

Paleosecular Variation from the late Quaternary Ontake Volcano, Japan: Directions and Excursions

Hidefumi Tanaka[1], Takehiko Kobayashi[2]

[1] Education, Kochi Univ, [2] Dep.Earth Sci., Toyama Univ

<http://www.kochi-u.ac.jp/~hidefumi/>

Ontake Volcano started its activity about 0.75 My ago. It consists of two volcanoes with prolonged cessation of volcanism during 0.1-0.4 Ma between them. Detailed stratigraphy and accurate radiometric ages were determined by Matsumoto and Kobayashi (1995), and high correlation was observed between them in the Younger Ontake Volcano. Study of paleosecular variation from mostly andesite lavas will be reported for a rather accurate age range of 20-90 ka. Possible existence of two excursions at 48 ka and 80 ka will also be discussed.

Most samples had a stable remanence with only moderately small secondary components, and defining a characteristic remanence direction was straightforward for most lavas. There were several problematic sites with very large secondary components which apparently suffered from lightning strikes. In most cases, however, the site mean direction was successfully obtained from the method of converging great circles with linear data. Site mean paleodirections were obtained at 40 sites out of 42 collected, but some of the results from lava successions were combined due to possible equivalent ages, remaining 35 sites. After excluding two low latitude VGPs, angular dispersion of 15.6 deg was obtained for a period which is accurately confined between 20 ka and 90 ka. The obtained angular dispersion is not different from the typical value for the last 5 my, and this is not surprising if we consider that the global paleointensity was not necessarily low and rather oscillatory during the period of 40-100 ka which precedes the global low in 20-40 ka.

Low latitude VGPs of (41.9 deg N, 196.2 deg E) and (15.9 deg N, 183.3 deg E) were obtained from the 48 ka and 80 ka lavas, respectively. The latter is accompanied with a small paleointensity of about 5 micro T (Yamamoto et al., this session). These two low latitude VGPs from 48 and 80 ka lavas indicate existence of excursions in Japan during the latest Pleistocene, although the former is not so conspicuous. They are probably related to those reported previously not only from the Ontake Volcano and its proximity (Hirooka et al., 1978; Aida, 1978) but also from other several sites in Japan, although they were not conclusive. The 48 ka excursion probably correlates to the Laschamp excursion. This is consistent with the fact that the VGP position from the 48 ka lava comes to the central Pacific region, similar to those from the Laschamp excursion found in New Zealand by Shibuya et al. (1992). Possible correlation of the 80 ka excursion is the one from Norwegian-Greenland Sea and Arctic Ocean, which are stratigraphically between the Laschamp and the Blake excursions (Bleil and Gard, 1989; Nowaczyk et al., 1994).