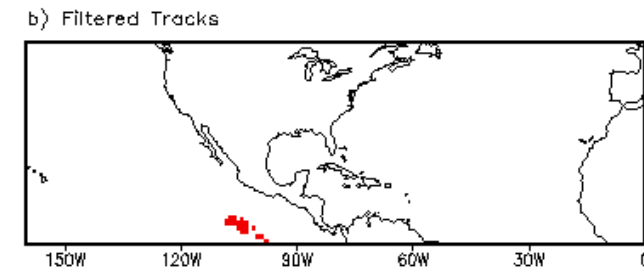
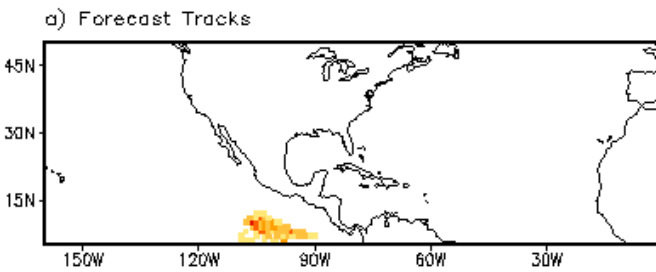
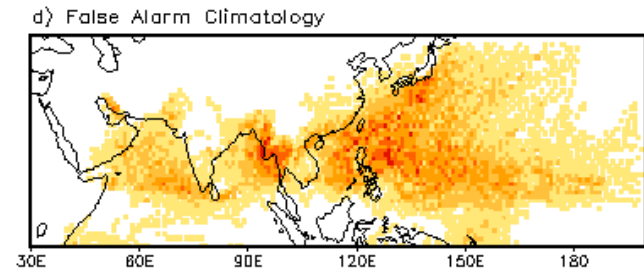
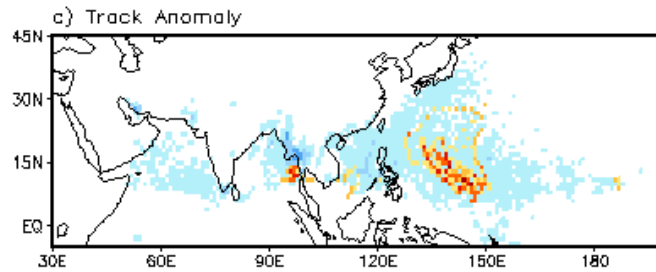
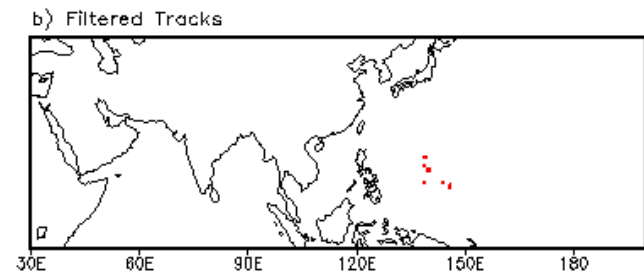
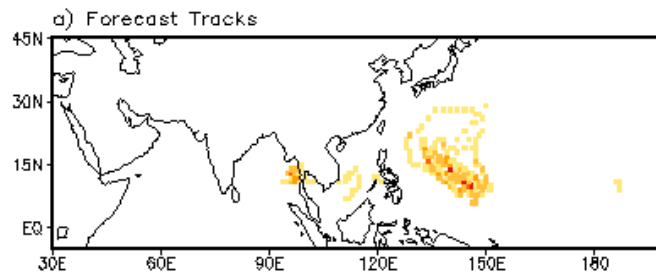


