

# Global Tropics Hazards And Benefits Outlook

July 14, 2015

Stephen Baxter

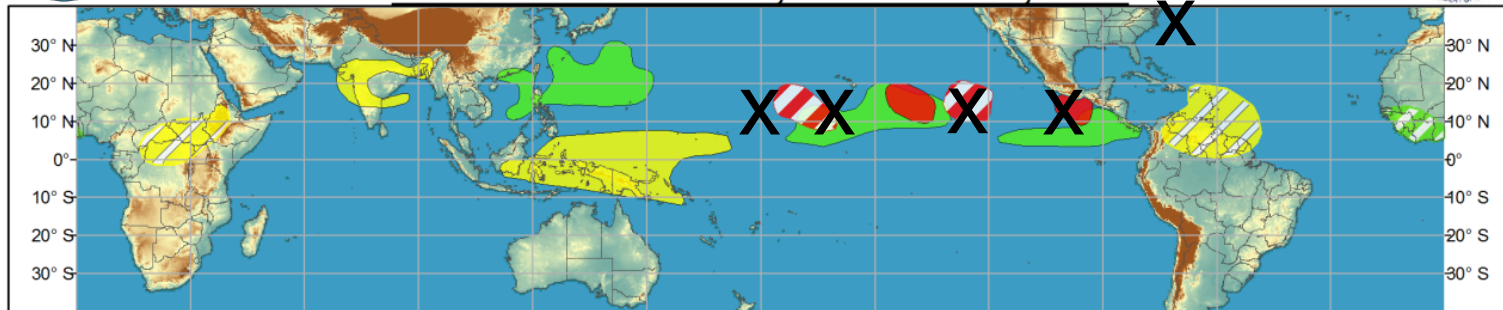
## Outline

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

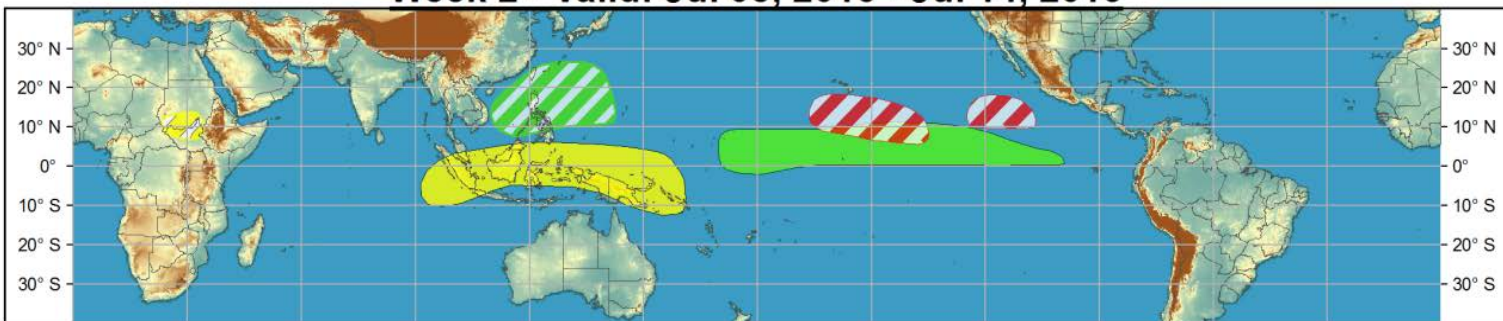
# Outlook Review



**Week 1 - Valid: Jul 08, 2015 - Jul 14, 2015**

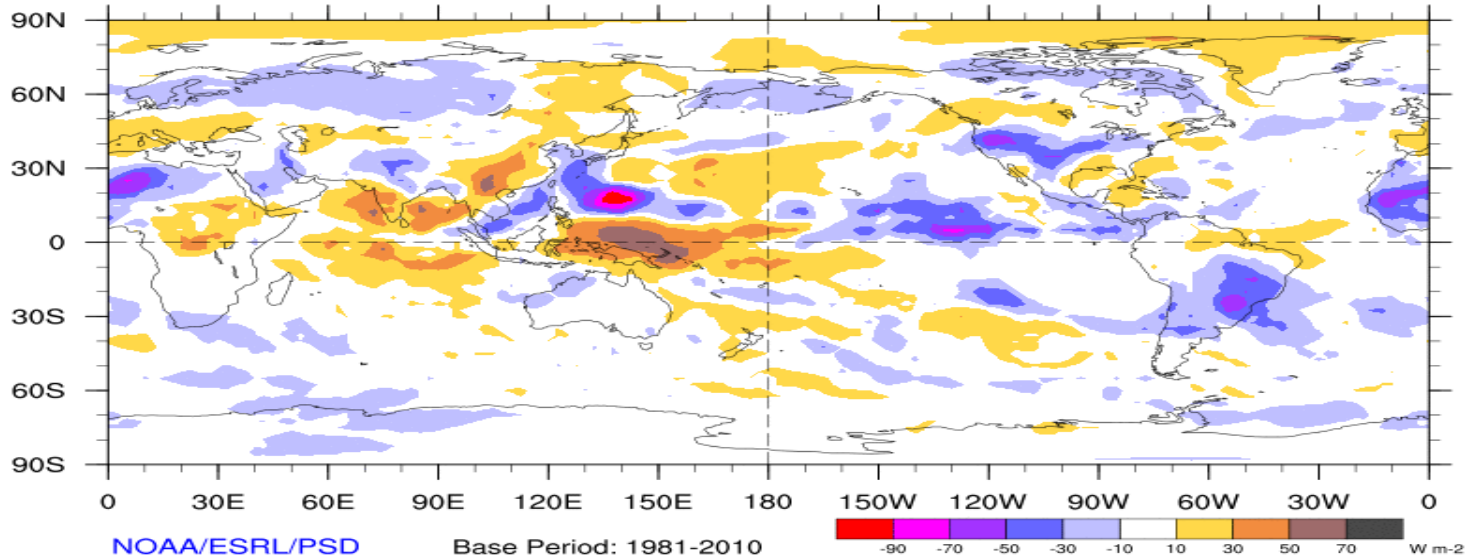


**Week 2 - Valid: Jul 08, 2015 - Jul 14, 2015**



7-Day Average OLR Anomaly

2015/07/06 - 2015/07/12



NOAA/ESRL/PSD

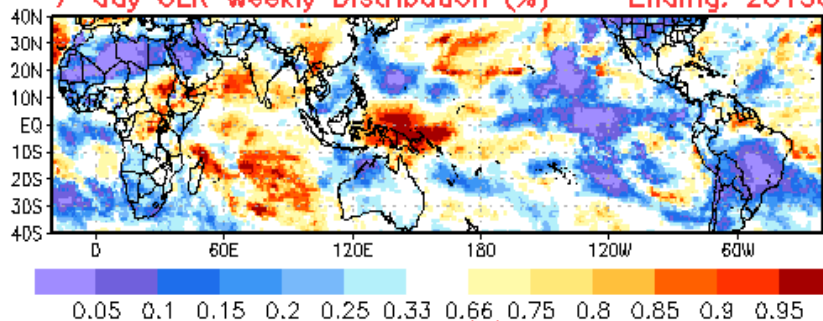
Base Period: 1981-2010

-90 -70 -50 -30 -10 10 30 50 70 W m-2

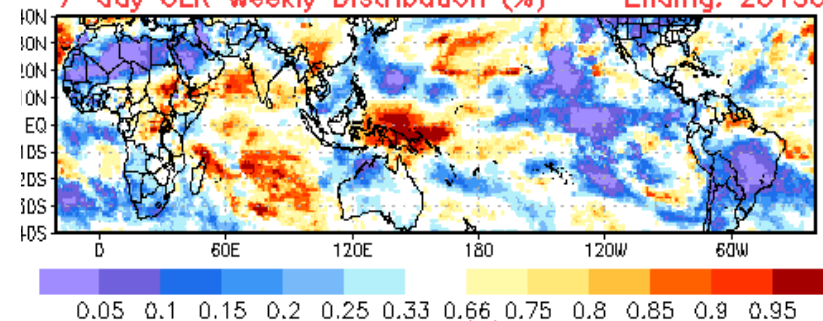
Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

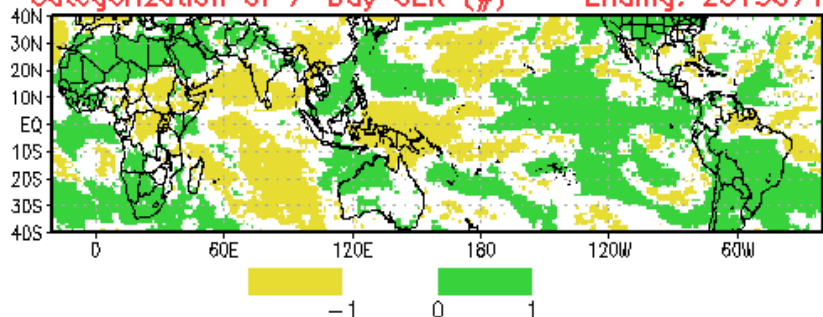
7-day OLR Weekly Distribution (%) -- Ending: 20150714



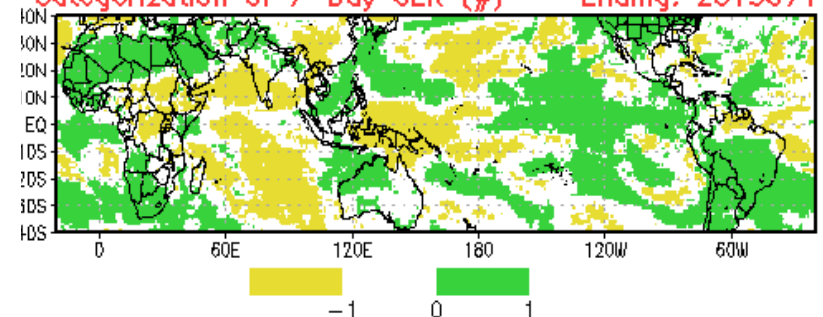
7-day OLR Weekly Distribution (%) -- Ending: 20150714



