

Dynamic Behavior of Outer Radiation Belt During GEM Magnetic Storms (Part 2)

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To investigate dynamical behavior of the outer radiation belt in detail, the Geospace Environment Modeling (GEM) working group selected several geomagnetic storms; i.e. May 1997, October 2000 and March 2001 storms. From the Akebono observations in these storms followings are revealed. Losses of MeV electrons in the radiation belt is mainly do to the enhanced convection during the storm main phase. Increase of MeV electrons starts late of main phase. Location of peak flux in the outer radiation belt is determined by the magnitude of Dst and it approached toward the Earth in the case of super storm. Contribution of low frequency plasma waves is important for the large increase of MeV electrons and it is also evident in the case of super storm. Both inward and outward diffusions are evident to spread the outer belt region. Results obtained during the GEM storms support the model proposed by Obara, Miyoshi and Morioka (EPS 2000 and 2001).