Global Tropics Hazards And Benefits Outlook

4/5/2022

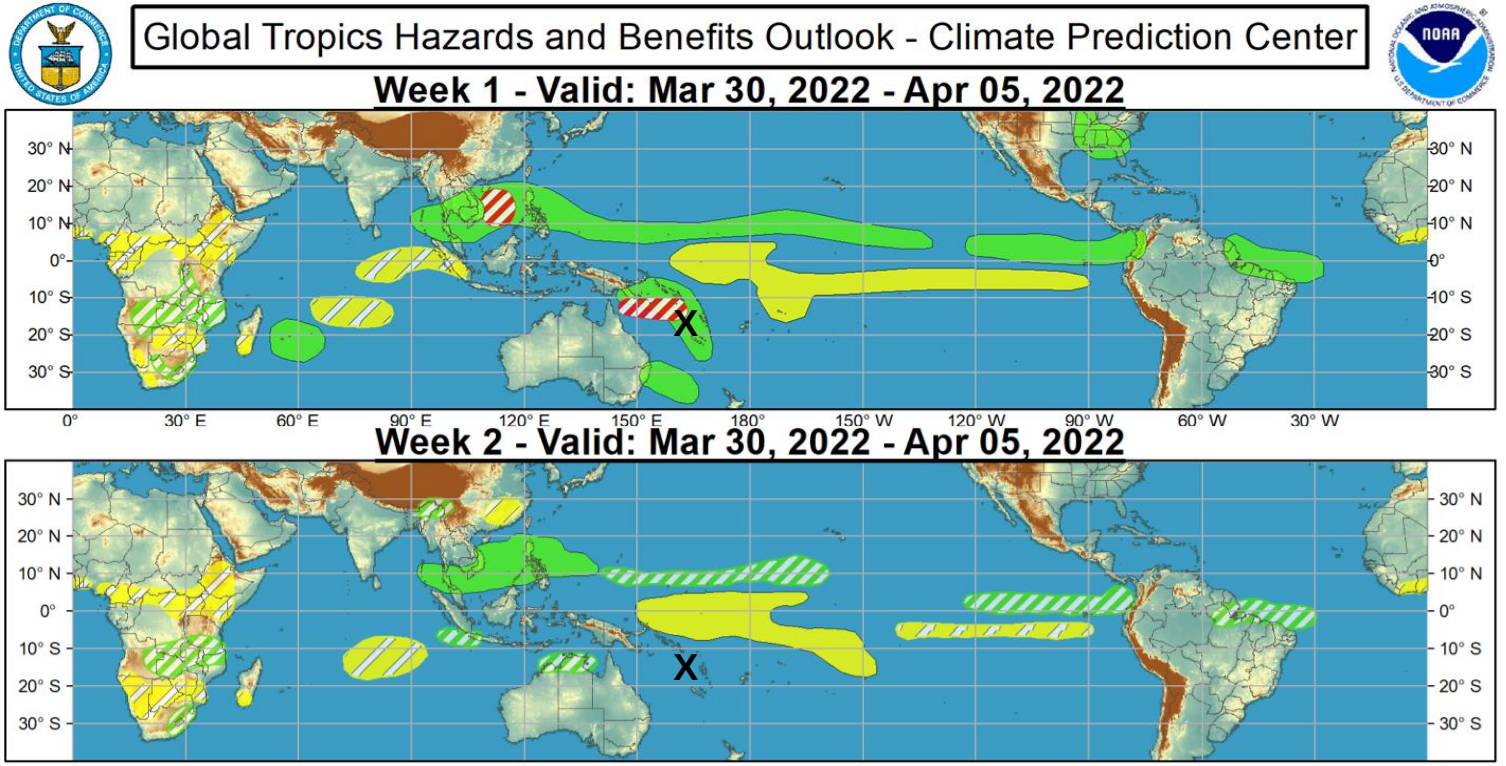
Adam Allgood

Outline

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

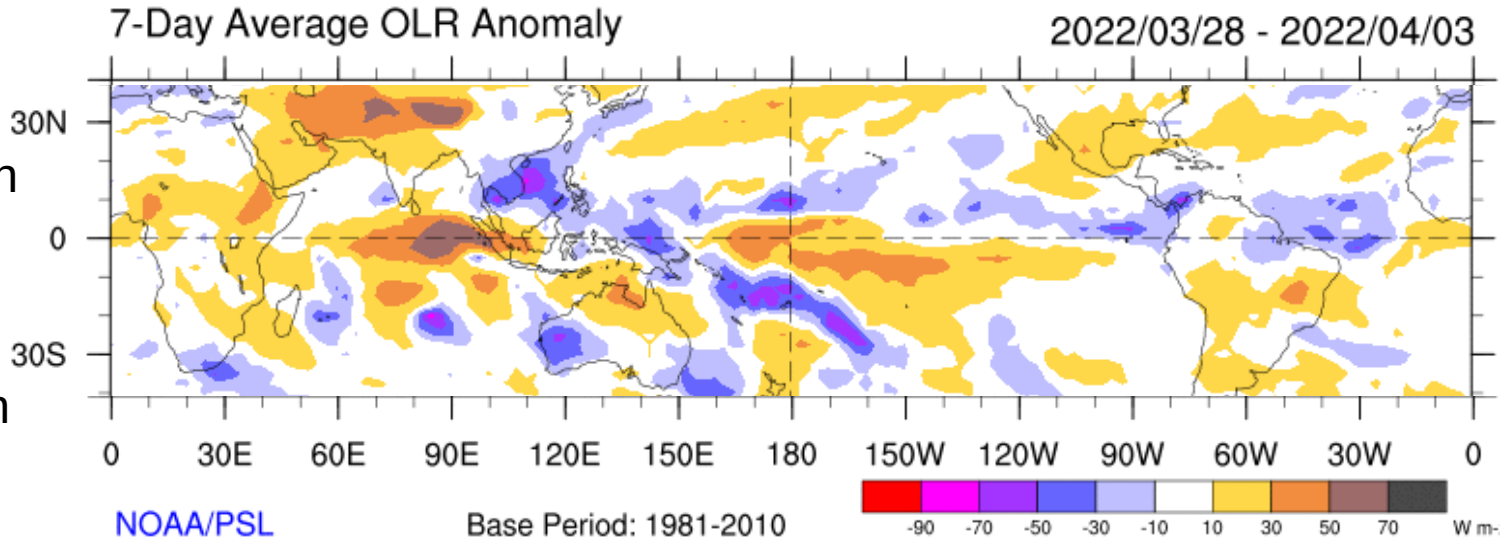
Outlook Review

X= Tropical Storm Fili (Coral Sea)



Cool shading
More clouds/rain

Warm shading
Less clouds/rain



Synopsis of Climate Modes

ENSO: (March 10, 2022 Update) ***next update on 14th of Apr.!***

- ENSO Alert System Status: La Niña Advisory

- La Niña is favored to continue into the Northern Hemisphere summer (53% chance during June-August 2022), with a 40-50% chance of La Niña or ENSO-neutral thereafter.

MJO and other subseasonal tropical variability:

- The MJO remains weak after enhanced convection failed to cross the Pacific, but the upper-level signature remains fairly robust.

