

Weather Safety

A brief look into the weather hazards we face daily in South Central Texas...and how not to become a statistic



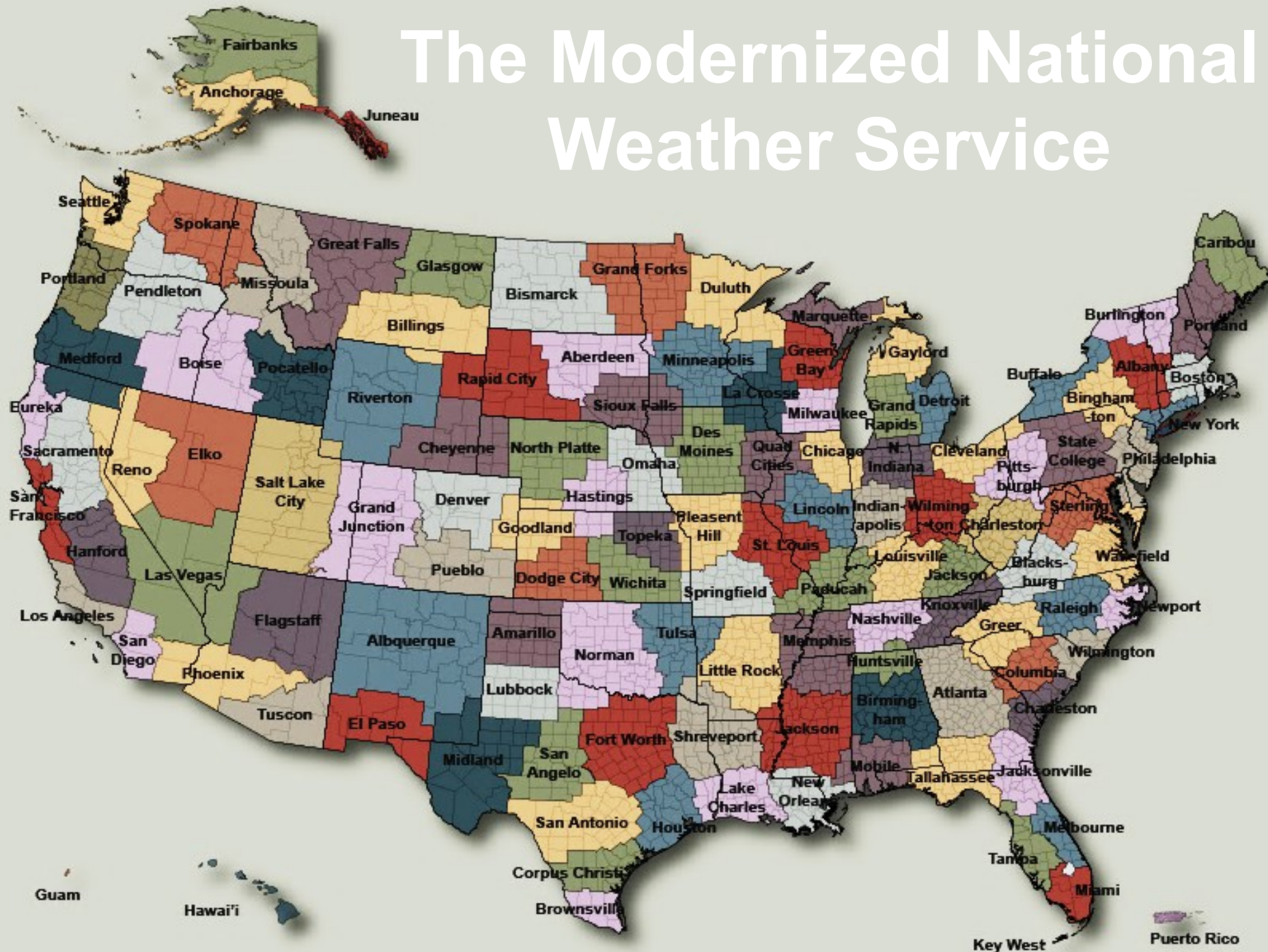
Paul Yura, Warning Coordination Meteorologist
National Weather Service Austin-San
Antonio TX

The NWS Mission

PROTECTION OF LIFE AND PROPERTY



The Modernized National Weather Service

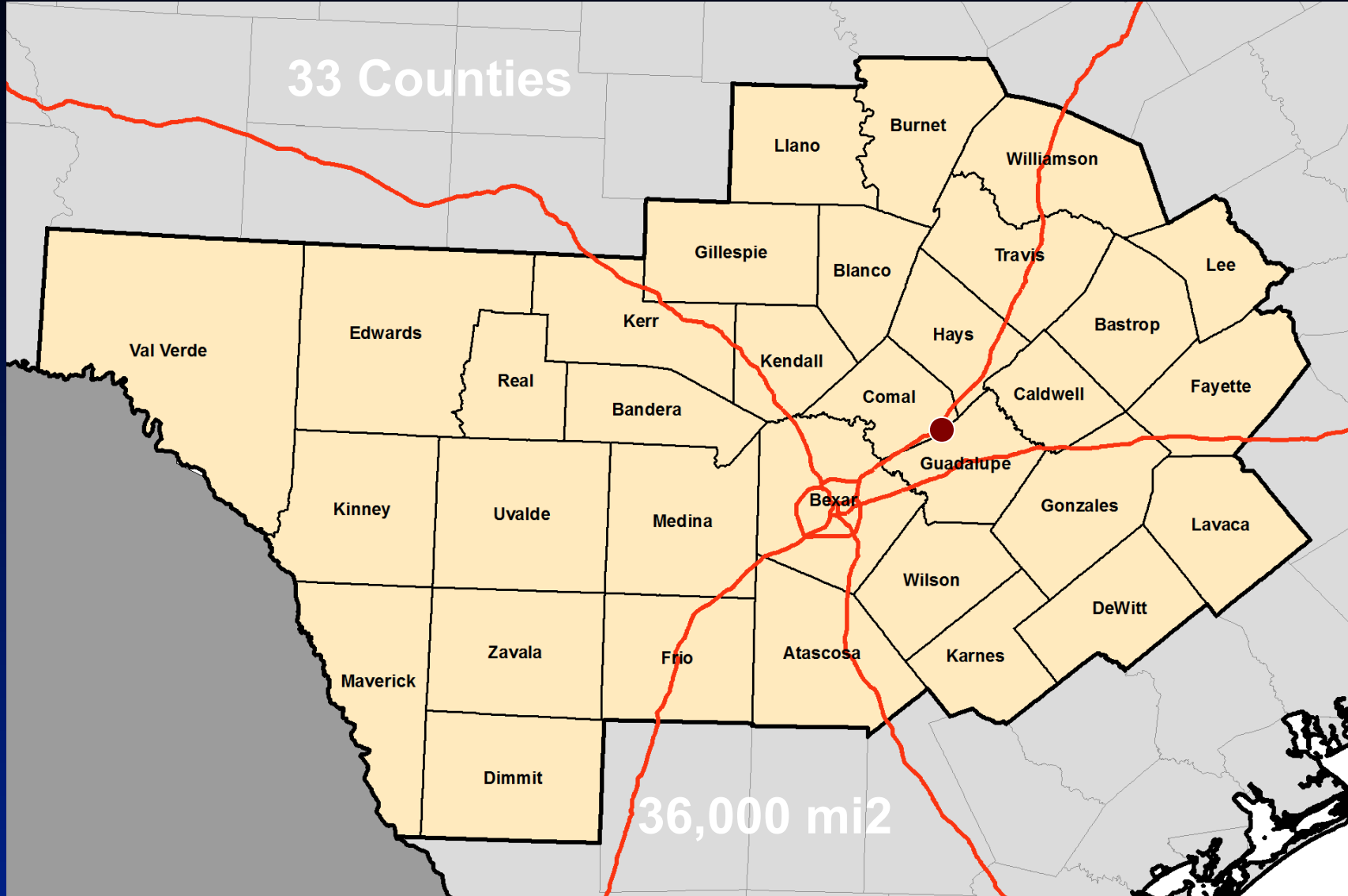


**122 Field
offices
(24/7 Ops)**

**National
Centers**

**4000+
Employees**

Field Office “County Warning Area”



Advisory



Minor Flooding



Dense Fog

Watch



Possible



Severe Thunderstorm Watch # 4 - Valid from 330 PM until 1000 PM CST

Warning

Tornado Warning

Valid Until
9:00 PM CST Friday
January 10, 2020

Threat Information

- TORNADO**
Radar Indicated
- HAIL**
Penny
Sized Possible

Potential Exposure

- Population: 17,515
- Schools: 10
- Hospitals: 3



Seek Shelter!



Warning

Severe Thunderstorm
Expires in 42m

999
WUUS54 KEWX 100714
SVREWX
TXC029-055-091-187-209-100800-
/O.NEW KEWX.SV.W.0017.130310T0714Z-
130310T0800Z/

BULLETIN - EAS ACTIVATION REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE AUSTIN/SAN
ANTONIO TX
114 AM CST SUN MAR 10 2013

THE NATIONAL WEATHER SERVICE IN AUSTIN SAN
ANTONIO HAS ISSUED A

- * SEVERE THUNDERSTORM WARNING FOR...
NORTHEASTERN BEXAR COUNTY...
EXTREME WEST CENTRAL CALDWELL COUNTY...
COMAL COUNTY...
NORTHWESTERN GUADALUPE COUNTY...
HAYS COUNTY...
- * UNTIL 300 AM CDT.
- * AT 111 AM CST...NWS METEOROLOGISTS HAVE

Is it Taco
Tuesday?

