

Global Tropics Hazards And Benefits Outlook

4/30/2019

Dan Harnos

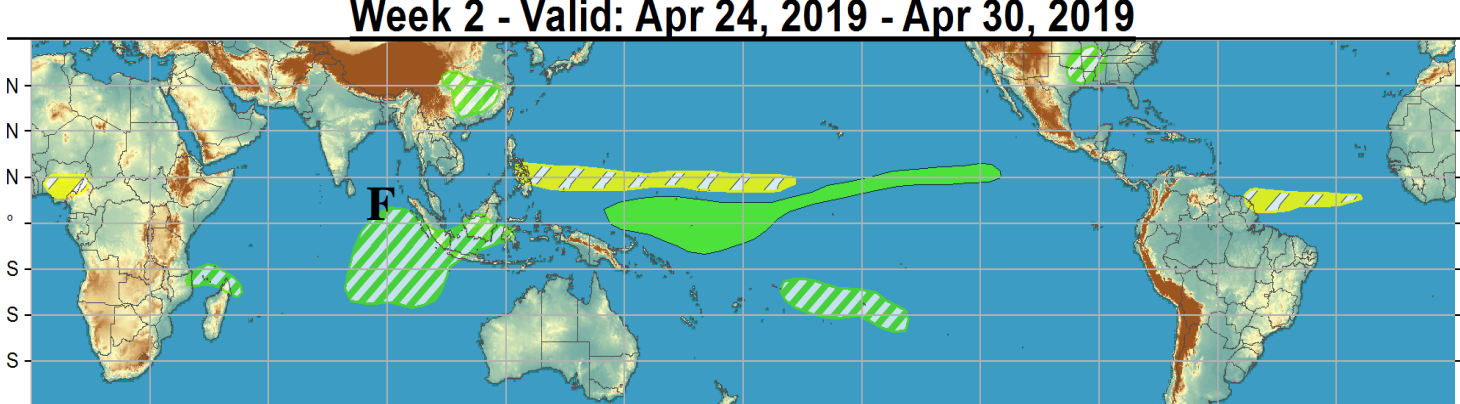
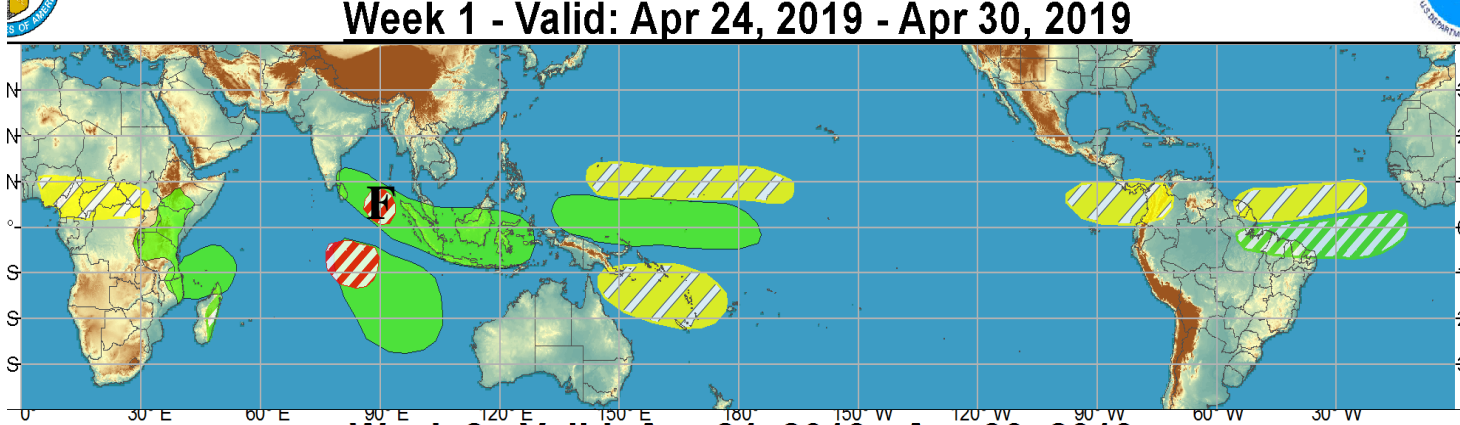
Outline

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

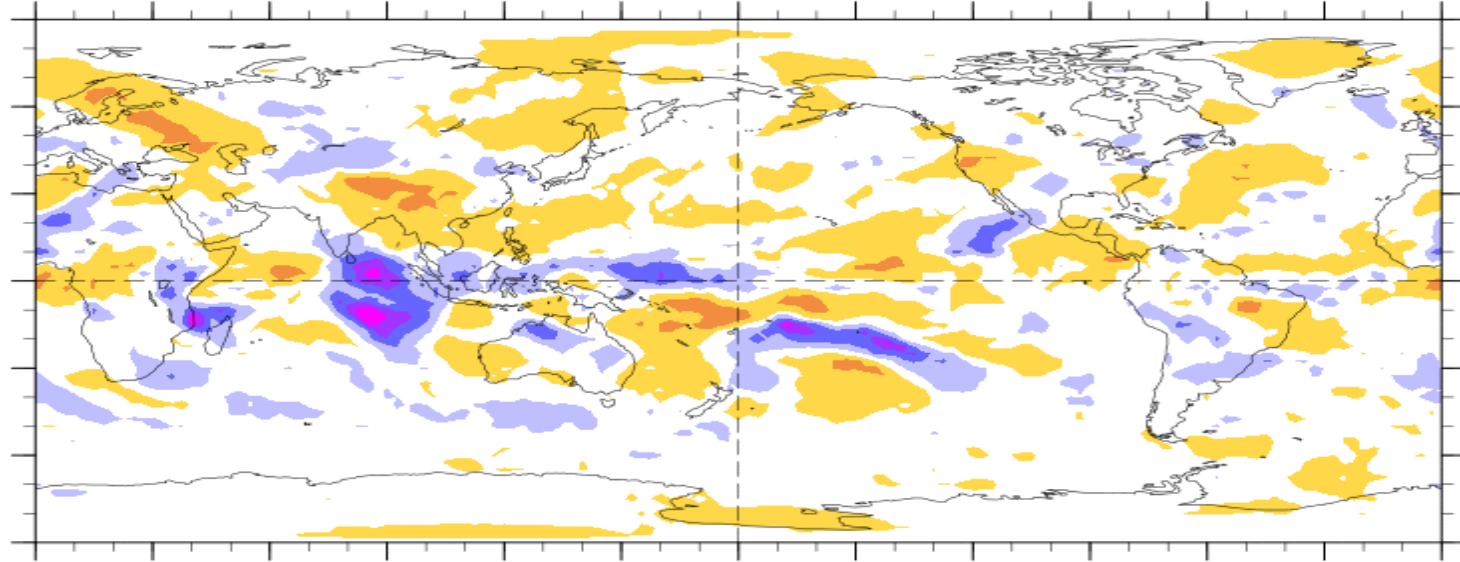
Outlook Review

TC Fani

4/27 – present
Currently 95 kts
(Strong Cat. 2)



7-Day Average OLR Anomaly 2019/04/22 - 2019/04/28



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (April 11, 2019 Update)

- ENSO Alert System Status: [El Niño Advisory](#)
- A weak El Niño is likely to continue through the Northern Hemisphere summer 2019 (65% chance) and possibly fall (50-55% chance).

MJO and other subseasonal tropical variability:

- The MJO strengthened and crossed from the Indian Ocean to the Maritime Continent during the past week.
- Dynamical models indicate that this signal is likely to cross the Maritime Continent during Week-1 (Phases 4/5), and reach the West Pacific during Week-2 (Phases 6/7).

Extratropics:

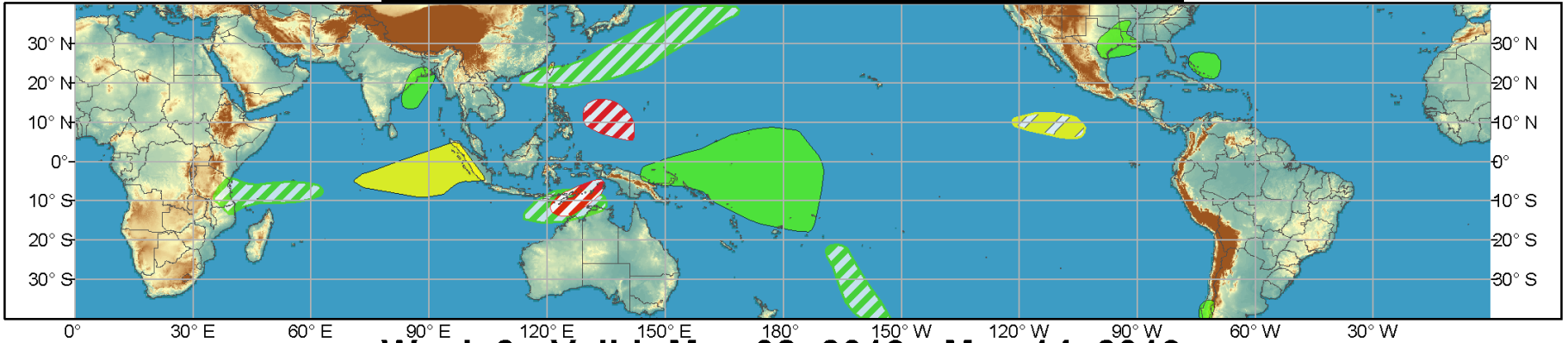
- The MJO reaching the West Pacific would constructively interfere with the ongoing El Niño and have implications for strengthening and extending the subtropical jet over the Pacific. Despite this, the Week-2 circulation for North America is more in line with influences from the higher latitudes, such as the Arctic Oscillation.



