

Detailed effusive process of the 864-866 Jogan lava flows (Aokigahara Lavas) of Fuji Volcano, based on LIDAR altimetry data

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The 864-866 Jogan eruption of Fuji Volcano, Japan, is one of the most voluminous eruptions during the past 3200 years. This eruption was mostly effusive and discharged a lot of lava flows, which are totally called the Aokigahara lavas. The detailed distribution and effusive process of the lavas have, however, not been clarified because of thick forests (called sea of trees) covering the surface of the lavas. Using LIDAR (Light Detection And Ranging) altimetry data, we executed detailed surveys on the topography and stratigraphy of the Aokigahara lavas and reconstructed the detailed effusive sequence of the Jogan eruption. The main results are as follows,

Source vents

An eruptive fissure, of which length is 1.5km, has been discovered along the northwest extension of the Ishizuka-Jinzafuketsu fissure, which is one of source vents of the Aokigahara lavas. Discovery of this fissure extended northwest the potential area of future flank eruptions of Fuji volcano.

A flat shelf exists in the saddle between the Nagaoyama and Omuroyama scoria cones. LIDAR imaging suggests that the shelf has been formed as a lava lake, of which lavas poured from the Nagaoyama-Koriana fissure, which is another source vent of the Aokigahara lavas.

Several normal faults, which had been associated with dike intrusion below the Ishizuka-Jinzafuketsu fissure, were discovered.

Lava distribution and effusive process

The lava flow poured into Lake Shojiko had effused not from the Ishizuka-Jinzafuketsu fissure but from the Nagaoyama-Koriana fissure.

A part of the Tenjinyama-Igatonoyama lavas, which are the products of an older eruption, has newly correlated with the part of the Aokigahara lavas from the Nagaoyama-Koriana fissure.

LIDAR imaging clarified detailed distribution of many lava tunnels. The length of some lava tunnels attains 4km. This means that the lava tunnels play an important role in transportation of lavas in Fuji Volcano.

LIDAR imaging also produced the detailed data of elevation of lava surface. Using this data and the data of lava thickness, we recalculated the total volume of the main part of the Aokigahara lavas (see Arai et al., 2003, this meeting).