

Hurricane Season is June 1 through November 30



**Daniel Noah**  
 Meteorologist  
 NWS Tampa Bay  
 Daniel.Noah@noaa.gov

How many years have you been in the Health Care Industry?

Vote via [www.pollev.com/dnoah528](http://www.pollev.com/dnoah528) or scan the QR code

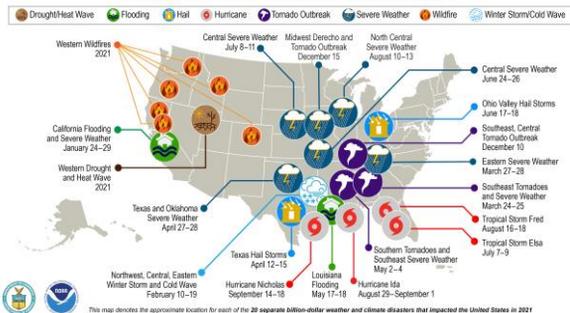


Which one do you think is true about Dan?

Vote via [www.pollev.com/dnoah528](http://www.pollev.com/dnoah528) or scan the QR code



U.S. 2021 Billion-Dollar Weather and Climate Disasters



Hurricane Threats



Storm Surge



Wind



Tornadoes



Flooding Rain



Waves and Rip Currents

July 2021 Hurricane Elsa



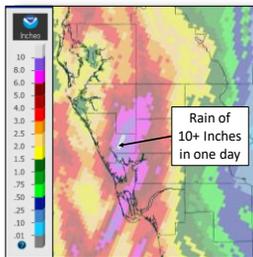
### 2021 Hurricane Elsa Radar Loop & Storm Tide Impacts



Storm Tide of 2.7 feet AGL in Cedar Key, 1-2 feet elsewhere  
 Impacts at 3' AGL, big impacts at 5' AGL



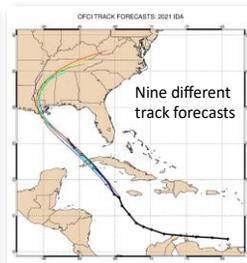
### North Port: 200+ Homes Surrounded by Water



### August 2021 Tropical Storm Fred



### Aug/Sep 2021 Major Hurricane Ida – 150 mph



### Grand Isle, LA – 2021 Major Hurricane Ida



### September 2021 Tropical Depression Mindy



Tropical Depression Mindy moving away  
 Heavy showers/storms streaming into the Nature Coast today/tonight



### 122 NWS Local Weather Forecast Offices



- 23 Employees
- 17 are Meteorologists
- 24 hours a day
- 365 days a year



### We Issue the Weather Warnings You Hear on Radio/TV



### Members of the Integrated Warning Team



Emergency Management and Public Officials



National Weather Service



America's Weather and Climate Industry (e.g. TV, Radio, Newspaper, Media, Private Companies, & App Developers)

### How many ways can you receive a weather warning?

Vote via [www.pollev.com/dnoah528](http://www.pollev.com/dnoah528) or scan the QR code



### Have Multiple Ways to Receive Weather Warnings

Commercial Apps From your favorite local TV, Radio, or Newspaper



Search for FEMA in App Store



Weather Radio



AlertFlorida.com

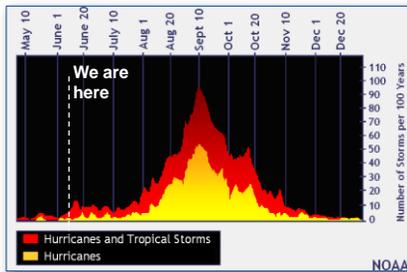


### Have you signed up with AlertFlorida.com?

Vote via [www.pollev.com/dnoah528](http://www.pollev.com/dnoah528) or scan the QR code



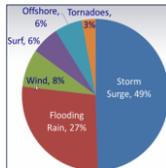
Hurricanes in the Atlantic Basin



NATIONAL WEATHER SERVICE

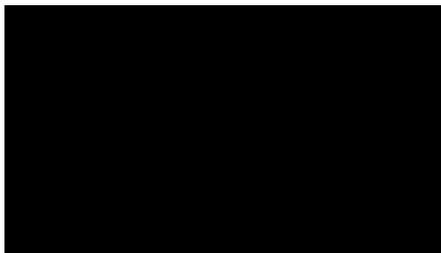
Building a Weather-Ready Nation # 19

When you close your eyes, what do you see when you think of a hurricane?

