

Global Tropics Hazards And Benefits Outlook

4/20/2021

Kyle MacRitchie

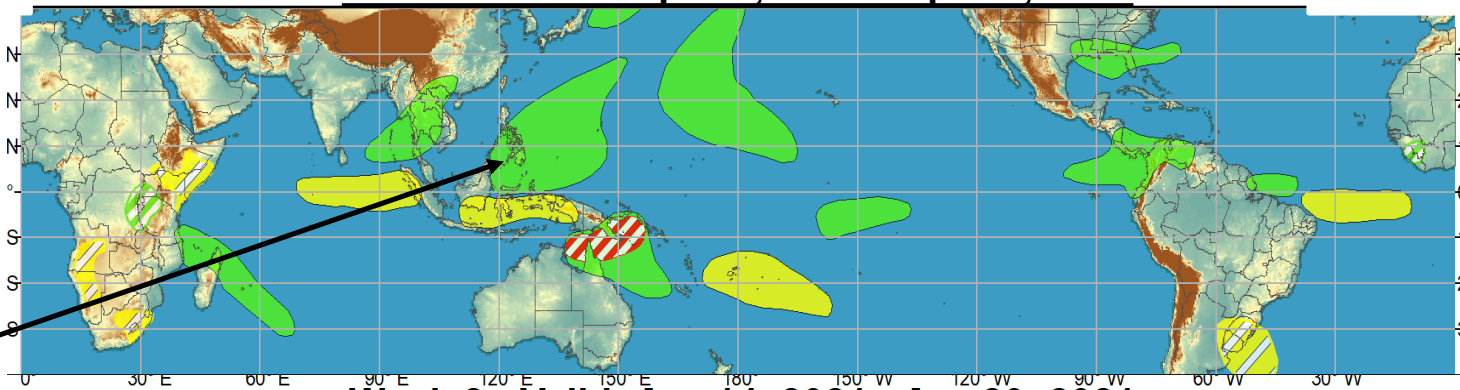
Outline

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

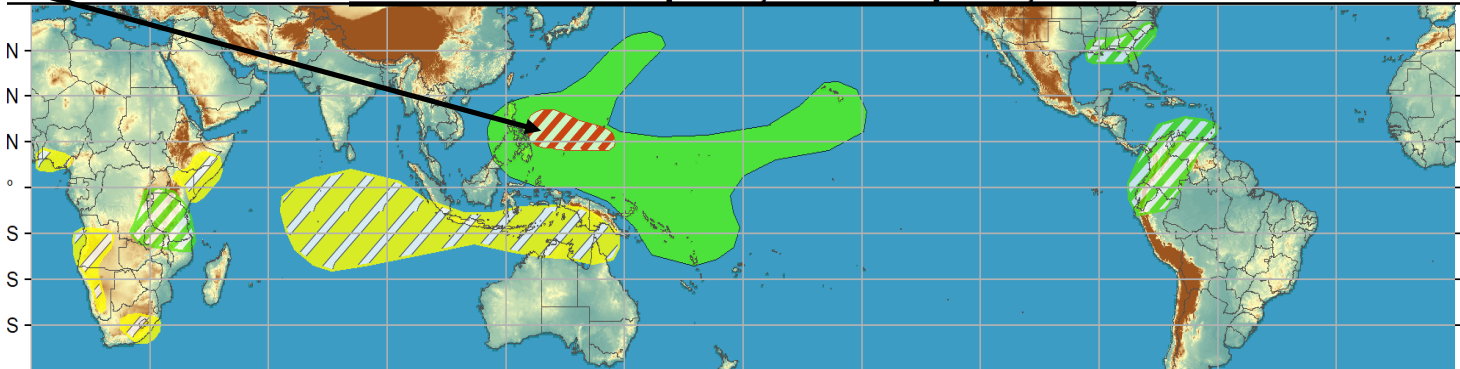
Outlook Review

Typhoon
Surigae
4/13/2021

Week 1 - Valid: Apr 14, 2021 - Apr 20, 2021

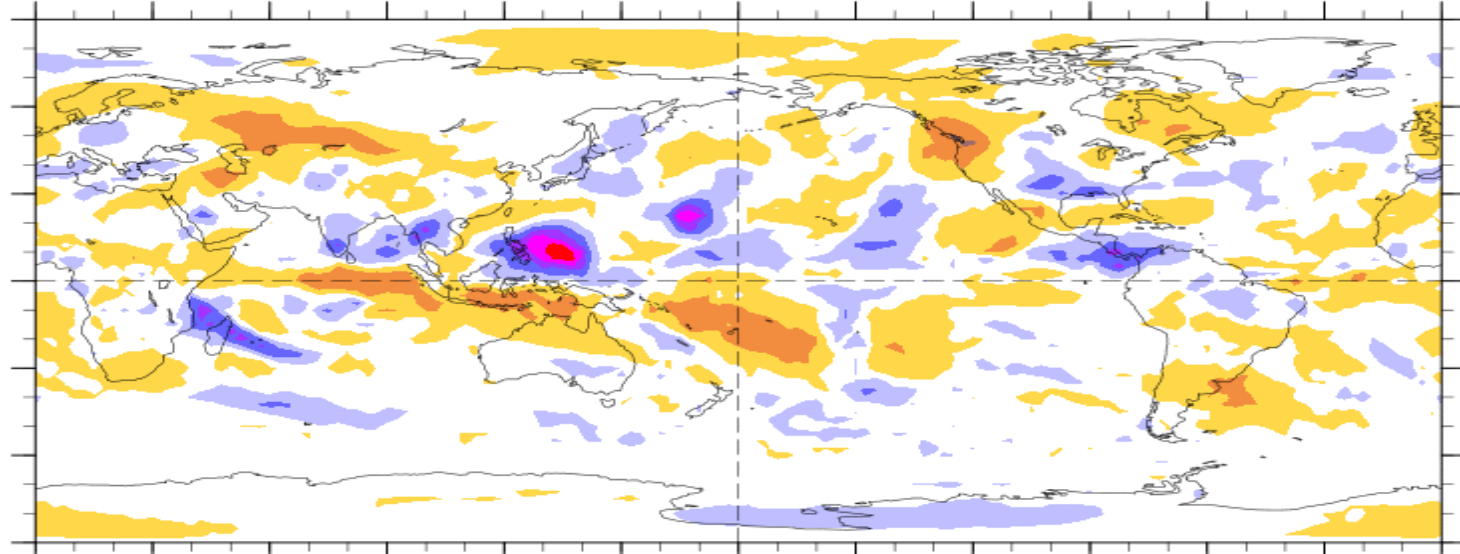


Week 2 - Valid: Apr 14, 2021 - Apr 20, 2021



7-Day Average OLR Anomaly

2021/04/12 - 2021/04/18



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (April 8, 2021 Update)

next update on May 13, 2021

- ENSO Alert System Status: [La Niña Advisory](#)
- A transition from La Niña to ENSO-Neutral is likely in the next month or so, with an 80% chance of ENSO-neutral during May-July 2021.

MJO and other subseasonal tropical variability:

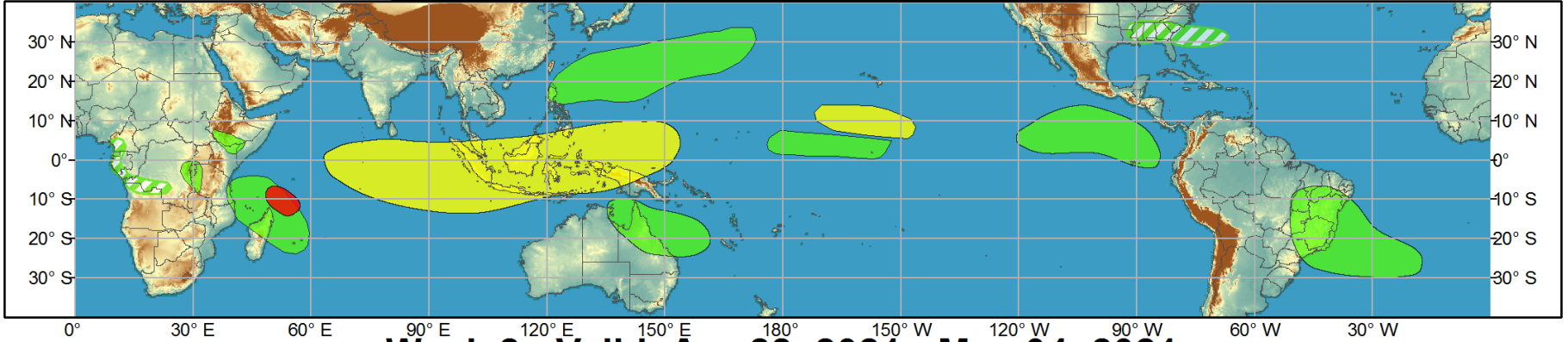
- The MJO has been active since mid-February and is likely to take a second trip around the globe during the next several weeks.
- Dynamical models favor continued MJO propagation, though there is uncertainty regarding its strength.
- Warming SSTs throughout the central Pacific, associated with La Niña's decline, will likely help the MJO maintain its amplitude as it moves over the Pacific.
- The projected evolution of the MJO through RMM Phases 7-8 during the next two weeks favors above normal temperatures throughout the western U.S. and below normal temperatures throughout the East.
 - The relationships between the MJO and CONUS weather generally weaken as the general circulation spins down on the way into summer.



