

Global Tropics Hazards And Benefits Outlook

2/18/2020

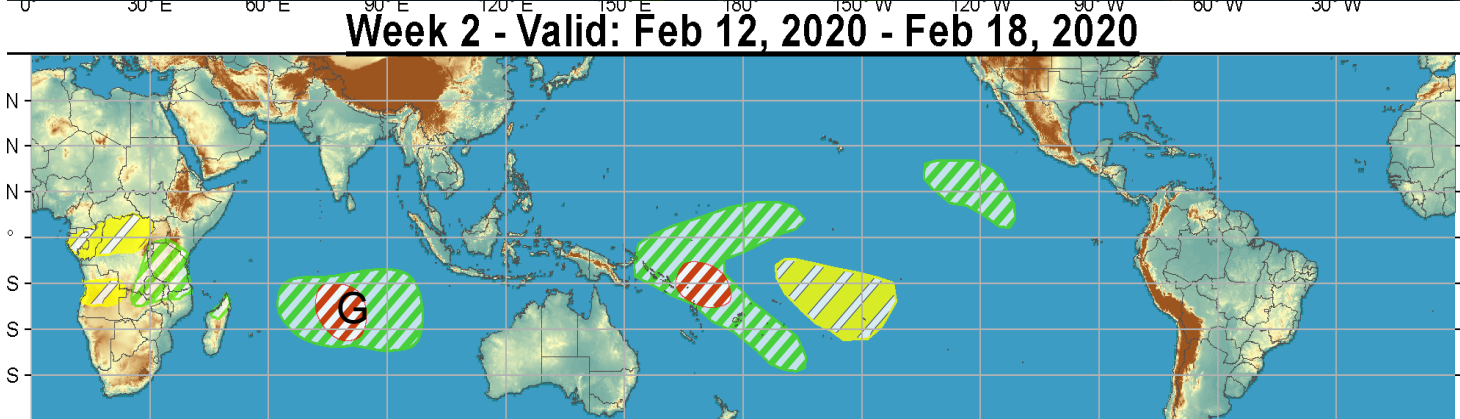
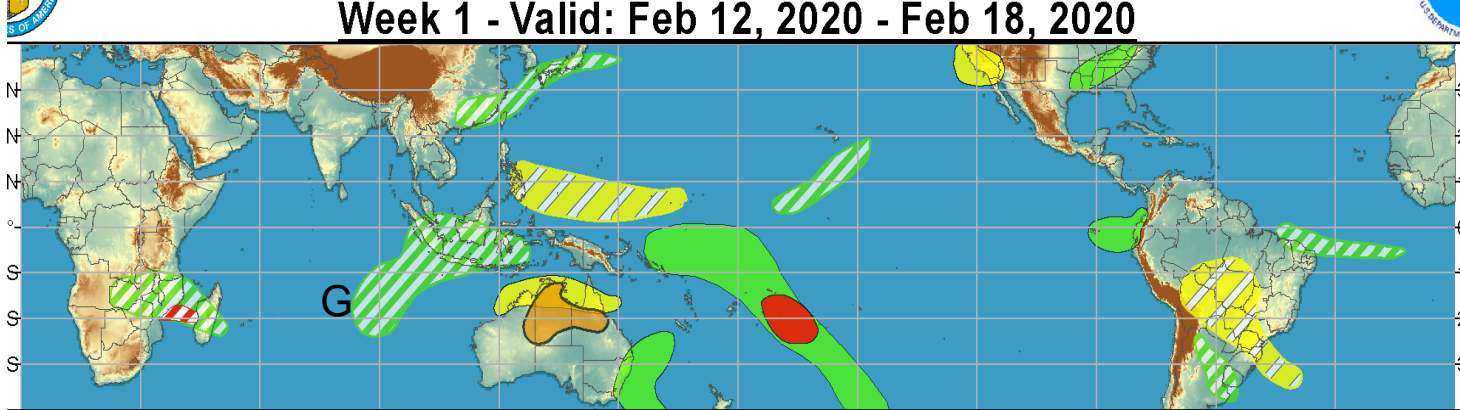
Christina Maurin

Outline

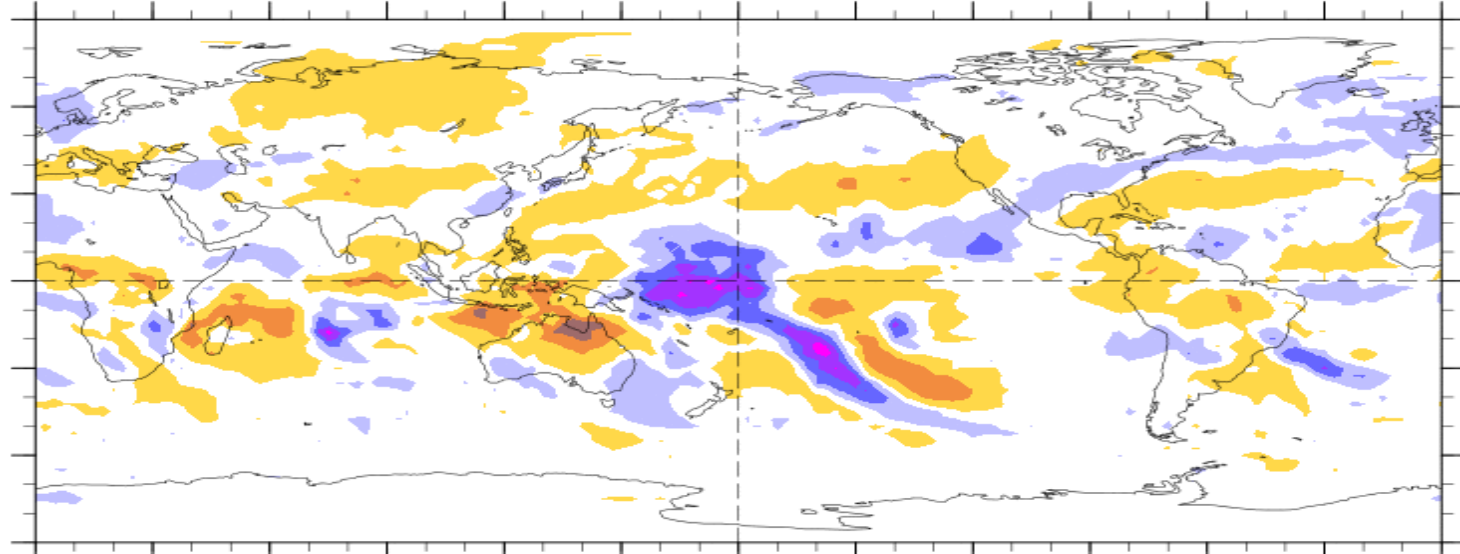
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review

Tropical Cyclone
Gabekile
2/15-2/18



7-Day Average OLR Anomaly 2020/02/10 - 2020/02/16



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (February 13, 2020 Update)

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored during the Northern Hemisphere spring 2020 (~60% chance) continuing through summer 2020 (~50% chance).

