

The Cusp Plasma Imaging Detector CubeSat Observatory: Magnetopause Science

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The reconnecting magnetopause: local to global

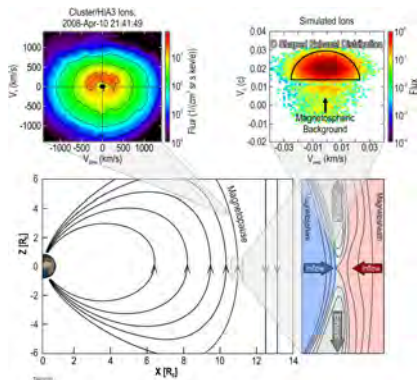


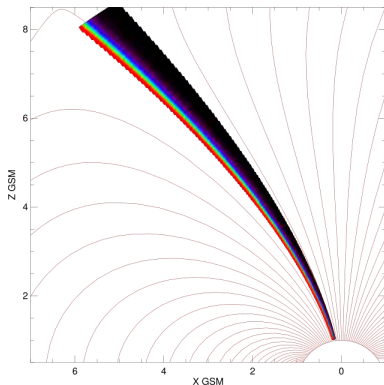
Figure: Broll+ 2017, exhaust several R_E away from reconnection

We've gone all the way down to electron scales for reconnection microphysics, but we can't apply the same approach to the global picture.

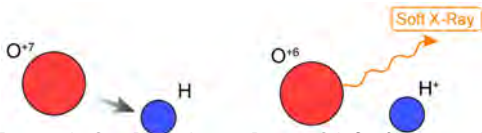
(Magnetospheric Multimultimultimultimultiscale?)

How do we measure such large scales?

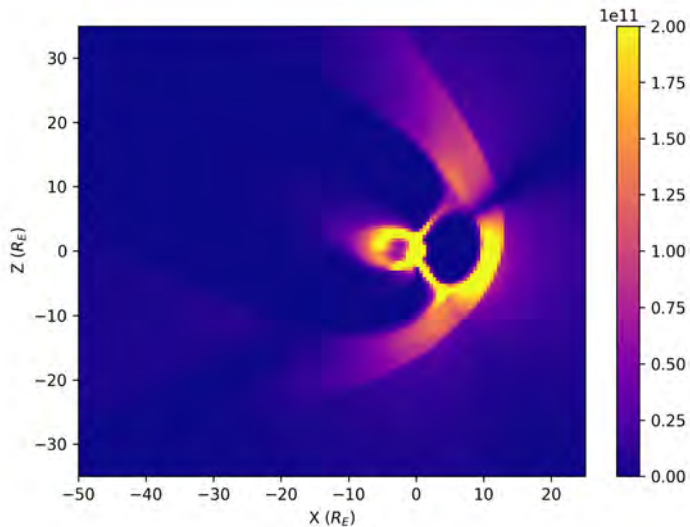
Step 1: let the magnetosphere do the optics for us



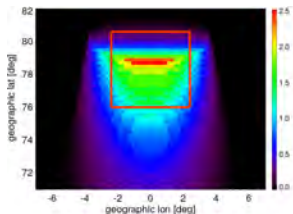
Step 2: let the exosphere 'measure' plasma flow for us



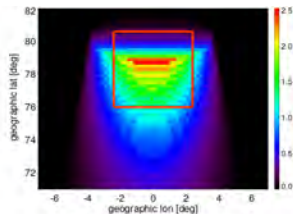
Outside-in: SW/M/I all at once



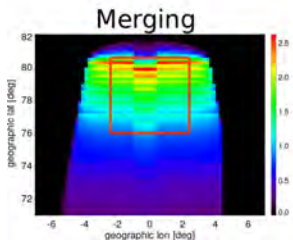
Inside-out: CuPID and the nature of magnetopause reconnection



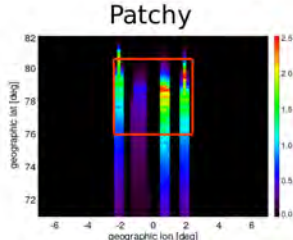
Single, steady



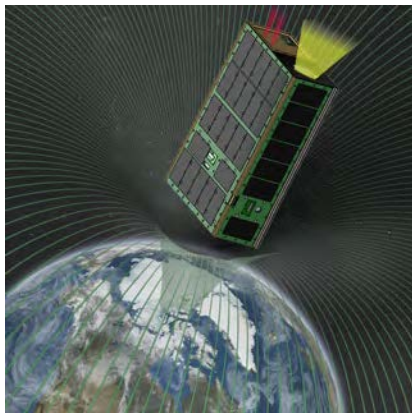
Multiple, steady



Merging



Patchy



Launch ~late 2019, high-inclination 500km orbit
Sheath flow 'funneled' into cusp, charge-exchange indicates $n\vec{v}$
We'll see effects of processes at the magnetopause as a whole!