

Global Tropics Hazards And Benefits Outlook

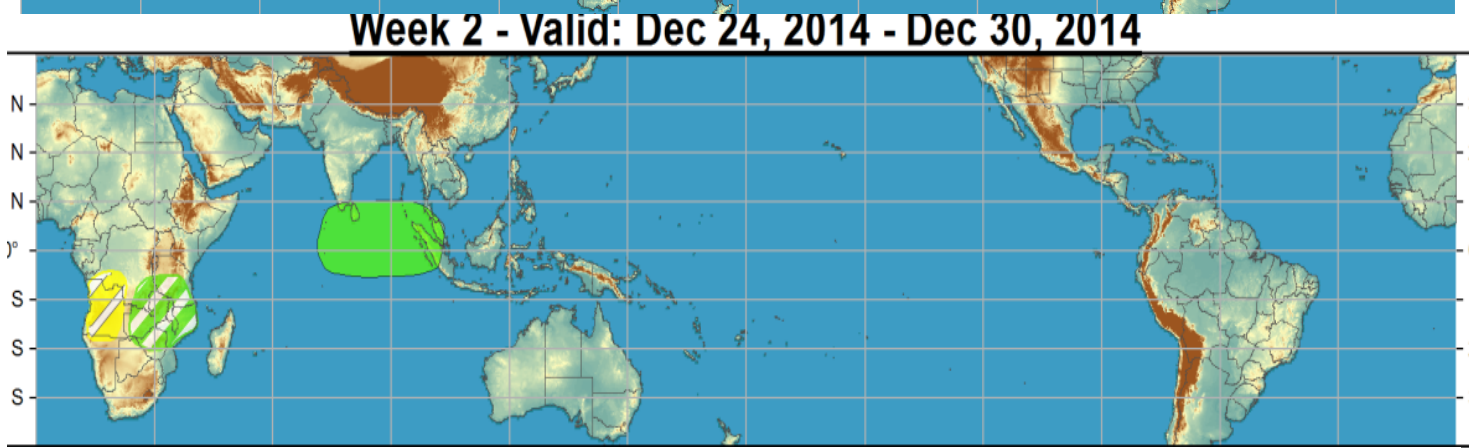
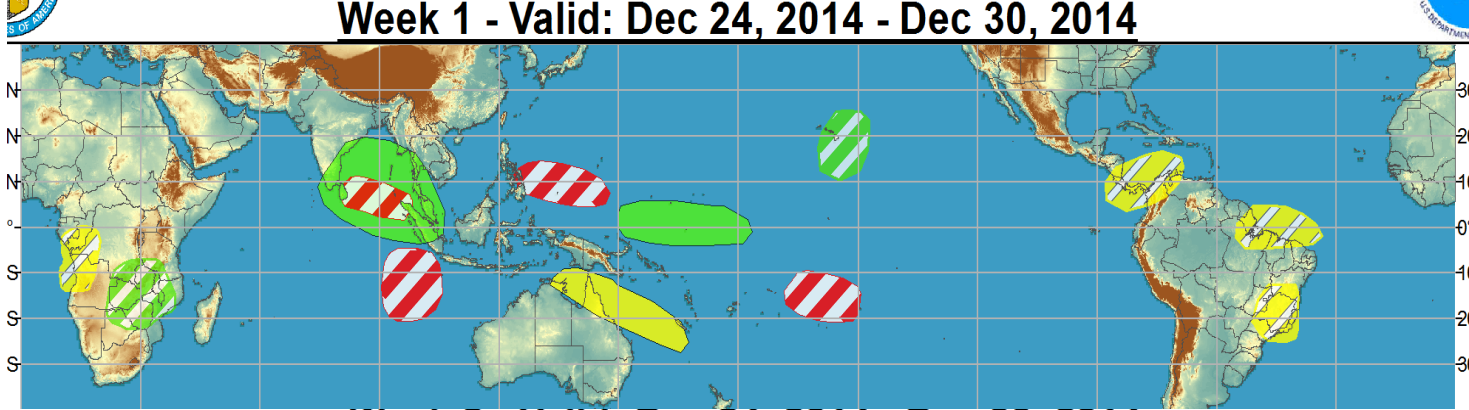
December 30, 2014

Matthew Rosencrans

Outline

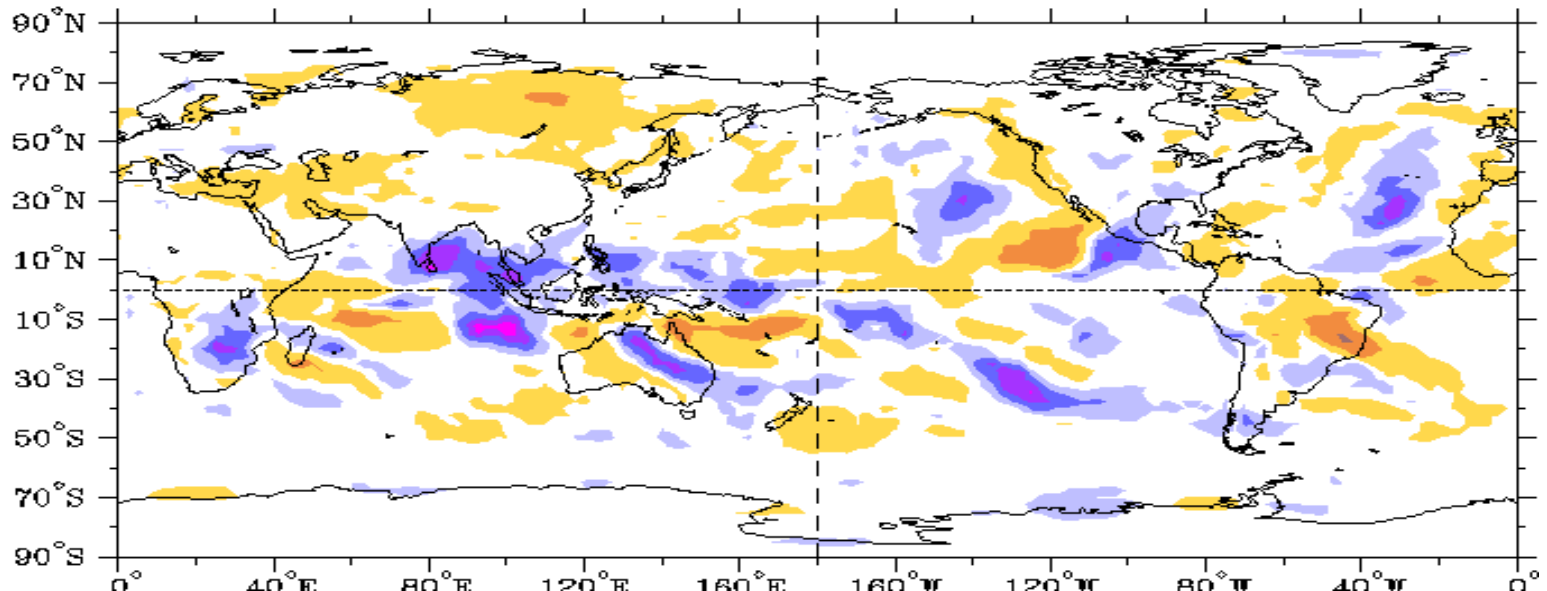
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review



Cool shading
More clouds/rain

Warm shading
Less clouds/rain



Synopsis of Climate Modes

ENSO:

- Current: ENSO-neutral
- Outlook: There is an approximately 65% chance that El Niño conditions will be present during the Northern Hemisphere winter and last into the Northern Hemisphere spring 2015.

MJO and other subseasonal tropical variability:

- The MJO remained a significant part of the circulation. Kelvin and Equatorial Rossby waves are also contributing.
- Most dynamical model MJO index forecasts depict a continuation of the signal, with some statistical tools showing less of a robust signal. The statistical tools have been much more accurate during the past 2 weeks.

Extratropics:

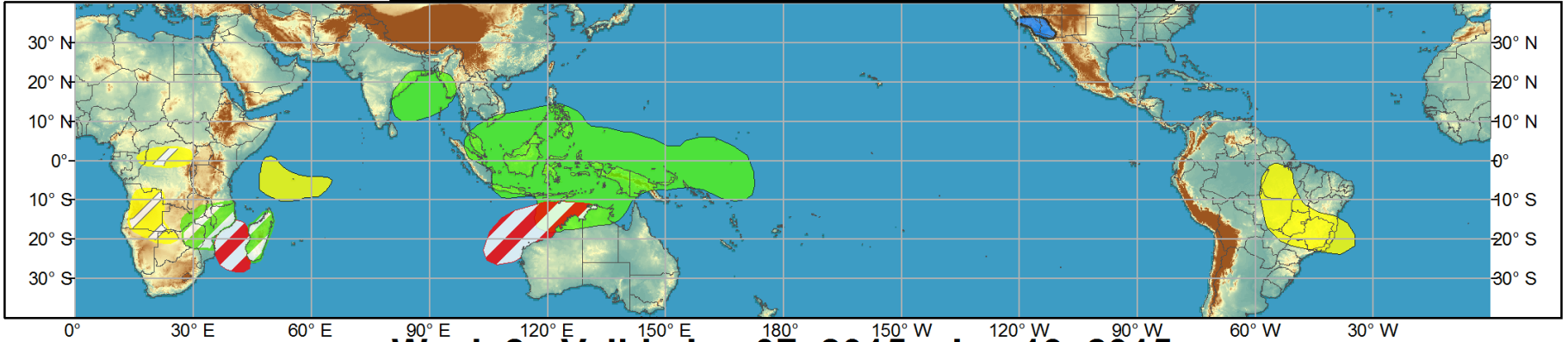
- The extended range forecast for the U.S. is not likely to be largely impacted directly by the MJO, but there is a chance for impact to the U.S. is likely later (days 15-20) as convection over the West Pacific interacts with the East Asian Jet. Internal, mid-latitude variability is likely to drive much of the pattern of the CONUS through day 14.