Day 5-8



Day 9-12





CFSv2 45-Day Forecasts, 2014\_0510  
Week 2: 0517-0523

CFSv2 45-Day Forecasts, 2014\_0511  
Week 1: 0511-0517



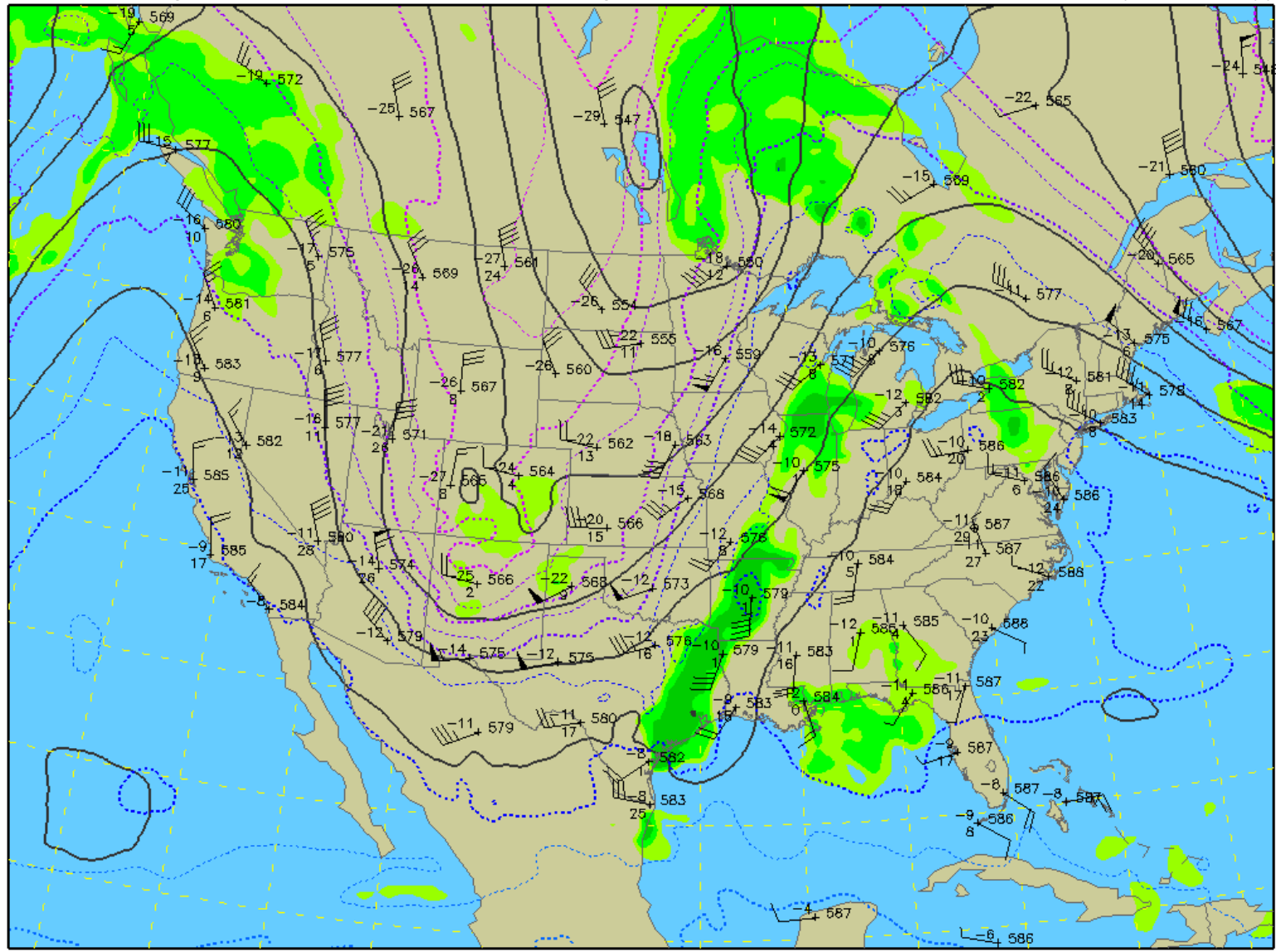
