

Field-Aligned Anisotropy of Electrons at Earth's Tailside

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Abstract

We have shown that cigar distributions of electrons' PAD (pitch-angle distributions) below about 1keV tend to become isotropized at the dipolarization sites at Earth's tailside whereas isotropic distributions above 1keV tend to become more cigar-shaped at Earth's tailside based on THEMIS observations. In this study, the field-aligned anisotropy of electrons will be investigated furthermore through analysis of the evolutions of PAD from more dipolarization events. The spatial distributions, especially the dependence on radial distance from Earth will be examined because the field line lengths at different radial distance are different so that would affect the effectiveness of parallel acceleration of electrons and consequently their PAD.

Introduction

Dipolarization is important phenomena that has been observed often when there is geomagnetic activities associated with variations of auroral electrojet indices. To understand the associated dynamics of electrons, studying their pitch-angle distributions and flux changes are important.

References

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