

# Global Tropics Hazards And Benefits Outlook

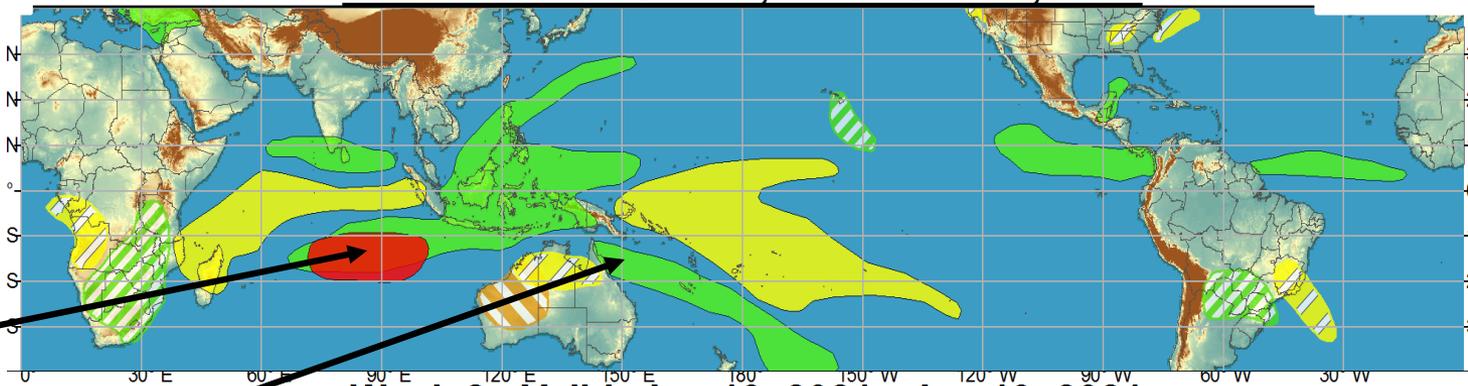
1/19/2021

Kyle MacRitchie

## Outline

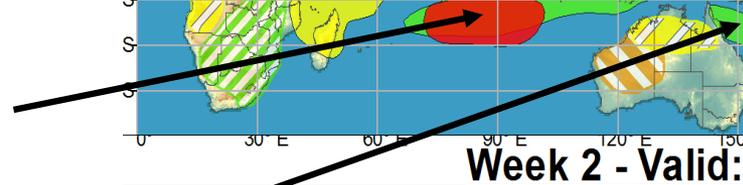
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Week 1 - Valid: Jan 13, 2021 - Jan 19, 2021

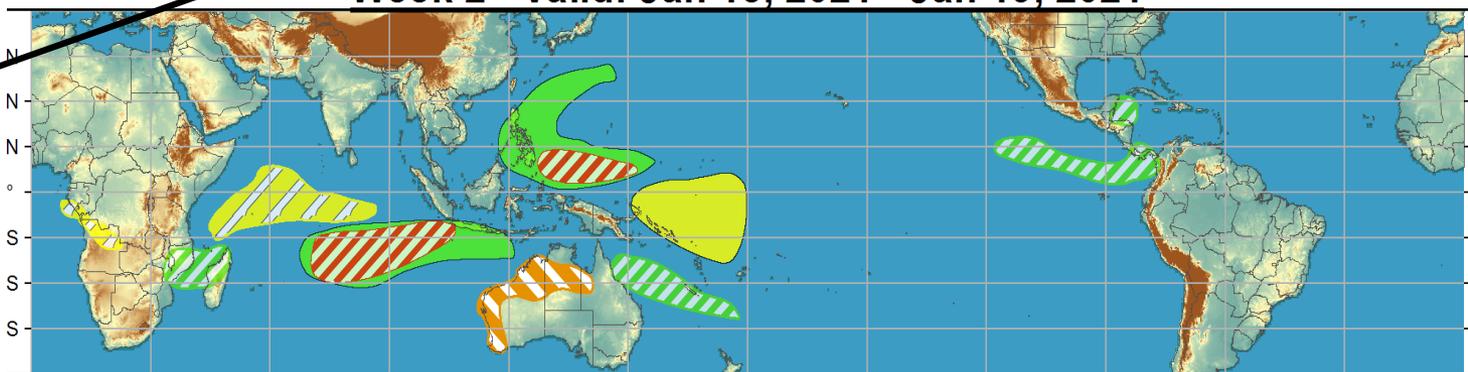


# Outlook Review

Joshua (1/15)  
Eloise (1/17)



Week 2 - Valid: Jan 13, 2021 - Jan 19, 2021

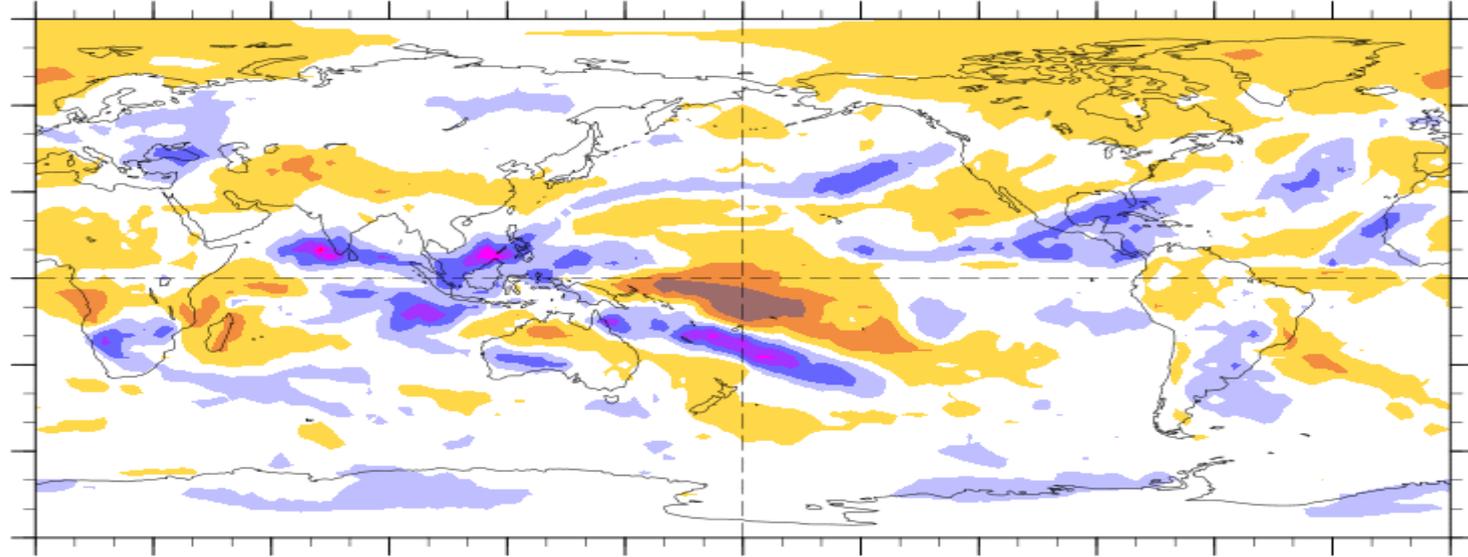


Kimi (1/17-1/18)



7-Day Average OLR Anomaly

2021/01/11 - 2021/01/17



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).

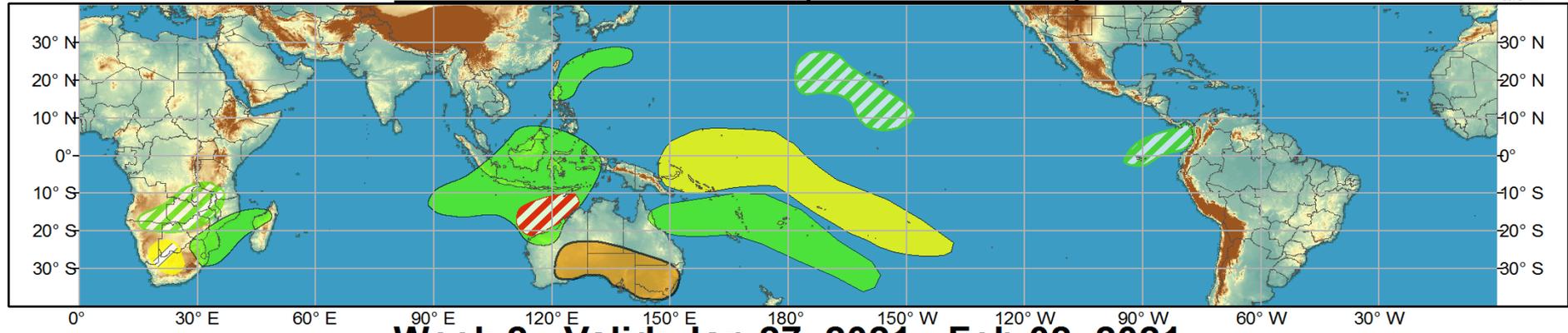
## **MJO and other subseasonal tropical variability:**

- The MJO remains weak and the RMM index continues to be influenced by the low-frequency La Niña signal.
- La Niña continues to be the strongest signal we have to base our forecast on.
- There are indications that the MJO will strengthen during the next two weeks.

