

Global Tropics Hazards And Benefits Outlook

Jun 28, 2016

Brad Pugh

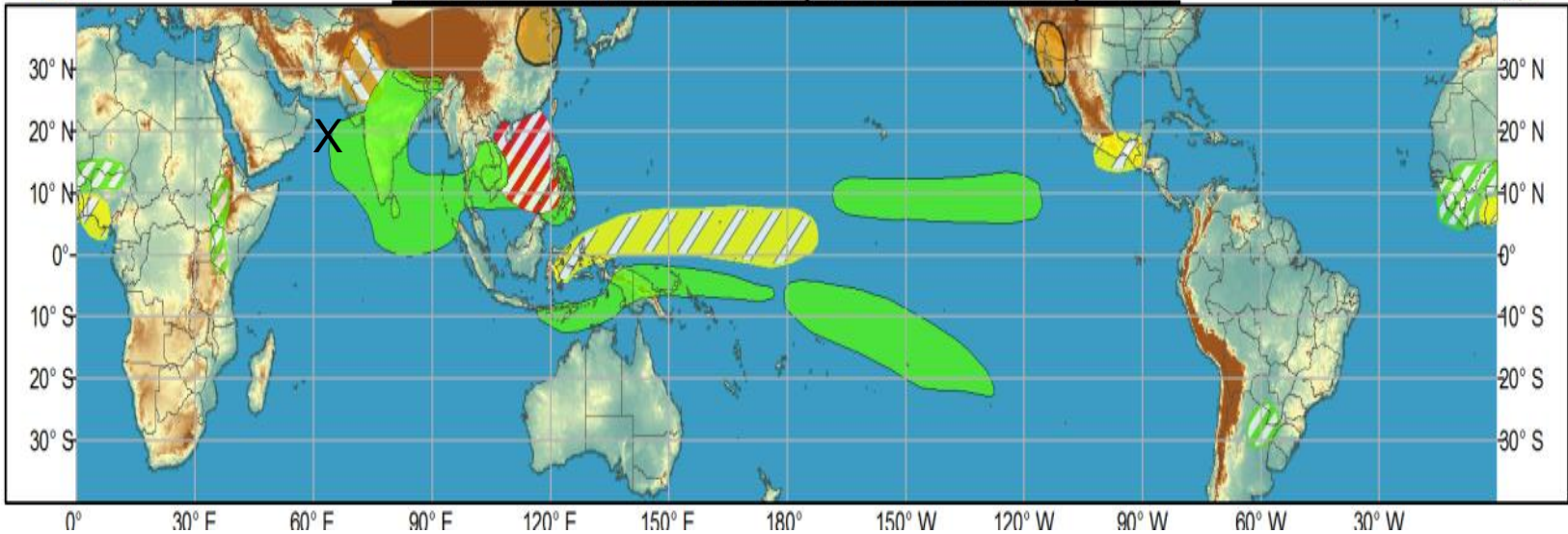
Outline

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

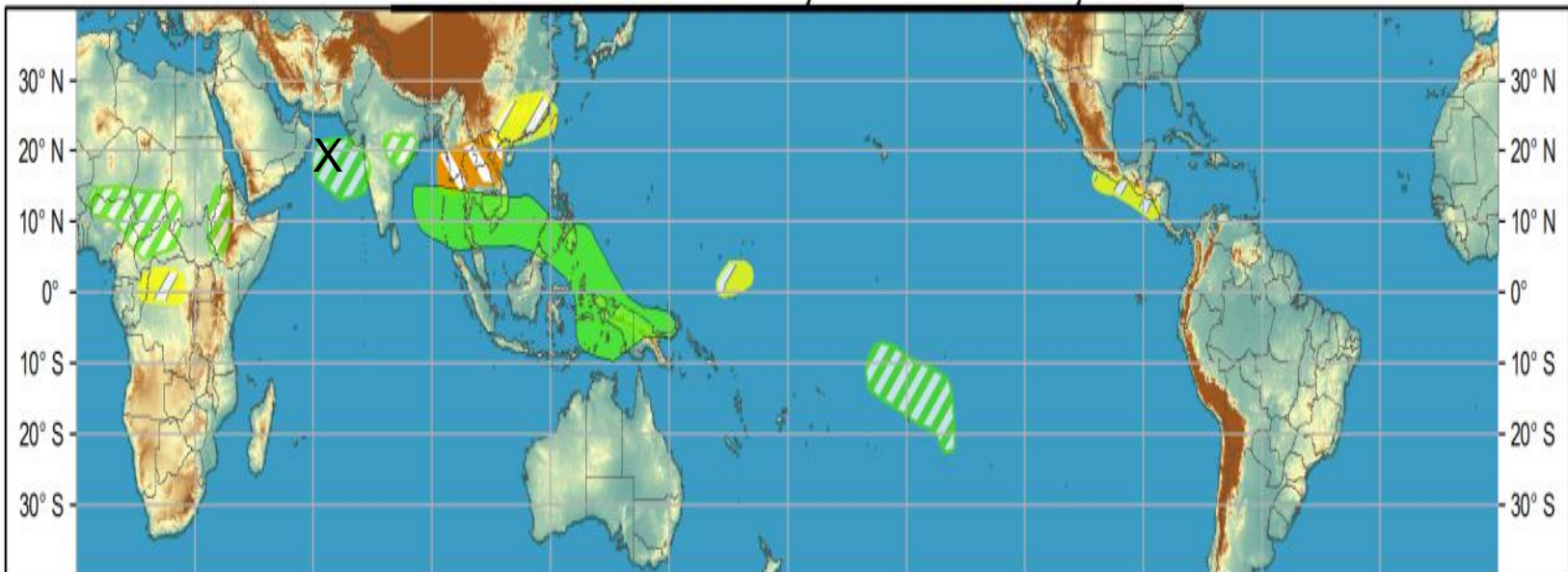
Tropical Cyclone Forecast Review



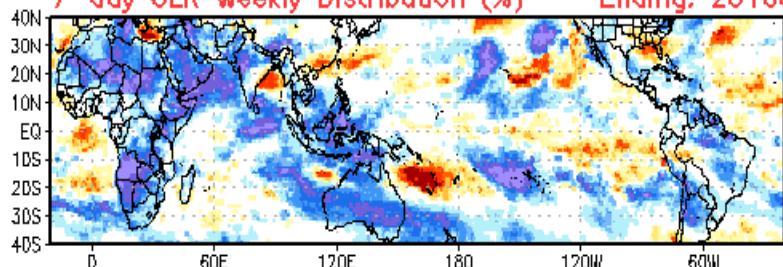
Week 1 - Valid: Jun 22, 2016 - Jun 28, 2016



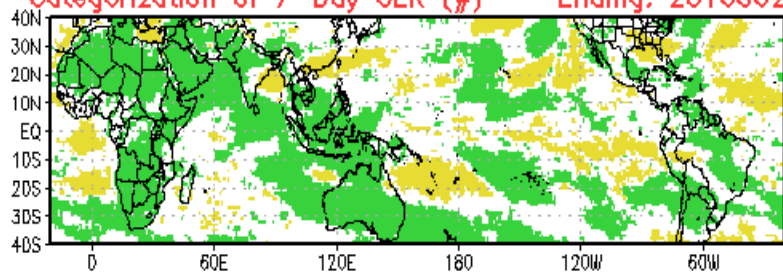
Week 2 - Valid: Jun 22, 2016 - Jun 28, 2016



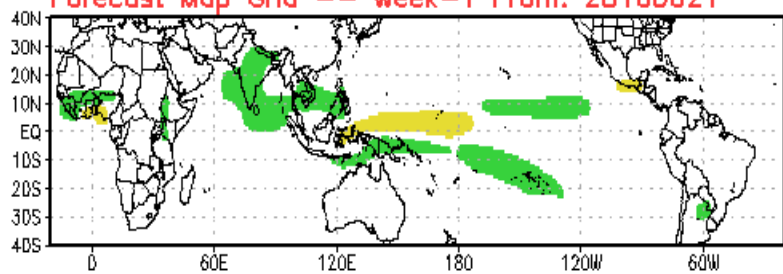
7-day OLR Weekly Distribution (%) -- Ending: 20160628



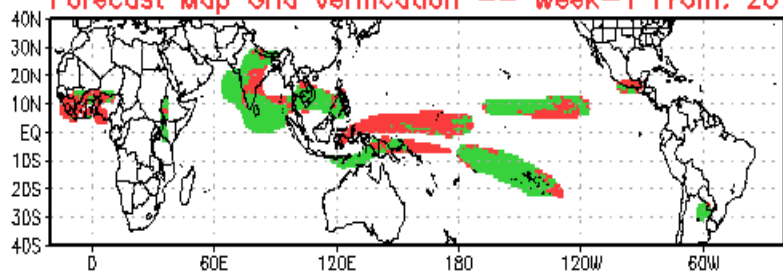
Categorization of 7-Day OLR (#) -- Ending: 20160628