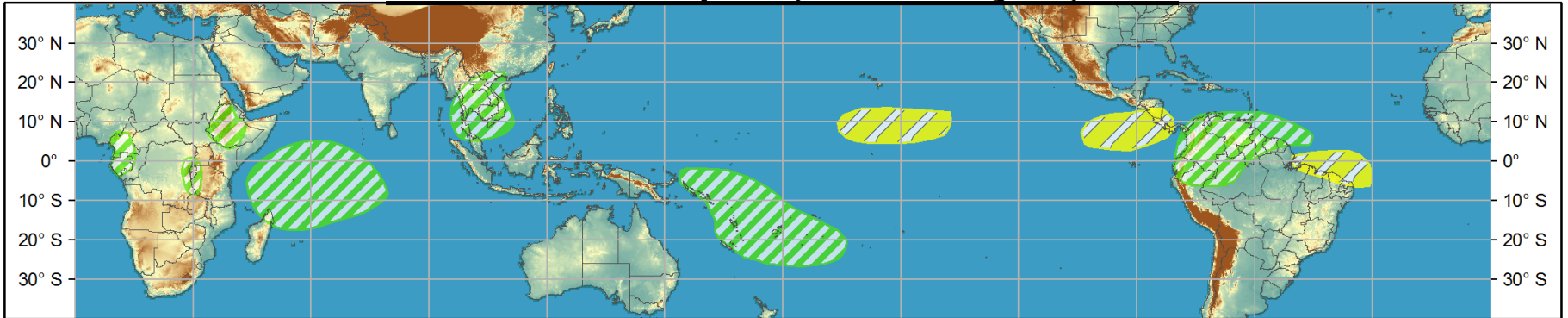
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Apr 21, 2021 - Apr 27, 2021



Week 2 - Valid: Apr 28, 2021 - May 04, 2021



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: 04/20/2021

Forecaster: MacRitchie

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.

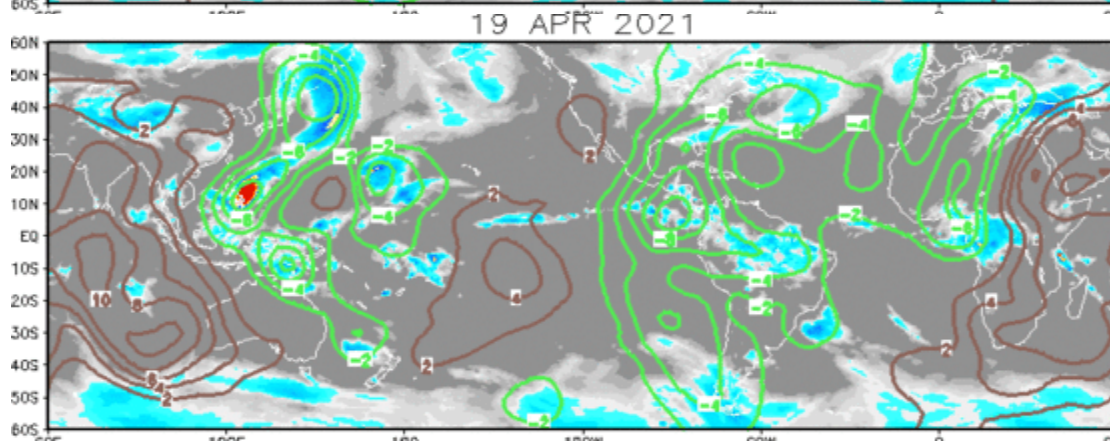
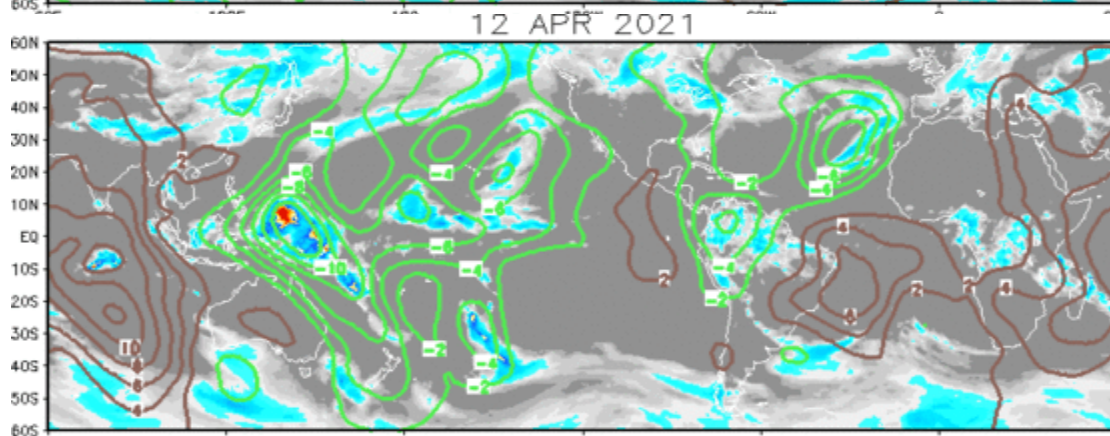
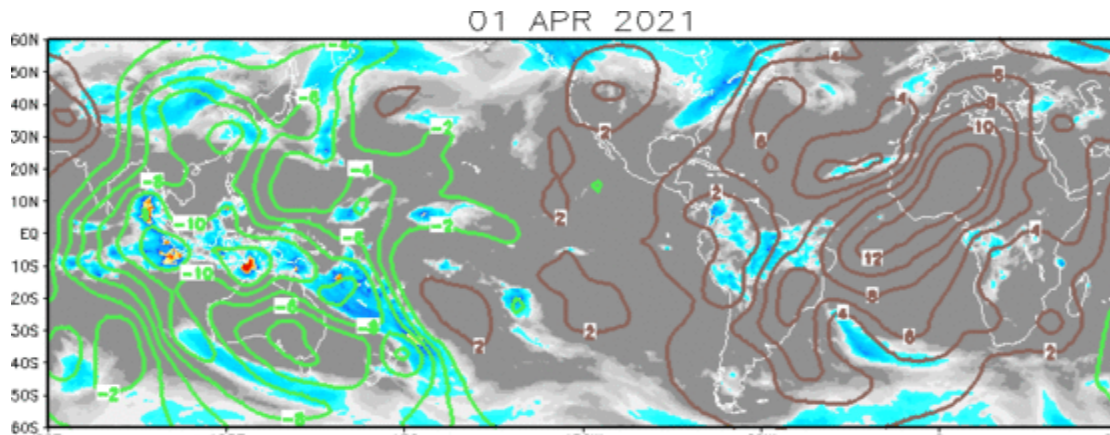


IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

Brown: Enhanced Convergence

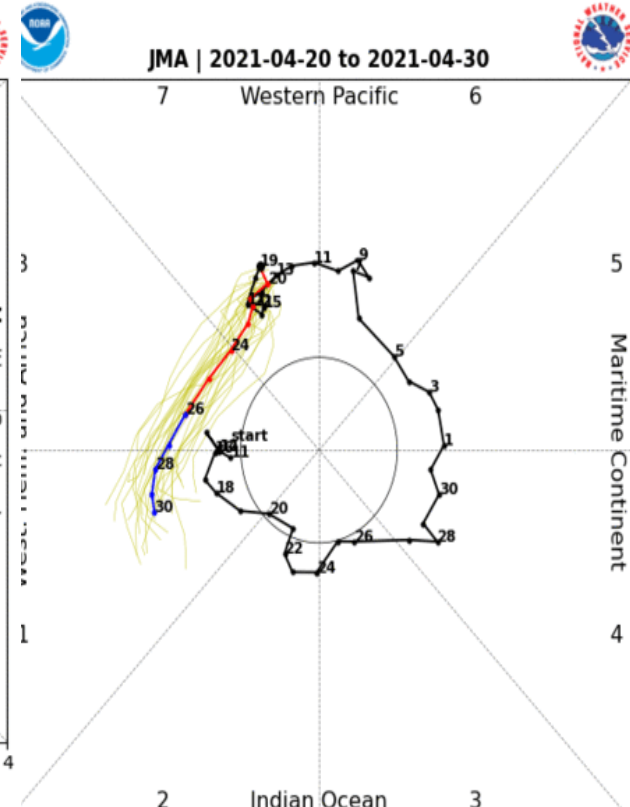
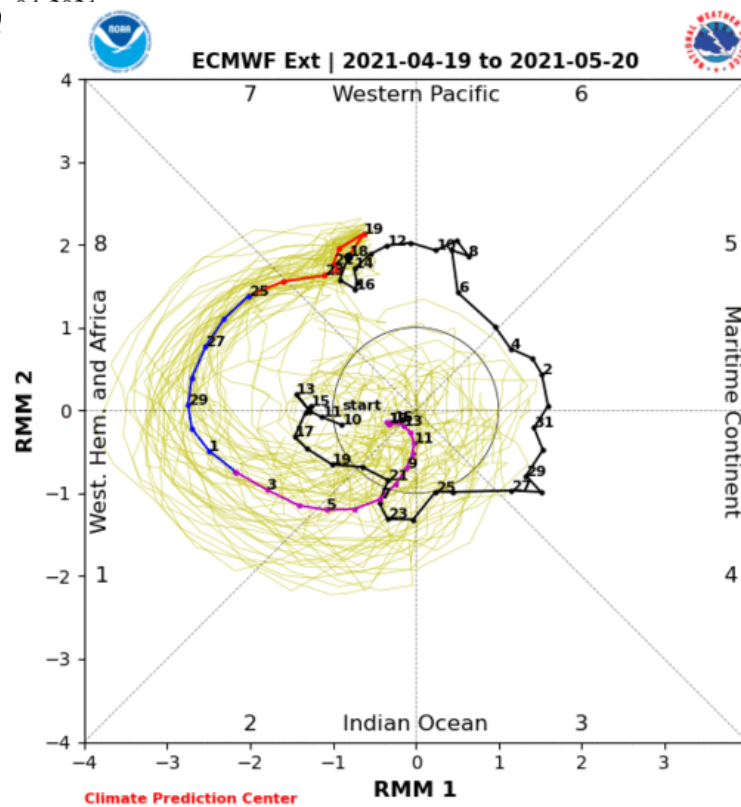
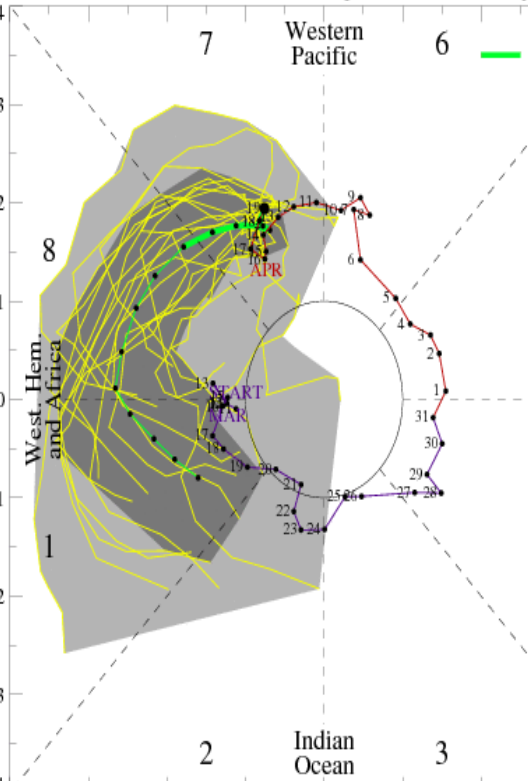
A standard Wave-1 pattern,
anchored by the MJO, in early
April.



The large-scale Wave-1 pattern
is interrupted by tropical cyclone
activity in the West Pacific.

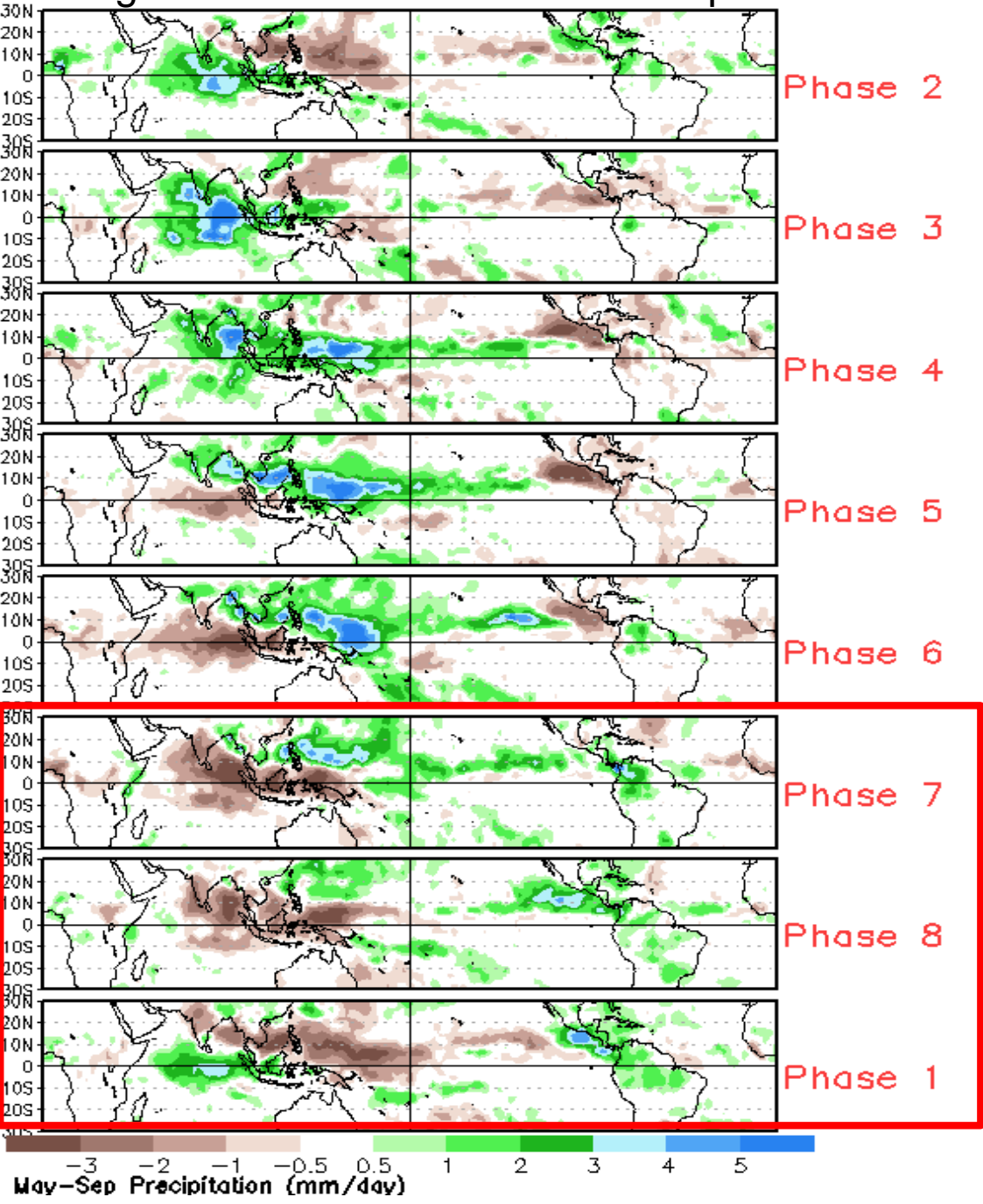
MJO Observation/Forecast

[RMM1, RMM2] forecast for Apr-20-2021 to May



- Models are in good agreement regarding MJO re-emergence over the Indian Ocean during Week-2.
- The ECMWF extended run weakens the MJO in mid-May. However, the ECMWF has been forecasting a similar pattern for the last several runs and is likely biased. I believe the MJO is likely to continue throughout the month of May instead of weakening.

