

Global Tropics Hazards And Benefits Outlook

2/9/2021

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

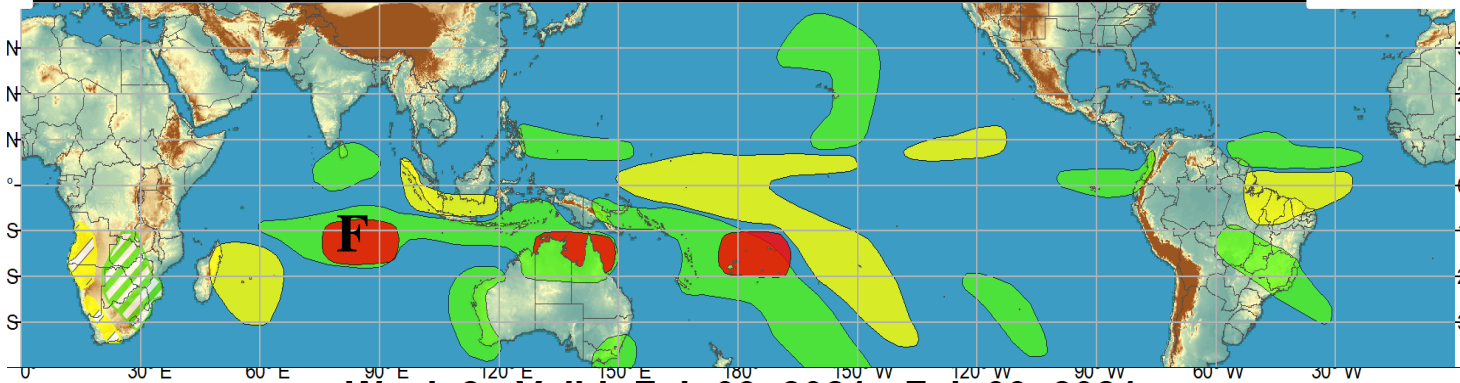
Outlook Review

TC Faraji

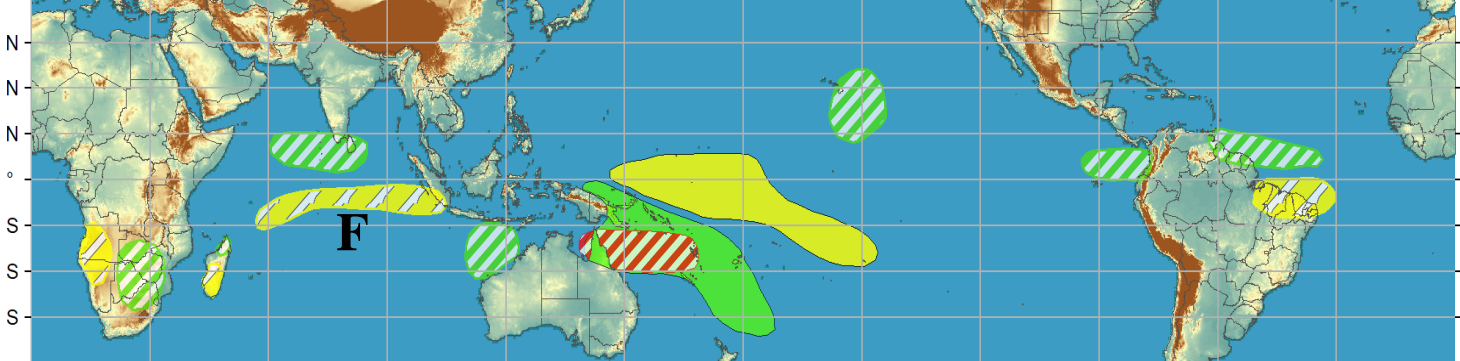
5th Feb – Present

Peak wind: 140 kt
(category 5!)

Week 1 - Valid: Feb 03, 2021 - Feb 09, 2021

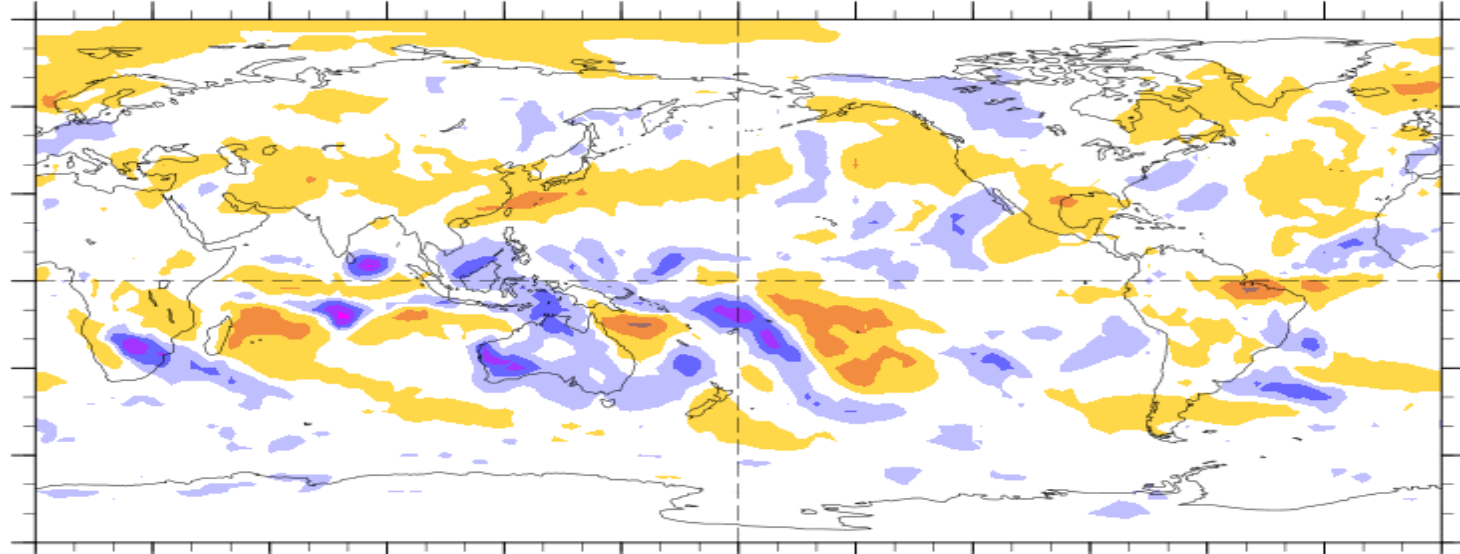


Week 2 - Valid: Feb 03, 2021 - Feb 09, 2021



7-Day Average OLR Anomaly

2021/02/01 - 2021/02/07



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (January 14, 2021 Update)

next update on Feb. 11, 2021

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June).

MJO and other subseasonal tropical variability:

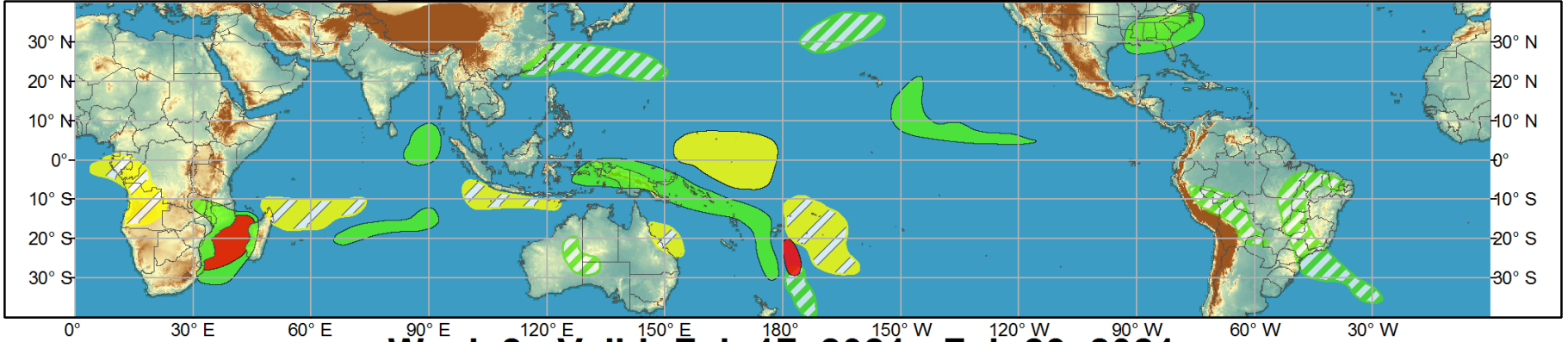
- The RMM index places the MJO over the West Pacific.
- Model guidance anticipates the MJO to weaken and shift westward over the next two weeks, likely tied to interference by equatorial Rossby wave activity.
- This westward shift of convection over the Pacific could help transition out of the ongoing Arctic outbreak across North America by late February, particularly for the eastern United States.



