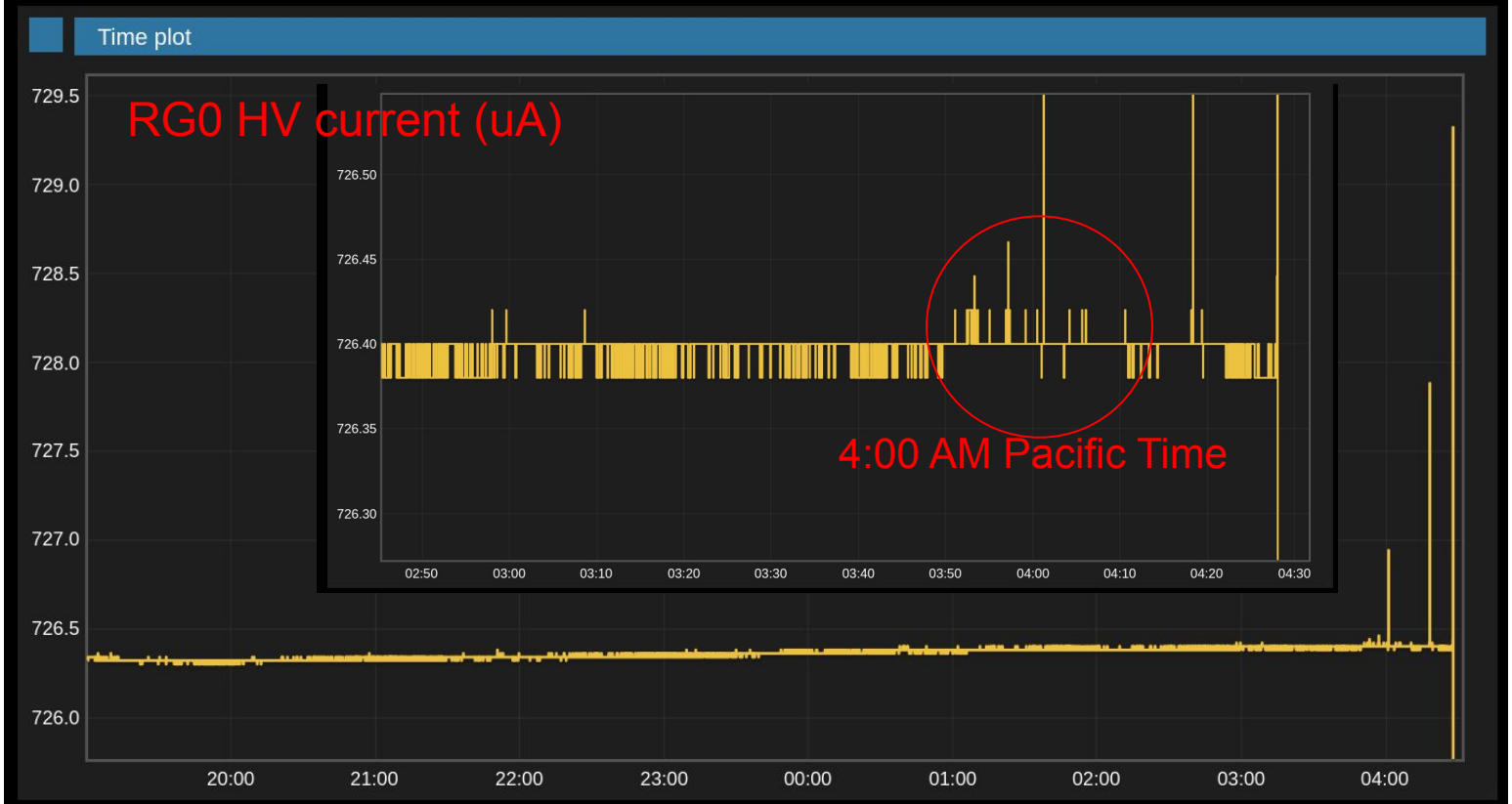
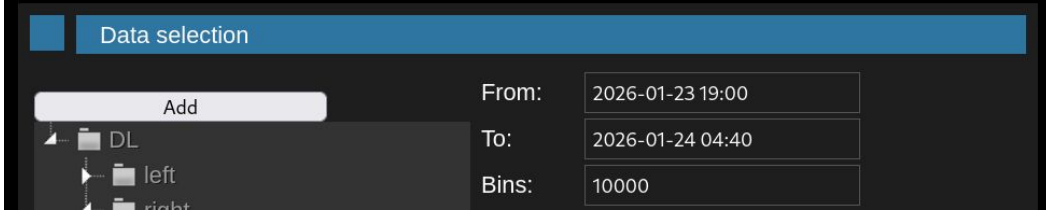
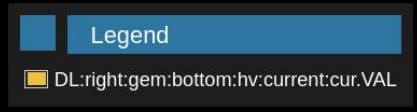
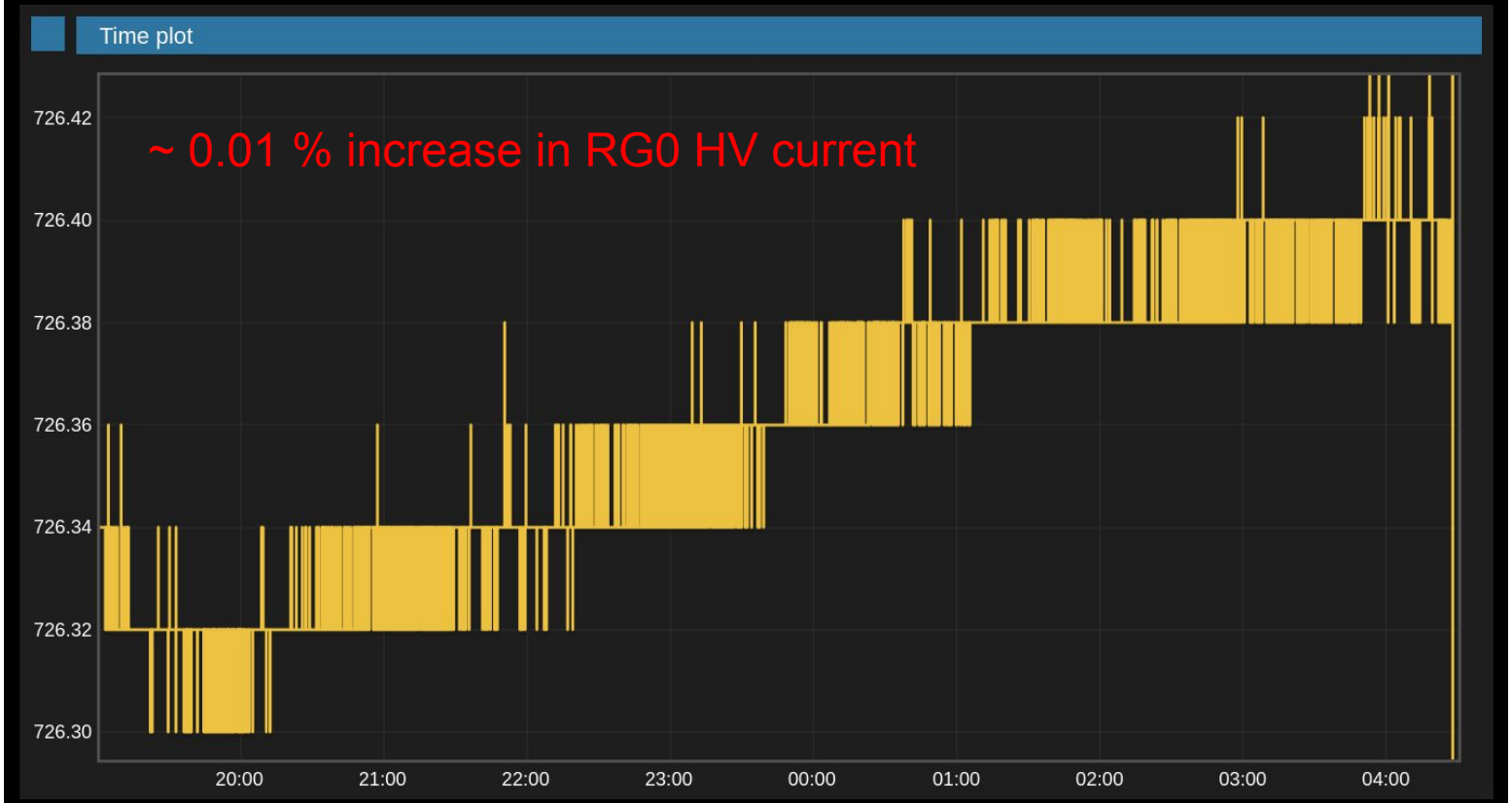
Failure of RG0
on January 24th, 2025


