

# Global Tropics Hazards And Benefits Outlook

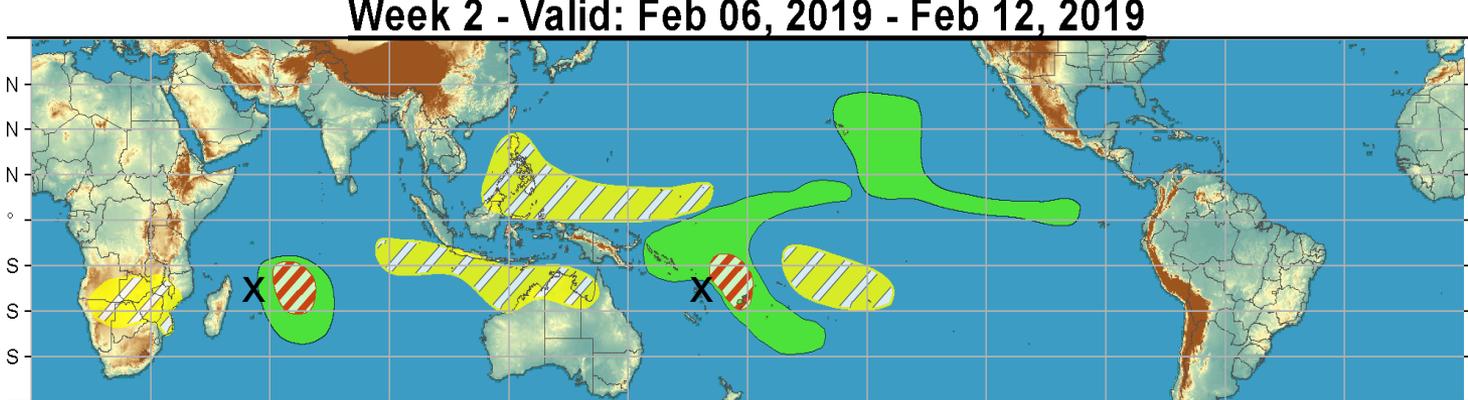
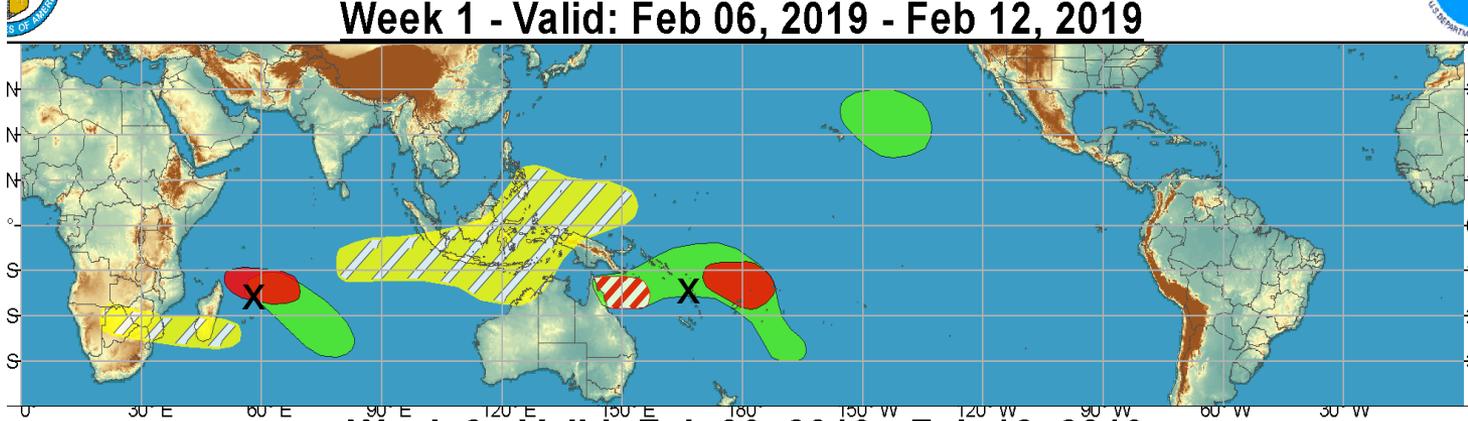
2/12/2019

Anthony Artusa

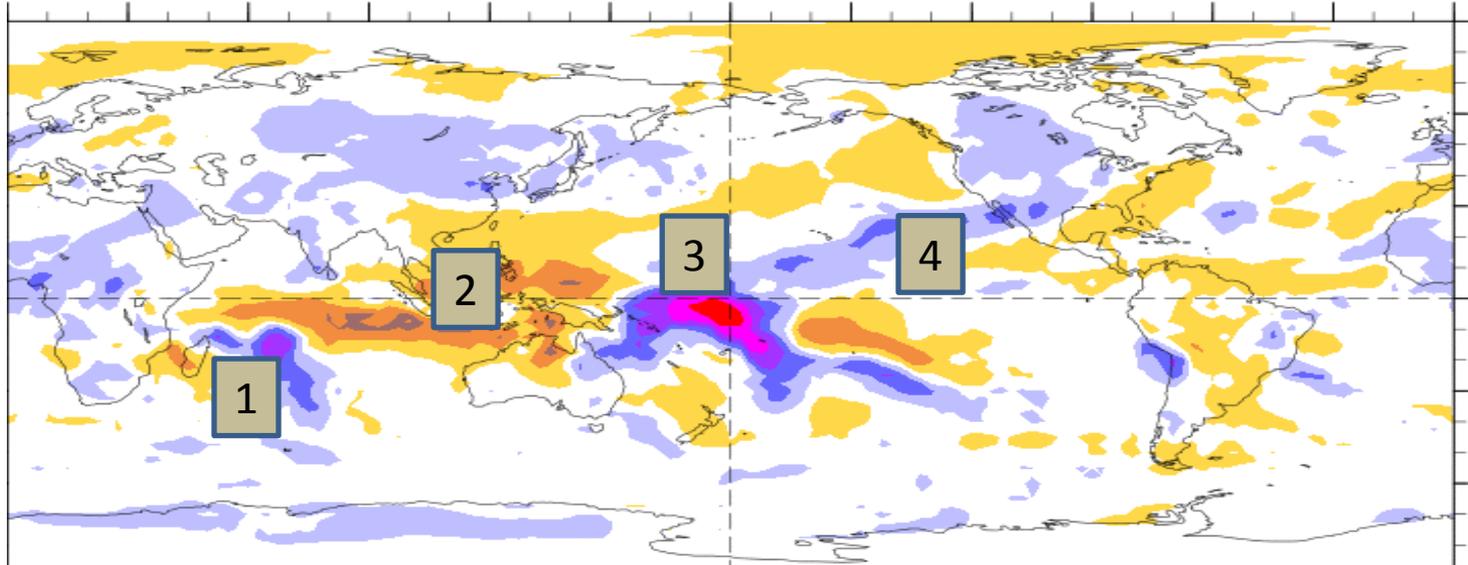
## Outline

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

# Outlook Review



7-Day Average OLR Anomaly 2019/02/04 - 2019/02/10



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (Jan 10, 2019 Update)**

- ENSO Alert System Status: [El Niño Watch](#)
- El Niño is expected to form and continue through the Northern Hemisphere spring 2019 (~65% chance)

## **MJO and other subseasonal tropical variability:**

- The MJO remained of moderate strength, and propagated to the Western Pacific (Phase 7).
- Dynamical models generally indicate interference with an equatorial Rossby wave (ERW) in Week-1, followed by resumed eastward propagation across Western Hemisphere (Phases 8,1).

