



# Centro Nacional de Huracanes



***Serie de Seminarios sobre la Concientización de Huracanes  
auspiciado por el Centro Nacional de Huracanes y el Equipo de  
Colaboración Regional del Sureste y el Caribe (SECART)***

***Tema: Manteniendo el público informado de eventos peligrosos  
durante la pandemia***



**Maria M. Torres**  
**Oficial de Comunicaciones Y Relaciones Públicas del**  
**Centro Nacional de Huracanes**



# NOAA Hurricane Webinar Series

<https://www.noaa.gov/regions/2022-hurricane-awareness-webinars>



## Beyond Our Borders: Hurricane Forecast Collaboration in the Caribbean

Date: June 2, 2022

Time and duration: 1-2 PM ET (1 hour)

Speakers: Evan Thompson, Director Jamaica Meteorological Service & President, World Meteorological Organization Region IV, and Dr. Cody Fritz, Storm Surge Team Lead, NHC/NWS

Webinar overview: Our partnerships with other countries are key when it comes to issuing forecasts. Ever wonder how it's done? Join us to hear from the speakers how that coordination is done and new storm surge capabilities NHC is undertaking.

Registration link: <https://attendee.gotowebinar.com/register/9147275259339296782>



# NOAA Hurricane Webinar Series



## Resumen

- ❖ El Centro Nacional de Huracanes y sus unidades
- ❖ Modificaciones en la temporada de Huracanes 2020 y 2021 en medio de la pandemia
- ❖ Nuevas iniciativas para comunicar el mensaje de preparación sobre huracanes a la comunidad hispana



# Centro Nacional de Huracanes



El Centro Nacional de Huracanes (NHC) es un componente de los Centros Nacionales de Predicción Ambiental (NCEP). El CNH está ubicado en la Universidad Internacional de Florida en Miami, Florida.

La misión del NHC es salvar vidas, mitigar la pérdida de propiedad y mejorar la eficiencia económica mediante la emisión de los mejores avisos, advertencias, pronósticos y análisis del tiempo tropical peligroso, y aumentar el conocimiento sobre estos peligros.





# Diferentes unidades en el CNH



## Oficina del Director

## Unidad de Especialistas de Huracanes



Fuerza Aérea de los EE UU  
CARCAH

FEMA  
Equipo de Coordinadores de Huracanes

## Unidad de Análisis y Pronósticos de los Trópicos



WMO RA IV

Visita de Científicos

## Departamento de Tecnología y Ciencia

- Apoya a el sistema de computadoras y la comunicación continúe en el

## Unidad de Marejada Ciclónica

Provee un pronóstico preciso y al momento sobre la marejada ciclónica durante un evento de tormenta tropical



# 24/7/365 Esfuerzo: Operaciones y Preparación







# Unidad de Especialistas de Huracanes



- Producen, coordinan y emiten los aviso y el pronóstico de los sistemas tropicales
- Conducen programas de concientización al público y entrenamiento para los empleados del manejo de emergencias, meteorólogos y los medios de comunicación
- Equipo de trabajo consiste de:
  - Supervisor y 10 especialistas de huracanes

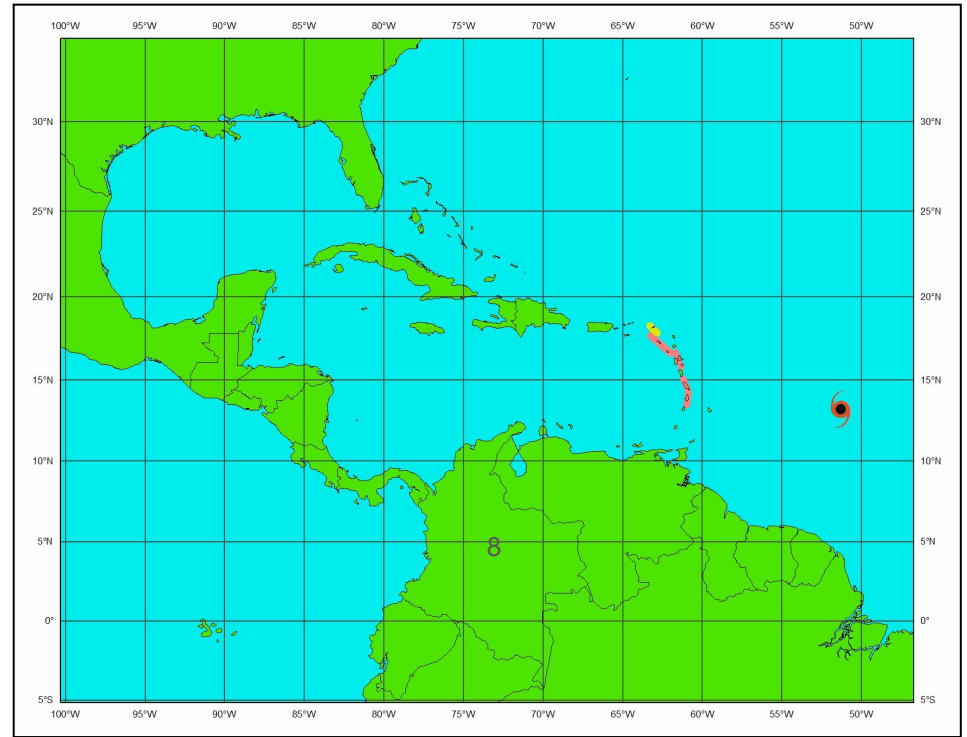




# Responsabilidad Internacional



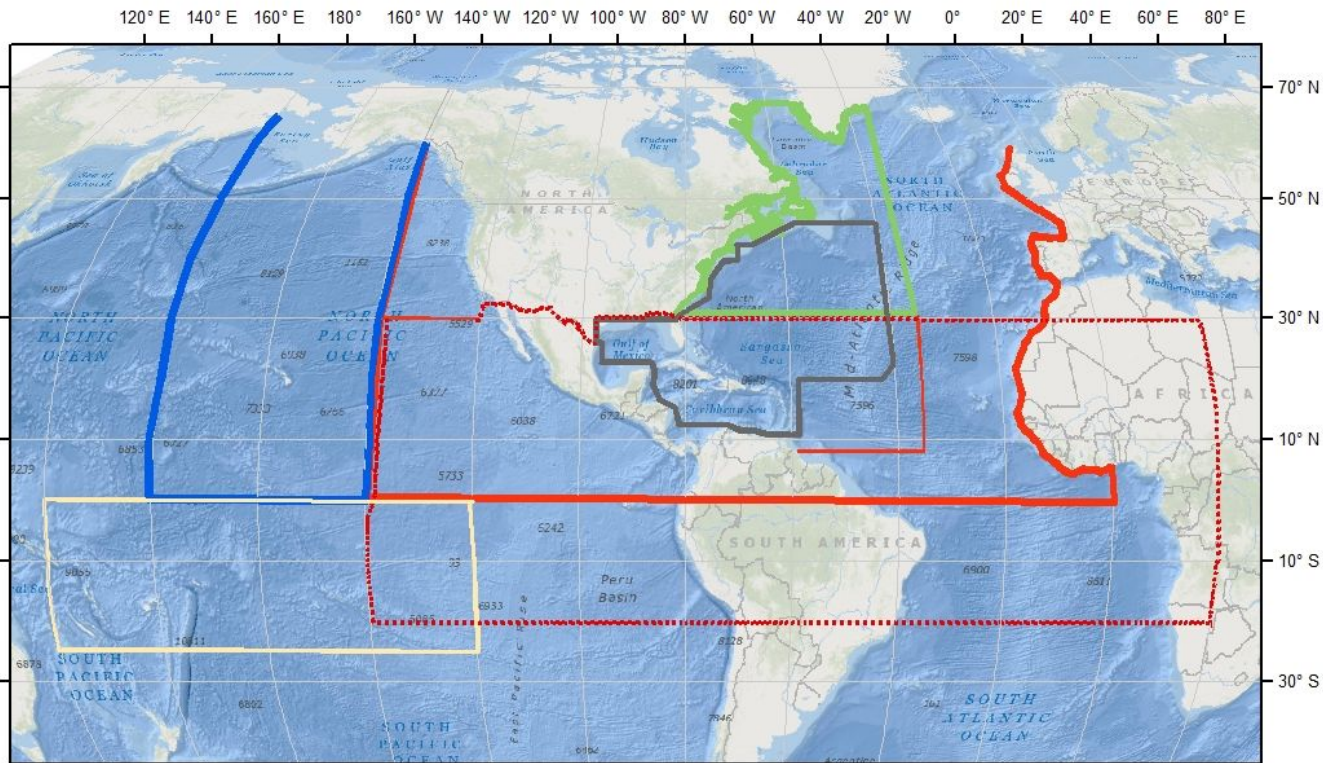
- El CNH recomienda la colocación de avisos y advertencias
- Cada país es responsable de emitir avisos y advertencias para su respectivo país o jurisdicción
- Se coordina por teléfono con las oficinas meteorológicas de todo el área de responsabilidad del CNH







