E140-P002 **Room: Poster Session Hall** **Time: May 17**

Field-aligned propagation of density perturbations driven by diamagnetic disturbances

Osuke Saka[1]

[1] none

Geosynchronous altitudes are suitable position to monitor the delivery of plasma sheet material to inner magnetosphere. An intrusion of diamagnetic material into the inner magnetosphere may take place near geosynchronous altitudes. The intrusion would accompany diamagnetic disturbances, because the plasma sheet materials were transported by the earthward fast flow accompanied by dipolarization front (tangential discontinuity). The disturbances may propagate from midnight sector to dawn- and dusk-sector as well as toward the Earth along the dipole field lines.

An anisotropic pressure condition is considered based on double adiabatic equations of state. A field-aligned propagation of density and field perturbations is studied in MHD frame of reference.

First, steady state analyses were attempted. The results showed that there appear two wave modes corresponding to a slow phase velocity and a fast phase velocity as resemble those in isotropic plasmas. For the fast phase velocity mode, pressure perturbations and field perturbations exhibited paramagnetic relations, similarly to isotropic plasmas. For the slow phase velocity mode, paramagnetic properties appear, unlike isotropic plasmas.

Second, the time-evolution analyses of the perturbations were attempted. It showed that slow phase velocity mode can be excited only when diamagnetic source disturbances were imposed. In addition, the compressed density pulses are propagated along the field lines from the source region in lower pressure anisotropy condition. Contrarily, compressed density pulses did not propagated out of the source region but was confined in it in higher pressure anisotropy condition.

We note that magnetic mirror force and force arising from changing area of flux tube may contribute such an admixture of dia-and para-magnetic properties.