

# **SDC PDS KEM2 v0 Review**

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# Overview

- Read Level 2 data: nh-a-sdc-2-kem2-v1.0
  - Plotted and assessed subset of temperatures and voltages
- Read Level 3 data: nh-a-sdc-3-kem2-v1.0
  - Plotted and assessed event amplitude distributions

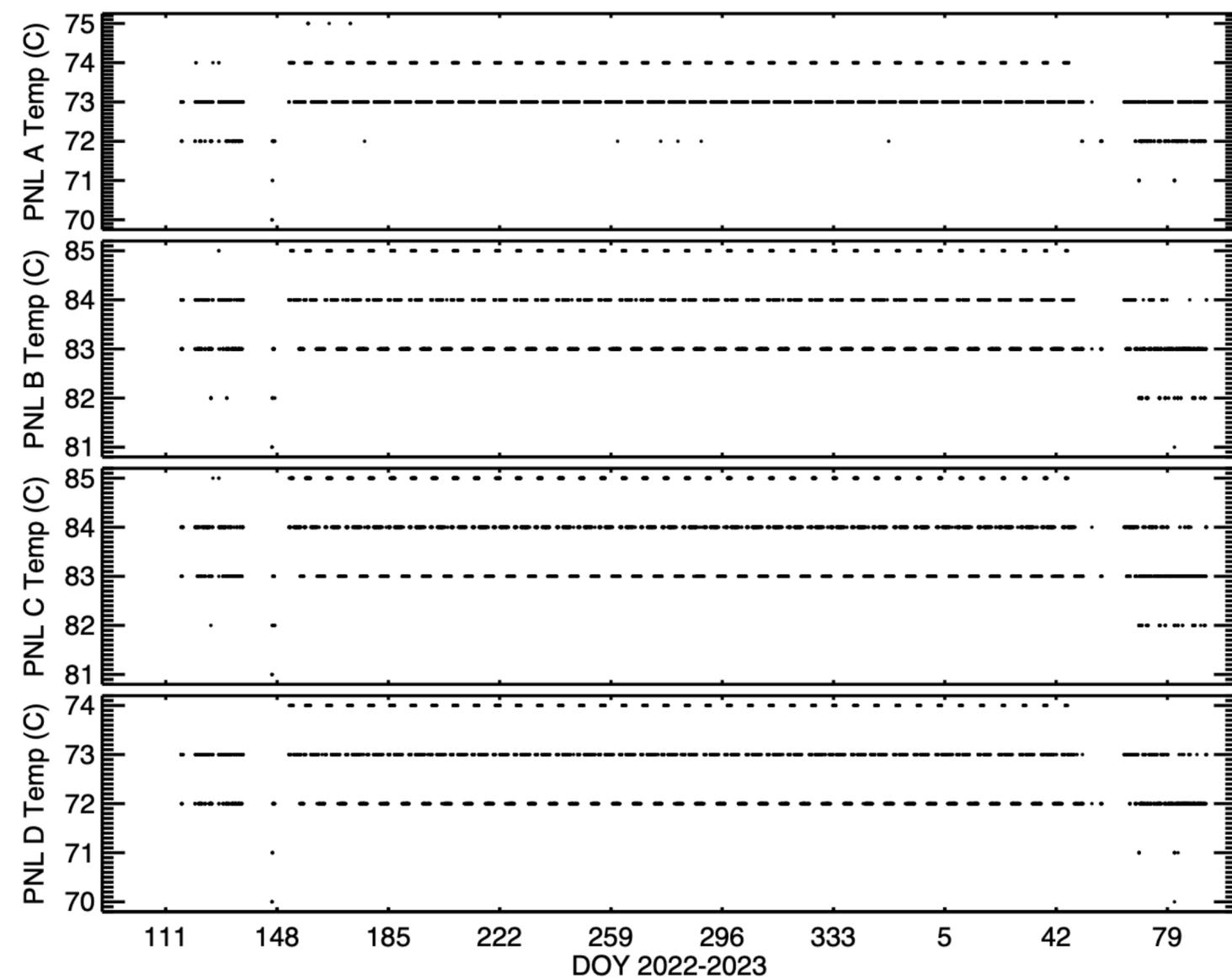
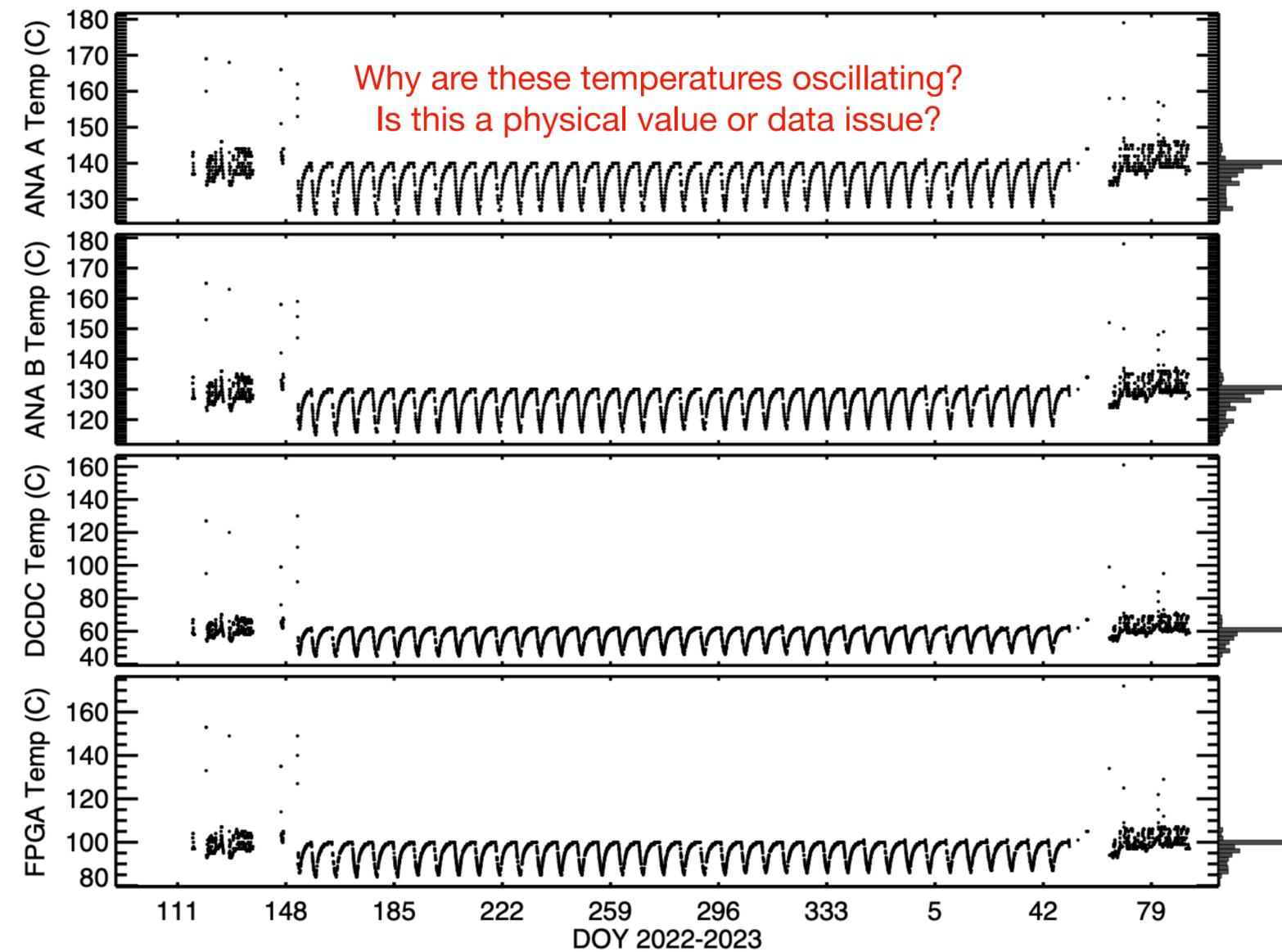


# Data formatting issues

- **Level 2 data**
  - Certain variables were byte values and did not vary throughout the dataset
- **Level 3 data**
  - Change in MET variable format in FITS file from “J” (long) to “D” (double) between the below two files:
    - `nh-a-sdc-3-kem2-v1.0/data/20220424_051586/sdc_0515865160_0x700_sci.fit`
      - METs are large negative long integers for this file and before
    - `nh-a-sdc-3-kem2-v1.0/data/20220424_051586/sdc_0515865159_0x700_sci.fit`
      - METs are doubles for this file and after



# Level 2 Data



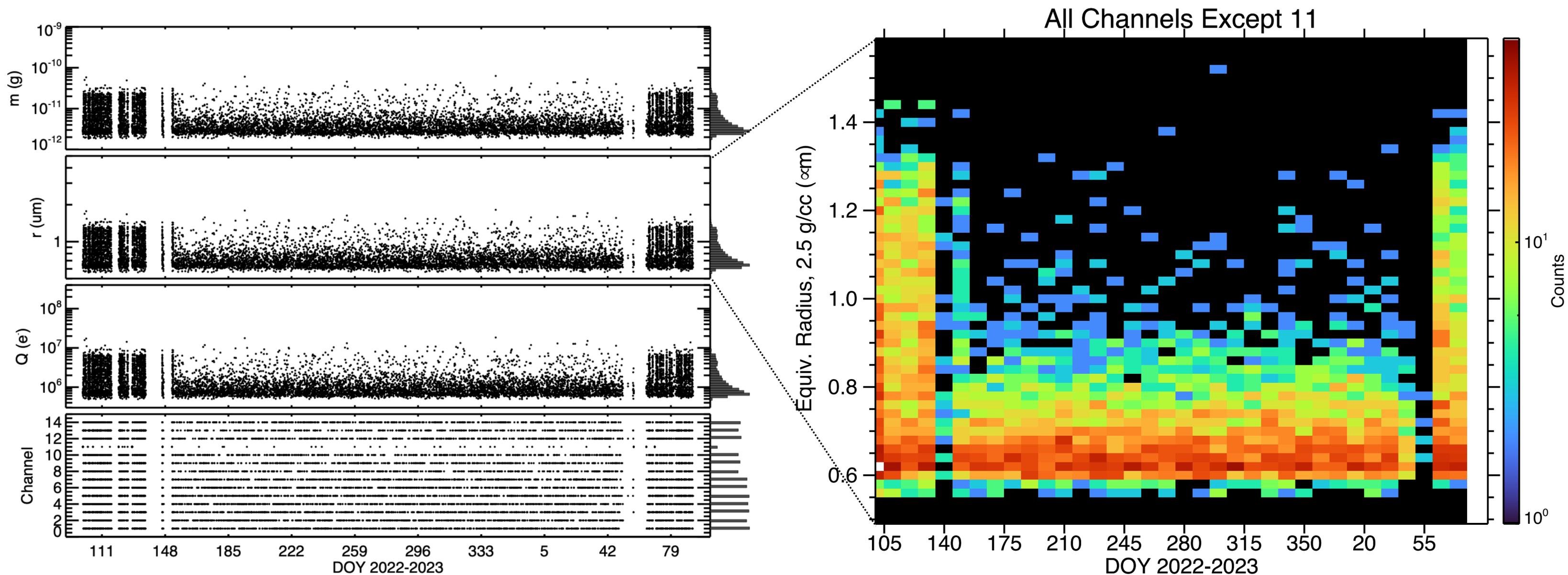


# Assessment of Level 2 Data

- Read Level 2 data: nh-a-sdc-2-kem1-v5.0
- Temperatures oscillating, why?
- Voltage values didn't appear correct
  - Example: cdh\_sdc\_p2\_5\_adc\_volt had all values of 223 (byte)
- Level 2 Channel\_IDs all matched Level 3 Channels
  - 1-1 mapping L2 → L3
- No discrepancies observed between Level 2 and Level 3 data