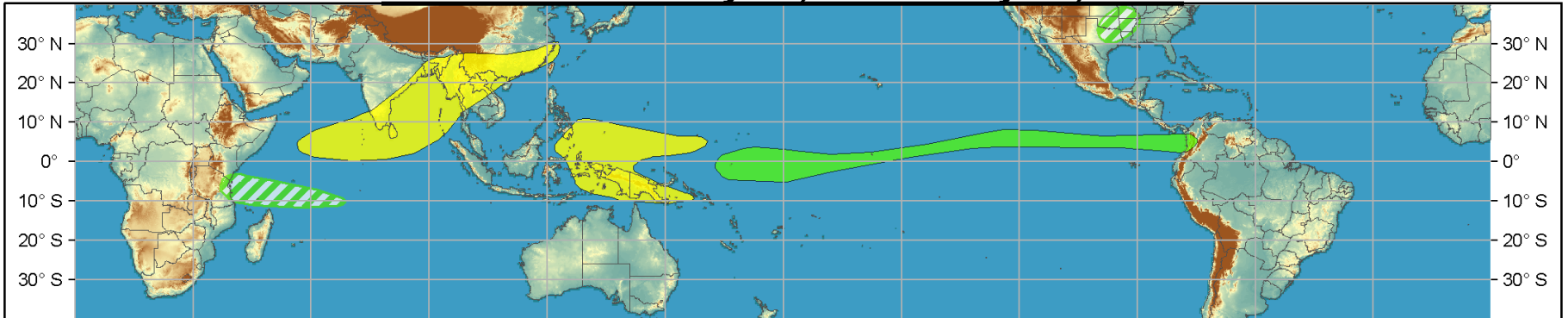
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: May 01, 2019 - May 07, 2019



Week 2 - Valid: May 08, 2019 - May 14, 2019



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.
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Produced: 04/30/2019
Forecaster: D.Harnos

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

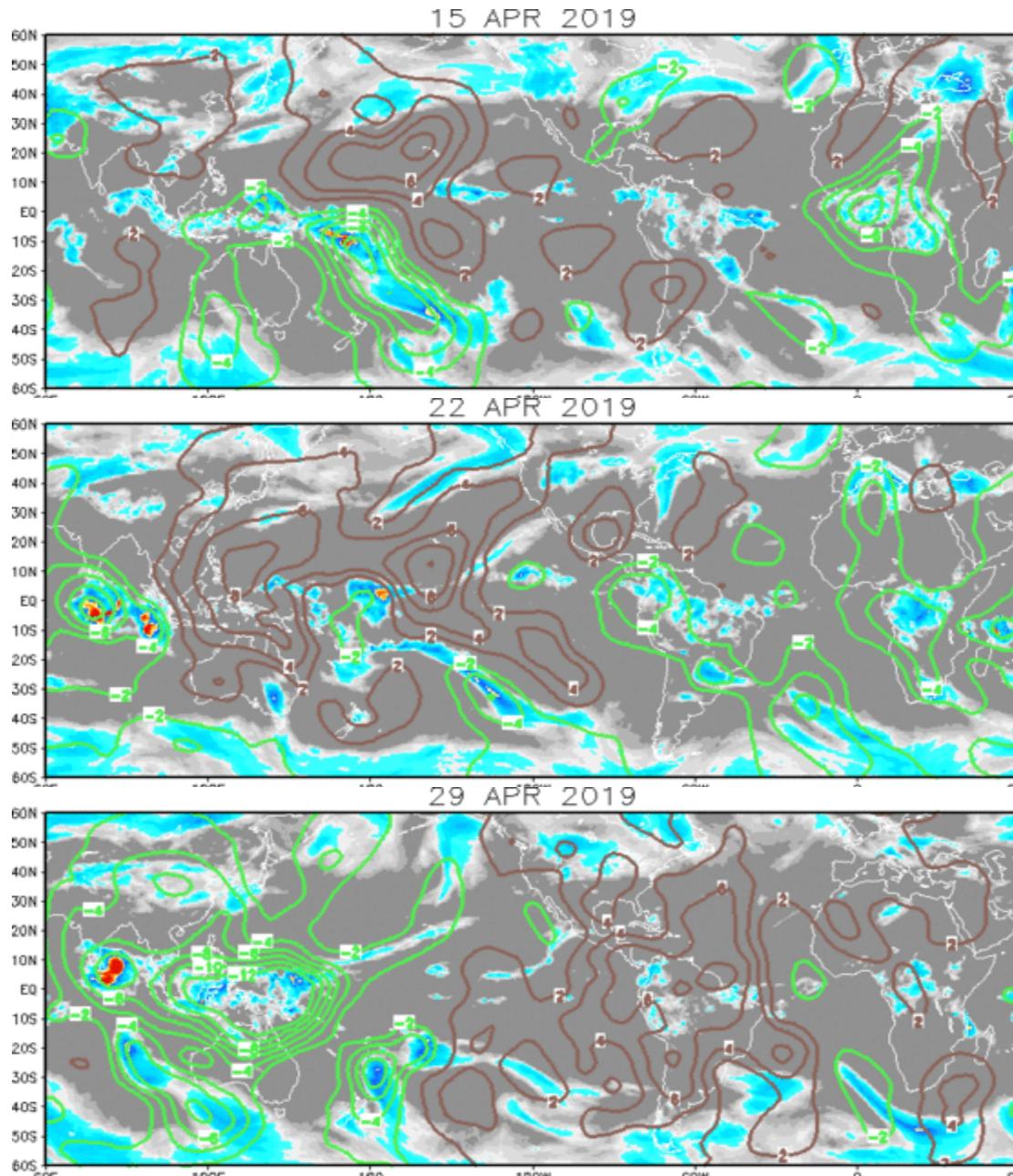
Green: Enhanced Divergence

Brown: Enhanced Convergence

Complex pattern with multiple modes of variability. El Niño convection is apparent across the West Pacific.

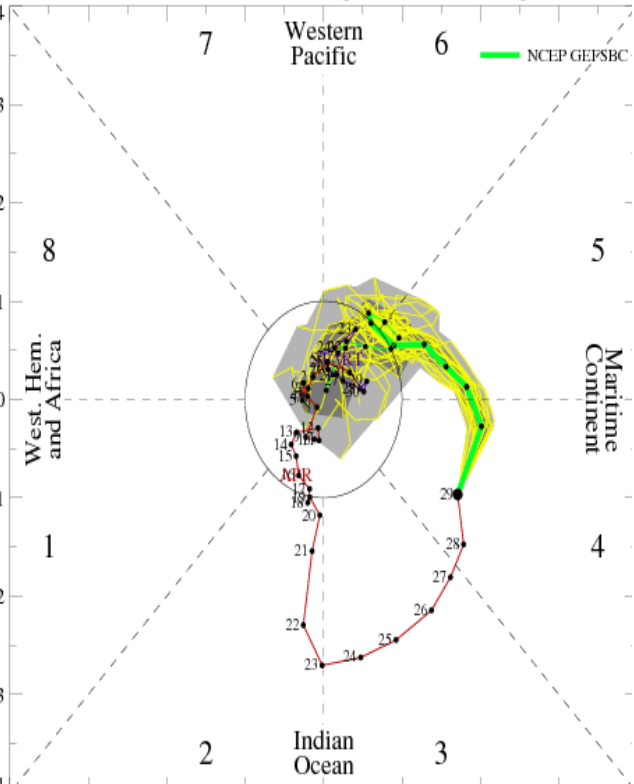
Evolution toward more of a coherent Wave-1 pattern, with the main center of amplified convection over the Indian Ocean. Some suppression of El Niño convection occurred.

Coherent wave-1 pattern indicative of a robust MJO, with enhanced convection from the Indian Ocean through West Pacific.



