

Global Tropics Hazards And Benefits Outlook

5/22/2018

Brad Pugh

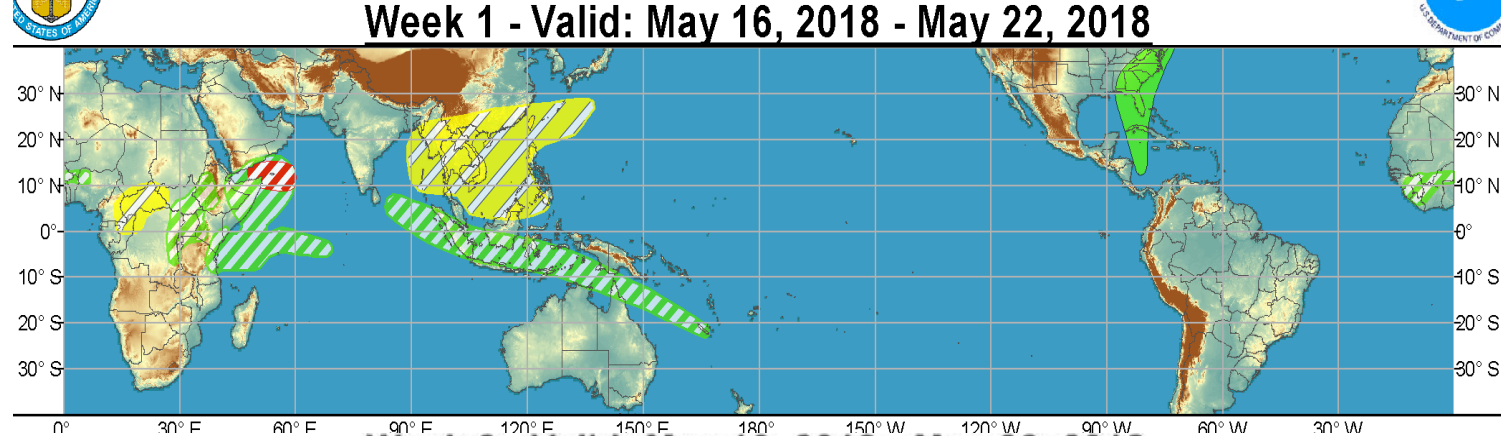
Outline

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

Outlook Review

*2 Tropical
Cyclones: Gulf of
Aden and western
Arabian Sea*

Week 1 - Valid: May 16, 2018 - May 22, 2018

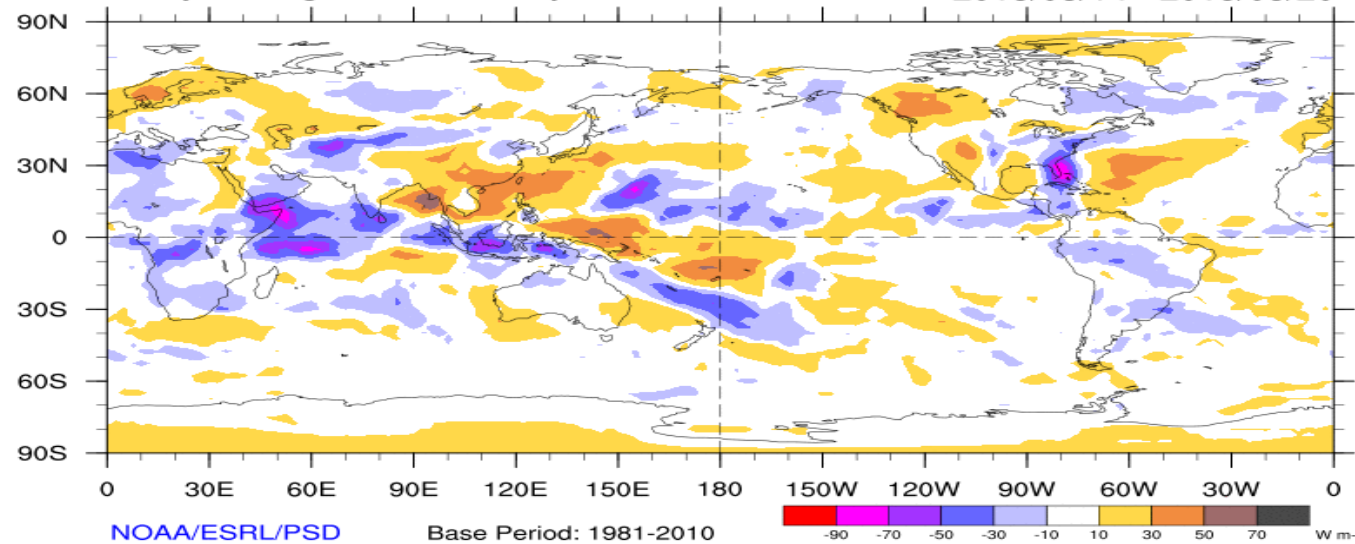


Week 2 - Valid: May 16, 2018 - May 22, 2018



7-Day Average OLR Anomaly

2018/05/14 - 2018/05/20



NOAA/ESRL/PSD

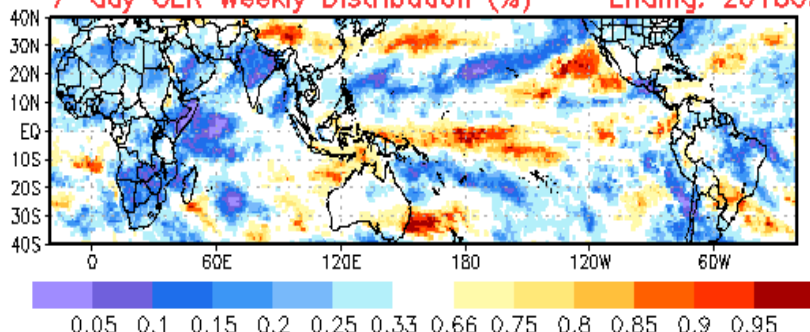
Base Period: 1981-2010

-90 -70 -50 -30 -10 10 30 50 70 W m-2

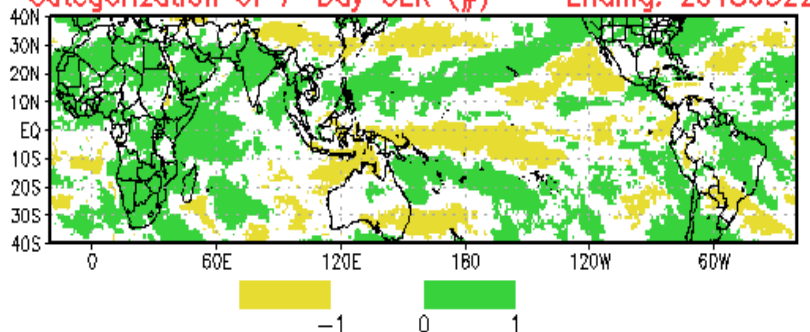
Cool shading
More clouds/rain

Warm shading
Less clouds/rain

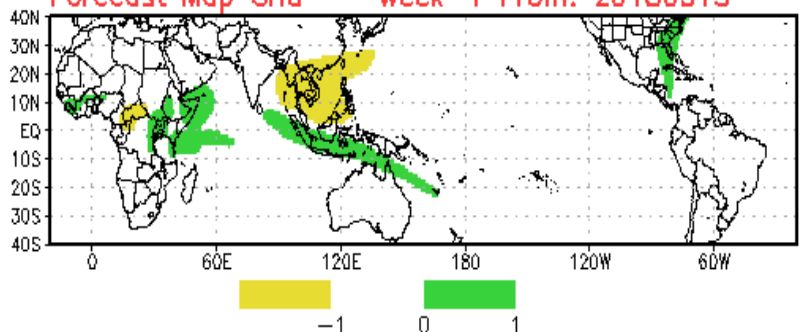
7-day OLR Weekly Distribution (%) -- Ending: 20180522



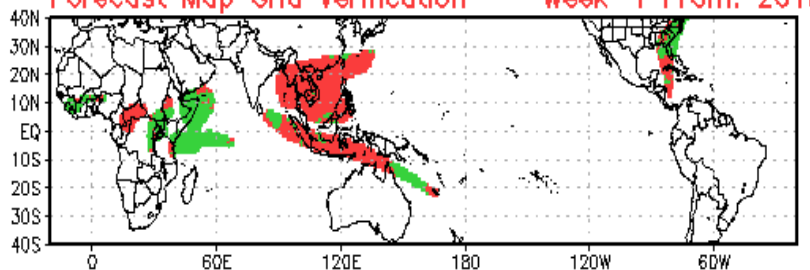
Categorization of 7-Day OLR (#) -- Ending: 20180522



Forecast Map Grid -- Week-1 From: 20180515

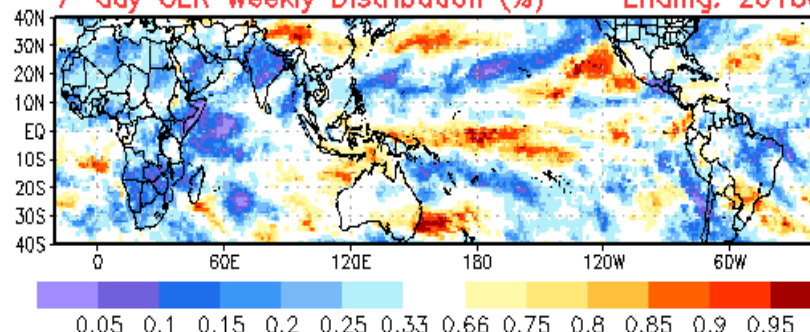


Forecast Map Grid Verification -- Week-1 From: 201805

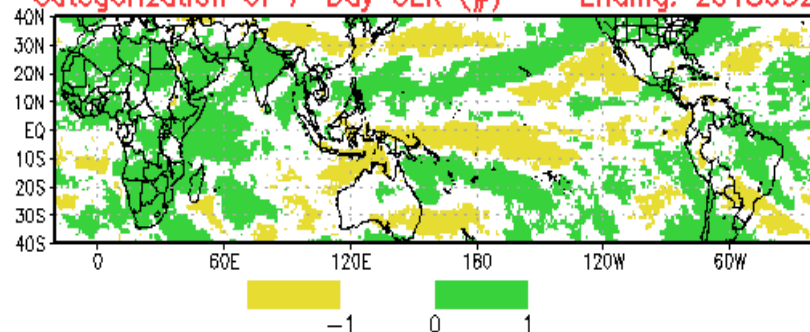


Hit: Green, Miss: Red
Heidke Skill Score: 4.9669

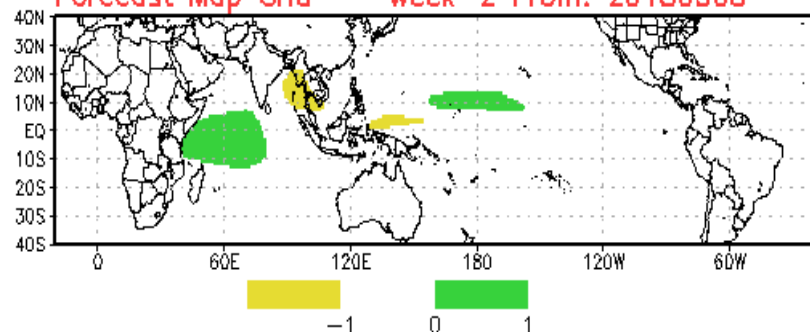
7-day OLR Weekly Distribution (%) -- Ending: 20180522



