

# Global Tropics Hazards And Benefits Outlook

August 30, 2016

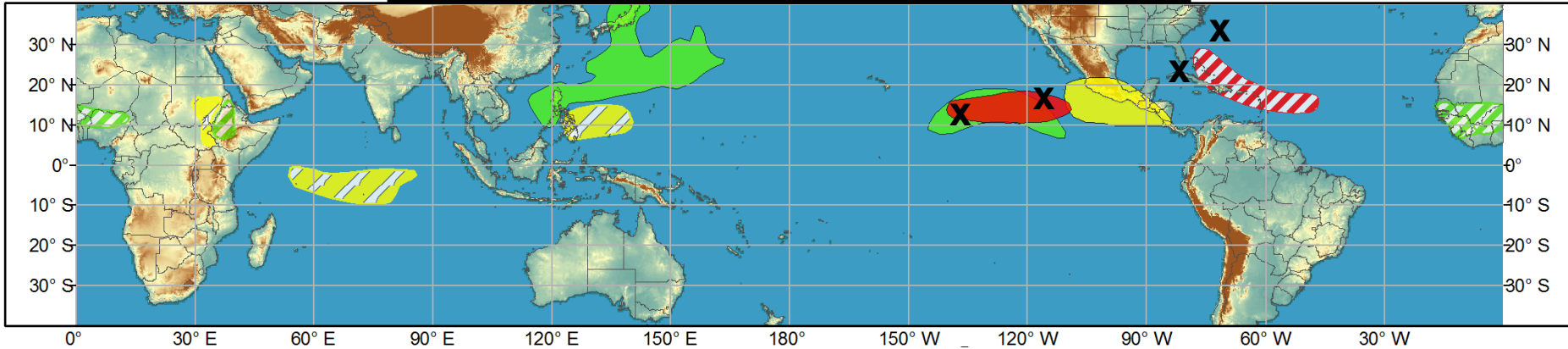
Adam Allgood

## Outline

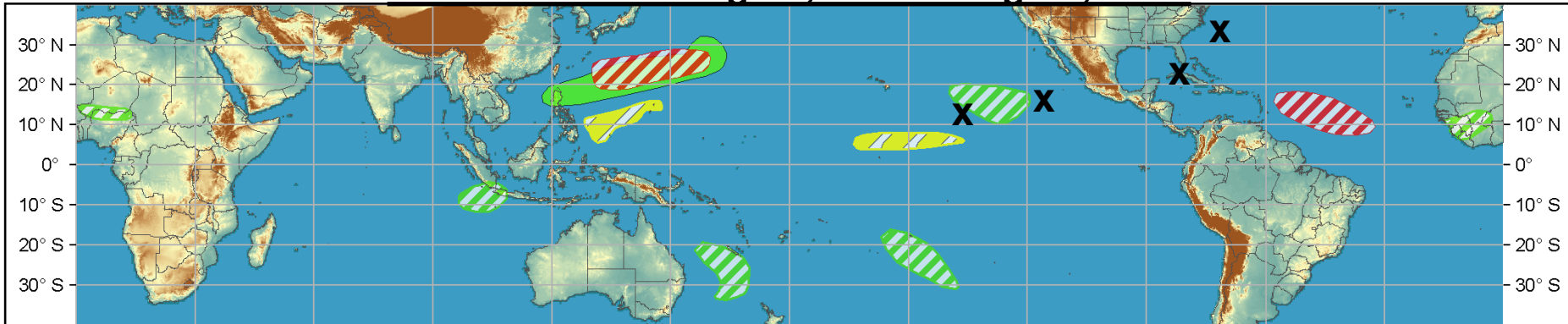
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review – Tropical Cyclones

## Week 1 - Valid: Aug 24, 2016 - Aug 30, 2016

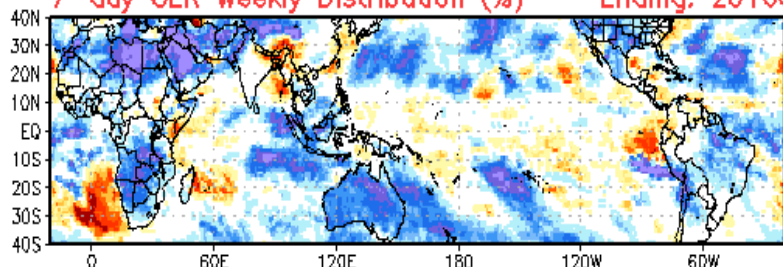


## Week 2 - Valid: Aug 24, 2016 - Aug 30, 2016

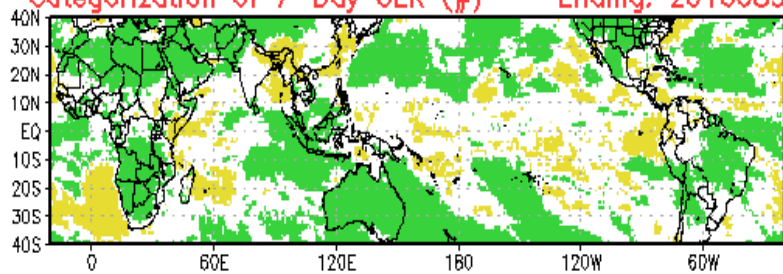


From Left to Right: Hurricane Madeline, Hurricane Lester, TD-9, TD-8

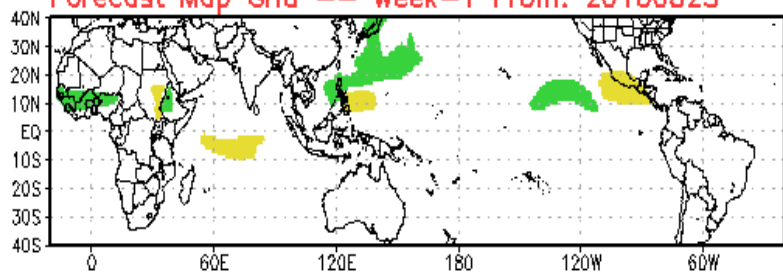
7-day OLR Weekly Distribution (%) -- Ending: 20160830



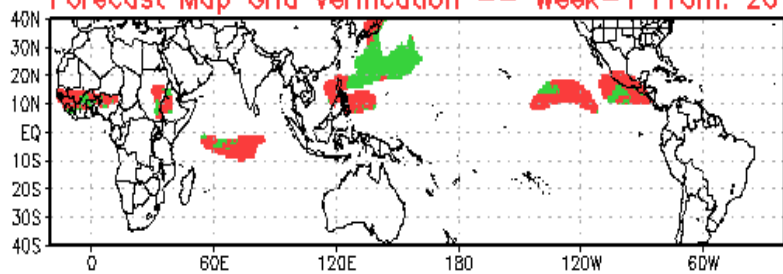
Categorization of 7-Day OLR (#) -- Ending: 20160830



Forecast Map Grid -- Week-1 From: 20160823

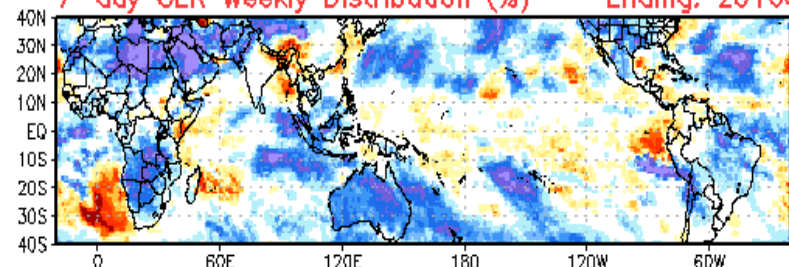


Forecast Map Grid Verification -- Week-1 From: 20160823

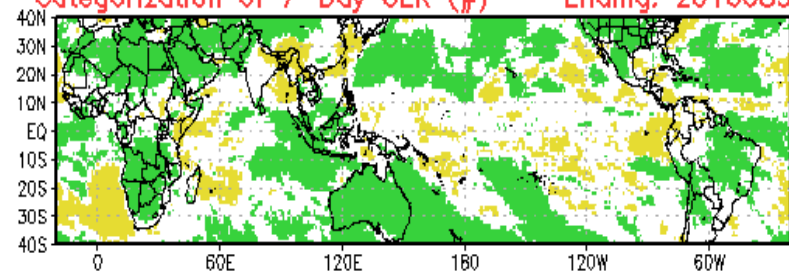


Hit: Green, Miss: Red  
Heidke Skill Score: 2.5335

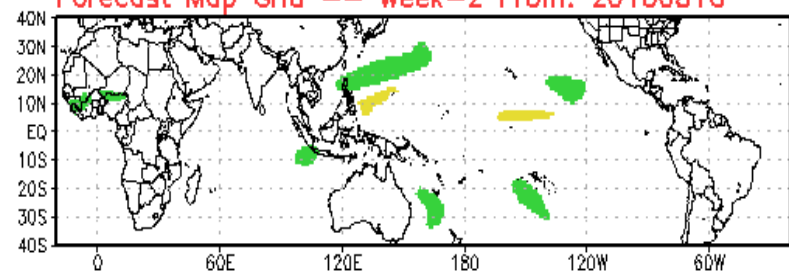
7-day OLR Weekly Distribution (%) -- Ending: 20160830



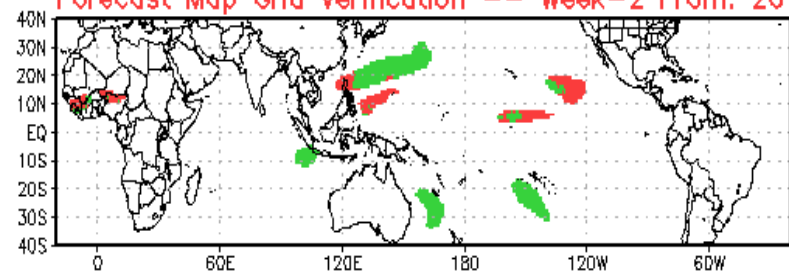
Categorization of 7-Day OLR (#) -- Ending: 20160830



Forecast Map Grid -- Week-2 From: 20160816



Forecast Map Grid Verification -- Week-2 From: 20160816



Hit: Green, Miss: Red  
Heidke Skill Score: 47.6891

# Synopsis of Climate Modes

## ENSO:

- [La Niña Watch](#)
- La Niña is slightly favored to develop during August - October 2016, with about a 55-60% chance of La Niña during the fall and winter 2016-17

## MJO and other subseasonal tropical variability:

- MJO is currently weak, as the upper-level pattern (suggesting enhanced phase over the EPac) and OLR anomalies (enhanced convection from East I.O. through Maritime Continent/WPac) are out of phase.
- An Equatorial Rossby Wave over the Maritime Continent, ongoing tropical cyclone activity, and an enhanced and northward displaced Monsoon Trough over the West Pacific are all influencing the pattern.
- MJO Index forecasts depict a wide range of solutions. Bias corrections result in weak RMM Index amplitude forecasts.

