

NHC's Tropical Analysis and Forecast Branch - 2025 Impact-based Decision Support Services for the U.S. Coast Guard and Caribbean Mets

Chris Landsea

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NHC/TAFB Branch Chief

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



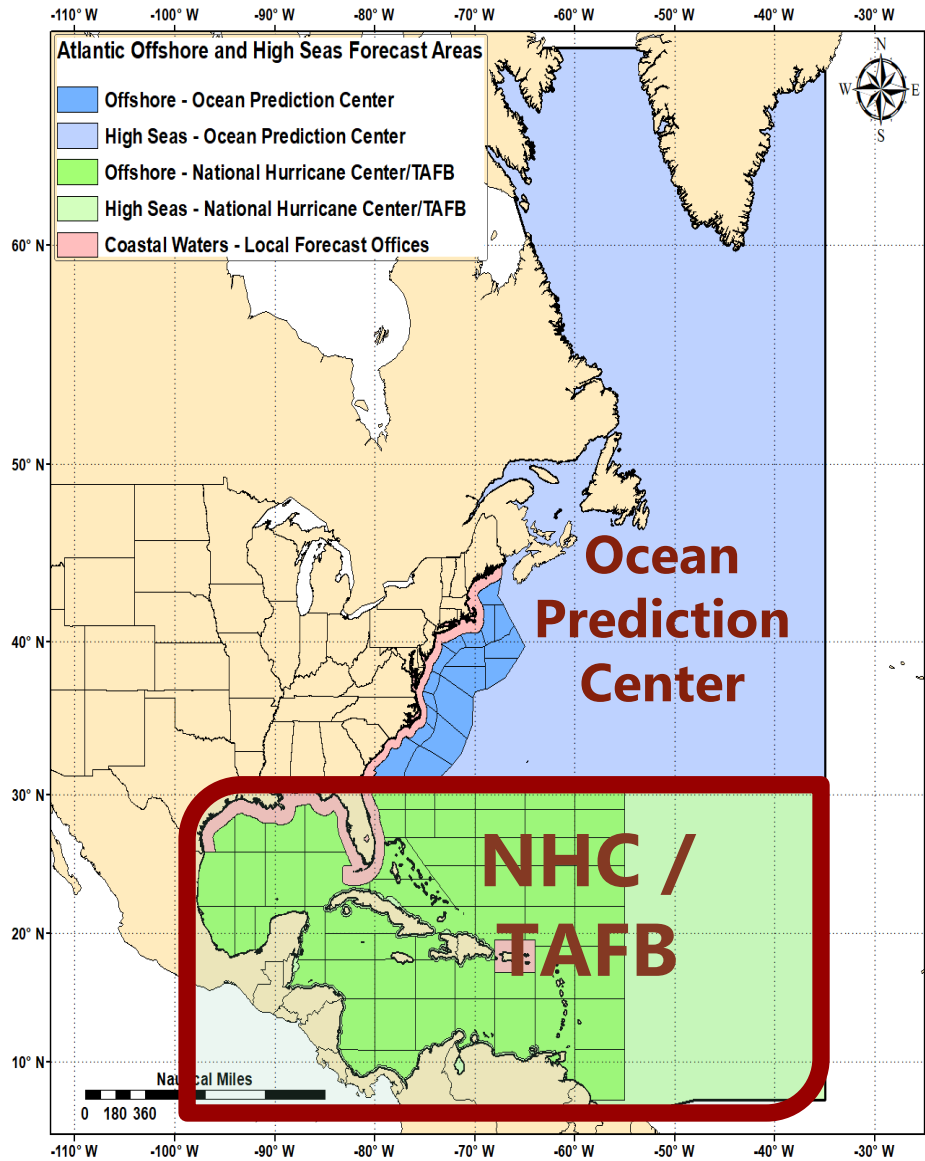
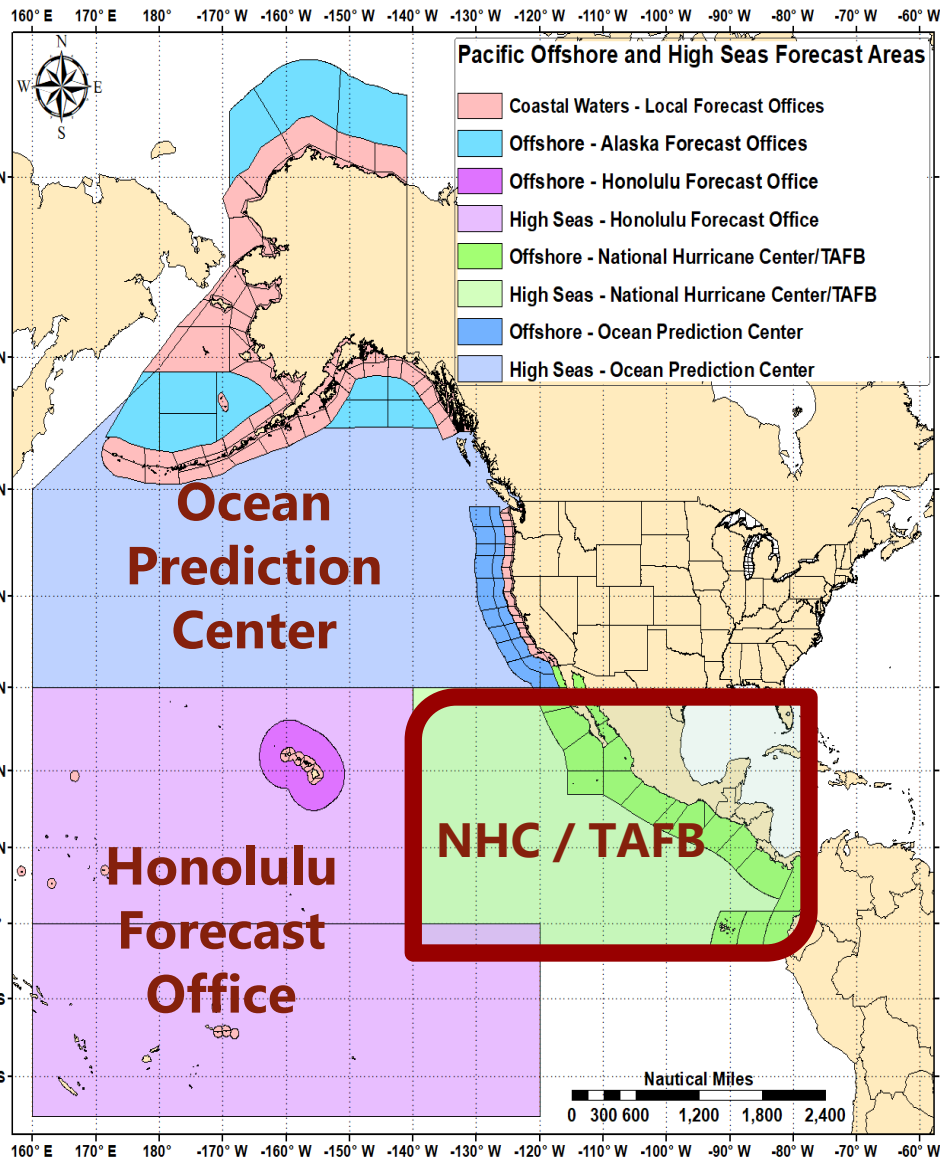
Global High Seas Forecasts