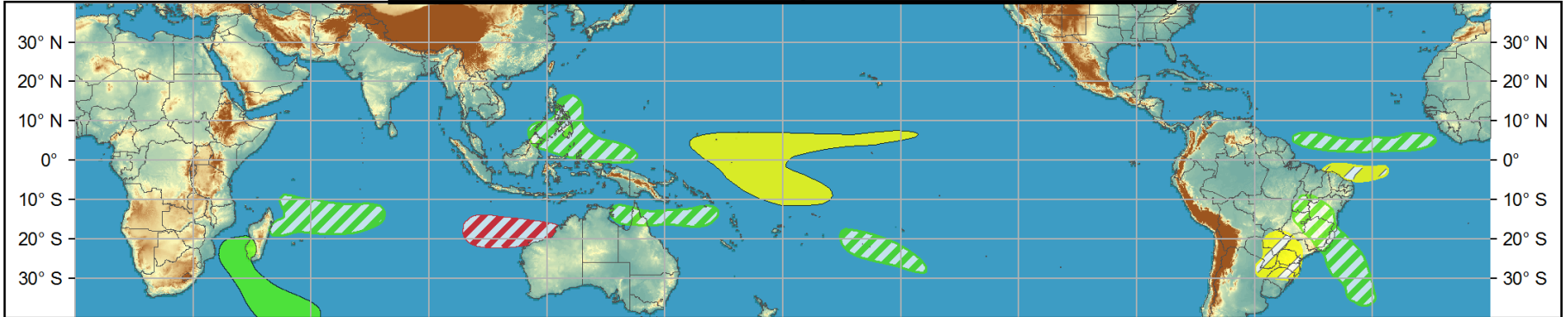
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Feb 10, 2021 - Feb 16, 2021



Week 2 - Valid: Feb 17, 2021 - Feb 23, 2021



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: 02/09/2021
Forecaster: 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

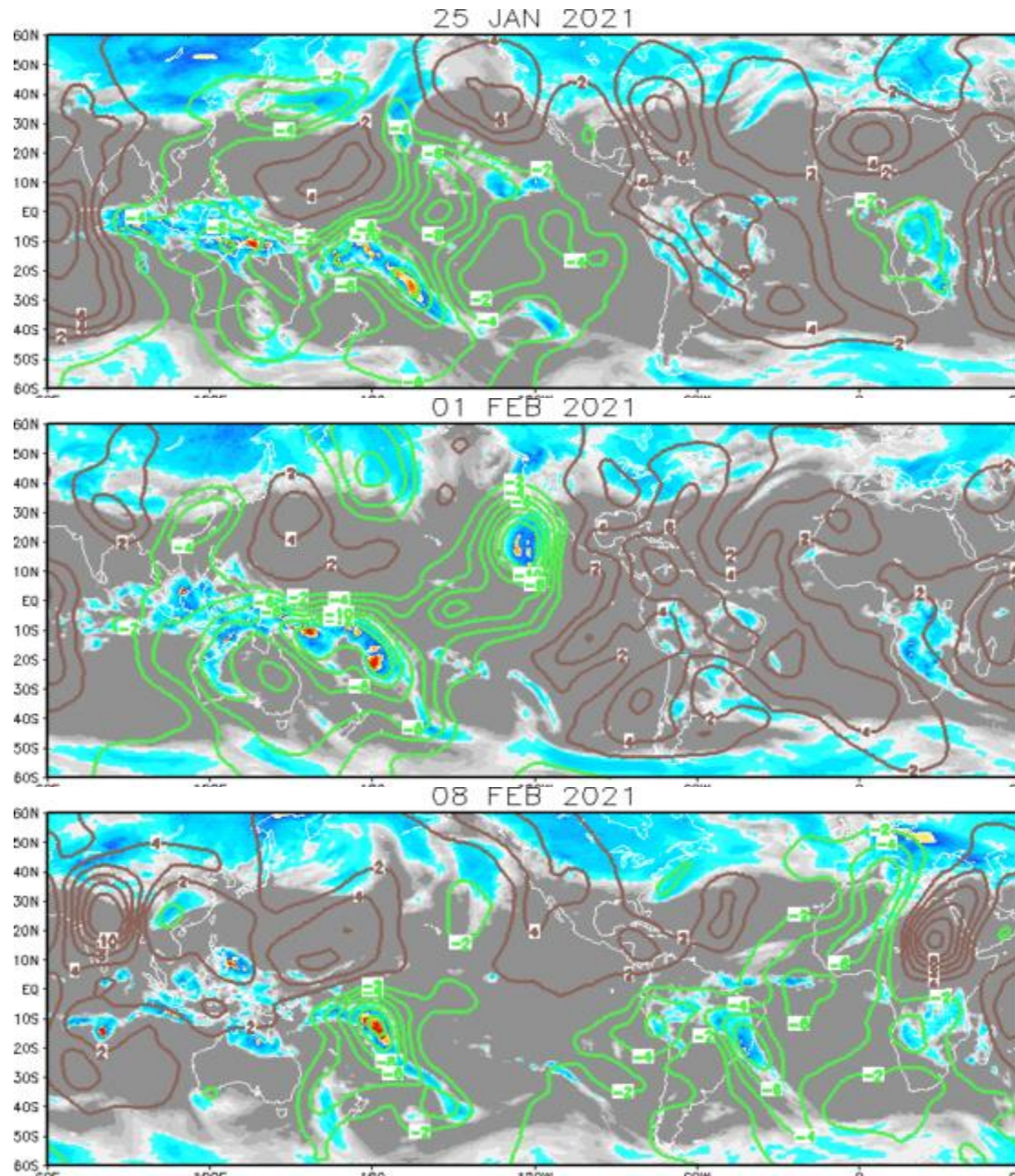
Green: Enhanced Divergence

Brown: Enhanced Convergence

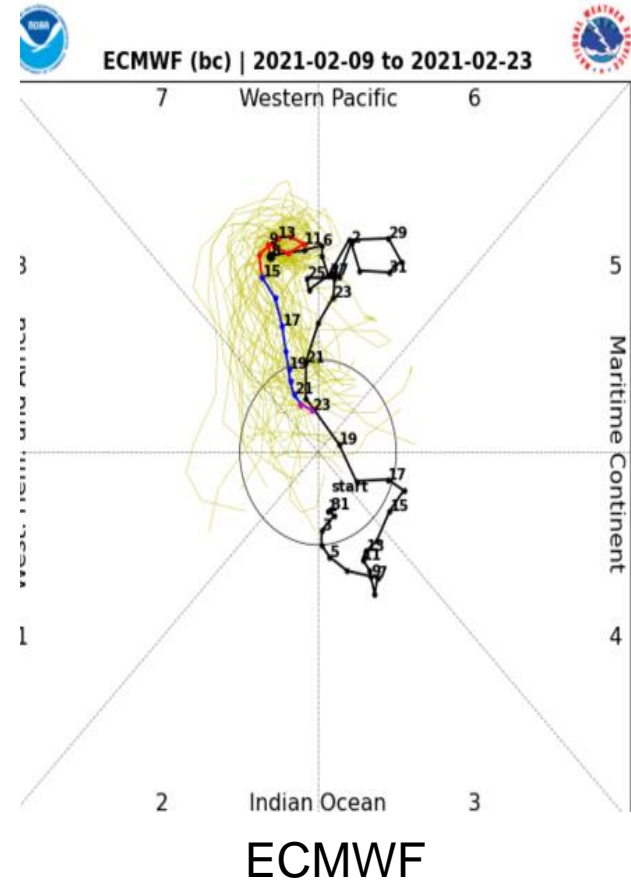
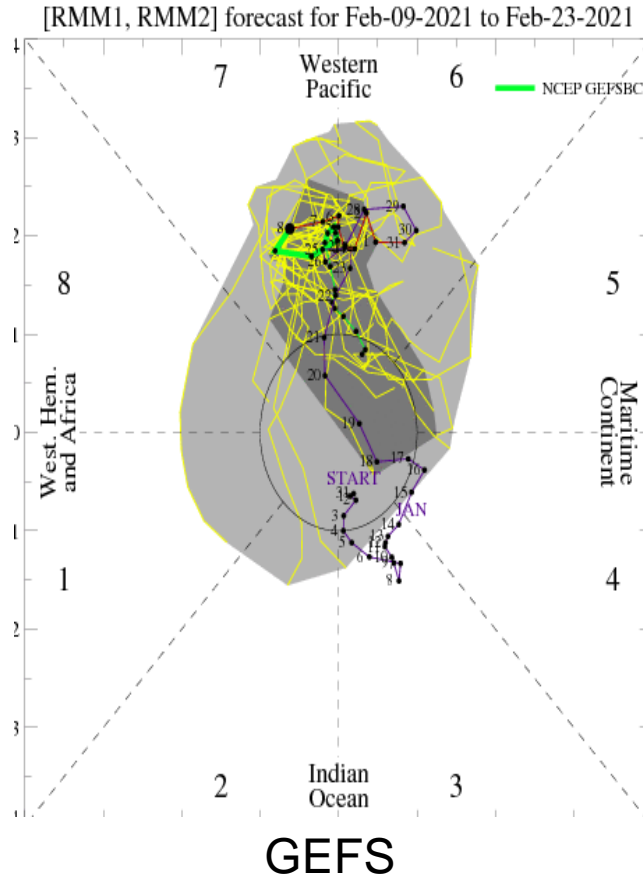
MJO co-located with La Niña footprint over the West Pacific, leading to interference between the two modes.

Stationary pattern, with convection persisting over the Maritime Continent and South Pacific.

Pattern breaking down with suppressed convection overtaking the Indian Ocean and Maritime Continent. Convection focused across the South Pacific.



