

Global Tropics Hazards And Benefits Outlook

3/24/2020

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

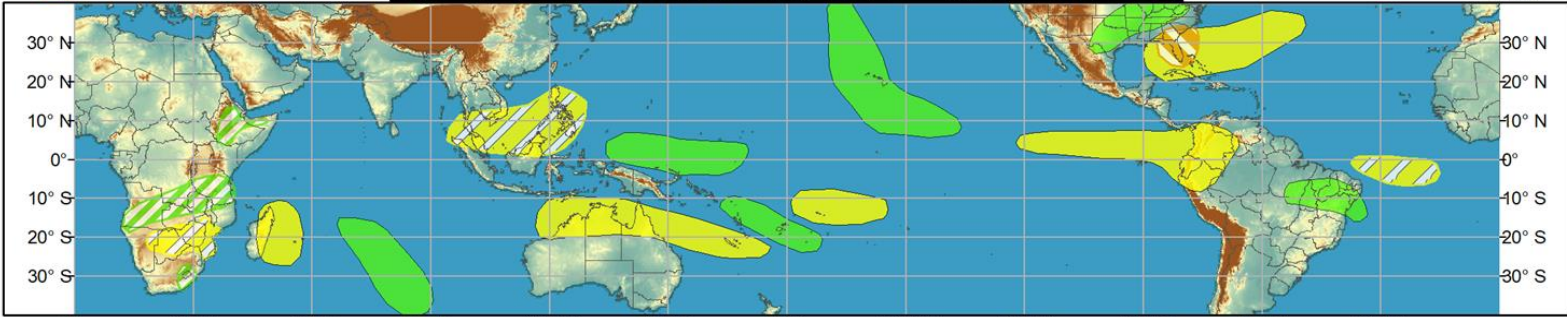
Outlook Review



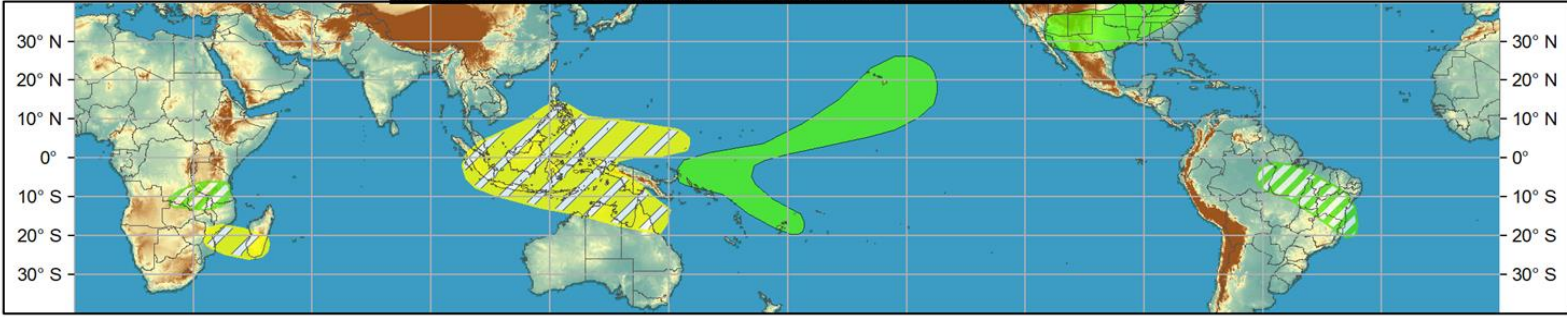
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Mar 18, 2020 - Mar 24, 2020

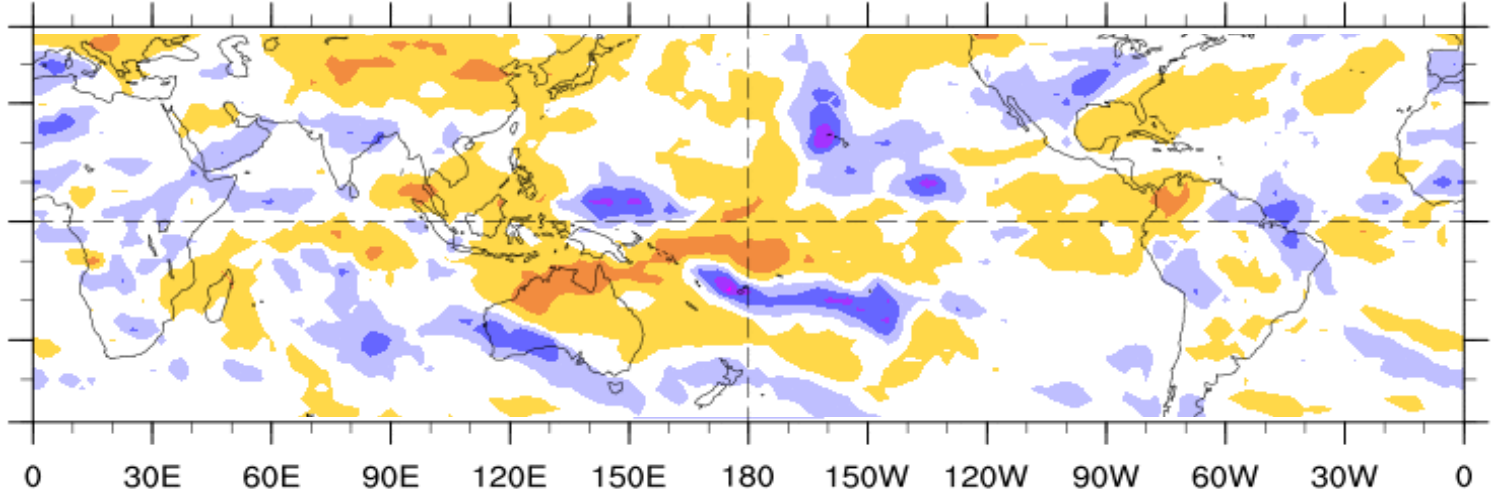


Week 2 - Valid: Mar 18, 2020 - Mar 24, 2020



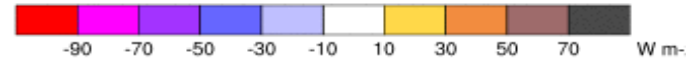
7-Day Average OLR Anomaly

2020/03/16 - 2020/03/22



Cool shading
More clouds/rain

Warm shading
Less clouds/rain



Synopsis of Climate Modes

ENSO: (March 12, 2020 Update)

next update on 9th of Apr.!

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored for the Northern Hemisphere spring 2020 (~65% chance), continuing through summer 2020 (~55% chance).

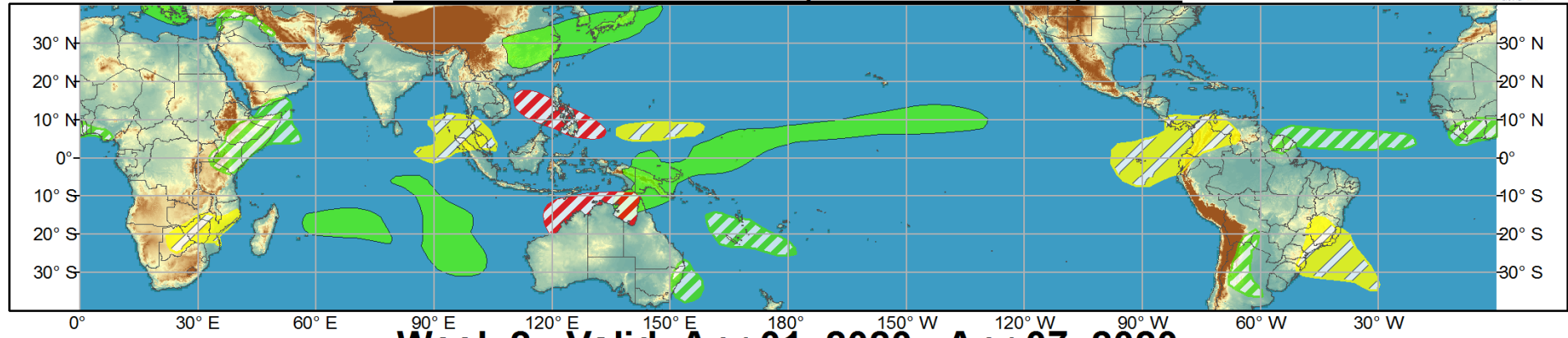
MJO and other subseasonal tropical variability:

- A fast, eastward propagating signal is clearly apparent in the wind field, especially upper levels. Period is ~20 days, which is much faster than a canonical MJO.
- Global convective anomalies do not reflect robust MJO activity. The low frequency state (enhanced I.O. and West Pacific) remain the primary drivers.
- Model forecasts depict a continued rapid eastward progression of the signal in the wind field, with the convective pattern remaining fairly stationary.
- Given the lack of a coherent response to the fast intraseasonal signal in the tropical convective field and the time of year, the MJO is not anticipated to strongly impact the midlatitude circulation.

