Global Tropics Hazards And Benefits Outlook

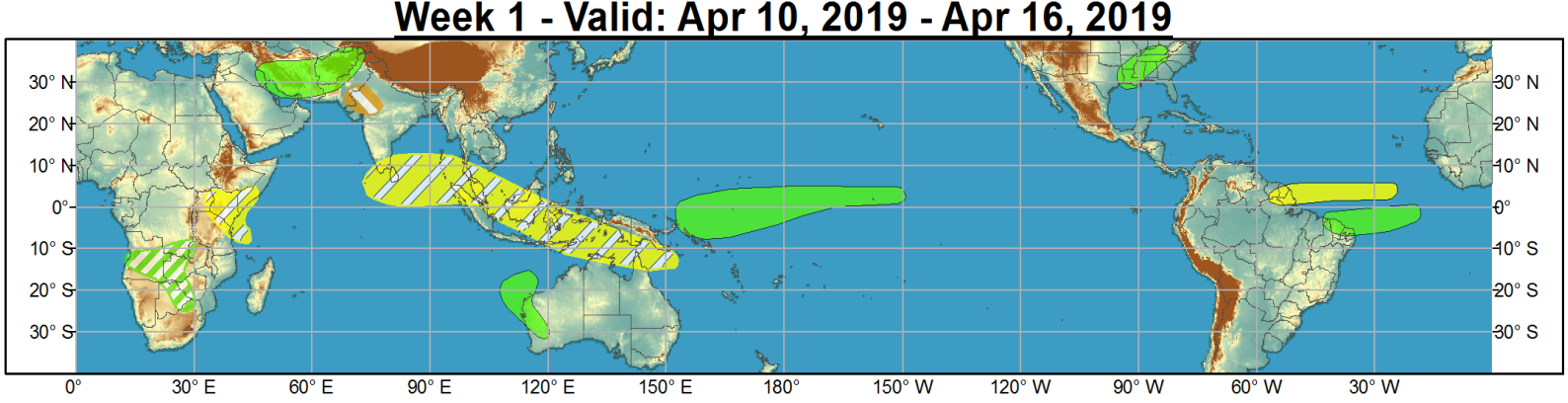
4/16/2019

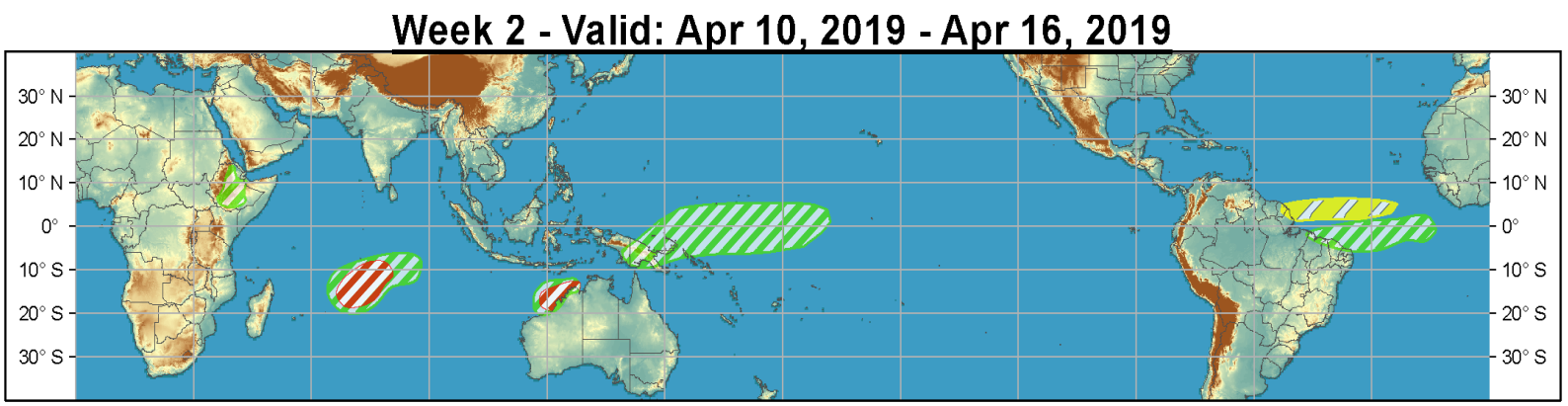
Adam Allgood

Outline

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

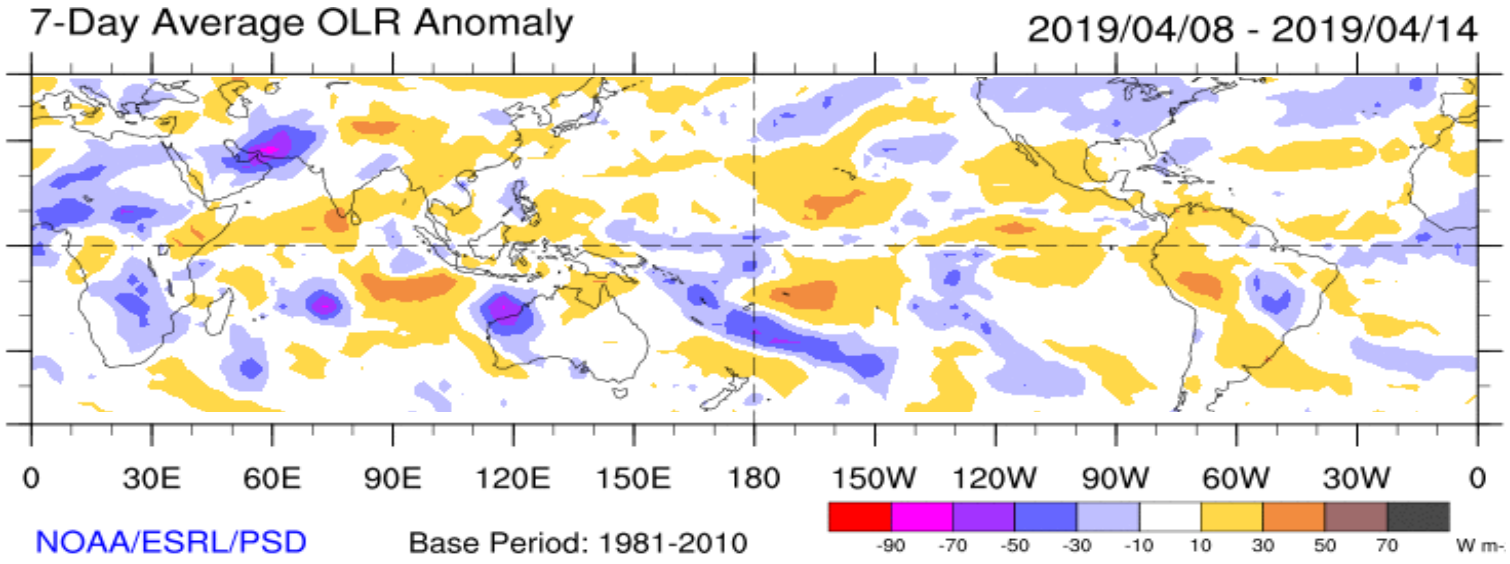
Outlook Review





Cool shading
More clouds/rain

Warm shading
Less clouds/rain



Synopsis of Climate Modes

ENSO: (April 11, 2019 Update)

- ENSO Alert System Status: El Niño Advisory

- A weak El Nino is likely to continue through the Northern Hemisphere summer 2019 (65% chance) and possibly fall (50-55% chance)..

MJO and other subseasonal tropical variability:

• The MJO remained inactive, with low frequency signals dominating the pattern.

• Dynamical models indicate increasing convection over the Indian Ocean basin. The ECMWF generally favors initiation of a new MJO event, while the GEFS depicts little to no propagation of the signal.

