

# Global Tropics Hazards And Benefits Outlook

October 18, 2016

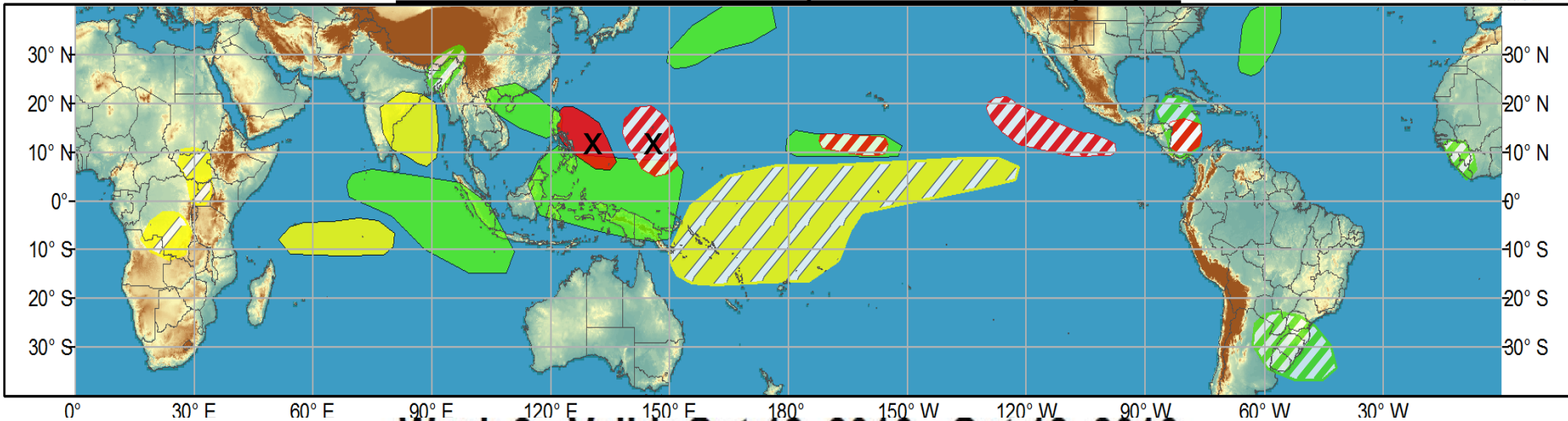
Brad Pugh

## Outline

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

# Tropical Cyclone Verification

**Week 1 - Valid: Oct 12, 2016 - Oct 18, 2016**

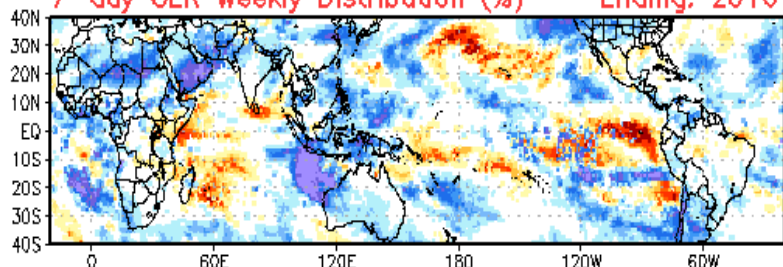


**Week 2 - Valid: Oct 12, 2016 - Oct 18, 2016**

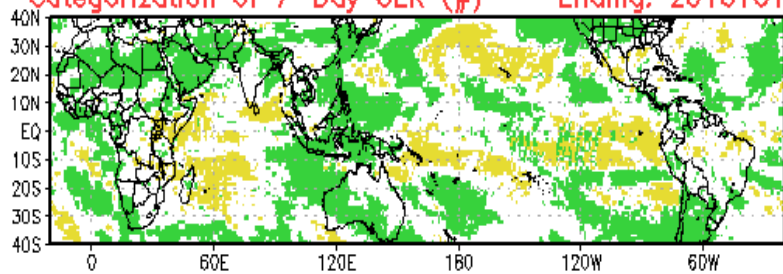


**West Pacific: Typhoons Sarika and Haima**

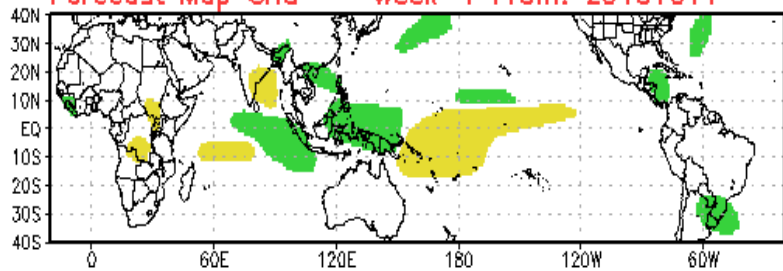
7-day OLR Weekly Distribution (%) -- Ending: 20161018



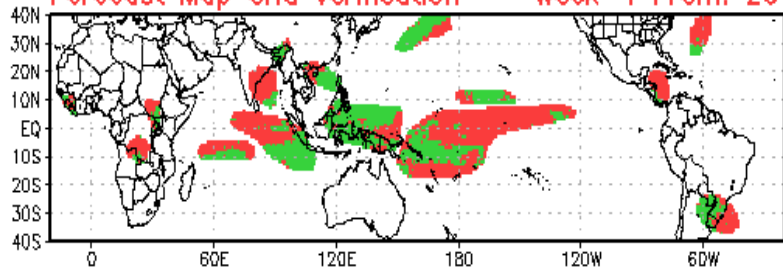
Categorization of 7-Day OLR (#) -- Ending: 20161018



Forecast Map Grid -- Week-1 From: 20161011

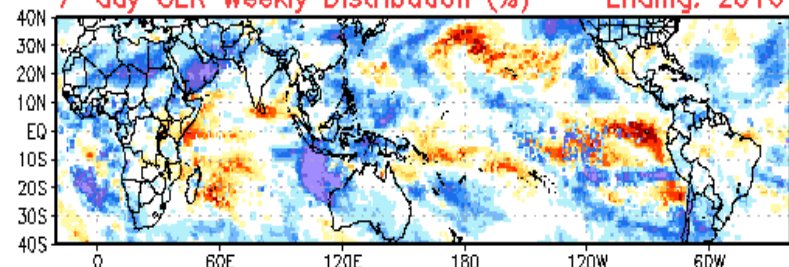


Forecast Map Grid Verification -- Week-1 From: 20161011

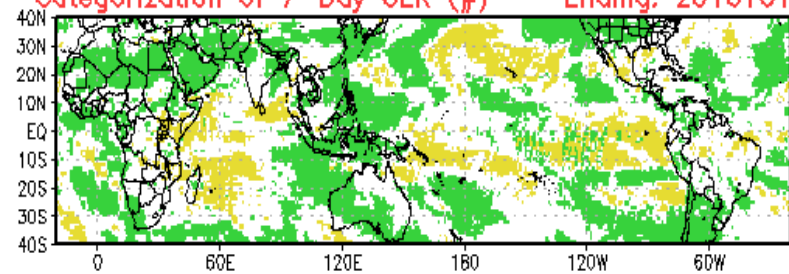


Hit: Green, Miss: Red  
Heidke Skill Score: 14.9817

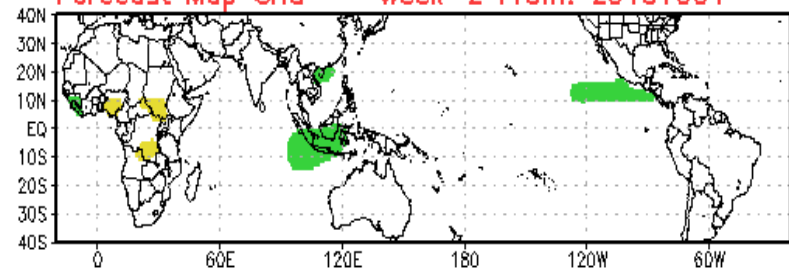
7-day OLR Weekly Distribution (%) -- Ending: 20161018



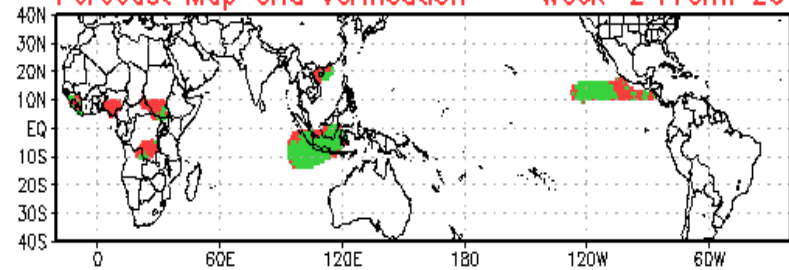
Categorization of 7-Day OLR (#) -- Ending: 20161018



Forecast Map Grid -- Week-2 From: 20161004



Forecast Map Grid Verification -- Week-2 From: 20161004



Hit: Green, Miss: Red  
Heidke Skill Score: 36.2494

# Synopsis of Climate Modes

## ENSO:

- La Niña is favored to develop (~70% chance) during the Northern Hemisphere fall, and slightly favored to persist (~55% chance) this winter 2016-17.