Forecast Map Grid -- Week-1 From: 20160621

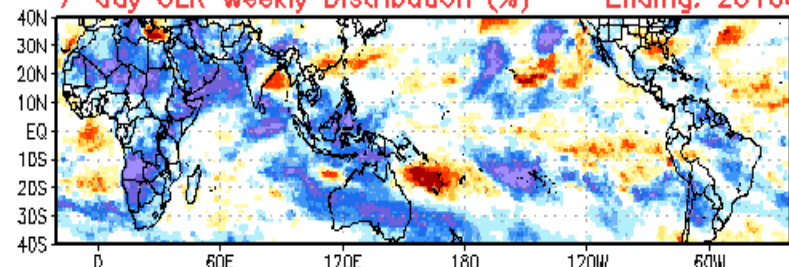


Forecast Map Grid Verification -- Week-1 From: 20160621

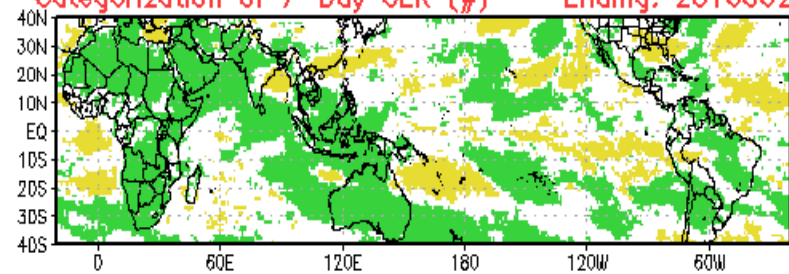


Hit: Green, Miss: Red
Heidke Skill Score: 38.3793

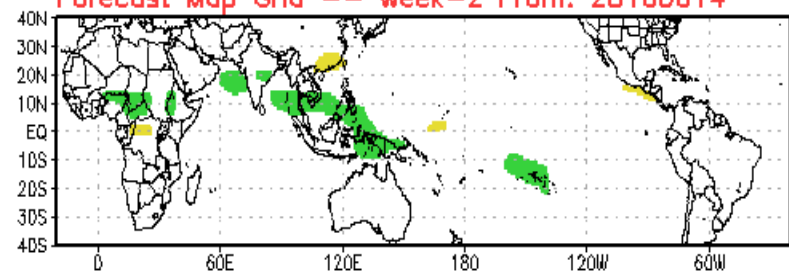
7-day OLR Weekly Distribution (%) -- Ending: 20160628



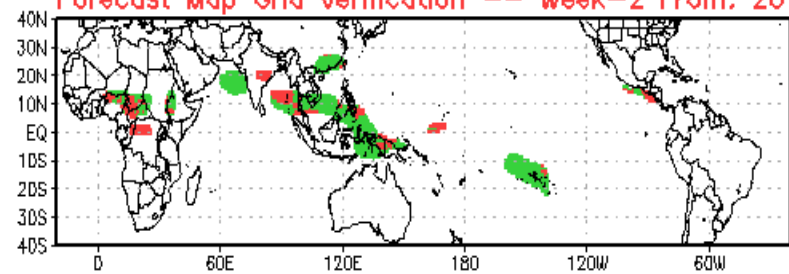
Categorization of 7-Day OLR (#) -- Ending: 20160628



Forecast Map Grid -- Week-2 From: 20160614



Forecast Map Grid Verification -- Week-2 From: 20160614



Hit: Green, Miss: Red
Heidke Skill Score: 57.7959

Synopsis of Climate Modes

ENSO:

- La Nina Watch in effect as of 14 April 2016

ENSO-neutral conditions are present and La Niña is favored to develop during the Northern Hemisphere summer 2016, with about a 75% chance of La Niña during the fall and winter 2016-17.

MJO and other subseasonal tropical variability:

- Enhanced phase of MJO shifting from the eastern Indian Ocean to western Maritime Continent.
- Most dynamical model MJO index forecasts depict a fast, eastward propagation during the next weeks.
- An atmospheric Kelvin Wave and potential tropical cyclone activity in the east Pacific are likely influencing these forecasts.

Extratropics:

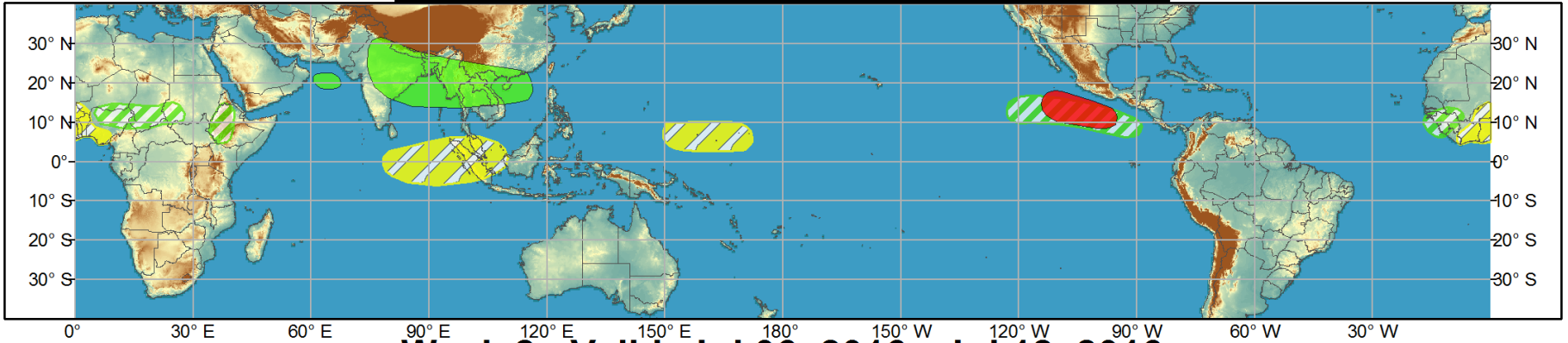
- Tropical cyclone development in the east Pacific could enhance the low-level moisture across northern Mexico and eventually the desert Southwest.



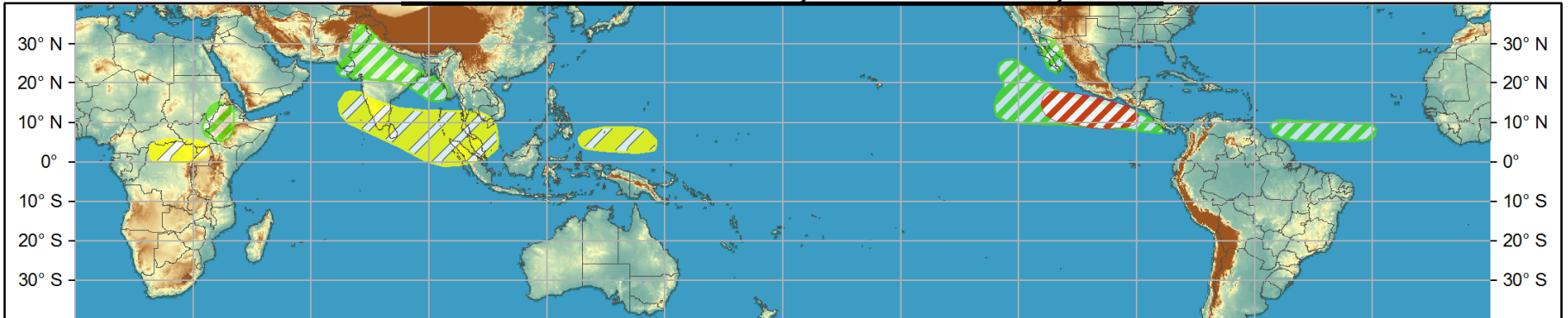
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Jun 29, 2016 - Jul 05, 2016



Week 2 - Valid: Jul 06, 2016 - Jul 12, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Produced: 06/28/2016

Forecaster: Pugh

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.