WATCH VS WARNING

Ingredients
matter

- **WATCH:** We have the ingredients to make tacos.
- **WARNING:** We're having tacos. **RIGHT NOW!**



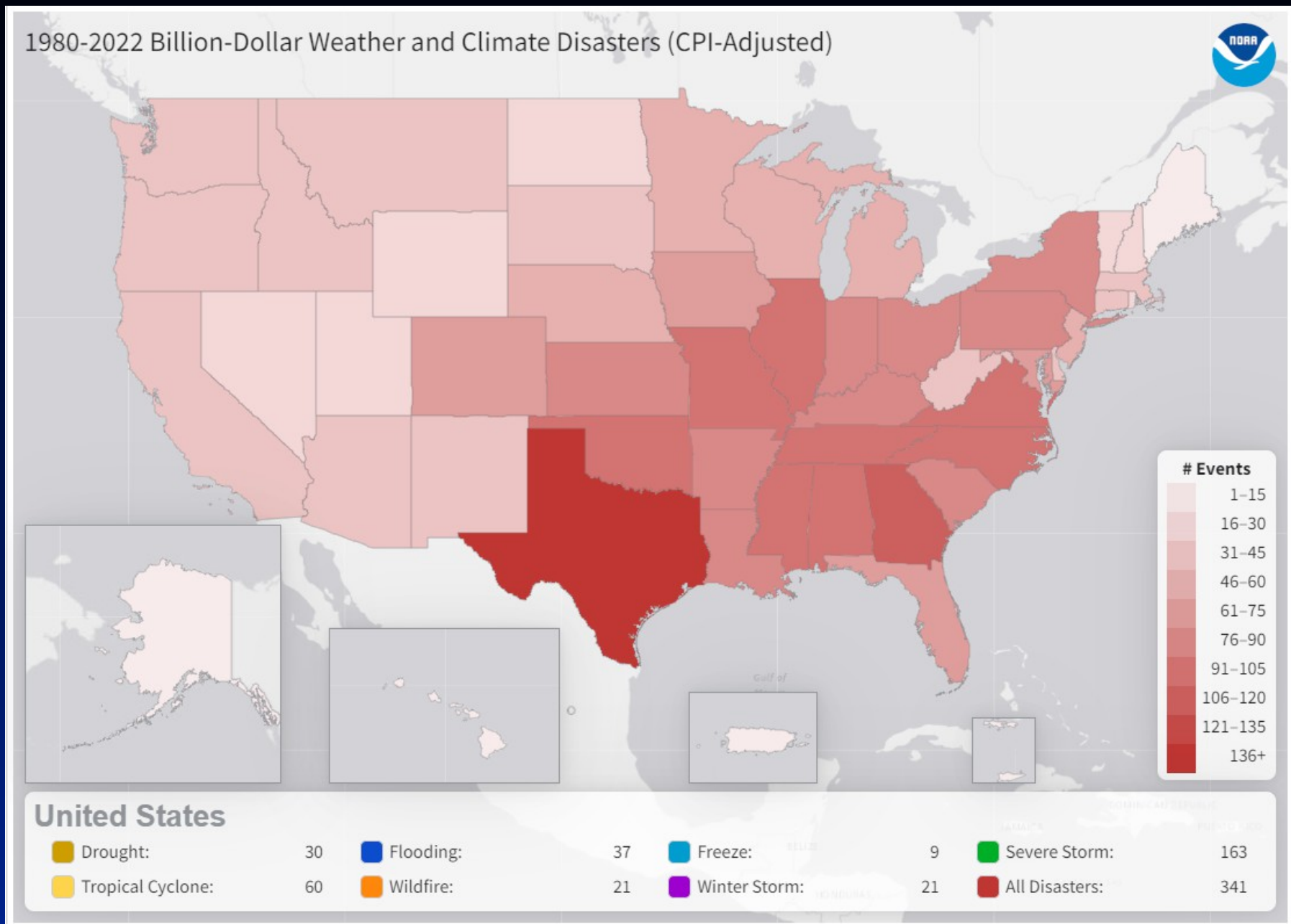
TACO WATCH



TACO WARNING

Billion Dollar Weather Events 1980-2022

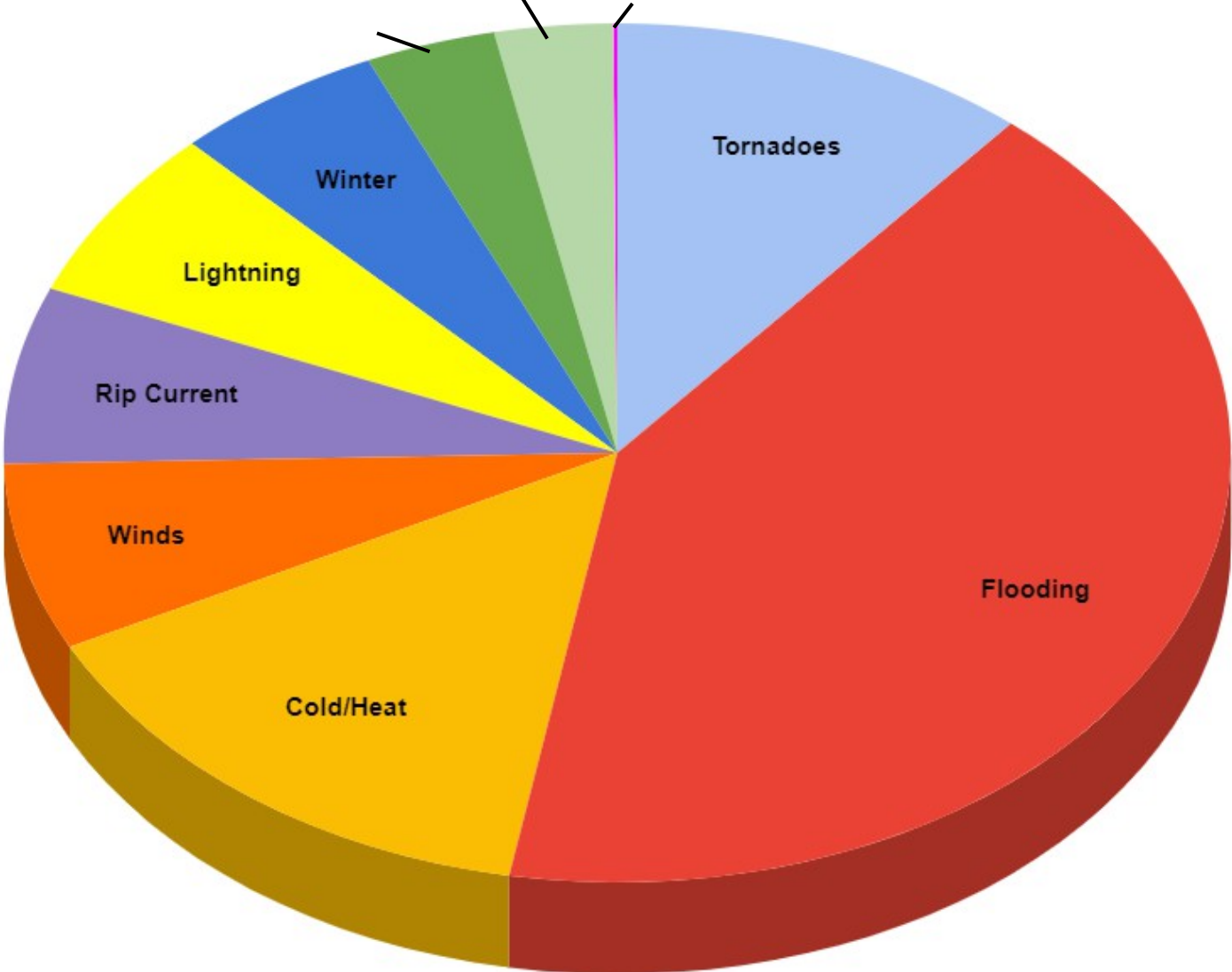
We are the most “Active” state when it comes to weather and weather disasters



Texas Weather Related Deaths 1990-2022

Nearly 1000 people

Decrease in Tornado deaths over the past several decades



Lightning Facts

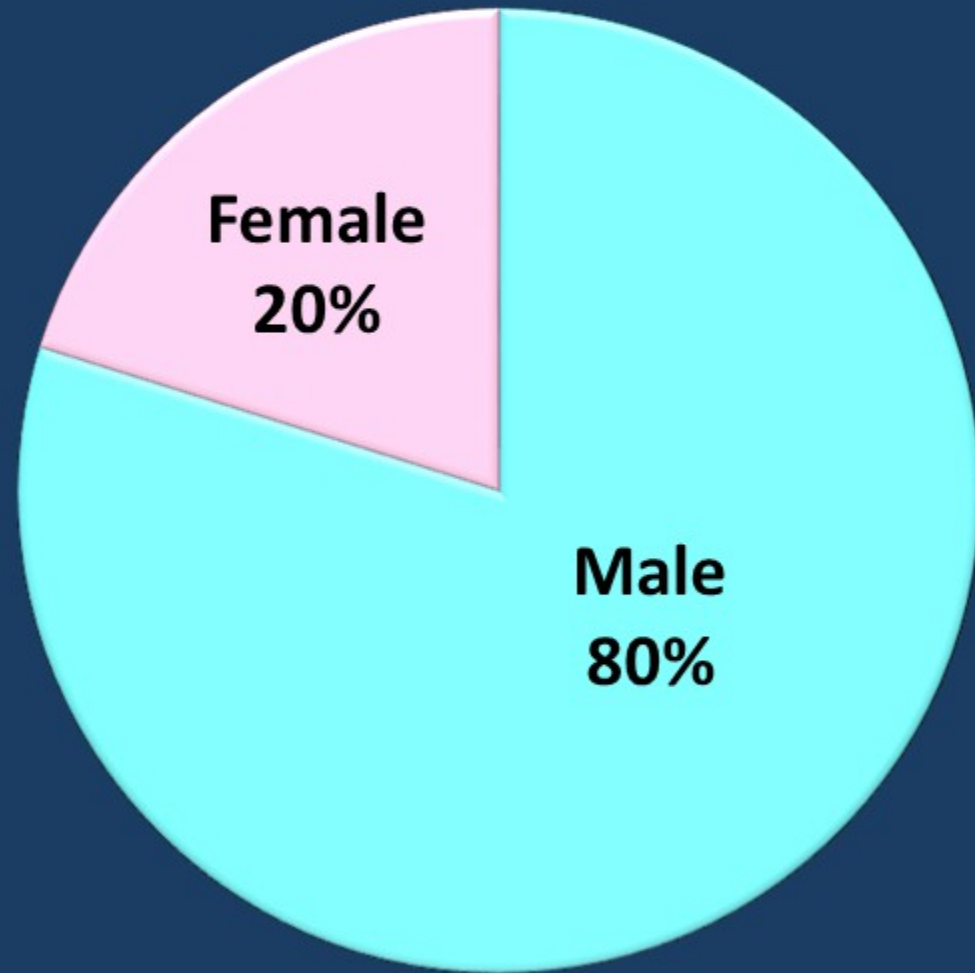
**Bolts out of
the blue
Up to 10 miles
away**

