

Hawaii volcano could spew boulders the size of refrigerators

May 10 2018, by Sophia Yan And Seth Borenstein



Sgt. 1st Class Carl Satterwaite, of the U.S. National Guard, tests air quality near cracks emitting volcanic gases from a lava flow in the Leilani Estates subdivision near Pahoa, Hawaii Thursday, May 10, 2018. Kilauea has destroyed more than 35 structures since it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. (AP Photo/Jae C. Hong)

If Hawaii's Kilauea volcano blows its top in the coming days or weeks, as experts fear, it could hurl ash and boulders the size of refrigerators miles

into the air, shutting down airline traffic and endangering lives in all directions, scientists said Thursday.

"If it goes up, it will come down," said Charles Mandeville, volcano hazards coordinator for the U.S. Geological Survey. "You don't want to be underneath anything that weighs 10 tons when it's coming out at 120 mph."

The volcano, which has been spitting and sputtering lava for a week, has destroyed more than two dozen homes and threatened a geothermal plant. The added threat of an explosive eruption could ground planes at one of the Big Island's two major airports and pose other dangers. The national park around the volcano announced that it would close because of the risks.

"We know the volcano is capable of doing this," Mandeville said, citing similar explosions at Kilauea in 1925, 1790 and four other times in the last few thousand years. "We know it is a distinct possibility."

He would not estimate the likelihood of such an explosion, but said the internal volcanic conditions are changing in a way that could lead to a blast in about a week. The volcano's internal plumbing could still prevent an explosion.



First Lt. Aaron Hew Len, center, and Sgt. 1st Class Carl Satterwaite, of the U.S. National Guard, test air quality near cracks emitting volcanic gases from a lava flow in the Leilani Estates subdivision near Pahoa, Hawaii Thursday, May 10, 2018. Kilauea has destroyed more than 35 structures since it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. (AP Photo/Jae C. Hong)

If it happens, a summit blast could also release steam and sulfur dioxide gas.

Kilauea has destroyed 36 structures—including 26 homes—since May 3, when it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. Fifteen of the vents are now spread through the Leilani Estates and Lanipuna Gardens neighborhoods.

Hawaii Gov. David Ige said crews at a geothermal energy plant near the lava outbreak accelerated the removal of stored flammable fuel as a

precaution. The Puna Geothermal Venture plant has about 50,000 gallons (189,270 liters) of pentane. It was removed by midday Thursday.

Coffee farmer Palikapu Dedman, 71, has dedicated half his life to battling the plant that sits on the long slopes of Kilauea. He and other native Hawaiians say the plant desecrates traditional beliefs and angers Pele, the goddess of fire, who lives at the summit crater.



Sgt. 1st Class Carl Satterwaite, of the U.S. National Guard, tests air quality near cracks emitting volcanic gases from a lava flow in the Leilani Estates subdivision near Pahoa, Hawaii on Thursday, May 10, 2018. Kilauea has destroyed more than 35 structures since it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. (AP Photo/Jae C. Hong)

Now that the plant is threatened by Kilauea, Dedman says he feels vindicated.

"You really can't hurt Pele," he said. "It's just reinforcement of my beliefs—she's present! And the plant could get covered by lava tomorrow."

Barbara Lozano, who lives within a mile of the plant, said she would have thought twice about buying her property if she had known the risks.

"Why did they let us buy residential property, knowing it was a dangerous situation? Why did they let people build all around it?" she asked.



In this Wednesday, May 9, 2018 photo, an ash column rises from the crater at the summit of Kilauea volcano at Volcanoes National Park, Hawaii. Scientists said Wednesday the risks of an explosive summit eruption will rise in coming weeks as magma drains down the flank of the volcano toward the area lava started erupting from fissures in a residential neighborhood last week. (U.S. Geological Survey via AP)

About 2,000 people have been evacuated from the neighborhoods where lava has oozed from the ground.

No one lives in the immediate area of the summit crater. The crater and surrounding region are a part of Hawaii Volcanoes National Park, which planned to close Friday.