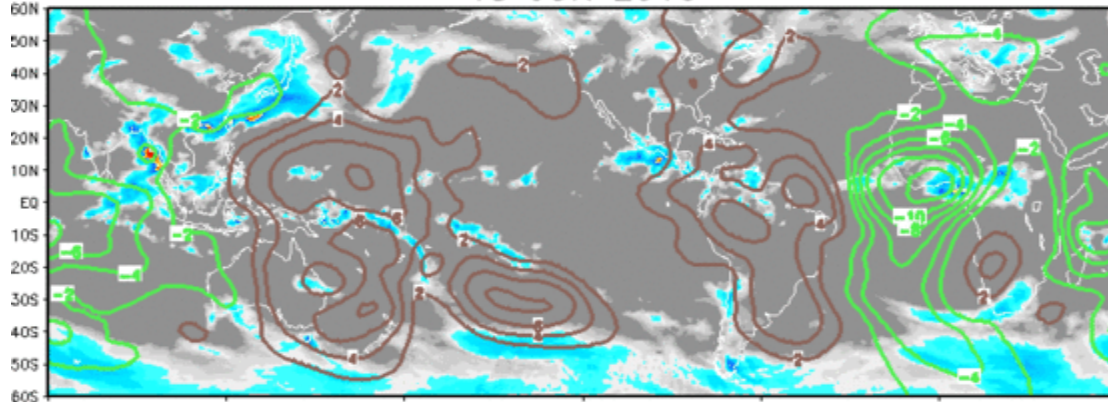


IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence Brown: Enhanced Convergence

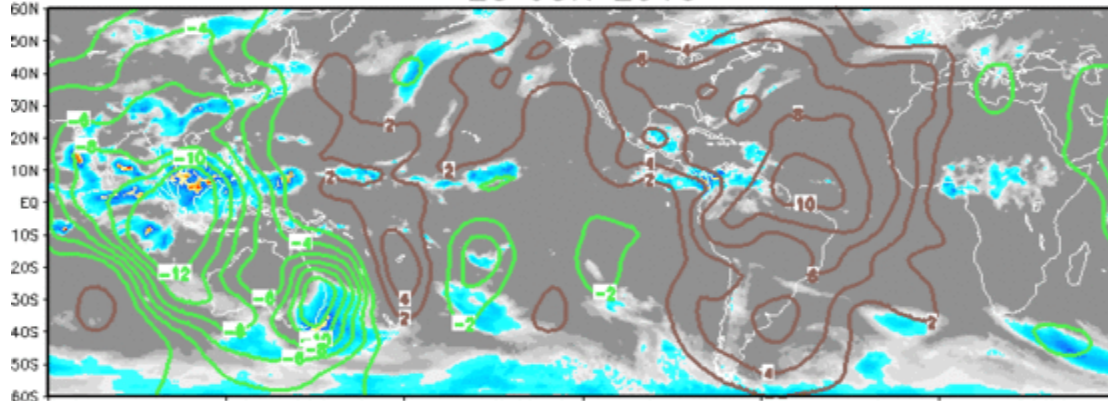
More coherent pattern developed during mid-June

13 JUN 2016



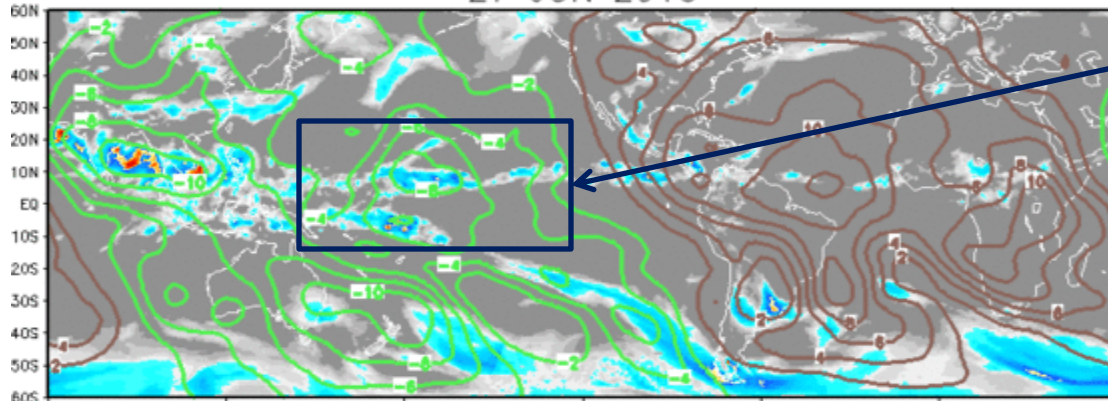
Eastward propagation of pattern from prior week

20 JUN 2016



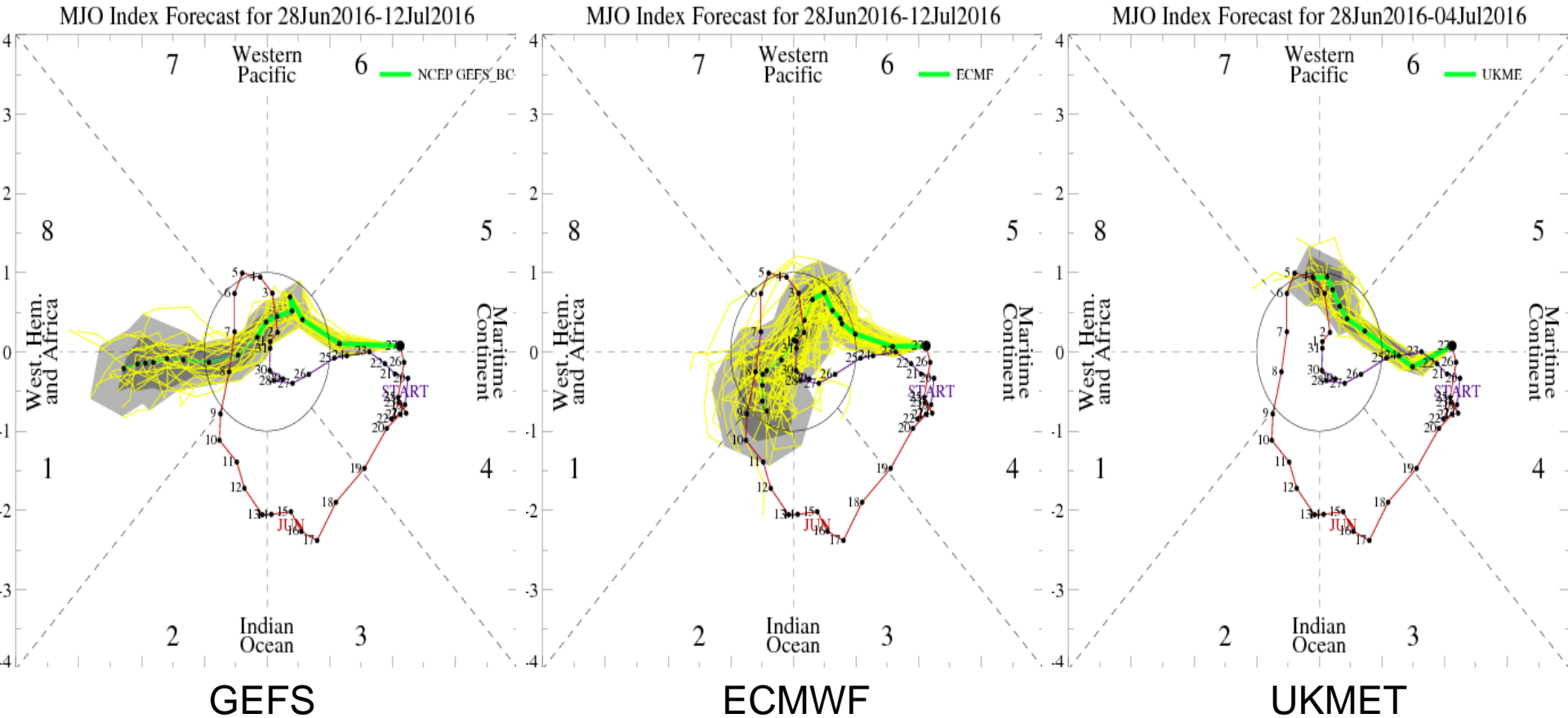
Continued eastward propagation of a robust MJO signal

