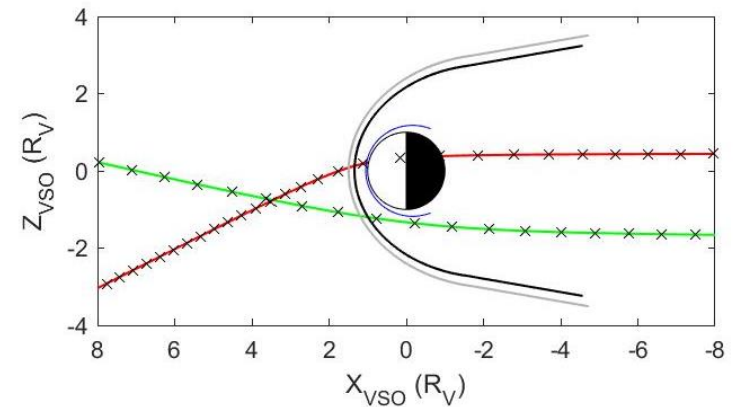
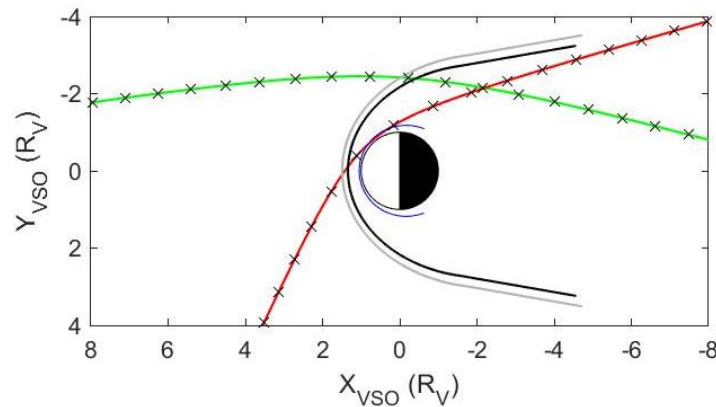
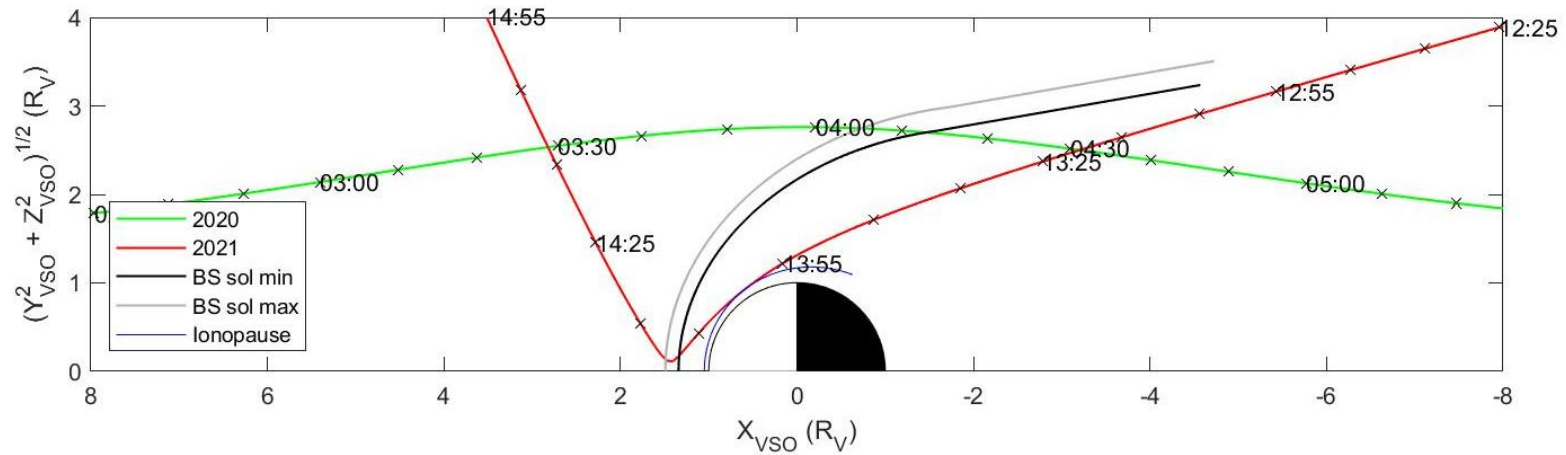
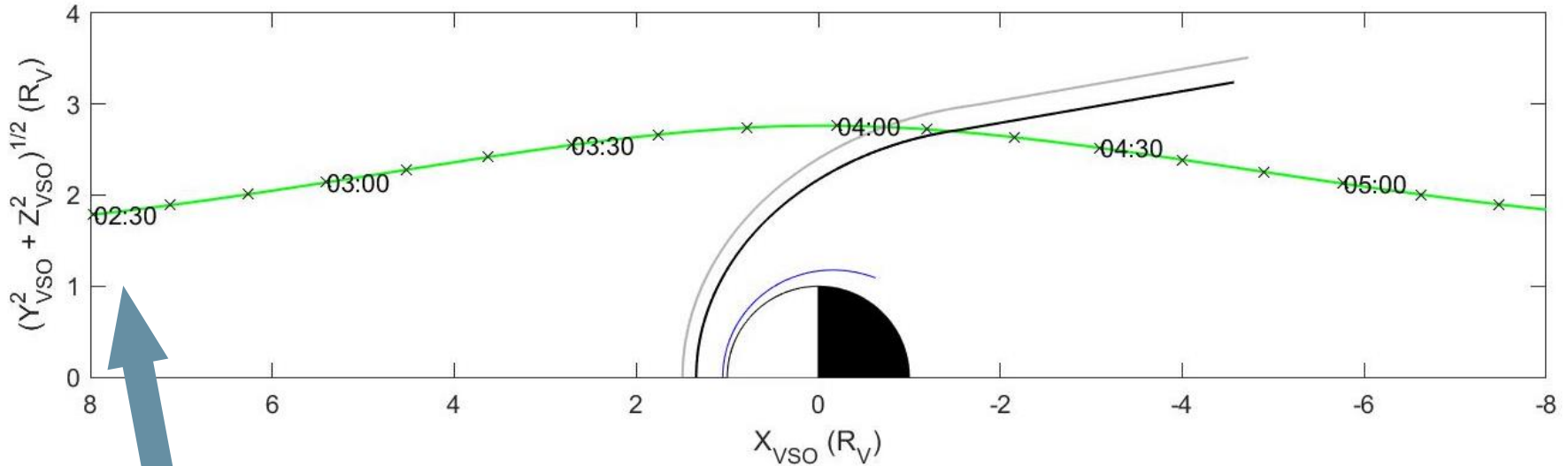