- International Maritime Organization





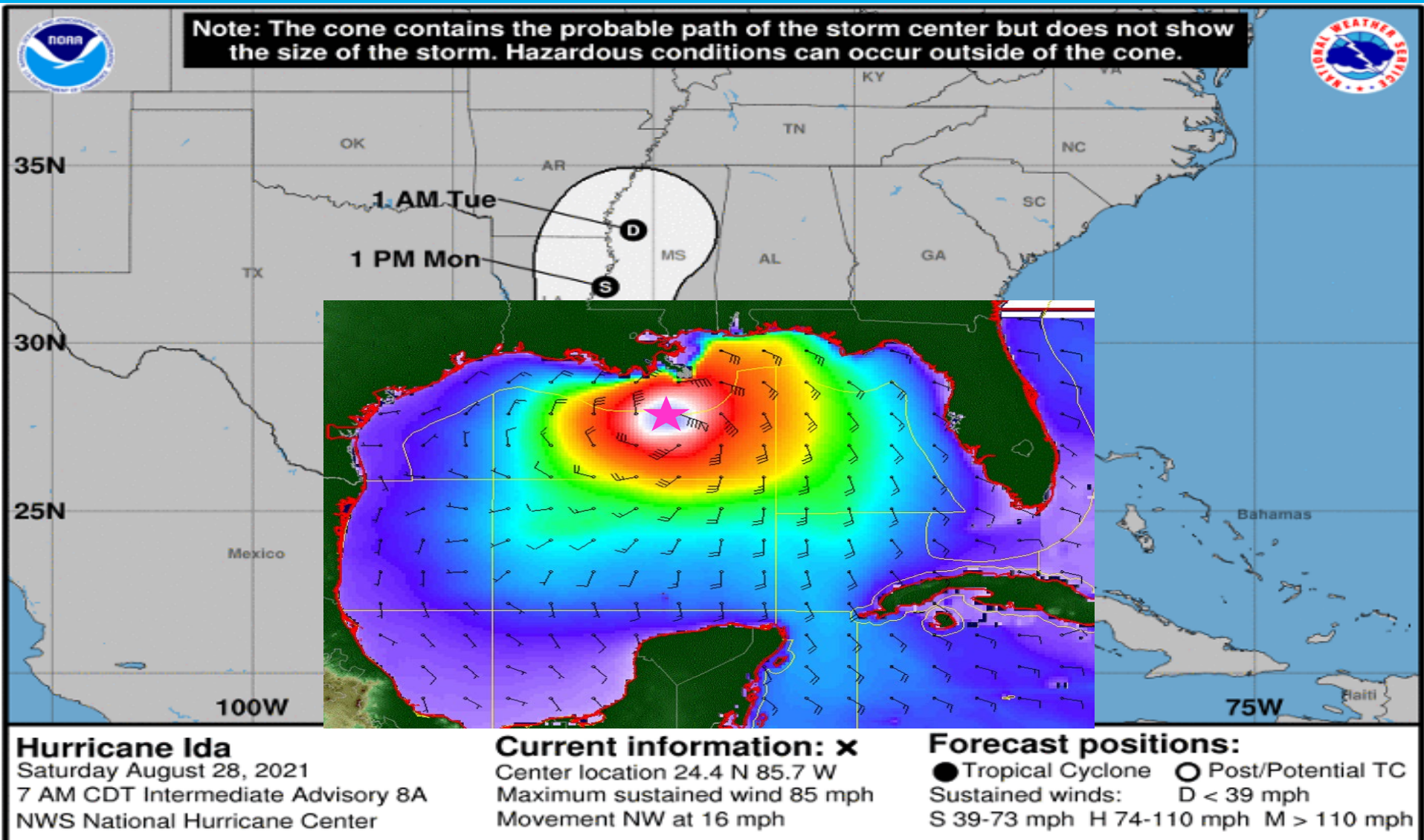
NHC/TAFB - Areas of Responsibility



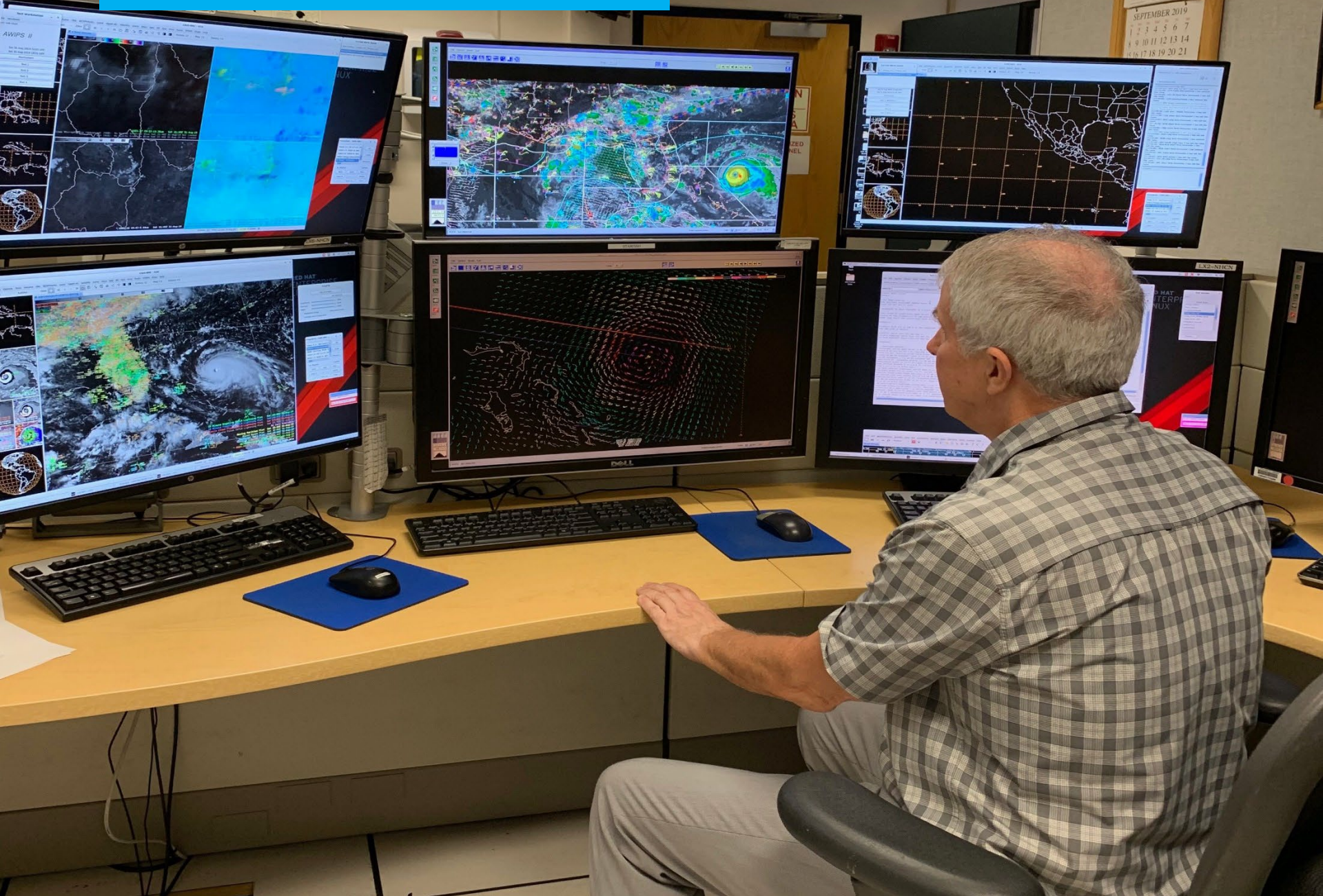
Tools – Incorporating NHC’s Tropical Storm/Hurricane Forecast



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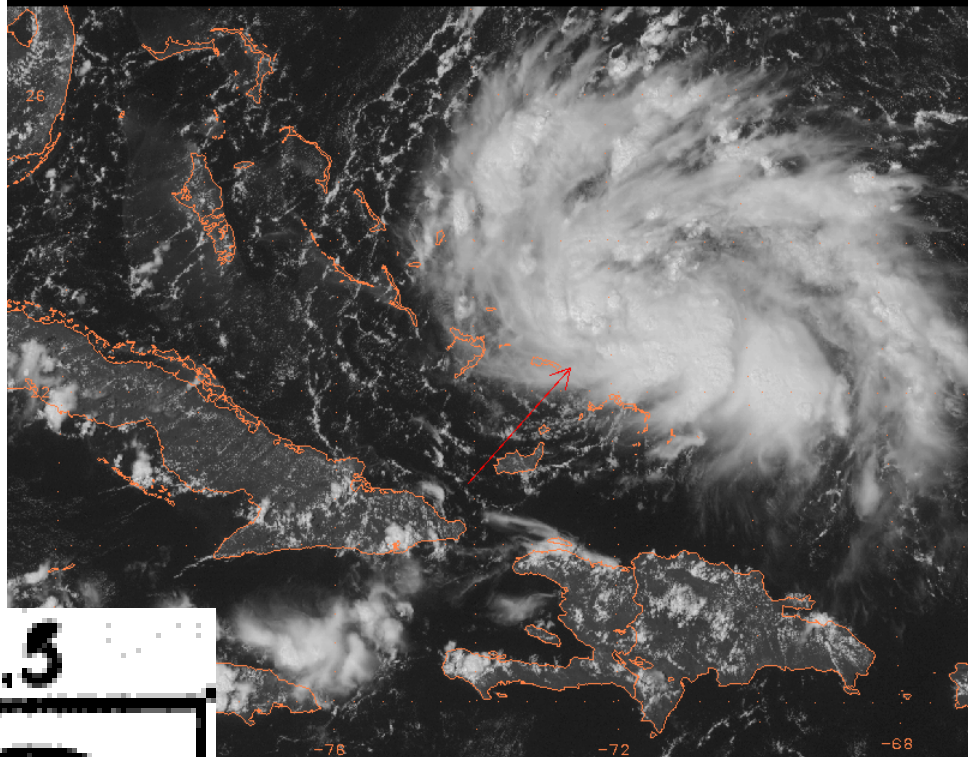
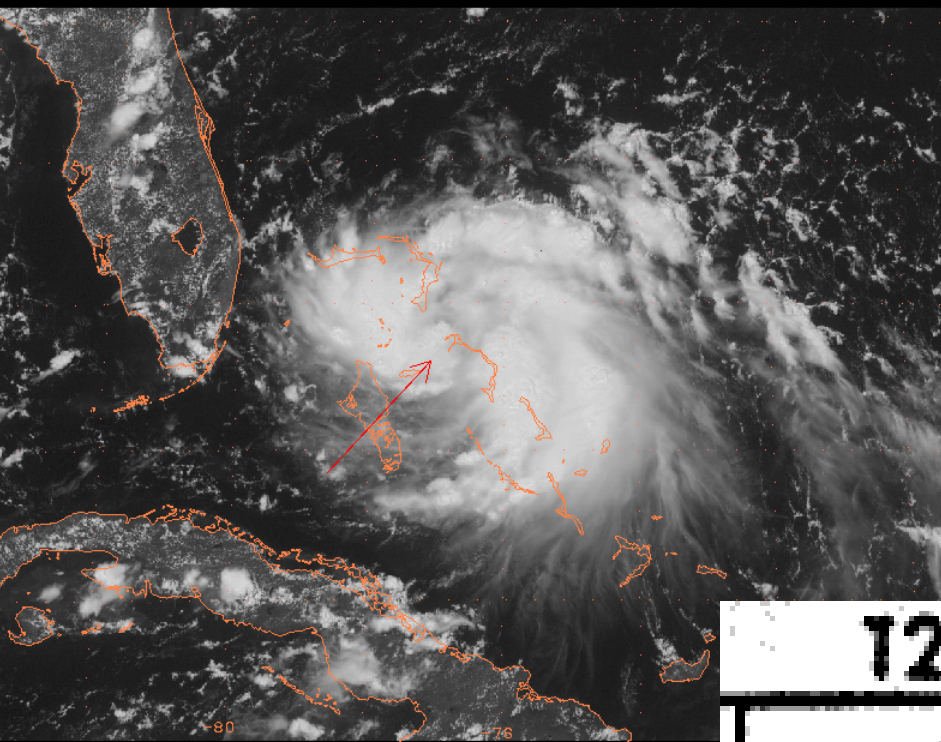
Tools - Workstations



