Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

MIS013-07 Room: Exibition hall 7 subroom 3 Time: May 28 15:30-15:45

Climate reconstruction that uses tree ring isotope-Isotope change and comparison with meteorological data-

Yusuke Chikaraishi[1*], Hiroki Ogasa[1], Takahiro AZE[1], Hiroko Miyahara[2], Takeshi Nakatsuka[3], Shigenori Maruyama[1]

[1]Tokyo Institute of Technology, [2]Institute for Cosmic Ray Research, [3]Nagoya University

In the present study, climate change was reconstructed by using the carbon and oxygen isotope in tree ring. The most typical proxy for the reconstruction of paleoclimate is the ring width. However, the problem of the restoration by the ring width is in the very strong influence by the biological factor in addition to the climatology factor. On the other hand, an advantage of using tree ring is the very good temporal and spatial resolution. Therefore, the restoration of the past climate using the isotope of the tree ring has gotten a lot of attention recently. Here, the carbon isotope becomes the index of the temperature and precipitation.
First of all, the cryptomeria has been taken in Yakushima Island in Kagoshima Prefecture in Japan for the present study. The age of a tree was determined by radiocarbon dating.
Next, the carbon and the oxygen isotope of the age of a tree of the cryptomeria in Yakushima Island of about 25 years were measured. Result, carbon isotope has a positive correlation temperature of the meteorological data of Yakushima Island and Kagoshima, and has a negative correlation with precipitation. The carbon isotope became it from this as shown in the above-mentioned mechanism.
On the other hand, oxygen isotope did not show significant correlation with meteorological data of Yakushima Island, and Kagoshima. It is necessary to study what parameters oxygen isotope reflects in the future work.

Keywords: tree ring isotope