

Vertex @ GSI

Oxygen w/o target

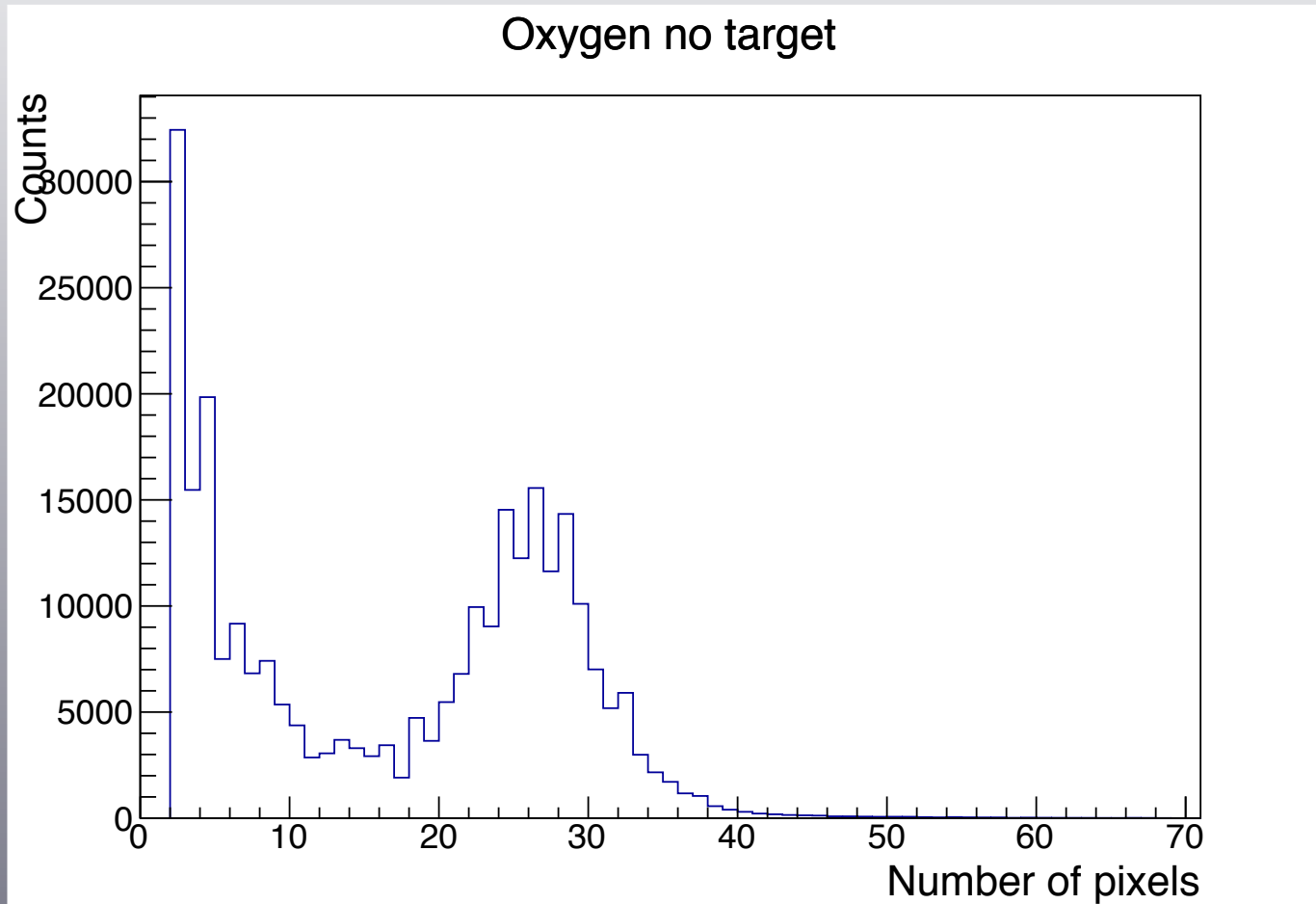
Oxygen with target

Conclusions

Run 4287

Oxygen no target (i)

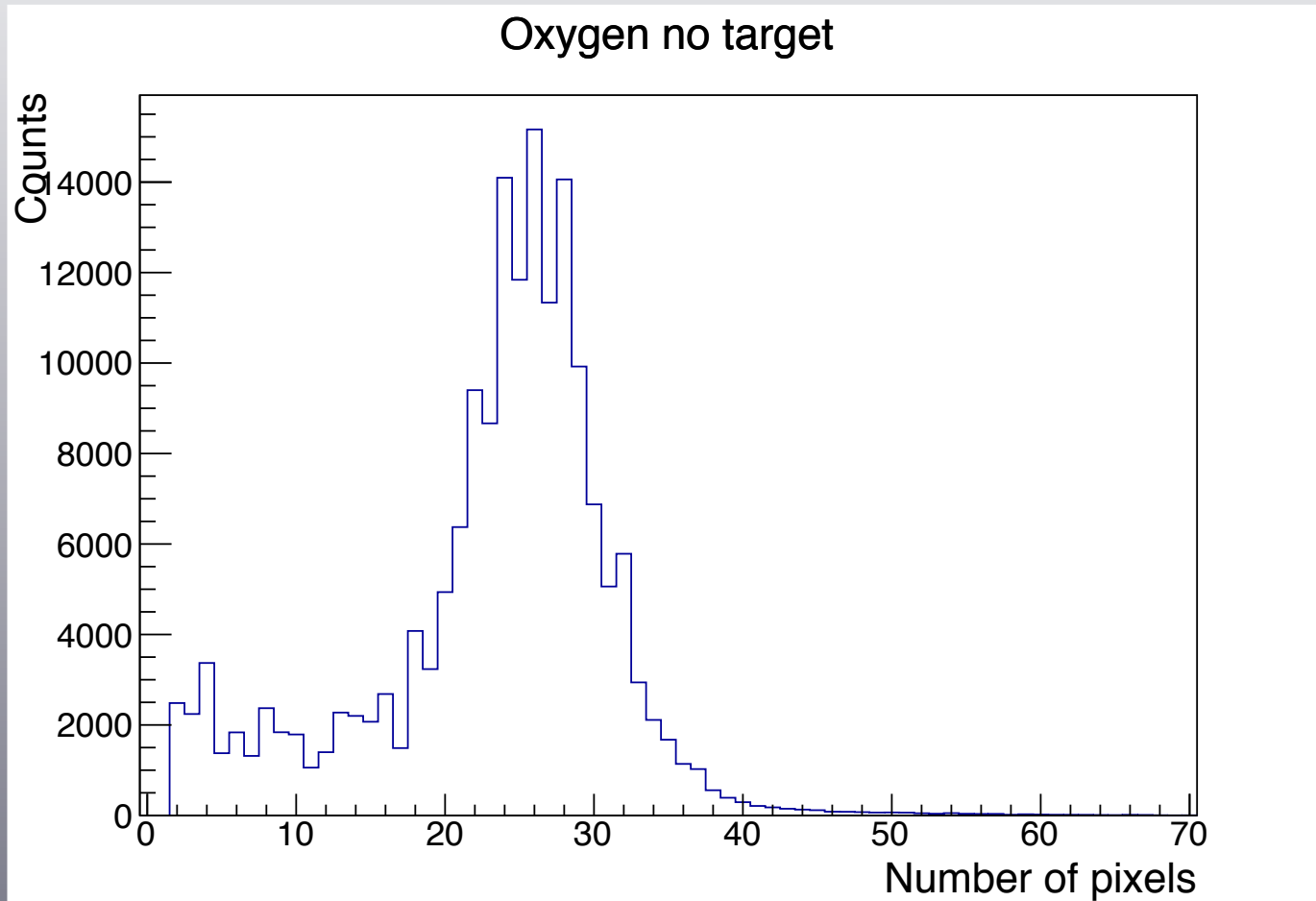
Cluster size (total):



- Cut at 2 pixels
- See different cluster size due to noise

Oxygen no target (ia)

