

# Non-tectonic faults dislocating effusives of the Higashi-Izu monogenetic volcano group

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## 1. Introduction

It is clear that the fault dislocating Quaternary system is not necessarily a tectonic one expected to be reactivated in the future. Gravitational faults caused by the landslides and other subsurface phenomena, and passive faults induced by volcanic activity or seismicity are noted as non-tectonic faults. Discerning non-tectonic and tectonic is important from the viewpoint of engineering geology as well as of structural or seismic geology (Yokota et al, 2003).

Izu Peninsula is the area where volcanism has been successively continuing from the beginning of Neogene period. Simultaneously, seismic activity is very active in this region of Japan. Therefore, not only the active faults such as Tanna-fault system, but also non-tectonic faults are expected to be widely distributed.

In this paper, we discuss the two cases of non-tectonic fault, which dislocated the effusives of the Higashi-Izu monogenetic volcano group (HIMVG) which are the latest volcanic products in the Izu Peninsula.

## 2. Description and interpretation of faults

### 2.1 Fault dislocating the Hachigakubo scoria fall deposit in Ito city

In order to construct the Okuno Dam, completed in 1989, located at the western mountainous area of Ito city, detail geological investigations including active-fault study were carried out (Shizuoka Prefectural Government, 1990). An aero-photo lineament was recognized at the south end of town area in Ito city with NE-SW trend. The outcrop of the fault is located at the almost northeast end of the lineament (N34-57-30 E139-05-55). The fault bounds the Hachigakubo scoria fall deposit aged 21ka (HSF, Koyama et al, 1995) and loam/loess layer which has faint sedimentary structure. From this occurrence, the fault dislocating the HSF layer and the lineament had been interpreted an active fault at first. After that, however, additional investigation including drilling tests was carried out in the vicinity of the outcrop, and it made clear the continuity of the HSF layer and no dislocation along the 'fault' trend. Moreover, dislocation also was not distinguished at the upper surface of the terrace deposit lied under the HSF layer. In conclusion, it is clarified that the cutting of the HSF layer was caused by the very local landslide.

### 2.2 Faults dislocating the Kawagodaira pumice fall deposit at Nakaizu-cho

A set of small faults is observed at the upstream of the Oomigawa river in the Nakaizu-cho (N34-53-44 E138-58-48). Topographically, It is located on a small ridge with NW trend traversing the lava flow of the Amagi volcano. Loam/loess layer including the Jizodo scoria fall deposit (22ka), which is one of the effusives of the HIMVG, Kawagodaira pumice fall deposits (KPF, 3.1ka, Shimada, 2000), and surface soil lie in the ascending order.

Faults spacing respectively 50 to 60 centimeters, has similar features mentioned below. The strike of faults is nearly normal to the ridge direction, and the dip shows about 70 degrees northward. Attitude of the faults is more or less listric. Both the loam/loess layer and the KPF layer are dislocated with about 5cm normal dip separation, respectively. But dislocation at the earth surface can not be recognized.

By aero-photo interpretation and field investigation, no evidence of existing active fault with ENE-SWS trend was found. On the contrary, the faults must have been formed gravitationally, because (1) the faults traverse the ridge, and (2) the azimuth of the faults and sense of dislocation indicate that the nose of the ridge moved downward. Every fault has similar features, so that a set of faults seems to be formed simultaneously. These faults might have been formed seismic as Hayakawa and Koyama (1992) mentioned. The time of faults formation is limited after the deposition of KPF. It is uncertain, however, that the faults were formed right after the activity of the Kawagodaira volcano.