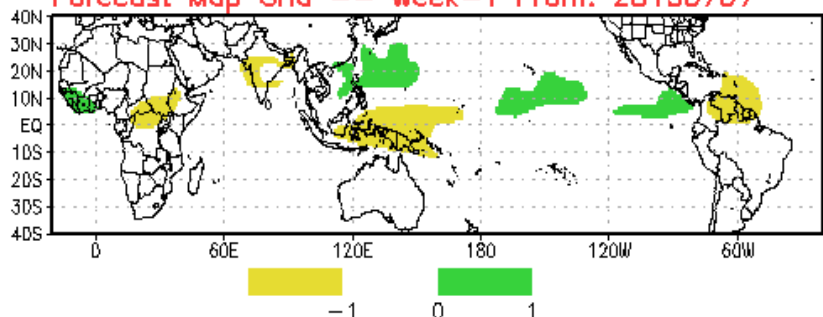
Categorization of 7-Day OLR (#) -- Ending: 20150714



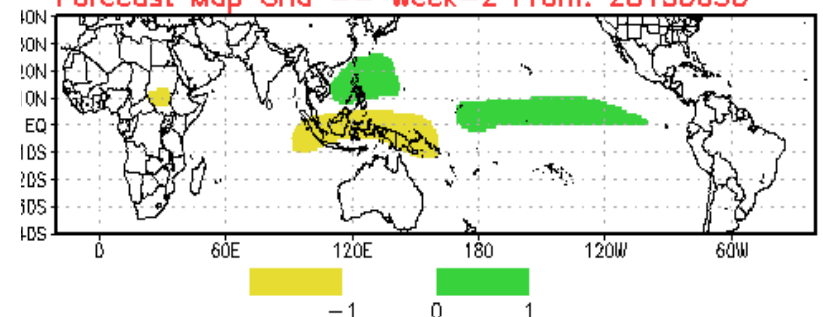
Categorization of 7-Day OLR (#) -- Ending: 20150714



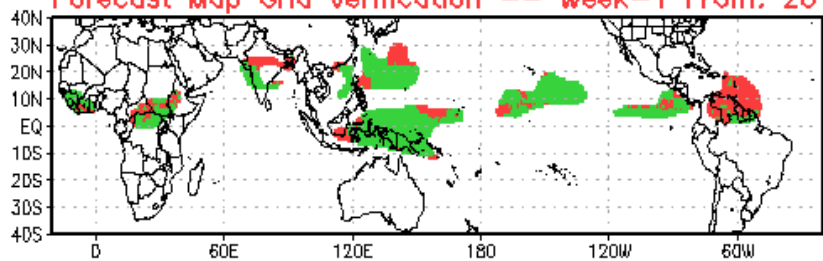
Forecast Map Grid -- Week-1 From: 20150707



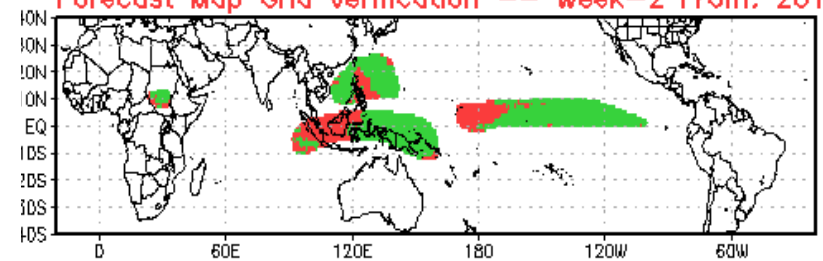
Forecast Map Grid -- Week-2 From: 20150630



Forecast Map Grid Verification -- Week-1 From: 20150707



Forecast Map Grid Verification -- Week-2 From: 20150630



Hit: Green, Miss: Red  
Heidke Skill Score: 54.8604

Hit: Green, Miss: Red  
Heidke Skill Score: 56.1032

# Synopsis of Climate Modes

## ENSO:

- Current: [El Niño Advisory](#)
- Outlook: There is a greater than 90% chance that El Niño will continue through the 2015-16 winter.

## MJO and other subseasonal tropical variability:

- The MJO was at near record values for July, with some influence from tropical cyclone activity. In recent days, notable weakening has been observed.
- Most dynamical model MJO index forecasts depict a continued weakening of the MJO signal over the Western Hemisphere. This is likely due to the waning influence of tropical cyclones and interaction with the strong low-frequency state.

## Extratropics:

- The recently observed height pattern over the extratropical Pacific is consistent with the MJO evolution over the past couple of weeks. However, downstream wave propagation is less well-teleconnected in the warm season.
- ENSO is likely going to be a bigger driver even at subseasonal timescales than MJO over the next several weeks.

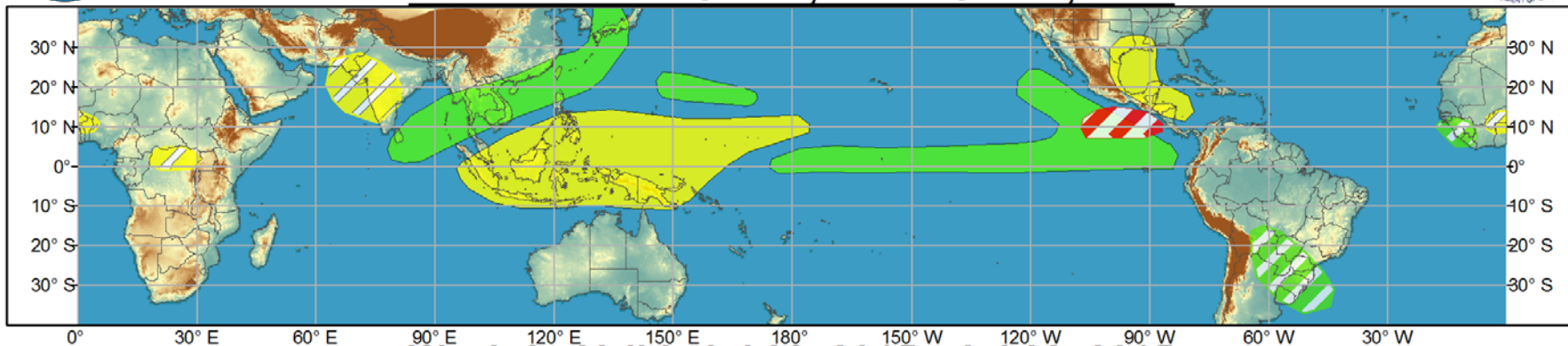




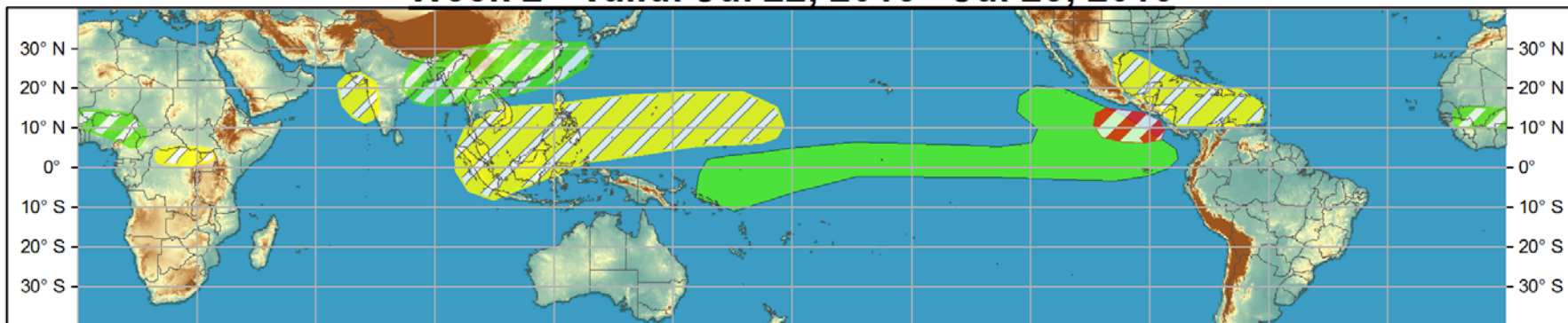
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Jul 15, 2015 - Jul 21, 2015



## Week 2 - Valid: Jul 22, 2015 - Jul 28, 2015



**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: 07/14/2015

Forecaster: Baxter

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.



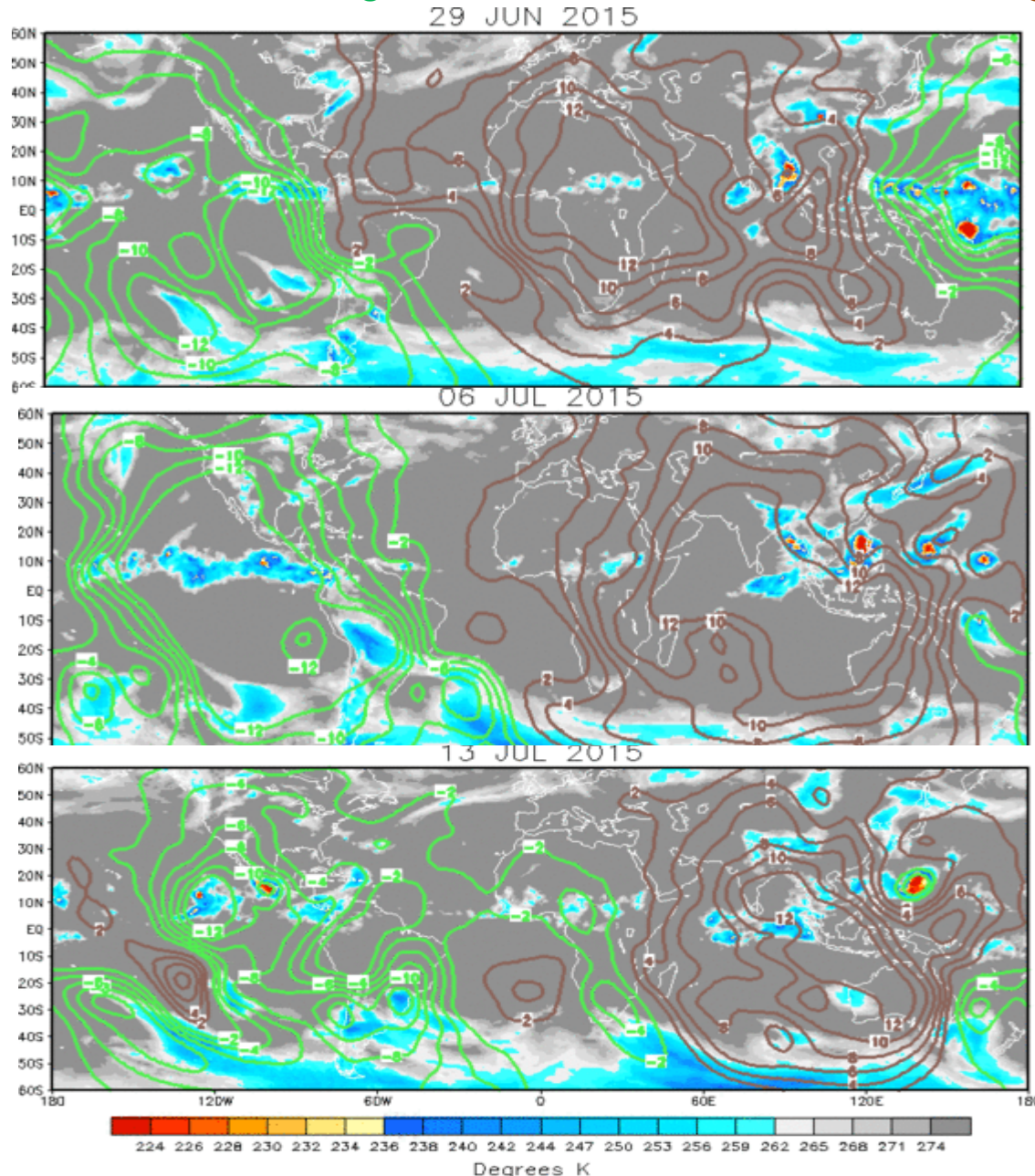
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence    Brown: Enhanced Convergence