MPO-MAG EXPECTATIONS FOR OBSERVATIONS DURING VFB1

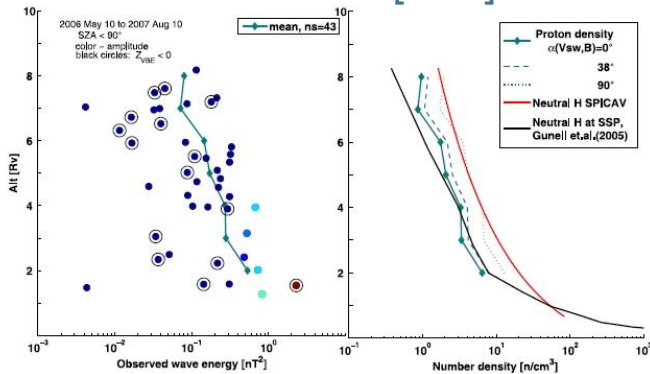


THE VFB1

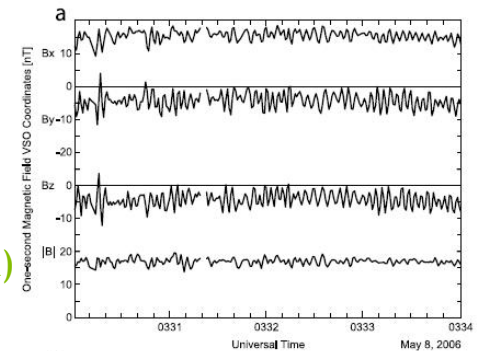


~8 Rv: Entering Venus's Exosphere
Gunell et al. [2005]

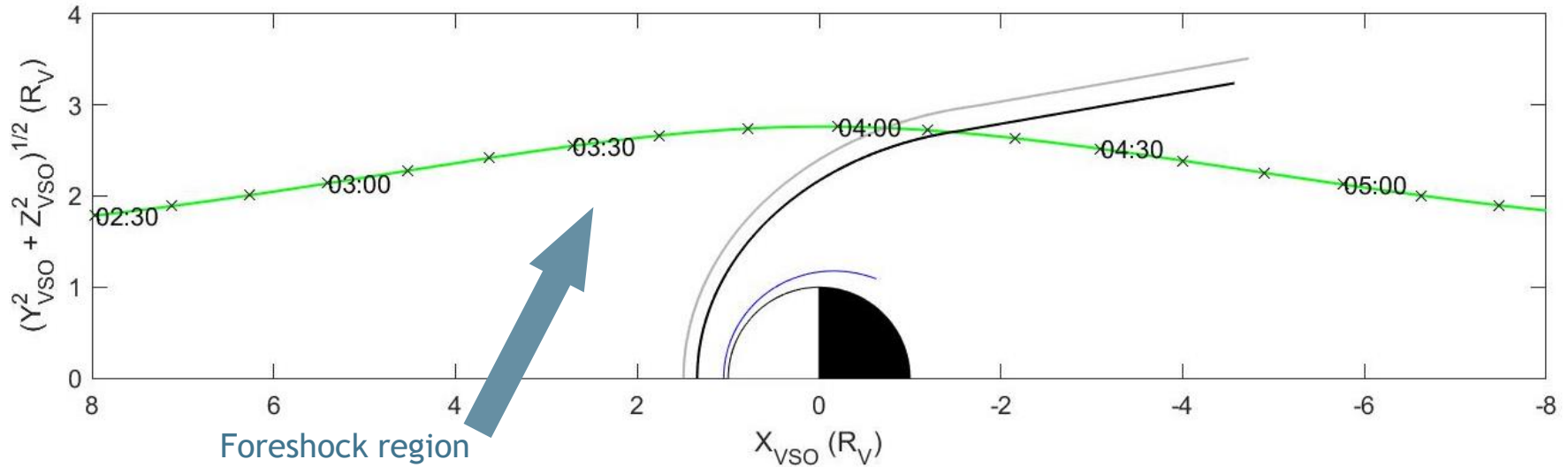
Observing Ion Cyclotron Waves
Local pickup of protons
Ring-beam distribution
Delva et al. [2008]



NB:
Schmid et al.
[2020, submitted]
IC waves in Mercury's
Exosphere (MESSENGER)



THE VFB1

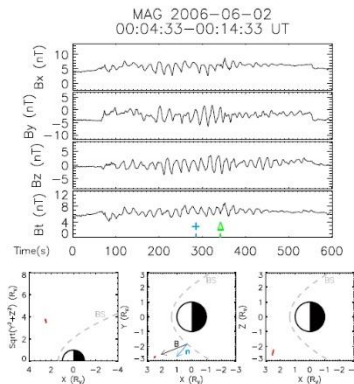


In case of quasi-parallel bow shock

Foreshock waves well below ω_{cp}

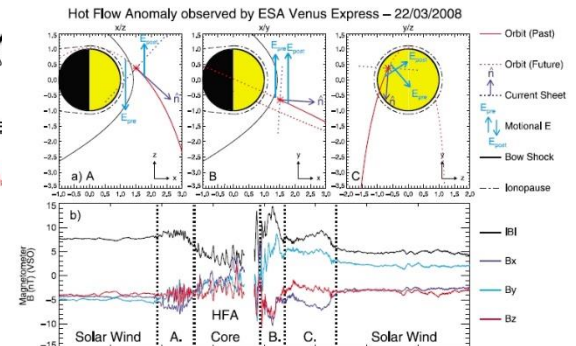
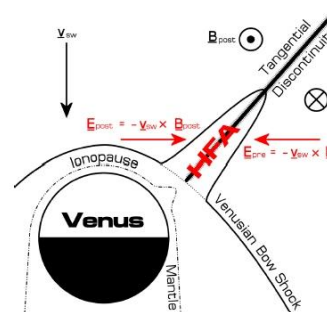
Shan et al. [2017] Quasi-monochrom