# Connections to U.S. Impacts

# 500 mb Heights (dm) / Temperature (°C) / Humidity (%)

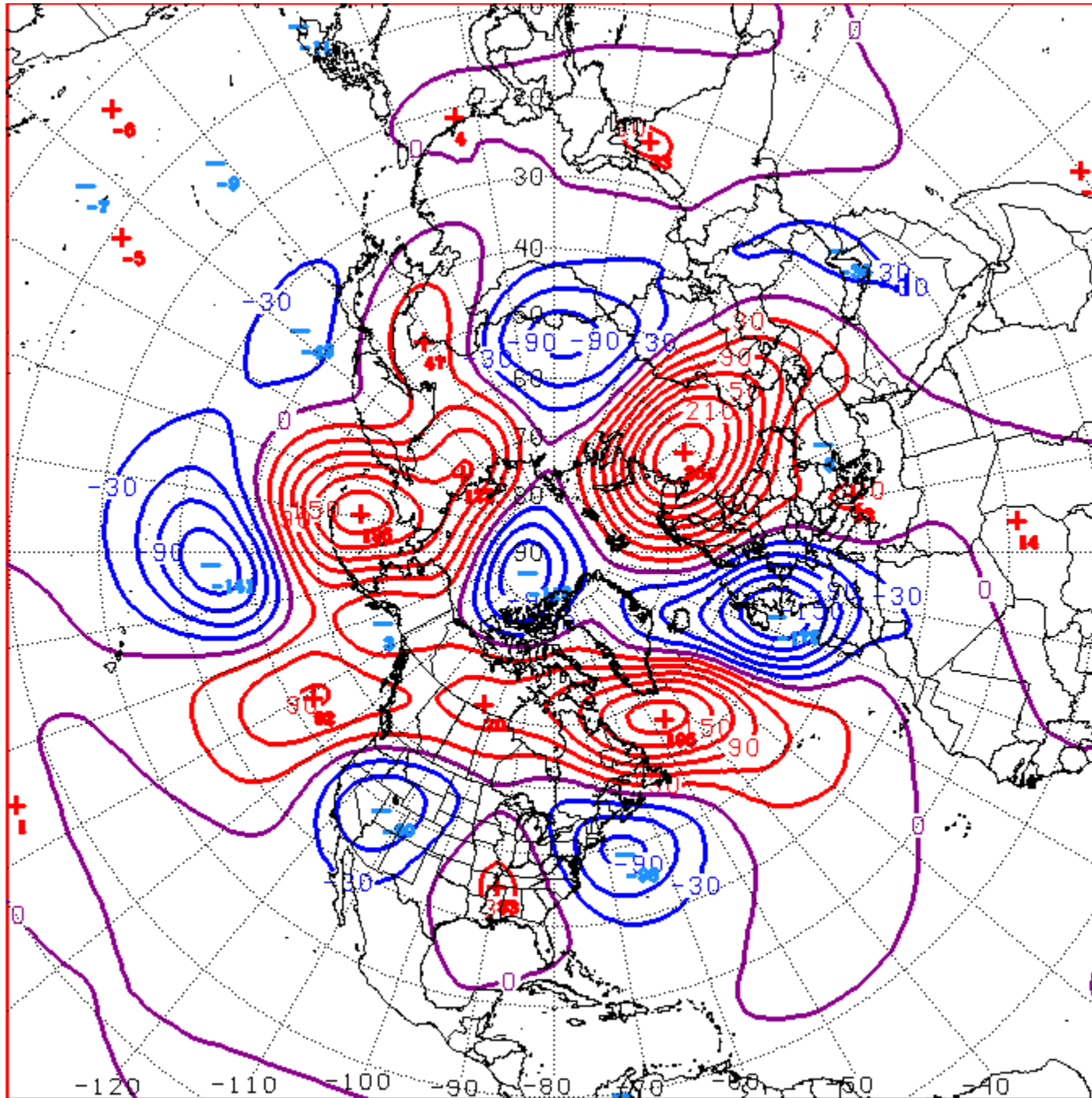
0-hour analysis valid 1200 UTC Tue 13 May 2014