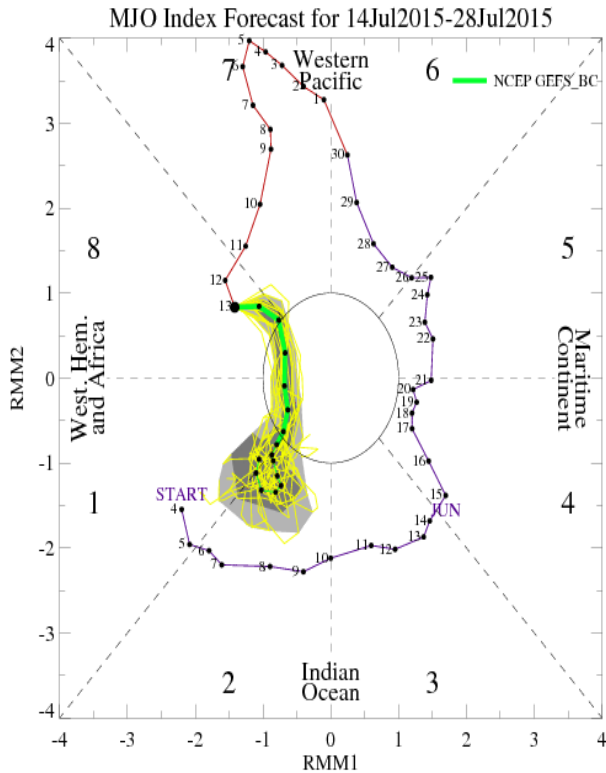
Base state  
and transient  
features  
evident.

Wave-1  
structure.

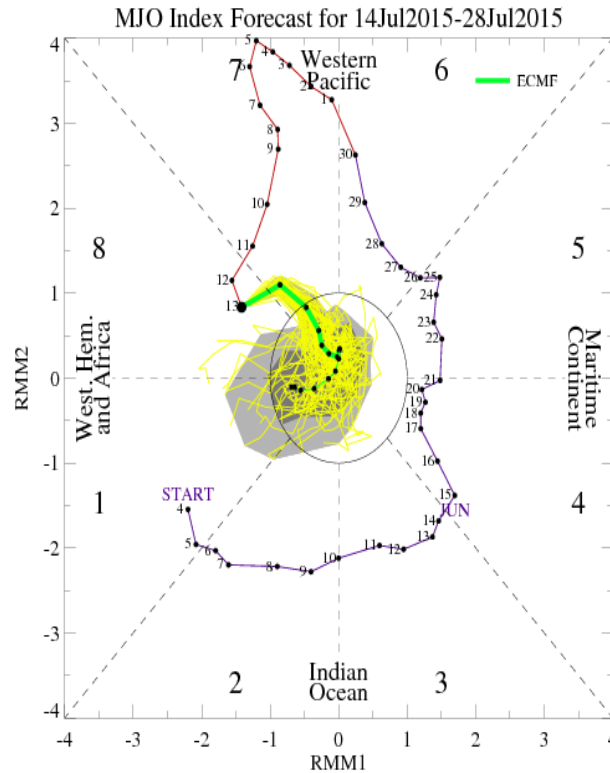
The eastward  
propagation  
has really  
slowed over  
the past  
couple of  
weeks.



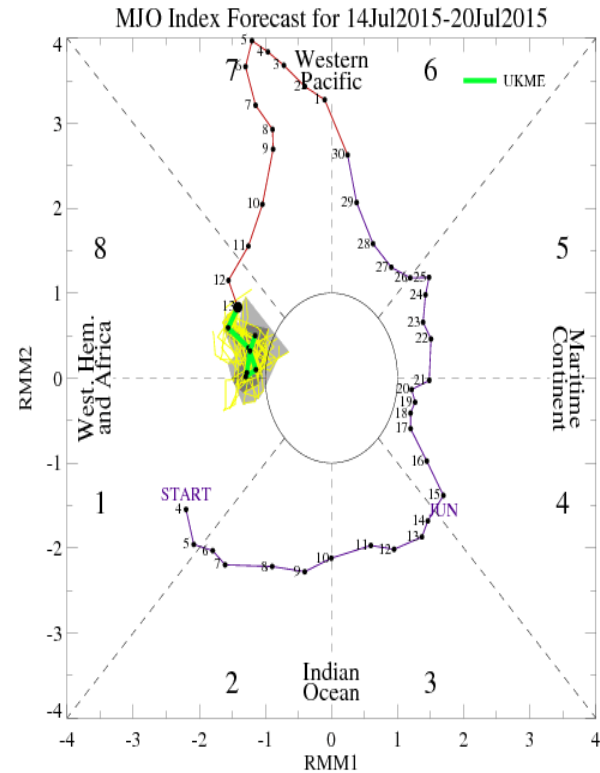
# MJO Observation/Forecast



GEFS



ECMWF

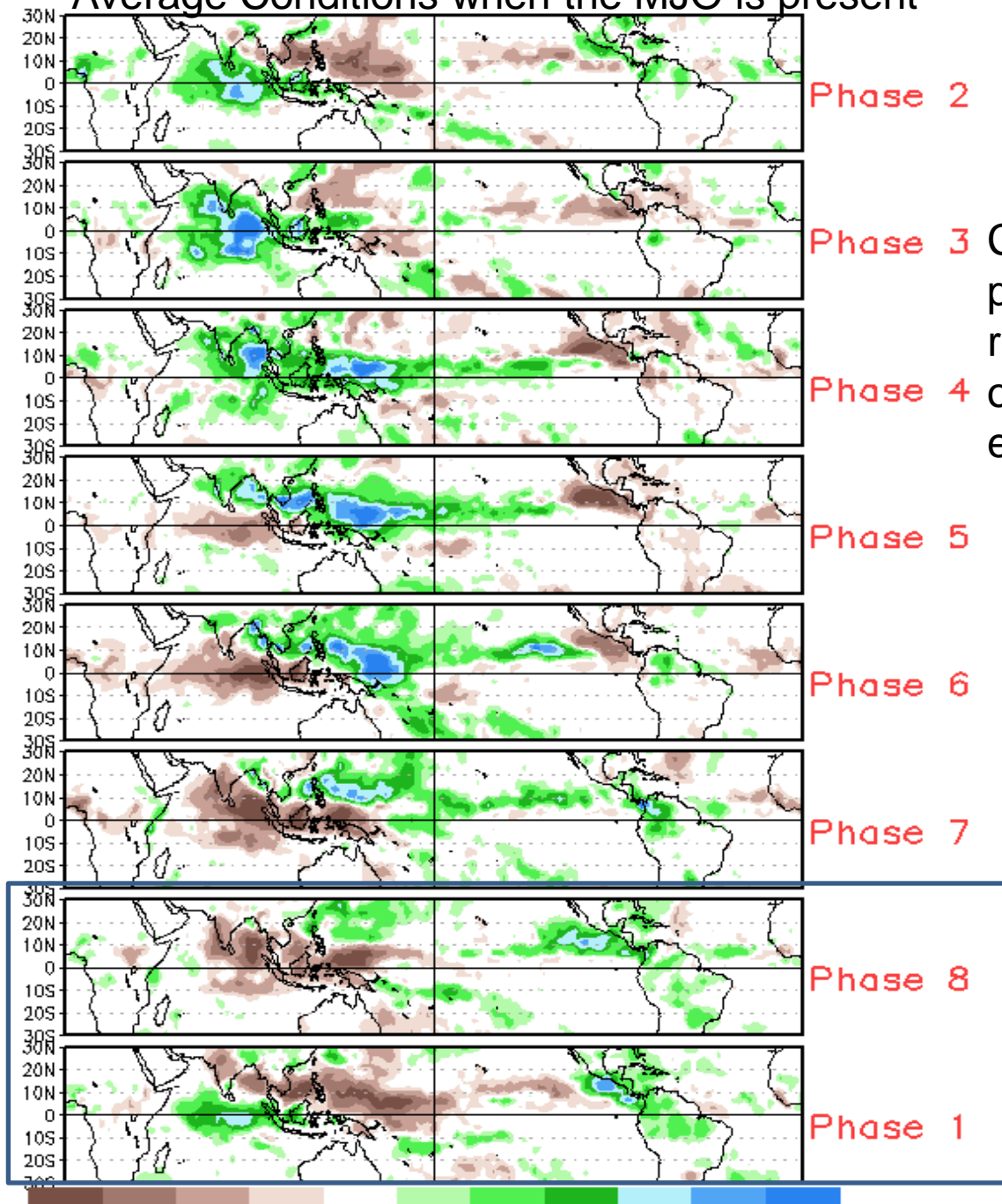


UKMET

Wheeler-Hendon based analyses of model forecasts indicate weakening during Week-1. Only the GEFS maintains any appreciable amplitude and eastward propagation.