Created by back-streaming ions

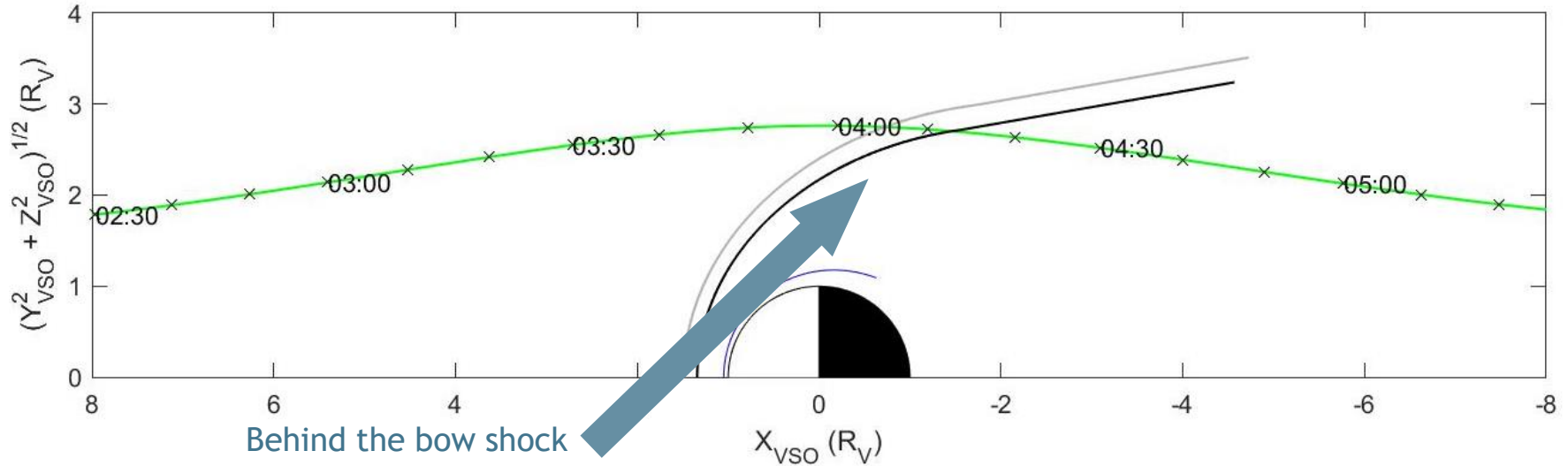


In case of IMF discontinuities

Hot Flow Anomalies: Collinson et al. [2012]



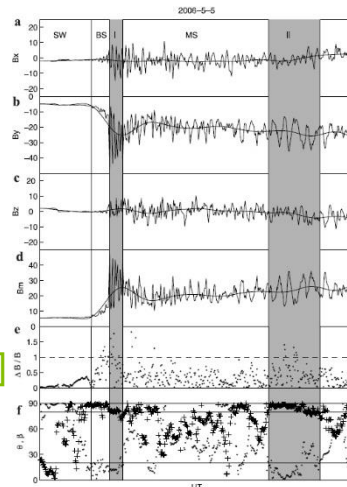
THE VFB1



Quasi-perpendicular

Energization of T_{\perp}
 Mirror Modes
 [Volwerk et al., 2008]
 Development along
 the orbit

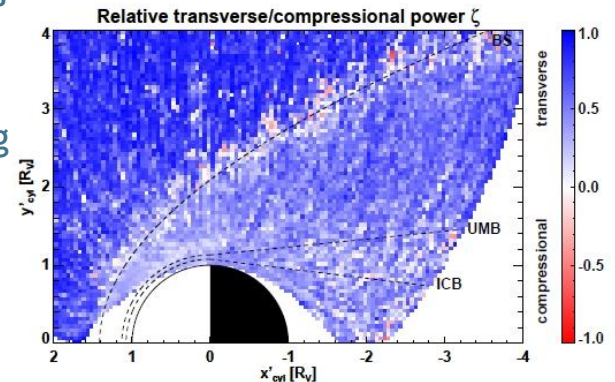
NB:
 Sundberg et al. [2015]
 No MM confirmed
 by MESSENGER



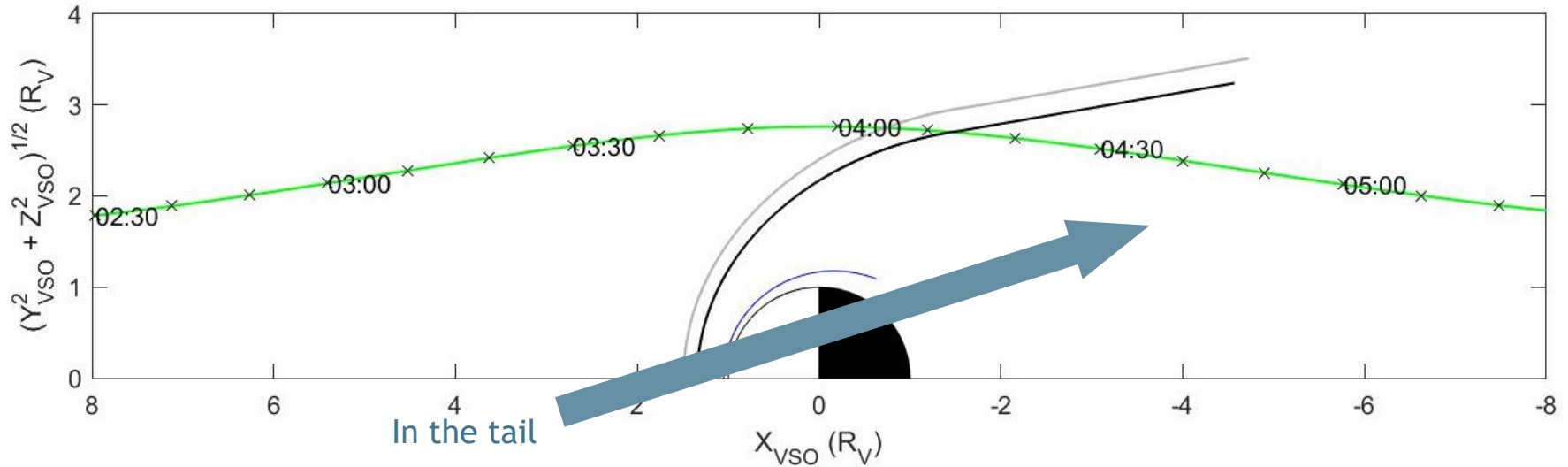
Quasi-parallel

Foreshock waves
 can enter

Study of
 turbulence along
 streamlines
 Guicking et al.
 [2010]



