MeV Dusk Microbursts

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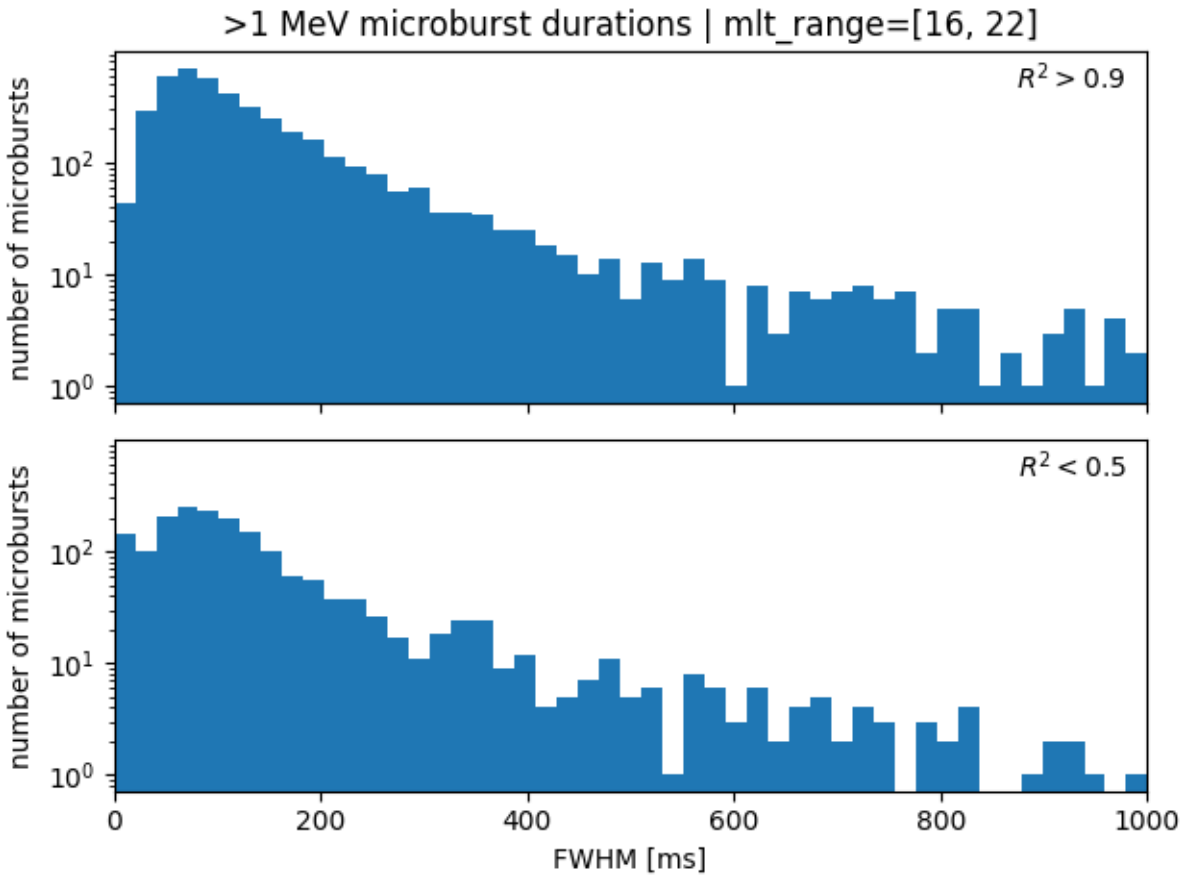
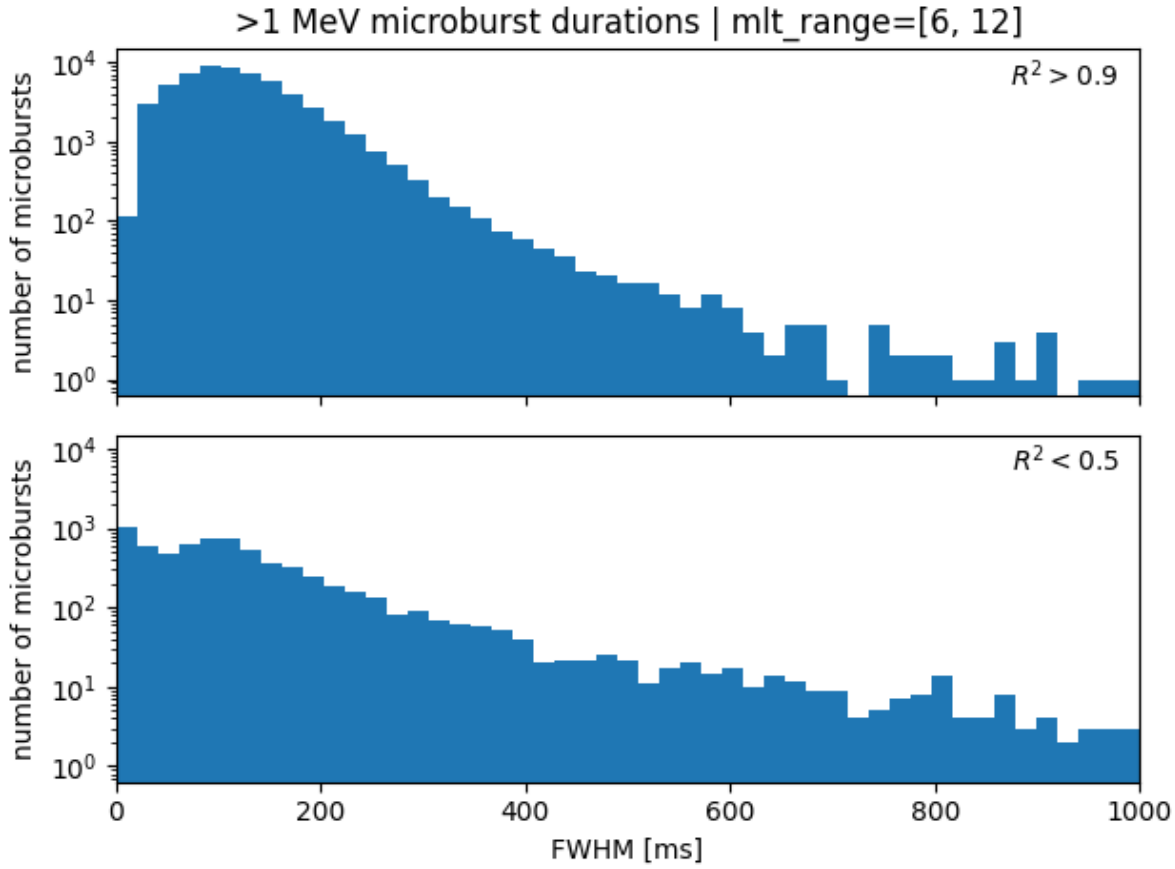
Methodology

