



# Ideas for EPD topics for publications

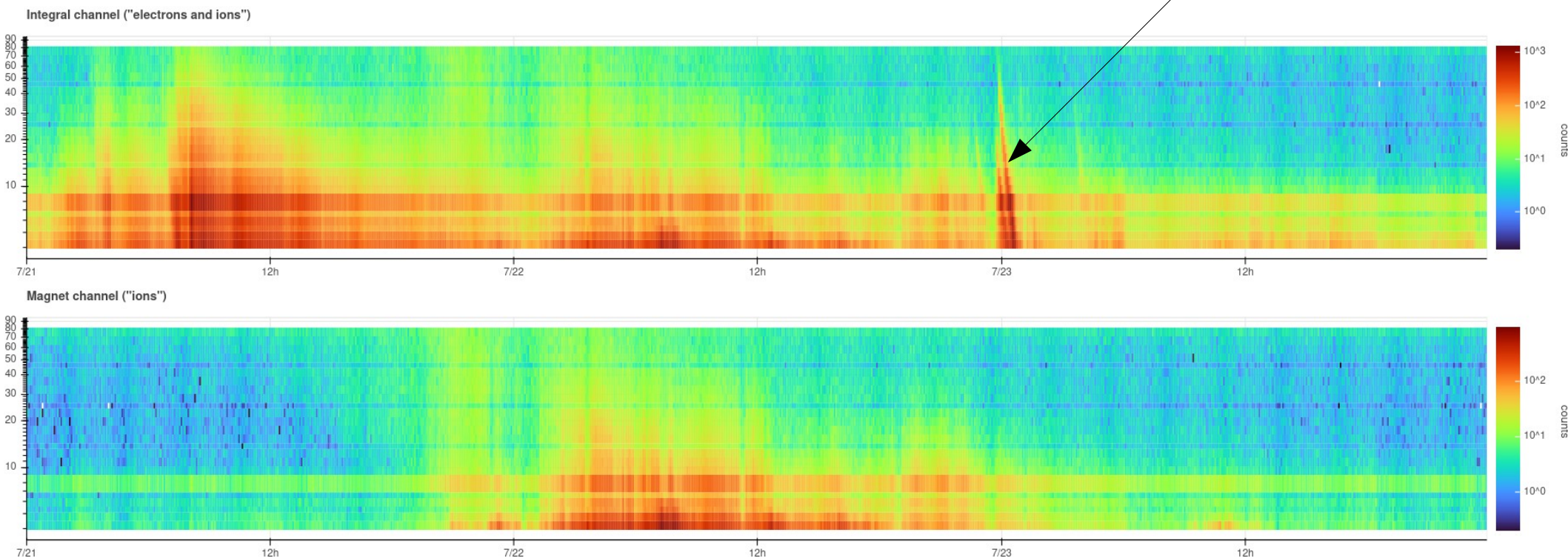
## To be discussed during the EPD telecon

- July events
  - STEP / EPT electron injections
  - SIS, STEP, & EPT ions
- Small scale activity with STEP
- March ion velocity-dispersion events with STEP
- HET GCR counter for April CME Forbush decrease
- CIRs detailed time and directional dependence
- spatio-temporal evolution of CIRs: SIS/ULEIS
- And some other interesting time periods...



# STEP data for July events: electron injections

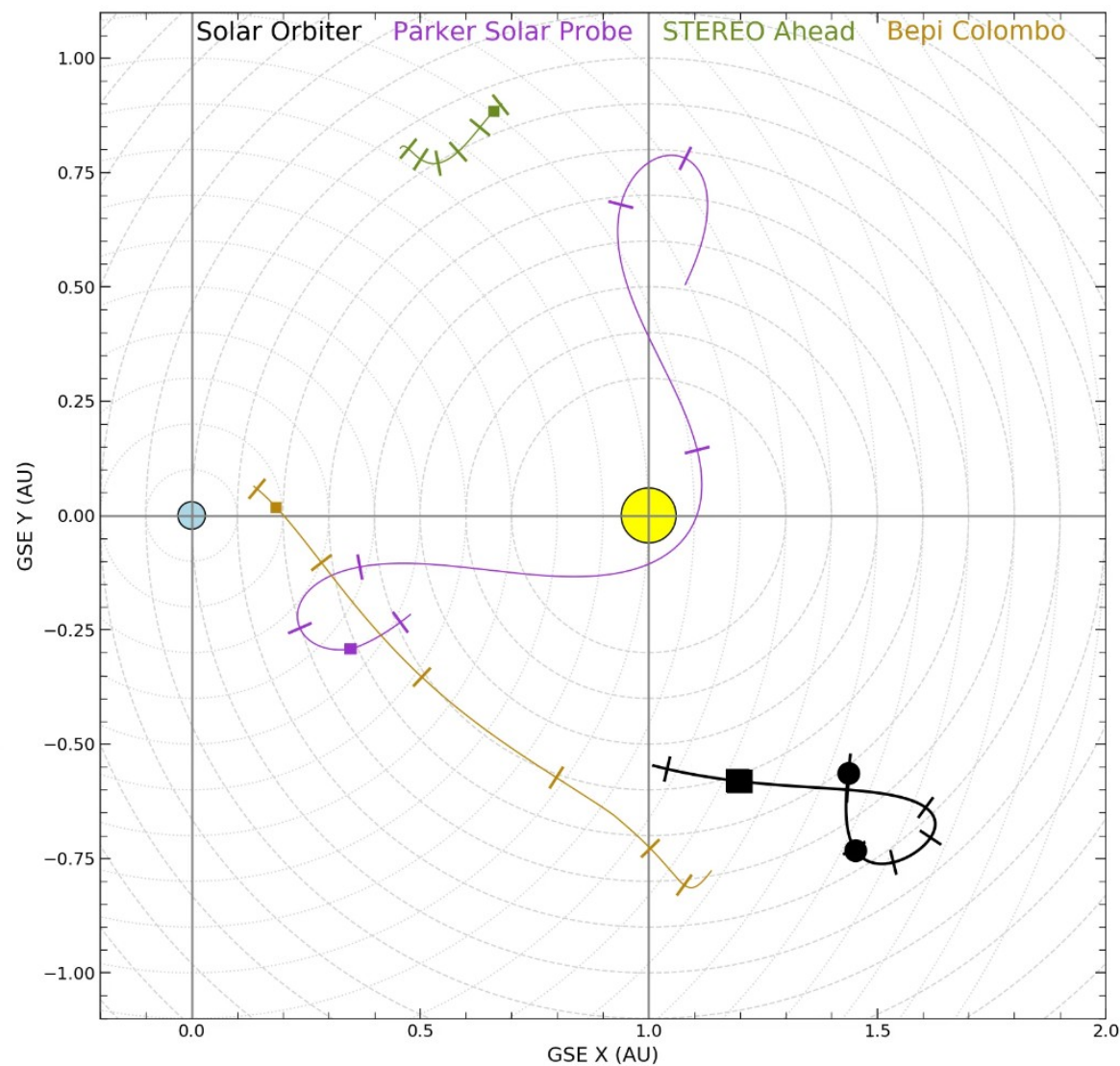
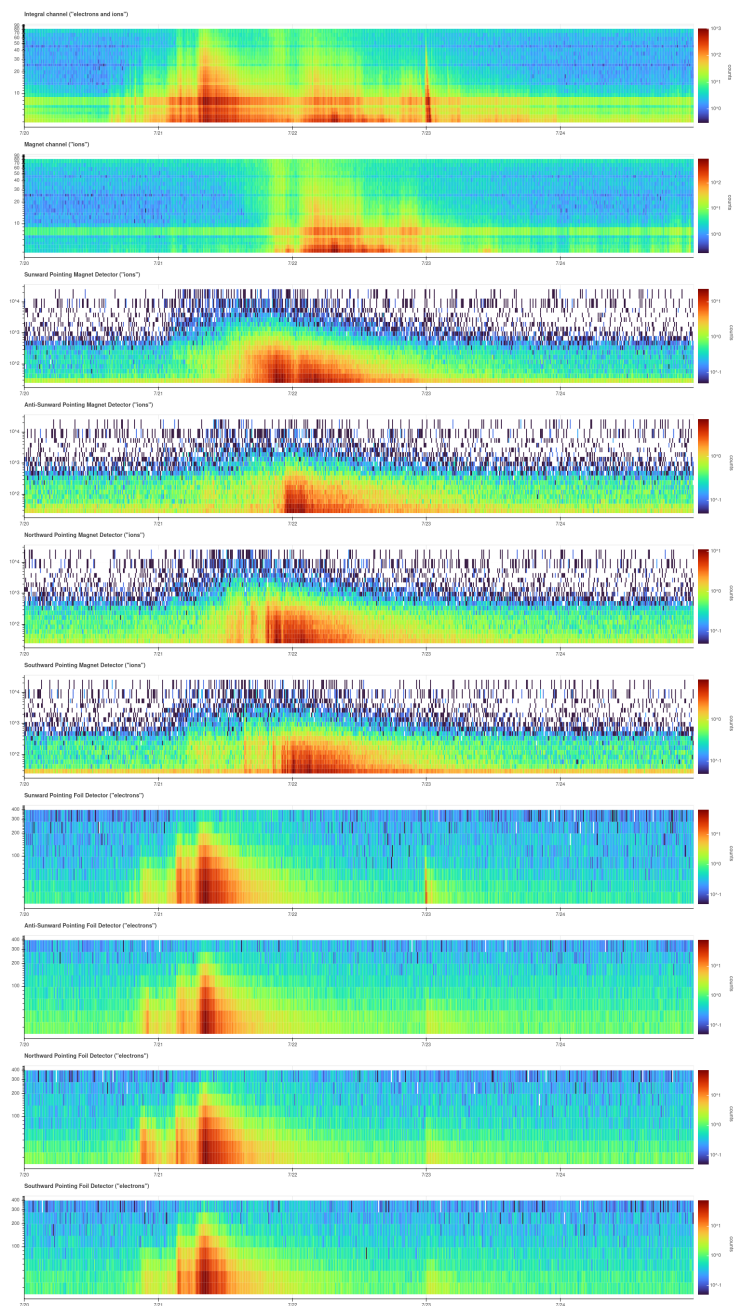
Velocity dispersion