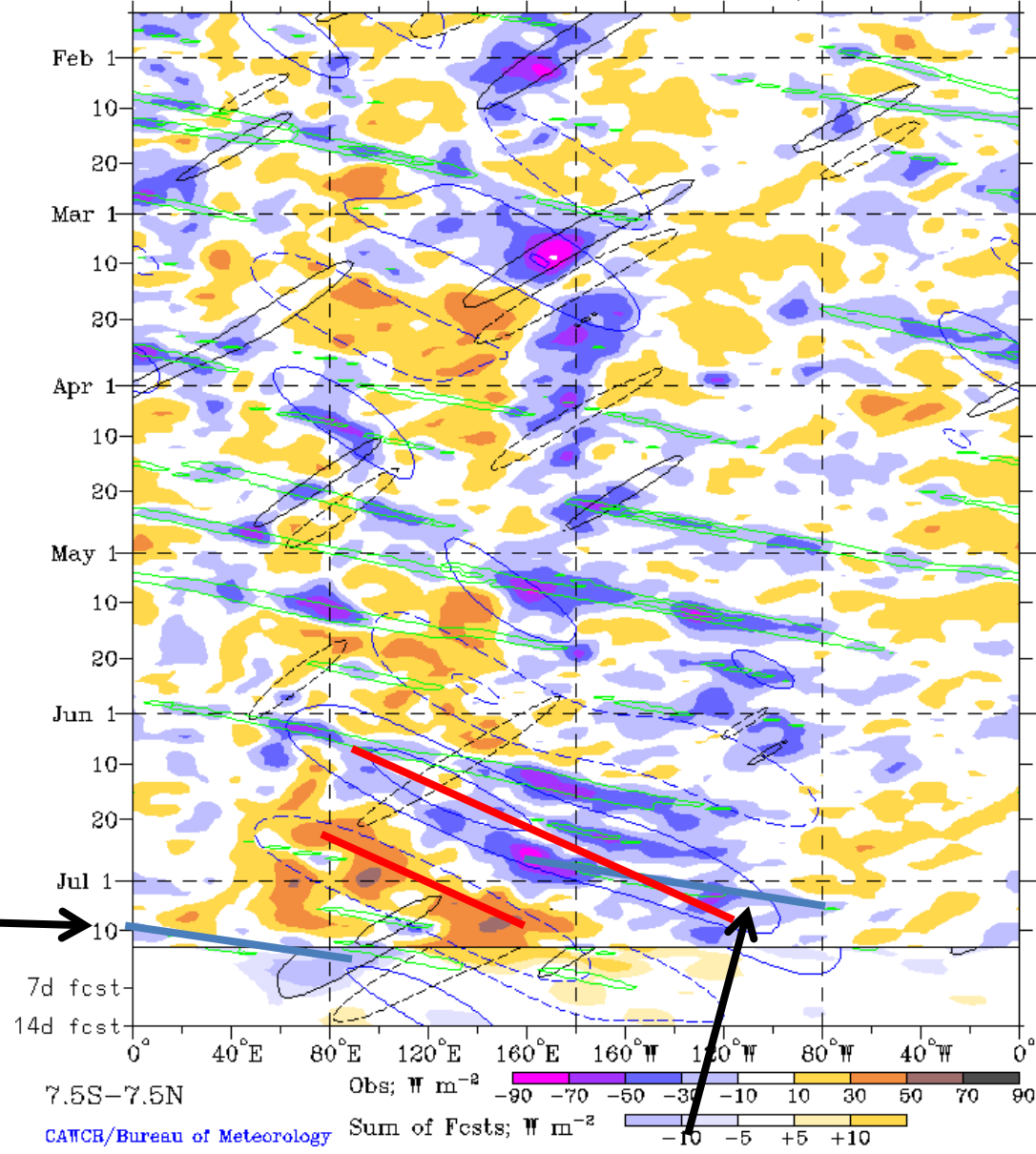
# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.



Real-time filtering superimposed upon 1-2-1 filt, R21, OLR Anoms  
 MJO blue CINT=10; n1ER black CINT=10; Kelvin green CINT=15  
 Negative contours solid, positive dashed (excluding Kelvin)  
 24-Jan-2015 to 13-Jul-2015 + 14 days



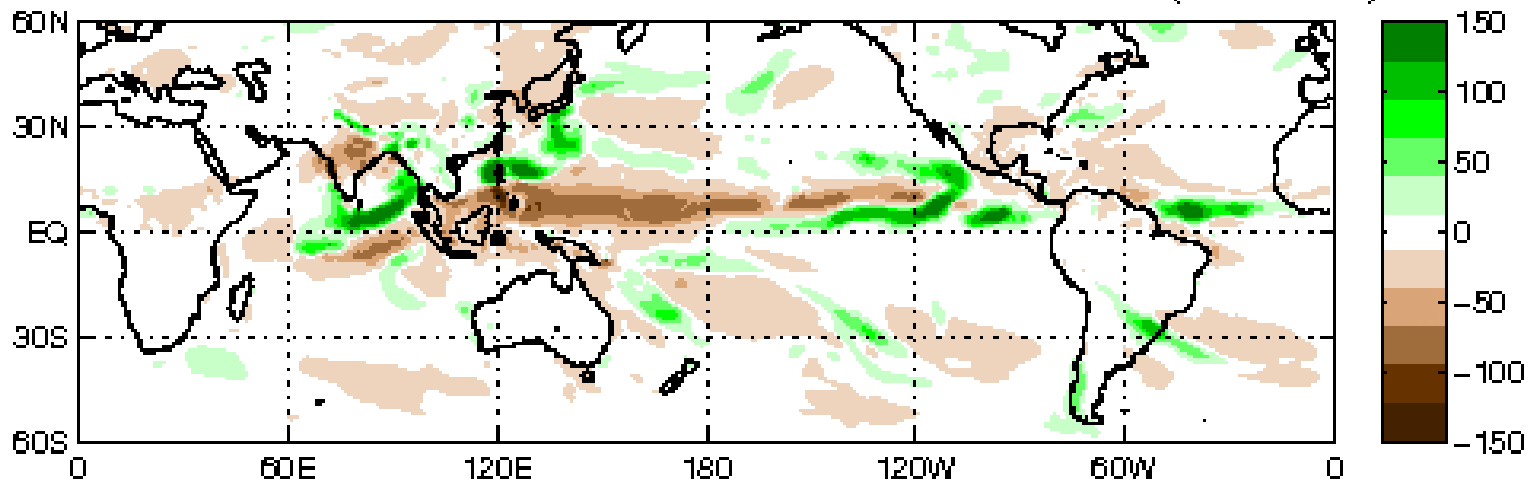
MJO indicated by red lines.

Kelvin wave moving out ahead of main convective envelope over the East Pacific.

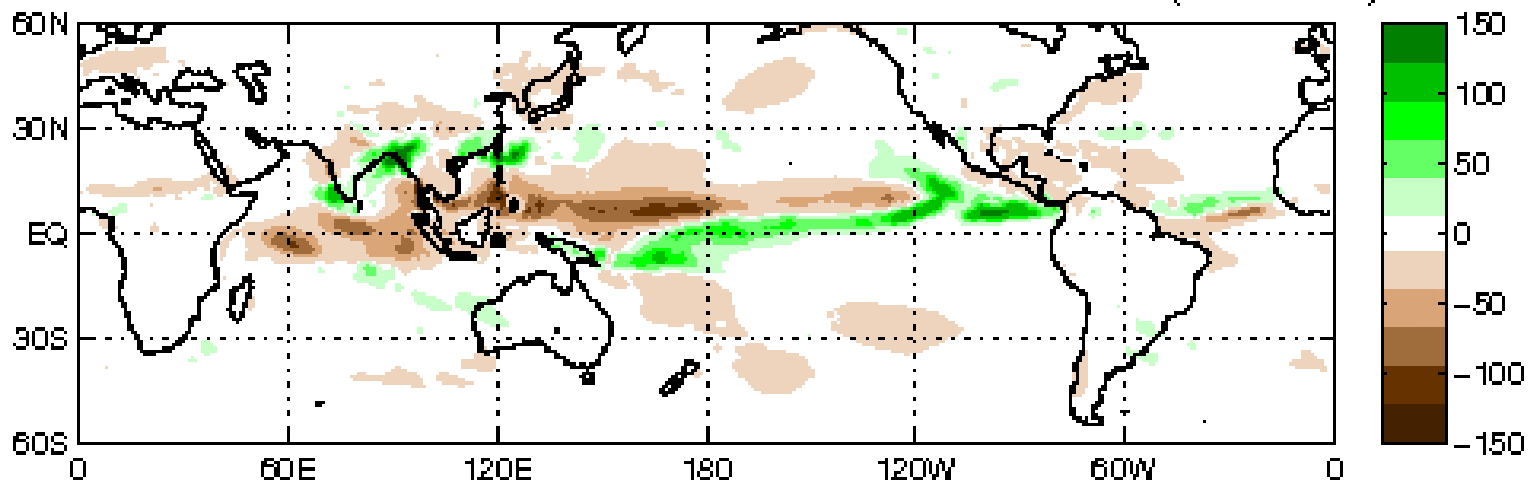
Low frequency ENSO state evident.

Kelvin Wave impacted ePAC.

