



GOES-11 Pitch Angle Distribution Analysis of Energetic Magnetospheric Electron During Storm Recovery Phase

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Pitch angle distributions and their evolution can give us information about the physical processes affecting energetic magnetospheric electrons beyond phase space density or flux analyses alone. The GOES-11 satellite, spinning in storage, provides a resource for studying these distributions over several years time. Fitting the pitch angle (α) information to a $\sin^n \alpha$ function for each 8 minute period spin allows us to correlate the changes in distribution to magnetic field measurements, geomagnetic indices and solar wind parameters. Changes in the fitting parameter, n , over time appear to correlate well with magnetic field variations, consistent with drift shell splitting arguments, while asymmetric changes in n seen on either the dayside or nightside may suggest energization or loss of electrons in particular L-shell ranges. We also observe a pitch angle distribution isotropization during the recovery phase of several storm periods. These results provide clues as to the relative contributions of internal source and loss processes versus large scale variations due to processes such as magnetic field reconfiguration and magnetopause shadowing.