## MJO and other subseasonal tropical variability:

- MJO remained weak during the past week due to destructive interference from the evolving background state.
- Dynamical models offer varying outcomes with the MJO and its effect across the global tropics.

## Extratropics:

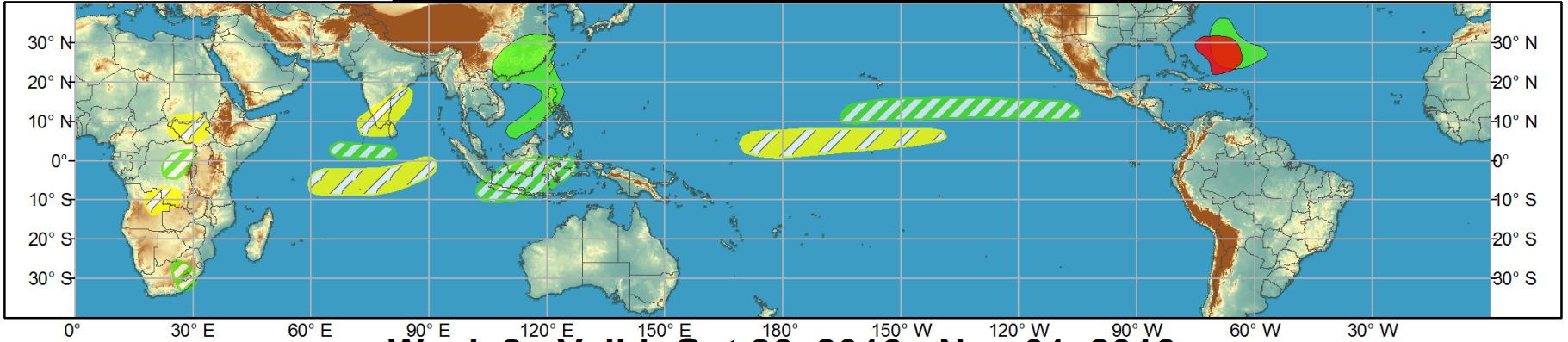
- The extended range temperature and precipitation forecasts for the U.S. are not likely to be impacted by the MJO.



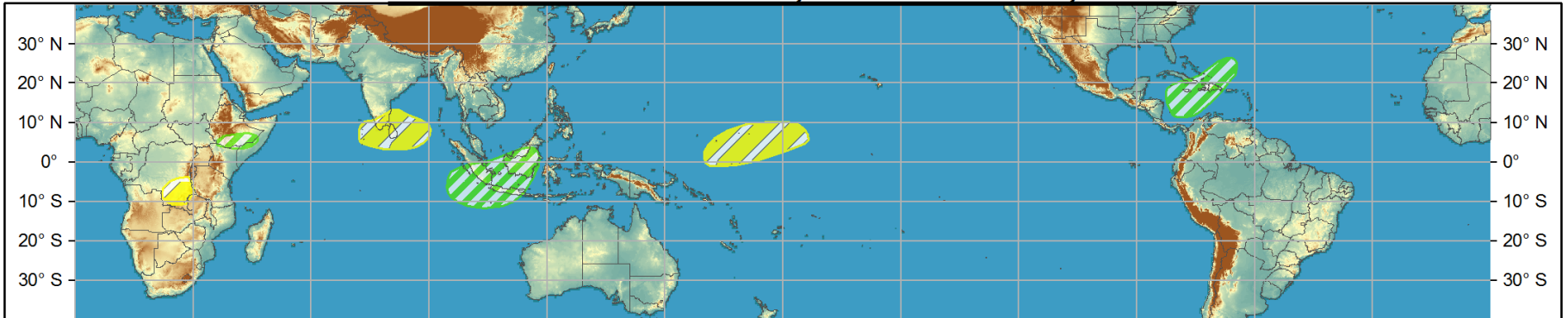
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Oct 19, 2016 - Oct 25, 2016



## Week 2 - Valid: Oct 26, 2016 - Nov 01, 2016



**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.
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**Produced: 10/18/2016**  
**Forecaster: Pugh**

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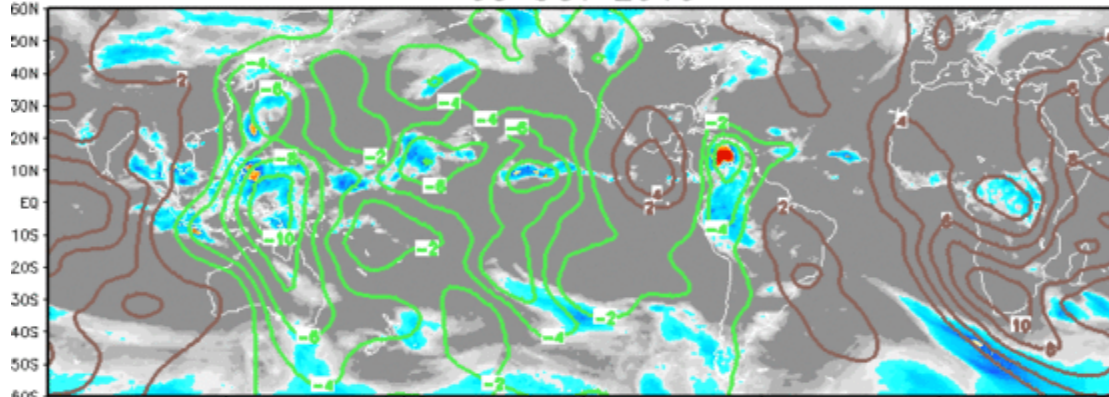
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