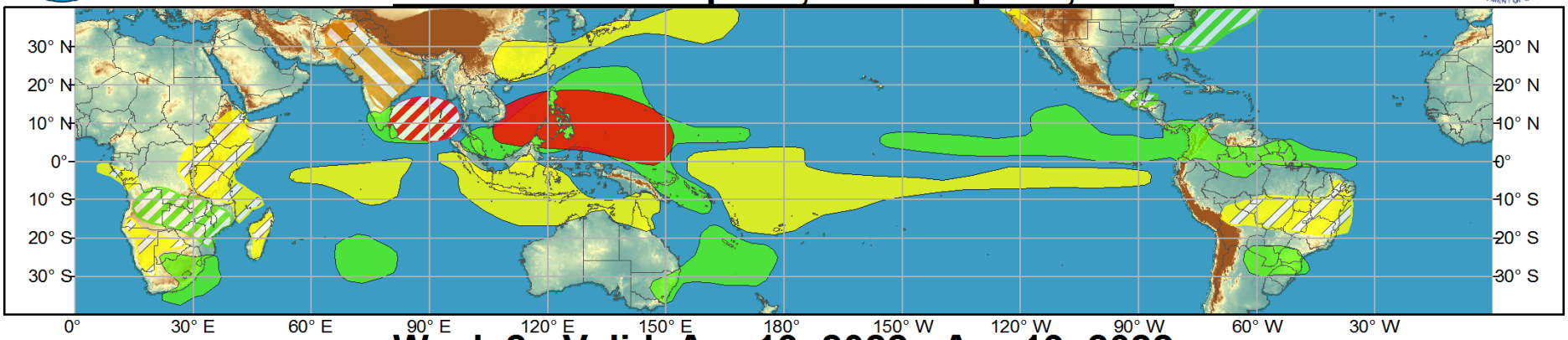
- Warm equatorial SSTs near the western coast of South America are helping to generate enhanced convection and an enhanced East Pacific ITCZ.

- Dynamical models favor a new intraseasonal signal developing and moving from the Maritime Continent quickly to the West Pacific. This is out of phase with the previous MJO event and may be partly tied to anticipated tropical cyclone activity.

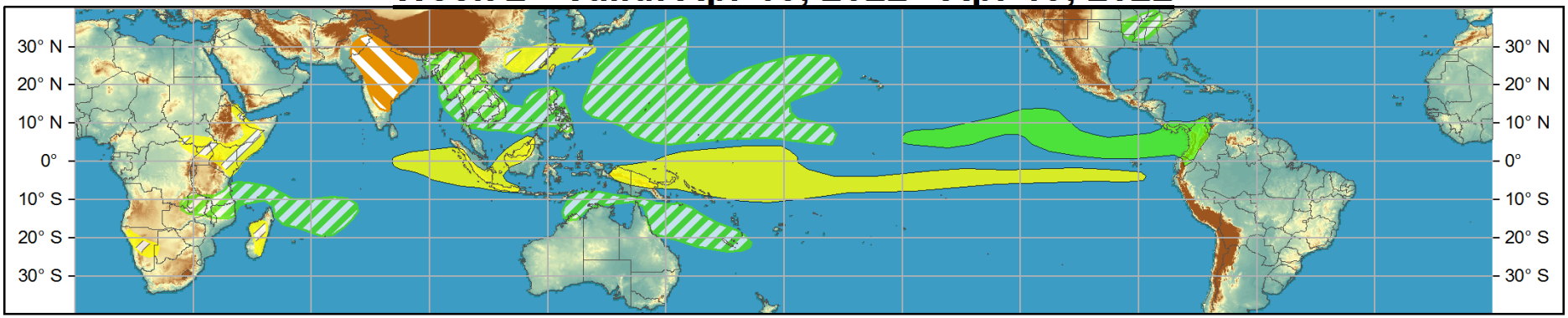
- Should renewed MJO activity over the West Pacific or substantial tropical cyclone activity generate westerly wind bursts, a downwelling oceanic Kelvin wave may be initiated that could begin weakening the ongoing La Niña event.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Apr 06, 2022 - Apr 12, 2022



Week 2 - Valid: Apr 13, 2022 - Apr 19, 2022



Produced: 04/05/2022

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.
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Above-normal temperatures			7-day mean temperatures in the upper third of the historical range.
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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

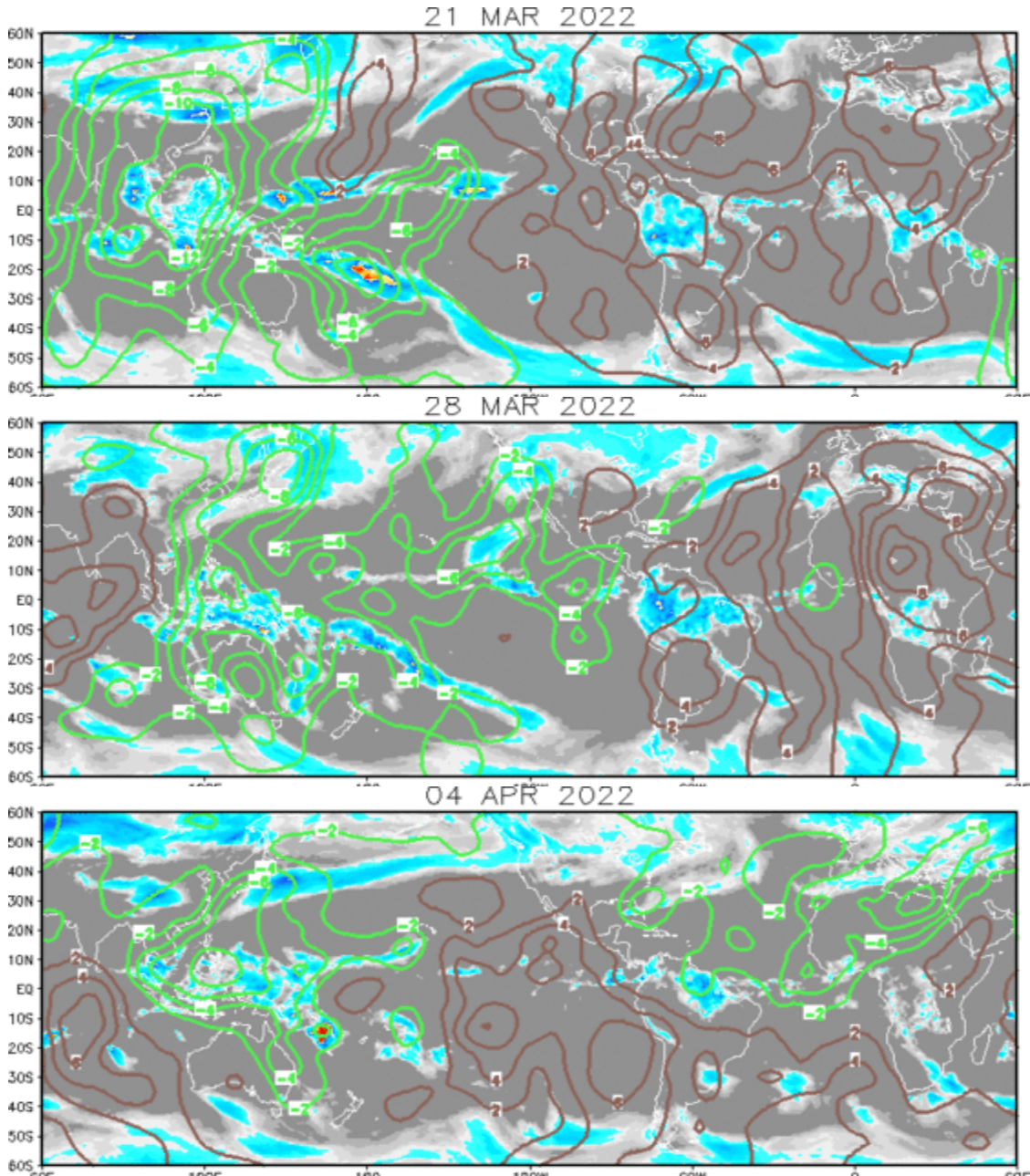
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence Brown: Enhanced Convergence

