

## Solar wind control of plasma temperature in the near-Earth plasma sheet

# Daisuke Nagata[1]; Shinobu Machida[2]

[1] Dept. of Geophysics, Kyoto Univ.; [2] Dept. of Geophys., Kyoto Univ.

The near-Earth plasma sheet adjoins the Earth's dipolar field region and is an important region to understand the mass and energy transport from the interplanetary space to the inner magnetosphere. The plasma temperature at the geosynchronous orbit and in the near-Earth plasma sheet positively correlates with the speed of solar wind. This suggests that the kinetic energy of solar wind is converted to the plasma thermal energy. In this paper, we report the results of correlation analysis between the plasma temperature at the radial distance from 8 to 12 Re and the solar wind speed. We divided the data into three regions according to the Y-component of spacecraft position. We also divided the data by the north-south component of IMF. Solar wind parameters were measured by the ACE and WIND spacecraft. The plasma temperature was evaluated by the GEOTAIL LEP-EAI and EPIC-STICS instruments. We used the reversal of radial component of magnetic field as a criterion of neutral sheet crossing. Under the northward IMF condition, the plasma sheet temperature positively correlates with solar wind speed in all three regions. This is consistent with previous studies. On the other hand, the plasma sheet temperature in the dawn and midnight regions showed negative correlation with solar wind velocity under the southward IMF condition. This is likely due to the enhancement of convection which transport cold ions from the mid-tail to the near-Earth dawnside region.