

## Variation of carbon-14 in tree rings around the onset of the Spoerer Minimum

\*Hiroko Miyahara<sup>1</sup>, Fuyuki Tokanai<sup>2</sup>, Toru Moriya<sup>2</sup>, Motonari Ohyama<sup>3</sup>, Masataka Hakozaiki<sup>4</sup>, Mirei Takeyama<sup>2</sup>, Hirohisa Sakurai<sup>2</sup>

1. Musashino Art University, 2. Yamagata University, 3. Tohoku University, 4. Nagoya University

Solar activity in the past has been reconstructed using carbon-14 in tree rings and beryllium-10 in ice cores, and it has been indicated that the Sun has long-term activity cycles such as Gleissberg cycle (~88 yrs) and the de Vries cycle (~200 yrs). Long-term variations of solar activity sometimes bring the grand minima such as the Dalton Minimum (1800-1820 CE) and the Maunder Minimum (1645-1715 CE). The detailed mechanism of such grand minima, however, remain unsolved. Reconstruction of solar cycles around the onset of the grand minima may shed light on the process of the occurrence of grand minima. We therefore have been conducting high-precision measurement of carbon-14 in tree rings with annual resolution using the Accelerator Mass Spectrometer at the Yamagata University. In this paper, we present our recent results on the measurement of carbon-14 around the onset of the Spoerer Minimum.

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