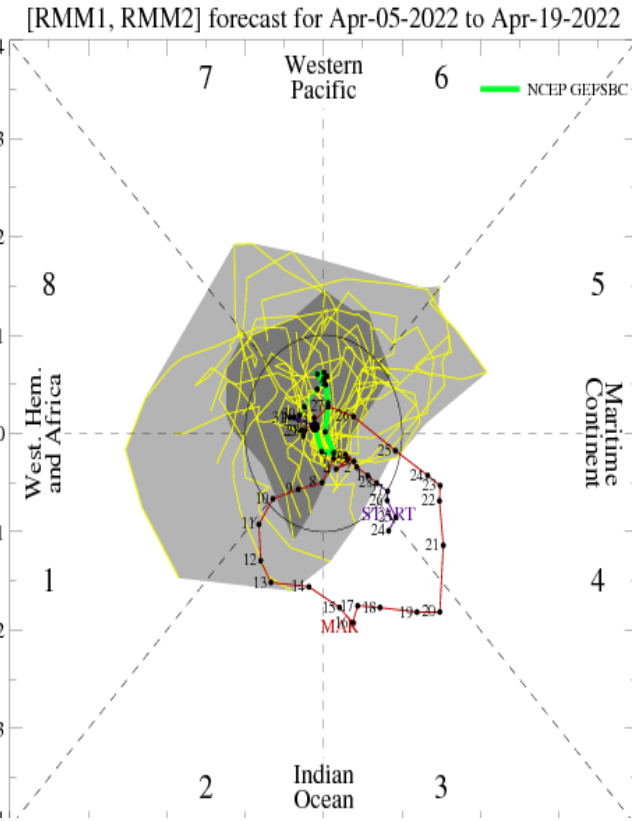
Coherent Wave-1 upper-level VP pattern is typical of robust MJO events. The convective response appears fairly weak in comparison.

Wave-1 pattern continues with evidence of interference from Kelvin wave activity (near the Prime Meridian) and the Pacific La Niña.

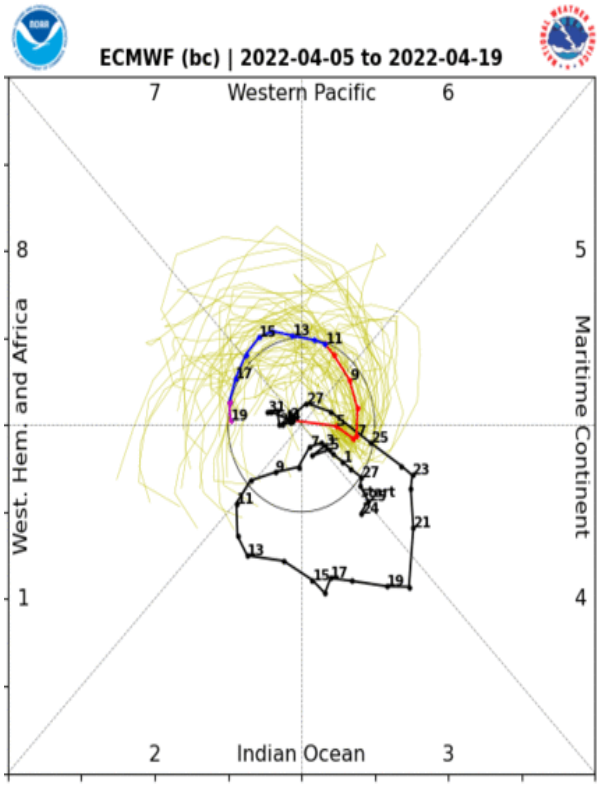
Wave-2 pattern as widespread convection persists over the Maritime Continent while the remnant MJO crosses the Western Hemisphere.



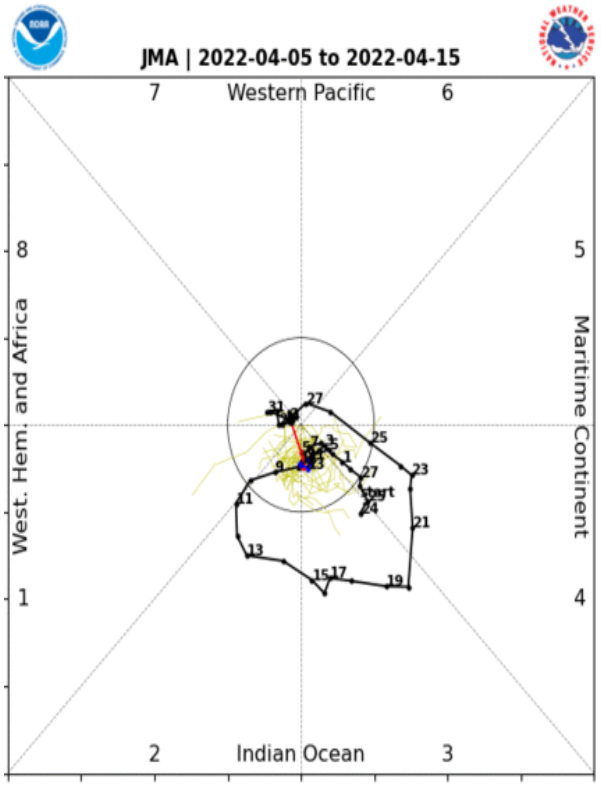
MJO Observation/Forecast



GEFS



ECMWF

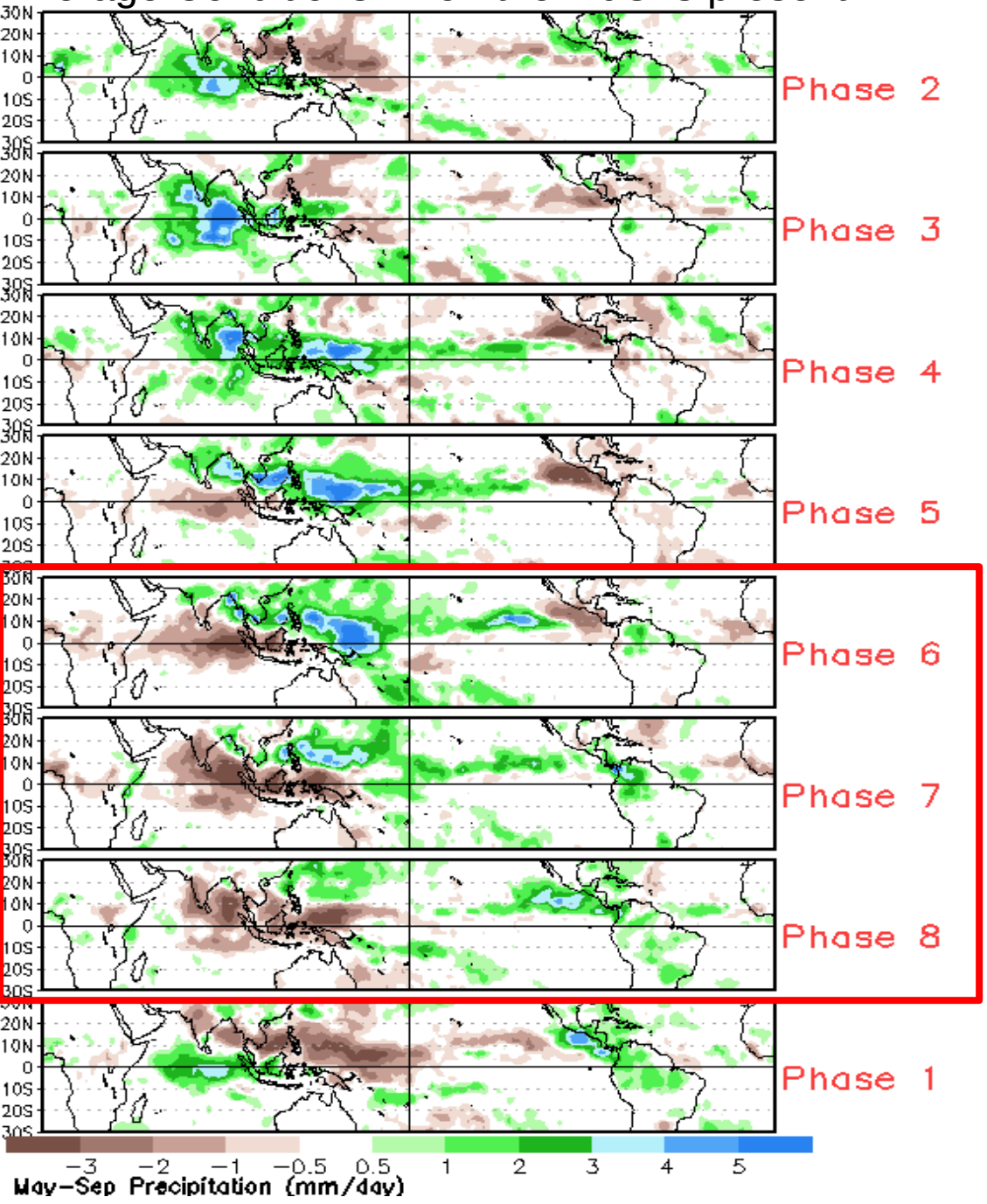


JMA

GEFS and ECWMF both depict some enhancement potential over the West Pacfic, with the ECMWF more progressive (may be keying in on the CCKW currently over Africa).