# CNH Área de Responsabilidad



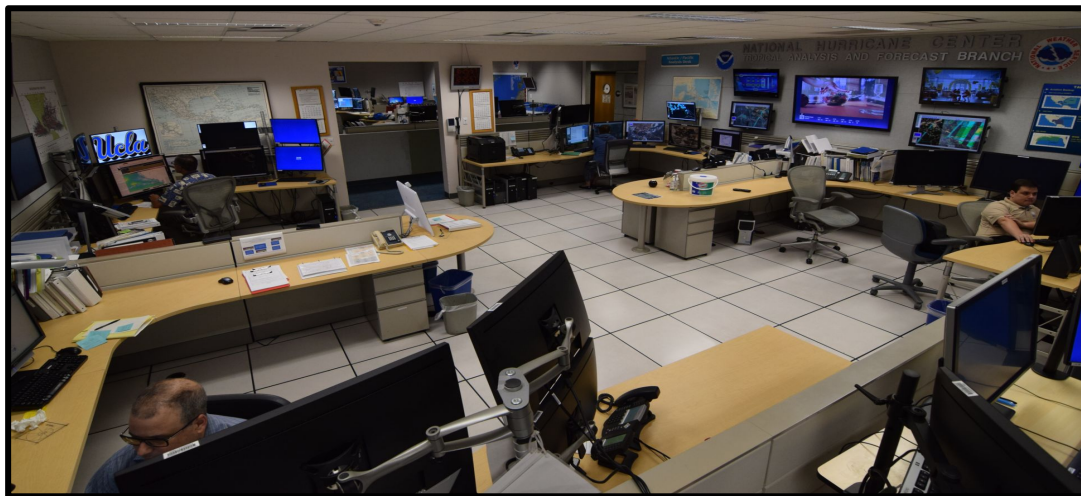
- NHC Tropical Analysis and Forecast Branch forecast area
- NHC backup area for Ocean Prediction Center
- · · · · NHC Tropical Analysis and Forecast Branch surface analysis area
- NHC backup area for Weather Forecast Office Honolulu
- NHC backup area for Aviation Weather Center
- NHC tropical cyclone forecast area
- NHC backup area for Central Pacific Hurricane Center



# Unidad de Análisis y Pronósticos de los Trópicos



- Proporcionar análisis meteorológicos, pronósticos y avisos sobre las cuencas tropicales y subtropicales
- Trabajan 24 horas al día y producen ~100 productos/día en formato de texto y gráfico
- Proporcionar apoyo a los especialistas durante la temporada de huracanes
- Estimaciones de intensidad utilizando la técnica Dvorak



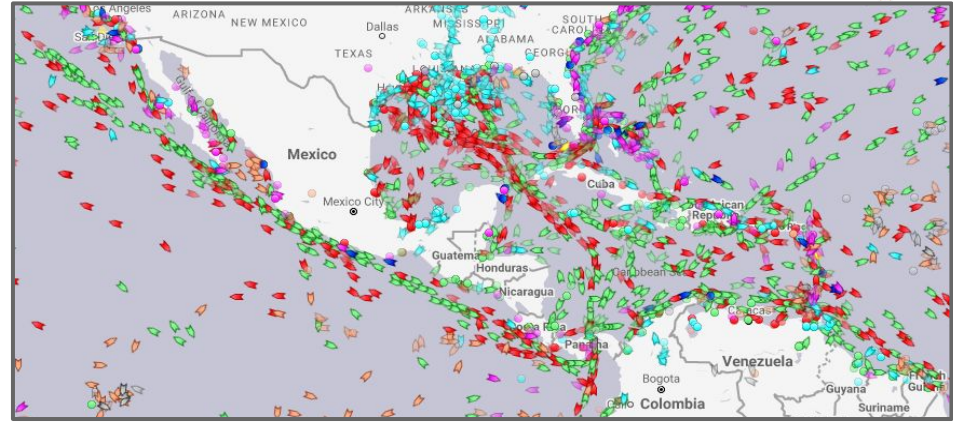




# Porque es tan importante el pronóstico marítimo?



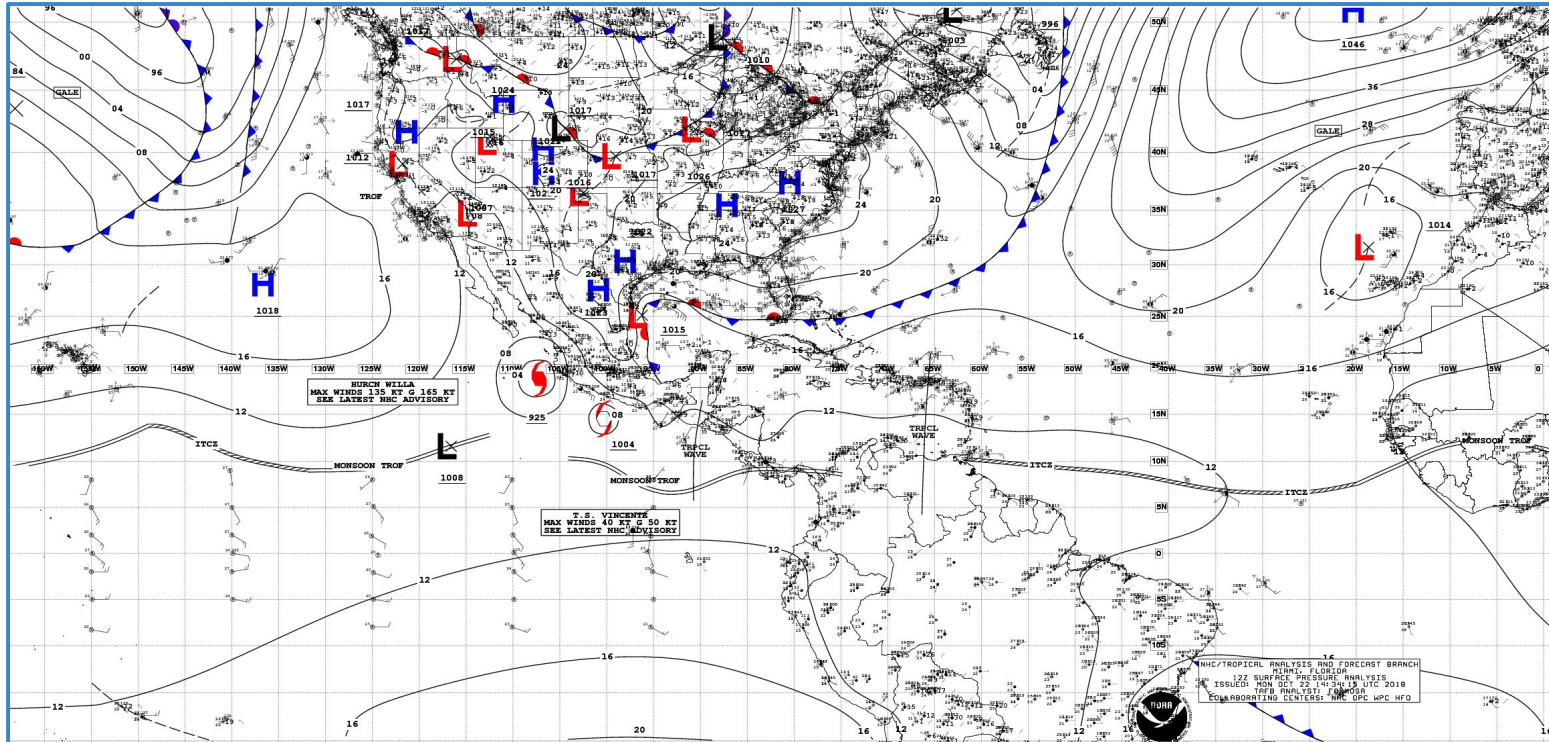
- Alrededor del **90%** del comercio mundial es transportado por la industria del transporte marítimo internacional
- El transporte marítimo es la sangre vital de la economía mundial
- Hay más de 50,000 buques mercantes que comercian a nivel internacional
- Datos meteorológicos son importantes desde el punto de vista económico



# Mapa Analisis Superficie Tropical

## Unified Surface Analysis

Joint effort from 3 National Centers and 1 Weather Forecast Office





# Productos de TAFB

## Tropical Weather Discussion

### Atlantic and Pacific

★ Describe principales características meteorológicas sinópticas

Tropical Weather Discussion  
 NWS National Hurricane Center Miami FL  
 2256 UTC Mon Jun 8 2020

Tropical Weather Discussion for North America, Central America Gulf of Mexico, Caribbean Sea, northern sections of South America, and Atlantic Ocean to the African coast from the Equator to 32N. The following information is based on satellite imagery, weather observations, radar and meteorological analysis.

Based on 1800 UTC surface analysis and satellite imagery through 2200 UTC.

...SPECIAL FEATURES...