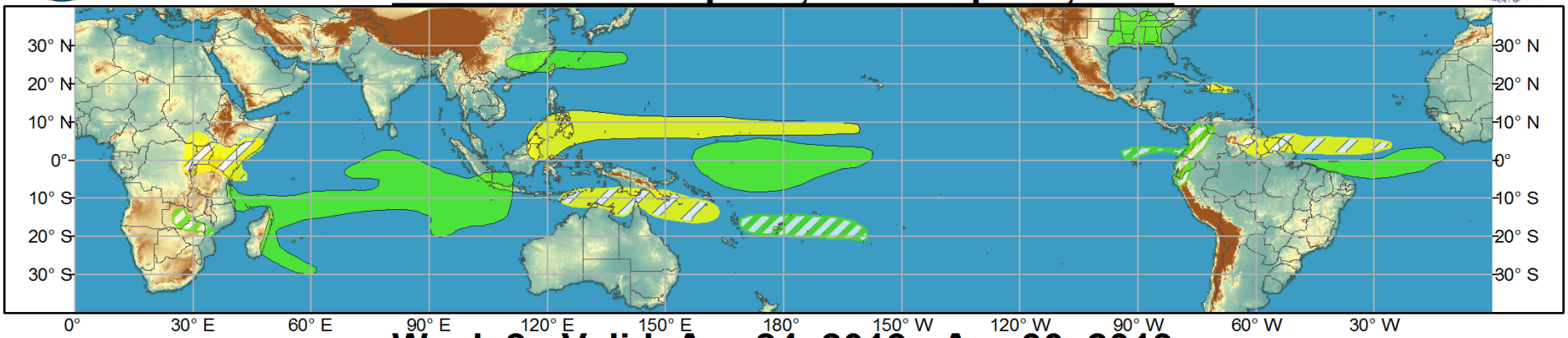
Extratropics:

• Midlatitude influences are currently impacting the ENSO atmospheric response, making the tropical influence on the extratropics more uncertain.

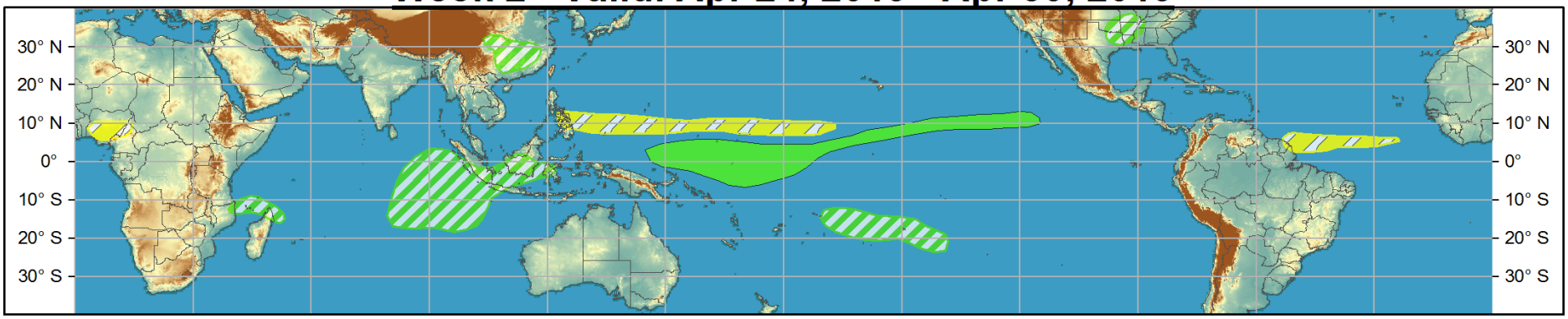
• Any MJO activity propagating to the Maritime Continent would destructively interfere with the ENSO background state – thus a stronger MJO event may weaken the El Niño signal moving forward.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Apr 17, 2019 - Apr 23, 2019



Week 2 - Valid: Apr 24, 2019 - Apr 30, 2019



Produced: 04/16/2019

Forecaster: Allgood

	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.
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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

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NPS PRAESTANTIA PER SCIENTIAM

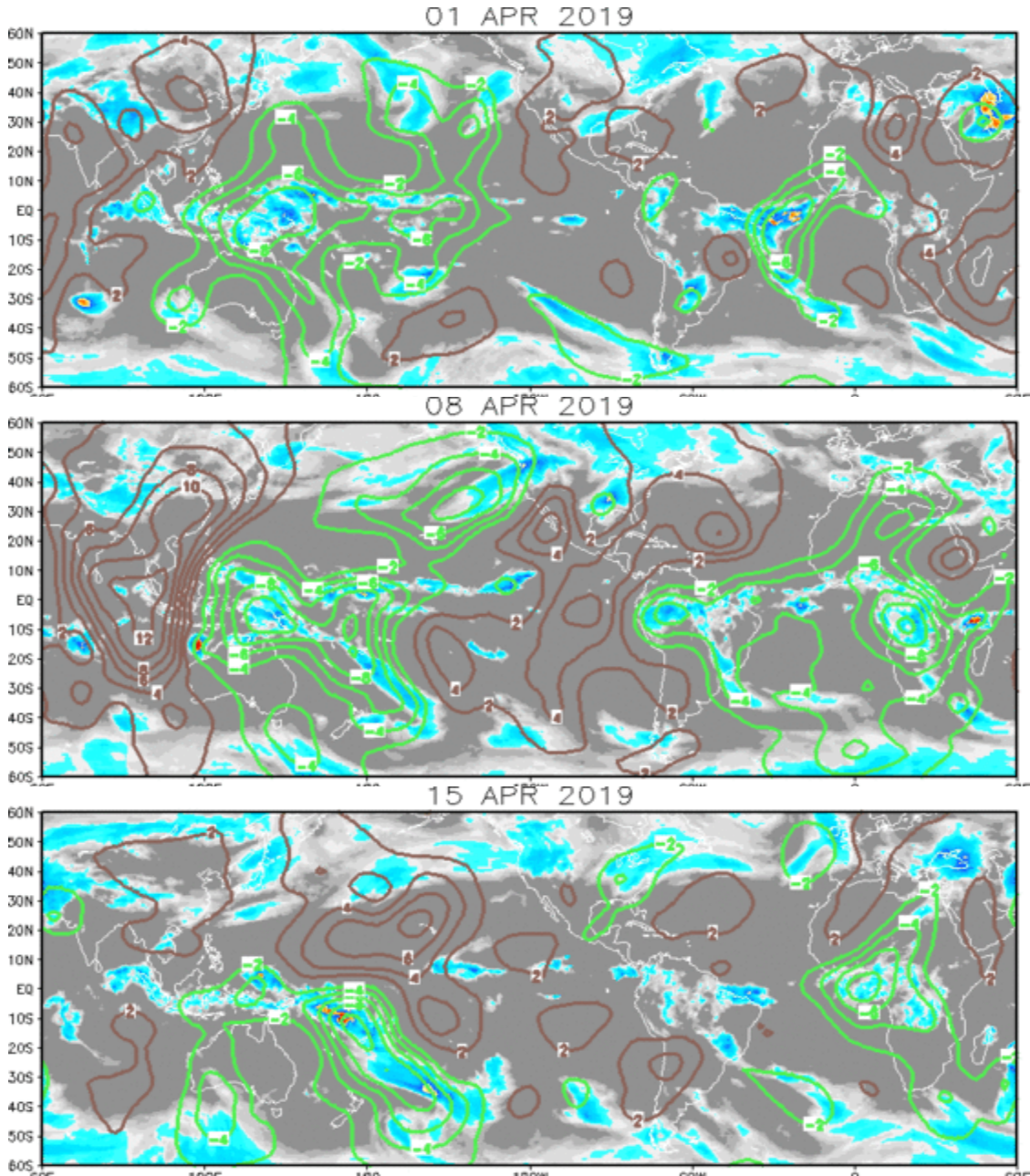
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence Brown: Enhanced Convergence

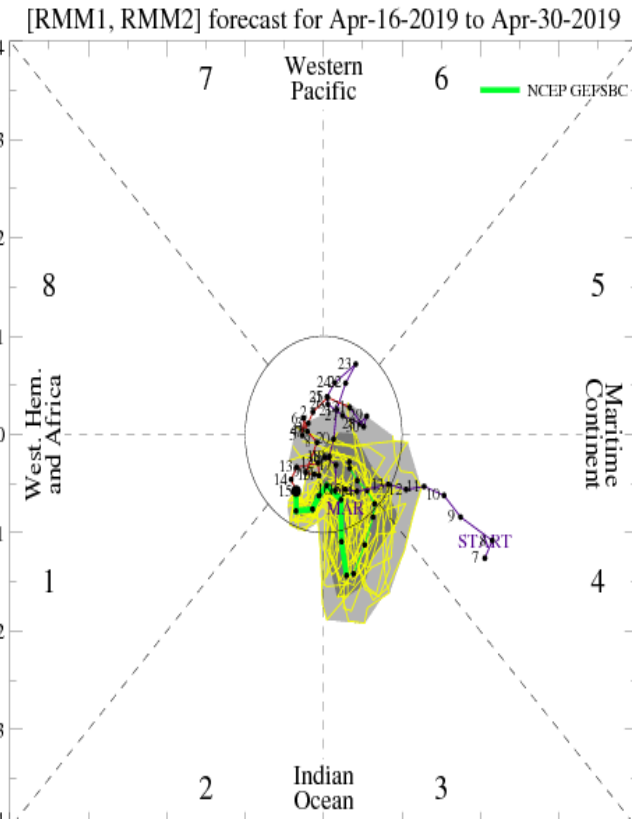
Wave-2 pattern tied to two low-frequency signals.

