CHECK ONLINE PLOT

Tomoya Kato, Yui Ishigaki, Mai Kano, Ryotaso, Nao Morimoto

Purpose

- In online plot (rate BCO decoding),

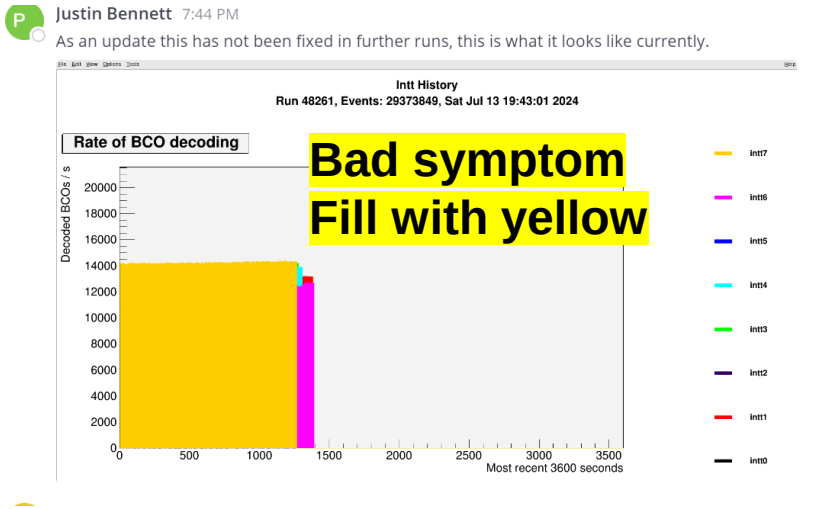
The fill symptom were found.

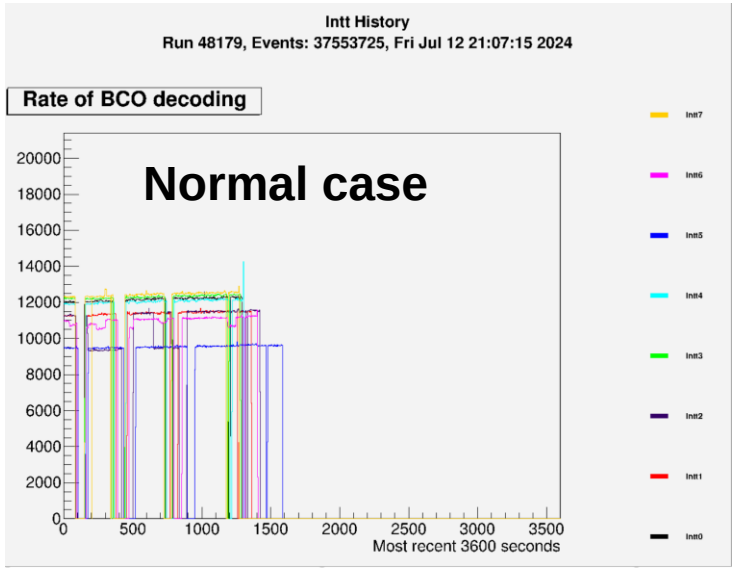
- Our purpose are

1. To confirm run (date) dependence
2. To confirm trigger rate dependence

Online plot are available in

Run24/Data monitor operator/Archive/INTTMONDRAW/intt history





1. To confirm run (date) dependence

- We visually confirmed which run had this fill symptom.
- Duration of run we confirmed is Jul 9 16:08(run 47800) to Jul 14 11:35(run 48312).

name	*Number of checked run
Tomoya	60
Ryota	100
Mai	120
Nao	120
Yui	100

*this number is not only physics run.
If run type was not physics, we skipped the check..

we made the rule to check.

Case	mark	Column
Found the Fill symptom	1	C
Run is not physics	0,R	C,D
Dead Felix decoder	0,D	C,D
Without INTT Raw hit	0,I	C,D
Few events	0,F	C,D

https://docs.google.com/spreadsheets/d/1hOjKk1S0woP9kkXWAbqY3lh4hefvKlPLGRsb_Om-d5E/edit?gid=0#gid=0

