Global Tropics Hazards And Benefits Outlook

4/7/2020

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

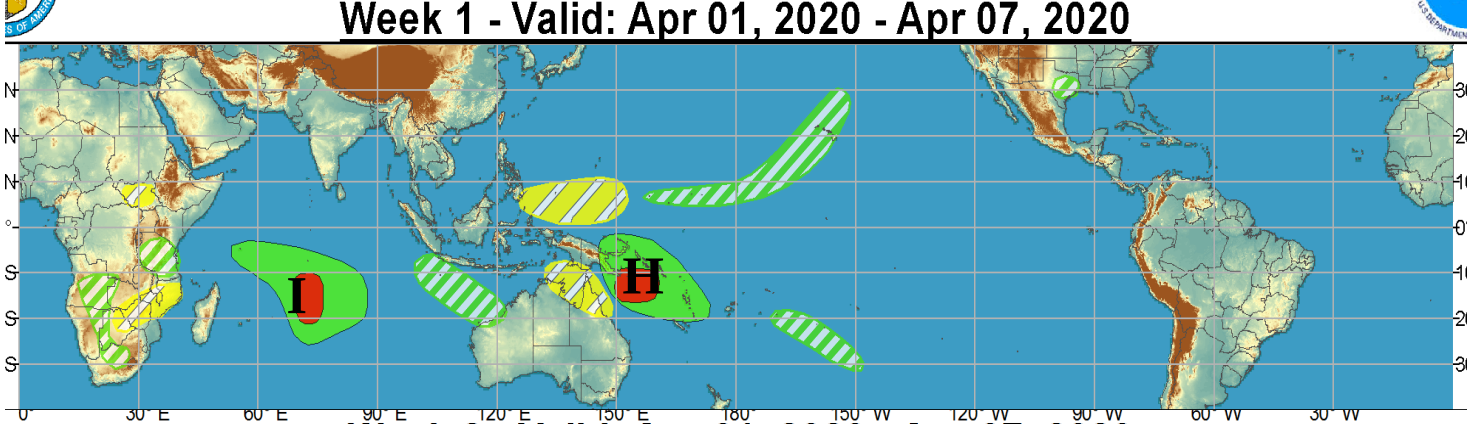
Outlook Review

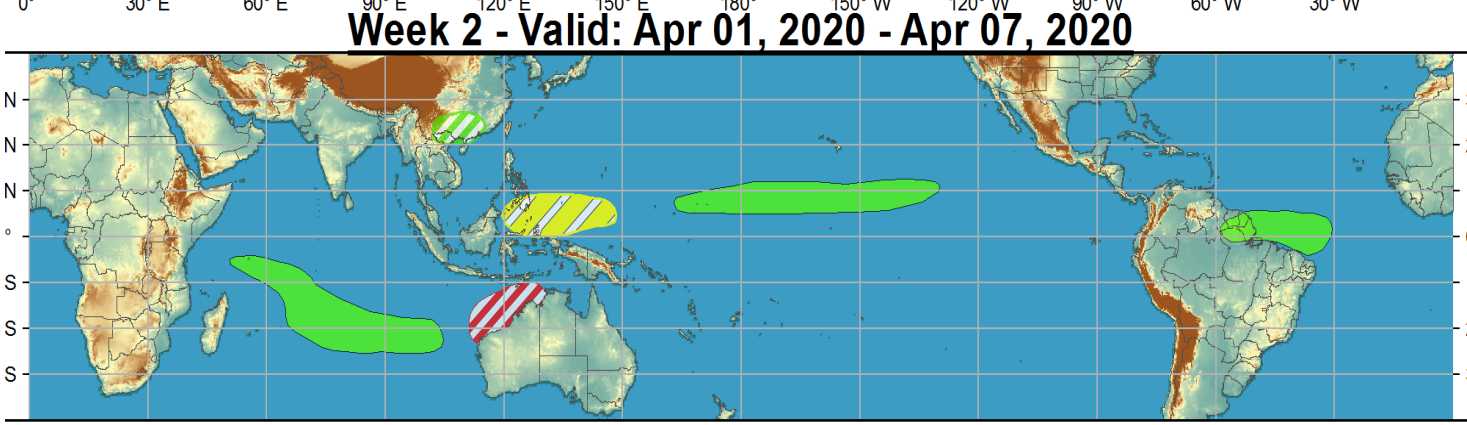
TC Irondro:
2-6 April
Peak: 95 knots

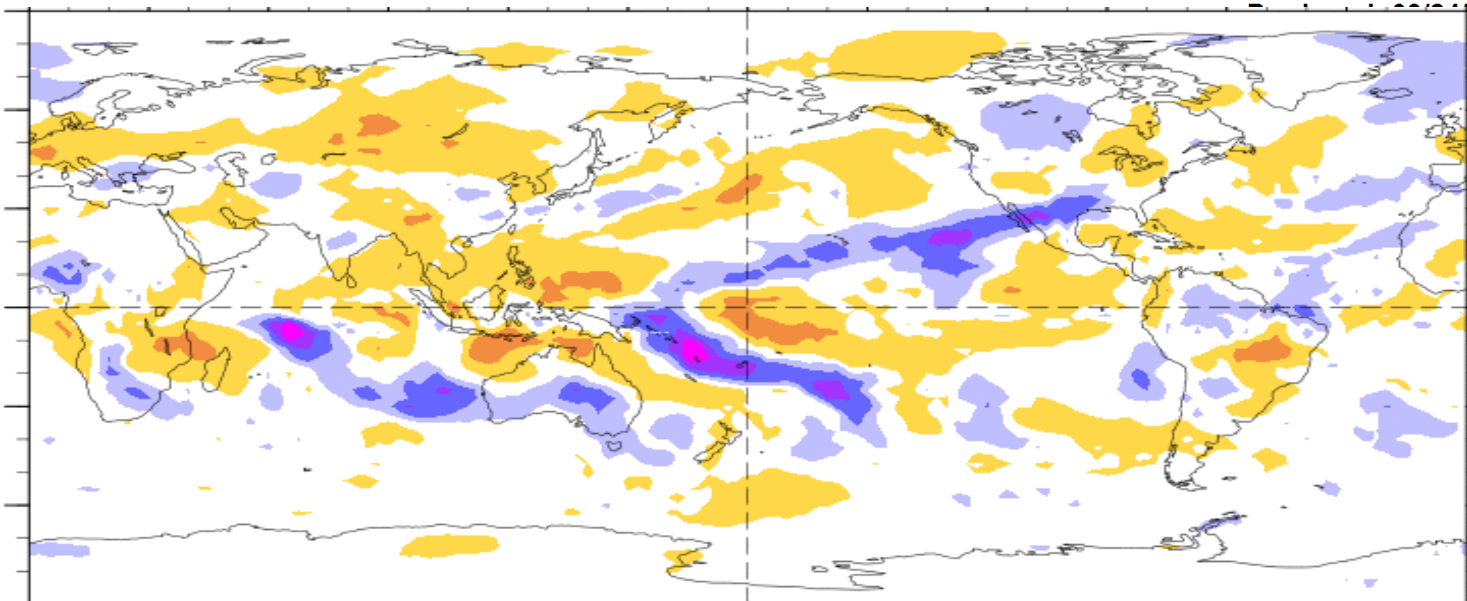
TC Harold:
2 April - Present
Peak: 145 knots

Cool shading
More clouds/rain

Warm shading
Less clouds/rain







Synopsis of Climate Modes

ENSO: (March 12, 2020 Update) ***next update on 9th of April!***

- ENSO Alert System Status: Not Active

- ENSO-neutral is favored during the Northern Hemisphere spring (~65% chance), continuing through summer 2020 (~55% chance).

MJO and other subseasonal tropical variability:

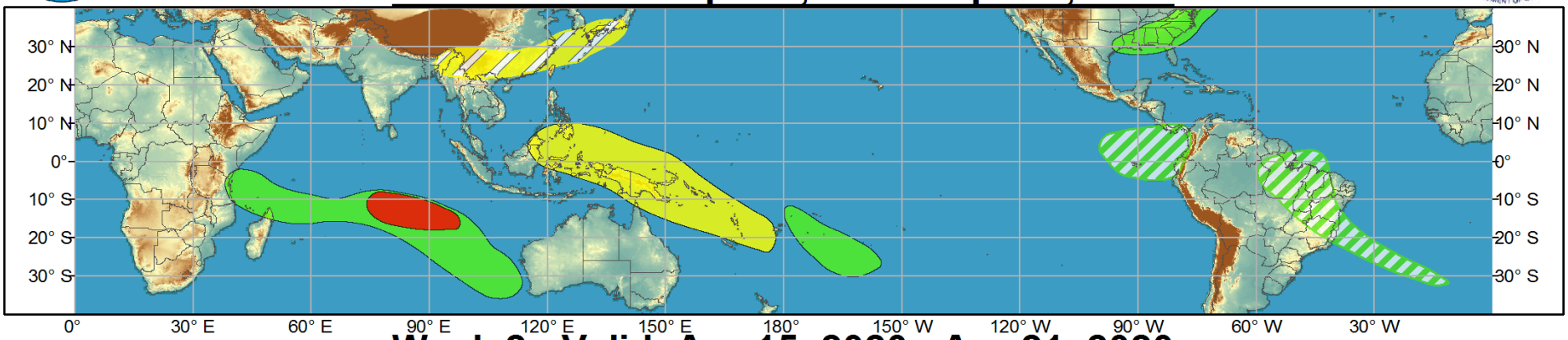
- Either a convectively-coupled Kelvin wave or MJO event is recently emerging into the Pacific basin. It is forecast to cross the Pacific during the next seven days, and reach the Indian Ocean the following week.

