

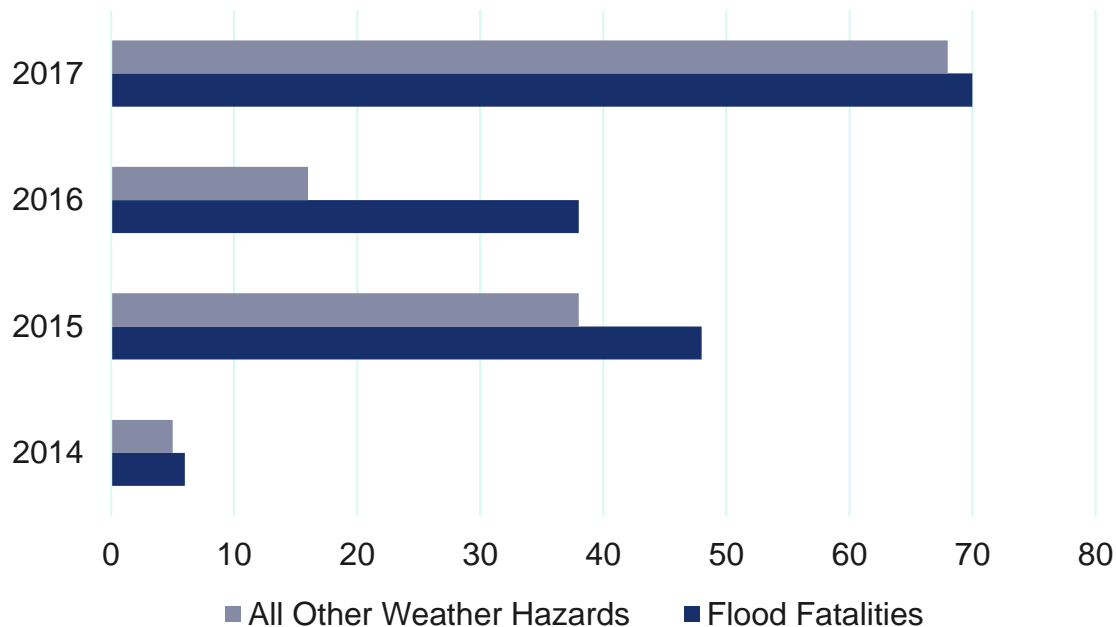


2019 Extreme Weather Ready Expo

Katie Landry-Guyton
Senior Service Hydrologist/Meteorologist
National Weather Service- Houston/Galveston, TX

Flooding is Deadly!

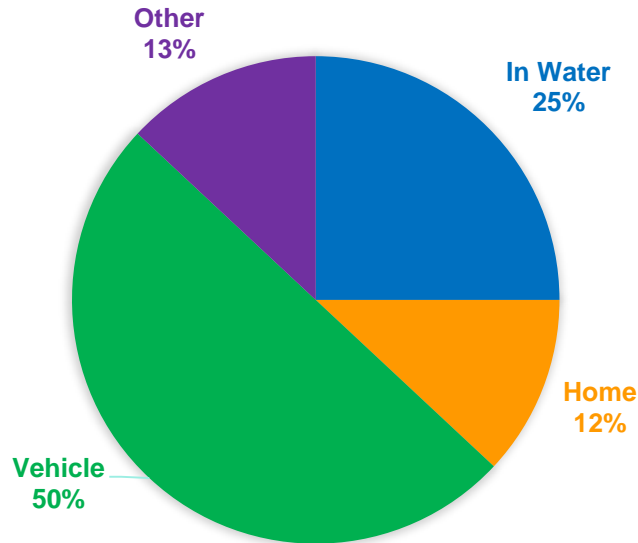
Weather-Related Deaths in Texas



In the 4 year period from 2014 to 2017, **more** people have died in Texas from flooding than ***all other weather hazards combined.***

