

# Global Tropics Hazards And Benefits Outlook

12/1/2020

Dan Harnos

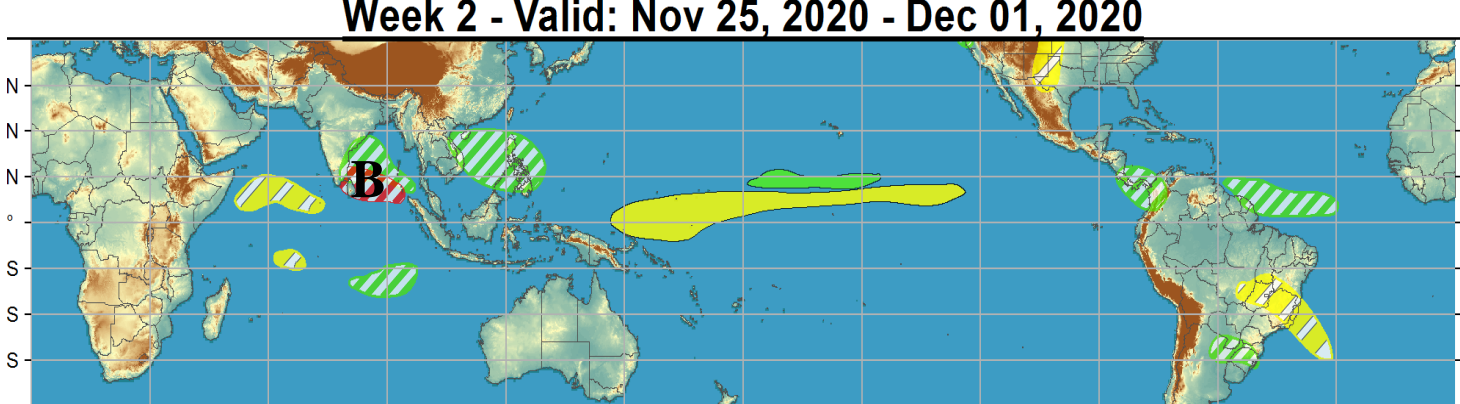
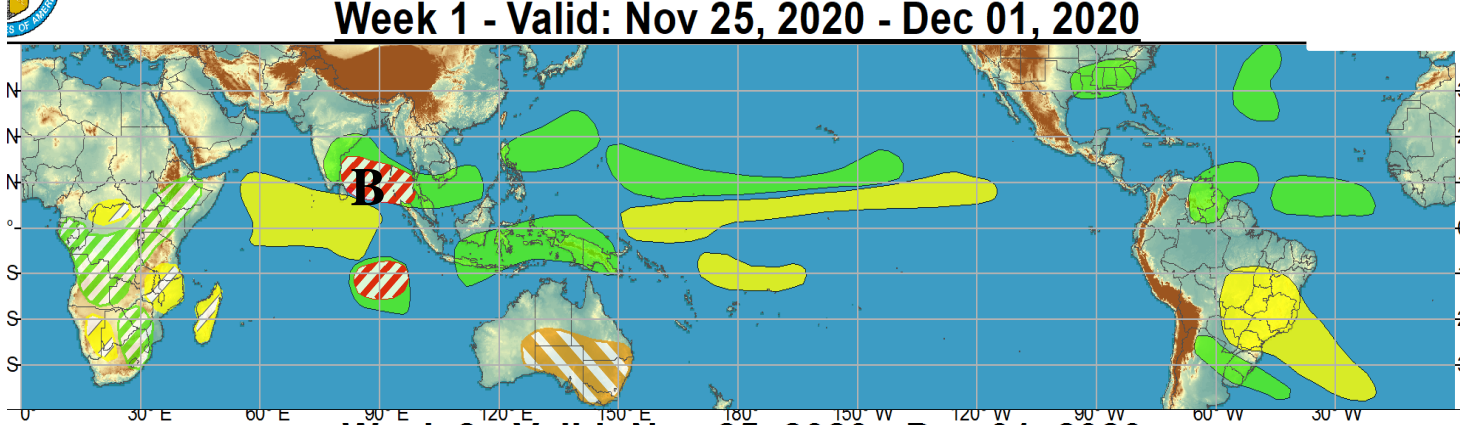
## Outline

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

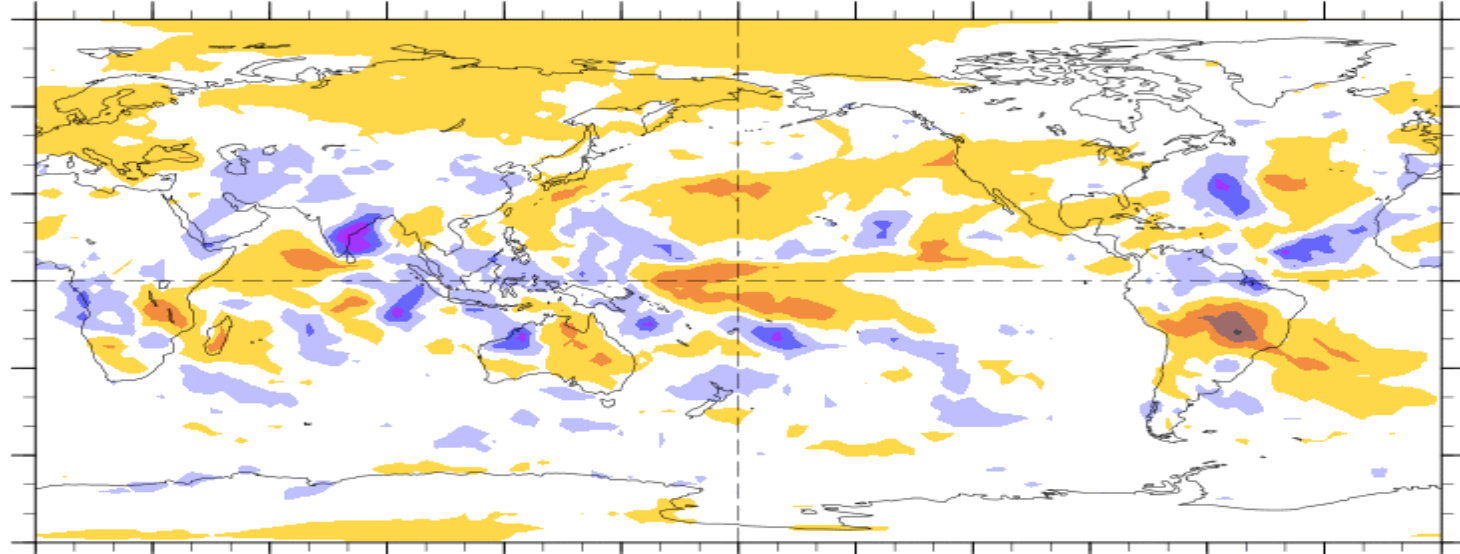
# Outlook Review

## Tropical Cyclone Buravi

12/1-present  
Peak: 35 kts



7-Day Average OLR Anomaly 2020/11/23 - 2020/11/29



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

**ENSO: November 12, 2020 Update**

***Next update December 10***

ENSO Alert System Status: [La Niña Advisory](#)

- La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March) and into spring 2021 (~65% chance during March-May)

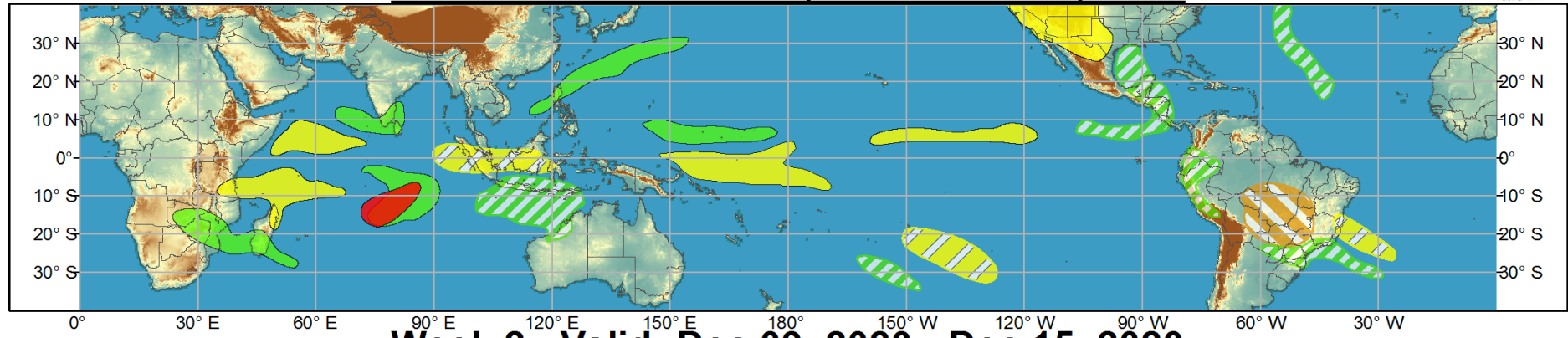
## **MJO and other subseasonal tropical variability:**

- The MJO is currently over the Maritime Continent. A Kelvin wave is approaching the MJO envelope from the West, while a pair of equatorial Rossby waves are over the Bay of Bengal and southeastern Indian Ocean.
- Should the MJO progress eastward, it is likely to destructively interfere with the ongoing La Niña around mid-December.
- Model guidance is very diverse in the forecast the next two weeks, depending on what mode is highlighted (MJO, Kelvin wave, Rossby waves). This, coupled with the potential for destructive interference of the MJO and La Niña, reduces overall forecast confidence.

