# Global Tropics Hazards And Benefits Outlook

4/2/2018

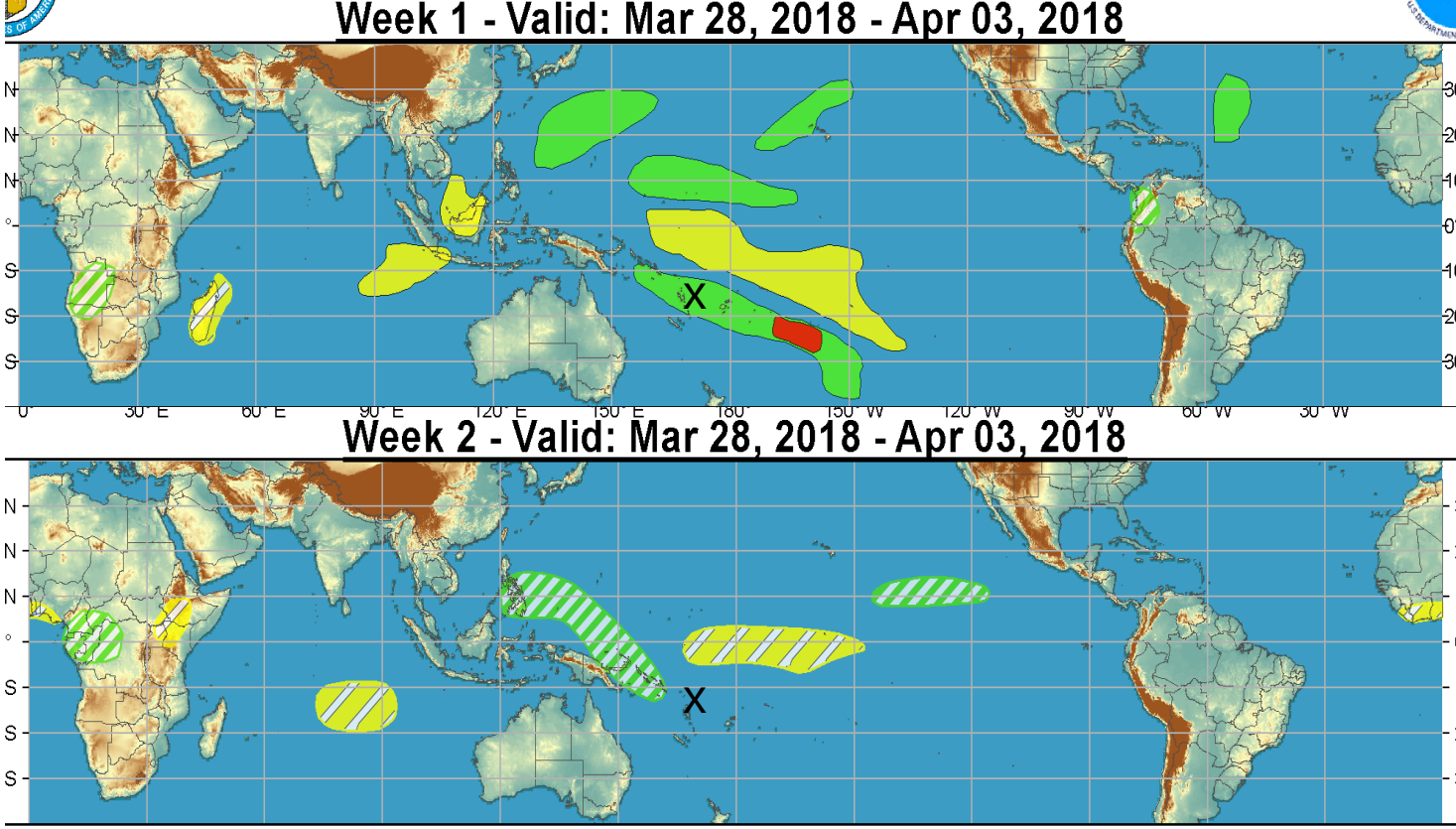
Christina Finan

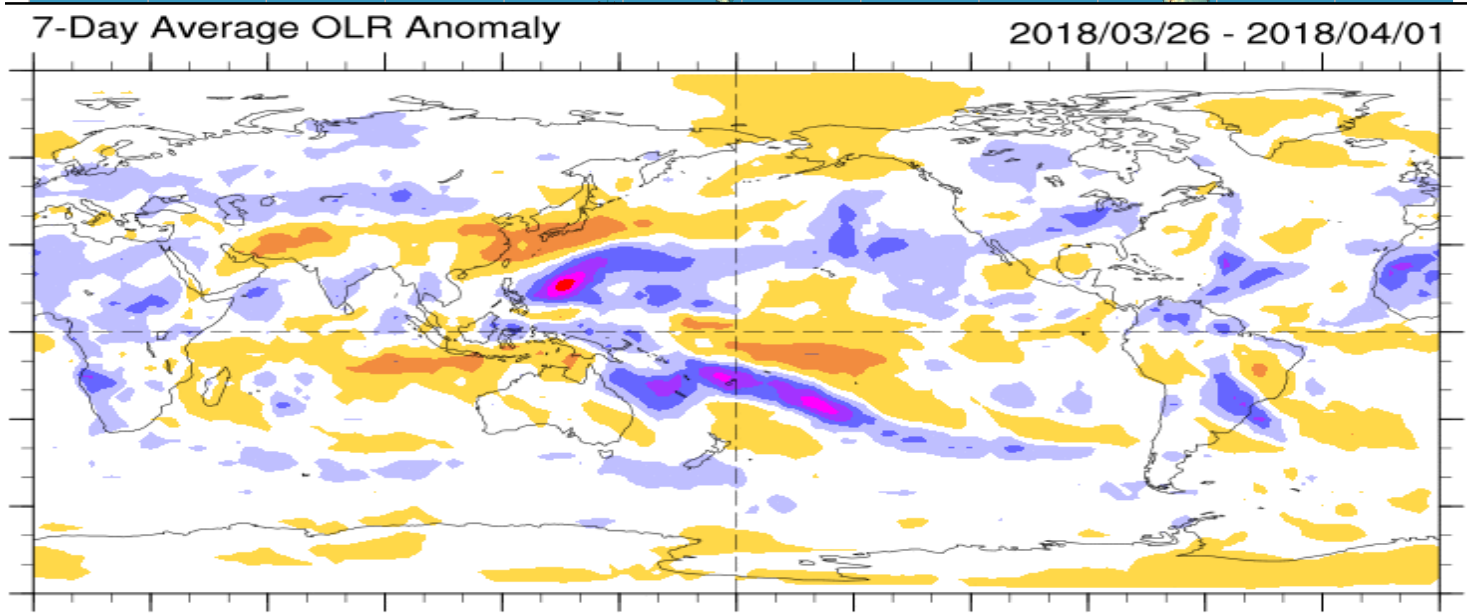
## Outline

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

# Outlook Review

**S. Pac:**
TC Josie
3/31-present

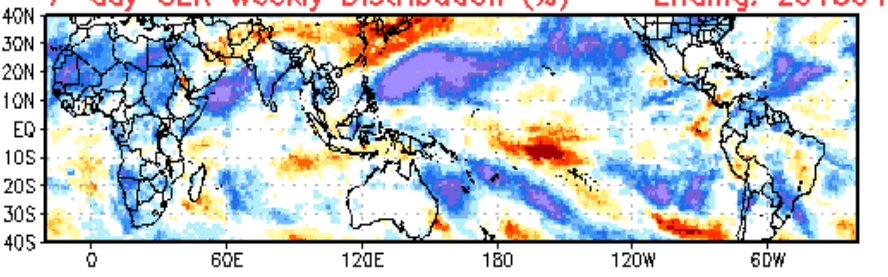


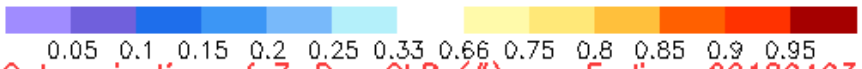




Cool shading
More clouds/rain

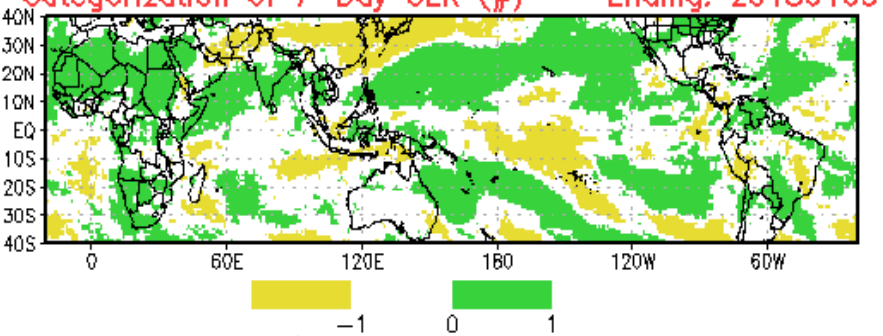
Warm shading
Less clouds/rain

7-day OLR Weekly Distribution (%) -- Ending: 20180403



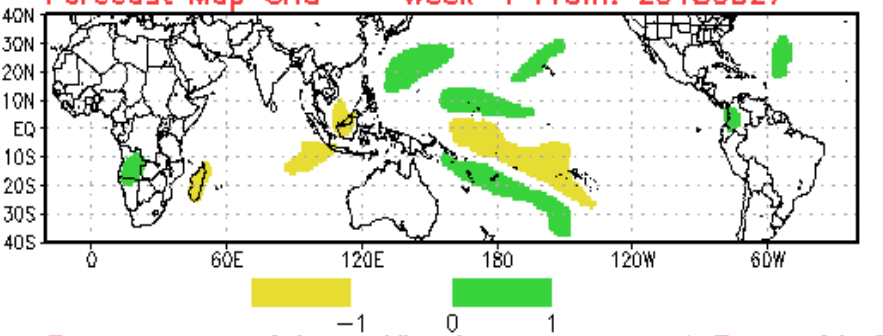

Categorization of 7-Day OLR (#) -- Ending: 20180403







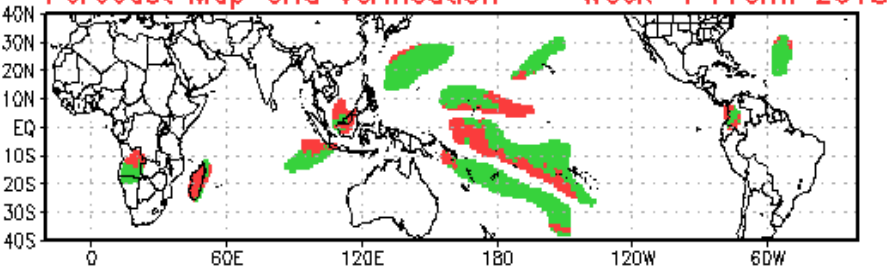
Forecast Map Grid -- Week-1 From: 20180327





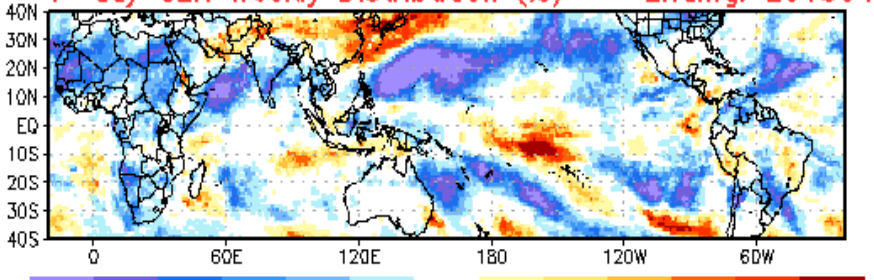


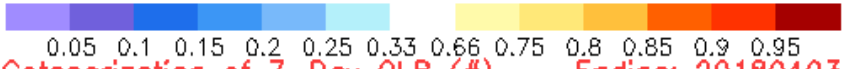
Forecast Map Grid Verification -- Week-1 From: 201803



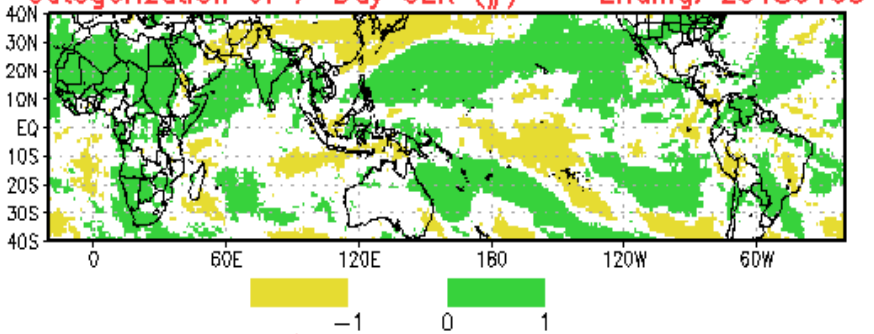

Hit: Green, Miss: Red
Heidke Skill Score: 53.7332