Time plot
RG0 HV current (uA)
729.5
729.0
728.5
728.0
727.5
727.0
726.5
726.0
20:00
21:00
22:00
23:00
00:00
01:00
02:00
03:00
04:00
726.50
726.45
726.40
726.35
726.30
02:50
03:00
03:10
03:20
03:30
03:40
03:50
04:00
04:10
04:20
04:30
4:00 AM Pacific Time


Data selection
Add
DL
left
From:
2026-01-23 19:00
To:
2026-01-24 04:40
Bins:
10000


Legend
DL:right:gem:bottom:hv:current:cur.VAL



Data selection

Add

DL

left

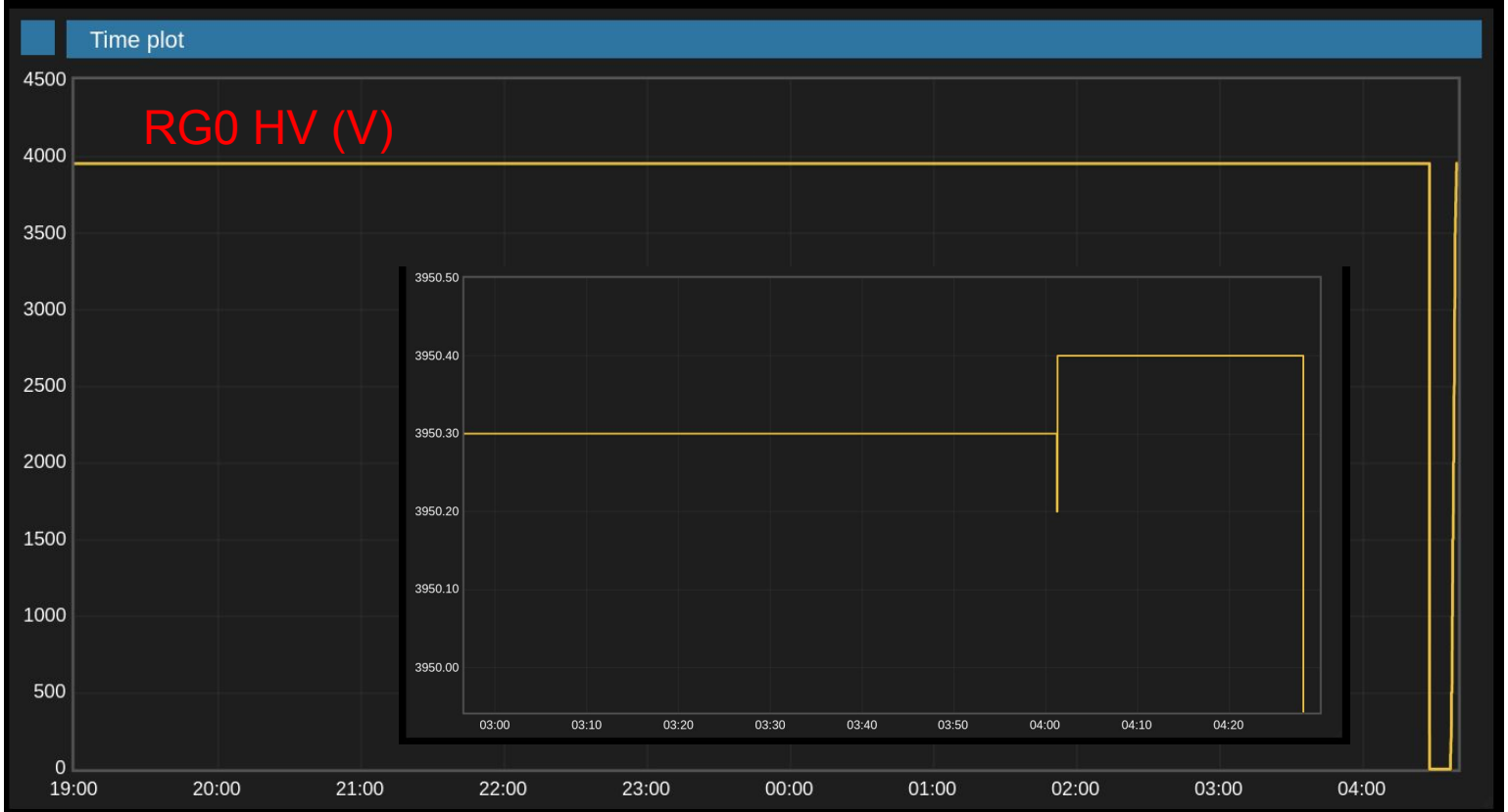
From: 2026-01-23 19:00

To: 2026-01-24 04:40

Bins: 10000

Legend

DL:right:gem:bottom:hv:current:cur.VAL



Data selection

Add

DL

left

right

From: 2026-01-23 19:00