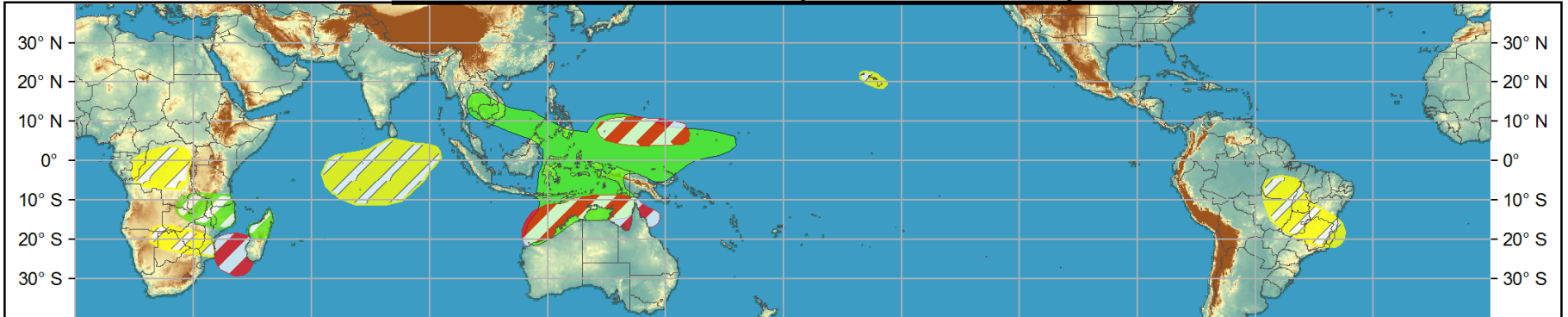
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Week 1 - Valid: Dec 31, 2014 - Jan 06, 2015

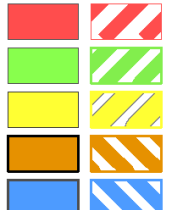


Week 2 - Valid: Jan 07, 2015 - Jan 13, 2015



Confidence
High Moderate

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



- Development of a tropical cyclone (tropical depression - TD, or greater 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.
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Produced: 12/30/2014

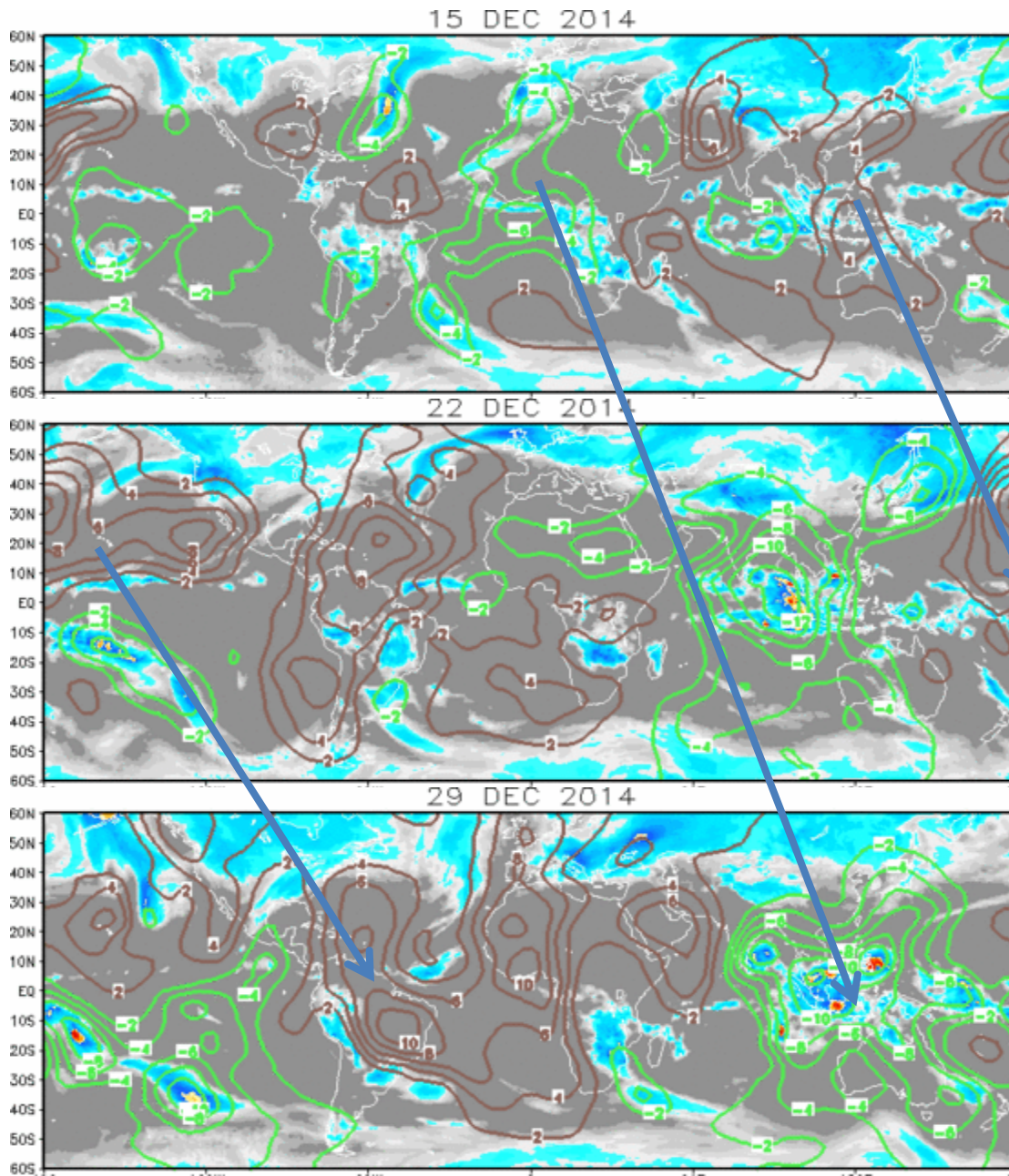
Forecaster: Rosencrans

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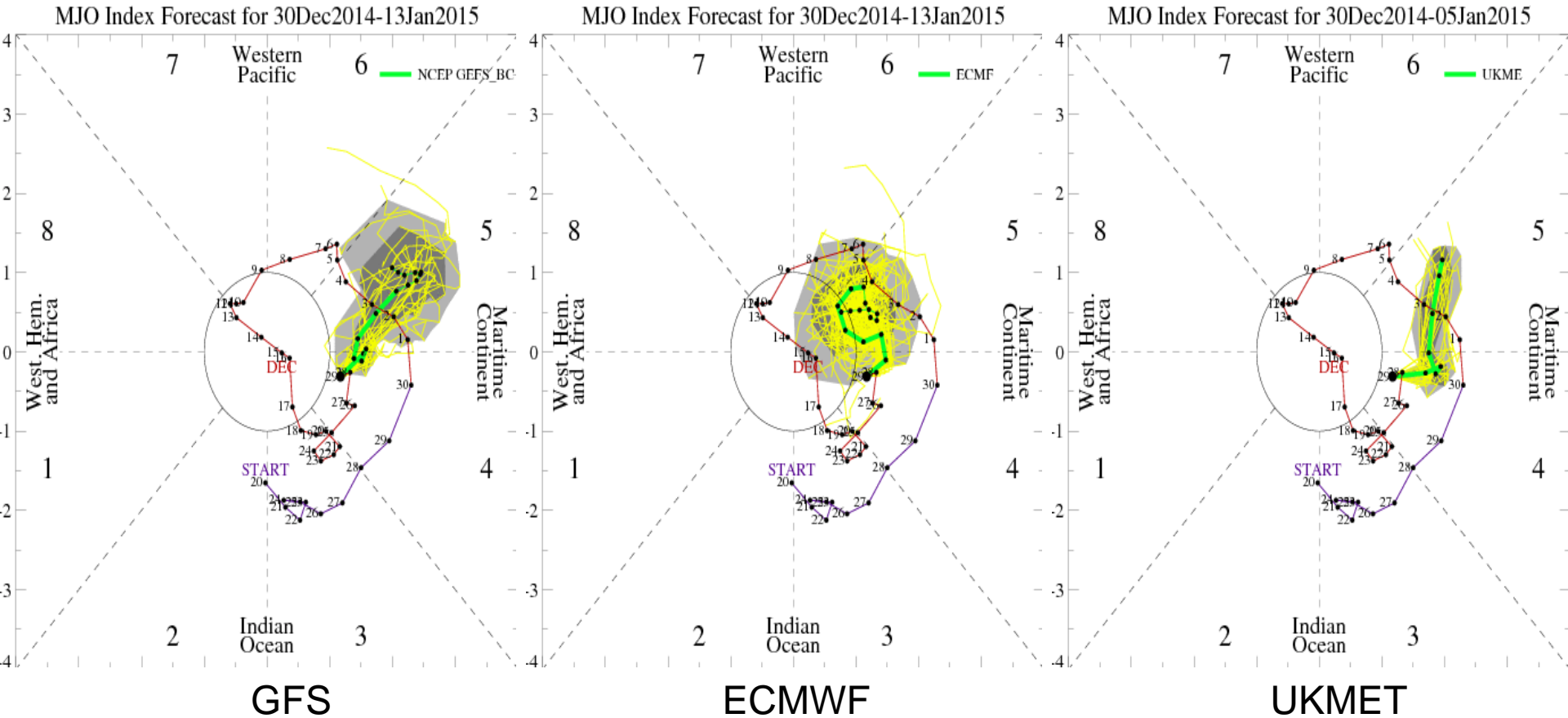
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence Brown: Enhanced Convergence



Base state
and transient
features
evident.

