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22-year cycles of cosmic rays at the Maunder Minimum

Hiroko Miyahara[1*], Yusuke Yokoyama[1], Hiroyuki Matsuzaki[1], Kazuho Horiuchi[2], Fuyuki Tokanai[3], Kazuhiro Kato[3], Minoru Anshita[3], Hideaki Motoyama[4], Ryuho Kataoka[5]

[1]Univ. of Tokyo, [2]Hirosaki Univ., [3]Yamagata Univ., [4]NIPR, [5]Tokyo Tech.

Due to the weakened solar magnetic activity and consequent change in the heliospheric environment, flux of the galactic cosmic rays incident to the earth had characteristic time variability at the Maunder Minimum (AD1645-1715). Drift effect played an important role in the transport of cosmic rays in the heliosphere, and hence the Hale 22-yr cycles were intensified during the time. Such a characteristic variation of cosmic rays enable us to also understand the cosmic ray-climate connection. In this paper, we report the detailed features of cosmic ray variation revealed by the high precision measurements of carbon-14 and beryllium-10.

Keywords: solar activity, heliosphere, cosmic rays, cosmogenic nuclides, climate variation