50,000° F, 300K Amps, 100 Million Volts

**19 deaths in 2022, Many injured
13 so far in 2023.**



Lightning Fatalities By Gender

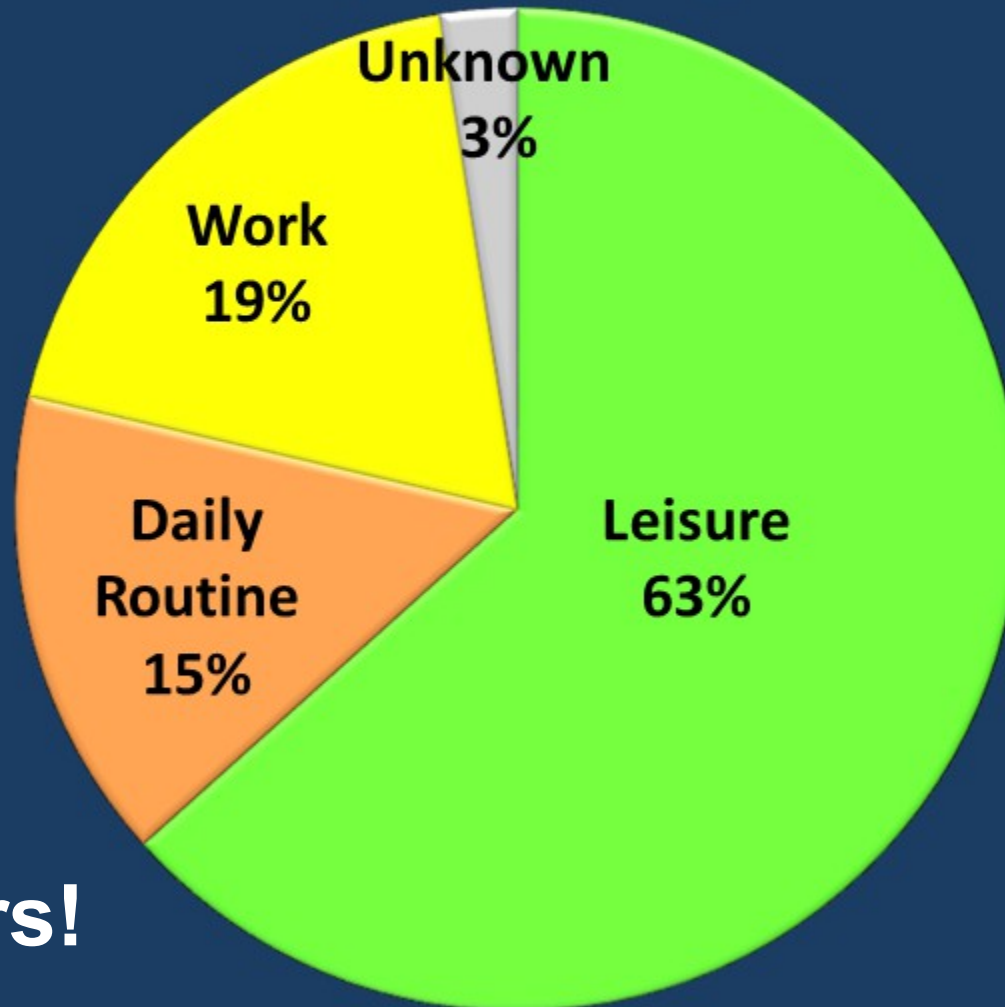


Based on 446 cases from 2006 through 2021

Compiled by
John Jensenius



Lightning Fatalities By Activity



**When
Thunder**

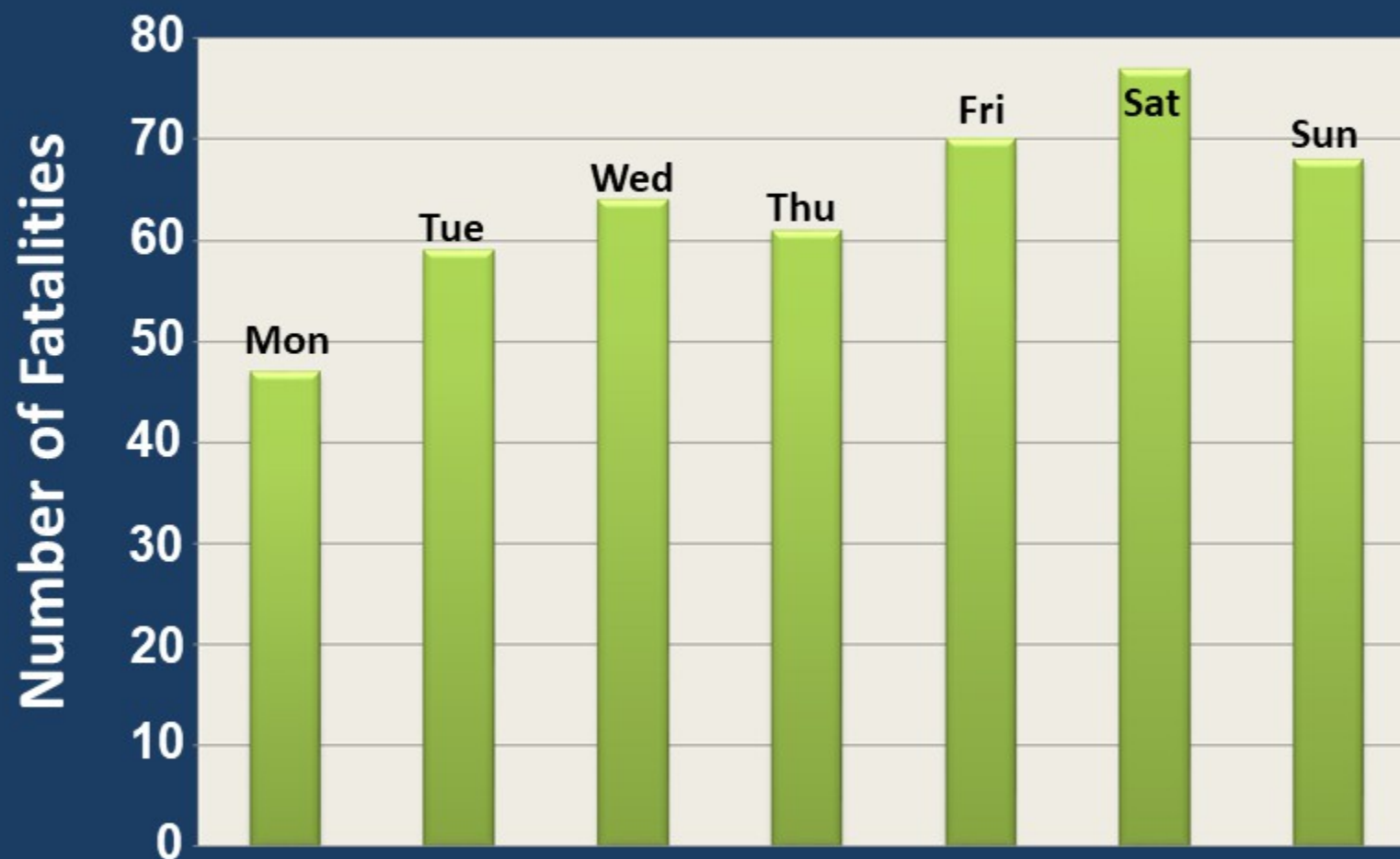
**Roars
Go
Indoors!**

Based on 446 cases from 2006 through 2021

Compiled by
John Jensenius



Fatal Lightning Incidents By Day of Week



Based on 446 cases from 2006 through 2021

Compiled by
John Jensenius

Trees are NOT Shelters

Many fatalities occur with
people standing near or
under trees



Trees are NOT Shelters

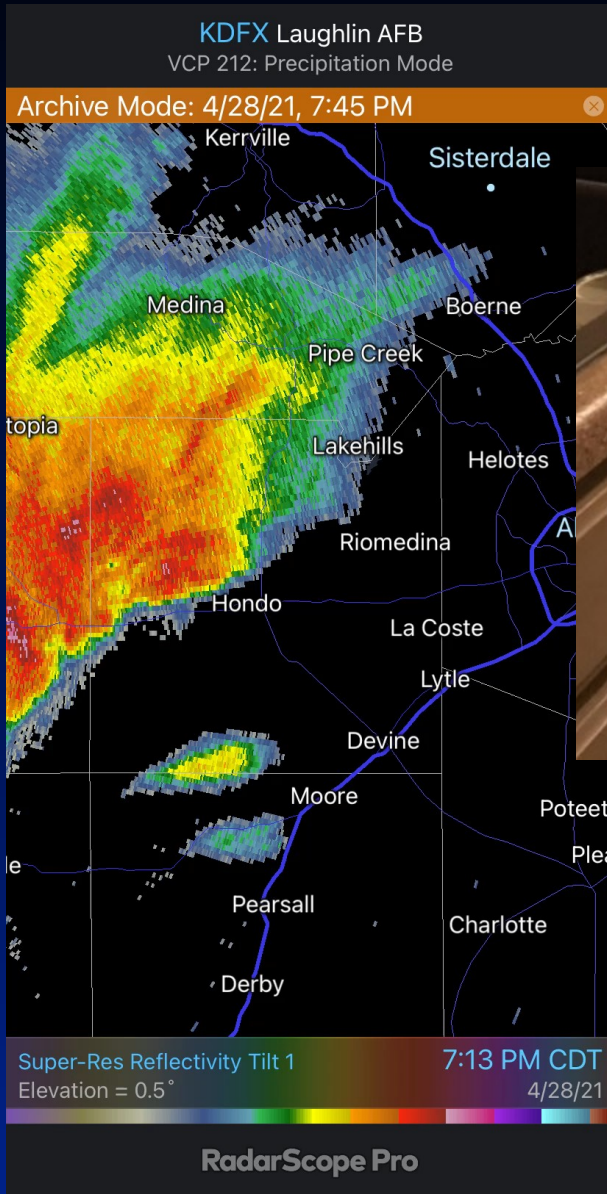
Many fatalities occur with
people standing near or
under trees