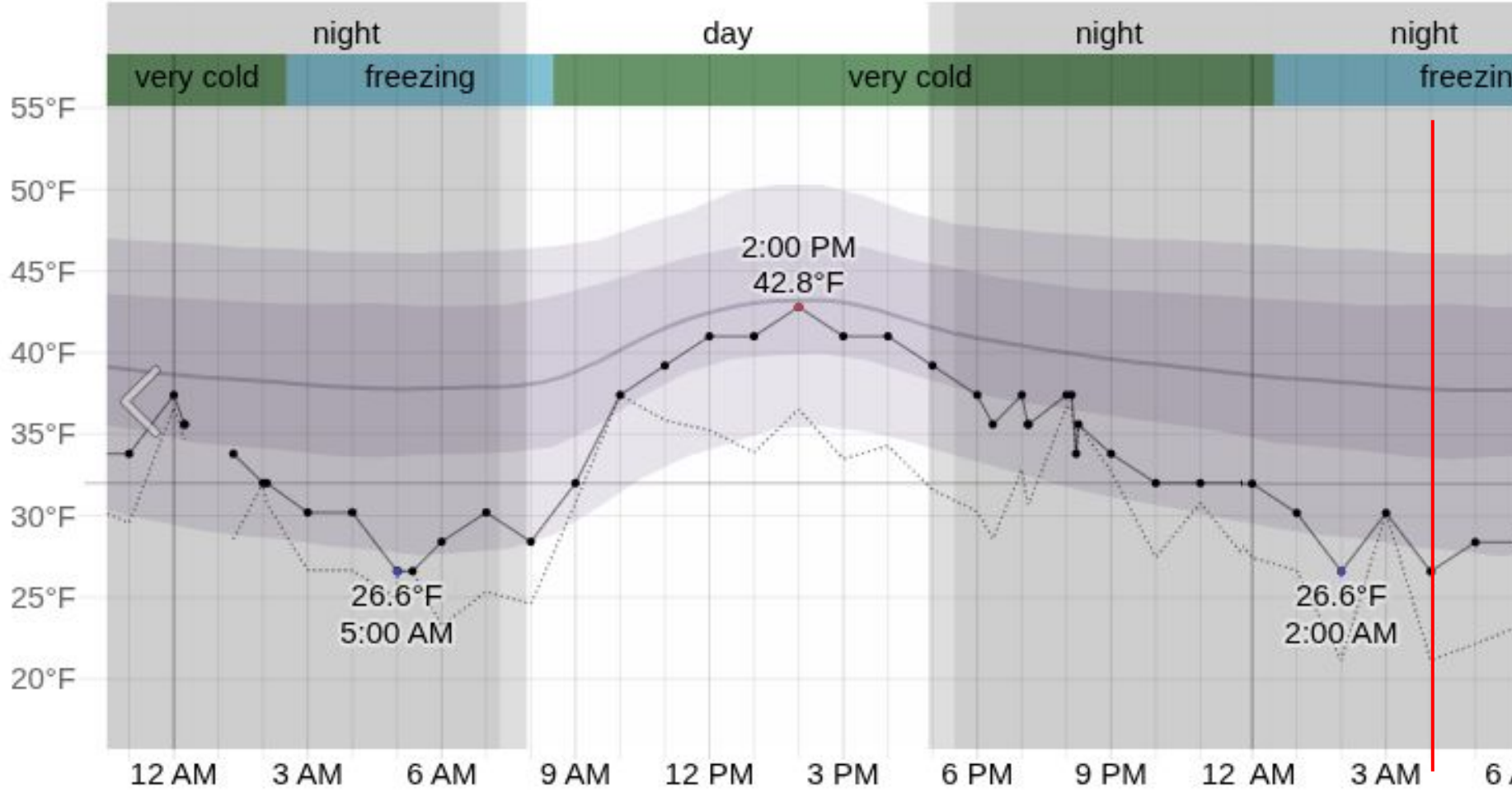
To: 2026-01-24 04:40

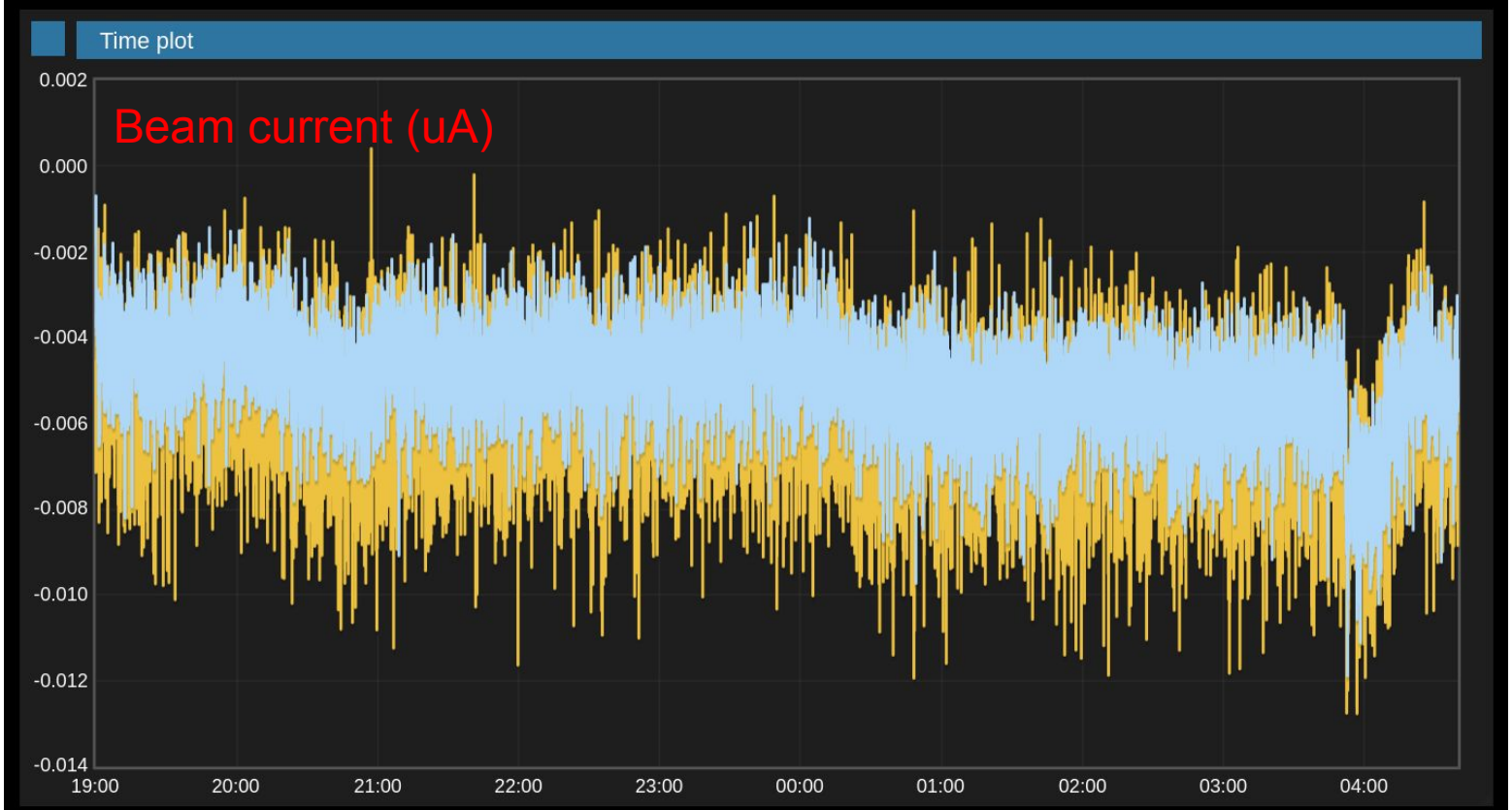
Bins: 10000

Legend

DL:right:gem:bottom:hv:voltage:cur.VAL

Temperature in Vancouver on Jan 23-24





Data selection

Add

DL

left

From: 2026-01-23 19:00

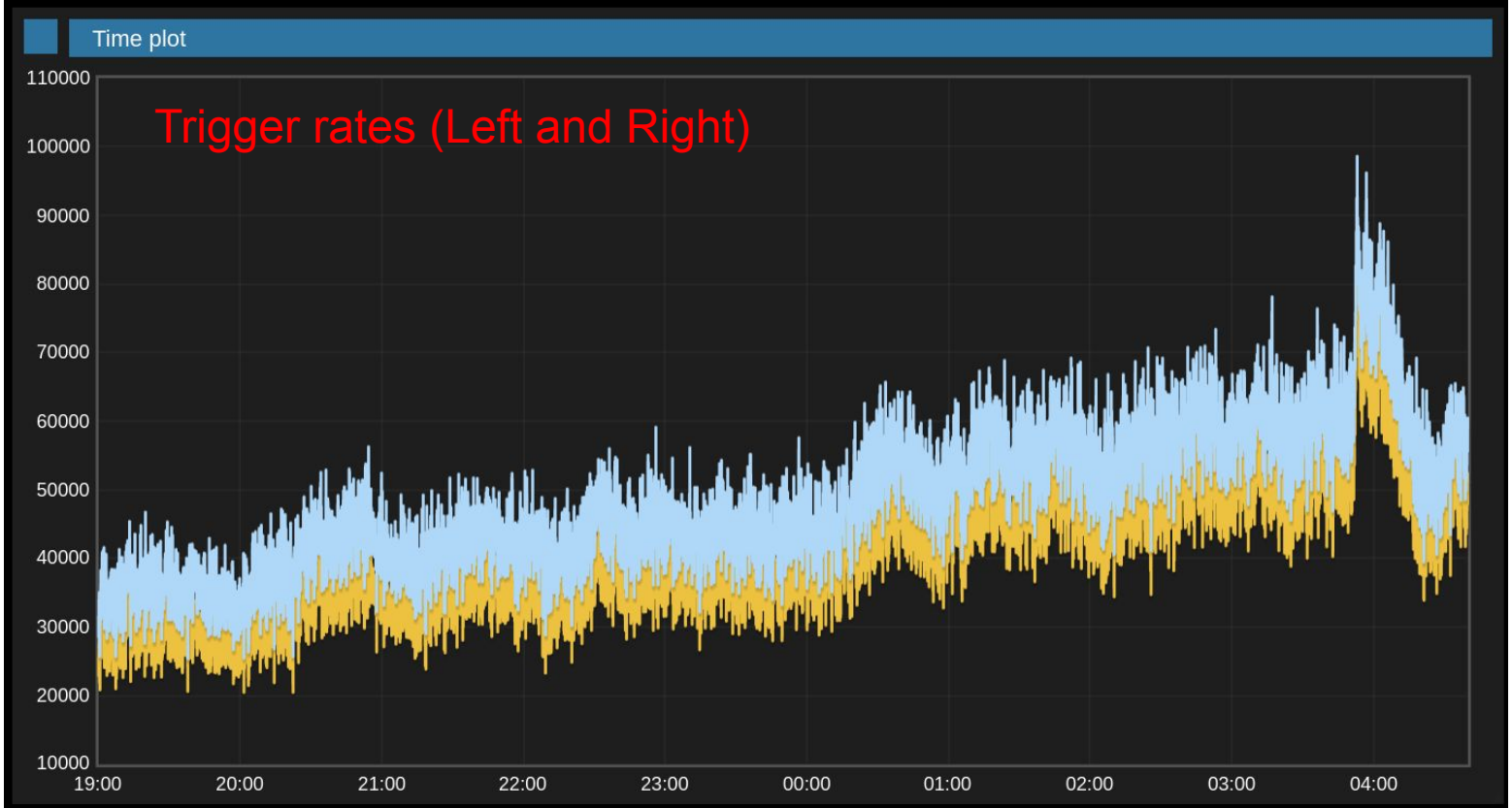
