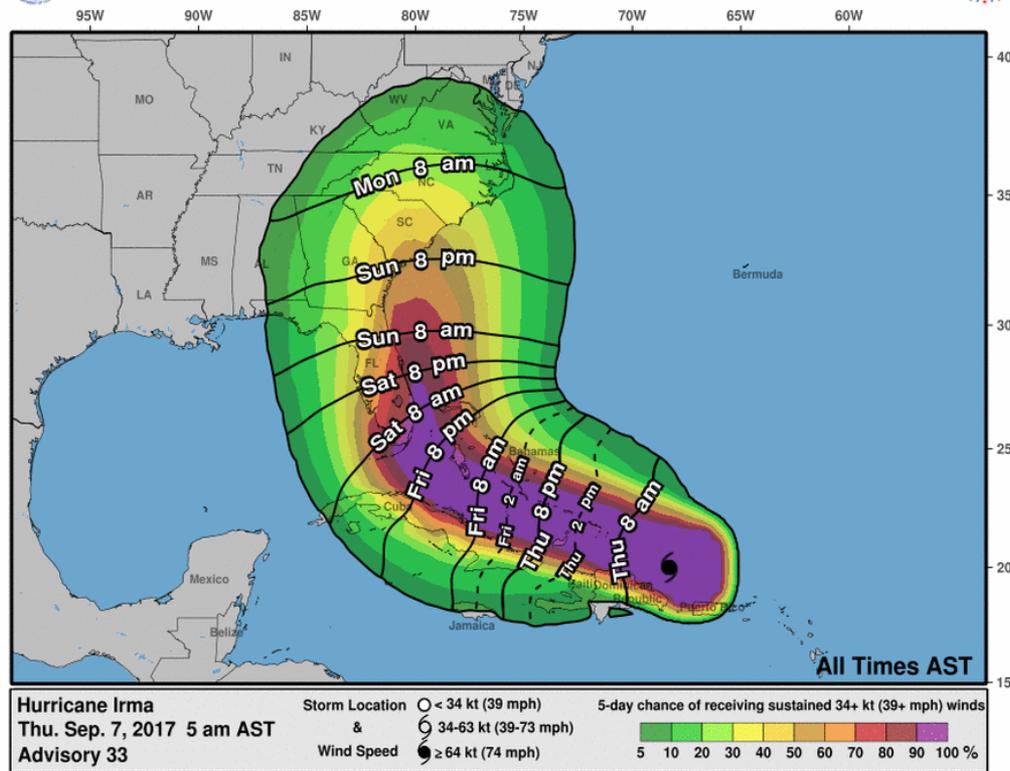




# NWS Tropical Product Suite Access, Display, & Recent Changes

 **Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds** 



## Jessica Schauer

### NWS Tropical Services Program Leader



# Meeting Purpose

## Why are we here?

- Make everyone aware of the products available in 2018 and explain their content
- Ensure everyone can access and display the products they need



## Why are there so many words on these slides?

This presentation is intended to be a resource for you to use in preparation for a tropical cyclone event. It will be posted at:

[weather.gov/wrn/calendar](https://www.weather.gov/wrn/calendar)



# Acronyms

**CAP** – Common Alerting Protocol

**CPHC** – Central Pacific Hurricane  
Center

**EAS** – Emergency Alert System

**FEMA** - Federal Emergency  
Management Agency

**HLS** – Hurricane/Tropical Cyclone  
Local Statement Product

**NOAA** – National Oceanic and  
Atmospheric Administration

**NHC** – National Hurricane Center

**NOS** – National Ocean Service

**NWR** – NOAA Weather Radio All  
Hazards

**NWS** – National Weather Service

**SSWW** – Storm Surge Watch/Warning

**TC** – Tropical Cyclone

**TCV** – Tropical Cyclone  
Watch/Warning VTEC Product

**TS** – Tropical Storm

**UGC** – Universal Geographic Code

**VTEC** – Valid Time Event Code

**WFO** – Weather Forecast Office



# NEW 2018 Tropical Product Changes

- Operational NHC Time of Arrival of Tropical Storm-Force Winds Graphics
- Clearer messaging in the Local Tropical Cyclone W/W (TCV) Product
- WFO Tropical Webpage
- Vortex Message format changes
- Addition of hurricane-force-wind radii forecast at 48 hours
- Expansion of the forecast discussion to 72 hours in the NHC Tropical Cyclone Public Advisory (TCP)
- Changes to the Local Post Tropical Cyclone Reports
- Changes to TCP from the Weather Prediction Center (WPC)
- Ability to issue CFW and SRF products during tropical events





# Changes to Local Weather Forecast Offices' Ability to Issue Tropical Products

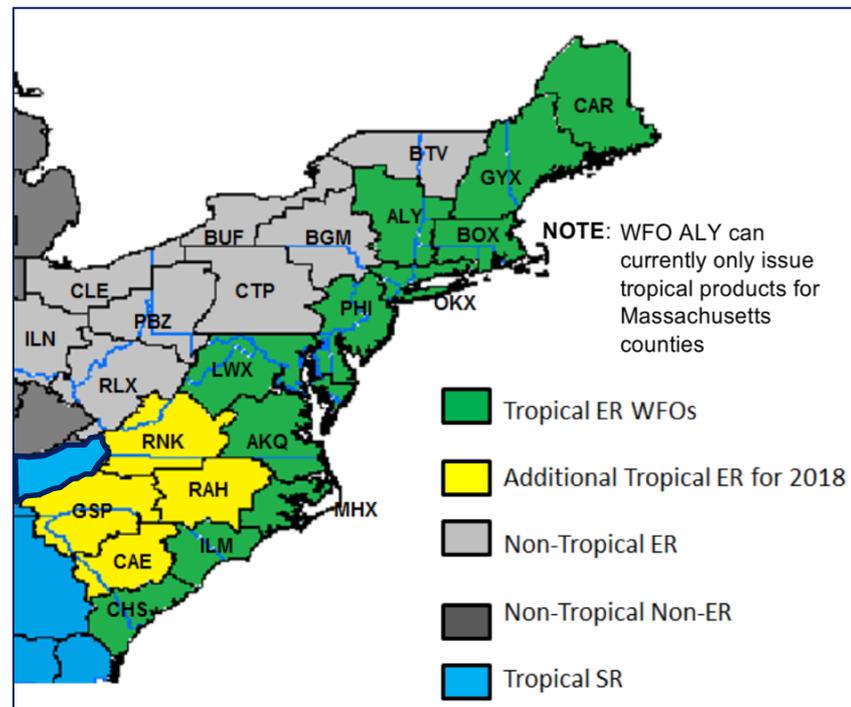
## Eastern Region WFOs Issuing Tropical Products in 2018

★ **4 additional ER Weather Forecast Offices (WFO) gain the capability to issue the following tropical cyclone (TC) products in 2018:**

- Hurricane Local Statement (HLS)
- WFO Hurricane Local Watch/Warning Product (WFO TCV)
- Extreme Wind Warning (EWW)
- Post Tropical Cyclone Report (PSH)
- Hurricane Threats and Impacts Graphics

★ **Addition of these WFOs is based on TC climatological return periods and feedback from local emergency management.**

- WFO Blacksburg, VA (RNK)
- WFO Raleigh, NC (RAH)
- WFO Columbia, SC (CAE)
- WFO Greenville/Spartanburg, SC (GSP)







# WFO Tropical Product Suite Overview: TCV Product (Atlantic/WFO Honolulu)

## WFO Tropical Cyclone Local Watch/Warning Product (TCV) at Atlantic basin WFOs and WFO Honolulu

- Produced at **Atlantic** basin offices and **WFO Honolulu**
- Product contains the tropical cyclone watch/warning [Valid Time Event Code \(VTEC\)](#)
- Largely automated and includes all local land-based tropical watches and warnings and detailed information in a one zone-one segment basis
- For each geographic segment, the content also includes headlines, forecast, threat, and impact information for the 4 major tropical cyclone hazards:
  - Wind
  - Storm Surge (where applicable)
  - Flooding Rain
  - Tornadoes



# TCVWFO Example

(a single zone segment shown)

WTUS82 KMHX 171959  
TCVMHX

URGENT - IMMEDIATE BROADCAST REQUESTED  
Irene Local Watch/Warning Statement/Advisory Number 25  
National Weather Service Newport/Morehead City NC AL092011  
259 PM EST Fri Nov 17 2017

NCZ103-180400-  
/O.CON.KMHX.SS.W.1009.000000T0000Z-000000T0000Z/  
/O.CON.KMHX.HU.W.1009.000000T0000Z-000000T0000Z/  
Outer Banks Dare-  
259 PM EST Fri Nov 17 2017

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

\* LOCATIONS AFFECTED

- Kill Devil Hills
- Manteo
- Buxton

\* WIND

- LATEST LOCAL FORECAST: Equivalent Cat 2 Hurricane force wind
  - Peak Wind Forecast: 80-100 mph with gusts to 120 mph
  - Window for Tropical Storm force winds: until early Sunday morning
  - Window for Hurricane force winds: Saturday morning until early Sunday morning

- POTENTIAL THREAT TO LIFE AND PROPERTY: Potential for wind greater than 110 mph

- The wind threat has remained nearly steady from the previous assessment.
- PLAN: Plan for extreme wind of equivalent CAT 3 hurricane force or higher due to possible forecast changes in track, size, or intensity.
- PREPARE: Last minute efforts should solely focus on protecting life. The area remains subject to catastrophic wind damage.
- ACT: Now is the time to shelter from life-threatening wind. Be ready to move to the safest place inside your shelter if necessary.

- POTENTIAL IMPACTS: Unfolding
  - Potential impacts from the main wind event are unfolding.

\* STORM SURGE

- LATEST LOCAL FORECAST: Life-threatening storm surge possible
  - Peak Storm Surge Inundation: The potential for 4-7 feet above ground somewhere within surge prone areas
  - Window of concern: through early Sunday evening

- POTENTIAL THREAT TO LIFE AND PROPERTY: Potential for storm surge flooding greater than 6 feet above ground

- The storm surge threat has increased from the previous assessment.
- PLAN: Shelter against life-threatening storm surge flooding of greater than 6 feet above ground.
- PREPARE: All ordered evacuations should be complete. Evacuees should be in shelters well away from storm surge flooding.
- ACT: Remain sheltered in a safe location. Do not venture outside. Move to upper floors to escape rising water if necessary.

- POTENTIAL IMPACTS: Unfolding
  - Potential impacts from the main surge event are unfolding.

\* FLOODING RAIN

*TRUNCATED*

\* TORNADO

*TRUNCATED*

\* FOR MORE INFORMATION:

- <http://ready.gov/hurricanes>

\$\$



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*TRUNCATED*

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*TRUNCATED*

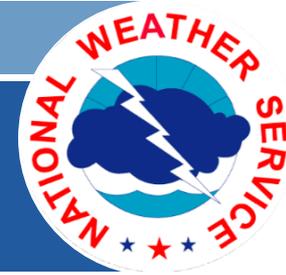
\* TORNADO

*TRUNCATED*

\* FOR MORE INFORMATION:

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# Changes to the Local TCV

## Tropical Cyclone Watch/Warning Product

\* WIND

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  - ACT: Now is the time to shelter from life-threatening wind. Be ready to move to the safest place inside your shelter if necessary.



**PLAN, PREPARE, and ACT statements at a Tweetable length**



# Changes to the Local TCV

## Tropical Cyclone Watch/Warning Product

\* **WIND**

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  - Window for Hurricane force winds: Saturday morning until early Sunday morning
  
- POTENTIAL THREAT TO LIFE AND PROPERTY: Potential for wind greater than 110 mph
  - The wind threat has remained nearly steady from the previous assessment.
  - **PLAN**: Plan for extreme wind of equivalent CAT 3 hurricane force or higher due to possible forecast changes in track, size, or intensity.
  - **PREPARE**: Last minute efforts should solely focus on protecting life. The area remains subject to catastrophic wind damage.
  - **ACT**: Now is the time to shelter from life-threatening wind. Be ready to move to the safest place inside your shelter if necessary.



**PLAN, PREPARE, and ACT statements provided for wind, surge, flooding rain, and tornado hazards**



# Changes to the Local TCV

## Tropical Cyclone Watch/Warning Product

\* WIND

- LATEST LOCAL FORECAST: Equivalent Cat 2 Hurricane force wind
  - Peak Wind Forecast: 80-100 mph with gusts to 120 mph
  - Window for Tropical Storm force winds: until early Sunday morning
  - Window for Hurricane force winds: Saturday morning until early Sunday morning
  
- POTENTIAL THREAT TO LIFE AND PROPERTY: **Potential for wind greater than 110 mph**
  - The wind threat has remained nearly steady from the previous assessment.
  - PLAN: Plan for extreme wind of equivalent CAT 3 hurricane force or higher due to possible forecast changes in track, size, or intensity.
  - PREPARE: Last minute efforts should solely focus on protecting life. The area remains subject to catastrophic wind damage.
  - ACT: Now is the time to shelter from life-threatening wind. Be ready to move to the safest place inside your shelter if necessary.



**Language used for hazard-based threat labels both in the TCV and on the graphics is now more quantitative rather than qualitative (i.e., moderate, high, etc.)**



# WFO Tropical Product Suite Overview: HTI Graphics from WFOs that Issue TCVs

## Hurricane Threats and Impacts: HTI Graphics

- Communicates threats & potential impacts for each tropical hazard
  - ✓ Wind
  - ✓ Storm Surge
  - ✓ Flooding Rain
  - ✓ Tornadoes
- Helps communicate degree of preparation needed with a safety margin factored in

**NEW** kml files (mosaic of **ALL** affected CWAs) available at:  
[weather.gov/hti](https://weather.gov/hti)

- Also available in GRIB2 format (delayed) from the **National Digital Forecast Database**

Each kml file includes a graphic with threat levels and potential impacts for each hazard



Threat Level - Potential for wind 58 to 73 mph

Potential for Significant Impact:

\*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.

[Download KML]

[Download Image]

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

Intended to serve as a companion graphic to the TCVWFO product



# New WFO Tropical Webpage

[weather.gov/srh/tropical](http://weather.gov/srh/tropical)

- Threats and Impacts tab becomes active when WFO Issues Watches/Warnings for local area
- Communicates threats & potential impacts for each tropical hazard in the local area including: Wind, Storm Surge, Flooding Rain, and Tornadoes
- Helps communicate degree of preparation needed with safety margin factored in

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

**NWS Southern Region Tropical Webpage**  
Southern Region Headquarters

Local Forecast Offices A-L Local Forecast Offices M-Z River Forecast Centers Center Weather Service Units Regional HQ

**NWS Corpus Christi homepage**

Outlook Active Storms **Threats and Impacts** Local Products Satellite Radar Preparedness Miscellaneous

Map of Coastal Threats and Potential Impacts - What's This? Latest Forecast - What's This?

Wind Threat Storm Surge Threat Flooding Rain Threat Tornado Threat

Show/Hide Cone

**Threat Level - Potential for wind greater than 110 mph**

Potential for Devastating to Catastrophic Impact:

\*Structural damage to sturdy buildings, some with complete roof and wall failures. Complete destruction of mobile homes. Damage greatly accentuated by large airborne projectiles.

**For: Aransas County**

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

\* LOCATIONS AFFECTED

- Rockport
- Holiday Beach

\* WIND

- LATEST LOCAL FORECAST: Equivalent Cat 2 Hurricane force wind

- Peak Wind Forecast: 85-105 mph with gusts to 125 mph
- Window for Tropical Storm force winds: until Wednesday morning
- Window for Hurricane force winds: until early this morning

- EMERGENCY PLANS SHOULD INCLUDE A REASONABLE THREAT AS DEPICTED ON THE LEFT.