27 JUN 2016



Kelvin Wave ahead of the MJO

MJO Observation/Forecast

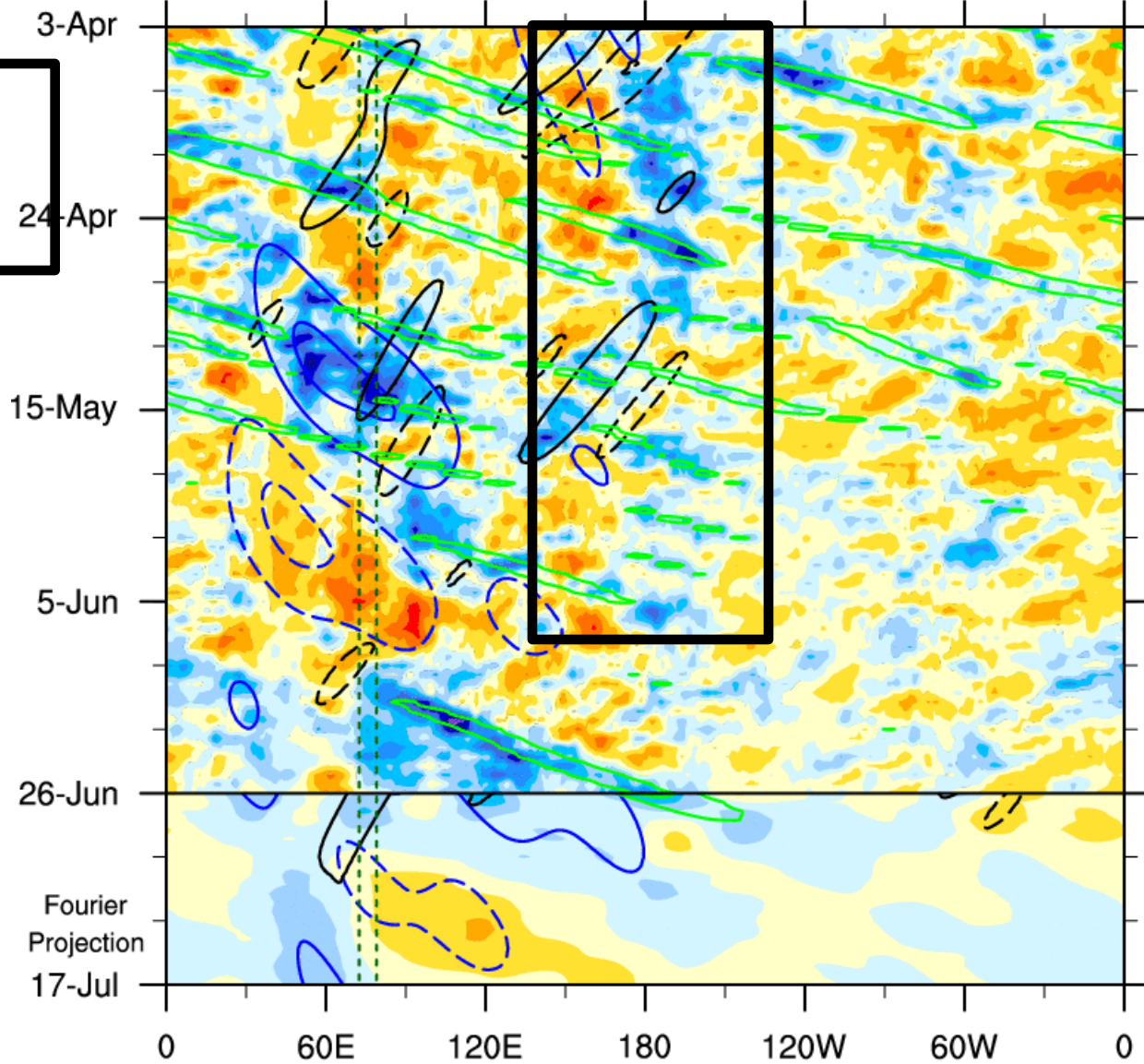


Wheeler-Hendon based analyses of model forecasts indicate good agreement between the UKMET and ECMWF (Phases 5 and 6).

NOAA CDR HIRS OLR anomalies: 7.5°S - 7.5°N

3-Apr-2016 to 26-Jun-2016 + 21-day Fourier Projection

El Niño appearance suppressed relative to earlier this year.



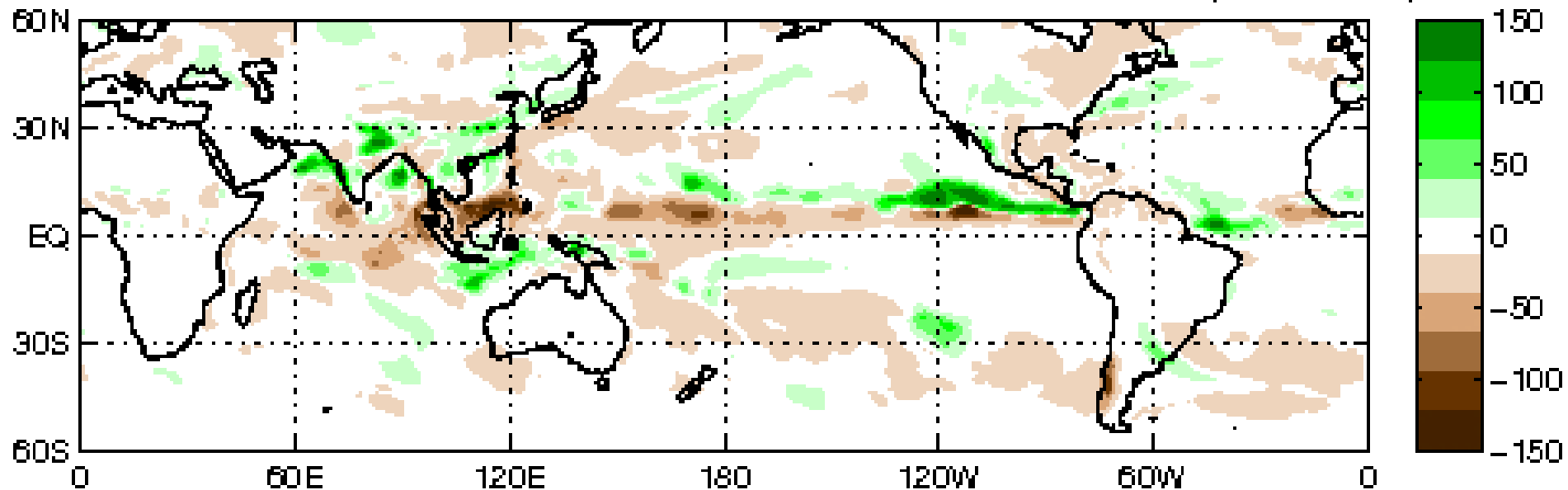
Green opal represents the Kelvin Wave crossing Western Hemisphere

Obs: W m⁻² -84 -72 -60 -48 -36 -24 -12 0 12 24 36 48 60 72 84

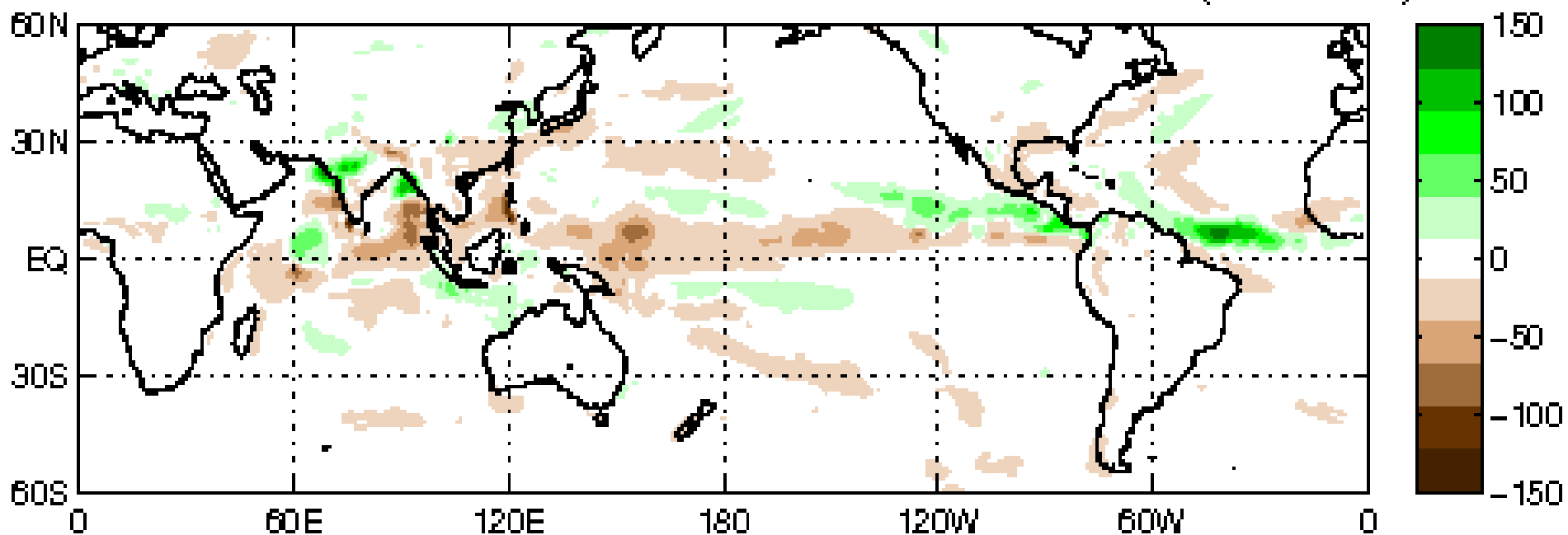
Sum of Waves: W m⁻² -18 -12 -6 0 6 12 18

MJO (blue, CINT=12); ER (black, CINT=12); Kelvin (green, CINT=12)

