Global Tropics Hazards And Benefits Outlook

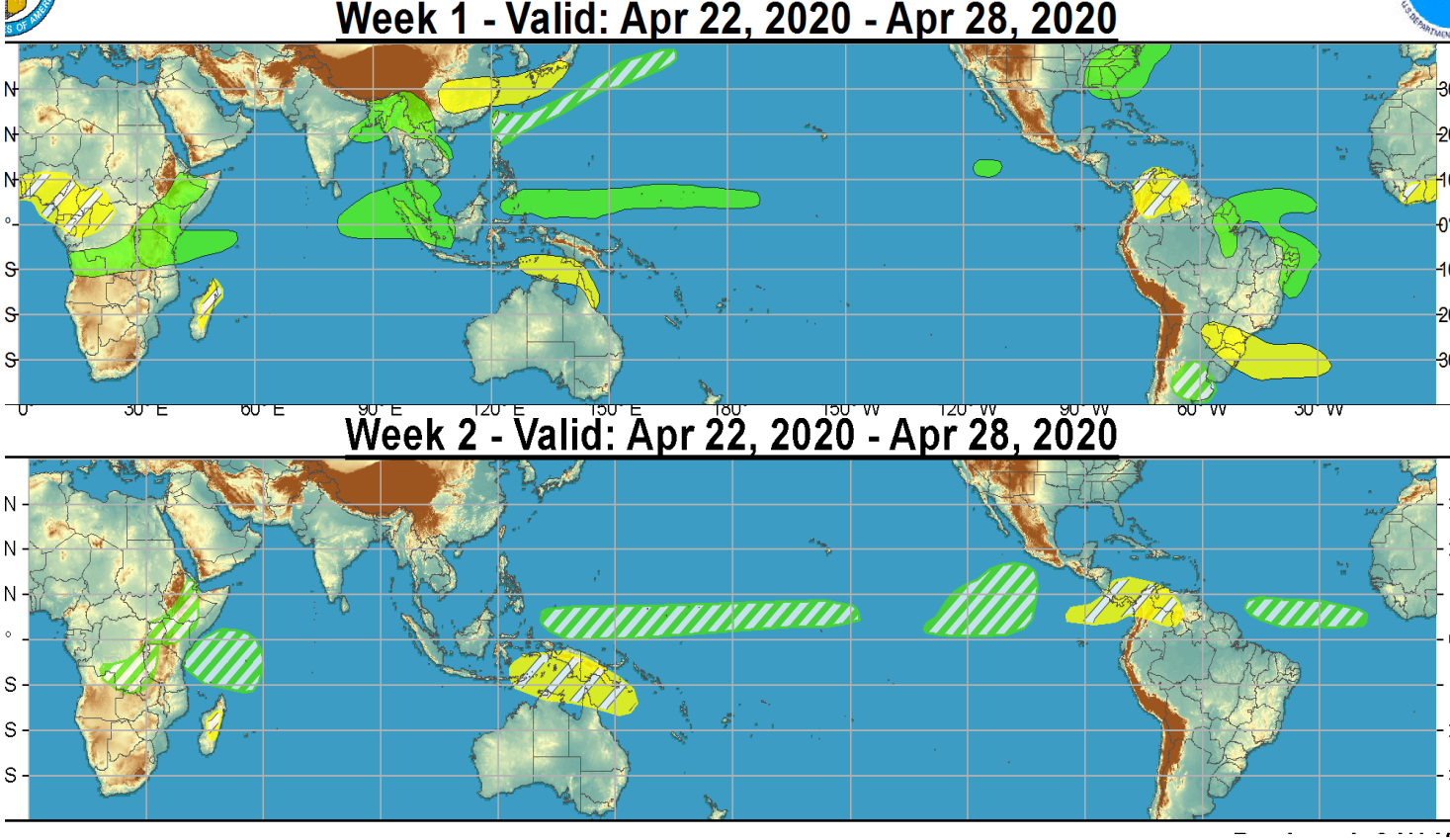
04/28/2020

Kyle MacRitchie

Outline

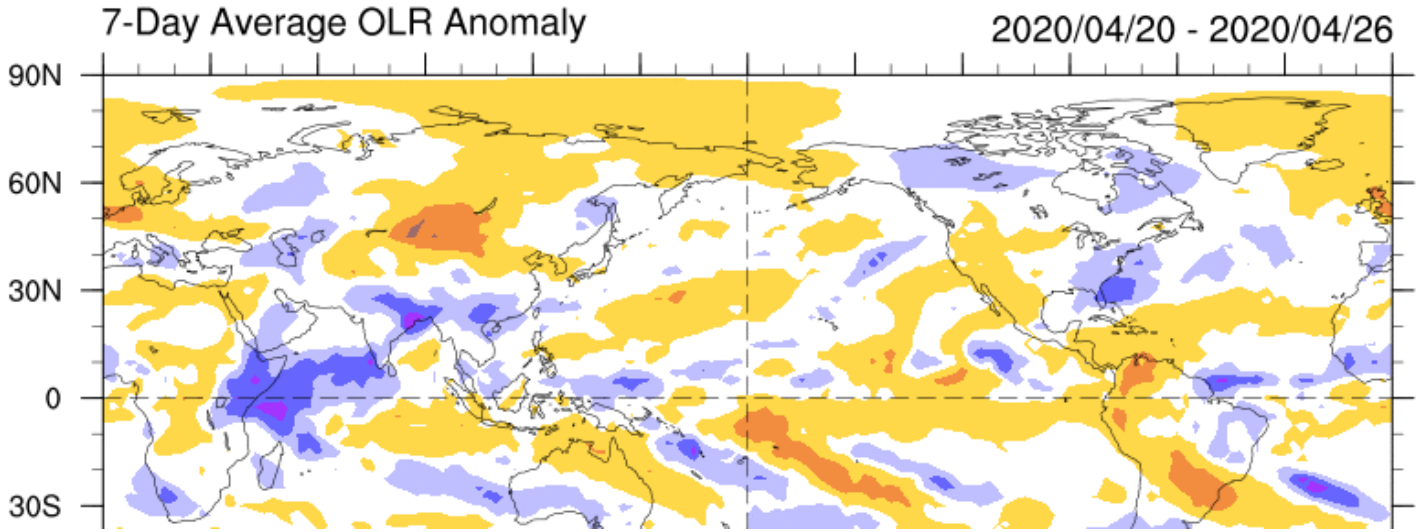
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review



Cool shading
More clouds/rain

Warm shading
Less clouds/rain



Synopsis of Climate Modes

ENSO: (April 9, 2020 Update) ***next update on May 14***

- ENSO Alert System Status: Not Active

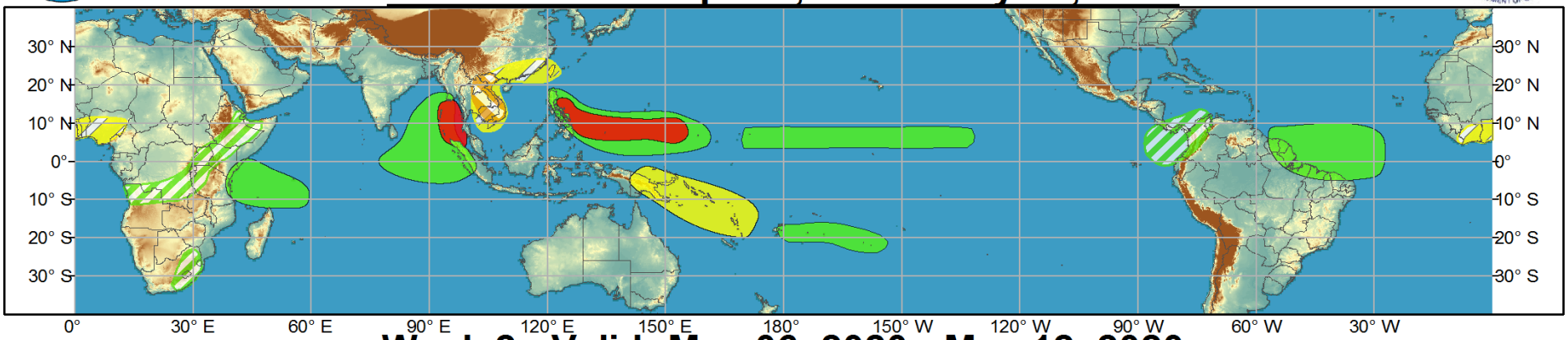
- ENSO-neutral is favored for the Northern Hemisphere summer 2020 (~60% chance), remaining the most likely outcome through autumn.

