Welcome to the 2018 Hurricane Season
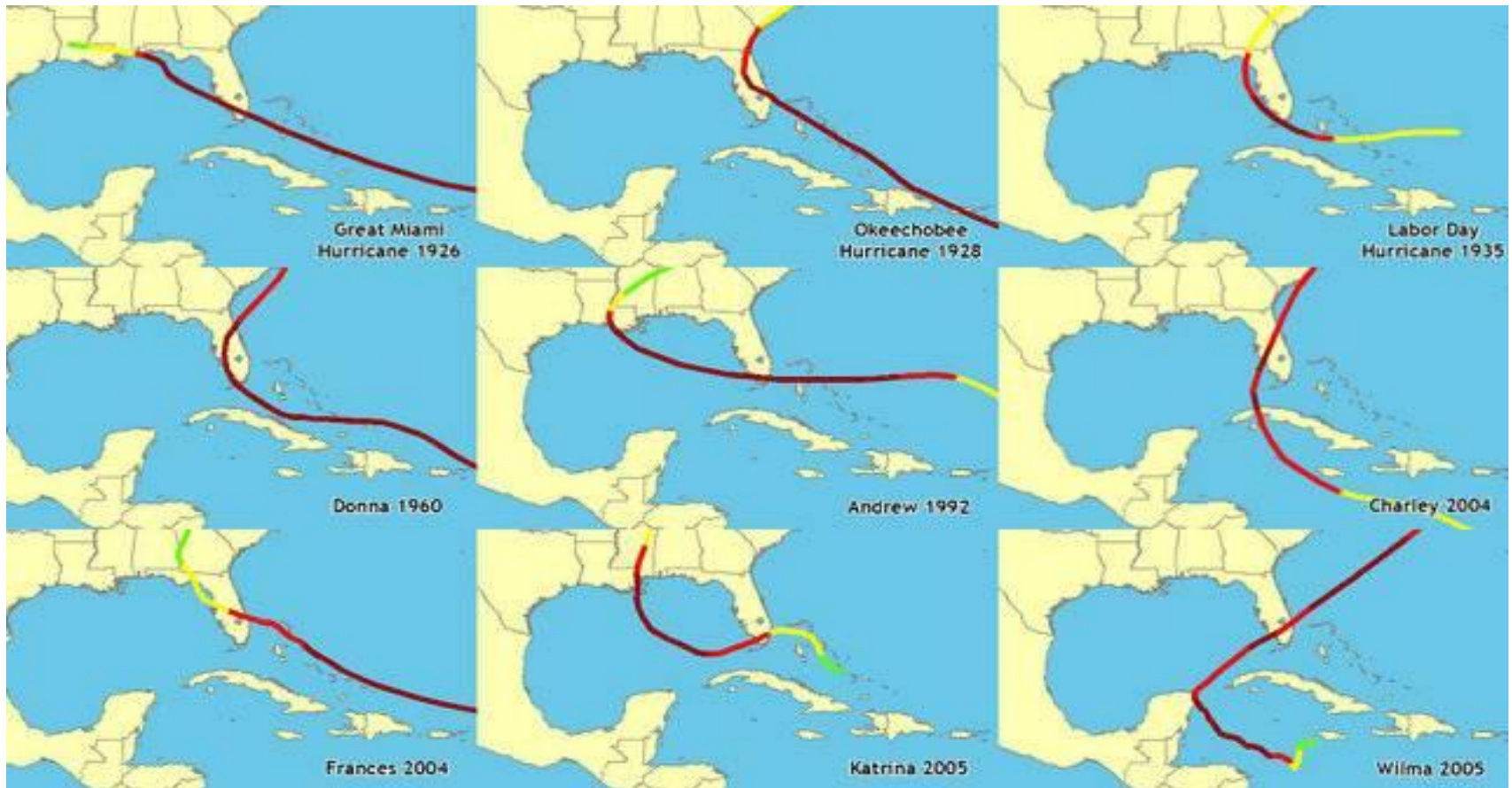
Hurricane Season runs from June 1- November 30.