MJO and other subseasonal tropical variability:

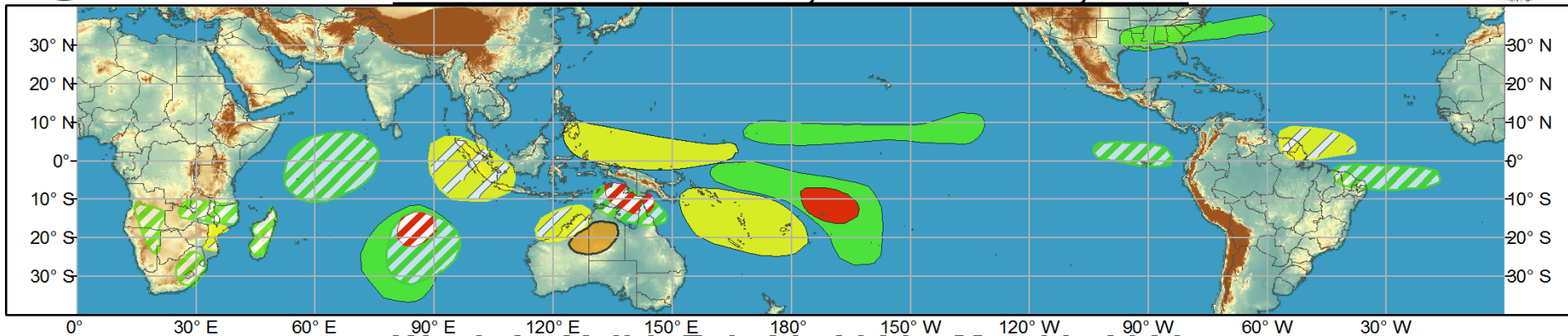
- The Madden-Julian Oscillation emerged in early February over the Maritime Continent, and propagated toward the western Pacific, where it stalled due to interactions with an equatorial Rossby wave.
- Model guidance forecasts a significant decay to the signal in week-1, with continued eastward propagation. Week-2 forecasts for the MJO signal are incoherent, but spatial forecasts do indicate that there will likely continue to be dominant envelopes of suppressed and enhanced convection.
- Due to the weakness in the MJO signal, impacts to the U.S. from this tropical variability are likely to remain limited. A major pattern change over the North Pacific and Alaska are leading to downstream impacts over North America during weeks 1 & 2.



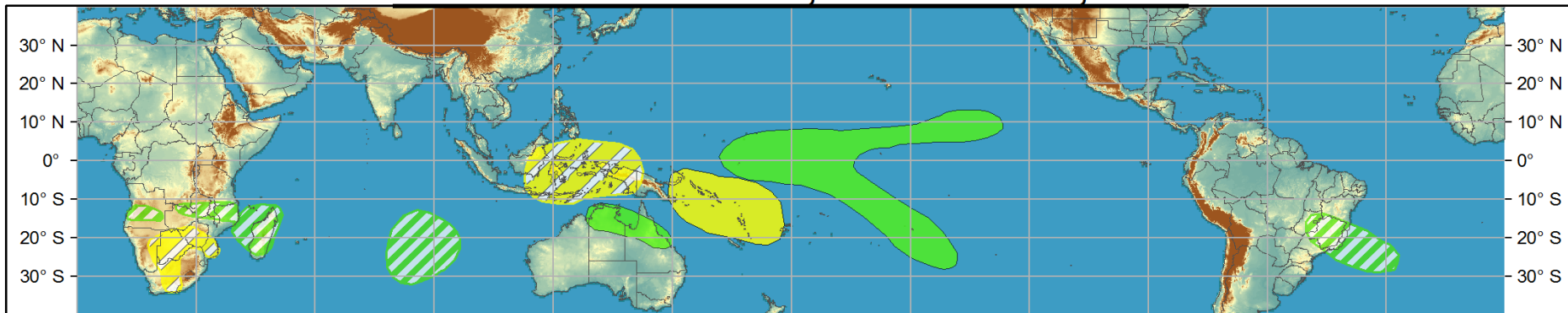
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Feb 19, 2020 - Feb 25, 2020



Week 2 - Valid: Feb 26, 2020 - Mar 03, 2020



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: 02/18/2020

Forecaster: Maurin

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

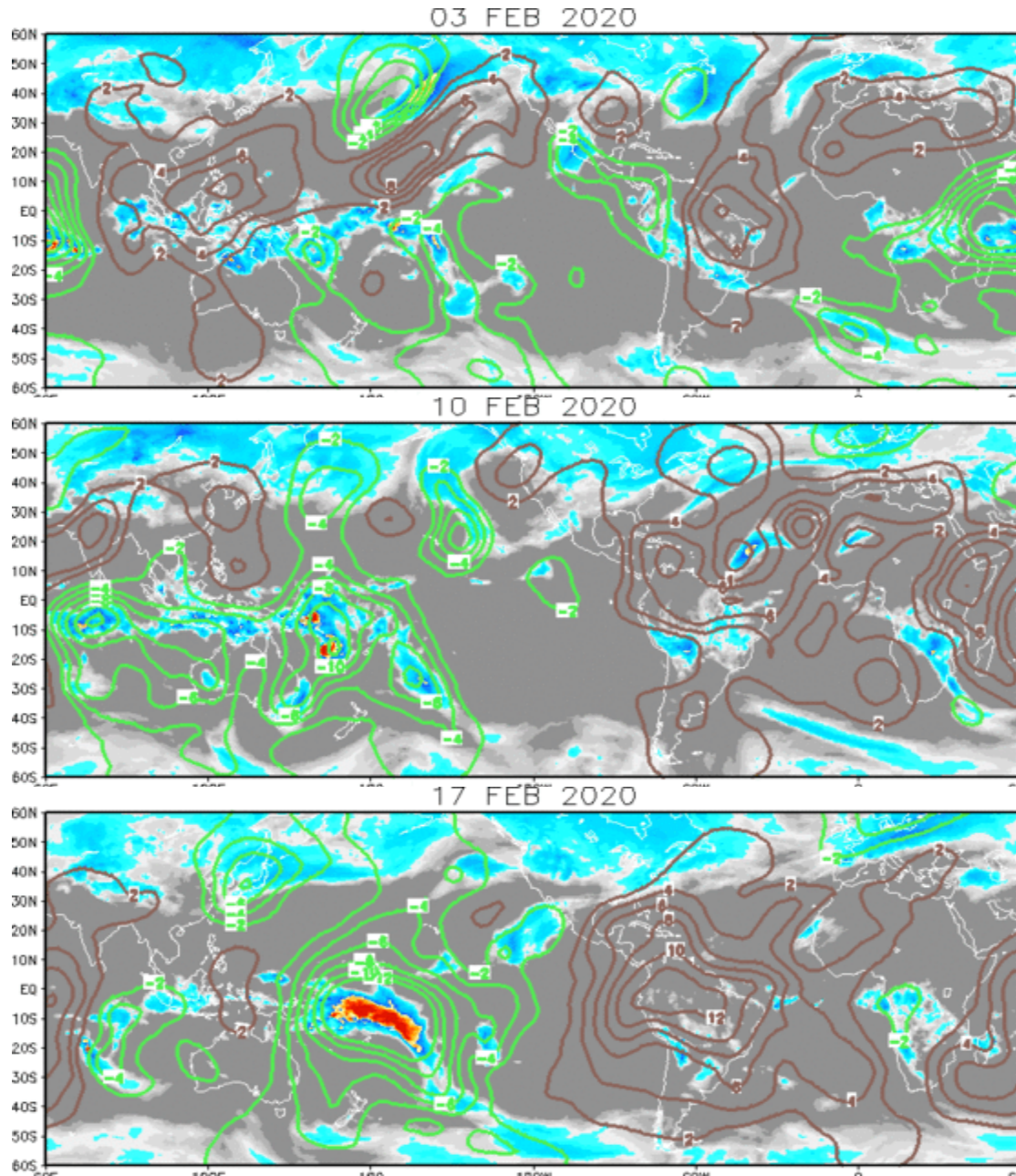
Green: Enhanced Divergence

Brown: Enhanced Convergence

Very noisy field at the start of February, but some convection organizing over the Indian Ocean.

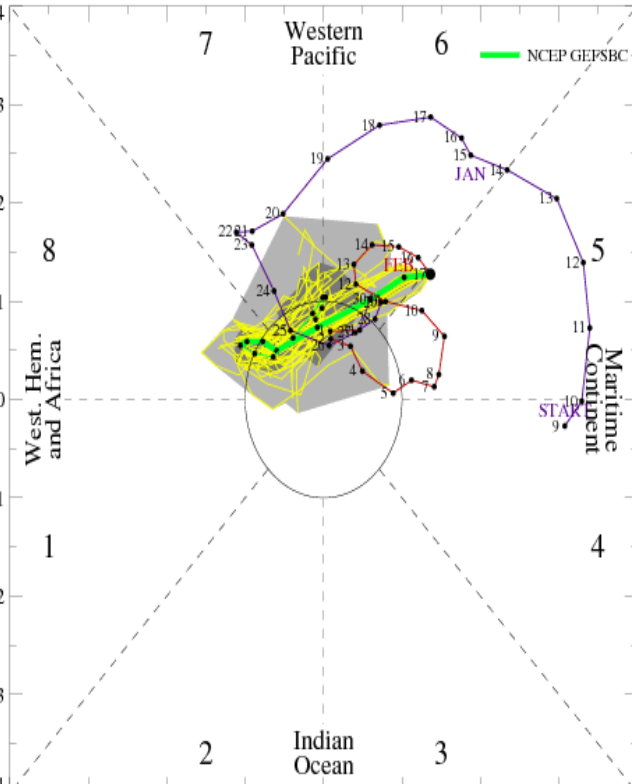
Enhanced convection has spread eastward over the Maritime Continent, followed by a suppressed envelope over the western hemisphere.