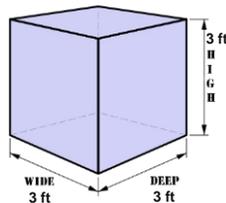


9 out of 10 U.S. tropical cyclone fatalities are due to water

Not All Surge is the Same



Water is Heavy, Moving Water can be Deadly



1 cubic yard of water weighs 1,700 pounds!

Bolivar Peninsula, TX – 2008 Hurricane Ike



6/8/2022

weather.gov/tampa

23

Storm Tide from 2012 Tropical Storm Debby



6/8/2022

weather.gov/tampa

24

### The Big Blowout – 2017 Hurricane Irma

Tides were 4 to 7 feet below normal



Alert Tampa @ @weather.com  
 ALERT: Water surrounding Tampa Bay is very low due to the storm. It is dangerous to be walking out there.  
 1:51 PM - Sep 16, 2017  
 12,308 retweets 2,308 likes

### 2017 Hurricane Irma Surge in Jacksonville, FL



Total water was a combination of

1. Flooding rain
2. Flooding river
3. Above normal tides from persistent northeasterly flow

### Radar Loop 2016 Hurricane Hermine



### Cedar Key During 2016 Hurricane Hermine



### Cameron, LA – 2020 Hurricane Laura

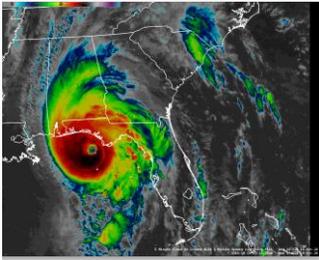


### Grand Isle, LA – 2021 Major Hurricane Ida



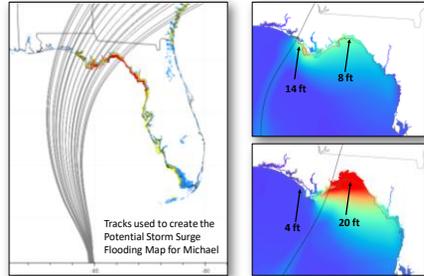
Rep. Carme Graves @RepCarmeGraves  
 We just did a flyover to survey damage in South Louisiana. A thread with photos: 8/30/2021

### 2018 Major Hurricane Michael



- CAT 5 with 160 mph wind
- Surge, tide, and waves reached 19 feet at Mexico Beach
- At least 59 people killed in the United States
- 4<sup>th</sup> CAT 5 to hit the United States

### 100s of Surge Forecasts Varying Size, Intensity, & Speed



### Every Red Dot on Map is a Home Washed Off Foundation



### On the Ground in Mexico Beach



### Mexico Beach Storm Surge Debris



### Our Barrier Islands are no Different



Our beaches have around a 0.5% chance of a Major CAT 3+ Hurricane each year

### What is the Evacuation Zone of your patient/client?

Vote via [www.pollev.com/dnoah528](http://www.pollev.com/dnoah528) or scan the QR code



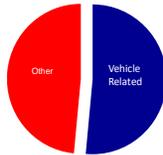
Flooding from heavy rain is the second leading cause of fatalities in a tropical cyclone

### 2016-2018 Water Continues to Kill

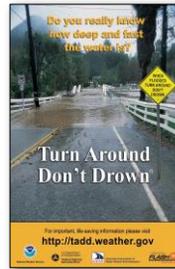
**More than half** the U.S. tropical cyclone water-related fatalities were vehicle related!



