

PEM031-03

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## Correlation of Pi 2s Observed by ETS-VIII and MAGDAS/YAP

Shun Imajo<sup>1\*</sup>, Kiyohumi Yumoto<sup>2</sup>, Naho Eto<sup>1</sup>, Shuji Abe<sup>2</sup>, Teiji Uozumi<sup>2</sup>, Kiyokazu Koga<sup>3</sup>, Takahiro Obara<sup>3</sup>, MAGDAS/CPMN Group<sup>2</sup>

<sup>1</sup>Earth and Planetary Sci., Kyushu Univ, <sup>2</sup>Space Environ. Res. Center, Kyushu Univ, <sup>3</sup>JAXA

Pi 2 is an impulsive geomagnetic pulsation with the period range from 40 to 150 seconds. Pi 2 is believed to be globally detectable with aurora breakup. Propagation modes of Pi 2 depend on geomagnetic latitude, local time and so on [cf. Yumoto et al., 2001].

In this study, we analyzed similarity and time lag of Pi 2s observed by ETS-VIII (Engineering Test Satellite-VIII; M.Lat=-7.88, M.Lon=218.56, Hight=36000km) [Koga and Obara, 2008] and by MAGDAS (MAGnetic Data Acquisition System) [Yumoto et al., 2006] station located at the magnetic equator, YAP (M.Lat=1.49, M.Lon=209.09), using cross-correlation. For the analysis, we selected 88 Pi 2 events which showed clear Pi 2 pulsation (p-p more than 0.3nT) during 19:00-03:00LT. The analysis period covered a year from 16 September 2008 to 31 August 2009.

From the analysis, the following results are obtained;

(1) The correlation coefficient between Y-component (compressional) of ETS-VIII and H-component (compressional) of YAP is the highest for combinations of each component, X-, Y-, Z- components of ETS-VIII and H-, D-, Z- components of YAP.

(2) The correlation coefficient between Y-component of ETS-VIII and H-component of YAP depends on local time. In the sector 19:00-21:00LT, 45% of Pi 2s shows positive correlation. In the sector 21:00-03:00LT, 68% of Pi 2s shows positive correlation.

(3) Time lag of Pi 2s from Y-component of ETS-VIII to H-component of YAP also depends on local time. In the sector 19:00-21:00LT, 19% of Pi 2s shows good coherency and time delays of at ETS-VIII 20-75 sec earlier than at YAP. In the sector 21:00-03:00LT, 67% of Pi 2s shows good coherency and time delays of at ETS-VIII 25-50 sec earlier than at YAP.