

# Global Tropics Hazards And Benefits Outlook

10/22/2019

Brad Pugh

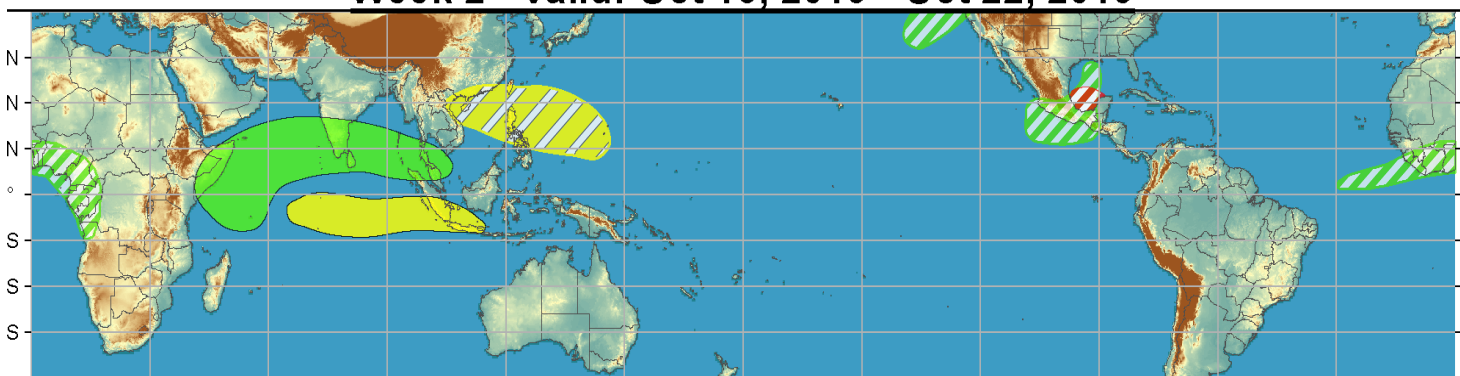
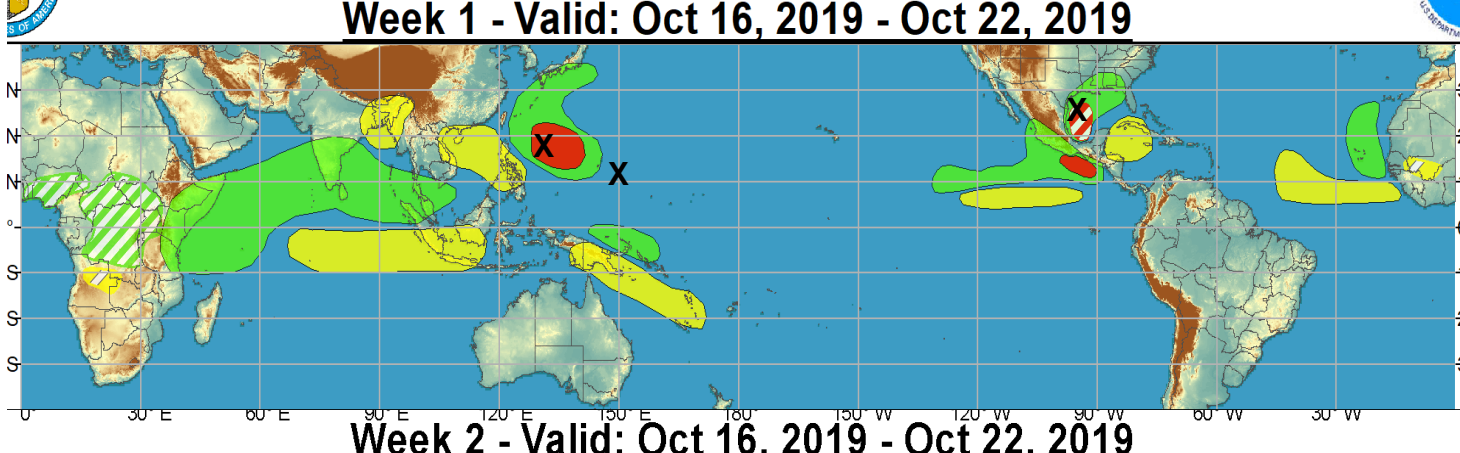
## Outline

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

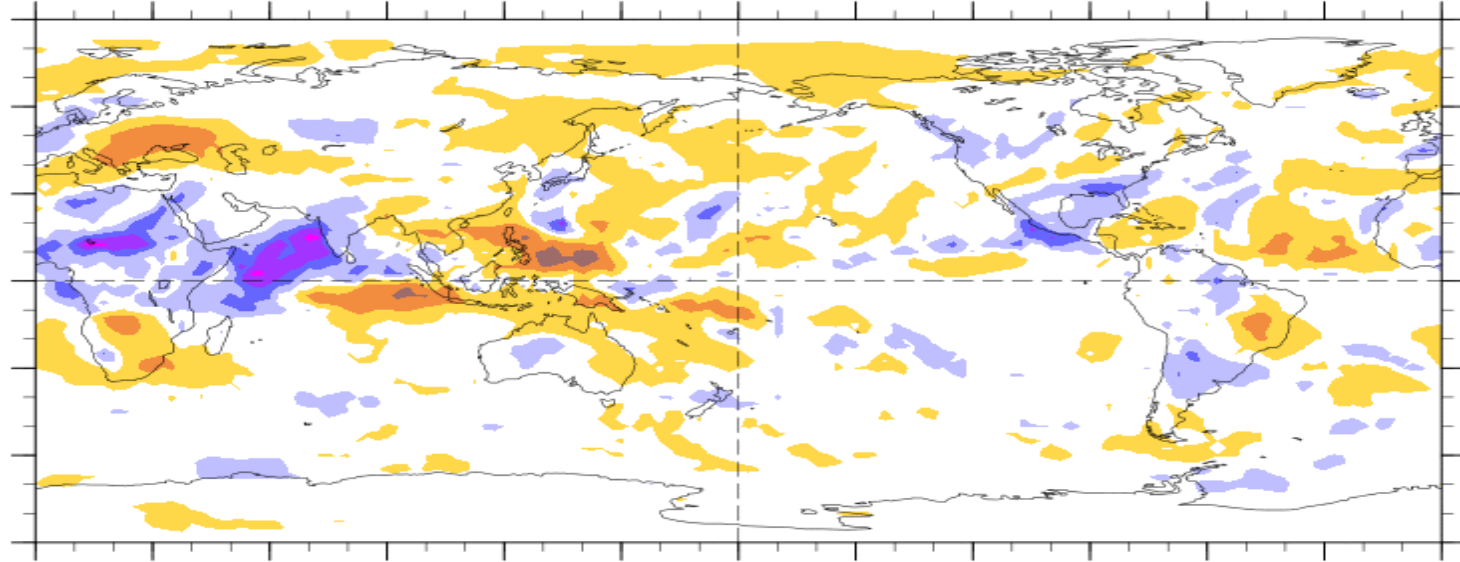
# Outlook Review

- Gulf of Mexico:  
Tropical Storm  
Nestor

- West Pacific:  
Typhoons  
Neoguri & Bualoi



7-Day Average OLR Anomaly 2019/10/14 - 2019/10/20



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

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

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored during the Northern Hemisphere fall 2019 (75→85% chance), continuing through spring 2020 (55-60% chance).

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

- The MJO became more coherent during mid-October with its enhanced phase shifting from Africa to the Indian Ocean.
- The MJO coupled with the positive phase of the Indian Ocean Dipole is resulting in enhanced convection across the Indian Ocean.

