Tracing of high energy particles in model storm

Hiroaki Yugo [1], Toshihiko Iyemori [2]

[1] Guraduate School of Science, Kyoto Univ., [2] WDC-C2 for Geomag., Kyoto Univ.

http://www-step.kugi.kyoto-u.ac.jp/~yugo/

We have cunstructed a model of geomagnetic storm with two parameters, the Dst index and the IMF Bz component.

In this model, Dst develops to -100 nT in 6 hours from the onset, decays to -50 nT in 15hours, and gradually decays to -25 nT in 66 hours. This is connected to the ring current (symmetry and asymmetry part), and the highest value of the ring current is ten times as strong as that in quiet time.

IMF Bz component develops southward for 5 hours from the onset. This is connected to dawn to dusk potential drop, and this potential drop is about 4kV/1Re in equatorial plain when IMF is most southward.

We made a tracing of protons more than several tens of KeV in this model.