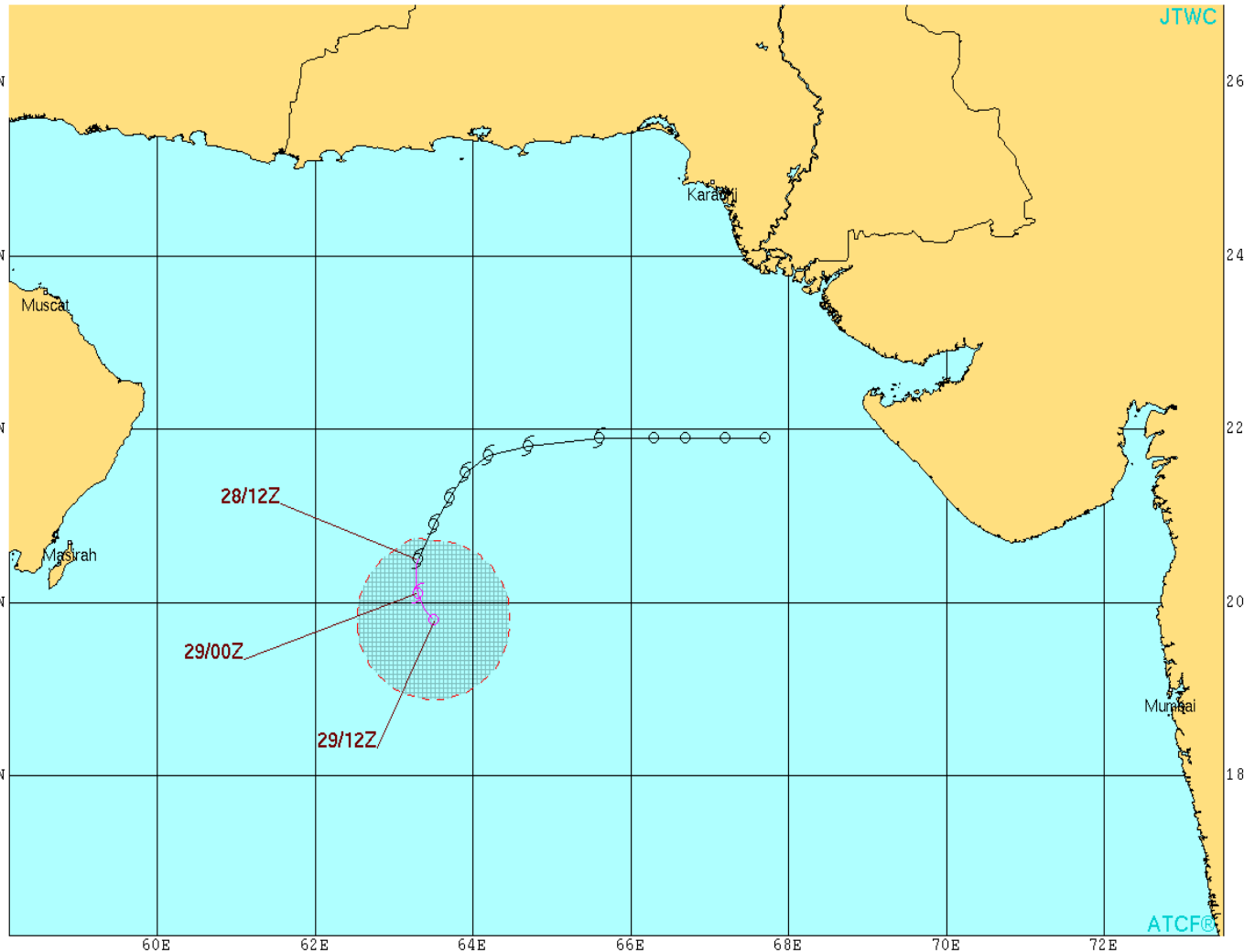
CFS: Anom. PREC Week: 1: 29-Jun-2016 to 05-Jul-2016 (mm/week)



CFS: Anom. PREC Week: 2: 06-Jul-2016 to 12-Jul-2016 (mm/week)



Joint Typhoon Warning Center's Forecast



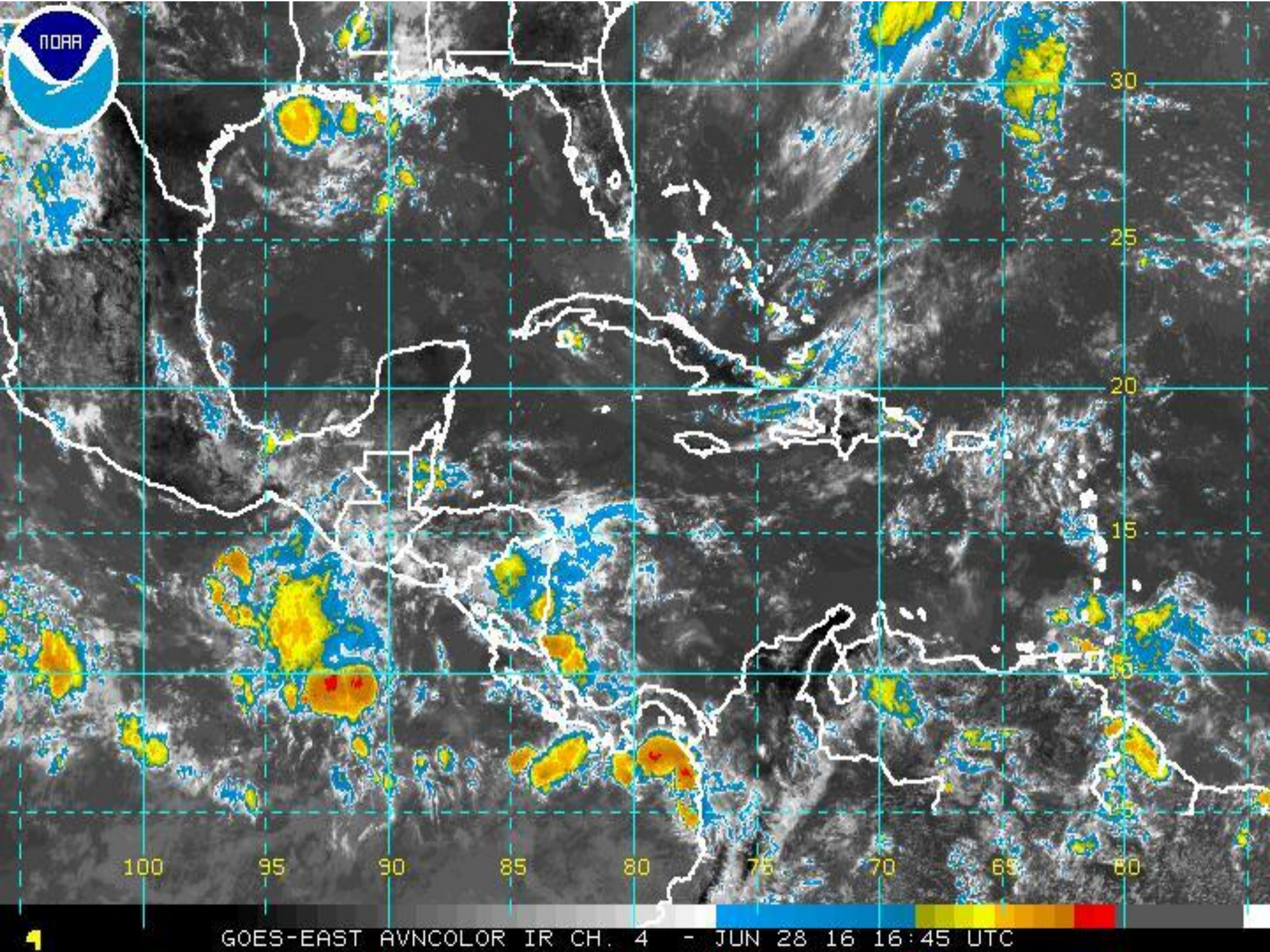
TROPICAL CYCLONE 02A (TWO) WARNING #7
 WTIO31 PGTW 281500
 281200Z POSIT: NEAR 20.5N 63.3E
 MOVING 205 DEGREES TRUE AT 04 KNOTS
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 14 FEET
 28/12Z, WINDS 035 KTS, GUSTS TO 045 KTS
 29/00Z, WINDS 035 KTS, GUSTS TO 045 KTS
 29/12Z, WINDS 030 KTS, GUSTS TO 040 KTS

CPA TO:	NM	DTG
MASIRAH_ISLAND	253	28/20Z
DUQM	317	28/22Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
KARACHI	214	357	24
MASIRAH_ISLAND	097	267	24
DUQM	088	328	24
MUSCAT	128	352	24

