PROBING THE RELATIONSHIP BETWEEN EMIC WAVES AND PLASMASPHERIC DRAINAGE PLUMES NEAR GEOSYNCHRONOUS ORBIT

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Plasmaspheric plumes created during disturbed geomagnetic conditions have been suggested as one cause of increased occurrences of electromagnetic ion cyclotron (EMIC) waves at these times. Murphy et al. [Fall AGU, 2008] cataloged all occurrences of Pc1 EMIC waves from 1996 through 2003 at three automated geophysical observatories (AGOs) at auroral zone latitudes in Antarctica (L = 6.28, 7.68, and 8.07; GLON = 20.4 W, 3.0 E, and 23.9 W). They found increased wave activity during the initial stages of convection during high speed streams, using data from 1996 and 2003, consistent with observations [Borovsky and Denton, JGR 2008; Denton and Borovsky, JGR 2008] of increased density of plume material convecting to the dayside magnetopause at these times. In this study we further explore the correlation between the occurrence of Pc1 wave activity at these ground stations and the occurrence of plasmaspheric drainage plumes in space, using 1996-2003 data from the Magnetospheric Plasma Analyzer (MPA) on the LANL 1990-095 spacecraft, in geosynchronous orbit near 38 degrees west longitude.

ULF Waves, Plasmaspheric plumes, Geomagnetic storms

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