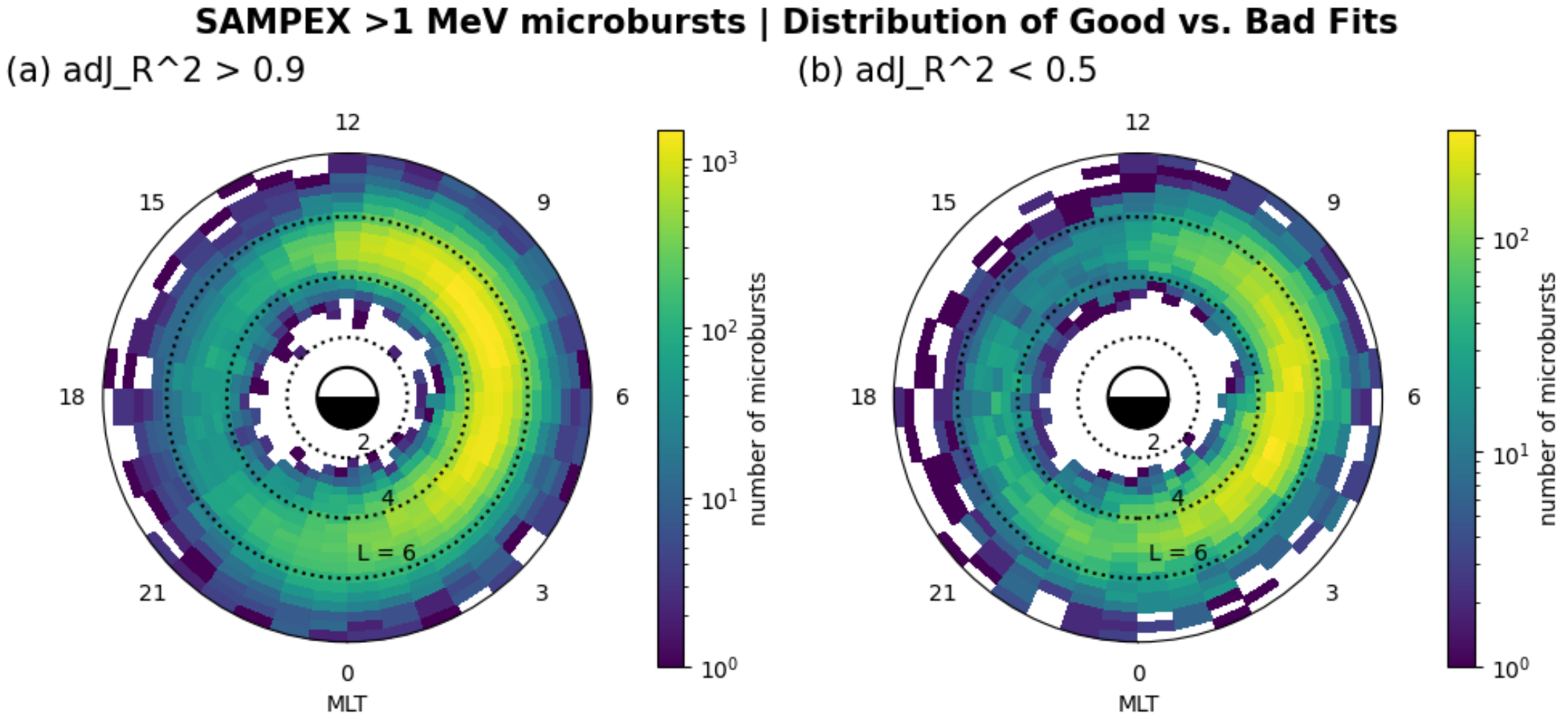
- I wrote a program to generate summary plots of each microburst in the dusk MLTs that were poorly and well fit
- The program is in a "202303_dusk" development branch of the "sampex_microburst_widths" package
- Filtered the pre-existing microburst catalog (microburst_catalog_04.csv) by
  - 16 < MLT < 22
  - "Good" fits which are adj_R^2>0.9
  - "Bad" fits which are adj_R^2<0.5
- Stats:
  - 16083 microbursts in mlt_range=[16, 22]
  - 4515 microbursts in mlt_range=[16, 22] and with adj_R^2>0.9
  - 2047 microbursts in mlt_range=[16, 22] and with adj_R^2<0.5
- I produced the ~6500 plots and I upload them to Google Drive. Take a look at your leisure!

