

Pi2 Pulsations Associated With Poleward Boundary Intensifications

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Recently, Pi2 pulsations during the intervals of extremely quiet magnetospheric conditions ($K_p = 0+$) have been reported by Sutcliffe and Lyons (2002). The authors observed several Pi2 bursts occurred simultaneously at high (magnetic latitude = 71°) and low (42°) latitudes during the absence of magnetospheric substorms and found that the bursts are strongly correlated with poleward boundary intensifications (PBIs), associated with enhancements of energetic ion fluxes observed by the Geotail satellite at $X_{gsm} \sim -12 \text{ Re}$ to -17 Re and $Y_{gsm} \sim 12 \text{ Re}$ to 10 Re in the plasma sheet. The Pi2 pulsations had a long duration and occurred periodically every ~ 30 min. However, the authors did not examine the wave properties of the PBI-related pulsations. In this study we examine whether the PBI-associated Pi2 pulsations exhibit spatial variations similar to substorm-associated Pi2 pulsations. Using ground-based data from latitudinally and longitudinally extended magnetometer network, we discuss the spatial variation of the frequency, amplitude, phase, polarization, and inter-station coherence of the magnetic pulsations associated with the PBIs.