

Final Report, Permit #:HAVO-2016-SCI-0032: Educational Geologic Field Research in the Mauna Ulu and Kūlanaokuaiki Pali Areas of Hawai'i Volcanoes National Park

D. Brooks McKinney
Professor of Geoscience
Hobart and William Smith Colleges
Geneva, NY 14456

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Field research experience in a variety of environments is a critically important component of high quality undergraduate training in geology. Toward that end, the Geoscience Department of Hobart and William Smith Colleges runs an annual two week credit-bearing intensive field course in different parts of the country each year. In May/June 2016 the course was based on the island of Hawai'i and an important component of its work were two field projects in Hawai'i Volcanoes National Park, performed under research permit#:HAVO-2016-SCI-0032. The Mauna Ulu field project ran from 5/25/16 through 5/30/16 examined an area of one square kilometer east of the Mauna Ulu parking area, Figure 1. Working in two staggered groups, sixteen students used satellite photographs and field observations to map the boundaries between volcanic flow and tephra units, to identify vents and fracture zones and to determine the relative ages of the features they mapped. This exercise culminated in a discussion of the area's eruptive history based on the field observations. The Kūlanaokuaiki Pali project ran from 6/1/16 through 6/4/16 and involved the same sixteen students, again in two staggered groups. In this project students used satellite photographs, compasses and hand-held GPS units to map out the extent, orientation and sense of movement on a series of eruption-related faults in a crudely rectangular area from the Kūlanaokuaiki campground eastward approximately 2 km, bounded to the north by the Hilini Pali road and extending southward approximately a half kilometer, Figure 2. This project culminated in a discussion of the dynamic relationships between volcanism and faulting within the area.

These projects were strictly educational exercises. No samples were collected during either project and in the Kūlanaokuaiki Pali project we were careful to sensitive areas that had been communicated to us by the park botanical staff. The maps produced were of draft quality—for most students this was their first encounter with geologic field mapping—and provide no additional insights over published maps already available and are thus not included here. There are no publishable results from the work. Nonetheless, these were valuable experiences for the students involved. For nearly all of them, it was the first time they had visited a landscape dominated by volcanic processes.