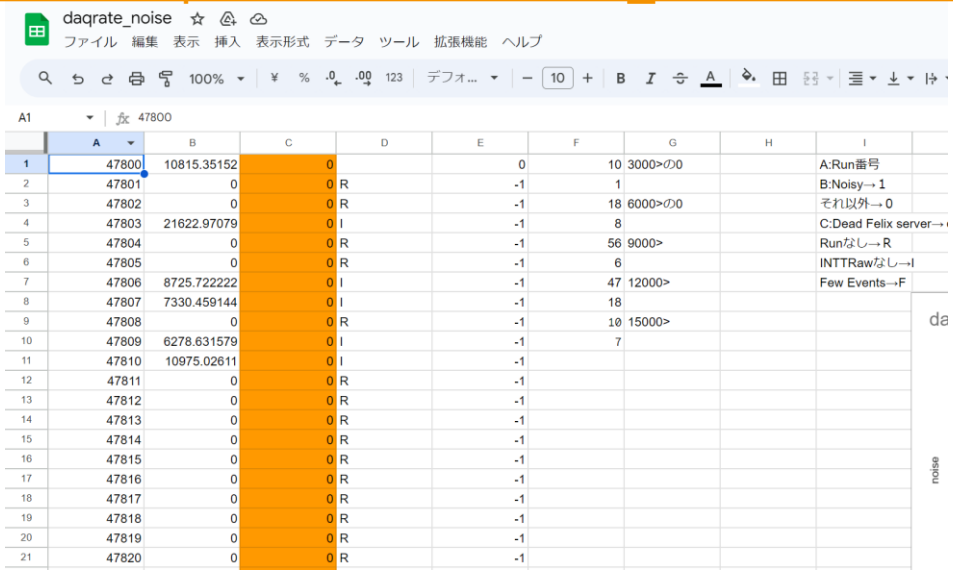
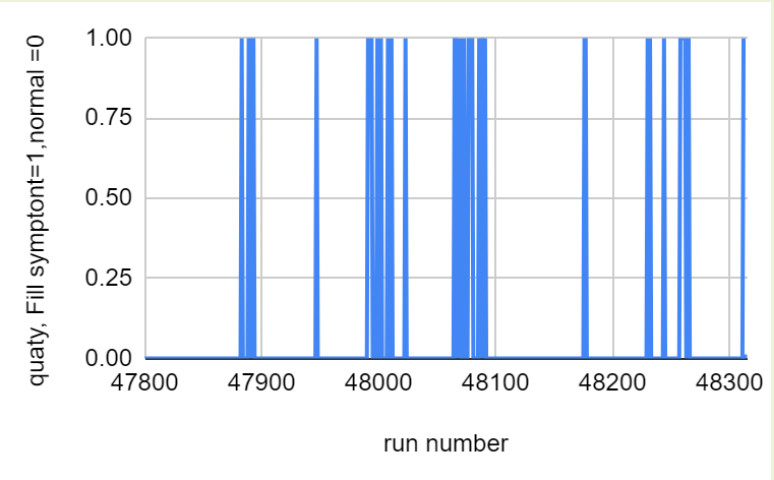


Table. The number of normal run and other run

Number of R	Number of I	Number of D	Number of normal	Number of the noisy run	Ratio of noisy run
314	47	10	141	41	0.29



From the table, Ratio if noisy run is 0.29. it means the Fill symptom **occurs 30%** during Jul 9th to Jul 14th.

From the right hand plot, The blue line means that the run had the Fill symptom. Blue line are happen.
But this plot are filled (junck,0) so we can't know the run dependence.

- Blue line means total number of INTT run from 47800, Red line means total number of run had the fill symptom.
- This graph show the relation between run(date) and the fill symptom.

