

K-Ar age determination of Honolulu unit, Oahu

Ayako Ozawa[1], Takahiro Tagami[2], Michael Garcia[3], David R. Sherrod[4]

[1] Earth and Planetary Sci., Kyoto Univ, [2] Earth and Planetary Sci., Kyoto Univ., [3] Geology and Geophysics, Univ. of Hawaii, [4] HVO, USGS

There are four stages of activity in Hawaiian volcanoes, pre-shield stage, shield stage, post-shield stage, and rejuvenated stage. Volcanic hiatus about 1m.y. exists between post-shield stage and rejuvenated stage. Rejuvenated stage volcanics consist less than 1% of Hawaiian shield volcanoes, but are important when thinking about history of a Hawaiian volcano or relation between plume and hotspot volcanoes.

Honolulu Unit consists of 37 vents or groups of vents on Koolau shield volcano, and most extensive and carefully studied rejuvenated stage unit. However, ages of Honolulu Unit vents were dated for no more than 16 vents, and age determination of this unit is not carried out after 1980. Neither of precision or number of age data are enough for constructing history of Honolulu Unit.

Today, K-Ar age determination is improved and new age determination has changed interpretation of history of some of the Hawaiian volcanoes such as West Maui, Haleakala, and Waianae.

In this study, we determined K-Ar ages of Honolulu Unit in order to construct detailed history of the unit. We also analyzed argon isotope composition of historical lava in Hawaii in order to clarify whether or not mass fractionation correction procedure can be used for dating of Hawaiian volcanics.