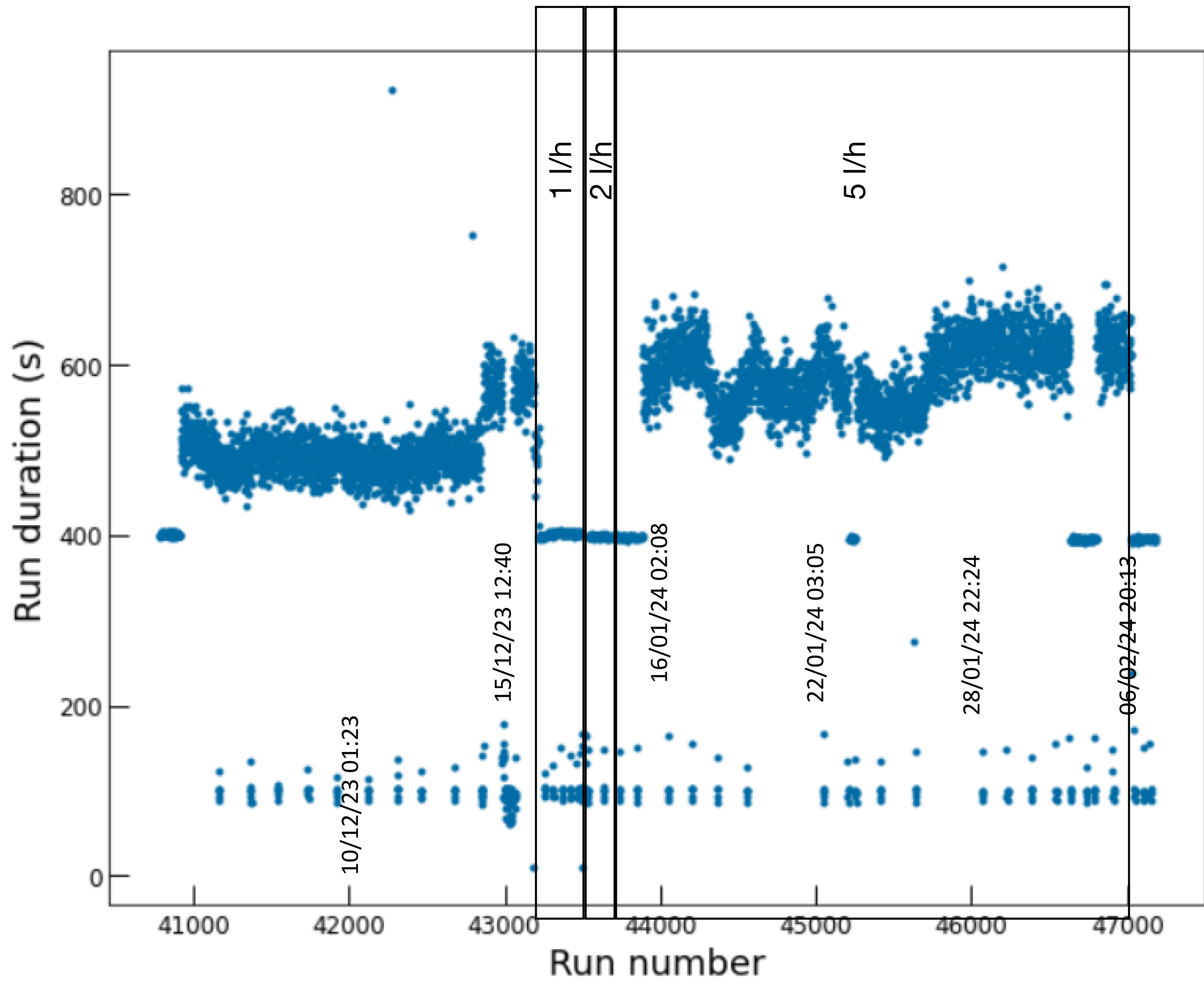


Study of the run duration

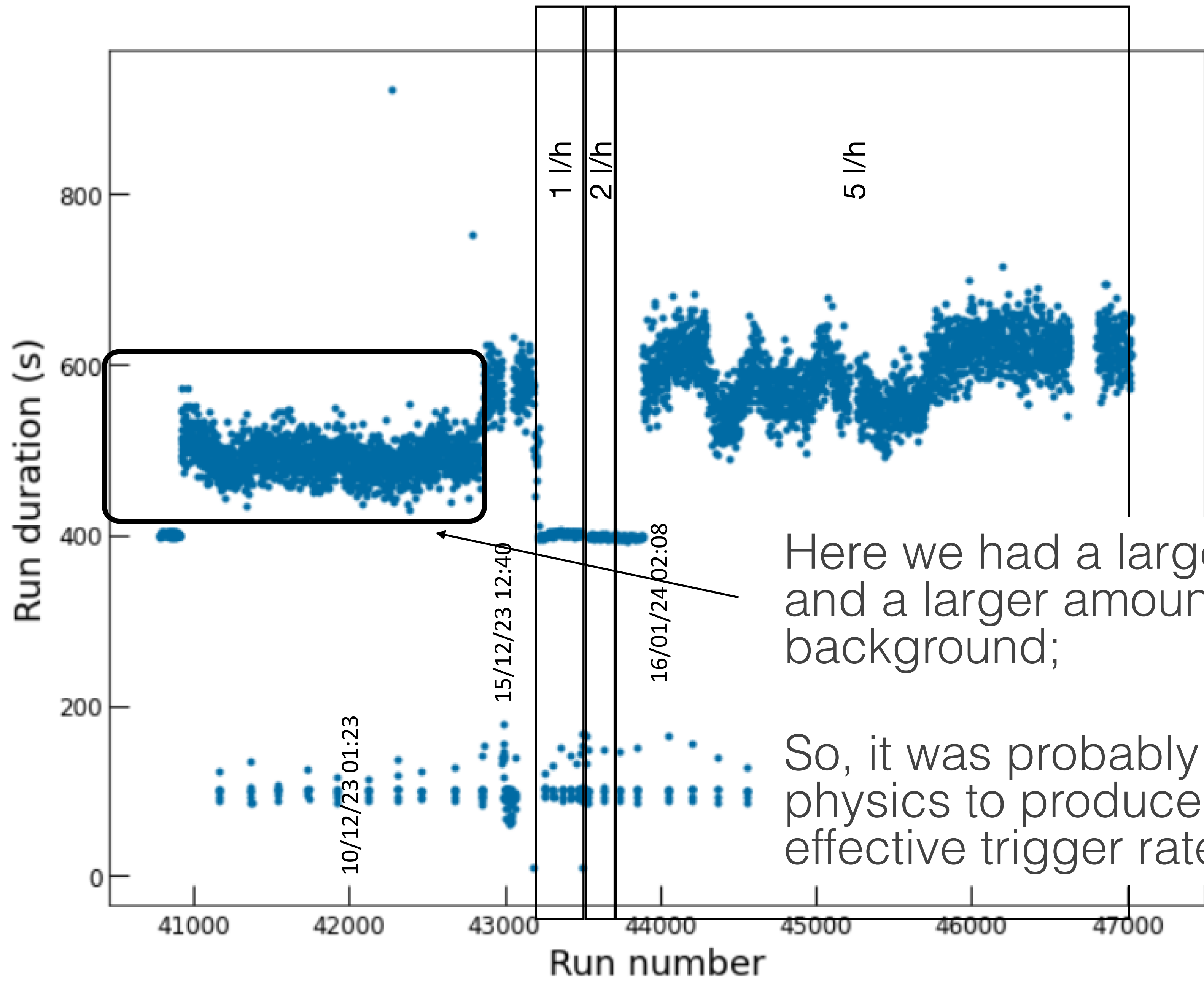


It was noticed by Daniel that the run duration can vary;

This is in particular the beginning of RUN4;

There were steps and fluctuations of about 20% to acquire the same amount of events (about 400);