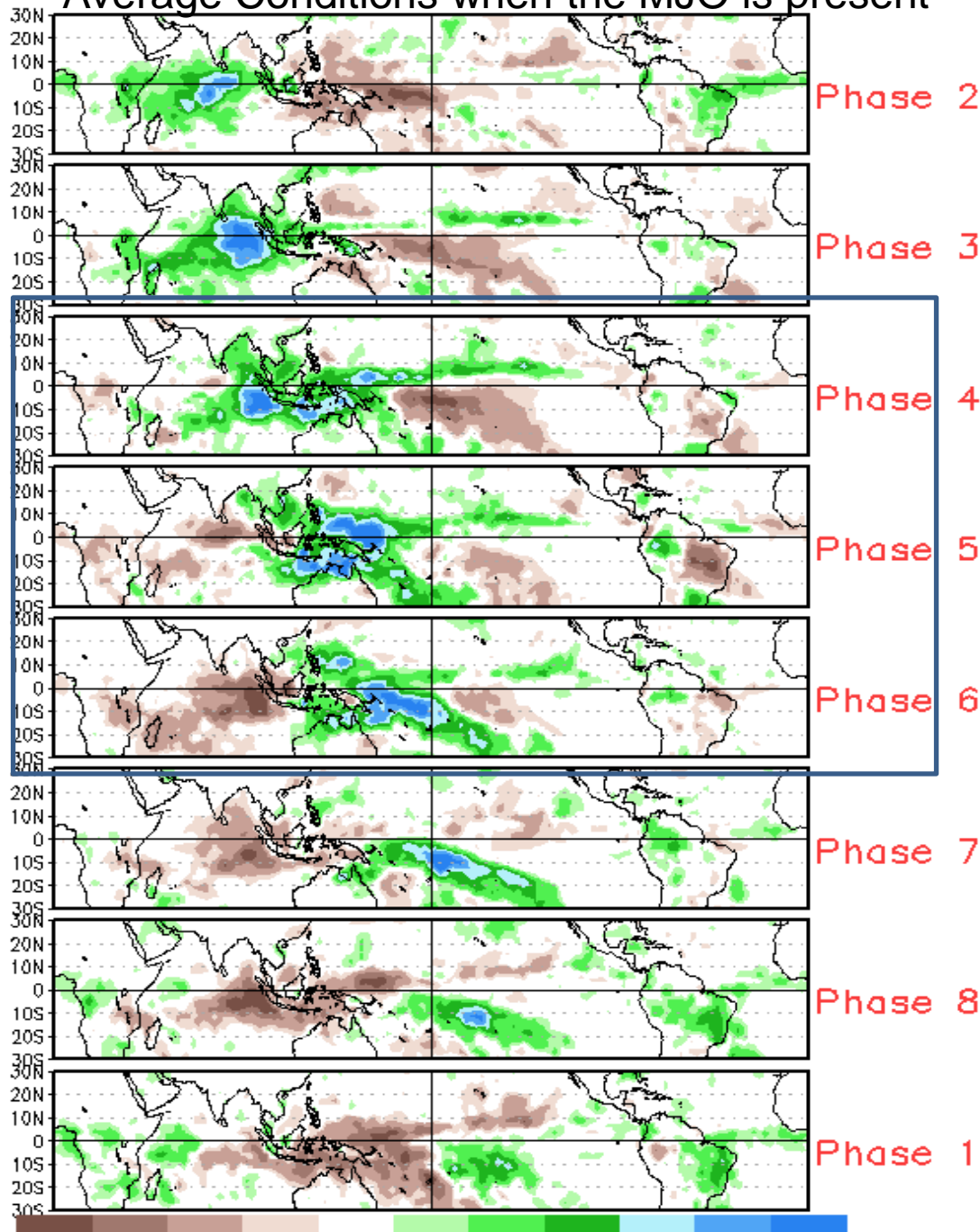
MJO Observation/Forecast



Wheeler-Hendon based analyses of model forecasts indicate a persistent MJO.

Models indicate convection aligns with Phase 4, forecast through Phase 5.

Average Conditions when the MJO is present



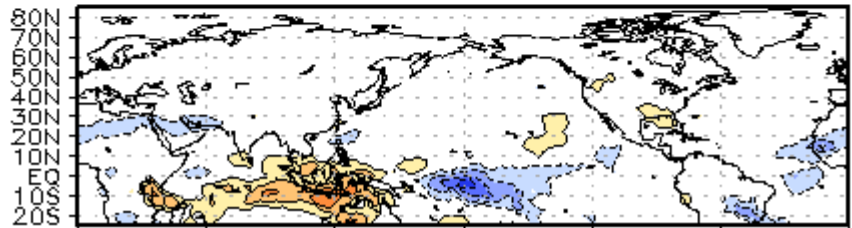
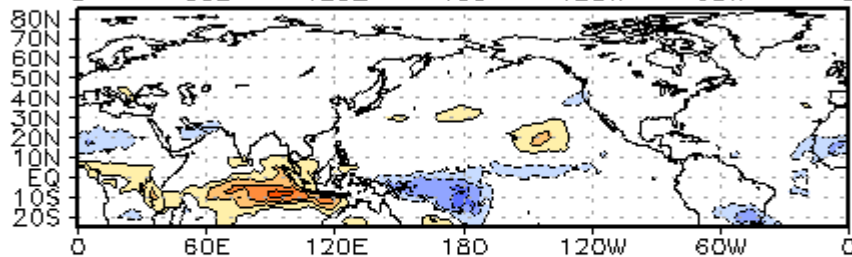
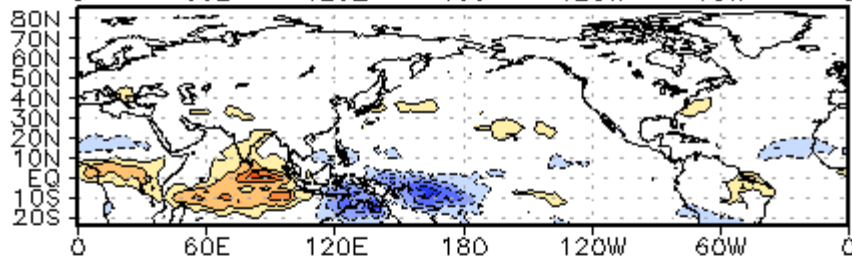
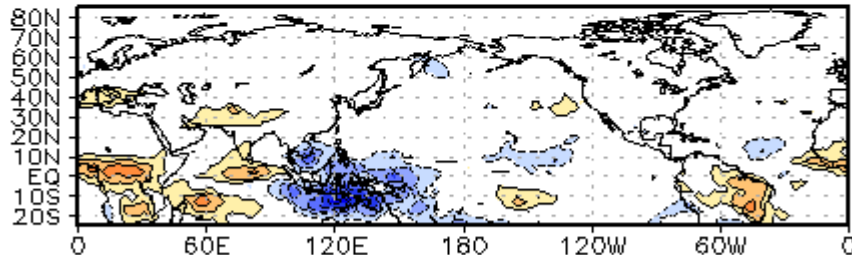
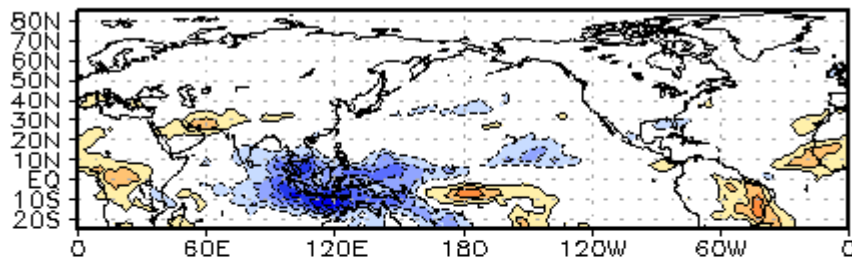
CAVEAT: These panels are representative of robust MJO events.



Lagged composites from MJO

5-day intervals

WHMJO Phase 4 α ir Lagged Composite (djf)



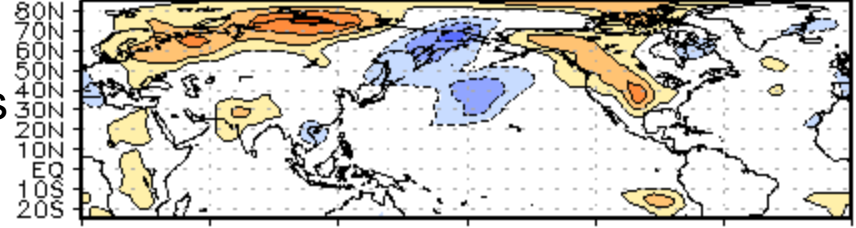
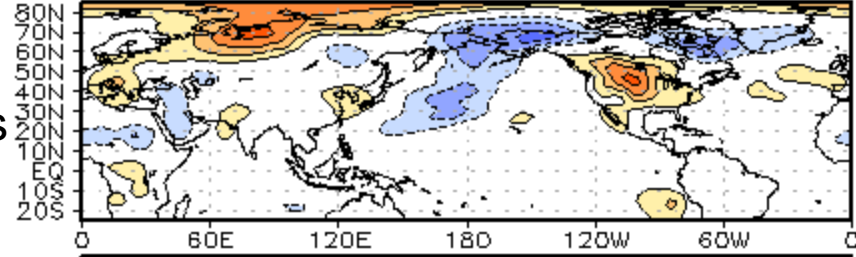
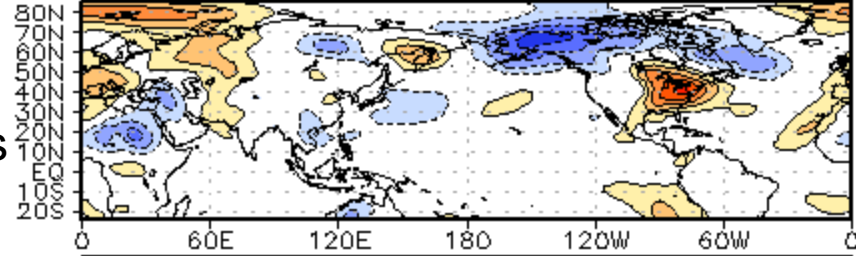
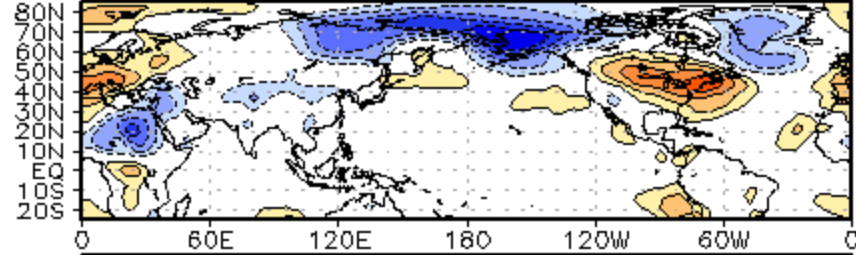
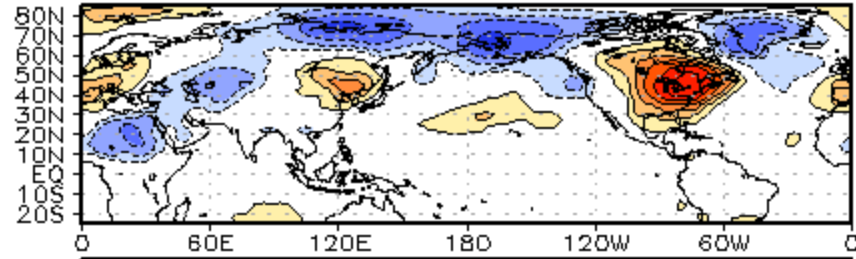
+5-day

