

# Global Tropics Hazards And Benefits Outlook

February 5, 2019

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

TC 12S



Week 1 - Valid: Jan 30, 2019 - Feb 05, 2019

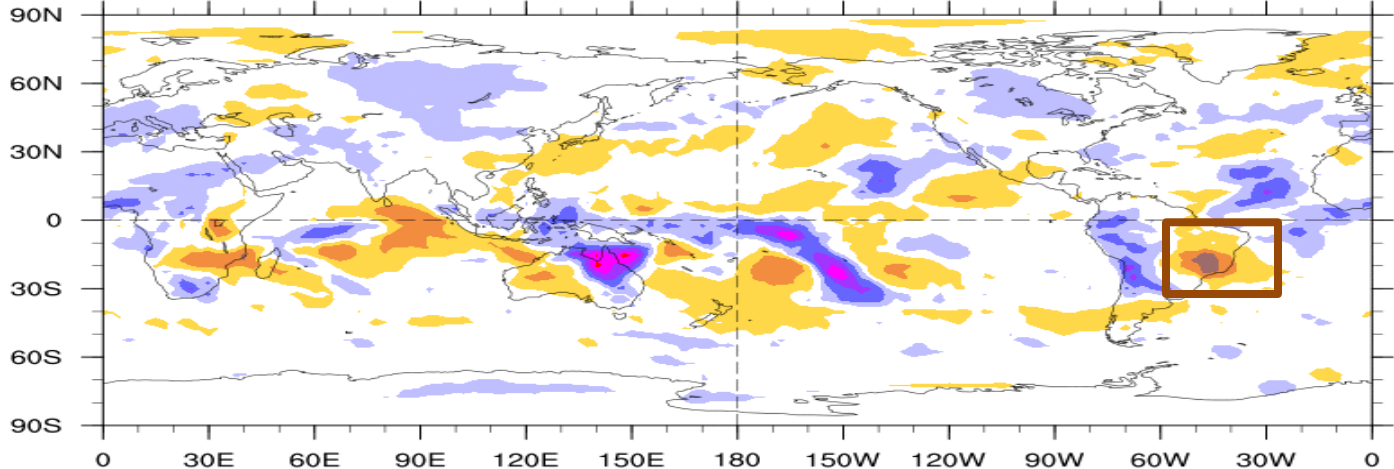


Week 2 - Valid: Jan 30, 2019 - Feb 05, 2019



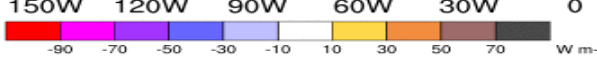
7-Day Average OLR Anomaly

2019/01/28 - 2019/02/03



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain



# Synopsis of Climate Modes

## **ENSO: (10 January 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).
- Given the timing and that a weak event is favored, significant global impacts are not anticipated during the remainder of winter, even if conditions were to form.
- *Next update scheduled for Feb 14*

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

- The MJO remains active but recently slowed over the Pacific Ocean.
- Good model agreement exists for eastward propagation to resume with the enhanced phase crossing the Western Hemisphere.

## **Extratropics:**

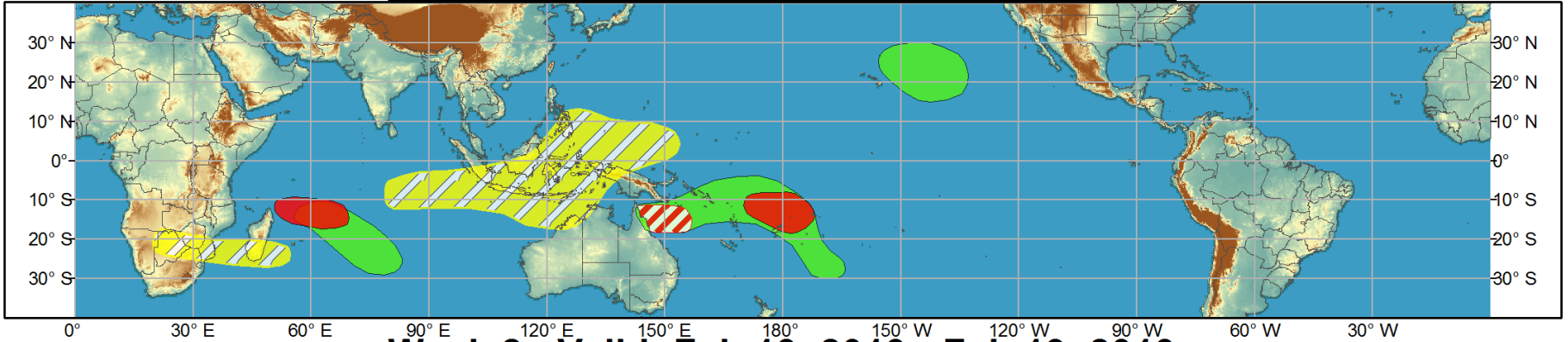
- MJO would favor a colder solution for the eastern CONUS later in February.



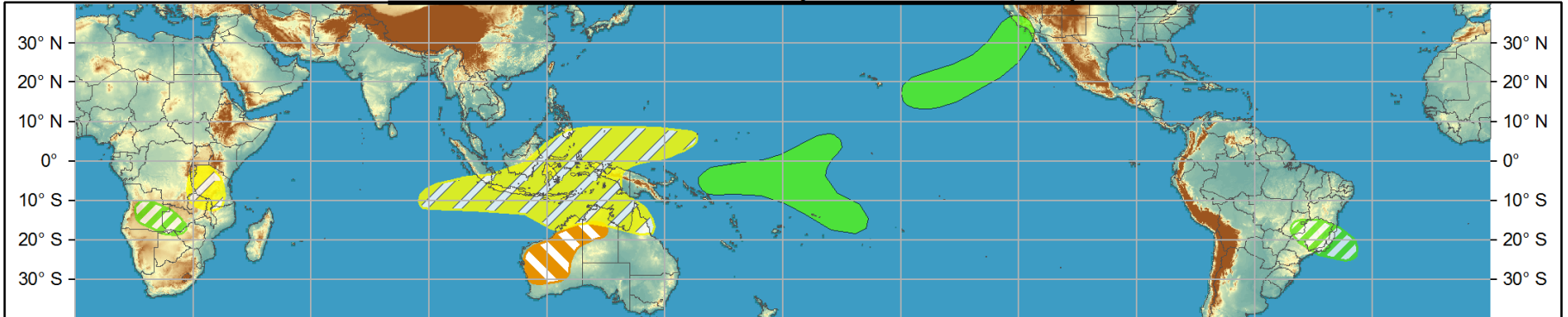
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Feb 06, 2019 - Feb 12, 2019

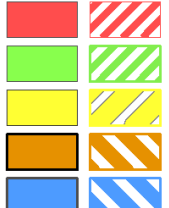


## Week 2 - Valid: Feb 13, 2019 - Feb 19, 2019



**Confidence**  
High Moderate

- Tropical Cyclone Formation**
- Above-average rainfall**
- Below-average rainfall**
- Above-normal temperatures**
- Below-normal temperatures**



- Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Weekly total rainfall in the upper third of the historical range.
- Weekly total rainfall in the lower third of the historical range.
- 7-day mean temperatures in the upper third of the historical range.
- 7-day mean temperatures in the lower third of the historical range.

Produced: 02/05/2019  
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.