Compare good vs. bad fits & dawn vs. dusk



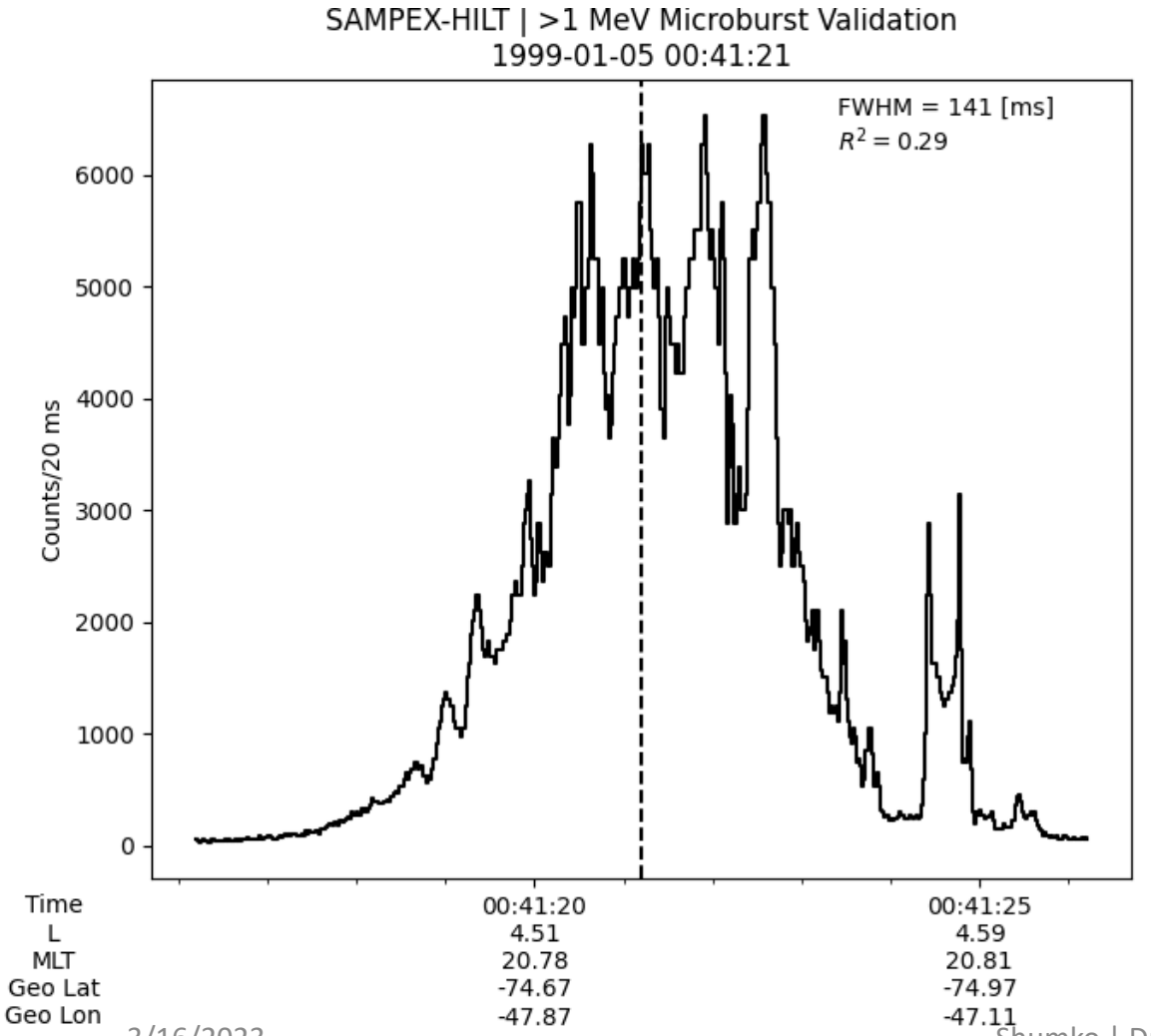