The Western Hemisphere signal increased in amplitude.

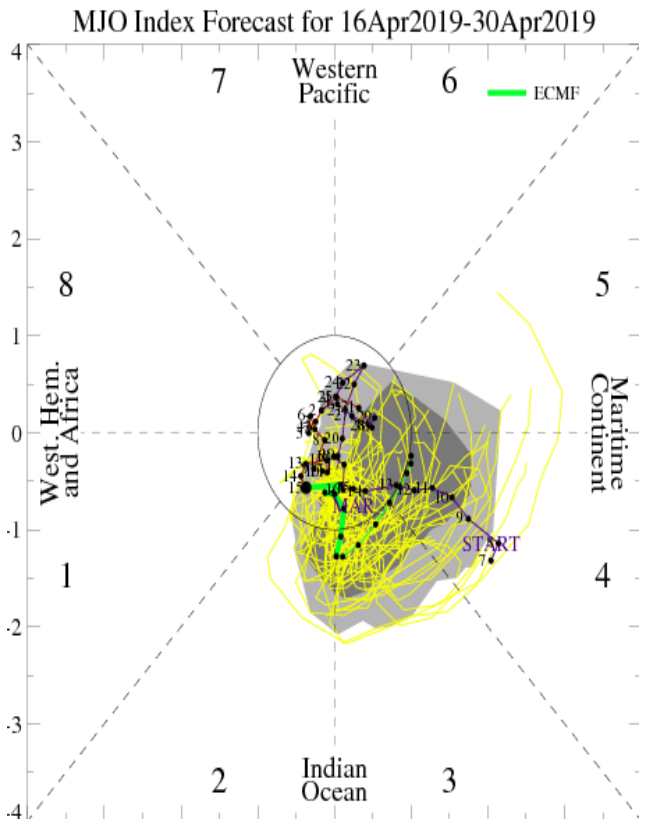
Midlatitude cutoff lows helped reduce the ENSO atmospheric response.