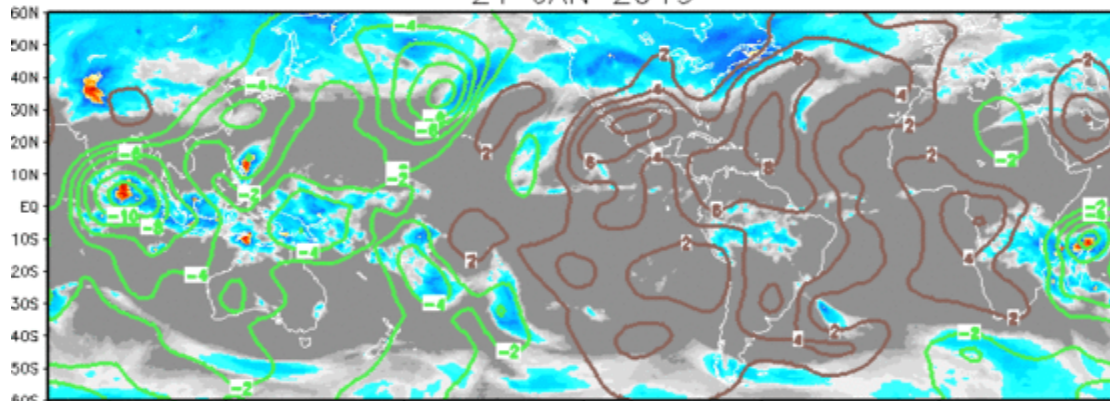


# IR Satellite & 200-hpa Velocity Potential Anomalies

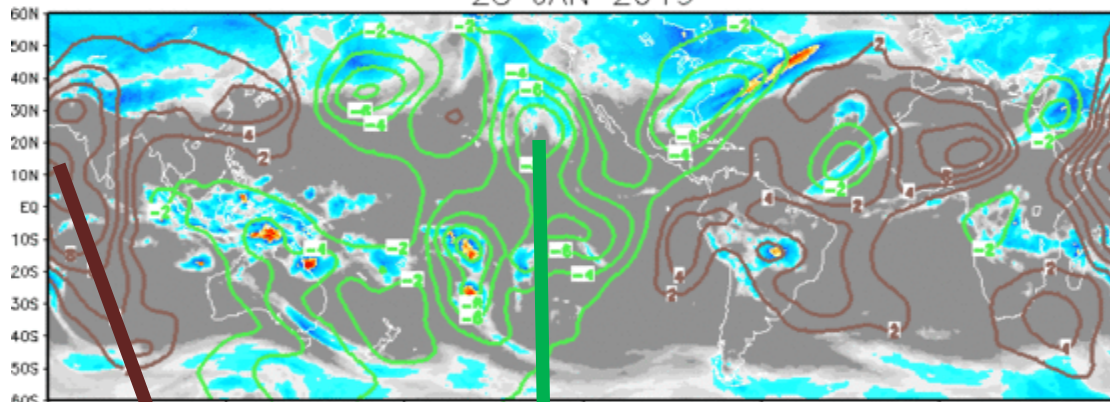
Green: Enhanced Divergence

Brown: Enhanced Convergence

21 JAN 2019

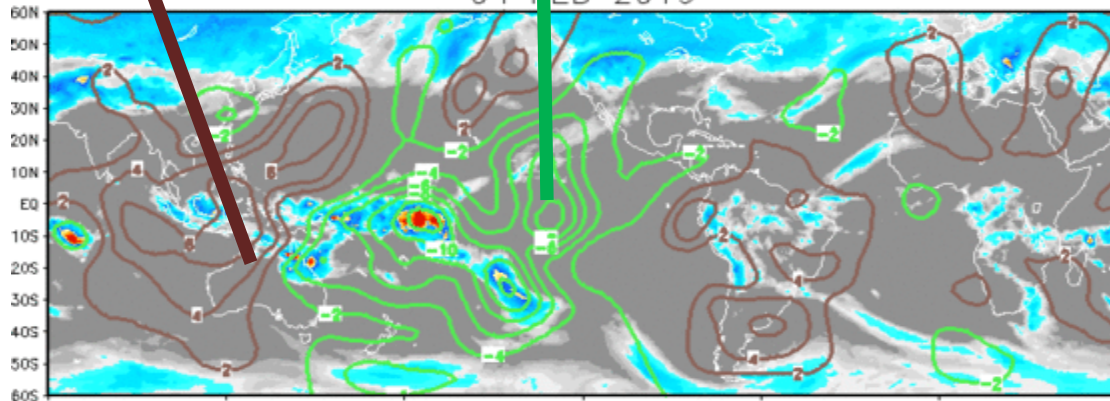


28 JAN 2019



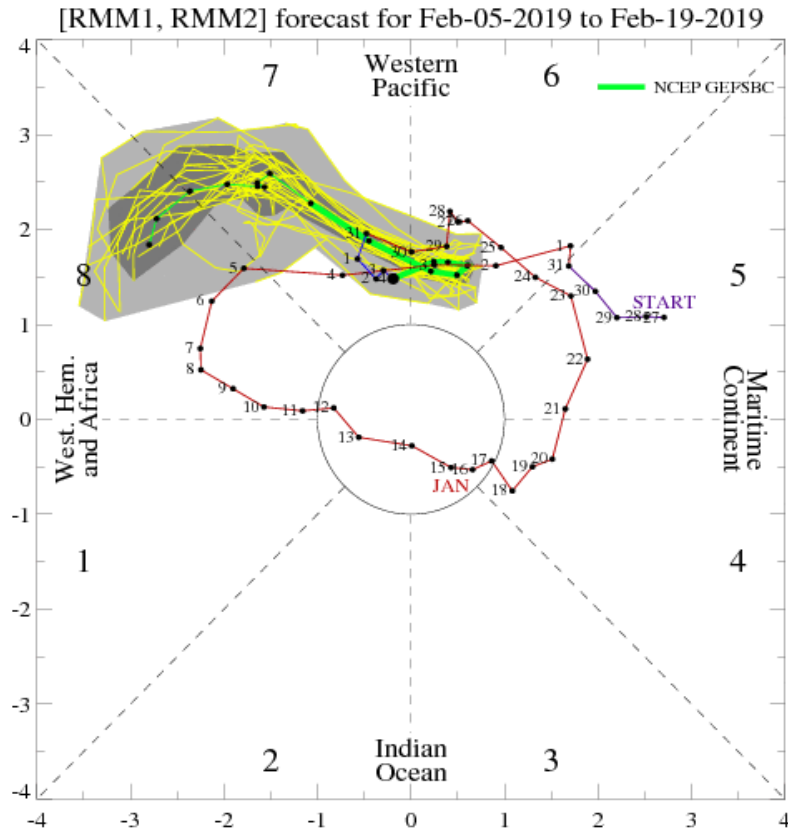
Eastward propagation of enhanced convection slowed at beginning of February.

04 FEB 2019

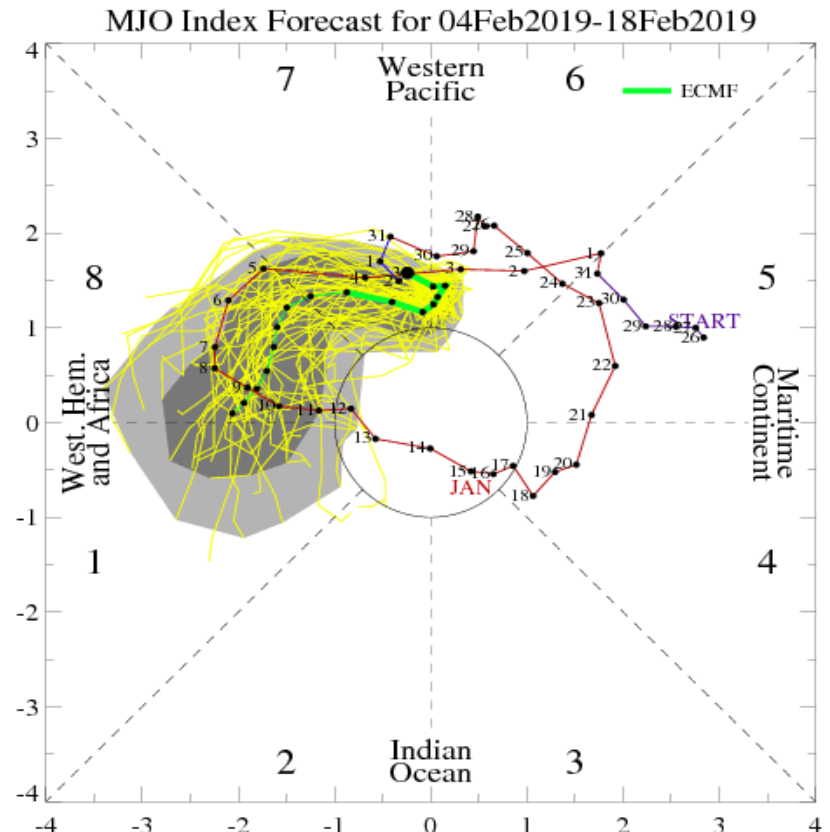


Suppressed phase continued progressing east to the Maritime Continent.