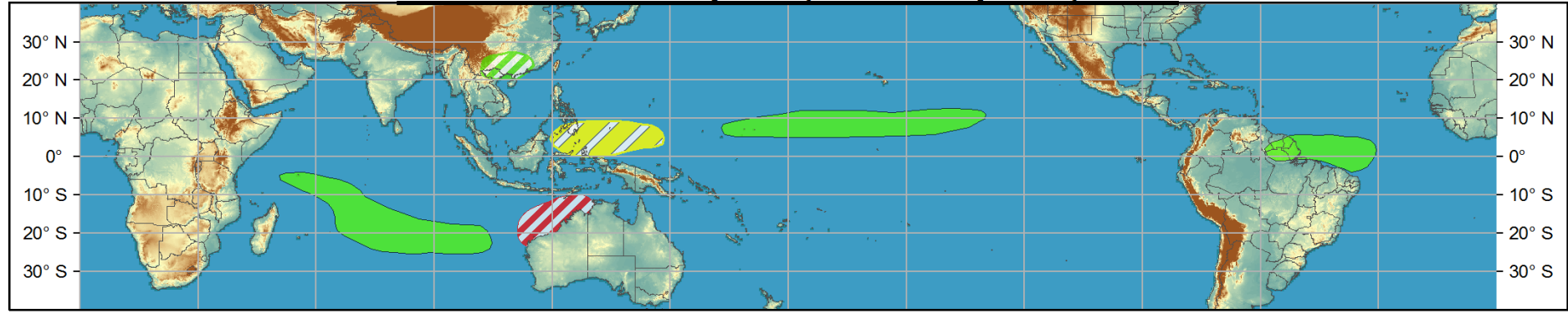


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Mar 25, 2020 - Mar 31, 2020



Week 2 - Valid: Apr 01, 2020 - Apr 07, 2020



Produced: 03/24/2020
Forecaster: Allgood

| | 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. |

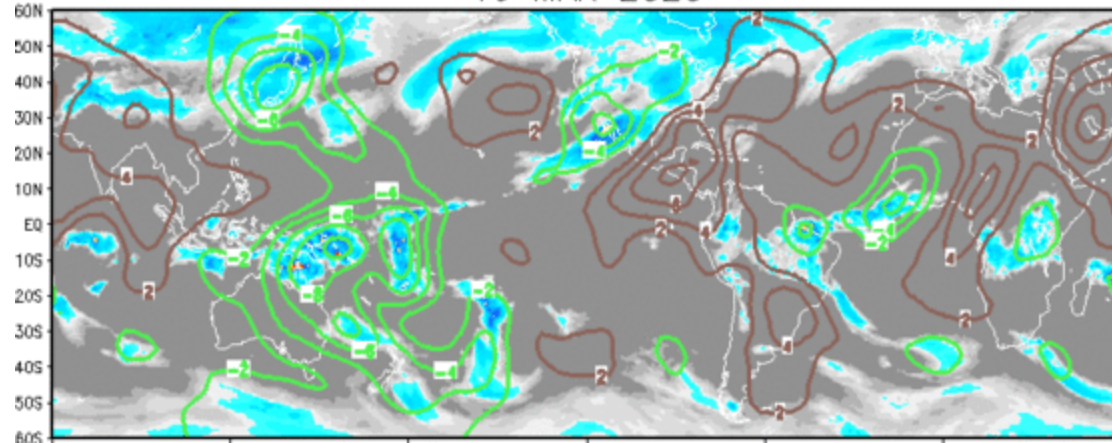
Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



IR Satellite & 200-hpa Velocity Potential Anomalies

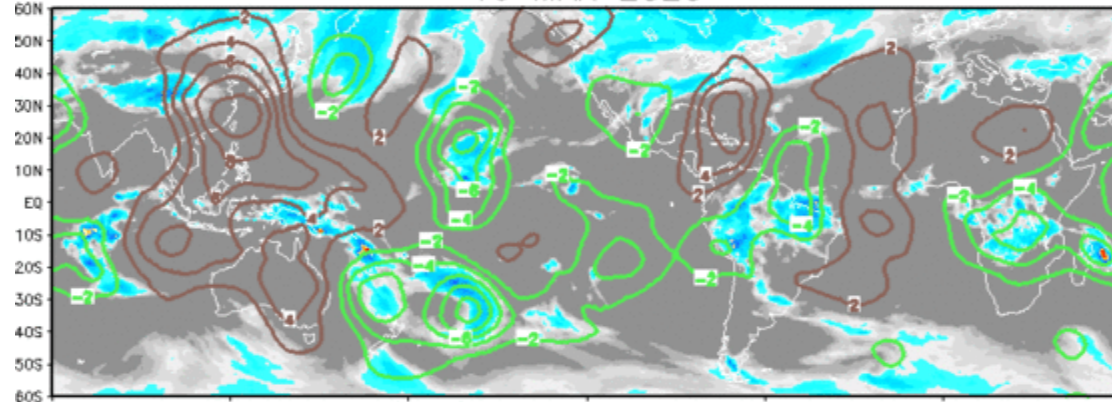
Green: Enhanced Divergence Brown: Enhanced Convergence

10 MAR 2020



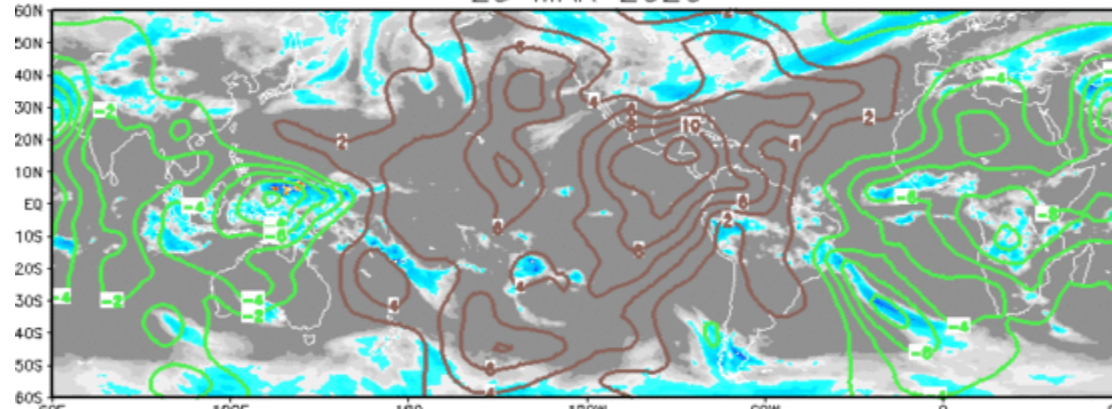
The upper-level pattern became more chaotic as the enhanced signal raced to the Pacific.

16 MAR 2020



The pattern remained fairly weak. Note the fast movement of the enhanced “envelope” across the Pacific.

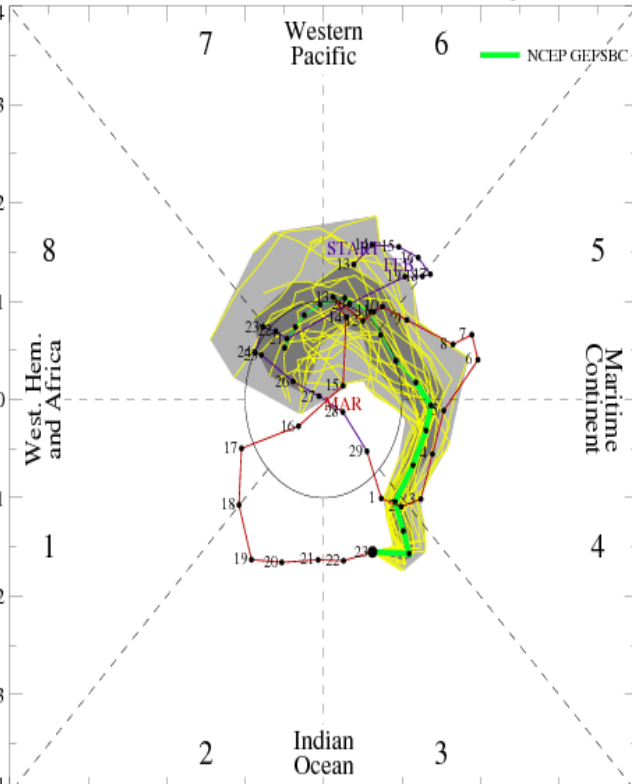
23 MAR 2020



Similar to the beginning of March, the signal has become more coherent as the enhanced envelope returned to the Western Hemisphere/I.O.