- This signal is rapidly circumnavigating the globe, making any extratropical impacts unlikely.

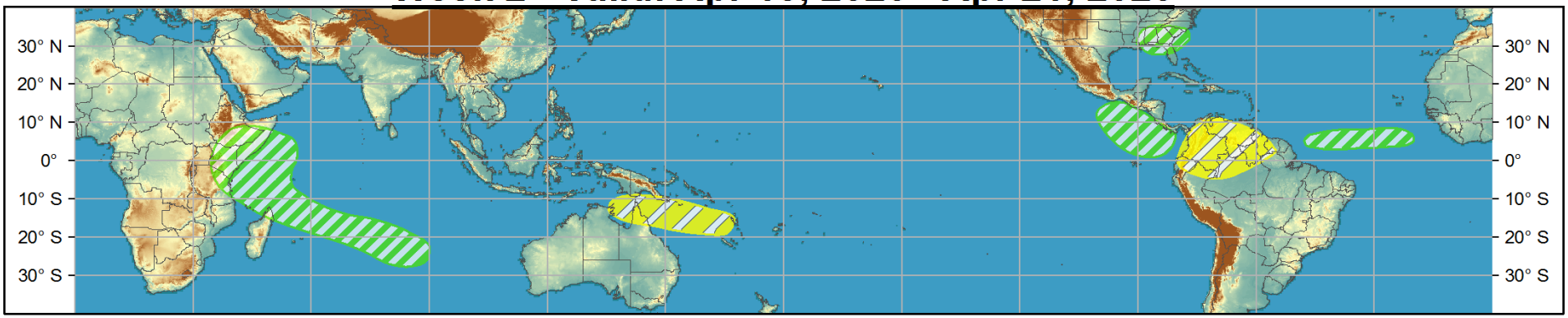
- The East Pacific hurricane season does not begin until 15 May, but the intraseasonal envelope crossing the Western Hemisphere would support East Pacific TC formation west of Central America if we were later in the year. This may bear monitoring around the 15-17th of April for possible TC development during the preseason, although it lacks any historical precedent.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Apr 08, 2020 - Apr 14, 2020



Week 2 - Valid: Apr 15, 2020 - Apr 21, 2020



Produced: 04/07/2020

Forecaster: Harnos

	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.
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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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.

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

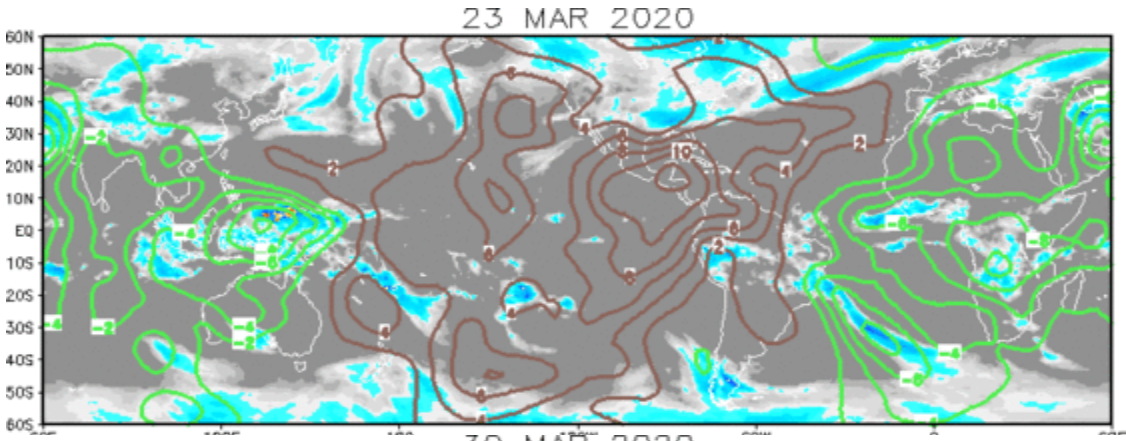
IR Satellite & 200-hpa Velocity Potential Anomalies

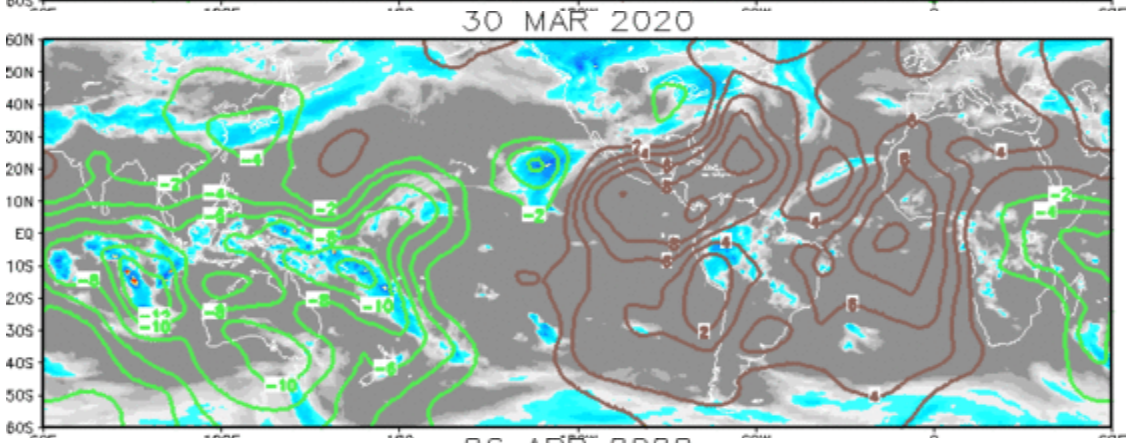
Green: Enhanced Divergence Brown: Enhanced Convergence

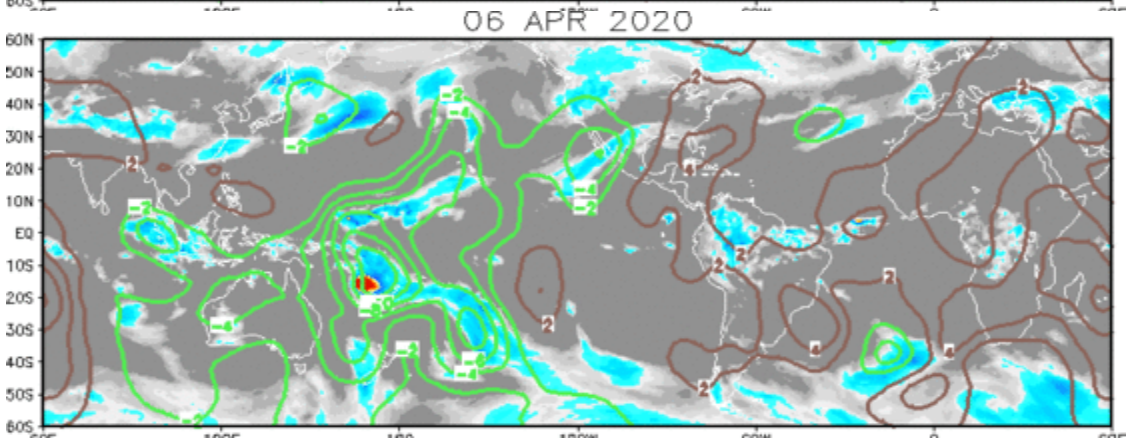
Wave-1 pattern with suppressed (enhanced) convection over the Americas and Pacific (Africa through Maritime Continent).

Slight eastward progression, while maintaining the wave-1 pattern.

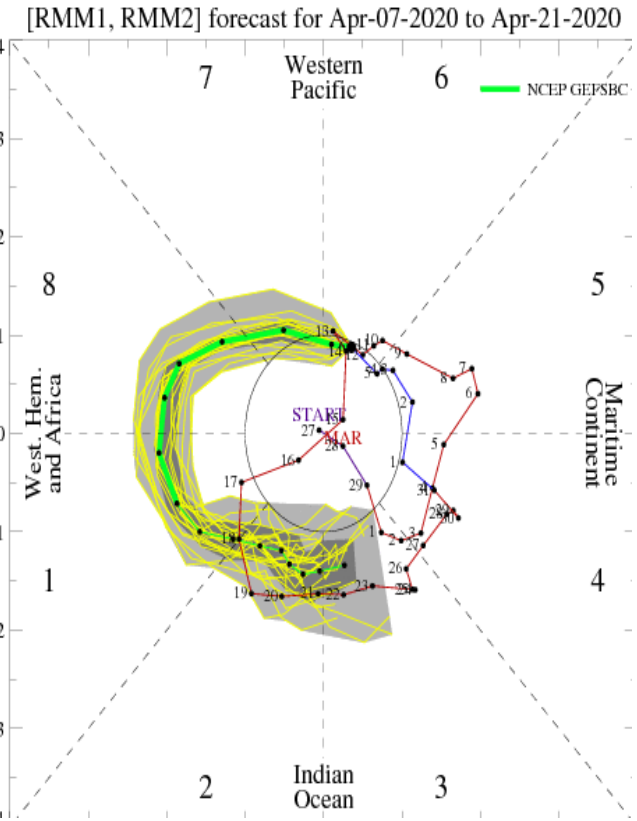
Continued eastward propagation. TC Harold is apparent, embedded within the enhanced convective envelope.