+10-days

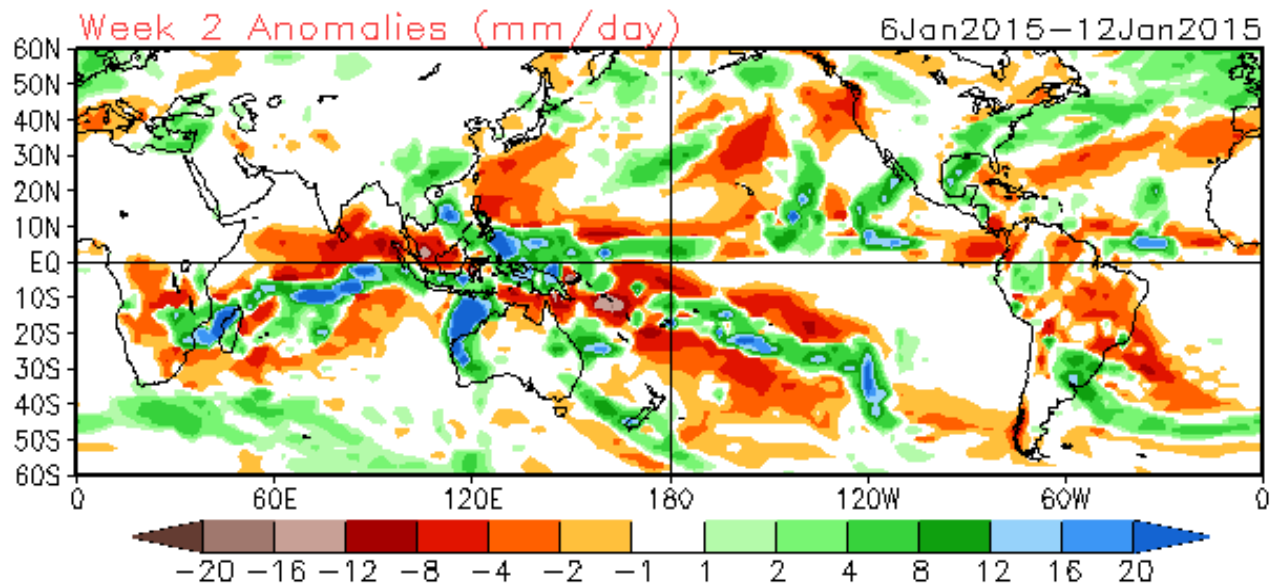
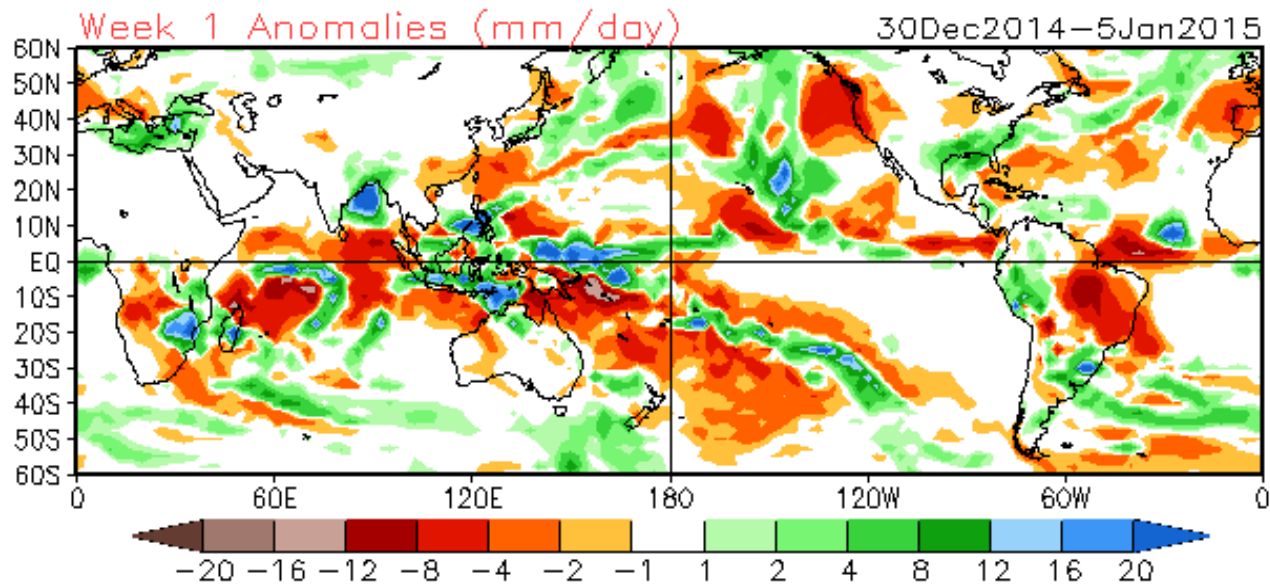
+15-days

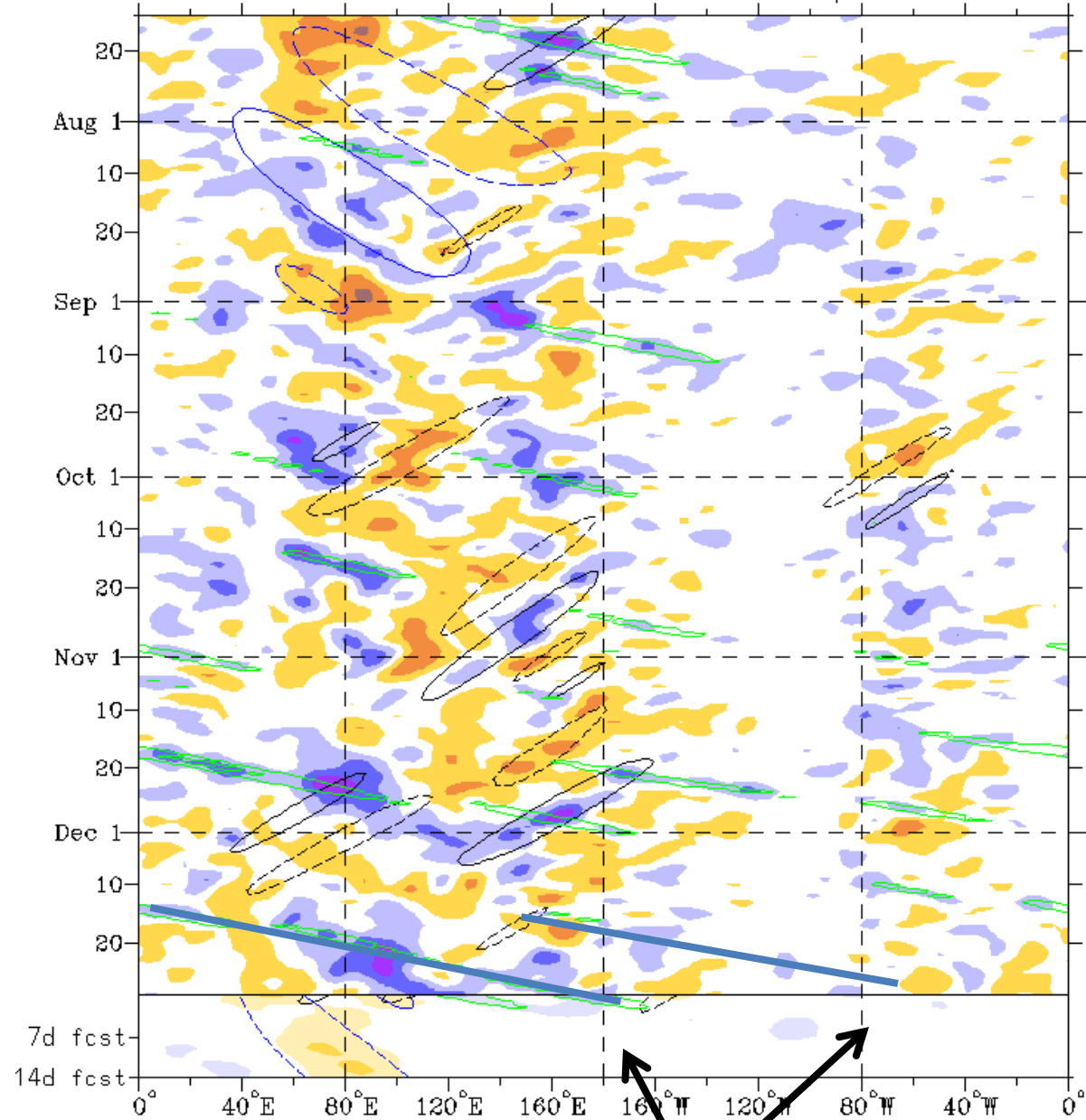
+20-days

WHMJO Phase 4 $t850$ Lagged Composite (djf)



CFSv2 Weeks 1 & 2 Precipitation
16 Member Ensemble Mean Forecast from 29Dec2014





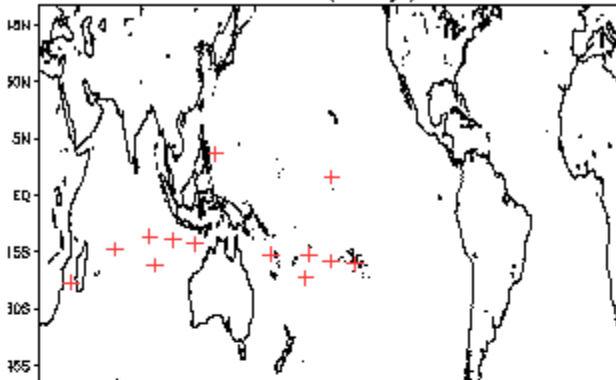
Evolving ENSO contributing.

