

Offset in radiocarbon ages between marine bioclast and terrestrial plant pairs in the Holocene sediments around Japan

*Nakanishi Toshimichi^{1,2}, Futoshi Nanayama^{3,4}, Atsushi Urabe⁵, Kazuaki Hori⁶, Wan Hong⁷

1. Kyoto Univ., 2. JAEA, 3. AIST, 4. Kumamoto Univ., 5. Niigata Univ., 6. Nagoya Univ., 7. KIGAM

To identify chronological and spatial changes in the radiocarbon (^{14}C) marine reservoir effects, the ^{14}C ages of eight pairs of marine bioclasts and terrestrial plants were measured from the same horizons of one core of Holocene sediments around Japan (Nakanishi et al. 2013, 2015, 2017abc). The reservoir ages ranged from 60 to 1100 years, scattered over the period 100-10,200 cal BP, which were significantly larger than the values from “prebomb” samples of known age, before AD 1955 in this area. These results indicate that the information on reservoir effects is indispensable for chronological control not only from prebomb samples but also from geological and archaeological samples. Moreover, the effects also reflect the influence of complex river-mouth systems such as deltas and estuaries. To determine the direct chronological changes of the marine reservoir effect between the Kuroshio and Tsushima Currents, radiocarbon ages from pairs of marine bioclasts and terrestrial plants were measured from the same stratigraphic horizons within three cores of Holocene sediments beneath the Sukumo Plain, Miyazaki Plain, and Oki Islands, in west Japan. Subsequently, the results were compared with values from the Oita Plain and Hakata Bay on the northern coast of Kyushu (Nakanishi et al. 2017ac), as well as the Korean Peninsula (Nakanishi et al. 2013, 2015, 2017b). The study was partially funded by the Japan Society for the Promotion of Science Kakenhi grant number 18H01310.

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