THE MAGNETOPAUSE MOTION DURING SUBSTORMS

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Dependence of the variation of the magnetospheric boundary motion on substorm development is investigated. The magnetopause crossings by INTERBALL-1 satellite identified during the period of 1995 to 1997 are used in the analysis. The substorm onset is determined by ground data. The dependence of magnetopause position on external conditions in solar wind is evaluated by empirical model (Shue et al, 1997). It is shown that behavior of the magnetopause during substorm onset depended on condition preceded substorm. If substorms were observed in quiet time without magnetic storms, the magnetospheric boundary motion near substorm onset was absent or the amplitude of magnetopause movement was low. If substorms occurred during the period of magnetic storms, the magnetotail was distended before substorm, and substorm onset was followed by magnetotail compression. We may suggest that substorm onset gives rise to magnetopause motion, and largest amplitude of boundary compression was observed for substorms that occurred during magnetic storms.