# MJO Observation/Forecast

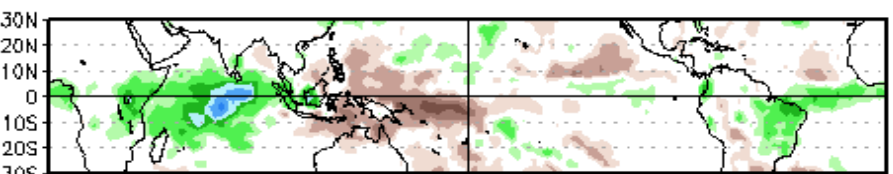


GFS

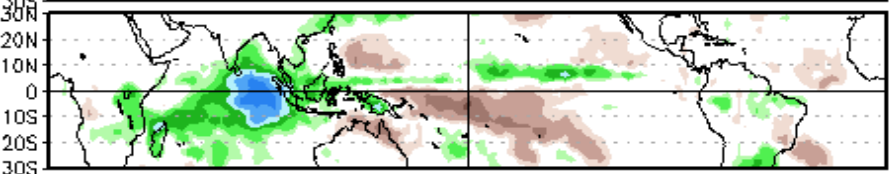


ECMWF

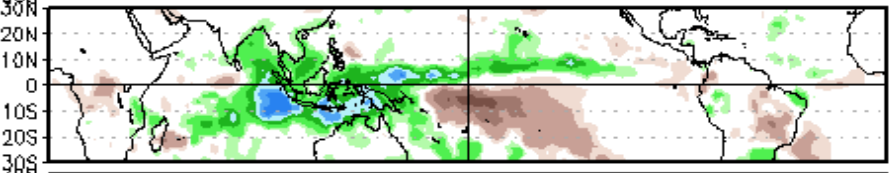
ECMWF remains the fastest with eastward propagation through the Western Hemisphere



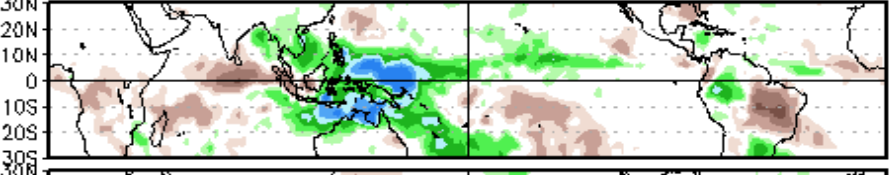
Phase 2



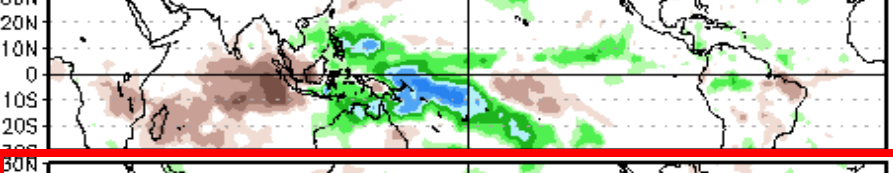
Phase 3



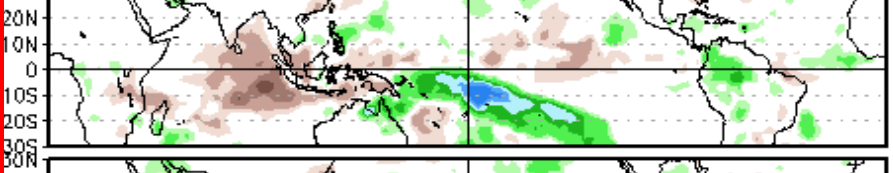
Phase 4



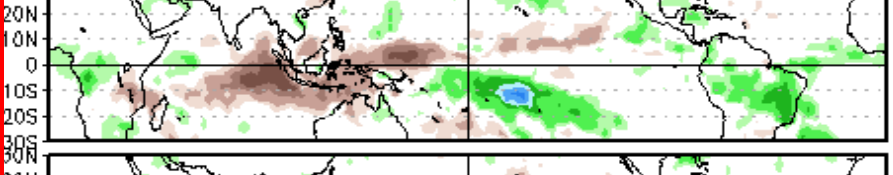
Phase 5



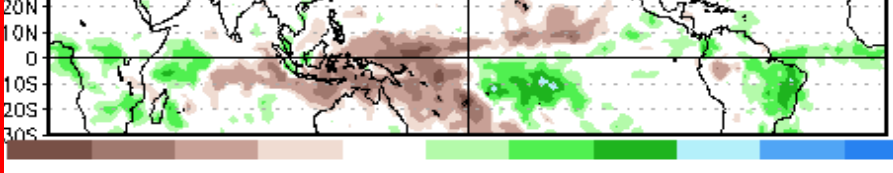
Phase 6



Phase 7



Phase 8

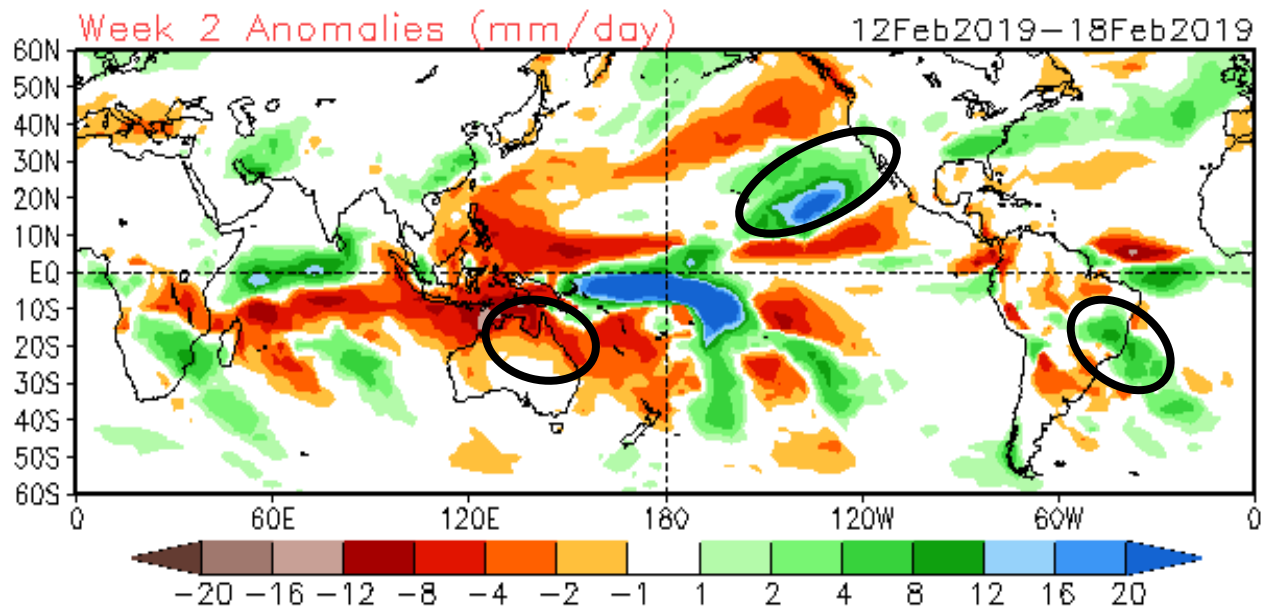
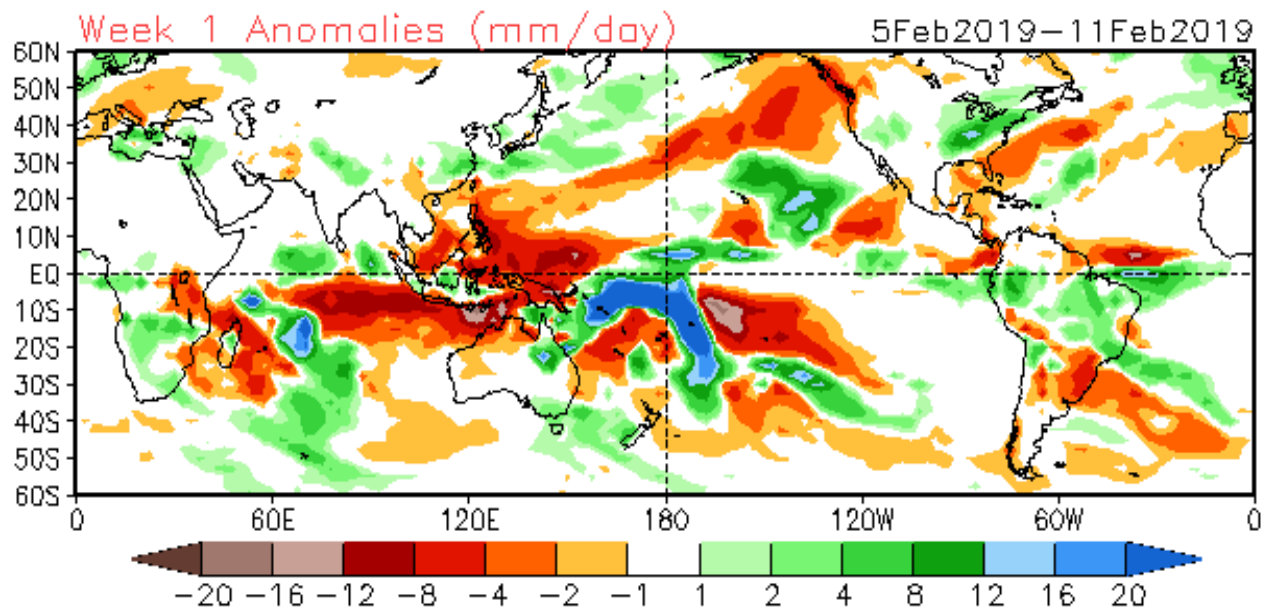


