

## Reconstruction of paleotemperature in Okinawa Islands based on oxygen isotope ratios of cavernicolous microbivalve

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As seen in the examples of Little Ice Age (1400-1900 AD), climatic changes have brought deep impacts on human society and ecosystems. Today we confront the global warming crisis. Reconstruction of climate changes during late Holocene is one of the scientific studies to respond to many phenomena associated with warming, and necessary for assessment warming in every area to reconstruct climate changes during late Holocene.

Submarine cave sediment constitutes a continuous depositional record, because they are largely sheltered from the physical mixing and erosion from fluid motion that occurs in the open sea. *Carditella iejimensis* can be regarded as thermometer which operates only during spring but is fixed at same site (Kitamura et al., 2007, Global and Planetary Change, 55, 301-316).

We measured oxygen isotope ratios of the whole shells of cavernicolous micro-bivalve *C. iejimensis* (below 4.0 mm height) from the three cored sediments collected from submarine cave (Daidokutsu, 31 m depth) of Ie Island, Okinawa Islands. Our records show that there are two relative cool periods (AD 790 and 1760) during the last 3,000 years. But these water temperatures derived from oxygen isotope ratios fell entirely within 95% prediction interval bands estimated from water temperatures which are derived from oxygen isotope ratios of specimens during the last 50 years. Therefore, we believe that temperatures at 30m deep around Okinawa Islands were relatively stable for the last 3,000 years. It is noteworthy that one of modern specimens deviates from the other modern and ancient specimens and has exceptionally light oxygen isotope value. This shows that during the past 3,000 years the warmest spring occurred at the last 50 years. We think that the global warming has brought increase of water temperature at 30 m deep around Okinawa Islands.