\* FOR MORE INFORMATION:

<http://www.weather.gov/srh/tropical?offic=crp>

[Download KML] [Download Image]

**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

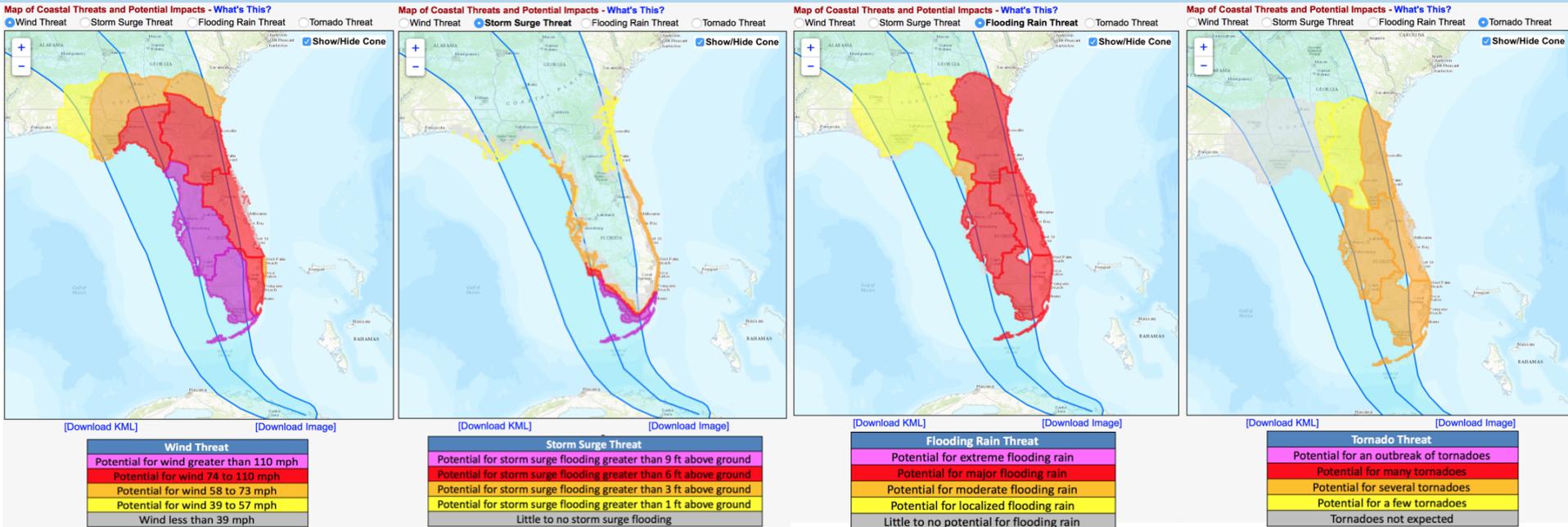
USA.gov  
U.S. Department of Commerce

US Dept of Commerce  
National Oceanic and Atmospheric Administration  
National Weather Service  
Southern Region Headquarters  
819 Taylor Street, Room 10A06  
Fort Worth, TX 76102

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Help  
Glossary

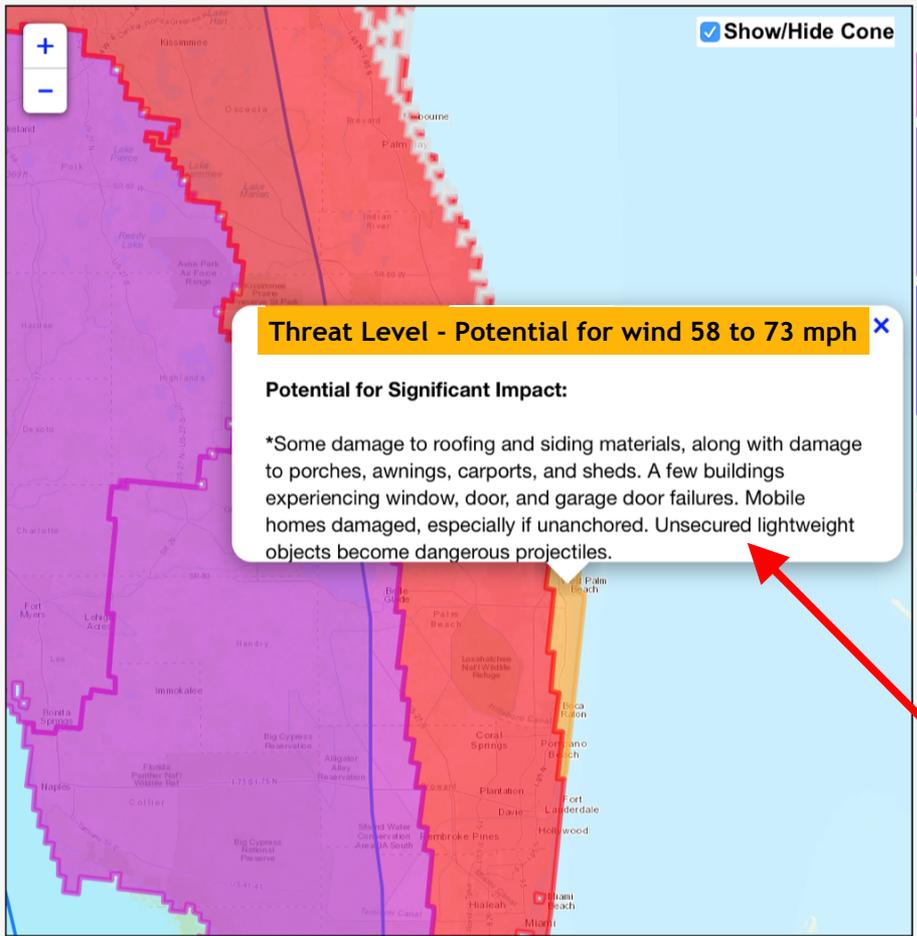
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Freedom of Information Act (FOIA)  
About Us  
Career Opportunities

Comments? Questions? Please Contact Us.



## Hurricane Threats and Impacts (HTI) Products

- Clicking on the map provides latest information from the TCV text product for your area relative to the four main tropical cyclone hazards: **Wind, Storm Surge, Flooding Rains, and Tornadoes**
- You will be able to find information on the **expected meteorological forecast** including *what* and *when* type information, **threat level** (which incorporates a safety margin based on historic size, track, and intensity errors), and corresponding **potential impact information** relative to each of those hazards.



[Download KML]

[Download Image]

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

**For: Coastal Palm Beach County**

**...HURRICANE WARNING REMAINS IN EFFECT...  
 ...STORM SURGE WARNING REMAINS IN EFFECT...**

- \* LOCATIONS AFFECTED**
- West Palm Beach
  - Boca Raton
  - Juno Beach
  - Jupiter

- \* WIND**
- LATEST LOCAL FORECAST: Equivalent Tropical Storm force wind
  - Peak Wind Forecast: 45-55 mph with gusts to 75 mph
  - Window for Tropical Storm force winds: early Sunday morning until Monday afternoon

- EMERGENCY PLANS SHOULD INCLUDE A REASONABLE THREAT AS DEPICTED ON THE LEFT.

- \* FOR MORE INFORMATION:**
- <http://www.weather.gov/mfl>
  - [www.co-palm-beach.fl.us](http://www.co-palm-beach.fl.us)
  - For storm information call 2-1-1

**WHAT** should I be concerned about?

**WHERE** will it happen?

**HOW MUCH** is likely to occur?

**WHEN** should I expect it?

**WHAT** should I plan and prepare for?

**Impact Statements** customized for the local area (i.e., topography, land use, infrastructure, etc.)

**Hazard-Based Threat Scale** incorporates a "safety margin" relative to the uncertainty in the forecast



# New WFO Tropical Webpage

[weather.gov/srh/tropical](https://weather.gov/srh/tropical)

- **NHC Outlook, Satellite, Radar, Social Media, Preparedness Info, and Links tabs** are always available on the site
- **Active Storms, Threats and Impacts, and Local Products tabs** become active when there are active U.S. tropical Watches or Warnings
- **Social Media** and **Local Products** tabs allow users to select a WFO to see products from a particular WFO, including the Hurricane Local Statement (HLS)

**NWS Southern Region Tropical Webpage**  
Southern Region Headquarters

Local Forecast Offices A-L | Local Forecast Offices M-Z | River Forecast Centers | Center Weather Service Units | Regional HQ

National Hurricane Center homepage

Outlook | Satellite | Radar | **Social Media** | Preparedness | Links

Tweets by @NWSSanJuan

**NWS San Juan** @NWSSanJuan  
Coastal Flooding Watch in effect from Sunday morning to late Monday night. Vigilancia de Inundaciones Costeras en efecto desde el domingo en la mañana hasta bien tarde el lunes en la noche. #prwx #usviwx

**COASTAL FLOODING WATCH**  
VIGILANCIA DE INUNDACIONES COSTERAS

**RIP CURRENT RISK**  
LOW  
MODERATE  
HIGH

**IMPACTS/IMPACTOS**  
 ✓ BREAKING WAVES OVER 10 FEET / OLAS ROMPIENTES SOBRE 10 PIES  
 ✓ ROADS IMPASSABLE DUE TO SALT WATER INTRODUCTION / CARRETERAS INTRANSITABLES DEBIDO A LA INTRUSION DE AGUA SALADA  
 ✓ BEACH EROSION & STRUCTURAL DAMAGE / EROSION DE PLAYAS & DAÑOS A ESTRUCTURAS

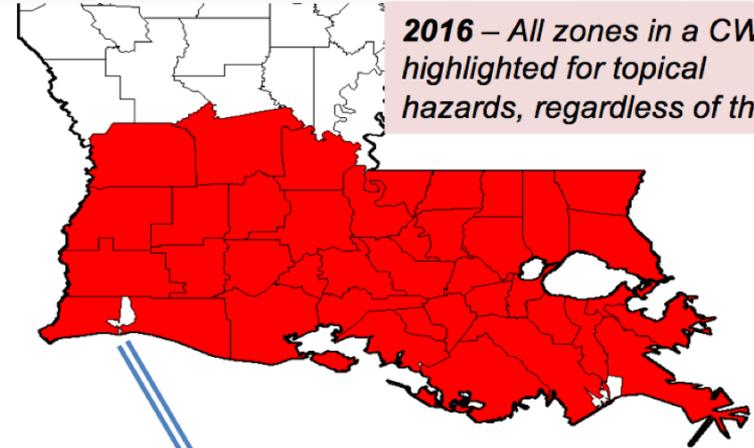
San Juan



# WFO Tropical Product Suite Overview: HLS Product (Atlantic/WFO Honolulu)

## Atlantic/WFO Honolulu Hurricane Local Statement (HLS)

- Discussion focused on preparedness and conveying a succinct message on threats and impacts across the WFO county warning area
- Does not contain VTEC
- The product is not segmented by zone
- WFOs can now select specific [Universal Geographic Code \(UGC\)](#) to determine which zones to alert with an HLS. Previously, an entire WFO county warning area would alert if an HLS was issued





# HLSWFO Example: Atlantic WFOs and WFO Honolulu

WTUS82 KMHX 111443  
HLSMHX  
NCZ029-044>047-079>081-090>095-098-103-104-112245-

Hurricane Irene Local Statement Advisory Number 22  
National Weather Service Newport/Morehead City NC AL092017  
943 AM EST Wed Jan 11 2017

This product covers Eastern North Carolina

**\*\*DANGEROUS HURRICANE IRENE FORECAST TO APPROACH EASTERN NORTH CAROLINA COAST ON THURSDAY\*\***

## NEW INFORMATION

-----

### \* CHANGES TO WATCHES AND WARNINGS:

- A Hurricane Watch has been upgraded to a Hurricane Warning for Pitt, Duplin, Lenoir, Jones, and Martin
- A Tropical Storm Watch has been upgraded to a Tropical Storm Warning for Greene

### \* CURRENT WATCHES AND WARNINGS:

- A Hurricane Warning is in effect for Pitt, Duplin, Lenoir, Jones, and Martin
- A Tropical Storm Warning is in effect for Greene

### \* STORM INFORMATION:

- About 580 miles south of Buxton NC or About 530 miles south of Morehead City NC
- 27.0N 77.3W
- Storm Intensity 115 mph
- Movement North-northwest or 335 degrees at 14 mph

## SITUATION OVERVIEW

-----

When making decisions...do not focus on the exact forecast track. There is a potential for devastating impacts from wind across eastern North Carolina as well as significant to extensive impacts from storm surge along portions of the coast Thursday into Friday. Residents of eastern North Carolina need to heed the advice of their local emergency officials and complete their preparedness actions today.

## POTENTIAL IMPACTS

-----

### \* WIND:

Protect against life-threatening wind having possible devastating impacts across portions of eastern North Carolina. Potential impacts in this area include:

- Numerous large trees snapped or uprooted along with fences and roadway signs blown over.

### \* SURGE:

*Similar format to Wind section*

### \* FLOODING RAIN:

*Similar format to Wind section*

### \* TORNADOES:

*Similar format to Wind section*

## PRECAUTIONARY/PREPAREDNESS ACTIONS

-----

### \* EVACUATIONS:

For those under evacuation orders, leave as soon as practical with a destination in mind. Gas up your vehicle well ahead of time. Be sure that you take all essential materials from your emergency supplies kit. Let others know where you are going and when you intend to arrive.

### \* OTHER PREPAREDNESS INFORMATION:

Now is the time to bring to completion all preparations to protect life and property in accordance with your emergency plan.

### \* ADDITIONAL SOURCES OF INFORMATION:

- For information on appropriate preparations see [ready.gov](http://ready.gov)
- For information on creating an emergency plan see [getagameplan.org](http://getagameplan.org)

## NEXT UPDATE

-----

The next local statement will be issued by the National Weather Service in Newport/Morehead City NC around NOON, or sooner if conditions warrant.

\$\$



# HLSWFO Example: Atlantic WFOs and WFO Honolulu

WTUS82 KMHX 111443  
HLSMHX  
NCZ029-044>047-079>081-090>095-098-103-104-112245-

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\$\$



# HLSWFO Example: Atlantic WFOs and WFO Honolulu

WTUS82 KMHX 111443

**HLSMHX**

**NCZ029-044>047-079>081-090>095-098-103-104-112245-**

Hurricane **Irene** Local Statement **Advisory Number 22**

National Weather Service Newport/Morehead City NC **AL092017**

943 AM EST Wed Jan 11 2017

This product covers Eastern North Carolina

**\*\*DANGEROUS HURRICANE IRENE FORECAST TO APPROACH EASTERN NORTH CAROLINA COAST ON THURSDAY\*\***

## NEW INFORMATION

### \* CHANGES TO WATCHES AND WARNINGS:

- A Hurricane Watch has been upgraded to a Hurricane Warning for Pitt, Duplin, Lenoir, Jones, and Martin
- A Tropical Storm Watch has been upgraded to a Tropical Storm Warning for Greene

### \* CURRENT WATCHES AND WARNINGS:

- A Hurricane Warning is in effect for Pitt, Duplin, Lenoir, Jones, and Martin
- A Tropical Storm Warning is in effect for Greene

### \* STORM INFORMATION:

- About 580 miles south of Buxton NC or About 580 miles south of Morehead City NC
- 27.0N 77.3W
- Storm Intensity 115 mph
- Movement North-northwest or 335 degrees at 14 mph

## SITUATION OVERVIEW

When making decisions...do not focus on the exact forecast track. There is a potential for devastating impacts from wind across eastern North Carolina as well as significant to extensive impacts from storm surge along portions of the coast Thursday into Friday. Residents of eastern North Carolina need to heed the advice of their local emergency officials and complete their preparedness actions today.

## POTENTIAL IMPACTS

### \* WIND:

Protect against life-threatening wind having possible devastating impacts across portions of eastern North Carolina. Potential impacts in this area include:

- Numerous large trees snapped or uprooted along with fences and roadway signs blown over.

### \* SURGE:

*Similar format to Wind section*

### \* FLOODING RAIN:

*Similar format to Wind section*

### \* TORNADOES:

*Similar format to Wind section*

The "Situation Overview" is the most commonly parsed portion of the HLS for rip-and-read or scrolling

practical with  
of time. Be sure  
ncency supplies kit.

Let others know where you are going and when you intend to arrive.

### \* OTHER PREPAREDNESS INFORMATION:

Now is the time to bring to completion all preparations to protect life and property in accordance with your emergency plan.

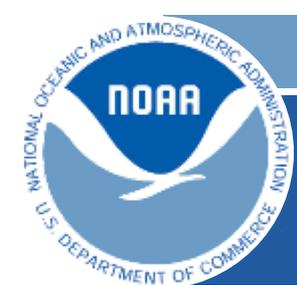
### \* ADDITIONAL SOURCES OF INFORMATION:

- For information on appropriate preparations see [ready.gov](http://ready.gov)
- For information on creating an emergency plan see [getagameplan.org](http://getagameplan.org)

## NEXT UPDATE

The next local statement will be issued by the National Weather Service in Newport/Morehead City NC around NOON, or sooner if conditions warrant.

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## WFO Tropical Product Suite Overview: HLS at Pacific WFOs (except WFO Honolulu)

### **Pacific Tropical Cyclone Local Statement (HLS) (except WFO Honolulu)**

- Contains VTEC (except WSO American Samoa)
- The Pacific basin HLS product is segmented by zone
- There is no companion TCV product or HTI graphics from these WFOs
- WFOs who only issue HLS products (and not TCV products) include:
  - WFO San Diego
  - WFO Oxnard
  - WFO Guam
  - WSO American Samoa (no VTEC)



# HLSWFO Example: Pacific WFOs (except WFO Honolulu)

WTPQ81 PGUM 192201  
HLSPQ1

URGENT - IMMEDIATE BROADCAST REQUESTED  
TROPICAL CYCLONE LOCAL STATEMENT  
NATIONAL WEATHER SERVICE TIYAN GU  
801 AM CHST FRI NOV 20 2015

...TYPHOON IN-FA MOVING OUT OF CHUUK STATE...

.NEW INFORMATION...  
THE TYPHOON WARNING HAS BEEN CANCELED FOR ULUL IN CHUUK STATE.

.AREAS AFFECTED...  
THIS LOCAL STATEMENT PROVIDES INFORMATION AND RECOMMENDED ACTIONS FOR PEOPLE IN GUAM AND THE SURROUNDING WATERS OUT TO 40 NM...AND ON ULUL IN CHUUK STATE.

