

Supplementary Information for

A Space Hurricane over the Earth's Polar Ionosphere

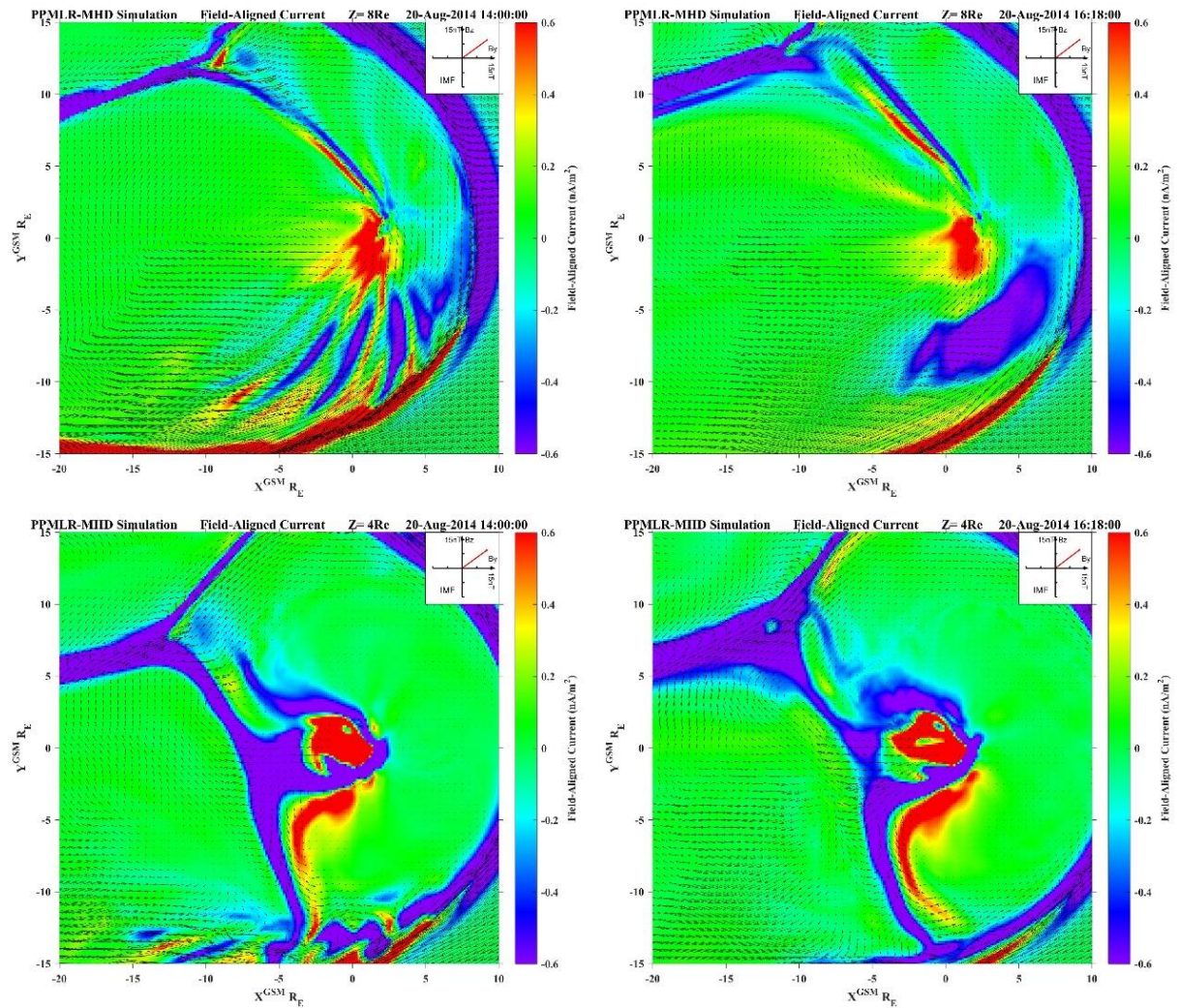
Qing-He Zhang, Yong-Liang Zhang, Chi Wang, Kjellmar Oksavik, Larry R. Lyons, Michael Lockwood, Hui-Gen Yang, Bin-Bin Tang, Jøran Idar Moen, Zan-Yang Xing, Yu-Zhang Ma, Xiang-Yu Wang, Ya-Fei Ning and Li-Dong Xia