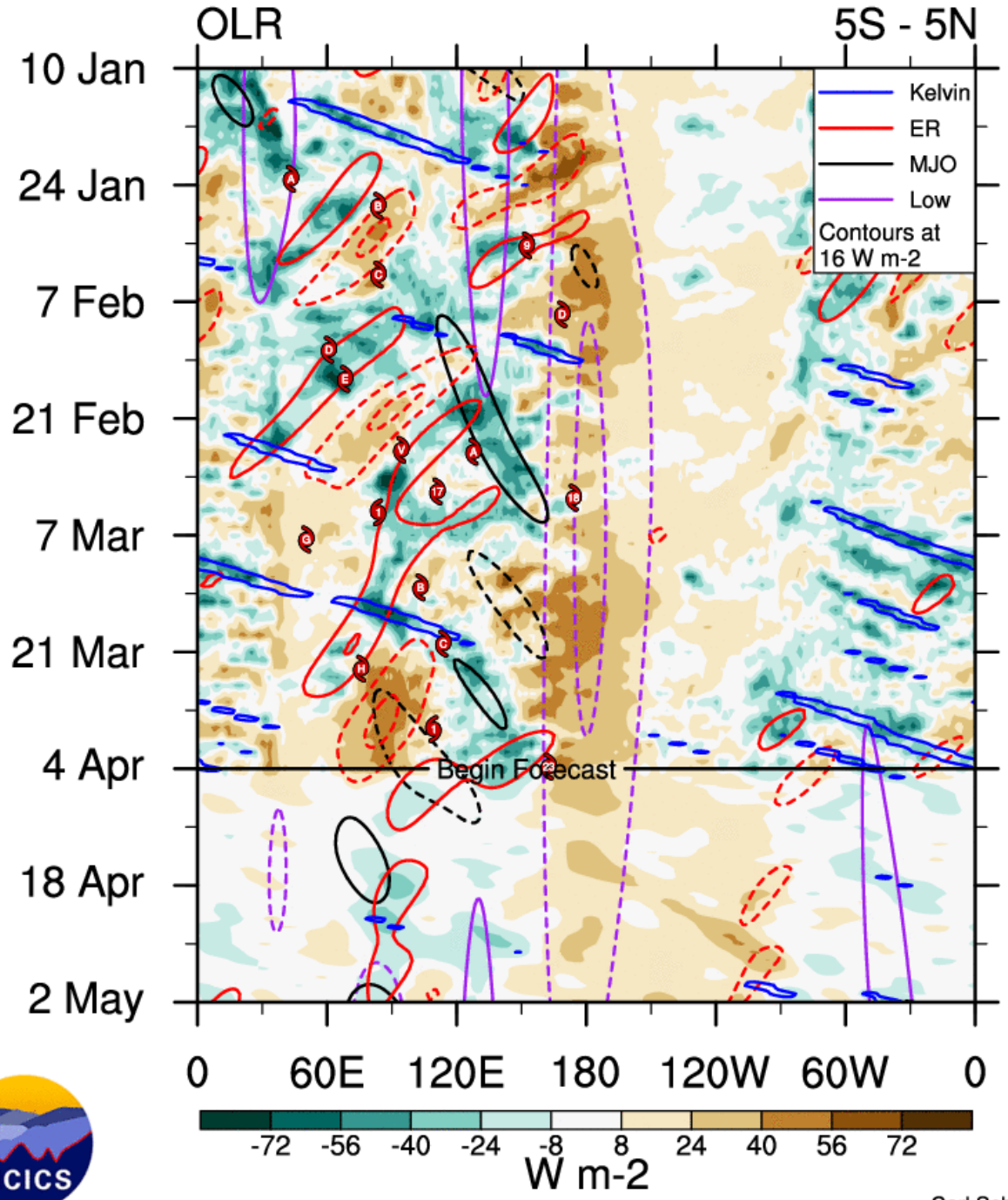
West Pacific tropical cyclone activity may be playing a role in the GEFS solutions.

Average Conditions when the MJO is present



Note: April is an “in-between” month with regard to these composites

CAVEAT: These panels are representative of robust MJO events.



MJO activity is depicted by the filtering algorithm over the Maritime Continent, with **Rossby wave** activity also prominent.

Kelvin wave activity is coupled with convection near the Prime Meridian.

Low frequency contours depict ENSO cold conditions, and are currently the most prominent signal.

NCICS

ncics.org/mjo

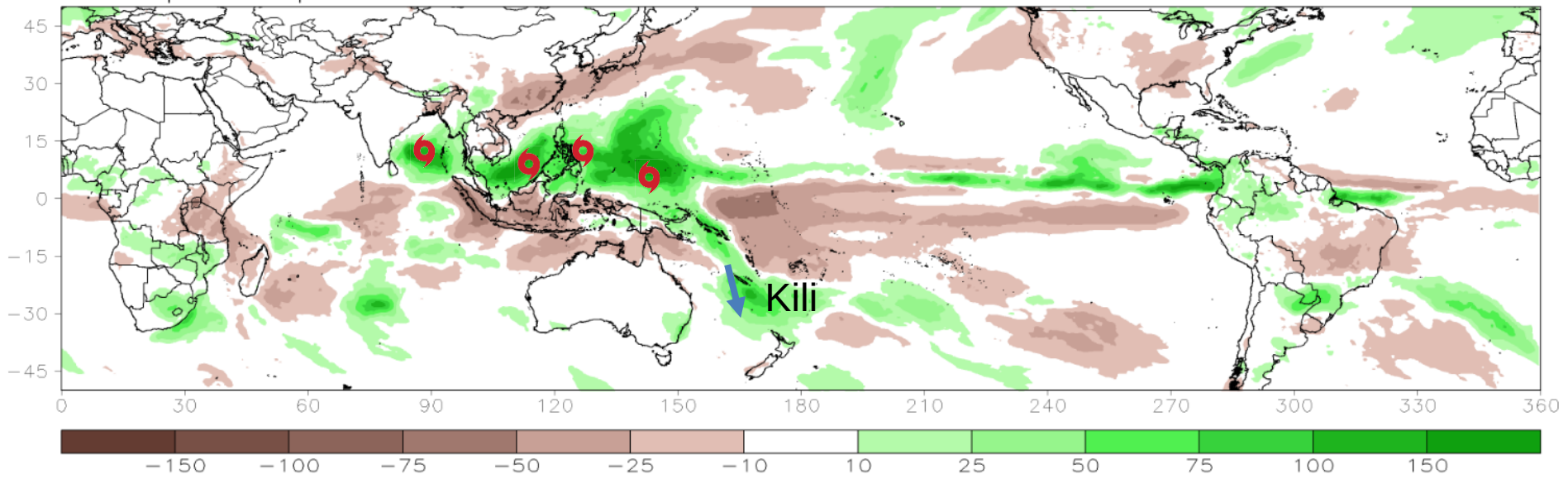
Tue 2022-04-05 1515 UTC

Carl Schreck
carl_schreck@ncsu.edu

GEFSv12 00z Ensemble Mean: Week1 Total Rainfall Anomaly (mm)

