



Refresher Course on NWS Tropical Cyclone Products and Services for Media Partners

NWS Tropical Cyclone Services Program

27 July 2021



Outline

- NHC/CPHC Product Overview, Data Access and Timelines
- WFO Tropical Product Suite Overview
- NHC Media Overview and Media Pool Information
- Q & A Session



Speakers



- Dave Zelinsky – Lead Meteorologist, NHC Technology and Science Branch



- Tim Oram – Meteorological Services Branch Chief, NWS Southern Region Headquarters



- Dennis Feltgen – NHC Communications and Public Affairs Officer

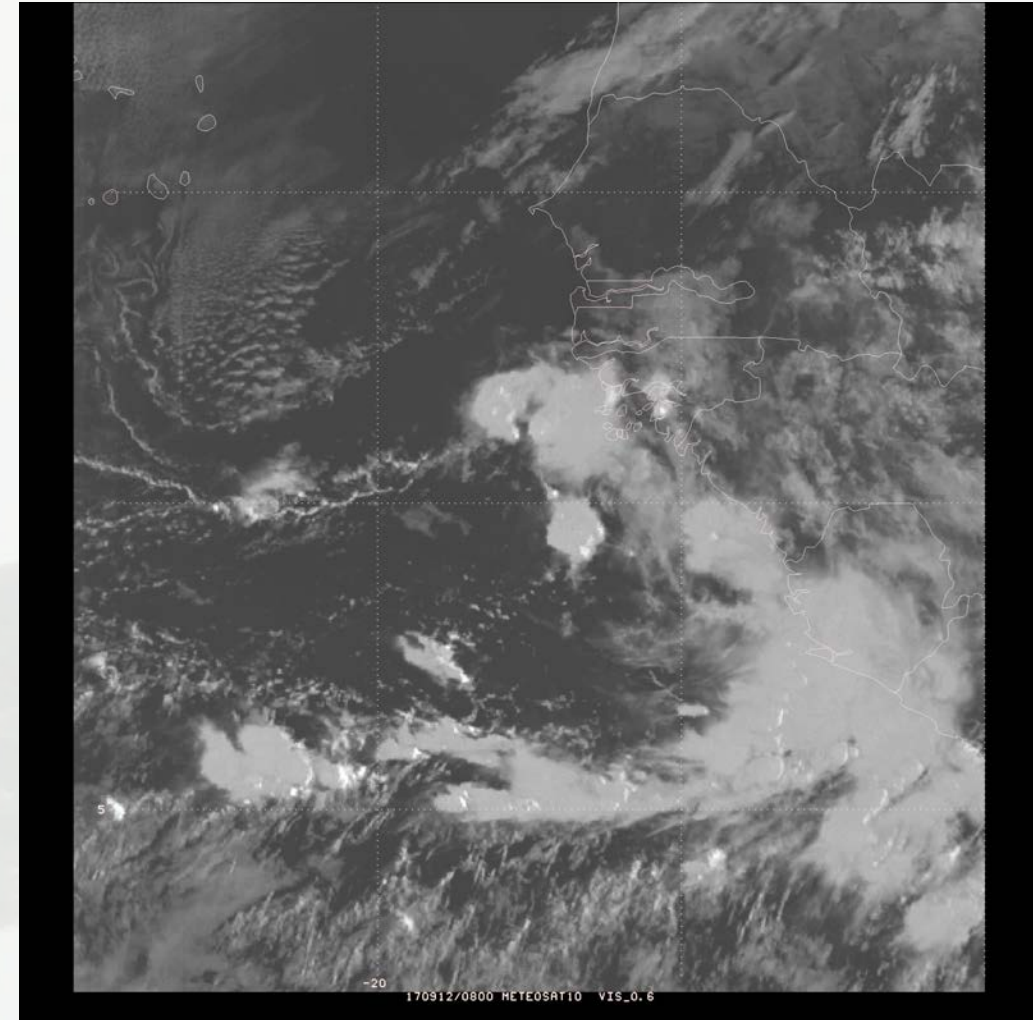


Tropical Cyclone Advisory Schedule

- Full advisories issued at 03, 09, 15, 21 UTC
 - Issued up to 30 minutes before issuance time
- Special Advisories can be issued at any time if conditions warrant
 - Typically due to a change in the initial state of the cyclone that requires a significant change to the forecast or to issue new U.S. coastal wind/storm surge warnings
 - If significant change to the forecast is required shortly before the issuance of a regular advisory, the regular advisory can be issued early (up to an hour early in rare circumstances)
- Intermediate advisories (“A”) issued at 00, 06, 12, 18 UTC when land watches/warnings in effect

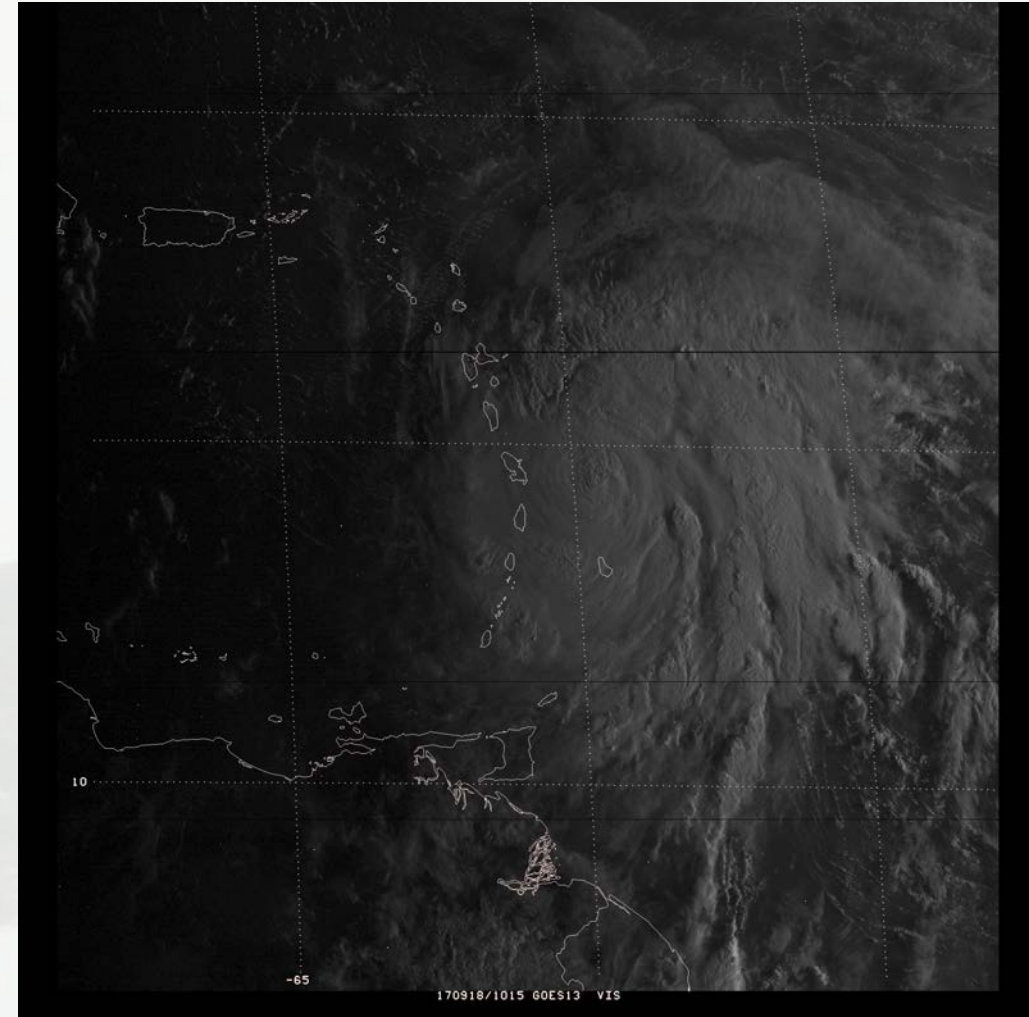
Types of Systems

- “Invests”
 - Can be any system with potential to become a tropical cyclone
 - Starting, ending, restarting an invest is at the discretion of the forecaster
 - Data types:
 - Basic stats (location, intensity, size)
 - Model data (may include HWRF, HMON)
 - Not consistently available for every cycle
 - Data only available on the NHC ftp
 - IDs
 - ATCF IDs 90-99 (AL902021)
 - No WMO, AWIPS bin (no advisory products)



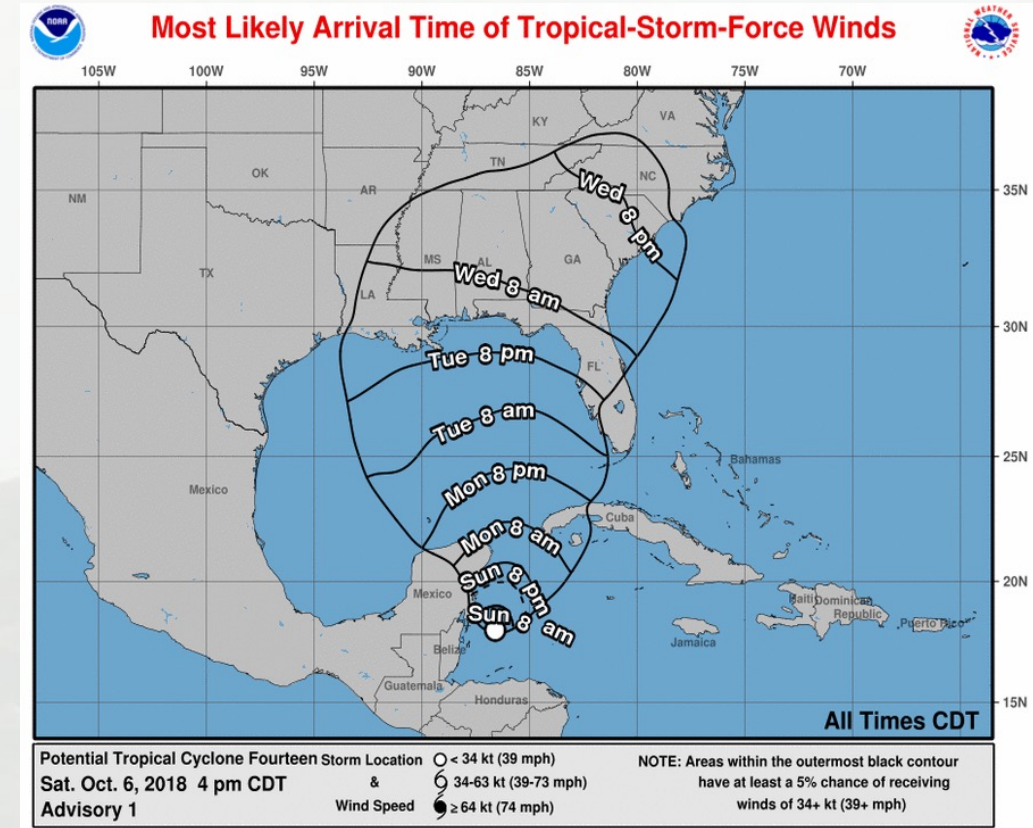
Types of Systems

- Tropical Cyclone
 - Classification based on meteorological definition
 - Well-defined center
 - Organized deep convection (thunderstorms)
 - No fronts through cyclone center
 - Deep warm core
 - Status determined by intensity (max wind speed)
 - Tropical Depressions are labeled by the ATCF ID (eg: Tropical Depression Fourteen)
 - Tropical Storms, Hurricanes are named
 - Full suite of advisory products issued
 - ATCF ID 01-49 (in sequence for a given year)
 - Text products available under the next available AWIPS/WMO bin (1-5)
 - NHC/CPHC mandated by WMO to produce a forecast for all tropical cyclones anywhere in areas of responsibility



Types of Systems

- Potential Tropical Cyclone
 - System does not meet the meteorological definition of a tropical cyclone but is expected to bring Tropical Storm or Hurricane conditions (including storm surge) to land areas within the next 48 h.
 - Only considered when a system is close to land
 - Full suite of advisory products issued
 - ATCF ID 01-49 (in sequence for a given year)
 - Text products available under the next available AWIPS/WMO bin (1-5)





System IDs

- Every system tracked by NHC has an “ATCF ID”
 - Basin, tracking number, year
 - IDs are generally unique (except invests)

AL012021

- Basin Identifier
 - AL: Atlantic
 - EP: northern East Pacific
 - CP: Central Pacific
 - Systems that cross basins from Atlantic to Pacific get a new ATCF ID
 - Systems that cross basins from East Pacific to Central Pacific (or vice versa) retain their ATCF ID



System IDs

- Every system tracked by NHC has an “ATCF ID”
 - Basin, tracking number, year
 - IDs are generally unique (except invests)

AL012021

- Identifying number
 - 01-49: reserved for tropical cyclones (or potential tropical cyclones)
 - 50-79: NHC internal use, training, testing
 - 80-89: Test cases
 - 90-99: Invests
 - Invest numbers are recycled, once we reach 99 for a given basin, the next one will be 90 again.



System IDs

- Every system tracked by NHC has an “ATCF ID”
 - Basin, tracking number, year
 - IDs are generally unique (except invests)

AL012021

- Year
 - Determined by the year a system started
 - A New Year’s storm would retain its ID



Storm “Bins”

- AWIPS and WMO headers rotate between 5 bins for a given basin
 - Example: MIATCDAT[1-5]
- All basin crossers are given a new bin to match the new basin
- Will be expanded to 10 bins per basin in the future

Basin	AWIPS Headers	WMO Headers
Atlantic	AT(1-5)	NT (1-5)
East Pacific	EP	PZ
Central Pacific	CP	PA



Product Dissemination: NHC Website

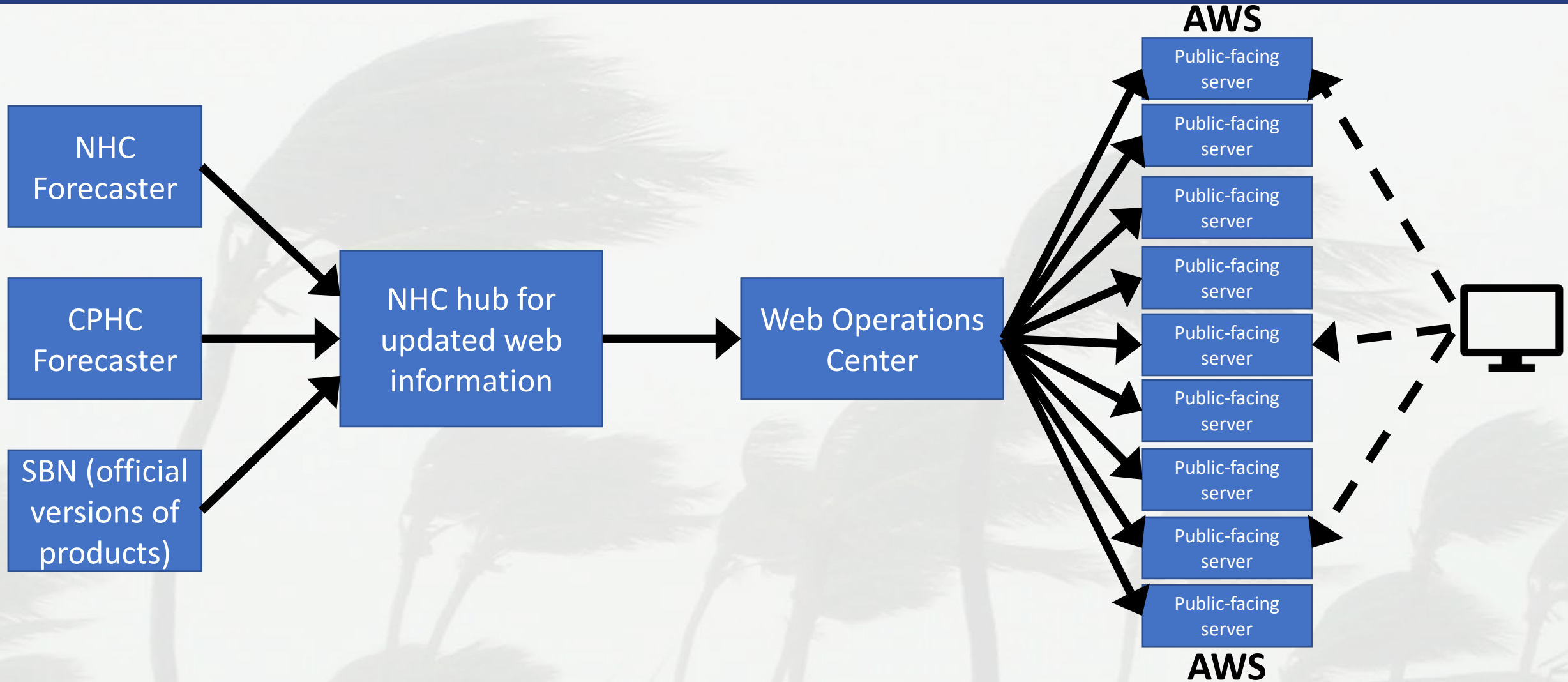


- All NHC products are available on hurricanes.gov
- Public-facing site hosted by the NOAA Web Operations Center (WOC)
 - Utilizes Amazon Web Services (“the cloud”) to manage high-demand events
- NHC responsible for website content
- NHC constantly sends updated information to the WOC (every few seconds if necessary)
- A backup server is maintained in College Park that can also update the NHC website if needed
- NHC ftp follows the same principle
 - ftp.nhc.noaa.gov (available via ftp or https protocol)

The screenshot displays the National Hurricane Center (NHC) website interface. At the top, it identifies the 'NATIONAL HURRICANE CENTER and CENTRAL PACIFIC HURRICANE CENTER'. Below this, there are navigation tabs for 'ANALYSES & FORECASTS', 'DATA & TOOLS', 'EDUCATIONAL RESOURCES', 'ARCHIVES', and 'ABOUT'. A 'Top News of the Day' section lists several advisories and warnings, including those for Tropical Storm Vicky and Tropical Depression Sally. The main content area features a map of the Atlantic and Caribbean regions, showing current disturbances and two-day cyclone formation chances. Below the map, there are sections for 'Active Storms | Marine Forecasts' and '2-Day Graphical Tropical Weather Outlook | 5-Day Graphical Tropical Weather Outlook'. Two detailed advisory boxes are visible: one for Tropical Storm Vicky, which is shrinking and expected to weaken, and another for Tropical Depression Sally, which is still causing torrential rains over the Eastern United States. Each advisory box includes a title, location, movement, and various forecast data points like wind speed probabilities and arrival times.