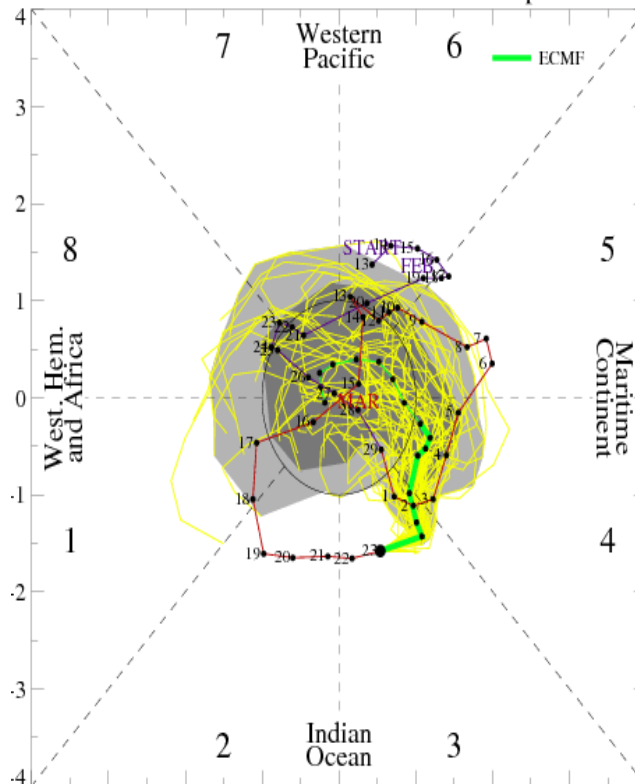
MJO Observation/Forecast

[RMM1, RMM2] forecast for Mar-24-2020 to Apr-07-2020



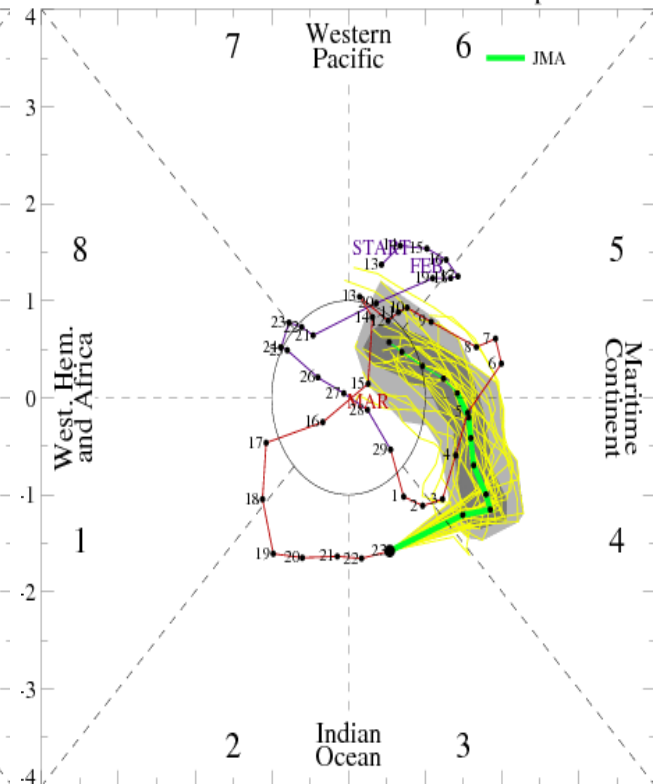
GEFS

MJO Index Forecast for 24Mar2020-07Apr2020



ECMWF

MJO Index Forecast for 24Mar2020-01Apr2020

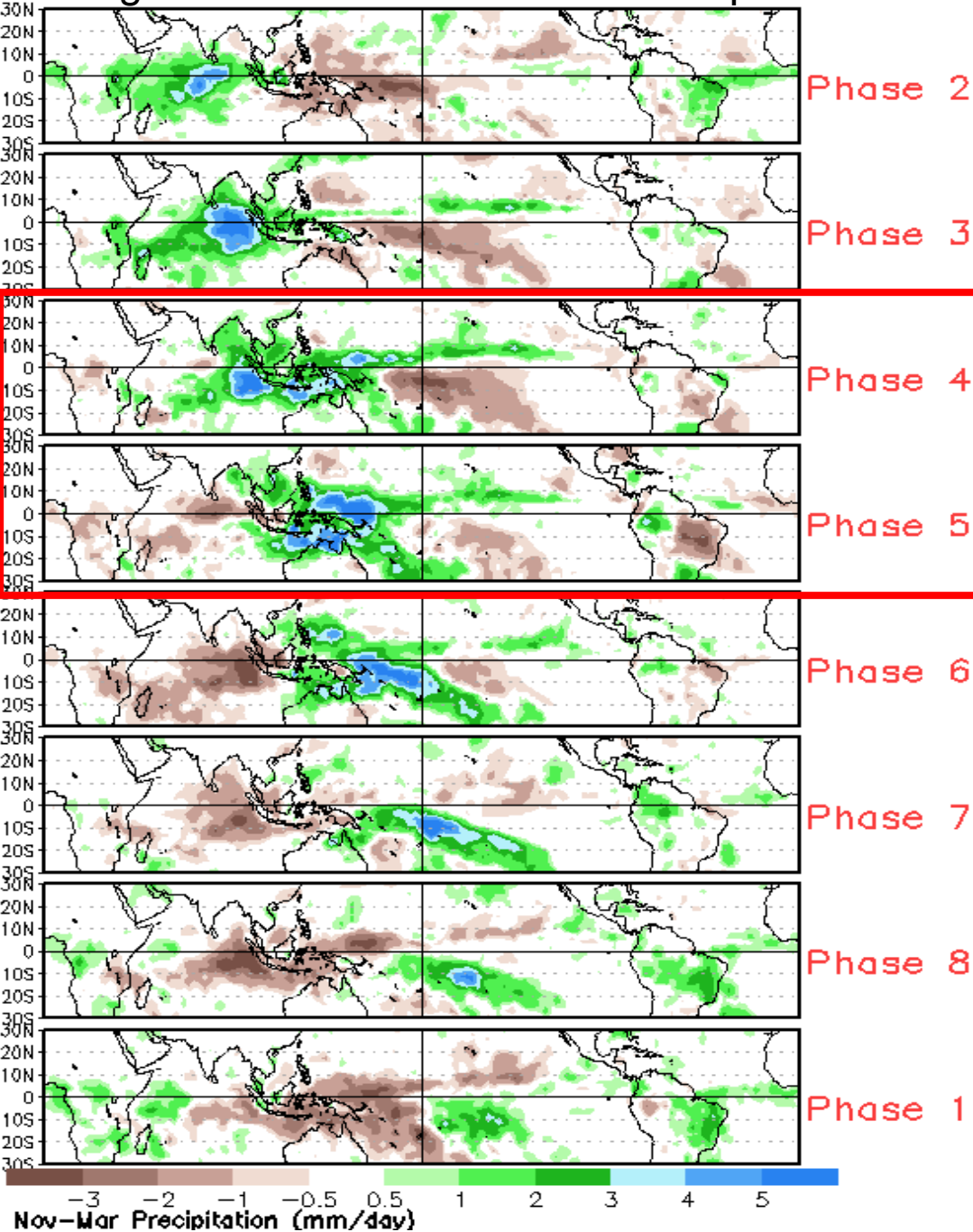


JMA

All models depict eastward propagation of the signal, somewhat consistent with MJO activity.

The ECMWF is the fastest and weakest, consistent with an event not well coupled to convection.