Tropical Depression Cristobal is well inland near near 34.0N 92.0W at 08/2100 UTC or 100 nm north of Monroe Louisiana moving N at 16 kt. Estimated minimum central pressure is 994 mb. Maximum sustained wind speed is 30 kt with gusts to 40 kt. Buoy and CMAN observation platforms indicate fresh to strong southerly winds are still active in the Mississippi Sound and at the entrance to Mobile Bay. Moderate to fresh southerly winds are noted elsewhere over the Louisiana and Alabama coastal waters with gusts to near gale force and seas to seven feet. No significant shower or thunderstorm activity associated with Cristobal is noted over the Gulf any longer, although scattered thunderstorms are noted inland from the Sabine Pass through central Mississippi and Alabama. Please read the latest NHC Public Advisory at <https://www.nhc.noaa.gov/text/MIATCPAT3.shtml> and Forecast/Advisory at <https://www.nhc.noaa.gov/text/MIATCPAT3.shtml> for more details.

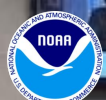
...TROPICAL WAVES...

An Atlantic Ocean tropical wave is along 29N south of 15N moving W around 15-20 kt to the southwest of the Cape Verde Islands. To the north and west of this tropical wave a large plume of Saharan dust exists. No significant convection is active near the wave axis.

An Atlantic Ocean tropical wave is along 47W south of 12N, moving W at 10 kt. Scattered moderate convection is from 07N-10N between 42W-45W.



- ★ Producto de Alta Mar:
- ★ Formato en texto
- ★ Para buques oceanicos
- ★ Actualiza cada 6 horas
- ★ Pronóstico se extiende hasta 48 hr.

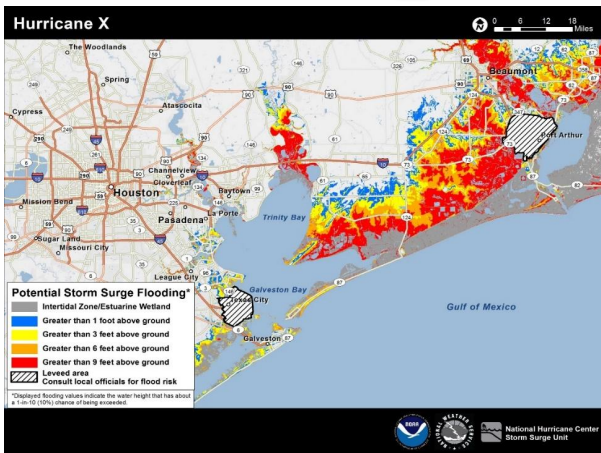
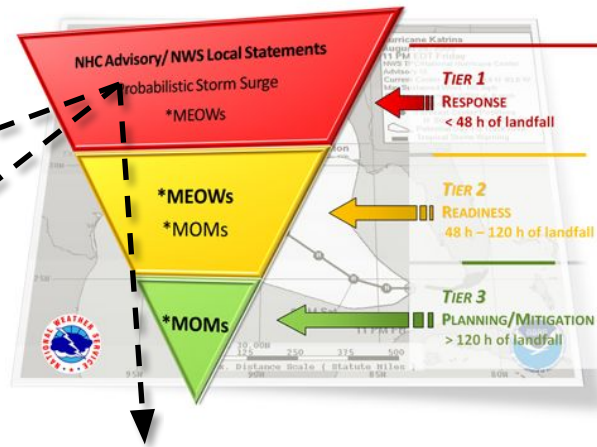




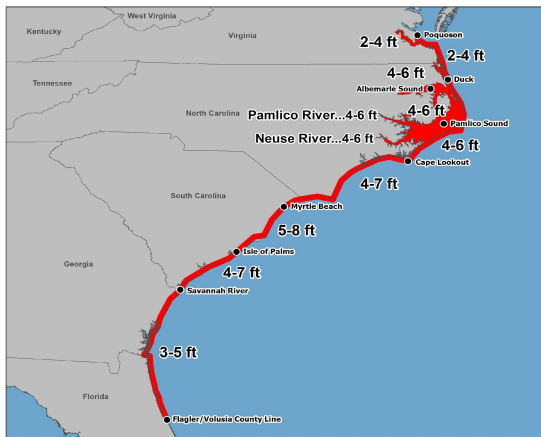


# Productos de la Unidad de Marejada Ciclónica

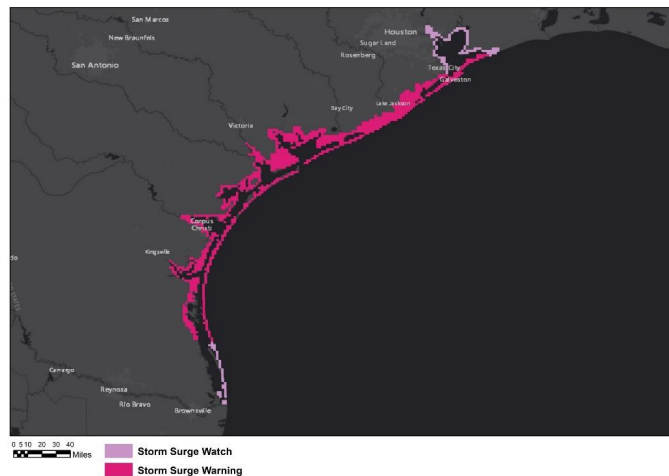
Mission #1: Proporcionar pronósticos en tiempo real sobre el oleaje durante los eventos de ciclones tropicales.



Mapa de Probabilidad de Marejada Ciclónica



Gráfica Experimental sobre el Pico de la Marejada Ciclónica

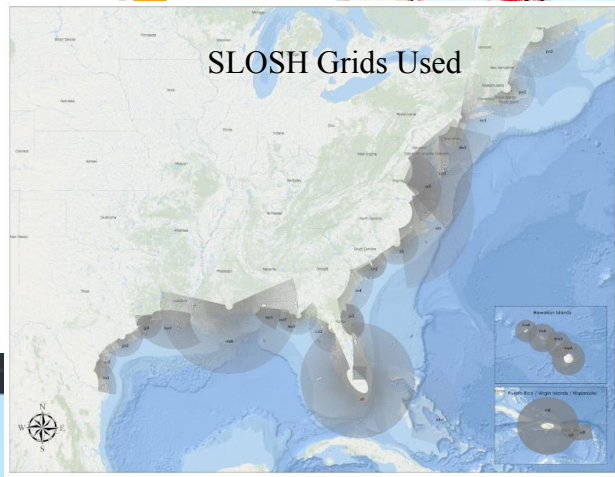
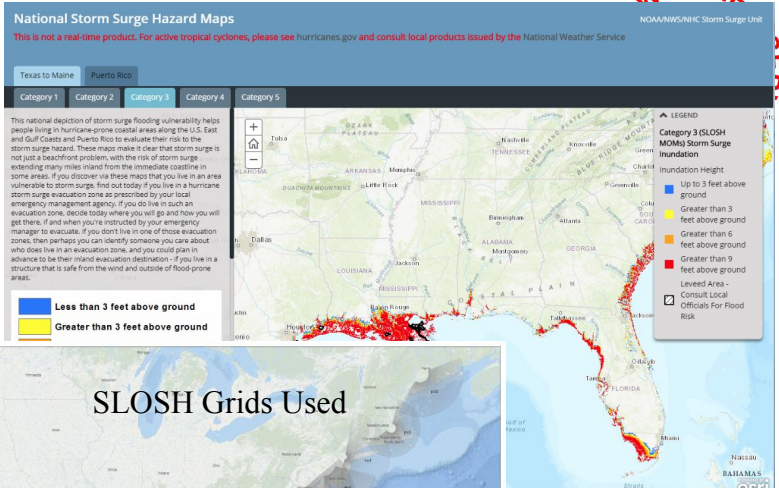


Avisos y Vigilancia Marejada Ciclónica



# Preparación en Comunidades Costeras

- Mission #2: Apoyo en la preparación a las comunidades costeras y resiliencia por medio de mapas de vulnerabilidad de marejada ciclónica
- Mapas de inundación por marejada ciclónica de alta resolución:
  - Texas a Maine
  - Puerto Rico
  - U.S. Virgin Islands
  - Islas de Hawaii
  - Republica Dominicana y Haiti



**National Storm Surge Inundation (SLOSH) MCMs**

Less than 3 feet above ground  
Greater than 3 feet above ground  
Greater than 6 feet above ground  
Greater than 9 feet above ground

**Resolution**  
1/4 Degree (1000m)

**Product**  
Category 3 Storm Surge Inundation

**Legend**  
Less than 3 feet above ground  
Greater than 3 feet above ground  
Greater than 6 feet above ground  
Greater than 9 feet above ground

**Map Description**  
This national depiction of storm surge flooding vulnerability helps people living in hurricane-prone coastal areas along the U.S. East and Gulf Coasts and Puerto Rico to evaluate their risk for the storm surge hazard. These maps make it clear that storm surge is not just a beachfront problem, with the risk of storm surge extending many miles inland from the immediate coastline in some areas. If you discover via these maps that you live in an area vulnerable to storm surge, find out today if you live in a hurricane storm surge evacuation zone as prescribed by your local emergency management agency. If you do live in such an evacuation zone, decide today where you will go and how you will get there. If and when you're instructed by your emergency manager to evacuate, if you don't live in one of those evacuation zones, then perhaps you can identify someone you care about who does live in an evacuation zone, and you could plan in advance to be their inland evacuation destination - if you live in a structure that is safe from the wind and outside of flood-prone areas.