2019 FedEx Cup
PGA Golf event

Largest Hail Ever Recorded in Texas

April 28, 2021, Hondo TX



Diameter – 6.416 inches
Weight – 1.26 lbs

Unofficial estimates
of 8+” before it was
measured





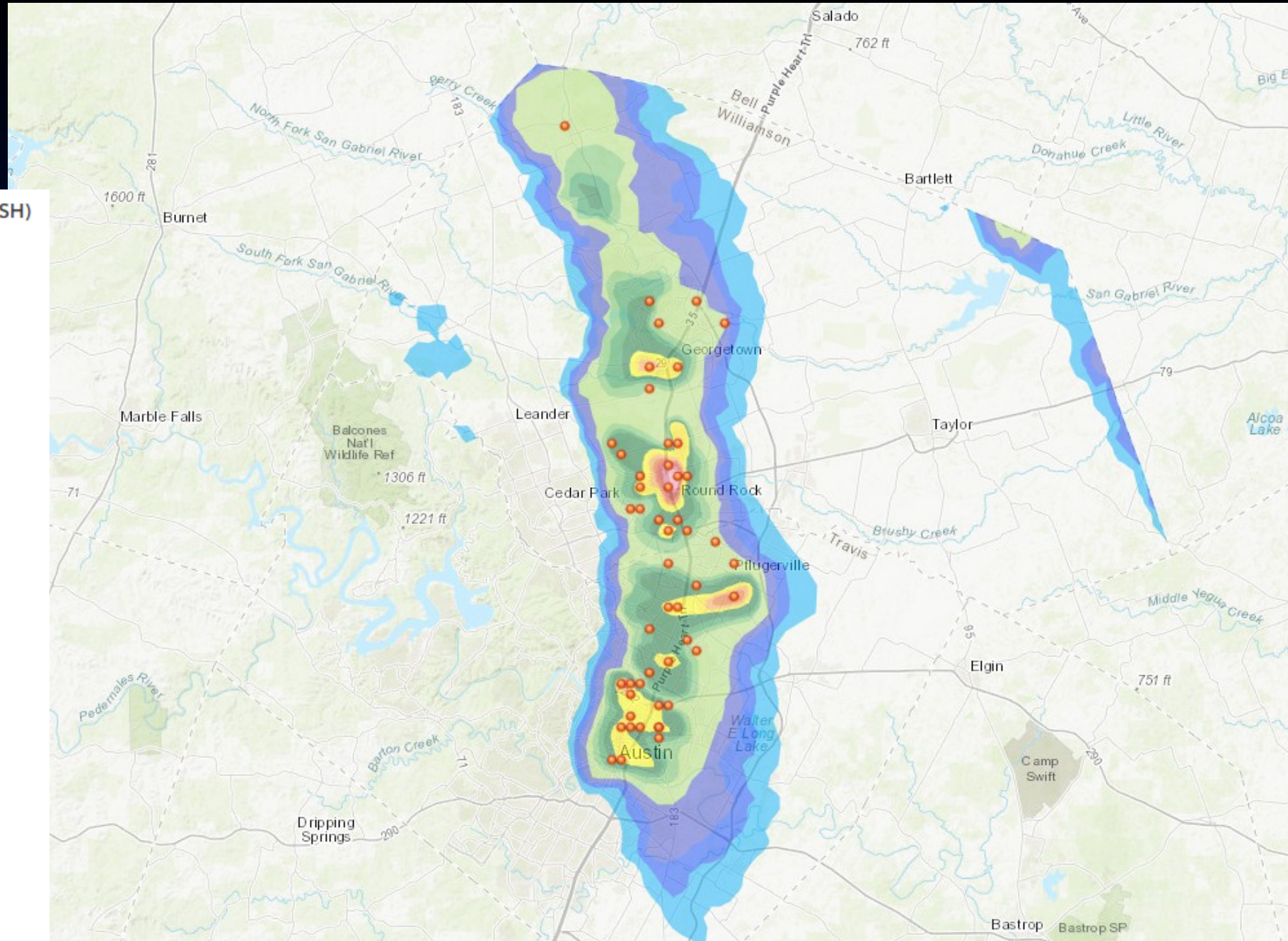
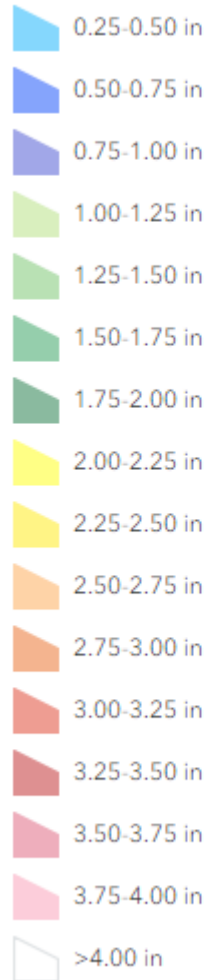
West and North facing walls were hammered



Wind driven hail at 60-80 mph

Austin Hail September 24

Maximum Expected Size Of Hail (MESH)



Hail Damage / Safety

Hail Swath, Wellington CO



Ouch!



Crop damage

What not to do!