## **Extratropics:**

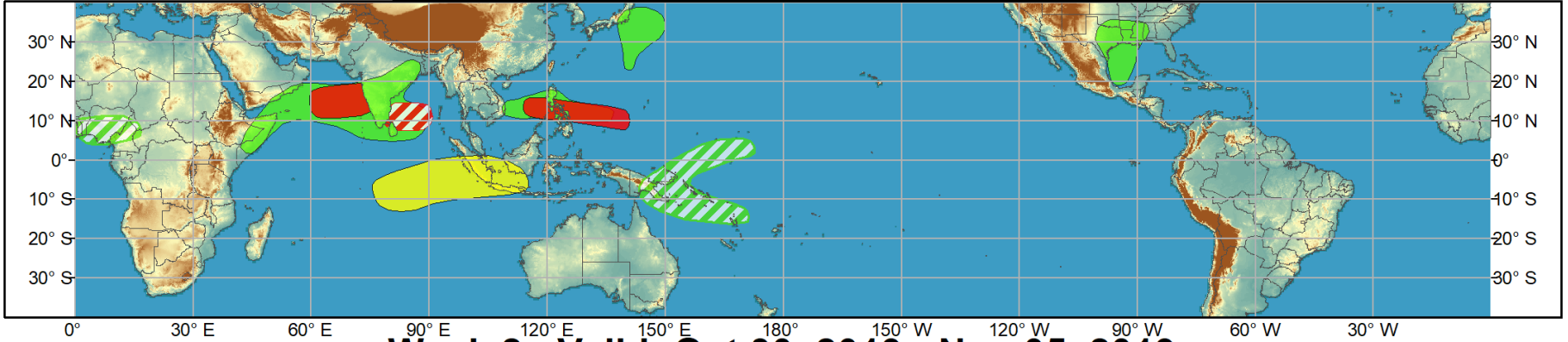
- Tropical teleconnections to North America appear unlikely during the next two weeks.



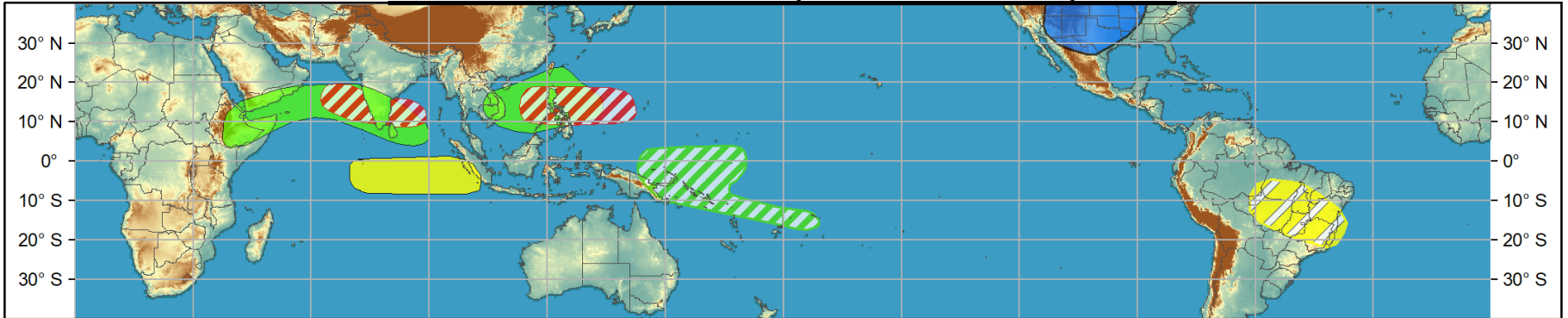
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Oct 23, 2019 - Oct 29, 2019



## Week 2 - Valid: Oct 30, 2019 - Nov 05, 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: 10/22/2019

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

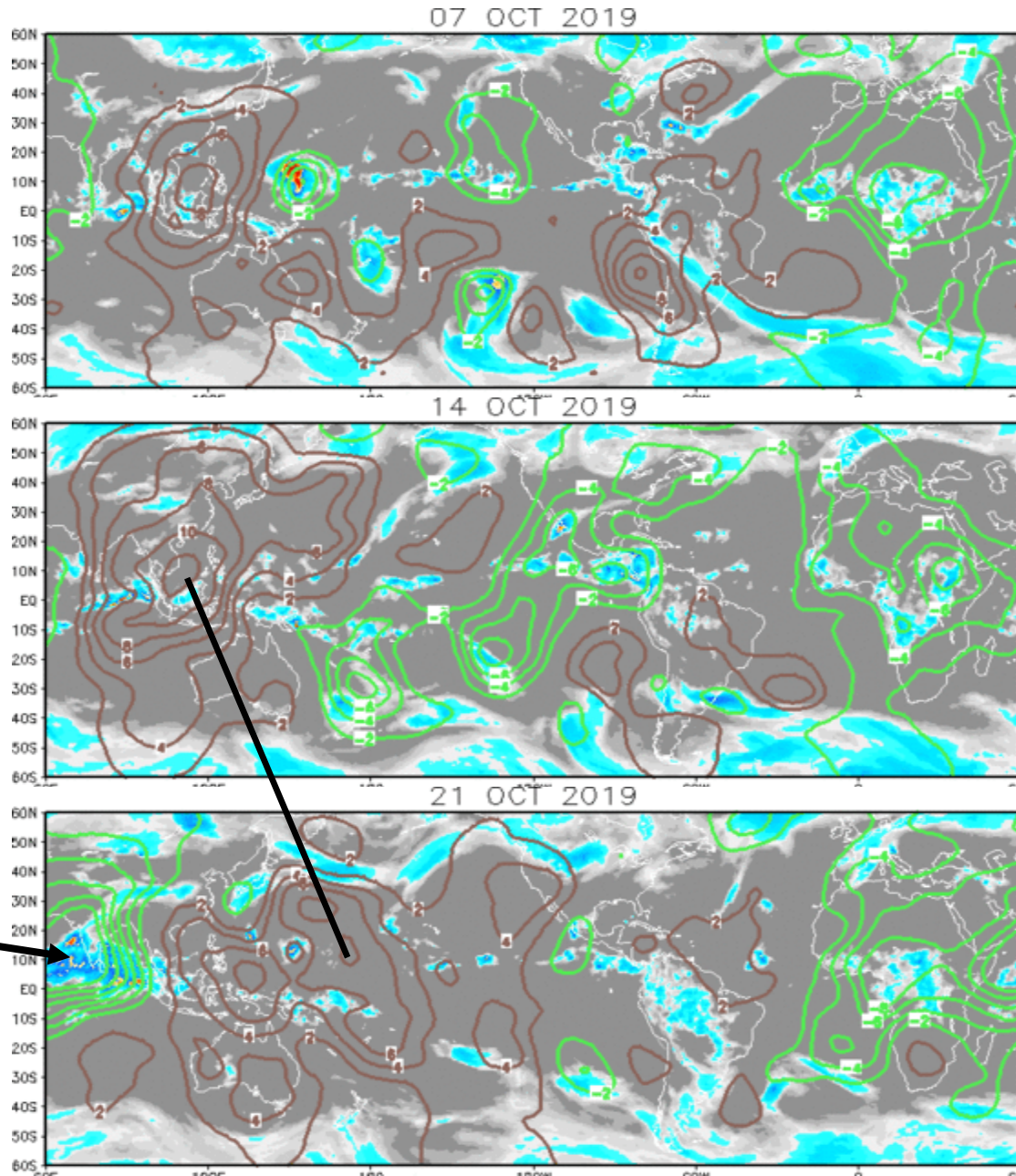
Green: Enhanced Divergence

Brown: Enhanced Convergence

Regional anomalies across the global tropics

During the past week, suppressed convective phase shifted east.