7-day OLR Weekly Distribution (%) -- Ending: 20180403



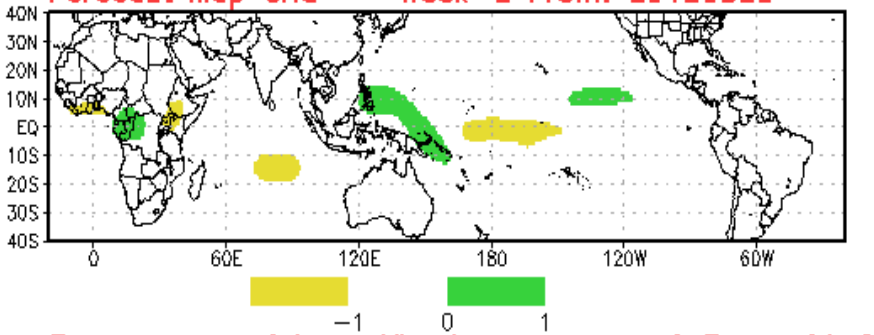

Categorization of 7-Day OLR (#) -- Ending: 20180403







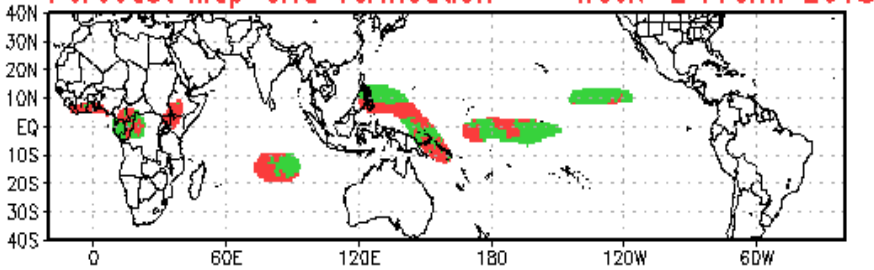
Forecast Map Grid -- Week-2 From: 20180320







Forecast Map Grid Verification -- Week-2 From: 20180320




Hit: Green, Miss: Red
Heidke Skill Score: 29.5994

# Synopsis of Climate Modes

**ENSO:**

- A transition from La Nina to ENSO-neutral is most likely (~55% chance) during the March-May season, with neutral conditions likely to continue into the second half of the year (ENSO Diagnostic Discussion, April 2, 2018)

**MJO and other subseasonal tropical variability:**

•The active region of the renewed MJO signal moved over the Maritime Continent during the past week.

•Some tropical cyclone activity is expected to continue during Week-1 as the convective envelope moves further into the West Pacific. Suppressed convection is expected to move over the Maritime Continent.