LY30 suggested a quite stable gain in the whole period

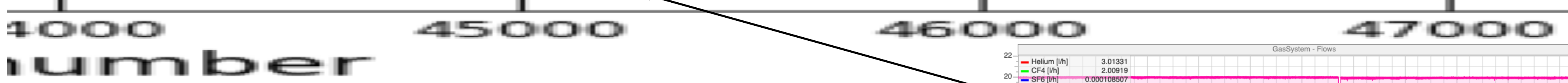
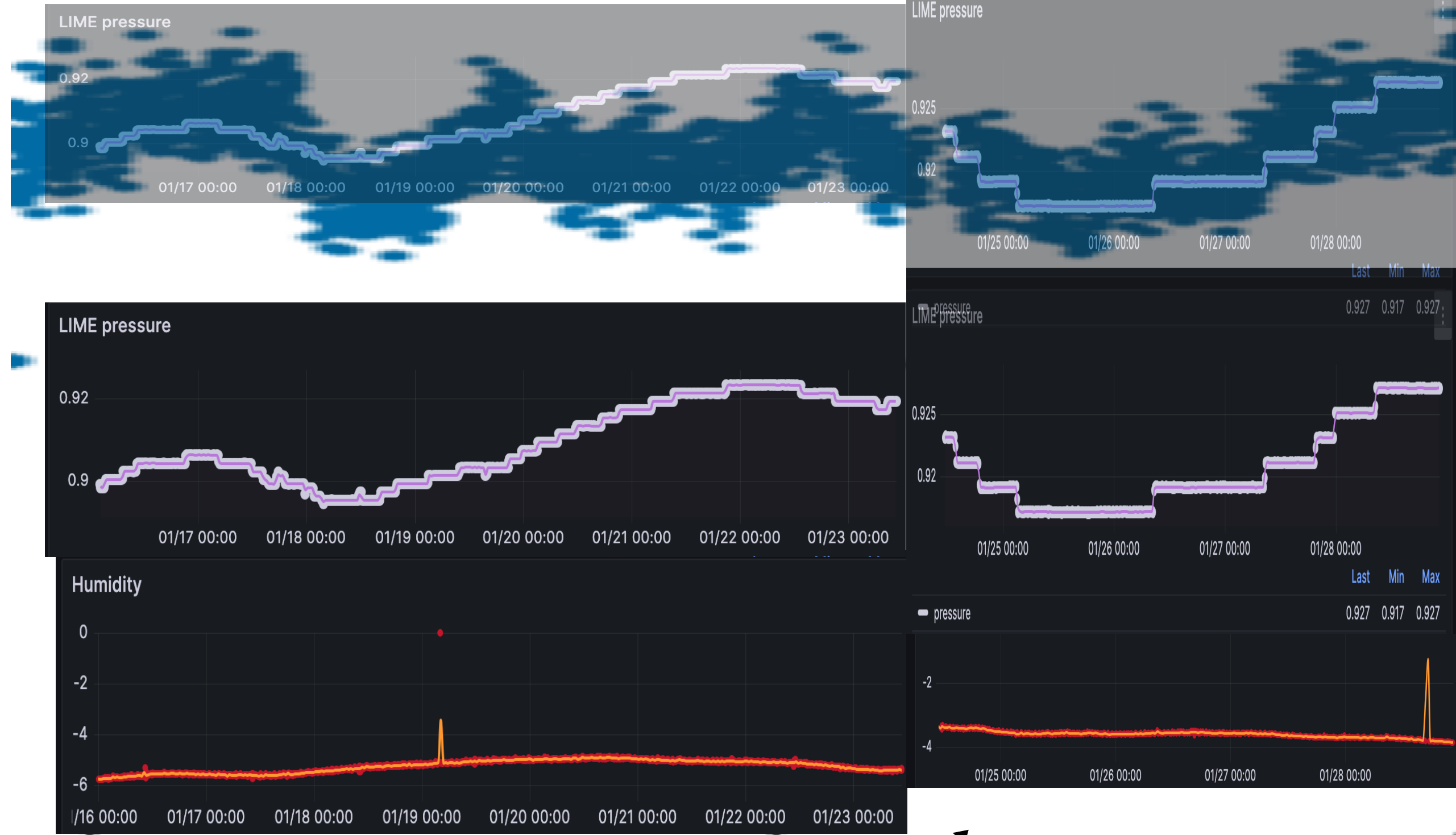


Here we had a large number of alphas and a larger amount of low energy background;