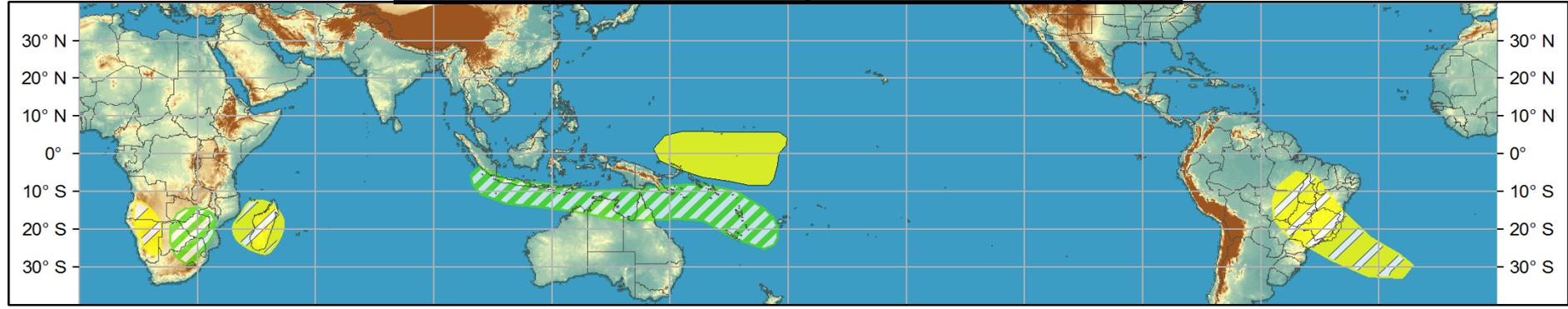


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Jan 20, 2021 - Jan 26, 2021



## Week 2 - Valid: Jan 27, 2021 - Feb 02, 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.
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- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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Produced: 01/19/2021  
Forecaster: MacRitchie

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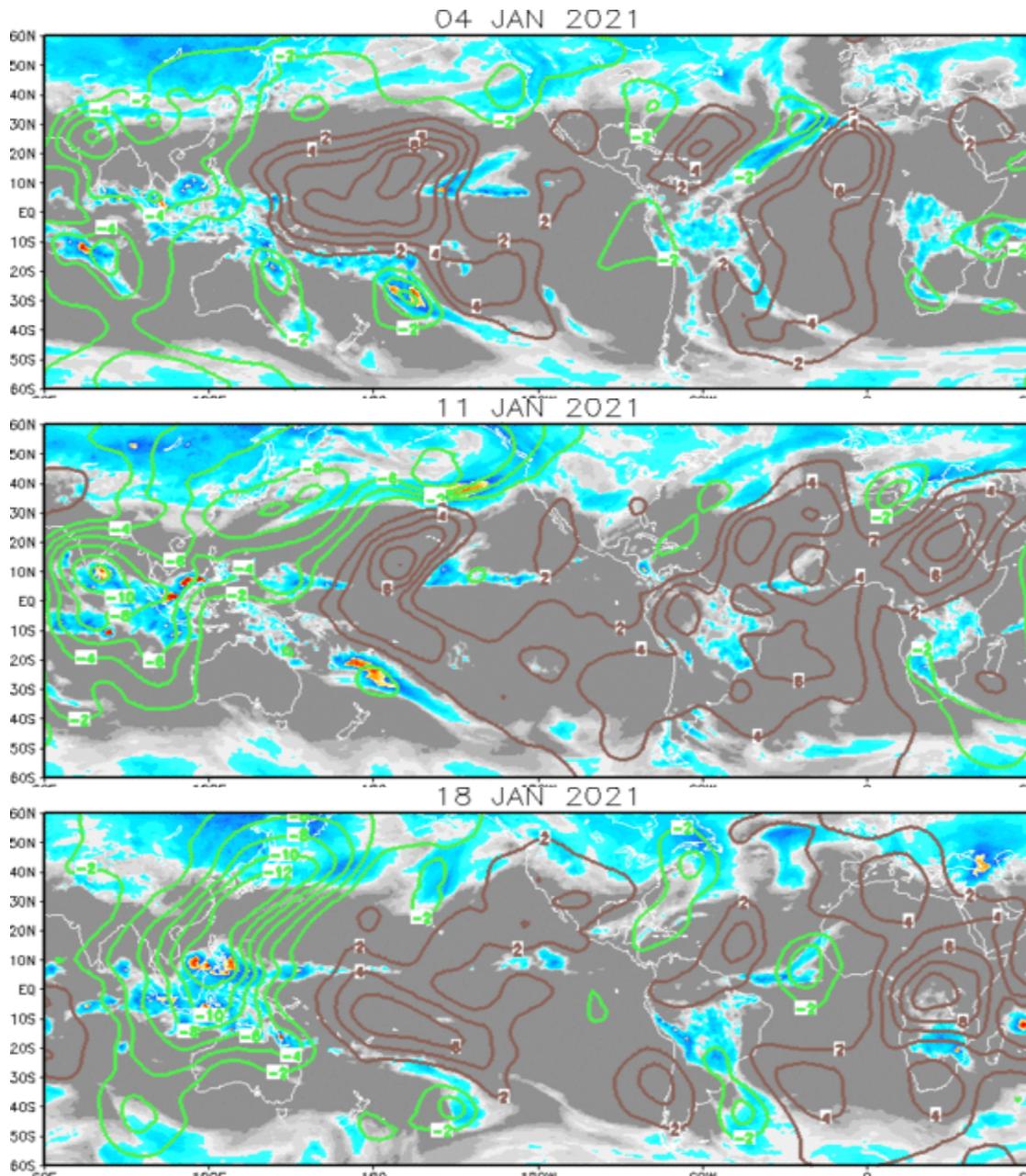
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

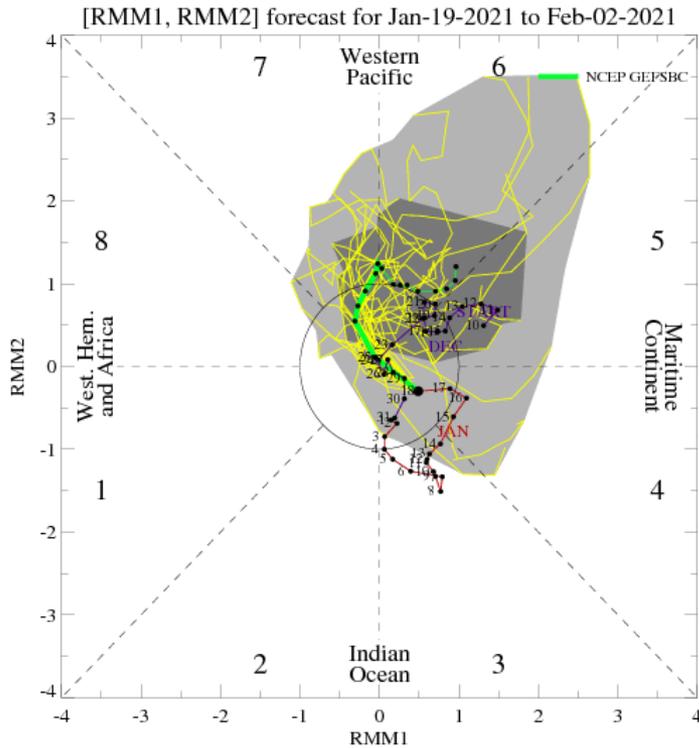
Brown: Enhanced Convergence

Enhanced convection around the Maritime Continent is consistent with the current La Niña.

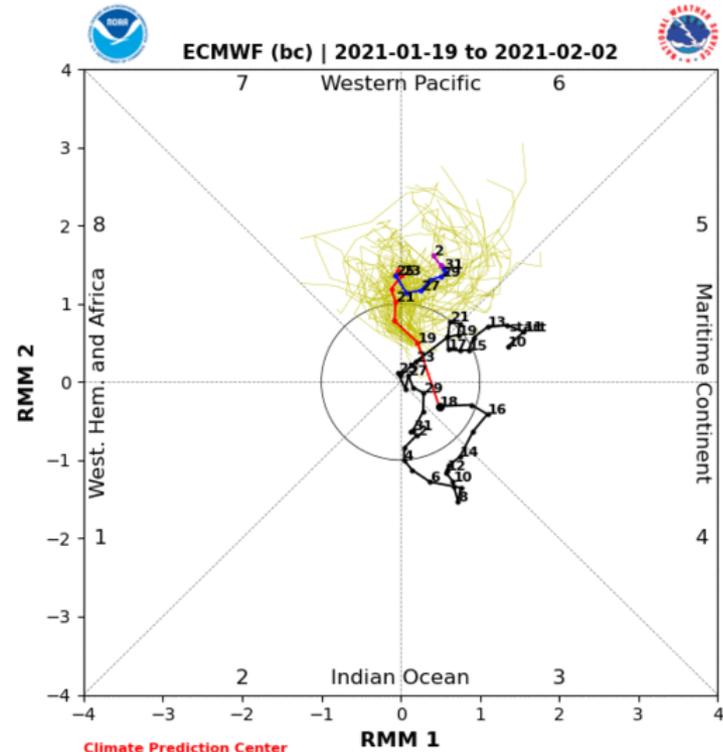
The convection over the eastern Indian Ocean and Maritime Continent is mostly stationary.