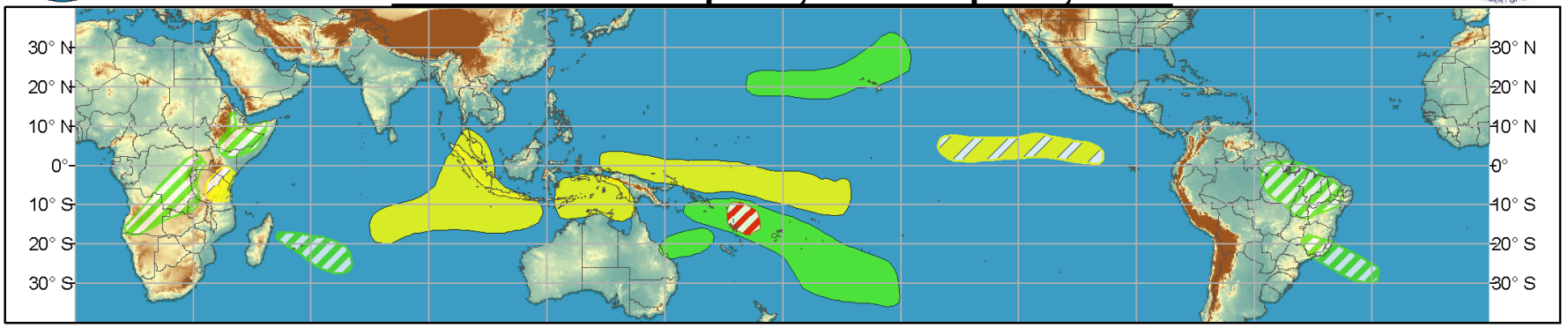
• There is disagreement in the dynamical models on how quickly the MJO signal is expected to decay; the signal is expected to continue eastward through Week-1, with some decay into Week-2.

**Extratropics:**

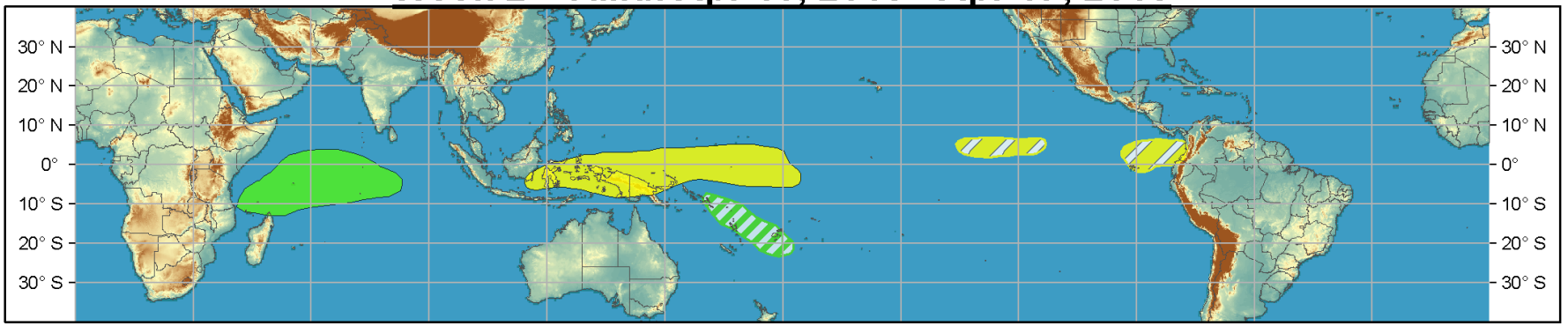
• The extended range temperature forecast for the U.S. is not heavily impacted by the MJO.

# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Apr 04, 2018 - Apr 10, 2018




## Week 2 - Valid: Apr 11, 2018 - Apr 17, 2018




**Produced: 04/03/2018**

**Forecaster: Finan**

| | Confidence: High | Confidence: 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. |

**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.**

中央氣象局 Central Weather Bureau

UNIVERSITY AT ALBANY State University of New York

EARTH SYSTEM SCIENCE INTERDISCIPLINARY CENTER ESSIC UNIVERSITY OF MARYLAND

Australian Government Bureau of Meteorology

cics.nc

NPS PRAESTANTIA PER SCIENTIAM

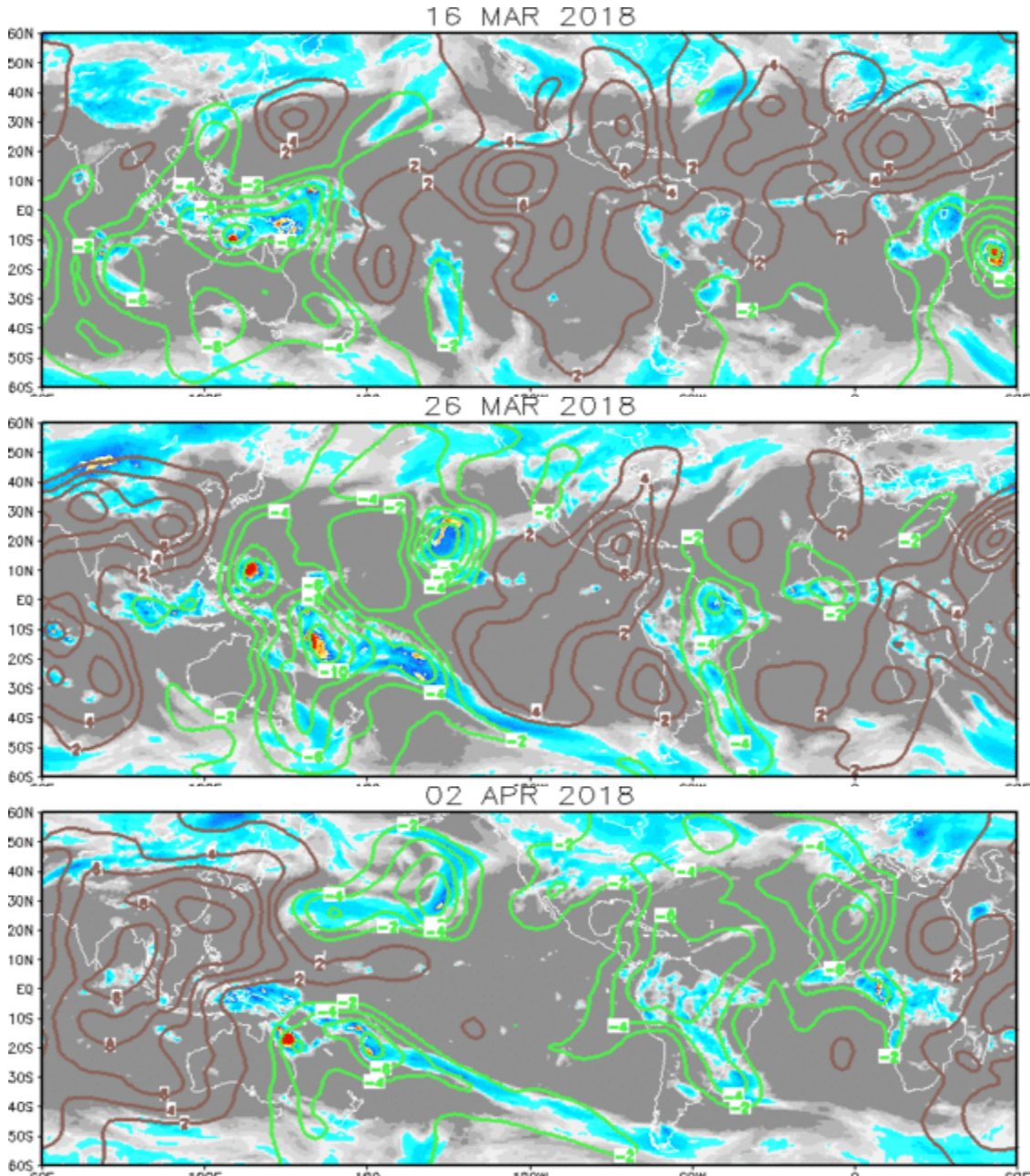
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence  Brown: Enhanced Convergence