Brown: Enhanced Convergence

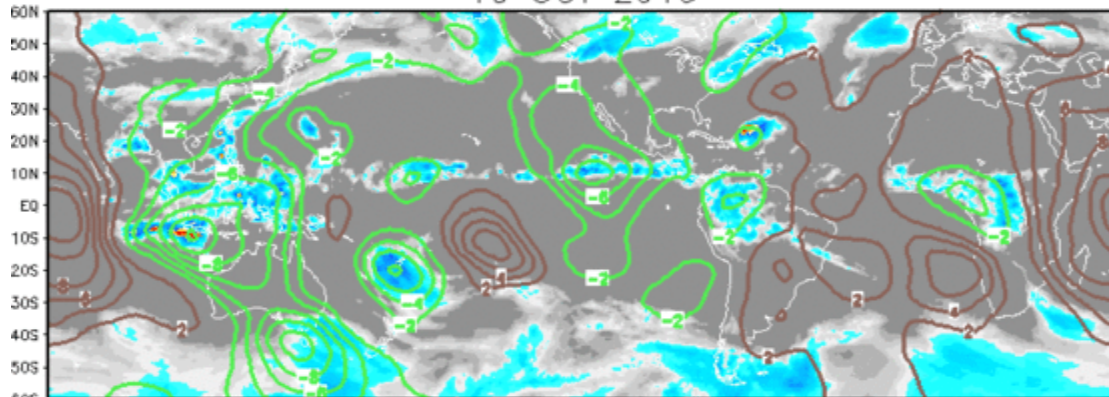
03 OCT 2016

Wave-1 pattern



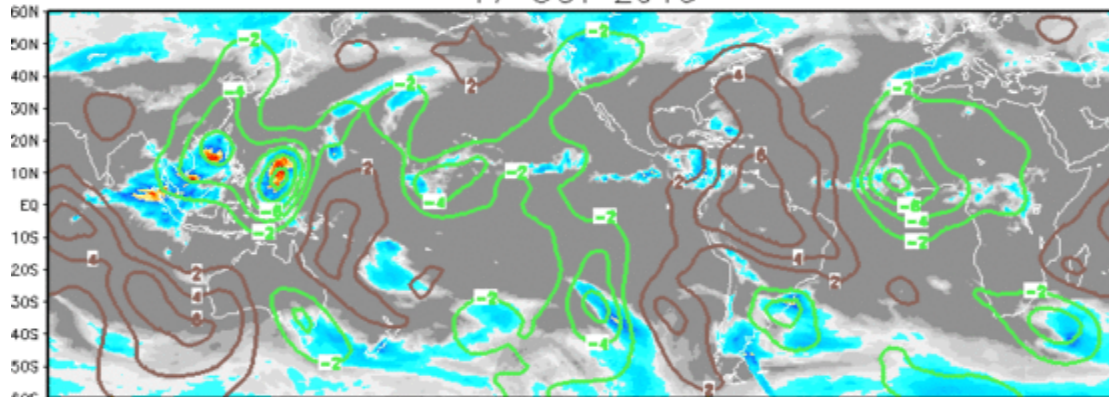
10 OCT 2016

Pattern became less coherent with interference from background state

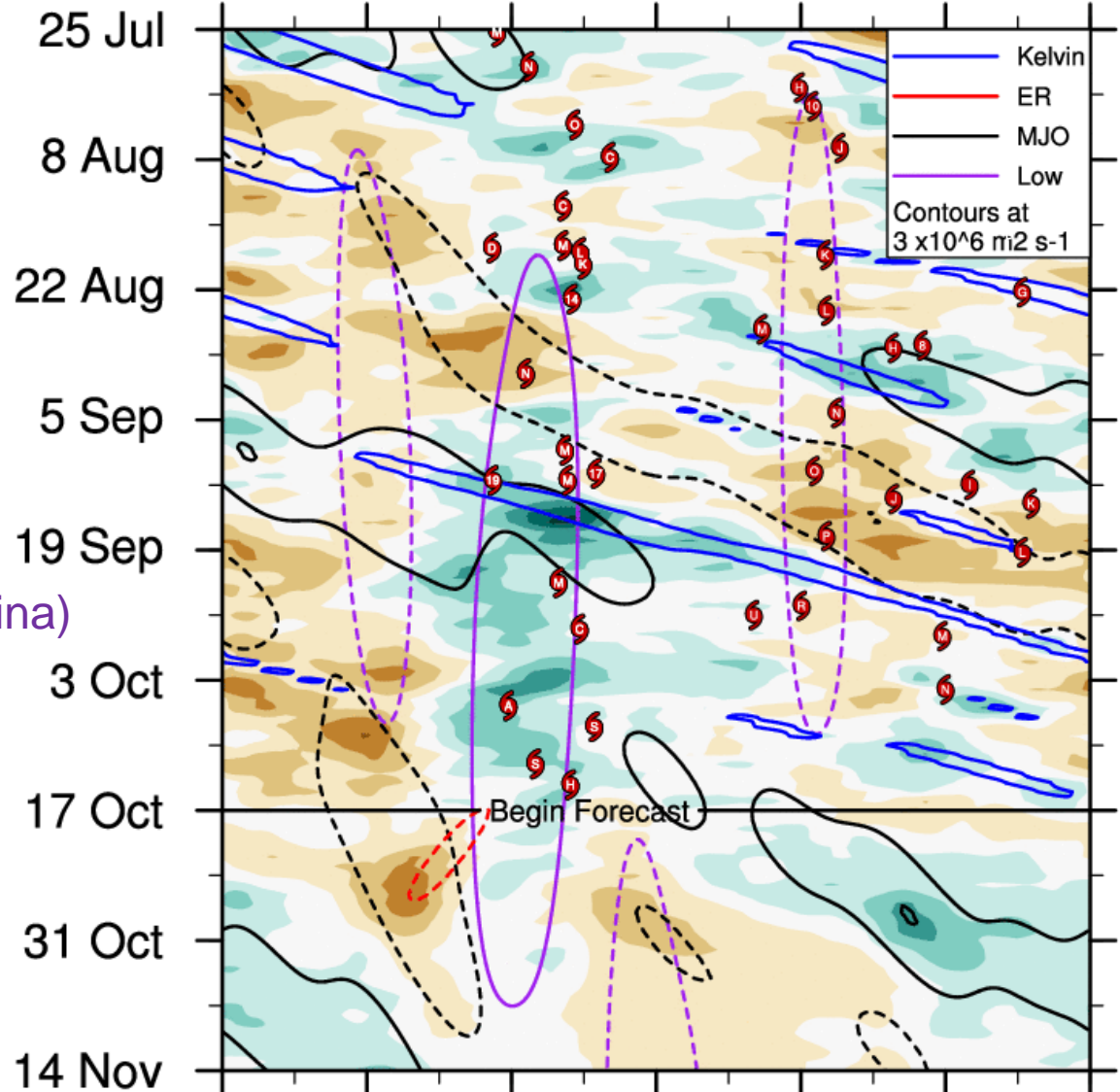


17 OCT 2016

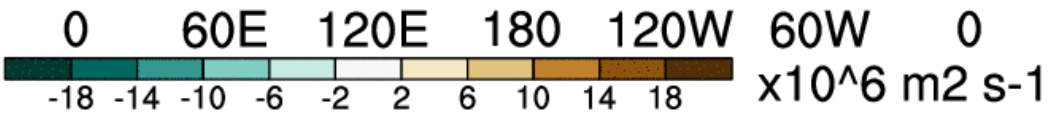
Incoherent pattern due to multiple factors including tropical cyclones in the west Pacific