Damage-causing characteristics of a hurricane are:

- the high winds,
- storm surge, and
- large waves,
- They each have potential for total destruction of property and livelihoods

- In Florida the most active months are August and September, followed by October. In fact, twice as many hurricanes have hit Florida in October than in August.
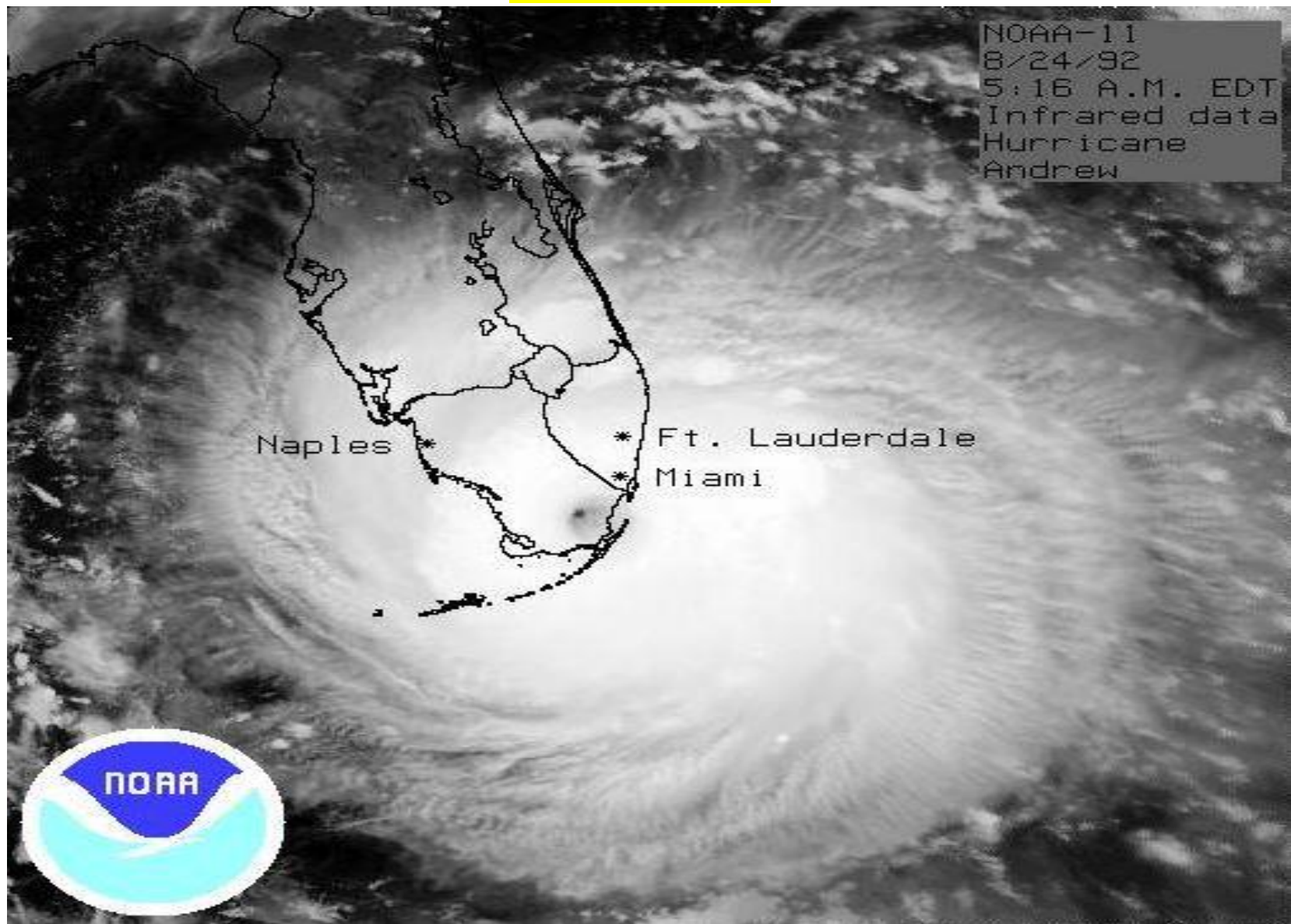
- Collectively the months of June, July, and November account for about 16 percent of all Florida Hurricanes.