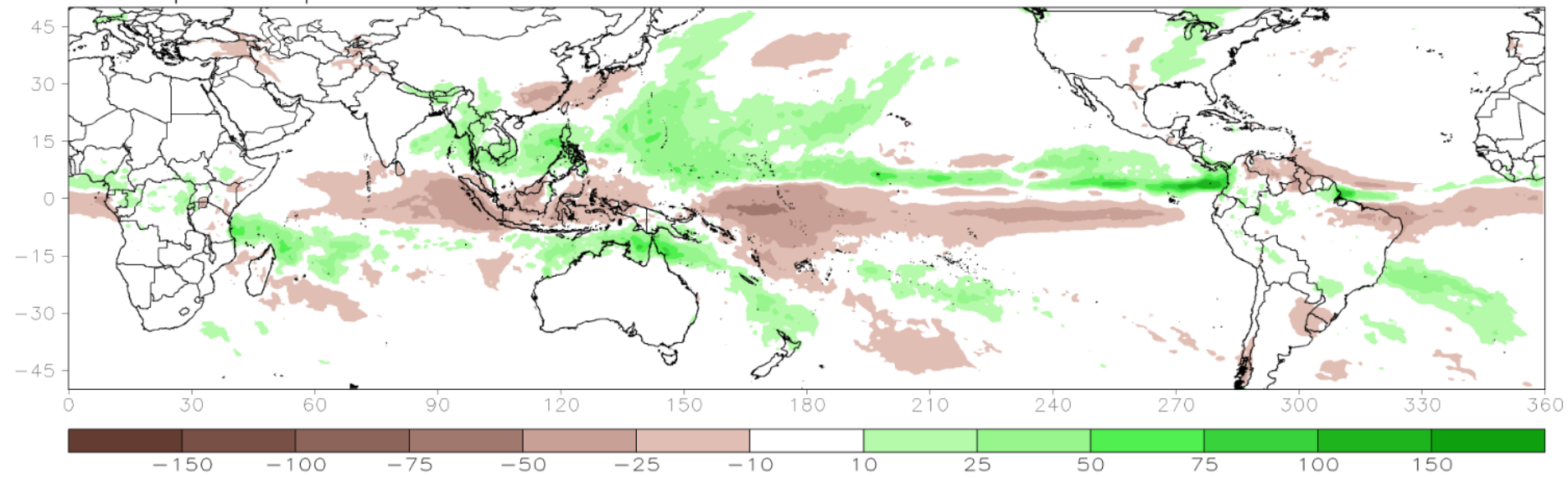
Model indicated potential formations

Valid: 06Apr2022–12Apr2022

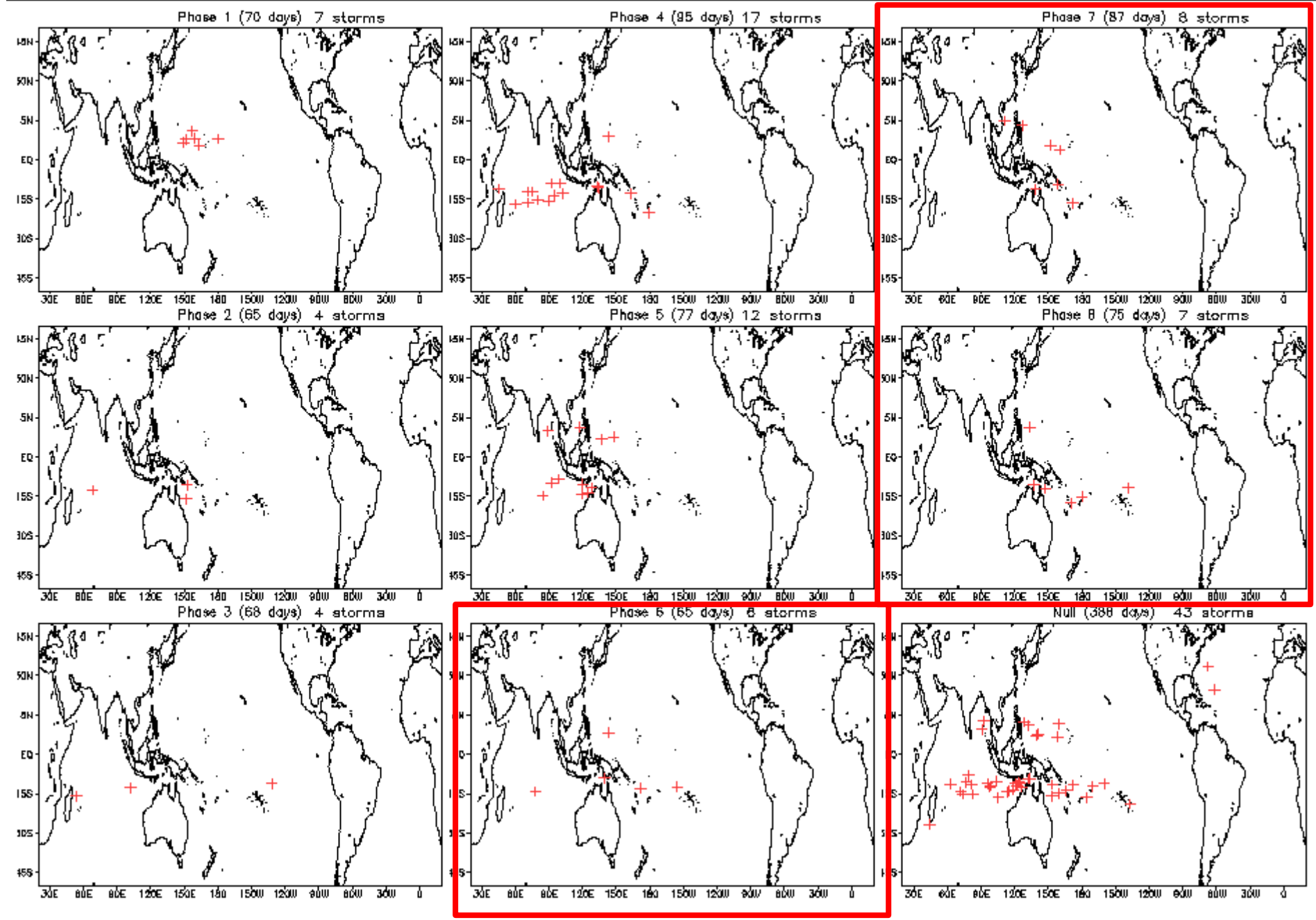


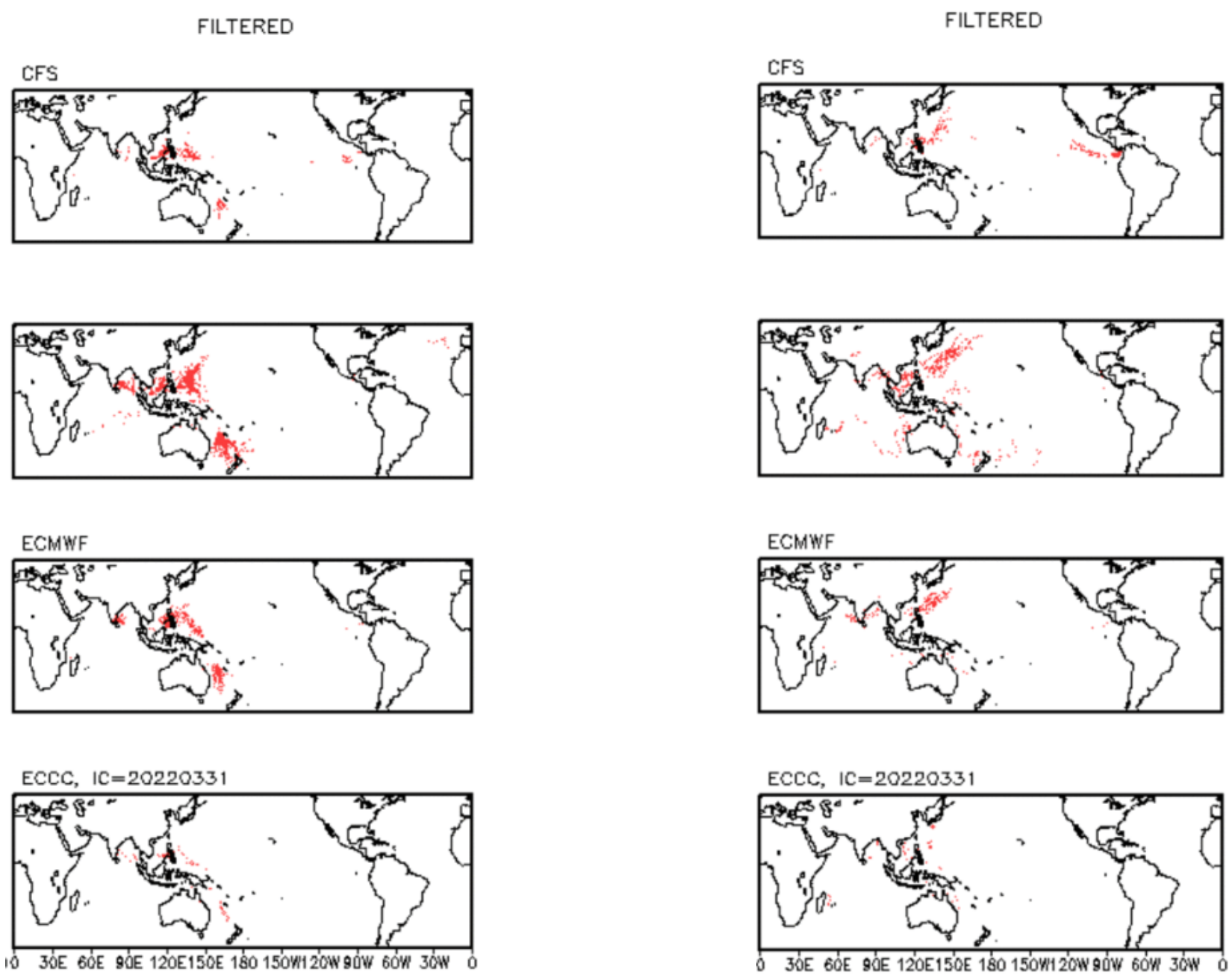
GEFSv12 00z Ensemble Mean: Week2 Total Rainfall Anomaly (mm)

Valid: 13Apr2022–19Apr2022