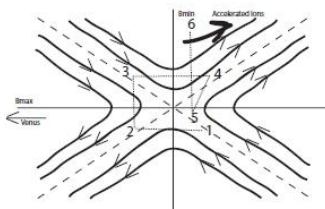
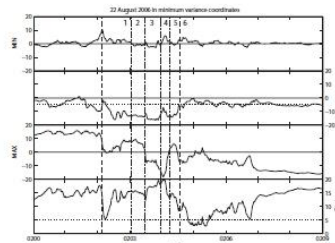
THE VFB1



Magnetotail dynamics

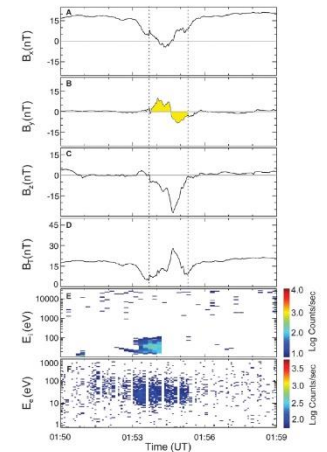
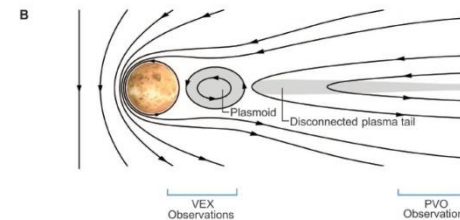
Possibility of reconnection
Volwerk et al. [2009]
but likely too high latitude (but PICAM may observe acc ions)

Plasmoid formation may create TCRs (not yet observed)

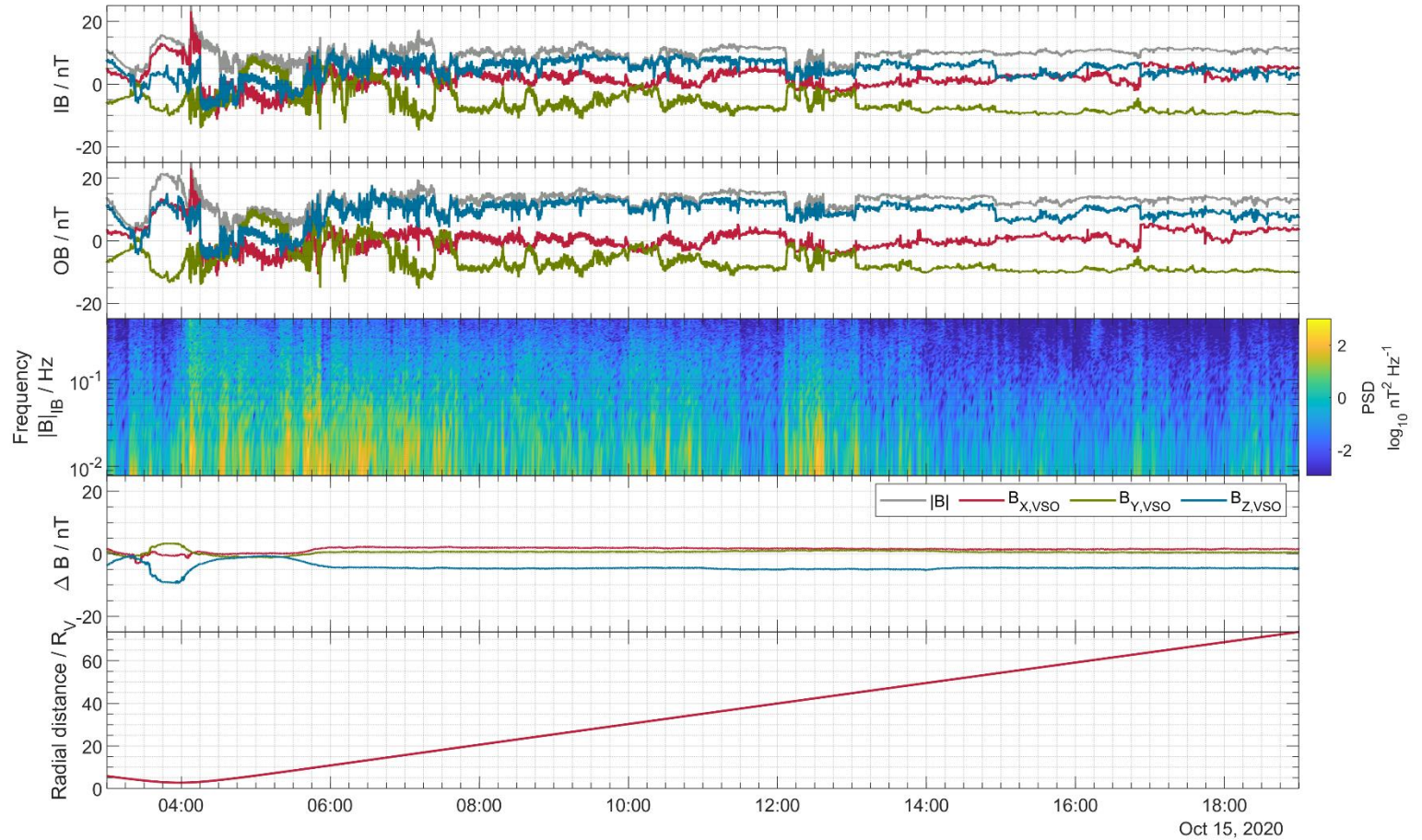


Flux rope in Venus's Tail
Zhang et al. [2012]