RAP (12z 13 May)

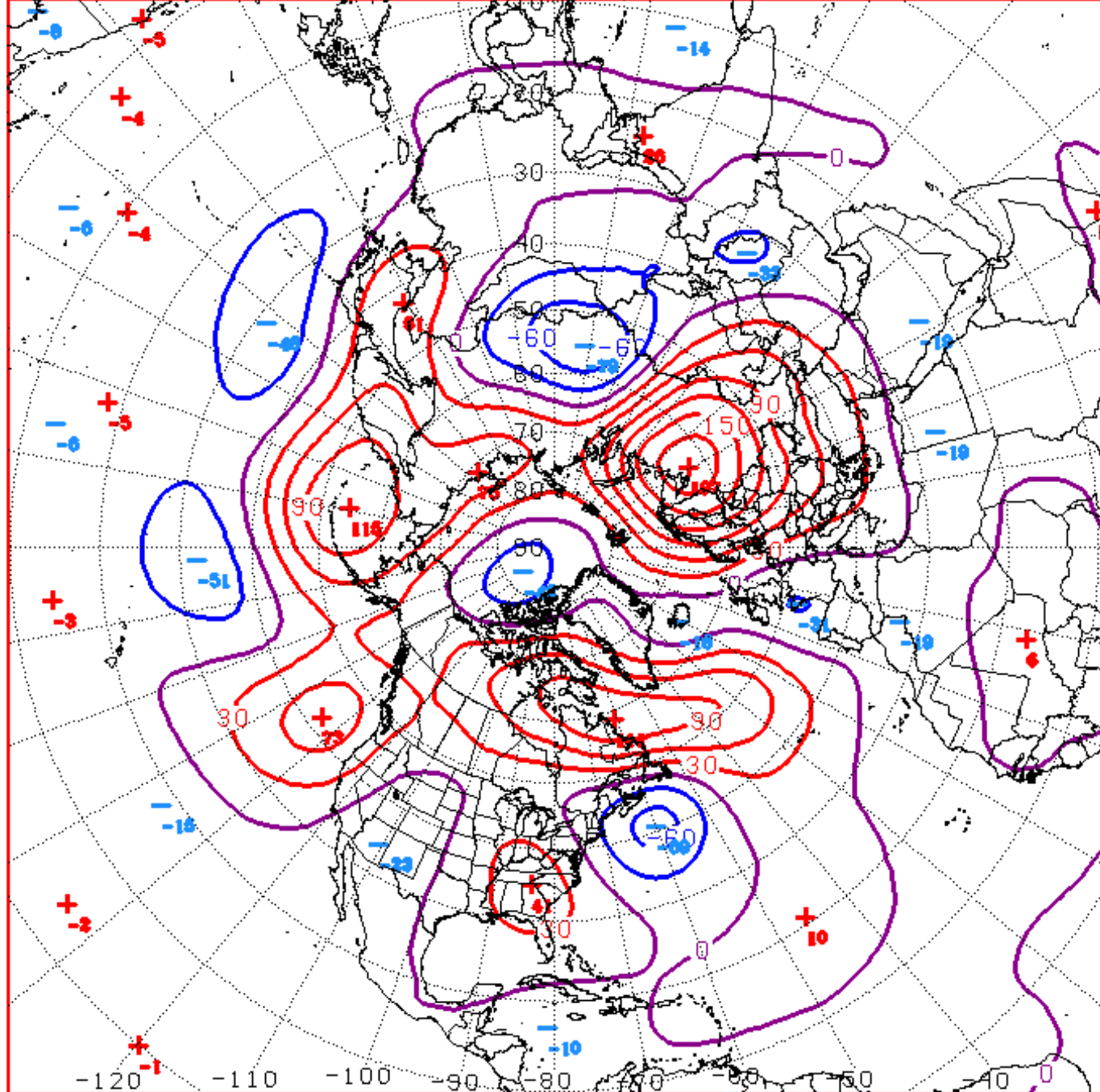
Current  
Conditions



70 80 90 (percent)