# MJO Observation/Forecast



GEFS



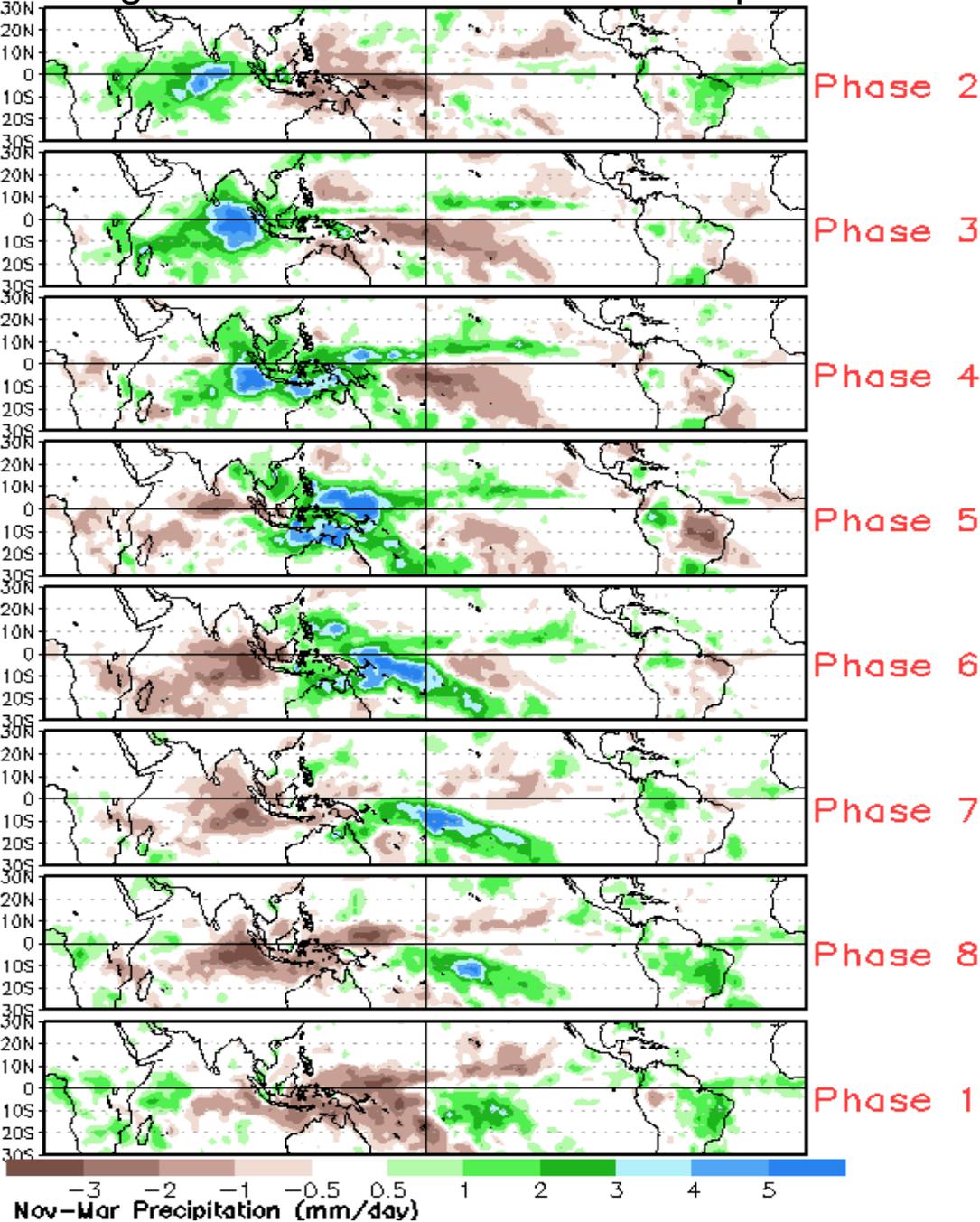
ECMWF

The GEFS and ECMWF are in good agreement regarding an MJO event during Week-2 over the Western Pacific.

It can be difficult to separate out the La Niña signal from these indices since the enhanced convection over the Maritime Continent projects strongly onto the RMM index.

These models have been wrong several times recently, so confidence is low.

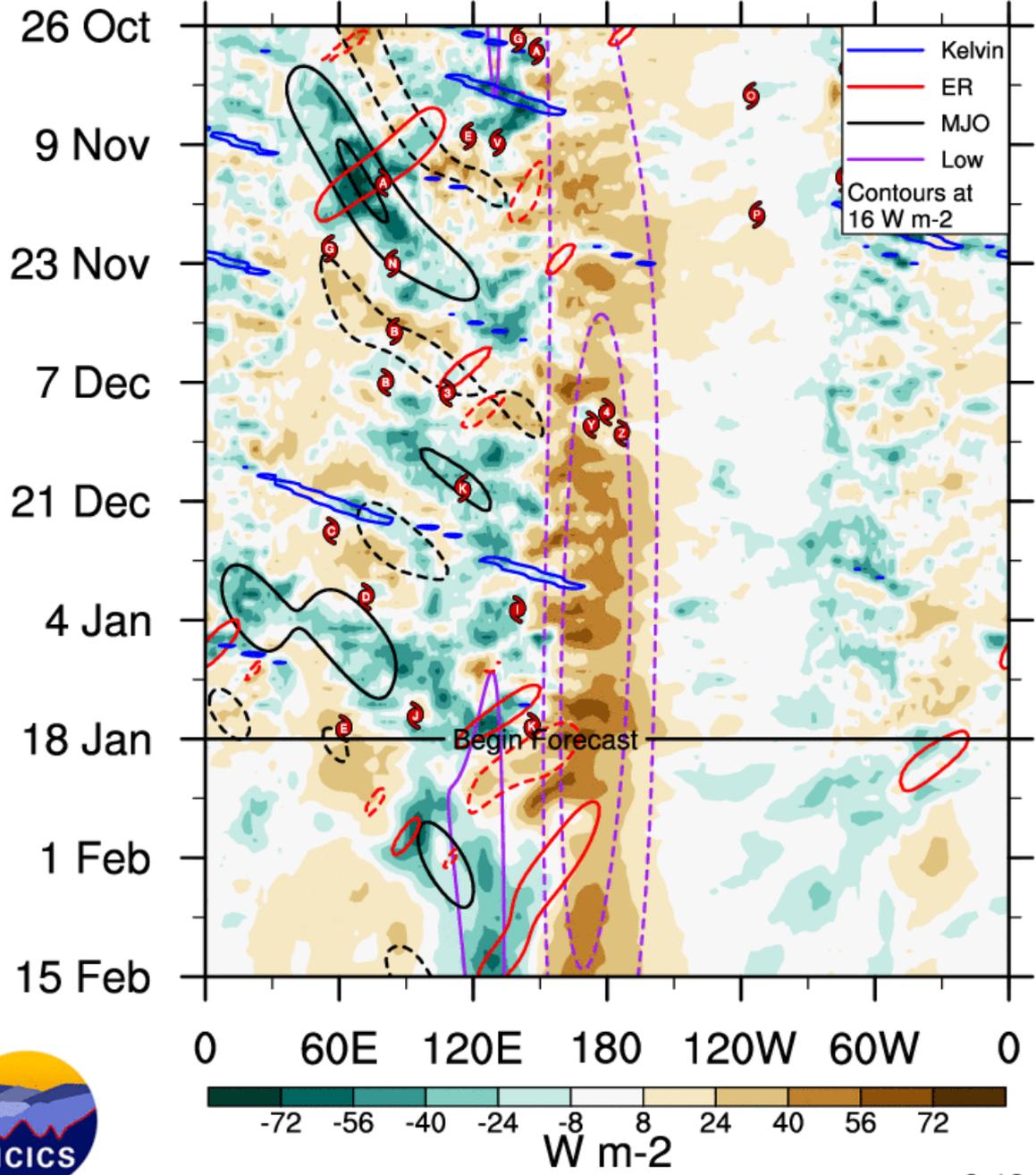
# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.