- August, September, and October months account for the remaining 84 percent.

Florida major hurricanes	Saffir-Simpson Category	Year
Andrew	5	1992
Opal	3	1995
Charley	4	2004
Ivan	3	2004

Florida hurricane paths (NOAA)

Great Miami Hurricane 1926

Okeechobee Hurricane 1928

Labor Day Hurricane 1935

Donna 1960

Andrew 1992

Charley 2004

Frances 2004

Katrina 2005

Wilma 2005

ANDREW

- **Hurricane Andrew 1992** The third-most powerful hurricane to hit the United States in the 20th century, Hurricane Andrew wreaked havoc throughout the Bahamas, Florida, and Louisiana, causing $26.5 billion ($41.1 billion in 2010 dollars) in damage and 43 deaths. According to the book *Florida Hurricanes and Tropical Storms*, 117,000 homes in Dade County, Florida, were destroyed or suffered major damage. Slow governmental response didn't help, either. As Kate Hale, Dade's emergency management director, proclaimed at a press conference, "Where in the hell is the cavalry on this one? They keep saying we're going to get supplies. For God's sake, where are they?"

- **Hurricane Opal 1995**
- Hurricane Opal, the strongest hurricane in the unusually active 1995 season, hit the Florida Panhandle, traveling up through Alabama, before lessening into a tropical storm in Tennessee. Opal caused about $3 billion ($6 billion in 2010 dollars) in damage and 59 deaths.

• Hurricane Mitch 1998

- Hurricane Mitch's barreling winds—at times, up to 180 miles per hour—hit Honduras, Guatemala, and Nicaragua as a minimal hurricane, before carrying on to Florida as a strong tropical storm. Mitch caused about $6.2 billion ($8 billion in 2010 dollars) in damage and between 10,000 and 11,000 deaths, most of them as a result of of severe flooding. The storm was one of Central America's worst natural disasters ever.

Hurricane Floyd 1999

- Hurricane Floyd triggered the third-largest evacuation in U.S. history, forcing 2.6 million coastal residents to flee from their homes in five states. The storm struck the Bahamas hard and then weakened before making landfall in North Carolina and traveling north to New England. Floyd was responsible for 57 deaths and $4.5 billion ($6 billion in 2010 USD) in damage. Heavy criticism of FEMA followed. Jesse Jackson, for example, complained to FEMA Director James Lee Witt on CNN, saying, "It seemed there was preparation for Hurricane Floyd, but then came Flood Floyd. Bridges are overwhelmed, levees are overwhelmed, whole towns under water...[It's] an awesome scene of tragedy."

Tropical Storm Allison 2001

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  - Tropical Storm Allison devastated Texas, causing about $5.5 billion ($6.77 billion in 2010 dollars) in damage and 41 deaths. The deadliest and costliest tropical storm ever to hit the U.S., Allison is also the only tropical storm to have its name retired without reaching hurricane strength.

• Hurricane Katrina 2005

- Hurricane Katrina was the costliest disaster—and one of the five deadliest—in the history of the U.S., causing $81.2 billion ($90.1 billion in 2010 terms) in damages and 1,836 deaths. President George W. Bush called a state of emergency two days before landfall, but it was too late: The storm quickly went on to ravage Louisiana—and New Orleans especially. New Orleans Mayor Ray Nagin ordered a mandatory evacuation and called Katrina "a storm that most of us have long feared."