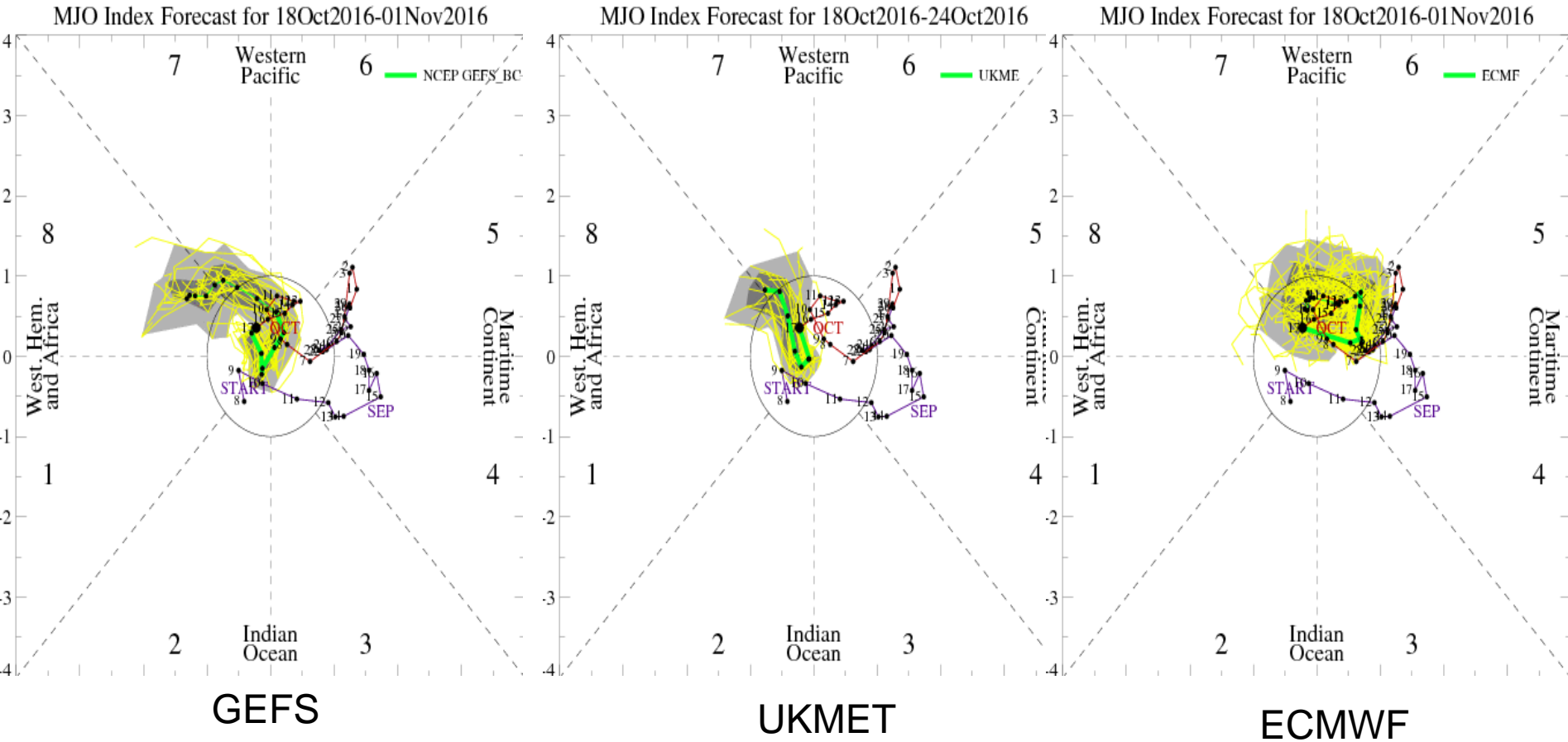
CHI200 with CFS forecasts 5S - 5N



Low-frequency (developing La Niña) continues to play a major role

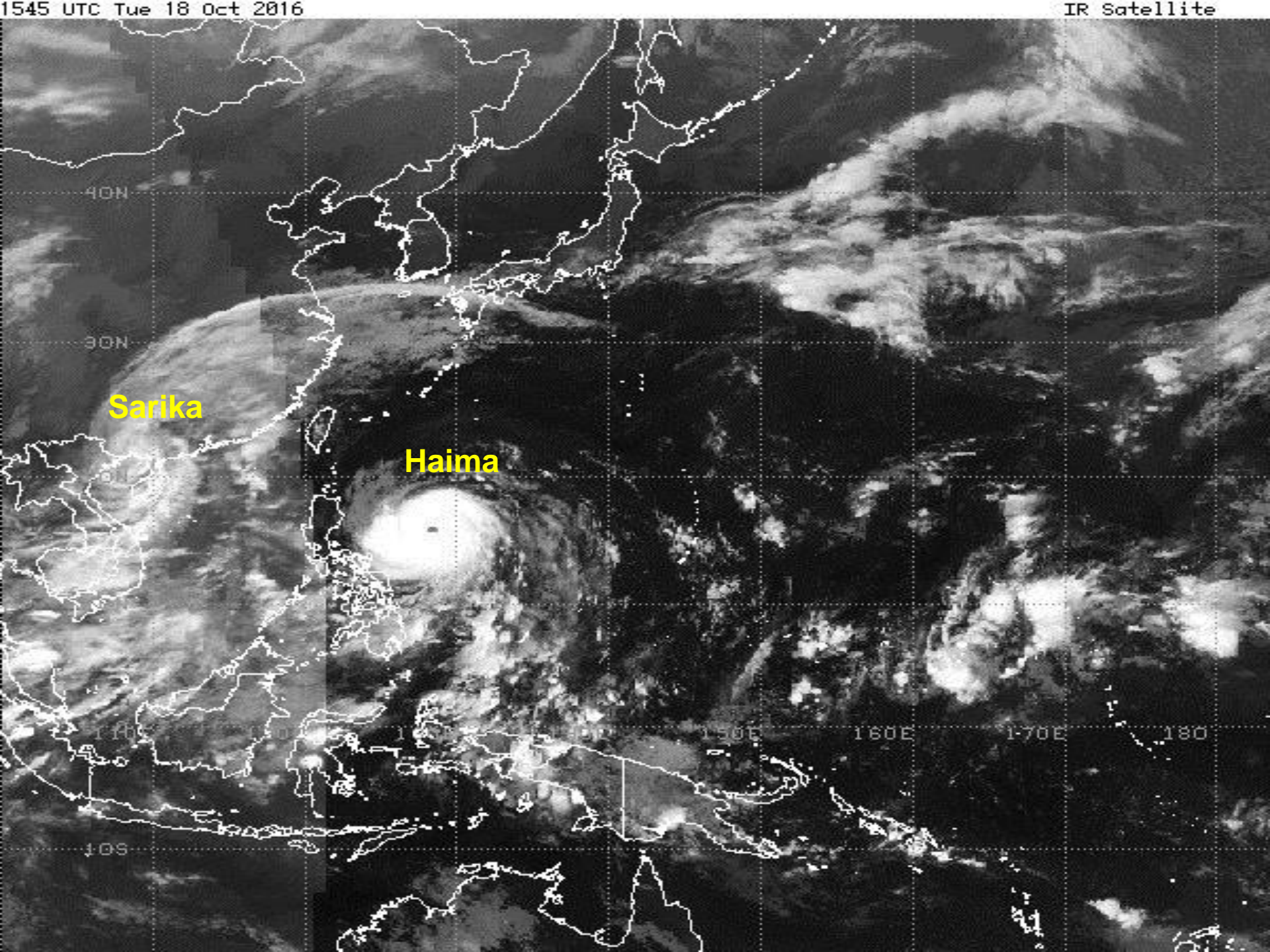


# MJO Observation/Forecast



Wheeler-Hendon based analyses of model forecasts indicate the potential for an emerging signal across the Western Hemisphere by Week-2.

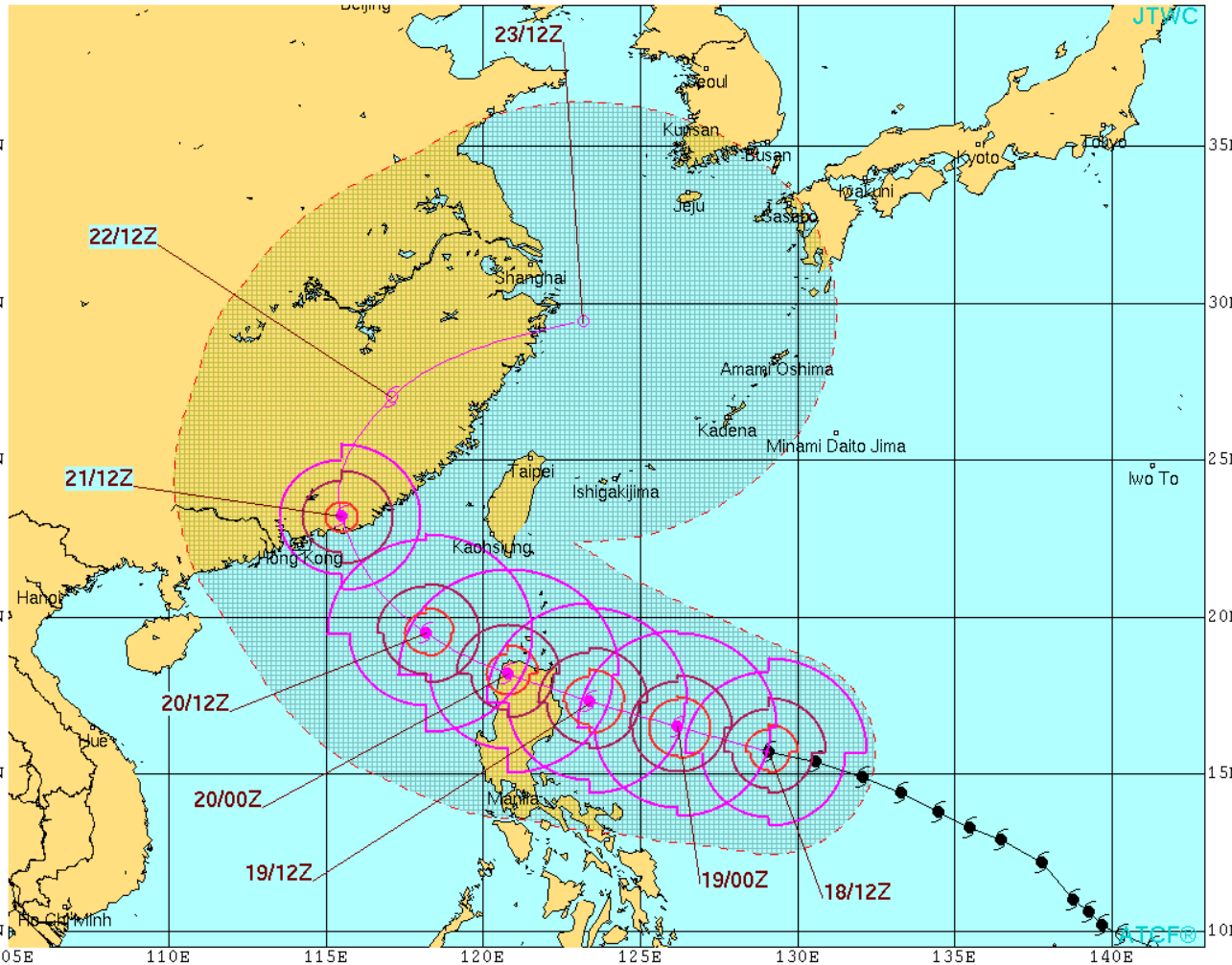




Sarika

Haima

# Joint Typhoon Warning Center



**SUPER TYPHOON 25W (HAIMA) WARNING #16**  
 WTPN32 PGTW 181500  
 181200Z POSIT: NEAR 15.7N 129.1E  
 MOVING 280 DEGREES TRUE AT 15 KNOTS  
 MAXIMUM SIGNIFICANT WAVE HEIGHT: 40 FEET

18/12Z,	WINDS 140 KTS,	GUSTS TO 170 KTS
19/00Z,	WINDS 145 KTS,	GUSTS TO 175 KTS
19/12Z,	WINDS 140 KTS,	GUSTS TO 170 KTS
20/00Z,	WINDS 115 KTS,	GUSTS TO 140 KTS
20/12Z,	WINDS 100 KTS,	GUSTS TO 125 KTS
21/12Z,	WINDS 075 KTS,	GUSTS TO 090 KTS
22/12Z,	WINDS 045 KTS,	GUSTS TO 055 KTS
23/12Z,	WINDS 020 KTS,	GUSTS TO 030 KTS