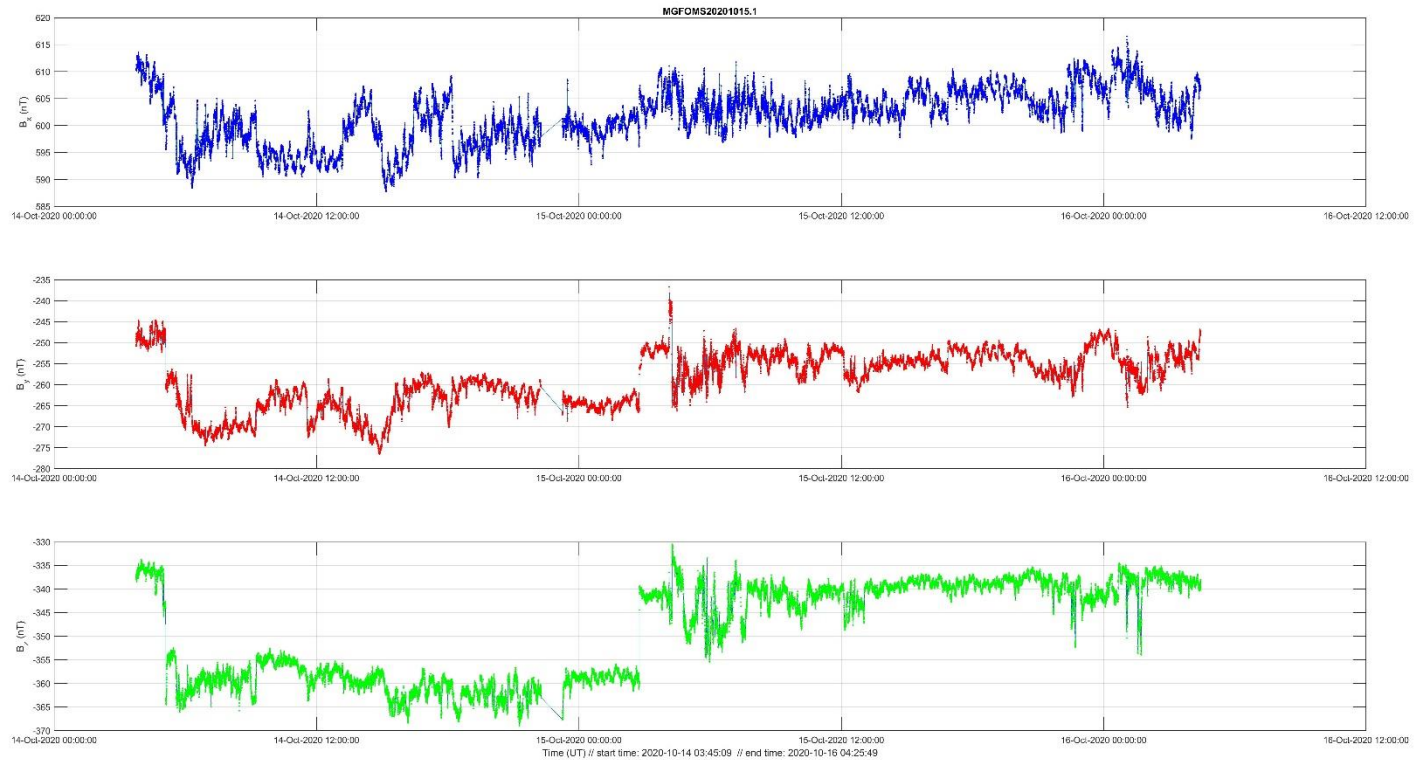
Indirect observation of reconnection
TCRs?



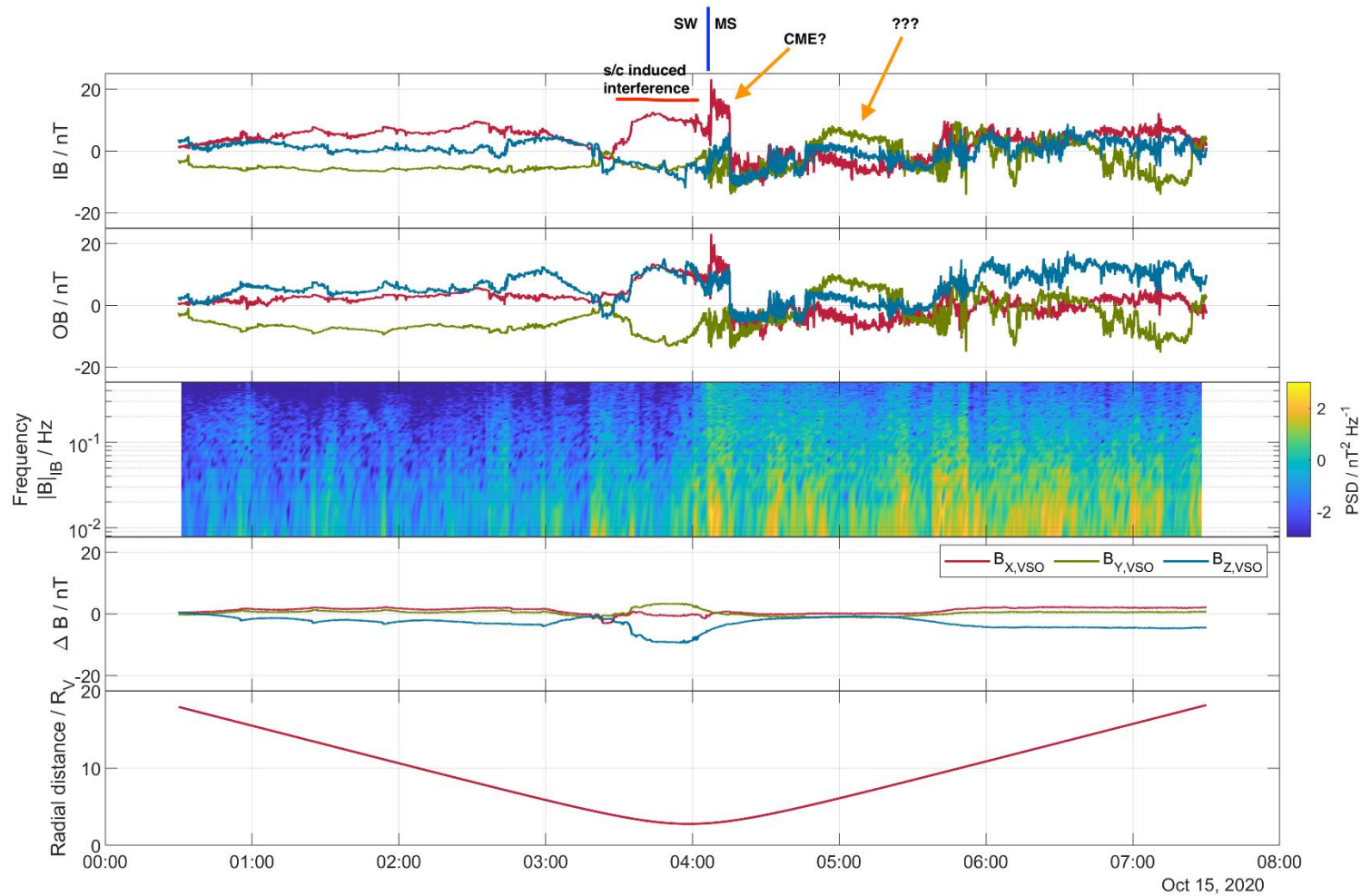
WHAT DID WE ACTUALLY SEE?