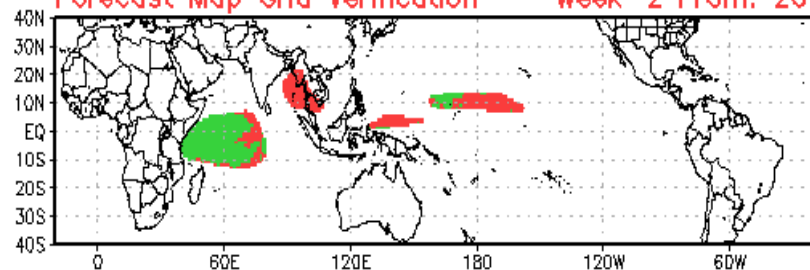
Categorization of 7-Day OLR (#) -- Ending: 20180522



Forecast Map Grid -- Week-2 From: 20180508



Forecast Map Grid Verification -- Week-2 From: 20180508



Hit: Green, Miss: Red
Heidke Skill Score: 24.1568

Synopsis of Climate Modes

ENSO:

- ENSO-neutral is favored through Sep-Nov 2018, with chances of El Nino increasing to near 50 percent by Northern Hemisphere winter 2018-19.

MJO and other subseasonal tropical variability:

- The enhanced (suppressed) phase of the MJO is centered over the Indian (Pacific) Ocean.
- Although model solutions vary on the strength of the MJO during the next two week, its likely to continue propagating east from the Indian Ocean to the Maritime Continent.
- Watching the Gulf of Mexico for an early season tropical cyclone
- Regardless of development, heavy rainfall likely from western Cuba north to the eastern half of the Gulf Coast.

Extratropics:

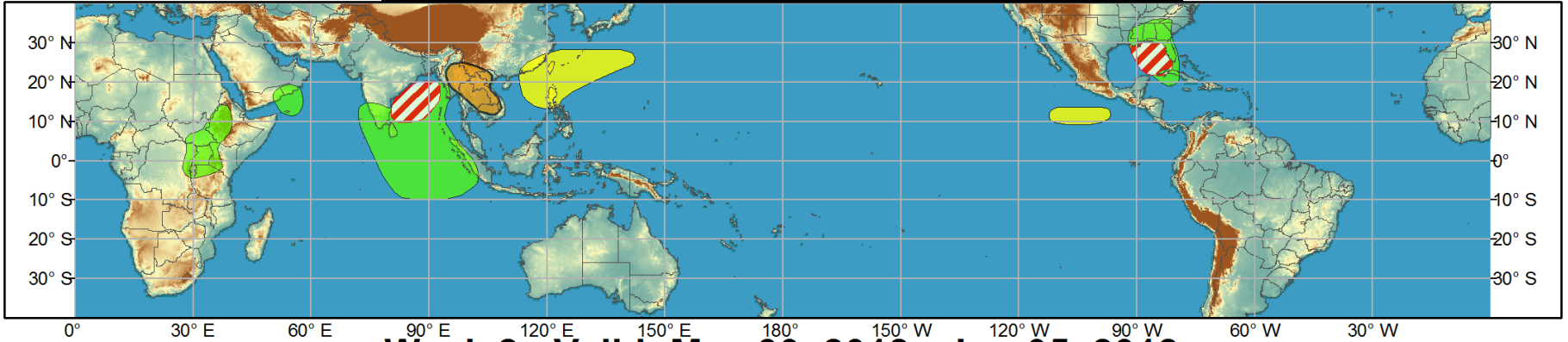
- Teleconnection responses across North America are weak during this time of year.



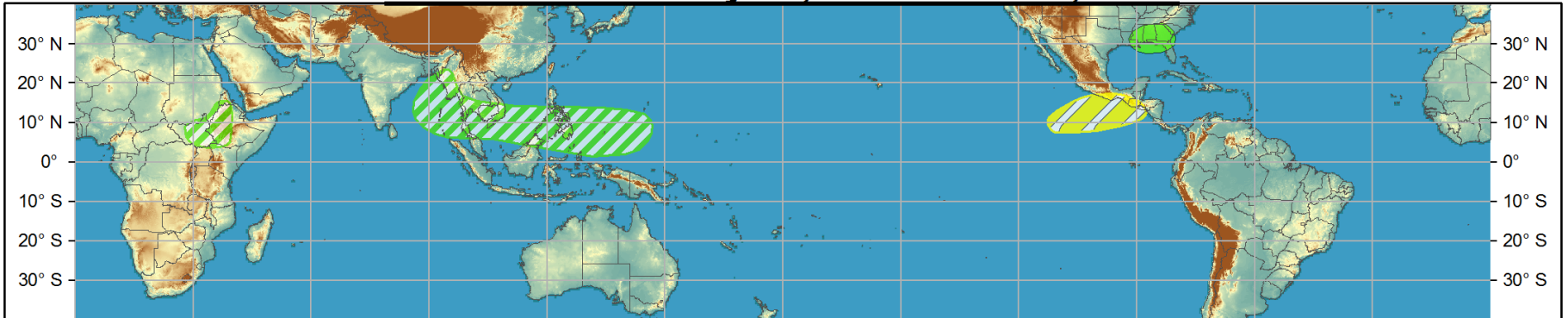
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: May 23, 2018 - May 29, 2018



Week 2 - Valid: May 30, 2018 - Jun 05, 2018



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: 05/22/2018

Forecaster: Pugh

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

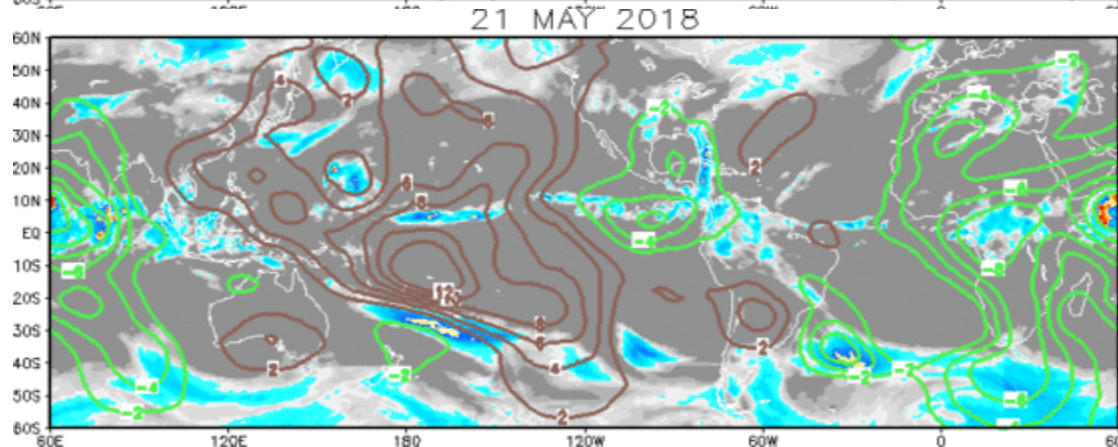
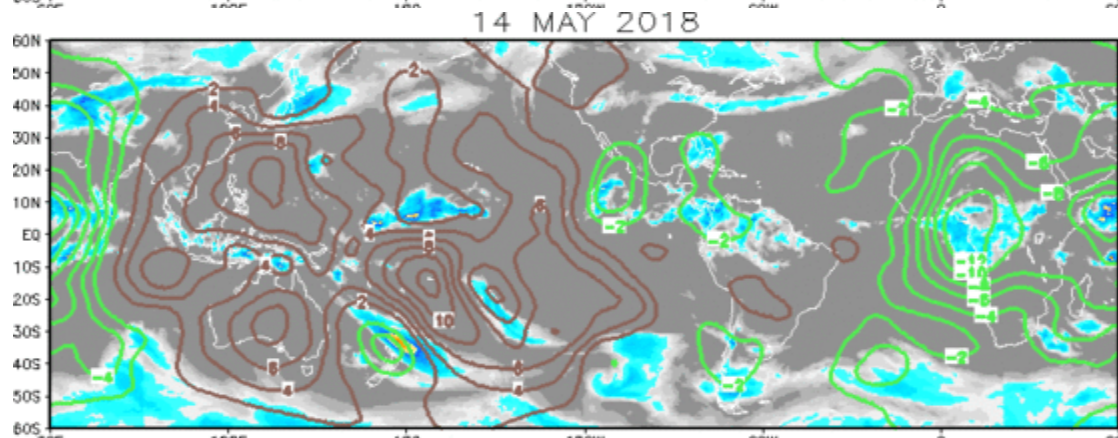
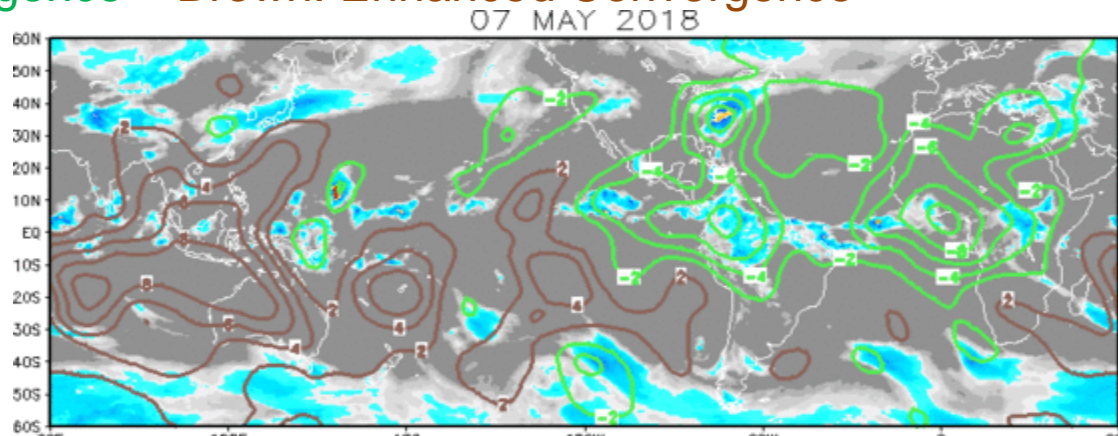
Green: Enhanced Divergence

