

## U-Pb ages of felsic igneous rocks of the Outer zone of Kii peninsula

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In the outer zone of Kii peninsula, southwest Japan, felsic igneous rocks of the Middle Miocene time are widely distributed. The felsic igneous rocks were almost coeval with rotation of southwest Japan arc with the opening of the Japan Sea and the commencement of the subduction of the Shioku Basin. Hence the age of these igneous activities are important for the discussion on the origin of episodic igneous activities in the near trench region and the crustal evolution beneath the outer zone of the Kii peninsula.

We determined U-Pb ages of the zircons separated from eight samples of the felsic igneous rocks of the outer zone of Kii peninsula with laser-abrasion ICP-MS. Five samples were from the Ohmine granitic rocks (Dorogawa, Shirakura, Kose, Tenguyama, and Shiratani plutons), two were from Kumano Acidic Rocks (granite porphyry of the northern and southern body), and a sample from an essential block in the Nakaoku pyroclastic dike. Felsic igneous rocks of the outer zone southwest Japan are usually classified into I- and S-type granites. Only two samples of the Ohmine granitic rocks are I-type granites, and the others are classified into S-type granites.

Concordant data points were selected from several tens of analytical points for each of the samples, and the weighted mean of the <sup>238</sup>U-<sup>206</sup>Pb age of the concordant data point were determined. The results range from 14.4 to 15.5 Ma except for a sample of the Dorogawa pluton, the northernmost pluton of the Ohmine granitic rocks. These <sup>238</sup>U-<sup>206</sup>Pb ages are well in the range of the previous ages obtained by biotite K-Ar (e.g., Sumii and Shinjoe, 2003) and zircon FT (e.g., Iwano et al., 2007) methods. Because of its high closure temperature, U-Pb zircon age can be assigned to the crystallization time of the zircon in the felsic magmas. Their overall conformity to the K-Ar and FT ages with much lower closure temperatures suggests the rapid cooling of these rocks as mentioned by Sumii and Shinjoe (2003).

We obtained 14.1 +/- 0.2 Ma as a <sup>238</sup>U-<sup>206</sup>Pb age of the Dorogawa pluton. Dorogawa pluton was assumed to have been evolved from high-Mg andesite magma based on the whole rock composition and petrographic description (Shinjoe et al., 2005), and with peculiar petrochemical characteristics from other igneous complexes. Our result suggests that the igneous activities of the Dorogawa pluton might have been slightly younger than those of other felsic igneous rocks of the outer zone of the Kii peninsula.

Keywords: zircon, granite, U-Pb age, Kii Peninsula, Miocene