D+8 500 MB ANOMALIES FROM 00Z ECMM  
 CPC MAP MADE MAY 13 2014 1050 UTC CNTD MAY 21 2014



D+11 500 MB ANOMALIES FROM 00Z ECMM  
 CPC MAP MADE MAY 13 2014 1052 UTC CNTD MAY 24 2014

WHMJO Phase 2 z200 Lagged Composite (amj)

WHMJO Phase 2 olr Lagged Composite (amj)

T = 0  
(days)

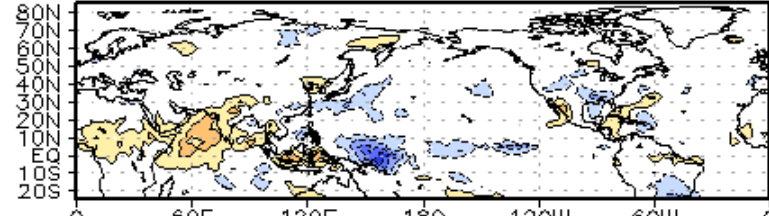
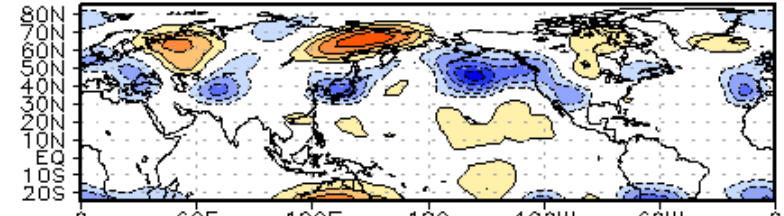
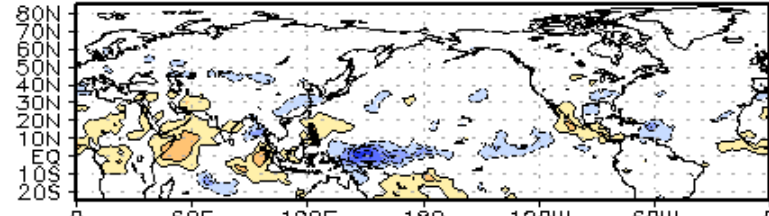
