

Re-examination of the formation age of Ogurayama Lava Dome at Towada Volcano

Takashi Kudo[1]

[1] GSJ, AIST

The Ogurayama Lava Dome (OLD) has been regarded as the latest eruptive product of Towada Volcano and considered to be formed at the end of A.D. 915 eruption (Eruptive Episode A). This view was suggested by the fact that no eruptive product covers the OLD. However, it is not enough to conclude that the OLD is the latest. This study carried out a detailed geological survey of the vicinity of OLD in order to re-examine its formation age.

The OLD overlies the eruptive product of Eruptive Episode E (Nambu Pumice) erupted at ca. 9700 years ago (in calendar age). On the other hand, no eruptive product was found on the surface of the OLD. At a newly found outcrop at south of the OLD, talus deposits (total thickness is thicker than 2.6 m) consisting of angular dacite gravel that are accompanied with minor lahar deposits underlie a pumice fall deposit (thicker than 3 m) consisting of white pumice lapilli. These talus deposits dip southeastward in 12-18 degree. The highest peak of the OLD is situated on the opposite side of the dipping direction.

Petrographic features of the dacite gravel in the talus deposits coincide with the dacite from the OLD. This coincidence of lithology and the dip of the talus deposits show that these dacite gravels came from the OLD. Therefore, these talus deposits can be interpreted as a crumble breccia formed around the edge of the lava dome during the dome growth. On the other hand, the overlying pumice fall deposit can be correlated with the Eruptive Episode C (Chuseri Pumice) erupted at ca. 6000 years ago (in calendar age).

The eruptive product of Eruptive Episode C overlies the talus deposits from the OLD. This indicates that the OLD formed before the Eruptive Episode C. Therefore, the formation age of the OLD is estimated to be 9700-6000 years ago (in calendar age). At Towada Volcano, Eruptive Episode D (ca. 8300 years ago) and D' (ca. 7300 years ago) occurred during 9700-6000 years ago. The OLD was possibly formed in these eruptive episodes.

Although the whole-rock chemical compositions of the OLD differ clearly from Oyu Pumice and Kemanai Ignimbrite that were erupted in the Eruptive Episode A, they resemble the eruptive product of Eruptive Episode D. Furthermore, the modal compositions of the OLD are similar to the eruptive product of Eruptive Episode D and D'. These petrological features strongly support that the formation of the OLD occurred during 9700-6000 years ago.