Earthquakes

Since 1900, earthquakes in the United States have resulted in over 1300 deaths and direct damages totaling more than $51 billion. While the West Coast and Alaska have the highest risk, history shows that major earthquakes can also affect the Central and Eastern United States.

Basics

Most earthquakes are caused by the sudden release of built-up stress along faults, fractures in the Earth's crust where large blocks of crustal rock move against one another. An earthquake's size can be measured by the amount of energy released by that movement. While scientists can't predict earthquakes, they are developing earthquake early warning systems that can provide seconds to minutes of warning when an earthquake occurs. Scientists can also estimate the likelihood of future quakes and use that information to design safer buildings and roads.   Read more

Frequently Asked Questions

Why and where do earthquakes happen?

American Geosciences Institute

Can earthquakes be predicted?

U.S. Geological Survey

What is the probability that an earthquake is a foreshock to a larger earthquake?

U.S. Geological Survey

Does hydraulic fracturing cause earthquakes?

U.S. Geological Survey

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Hazards

Natural hazards such as earthquakes, landslides, hurricanes, floods, and wildfires endanger public health and safety, threaten critical infrastructure, and cost our economy billions of dollars each year. Geoscientists study these hazards to provide information and warnings to populations at risk.

Landslides

Landslides affect all 50 states and U.S. territories, where they cause 25 to 50 deaths and more than $1 billion in damages each year. Geoscientists study and monitor landslides to identify at-risk areas, prepare populations, and improve our understanding of why, when, and where landslides happen.

Sinkholes

Sinkholes have both natural and artificial causes. They tend to occur most often in places where water can dissolve the bedrock (especially limestone) below the surface, causing overlying rocks to collapse. Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania are most sinkhole-prone.

Tsunamis

Tsunamis are destructive waves caused by sudden displacement of ocean water. Tsunamis most often appear on shore as a rapidly receding tide or rapidly rising flood. In the United States, the Pacific coastal states – Oregon, Washington, California, Alaska, and Hawaii – are at greatest risk for destructive tsunamis.

Volcanoes

Volcanoes pose many hazards to their surroundings, from ashfall, mudflows, lava flows, landslides, and associated earthquakes. At least 54 of the United States' 169 active volcanoes pose major threats to public health and safety and to major industries such as agriculture, aviation, and transportation.

Maps & Visualizations

Interactive map of California earthquake hazard zones
California Geological Survey

The California Geological Survey's Earthquake Hazards Zone Application (EQ Zapp) is an interactive map that details the risk of earthquakes and related hazards for different areas of the state. The map is searchable by address, and it maps three main hazard zones: Fault zones Landslide zones...

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