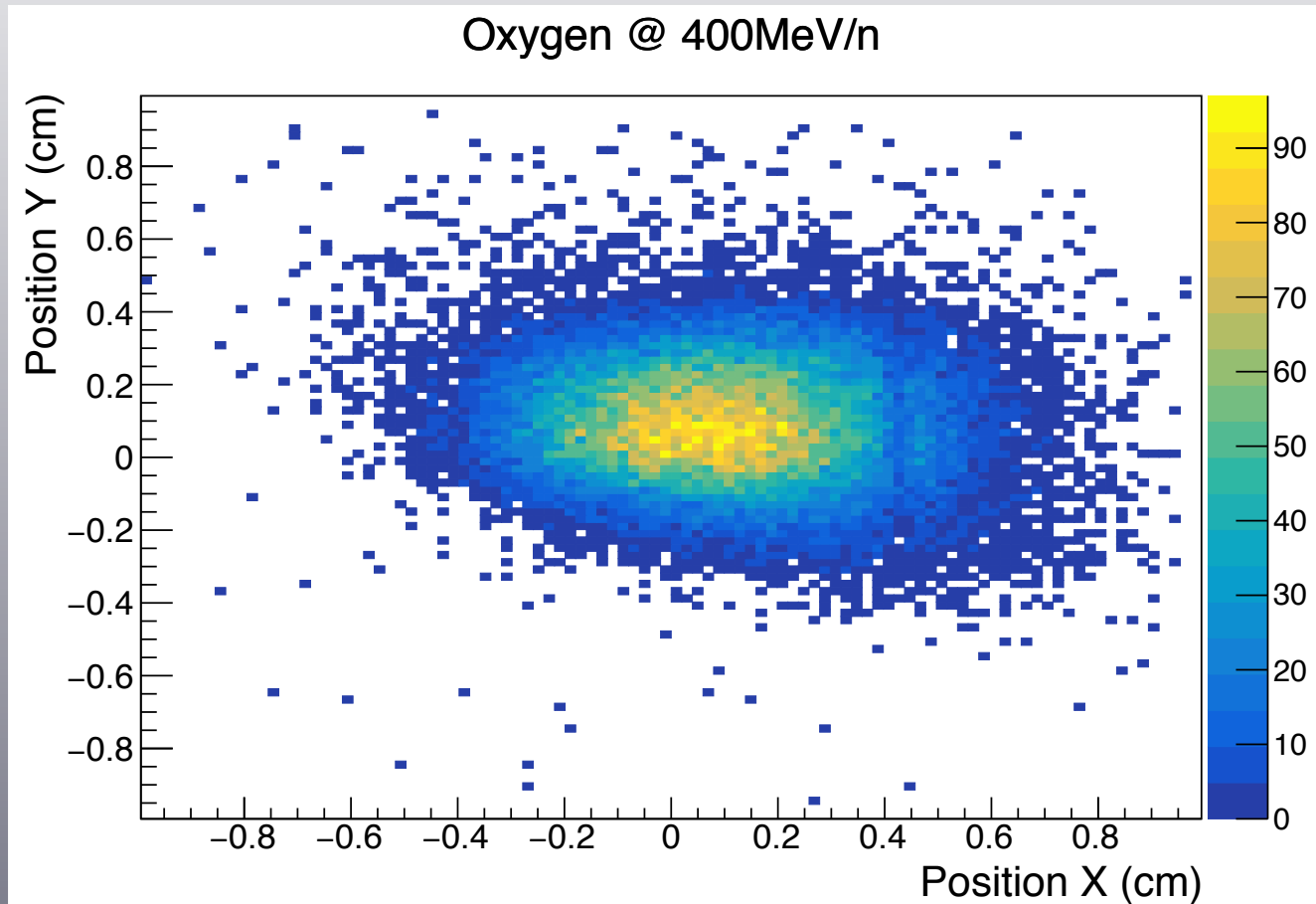
• Tracked cluster size (total):



- Cut at 2 pixels
- Mostly beam

Oxygen no target (ii)

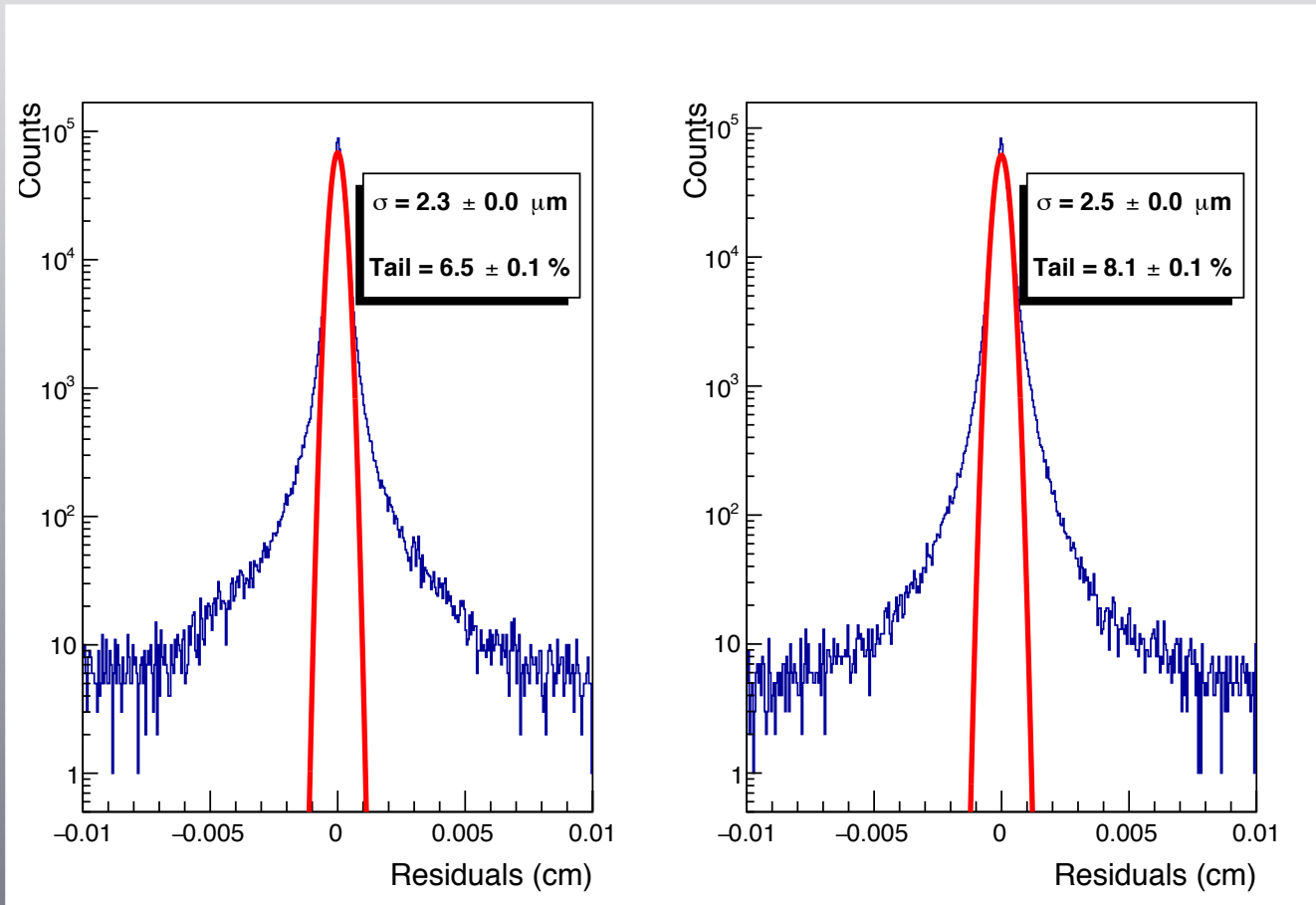
• Beam profile (at target):



- The beam is not gaussian (especially in X) with tails

Oxygen no target (iii)

