

# Tropical Analysis and Forecast Branch

Eric Christensen - Lead Forecaster, NHC/TAFB





# Tropical Analysis and Forecast Branch

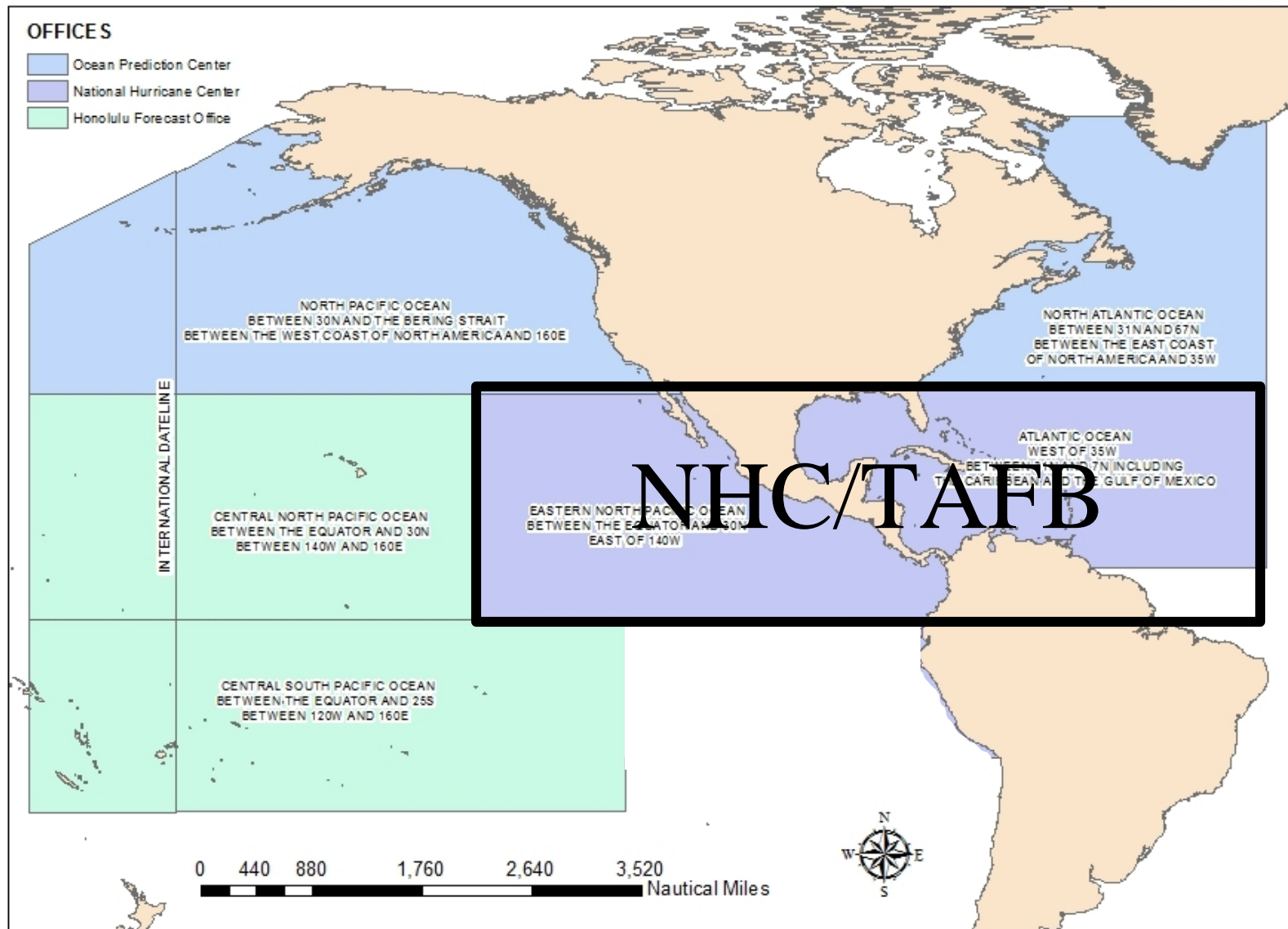
To provide meteorological analysis, forecasts and warnings over the tropical and subtropical oceans for the protection of life and property







