MAGDAS/CPMN   H/D

\#   [1];   [2];   [3];   [4]; MAGDAS/CPMN   [5]
    [1]   ; [2]   ; [3]   ; [4]   ; [5] -

Comparison between the two-station methods and the H/D method in the MAGDAS/CPMN data

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The ultimate goal of this study is to monitor the plasma density in geospace by using the magnetometer data of MAGnetic Data Acquisition System/Circum-pan Pacific Magnetometer Network (MAGDAS/CPMN). The field line resonance (FLR) eigenfrequency is dependent on the plasma density along the field line. Therefore, we can estimate the plasma density when we detect the FLR frequency. The cross-phase method and the amplitude gradient method, which we call the 'two-station methods' below, have been frequently used to detect the FLR frequency; these methods require data from closely-spaced two stations. However, many stations around the world, including many stations of MAGDAS/CPMN, are not close enough to other stations to enable the two-station methods. Therefore, we focus attention on the H/D method, which is a method using the data from a single station, and improve the H/D method through comparisons with the two-station methods.

In our previous study we used closely-spaced two stations in Japan, and found many events which were detected by the H/D method but not detected by the two-station methods. (We call such events 'type-A events' below.) We found that we can discard many of type-A events by setting proper thresholds to the magnitudes of the H/D ratio and the H-component power spectral density.

In this paper we analyze data from other CPMN stations to find the optimum thresholds as a function of latitude. Specifically, we apply both the two station methods and the H/D method to the CPMN data, and detect the FLR events and the type-A events. Then we estimate the threshold to discard type-A events at each latitude. The results will be presented at the meeting.