

On the tail lobe pressure as global diagnostic parameter of magnetotail state

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One of important problems related to Space Weather is to identify the parameters to monitor and study the dynamic state of magnetosphere like substorms, steady convection and convective bays, ground state etc. One such global parameter could be the lobe magnetic field pressure normalized to given solar wind pressure. We found and studied the cases in which this parameter appeared to be steadily lower (at least for a few hours) as compared to its value expected from statistical dependence of lobe field to the solar wind pressure. For them we typically found the low-to-modest energy supply rate to the magnetotail, as compared to the cases with strong energy loading/unloading. With plasma measurements in the tail, in such cases we typically found fast Earthward flows and enhanced positive B_z in the plasma sheet.