NHC Website: From us to you





Product Dissemination: GIS Platforms

- NHC GIS products are hosted on NWS IDP and NOAA Coast GIS systems
 - <https://www.weather.gov/gis/>
 - <https://idpgis.ncep.noaa.gov/arcgis/rest/services>
 - <https://nowcoast.noaa.gov/>
 - <https://nowcoast.noaa.gov/arcgis/rest/services/nowcoast>
- NHC sends GIS files to a central NWS hub that is used to create GIS services at the sites listed above
- Up to a 15 minute delay between when a product is issued and when the corresponding GIS data is published at other NOAA sites



Text Product Dissemination: Satellite Broadcast Network



- All Text products (including the National TCV warning product) are disseminated through the SBN (Satellite Broadcast Network) and NOAA Weather Wire Service (NWWS)
 - Consistent with all NWS offices
 - SBN/NWWS centrally managed by NWS
- Text products also post (nearly) instantaneously to the NHC website



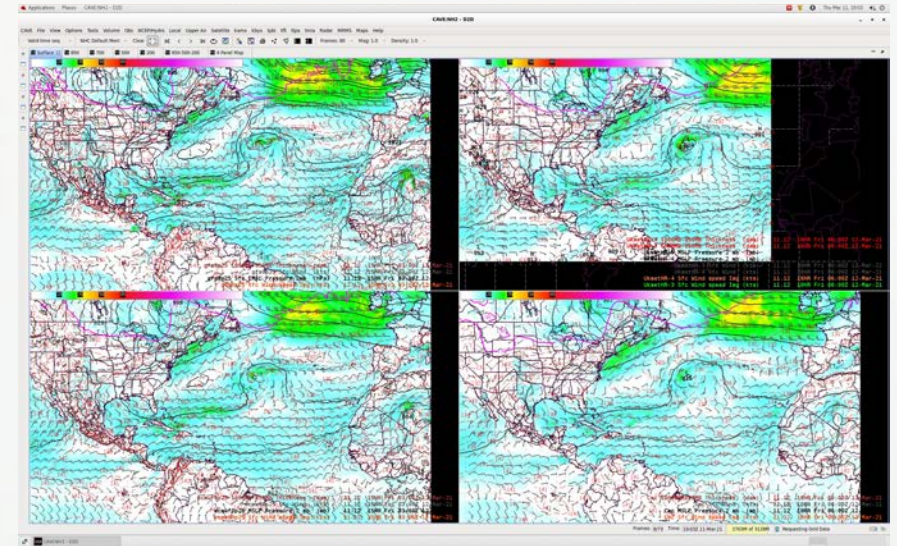
Advisory Preparation

- NHC forecast cycle follows the 6 h cadence of the product issuance times



Advisory Preparation: t-2:00

- New dynamical model guidance begins to arrive
- Forecasters begin preparation of Tropical Weather Outlook



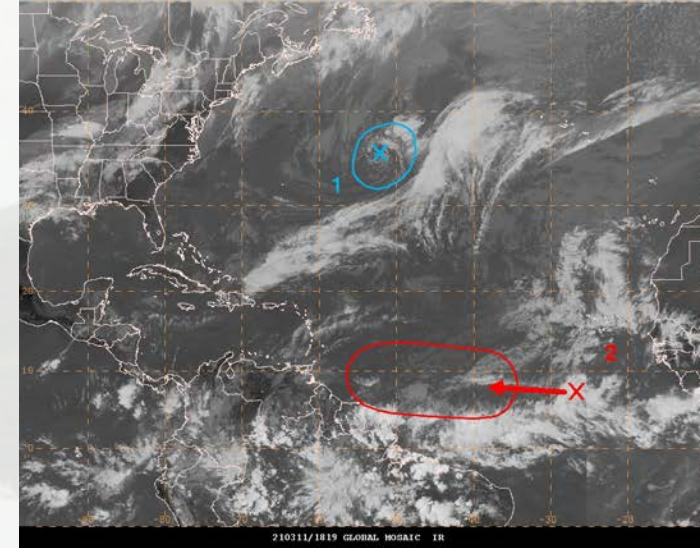
-2:00

(22,04,10,16 UTC)



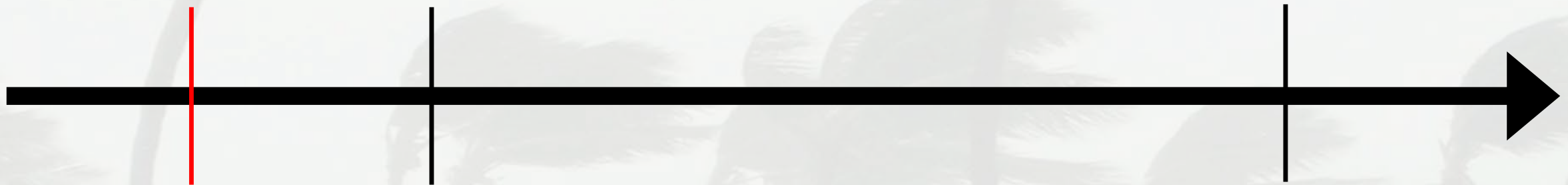
Advisory Preparation: t-1:00

- New model guidance continues to arrive
- Earliest time forecasters can transmit Tropical Weather Outlook
 - Graphic drawn by forecasters and sent to web following transmission of text product
- Begin preparation of Intermediate Public Advisory (if necessary)



-1:00

(23,05,11,17 UTC)



Synoptic Time

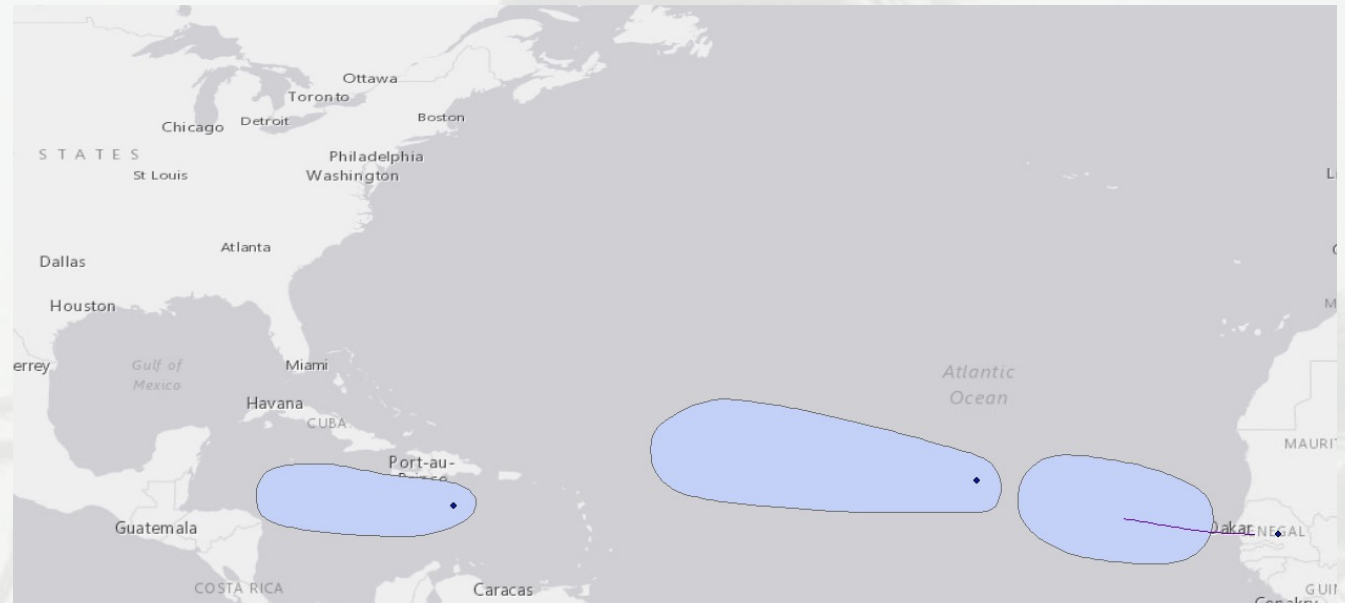
(00,06,12,18 UTC)

Advisory Time

(03,09,15,21 UTC)

Graphical Tropical Weather Outlook

- Outlook drawn by forecasters, images on NHC website and GIS files generated on NHC server
- Sent directly to NHC website and to NWS central hub for conversion to REST services
- Area drawn depicts where genesis is expected to occur, not full 5-day track of the disturbance
- Available as shapefile or KMZ



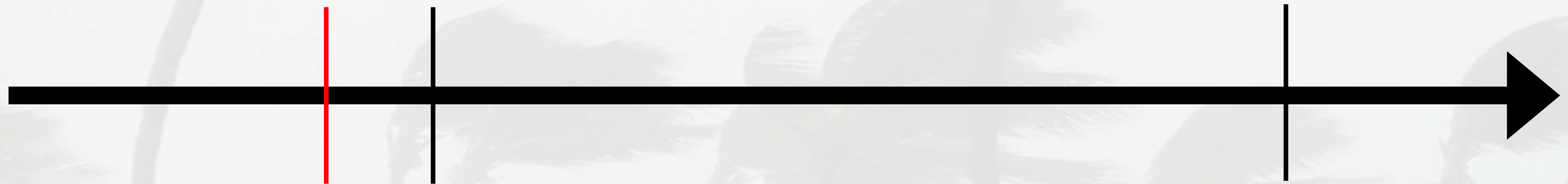


Advisory Preparation: t-0:30

- Any changes to watches/warnings for the intermediate advisory are collaborated with WFOs (will often be earlier, particularly when there are changes anticipated)
 - Warnings can be dropped, not added on an Intermediate Advisory
- Earliest time forecasters can transmit Intermediate Public Advisory
 - Graphics generated following transmission of text product
- Common aircraft arrival time, if this is the first pass of the mission through the storm

-0:30

(2330,0530,1130,1730 UTC)



Synoptic Time

(00,06,12,18 UTC)

Advisory Time

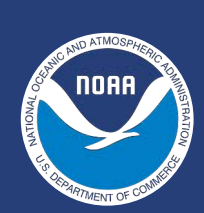
(03,09,15,21 UTC)



Advisory Preparation: t+0:00

- Tropical Weather Outlook, Intermediate Public Advisory valid time (must be issued by now)
- National TCV generated, transmitted





Advisory Preparation: t+0:00 to t+0:45

- Data to help forecaster analysis of initial state of the system arrives (fixes)

+0:45

(0045,0645,1245,1845 UTC)

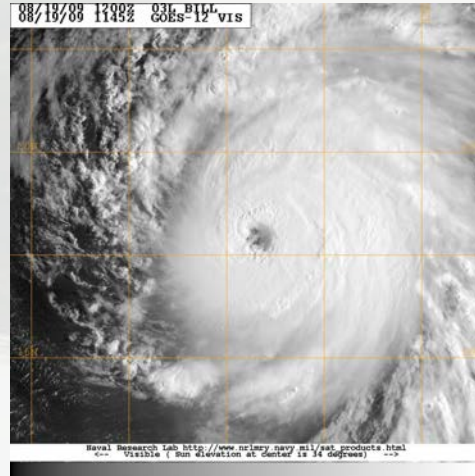


Synoptic Time
(00,06,12,18 UTC)

Advisory Time
(03,09,15,21 UTC)

Data to Help Analyze Tropical Cyclones

- **Satellites:**
 - Geostationary
 - Polar
- **Recon/Aircraft**
 - Flight-level winds
 - Dropwindsondes
 - Surface wind data
 - Airborne doppler data



- **Surface Observations**
 - Buoys, Ships, land-based obs
- **Radar**
 - WSR-88D
 - International Radars
- **Direct Reports**
 - HAM Radio, NWS Chat, email



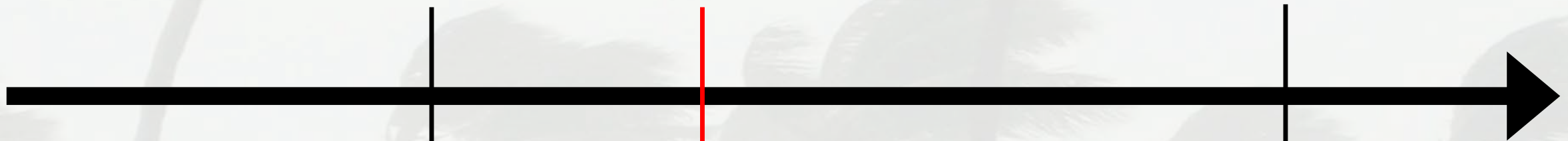


Advisory Preparation: t+1:00

- Dynamical Models initialized
 - HWRF, HMON, GFS
- Statistical Models run
- .com file and adeck (file with model tracker info eg- aal052021.dat) become available
 - “Early” version of the guidance is available
 - This can happen between t+0:30 and t+1:30

+1:00

(0100,0700,1300,1900 UTC)

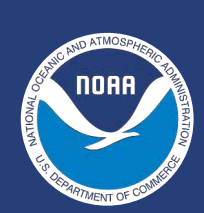


Synoptic Time

(00,06,12,18 UTC)

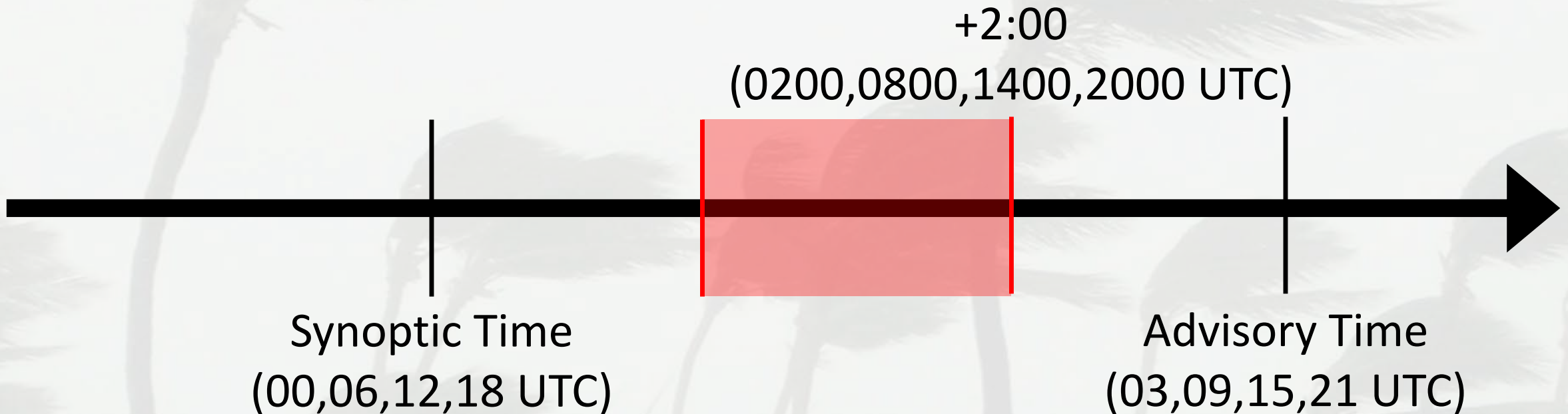
Advisory Time

(03,09,15,21 UTC)



Advisory Preparation: t+1:00 to t+2:00

- Forecaster prepares forecast
- Late model guidance arrives (ECMWF)
 - Possible updates to .com file and adeck up to t+1:30 if new info arrives
 - Files will not update on NHC ftp after t+1:30 until advisory issuance
- Coordination of changes to tropical warnings with local offices



Advisory Preparation: t+2:00

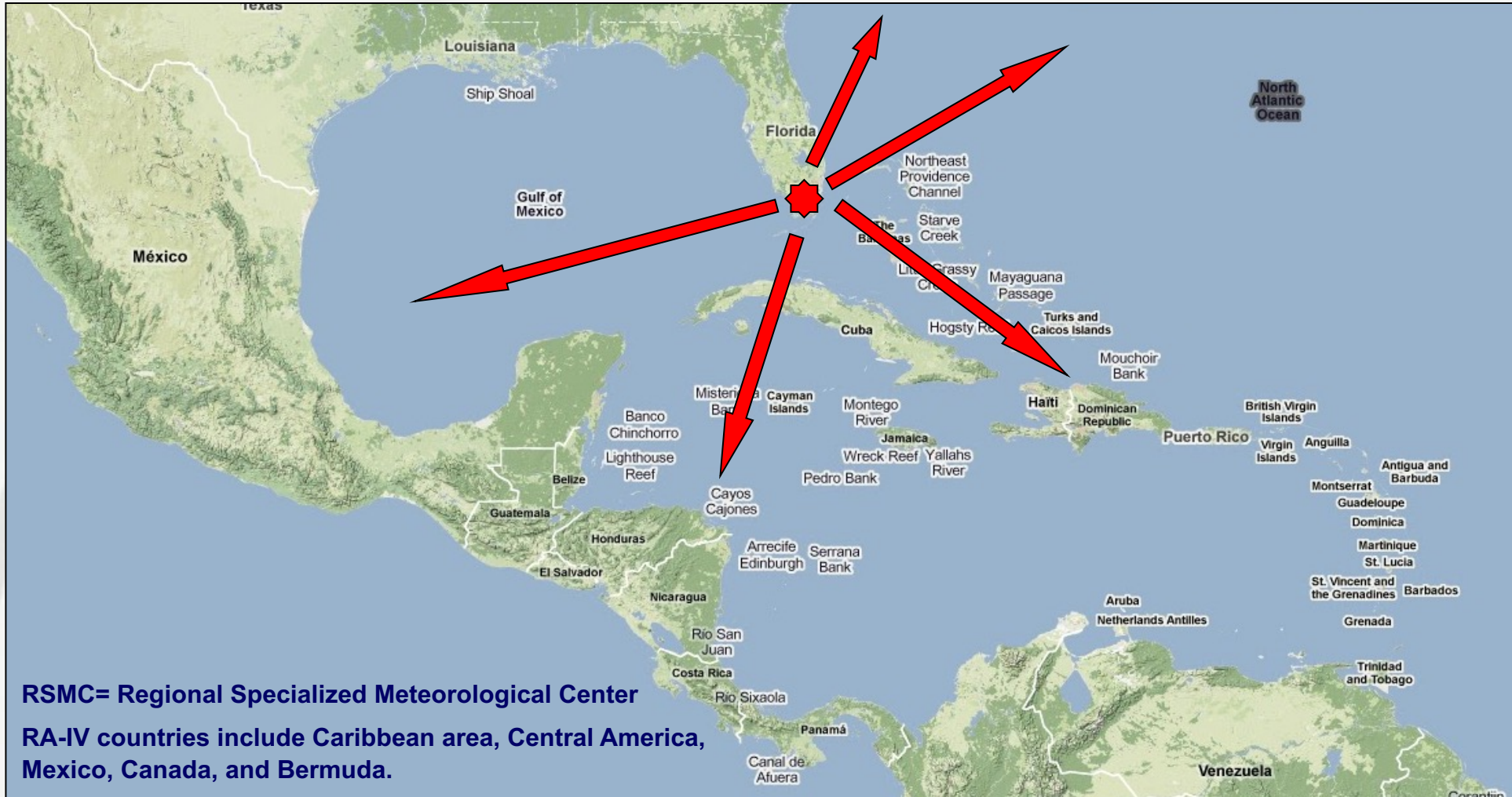
- NWS/DoD Coordination Call
 - Coordinate U.S. hazards, warnings, messaging
- Proposed changes to watches/warnings coordinated with local forecast offices
- International warning coordination also takes place around this time



+2:00
(0200,0800,1400,2000 UTC)



International Coordination





Advisory Preparation: t+2:00 to t+3:00

- Prepare forecast products
 - Forecasters compose the text products, including the Public Advisory and the Forecast Discussion
 - Incorporate any last-minute new information into the forecast
 - More likely when there is a reconnaissance aircraft
- Finalize international hazards/warnings
- Issue forecast products
 - Under normal circumstances, could be up to 30 minutes prior to advisory time. More complicated forecasts are less likely to be issued “early”





Advisory Preparation: t+3:00

- Deadline to issue advisory products
 - Graphics may be issued a few minutes later
- National TCV generated, transmitted
- Psurge request submitted, model begins to run shortly after advisory time





Product Transmission: Text Products



- Text products transmitted first
 - To website through internal processes
 - Through AWIPS
 - A version with WMO headers makes it back to NHC website from the SBN about a minute later and replaces the internal NHC one
 - Text products embedded within GIS products always based on internal version
- Forecast/Advisory (TCM), Public Advisory (TCP) should always be transmitted before other text products
 - Only TCP for intermediate advisories
 - TCP initiates tweet via internal script
- Forecast Discussion (TCD) may be sent several minutes after the other text products
- TCV (zone-based warning product) will generally be sent last, but coastal warning information is included in TCM, TCP

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BULLETIN
Tropical Storm Michael Advisory Number 5
NWS National Hurricane Center Miami FL AL142818
400 PM CDT Sun Oct 07 2013

...AIRCRAFT FINDS MICHAEL STRONGER...
...HEAVY RAINING EXPECTED OVER WESTERN CUBA TONIGHT AND MONDAY...
...THREAT TO THE NORTHEASTERN U.S. GULF COAST INCREASING...

