



What is a debris flow?

Debris flows are fast-moving, deadly landslides. They are powerful mixtures of mud, rocks, boulders, entire trees - and sometimes, homes or vehicles.

You'll often hear "debris flows" called "mudslides" or "mudflows". Many people use the terms interchangeably, but to scientists, each is a different kind of landslide and debris flows are the most powerful and dangerous of the three. They move faster than a person can run or drive.

What causes a debris flow?

Debris flows occur most commonly during intense rain after wildfires. A debris flow doesn't need a lengthy rain or a saturated slope. It can start on a dry slope after only a few minutes of intense rain.

"Intense" rain means a burst of rain at a fast rate, about half an inch in an hour. With debris flows, the rainfall rate matters more than total rainfall.

Why are debris flows so dangerous?

Debris flows are fast and unpredictable. They can travel faster than you can run - and they can catch up to your car! Also, no one can say precisely where a debris flow will start or where it will go. It may begin in a stream channel, then jump out and spread through a neighborhood. A debris flow may happen where others have occurred, or in a place that has never seen one before.

What can I do about debris flows?

As an individual, the only thing you can do is evacuate before the storm. No one can stop a debris flow or change its path. Many of us are used to protecting our properties with sandbags, culverts, k-rails, or retaining walls. These can help redirect mud and water, but not debris flows.

If you stay at home, that will not protect your property but will endanger you. If you are told to evacuate, leave. The only sure way to protect your life from a debris flow is to avoid being in one.

Some communities have structures to manage debris flows and these often help but no structure is fail-safe. Never ignore an evacuation order because your community has structures to manage debris flows.

When should I evacuate?

Leave as soon as an evacuation is issued. Do not wait to be ordered by authorities to leave, if you wait until you are sure a debris flow is coming, it will be too late to leave safely.

What else do I need to know about debris flows?

When a wildfire burns a slope, it increases the chance of debris flows for several years. The danger does slowly drop over time.

Never underestimate a debris flow. People die just about every year in debris flows, but often the affected area is small, so the story only makes local news.

Remain alert during heavy rain if you are in an area of debris flow potential. Watch for sudden increases and decreases in surface runoff and changes in the muddiness of the water.

Pay attention to weather forecasts for the burn area, which could be very different from where you are. It can be pouring in the mountains while sunny or drizzly in your neighborhood!

Know the warning signs that a debris flow is about to arrive. Listen and watch for rushing water, mud, unusual sounds, breaking tree limbs and boulders tumbling. Survivors describe sounds of cracking, breaking, roaring, or a freight train.

If a debris flow catches you by surprise, your best hope of surviving is get to higher than the flow - get to the top story of your home, etc.

In every storm, expect uncertainty. Rain can suddenly change direction, location, or intensity, and that changes the chance of debris flows.

You might be told to evacuate more than once and you could get frustrated leaving, especially if a debris flow does not occur. But remember, debris flows are unpredictable. No one can say where or exactly when the next one will flow.

Many insurance policies that cover other kinds of storm damage do not cover debris flow damage so check your coverage now.