**CFS: Anom. PREC Week: 1: 15-Jul-2015 to 21-Jul-2015 (mm/week)**

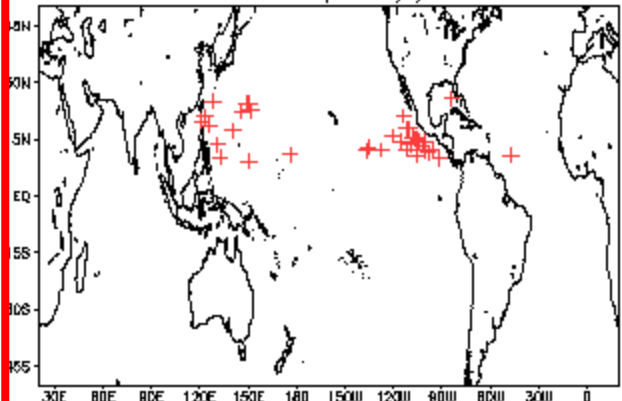


**CFS: Anom. PREC Week: 2: 22-Jul-2015 to 28-Jul-2015 (mm/week)**

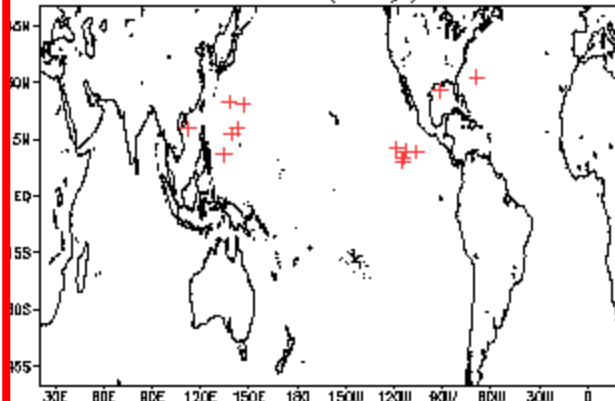


# July Tropical Storm Formation by MJO phase

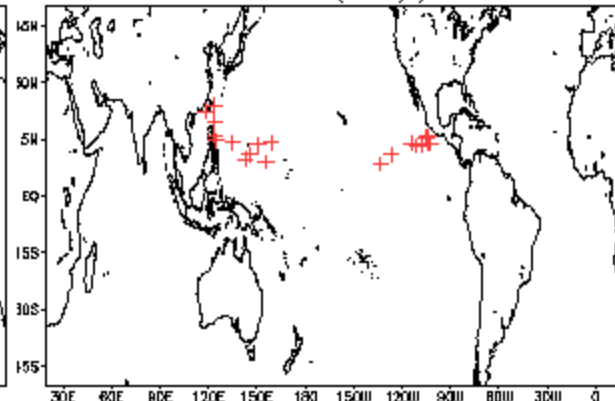
Phase 1 (144 days) 37 storms



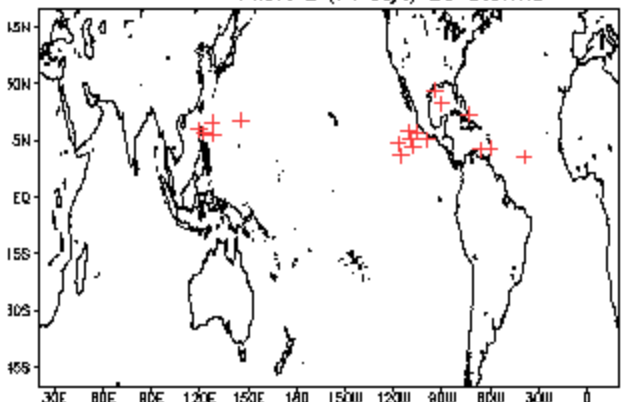
Phase 4 (40 days) 14 storms



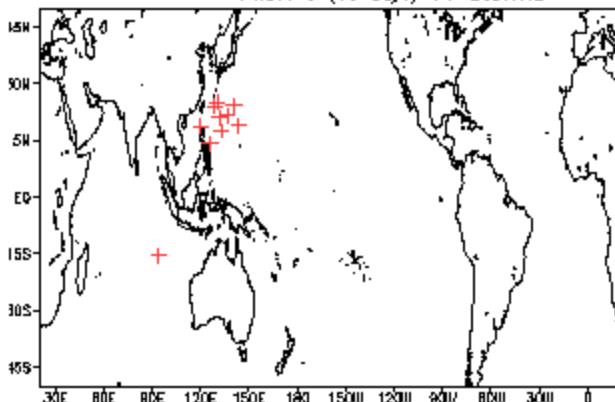
Phase 7 (87 days) 21 storms



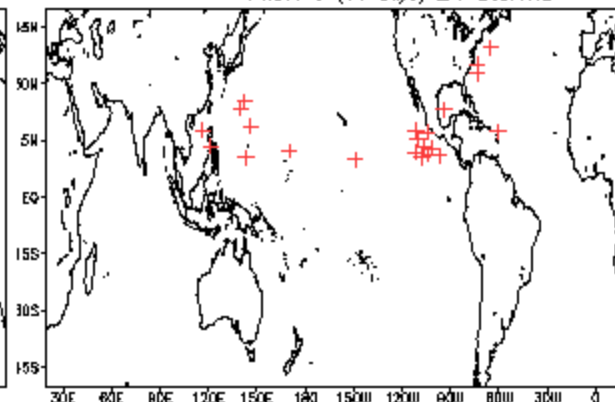
Phase 2 (74 days) 20 storms



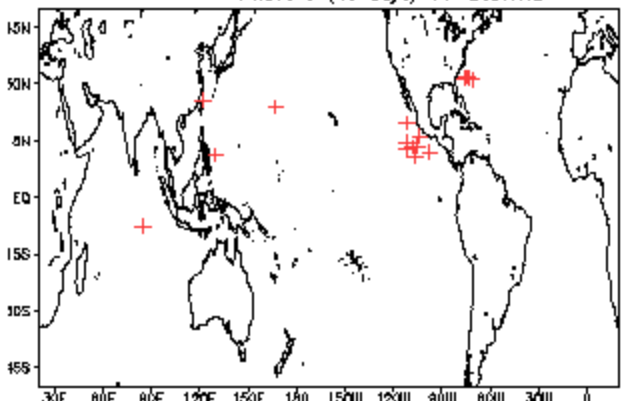
Phase 5 (63 days) 11 storms



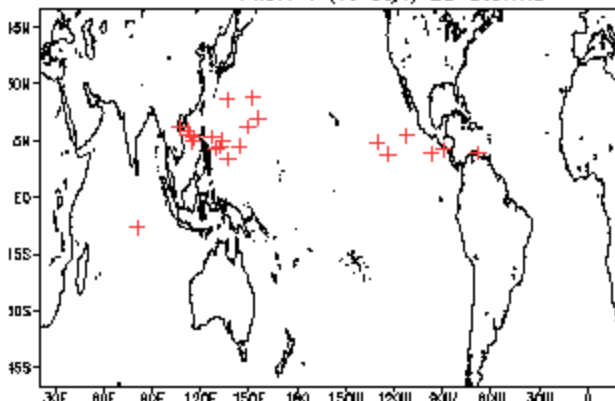
Phase 8 (61 days) 24 storms



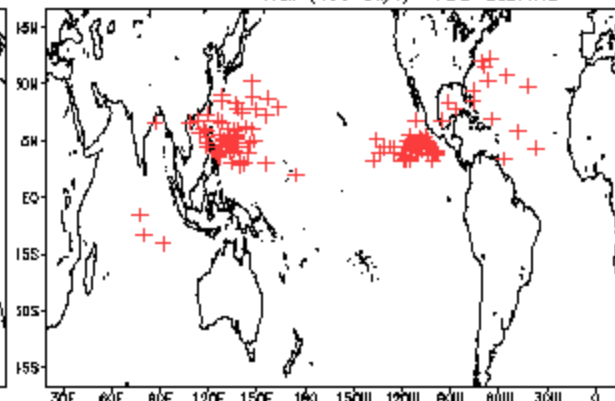
Phase 3 (49 days) 17 storms

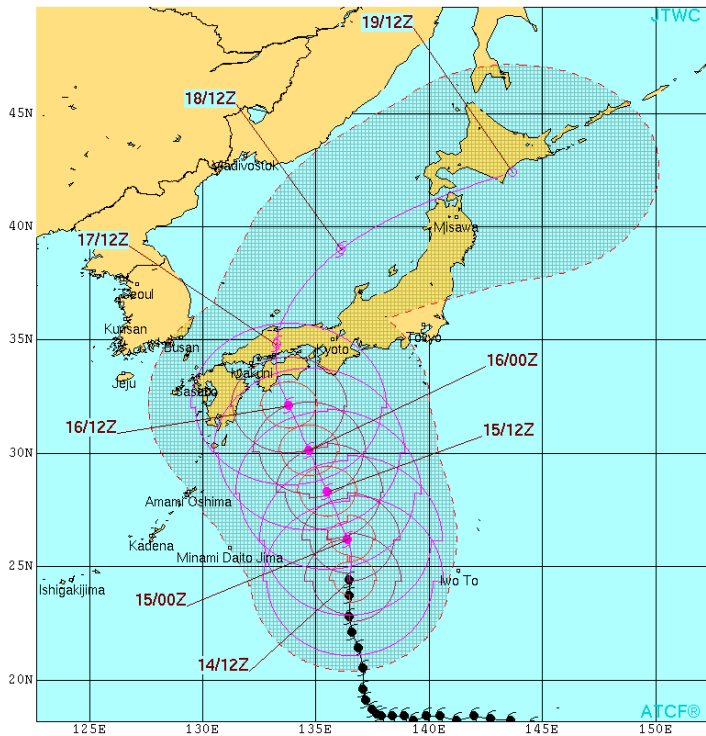


Phase 6 (60 days) 23 storms



Null (480 days) 130 storms



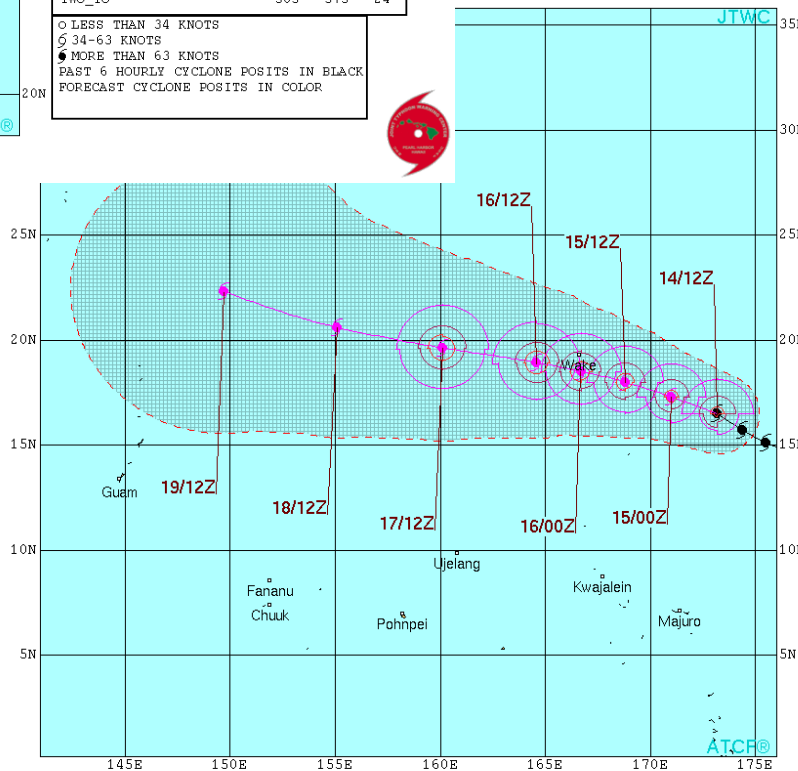


TYPHOON 11W (NANGKA) WARNING #45  
 WTPN33 PSTW 141500  
 141200Z POSIT: NEAR 24.4N 136.5E  
 MOVING 360 DEGREES TRUE AT 07 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 38 FEET  
 14/12Z, WINDS 090 KTS, GUSTS TO 110 KTS  
 15/00Z, WINDS 095 KTS, GUSTS TO 115 KTS  
 15/12Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 16/00Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 16/12Z, WINDS 095 KTS, GUSTS TO 115 KTS  
 17/12Z, WINDS 060 KTS, GUSTS TO 075 KTS  
 18/12Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 19/12Z, WINDS 020 KTS, GUSTS TO 030 KTS

