

Paleomagnetic Directions of 3-5ka Basaltic Volcanoes in the Aso Central Cone, Kyushu Japan: Further Extension of the Paleosecular Variation Curve.

*Hidetoshi Shibuya¹, Arisa Haruta⁴, Nobutatsu Mochizuki², Yasuo Miyabuchi³

1. Department of Earth and Environmental Sciences, Faculty of Advanced Science and Technology, Kumamoto University, 2. Priority Organization for Innovation and Excellence, Kumamoto University, 3. Field of Integrated Sciences, Faculty of Advanced Science and Technology, Kumamoto University, Kumamoto University, 4. Faculty of Science, Kumamoto University

In the central cone of Aso volcano, Kyushu Japan, there are several basaltic activities of 3-5 ka in age. The lava flows from those cones spread on the northwestern flank of the central cones, and they were classified in the relation to the cones. The composition and lithology of those lavas are, however, often difficult to distinguish each other. We have carried out the paleomagnetic direction measurements to draw the paleomagnetic secular variation curve of the duration to extend it back to pre-historic ages. It also shows that the classification of the lavas should be revised.

The samples were collected from 35 sites, one from a scoria cone and others were from lavas, and they were measured their paleomagnetism. The magnetization of those samples is quite simple, as expected, and alternating field demagnetization well defines the primary component. The site mean directions align well on a couple of arcs, which define the paleosecular variation of those ages, 3-5ka. The lava flows and a welded scoria classified as of three centers (Komezuka, Akase and Nakadake) are well clustered and confirmed to a single or erupted very closely in time for each center. On the other hand, lava flows related to the other two centers (Ojo and Kishima) have multiple clusters in the paleomagnetic directions, and their ages estimated from the paleosecular variation curve interfere to the classification.

It is also very interesting that there seems to be a stagnant point in secular variation just before 3ka, whose direction is similar to the known stagnant point in archeomagnetic secular variation at around 800CE. If there is tendency to stop the SV at the direction, it may be related to the core dynamo processes.

Keywords: Paleomagnetism, Paleosecular variation, Aso volcano