2016-18 U.S. Tropical Cyclone Water Related Fatalities



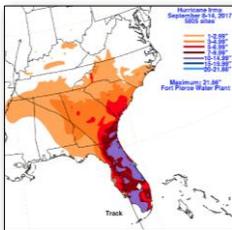
### Flooding from Heavy Rain is Dangerous



2016 Hurricane Matthew North Carolina



### 2017 Hurricane Irma Rain and Flooding



### 2021 Hurricane Ida Flash Flood near Lucedale, MS



### 2012 Tropical Storm Debby – Clay County



Clay County engineers and contractors inspect CR 216 west of Middleburg, Fla. Wednesday, June 27, 2012, after the road washed out overnight. Heavy rains from Tropical Storm Debby were the cause of the flood. Photo: The Florida Times Union, AM Dickey / AP

### Flooding from Heavy Rain is Dangerous

2004 Hurricane Charley near Lake Wales, FL



Lanina Walters The Palm Beach Post

2012 Tropical Storm Debby Pinellas County



J. Cavanaugh

A. Albrecht

A. Von Eschen

### Flooding Rain and Fast Responding Rivers



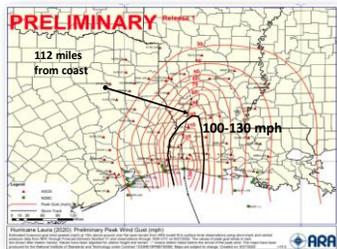
2004 Hurricane Frances 6-10" rain Southeast of Tampa (Alafia River)

### Flooded Roads May Keep Employees Away From Work

Cedley Road near Trilby in Pasco County



### Major Hurricane Laura Wind



### Lake Charles, LA

31 miles from the Gulf Coast



### 2018 Hurricane Michael Wind



Trees snapped in half in large sections of forest



### Hurricane Michael Power Outages



### Hurricane Michael Power Outages



### Falling Trees and Power Outages



### Poll Question

Alex	Hermine	Owen
Bonnie	Ian	Paula
Colin	Julia	Richard
Danielle	Karl	Shary
Earl	Lisa	Tobias
Fiona	Martin	Virginie
Gaston	Nicole	Walter

How many named storms will be in the Atlantic this year?

[www.pollevo.com/dnoah528](http://www.pollevo.com/dnoah528)



### 2022 Hurricane Season Forecast

	2022 FORECAST	AVERAGE
<b>NAMED STORMS</b>	<b>14-21</b>	<b>14</b>
<b>HURRICANES</b>	<b>6-10</b>	<b>7</b>
<b>MAJOR HURRICANES</b>	<b>3-6</b>	<b>3</b>

## Hurricane Approaching Tampa Bay

Preparing medically frail populations will take longer than you think

Do These Two Things

1. Work with them to start assembling disaster supplies
2. Complete a simple written plan at <https://ready.gov> or <https://apps.floridadisaster.org/getaplan>

### Hurricane Preparedness

## ASSEMBLE DISASTER SUPPLIES

Make a list of supplies and assemble them before hurricane season begins. Have enough food and water for each person for at least three days. Fill your prescriptions and have medicine on hand. Radios, batteries and phone chargers are also must-haves. Gas up your vehicle and have cash on hand.

- Food & water
- Medicine & prescriptions
- Keep gas tank full
- Radio, batteries, phone chargers
- Cash on hand

weather.gov/hurricane

## 2017 Hurricane Irma



### Hurricane Preparedness

## Complete a Written Plan

- Have a contact list
- Keep critical documents together for quick access
- Have at least one contact outside of the impact area
- Share your plan

<https://www.ready.gov>

weather.gov

## NWS Tampa Bay Social Media

- <http://weather.gov/tampabay>
- @NWS Tampa Bay
- NWS Tampa Bay
- NWS Tampa

<http://weather.gov/tampa/wrn>

## Questions or Comments? Email Daniel.Noah@noaa.gov

- <https://weather.gov/tampa>
- <https://radar.weather.gov>
- <https://weather.gov/forecastpoints>
- <https://weather.gov/wrn>

6/8/2022 weather.gov/tampa 63

