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Pyroclastic surges and flows, emanating from an erupting volcano, are exceedingly dangerous. In this image, we see a pyroclastic flow at Mt. St. Helens, as it appeared during May of 1980. Photo by Joel E. Harvey, copyright Joel E. Harvey, all rights reserved. Image provided here as fair use for educational purposes.

In a Plinian eruption, volcanic ash and pumice initially rain on surrounding areas. At Pompeii, scientists can distinguish the various layers of debris.

White and gray pumice layers, found at the bottom of the excavations, confirm this type of debris fell first. Pompeii was not destroyed because of pumice debris, however. In fact, human remains found above the ash and pumice layers indicate people came back to their homes after the ashfall stopped.

Without the knowledge they needed to survive, people placed themselves and their children into death's path.

Annihilation occurred hours later, when Vesuvius spewed out pyroclastic surges and pyroclastic flows. The USGS (U.S. Geological Survey) describes why pyroclastic events are so damaging:

A pyroclastic flow is a ground-hugging avalanche of hot ash, pumice, rock fragments, and volcanic gas that rushes down the side of a volcano as fast as 100 km/hour or more. The temperature within a pyroclastic flow may be greater than 500° C, sufficient to burn and carbonize wood. Once deposited, the ash, pumice, and rock fragments may deform (flatten) and weld together because of the intense heat and the weight of the overlying material.

A surge can turn pristine lakes and forests - like Spirit Lake at the foot of Mt. St. Helens - into a kind of moonscape. A pyroclastic flow can bury surrounding areas - like the Marella River Valley near Mt. Pinatubo - to depths of 50-200 meters.

A pyroclastic flow first moves into canyons and river beds. At the bottom of the volcano, it can sweep away (or bury) anything in its path, including populated areas. That's what happened to Pompeii.

Nothing standing in its way will survive.

See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/RAIN-OF-TERROR-Pompeii>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/RAIN-OF-TERROR-Pompeii>

Media Stream



White and Gray Pumice Layers

Photo by W.E. Scott, taken on 27 June 1991, and online via U.S. Geological Survey.

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View this asset at:

<http://www.awesomestories.com/asset/view/White-and-Gray-Pumice-Layers>

Oplonti. Detail of the "Villa Poppea"

- A - pumice fall deposit
- B - surge deposit
- C - pyroclastic flow deposit
- D - restored roof

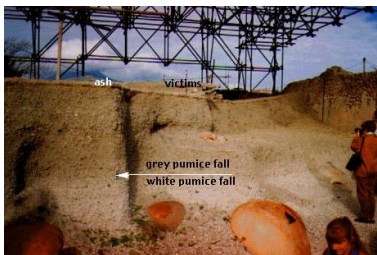


Excavation Layers at Pompeii

Image online via "Explore Italian Volcanoes."

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Pumice Layers Found at Pompeii Excavation

Image, described above, online via Explore Italian Volcanoes.

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Spirit Lake - Damaged by Volcanic Eruption

Image online, courtesy the U.S. Geological Survey.

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Mt. Pinatubo and Marella River Valley

Photograph by W.E. Scott on July 1, 1991. Online, courtesy the U.S. Geological Survey website.

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