sPHENIX INTT
Cosmic hot channel study

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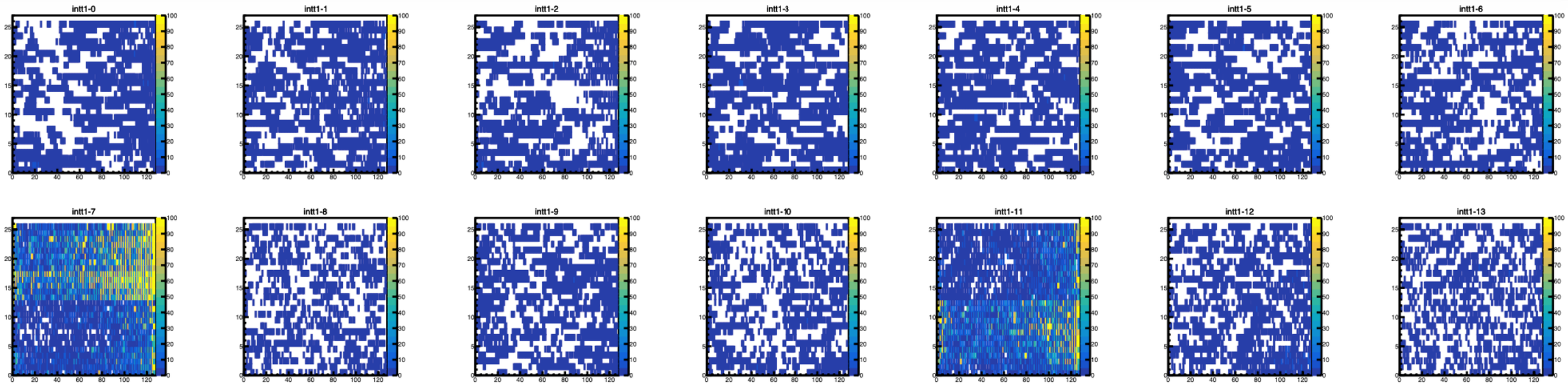
Hot channel study

- Running by Fun4All framework.
- Using Run 26961 (the DST file made by Genki).
  - Total events: 267315
  - HGaI vertical trigger
  - File path: /direct/sphenix+tg+tg01/commissioning/INTT/work/genki/analysis/DST_creation/output/test_DST_cosmics_intt_00026961.root
- The clone hits are removed in following plots.