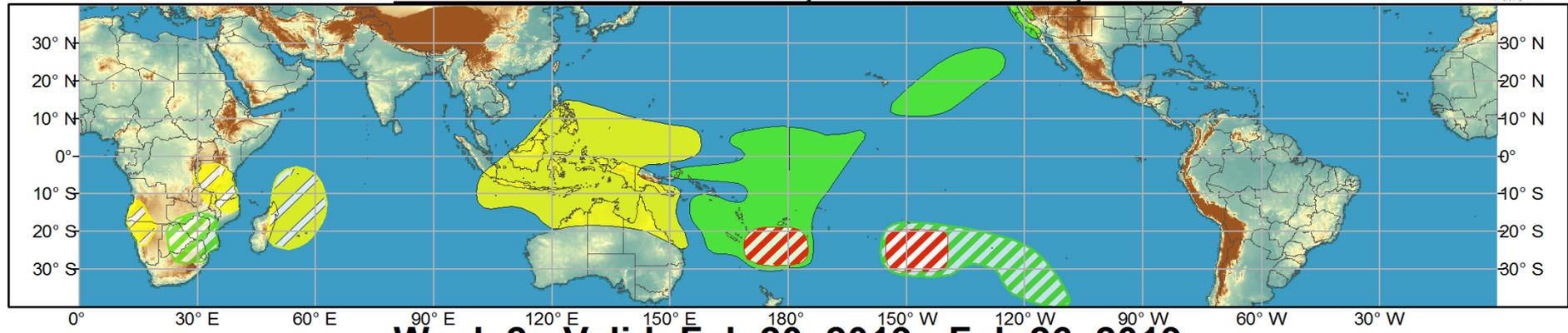
## **Extratropics:**

- Expected evolution of MJO may have an impact on the extended range temperature forecasts for the U.S. Active phase of MJO (centered near Date Line & propagating east)... favors a risk of colder temperatures late in Week-2 across the Northern Great Plains and Great Lakes region.

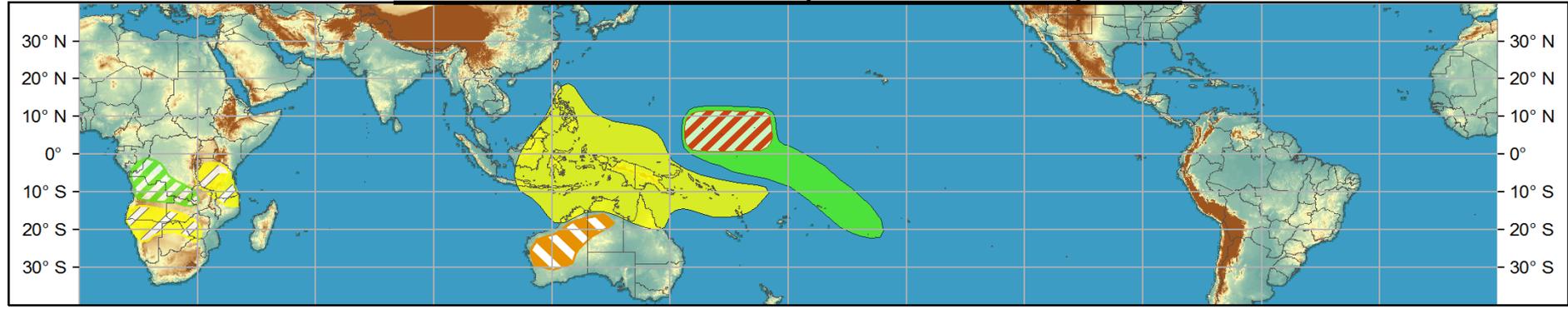


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Feb 13, 2019 - Feb 19, 2019



## Week 2 - Valid: Feb 20, 2019 - Feb 26, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

**Produced: 02/12/2019**  
**Forecaster: Artusa**

**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.**

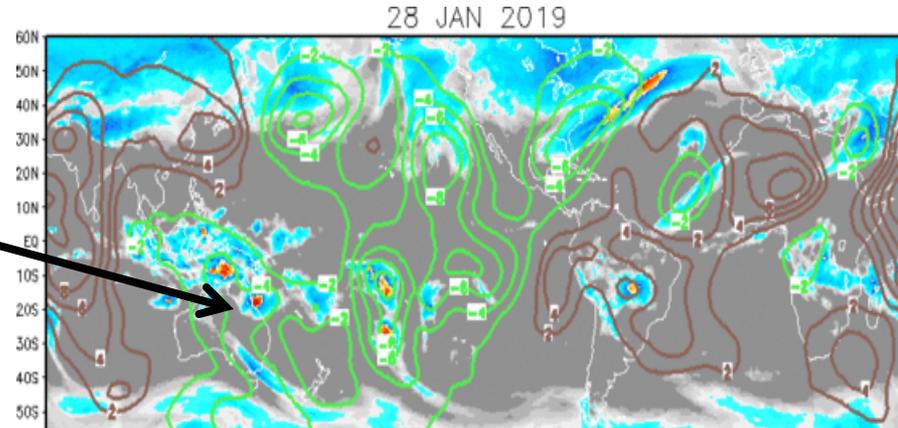
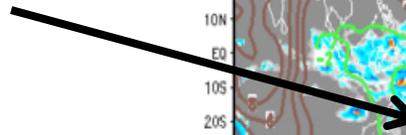