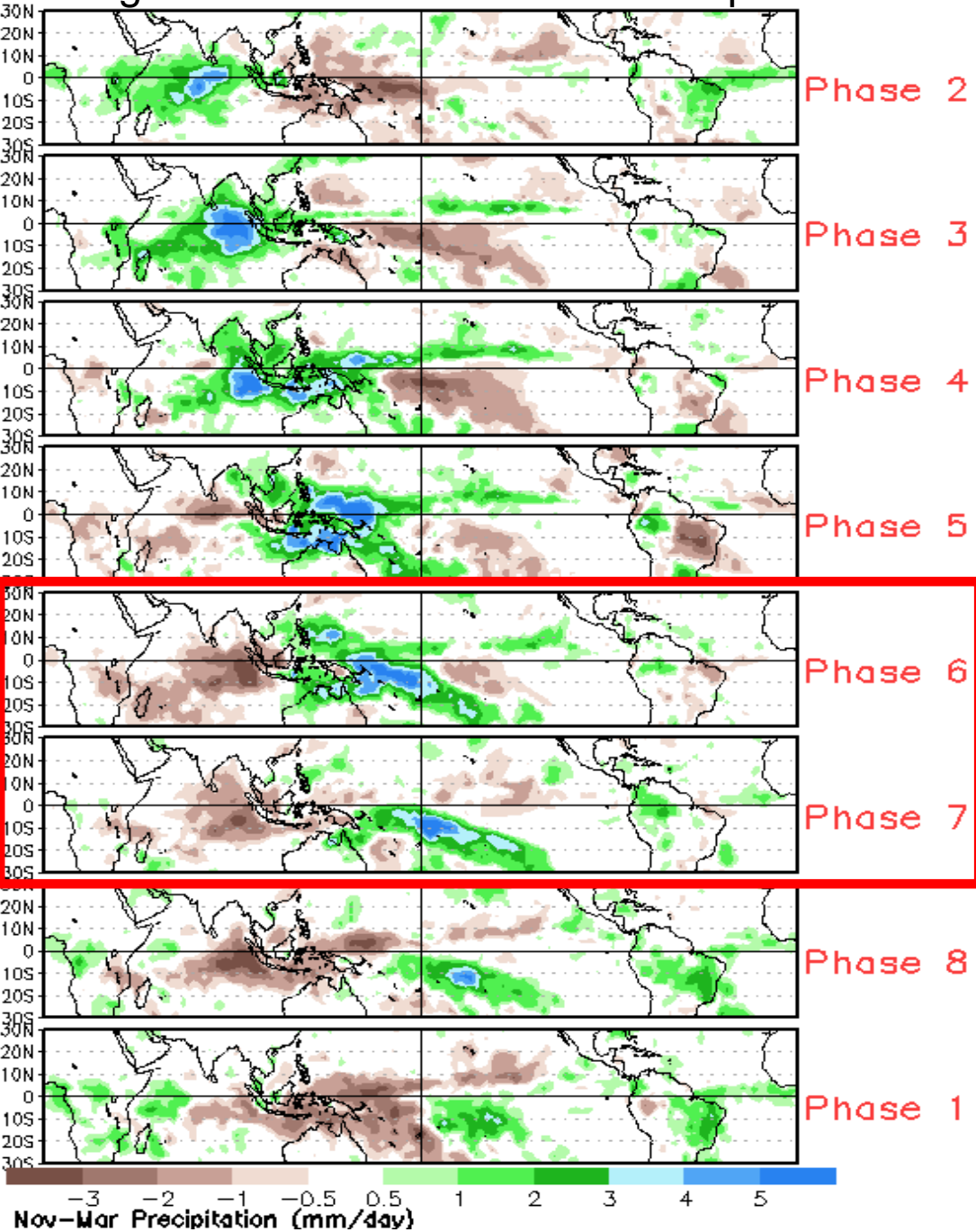
MJO Observation/Forecast



The RMM index showed some eastward propagation over the past week, and is currently in Phase 7 over the West Pacific.

Spread in model forecasts has reduced relative to recent weeks, and has congealed around a forecast weakening of the RMM index the next two weeks. The accompanying westward shift suggests this is at least partially due to equatorial Rossby wave activity.

Average Conditions when the MJO is present

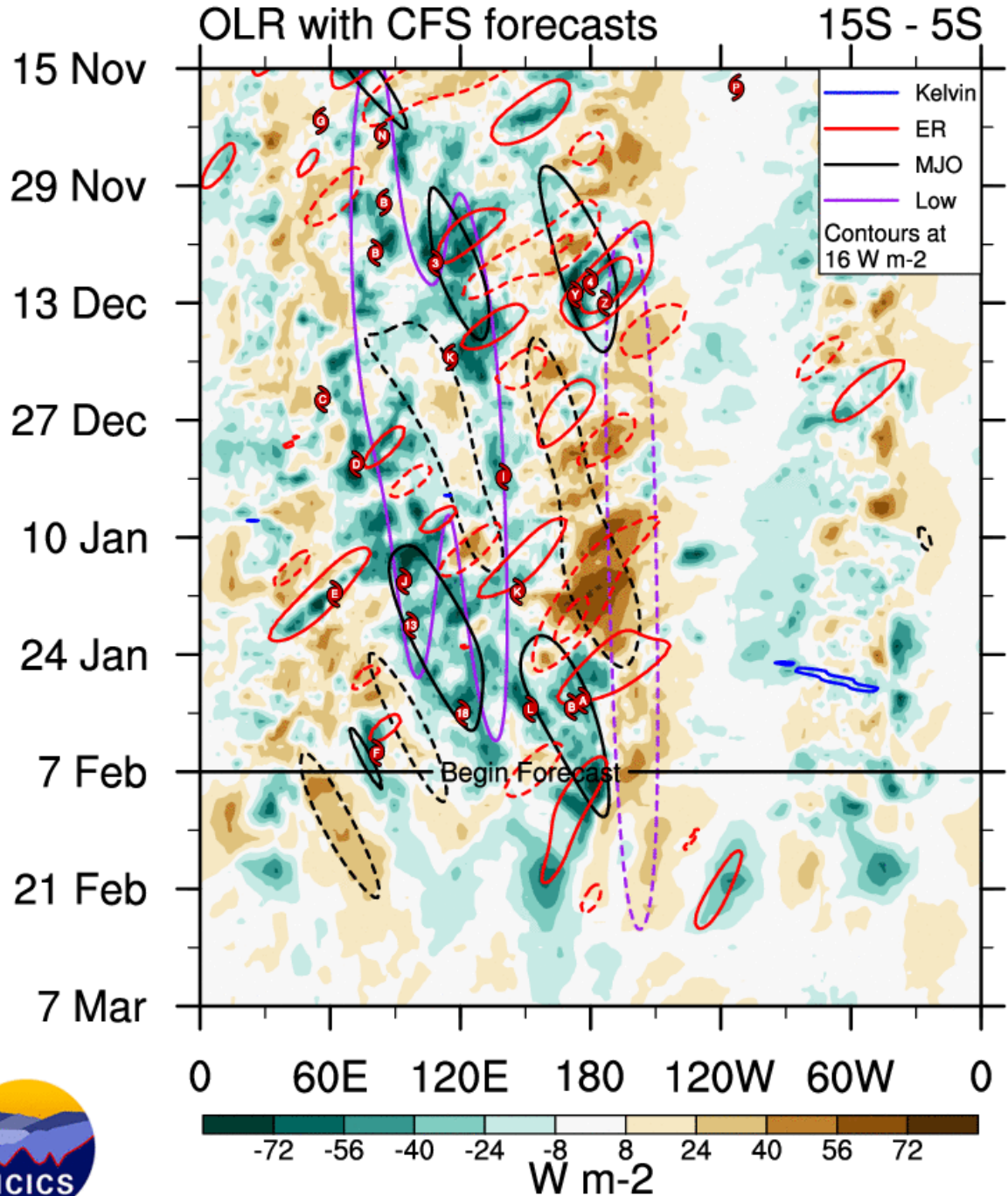


CAVEAT: These panels are representative of robust MJO events.

MJO activity is approaching the Date Line, although there is another region over the Indian Ocean that projects on the MJO as well (likely artificial).

Rosby wave activity is forecast to push from the Date Line to 150°E over the next two weeks (westward shift of RMM index).

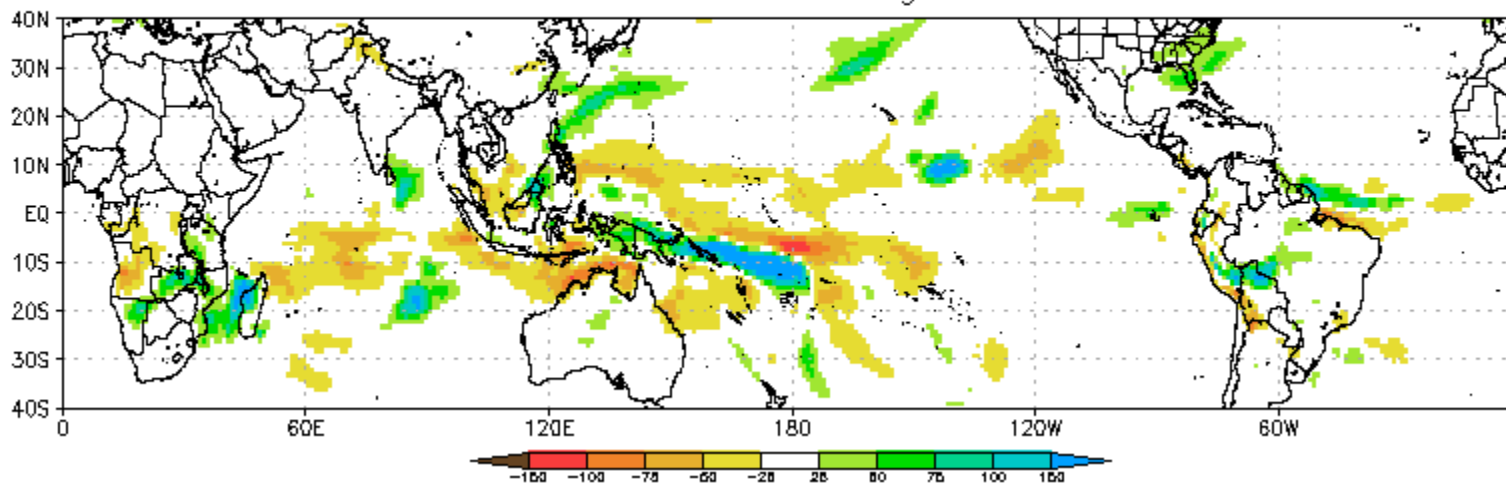
Low frequency suppression of convection continues near 150°W.