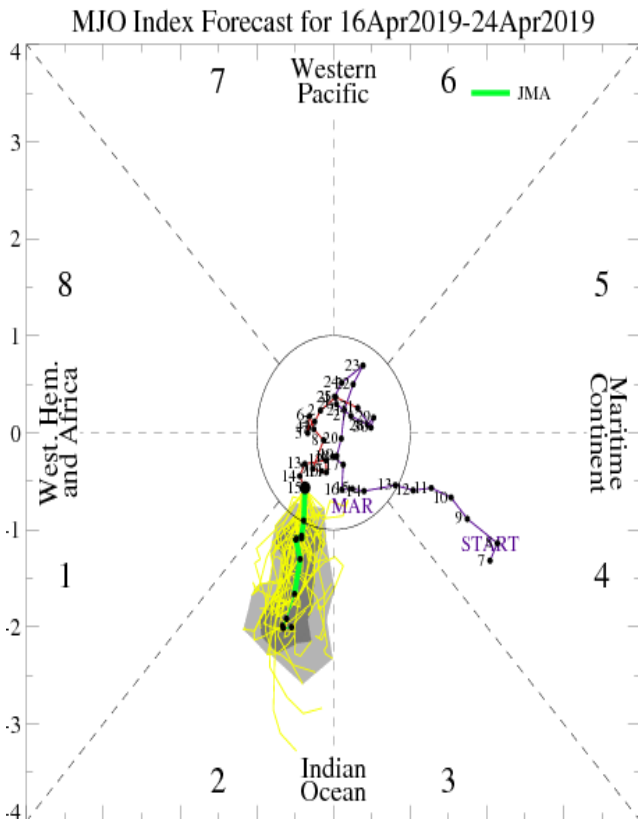
MJO Observation/Forecast



GEFS



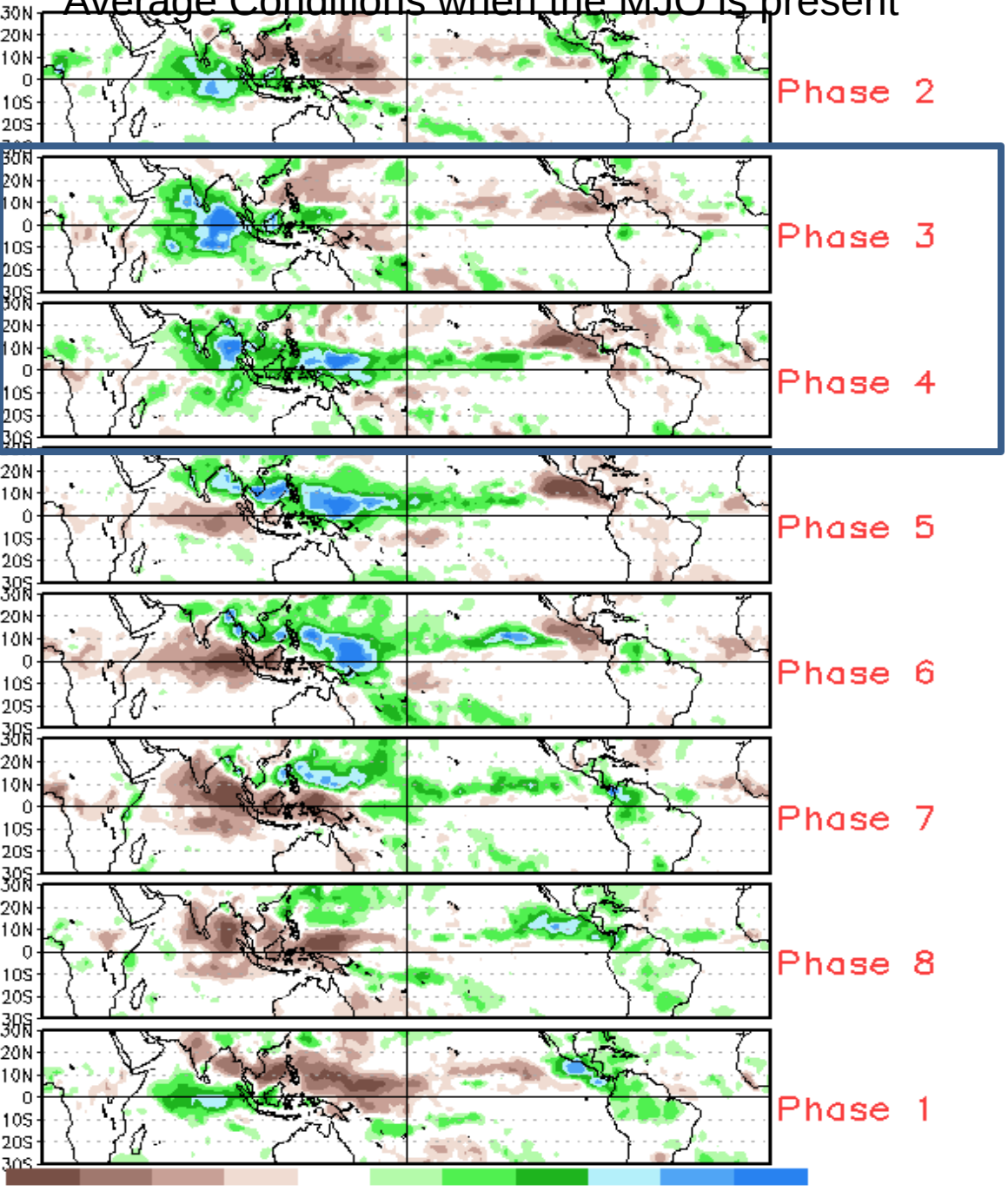
ECMWF



JMA

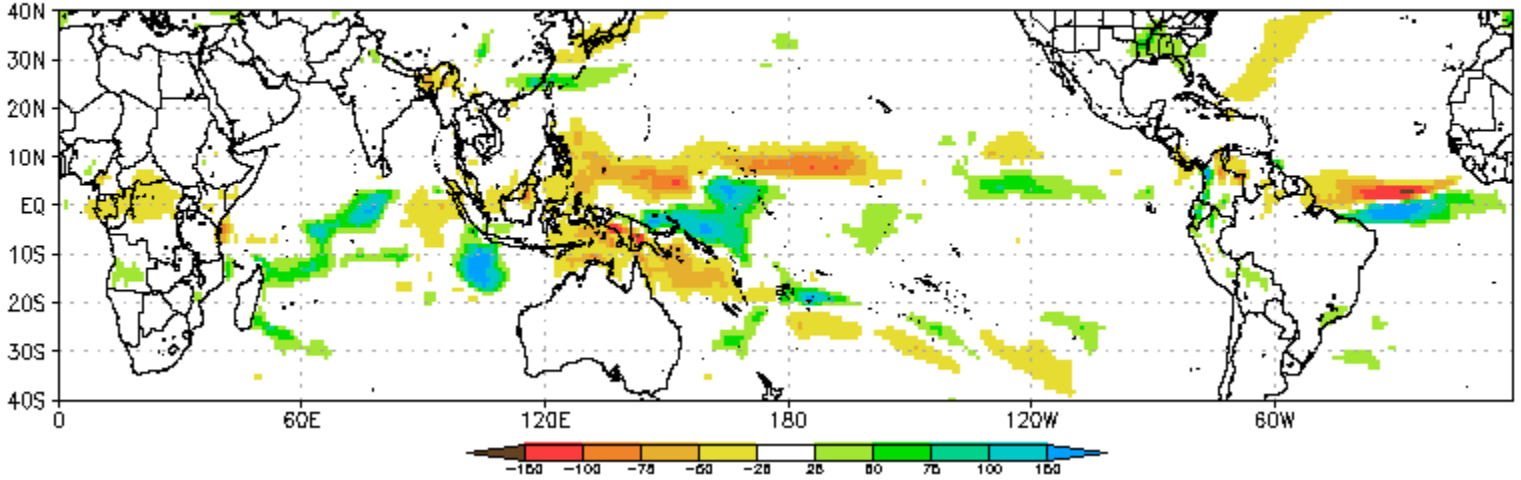
GEFS – increased Indian Ocean convection followed by a weakening signal in Week-2.
ECMWF – more indicative of a MJO event initiating