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





NOAA

100 95 90 85 80 75 70 65 60

30
25
20
15
10

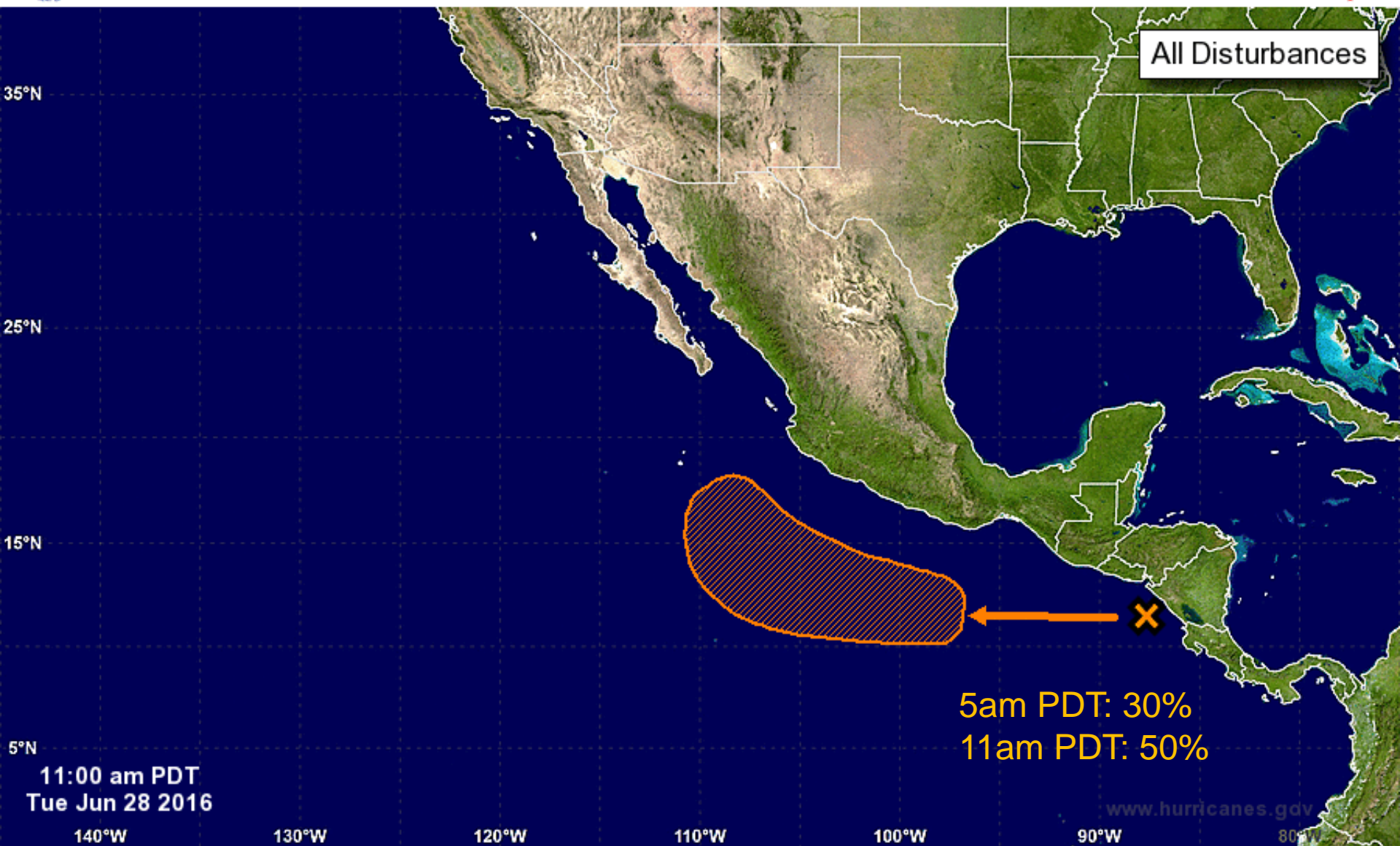
GOES-EAST AVNCOLOR IR CH. 4 - JUN 28 16 16:45 UTC

4



Five-Day Graphical Tropical Weather Outlook

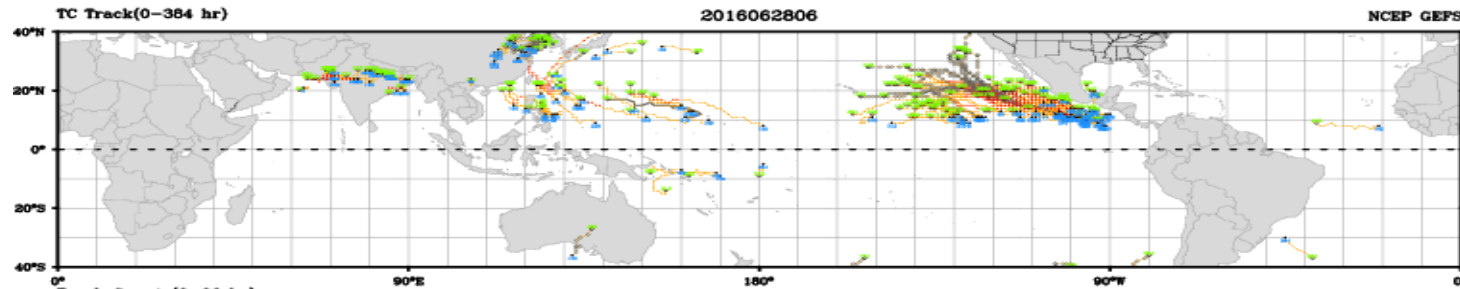
National Hurricane Center Miami, Florida



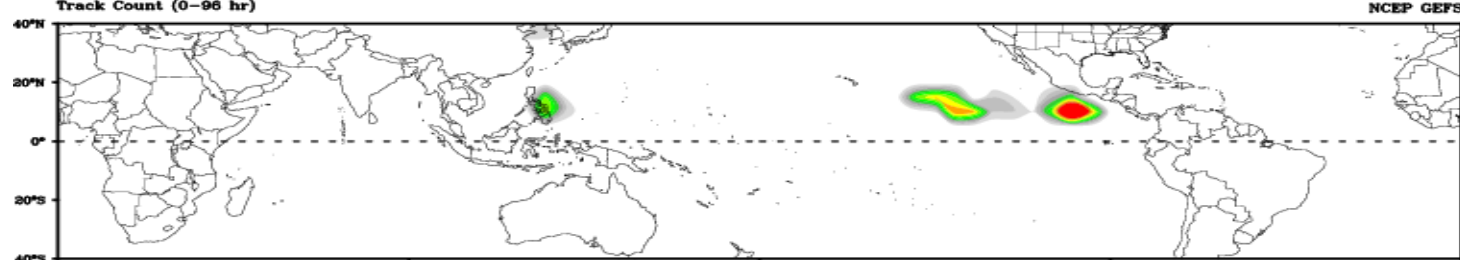
Tropical Cyclone Formation Potential for the Five-Day Period Ending at 11:00 am PDT Sun Jul 3 2016

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

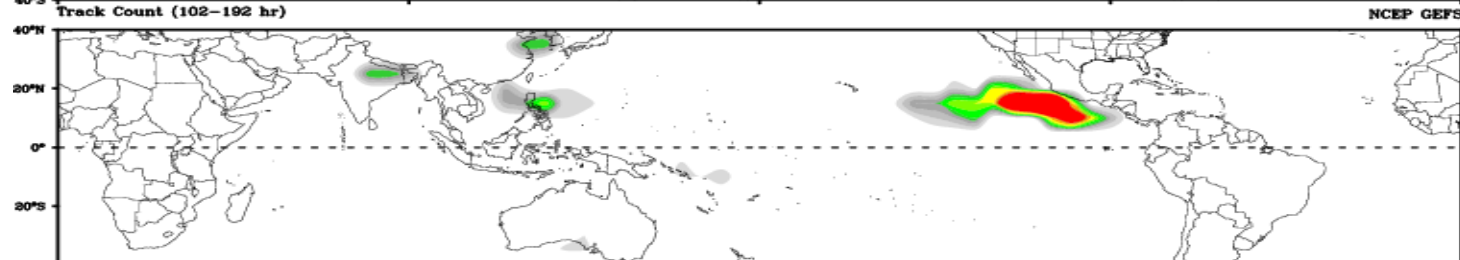
X indicates current disturbance location; shading indicates potential formation area.



