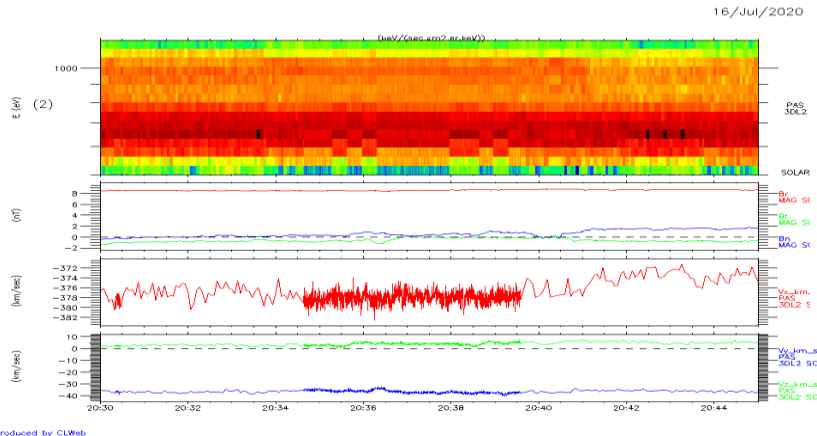
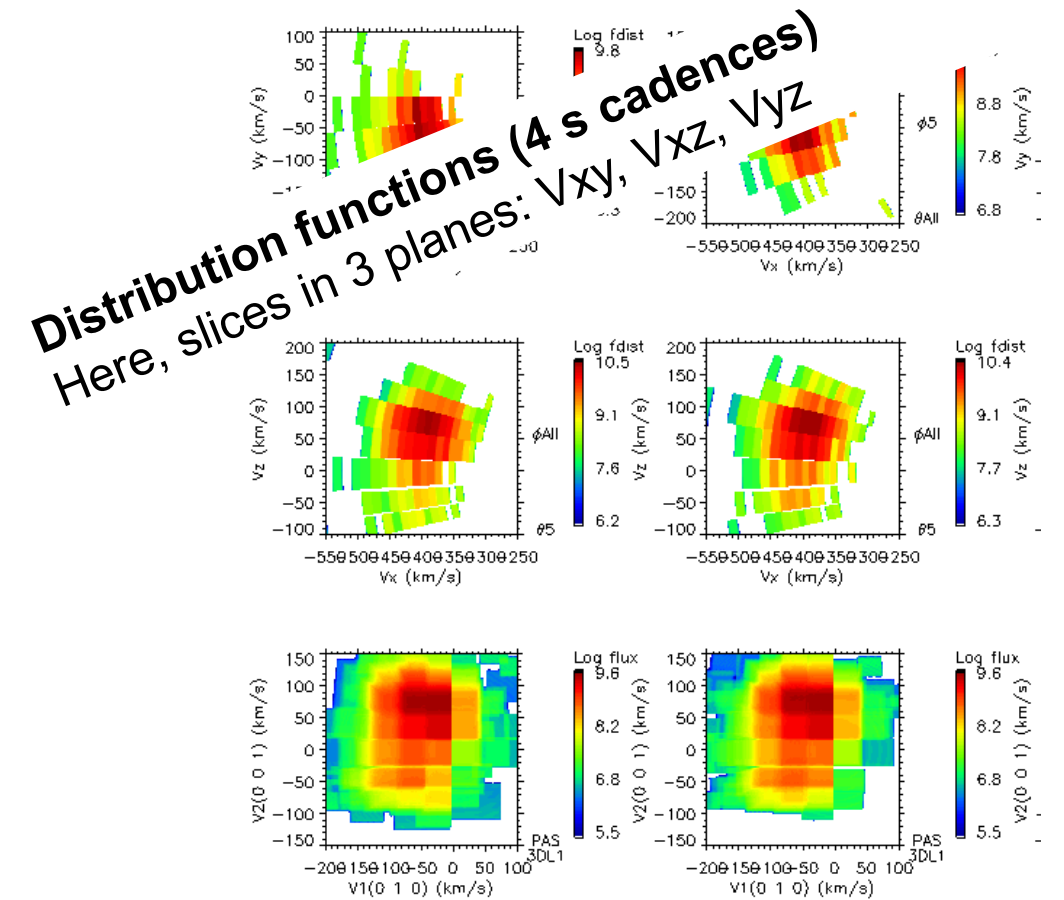
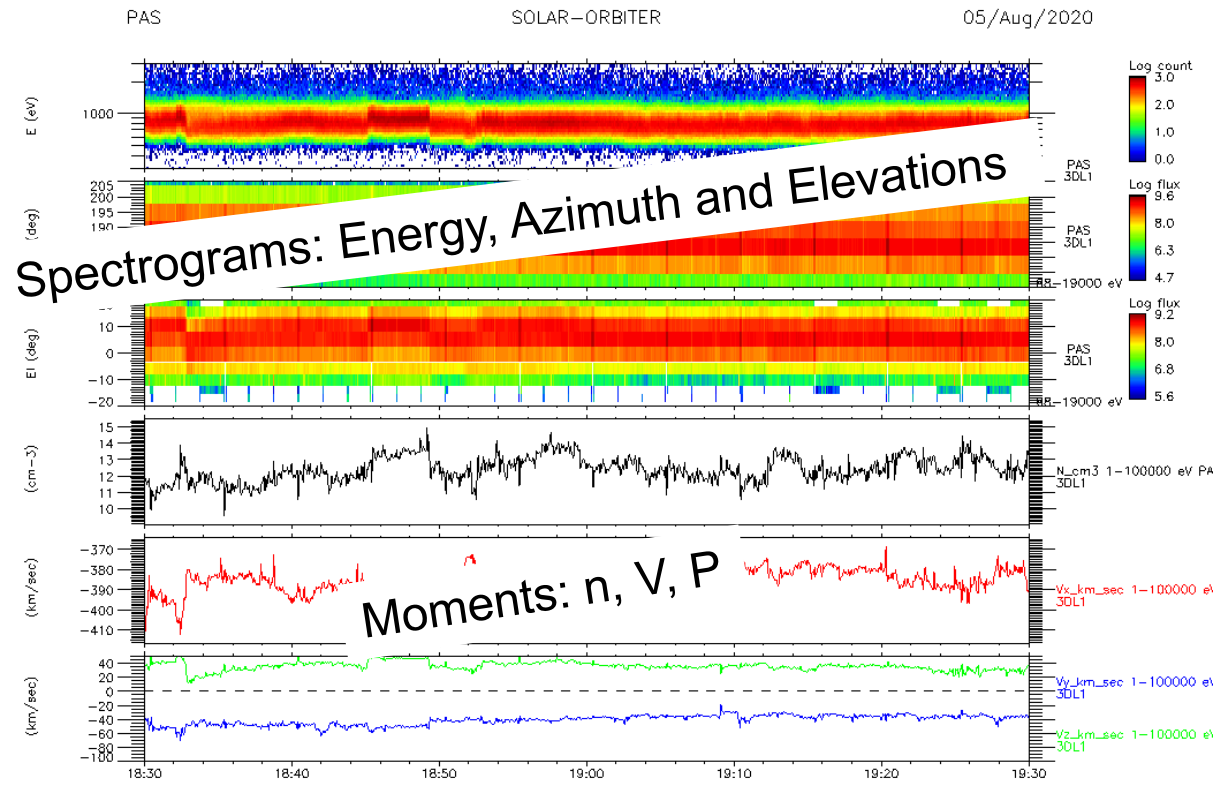