**Map Legend**  
Less than 3 feet above ground  
Greater than 3 feet above ground

**Map Description**  
The ocean poses a unique and potentially dangerous hazard to a diverse coastal land by wind to consider storm surge. Storm surge is defined as the abnormal rise of water generated by a storm, over and above the predicted astronomical tide. Flooding from storm surge depends on many factors, such as the type, intensity, size, and forward speed of the hurricane and the characteristics of the coastline where it comes ashore or passes nearby. For planning purposes, the SLOSH uses a representative sample of hypothetical storms to estimate the near worst-case scenario of flooding for each hurricane category.

**Map Description**  
SLOSH employs a unique method and system for developing near real-time hurricane storm surge hazards. The spatial coverage for each SLOSH grid ranges from an area the size of a hurricane's storm disk. The reduction of artificial grid cells within each basin ranges from tens to hundreds of miles for a hurricane or more. Sub-grid scale water features and topographic obstructions such as beaches, reefs, and dunes and levees, barriers, and roads, respectively, are parameterized to improve the modeled water levels.

**Map Description**  
The SLOSH products are based on hypothetical hurricanes (MCMs) and MCMs. MCMs are created by comparing the maximum storm surge resulting from up to 1000 hypothetical storms simulated through each SLOSH grid of varying forward speed, radius of maximum wind, intensity (Category 1, 2, 3, 4, and 5), storm surge, and storm surge direction, and to wind. SLOSH products include Category 3 storms north of the MCM center. The storm storm conditions specify wind speed, radius of maximum wind, storm surge along the coast within the SLOSH grid, and the maximum storm surge response from each hurricane is computed, retaining the maximum height of storm surge in a given basin grid cell. These are called SLOSH and no single hurricane will produce the regional flooding depicted on the SLOSH. SLOSH model MCMs are an ensemble product of simulated storm surge heights. SLOSH results are created for each storm category by retaining the maximum storm surge value in each grid cell for all the storms, regardless of the maximum wind speed, storm surge, or wind radius. SLOSH MCMs are available for near real-time and high tide scenarios and represent the near worst-case scenario of flooding under storm surge conditions. A high tide model may also be used for the storm surge hazard maps.



# Que hace la Unidad de Tecnología y Ciencias?

## Apoyo Operacional



## Desarrollo de Productos



**Modelos estadísticos y apoyo para intensificación rápida**



## Pagina Web

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**NATIONAL HURRICANE CENTER and CENTRAL PACIFIC HURRICANE CENTER**  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ANALYSES & FORECASTS ▾    DATA & TOOLS ▾    EDUCATIONAL RESOURCES ▾    ARCHIVES ▾    ABOUT ▾    SEARCH ▾

**Top News of the Day... view past news**    Last update Thu, 25 Jun 2020 13:50:13 UTC

- **NHC issuing advisories for the Eastern Pacific on TD Three-E**
- **Tropical Storm Warning: East Pacific High Seas**
- Six "high forecasters" want you to know about weather and climate
- NOAA releases 2020 seasonal Atlantic/Eastern Pacific hurricane forecast and Central Pacific forecast
- NOAA National Hurricane Center Specialists 1950s-2020s
- Update on National Hurricane Center Products and Services for 2020

Central Pacific    Eastern Pacific    Atlantic

← Central Pacific    Eastern Pacific Tropical Cyclones and Disturbances

35°N  
25°N  
15°N  
5°N

140°W    130°W    120°W    110°W    100°W    90°W    80°W

4:50 am PDT  
Thu Jun 25 2020

Current Disturbances and Two-Day Cyclone Formation Chance: ☒ < 40%    ☒ 40-60%    ☒ > 60%

Tropical or Sub-Tropical Cyclone: ○ Depression    ○ Storm    ● Storm    ● Hurricane

○ Post-Tropical Cyclone or Remnants

Active Storms | Marine Forecasts

2-Day Graphical Tropical Weather Outlook | 5-Day Graphical Tropical Weather Outlook

# Adaptación durante la Pandemia

Antes



Despues



**Comunicación y trabajo en equipo fue la clave**

- La tecnología hizo posible para nosotros adaptarnos y cuidarnos durante la pandemia.
- Casi todas las herramientas que utilizamos en el CNH eran accesibles a distancia, lo que permitió hacer el trabajo lo mejor posible.





# Subdivisión de Análisis y Pronósticos de los Trópicos



Antes





# Subdivisión de Análisis y Pronósticos de los Trópicos



Antes



Ahora







Nuevas iniciativas para comunicar el mensaje de preparación ante la amenaza de un sistema tropical



# Proyecto de Traducción Automatizada



## Tropical Cyclone Product

BOLETIN  
Número de Advertencia de tormenta tropical Elsa 35  
SNM Centro Nacional de Huracanes Miami FL AL052021  
500 PM EDT jueves 08 de julio de 2021

... ELSA LIGERAMENTE MÁS FUERTE ...  
... SE DIRIGE A LA COSTA MEDIO ATLÁNTICO ...

### RESUMEN DE LAS 500 PM EDT ... 2100 UTC ... INFORMACIÓN

UBICACIÓN ... 36.3N 78.3W  
CERCA DE 125 MI ... 200 KM AL OESTE DE NORFOLK VIRGINIA  
CERCA DE 300 MI ... 485 KM AL SO DE ATLANTIC CITY NUEVA JERSEY  
VIENTOS MAXIMOS SOSTENIDOS ... 50 MPH ... 85 KM/H  
MOVIMIENTO ACTUAL ... NE O 40 GRADOS A 21 MPH ... 33 KM/H  
PRESION CENTRAL MINIMA ... 1006 MB ... 29.71 PULGADAS

### VIGILANCIAS Y ADVERTENCIAS

#### CAMBIOS CON ESTA ADVERTENCIA:

La Aviso de Tormenta Tropical al sur de Little River Inlet ha sido descontinuado.

#### RESUMEN DE VIGILANCIAS Y ADVERTENCIAS EN EFECTO:

- Un Aviso de Tormenta Tropical está en efecto para ...
  - \* Little River Inlet, Carolina del Sur, a Sandy Hook, Nueva Jersey
  - \* Sonidos de Pamlico y Albemarle
  - \* Chesapeake Bay al sur de North Beach y la marea del Potomac al sur de la isla de Cobb
  - \* Bahía de Delaware al sur de Slaughter Beach
  - \* Long Island desde East Rockaway Inlet hasta el extremo este a lo largo del costa sur y desde el puerto de Port Jefferson hacia el este en el norte orilla
  - \* New Haven, Connecticut a Merrimack River, Massachusetts, incluido Cape Cod, Block Island, Martha's Vineyard y Nantucket

Un Aviso de tormenta tropical significa que las condiciones de tormenta tropical son esperado en algún lugar dentro del área de advertencia.

Para obtener información sobre los peligros del viento al norte del Aviso de Tormenta Tropical área, favor ver productos de su oficina meteorológica local.

Para obtener información específica sobre tormentas en su área, incluyendo posibles interior alertas y advertencias, favor, productos de monitor emitido por su oficina local de pronóstico del Servicio Nacional de Meteorología.

## Perspectivas De Las Condiciones Del Tiempo En El Tropico

000  
ACCA62 TJSJ 151729 CCA  
TWSOPI

Perspectiva sobre las Condiciones del Tiempo en el Tropic  
Centro Nacional de Huracanes del SNM Miami FL  
Traducción Revisada por el SNM San Juan PR  
200 PM EDT domingo 15 de mayo de 2022

Para el Atlantico Norte...Mar Caribe y Golfo de Mexico:

No se espera la formacion de ciclones tropicales durante los proximos 5 dias.

Hoy, 15 de mayo, marca el primer día de emisión rutinaria de la Perspectiva sobre las Condiciones del Tiempo en el Tropic de la cuenca del Atlantico en 2022. Este producto describe áreas significativas de mal tiempo y su potencial de formacion de ciclones tropicales durante los proximos cinco días. La Perspectiva sobre las Condiciones del Tiempo en el Tropic se emite desde el 15 de mayo hasta el 30 de noviembre de cada año. Los horarios de emisión de este producto son las 2 AM, las 8 AM, las 2 PM Y las 8 PM EDT. Despues del cambio a la hora estandar en noviembre, los horarios de emisión son la 1 AM, las 7 AM, la 1 PM Y las 7 PM EST.