To: 2026-01-24 04:40

Bins: 10000

Legend

DL:elinac:ELBT:ACCT1A:CURRAVE.VAL

DL:elinac:ELBT:ACCT1B:CURRAVE.VAL



Data selection

Add

DL

left

From: 2026-01-23 19:00

To: 2026-01-24 04:40

Bins: 10000

Legend

DL:left:trigger:rate:total:cur.VAL

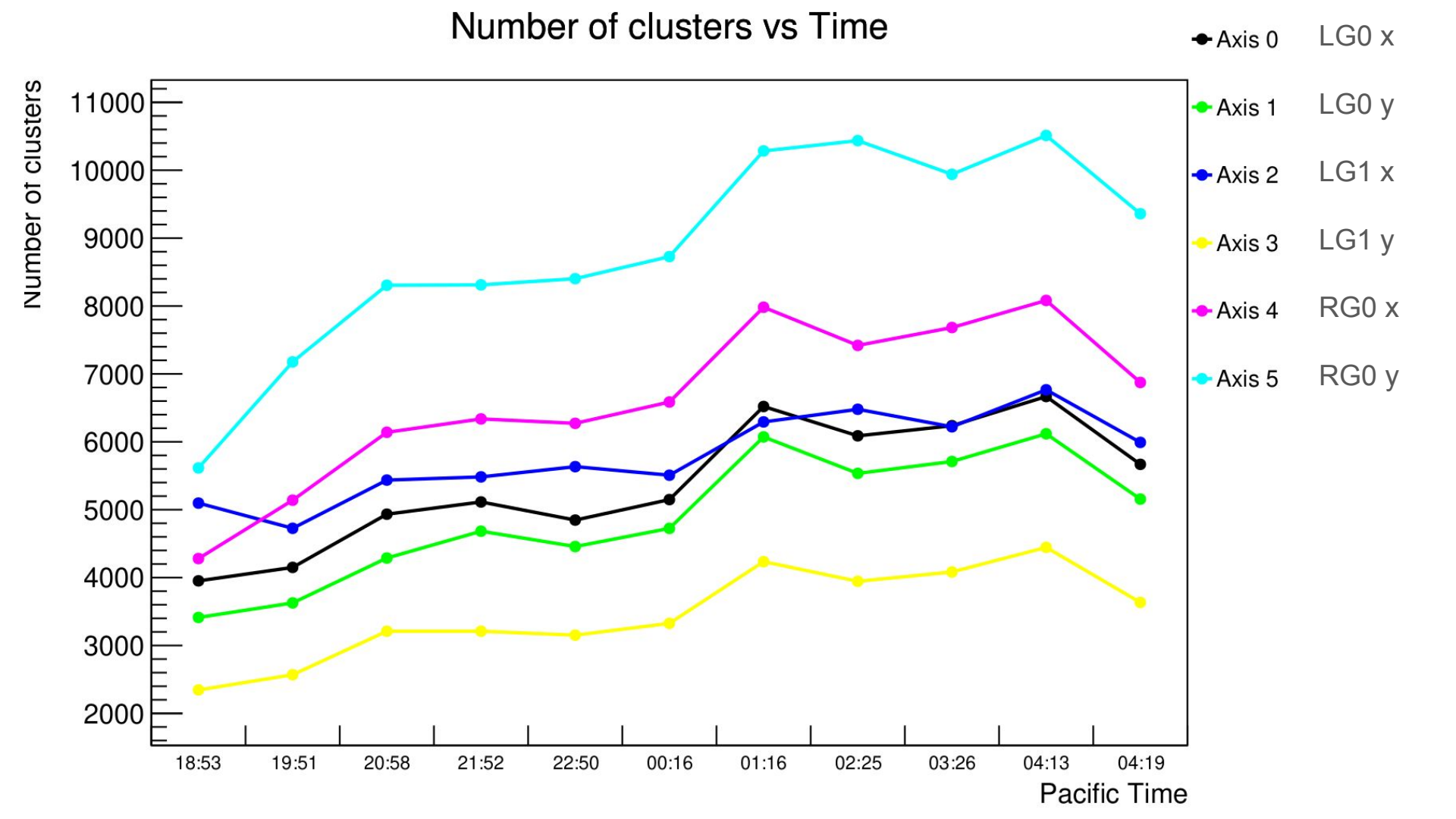
DL:right:trigger:rate:total:cur.VAL