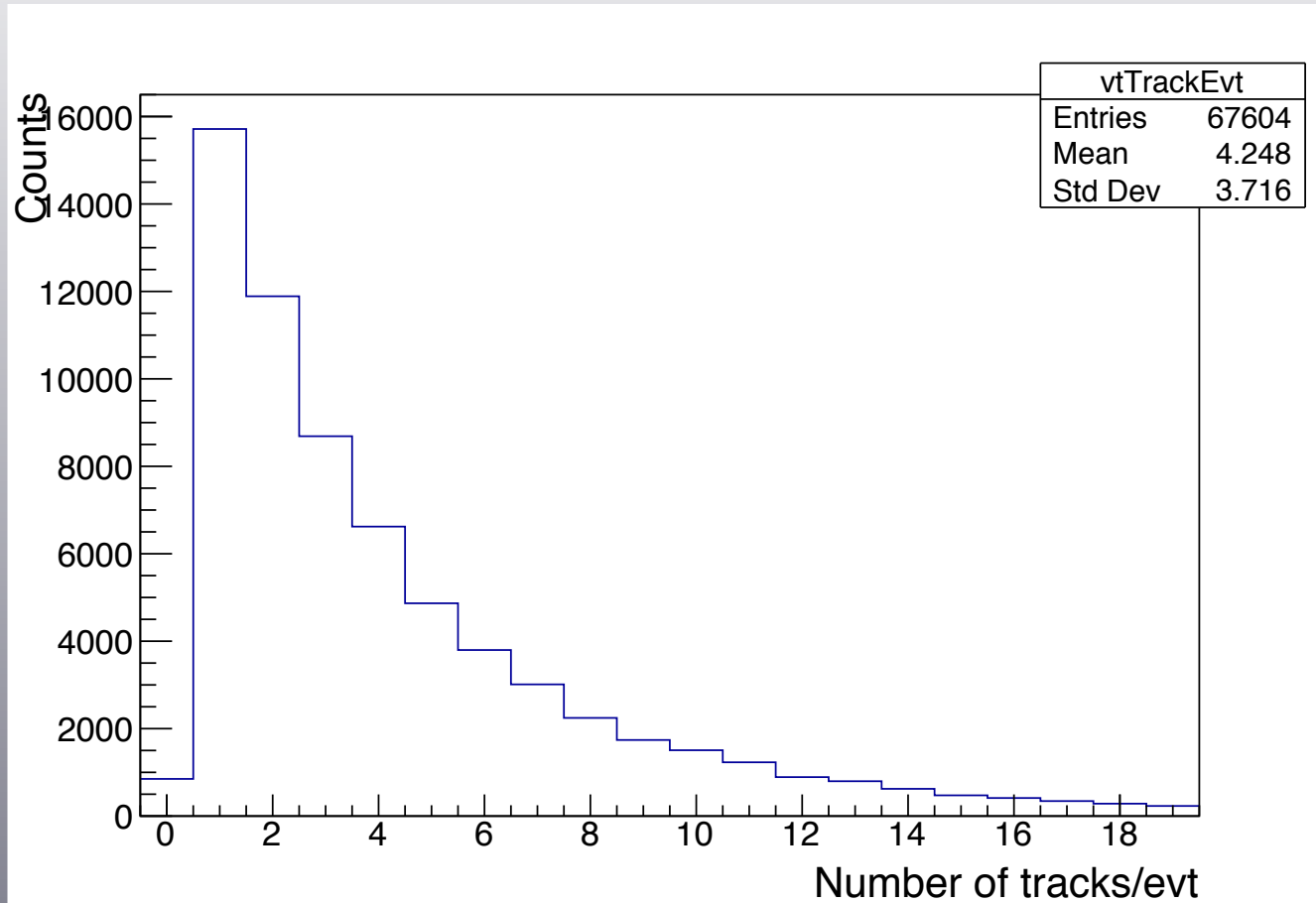
Alignment (cluster size > 20):



➡ Good alignment !

Oxygen no target (iv)

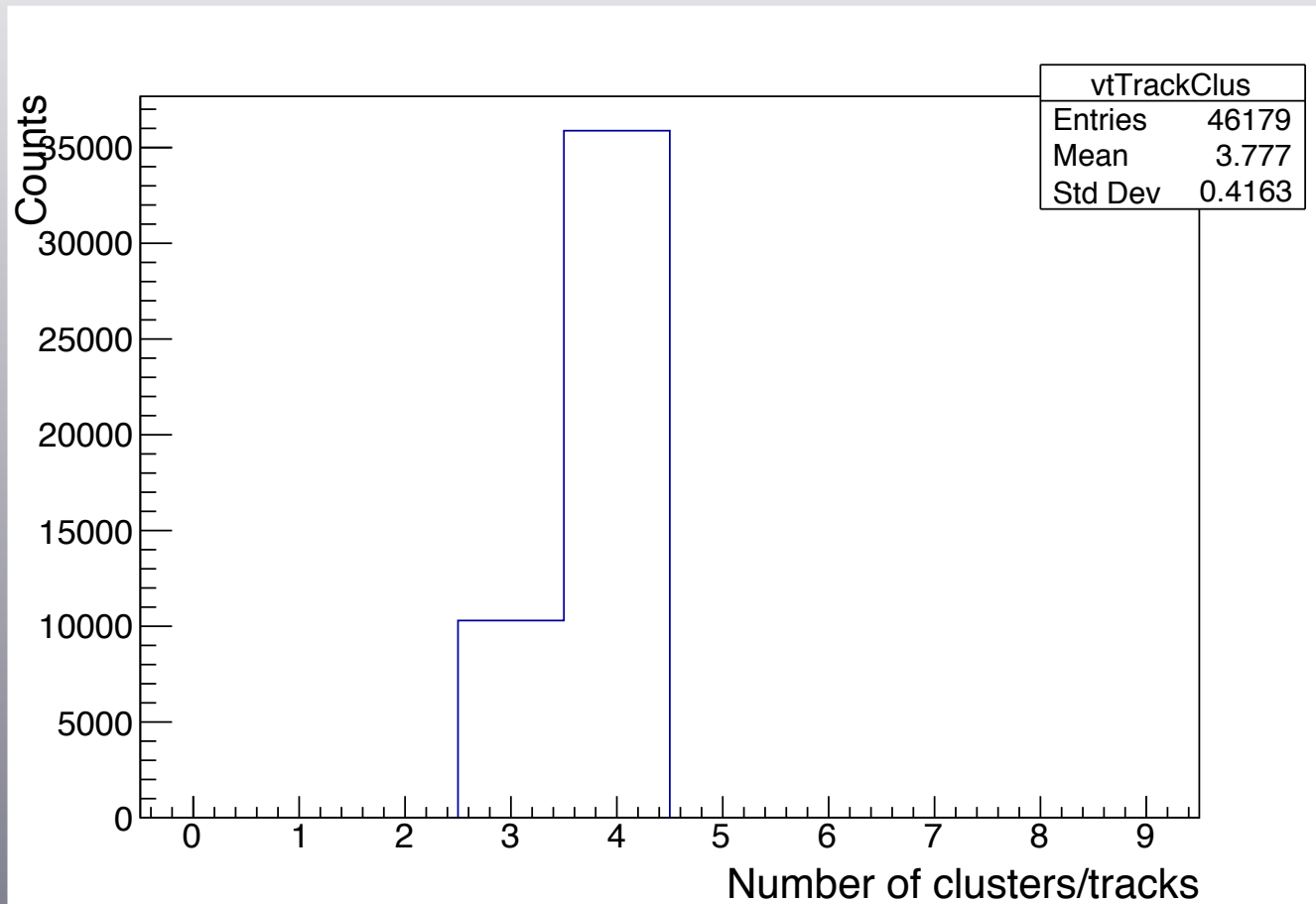
• Tracks per events:



- Tracks presence in 98.7% of cases,
- Important proportion of pileup (67%)

Oxygen no target (v)