SUMMARY OF 400 PM CDT...2100 UTC...INFORMATION
-----
LOCATION...19.2N 85.5W
ABOUT 130 MI...205 KM SE OF COZUMEL MEXICO
ABOUT 190 MI...305 KM SSW OF THE WESTERN TIP OF CUBA
MAXIMUM SUSTAINED WINDS...50 MPH...85 KM/H
PRESENT MOVEMENT...WNE OR 20 DEGREES AT 3 MPH...6 KM/H
MINIMUM CENTRAL PRESSURE...999 HB...29.50 INCHES

WATCHES AND WARNINGS
-----
CHANGES WITH THIS ADVISORY:

None

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Tropical Storm Warning is in effect for...
* The Cuban provinces of Pinar del Rio and the Isle of Youth
* The coast of Mexico from Tulum to Cabo Catoche, including Cozumel

A Tropical Storm warning means that tropical storm conditions are
expected somewhere within the warning area, in this case within 24
hours.

Interests along the northeastern and central U.S. Gulf coast should
monitor the progress of Michael.

For storm information specific to your area, please monitor
products issued by your national meteorological service.

DISCUSSION AND OUTLOOK
-----
At 400 PM CDT (2100 UTC), the center of Tropical Storm Michael was
located near latitude 19.2 North, longitude 85.5 West. Michael is
moving toward the north-northeast near 3 mph (6 km/h). A northward
motion with some increase in forward speed is expected over the next
few days. On the forecast track, the center of Michael will move
over the Yucatan Channel on Monday, and then across the eastern Gulf
of Mexico late Monday through Tuesday night, and approach
the northeastern Gulf coast on Wednesday.

Data from an Air Force Reserve reconnaissance aircraft indicate that
maximum sustained winds have increased to near 50 mph (85 km/h) with
higher gusts. Additional strengthening is expected during the next
few days, and Michael is forecast to become a hurricane Monday night
or Tuesday.

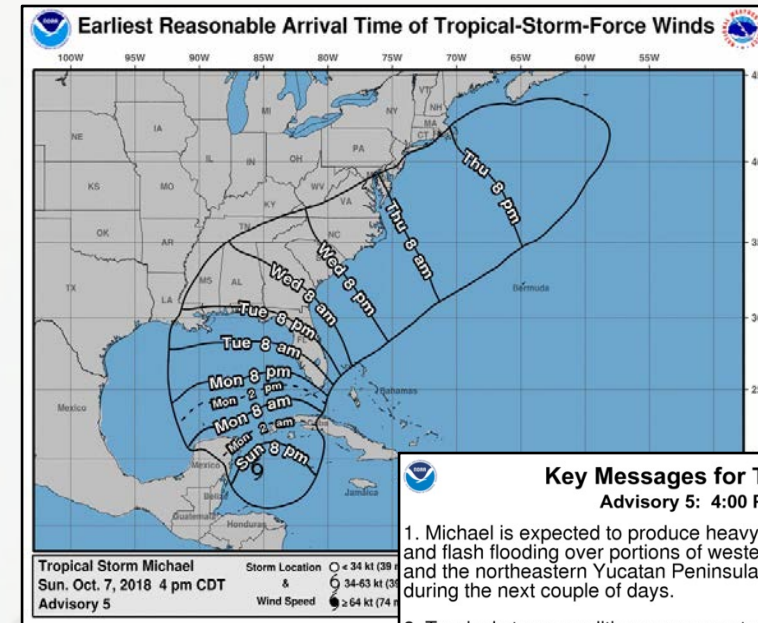
Tropical-storm-force winds extend outward up to 205 miles (335 km)
primarily to the east of the center.

The latest minimum central pressure reported by reconnaissance
aircraft is 999 mb (29.50 inches).