expect

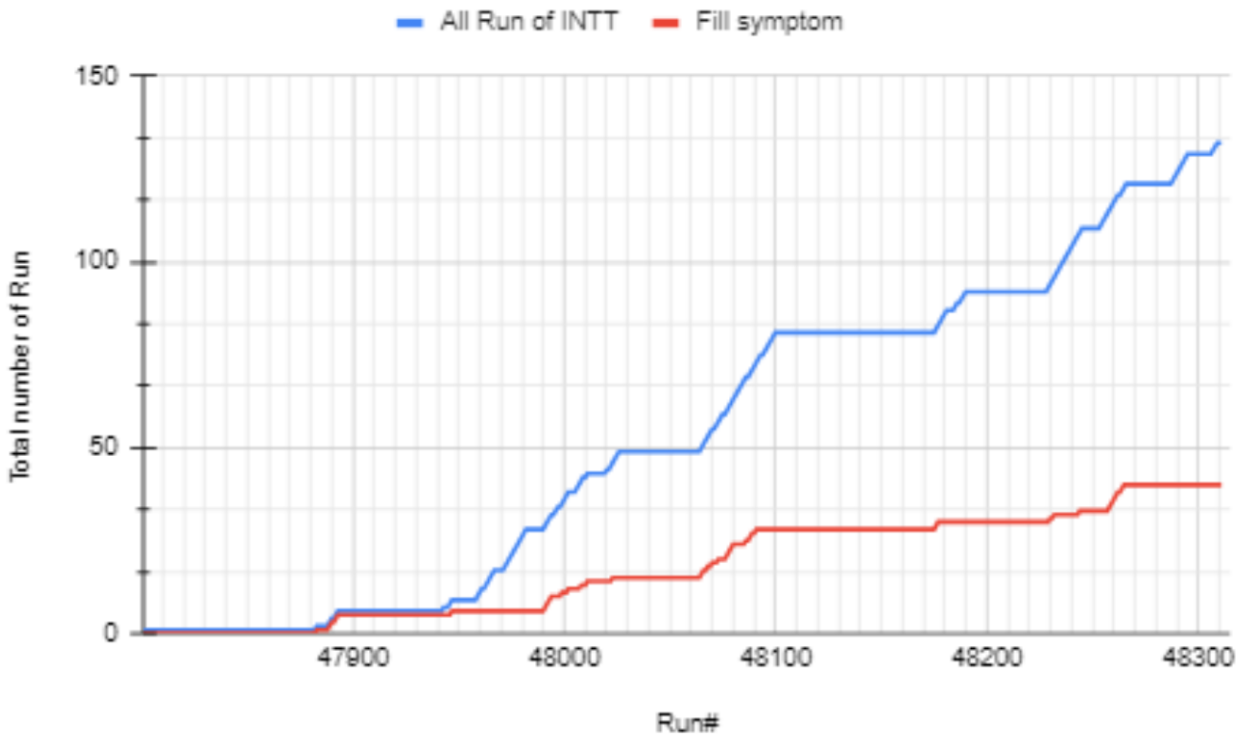
- If symptoms occur over a certain period, the both slope of line will be the same.

Result

- The red and blue line did not appear to be increasing in the same slope.

- Conclusion : there are not run dependence

Plot. Total number of INTT run and INTT run had the full symptom. This plot made by Mai Kano.



To confirm trigger rate dependence

- Calculate trigger rate from DAQ psql data base and confirmed relationship between the Fill symptom and trigger rate.

- DAQ data base is available at here.