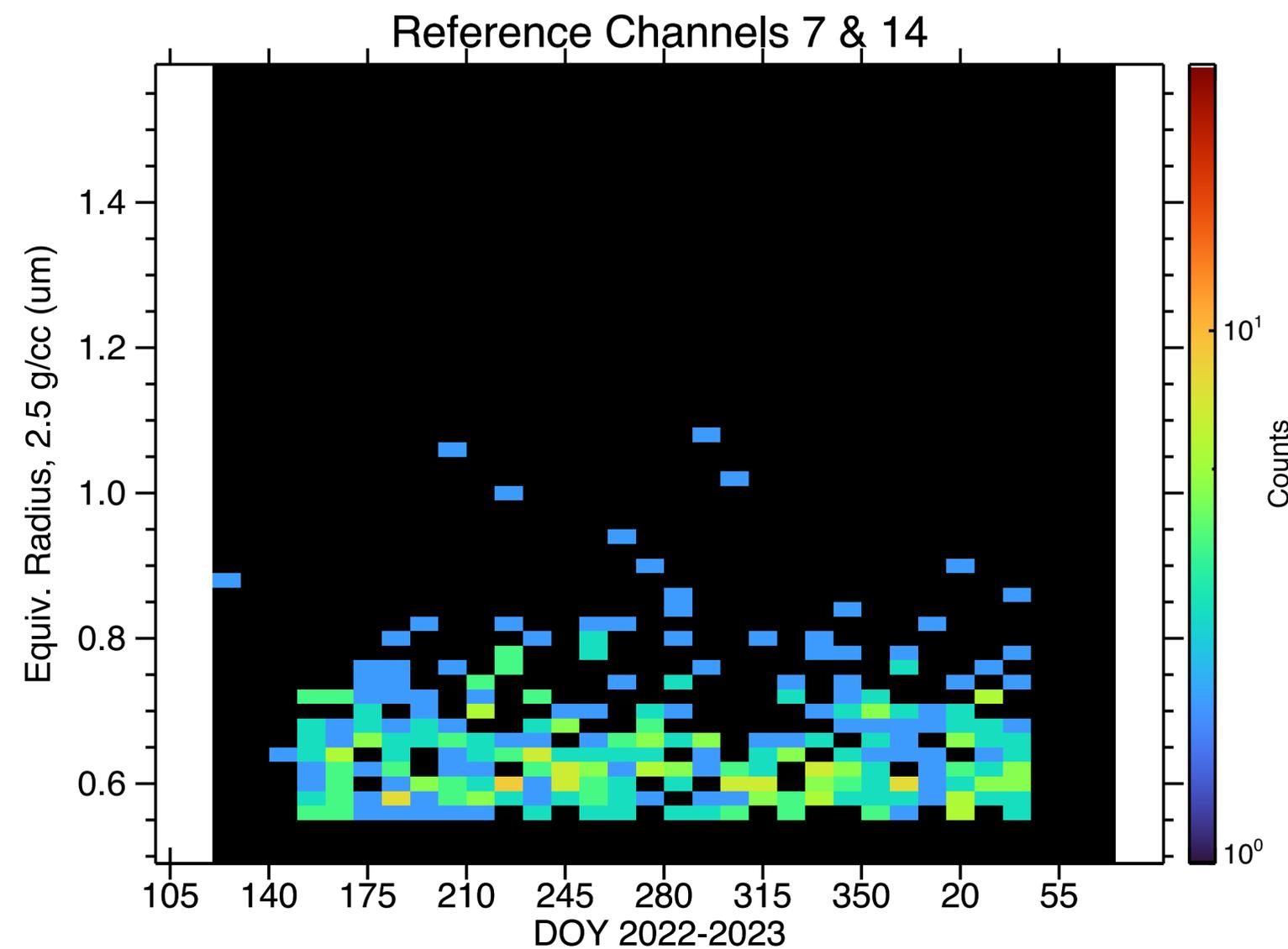
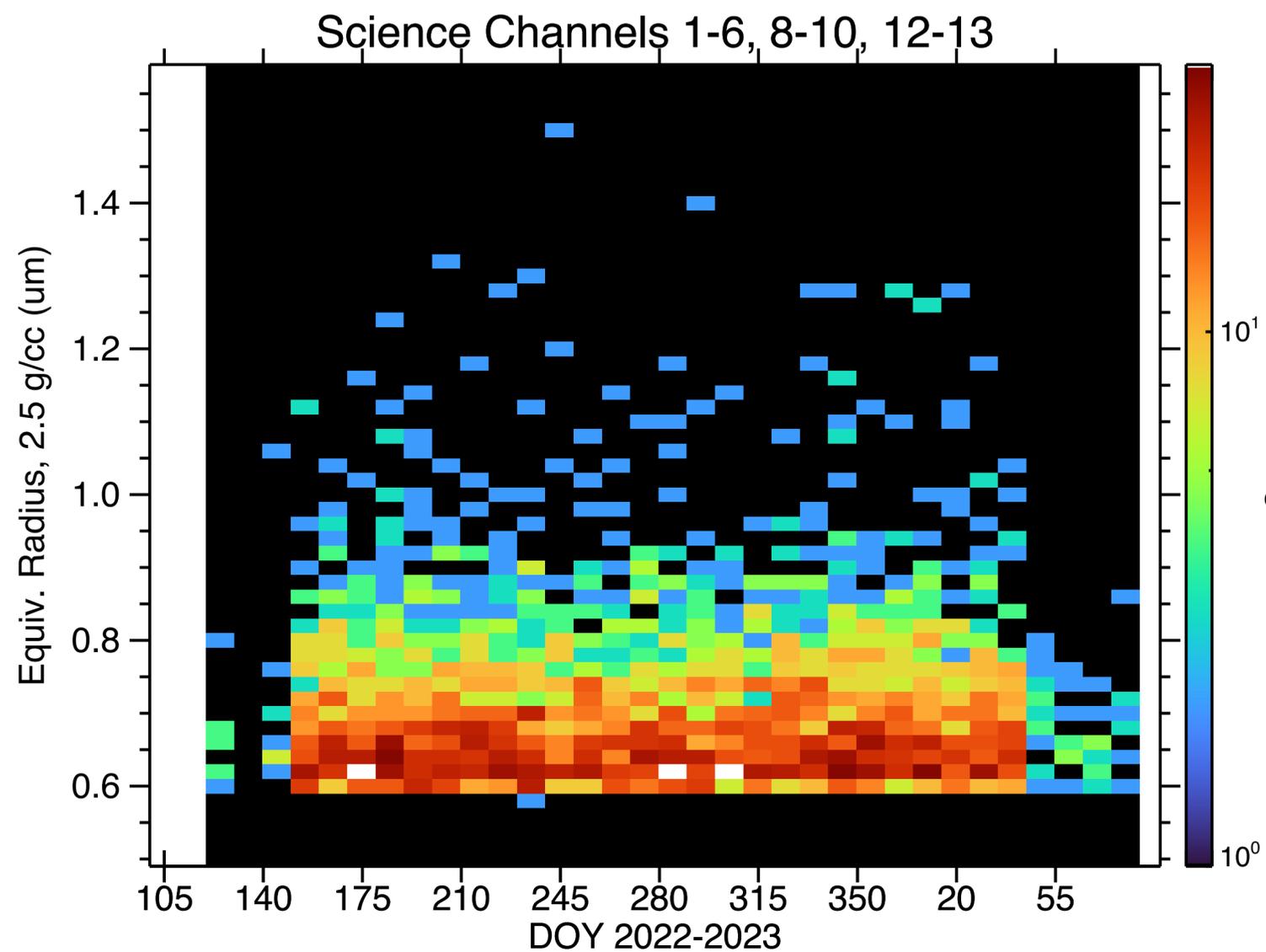
# Level 3 Data: All events



\*All spectrograms have thruster firing events removed



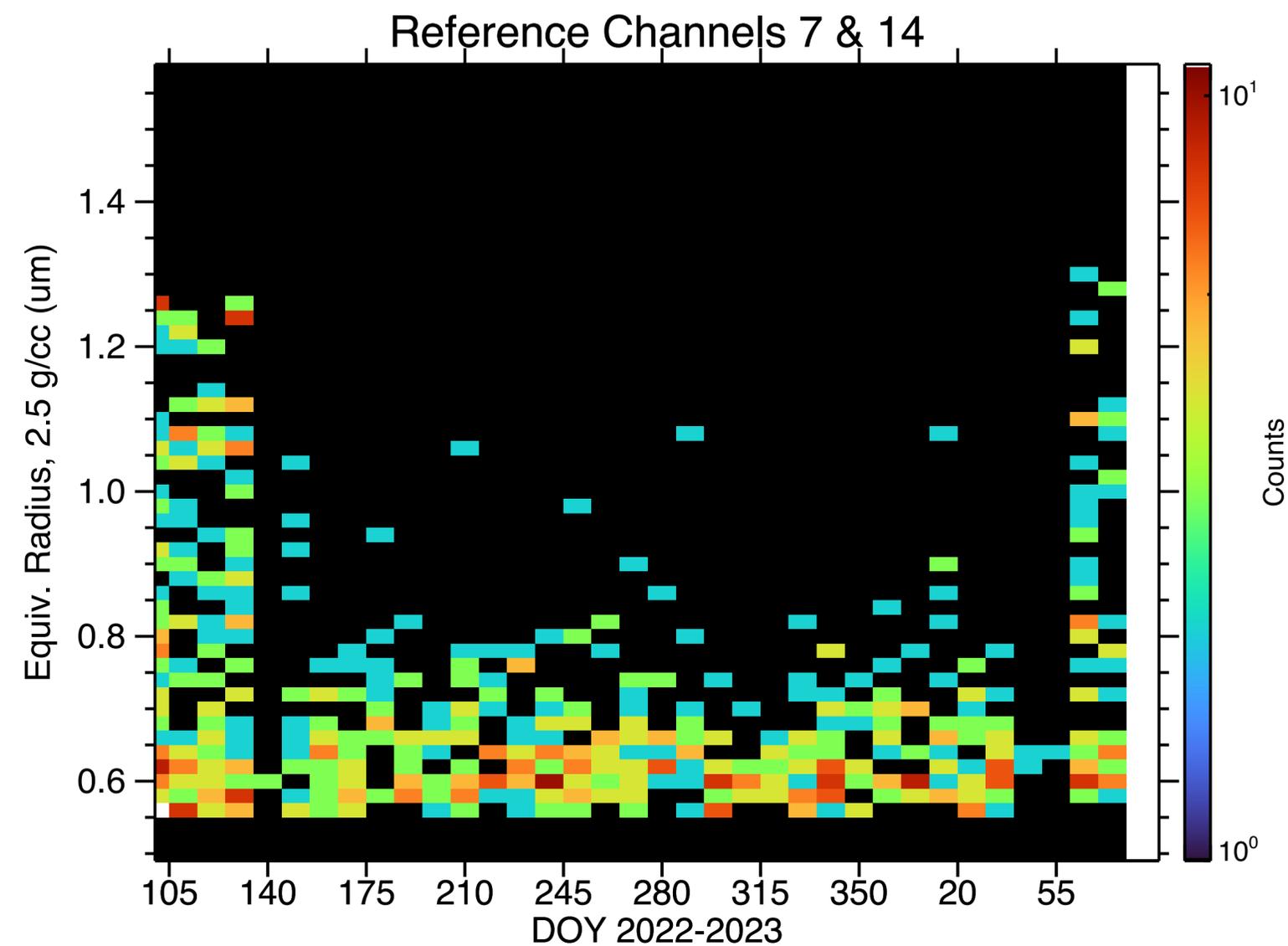
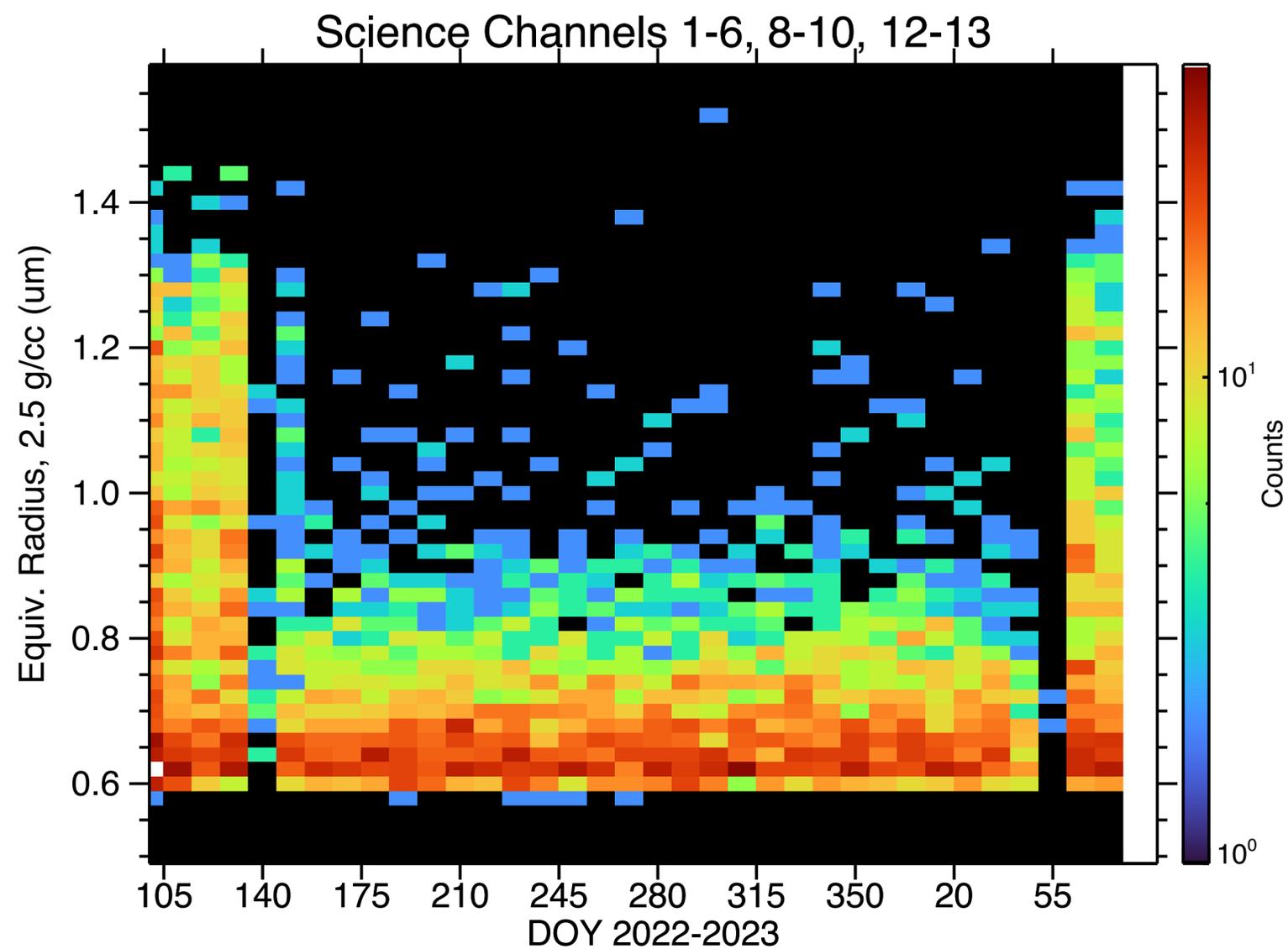
# Level 3 Data: Science vs. Reference Channels