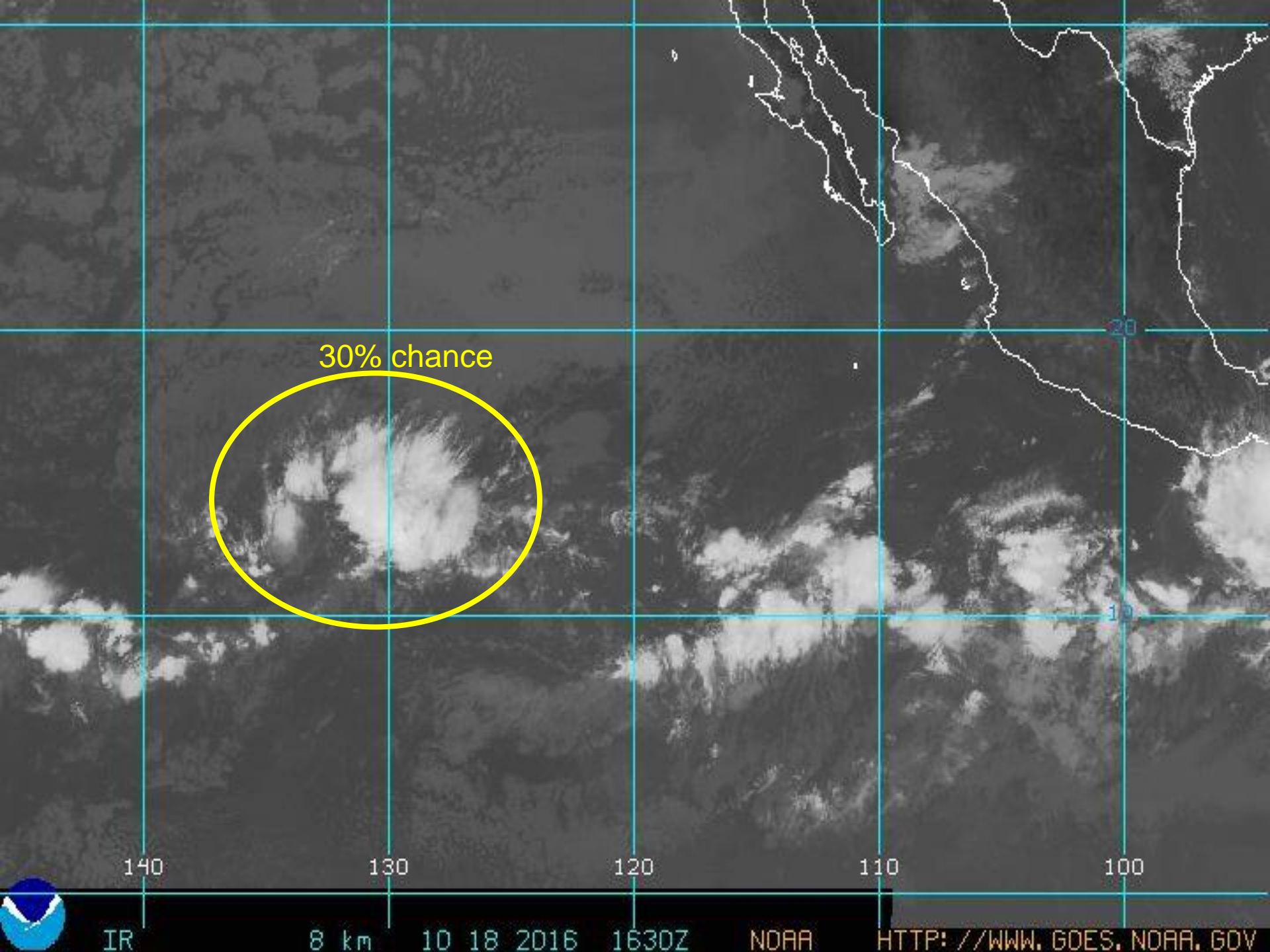
  

CPA TO:	NM	DTG
MANILA	197	19/18Z
CLARK AB	171	19/20Z
SUBIC BAY	202	19/21Z
KAOHSIUNG	220	20/13Z
HONG KONG	85	21/09Z
TAIPEI	221	23/01Z
KADENA AB	299	23/12Z

○ LESS THAN 34 KNOTS  
 ⊙ 34-63 KNOTS  
 ● MORE THAN 63 KNOTS  
 PAST 6 HOURLY CYCLONE POSITS IN BLACK  
 FORECAST CYCLONE POSITS IN COLOR





30% chance

140

130

120

110

100

IR

8 km

10 18 2016

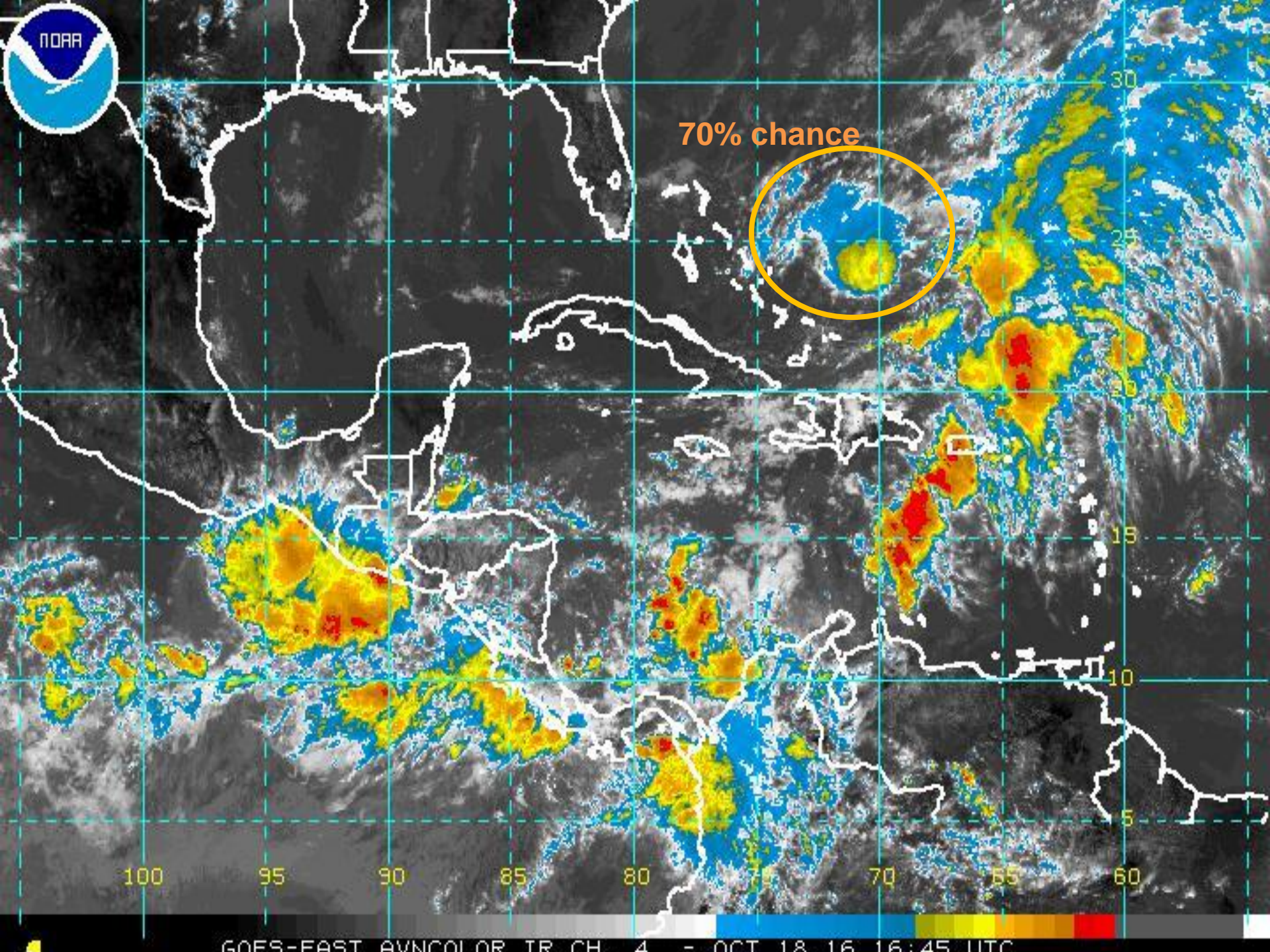
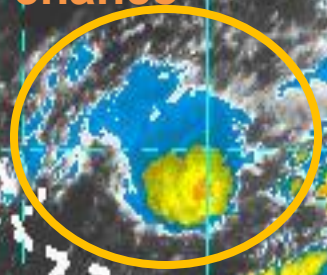
1630Z

NOAA

[HTTP://WWW.GOES.NOAA.GOV](http://www.goes.noaa.gov)