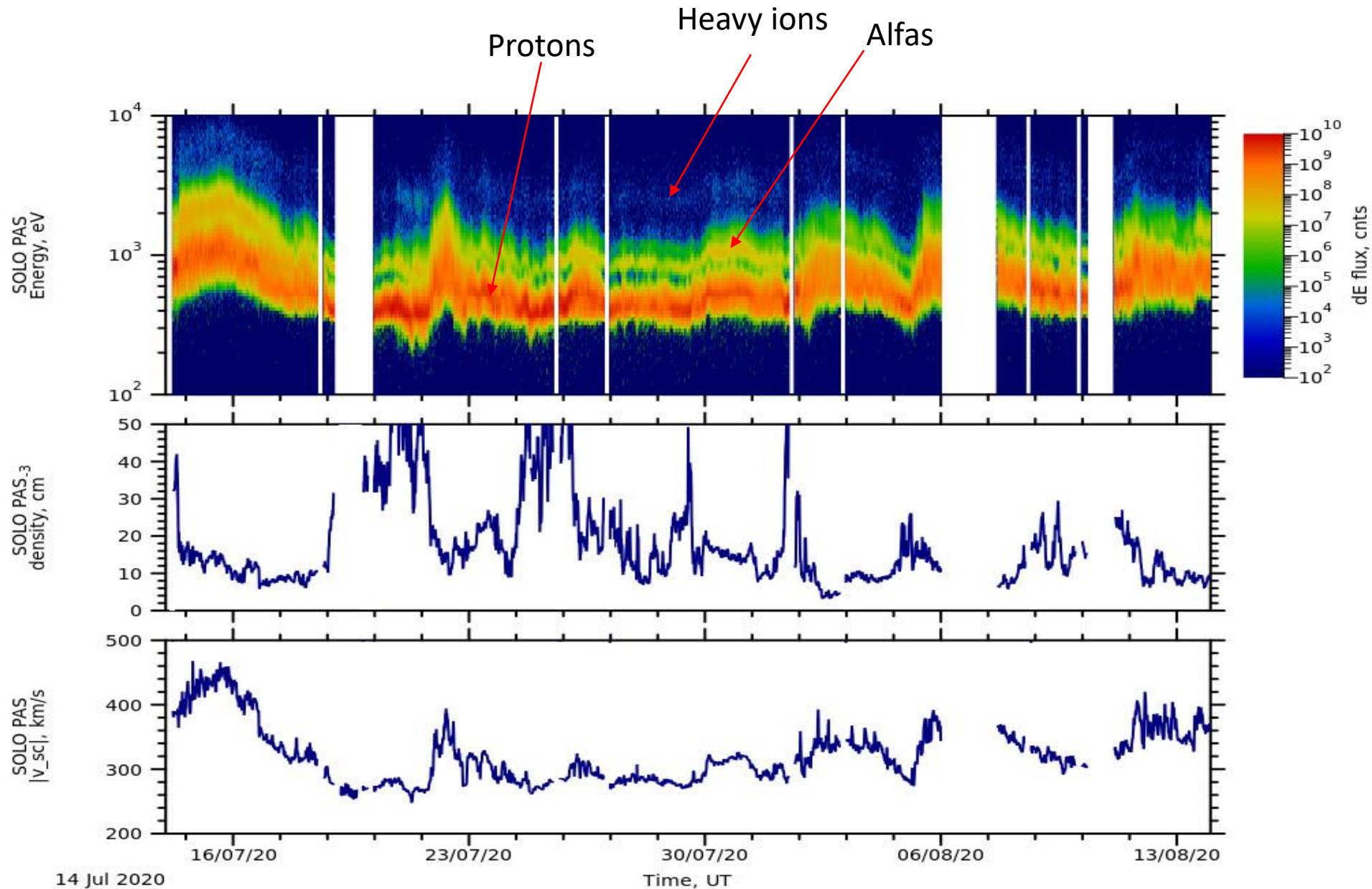
PAS/SWA – First 3 months... some examples of nice observations



Thanks to others (esp. MAG) for sharing observations.

ONLY WORK IN PROGRESS (not yet AGU ...)

FROM LARGE to SMALL SCALES. First month of PAS/SWA observation.



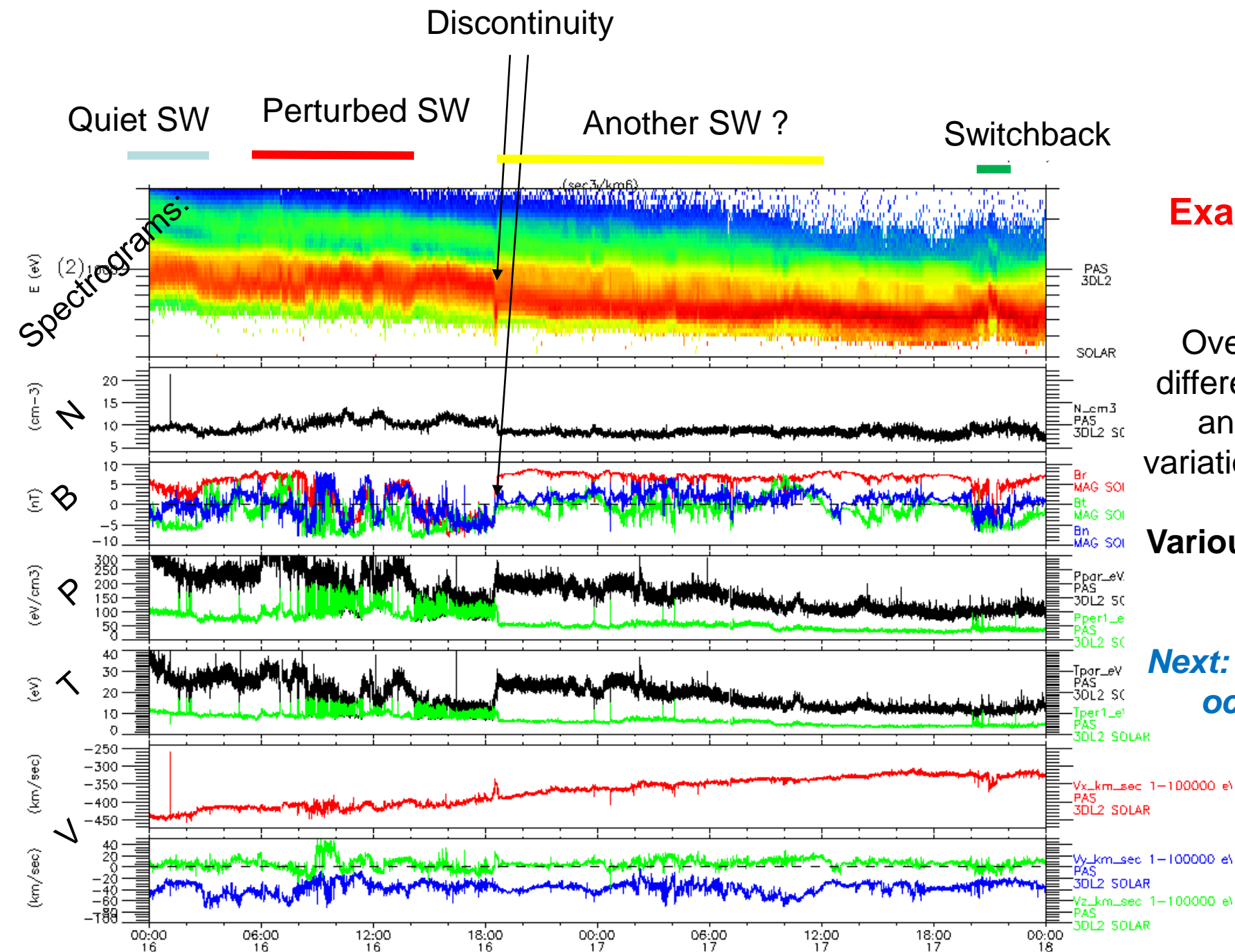
From 14/07 to 15/08

Mostly 'slow' wind. A few CIR.

Basically, PAS provides the continuous survey that is needed for the 'connexion' science.

But, can also perform very detailed measurements for 'plasma physics' topics.

