Comparison of radiocarbon ages by the different materials in marine sediments

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Comparison of radiocarbon ages by planktonic foraminifera and organic carbon in marine sediments suggests that the diversities of the age differences between two data sets are a few to five hundred years. This indicates the limitation of temporal resolution for discussion on environmental changes and geological events by using radiocarbon ages by organic carbon in marine sediments.

To determine the past environmental changes and geological events in sediments, we need the age data with high accuracy. For the sediments of last 50000 years, radiocarbon age determination is a powerful tool. In marine sediments, planktonic foraminifer is a best sample for age determination. However, only few foraminifer found in sediments in some deep-sea areas, because of dissolution. In the case, bulk organic carbon in sediments was used for age determination instead of foraminifer. In general, because of contamination of older carbon, radiocarbon ages by bulk organic carbon were slightly older than real ages.

Two Holocene cores, one from the northern Japan Sea and another from off Tokai district, were examined. The results indicated the diversities of age differences were a few to five hundreds years. This indicates the limitation of temporal resolution for discussion on environmental changes and geological events by using radiocarbon ages by organic carbon in marine sediments.