in the Indian Ocean and propagating to the Maritime Continent during Week-2.
JMA – no eastward propagation.

Average Conditions when the MJO is present

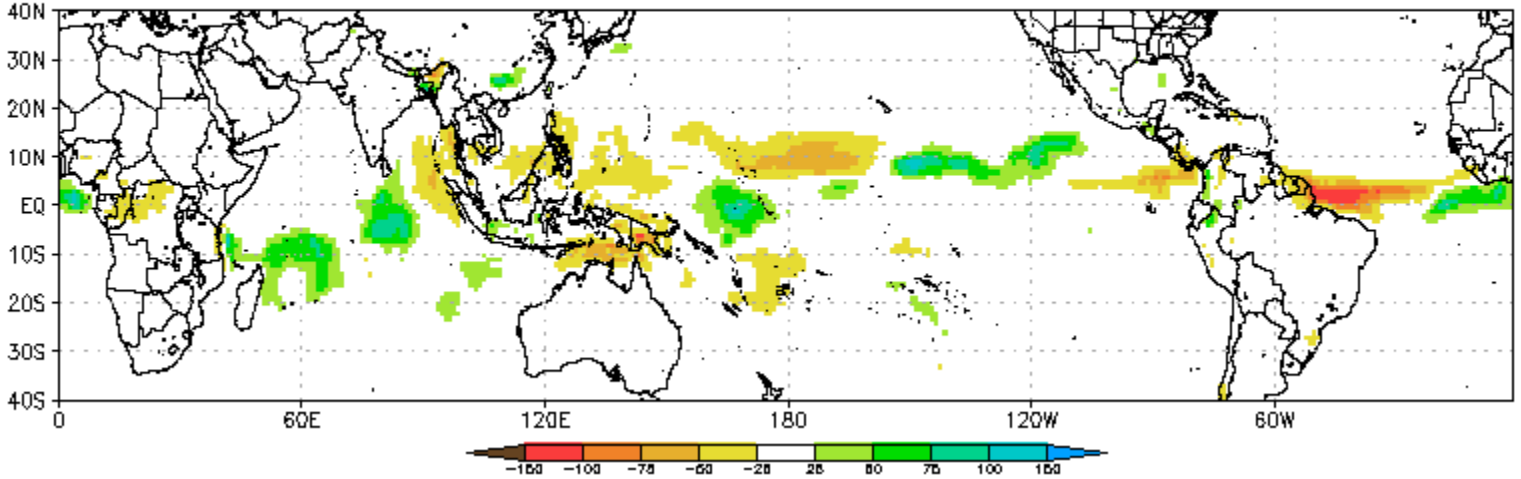


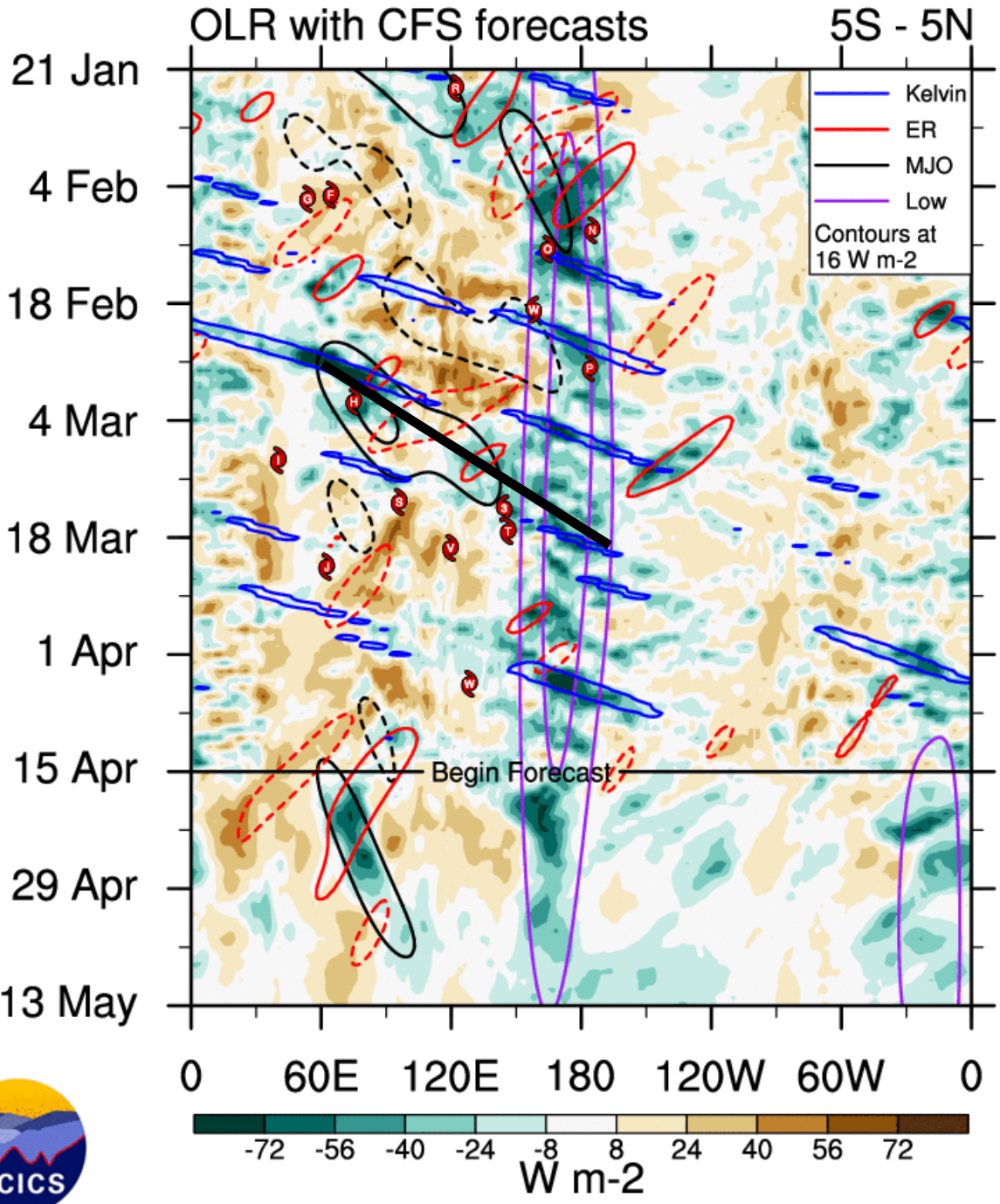
CAVEAT: These panels are representative of robust MJO events.