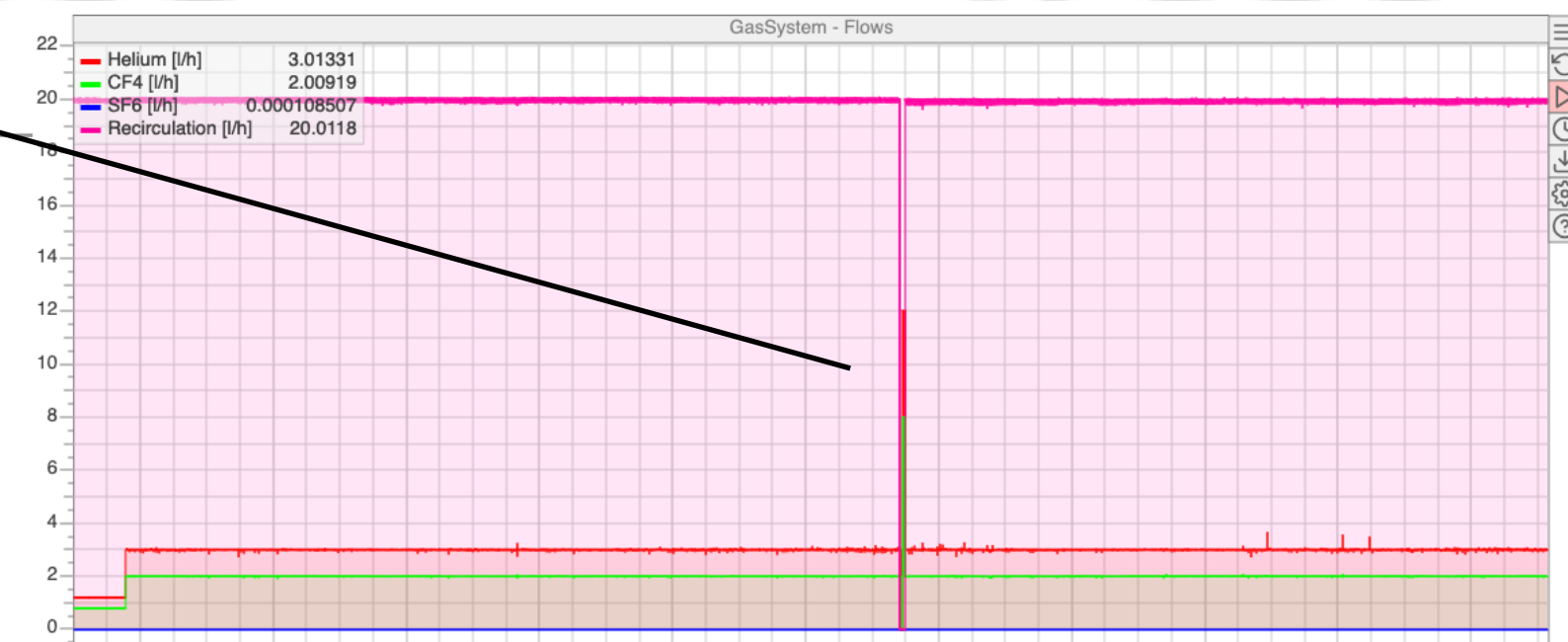
So, it was probably a larger amount of physics to produce an increase in the effective trigger rate

In other periods humidity level was stable, LY30 quite stable, but trigger rate changed

