

# Environmental Risk Management: Weather, Climate Change, and Natural Disasters

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## 2005 – My Family Home New Orleans Post Hurricane Katrina



# Journey to Preparedness

1. Historic review of climate
2. Understanding what is changing and why
3. Financial resource considerations
4. Security essentials
5. Protecting staff and the community
6. Protecting assets
7. What assets can and can't be conserved;  
recovering and stabilizing items
8. Advice from experienced entities
9. Q&A

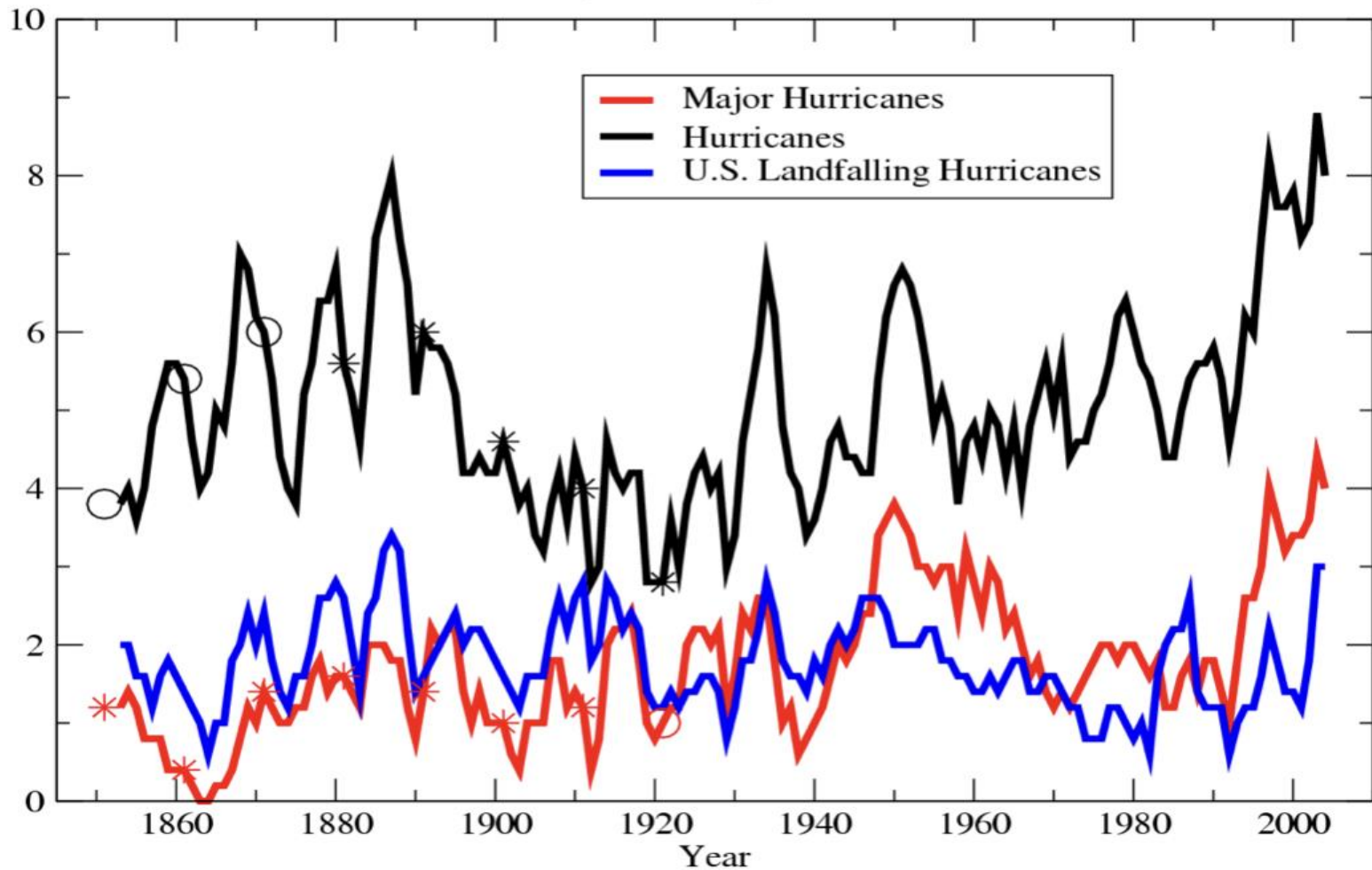
# Recent Memorable Disasters

- 2005: New Orleans & the States of Louisiana, Mississippi, and Arkansas – Hurricane Katrina (Cat 3, 1800+ fatalities, \$170B) followed by Hurricane Rita
- 2014: Atlanta, GA – Big Ice Storm
- 2017: Florida Keys – Hurricane Irma (Cat 5, 82 fatalities, \$77+B)
- 2017: Texas & Louisiana – Hurricane Harvey (Cat 4, 100+ fatalities, \$125B)
- 2018: Florida Panhandle – Hurricane Michael (Cat 5, 43 fatalities, \$25.5B)
- 2019: North Carolina – Hurricane Florence (Cat 4, 54 fatalities, \$24+B)
- 2020: St. Charles, Louisiana – 3 Hurricanes & Tropical Storms
- 2021: Texas – Big Freeze (111 fatalities, \$18+B)
- 2021: North America – Winter Storm Uri (137 fatalities, \$195+B costliest winter storm on record)

So many more...

