

# Climate Change and Resilience: The Big-Picture Framework

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**Why does this matter?**



# 2017 Atlantic Tropical Cyclone Names\*

## AUGUST 9 UPDATE

~~Arlene~~  
~~Bret~~  
~~Cindy~~  
~~Don~~  
~~Emily~~  
~~Franklin~~  
~~Gert~~

~~Harvey~~  
~~Irma~~  
~~Jose~~  
~~Katia~~  
~~Lee~~  
~~Maria~~  
~~Nate~~

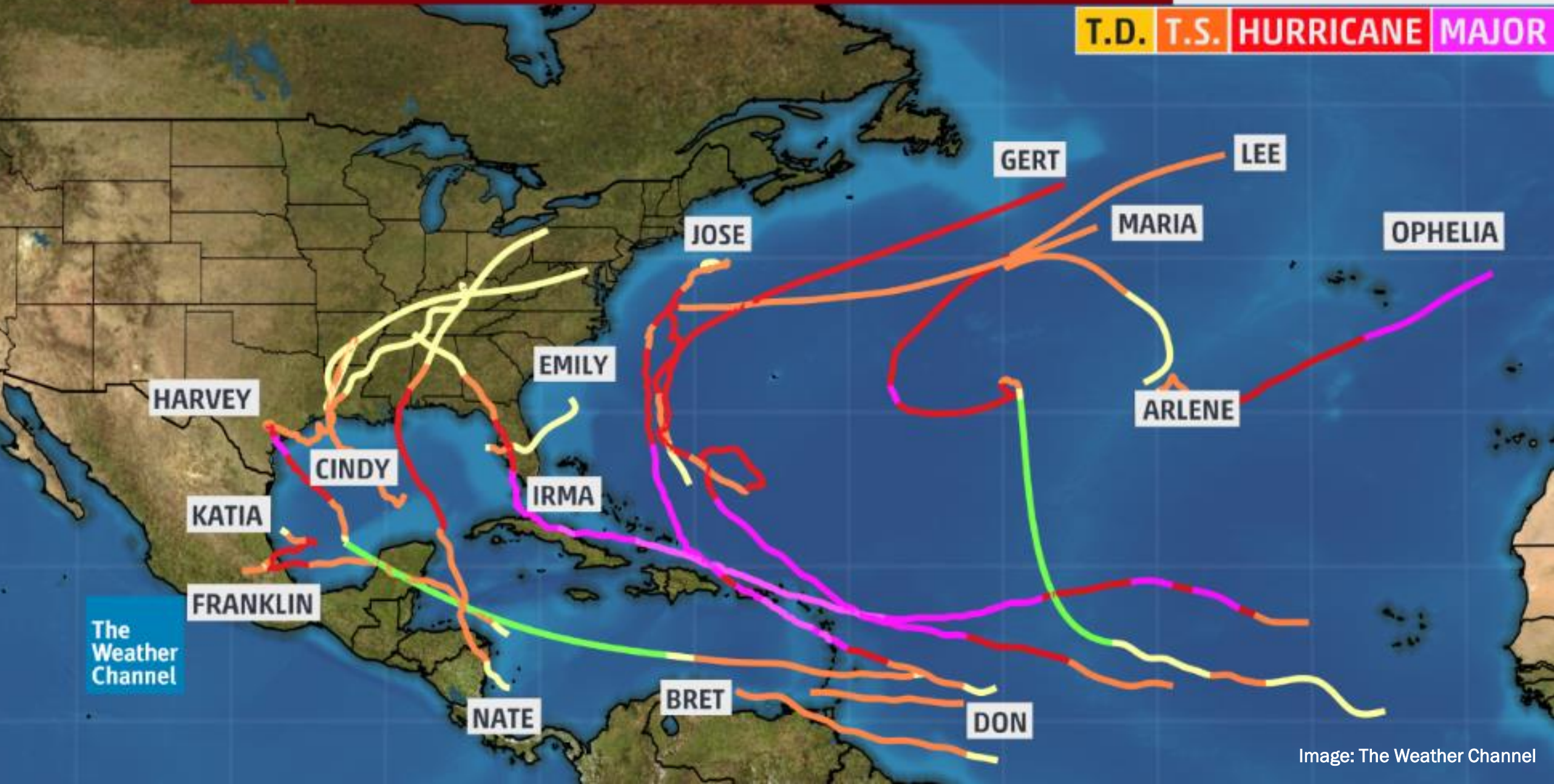
~~Ophelia~~  
~~Philippe~~  
~~Rina~~  
Sean  
Tammy  
Vince  
Whitney