Se emitira una Perspectiva sobre las Condiciones del Tiempo en el Tropic para proveer actualizaciones, según sea necesario, entre las publicaciones programadas regularmente de la Perspectiva sobre las Condiciones del Tiempo en el Tropic. Las Perspectivas meteorológicas tropicales especiales se publicaran bajo los mismos encabezados de la OMM y el AWIPS que las Perspectivas sobre las Condiciones del Tiempo en el Tropic habituales.

Una version grafica de Perspectiva sobre las Condiciones del Tiempo en el Tropic esta disponible en la web en:  
[www.hurricanes.gov](http://www.hurricanes.gov)

\$\$  
Pronosticador Brown

## Prioridad a los Productos del CNH

- Advertencia de Tormenta Tropical
- Perspectiva sobre las Condiciones del Tiempo en el Trópico
- Discusion de Ciclón Tropical

## Atlantic Tropical Weather Outlook

000  
ABNT20 KNHC 151722  
TWOAT

Tropical Weather Outlook  
NWS National Hurricane Center Miami FL  
200 PM EDT Sun May 15 2022

For the North Atlantic...Caribbean Sea and the Gulf of Mexico:

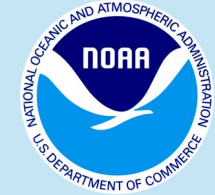
Tropical cyclone formation is not expected during the next five days.

Today, May 15th, marks the first day of routine issuance of the Atlantic basin Tropical weather Outlook in 2022. This product describes significant areas of disturbed weather and their potential for tropical cyclone formation during the next five days. The Tropical Weather Outlook is issued from May 15 through November 30 each year. The issuance times of this product are 2 AM, 8 AM, 2 PM, and 8 PM EDT. After the change to standard time in November, the issuance times are 1 AM, 7 AM, 1 PM, and 7 PM EST.

A Special Tropical weather Outlook will be issued to provide updates, as necessary, in between the regularly scheduled issuances of the Tropical weather Outlook. Special Tropical weather Outlooks will be issued under the same WMO and AWIPS headers as the regular Tropical Weather Outlooks.

A graphical version of the Tropical Weather Outlook is available on the web at: [www.hurricanes.gov](http://www.hurricanes.gov)

\$\$  
Forecaster Brown



# Sistema Automatizado de Traducción



## Perspectivas De Las Condiciones Del Tiempo En El Tropico

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ACCA62 TJSJ 151729 CCA  
TWOSPN

Perspectiva sobre las Condiciones del Tiempo en el Tropic  
Centro Nacional de Huracanes del SNM Miami FL  
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\$\$  
Pronosticador Brown

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ABNT20 KNHC 151722  
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\$\$  
Forecaster Brown





# Mensajes Claves



## Key Messages on Hurricane Joaquin

Thursday Morning, October 1, 2015



**1. Preparations to protect life and property in the central Bahamas should be complete.** The slow motion of Joaquin during the next 24 to 36 hours will bring a prolonged period of hurricane force winds, storm surge, and very heavy rainfall to those islands.

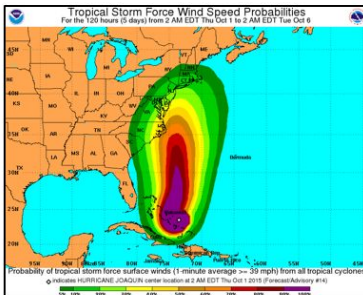
**2. Confidence in the details of the forecast after 72 hours remains low, as there have been some large changes in the model guidance overnight.** The range of possible outcomes is still large, and the possibility of a hurricane landfall in the Carolinas still cannot be ruled out.

**3. Efforts continue to provide the forecast models with as much data as possible.** The NOAA G-IV jet flew the first in a series of missions in the storm environment last night, and these missions will continue today. The National Weather Service also continues to launch extra balloon soundings.

**4. Because landfall, if it occurs, is still more than three days away, it's too early to talk about specific wind, rain, or surge impacts from Joaquin in the United States.** Regardless of Joaquin's track, strong onshore winds will create minor to moderate coastal flooding along the coasts of the mid-Atlantic and northeastern states through the weekend.

**5. A hurricane watch for a portion of the U.S. coast could be required as early as tonight.**

**6. Many portions of the eastern U.S. are currently experiencing heavy rains and gusty winds associated with a frontal system.** These heavy rains are likely to continue for the next few days, even if the center of Joaquin stays offshore. The resulting inland flood potential could complicate preparations for Joaquin should it head toward the coast, and even more substantial inland flooding is possible if Joaquin later passes near or over these same areas.



National Hurricane Center: [www.hurricanes.gov](http://www.hurricanes.gov)



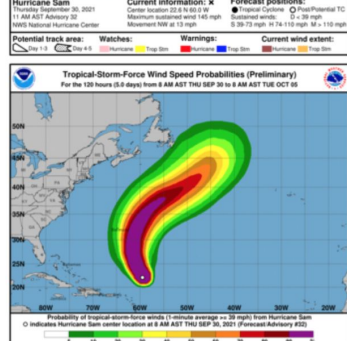
## Mensajes Claves Sobre Huracan Sam

Advertencia 32: 11:00 AM AST jueves, 30 de septiembre de 2021



1. Marejadas generadas por Sam afectarán el extremo norte de las Islas de Sotavento y las Antillas Mayores, incluyendo Puerto Rico durante los próximos días. Se espera que las marejadas alcancen a Bermuda y Las Bahamas para el viernes, y luego se desplace a la costa este de los Estados Unidos para este fin de semana. Estas marejadas resultarán en condiciones de resaca y corrientes marinas amenazantes a la vida. Por favor consulte los productos de su oficina de pronóstico local.

2. Condiciones de tormenta tropical son posibles en Bermuda empezando el viernes en la noche o temprano el sábado, y una Vigilancia de Tormenta Tropical ha sido emitida para esa isla.



Para obtener más información visite la página web [hurricanes.gov](http://hurricanes.gov)



# Preguntas



***Gracias***

Maria M. Torres

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# NOAA Hurricane Webinar Series

<https://www.noaa.gov/regions/2022-hurricane-awareness-webinars>



## Beyond Our Borders: Hurricane Forecast Collaboration in the Caribbean

Date: June 2, 2022

Time and duration: 1-2 PM ET (1 hour)

Speakers: Evan Thompson, Director Jamaica Meteorological Service & President, World Meteorological Organization Region IV, and Dr. Cody Fritz, Storm Surge Team Lead, NHC/NWS

Webinar overview: Our partnerships with other countries are key when it comes to issuing forecasts. Ever wonder how it's done? Join us to hear from the speakers how that coordination is done and new storm surge capabilities NHC is undertaking.

Registration link: <https://attendee.gotowebinar.com/register/9147275259339296782>





*"Behind-The-Scenes"*

Technology and Science Branch (TSB)



# Subdivisión de Marejada Ciclónica



- Proporciona pronósticos precisos y a tiempo real de las marejada ciclónica durante los eventos de ciclones tropicales.
- Apoya la preparación y la resiliencia de las comunidades costeras mediante la elaboración de mapas de riesgo de marejada ciclónica
- Desarrolla, verifica y mantiene el modelo de mareas de tempestad
- Aumenta la concienciación a través de la divulgación y la educación del público, los medios de comunicación, los gestores de emergencias y los meteorólogos.

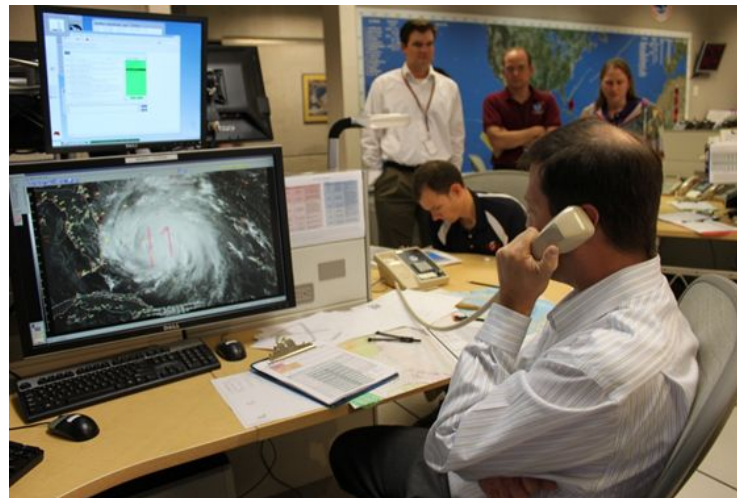




# Typical Day - Hurricane Season



- Rotating shift work with widely varying (event driven) workload
- Shift usually includes 2 people, but can vary from 1 to 4
- Weather watch for tropical cyclone activity and potential formation
- Tropical Weather Outlook every 6 h
- TC analysis and forecast packages
- Issuing watches/warnings
- Coordination
- Tasking aircraft reconnaissance
- Post-analysis/Tropical Cyclone Reports
- Training
- Outreach
- Evaluating JHT projects/feedback