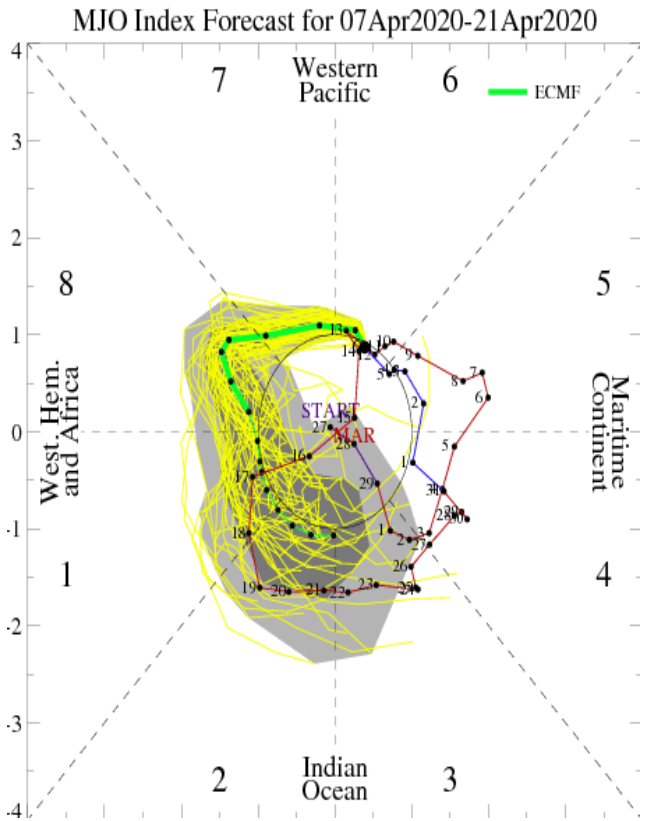




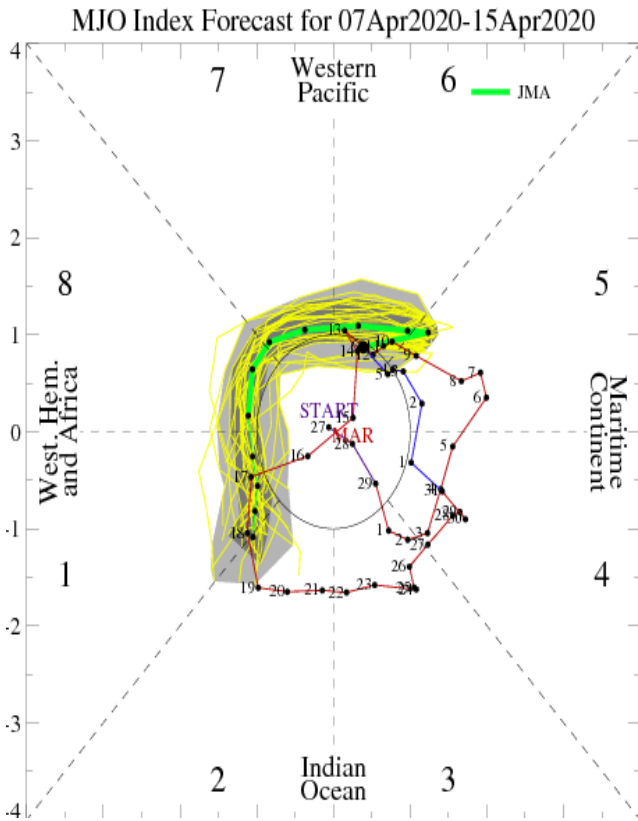
MJO Observation/Forecast



GEFS



ECMWF

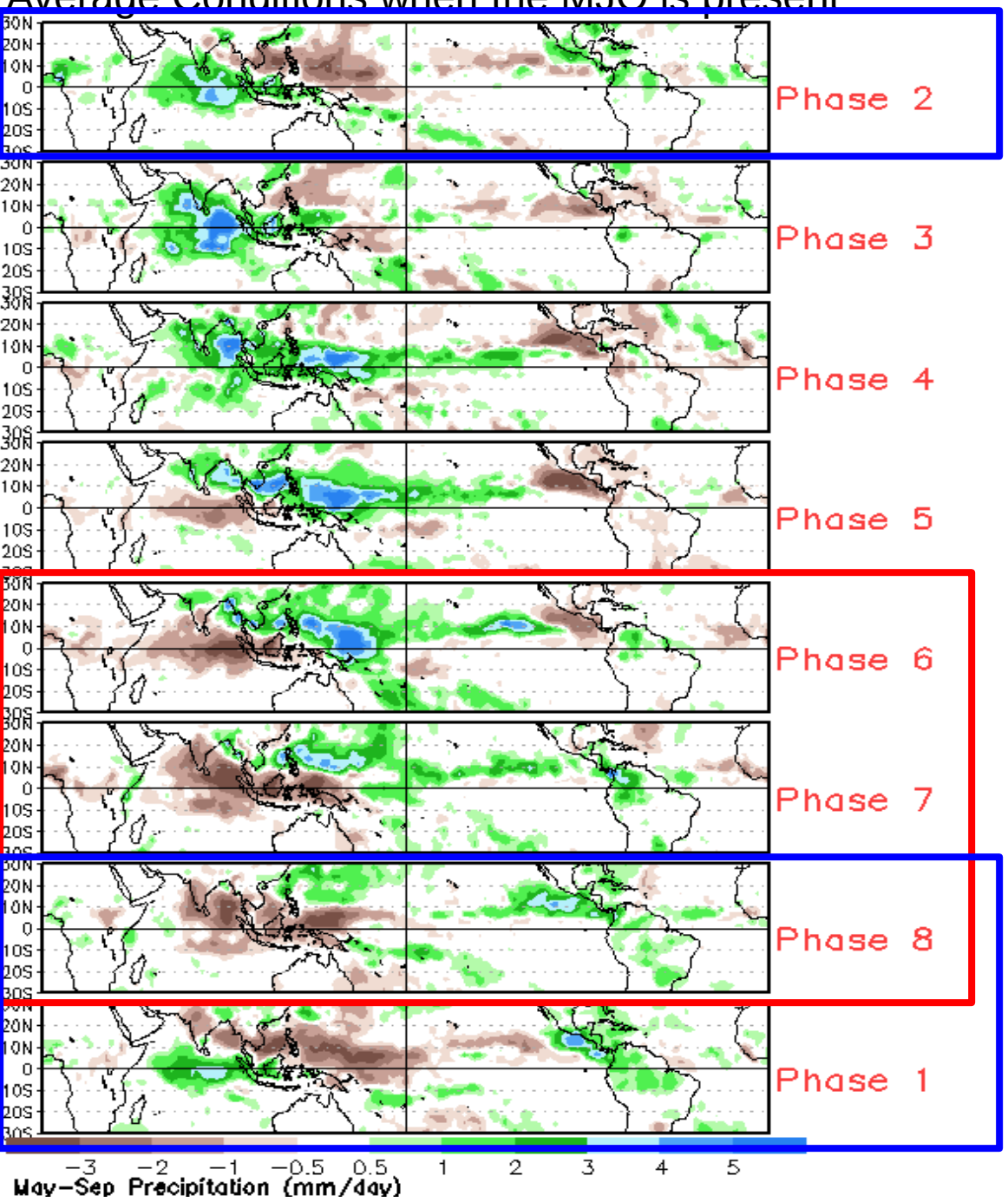


JMA

Consensus among models features rapid eastward propagation across the Pacific and the intraseasonal feature reaching the Western Hemisphere late this week, before making it to the Indian Ocean by the end of the following week.

Progression is *very* rapid (may only spend a day or two in Phase 6!).