Produced by AMDA/CDPP



Example of an interesting time period (July, 16-17)

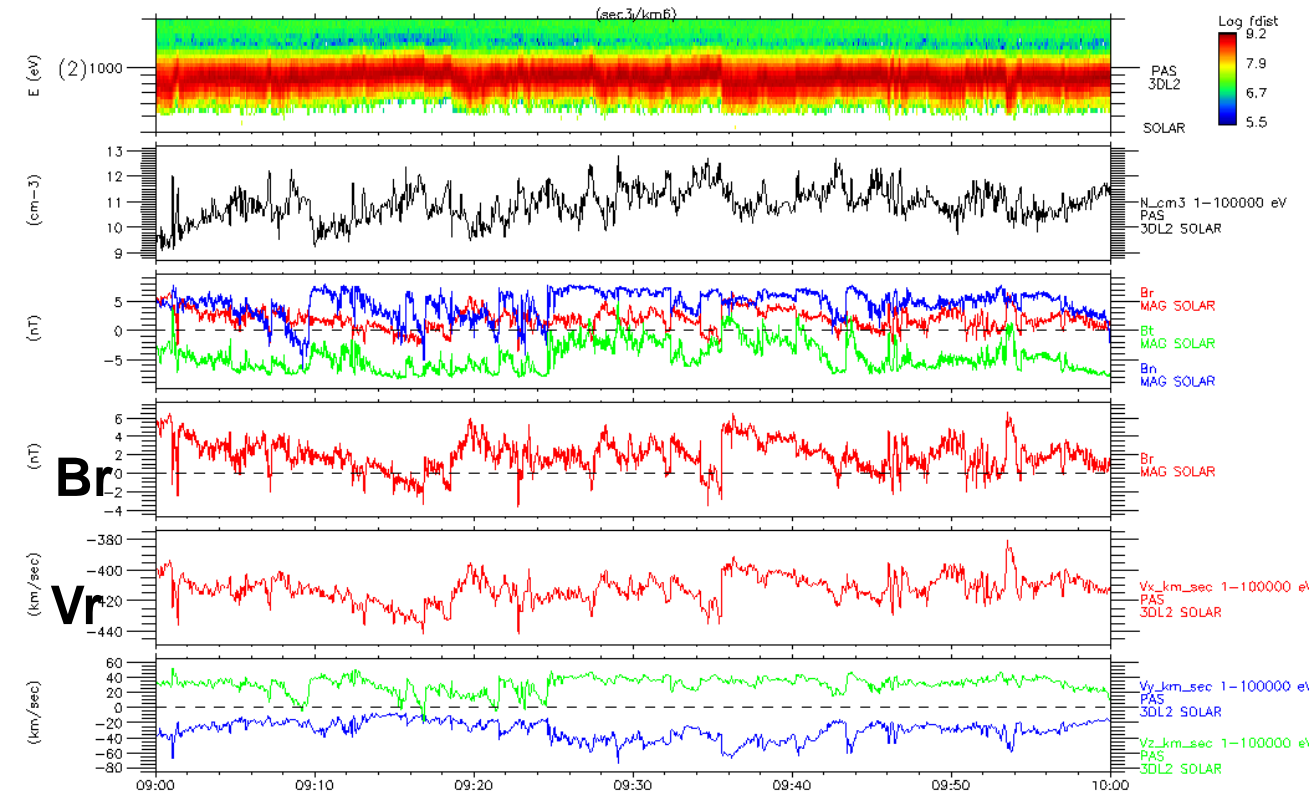
Over ~ 50 hours, crossing of quite different solar winds, although velocity and density show only moderate variations: ~ 400+/- 50 km/s; ~8 +/- 2 cc

Various forms of quiet and disturbed solar winds

Next: view of interesting phenomena occurring during these 2 days.

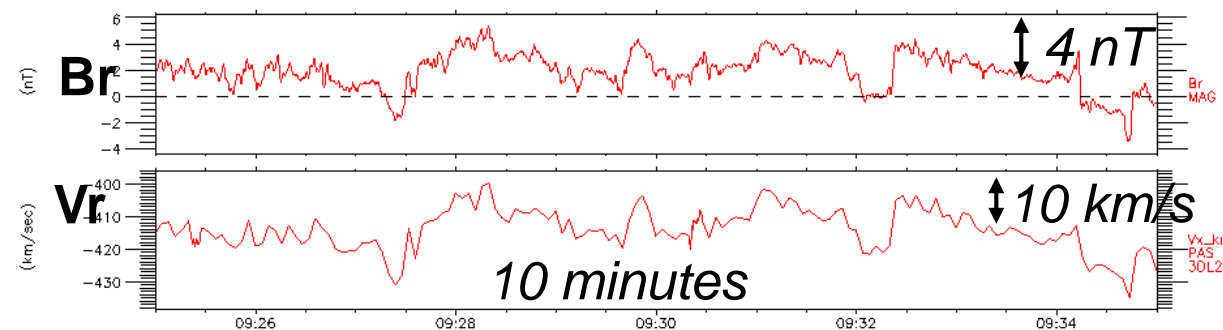
1 hour

16/Jul/2020

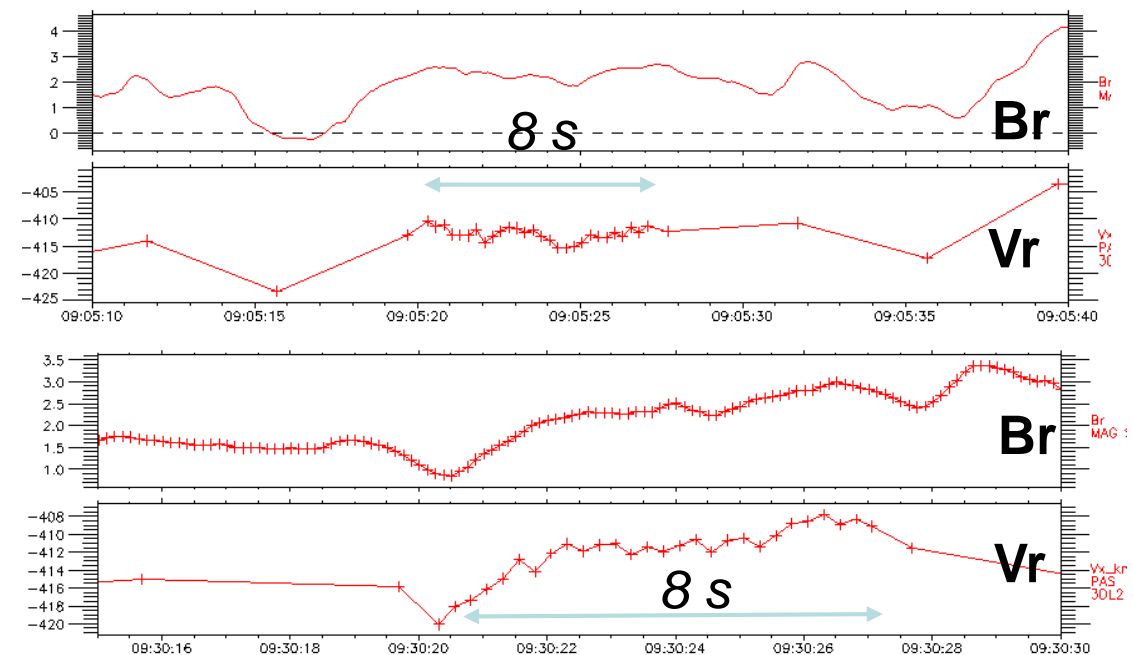


Amazing B-V similarities, not only for 'gentle' linear perturbations...

Actually: $\delta B/B_0 \sim \delta V/V_a$ ($B_0 \sim 7.5$ nT; $V_a \sim 55$ km/s)



Perturbed SW: What does 'Alfvenicity' mean ?
(not necessarily the correct term...)