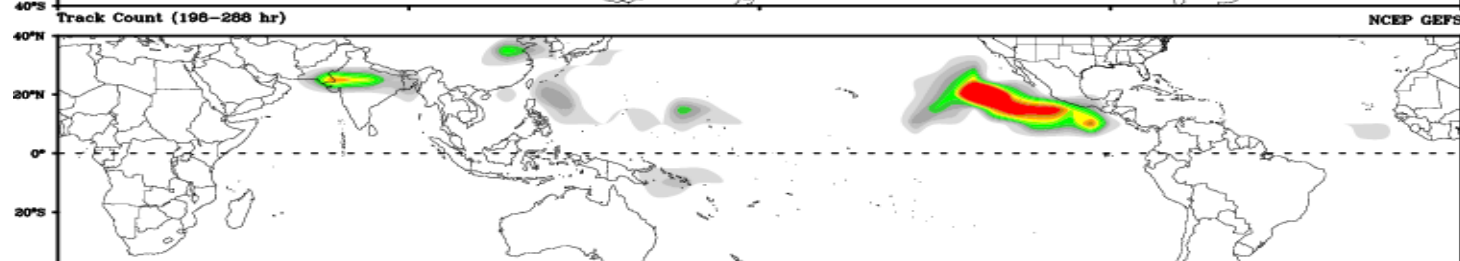
Days 1-4



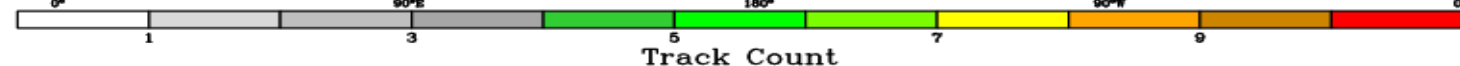
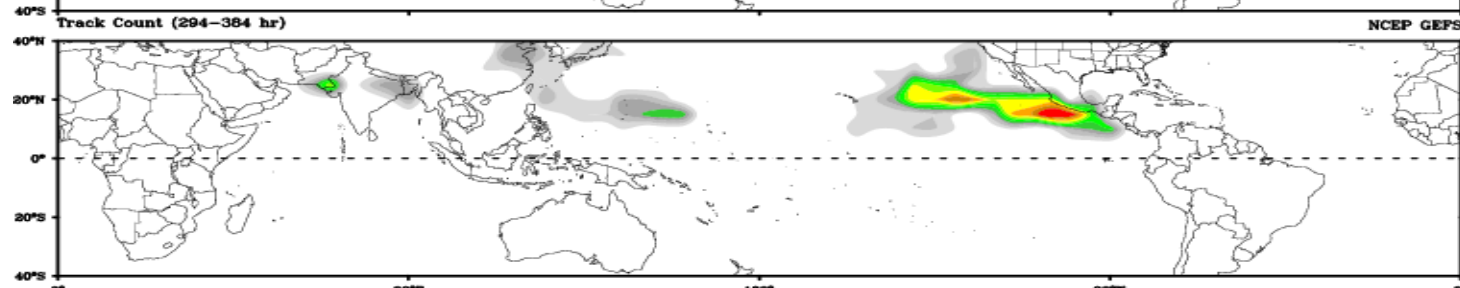
Day 5-8

