[JJ] Evening Poster | S (Solid Earth Sciences) | S-GL Geology

[S-GL30]Geochronology and Isotope Geology

convener:Takahiro Tagami(Graduate School of Science, Kyoto University), Yuji Sano(Division of Ocean and Earth Systems, Atmosphere and Ocean Research Institute, University of Tokyo)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Reliable reconstruction of geohistory is of primary importance to better envision the present and future of the Earth. Geochronology and isotope geology play major roles in the reconstruction. This session offers an opportunity to present the results of fundamental studies, including the developments / improvements of analytical methods and age calibration, as well as applications to the Earth and planetary materials. We particularly focus on: (1) radiometric dating, bio-stratigraphy, magneto-stratigraphy and stable isotopic time series that provide the age information, (2) radioisotopes and stable isotopes widely employed for analyzing the Earth and planetary systems and (3) hypothesis and numerical modeling that utilize / assimilate the age and isotopic data. We also welcome contributions that integrate a variety of relevant disciplines.

[SGL30-P06]An increment of optically-stimulated luminescence (OSL) signal of quartz due to low- to intermediate-velocity frictional sliding

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There is an attempt that trying to determine an age of faulting from a dating of fault zone material (e.g., K-Ar dating of authigenic illite, fission track dating of zircon, electron spin resonance dating). Recently, Ganzawa et al. (2013) demonstrated that the potential of luminescence dating for the direct dating method of earthquake event. The basic idea behind to luminescence fault dating is the accumulated natural radiation damage (trapped charge) will be released by an external stimulus such as frictional heating, friction, wear, and crushing. Oohashi et al. (2017) conducted high-velocity friction experiments for quartz powders, and found the OSL signal zeroing (release of trapped charge) due to frictional heating. On the other hand, if the OSL signal becomes small or disappear due to friction, wear, and crushing that is also accompanied by stable sliding, OSL signal zeroing in natural fault zone can not be attributed to earthquake event. Here we report an increment of OSL signal of quartz during a low- to intermediate-velocity frictional sliding, which can be useful to discriminate between coseismic rapid slip and stable sliding.

[References]
Ganzawa,Y., et al., (2013). Dating of active fault gouge using optical stimulated luminescence and thermoluminescence. *Jour, Geol, Soc, Japan*, Vol, 119, No. 11, p. 714-726, November 2013.
Oohashi K., et al., (2017). Experimental investigations of OSL signal changes of quartz gouge during low- to high-velocity friction. American Geophysical Union 2017 Fall Meeting, T14D-08.

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