"It seems pretty safe to me right now, but they'd know best," said Cindy Woodd, who was visiting from British Columbia, Canada. "We don't know what's going on underground. Life and safety is what's most important."

What could happen is not an eruption of volcanic gases but mostly trapped steam from flash-heated groundwater released like in a kitchen pressure cooker, with rocks, said volcanologist Janine Krippner of Concord University in West Virginia.



First Lt. Aaron Hew Len, left, and Sgt. 1st Class Carl Satterwaite, of the U.S. National Guard, test air quality near cracks emitting volcanic gases from a lava flow in the Leilani Estates subdivision near Pahoa, Hawaii on Thursday, May 10, 2018. Kilauea has destroyed more than 35 structures since it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. (AP Photo/Jae C. Hong)

The problem is the lava lake at the summit of Kilauea is draining fast, about 6.5 feet (2 meters) per hour, Mandeville said.

In little more than a week, the top of the lava lake has gone from spilling over the crater to almost 970 feet (295 meters) below the surface as of Thursday morning, Mandeville said. The lava levels in the lake are dropping because lava is spewing out of cracks elsewhere in the mountain, lowering the pressure that filled the lava lake.

"This is a huge change. This is three football fields going down,"

Mandeville said.

The fear is that it will go below the underground water table—another 1,000 feet further down—and that would trigger a chain of events that could lead to a "very violent" steam explosion, Mandeville said.



First Lt. Aaron Hew Len, and Sgt. 1st Class Carl Satterwaite, background right, of the U.S. National Guard, test air quality near cracks emitting volcanic gases from a lava flow in the Leilani Estates subdivision near Pahoa, Hawaii on Thursday, May 10, 2018. Kilauea has destroyed more than 35 structures since it began releasing lava from vents about 25 miles (40 kilometers) east of the summit crater. (AP Photo/Jae C. Hong)

At the current rate of change, that is about six or seven days away.

Once the lava drops, rocks that had been superheated could fall into the

lava tube. And once the lava drops below the water table, water hits rocks that are as hot as almost 2,200 degrees (1,200 degrees Celsius) and flashes into steam. When the water hits the lava, it also steams. And the dropped rocks hold that steam in until it blows.

A similar 1924 explosion threw pulverized rock, ash and steam as high as 5.4 miles into the sky, (9 kilometers) for a couple of weeks. If another blast happens, the danger zone could extend about 3 miles (5 kilometers) around the summit, land all inside the national park, Mandeville said.

The small, aptly named town of Volcano, Hawaii, population 2,500, is about 3 miles (4.83 kilometers) from the summit. Janet Coney is office manager of the Kilauea Lodge, an inn and restaurant. She said USGS officials told her lodge employees probably won't have to worry about rocks raining down on them, but they might experience falling ash.



Kilauea's summit crater glows red in Volcanoes National Park, Hawaii,

Wednesday, May 9, 2018. Geologists warned Wednesday that Hawaii's Kilauea volcano could erupt explosively and send boulders, rocks and ash into the air around its summit in the coming weeks. (AP Photo/Jae C. Hong)



Visitors take pictures as Kilauea's summit crater glows red in Volcanoes National Park, Hawaii, Wednesday, May 9, 2018. Geologists warned Wednesday that Hawaii's Kilauea volcano could erupt explosively and send boulders, rocks and ash into the air around its summit in the coming weeks. (AP Photo/Jae C. Hong)



Steam and gas rise from Kilauea's summit crater in Volcanoes National Park, Hawaii, Wednesday, May 9, 2018. Geologists warned Wednesday that Hawaii's Kilauea volcano could erupt explosively and send boulders, rocks and ash into the air around its summit in the coming weeks. (AP Photo/Jae C. Hong)



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This photo provided by the U.S. Geological Survey shows a Hawaii Volcano Observatory geologist recording a temperature of 103 degrees C (218 degrees F) at a crack along Nohea Street in Leilani Estates near the town of Pahoa, Hawaii, Wednesday, May 9, 2018. Geologists warned Wednesday that Hawaii's Kilauea volcano could erupt explosively and send boulders, rocks and ash into the air around its summit in the coming weeks. (U.S. Geological Survey via AP)

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