Satellite Imagery – Dvorak Technique

Katrina August 24

Rita September 18



12.5



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SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS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.

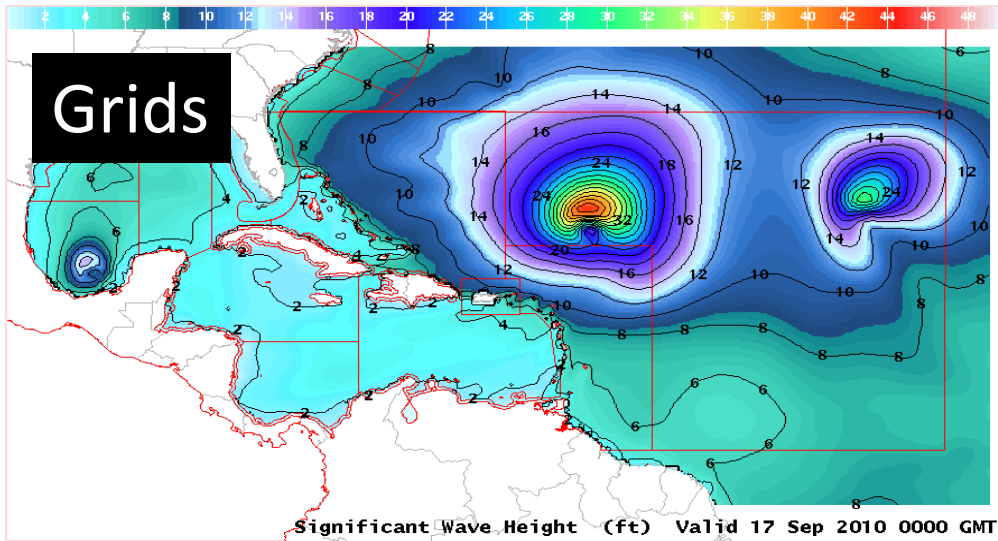
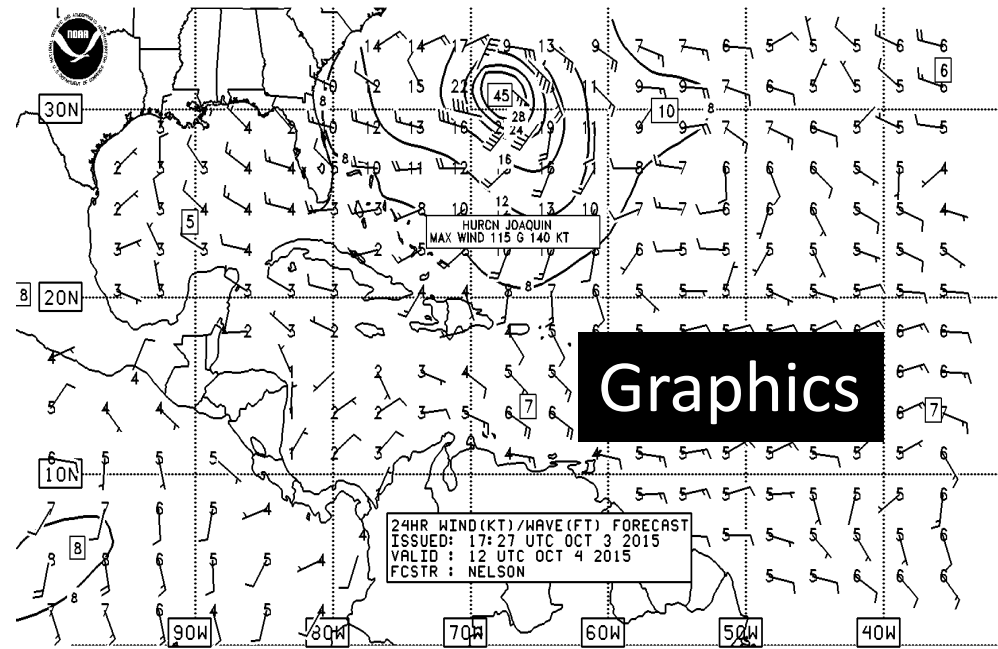
PAN PAN

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

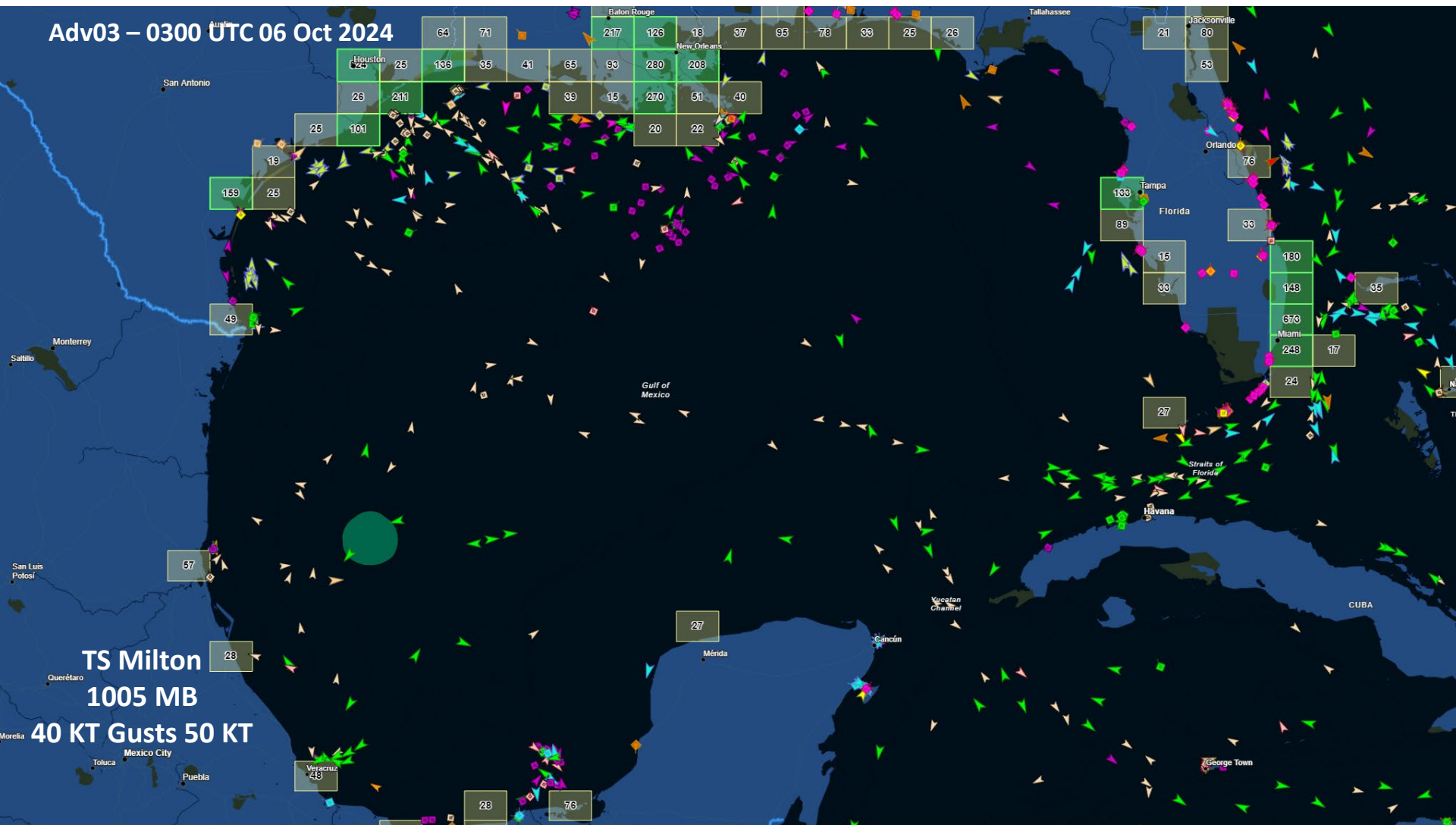
SYNOPSIS VALID 0600 UTC FRI OCT 02.
 24 HOUR FORECAST VALID 0600 UTC SAT OCT 03.
 48 HOUR FORECAST VALID 0600 UTC SUN OCT 04.