MJO active over the Maritime Continent.

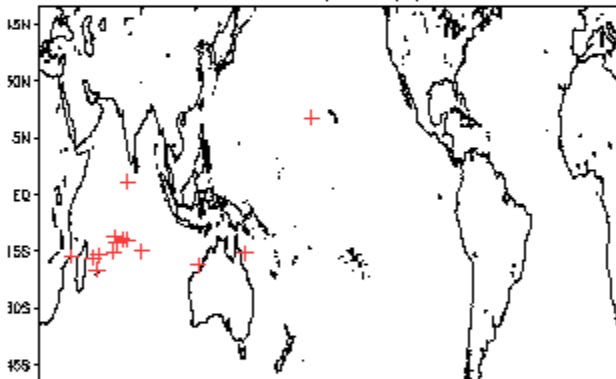
Kelvin Wave to impact wPac and ePac.

January Tropical Storm Formation by MJO phase

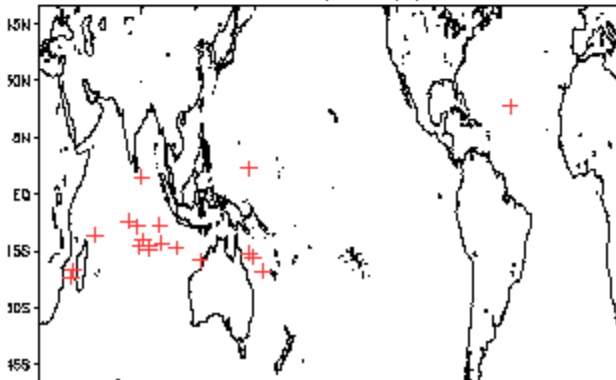
Phase 1 (67 days) 14 storms



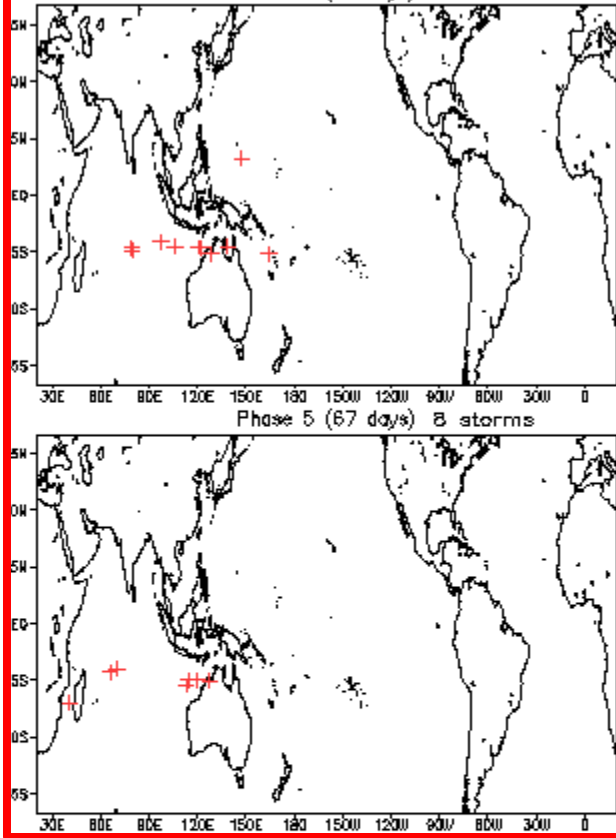
Phase 2 (101 days) 15 storms



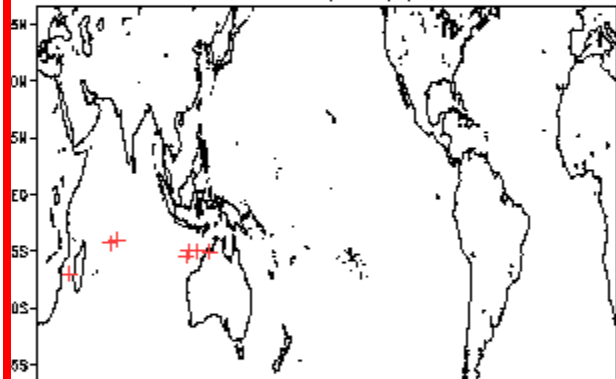
Phase 3 (112 days) 20 storms



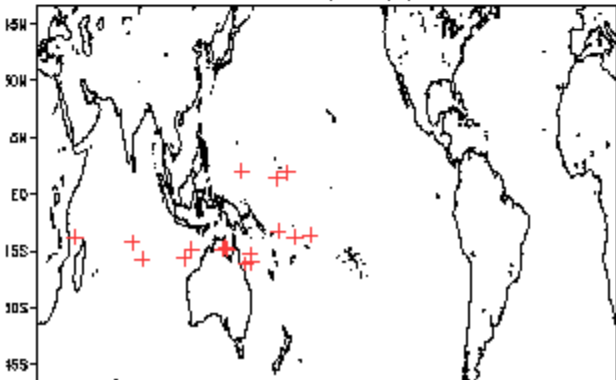
Phase 4 (89 days) 11 storms



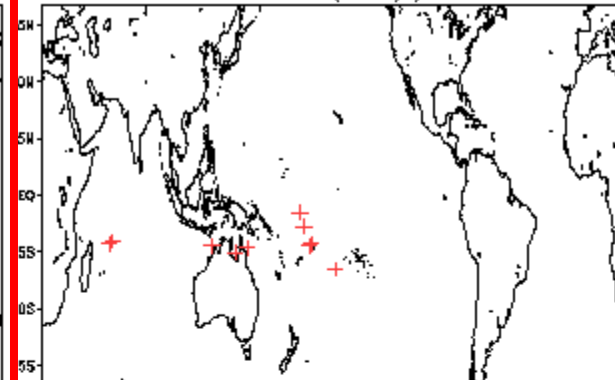
Phase 5 (67 days) 8 storms



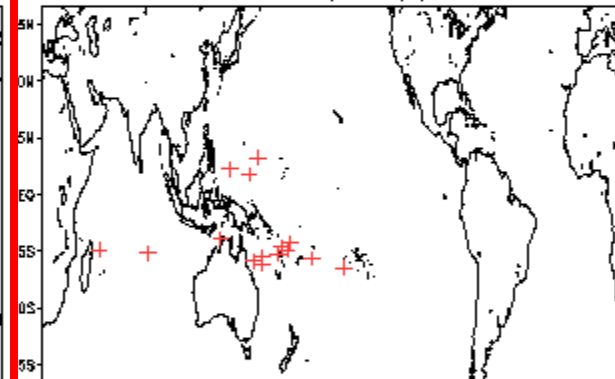
Phase 6 (88 days) 18 storms