Hurricane Wilma 2005

- The most intense hurricane ever recorded in the Atlantic basin—with winds reaching up to 185 miles per hour—Hurricane Wilma made landfall in several locations: Mexico's Yucatán Peninsula, Cuba, Haiti, Jamaica, and Florida. Wilma caused $29.1 billion ($32.3 in 2010 terms) in damage and 22 deaths. The storm provided a rare moment for U.S.-Cuba relations, too, when the latter accepted emergency aid from America. "This was the first time they have accepted an offer of assistance," U.S. State Department spokesman Sean McCormack told NewsMax.com at the time.

Hurricane Ike 2008

- The third costliest storm to hit the U.S., Hurricane Ike was the most intense Atlantic storm of 2008. Ike, which devastated land from Texas to Mississippi to the Florida Panhandle, caused $37.6 billion ($38 billion in 2010 dollars) in damage and as many as 50 deaths. It caused the largest evacuation in Texas state history, too, despite about 40 percent of Galveston residents staying put.

Natural Types of Disasters

- **Agricultural diseases & pests**
- **Damaging Winds**
- **Drought and water shortage**
- **Earthquakes**
- **Emergency diseases (pandemic influenza)**
- **Extreme heat**
- **Floods and flash floods**
- **Hail**

- **Hurricanes and tropical storms**
- **Landslides & debris flow**
- **Thunderstorms and lighting**
- **Tornadoes**
- **Tsunamis**
- **Wildfire**
- **Winter and ice storms**
- **Sinkholes**

- Hurricanes and tropical storms are among the most powerful natural disasters because of their size and destructive potential.
- Tornadoes are relatively brief but violent, potentially causing winds in excess of 200 mph.
- Both earthquakes and tornadoes strike suddenly without warning.
- Flooding is the most common of natural hazards and requires an understanding of the natural systems of our environment, including floodplains and the frequency of flooding events.
- Wildfires are more prevalent in the event of a drought.

2004 CHARLEY PROBLEMS

- Weather reporters anticipated Charley would hit Tampa (which rarely if ever happened)

- Caused Tampa area residents to evacuate and move east to the Orlando area

- Charley hit west Florida at Punta Gorda (Charlotte County, south of Tampa) and moved east toward and landed in ORLANDO!!

- Charley caused HUD to have several fronts

WHAT DID HUD DO

- FEMA setup Hurricane Command HQ in Orlando
- Governor issues state of emergency
- All HUD program offices (FHEO, PIH, CPD and MF)
  - Made sure HUD MIA staff were secure
  - Determine the status of HUD funded partners and make sure that their Teams are secure
  - HUD programs determine the problems in the communities hit (Housing needs, water and food assistance)
  - Ascertain damage (flooding, tornado/hurricane physical damage)

List of Natural Disasters in the United States

YEAR	DISASTER	DEATH TOLL	DAMAGE COST	Main article	LOCATION	NOTES
2017	Hurricane	112-4760	$91.61 billion	Hurricane Maria	Florida and Puerto Rico	After strengthening at a near record pace and affecting multiple islands in the eastern Caribbean Sea, Maria struck Puerto Rico as a high-end Category 4 hurricane, causing catastrophic damage to the US island due to extremely powerful winds and devastating floods. The hurricane also knocked out the entire power grid, triggering a near total island blackout. The lack of aid after the disaster caused a humanitarian crisis, the worst in the US since Hurricane Katrina, which lasted several months and had a dramatic effect on Puerto Rico's population. Maria is the third costliest hurricane in history, behind only Katrina and Harvey.
2017	Hurricane	134	$64.76 billion	Hurricane Irma	Florida, South Carolina, Georgia, Puerto Rico	Hurricane Irma ravaged the northern Leeward Islands as an extremely powerful Category 5 hurricane before making landfall in the Florida Keys as a Category 4 hurricane, and in the mainland as a Category 3 hurricane. Irma caused widespread damage in Florida due to high winds and destructive floods. The Florida Keys were hit the hardest, with the vast majority of infrastructure there receiving some degree of damage, and at least 25% receiving major damage. Hurricane Irma also knocked out power to 73.33% of the state, or 7.7 million homes and businesses. Irma is the fifth costliest hurricane of all time.
2017	Hurricane	107	$125.00 billion	Hurricane Harvey	Texas, Louisiana, Alabama	Hurricane Harvey began as a tropical storm in the Caribbean Sea before degenerating into a tropical wave, only to regenerate in the Gulf of Mexico and make landfall in Southwestern Texas as a Category 4 hurricane. Most of the damage from Harvey occurred after it had weakened, due to extreme prolonged rains dropping several feet of water that triggered unprecedented floods in a large swath of Southeastern Texas, with the worst of the flooding occurring in Houston. Hurricane Harvey is widely considered to be the worst flooding disaster in the United States since Hurricane Katrina in 2005, which it tied with as the costliest hurricane in history.