Brown: Enhanced Convergence

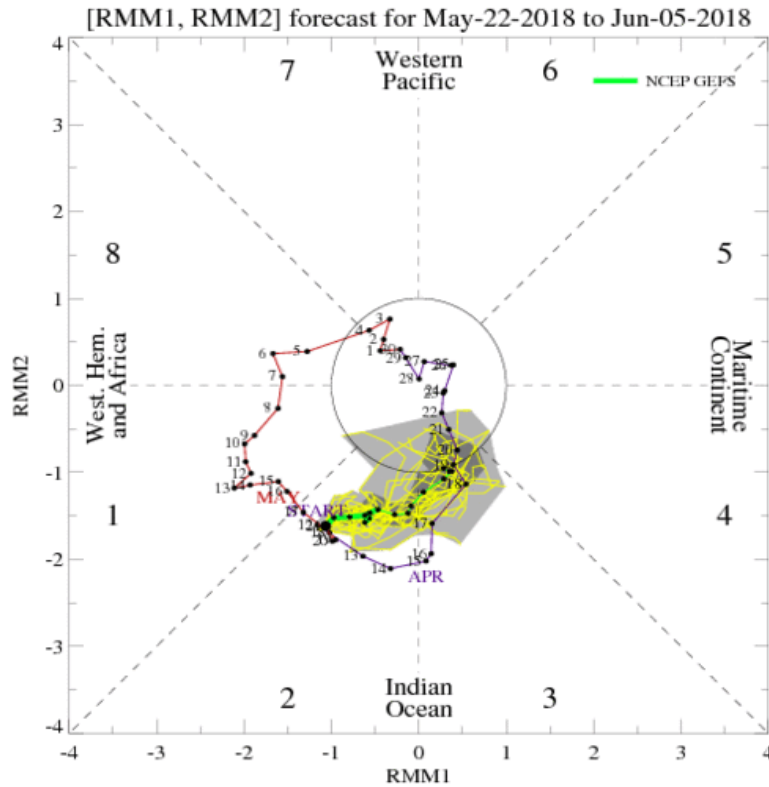
During early May, a wave-1 signal consistent with an active MJO event re-emerged, with enhanced convection across the Americas, Atlantic, and Africa.

Wave-1 with a moderate MJO projection

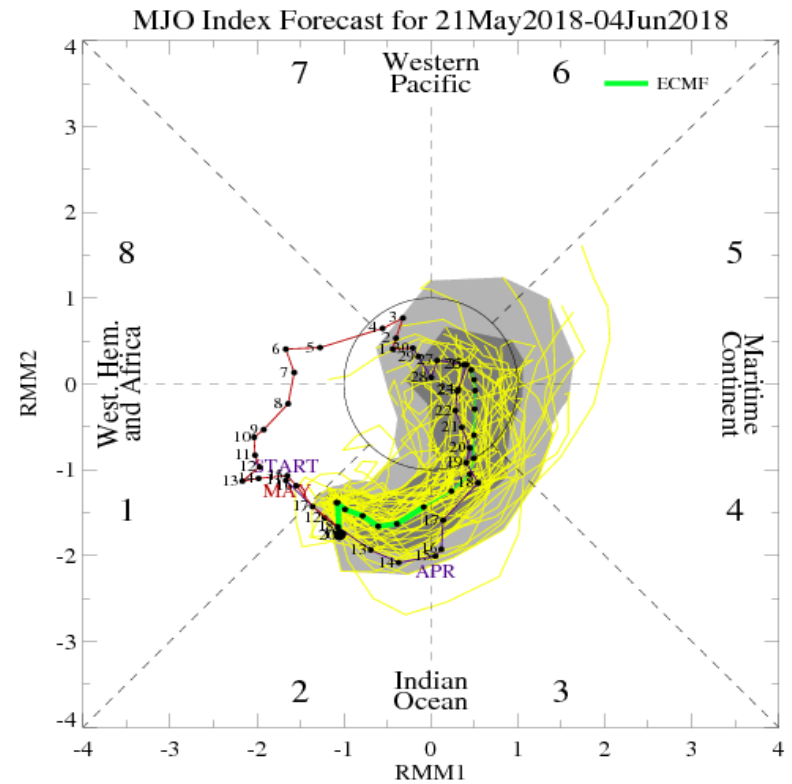
Eastward propagation slowed recently due to interference from westward-moving Rossby Waves



MJO Observation/Forecast



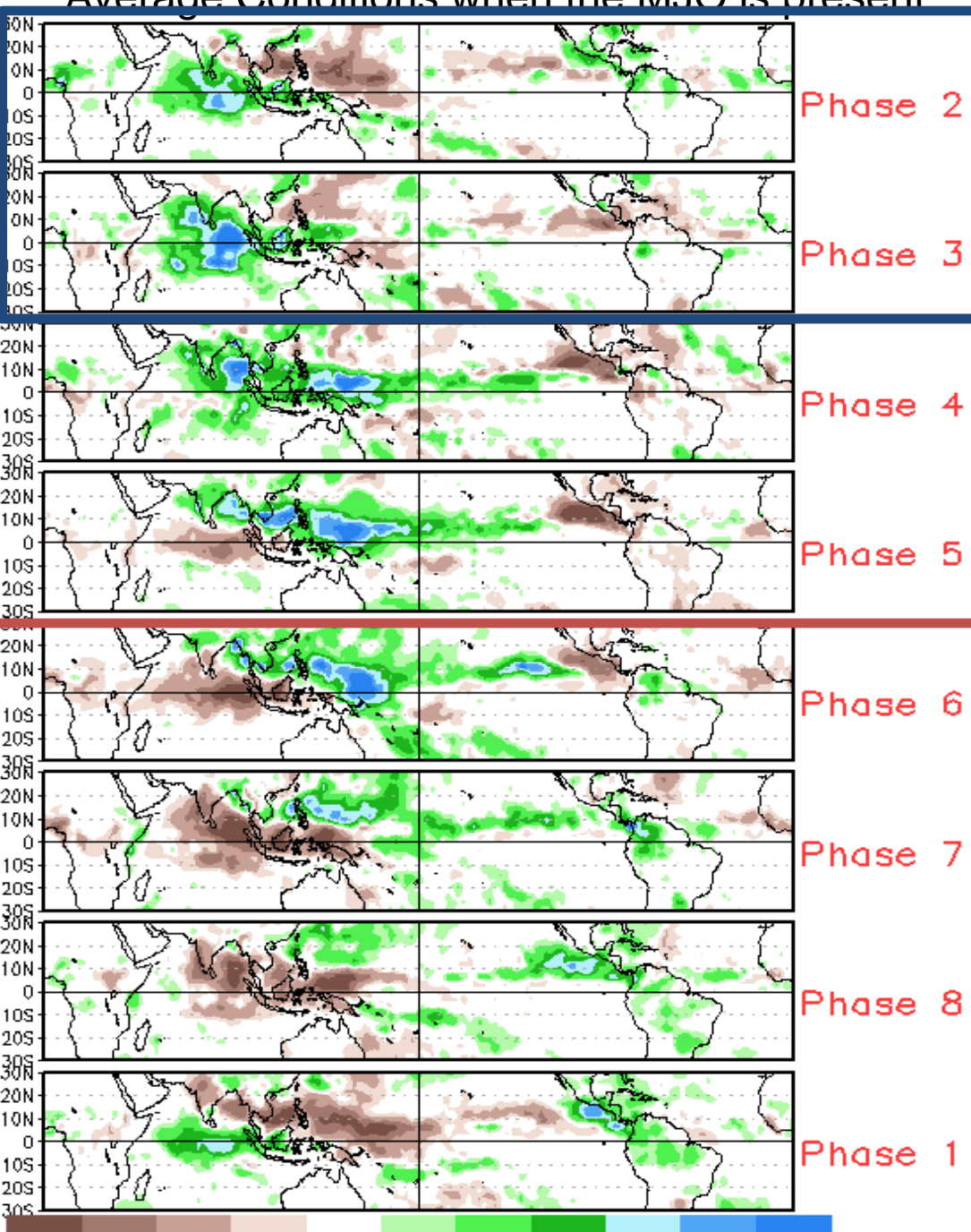
GEFS



ECMWF

- Amplitude and speed differences increase later in Week-1 and Week-2
- Preferred ECMWF model indicates a faster eastward propagation

