E137-P007 **Room: Poster Session Hall** **Time: May 14**

Entry and loss of energetic electrons in the slot region in a sequence of magnetic storms

Masao Nakamura[1]; Takahiro Obara[1]; Hideki Koshiishi[2]; haruhisa matsumoto[3]; Tateo Goka[4]

[1] NICT; [2] JAXA; [3] NASDA; [4] ISTA/JAXA

We have investigated entry and loss processes of energetic electrons in a sequence of magnetic storms from March 2002 to July 2003, by using the Standard Dose Monitor (SDOM) and Magnetometer (MAM) data from the Mission Demonstration Test Satellite 1 (MDS-1) on the geostationary transfer orbit. In the sixty months, there are several large storms (Dst less than -100 nT) but no super storms (Dst less than -200 nT). The intermediate energy (0.4-0.9 MeV) electrons of the outer radiation belt frequently are transported into the slot region over a few days and fill the slot in the recovery phase of the large storms. After that, a new slot starts to be generated around L = 3 by the difference in the loss timescales to the atmosphere with L-value. However, the high energy (1.0-1.5 MeV) electrons of the outer radiation belt are not so well transported into the slot as the intermediate energy electrons and do not fill the slot. Only in the recovery phase of the large storm with the pre-enhancement of high energy electrons around L = 3 by the large storm had occurred in the last a few dozens of days, the high energy electrons enters the outer slot region around L = 2.7. As for the high energy electrons, a new slot is not generated because their loss timescales are almost the same and larger than the intermediate energy electrons within L = 3.5. The spatial and temporal profiles of the electrons with different energy are related to the radial transportation, loss processes, and the location and mechanism of the in situ acceleration. The results show that the not only a super storm but a sequence of large magnetic storms can transport the high energy electrons into the slot. The first large storm pre-enhances the high energy electrons of the whole outer radiation belt and the following large storms transport them into the slot over a few days by combination of the enhanced radial diffusion coefficient and the steepened gradient of the phase space density in the newly accelerated outer radiation belt, before the pre-enhanced high energy electrons do not totally decay.