

## Discussion of tsunami age estimation using coralline tsunami deposits

\*Ryosuke Fujita<sup>1</sup>, Kazuhisa Goto<sup>1</sup>, Yasufumi Iryu<sup>1</sup>, Takashi Ishizawa<sup>1</sup>, Yusuke Yokoyama<sup>2</sup>, Yosuke Miyairi<sup>2</sup>

1. TOHOKU University, 2. Atmosphere and Ocean Research Institute, the University of Tokyo

To estimate the age of tsunami deposit, we usually do not use the tsunami sediment itself but organic matters in the soil layers above and below the tsunami deposit. However, this method is not suitable to the deposits in subtropical areas with lots of disturbance by vegetation such as Okinawa prefecture. Thus it is necessary to develop a methodology to estimate tsunami age using samples in the tsunami sediments. Also, statistical analysis based on ages of multiple samples is required for estimating the event age using reworked sediments. In this study, we preliminarily performed radiocarbon dating of 12 marine organism samples in the single sandy tsunami deposit layer of Minna Island, Okinawa prefecture.

The dating results tend to focus on 3 age ranges: around A.D. 1000–1200 (Group A, 7 samples), around A.D. 750–1000 (Group B, 3 samples) and around B.C. 1000–700 (Group C, 2 samples). According to the XRD and SEM results, we identified that samples in Groups A and B are relatively fresh, while a sample with great abrasion and the one with less abrasion belong to Group C.

It is highly likely that the age of the tsunami deposit is around A.D. 1000–1200 based on the Group A samples. On the other hand, samples in Group B has as much abrasion as samples in Group A despite the radiocarbon ages are slightly older than the presumed tsunami age. It may indicate that samples in Group B died and deposited on the top of the shallow lagoon in the reef before the tsunami event and are transported by the tsunami toward the island. Samples in Group C, which died at significantly older time than the presumed tsunami, might have been transported from the coast or reef and redeposited inland by the tsunami.

Our results suggest that if we can select appropriate samples for radiocarbon dating, it is possible to estimate the appropriate tsunami age even by the reworked sediments. We will further discuss the method of sample selection for dating and statistical analysis.

Keywords: tsunami deposit