MJO and other subseasonal tropical variability:

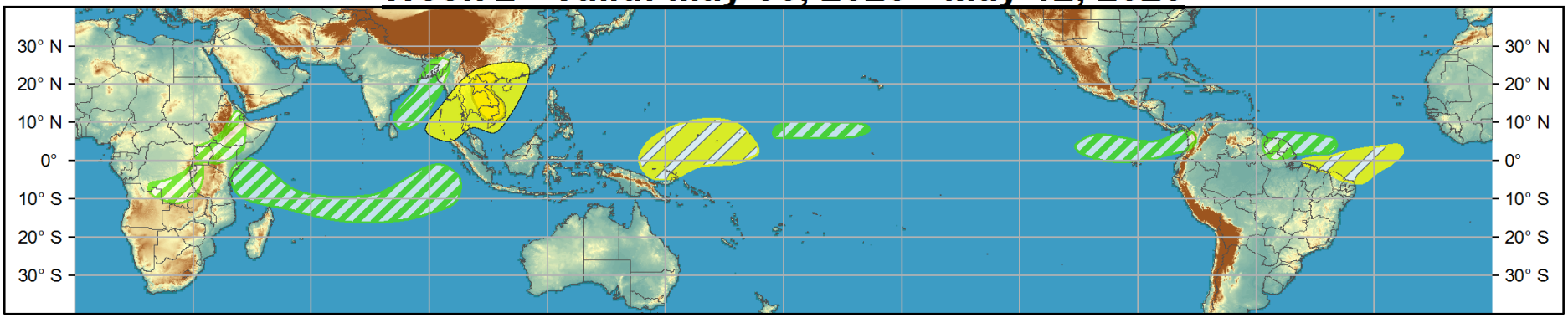
- The Madden Julian Oscillation (MJO) remains active in RMM Phase 3.
  - Envelope of active convection is over the eastern Indian Ocean.
- Equatorial Rossby wave moving through the MJO.
  - Likely to encourage development of a tropical cyclone in the Bay of Bengal.
- Kelvin wave moving through the MJO just east of the Philippines.
  - Likely to encourage development of at least one TC, perhaps 2, in the West Pacific.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Apr 29, 2020 - May 05, 2020



Week 2 - Valid: May 06, 2020 - May 12, 2020



Produced: 04/28/2020

Forecaster: MacRitchie

	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.
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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

cics.nc

NPS PRAESTANTIA PER SCIENTIAM

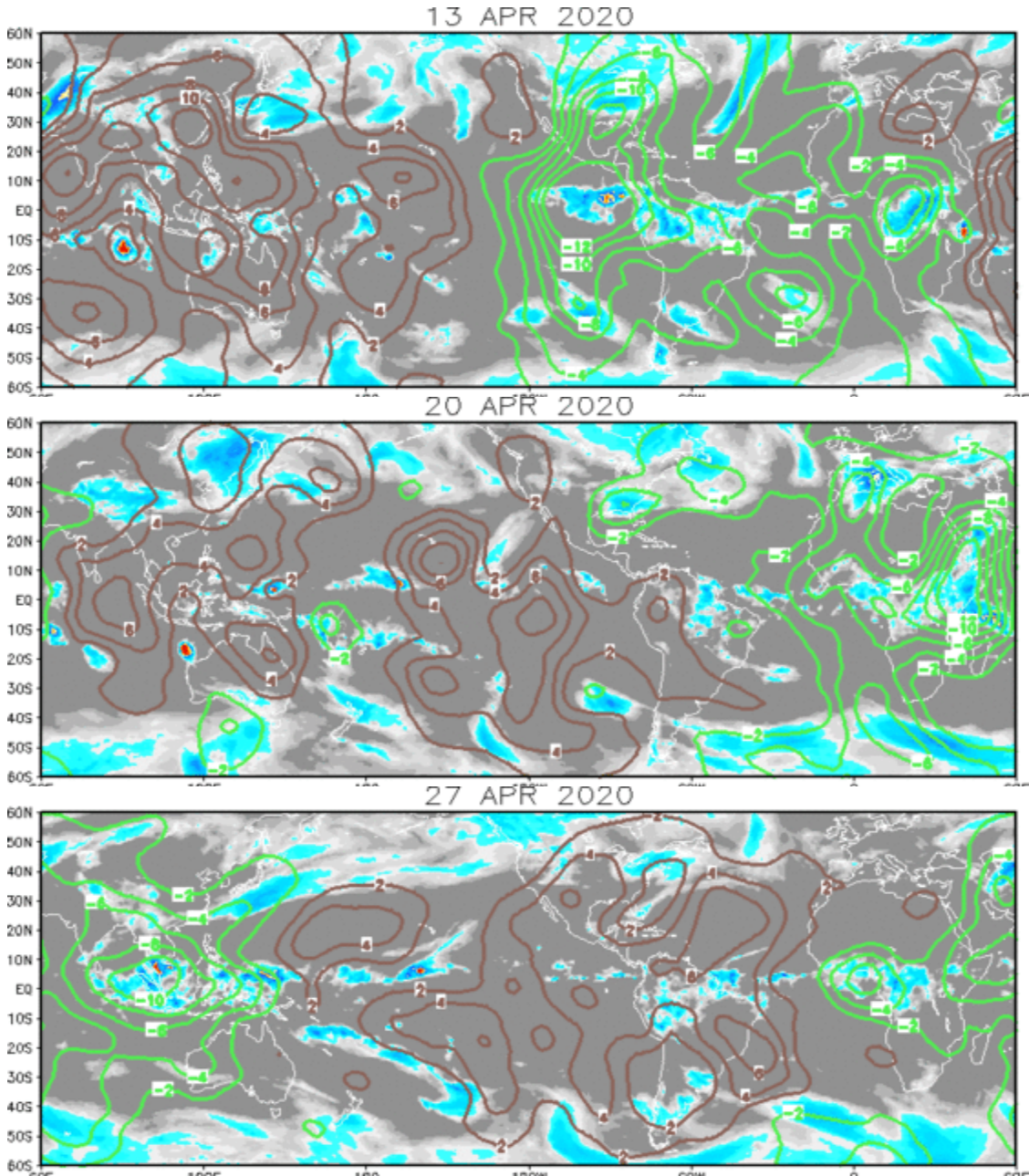
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence Brown: Enhanced Convergence

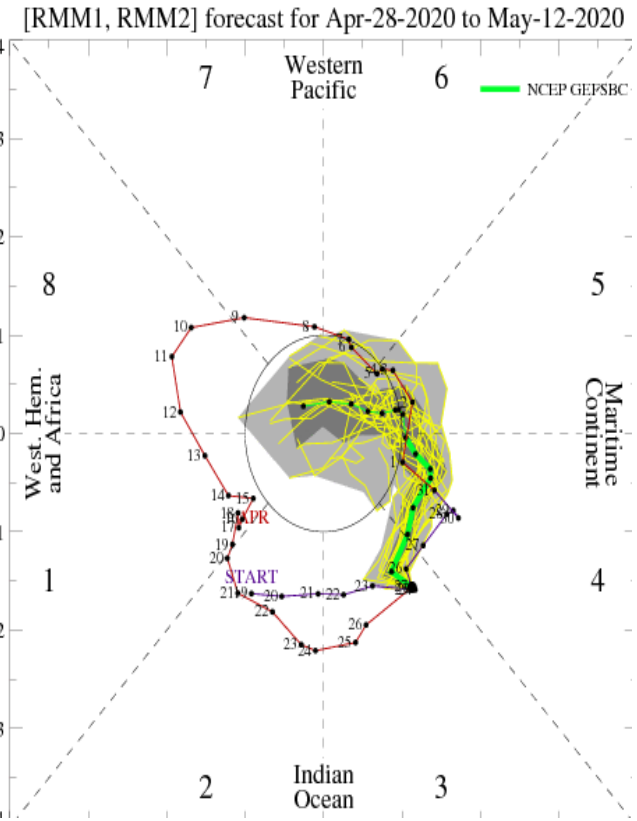
Classic Wave-1 pattern.

Wave-1 pattern breaks down as the MJO-related convection enhances over the Indian Ocean.

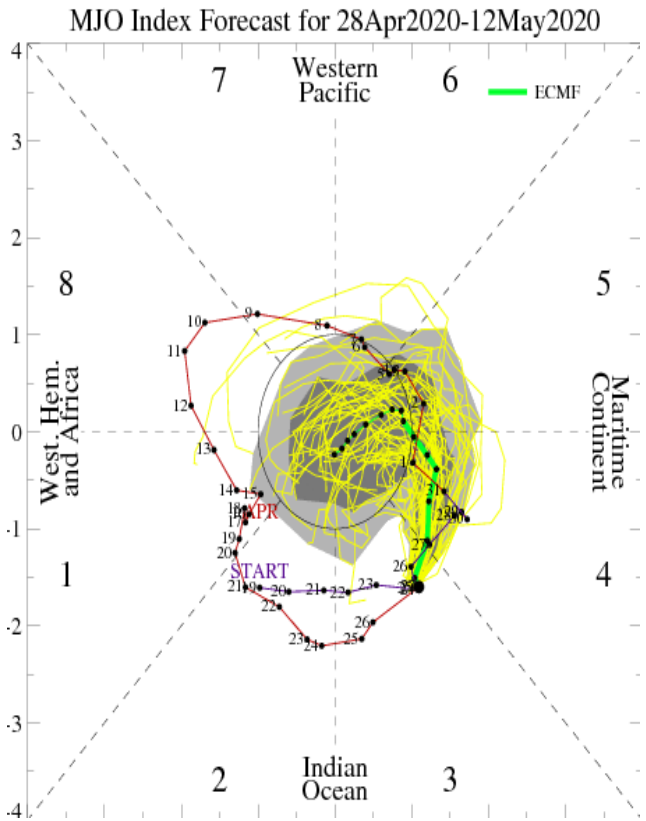
Back to a less amplified Wave-1 pattern. Convection from MJO, ER, and, Kelvin waves amplifies the VP signal over the Indian Ocean/Maritime Continent.



