

**K-Ar dating of volcanic rocks using Peak Height Comparison (PHC) method**

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We have been adopting an isotopic dilution method using an argon 38 spike on 15 cm radius sector type mass spectrometer with a single collector system for argon analysis of young volcanic rocks to be dated. This method has been successful for the dating of rocks older than 0.1 Ma if we become much skillful in a series of analysis of argon isotopes and makes careful sample selection. However, volcanic rocks have often experienced mass fractionation for argon isotopes before eruption, having the primary argon isotopic ratios significantly different from the atmospheric ratios. This has direct relation to the validity of the conventional K-Ar method of the young volcanic rocks. Dating fractionated rocks require independent analysis of three argon isotopes by the mass spectrometer for noble gas studies, into which argon 38 spike has never been introduced, with a peak height comparison method. It means importance of independent analysis of  $^{38}\text{Ar}/^{36}\text{Ar}$  ratio of young volcanic rocks for age correction of mass fractionated samples.

We describe a history of K-Ar dating of volcanic rocks using a conventional method and pointed out its problem, and introduce K-Ar Peak Height Comparison method and its recently advanced application to Quaternary volcanoes.