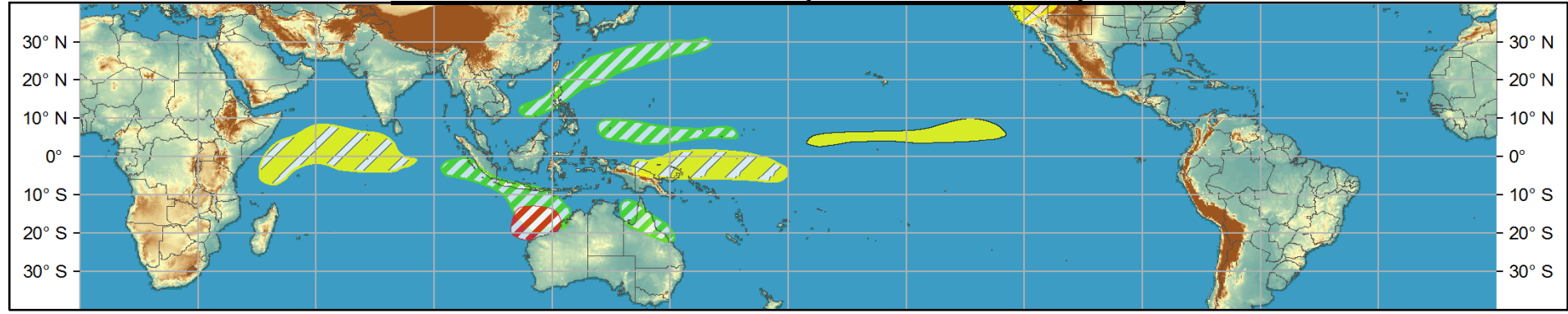


# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

## Week 1 - Valid: Dec 02, 2020 - Dec 08, 2020



## Week 2 - Valid: Dec 09, 2020 - Dec 15, 2020



Produced: 12/01/2020  
Forecaster: Harnos

Confidence		
High	Moderate	
		<b>Tropical Cyclone Formation</b> Development of a tropical cyclone (tropical depression - TD, or greater strength).
		<b>Above-average rainfall</b> Weekly total rainfall in the upper third of the historical range.
		<b>Below-average rainfall</b> Weekly total rainfall in the lower third of the historical range.
		<b>Above-normal temperatures</b> 7-day mean temperatures in the upper third of the historical range.
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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

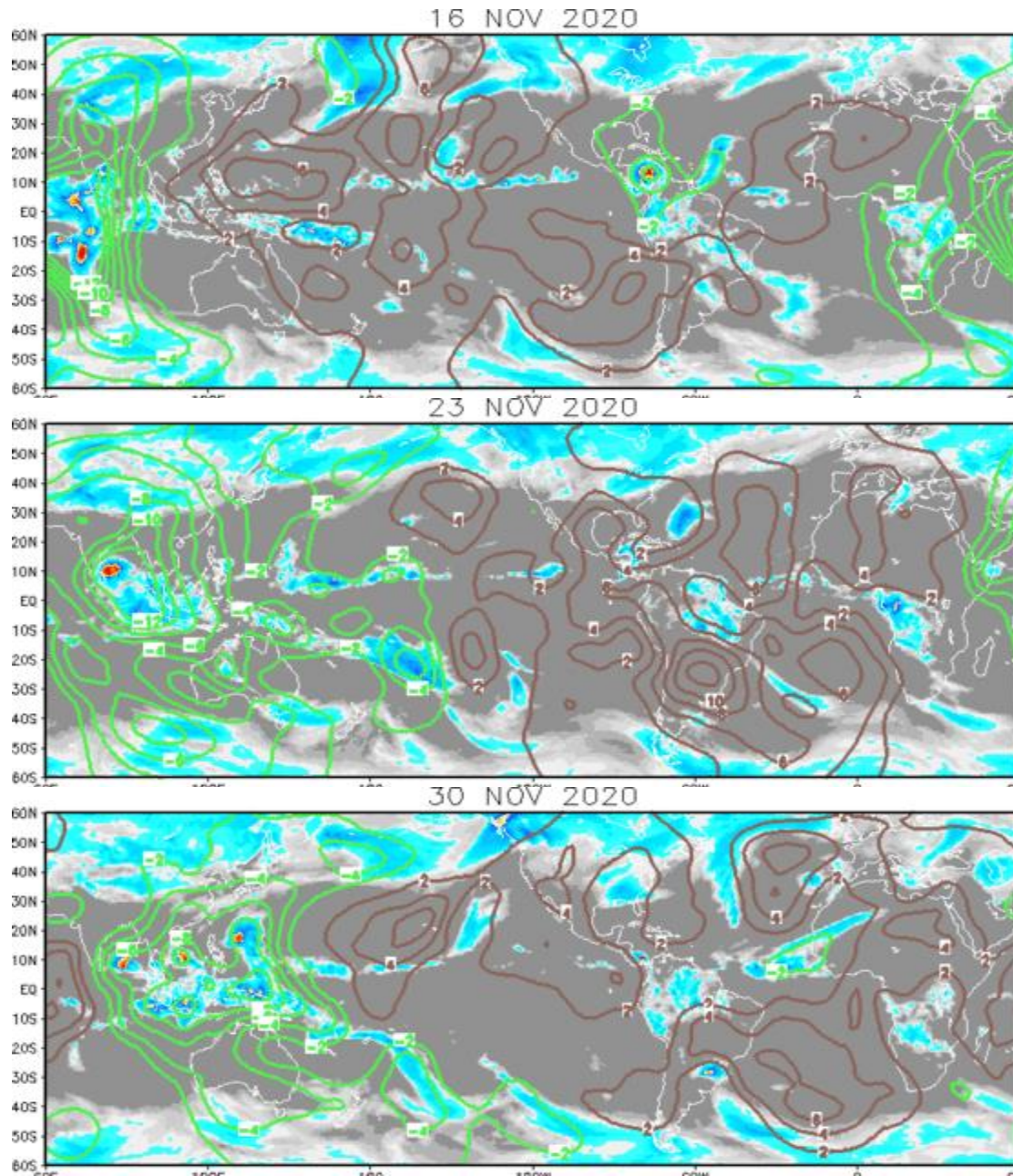
Green: Enhanced Divergence

Brown: Enhanced Convergence

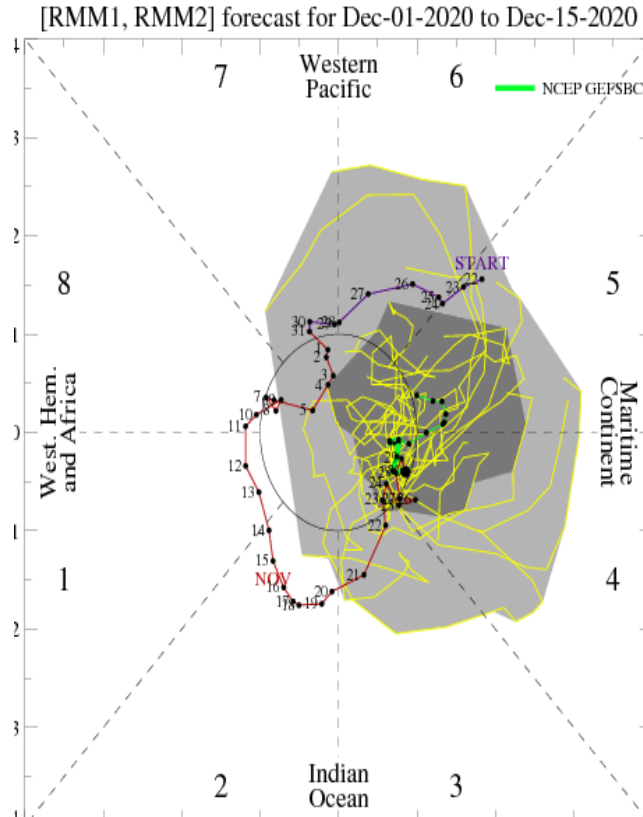
General wave-1 pattern with enhanced convection over the Indian Ocean aided by TC Gati developing over the Arabian Sea.

Increasingly defined wave-1 pattern, with Hurricane Iota no longer mixed in with the suppressed convection over the Western Hemisphere. Pattern slides east some from mid-Nov.

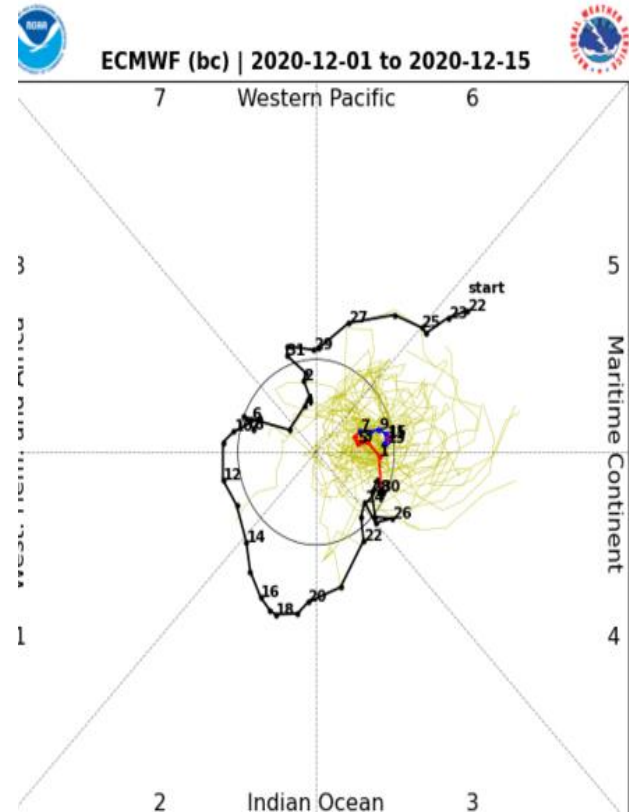
Less coherence once again, with a Kelvin wave near the African coastline breaking up suppression of convection from the Americas through Africa.