.WATCHES/WARNINGS...  
THE TYPHOON WARNING HAS BEEN CANCELED FOR ULUL IN CHUUK STATE. TYPHOON CONDITIONS ARE NO LONGER EXPECTED.

A TROPICAL STORM WATCH REMAINS IN EFFECT FOR GUAM. TROPICAL STORM CONDITIONS...INCLUDING DAMAGING WINDS OF 39 MPH OR MORE...ARE POSSIBLE WITHIN 36 HOURS.

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AT 700 AM CHST...2100 UTC...THE CENTER OF TYPHOON IN-FA WAS LOCATED NEAR LATITUDE 10.0 DEGREES NORTH AND LONGITUDE 148.9 DEGREES EAST. THIS IS ABOUT 110 MILES NORTH-NORTHWEST OF ULUL AND 270 MILES NORTHWEST OF CHUUK. IN-FA WAS MOVING NORTHWEST AT 13 MPH WITH MAXIMUM SUSTAINED WINDS OF 85 MPH.

.SITUATION OVERVIEW...  
TYPHOON IN-FA IS MOVING OUT OF CHUUK STATE INTO THE OPEN WATERS SOUTHEAST OF THE MARIANAS. THE CURRENT FORECAST TRACK BRINGS IN-FA ABOUT 140 MILES SOUTH-SOUTHWEST OF GUAM EARLY SATURDAY MORNING.

&&

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.PRECAUTIONARY/PREPAREDNESS ACTIONS...  
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...STORM SURGE AND SURF INFORMATION...  
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GUZ001-PMZ151-200615-  
/O.CON.PGUM.TR.A.4005.000000T0000Z-000000T0000Z/  
GUAM-GUAM COASTAL WATERS-  
801 AM CHST FRI NOV 20 2015

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**Segmented portion**

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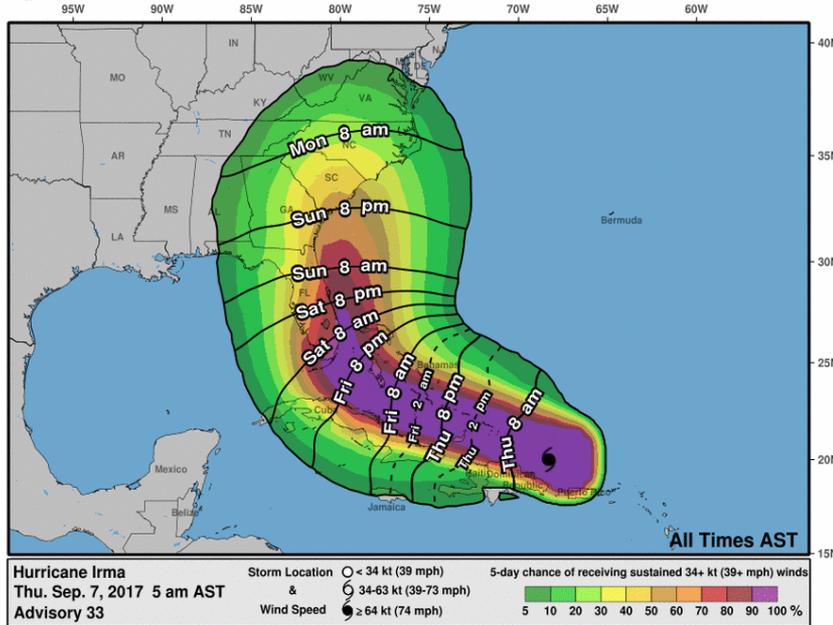
**VTEC found in segments with active or recently canceled watches/warnings**



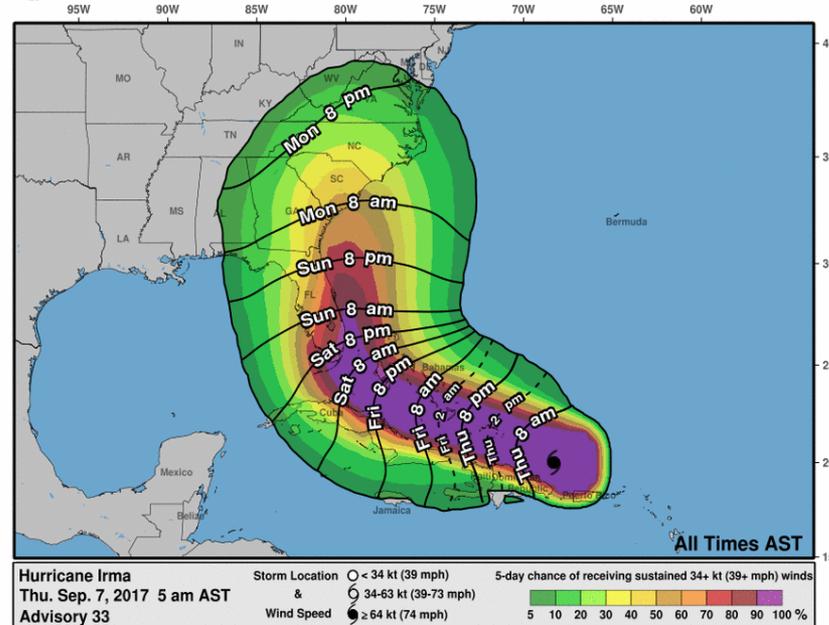


# NHC Arrival of Tropical Storm-Force Winds Graphics

### Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds



### Most Likely Arrival Time of Tropical-Storm-Force Winds

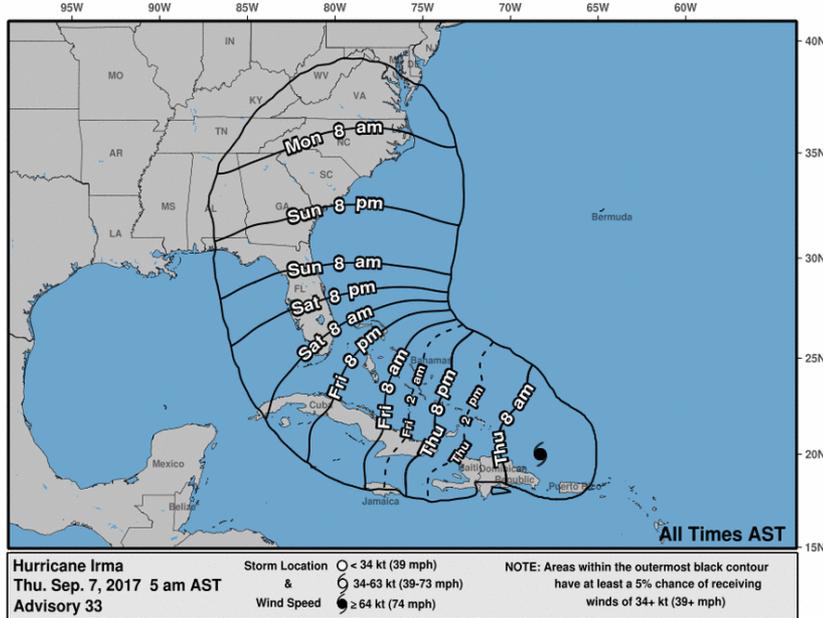


- Primary graphic depicts the “**earliest reasonable**” time window that individuals can safely assume will be free from tropical-storm-force winds
  - no more than a 1 in 10 chance of onset before this time
- A secondary graphic shows the “**most likely**” arrival time – the time before or after which the onset of TS-force winds is equally likely

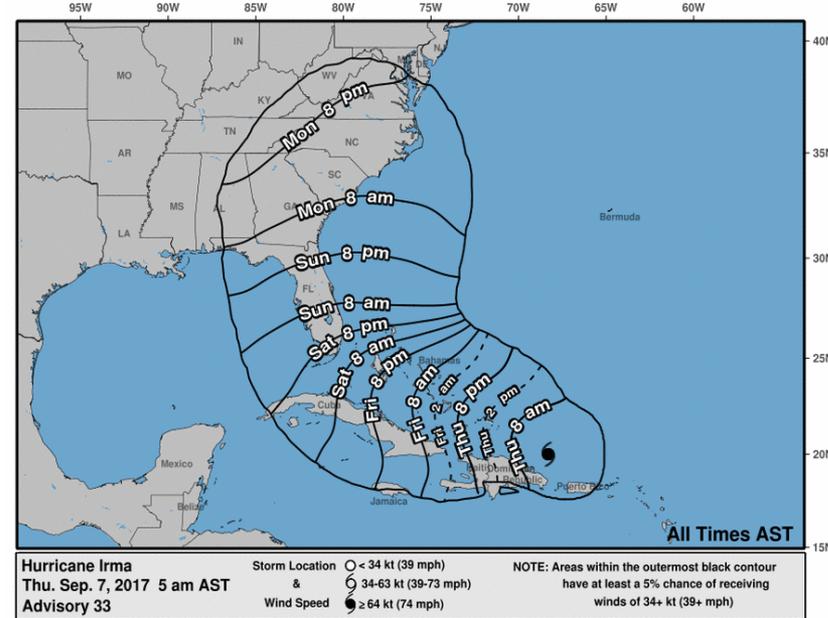


# NHC Arrival of Tropical Storm-Force Winds Graphics

**Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds**



**Most Likely Arrival Time of Tropical-Storm-Force Winds**



- Arrival of Tropical-Storm (TS)-force winds is a critical planning threshold. Preparations become dangerous once winds reach TS force
- These graphics account for forecast uncertainty (track/intensity/size) from the same realizations used to create the wind speed probability products
- Users have the option to display graphics with or without the underlying wind speed probabilities

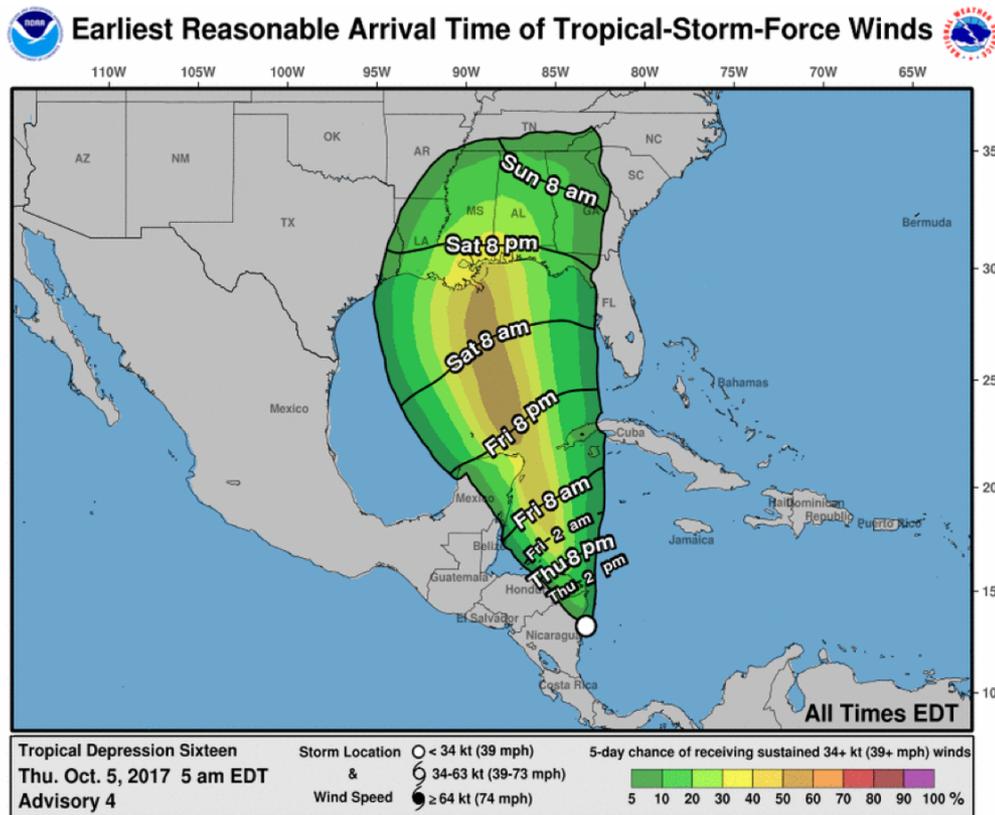


# NHC Arrival of Tropical Storm-Force Winds Graphics

## NHC Arrival Timing Graphics

- “**Earliest Reasonable**” graphic - best for users with low tolerance for risk
- “**Most Likely**” graphic - best for explaining when all preparations should be completed prior to onset of dangerous conditions
- Available on [hurricanes.gov](http://hurricanes.gov) for active tropical cyclones for the Atlantic and Eastern Pacific and [www.prh.noaa.gov/cphc](http://www.prh.noaa.gov/cphc) for the Central Pacific
- Sample products in .PNG and GIS formats available under “graphical products” at:

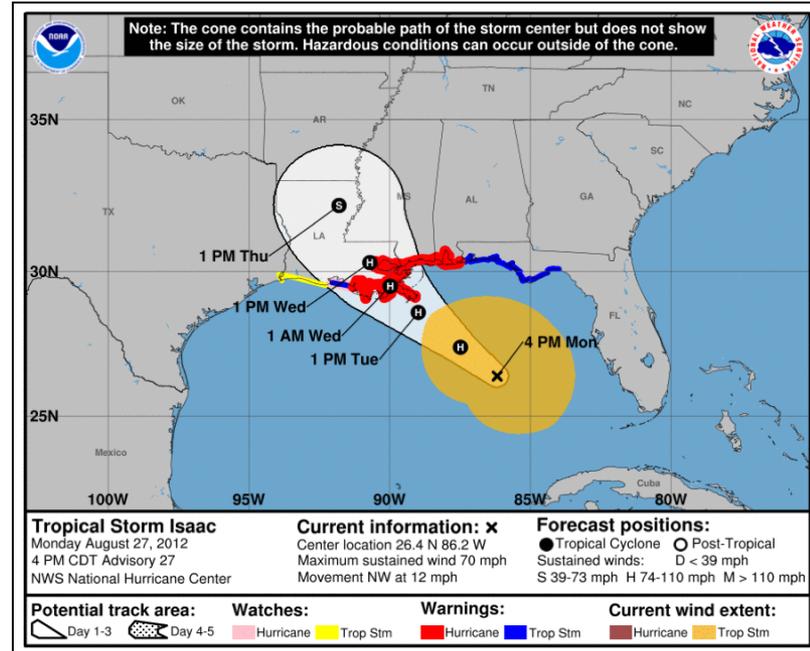
[hurricanes.gov/productexamples/](http://hurricanes.gov/productexamples/)





# NHC/CPHC Tropical Cyclone Graphics

- In 2017, NHC/CPHC updated the look of the tropical cyclone advisory
- Graphics suite has consistent background maps and colors and a “cleaner” look and feel
- Storm size information (initial wind field) could now be toggled onto the cone graphic. This would reinforce the fact for users that hazardous conditions occur outside the cone



- The format for the static URLs of the latest-available graphics from NHC are provided here: [hurricanes.gov/tc-graphics/](http://hurricanes.gov/tc-graphics/)
- CPHC products are provided on dynamic URLs that change for each tropical cyclone. The graphics for active tropical cyclones can be found on the CPHC webpage: [www.prh.noaa.gov/cphc/](http://www.prh.noaa.gov/cphc/)



# TC Vortex Message Changes

## Hurricane Hunter Reconnaissance

```
URNT12 KNHC 241133
VORTEX DATA MESSAGE   AL162016
A. 24/11:12:50Z
B. 10.97 deg N 082.77 deg W
C. 700 mb 2927 m
D. 977 mb
E. 210 deg 11 kt
F. CLOSED
G. C20
H. 90 kt
I. 144 deg 5 nm 11:07:00Z
J. 253 deg 78 kt
K. 158 deg 8 nm 11:07:30Z
L. 95 kt
M. 314 deg 5 nm 11:17:00Z
N. 033 deg 108 kt
O. 349 deg 14 nm 11:17:30Z
P. 10 C / 3042 m
Q. 18 C / 3045 m
R. NA / NA
S. 12345 / 7
T. 0.02 / 1 nm
U. AF301 0616A OTTO OB 13
MAX FL WIND 108 KT 349 / 14 NM 11:17:00Z
```

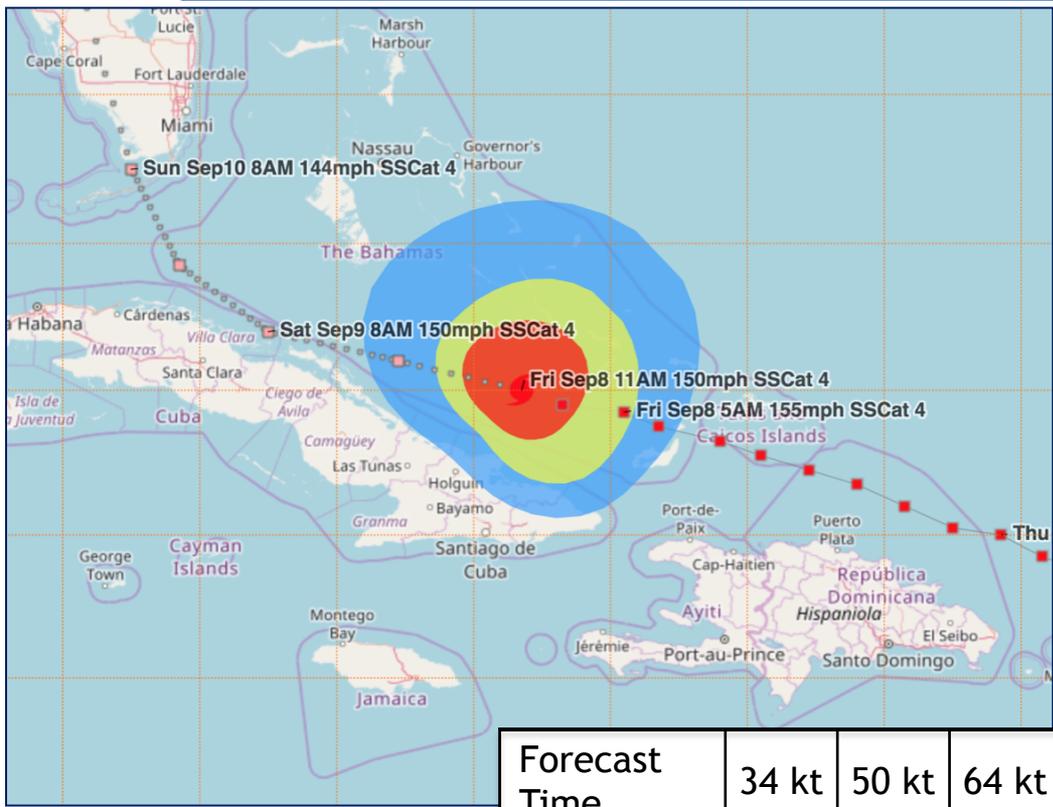
### The primary changes to the Vortex Message format:

- A new outbound wind maxima section is provided to simplify data decoding and to ensure that no data are missed.
- The latitude and longitude will be listed in decimal degrees instead of degrees and minutes.
- The new message format includes a new tropical cyclone center data block section (Items C through G).
- The new message appends the observation times to the bearing and range location Items.
- The inbound maximum surface and flight-level wind block (Items E through G in the current format) is shifted downward to Items H through K.