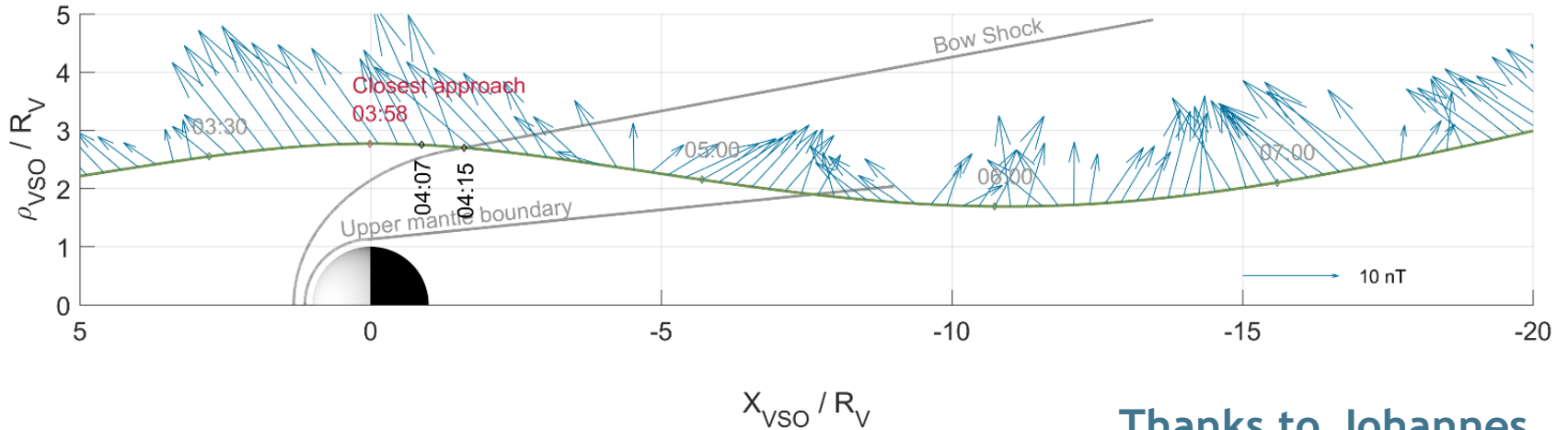
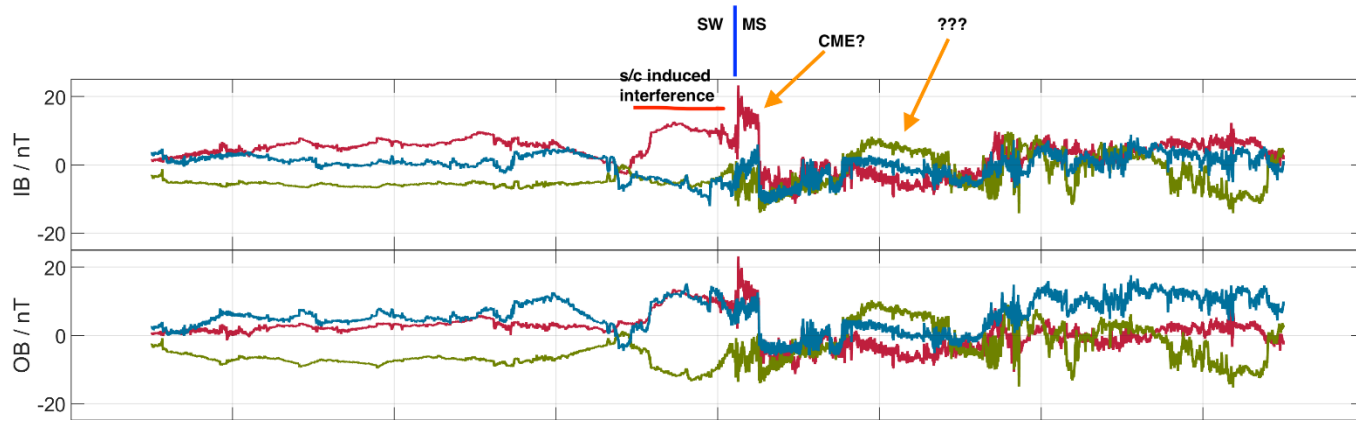
VIEW BY MMO-MFG



ZOOM IN WITH NOTES



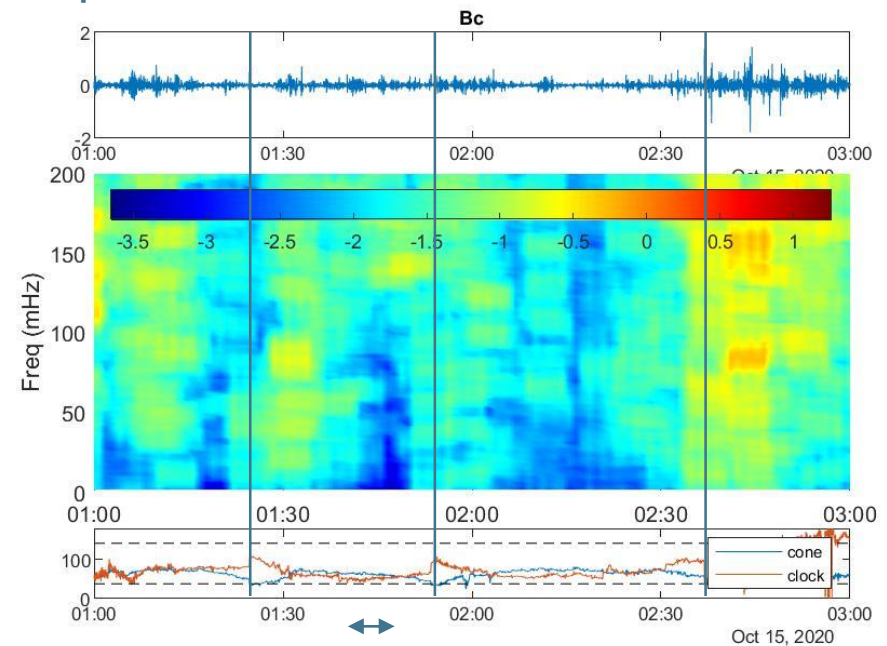
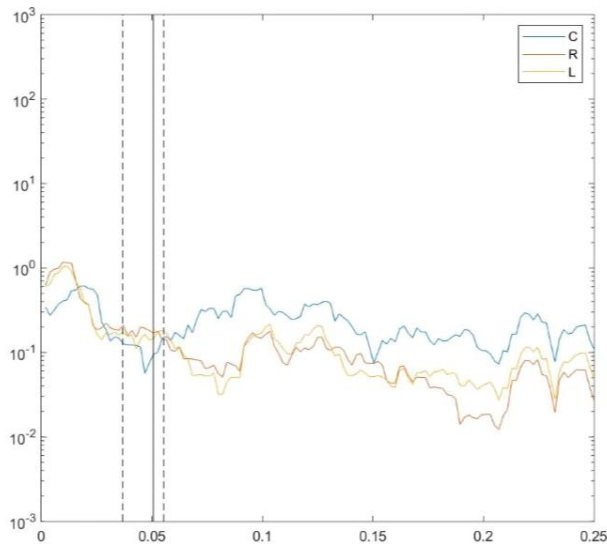
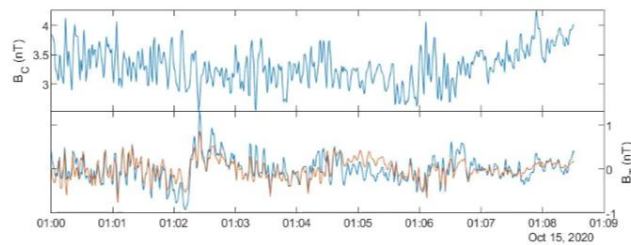
VECTORPLOT