Average Conditions when the MJO is present

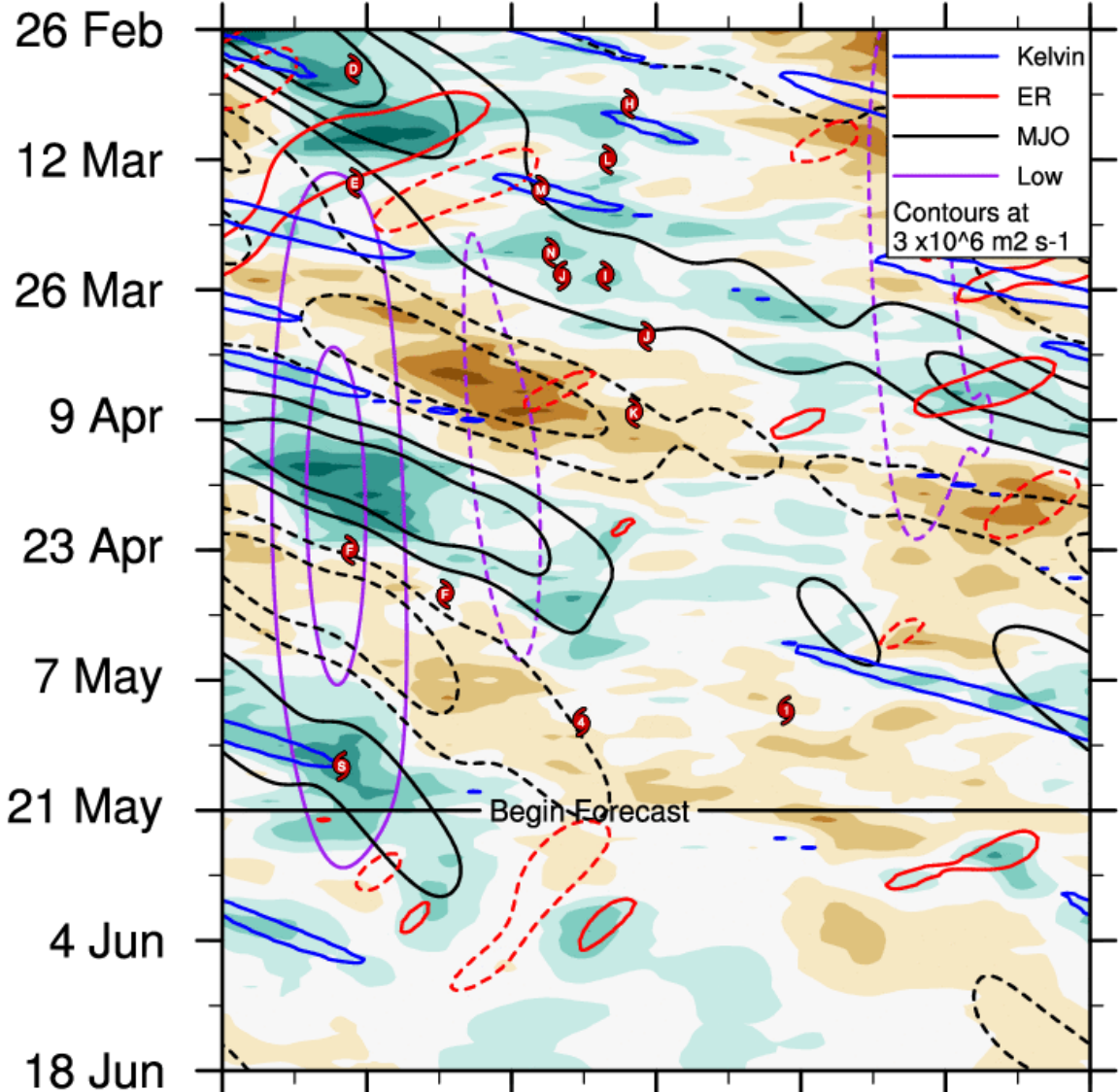


Expectations

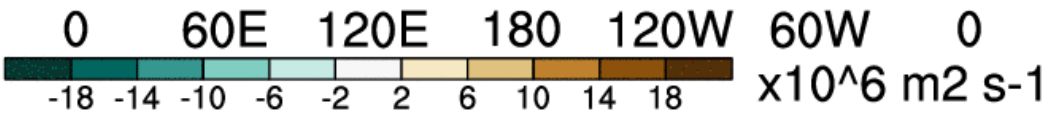
Week-1: Phase 1

Week-2: Phase 1/2

CAVEAT: These panels are representative of robust MJO events.



— Kelvin
 — ER
 — MJO
 — Low
 Contours at
 $3 \times 10^6 \text{ m}^2 \text{ s}^{-1}$



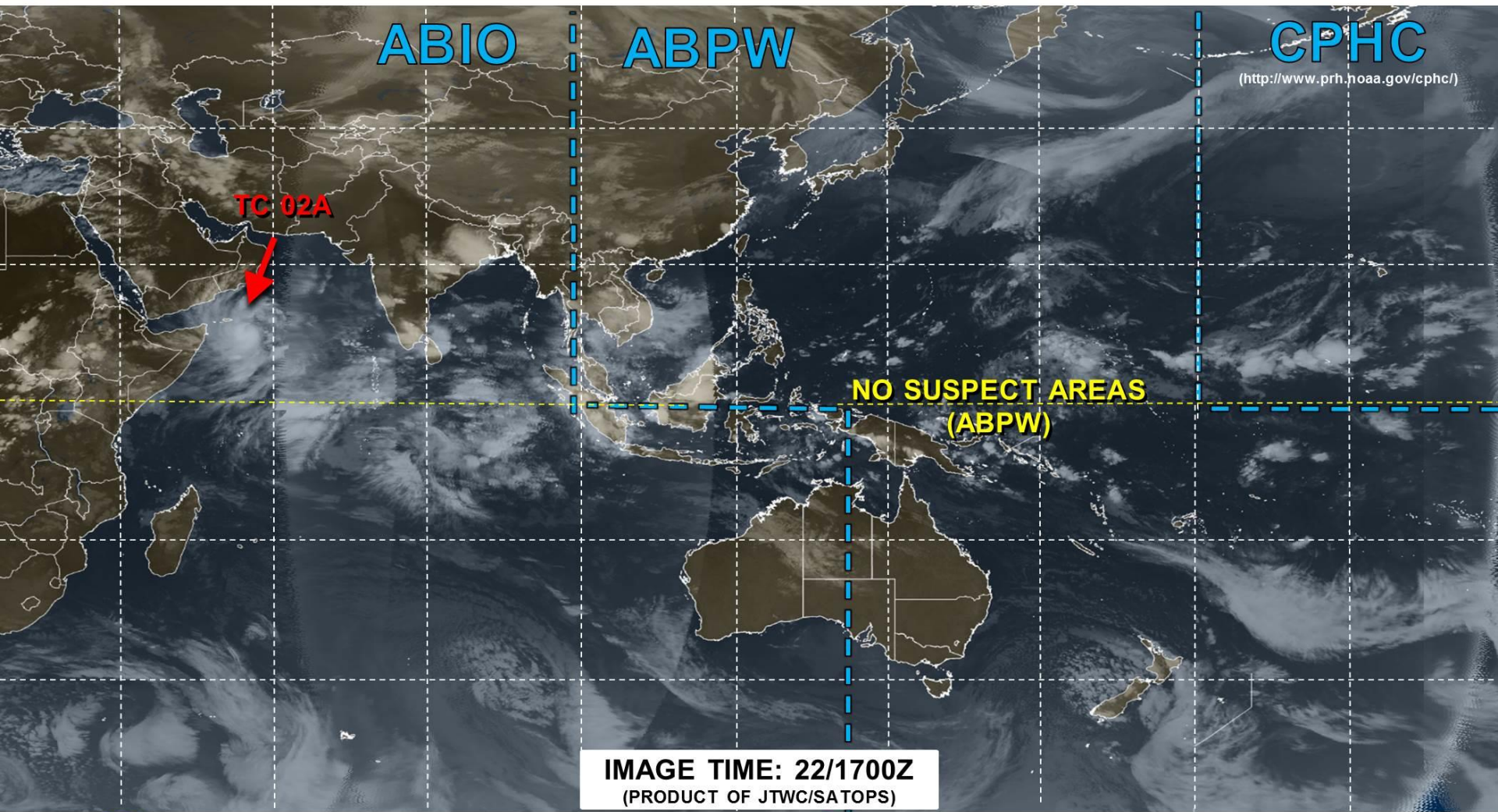
Enhanced phase of the **MJO** crossed the Prime Meridian two weeks ago

Rossby Waves are forecast to interfere with the **MJO** during the next two weeks