BREAK

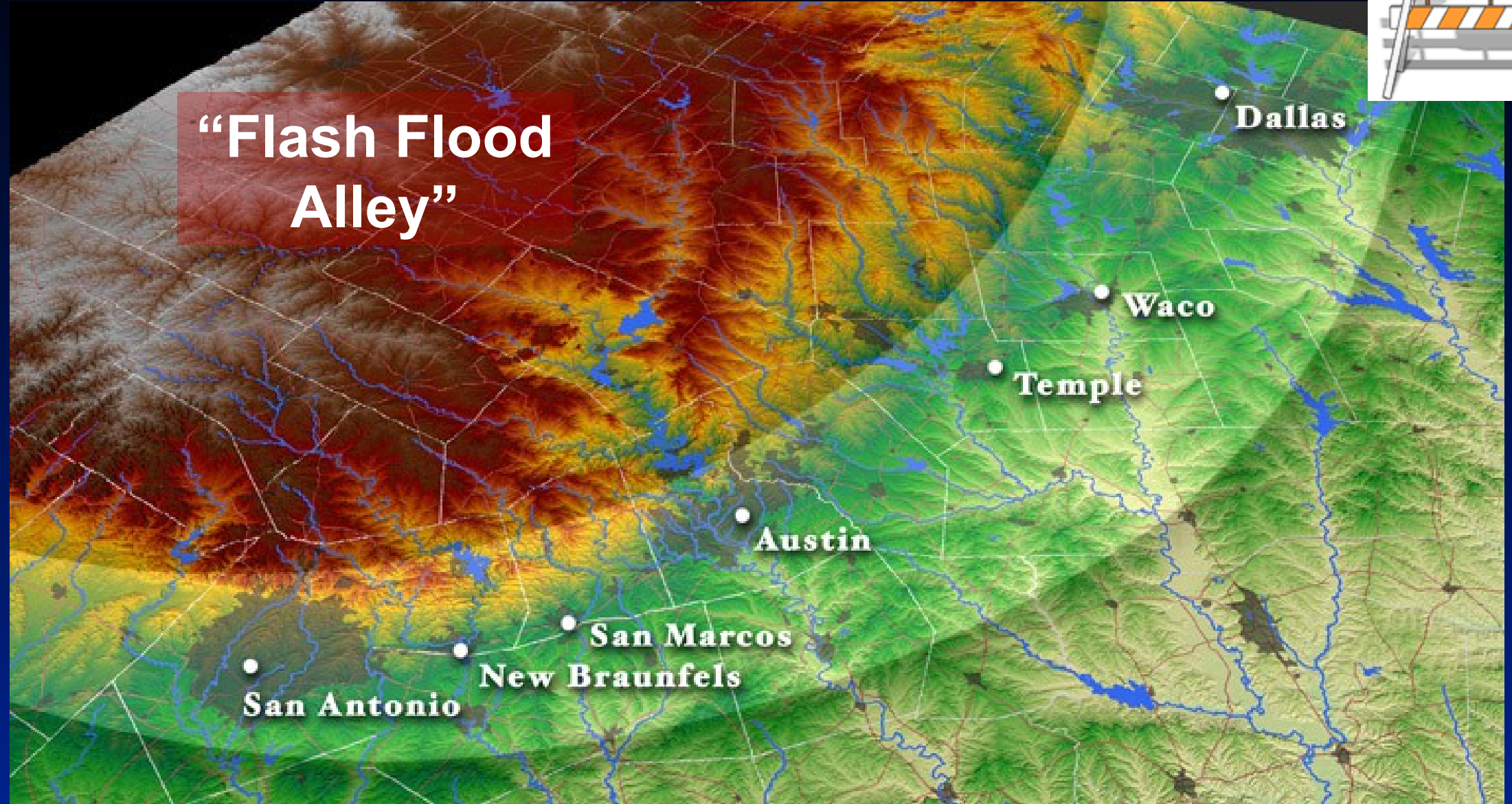


Flash Flooding

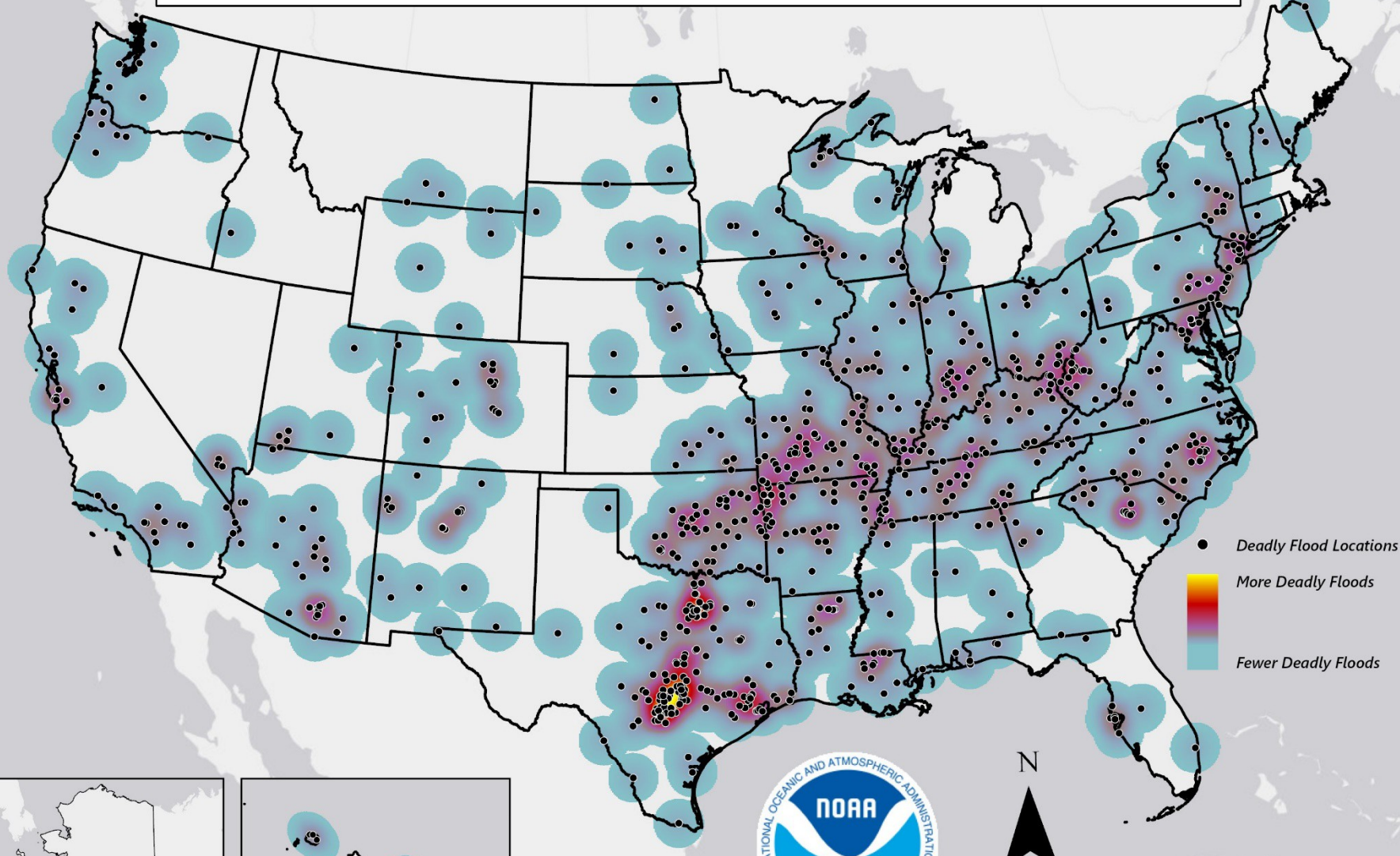
Terrain and Heavy Rain Don't Mix



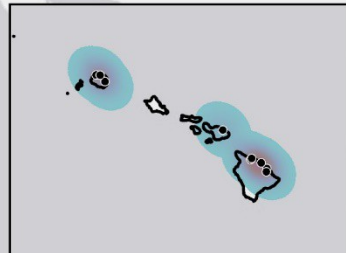
“Flash Flood Alley”



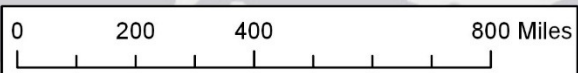
Heatmap of All Deadly Flooding Reports (2006-2020*)



- Deadly Flood Locations
- More Deadly Floods
- Fewer Deadly Floods



National Weather Service
Weather Prediction Center

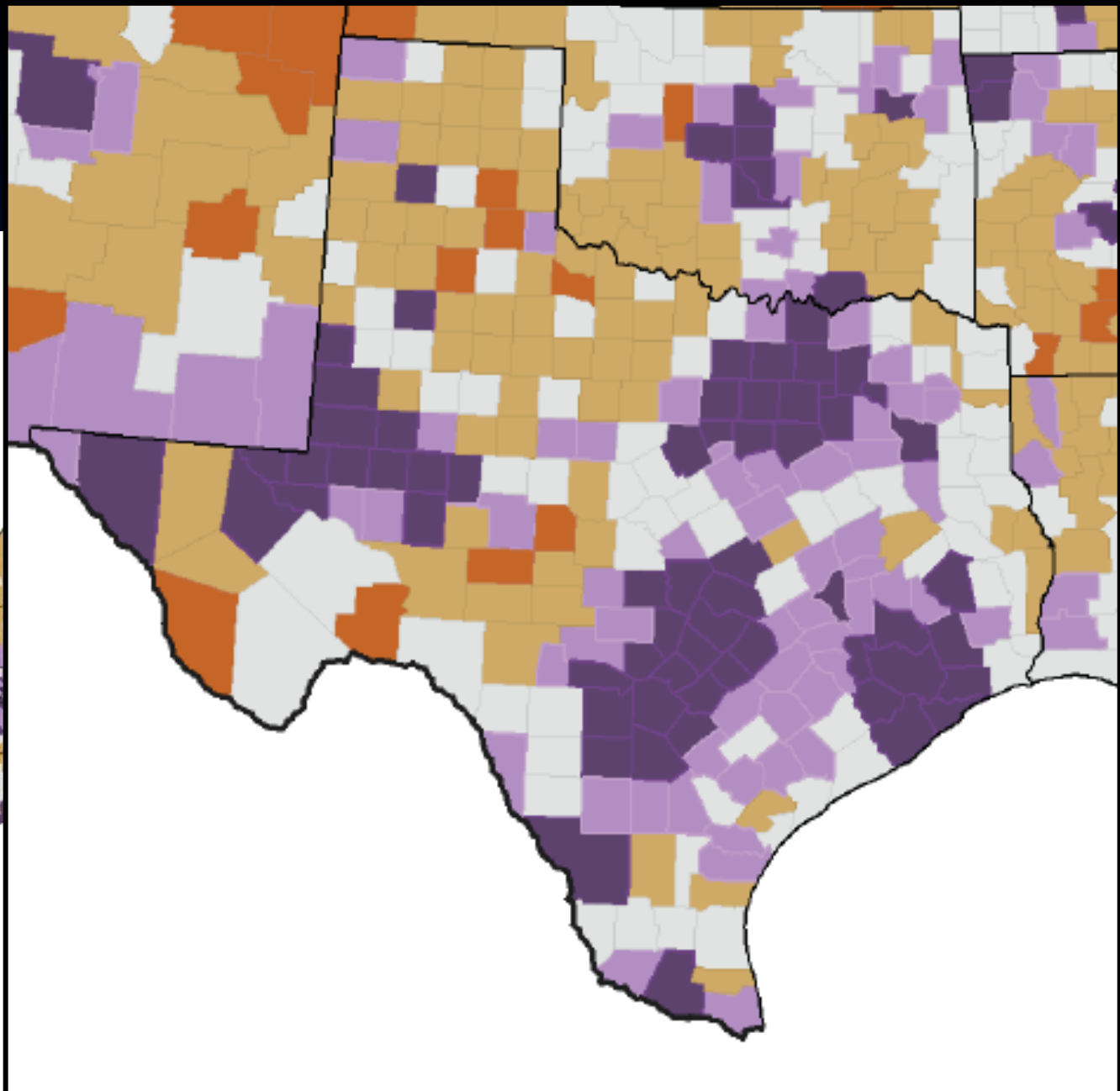
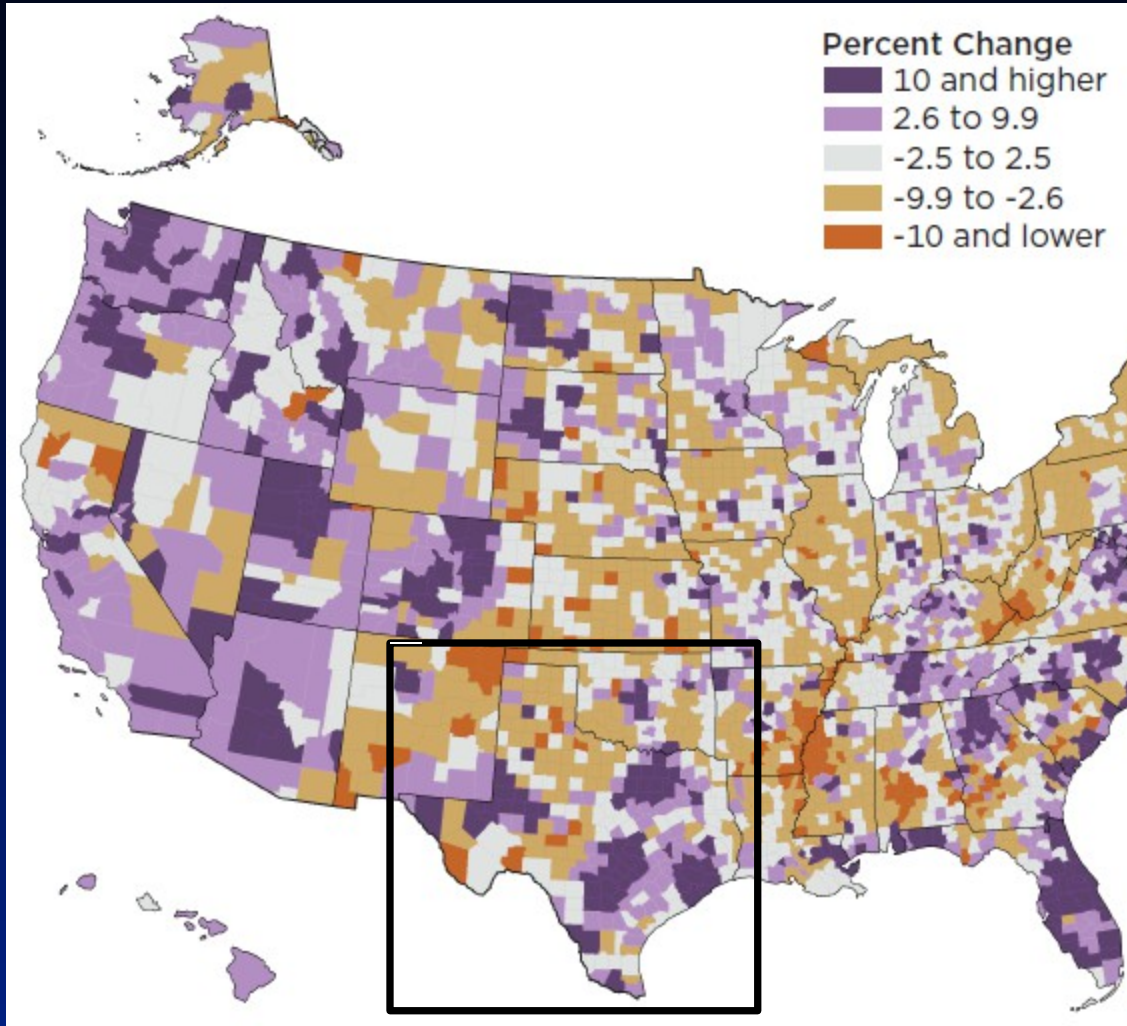