See [NWS Service Change Notice 18-15](#) for more details



# Extension of Hurricane-Force Wind Radii Forecasts



- Beginning in 2018, NHC will provide 48-h hurricane-force (64-kt) wind radii forecasts (in quadrants)
- This change should assist forecasters in placing hurricane watches and warnings
- Previously, NHC provided hurricane-force wind radii forecasts out to 36 hours

Forecast Time	34 kt	50 kt	64 kt
12 hr			
24 hr			
36 hr			
48 hr			
72 hr			N/A
96 hr	N/A	N/A	N/A
120 hr	N/A	N/A	N/A

See [NWS Service Change Notice 18-20](#) for more details



# Extension of Hurricane-Force Wind Radii Forecasts

WTNT24 KNHC 111505  
TCMAT4

HURRICANE IKE FORECAST/ADVISORY NUMBER 42  
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092008  
1500 UTC THU SEP 11 2008

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...

A HURRICANE WARNING HAS BEEN ISSUED FROM MORGAN CITY LOUISIANA TO  
BAFFIN BAY TEXAS.

A TROPICAL STORM WARNING HAS BEEN ISSUED FROM SOUTH OF BAFFIN BAY TO  
PORT MANSFIELD TEXAS.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

A HURRICANE WARNING IS IN EFFECT FOR...  
\* MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS

A TROPICAL STORM WARNING IS IN EFFECT FOR...  
\* EAST OF MORGAN CITY TO THE MISSISSIPPI-ALABAMA BORDER...INCLUDING THE  
CITY OF NEW ORLEANS AND LAKE PONTCHARTRAIN  
\* SOUTH OF BAFFIN BAY TO PORT MANSFIELD

A STORM SURGE WARNING IS IN EFFECT FOR...  
\* MORGAN CITY TO PORT MANSFIELD

HURRICANE CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z  
POSITION ACCURATE WITHIN 10 NM

PRESENT MOVEMENT TOWARD THE WEST-NORTHWEST OR 290 DEGREES AT 9 KT

ESTIMATED MINIMUM CENTRAL PRESSURE 945 MB  
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 105 KT.  
64 KT.....100NE 100SE 30SW 60NW.  
50 KT.....150NE 150SE 90SW 140NW.  
34 KT.....230NE 240SE 150SW 180NW.  
12 FT SEAS..330NE 240SE 240SW 400NW.  
WINDS AND SEAS VARY GREATLY IN EACH QUADRANT. RADII IN NAUTICAL MILES  
ARE THE LARGEST RADII EXPECTED ANYWHERE IN THAT QUADRANT.

REPEAT...CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z  
AT 11/1200Z CENTER WAS LOCATED NEAR 25.3N 88.0W

FORECAST VALID 12/0000Z 25.9N 90.0W  
MAX WIND 90 KT...GUSTS 110 KT.  
64 KT...100NE 100SE 30SW 60NW.  
50 KT...150NE 150SE 90SW 140NW.  
34 KT...230NE 240SE 150SW 180NW.

FORECAST VALID 12/1200Z 26.6N 92.0W  
MAX WIND 95 KT...GUSTS 115 KT.  
64 KT...100NE 100SE 50SW 60NW.  
50 KT...150NE 150SE 90SW 140NW.  
34 KT...230NE 240SE 150SW 180NW.

FORECAST VALID 13/0000Z 27.8N 94.2W  
MAX WIND 105 KT...GUSTS 130 KT.  
64 KT...100NE 100SE 50SW 60NW.  
50 KT...150NE 150SE 90SW 120NW.  
34 KT...230NE 240SE 150SW 160NW.

FORECAST VALID 13/1200Z 29.5N 95.9W...INLAND  
MAX WIND 100 KT...GUSTS 120 KT.  
**64 KT... 75NE 75SE 30SW 45NW.**  
50 KT...120NE 125SE 75SW 90NW.  
34 KT...180NE 240SE 120SW 120NW.

FORECAST VALID 14/1200Z 34.5N 94.0W...INLAND  
MAX WIND 35 KT...GUSTS 45 KT.  
34 KT... 75NE 75SE 50SW 50NW.

EXTENDED OUTLOOK. NOTE...ERRORS FOR TRACK HAVE AVERAGED NEAR  
225 NM ON DAY 4 AND 300 NM ON DAY 5...AND FOR INTENSITY NEAR 20 KT  
EACH DAY.

OUTLOOK VALID 15/1200Z 38.0N 85.0W...POST-TROP/EXTRATROP  
MAX WIND 25 KT...GUSTS 35 KT.

OUTLOOK VALID 16/1200Z...ABSORBED

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 25.5N 88.4W

NEXT ADVISORY AT 11/2100Z

\$\$  
FORECASTER FRANKLIN



# NHC Public Advisory (TCP)

## Changes to Discussion and Outlook Section

### Hurricane Maria Advisory #2 5 PM Saturday September 16

DISCUSSION AND 48-HOUR OUTLOOK  
-----

At 500 PM AST (2100 UTC), the center of Tropical Storm Maria was located near latitude 12.3 North, longitude 52.6 West. Maria is moving toward the west near 20 mph (31 km/h). A slower west-northwest motion is expected during the next couple of days. On the forecast track, Maria is expected to approach the Leeward Islands on Monday.

Maximum sustained winds have increased to near 50 mph (85 km/h) with higher gusts. Additional strengthening is expected during the next 48 hours, and Maria is forecast to be a hurricane when it approaches the Leeward Islands early next week.

**Previous format provided forecast information out to 48 h**



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Maximum sustained winds have increased to near 50 mph (85 km/h) with higher gusts. Additional strengthening is expected during the next 48 hours, and Maria is forecast to be a hurricane when it approaches the Leeward Islands early next week.

**New format will provide forecast information to 72 h and beyond**



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## Changes to Discussion and Outlook Section

### Hurricane Maria Advisory #2 5 PM Saturday September 16

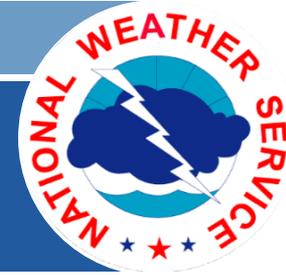
## New format provides forecast information to 72 h and beyond

#### DISCUSSION AND OUTLOOK

-----  
At 500 PM AST (2100 UTC), the center of Tropical Storm Maria was located near latitude 12.3 North, longitude 52.6 West. Maria is moving toward the west near 20 mph (31 km/h). A slower west-northwest motion is expected during the next **several** days. On the forecast track, Maria is expected to pass over portions of the Leeward Islands late Monday, **and be near the Northern Leeward Islands on Tuesday. Maria is forecast to pass near or over the Virgin Islands and Puerto Rico on Wednesday, and could be near the Dominican Republic later this week.**

Maximum sustained winds have increased to near 50 mph (85 km/h) with higher gusts. Additional strengthening is expected during the next **several** days, and Maria is forecast to be a hurricane when it approaches the Leeward Islands. **Maria could be a major hurricane when it is near the Northern Leeward Islands, the Virgin Islands, and Puerto Rico next week.**

See [NWS Service Change Notice 18-18](#) for more details



# Public Advisory (TCP) Changes from the Weather Prediction Center

Tropical Depression Harvey Advisory Number 44  
NWS Weather Prediction Center College Park MD AL092017  
400 AM CDT Thu Aug 31 2017

...FLOODING RAINS CONTINUE ACROSS FAR EASTERN TEXAS AND WESTERN LOUISIANA WITH HEAVY RAINFALL EXPECTED TO SPREAD NORTHEASTWARD THROUGH THE LOWER MISSISSIPPI VALLEY AND INTO THE TENNESSEE VALLEY OVER THE NEXT DAY OR TWO...

SUMMARY OF 400 AM CDT...0900 UTC...INFORMATION

LOCATION...32.3N 92.0W  
ABOUT 5 MI...10 KM S OF MONROE LOUISIANA  
ABOUT 65 MI...105 KM NNE OF ALEXANDRIA LOUISIANA  
MAXIMUM SUSTAINED WINDS...30 MPH...45 KM/H  
PRESENT MOVEMENT...NNE OR 25 DEGREES AT 10 MPH...17 KM/H  
MINIMUM CENTRAL PRESSURE...998 MB...29.47 INCHES

WATCHES AND WARNINGS

Flood and flash flood warnings and watches are in effect from eastern Texas through parts of the lower Mississippi Valley and into western portions of the Tennessee Valley and the lower Ohio Valley.

For storm information specific to your area, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND OUTLOOK

At 400 AM CDT (0900 UTC), the center of Tropical Depression Harvey was located near latitude 32.3 North, longitude 92.0 West. The depression is moving toward the north-northeast near 10 mph (17 km/h) and is expected to continue this motion over the next 48 hours. This forecast track would take Harvey into northwestern Mississippi by Thursday afternoon, the western Tennessee Valley region on Friday, and into the lower Ohio Valley early Saturday before anticipated dissipation by Saturday afternoon.

- WPC issues Public Advisories (TCPs) for systems that have moved inland but continue to pose a threat for heavy rains and flooding
- Advisories are issued at the standard advisory times:  
5 AM/PM and 11 AM/PM EDT
- WPC advisories will now be issued in the same format as NHC Public Advisories
- Unlike NHC advisories, Public Advisories from WPC also include forecast positions



# Storm Summaries from the Weather Prediction Center

- WPC issues storm summaries (SCCNS1-5) as needed to provide observed rainfall and wind gusts during significant landfalling U.S. tropical cyclones
- Previously, this information was contained in WPC Public Advisories
- This change allows WPC to issue storm summaries with observed rain/wind information even when NHC is still issuing Public Advisories (TCPs) on the cyclone

STORM SUMMARY NUMBER 1 FOR HURRICANE HARVEY RAINFALL AND WIND  
 NWS WEATHER PREDICTION CENTER COLLEGE PARK MD  
 500 AM EDT SAT AUG 26 2017

...HURRICANE HARVEY OBSERVED RAIN TOTALS AND WIND REPORTS...

FOR A DETAILED GRAPHICAL DEPICTION OF THE LATEST  
 WATCHES...WARNINGS AND ADVISORIES...PLEASE SEE [WWW.WEATHER.GOV](http://WWW.WEATHER.GOV)

AT 400 AM EDT...THESE ARE THE MOST RECENT RAINFALL AND WIND  
 REPORTS FROM HURRICANE HARVEY. PLEASE REFER TO THE NATIONAL  
 HURRICANE CENTER FOR THE LATEST PUBLIC ADVISORIES ON HURRICANE  
 HARVEY.

...SELECTED STORM TOTAL RAINFALL IN INCHES FROM 800 PM EDT THU AUG  
 24 THROUGH 400 AM EDT SAT AUG 26...

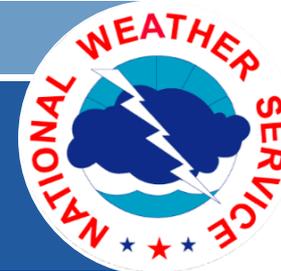
...TEXAS...

ARANSAS	10.54
AUSTWELL 6 SSE	9.61
VICTORIA 2 SW	9.37
EDNA	8.24
BRAZORIA NWR	7.86
SAN ANTONIO RIVER NEAR MCFAD	7.37
BRAZORIA COUNTY AIRPORT	7.12
PALACIOS MUNICIPAL AIRPORT	6.38
HOUSTON SOUTHWEST AIRPORT	5.39
GARCITAS CREEK NEAR INEZ	5.27
TIVOLI 3 NNE	4.86
GALVESTON	3.02
CORPUS CHRISTI 5W	2.89

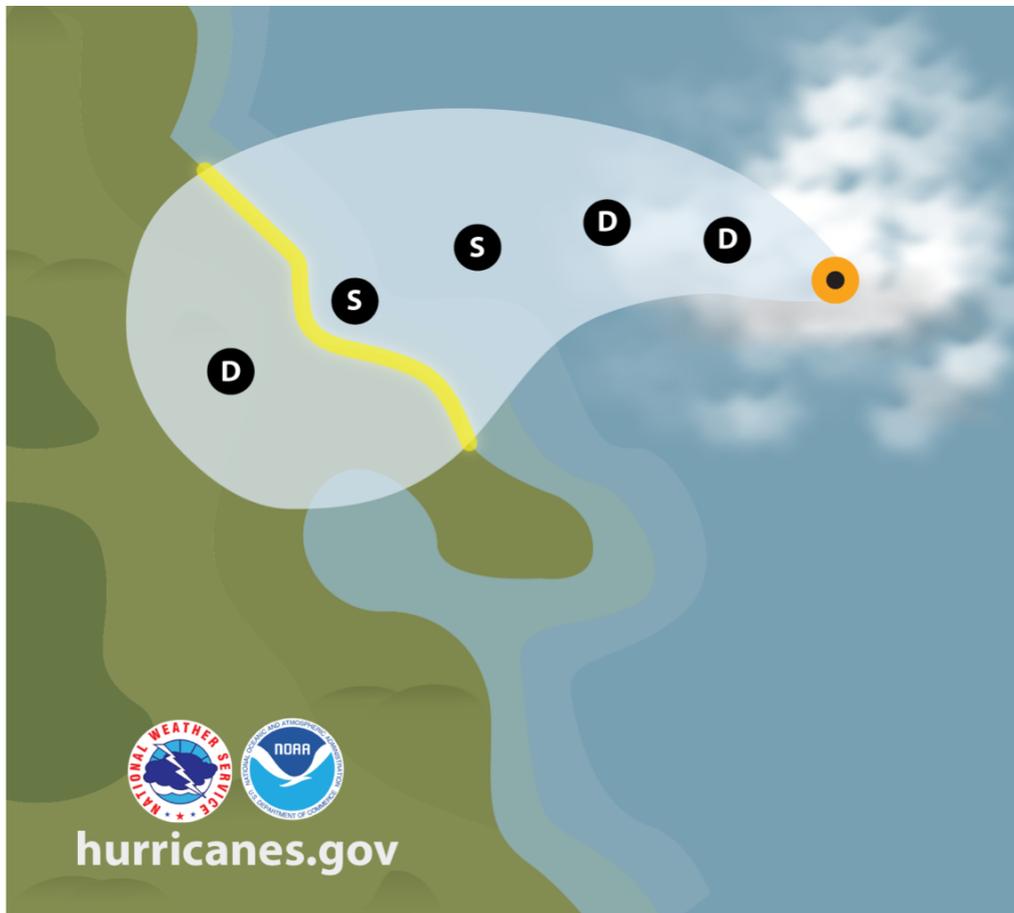
...SELECTED PEAK WIND GUSTS IN MILES PER HOUR EARLIER IN THE  
 EVENT...

...TEXAS...