Correspondence to: zhangqinghe@sdu.edu.cn

This PDF file includes:

Supplementary Figures 1 to 2

Supplementary Figure 1

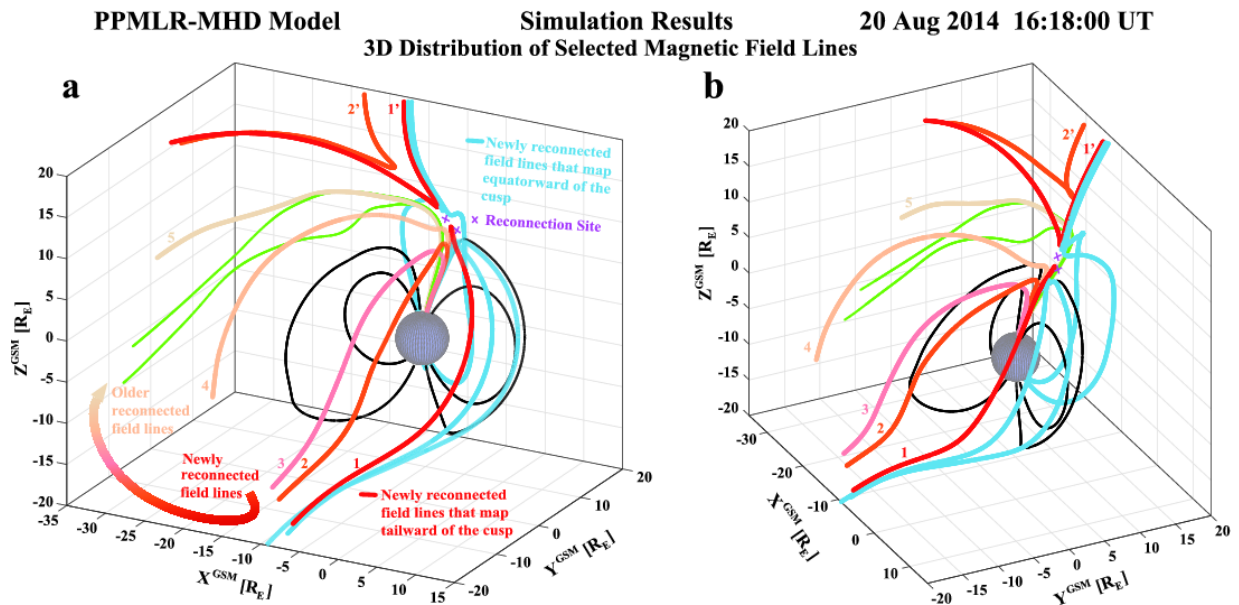


Supplementary Figure 1. Two selected snapshots of the simulated 2-D distribution of FACs and plasma velocity vectors in the X-Y plane at $Z= 8 R_E$ and at $Z= 4 R_E$, respectively.

The top two panels are for the simulated data in the **X-Y plane at $Z= 8 R_E$** and the bottom two are for the data in the **X-Y plane at $Z= 4 R_E$** . The two panels at left side are for the simulated data at 14:00:00 UT and the two panels at right side are for the data at 16:18:00 UT, respectively.

The format of each panel is same as Figure 4d in the main text.

Supplementary Figure 2



Supplementary Figure 2. Two different views of the 3-D selected magnetic field lines simulated by the PPMLR-MHD code for the snapshot shown in Figure 4. The magenta crosses represent the reconnection sites, and the numbered field lines in red to light brown represent the newly to old evolution of the reconnected field lines that also highlighted by the thick arrowed color curve. The format is same as Figure 4b in the main text.