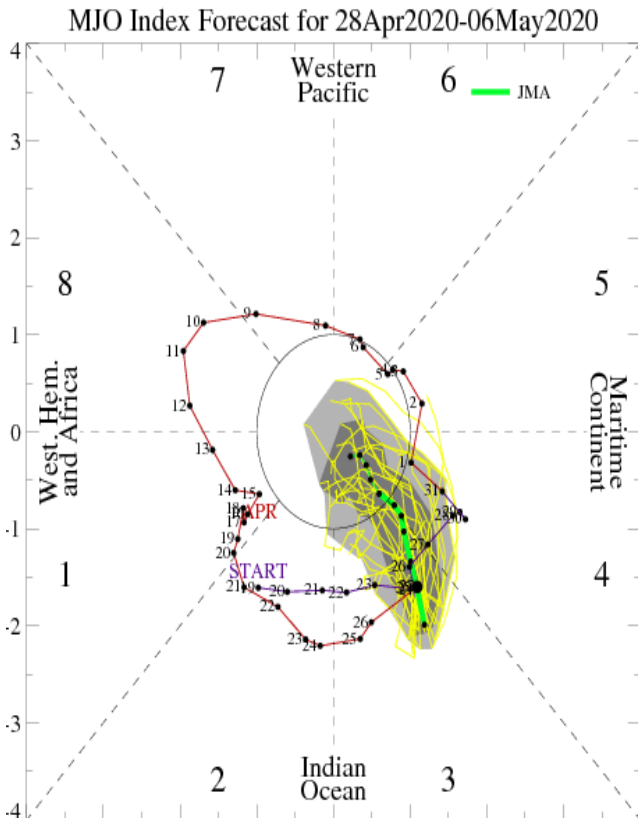
MJO Observation/Forecast



GEFS



ECMWF

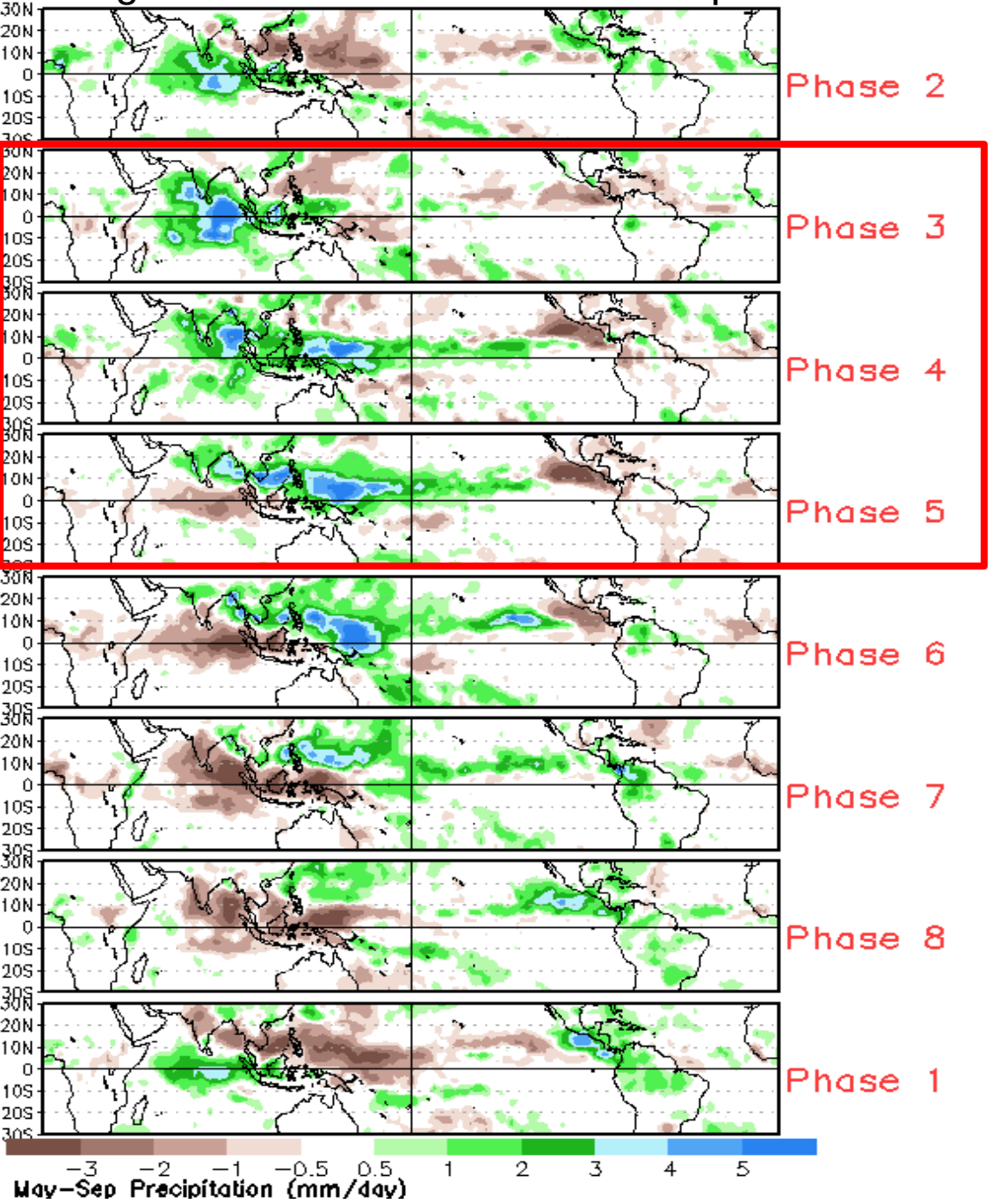


JMA

Each model forecasts the MJO to propagate into RMM Phase 4.

Each model also forecasts the MJO to weaken drastically as it moves over the Maritime Continent. Models often have trouble propagating the MJO through this region due to their inability to properly simulate convection over the islands.

Average Conditions when the MJO is present



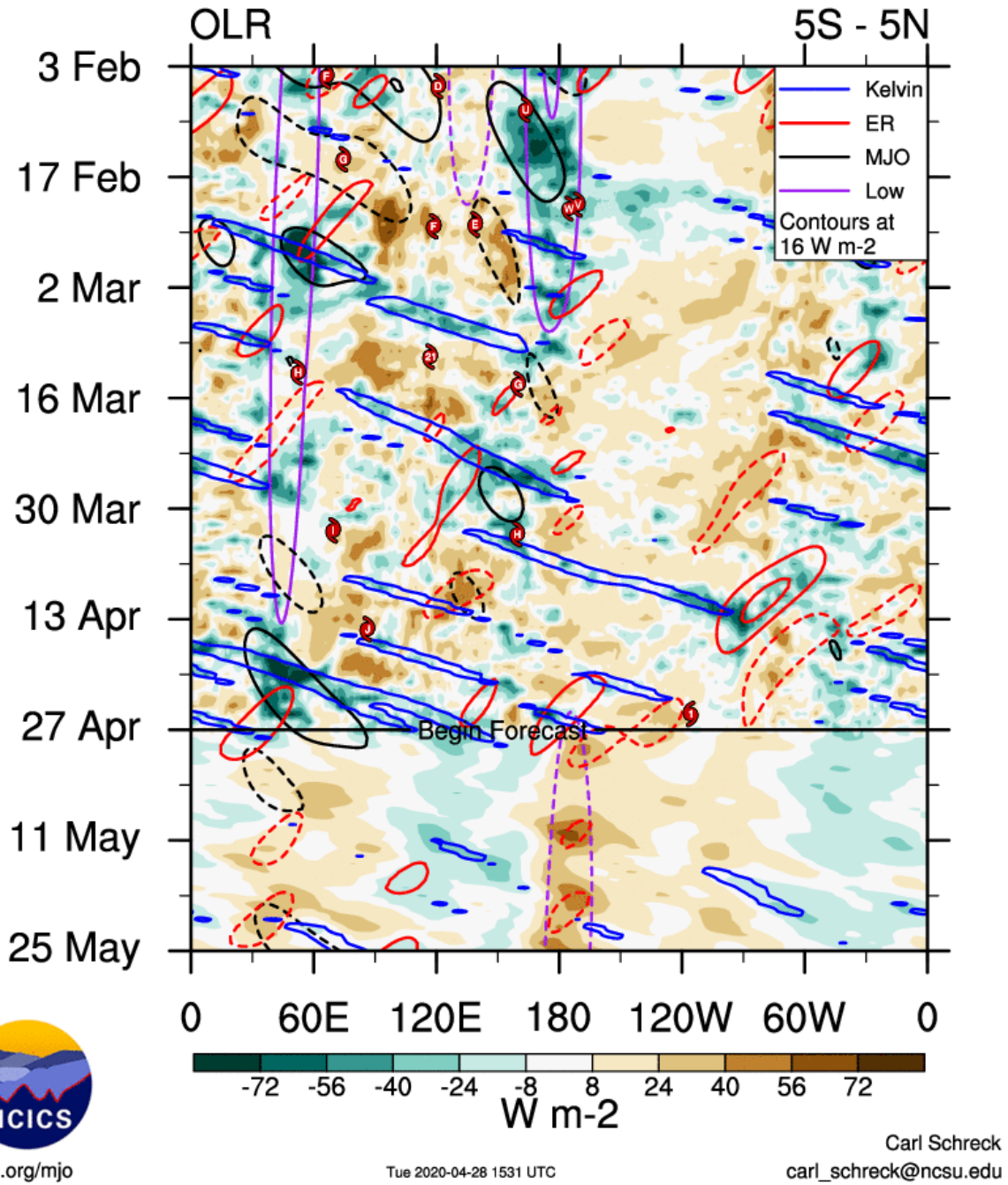
Phases 3 and 4. Maybe phase 5 by Week-2?

