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Annual Conference

Coastal Disasters in USA

History and Significance of Coastal Federal Disaster
Declarations from 1953 to 2017



May 4, 2017 ASFPM 2017

Are we ready for more \$Billion\$ Disasters?

Recent \$Billion\$ storms:

- Hurricane Sandy
- 2016-17 California Atmospheric River Floods

Recent Trends

- Overall increase in costs and damages
- More severe storms and higher waves



“Regardless of the cause, natural disasters are increasing in severity and frequency.”

(Craig Fugate, Jan. 3, 2017)

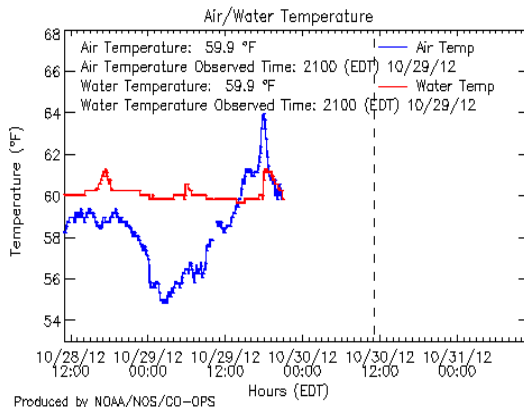
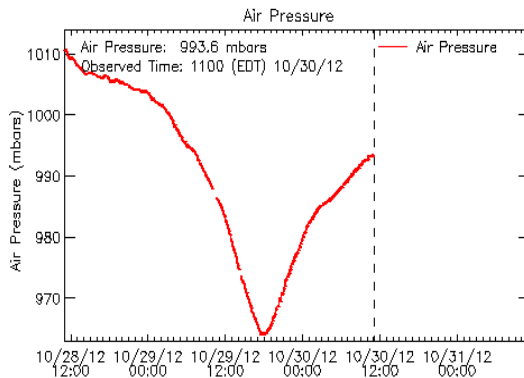
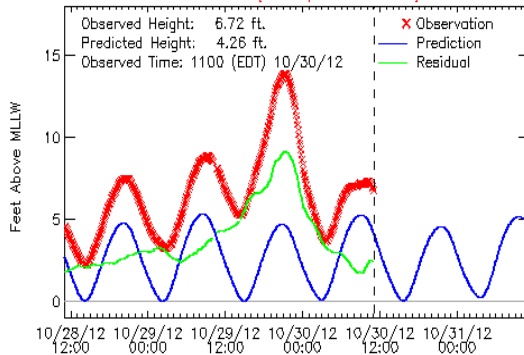


Hurricane Matthew (source: Getty Images)

[source: http://www.tampabay.com/opinion/columns/craig-fugate--a-smarter-way-to-fund-disaster-recovery-in-america/2308268](http://www.tampabay.com/opinion/columns/craig-fugate--a-smarter-way-to-fund-disaster-recovery-in-america/2308268)

8518750 The Battery, NY

Water Levels (Backup Sensor Data)



Produced by NOAA/NOS/CO-OPS

Are we ready for more \$Billion\$ Disasters?