.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.

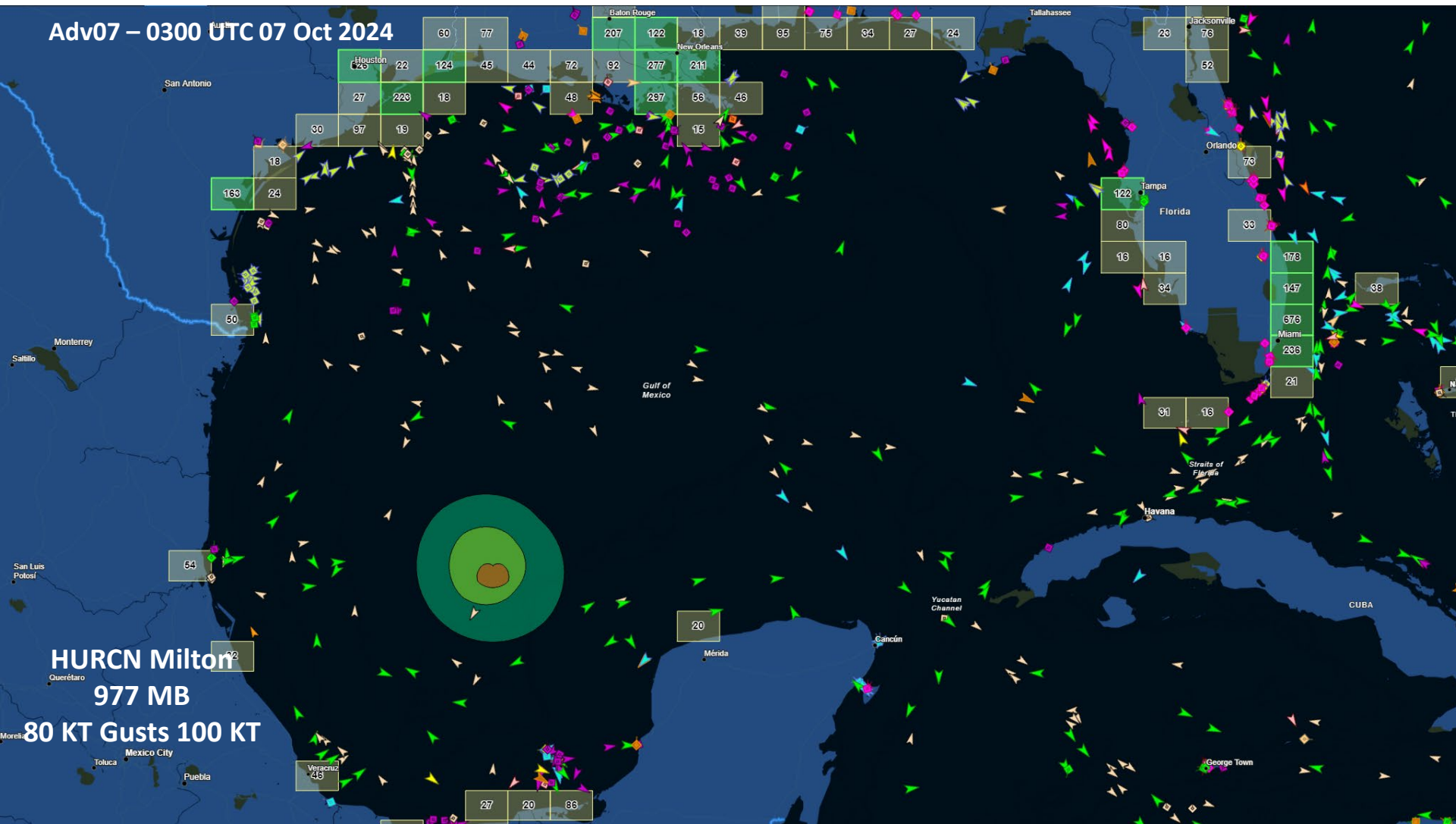


Hurricane Milton – Heavy Weather Avoidance



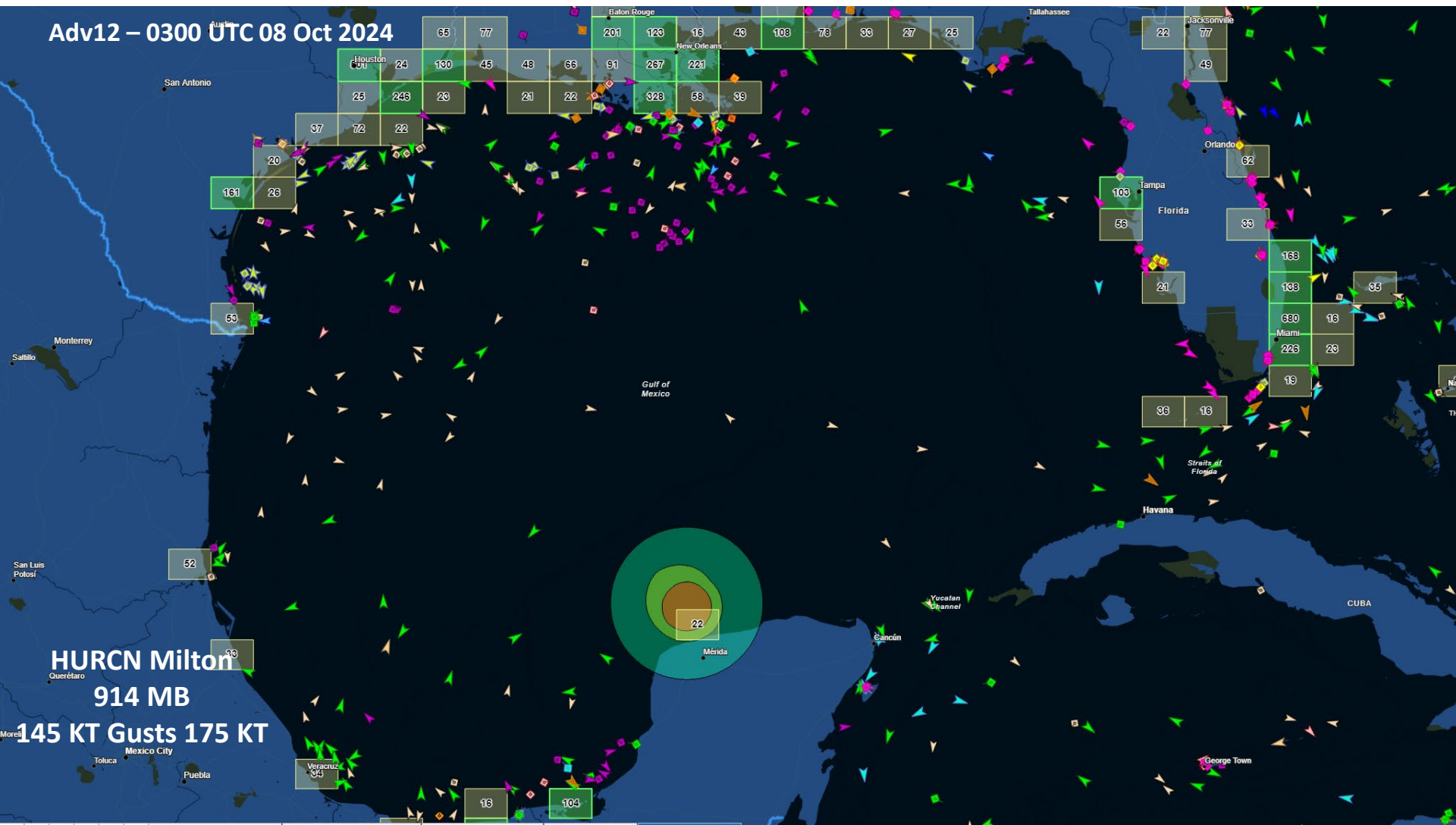
Hurricane Milton – Heavy Weather Avoidance