Hot channel study

Run 26961

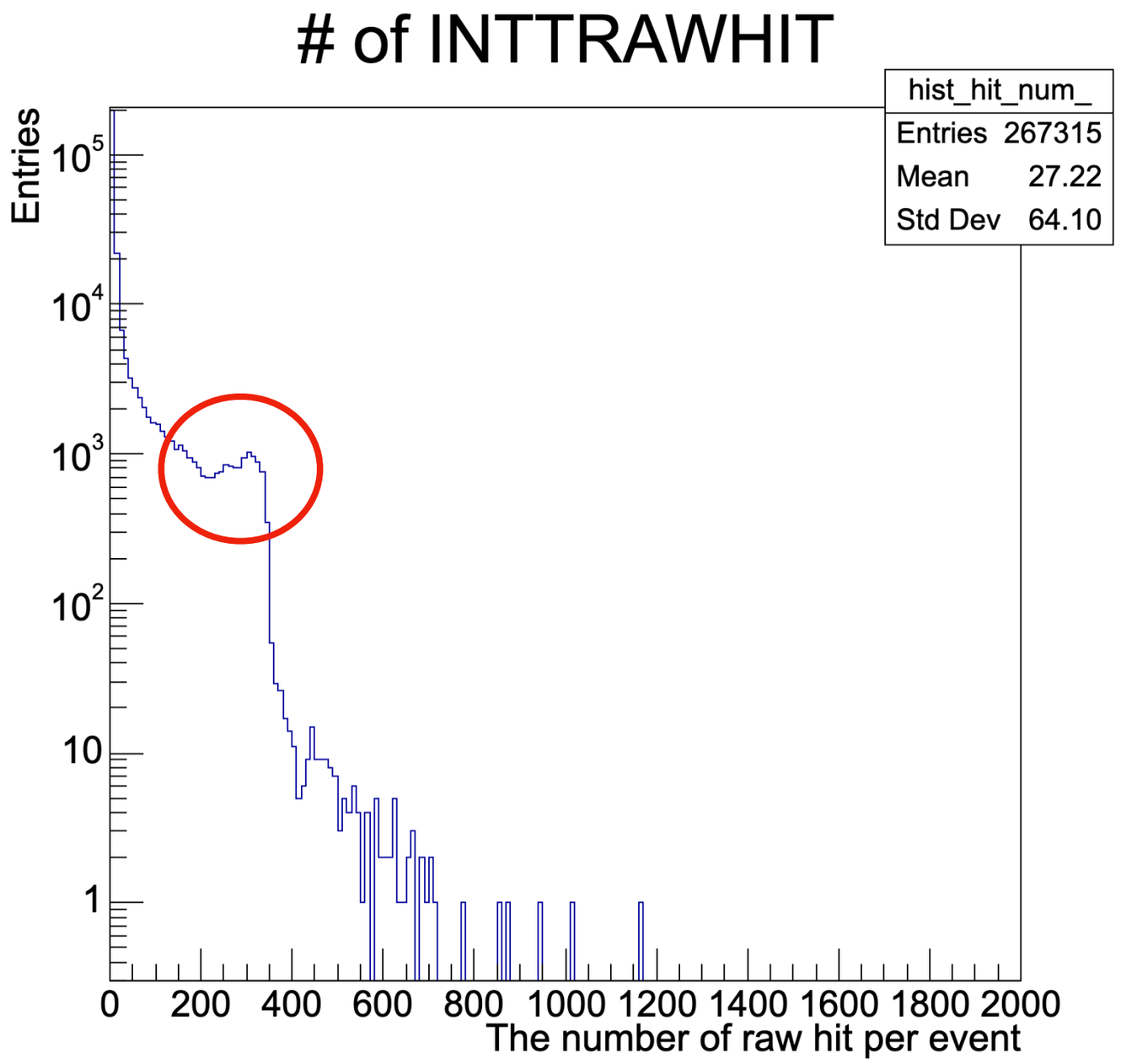
- Hit map showed as ladder by ladder.
- Most of the channel has the number of hits lower than 10. Actually in this run, only about 8000 channel have the number of hits larger than 10.



Hot channel study

Run 26961

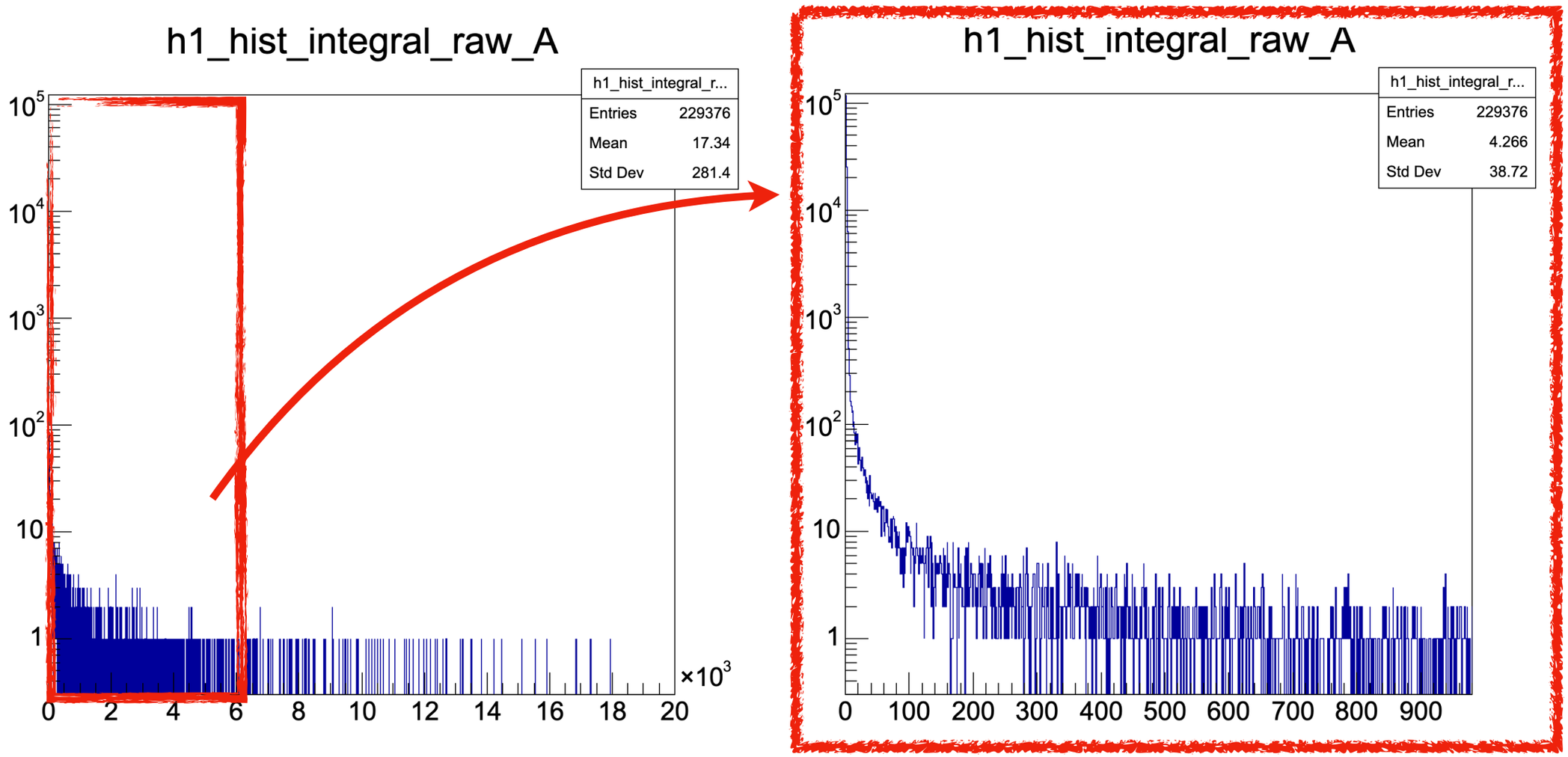
- # of hit per event distribution
- The distribution looks smooth before 200, however there is a turning point around 300.