## Atlantic Basin Hurricane Counts (1851-2006)

5-year running means





# Big Texas Freeze

- Power
- Water
- Infrastructure
- Communications
- Construction
- Basic Human Needs



# Weather / Global Conditions

- Hurricanes (IPCC.CH)
- Floods
- Winter Storms
- Wildfires
- Tornadoes
- Earthquakes / Volcanoes

The common factor for increasing severity  
of all these occurrences:

**MORE MOISTURE, HUMIDITY, AND WATER**

# Actions

- Threat or Impact
- Initial Assessment
- Response
- Recovery





# Financial Resource Considerations

- Risk financing / insurance coverage
- Updated property / contents valuations
- Buildings
- Location of key contents
- Consider provisions of resource relief

# Security Essentials

Securing Buildings & Facilities is Vital, Particularly Command Posts.

- City Hall / County Government
- Governor's Office
- Police / Sheriff's Departments
- State Troopers / Highway Patrol
- National Guard
- Mutual Aid Partners
- Security Services



# Data Storage / Recovery

- Assess what is Mission Critical.
- Budgeting considerations.
- **Plan, maintain, test continuously at least 2x year.**
- Daily incremental backups.
- Encryption.
- Store On-Site and Off-Site / Off-Campus.
- Back-Up Systems.
- Extra precautions to begin as soon as a storm warning is issued for your area.
- Equipment infrastructure may need to have battery backups.
- Have good IT personnel resources in place.

# Protect the Community

- Infrastructure, drainage systems, and dams.
- Evacuation.
- Communication for the citizens.



# Communication

- Update the staff contact list.
- Have staff provide a non-work email address.
- **Texting** will queue cellular phone service is compromised.
- Purchase several **satellite telephones**
- Install at least one **non-digital telephone landline** in all buildings.
- Wind-Up-Power and Pre-Charged Cell Phone Chargers, Short-Wave/CB Radio, Walkie-Talkies.
- Create a staff only section on your website.
- Place bulletin boards in strategic locations for messages before, during, and after the disaster.





# Protect Staff



## **STAFFING NEEDS:**

- Make pre-arrangements for potential housing of the Preparation Team.
- Provide materials for short term survival.
- Bottles of cooler water, bottled water, and paper products.

# Protecting Assets

## **ADDITIONAL ITEMS FOR CONSIDERATION:**

- Disaster remediation/restoration companies.
- Insulation.
- Use glow tabs for identification of items in the dark.
- Disaster response carts.

## **POWER REDUNDANCIES:**

- Electrical and water cut-offs and access to emergency equipment.
- Generators, back-up power.
- If flood prone, consider installing a natural gas generator above highest expected flood water height.
- Solar panels with battery wall.
- When to turn off water, gas, and the HVAC.
- Flashlights.

# Protecting Assets: Keep Mold From Spreading

- Work fast
- Clean
- Air circulation
- Lower the humidity and temperature
- Dehumidifiers
- Isolate any moldy objects



# Rescuing & Stabilizing Objects for Conservation / Restoration

Disaster Remediation and Restoration Companies.

Call the American Institute for Conservation at 202-452-9545. Save repair work for conservators.

## **What to rescue:**

Irreplaceable, expensive, historic,  
Even if too far damaged - hold

## **What not to rescue:**

Replaceable, inexpensive, modern,  
upholstered

**PHOTOGRAPH FIRST  
BEFORE SALVAGING!**

# Rescuing & Stabilizing Objects for Conservation / Restoration

- Paintings
- Statues
- Artifacts
- Wood / Veneered Pieces
- Furniture
- Upholstered Items
- Framed Items
- Photographs
- Books
- Documents / Recordkeeping
- Textiles

## For most items:

- Rinse in clear water at site.
- Air dry.
- Circulated air – freeze paper after 2 days if not dry.
- Expose to indirect sunlight for a brief time.
- When dry, carefully pack with bubble wrap for transport (leave small openings for air circulation) then immediately unwrap and lie flat to air dry.
- Furniture / wood – dab dry or dry with a soft cloth.
- Veneer – place weights on top.

# Rescuing & Stabilizing Objects for Conservation / Restoration

## PHOTOGRAPHS & FRAMED ITEMS

- Rinse, air dry, and/or call the AIC for advice.
- Never freeze old photographs or negatives.
- Framed items – call AIC for help before doing anything.

## TEXTILES

- If you must move wet textiles, use a solid support or stretched canvas to carry them.
- Do not attempt to unfold extremely delicate fabrics if the fragile layers are stuck together.
- Wait until they are dry and consult a conservator.



# Rescuing & Stabilizing Objects for Conservation / Restoration

## SAFE & CAREFUL HANDLING

- Beware of serious health hazards associated with mud and mold.
- If the item may have been contaminated with toxic chemicals like concentrated pesticides, other unknown toxic materials, or sewage, do not attempt to salvage it or use PPE and containment.
- While efforts to salvage flood damaged items are important, salvaging should not be done at the expense of human health and safety.

# Advice From Experienced Entities

- Most forms of communication may fail.
- You may be on your own in most instances.
- No single source will provide adequate information concerning real events.
- Small groups working independently can be effective.

## **CAMERA REDUNDANCIES:**

- Disposable cameras, tablet, and cell phone cameras.
- Digital cameras with extra batteries.

**Redundancy is critical.**

# Advice From Experienced Entities

- Everyone should have photo IDs.
- Create magnetic signage to help ID vehicles used in recovery operations.
- Vendor relationships.
- Have a supply of chains and padlocks on hand that use the same key.

# Advice From Experienced Entities

- Designate a place and management system for **donated items**.
- Do **not** drive through water!
- **Conduct a post-disaster assessment that really means something!**



# THANK YOU!



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