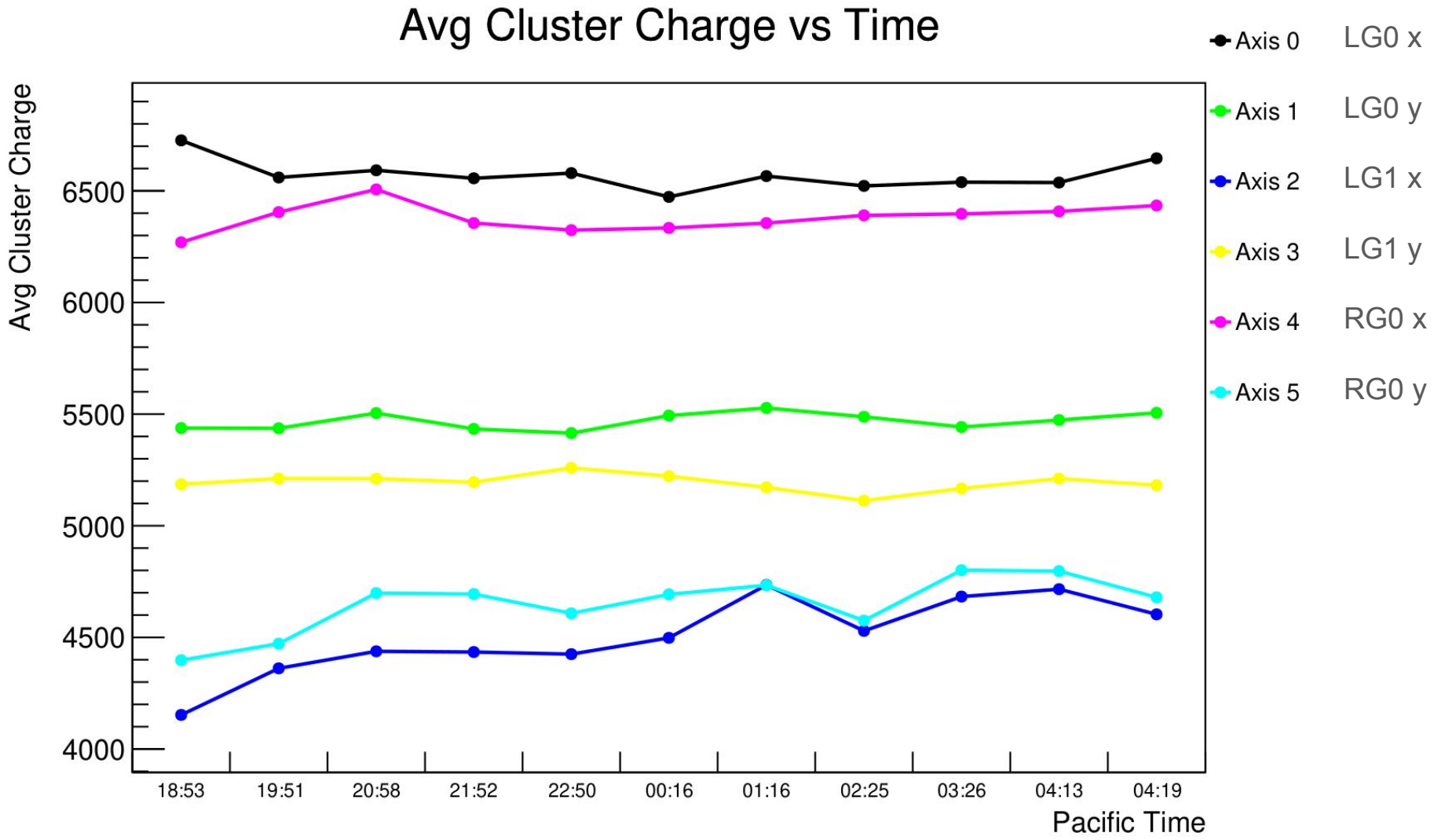
Moller Scattering: left arm at 12.3 A, right at 120 A, trigger on both arms.

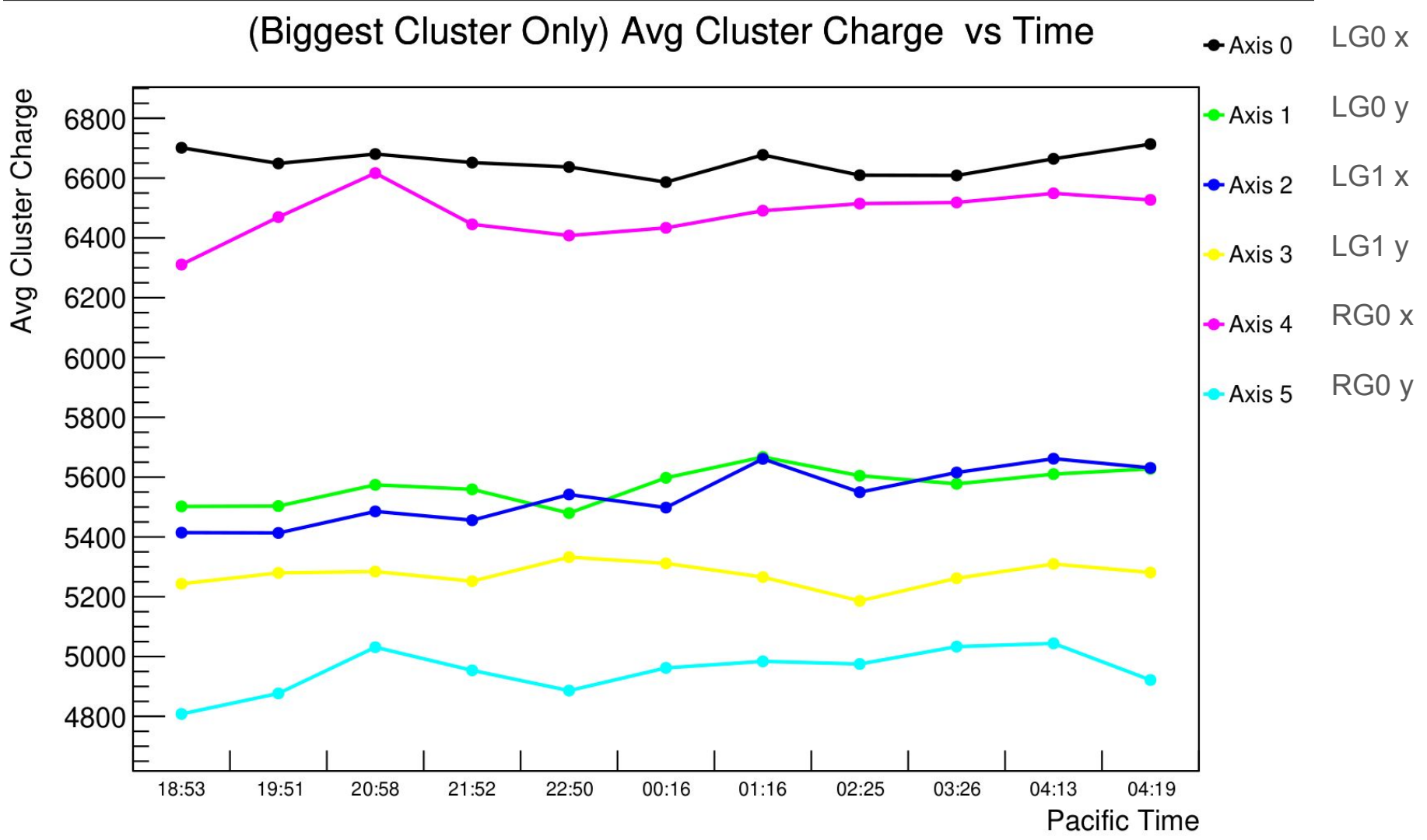
Start time (PT)	Run number
18:53	4104
19:51	4107
20:58	4116
21:52	4119
22:50	4123
00:16	4128
01:16	4130
02:25	4134
03:26	4137
04:13	4140
04:19	4141