# Three Ocean Forecast Centers in the NWS



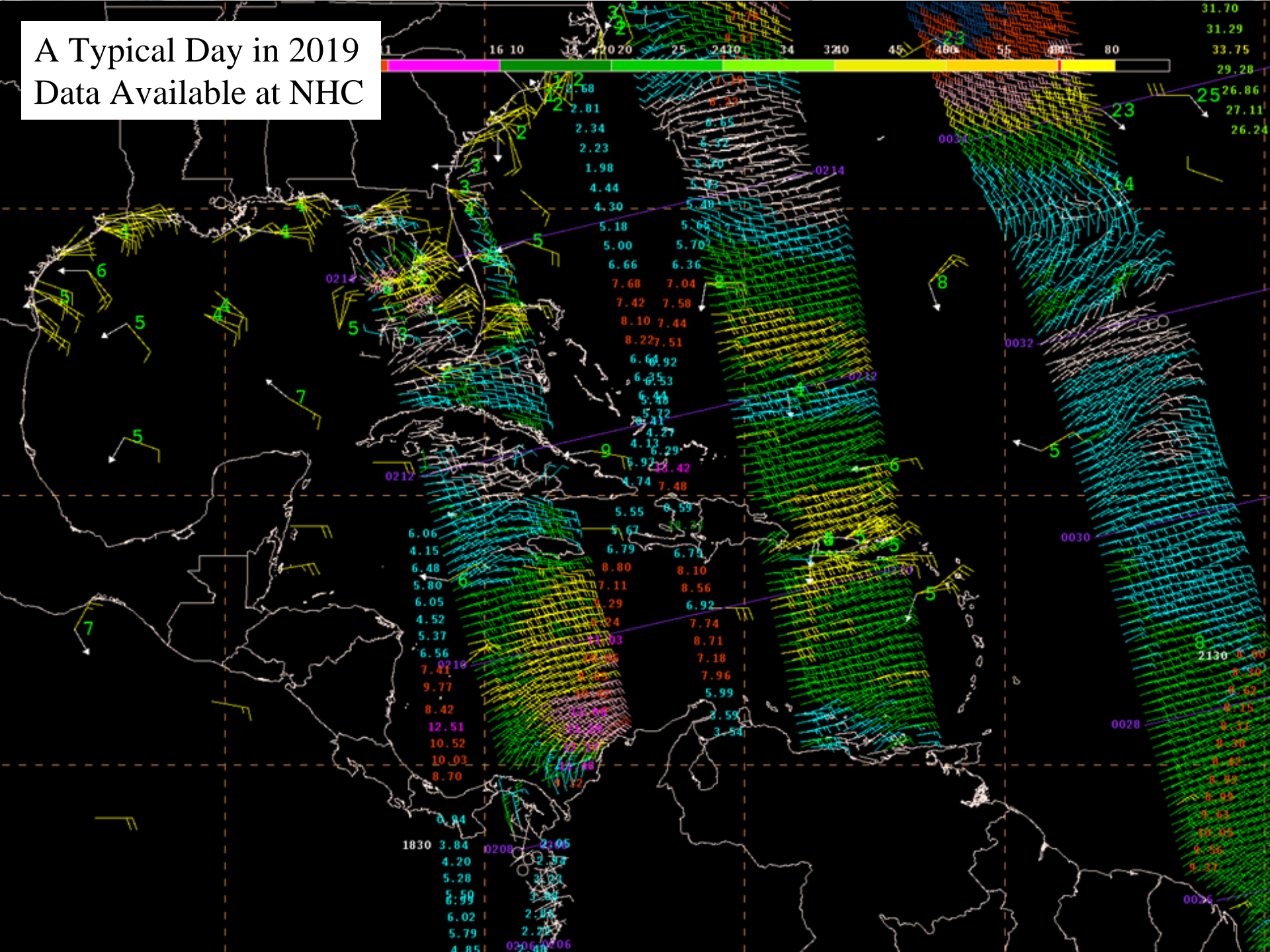
# Ships over the Open Ocean





# A Typical Day in 2019

## Data Available at NHC







# NHC/TAFB Wind and Wave Forecasts

## High Seas and Offshores Text Forecasts

HIGH SEAS FORECAST  
NWS NATIONAL HURRICANE CENTER  
1030 UTC FRI OCT 02 2015

SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

PAN PAN

ATLANTIC FROM 07N TO 31N W OF 35W INCLUDING CARIBBEAN SEA AND GULF OF MEXICO.

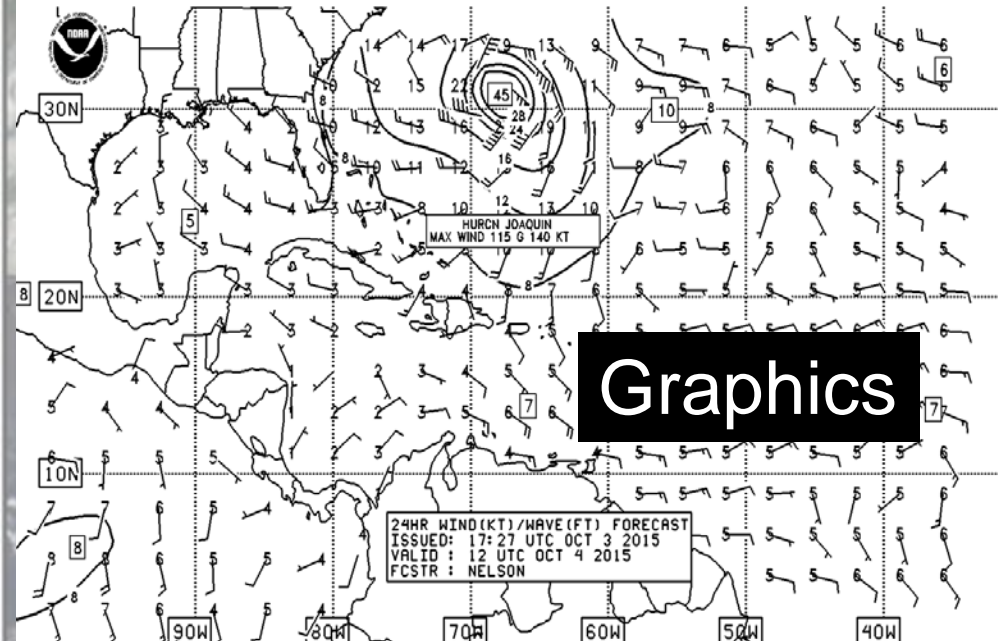
SYNOPSIS VALID 0600 UTC FRI OCT 02.  
24 HOUR FORECAST VALID 0600 UTC SAT OCT 03.  
48 HOUR FORECAST VALID 0600 UTC SUN OCT 04.

.WARNINGS.