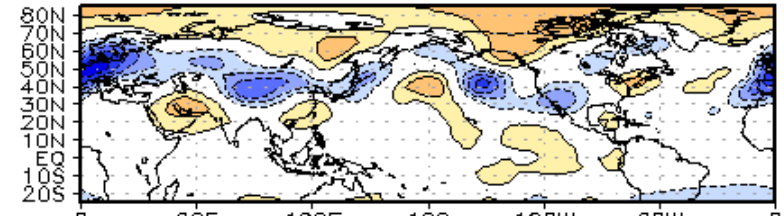
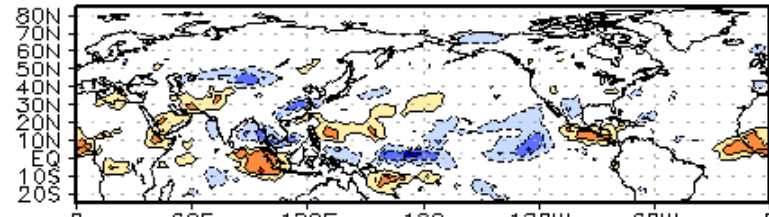
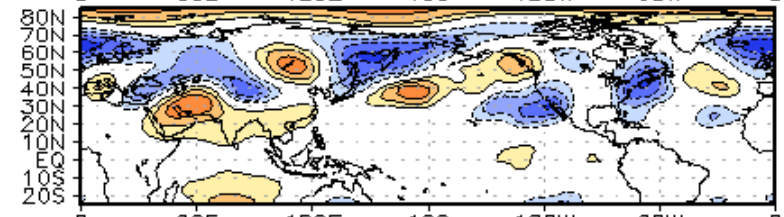
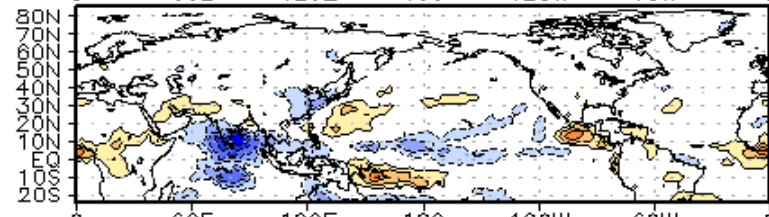
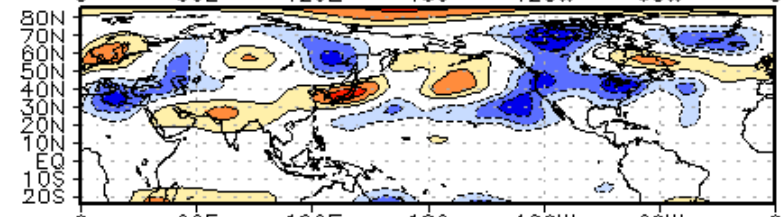
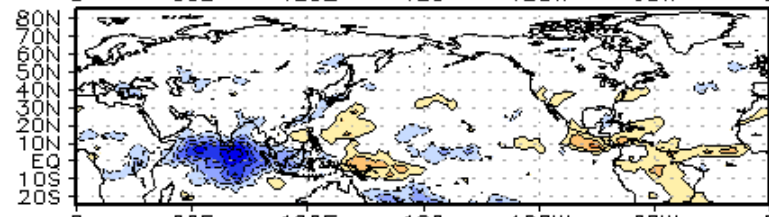
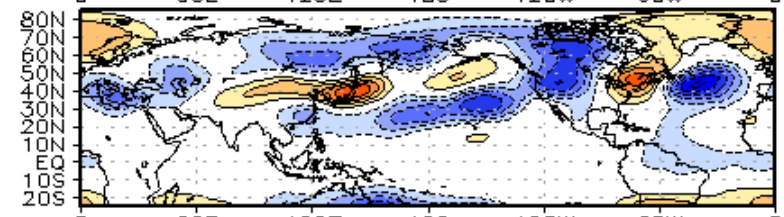
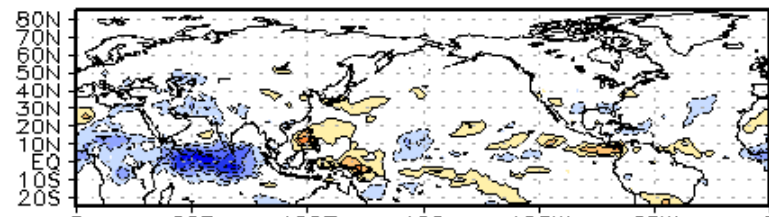
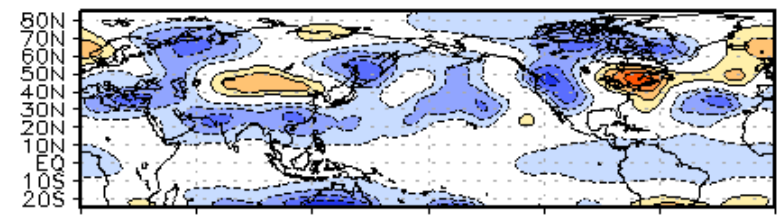
T = 5

