

## Development of detection method of electron plasma frequency in magnetospheric plasma wave spectrum

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The lower cut-off frequency of Continuum Radiation (CR) is used to estimate an electron density surrounding Geotail spacecraft in the magnetosphere and the solar wind. However the lower cut-off frequency is observed by human's own eyes. Therefore it takes a long time in order to observe the lower cut-off frequency. And it is difficult to decide whether it is correct or not that the lower cut-off frequency is observed. In this study we develop the automatic detection method of lower cut-off frequency of CR. The median filter is used in order to reduce an error of detection. And the lower cut-off frequency is detected in the range from 1.57 kHz to 77 kHz. Then the threshold of binary function is  $-166 \text{ dBV/m/Hz}^{1/2}$ . After the binary function, the proposed lower cut-off frequency is picked out by using the weighting function. Consequently the lower cut-off frequency can be obtained by our automatic detection method when its frequency is observed clearly.