Large increase in convection over the Indian Ocean

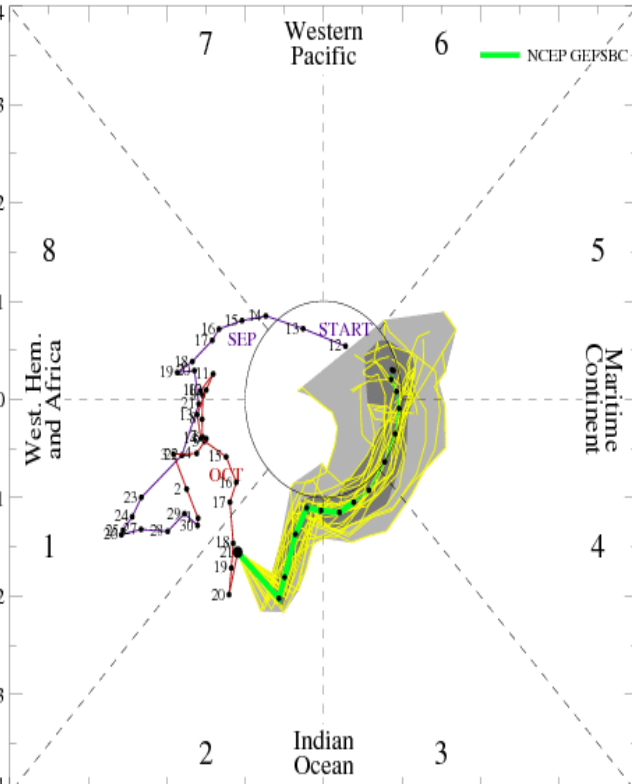


# MJO Observation/Forecast

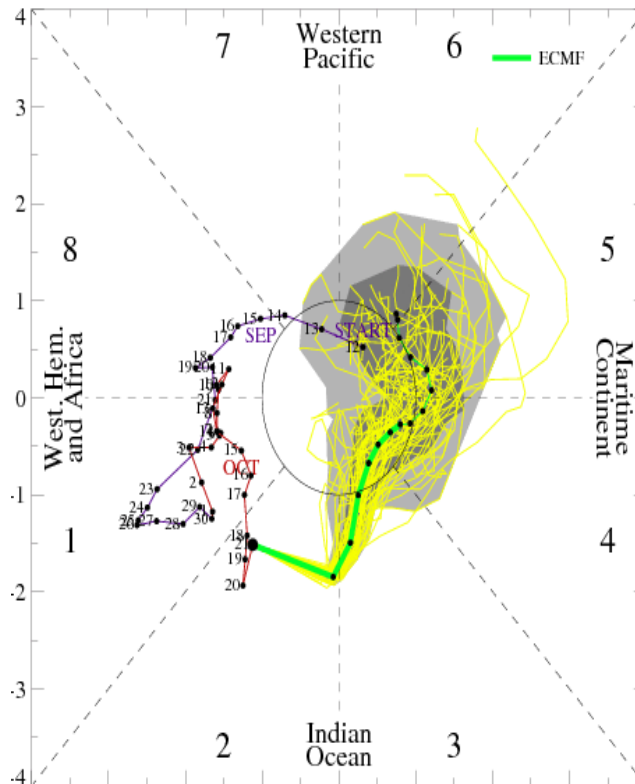
[RMM1, RMM2] forecast for Oct-22-2019 to Nov-05-2019

MJO Index Forecast for 22Oct2019-05Nov2019

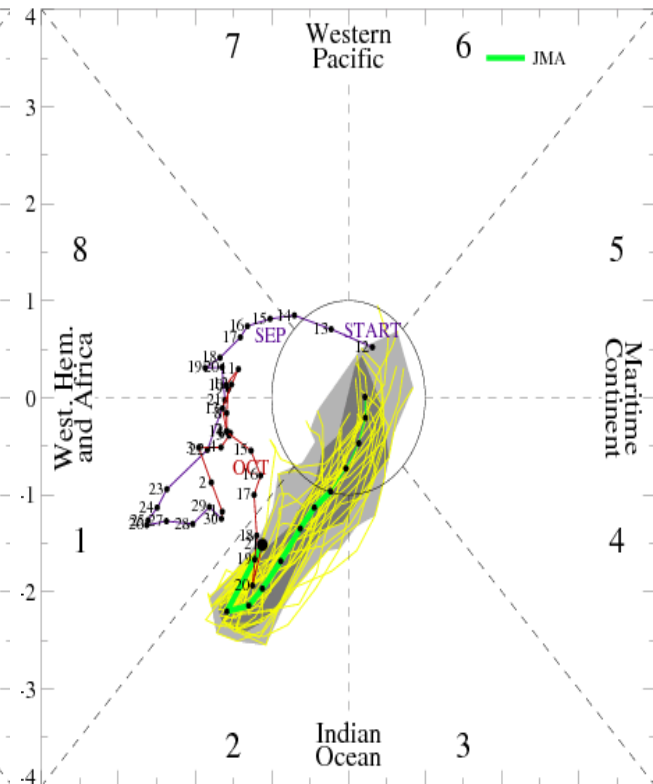
MJO Index Forecast for 22Oct2019-30Oct2019