Thruster firing and coincident events removed



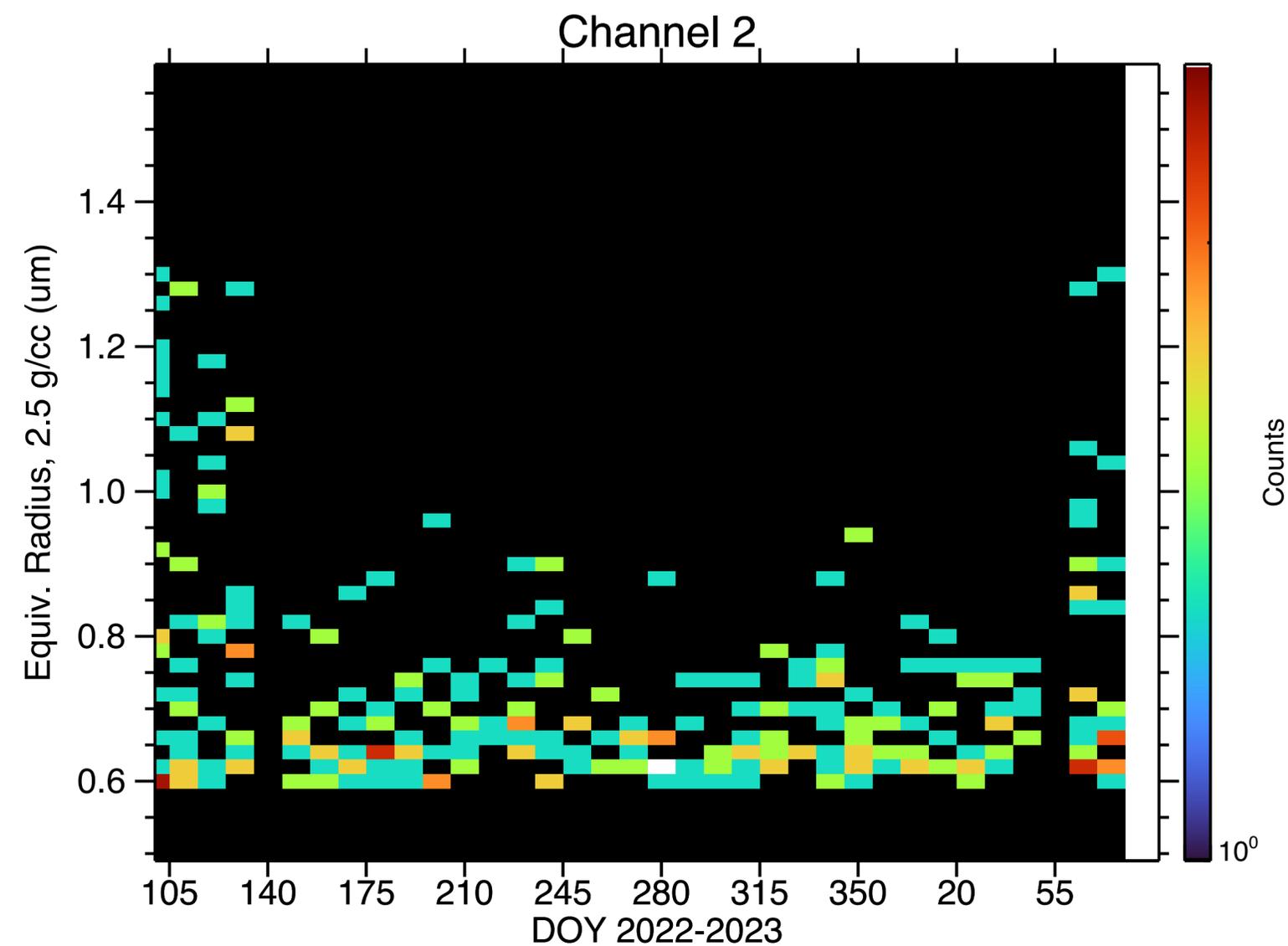
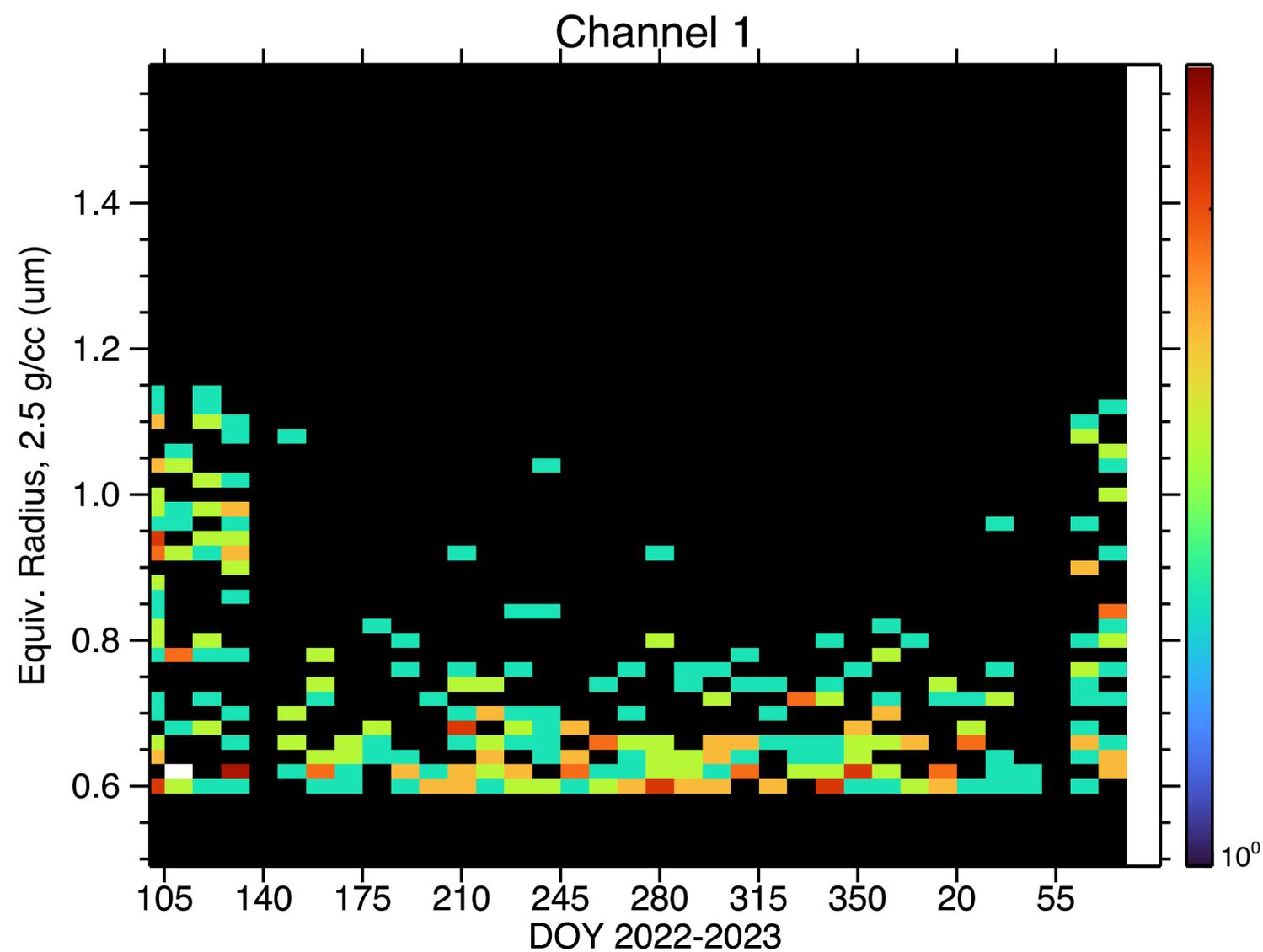
# Level 3 Data: Science vs. Reference Channels



Thruster firing events removed



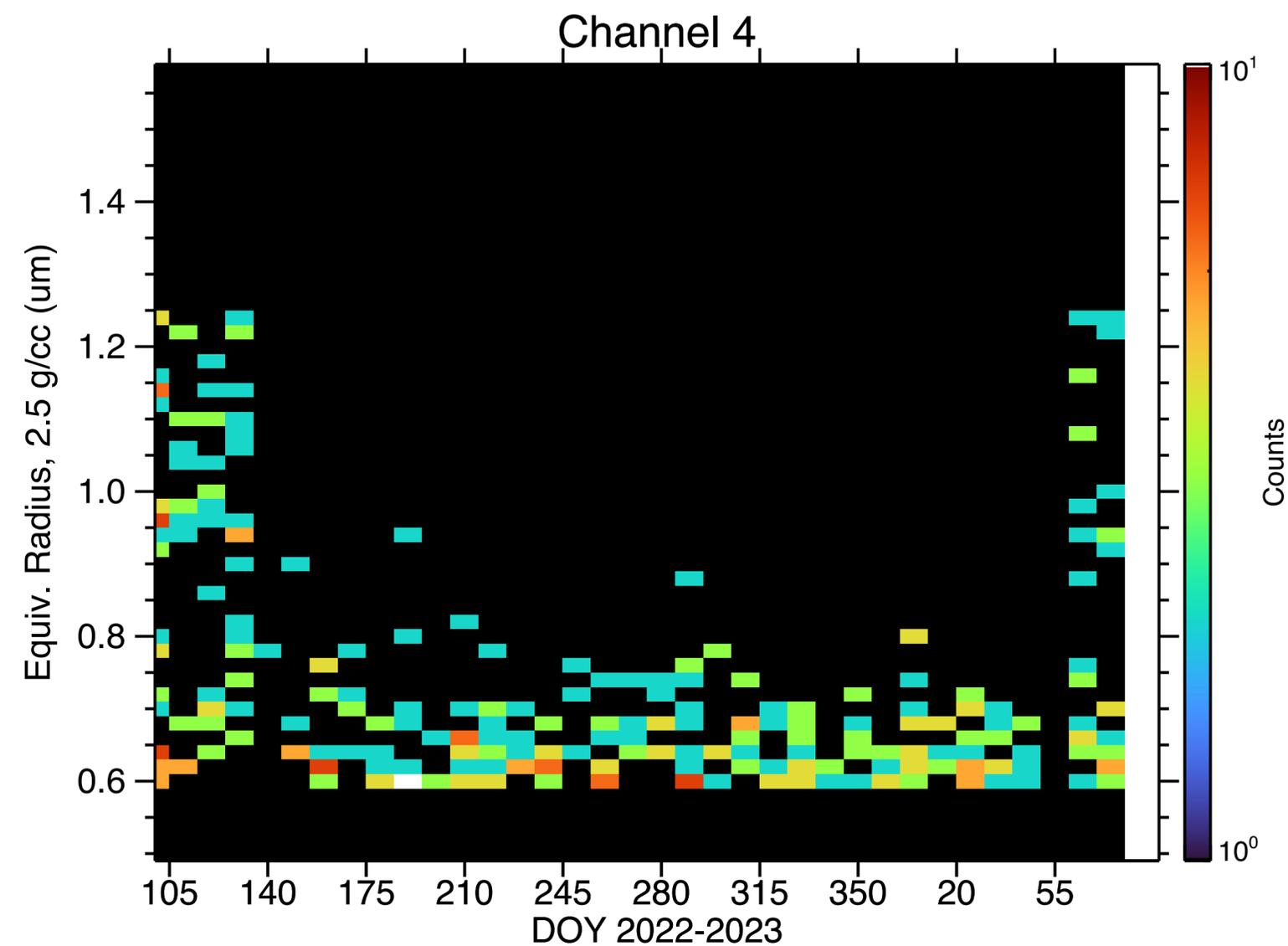
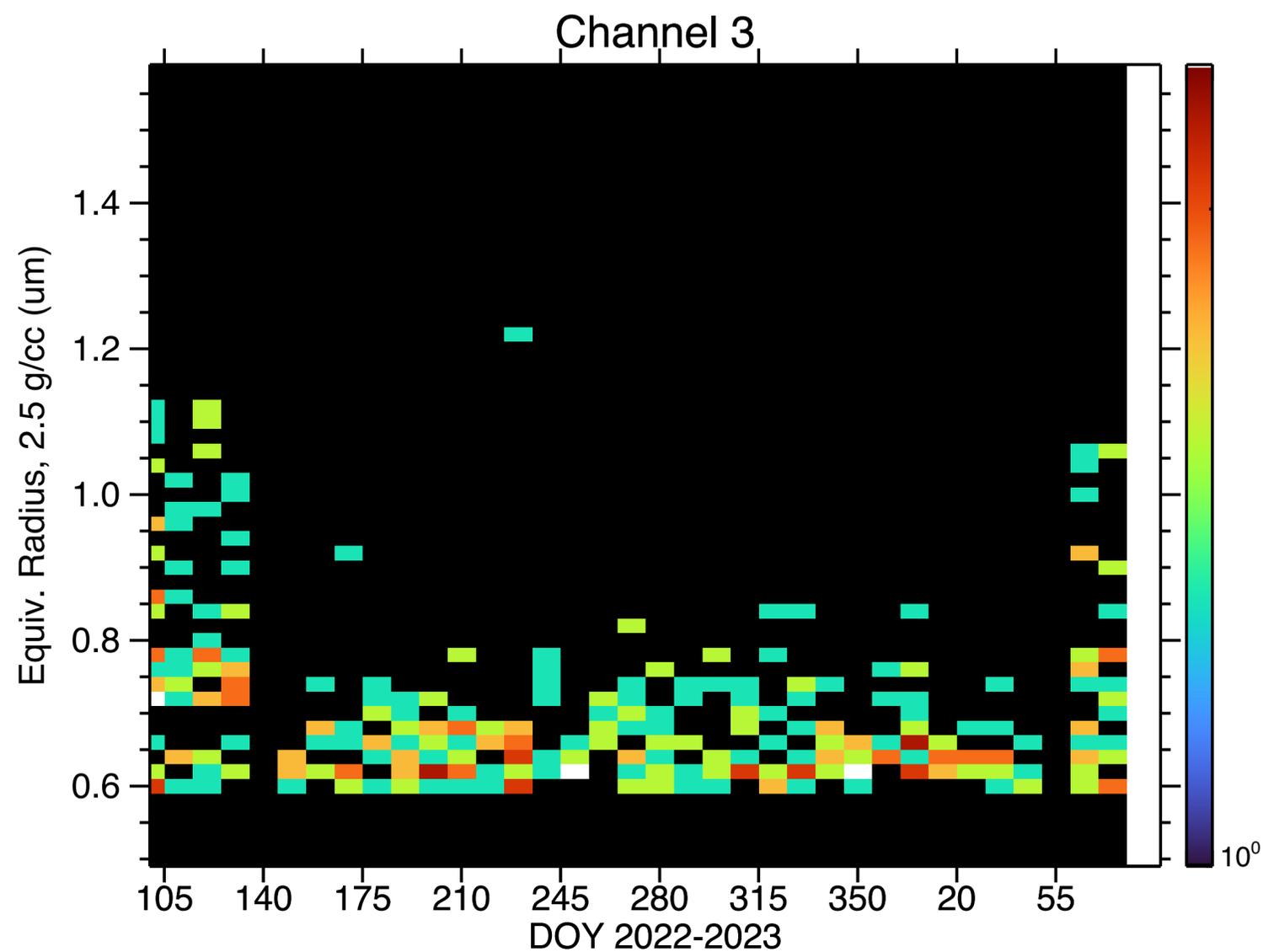
# Level 3 Data: Individual Channels