# MJO Observation/Forecast



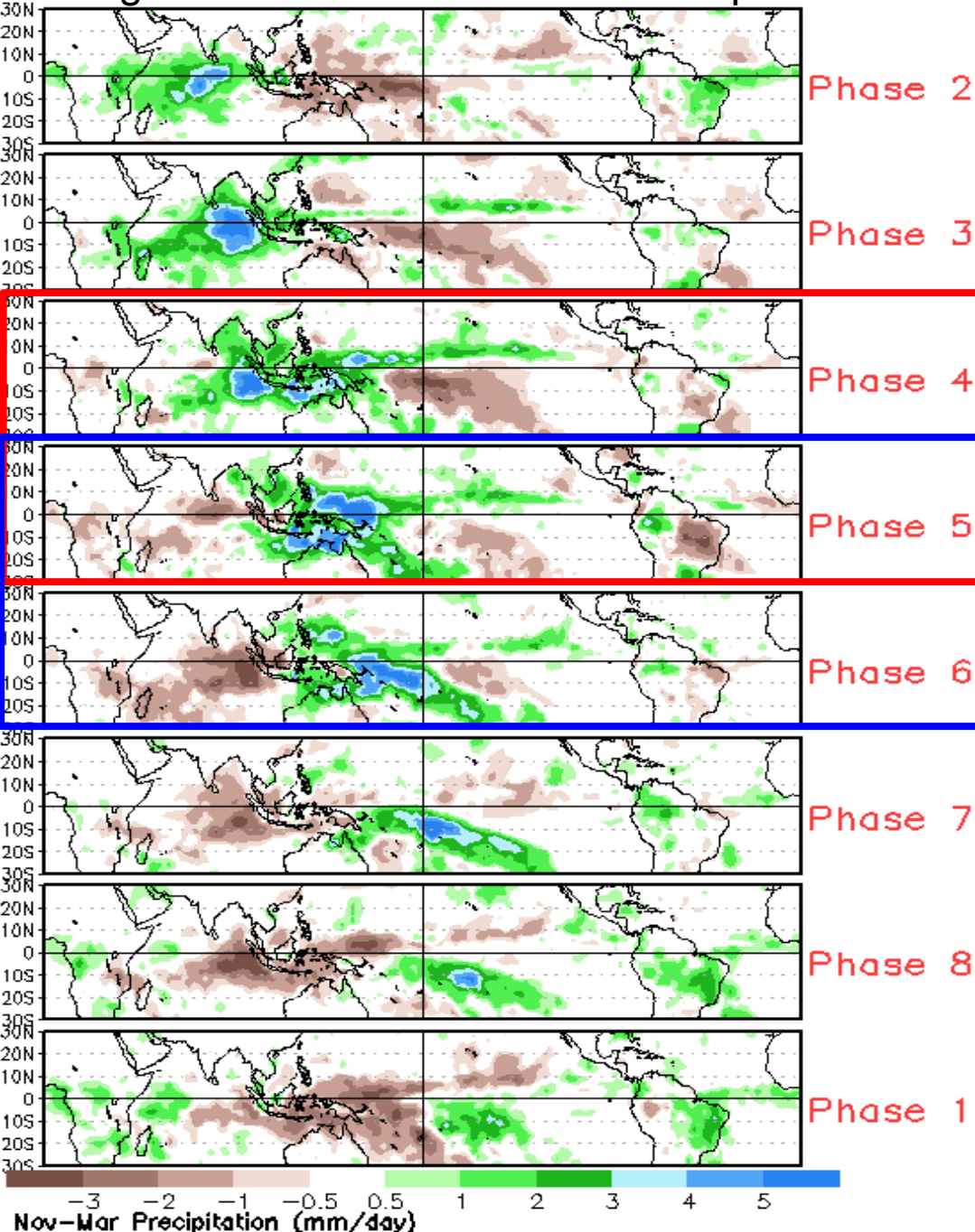
GEFS



ECMWF

- Diverse outcomes from the GEFS, tied to differing focuses among Rossby wave, Kelvin wave, and MJO activity.
- The ECMWF seems more focused on Rossby wave activity relative to the GEFS.

# Average Conditions when the MJO is present



Week-1  
Phases 4/5

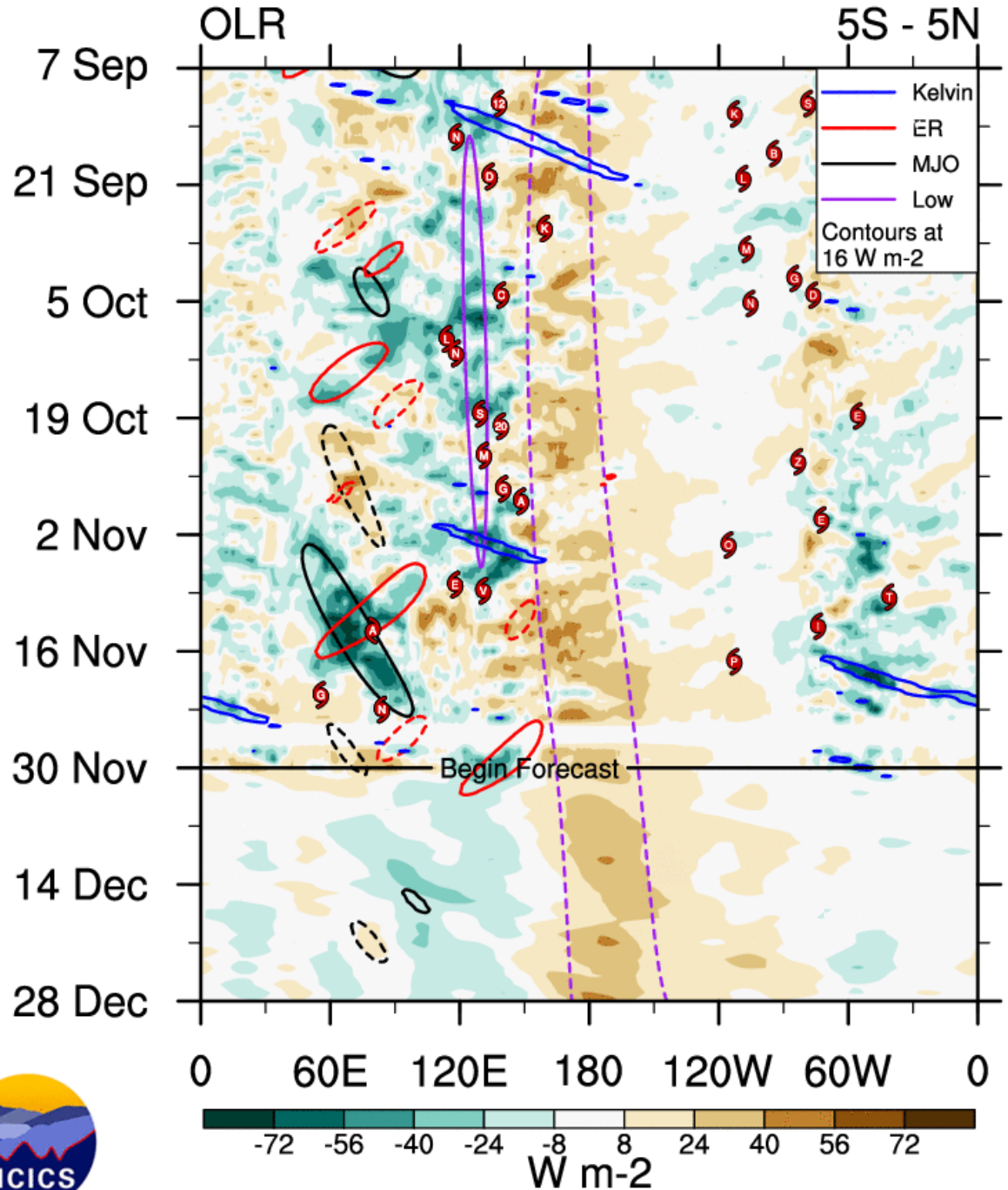
Week-2 (???)  
Phases 5/6

CAVEAT: These panels are representative of robust MJO events.