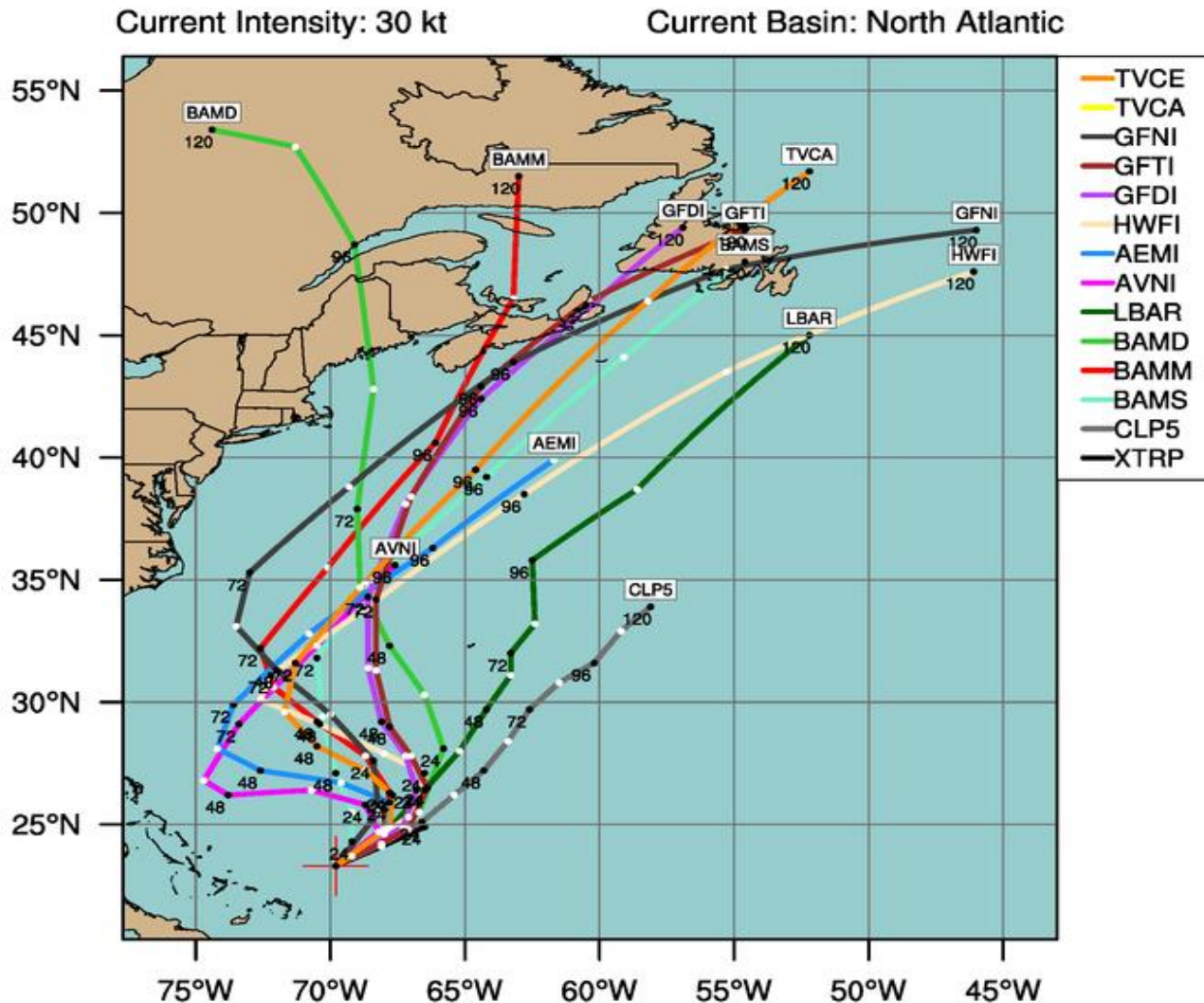


70% chance



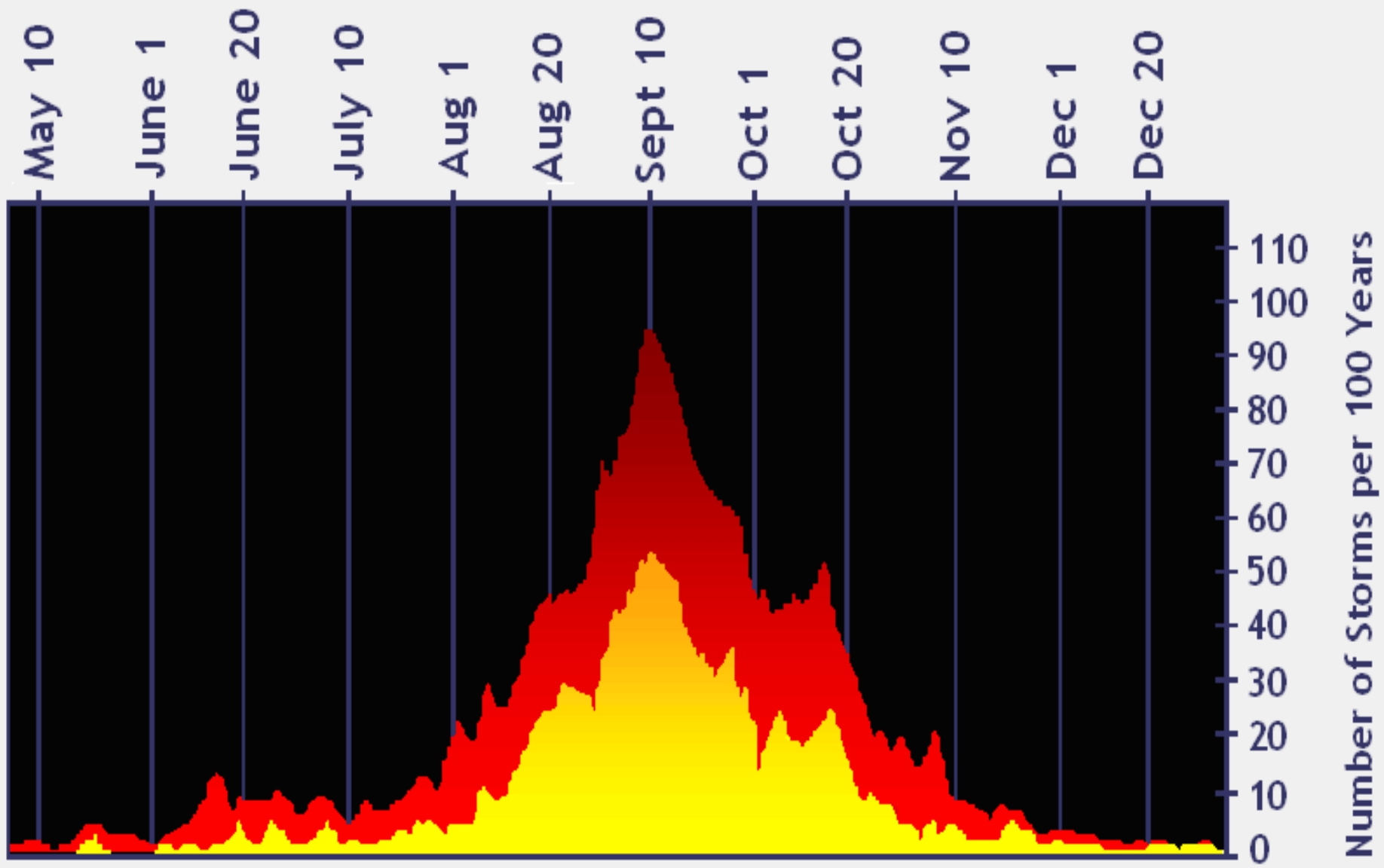
# LOW INVEST (AL99)



Early-cycle track guidance initialized at 1200 UTC, 18 October 2016

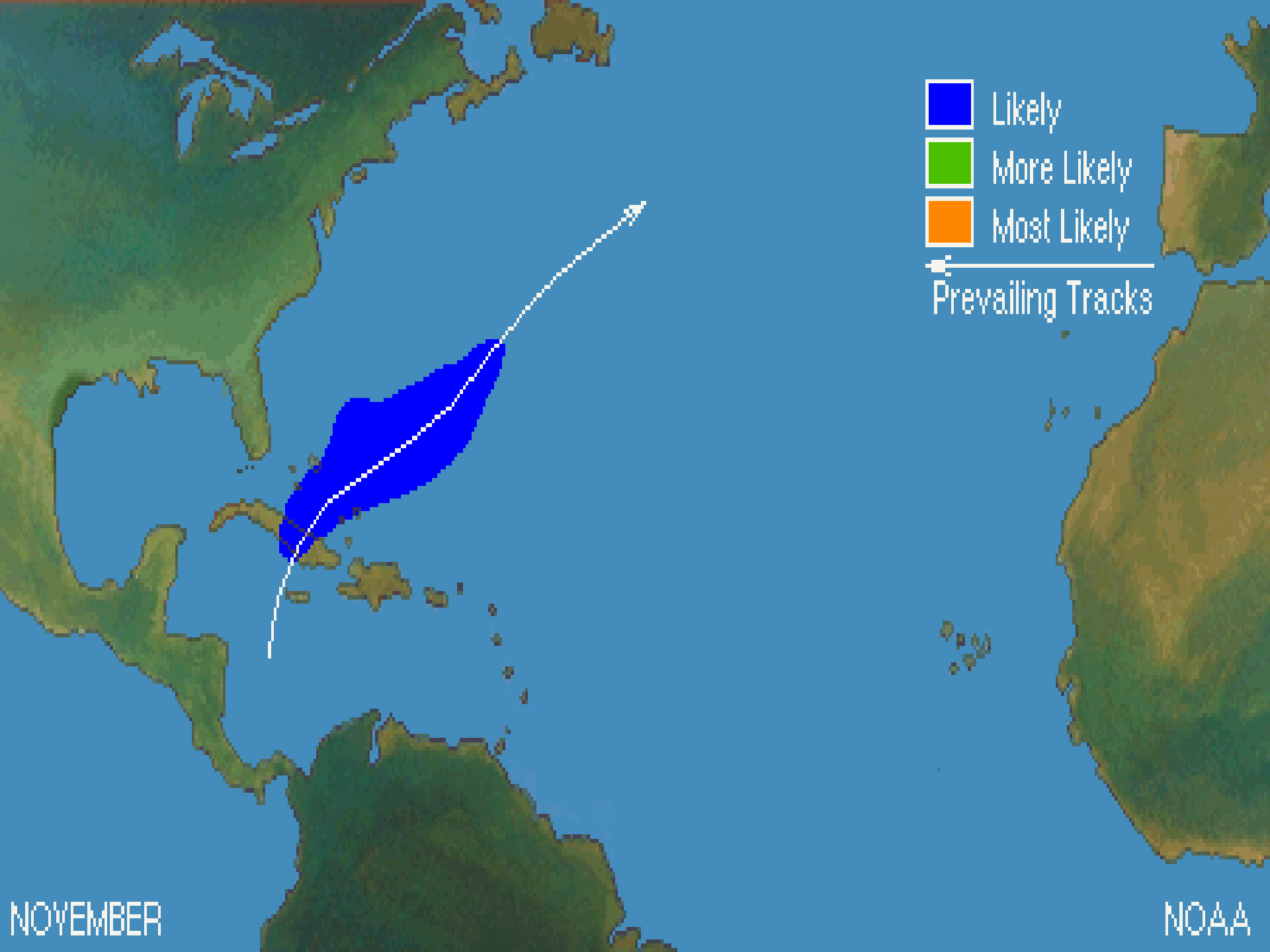


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Plot generated at 1521 UTC 18 October 2016