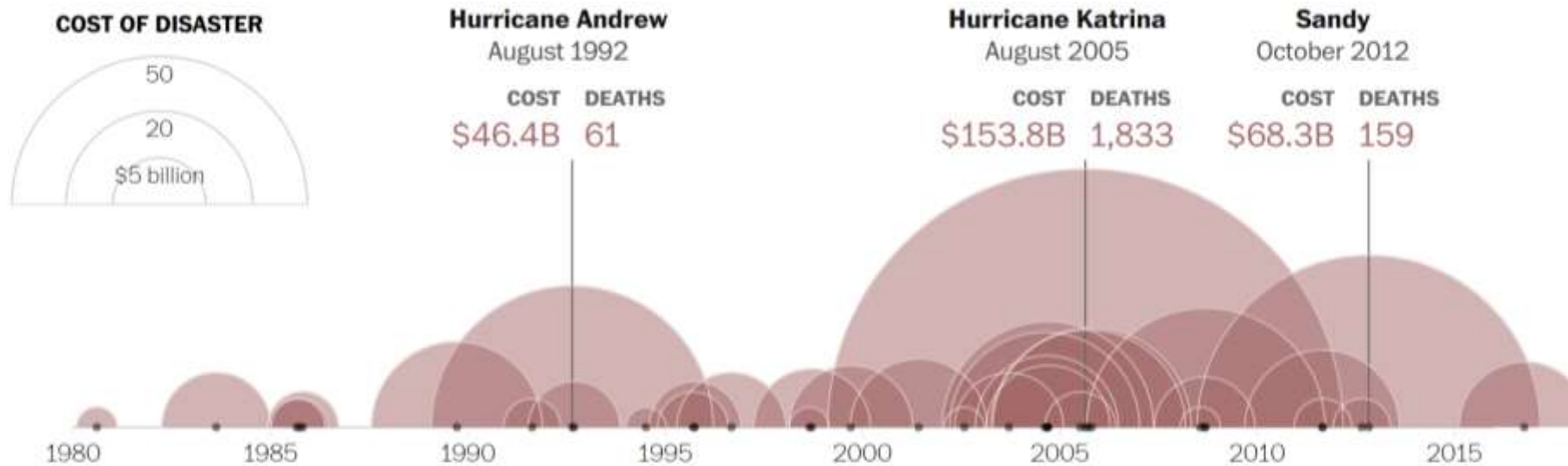
Hurricane Sandy

One year later, in 2013, more than \$1 billion had been approved for New Yorkers through FEMA's Individuals and Households program to help them rebuild their lives. This is part of a total of more than \$8.3 billion in disaster assistance that also includes:

- More than \$1.5 billion in low-interest U.S. Small Business Administration disaster loans,
- More than \$3.7 billion in flood insurance claim payments and
- More than \$2.1 billion for debris removal, repair or replacement of public facilities and reimbursement for emergency expenses.

Are we ready for more \$Billion\$ Disasters?

(source: <https://www.washingtonpost.com/graphics/national/billion-dollar-disasters/>)



Hurricanes

Are we ready for more \$Billion\$ Disasters?

Vulnerable Coasts

- All the developed shorelines and lowlying floodplain

Influence of Sea Level Rise

- 2030: 0.5 m (1 to 2 ft)
- 2050: 1.0 m (2 to 3 ft)
- 2100: 2.0 m (4 to 6 ft) (NRC 2012)



This is raw, unedited data from FEMA's National Emergency Management Information System (NEMIS)

(source: <https://www.fema.gov/media-library/assets/documents/28318>)

Why and How??

FEMA Declaration Data Set - Data As Of: 3/28/17

Disaster Number	NI Program Declared	IA Program Declared	PA Program Declared	HM Program Declared	State	Declaration Date	Disaster Type	Incident Type	Title	Incident Begin Date	Incident End Date	Disaster Close Out Date	Place Code	Declared County
4307	No	No	Yes	Yes	NV	3/27/2017	DR	Severe Storm(s)	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	2/5/2017	2/22/2017		8700	Carson City
4307	No	No	Yes	Yes	NV	3/27/2017	DR	Severe Storm(s)	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	2/5/2017	2/22/2017		0000	Douglas (County)
4307	No	No	Yes	Yes	NV	3/27/2017	DR	Severe Storm(s)	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	2/5/2017	2/22/2017		0007	Eko (County)
4307	No	No	Yes	Yes	NV	3/27/2017	DR	Severe Storm(s)	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	2/5/2017	2/22/2017		0013	Humboldt (County)
4307	No	No	Yes	Yes	NV	3/27/2017	DR	Severe Storm(s)	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	2/5/2017	2/22/2017		0001	Washoe (County)
4308	No	No	Yes	Yes	WY	2/7/2017	DR	Severe Storm(s)	SEVERE WINTER STORM AND STRAIGHT-LINE WINDS	3/8/2017	2/7/2017		0029	Teton (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0017	El Dorado (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0020	Kern (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0007	Los Angeles (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0045	Mendocino (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0055	Napa (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0058	Orange (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0005	Riverside (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0007	Sacramento (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0013	San Diego (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0070	San Luis Obispo (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0001	San Mateo (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0003	Santa Barbara (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0007	Santa Cruz (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0015	Trinity (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0010	Tuolumne (County)
4305	No	No	Yes	Yes	CA	3/18/2017	DR	Flood	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	1/18/2017	1/23/2017		0013	Yolo (County)
4304	No	No	Yes	Yes	KS	2/24/2017	DR	Severe Ice Storm	SEVERE WINTER STORM	1/13/2017	1/16/2017		0009	Barton (County)
4304	No	No	Yes	Yes	KS	2/24/2017	DR	Severe Ice Storm	SEVERE WINTER STORM	1/13/2017	1/16/2017		0005	Clark (County)
4304	No	No	Yes	Yes	KS	2/24/2017	DR	Severe Ice Storm	SEVERE WINTER STORM	1/13/2017	1/16/2017		0003	Cornache (County)
4304	No	No	Yes	Yes	KS	2/24/2017	DR	Severe Ice Storm	SEVERE WINTER STORM	1/13/2017	1/16/2017		0047	Edwards (County)



