Variation of Cosmic Ray Intensity,2. Roles of solar-activity and geomagnetic-field changes

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How the solar activity affects the climate on the earth has been a long lasting issue. Possible coincidence between the Maunder minimum of solar activity and the little ice age around A.D. 1700 is a famous example. Until recently, however, the firm physical link connecting the solar activity and the climate has not been existing. In this respect, the Svensmark's argument that the cosmic ray variation controls the cloudiness of the earth is of great interest: If he is right, we can finally obtain a certain route by which the solar activity contributes to the climate variation.

In this talk, we will review established physical processes such as

solar modulation, and

geomagnetic shielding,

through which cosmic rays penetrate deep into the heliosphere and then into the earth's atmosphere. In another talk (Asano and Terasawa), we will present a review for the galactic processes by which the cosmic ray intensity in the interstellar space is largely changed.