CPA TO:	NM	DTG
IWO_TO	261	14/14Z
CHICHI_JIMA	316	14/23Z
SASEBO	182	17/01Z
IWAKUNI	53	17/07Z
CHINHAE	232	17/13Z
FUSAN	207	17/13Z
KUNSAN_AB	333	17/14Z
TAEJU	236	17/15Z
CAMP HUMPHREYS	324	17/17Z
OSAN_AB	326	17/17Z
INCHON	350	17/18Z
SEOUL_AB	326	17/18Z
CAMP FED CLOUD	332	17/19Z
YONGSAN_AIN	332	17/19Z
R2RS	74	17/21Z
CAMP FUJI	221	18/01Z
ATSUGI	258	18/07Z
CAMP ZAMA	258	18/07Z
YOKOSUKA	277	18/07Z
YOKOTA_AB	250	18/08Z
NARITA_AIRPORT	285	18/13Z
MISAWA	51	19/05Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
CHICHI_JIMA	283	363	24
IWAKUNI	154	392	24
IWO_TO	305	375	24

○ LESS THAN 34 KNOTS  
 ◊ 34-63 KNOTS  
 ● MORE THAN 63 KNOTS  
 ● PAST 6 HOURLY CYCLONE POSITS IN BLACK  
 ● FORECAST CYCLONE POSITS IN COLOR



TYPHOON 01C (HALOLA) WARNING #18  
 WTPN32 PGTW 141500  
 141200Z POSIT: NEAR 16.5N 173.2E  
 MOVING 305 DEGREES TRUE AT 14 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 30 FEET  
 14/12Z, WINDS 085 KTS, GUSTS TO 105 KTS  
 15/00Z, WINDS 090 KTS, GUSTS TO 110 KTS  
 15/12Z, WINDS 090 KTS, GUSTS TO 110 KTS  
 16/00Z, WINDS 095 KTS, GUSTS TO 115 KTS  
 16/12Z, WINDS 095 KTS, GUSTS TO 115 KTS  
 17/12Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 18/12Z, WINDS 105 KTS, GUSTS TO 130 KTS  
 19/12Z, WINDS 115 KTS, GUSTS TO 140 KTS

CPA TO:	NM	DTG
UTIRIK	372	14/20Z
WAKE	46	16/02Z
MINAMI_TORI_SHIMA	189	18/22Z
AGRIHAN	308	19/12Z
ALAMAGAN	358	19/12Z
PAGAN	334	19/12Z

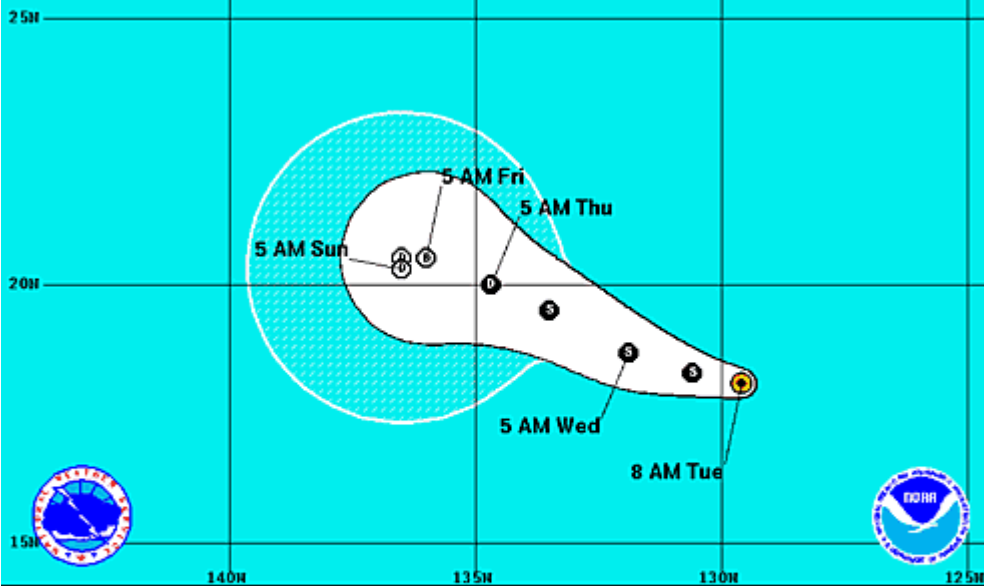
BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
WAKE	122	147	24

○ LESS THAN 34 KNOTS  
 ◊ 34-63 KNOTS  
 ● MORE THAN 63 KNOTS  
 ● PAST 6 HOURLY CYCLONE POSITS IN BLACK  
 ● FORECAST CYCLONE POSITS IN COLOR



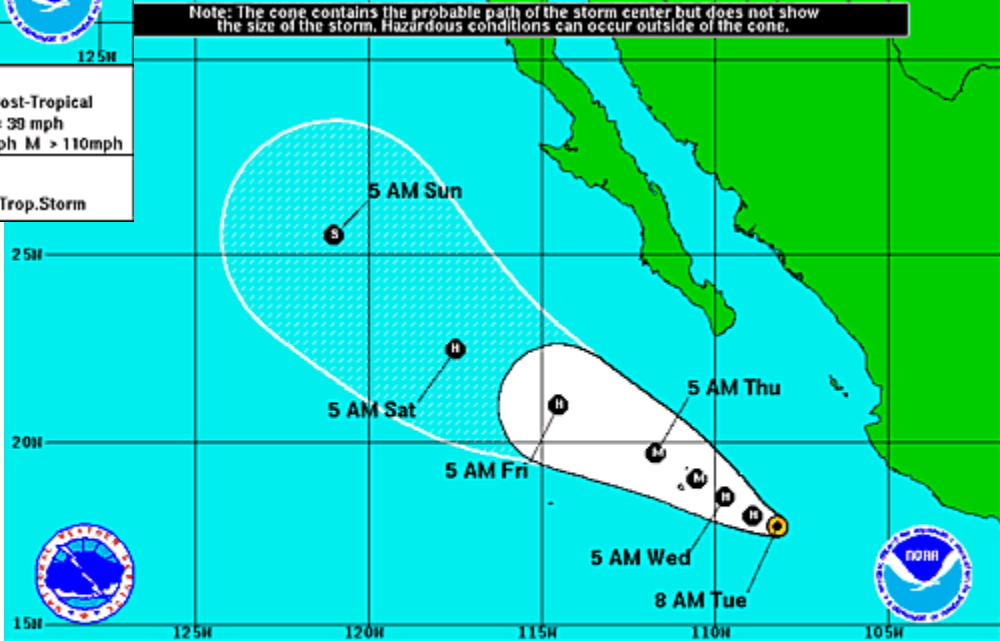


Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.

