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Title:	Relationship of the statistical Total Density, Electric Field, ExB flow, and Low Energy Ion Pressures on global and meso scales in the inner magnetosphere as observed by the Van Allen Probes
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Abstract

The plasmasphere is a cold (~1eV) dense (~100-10,000 cc) region of plasma of ionospheric origin extending to about 6 earth radii during geomagnetically quiet times. When the geomagnetic activity is low, this plasma approximately corotates with the Earth.
During geomagnetically active periods, the enhanced convective ExB motion associated with the dawn-dusk electric field transports plasma sunward out from the plasmasphere in the drainage plume. This basic process has been known and studied for over 50 years. In this seminar we present work on the plasmasphere erosion and the enhanced storm-time electric fields over the duration of the Van Allen Probes mission. Statistical plots of the plasma density, electric field, and ExB flow are presented for different levels of geomagnetic activity. We show that the results agree with the basic picture of corotation, erosion, drainage plume, and enhanced dawn dusk electric field above. In addition, we present evidence that mesoscale features, namely SubAuroral Polarization Streams (SAPS) and the local time dependance of the relative earthward penetration of the dawn-dusk convection electric field with respect to the plasmapause, are captured in the statistical picture. We further discuss possible connections between erosion and refilling. The azimuthal component of the electric field should enhance plasmasphere refilling, and is the subject of future work.