Flood Fatalities

TEXAS FLOOD FATALITIES BY SHELTER FROM 2014-2016



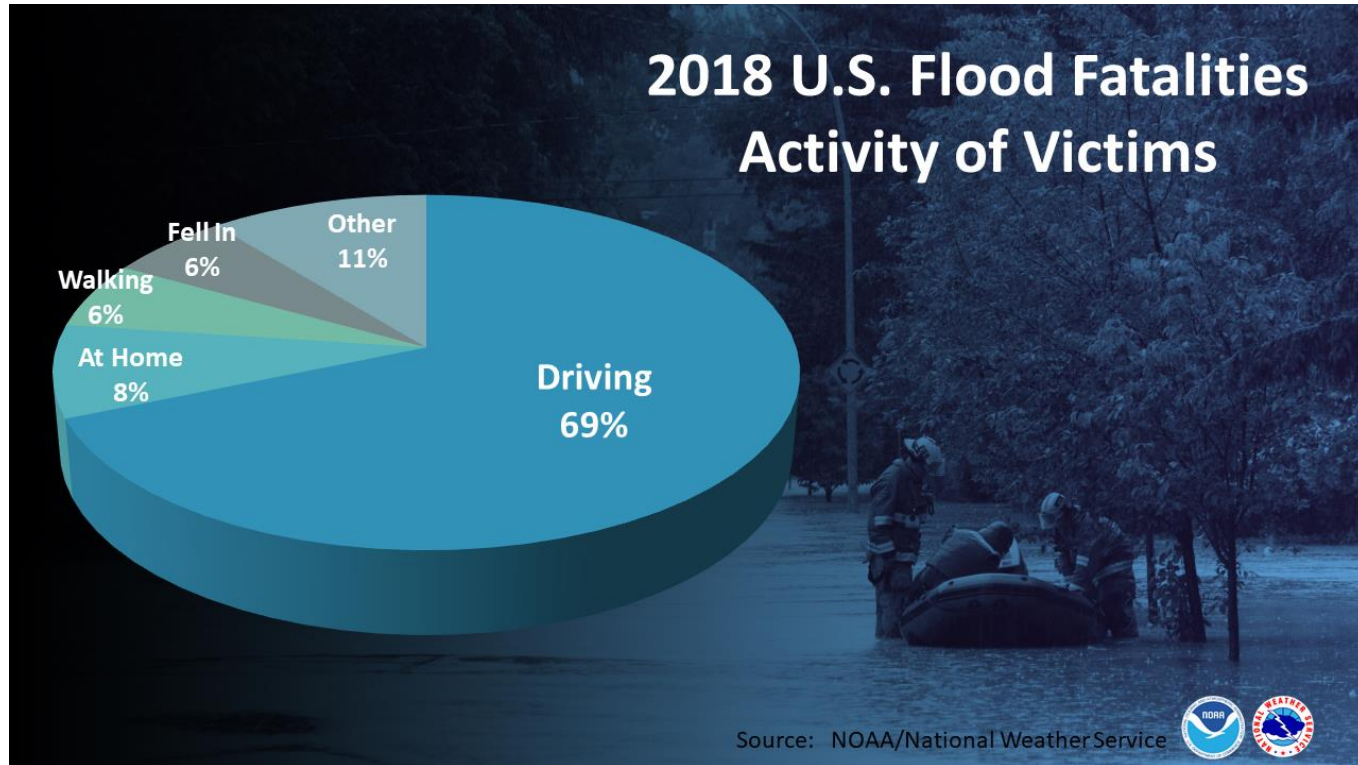
Half of the flood fatalities in Texas occurred while people were in their car.

2017 was skewed due to Hurricane Harvey. In 2017, there were 33 flood fatalities in the water and 19 in vehicles.

Houston Floods: April 18, 2016



Flood Fatalities



Recent Big Floods...

Memorial Day 2015

Tax Day 2016

Brenham 2016

Harvey 2017



Tax Day 2016



Brenham 2016



Harvey 2017

And other historic floods...