Still there during snapshots, at sub-second resolution
Down to the dissipation range ($V_{sw} \cdot \delta \tau \sim \rho_i$)

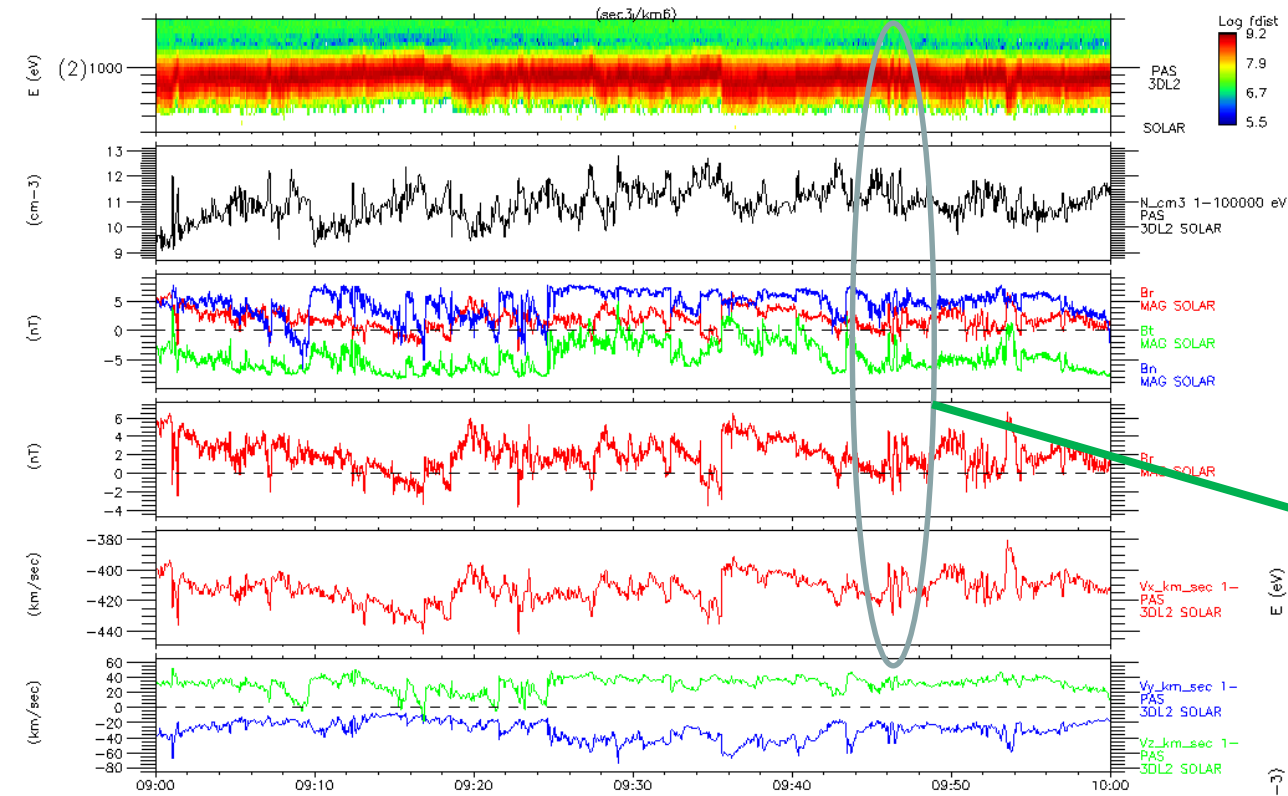
Same δB - δV relationship over several orders of scales.

Physical consequences to be analyzed but quite a **proof of PAS measurements quality !** (and MAG too...)

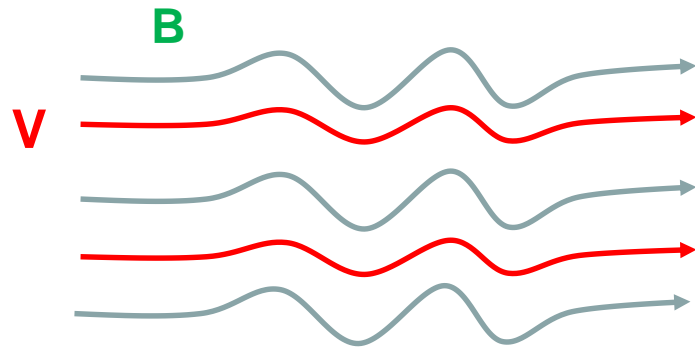
16/Jul/2020

Perturbed SW: 16/07 9:00 – 10:00

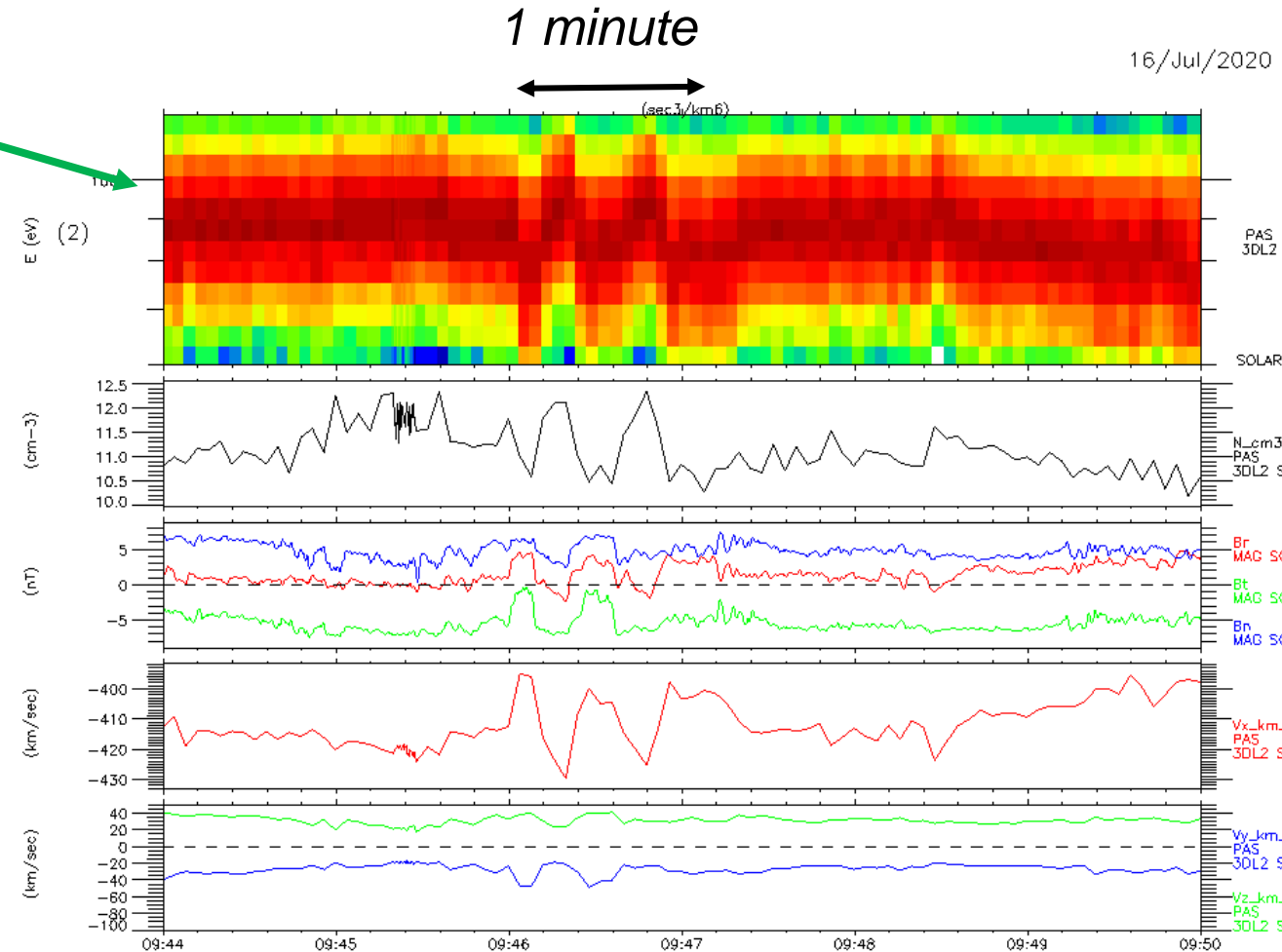
When protons and B play together !
‘Serpentine’ solar wind



