



# Tropical Meteorology: How to Protect the World from Mother Nature's Fury

Justyce Countryman  
SUNY Jefferson Community College

## What is Tropical Meteorology?

- Analyzing the tropical atmosphere through research, models, and observations
  - Primary examples: Hurricanes, winter storms, monsoons, dust storms, precipitation, severe thunderstorms, and El Niños



## An Infrastructure Perspective

- Damages from forms of tropical meteorology, especially hurricanes, are likely to be critical and widespread
- "Electrical distribution lines" and aging or poorly developed houses are major targets
- Higher probability for lower class and African American families to be victims to the wrath of tropical meteorology
- These problems symbolize government indifference



## What are the Risks if Nothing is Done?

- Damage or devastation to environmental features.
- Excessive and possibly avoidable repair costs
- Extended and widespread loss of power lines and electricity
- Destruction of houses, especially if they are too old, lacking strong materials, or posing a high risk to indoor flooding
  - If not destroyed, houses will be more prone to future tropical meteorological situations
- Industries that utilize chemicals or poisonous materials are more likely to have accidents
- Personal economic instability, especially without flood insurance
- Homelessness
- Significant drops in property values
- Local, state, and national officials may refuse to implement further advancements in infrastructure
- Loss of life



## What Actions Have Been Taken?

- Modern technological advancements
  - Two NASA satellites specifically track hurricanes
  - Weather balloons provide scientific and mathematical data validation.
  - Increasing number of tropical meteorological fields
- Decreasing electrical line or pole vulnerability
  - Trim nearby trees
  - Replace weak materials with stronger materials
  - Use "guy" wires for wire firmness and straightness
  - Place lines underground, unless location is prone to flooding or "storm surges"
- Improving housing infrastructure
  - Situating houses above mean flood levels
  - Concrete materials in foundation, floors, and walls
  - "Fiber cement board sidings" with flame resistance
  - Rigid "polymer roof shingles"
  - Robust "connectors" on roof



## What can we do?

- Stay up to date with local weather through reliable sources
- Find a safe shelter and head to the center of the home or the basement during severe weather
  - Evacuate "manufactured homes" during high winds
- Hire a contractor to help establish a "safe room"
- Cut off tree branches around home that are likely to snap off
- Bring most outdoor items inside throughout the storm
- Cover glass windows and doors with "shutters or plywood"
- Invest in a generator
- Keep track of significant documents and household items
- Prepare emergency funds



## References

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