

## Plasma temperature and density in the near-earth plasma sheet controlled by the solar wind

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The origin of hot plasma in the earth's magnetotail has been a long-standing problem in space plasma physics. On the basis of the Geotail and Wind satellites' observations, we study the relationship of thermodynamics states between the solar wind and near-earth plasma sheet. We firstly confirmed that the response of the solar wind ram pressure to the total pressure in the magnetotail is quick. The temperature and density responses, however, show the maximum correlation with several hours delay from the solar wind variation. We normalize the plasma temperature and density, and find that the plasma state is strongly controlled by the IMF. We also discuss the dawn-dusk asymmetry of the plasma sheet structure and the thermal energy partition between ion and electron plasmas.

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