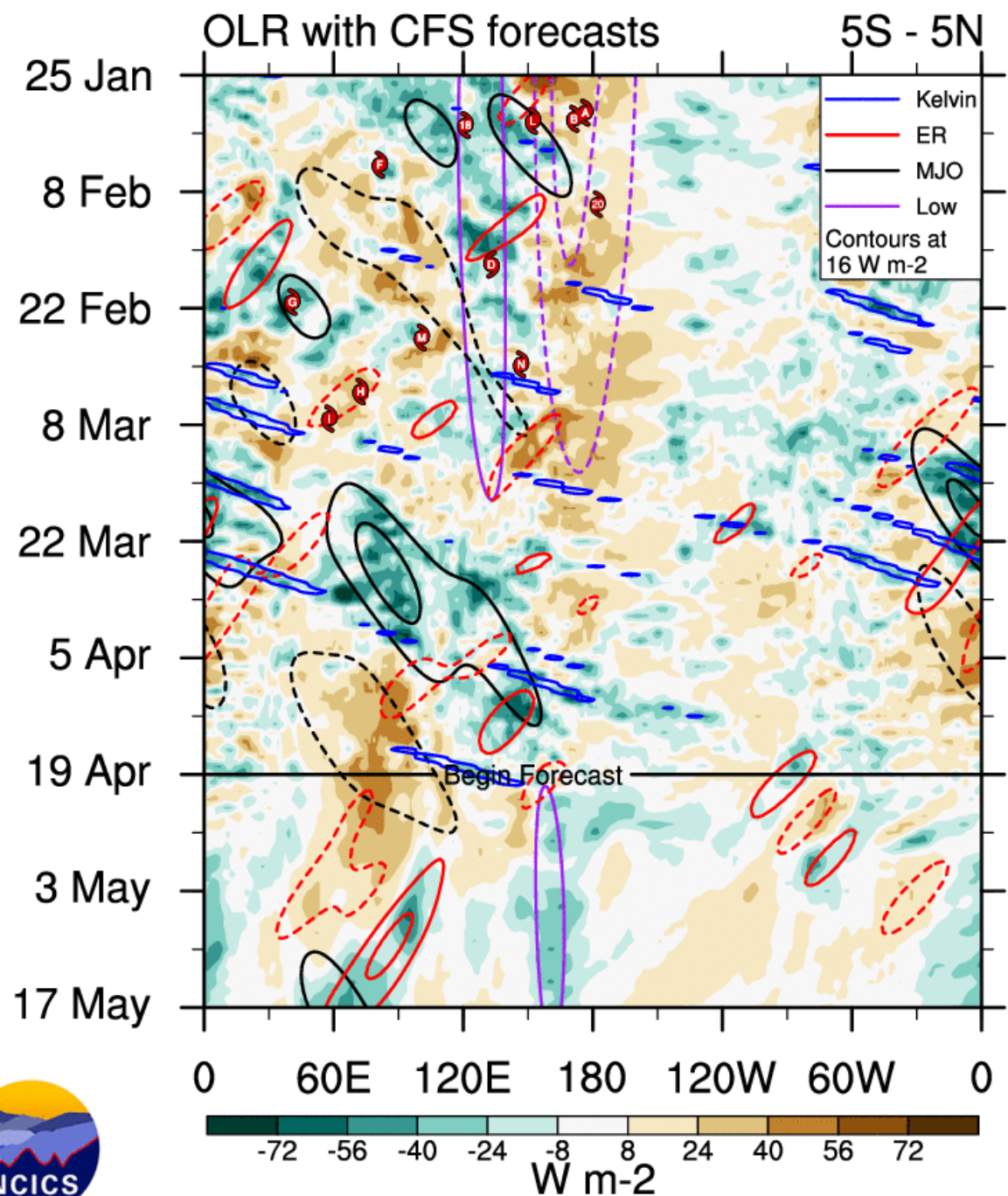
Average Conditions when the MJO is present

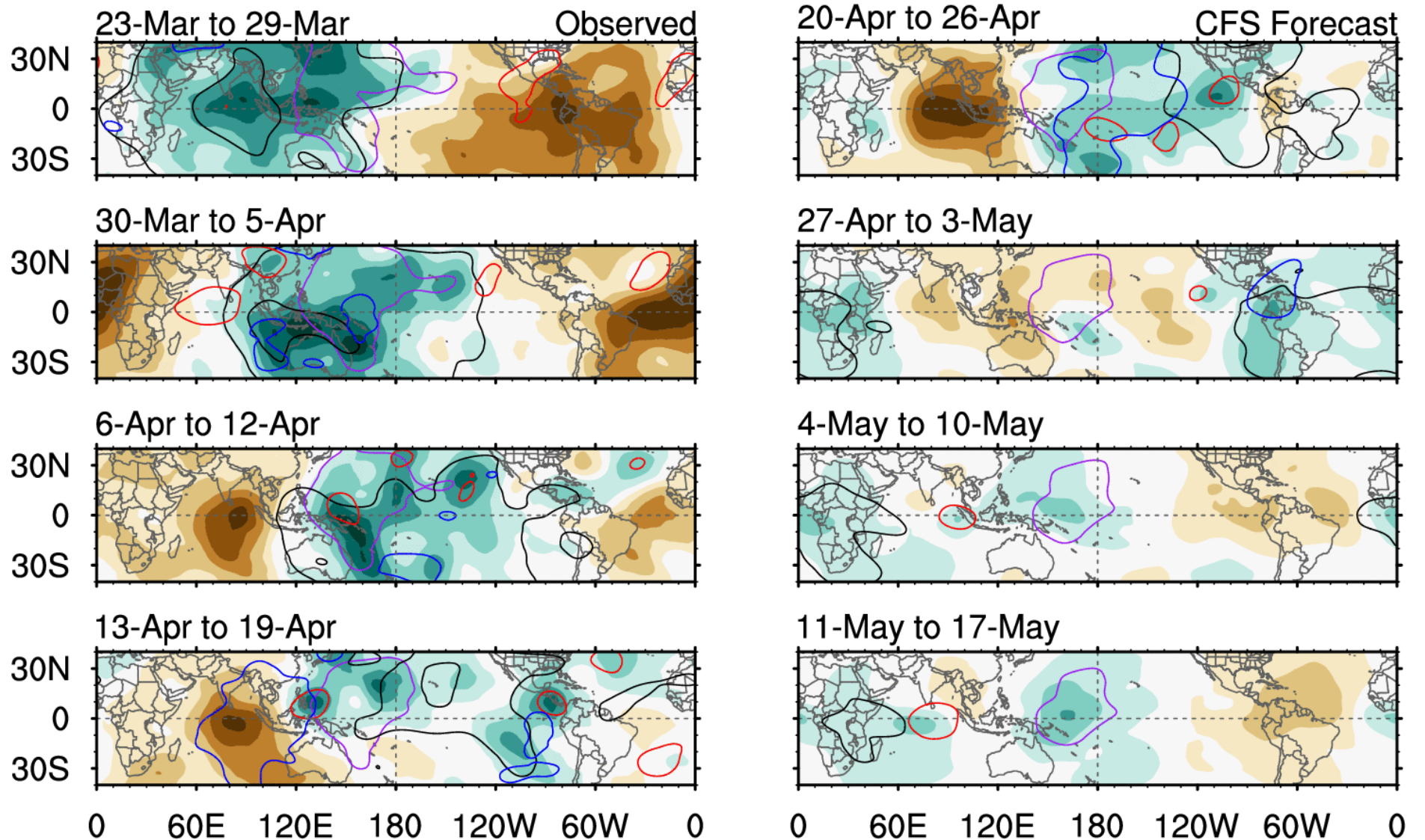


CAVEAT: These panels are representative of robust MJO events.

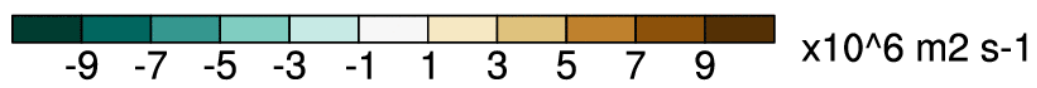
MJO & Kelvin wave activity is apparent in the OLR field since mid-March.

Low frequency contours depict the weakening La Nina conditions.