GEFS



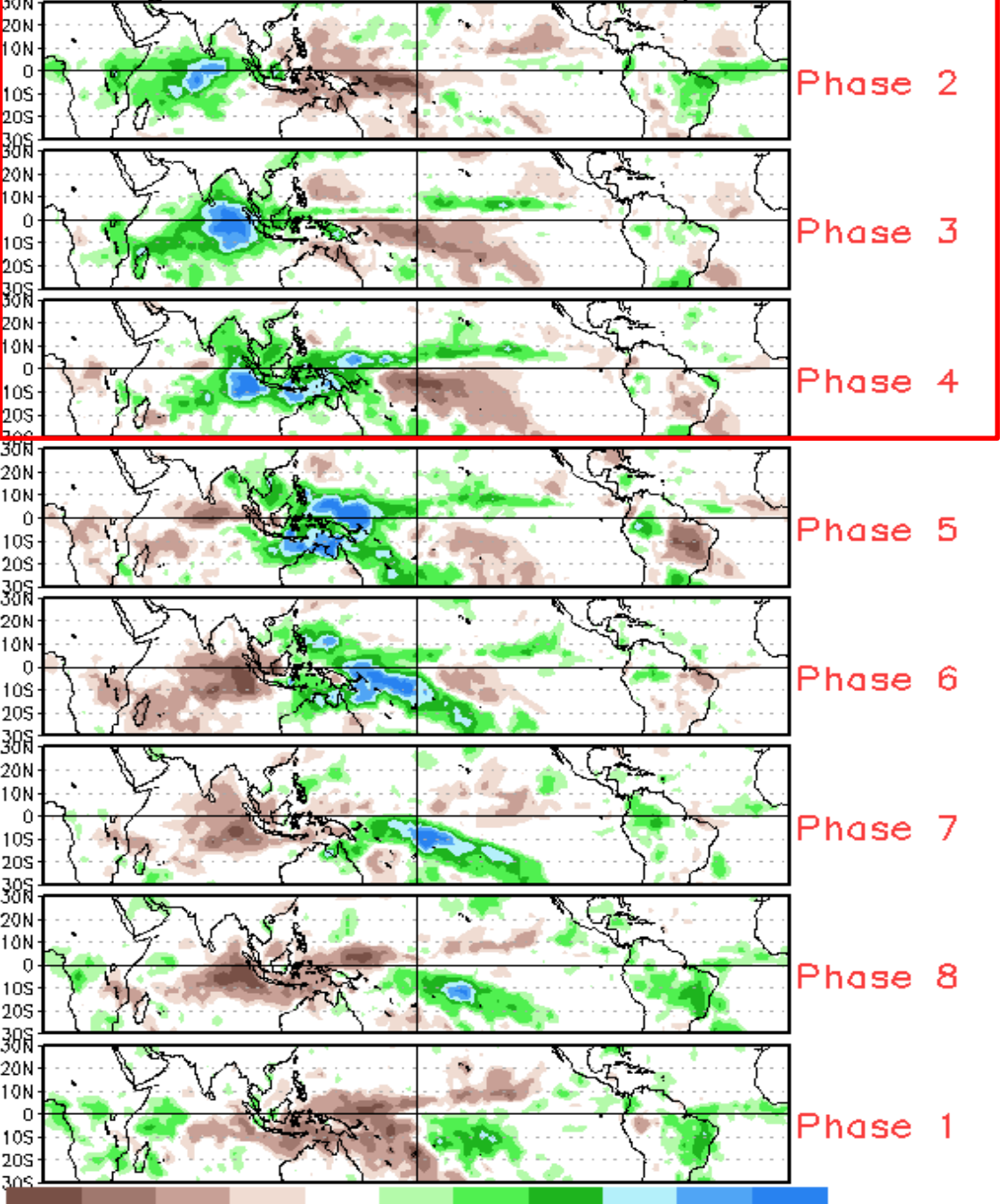
ECMWF



JMA

- Dynamical models indicate eastward propagation but a weaker amplitude
- Note the large spread among ECMWF ensemble members during Week-2

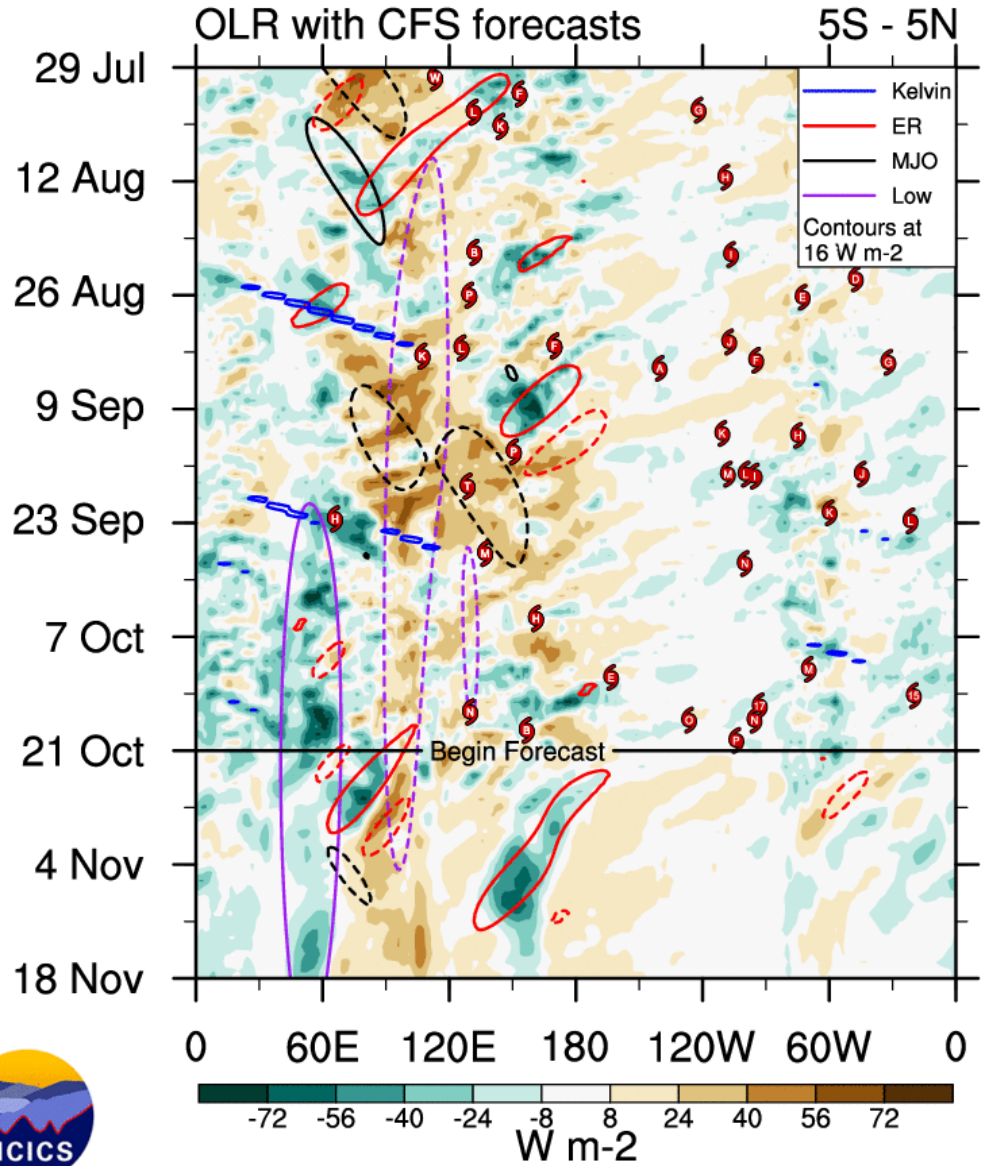
# Average Conditions when the MJO is present



BUT, positive phase of IOD likely to offset enhanced rainfall over Maritime Continent

CAVEAT: These panels are representative of robust MJO events.