HAZARDS AFFECTING LAND
-----
WIND: Tropical storm conditions are expected to first reach the
```

Product Transmission: Graphics

- Graphics and GIS products are generated after the TCM/TCP have been transmitted
 - Graphics run in 1-2 minutes, but will not start until the forecaster initiates them
 - Key Messages graphic also relies on the TCD, may be run later if TCD has not been transmitted yet
 - Preliminary Wind Speed Probability graphic is generated (120 h cumulative probability only)
- Graphics/GIS products sent directly to website through internal processes
- GIS and gridded products also sent to NWS central hub for dissemination through GIS systems
- Final wind speed probabilities run on the NWS supercomputer five minutes after advisory valid time (t+3:05)
 - Wind speed probability graphics re-run (automated)
 - GIS files generated, transmitted
 - All wind speed probability graphics typically updated by t+3:30
- Potential Storm Surge Flooding map last product to update
 - Up to 30 minutes following the completion of the Psurge run



Key Messages for Tropical Storm Michael
Advisory 5: 4:00 PM CDT Sun Oct 07, 2018

1. Michael is expected to produce heavy rainfall and flash flooding over portions of western Cuba and the northeastern Yucatan Peninsula of Mexico during the next couple of days.
2. Tropical storm conditions are expected tonight over portions of western Cuba and the northeastern Yucatan Peninsula, where tropical storm warnings are in effect.
3. Michael is forecast to be a hurricane when it reaches the northeastern Gulf Coast by mid-week, and the risk of dangerous storm surge, rainfall, and wind impacts continues to increase. In addition, Michael is expected to affect portions of the Florida Gulf Coast that are especially vulnerable to storm surge, regardless of the storm's exact track or intensity. Residents in these areas should monitor the progress of this system and follow any advice given by local officials.

For more information go to hurricanes.gov



Advisory Preparation: t+3:15

- FEMA Coordination call
- Media inquiries





Advisory Preparation: t+3:30

- Final Wind Speed Probabilities are available
 - Graphics, GIS, grb data





Advisory Preparation: t+4:00

- Psurge finishes running
 - Depending on the complexity of the forecast, can be ready as soon as t+3:30 or as late as t+4:15
- Potential Storm Surge Flooding generation begins
- Hurricane Specialists begin reviewing new guidance for next model cycle (it's now t-2:00 for that cycle)
- Computation of Potential Storm Surge Flooding map begins





Advisory Preparation: t+4:30

- Potential Storm Surge Flooding graphic and GIS products issued
 - May be up to 30 minutes following the completion of the P surge run





Advisory Products



Atlantic - Caribbean Sea - Gulf of Mexico

Tropical Weather Outlook (en Español*)

800 PM EDT Mon Aug 3 2020

Tropical Weather Discussion

805 PM Mon Aug 03 2020

Hurricane Isaias

[Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

...ISAIAS REGAINS HURRICANE STRENGTH AND IS EXPECTED TO MAKE LANDFALL TONIGHT WITH DANGEROUS WINDS AND STORM SURGE... ...STRONG WINDS AND HEAVY RAINFALL LIKELY FROM THE EASTERN CAROLINAS TO THE MID-ATLANTIC COAST TONIGHT AND TUESDAY...

9:00 PM EDT Mon Aug 3

Location: 33.1°N 78.8°W
Moving: NNE at 18 mph
Min pressure: 988 mb
Max sustained: 85 mph

Public Advisory #27A
800 PM EDT

Aviso Publico* #27A
800 PM EDT

Forecast Advisory #27
2100 UTC

Forecast Discussion #27
500 PM EDT

Wind Speed Probabilities #27
2100 UTC

NWS Local Products
931 PM EDT

Update Statement
900 PM EDT

US Watch/Warning
858 PM EDT



Wind Speed Probabilities



Arrival Time of Winds



Wind History



Warnings/Cone Interactive Map



Warnings/Cone Static Images



Warnings and Surface Wind



Key Messages



Mensajes Claves



Storm Surge Inundation



Storm Surge Watch/Warning



Peak Surge



U.S. Rainfall Potential



Flash Flooding Potential




U.S. Tornado Potential

Advisory Product Availability

Atlantic - Caribbean Sea - Gulf of Mexico
 Tropical Weather Outlook (en Español*)
 800 PM EDT Mon Aug 3 2020

Tropical Weather Discussion
 805 PM Mon Aug 03 2020















Hurricane Isaias  [Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

...ISAIAS REGAINS HURRICANE STRENGTH AND IS EXPECTED TO MAKE LANDFALL TONIGHT WITH DANGEROUS WINDS AND STORM SURGE... STRONG WINDS AND HEAVY RAINFALL LIKELY FROM THE EASTERN CAROLINAS TO THE MID-ATLANTIC COAST TONIGHT AND TUESDAY...

9:00 PM EDT Mon Aug 3
 Location: 33.1°N 78.8°W
 Moving: NNE at 18 mph
 Min pressure: 988 mb
 Max sustained: 85 mph

Public Advisory #27A 800 PM EDT	Aviso Publico* #27A 800 PM EDT	Forecast Advisory #27 2100 UTC	Forecast Discussion #27 500 PM EDT	Wind Speed Probabilities #27 2100 UTC
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[NWS Local Products](#) 931 PM EDT [Update Statement](#) 900 PM EDT [US Watch/Warning](#) 858 PM EDT

 Wind Speed Probabilities	 Arrival Time of Winds	 Wind History	 Warnings/Cone Interactive Map	 Warnings/Cone Static Images	 Warnings and Surface Wind	 Key Messages
 Mensajes Claves	 Storm Surge Inundation	 Storm Surge Watch/Warning	 Peak Surge	 U.S. Rainfall Potential	 Flash Flooding Potential	 U.S. Tornado Potential

- All Full Advisories
 - Text Products:
 - Forecast/Advisory (TCM)
 - Public Advisory (TCP)
 - Wind Speed Probabilities (PWS)
 - ICAO (TCA)
 - Discussion (TCD)
 - Graphics:
 - Wind Speed Probabilities
 - Arrival Time of Winds
 - Wind History (wind swath)
 - Cone graphic
 - Initial wind field
 - Track history (best track)



Advisory Product Availability

hurricanes.gov/gis

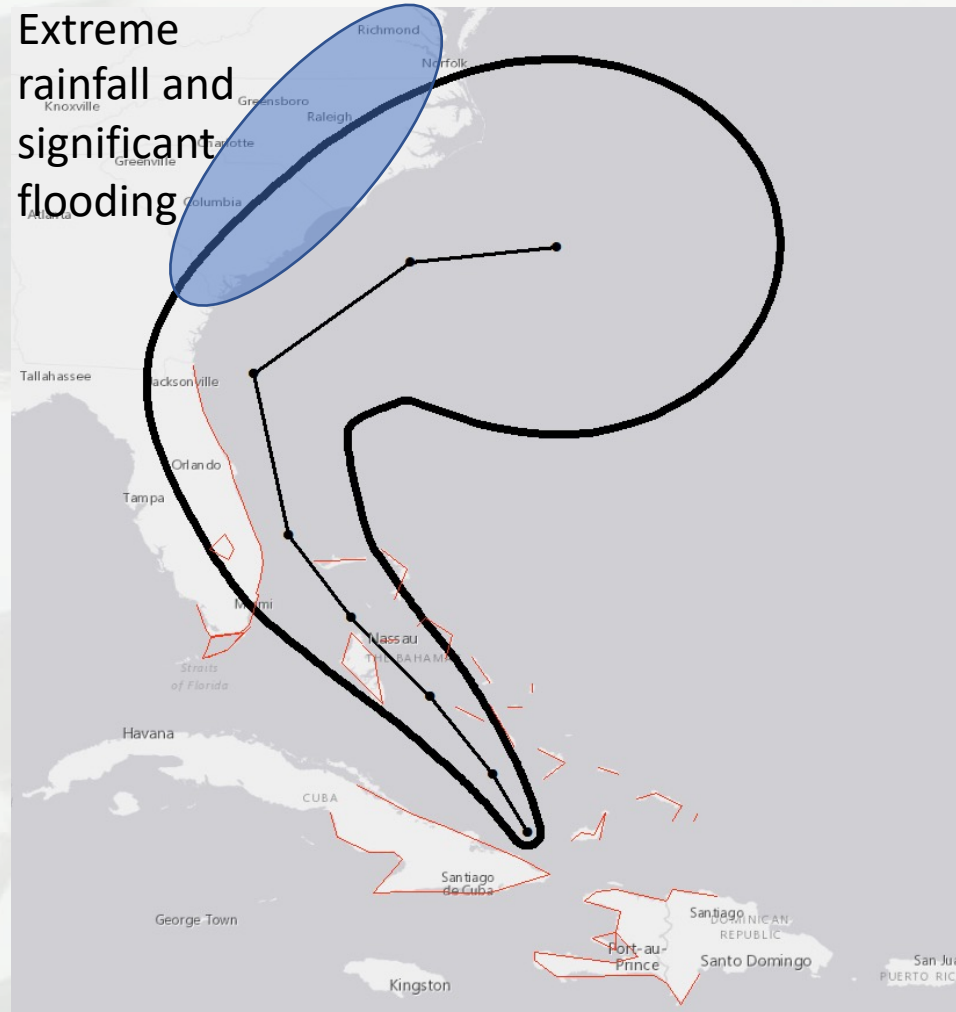
As of Tue, 04 Aug 2020 09:54:17 UTC				
	Atlantic	Eastern Pacific	Central Pacific	Archive
Advisory Forecast Track, Cone of Uncertainty, and Watches/Warnings[‡] <small>Sample Shapefiles: Irma Example Sample KMZ: Cone Track Warnings</small>	TS Isaias: [shp] KMZ: [Cone] [Track] [Warnings]	No current data	No current data	Year ▼
Advisory Wind Field and Forecast Wind Radii[‡] <small>Sample Shapefiles: Irma Example Sample KMZ: Initial Radii Forecast Radii</small>	TS Isaias: [shp] KMZ: [Initial Radii] [Forecast Radii]	No current data	No current data	Year ▼
Preliminary Best Track[‡] <small>Note: Final Best Tracks available here Sample Shapefiles: Irma Example Sample KMZ: Past Track Wind Swath</small>	TS Isaias: [shp] [kmz]	No current data	No current data	Year ▼
Arrival Time of Tropical Storm Force Winds <small>Sample KMZ: Earliest Reasonable Most Likely</small>	TS Isaias: KMZ: [Earliest Reasonable] [Most Likely] GRIB2 data: via HTTPS			Year ▼
Graphical Tropical Weather Outlook[‡] <small>Sample Shapefile</small>	Outlook areas (if any): [shp] KMZ: [Atlantic] [East Pacific] [Central Pacific]		Atlantic, E Pacific, C Pacific	
Wind Speed Probabilities^{‡*} <small>Sample Shapefiles: Polygons Points Sample KMZ: 34 kt 50 kt 64 kt</small>	Points: [shp] Polygons: [shp] - kmz [34kt] [50kt] [64kt] GRIB1 and GRIB2 data: via HTTPS via FTP			Year ▼
Probabilistic Storm Surge^{‡*} <small>metadata sample</small>	TS Isaias: [shp/kmz] GRIB2: via FTP	N/A	N/A	Year ▼
Potential Storm Surge Flooding (Inundation) <small>metadata sample download instructions interactive example with sample downloads</small>	TS Isaias: [GEOTIFF - No mask] TS Isaias: [GEOTIFF - With mask]	N/A	N/A	Year ▼
Storm Surge Watch/Warning <small>Sample KML</small>	Latest KML	N/A	N/A	Year ▼
Breakpoints[‡] <small>metadata sample (updated for 2019)</small>	2019 update: [shp] [kmz] Interactive Map			View
Storm Surge Communication Points[‡] <small>metadata sample (updated for 2019)</small>	2019 update: [shp] [kmz] Interactive Map			View
GIS Data RSS Feed <small>description</small>	Atlantic GIS	Eastern Pacific GIS	Central Pacific GIS	N/A
Active KML Feed (Google Earth) <small>description</small>	All Tropical Cyclones: [kmz] [kml]			

- All Full Advisories
 - GIS Products:
 - Track/Cone
 - Shapefile (combined)
 - KMZ (individual files)
 - Advisory Wind Field and Forecast Wind Radii
 - Shapefile (combined)
 - KMZ (individual files)
 - Preliminary Best Track
 - Shapefile
 - KMZ
 - Arrival Time of TS Winds
 - KMZ
 - Grib2
 - Wind Speed Probabilities
 - No GIS for special advisories (but 120 h graphic will update on website)
 - Shapefile (points and polygons)
 - KMZ (polygons)
 - Grib1 and Grib2

About that cone...

Based on historical forecast error (captures 2/3 of error from the previous 5 years)

GIS files only contain coastal watches and warnings, no inland information. (Shapefiles only have wind info, no surge)



Represents uncertainty of where the center of the tropical cyclone might go, not the extent of impacts

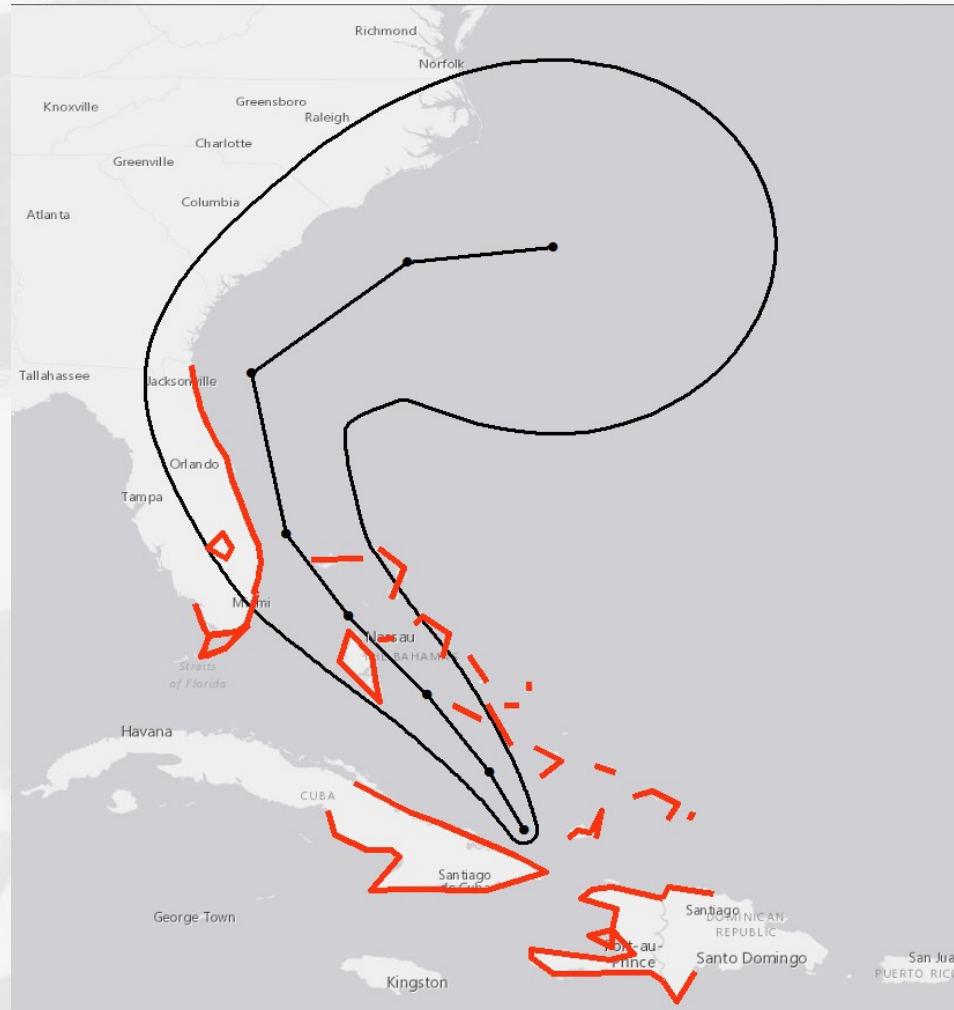
GIS files include lines between points but this can be misleading and is not part of the official forecast



About that cone...

Based on historical forecast error (captures 2/3 of error from the previous 5 years)

GIS files and graphics only contain coastal watches and warnings, no inland information. (Shapefiles only have wind info, no surge)



Represents uncertainty of where the center of the tropical cyclone might go, not the extent of impacts

GIS files include lines between points but this can be misleading and is not part of the official forecast

About that cone...

Based on historical forecast error (captures 2/3 of error from the previous 5 years)

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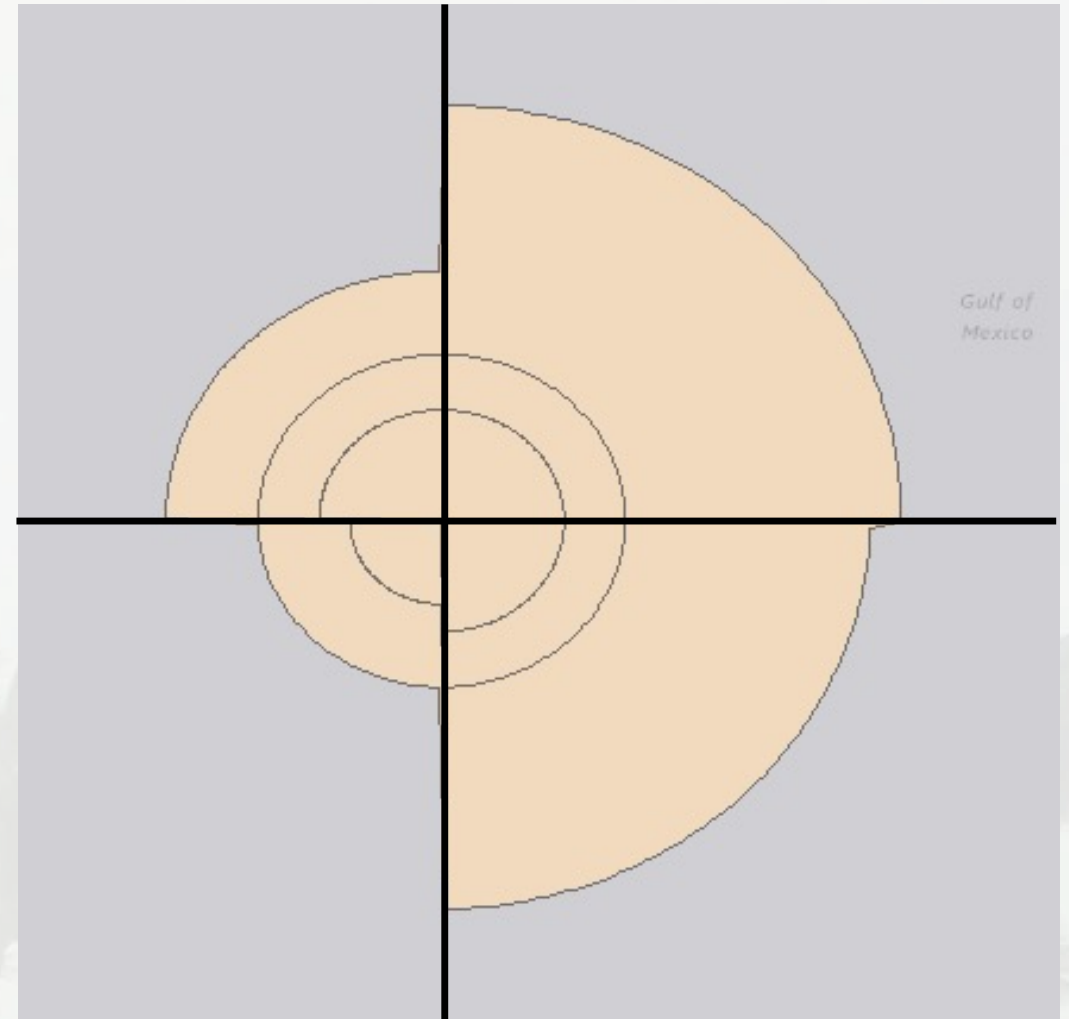


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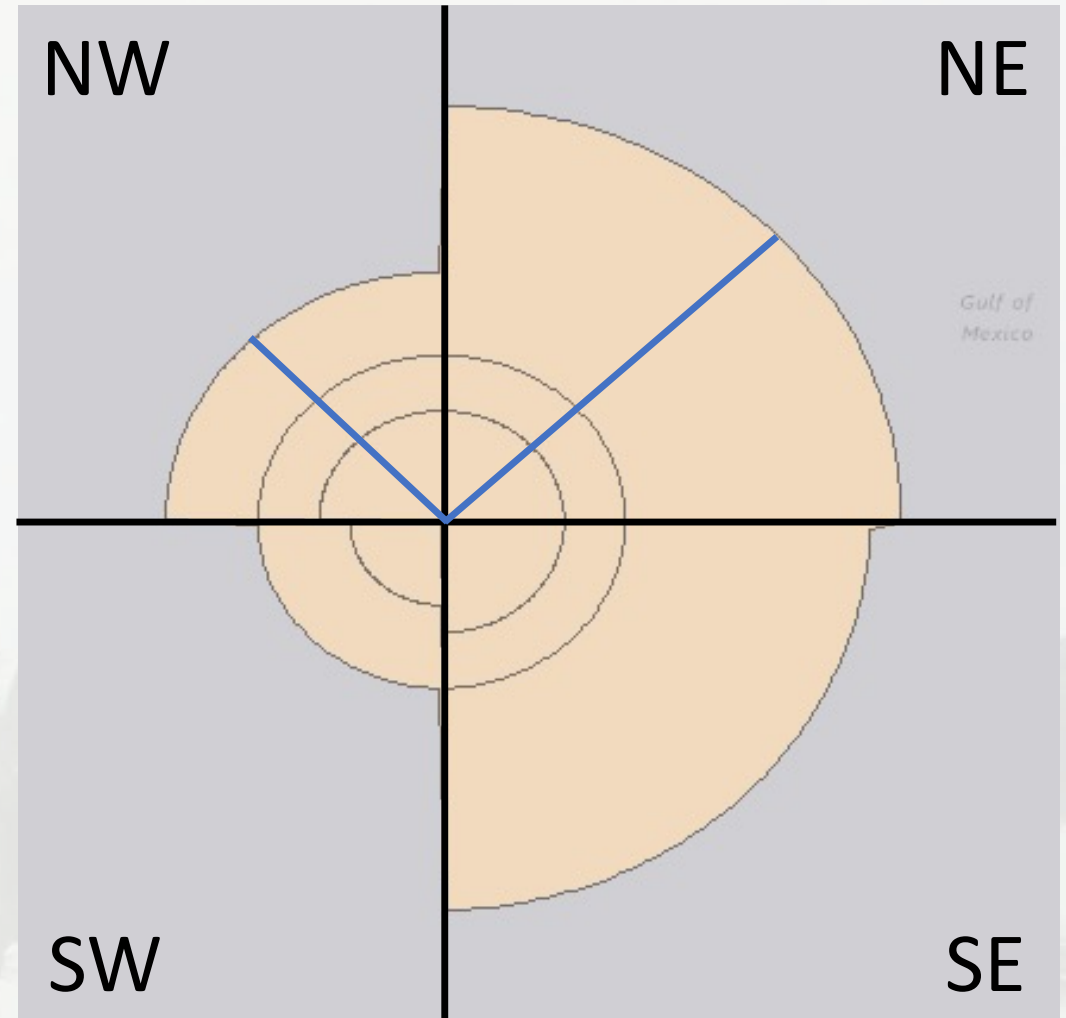
Wind Radii