PORT ARANSAS 2 ENE	132
COPANO VILLAGE 1 ENE	125
LAMAR 2 SSW	110
ROCKPORT 1 S	108
TAFT 5 NNE	90
FLOUR BLUFF 4 ESE	72
ARANSAS PASS 7 SE	71
CORPUS CHRISTI NAS 5 SE	65



# Potential Tropical Cyclones



## Potential Tropical Cyclone Advisories

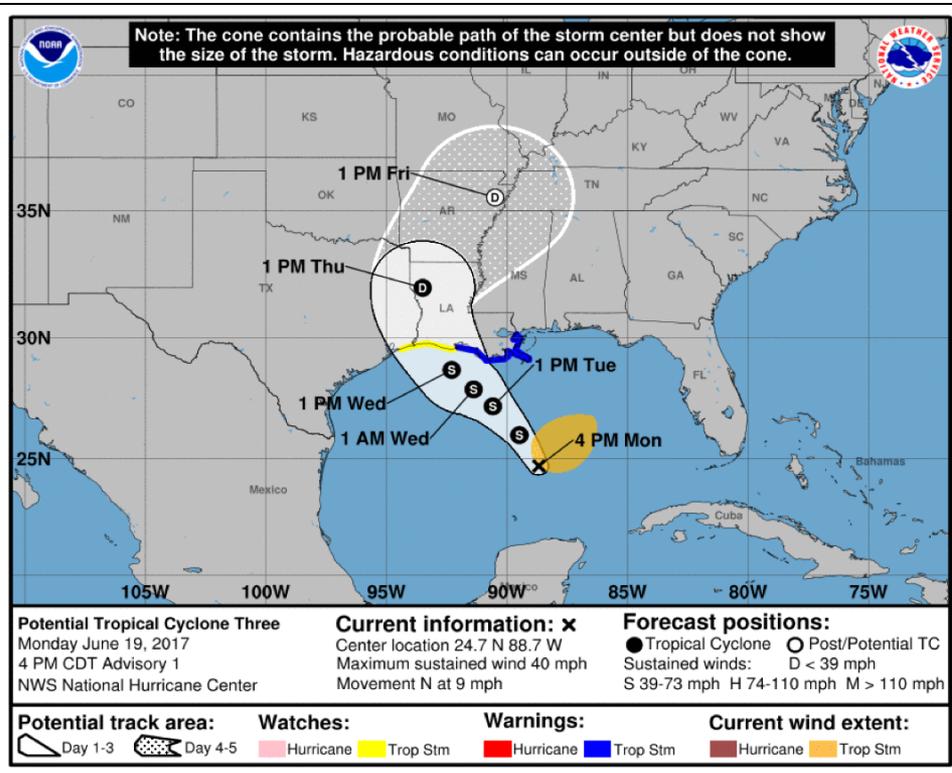
Issued **before** a tropical depression or tropical storm forms.

Provide the NWS with the ability to **issue a watch with a full 48 hours of lead time** or **a warning with a full 36 hours of lead time** prior to possible tropical storm, hurricane, or life-threatening storm surge conditions on land.

Contain all of the **standard NHC advisory text and graphical products** and will be issued at the standard advisory times.

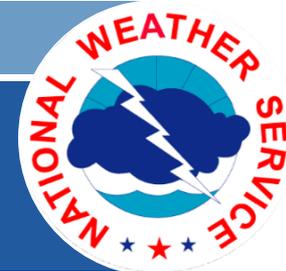


# Potential Tropical Cyclones



- Used before the formation of 7 systems in the Atlantic basin in 2017, 6 of those became tropical cyclones
- Issued only for systems threatening land within the watch/warning time frame
- Same numbering system as depressions – “One”, “Two”, etc.
- The standard suite of WFO and NHC/CPHC tropical cyclone products are issued for Potential Tropical Cyclones
- NWS continues to collect feedback from users and partners on this capability and messaging

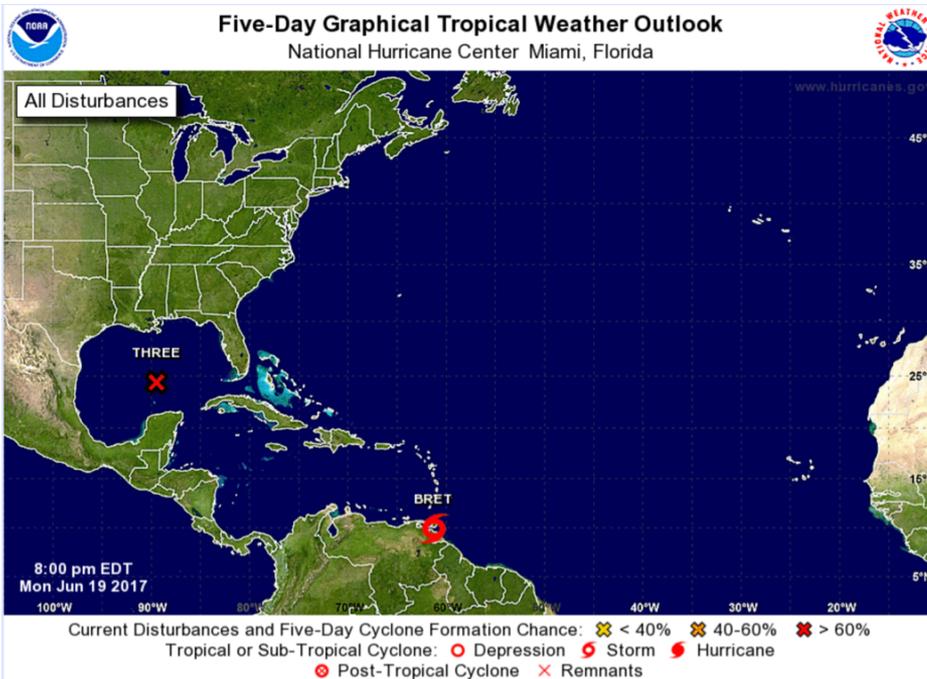
Sample Potential Tropical Cyclone advisory package available at:  
[hurricanes.gov/productexamples/](https://hurricanes.gov/productexamples/)



# Potential Tropical Cyclones

## Tropical Weather Outlook Products

- Genesis probabilities will appear in both the Tropical Weather Outlook and the Public Advisory
- The Graphical TWO will no longer display a formation area for these systems, to avoid confusion with the (now available) 5-day track forecast and cone graphic



ZCZC MIATWOAT ALL  
TTAA00 KNHC DDHHMM

Tropical Weather Outlook  
NWS National Hurricane Center Miami FL  
800 PM EDT Mon Jun 19 2017

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

The National Hurricane Center is issuing advisories on newly formed Tropical Storm Bret, located just to the southeast of Trinidad.

The National Hurricane Center is also issuing advisories on **Potential Tropical Cyclone Three**, located a few hundred miles south-southeast of Louisiana.

\* Formation chance through 48 hours...high...80 percent.

\* Formation chance through 5 days...high...80 percent.

&&

Public Advisories on Tropical Storm Bret are issued under WMO header

WTNT32 KNHC and under AWIPS header MIATCPAT2.

Forecast/Advisories on Tropical Storm Bret are issued under WMO header WTNT22 KNHC and under AWIPS header MIATCMAT2.

Public Advisories on **Potential Tropical Cyclone Three** are issued under WMO header WTNT33 KNHC and under AWIPS header MIATCPAT3.

Forecast/Advisories on **Potential Tropical Cyclone Three** are issued under WMO header WTNT23 KNHC and under AWIPS header MIATCMAT3.

\$\$

Forecaster Stewart

NNNN



# Potential Tropical Cyclones Automated TC Forecast Database (ATCF)

- No new storm type was added to the ATCF for Potential Tropical Cyclones.
- Potential Tropical Cyclones could be associated with several existing non-tropical system types, most commonly:
  - "LO" (for low pressure system)
  - "DB" (for disturbance)
  - "EX" (for an extratropical system transitioning to tropical)
  - "WV" (for tropical wave)
- INVEST systems are given ID numbers in the 90s. They will be renumbered to the next sequential tropical cyclone number for the basin for that season when advisory packages from NHC or CPHC are issued

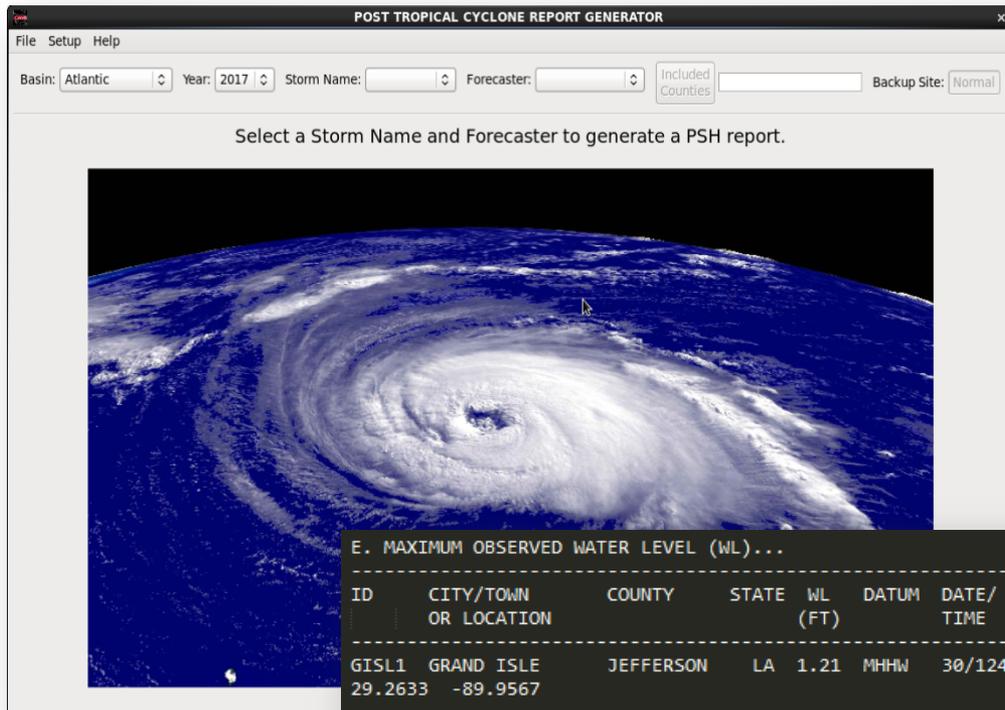
**EXAMPLE: AL93 "INVEST" becomes AL02 "Two"**

- Potential Tropical Cyclones use ATCF numbers from 01-49 just like tropical cyclones



# Post Tropical Cyclone Report (PSH) Improvements

- Peak water levels will be reported rather than surge and tide separately
- Inclusion of station information, lat/lon, & reference datum
- NWS will be able to gather important observations more efficiently, & limit the potential for manual entry errors
- Reduces data platform inconsistencies & saves time with validation
- Ideas for 2019+: Generation of dynamic post-storm data products, map-based information, etc.



E. MAXIMUM OBSERVED WATER LEVEL (WL)...

ID	CITY/TOWN OR LOCATION	COUNTY	STATE	WL (FT)	DATUM	DATE/TIME	SOURCE
GISL1	GRAND ISLE 29.2633 -89.9567	JEFFERSON	LA	1.21	MHHW	30/1248	NOS
PTFL1	BELLE PASS/FOUR 29.1150 -90.2000	LAFOURCHE	LA	2.44	MHHW	29/1342	NOS I
BCFL1	BONNET CARREY 30.0683 -90.3900	ST. JOHN	LA	2.42	MHHW	29/2012	NOS

REMARKS .....

Implementation of these changes is planned for Summer 2018



# Surf Zone Forecast (SRF) Issuance During Tropical Events

- WFOs can continue to issue routine SRF forecasts during tropical headlines beginning in 2018
- This will allow the experimental NWS Beach Forecast Webpage to populate during tropical events: [www.weather.gov/beach/](http://www.weather.gov/beach/)

Surf Zone Forecast for Northeast Florida and Southeast Georgia  
 National Weather Service Jacksonville FL  
 242 AM EST Wed Jan 17 2018

...MODERATE RISK OF RIP CURRENTS...

GAZ154-166-180445-  
 Glynn-Camden-  
 Including the beaches of Brunswick, St. Simons, Country Club Estates,  
 Dock Junction, St. Marys, and Kingsland  
 242 AM EST Wed Jan 17 2018

.TODAY...

Sky/weather.....Partly sunny. Areas of dense fog.

Max Temperature.....in the upper 40s.

Beach Winds.....Northwest 5 to 10 mph.

Surf Height..... 2 feet.

Water Condition....Smooth.

Water Temperature...50 to 55.

UV Index.....3...Moderate.

Lightning Threat...No lightning.

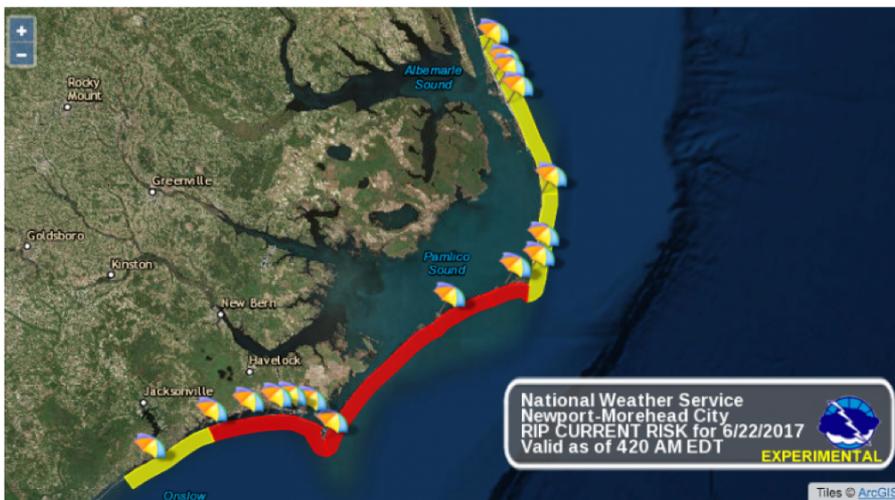
Rip Current Risk...Moderate Risk. Life threatening rip currents are possible in the surf zone. Swim near a lifeguard. If caught in a rip current remain calm. Don't fight the current. Swim in a direction following the shoreline. If unable to escape, face the shore and call or wave for help. If tired, float or tread water until out of the rip current.

Rip Current Outlook: A Moderate Risk of rip currents is expected on Thursday.

TIDE INFORMATION...  
 Tides for Jan 17, 2018

AT SAINT SIMONS ISLAND...

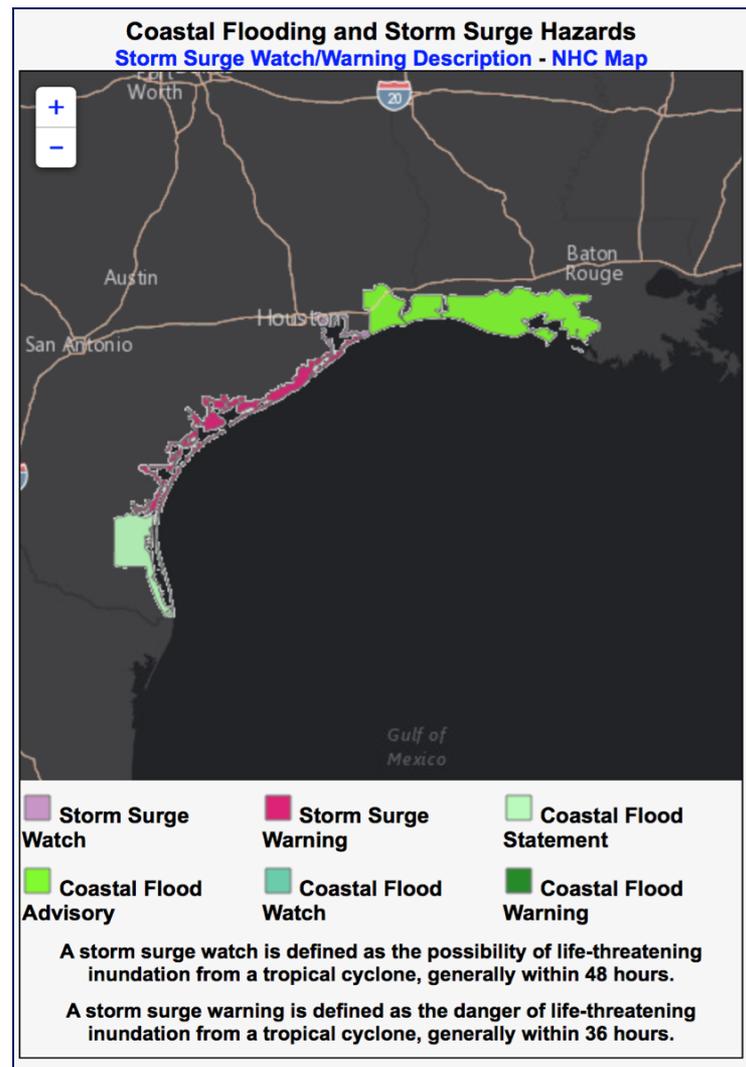
High tide at 8:22 AM.  
 Low tide at 2:51 PM.