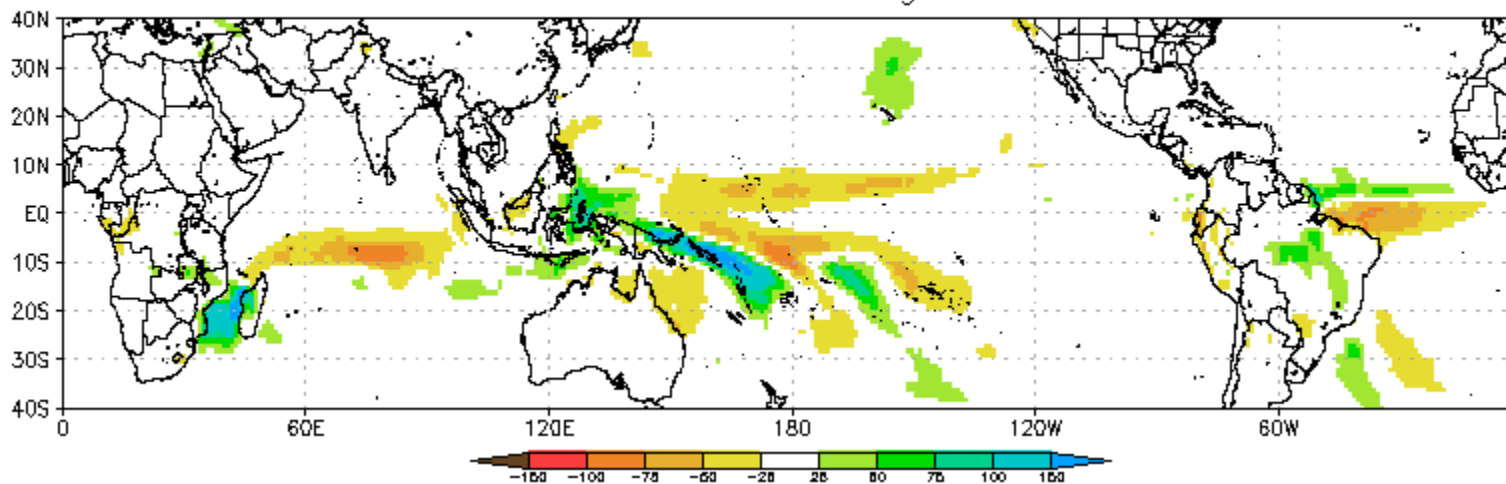
(Note figure is for the Southern Hemisphere, not along the equator due to the time of year)



CFS Precipitation Anomalies (mm) Issued 08Feb2021
Week-1 Forecast Ending 16Feb2021



CFS Precipitation Anomalies (mm) Issued 08Feb2021
Week-2 Forecast Ending 23Feb2021





JOINT TYPHOON WARNING CENTER

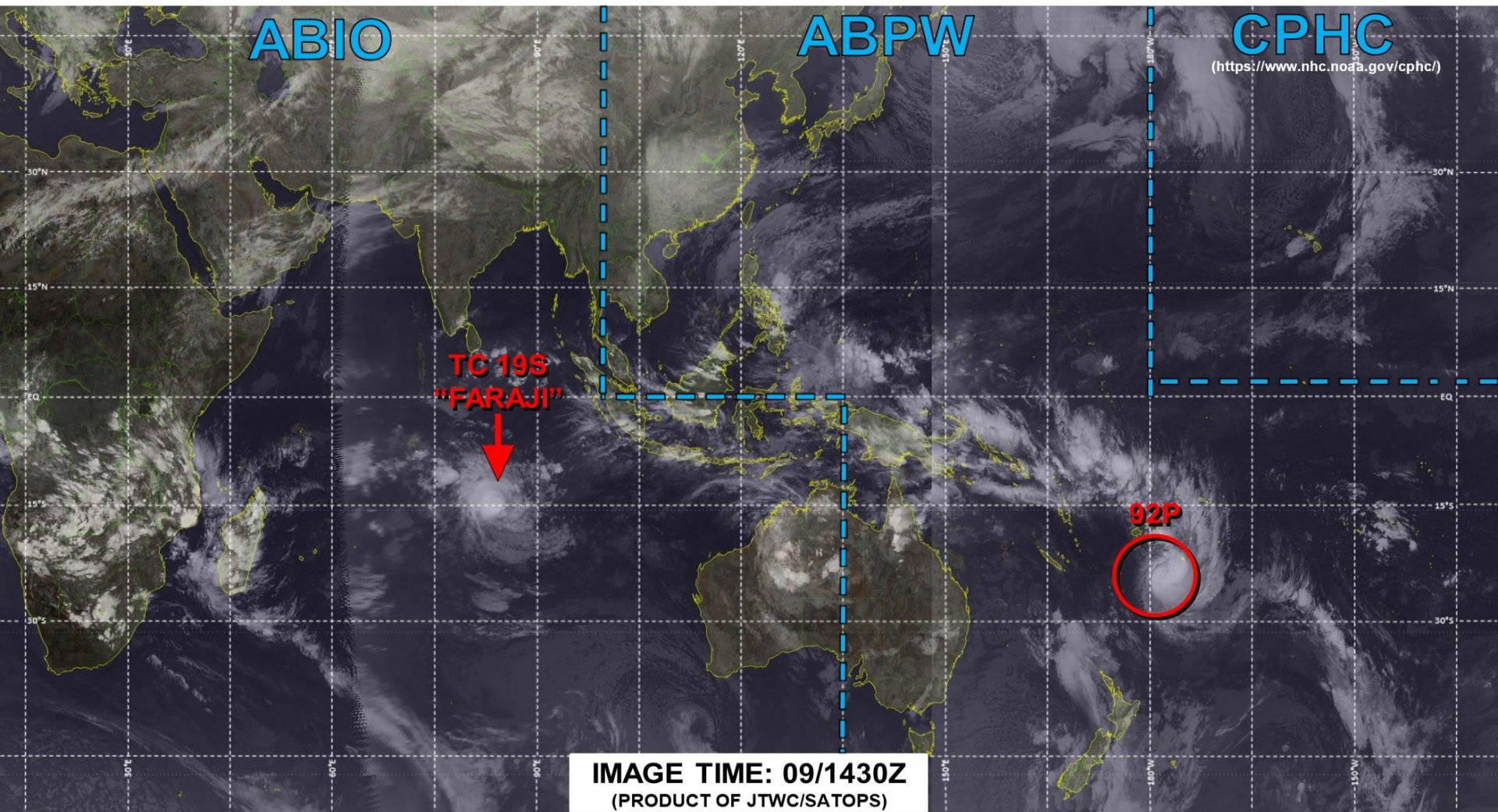


IMAGE TIME: 09/1430Z
(PRODUCT OF JTWC/SATOPS)

LOW TC development unlikely within 24 hours

MEDIUM TC development likely, but expected to occur beyond 24 hours

HIGH TC development likely within 24 hours (Reference TCFA)

