

Supporting Information for ”Simulation of plasmaspheric plume impact on dayside magnetic reconnection”

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1. Figure of the early tearing instability

In Figure S1, we can see the early layer forming reconnection X point far away from the perturbation. Those X point are observable thanks to the dipoles in B_y and their separation is consistent with the linear tearing instability (see the discussion in the paper).

Additional Supporting Information (Files uploaded separately)

1. Captions for Datasets S1

Introduction

The Supplementary material corresponds to the data sets used in this paper. For each time step of the simulation, we localized the X point and calculated the reconnection rate

at its location. Then, for normalization, we extracted the densities and magnetic field in inflow and outflow of the reconnection X point. All those data are stored in the Data Set S1.

Data Set S1.

Data used for the simulation. The data are stored using the HDF5 format. The file contains 7 hdf5 directories. The first one is called "time" and contains a table of size [2663] with the times. The second one is called "Xpoint_coord" and contains a table of size [2,2663] with the coordinates of the X point in the simulation box for each time. The third one is called "rate" and contains a table of size [2663] with the reconnection rate at the X point for each time. The fourth (resp. fifth) one is called "Binflow" (resp. "Ninflow") and contains a table of size [1200,2663] with the magnetic field amplitude (resp. the total ion density) for each time in a vertical cut along y and centered on the reconnection X point. The sixth (resp. seventh) one is called "Boutflow" (resp. "Noutflow") and contains a table of size [2000,2663] with the magnetic field amplitude (resp. the total ion density) for each time in a cut following in x the fluid streamline of ions ion the outflow jet. These cuts are also centered on the reconnection X point.

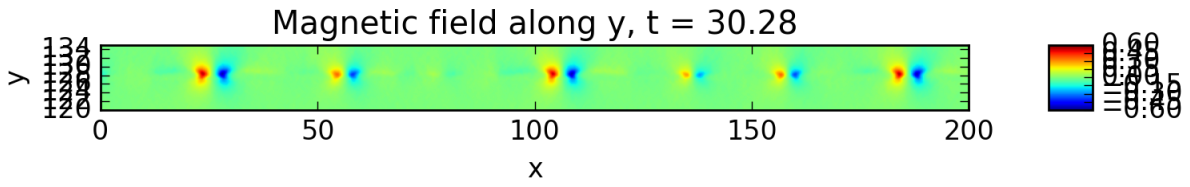


Figure S1. Magnetic field B_y in a sub-box along the current layer.