

## Correlation between Ks5 tephra and similar tephras based on trace element composition of volcanic glass shards

\*Hiroomi Nakazato<sup>1</sup>, Futoshi Nanayama<sup>2</sup>, Hisatoshi Ito<sup>3</sup>, Shimpei Uesawa<sup>3</sup>, Akira Furusawa<sup>4</sup>, Kiyohide Mizuno<sup>2</sup>

1. National Agriculture and Food Research Organization, 2. National Institute of Advanced Industrial Science and Technology, 3. Central Research Institute of Electric Power Industry, 4. FURUSAWA Geological Survey

Ks5 tephra from Kasamori Formation, Kazusa Group was widely correlated with Oda pfd (south Kyushu), Minatojima 1, Ikadachi 2 (Kinki district), Wakimoto, G19 (Tohoku district) (Mizuno, 1997; Machida and Arai, 2003; Satoguchi and Hattori, 2008, Matsu'ura et al., 2017, etc.). The age of Ks5 has been thought MIS12 based on the horizon of Minatojima 1 and Wakimoto. But, the horizon of Ks5 is assumed to be MIS13 because the base of Jizodo Formation that is newer than Kasamori Formation corresponds to MIS12 (Nanayama et al., 2016). On the other hand, refractive indices, major and trace element composition of volcanic glass shards of Ks5 are similar to those of BT72, Nh-4, Yamanoshita (Kinki district) and G18 (Tohoku district) (Satoguchi and Hattori, 2008; Matsu'ura et al., 2017, etc.). Recently, Nishizawa and Suzuki (2017a) proposed the Hegawa pyroclastic flow of Southern Kyushu as a source of candidate of Ks5.

Authors analyzed the major and trace element composition of the glass shards of Ks5 (Kasamori Formation), OgA (Nakazato et al., 2005), BT72, Wakimoto, Hegawa pfd, Oda pfd1, Oda pfd2, Oda pfd3 using EDX and LA-ICP-MS. U-Pb zircon dating using LA-ICP-MS was performed on the part of Oda pfd and Hegawa pfd. As a result, the tephras were divided into the following three groups in Ba and U concentration in the trace element composition though any tephra was mutually similar in the major element composition.

High Ba, High U: BT72(497,2.4), Oda1(495,2.4), Oda2(462,2.4), Wakimoto(493,2.5)

Low Ba, High U: Oda3(438,2.5)

Low Ba, Low U: Ks5(441,2.1), Hegawa (428,2.2), OgA (447,2.1) (Ba ppm, U ppm)

BT72 of MIS12 and Wakimoto of MIS12 shows the feature of the Oda pfd of high Ba and high U, and the existence of multi-unit with different age is suggested in the Oda pfd. At present, similar tephras to Ks5 are presumed to be able to classify into three horizons divided to two horizons of high Ba and high U and one horizon of low Ba and low U, because low Ba and high U type is one sample.

The following overlap relationship was confirmed in eastern Kamimyo, Aira City; Komiyaji pfd (Hase and Danhara, 1985), sand and gravel layer, Oda type pfd(OD-01), tuffaceous silt, vitric pfd(OD-02b), Oda type pfd(OD-02c) in ascending order. OD-02b was composed bubble wall type glass shards including black-brown colored glass, and showed the U-Pb age of  $0.28 \pm 0.05$  Ma. It is thought that OD-2c, OD-01 and Komiyaji and Hegawa pfd are correlated with BT72, Wakimoto and Ks5 respectively based on this age. Hegawa pfd showed the U-Pb age of  $0.51 \pm 0.10$  Ma. As with major element composition (Nishizawa and Suzuki, 2017b), OgA is able to be correlated with Ks5 not BT72 from trace element composition of glass shards. It will be necessary to clarify the trace element composition of the glass shards of each tephra in the eastern Kamimyo route, and to verify the above-mentioned correlation.

Keywords: LA-ICP-MS, U-Pb age, tephra