Data: NWS Storm Events Database (*data thru Feb 2020)

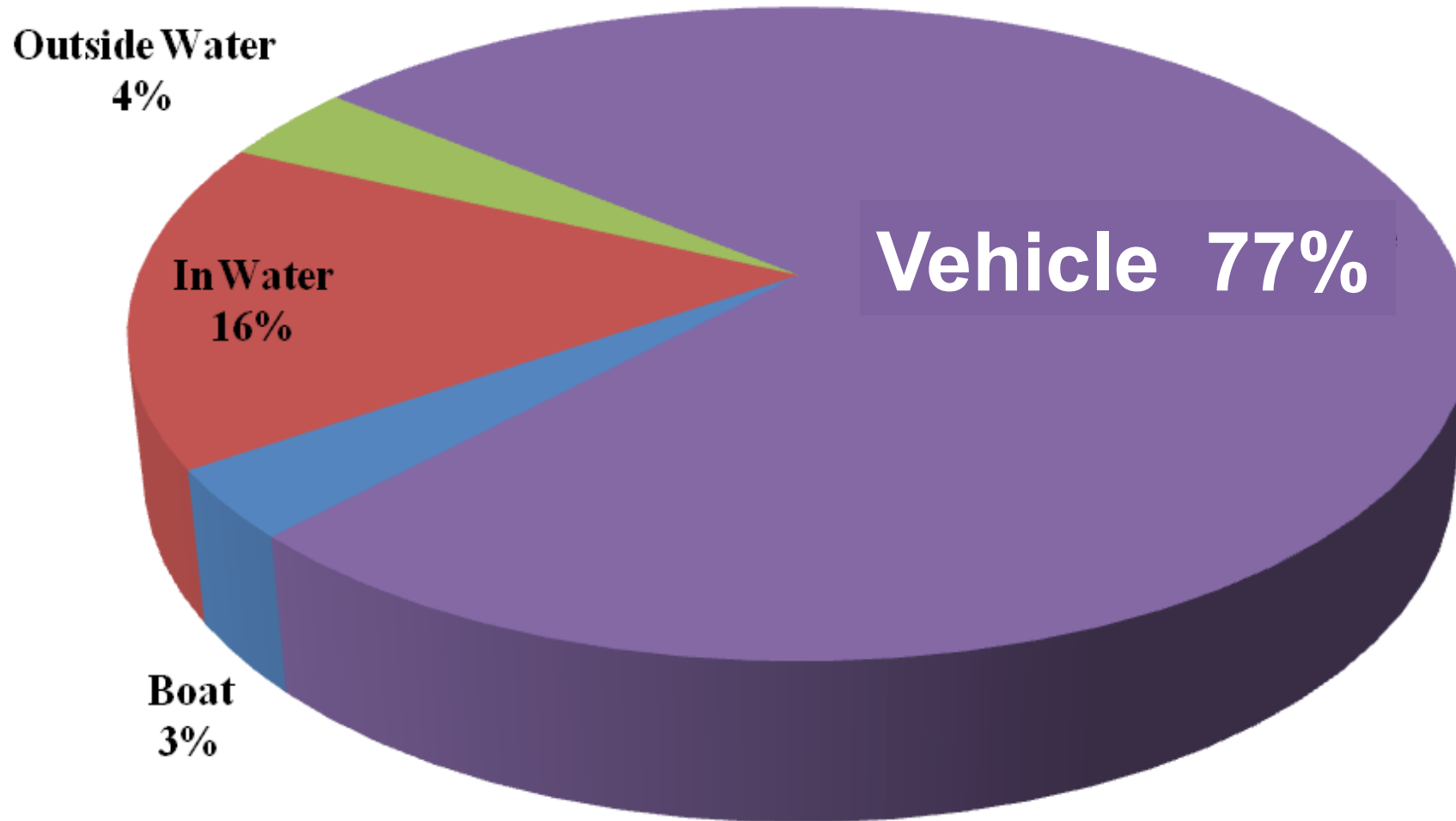
Map by Ethan Rogers

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user

Percent Population Change by County and Municipio: 2010 to 2019



Texas Flooding Deaths, 1959-Present



Remember: 6-12-24

Do You Really Know How Deep the Water is?

12 inches of fast-moving water can carry away a small car.

WHEN FLOODED
TURN AROUND
DON'T DROWN

6 inches of fast-moving water can knock over and carry away an adult.

18-24 inches of fast-moving water can carry away most large SUVs, vans and trucks.



Turn Around, Don't Drown!



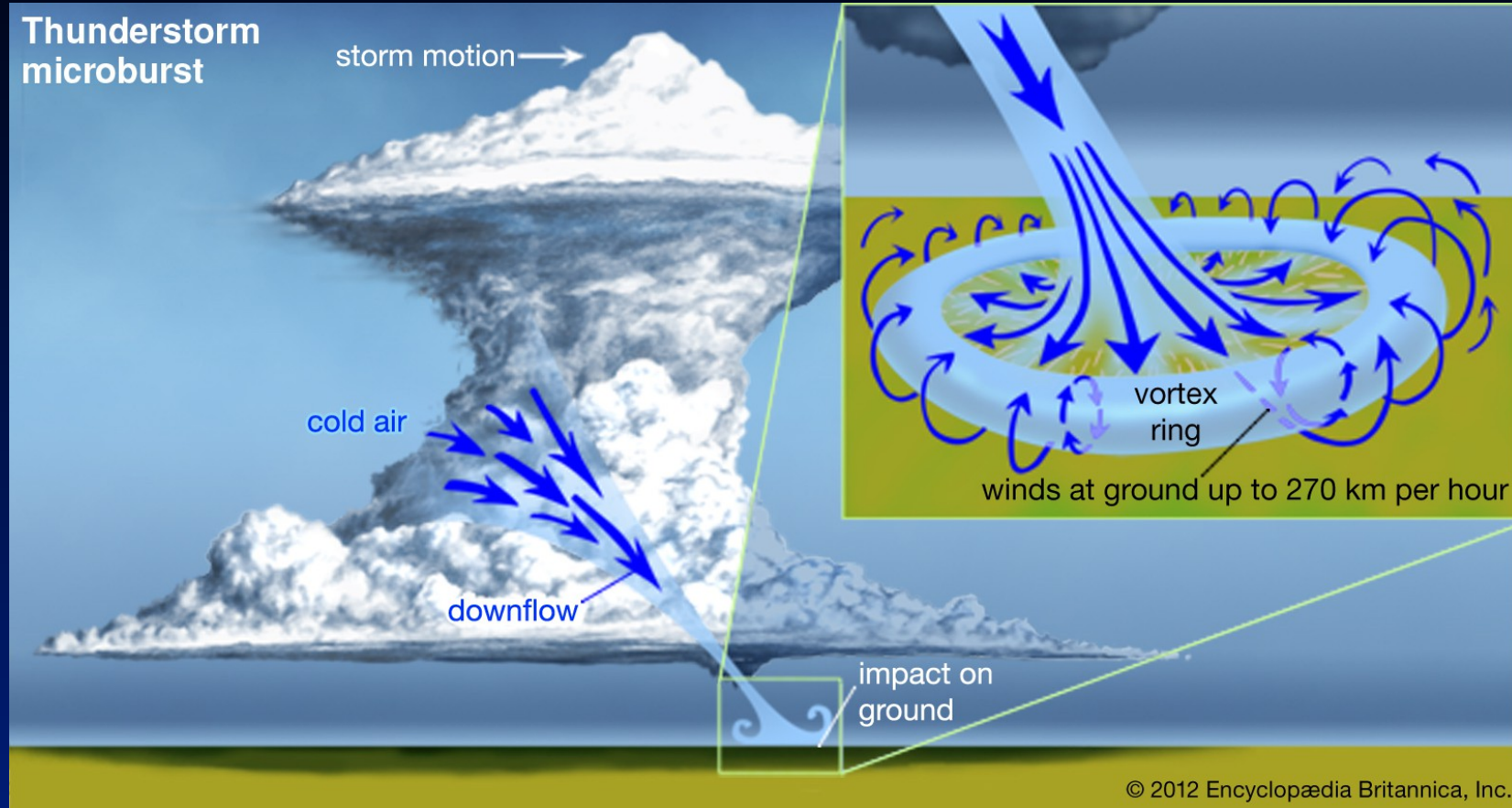
Situational Awareness is important !



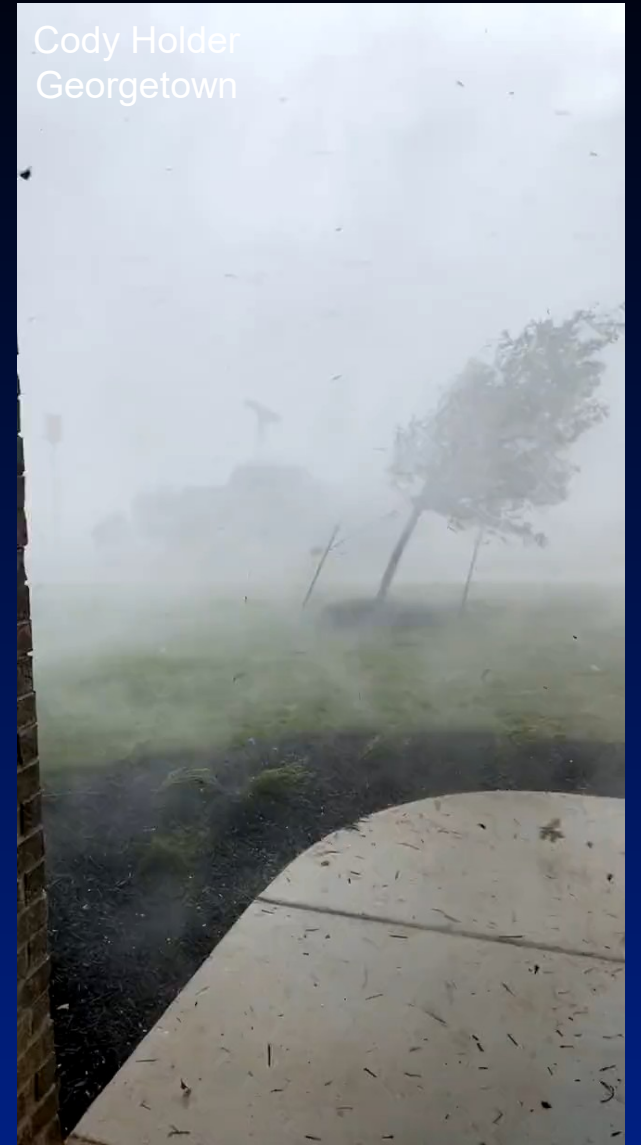
GIF

What is a Microburst/Downburst?