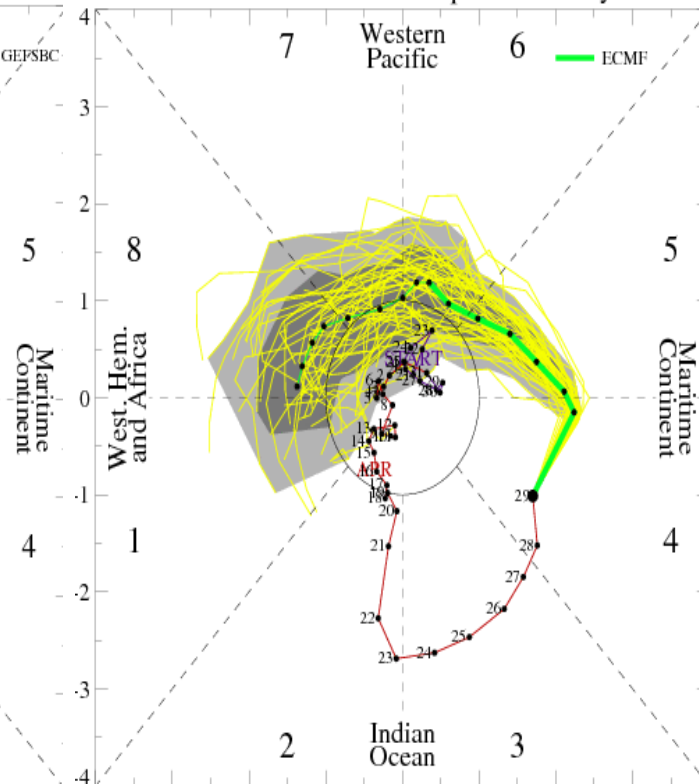
MJO Observation/Forecast

[RMM1, RMM2] forecast for Apr-30-2019 to May-14-2019



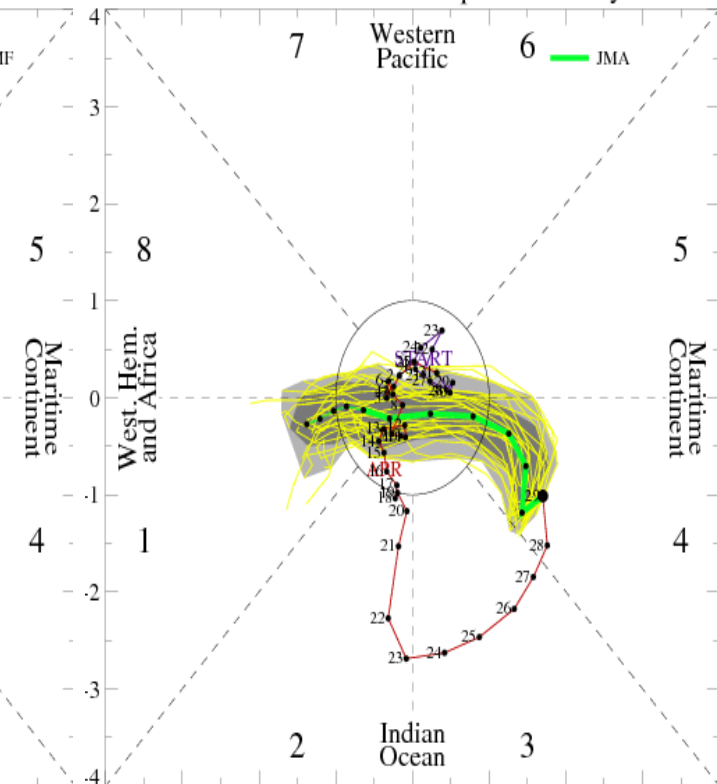
GEFS

MJO Index Forecast for 30Apr2019-14May2019



ECMWF

MJO Index Forecast for 30Apr2019-08May2019

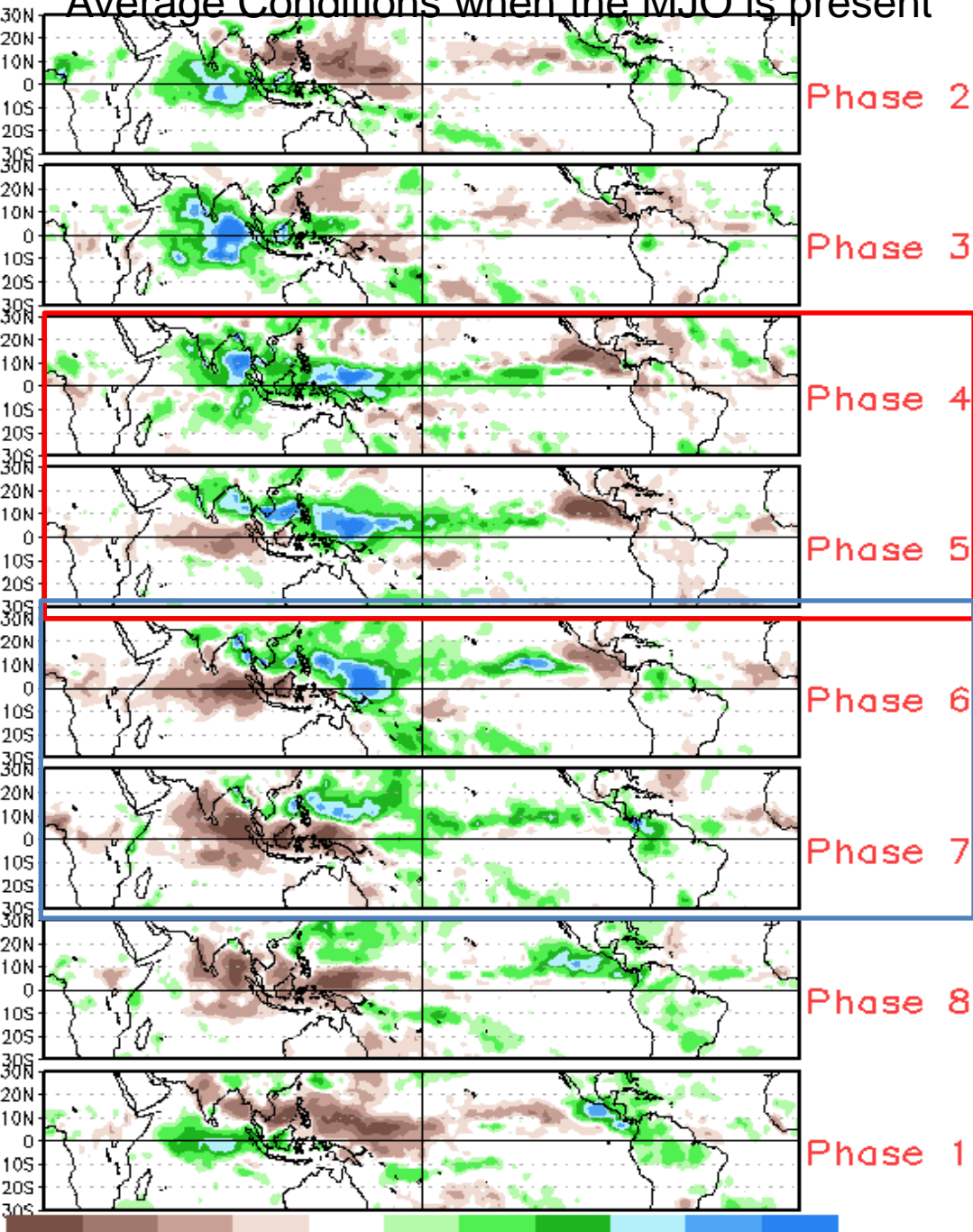


JMA

The GEFS and ECMWF are close together, before the GEFS weakens the signal by late next week and the ECMWF pushes the signal across the Pacific.

The JMA model begins to emphasize another center of action across the Western Hemisphere over the course of the next week, and appears to be an outlier.