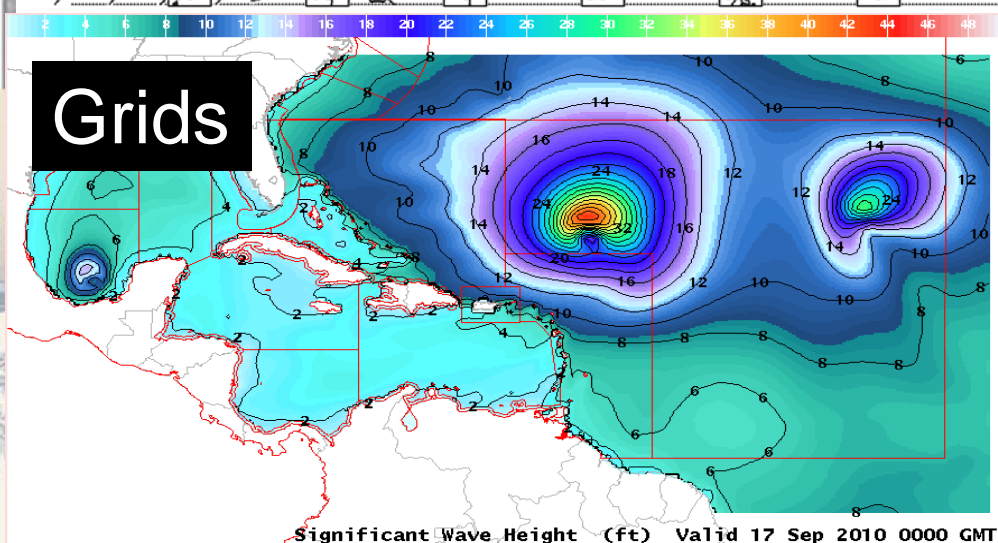
...HURRICANE WARNING...  
.HURRICANE JOAQUIN NEAR 23.3N 74.7W 935 MB AT 0900 UTC OCT 02 MOVING NW OR 315 DEG AT 3 KT. MAXIMUM SUSTAINED WINDS 115 KT GUSTS 140 KT. TROPICAL STORM FORCE WINDS WITHIN 160 NM W SEMICIRCLE...140 NM NE QUADRANT AND 180 NM SE QUADRANT. SEAS 12 FT OR GREATER WITHIN 400 NM NE QUADRANT...150 NM SE QUADRANT...120 NM SW QUADRANT...AND 300 NM NW QUADRANT WITH SEAS TO 39 FT. ELSEWHERE S OF 28N BETWEEN 70W AND 78W WINDS 20 TO 33 KT. SEAS 9 TO 12 FT. N OF 28N BETWEEN 70W AND 75W E WINDS 20 TO 25 KT SEAS 8 TO 10 FT. REMAINDER OF AREA N OF 21N BETWEEN 65W AND 78W AND OUTSIDE OF THE BAHAMAS WINDS 20 KT OR LESS. SEAS 8 TO 11 FT IN MIXED SWELL.