Average Conditions when the MJO is present



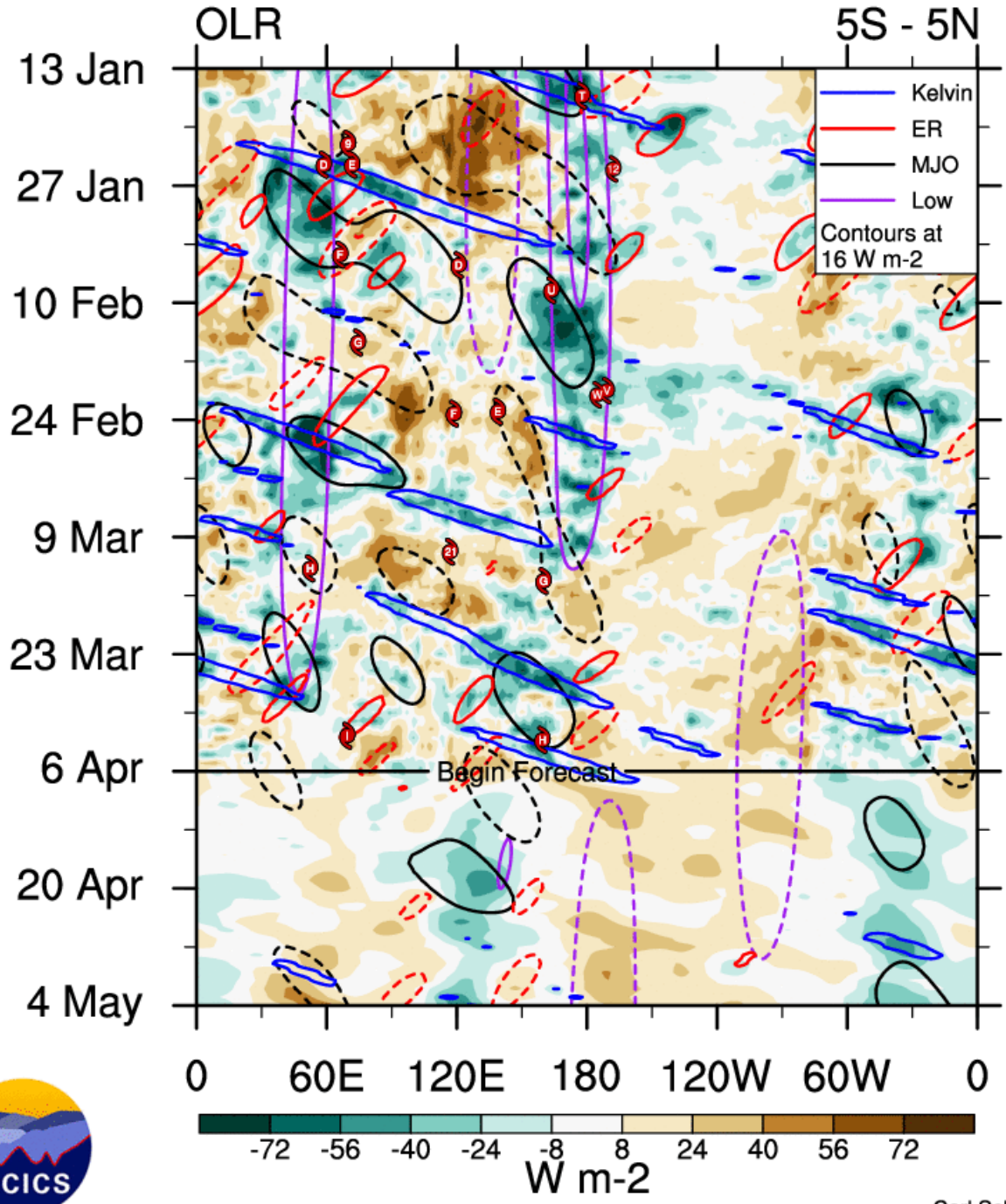
Week-1: Phases 6/7/8

Week-2: Phases 8/1/2

CAVEAT: These panels are representative of robust MJO events.

A **Kelvin wave** (or fast MJO?) is approaching the Western Hemisphere.

A **low frequency** signal is not apparent, but there does seem to be a westward shift of enhanced convection