

# Climate Change and Health: Storms and Sea Level

Climate change is real and is caused primarily by human activity, especially burning fossil fuels. As ocean and air temperatures rise, the delicate balance of climate, weather events and life is disrupted. Human health suffers as a result. What is truly needed for health is a cool, stable climate.

One of the most visible ways in which humans experience climate change is through extreme weather events. Large storms, hurricanes, and flooding create situations that are hazardous to human health.

## How to Protect Yourself and Others

Regardless of the type of storm, it is important to take precautions to stay safe.

Before the storm:

- Make an emergency plan with your household.
- Have a small stockpile of bottled water, non-perishable food, manual can opener, flashlight and batteries.
- Pay attention to important warning and safety announcements.
- Monitor the weather and safety warnings with a television or battery-powered radio.
- Be prepared to evacuate.

During a storm:

- In case of a tornado, seek shelter in a basement or most interior room, preferably without windows. Get out of mobile homes. If outdoors, lie flat in the lowest-lying ditch.
- In case of hurricane, listen to evacuation advice. In a building, seek shelter in an interior room on the lowest floor. If in a

mobile home, seek shelter elsewhere. Avoid windows.

- Shut off water and gas if instructed to do so.
- If the power goes out, use flashlights. Do NOT use candles.
- Stay away from floodwaters. Do NOT attempt to cross flowing water on foot or in a vehicle.

After the storm:

- Continue to avoid floodwaters.
- Stay away from downed power lines.
  - Be careful near debris.



## Climate and Intense Storms

Heavy and extreme precipitation events are increasing in many regions and their frequency has increased as temperatures have risen.

Health impacts of heavy precipitation include crop

damage and soil erosion, potentially affecting food supply; injuries due to flooding; standing water that provides a breeding ground for mold and disease carrying insects, and water contamination.

EPA data shows that a significant portion of total annual rainfall in the United States comes from extreme single-day precipitation events.

Extreme storm events are often associated with conditions that can develop tornadoes. A 2013 study from Stanford University found that sustained warming would boost by 40% the number of intense storms. Thanks to improved forecasting and early warning systems, injury and death tolls from tornadoes have dropped significantly.

## Climate and Hurricanes

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As with storms, hurricane winds and high water levels harm human health by posing the risk of personal injury and death. They can also damage health care infrastructure including buildings, power lines, and roads that are important in accessing health care.

The combination of flooding and damage creates a risk of water contamination leading to spread of waterborne diseases like cholera, legionella, and campylobacter.

Standing water also provides a breeding ground for mold as well as disease-carrying insects like mosquitoes. This poses the risk of outbreaks of West Nile Virus and other insect-borne disease.

After storms, mental health is also a major concern. If people have experienced separation from family, displacement, or loss of home, they are likely to need help. Research shows 30-40% of disaster victims are at risk of a new mental disorder, especially depression and post-traumatic stress disorder.

The National Oceanic and Atmospheric Administration (NOAA) reports that by the end of the 21<sup>st</sup> century, atmospheric warming will cause hurricanes to be more intense and have 20% higher rainfall rates.

NOAA also projects a greater chance of increased numbers of very intense hurricanes in some ocean basins.



### Sea Level Rise

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Climate change also causes sea levels to rise due to melting ice caps and expansion of water as it warms. The combination of rising sea level and increased hurricane intensity is making coastal areas more vulnerable to flooding from storm surges.

Storm surge is sea level rise that occurs when water is pushed toward the shore by the winds associated with storms and hurricanes. Along the coast, storm surge is often the greatest threat to life and property from a hurricane.

At least 1,500 persons lost their lives during Hurricane Katrina. Many of those deaths occurred directly or indirectly as a result of the 27.8-foot storm surge.

The Intergovernmental Panel on Climate Change reports sea level has risen up to 8 inches during the past century. Assuming trends continue, global sea level is projected to rise another two feet by 2100.

## Take action to reduce climate change

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To protect our world from the health effects of climate change, we must take steps that restore the climate. This includes: Switching from fossil fuels to safe clean renewable energy sources like sun, water and wind. Planning future growth to ensure efficient, convenient mass transit. Where conditions permit, walking and bicycling more. We'll all live better on a cool, green, healthy planet!

To learn more about what you can do, see PSR's website: [www.psr.org/environment-and-health](http://www.psr.org/environment-and-health)

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