<https://www.nhc.noaa.gov/marine/offshores.php>

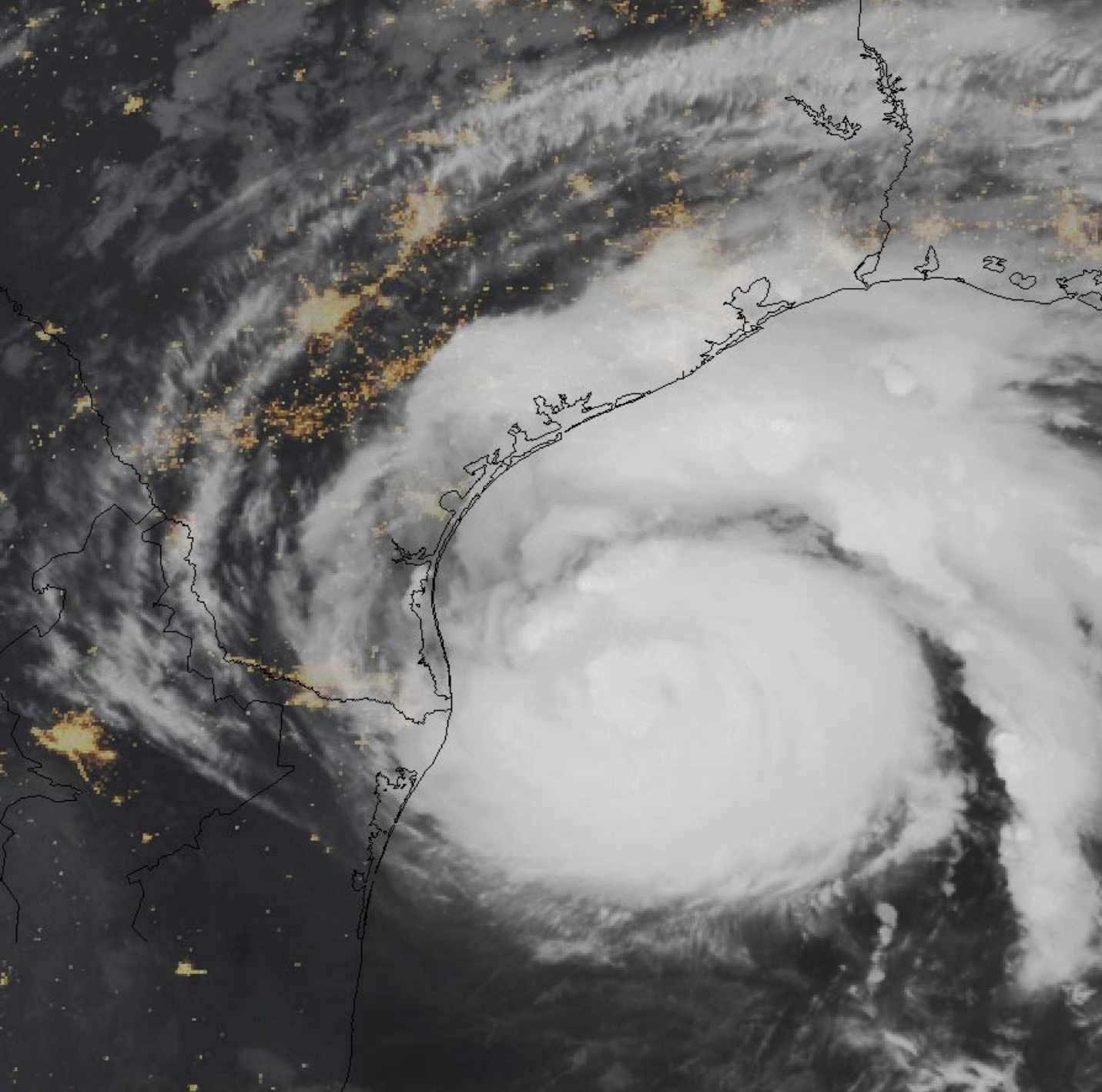
## Graphics



## Grids





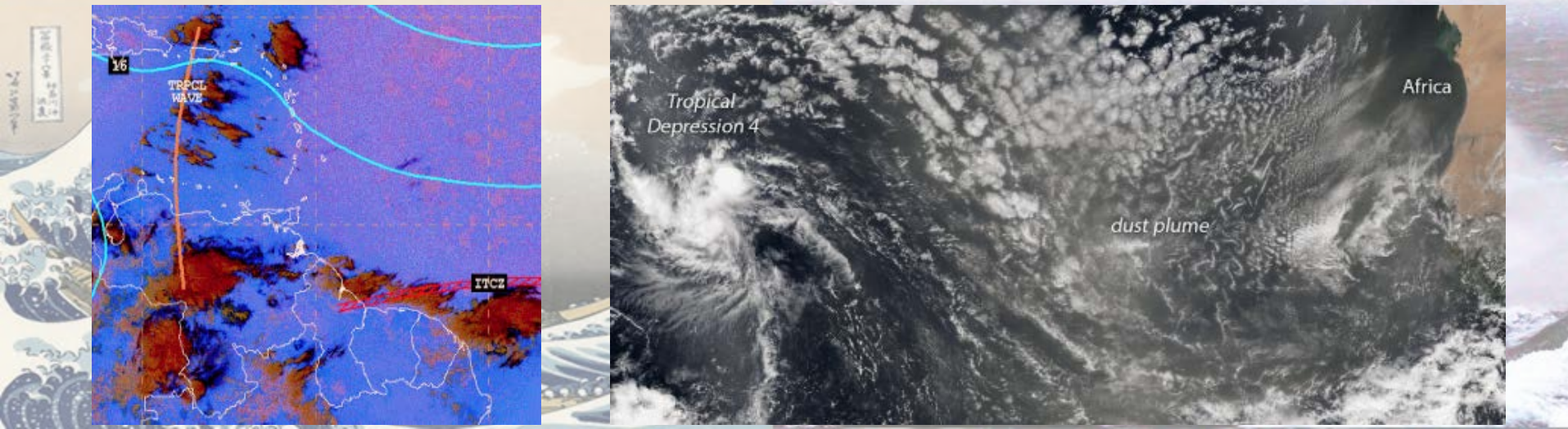


**GOES-16  
and  
GOES17:  
A new era  
of geo-  
stationary  
satellite  
imagery  
and data**



# 2018 Highlights: GOES 16 & 17

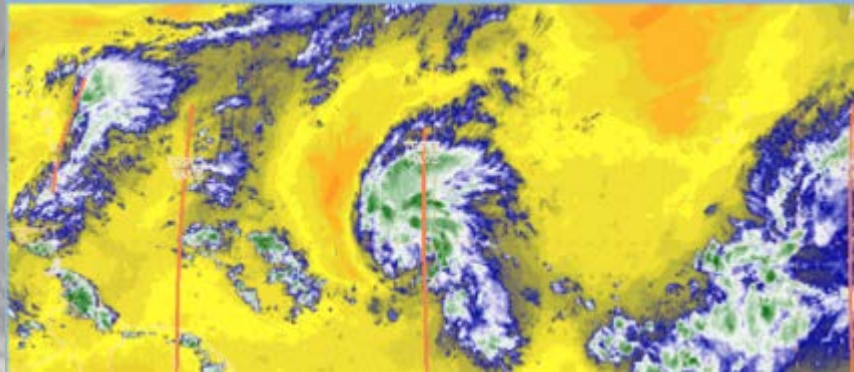
- Dvorak Operations
  - Higher Resolution
  - BD curve better defined in AWIPS vs NAWIPS
- Dust/SAL detection
  - Helped TAFB better define where convective gusts could be an issue for mariners



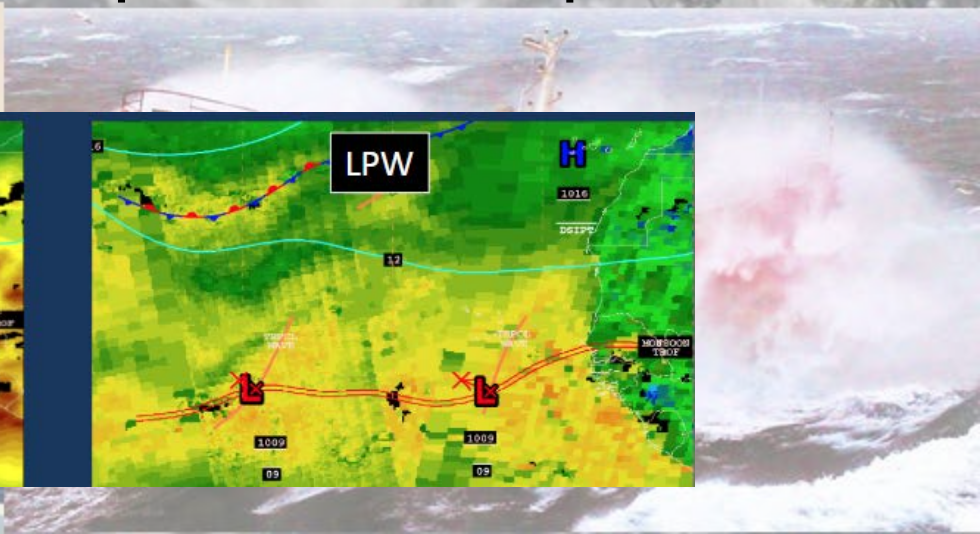
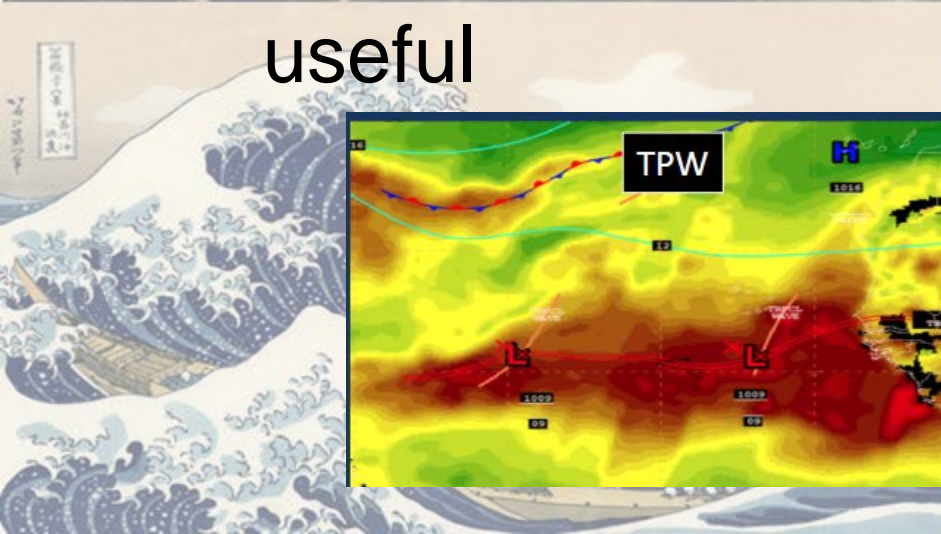
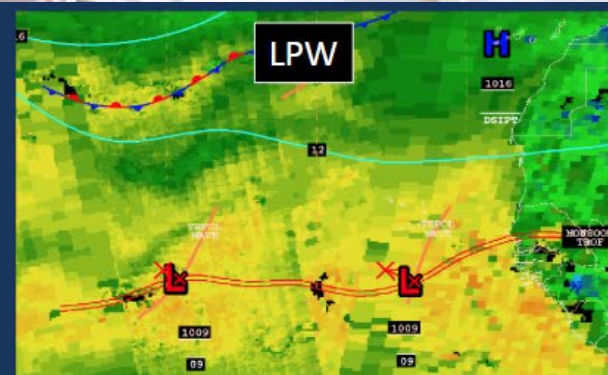
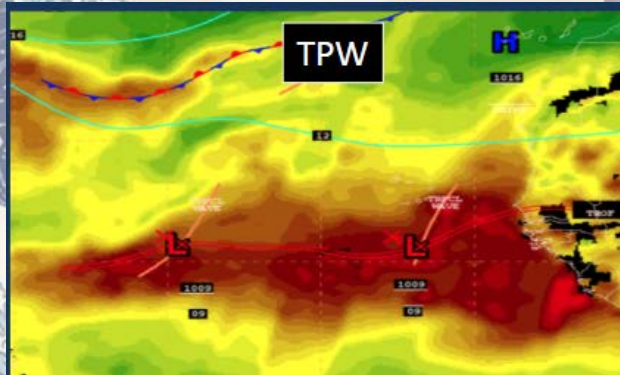