Adv07 – 0300 UTC 07 Oct 2024



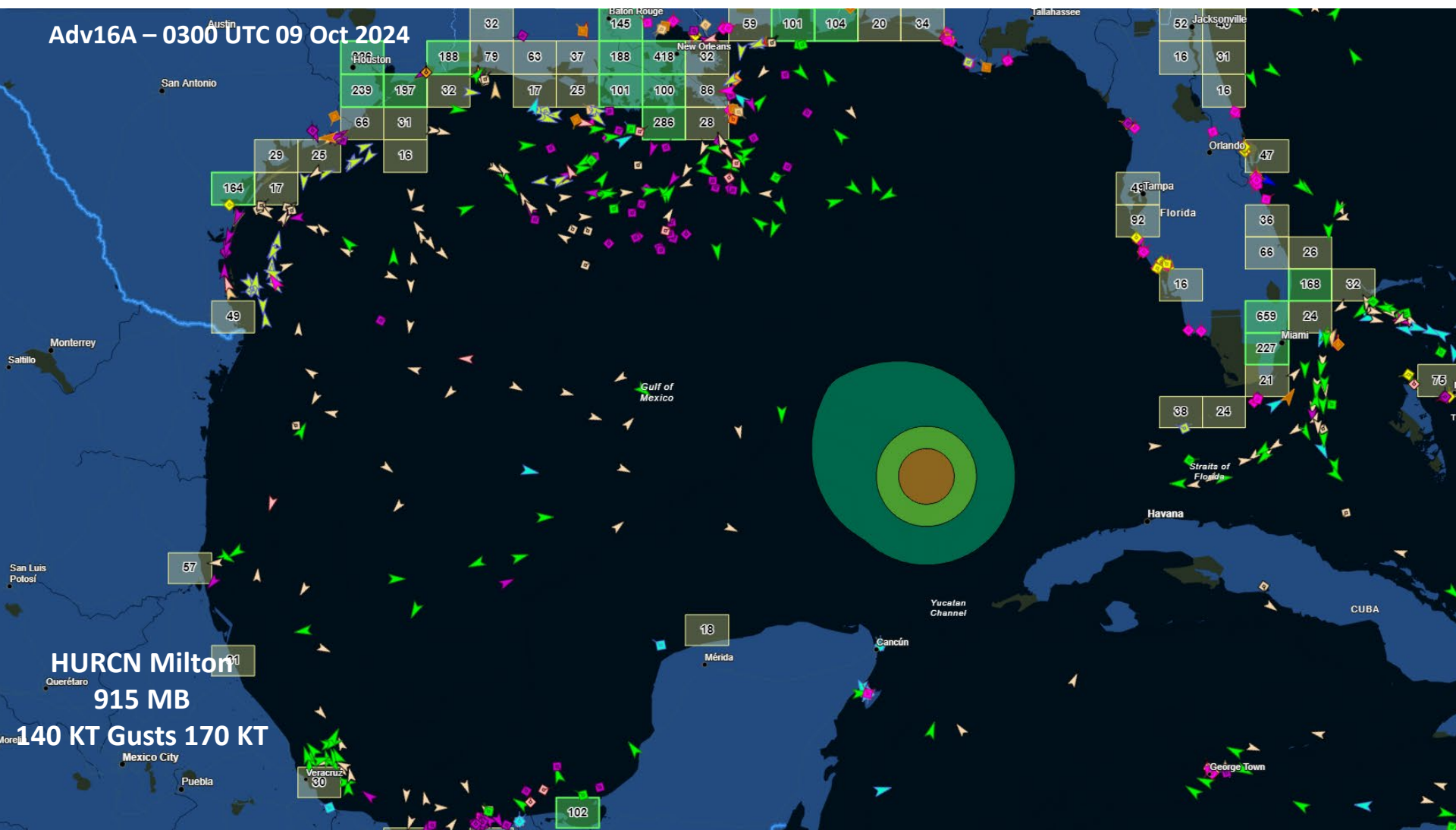
Hurricane Milton – Heavy Weather Avoidance

Adv12 – 0300 UTC 08 Oct 2024

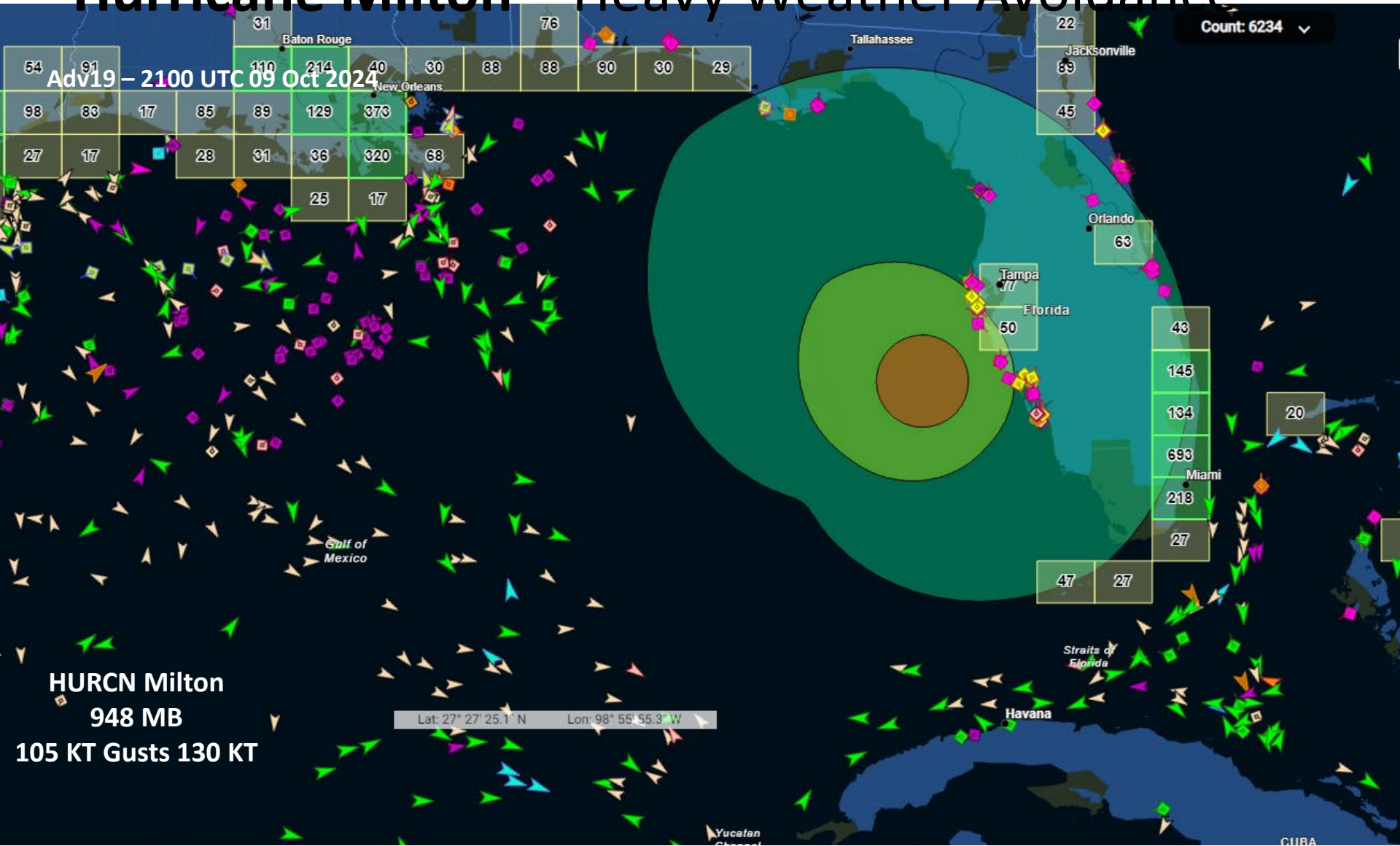


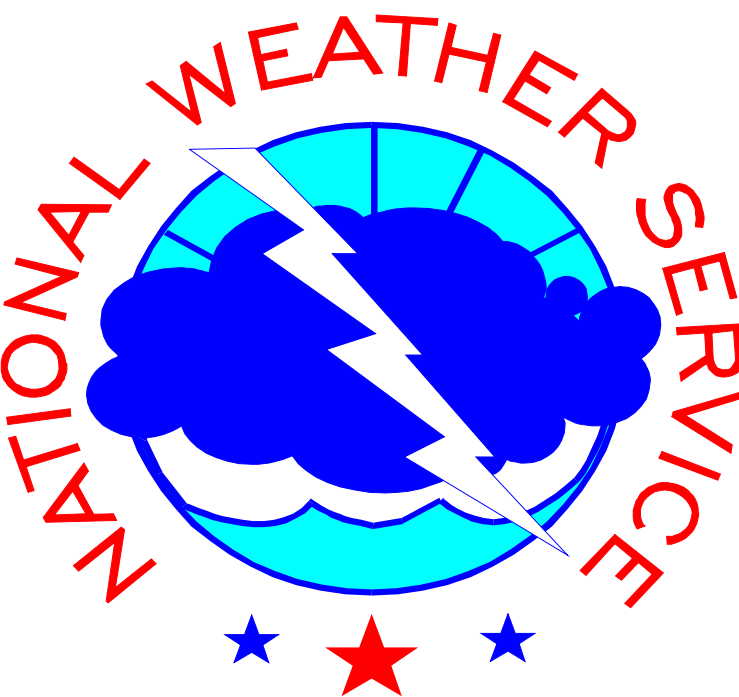
HURCN Milton
914 MB
145 KT Gusts 175 KT

Hurricane Milton – Heavy Weather Avoidance



Hurricane Milton – Heavy Weather Avoidance





**MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES COAST GUARD
AND
THE NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
REGARDING
THE MANAGEMENT OF MARINE
WEATHER INFORMATION**