from the Date Line early this year, to near 120E by early May.



NCICS

ncics.org/mjo

Tue 2020-04-07 1513 UTC

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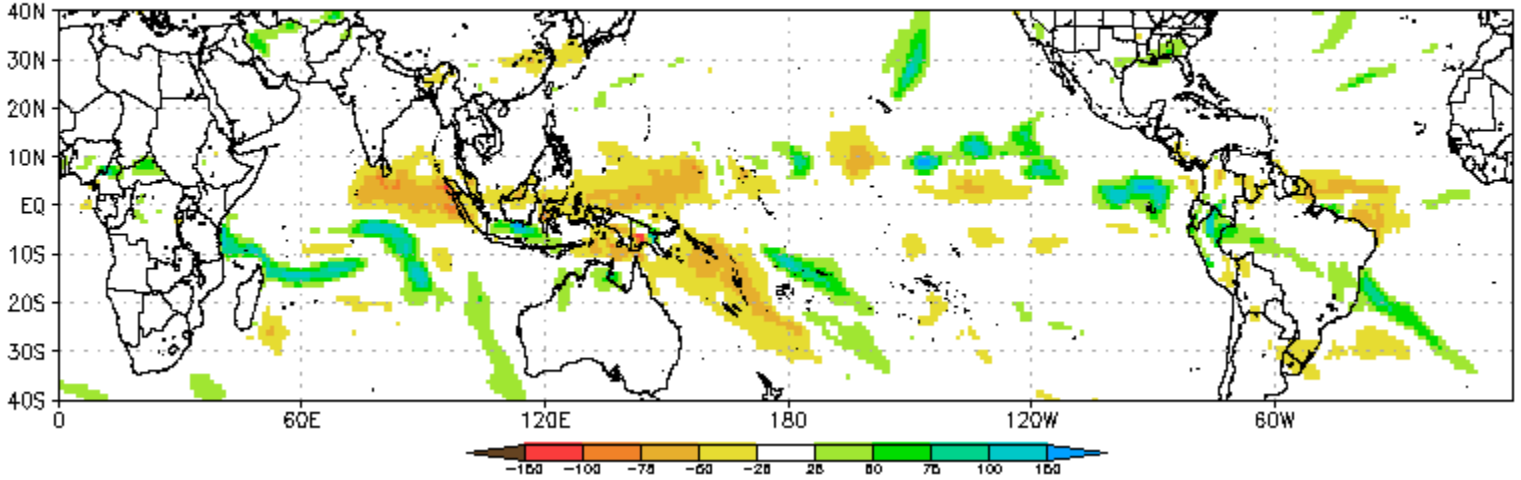
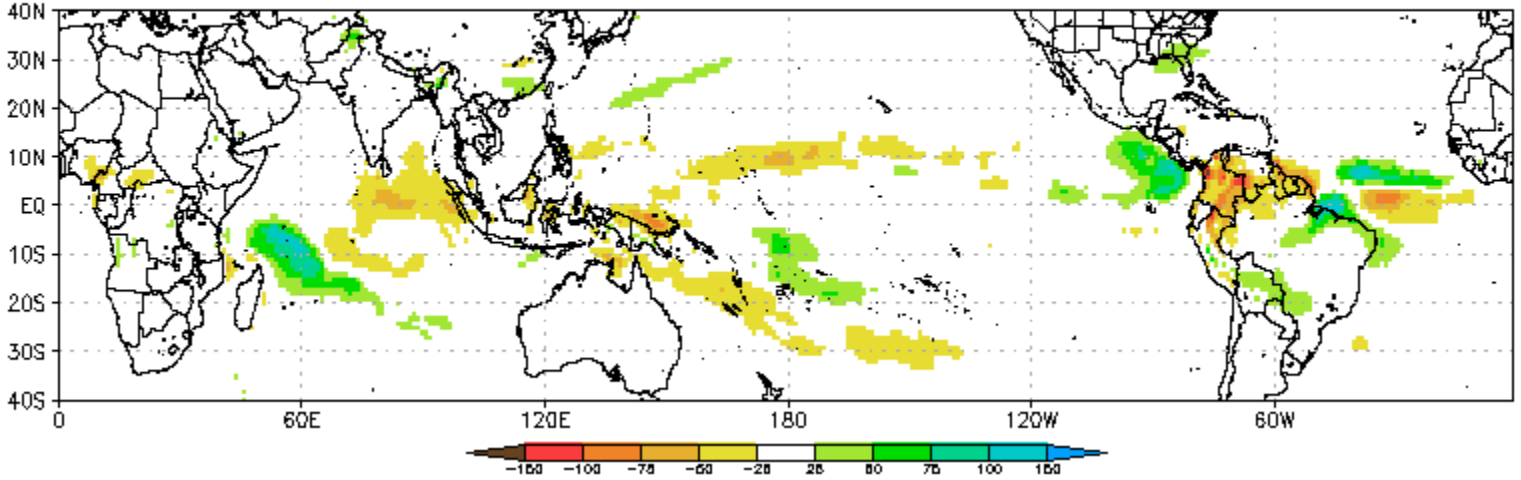
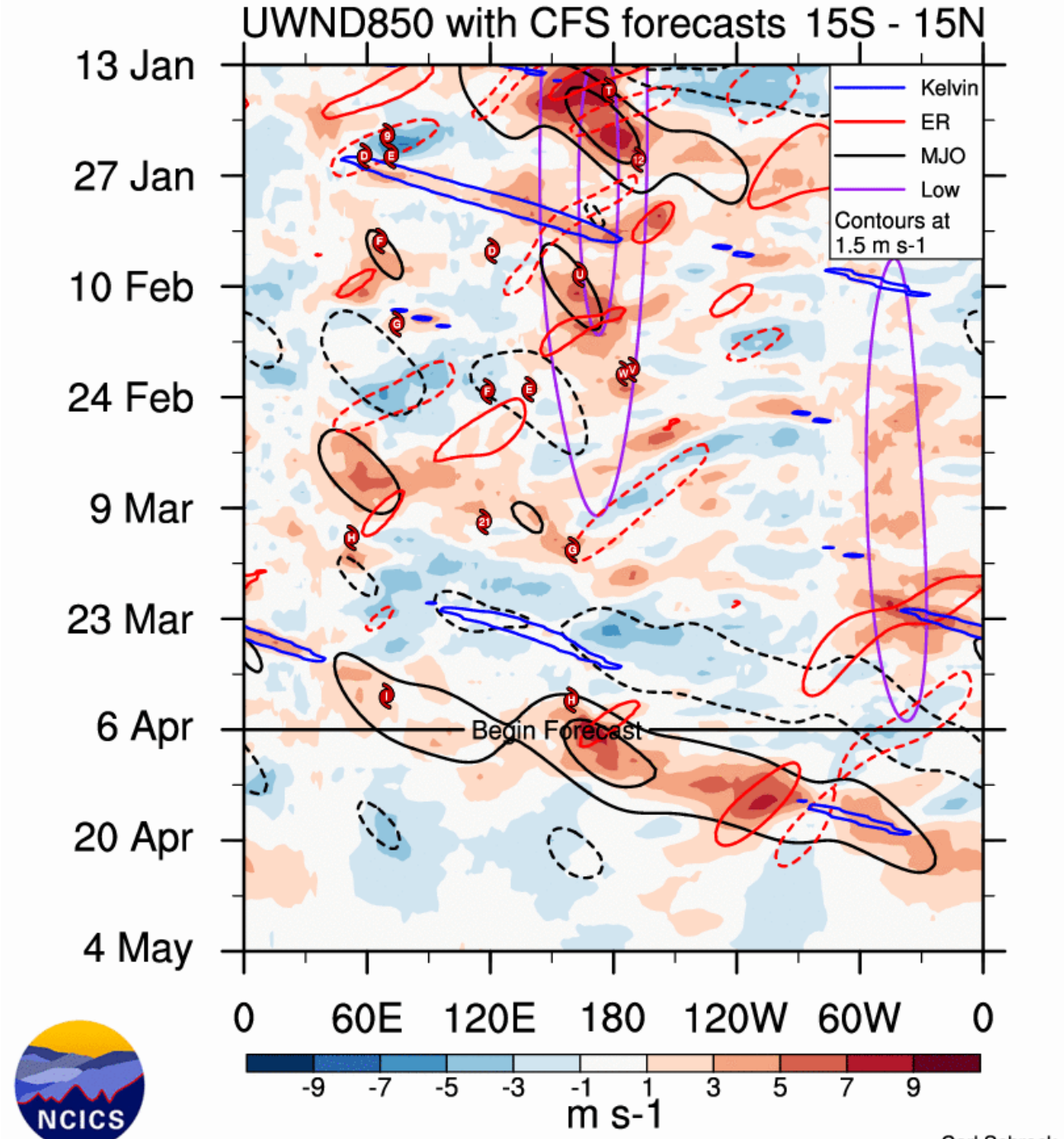
CFS Precipitation Anomalies (mm) Issued 06Apr2020
Week-1 Forecast Ending 14Apr2020



