



Investigation of response of inner magnetosphere electric field pattern to different geomagnetic conditions

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Numerical calculation of self-consistent electric fields ("outer" electric field - driven (via polar cap potential) by solar wind, and "inner" electric field - driven by "hot" plasma sheet plasma population) is made to define electric field pattern. Proposed numerical model consist of several modules: 1) calculation of field-aligned currents from closure of transverse drift currents arising from "hot" plasma motion; 2) calculation of ionospheric electric field potential under obtained field-aligned currents and given ionospheric conductivity model; 3) calculation of drift trajectories of plasma sheet particles motion in the inner magnetosphere under obtained electric and given magnetic fields. The electric field pattern corresponding to some specific cases of outer boundary electric field potential is considered: 1) constant in time potential; 2) potential increase; 3) potential decrease; 4) several different step-like functions.

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