Phase 1



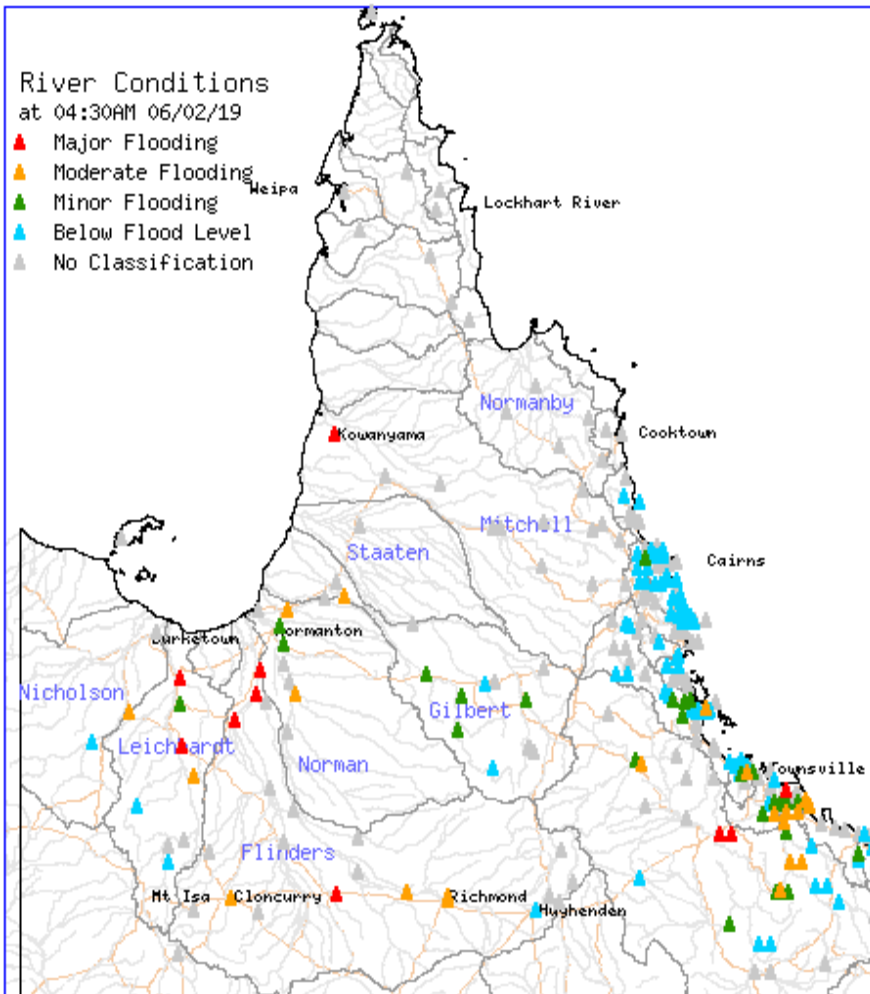
# CFSv2 Weeks 1 & 2 Precipitation

16 Member Ensemble Mean Forecast from 04Feb2019

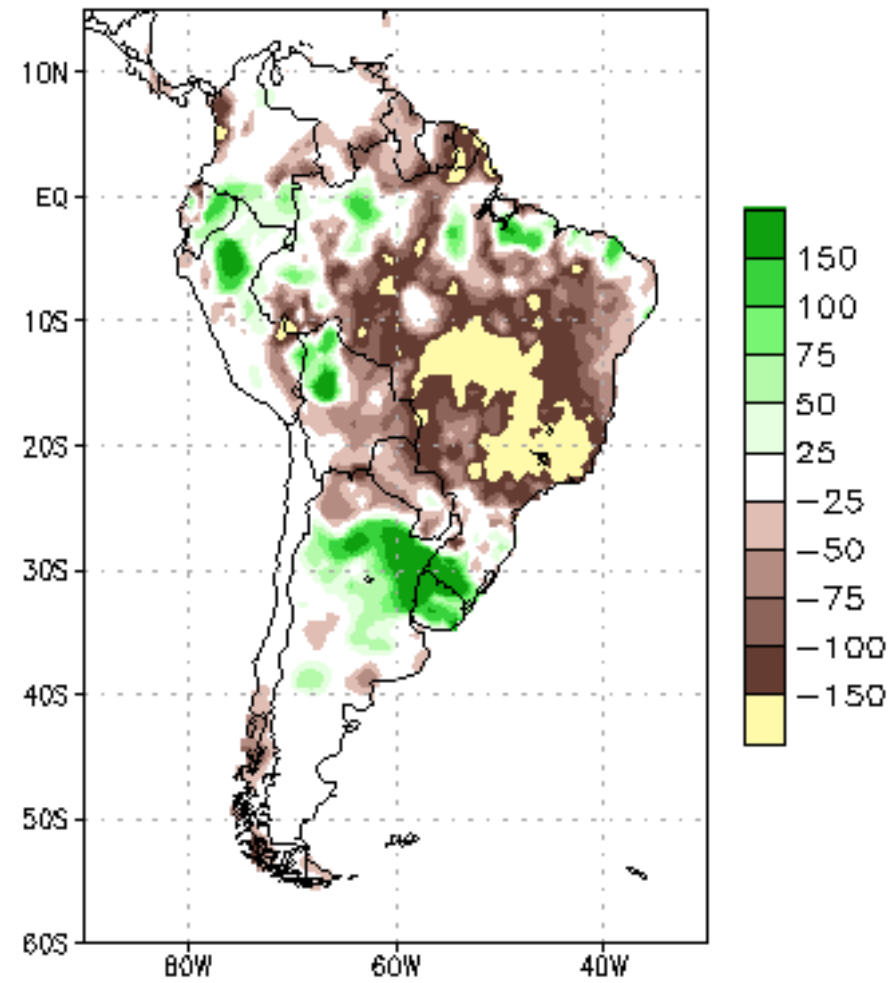




# Pattern change is good news for Queensland and southern Brazil...

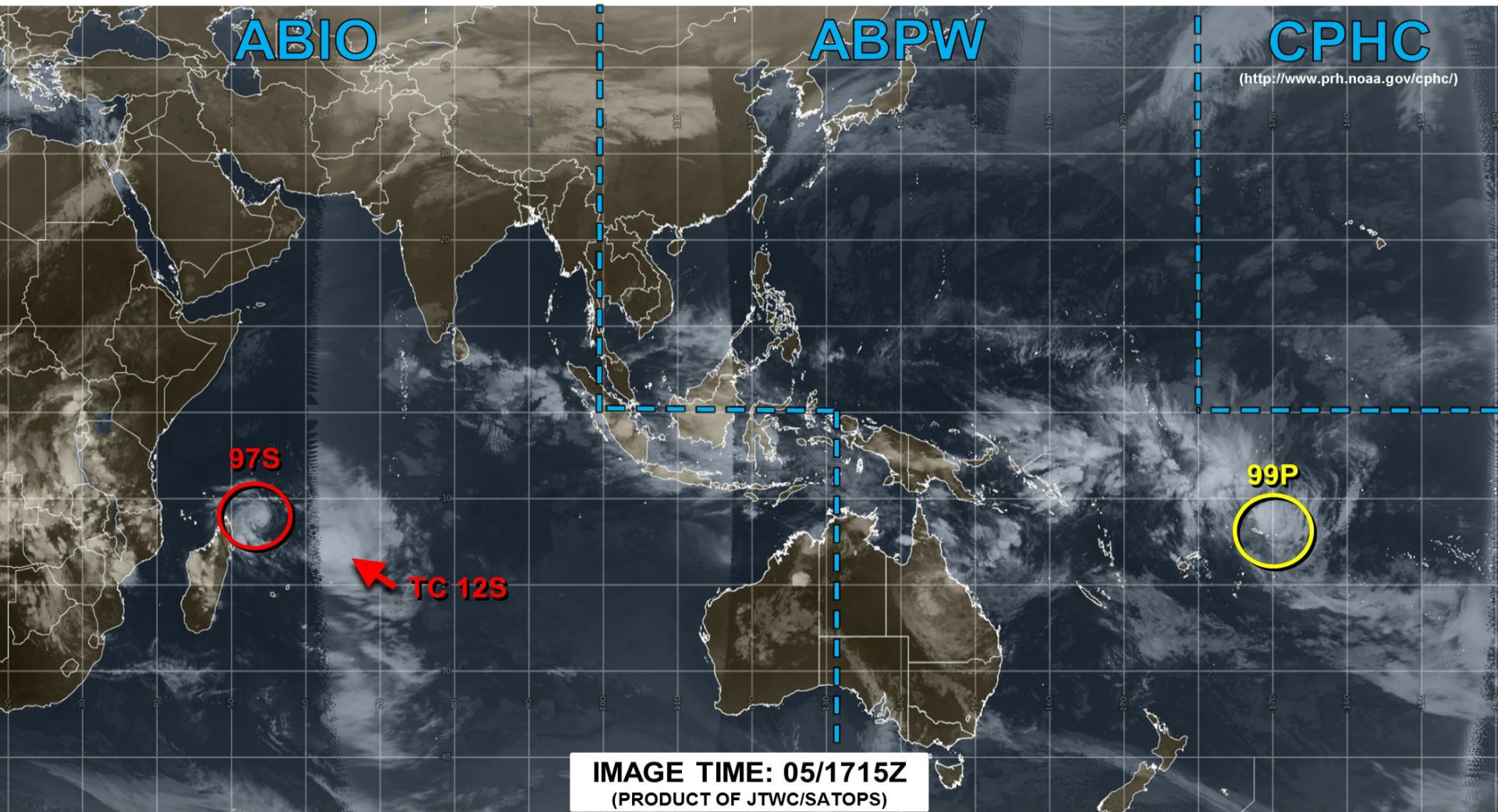