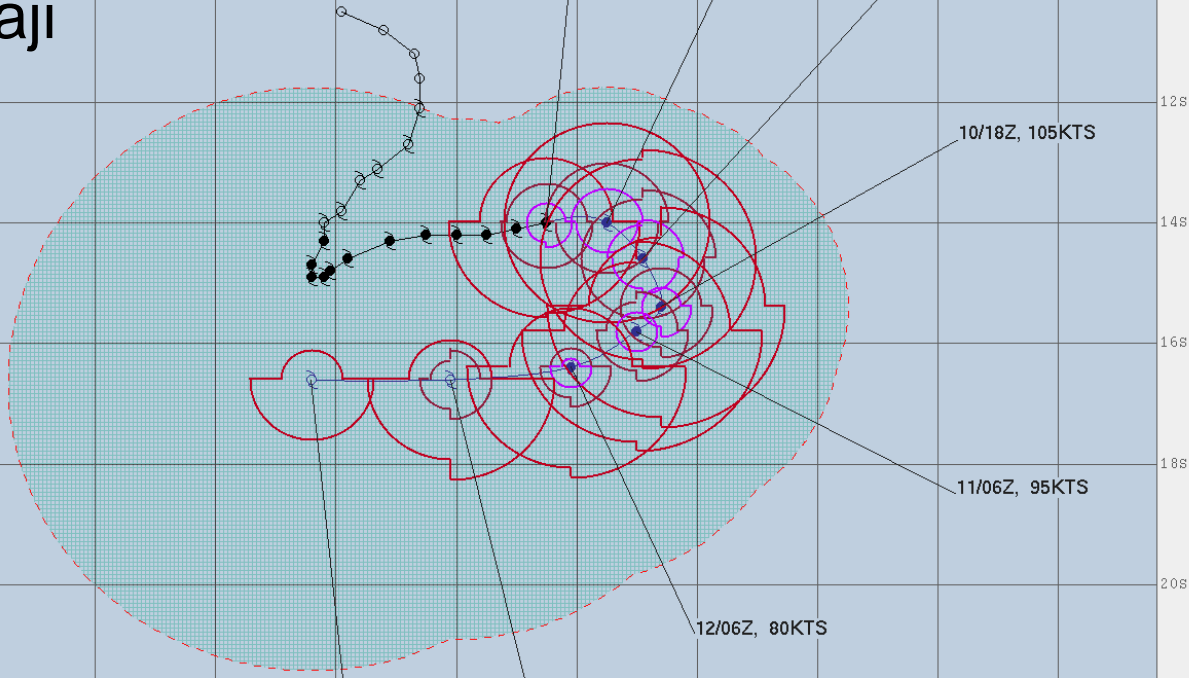
SUB TROPICAL Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

JTWC


Diego Garcia

Faraji



TROPICAL CYCLONE 19S (FARAJI) WARNING #9
 WTKS32 PGTW 090900
 090600Z POSIT: NEAR 14.0S 83.5E
 MOVING 080 DEGREES TRUE AT 05 KNOTS
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 46 FEET
 09/06Z, WINDS 130 KTS, GUSTS TO 160 KTS
 09/18Z, WINDS 125 KTS, GUSTS TO 150 KTS
 10/06Z, WINDS 115 KTS, GUSTS TO 140 KTS
 10/18Z, WINDS 105 KTS, GUSTS TO 130 KTS
 11/06Z, WINDS 095 KTS, GUSTS TO 115 KTS
 12/06Z, WINDS 080 KTS, GUSTS TO 100 KTS
 13/06Z, WINDS 060 KTS, GUSTS TO 075 KTS
 14/06Z, WINDS 045 KTS, GUSTS TO 055 KTS

- 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)



S. Indian Ocean

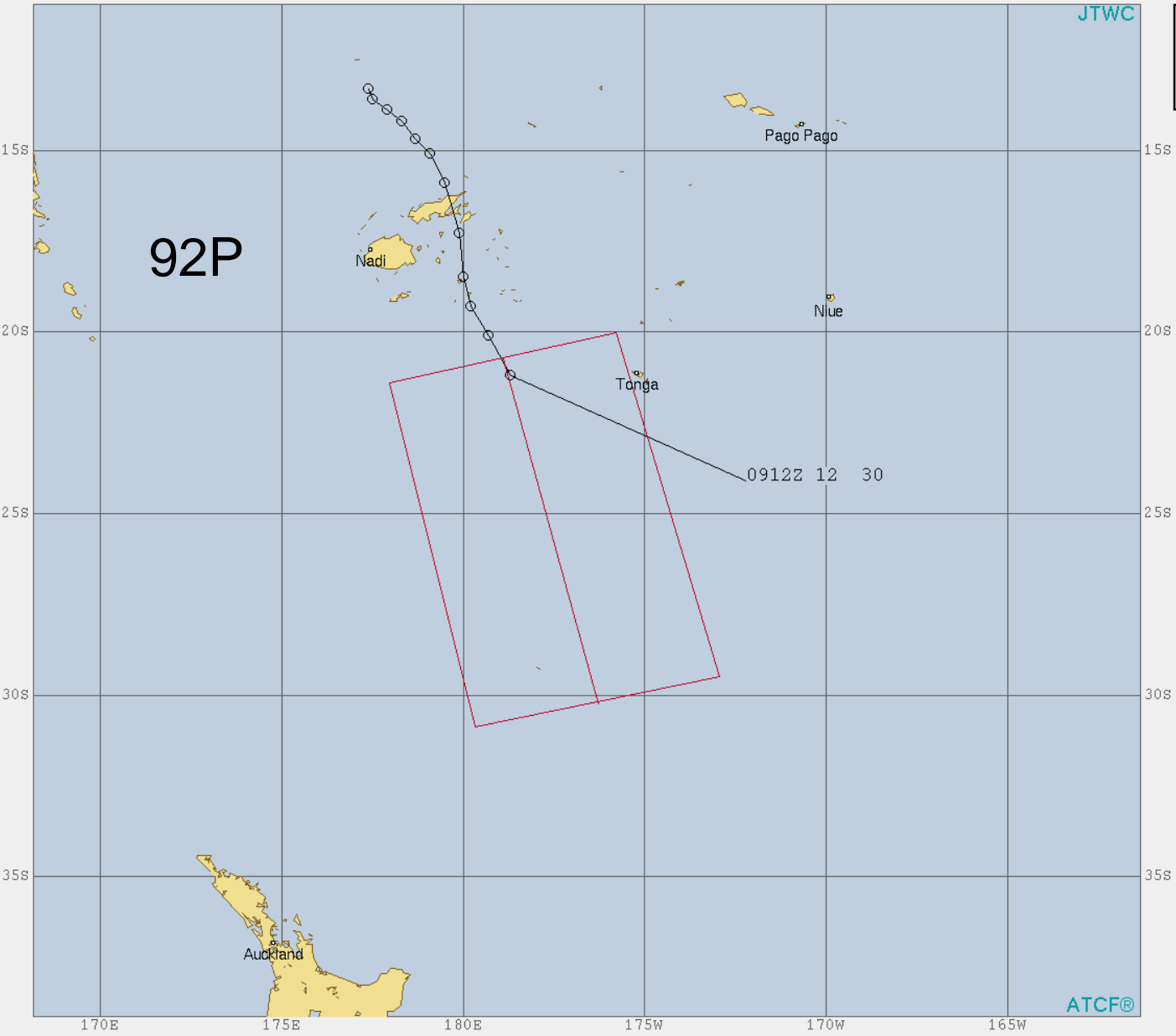
ATCF®

72E 74E 76E 78E 80E 82E 84E 86E 88E 90E 92E

8S
10S
12S
14S
16S
18S
20S
22S
24S

JTWC

TROPICAL CYCLONE FORMATION ALERT
REISSUED
WTPS21 PHNC 091500
091200Z POSITION: NEAR 21.2S 178.7W
MOVING SOUTH-SOUTHEASTWARD AT 12 KNOTS
MAXIMUM SUSTAINED WINDS: 25 TO 30 KNOTS