# OLR with CFS forecasts

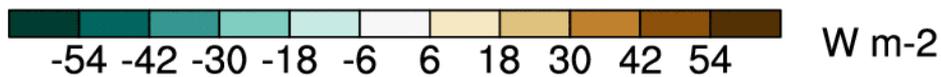
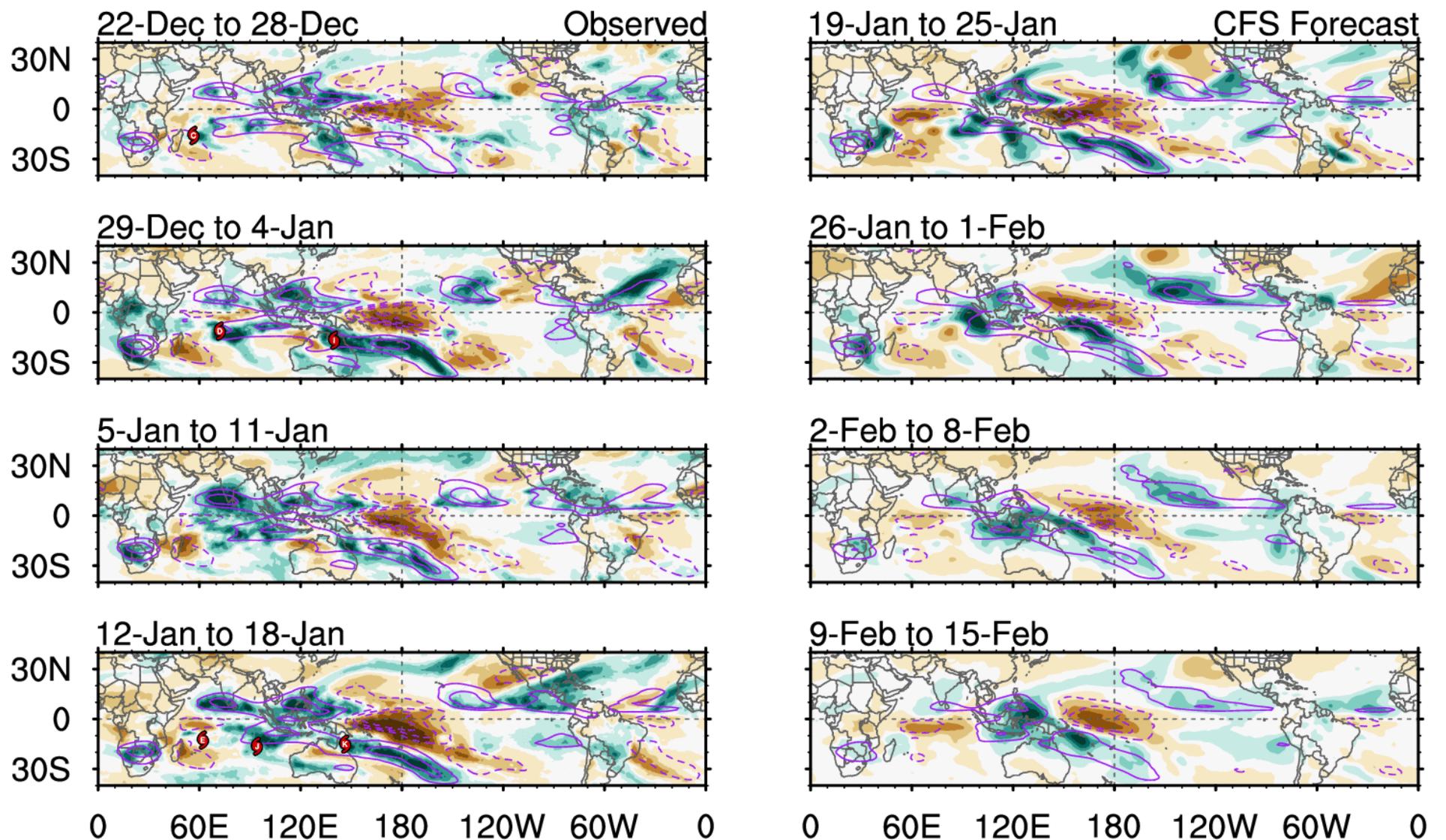
5S - 5N



**Weak MJO activity.**

**Low frequency** contours are weak over Maritime Continent because this diagram is too far south to capture the heart of the La Niña convection.

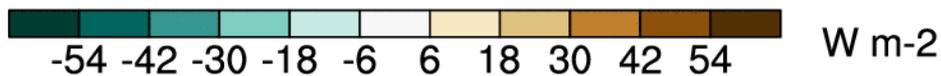
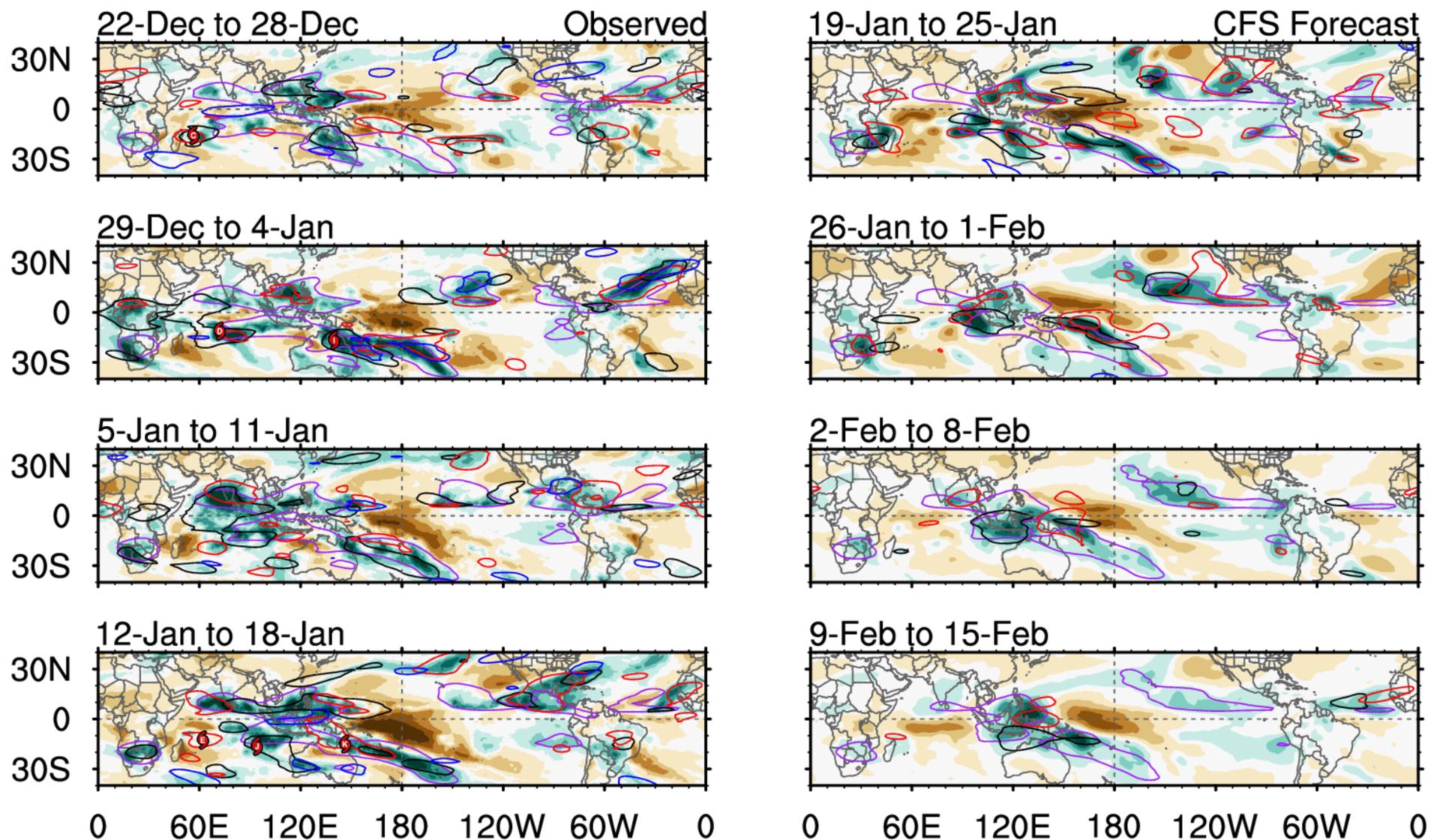