Natural



Natural



Natural

Agenda

Disaster Declaration Process

- Major Disaster
- Emergency

Types of Disaster Declarations

- Requirements
- Assistance

Categories of Major Coastal Disaster Declarations

- History
- Dominance

Disaster Declaration Process

Disaster Declaration Process

- Only the President of the United States has the discretion to declare emergency and major disasters.
- The Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5207 (the Stafford Act) §401 states in part that:
 - "All requests for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State."



Disaster Declaration Process

- The State reference also includes the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.
- The Compacts of Free Association help establish disaster declarations and assistance eligibility for Republic of Marshall Islands and the Federated States of Micronesia.



Disaster Declaration Process

- The Sandy Recovery Improvement Act provides for recognition of Indian tribal governments who now have the option of pursuing a Federal disaster declaration directly from the President.
- FEMA’s declaration process can be found in the Code of Federal Regulations (C.F.R) under 44 C.F.R. Part §206, [Subpart B](#).



Types of Disaster Declarations

May 4, 2017

Major Disasters Declarations and Emergency Declarations

- Stafford Act has two types of disaster declarations:
 - Major disaster declarations, and
 - Emergency declarations.
- Under these declaration types, the President is to provide supplemental federal disaster assistance.
- However, there are differences in each type of declaration scope and amount of assistance.



Major Disasters Declarations and Emergency Declarations



Major Disaster Declarations:

If the President determines a natural event has caused such severe damage that it is beyond the combined capabilities of state & local governments to respond, a major disaster can be declared, including:

- Hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion.

Emergency Declarations:

The President can declare an emergency for any occasion or instance when the President determines federal assistance is needed.

Emergency declarations supplement State and local or Indian tribal government efforts in providing emergency services, such as the protection of lives, property, public health, and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.

Major Disasters Declarations and Emergency Declarations



Major Disaster Declarations:

- A major disaster declaration can open door to a wide range of federal assistance programs for individuals and public infrastructure. This includes funding for both emergency and permanent work.
- In coastal disasters, this includes emergency sand berms (Cat B) and beach nourishment (Cat G) projects.

Emergency Declarations:

- The total amount of assistance provided for in a single emergency may not exceed \$5 million.
- The President shall report to Congress if this amount is exceeded.

Major Disasters Declarations and Emergency Declarations



Major Disaster Requirements:

The Governor of the affected State or Tribal Chief Executive of the affected Tribe must submit the request within 30 days of the occurrence of the incident.

Emergency Requirements:

The Governor of the affected State or Tribal Chief Executive of the affected Tribe must submit a request within 30 days of the occurrence of the incident.

Assistance Available for Major Disaster & Emergency Declarations



- [Major Disaster](#)
- [Individual Assistance](#)

Assistance to individuals and households, which may include:

- Individuals and Households Program; Crisis Counseling Program
- Disaster Case Management
- Disaster Unemployment Assistance
- Disaster Legal Services
- Disaster Supplemental Nutrition Assistance Program

- [Emergency](#)
- [Individual Assistance \(IA\)](#)
- The Individuals and Households Program (IHP) is the only form of IA that may be authorized under an emergency declaration. Authorization of IHP under an emergency is rare.
- Housing Assistance under IHP is provided at a 100% federal share, while Other Needs Assistance under IHP requires a 25% non-federal cost share.