# Coastal Hazards Message (CFW) Issuance During Tropical Events

- **NEW in 2018:** Coastal Hazards Messages (CFWs) can now be issued throughout a tropical event
- Coastal Flood Warnings/Watches/Advisories will not be issued for an NWS zone when a Storm Surge Watch/Warning has been issued for that zone
- Coastal Flood Warnings/Watches/Advisories may be issued in conjunction with Tropical Cyclone Watch/Warnings in situations of flooding caused by a tropical cyclone that does not meet storm surge W/W criteria
- CFW will be issued every 6 hours (after the HLS) and describe ranges of water levels above ground (inundation) during tropical events
- High Surf Advisories/Warnings, Beach Hazard, and Rip Current statements can be issued concurrently with Storm Surge Watch/Warning products
- Storm Surge Watches/Warnings are issued on a 2.5 km grid while CFW products are issued for an entire NWS zone





# Storm Surge Watch/Warning

**Issued only for tropical cyclones affecting the U.S. Gulf and East Coast**

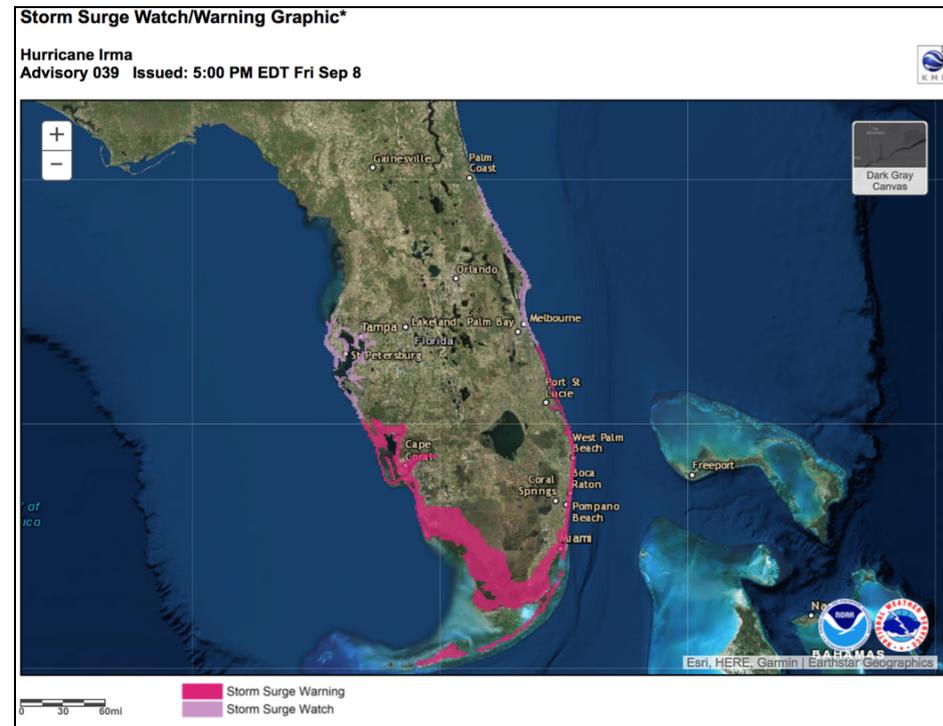
## Storm Surge Watch (SS.A)

The **possibility** of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 48 hours

## Storm Surge Warning (SS.W)

The **danger** of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 36 hours

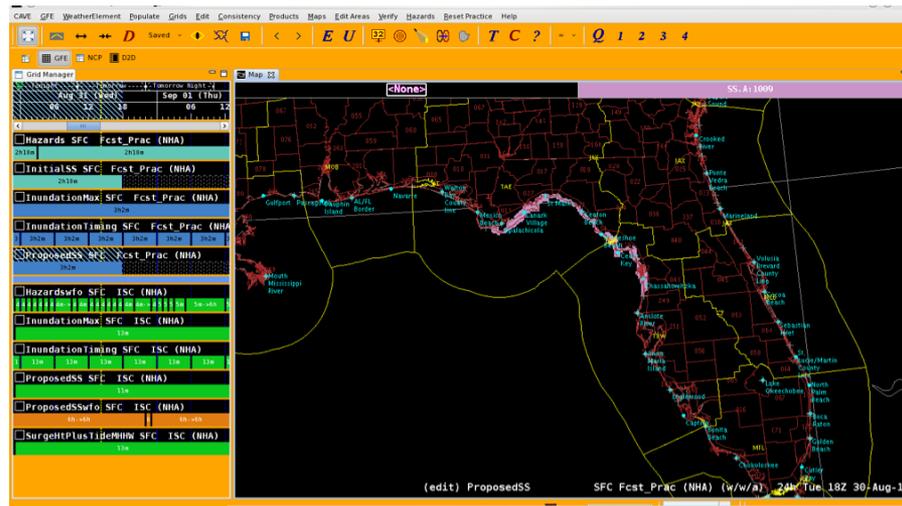
***May be issued earlier if other hazards may hinder evacuations.***





# Storm Surge Watch/Warning

## The NWS' First Grid-Based Warning



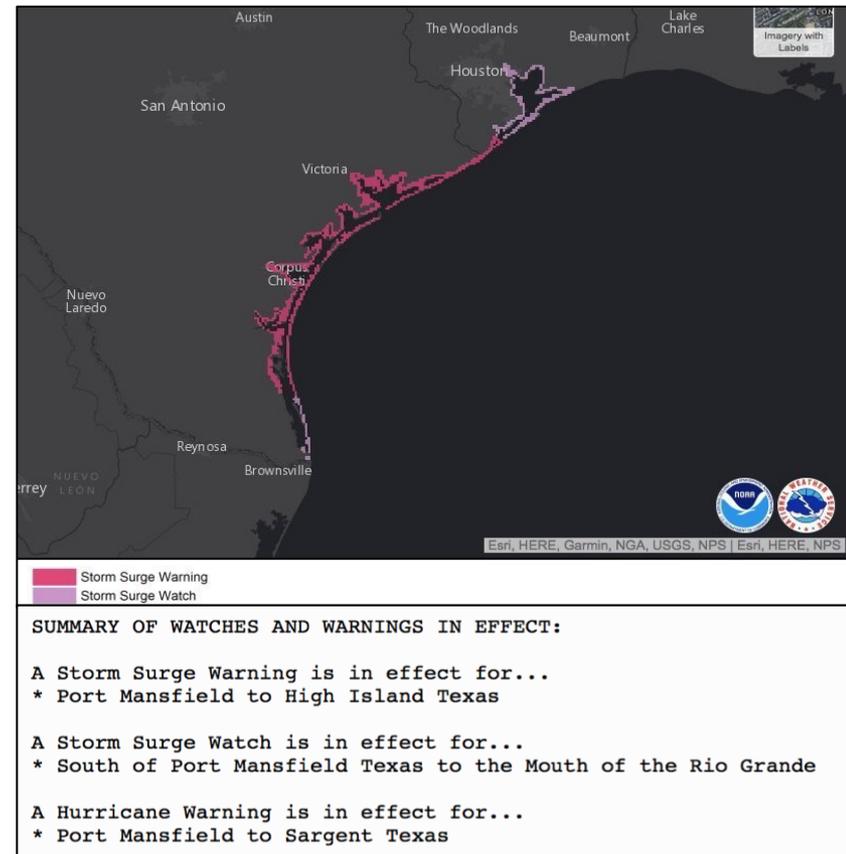
- The SSWW is the first NWS watch/warning that is native to a 2.5 km grid
- **The SSWW is grid-based because the area being warned is generally confined to areas bordering coasts and estuaries**
- The SSWW is generated through inter-site collaboration of grids between the National Hurricane Center (NHC) and Weather Forecast Offices (WFOs)
- Dissemination methods that alert the entire zone or county will over-warn the SSWW
- Sample products: [hurricanes.gov/productexamples/](https://hurricanes.gov/productexamples/)



# Storm Surge Watch/Warning Dissemination

## Storm Surge Watch/Warning Dissemination:

- **Graphic, including downloadable kml file, available at: [hurricanes.gov](https://hurricanes.gov)**  
**THIS IS THE MOST PRECISE AND READILY AVAILABLE REPRESENTATION OF THE WARNING AREA**
- Map Services from nowCOAST (delayed)
- NDFD grid (delayed availability)
- Approximate representation provided as a 100 lat/long point polygon in the CAP files for FEMA IPAWS and the NWS front page map.
  - CAP files available at: [alerts.weather.gov](https://alerts.weather.gov)
- Approximate representation in terms of zones in National and WFO TCV products
- Approximate representation using coastal breakpoints in the
  - NHC Public Advisory
  - NWS WFO Hurricane Local Statement





# Storm Surge Values in NWS Products

## The inundation values in the NWS products can be different

### **NHC Tropical Cyclone Public Advisory** (*TC-scale*)

Provides the highest forecast storm surge inundation values somewhere within the area noted between coastal points

### **WFO TCV Product** (*NWS Zone-scale*)

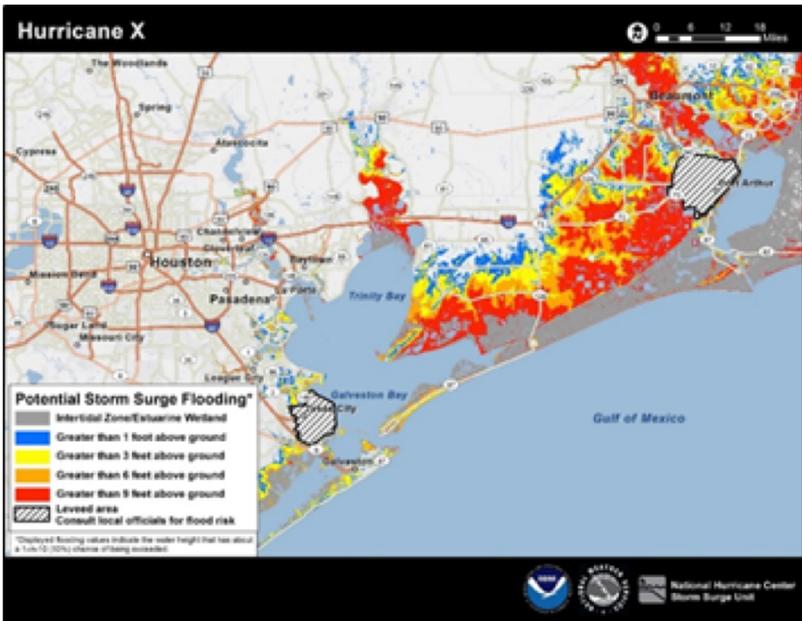
As the event draws nearer, values in the WFO TCV trend toward peak expected values (to assist rescue/recovery decisions) rather than the “reasonable worst case scenario” (to assist evacuations decisions)

### **NHC Inundation Graphic** (*Point-specific*)

Provides the “reasonable worse-case scenario” at individual locations based on the NHC forecast and typical track, size, and intensity forecast errors



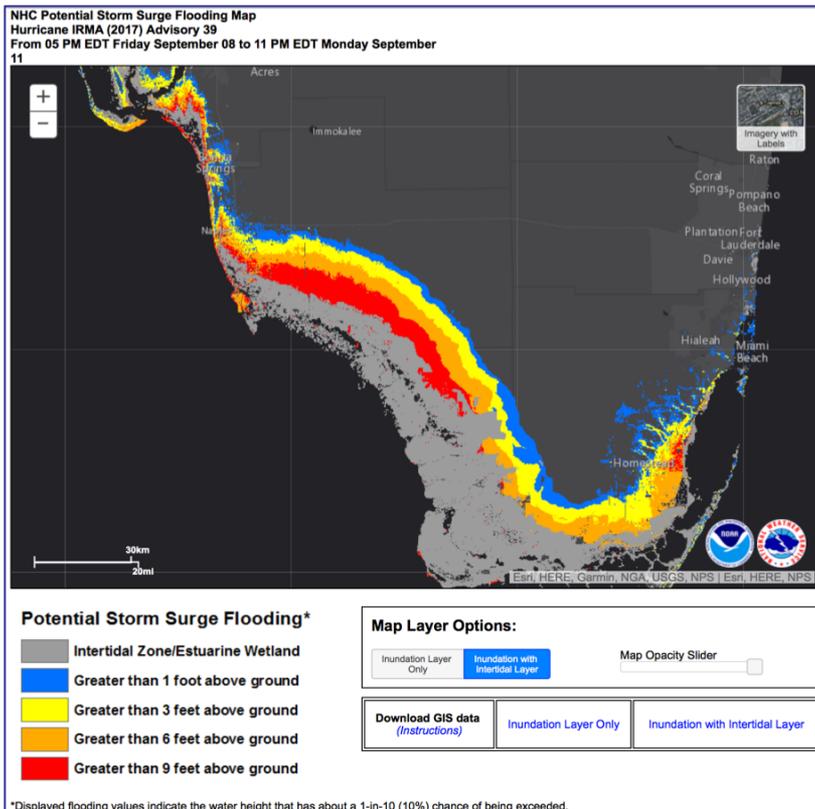
# Potential Storm Surge Flooding Map Inundation Graphic



- **Provides a risk assessment**
  - Shows height above ground that the water could reach at any given location based on the current forecast.
  - Accounts for potential errors in forecast track, intensity, forward speed and size of the hurricane
- **NOT A FORECAST OF EXPECTED CONDITIONS!**  
**Displays a realistic worst-case scenario**
  - Displays storm surge flooding values that have a 1-in-10 chance of being exceeded at a given location
  - 9-in-10 times the surge will be less than what is on the map at any given location
- **First map issued with the initial hurricane watch or, in some cases, with a tropical storm watch**
- **Available about 60 to 90 minutes following the advisory release**



# Inundation Graphic Availability



- Available on [hurricanes.gov](https://hurricanes.gov) about 60 to 90 minutes following the advisory release
- NHC provides downloadable datasets in GeoTIFF format at: [hurricanes.gov/gis/](https://hurricanes.gov/gis/)
- Map Services provided on the NOAA [nowCOAST](https://nowcoast.noaa.gov) webpage (delayed)



# Map Services for the Storm Surge Watch/Warning Graphic and Inundation Graphic

## NOAA/NOS nowCOAST

[nowcoast.noaa.gov](http://nowcoast.noaa.gov)

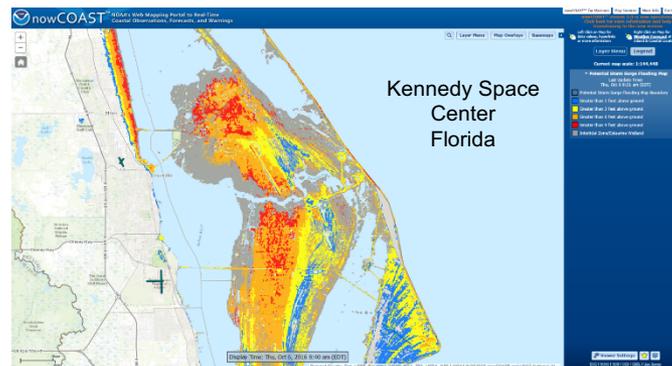
Inundation Graphic and SSWW Graphic are available via:

- GeoServices REST Map Services
- OCG Web Map Services

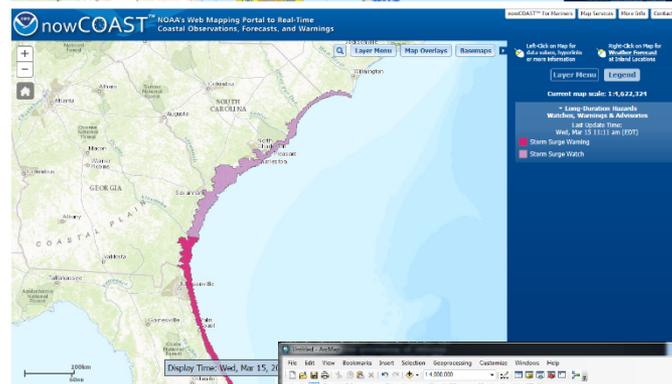
This allows users to view via desktop, server, and web-based GIS and overlay with evacuation routes, critical infrastructure, etc.