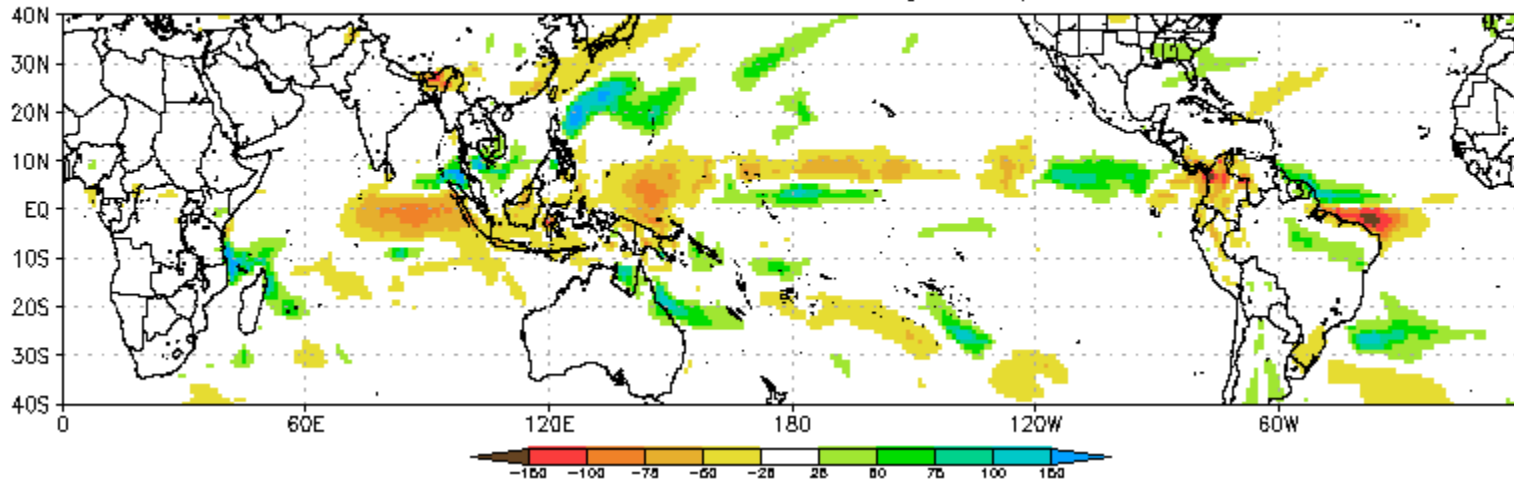
7-day CHI200 with CFS forecasts



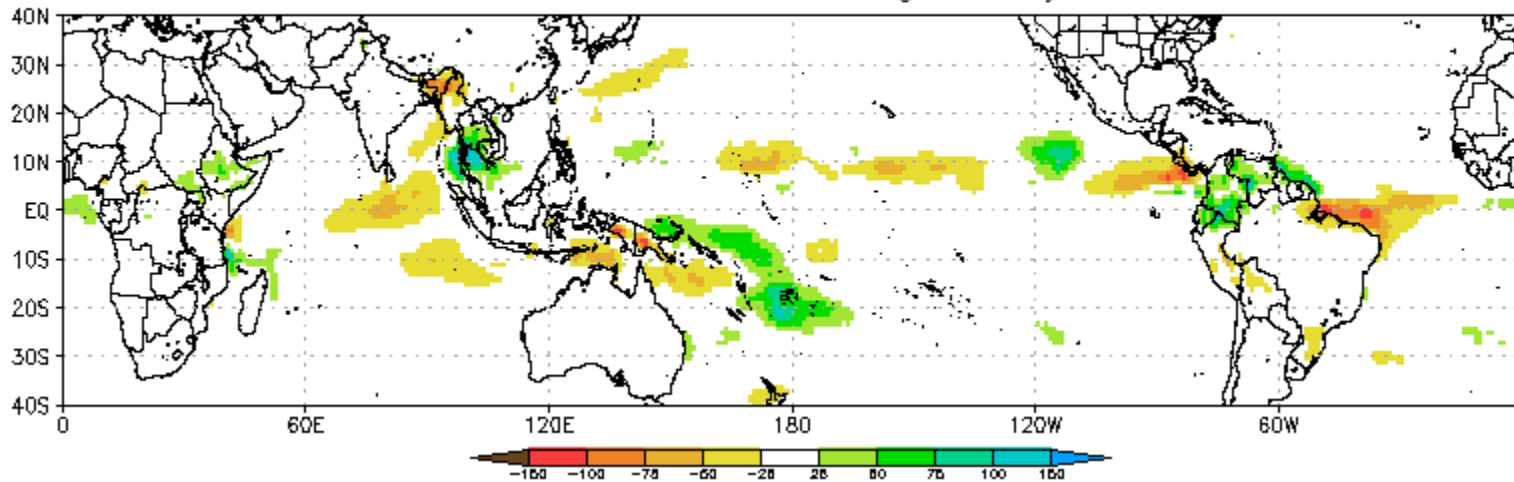
- MJO
- Low
- Kelvin x2
- ER

Contours at -2, -6 x 10⁶ m² s⁻¹

CFS Precipitation Anomalies (mm) Issued 19Apr2021
Week-1 Forecast Ending 27Apr2021

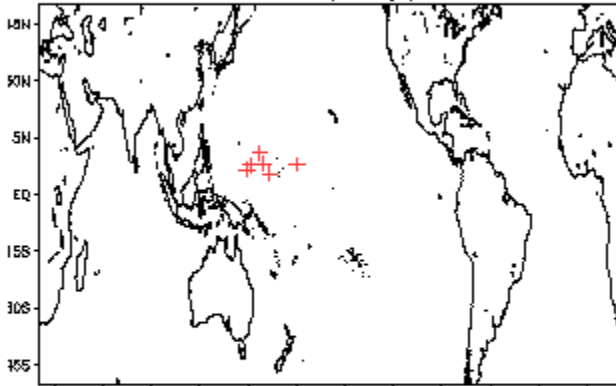


CFS Precipitation Anomalies (mm) Issued 19Apr2021
Week-2 Forecast Ending 04May2021