**MJO** signal approaching the low frequency suppression of convection near the Date Line from the **low frequency** state (La Niña)

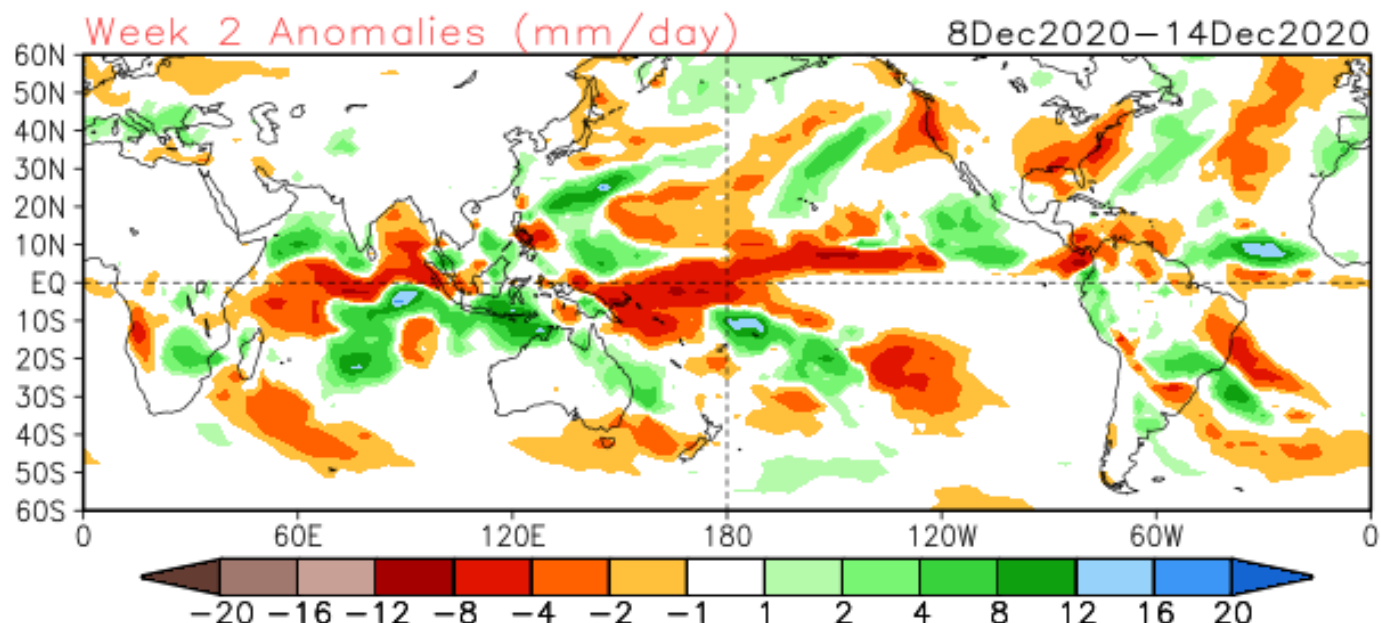
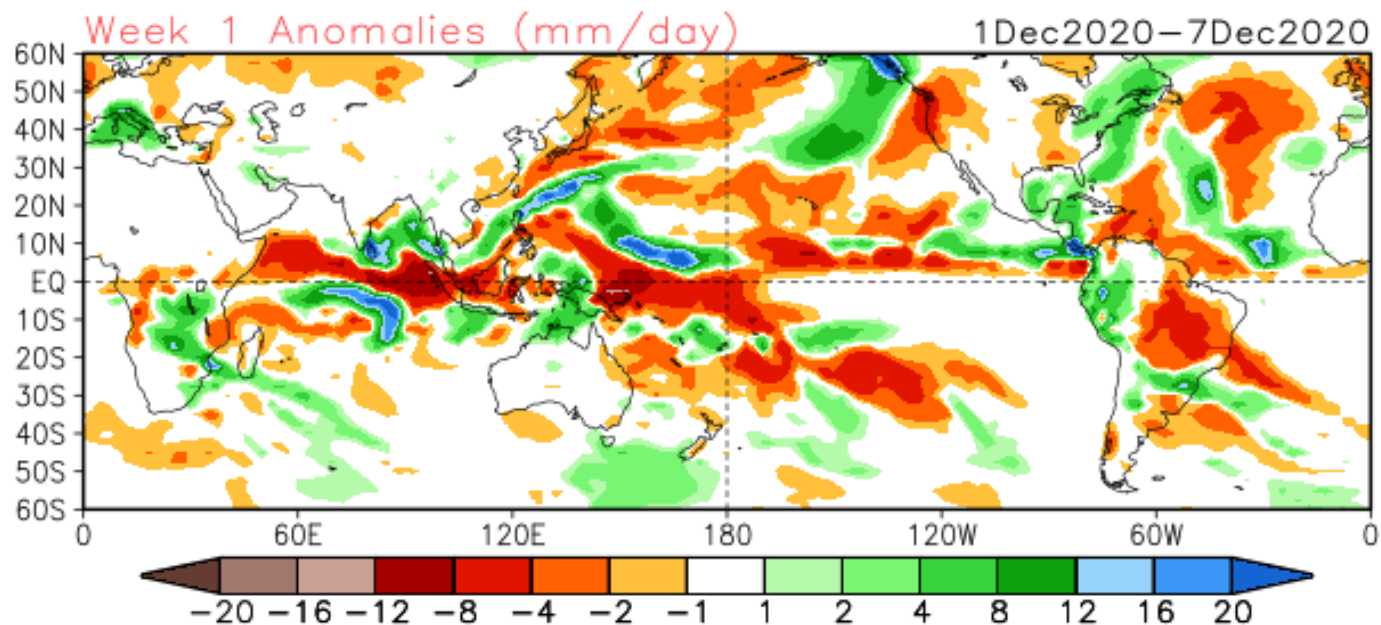
A **Kelvin wave** is approaching the **MJO** envelope (near 120 ° E), with a second **Kelvin wave** near 50°W.

**Equatorial Rossby wave** activity is also noted near 120 ° E.



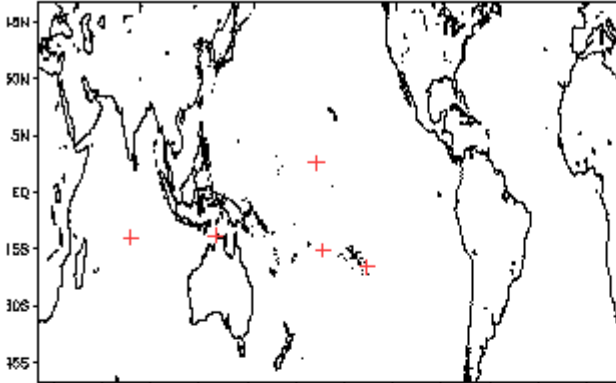


CFSv2 Weeks 1 & 2 Precipitation  
16 Member Ensemble Mean Forecast from 30Nov2020