# IR Satellite & 200-hpa Velocity Potential Anomalies

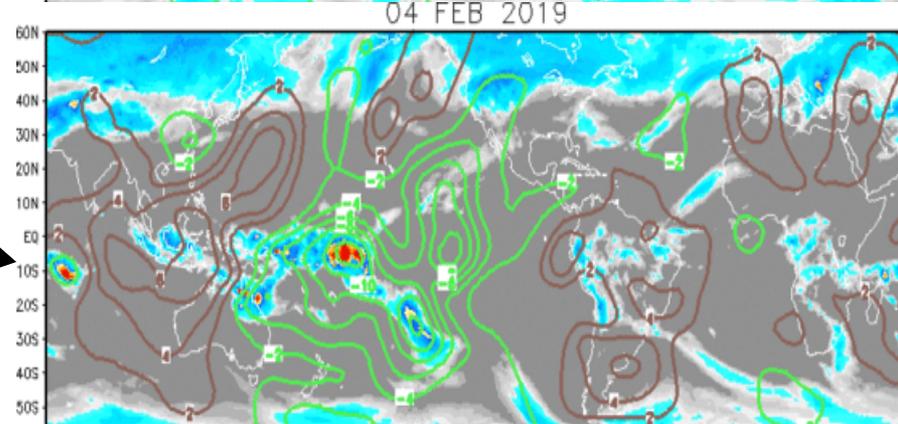
Green: Enhanced Divergence

Brown: Enhanced Convergence

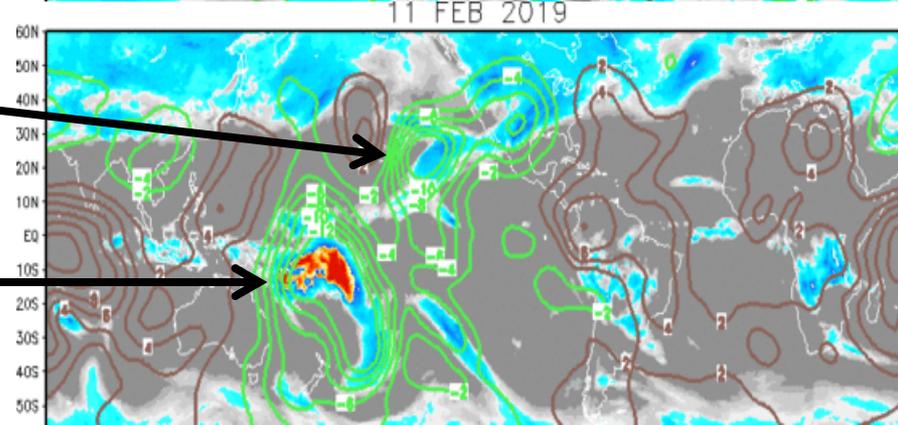
1) Torrential rain in Queensland, Australia (esp. Townsville)



2) TC's (Funani/Gelena)



3) Atmospheric River

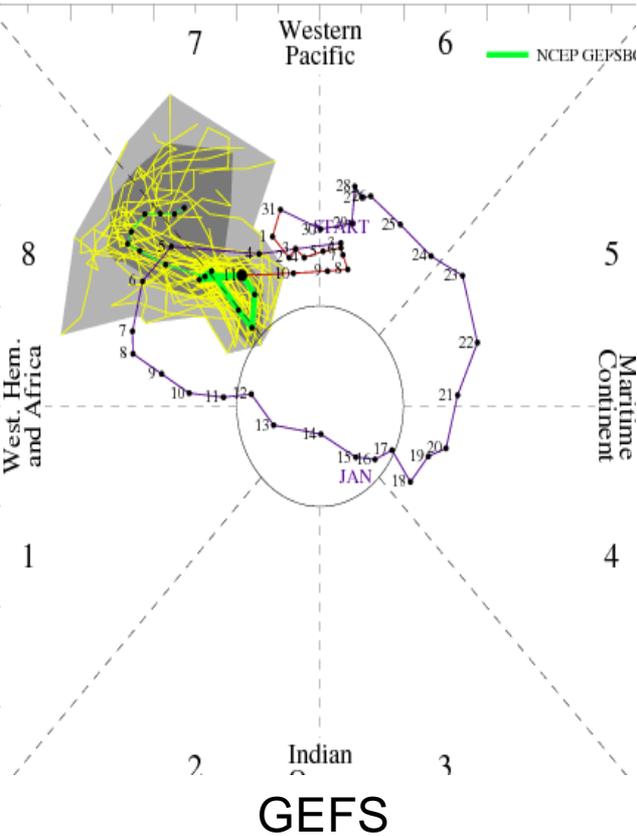


4) ERW/MJO/ENSO/TC-activity

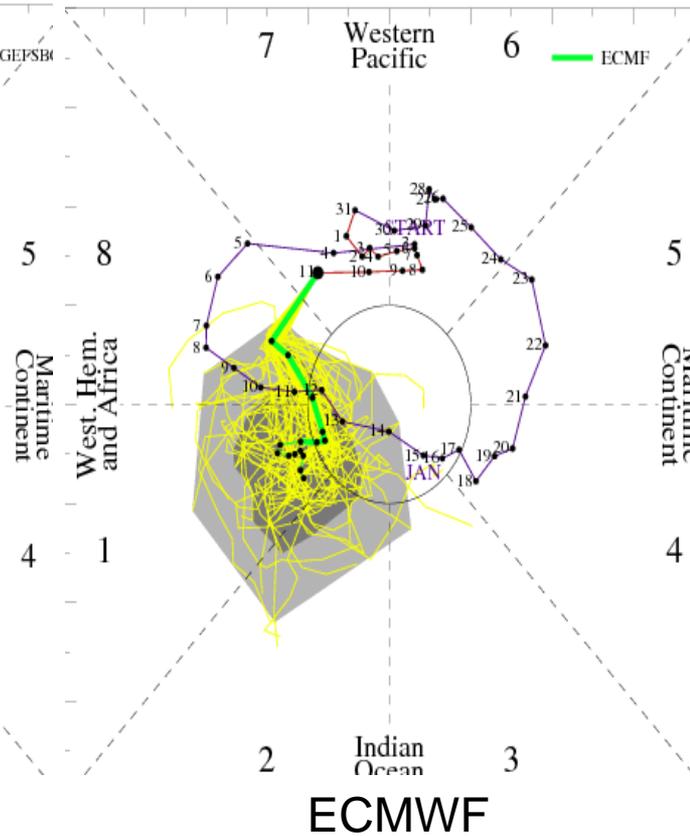


# MJO Observation/Forecast

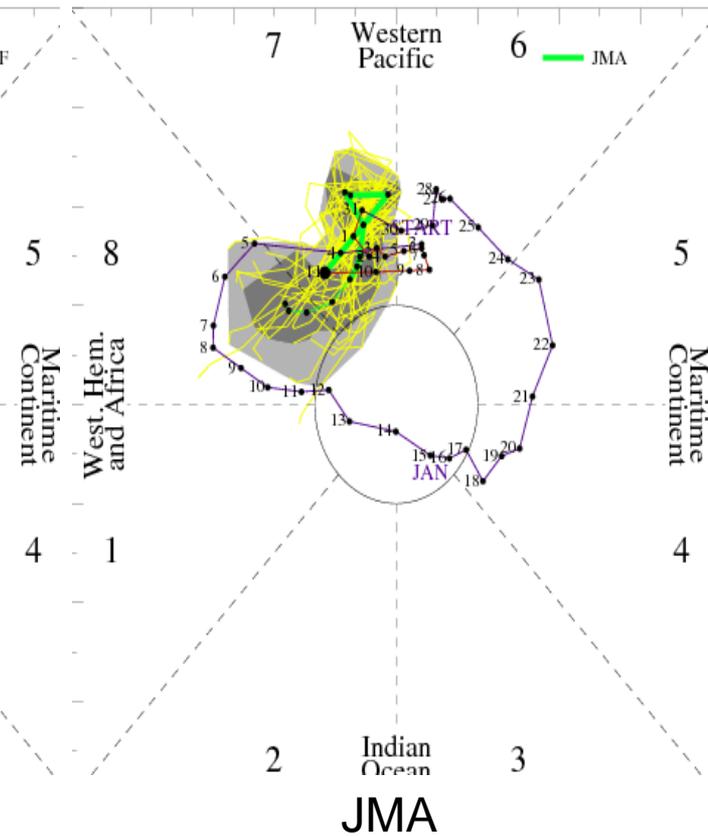
[RMM1, RMM2] forecast for Feb-12-2019 to Feb-26-2019