Average Conditions when the MJO is present



Week-1: Phases 4/5

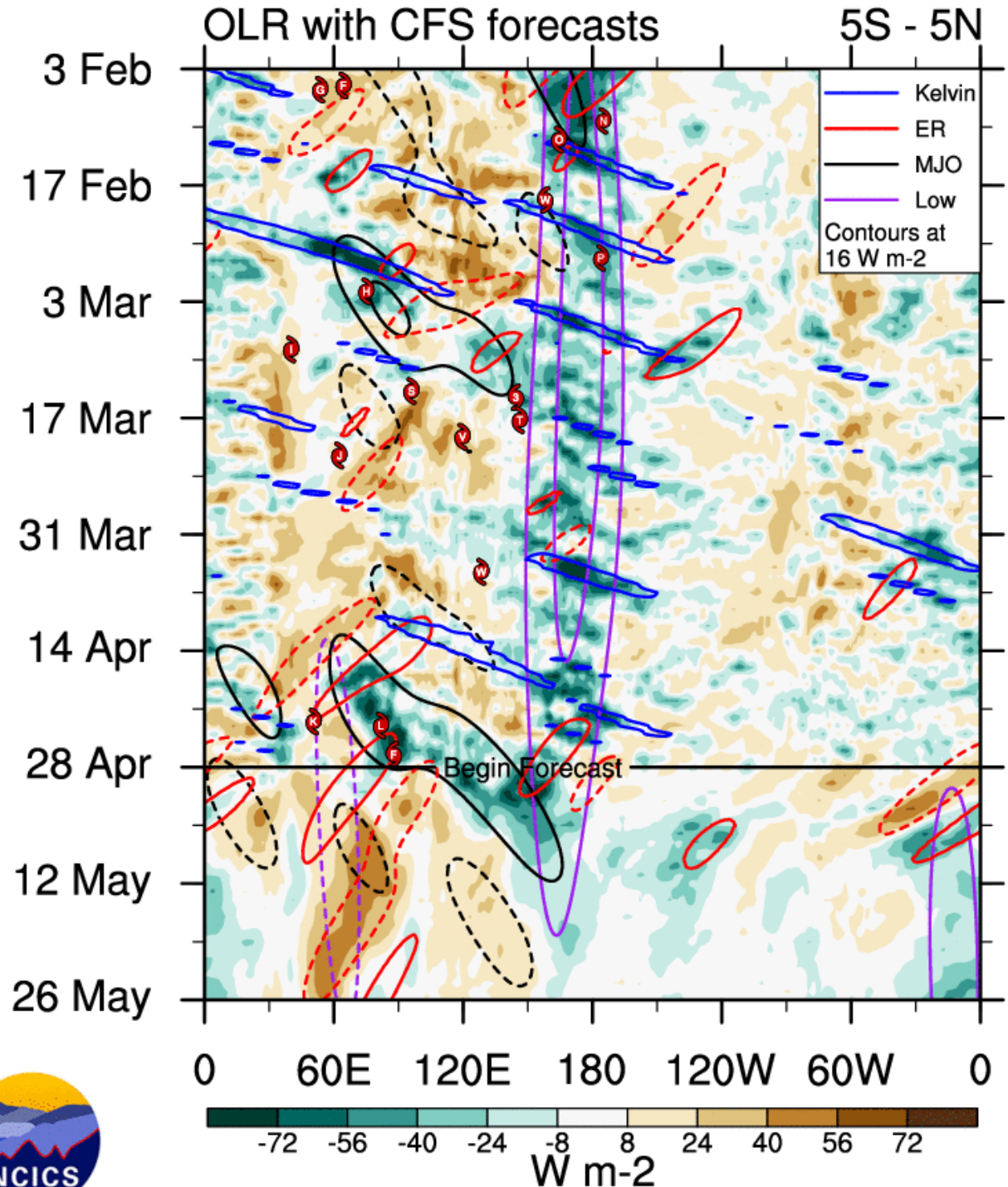
Week-2: Phases 6/7

CAVEAT: These panels are representative of robust MJO events.

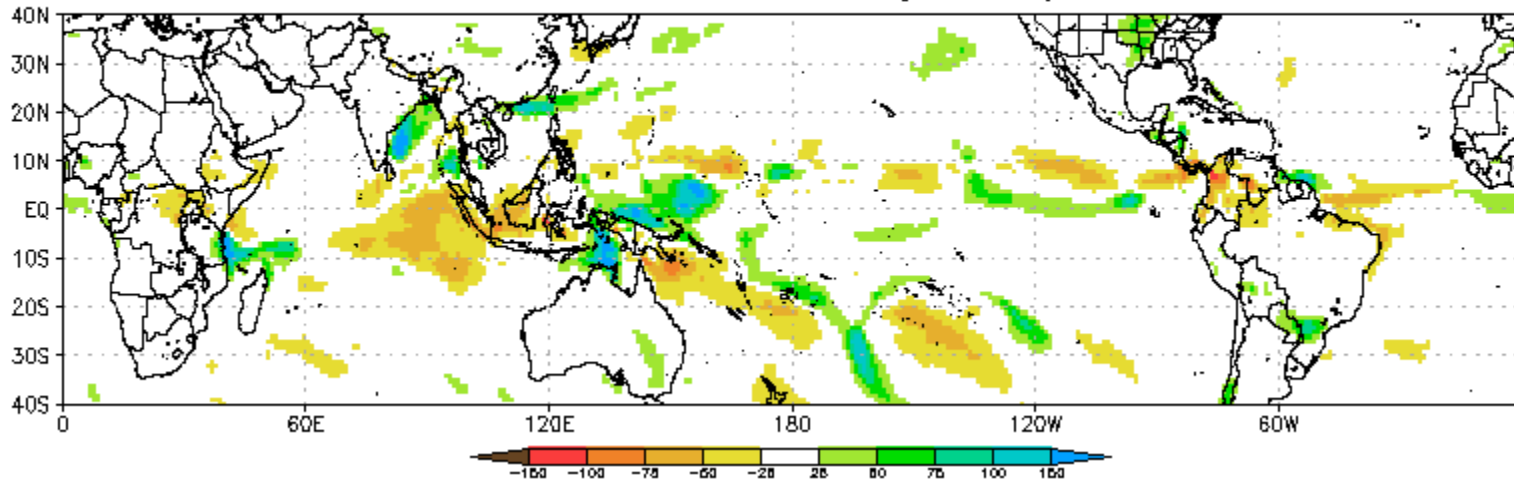
MJO crosses the Maritime Continent over the coming week.

While not isolated by the objective decomposition routine, **Kelvin wave**-like activity is showing up within the MJO.

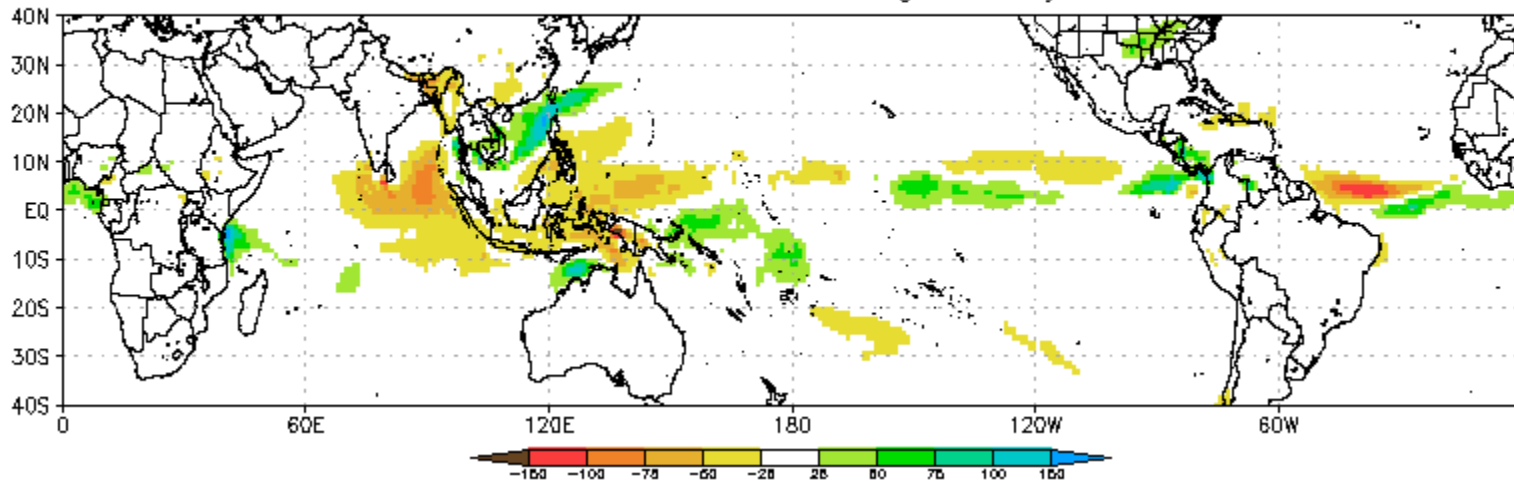
Low-frequency enhanced convection continues to be anchored west of the Antimeridian.



CFS Precipitation Anomalies (mm) Issued 29Apr2019
Week-1 Forecast Ending 07May2019

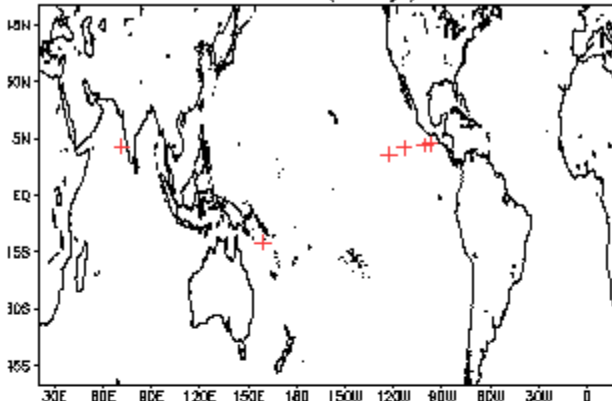


CFS Precipitation Anomalies (mm) Issued 29Apr2019
Week-2 Forecast Ending 14May2019