# Typical Day - Outside Hurricane Season



- Post-analysis/Tropical Cyclone Reports
- Developing and updating training presentations for EMs, meteorologists, media
- Attending conferences and meetings
- Media interviews
- Creating hurricane exercises for training
- Hurricane awareness tours
- Scientific research projects/papers
- Verification
- Model evaluations and feedback to developers
- Developing and evaluating new product ideas
- Collaboration/feedback with JHT and other projects

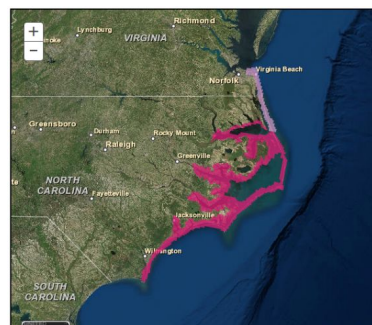
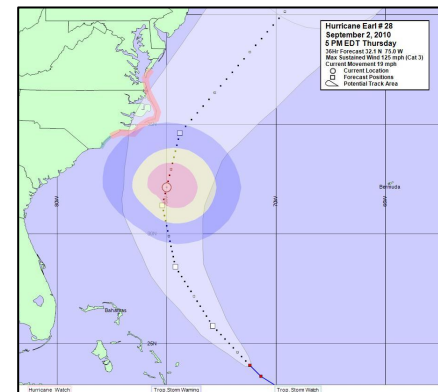
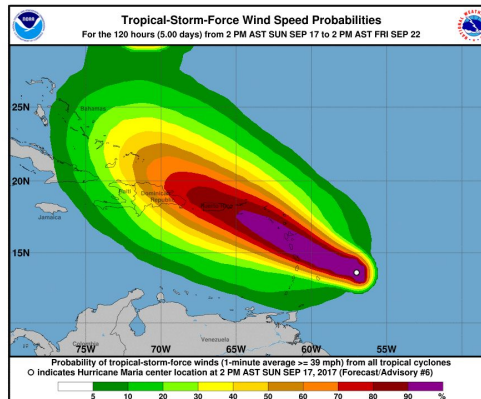




# Tropical Cyclone Advisory Packages



- 5-day track and intensity forecast
- Forecast of storm size through 72 hours (hurricane-force winds through 48 hours)
- Watches and warnings
- Hazard information
  - Tropical storm and hurricane force winds
  - Storm surge
  - Rainfall
- Forecast Discussion
  - Forecaster reasoning and confidence
  - Key Messages



**Key Messages for Hurricane Irma**  
Advisory 13: 11:00 AM AST Sat Sep 02, 2017

1. Irma is expected to be a major hurricane when it moves closer to the Lesser Antilles early next week, producing rough surf and rip currents. Irma could also cause dangerous wind, storm surge, and rainfall impacts on some islands, although it is too soon to specify where and when those hazards could occur. Residents in the Lesser Antilles should monitor the progress of Irma through the weekend and listen to any advice given by local officials.
2. It is much too early to determine what direct impacts Irma will have on the Bahamas and the continental United States. Regardless, everyone in hurricane-prone areas should ensure that they have their hurricane plan in place, as we are now near the peak of the season.

For more information go to [hurricanes.gov](http://hurricanes.gov)







# IDSS

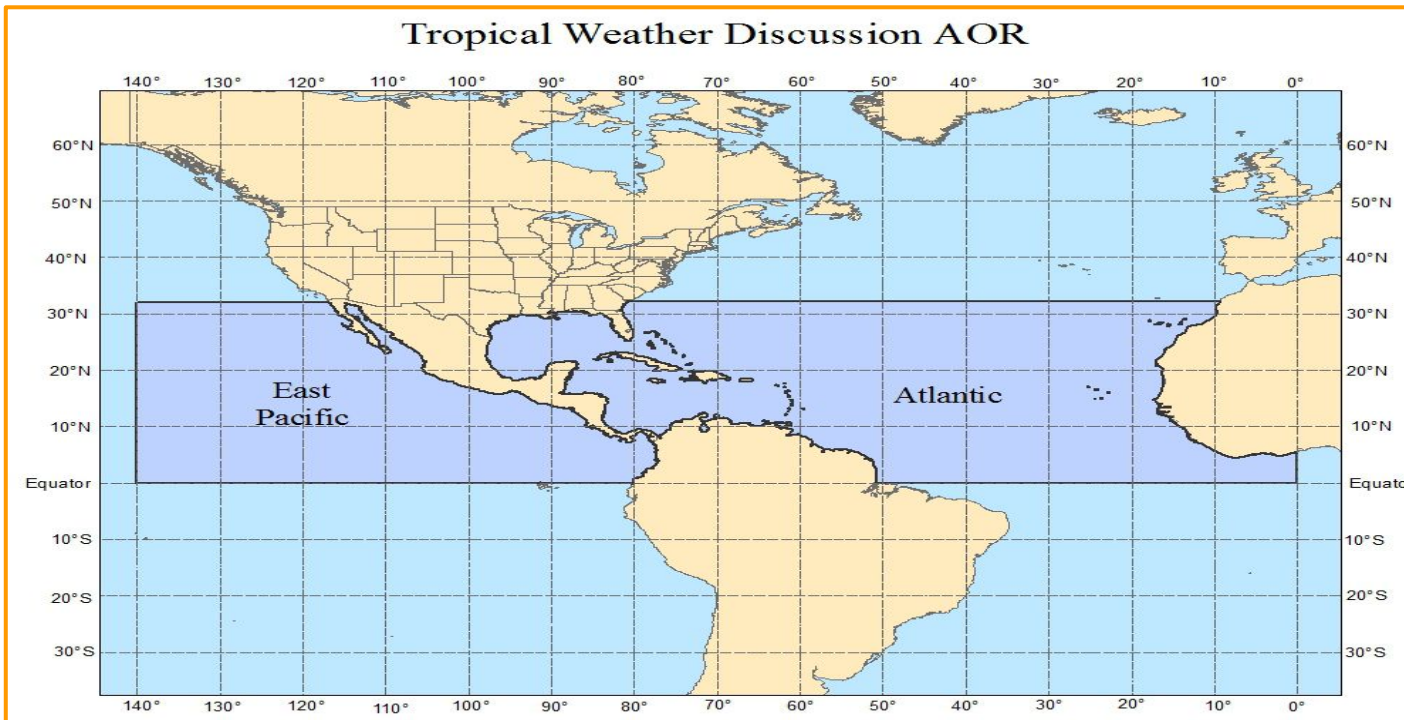


- HSU provides multi-level DSS to federal, state, and local partners throughout the TC lifecycle, including
  - Briefings for FEMA and federal agencies through Hurricane Liaison Team (VTCs, phone)
  - Briefings on state conference calls, sometimes including local jurisdictions
  - Key Messages provide high-level talking points focused on the large-scale impacts, evolving risk, and forecast confidence
  - Media pool
  - Congressional briefings





# TAFB Areas of Responsibility



Area Coverage: ~ 14 millions nm<sup>2</sup>



# Offshore Water Forecast



- 5-day forecast designed for recreational and smaller fishing vessels, which may spend a few days at sea
- Elements of forecast include:
  - ◆ winds (speed and direction)
  - ◆ Seas (significant wave height)
  - ◆ Major weather impacts that pose danger to navigation (i.e. visibility)
    - Fog, smoke and volcanic ash
- Include a synopsis of large scale environmental conditions, and marine warnings through 36 hrs
  - ◆ TC, Gale, Storm, Hurricane Warnings



32 zones



17 zones





# High Seas Forecast



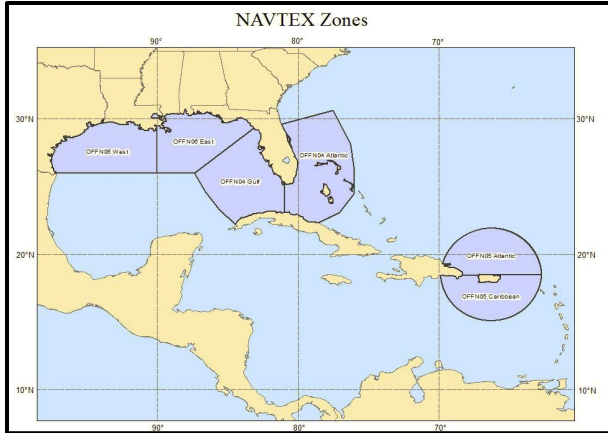
**Atlantic High Seas:** 7° N to 31° N West of 35° W

