

## K-Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of Kuju volcano, SW Japan

\*Seiko Yamasaki<sup>1</sup>, Daniel P Miggins<sup>2</sup>, Anthony A.P. Koppers<sup>2</sup>, Hideo Hoshizumi<sup>1</sup>

1. Geological Survey of Japan, Advanced Industrial Science and Technology, 2. Oregon State University

We conducted an inter-method comparison study between unspiked K-Ar and  $^{40}\text{Ar}/^{39}\text{Ar}$  method for five samples from Kuju volcano, SW Japan. The unspiked K-Ar method enables the correction for the mass fractionated initial  $^{40}\text{Ar}/^{36}\text{Ar}$  ratios, and has been successfully applied to young samples, especially younger than 0.5 Ma. In the  $^{40}\text{Ar}/^{39}\text{Ar}$  method, initial  $^{40}\text{Ar}/^{36}\text{Ar}$  ratios can be assessed by the use of an inverse isochron plot, resulting in higher precisions. We also measured two unirradiated samples by Ar/Ar dating system to compare  $^{38}\text{Ar}/^{36}\text{Ar}$  ratios which is used for mass fractionation correction in the unspiked K-Ar method.

The age results for groundmass samples are consistent with stratigraphic relationships, as well as concordant with reported conventional K-Ar, Thermo Luminescence, Fission Track and  $^{14}\text{C}$  ages. The uncorrected ages for the youngest sample show negative ages in both methods, but for all corrected age spectra we obtained positive ages. The calculated age differences between corrected and uncorrected ages are up to ~100 ka. We conclude that the initial argon correction is effective in dating younger samples, providing more robust ages for Quaternary samples.

Keywords: Kuju volcano, unspiked K-Ar dating,  $^{40}\text{Ar}/^{39}\text{Ar}$  dating