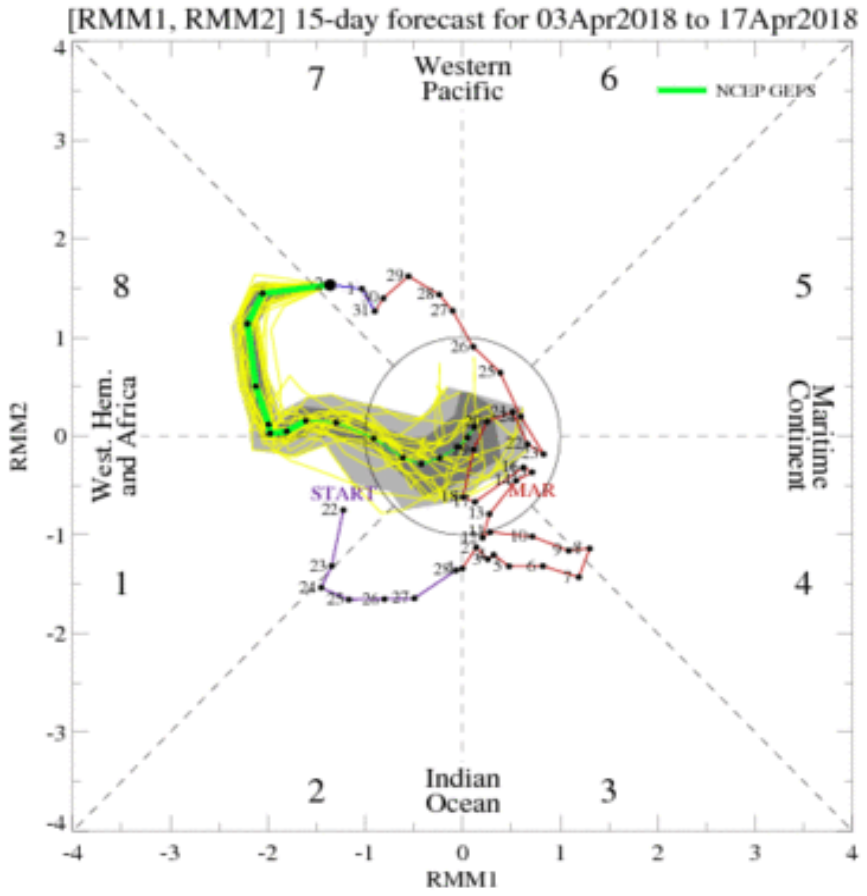
Enhanced convection over the Maritime Continent can be attributed to MJO, Kelvin, and equatorial Rossby waves.

Broad scale convection propagates eastward with the strengthened MJO signal.

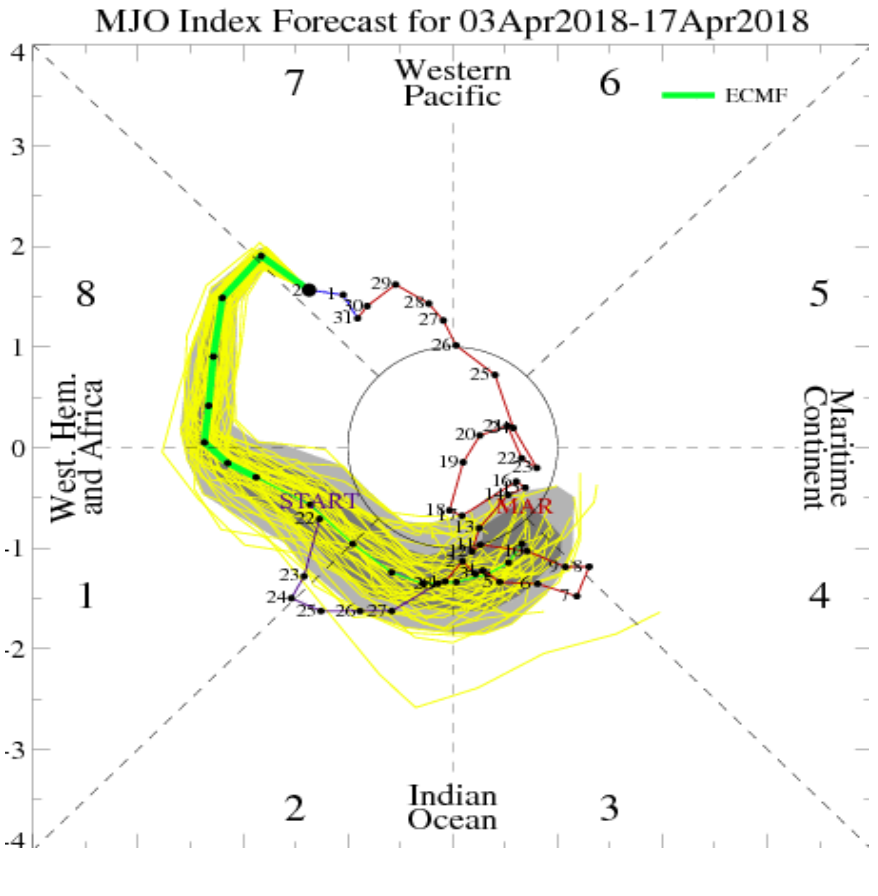
Wave-1 pattern becomes stronger with re-newed MJO. Suppressed convection moves over the Maritime Continent.