**E Pacific High Seas:** Equator to 30° N East of 140° W and Equator to 3.4° S East of 120° W

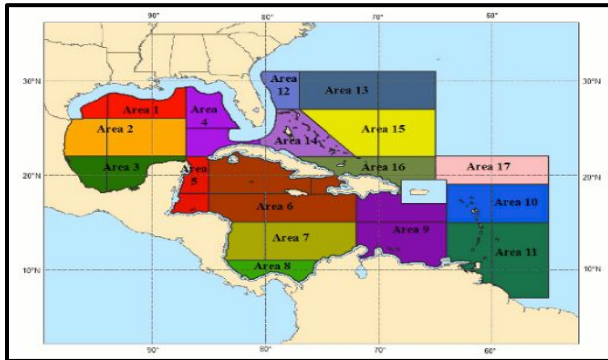
- ✓ Text forecast issued primarily for large ocean going vessels
- ✓ Updated every 6 hrs
- ✓ Describes winds and waves:
  - Nowcast
  - 24 hr
  - 48 hr
- ✓ Threshold:
  - 20 KT winds or greater
  - 8 ft seas or higher



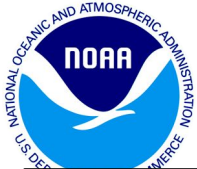
# Other TAFB Products



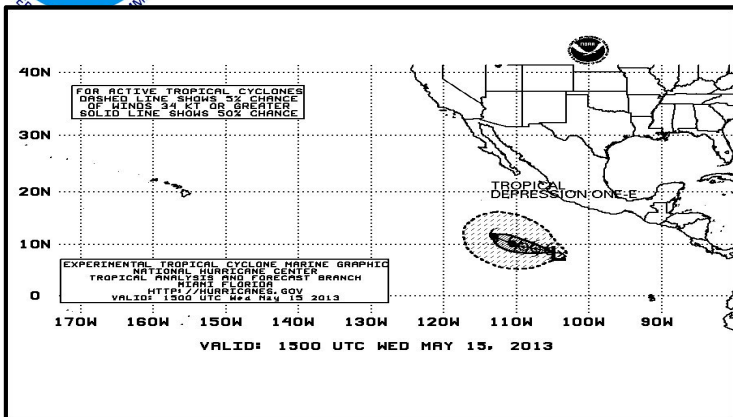
- ✓ **NAVTEX** is an internationally required broadcast of coastal urgent marine safety information to ships
- ✓ 12 U.S. Coast Guard transmitter locations
- ✓ TAFB transmits for New Orleans, Miami and San Juan



- ✓ **VOBRA** is a high frequency voice broadcast transmitted by the USCG
- ✓ Contains basic weather information prepared by the NWS (OPC, NHC and HFO)
- ✓ For vessels operating in areas beyond the range of coastal NOAA Weather Radio
- ✓ Has a lower resolution than the offshore forecasts

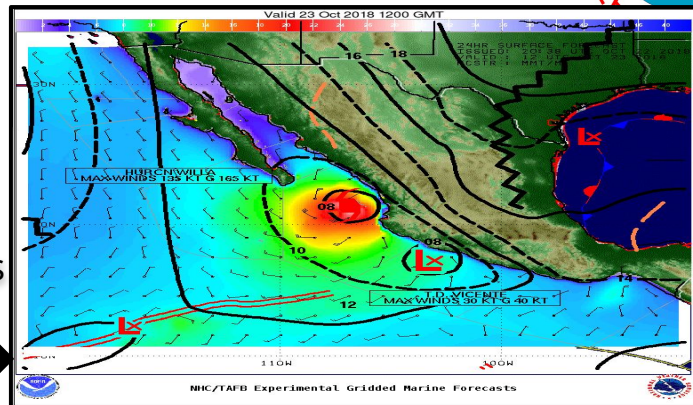


# Other TAFB Products

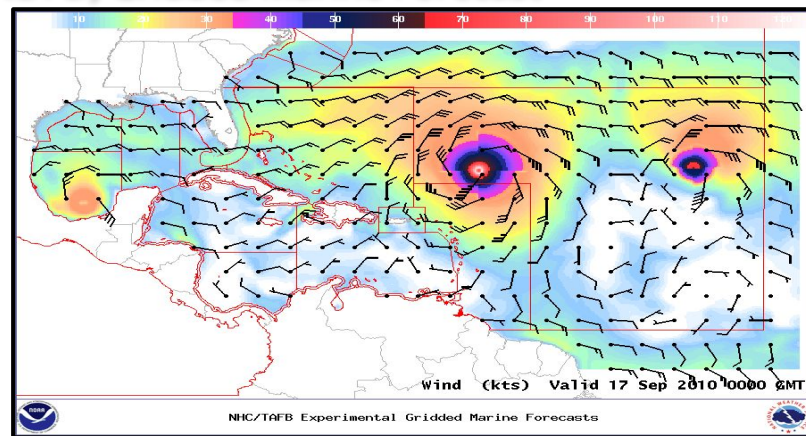
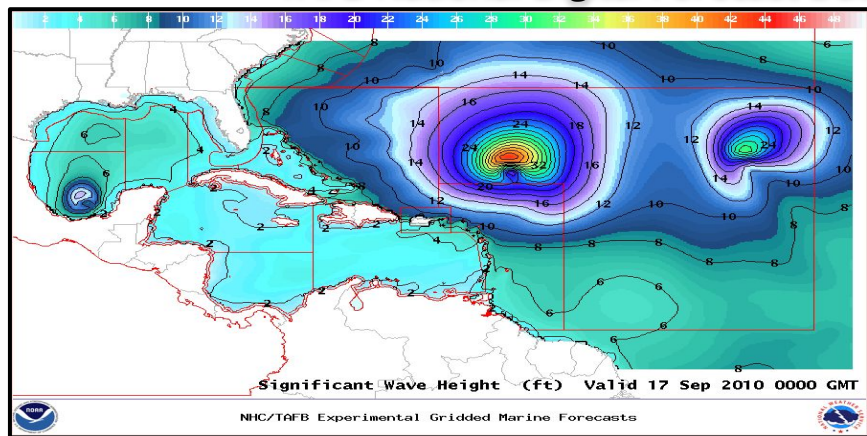


TC Danger Graphic

Marine Composite Page - Wind, Waves and Features



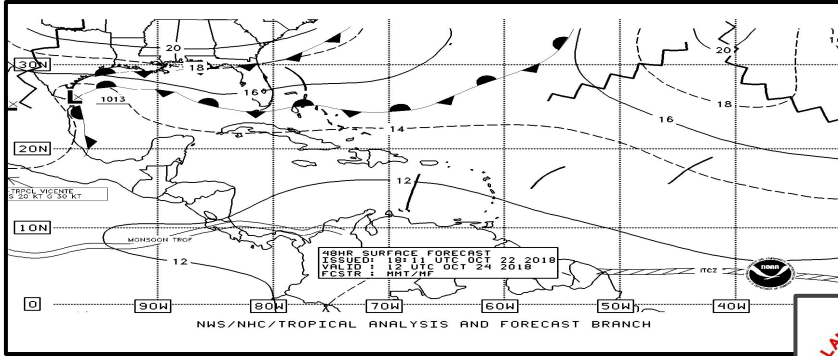
TAFB National Digital Forecast Database (NDFD) Gridded Marine Forecast



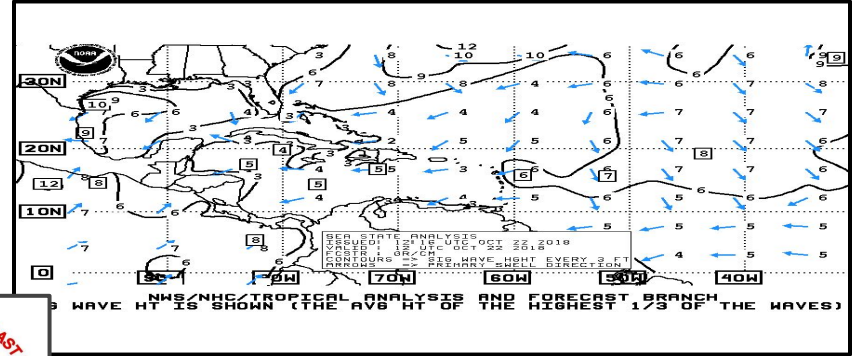




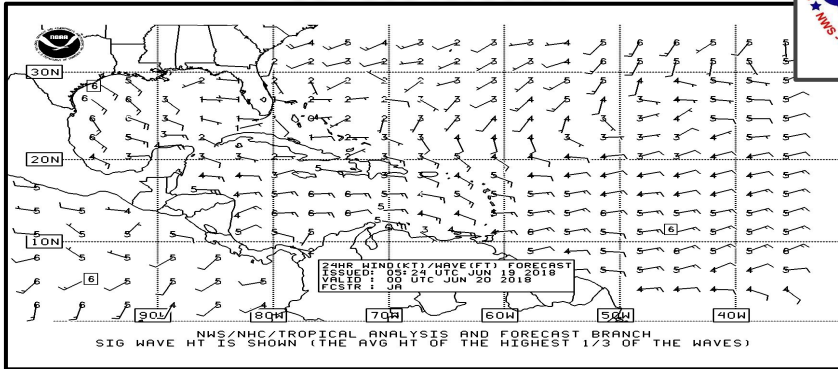
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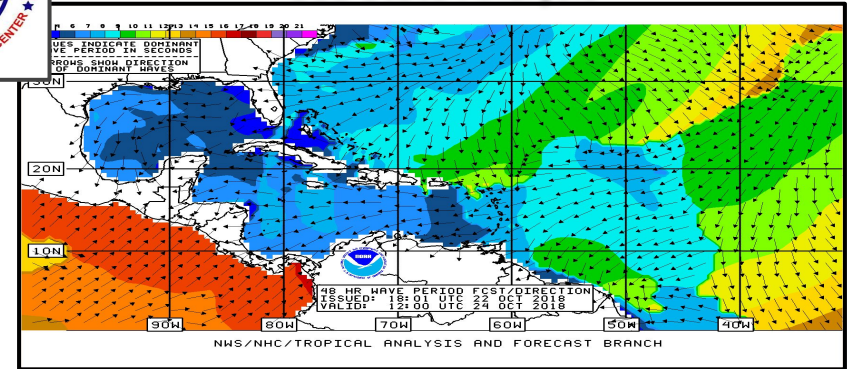
Surface forecast