Storm Surge W/W Graphic available 5 minutes after posting on NHC website

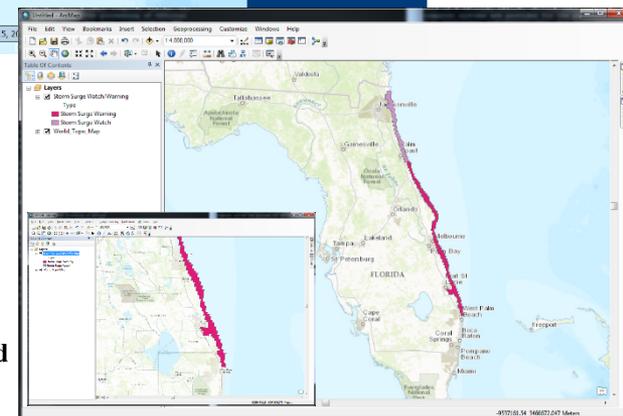
Inundation Graphic available 10-20 minutes after posting on the NHC website



**Inundation Map displayed on nowCOAST's map viewer during Hurricane Matthew (2016)**



**SS W/W Graphic displayed on nowCOAST's map viewer**



**SS W/W Graphic obtained from nowCOAST's map services and displayed on ArcGIS Desktop**



# How does the Inundation Graphic differ from the SSWW Graphic?



- **The Storm Surge Watch/Warning Graphic shows forecaster-identified areas that are at risk for life-threatening flooding from storm surge**
  - This graphic is targeted for the general public
  - This graphic is human generated (subjective) and changes as needed
- **The Potential Storm Surge Flooding Map provides guidance on where flooding could occur and how high above ground level the flooding could reach in a realistic worst-case**
  - This map is targeted for decision makers
  - This map is computer generated (objective)
  - This map is based on the NHC current forecast and the quantitative values on the map may change as that forecast changes



# EAS Code Approval by the FCC for SSA, SSW, and EWW

- Beginning with the 2017 hurricane season, WFOs will request EAS activation using the SSW event code /SSW/. WFOs will broadcast Storm Surge Warnings, preceded by the SAME and 1050 Hz tones.
- There are no immediate plans for the NWS to tone the Storm Surge Watch (SSA event code)
- The Extreme Wind Warning (EWW) is an existing operational warning issued for advance notice of sustained surface winds of 115 mph or great associated with major hurricanes.
- Beginning with the 2017 hurricane season, WFOs will request EAS activations using the EWW event code /EWW/. The warning will be broadcast on NWR, preceded by the SAME and 1050 Hz tones.



# Changes for NOAA Weather Radio All-Hazards

- Broadcasters in geographic areas potentially impacted by tropical cyclones should contact their EAS equipment manufacturer if they need instructions for updating equipment
- If EAS equipment is not updated and the WFO requests EAS activation using the new Event Codes, the EAS encoder/decoder equipment will usually decode the information received as an *"UNKNOWN" Event Code* and the EAS will not automatically activate

**Existing SAME receivers, including Public Alert™ receivers,  
will process the new event codes**

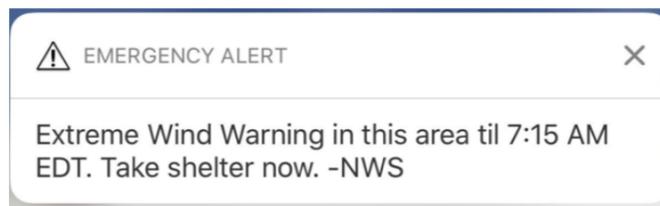
- For those receivers providing a limited, caption-like message display, the receiver will likely show wording such as *"UNKNOWN WATCH" or "UNKNOWN WARNING"*; however, NWR SAME and Public Alert™ receivers should activate
- NWR tone alert receivers should activate with the 1050 Hz tone for the warnings
- NWS Headquarters is working with the receiver manufacturers to ensure the new codes are added to newly manufactured receivers

Direct Questions to the NWS Dissemination Services Lead:

[Timothy.Schott@noaa.gov](mailto:Timothy.Schott@noaa.gov)



# Wireless Emergency Alerts (WEA)



- Wireless Emergency Alert (WEA) is an alerting network in the United States designed to disseminate emergency alerts to mobile devices such as cell phones.
- WEA messages are triggered by the NWS for the following tropical warnings:
  - Hurricane Warning:  
***Hurricane Warning this area. Check local media and authorities***
  - Storm Surge Warning\*:  
***Life-threatening storm surge danger. Check for possible evacuation orders***
  - Extreme Wind Warning\*:  
***Extreme Wind Warning in this area til 7:15 AM CST. Take shelter***

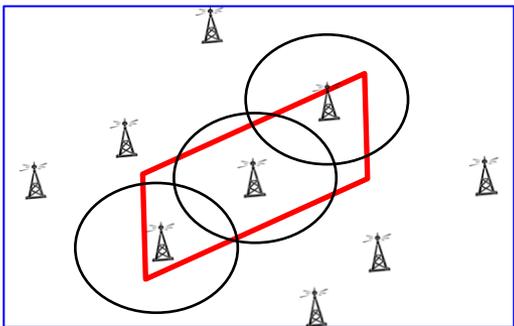
\* While NWS is sending these warnings to FEMA IPAWS for alerting via WEA, the wireless carriers had not enabled WEAs for them through 2017



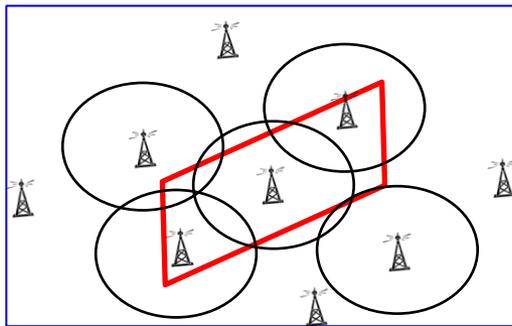
# Wireless Emergency Alerts (WEA)

**IMPORTANT NOTE:** Cell phone carriers have not committed to a common date to enable WEA for the storm surge and extreme wind warnings.

**They may be implemented by the carriers at different times**



Carriers generally broadcast WEA from cell towers within the defined warning area



They may broadcast from towers where signal overlaps the defined warning area

While efforts are underway to make WEA activations more targeted, there is still the potential for the message to be spread outside the intended warning area

Note: Map is not drawn to scale and is for illustrative purposes only.

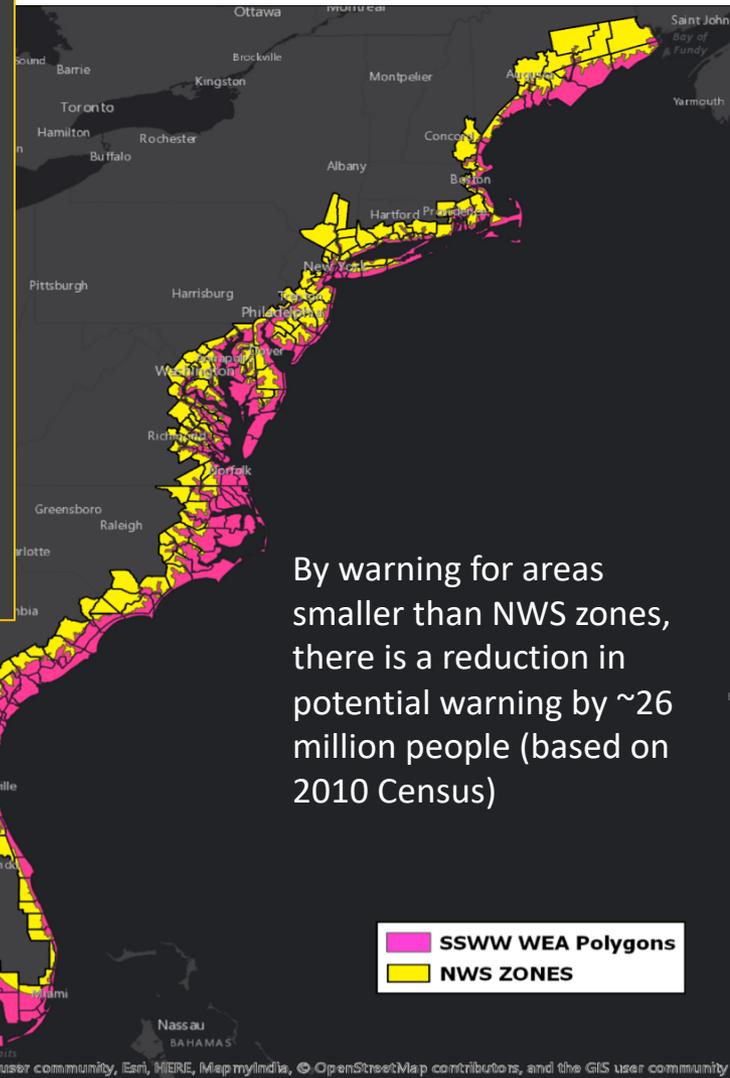


# Storm Surge Watch/Warning Alerting

**Pink** = The farthest possible inland extent of a Storm Surge Watch/Warning. Also, the area that could be alerted via WEA, the NWS front page map, and “Point and Click” pages if a watch or warning is needed for the area.

**Yellow** = The largest collection of entire NWS zones that could be alerted to a Storm Surge Watch/Warning via EAS and NWR using VTEC.

***The official grid-based warning area will be smaller in nearly all cases than the pink area on this map***

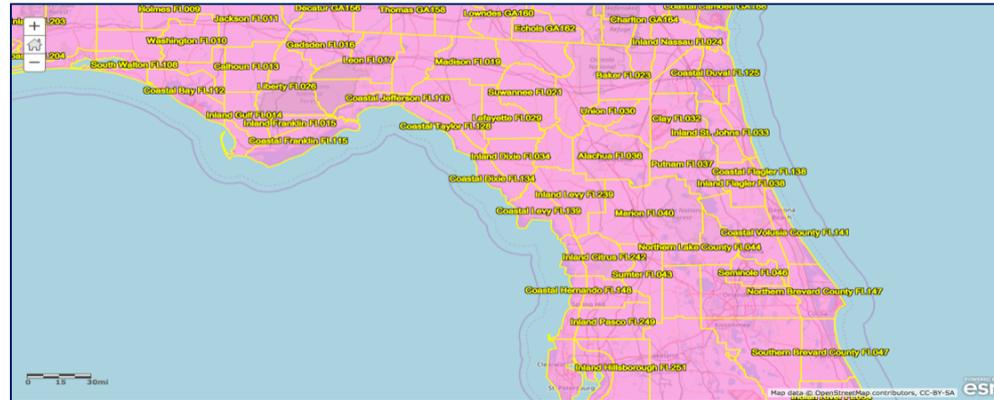


By warning for areas smaller than NWS zones, there is a reduction in potential warning by ~26 million people (based on 2010 Census)

SSWW WEA Polygons  
NWS ZONES



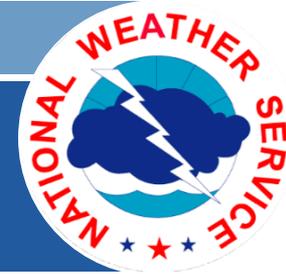
# Changes to Tropical CAP Messages



## In 2018, TCV (Tropical Cyclone W/W) CAP messages will include:

- A 100 point or less polygon that represents the portion of any zone alerted with a storm surge watch or warning via VTEC that is susceptible to storm surge
  - This area is larger than the 2.5 km storm surge watch/warning area created by the forecaster and available in the kml
- A 100 point or less polygon rendering of the NWS zone where a tropical storm or hurricane watch/warning is issued via VTEC
  - Previously, these areas were alerted in CAP messages using FIPS codes for entire counties rather than for NWS zones

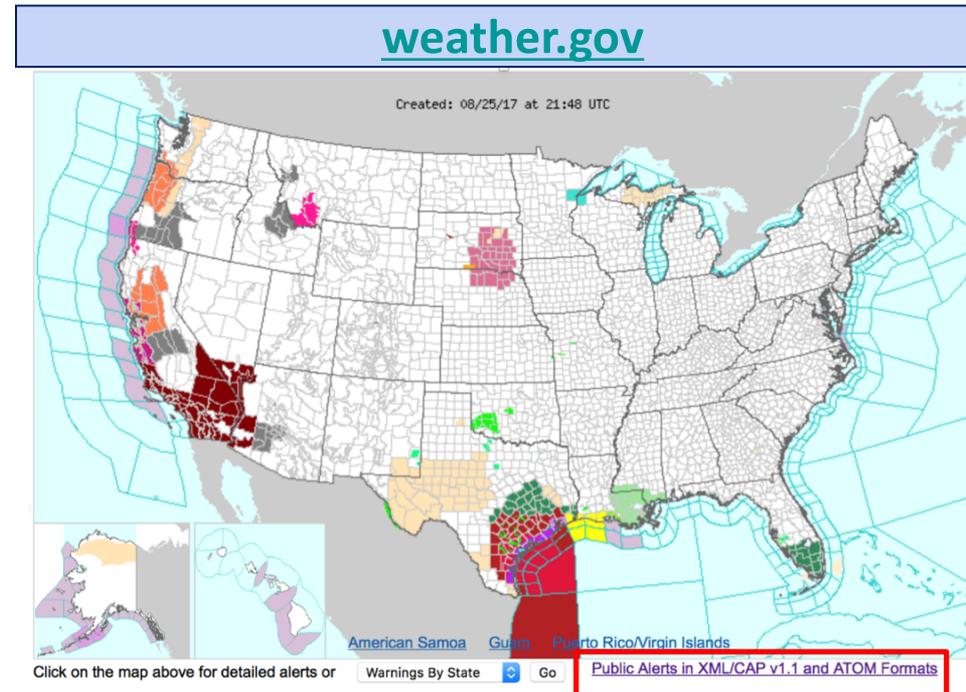
**Sample 2017 CAP messages at: [hurricanes.gov/productexamples/](http://hurricanes.gov/productexamples/)**  
2018 example should be available in April 2018



# NWS Front Page Map

## WWA (Watch/Warning/Advisory) Map

- Storm Surge W/Ws on the NWS' [weather.gov](https://www.weather.gov) Front Page (WWA) Map are populated using CAP data
- The WWA Map will display the geographic coverage of the entire area in each zone that is vulnerable to storm surge when the zone is included in the WFO TCV
  - It will be larger than the intended gridded warning area
  - The point forecast will be based on this area and will direct some users outside the gridded warning to the TCV for warning information
- SS Warning is in **Dark Purple**
- SS Watch is in **Light Purple**
- When you click on a warning link, only the TCV will be seen (not the CAP data)
- The CAP data can be found on [alerts.weather.gov](https://alerts.weather.gov) or through the WWA Map legend





# “National” TCV from NHC for the Atlantic basin

- National TCV from NHC for the Atlantic compiles all tropical cyclone wind and surge watches and warnings into a single product
- The National TCV for the Atlantic no longer contains breakpoints. It lists all NWS zones under a tropical cyclone watch or warning.
- ***Because of the time required to compile all of the tropical cyclone W/W information from the WFOs, the National TCV for the Atlantic will be delayed approximately 15 min relative to its previous availability, and may be issued up to 45 minutes after a special advisory***
- The National TCV does not contain plain language meteorological threats and potential impacts information like the local WFO TCV

Isaac Watch/Warning Advisory Number 19  
NWS National Hurricane Center Miami FL AL042012  
510 PM EDT Sat Aug 25 2012

.Tropical Storm Isaac

FLZ050-134-139-142-148-149-151-155-260515-  
/O.UPG.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
/O.EXA.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012

\$\$

Truncated



# TCVAT# Example

WTNT84 KNHC 252110  
TCVAT4

Isaac Watch/Warning Advisory Number 19  
NWS National Hurricane Center Miami FL AL042012  
510 PM EDT Sat Aug 25 2012

.Tropical Storm Isaac

Caution...this product only approximately conveys the extent of tropical cyclone wind and surge watches and warnings. Please see the latest public advisory from the National Hurricane Center for the precise lateral extent of wind watches and warnings along the coast...as well as the approximate lateral extent of surge watches and warnings. The precise extent of surge watches and warnings can be found in the NWS National Digital Forecast Database Hazard grids.

FLZ050-134-139-142-148-149-151-155-260515-  
/O.UPG.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
/O.EXA.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012

\$\$

FLZ069-070-075-160-162-165-265-260515-  
/O.CON.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012

\$\$

FLZ014-015-027-028-108-112-114-115-118-127-260515-  
/O.EXA.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012 /410 PM CDT Sat Aug 25 2012/

\$\$

FLZ128-260515-  
/O.CON.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012

\$\$

ATTN...WFO...MFL...TAE...TBW...



# TCVAT# Example

WTNT84 KNHC 252110

**TCVAT4**

Isaac Watch/Warning **Advisory Number 19**  
NWS National Hurricane Center Miami FL **AL042012**  
510 PM EDT Sat Aug 25 2012

.Tropical Storm Isaac

Caution...this product only approximately conveys the extent of tropical cyclone wind and surge watches and warnings. Please see the latest public advisory from the National Hurricane Center for the precise lateral extent of wind watches and warnings along the coast...as well as the approximate lateral extent of surge watches and warnings. The precise extent of surge watches and warnings can be found in the NWS National Digital Forecast Database Hazard grids.