# STEP & EPT data for July events: electron inj.

Check with PSP and Beppi



2020-09-07

IEAP/rfws

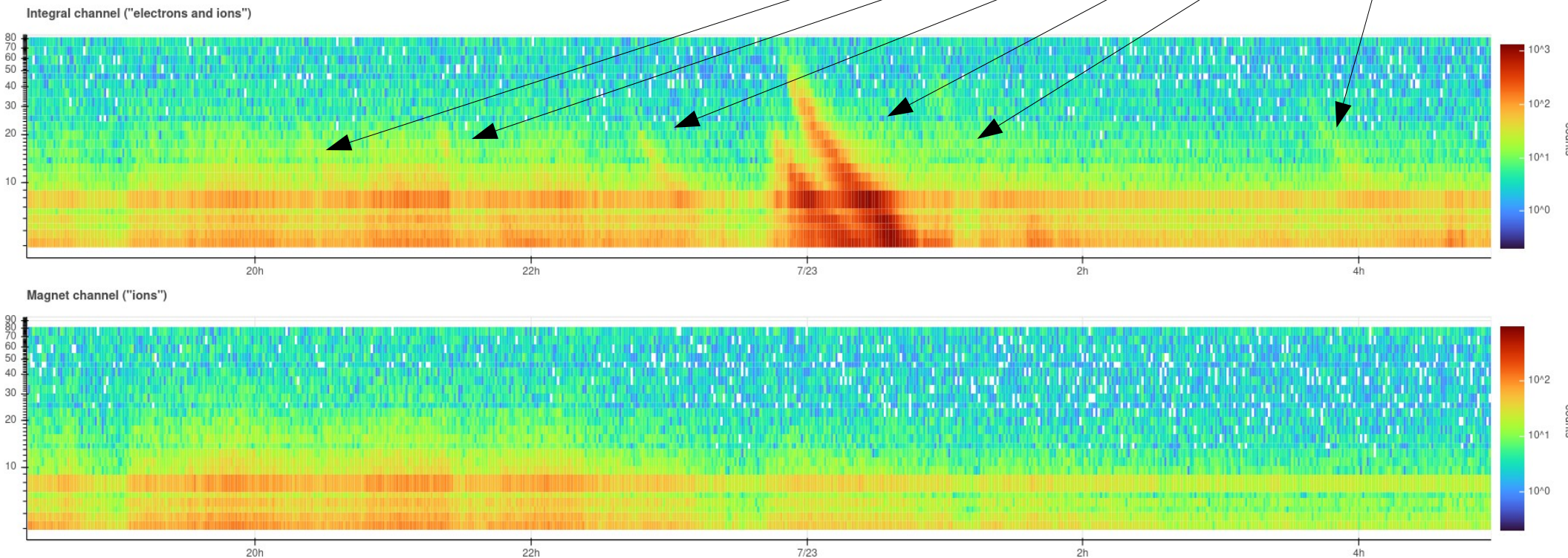
3



# Same time period with STEP 1 minute time res

No background correction made

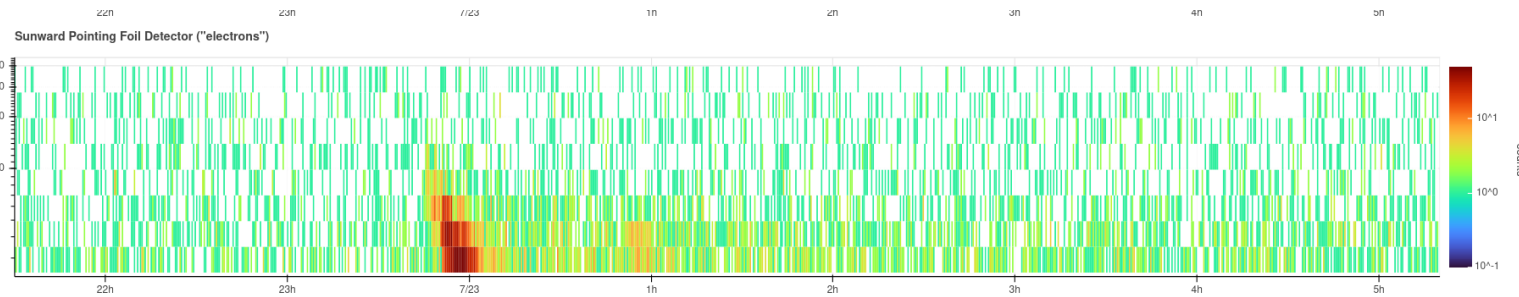
Velocity dispersion



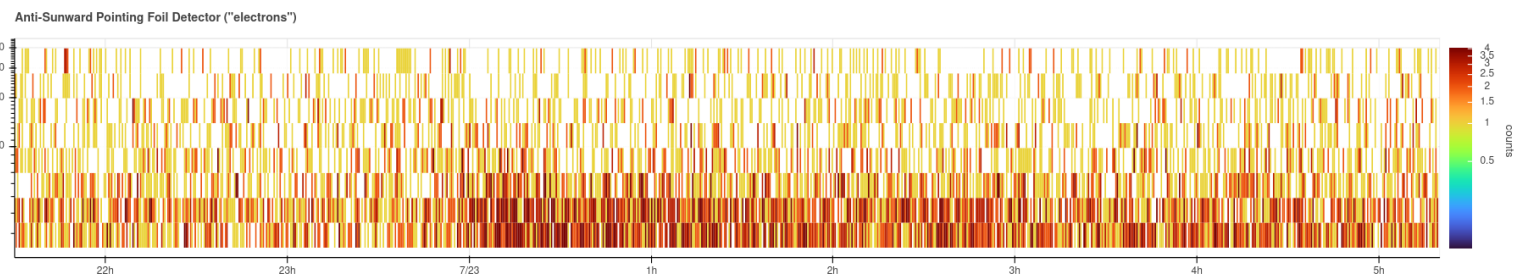
Little activity seen in ions.  
Multiple injections of electrons.



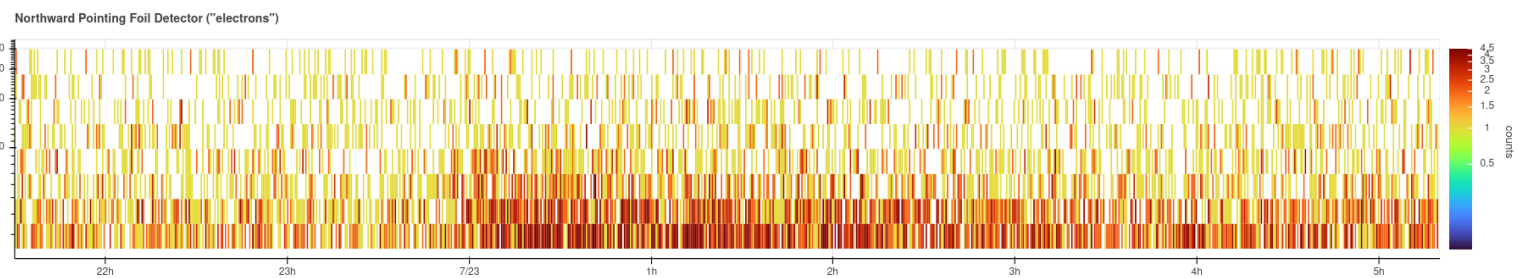
# Same time period with EPT 30 seconds time res



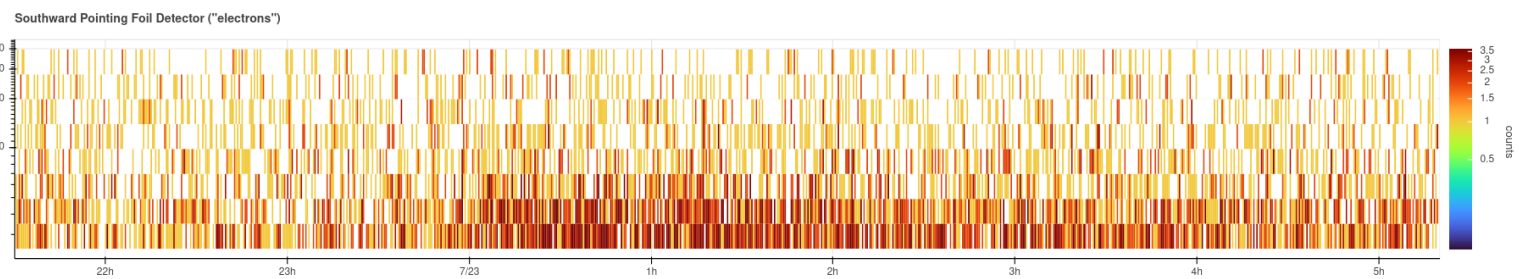
Sun (S)



Anti-Sun (A)

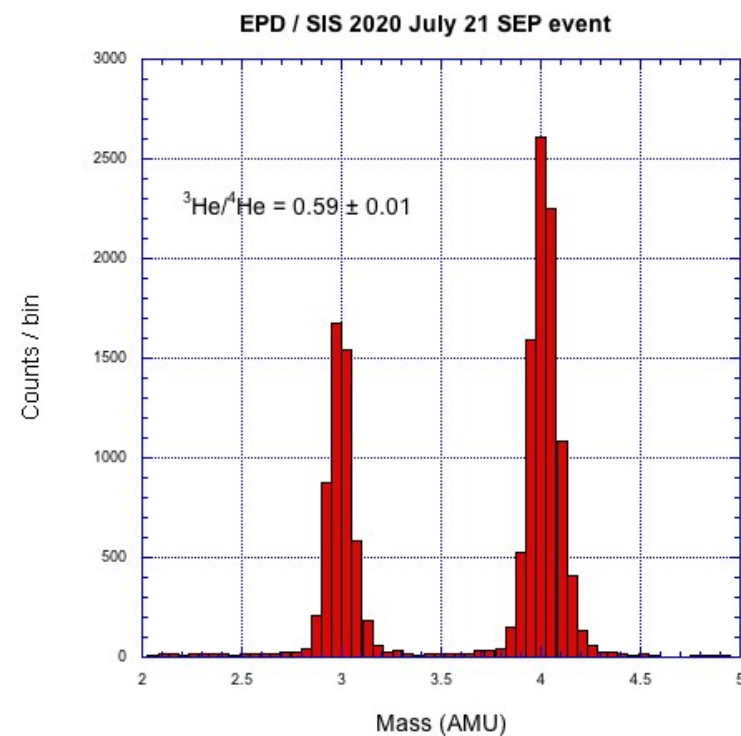
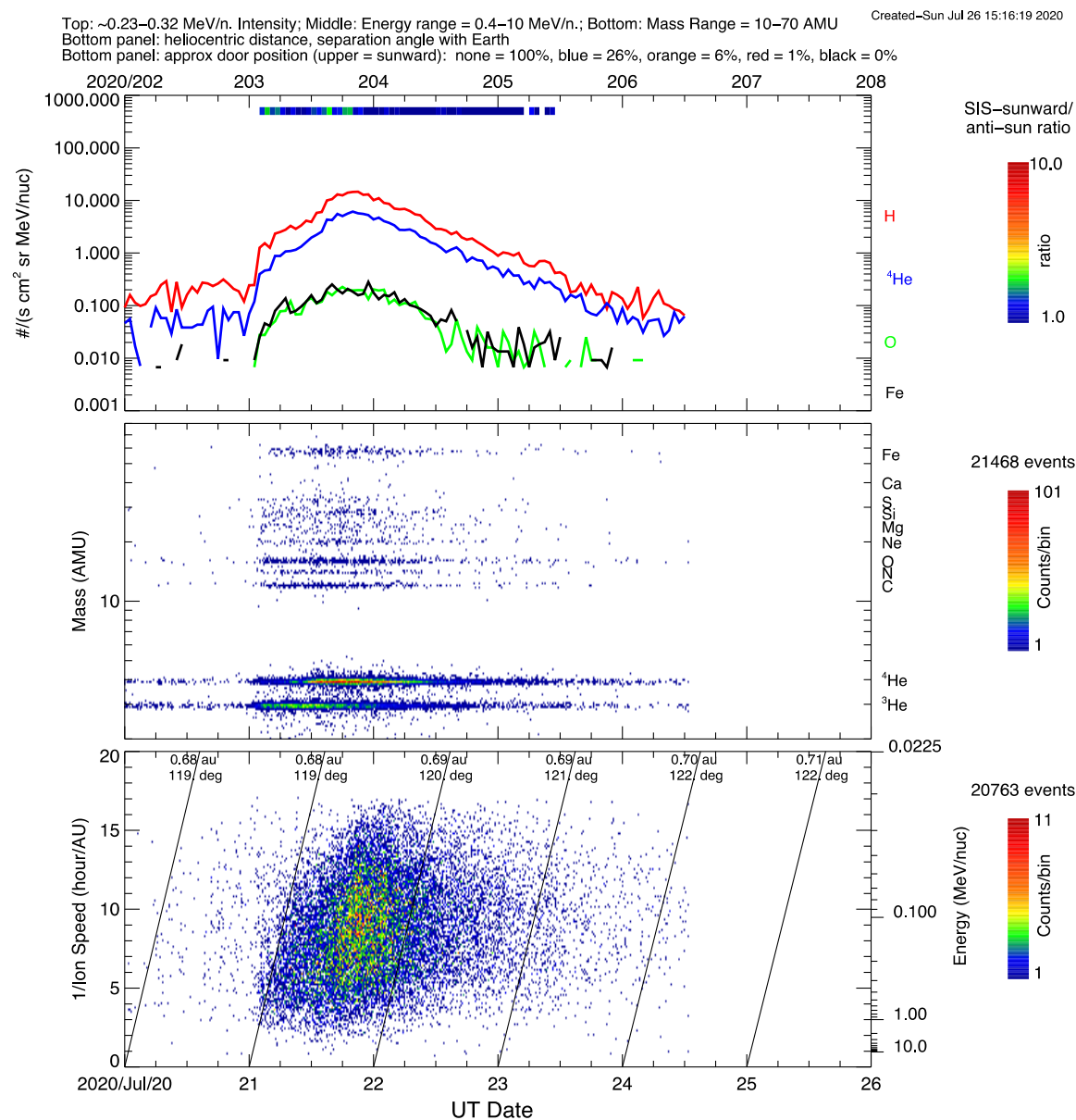