JOINT TYPHOON WARNING CENTER



LOW

TC formation unlikely within 24 hours

MEDIUM

TC development likely, but expected to occur beyond 24 hours

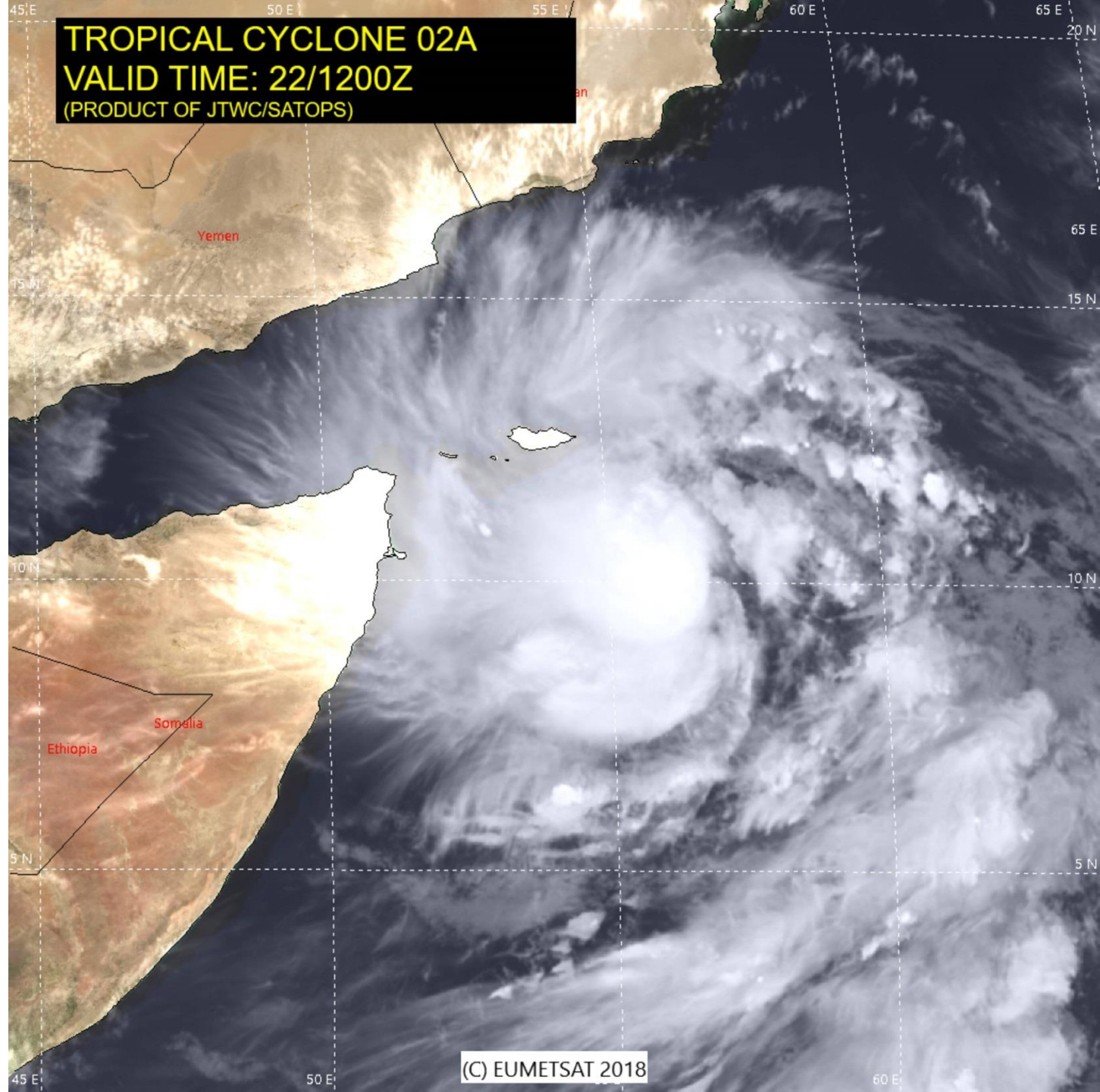
HIGH

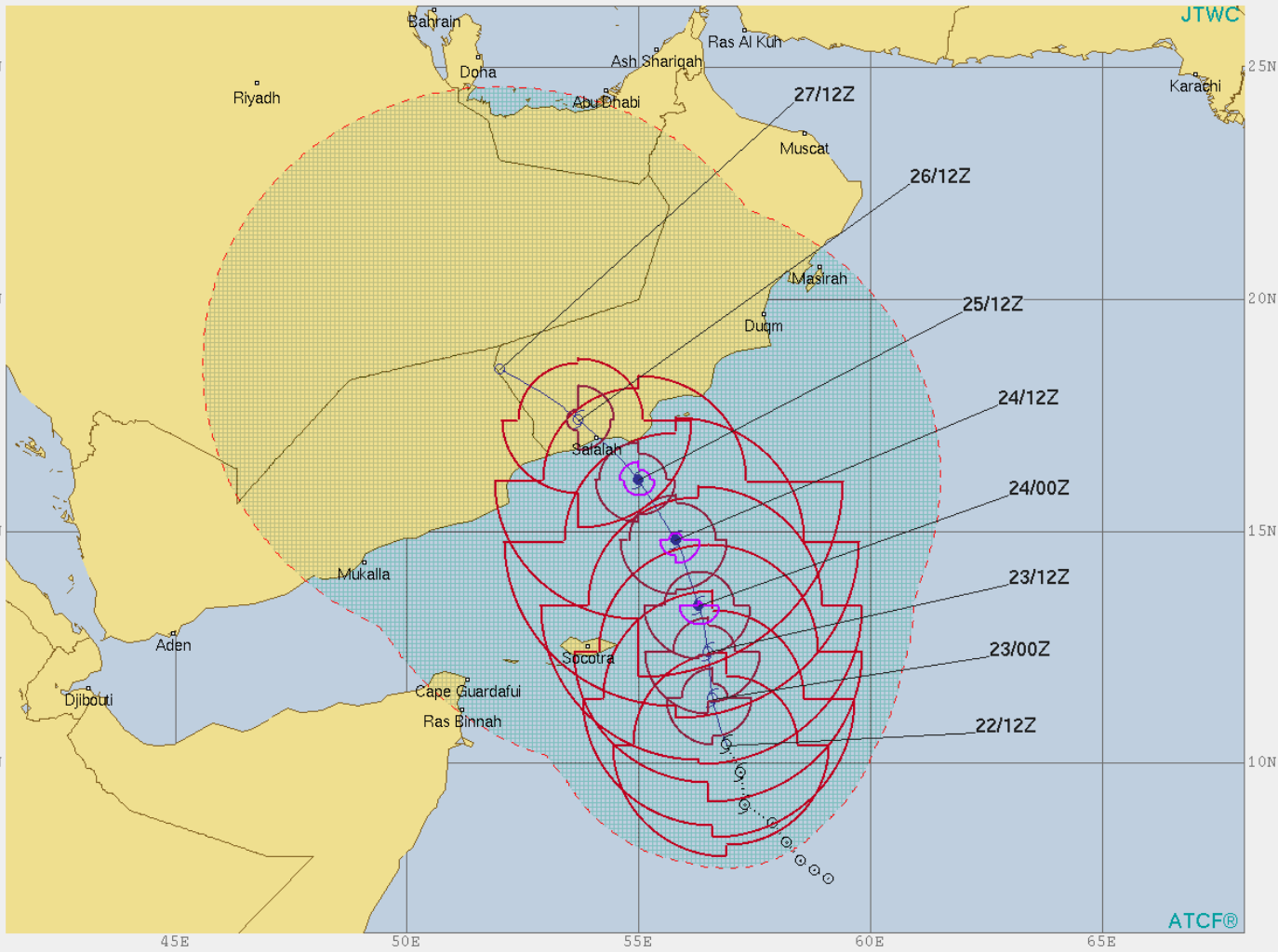
TC development likely within 24 hours (Reference TCFA)



Tropical Cyclone (Reference Warning)

TROPICAL CYCLONE 02A
VALID TIME: 22/1200Z
(PRODUCT OF JTWC/SATOPS)






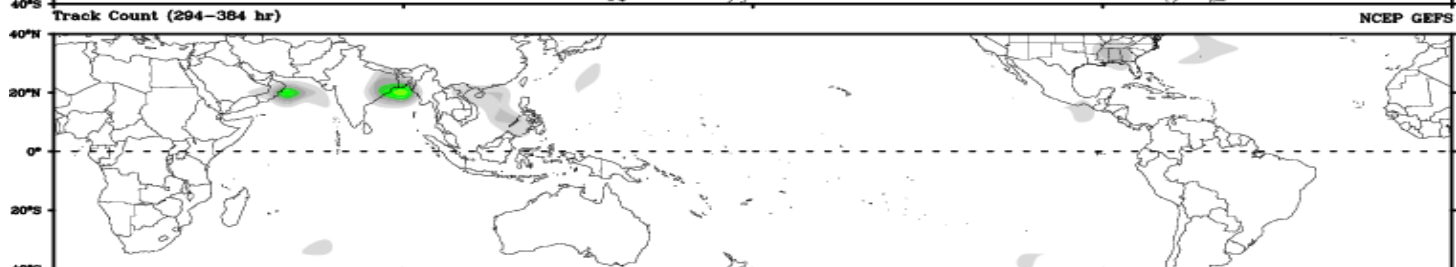
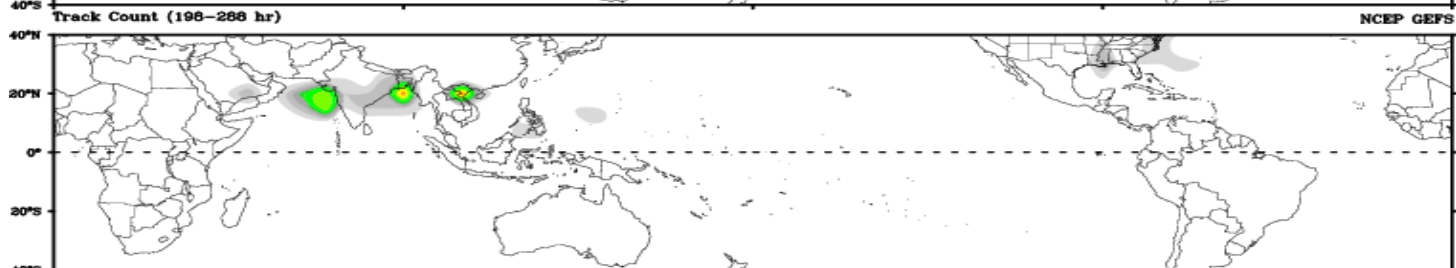
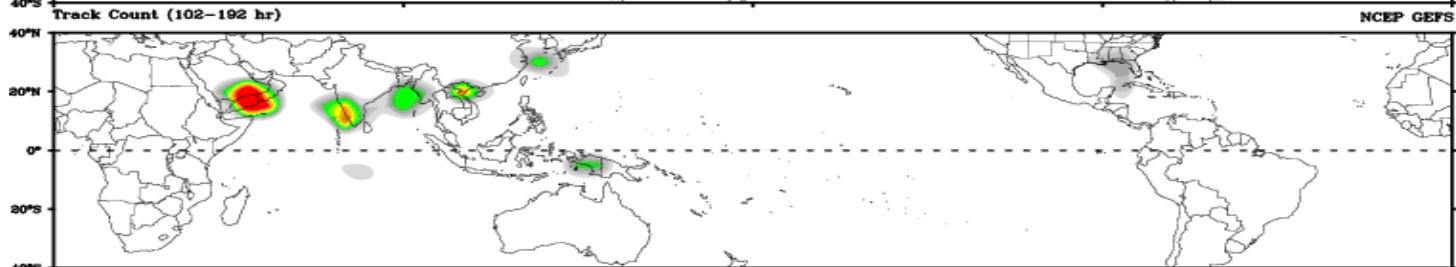
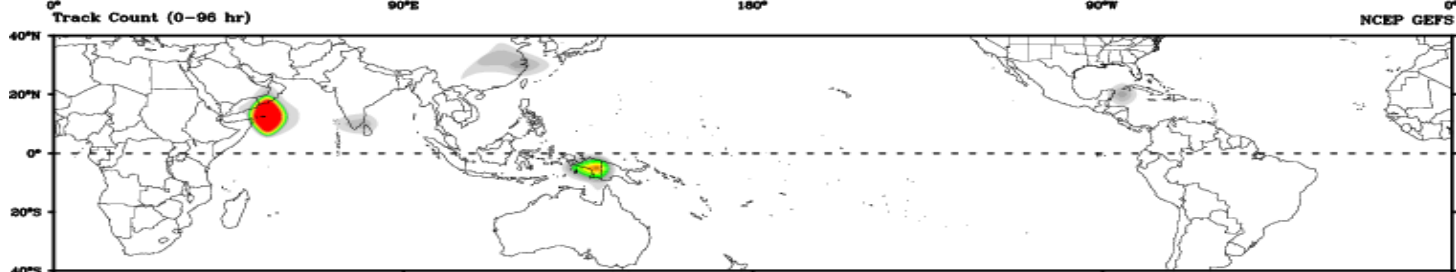
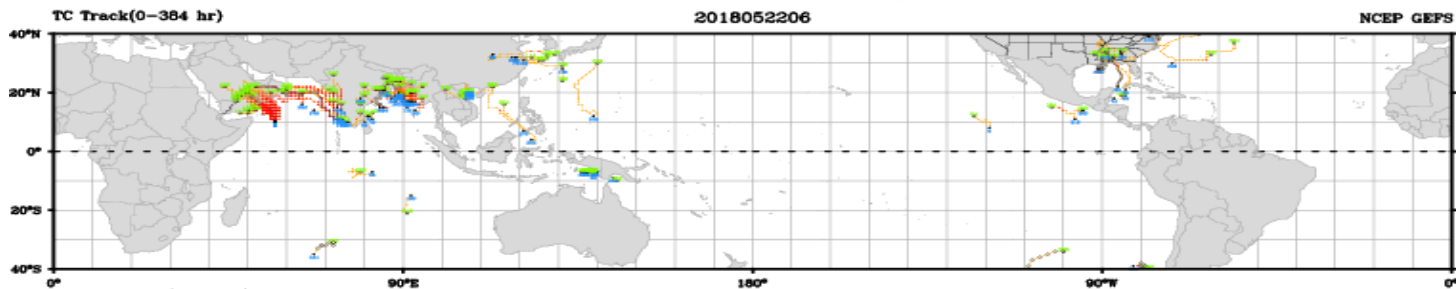
TROPICAL CYCLONE 02A (TWO) WARNING #3
 WTIO31 PGTW 221500
 221200Z POSIT: NEAR 10.4N 56.9E
 MOVING 335 DEGREES TRUE AT 07 KNOTS
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 13 FEET
 22/12Z, WINDS 040 KTS, GUSTS TO 050 KTS
 23/00Z, WINDS 050 KTS, GUSTS TO 065 KTS
 23/12Z, WINDS 060 KTS, GUSTS TO 075 KTS
 24/00Z, WINDS 070 KTS, GUSTS TO 085 KTS
 24/12Z, WINDS 075 KTS, GUSTS TO 090 KTS
 25/12Z, WINDS 080 KTS, GUSTS TO 100 KTS
 26/12Z, WINDS 060 KTS, GUSTS TO 075 KTS
 27/12Z, WINDS 030 KTS, GUSTS TO 040 KTS

