Geophysical Research Abstracts, Vol. 7, 07333, 2005
SRef-ID: 1607-7962/gra/EGU05-A-07333

Plumes and irregularities near the plasmapause region

H. Laakso, P. Escoubet, H. Khan, A. Masson, H. Opgenoorth
ESA/ESTEC, Code SCI-SH, Noordwijk, The Netherlands (Harri.Laakso@esa.int)

We investigate the characteristics of plasma density and ExB drifts in the plasmasphere, plasmapause, and trough regions. The plasmapause defined as a steep density gradient and the flow separatrix between corotation and convection regimes do not occur at the same location. Plumes and density irregularities are often detected in the convection region but also in the corotation region. We study two events in detail during weak/moderate geomagnetic activity. Plumes are usually was 1-2 L shell wide and the plasma drift velocity within the plume is 5-20 km/s westward/noonward, while outside the plume the drift velocity is only a few km/s westward. In one case a substorm onset forced the plume to move earthward at 30 km/s velocity. Cluster also witnessed the formation of isolated drifting plasmaspheric flux tubes. These structures may be related to the formation of the plume itself. They drift at the same velocity as the ambient plasma (eastward in the corotation region and westward in the convection region) and their cross sections are about 0.1 L shell.