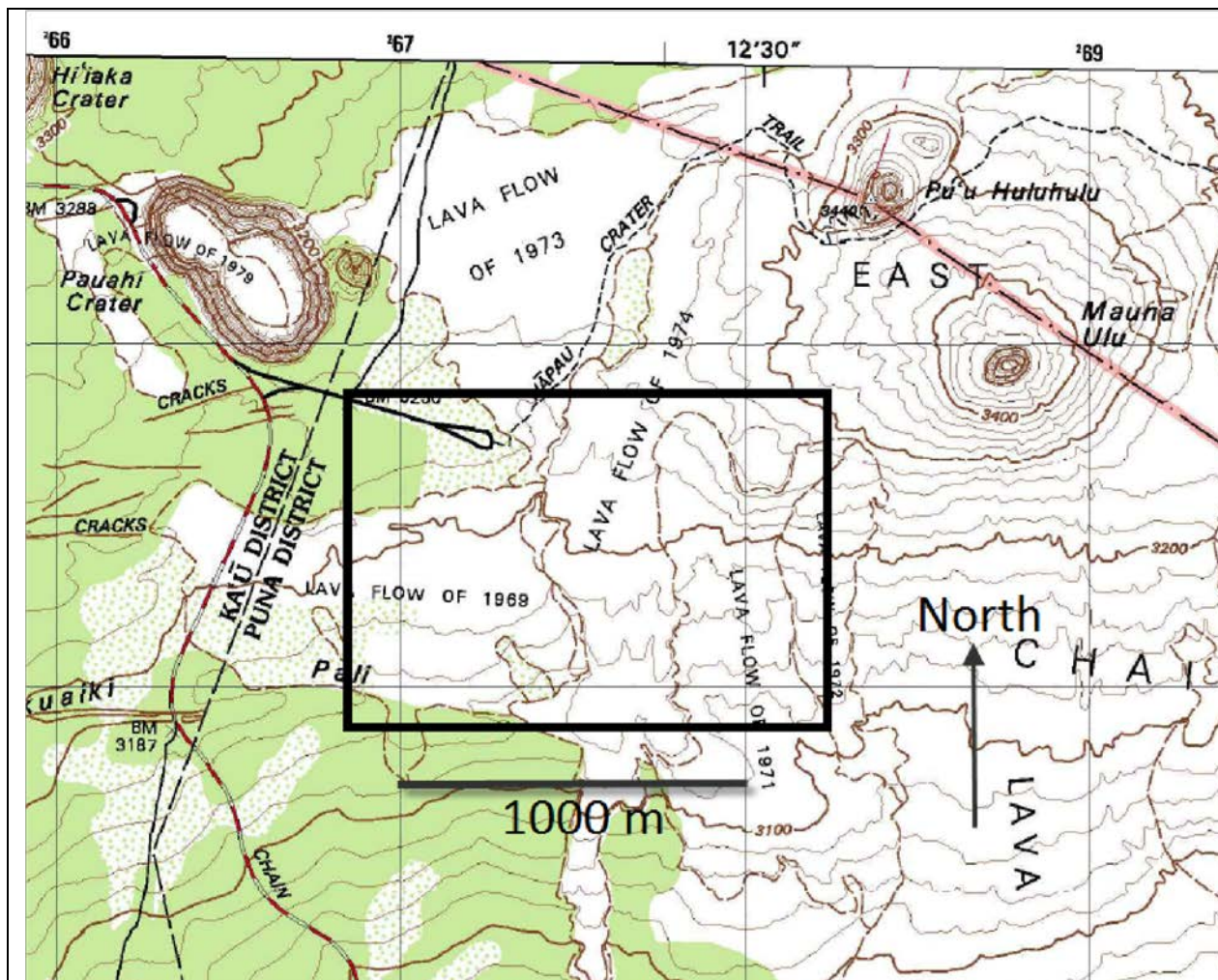


Figure 1. A portion of the USGS Makaopuhi Crater 7.5' topographic quadrangle showing the outline of the proposed map area for the Mauna Ulu project.

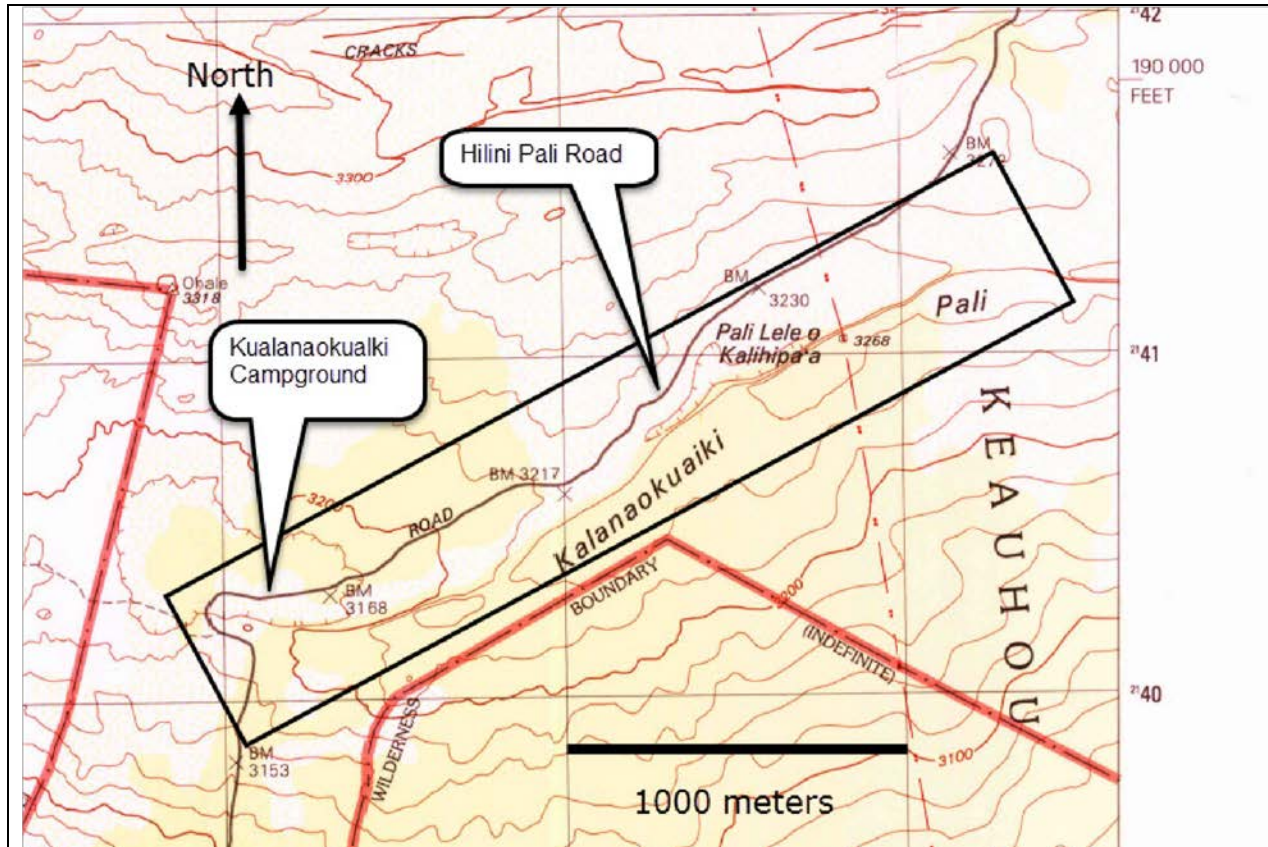


Figure 2. A portion of the USGS Kau Desert 7.5' topographic quadrangle showing the outline (rectangular box) of the proposed Kūlanaokuaiki Pali project area.