April Tropical Storm Formation by MJO phase

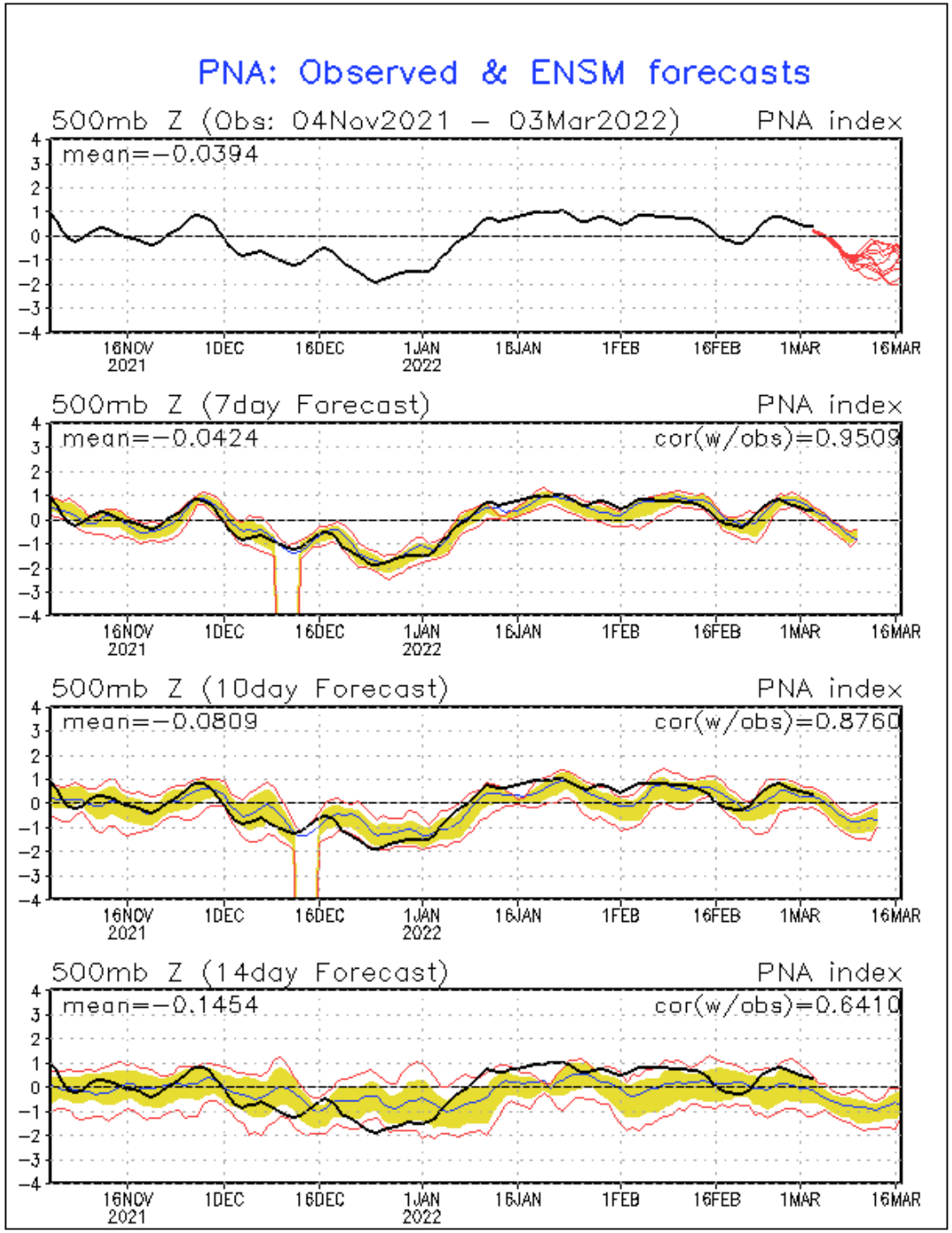



FILTERED
CFS
ECMWF
ECCC, IC=20220331
0 30E 60E 90E 120E150E 180 150W120W 90W 60W 30W 0
FILTERED
CFS
ECMWF
ECCC, IC=20220331
0 30E 60E 90E 120E150E 180 150W120W 90W 60W 30W 0