**FLZ050-134-139-142-148-149-151-155-260515-  
/O.UPG.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
/O.EXA.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012**

\$\$

**FLZ069-070-075-160-162-165-265-260515-  
/O.CON.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012**

\$\$

**FLZ014-015-027-028-108-112-114-115-118-127-260515-  
/O.EXA.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012 /410 PM CDT Sat Aug 25 2012/**

\$\$

**FLZ128-260515-  
/O.CON.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/  
510 PM EDT Sat Aug 25 2012**

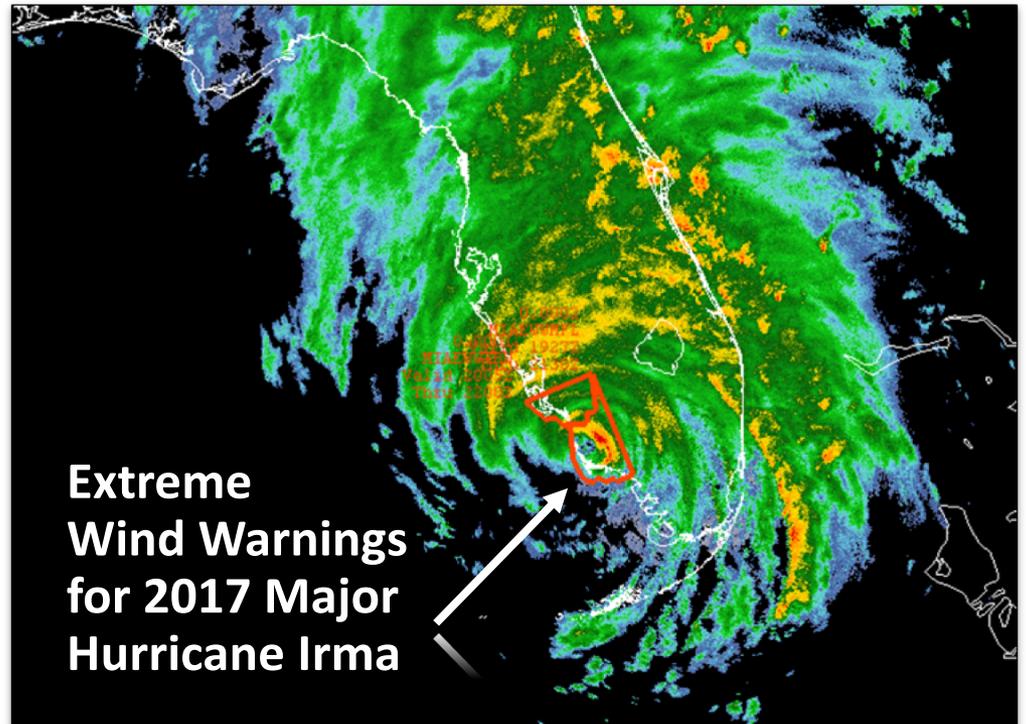
\$\$

ATTN...WFO...MFL...TAE...TBW...



# Extreme Wind Warning (EWW)

- Extreme Wind Warning is issued for sustained winds of 115 mph or greater (CAT 3, 4, or 5)
- Provides the public advanced notice of the onset of extreme winds from a major hurricane eye wall
- Valid for 2 hours or less, or in rare cases 3 hours or less





# Extreme Wind Warning (EWW) Example

WFUS54 KCRP 252156  
EWWCRP  
TXC007-057-355-391-409-260000-  
/O.NEW.KCRP.EW.W.0001.170825T2156Z-170826T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED

Extreme Wind Warning  
National Weather Service Corpus Christi TX  
456 PM CDT FRI AUG 25 2017

The National Weather Service in Corpus Christi has issued a

- \* Extreme Wind Warning for...  
Southwestern Calhoun County in south Texas...  
Aransas County in south central Texas...  
East central Nueces County in south central Texas...  
Eastern San Patricio County in south central Texas...  
Central Refugio County in south central Texas...

\* Until 700 PM CDT

\* At 454 PM CDT, National Weather Service Doppler radar indicated extreme winds, associated with the eyewall of Hurricane Harvey were moving onshore 18 miles east of Rockport, moving northwest at 25 mph. This is an extremely dangerous and life-threatening situation!

### PRECAUTIONARY/PREPAREDNESS ACTIONS...

Widespread destructive winds of 115 to 145 mph will spread across Calhoun County, Aransas County, Nueces County, San Patricio County, Refugio County, producing swaths of tornado-like damage.

**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!

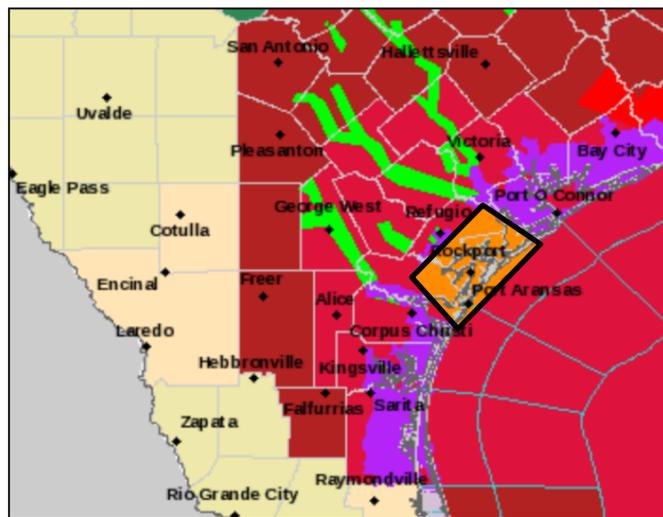
&&

A tornado watch remains in effect until 200 AM CDT for south central and south Texas.

LAT...LON 2823 9653 2805 9673 2801 9680 2795 9684  
2766 9716 2801 9749 2850 9696  
TIME...MOT...LOC 2154Z 130DEG 22KT 2803 9674

\$\$

Click a location below for detailed forecast.



Last Map Update: Fri, Aug. 25, 2017 at 5:51:11 pm CDT

[Watches, Warnings & Advisories](#)

[Zoom Out](#)

<a href="#">Tornado Warning</a>	
<a href="#">Extreme Wind Warning</a>	
<a href="#">Storm Surge Warning</a>	
<a href="#">Hurricane Warning</a>	
<a href="#">Tropical Storm Warning</a>	
<a href="#">Flood Warning</a>	
<a href="#">Tornado Watch</a>	
<a href="#">Flash Flood Watch</a>	
<a href="#">Storm Surge Watch</a>	
<a href="#">Hurricane Local Statement</a>	
<a href="#">Flood Advisory</a>	
<a href="#">Small Craft Advisory For Winds</a>	
<a href="#">Hazardous Weather Outlook</a>	



# Extreme Wind Warning (EWW) Example

WFUS54 KCRP 252156

EWWCPR

TXC007-057-355-391-409-260000-

**/O.NEW.KCRP.EW.W.0001.170825T2156Z-170826T0000Z/**

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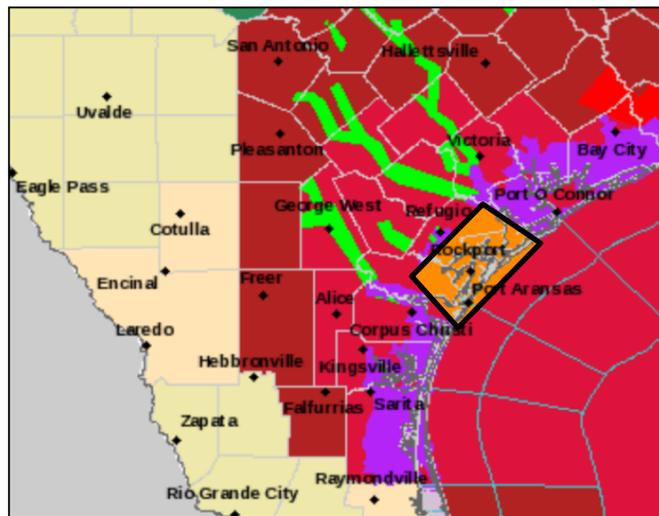
**LAT...LON 2823 9653 2805 9673 2801 9680 2795 9684**

**2766 9716 2801 9749 2850 9696**

**TIME...MOT...LOC 2154Z 130DEG 22KT 2803 9674**

\$\$

Click a location below for detailed forecast.



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- [Storm Surge Watch](#)
- [Hurricane Local Statement](#)
- [Flood Advisory](#)
- [Small Craft Advisory For Winds](#)
- [Hazardous Weather Outlook](#)



# NHC Key Message Graphic

**Key Messages for Hurricane Irma**  
**Advisory 29: 5:00 AM AST Wed Sep 06, 2017**

1. Irma is a potentially catastrophic category 5 hurricane and will bring life-threatening wind, storm surge, and rainfall hazards to portions of the northern Leeward Islands, including the Virgin Islands and Puerto Rico, today. Preparations should be rushed to completion.
2. A Hurricane Warning is in effect for the northern coast of the Dominican Republic, as well as the southeastern Bahamas and the Turks and Caicos, with hurricane watches for portions of Haiti and the central Bahamas. Irma is likely to bring dangerous wind, storm surge, and rainfall to these areas from Wednesday night through Friday.
3. Irma could directly affect the remainder of the Bahamas and Cuba as an extremely dangerous major hurricane later this week. Residents in these areas should monitor the progress of Irma and listen to advice given by officials.
4. The chance of direct impacts from Irma beginning later this week and this weekend from wind, storm surge, and rainfall continues to increase in the Florida Keys and portions of the Florida Peninsula. However, it is too soon to specify the timing and magnitude of these impacts.

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

The graphic contains three maps. The top map shows the forecast track of Hurricane Irma from the Caribbean to the Florida Peninsula, with a cone of uncertainty. It includes a table with current information (center location, maximum sustained wind, movement) and forecast positions (time, location, wind speed, pressure). The middle map shows potential track areas and watches/warnings for the next five days. The bottom map is a color-coded probability field for tropical-storm-force winds (11-39 mph) over the next 120 hours, with a legend indicating probability percentages from 1 to 95.

- Combines Key Messages from the NHC Discussion and pertinent advisory graphics
- If pertaining to a specific tropical cyclone, the key messages graphic will be available:
  - Under "Top News of the Day" at [hurricanes.gov](http://hurricanes.gov)
  - as a clickable thumbnail with other NHC graphical forecast products
  - Via NHC social media accounts
- NHC will have the option to create Key Messages graphics when they are not issuing advisories



# We Want to Hear From You



## NWS Tropical Program is collecting feedback on the following topics:

- The ability to issue watches/warnings for “Potential Tropical Cyclones” and understanding of the terminology
- Wireless Emergency Alert messaging and policy
- The need for graphics to assist with recovery efforts (i.e., most-likely and latest-reasonable end time for TS-force winds)
- Requirements for the data provided in the Post Tropical Cyclone Report (PSH) product, including the need for this data in different formats (i.e., tabular, spreadsheet, etc.)

Submit feedback to the NWS Tropical Program:

[Tropical.Program@noaa.gov](mailto:Tropical.Program@noaa.gov)

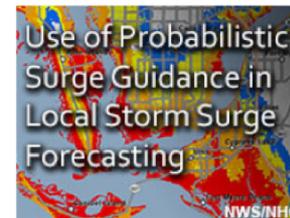


# Educational Resources

## Storm surge and tropical cyclone related COMET modules online

[www.meted.ucar.edu](http://www.meted.ucar.edu)

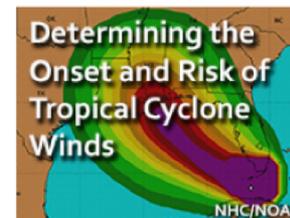
- Introduction to Tropical Cyclone Storm Surge (also in Spanish & French)
- Storm Surge and Datums (also in Spanish & French)
- Forecasting Tropical Cyclone Storm Surge (also in Spanish & French)
- Determining the Onset and Risk of Tropical Cyclone Winds
- Tropical Cyclone Forecast Uncertainty
- Real-Time Storm Surge Products



Use of Probabilistic Surge Guidance in Local Storm Surge Forecasting

Use of Probabilistic Surge Guidance in Local Storm Surge Forecasting

Languages: English  
Publish Date: 2015-07-20  
Skill Level: 2  
Completion Time: .75 - 1.00 h  
Topics: Tropical/Hurricanes  
★★★★★ (0 reviews)



Determining the Onset and Risk of Tropical Cyclone Winds

Determining the Onset and Risk of Tropical Cyclone Winds

Languages: English  
Publish Date: 2015-07-01  
Skill Level: 1  
Completion Time: .50 - .75 h  
Topics: Tropical/Hurricanes  
★★★★★ (0 reviews)

## NOAA Hurricane Season Awareness Webinars

sponsored by NOAA's Southeast & Caribbean Regional Team

[www.regions.noaa.gov/secar/#](http://www.regions.noaa.gov/secar/#)

- Planned for May/early June
- Geared toward emergency managers and broadcast meteorologists

NOAA REGIONAL COLLABORATION  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME REGIONAL TEAM REGIONAL SNAPSHOT RESOURCES NOAA IN THE REGION REGIONS Search Here

Southeast & Caribbean Region

Hurricane Storm Surge Products Webinar

Hurricane Storm Surge Products Webinar  
NHC Hurricane Specialist Robbie Berg conducted a webinar on May 20th, 2015, sponsored by NOAA's Southeast and Caribbean Regional Team. Robbie began the webinar by discussing the challenges in forecasting storm surge and communicating warnings clearly to emergency managers and the public. He provided a primer on storm surge modeling and then reviewed NHC's 2015 storm surge product changes. These changes include a new prototype Storm Surge Watch/Warning Graphic for the public, and a Potential Storm Surge Flooding Map intended for decision makers. Additional information on these two products and map examples are available online at: <http://www.nhc.noaa.gov/experimental/illustration>

Users are encouraged to provide feedback on this experimental product by using the brief survey and comment form available online at: [http://www.nws.noaa.gov/survey/ines\\_survey.php?code=P55FM](http://www.nws.noaa.gov/survey/ines_survey.php?code=P55FM)

Robbie's Presentation (audio and visual - note that the first 2 minutes and 9 seconds of the presentation are audio only and screen will be dark)

PPT Presentation (visual only)



# Sample Data

**Sample data is available on the NHC Website**

**[hurricanes.gov/productexamples](https://hurricanes.gov/productexamples)**

**[hurricanes.gov/gis/](https://hurricanes.gov/gis/)**

Sample data available for download include:

- ✓ WFO TCV text file
- ✓ Atlantic National TCV text file
- ✓ WFO HLS text file
- ✓ Storm Surge Watch/Warning CAP\*  
\*Updated example will be available by April
- ✓ GRIB2 Hazard Grid including a Storm Surge Watch and Warning
- ✓ Potential TC Advisory Package
- ✓ Examples of new TC Graphics
- ✓ SSWW Graphic KML
- ✓ Inundation Graphic GeoTIFF
- ✓ Hurricane Threats and Impacts KMLs
- ✓ 34-, 50-, and 64-kt Wind Swath GRIB2 data



# Where do I find this presentation?

[www.weather.gov](http://www.weather.gov)

[www.weather.gov/wrn/calendar](http://www.weather.gov/wrn/calendar)

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code  
Enter location ...   
[Location Help](#)

**Nor'easter Continues to Impact the Northeast; Below Normal Temperatures Throughout the East**  
Heavy snow will spread north with 1 to 2 feet is possible across portions of Maine. Gusty winds near the coast combined with wet snow, may cause downed trees and power outages. Hazardous travel can be expected across the region. This cold trough extends into the Deep South with freezing temperatures expected. A new west coast weather system will bring heavy snow to the Cascades. [Read More](#)

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WEATHER-READY NATION

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American Samoa Guam Puerto Rico/Virgin Islands

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

**Calendar**  
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**Weather-Ready Nation**  
National Program

[Weather Safety](#) [Ambassador](#) [Education](#) [Collaboration](#) [News & Events](#) [About](#)

Be a Force of Nature when it comes to extreme weather by learning about potential hazards. Help advance the Weather-Ready Nation by being prepared for the worst. NOAA's National Weather Service (NWS) and its partners encourage individuals, families, businesses and communities to know their risk, take action, and be an example when it comes to dangerous weather.

**UPCOMING EVENTS**

[National Seasonal Safety Campaign](#)  
(year-round)  
The National Seasonal Safety Campaign is designed to prepare the public for seasonal weather hazards. Seasonal campaigns (winter, spring, summer, fall) will focus on the major weather hazards that are experienced around the country during each season.

[NWS Tropical User Webinar](#)  
March 9, 2018  
3 - 4:30 PM ET

**PREVIOUS EVENTS**

[NWS Partners Meeting](#)  
January 11, 2018  
Hilton Austin  
Austin, TX

- [NWS Director and Deputy Director Remarks](#)
- [Update on Central Processing](#)
- [Update on Dissemination](#)
- [Update on NWS Observations](#)
- [Technical Update on NWS Dissemination](#)
- [Partners Meeting Summary](#)

[NWS Partners Workshop on IDSS and Dissemination](#)  
December 6-7, 2017  
Silver Spring Civic Building  
Silver Spring, MD

- [NWS Workshop Summary](#)



# Questions?

**NWS Tropical Services Program Leader:**

**Jessica Schauer**

**[Tropical.Program@noaa.gov](mailto:Tropical.Program@noaa.gov)**

**305-229-4476**