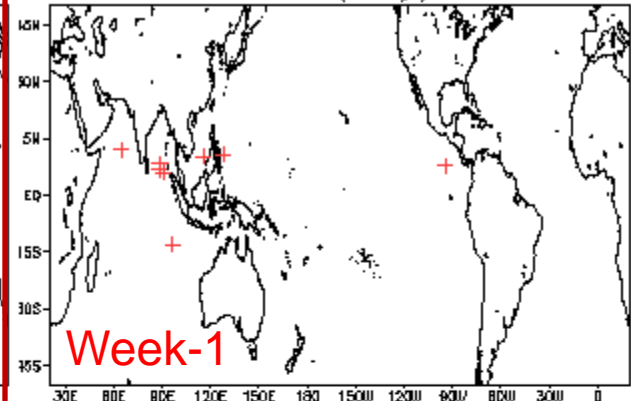


May Tropical Storm Formation by MJO phase

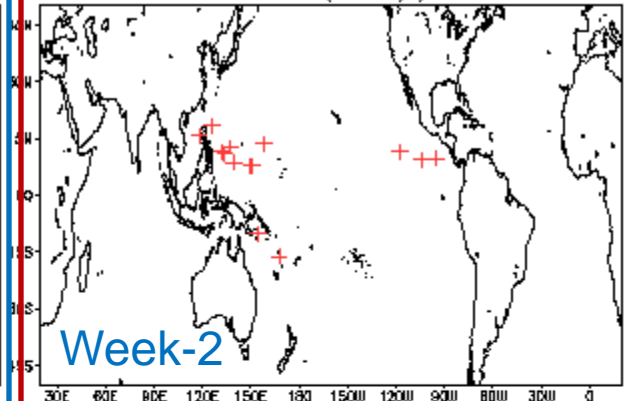
Phase 1 (85 days) 7 storms



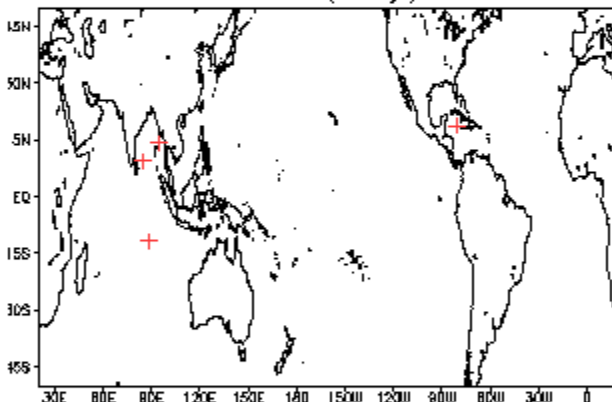
Phase 4 (85 days) 9 storms



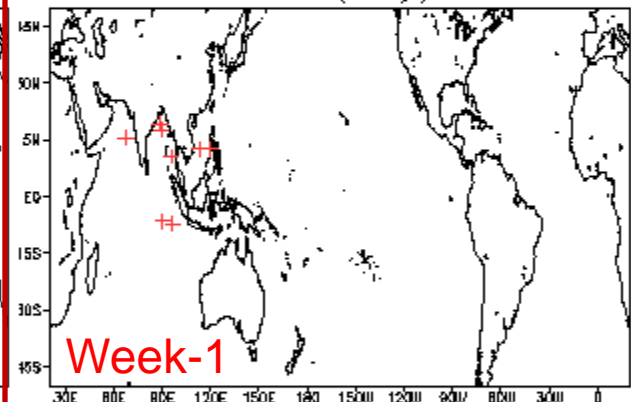
Phase 7 (111 days) 15 storms



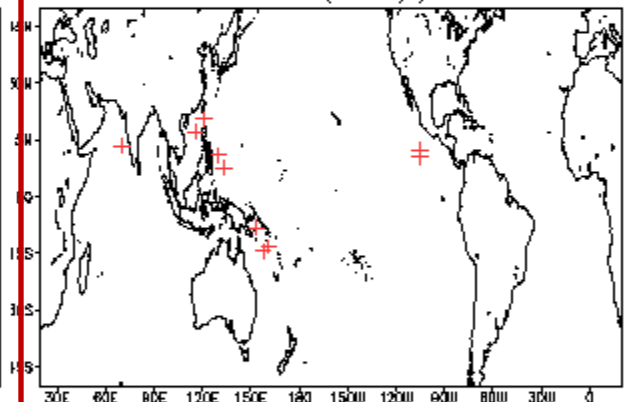
Phase 2 (76 days) 5 storms



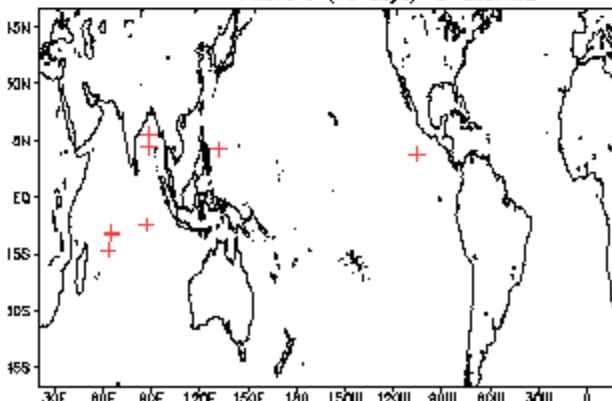
Phase 5 (66 days) 9 storms



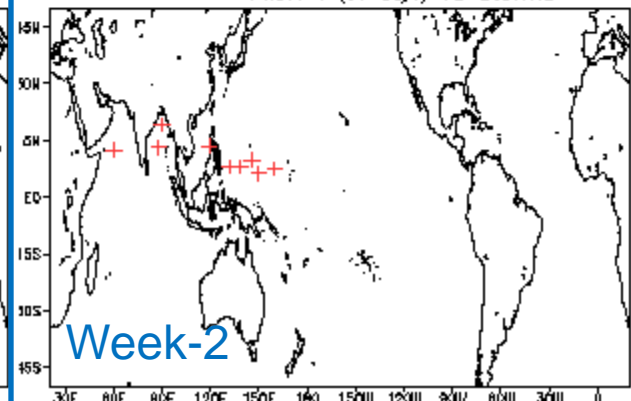
Phase 8 (111 days) 11 storms



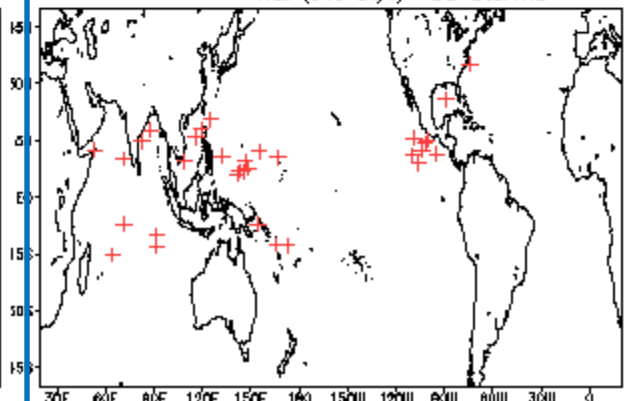
Phase 3 (73 days) 9 storms

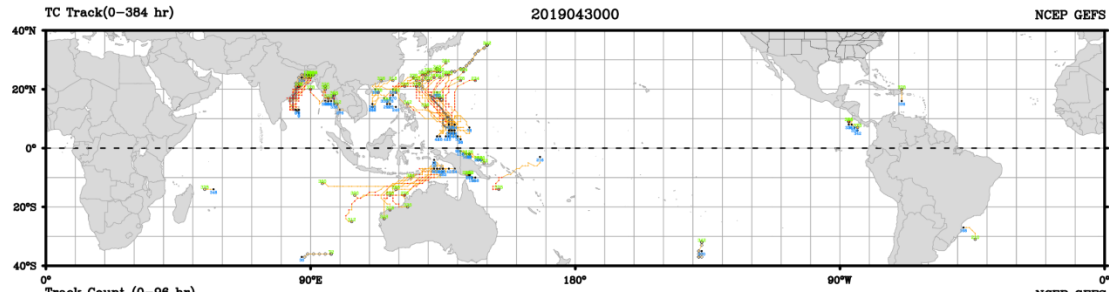


Phase 6 (87 days) 10 storms

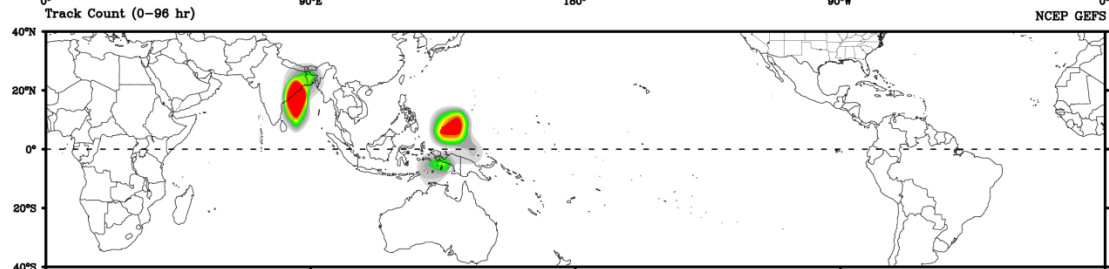


Null (349 days) 33 storms

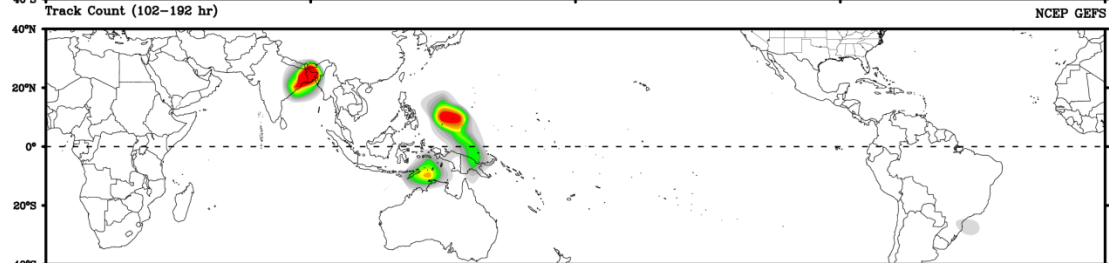




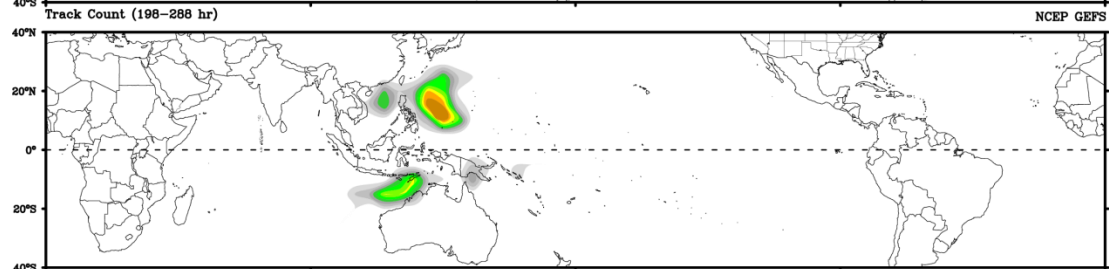
Days 1-4



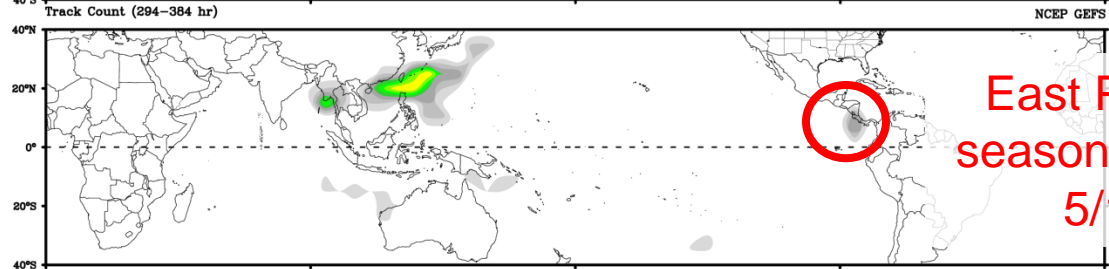
Days 5-8