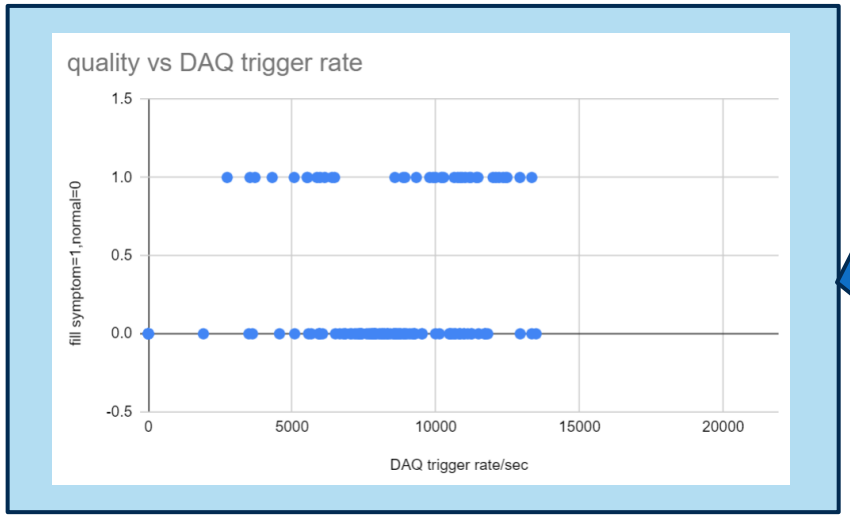
  psql -h sphnxdaqdbreplica daq

```
daq=> select * from run ORDER BY runnumber desc;
 runnumber |  runtype   |        brtimestamp         |     ertimestamp     | updatetimestamp | eventsinrun | marked_invalid | has_comment | qcomment
-----------+------------+----------------------------+---------------------+-----------------+-------------+----------------+-------------+----------
     48469 | physics    | 2024-07-16 14:59:22        |                     |                 |           1 |             -1 |           0 |
     48468 | physics    | 2024-07-16 14:53:32        | 2024-07-16 14:53:51 |                 |           2 |             -1 |           0 |
     48467 | physics    | 2024-07-16 14:49:56        | 2024-07-16 14:50:24 |                 |      176189 |             -1 |           0 |
     48466 | physics    | 2024-07-16 14:33:16        | 2024-07-16 14:34:28 |                 |      580126 |             -1 |           0 |
     48465 | junk       | 2024-07-16 14:26:00        | 2024-07-16 14:27:41 |                 |     2123723 |             -1 |           0 |
     48464 | junk       | 2024-07-16 14:24:00        | 2024-07-16 14:24:25 |                 |           2 |             -1 |           0 |
     48463 | physics    | 2024-07-16 13:54:01        | 2024-07-16 14:22:33 |                 |    17558214 |             -1 |           0 |
     48462 | physics    | 2024-07-16 13:15:56        | 2024-07-16 13:48:14 |                 |    17749709 |             -1 |           0 |
     48461 | physics    | 2024-07-16 12:42:41        | 2024-07-16 13:12:48 |                 |    16892578 |             -1 |           0 |
     48460 | physics    | 2024-07-16 12:40:08        | 2024-07-16 12:40:36 |                 |      181797 |             -1 |           0 |
     48459 | physics    | 2024-07-16 12:35:59        | 2024-07-16 12:37:56 |                 |     1117033 |             -1 |           0 |
     48458 | physics    | 2024-07-16 12:30:26        | 2024-07-16 12:32:46 |                 |     1350723 |             -1 |           0 |
     48457 | physics    | 2024-07-16 12:24:58        | 2024-07-16 12:26:24 |                 |      789648 |             -1 |           0 |
     48456 | physics    | 2024-07-16 12:16:13        | 2024-07-16 12:22:19 |                 |     3644864 |             -1 |           0 |
     48455 | physics    | 2024-07-16 11:57:56        | 2024-07-16 12:13:00 |                 |     9121221 |             -1 |           0 |
     48454 | physics    | 2024-07-16 11:48:02        | 2024-07-16 11:51:09 |                 |     1113378 |             -1 |           0 |
     48453 | junk       | 2024-07-16 11:44:19        | 2024-07-16 11:45:30 |                 |      231766 |             -1 |           0 |
     48452 | junk       | 2024-07-16 11:41:10        | 2024-07-16 11:41:32 |                 |          10 |             -1 |           0 |
     48451 | junk       | 2024-07-16 11:06:06        |                     |                 |           1 |             -1 |           0 |
     48450 | junk       | 2024-07-16 11:03:13        |                     |                 |          50 |             -1 |           0 |
     48449 | calib      | 2024-07-16 10:58:57        | 2024-07-16 10:59:30 |                 |        4124 |             -1 |           0 |
     48448 | junk       | 2024-07-16 10:24:02        | 2024-07-16 11:05:23 |                 |    10190449 |             -1 |           0 |
     48447 | physics    | 2024-07-16 08:28:30        | 2024-07-16 08:54:06 |                 |     8250761 |             -1 |           0 |
     48446 | physics    | 2024-07-16 07:53:47        | 2024-07-16 08:24:11 |                 |    10165630 |             -1 |           0 |
     48445 | physics    | 2024-07-16 07:19:19        | 2024-07-16 07:50:47 |                 |    10932603 |             -1 |           0 |
```

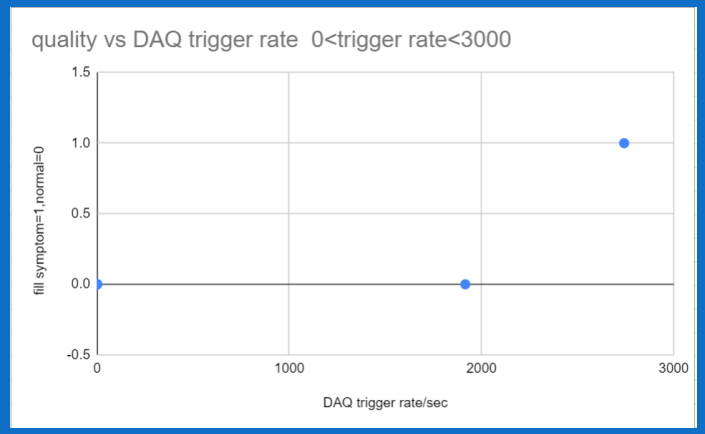
↑I made a python script to get (run number, br time stamp, er time stamp, event sin run) and calculate trigger rate.

