

New approach to OSL dating of fault gauge

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Several methods for fault dating, such as ESR and FT, have been used to attempt to determine the latest age of active faults in Japan. The investigations however have generally shown ages quite older than expected, which were estimated by examining the geological and geographical evidence.

We have determined the fault quartz ages from three locations of the Atera fault in central Japan using the OSL method as the reset temperature of the OSL signal (350 °C, 10s) is much lower than when measured by the above methods [1].

Heating tests using granitic quartz grains from the Atera fault have been carried out to study attained and reset temperatures; those were evaluated from the sensitivity change in the SAR method of OSL dating.

The heating experimental result showed that there was a good relationship between sensitivity and heating temperature and when a quartz sample was attained at a temperature of 340°Cx40s, OSL signals were completely reset.

The OSL dating of the gouge quartz grains from three locations of the Atera fault showed remarkably lower ages than those of cataclasites. Therefore it could be deduced that the gauges were attained a higher temperature than the cataclasites.

Keywords: quartz, OSL dating, reset temperature, Atera fault