On predictive capability of progress of solar energetic particles from monitoring at a eastern solar longitude in interplanetary space

W. Miyake (1), H. Hayakawa (2), and A. Matsuoka (2)

1. NICT, Japan, (2)ISAS, Japan. (miyake@nict.go.jp)

It is well known that outward motion of CME-driven interplanetary shock causes a peculiar intensity-time profile of solar energetic particles depending on observer's solar longitude. A more rapid rise and decline of particle flux is observed at the eastern observation point which is well-connected to the nose of the shock through interplanetary magnetic field lines early in the event. The observer located near the longitude of the nose is well-connected around the shock passage. The observer at the western longitude is poorly-connected until after the shock passes. This leads to the idea that monitoring of solar energetic particles at a solar longitude may enable us to predict an intensity-time profile of particle flux at a more western longitude. We examined SPM data ($>$ 2 MeV) obtained on board NOZOMI and EPAM data on ACE spacecraft from late 1999 through early 2000 and found some events showing the above-mentioned characteristics when the difference in solar longitude between both spacecraft was 30-90 degrees. We discuss the predictive capability of intensity-time profile quantitatively with a model of SEP events.