- Maximum extent of winds in a given quadrant for different thresholds
 - 34 kt
 - 50 kt
 - 64 kt



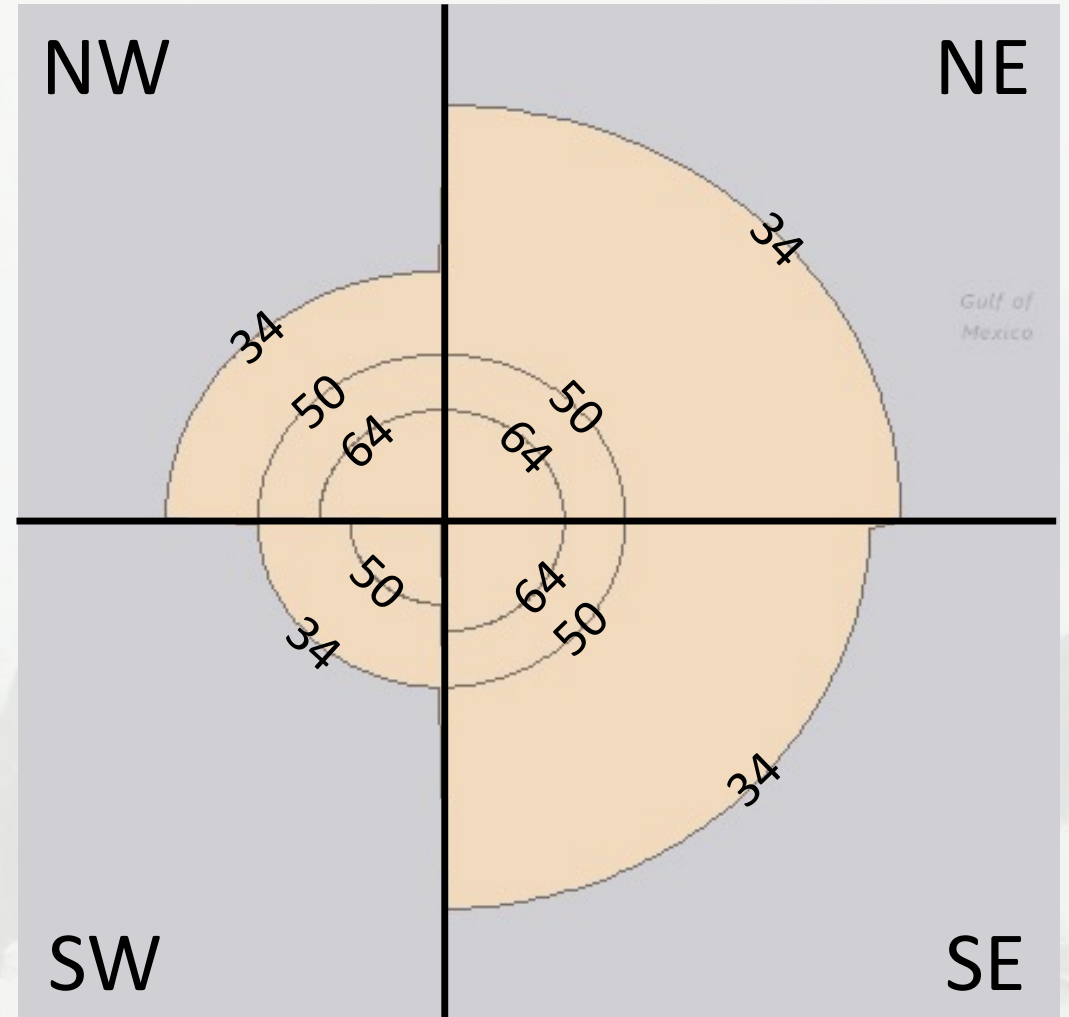
Wind Radii

- Measured by farthest distance from the center that winds are observed (or forecast) in a given quadrant
- Does not mean those winds are present everywhere in the quadrant
 - Will sometimes overestimate total area of wind



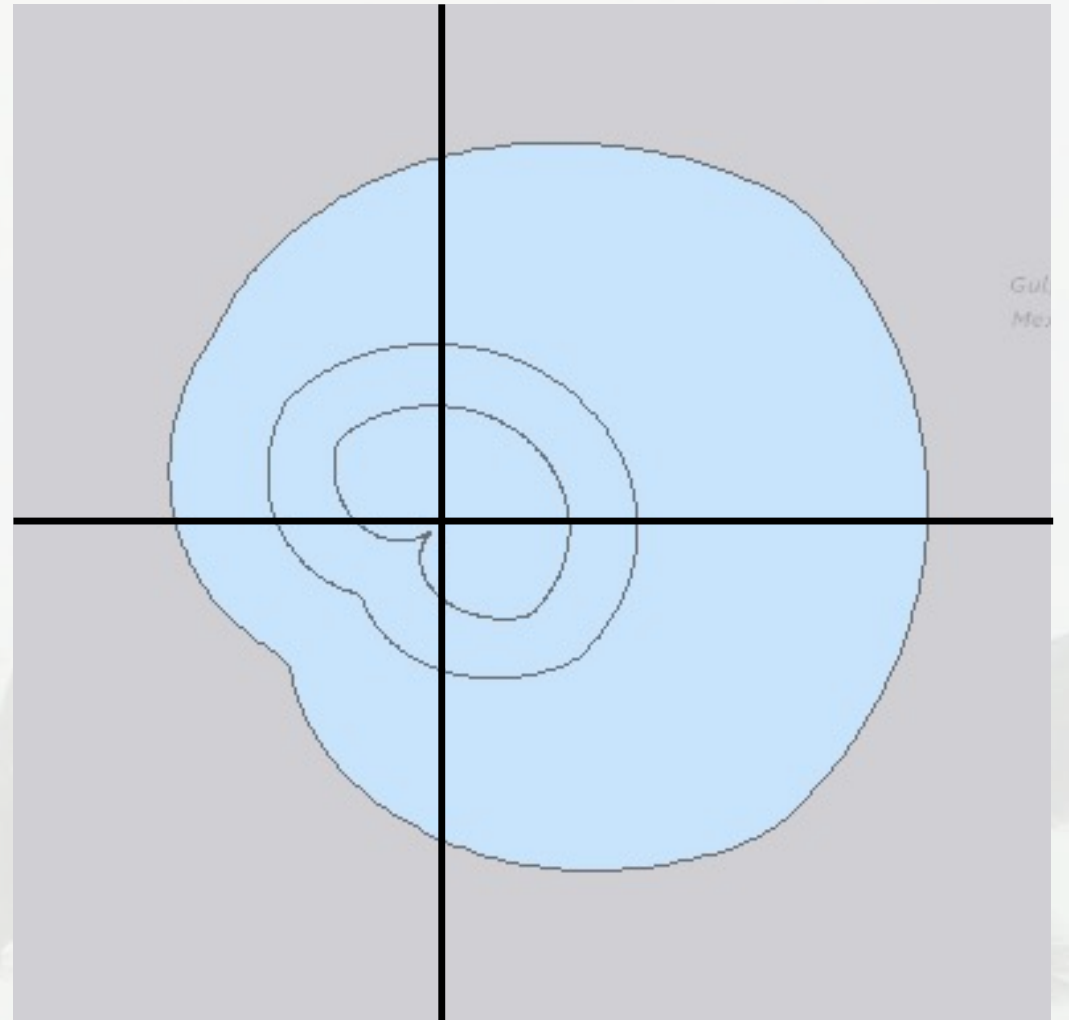
Wind Radii

- If the strongest wind in a given quadrant is less than a given threshold, the value will be 0



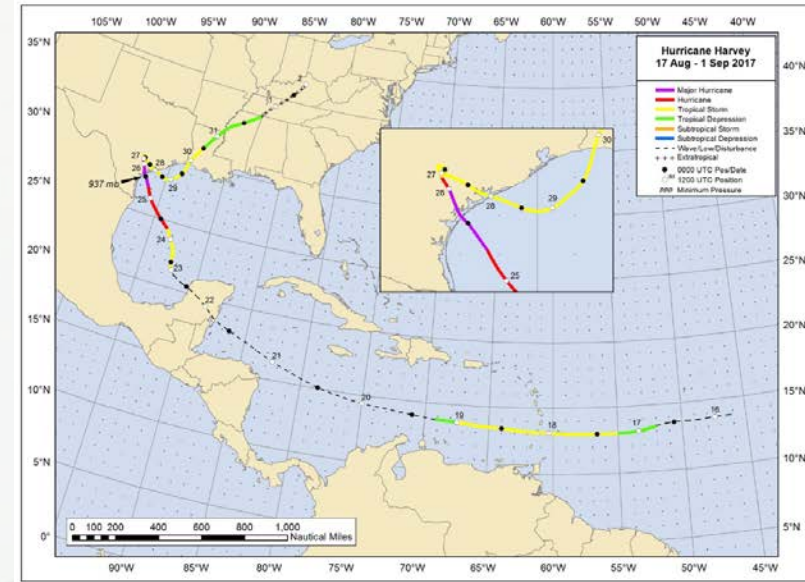
Initial Wind Field

- A smoothed representation of the wind radii at the initial forecast time is used on the cone graphic
- The smoothed version is contained within the “initial radii” GIS products

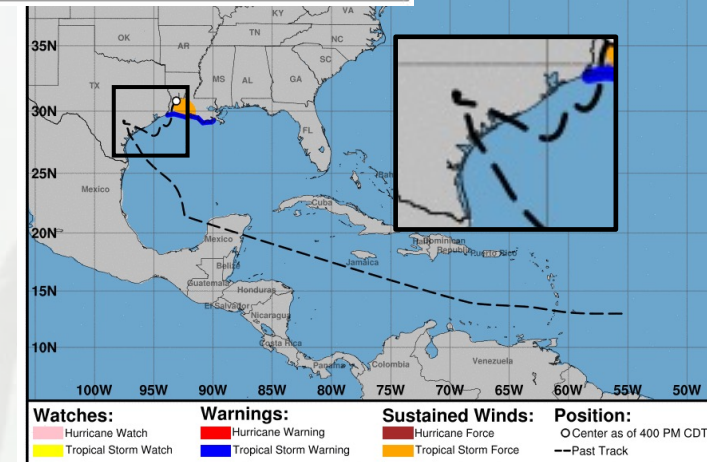


Best Track

- Storm “history”
 - Synoptic positions
 - Intensity, pressure
 - Wind Radii
- Real-time file updated with each advisory, previous points may change with subsequent advisories
- Final GIS file released with Tropical Cyclone Report
- Smoothed representation of storm history
 - Not a series of instantaneous “snapshots”
 - Removes short-term oscillations in track (and intensity)
 - Smooths through reformations

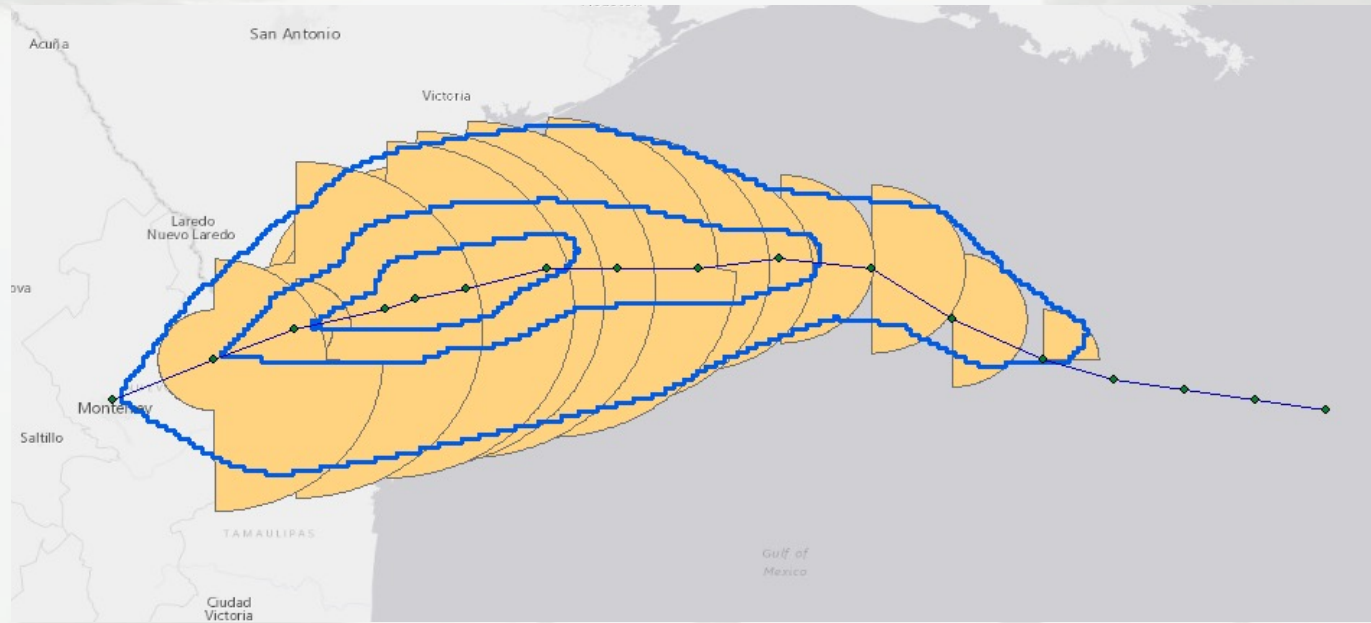


ical Storm Harvey
30, 2017 Advisory Number 42



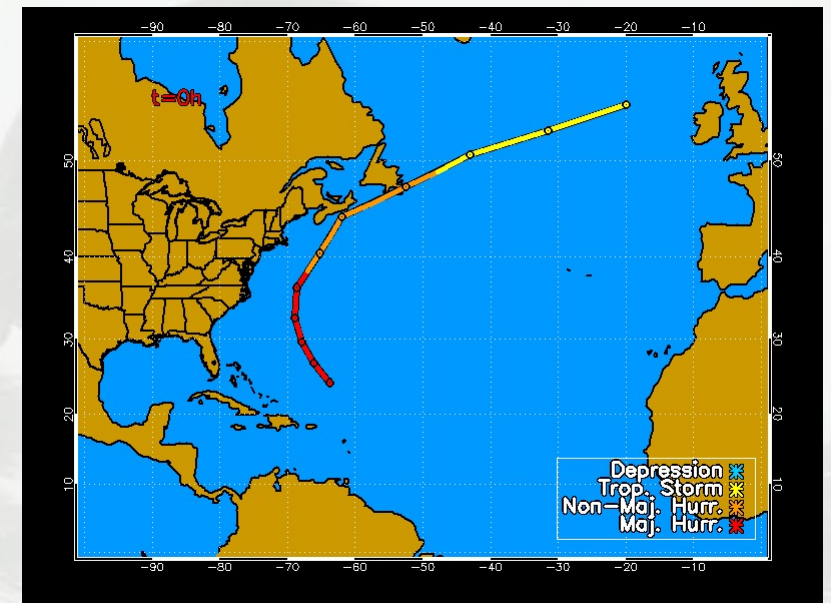
Best Track: Wind Swath

- The best track shapefile also contains a wind swath
- Produced by smoothing and connecting the wind radii from the best track
- Not quality controlled by forecasters
 - Sometimes unrepresentative of the areas affected by winds of a given magnitude
 - Approximation of the maximum extent of winds, not the total area



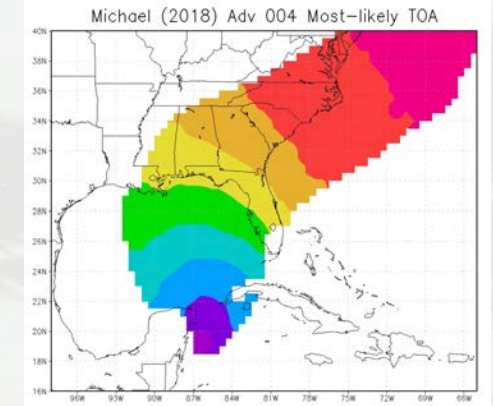
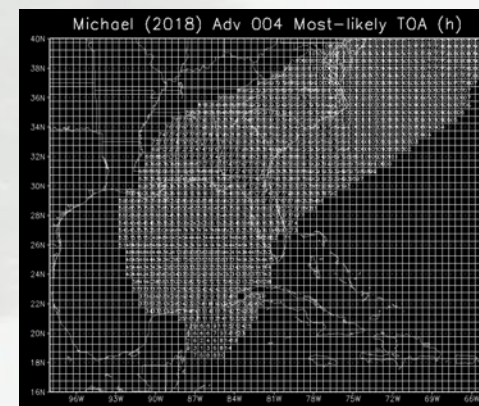
Wind Speed Probabilities

- 1000 realistic alternate scenarios are created using the official track and intensity forecast, historical errors, and the climatology and persistence wind radii model
- Computed on a 0.5 x 0.5 deg grid
- NHC graphics and higher resolution GIS products are generated by interpolating to higher resolution and smoothing
 - Shapefile also contains the half degree output
- Grids generated on NWS supercomputer, NHC generates GIS files locally
- GIS files are sent directly to the NHC website and to NWS central hub for conversion to REST services
- Wind speed probabilities are the basis for the arrival time of tropical storm force winds graphics and GIS files



Arrival Time of Tropical Storm Force Winds


- Earliest reasonable
 - 10% threshold
 - Available as KMZ
- Most Likely
 - 50% threshold
 - Available as KMZ
- Grib2 (used in Hurrevac)
 - [ATCFID]_TOA_TOD_[ii]kt_adv[nnn].grib2
 - AL012021_TOA_TOD_34kt_adv001.grib2
 - Parm227: Time of arrival (10%, earliest reasonable)
 - Parm228: Time of arrival (50%, most likely)
 - Parm229: Time of departure (50%, most likely)
 - Parm230: Time of departure (90%, latest reasonable)
 - Grid provided in epoch seconds (converted to date/time for public products)
- Public graphics and data files generated at NHC, sent directly to NHC website and to NWS central hub for future conversion to REST services
 - REST not currently available



Advisory Product Availability

Atlantic - Caribbean Sea - Gulf of Mexico
 Tropical Weather Outlook (en Español*)
 800 PM EDT Mon Aug 3 2020















Tropical Weather Discussion
 805 PM Mon Aug 03 2020

Hurricane Isaias  [Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

...ISAIAS REGAINS HURRICANE STRENGTH AND IS EXPECTED TO MAKE LANDFALL TONIGHT WITH DANGEROUS WINDS AND STORM SURGE... STRONG WINDS AND HEAVY RAINFALL LIKELY FROM THE EASTERN CAROLINAS TO THE MID-ATLANTIC COAST TONIGHT AND TUESDAY...

9:00 PM EDT Mon Aug 3
 Location: 33.1°N 78.8°W
 Moving: NNE at 18 mph
 Min pressure: 988 mb
 Max sustained: 85 mph

Public Advisory #27A 800 PM EDT	Aviso Publico* #27A 800 PM EDT	Forecast Advisory #27 2100 UTC	Forecast Discussion #27 500 PM EDT	Wind Speed Probabilities #27 2100 UTC
NWS Local Products 931 PM EDT	Update Statement 900 PM EDT	US Watch/Warning 858 PM EDT		

 Wind Speed Probabilities	 Arrival Time of Winds	 Wind History	 Warnings/Cone Interactive Map	 Warnings/Cone Static Images	 Warnings and Surface Wind	 Key Messages
 Mensajes Claves	 Storm Surge Inundation	 Storm Surge Watch/Warning	 Peak Surge	 U.S. Rainfall Potential	 Flash Flooding Potential	 SPC U.S. Tornado Potential

- If US *Wind* Warnings are in affect
 - Additional Text Products:
 - US Watch/Warning (National TCV)
 - Links to Local Office Warnings and Local Statements
 - Additional Graphics:
 - Warnings included on cone and surface wind graphics



Advisory Product Availability



hurricanes.gov/gis

As of Tue, 04 Aug 2020 09:54:17 UTC				
	Atlantic	Eastern Pacific	Central Pacific	Archive
Advisory Forecast Track, Cone of Uncertainty, and Watches/Warnings[‡] <small>Sample Shapefiles: Irma Example Sample KMZ: Cone Track Warnings</small>	TS Isaias: [shp] KMZ: [Cone] [Track] [Warnings]	No current data	No current data	Year ▼
Advisory Wind Field and Forecast Wind Radii[‡] <small>Sample Shapefiles: Irma Example Sample KMZ: Initial Radii Forecast Radii</small>	TS Isaias: [shp] KMZ: [Initial Radii] [Forecast Radii]	No current data	No current data	Year ▼
Preliminary Best Track[‡] <small>Note: Final Best Tracks available here Sample Shapefiles: Irma Example Sample KMZ: Past Track Wind Swath</small>	TS Isaias: [shp] [kmz]	No current data	No current data	Year ▼
Arrival Time of Tropical Storm Force Winds <small>Sample KMZ: Earliest Reasonable Most Likely</small>	TS Isaias: KMZ: [Earliest Reasonable] [Most Likely] GRIB2 data: via HTTPS			Year ▼
Graphical Tropical Weather Outlook[‡] <small>Sample Shapefile</small>	Outlook areas (if any): [shp] KMZ: [Atlantic] [East Pacific] [Central Pacific]		Atlantic, E Pacific, C Pacific	
Wind Speed Probabilities^{‡†} <small>Sample Shapefiles: Polygons Points Sample KMZ: 34 kt 50 kt 64 kt</small>	Points: [shp] Polygons: [shp] - kmz [34kt] [50kt] [64kt] GRIB1 and GRIB2 data: via HTTPS via FTP			Year ▼
Probabilistic Storm Surge^{‡†} <small>metadata sample</small>	TS Isaias: [shp/kmz] GRIB2: via FTP	N/A	N/A	Year ▼
Potential Storm Surge Flooding (Inundation) <small>metadata sample download instructions interactive example with sample downloads</small>	TS Isaias: [GEOTIFF - No mask] TS Isaias: [GEOTIFF - With mask]	N/A	N/A	Year ▼
Storm Surge Watch/Warning <small>Sample KML</small>	Latest KML	N/A	N/A	Year ▼
Breakpoints[‡] <small>metadata sample (updated for 2019)</small>	2019 update: [shp] [kmz] Interactive Map			View
Storm Surge Communication Points[‡] <small>metadata sample (updated for 2019)</small>	2019 update: [shp] [kmz] Interactive Map			View
GIS Data RSS Feed <small>description</small>	Atlantic GIS	Eastern Pacific GIS	Central Pacific GIS	N/A
Active KML Feed (Google Earth) <small>description</small>	All Tropical Cyclones: [kmz] [kml]			

- If US *Wind Warnings* are in affect
- Additional GIS Products:
 - Track/Cone
 - Shapefile (same .zip, now includes warning layer)
 - KMZ Warnings



Advisory Product Availability



Atlantic - Caribbean Sea - Gulf of Mexico
 Tropical Weather Outlook (en Español*)
 800 PM EDT Mon Aug 3 2020

Tropical Weather Discussion
 805 PM Mon Aug 03 2020

Hurricane Isaias [Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

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Mensajes Claves	Storm Surge Inundation	Storm Surge Watch/Warning	Peak Surge	U.S. Rainfall Potential	Flash Flooding Potential	SPC U.S. Tornado Potential

- If US *Storm Surge* Warnings are in affect
 - Additional Text Products:
 - US Watch/Warning (National TCV)
 - Links to Local Office Warnings and Local Statements
 - Additional Graphics:
 - Storm Surge Inundation
 - Storm Surge Watch/Warning
 - Peak Surge (experimental)



Advisory Product Availability

hurricanes.gov/gis

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GIS Data RSS Feed <small>description</small>	Atlantic GIS	Eastern Pacific GIS	Central Pacific GIS	N/A
Active KML Feed (Google Earth) <small>description</small>	All Tropical Cyclones: [kmz] [kml]			

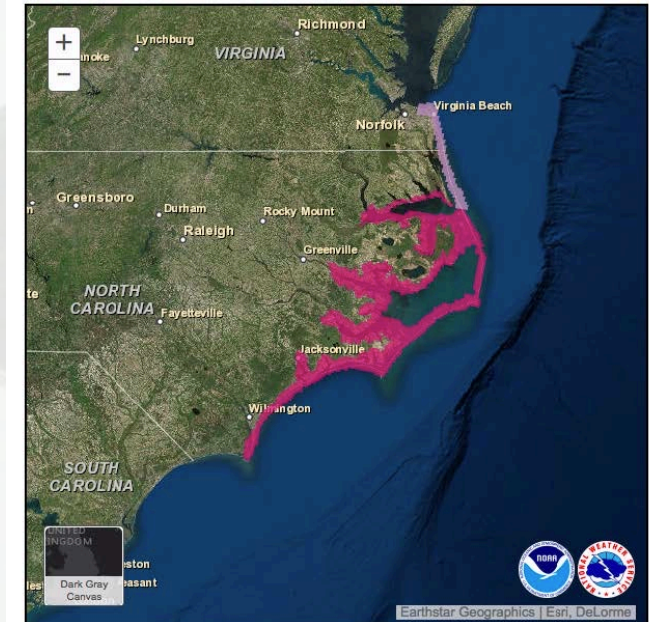
- If US Storm Surge Warnings are in affect
 - Additional GIS Products:
 - Track/Cone:
 - Only includes wind warnings (if applicable)
 - Probabilistic Storm Surge
 - Shapfile
 - KMZ
 - Grib2
 - Potential Storm Surge Flooding (Inundation)
 - GeoTIFF (with and without Tidal Mask)
 - Storm Surge Watch/Warning
 - KML

Storm Surge Watch/Warning

- Only available as KML
- Sent directly to NHC website and to NWS central hub for conversion to REST services
- Approximation of endpoints included in Public Advisory and Forecast Advisory (TCP, TCM)
- Affected warning zones included in TCV.

Prototype Storm Surge Watch/Warning Graphic*

Hurricane Zelda
Advisory 12 Issued: Fri Jul 04 2014 8 PM EDT



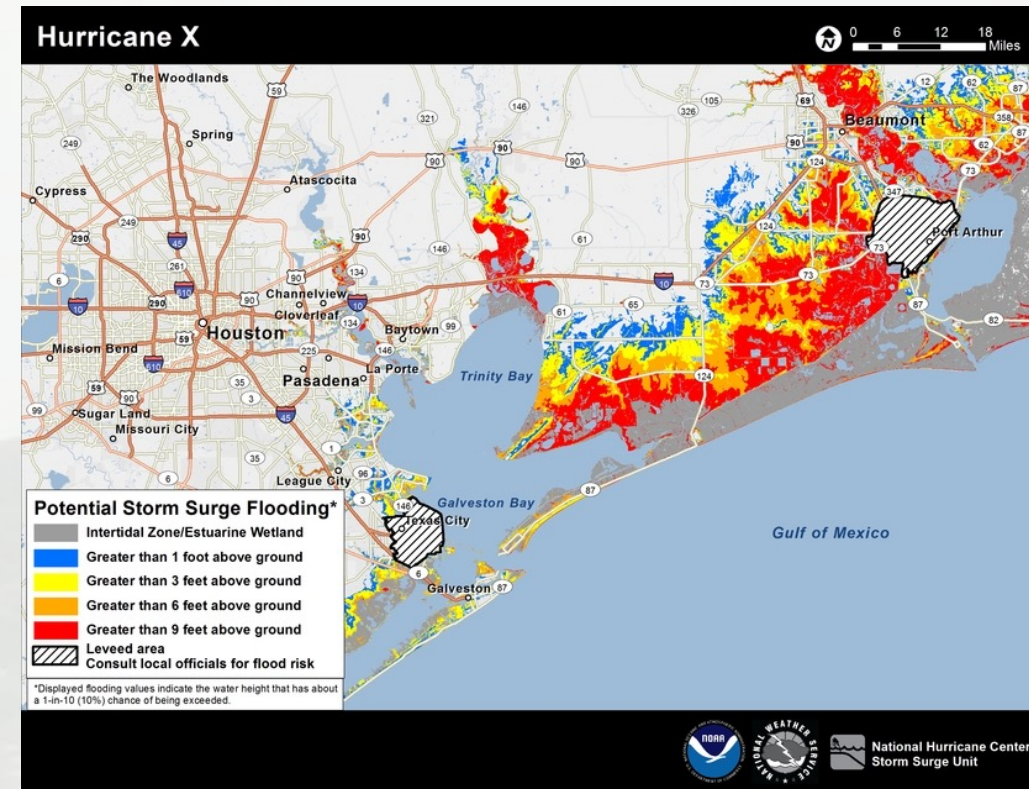
Prototype Storm Surge Watch/Warning

- Prototype Storm Surge Warning
- Prototype Storm Surge Watch

*Prototype Product - For official NWS tropical cyclone information, see hurricanes.gov. This graphic displays areas that would qualify for inclusion under a storm surge watch/warning that is under development by the National Weather Service. A storm surge warning indicates there is a danger of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 36 hours. A storm surge watch indicates that life-threatening inundation is possible somewhere within the specified area, generally within 48 hours. All persons, regardless of whether or not they are in the highlighted areas shown in the graphic, should promptly follow evacuation orders and other instructions from local officials. User feedback on the prototype storm surge watch/warning graphic can be provided at LINK. Upon completion of development, formal public comment/review of this graphic and the experimental storm surge watch/warning will take place in 2016, with operational implementation planned in 2017, if approved.