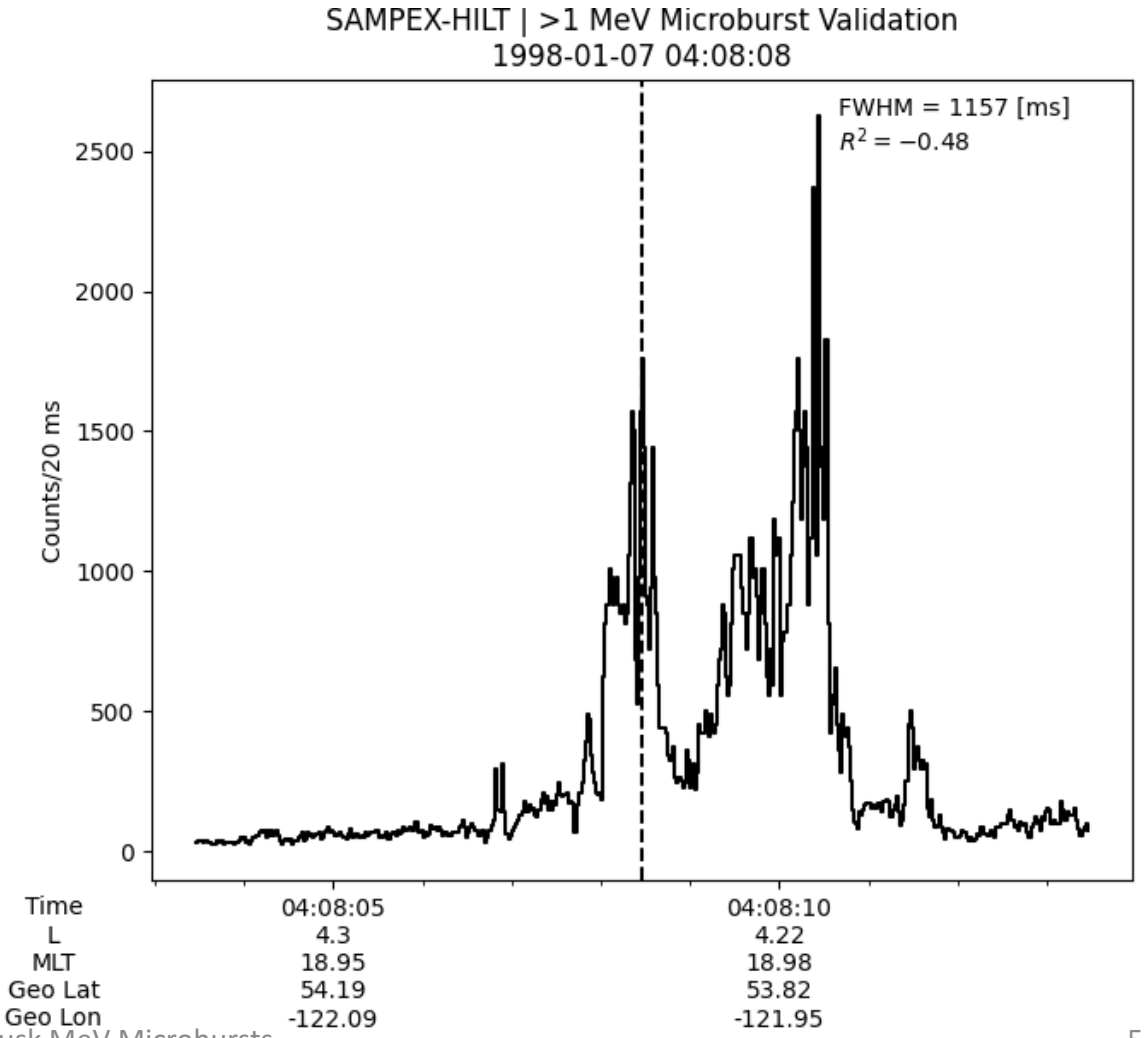
Where are the bad fits?