CAVEAT: These panels are representative of robust MJO events.

MJO: A fast moving MJO began around April 13 and is now over the eastern Indian Ocean.

Rossby wave: An equatorial Rossby wave is propagating through the MJO envelope over the Indian Ocean.

Kelvin wave: A Kelvin wave over the West Pacific is expected to combine with the MJO envelope and enhance the probability for TC formation.



NCICS

ncics.org/mjo

Tue 2020-04-28 1531 UTC

Carl Schreck
carl_schreck@ncsu.edu

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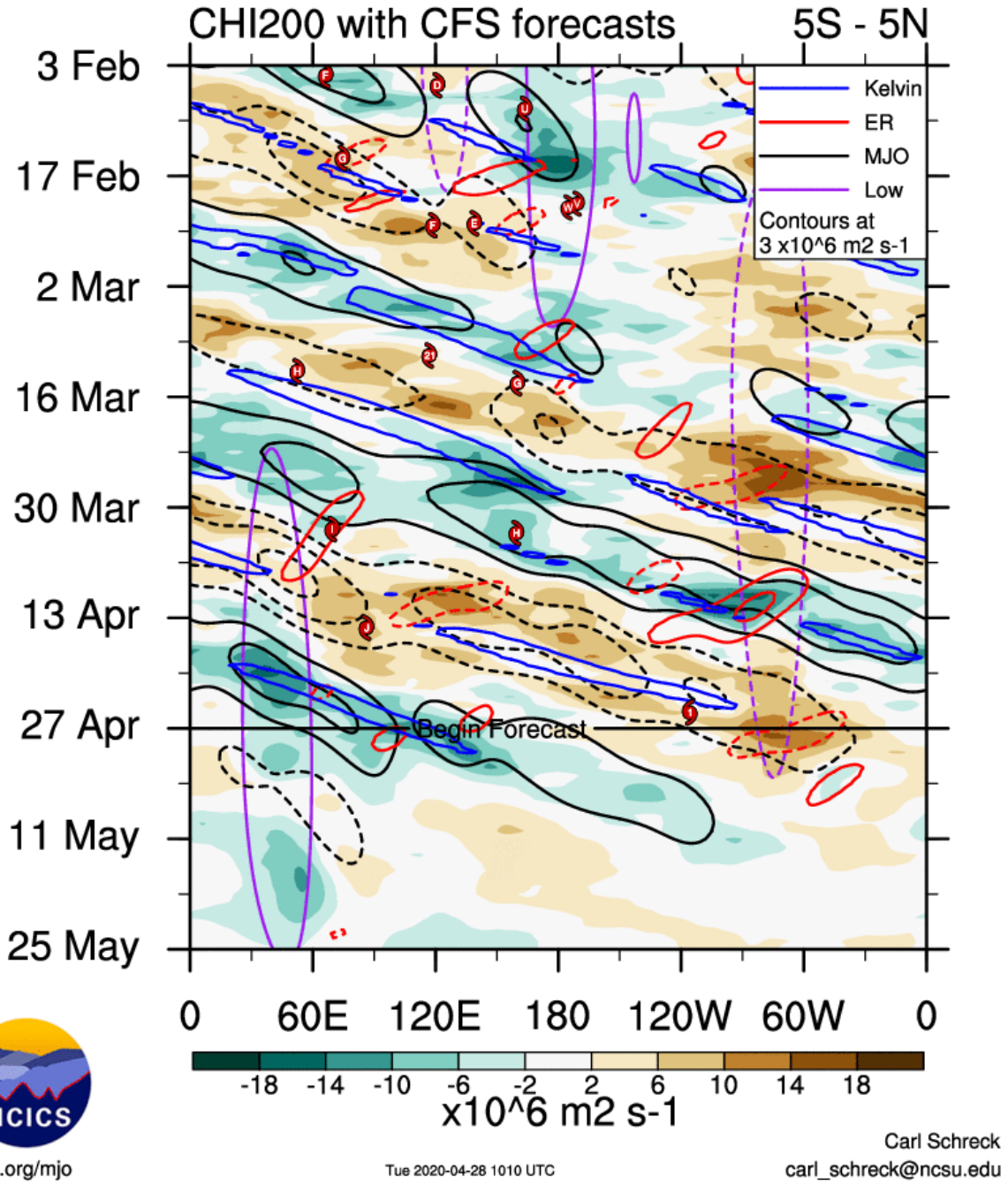

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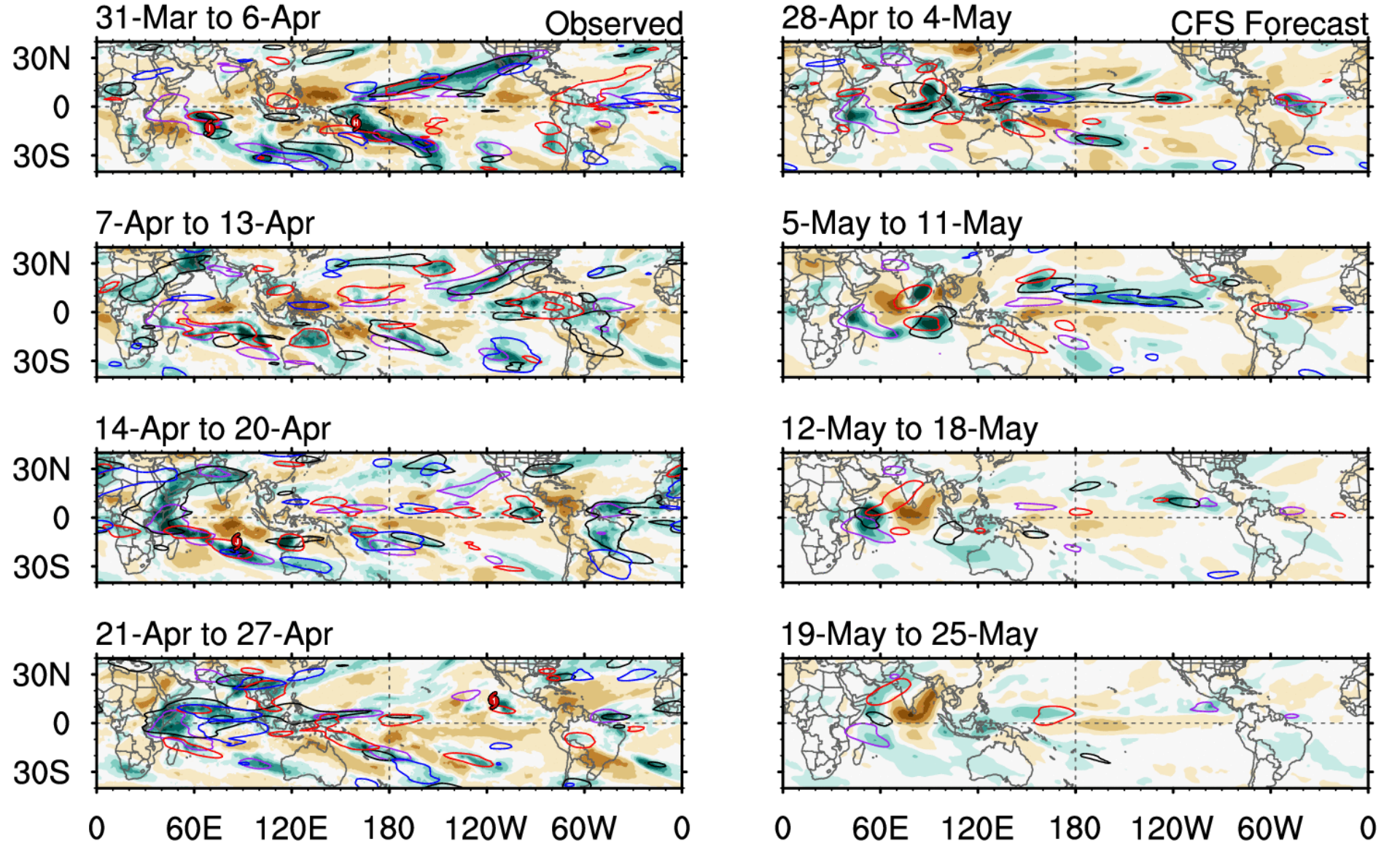

