



HURRICANES AND HUMANS: HURRICANE MARIA AND PUERTO RICO

POSSIBLE ESSENTIAL QUESTIONS

- What are the risks of living in a geographic area prone to hurricanes?
- What factors—geographical, natural and human-made—contribute the severity of a hurricane's damage?
- In what ways can a hurricane impact a region's economy, infrastructure and its people?
- What future measures—such as policies, practices and technology—might help decrease future risk and improve recovery from hurricanes?
- What might have been done in Puerto Rico—both before and after Hurricane Maria—to lessen the impact of the hurricane on the island and its people?

BACKGROUND

Hurricanes only form over warm ocean water (greater than 80°F) and in a band roughly 5-20° from the equator. As this warm water evaporates and rises, it condenses into rain—creating what is called a tropical depression. If wind speed grows to exceed 74 mph, the tropical depression has become a hurricane. A hurricane's general path is influenced by global winds, while changing local conditions make it impossible to predict its exact course very far in advance. A hurricane dissipates when it reaches cooler water or land. The high winds and ocean surges caused by a hurricane that make landfall can cause significant damage. The hurricane season in the northern hemisphere extends from June to November.

Most scientists believe that increasing ocean temperatures caused by climate change will lead to hurricanes that are more severe and more devastating. However, there is little consensus if climate change will have an impact on the frequency of hurricanes. There is little doubt, though, that the combination of rising sea levels and greater human density in coastal areas will lead to an increasing impact of hurricanes on populations. Hurricanes can cause serious damage to infrastructure, the economy and even the life, health, and livelihood of residents in affected areas. Engineers are exploring ways to construct buildings and barriers that will better withstand the potentially devastating effects of a hurricane.

This case study focuses on the impact of 2017's Hurricane Maria on Puerto Rico, including the toll on its people, environment, economy and infrastructure. This case study encourages individuals to look at hurricanes from both natural/environmental and human perspectives and to consider how communities and governments can prepare for and recover from the damage caused by hurricanes.

RESOURCES**Personal Stories**

- [This 15-Year-Old Is Bringing Solar-Powered Lights to Hurricane Maria Victims \(Teen Vogue\)](#)
- [Hurricane Maria: A First-Person Account \(Scholastic News Kids Press Corps\)](#)
- [Stories from the Aftermath of Hurricane Maria in Puerto Rico \(US News\)](#)

Articles

- ['Apocalyptic' Devastation in Puerto Rico, and Little Help in Sight \(CNN\)](#)
- [A Land They No Longer Recognize \(Time\)](#)
- [The Mind-bending and Heart-breaking Economics of Hurricane Maria \(The Climate Impact Lab\)](#)
- [Hurricane Maria Deals Puerto Rico's Economy a New Blow \(Business Insider\)](#)
- [Hurricanes and Climate Change \(PBS\)](#)
- [Was the Extreme Hurricane Season Driven by Climate Change? \(Scientific American\)](#)
- [Into the Eye of the Storm \(Popular Mechanics\)](#)

Data & Maps

- [Track Data for Hurricane Maria \(Weather Underground\)](#)
- [US Hurricane Landfall History \(NOAA\)](#)

Websites

- [Earthlab for Educators and Policy Makers: Hurricanes](#)
- [Global Warming and Hurricanes \(Geophysical Fluid Dynamics Laboratory\)](#)

- [How Does a Hurricane Form? \(SciJinks, NASA & NOAA\)](#)

Photos and Videos

- [In Pictures: Hurricane Maria Pummels Puerto Rico \(CNN\)](#)
- [National Geographic: Hurricanes 101](#)
- [Hurricane Maria Videos from Space](#)
- [Satellite Photos Shows Puerto Rico Went Dark After Hurricane Maria \(Mashable\)](#)
- [Surge Barriers: Engineering Solutions \(Science Channel\)](#)
- [Watch Daredevils Fly into the Eye of a Hurricane for Science \(National Geographic\)](#)
- [Photo Gallery: The "Forgotten Ones" \(Miami Herald\)](#)