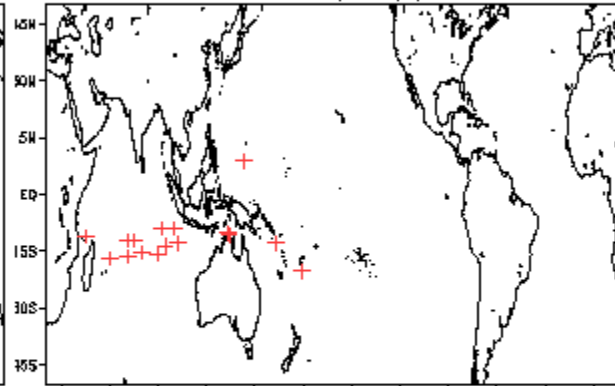


April Tropical Storm Formation by MJO phase

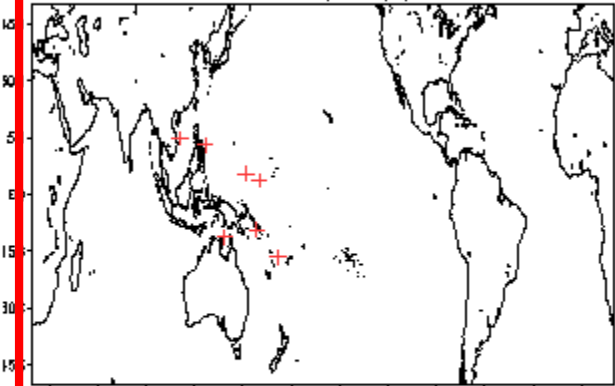
Phase 1 (70 days) 7 storms



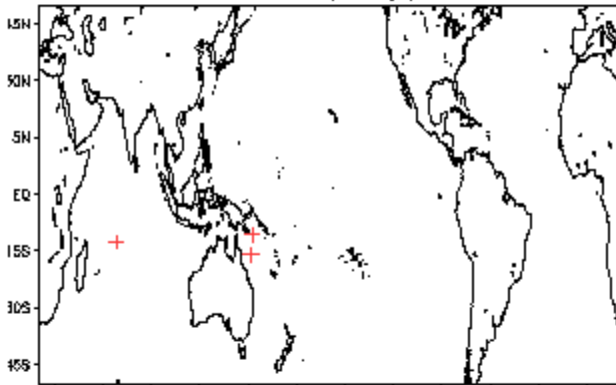
Phase 4 (95 days) 17 storms



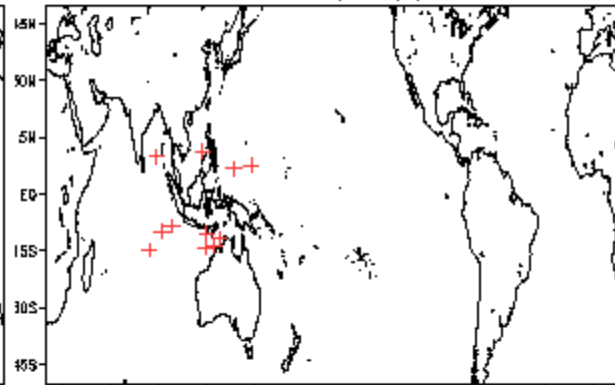
Phase 7 (87 days) 8 storms



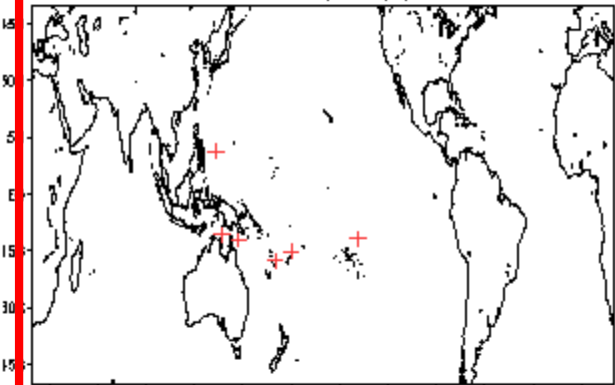
Phase 2 (65 days) 4 storms



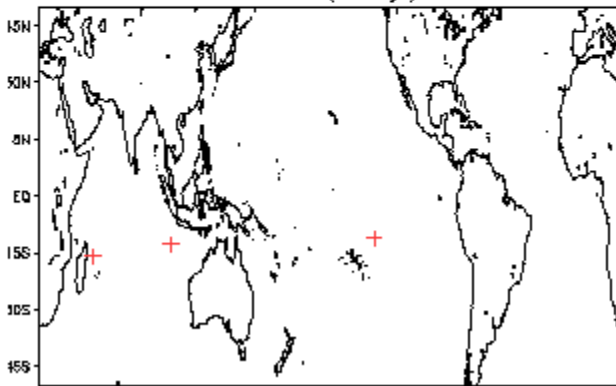
Phase 5 (77 days) 12 storms



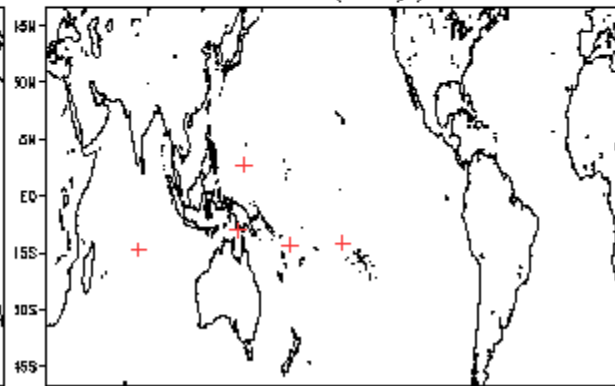
Phase 8 (75 days) 7 storms



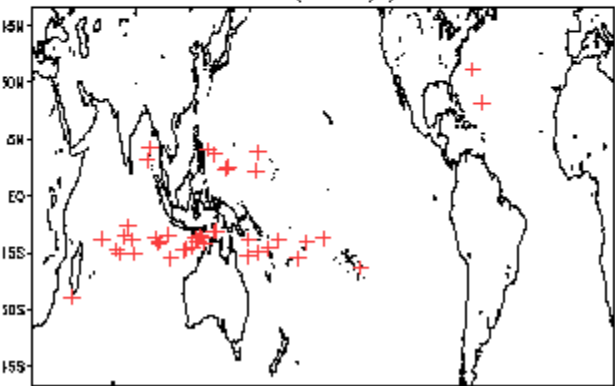
Phase 3 (68 days) 4 storms



Phase 6 (65 days) 8 storms

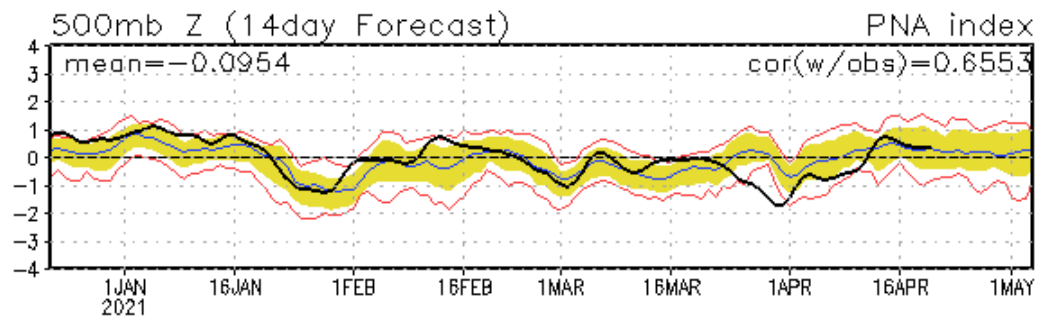
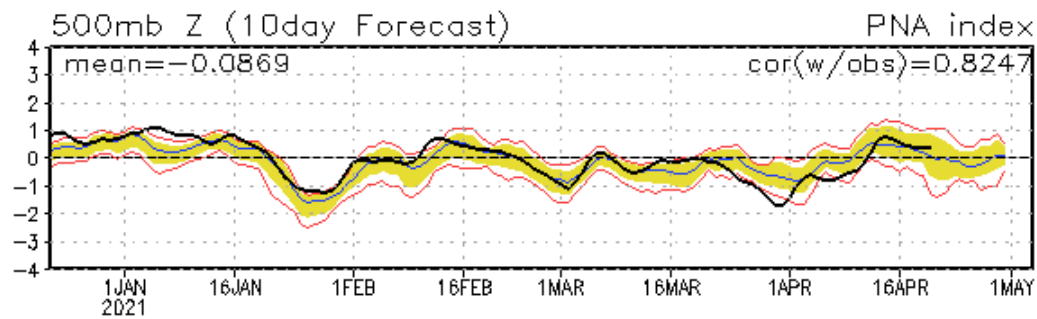
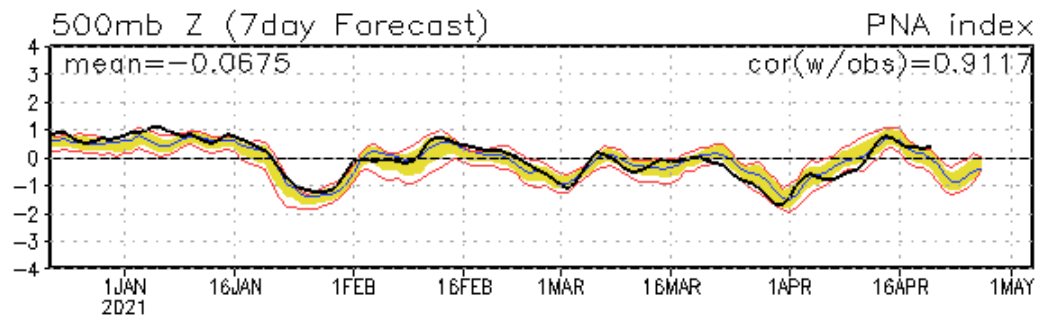
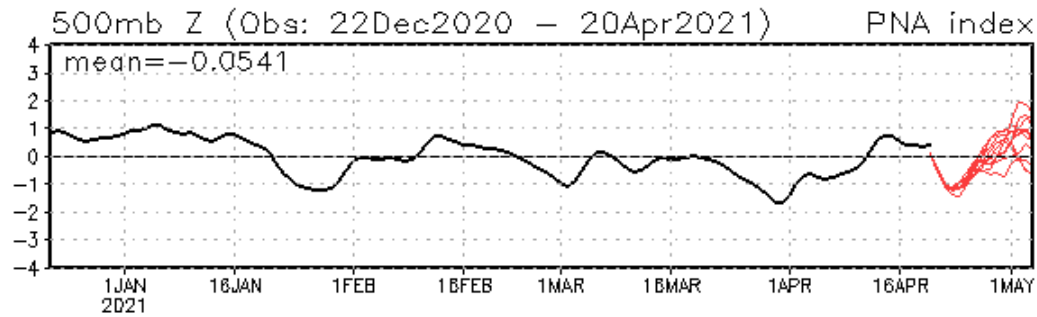