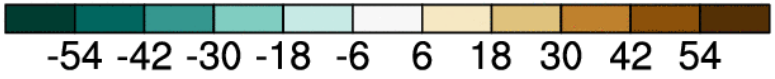

MJO
Kelvin x2
Low
ER

Contours at -12, -36 W m-2

7-day OLR with CFS forecasts

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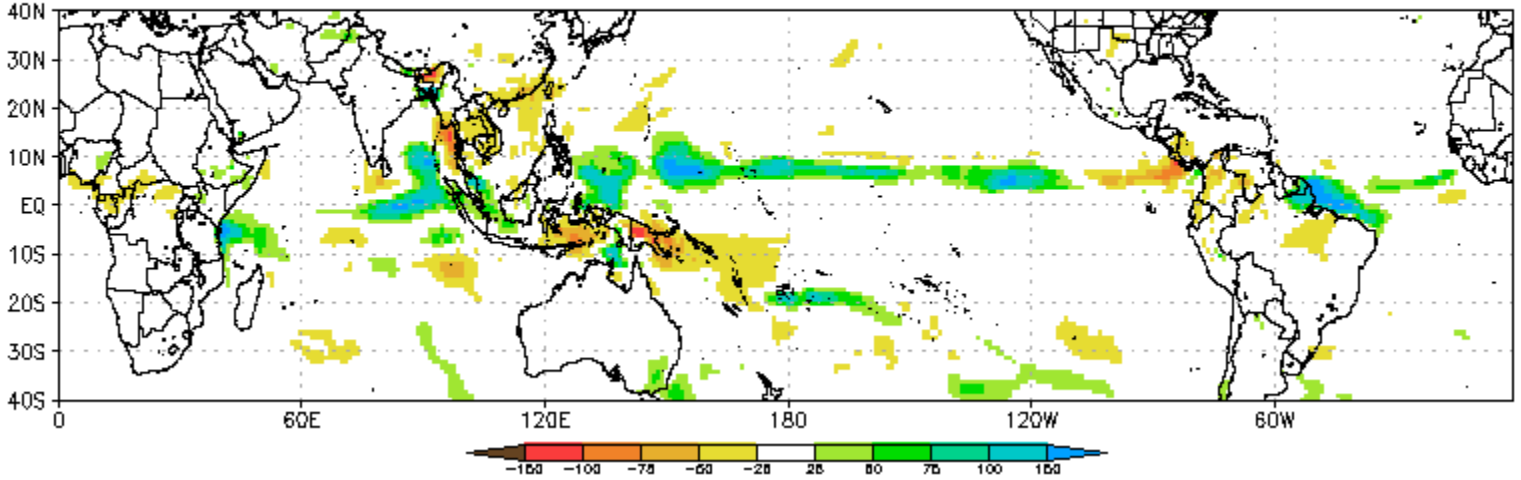
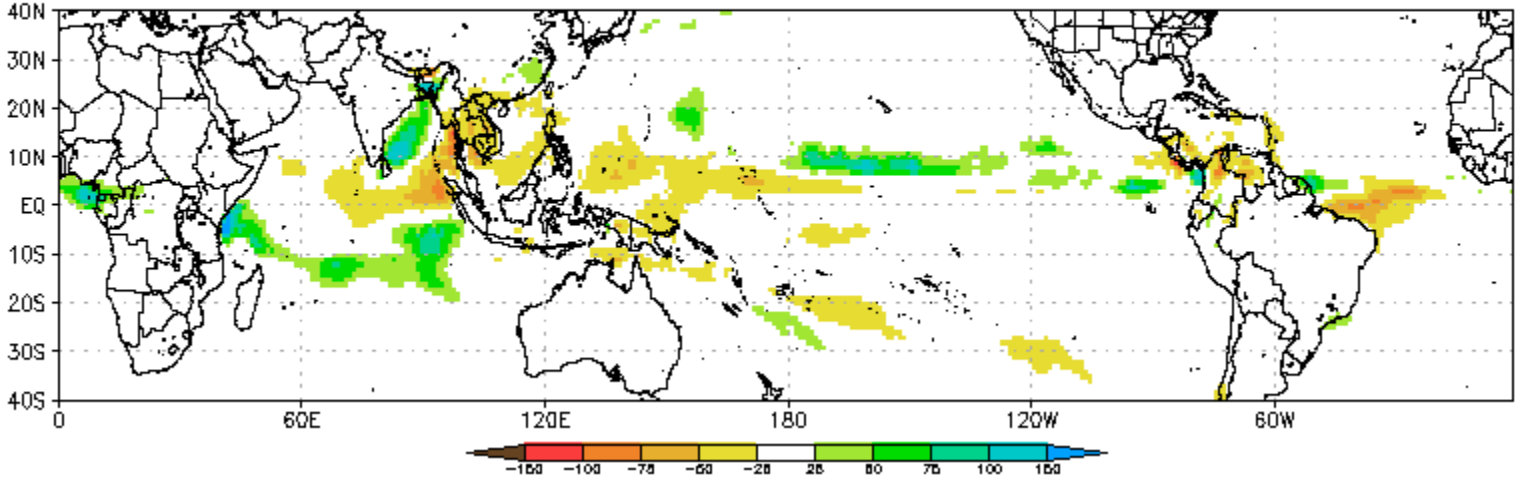
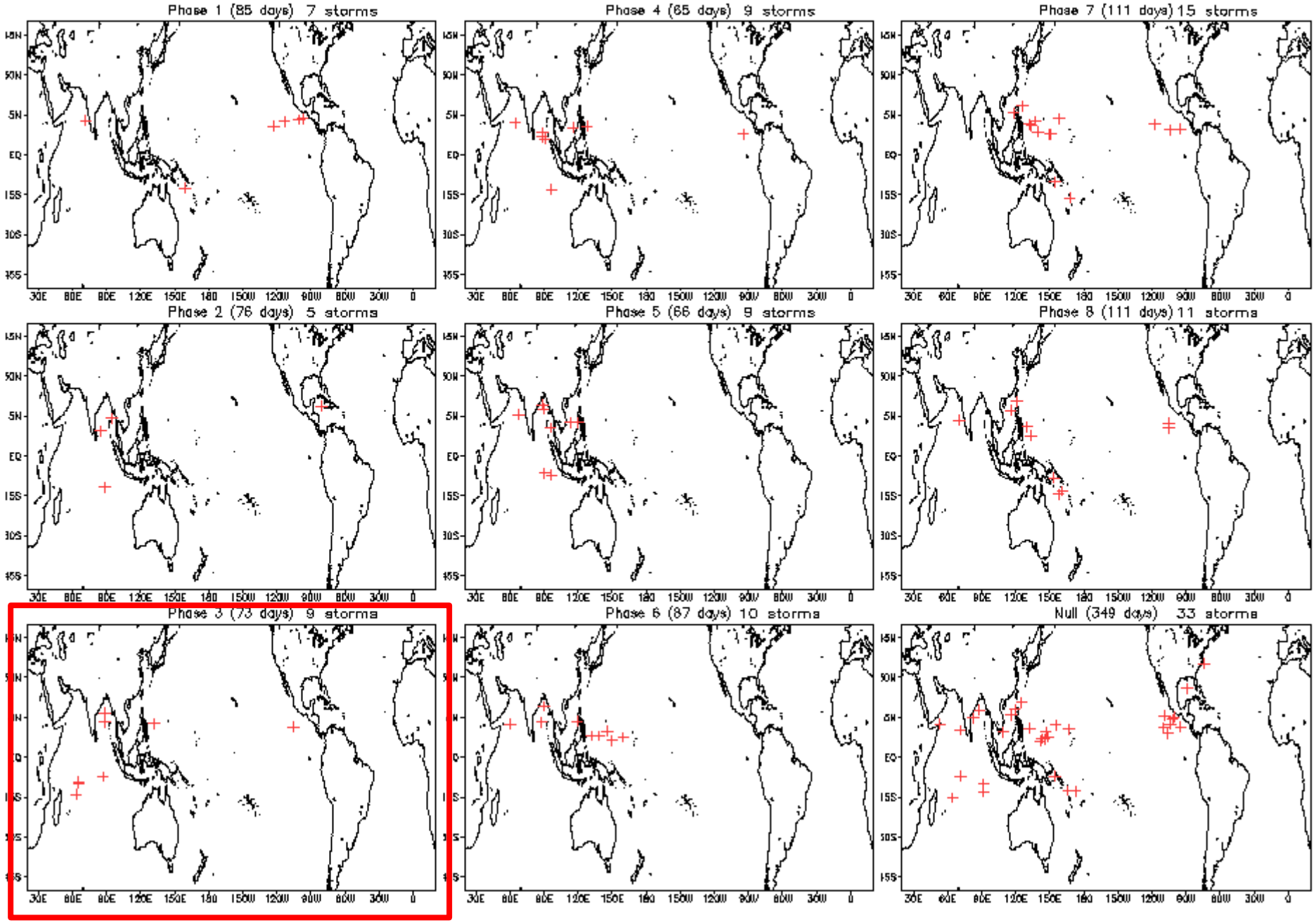
CFS Precipitation Anomalies (mm) Issued 27Apr2020
Week-1 Forecast Ending 05May2020

