

日本産樹木中 ^{14}C 濃度測定による過去 5000 年間の大 SPE 探索計画 Plan of large SPE search by the ^{14}C content measurement in Japanese trees for the past 5000 years

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Radiocarbon (^{14}C) is produced by incoming cosmic rays to the Earth. Produced ^{14}C becomes $^{14}\text{CO}_2$ and is absorbed by trees by photosynthesis. Then, tree-rings record the past cosmic ray intensity. Rapid yearly increases in the ^{14}C content have been detected for the period from AD 774 to AD 775 and from AD 993 to AD 994. Although some candidates for the cause of these cosmic-ray events have been considered, it has been considered that the solar activity (large SPE) is the most plausible cause.

There is the possibility that a lot of ^{14}C increase events like the AD 775 one are hidden in the periods when the ^{14}C content has not been measured with a 1-year resolution. If we detect such events, we are able to discuss a detailed occurrence rate of large SPE which is very important factor to prepare for future large SPEs.

We are planning to search for ^{14}C increase events by the measurements of ^{14}C content in Japanese trees for this 5000 years. In this thesis, we are going to explain the plan and problems.

Keywords: radiocarbon, tree-rings, cosmic-ray, SPE