CFS Precipitation Anomalies (mm) Issued 15Apr2019
Week-1 Forecast Ending 23Apr2019



CFS Precipitation Anomalies (mm) Issued 15Apr2019
Week-2 Forecast Ending 30Apr2019





The **MJO** signal became lost in the ENSO signal by mid-March.

The **low-frequency ENSO pattern** is the most consistent signal, with **Kelvin waves** and **Rossby waves** influencing the amplitude.

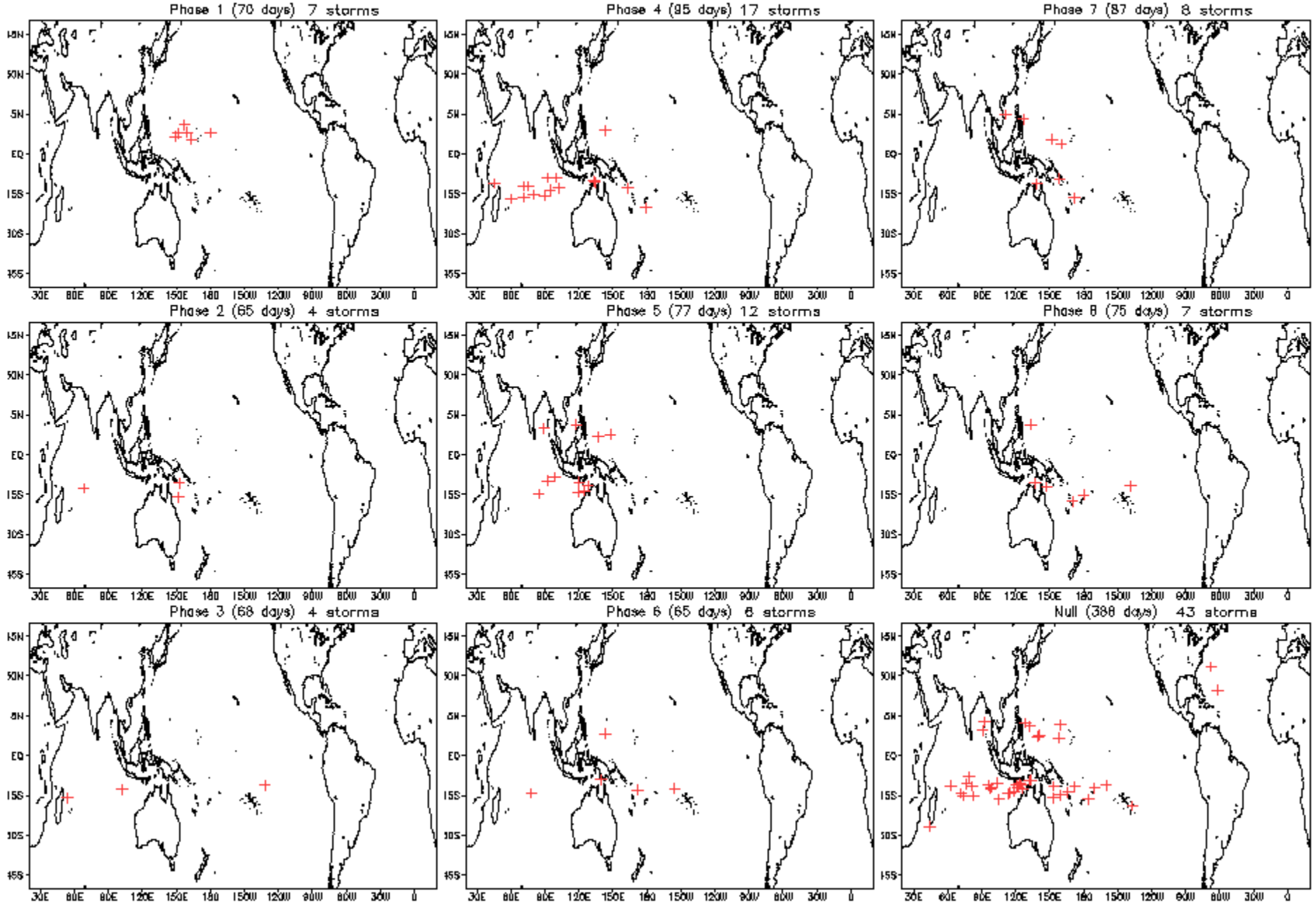
NCICS

ncics.org/mjo

Tue 2019-04-16 1513 UTC

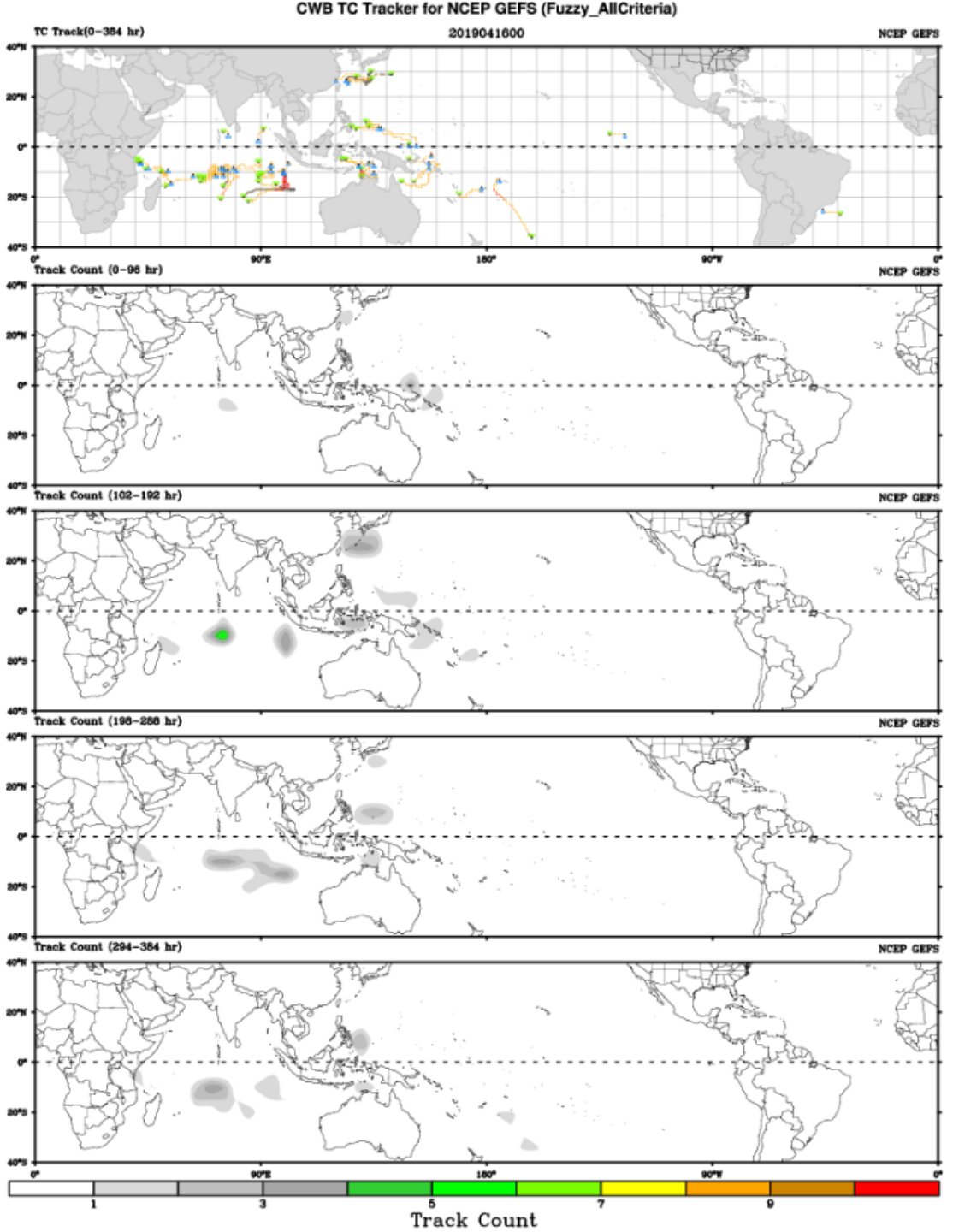
Carl Schreck (cjschrec@ncsu.edu)

