

## Radiocarbon dating of Japanese tree rings –chronological research and Japanese calibration curve

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In order to revise radiocarbon age to calendar age, a calibration curve based on the radiocarbon ages of known age sample such as tree rings is used. Calibration curve for the northern hemisphere, IntCal, mainly depended on tree rings which had been growing in the high latitude region of the West so far. However, the latest version “IntCal19” is called upon to reflect radiocarbon ages of various regions. The authors have continued radiocarbon dating of Japanese tree rings of the past 3,000 years. Recently, from a demand for chronological research on wooden buildings as cultural properties using <sup>14</sup>C-wiggle matching, we are also focusing on the tree rings of middle to early-modern ages. In the background, there is a practical application of a new method, oxygen-isotope dendrochronology, that can be implemented in several tree species. It becomes easier to obtain tree rings with known age and accumulation of radiocarbon age is progressing rapidly.

There are some periods showing certain offset on radiocarbon ages of Japanese tree ring from IntCal. One of the regional effects is remarkable during the end of the Yayoi to the beginning of the Kofun period, and calibrated age based on IntCal shows older age than the actual age. Also, since IntCal is versatile and smooth, it is sometimes insufficient for the historic chronological research that requires high precision and accuracy. It has an obligation to reveal the behavior of the radiocarbon age of Japanese tree ring and develop domestic calibration curve to promote chronological research.

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