Supporting Information for "What happens before a southward IMF turning reaches the magnetopause?"

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Contents of this file

1. Figures S1 and S2

Introduction

Figure S1.

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References

Formisano, V. (1979), Orientation and shape of the earth's bow shock in three dimensions, *Planet. Space Sci.*, *27*, 1151–1161, doi:10.1016/0032-0633(79)90135-1.

Shue, J.-H., P. Song, C. T. Russell, J. T. Steinberg, J. K. Chao, G. Zastenker, O. L. Vaisberg, S. Kokubun, H. J. Singer, T. R. Detman, and H. Kawano (1998), Magnetopause location under extreme solar wind conditions, *Journal of Geophysical Research*, *103*, 17,691–17,700, doi:10.1029/98JA01103.

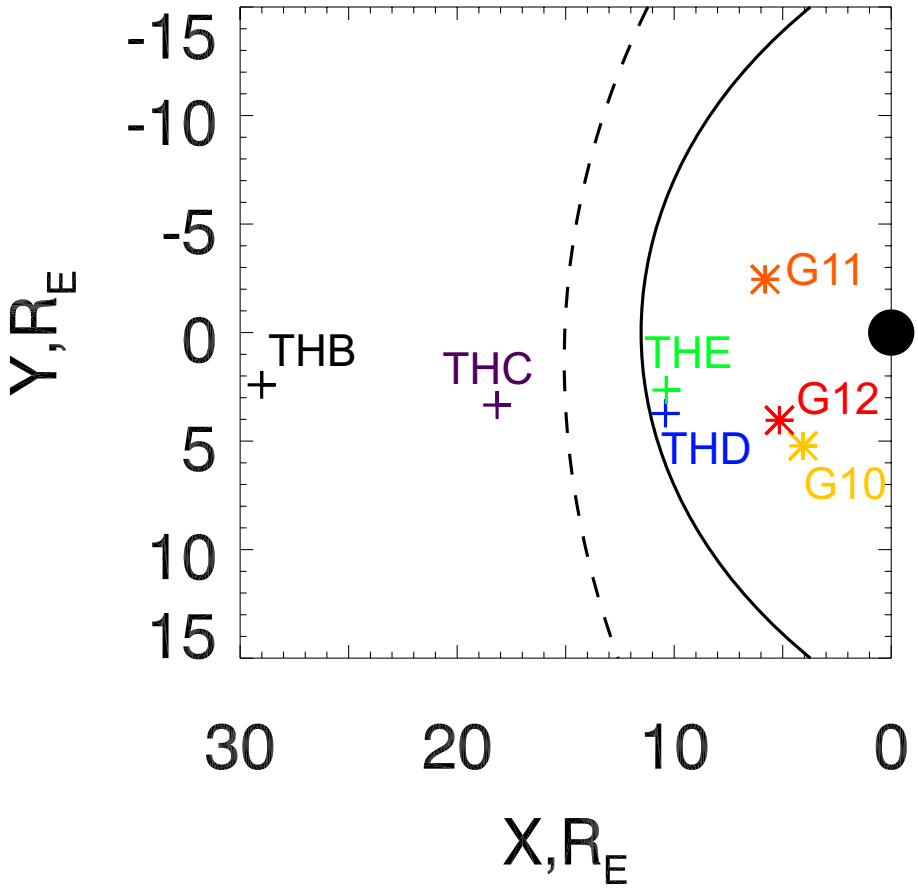

Figure 1. Positions of spacecraft projected to the equatorial plane in the GSM coordinates: THEMIS B (THB), THEMIS C (THC), THEMIS D (THD), THEMIS E (THE), GOES 10 (G10), GOES 11 (G11), and GOES 12 (G12). The solid and dashed lines indicate the supposed magnetopause [*Shue et al.*, 1998] and bow shock [*Formisano*, 1979] positions.

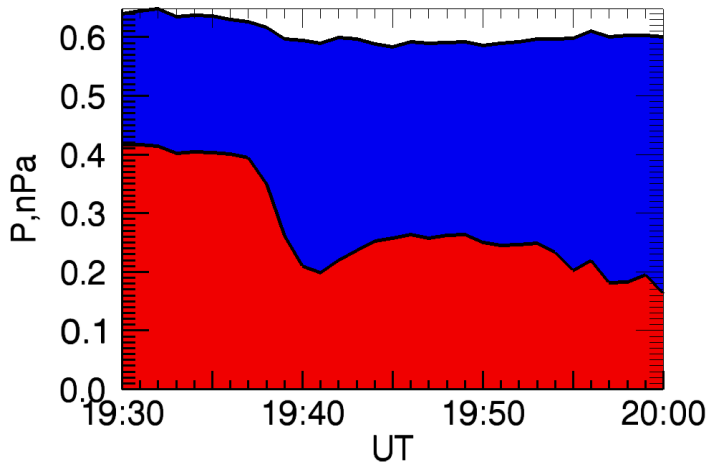

Figure 2. Magnetic (red) and thermal (blue) pressures at the subsolar magnetopause obtained in the global MHD simulation. The variations of the upper boundary of blue regions indicate the variations of the total pressure.