 Hurricanes and Tropical Storms  
 Hurricanes



- Likely
- More Likely
- Most Likely

← Prevailing Tracks

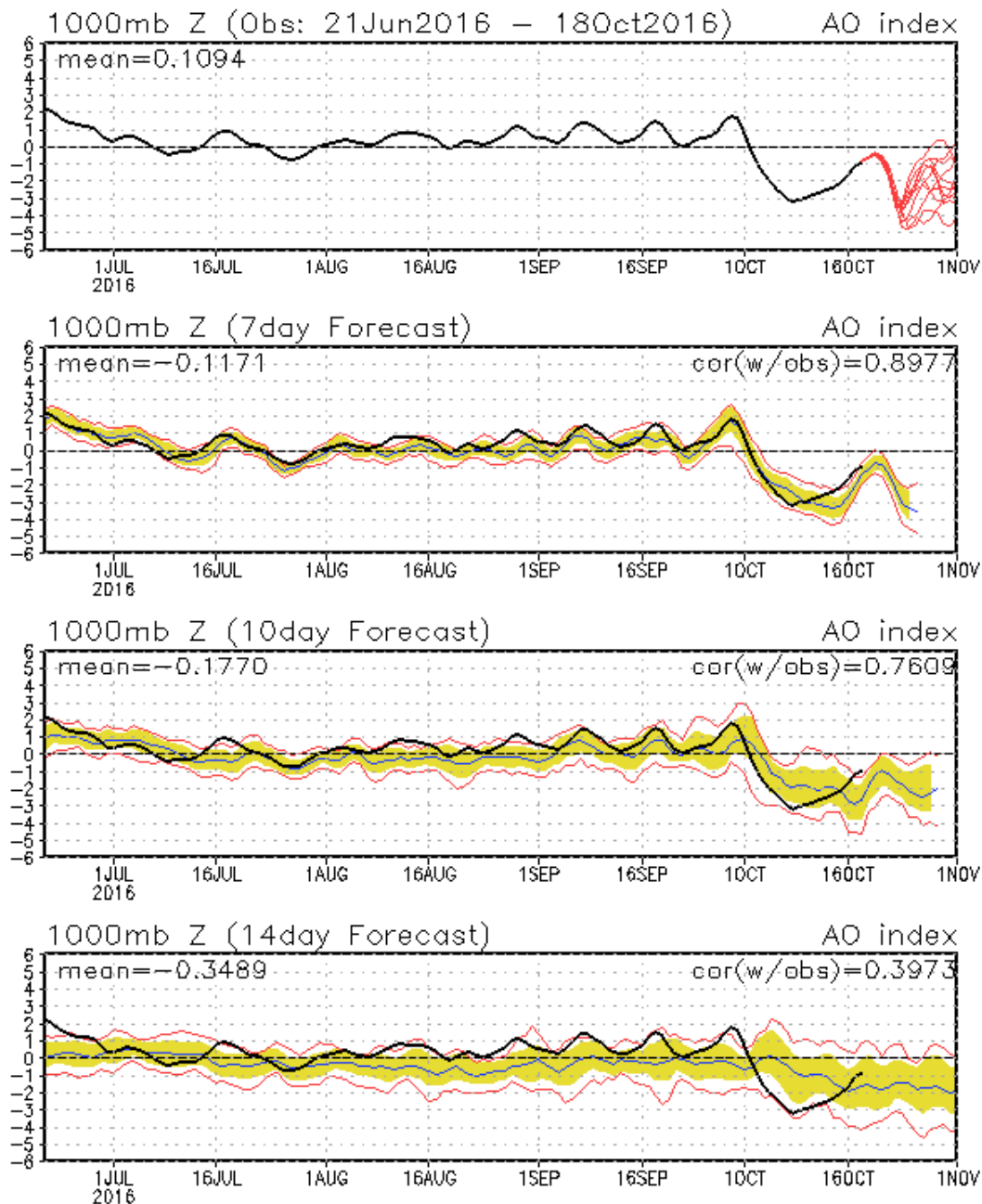
NOVEMBER

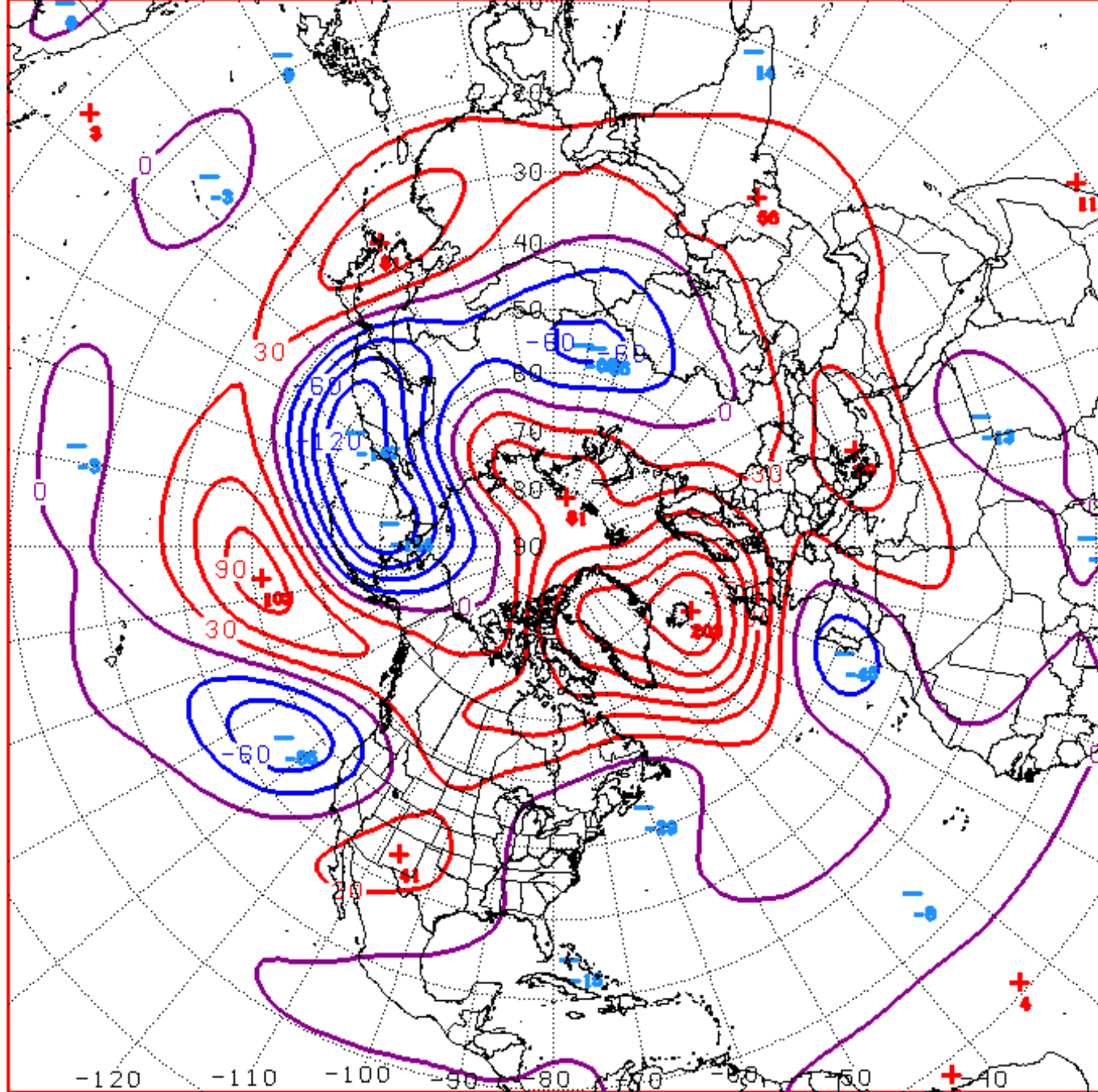
NOAA

# Connections to U.S. Impacts



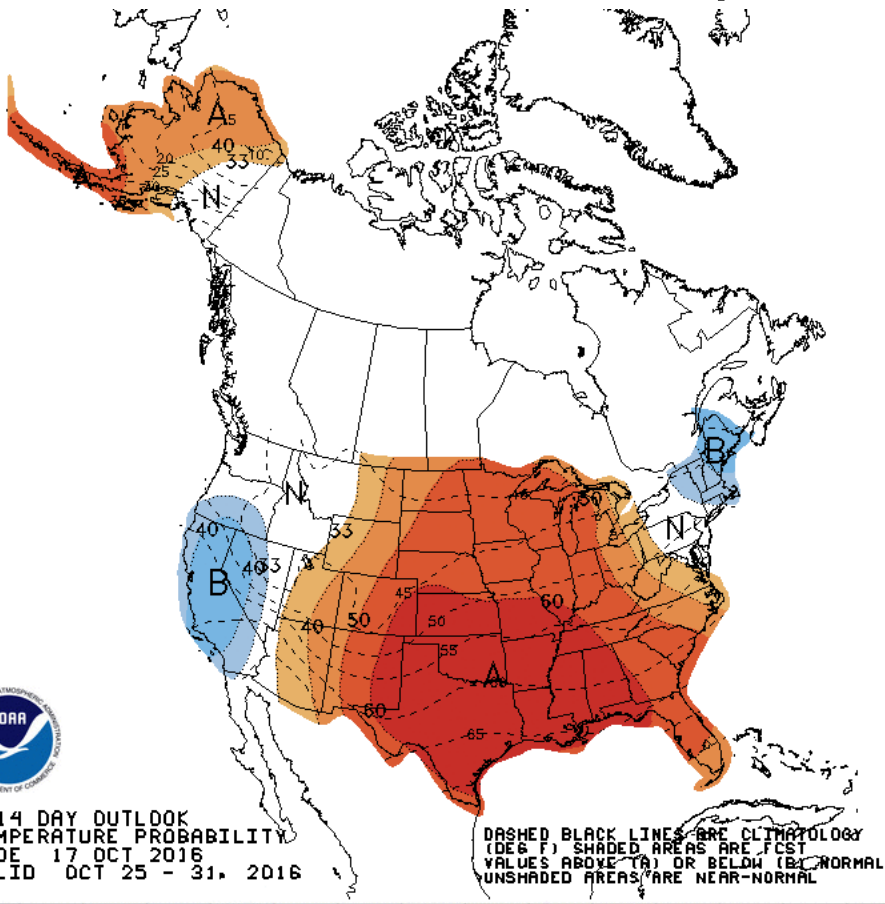
## AO: Observed & ENSM forecasts





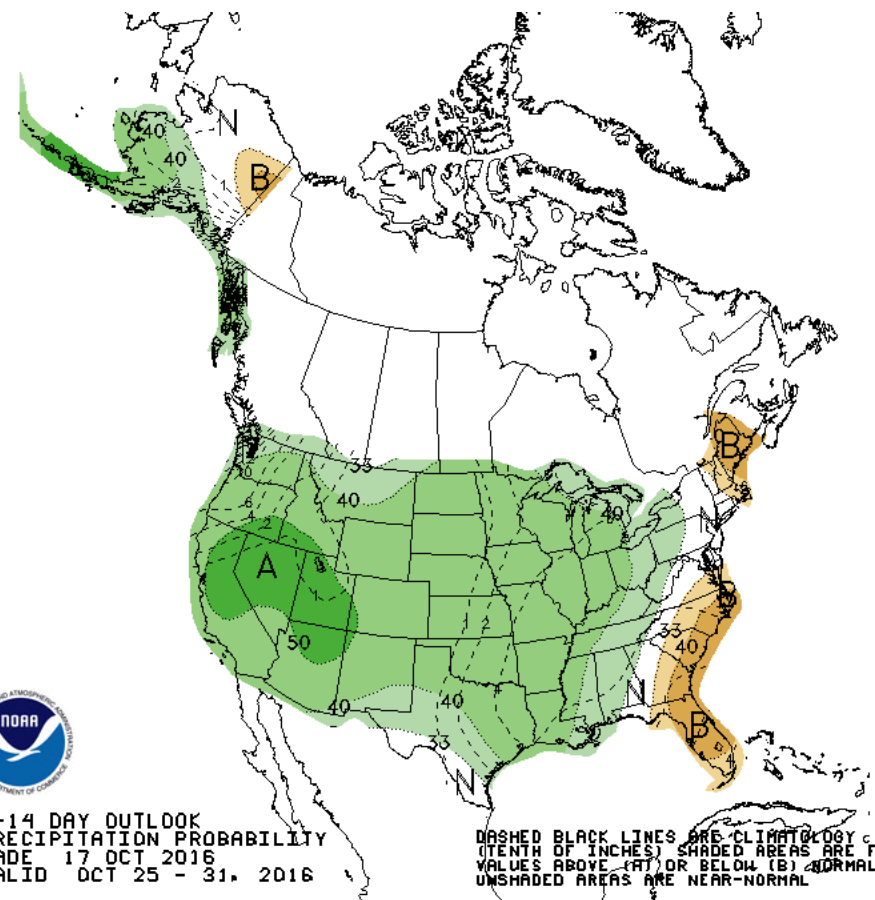
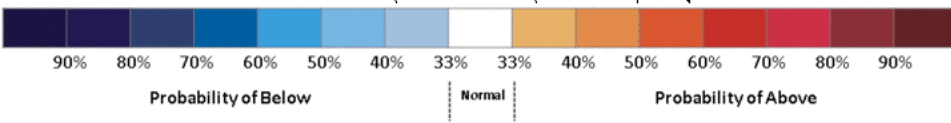
D+11 500 MB ANOMALIES FROM 00Z ECMM  
CPC MAP MADE OCT 18 2016 1035 UTC CNTD OCT 29 2016

# Week 2 – Temperature and Precipitation



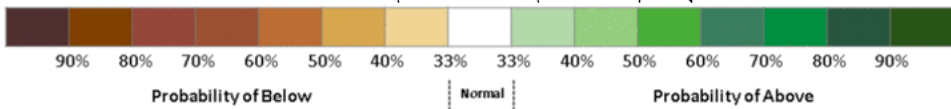