Wave-1 pattern continues. Convection has consolidated and strengthened over the western Pacific.



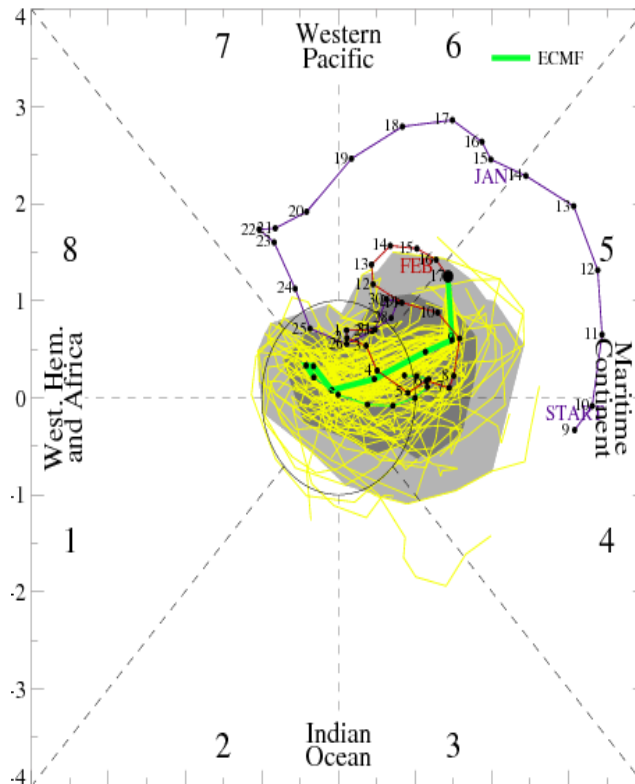
MJO Observation/Forecast

[RMM1, RMM2] forecast for Feb-18-2020 to Mar-03-2020



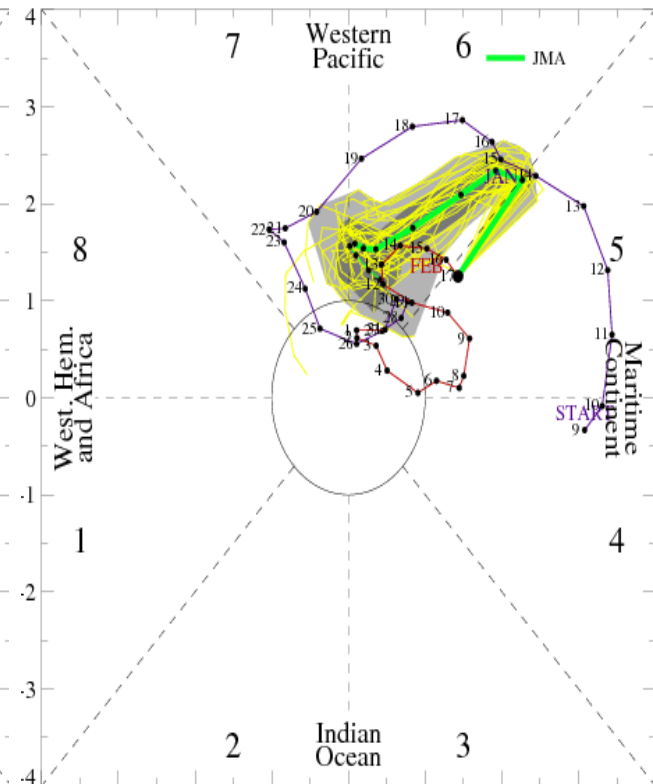
GEFS

MJO Index Forecast for 18Feb2020-03Mar2020



ECMWF

MJO Index Forecast for 18Feb2020-26Feb2020

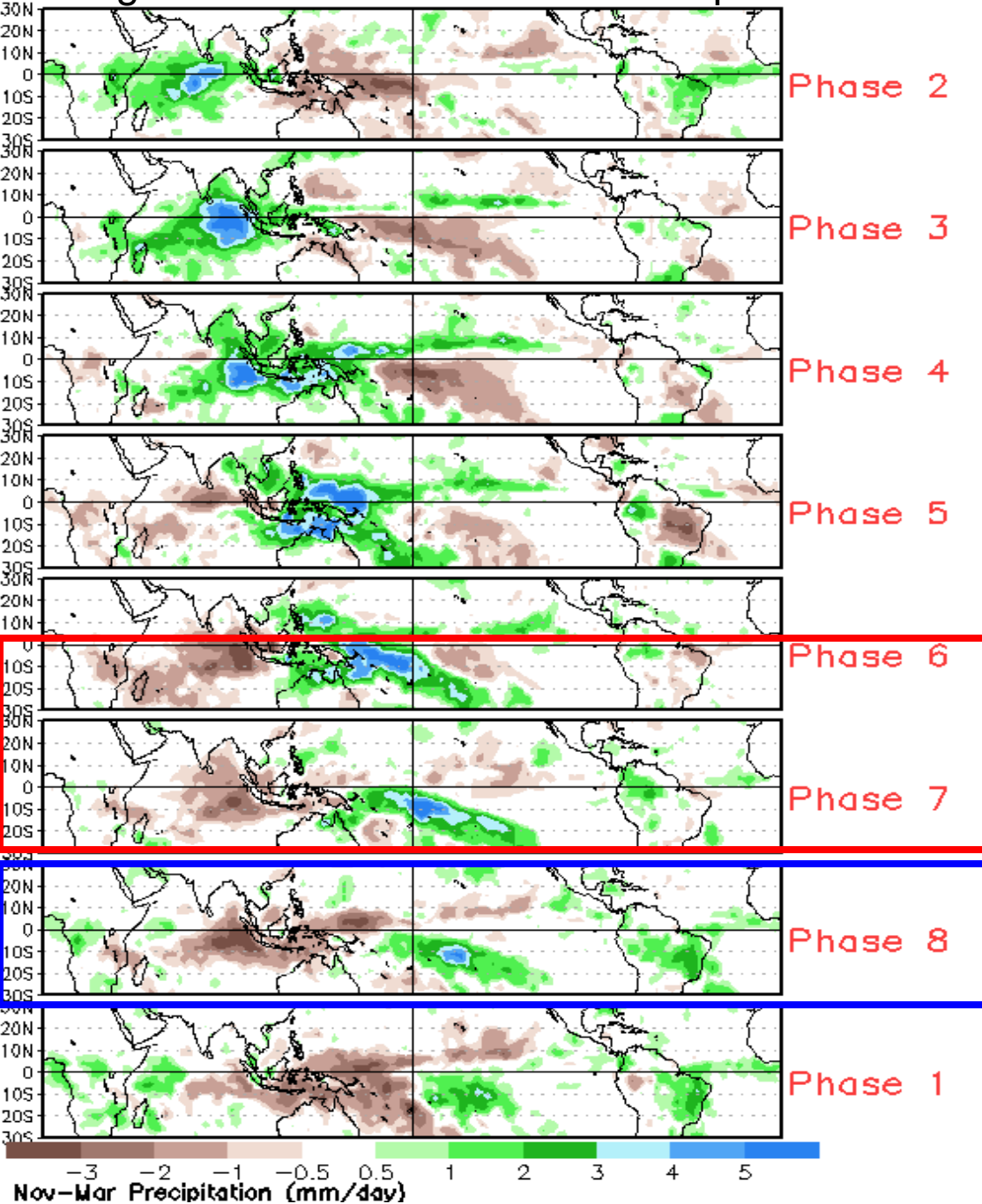


JMA

GEFS and ECMWF indicate a decay in the MJO signal during week-1 with continued eastward propagation. The pattern breaks down in week-2 and becomes incoherent. JMA shows a rapid strengthening and then decay in week-1.

