

## Plasma sheet changes caused by sudden enhancements of the solar wind pressure

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Using Geotail data, we have studied the response of the plasma sheet in the magnetotail to sudden enhancements of the solar wind pressure. We have selected three events in which major substorms did not occur around the corresponding sudden impulses on the ground. It is shown that the ion number density and temperature, as well as the ion pressure, increase significantly due to the plasma sheet compression. The specific entropy is found to be nearly constant, suggesting that the plasma sheet compression is adiabatic. This plasma behavior is in contrast to the nonadiabatic substorm-associated processes. The northward magnetic field in the plasma sheet also tends to increase, rather than decrease, associated with the compression, implying that the lateral magnetotail compression suppresses the triggering of magnetic reconnection and therefore substorm expansion onsets.