Produced by CLWeb

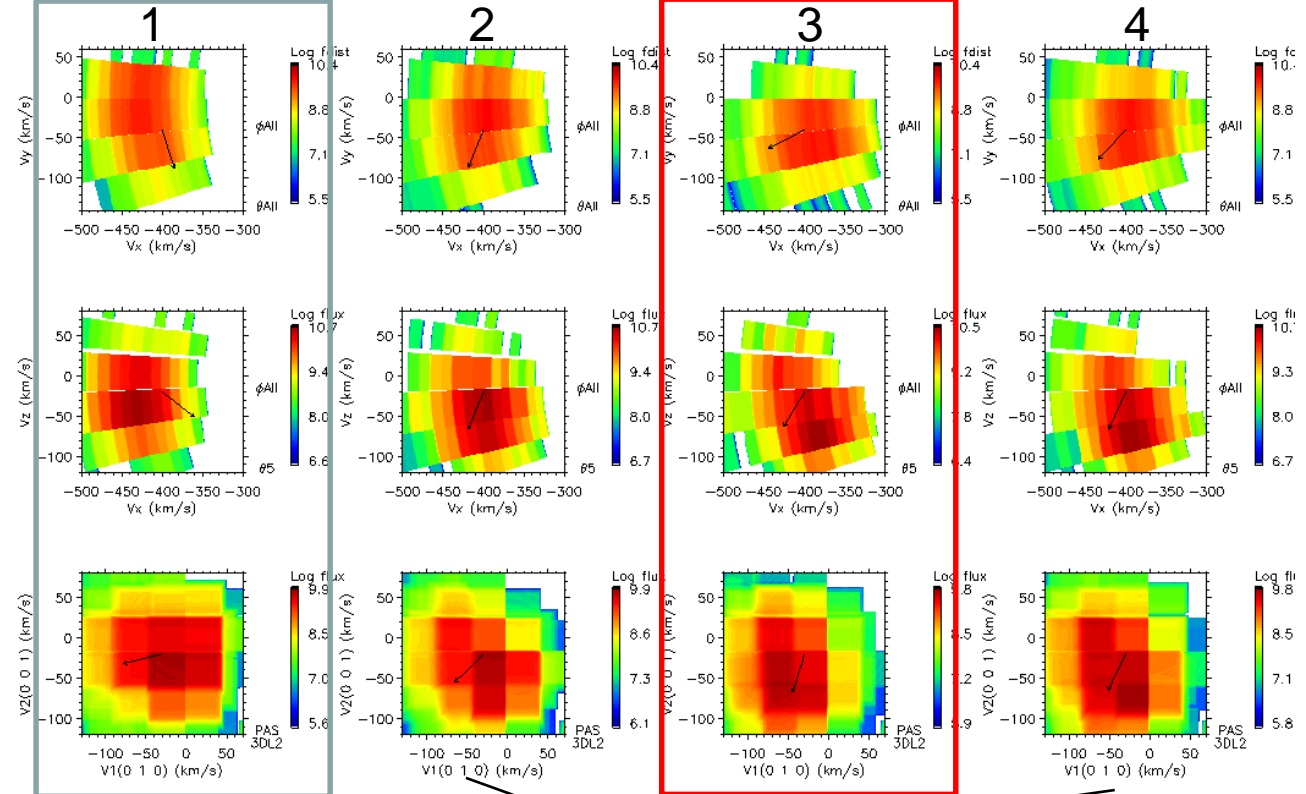


**An example of
firehose
instability ?**



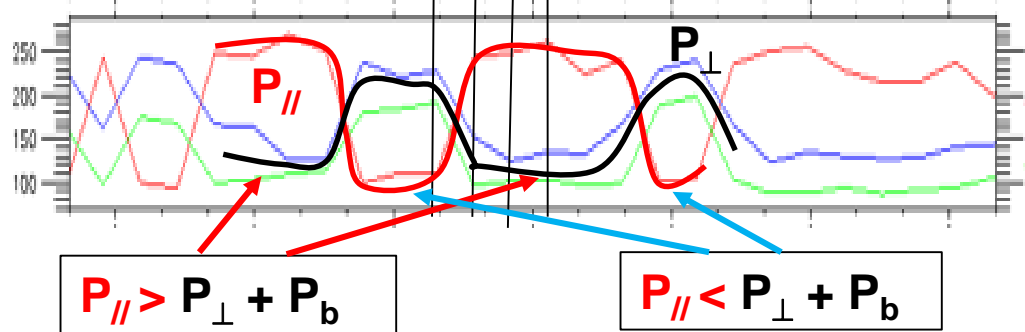
Produced by CLWeb

16/Jul/2020 09:46:19.190 16/Jul/2020 09:46:23.190 16/Jul/2020 09:46:27.190 16/Jul/2020 09:46:31.190



