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Vesuvius' Shadow: A major volcanic blast could threaten Naples

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When Italy's Mount Vesuvius begins to rumble again, nearby Naples may be in danger, a new study shows. In 4,000-year-old ash beds buried under the city, researchers have uncovered the first geologic evidence that the volcano's power could extend so far—and they warn that the city's hazard planners should take heed.

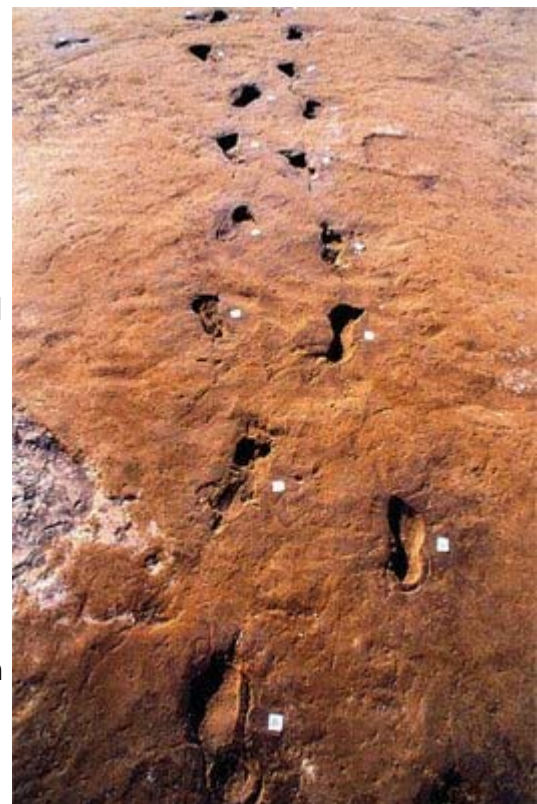
The 25,000-year-old volcano has had eight major explosive eruptions in recorded history, including the blast in A.D. 79 that buried Pompeii in ash, says volcanologist Michael Sheridan of the State University of New York at Buffalo. Violent explosions of ash and gases have been interspersed with dozens of less dramatic lava flows.

The most powerful eruption recorded occurred around 1780 B.C., sending billowing clouds of ash far to the northwest. Sheridan and his colleagues at the Vesuvius Observatory in Naples and the Università degli Studi di Napoli Federico II speculated that Naples, 15 kilometers from Mount Vesuvius, might have been in the path of that blast. The researchers dug under the city's paved streets to search for evidence of the eruption.

They found signs of a "prehistoric catastrophe" both in the city and in neighboring villages, Sheridan says. Within Naples' current metropolitan area, the researchers uncovered 3-meter-thick ash deposits from the eruption. They probably resulted from settling clouds of dry ash followed by denser lahars, deadly flows of water-saturated ash and rock, Sheridan adds.

Another startling find was the discovery of thousands of preserved footprints pressed into ash beds and lahar deposits. The tracks, found in villages just outside Naples, indicate a hurried exodus to the northwest that lasted throughout several stages of the eruption, the researchers report in an upcoming *Proceedings of the National Academy of Sciences*.

The sleeping volcano is under close watch by researchers, and there are no signs that it's stirring. But scientists are hotly debating how to interpret any future indications of renewed activity. Currently, hazard planners in Naples are preparing for eruptions similar to a



FLEEING FEET. Footprints, preserved in ash deposits, tell of a mass exodus during an eruption at Mount Vesuvius 3,780 years ago.

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relatively minor one that occurred in 1631, Sheridan says.

The new evidence suggests that the planners need to increase their expectations of a rare worst-case eruption, he adds. A Naples-burying eruption "could happen," he says. "It's happened in the past."

The paper is "a strong example" of how scientists can combine geologic and historical studies of eruptions to envision the ways in which volcanoes might affect societies, says volcanologist Greg Valentine of Los Alamos (N.M.) National Laboratory. Such studies are essential to prepare for future volcanic catastrophes, he adds.

"They will occur," Valentine says. "It's just a matter of where and when."

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Further Readings:

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