

Plasma density enhancements in the period of Pc 2 observed near the plasmopause in association with Pi 2 and auroral breakup

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Plasma density enhancements in the period range of Pc 2 ( $T = \sim 10$  sec) were observed near the plasmopause around midnight in association with Pi 2 oscillations and the initial auroral brightening at 0826 UT on 04 April 2009. During this substorm the THEMIS B satellite took an inbound-pass and crossed the plasmopause, observed extraordinary large plasma density oscillations with the period of Pc 2, which enhanced in close association with Pi 2 oscillations. Enhancements of the Pc 2 oscillations were observed with the magnetic, electric field and plasma instruments on board the satellite. Large amplitude plasma density oscillations well correlated with the electric field oscillations and the polarization of the magnetic field Pc2 oscillations showed a left-hand polarization through the event. Therefore the oscillations seem to be the ion-cyclotron oscillations. Auroral breakup and associated Pi 2 oscillations were observed at the THEMIS GBO stations covering over the wide range longitudes from east to west of the Canada. The dominant period of Pi 2 oscillations was almost similar at both these THEMIS GBO stations and the satellite location. The relationships between the Pc2 enhancements and Pi 2 oscillations will be discussed in the presentation in more detail.

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