

Common flood types explained



There are three common types of flooding. By understanding the differences, you can better protect yourself from the next potential flood.

Floods affect more people globally than any other natural hazard. They can cause widespread devastation that can displace people, damage property and critical public infrastructure, and ultimately result in loss of life. And, as the planet continues to warm up due to climate change, the intensity and frequency of flooding is likely to increase.

“Floods can destroy whole communities and cause billions of dollars of losses. So it’s vital that people, businesses and communities prepare for all flooding eventualities, especially as floods can impact areas located far from water sources,” says Amar Rahman, Global Head of Climate and Sustainability Solutions at Zurich Resilience Solutions.

There are three common flood types: fluvial floods, also known as river floods; pluvial or flash floods; and coastal floods, which are often called storm surge. Each type of flood occurs and is forecast in different ways. The impacts of each type of flood are also different and so are the actions you need to take to avoid or minimize flooding damage.

Learn more about the three most common forms of flood:



Coastal flood (storm surge)

Coastal flooding is the inundation of land along the coast by seawater. It is usually caused by intense windstorm events – particularly when they coincide with high tide – that create a storm surge. But coastal flooding can also be caused by tsunamis.

Storm surge occurs when high winds from a windstorm force water onshore and it is often the greatest threat associated with a hurricane or typhoon. The impact is dependent on the tide. Windstorms that occur during high tide can result in storm surge floods that overwhelm low-lying land and cause devastating loss of life and property.

The severity of a coastal flood is determined by several other factors, including the strength, size, speed and direction of the windstorm. The onshore and offshore topography also plays an important role. To determine the probability and magnitude of a storm surge, coastal flood models consider this information in addition to data from historical storms that have affected the area.

But as sea levels rise due to climate change, more coastal cities and communities will become vulnerable coastal flooding.

Fluvial floods (river floods)

A fluvial, or river flood, occurs when the water level in a river, lake or stream rises and overflows onto the neighboring land. The water level rise of the river could be due to excessive rain or snowmelt.

The damage from a river flood can be widespread as the overflow affects smaller rivers downstream, which can cause dams and dikes to break and swamp nearby areas.

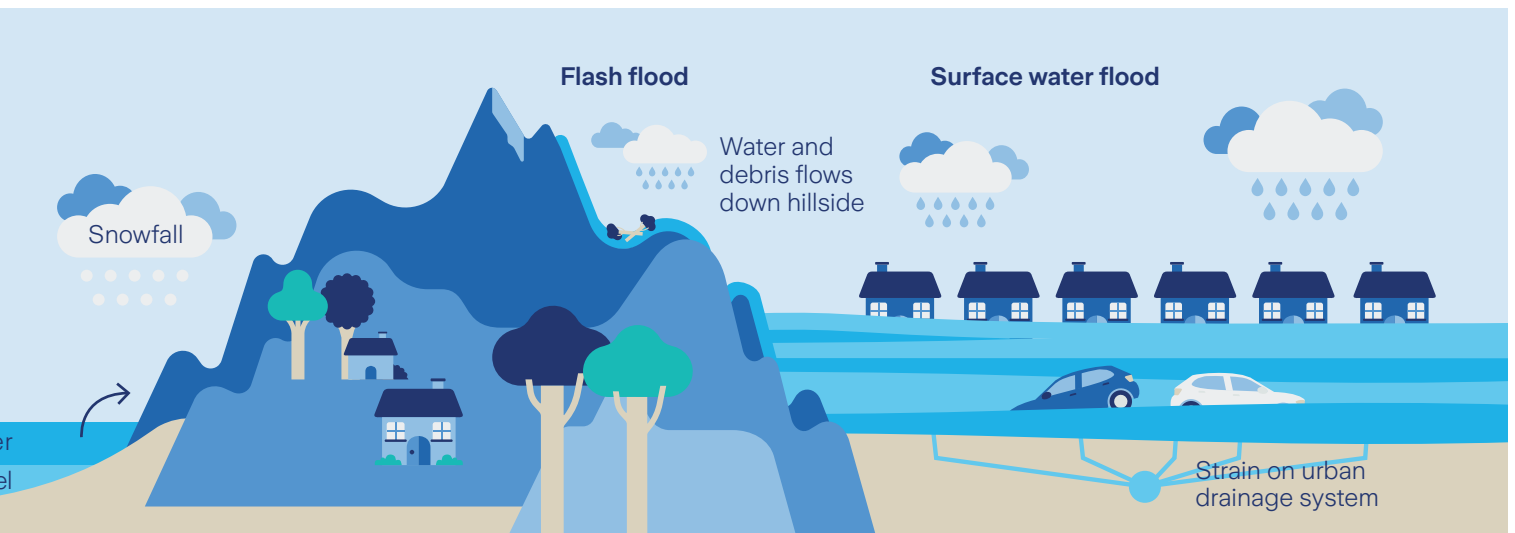
To determine the probability of river flooding, models consider past precipitation, forecasted precipitation, current river levels, as well as soil and terrain conditions.



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The severity of a river flood is determined by the terrain profile and the duration and intensity (volume) of rainfall in the river's catchment area. Other factors include soil water saturation and climate change effects on rainfall duration and intensity. In flat areas, floodwater tends to rise more

slowly and be shallower, but it can often remain for days. In hilly or mountainous areas, floods can occur within minutes after a heavy rain, drain very quickly and cause damage due to debris flow.

Pluvial floods (flash floods and surface water)

A pluvial flood occurs when an extreme rainfall event creates a flood independent of an overflowing water body. A common misconception about flood is that you must be located near a body of water to be at risk. Yet pluvial flooding can happen in any location, urban or rural, even in areas with no nearby bodies of water.

There are two common types of pluvial flooding:

- **Surface water floods** occur when an urban drainage system is overwhelmed and water flows out into streets and nearby structures. It occurs gradually, which provides people time to move to safe locations, and the level of water is usually shallow (rarely more than 1 meter deep). It creates no immediate threat to lives but may cause significant economic damage.

- **Flash floods** are characterized by an intense, high velocity torrent of water. They are triggered by torrential rain falling within a short amount of time within the vicinity or on nearby elevated terrain. Flash floods can also be caused by a sudden release of water from an upstream levee or a dam. They can be very dangerous and destructive, not only because of the force of the water, but also the hurtling debris that is often swept up in the flow.

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