Island of Hawaii's Eruptive History of Kilauea Summit Area

Eruptive History of the Kilauea Summit Area, Island of Hawaii

Per Person Price:	SGD850 (twin-share) SGD1000 (single room)
Participation:	Minimum 11, Maximum 24
Available:	June 9-10
Guides:	*Don Swanson

**USGS, Hawaiian Volcano Observatory; Tina Neal, USGS Hawaiian Volcano Observatory*

Website: https://volcanoes.usgs.gov/observatories/hvo/

Description:

- The summit area of Kilauea has a rich history of explosive and effusive eruptions related to different stages of caldera development.
- This trip focuses on the past 1000 years, highlight explosive activity and examines active extension within the Koa'e falut system and its relations to the rift zones.
- This 2-day trip will depart each day from a designated hotel in Hilo (Island of Hawaii)
- Tour will include access to areas restricted to the general public.

ITINERARY

Day 1. Depart from Honolulu for Hilo, on Sat, June 9, 2018

HNL 06:47 Depart HNL on Hawaiian Air Flight # 332 to Hilo. Please make sure you check-in for your flight 2 hours before your flight.

HILO 07:40 Arrive in Hilo. Meet Don Swanson at baggage claim

Stop 1. Rim of caldera outside HVO. Provide overview of the summit geology, particularly the formation of the caldera and the following 300 years of mostly explosive activity that produced the Keanakāko'i Tephra. Discuss the ongoing (as of August 2016) eruption in Halemaumau, fume from which is readily visible. Move to a small cross-wind outcrop of the Keanakāko'i Tephra to consider a reticulite deposit and its implications, and to discuss the lethal eruption in 1790, emphasizing the relation of the footprints ash to the coarser Mystery Unit and to the surges that killed several hundred people. We will discuss in more detail the entire Keanakāko'i Tephra eruptive period on Day 2.

Drive on Crater Rim Drive around the east side of the caldera to the intersection with the Chain of Craters Road. Turn on the Chain of Craters Road.

Stop 2.. Lua Manu Crater on upper east rift zone. Walk on the July 1974 lava flow, briefly examining a section of its fissure and spatter rampart but paying particular attention to the forest of lava trees (tree molds) and their formation. We will walk above the broken north side of a spatter cone; the collapse occurred during the eruption but after most of all of the spattering.

Continue down Chain of Craters Road, climbing out of the structural caldera just beyond Lua Manu, crossing a slowly enlarging area of hot ground first noted in 1938 (the Puhimau thermal area), passing seven other pit craters (including the double Hi'iaka and triple Pauahi craters), and turn onto the pre-1969 Chain of Craters Road to the Mauna Ulu parking lot.

Stop 3.. Walk to a segment of the May 24, 1969 fissure system that was active at the start of the Mauna Ulu eruption (1969–74). Examine a spatter rampart and discuss why it is only present on one side of the fissure. Note the *en echelon* nature of the fissure segments, a ubiquitous characteristic of Hawaiian fissure systems.

Lunch at Mauna Ulu parking lot. One toilet available, the first since HVO.

Drive back up Chain of Craters Road to pullout opposite pre-1500 CE spatter cone.
Walk up road to unsigned Devil's Throat.

Stop 4. Devil's Throat, the youngest pit crater on the east rift zone. Discuss its formation, the first intrepid descent in 1923, and the collapse of its roof in the next 20–30 years. The opening to the crater has greatly enlarged over the years, but measurements show that the width of the crater itself has not changed.

Turn onto Hilina Pali Road and drive 3.2 km (1.9 mi) to pullout for Stop 5.

Stop 5. Walk 10 minutes to White Rabbit, named after the Jefferson Airplane's 1967 rock classic written and sung by Grace Slick, to examine normal faults and a small surficial thrust in the Koa'e fault system. Discuss the relation of the Koa'e to the rift zones, extension rates measured across the Koa'e by deformation monitoring and geology, and the December 24–25 faulting event. Return to vehicles and continue down Hilina Pali Road.

Stop 6. 1600. Park at top of Kulanaokuaiki Pali, which was offset 2.5 m vertically in December 1965. Compare lithic tephra deposits on the ground surface directly above the pali with those farther along the road. The grain sizes are vastly different. Discuss why.

Depart for Hilo Hawaiian Hotel. Dinner on own

Day 2. Meet in the lobby of the Hilo Hawaiian Hotel at 7:30am, on Sun, June 10, 2018.

Hotel Check out of hotel by 7:30 a.m. Breakfast on own

Stop 1. Kīlauea Iki overlook along Crater Rim Drive on east side of caldera. Discuss the 1959 eruption and the formation and subsequent drilling of the famous lava lake in the crater.

Continue on Crater Rim Drive to Devastation parking lot.

Stop 2. Walk 200–300 m into Devastation Area to examine the 1959 tephra deposit in a collapse pit formed above a skylight for a lava tube.

Return to vehicles and drive through a locked gate along Crater Rim Drive to Keanakāko'i Crater. From here we will be walking for the rest of the field trip, total distance about 4 km. Lunch provided.

Stop 3. Walk past another gate and descend into gully to view and discuss the July 1974 flow just west of Keanakāko'i Crater. The flow, erupted from a vent visible from here, sped down a gully at a calculated 30 km/h, superelevating around a sharp bend and continuing to the caldera floor. This is a world-class outcrop of a superelevated lava flow. BRING YOUR CAMERA!

Hilo 18:34 Depart Hilo on Hawaii Airlines #141

HNL 19:26 Arrive in Honolulu

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The Fine Print:

COST INCLUDES: Round-trip airfare from Honolulu to Hilo. One night accommodation at Hilo Hawaiian Hotel in a double occupancy room. Van rental, 2 lunches, water.

NOT INCLUDED: Transfer to/from Daniel K. Inouye Honolulu International Airport. Breakfast & dinner on own

SPECIAL INSTRUCTIONS: **Please try and keep luggage to a minimum.**

Be prepared for a range of weather including heavy rain and strong sun. The weather at Kīlauea's summit (1200 m elevation) varies hourly and may be hot and sunny or rainy and chilly in the same day. Wind speed ranges up to 10 m/s, averaging 5 m/s. Typical daytime temperature ranges are 16 to 24C; wind chill can be several degrees less. Umbrellas are useless because of the wind; either pack light rain gear or just get wet—a policy often followed by the senior trip leader. Temperatures may be 5 to 10 degrees hotter at sea level.

Depending on wind direction during the day, there is a slight possibility you may be exposed to minor amounts of vog or sulphur dioxide gas and sulfate aerosol particles. This should be no more than a very minor annoyance unless you have respiratory sensitivities; please see this link for more information: http://ivhhn.org/vog/

For both days of the trip, sturdy shoes are recommended (lightweight hikers are OK). We will not be walking through brushy areas, but long pants and long-sleeved but lightweight shirts are advisable. Our longest walk will be a 4 km roundtrip through open country with little elevation change. You will need a small daypack to carry your lunch on this walk on the second day.

Sunscreen, sunglasses if needed/desired, and a hat with chin strap are strongly recommended. Remember that sunburn happens quickly at 19°30' latitude.

Sampling will not be allowed during the fieldtrip, as this requires a special collections permit from the National Park. If you are interested in collecting specimens, please plan ahead and apply for a collections permit: https://irma.nps.gov/rprs/

Helpful information about the National Park fees, amenities, and what is available in the general area can be found here:

https://www.nps.gov/havo/index.htm

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