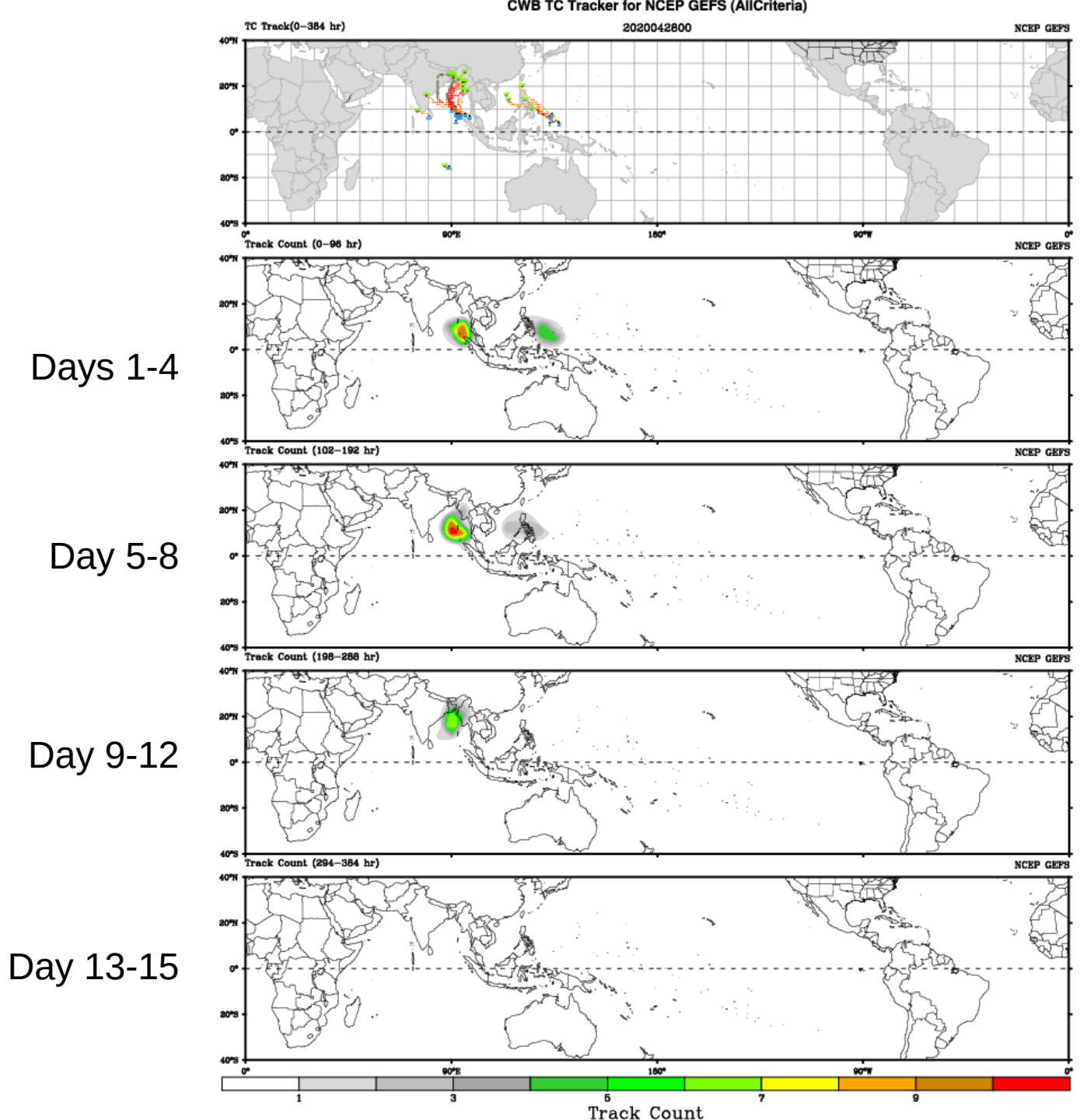


CFS Precipitation Anomalies (mm) Issued 27Apr2020
Week-2 Forecast Ending 12May2020