# 2018/2019 Highlights: GOES 16 & 17

- 7.3  $\mu\text{m}$  Low Level Water Vapor
  - Assists identification of tropical waves



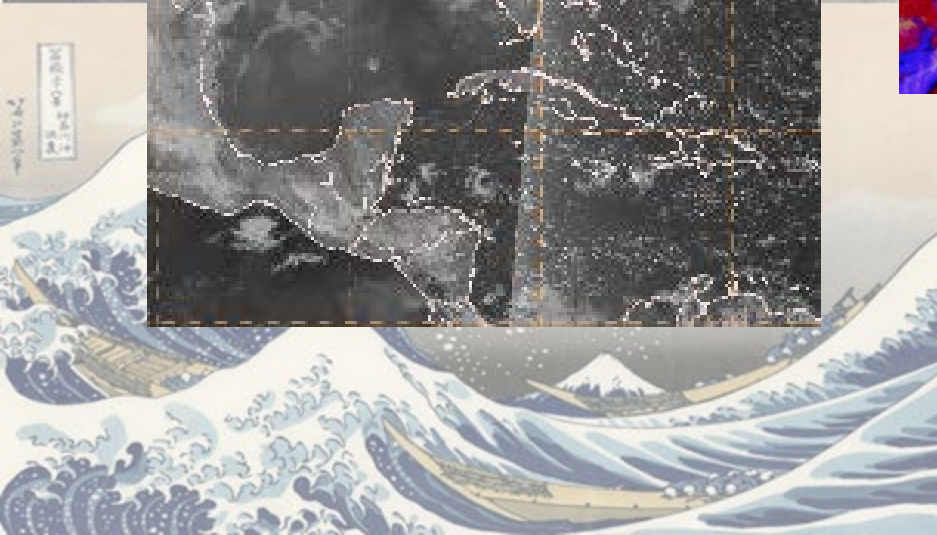
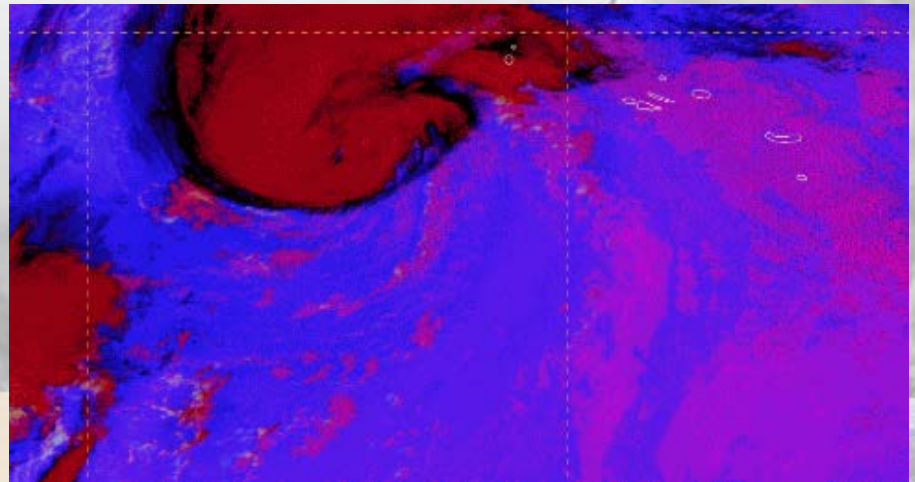
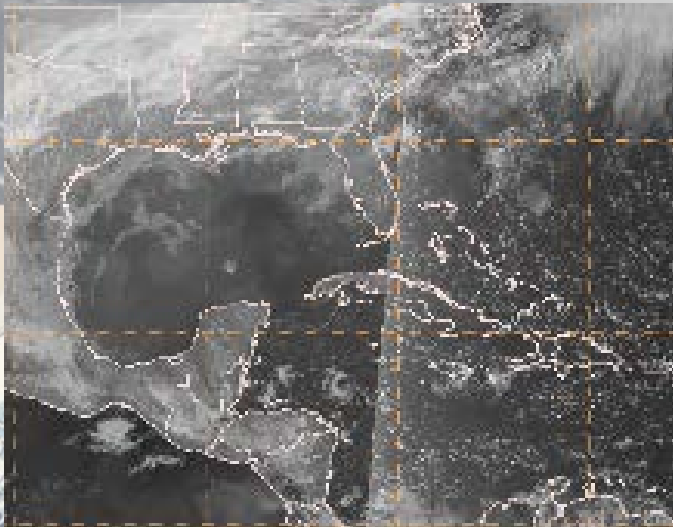
- In addition, LPW from polar orbiter proved useful