North (N)



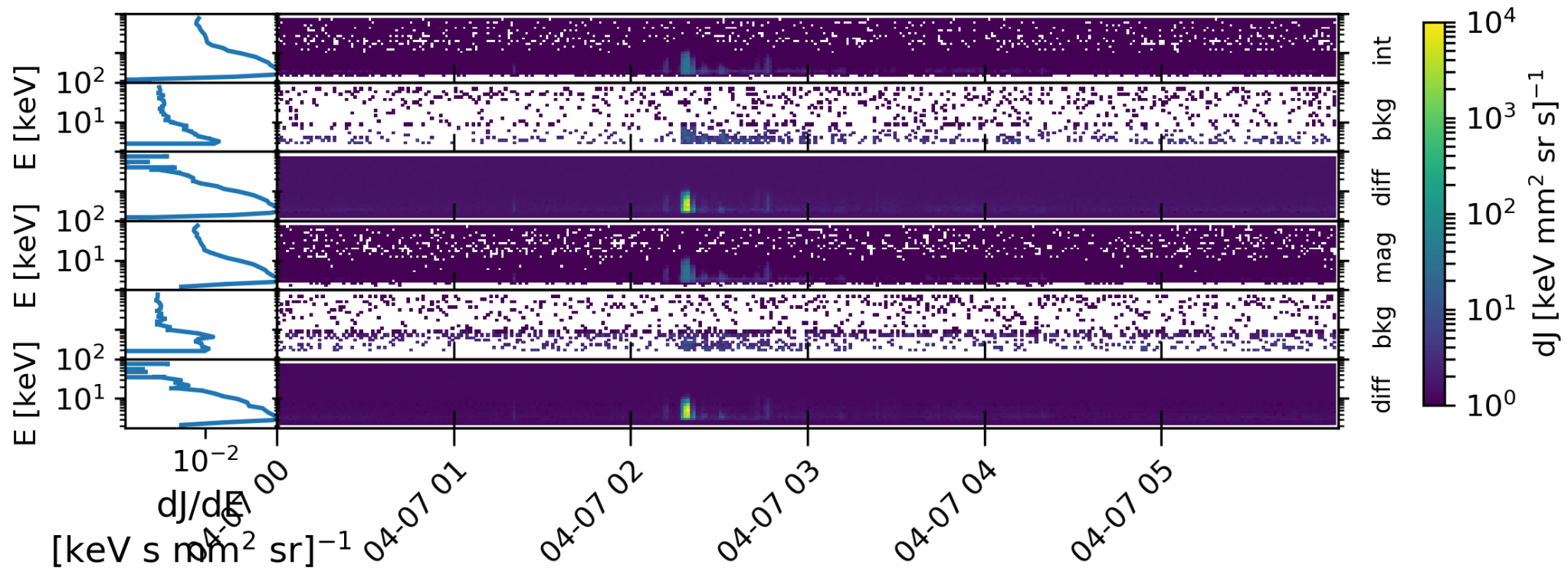
Down (D)

## Same time period with SIS: First „large“ event





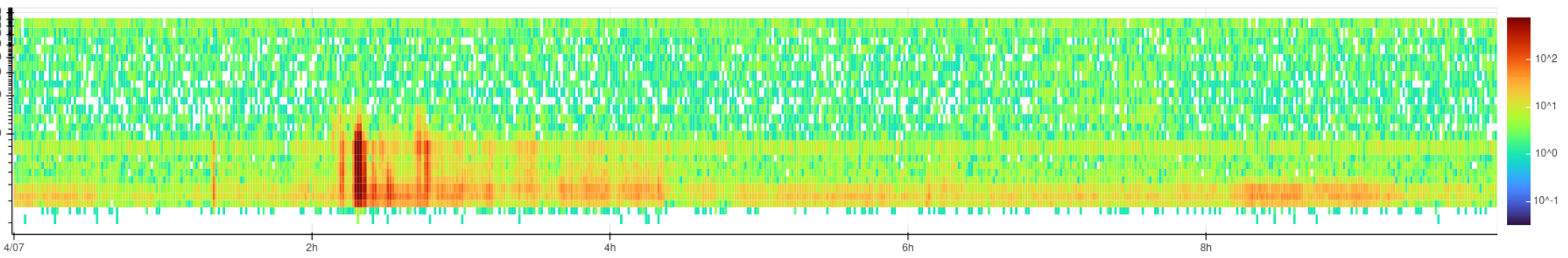
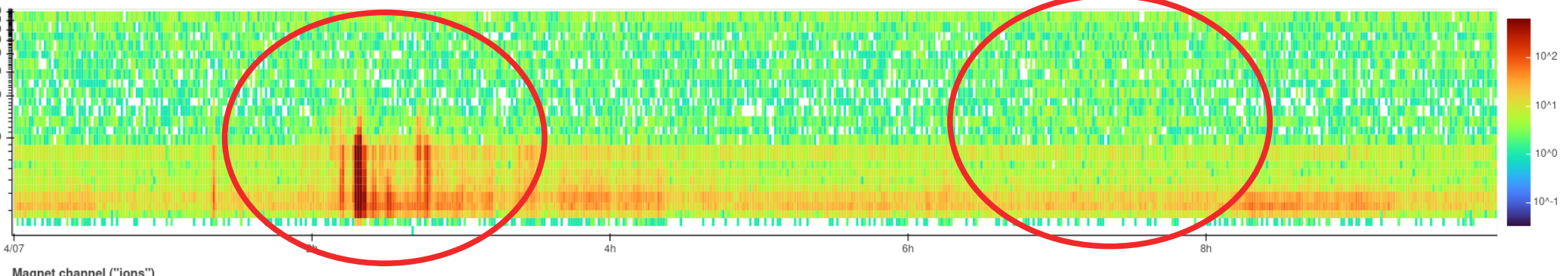
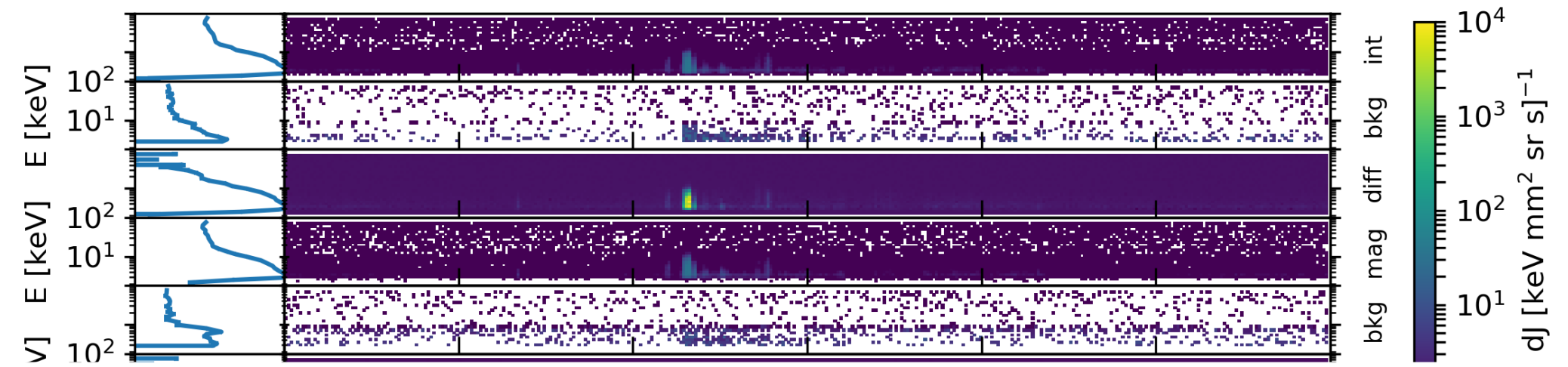
# Small-scale activity with STEP What is this?





# Small-scale activity with STEP

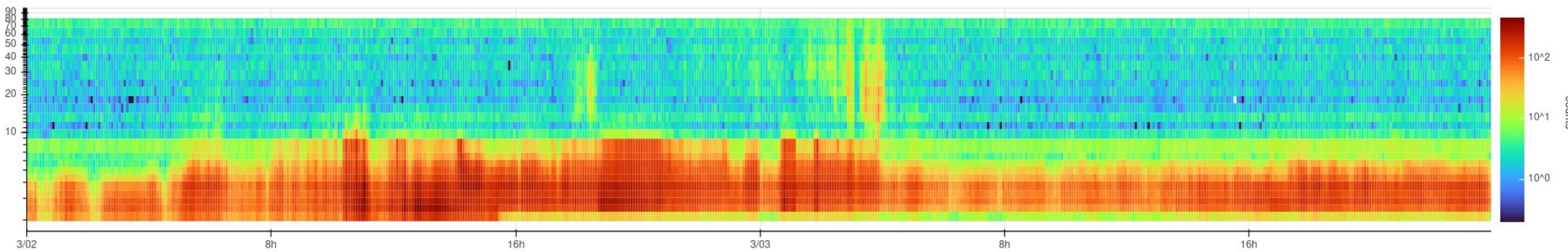
What is this?



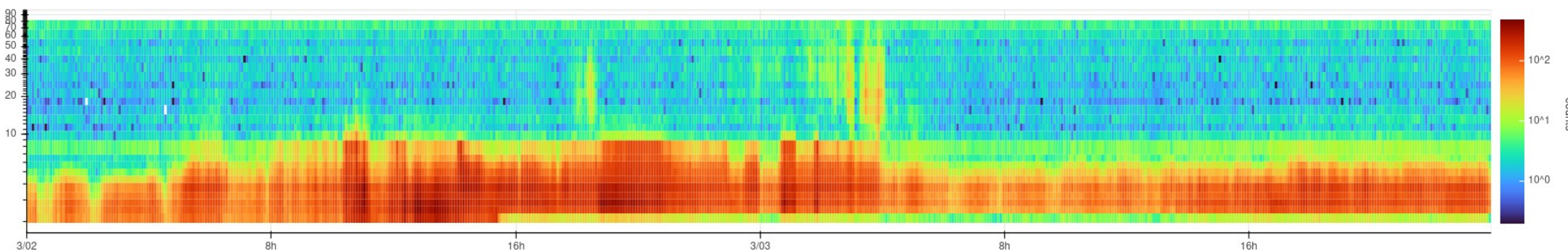


# March ion velocity-dispersion events with STEP

Integral channel ("electrons and ions")



Magnet channel ("ions")



