E013-016 Room: 201B Time: May 27 14:30-14:45

PROPAGATION STRUCTURE OF PI2 PULSATIONS DURING SMALL BAYS

Yuko Seki[1], Rui Yamaguchi[2], Teiji Uozumi[3], Hideaki Kawano[3], Akimasa Yoshikawa[3], Shin-ichi Ohtani[4], Masahiro Itonaga[5], Kiyohumi Yumoto[6], Circum-pan Pacific Magnetometer Network Group

[1] Earth and Planetary Sci.,Kyushu Univ, [2] ISM, [3] Earth and Planetary Sci., Kyushu Univ., [4] JHU/APL, [5] Edu., Yamaguchi Univ., [6] Space Environ. Res. Center, Kyushu Univ.

Pi2 magnetic pulsations are known to be excited at the substorm onset.However, Pi2s are observed even when magnetic bays do not develop well. In this paper we aim to study the effects of the ionospheric conductivities on the ground Pi2 amplitudes, but auroral particle precipitations strongly

modifies the ionospheric conductivies in a time-dependent manner, which is difficult to describe by simple equations. Thus, using data from Circum-pan Pacific Magnetometer Network's (CPMN) stations along 210-deg magnetic meridian, we have statistically studied Pi2's associated with 'small bays',

which are defined here as magnetic bays at a low-latitude station in Guam whose H-component did not increase more than 1 nT in 10 minutes after onsets. We have studied the latitude dependence of the Pi2 amplitudes during northern summer and winter, and found the following features: (1) When averaged for all seasons, the H-component amplitude is almost constant at low- to mid-(less than 50 deg) latitudes, exponentially increases with latitude at mid- to high-(50 ~ 65 deg) latitudes, and is generally large at higher (more than 65 deg) latitudes (where the latitude dependence is unclear). On the other hand, the D-component amplitude exponentially increases with increasing latitude. (2) The H-component amplitude is larger in the summer hemisphere than in the winter hemisphere at low- to mid-latitudes, while

the D-component amplitude does not show a clear season dependence. (3) A case study

shows that the dominant frequency of a Pi2 was constant at low- to mid- (less than 50 deg)

latitudes, suggesting the plasmaspheric cavity-mode wave. The above results, and comparisons of them with a model of the ionospheric conductivity and a simulation results of the cavity-mode wave, suggest that the H-component perturbation of Pi2s in the nightside low- to mid-latitudes is caused by an enhanced Pedersen conductivity in the nightside F-layer and the east-west component of the electric field perturbations of the plasmaspheric cavity mode.