**Low frequency** (+IOD)  
continues to dominate the  
Eastern Hemisphere.



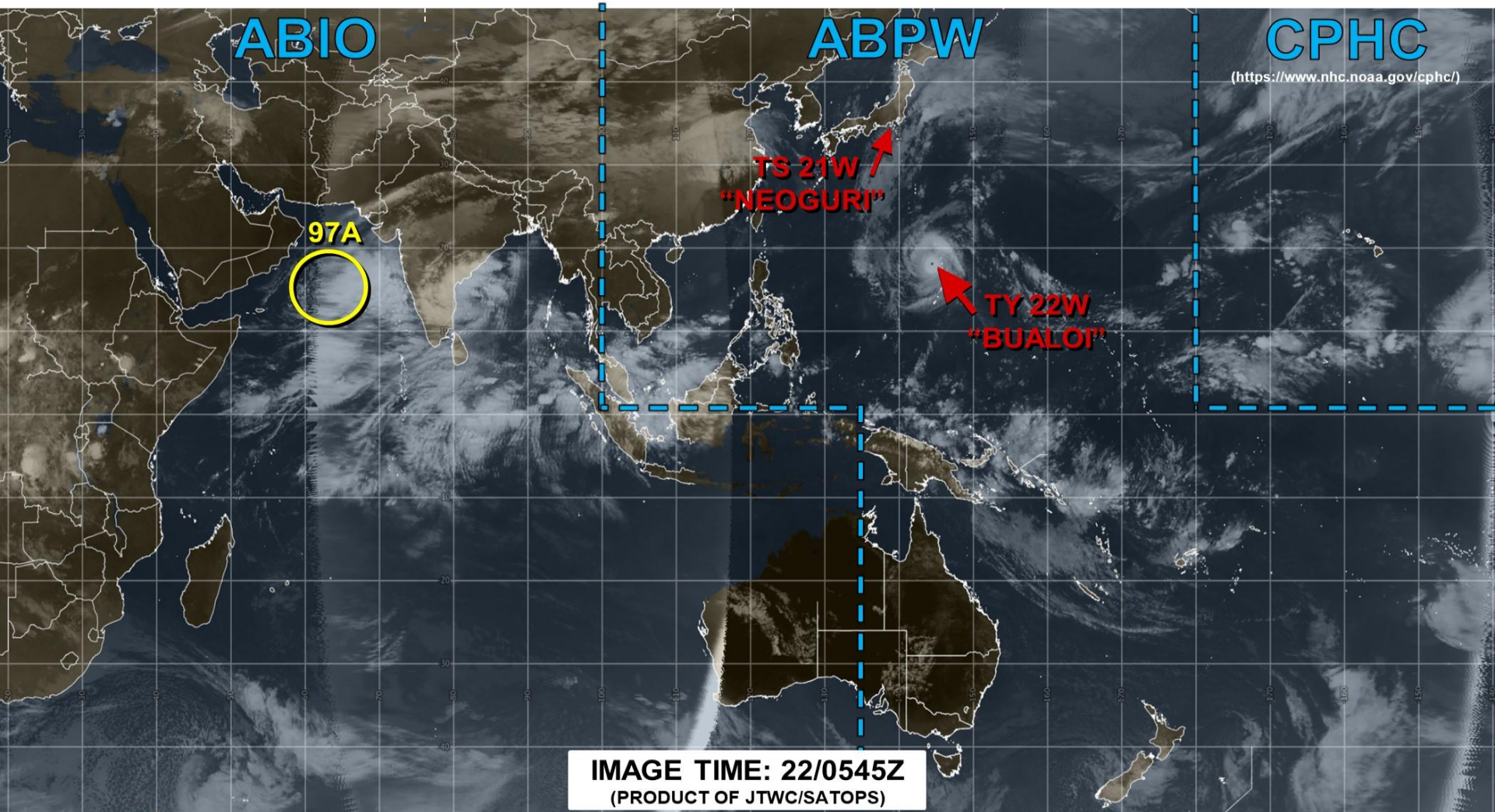
Tue 2019-10-22 1511 UTC

Carl Schreck  
carl\_schreck@ncsu.edu





# JOINT TYPHOON WARNING CENTER



**LOW**

TC formation unlikely within 24 hours

**MEDIUM**

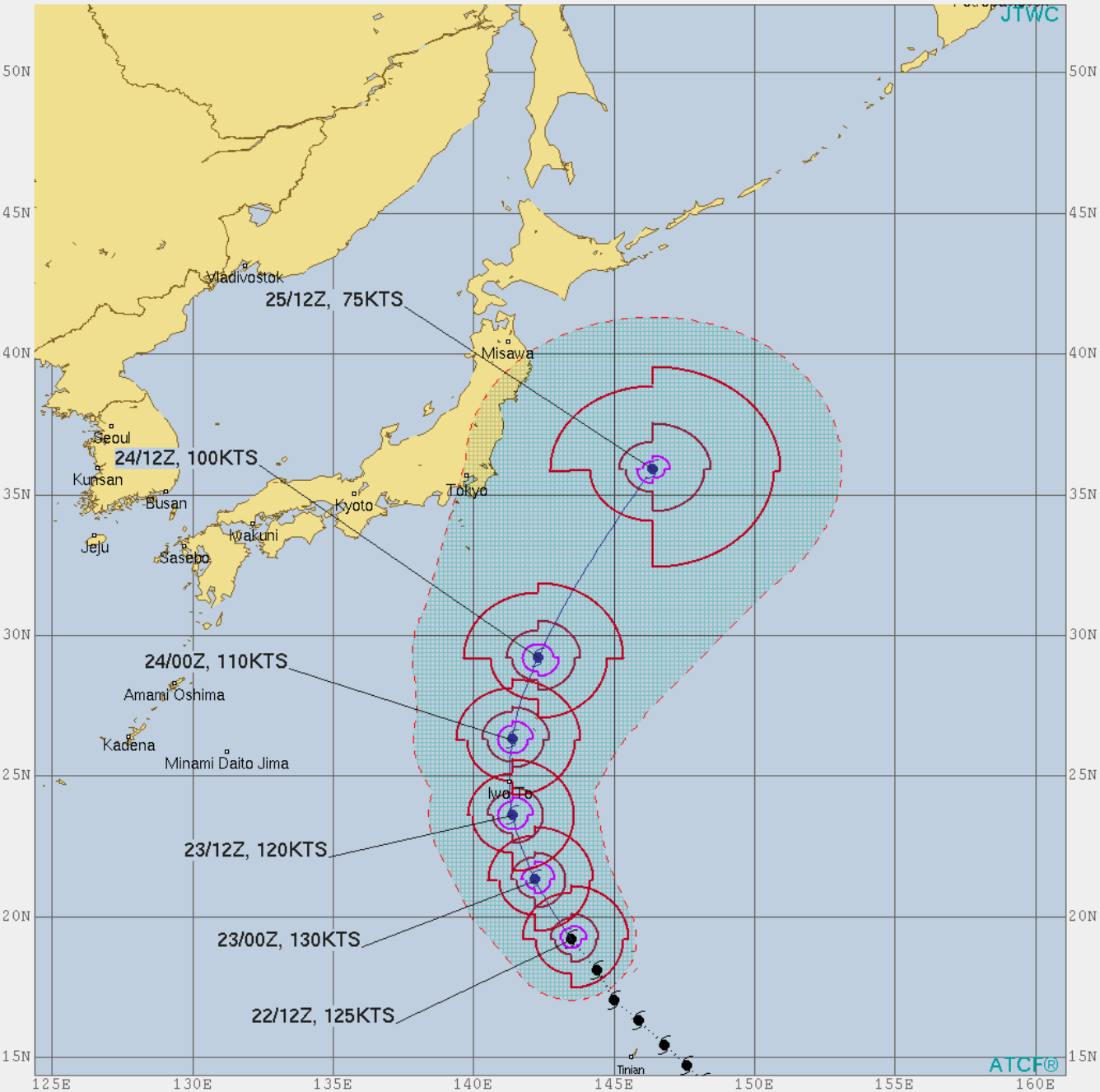
TC development likely, but expected to occur beyond 24 hours

**HIGH**

TC development likely within 24 hours (Reference TCFA)



Tropical Cyclone (Reference Warning)



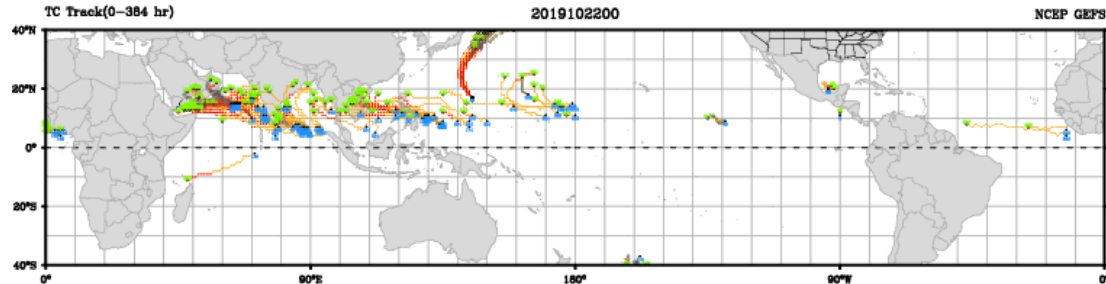
**TYPHOON 22W (BUALOI) WARNING #15**  
 WTPN32 PGTW 221500  
 221200Z POSIT: NEAR 19.2N 143.5E  
 MOVING 320 DEGREES TRUE AT 14 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 44 FEET  
 22/12Z, WINDS 125 KTS, GUSTS TO 150 KTS  
 23/00Z, WINDS 130 KTS, GUSTS TO 160 KTS  
 23/12Z, WINDS 120 KTS, GUSTS TO 145 KTS  
 24/00Z, WINDS 110 KTS, GUSTS TO 135 KTS  
 24/12Z, WINDS 100 KTS, GUSTS TO 125 KTS  
 25/12Z, WINDS 075 KTS, GUSTS TO 090 KTS