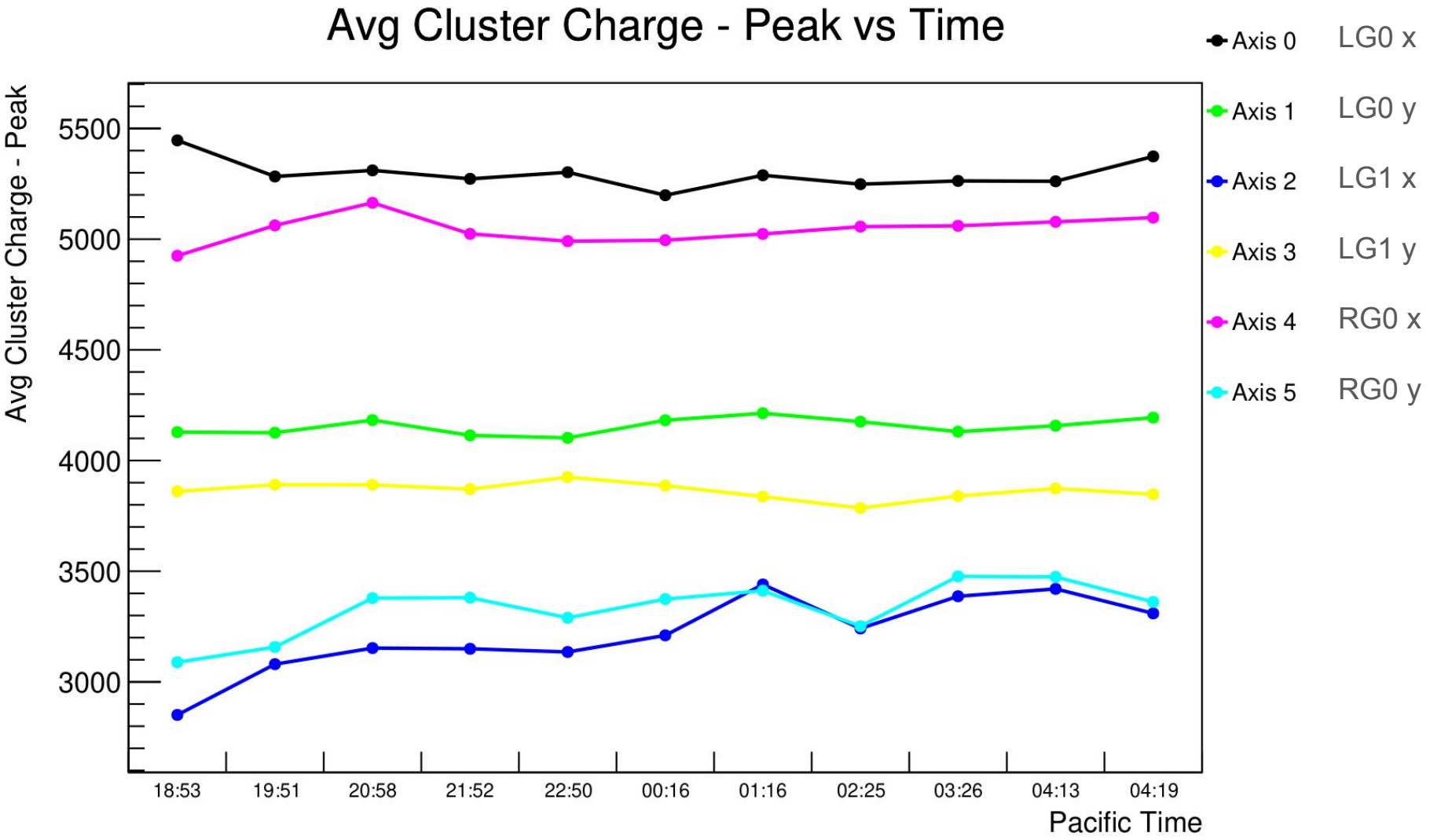
Analyzed 50k events

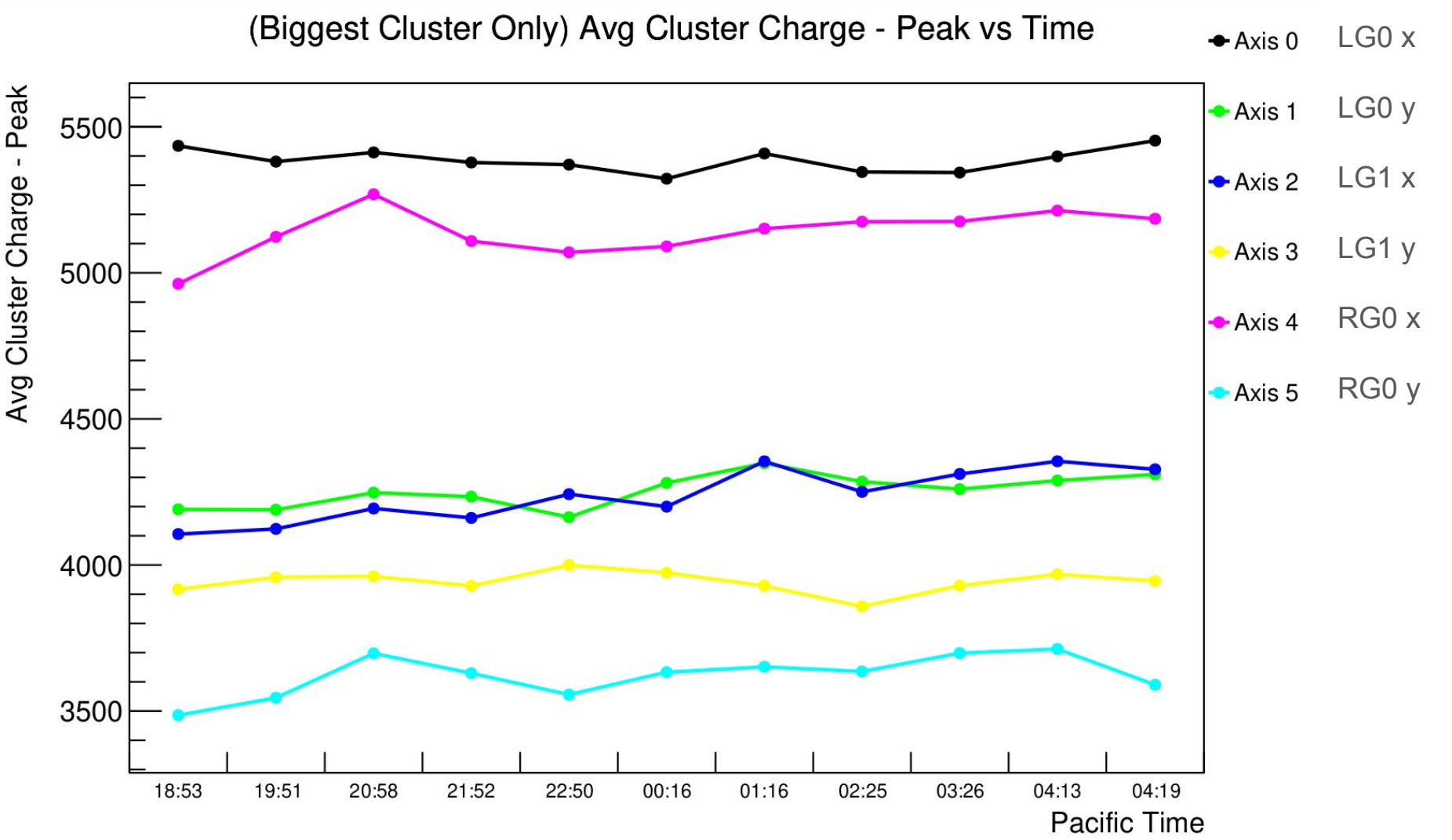
MIN_PEAK_ADC = 1000


Number of clusters vs Time
Number of clusters
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
18:53
19:51
20:58
21:52
22:50
00:16
01:16
02:25
03:26
04:13
04:19
Pacific Time
Axis 0
LG0 x
Axis 1
LG0 y
Axis 2
LG1 x
Axis 3
LG1 y
Axis 4
RG0 x
Axis 5
RG0 y


Avg Cluster Charge vs Time
Avg Cluster Charge
6500
6000
5500
5000
4500
4000
18:53
19:51
20:58
21:52
22:50
00:16
01:16
02:25
03:26
04:13
04:19
Pacific Time
Axis 0
LG0 x
Axis 1
LG0 y
Axis 2
LG1 x
Axis 3
LG1 y
Axis 4
RG0 x
Axis 5
RG0 y


(Biggest Cluster Only) Avg Cluster Charge vs Time
Avg Cluster Charge
6800
6600
6400
6200
6000
5800
5600
5400
5200
5000
4800
18:53
19:51
20:58
21:52
22:50
00:16
01:16
02:25
03:26
04:13
04:19
Pacific Time
Axis 0
LG0 x
Axis 1
LG0 y
Axis 2
LG1 x
Axis 3
LG1 y
Axis 4
RG0 x
Axis 5
RG0 y


Avg Cluster Charge - Peak vs Time
Avg Cluster Charge - Peak
5500
5000
4500
4000
3500
3000
18:53
19:51
20:58
21:52
22:50
00:16
01:16
02:25
03:26
04:13
04:19
Pacific Time
Axis 0
LG0 x
Axis 1
LG0 y
Axis 2
LG1 x
Axis 3
LG1 y
Axis 4
RG0 x
Axis 5
RG0 y


(Biggest Cluster Only) Avg Cluster Charge - Peak vs Time
Avg Cluster Charge - Peak
5500
5000
4500
4000
3500
18:53
19:51
20:58
21:52
22:50
00:16
01:16
02:25
03:26
04:13
04:19
Pacific Time
Axis 0
LG0 x
Axis 1
LG0 y
Axis 2
LG1 x
Axis 3
LG1 y
Axis 4
RG0 x
Axis 5
RG0 y

Conclusions

- The failure coincides well with the change in beam current
- Cluster charge is axis dependent
- RG0 showed the largest number of clusters (need to compare with runs from a few days earlier)
- The average cluster charge did not change overnight