

## Dating of hydrothermal silicified sediments by thermoluminescence

\*Naoya Obata<sup>3,1</sup>, Takashi Goto<sup>4,1</sup>, Chitaro Gouzu<sup>1</sup>, Jun-ichiro Ishibashi<sup>2</sup>, Shin Toyoda<sup>3</sup>

1. Hiruzen Institute for Geology and Chronology Co., Ltd., 2. Kyushu University, 3. Okayama University of Science, 4. Fuji Geological Institute

The ages of hydrothermal activities are key issues in estimating the geothermal processes under the sea floor especially such as ore formation. Silicified sediments, widely distributed in hydrothermal fields of the sea floor, are potentially subject of trapped-charge dating, and their ages will contribute to the issues. Coarse and fine quartz grains were identified in the hydrothermal silicified sediments under a polarizing microscope. We tried thermoluminescence (TL) dating for each grain extracted from hydrothermal silicified sediments in the Okinawa Trough. We first checked the characteristics of silicified sedimentary quartz, such as TL peaks, wavelengths, and the dose response. The distribution of the radioactive elements was obtained by using imaging plates. As results of TL dating, coarse grains were found to be older than fine grains. Tentatively it is interpreted that coarse grains originated in volcanoclastic sediments have incompletely reset by hydrothermal activity, whereas fine grains precipitated from hydrothermal solutions, indicating the ages of the hydrothermal activities.

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