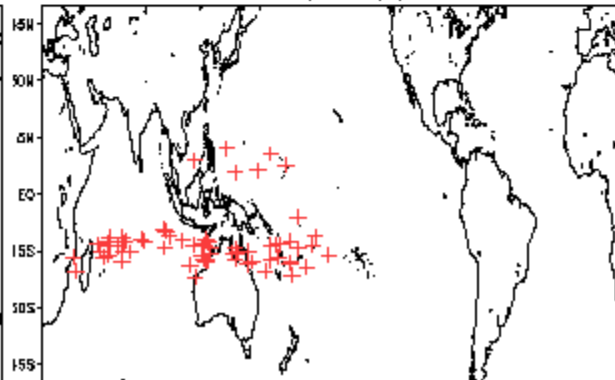
Phase 7 (81 days) 11 storms

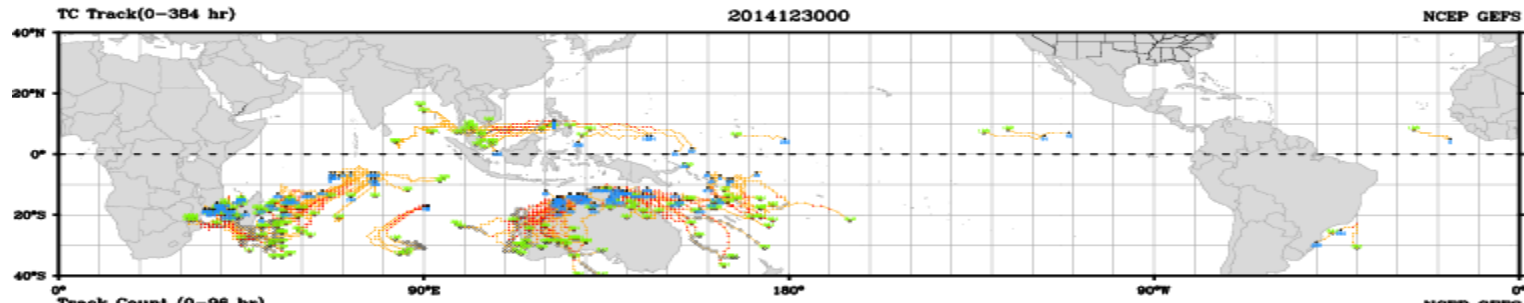


Phase 8 (105 days) 16 storms

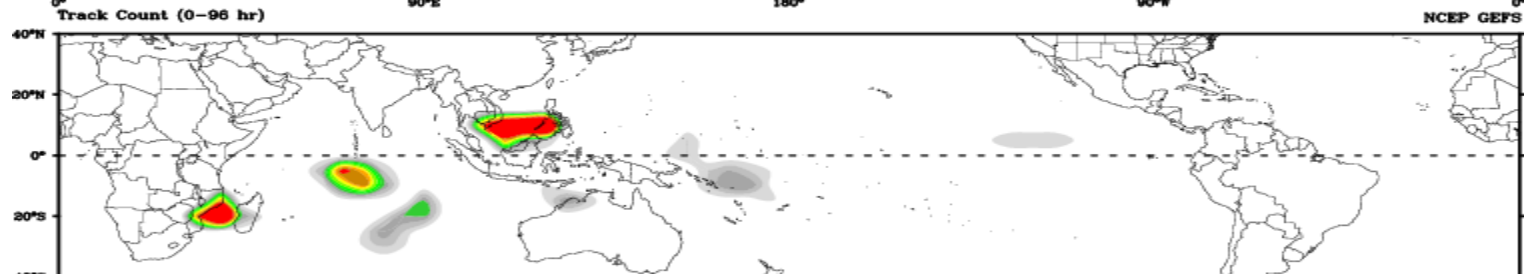


Null (364 days) 67 storms

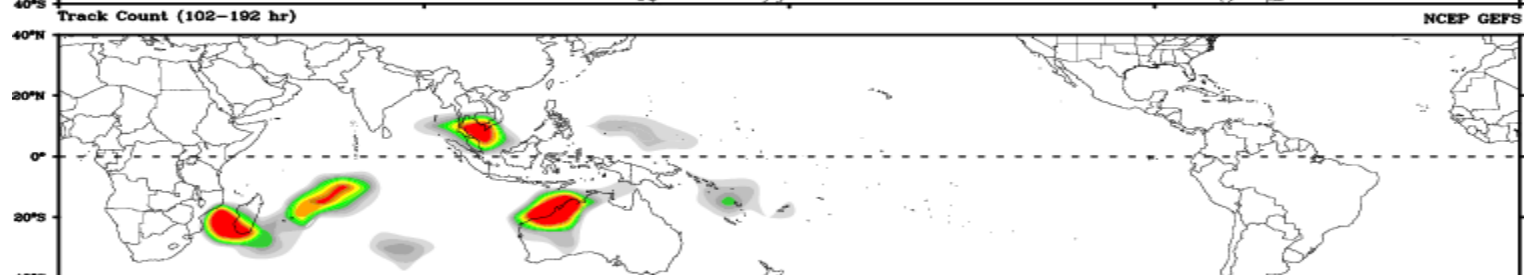




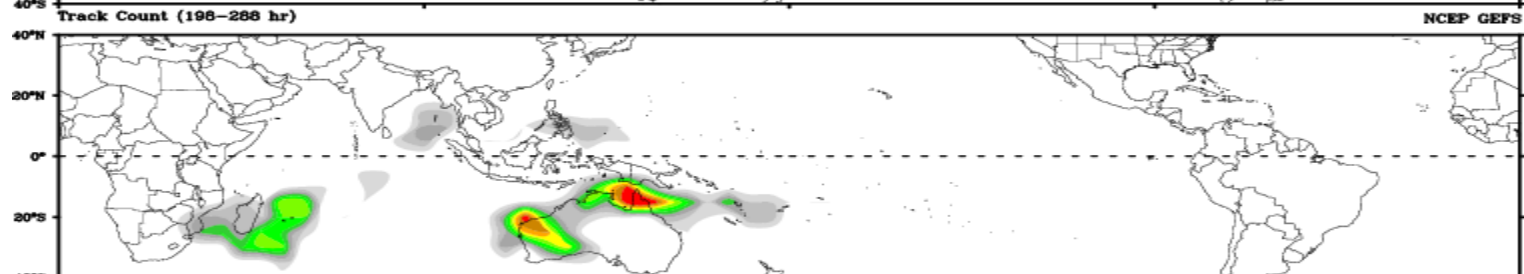
Days 1-4



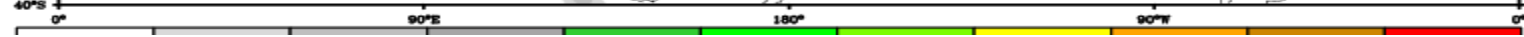
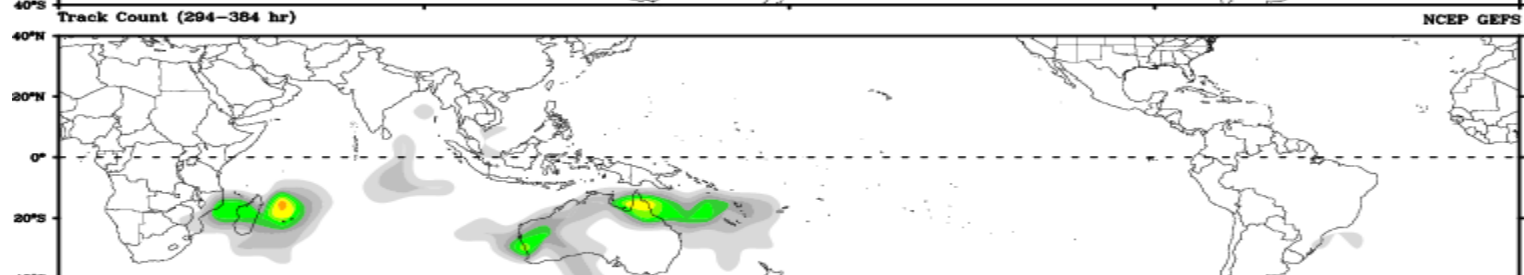
Day 5-8



Day 9-12

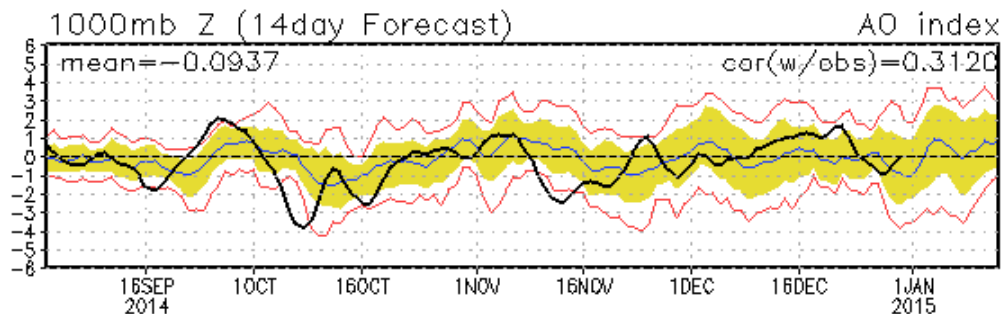
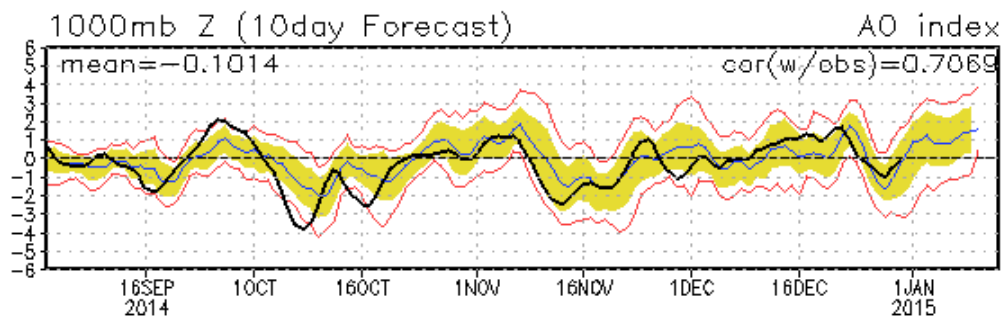
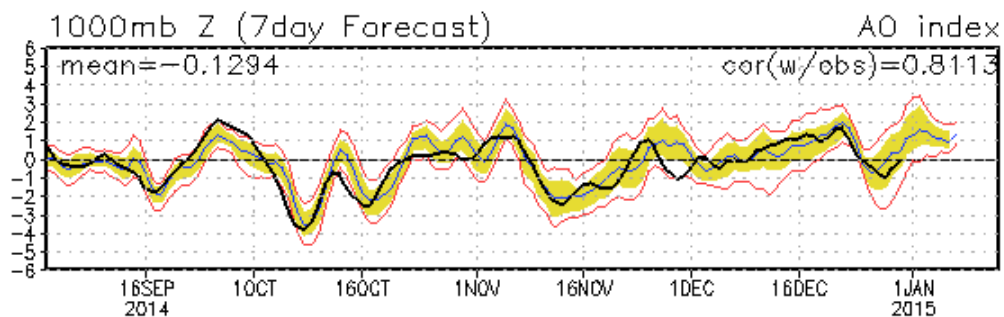
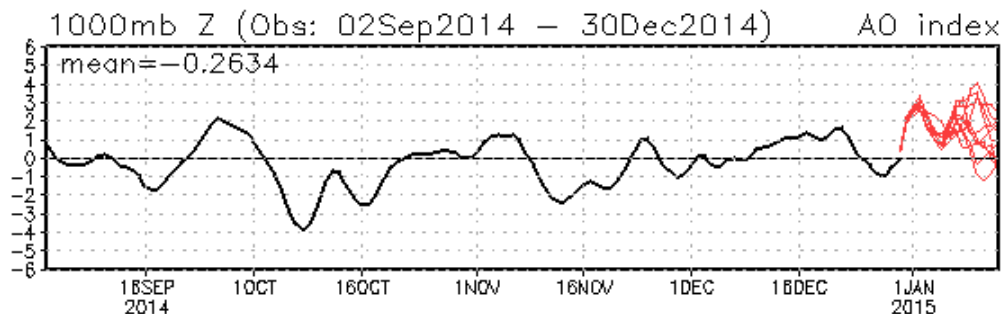