T = 10

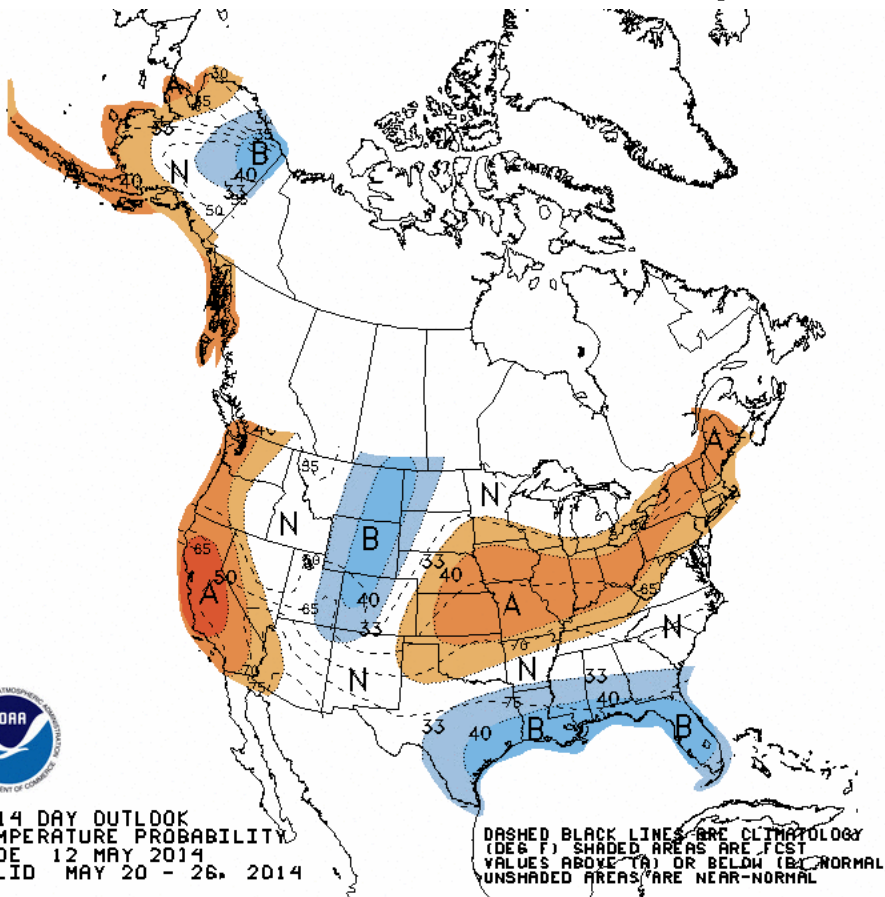
T = 15

T = 20

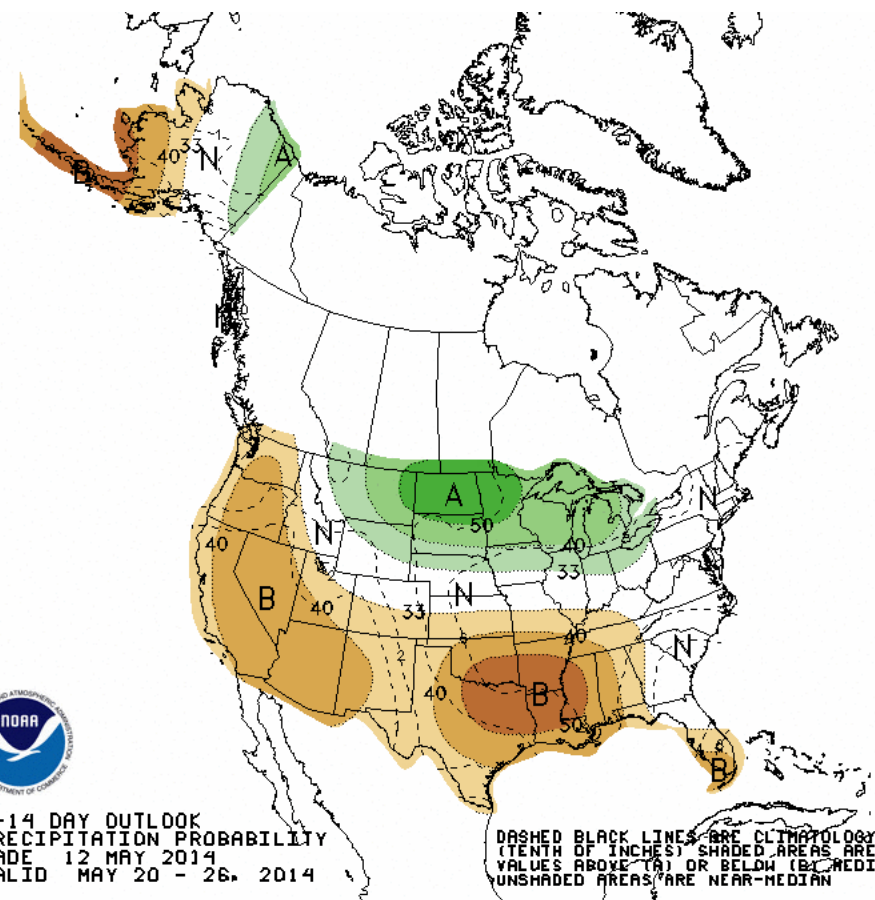
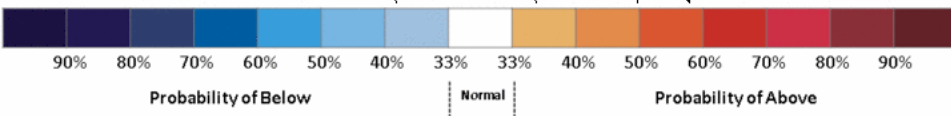
T = 25