APPROVED: 03/30/2020

APPROVED: 3/31/20

Louis W. Uccellini

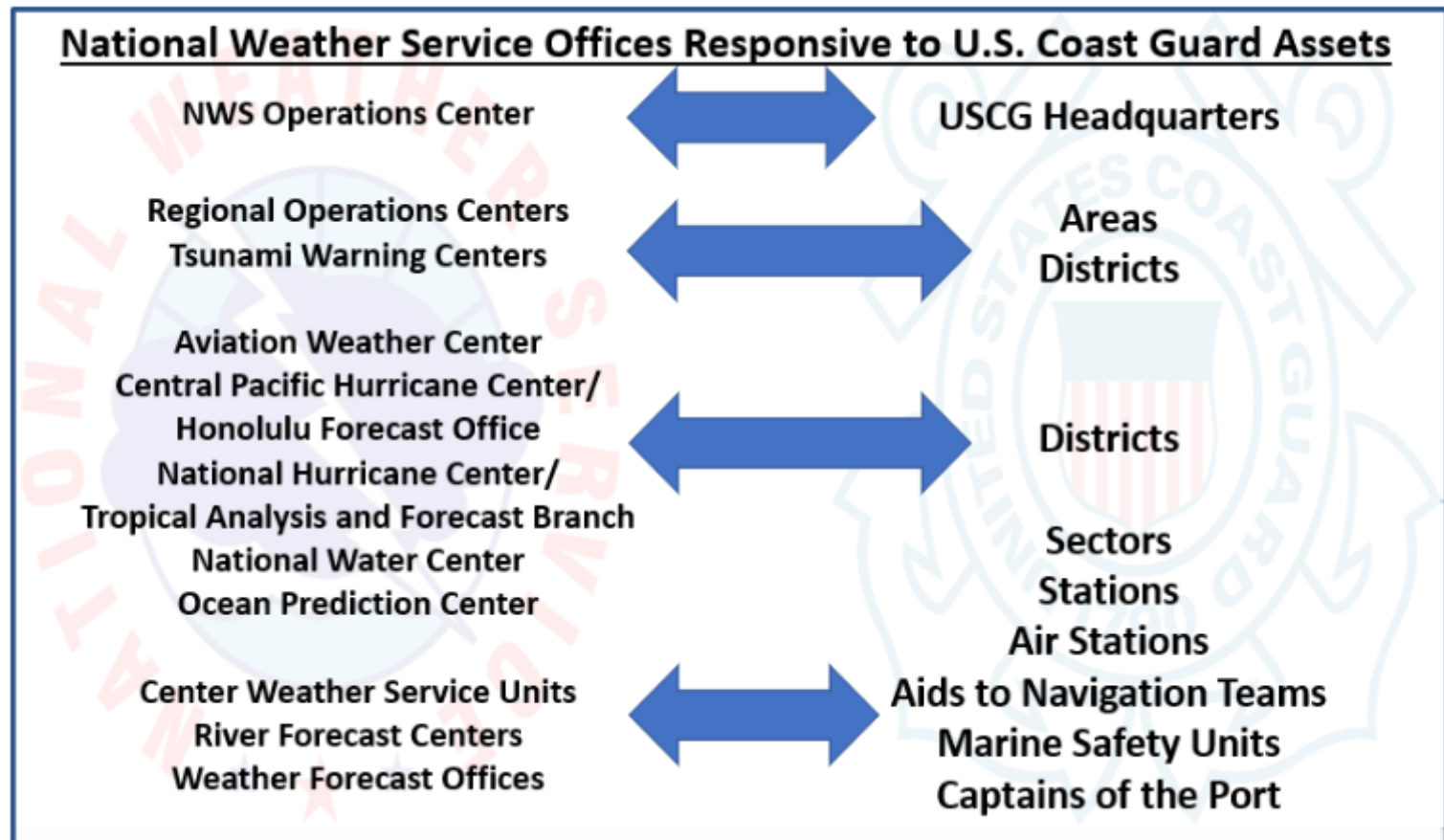
Louis W. Uccellini
NOAA Assistant Administrator
for Weather Services

RV Timme

Richard V. Timme
Rear Admiral, USCG
Assistant Commandant for
Prevention Policy

National Weather Service CONOPS for Products, Impact-based Decision Support Services, and Training/Outreach to the U.S. Coast Guard

<https://www.weather.gov/marine/USCG-NWS-CONOPS>





2025 Impact-based Decision Support Services to U.S. Coast Guard Districts by Tropical Analysis and Forecast Branch (TAFB)/ National Hurricane Center (NHC)



USCG Heartland District Hurricane Tabletop Exercise April 28-May 1, 2025

USCG Southeast District Hurricane Tabletop Exercise May 12-16, 2025

Planning

- Stephen Konarik led the TAFB team with Keren Rosado-Vazquez, and Nelsie Ramos
- Began planning with the Districts in January 2025
- Three major hurricanes impacting the Gulf Coast, SE United States Coast, and Puerto Rico
- Cassie Mora and Laura Geiger (Storm Surge Unit) provided the Storm Surge forecasts



Exercises

- Organized over a dozen live, remote, briefings over the multi-day periods
- TAFB forecasters were able to participate in the Southeast District's 2025 Exercise in person the USCG Area Command COOP set up in Miami/Opa-Locka, FL.

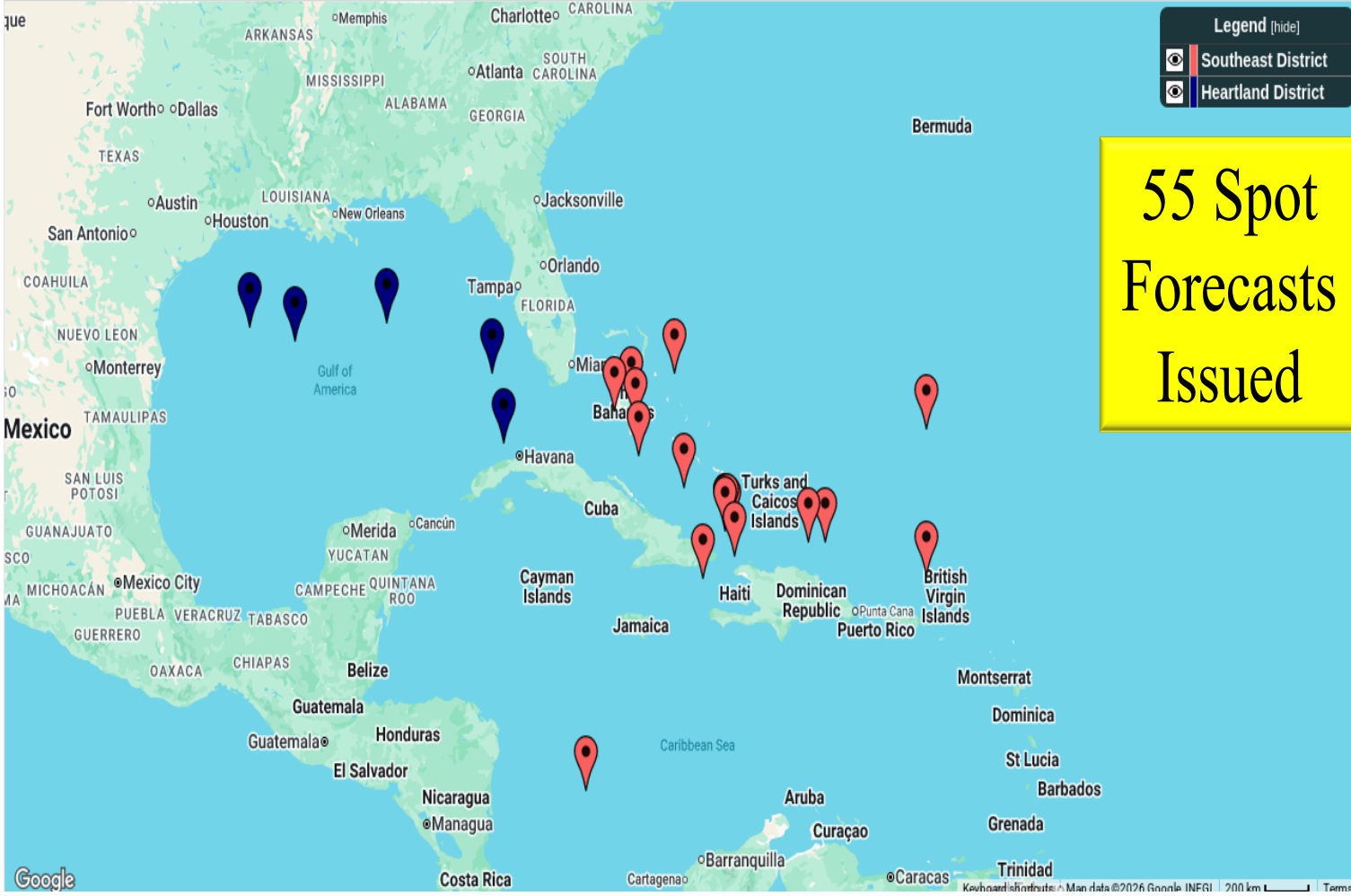
**Remote and in-Person Pre-season Meetings/Training:
Southeast District (Miami), Heartland District (New Orleans)**