Thruster firing events removed



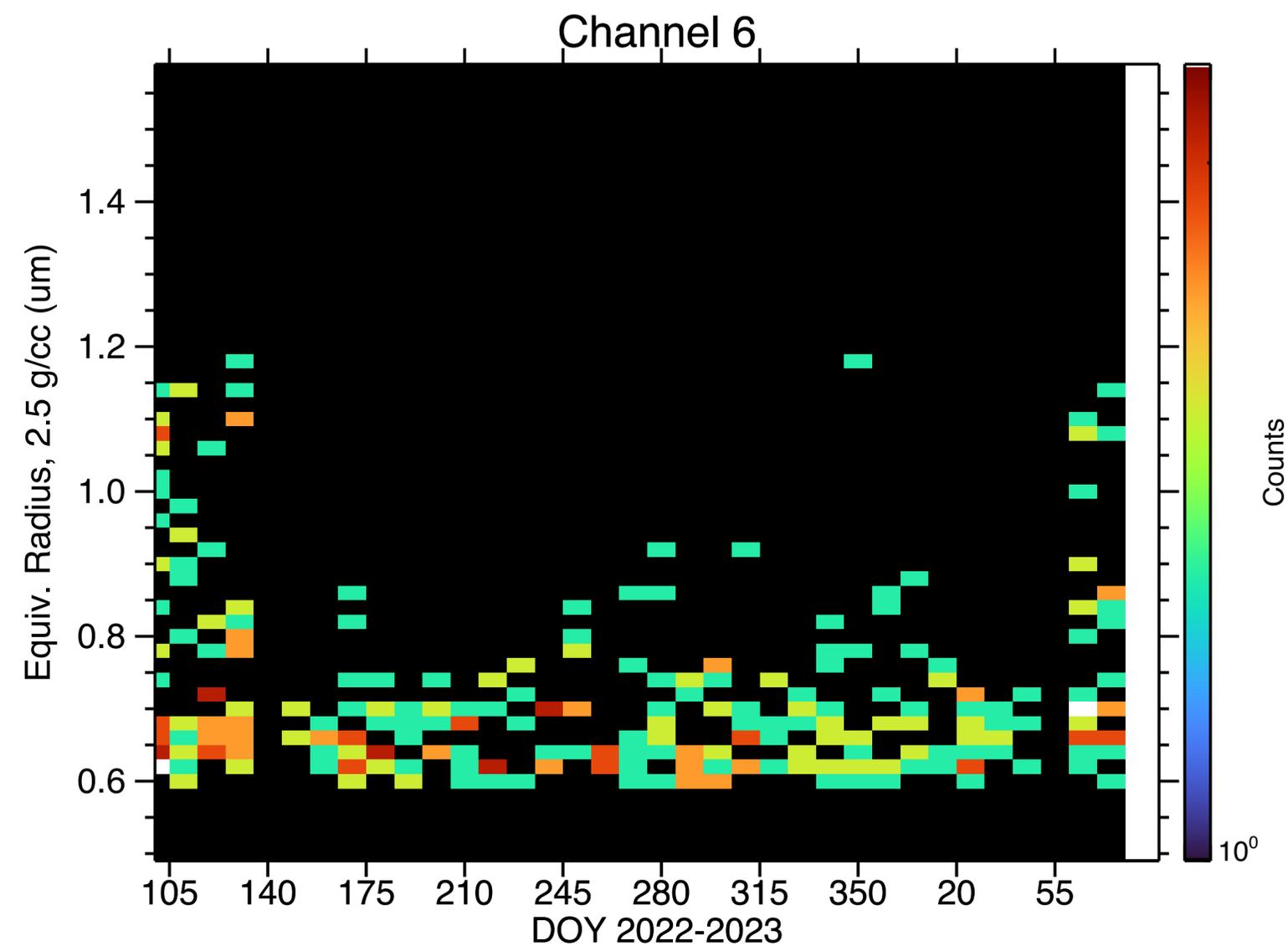
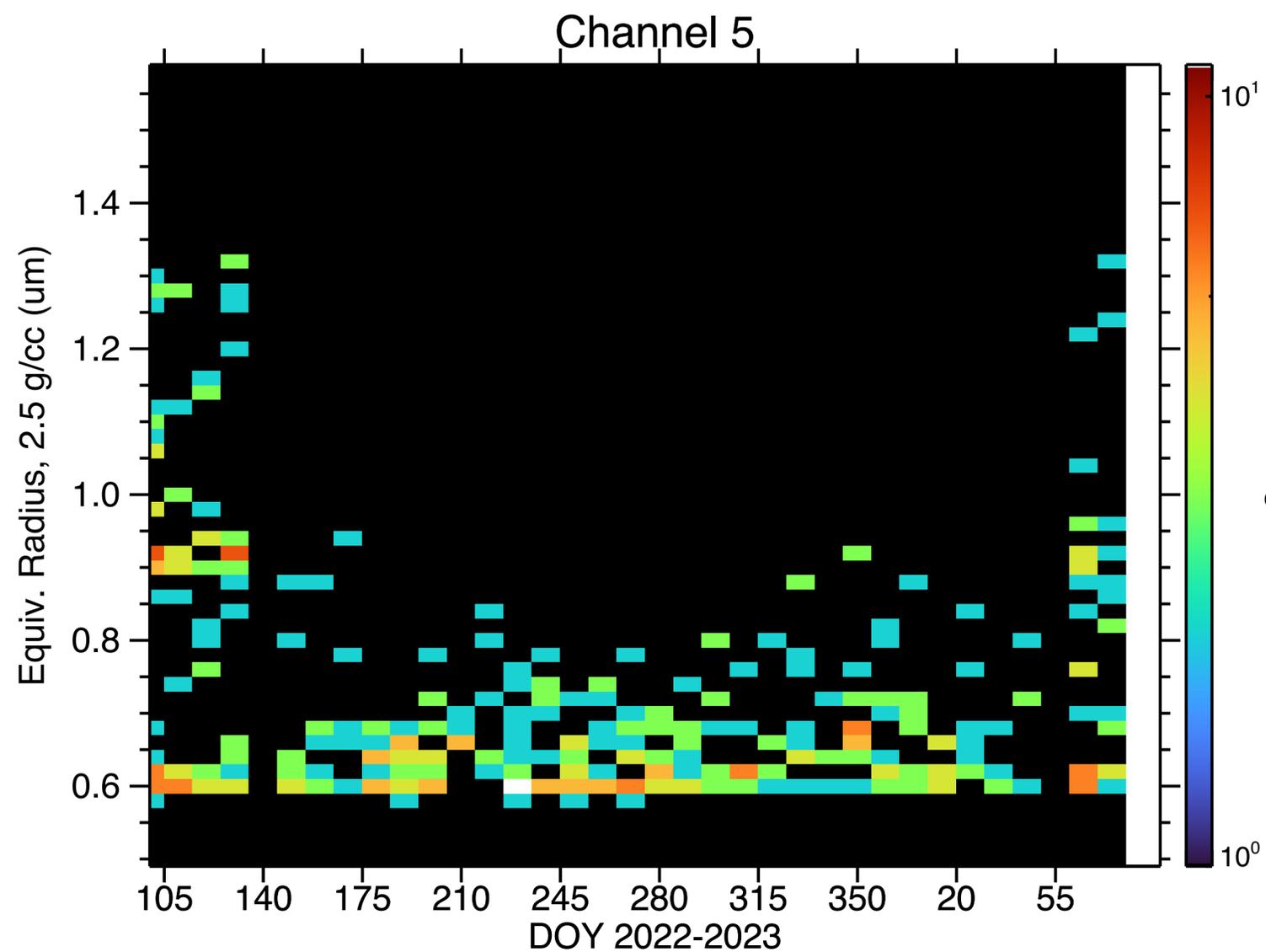
# Level 3 Data: Individual Channels