Week-1

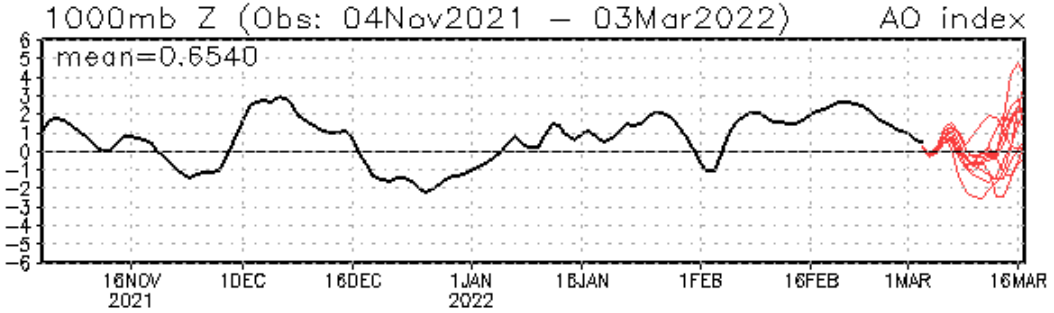
Week-2

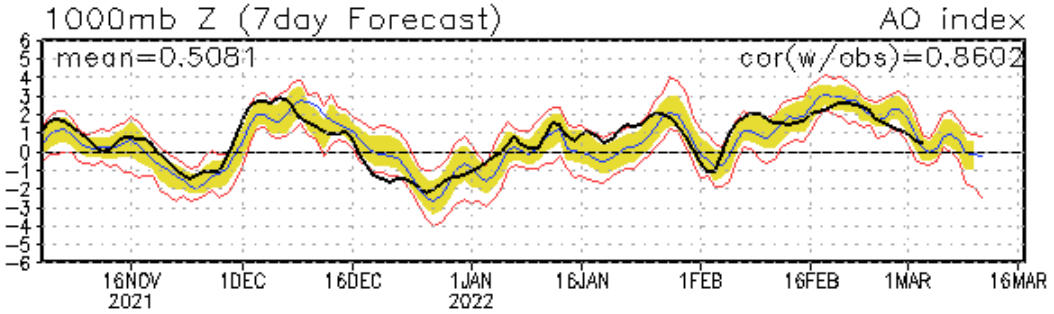
Connections to U.S. Impacts

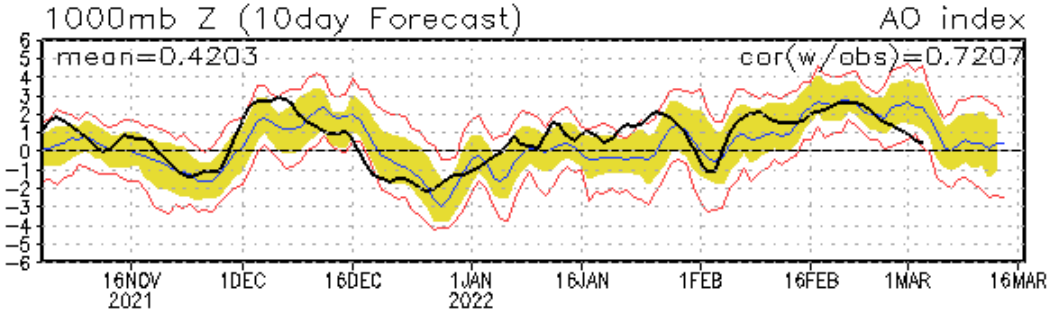


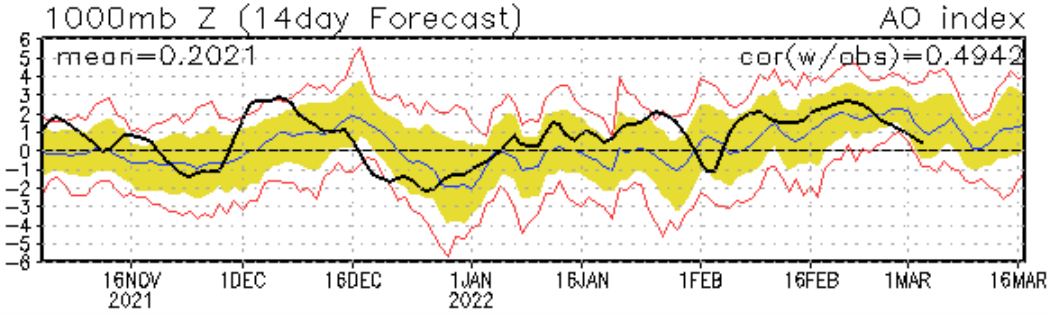
Warm east, cool west

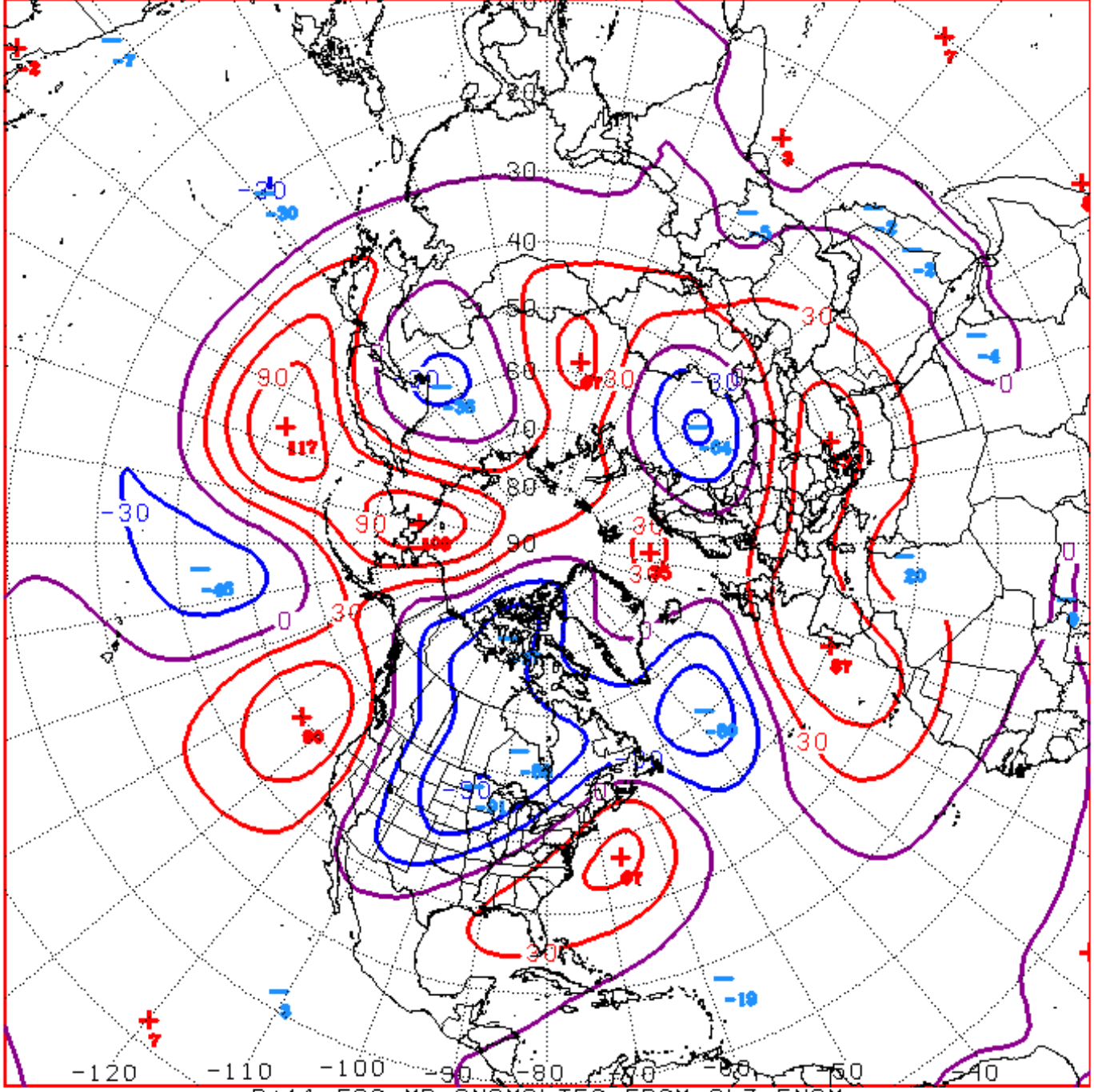
AO: Observed & ENSM forecasts





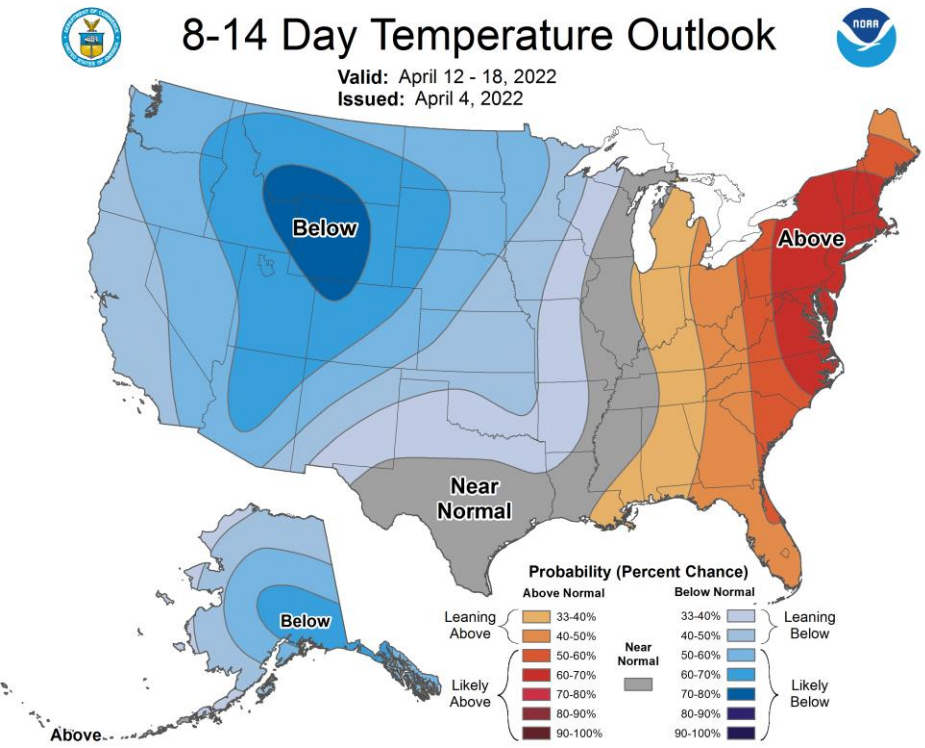


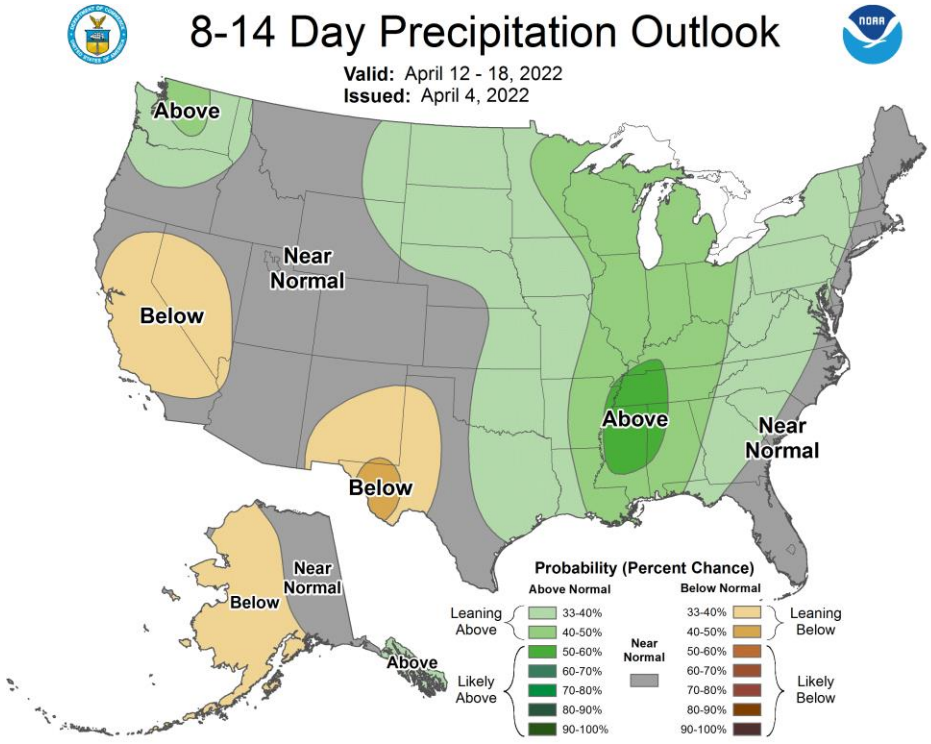