May Tropical Storm Formation by MJO phase





Days 1-4

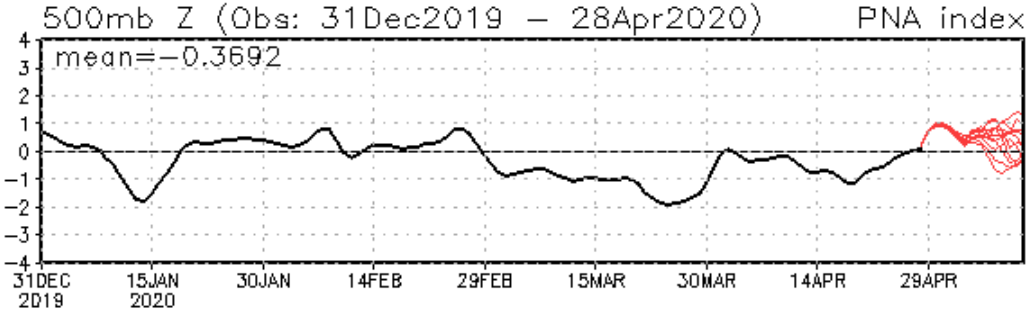
Day 5-8

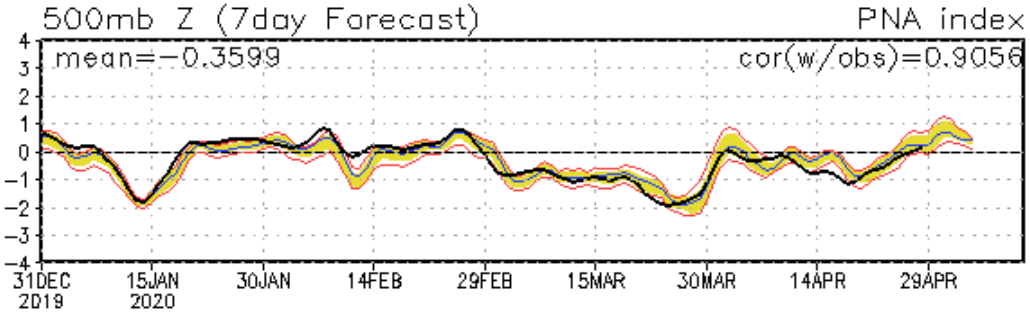
Day 9-12

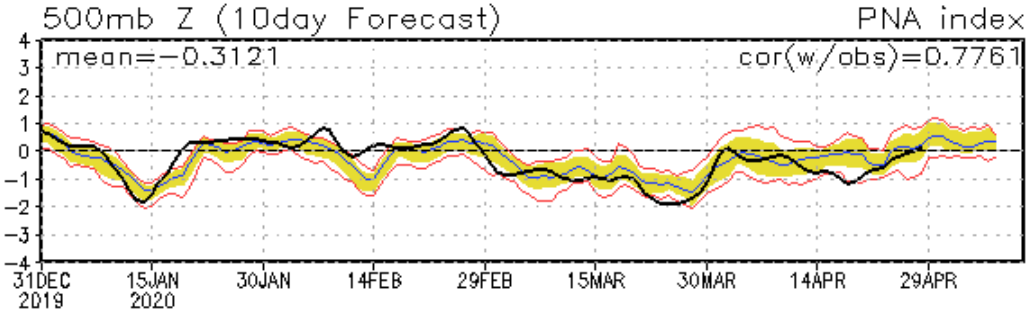
Day 13-15

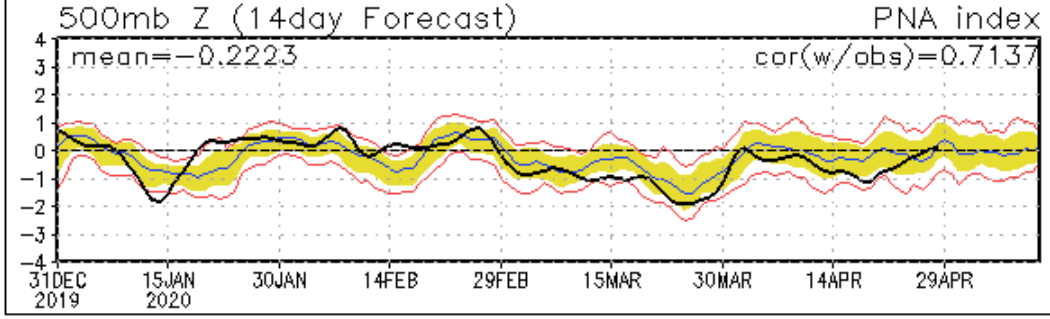
Connections to U.S. Impacts

PNA: Observed & ENSM forecasts

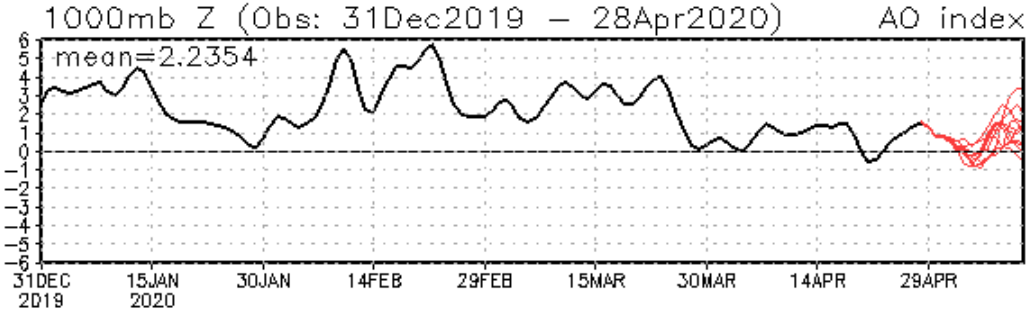


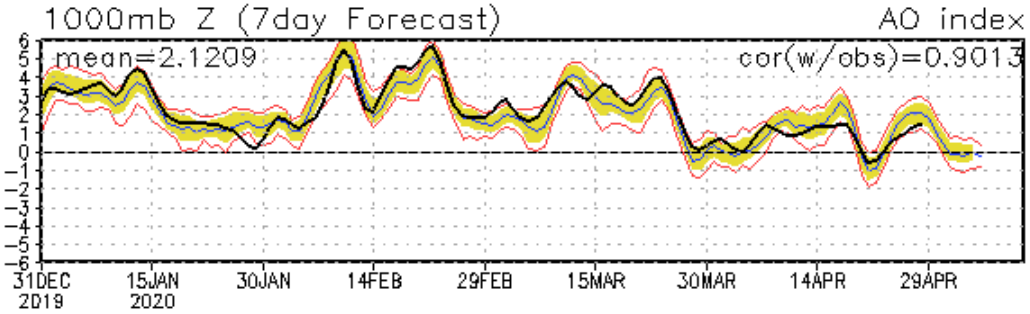


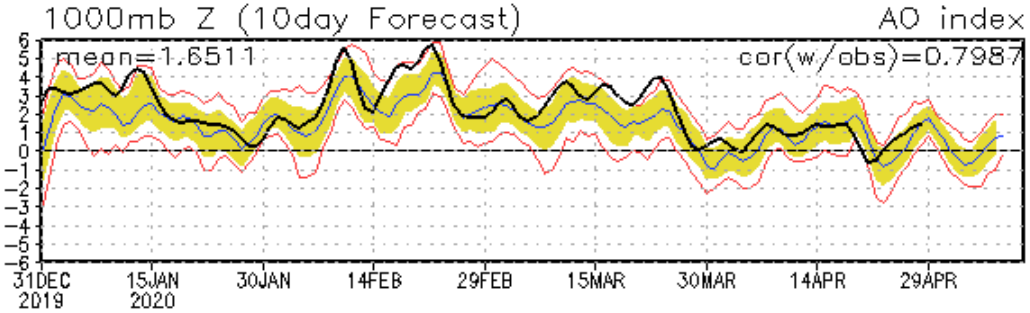


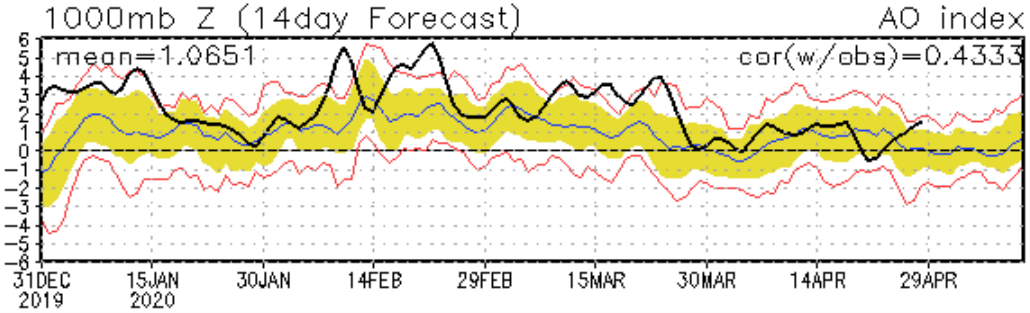


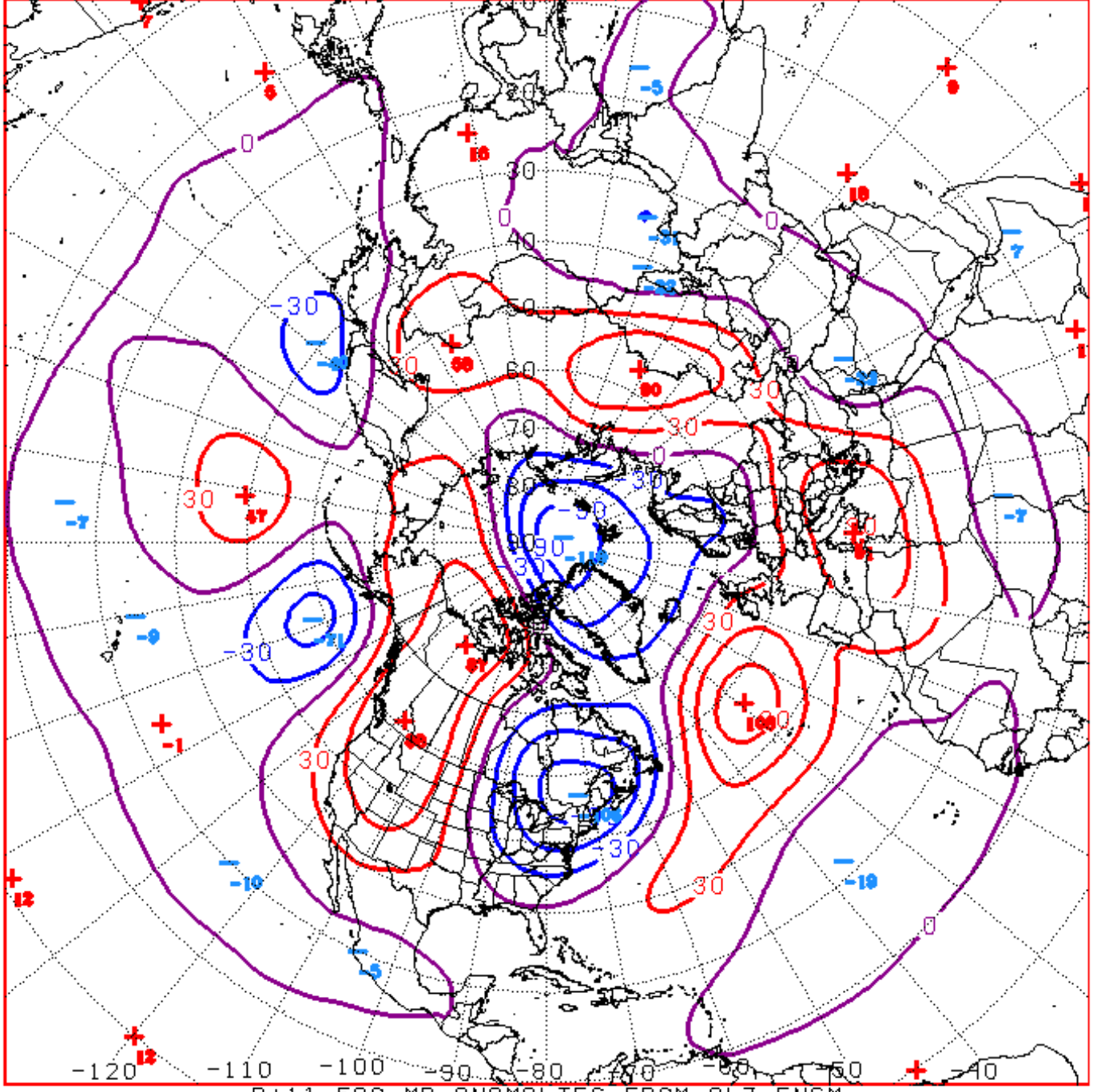
AO: Observed & ENSM forecasts