Average Conditions when the MJO is present



Week-1: Phases 4/5

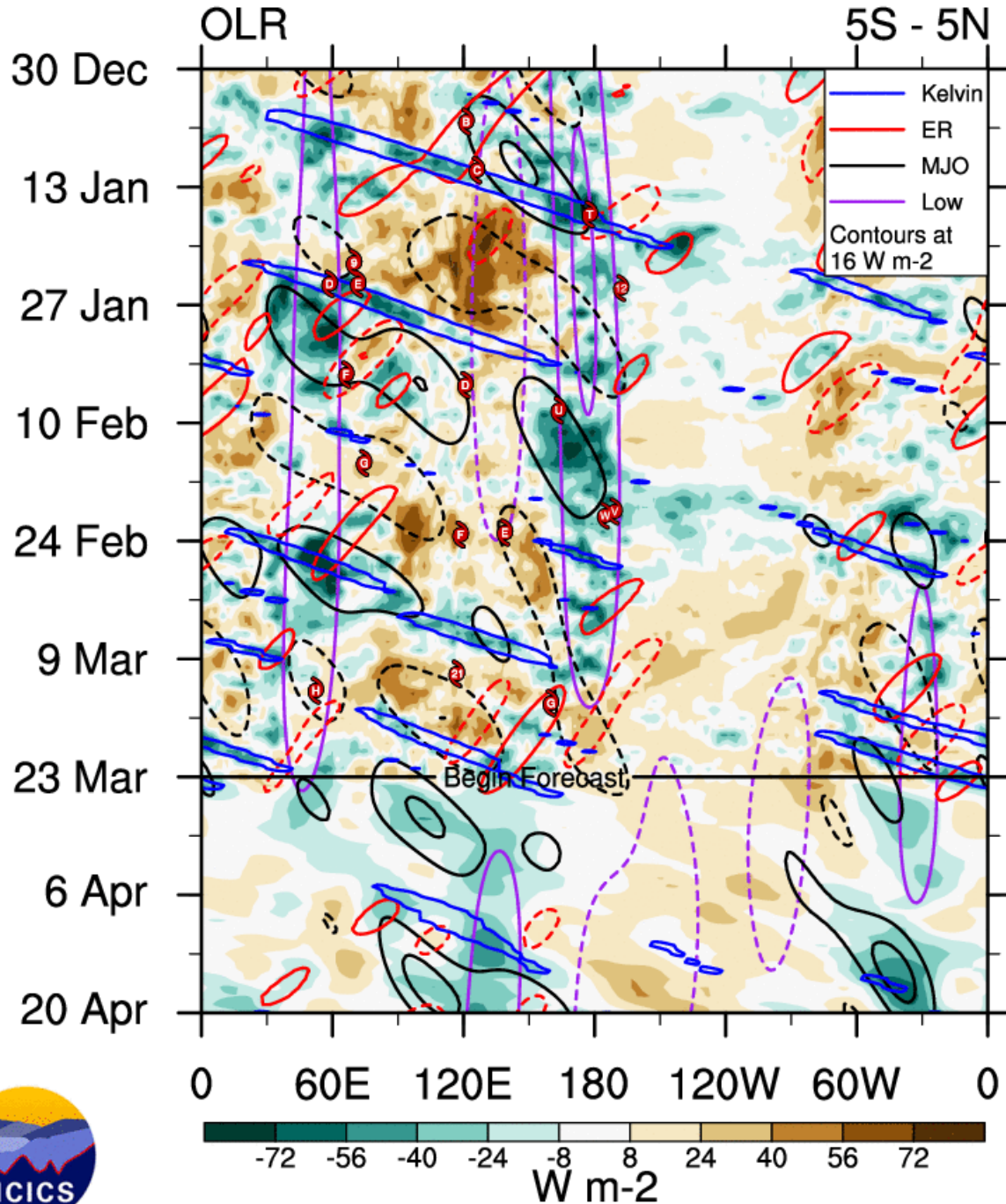
Dynamical model forecasts are similar over the Pacific, NOT the I.O.

CAVEAT: These panels are representative of robust MJO events.

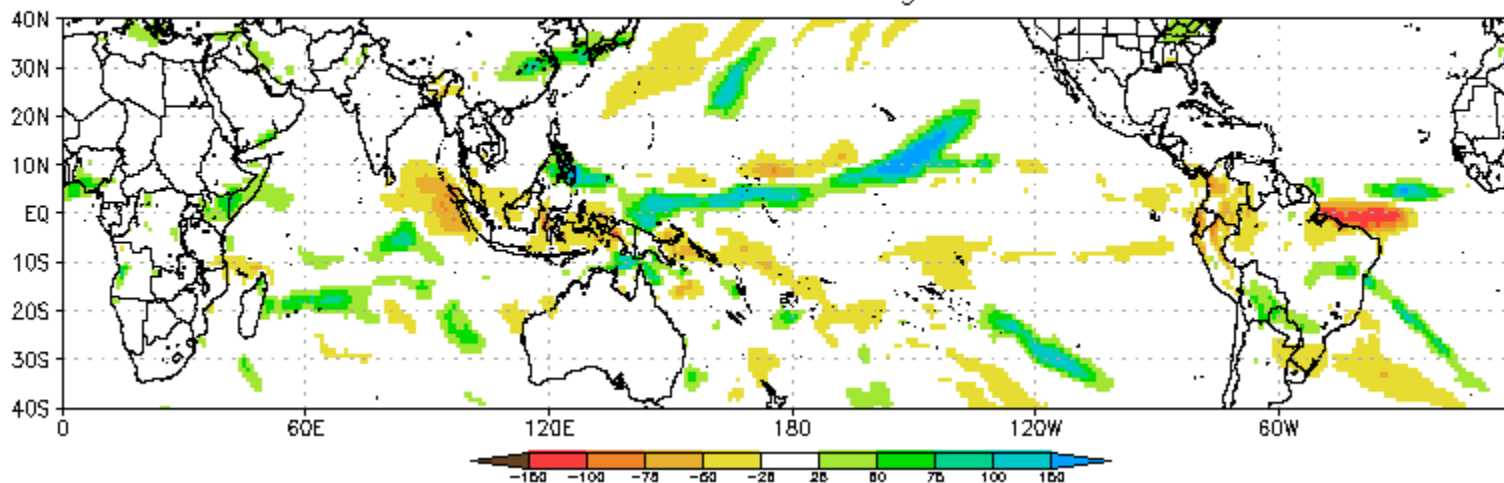
MJO band shows up with the suppressed signal, but there are no robust enhanced convective anomalies.

Kelvin wave activity is apparent.

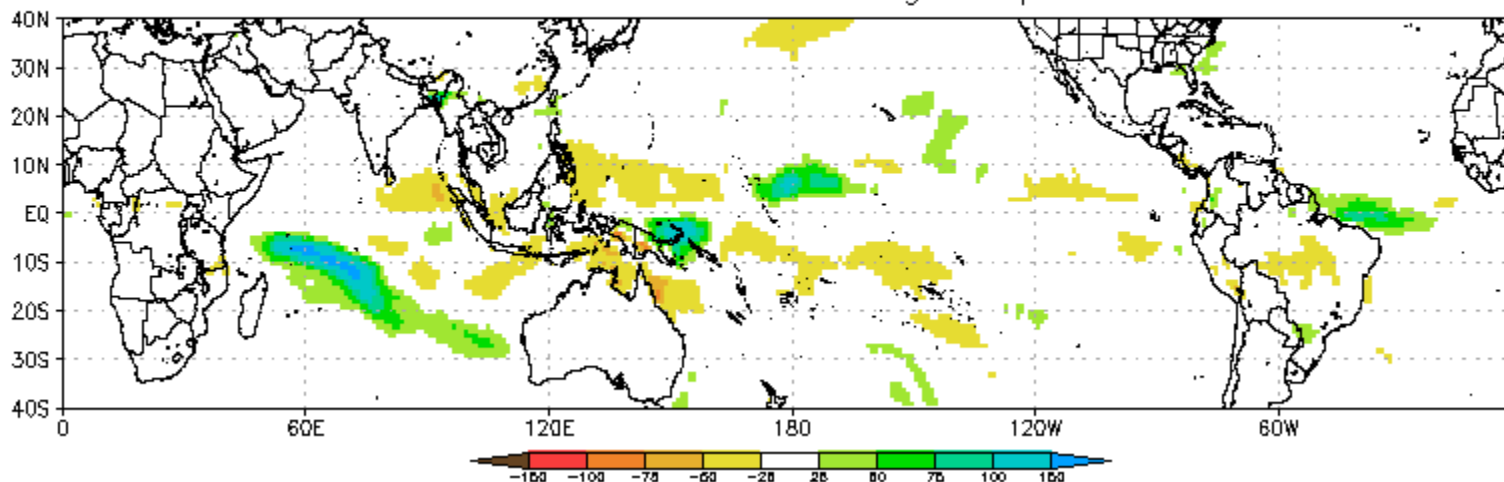
Low frequency signal over the Pacific weakened during March (moved off-equator)



CFS Precipitation Anomalies (mm) Issued 23Mar2020
Week-1 Forecast Ending 31Mar2020