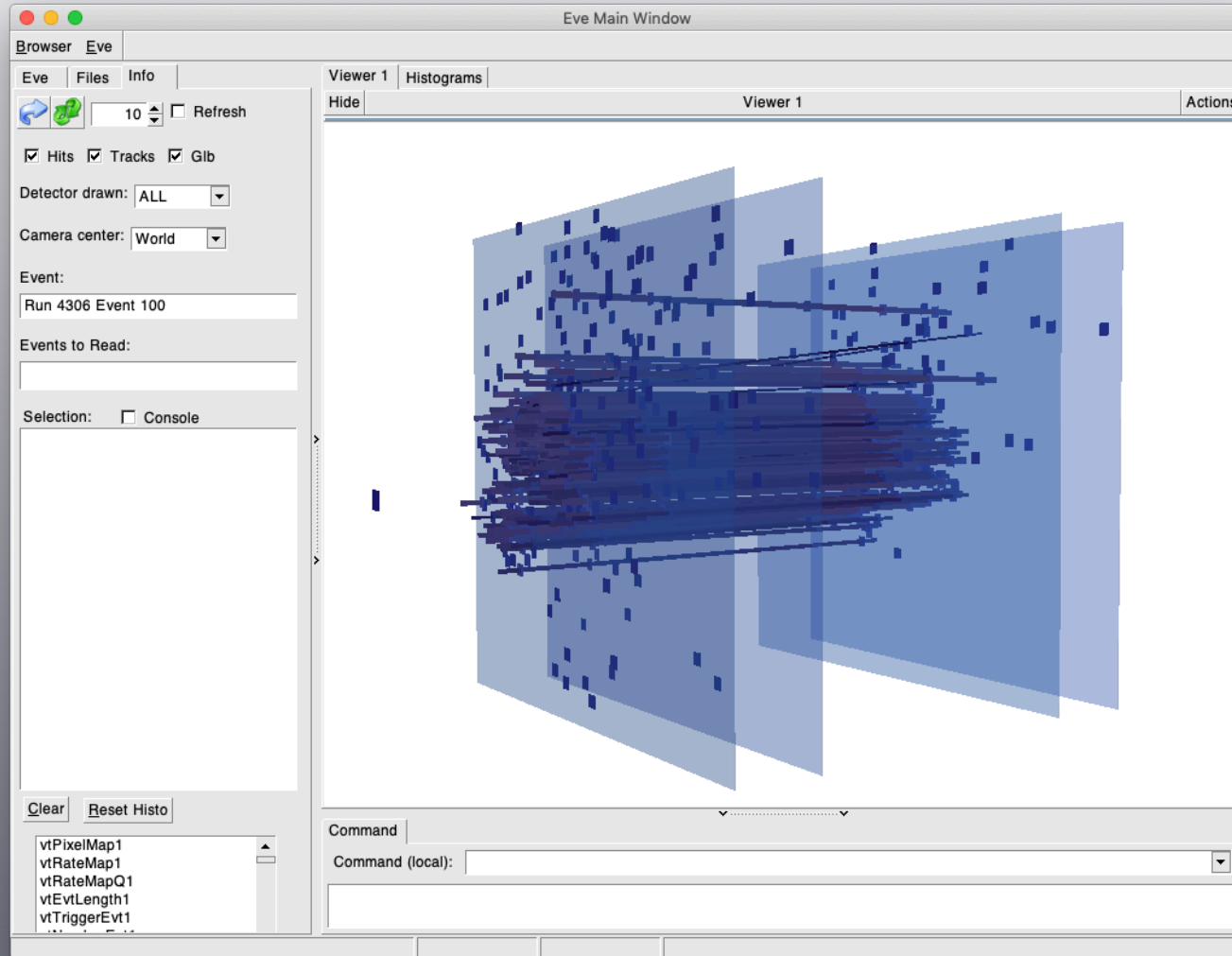
• Clusters per track:



- Mostly 4 planes fired

Oxygen no target (vi)

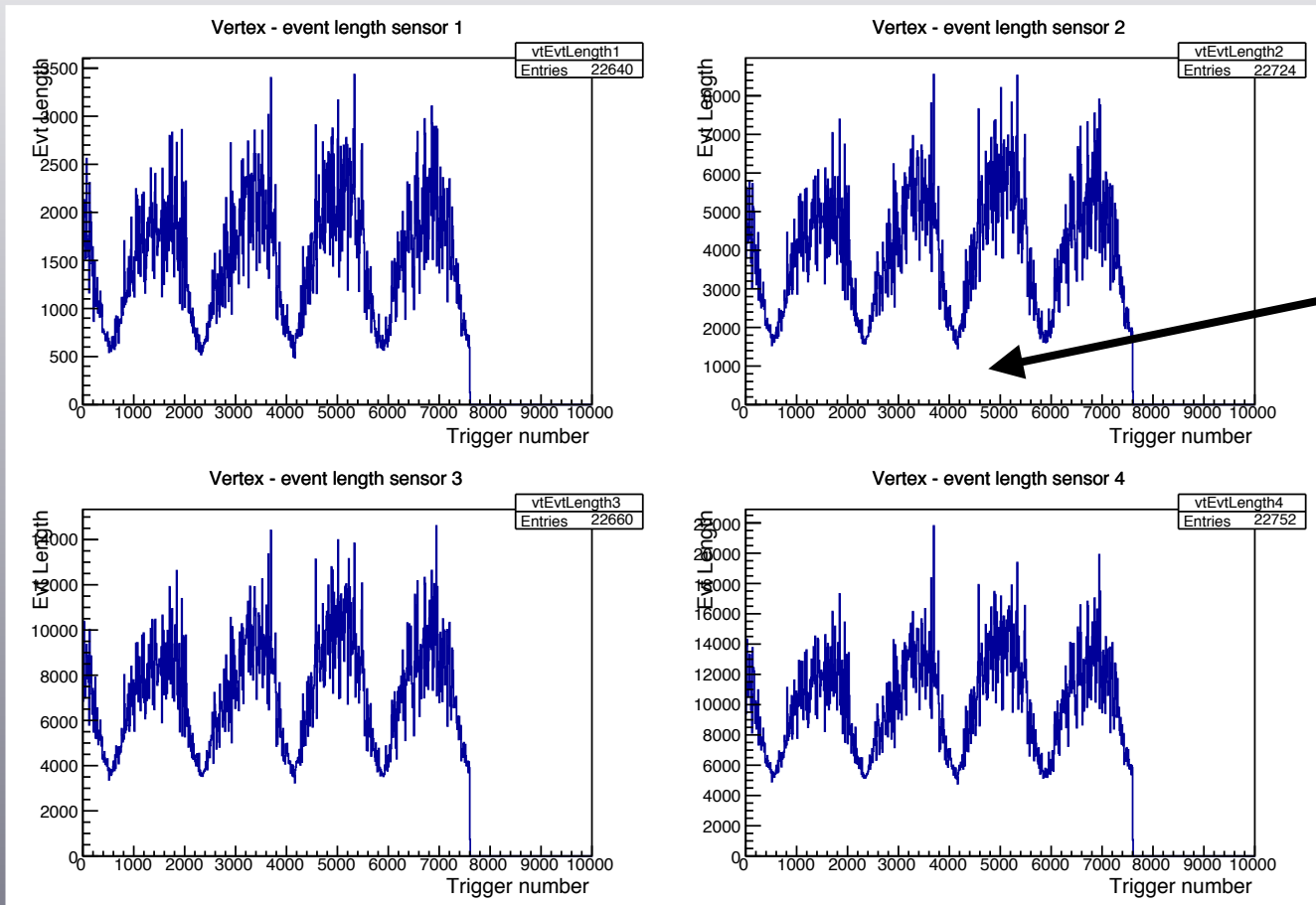
• Event display:



- Beam tracks

Oxygen no target (vii)