Several active modes of variability in the tropics could be leading to this muddled MJO signal on the RMM index. Spatial plots indicate that there could be more persistence of the signal.

Average Conditions when the MJO is present



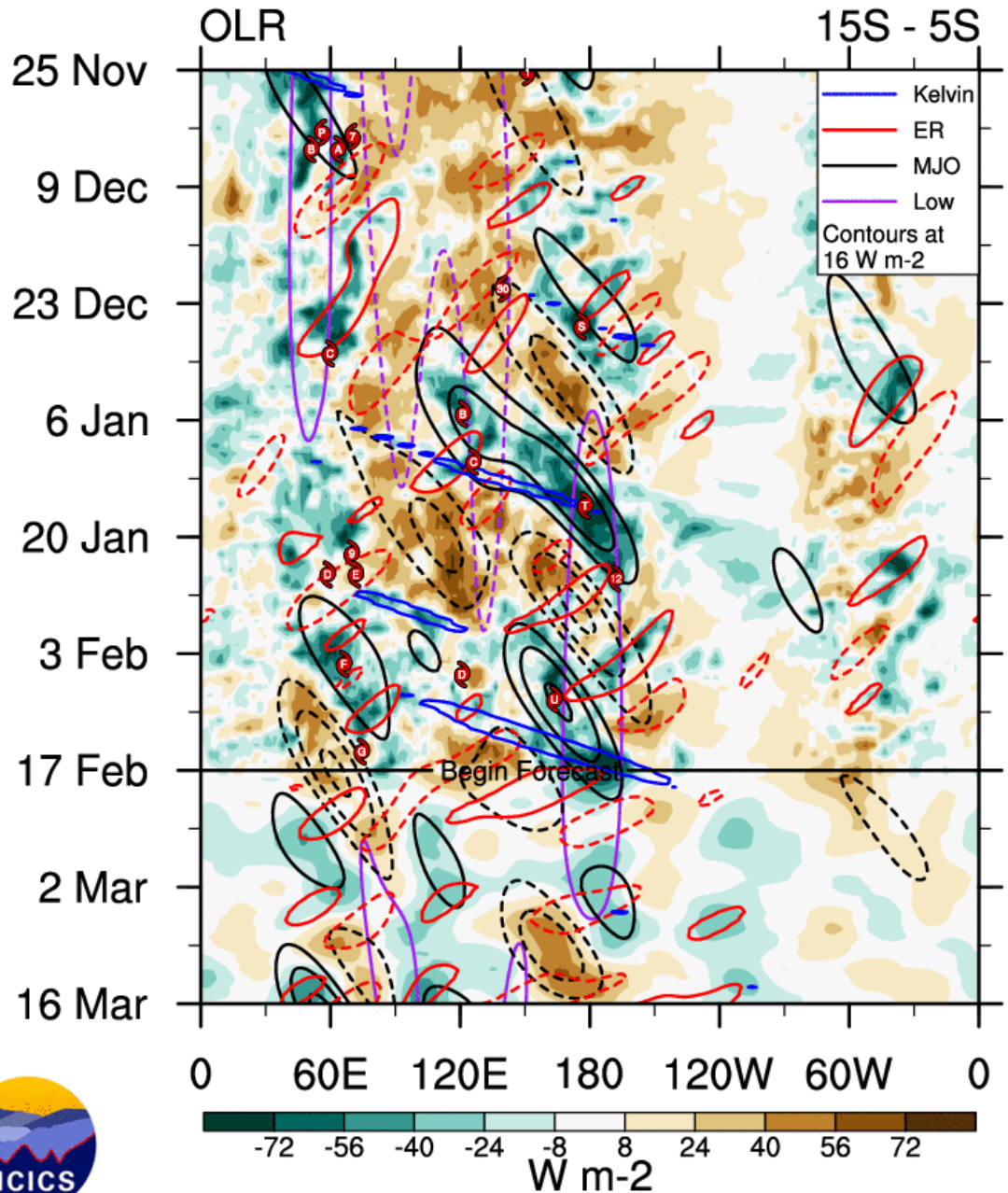
Week-1: Phases 6/7
Week-2: Remnants
around Phase 8

CAVEAT: These panels are representative of robust MJO events.

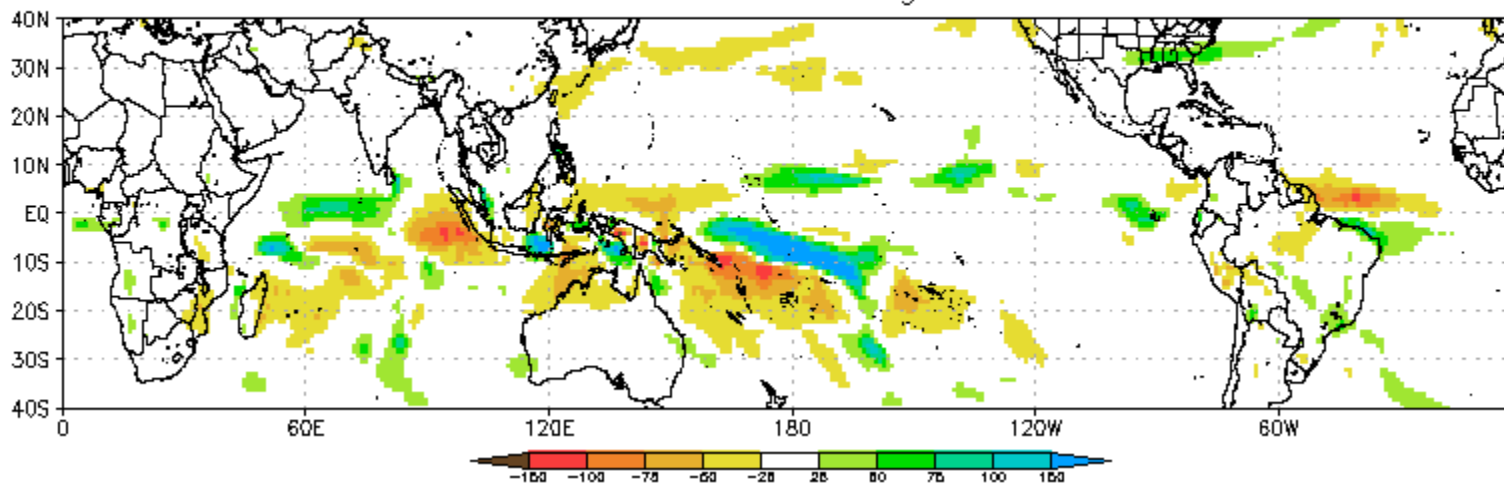
MJO convection centered near the Dateline, consolidating from the previous week.

Rosby wave presence over the western Pacific has stalled the MJO propagation. A **Kelvin wave** constructively interfered with the enhanced convection over the past week.