# MJO Observation/Forecast



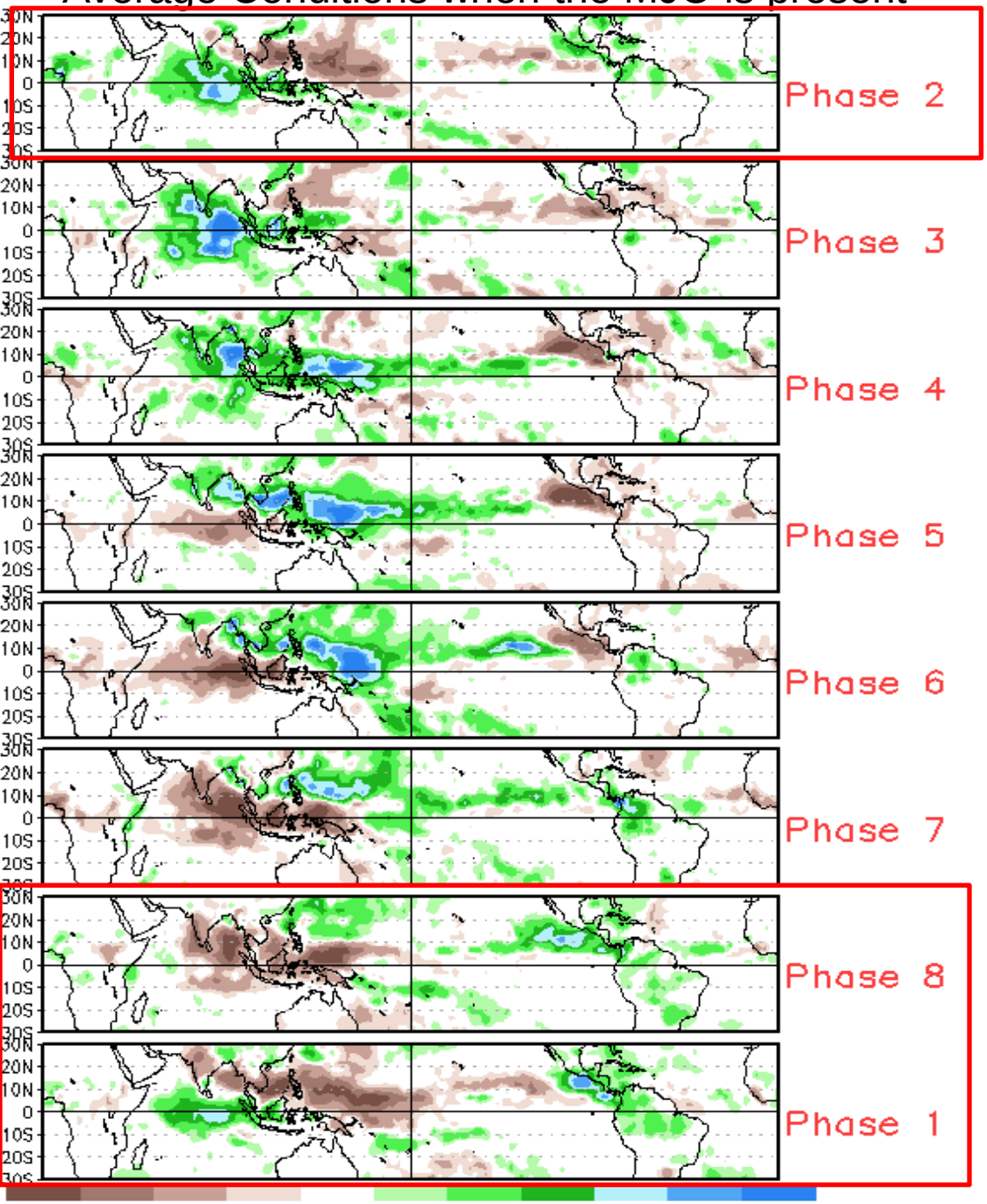

GEFS




ECMWF

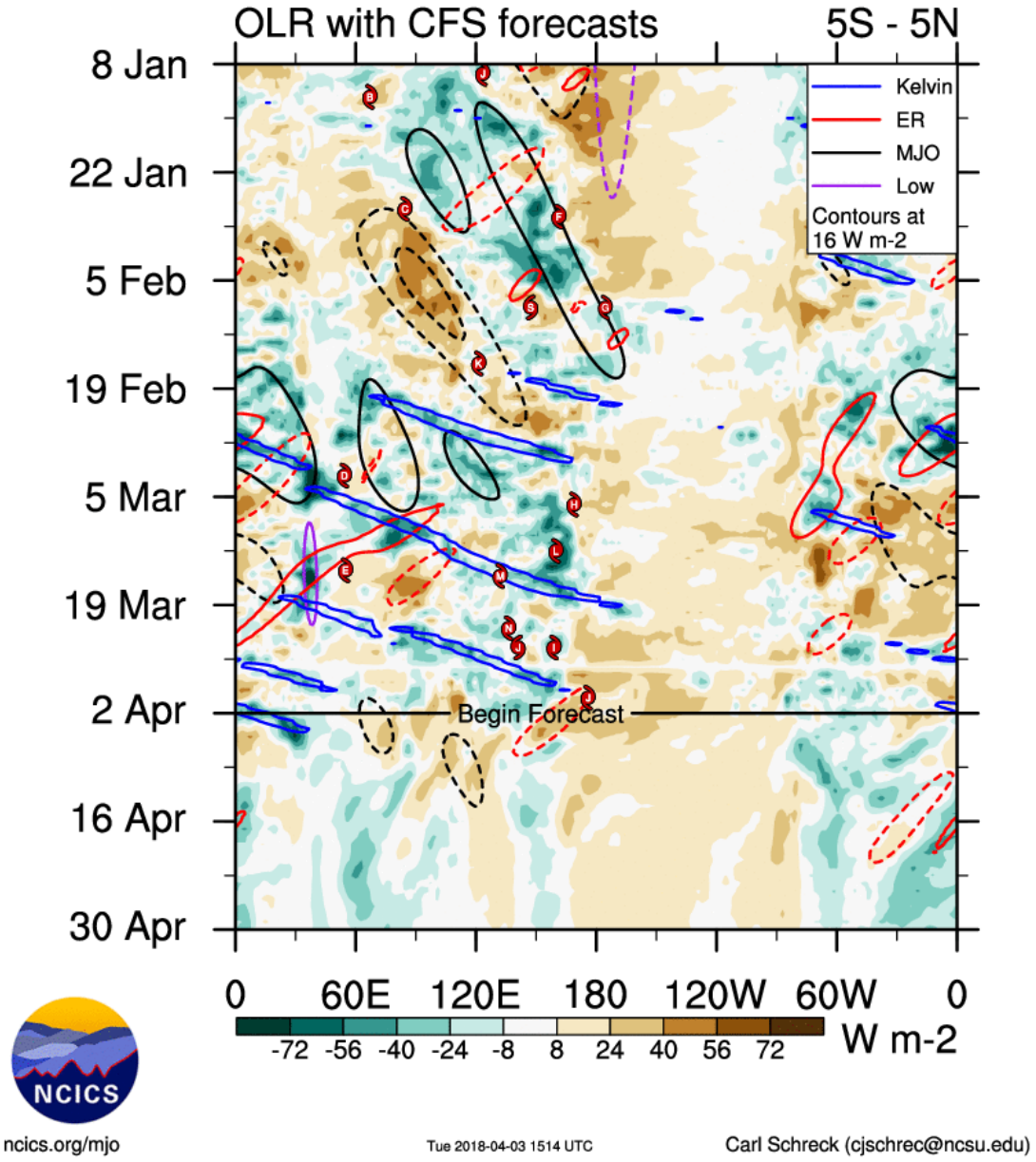
Dynamical guidance forecasts the MJO to continue during the Week-1 forecast period, with differing degrees of decay into Week-2.

Average Conditions when the MJO is present



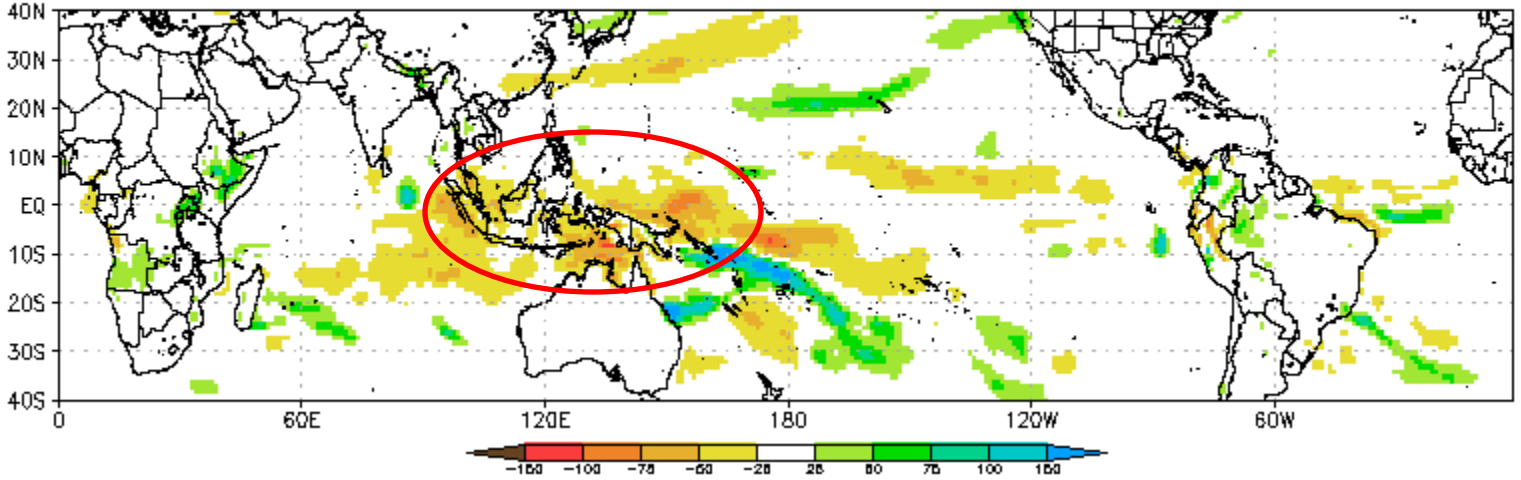

**Week-1: Phases 8-1**
**Week-2: Phases 1-2**

CAVEAT: These panels are representative of robust MJO events.