Day 13-15



Connections to U.S. Impacts

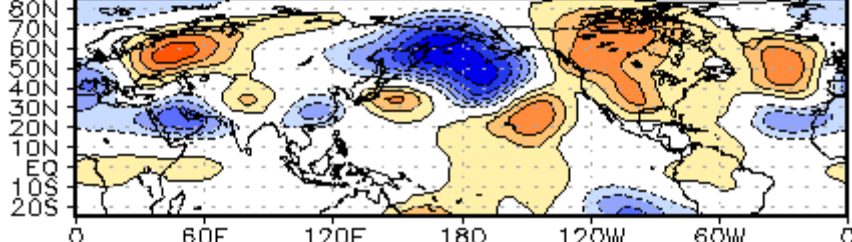
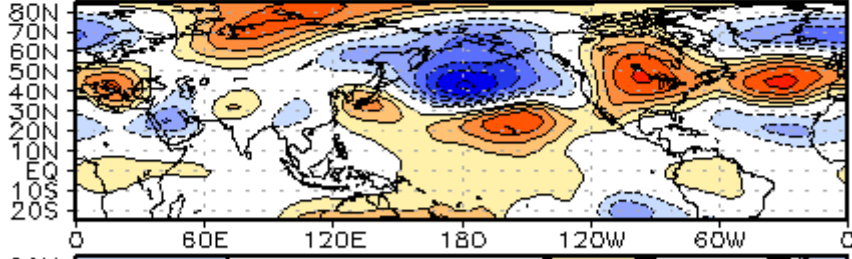
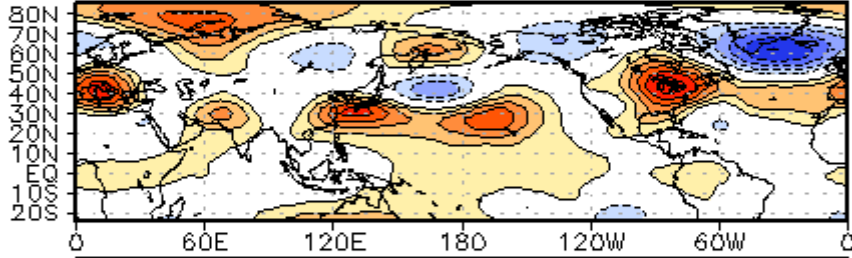
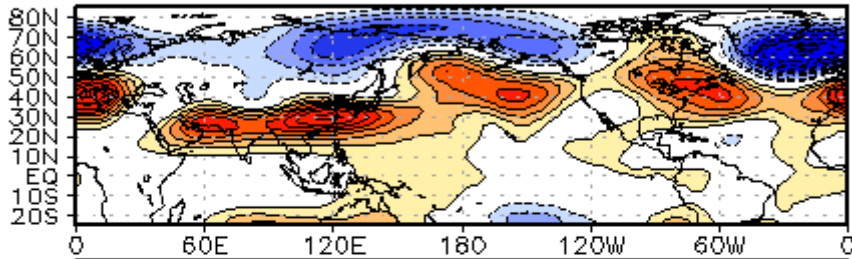
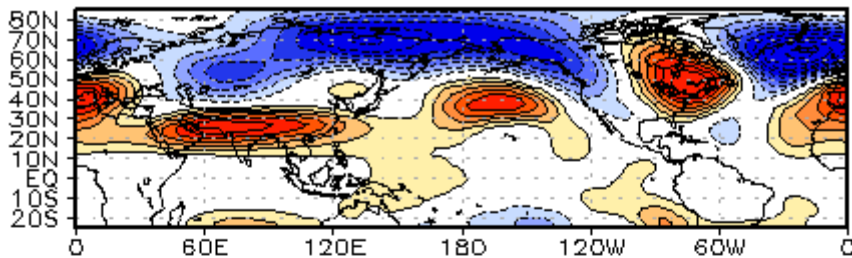
AO: Observed & ENSM forecasts



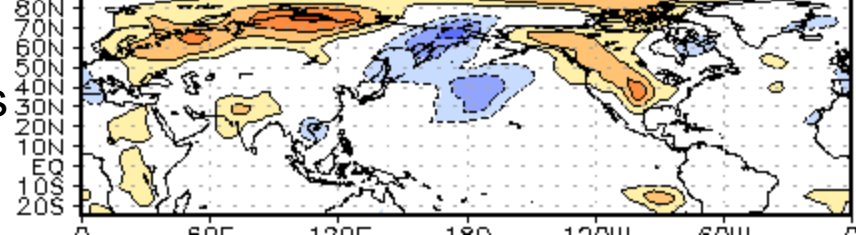
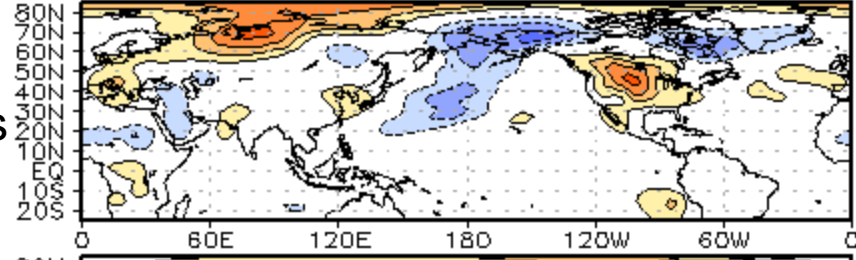
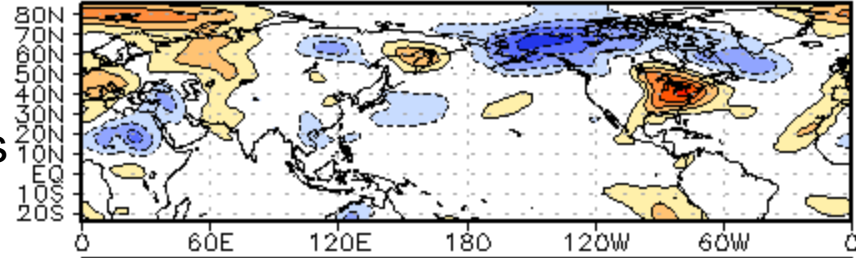
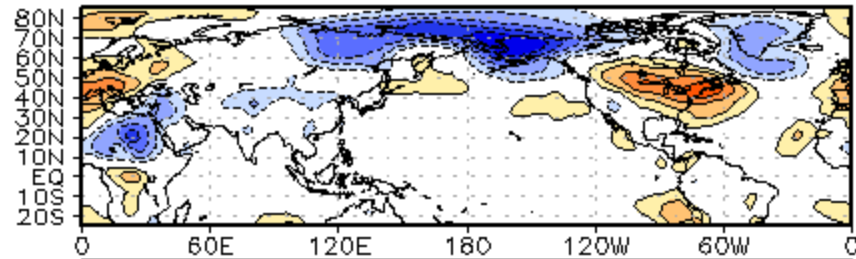
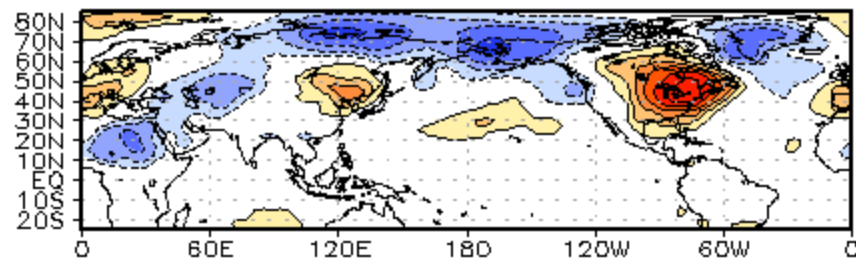
Lagged composites from MJO

5-day intervals

WHMJO Phase 4 z200 Lagged Composite (djf)



WHMJO Phase 4 t850 Lagged Composite (djf)