# 2017 HURRICANE SEASON TRACKS

AS OF OCT. 15

T.D. T.S. HURRICANE MAJOR





An aerial photograph of a city, likely Chicago, showing a dense grid of streets and buildings. A large, semi-transparent blue sphere is overlaid on the upper half of the image, partially obscuring the city skyline. The sphere's surface is smooth and has a slight gradient.

Harvey  
**27**  
trillion gallons

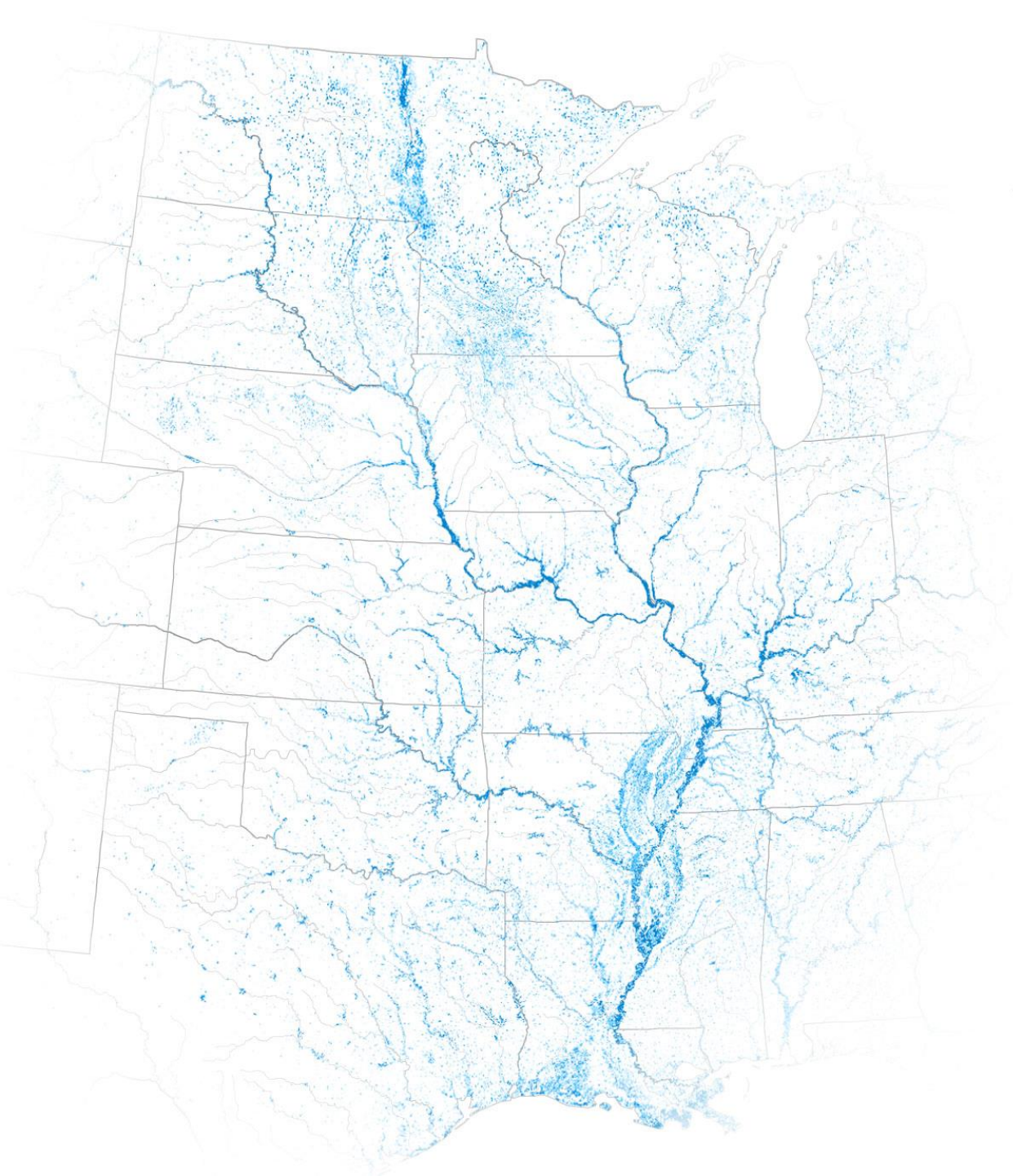






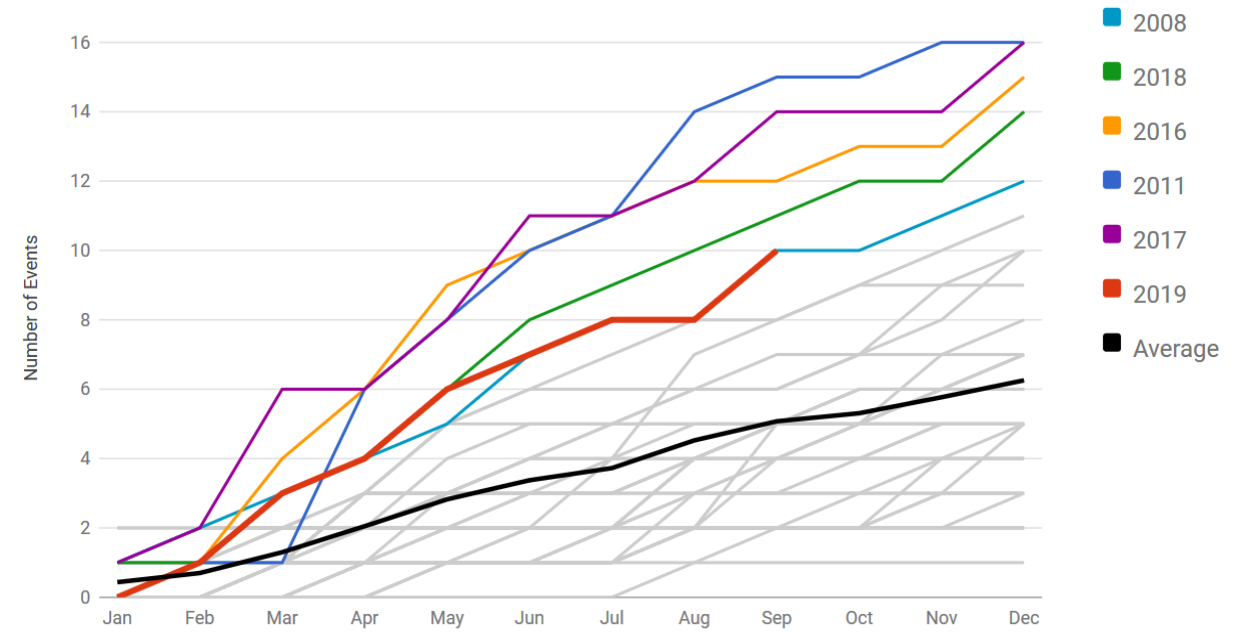






### 1980-2019 Year-to-Date United States Billion-Dollar Disaster Event Frequency (CPI-Adjusted)

Event statistics are added according to the date on which they ended.