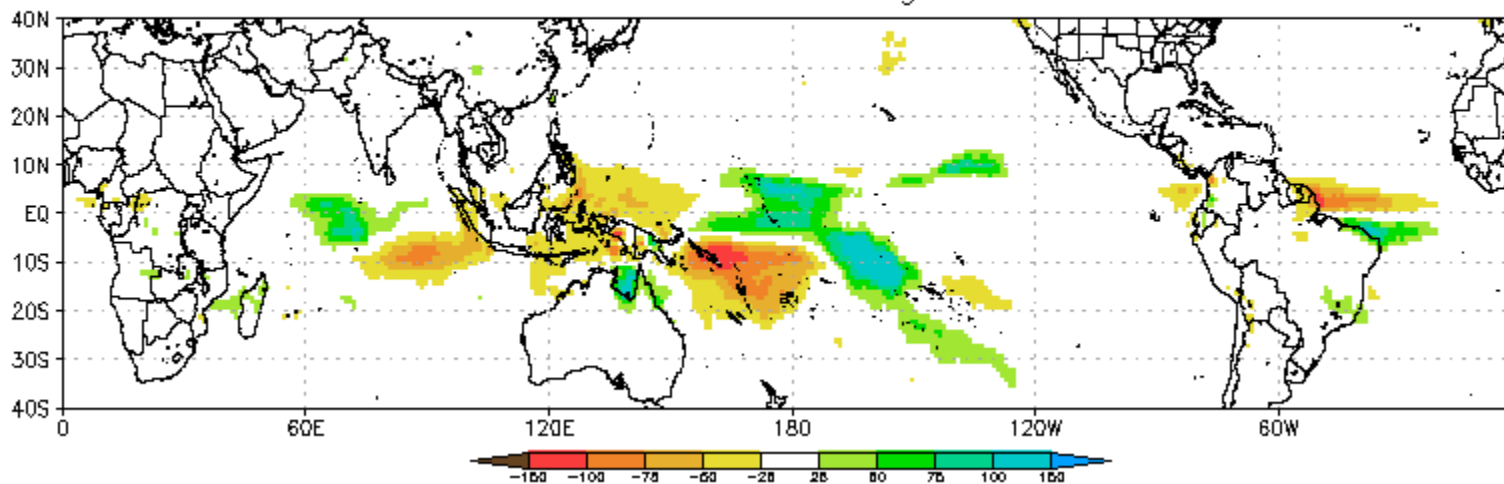
Low frequency footprints persist near the Date Line.



CFS Precipitation Anomalies (mm) Issued 17Feb2020
Week-1 Forecast Ending 25Feb2020

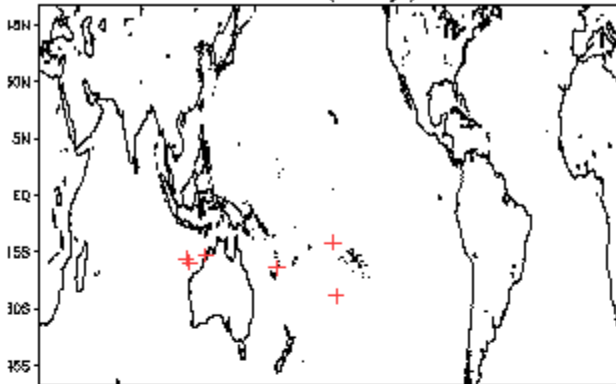


CFS Precipitation Anomalies (mm) Issued 17Feb2020
Week-2 Forecast Ending 03Mar2020