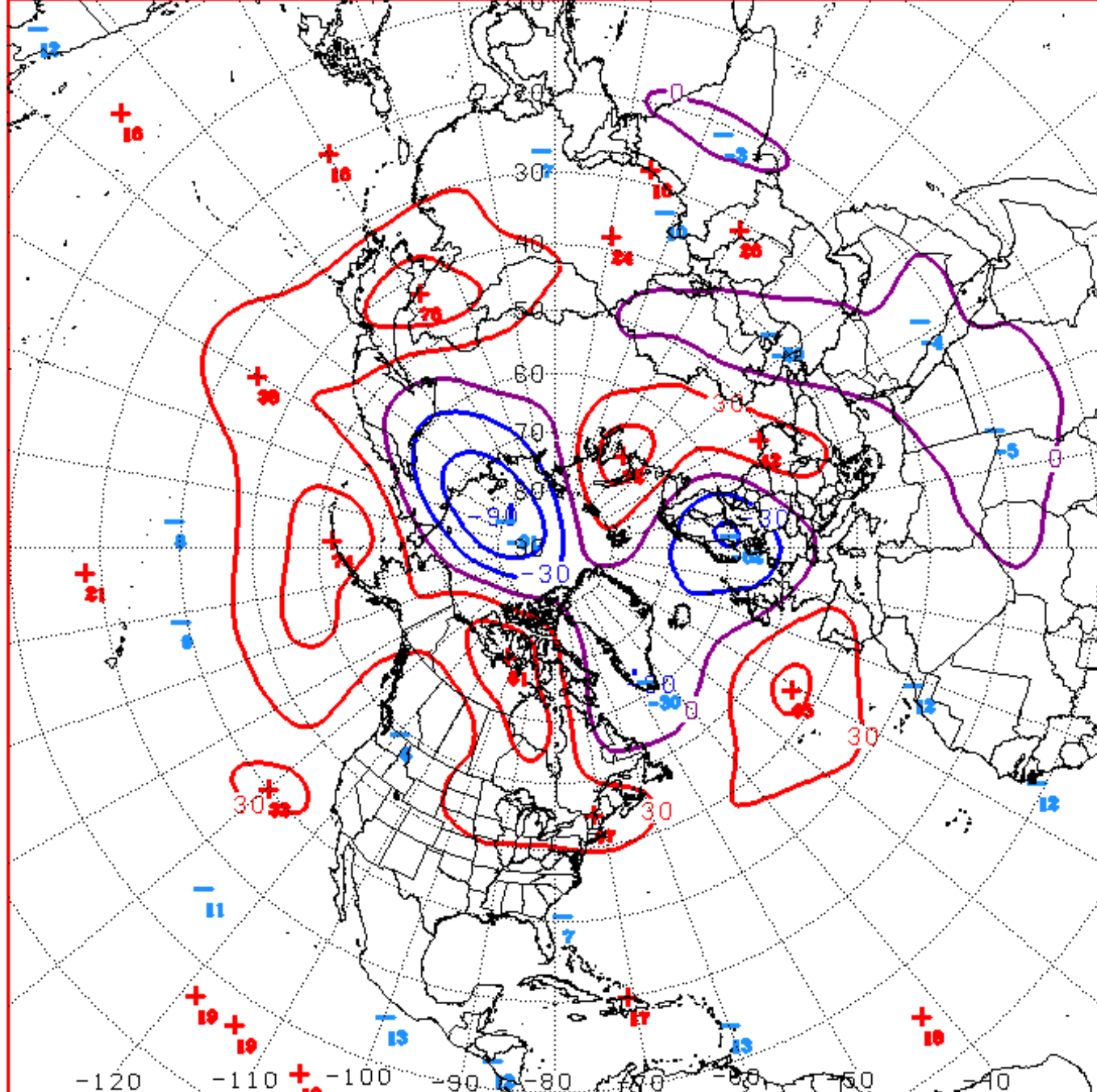


Day 9-12



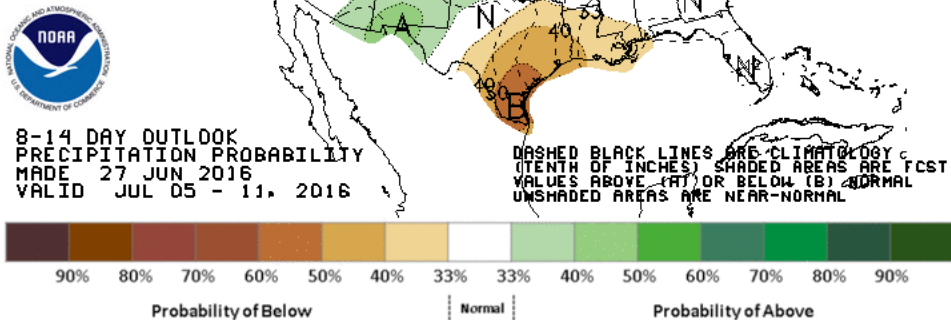
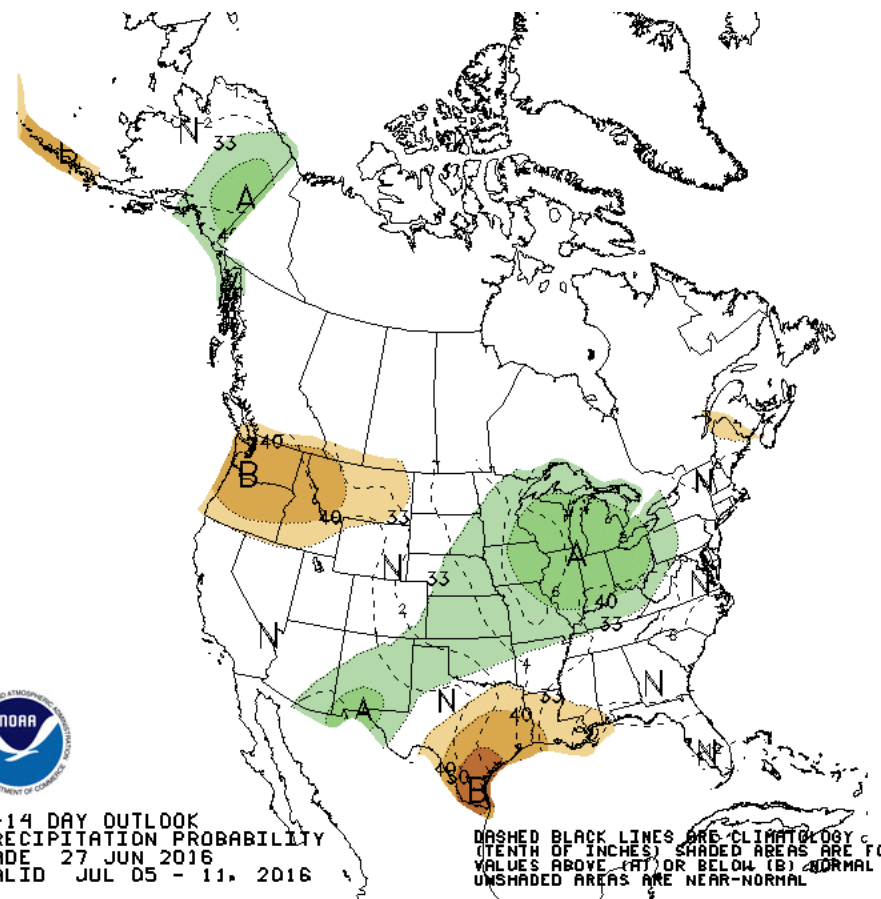
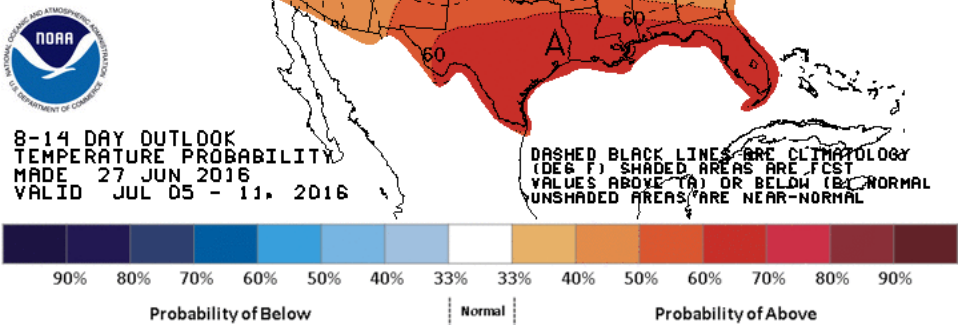
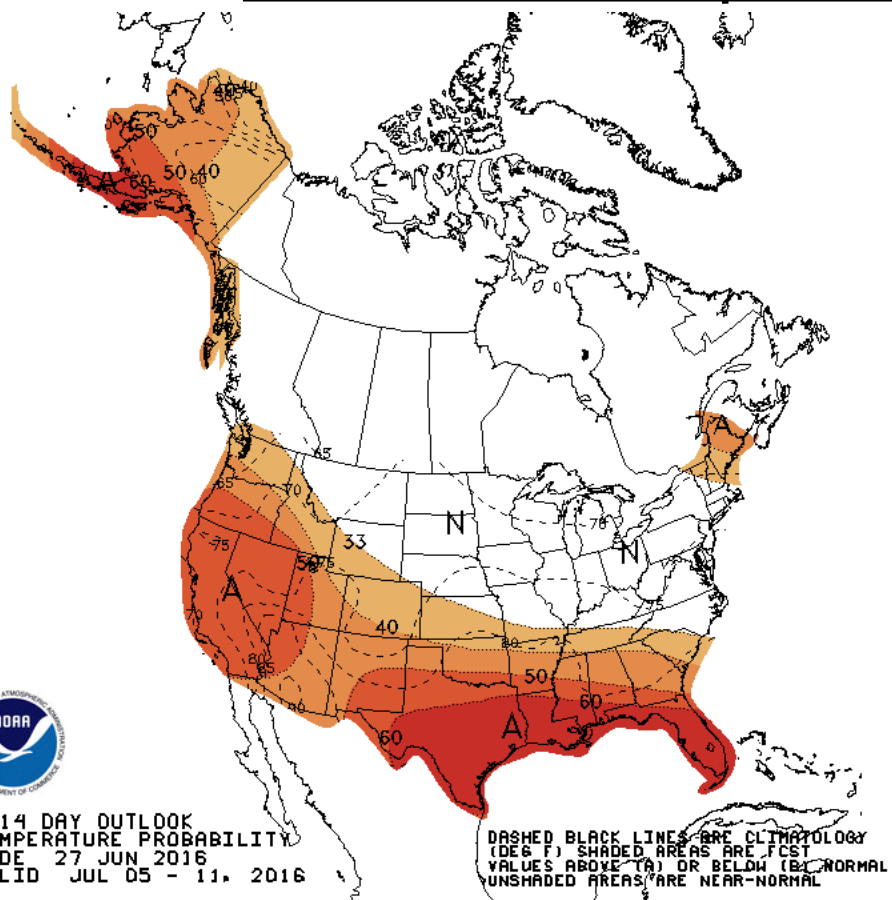
Day 13-15





D+11 500 MB ANOMALIES FROM 00Z ECMM
CPC MAP MADE JUN 28 2016 0950 UTC CNTD JUL 09 2016

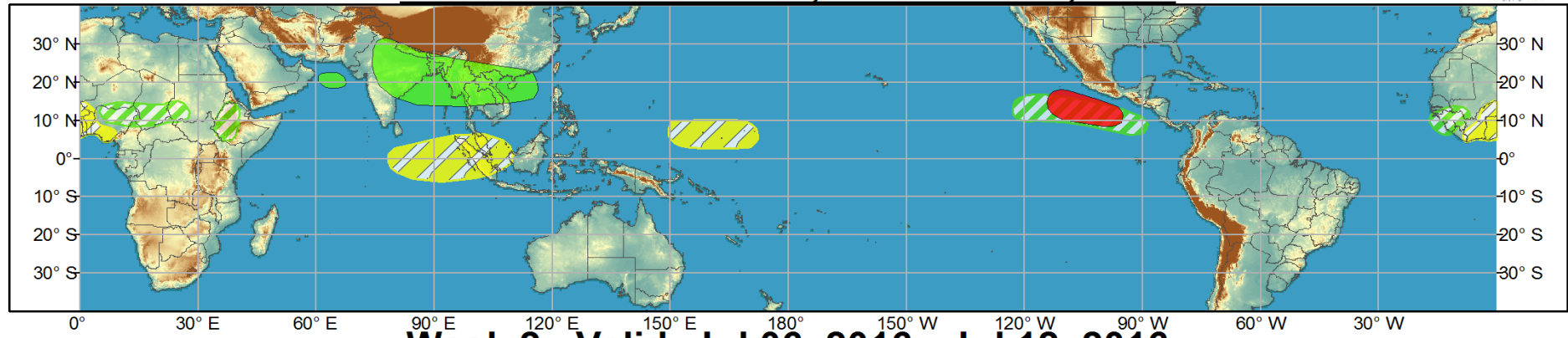
Week 2 – Temperature and Precipitation



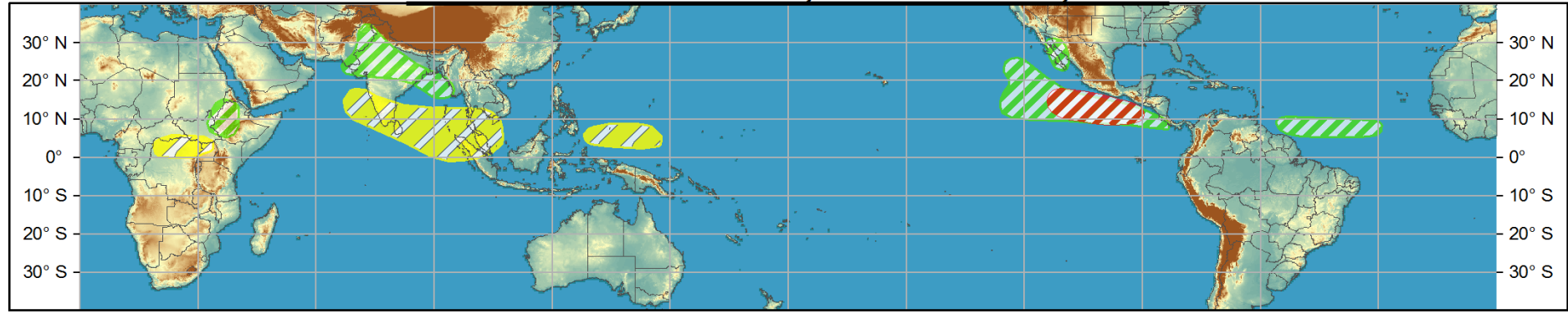


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