Tropical Storm Allison

1994 Flood

Tropical Storm Claudette



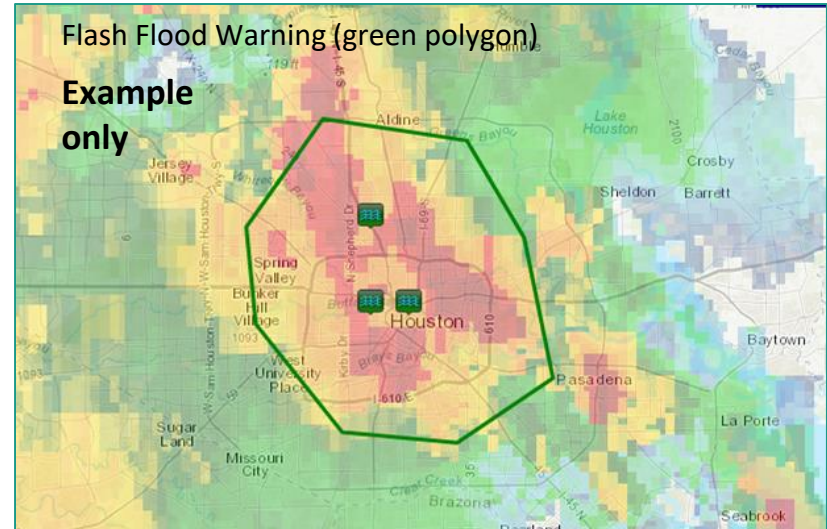
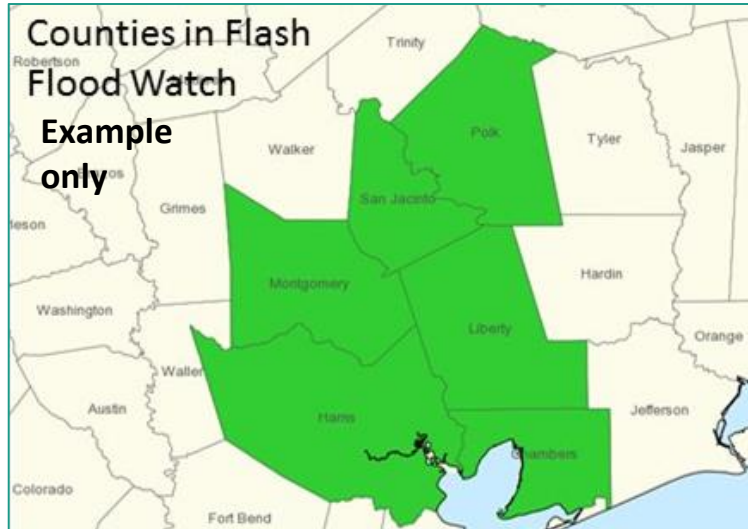
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Watch vs Warning

A **Watch** is issued when conditions are favorable to occur.

A **Warning** is issued when the threat is *occurring or imminent*, threatening life or property.



Flood vs. Flash Flood



A **Flood** is an overflow of water onto normally dry land likely caused by rising water in a river/bayou, poor drainage, or high tides/surge. Flooding is a longer term event than flash flooding. It may last days or weeks.

A **Flash Flood** is a flood caused by heavy or excessive rainfall in a short period of time, typically 6 hours or less. Flash floods are defined as:

- ≥ 3 feet of standing water (less if threatening life or property), and/or
- ≥ 6 inches of fast flowing water across a road or bridge, or
- Water in a stream or bayou flowing rapidly out of its banks, or
- A dam break (even on a sunny day)

Understanding Flooding

Urban / Small Stream Advisory

WHAT IS IT?

Flooding of small streams, streets and low-lying areas.

WHAT TO DO?

Stay away from areas that are prone to flooding and stay clear of rapidly moving water

Flood Watch

WHAT IS IT?

Flooding is possible – typically within a 6 to 48 hours before rain is expected to reach the area.

WHAT TO DO?

Stay tuned to local river forecasts; prepare for areas near rivers to spread towards nearby roads and buildings

Flash Flood Watch

WHAT IS IT?

Flash flooding is possible – typically 6 to 48 hours before rain is expected to reach the area.

WHAT TO DO?

Have a way to receive local warnings, expect hazardous travel conditions and have alternate routes available

Flood Warning

WHAT IS IT?

Flooding impacts are occurring or imminent.

WHAT TO DO?

Stay *alert* for inundated roadways and follow all local signage! Additional impacts include homes and structures could become flooded and need to be evacuated

Flash Flood Warning

WHAT IS IT?

Flash flooding impacts are occurring or imminent.

WHAT TO DO?

Conditions will *rapidly* become hazardous! Do not cross flooded roadways or approach inundated areas as water may still be rising

Flash Flood Emergency

WHAT IS IT?

Flash flood situation that presents a clear threat to human life due to extremely dangerous flooding conditions

WHAT TO DO?

Immediately reach higher ground by any means possible

Be sure to have multiple ways to receive warnings.