Assistance Available for Major Disaster & Emergency Declarations



- Major Disaster
- Public Assistance
- Assistance for emergency work and the repair or replacement of disaster-damaged facilities, which may include Categories:
 - A. Debris removal
 - B. Emergency protective measures
 - C. Roads and bridges
 - D. Water control facilities
 - E. Buildings and equipment
 - F. Utilities
 - G. Parks, recreational and other facilities
- Emergency
- Public Assistance (PA)
- Only Categories A (debris removal) and B (emergency protective measures) may be authorized under an emergency declaration.
- Categories C-G (permanent work) are not available under an emergency declaration.
- Emergency assistance is generally provided on a 75% federal, 25% non-federal cost sharing basis.

Assistance Available for Major Disaster & Emergency Declarations



- [Major Disaster](#)
- [Hazard Mitigation Assistance](#)
- Assistance to State, Tribal, and local governments and certain private nonprofit organizations for actions taken to prevent or reduce long term risk to life and property from natural hazards.
- [Emergency](#)
- [Hazard Mitigation Grant Program](#)
- HMGP is not available for emergency declarations.

Categories of Major Coastal Disaster Declarations

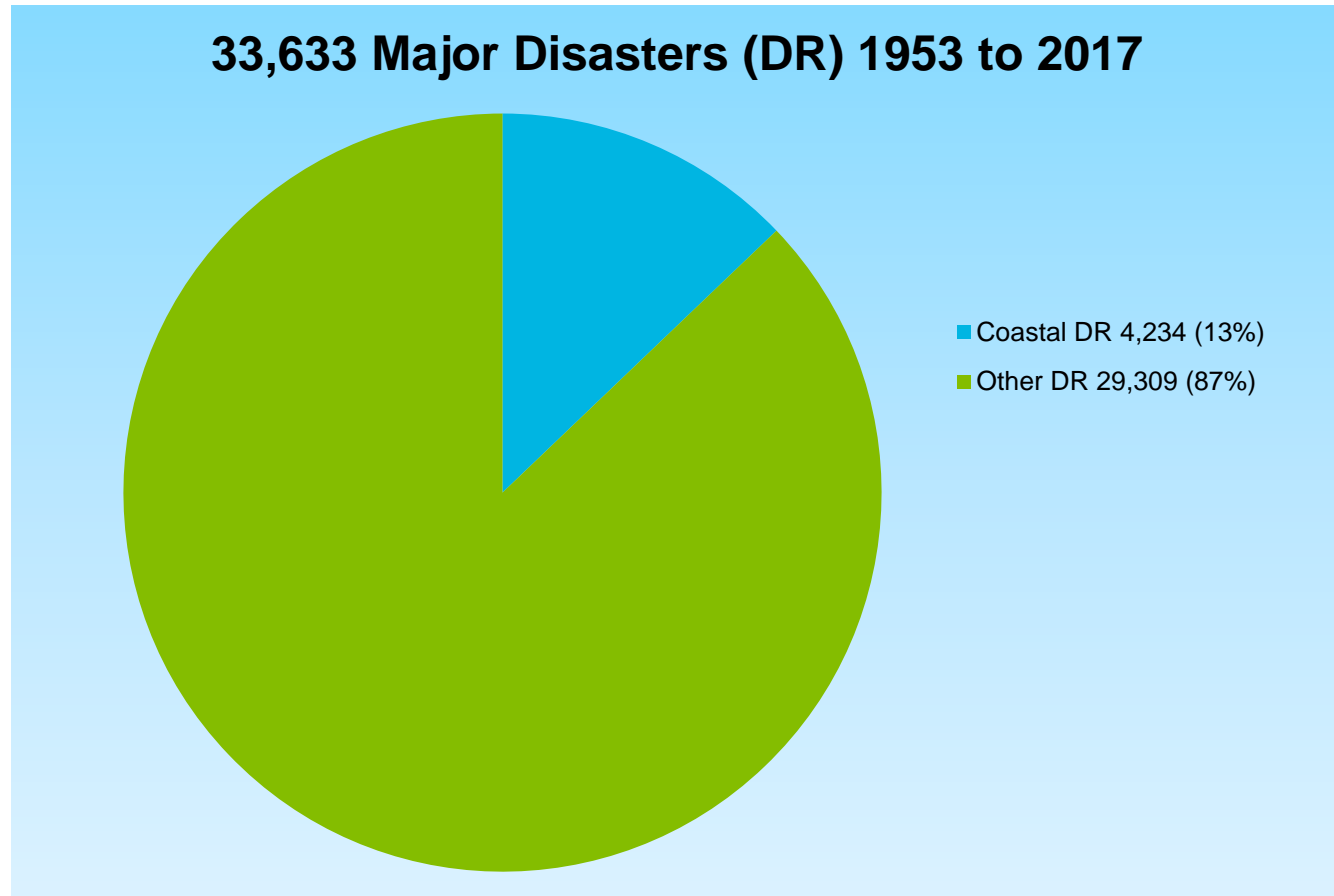
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Types of Major Coastal Disaster Declaration