April Tropical Storm Formation by MJO phase



South Indian Ocean – low potential

NW Pacific – low potential



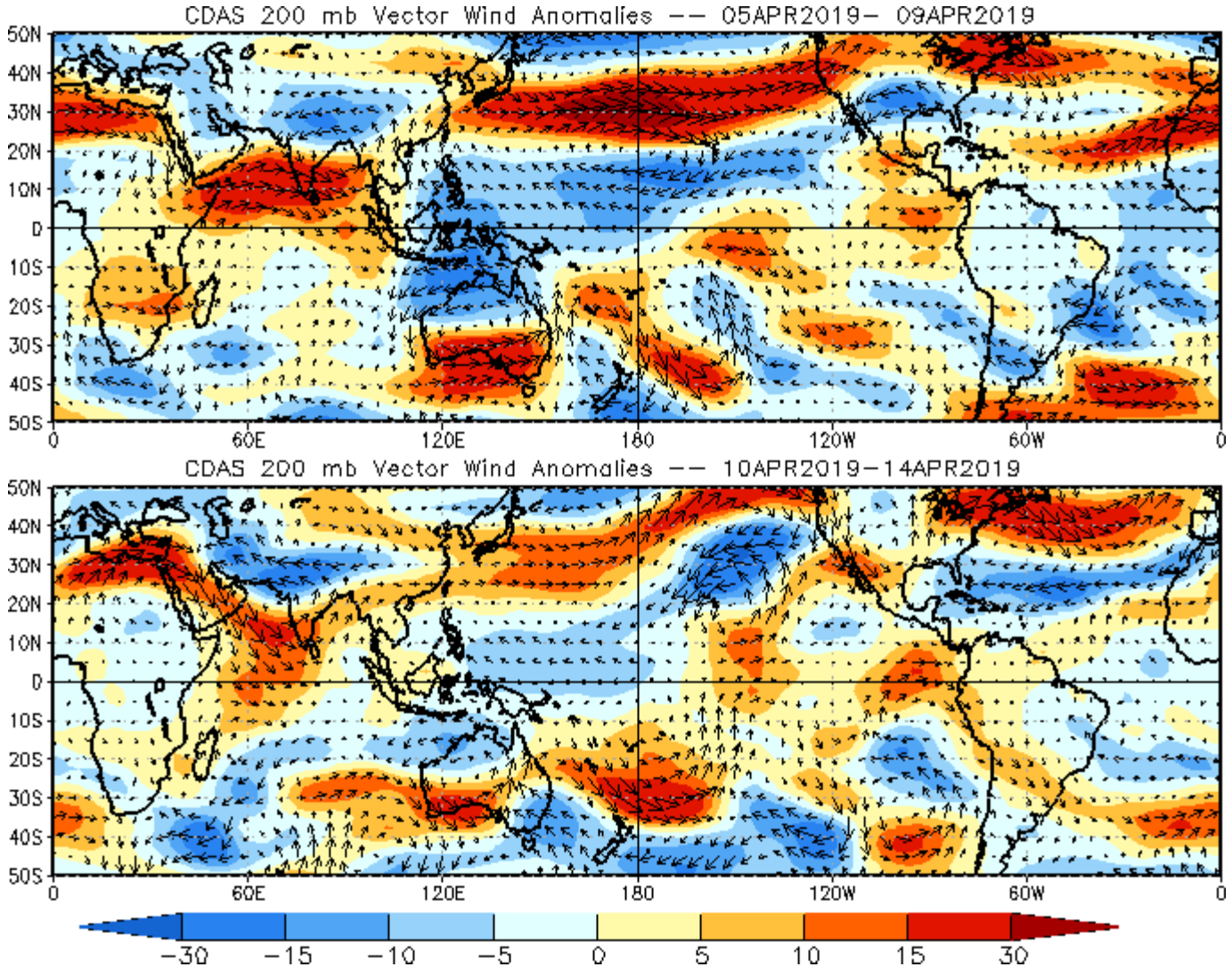
Day 1-4

Day 5-8

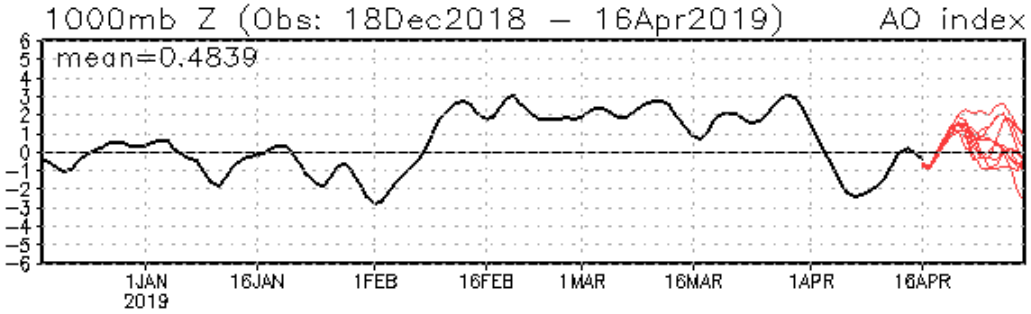
Day 9-12

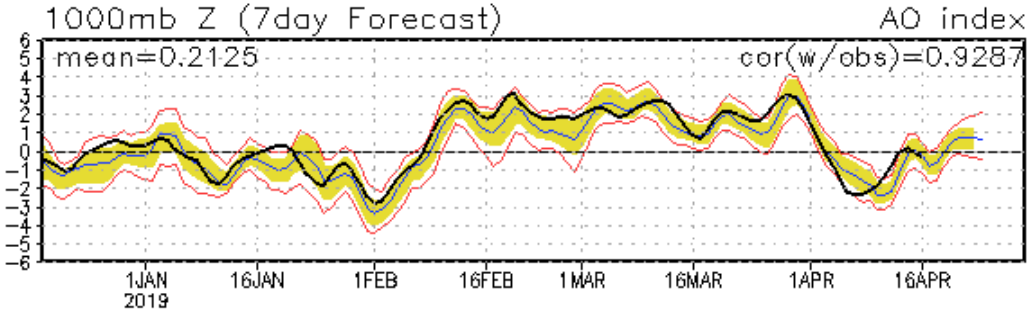
Day 13-15

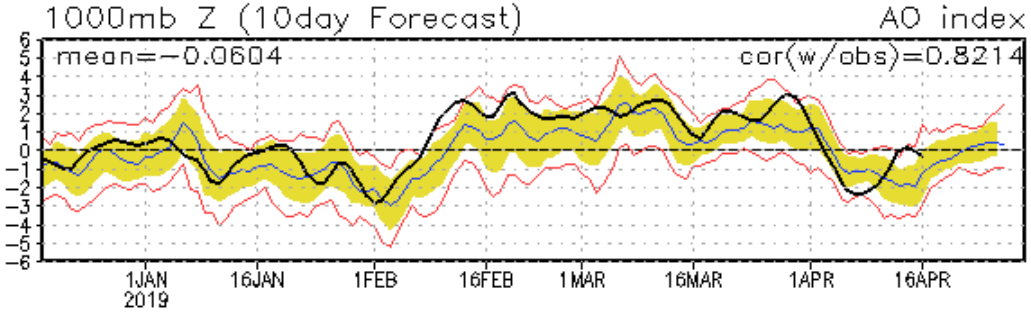
Connections to U.S. Impacts

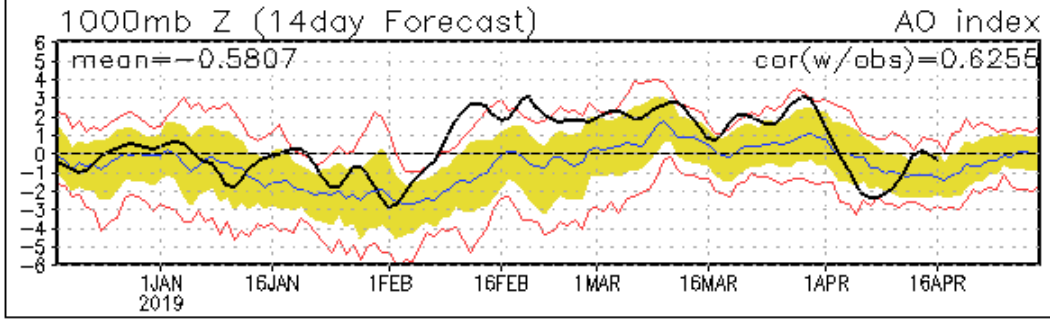

CDAS 200 mb Vector Wind Anomalies -- 05APR2019- 09APR2019
CDAS 200 mb Vector Wind Anomalies -- 10APR2019-14APR2019
50N
40N
30N
20N
10N
0
10S
20S
30S
40S
50S
0
60E
120E
180
120W
60W
0
-30
-15
-10
-5
0
5
10
15
30