D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE APR 05 2022 1354 UTC CNTD APR 16 2022

Week 2 – Temperature and Precipitation





Fairly amplified pattern, potential for much-above average temperatures early in the period for the East.

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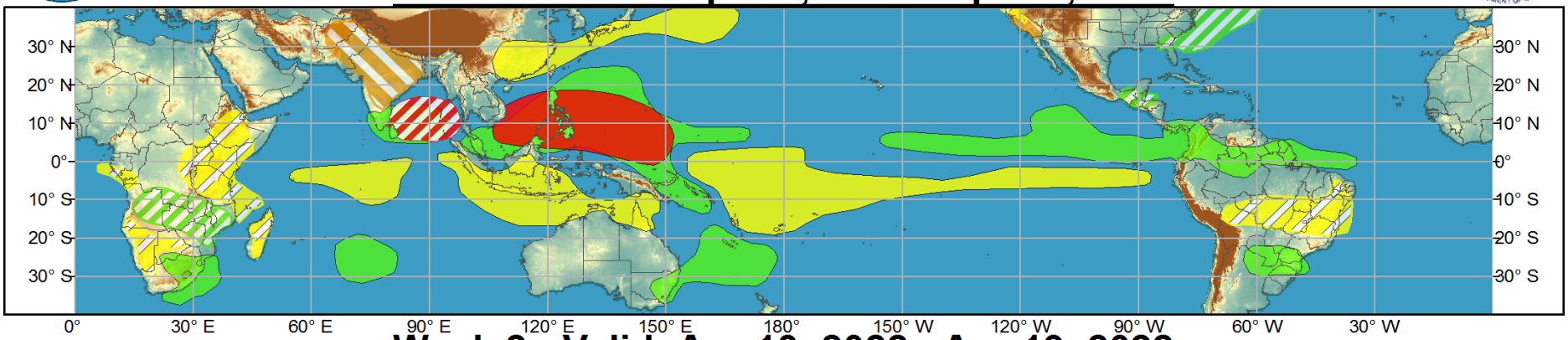

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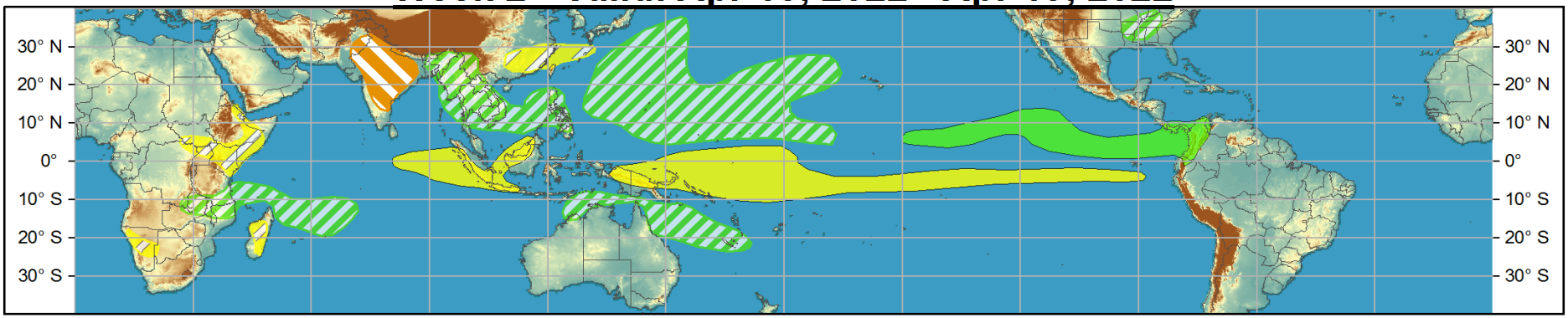

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