Potential Storm Surge Flooding (Inundation)

- Reasonable worst case scenario (10%) of the flooding of normally dry land at particular locations due to storm surge
- Generally available 60-90 minutes after the issuance of a given advisory (when P_{surge} is running)
- Valid at a community level, zoom restrictions on NHC website
- Available in GeoTiff format
 - inundation.zip
 - AL0121_[nn]_inundation.zip
 - tidalmask.zip
 - Includes a mask to remove wetlands and other commonly wet “land” locations.
 - AL0121_[nn]_tidalmask.zip
- Sent directly to NHC website and to NWS central hub for conversion to REST services
 - Currently available on NowCoast only




https://www.nhc.noaa.gov/gis/inundation/potential_storm_surge_flooding_downloads_guide.pdf

Advisory Product Availability

Atlantic - Caribbean Sea - Gulf of Mexico
 Tropical Weather Outlook (en Español*)
 800 PM EDT Mon Aug 3 2020















Tropical Weather Discussion
 805 PM Mon Aug 03 2020

Hurricane Isaias  [Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

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 Mensajes Claves	 Storm Surge Inundation	 Storm Surge Watch/Warning	 Peak Surge	 U.S. Rainfall Potential	 Flash Flooding Potential	 U.S. Tornado Potential

- As Needed:
 - Text Products:
 - Tropical Cyclone Update Statement
 - Can be issued at any time, does not follow advisory cycle
 - Regularly issued between advisories when a hurricane with a well-defined eye is within range of U.S. radar network
 - Graphics:
 - Key Messages
 - Spanish Key Messages
 - Peak Surge (experimental)
 - U.S. Rainfall Potential
 - Flash Flooding Potential
 - NHC does not generate or host a GIS component for any of these products
 - Link to SPC products (triggered by SPC)

Intermediate Advisory Product Availability

Atlantic - Caribbean Sea - Gulf of Mexico
 Tropical Weather Outlook (en Español*)
 800 PM EDT Mon Aug 3 2020















Tropical Weather Discussion
 805 PM Mon Aug 03 2020

Hurricane Isaias  [Satellite](#) | [Buoys](#) | [Grids](#) | [Storm Archive](#)

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- Issued whenever there are U.S. or international land watches/warnings
- Products that update with intermediate advisories
 - Text Products:
 - Public Advisory
 - Graphics:
 - Cone
 - Warnings/Surface Wind Field
 - Wind History (rarely changes from full advisory, but titles/labels are updated)
 - Storm Surge Watch/Warning
- Products that do not update are still valid and are labeled with previous full advisory number
 - Example: Wind Speed Probability graphic will show Advisory 27 for the advisory on the left



How to determine what is available

- JSON file
- RSS Feeds
- Active KML
- All files update in real time along with the NHC website



JSON

- <https://www.nhc.noaa.gov/CurrentStorms.json>
- Updates every 2 minutes
- Contains info about system IDs, current information
- Links to text products, graphics, GIS files for the most recent advisory available
- Info mirrors availability of content on the NHC website
 - Some products will update for intermediate advisories, others will remain in place until the next full advisory
 - Example: Potential Storm Surge flooding map may lag other products by up to 90 minutes
- Sample JSON available at
 - https://www.nhc.noaa.gov/productexamples/NHC_JSON_Sample.json



RSS Feeds

- hurricanes.gov/aboutrss.shtml
- xml files that point to the most recent version of text, graphical, and GIS products
- Similar in concept to json file
 - RSS options for individual files or basin-wide products
 - All update in real time along with NHC website



National Weather Service Local Office Tropical Cyclone Products

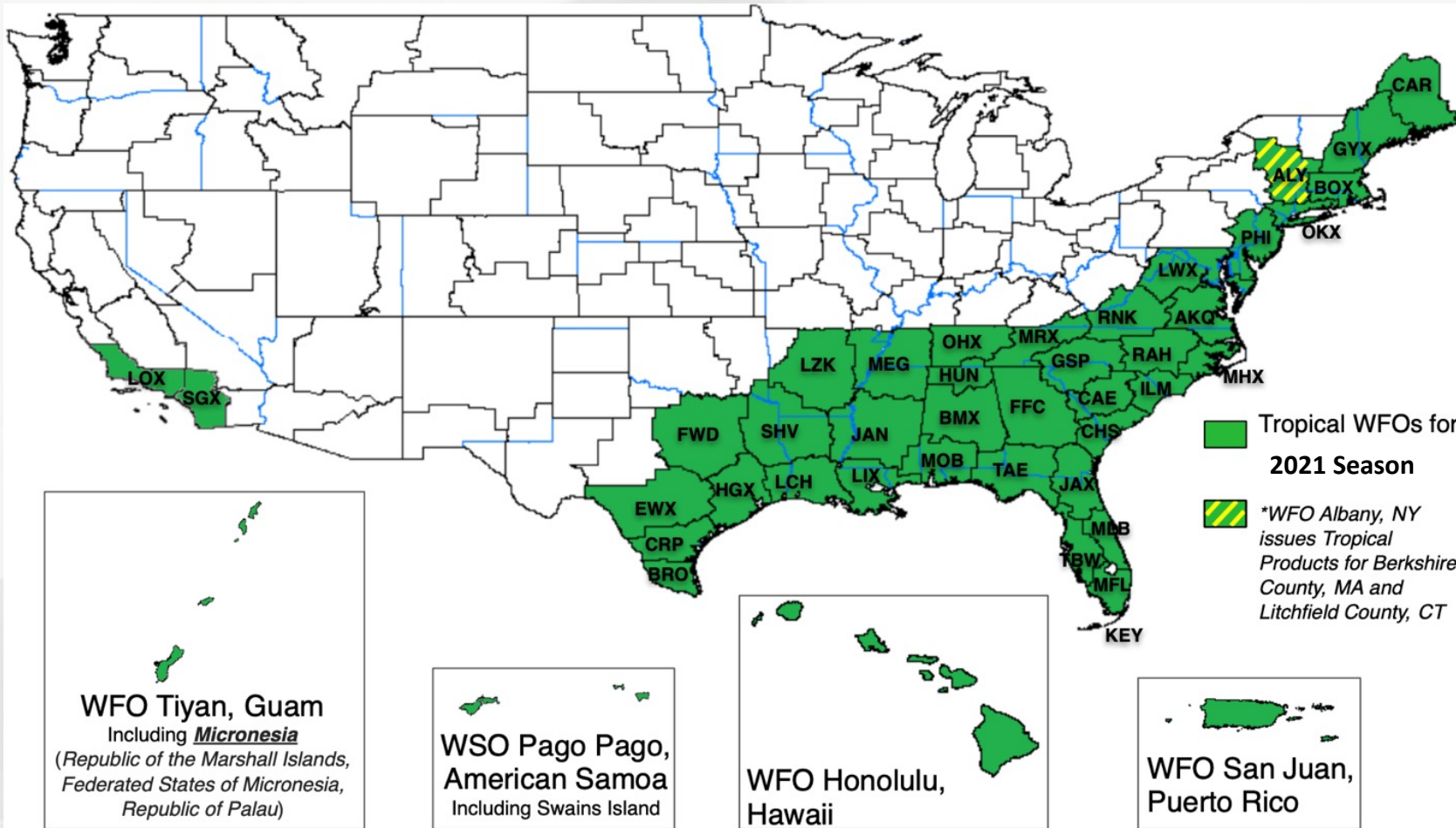
Tim Oram

NWS Southern Region Headquarters

(Representing NWS Weather Forecast Offices)



Offices that Issue Tropical Products



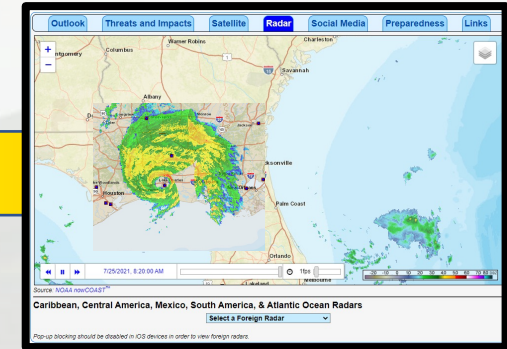
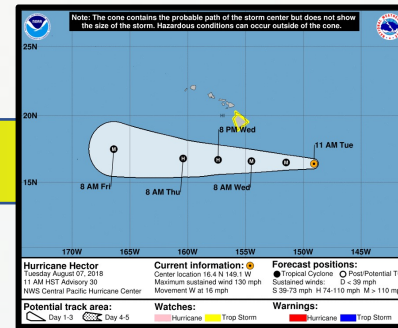
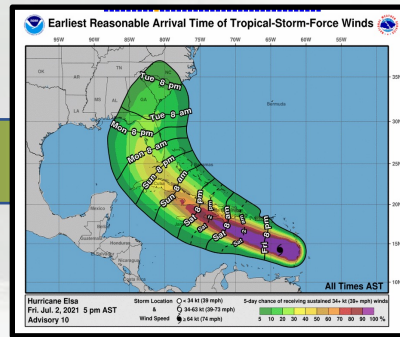
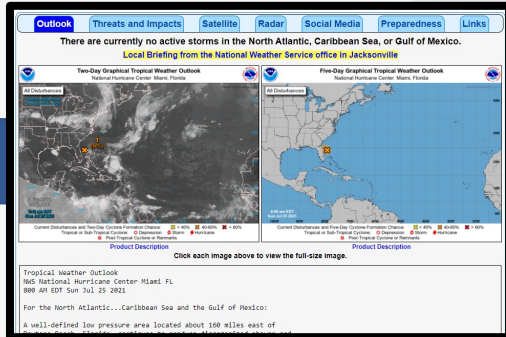
Extensive collaboration occurs between offices and national centers.

The appropriate hurricane center has final determination on the coastal watches and warnings.

Local NWS offices determine inland wind watches and warnings as well as watches and warnings for most other associated hazards (flooding for example).

Pre-Watch Phase

Watch / Warning



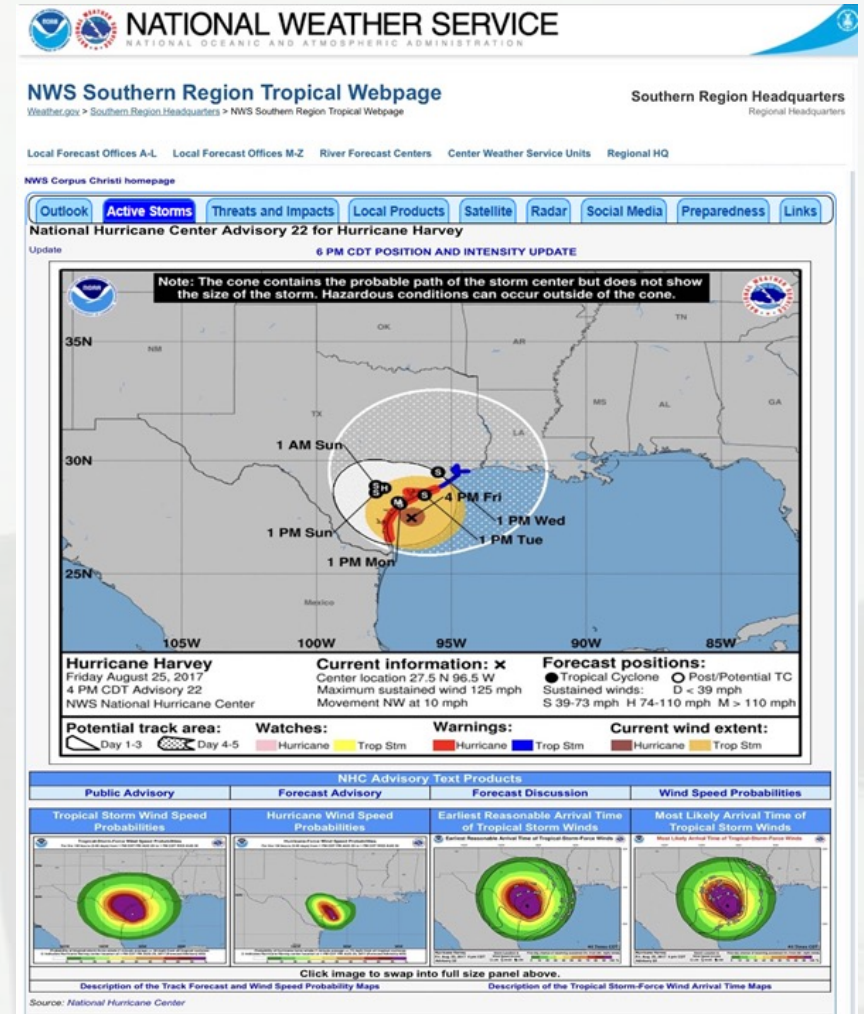
Briefings, Emails, Social Media, Chat,
Weather Stories, Forecast Discussion

HTI
Hurricane Threats and Impacts

HLS and TCV
Hurricane Local Statement
Watches and Warnings

EWW
Extreme Wind Warning

- Available from NWS Local Office pages and linked from NHC page when office is impacted.
- A great access point for local office products and resources. →
- Consistent look and feel across all tropical offices to make it easier for you to find information.
- If a “Local Briefing” is available, it will be linked at the top of the office page.
- “Active Storms” and “Local Products” tabs only available when Advisories are being issued.





NWS Local Office Social Media



- Twitter
- Facebook & Facebook Live
- Instagram – Experimental at 28 offices
- Tropical web page provides quick access to Twitter and Facebook



The screenshot shows the NWS Jacksonville website with a navigation bar containing: Outlook, Threats and Impacts, Satellite, Radar, Social Media, Preparedness, and Links. The 'Social Media' tab is selected.

On the left, there are two social media links:

- US National Weather Service Jacksonville Florida (Facebook) with 56K likes.
- US National Weather Service Jacksonville Florida (Facebook) with a post from 4 hours ago. The post text reads: "Thunderstorms will again move eastward across our region this afternoon and early this evening. A few strong to isolated severe thunderstorms will be possible, especially along the Interstate 95 corridor. Whether spending the day at the beach or an afternoon by the pool, at the first sign of a storm, you should SEEK SHELTER. By the time you hear thunder or see lightning, you're already in danger.... See More". Below the text is a video player titled "When you are Caught Outside in a Storm..." with a lightning bolt image.

On the right, the 'Tweets' section shows a tweet from @NWSJacksonville:

T'storms will again move eastward across our region this afternoon and evening

At the 1st sign of storm, you should SEEK SHELTER. If you can hear thunder or see lightning, you are already in danger!

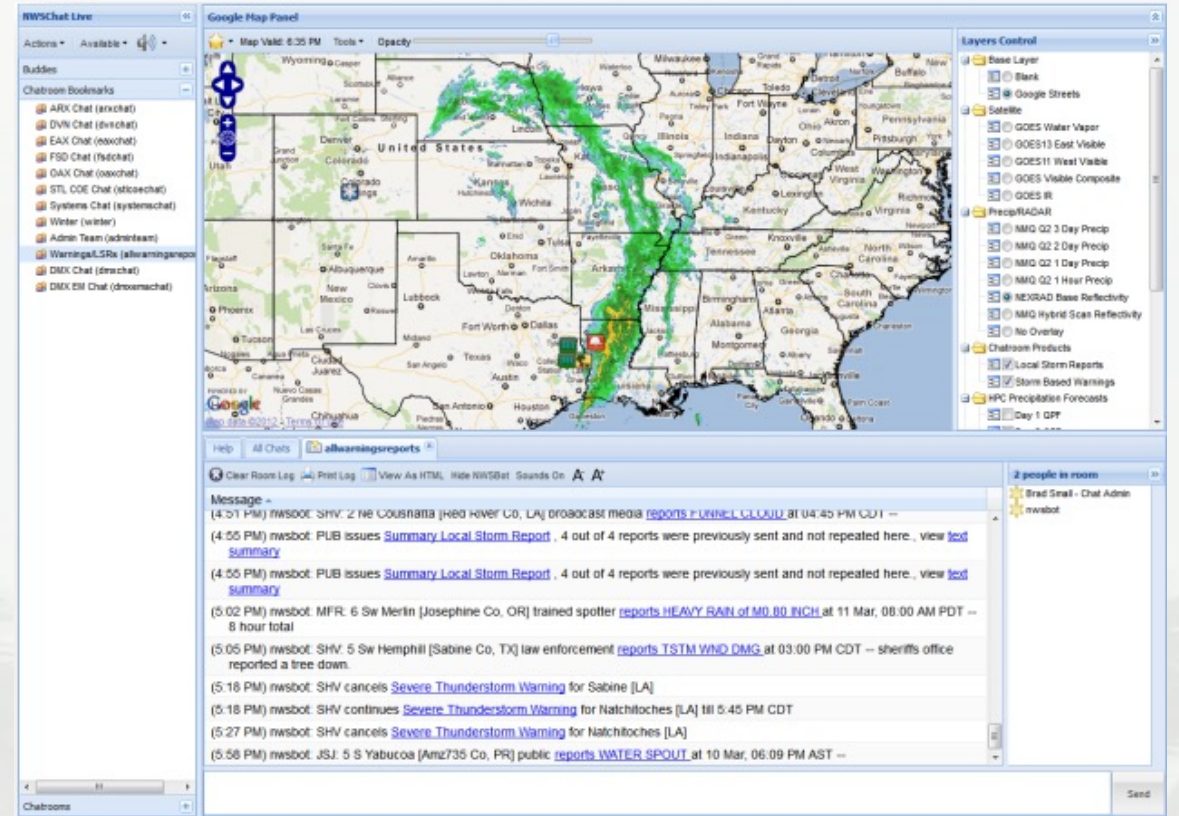
When Thunder Roars, Go Indoors! #flwx #gawx #jaxwx @JaxReady

Below the tweet is a "Lightning Safety" infographic with "Do" and "Don't" sections. The "Do" section includes: "Go Inside When You Hear Thunder or See Lightning", "Find a Sturdy House, Building, Car With A...", and "Stay away from tall, isolated trees or their tall objects." The "Don't" section includes: "Retreat to Dugouts, Sheds, Porches, Picnic Shelters or Other Small Structures" and "Use of Touch Ropes, Umbrellas or Corded Phones".

At the bottom of the social media section, there are two dropdown menus: "Choose a Facebook page" and "Choose a Twitter feed".

NWSChat and Tropical Operations

- **NWSChat: An Instant Messaging program used by NWS offices to share warning decision expertise and other significant weather information essential to the NWS's mission of saving lives and property.**
- **Information shared with Media and Emergency Managers.**
- **Only publicly available information or soon to be public information is shared here.**
- **Recommend using a “real” chat client like Pidgin or mobile apps (BoogieChat or Talkonaut).**





NWS Local Office Products Summary



Product	Purpose	Timeframe
TCV Tropical Cyclone Local Watch / Warning Product	Official Watch/Warning Product for Dissemination Detailed zone based product with threats and impacts for all hazards (wind, surge, flooding rain, tornadoes)	Starts when watches or warnings are issued NHC TCP must be issued before office TCV can be created (Atlantic and East Pacific)
HLS ¹ Hurricane Local Statement	Overview of the storm and a summary of potential impacts and preparedness information for land areas only.	Starts when watches or warnings are issued WFO TCV must be sent before HLS can be created
HTI Hurricane Threats and Impacts	KML, grid, and graphical depiction of wind, surge, flooding, and tornado threats	Required when TCV is issued. May be sent up to 72 hours prior to onset of tropical storm force winds.
EWV Extreme Wind Warning	Short duration warning to advise public and partners of onset of extreme sustained winds.	Only issued for when sustained winds of 115 mph or greater are occurring or expected to occur within an hour.

¹ HLS will contain any Watches/Warnings for Pacific Basin outside of Hawaii.



TCV – Official Watch/Warning



1 Segment for each NWS Forecast Zone.
Has coding to activate NOAA Weather Radio, Emergency Alert System (EAS), and Wireless Emergency Alerts (WEA).

Each Segment has Sections for Each Hazard: Wind, Surge, Flooding, and Tornadoes. Each section has the “deterministic” forecast, conditions to prepare for, and local impacts.