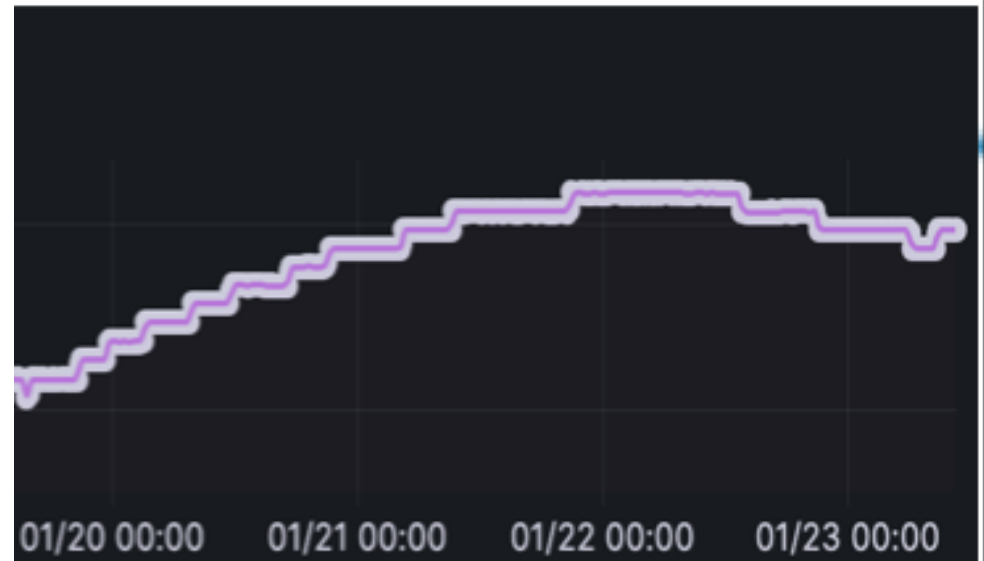
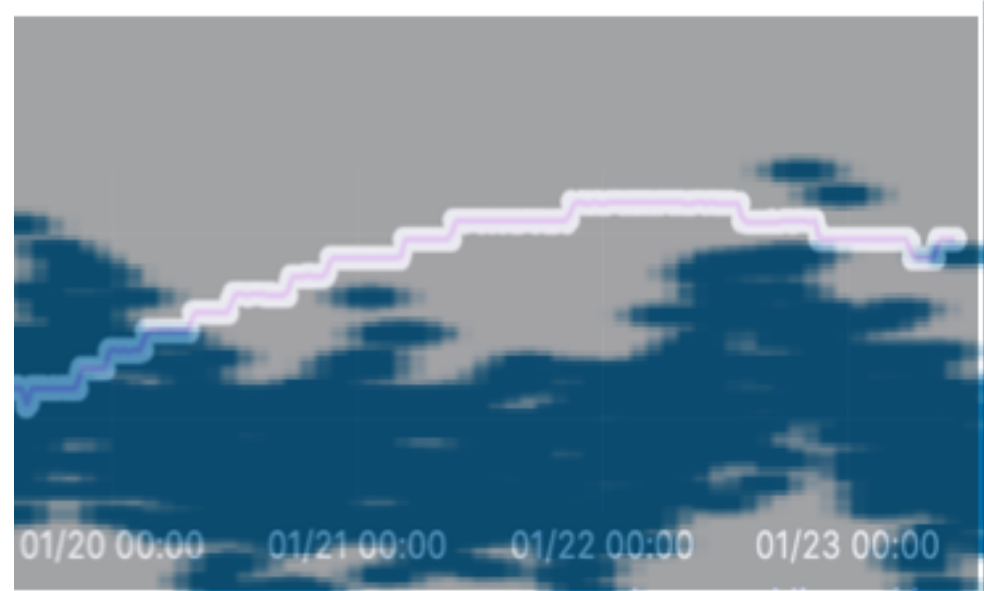
It seems to be related to the gas pressure