of hits per channel

Run 26961

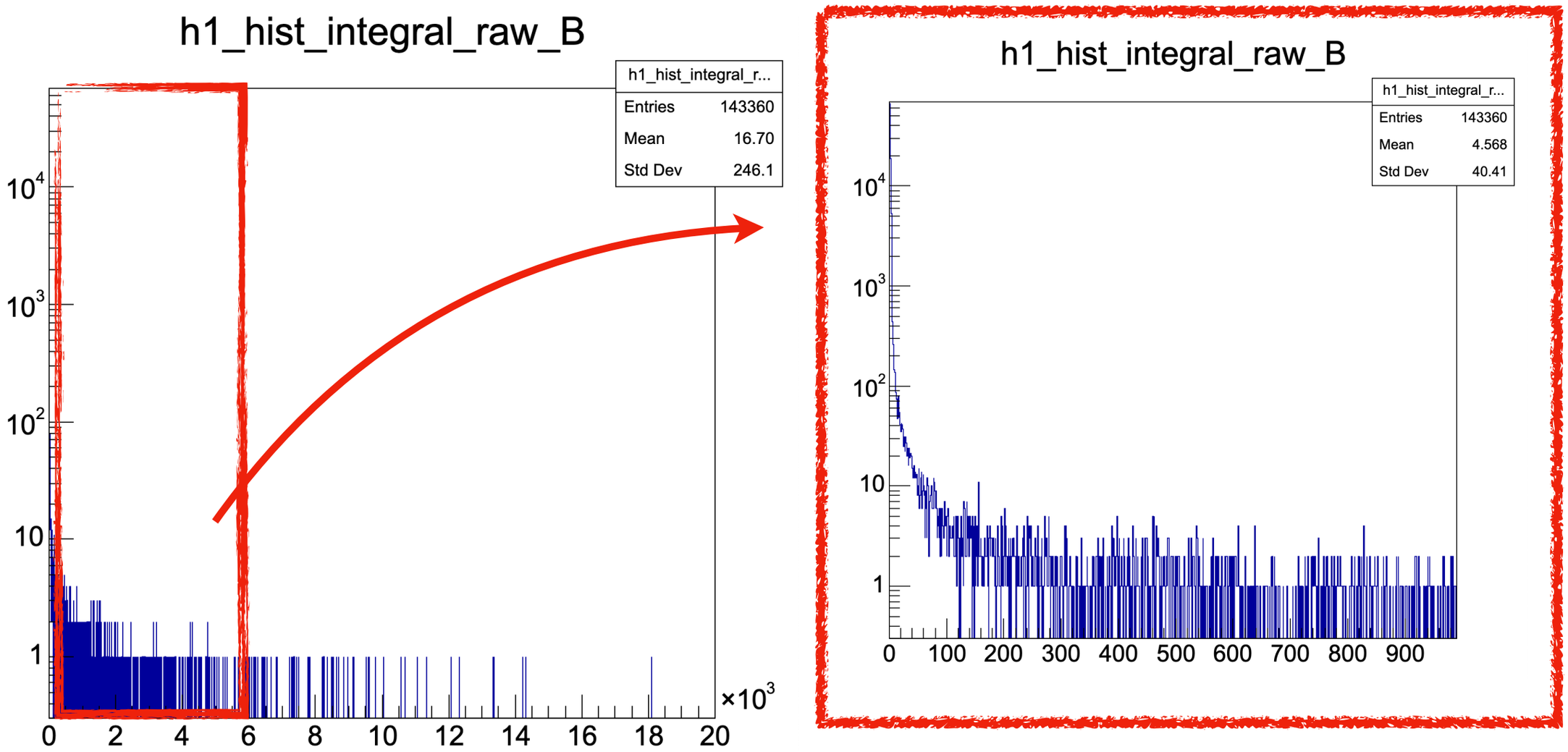
- I tried to look into the # of hits per channel ladder by ladder, however the statistic for cosmic data is very low.
- So I tried to integral all the # of hits.
- Type A sensor’s distribution.



