## Effects of larger benthic foraminifers from global warming analysed by Micro-X-ray CT

\*Shunichi Kinoshita<sup>1</sup>, Azumi Kuroyanagi<sup>2</sup>, Hiroshi Nishi<sup>2</sup>, Osamu Sasaki<sup>2</sup>, Kazuhiko Fujita<sup>3</sup>, Atsushi Suzuki<sup>4</sup>, Hodaka Kawahata<sup>5</sup>

1. Tohoku University, Graduate School of Science, 2. The Tohoku University Museum, 3. University of the Ryukyus, 4. Geological Survey of Japan National Institute of Advanced Industrial Science and Technology, 5. the University of Tokyo

Studying calcification organisms are essential for understanding environmental changes in the tropical to subtropical seas. Although symbiont-bearing larger benthic foraminifers (LBF) is one of important calcification organism with complex calcium carbonate shells living in coral reefs. They produce plentiful calcium carbonate following to reef corals and calcareous algae in coral reef area. However, the relationships between foraminiferal shell calcification and SST are not cleared yet because it was difficult to measure and calculate foraminiferal shell volume accurately, due to the tiny size and complexity of their shell form. Thus, this study tried to analyze responses of the symbiont-bearing LBF to global warming by culturing experiment in laboratory with means of Micro-X-ray CT investigations.

In this study, we cultured asexually reproduced individuals of *Sorites orbiculus* under six different temperature conditions to examine the effects of SST on calcium carbonate producing of LBF. Experimental results with 12 weeks culturing indicated that increasing rates of shell weight, shell volume and the number of chambers added were generally increase with temperature increasing from 19 °C to 27 °C. On the other hand, calculated shell density is in constant in whole range of experiment temperature. Due to these results, it was suggested that shell weight was most closely dependent upon their shell volume. Their increasing rates of shell weight and shell volume were reversed their trends and decreasing at 29 °C, despite their growth rate of number of chambers added was still in constant from 27 °C to 29 °C. Therefore, the optimum temperatures for their chamber growth rate and calcification rate might be showed some deviation. This deviation might be caused by deviation of optimum temperatures of LBF and their photosynthesis symbionts. Finally, in future predicted global warming will be disturbed LBF calcification.

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