## Extratropics:

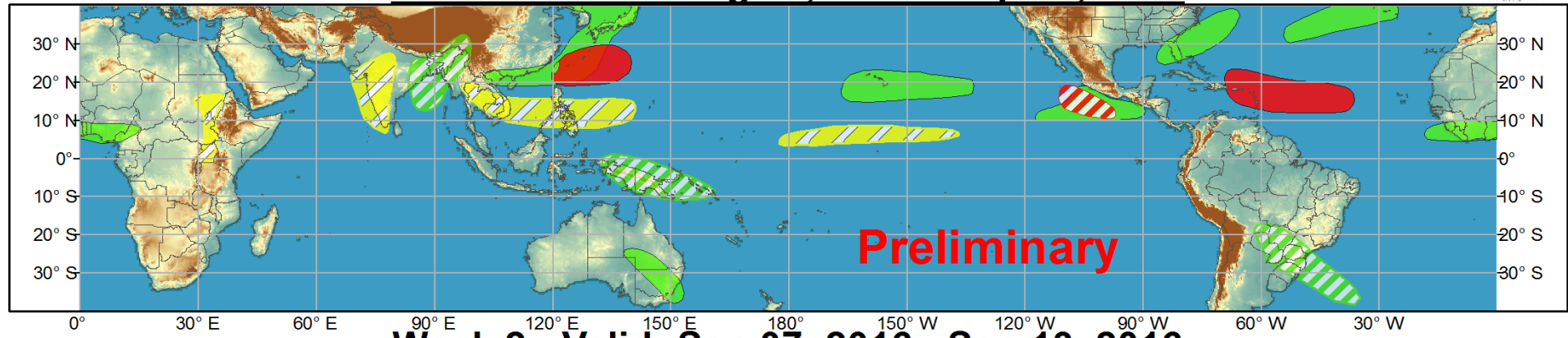
- The primary influence from the tropics on both the tropical and extratropical U.S. territories during this outlook period comes from tropical cyclone activity.



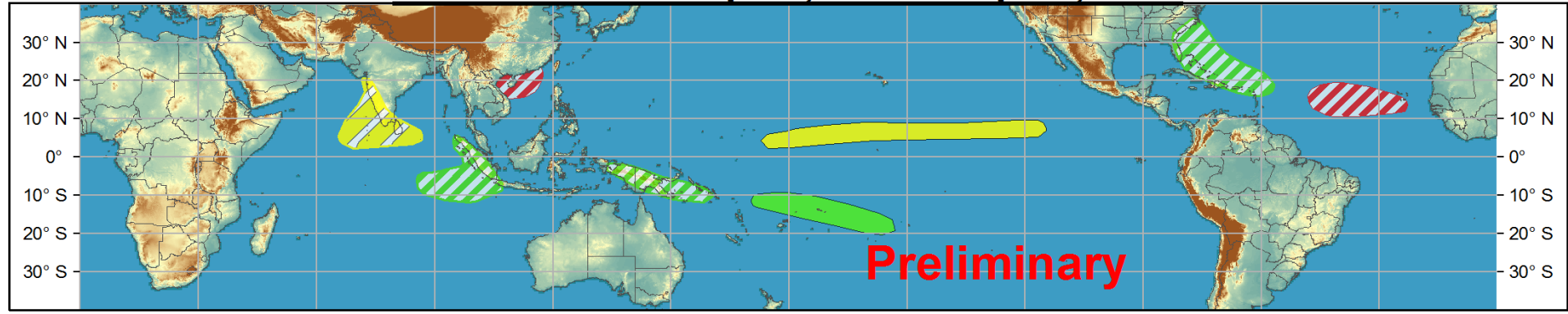
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Aug 31, 2016 - Sep 06, 2016



## Week 2 - Valid: Sep 07, 2016 - Sep 13, 2016



Produced: 08/30/2016  
Forecaster: Allgood

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.

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.



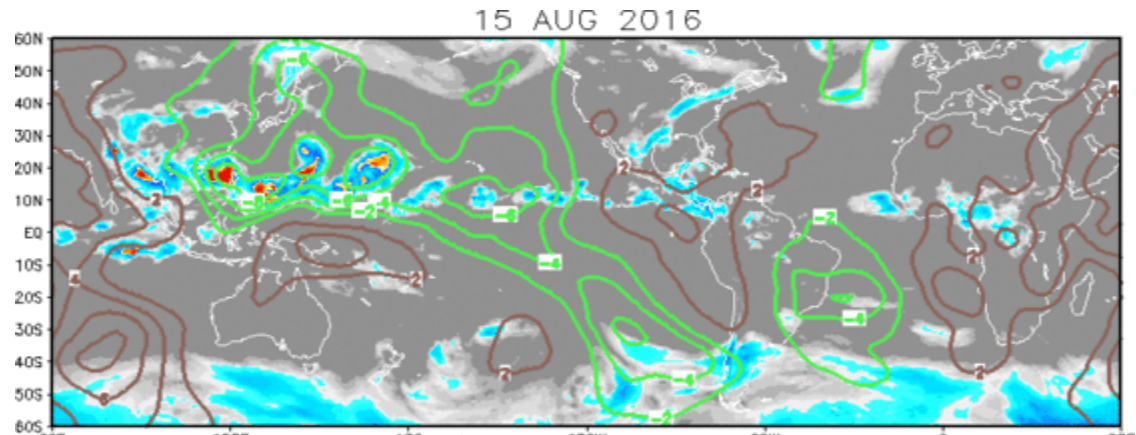


# IR Satellite & 200-hpa Velocity Potential Anomalies

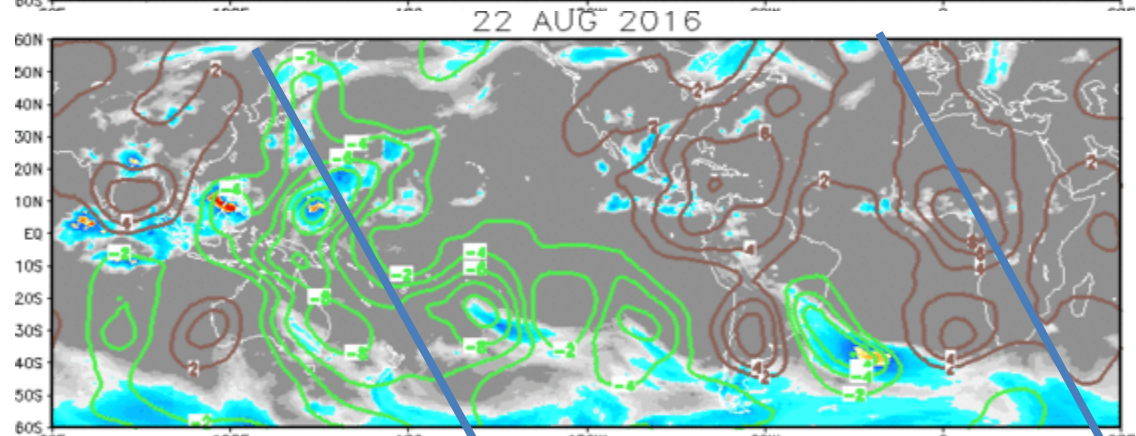
Green: Enhanced Divergence

Brown: Enhanced Convergence

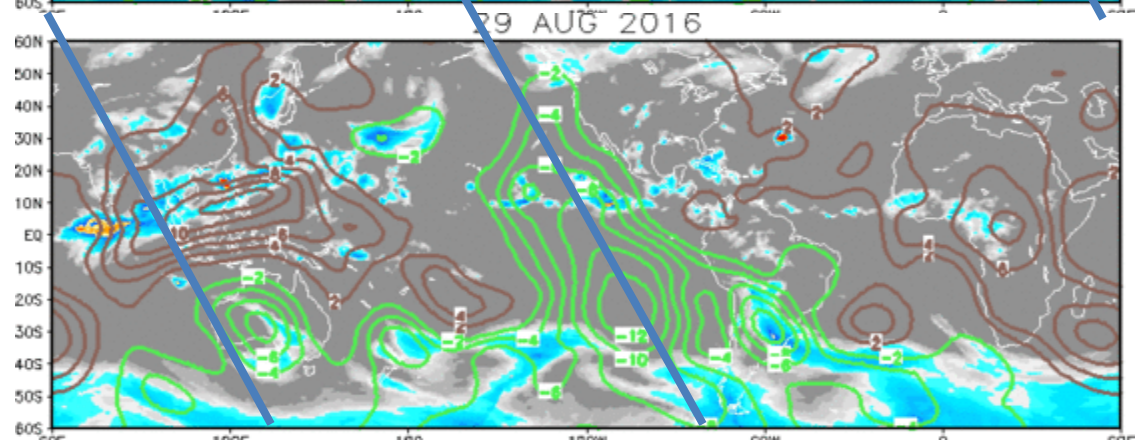
Generally incoherent pattern with respect to the equator