Thunderstorm microburst



Cody Holder
Georgetown



Trampolines Go Flying!



Credit: C. Riley

Severe Straight Line Wind Damage

60-80 MPH winds



**What happens after the
damaging weather?**

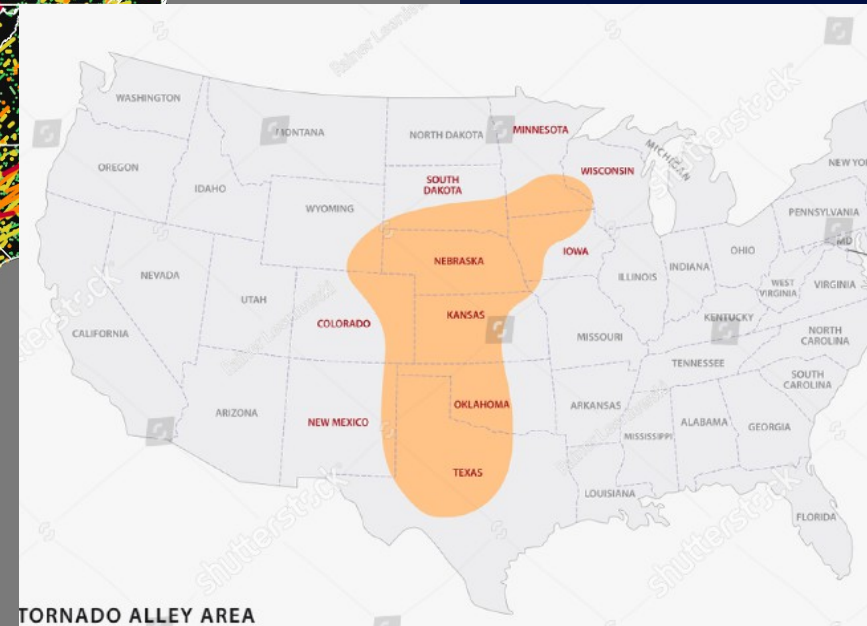
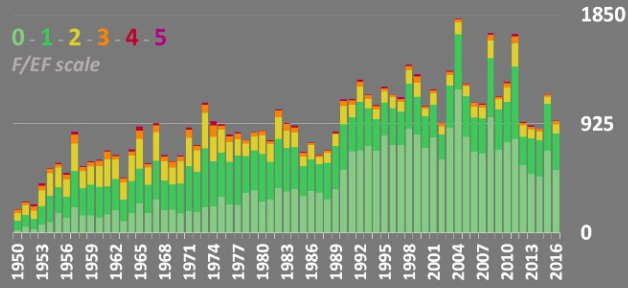
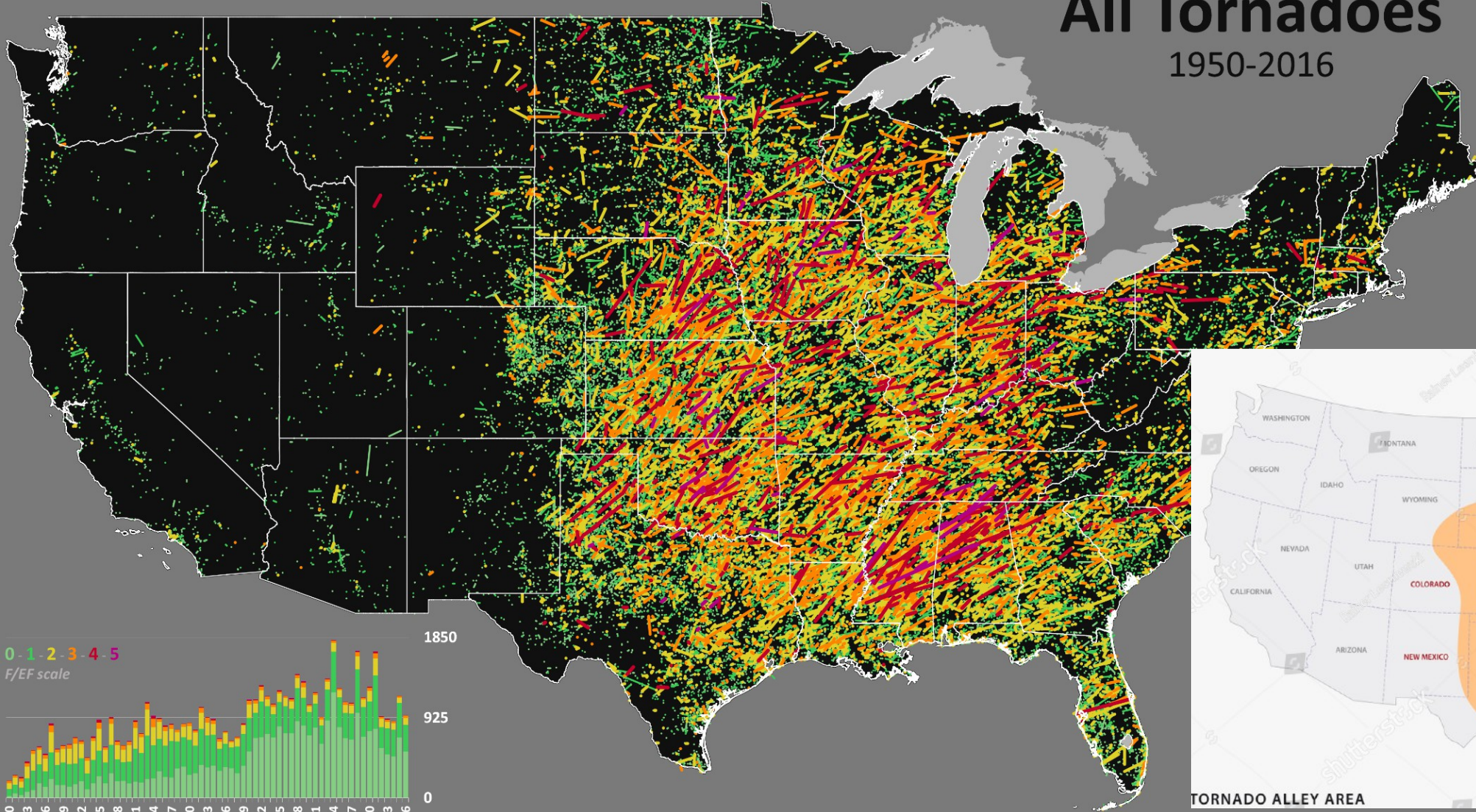
It was a tornado, right?



How strong were the winds?

Where is Tornado Alley?

All Tornadoes 1950-2016



TORNADO ALLEY AREA

Weak Tornadoes EF0-EF1

WXCHASING



Violent Tornadoes EF4-EF5



Last EF5 in Texas...Jarrell TX, May 27, 1997

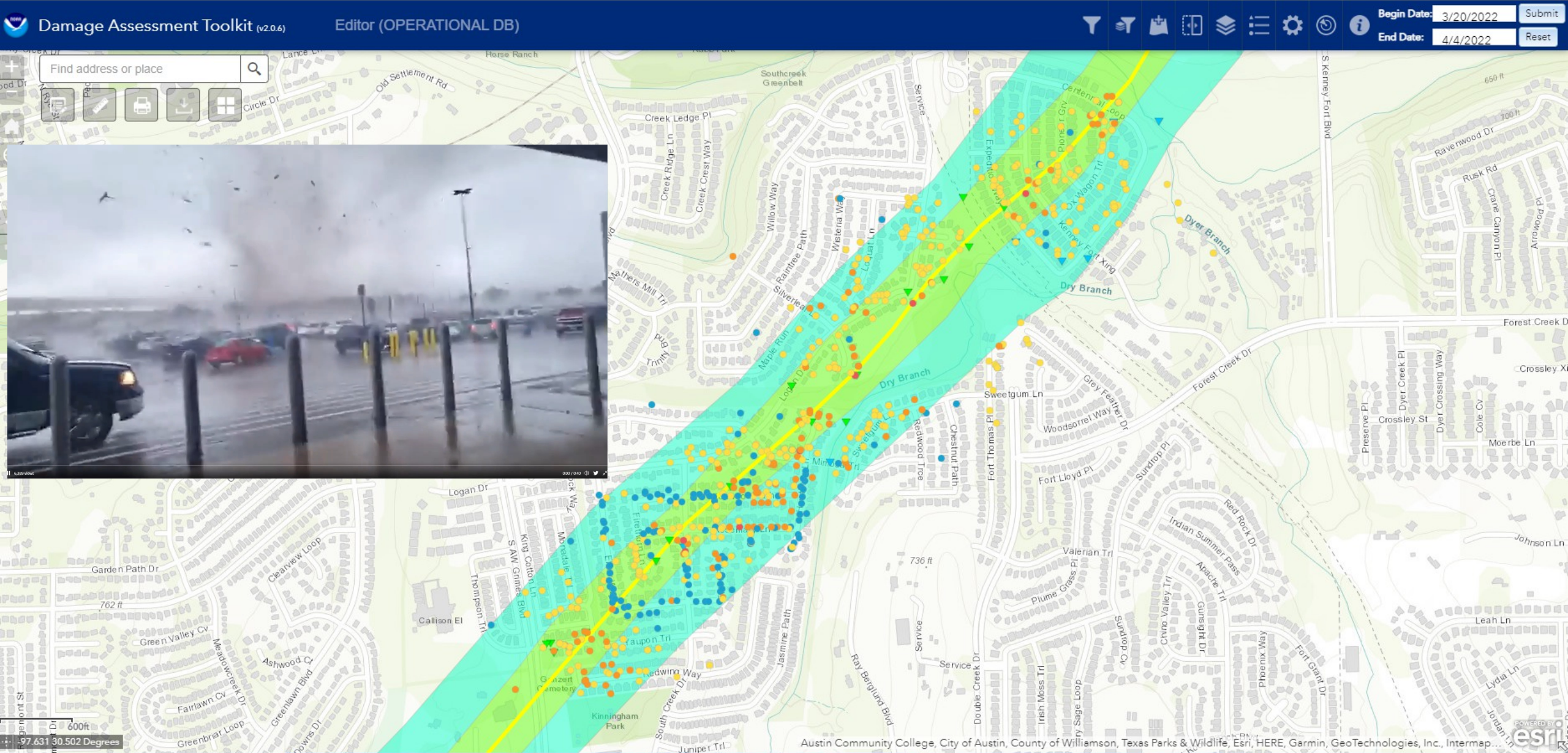
Flying Debris...Should you be outside filming this?