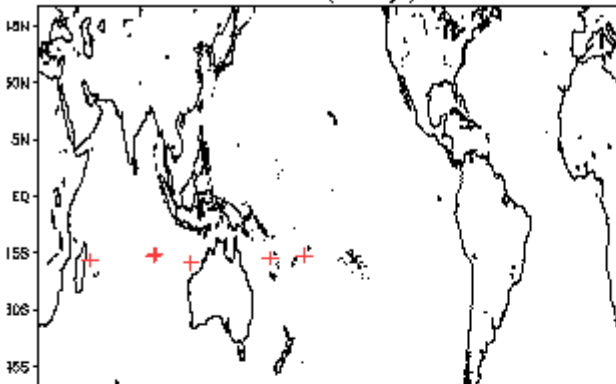


CFS Precipitation Anomalies (mm) Issued 23Mar2020
Week-2 Forecast Ending 07Apr2020

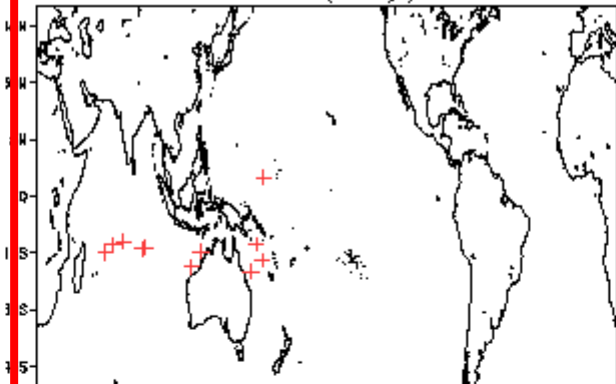


March Tropical Storm Formation by MJO phase

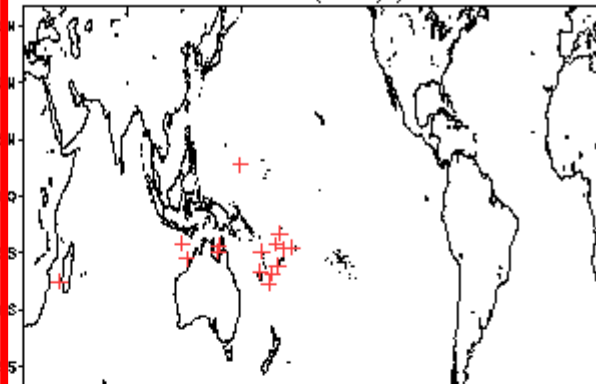
Phase 1 (98 days) 7 storms



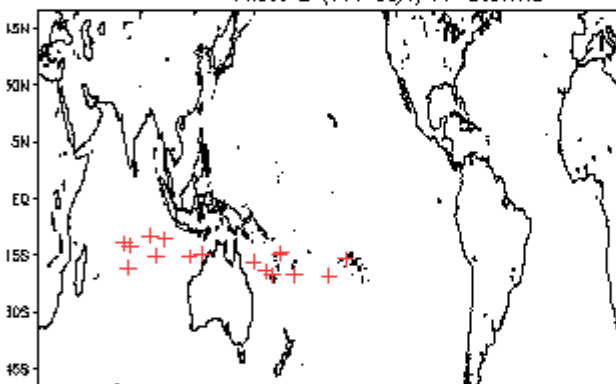
Phase 4 (72 days) 12 storms



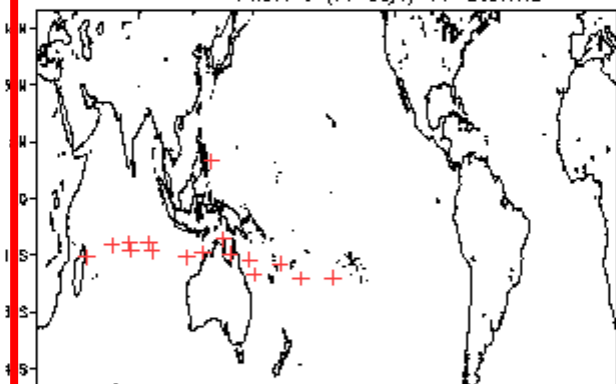
Phase 7 (81 days) 16 storms



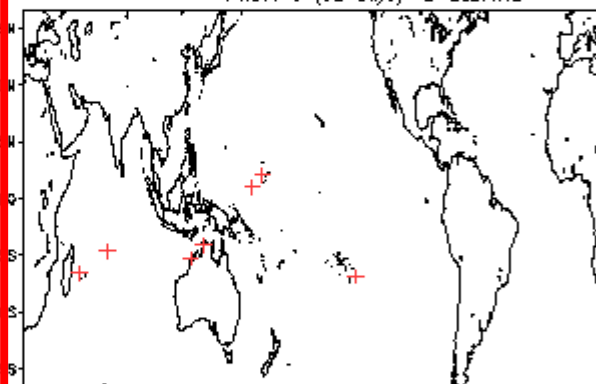