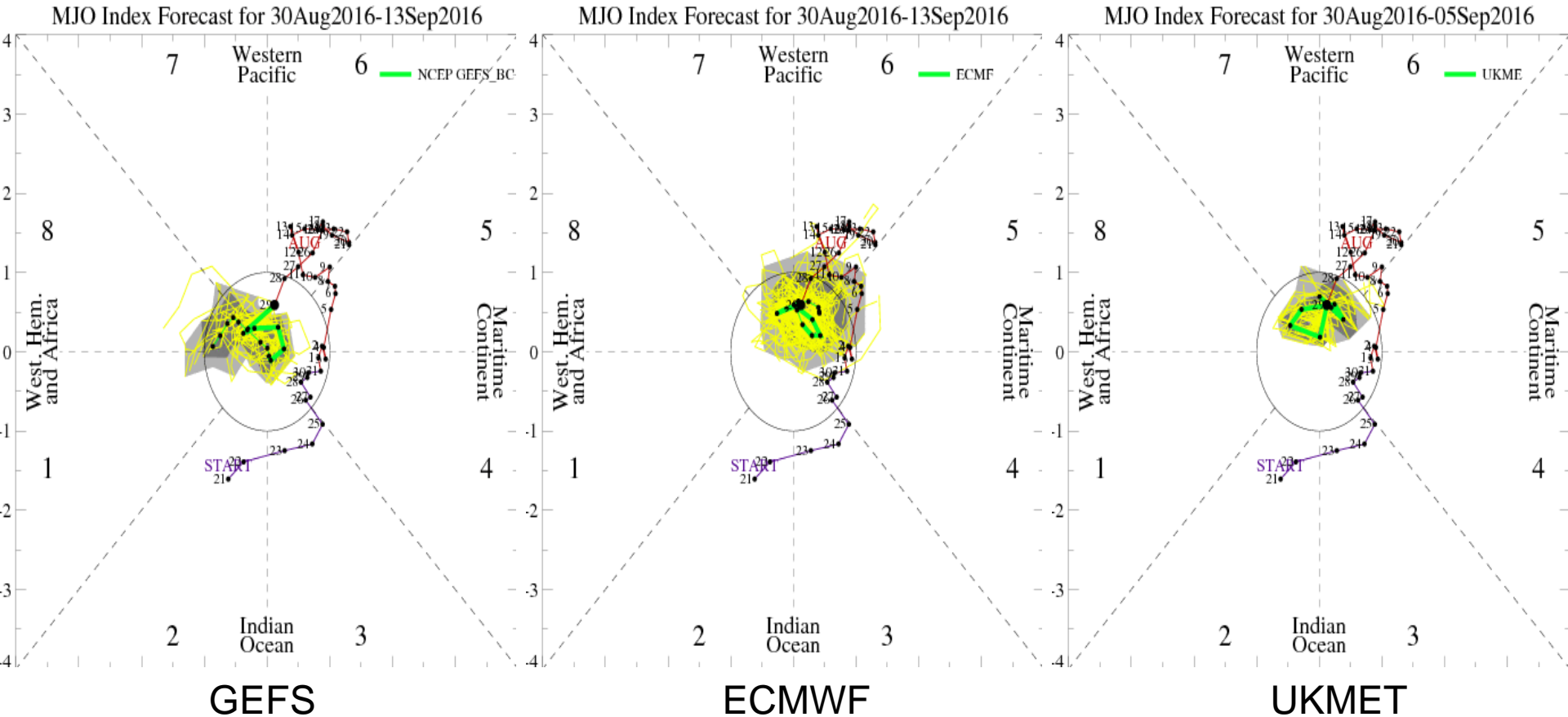
Increased pattern coherence from a MJO standpoint, with Wave-1 asymmetry



Fairly fast eastward propagation of anomalous upper-level convergent and divergent flow



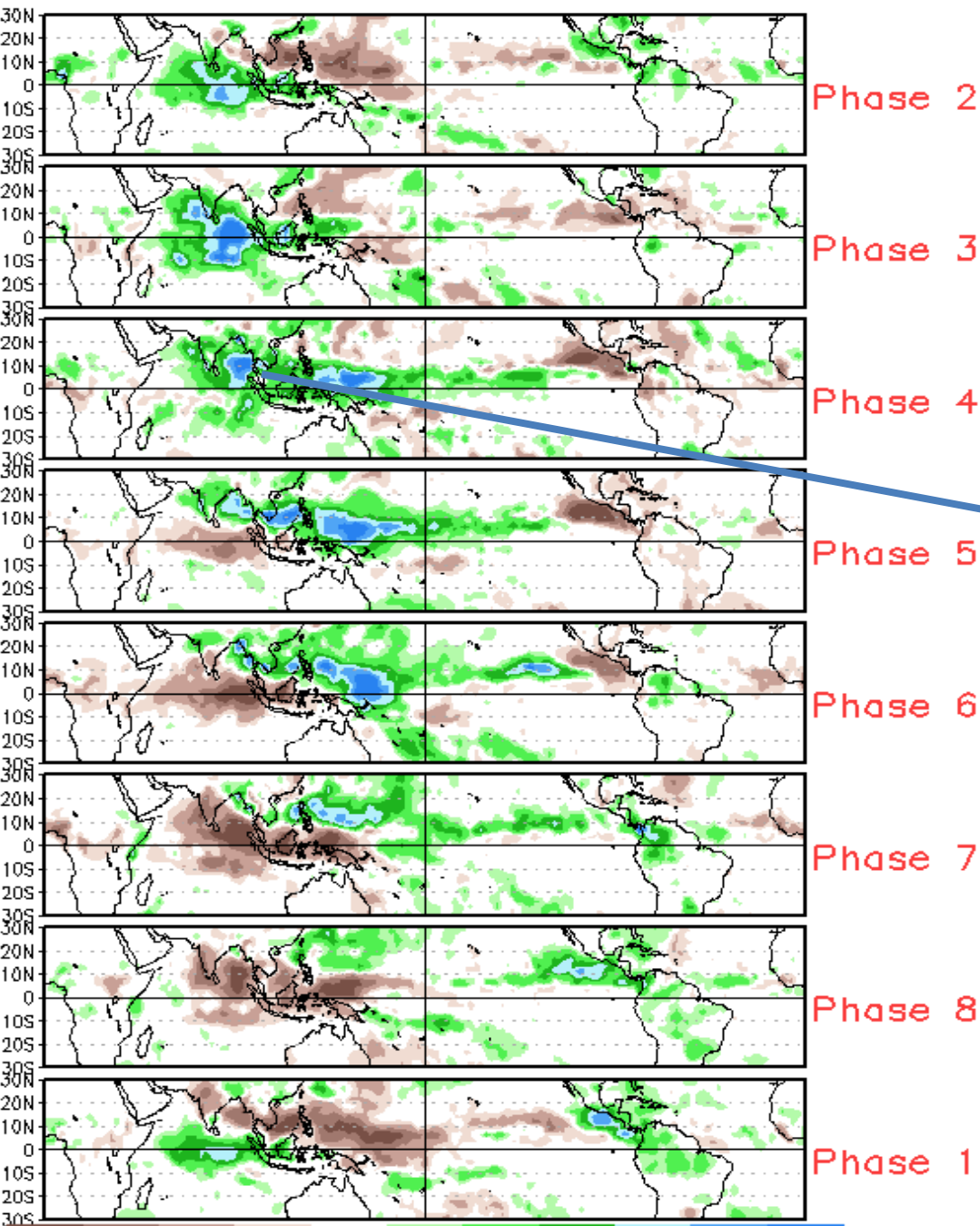
# MJO Observation/Forecast



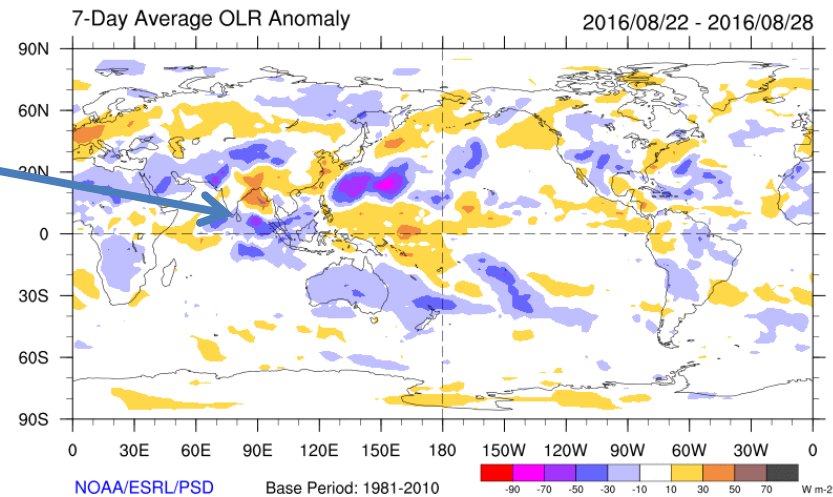
Bias-corrected RMM-based MJO index forecasts have ensemble means inside the circle throughout the period.

Note that the GFS tilts towards Phases 8/1 at the end of Wk2, whereas the ECMWF tilts towards 5/6. Difficult forecast.

# Average Conditions when the MJO is present



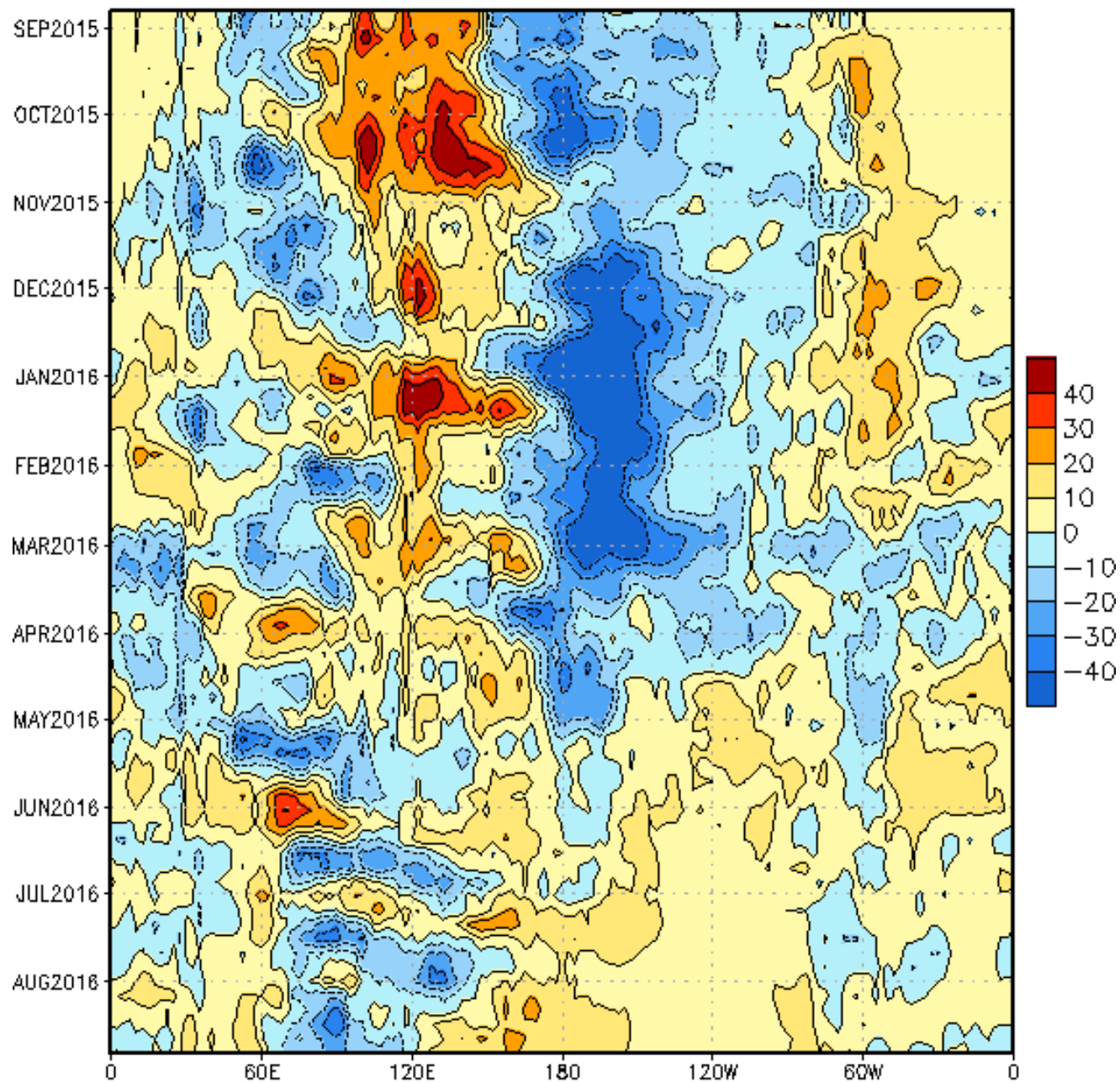
The current pattern does not strongly reflect canonical MJO influence



CAVEAT: These panels are representative of robust MJO events.

