



U.S. Geological Survey

Norm Banks does field work on Jan. 7, 1983, during an eruptive fissure.

Pu'u O'o

Three-decade eruption of Kilauea yields scientific discoveries

By COLIN M. STEWART
Tribune-Herald staff writer

On a geologic scale, the last three decades have been barely a blip on the radar against a backdrop of millions of years of earth-shattering, world-building events.

But in terms of the science of volcanology, the last three decades have supplied a veritable treasure trove of opportunities to further mankind's understanding of the forces that help shape our planet.

On Thursday, the more-or-less continuous eruption of lava emanating from Hawaii Island's Pu'u O'o vent on Kilauea Volcano will turn 30 years old, marking a milestone in the work being done by scientists with the U.S. Geological Survey's Hawaiian Volcano Observatory.

"The changes in technology over the last 30 years have allowed us to see much more and be more quantitative about measuring the changes a volcano goes through," said Jim Kauahikaua, scientist in charge at HVO. "We know a lot more about how lava flows work, and we can, to a certain degree, predict where they go and how fast they'll

In their own words

Current and former staffers at the U.S. Geological Survey's Hawaiian Volcano Observatory were asked to reflect on the Pu'u O'o eruption on the occasion of its 30th anniversary, and to discuss their recollections and thoughts about the last 30 years.

Ed Wolfe
HVO staff geologist, 1982-1984
"Hard to believe it was thirty years ago.... On January 2, 1983, Bob Koyanagi and his HVO seismology group were tracking a vigorous earthquake swarm migrating northeastward in Kilauea's rift zone.

Several of us began hiking about mid-day from the vicinity of Mauna Ulu, northeastward toward the middle part of the East Rift Zone. Guided by the migrating earthquake swarm, and thanks to a helicopter lift, we were on the ground between Napau Crater and Pu'u Kamo'o'o, on the north side of what would become the initial eruptive fissure, when lava broke the surface near Napau in the very wee hours of January 3. I must have been carrying a 100-pound pack and was greatly relieved to be picked up en route by the helicopter; otherwise, I almost certainly would

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Initially, he said, scientists had no idea how powerful and sustained the eruption would become. Since the late 1970s, there had been a few other short-lived eruptions observed that would come and go, and scientists thought they were witnessing another one of those.

"That was the expectation at the beginning of this one," he said. "... But as the months and years wore on, it became obvious it wasn't one of those at all."

The first three and a half years or so was a time of small eruptions going on and off again in fits and starts, he said, with fissures opening up and low fountains of lava being observed. But then, in mid-1986, the magma conduit beneath Pu'u O'o ruptured, and new fissures opened, extending 2 miles downrift from the base of the cone. This led to the easternmost fissure evolving into a single vent, named Kupaianaha. Thus began what has been nearly continuous lava flow since then, he said.

"After the mid-86 switchover, the

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Tourism up on Big Island

By TOM CALLIS
Tribune-Herald staff writer

Tourists are visiting the Big Island in larger numbers and with bigger wallets. Visitor arrivals are up 8.7 percent to 1,298,871 through November, according to the Hawaii Tourism Authority.

The island is just shy of the 1,318,310 visitors it saw last year, making it all but certain that 2012 will be the third straight year of growth following the recession.

"I think it's going to be a real good year for us," said George Applegate, Big Island Visitor Bureau executive director.

Tourists are also spending more. ITA estimates they spent \$1.5 billion on the island for the first 11 months, up 17.3 percent from the same time period in 2011.

That's the most spent since 2007, when

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JOHN BURNETT/Tribune-Herald

A lone officer stands guard on Bayfront Highway early Sunday morning where police say 32-year-old Faafetai Fiu of Hilo was gunned down the night before.

Man shot, killed on Bayfront

By TOM CALLIS and JOHN BURNETT
Tribune-Herald staff writers

A 32-year-old man was fatally shot Saturday night along Bayfront Highway in Hilo following a dispute with his wife, police said.

Police found Faafetai Fiu of Hilo unresponsive at 8:51 p.m. on the makai side of the road near the Mo'oheau Bandstand after receiving reports of gunshots in the area, said Lt. Greg Esteban.

Fiu, who had multiple gunshot wounds, was pronounced dead after arriving at Hilo Medical Center.

Esteban said Fiu was walking in the

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FROM THE FRONT PAGE

ERUPTION

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lava's been coming out pretty much continuously. The actual place it's come out of the ground has changed, but it has continued," Kauahikaua said.

Over the years, the continued activity, paired with the volcano's accessibility on the Big Island, has served to provide scientists with plenty of opportunities to learn about how volcanoes work, he said.

And while they are learning how better to predict future events, they are also becoming skilled at using knowledge gained in the last 30 years and applying it to events that occurred further back in time.

"One eruption, which we've named 'Ai la'au,' happened about 450 years ago, but it was hard to pin down how long it lasted," Kauahikaua said. "Now (using knowledge gained in part from the Pu'u O'o eruption), we think it may have been between 40 and 60 years."

The last 30 years has provided plenty of exciting moments for scientists, but perhaps none as thrilling as the moment on Jan. 29, 1997, when the crater floor at Pu'u O'o collapsed, dropping between 450 and 500 feet overnight, and draining the massive lava lake, he said.

"It had already started to collapse in a minor way, but then, all of a sudden, the bottom fell out," Kauahikaua said. "It left a hole as deep as it was wide.



HOLLYN JOHNSON/Tribune-Herald

Tourists check out some of the steam vents at Hawaii Volcanoes National Park on Friday afternoon.

It was incredible. It was huge. I mean, we'd been visiting this area almost weekly for a long, long time, then all of a sudden, that happened. It was very to see it from the air. To get up on the edge of it. It was the sheer size of it. It was

really spooky."