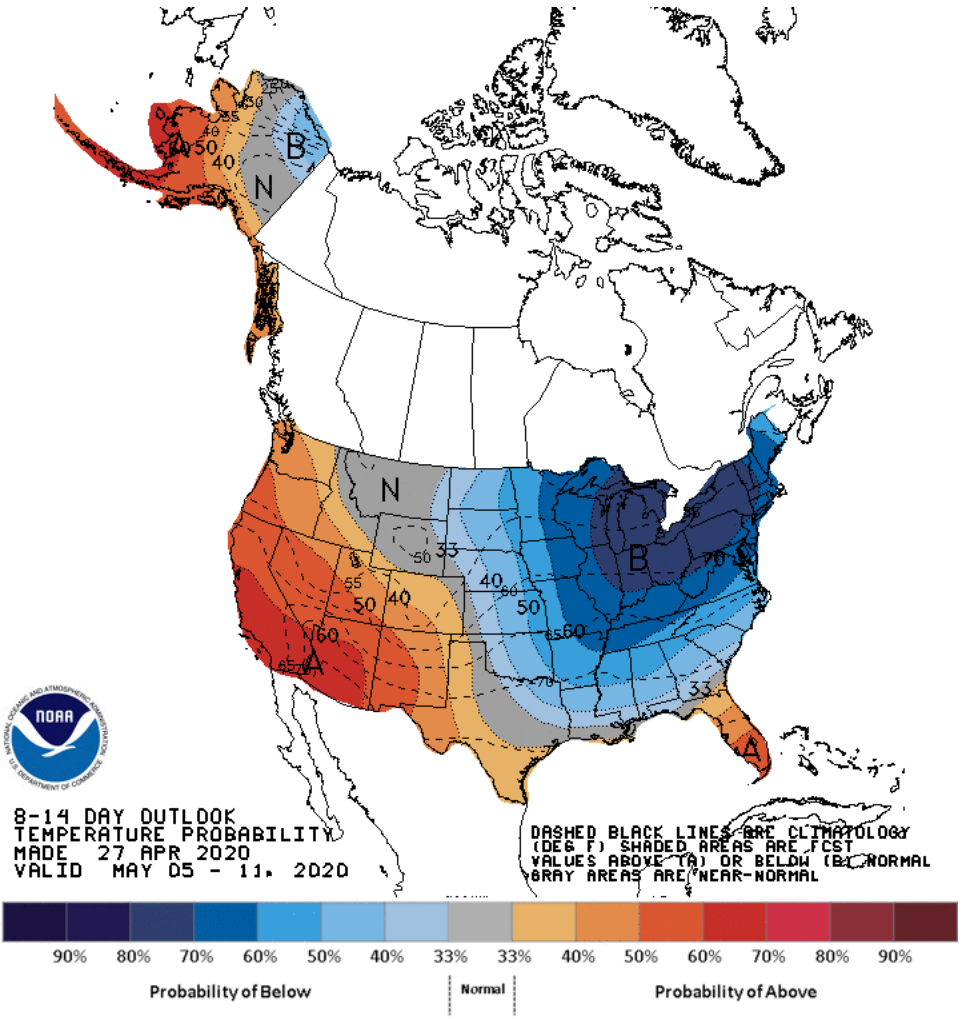


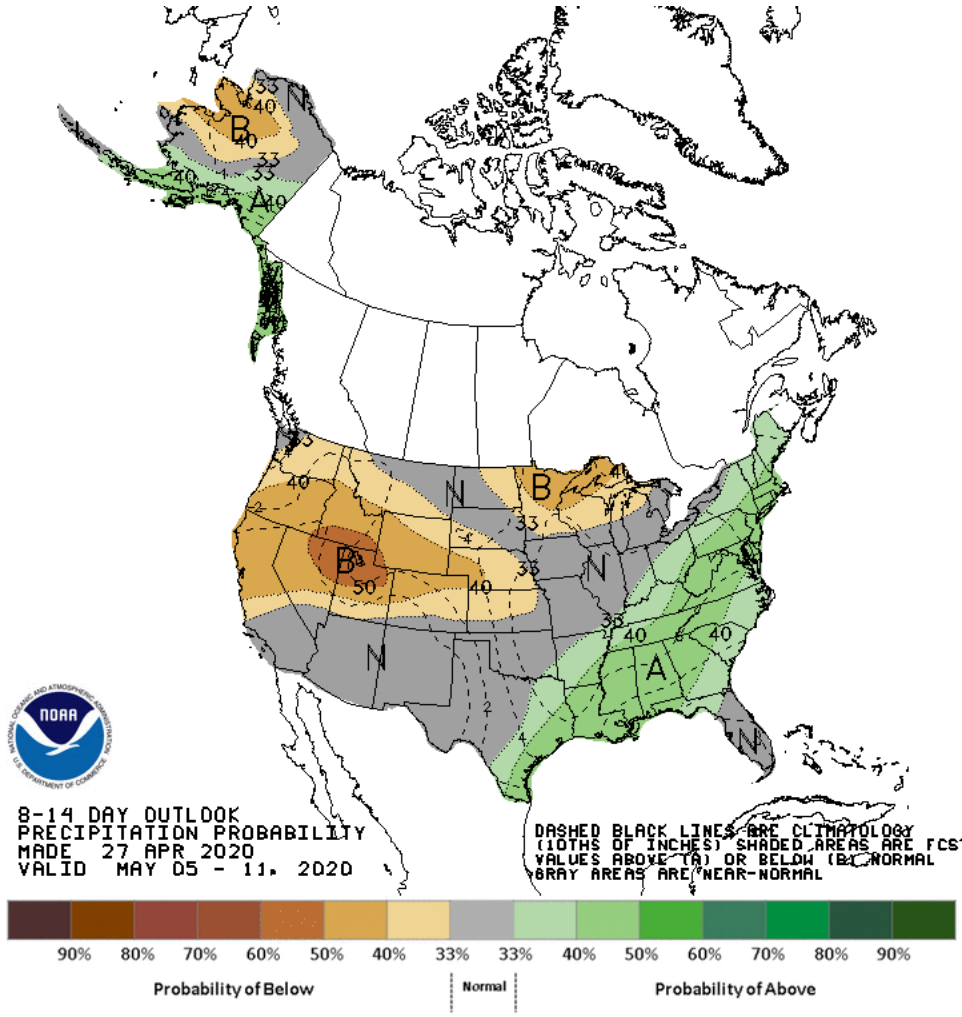




D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE APR 28 2020 1334 UTC CNTD MAY 09 2020

Week 2 – Temperature and Precipitation





Since we are in an amplified, stable pattern today's outlooks are likely to be similar.

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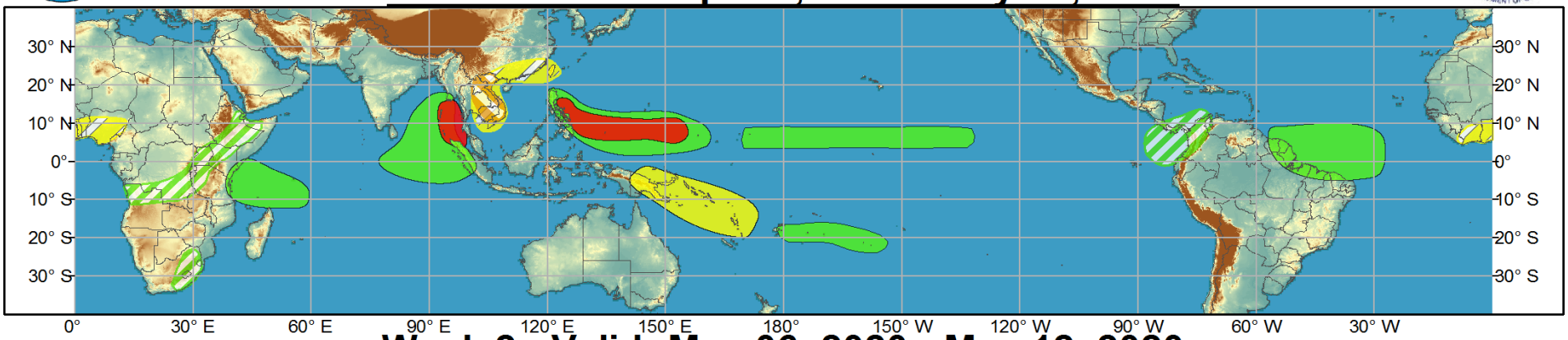

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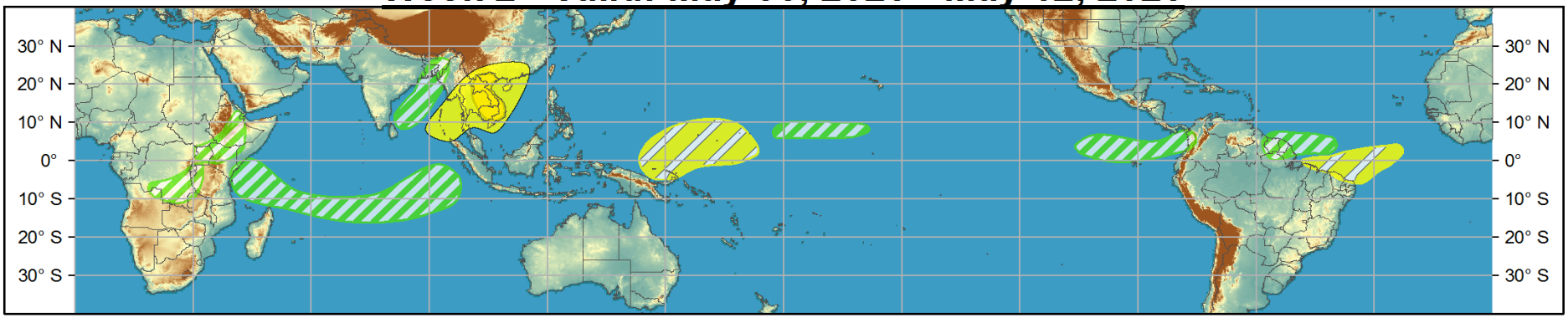

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NPS PRAESTANTIA PER SCIENTIAM