MJO Index Forecast for 12Feb2019-26Feb2019

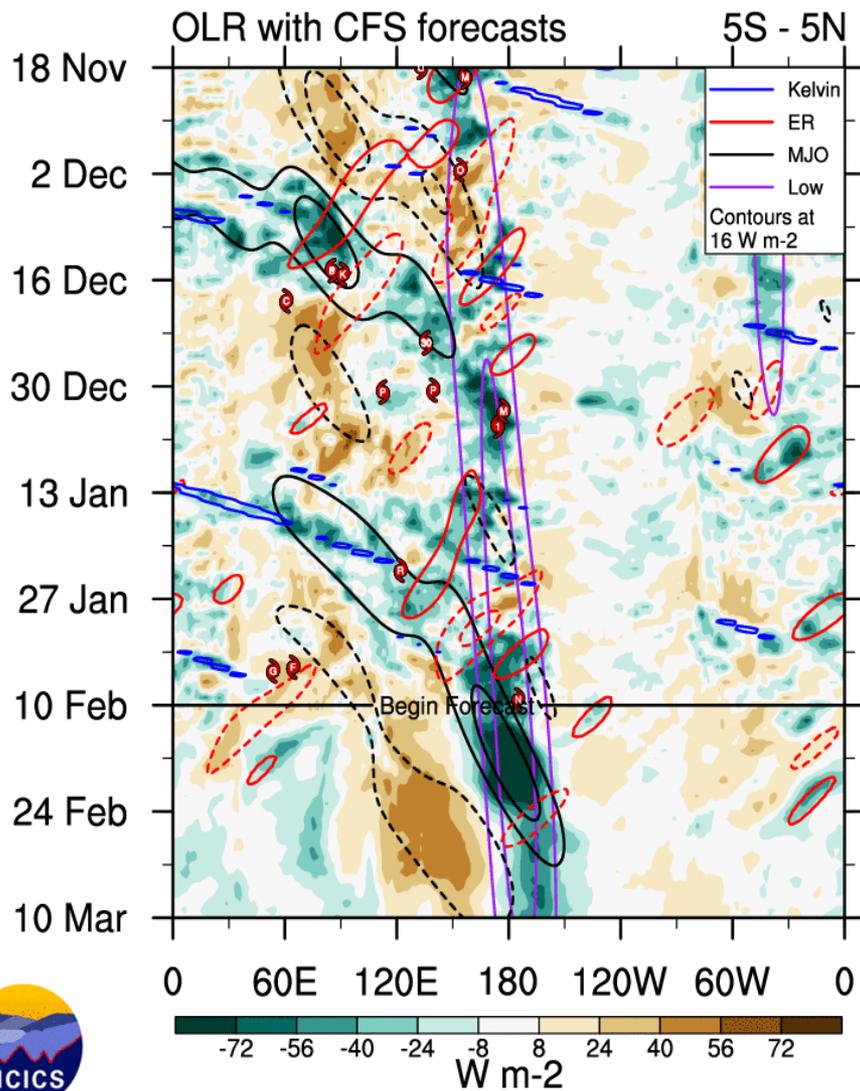
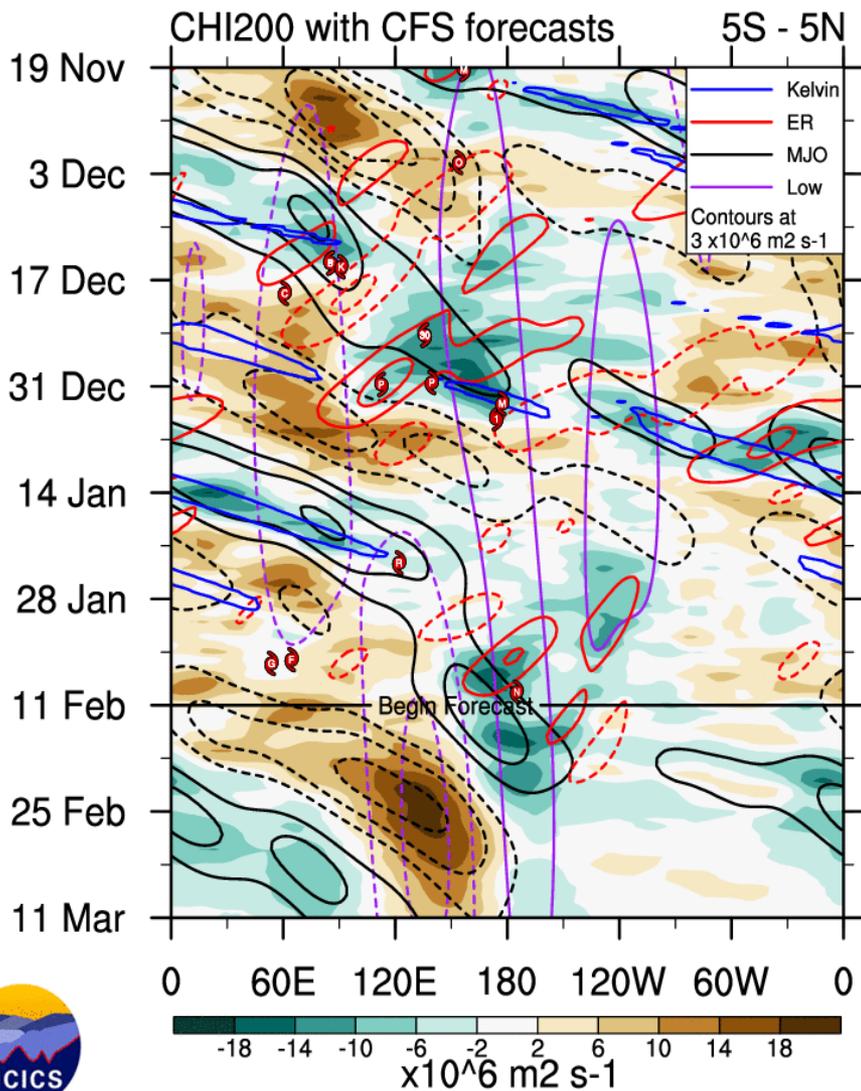