of hits per channel

Run 26961

- Type B sensor's distribution.
- What's the criteria of a hot channel? Currently I might consider the channels that have more than 100 as hot channel.



Summary

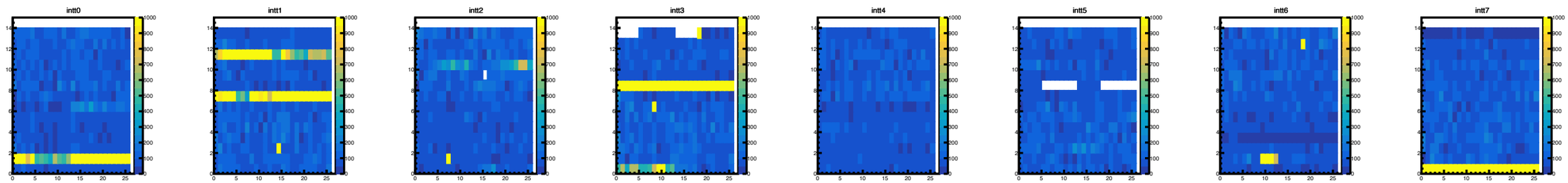
- Run 26961 (DST file made by Genki) is used for analysis.
- Through the # of hits per channel distribution, I can quickly make a rough cut to get the hot channel list.
- To do:
  - Comment from Takashi: we might can look for the hot chip instead of hot channel because of the leak of the statistic.