CFS Precipitation Anomalies (mm) Issued 06Apr2020
Week-2 Forecast Ending 21Apr2020





NCICS

ncics.org/mjo

Tue 2020-04-07 1021 UTC

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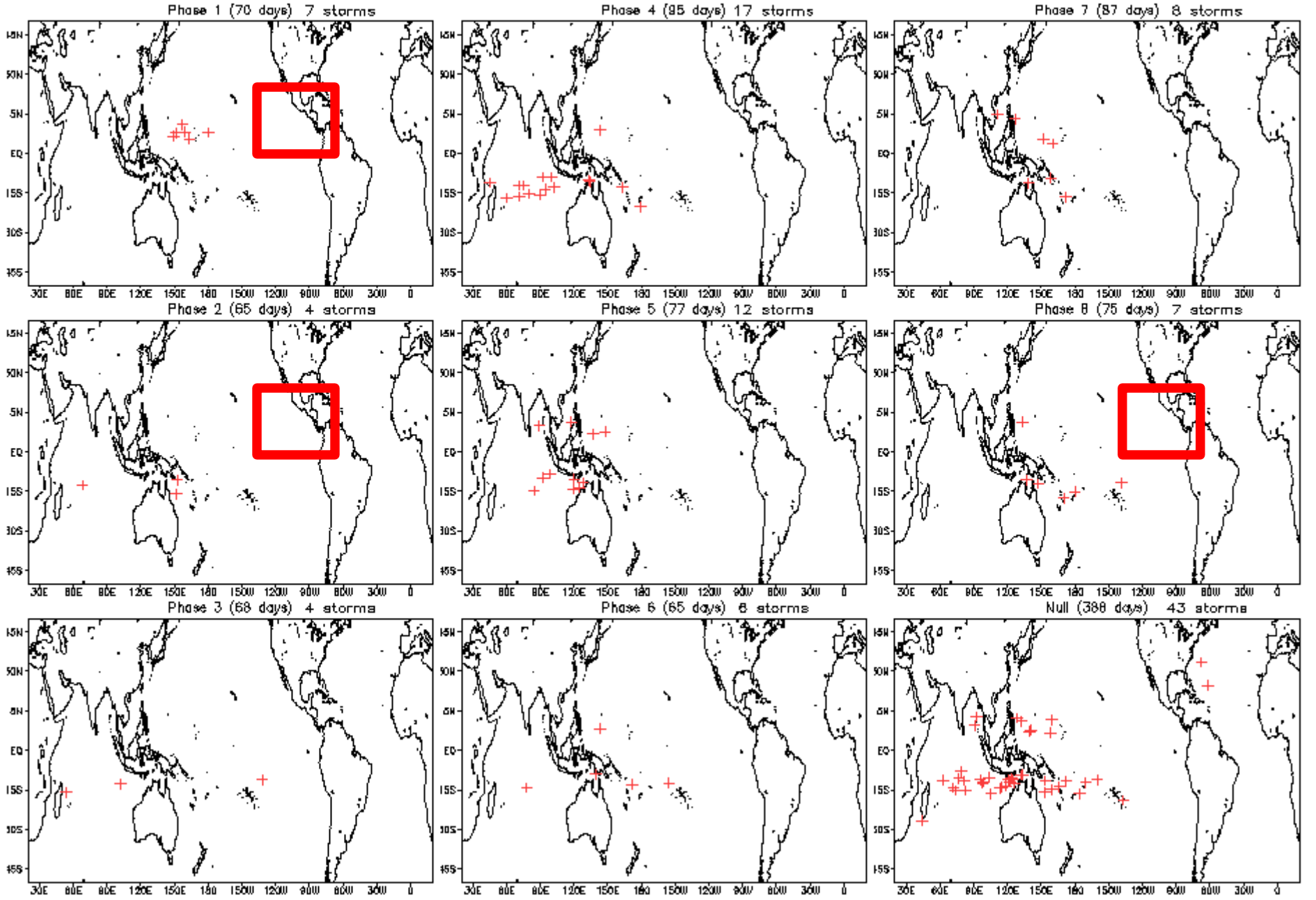
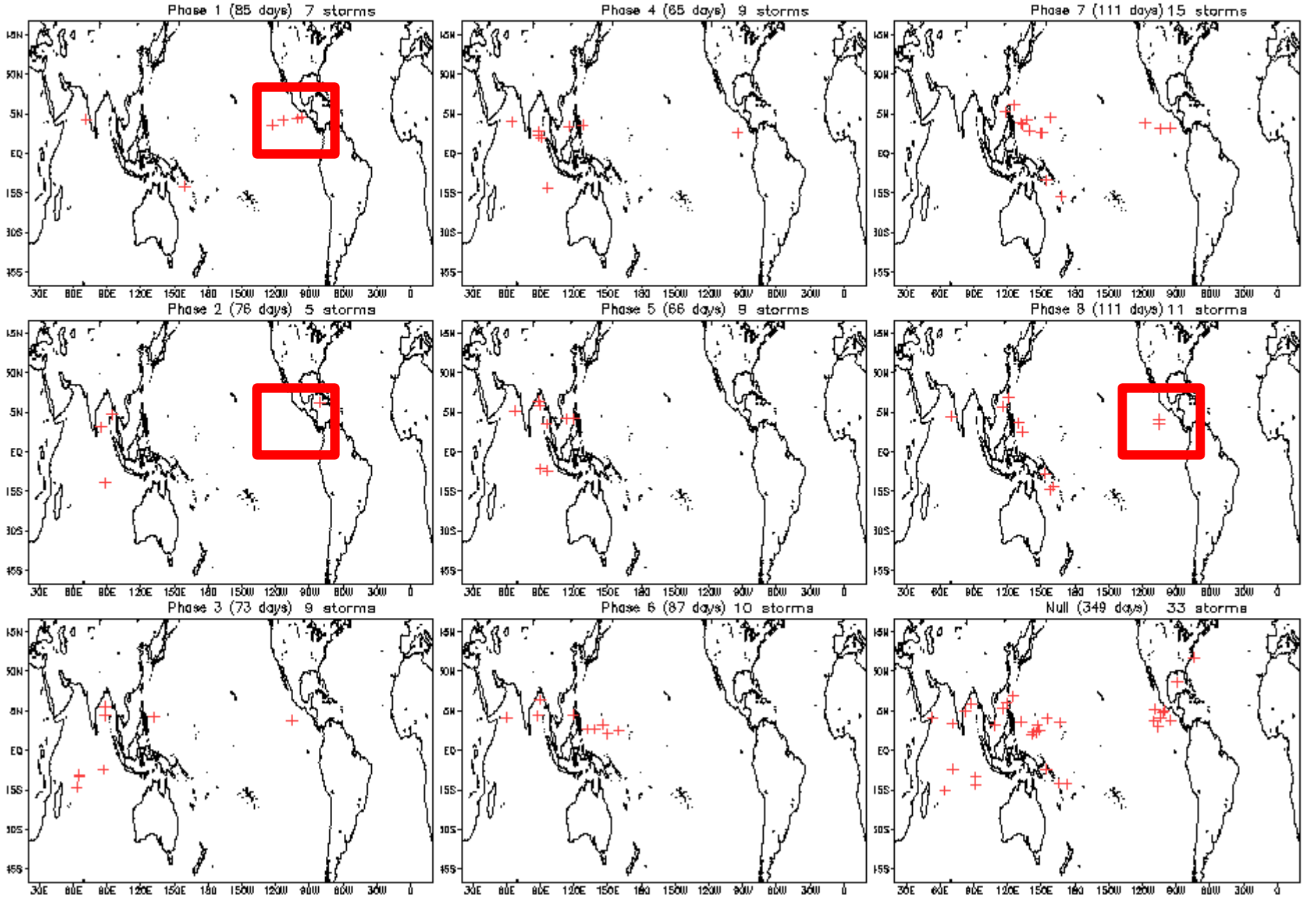
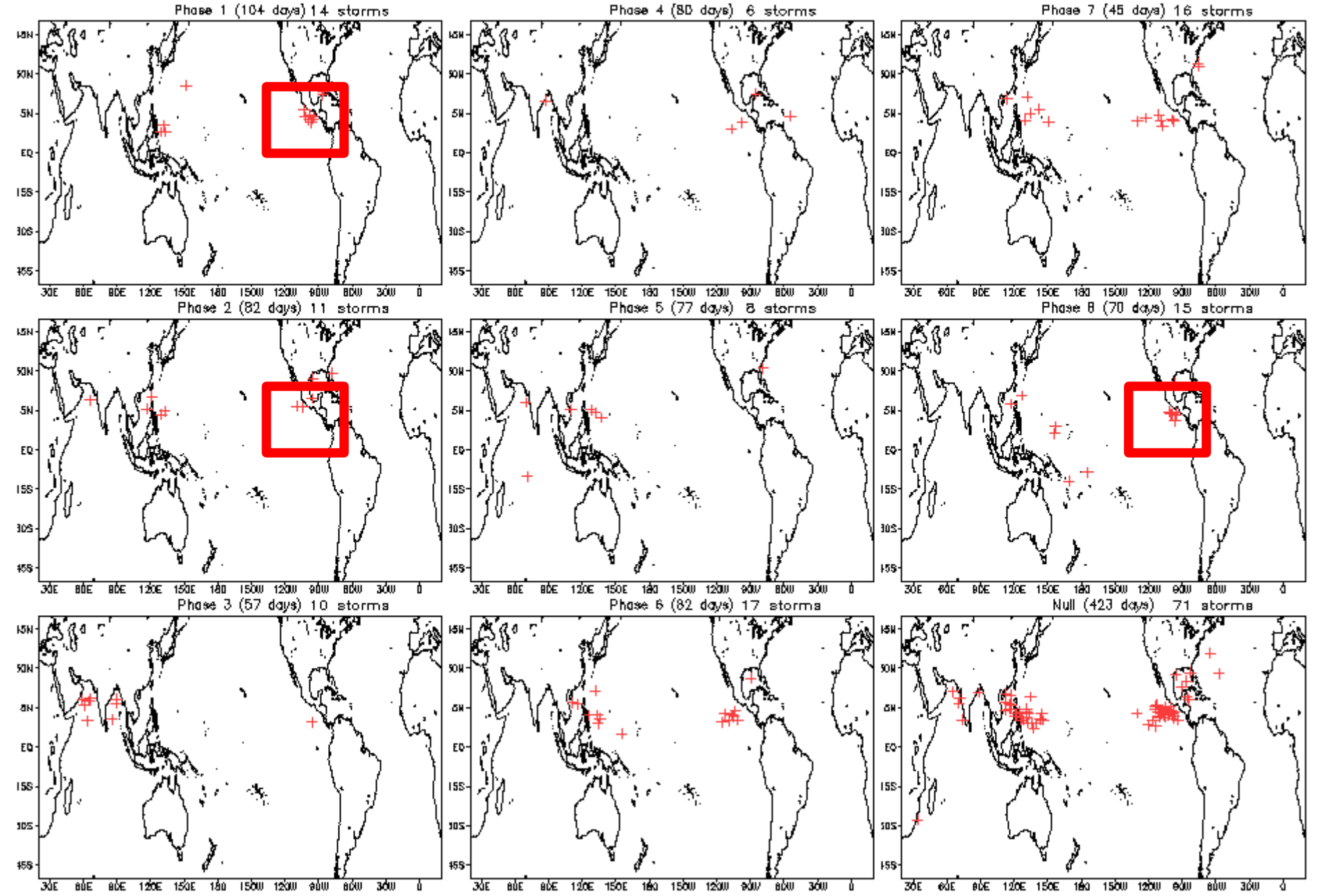
April Tropical Storm Formation by MJO phase