MJO Index Forecast for 12Feb2019-20Feb2019



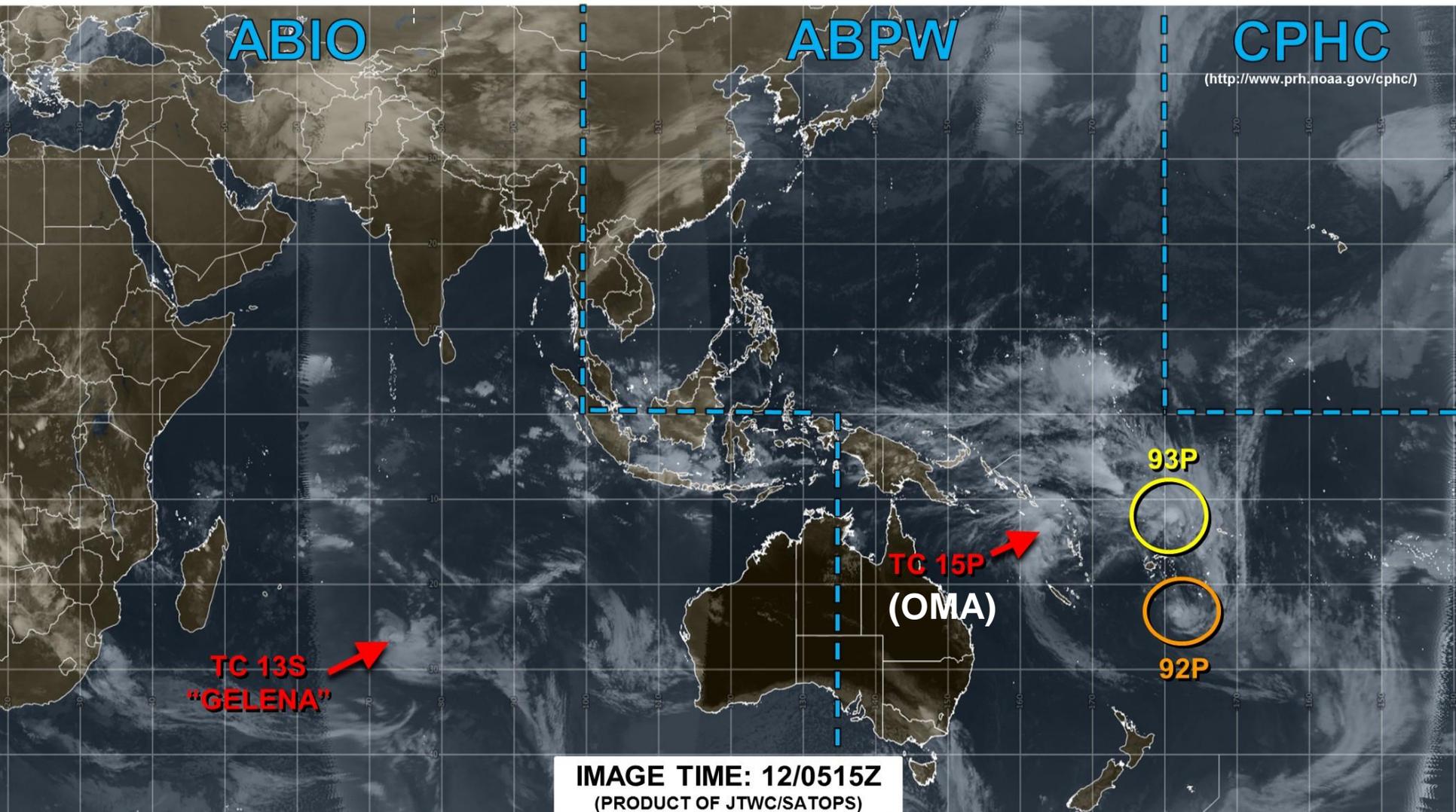
Wheeler-Hendon based analyses of model forecasts indicate varying degrees of interference with an ERW, then eastward propagation of a subseasonal signal. ECMWF is fastest. GEFS is most amplified.

- MJO
- Rossby Wave
- Kelvin Wave
- Low-frequency





# JOINT TYPHOON WARNING CENTER



TC development unlikely within 24 hours



TC development likely, but expected to occur beyond 24 hours



TC development likely within 24 hours (Reference TCFA)



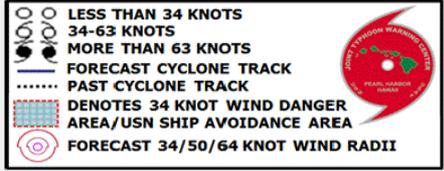
Tropical Cyclone (Reference Warning)

# TC OMA

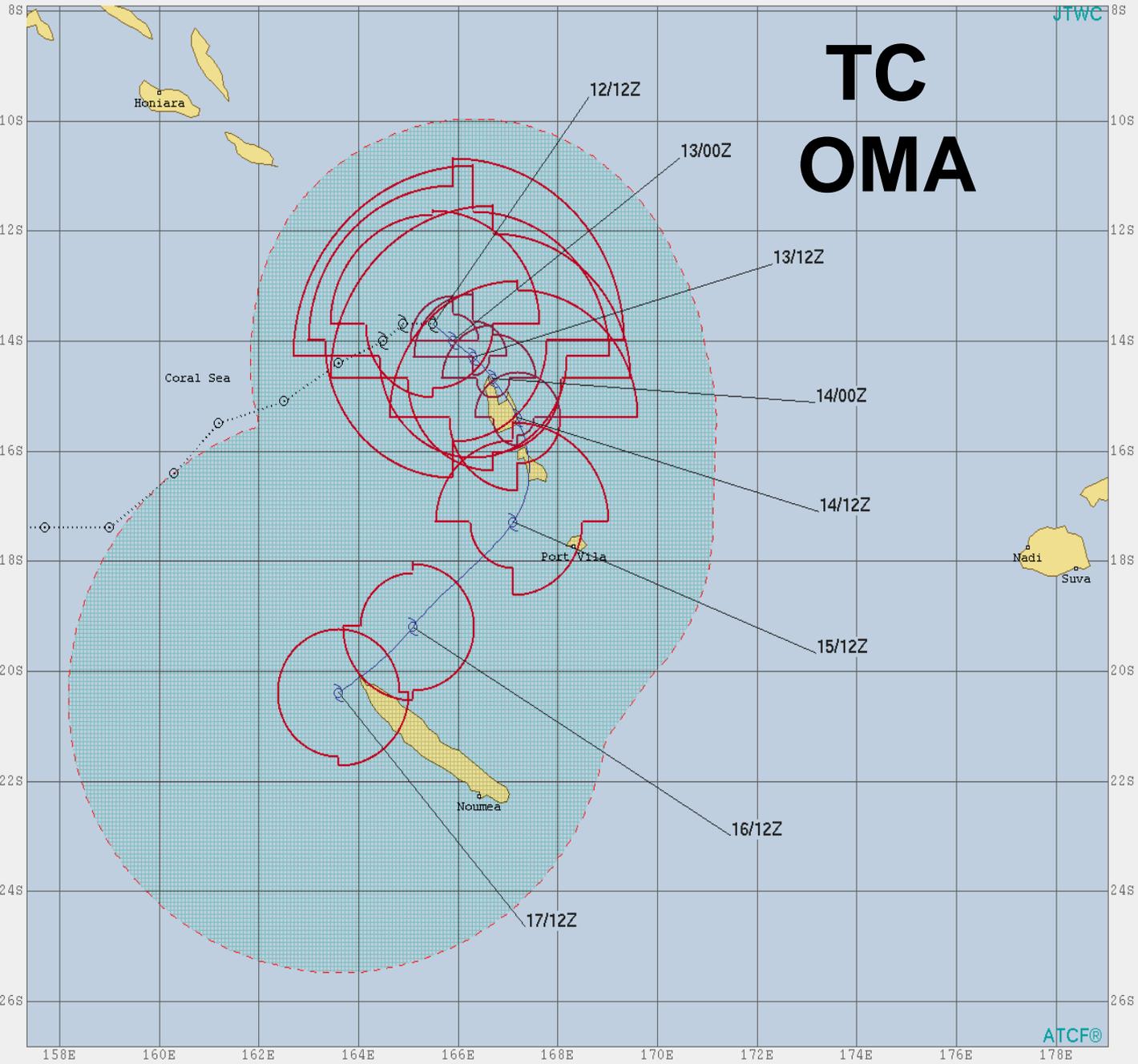
TROPICAL CYCLONE 15P (OMA) WARNING #3  
 WTP831 PGTW 121500  
 121200Z POSIT: NEAR 13.7S 165.5E  
 MOVING 090 DEGREES TRUE AT 06 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 18 FEET  
 12/12Z, WINDS 045 KTS, GUSTS TO 055 KTS  
 13/00Z, WINDS 050 KTS, GUSTS TO 065 KTS  
 13/12Z, WINDS 055 KTS, GUSTS TO 070 KTS  
 14/00Z, WINDS 055 KTS, GUSTS TO 070 KTS  
 14/12Z, WINDS 050 KTS, GUSTS TO 065 KTS  
 15/12Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 16/12Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 17/12Z, WINDS 035 KTS, GUSTS TO 045 KTS