— MJO      — Kelvin x2  
 — Low      — ER

Contours every 12 W m<sup>-2</sup>

# 7-day OLR with CFS forecasts

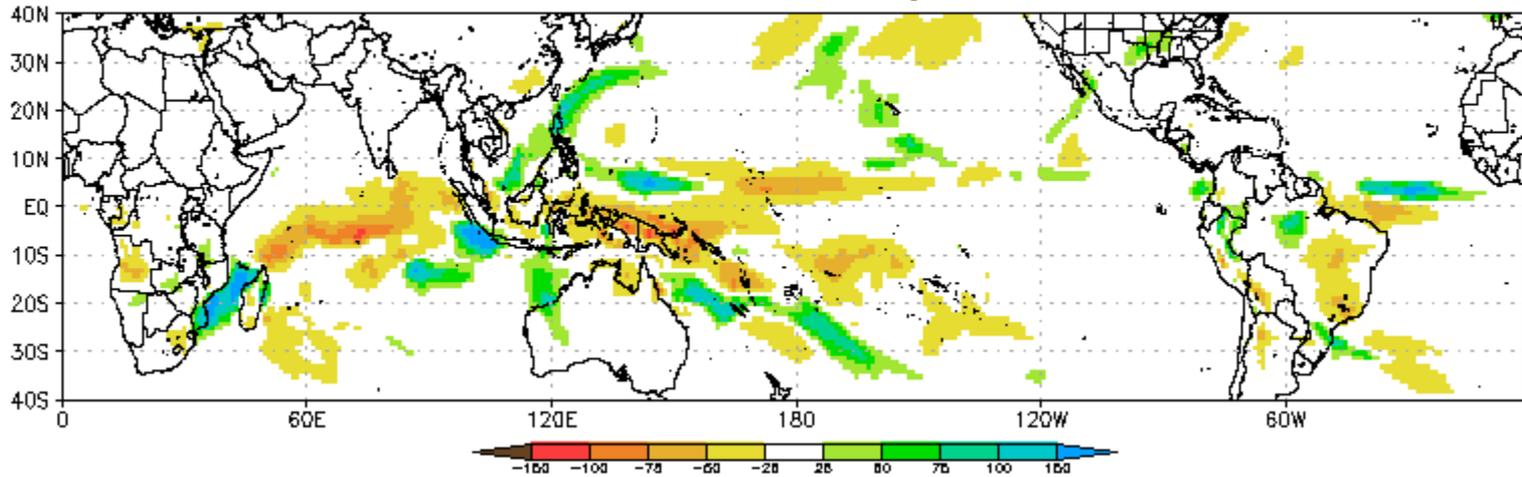


— MJO      — Kelvin x2  
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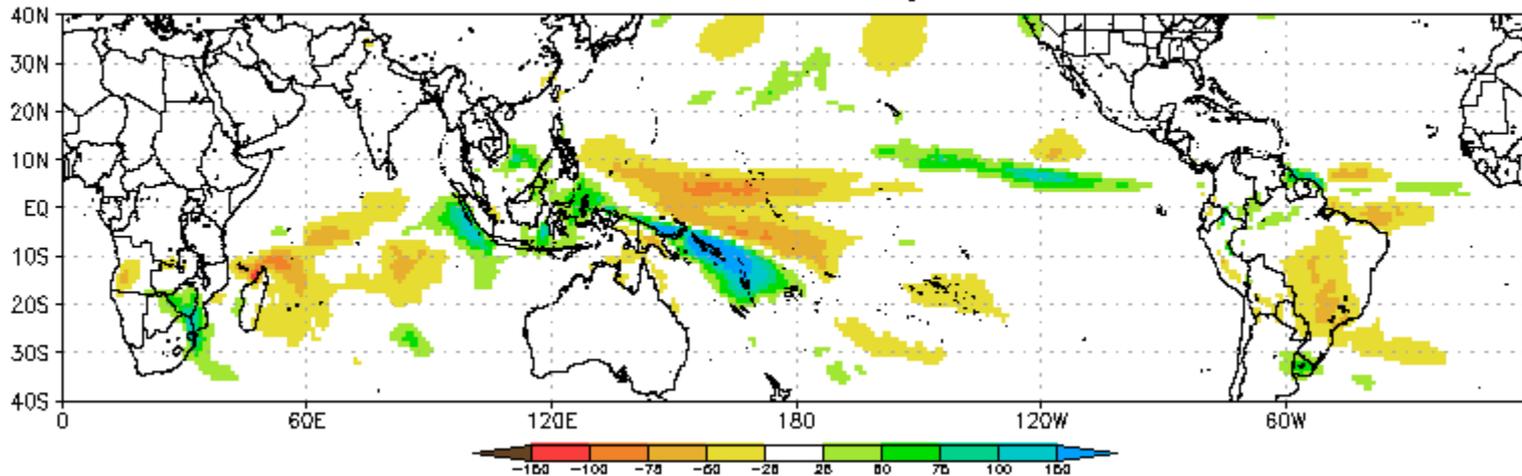
# 7-day OLR with CFS forecasts

Contours at -12, -36 W m<sup>-2</sup>

CFS Precipitation Anomalies (mm) Issued 18Jan2021  
Week-1 Forecast Ending 26Jan2021

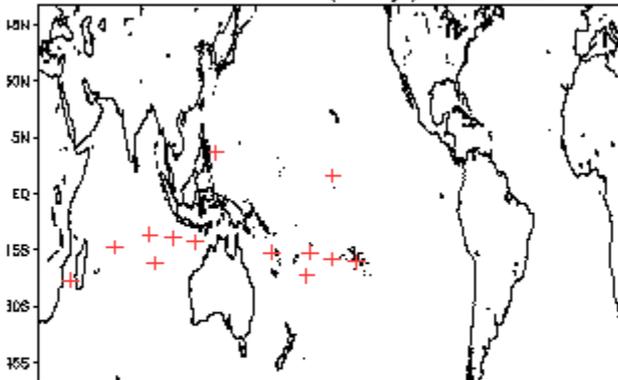


CFS Precipitation Anomalies (mm) Issued 18Jan2021  
Week-2 Forecast Ending 02Feb2021