2025 Impact-based Decision Support Services to U.S. Coast Guard Districts by Tropical Analysis and Forecast Branch (TAFB)/ National Hurricane Center (NHC)



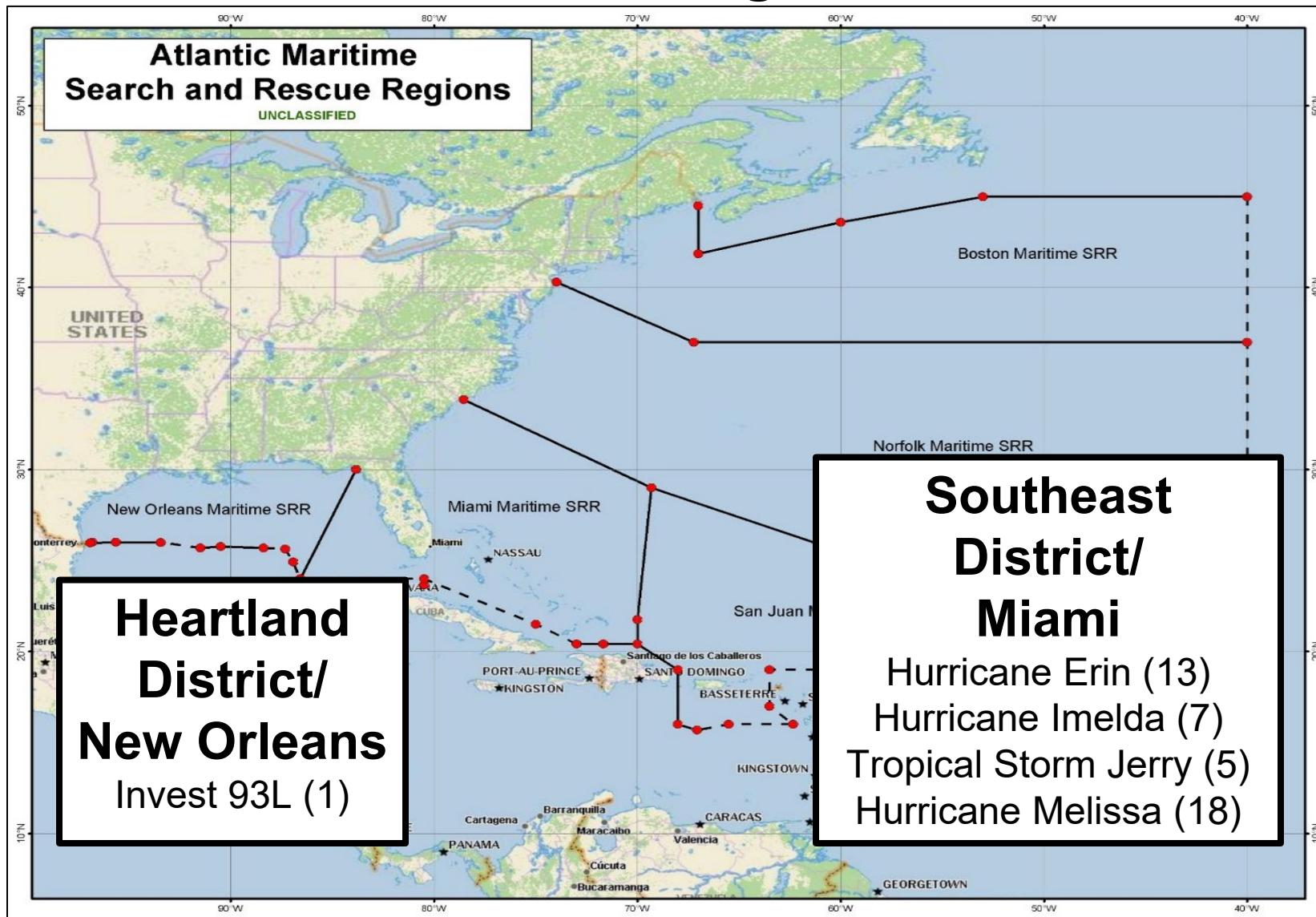
2025 TAFB Spot Forecasts



**55 Spot
Forecasts
Issued**



2025 Impact-based Decision Support Services for the U.S. Coast Guard - 44 Briefings





On-site Impact-Based Decision Support Services for US Coast Guard District 7 During Hurricane Milton



National Hurricane Center/Tropical Analysis and Forecast Branch Meteorologists provided in-person IDSS to USCG District 7 within two days of Hurricane Milton's Florida landfall, providing four formal all-hands briefings and informal assistance

“We sincerely appreciate the support of TAFB. The efforts of your team directly influence Coast Guard operations and have the potential to save lives, protect our critical resources, and get us into the fight as soon as possible post impact. You have an open invitation to join us at Air Station Miami for any hurricane response. You are a valued response partner, and we thank you for the exceptional support. We look forward to continuing to build relationships and working together on future storms.”

Rich Lavigne: USCG District 7 Incident Management Preparedness Advisor





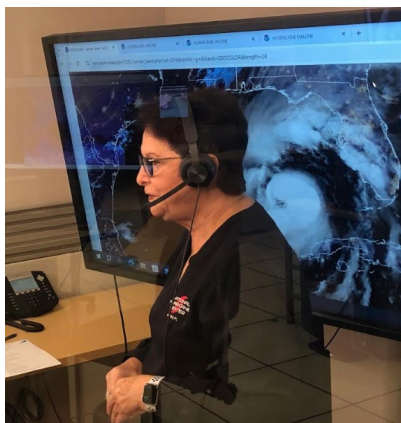
2025 International Impact-based Decision Support Services



TAFB's Spanish-speaking forecasters provided critical IDSS to coordinate international tropical cyclone watches and warnings and conduct media interviews

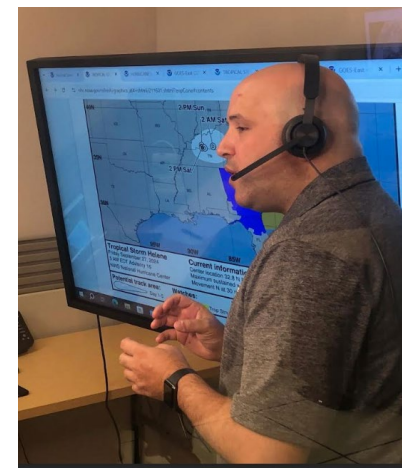
45 Watch/ Warning Coordination Calls

- Cuba
- Mexico



12 Live Interviews Conveying Forecasts/ Impacts to Spanish- Language Media

Hurricanes Imelda
and Melissa



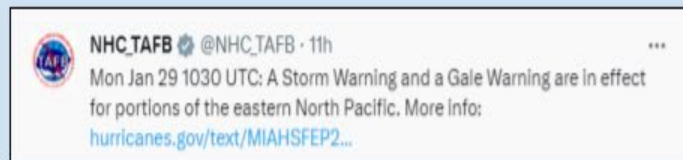
2025 TAFB Social Media Highlights



X Analytics:

- Impressions – 2.4M (6576 per day)
- Engagements - 61.1K (167 per day)
- Likes – 13,200 (36 per day)
- Reposts – 4,100
- Followers – 43,500

Automated warning tweets began Jan 2020



twitter.com/NHC_TAFB



hurricanes.gov/marine



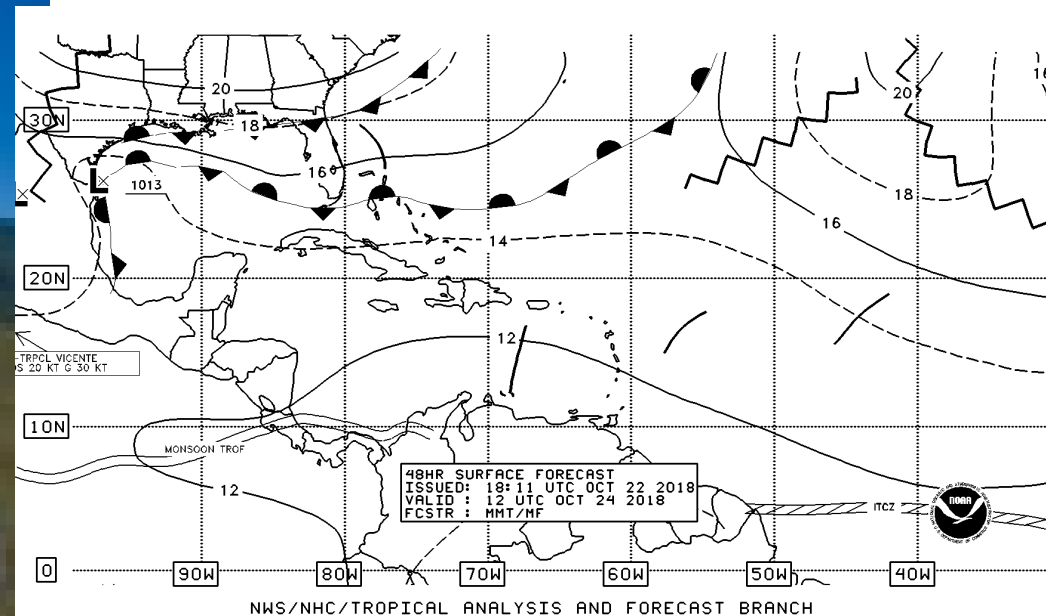
Tropical Atlantic Marine Weather Briefing