Back up

of hits per chip

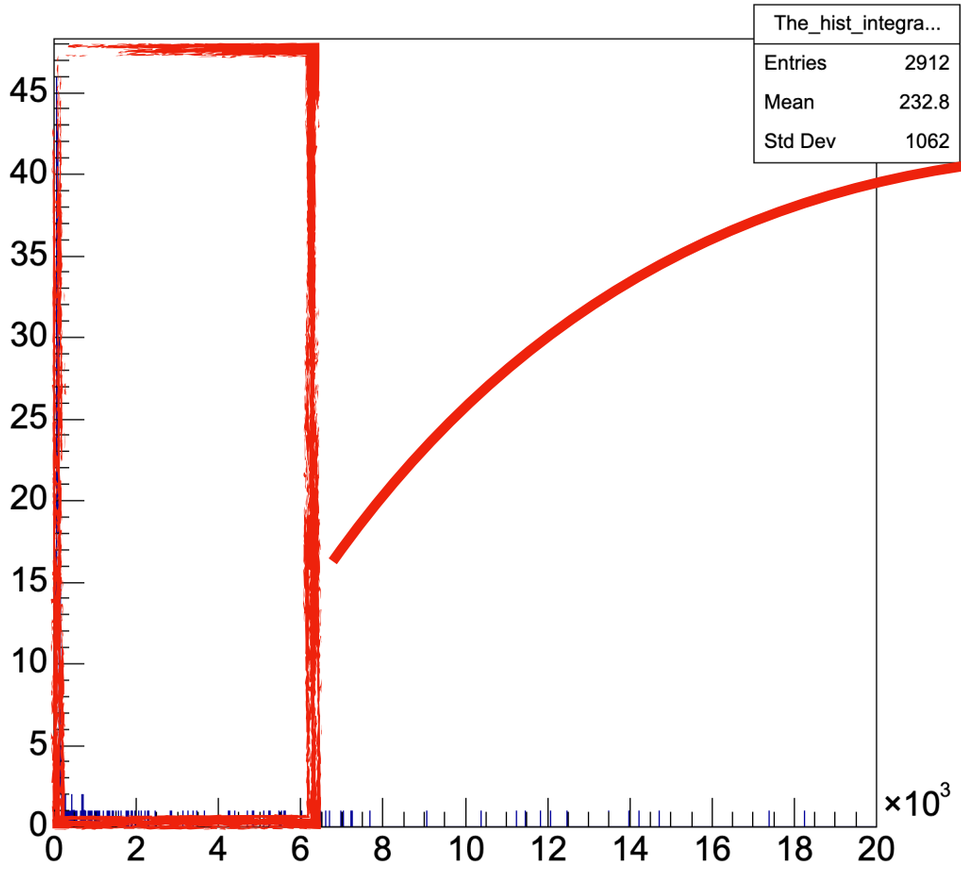
Run 26961

- 2D hit map that made by chip base.

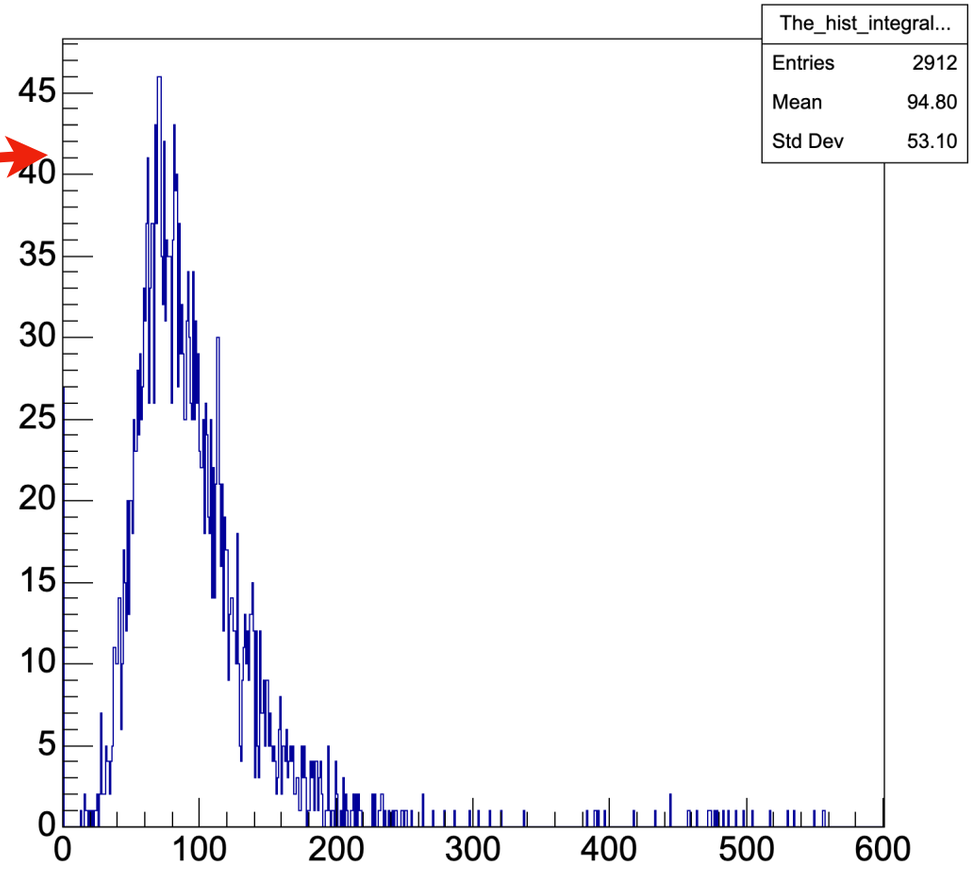


- Hits per chip distribution

The_hist_integral_chip



The_hist_integral_chip



of hits per channel

Run 26961

- # of hits per channel showed as ladder by ladder.