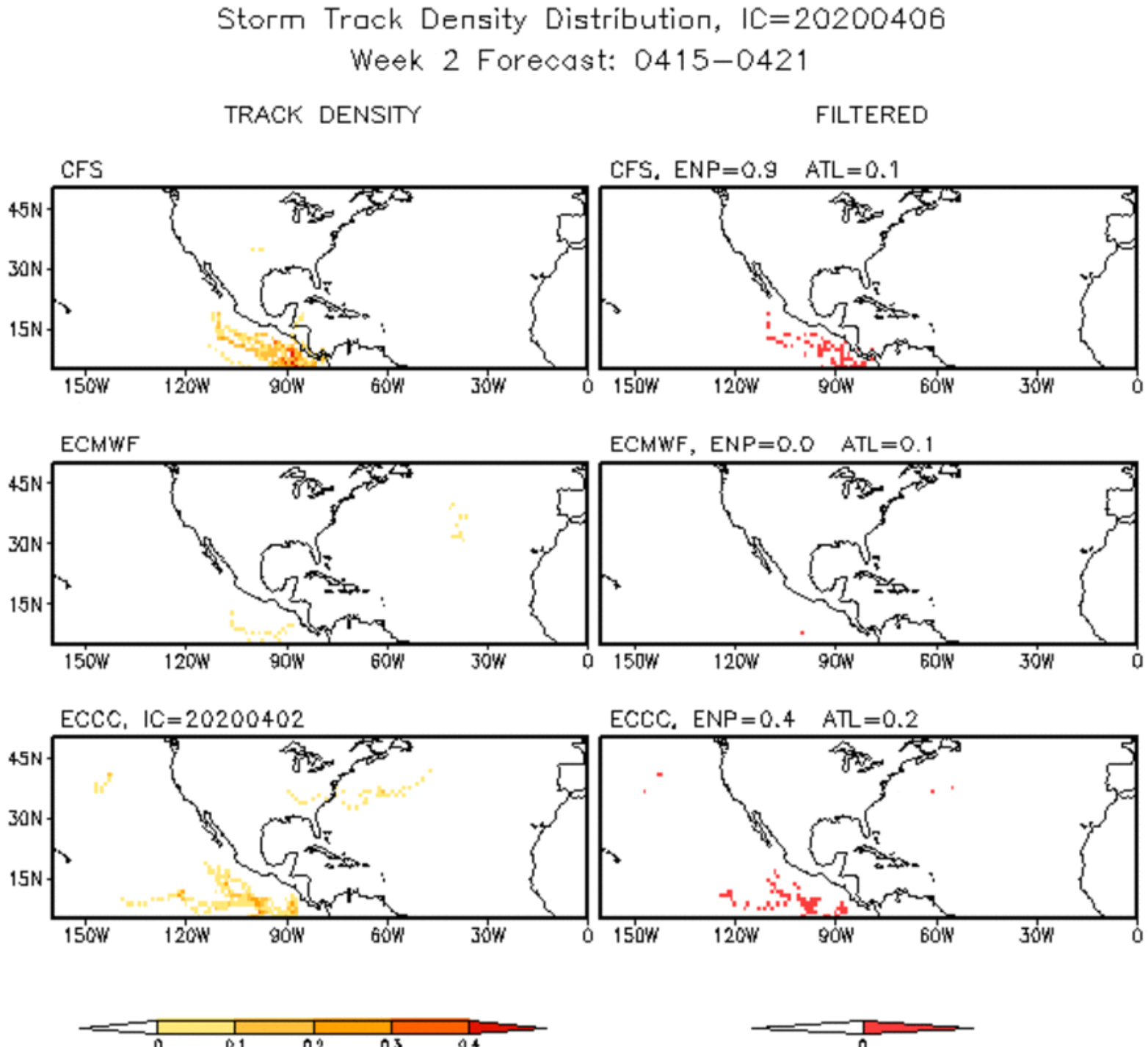


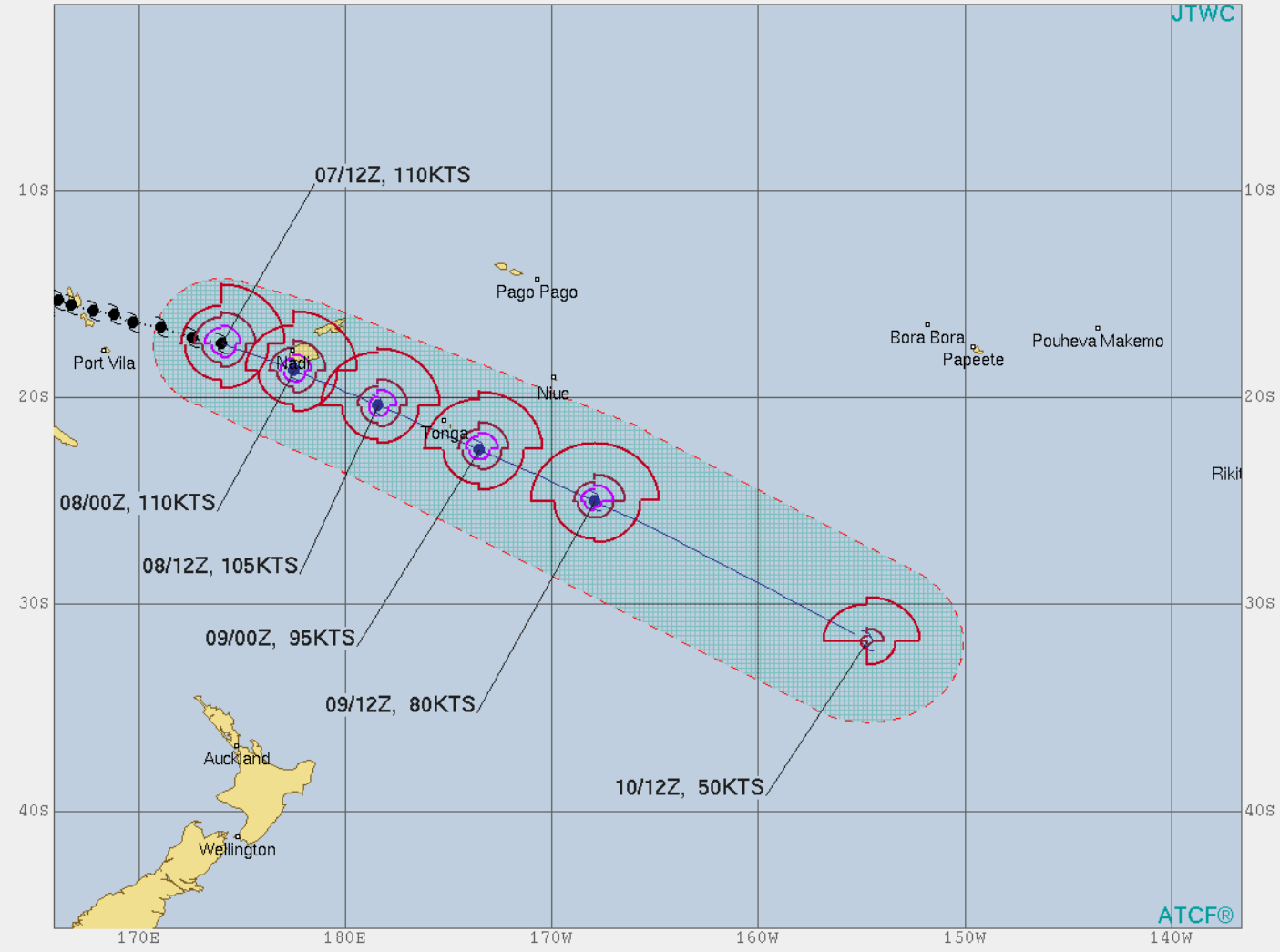
May Tropical Storm Formation by MJO phase



June Tropical Storm Formation by MJO phase




Storm Track Density Distribution, IC=20200406
Week 2 Forecast: 0415–0421
TRACK DENSITY
FILTERED
CFS
CFS, ENP=0.9 ATL=0.1
ECMWF
ECMWF, ENP=0.0 ATL=0.1
ECCC, IC=20200402
ECCC, ENP=0.4 ATL=0.2
45N
30N
15N
150W
120W
90W
60W
30W
0
0.1
0.2
0.3
0.4



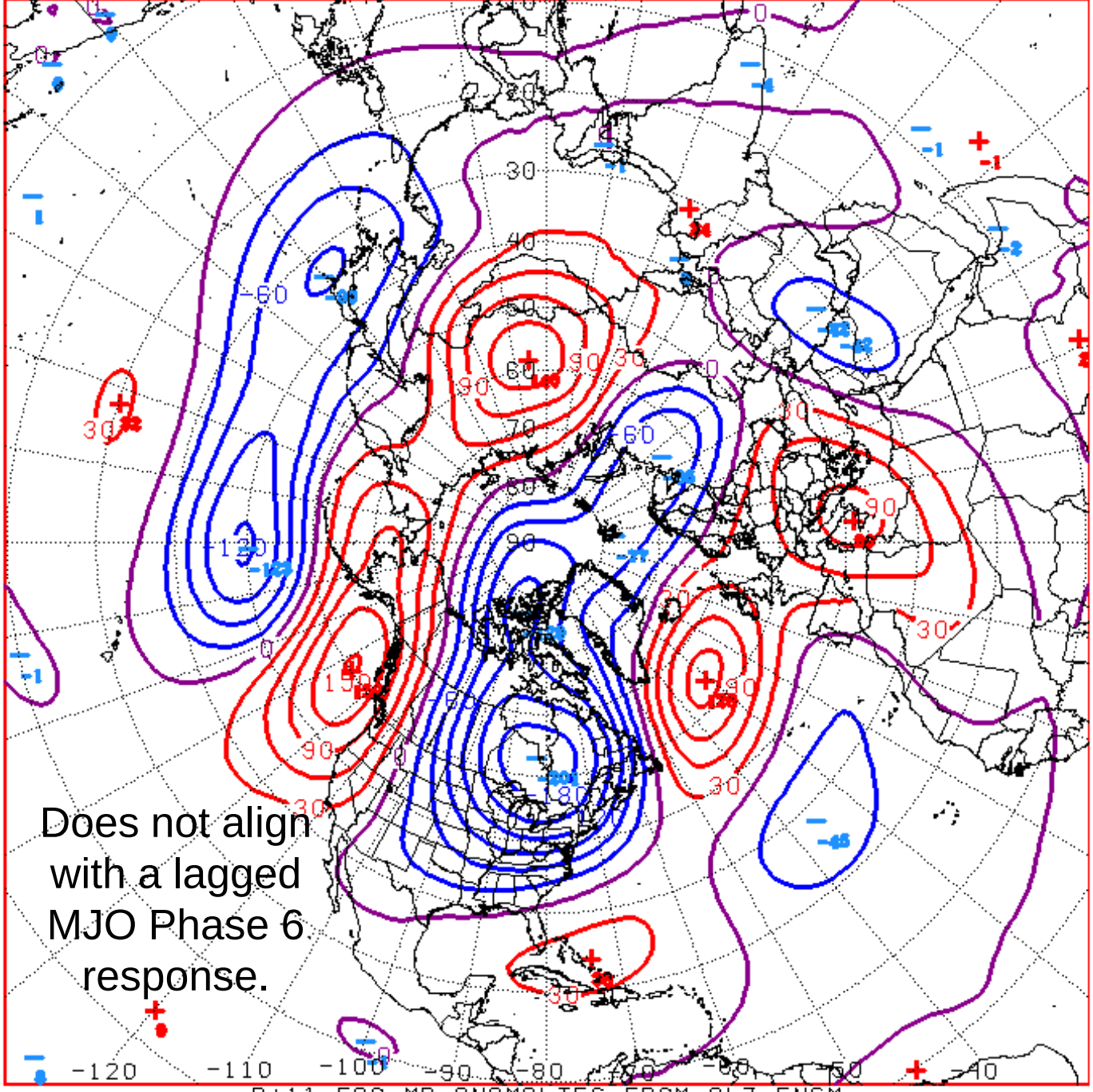
TROPICAL CYCLONE 25P (HAROLD) WARNING #20
WTPS31 PGTW 071500
071200Z POSIT: NEAR 17.4S 174.0E
MOVING 105 DEGREES TRUE AT 14 KNOTS
MAXIMUM SIGNIFICANT WAVE HEIGHT: 42 FEET
07/12Z, WINDS 110 KTS, GUSTS TO 135 KTS
08/00Z, WINDS 110 KTS, GUSTS TO 135 KTS
08/12Z, WINDS 105 KTS, GUSTS TO 130 KTS
09/00Z, WINDS 095 KTS, GUSTS TO 115 KTS
09/12Z, WINDS 080 KTS, GUSTS TO 100 KTS
10/12Z, WINDS 050 KTS, GUSTS TO 065 KTS