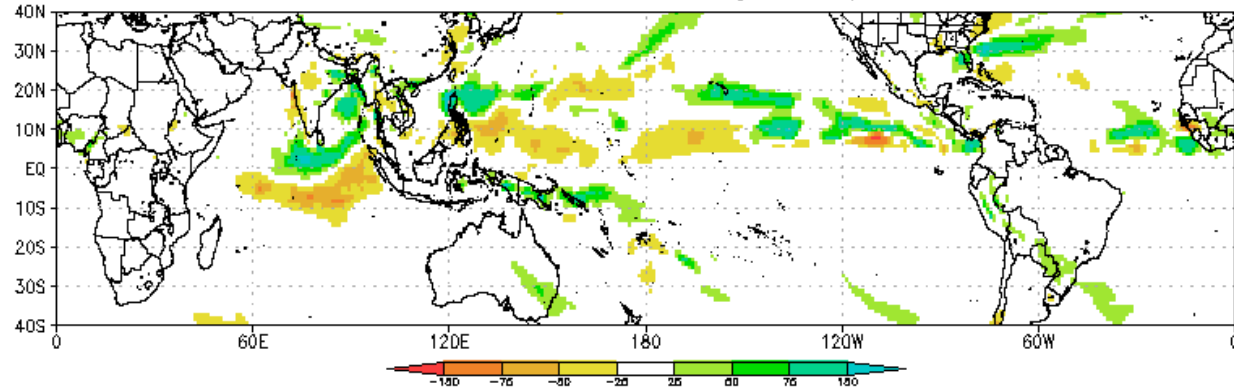


# OLR Anomalies 5N-5S

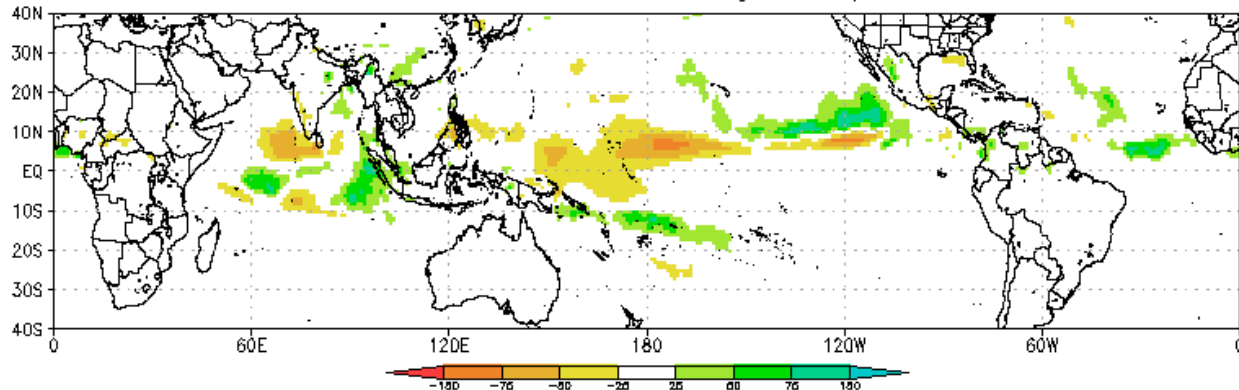


Data updated through 26 AUG 2016

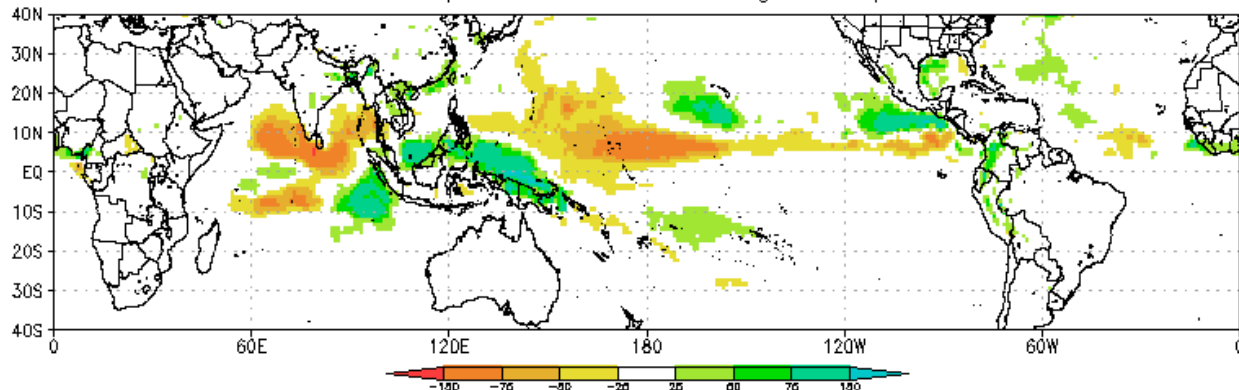
CFSv2 Precip Anomalies (mm) Issued 29Aug2016  
Week-1 Forecast Ending 06Sep2016



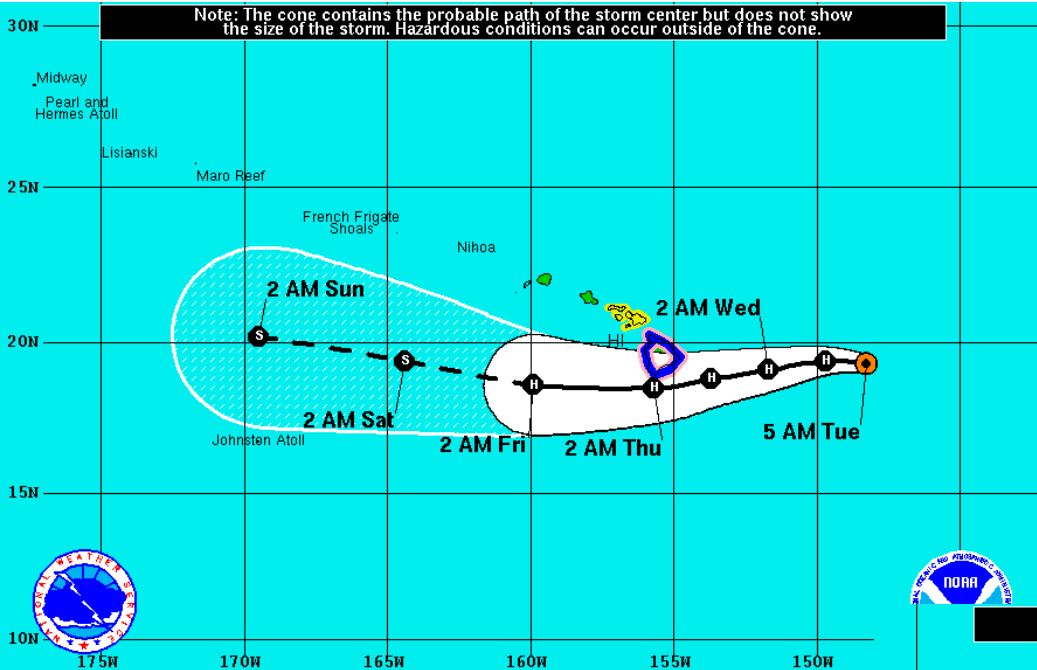
CFSv2 Precip Anomalies (mm) Issued 29Aug2016  
Week-2 Forecast Ending 13Sep2016



CFSv2 Precip Anomalies (mm) Issued 29Aug2016  
Week-3/4 Forecast Ending 27Sep2016



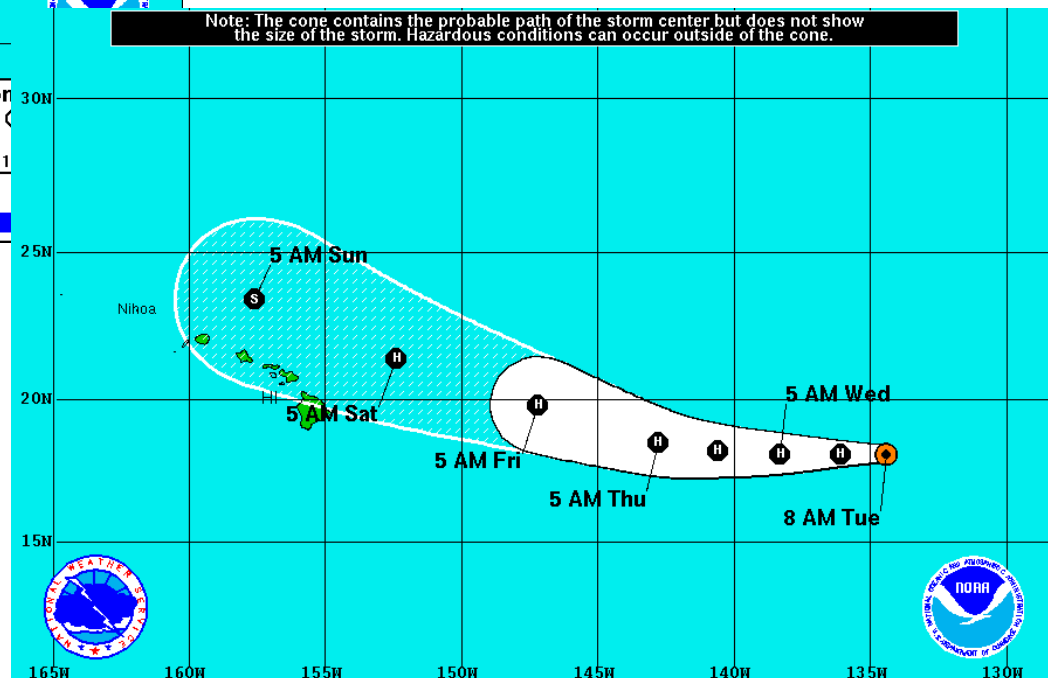
Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



<b>Hurricane Madeline</b> Tuesday August 30, 2016 5 AM HST Advisory 16 NWS Central Pacific Hurricane Center	<b>Current Information:</b> Center Location 19.3 N 148.3 W Max Sustained Wind 120 mph Movement W at 10 mph	<b>Forecast Position:</b> Tropical Cyclone Sustained Winds: S 39-73 mph H 74-111
<b>Potential Track Area:</b> Day 1-3 Day 4-5	<b>Watches:</b> Hurricane Trop.Storm	<b>Warnings:</b> Hurricane