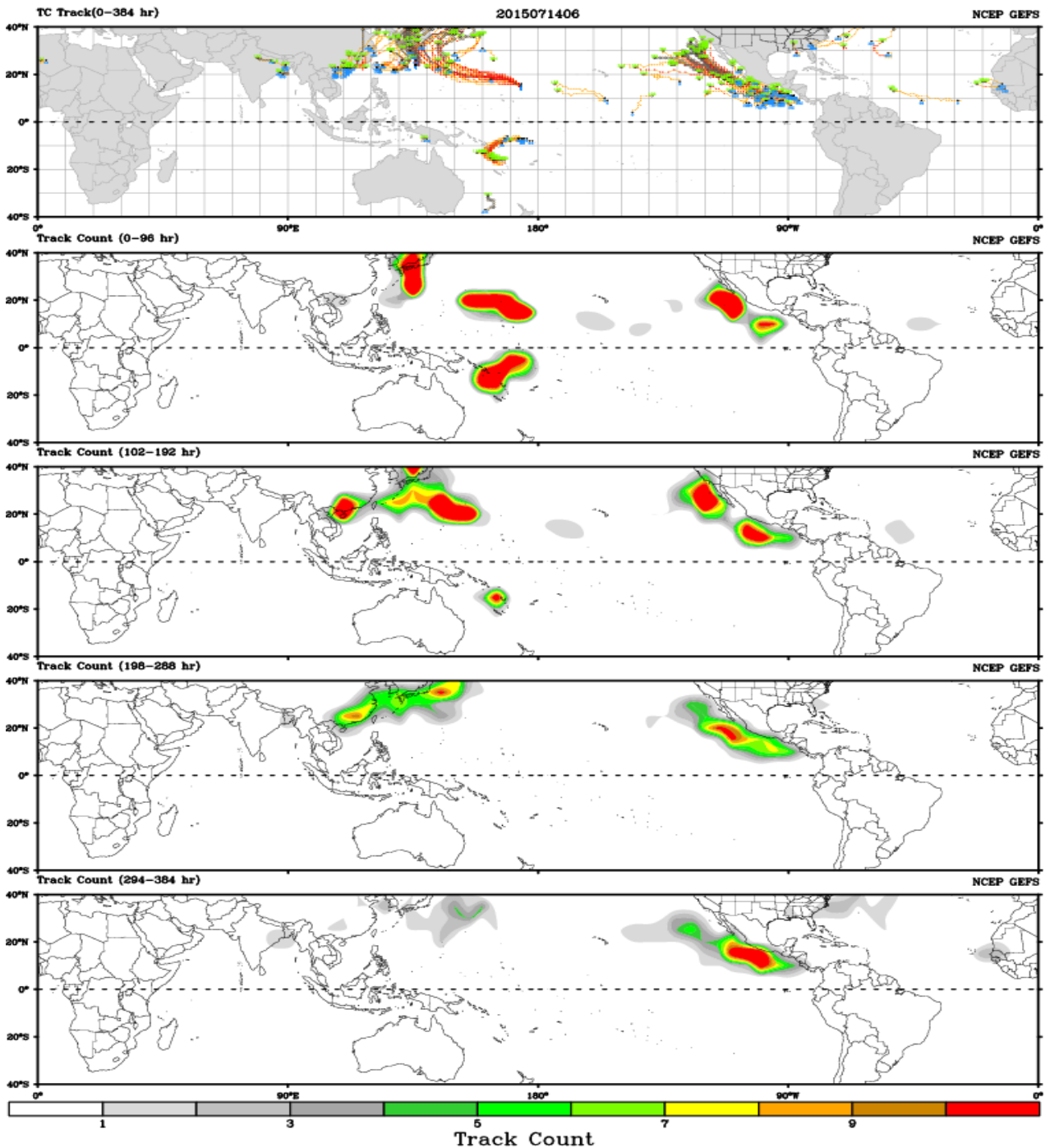


<b>Tropical Storm Enrique</b> Tuesday July 14, 2015 8 AM PDT Advisory 9 NWS National Hurricane Center	<b>Current Information:</b> ● Center Location 18.1 N 129.6 W Max Sustained Wind 45 mph Movement NW at 9 mph	<b>Forecast Positions:</b> ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
<b>Potential Track Area:</b> Day 1-3 Day 4-5	<b>Watches:</b> Hurricane Trop.Storm	<b>Warnings:</b> Hurricane Trop.Storm

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



<b>Hurricane Dolores</b> Tuesday July 14, 2015 8 AM PDT Advisory 13 NWS National Hurricane Center	<b>Current Information:</b> ● Center Location 17.7 N 108.2 W Max Sustained Wind 85 mph Movement WNW at 7 mph	<b>Forecast Positions:</b> ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
<b>Potential Track Area:</b> Day 1-3 Day 4-5	<b>Watches:</b> Hurricane Trop.Storm	<b>Warnings:</b> Hurricane Trop.Storm



Days 1-4

Day 5-8

Day 9-12

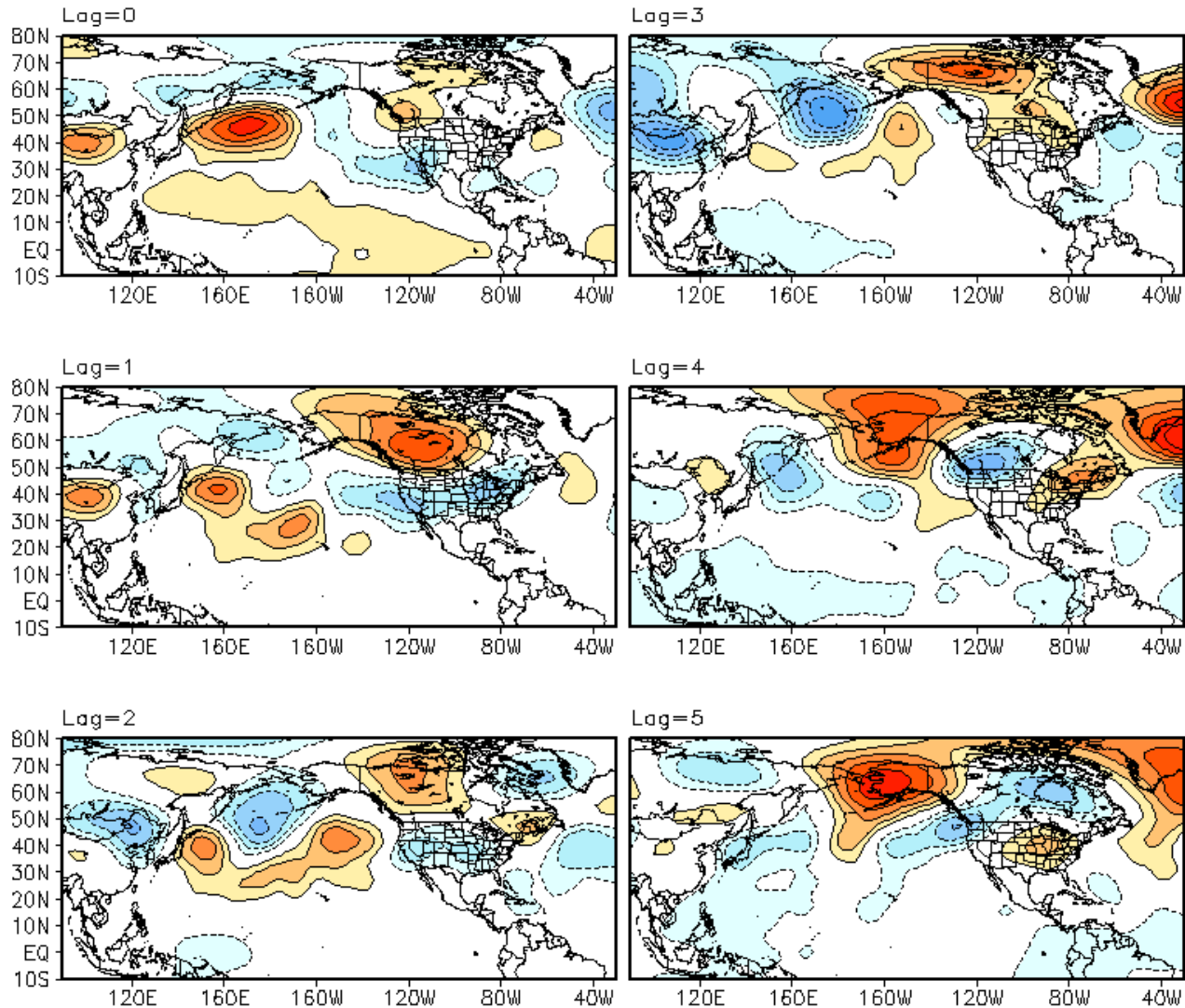
Day 13-15

# Connections to U.S. Impacts

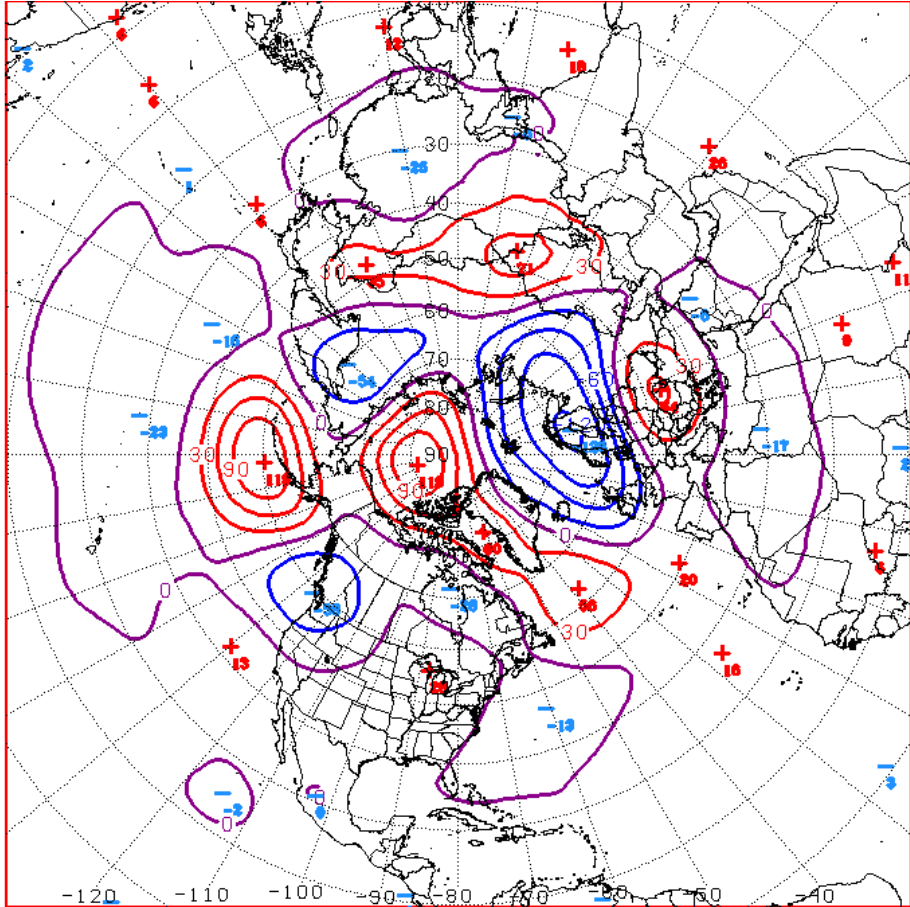
# Lagged composite from MJO

## 5-day intervals

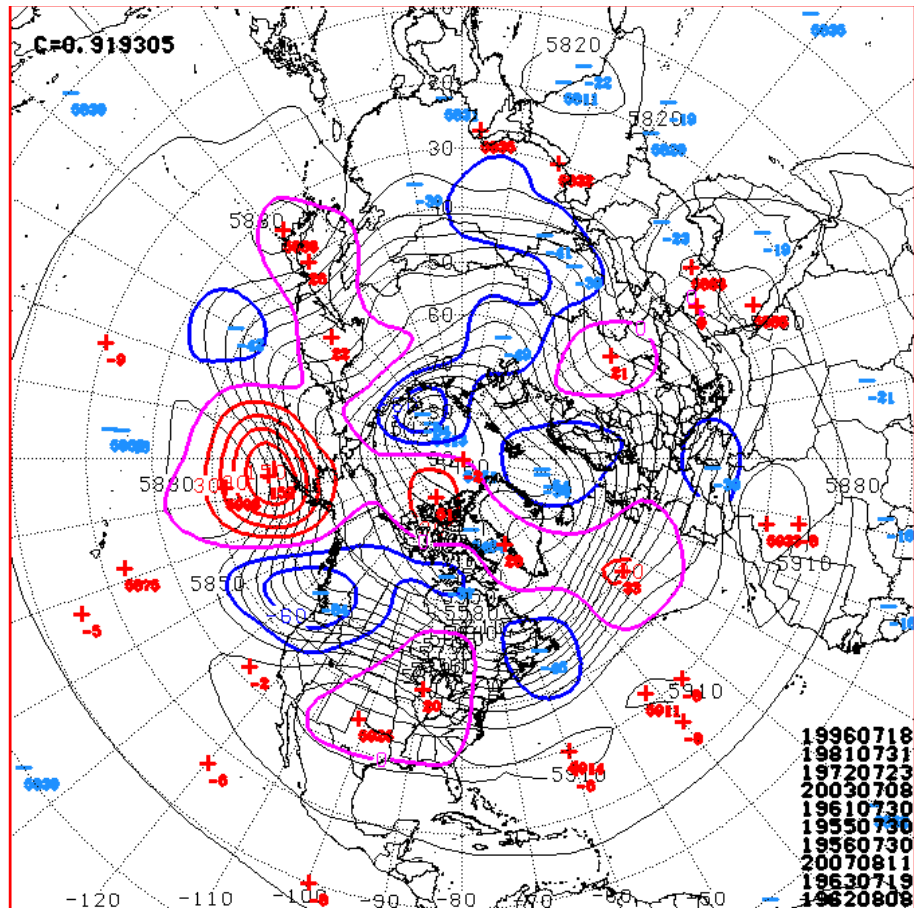
RMM Phase 7 200-hPa Height Lagged Composite (jja)