# 2018/2019 Highlights: GOES 16 & 17

- Day to Night Transition, Volcanic Ash
  - Nighttime Microphysics
  - Vis Proxy

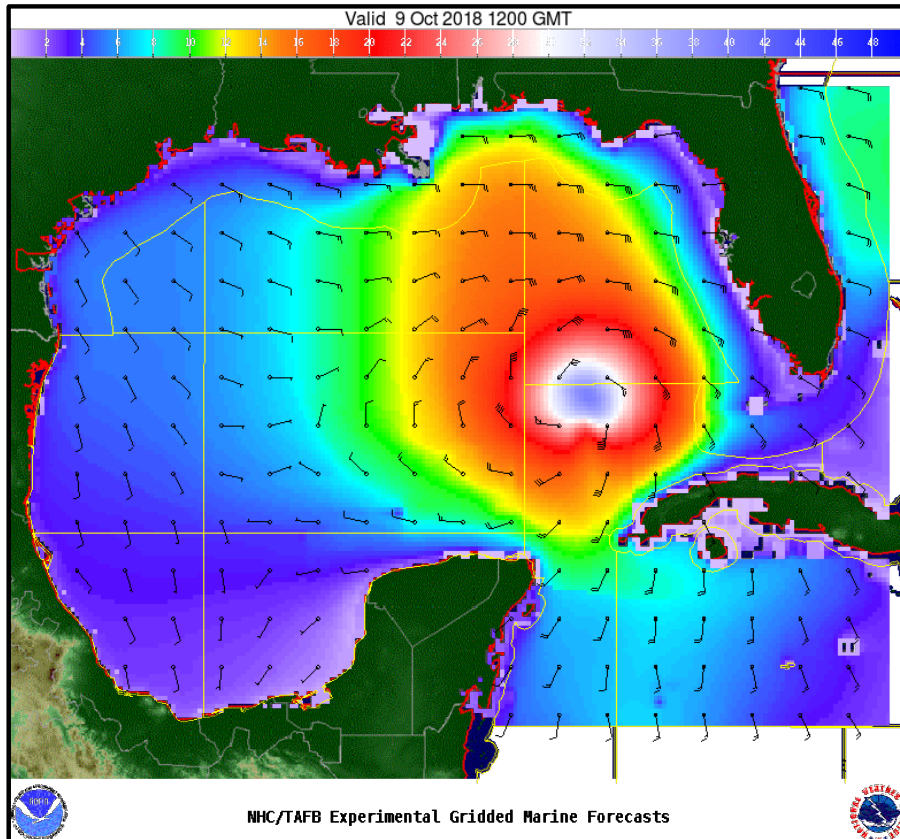






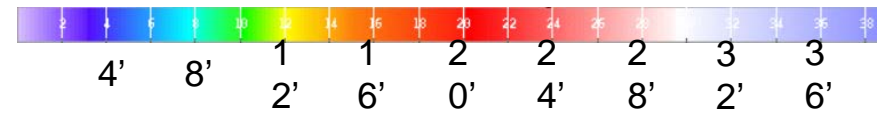
# Wind And Waves

Hurricane Michael



## Current Conditions as of 7am CDT, Tuesday, October 9th

- Wave heights are in feet



- Wind barbs indicate the following wind speeds and directions:

Observed wind speed	0-2 kts (0-2 mph)	3-7 kts (3-8 mph)	8-12 kts (9-14 mph)	13-17 kts (15-20 mph)	18-22 kts (21-25 mph)	23-27 kts (26-31 mph)	28-32 kts (32-37 mph)	33-37 kts (38-43 mph)	48-52 kts (55-60 mph)	53-57 kts (61-66 mph)	58-62 kts (67-71 mph)	63-67 kts (73-77 mph)	98-102 kts (113-117 mph)	102-107 kts (119-123 mph)
Rounded to the nearest 5	0 kts	5 kts	10 kts	15 kts	20 kts	25 kts	30 kts	35 kts	50 kts	55 kts	60 kts	65 kts	100 kts	105 kts
Plotted as	○	┆	┆┆	┆┆┆	┆┆┆┆	┆┆┆┆┆	┆┆┆┆┆┆	┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆┆┆

Wind FROM 340° (NNW)    Wind FROM 040° (NE)    Wind FROM 190° (S)