# Central and East Pacific TCs

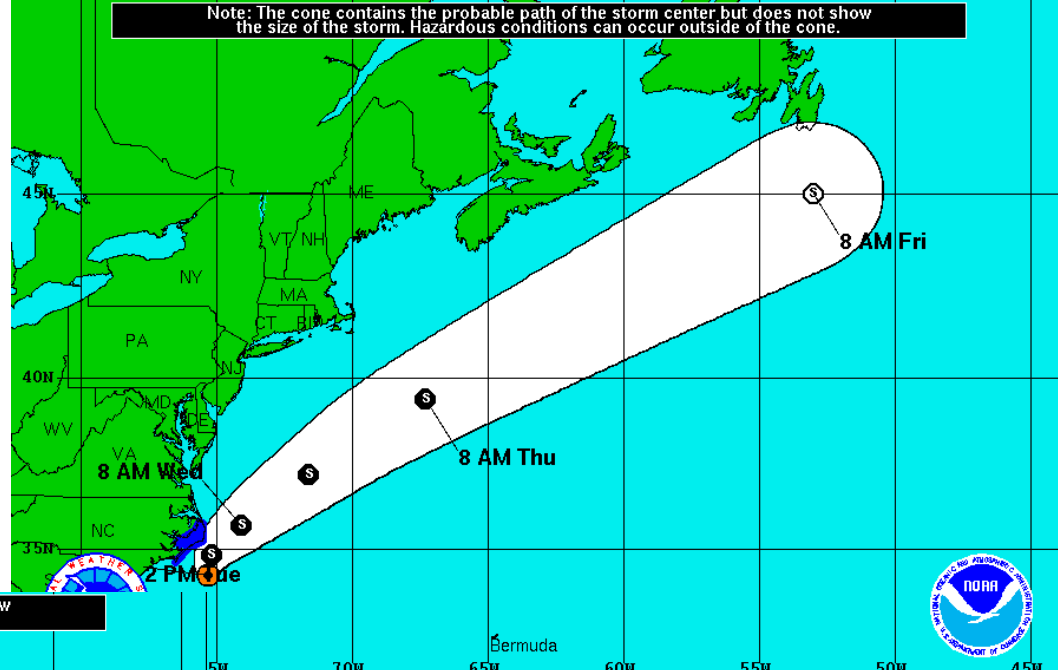
Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



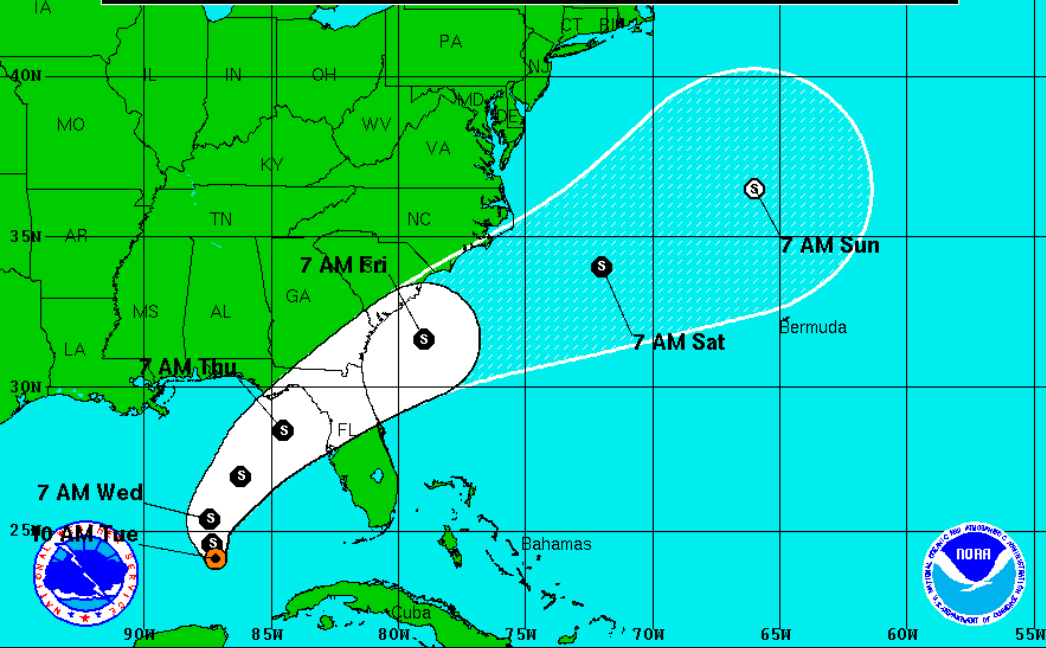
<b>Hurricane Lester</b> Tuesday August 30, 2016 8 AM PDT Advisory 24 NWS National Hurricane Center	<b>Current Information:</b> Center Location 18.1 N 134.4 W Max Sustained Wind 120 mph Movement W at 14 mph	<b>Forecast Positions:</b> Tropical Cyclone Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
<b>Potential Track Area:</b> Day 1-3 Day 4-5	<b>Watches:</b> Hurricane Trop.Storm	<b>Warnings:</b> Hurricane Trop.Storm

# Atlantic TCs

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



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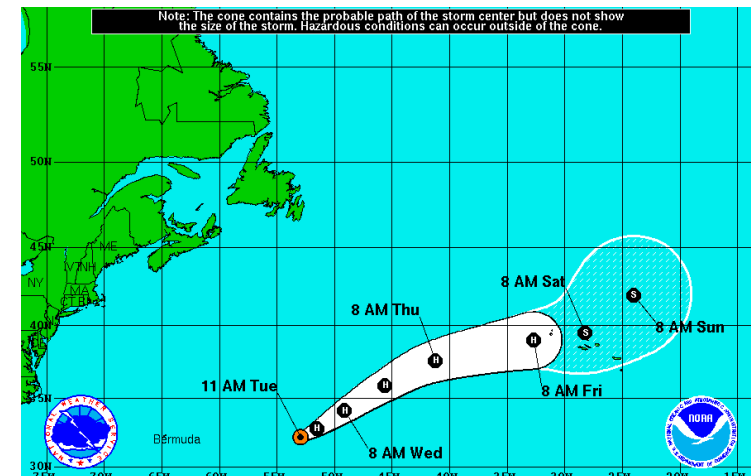


<b>Forecast Position:</b> 8 AM Fri	<b>Current Information:</b> Center Location 34.2 N 75.3 W Max Sustained Wind 35 mph Movement Stationary	<b>Forecast Positions:</b> ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
<b>Watches:</b> Day 4-5	Hurricane (Pink) Trop.Storm (Yellow)	<b>Warnings:</b> Hurricane (Red) Trop.Storm (Blue)

<b>Tropical Depression Nine</b> Tuesday August 30, 2016 10 AM CDT Advisory 8 NWS National Hurricane Center	<b>Current Information:</b> Center Location 24.0 N 87.2 W Max Sustained Wind 35 mph Movement WNW at 7 mph	<b>Forecast Positions:</b> ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
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<b>Potential Track Area:</b> Day 1-3 Day 4-5	<b>Watches:</b> Hurricane (Pink) Trop.Storm (Yellow)	<b>Warnings:</b> Hurricane (Red) Trop.Storm (Blue)
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Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



<b>Hurricane Gaston</b> Tuesday August 30, 2016 11 AM EDT Advisory 32 NWS National Hurricane Center	<b>Current Information:</b> Center Location 32.2 N 52.9 W Max Sustained Wind 105 mph Movement ENE at 8 mph	<b>Forecast Positions:</b> ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
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<b>Potential Track Area:</b>	<b>Watches:</b>	<b>Warnings:</b>
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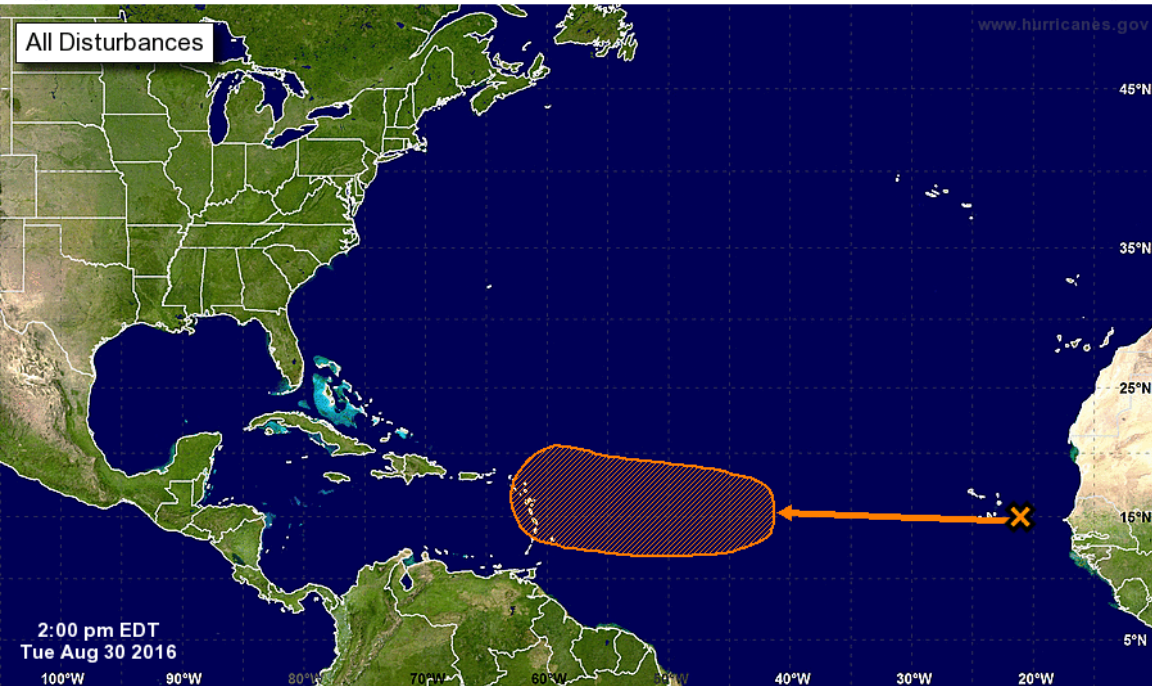


# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



## Graphical Tropical Weather Outlook



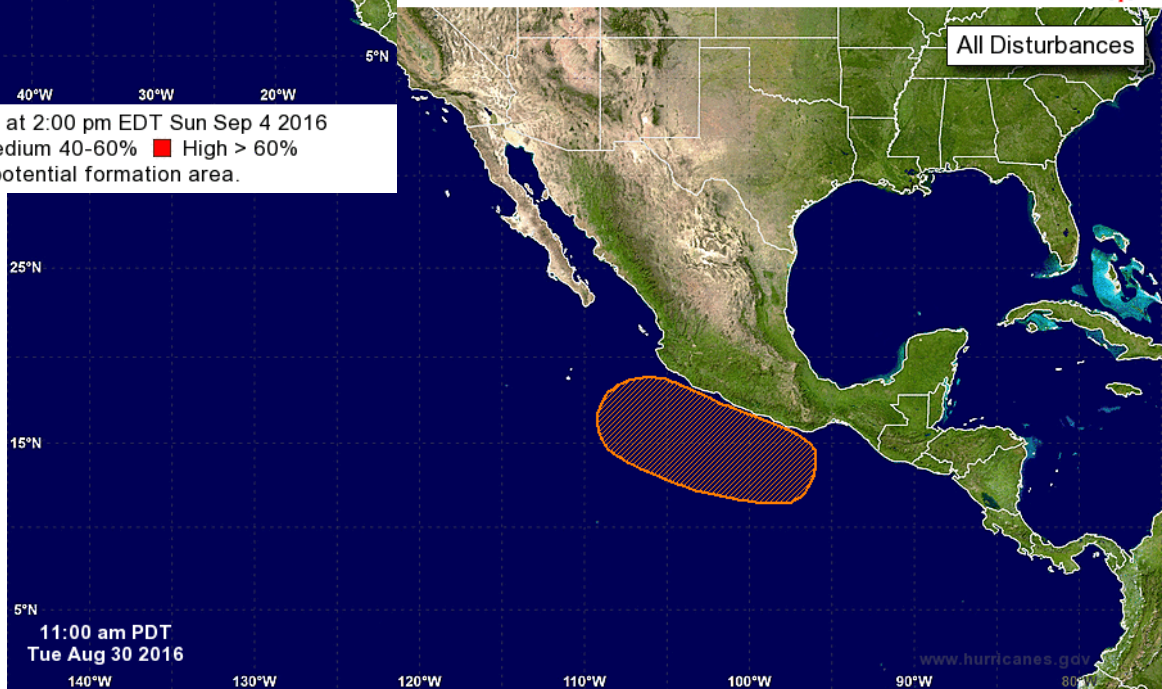
Tropical Cyclone Formation Potential for the Five-Day Period Ending at 2:00 pm EDT Sun Sep 4 2016

Chance of Cyclone Formation in Five Days: ■ Low < 40% ■ Medium 40-60% ■ High > 60%

X indicates current disturbance location; shading indicates potential formation area.

## Graphical Tropical Weather Outlook

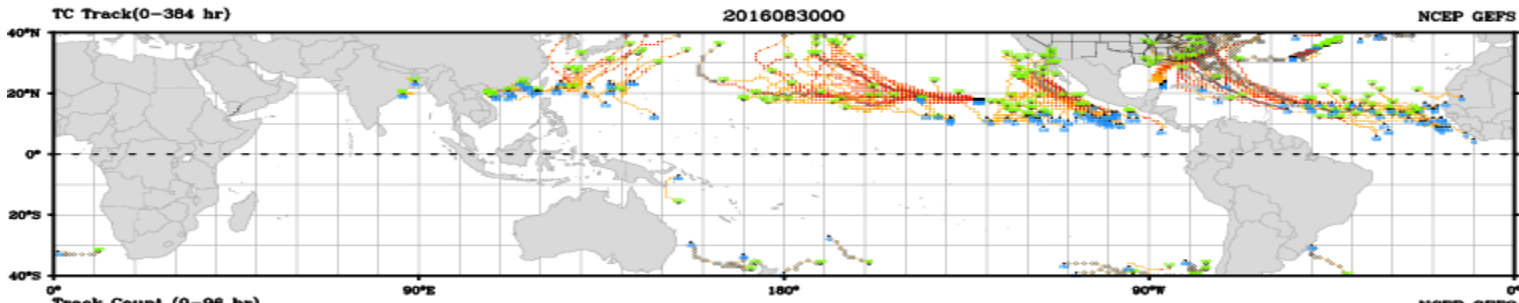
National Hurricane Center Miami, Florida



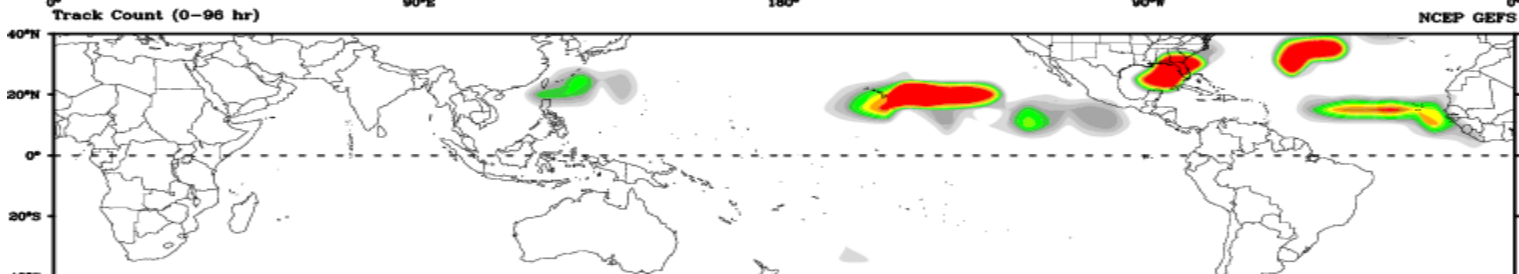
Tropical Cyclone Formation Potential for the Five-Day Period Ending at 11:00 am PDT Sun Sep 4 2016

Chance of Cyclone Formation in Five Days: ■ Low < 40% ■ Medium 40-60% ■ High > 60%

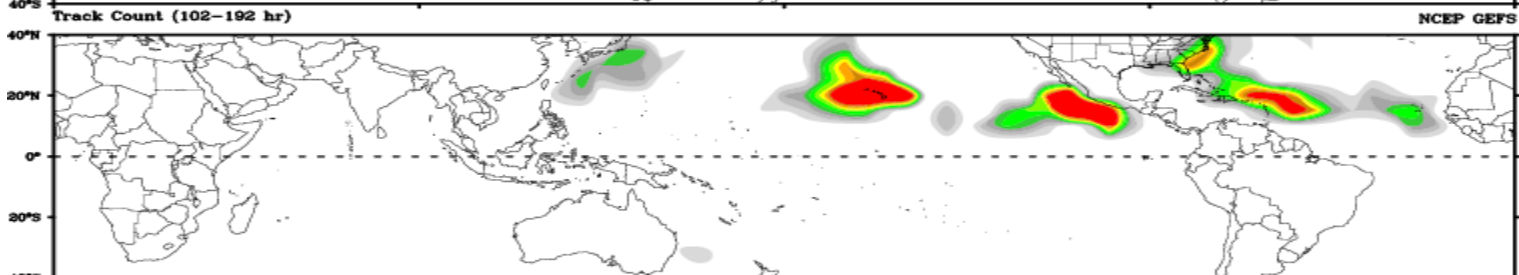
X indicates current disturbance location; shading indicates potential formation area.



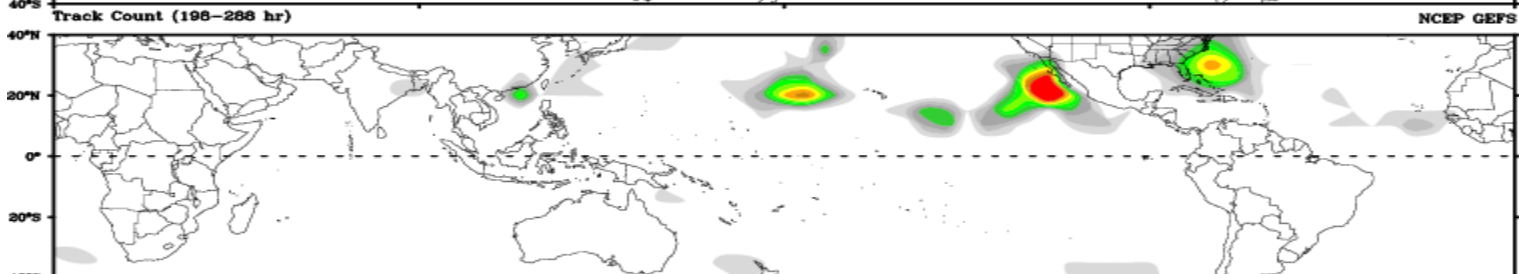
Days 1-4



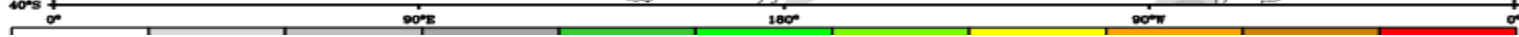
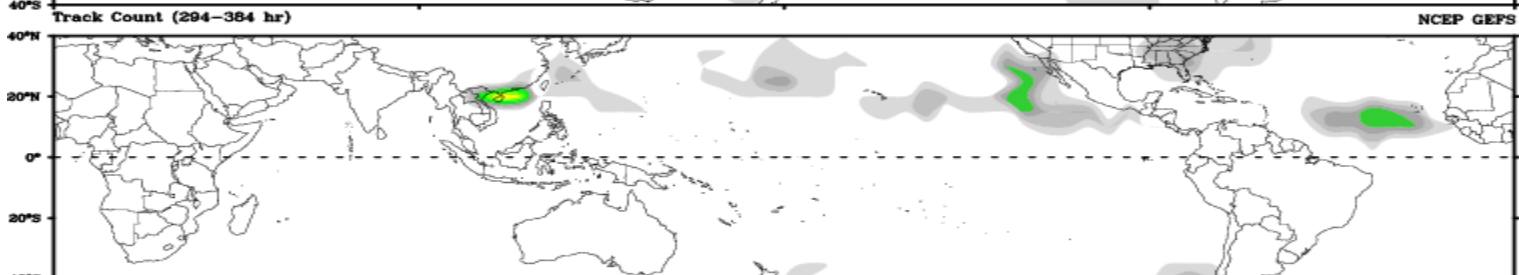
Day 5-8