8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 17 OCT 2016  
VALID OCT 25 - 31, 2016

DASHED BLACK LINES ARE CLIMATE  
(DEG F) SHADED AREAS ARE FCST  
VALUES ABOVE (A) OR BELOW (B) NORMAL  
UNSHADED AREAS ARE NEAR-NORMAL



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 17 OCT 2016  
VALID OCT 25 - 31, 2016

DASHED BLACK LINES ARE CLIMATE  
(TENTH OF INCHES) SHADED AREAS ARE FCST  
VALUES ABOVE (A) OR BELOW (B) NORMAL  
UNSHADED AREAS ARE NEAR-NORMAL

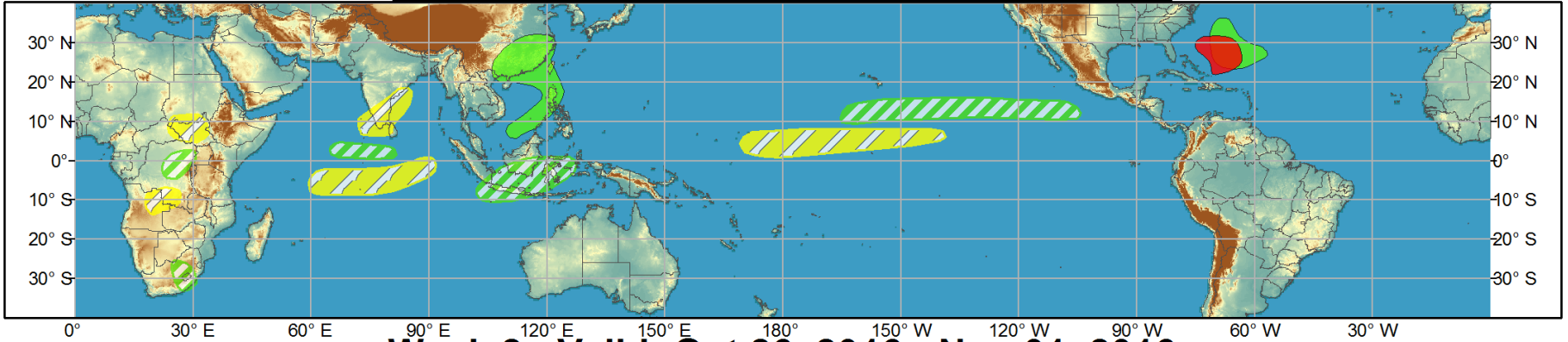




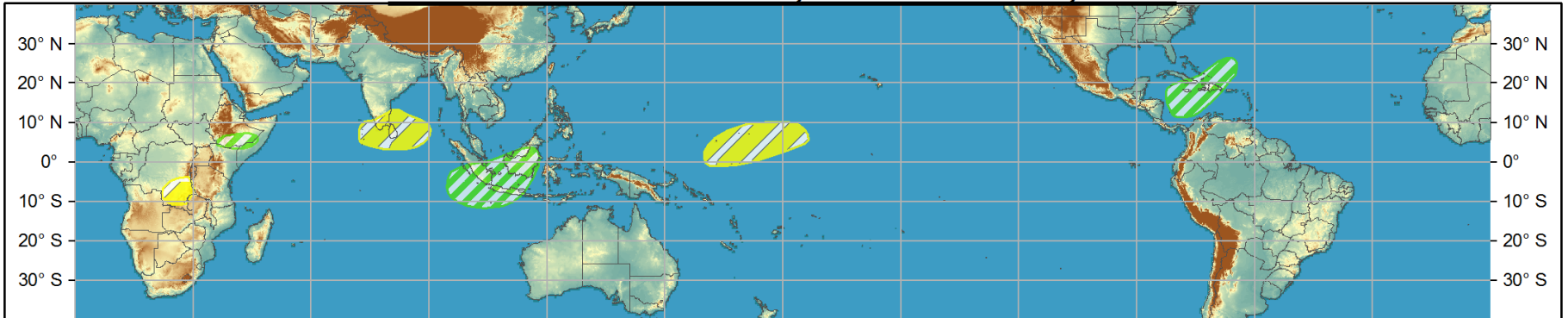
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