Thanks to Johannes

UPSTREAM

Very little indications of IC waves.
 Therefore, however, compressional waves seem to be dynamically present (i.e. changing in frequency)
 Not so clear in the dynamic spectrum



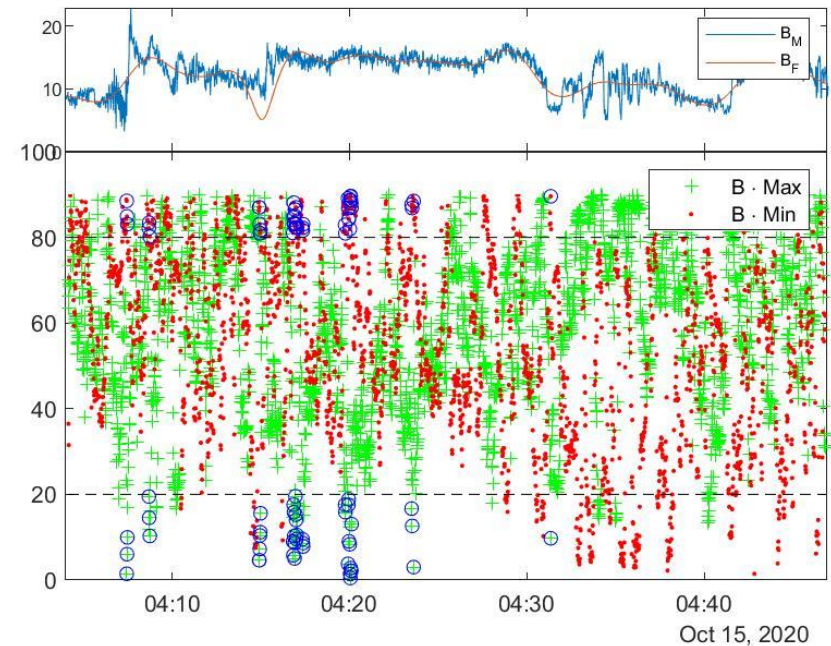
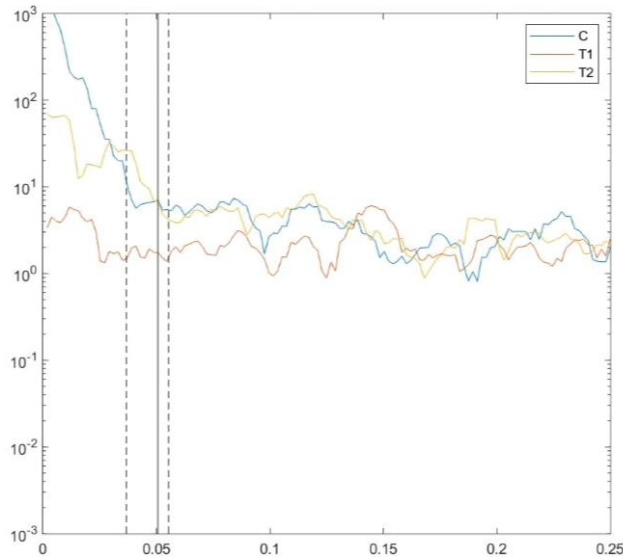
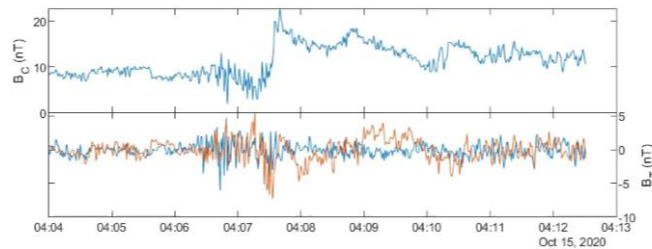
BEHIND THE BOW SHOCK

A quick test for mirror mode waves, although it looks like there is a quasi-parallel bow shock