CPA TO:	NM	DTG
SOCOTRA	149	23/20Z
MASIRAH_ISLAND	332	25/23Z
DUQM	257	26/00Z
SALALAH	2	26/05Z
MUKALLA	302	27/12Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
SOCOTRA	125	217	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





Days 1-4

Day 5-8

Day 9-12

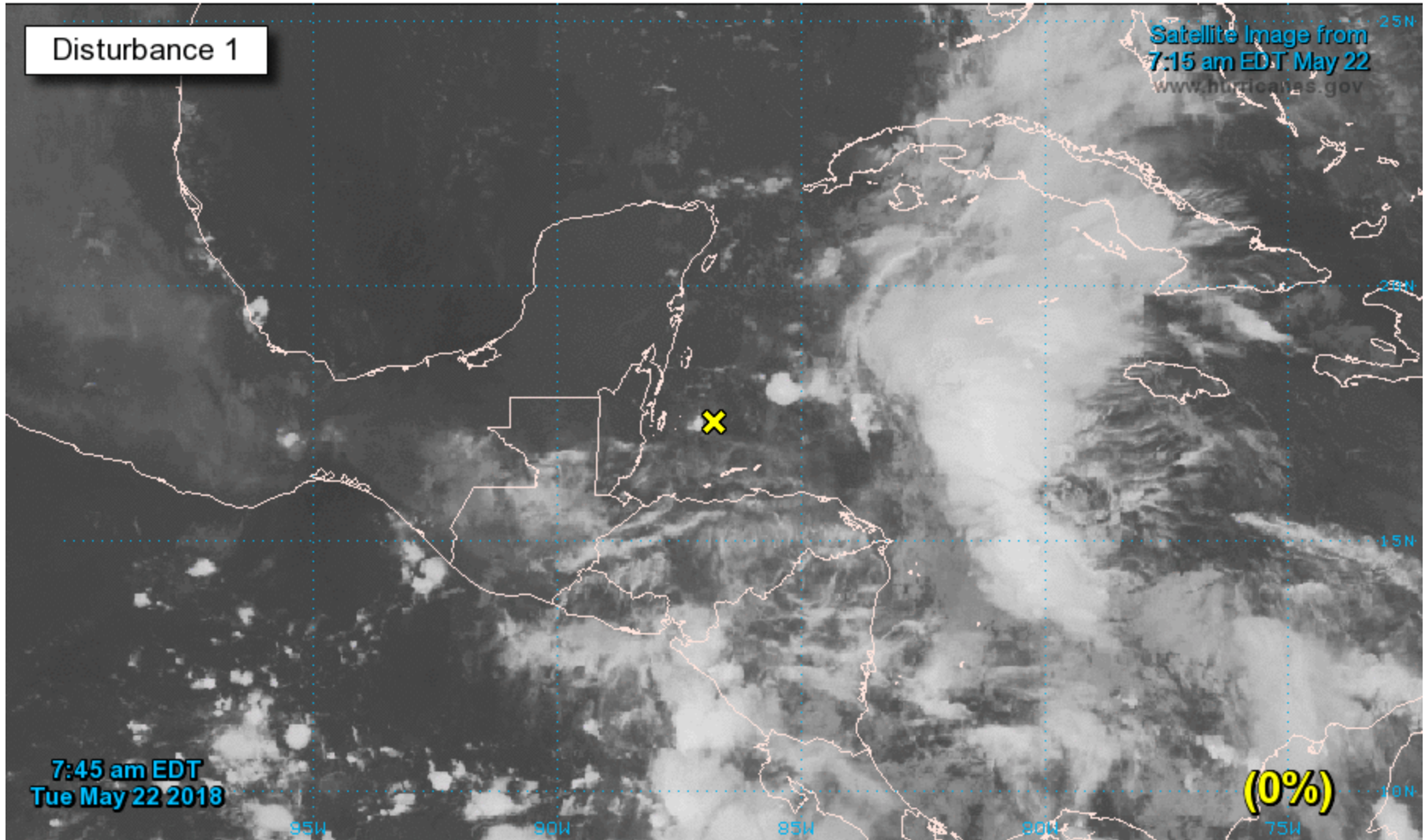
Day 13-15





Two-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



Current Disturbances and Two-Day Cyclone Formation Chance: **X** < 40% **⊗** 40-60% **⊗** > 60%
Tropical or Sub-Tropical Cyclone: **○** Depression **⊗** Storm **⊗** Hurricane
⊗ Post-Tropical Cyclone or Remnants



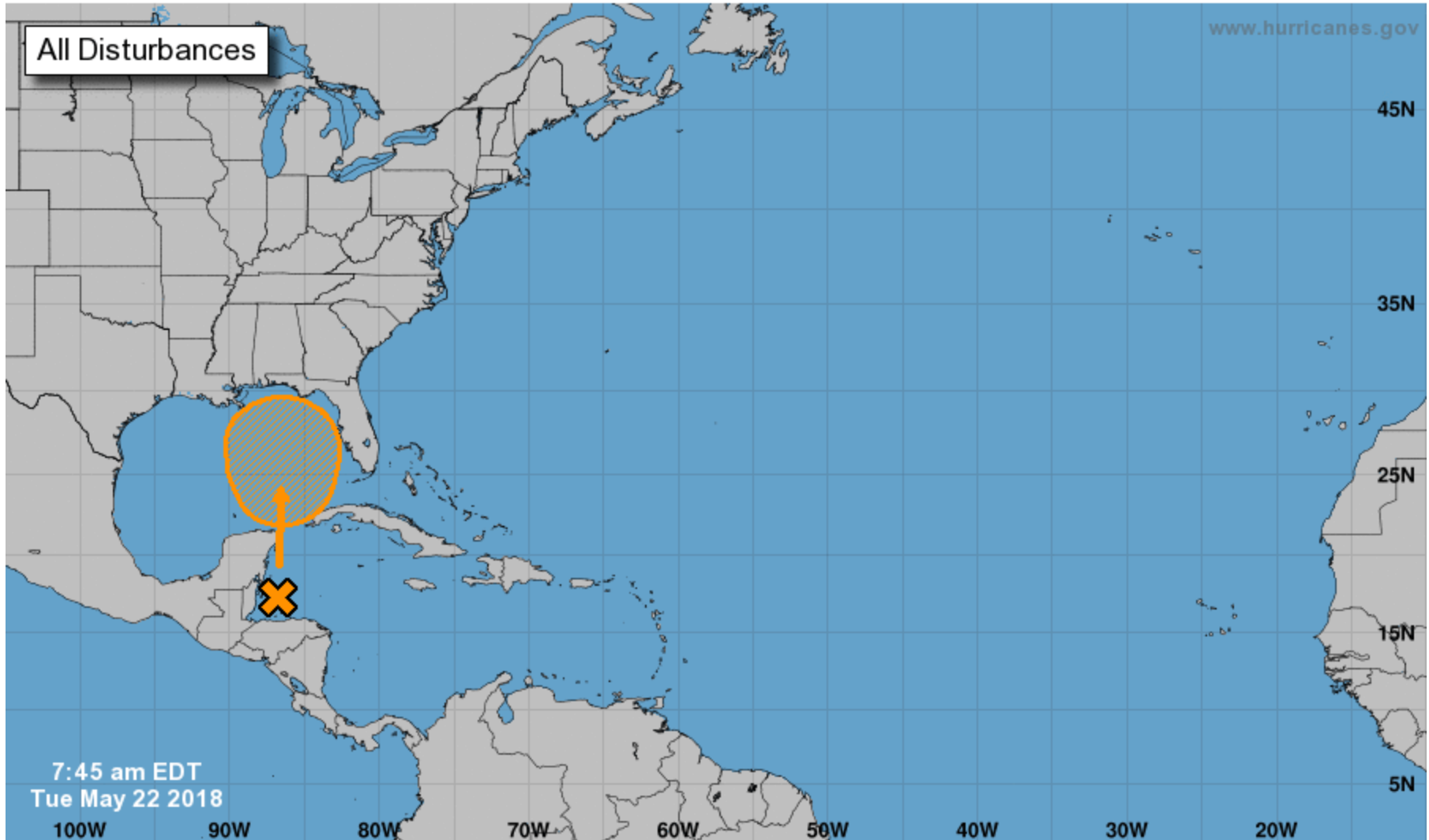
Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