Looking toward the future of the eruption, Kauahikaua said anything is possible. It could slowly grind to a halt, or it could go another 30 years, or even longer.

He and his team of

scientists say they've got plenty of work left to do, so they hope the lava flows will continue for years to come.

One area where they hope to make breakthroughs soon is on the subject of lava lakes.

"A lot of the work going on at the observatory right now is trying to really understand in general their relation to summit eruptions," he said. "It feels like we're on the verge of a big discovery in that way, and

it would truly be exciting. We don't have enough data yet, and it would certainly be a shame to have the activity stop before we've figured it out."

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WORDS

From front page

not have been on site when the eruption began.

It was an exciting and busy night and the beginning of a long adventure—much longer than any of us at that time anticipated. My recollection is that when Episode 1 ended, we assumed the eruption was over. By the time we were in Episode 2, I think we realized this was not a normal east rift zone eruption. A word about the name of Pu'u O'o: I was simply trying to describe on the radio from the eruption site where one of the vents was located. I described the location as near the "o" in "lava flow of 1965" on the topographic map. Someone at HVO decided to informally call the growing spatter cone Puu O, and the Kaipapa Hawaiian elders took it from there to Pu'u O'o.

Norm Banks
HVO staff geologist,
1978-1985

After the alarm was called out, and we gathered at HVO, several of us geared up (as we had on many failed and a few eruptive events) and drove down to the end of the Chain of Craters Road to hike into Kilauea's middle East Rift in the dark and rain. We spent the night, wet, chasing the center of seismic activity (our packs loaded with cameras, time-lapse cameras, thermocouple kits, other observation instruments and survival supplies) as seismic reports came in from HVO. We finally ended up and waited at the actual site of the first outbreak. We had cameras all set up and pointed in the right direction from some high points north of the eruption site. My memory is that our first crew was augmented and replaced, by helicopter (Ed Wolfe's party), at about

down and before the lava broke surface, although I returned to add to or replace the ground geologists after some heat, drying, and food back at HVO.

None of us at HVO were predicting on the night of 2-3 January 1983 that we were seeing the start of an East Rift "siege" eruption. If anything, with the 34-years of short eruptions (79, 3-80, 4-82, and 9-82) and multiple (10-15) failed eruptions (seismic swarms and deformation events), we were expecting a day to week of surface activity, or none at all. Even when activity resumed 10 February, but then stopped again, the betting would still have favored a limited event. The resurrections in March and April had some possibly thinking a Mauna Ulu event, but not a siege. I think that "siege" did not enter the lexicon until Pu'u O'o had become fully established and had experienced repeated episodes that pointed to an eruption that could certainly match/exceed Mauna Ulu's record. When I left HVO in mid-1985, I'm not sure that there had yet been consensus or a "eureka" moment, although certainly by then Pele had edged out Mauna Ulu's 4+-year record, and there were discussions by then that we could be documenting something that

might match pre-historic eruptions.

Lopaka Lee
HVO staff scientist,
2007-present

As a 9-year old, I recall sitting on my Aunt's roof in Puna looking at the fountain thinking, "Tutu Pele coming..."

About the naming of Pu'u O'o, it's ironic that a common meaning of "o'o," particularly the way we've come to pronounce it, is "mature, old, aged." Of course, this is consistent with the Hawaiian belief that things can be influenced by naming



alone—for better or worse. Personally, every time I hear the name Pu'u O'o, I think, "Indeed!"

Volcano Awareness Month

January is Volcano Awareness Month. In recognition of the 30th anniversary of the Pu'u O'o eruption and Volcano Awareness Month, the U.S. Geological Society will host a number of talks:

Where: University of Hawaii at Hilo, University Classroom Building (UCB), Room 100
When: Thursdays at 7 p.m.

● Jan. 3 — 30th Anniversary of Kilauea Volcano's East Rift Eruption
Tim Orr, USGS Hawaiian Volcano Observatory

● Jan. 10 — Looking for Lava in All the Wrong Places — and Finding It in Some

Don Swanson, USGS Hawaiian Volcano Observatory
● Jan. 17 — Pelehuana, Volcanism Pualani Kanaka'ole Kanahale, Edith Kanaka'ole Foundation and Hawaii's Community College
● Jan. 24 - Mauna Loa: How Well Do You Know the Volcano in Your Backyard?
Frank Trusdell, USGS Hawaiian Volcano Observatory
● Jan. 31 - Snowballs from Kilauea?
Ken Hon, University of Hawaii at Hilo Geology Department

"After Dark in the Park" Programs

● Tuesdays at 7 p.m. Kilauea Visitor Center, Hawaii Volcanoes National Park
Park entrance fees apply.

More information: (808) 985-6014 or 985-6011.

● Jan. 8 — 30th Anniversary of Kilauea Volcano's East Rift Eruption
Tim Orr, USGS Hawaiian Volcano Observatory
● Jan. 15 — What's happening in Halema'uma'u Crater?
Matt Patrick, USGS Hawaiian Volcano Observatory
● Jan. 22 — A Below-the-Scenes Look at Kilauea Volcano's "Plumbing" System
Mike Poland, USGS Hawaiian Volcano Observatory
● Jan. 29 — The Story Behind Monitoring Hawaiian Volcanoes:
How HVO Gets the Data It Needs to Track Eruptions and Earthquakes
Kevan Kamabayashi, USGS Hawaiian Volcano Observatory

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The following transfer stations that are normally closed on Wednesdays will be open the Wednesday after the holiday to better serve the public:

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Mahalo for your kokua.

For more information, please call the Solid Waste Division at 961-8270.

HAWAII COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE DIVISION

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