```

URGENT - IMMEDIATE BROADCAST REQUESTED
Zeta Local Watch/Warning Statement/Intermediate Advisory Number 11A
National Weather Service New Orleans LA AL282020
700 AM CDT Tue Oct 27 2020

LAZ062-272000-
/O.NEW.KLIX.SS.W.1028.201027T1200Z-000000T0000Z/
/O.NEW.KLIX.HU.W.1028.201027T1200Z-000000T0000Z/
/O.UPG.KLIX.HU.A.1028.000000T0000Z-000000T0000Z/
/O.UPG.KLIX.SS.A.1028.000000T0000Z-000000T0000Z/
Orleans-
700 AM CDT Tue Oct 27 2020

...HURRICANE WARNING IN EFFECT...
...STORM SURGE WARNING IN EFFECT...

A Hurricane Warning means hurricane-force winds are expected
somewhere within this area within the next 36 hours

A Storm Surge Warning means there is a danger of life-threatening
inundation, from rising water moving inland from the coastline,
somewhere within this area within the next 36 hours

* LOCATIONS AFFECTED
- New Orleans
- Lakefront Airport
- Lake Catherine

```

NWS Zone

VTEC

Headlines

Wind Hazard

Deterministic Forecast

Prepare for This

Impacts

```

* WIND
- LATEST LOCAL FORECAST: Equivalent Strong Tropical Storm force
wind
- Peak Wind Forecast: 73 mph
- Window for Tropical Storm Force: until early Thursday

- THREAT TO LIFE AND PROPERTY THAT INCLUDES TYPICAL FORECAST
UNCERTAINTY IN TRACK, SIZE AND INTENSITY: Potential for wind 58
to 73 mph
- The wind threat has remained nearly steady from the
previous assessment.
- PLAN: Plan for dangerous wind
storm force.
- PREPARE: Remaining efforts to
should be completed as soon as
significant wind damage.
- ACT: Move to safe shelter before the wind becomes hazardous.

- POTENTIAL IMPACTS: Significant
- Some damage to roofing and siding materials, along with
damage to porches, awnings, carports, and sheds. A few
buildings experiencing window, door, and garage door
failures. Mobile homes damaged, especially if unanchored.
Unsecured lightweight objects become dangerous.
- Several large trees snapped or uprooted, but with
numbers in places where trees are shallow rooted.
fences and roadway signs blown over.
- Some roads impassable from large debris, and more within
urban or heavily wooded places. A few bridges, causeways,
and access routes impassable.
- Scattered power and communications outages, but more
prevalent in areas with above ground lines.

```

Flooding Rain Hazard

Deterministic Forecast

Prepare for This

Impacts

```

* FLOODING RAIN
- LATEST LOCAL FORECAST: Significant rainfall
- Peak Rainfall: 4.0 inches
- Window for Significant Rainfall: until early Thursday

- THREAT TO LIFE AND PROPERTY THAT INCLUDES TYPICAL FORECAST
UNCERTAINTY IN TRACK, SIZE AND INTENSITY: Potential for
moderate flooding rain
- The flooding rain threat has remained nearly steady from
the previous assessment.
- PLAN: Emergency plans should include the potential for
moderate flooding from heavy rain. Evacuations and rescues
are possible.
- PREPARE: Consider protective measures for
vulnerable to flooding.
- ACT: Heed any flood watches and warnings. Failure to take
action may result in serious injury or loss of life.