Phase 2 (111 days) 17 storms



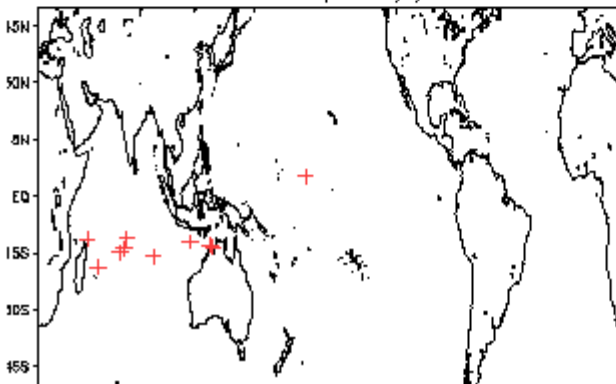
Phase 5 (77 days) 17 storms



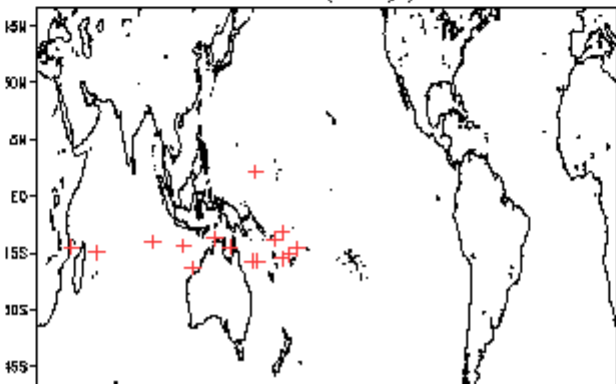
Phase 8 (92 days) 8 storms



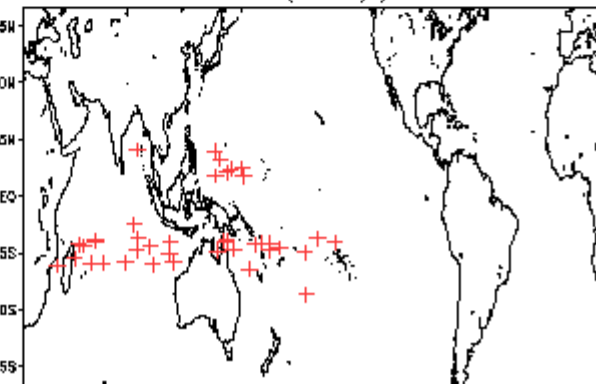
Phase 3 (108 days) 11 storms



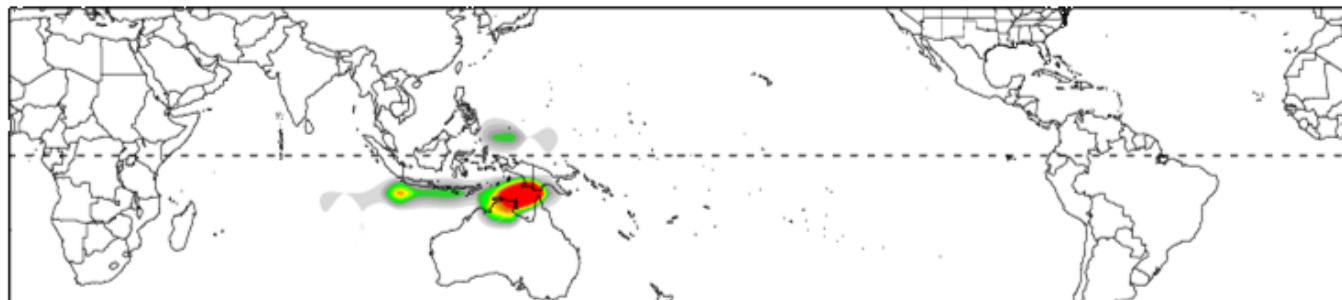
Phase 6 (78 days) 18 storms



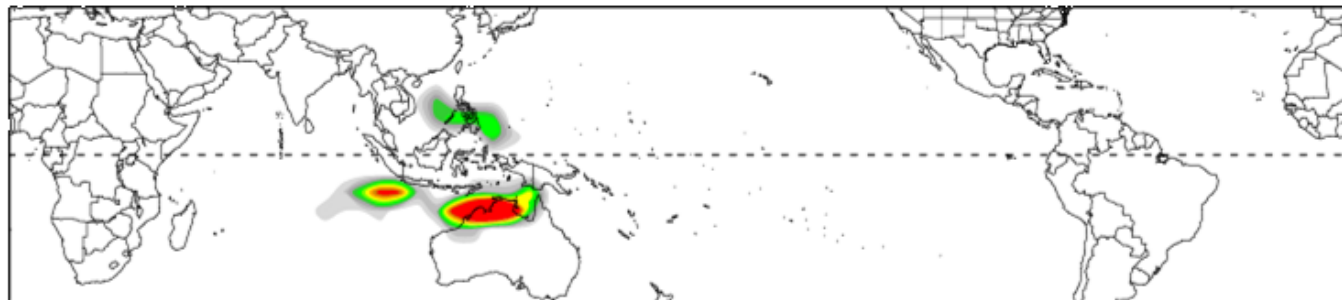
Null (322 days) 40 storms



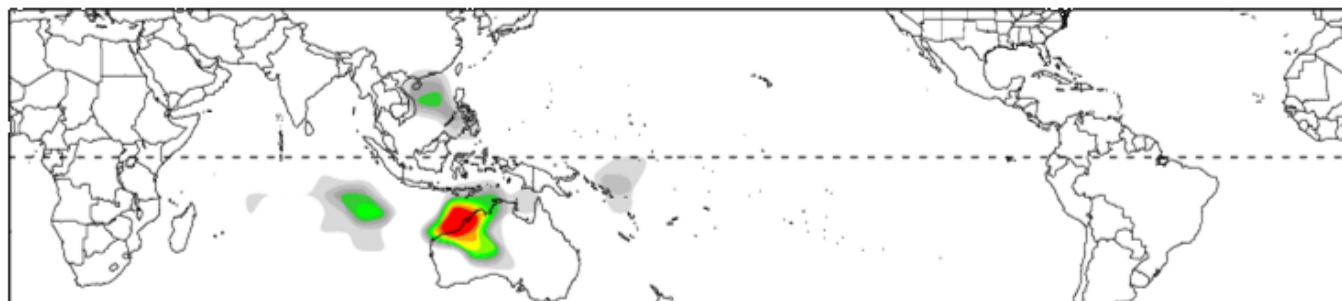
Days 1-4



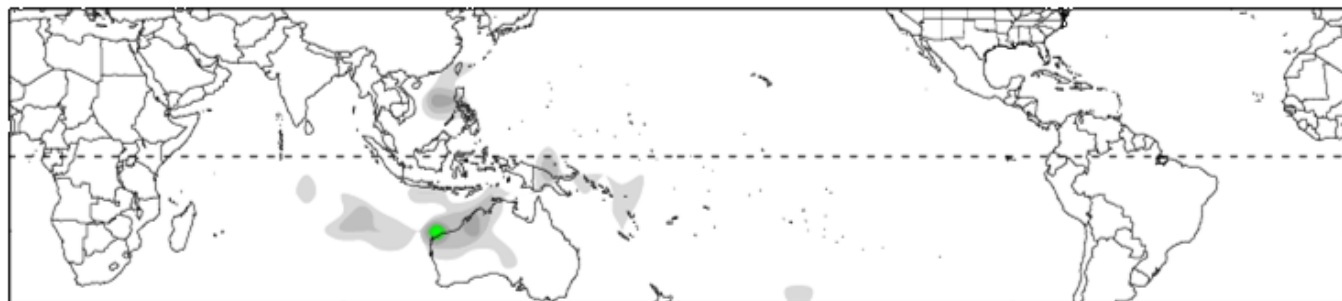