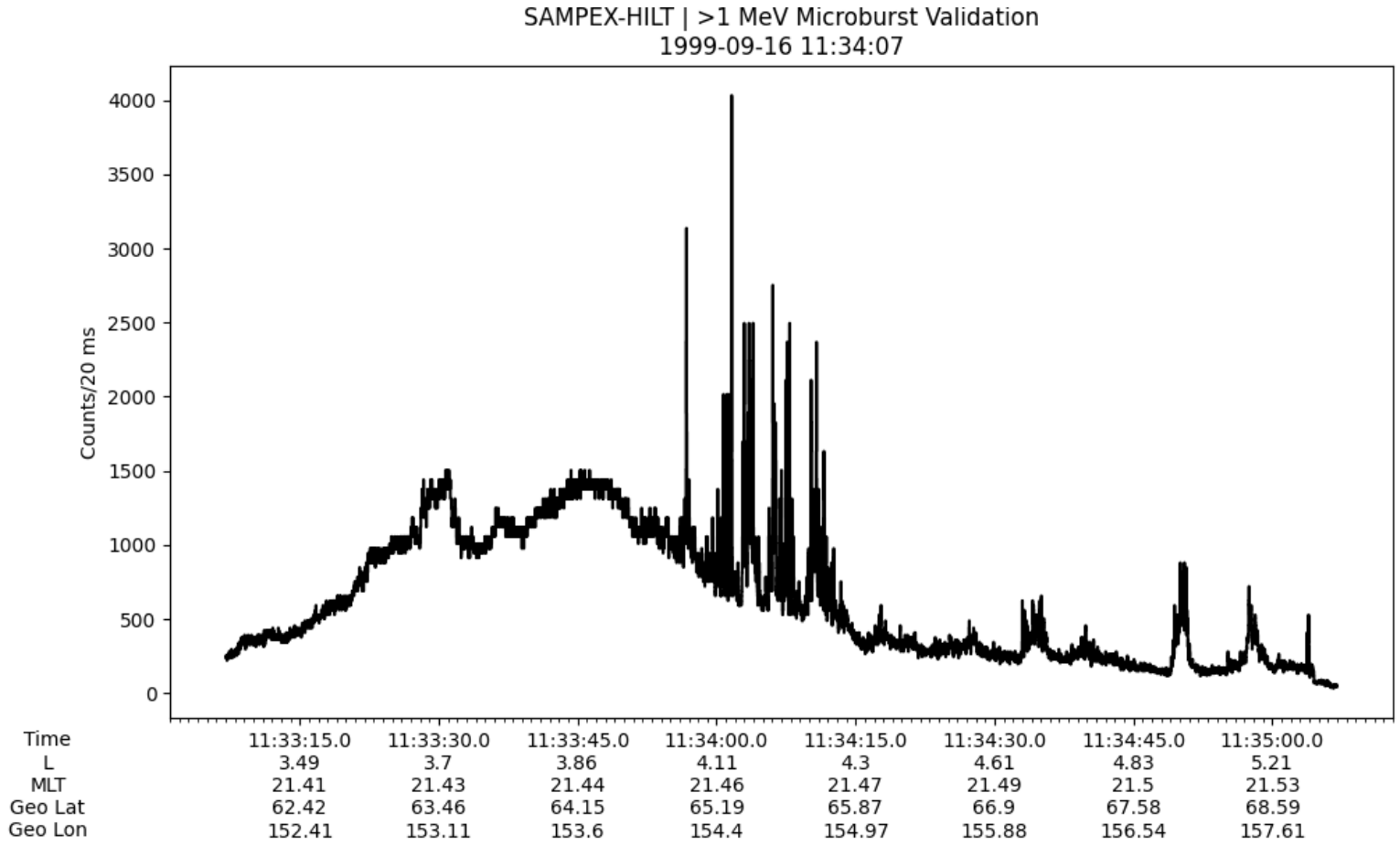
No obvious difference between the good and poor fit distributions.

Interesting poor fits





Interesting short microbursts



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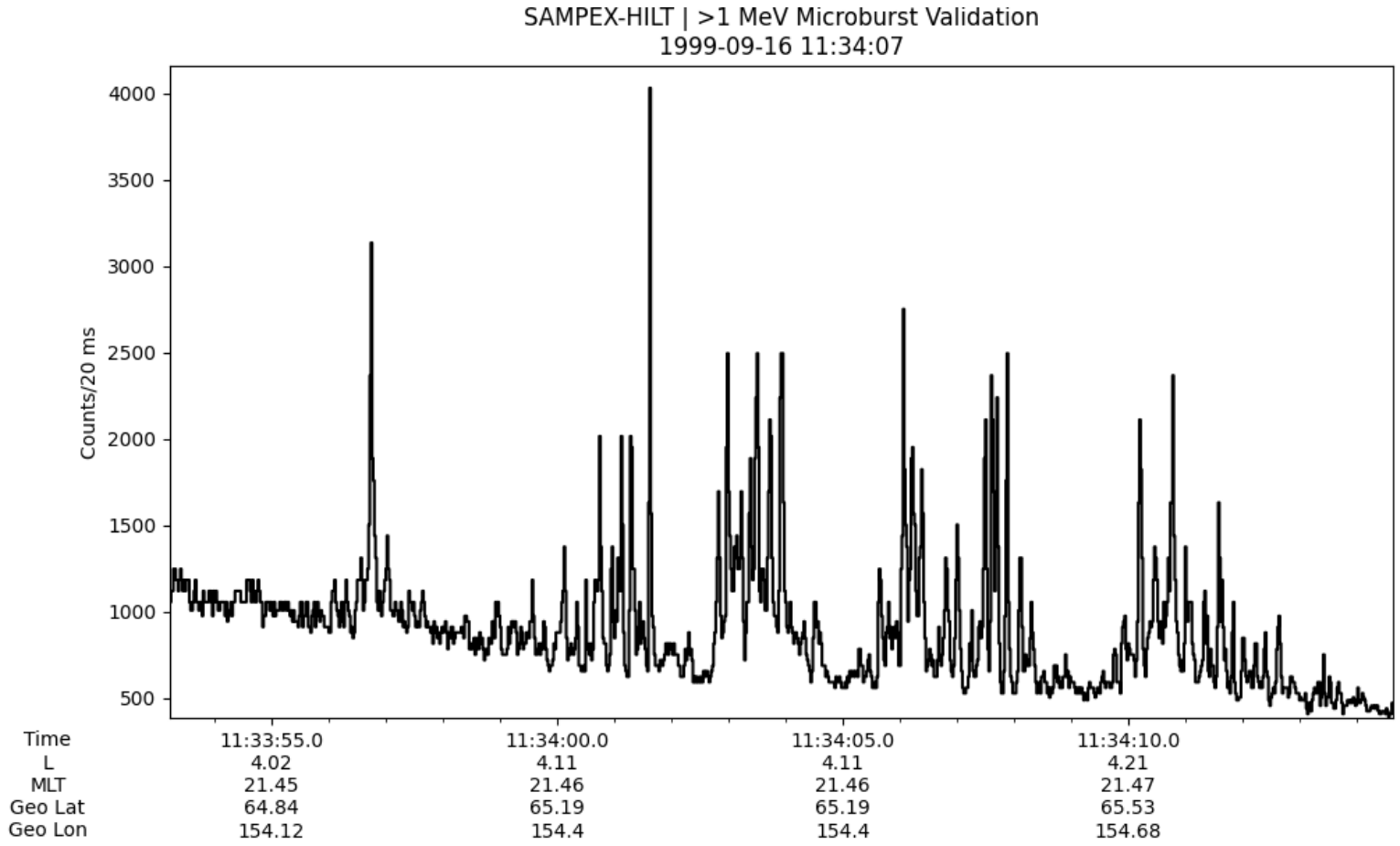