CPA TO:	NM	DTG
LUGANVILLE	7	14/13Z
PORT VILA	72	15/11Z
NOUMEA	166	17/01Z

BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
PORT VILA	326	289	0
LUGANVILLE	319	142	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

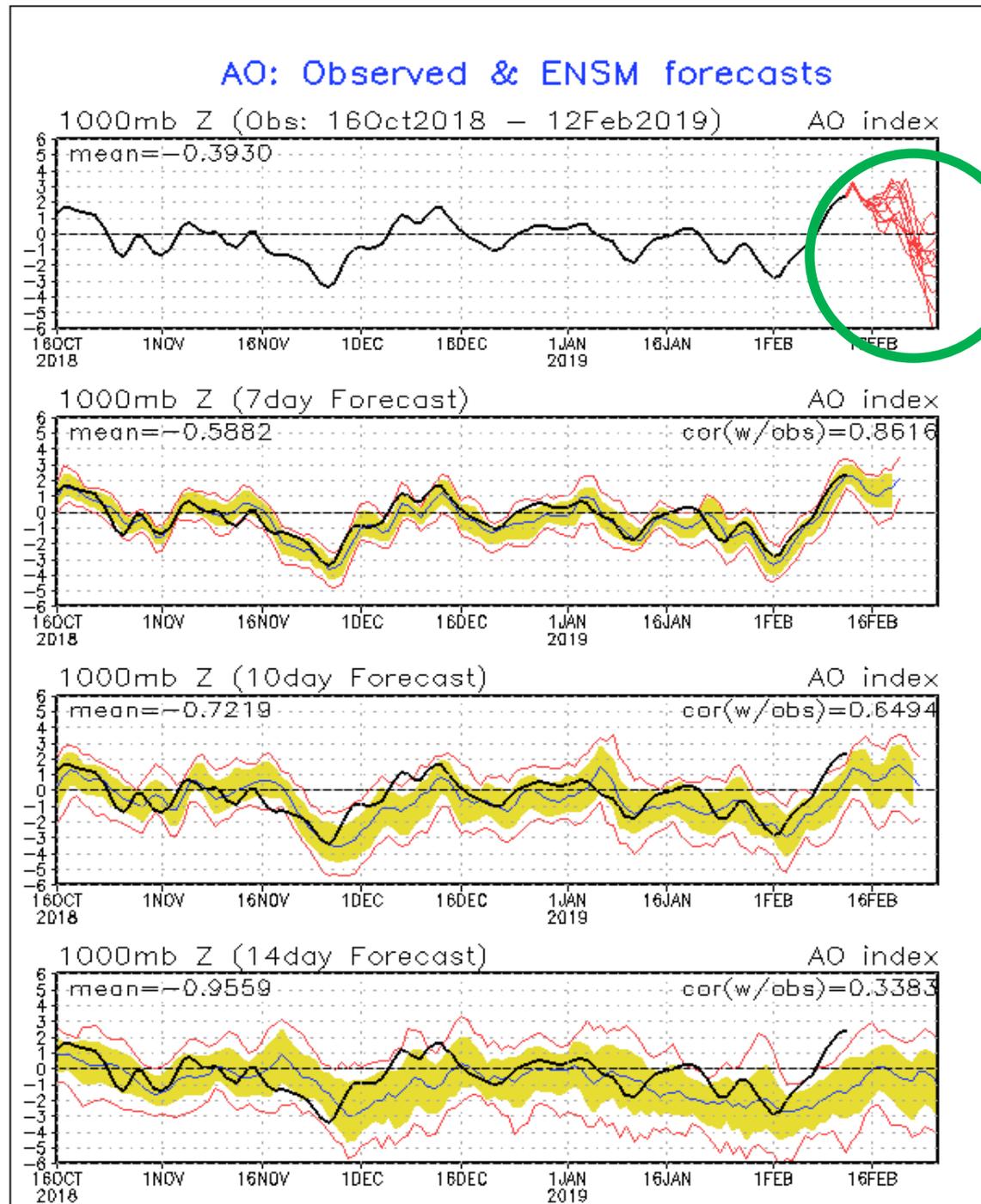


JTWC