- POTENTIAL IMPACTS: Significant
- Moderate rainfall flooding may prompt several evacuations
and rescues.
- Rivers and tributaries may quickly become swollen with
swifter currents and overflow their banks in a few places,
especially in usually vulnerable spots. Some
creeks, canals, bayous, and ditches overflow.
- Flood waters can enter some structures or
foundations. Several places may experience
of rapid inundation at underpasses, low-lying spots, and
poor drainage areas. Some streets and parking lots take on
moving water as storm drains and retention ponds overflow.
Driving conditions become hazardous. Some road and bridge
closures.

```




HLS – Hurricane Local Statement



Overview of Storm from the local perspective

Sections Include:

- New information
- Storm Information
- Situation Overview
- Potential Impacts
- Preparedness Actions (not shown in example)

Impacts ordered by Threat

Hurricane Sally Local Statement Advisory Number 18
National Weather Service Tallahassee FL AL192020
525 PM EDT Tue Sep 15 2020 /425 PM CDT Tue Sep 15 2020/

This product covers eastern Florida panhandle, Florida Big Bend, southeastern Alabama and southwestern Georgia

****HURRICANE SALLY TO BRING LIFE THREATENING FLASH FLOODING TO THE FLORIDA PANHANDLE AND SOUTHEAST ALABAMA****

NEW INFORMATION

* CHANGES TO WATCHES AND WARNINGS:
- None

* CURRENT WATCHES AND WARNINGS:
- A Tropical Storm Warning is in effect for Central Walton, Coastal Bay, Coastal Gulf, Coffee, Geneva, Holmes, Inland Bay, North Walton, South Walton, and Washington

* STORM INFORMATION:
- About 150 miles west-southwest of Panama City or about 190 miles west of Apalachicola
- 29.5N 88.1W
- Storm Intensity 80 mph
- Movement North or 350 degrees at 2 mph

SITUATION OVERVIEW

Hurricane Sally continues its slow trek towards the Gulf coast this morning. Heavy rain have already fallen across localized areas in the Panhandle. Through Thursday, another 10 to 15 inches will be possible, with isolated higher amounts possibly exceeding 20 inches. Additionally, the probability of Tropical Storm force winds impacting some inland locations across the Panhandle and southeast Alabama continues to gradually increase.

By far, the greatest threat Sally poses to the local area is the potential for flash flooding. Flash Flood warnings are already in effect across the Panhandle and is only expected to get worse over the next 24 to 48 hours. Areas that have the greatest potential of realizing the more extreme accumulations are west of the Apalachicola river, and primarily from Bay county to Dale county and points west.

As far as the wind threat is concerned, Tropical Storm force winds sustained and/or frequent gusts are increasingly likely across portions of the Panhandle and extreme southeast Alabama. Tropical storm force winds could begin as early as late tonight and may linger into Wednesday night.

A few tornadoes will also be possible as rain bands move ashore, and a tornado watch is in effect through at least the daytime hours today, and has been expanded a bit further east. At this time minor coastal flooding is expected to continue across the Panhandle and Big Bend, however, impacts from storm surge appear to be minimal at this time.

New Information

Storm Information

Situation Overview

POTENTIAL IMPACTS

Potential Impacts

* FLOODING RAIN:
Potential impacts from the flooding rain are still unfolding across the portions of the Florida panhandle. Remain well guarded against life-threatening flood waters having possible devastating impacts. If realized, these impacts include:
- Extreme rainfall flooding may prompt numerous evacuations and rescues.
- Rivers and tributaries may overwhelmingly overflow their banks in many places with deep moving water. Small streams, creeks, and ditches may become raging rivers. Flood control systems and barriers may become stressed.
- Flood waters can enter numerous structures within multiple communities, some structures becoming uninhabitable or washed away. Numerous places where flood waters may cover escape routes. Streets and parking lots become rivers of raging water with underpasses submerged. Driving conditions become very dangerous. Numerous road and bridge closures with some weakened or washed out.

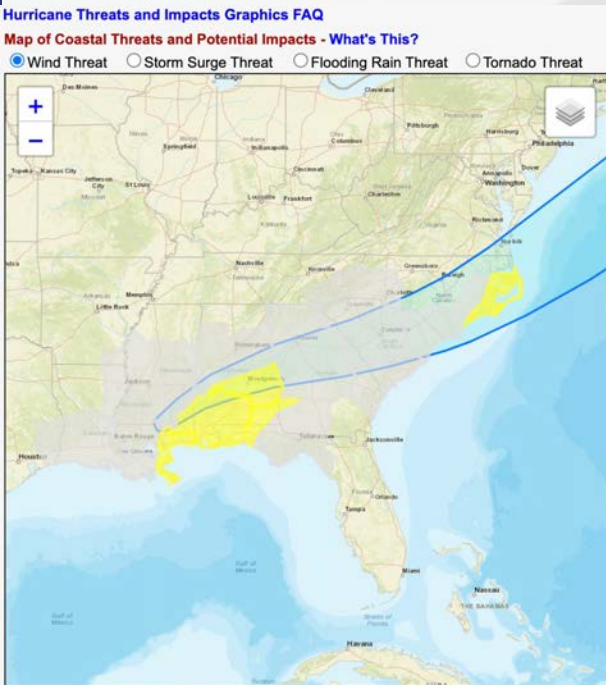
Potential impacts from the flooding rain are still unfolding across portions of the Big Bend and southeast Alabama. Remain well guarded against life-threatening flood waters having possible limited to extensive impacts.

* WIND:
Potential impacts from the main wind event could begin overnight for portions of the Panhandle and southeast Alabama. Remain well sheltered from dangerous wind having possible significant impacts. If realized, these impacts include:
- Some damage to roofing and siding materials, along with damage to porches, awnings, carports, and sheds. A few buildings experiencing window, door, and garage door failures. Mobile homes damaged, especially if unanchored. Unsecured lightweight objects become dangerous projectiles.
- Several large trees snapped or uprooted, but with greater numbers in places where trees are shallow rooted. Several fences and roadway signs blown over.
- Some roads impassable from large debris, and more within urban or heavily wooded places. A few bridges, causeways, and access routes impassable.
- Scattered power and communications outages, but more prevalent in areas with above ground lines.

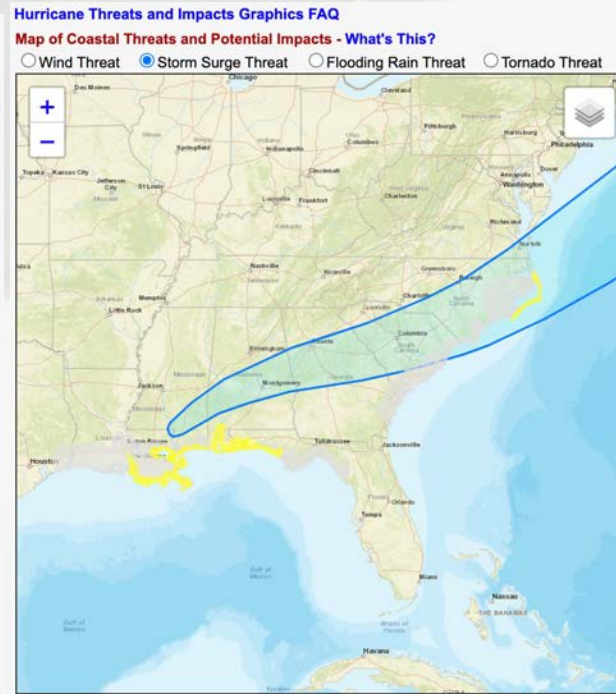
Potential impacts from the main wind event could begin overnight across the western Big Bend of Florida and extreme southwest Georgia. Remain well sheltered from hazardous wind having possible limited impacts.

HTI – Hurricane Threats & Impacts

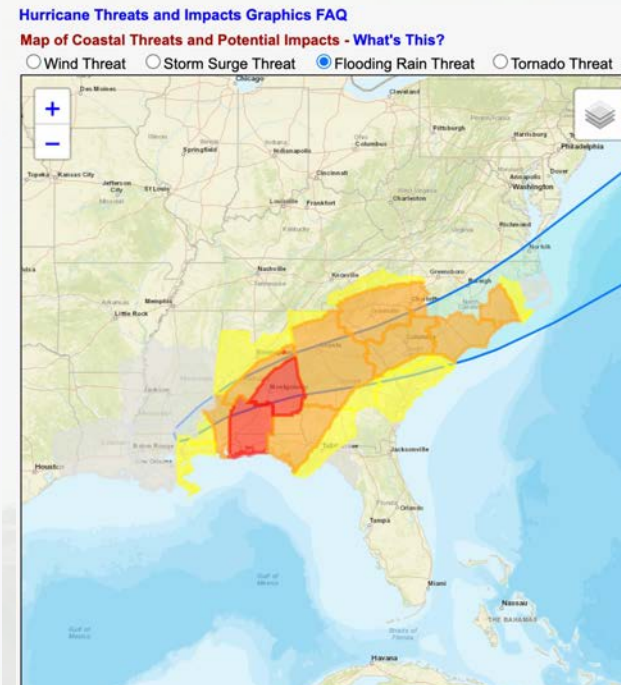
Depicts what you should prepare for – not the deterministic forecast



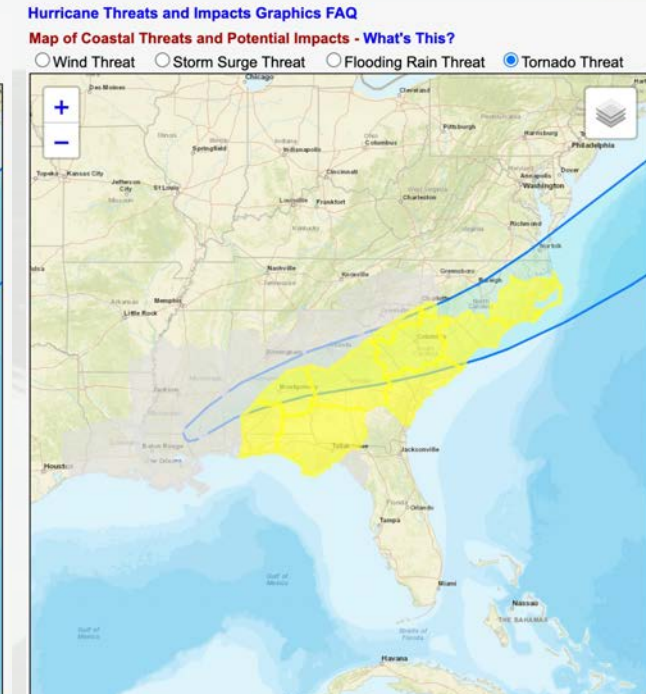
Wind Threat
Potential for wind greater than 110 mph
Potential for wind 74 to 110 mph
Potential for wind 58 to 73 mph
Potential for wind 39 to 57 mph
Wind less than 39 mph



Storm Surge Threat
Potential for storm surge flooding greater than 9 ft above ground
Potential for storm surge flooding greater than 6 ft above ground
Potential for storm surge flooding greater than 3 ft above ground
Potential for storm surge flooding greater than 1 ft above ground
Little to no storm surge flooding



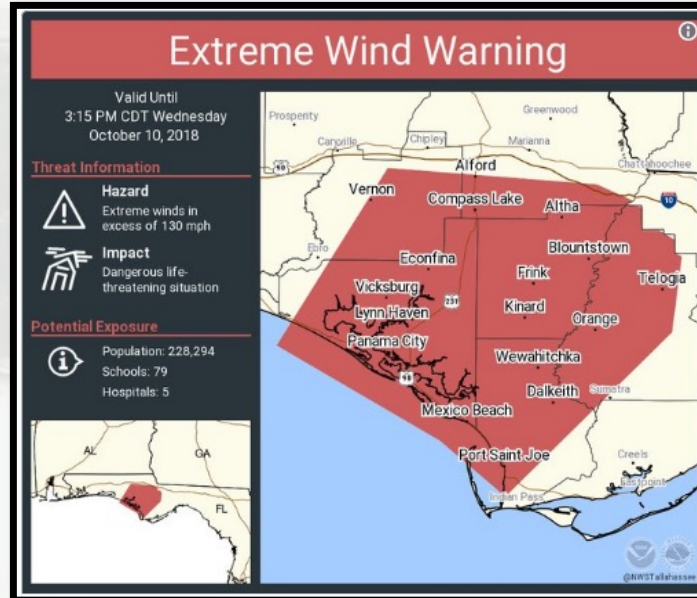
Flooding Rain Threat
Potential for extreme flooding rain
Potential for major flooding rain
Potential for moderate flooding rain
Potential for localized flooding rain
Little to no potential for flooding rain



Tornado Threat
Potential for outbreak of tornadoes
Potential for many tornadoes
Potential for several tornadoes
Potential for a few tornadoes
Tornadoes not expected

EWW – Extreme Wind Warning

- Reserved for events which truly pose a very significant threat of casualties
- With a category 3 or higher hurricane, issued for imminent onset of, or continuance of winds greater than 115 mph.
- Extreme tropical cyclone winds expected to occur within an hour.
- Valid for three hours or less.
- Will alert via Wireless Emergency Alerts



EWWTAE
 FLC005-013-045-063-077-133-102015-
 /O.NEW.KTAE.EW.W.0002.181010T1715Z-181010T2015Z/

BULLETIN - EAS ACTIVATION REQUESTED
 Extreme Wind Warning
 National Weather Service Tallahassee FL
 115 PM EDT WED OCT 10 2018

The National Weather Service in Tallahassee has issued a

- * Extreme Wind Warning for...
 Southern Jackson County in the Panhandle of Florida...
 Gulf County in the Panhandle of Florida...
 Bay County in the Panhandle of Florida...
 Calhoun County in the Panhandle of Florida...
 Liberty County in Big Bend of Florida...
 Southeastern Washington County in the Panhandle of Florida...
- * Until 415 PM EDT/315 PM CDT/.
- * At 113 PM EDT/1213 PM CDT/, National Weather Service Doppler radar indicated extreme winds in excess of 130 mph, associated with the eyewall of Hurricane Michael, were continuing to move inland. THIS IS AN EXTREMELY DANGEROUS AND LIFE-THREATENING SITUATION!

PRECAUTIONARY/PREPAREDNESS ACTIONS...

TAKE COVER NOW! Treat these imminent extreme winds as if a tornado was approaching and move immediately to the safe room in your shelter. Take action now to protect your life!

&&

A Tornado Watch remains in effect until 500 PM EDT/400 PM CDT/ for Big Bend of and the Panhandle of Florida.

LAT...LON 3072 8566 3067 8502 3062 8491 3061 8493
 3060 8488 3053 8488 3053 8483 3050 8478
 3046 8478 3045 8476 3022 8479 2972 8530
 2989 8550 3018 8600

TIME...MOT...LOC 1713Z 214DEG 20KT 2997 8556



Local Interviews and Media Requests



Local Media

- Work with your [Warning Coordination Meteorologist \(WCM\)](#) ahead of time to discuss local interview and media request best practices and procedures.

National Media

- The NHC pool can be your starting point for media requests.
- Requests for NWS Local Office may be directed to another contact point if the workload is too great.
- You may be speaking to someone at another office, an NWS region, NWS headquarters, or a volunteer.

Spanish Media Interviews

- We have a limited number of employees proficient in Spanish who may be able to do an interview.



Image from WFO San Juan Twitter Feed



Thank you from the National Weather Service Forecast Offices!



Questions:

Tim Oram

timothy.oram@noaa.gov

For technical assistance:

sr-tropical-web@noaa.gov



NWS Tropical Cyclone Products & Services

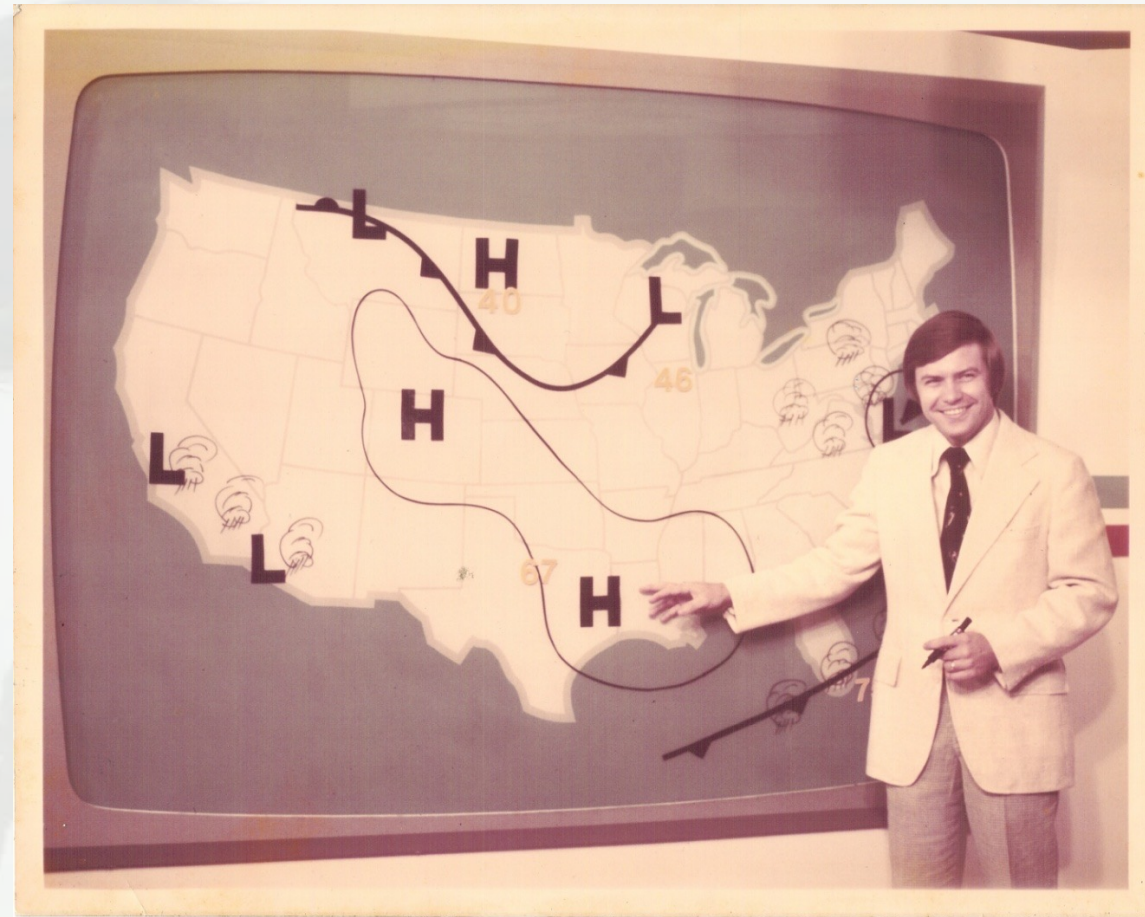
A refresher course for media partners



Dennis Feltgen
Communications & Public Affairs Officer
National Hurricane Center, Miami, Fla.
July 27, 2021

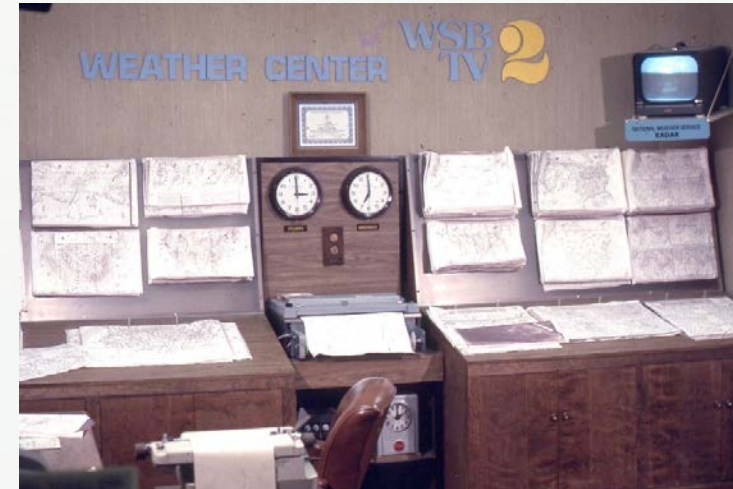


Broadcast Meteorologist (1974-2002)



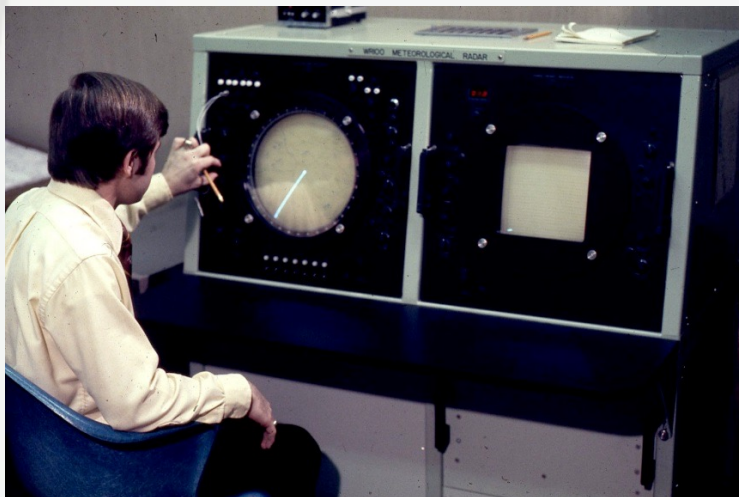
Old school technology...

Teletype



Facsimile charts

Radar console



Manual typewriter

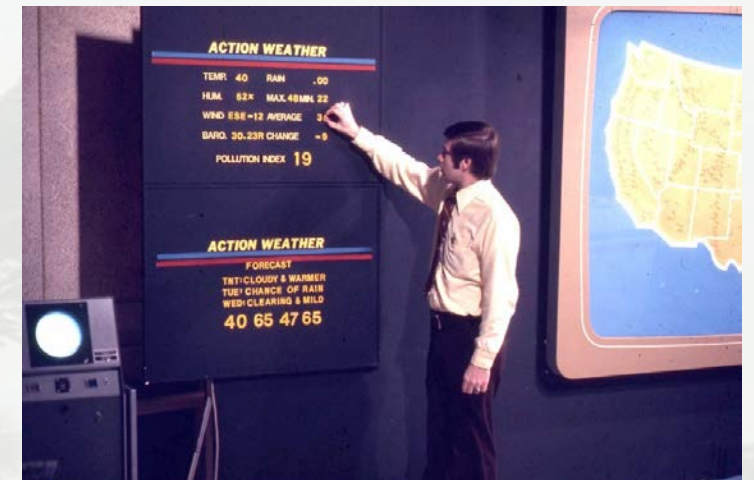
Nothing but the basics...



Plexiglas Map / Magic Marker



No Chroma Key



No Chyron

Doppler Radar arrives in 1980



**Enterprise Electronics Corp.
5 cm Doppler Radar**

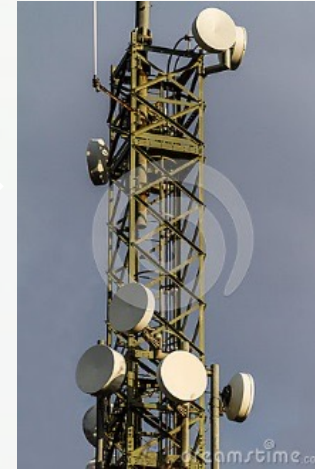
Serial number 1

Live shots



Microwave

The '70s



Satellite News
Gathering

The '80s





Live From the Hurricane!



Elena & Gloria, 1985



Gilbert, 1988



Andrew, 1992



NHC Communications Officer





MEDIA PARTNERS



Interview settings



On location



Satellite



Media Day



Virtual



Phone



Press Conference



Media interview opportunities outside of hurricane season



- On-site and virtual
- Nat'l Hurricane Conference
- Hurricane Awareness Tour
- Governors Hurricane Conf.
- Media Day (June 1)

Media interview opportunities during hurricane season



- **Recorded on-camera or virtual interviews only on availability basis.**
- **Must be arranged through the NHC public affairs officer.**
- **No live shots in building**
- **Must write/edit/feed stories off-site.**



How does NHC let you know?



- Master list of all TV meteorologists & weathercasters from Texas to Maine (and two states in...)
- Media advisory issued with details

IN THE PAST...



A media frenzy

1995 - A New Building!



A separate media room

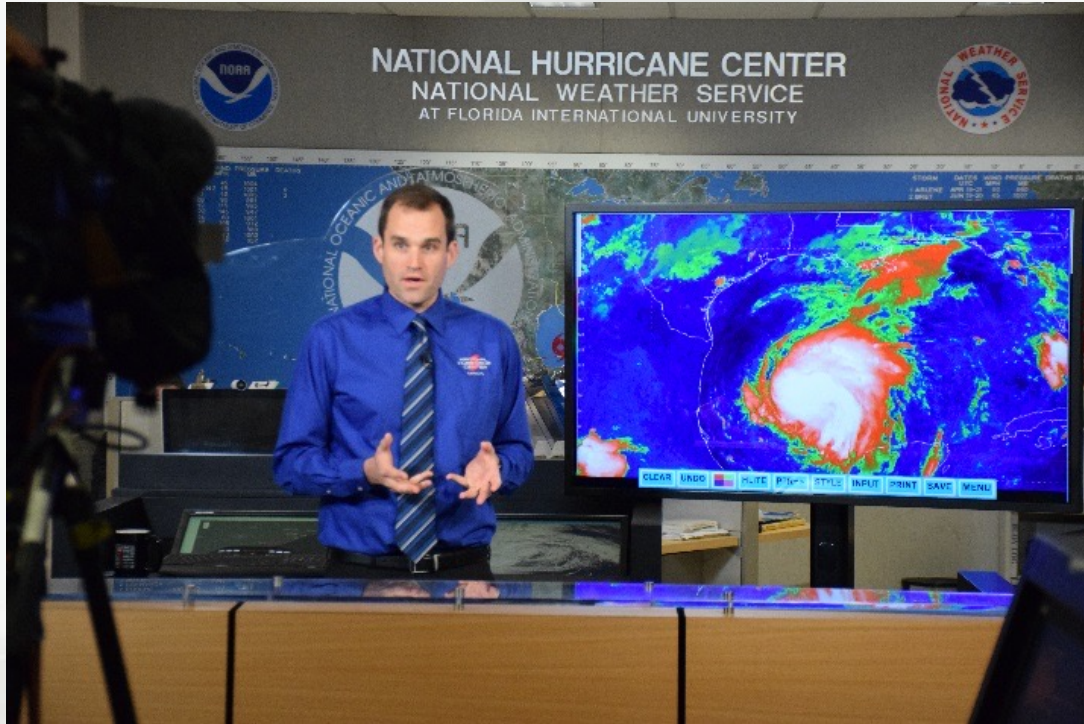
Still some problems...



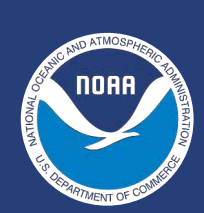
No boundaries



NHC Media Pool



- Full operation when hurricane watch or warning issued for U.S. mainland.
- Live interviews for networks and local stations in watch/warning area
- More than 450 interviews provided in 2020.



NHC MEDIA POOL



**English
language
Network**





NHC MEDIA POOL



**English
language
Network**



**Local (Miami)
English
language**





NHC MEDIA POOL



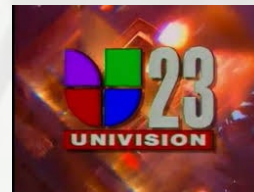
**English
language
Network**



**Local (Miami)
English
language**



**Spanish language
(local and network)**





“Soft” or “Limited” media pool



No U.S. Watch or Warning, but a threat in 3 or 4 days

7 a.m. to 9:30 a.m.

5 p.m. to 6:30 p.m.

Broadcast and Cable Networks & local stations in potential threat area.





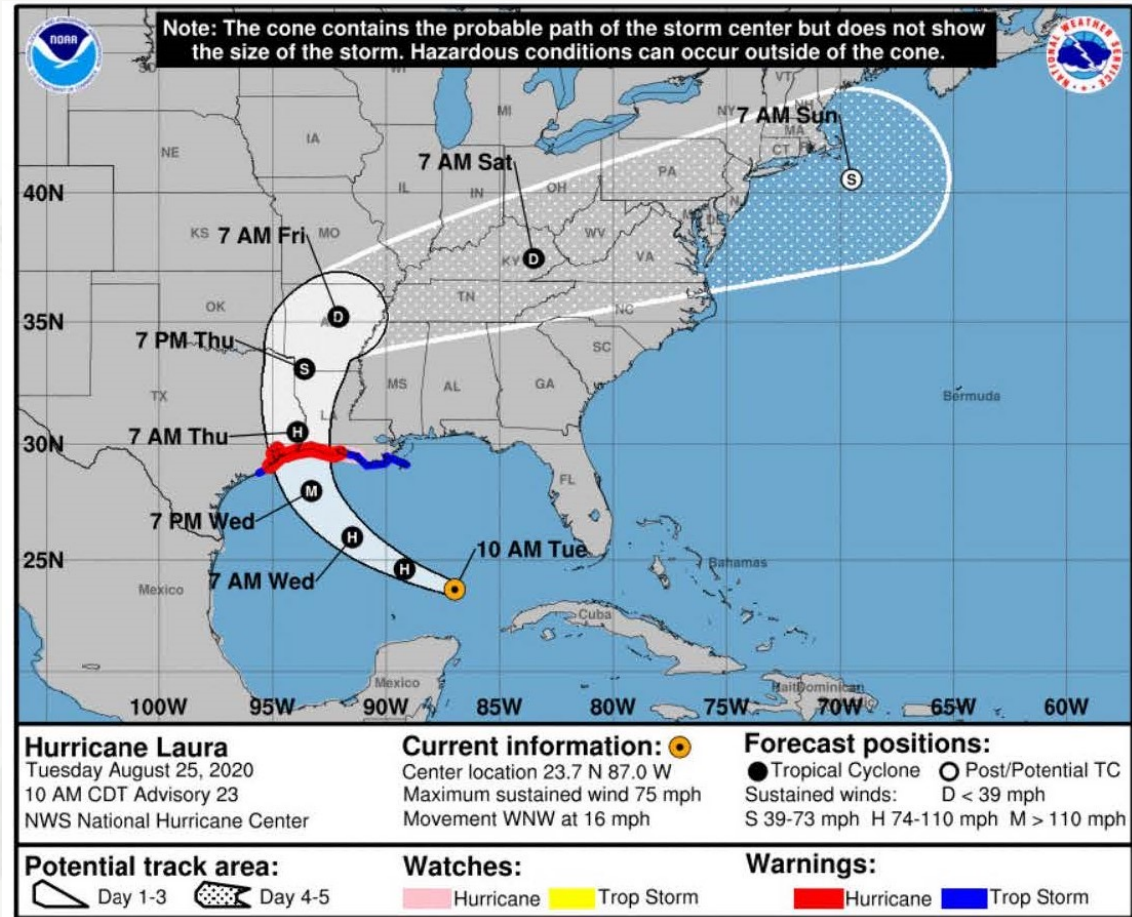
“Full” media pool



U.S. Hurricane Watch or Warning

7 a.m. to 7 p.m. ET

Broadcast and Cable Networks & local stations in watch/warning area.





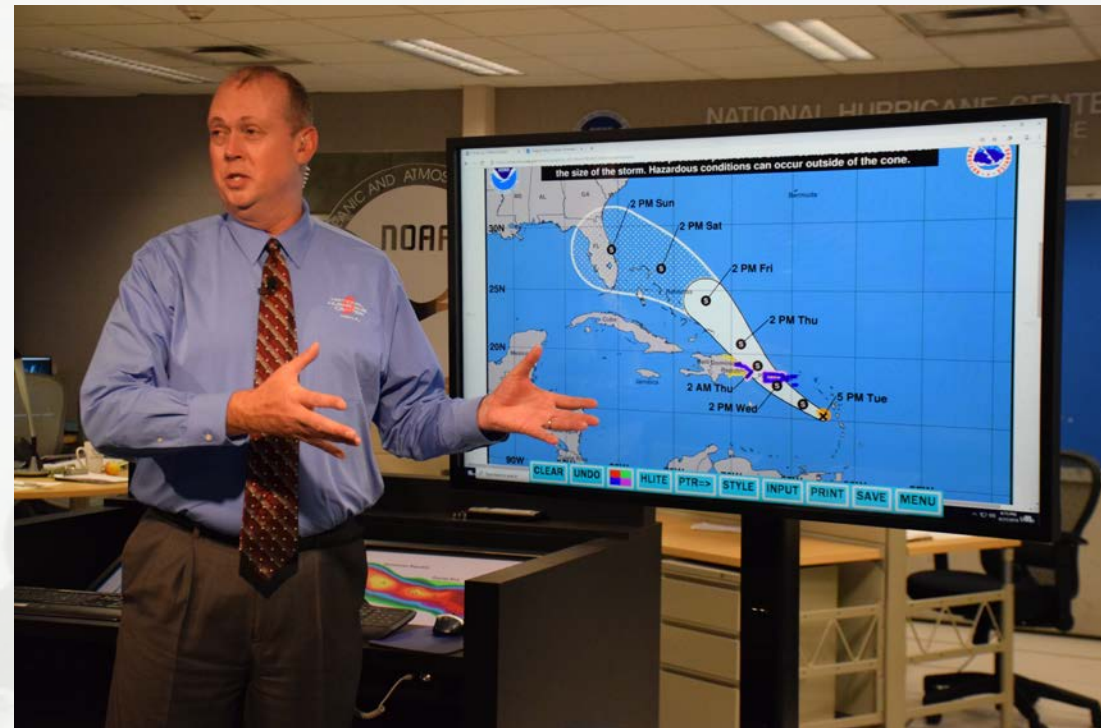
How do you know there's a pool?



- Master list of all TV news assignment desk and of meteorologists & weathercasters.
- Media advisory sent via email to networks & local outlets in the watch/warning area.

How It Works

- **Book interview time with pool producer via email or phone**
- **Contact your network for pool feed from NHC**
- **Be ready to go**



Generic broadcast feed



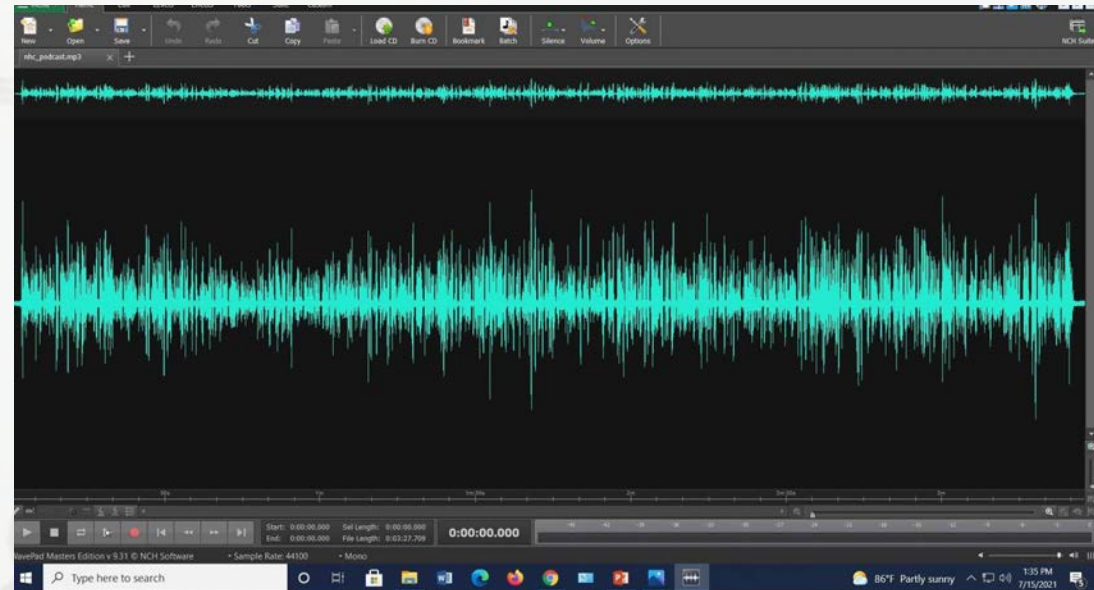
- **30 seconds past the hour**
- **Up to 3:30 in length**
- **Obtained via the NHC media pool feed thru your network**



Digital Audio Podcast of Generic feed



- Available ~ 7 min. past hour
- Used by Radio & Print outlets
- Link under “Top News of the Day” or go directly to www.nhc.noaa.gov/audio/



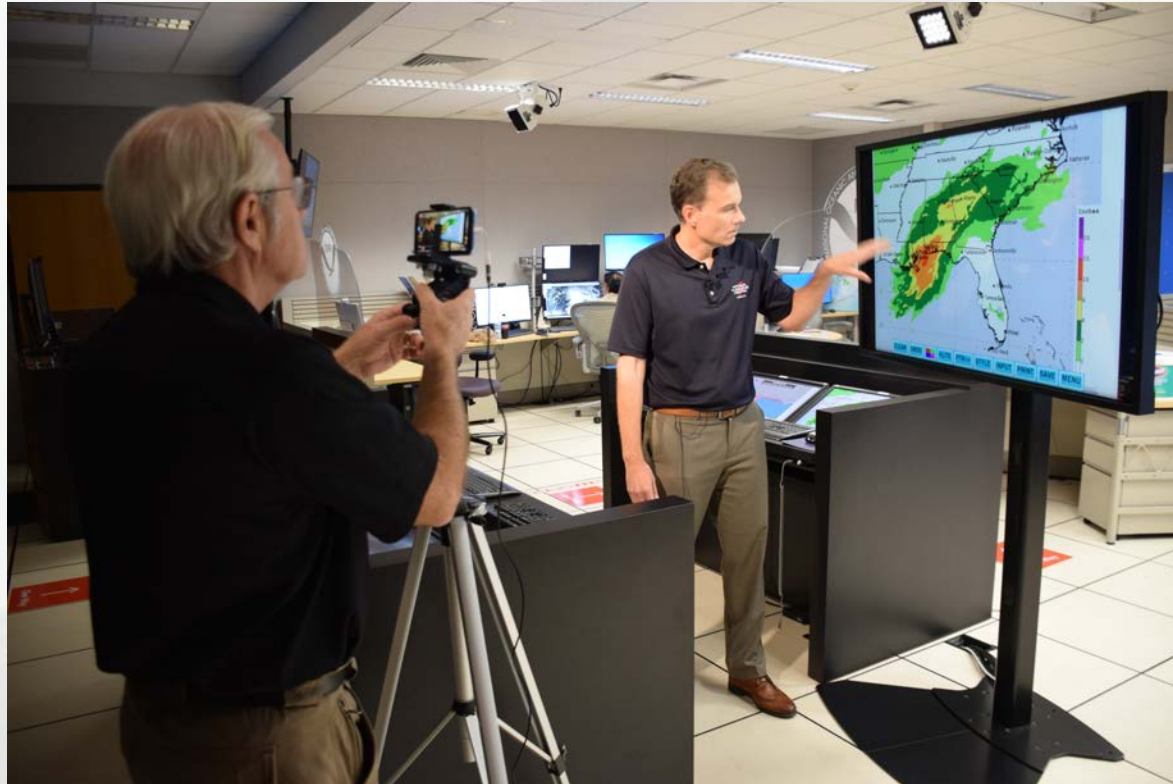
Priority is to local stations



Challenges

- Underutilized by local stations
- Some networks are charging local affiliates for use of lines

Facebook Live



- 30 minutes past hour after each advisory
- Up to 8 minutes long
- Can share it on your own website



Where to go with public affairs questions



Anything related to tropics...

nhc.public.affairs@noaa.gov

305-229-4404

All other weather events...

nws.pa@noaa.gov

301-427-9000



DENNIS FELTGEN
Communications & Public Affairs Officer
NOAA Communications & External Affairs
National Hurricane Center
Miami, Florida
dennis.feltgen@noaa.gov
305-229-4404



Thank You!



If you have further questions, please direct them to the following contacts:

- Interview requests or media pool access:

nhc.public.affairs@noaa.gov

- Technical questions regarding NWS tropical products and services: nhcwebmaster@noaa.gov

- General questions about NWS tropical products and services: tropical.program@noaa.gov