Thruster firing events removed



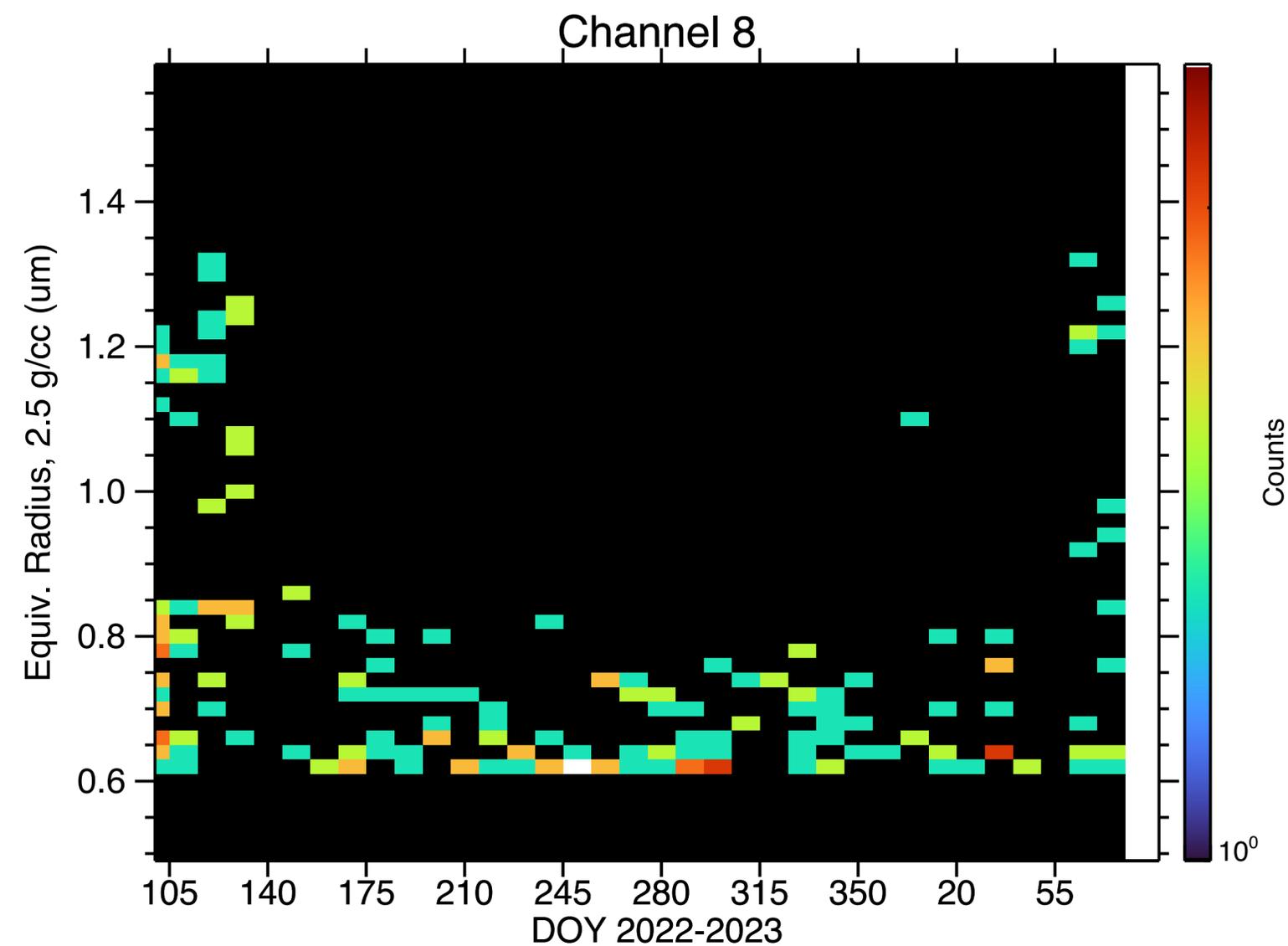
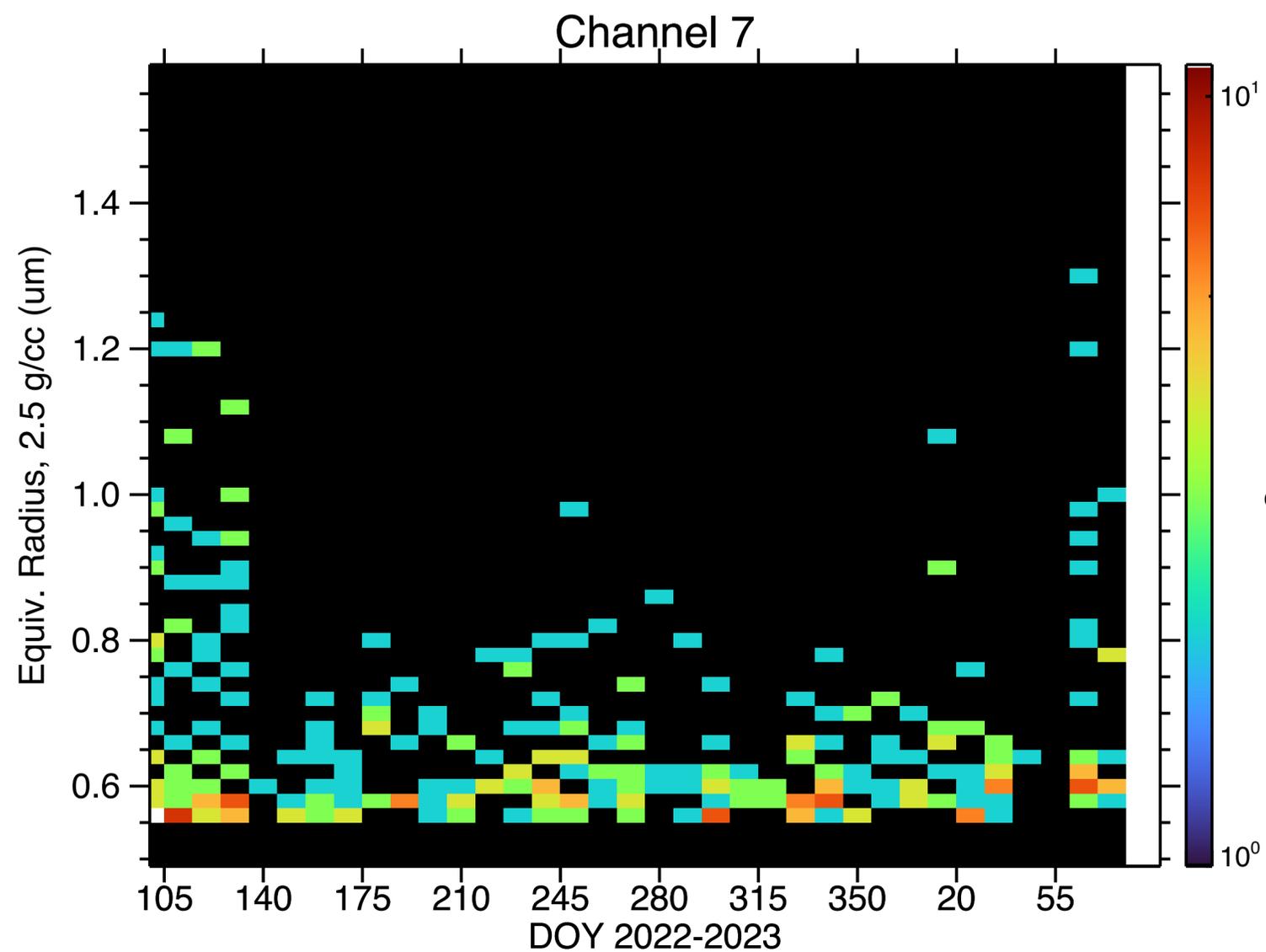
# Level 3 Data: Individual Channels



Thruster firing events removed



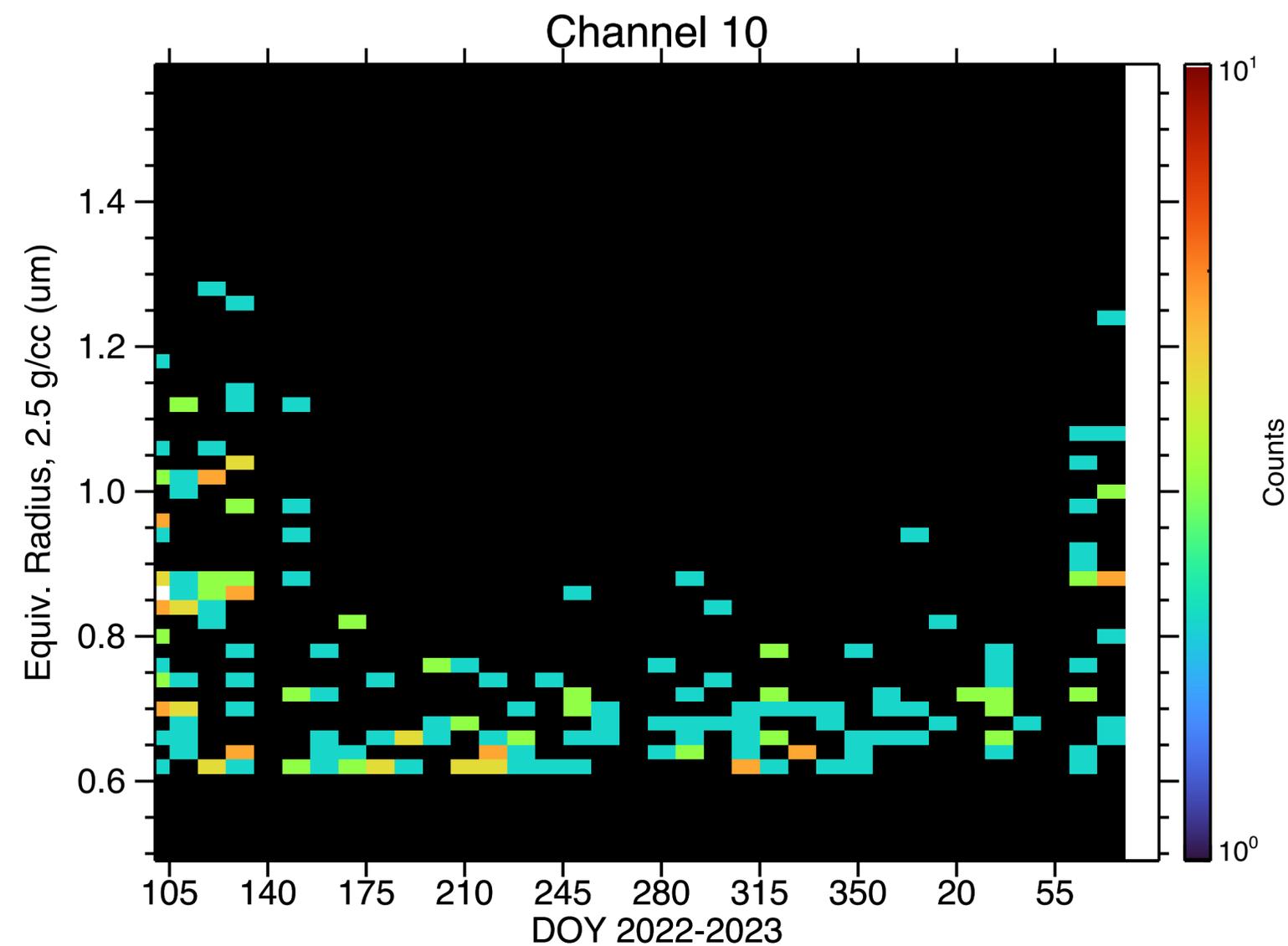
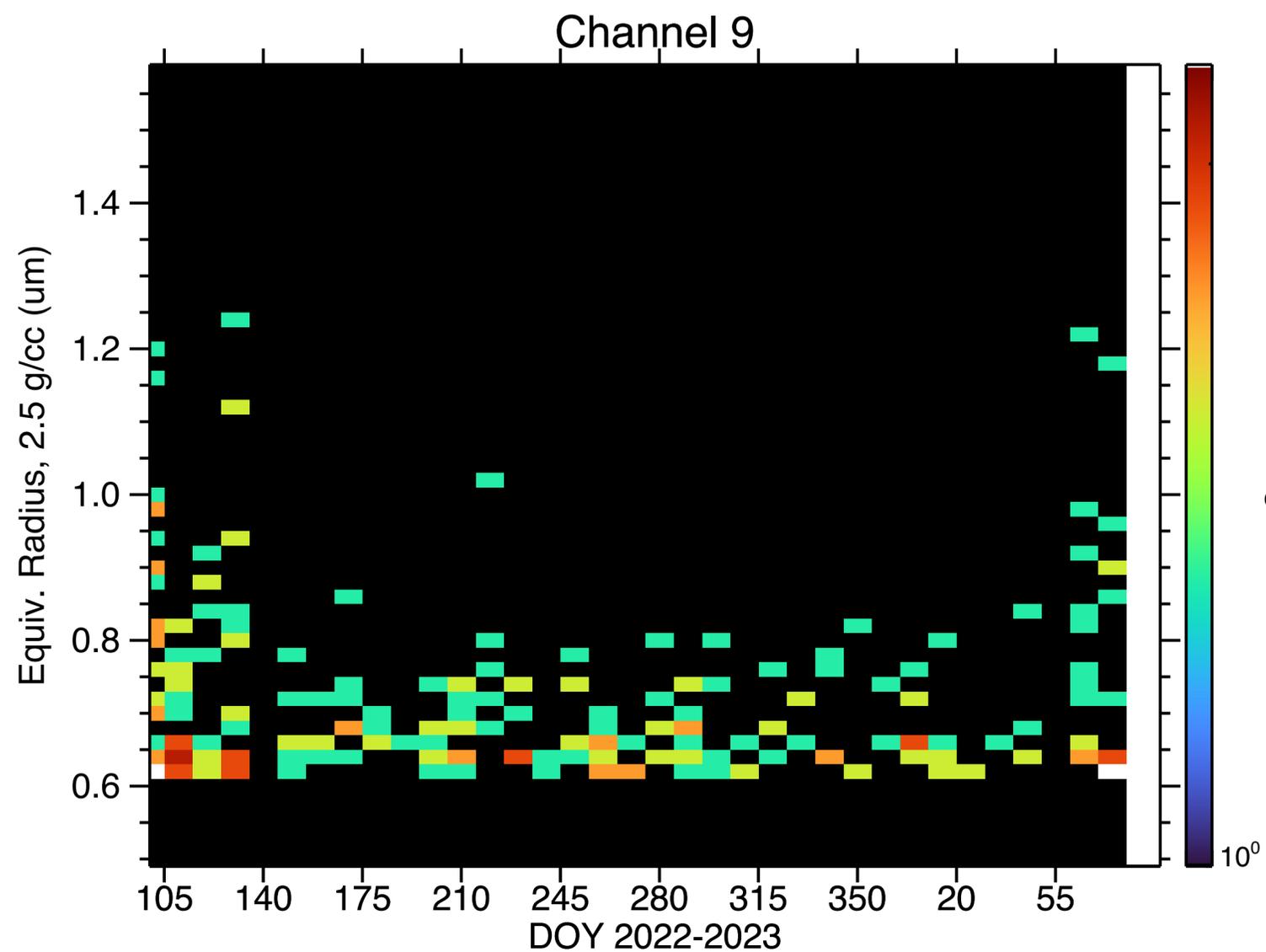
# Level 3 Data: Individual Channels



