



Unusual magnetopause crossings during long-lasting radial IMF conditions

Kostiantyn Grygorov (1), Jana Safrankova (1), Zdenek Nemecek (1), Lubomir Prech (1), Gilbert Pi (2), and Jih-Hong Shue (2)

(1) Faculty of Mathematics and Physics, Charles University in Prague, Prague, Czech Republic, (2) Institute of Space Science, National Central University, Jhongli, Taiwan

One of the factors which affect the solar wind–magnetosphere interaction is the orientation of the interplanetary magnetic field (IMF). The very rarely observed radial IMF results in magnetopause locations up to several radii farther away from the Earth than predicted and causes a specific magnetopause shape. We present a case study of magnetopause crossings which were observed by the THEMIS spacecraft and analyze the difference between observed magnetopause positions and those which are predicted by an empirical magnetopause model. We use both the data (if available) from the L1 point and from near-Earth solar wind monitors as a model input. We discuss a role of the long-lasting radial IMF orientation on the magnetopause position and the influences of other parameters such as the dynamic pressure and IMF B_z component at different local times.