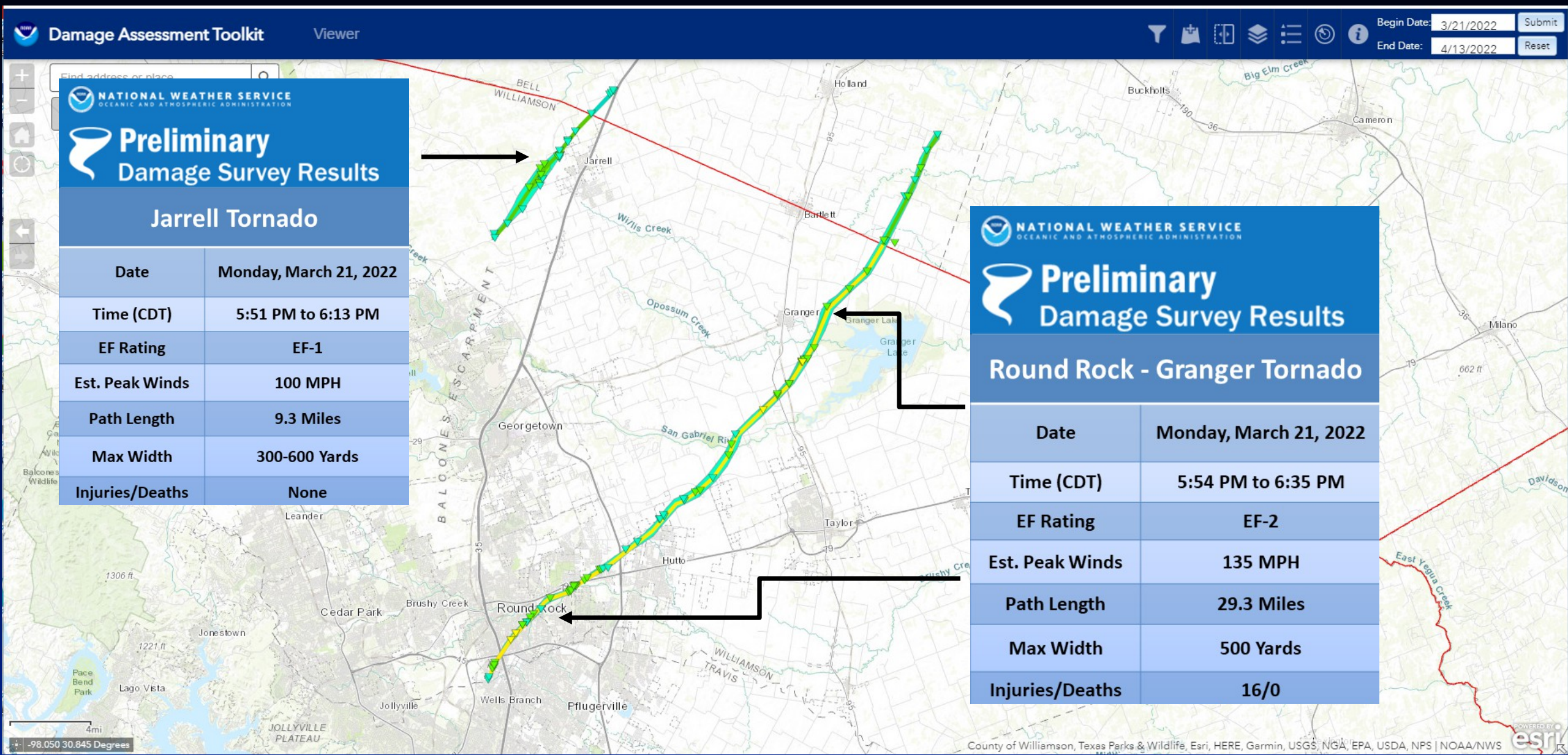
Round Rock, March 21, 2022



Round Rock Damage Survey



Damage Surveys...Tornado, Microburst, Floods



NATIONAL WEATHER SERVICE
OCEANIC AND ATMOSPHERIC ADMINISTRATION

Preliminary Damage Survey Results

Jarrell Tornado

Date	Monday, March 21, 2022
Time (CDT)	5:51 PM to 6:13 PM
EF Rating	EF-1
Est. Peak Winds	100 MPH
Path Length	9.3 Miles
Max Width	300-600 Yards
Injuries/Deaths	None

NATIONAL WEATHER SERVICE
OCEANIC AND ATMOSPHERIC ADMINISTRATION

Preliminary Damage Survey Results

Round Rock - Granger Tornado

Date	Monday, March 21, 2022
Time (CDT)	5:54 PM to 6:35 PM
EF Rating	EF-2
Est. Peak Winds	135 MPH
Path Length	29.3 Miles
Max Width	500 Yards
Injuries/Deaths	16/0



use

3.2M views

0:00 / 0:30



Tornado/High Wind Safety

Interior bathrooms / closets on the lowest floor / saferooms



Concrete
storm
shelter,
saferoom

Dangerous Flying Debris



Austin, January 2012



Adam Sessums

Fultondale AL, January 2021



San Antonio, February 2017

Winter Forecasting...




Worse case scenario...
unexpected ice during a rush hour , drop-off



We can't tell you...

- The forecast temperature at every location (terrain, elevation)
- How drivers will behave
- When the roads ice up
- When roads will improve (shade vs. sun) , (treated vs. untreated)
- Type of frozen precipitation (sometimes)...



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](#)

News Headlines


- [This month marks the 25th anniversary of Tropical Storm Charley & devastating flash flooding in Del Rio. Click here to view a story map documenting the event](#)
- [NOAA forecasters increase Atlantic hurricane season prediction to above normal](#)
- [Extreme heat and drought are leading to increased fires across the region...Be Prepared.](#)
- [Excessive heat, a silent killer](#)


MY FORECAST

New Braunfels Regional Airport TX



Fair
87°F
31°C [Get Detailed info](#)

Tonight

Clear
Low: 74°F

Thursday

Hot
High: 107°F [change location](#)

NWS Austin/San Antonio






Austin/San Antonio, TX
Weather Forecast Office

[Weather.gov](#) > Austin/San Antonio, TX

Current Hazards | Current Conditions | Radar | Forecasts | Rivers and Lakes | Climate and Past Weather | Local Programs

South-Central Texas Planner

Forecast for the Next 5 Days
Weather Forecast Office Austin/San Antonio, TX
Issued Aug 16 2023 2:36 PM CDT

Thu	Fri	Sat	Sun	Mon
HOT! 	HOT! 	HOT! 	HOT! 	HOT! 
Excessive Heat and Critical Fire Weather			Elevated Heat & Fire Weather	
Lows 81 72 74 74 80	Lows 80 74 76 75 80	Lows 80 72 76 75 80	Lows 80 73 76 76 79	Lows 79 75 79 77 79
Highs 110 104 107 106 105	Highs 107 103 105 104 104	Highs 104 100 108 102 103	Highs 104 100 104 103 103	Highs 104 100 103 103 102

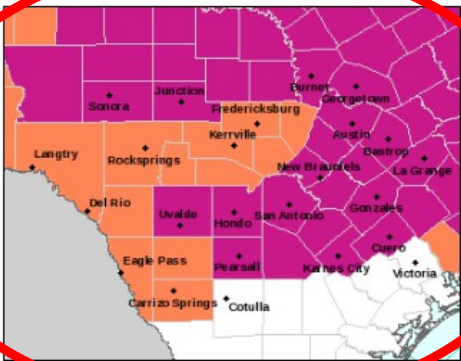
Weather Hazards

Low Elevated Moderate Impact High Impact

Kerrville Austin, La Grange
Del Rio San Antonio
Eagle Pass

[NWSSanAntonio](#) [weather.gov/ewx](#)

Click a location below for detailed forecast




Watches, Warnings & Advisories

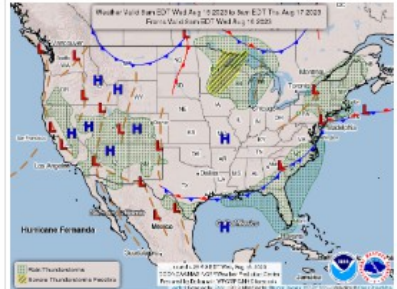
- Excessive Heat Warnings
- Heat Advisory
- Fire Weather Watch
- Air Quality Alert
- Hazardous Weather Outlook

Last Map Update: Wed, Aug. 16, 2023 at 10:56:29 AM CDT


Austin/San Antonio Radar



Weather Map

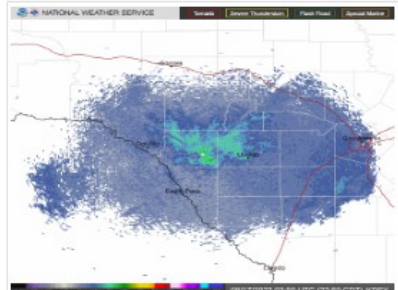


Satellite Imagery




08/17/2023 03:51Z - NOAA/STAR - SP


Del Rio Radar



Digital Forecast Map




Two-Day Graphical Tropical Weather Outlook

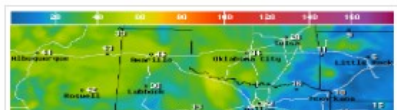


U.S. Drought Monitor

August 8, 2023
Austin/San Antonio, TX WFO



Today's Maximum Heat Index



Today's Maximum Heat Index
Values (08/16/2023 06:00 AM - 14/06/2023 06:00 PM CDT)

Questions?

Paul.yura@noaa.gov

- **NWS Austin/San Antonio**
2090 Airport Road
New Braunfels, TX 78130
 - ◆ # 830-629-0130 (public line)
 - ◆ www.weather.gov/ewx