Thruster firing events removed



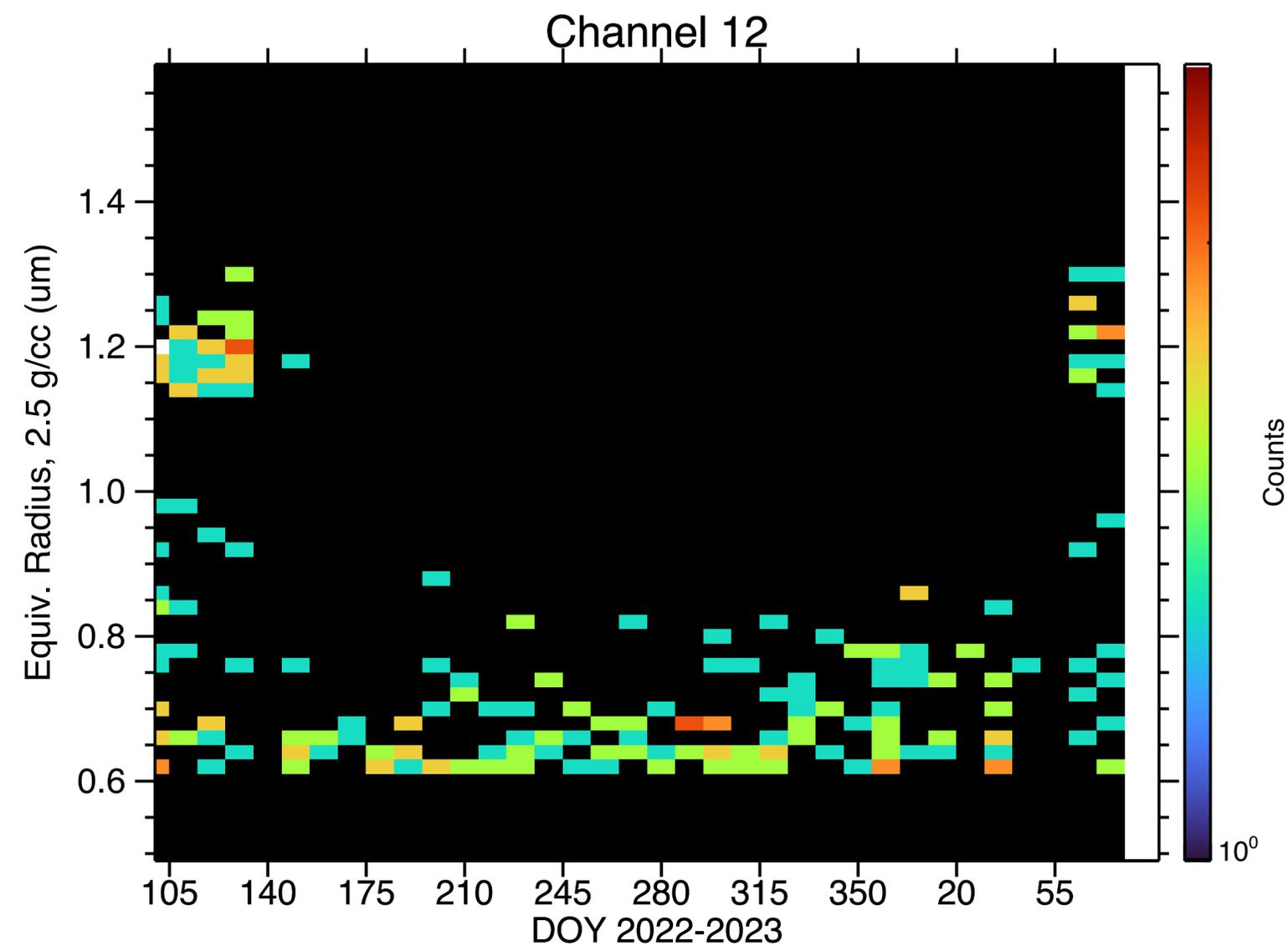
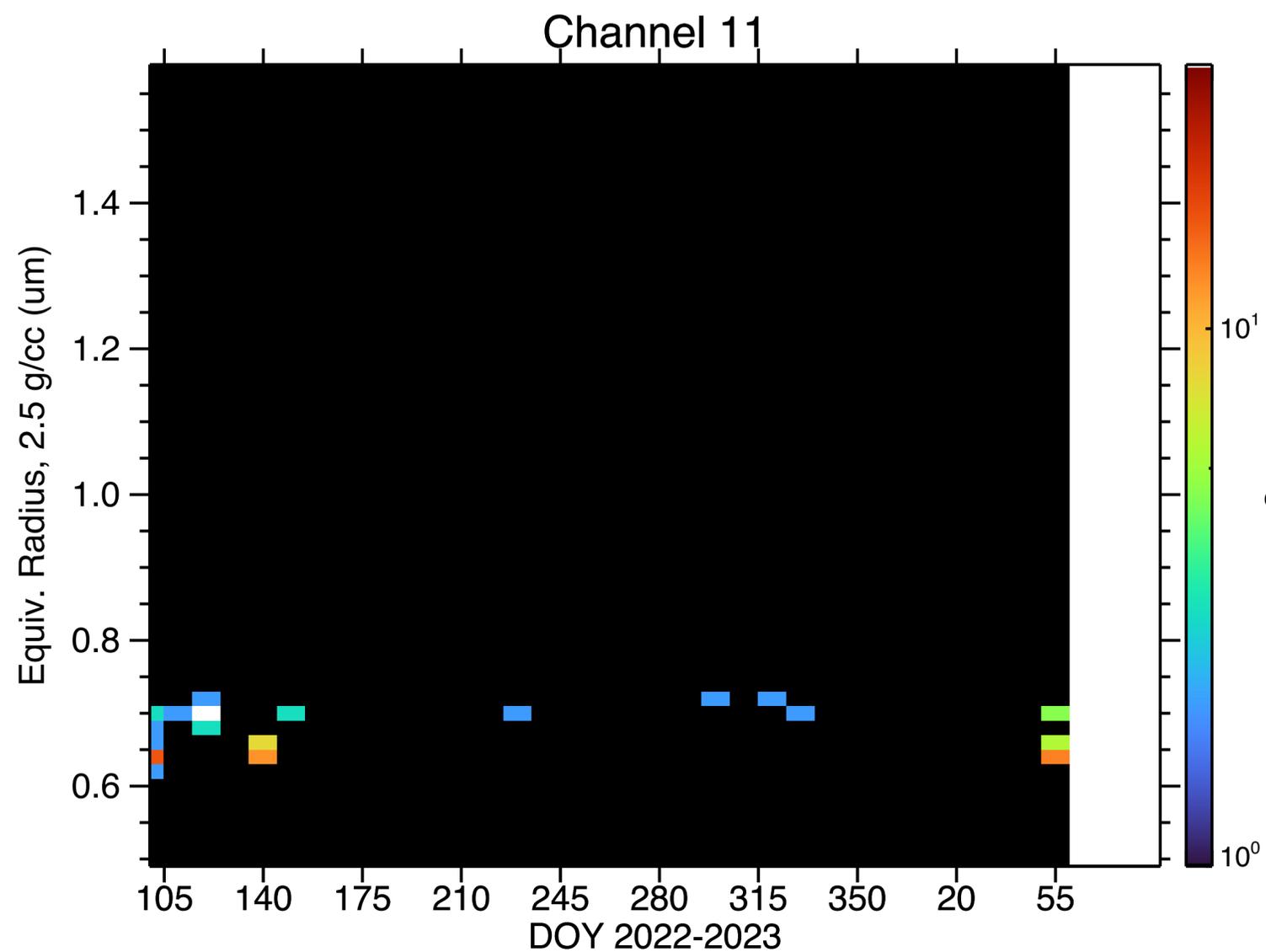
# Level 3 Data: Individual Channels



Thruster firing events removed



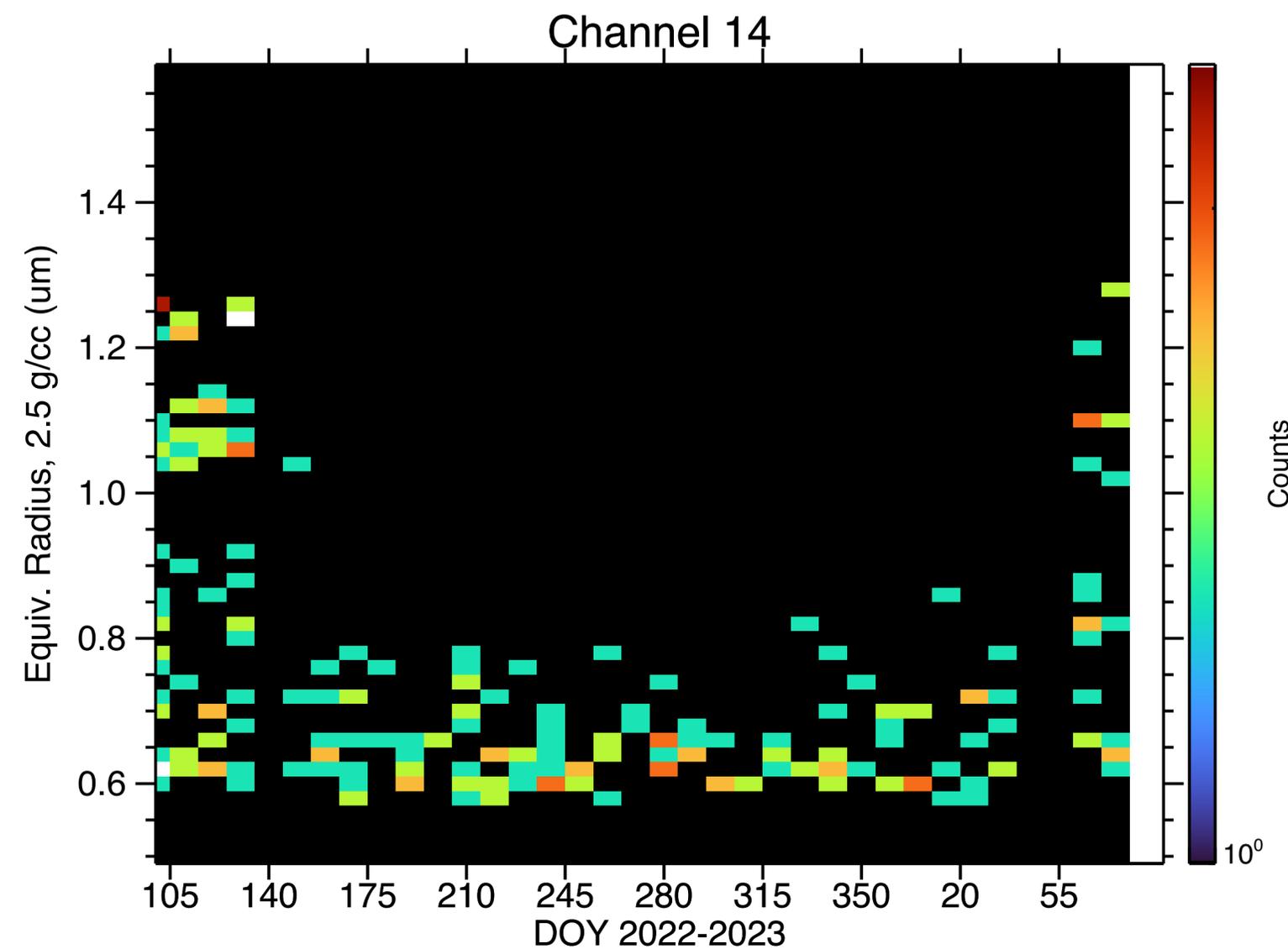
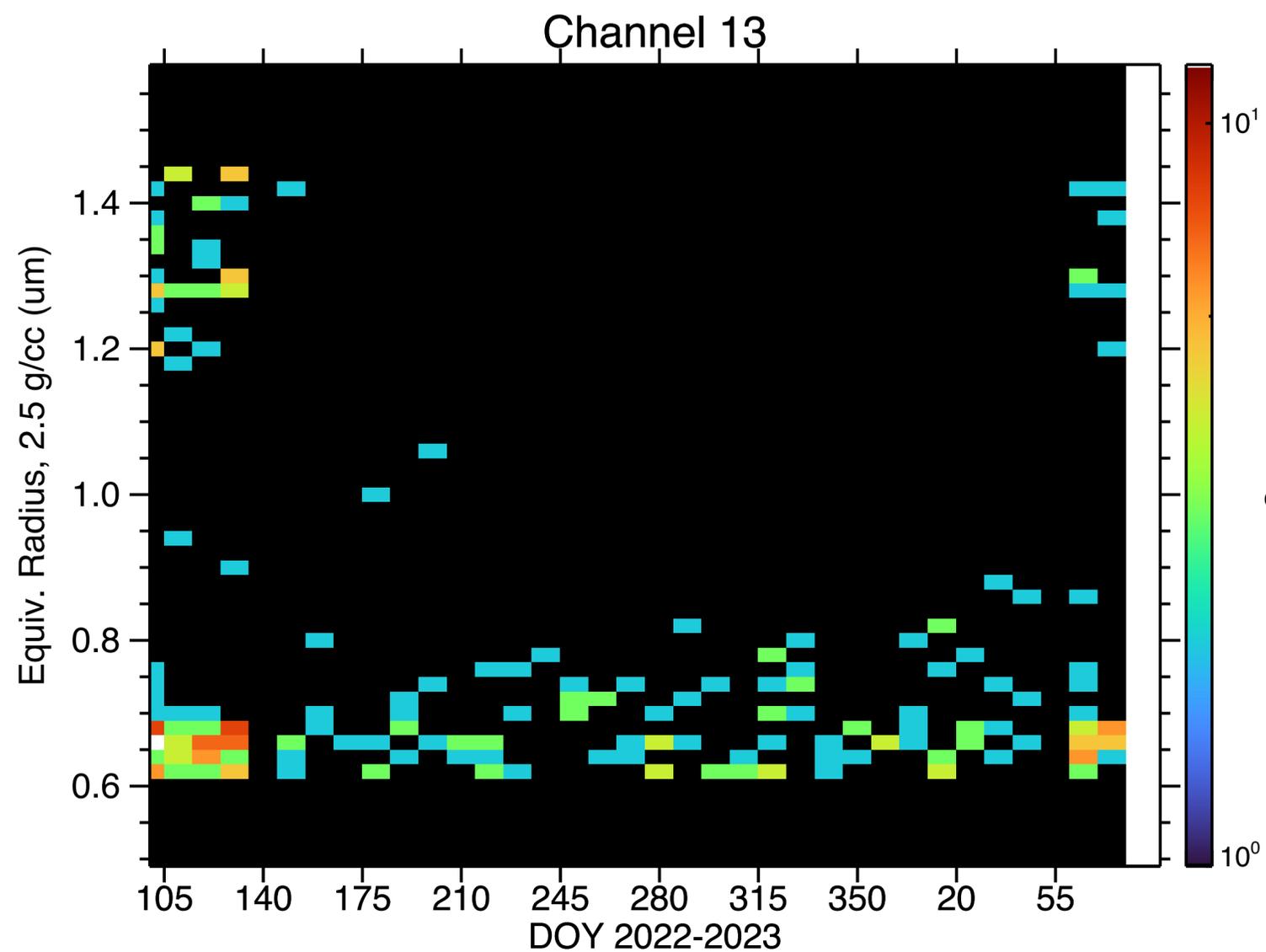
# Level 3 Data: Individual Channels