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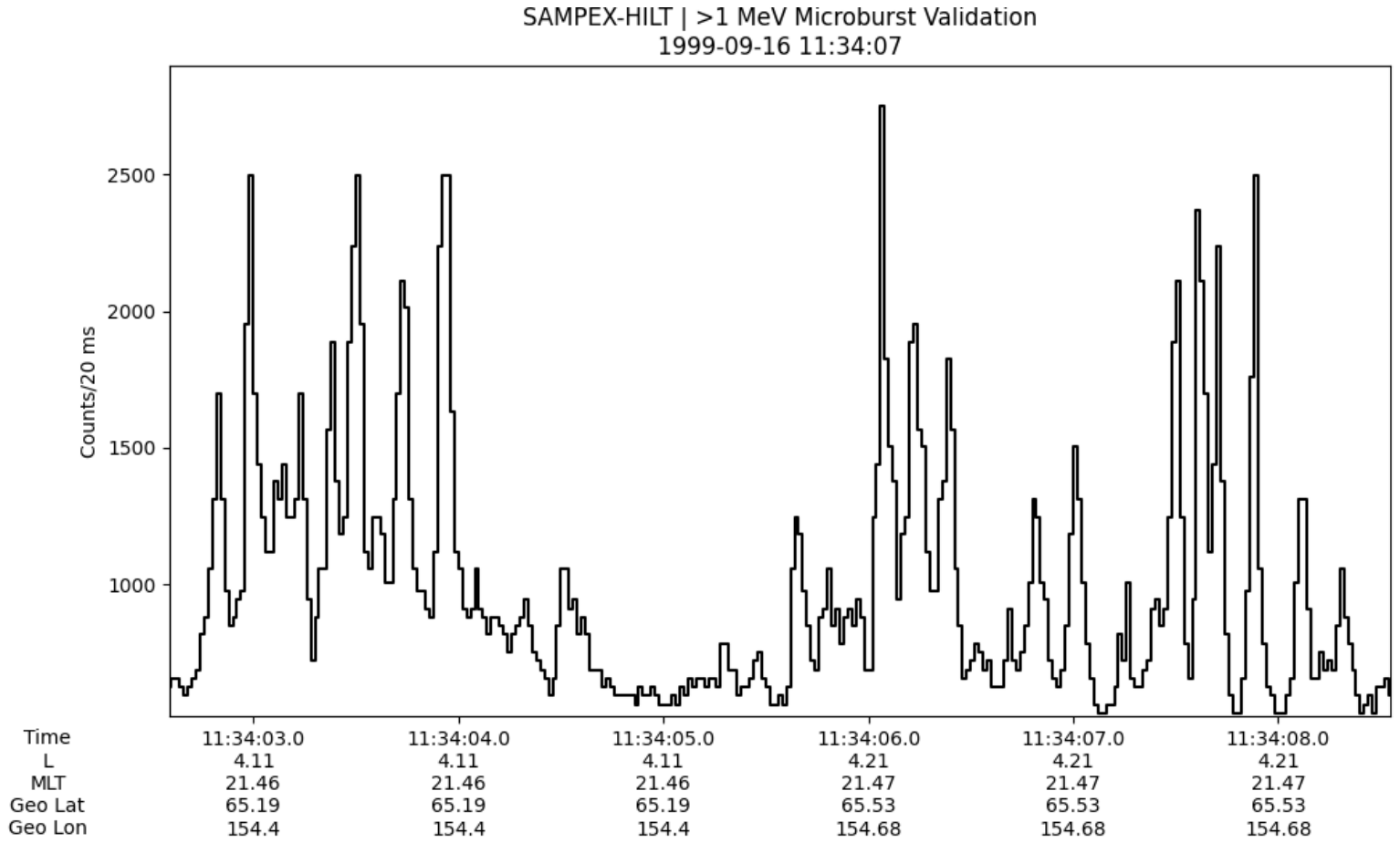