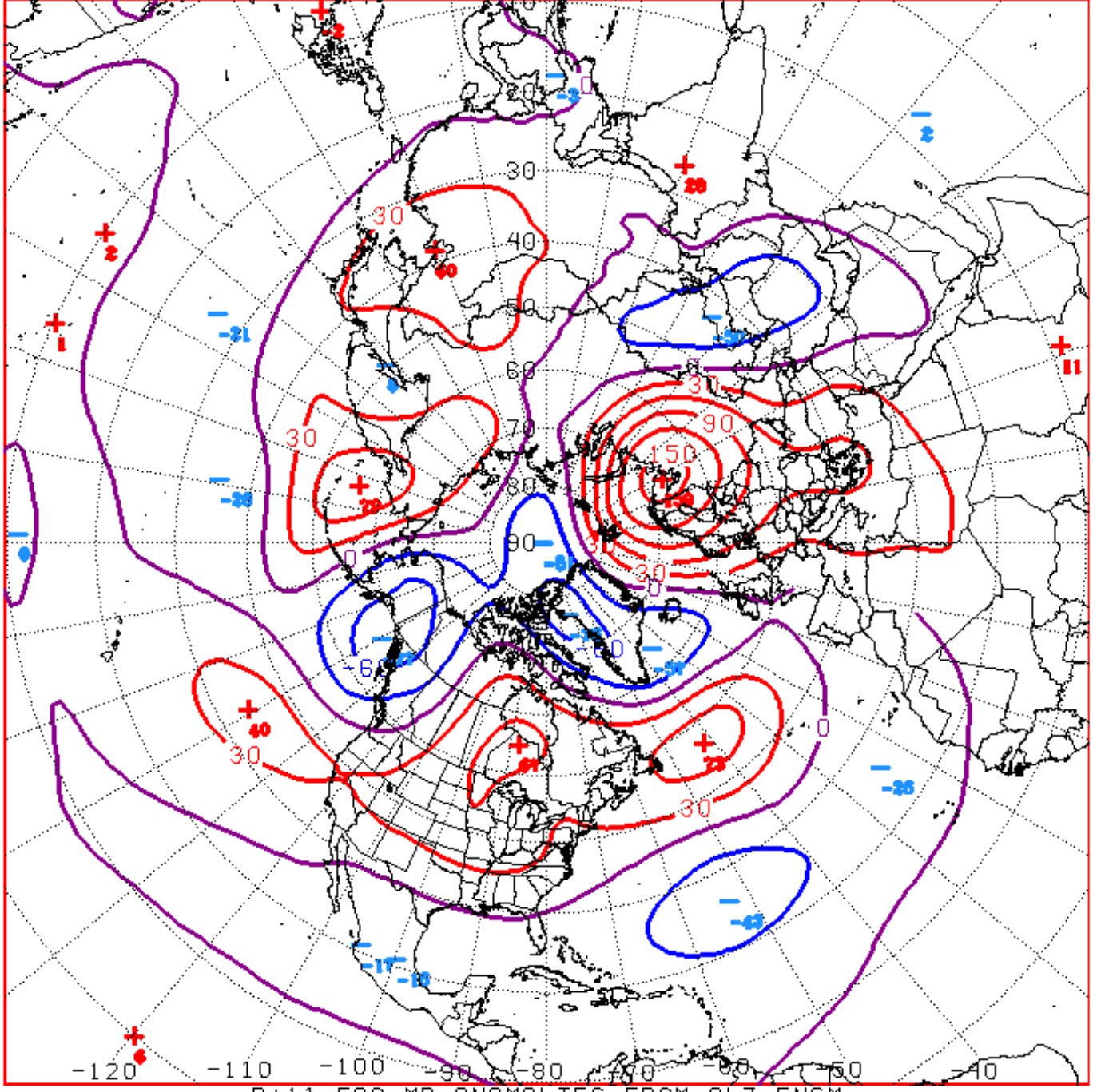
AO: Observed & ENSM forecasts





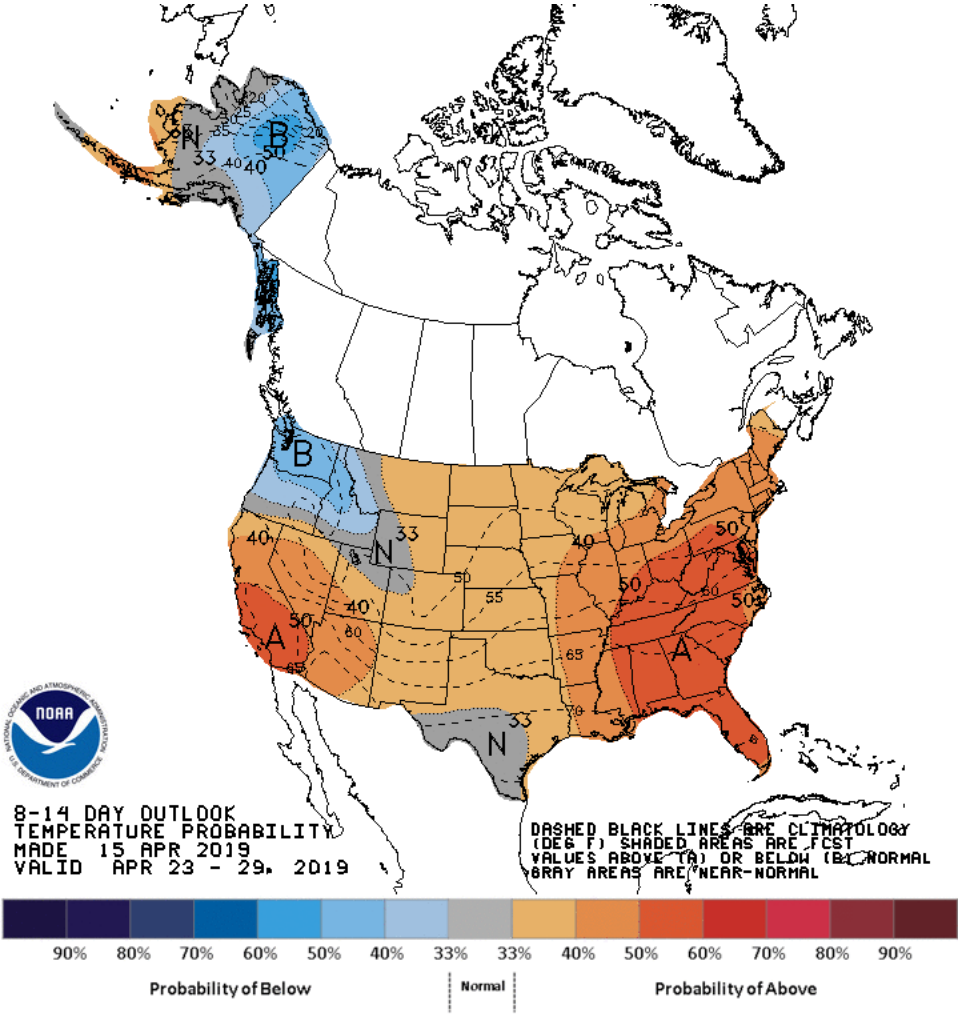


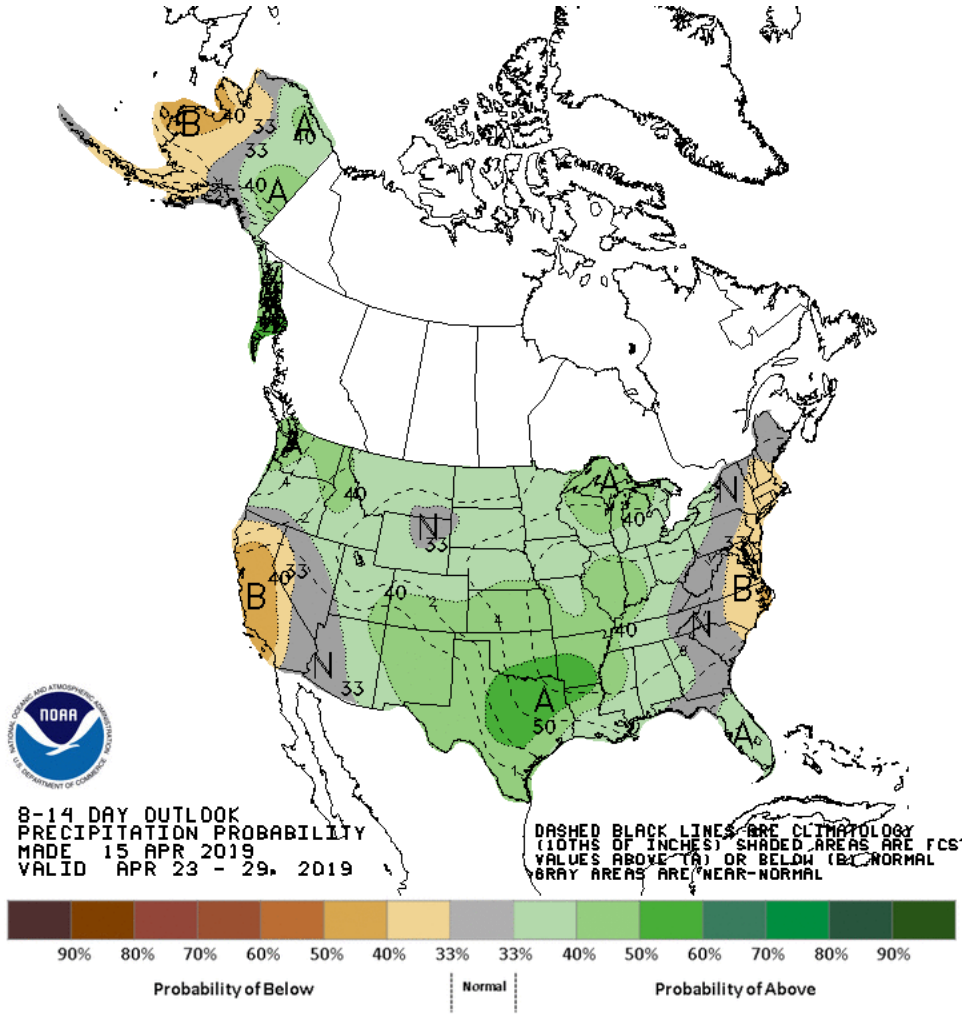




D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE APR 16 2019 1327 UTC CNTD APR 27 2019

Week 2 – Temperature and Precipitation





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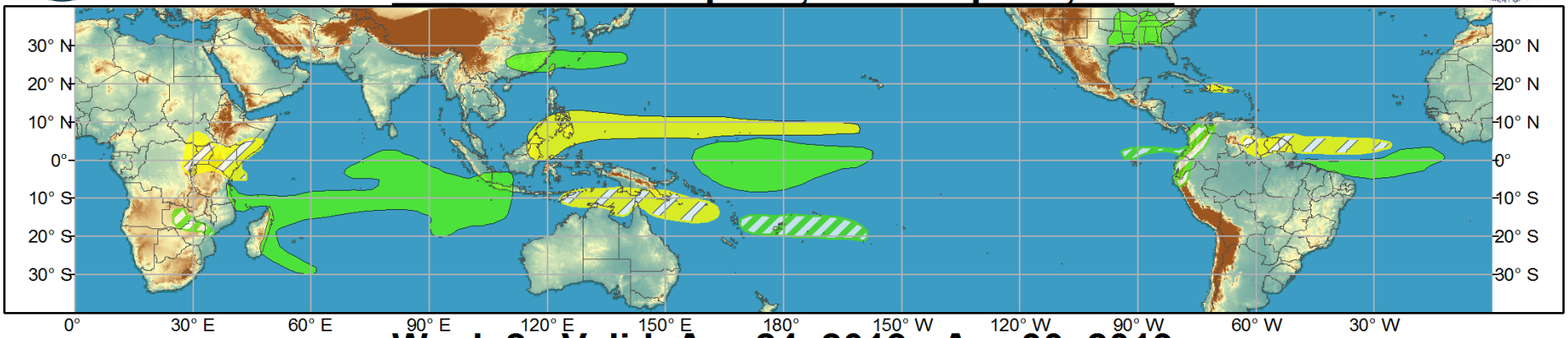

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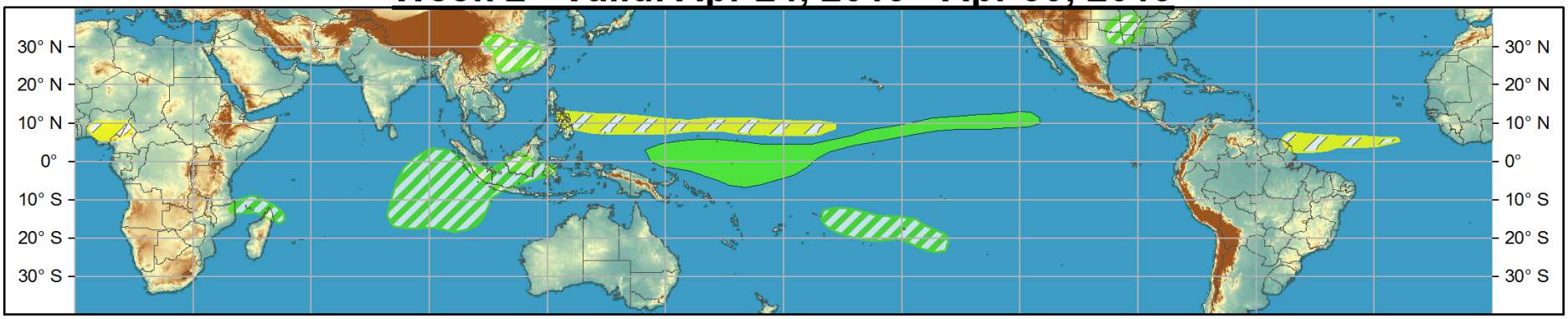

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NPS PRAESTANTIA PER SCIENTIAM