



Response of outer geospheres on changes in interplanetary medium: a case study

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Based on the satellite and the ground data we studied disturbances of magnetosphere and ionosphere that accompanied significant changes in solar wind and interplanetary magnetic field that happened on a background of low solar activity on September 4, 2006. We demonstrate that the increase in solar wind pressure and the interplanetary electric field caused the SI that was followed by an increase in geomagnetic activity. It included two substorms and a ring current amplification characterized by minimal SYM-H = -54 nT. We analyzed changes in magnetospheric plasma and magnetic field and compared them with changes in geomagnetic pulsations and midlatitude ionosphere. We found out that strengthening of magnetospheric convection as well as substorm injections caused changes in Pc5 intensity, frequency and polarization. Most interesting features of studied ionospheric phenomena are simultaneous prenoon increases in critical frequency and peak height of F2 layer. We believe that these increases were caused by the former substorm developed on magnetically quiet background and characterized by maximal AE= 1435 nT.