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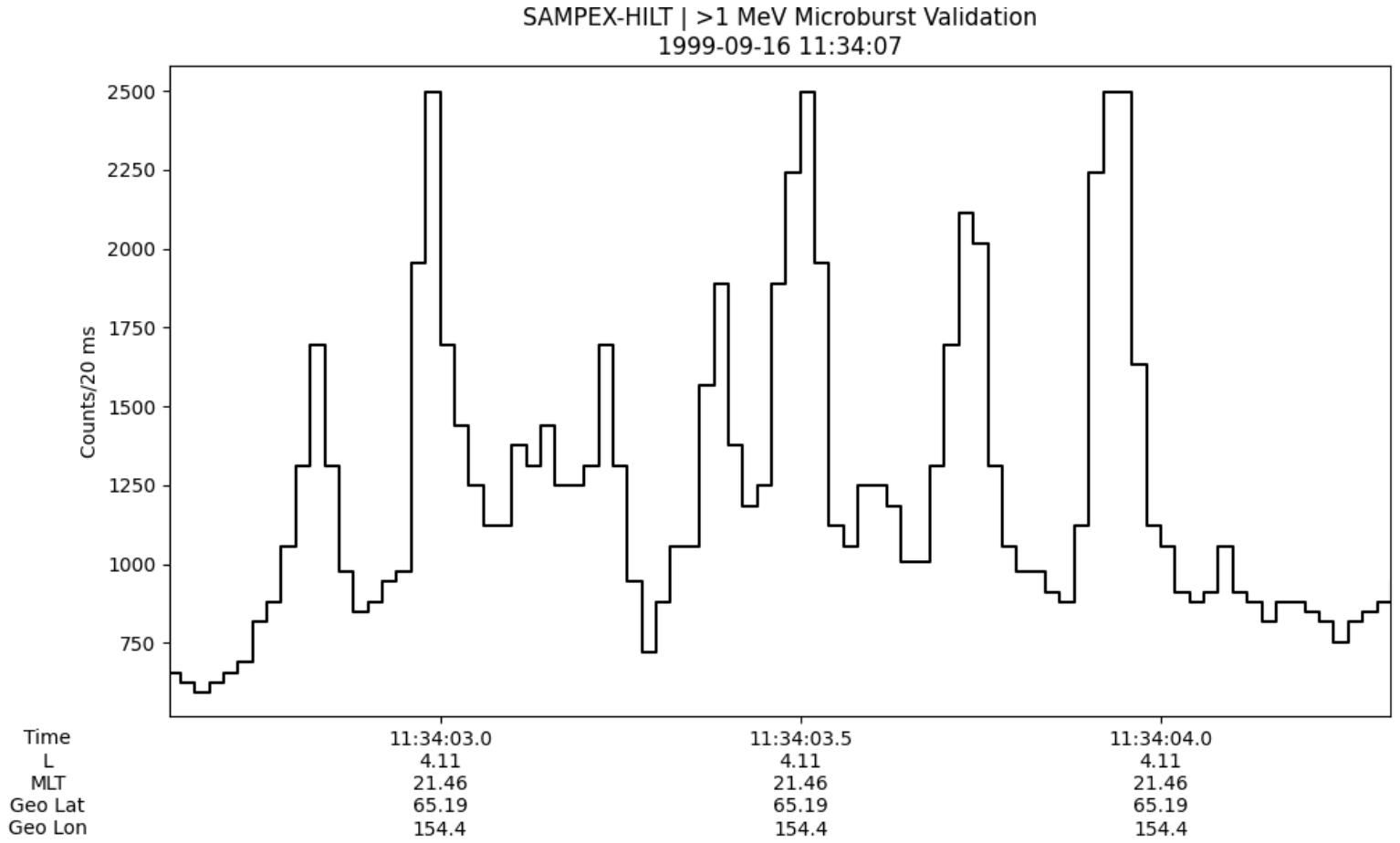
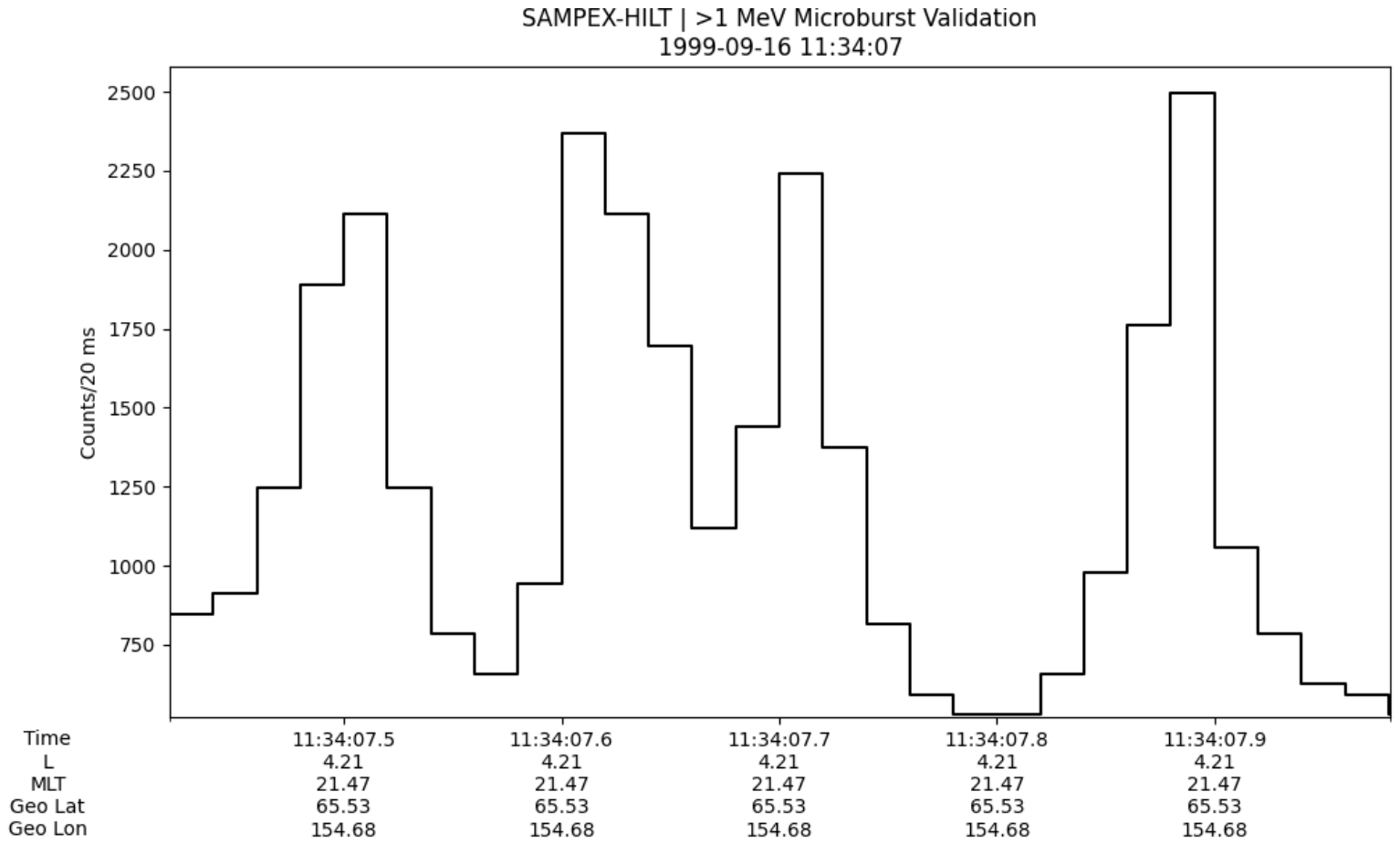