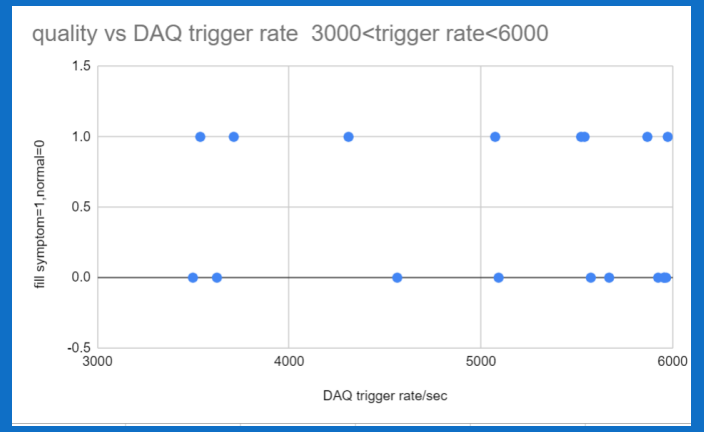
*Thanks Ryota for teaching how to use psql.

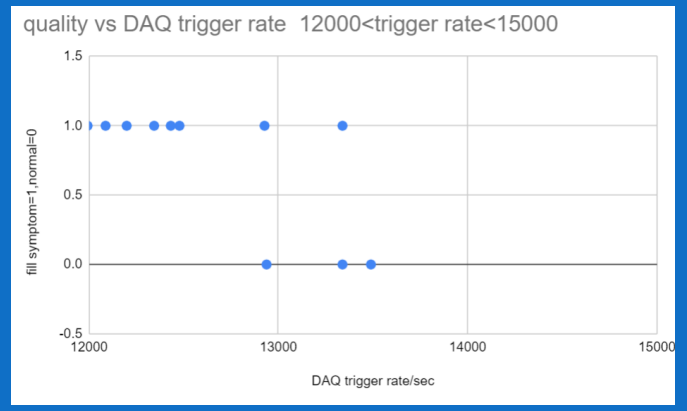
Result1 about trigger rate dependence

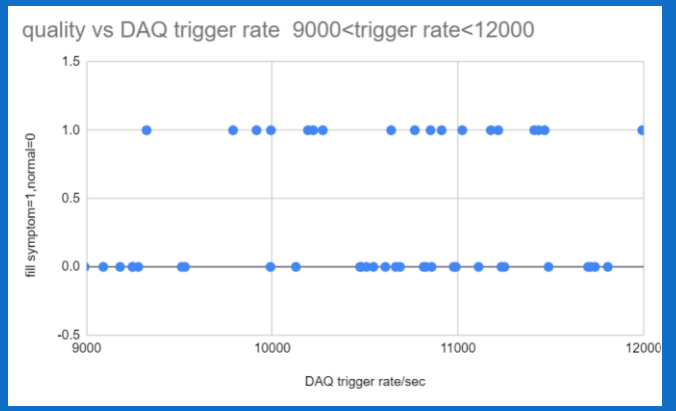


- 0 means normal run which INTT taken.
- 1 means run had the fill symptom.
- If there are many 1 point compere to 0, there is a trigger dependence.
- Go to next table.









***This plot were made by Yui.**

Result2 about trigger rate dependence

- Table show the total number of run INTT taken and total number of run had the fill symptom.
- Not increasing proportionally. But Probability of occurrence in 1200<trigger rate <1500 are higher than others. Although statistics are few run.

*This table was made by Yui

trigger rate /s	the total number of run with INTT	the total number of run had the Fill symptom	%
0-3000	3	1	33
3000<trigger rate<6000	18	8	44
6000<trigger rate<9000	56	6	11
9000<trigger rate<12000	47	18	38
12000<trigger rate<15000	10	7	70

TITLE

Tomoya Kato (form Rikkyo University)

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