Thruster firing events removed



# Level 3 Data: Individual Channels



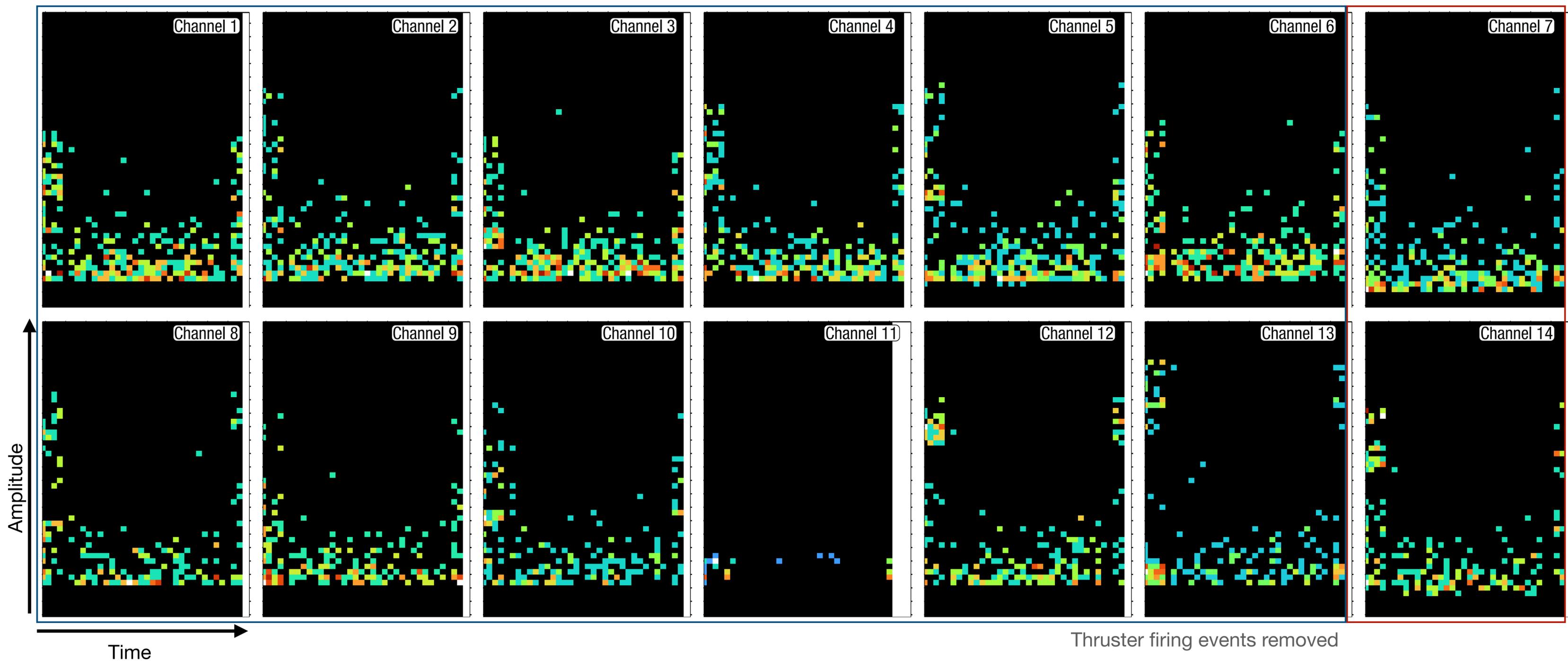
Thruster firing events removed



# Level 3 Data: All Channels

Science

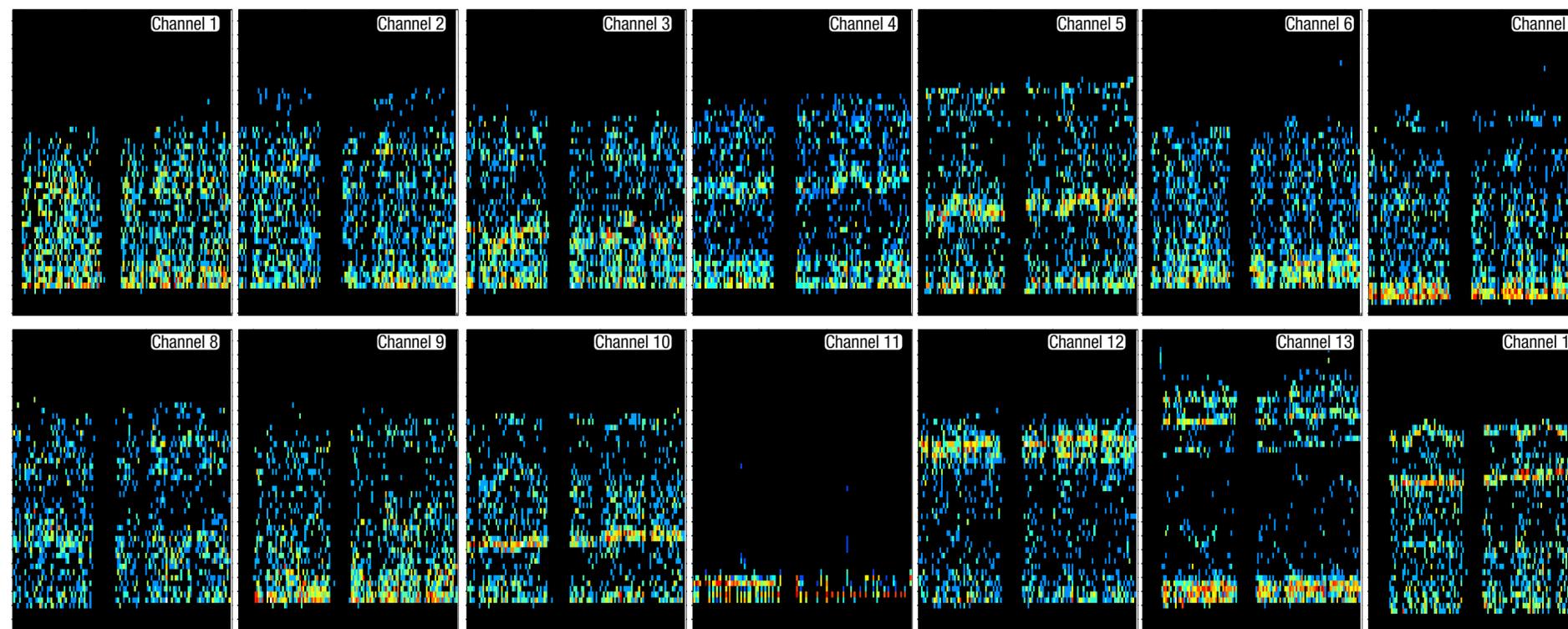
Reference



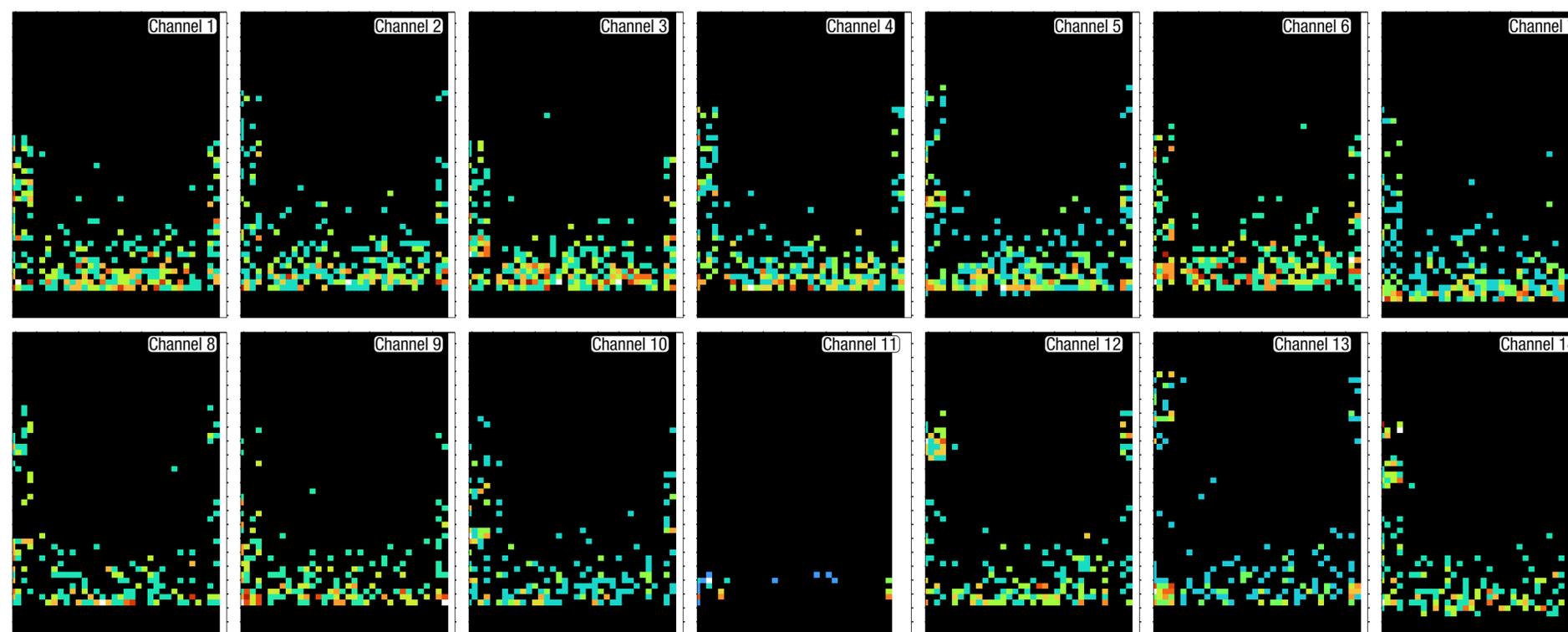


# Level 3 Data: All Channels comparison to last review

Last review



This review,  
looks quite different



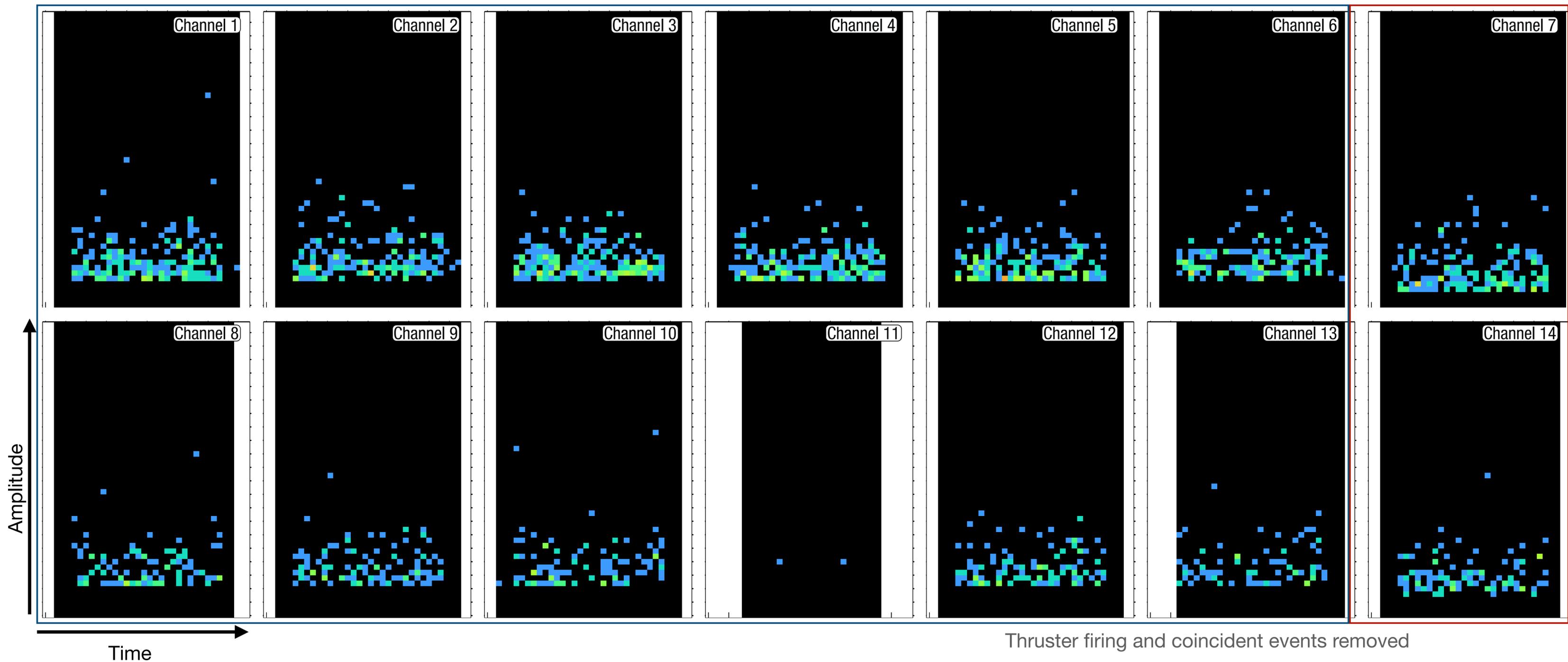
Thruster firing events removed



# Level 3 Data: All Channels

Science

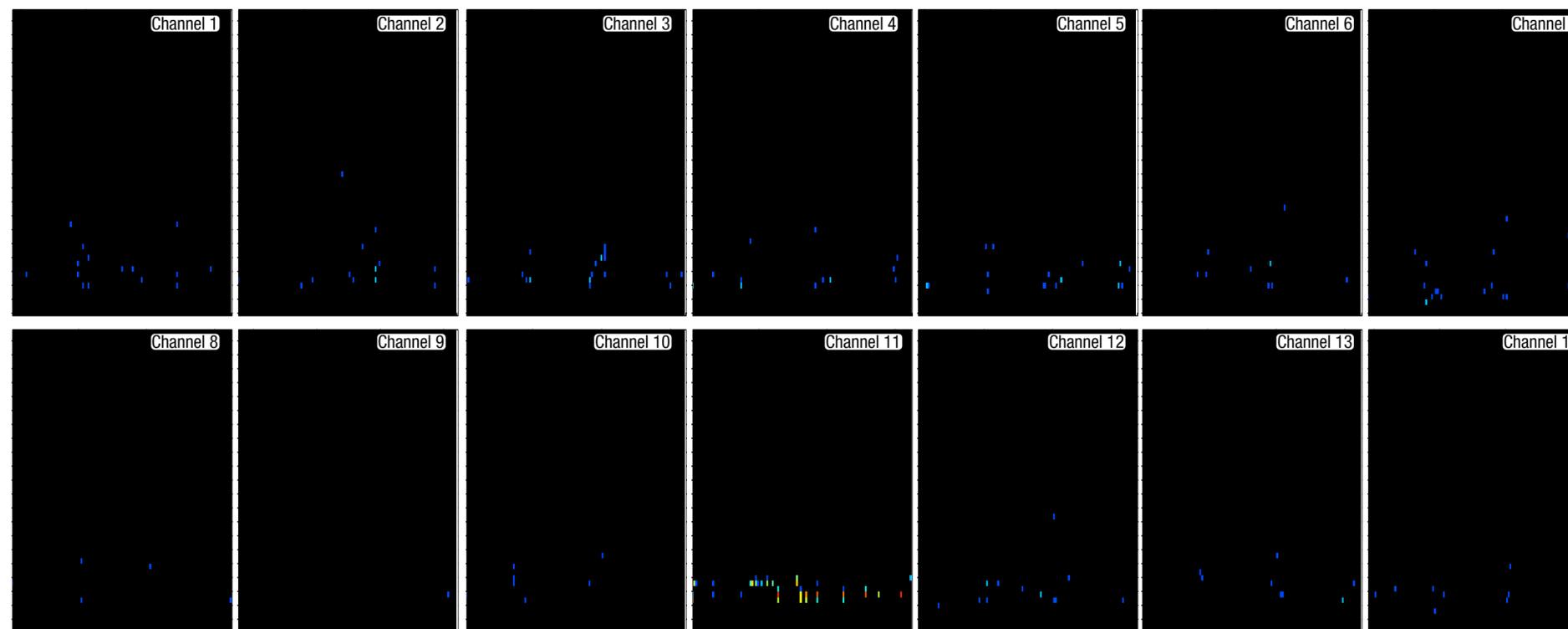
Reference



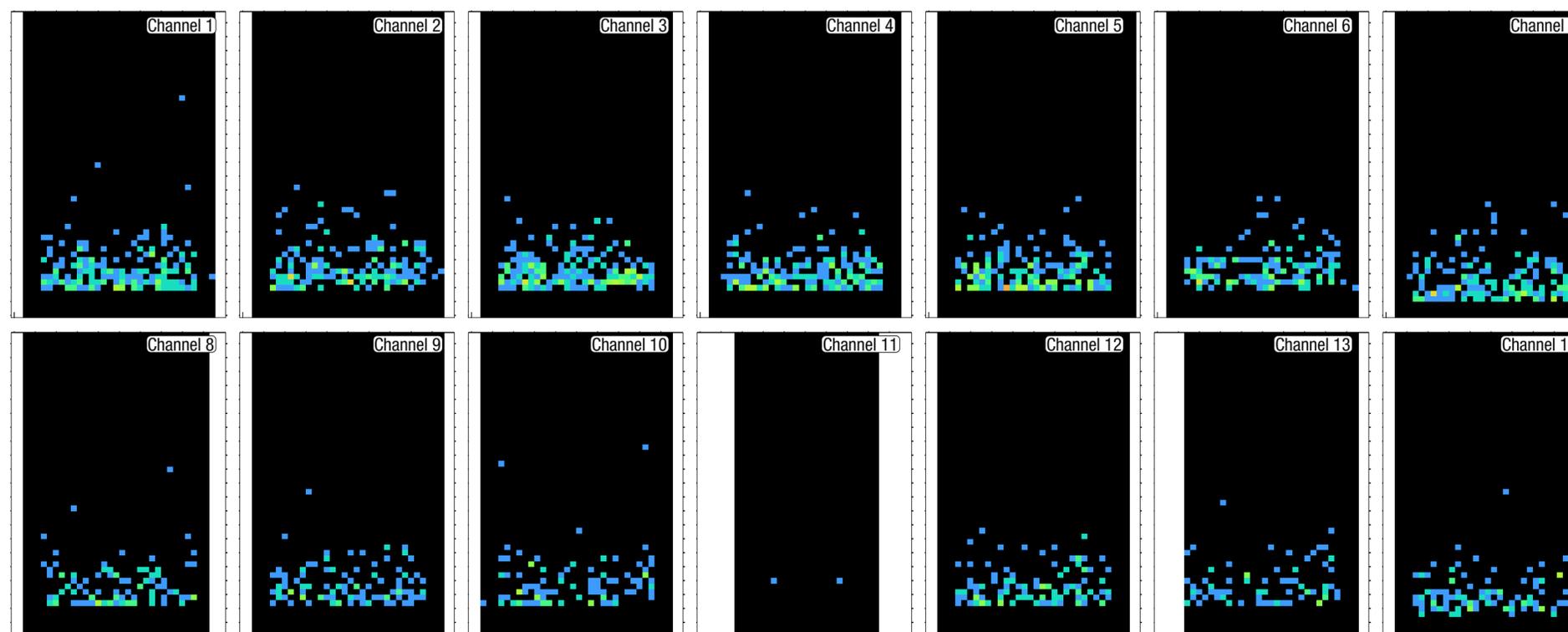