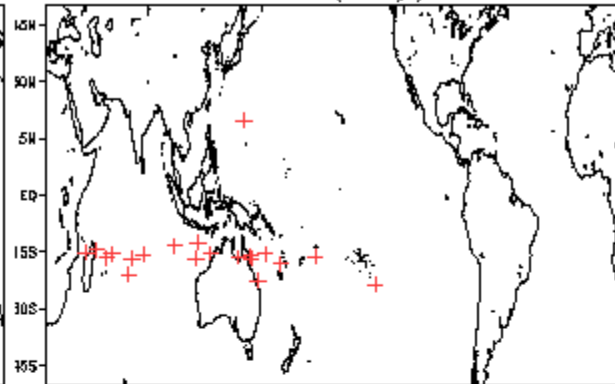


February Tropical Storm Formation by MJO phase

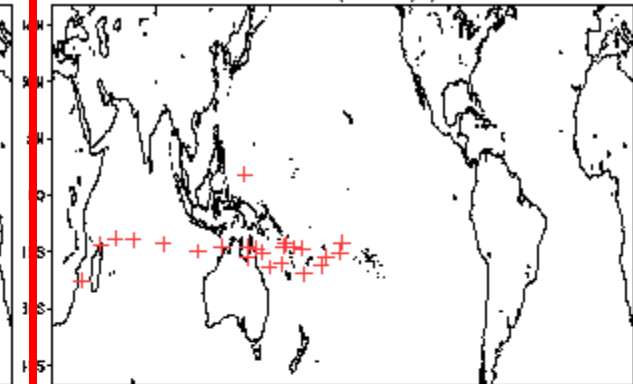
Phase 1 (41 days) 7 storms



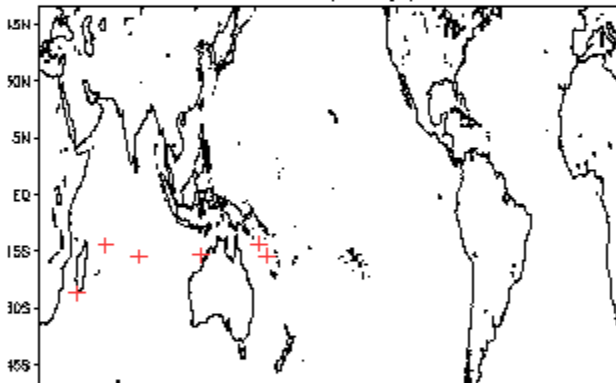
Phase 4 (92 days) 21 storms



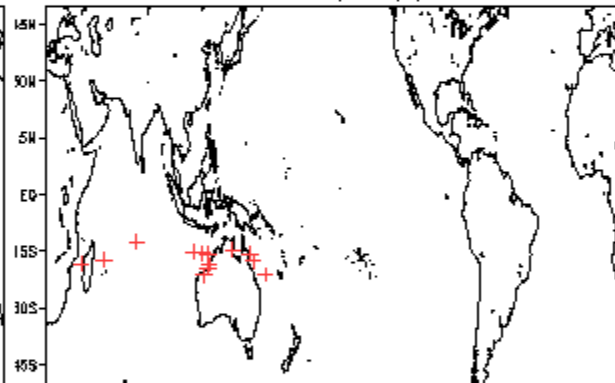
Phase 7 (125 days) 24 storms



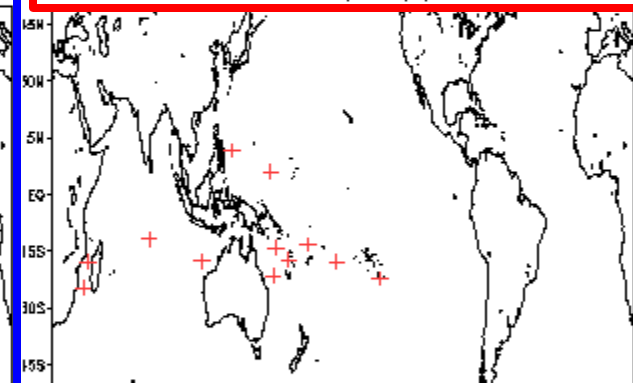
Phase 2 (51 days) 7 storms



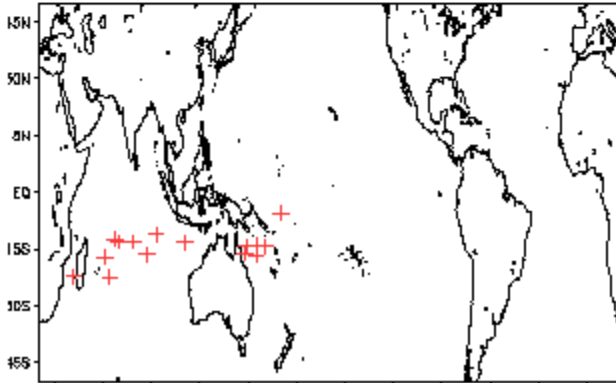
Phase 5 (70 days) 14 storms



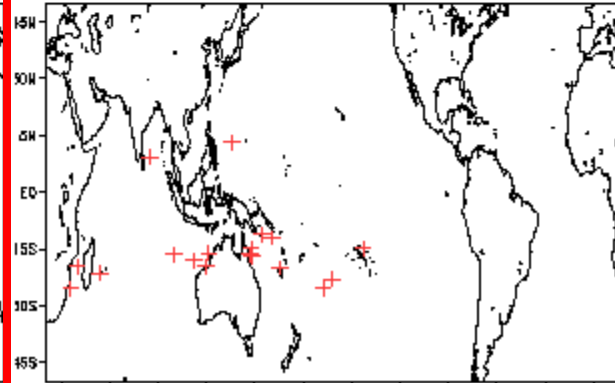
Phase 8 (84 days) 13 storms



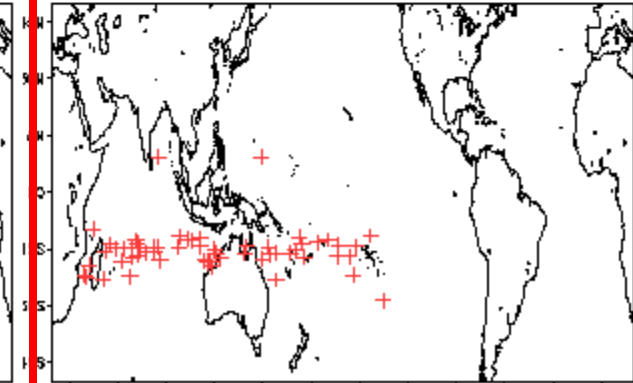
Phase 3 (89 days) 16 storms



Phase 6 (92 days) 19 storms

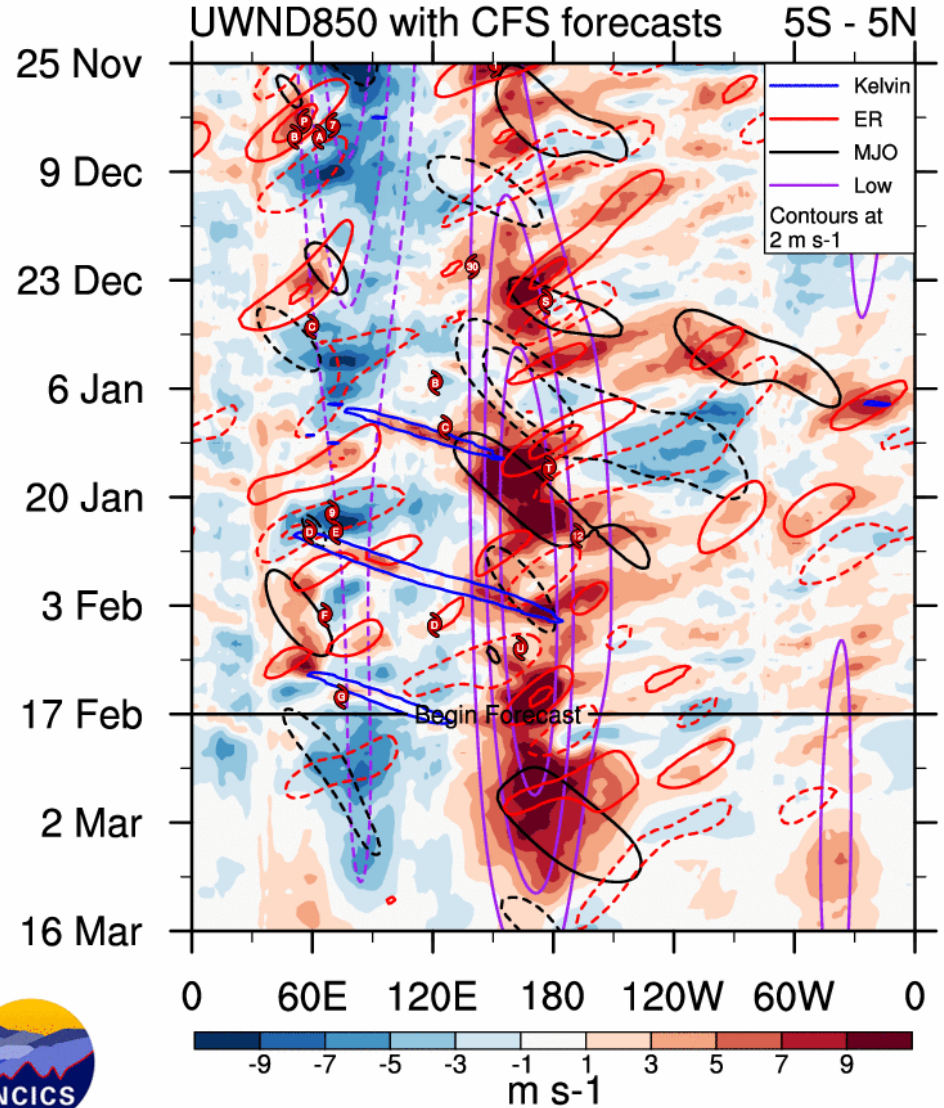
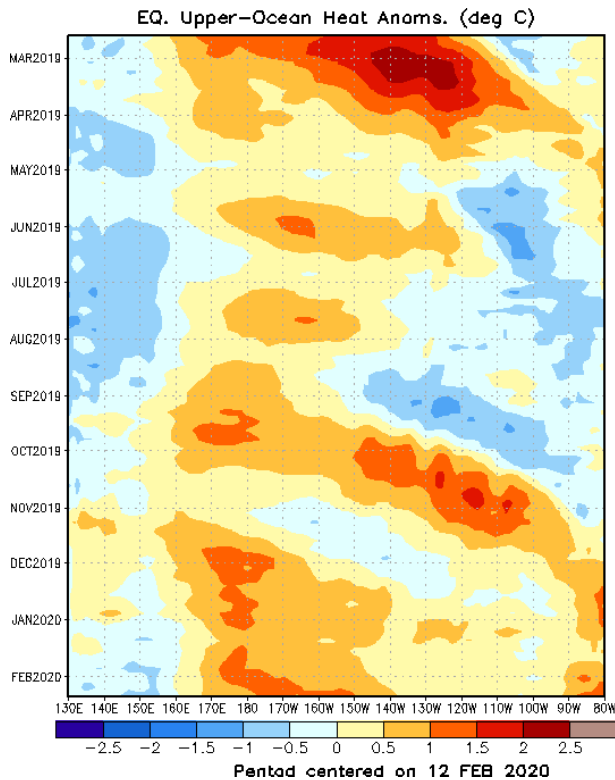


Null (308 days) 80 storms



Update from last week:

- westerly wind burst continues along the Date Line.
- Starting to see some impact of these persistent westerly anomalies on ocean heat content.