Year	Type	Deaths	Cost	Event	Location	Notes
2016	**Wildfire**	**14**	**$990 Million**	**2016 Great Smoky Mountains wildfires**	**Tennessee**	**Destroyed nearly 2,000 structures; burned nearly 18,000 acres.**
2016	Hurricane	49	$15.09 Billion	Hurricane Matthew	Florida, Georgia, The Carolinas	
2016	Flood	13		2016 Louisiana floods	Louisiana	
2016	Flood	23		2016 West Virginia flood	West Virginia	
2016	Blizzard	55	$500,000,000	January 2016 United States blizzard	Southeast through Mid Atlantic to Northeast	Snowfall totals in excess of two feet (61 cm)
2015	Flood	25	Billions	October 2015 North American storm complex	Carolinas	
2015	Flood	20		2015 Utah floods	Utah	
2015	Wildfire	3	$6–8 billion	Okanogan Complex fire	Okanogan County, Washington	Damage figure includes costs involved in the fighting of the fire.
2015	Flood	46		2015 Texas–Oklahoma floods	Texas, Kansas, Oklahoma	
2014	Snow storm	24		November 2014 North American winter storm	Buffalo, New York, Great Lakes region	

Year	Type	Deaths	Damage	Event	Location	Notes
2014	Tornado	35	$1 billion	April 2014 tornado outbreak	Nebraska, Louisiana, Oklahoma, Illinois, Florida, North Carolina	
2014	Mudflow	43		2014 Oso mudslide	Oso, Washington	
2013–2014	Cold wave	21		Early 2014 North American cold wave	Eastern US	
2014	Wildfire	19		Yarnell Hill Fire	Yarnell, Arizona	
2013	Flood	8	$1.9 billion	2013 Colorado floods	Colorado	
2013	Tornado	24	$2 billion	2013 Moore tornado	Moore, Oklahoma	
2013	Blizzard	18		February 2013 nor'easter	Eastern US	
2012	Wildfires	6		2012 Colorado wildfires	Colorado	
2012	Hurricane	147	$75 billion	Hurricane Sandy	Eastern US	
2011	Tornado	160	$69,000 – $3,000,000,000 (2011)	2011 Joplin tornado	Joplin, Missouri	part of the tornado outbreak sequence of May 21–26, 2011
2011	Tornado	346	~$11,000,000,000 (2011)	2011 Super Outbreak	Alabama, Tennessee, Mississippi, Georgia, Arkansas and Virginia	336 tornadoes

2011	Flood	20	$2–4 billion[2][3]	2011 Mississippi River floods	Mississippi River Valley	
2010	Flood	20		June 2010 Arkansas floods	Albert Pike Recreational Area (near Langley, Arkansas)	
2009	Tsunami	31		2009 Samoa earthquake and tsunami	American Samoa and nearby islands	189 total deaths, with 31 in American Samoa.
2008	Tornado	59	$1.2 Billion	2008 Super Tuesday tornado outbreak	Tennessee, Arkansas, Kentucky, Alabama, and Illinois	
2010	Flood	20		June 2010 Arkansas floods	Albert Pike Recreational Area (near Langley, Arkansas)	
2009	Tsunami	31		2009 Samoa earthquake and tsunami	American Samoa and nearby islands	189 total deaths, with 31 in American Samoa.
2008	Tornado	59	$1.2 Billion	2008 Super Tuesday tornado outbreak	Tennessee, Arkansas, Kentucky, Alabama, and Illinois	
2007	Wildfires	14		California wildfires of October 2007	California	Large fires burned out of control across southern California, fueled by unusually strong Santa Ana winds; worst around San Diego; caused evacuation of over one million people. Most fires accidental; some suspected arson.