Prep Anomalies (mm) 06JAN2019–04FEB2019





# JOINT TYPHOON WARNING CENTER



TC development unlikely within 24 hours



TC development likely, but expected to occur beyond 24 hours

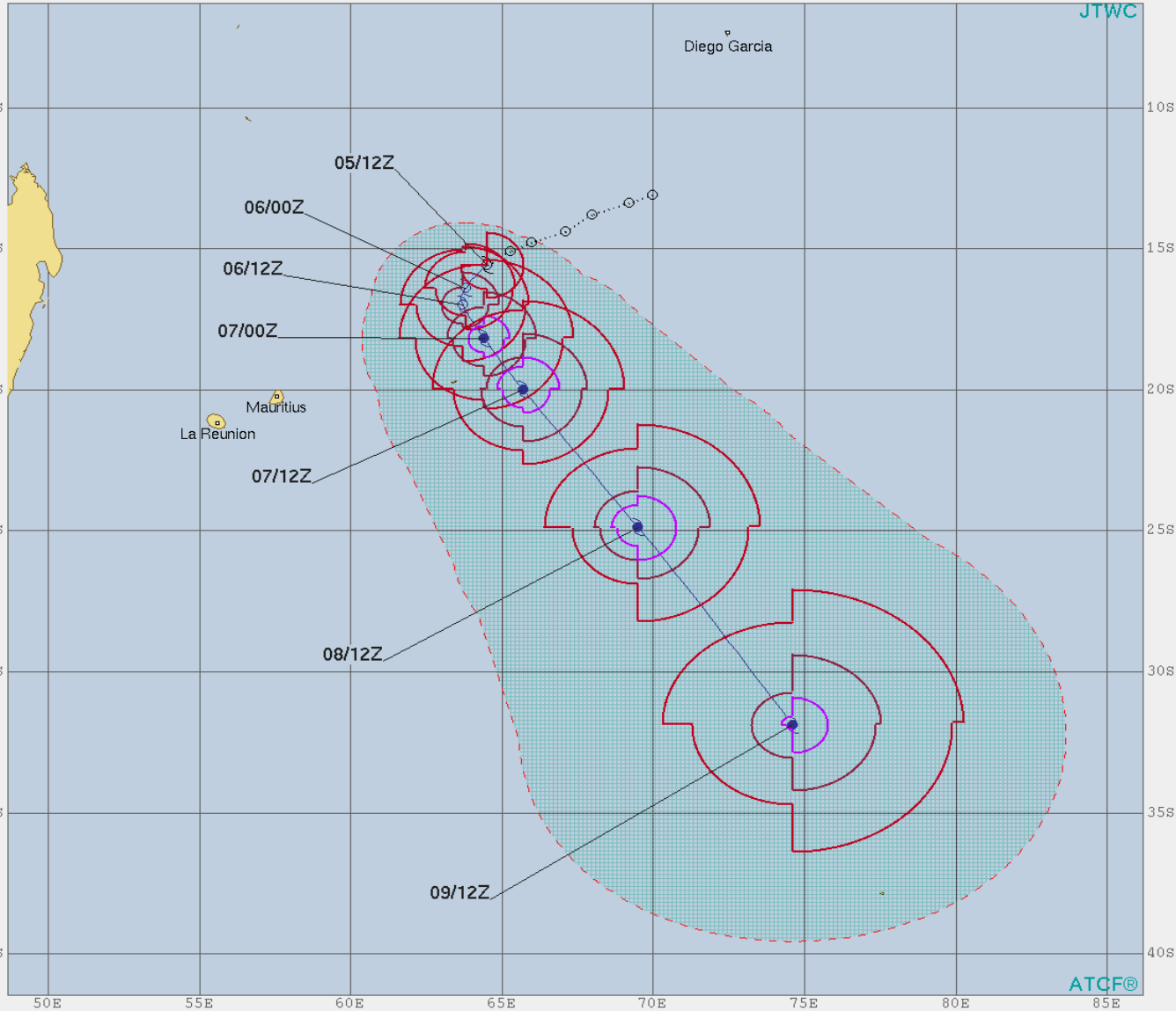


TC development likely within 24 hours (Reference TCFA)




Tropical Cyclone (Reference Warning)