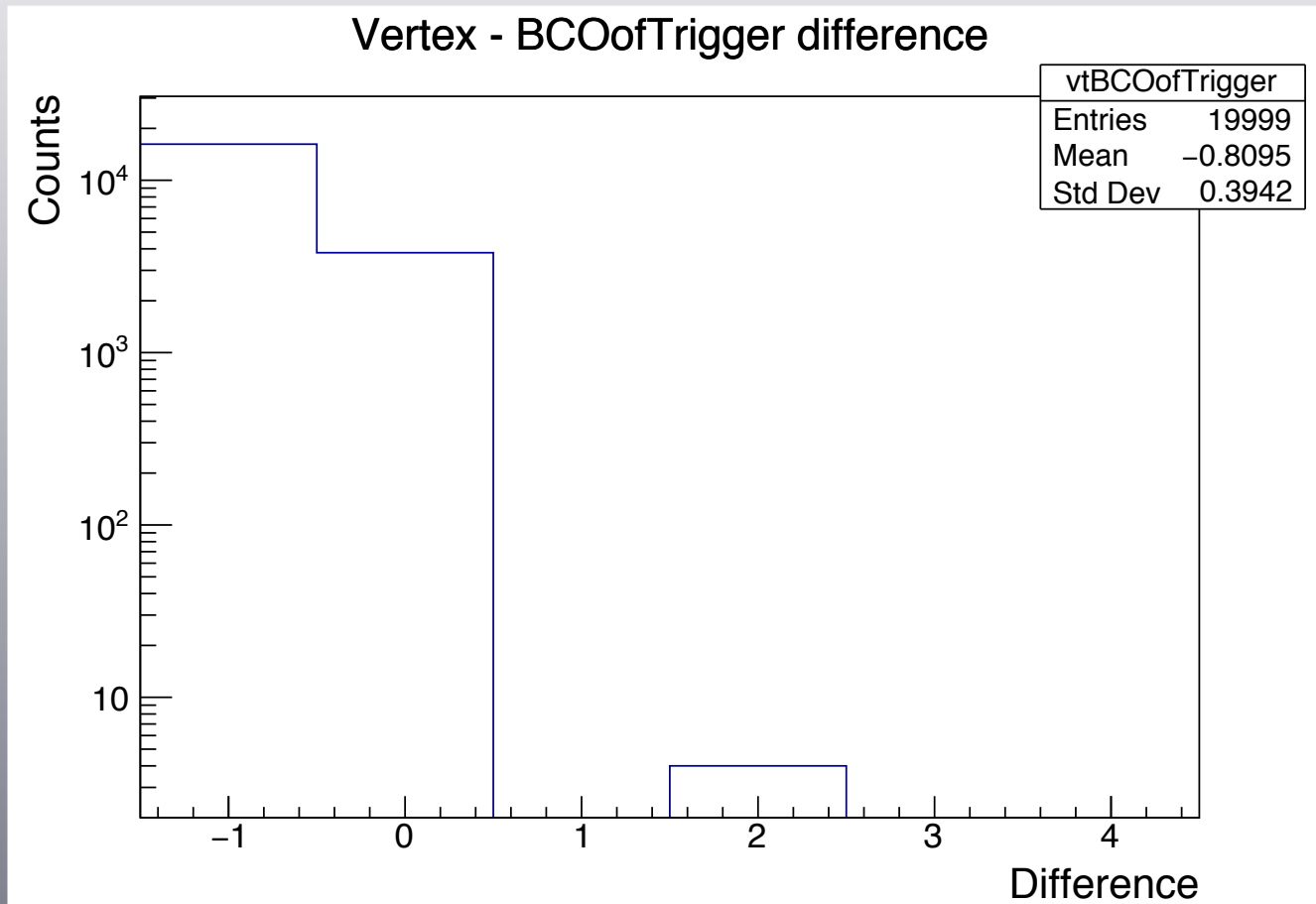
• Event length



- See spill structure
- Sensors are noisy

Oxygen no target (viii)

• BCO of trigger difference VTX vs DAQ



- Difference in timestamp max at 2, ok ?

Oxygen no target (ix)

Data format

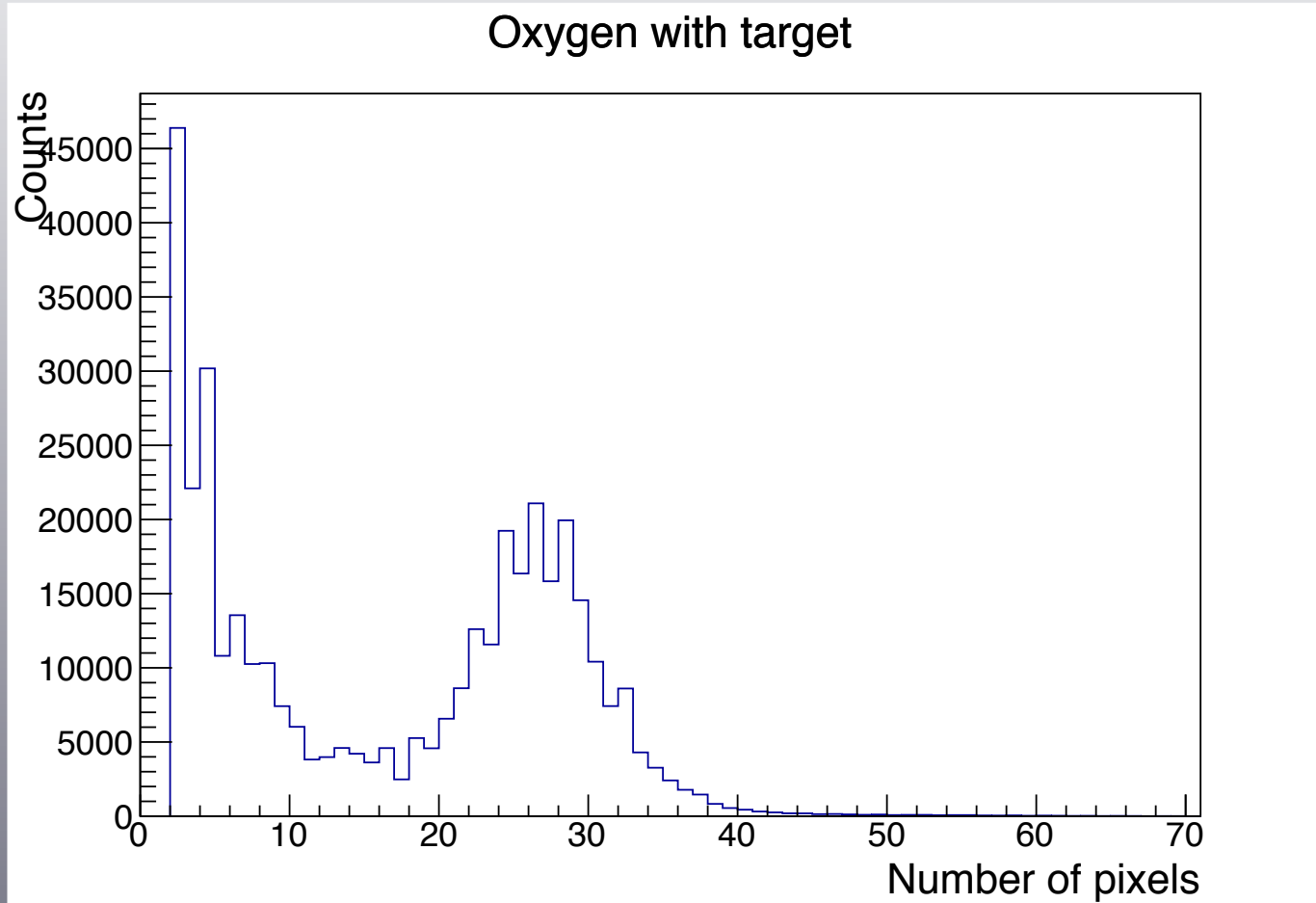
	Event number		TimeStamp
bacca000	00463330	60f15d2e	0009081c
00000002	12341234	000000c7	fafafafa
00aaaa00	00000002	260264f9	fafafafa
80008000	00000002	00000003	260264f9
80088007	00000003	2602656b	18cf4e22
00070007	07af16e2	16f207c2	07c607af
07b11702	171107c9	192107cd	08a70958
aaa8aaa7	80088007	00000003	26026624
18cf4e23	00080008	09e214d1	09df14e2
14f209ec	09ec09df	09df1502	151209ec
00000000	00000000	00000000	00000000

- Two times VTX header (0xfafafafa) followed by 3 words ?
- And then standard VTX data

Run 4303

Oxygen with target (i)

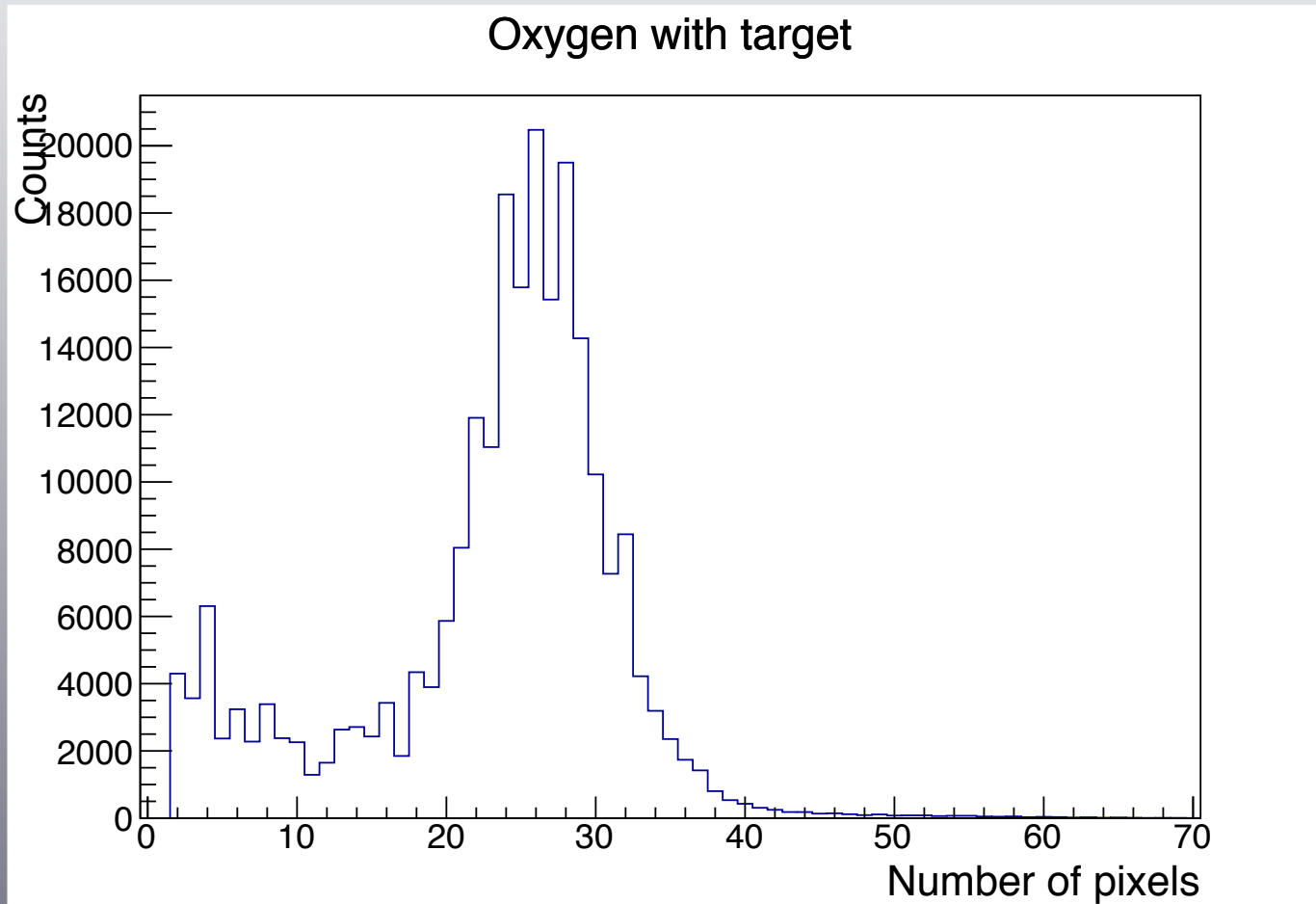
• Tracked cluster size (total):