Produced by CLWeb

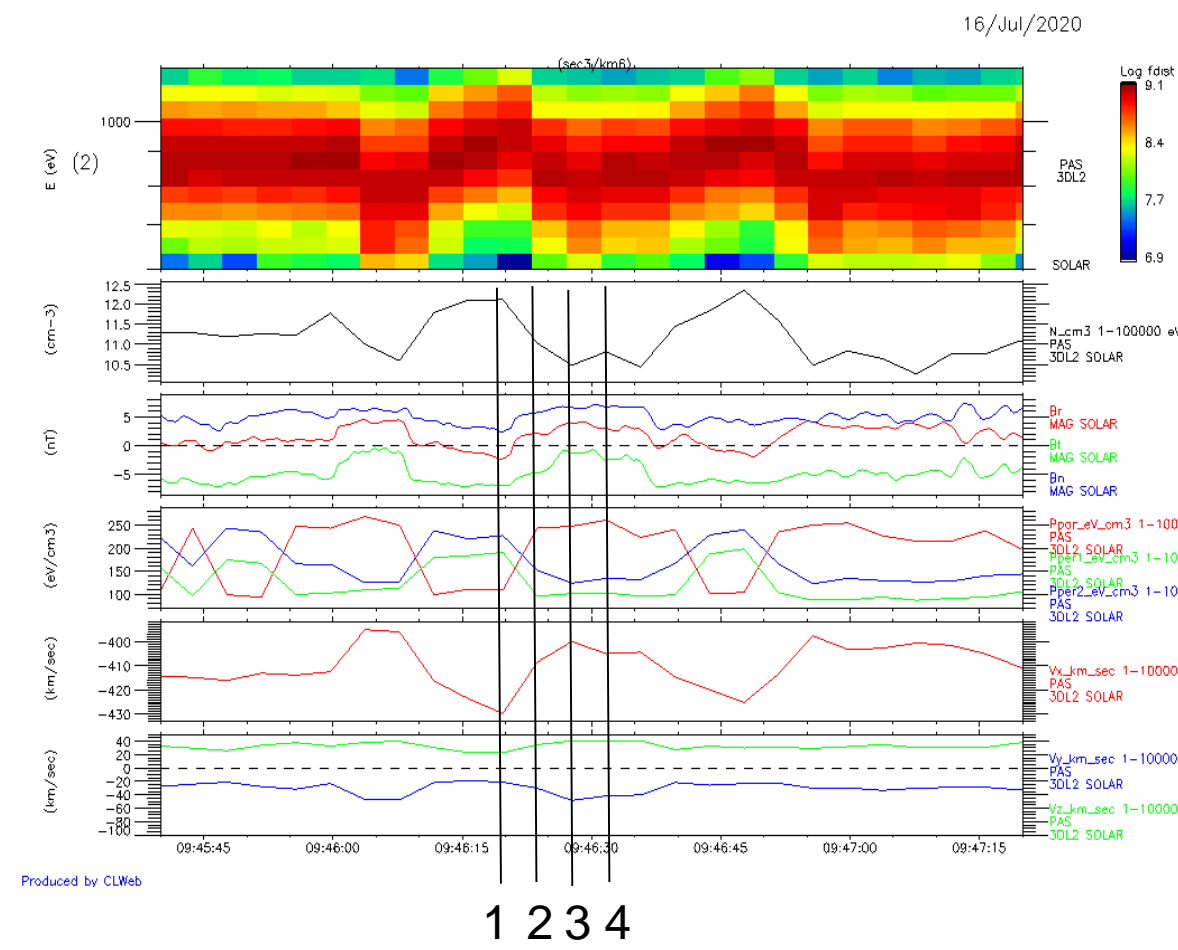
$\beta \sim 1.1$



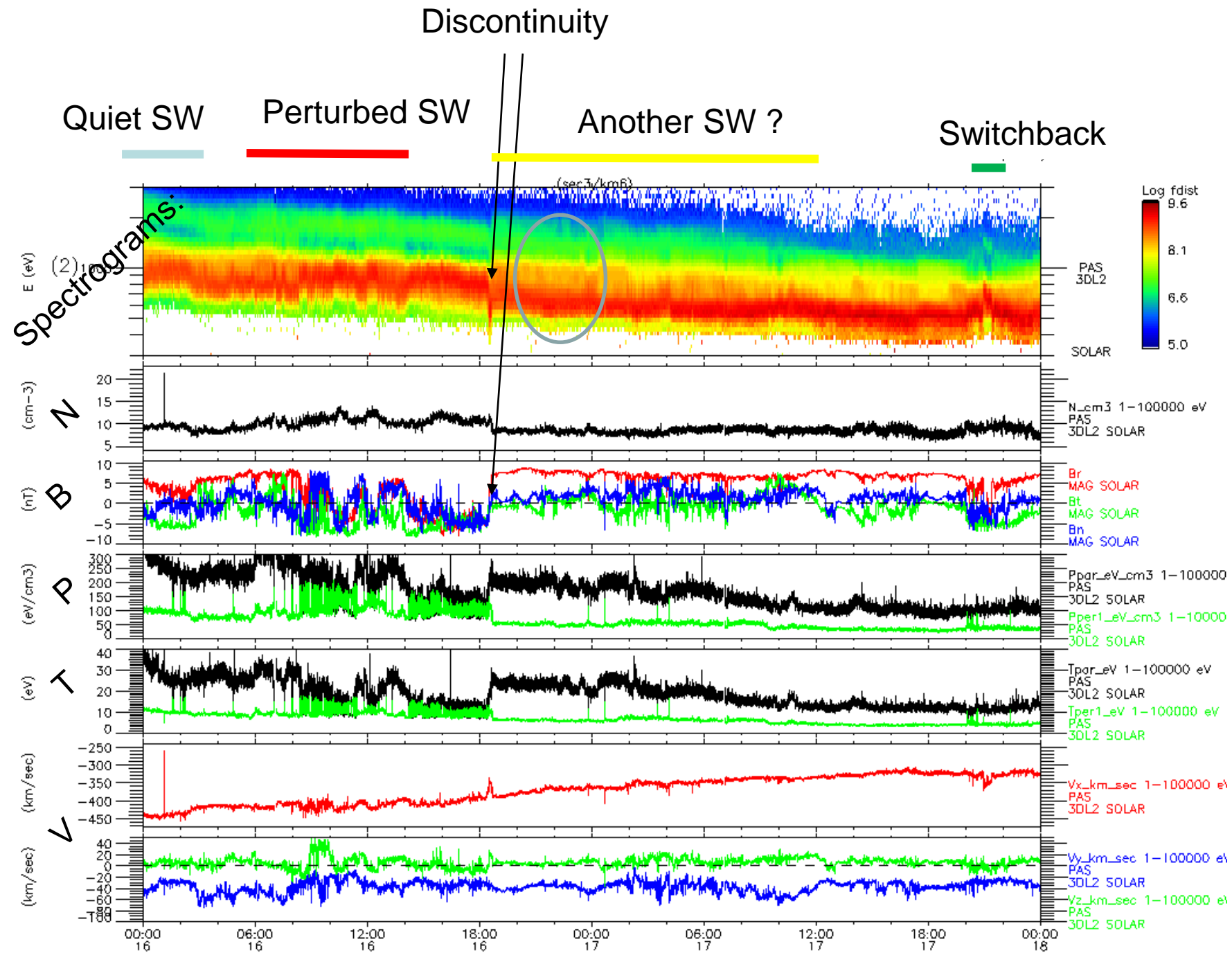
Transitions 'Firehose instable/stable' !

FIREHOSE ?

From MHD to kinetics, with details of the microscopic interactions.