CPA TO:	NM	DTG
IWO_TO	7	23/18Z
CHICHI_JIMA	34	24/04Z
CAMP_FUJI	306	25/02Z
ATSUGI	289	25/03Z
CAMP_ZAMA	289	25/03Z
YOKOSUKA	270	25/03Z
YOKOTA_AB	294	25/04Z
NARITA_AIRPORT	250	25/05Z
MISAWA	372	25/12Z

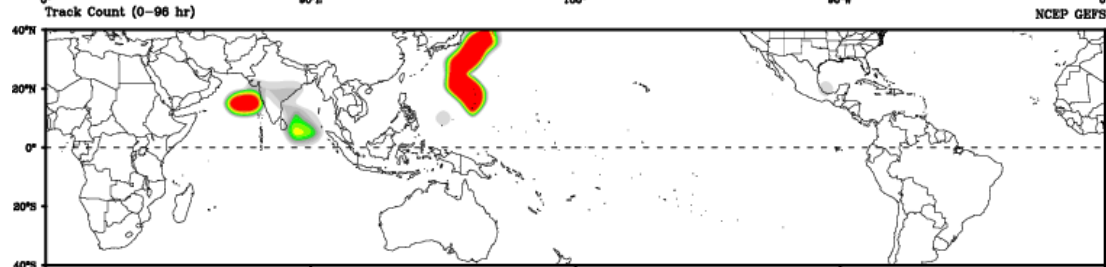
BEARING AND DISTANCE	DIR	DIST (NM)	TAU (HRS)
HAGATNA	348	362	0
AGRIHAN	281	127	0
ALAMAGAN	307	162	0
ANATAHAN	324	210	0
ANDERSEN_AFB	347	346	0
IWO_TO	160	358	0
NAVSTA_GUAM	350	354	0
PAGAN	297	146	0
ROTA	343	321	0
SAIPAN	332	274	0
TINIAN	335	279	0
WFO_GUAM	348	350	0

- 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 (WINDS VALID OVER OPEN OCEAN ONLY)

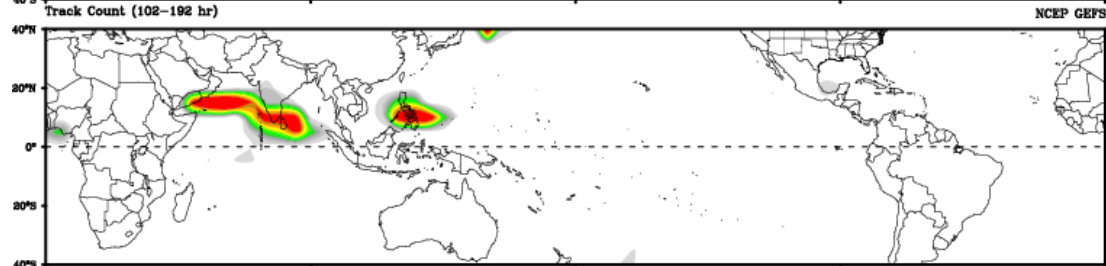
CWB TC Tracker for NCEP GEFS (Fuzzy\_AllCriteria)