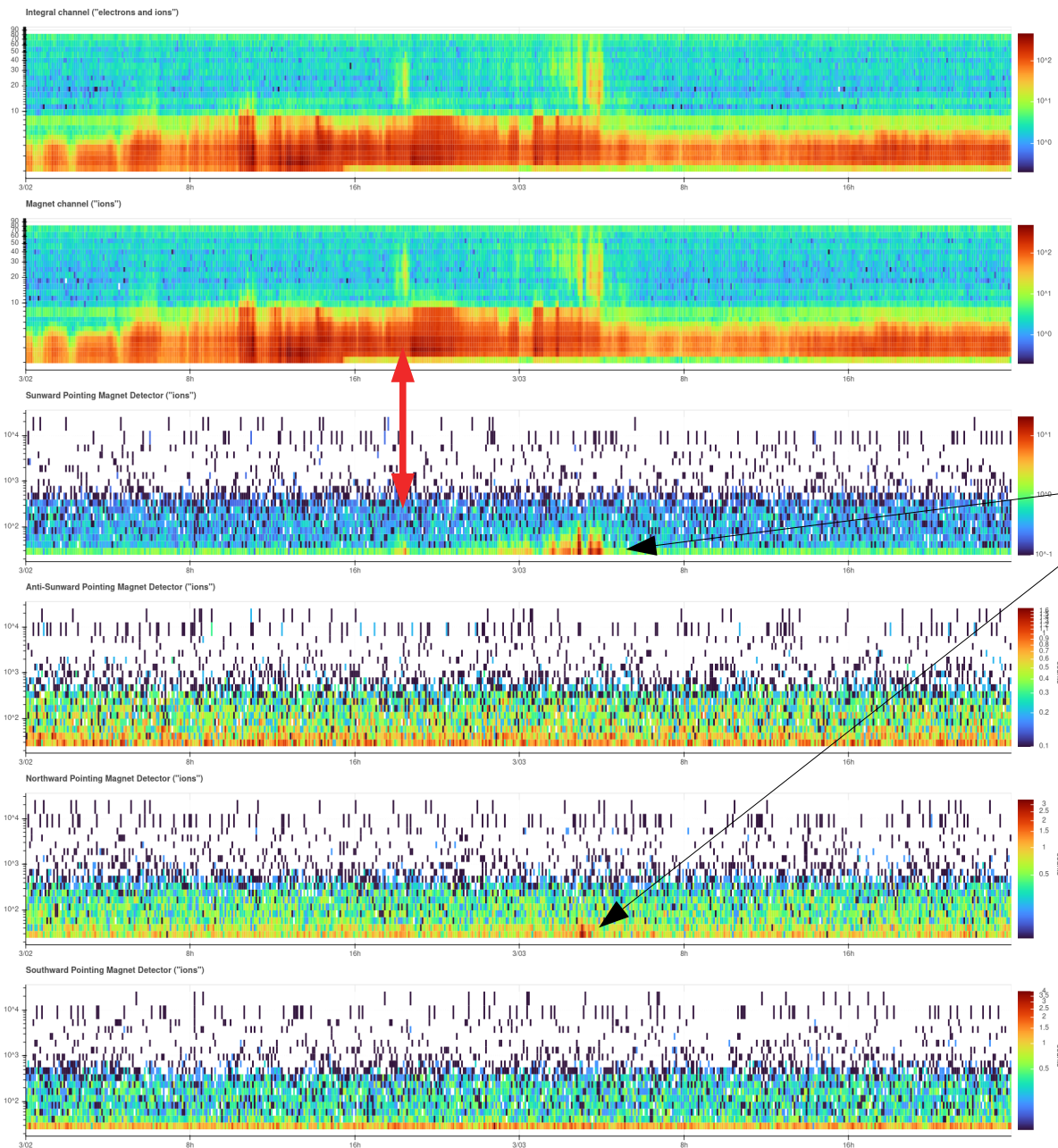
**March 2/3, 2020:**

Unstable „bump on tail“ distribution. Wave activity RPW/MAG?

(...and a crazy idea: Can this be used as a natural mass spectrometer and separate He from H. Does He arrive later than H? This would also be helpful in determining the low-energy response to H and He ions.)



# March ion velocity-dispersion events with EPT



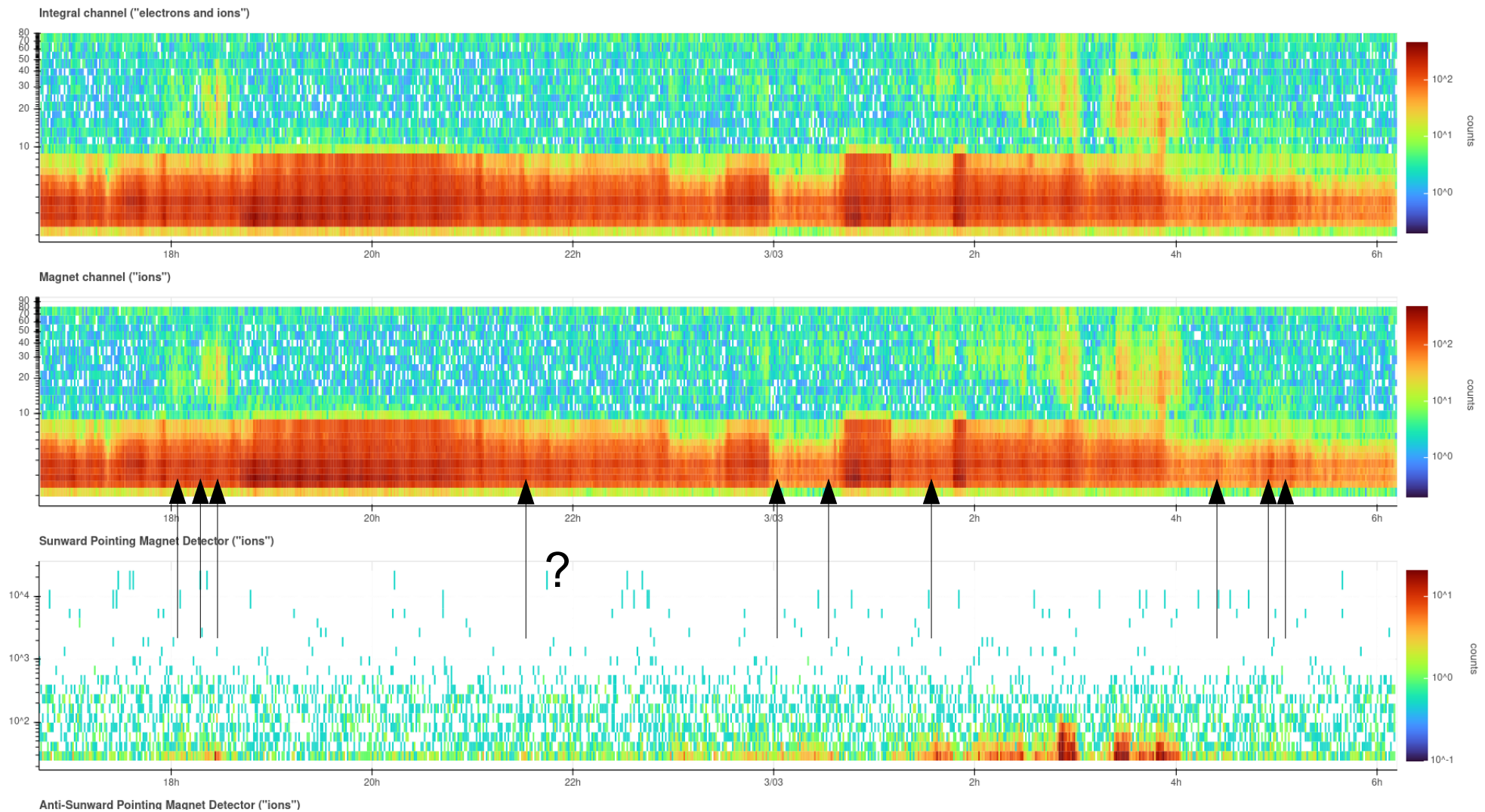
Also seen with EPT at low energies.

What does anisotropy tell us?

Activity not only seen in sunward telescope, but also in North telescope.

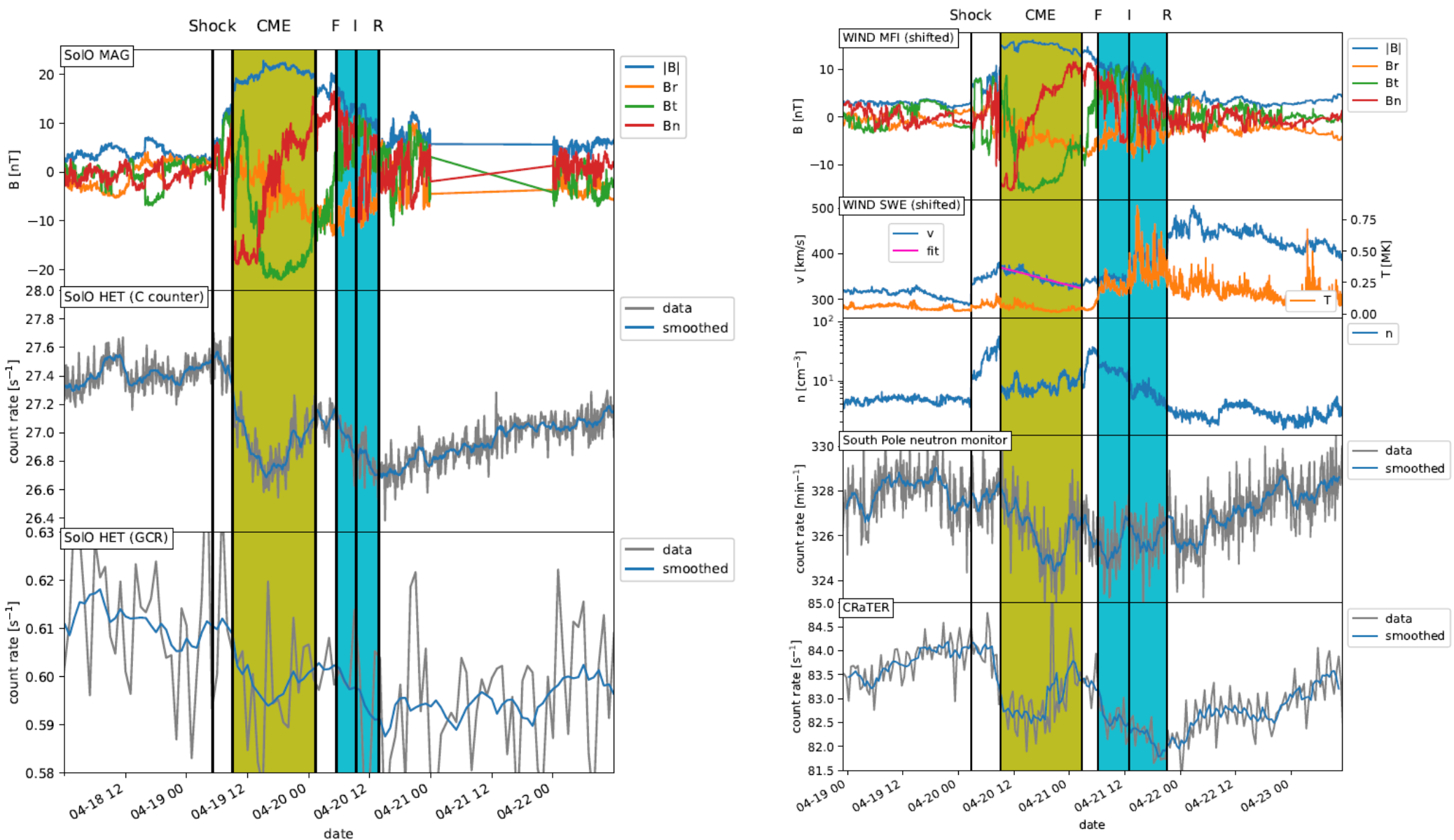


# March ion velocity-dispersion events with EPT



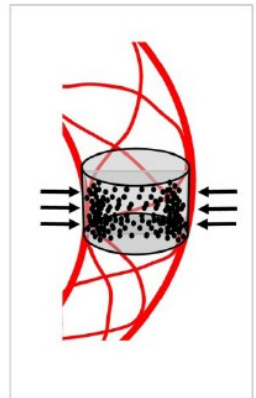
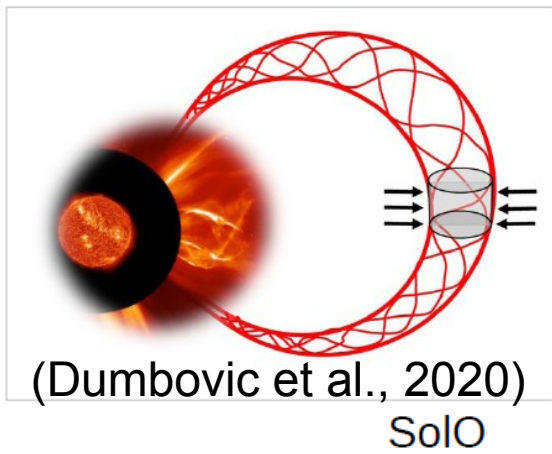