Ways to Receive a Warning

NOAA Weather Radio



NWS Website: <https://www.weather.gov/hgx/>

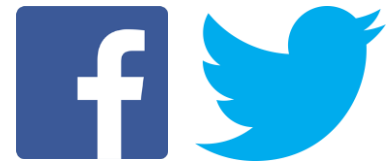
Wireless Emergency Alerts and Weather Apps



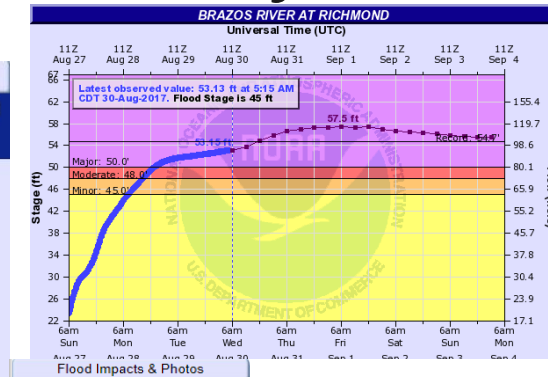
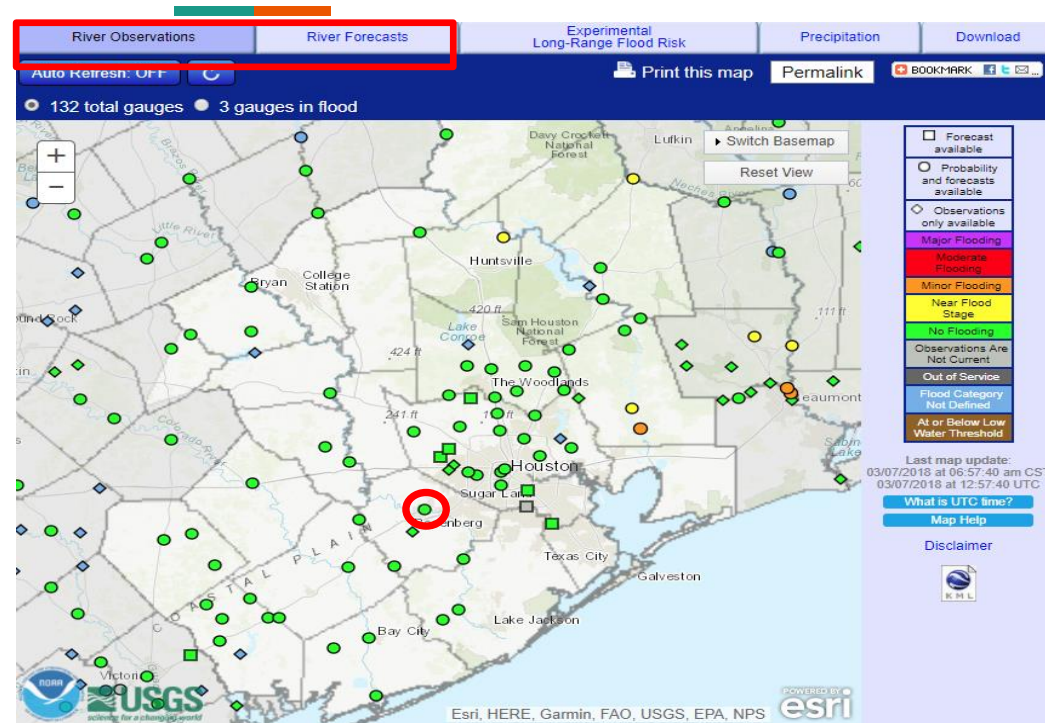
TV and Radio



Social Media



Advanced Hydrologic Prediction System



Flood Categories (in feet)	
Major Flood Stage:	50
Moderate Flood Stage:	48
Flood Stage:	45
Action Stage:	20
Low Stage (in feet):	0

Historic Crests

- (1) 55.19 ft on 09/01/2017
- (2) 54.74 ft on 06/02/2016
- (3) 50.30 ft on 10/21/1994
- (4) 50.01 ft on 06/03/2015
- (5) 49.68 ft on 01/01/1992

[Show More Historic Crests](#)

(P): Preliminary values
subject to further review.