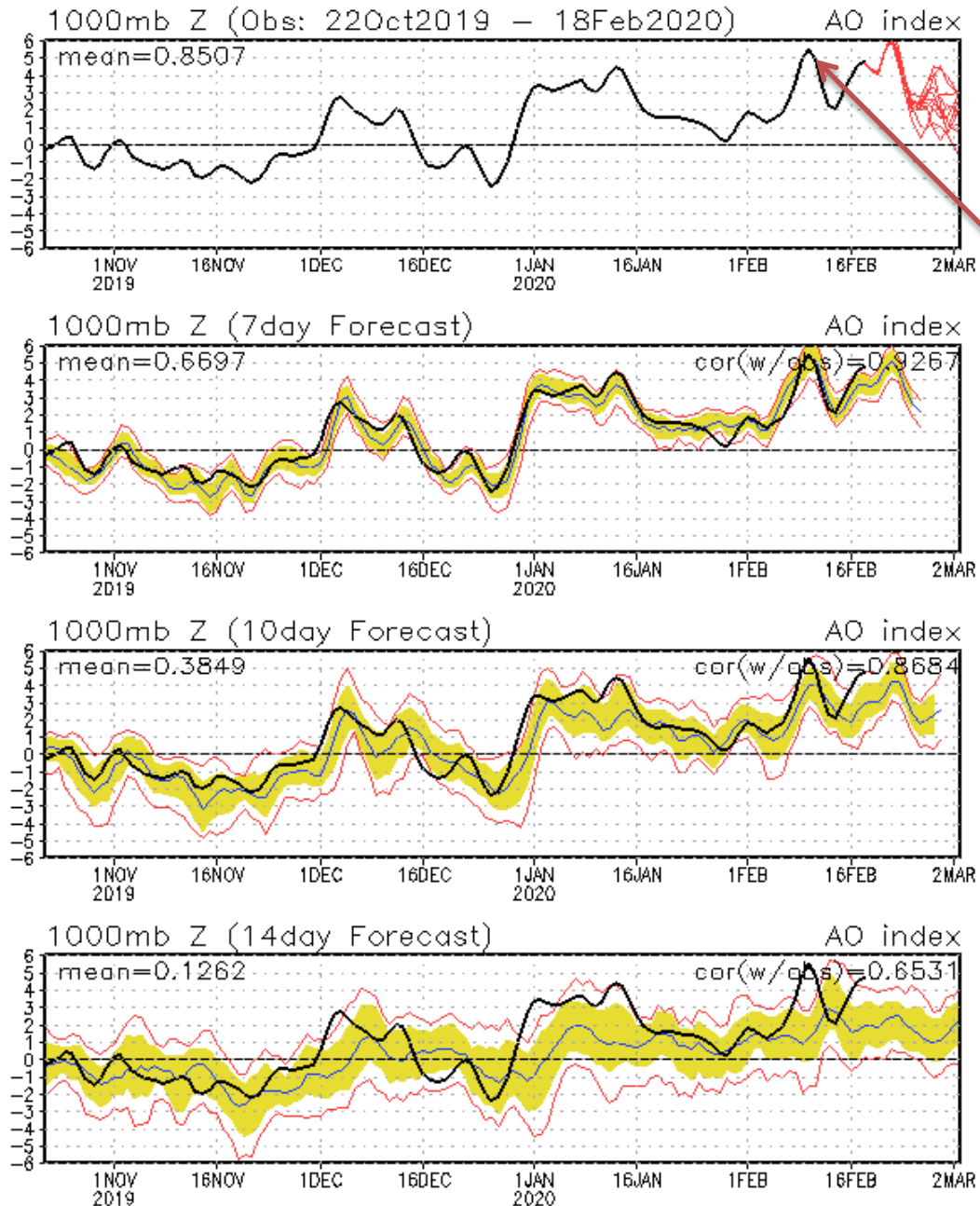
ncics.org/mjo

Tue 2020-02-18 11:17 UTC

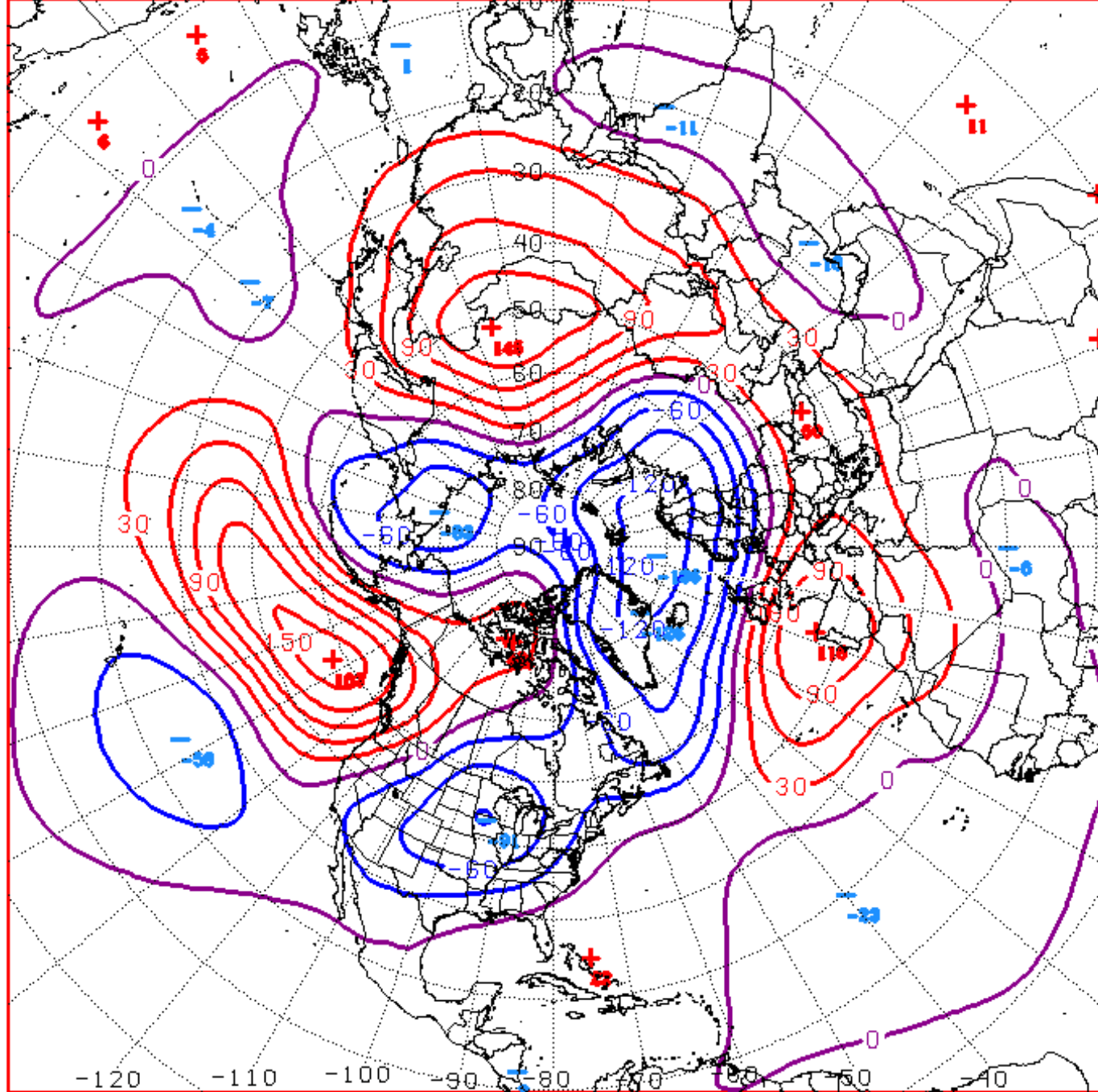
Carl Schreck
carl_schreck@ncsu.edu

Connections to U.S. Impacts

AO: Observed & ENSM forecasts

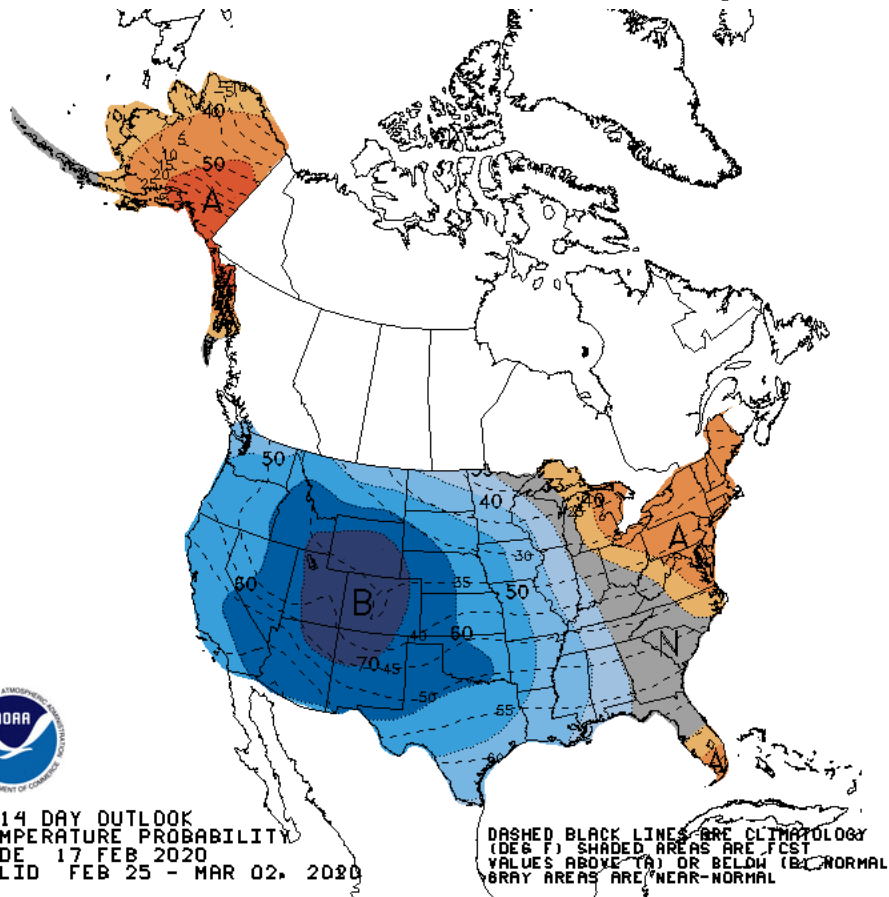


Highest daily
value on
record = 6.34



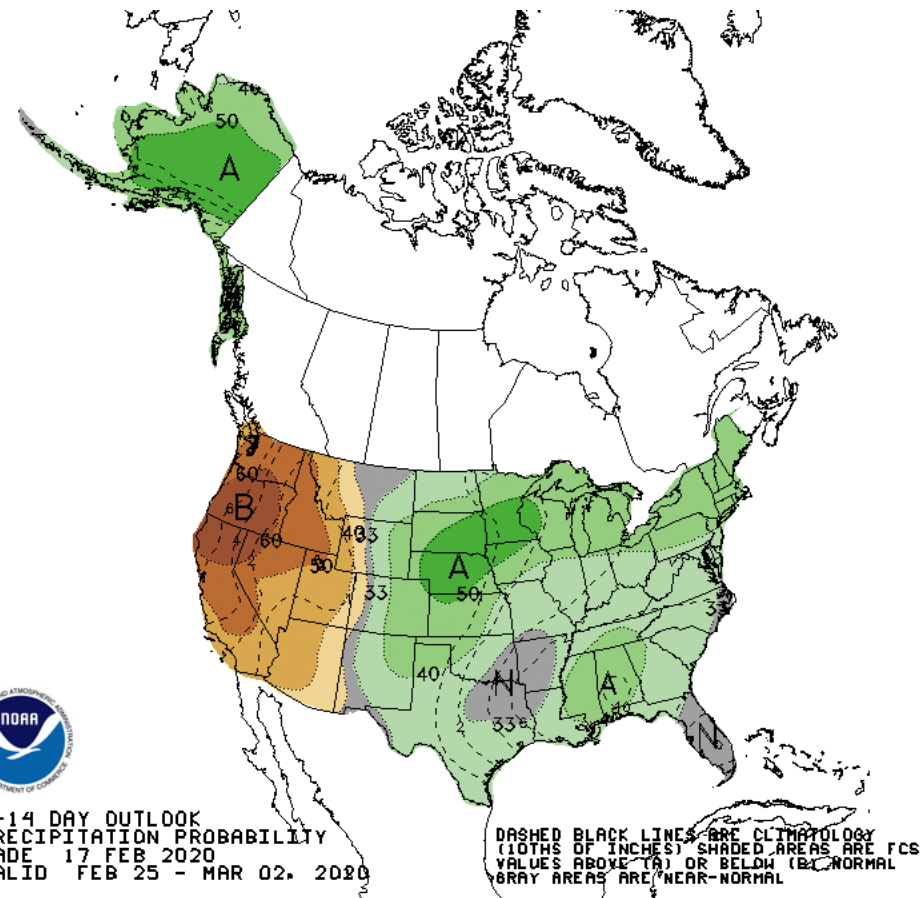
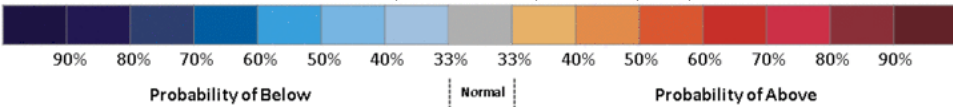
D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE FEB 18 2020 1332 UTC CNTD FEB 29 2020

Week 2 – Temperature and Precipitation



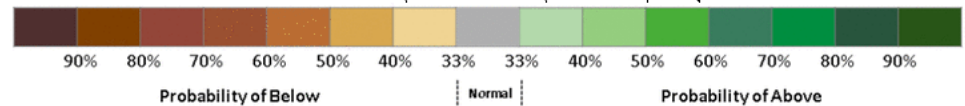