# April 20 Forbush Decrease with HET and 1AU assets: Evolution of ICME



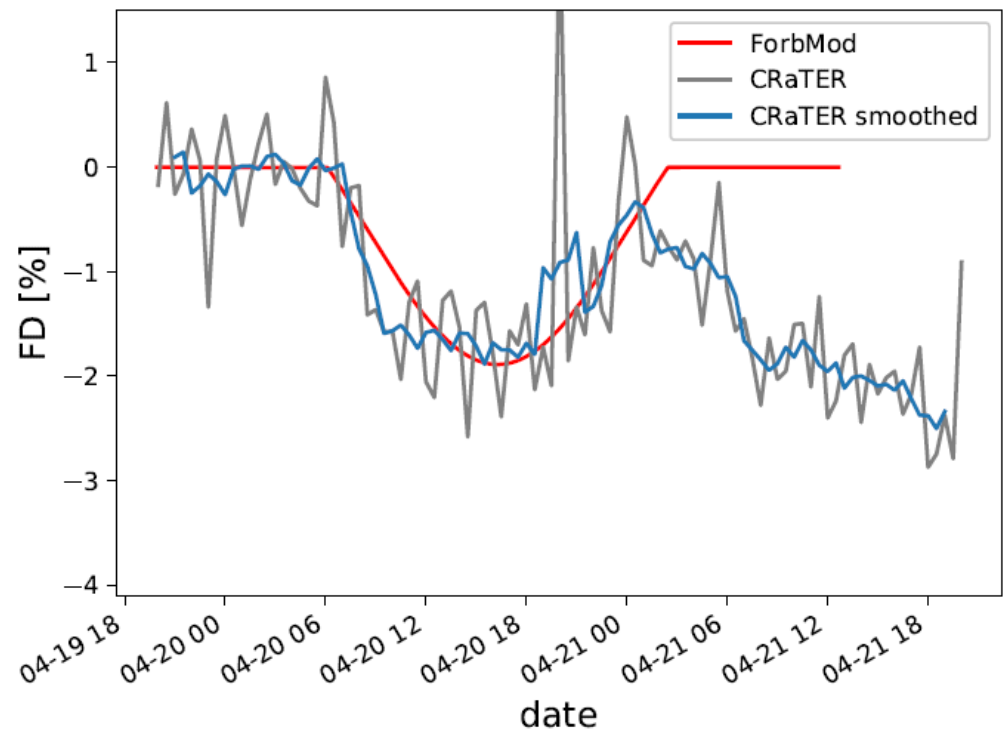
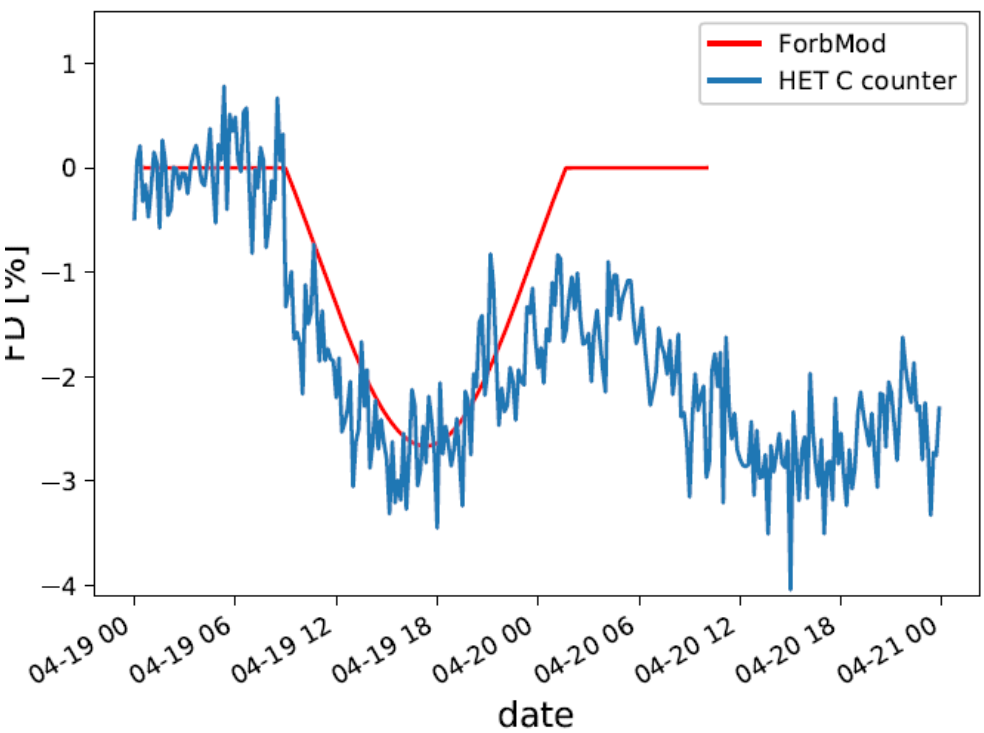


