



Plasma density and drift patterns in the inner magnetosphere during storms

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We investigate plasma density and drift patterns in the inner magnetosphere during storm intervals in 2004, using multi-point Cluster EFW observations and single-point Polar EFI observations. As the perigees of the satellites are in the same MLT sector, they provide interesting conjunction observations from time to time. Cluster crosses the inner magnetosphere only near the perigee at $L = 4-10$, saying that during storm intervals the plasmopause may not be crossed but still interesting plasmaspheric structures, such as plumes and other irregularities, are encountered. Polar collects data on two opposing MLT sectors so that on one side near the perigee at small distances (1.6-3 Re) it crosses L shells down to $L = 2$ over both hemispheres. However, during storms the density can become very high at low altitudes, hiding many features such as the plasmopause or the plumes. In 2004 the northern pass usually happened below 2 Re distance and the southern pass at 2-3 Re distance which is enough to create significant differences between the two passes. On the other side of the Earth around the apogee at 9 Re distance, Polar crosses the inner magnetosphere twice, once near the equator and once over the northern hemisphere on high L shells above $L = 5$. As for Cluster, then the plasmopause is not crossed during active intervals, but many other features are detected.