2006	Snow storm	19	$530,000,000 (2006)	Lake Storm "Aphid"	Buffalo, New York	
2005	Hurricane	1,836	$125,000,000,000	Hurricane Katrina	Florida, Louisiana, Mississippi, Alabama	August 25, 2005 – Hurricane Katrina, category 1 at the time, makes landfall near the Broward/Miami-Dade County border producing gusty winds and heavy rainfall peaking at 16.33 inches (415 mm) in Perrine. Damage amounts to $523 million (2005 USD, $656 million 2017 USD) in the southern portion of the state, and twelve people die in southern Florida; three from drowning, three from falling trees, and six from indirect causes.[49] Minor damage is reported along the Florida Panhandle from its landfall in Mississippi.[50]
2005	Hurricane	120	$10,000,000,000 (2005)	Hurricane Rita	Louisiana, Texas	
2005	Tornado	25	$92,000,000	Evansville Tornado of November 2005	Missouri, [[India]], Kentucky, Ohio	7 tornadoes
2005	Hurricane	124	$19,000,000,000 (2005)	Hurricane Ivan	Texas, Florida, East Coast	August 13, 2004 – Hurricane Charley makes landfall on Cayo Costa with winds of 150 mph (240 km/h) and hours later hits the mainland portion of the state at Punta Gorda, becoming the strongest hurricane to hit the United States since Hurricane Andrew in 1992. The winds damage or destroy thousands of homes, knock down tens of thousands of trees, and leave more than 2 million Floridians without power. Charley results in eight direct fatalities, 20 indirect casualties, and 792 reported injuries. Throughout the state, damage is estimated at $13.5 billion (2004 USD, $17.5 billion 2017 USD), at the time the second costliest hurricane in United States history; it has since dropped to sixth.[
2004	Hurricane	49	$9,000,000,000	Hurricane Frances	Florida	

2004	Hurricane	10	$15,000,000,000	Hurricane Charley	Florida	August 13, 2004 – **Hurricane Charley** makes landfall on **Cayo Costa** with winds of 150 mph (240 km/h) and hours later hits the mainland portion of the state at **Punta Gorda**, becoming the strongest hurricane to hit the United States since **Hurricane Andrew** in 1992. The winds damage or destroy thousands of homes, knock down tens of thousands of trees, and leave more than 2 million Floridians without power. Charley results in eight direct fatalities, 20 indirect casualties, and 792 reported injuries. Throughout the state, damage is estimated at $13.5 billion (2004 USD, $17.5 billion 2017 USD), at the time the second costliest hurricane in United States history; it has since dropped to sixth.[
2002	Hurricane	41	$5,500,000,000	Tropical Storm Allison	Texas, Louisiana, Pennsylvania	
1999	Heat wave	271			Midwest and Northeast	
1999	Tornado	48	$1,500,000,000 (2005)	1999 Oklahoma tornado outbreak	Oklahoma, Kansas, Texas, Tennessee	74 tornadoes
1998–1999	Landslide	0	$70,000,000	Aldercrest-Banyon landslide	Kelso, Washington	
1998	Blizzard	30		North American ice storm of 1998	Canada and Northeast	
1997	Flood	0	$2,000,000,000	1997 Red River flood	North Dakota, Minnesota, Southern Manitoba	

