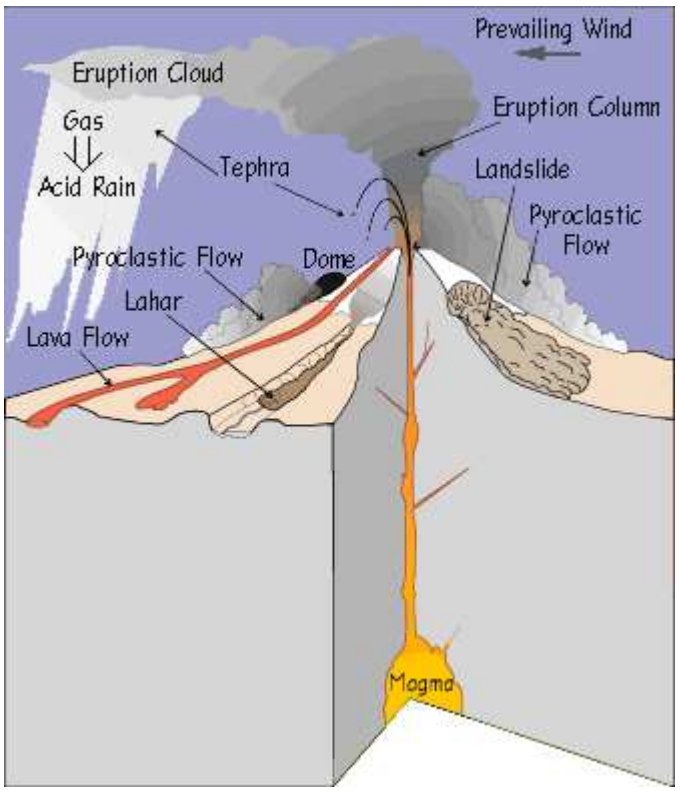
USGS

Volcano Hazards Program

Volcano Hazards: | Types and Effects | Location |
| Gas | Lahars | Landslides | Lava Flows | Pyroclastic Flows | Tephra |

Types and Effects of Volcano Hazards



Many kinds of volcanic activity can endanger the lives of people and property both close to and far away from a volcano. Most of the activity involves the explosive ejection or flowage of rock fragments and molten rock in various combinations of hot or cold, wet or dry, and fast or slow. Some hazards are more severe than others depending on the size and extent of the event taking place and whether people or property are in the way. And although most volcano hazards are triggered directly by an eruption, some occur when a volcano is quiet.

Case studies of volcanic activity listed by country or region, volcano, year, and type of hazard.

| Gas | Lahars | Landslides | Lava Flows | Pyroclastic Flows | Tephra |

Volcanic eruptions are one of Earth's most dramatic and violent agents of change. Not only can powerful explosive eruptions drastically alter land and water for tens of kilometers around a volcano, but tiny liquid droplets of sulfuric acid erupted into the stratosphere can change our planet's climate temporarily. Eruptions often force people living near volcanoes to abandon their land and homes, sometimes forever. Those living farther away are likely to avoid complete destruction, but their cities and towns, crops, industrial plants, transportation systems, and electrical grids can still be damaged by tephra, lahars, and flooding.

Volcanic activity since 1700 A.D. has killed more than 260,000 people, destroyed entire cities and forests, and severely disrupted local economies for months to years. Even with our improved ability to identify hazardous areas and warn of impending eruptions, increasing numbers of people face certain danger. Scientists have estimated that by the year 2000, the population at risk from volcanoes is likely to increase to at least 500 million, which is comparable to the entire world's population at the beginning of the seventeenth century! Clearly, scientists face a formidable challenge in providing reliable and timely warnings of eruptions to so many people at risk.

Historical volcanic disasters since A.D. 1700 that killed more than 300 people

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Selected Case Studies: hazardous volcanic activity						
Volcano						
Date	Gas	Lahars	Landslides	Lava flows	Pyroclastic flows	Tephra
United States						
Mount St. Helens, Washington						
1980 May 18		Lahars	Landslides		Pyroclastic flows	Tephra
1980 July 22					Pyroclastic flows	
Mount Rainier, Washington						
1989-1990		Lahars &	Landslides			
Redoubt Volcano, Alaska						
1989-1990		Lahars				
Kilauea Volcano, Hawai`i						
1960				Lava flows		
1986-present	Gas			Lava flows		
1990 Mar-Dec				Lava flows		
Mauna Loa Volcano, Hawai`i						
1950				Lava flows		
1984				Lava flows		
Long Valley Caldera, California						
1986-present	Gas					
Caribbean						
Soufriere Hills, Montserrat						
1997 June 25					Pyroclastic flows	
Central-South America						
Nevada del Ruiz, Colombia						
1985 Nov 13		Lahars				
Huila Volcano, Colombia						
1994 Jun 6		Lahars &	Landslides			
Santa Maria Volcano, Guatemala						

1989 Aug 14	Lahars

Casita Volcano, Nicaragua

1998 Oct 30	Lahars & Landslides

Japan

Unzen Volcano

1991-1995	Pyroclastic flows

Philippines

Mount Pinatubo

1991	Lahars
1994	Lahars

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*U.S. Department of the Interior, U.S. Geological Survey, **Menlo Park, California**, USA*
*URL **http://volcanoes.usgs.gov/Hazards/What/hazards.html***
*Contact: **VHP WWW Team***
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