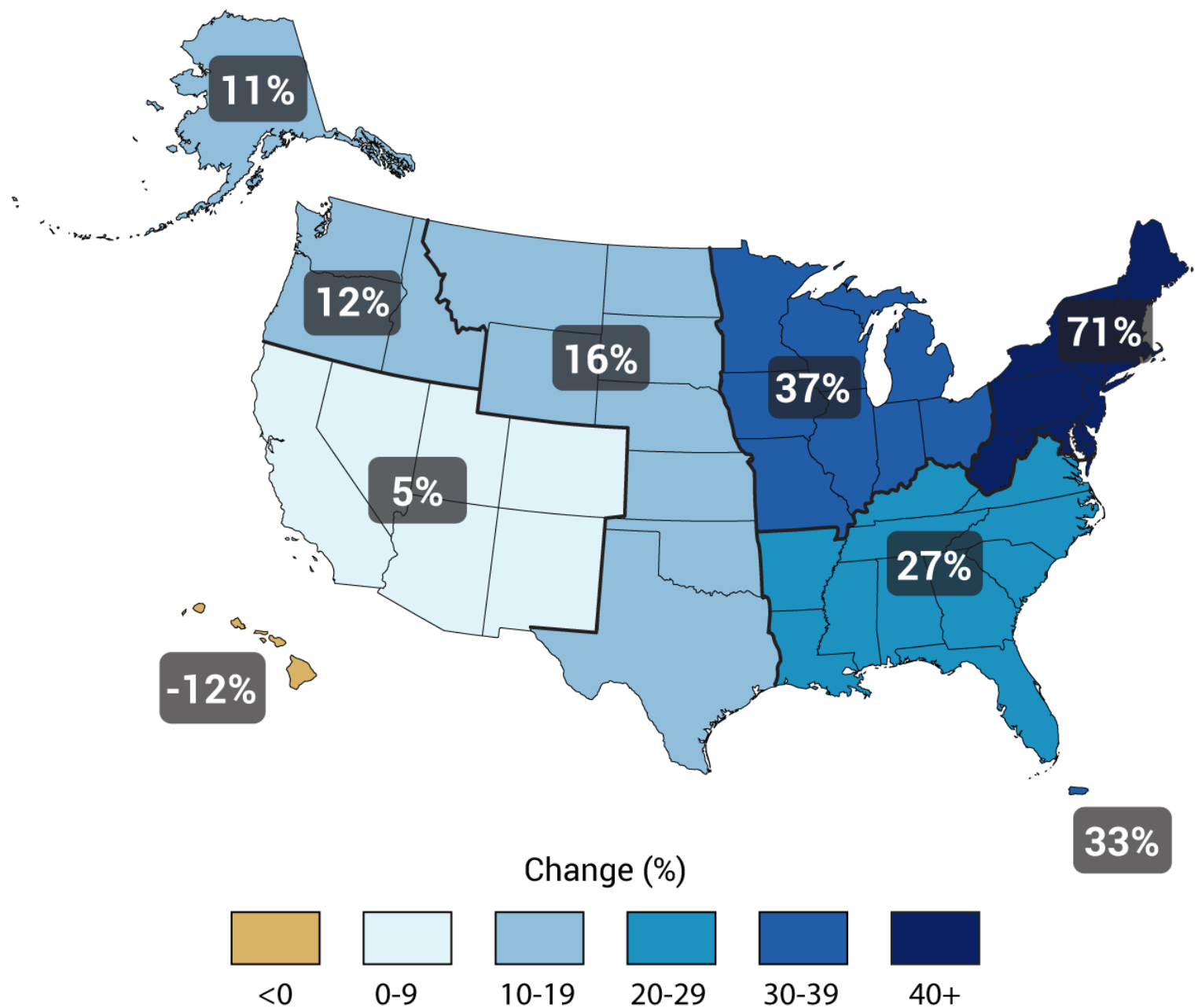
Statistics valid as of October 8, 2019.