CPA TO:	NM	DTG
LABASA	162	08/02Z
SUVA	54	08/02Z
SAVUSAVU	145	08/03Z
TONGA	38	08/19Z
NIUE	276	09/03Z

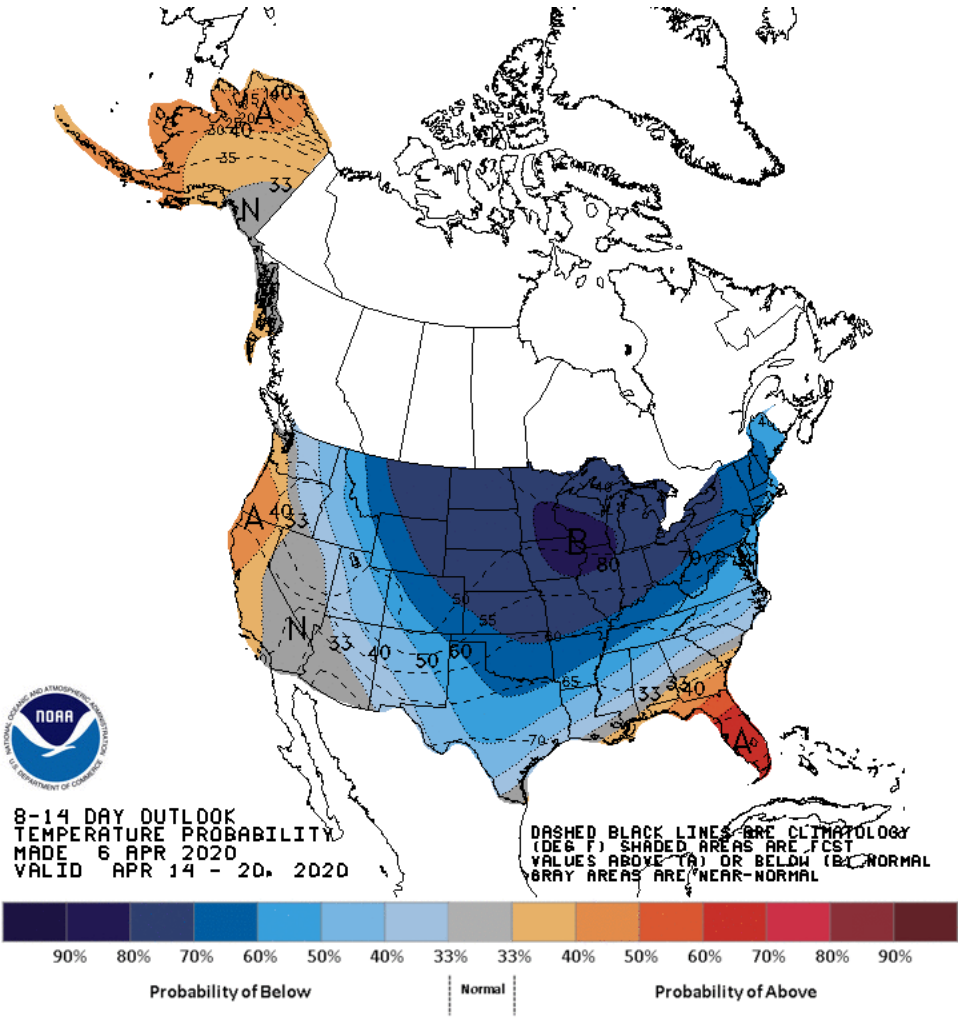
BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
PORT_VILA	088	327	0
SUVA	279	255	0
SAVUSAVU	262	306	0
LABASA	259	309	0

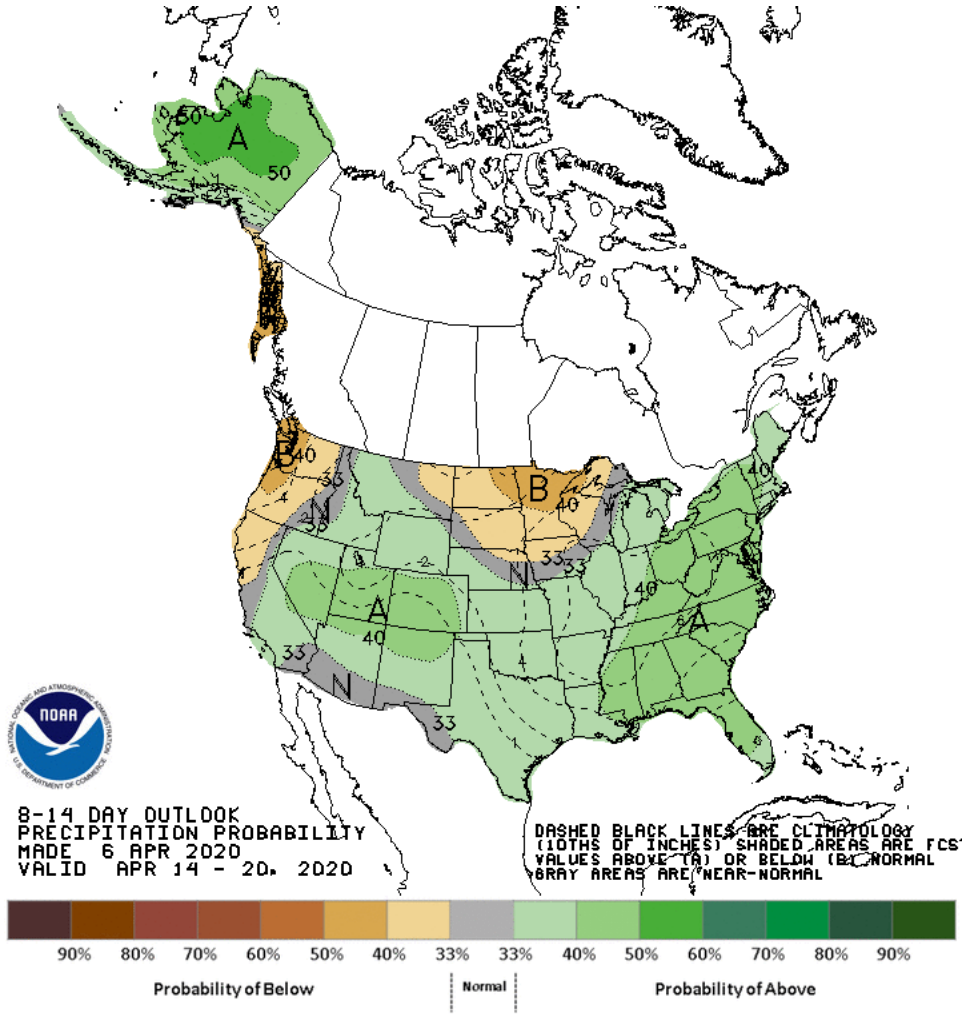
LESS THAN 34 KNOTS
34-63 KNOTS
MORE THAN 63 KNOTS
FORECAST CYCLONE TRACK
PAST CYCLONE TRACK
DENOTES 34 KNOT WIND DANGER AREA/USN SHIP AVOIDANCE AREA
FORECAST 34/50/64 KNOT WIND RADII (WINDS VALID OVER OPEN OCEAN ONLY)

Connections to U.S. Impacts


Does not align with a lagged MJO Phase 6 response.
-120
-110
-100
-90
-80
D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE APR 07 2020 1318 UTC CNTD APR 18 2020

Week 2 – Temperature and Precipitation





Today's outlook likely to feature a slight eastward progression and a possible drying trend for the Rockies and High Plains.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

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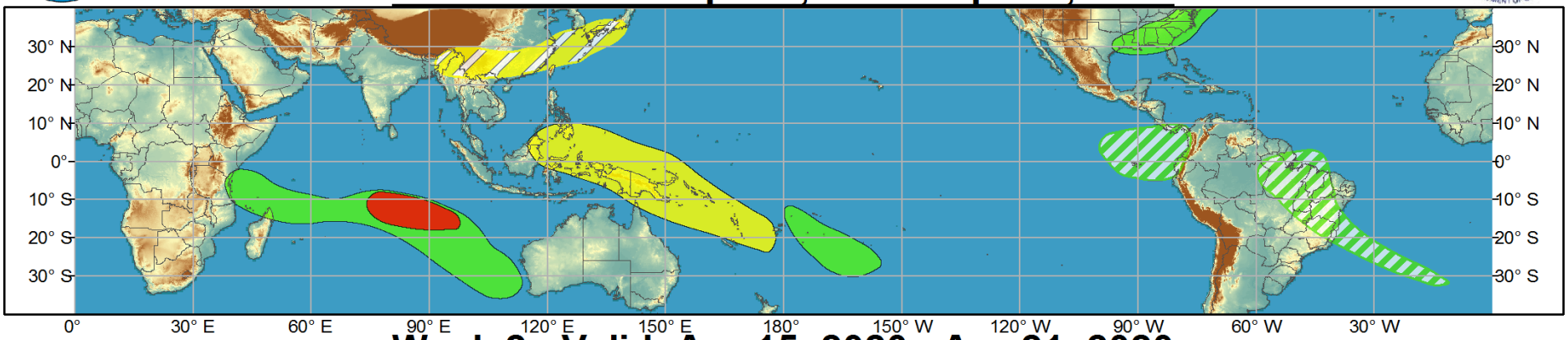

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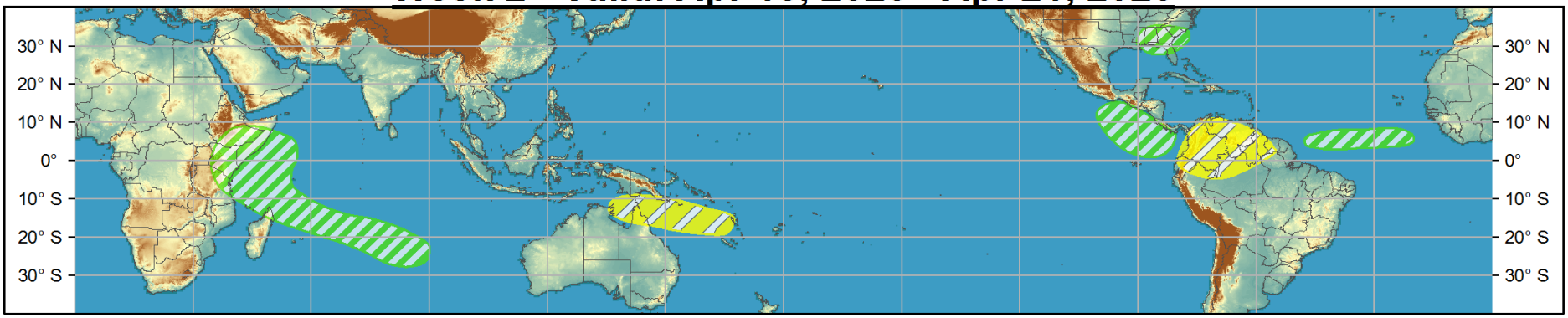

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NPS PRAESTANTIA PER SCIENTIAM