Hazards: flooding from coastal storm surges

Ground level

Storm surges are unusually high water levels caused by extreme storm conditions. Wind causes water to circulate vertically in deep water, and move towards the shore (NOAA, 2025)

The speed of the stormwinds determines how the storm surge will behave. Surges caused by faster storms will produce a more severe effect when they hit land, but slower storms cause surges that reach further after making landfall.

Flooding

An estimated 40% of the United States' population lives in coastal areas (NOAA, 2025), which puts them in danger of the effects of storm surges. The initial force of storm surges can be deadly in its own right, and damage to buildings, and the aftermath of storm surges are often overlooked when it comes to the dangers of storms.

A study by Brunkard (2008) on hurricane Katrina found that most of the deaths from the storm were caused by drowning, mainly among elderly people.

Flooding, 2

In addition to the direct damage that storm surges cause, they can pose a serious lingering danger after a storm. Storm surges are composed of sea water, and can easily entrain debris or unclean water due to their force. This unsafe water can then contaminate clean water supplies, either through flooding or storm damage to water distribution and purification systems. These systems are vital, especially so after a disaster, when other means to access drinking water may not be available.

Wounds incurred during the storm can quickly become infected if exposed to dirty water, and those living in the affected area may not have uncontaminated water to clean their wounds.

Flooding, 3

The flood waters from storm surges may persist long after the storm itself has ended, and can limit the ability to mount rescue operations or rebuild from the disaster. It took a month after hurricane Katrina hit New Orleans for the city to be drained of water, and at the peak of the damage it is estimated that 80% of the city was under water.

Climate change has lead to tropical storms being stronger over time. In hurricane Helene, some areas saw storm surges more than 15 feet high. We can expect future storms to be even more severe.

Works Cited

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