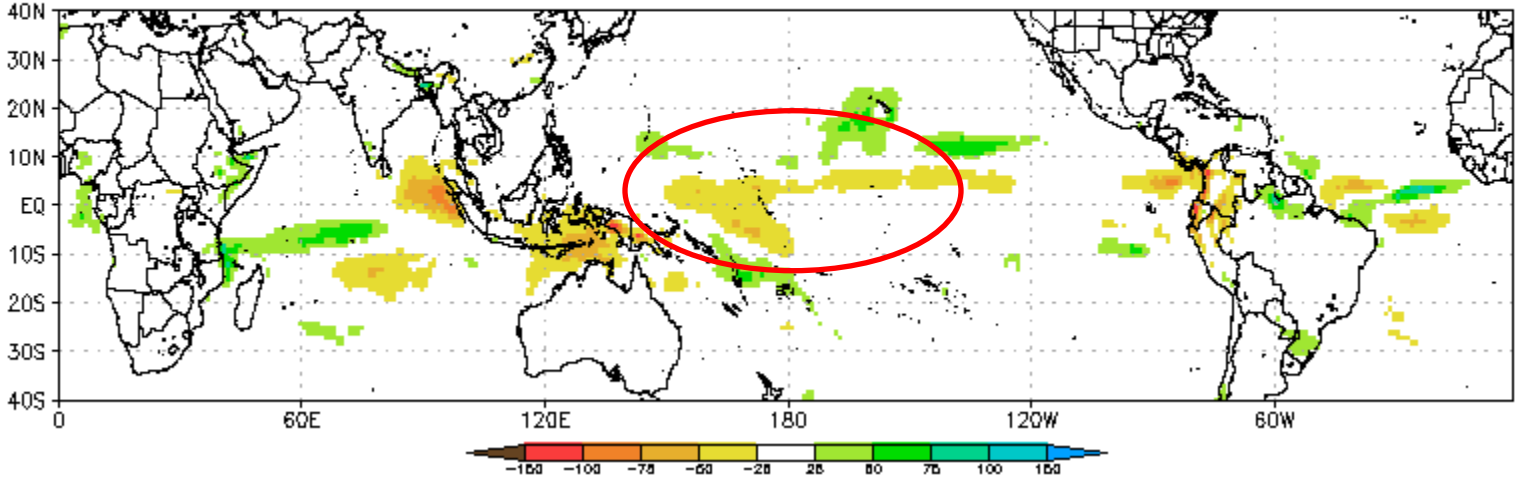



The area of tropical cyclone activity around the Maritime Continent occurs at the intersection of an active **MJO,** **Rossby wave,** and Kelvin wave.

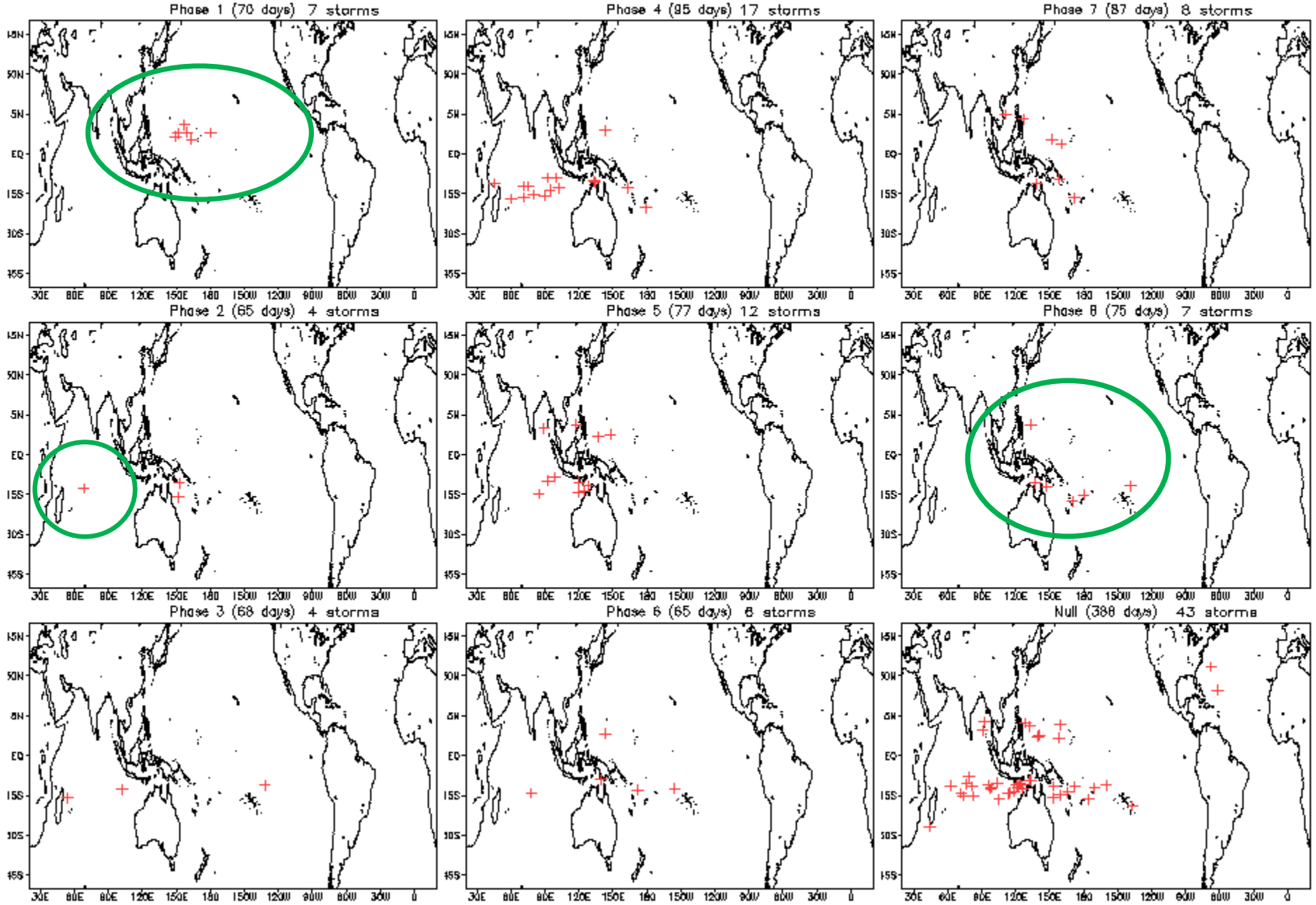
CFS Precipitation Anomalies (mm) Issued 02Apr2018
Week-1 Forecast Ending 10Apr2018

