

## 箱根火山の K-Ar 年代

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## K-Ar Ages of Hakone Volcano, Japan

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Hakone Volcano is an active volcano located near the northern end of the Izu-Bonin volcanic arc. Kuno (1950) reconstructed the evolution of this volcano based on detailed study on topography and volcano stratigraphy as follows: 1) development of a large stratovolcano (OS: Old Somma), 2) collapse of the stratovolcano and formation of the first stage caldera, 3) renewed volcanism leading to the formation of a shield volcano (YS: Young Somma) inside the first caldera, 4) collapse of the shield volcano resulting to the formation of the second stage caldera, 5) growth of Central Cones (CC) inside the second caldera. Our K-Ar dating performed on several lava flows, lava domes, and dykes revealed the following interpretations: 1) Ages between parasitic volcanoes on the flank of OS and YS are overlapping. 2) Ages of 'Yugawara volcano' presumed to be pre-Hakone edifice by Kuno (1950) and that of OS are indistinguishable. 3) A lava of CC obtained from a deep well shows close age to Hk-TP eruption, later stage of which is thought to be initiation of the CC stage (Hirata, 1999).

From these results and previous tephrochronological and geological studies (e.g. Machida, 1977; Takahashi *et al.*, 1999), we propose a new classification of the edifices of the Hakone Volcano and their ages as follows: 1) formation of the Lower Older Edifice [LOE] which constitute the main part of Kuno's OS lasted until the eruption of TCu-1 tephra (0.25 Ma). 2) Upper Older edifice [UOE], the parasite volcanoes on LOE, was erupted from 0.25 Ma to 0.11 Ma. 3) Activity of the Younger Edifice [YE; corresponding to Kuno's YS] was initiated since the emplacement of Hk-TAu12 tephra (0.13 Ma) and ended at 0.08 Ma. 4) CC erupted from 0.065 Ma to the present.

**Key words:** Hakone volcano, K-Ar dating, stratovolcano, parasitic volcano, caldera forming

## 1. はじめに

箱根火山は伊豆半島の付け根に位置する第四紀火山である (Fig. 1)。久野 久は、箱根火山について詳細な地形的な観察および岩石学的な研究を行い、後に詳述する、火山体形成史のモデルを提出した (Kuno, 1950)。

久野の形成史はその後、テフラ層準との対応が行われ

(例えば町田, 1977; 町田・森山, 1968), 形成史上の主要な時期に関しては一応の年代が与えられたが、箱根火山の山体を構成する個々の溶岩流や側火山の噴出年代を明らかにするまでに至っていなかった。最近になって、平田 (1999)、高橋・他 (1999) などによって、詳細な地質調査と K-Ar 年代測定に基づく新しい箱根火山の形成史

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