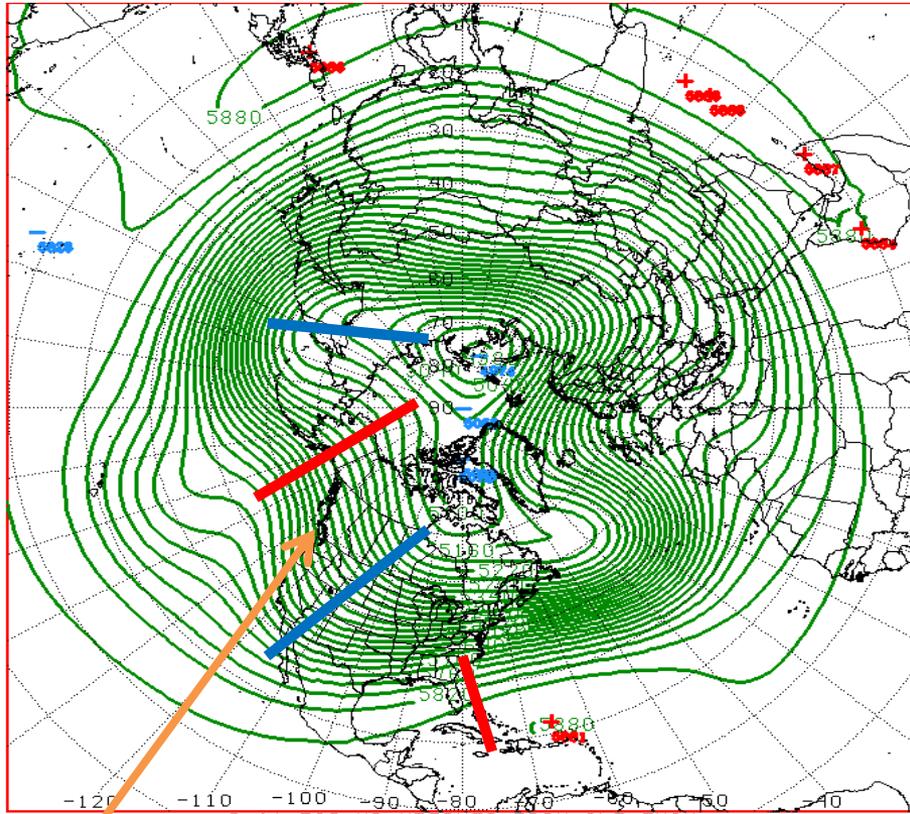
ATCF®

# Connections to U.S. Impacts

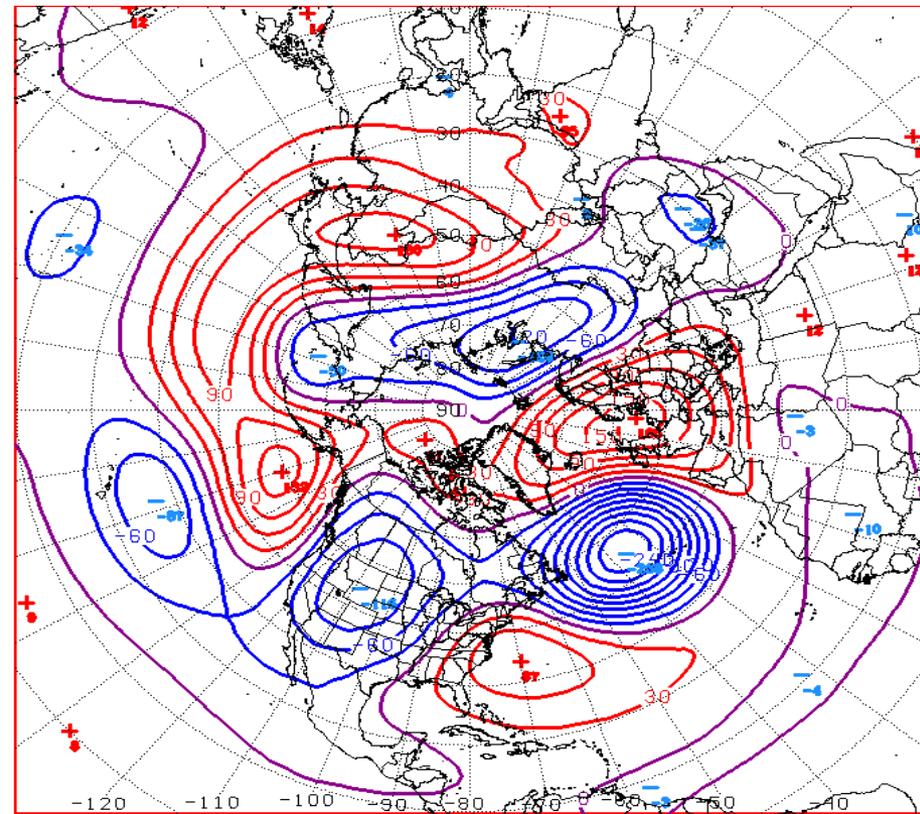
# ARCTIC OSCILLATION



# GFS Super-ensemble (Week-2)



CPC MAP MADE FEB 12 2019 1324 UTC CNTD FEB 23 2019

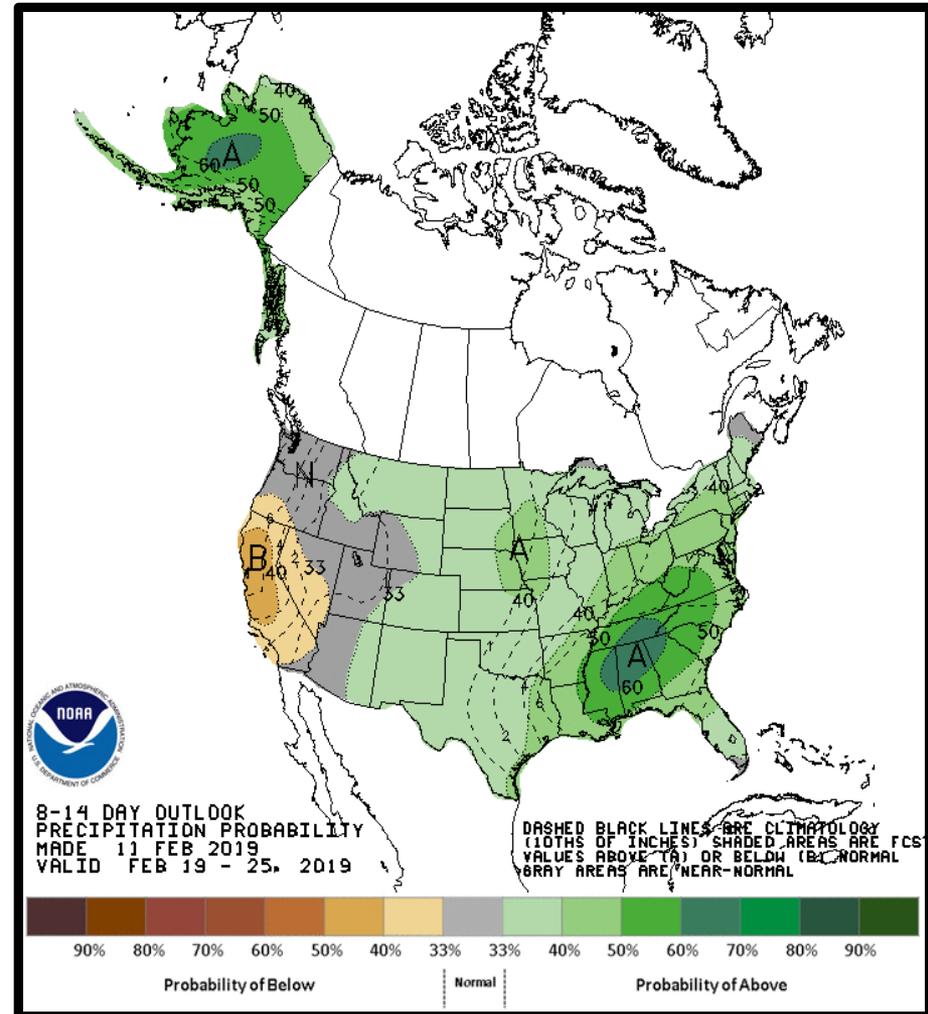
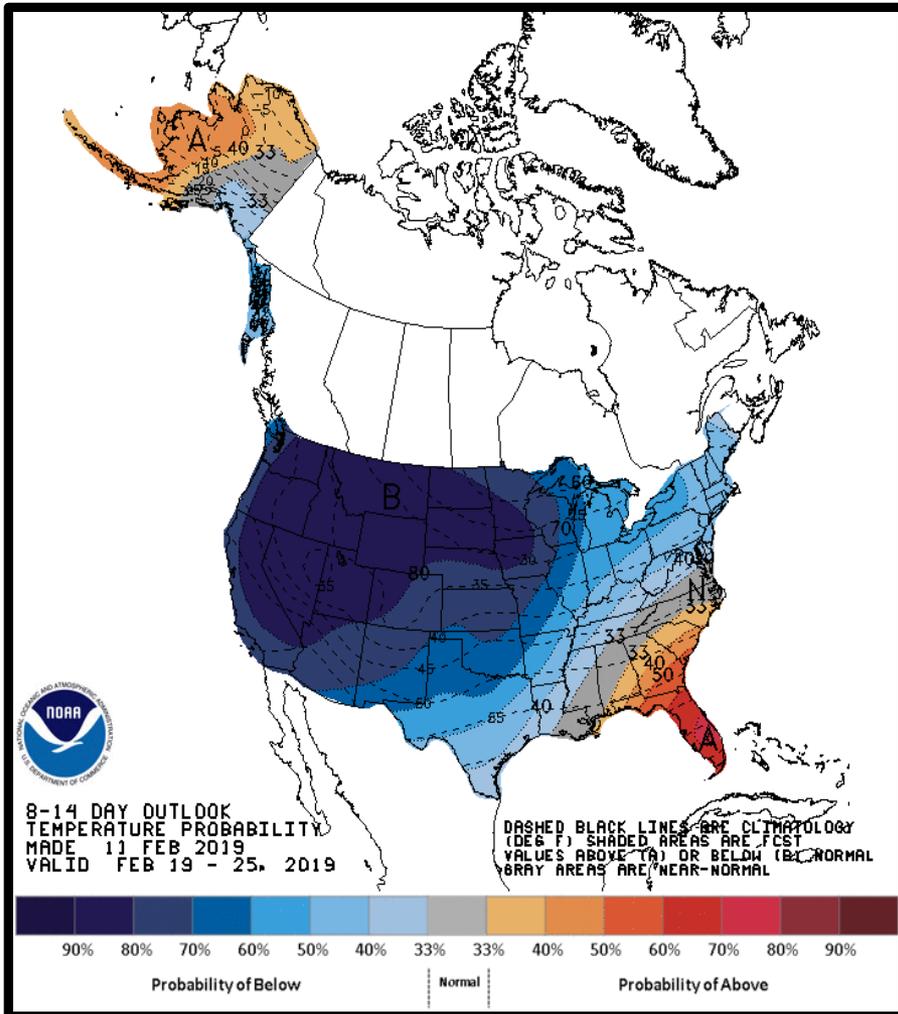


