



City of Johnstown Emergency Management Agency

Geological Incidents — Earthquakes, Landslides, Subsidence



La Conchita, CA, January 15, 2005 -- The Ventura County Fire Department Urban Search and Rescue team captain Larry Brister surveys the hillside in La Conchita, California where winter storms caused fatal landslides that damaged homes and roads. (FEMA)

Geological incidents in the state, such as earthquakes, landslides and subsidence, have caused relatively minor damage and have not been a threat to human life in most areas of the in Commonwealth. However, in certain areas, landslides and subsidence have resulted in considerable damage to public and private property. Records indicate that there have been at least 12 earthquakes, most occurring in Southeastern Pennsylvania. Most were of minor intensity. The largest recorded Pennsylvania earthquake occurred about 15 miles from Sharon in Northwestern Pennsylvania on September 25, 1998. The earthquake measured 5.2 on the Richter scale and was felt over approximately 200,000 square kilometers in the northern United States and southern Canada.

Landslides

What Is A Landslide?

Landslides are a serious geologic hazard common to almost every state in the United States. It is estimated that nationally they cause up to \$2 billion in damages and from 25 to 50 deaths annually. Globally, landslides cause billions of dollars in damage and thousands of deaths and injuries each year. Individuals can take steps to reduce their personal risk. Know about the hazard potential where you live, take steps to reduce your risk, and practice preparedness plans.

Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Gravity is the force driving landslide movement. Factors that allow the force of gravity to overcome the resistance of earth material to landslide movement include: saturation by water, steepening of slopes by erosion or construction, alternate freezing or thawing, earthquake shaking, and volcanic eruptions.

Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. ([More Information on Landslides](#))

What Is A Mudflow?

Mudflows (or debris flows) are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, such as during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or "slurry." A slurry can flow rapidly down slopes or through channels, and can strike with little or no warning at avalanche speeds. A slurry can travel several miles from its source, growing in size as it picks up trees, cars, and other materials along the way. Mudflows are covered under the National Flood Insurance Program; however, landslides are not.



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What Should I Do?

[Before A Landslide](#)
[During A Landslide](#)
[After The Landslide](#)

Preparedness planning involves those efforts undertaken before a landslide to prepare for or improve capability to respond to the event.

Earthquakes

The National Earthquake Hazards Reduction Program (NEHRP) is the Federal Government's coordinated approach to addressing earthquake risks. Congress established the program in 1977 (Public Law 95-124) as a long-term, nationwide program to reduce the risks to life and property from in the United States resulting from earthquakes. The NEHRP is managed as a collaborative effort among the Federal Emergency Management Agency (FEMA), the National Institutes of Standards and Technology (NIST), the National Science Foundation (NSF), and the United States Geological Survey (USGS). The four NEHRP agencies work in close coordination to improve our understanding, characterization, and assessment of hazards and vulnerabilities; improve model building codes and land use practices; reduce risks through post-earthquake investigations and education; improve design and construction techniques; improve the capacity of government at all levels and the private sector to reduce and manage earthquake risk; and accelerate the application of research results.

[Click here for additional information about earthquakes.](#)