Sea State Analysis



Wind Wave Forecast



Wave Period/Direction Forecast



# 54 Spot Forecasts by NHC/TAFB for 2019 U.S. Coast Guard District Operations





# Outreach and Training



- Three one-week FEMA Courses for local emergency managers (~2,000 trained since 1990)
- Interdepartmental Coordinating Committee on Hurricanes (ICCOH) meeting with state hurricane program managers
- WMO two-week course for international meteorologists
- Interdepartmental Hurricane Conference
- National Hurricane Conference (~2,000 attendees)
- National Tropical Weather Conference
- WMO RA-IV Hurricane Committee Meeting
- Caribbean Hurricane Awareness Tour
- U.S. Hurricane Awareness Tour & National Hurricane Preparedness Week
- Effective Hurricane Messaging courses for NWS meteorologists
- Florida Governor's Hurricane Conference (~2,000 attendees) + other state conferences

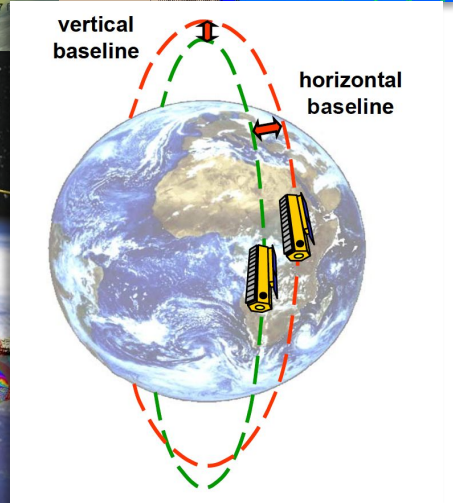
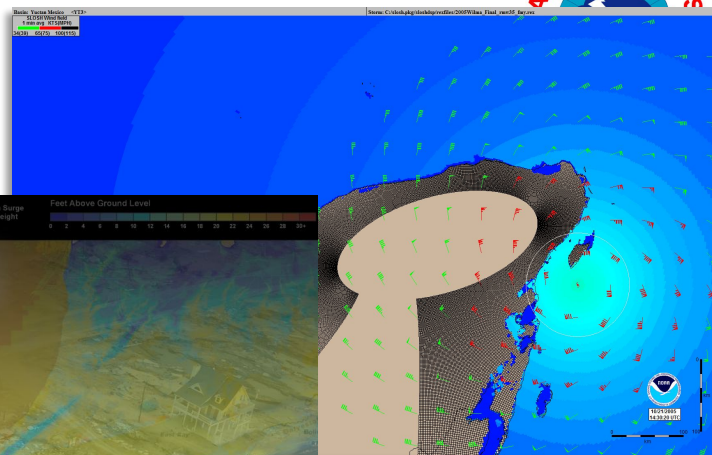
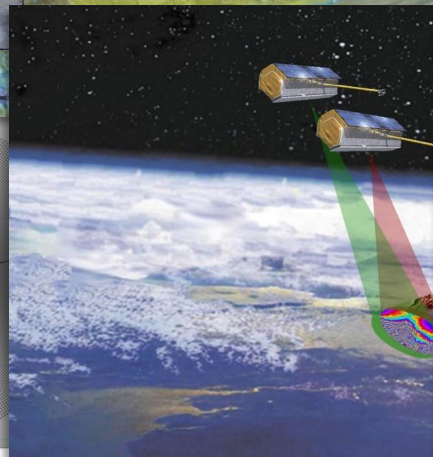
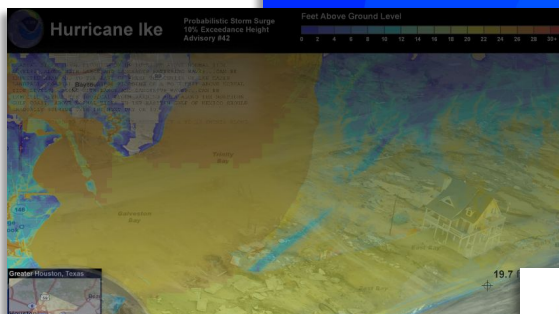
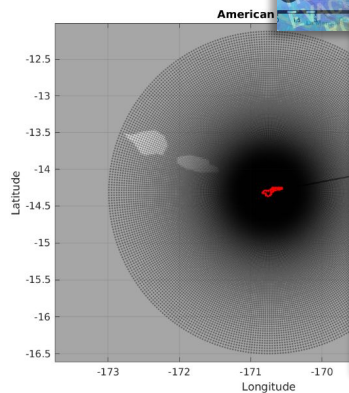






# Research and Development

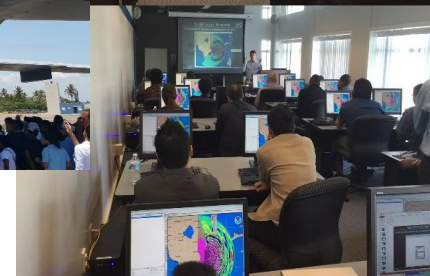
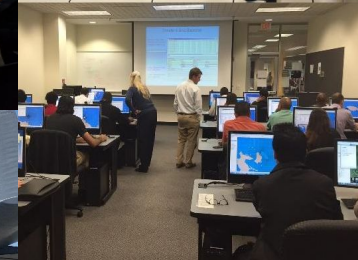
- Storm surge forecasting and modeling approach (i.e., deterministic vs probabilistic)
- Domestic and international developments/partnerships
- Digital elevation data and GIS applications





# Outreach and Education

- Mission #3: Increase awareness through outreach and education
- FEMA courses for emergency managers
- WMO workshops for international meteorologists
- Hurricane messaging courses for NWS meteorologists
- Hurricane conferences/international wave workshops/USAID partnerships and many more...





# What does TSB do?



- Support NHC computer and communication systems
  - Maintain data flow into and out of the building
- Maintain the NHC website and respond to Webmaster email
- Continued development of software and computer programs
  - Automated Tropical Cyclone Forecasting (ATCF) system
  - Statistical and dynamical models for tropical cyclone prediction (run on NOAA supercomputer)
  - NAWIPS/AWIPS-II: configure and customize data displays
  - Many others!
- Work with other government and academic entities to gather data, develop and transition new tools and techniques into operations
  - Run the Joint Hurricane Testbed (JHT)
- Occasionally fill operational shifts in HSU & TAFB





# Collaborating Offices for Data and Services





# A "Typical" Day in TSB



**Morning Rounds:**  
Check the shift logs for issues and the calendar for things like scheduled code changes, upgrades, or network changes

**Development:**  
Develop and test new models, upgrade scripts, add new dataset, migrate code

**Operational support:**  
Fix broken things

**Meetings:**  
Staff, coordinate with partners, project updates





# Fun Facts about TSB



- 10 FTEs, ~11 contractors/support personnel (includes SSU)

- Some of the technical languages used in TSB:

XML Java  
Perl MySQL Fortran  
Korn-shell  
Python JavaScript GrADS  
PHP OORexx C-shell McIDAS  
SHTML GEMPAK Bash  
GDAL MATLAB HTML  
NCL

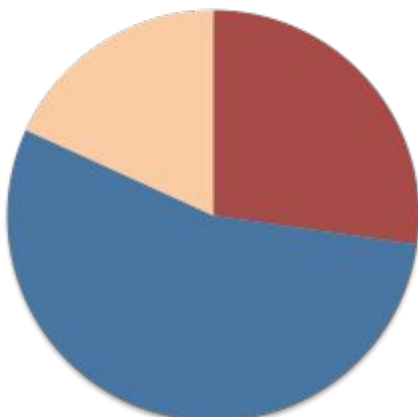
## Highest Degree Earned

■ PhD ■ Masters ■ Bachelors

Federal Staff



Contractors/Support Personnel



- Words to describe TSB culture:
  - Teamwork
  - Stimulating
  - Fast-Paced
  - Friendly