Day 5-8



Day 9-12

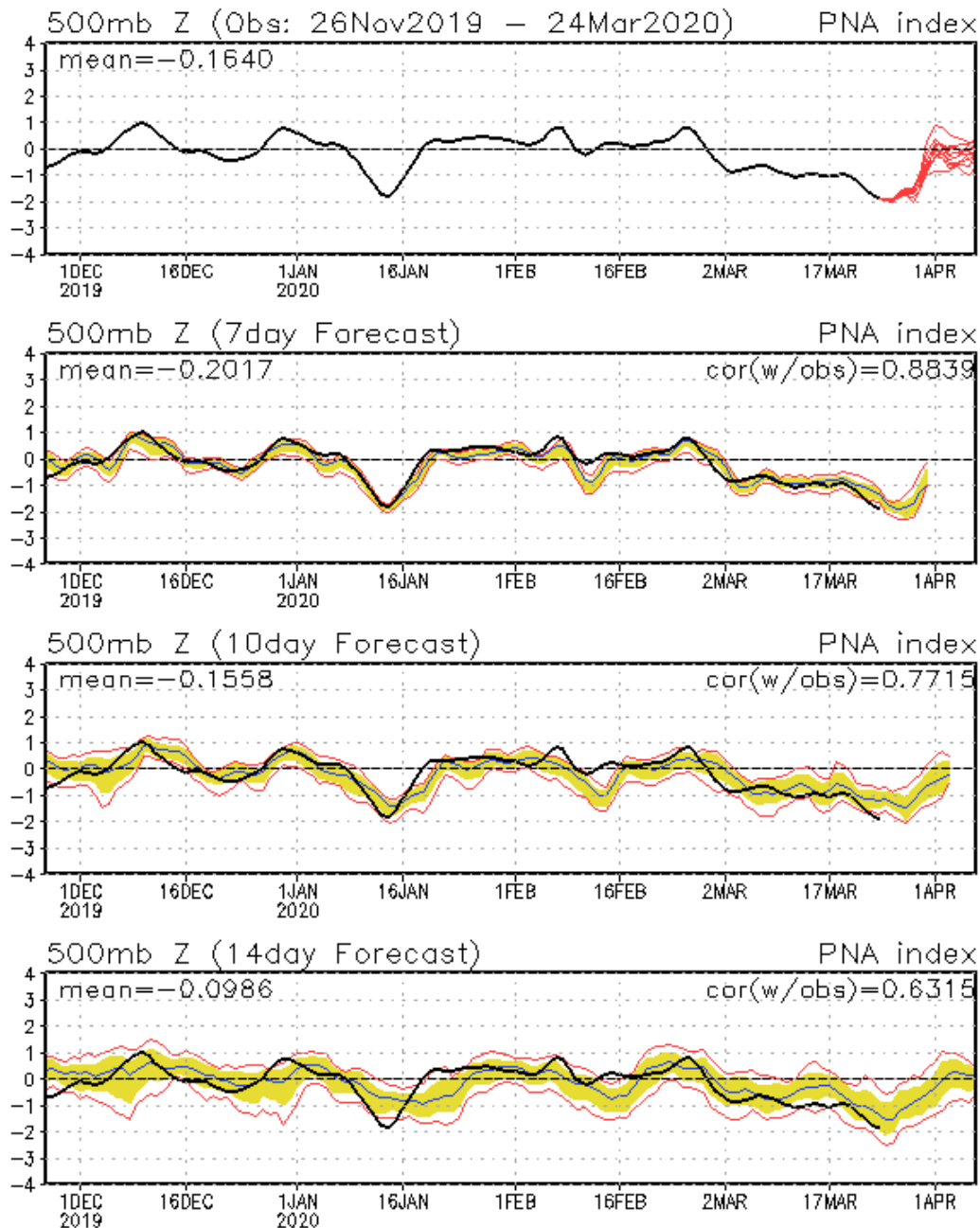


Day 13-15

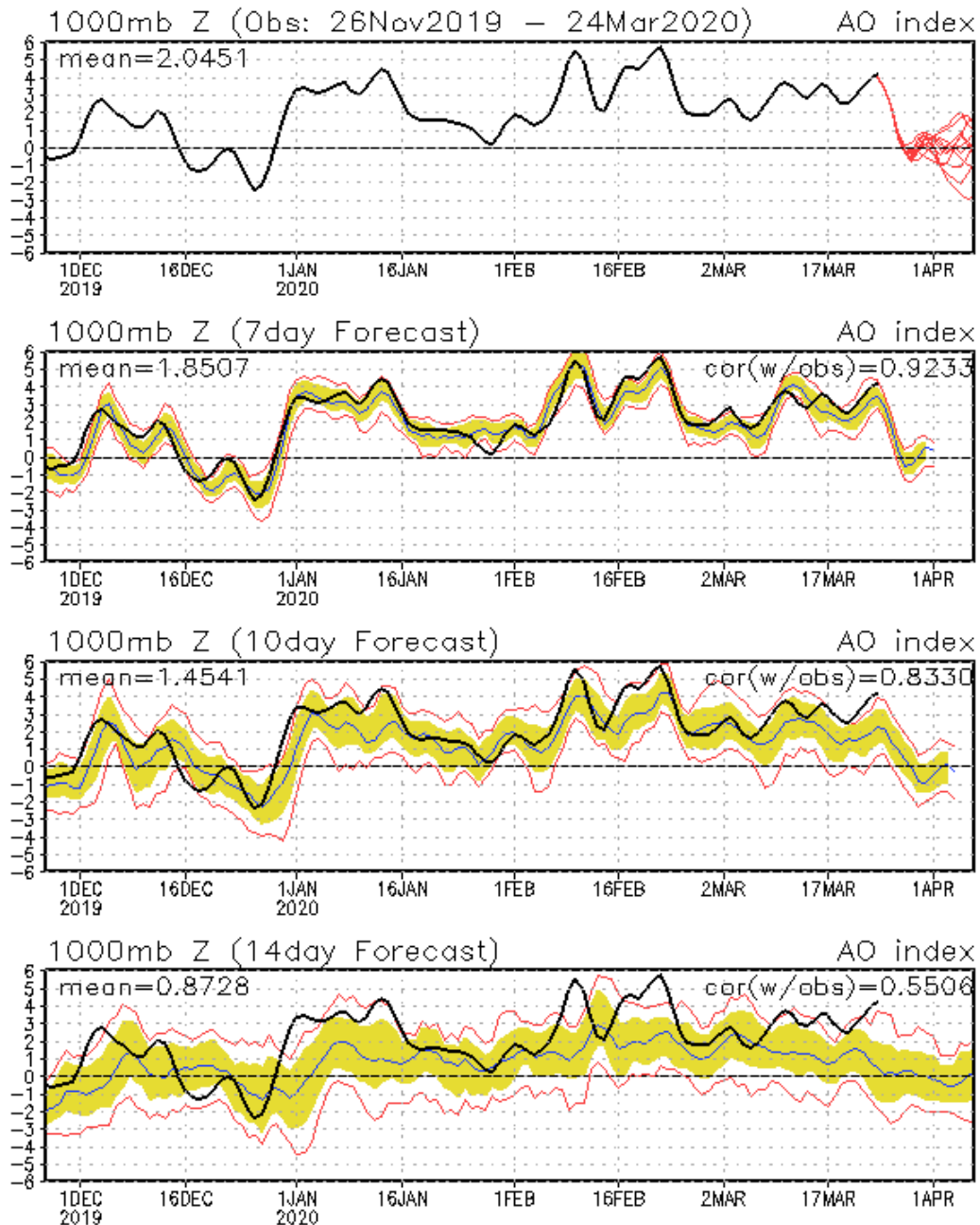


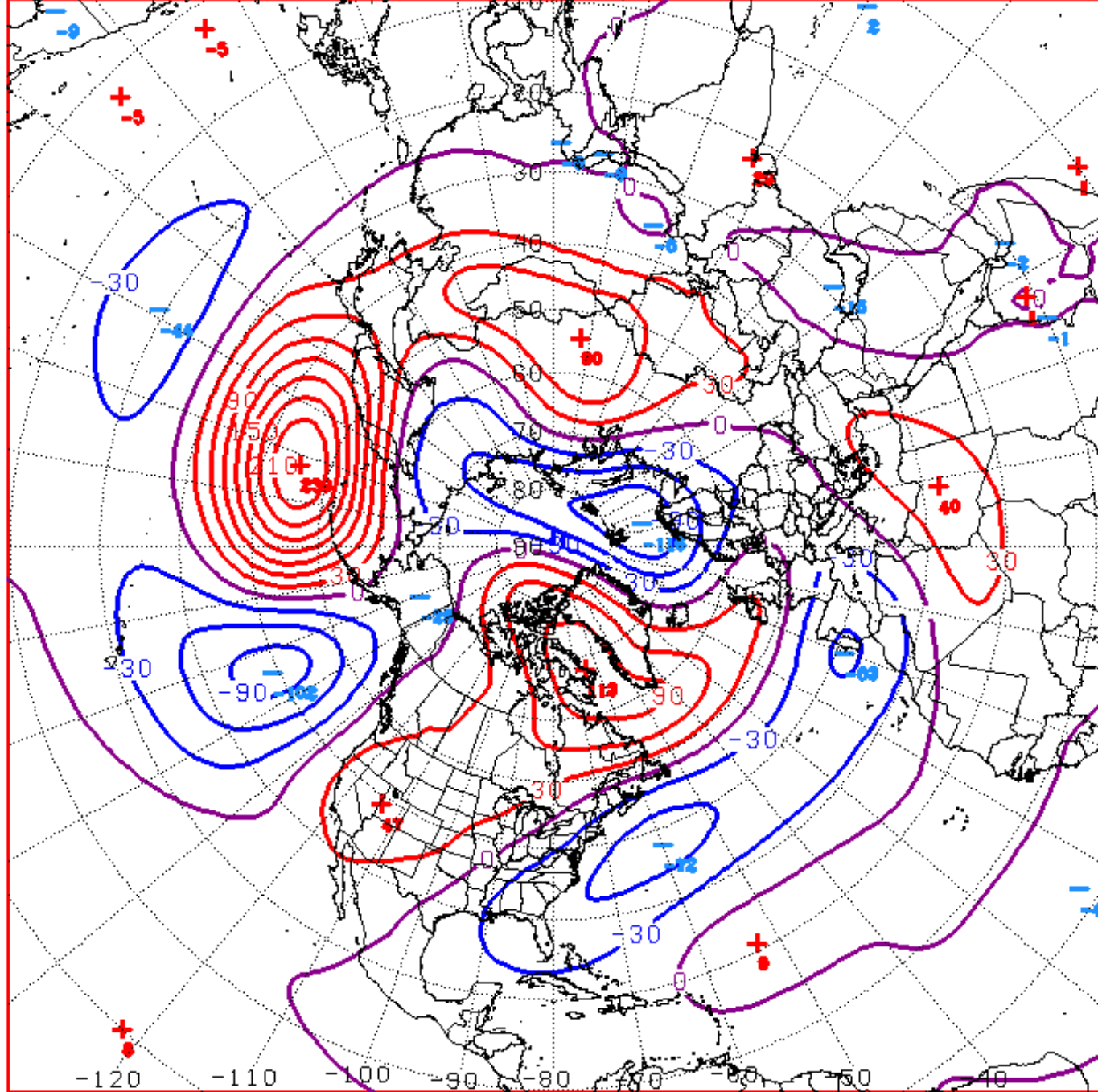
Connections to U.S. Impacts

PNA: Observed & ENSM forecasts



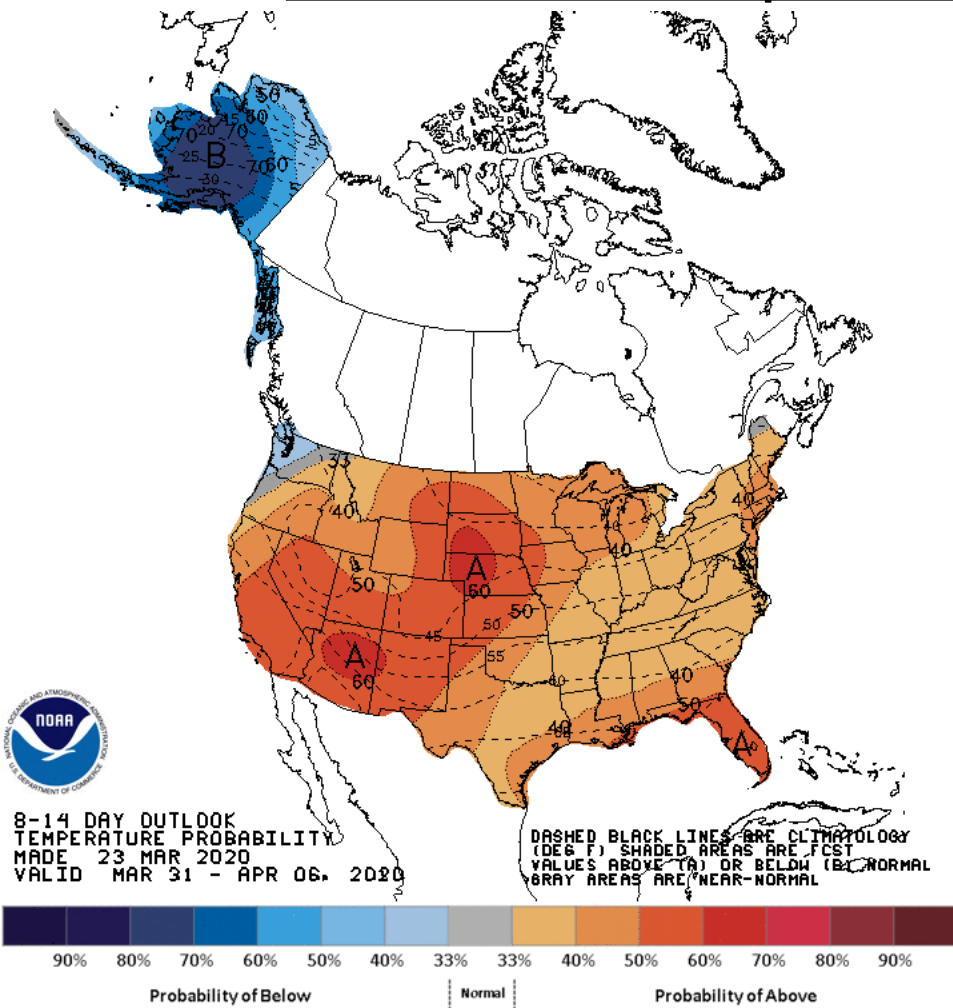
AO: Observed & ENSM forecasts



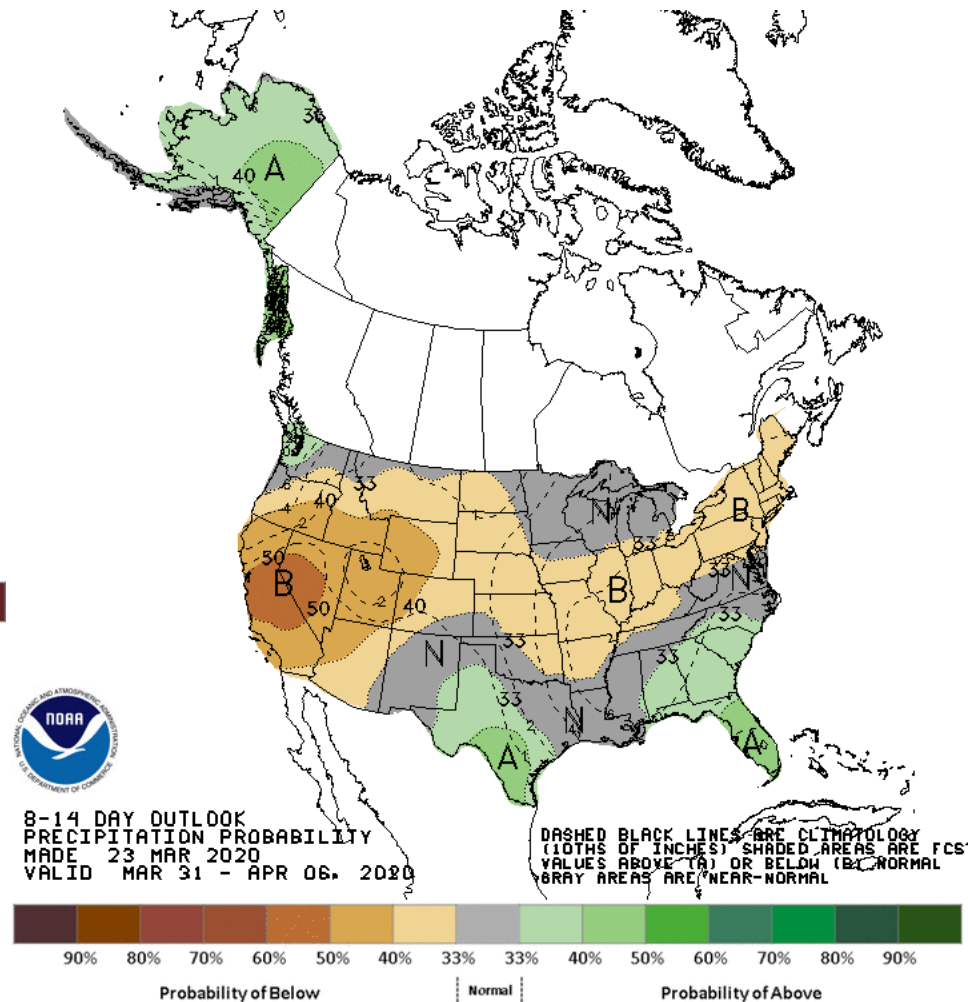


D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE MAR 24 2020 1325 UTC CNTD APR 04 2020

Week 2 – Temperature and Precipitation