Day 9-12

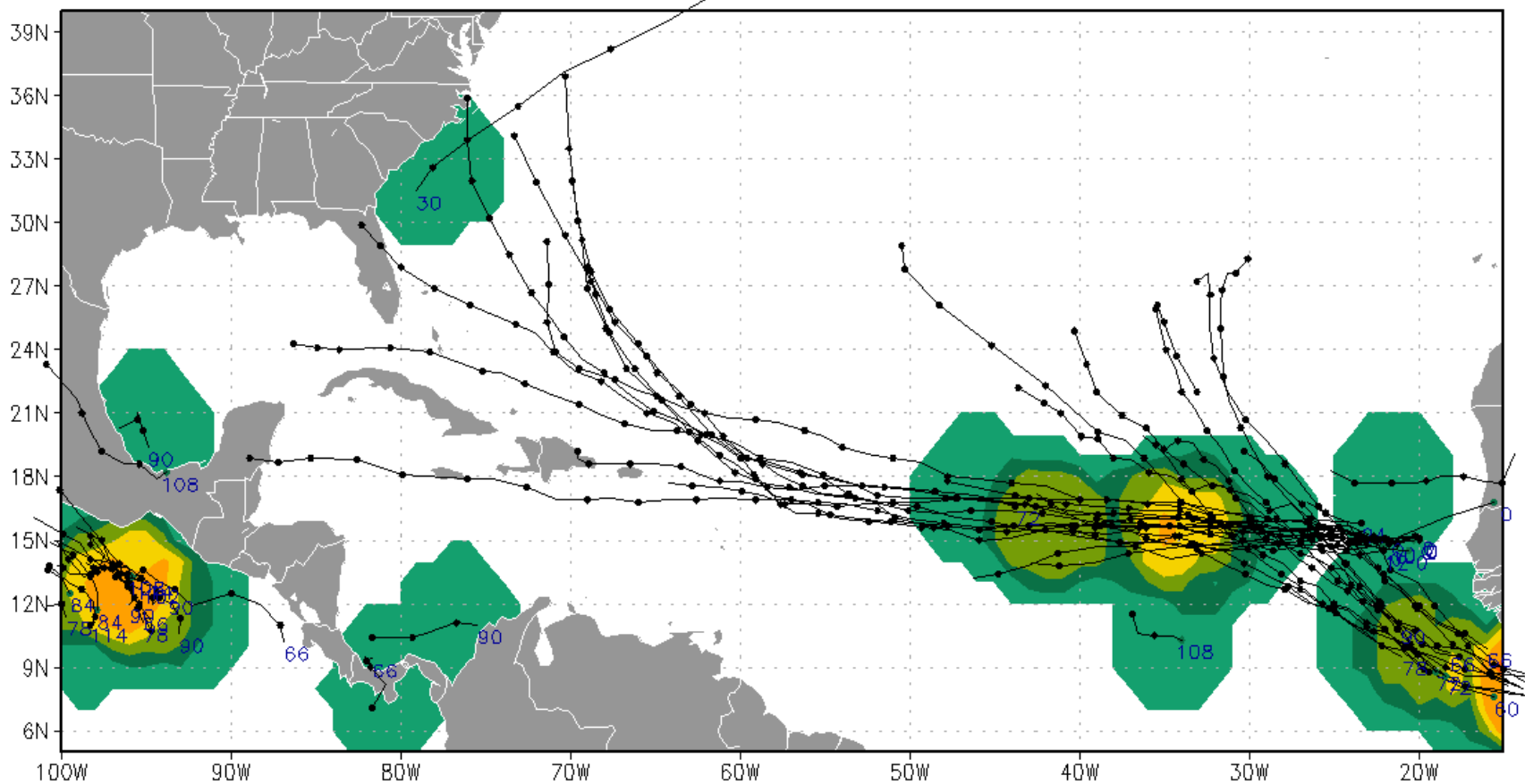


Day 13-15



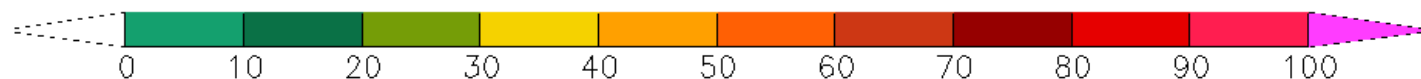
# Connections to U.S. Impacts

# NCEP Ensemble-based Probability (%) of TC genesis for forecasts during the 00–120h period from initial time = 2016083012



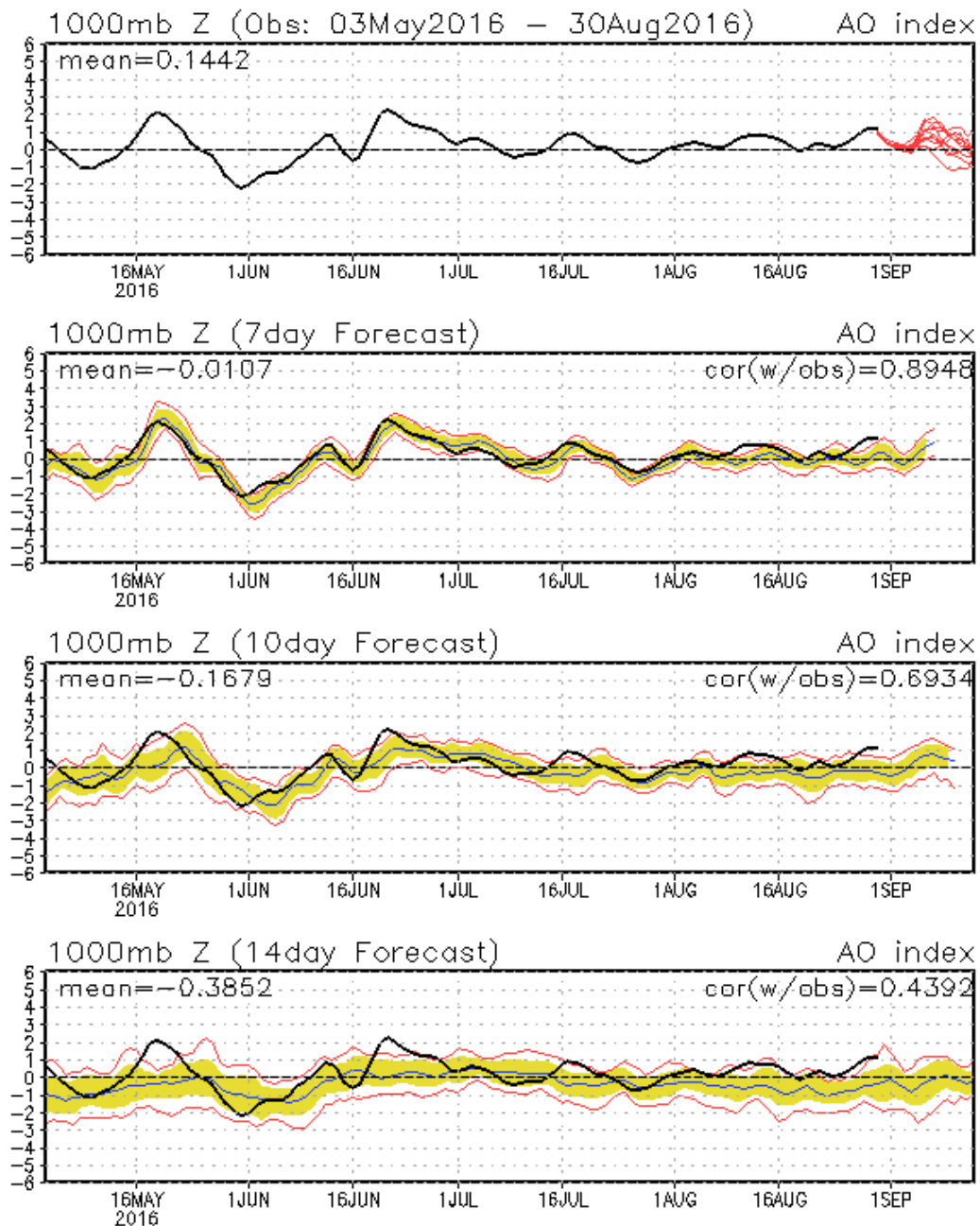
● = position at 00 or 12 UTC

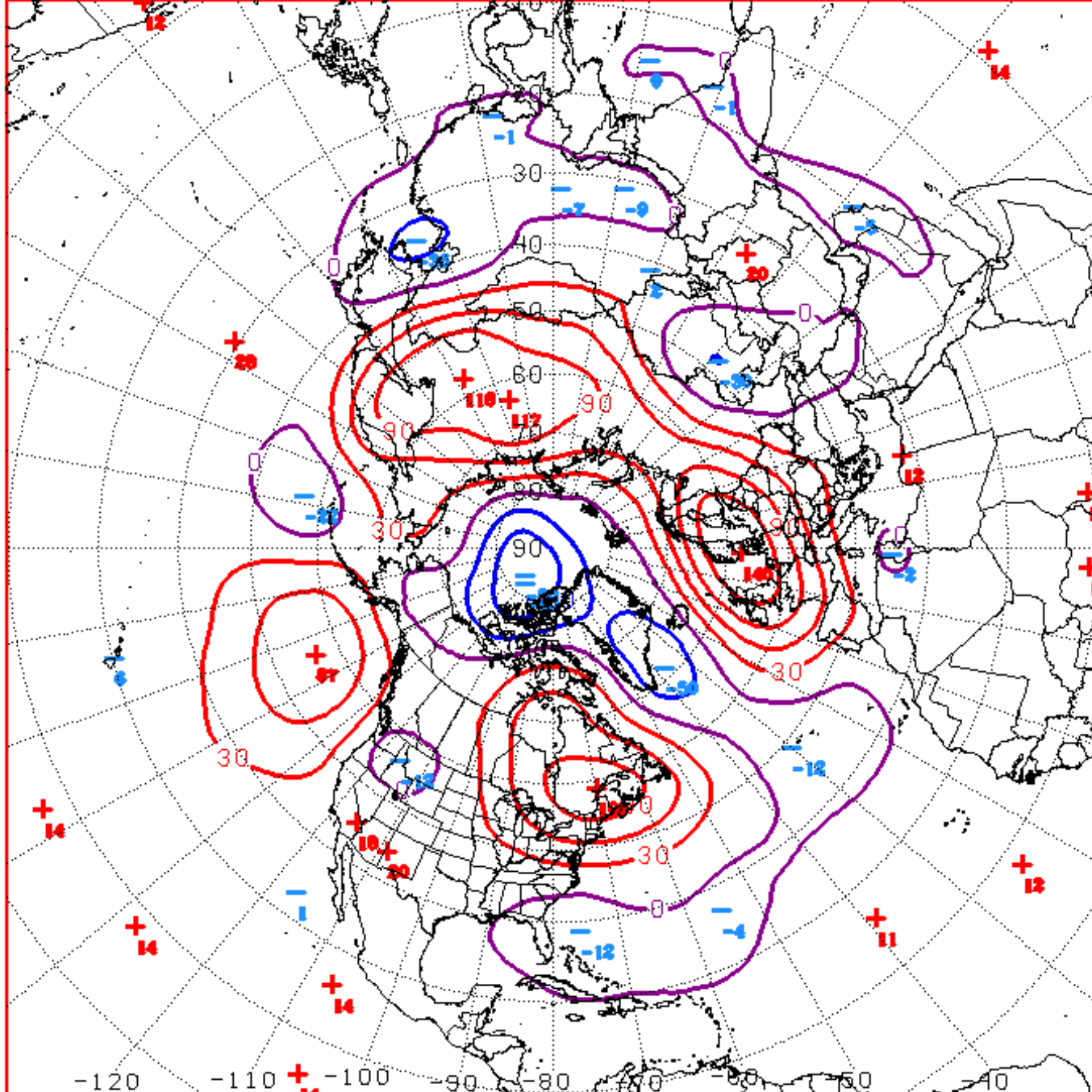
Forecast hour shown at beginning of each track  
is first lead time the storm was detected in model