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 17 FEB 2020
VALID FEB 25 - MAR 02, 2020

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 17 FEB 2020
VALID FEB 25 - MAR 02, 2020

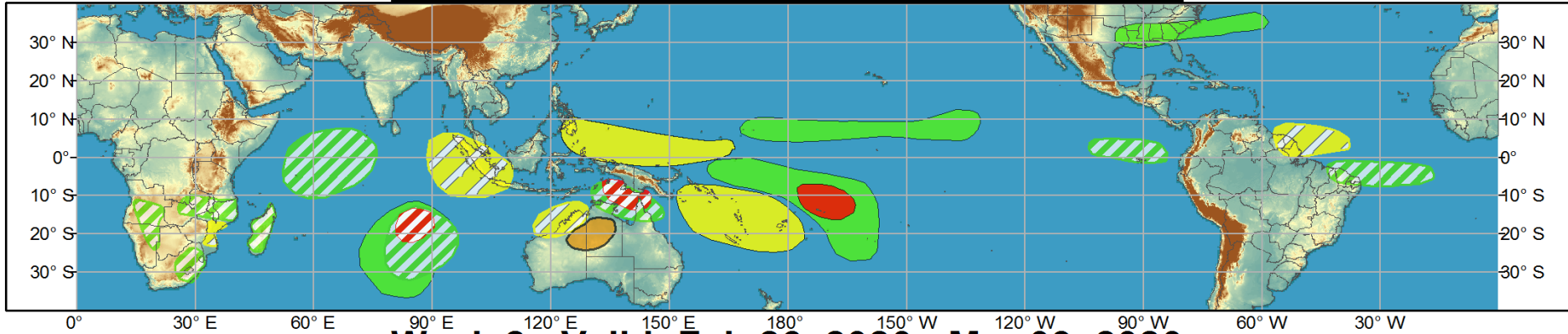
DASHED BLACK LINES ARE CLIMATOLOGY (10THS OF INCHES). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



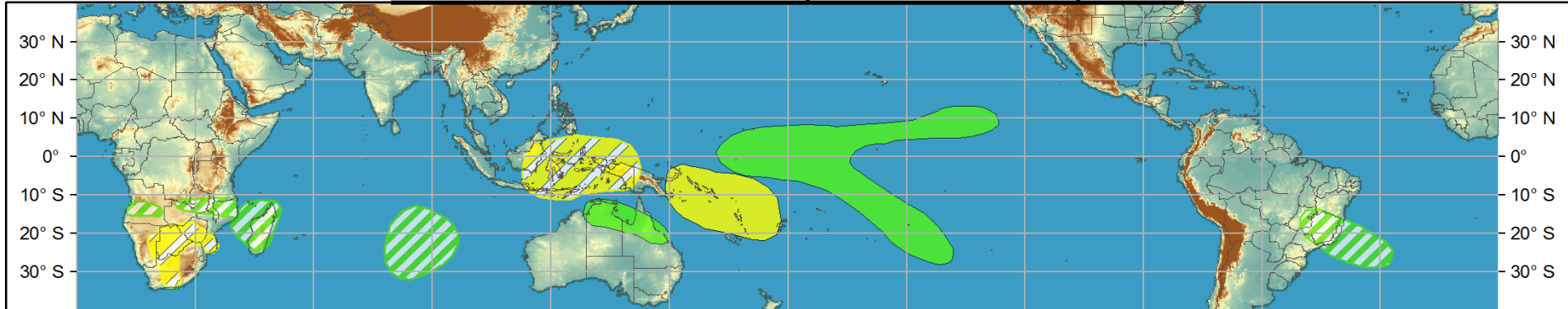


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Feb 19, 2020 - Feb 25, 2020



Week 2 - Valid: Feb 26, 2020 - Mar 03, 2020



Produced: 02/18/2020

Forecaster: Maurin

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.