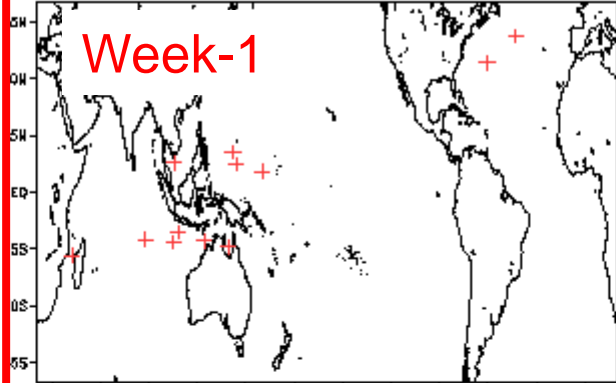


# December Tropical Storm Formation by MJO phase

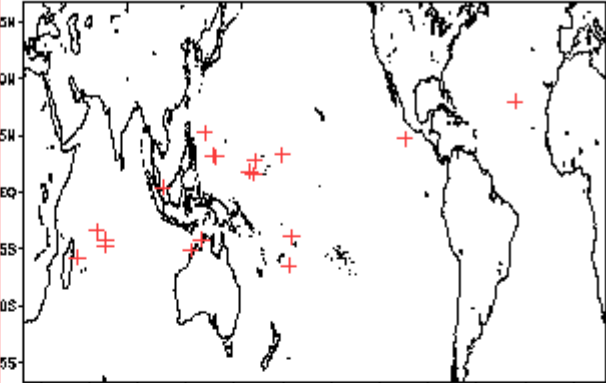
Phase 1 (48 days) 7 storms



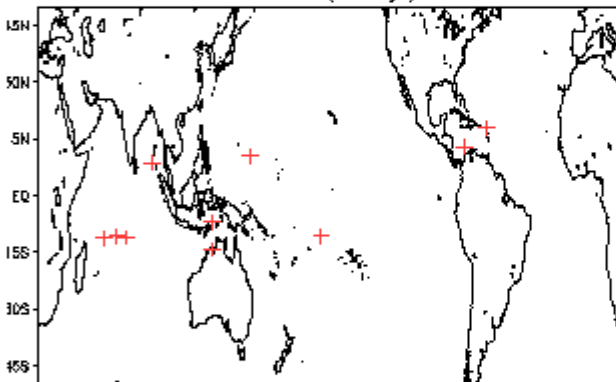
Phase 4 (72 days) 13 storms



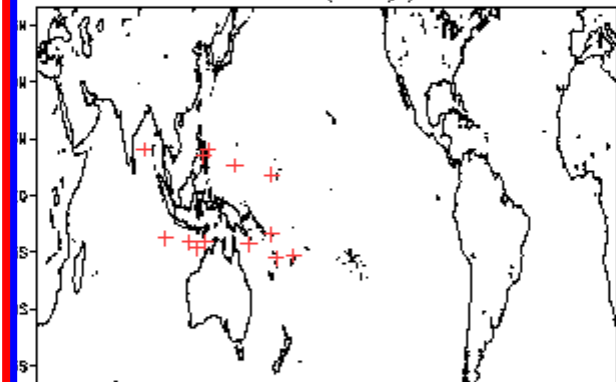
Phase 7 (103 days) 19 storms



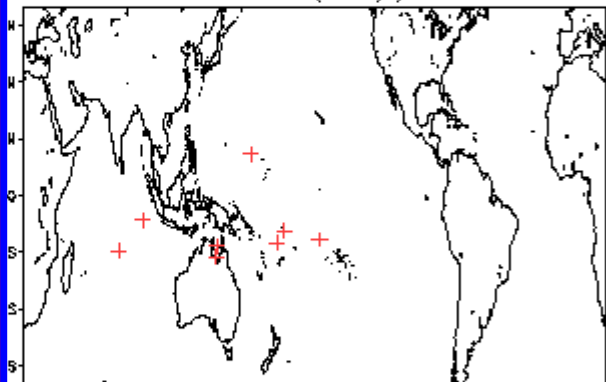
Phase 2 (67 days) 11 storms



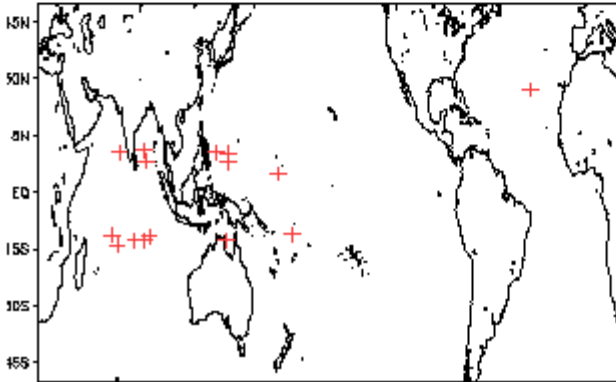
Phase 5 (73 days) 14 storms



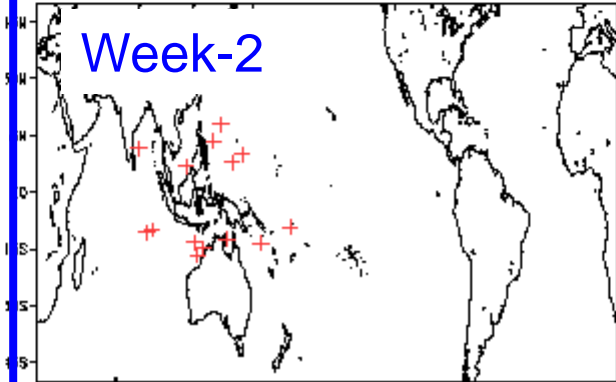
Phase 8 (76 days) 9 storms



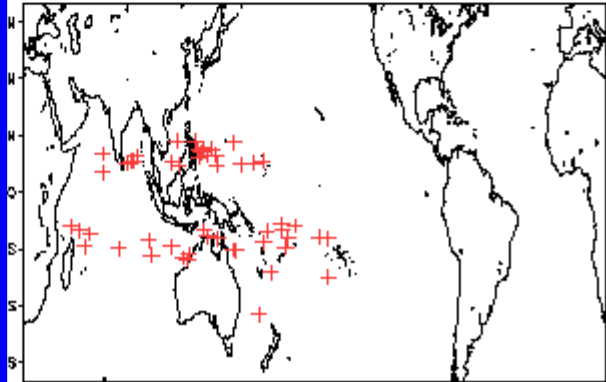
Phase 3 (101 days) 16 storms



Phase 6 (69 days) 15 storms



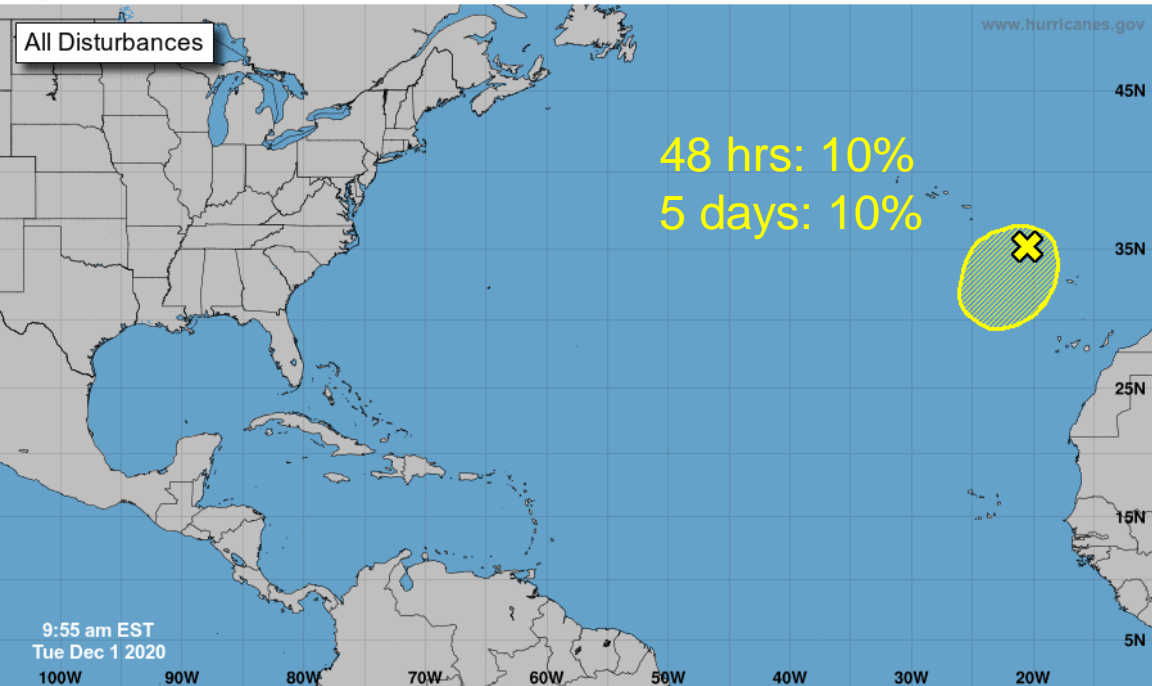
Null (416 days) 52 storms





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



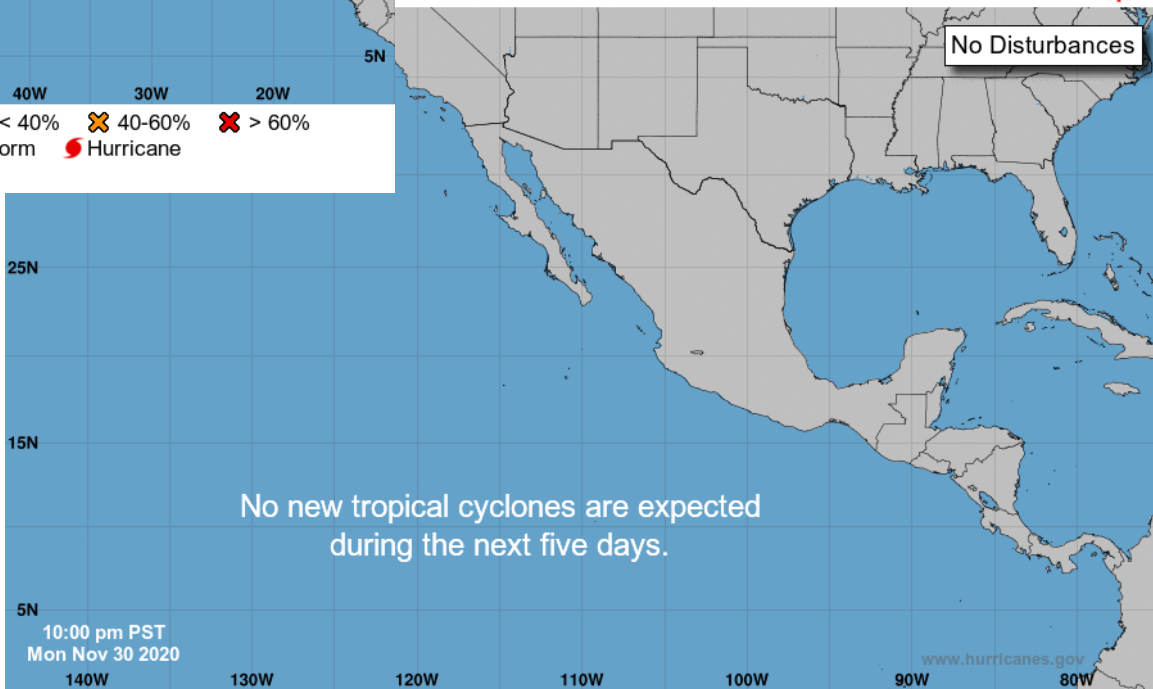
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

# Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

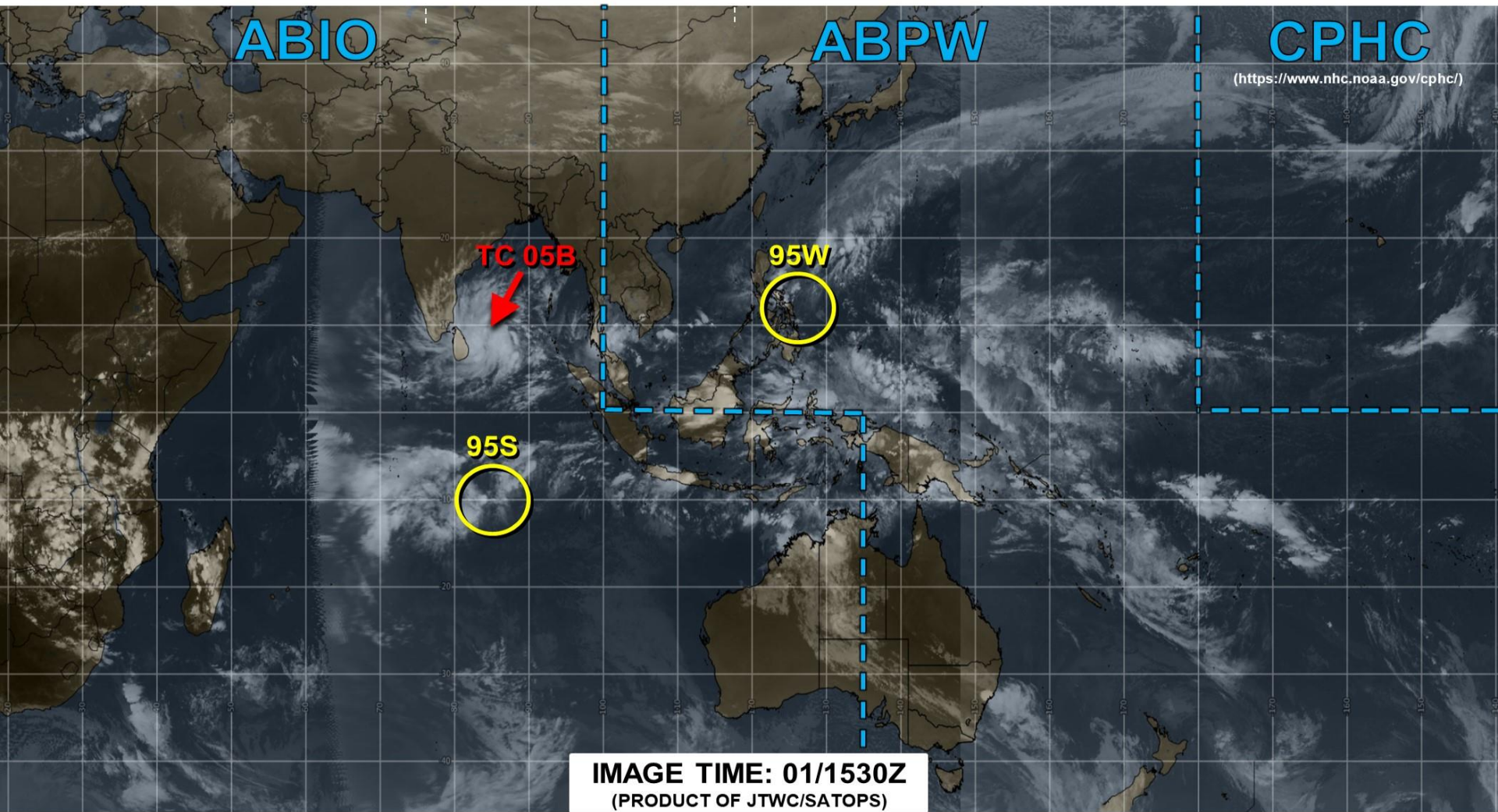
Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

The Atlantic and East Pacific Hurricane seasons concluded on Monday, the 30<sup>th</sup> of November.



# JOINT TYPHOON WARNING CENTER



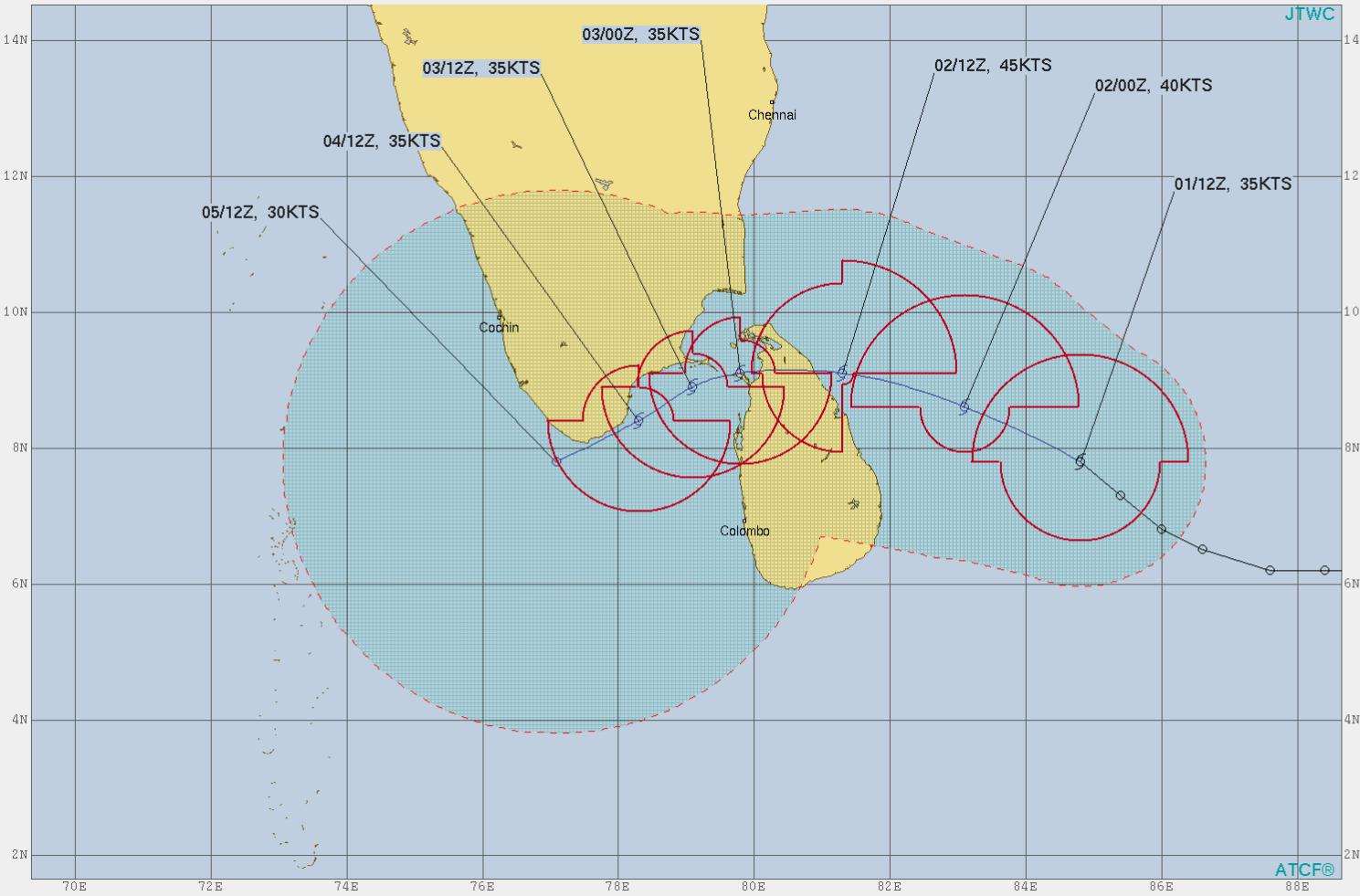
**LOW** TC development unlikely within 24 hours

**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 color denotes tropical transition probability





JTWC

ATCF®

TROPICAL CYCLONE 05B (FIVE) WARNING #1  
 WTIO31 PGTW 011500  
 011200Z POSIT: NEAR 7.8N 84.8E  
 MOVING 310 DEGREES TRUE AT 08 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 10 FEET  
 01/12Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 02/00Z, WINDS 040 KTS, GUSTS TO 050 KTS  
 02/12Z, WINDS 045 KTS, GUSTS TO 055 KTS  
 03/00Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 03/12Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 04/12Z, WINDS 035 KTS, GUSTS TO 045 KTS  
 05/12Z, WINDS 030 KTS, GUSTS TO 040 KTS

