

Radiation Belt Forecast Now and Future

Takahiro Obara[1]; Masao Nakamura[1]; Kiyokazu Koga[2]; Tateo Goka[3]; Yoshizumi Miyoshi[4]; Takashi Tanaka[5]

[1] NICT; [2] JAXA; [3] ISTA/JAXA; [4] STEL, Nagoya Univ.; [5] Kyushu University

We have observed satellite anomalies when the flux of highly energetic electrons is extremely high. Highly energetic electrons in the outer radiation belt disappear during the main phase of the magnetic storm, and rebuilding of highly energetic electrons is made during the recovery phase of the magnetic storm. Increase is caused by the supply of intermediate-energy electrons by the substorms and these seed electrons are accelerated internally up to the MeV energy range by the intense plasma waves. The distance of the new peak of highly energetic electron flux from the Earth is inversely proportional to the amplitude of the magnetic storm. Integration of the magnetic activity index is a good proxy for the increase of the flux of MeV electrons not only at the geostationary orbit altitude but also in the outer radiation belt. We are doing efforts to predict radiation electron behavior based on the real time estimation of the magnetic activities, which are being produced by the NICT real time geospace simulation. Some other tools, we are now producing, will give us a clue to predict radiation belt behavior. In this talk we would like to demonstrate our past results together with our future plans.