Ann. Geophys. Discuss.,
https://doi.org/10.5194/angeo-2018-23-SC3, 2018

Annales Geophysicae Discussions
Open Access
EGU

Interactive comment on "Multisatellite observations of the magnetosphere response to changes in the solar wind and interplanetary magnetic field" *by* Galina Korotova et al.

G. Korotova

gkorotov@umd.edu

Received and published: 30 May 2018

Dear Prof. Owen, Thank you for your helpful comments. With regards to the first point, a consideration of the 3D picture is indeed valuable, not least because it enables us to find an error in our calculation of the normal to the IP shock. The normal to this shock should point antisunward, dawnward, and northward. Consequently the shock should first strike the southern dusk bow shock and magnetopause. Although most of our spacecraft were located near the ecliptic plane, the Cluster spacecraft were fortuitously located at high southern postnoon latitudes. Consequently, as already noted in the paper, Cluster saw the event first (Table 1). THEMIS A and D then see the front nearly

Printer-friendly version

Discussion paper

simultaneously, suggesting it strikes a broad region of the magnetopause at once. We have therefore broadened the red impact eclipse on the magnetopause in Figure 2. The main purpose of our statistical study was to investigate whether the direction of the shock normal has any effect on the propagation of the shock induced magnetic and plasma disturbances in the X-Y plane. As professor Owen brought our attention to the importance of a 3D consideration for determination of the point of impact of the IP shock we calculated the Vz velocities for 15 events in our data base and obtained that for 12 events their directions are agreeable with z component of the normal to the IP shocks. As the results look encouraging, we plan to perform a further study of direction of plasma flow in response to IP shocks as well as to extend the observational coverage by using Cluster and THEMIS spacecraft in a new project. Sincerely, Galina Korotova.

Interactive comment on Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2018-23, 2018.

Printer-friendly version

Discussion paper

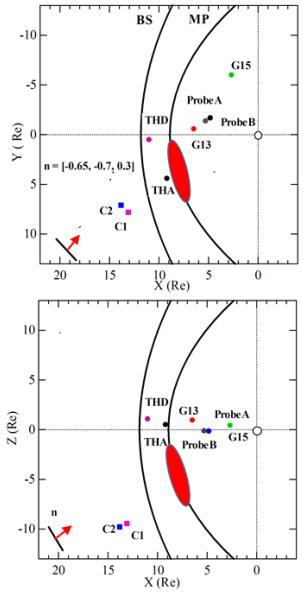

Fig. 1. GSM locations of Cluster 1 and 2, THEMIS A, D, Van Allen Probes A and B and GOES 13 and 15 in the X-Y and Z-Y planes at $\sim$ 1650 UT on February 27, 2014. The meaning of the solid oval and thick

Printer-friendly version

Discussion paper