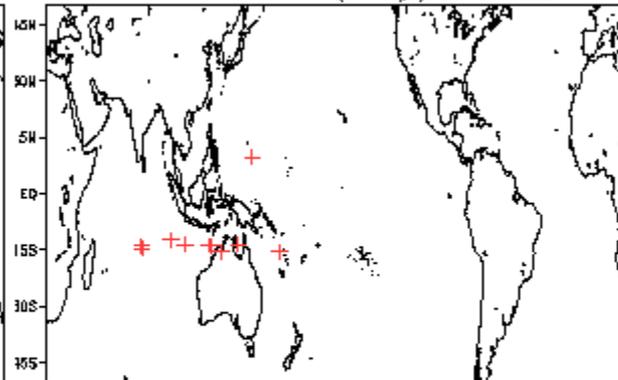


# January Tropical Storm Formation by MJO phase

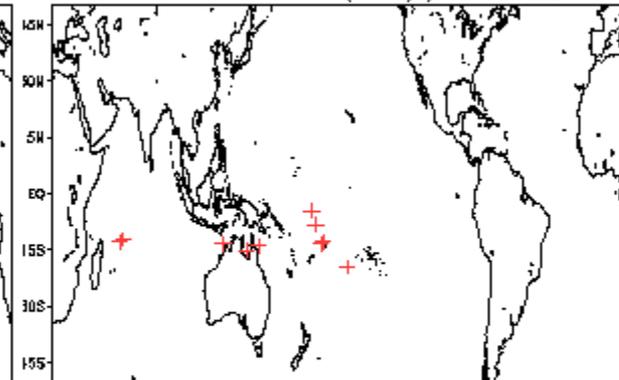
Phase 1 (67 days) 14 storms



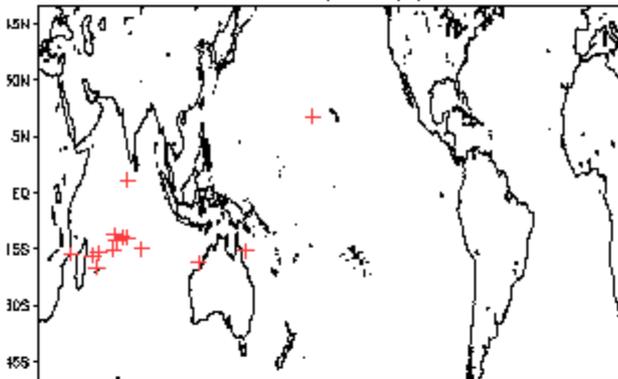
Phase 4 (69 days) 11 storms



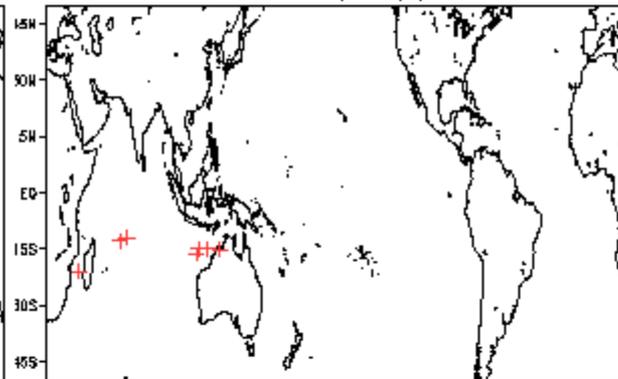
Phase 7 (81 days) 11 storms



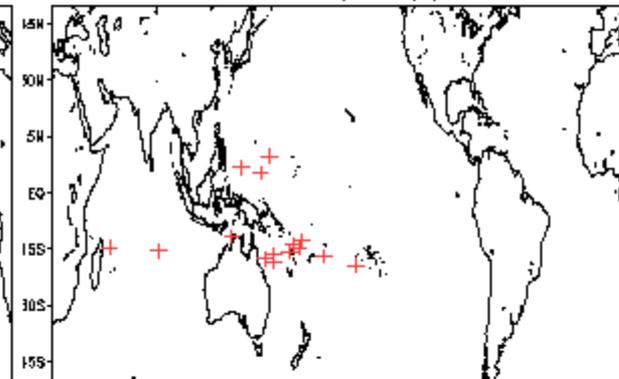
Phase 2 (101 days) 15 storms



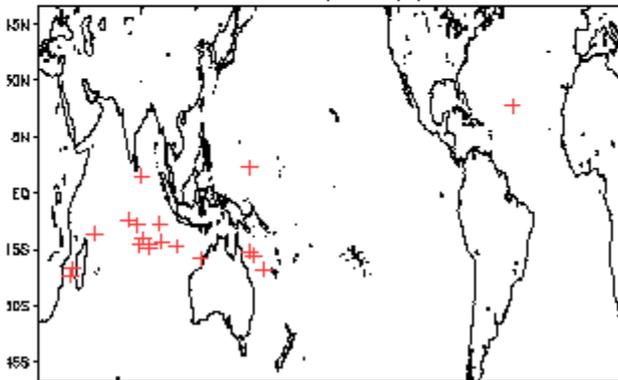
Phase 5 (67 days) 8 storms



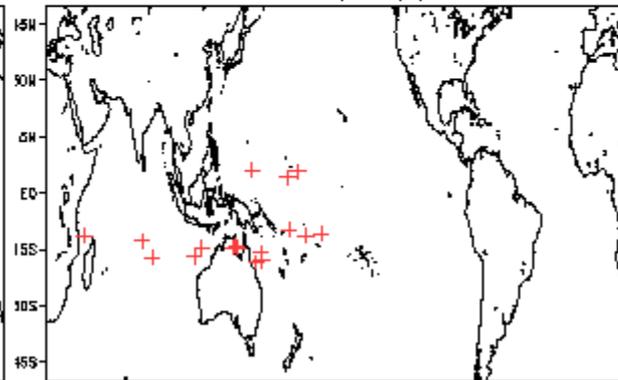
Phase 8 (105 days) 16 storms



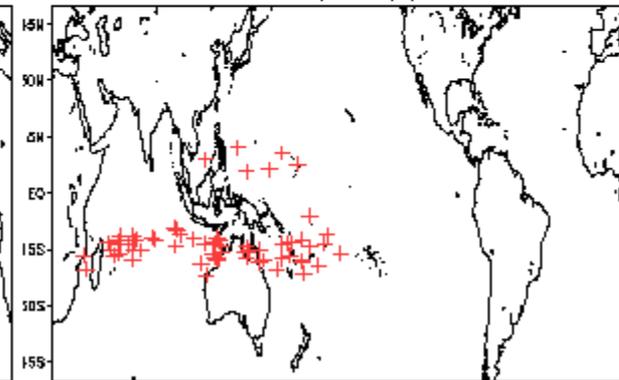
Phase 3 (112 days) 20 storms



Phase 6 (88 days) 18 storms

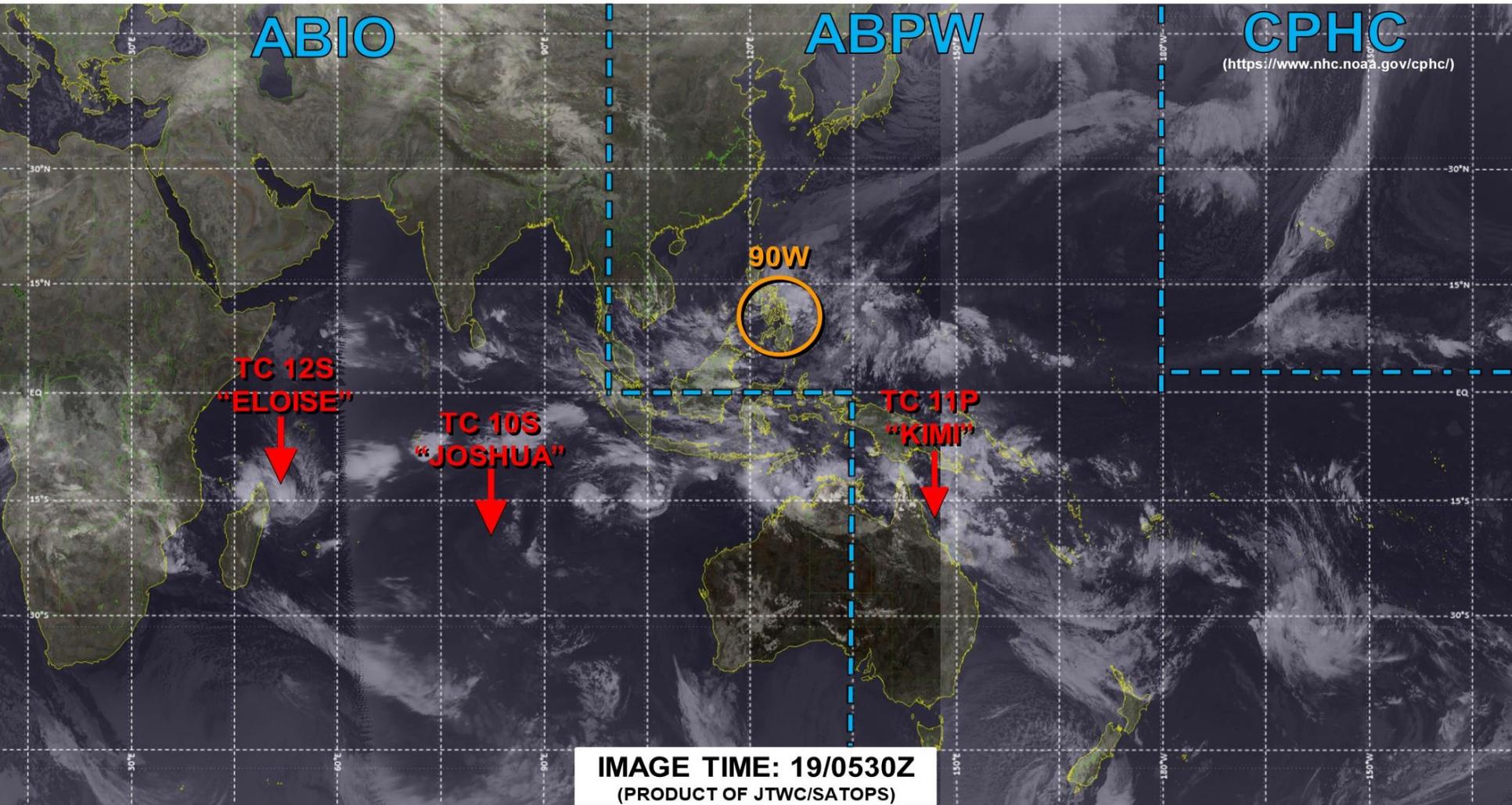


Null (364 days) 67 storms





# JOINT TYPHOON WARNING CENTER



**IMAGE TIME: 19/0530Z**  
(PRODUCT OF JTWC/SATOPS)

**LOW** TC development unlikely within 24 hours

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

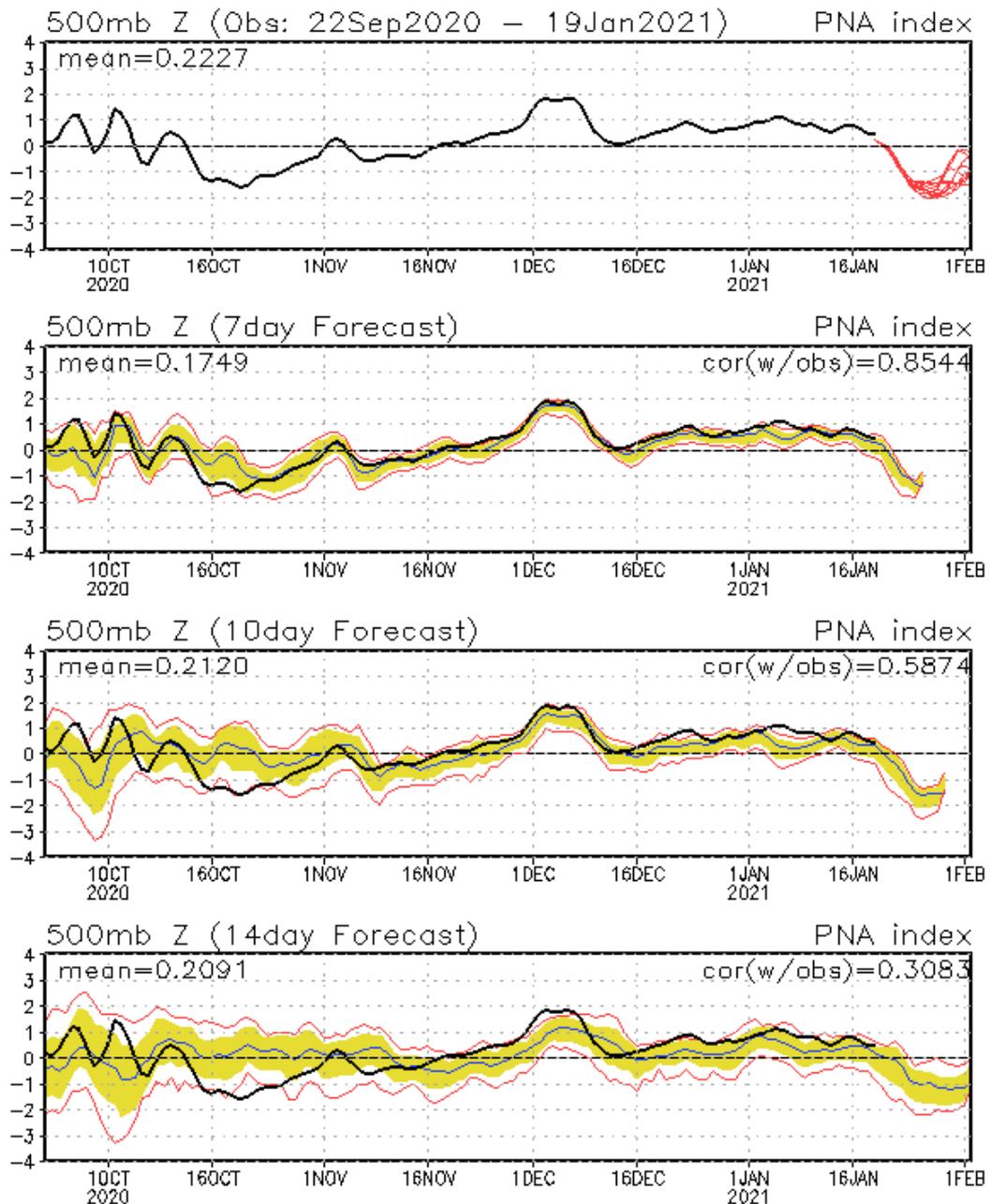
**HIGH** TC development likely within 24 hours (Reference TCFA)