- 5-day briefing posted each Sunday and Thursday
- Available publicly on NHC YouTube channel, link posted on Twitter and also shared via email
- Began Jan 2023

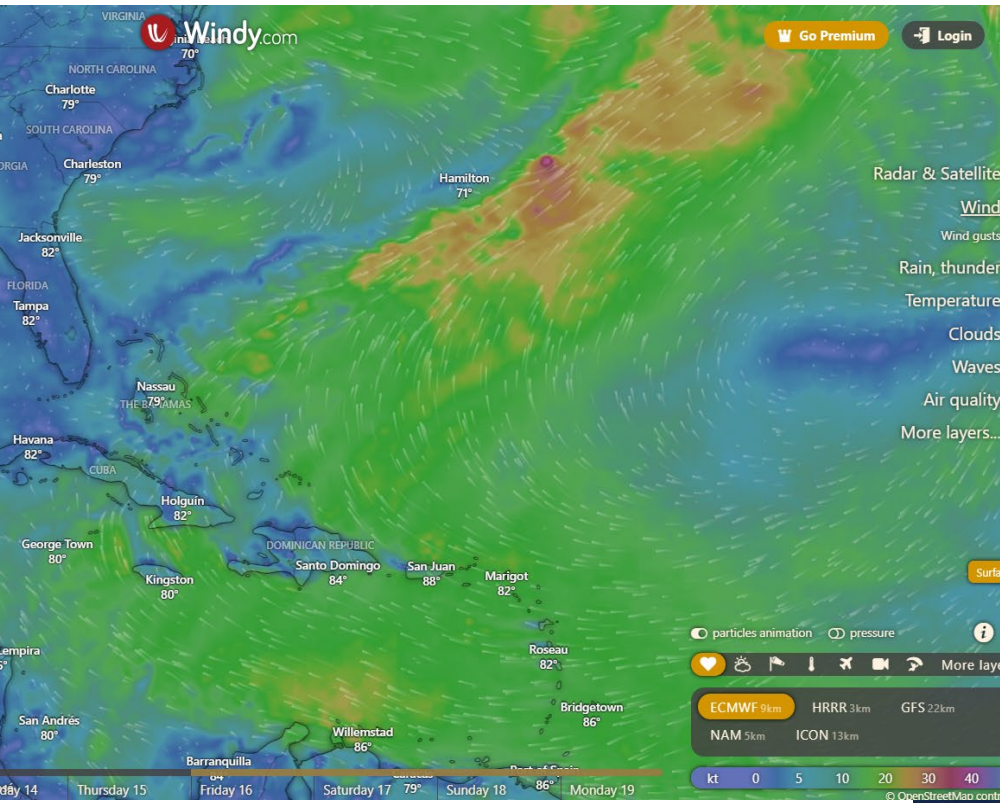


Communications over the High Seas is changing...

**MARINE
RADIOFAX
TAFB provides
graphical products
from three U.S.
Coast Guard
transmitters**



Communications over the High Seas is changing...



STARLINK MARITIME

Global maritime coverage for boats of all sizes with up to 220 Mbps download while at sea.
Starting at \$250/mo with a one-time hardware cost of \$2,500.



SHIPPING ADDRESS

ORDER NOW



Electronic Chart Display and Information System (ECDIS)

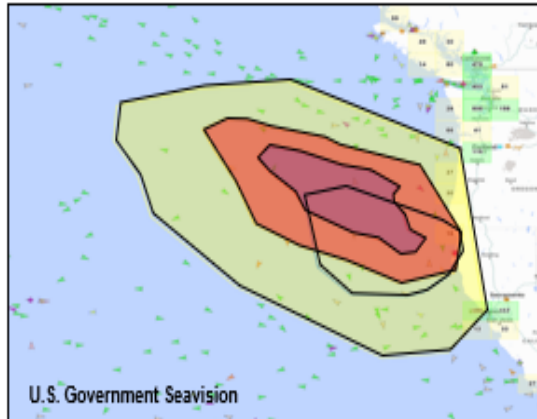
- In 2022, the International Maritime Organization (IMO), amended its Electronic Chart Display and Information System (ECDIS) standard to leverage S-100 based ENC's beginning in 2026.
- S-100 ECDIS will be voluntary starting **1 January 2026**
- From **1 January 2029** new systems must comply with the new IMO Resolution on ECDIS Performance Standards (MSC.530(106))



S - 412

Weather and
Wave
Warnings

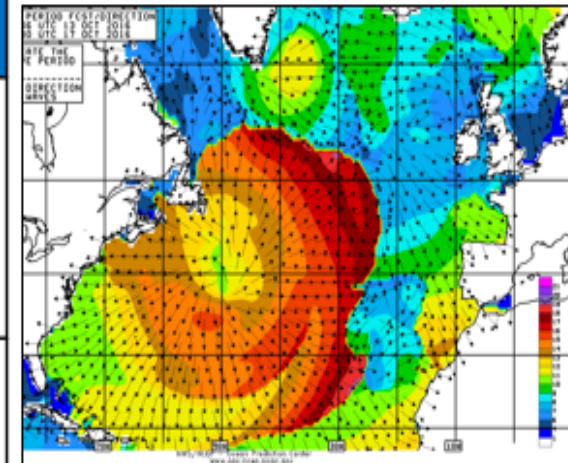
Polygons



S - 413

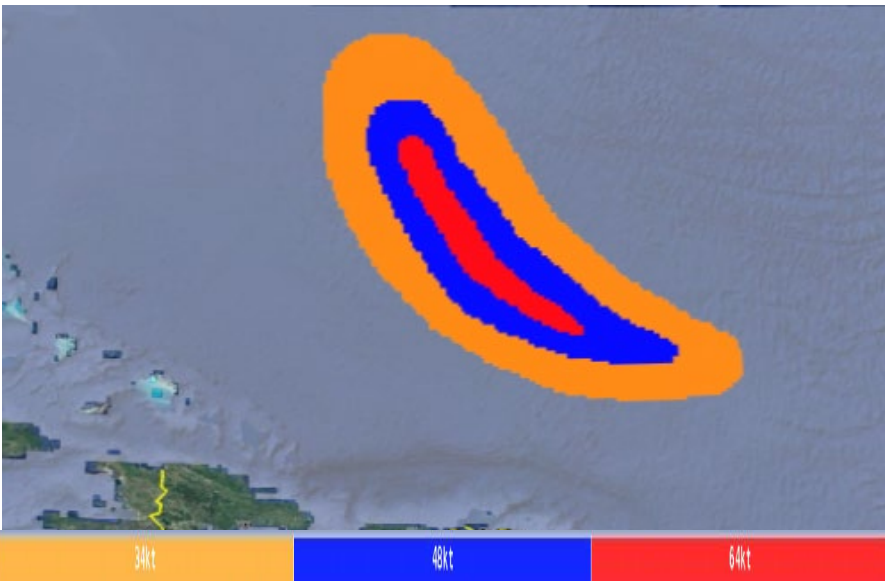
Weather and
Wave
Conditions

Graphics &
Gridded Data



Graphical Marine Wind Warnings

- On 1 November 2025, the National Hurricane Center's Tropical Analysis and Forecast Branch began experimentally providing [Graphical Marine Wind Warnings](#)
- First-ever graphical representation of High Seas Wind Warnings for 34 kt (low end Tropical Storm/Gale - **orange**), 48 kt (high end Tropical Storm/Storm - **blue**), and 64 kt (Hurricane/Hurricane-Force – **red**) for 0-24 and 24-48 hour forecasts
- Graphics in GIS-compatible format for integration into various navigational ship software and displays such as Electronic Chart Display and Information Systems (ECDIS)
- Graphics to be a prototype of the S-100/S-400 information to be implemented by the International Maritime Organization (IMO) on 1 January 2029



S - 412
Weather and Wave Warnings
Polygons



National Hurricane Center/Tropical Analysis and Forecast Branch hurricanes.gov/marine

1-305-229-4424 –Atlantic/Gulf/Caribbean 1-305-229-4425 –Pacific Twitter: [@NHC TAFB](#)