Six Types

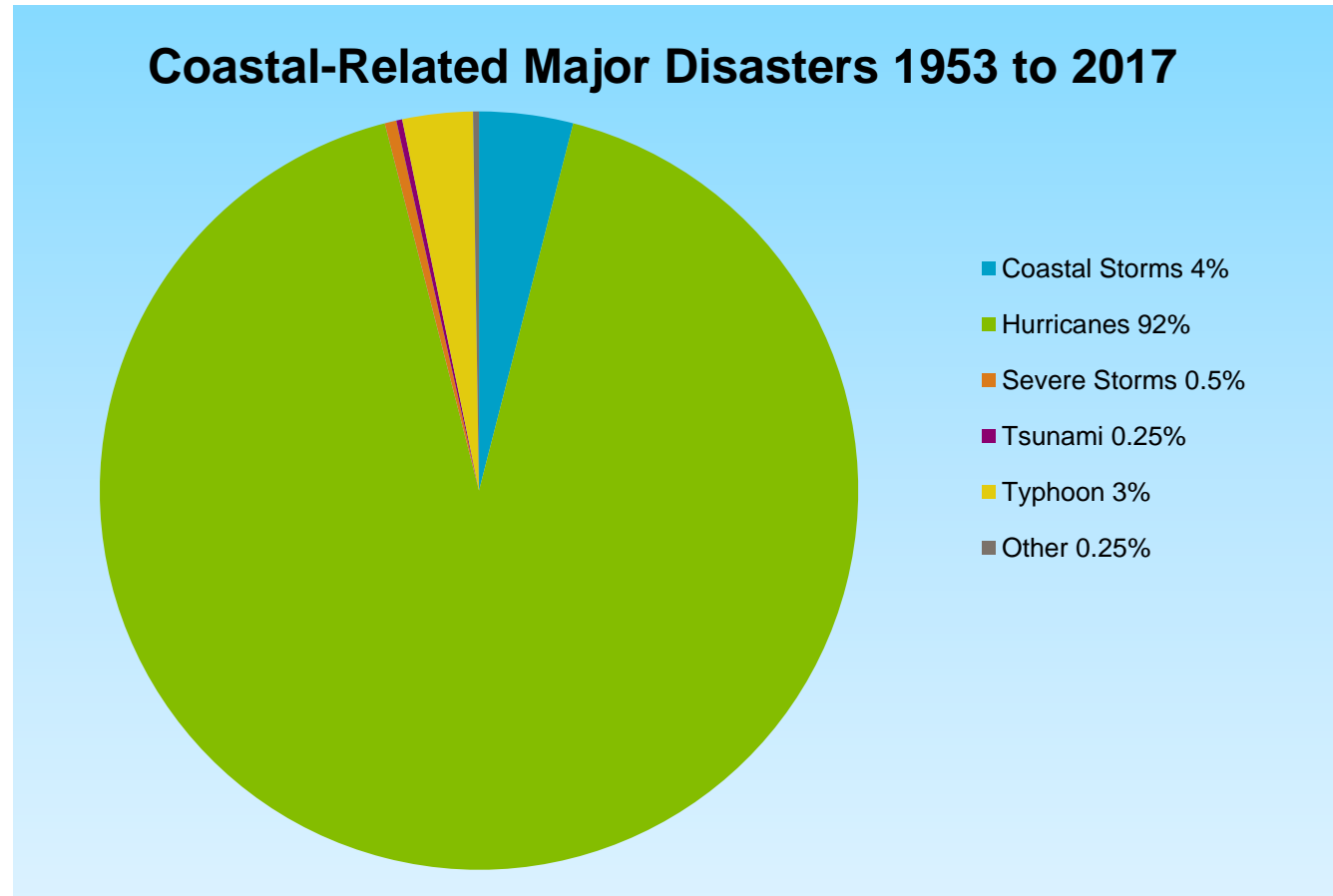
- Coastal Storms
- Hurricanes
- Severe Storm
- Tsunami
- Typhoon
- Other



