Geophysical Research Abstracts
Vol. 14, EGU2012-1684, 2012
EGU General Assembly 2012

Influence of a quasi-radial IMF on the magnetopause position

G. Granko (1), J. Safrankova (1), Z. Nemecek (1), K. Jelinek (1), and A. Samsonov (2)

(1) Charles University, Faculty of Mathematics and Physics, Department of Surface and Plasma Science, Prague, Czech Republic (granko.galina_a@yahoo.com), (2) St. Petersburg State University, St. Petersburg, Russia

The interplanetary magnetic field (IMF) is one of the solar wind parameters which strongly affects the solar wind – magnetosphere interaction. Due to its significant variability, its small fluctuations are hardly predictable and this effect makes difficult to accurately predict some magnetospheric changes. Moreover, even stable solar wind conditions with some non-typical IMF orientations may result in a surprising magnetospheric configuration. One of such examples is the case with a nearly radial IMF which can be observed in the solar wind very occasionally but causes a very specific magnetopause shape.

We have collected data set of more than 7000 crossings of the subsolar and flank low-latitude magnetopause observed by five THEMIS spacecraft in course of the 2007–2009 years and analyzed the difference between observed magnetopause radial distances and those predicted by an empirical magnetopause model. The data propagated from the L1 point as well as the measurements of the near-Earth solar wind monitors (whenever available) were used as a model input. We discuss an influence of the quasi-radial IMF on the magnetopause position and we analyze in detail extreme magnetopause positions that do not agree with previous findings that the magnetopause is significantly expanded during the quasi-radial IMF.