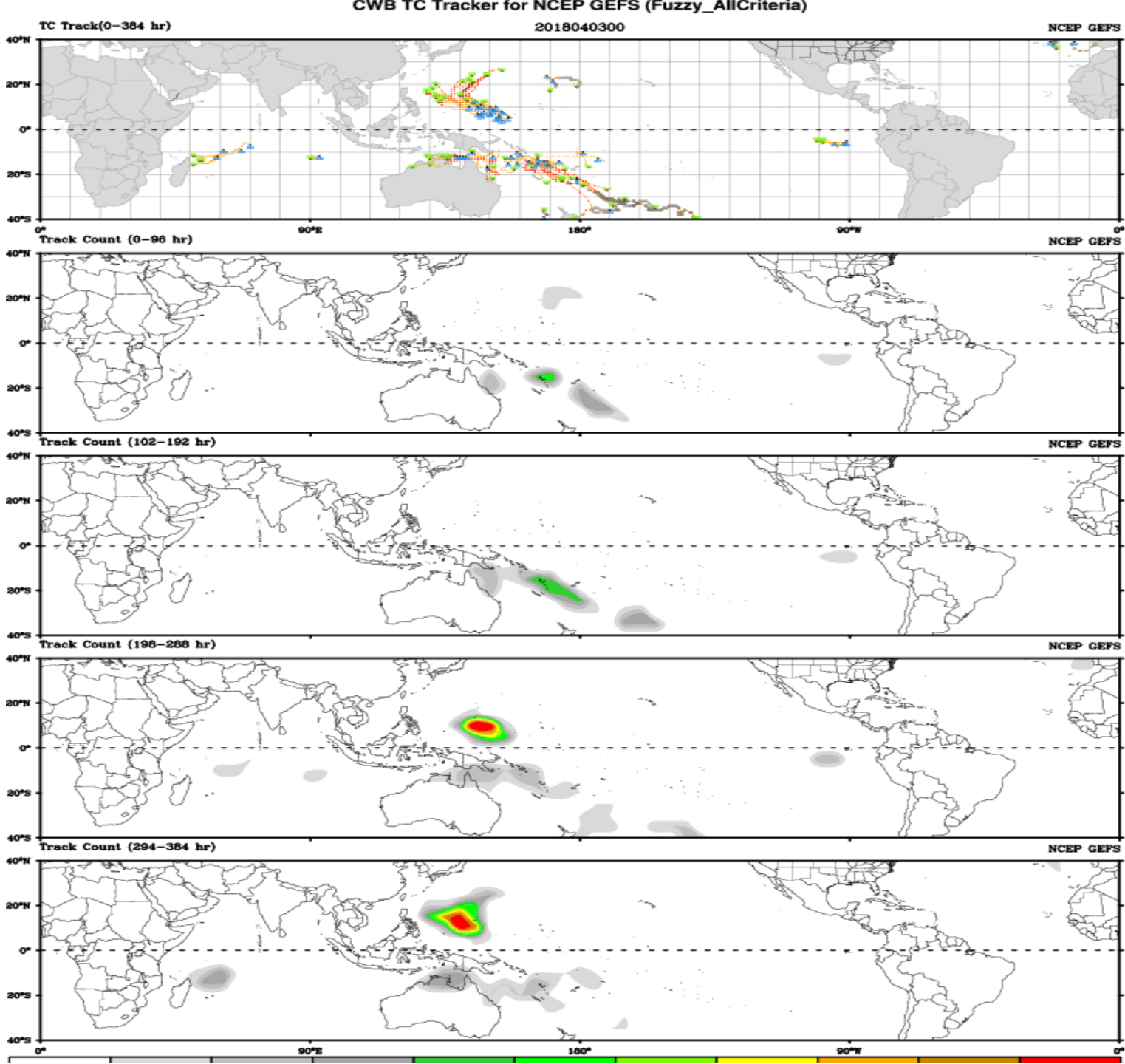



CFS Precipitation Anomalies (mm) Issued 02Apr2018
Week-2 Forecast Ending 17Apr2018