Types of Major Coastal Disaster Declaration

Six Types

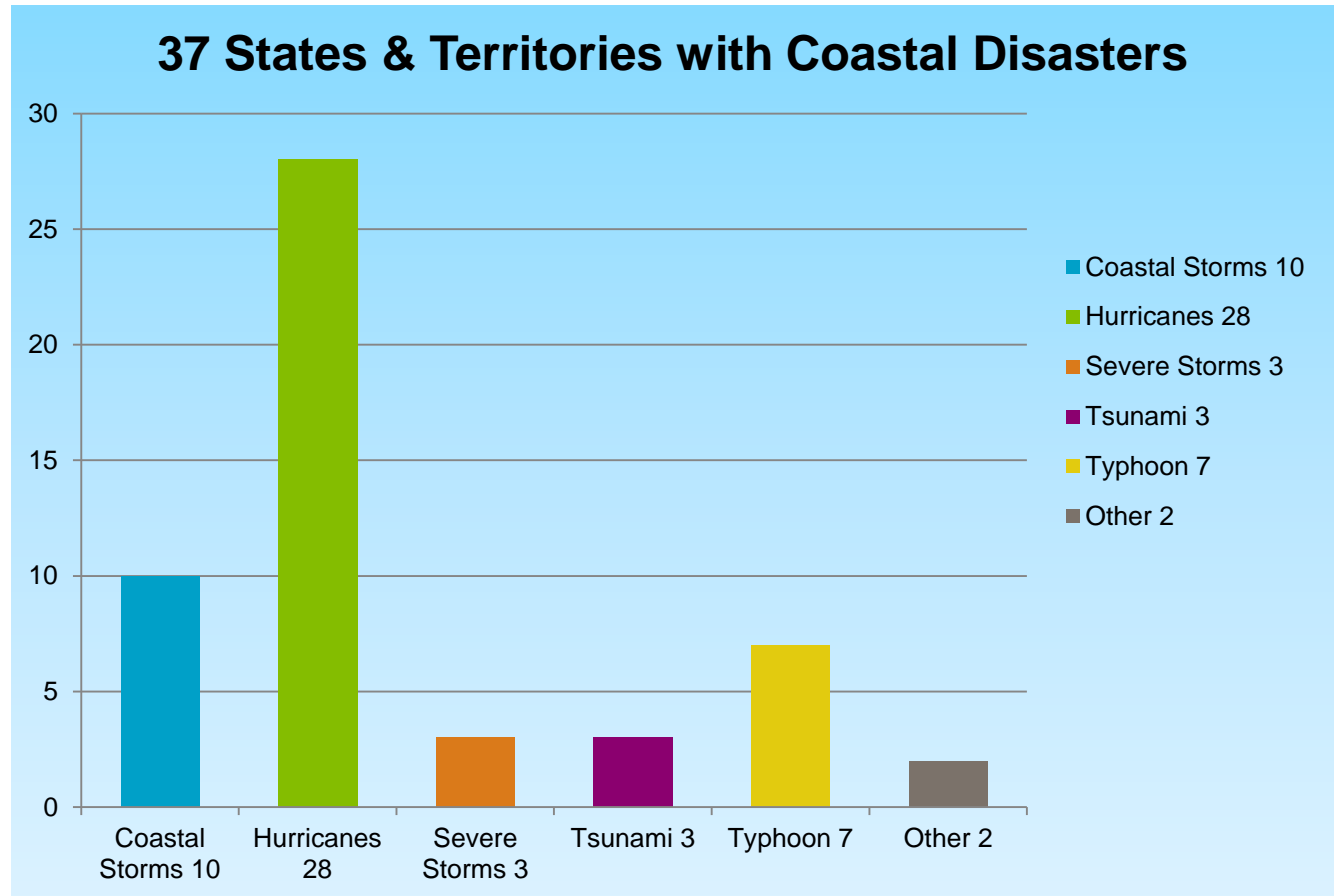
- Coastal Storms
- Hurricanes
- Severe Storm
- Tsunami
- Typhoon
- Other