92P

Pago Pago

Nadi

Nue

Tonga

0912Z 12 30

Auckland

ATCF®

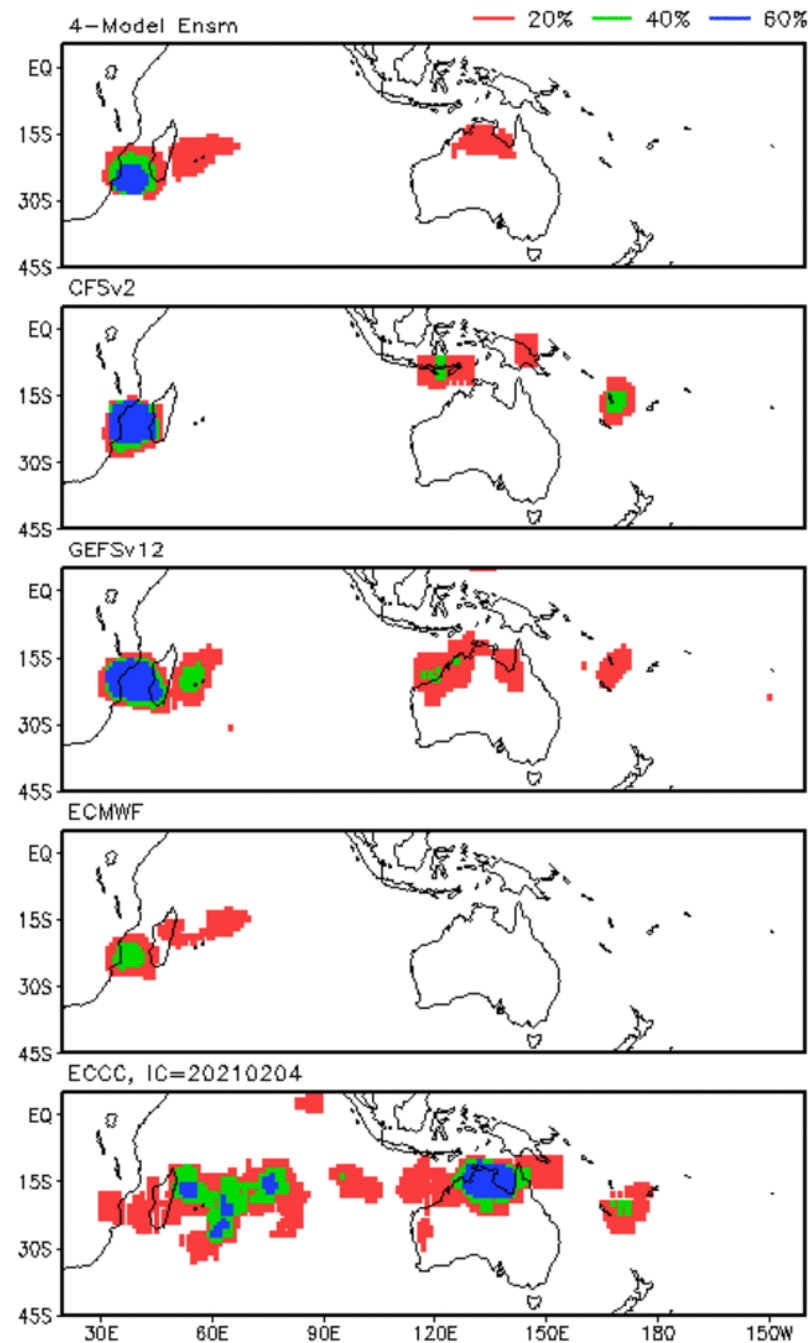
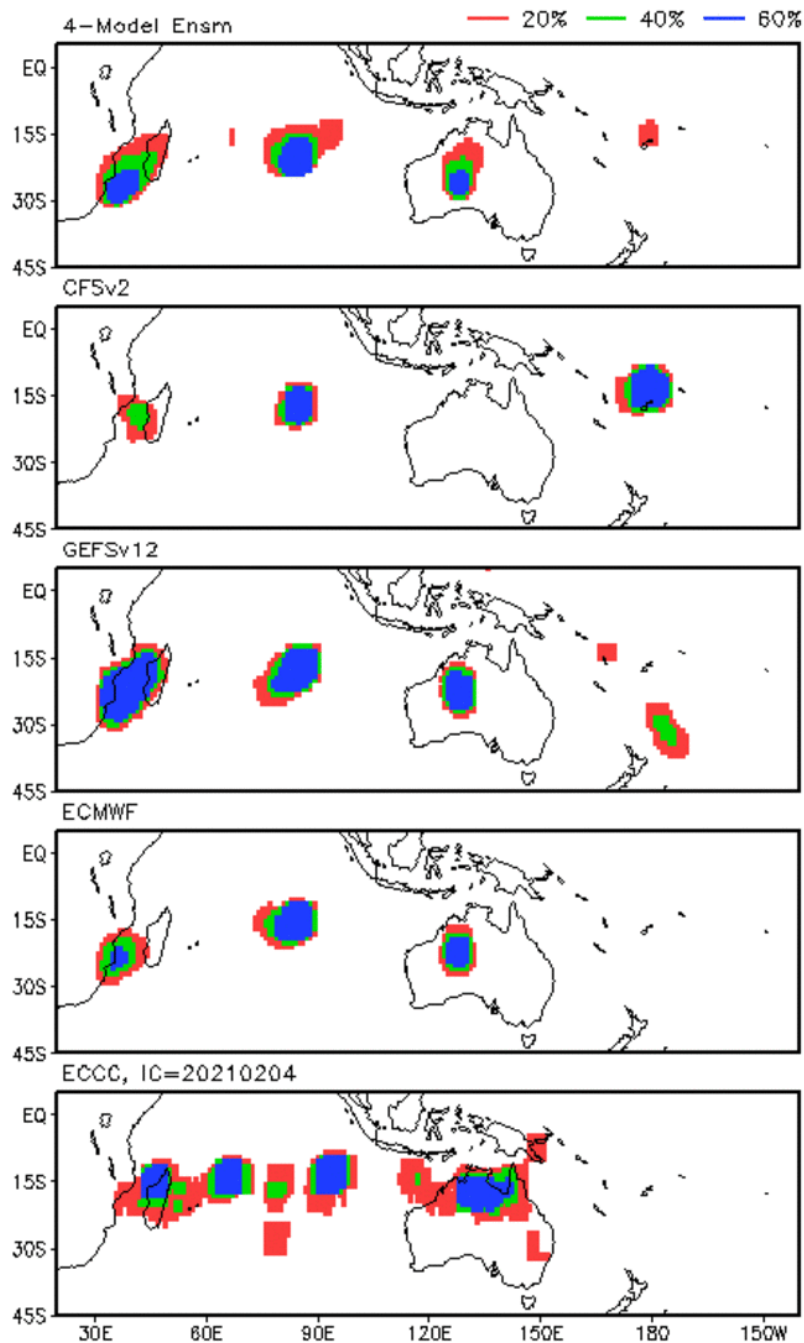