# April 20 Forbush Decrease with HET and 1AU assets: Evolution of ICME – Forbmod



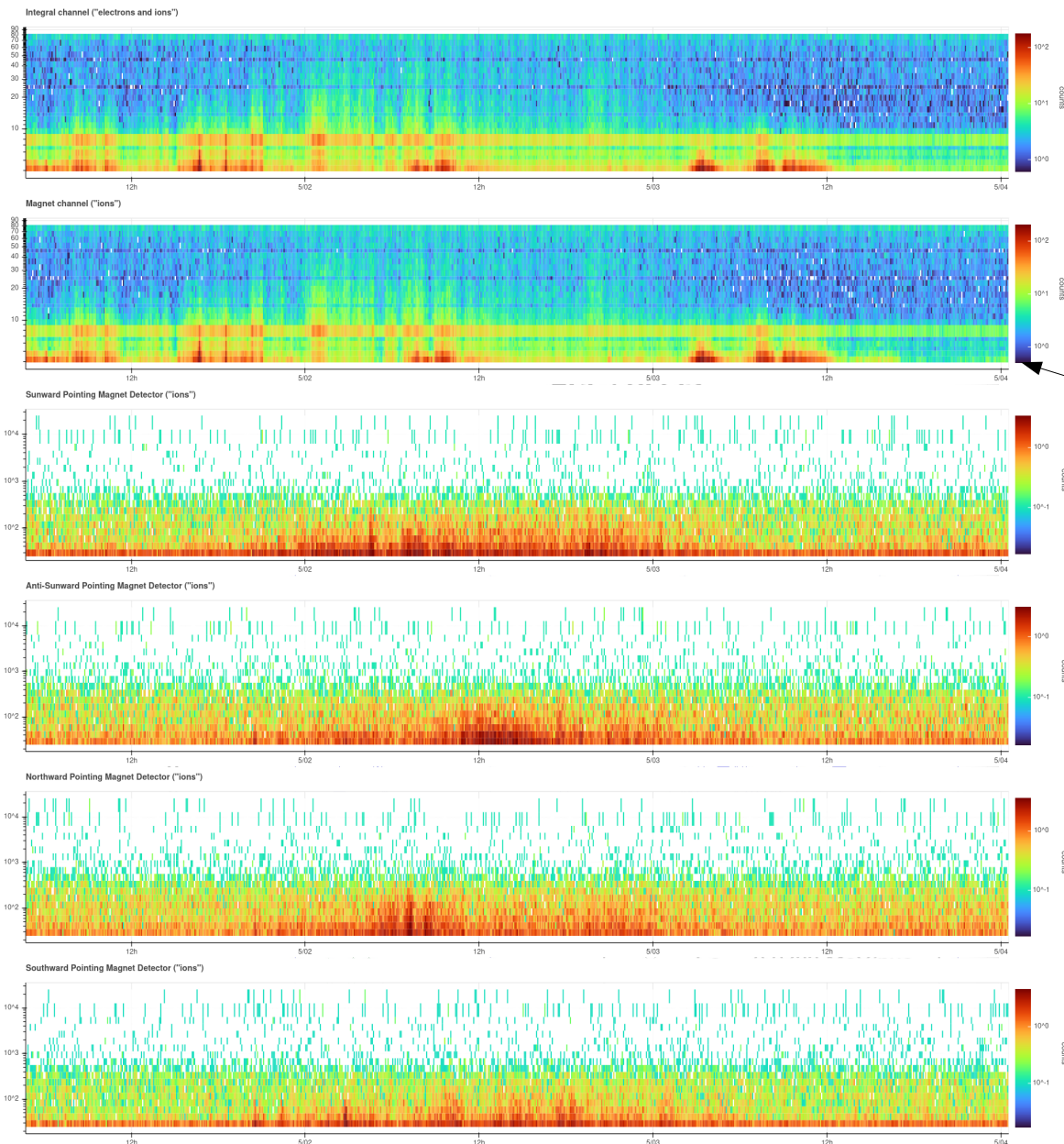
Manuscript in preparation by Johan

1 AU

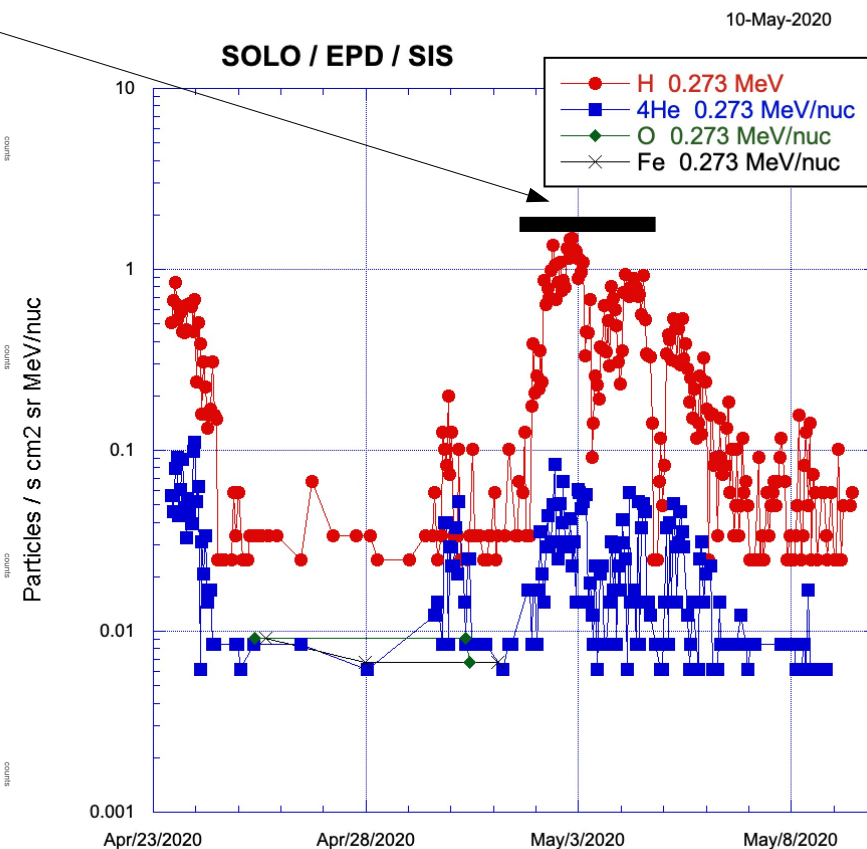




# May 1 - 4 CIR STEP-EPT (&SIS)



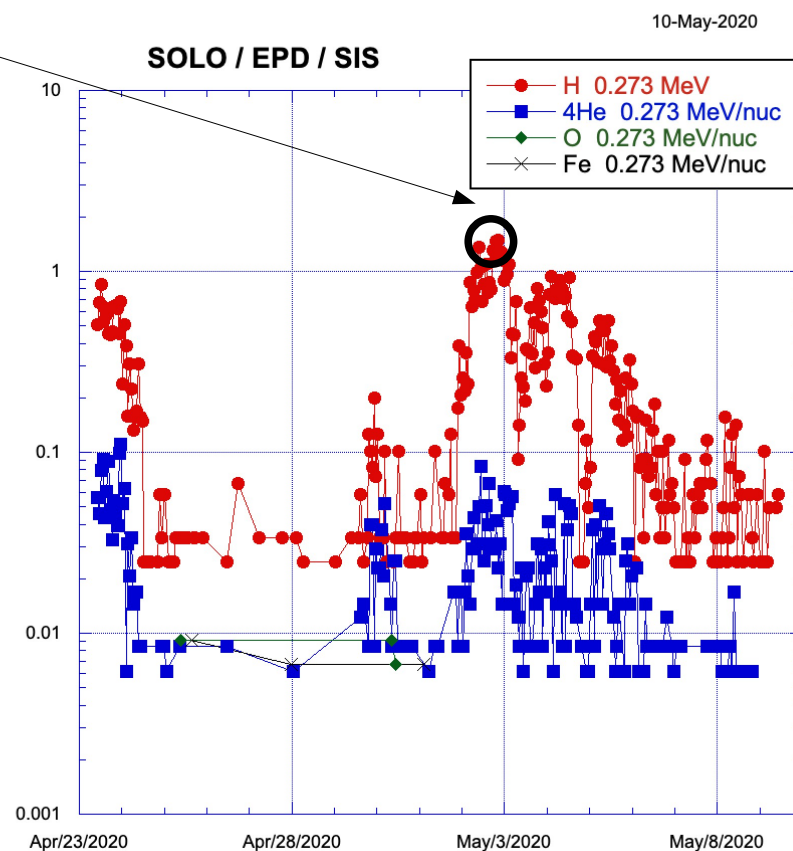
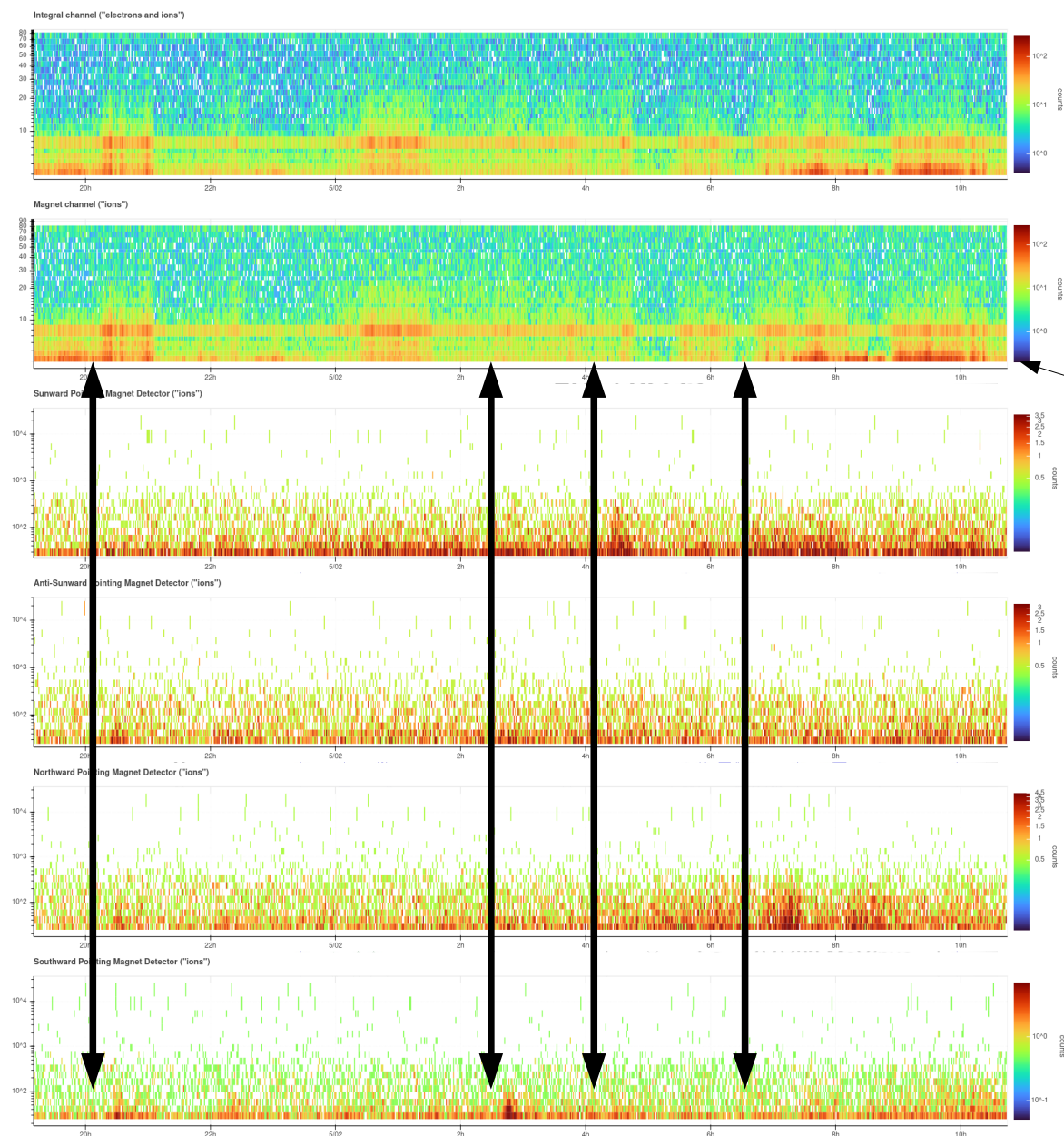
Interesting directional variations seen in EPT. Comparison between STEP and EPT looks interesting, especially times of spikes.





# May 1 - 4 CIR STEP-EPT (&SIS) zoomed in

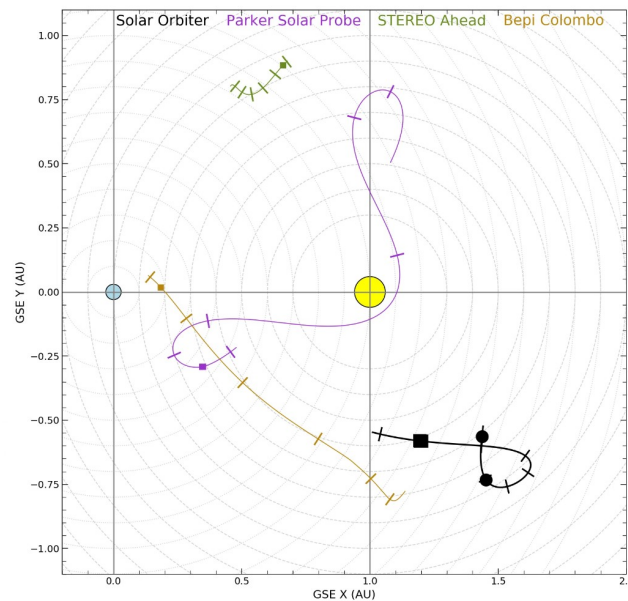
Interesting directional variations seen in EPT.  
Comparison between STEP and EPT looks interesting, especially times of spikes.



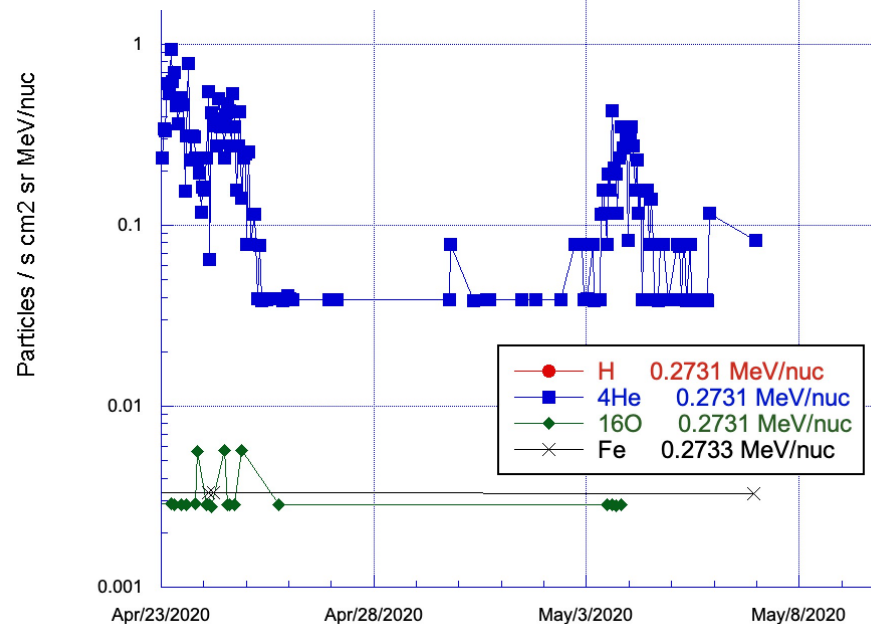


# CIRs: spatio-temporal evolution SIS/ULEIS

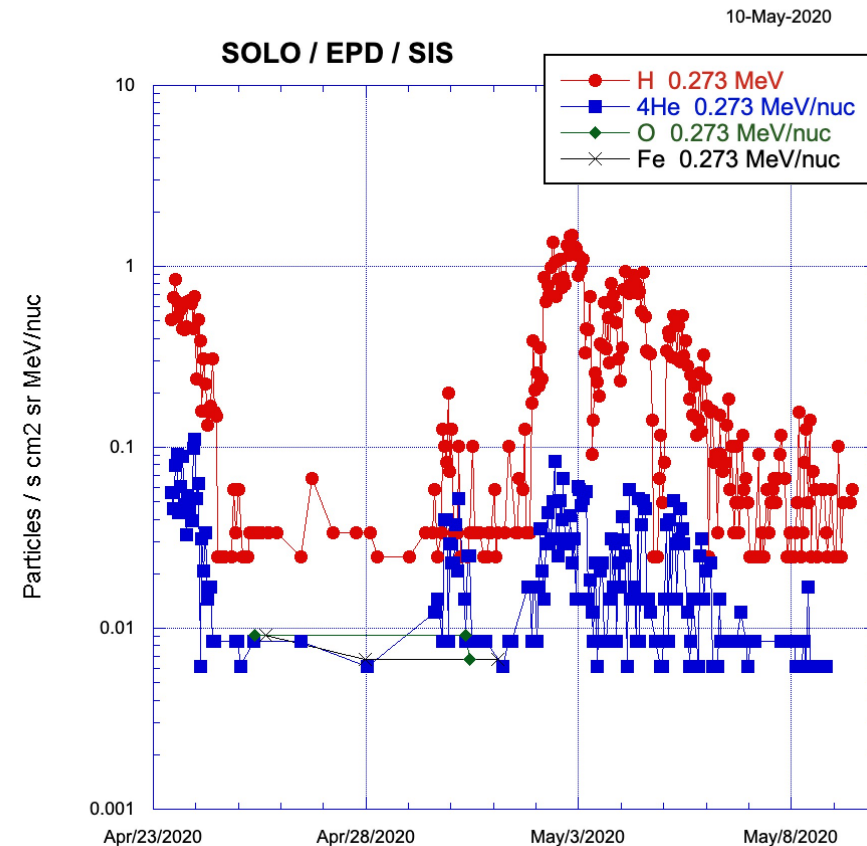
Combine with Beppi Colombo and PSP?