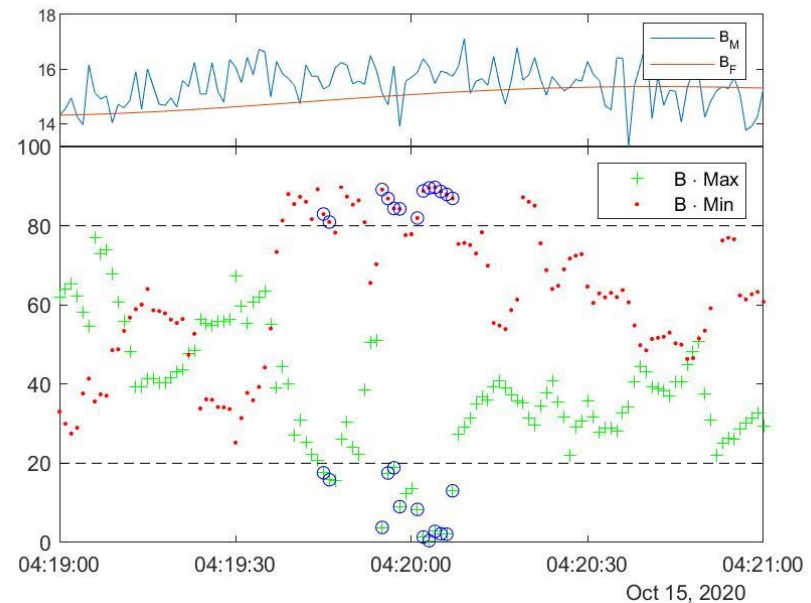
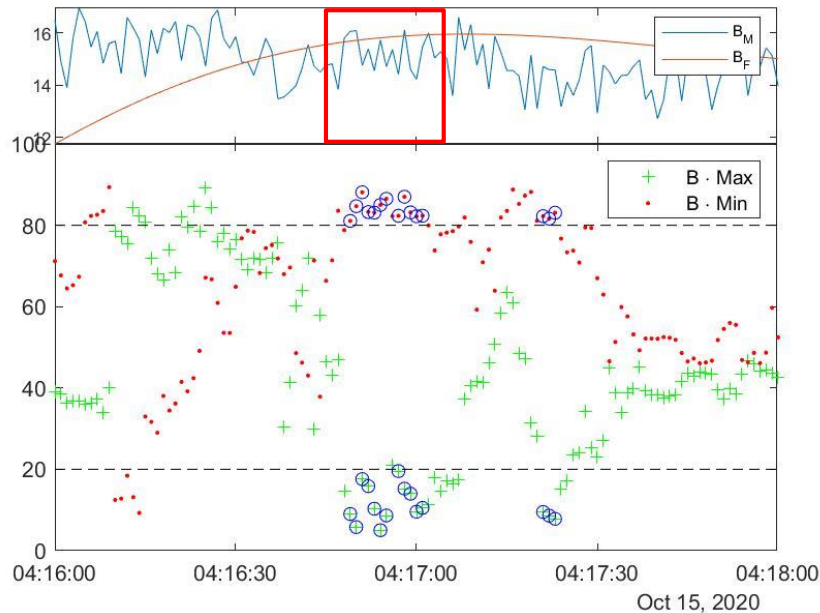
Lucek-method:

$\text{Angle}(B, \text{maxvar}) < 20^\circ$

$\text{Angle}(B, \text{minvar}) > 80^\circ$



ZOOM-IN ON POSSIBLE MMS



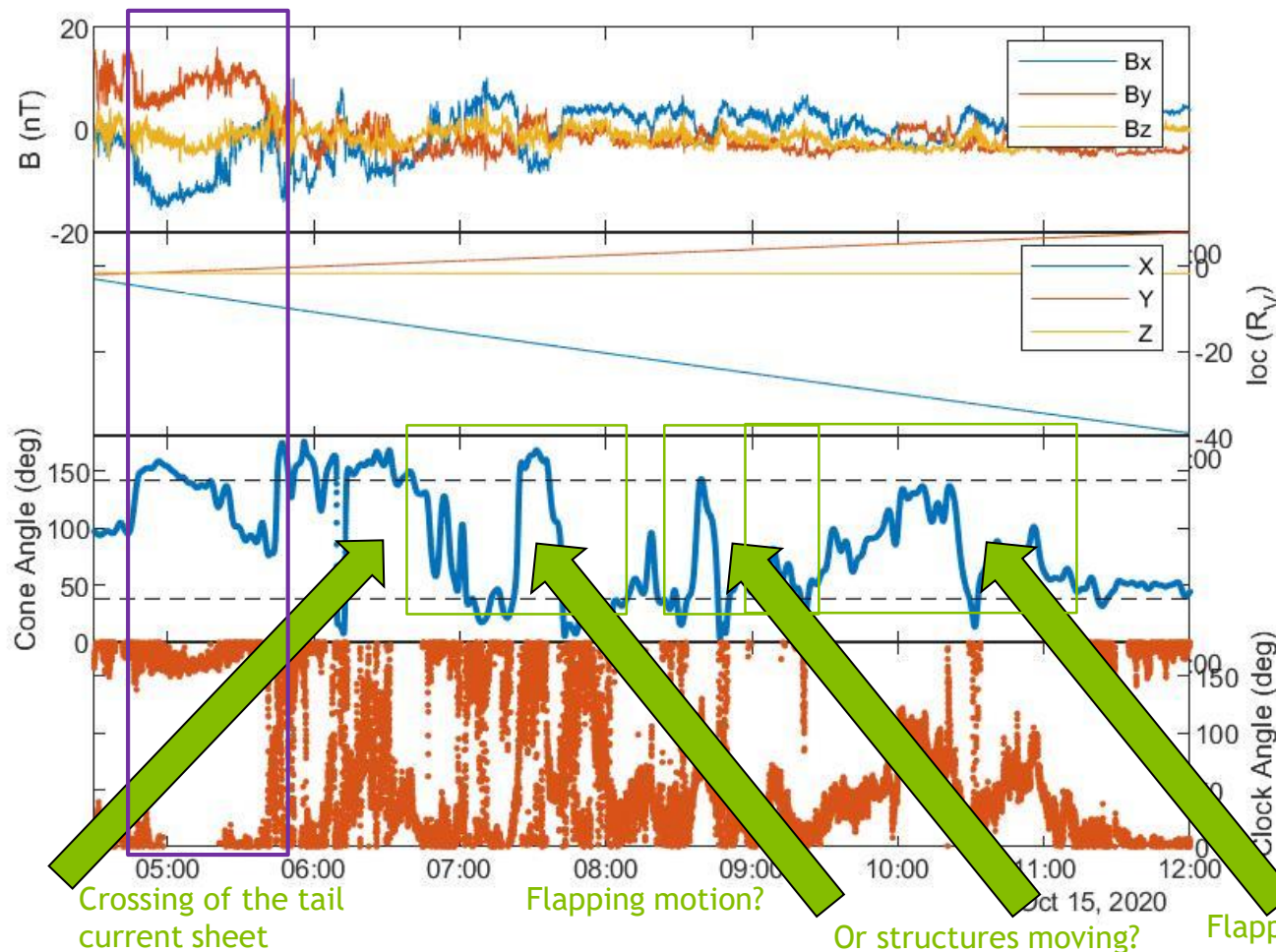
Clearly, the background field is not well determined in the left panel.

Need some more work.

6 dips in 20 sec \rightarrow much shorter than in Volwerk et al. [2008]

$\Delta B/B$ is small too $\sim 2/16 \ll 0.5$ that we usually choose

SHAPE OF THE TAIL



The cone and clock angle can be used to get an impression of the tail structure assuming a simple draped magnetic field model.