Storm Track Probabilities, IC=20210208

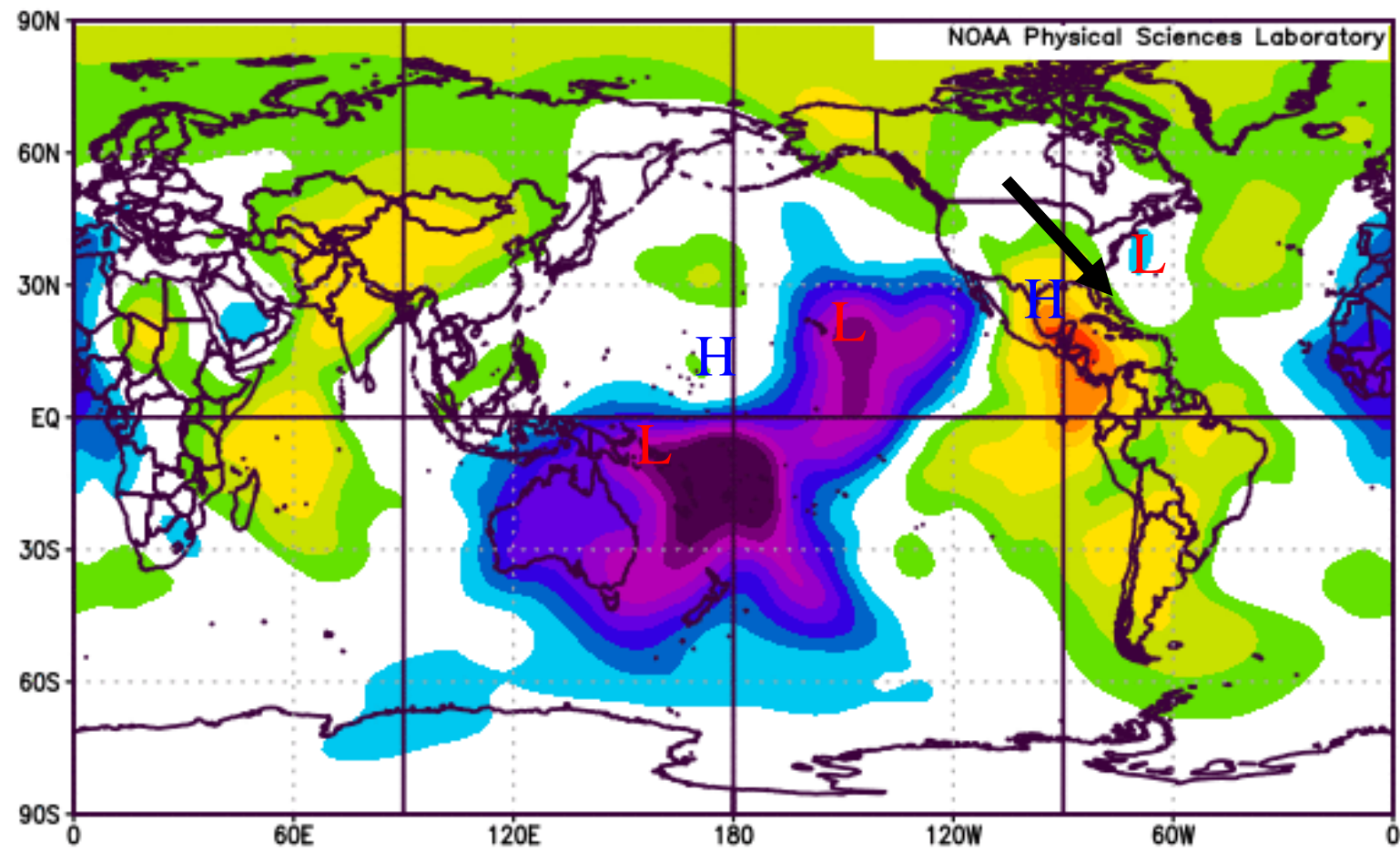
Week 1: 0210 - 0216

Storm Track Probabilities, IC=20210208

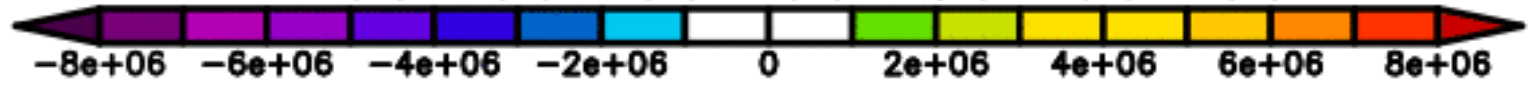
Week 2: 0217 - 0223



Connections to U.S. Impacts

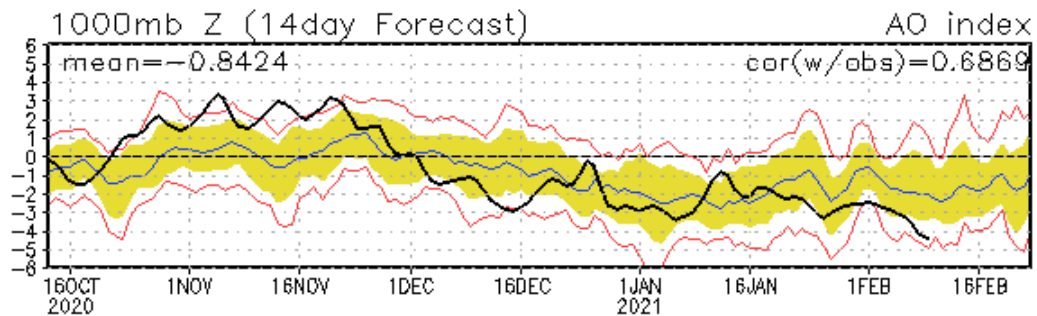
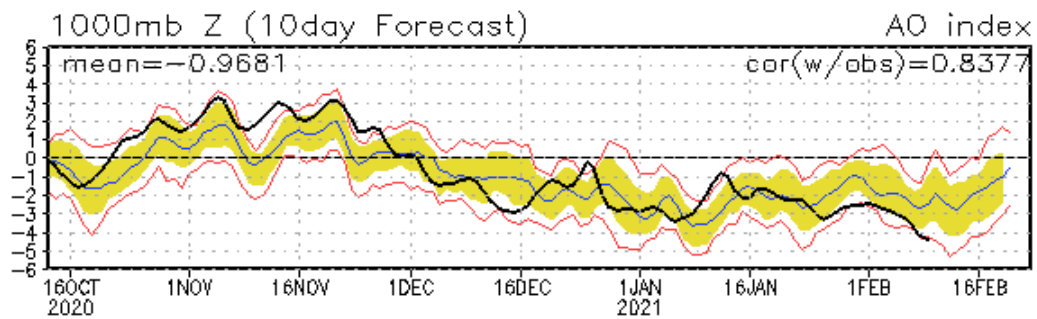
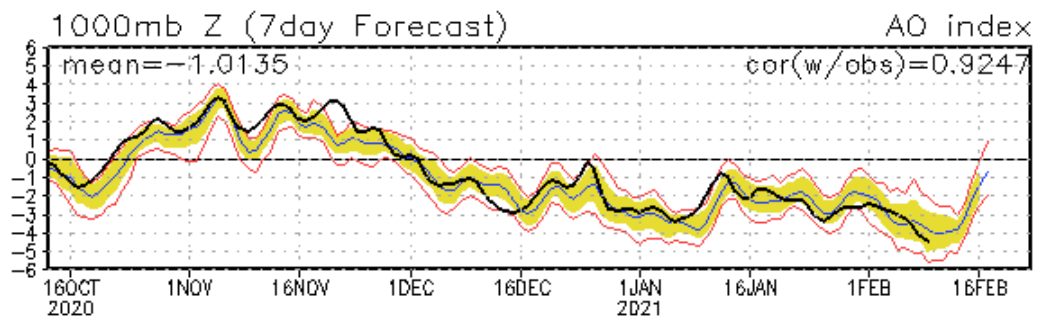
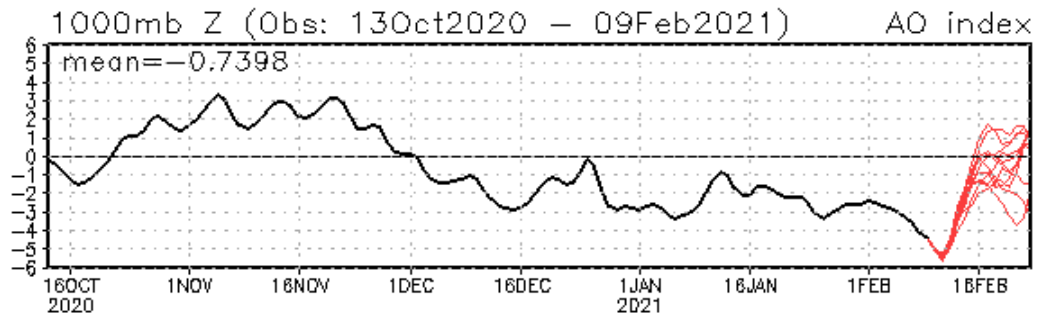


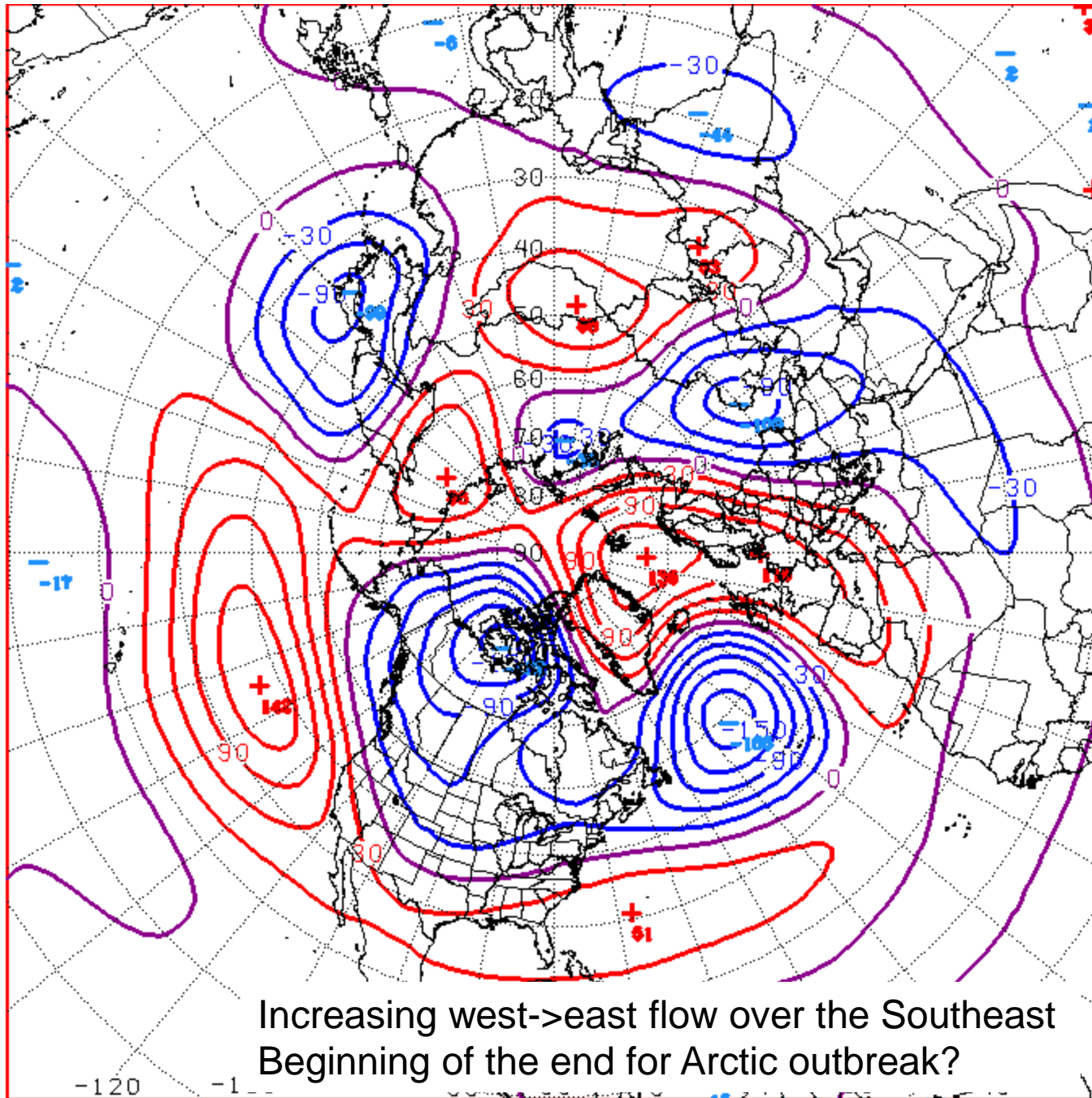
.2101 sigma Velocity Potential Composite Anomaly (1981-2010 Climatology)
2/7/21 2/6/21 2/5/21 2/4/21 2/3/21 2/2/21 2/1/21



Purples/blues: Rising air (surface low pressure)
Yellows/reds: Sinking air (surface high pressure)