Null (388 days) 43 storms

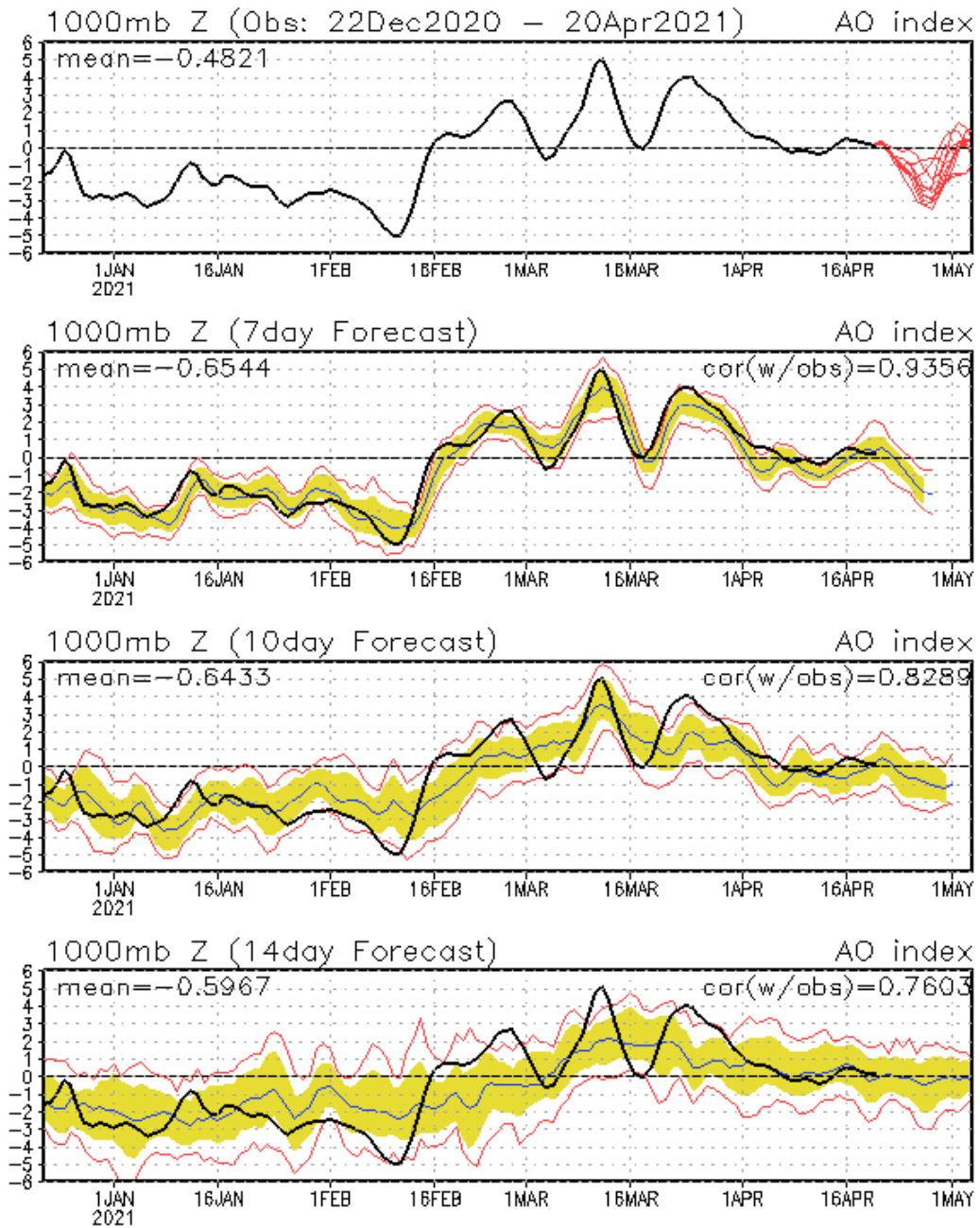


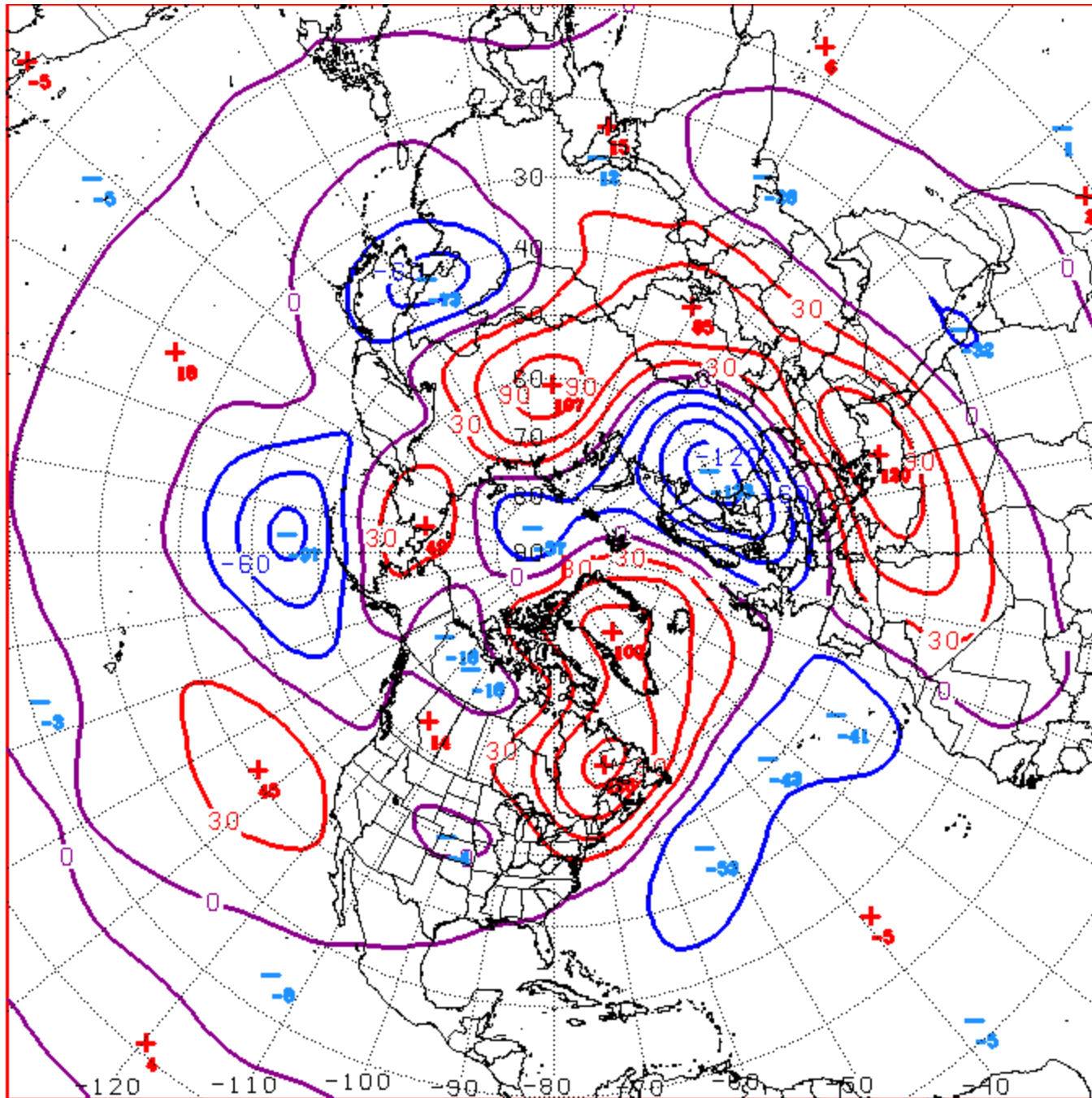
Connections to U.S. Impacts

PNA: Observed & ENSM forecasts



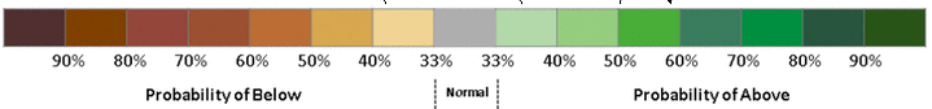
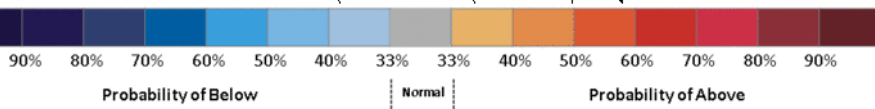
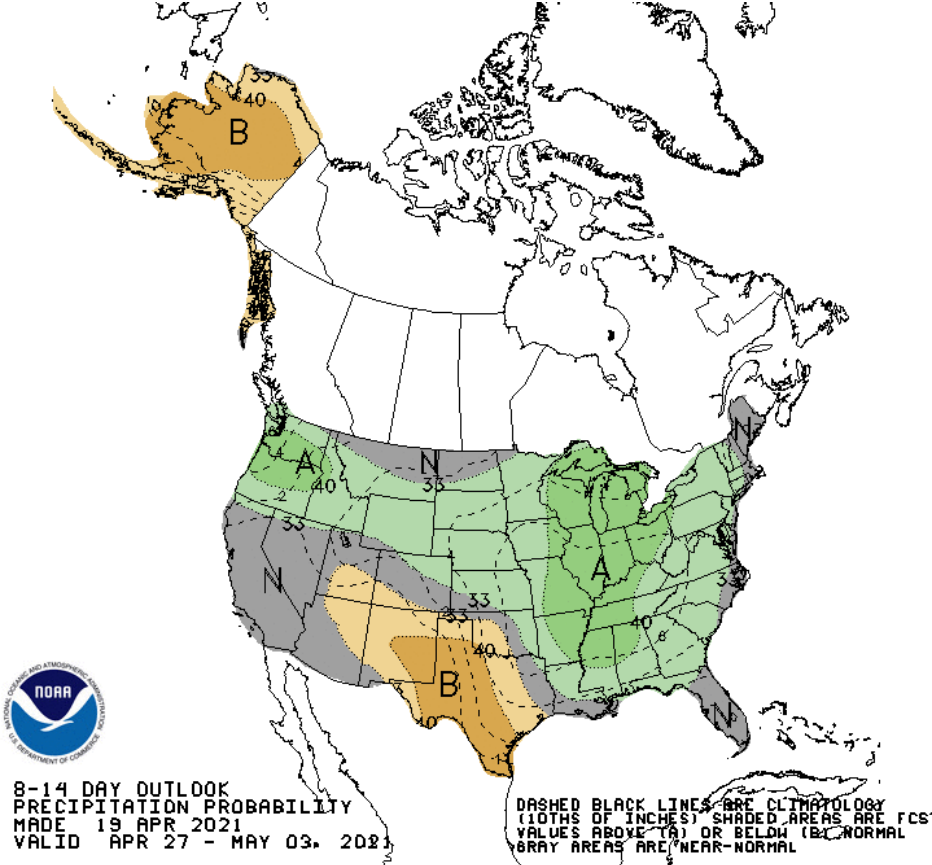
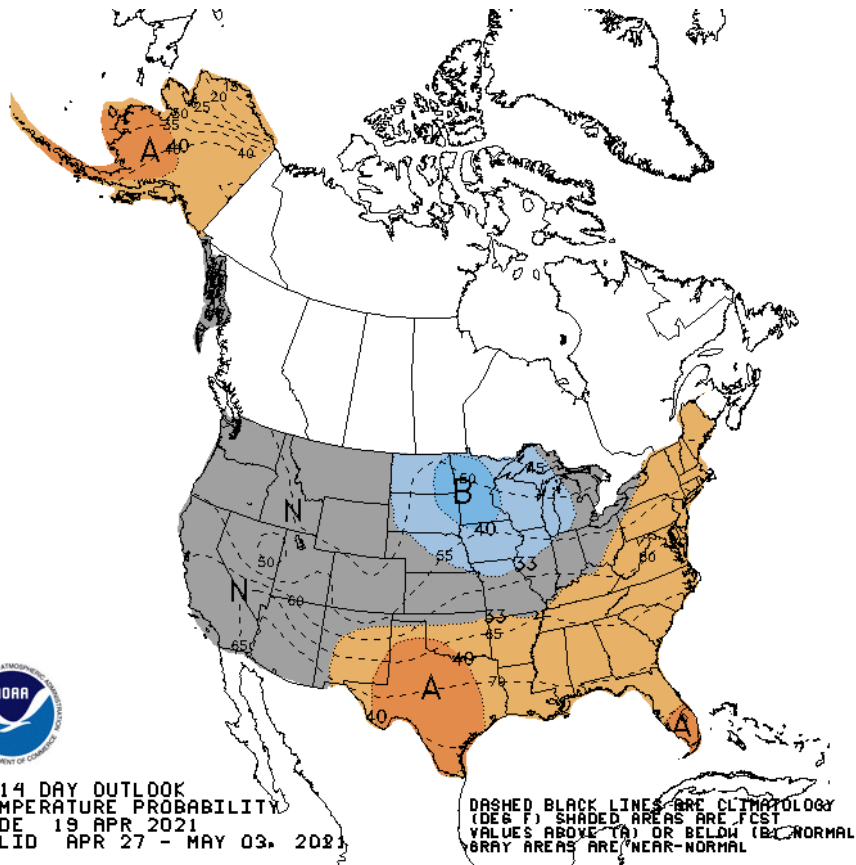
AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM 06Z ENSM