Types of Major Coastal Disaster Declaration

Six Types

- Coastal Storms
- Hurricanes
- Severe Storm
- Tsunami
- Typhoon
- Other



Coastal Disaster Categories

Coastal Storms: 9 Types

- Severe storm
- Coastal storm
- Coastal Storms, floods, slides & tornadoes
- Severe Coastal Storm & flooding
- Severe storms, tornadoes and flooding associated with tropical storms
- Tropical Storm Agnes, Allison, Fay, and Lee
- Winter coastal storm
- High surf and wave action
- Severe winter coastal storm, high winds, & flooding



Coastal Disaster Categories

– Coastal Storms

– **Hurricanes (82)**

- Hurricanes (68) Alex, Alicia, Allen, Andrew, Belle, Bertha, Betsy, Beulah, Bob, Bonnie, Bret, Camille, Carla, Carmen, Celia, Charley, Cindy, Claudette, Cleo, David, Dennis, Diana, Dolly, Donna, Dora, Dot, Earl, Edith, Elena, Emily, Erin, Floyd, Fran, Frances, Frederic, Georges, Gilbert, Gladys, Gloria, Gustav, Hermine, Hilda, Hortense, Hugo, Ida, Ike, Iniki, Irene, Isaac, Isabel, Isidore, Ivan, Jeanne, Juan, Kate, Katrina, Lenny, Lili, Marilyn, Matthew, Ofa, Omar, Opal, Rita, Sandy, Tusi, Val, and Wilma
- Tropical Storms (10) Bonnie, Charley, Dennis, Frances, Frederic, Henri, Irene, Isidore, Ivan, and Maria,
- Tropical Depression (1) Ivan
- Severe storms & flooding (1); Severe storms & flooding associated with H. Gustav
- Other (3): Hurricanes; Hurricane & severe storm; and Hurricane, torrential rain and floods



Coastal Disaster Categories

- Coastal Storms
- Hurricanes
- **Severe Storms (2)**
 - Severe storms, and inland & coastal flooding (NJ & RI)
 - Severe storms, flooding, tidal surge, landslides, & mudslides (WA)





Coastal Disaster Categories

- Coastal Storms
- Hurricanes
- Severe Storms
- **Tsunamis (3)**
 - Tsunami waves (CA & HI), and
 - Tsunami wave surge (OR)
 - All declared in 2011 (caused by March 2011 Tohoku, Japan Earthquake)

Coastal Disaster Categories

- Coastal Storms
- Hurricanes
- Severe Storms
- Tsunamis
- **Typhoons (44)**

- Super Typhoons (3) Keith, Paka, & Pongsona
- Typhoons (37) Alice, Gay, Esau, Chata'an, Dinah, Kim, Amy, Axel, Fern, Jean, Koryn, Lola, Louise, Lupit, Lynn, Marie, Mike, Mitag, Nabi, Nina, Olive, Orchid, Owen, Pongsona, Dolphin, Karen, Omar, Paka, Pamela, Roy, Russ, Sally, Soudelor, Therese, Yuri, Iwa, & Zelda
- Tropical Storms (2) Chata'an, & Roy
- Typhoon & High Tides (1)
- Flooding, high surf, high winds, and wind driven rain (1)