Days 1-4

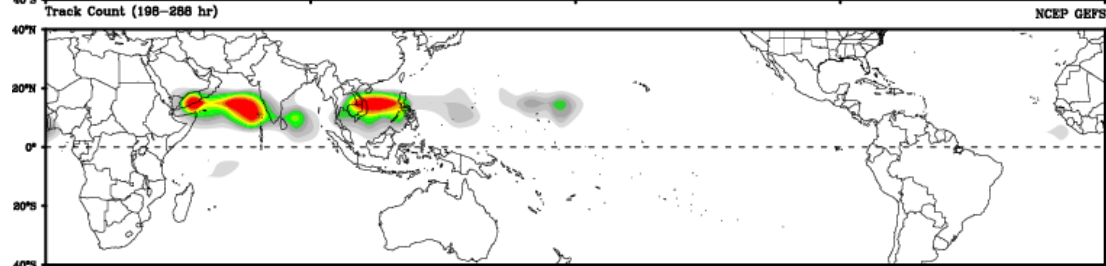


Day 5-8

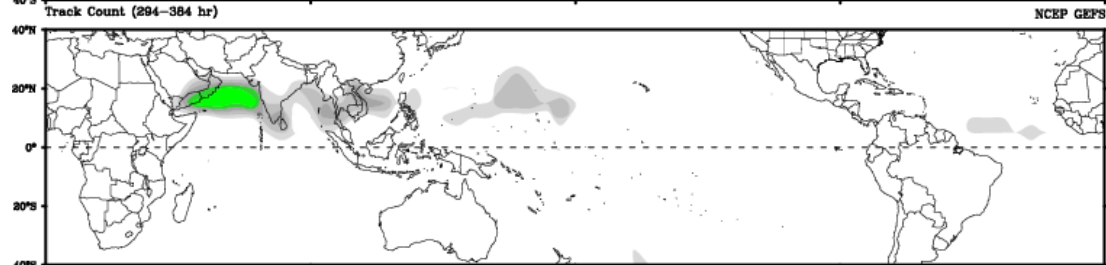


Hot spots:  
Around the Philippines  
& Arabian Sea

Day 9-12

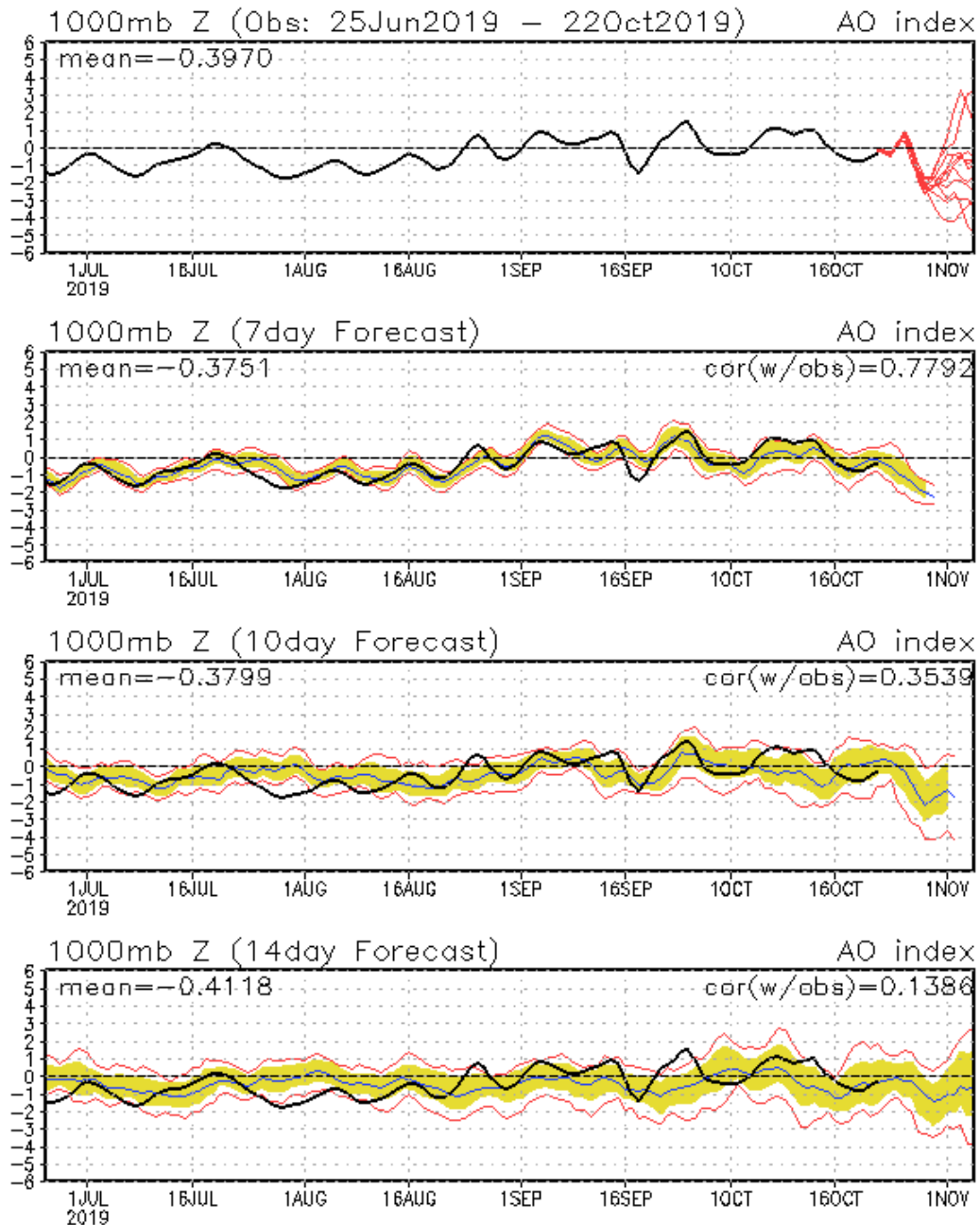


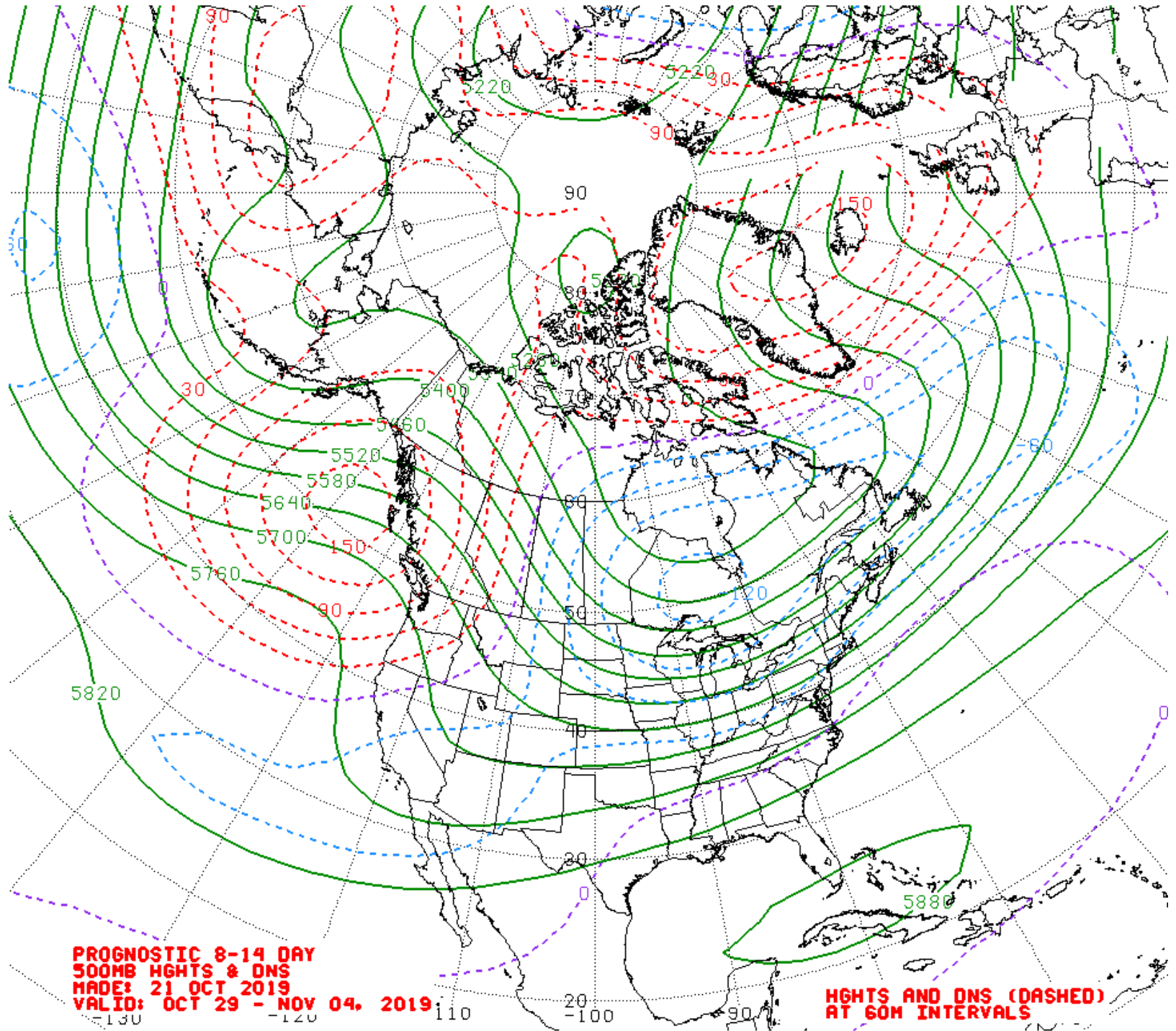
Day 13-15



# Connections to U.S. Impacts

## AO: Observed & ENSM forecasts

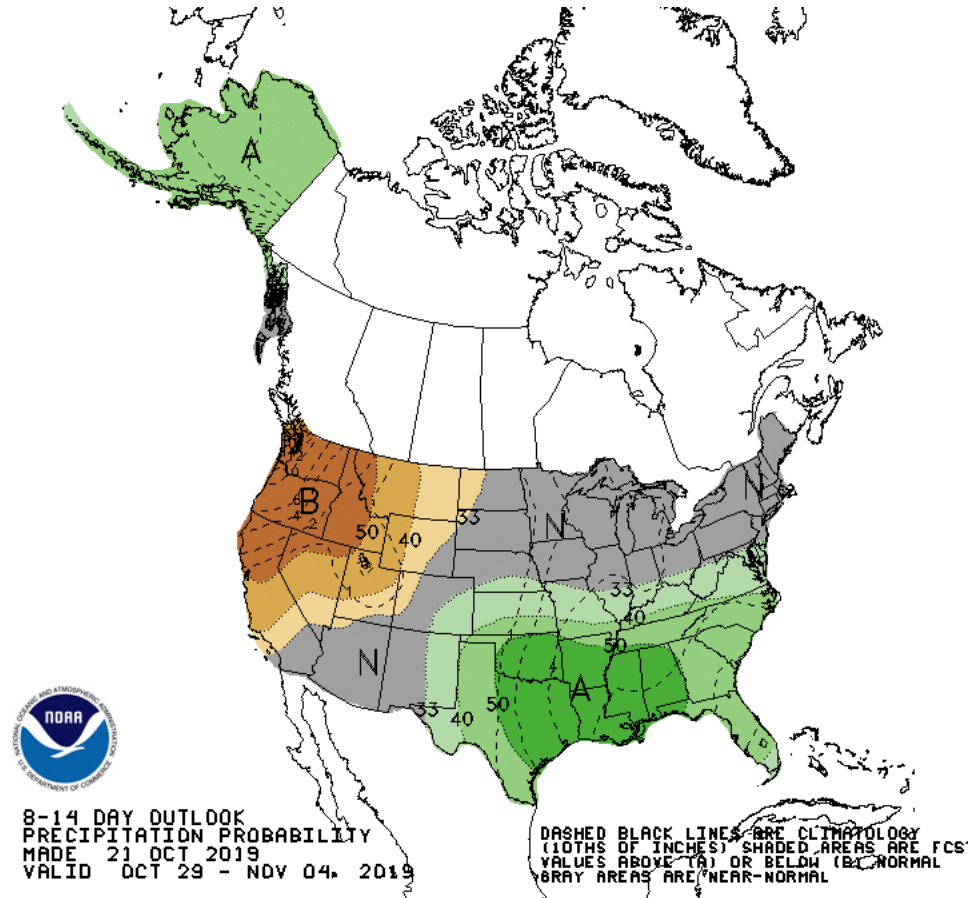