# Level 3 Data: All Channels comparison to last review

Last review



This review, looks quite different, many more counts, why?



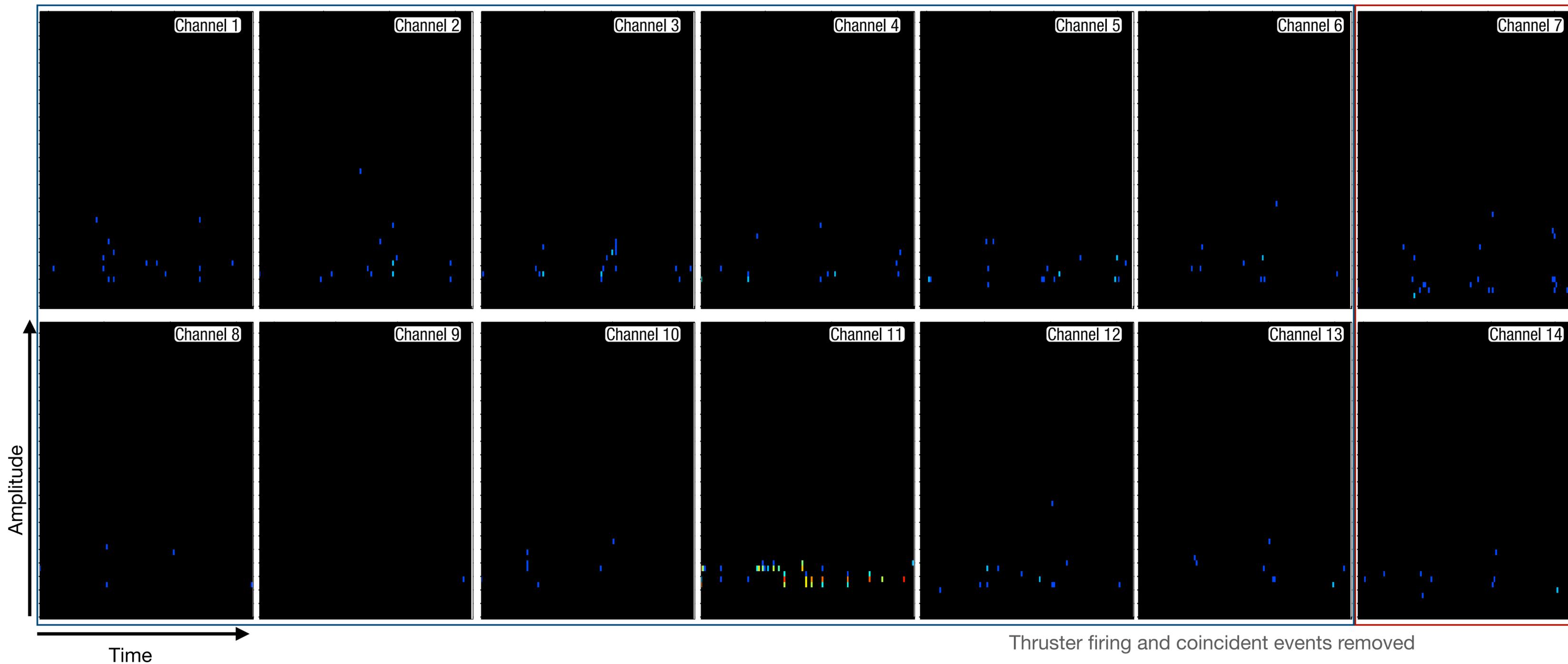
Thruster firing events removed



# Level 3 Data: All Channels

Science

Reference





# Assessment of Level 3 Data

- Read Level 3 data: nh-a-sdc-3-kem2-v1.0
  - Covered 2022-099T20:36 to 2023-092T00:04
  - Previous review covered 2018-216T21:08 to 2022-109T19:49, is the overlap intentional?
- On/off times located in //document/sdc\_on\_off\_times\_v0861.tab
  - Provides sufficient information to calculate fluxes
- Data looks very different than previous review, why?