ACE / ULEIS

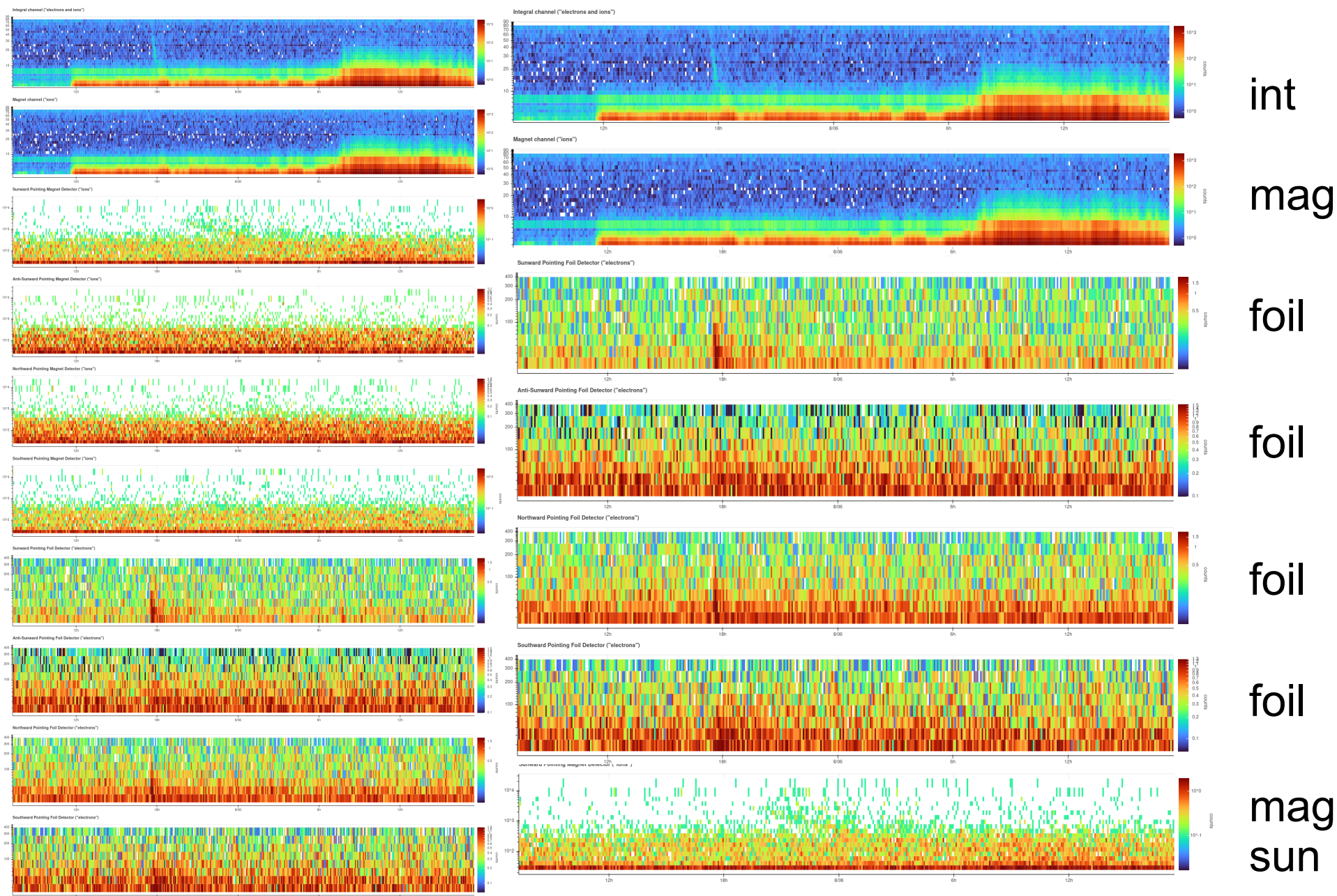


SOLO / EPD / SIS





# Some other interesting time periods: August 5



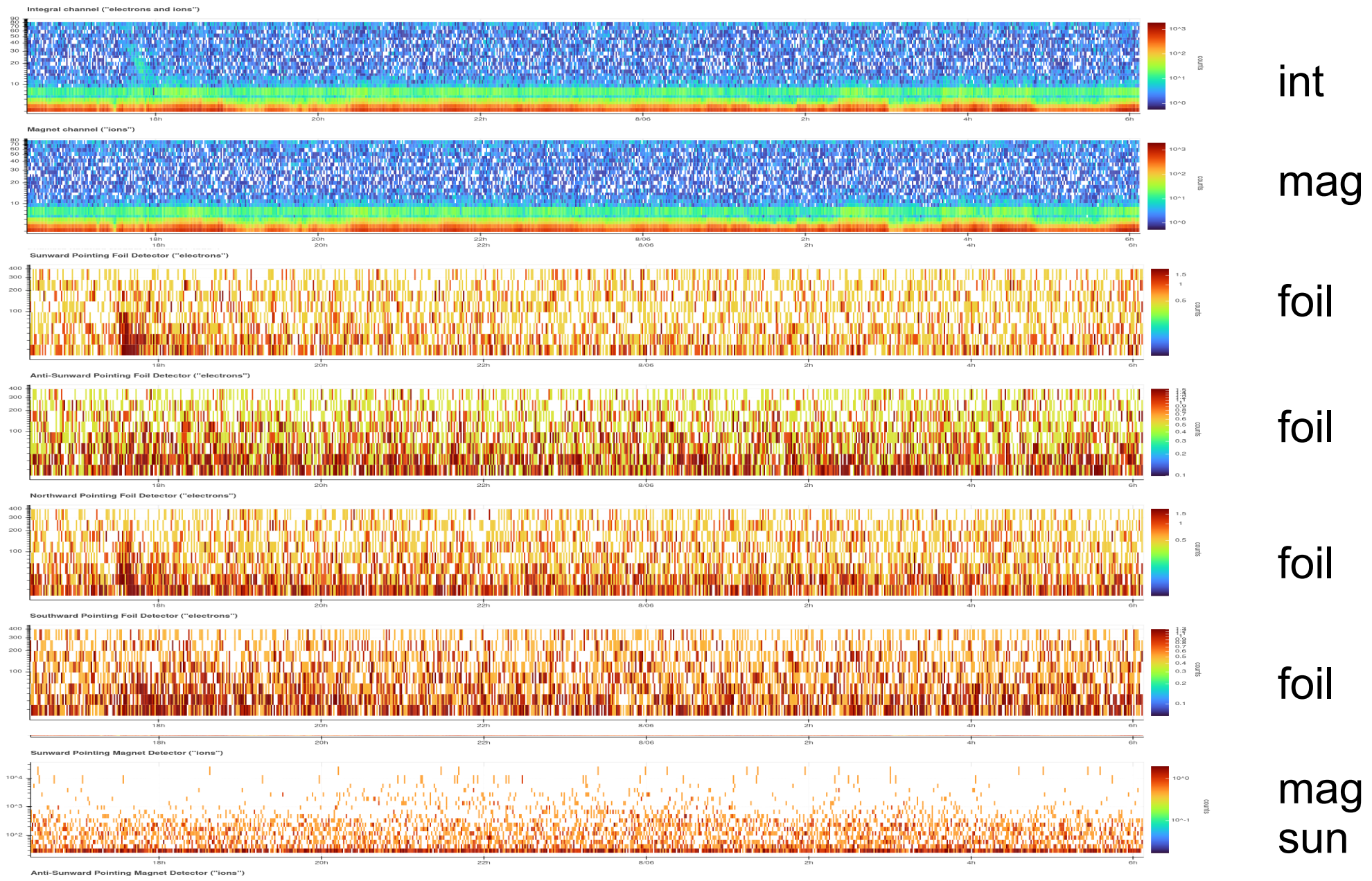
2020-09-07

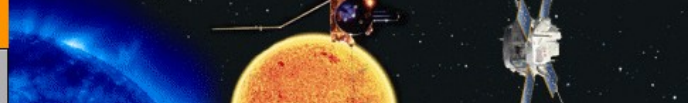
IEAP/rfws

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# Same time period, higher time resolution



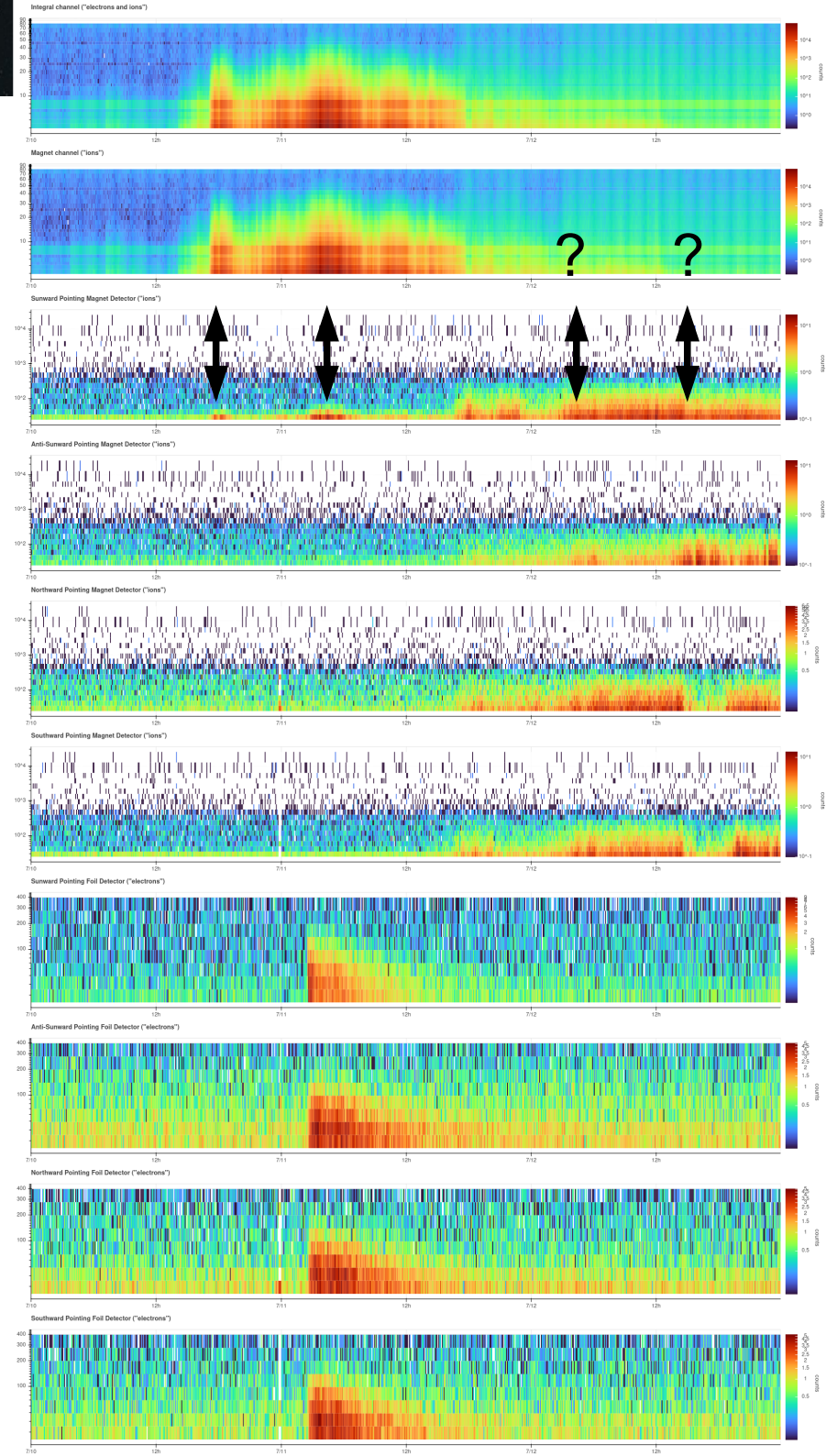


# July 11 – 13, 2020

Strong electron event seen in EPT.  
Are there signatures in RPW?

Why don't we see anything in STEP  
electrons?  
Are we dominated by low-energy ions?

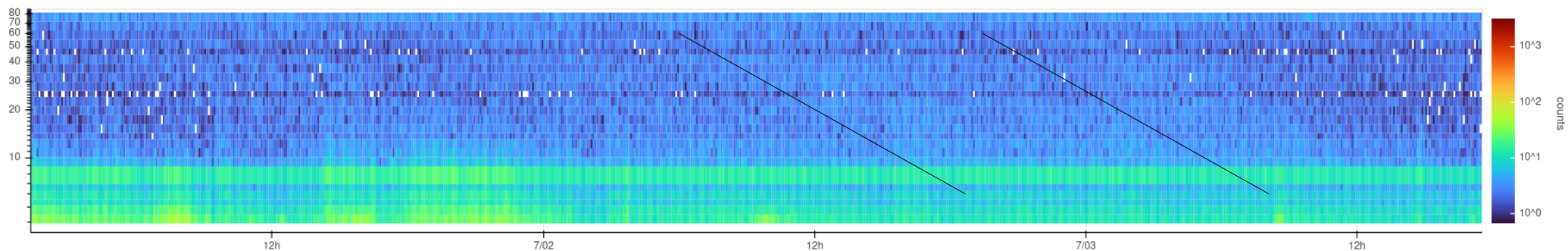
Why do we see significant activity in  
EPT but not in STEP in second half?