Year	Type	Deaths	Damage	Name	Location	
1996	Flood	8	$500,000,000	Willamette Valley flood of 1996	Washington, Oregon, Idaho, California	
1995	Heat wave	739		Chicago heat wave of 1995	Chicago, Illinois	
1995	Flood	6	$1,360,000,000	May 8, 1995 Louisiana flood	New Orleans, Louisiana, area	
1994	Earthquake	57	$23,000,000,000	Northridge earthquake	Greater Los Angeles area	
1993	Blizzard	79–300	$6,600,000,00	Storm of the Century	East Coast of North and Central America	
1993	Flood	50	$15,000,000,00	Great Flood of 1993	Midwest	
1992	Hurricane	26	$25,000,000,00	Hurricane Andrew	Florida and Louisiana	

IF YOU'RE GOING HAVE A GOOD DISASTER PROGRAM

Know Your Stuff -

- Know what the disaster history of your area is
- Know what to expect from your offices perspective, programs perspective, FEMA's
- Know what went right and wrong in the past
- Determine how to prepare, assist, lead for the future

Know those whom you are stuffing –

- Identify those agencies who have your dollars

  - Identify those who will require your services (PHAs, local residents, businesses; your recipients, contractors and subcontractors)
  - Identify what kind of assistance will they need that can be delivered (emergency food and shelter; short and longterm housing; clean drinking water,
  - Identify what local companies, organizations and people have the skills and abilities to be a part of the challenge
  - Identify the level of the problem
  - Identify what federal dollars will be used for

Recipients partners are (FHIP AND FHAP, City/County Fair Housing Coordinators; Section 3 Coordinator Pilot Program recipients; Section 3 Business Registry Partners & Members).

1. FHEOs priorities are Civil Rights Related Program Requirements and Section 3
2. Identifying Housing information for the community (Boards of Realtors, Apartment Associations, Builder Associations)
3. Assist residents in obtaining housing
4. Get the Section 3, Title VIII and Nondiscrimination information out to the community
5. Take complaints, investigate allegations and resolve complaints

I. Create a Section 3 Disaster Protocols

I. **Develop Section 3 Abbreviated Disaster Protocols -** The purpose of the protocol is to develop a coordinated approach to the FHEO response to the implementation of Section 3 and Civil Rights efforts initiated as a result of a disaster emergency. The strategy should include:

III. <mark>**Develop a Recipient Section 3 Pre - Disaster Plan**</mark>

A. Develop a Section 3 "pre" disaster training program that includes:

1. Section 3 regulatory responsibilities
2. Section 3 Recipient Disaster Plan
3. Section 3 Recipient Memorandum of Understanding (MOU)
4. Information on How to apply for disaster contracts
5. Successful Implementation of Disaster Grants – What's required?
6. List of Section 3 Business Concerns
7. Lis of Recipient Contractors
8. List of Section 3 Joint Venture Businesses
9. SBA Partnerships
10. Identifying viable housing and job opportunities
11. How to get your organization, staff and contacts ready

B. Initiate an Annual (Recipient Name) Section 3 "pre" disaster training meeting collectively with:

1. ALL Agency Program Counterparts
2. All local Civil Rights Fair Housing Initiative Program and Fair Housing Assistance Program (HUD FHIP and FHAP) Partners
3. All area PHAs
4. All Contractors, subcontractors and organizations on the Agency's procurement lists
5. All CPD, Single and MF Housing Partners
6. Section 3 Business Concerns in the recipient and HUD Business Registry
7. Section 3 residents (Neighborhood community associations, PHA Resident Council Organizations)
8. Housing industry groups (Apartment Associations, Realtors, Builders, Unions, etc.)
9. Work investment boards, job opportunity centers, Churches, etc.
A. Develop master contact listings for all of the groups listed above.
B. Participate in the Annual FHEO Section 3 "pre" disaster training meeting.
C. Develop a Disaster MOU for signature by each group in Sections A and B.
D. **KEEP COPIES OF ALL DOCUMENTATION PERTINENT TO EACH OF THE ABOVE ACTIVITIES.**