

Coming soon:

Publication Type	USGS Numbered Series
Title	Potential hazards from future volcanic eruptions in California
Author	Miller, C. Dan
Year	1989
Series	Bulletin
Series Number	1847
Edition	-
Language	ENGLISH
Publisher	Dept. of the Interior, U.S. Geological Survey ; For sale by the Books and Open-File Reports Section, U.S. Geological Survey,
Description	v, 17 p. ill., maps (some col.) ;28 cm.
USGS Library Call Number	(200) E no.1847

Abstract:

More than 500 volcanic vents have been identified in the State of California. At least 76 of these vents have erupted, some repeatedly, during the last 10,000 years. Past volcanic activity has ranged in scale and type from small rhyolitic and basaltic eruptions through large catastrophic rhyolitic eruptions. Sooner or later, volcanoes in California will erupt again, and they could have serious impacts on the health and safety of the State's citizens as well as on its economy. This report describes the nature and probable distribution of potentially hazardous volcanic phenomena and their threat to people and property. It includes hazard-zonation maps that show areas relatively likely to be affected by future eruptions in California. „The potentially more hazardous eruptions in the State are those that involve explosive eruption of large volumes of silicic magma. Such eruptions could occur at vents in as many as four areas in California. They could eject pumice high into the atmosphere above the volcano, produce destructive blasts, avalanches, or pyroclastic flows that reach distances of tens of kilometers from a vent, and produce mudflows and floods that reach to distances of hundreds of kilometers. Smaller eruptions produce similar, but less severe and less extensive, phenomena.

Hazards are greatest close to a volcanic vent; the slopes on or near a volcano, and valleys leading away from it, are affected most often and most severely by such eruptions. In general, risk from volcanic phenomena decreases with increasing distance from a vent and, for most flowage processes, with increasing height above valley floors or fan surfaces. Tephra (ash) from explosive eruptions can affect wide areas downwind from a vent. In California, prevailing winds cause the 180-degree sector east of the volcano to be affected most often and most severely. Risk to life from ashfall decreases rapidly with increasing distance from a vent, but thin deposits of ash could disrupt communication, transportation, and utility systems at great distances, and over wide regions, in eastern California and adjacent states.

Volcanic eruptions are certain to occur in California in the future and can neither be prevented nor stopped, but actions can be taken to limit damage from them. Reduction of risk to life and property can be effected by avoiding threatened areas and by taking protective measures to reduce the effects when and where vulnerable areas cannot be avoided. Monitoring of volcanic precursors generally can identify the locality of impending volcanic activity, even though it often does not pinpoint the nature or timing of an eruption, or even its certainty. Hazard-zonation maps can then be used to guide decisions regarding evacuation and other response activities. Thus, effective monitoring of volcanoes in the State, combined with preparation of contingency plans to deal with future eruptions, can help reduce risk to lives and property.