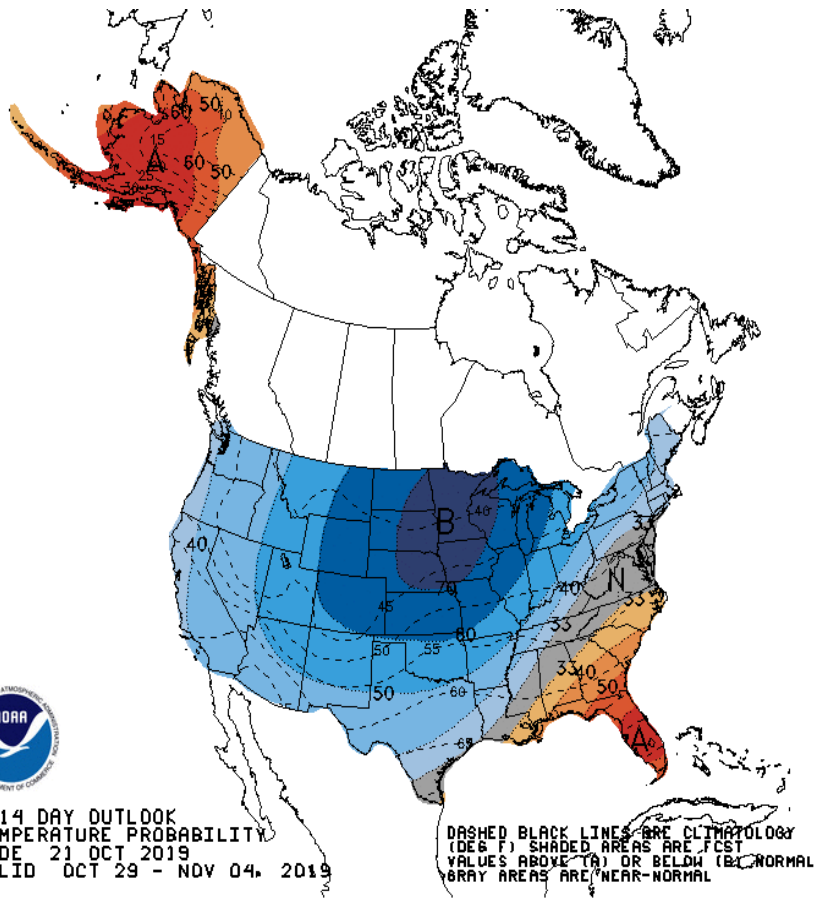




**PROGNOSTIC 8-14 DAY  
500MB HGTs & DNS  
MADE: 21 OCT 2019  
VALID: OCT 29 - NOV 04, 2019**

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

# Week 2 – Temperature and Precipitation

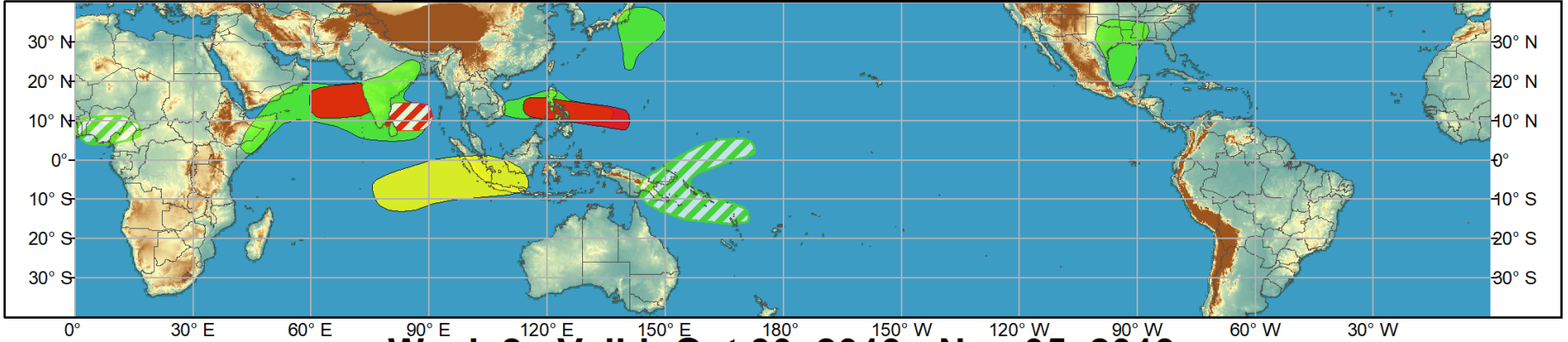




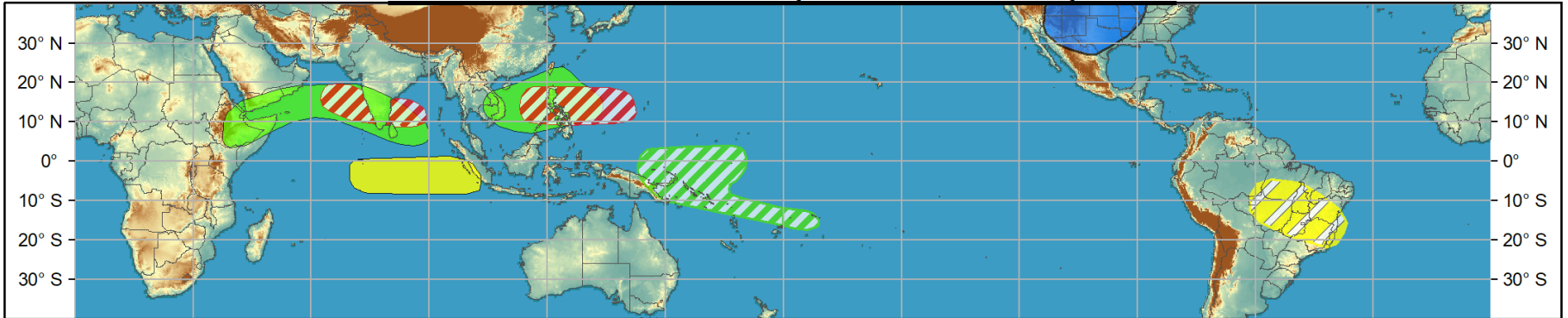
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