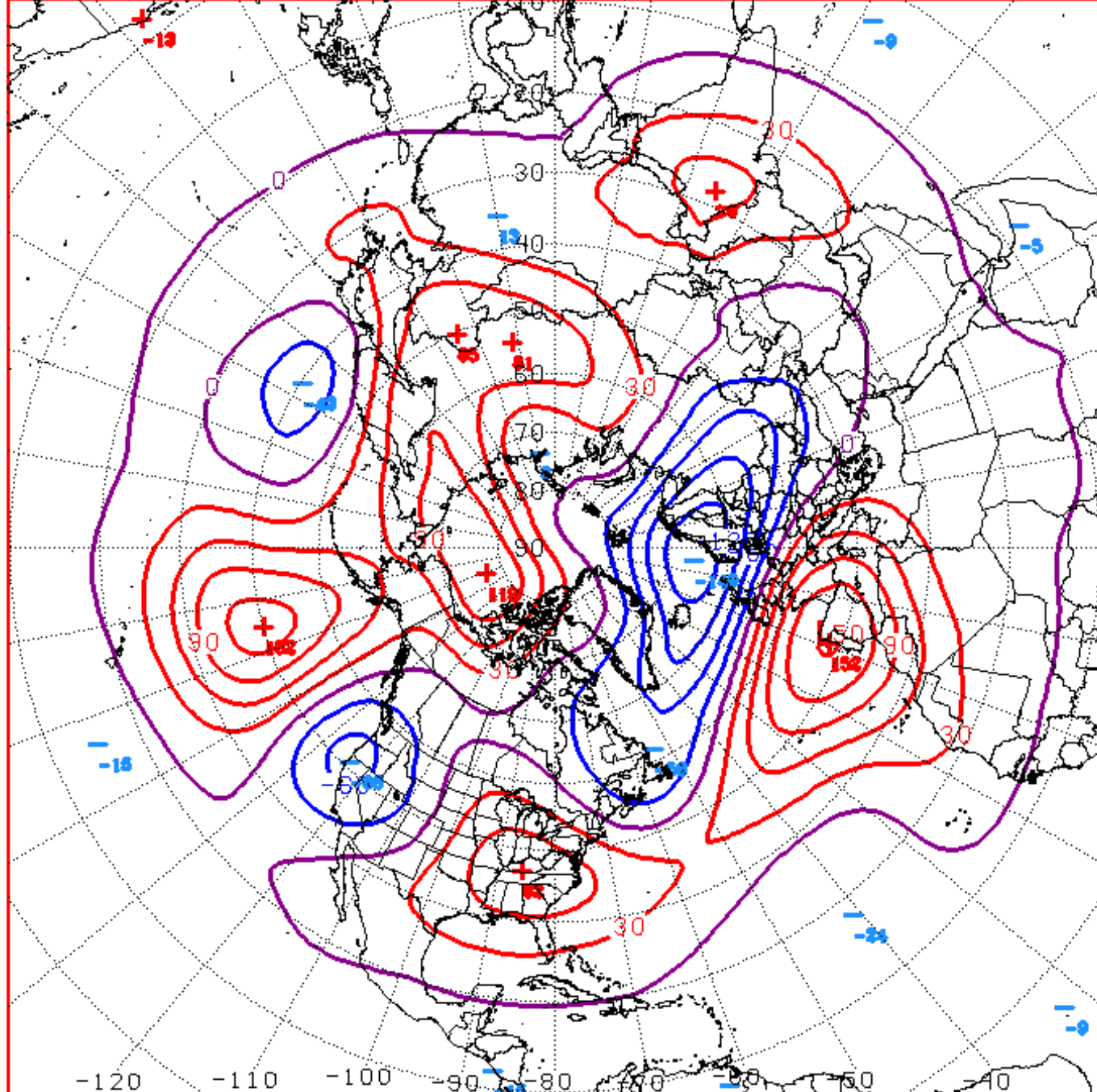


+5-day

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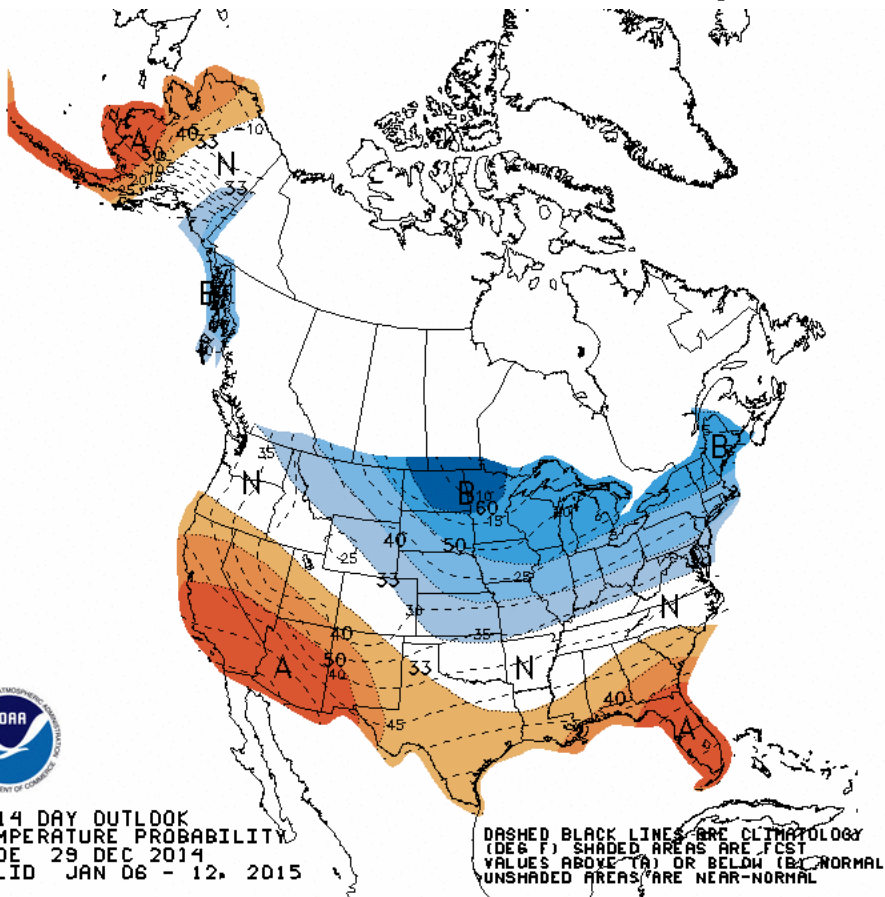
+15-days

+20-days



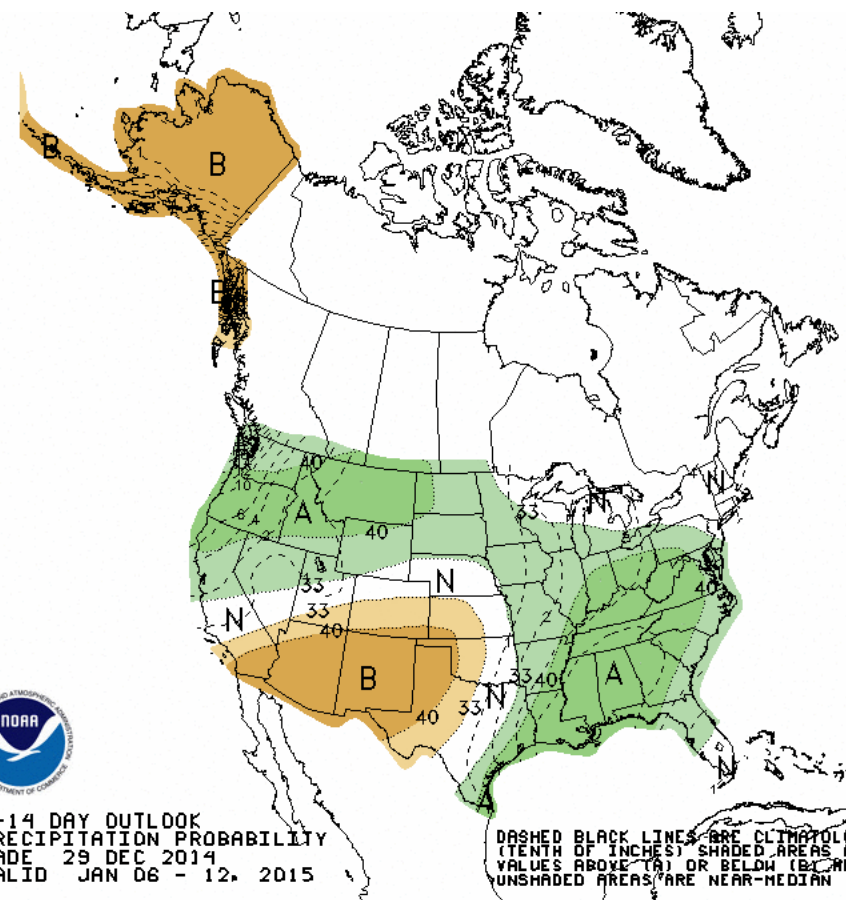
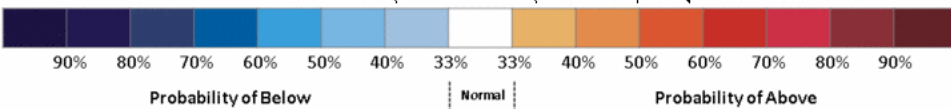
D+11 500 MB ANOMALIES FROM 00Z ECMM
CPC MAP MADE DEC 30 2014 1047 UTC CNTD JAN 10 2015

Week 2 – Temperature and Precipitation



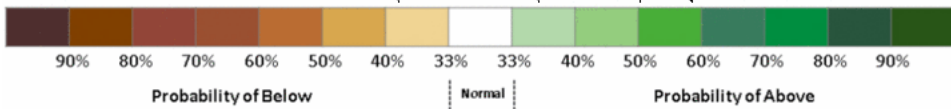
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 29 DEC 2014
VALID JAN 06 - 12, 2015

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



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 29 DEC 2014
VALID JAN 06 - 12, 2015

DASHED BLACK LINES ARE CLIMATOLOGY (TENTH OF INCHES). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) MEDIAN. UNSHADED AREAS ARE NEAR-MEDIAN.

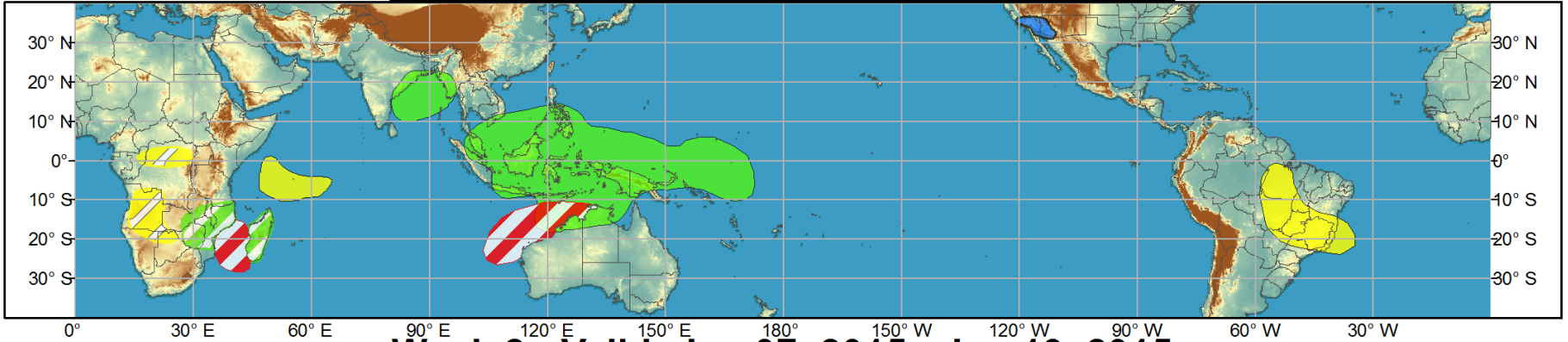




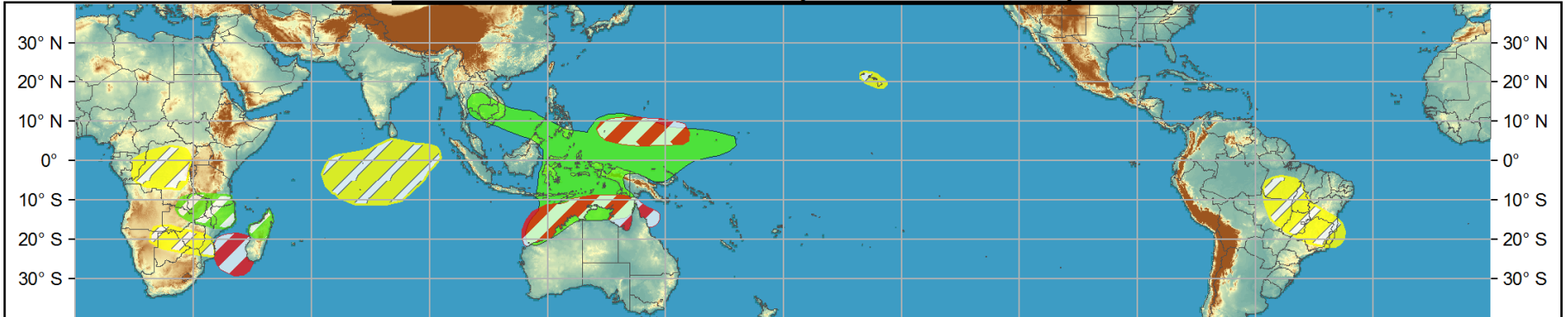
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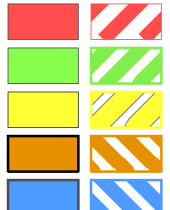


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