Recent Crests

- (1) 55.19 ft on 09/01/2017
- (2) 54.74 ft on 06/02/2016

[Collapse](#)



If you notice any errors in the below information, please contact our Webmaster

- Major flooding continues with significant home flooding in the following areas: Valley Lodge near Simonton, Bar Rd, Baker Rd/Cummings Rd/Rio Brazos area north of Rosenberg, Edgewood/Baudet Rd in Richmond, and FM 2759 near Thompsons. Low lying homes in Grand River, Rivers Edge, Pecan Estates in Thompson, and Pecan Bend flood as well.
- Major flooding continues with US90A eastbound lanes inundated and impassible between Harlem Rd and New Territory. Pitts Rd is impassible between US90A and Savannah Dr.
- Major lowland flooding continues with FM 359 impassible between US90A and the Pecan Grove levee near Southern Place Dr. The intersection of FM 359 and Mason Rd is impassible. FM 2759 is completely inundated east of Agnes Rd. Street flooding occurs along Sienna Parkway between McKeever Rd and Steep Bank Trace. Street flooding occurs along McKeever Rd between Sienna Parkway and SH6. Miller Rd near Arcola is inundated.
- Major lowland flooding continues with homes near intersection of Sixth St. and Avenue B in Rosenberg beginning to take on water. FM 1489 is inundated south of Simonton to Johnson Rd. FM 723 is inundated north of Rosenberg to FM 359, making the Kingdom Heights and Riverside ranch subdivisions inaccessible. FM 359 between US90A and Pecan Grove begins taking on water. Thompson Ferry Rd south of LJ Parkway is inundated outside of the leveed area.
- Major lowland flooding continues with homes flooding along Cummings/Baker Roads and in Rio Brazos north of Rosenberg. FM 1093 is inundated to Stansberry Rd in Simonton. Underpass at intersection of SH36/90A west of Rosenberg is inundated/impassible. Fort Bend County flood fight operations in Simonton are exceeded and cease. Low lying streets on west side of Quail Valley take on water. Feeder roads along SH6 near intersection of FM 521/McKeever Rd are inundated. Low lying areas along Knights Ct take on water.
- Major lowland flooding begins as homes in Richmond begin flooding and many homes in Simonton and Thompsons have water in them. FM 1458 near FM 1093 remains inundated and closed. Homes along Carroll and McKeever Roads near FM 2759 in southeast Fort Bend County are close to taking water. Strange Drive, Greenwood Drive, and Second Street in Richmond and Sixth Street, Avenue B, and River Road in Rosenberg and Pittman Road in Thompsons are inundated with over one foot of water.

<http://water.weather.gov/ahps2/index.php?wfo=hgx>

USGS Water Alerts

- Set alerts when a gauge reaches certain water surface elevations.
- Identify the gauge nearest you
- Click on the gauge and select "Subscribe to WaterAlert"
- Define how you want to receive the information:
 - Email or phone
 - Frequency
 - Stage or Discharge
 - Stream Elevation(s)
- Note: Use Internet Explorer



WaterAlert

Subscription Form

The U.S. Geological Survey WaterAlert service sends e-mail or text (SMS) messages when [certain parameters](#), as measured by a USGS real-time data-collection station, exceed user-definable thresholds. The development and maintenance of the WaterAlert system is supported by the USGS and its partners, including numerous federal, state, and local agencies.


Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals; in most cases, 1 to 4 times per hour. Emergency transmissions, such as during floods, may be more frequent. *Notifications will be based on the data received at these site-dependent intervals.*

Site Info:	
Number:	08067525
Name:	Goose Ck at Baytown, TX
Agency:	USGS
Transaction ID:	q2CGc
Send Notification To:	about this...
<input type="radio"/> My mobile phone	
<input type="radio"/> My email address	
Notification Frequency:	about this...
Hourly	<input type="radio"/>
Daily	<input checked="" type="radio"/>
Streamflow Parameter(s):	about this...
Discharge, in ft ³ /s	<input checked="" type="radio"/> 16.9 [peak chart]
Gage height, in ft	<input type="radio"/> 5.05 [peak chart]
Alert Threshold Condition:	about this...
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<input type="radio"/> Less than (<)	
<input type="radio"/> Outside a range (< or >)	
<input type="radio"/> Inside a range (> and <)	
Real-time value is greater than: <input type="text"/> ft ³ /s	

☐ I have read and acknowledge the [Provisional Data Statement](#) and [Disclaimer](#).

[How To Use WaterAlert](#)

[Related Information](#)



USGS Water Alerts:

<https://maps.waterdata.usgs.gov/mapper/wateralert/>