- Cut at 2 pixels
- See different cluster size due to noise

Oxygen no target (ia)

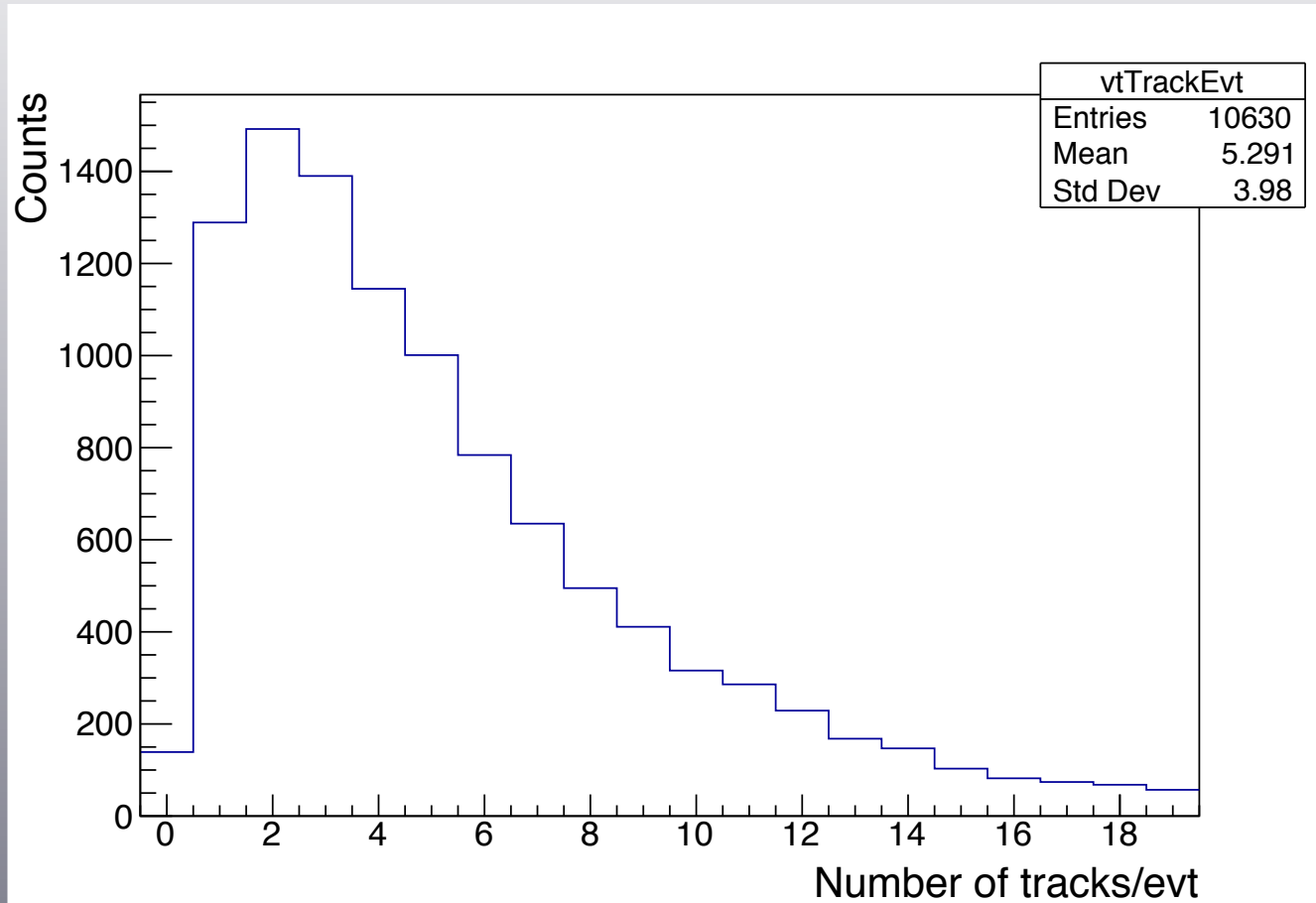
• Tracked cluster size (total):



- Cut at 2 pixels
- Mostly beam

Oxygen with target (ii)

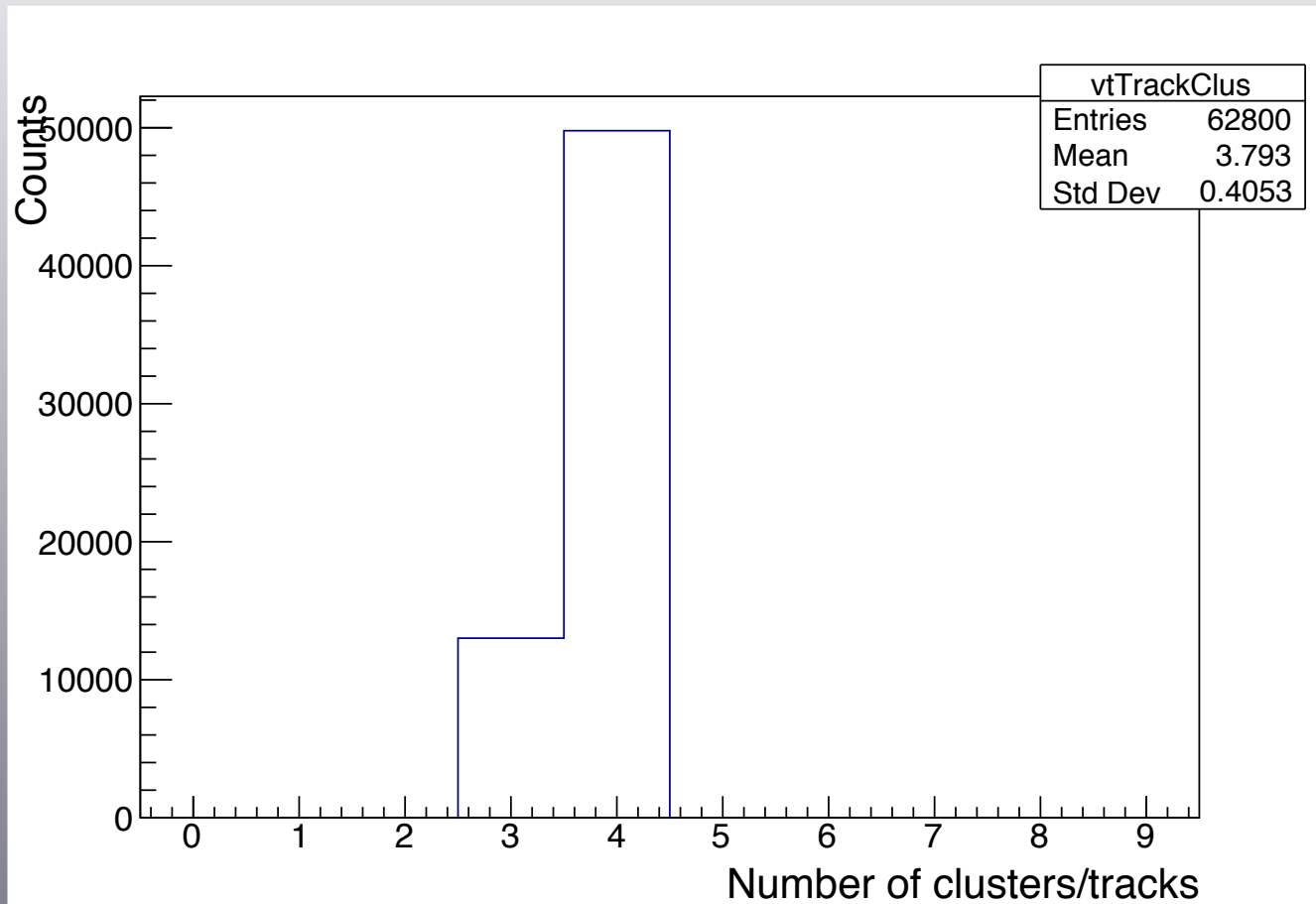
• Tracks per events:



- Tracks presence in 98.7% of cases,
- Important proportion of pileup (87.3%)

Oxygen no target (iii)

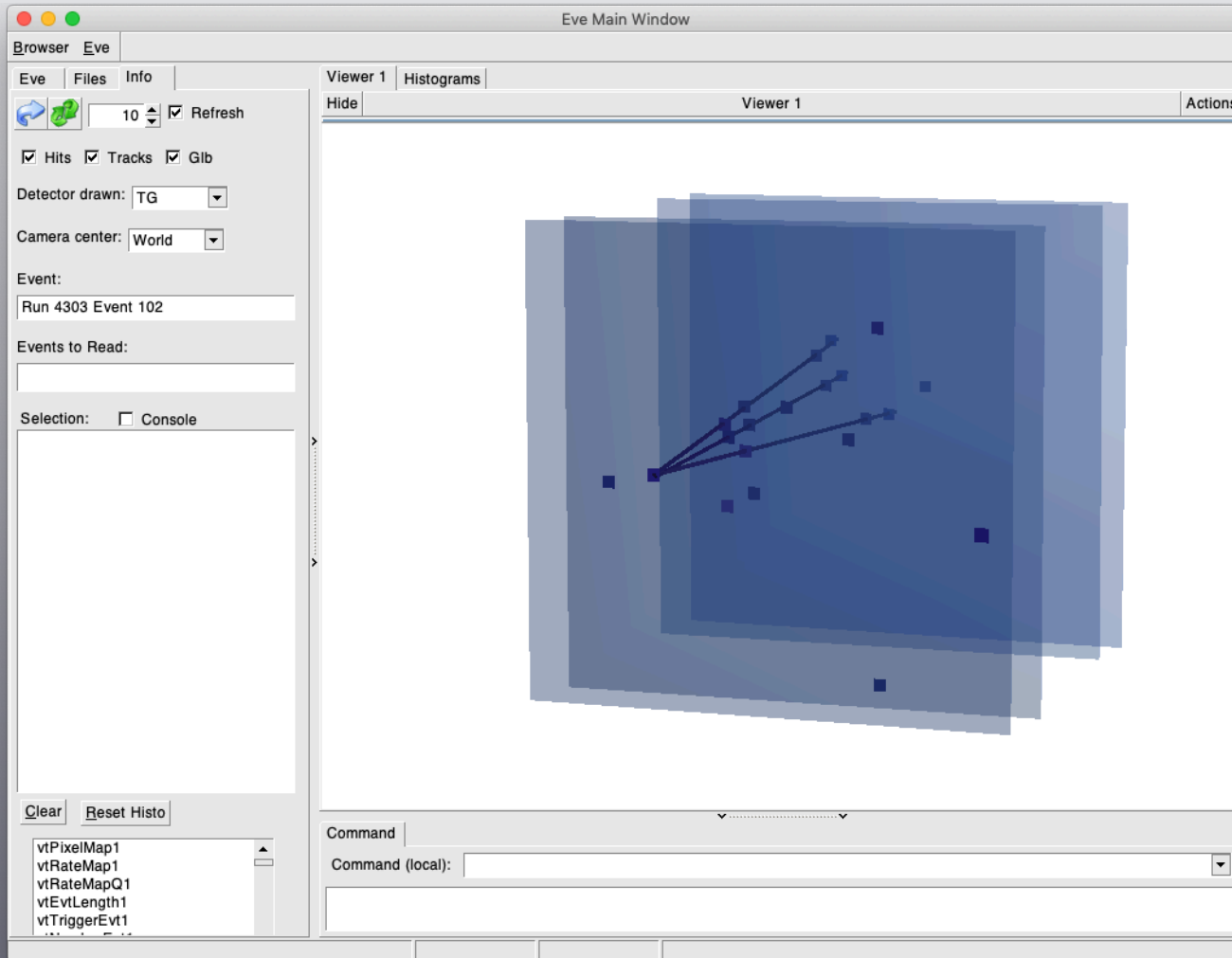
• Clusters per track:



- Mostly 4 planes fired

Oxygen with target (iv)

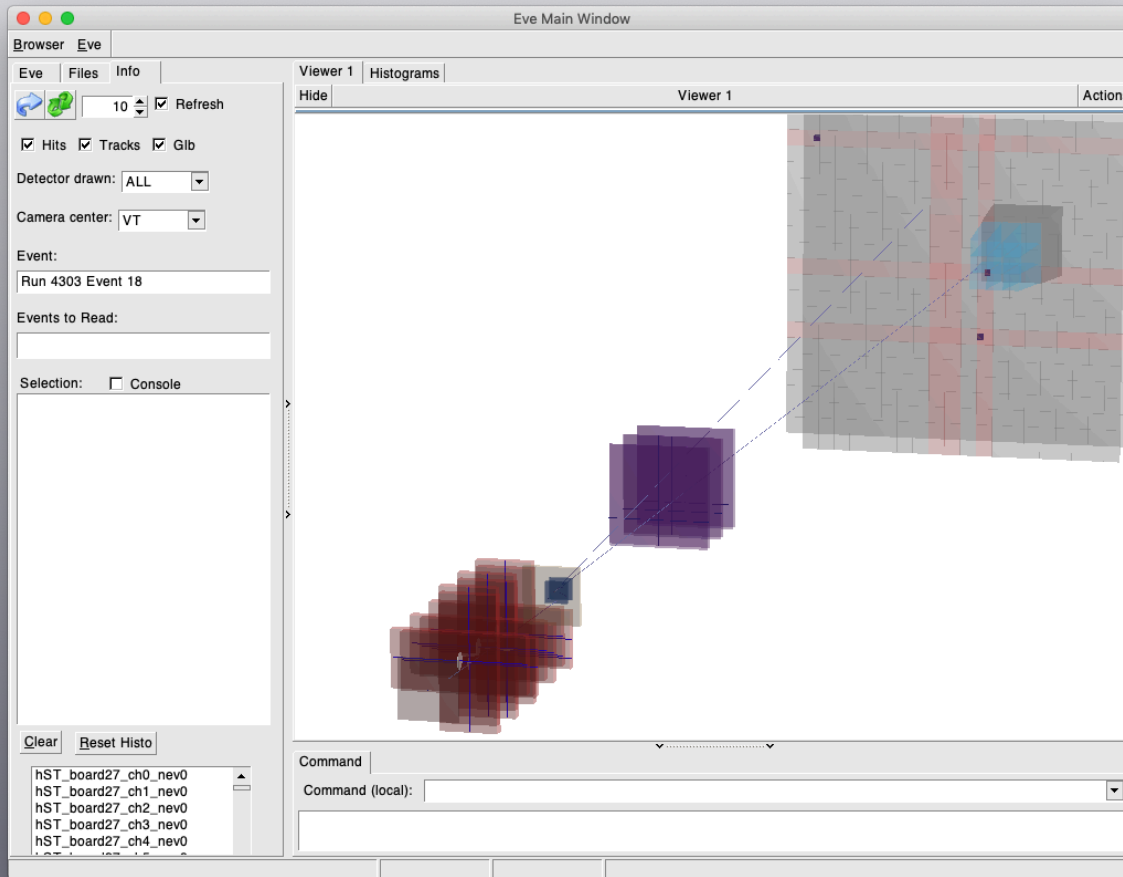
• Event display:



- Fragmented event

Oxygen with target (v)

• Event display:



- Track in BM+VTX+TW, detectors not aligned !