**The Pattern is a Problem**



# Observed Change in Very Heavy Precipitation





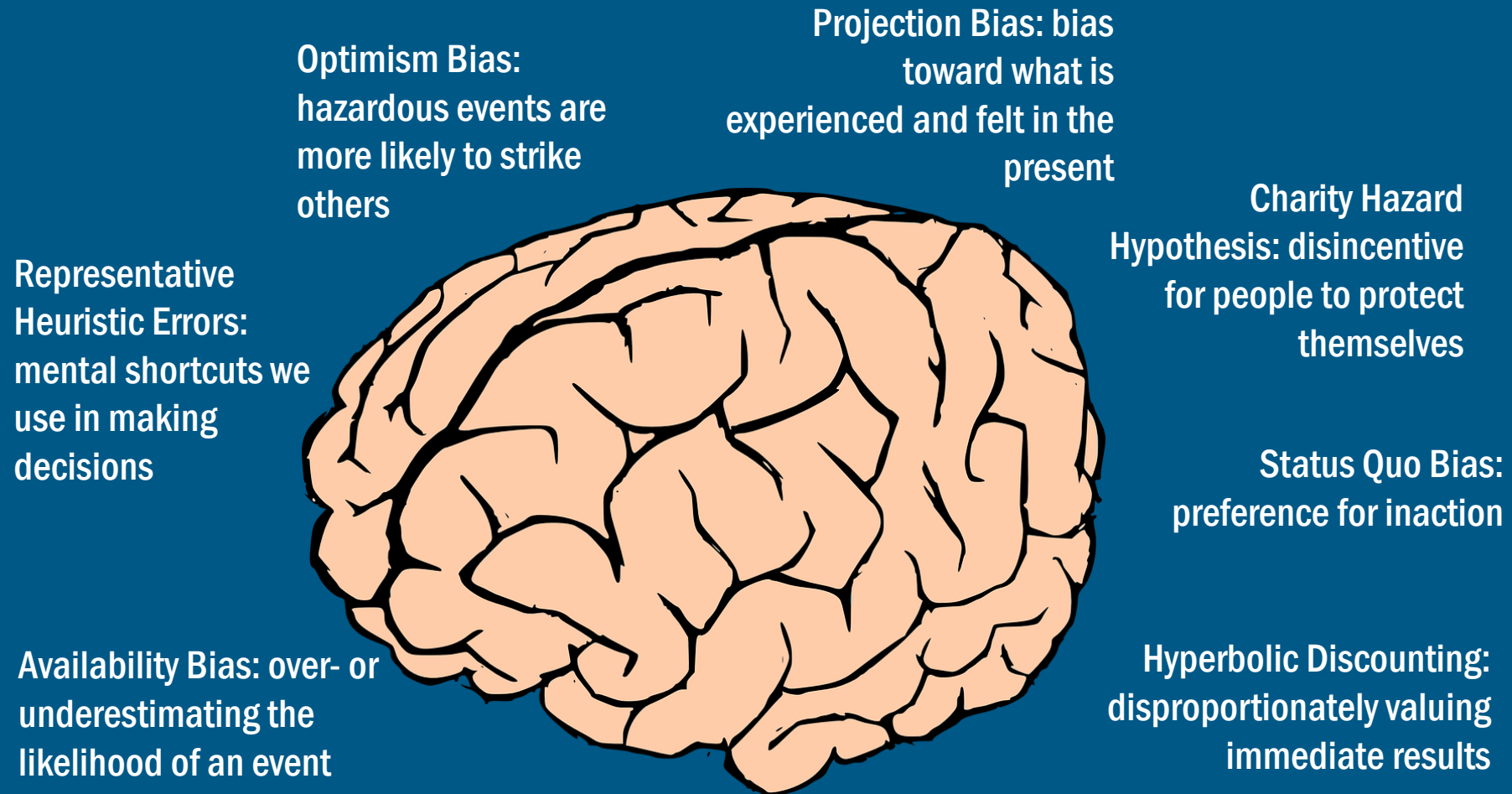


USGS The National Map: Orthoimagery

POWERED BY  
**esri**



# And... Communities Do Not Take Action. It's Science!

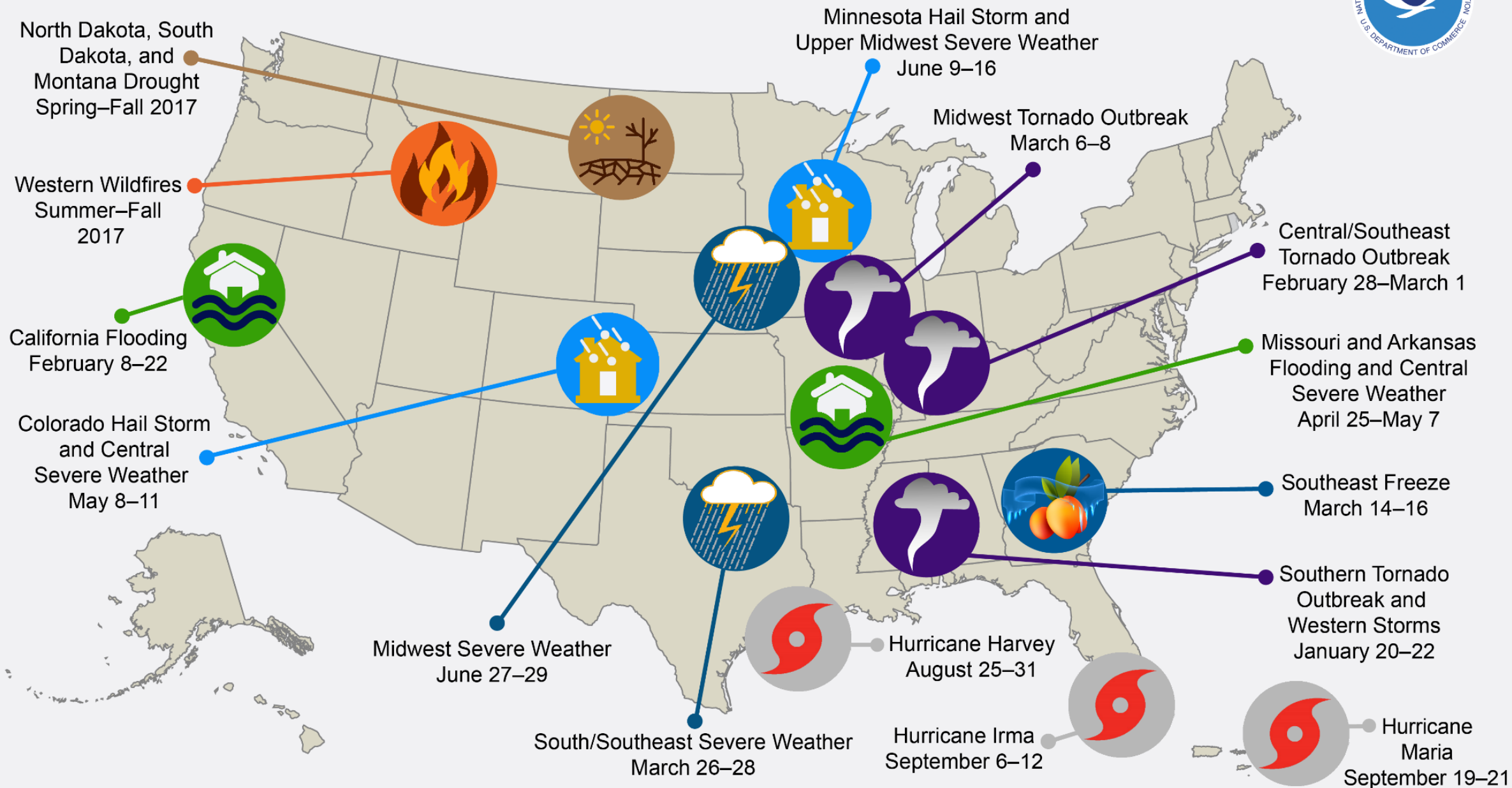








# U.S. 2017 Billion-Dollar Weather and Climate Disasters

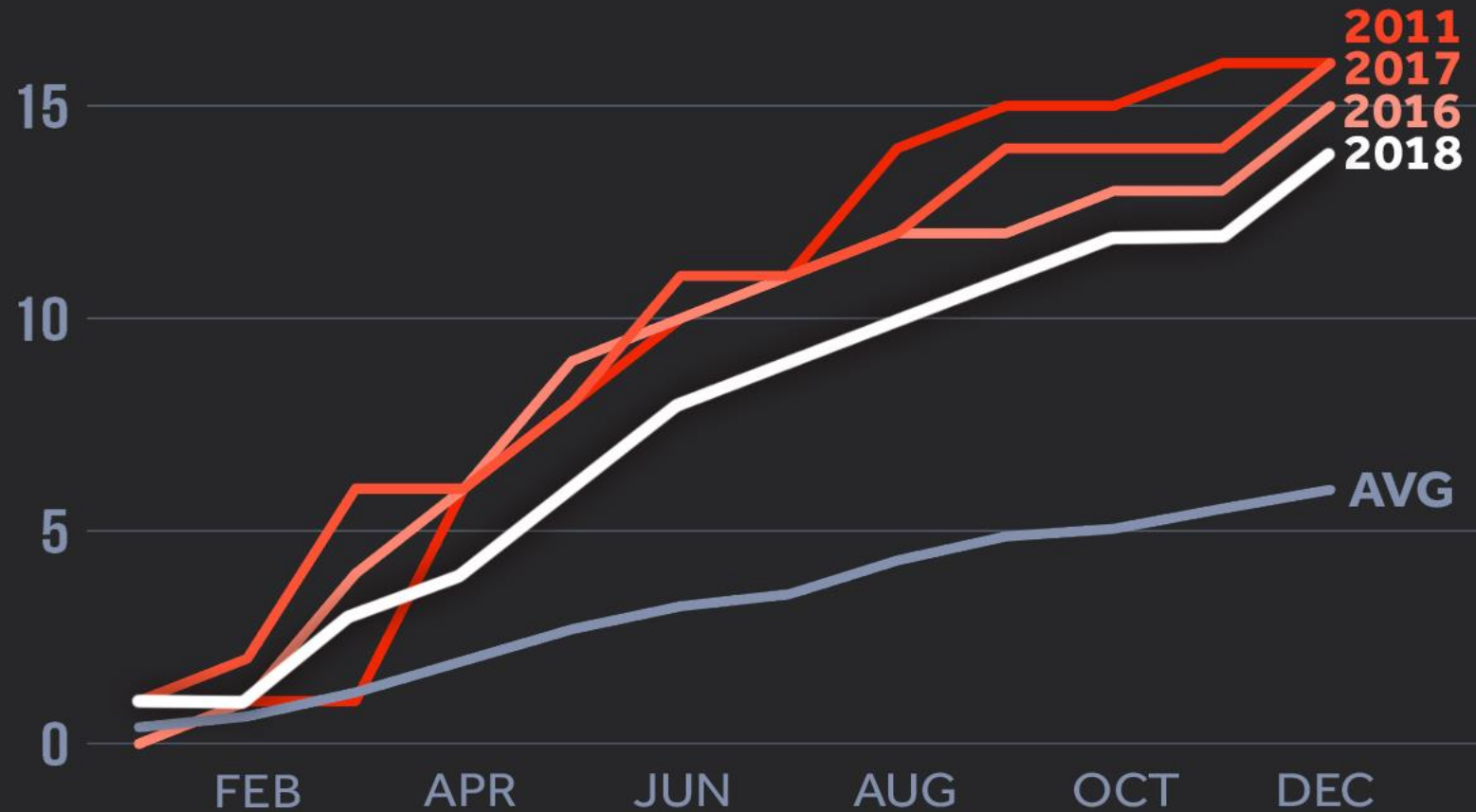


*This map denotes the approximate location for each of the 15 billion-dollar weather and climate disasters that have impacted the United States January through September of 2017, a record pace.*



# 2018 BILLION-DOLLAR DISASTERS

## WEATHER AND CLIMATE EVENTS



Cumulative CPI adjusted billion-dollar disaster frequency, 1980-2018 average.  
Data as of 2/6/2019. Source: NOAA/NCEI





**Wake-up Call**  
Just Ahead

**But what's the role for policy?**



# National Mitigation Investment Strategy

## Goal 1

### **Show How Mitigation Investments Reduce Risk:**

Objective: Provide stakeholders with a foundational understanding of how mitigation investment protects what they value.