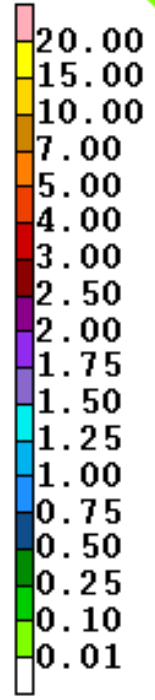
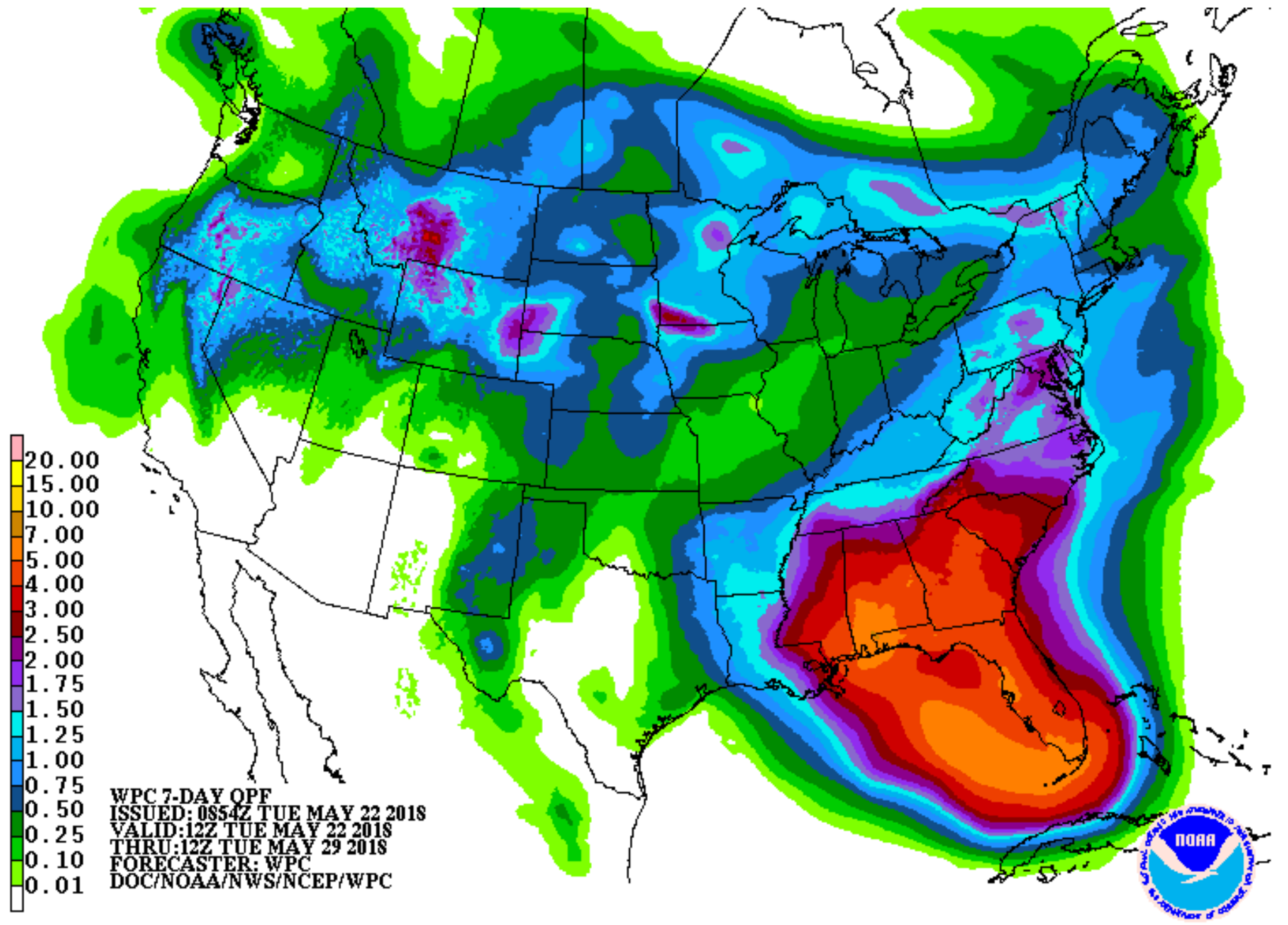
www.hurricanes.gov

All Disturbances



7:45 am EDT
Tue May 22 2018

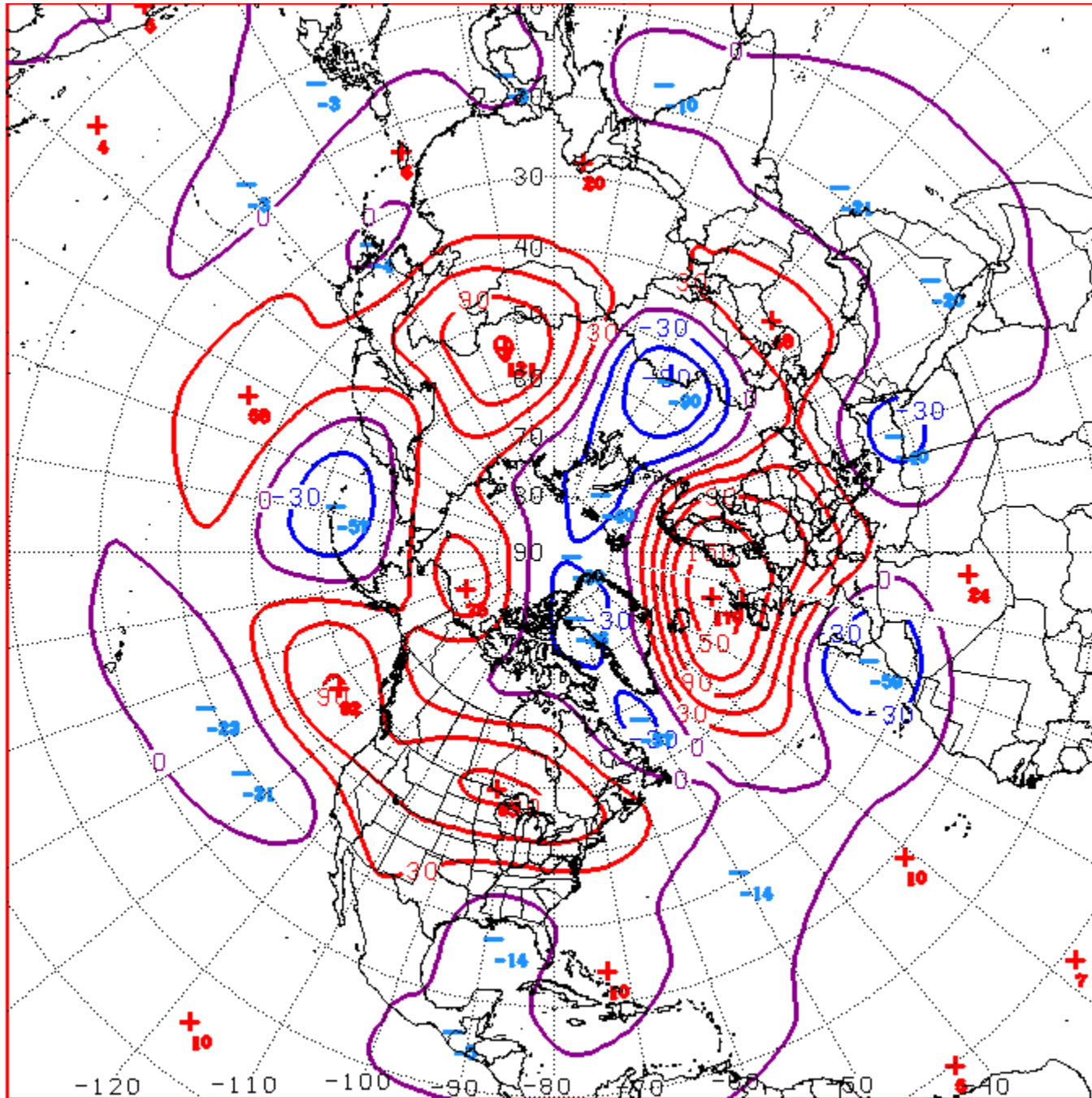
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%
Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane
 Post-Tropical Cyclone or Remnants