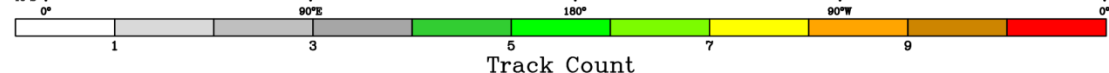
Days 9-12



Days 13-16



East Pacific
season begins
5/15

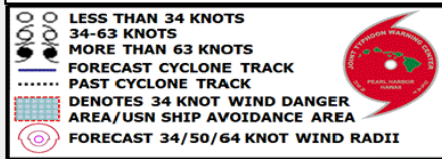


JTWC

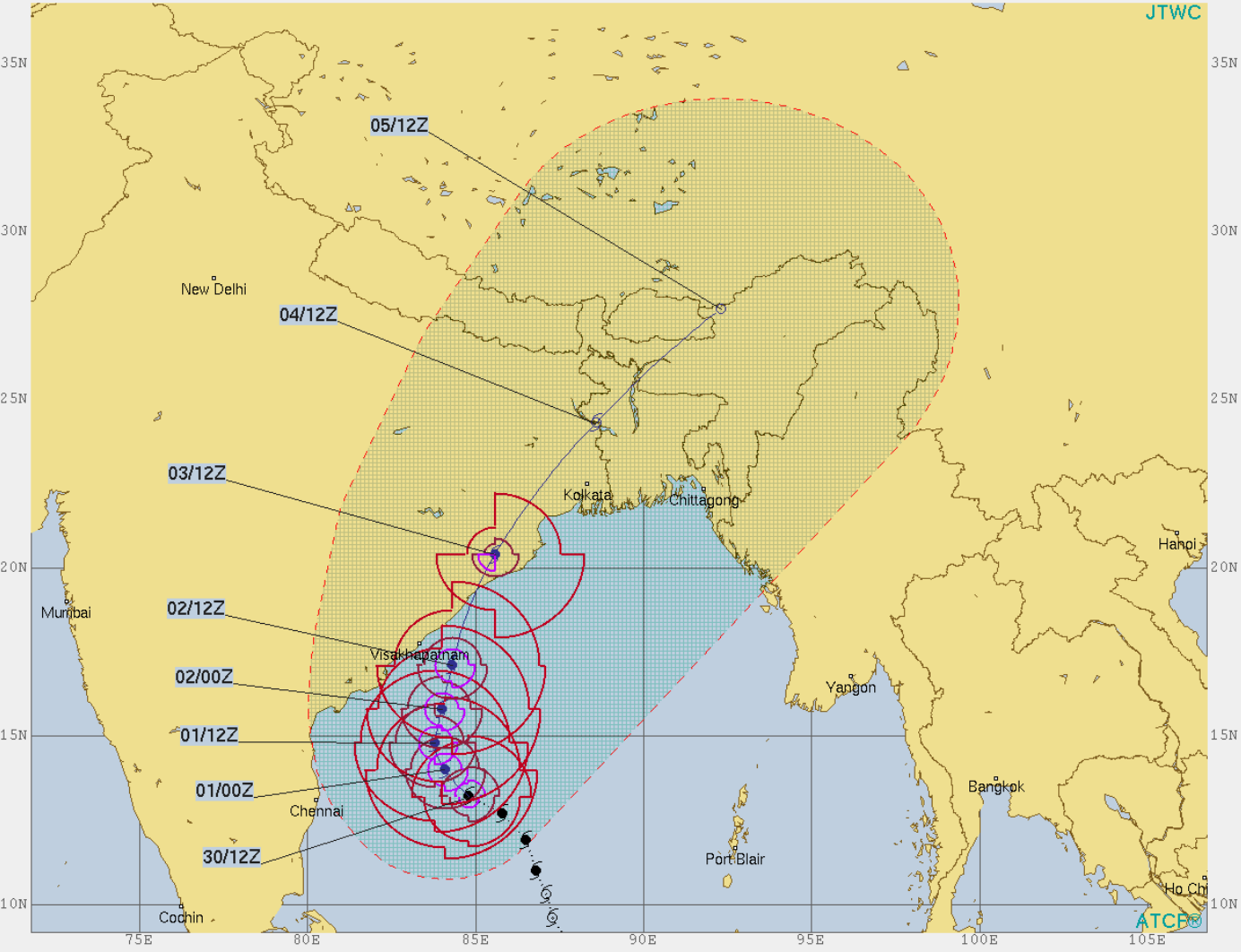
TROPICAL CYCLONE 01B (FANI) WARNING #15
 WTIO31 PGTW 301500
 301200Z POSIT: NEAR 13.2N 84.8E
 MOVING 295 DEGREES TRUE AT 11 KNOTS
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 29 FEET
 01/00Z, WINDS 100 KTS, GUSTS TO 125 KTS
 01/12Z, WINDS 105 KTS, GUSTS TO 130 KTS
 02/00Z, WINDS 115 KTS, GUSTS TO 140 KTS
 02/12Z, WINDS 115 KTS, GUSTS TO 140 KTS
 03/12Z, WINDS 085 KTS, GUSTS TO 105 KTS
 04/12Z, WINDS 055 KTS, GUSTS TO 070 KTS
 05/12Z, WINDS 030 KTS, GUSTS TO 040 KTS

CPA TO:	NM	DTG
CHENNAI	223	01/07Z
VISAKHAPATNAM	67	02/15Z
KOLKATA	55	04/05Z
CHITTAGONG	212	04/14Z
COXS BAZAR	216	04/15Z
DHAKA	98	04/15Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
CHENNAI	088	263	0
VISAKHAPATNAM	162	289	0

