

## Energetic electron behavior in the outer radiation zone during the space weather month

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The special campaign for Space Weather was performed in September 1999, in which extensive observations have been made by means of spacecraft as well as ground based equipments. The Akebono (EXOS-D) satellite made good observations of the large enhancements of the energetic electrons were observed for September 12-14 and 27-28 cases. Orientation of the IMF was actually way for these cases. Akebono also found that the enhancements of the energetic electrons appeared first in low L shells and in less energy, suggesting an internal acceleration of the seed electrons. As time progressed, the flux of the relativistic electrons in high L region ( $L > 5$ ) increased, suggesting an extremely large diffusion was taking place in the outer radiation zone.

The special campaign for Space Weather was performed in September 1999, in which extensive observations have been made by means of spacecraft as well as ground based equipments. The Akebono (EXOS-D) satellite made good observations of the radiation belt particles, covering an entire radiation belts in the evening sector. During the month there were three major magnetic activities; i.e. September 12-14, September 22-23 and September 27-28. On early September 23, Dst index reached its minimum with -160nT showing major magnetic storm, while both on September 13 and 27 the decrease of the Dst was very gradual, having the minimum values of -70nT and -65nT, respectively. Even though the magnetic disturbance was big during September 22-23, very little enhancement of the energetic electrons was observed in the outer radiation belt during the storm recovery phase. On the contrary the disturbances of the magnetic field were small, large enhancements of the energetic electrons were observed for September 12-14 and 27-28 cases. These large enhancements were caused by the prolonged southward IMF conditions due to the Russell-McPherson effect. Orientation of the IMF was actually way for these cases. Akebono also found that the enhancements of the energetic electrons appeared first in low L shells and in less energy, suggesting an internal acceleration of the seed electrons. As time progressed, the flux of the relativistic electrons in high L region ( $L > 5$ ) increased, suggesting an extremely large diffusion was taking place in the outer radiation zone.