MHD–Flow in the Vicinity of the Frontal Magnetosphere Point

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A task on the interaction of the plasma flow with a magnetic wall is considered. At the finite conductivity in linear approximation on coordinates along the wall, the plane boundary layer with a singular point, where the flow velocity is equal to zero, is described. In the vicinity of such a point the flow process of the half–space, containing the homogeneous magnetic field, is developed. For the region occupied by the flow the MHD equations of continuity, velocity and motion have been solved. The profiles of field, pressure and three components of velocity depending on the coordinate transverse to the boundary have been obtained. Calculations of their distributions in conditions of the Earth's magnetosphere day–side sector have been carried out. The results are compared with in–situ measurement data in the magnetosphere boundary layers: the mantle and LLBL.