## AO: Observed & ENSM forecasts

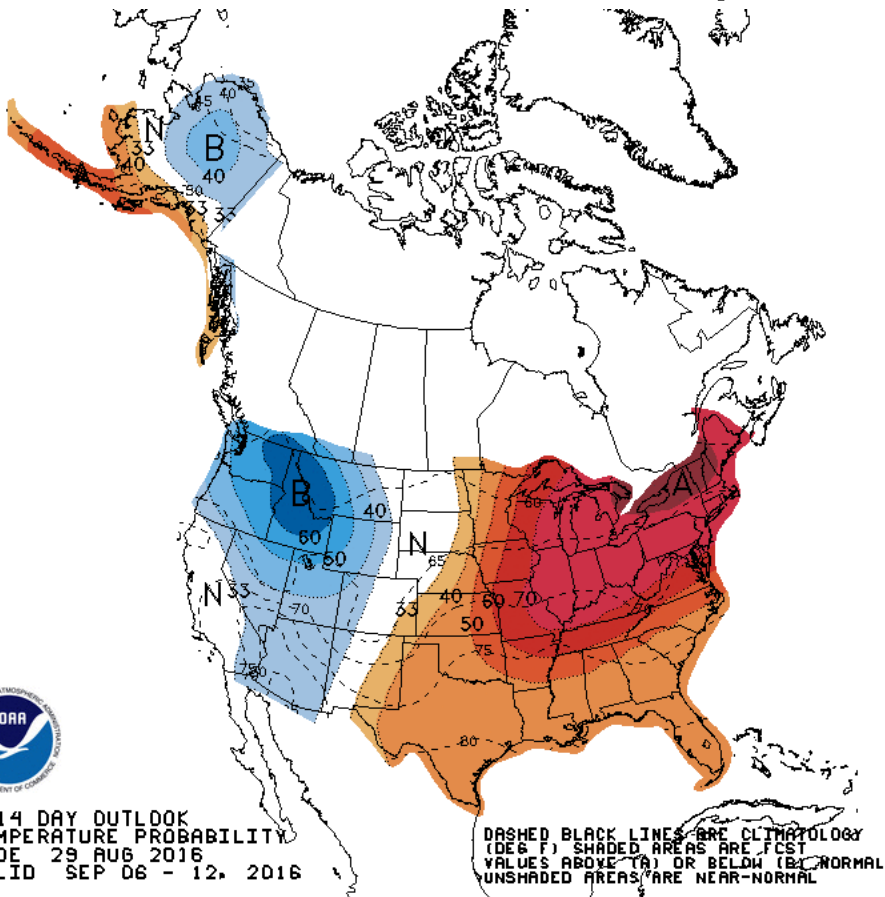




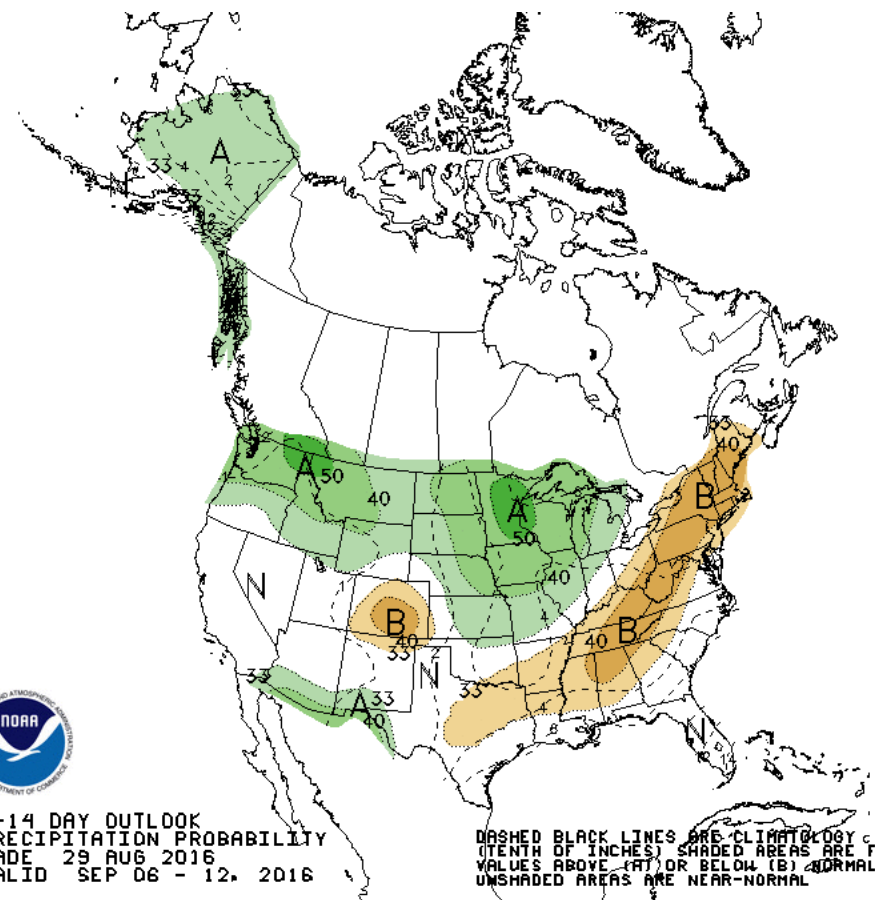
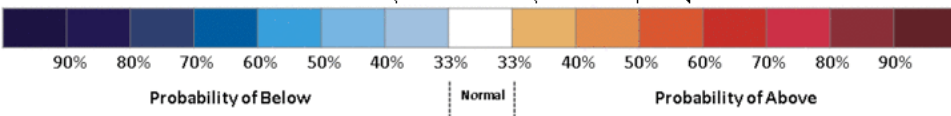
-120 -110 + -100 -90 -80 -70 -60 -50

D+11 500 MB ANOMALIES FROM 00Z ENSM  
CPC MAP MADE AUG 30 2016 0646 UTC CNTD SEP 10 2016

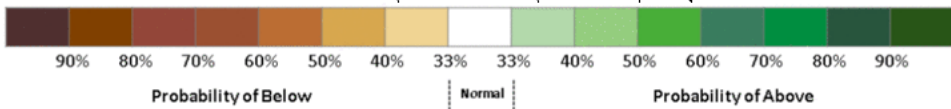
# Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 29 AUG 2016  
VALID SEP 06 - 12, 2016



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 29 AUG 2016  
VALID SEP 06 - 12, 2016

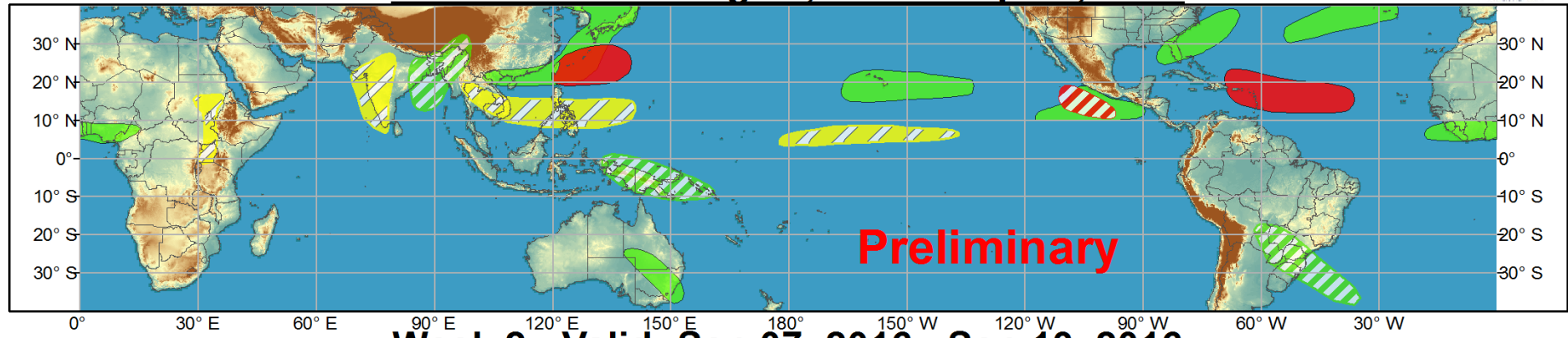




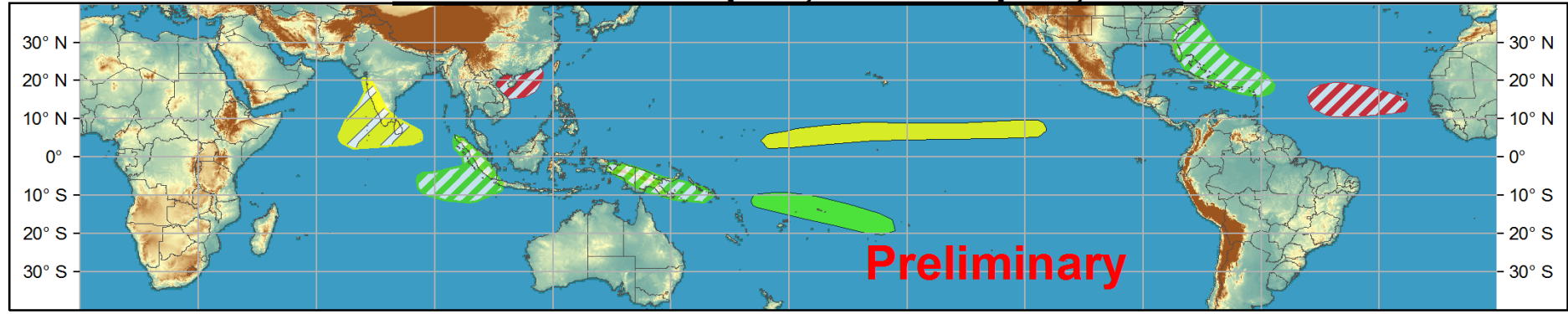
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Produced: 08/30/2016  
Forecaster: Allgood

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.
		<b>Below-normal temperatures</b> 7-day mean temperatures in the lower third of the historical range.

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