

Response of the magnetotail to the solar wind during substorms

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From our previous statistical studies we found that the magnetic reconnection takes place first around $X=-20$ Re a few minutes before substorm onset, and then the dipolarization and plasmoid evolution occurs simultaneously. The total pressure in the tail starts to decrease first around $X=-20$ Re and then decreases in the surrounding regions. In this study, we discuss response of the total pressure in the magnetotail to the solar wind input such as the electric field. We also discuss relationship between the solar wind/IMF and substorm onset.