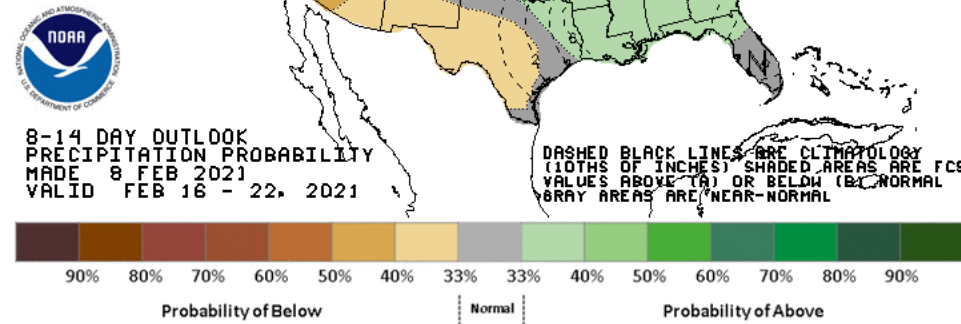
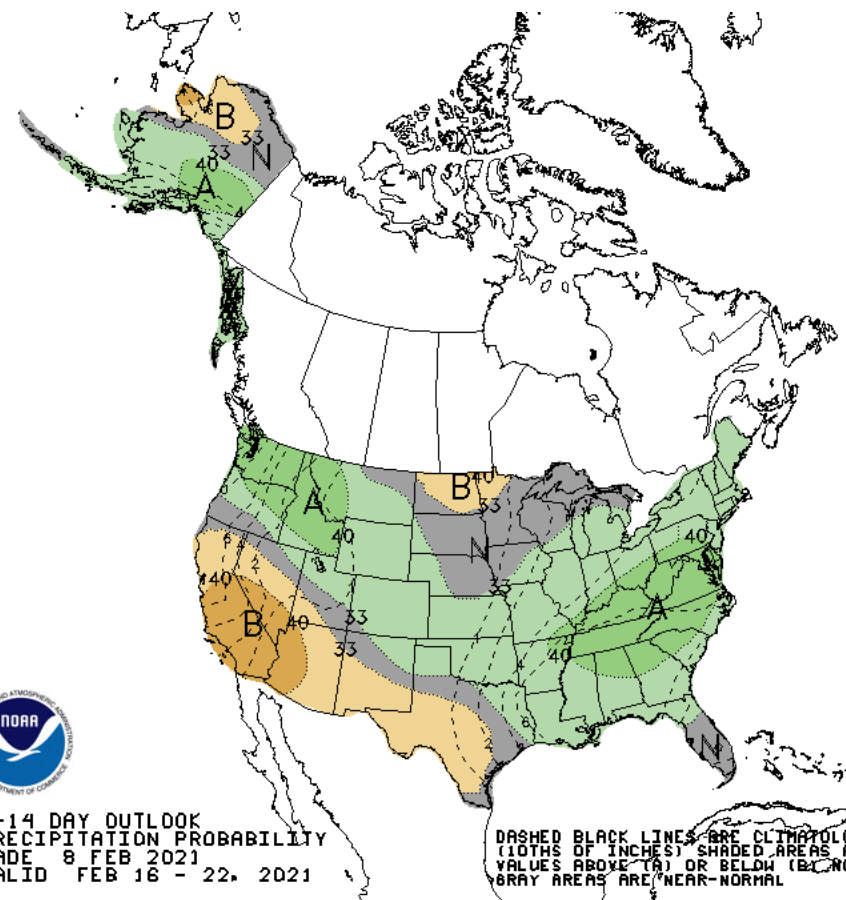
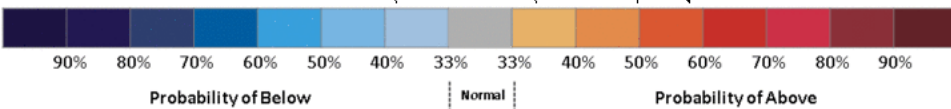
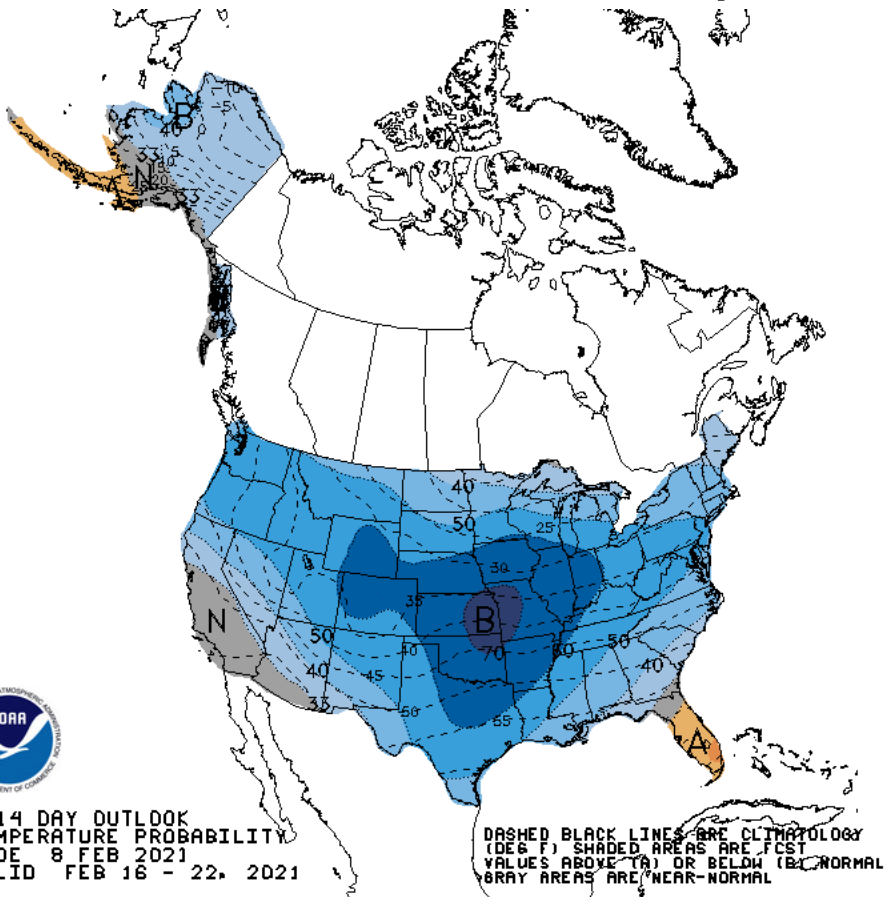
AO: Observed & ENSM forecasts





Increasing west->east flow over the Southeast
 Beginning of the end for Arctic outbreak?

Week 2 – Temperature and Precipitation



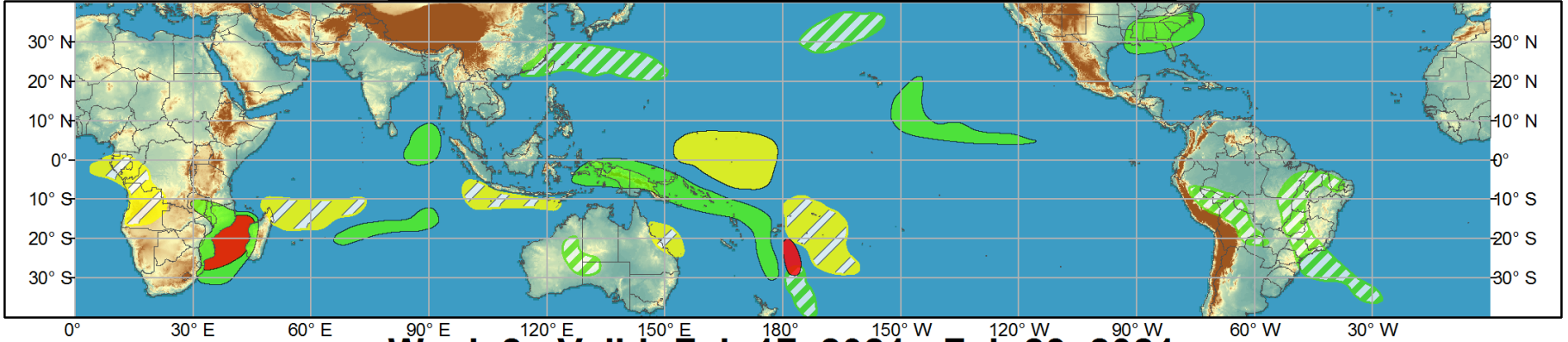
Below-normal temperature probabilities are likely to be reduced today.



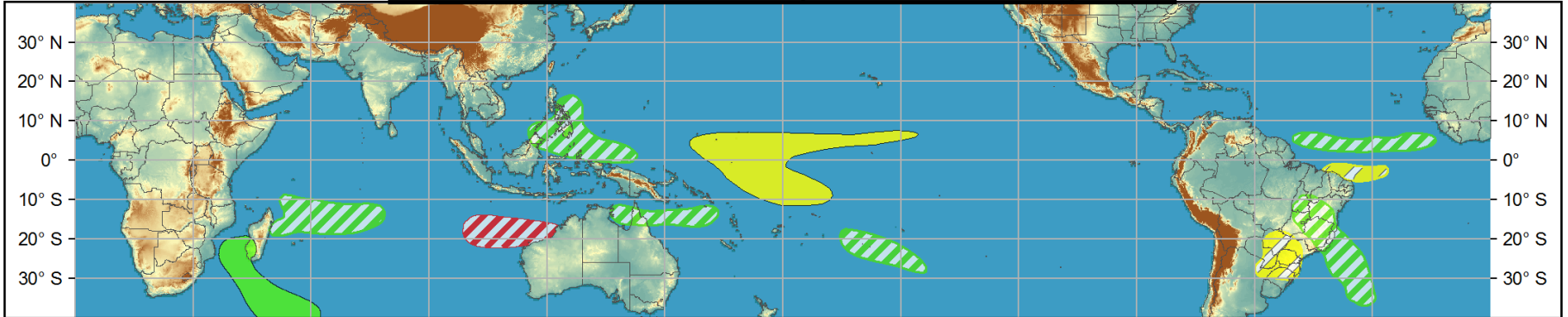
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Development of a tropical cyclone (tropical depression - TD, or greater strength).

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.

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