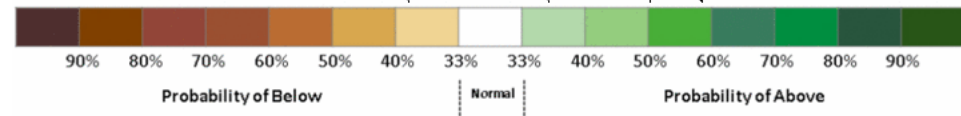
# Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 12 MAY 2014  
VALID MAY 20 - 26, 2014



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 12 MAY 2014  
VALID MAY 20 - 26, 2014

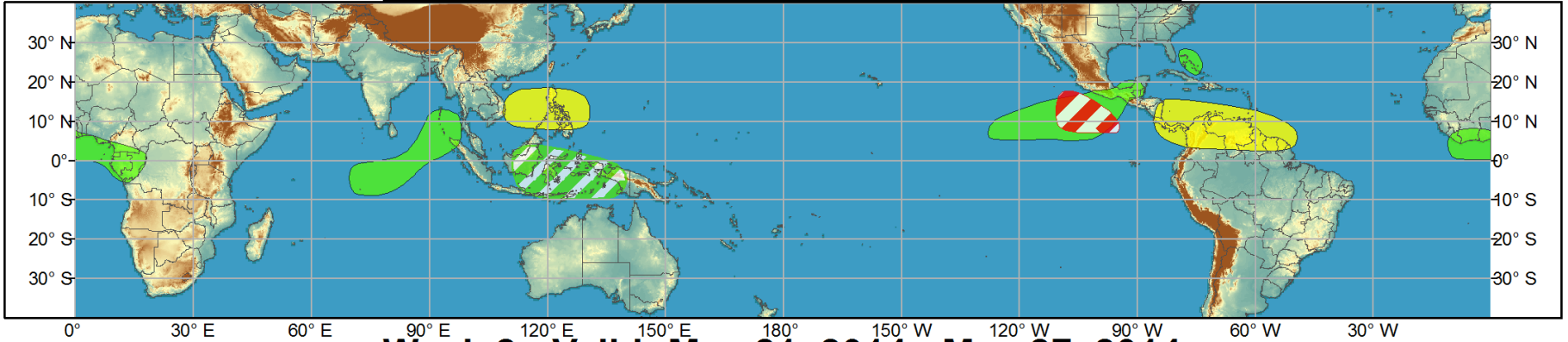




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- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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