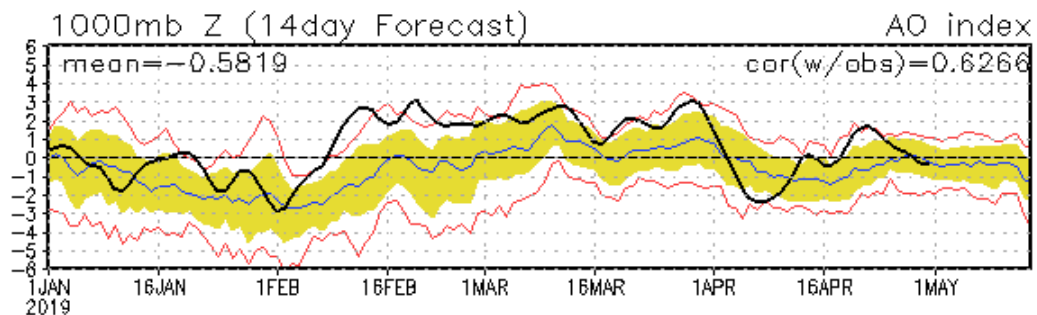
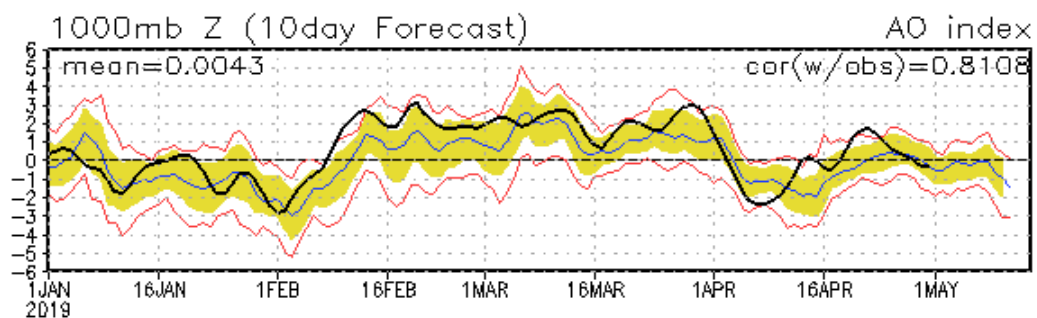
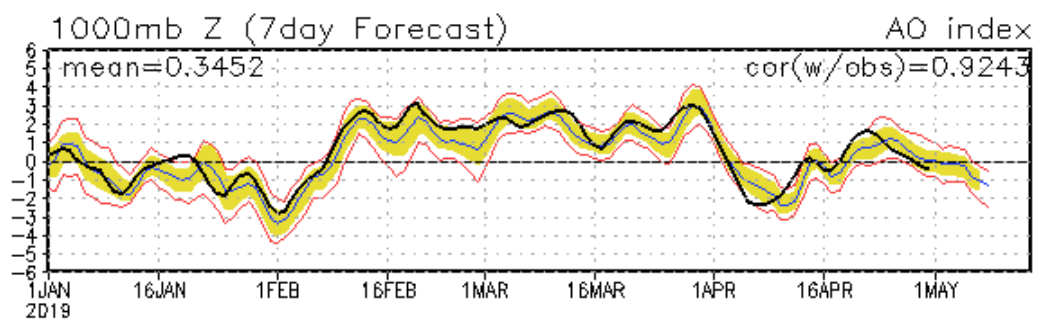
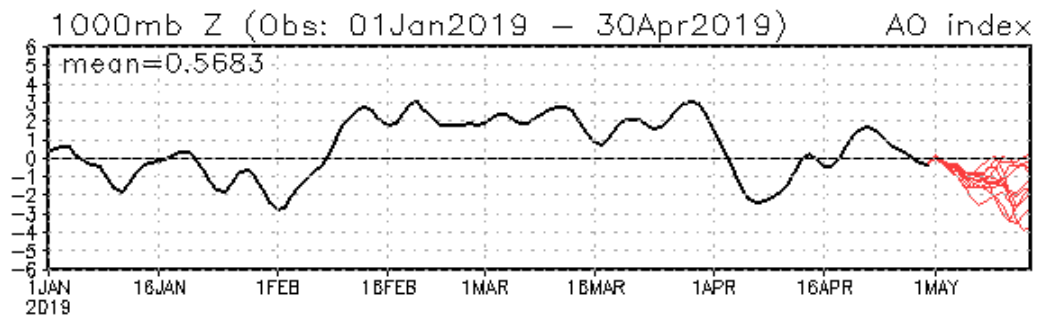


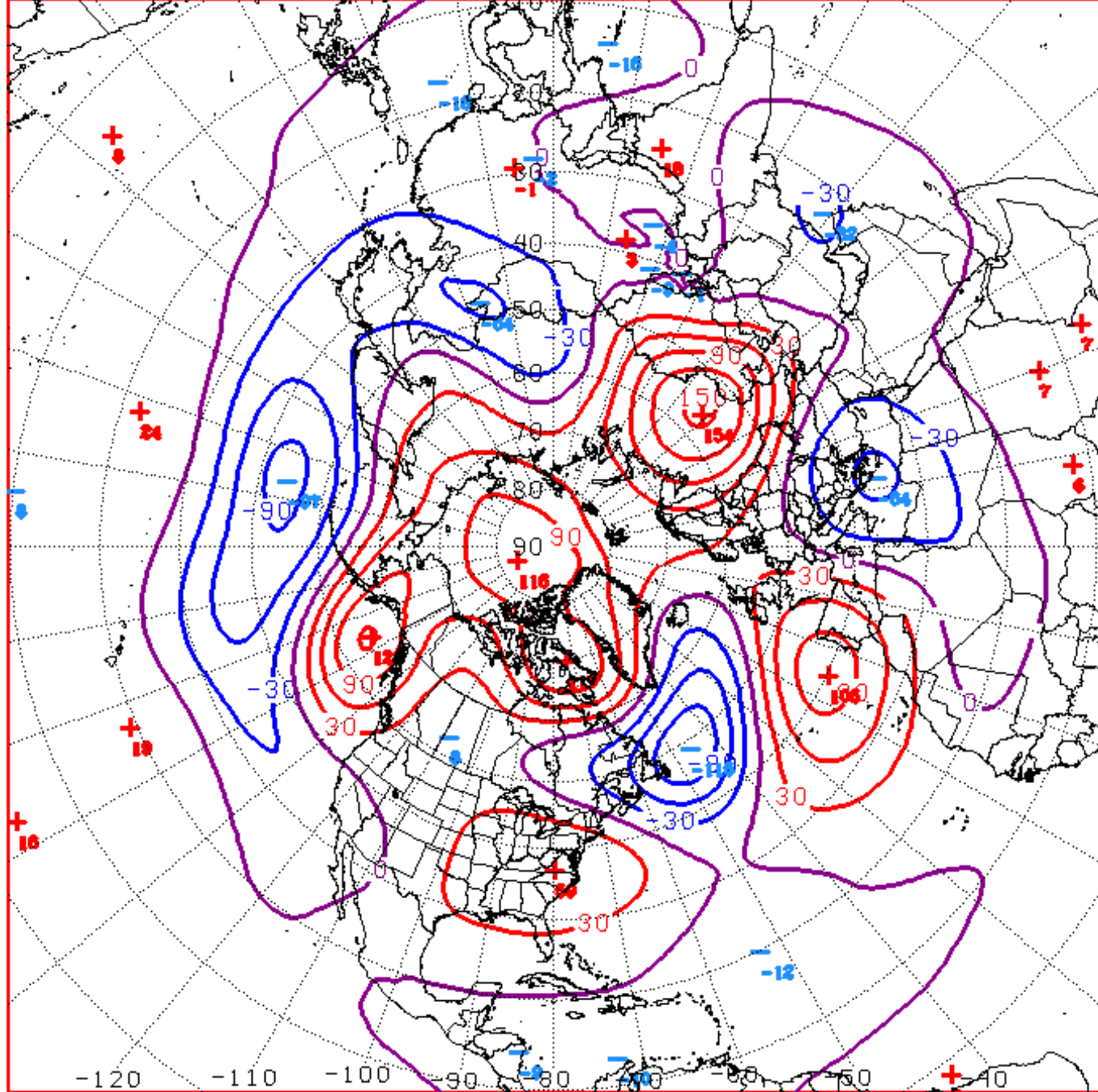
○ ○ ○ ○ LESS THAN 34 KNOTS
 ● ● ● ● 34-63 KNOTS
 ● ● ● ● MORE THAN 63 KNOTS
 - - - - FORECAST CYCLONE TRACK
 - - - - PAST CYCLONE TRACK
 [Grid] DENOTES 34 KNOT WIND DANGER
 [Red Dashed] AREA/USN SHIP AVOIDANCE AREA
 [Purple] FORECAST 34/50/64 KNOT WIND RADII



