



Volcano Updates

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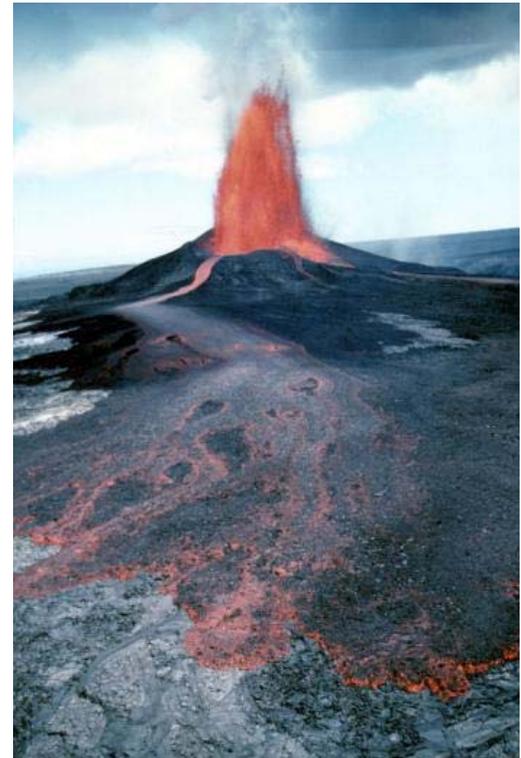
Lava flows destroy everything in their path.

Lava flows typically move slowly enough to outrun them, but they will destroy everything in their path.

Lava type dictates flow shape and travel distance.

Lava flows are streams of molten rock that pour or ooze from an erupting vent. Lava is erupted during either nonexplosive activity or explosive lava fountains. The speed at which lava moves across the ground depends on several factors, including (1) type of lava erupted and its viscosity; (2) steepness of the ground over which it travels; (3) whether the lava flows as a broad sheet, through a confined channel, or down a lava tube; and (4) rate of lava production at the vent.

Fluid basalt flows can extend tens of kilometers from an erupting vent. The leading edges of basalt flows can travel as fast as 10 km/h (6 mph) on steep slopes but they typically advance less than 1 km/h (0.27 m/s or about 1 ft/s) on gentle slopes. But when basalt lava flows are confined within a channel or lava tube on a steep slope, the main body of the flow can reach velocities >30 km/h (19 mph).



Lava fountain and 'a'ā flow during Pu'u Ō'ō eruptive episode 21, Kīlauea Volcano, Hawaii

Viscous andesite flows move only a few kilometers per hour (couple feet per second) and rarely extend more than 8 km (5 mi) from their vents. Viscous dacite and rhyolite flows often form steep-sided mounds called lava domes over an erupting vent. Lava domes often grow by the extrusion of many individual flows >30 m (100 ft) thick over a period of several months or years. Such flows will overlap one another and typically move less than a few meters per hour.

Lava flows may instigate other types of hazards.

Everything in the path of an advancing lava flow will be knocked over, surrounded, buried, or ignited by the extremely hot temperature of lava. When lava erupts beneath a glacier or flows over snow and ice, meltwater from the ice and snow can result in far-reaching lahars. If it enters a body of water or water enters a lava tube, the water may boil violently and cause an explosive shower of molten spatter over a wide area. Methane gas, produced as lava buries vegetation, can migrate in subsurface voids and explode when heated. Thick viscous lava flows, especially those that build a dome, can collapse to form fast-moving pyroclastic flows.

Deaths caused directly by lava flows are uncommon because most move slowly enough that people can move out the way easily. Death and injury can result when onlookers approach an advancing lava flow too closely or their retreat is cut off by other flows. Deaths attributed to lava flows are often due to related causes, such as explosions when lava interacts with water, the collapse of an active lava delta that forms where lava enters a body of water, asphyxiation due to accompanying toxic gases, pyroclastic flows from a collapsing dome, and lahars from meltwater.

Other natural phenomena such as hurricanes, tornadoes, tsunamis, fires, and earthquakes often destroy buildings, agricultural crops, and homes, but the owner(s) can usually rebuild or repair structures and their businesses in the same location. Lava flows, however, can bury homes and agricultural land under tens of meters of hardened black rock; landmarks and property lines become obscured by a vast, new hummocky landscape. People are rarely able to use land buried by lava flows or sell it for more than a small fraction of its previous worth.



Lava flow moving into the town of Kalapana, Hawaii Island. Flow front is center, silver-black mass with rising fume. Buildings and lagoon in this photograph were completely buried within one month.