# Joint Typhoon Warning Center



**TROPICAL CYCLONE 12S (TWELVE) WARNING #1**  
 WTKS31 PGTW 051500  
 051200Z POSIT: NEAR 15.6S 64.5E  
 MOVING 235 DEGREES TRUE AT 09 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 10 FEET  
 05/12Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 06/00Z, WINDS 045 KTS, GUSTS TO 055 KTS  
 06/12Z, WINDS 060 KTS, GUSTS TO 075 KTS  
 07/00Z, WINDS 075 KTS, GUSTS TO 090 KTS  
 07/12Z, WINDS 090 KTS, GUSTS TO 110 KTS  
 08/12Z, WINDS 105 KTS, GUSTS TO 130 KTS  
 09/12Z, WINDS 070 KTS, GUSTS TO 085 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**

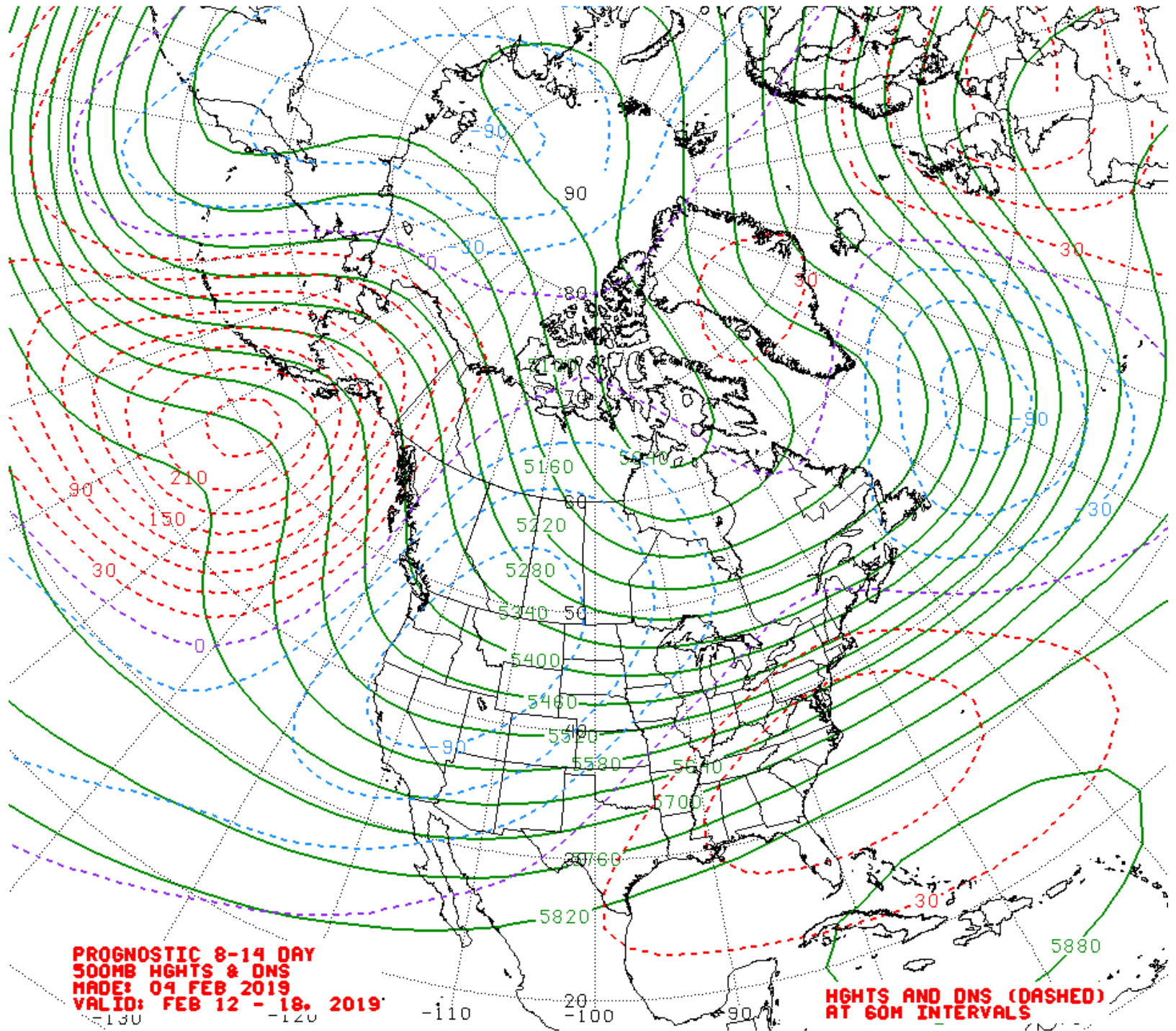


JTWC

ATCF®

# Connections to U.S. Impacts

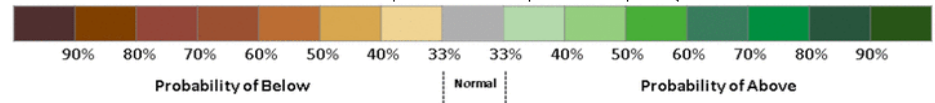
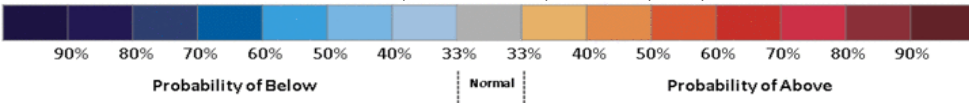
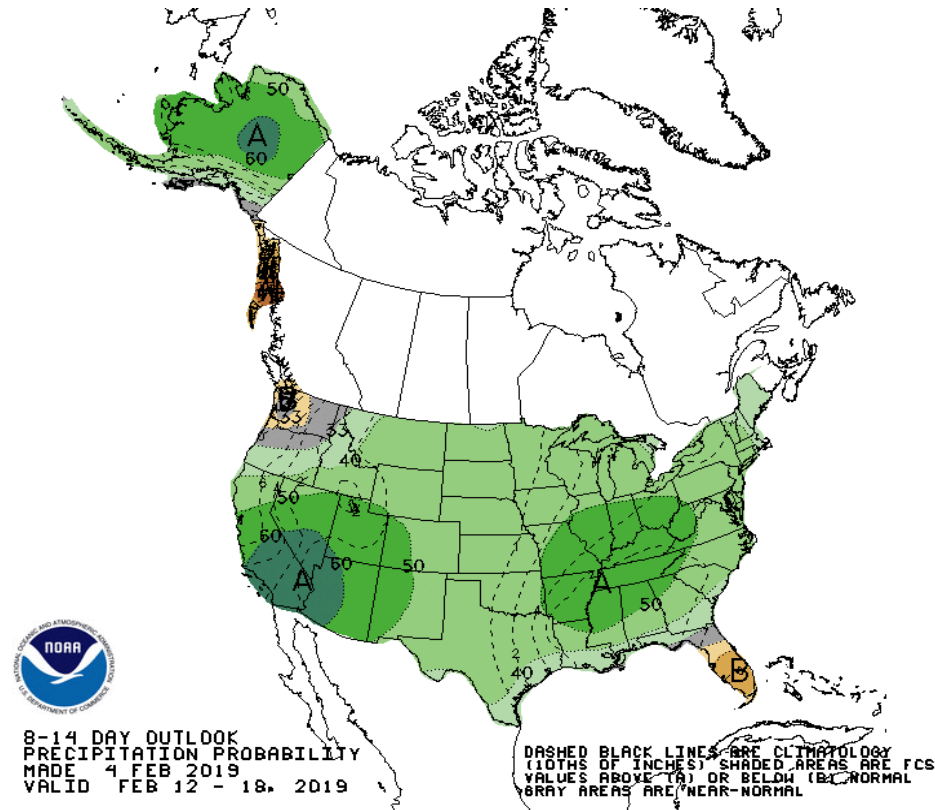
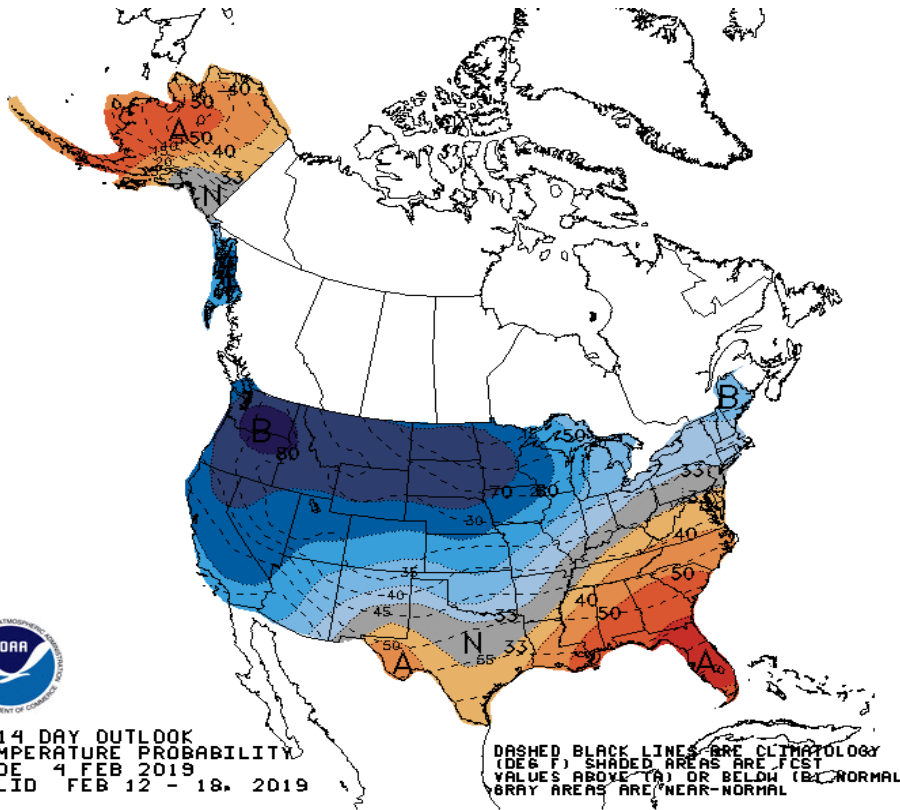