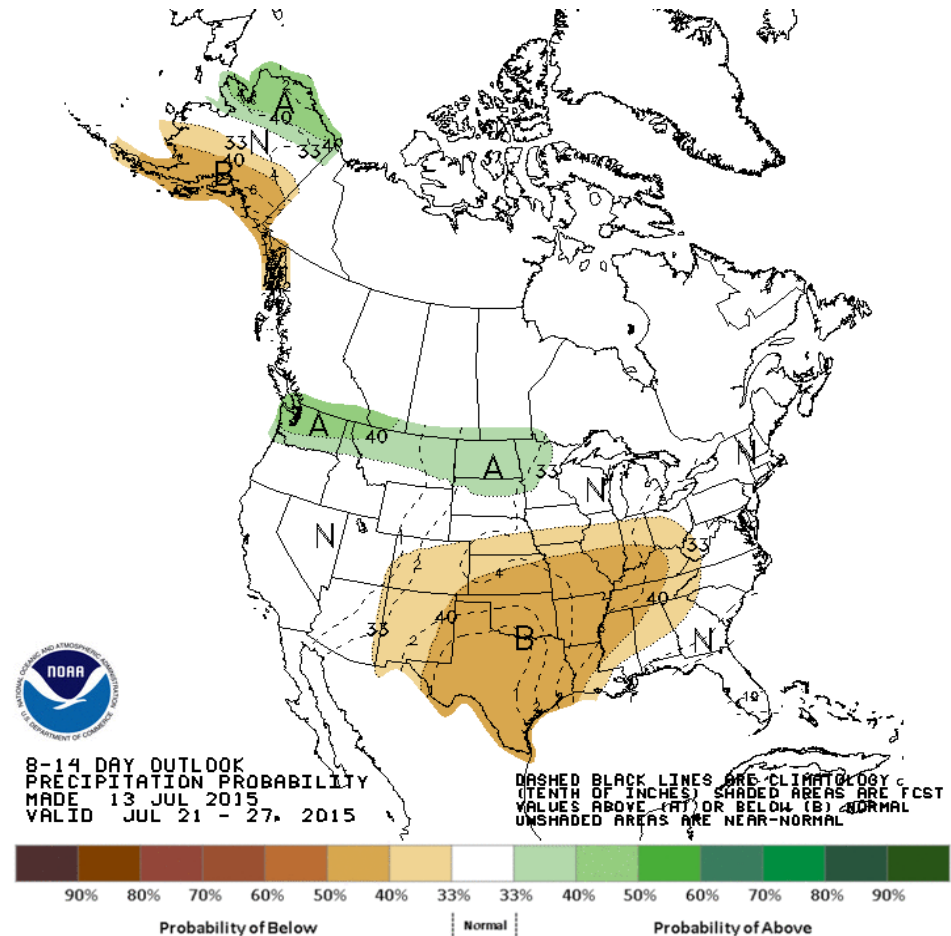
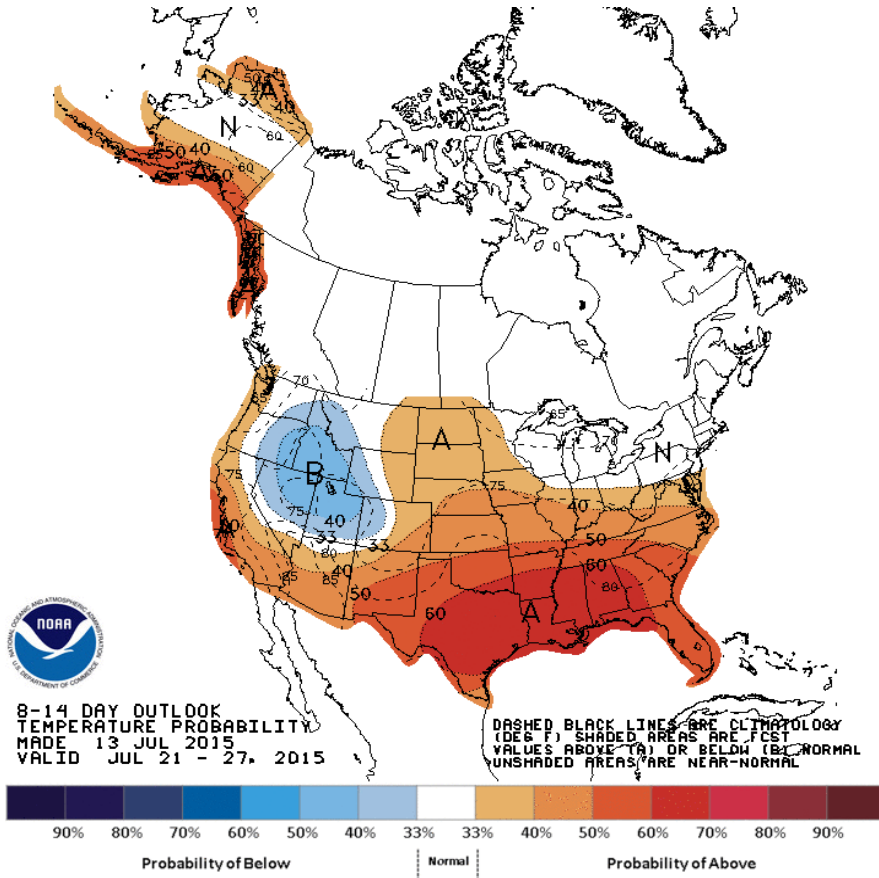
D+11 500 MB ANOMALIES FROM 00Z ECMM  
 CPC MAP MADE JUL 14 2015 1020 UTC CNTD JUL 25 2015



D+11 00Z ECMENSMB ANALOG COMPOSITE  
 CPC MAP MADE JUL 14, 2015 CENTERED ON 07/25/2015

- 19960718
- 19810731
- 19720723
- 20030708
- 19610730
- 19550730
- 19560730
- 20070811
- 19630719
- 19620806

# Week 2 – Temperature and Precipitation

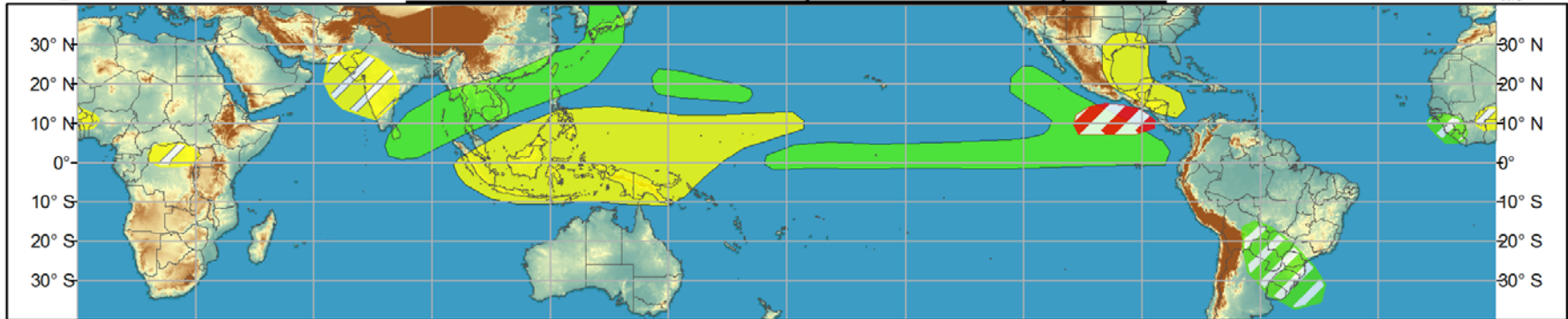




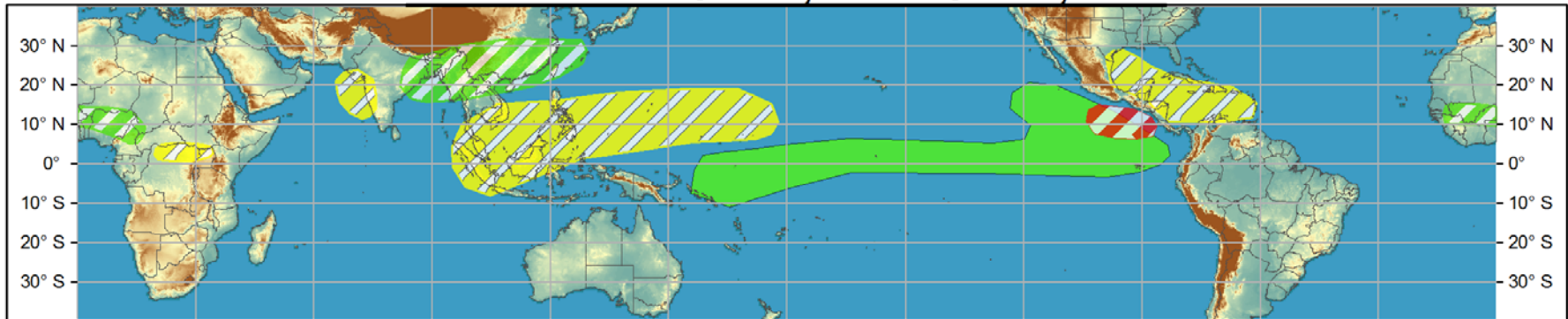
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