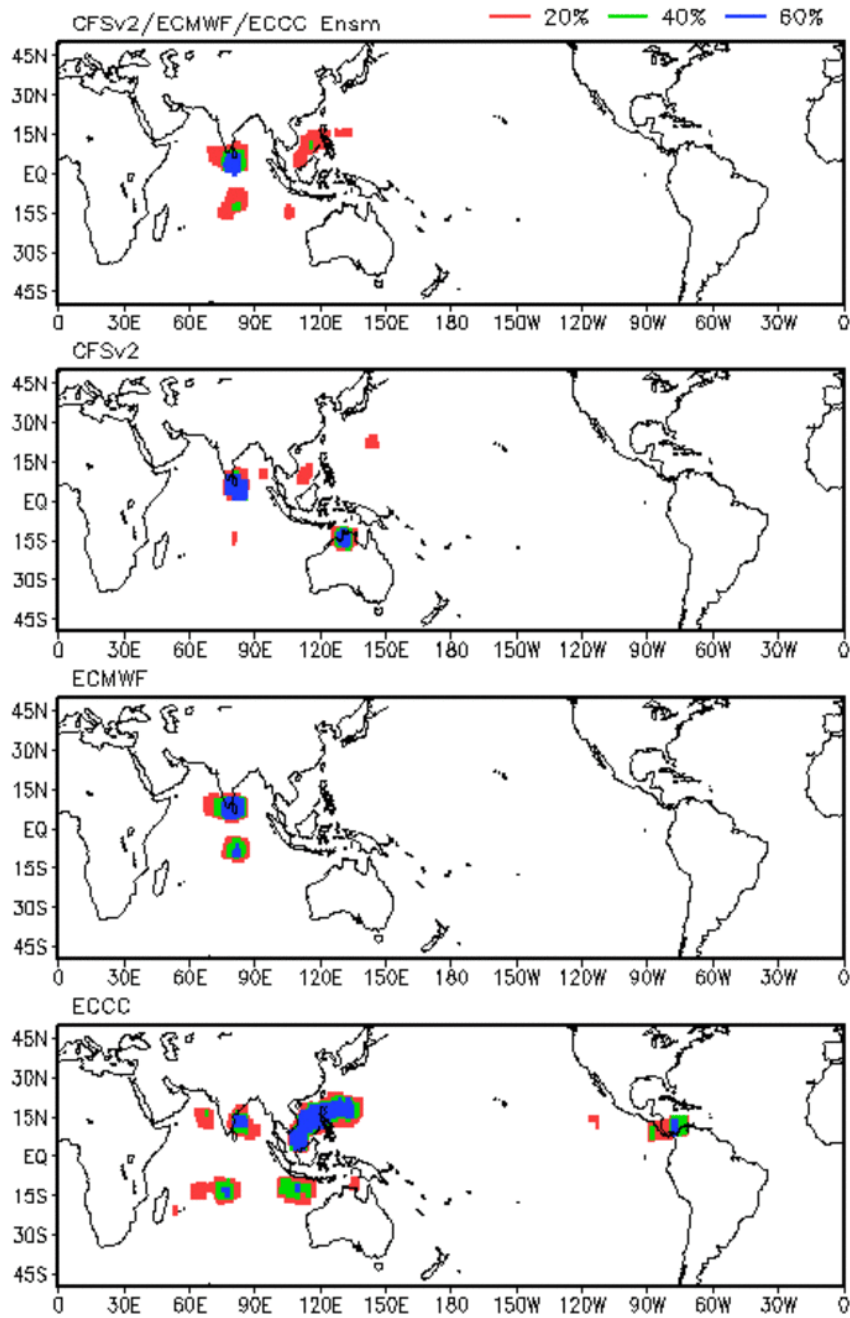
CPA TO:	NM	DTG
CHENNAI	238	02/18Z

	LESS THAN 34 KNOTS
	34-63 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)



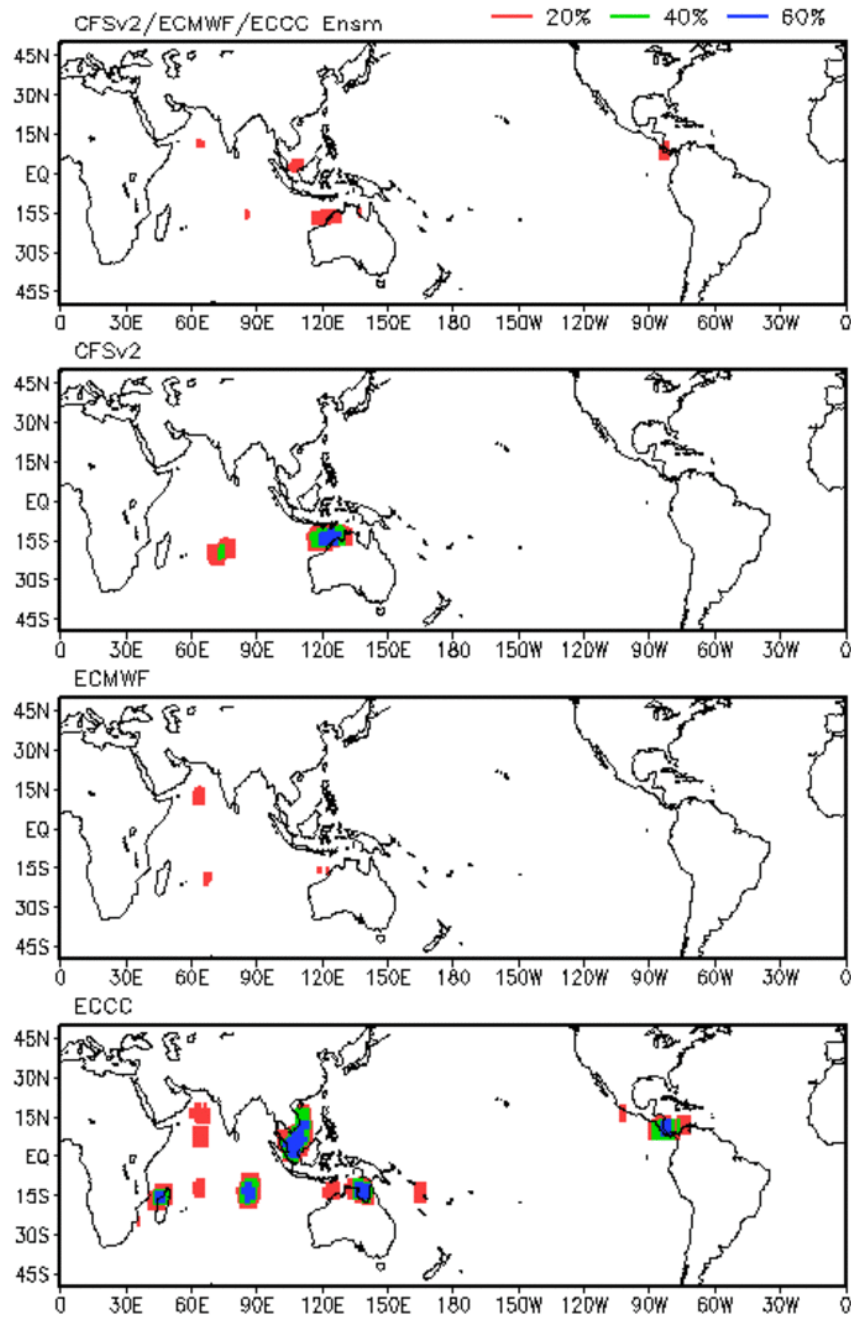
# Storm Track Probabilities, IC=20201130