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

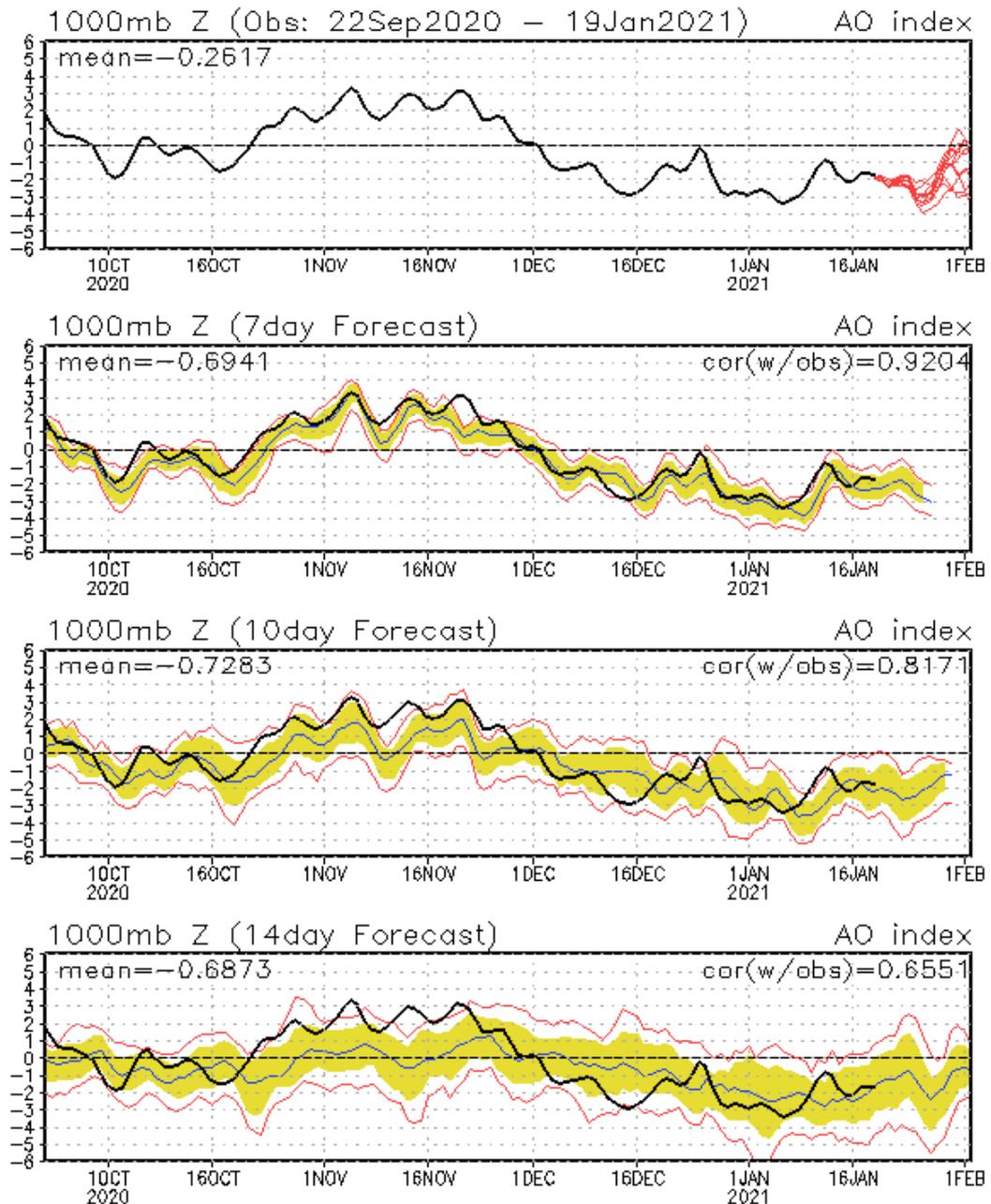
Tropical Cyclone (Reference Warning)