# April Tropical Storm Formation by MJO phase





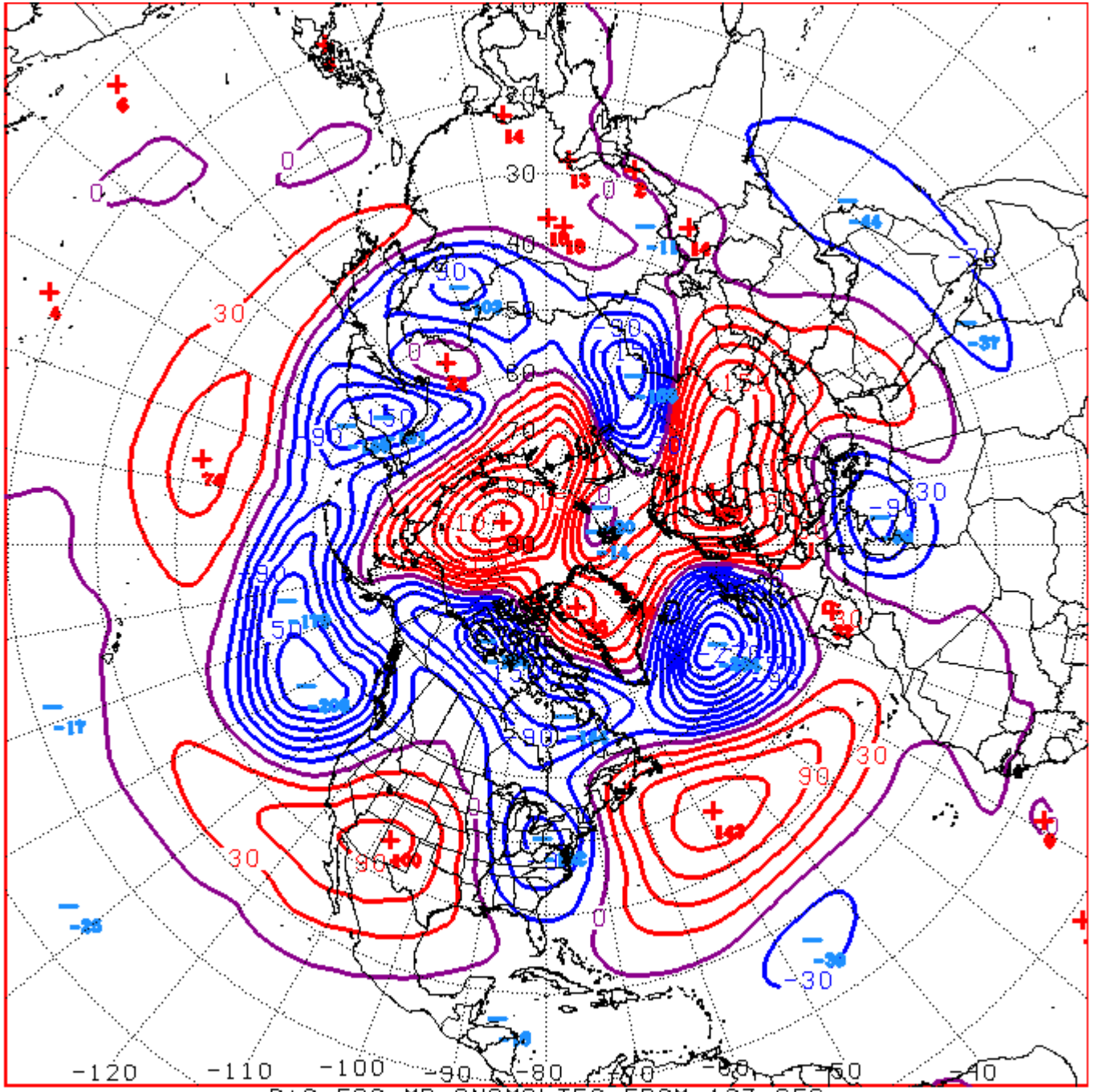

Days 1-4

Day 5-8

Day 9-12

Day 13-15

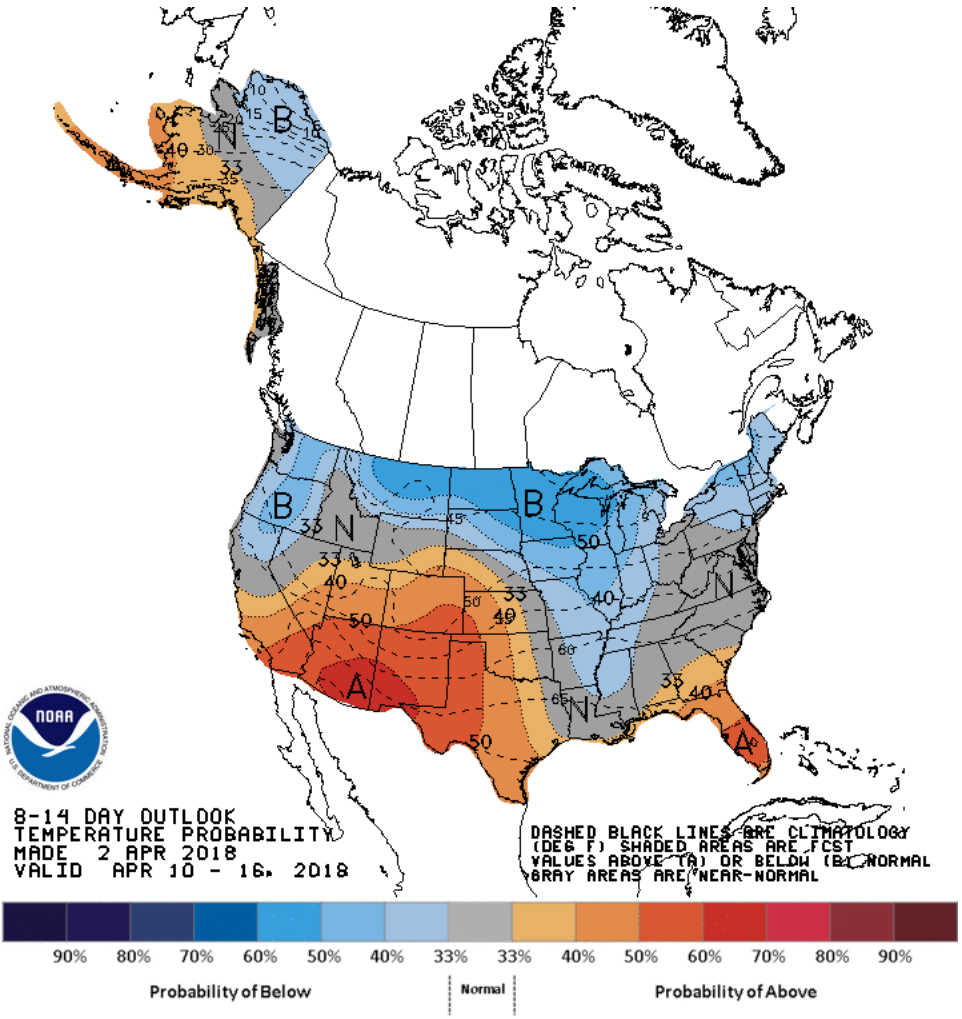
# Connections to U.S. Impacts

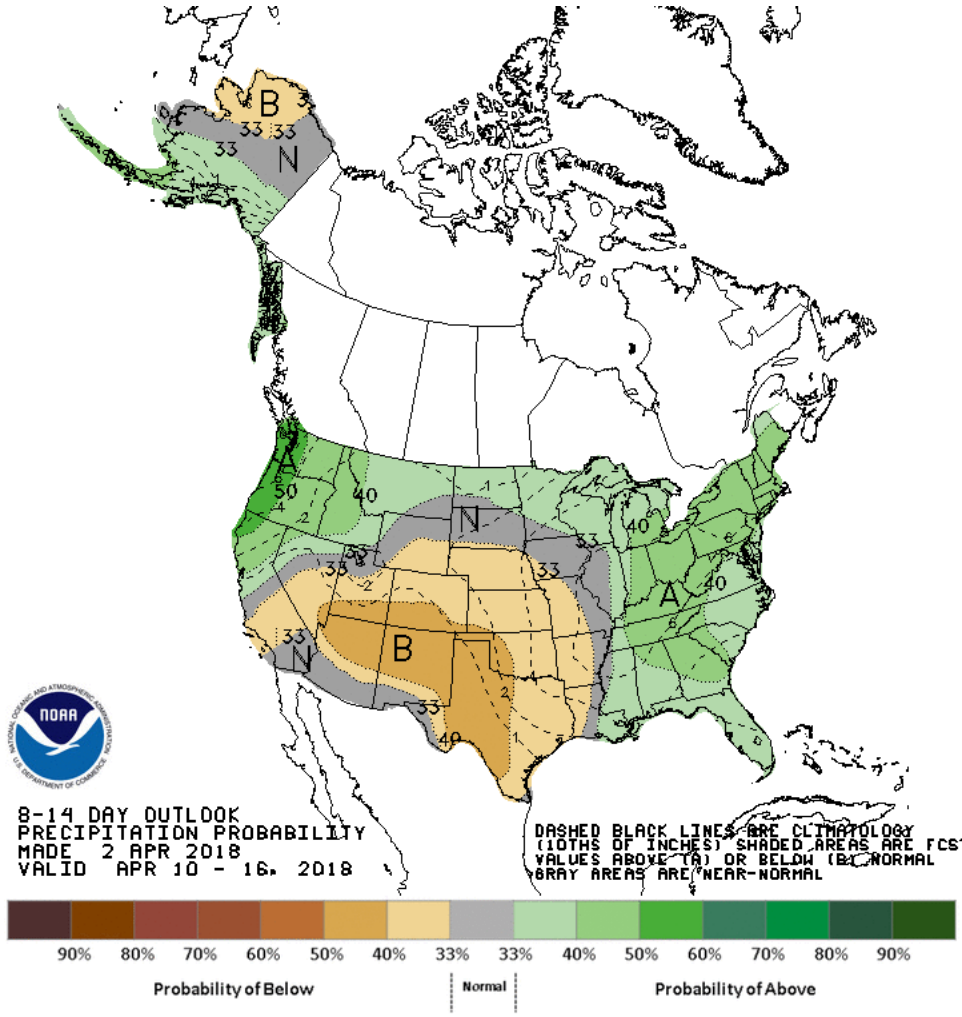



D+8 500 MB ANOMALIES FROM 12Z GFS
CPC MAP MADE APR 03 2018 1704 UTC CNTD APR 11 2018

# Week 2 – Temperature and Precipitation

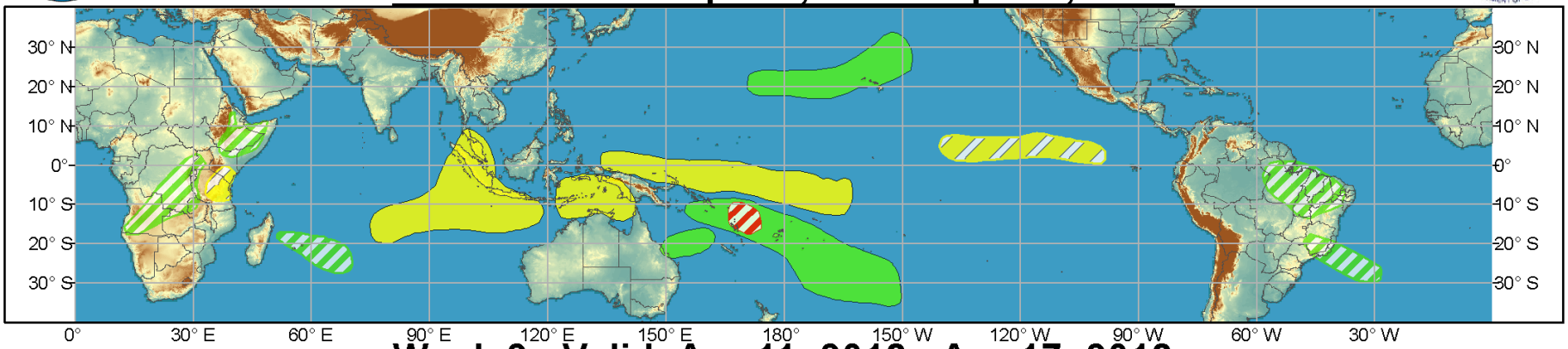
Extended range forecast mostly impacted by mid-latitude activities in the next two weeks.



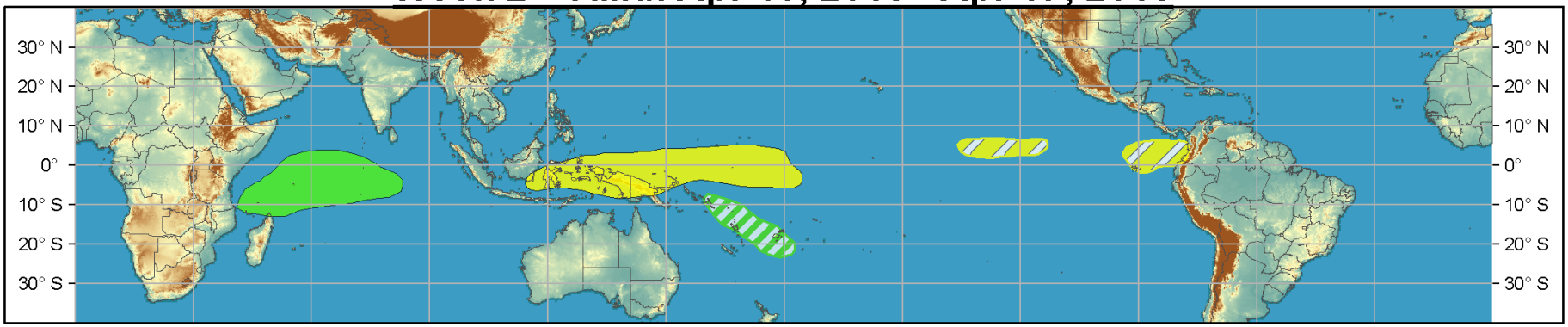



# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Apr 04, 2018 - Apr 10, 2018




## Week 2 - Valid: Apr 11, 2018 - Apr 17, 2018




**Produced: 04/03/2018**

**Forecaster: Finan**

| | Confidence: High | Confidence: 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. |

**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.**

中央氣象局 Central Weather Bureau

UNIVERSITY AT ALBANY State University of New York

EARTH SYSTEM SCIENCE INTERDISCIPLINARY CENTER ESSIC UNIVERSITY OF MARYLAND

Australian Government Bureau of Meteorology

cics.nc

NPS PRAESTANTIA PER SCIENTIAM