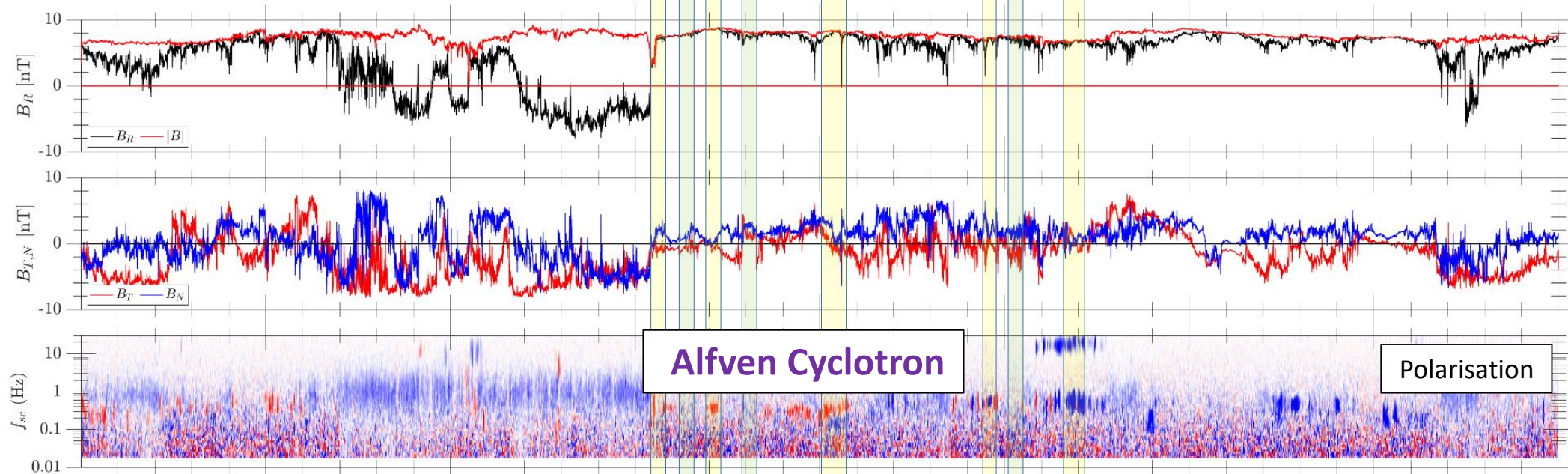


Produced by CLWeb



An interesting case of kinetically unstable solar wind

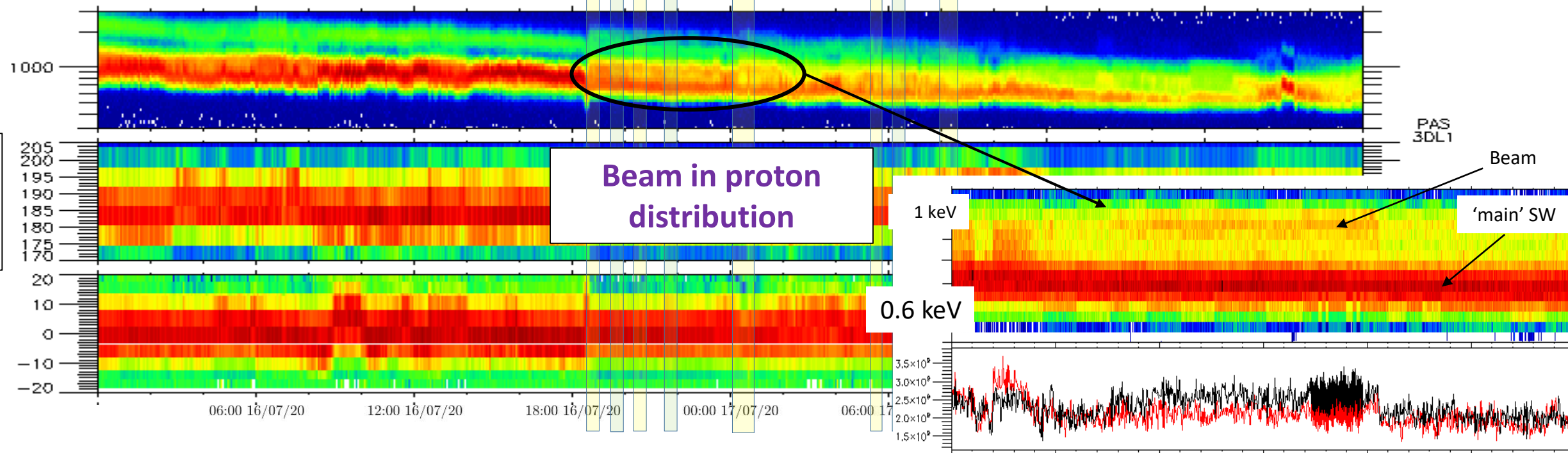
MAG



Alfvén Cyclotron

Polarisation

SWA/PAS



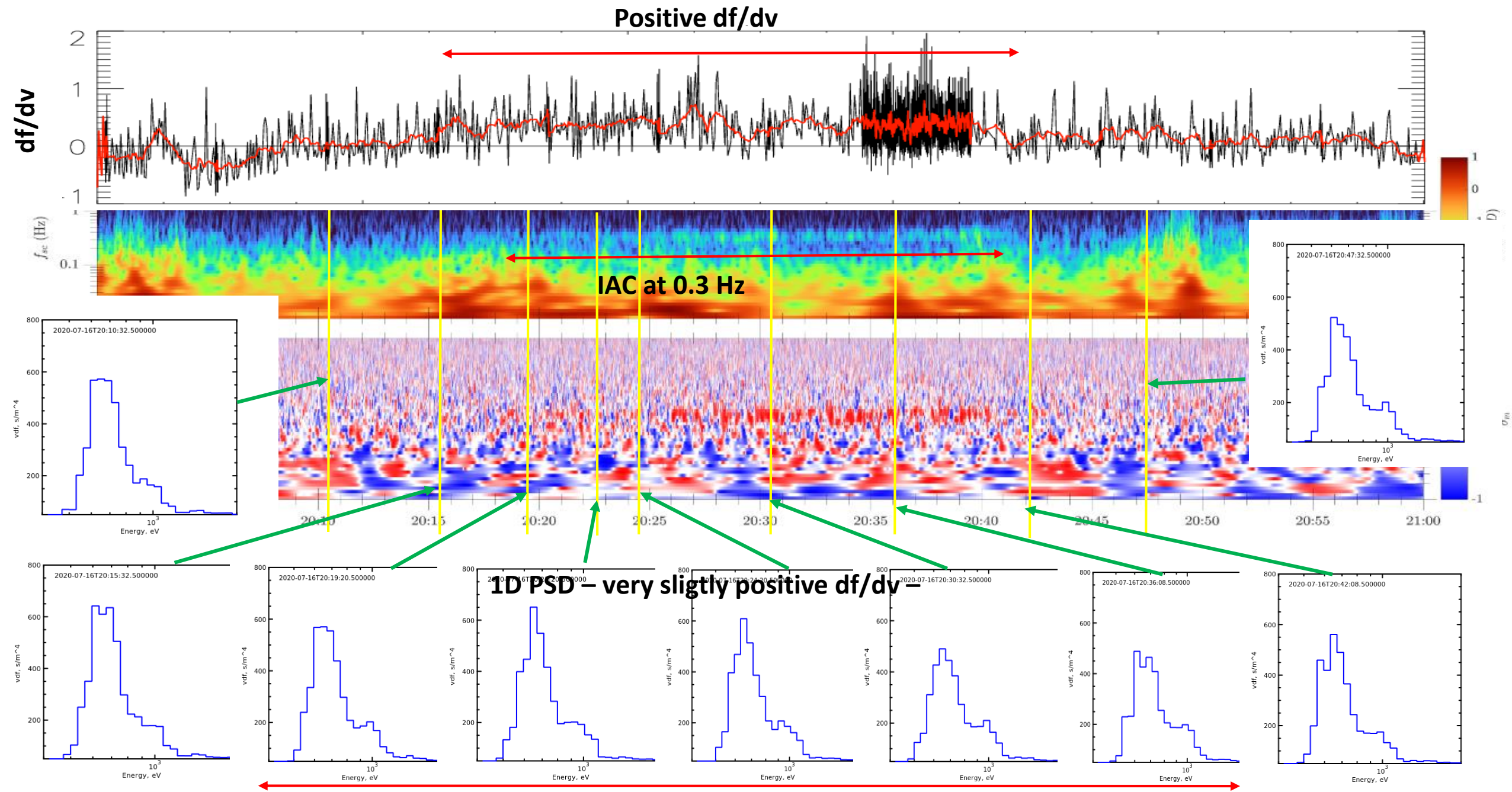
Beam in proton distribution

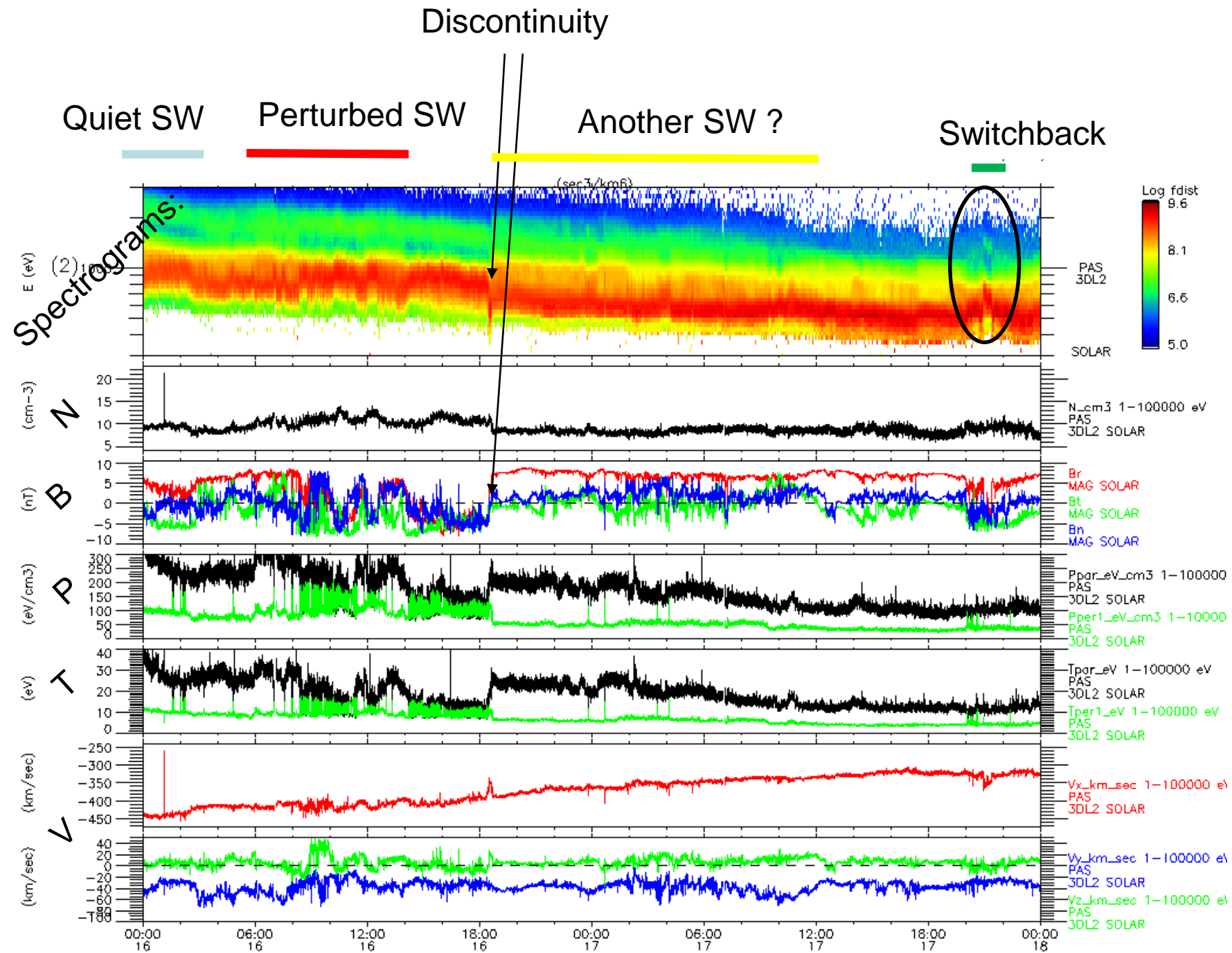
