

8200 年前近傍における南極ドームふじ氷床コア中の ^{10}Be の変動

山形武靖¹、河原圭佑¹、松崎浩之¹、阿部恭子¹、堀内一穂²、本山英明³

¹ 東京大学大学院工学系研究科

² 弘前大学理工学部

³ 国立極地研究所

^{10}Be concentration in Dome Fuji ice core at the 8.2 ka event

T. Yamagata¹, K. Kawahara¹, H. Matsuzaki¹, K. Abe¹, K. Horiuchi² and H. Motoyama³

¹ School of Engineering, The University of Tokyo

² Faculty of Science and Technology, Hirosaki University

³ National Institute of Polar Research

Contiguous records of cosmogenic ^{10}Be (half life = 1.36Ma) in paleoenvironmental archives are useful for the reconstruction of the variation of solar activity and geomagnetic field intensity. However they do not necessarily show clear correlation with the paleoclimatic parameter such as temperature, because the influence of solar activity and geomagnetic field on the earth climatic change are somewhat indirect and not fully understood. In this presentation, we determine the concentration of ^{10}Be at the 8.2 ka event in Dome Fuji ice core, and to compare Antarctic records with the ^{10}Be concentration in Greenland ice core and $\delta^{18}\text{O}$ record.

The ice core analyzed was at the depth of ranging 241-290m depth (spanned 7500-9500), retrieved from Dome Fuji station, Antarctica, at the second excavation (2001-2006). Totally 100 samples' ^{10}Be flux were analyzed with about 18 years resolution by AMS at MALT, the University of Tokyo. Many researchers have reported the 8200 yr BP cold event in Greenland records (i.e. Muscheler et al, 2004), however it has not been discovered as a ^{10}Be event.

It was observed that the ^{10}Be flux ranged $1.0 - 3.0 \times 10^5$ atom/cm² yr. The variation of ^{10}Be flux seemed to show a weak correlation with the $\Delta^{14}\text{C}$ records (IntCal09). Correlating ^{10}Be flux peak to IntCal09 peak showed a double-peak in flux before 8.2 ka BP minor cold event.

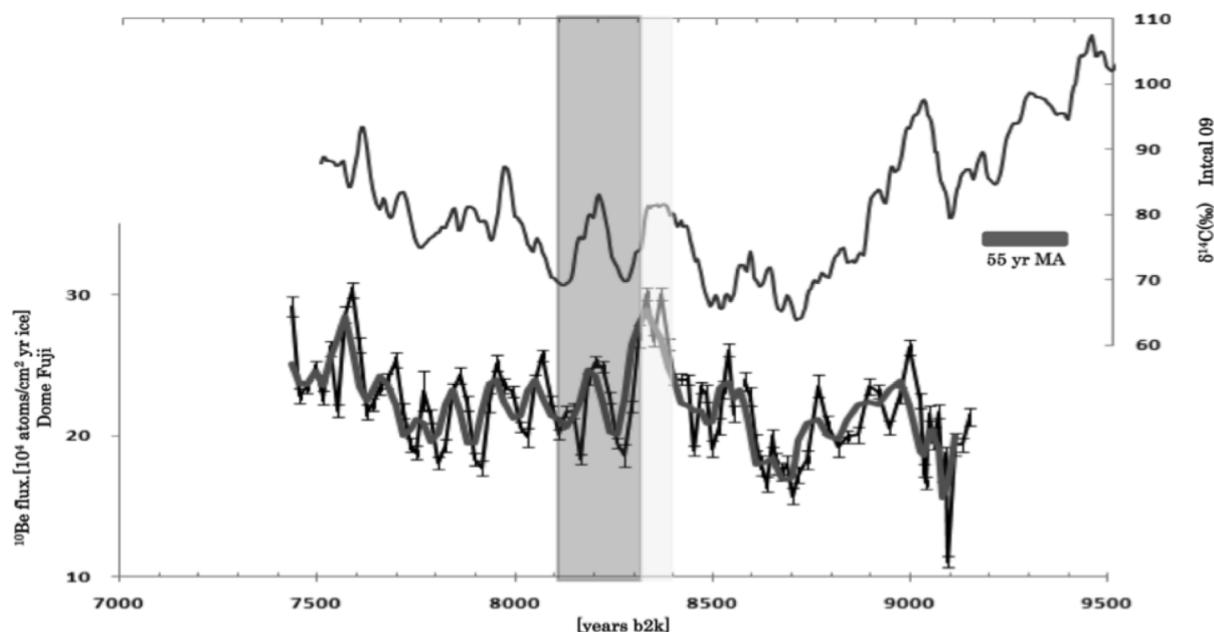


Figure 1. Correlation between ^{10}Be Flux in Dome Fuji ice core (revise the ice core age) and Intcal09.

References

Muscheler et al., Causes and timing of the 8200 yr BP event inferred from the comparison of the GRIP ^{10}Be and the tree ring $\Delta^{14}\text{C}$ record, Quaternary Science Reviews, 23, 2101–2111, 2004.