

Flooding Hazards



According to the National Weather Service there are multiple types of flood hazards that impact the United States. Beaufort most frequently faces flash flooding, river flooding and Storm Surge and Coastal Inundation from Tropical and Non-Tropical Systems types of flood hazards. For a complete list and descriptions visit [Flood Related Hazards](#) on weather.gov.

Flooding is a coast-to-coast threat to the United States and its territories in all months of the year. Flooding typically occurs when prolonged rain falls over several days, when intense rain falls over a short period of time, or when an ice or debris jam causes a river or stream to overflow onto the surrounding area. Flooding can also

result from the failure of a water control structure, such as a levee or dam. The most common cause of flooding is water due to rain and/or snowmelt that accumulates faster than soils can absorb it or rivers can carry it away. Approximately seventy-five percent of all Presidential disaster declarations are associated with flooding. Below are the most common flood hazards to impact the United States. [Frequently Asked Questions about Floods](#)

Flash Flooding:

Flash floods are exactly what the name suggests: floods that happen in a flash! Flash floods generally develop within 6 hours of the immediate cause. Causes of flash flooding include heavy rain, ice or debris jams, and levee or dam failure. These floods exhibit a rapid rise of water over low-lying areas. In some cases, flooding may even occur well away from where heavy rain initially fell. This is especially common in the western United States where low lying areas may be very dry one minute, and filled with rushing water from upstream the next.

There are many reasons that flash floods occur, but one of the most common is the result of copious amounts of rainfall from thunderstorms that cause flash flooding. This can also occur when slow-moving or multiple thunderstorms move over the same area. These sudden downpours can rapidly change the water levels in a stream or creek and turn small waterways into violent, raging rivers. Urban areas are especially prone to flash floods due to the large amounts of concrete and asphalt surfaces that do not allow water to penetrate into the soil easily.

Steep, hilly, or mountainous terrain produces rapid runoff and quick stream response, since the water will travel downhill at greater speeds into rivers and over land. Rocky terrain can exacerbate the development of flash floods and raging waters since rocks and clay soils do not allow as much water to infiltrate the ground. Steep, narrow valleys generate rapidly flowing

waters that can quickly rise to considerable depth. For instance, a mountain creek that is usually only 6 inches deep can swell to a 10-foot depth in less than one hour.

River Flooding:

River flooding occurs when river levels rise and overflow their banks or the edges of their main channel and inundate areas that are normally dry. River flooding can be caused by heavy rainfall, dam failures, rapid snowmelt and ice jams. The National Weather Service issues Flood Warnings for designated River Forecast Points where a flood stage has been established.

River flooding is classified as Minor, Moderate, or Major based on water height and impacts along the river that have been coordinated with the NWS and local officials. Minor river flooding means that low-lying areas adjacent to the stream or river, mainly rural areas and farmland and secondary roadways near the river flood. Moderate flooding means water levels rise high enough to impact homes and businesses near the river and some evacuations may be needed. Larger roads and highways may also be impacted. Major flooding means that extensive rural and/or urban flooding is expected. Towns may become isolated and major traffic routes may be flooded. Evacuation of numerous homes and business may be required.

There is an additional level of flooding known as record flooding. In many cases this falls into the major flood category, but it doesn't have to. A record flood is simply one where the water reaches a level higher than it ever has been recorded before. Therefore, record flooding can cause extensive damage or even no damage or other negative impacts at all.

Storm Surge and Coastal Inundation from Tropical and Non-Tropical Systems:

When people think of tropical storms and hurricanes they typically think of strong winds, yet the highest percentage of all tropical cyclone deaths are due to flooding. Coastal flooding generally occurs with a land-falling or near-land system such as a Tropical Storm or Hurricane. Storm surge and large waves produced by hurricanes pose the greatest threat to life and property along the coast. The destructive power of storm surge and large battering waves can result in loss of life; destruction of buildings; erosion of beaches and dunes; and damage to roads and bridges along the coast. Storm surges undermine building foundations by constant agitation of the water piled high by the tropical cyclone. The end result can be a complete demolition of homes and businesses.

Tropical cyclones can cause flooding in the U.S. each spring through fall. While the official hurricane Season runs from June to November in the Atlantic and May to November in the Pacific, tropical storms have been known to occur outside of this timeframe. Tropical cyclones can bring copious amounts of precipitation onshore. The majority of the heaviest rain occurs to the right of the center of the storm; however, it should be noted that rain bands on both sides of the system can produce heavy rain.

Tropical systems are not the only type of storms that can cause coastal inundation and storm surge. At all times of the year, storms can impact the U.S. coastal regions. The Northwestern U.S. is often approached by Pacific storm systems that bring large amounts of precipitation to the area. During the cold season, large storm systems, called Nor'easters, bring heavy precipitation to the Northeastern U.S. as well. These storm systems can also be accompanied by strong winds which cause storm surge and additional flooding along the coastal areas.

Storm Surge is a particular problem directly along the coast. Entire coastlines can be altered by the sheer magnitude of the water battering the shores. Storm surge can also travel several miles inland causing additional flooding and destruction. The addition of intense rainfall along the coast can add to the flooding potential. It is important to note that surge related fatalities have been greatly reduced due to improved evacuation practices in coastal areas; however, since the 1970s, inland flooding has been responsible for more than half of the deaths associated with tropical cyclones in the United States. Unfortunately, the inland flood threat is often under emphasized during a tropical event. Typically, greater rainfall amounts and flooding are associated with tropical cyclones that have a slow forward speed or stall over an area. Any remnants of a tropical system can cause flooding if conditions are right. Both river flooding and flash flooding are common with tropical cyclones. Water from heavy rainfall quickly gathers in low lying areas. It may surround homes and inundate roadways. To stay safe during a tropical cyclone, it is important to stay aware of the evolving situation by listening to the local news and heeding any calls to action from law enforcement.

Tropical systems and coastal storms can affect more than just the states lining the coasts. Storms that strike the coast of the Gulf of Mexico often track northward into the eastern half of the U.S. before being caught by the easterly flow and pushed off into the Atlantic. As a storm moves inland, away from its primary moisture source (the oceans or Gulf), precipitation amounts will begin to diminish; however, depending on the strength of the storm, the amount of moisture being carried with it can take heavy rainfall well into the interior states.

Learn More:

[Storm Surge Resources](#)

[Experimental Storm Surge Graphics](#)

[Nor'easter Information](#)

Other types of flooding: Learn more at <https://www.weather.gov/safety/flood-hazards>

Burn Scars/Debris Flows

Ice/Debris Jams

Snowmelt

Dry Wash

Dam Breaks/Levee Failure