1 keV

0.6 keV

Beam

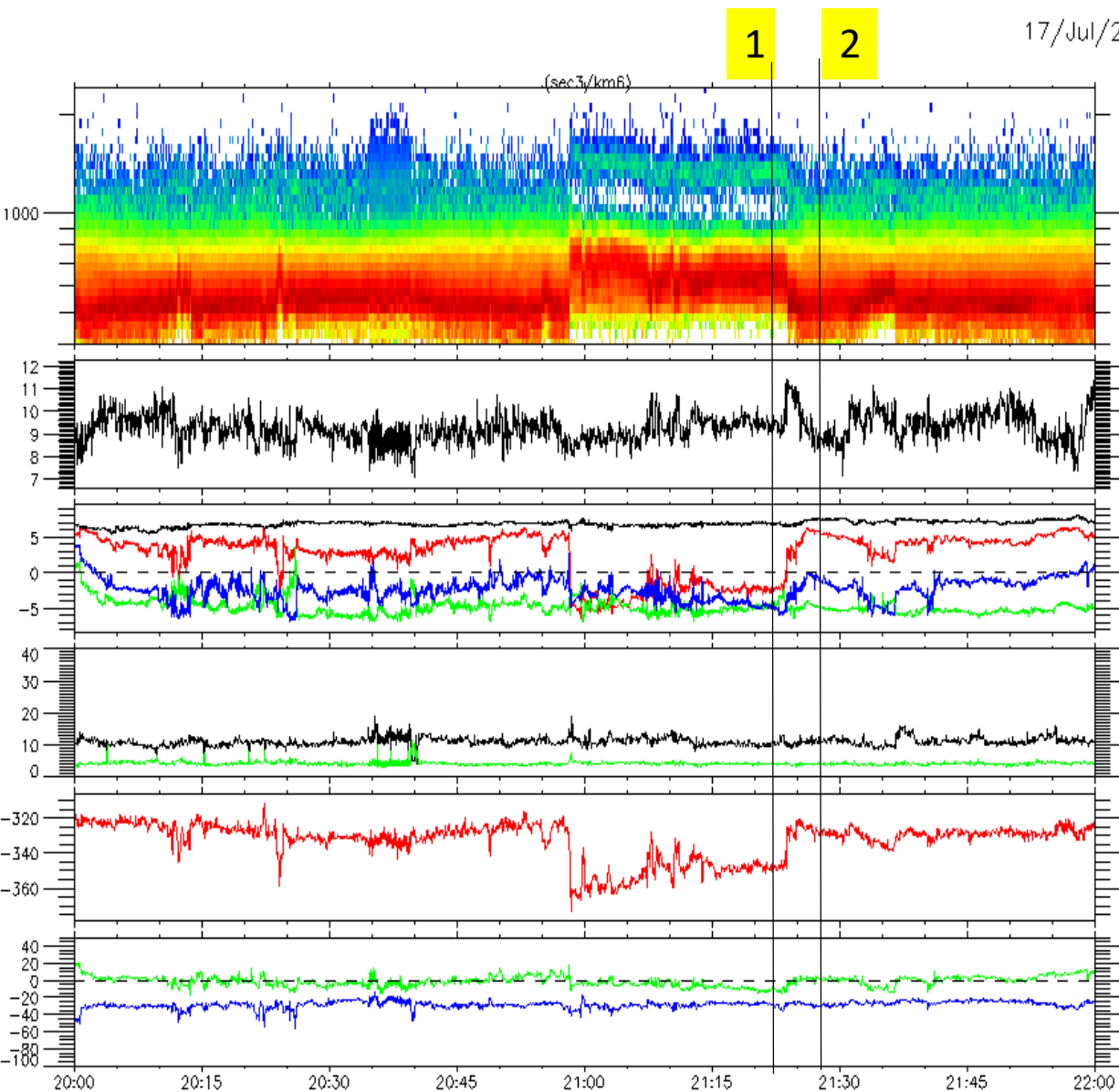
'main' SW



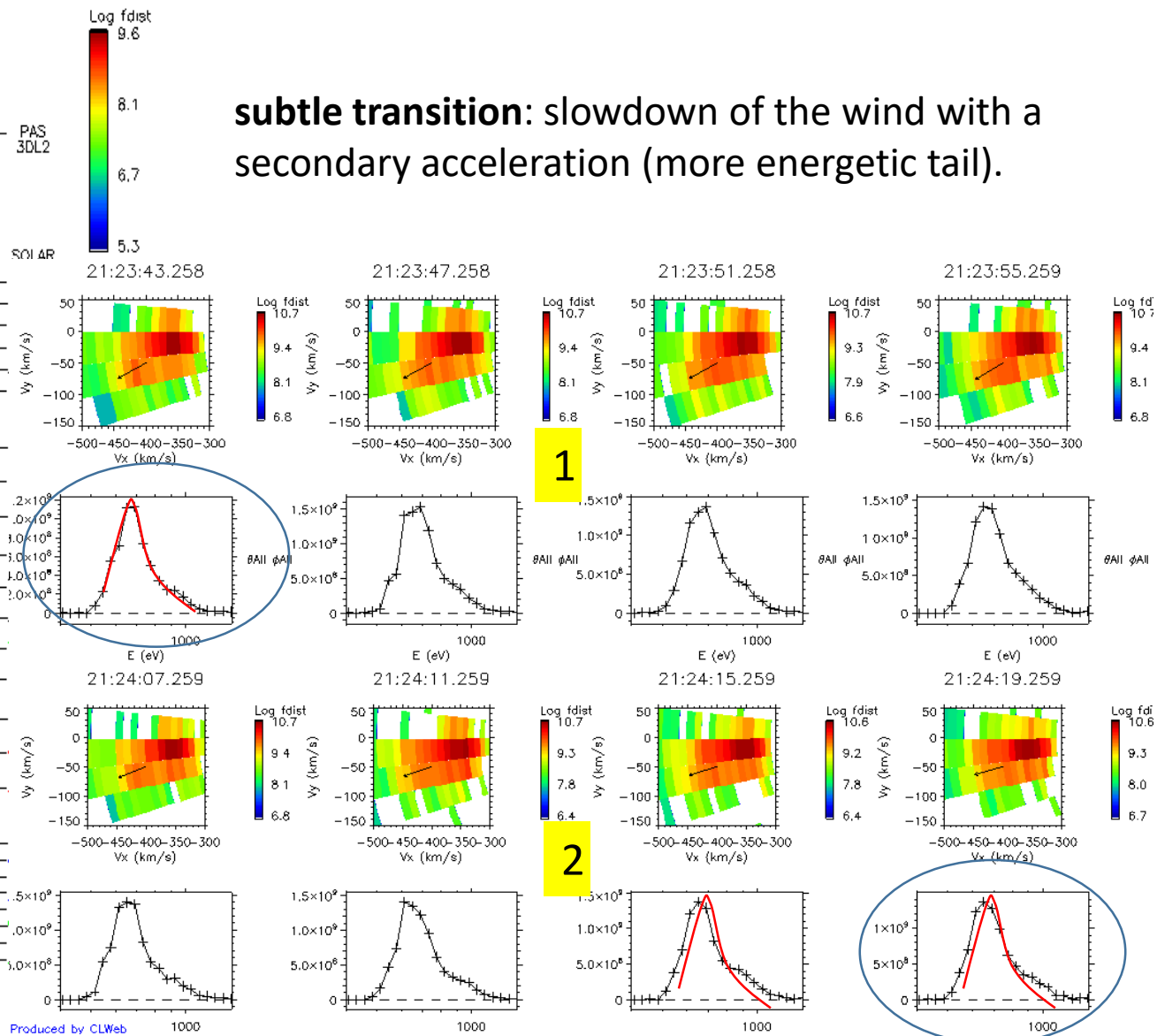


Example of a nice switchback.

17/Jul/2020



subtle transition: slowdown of the wind with a secondary acceleration (more energetic tail).



Detailed distributions

Another example of switchback.