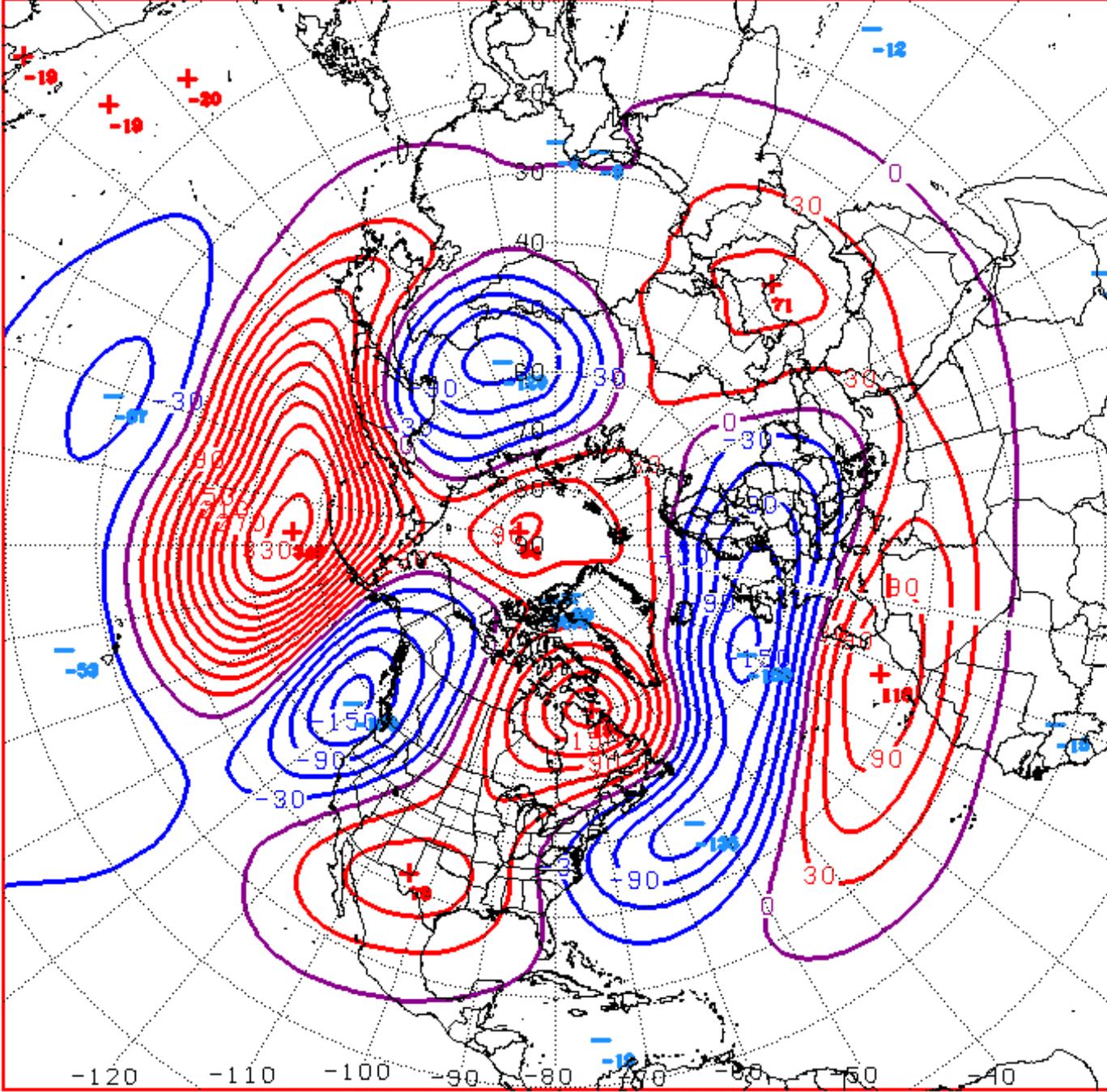
# Connections to U.S. Impacts

## PNA: Observed & ENSM forecasts



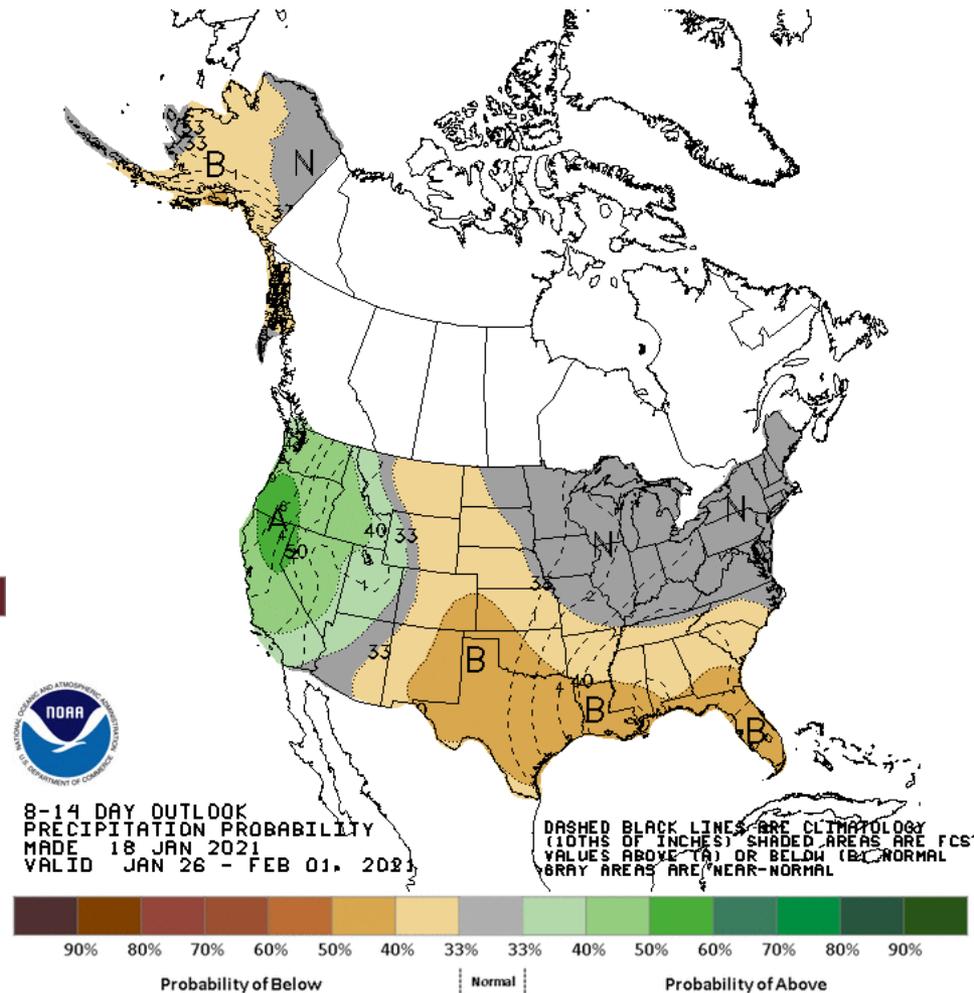
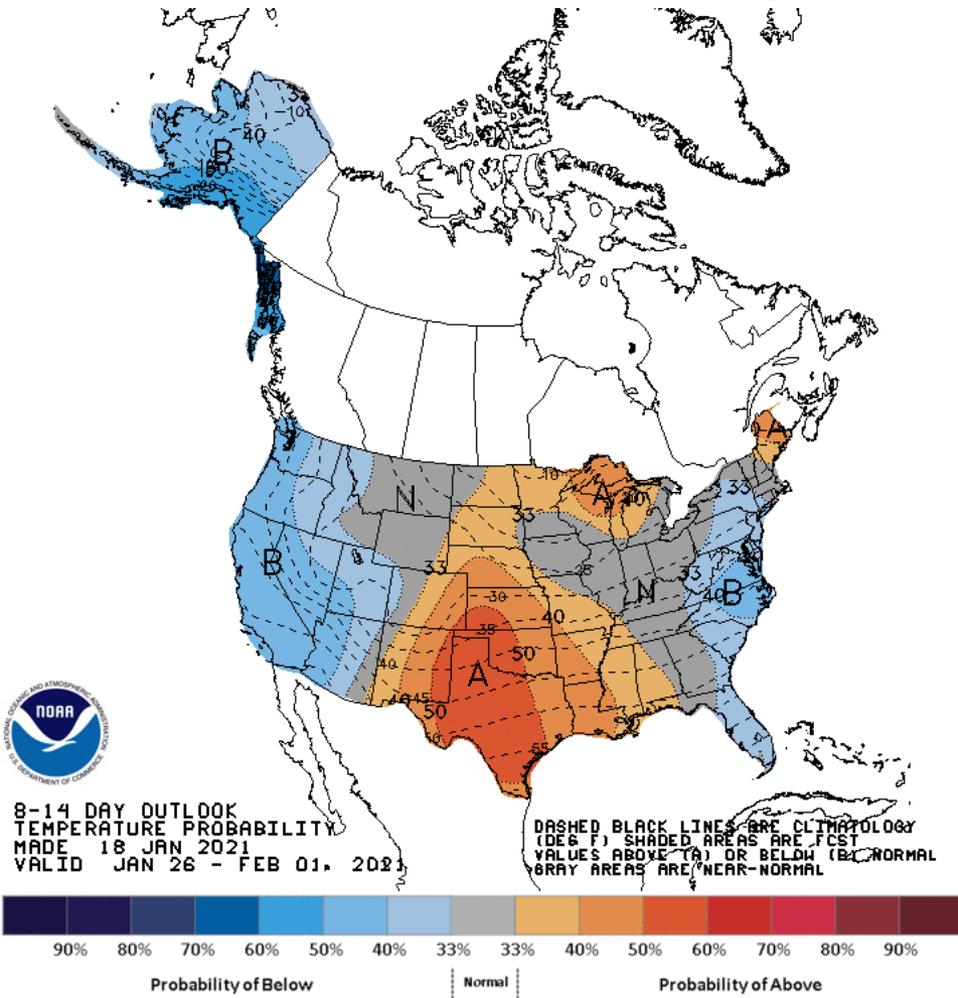
## AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE JAN 19 2021 1421 UTC CNTD JAN 30 2021

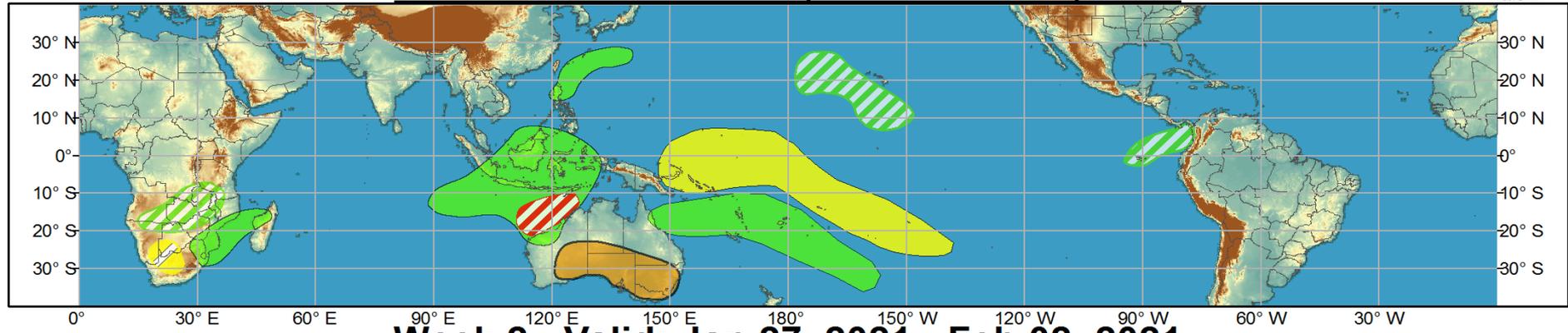
# Week 2 – Temperature and Precipitation



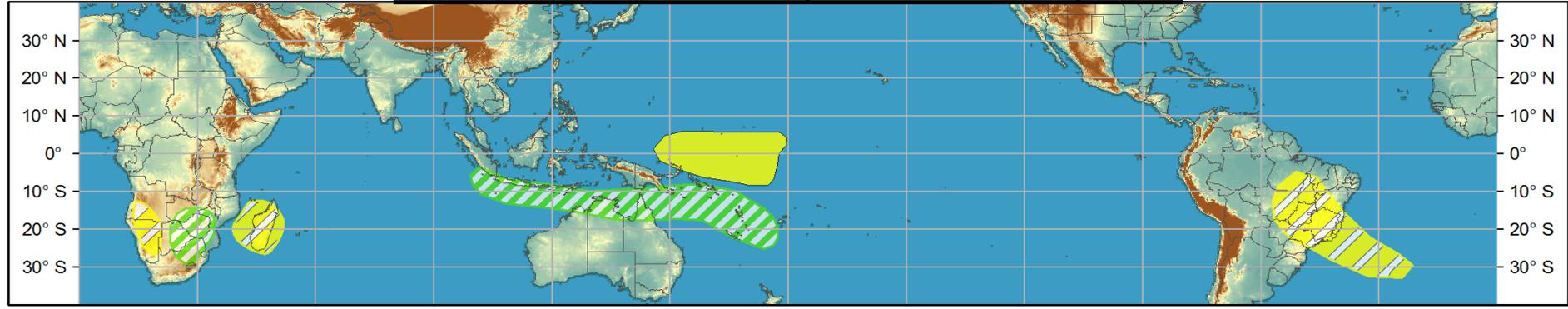


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