Connections to U.S. Impacts

AO: Observed & ENSM forecasts

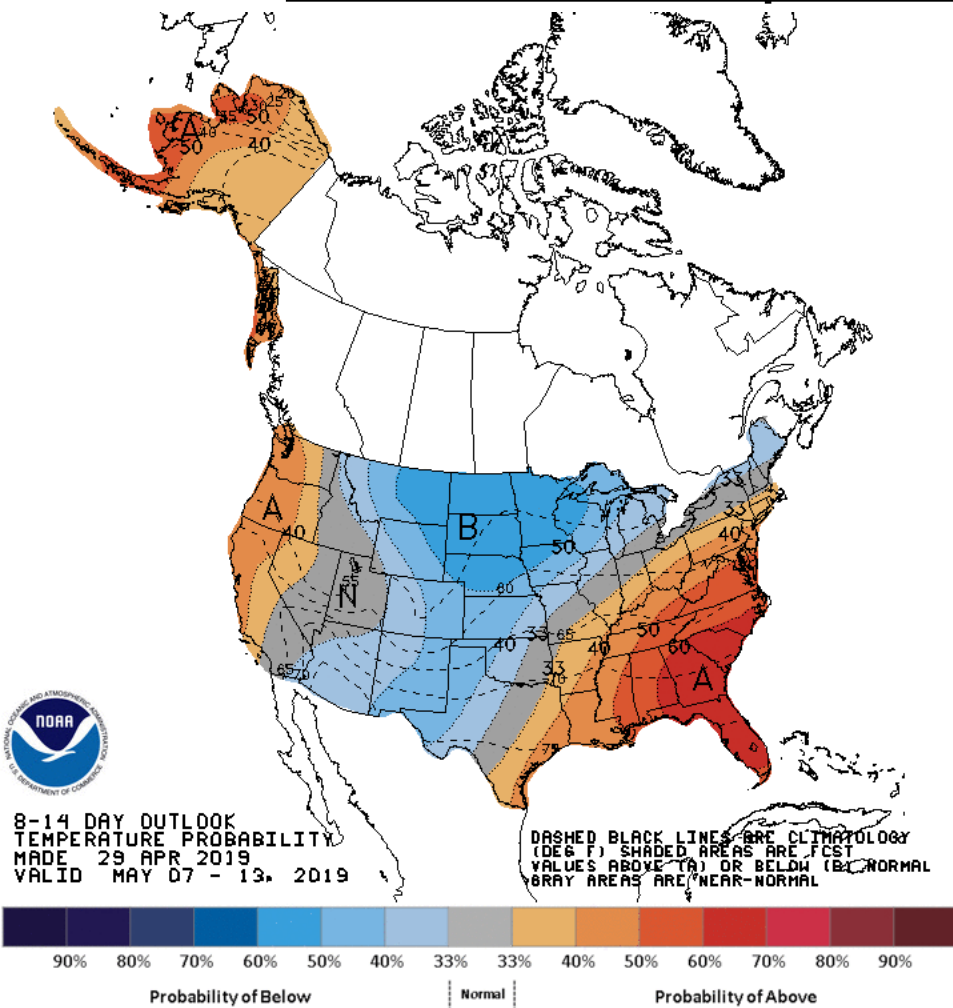




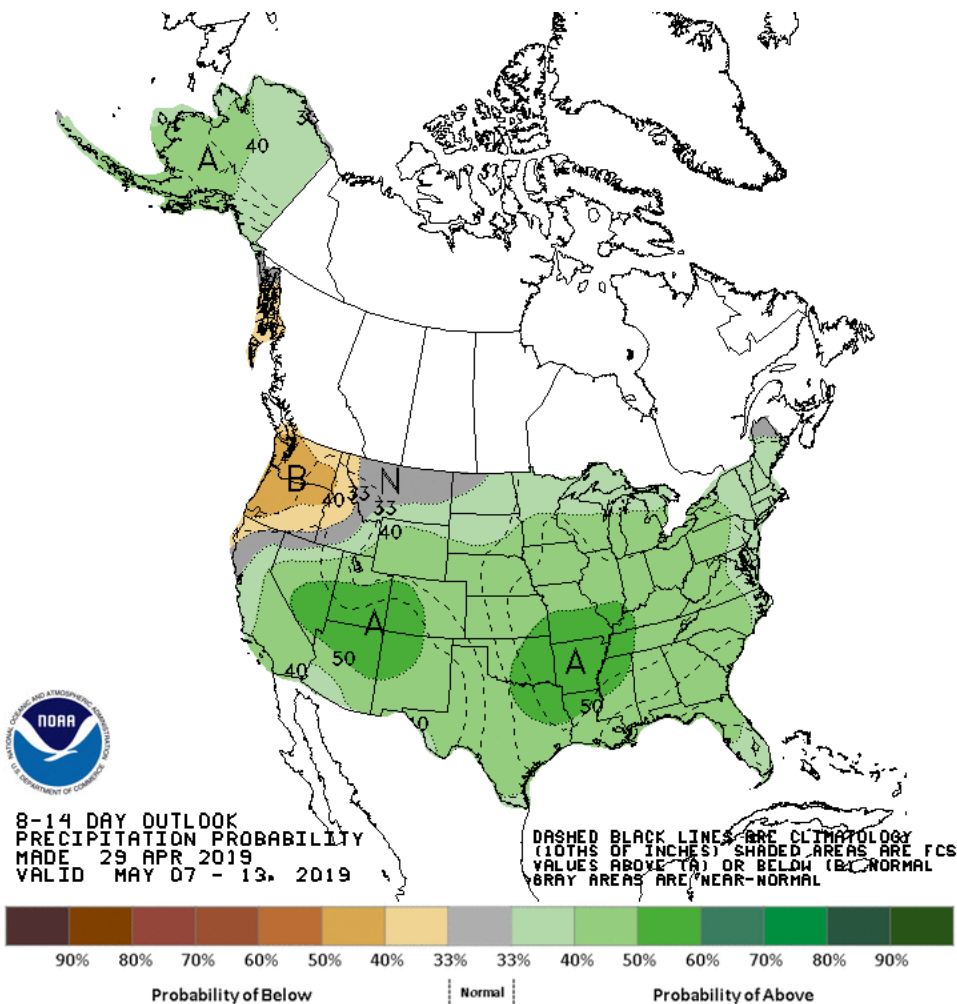
D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE APR 30 2019 1328 UTC CNTD MAY 11 2019

Week 2 – Temperature and Precipitation

Odds for above-normal precipitation decrease over the Lower Mississippi Valley as the best wet signal shifts to before the forecast period.



Slight eastward progression today, with a cooler tilt in the Northeast most being the most noteworthy update.

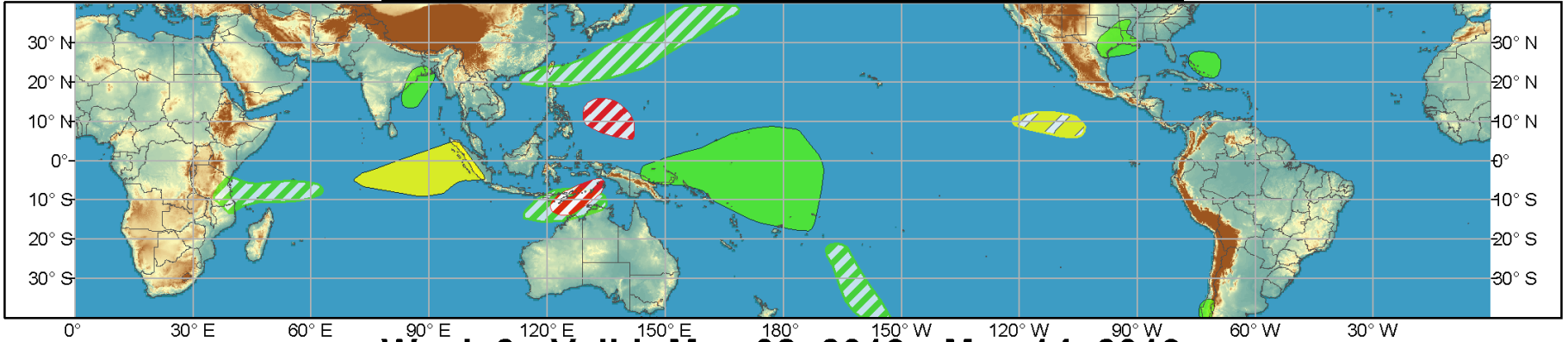




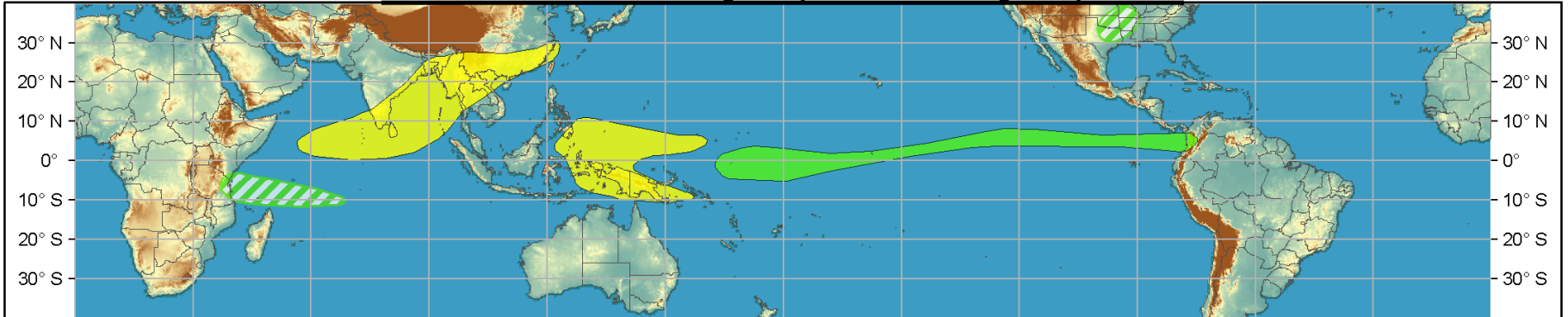
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