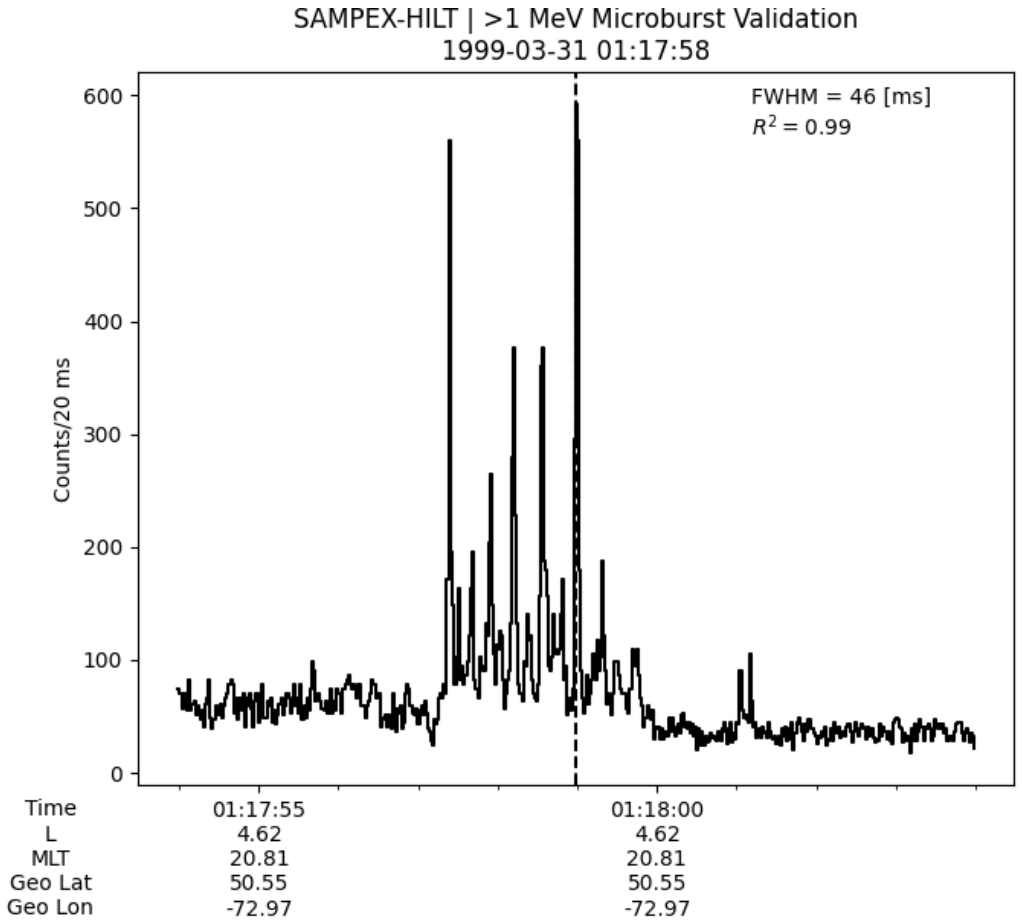
Interesting short microbursts

Each x-axis tick is 100 ms!



… I recall finding these dusk microbursts using the FIRBEIRD-II data too

More short microburst examples…



Did I rediscover precipitation bands, or are these still microbursts?