CPC MAP MADE FEB 12 2019 1325 UTC CNTD FEB 23 2019

Seattle (SEA-TAC) reports snowiest February on record (so far!) **20.2"**  
(old record was 13.1" in 1949)... (Source: KOMO and KVAL local news)

# Week 2 – Temperature and Precipitation

Feb 11, 2019

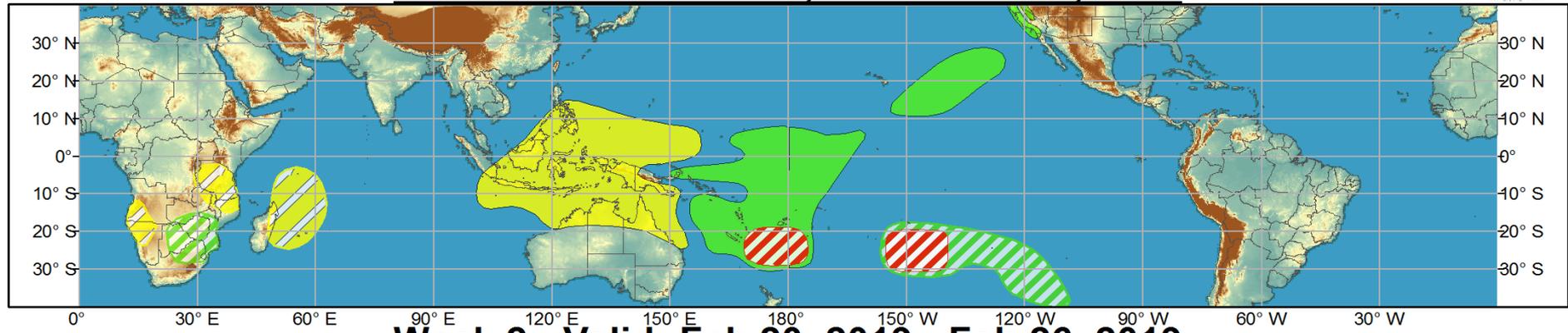


“Heads up” : Southeast ridge often goes with ice storms on north/west flanks

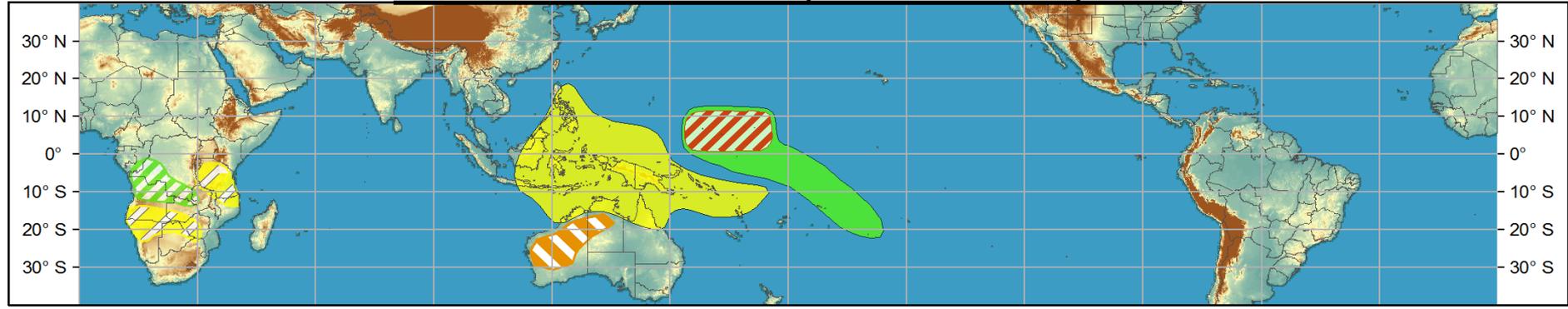


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Feb 13, 2019 - Feb 19, 2019



## Week 2 - Valid: Feb 20, 2019 - Feb 26, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

**Produced: 02/12/2019**  
**Forecaster: Artusa**

**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.**

