

Evaluation the Effect of Environmental Factors in Foraminiferal Test Chemistry by the Precise Laboratory Experiments.

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http://www.jamstec.go.jp/seika/pub-j/res/ress/toyofuku/toyofuku_e.html

The automated environment controlling culture system is designed in order to evaluate the effect on deep-sea foraminiferal test chemistry and stable isotopic compositions by pH. Chemical and isotopic compositions of foraminiferal tests have played a major role in geochemical proxy to reconstruct paleoenvironmental information. A laboratory culture experiment has great potential to evaluate these geochemical proxies, because broad conditions are reconstructive in laboratory. Recently, oceanic acidification is in progress in proportion to a rapid increase of artificial carbon dioxide (CO₂) emissions. There are, however, no direct tracers of atmospheric CO₂ in sedimentary records. So, paleoceanographers are trying to reveal oceanic pH history, because oceanic pH should be mirror of atmospheric pCO₂ in geologic time scale. The seawater pH can be adjusted from 5.5 to 8.4 in this system with CO₂. Lower pH will be able to maintain with injection of such acid solution as hydrochloric acid. The system could maintain the pH of 7.52±0.01 and the DO of less than 10% during a month in preliminary experiments.