Searching for a potential of the Red Thermo Luminescence for dating of tephra

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Widespread tephra are often used as a time marker,and therefore, the establishment of high-precision dating method for volcanic eruption has been required.

These tephras can be dated by radiocaron method using organic material up to ca.50 ka. However lacking of suitable material for dating (ie. organic materials) often becomes an obstacle. Alternative mehtod is the K-Ar dating, however, there are considerable uncertainties for younger samples (100 ka), and the limitation in dating materials (i. e. the requirements of high K contents minerals) is also a problem for dating Japanese tephras.

A trapped radiation charge dating technique will potentially solve these problems. We targeted on red thermoluminescence (RTL) dating since stable and intense RTL signals were observed from our experiments. We therefore selected a widespread Hiwaki tephra (Hwk) erupted at 0.58Ma. Hwk is one of the major widespread tephras distributed in western Japan. We determined the RTL age of a sample collected from the same site as (Moriwaki et al,2000) to compare the RTL age with the K-Ar age. In our presentation, we will discuss our results and the potential sources of error influencing on RTL dating.