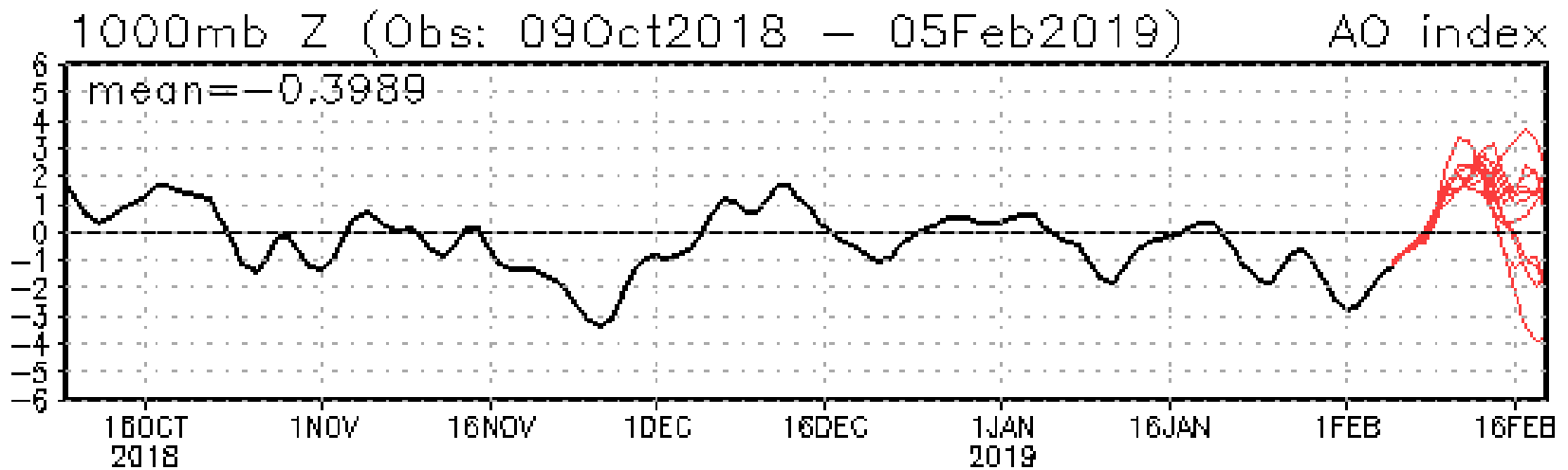
**PROGNOSTIC 8-14 DAY  
500MB HGTs & DNS  
MADE: 04 FEB 2019  
VALID: FEB 12 - 18, 2019**