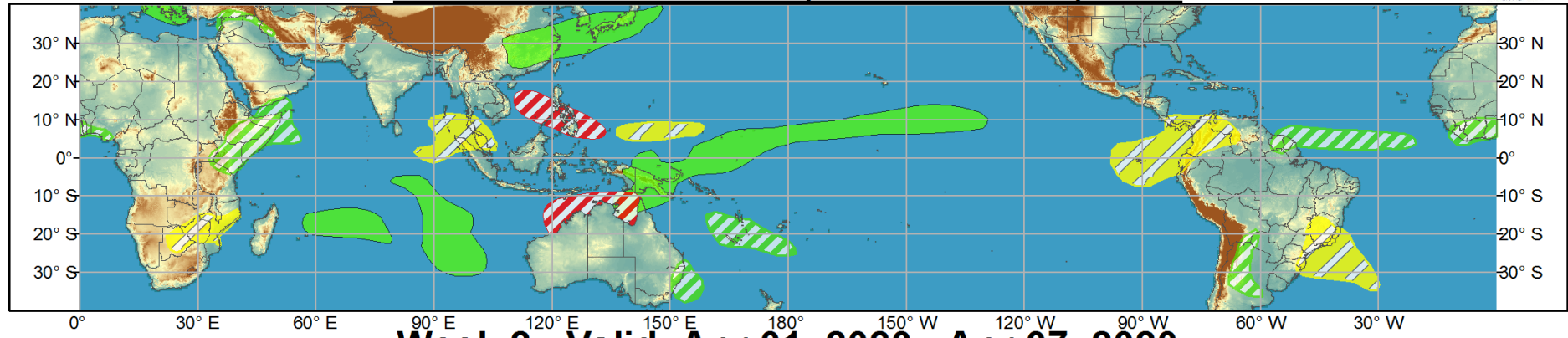
Pattern shift to warmer/drier in the West.
More "N" for the Northeast in today's forecast.



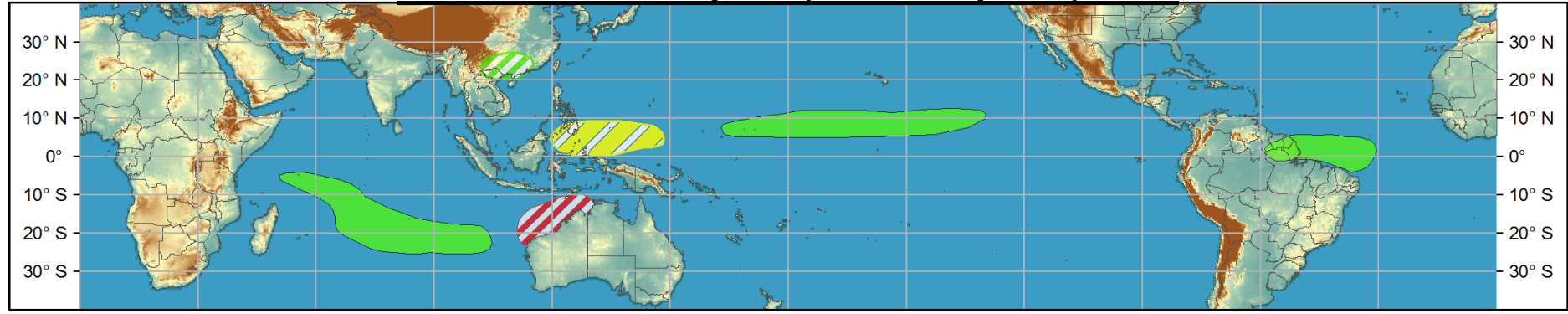


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Mar 25, 2020 - Mar 31, 2020



Week 2 - Valid: Apr 01, 2020 - Apr 07, 2020



Produced: 03/24/2020
Forecaster: Allgood

| 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. |

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.