Week 1: 1202 - 1208

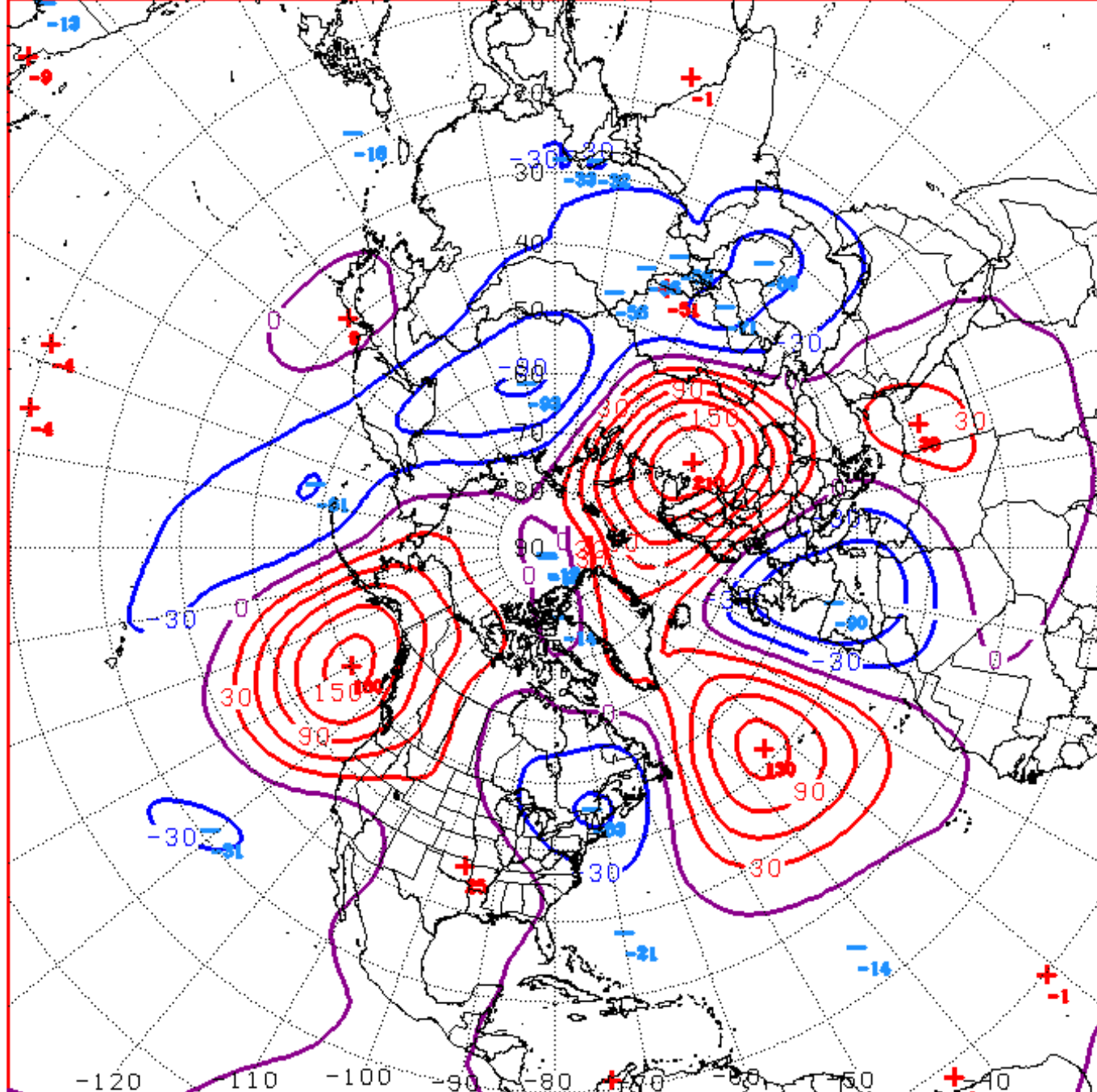


# Storm Track Probabilities, IC=20201130

Week 2: 1209 - 1215



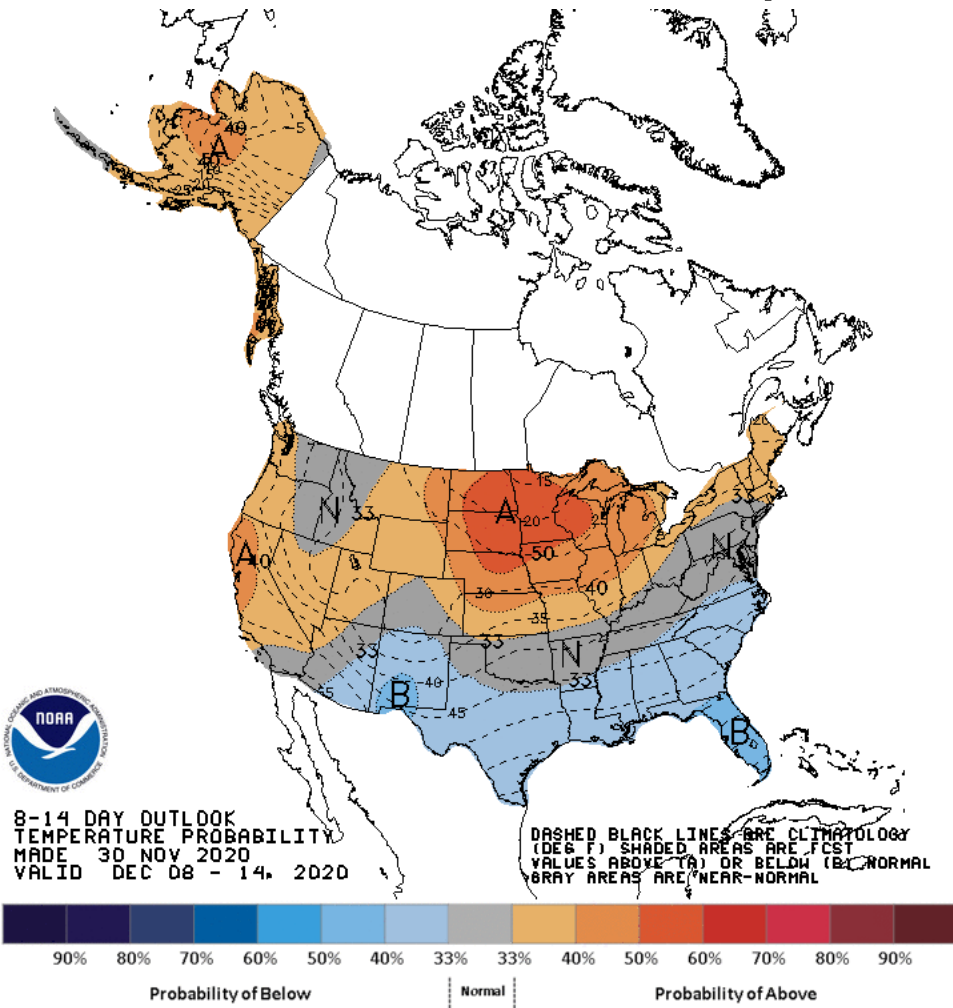
# Connections to U.S. Impacts



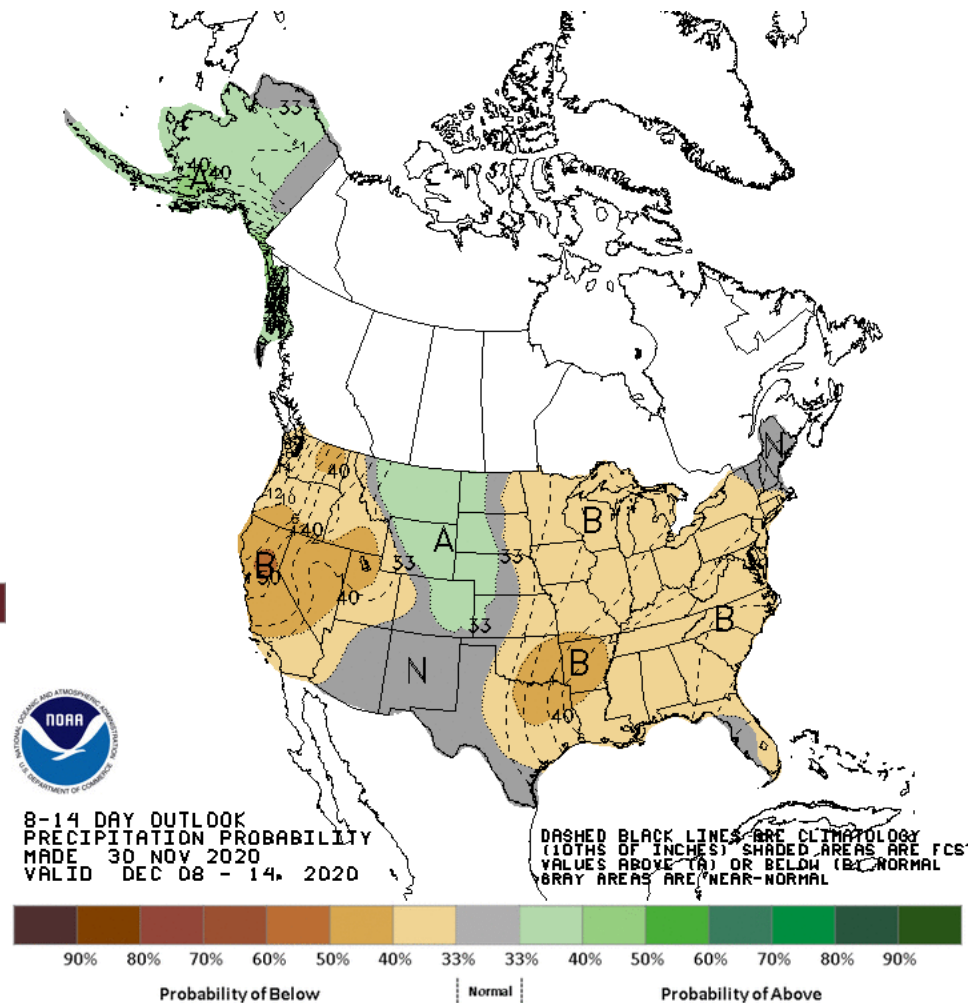
D+11 500 MB ANOMALIES FROM ALZ ENSM  
CPC MAP MADE DEC 01 2020 1516 UTC CNTD DEC 12 2020



# Week 2 – Temperature and Precipitation



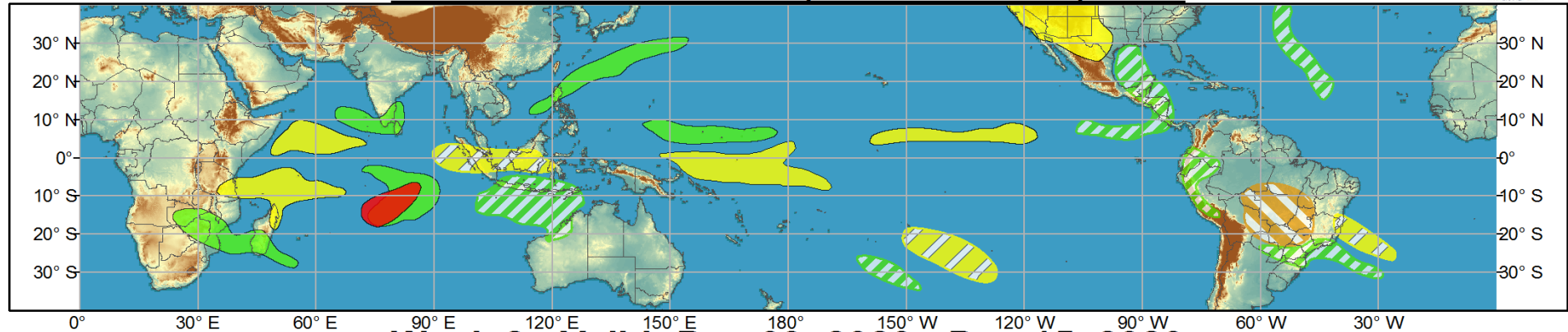
Likely to be less cool along the southern tier of the country in today's outlook.



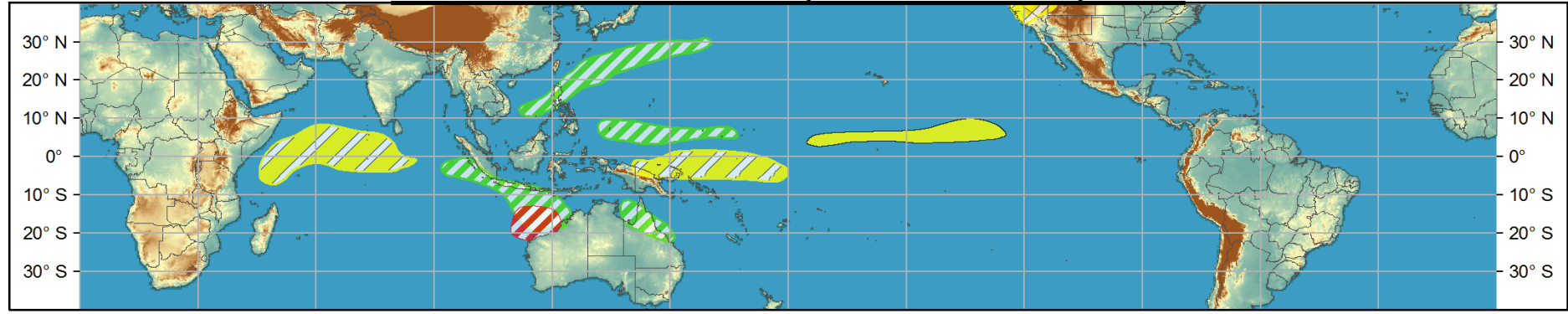


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