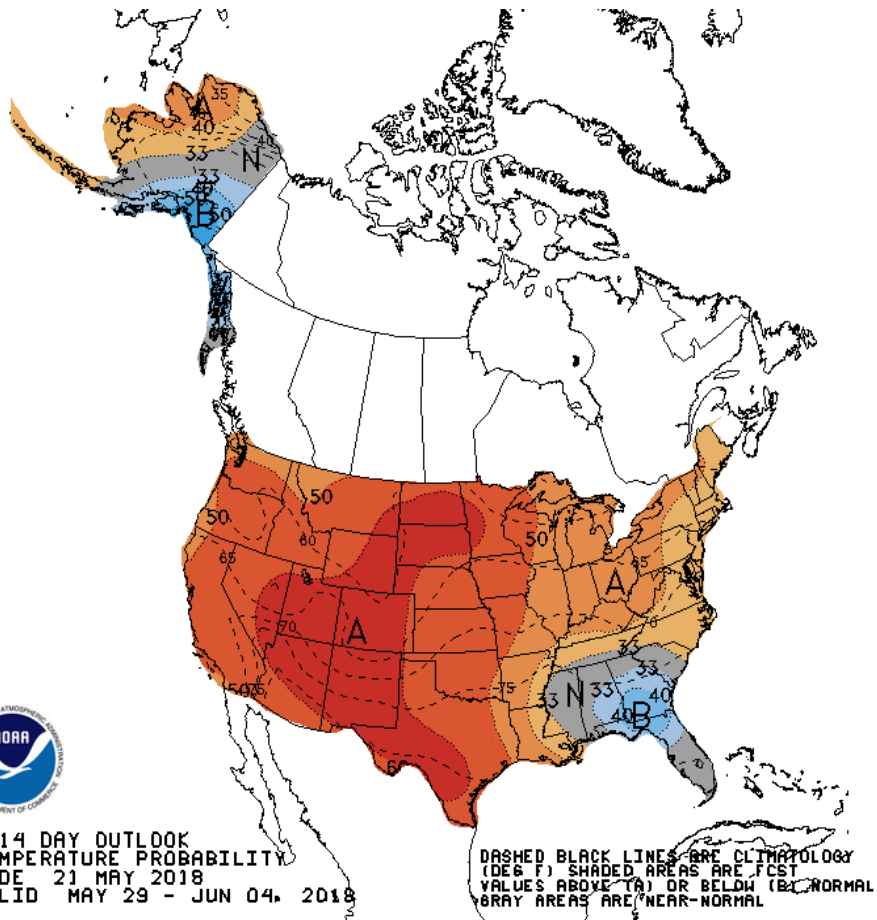
WPC 7-DAY OPF
ISSUED: 0854Z TUE MAY 22 2018
VALID: 12Z TUE MAY 22 2018
THRU: 12Z TUE MAY 29 2018
FORECASTER: WPC
DOC/NOAA/NWS/NCEP/WPC



Connections to U.S. Impacts

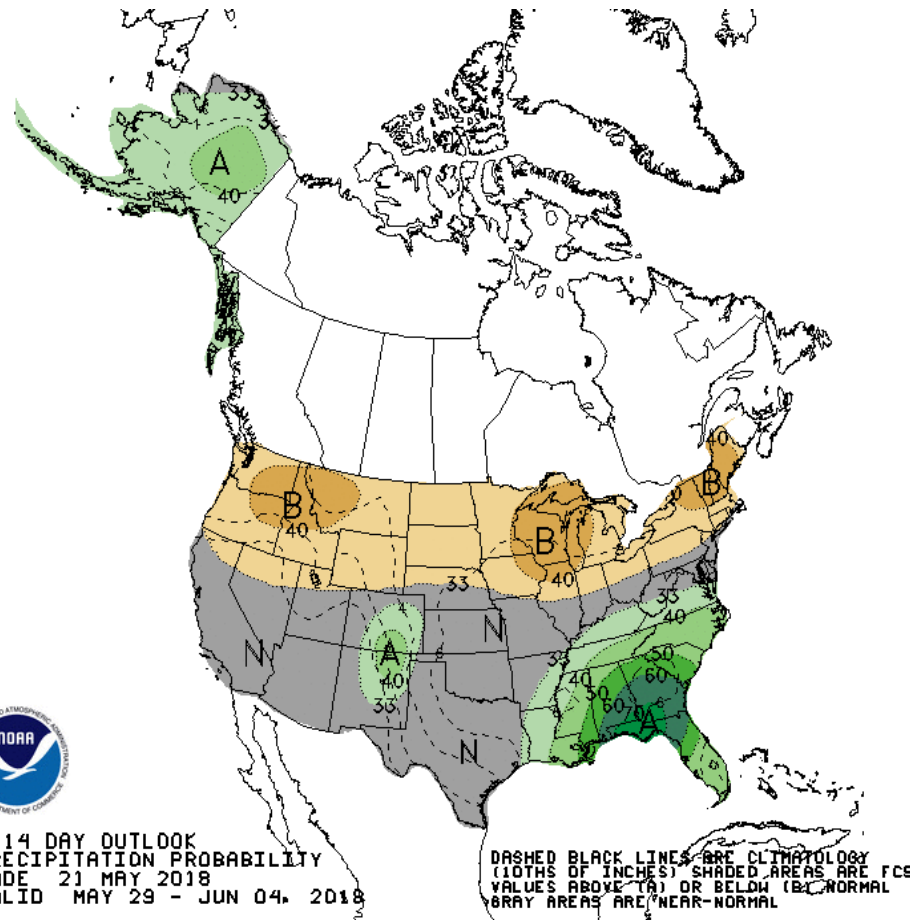
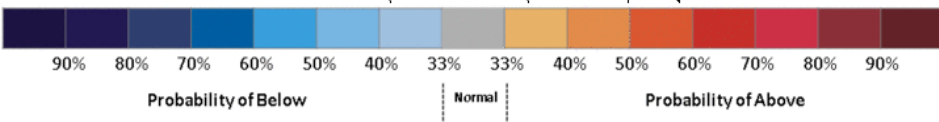


D+11 500 MB ANOMALIES FROM 06Z ENSM
 CPC MAP MADE MAY 22 2018 1221 UTC CNTD JUN 02 2018



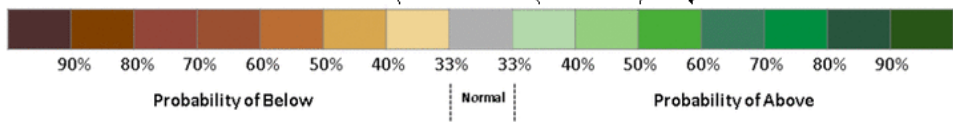
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 21 MAY 2018
VALID MAY 29 - JUN 04, 2018

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 21 MAY 2018
VALID MAY 29 - JUN 04, 2018

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

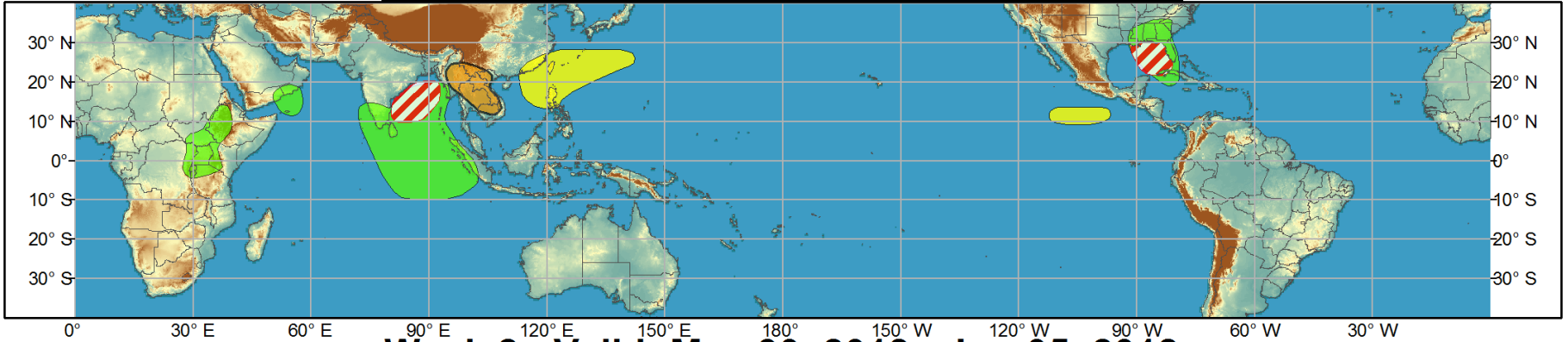




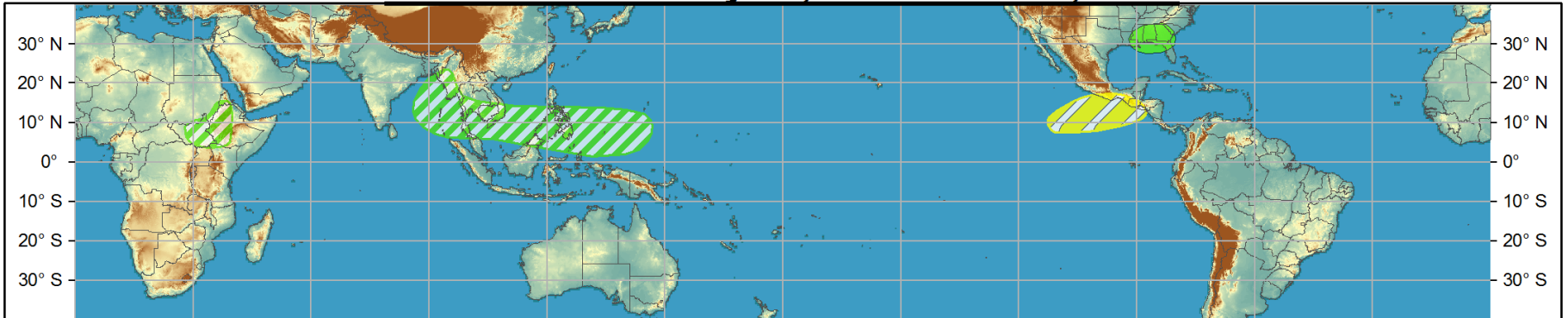
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