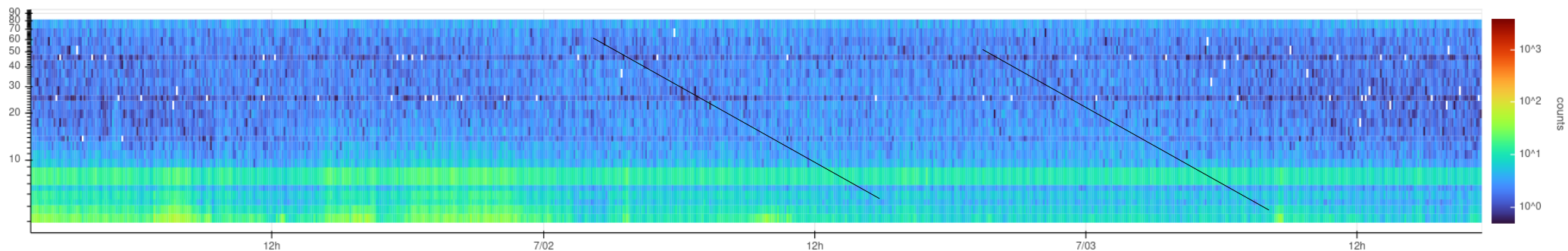


# July 1 – 3, 2020

Integral channel ("electrons and ions")



Magnet channel ("ions")

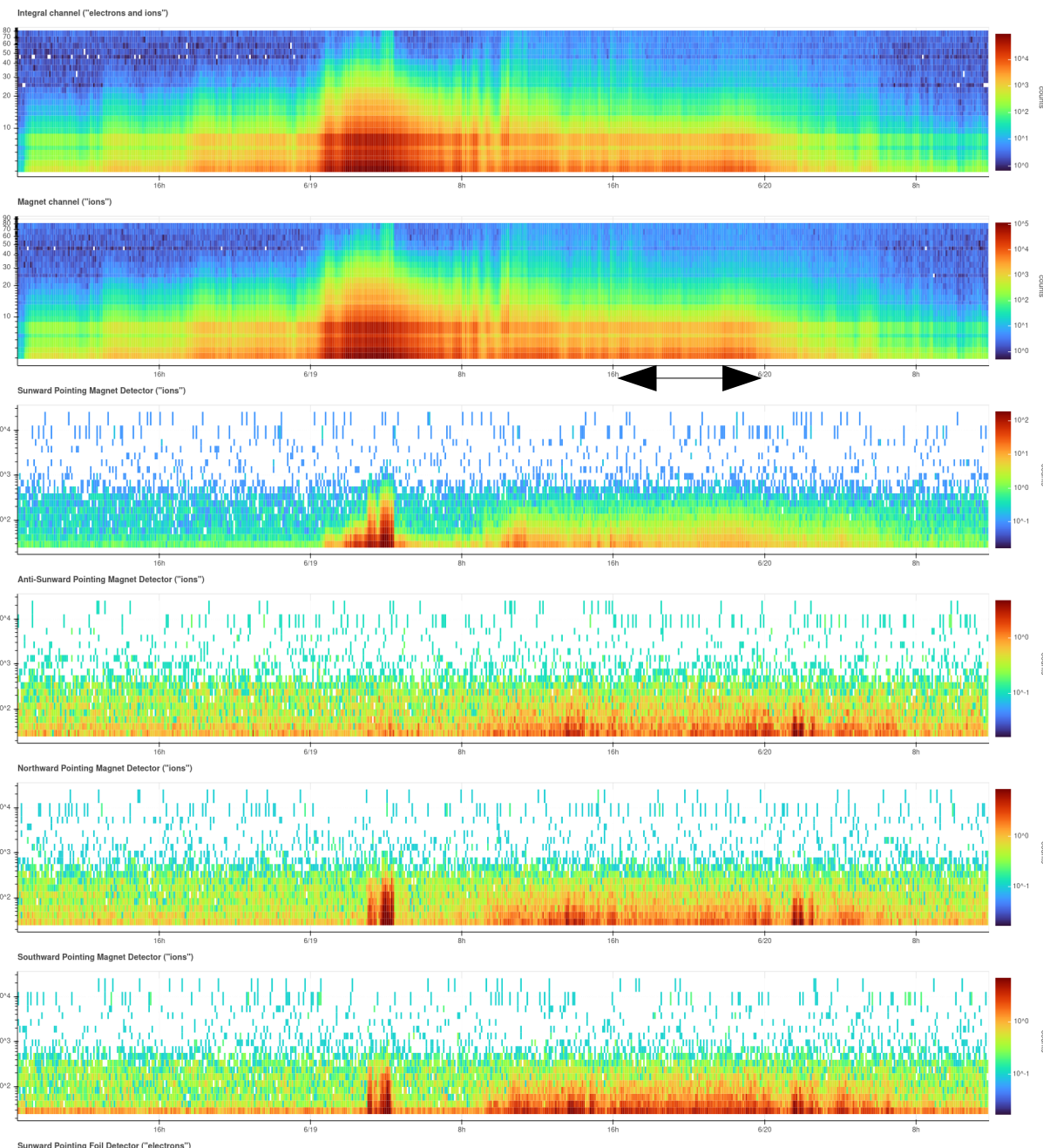


Sunward Pointing Magnet Detector ("ions")

Very, very weak ion dispersion? Or am I only imagining this?  
Need to do a real dispersion analysis and then look perpendicular to  
tracks to see whether this stands up to scrutiny.



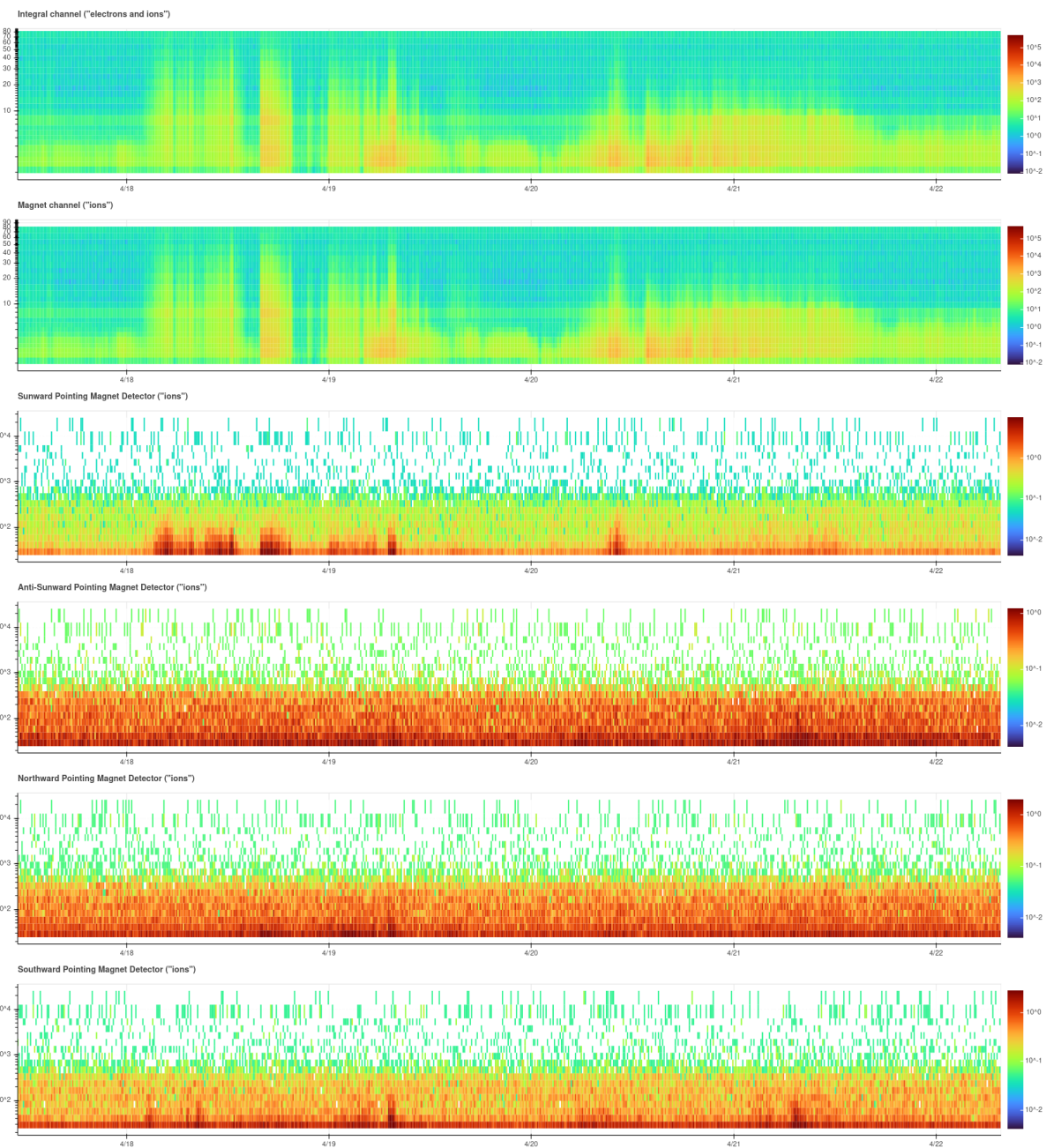
# June 19, 2020



Very short ion spikes in  
EPT. Long-lasting event in  
STEP and sunward EPT.  
No electrons seen.  
(arrow shows 8 hours)



# April 19, 2020



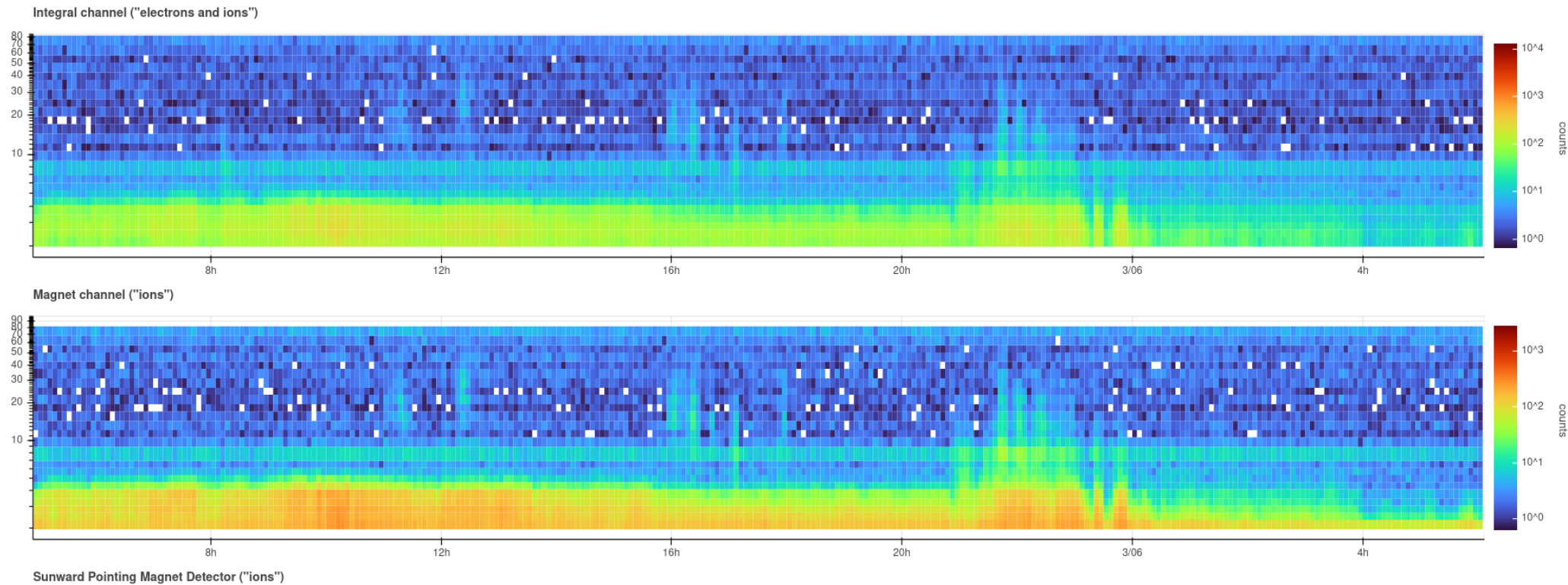
Short ion spikes in EPT.  
Long-lasting event in STEP  
and sunward EPT. No  
electrons seen.

Interesting anisotropies.

Ticks are days



# March 5, 2020



Some more ion velocity dispersion events seen on March 5th, following the events of March 2nd/3rd.