

Seasonal dependence of the plasmaspheric density along the 210MM: Continuous observations by ground magnetometers

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In this paper we have applied the cross-phase method and the amplitude-ratio method to the MAGDAS/CPMN ground magnetometers MGD (Magadan) and PTK (Paratunka, Kamchatka), located in the Russian Far East along the 210MM (Magnetic Meridian), and identified FLR (field-line resonance) events. MGD is located at (53.6, 219.1) magnetic latitude and longitude [deg], and PTK is located at (46.2, 226.2). Their L values are 2.9 and 2.1. We have identified the FLR events by using both visual inspection and an automatic-identification computer code.

Although the two magnetometers are separated by about seven degrees in magnetic latitudes, which is larger than the typical separation (about 1-2 degrees) for which the cross-phase and amplitude-ratio methods are efficient, but we could identify more than a hundred FLR events a year from the MGD/PTK-pair data, and the FLR events had a fairly continuous coverage from January to December.

In this paper we estimate the plasmaspheric density from thus obtained FLR frequencies, and examine their seasonal dependence. The result suggests a weak, but marginally significant seasonal dependence with maxima in winter and minima in summer. More details will be discussed at the presentation.