**HGTs AND DNS (DASHED)  
AT 60M INTERVALS**

# Week 2 – Temperature and Precipitation

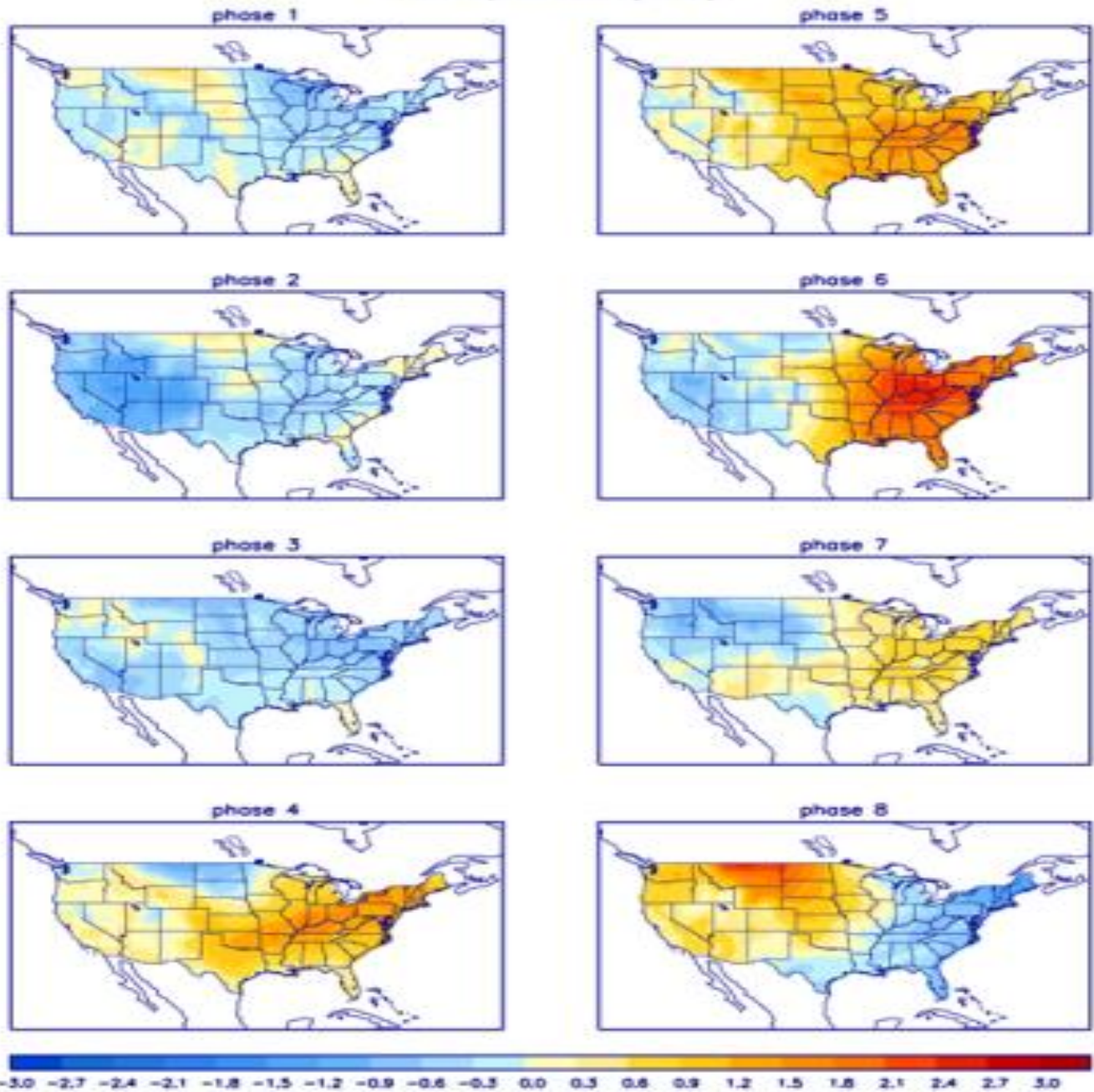


## AO: Observed & ENSM forecasts



Large ensemble spread with phase of AO during Week-2

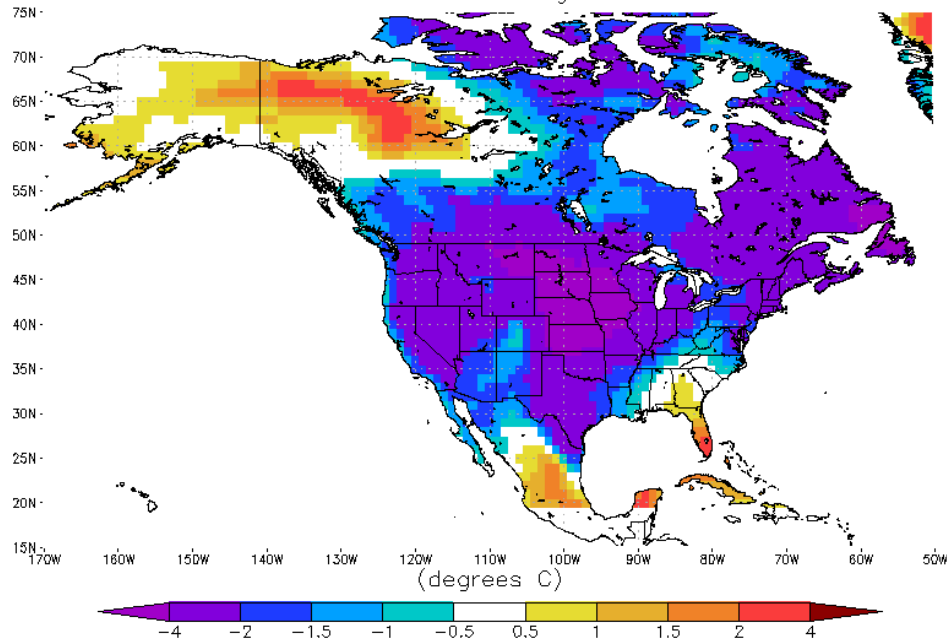
# T composites (JFM)



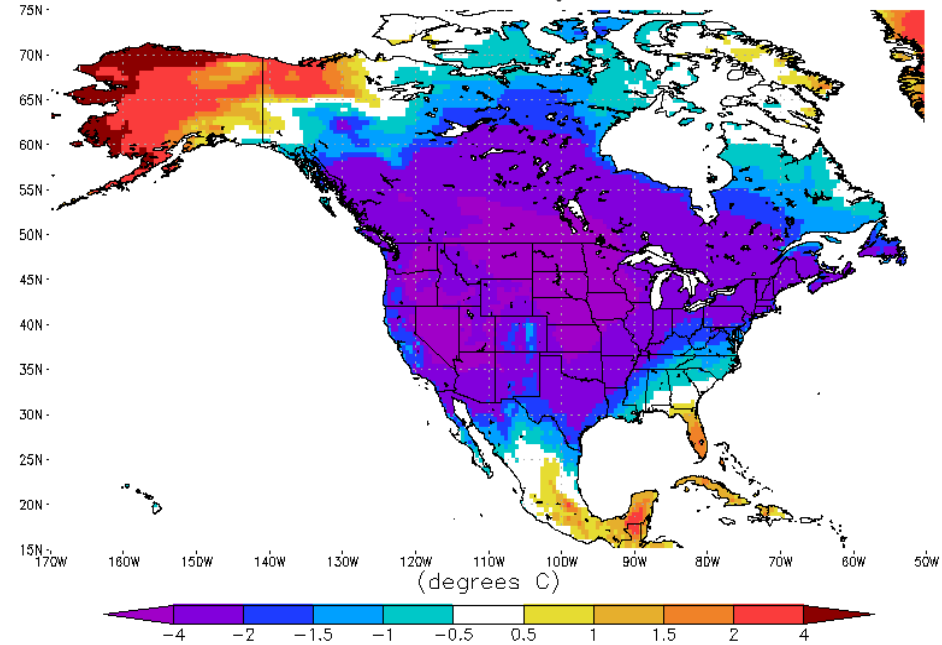
Phases 7-8-1  
during next 2 weeks



CFS Temperature Anomalies Issued 04Feb2019  
Week-3 Forecast Ending 26Feb2019



ECMWF Temperature Anomalies Issued 04Feb2019  
Week-3 Forecast Ending 26Feb2019



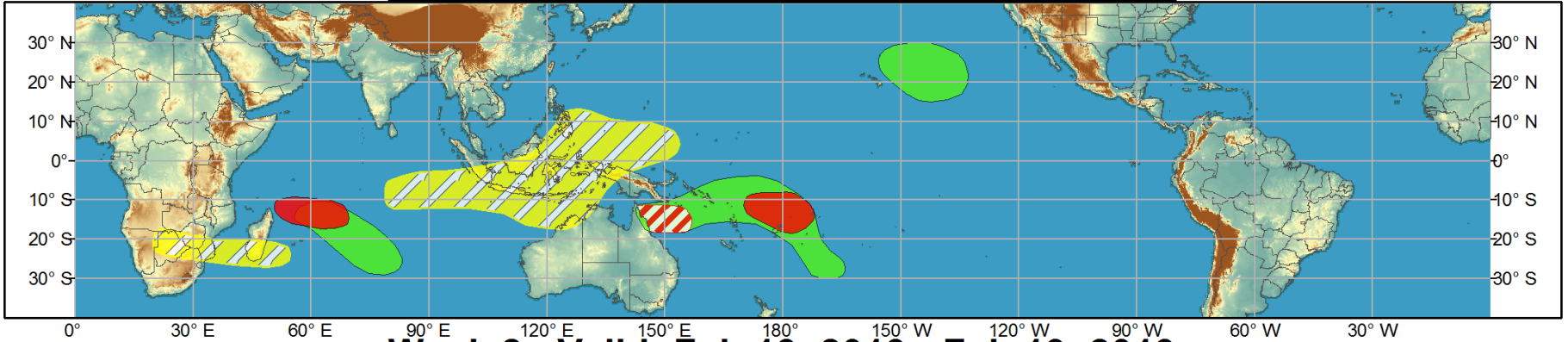
Late February predicted to be colder than normal by the CFS and ECMWF models but uncertainty is high if and when this transition occurs across the East



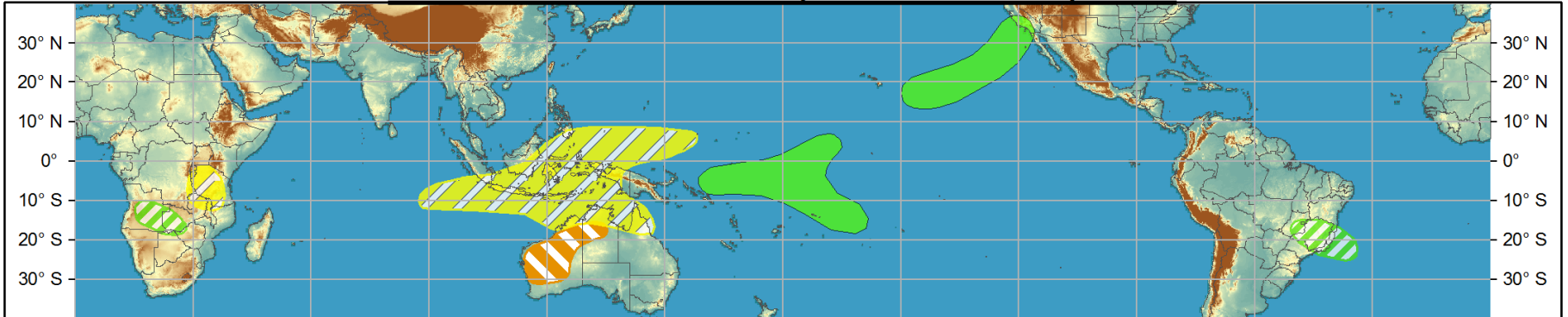
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High Moderate

**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.

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