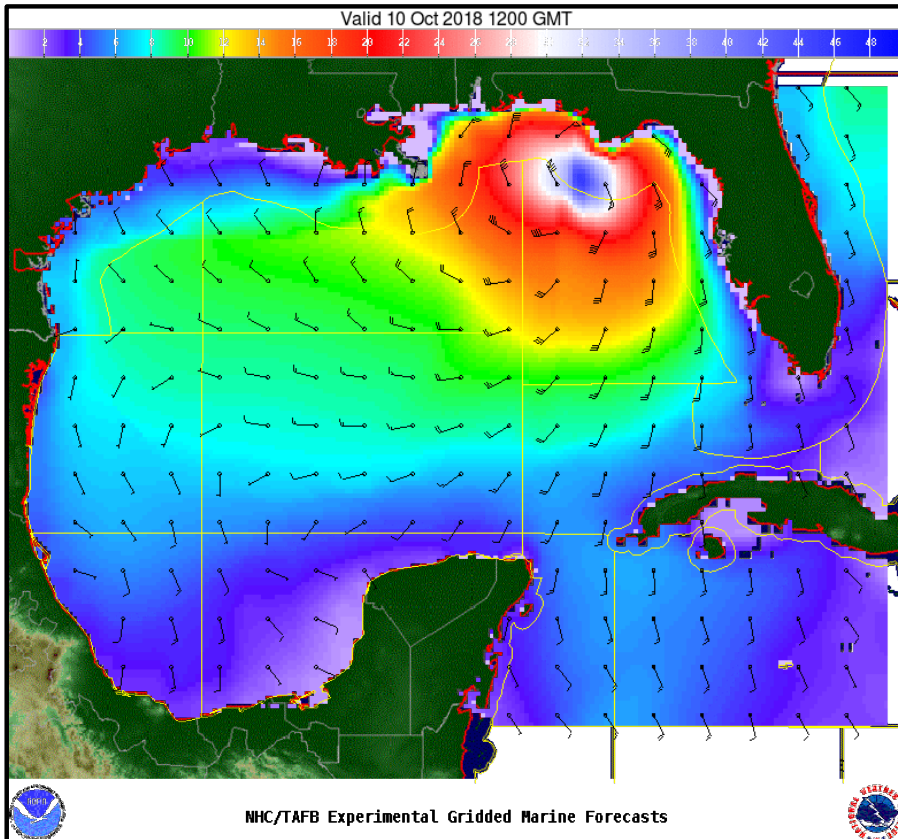
The wind direction is indicated by the long shaft. The shaft will point to the direction FROM which the wind is blowing. The direction is based upon a 36-point compass.





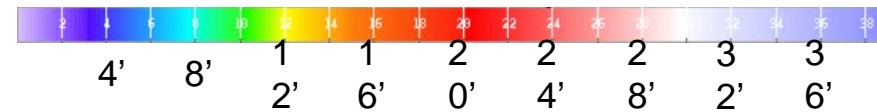
# Wind And Waves

Hurricane Michael



## 24 Hour Forecast Conditions – 7am CDT, Wednesday, October 10th

- Wave heights are in feet



- Wind barbs indicate the following wind speeds and directions:

Observed wind speed	0-2 kts (0-2 mph)	3-7 kts (3-8 mph)	8-12 kts (9-14 mph)	13-17 kts (15-20 mph)	18-22 kts (21-25 mph)	23-27 kts (26-31 mph)	28-32 kts (32-37 mph)	33-37 kts (38-43 mph)	48-52 kts (55-60 mph)	53-57 kts (61-66 mph)	58-62 kts (67-71 mph)	63-67 kts (73-77 mph)	98-102 kts (113-117 mph)	102-107 kts (119-123 mph)
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Wind FROM 340° (NNW)    Wind FROM 040° (NE)    Wind FROM 190° (S)

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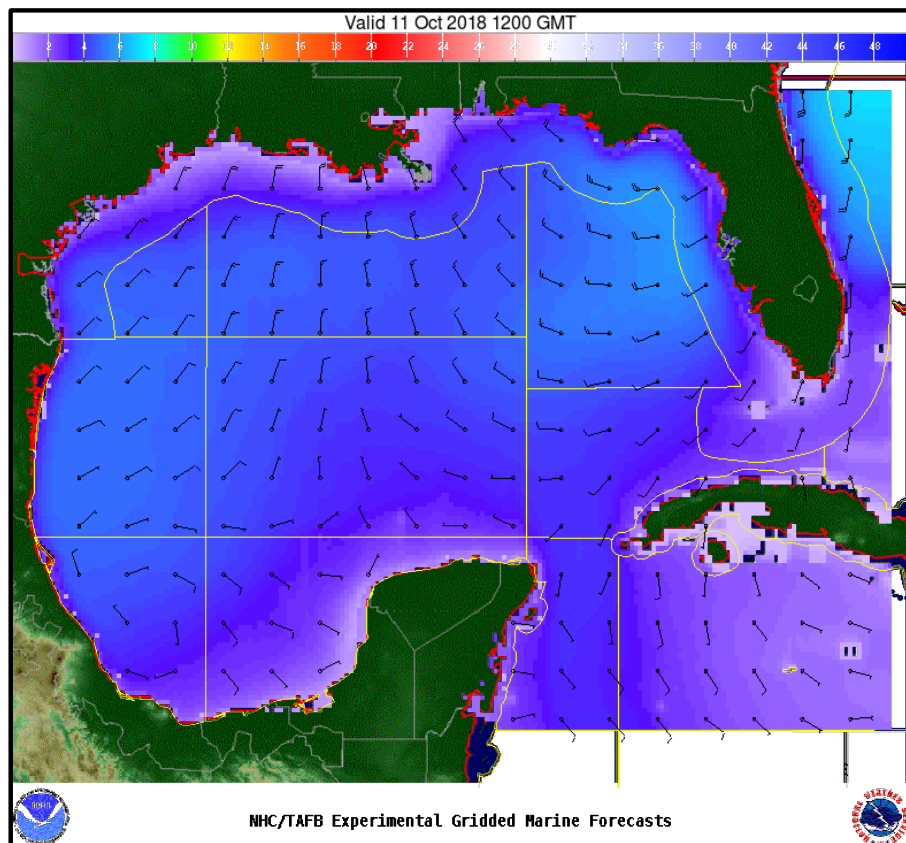






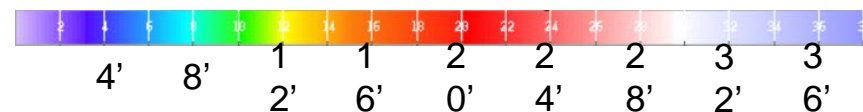
# Wind And Waves

Hurricane Michael



## 48 hr Forecast Conditions – 7am CDT, Thursday, October 11th

- Wave heights are in feet



- Wind barbs indicate the following wind speeds and directions:

Observed wind speed	0-2 kts (0-2 mph)	3-7 kts (3-8 mph)	8-12 kts (9-14 mph)	13-17 kts (15-20 mph)	18-22 kts (21-25 mph)	23-27 kts (26-31 mph)	28-32 kts (32-37 mph)	33-37 kts (38-43 mph)	48-52 kts (55-60 mph)	53-57 kts (61-66 mph)	58-62 kts (67-71 mph)	63-67 kts (73-77 mph)	98-102 kts (113-117 mph)	102-107 kts (119-123 mph)
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Plotted as	○	┆	┆┆	┆┆┆	┆┆┆┆	┆┆┆┆┆	┆┆┆┆┆┆	┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆┆	┆┆┆┆┆┆┆┆┆┆┆┆┆

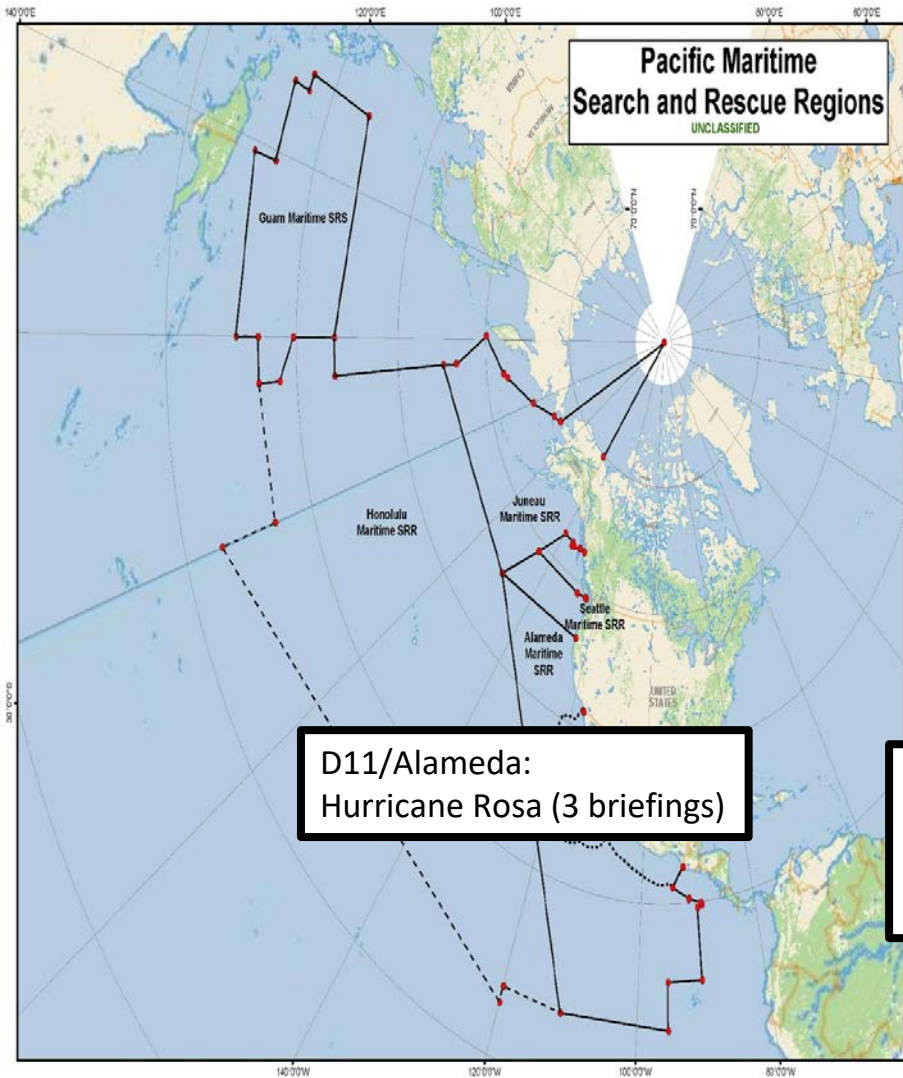
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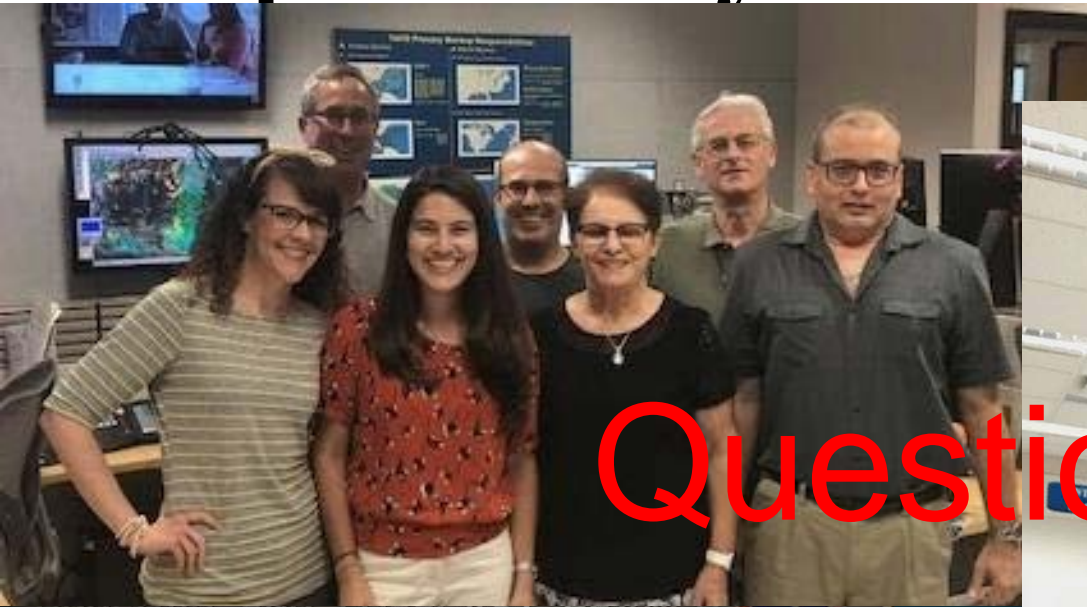


# Decision Support Services to U.S. Coast Guard Districts by Tropical Analysis and Forecast Branch (TAFB)/ National Hurricane Center (NHC)/National Weather Service (NWS)





# Tropical Analysis and Forecast



Questions?



Thank You