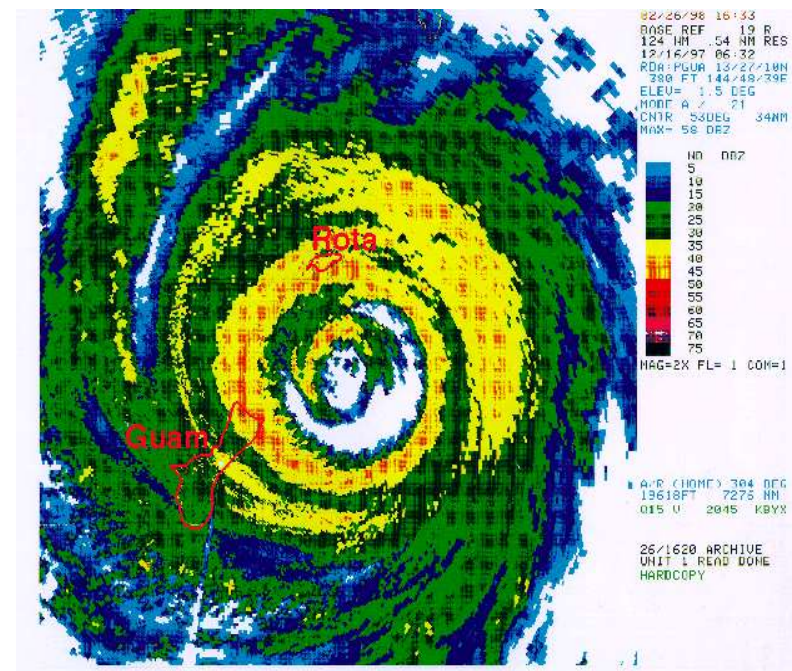
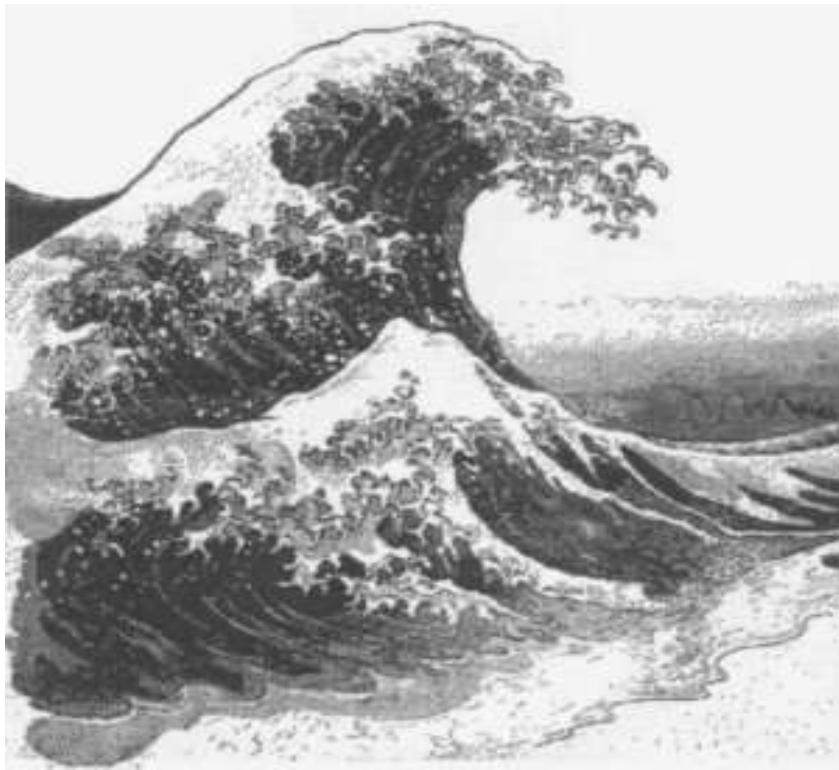


Figure D-1: Radar reflectivities (dBZ) from the Guam WSR-88D for Typhoon Paka at 632 UTC 16 December 1997. Paka concentric eyewalls, which likely existed throughout its closest approach to Guam, can be seen in this image.



Major Coastal Disaster Declaration

- Coastal Storms
- Hurricanes
- Severe Storms
- Tsunamis
- Typhoons
- **Other (3)**
 - Seismic Sea Wave (CA),
 - Tidal Wave (HI), and
 - Tidal Waves (HI)

Discussion

Coastal Storms = 170

- TX had the most at 42 (25%)

Hurricanes = 3,969

- **LA had the most at 511 (13%)**

Severe Storms = 27

- NJ had the most at 15 (56%)





Discussion

Tsunami = 9

- CA, OR, and HI all had 3 each (33.3%)

Typhoon = 146

- **Northern Marianna Islands had the most at 111 (76%)**

Other = 3

- HI had 2 (66.6%) and CA had 1 (33.3%)

Conclusions & Observations

- Of the 27 disaster types, 6 are for coastal-related disasters (22%).
- There are no coastal disasters with a major declaration for Kansas.
- Louisiana has the most historical coastal disaster declarations in parishes from 1953 to 2017 with 511 for hurricanes (average of 8 per year).
- According to new data, people in low to moderate flood risk areas receive 33% of post-disaster assistance funding.
- The cost of disasters increases each year making \$Billion disasters like H. Sandy more common.
- The disaster trend (severity and frequency) will skew upward with advances in sea level rise.



Coastal Disasters in USA



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Questions?

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Thank you for participating!

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