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BPO003-P02

Room:Convention Hall

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Long-term preservation of organic carbon originated from the foraminiferal cell under dysoxic/anoxic conditions

Hidetaka Nomaki^{1*}, Nanako O. Ogawa¹, Naohiko Ohkouchi¹, Hiroshi Kitazato¹

¹JAMSTEC

Benthic foraminifera are major components among deep-sea benthic ecosystems and are known as major consumers of phyto-detritus. However, subsequent digestion and mineralization processes of ingested organic matters are still unclear. Here we operated a long-term incubation experiment to reveal how the ingested organic matters were degraded or mineralized by benthic foraminifera under dysoxic to anoxic conditions. Two different organic matters, algae and bacteria, were labeled with ¹³C and fed onto the surface sediments in a closed system of *in situ* feeding core. After 1.5 years, the sediments were recovered and foraminiferal specimens were isolated from the sediments. Although the ¹³C-label was found at extremely low abundances in the bulk sediments and in overlying water as dissolved inorganic carbon, the label was found at high concentration in dead foraminiferal tests particularly in algae-added cores. Benthic foraminiferal feeding affects largely to the distribution and subsequent preservation/mineralization of organic matters produced at both the oceanic surface and seafloor. It further suggests foraminiferal test serves highly isolated space for preserving organic matters from surrounding environments.

Keywords: Sediment-water interface, Benthic foraminifera, organic matter, Carbon mineralization, burial