Conclusions

• VTX remarks:

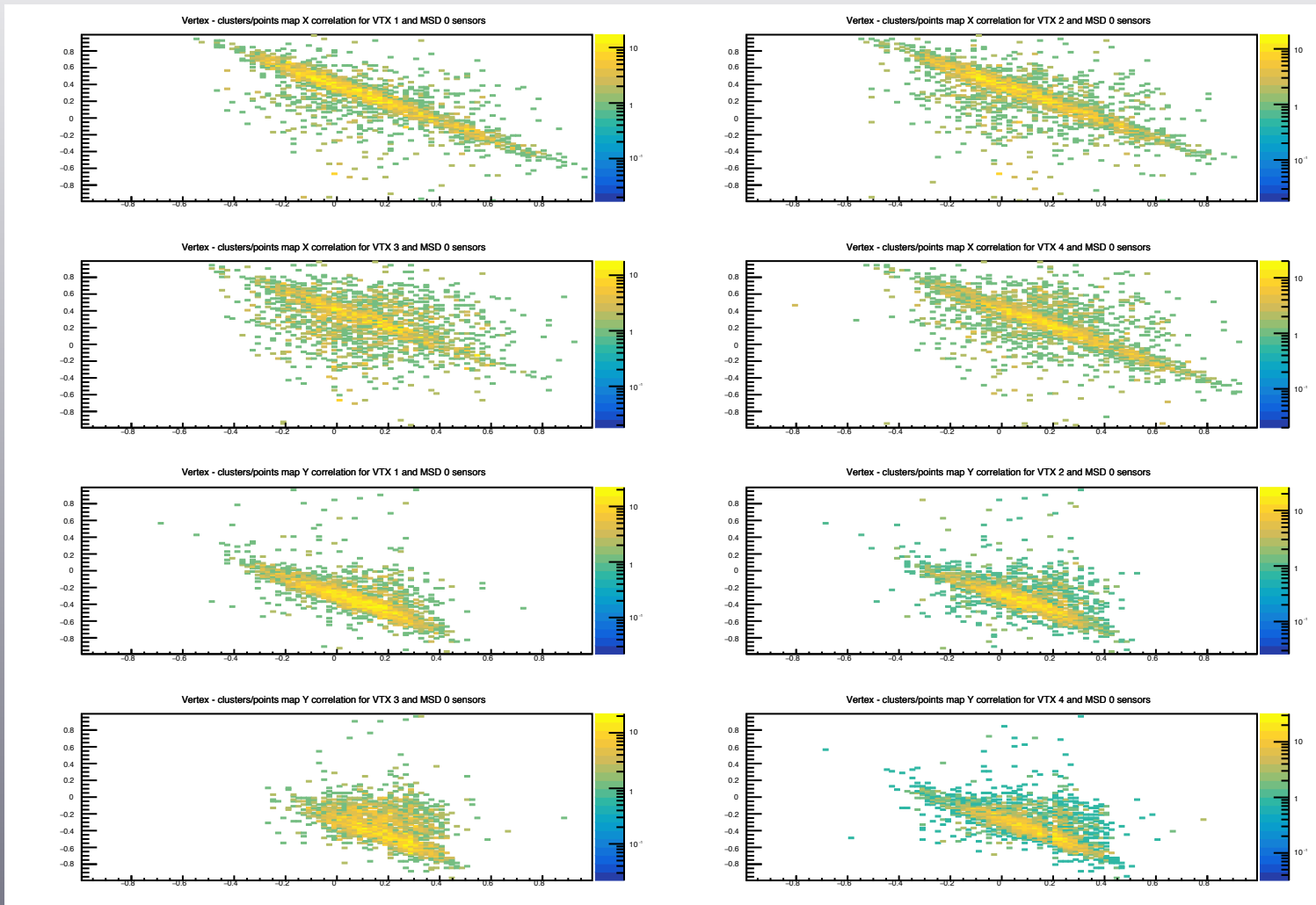
- Sensors synchronised
- Sensors aligned
- VTX synchronised with DAQ ? (see next slide)
- Changes in VTX DAQ format / GSI2019
 - ➔ Global reconstruction could be used

• General remarks:

- Losing DAQ trigger information (put patch)
- Missing end of DAQ file (put patch)
- Missing end of VTX fragment (Alessio's patch)

Outlooks (i)

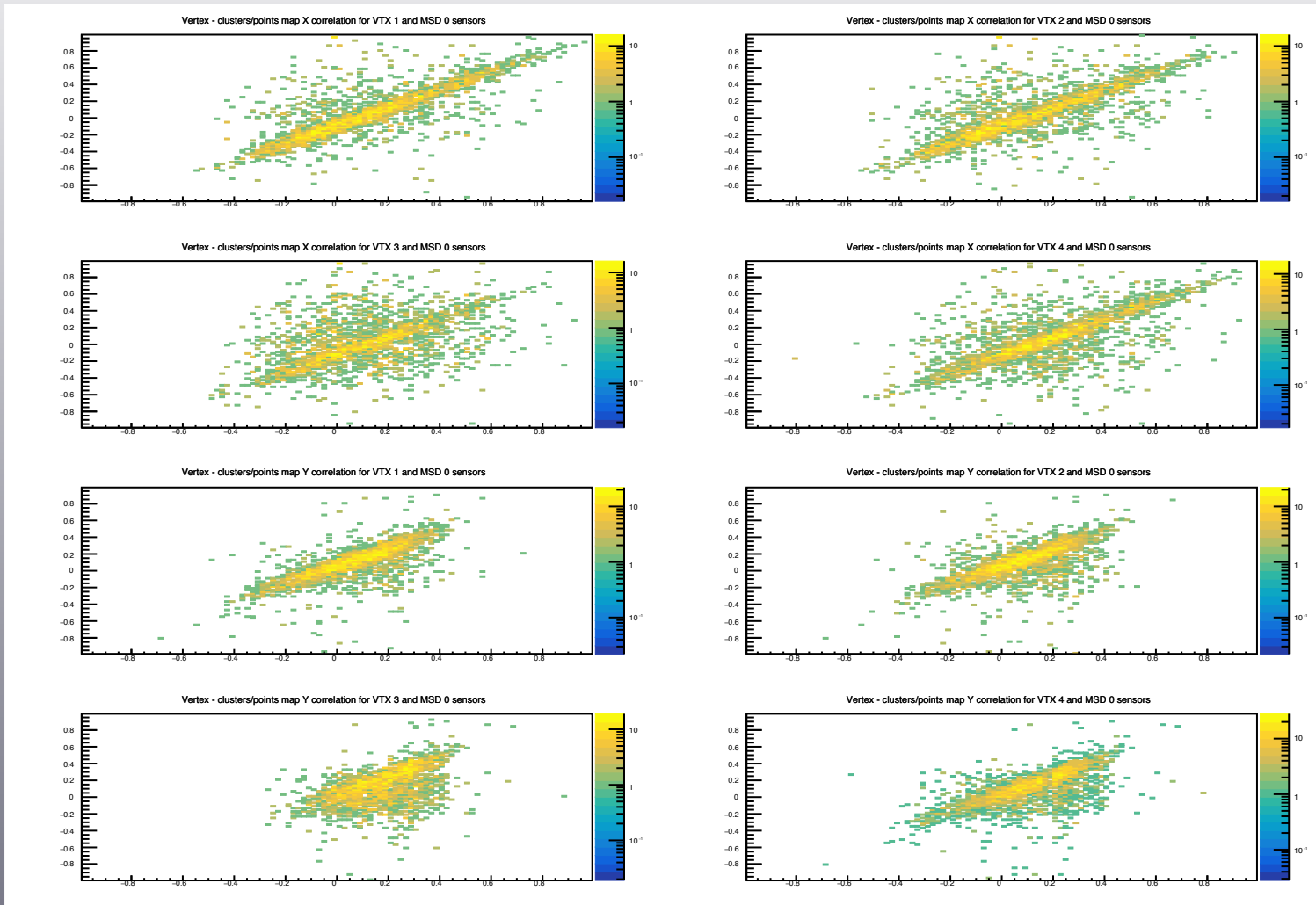
• Correlation with MSD (run4287, cluster size > 20 and 2 for VTX & MSD)



- Clear (anti-)correlation btw MSD station 1 and the 4 VTX plane in X and Y
- True for all other MSD stations and all events

Outlooks (ii)

• Correlation with MSD (run4287, cluster size > 20 and 2 for VTX & MSD)



- Clear correlation btw MSD station 1 and the 4 VTX plane in X and Y
- True for all other MSD stations and all events

Outlooks (iii)

• MSD remarks:

- Reconstruction code is working
- Geometry issues: mixed X-Y and X-Y inverted/VTX (fixed)
- Noise very high (40 sigma needed), no noisy strips removed
➔ make alignment difficult