CPC MAP MADE APR 20 2021 1338 UTC CNTD MAY 01 2021

Week 2 – Temperature and Precipitation



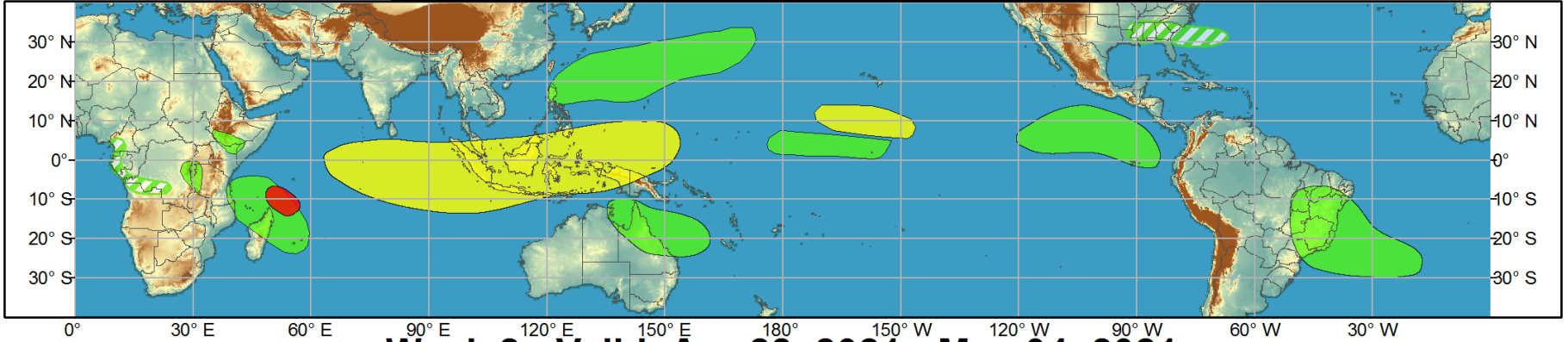
Forecasts issued on April 19, 2021



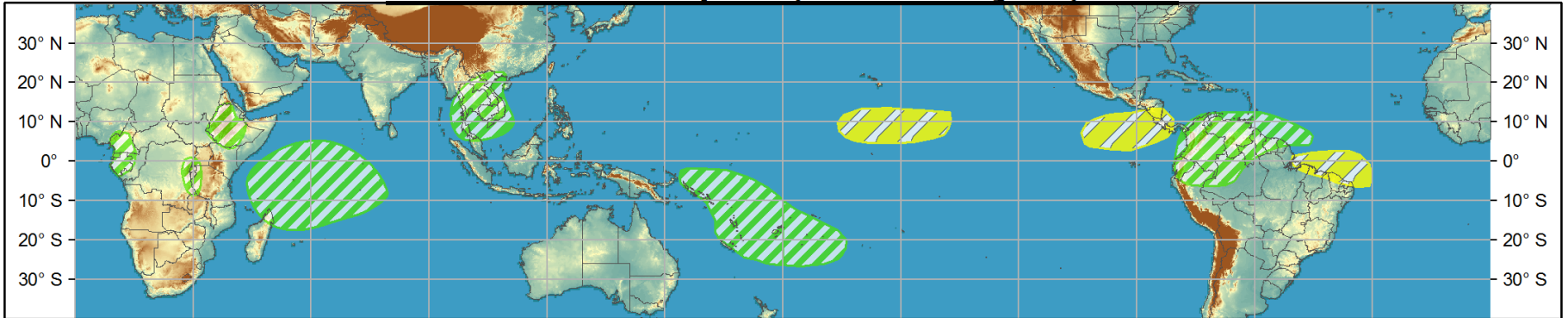
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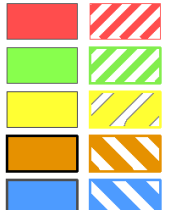


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