## Goal 2

### **Coordinate Mitigation Investments to Reduce Risk:**

Objective: Foster better understanding of risks (quality risk data) to support investment decisions, assure alignment of programs and incentives toward risk reduction goals, and reduce complexity in access to investment funds.

## Goal 3

### **Make Mitigation Investment Standard Practice:**

Objective: Assure that national stakeholders are participating in mitigation activities, especially decisions to enhance building codes and infrastructure (lifeline) standards and the use of financial products that link to mitigation (insurance, cat bonds, resilience bonds).

# DRRA

BUILDING FASTER. BUILDING SMARTER.

**DISASTER RECOVERY REFORM ACT**

[TRANSPORT.HOUSE.GOV](https://TRANSPORT.HOUSE.GOV)





# Risk Rating 2.0

## CURRENT FACTORS

Flood Insurance Rate MAP zone

Base Flood Elevation

Foundation type

Structural elevation (SFHA)



## NEW FACTORS

Distance to the coast or another  
flooding source

Types of flood risk

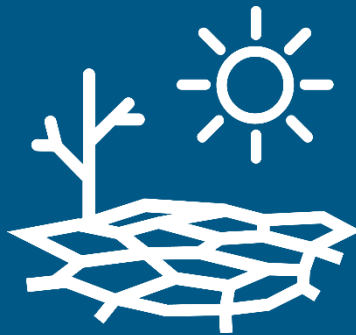
The cost to rebuild a home

**So, What's a Planner to Do?**



**Help build resilience in your community: not just  
bouncing back, **bouncing forward.****

Mitigation is taking action **NOW** to  
prevent natural hazards from  
becoming disasters.





# Mitigation comes in many forms



**Plans and  
Regulations**



**Natural Systems  
Protection**



**Structure and  
Infrastructure  
Projects**



**Education and  
Outreach**

On average,

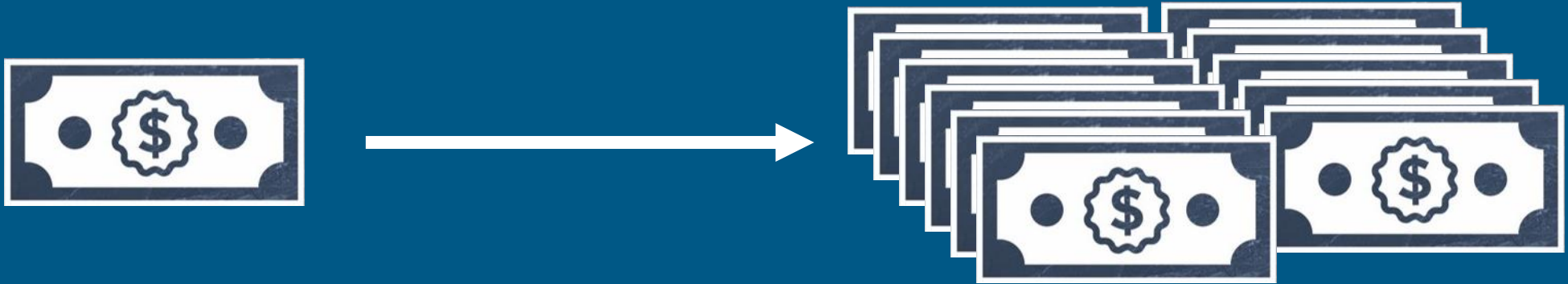


every \$1 in Federal  
grants invested in  
mitigation projects

saves \$6  
later on



And the return is **even higher** for hazard-resistant building codes.



every \$1 invested in  
building codes

saves \$11 in  
avoided losses

But it all starts with planning.





Planning is key to breaking the cycle of disaster damage, reconstruction, and repeated damage.



Mitigation planning helps state, tribal, and local decision-makers **understand their risks** from natural hazards and **prioritize actions** that will reduce the impacts of future events.



Planners have the ability to keep hazards from becoming disasters through the way we choose to **plan, design, and build** communities.