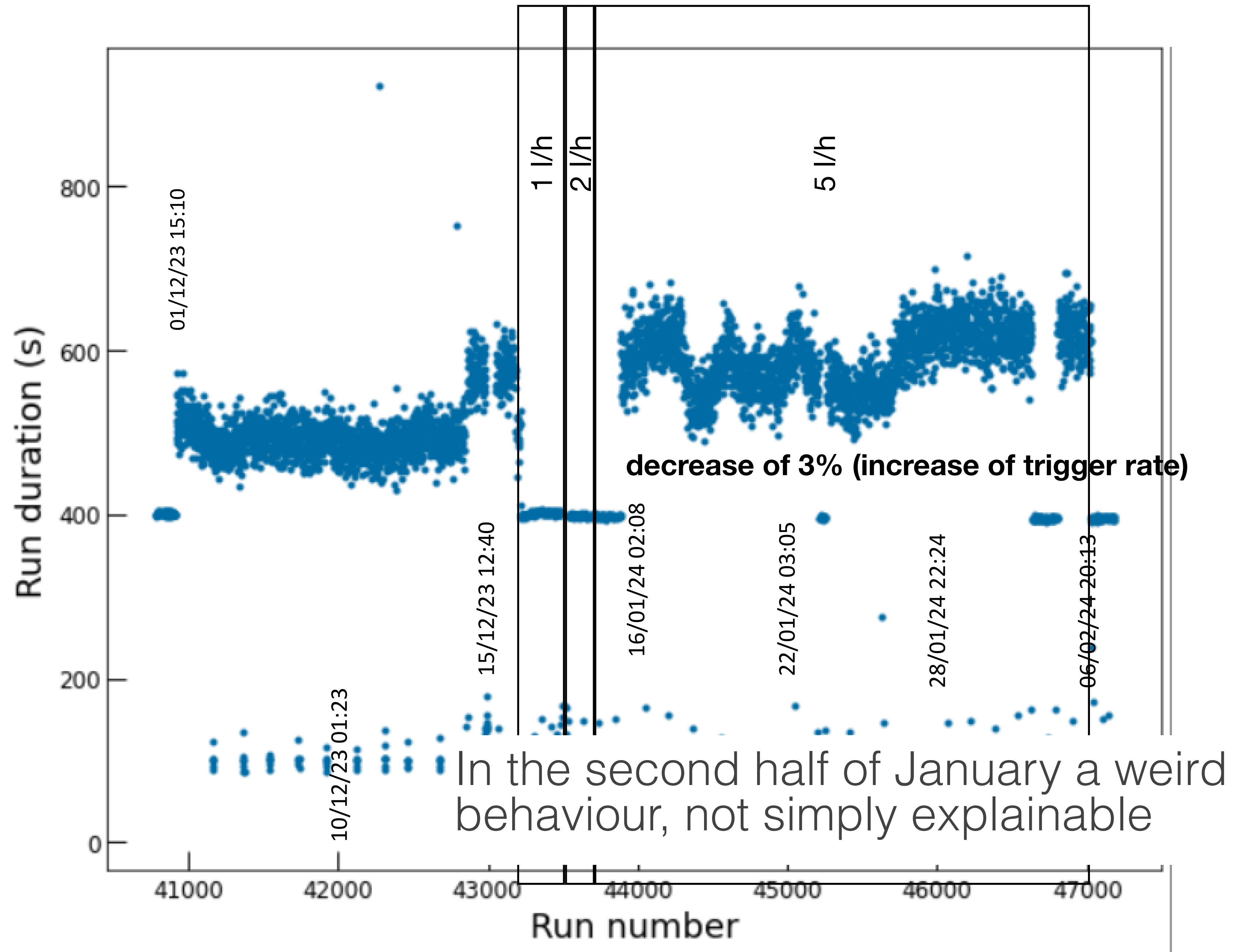
Stop of gas flow, humidity jump

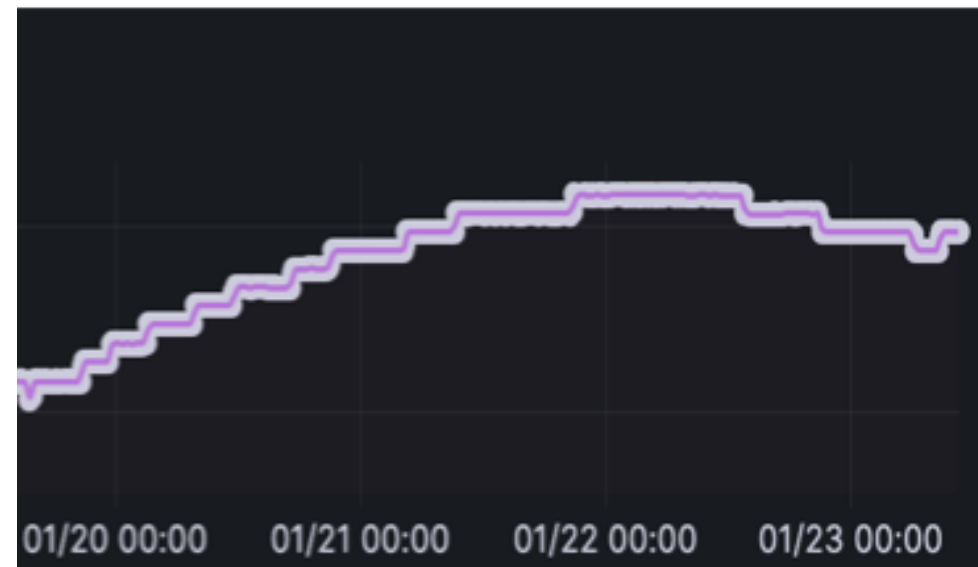
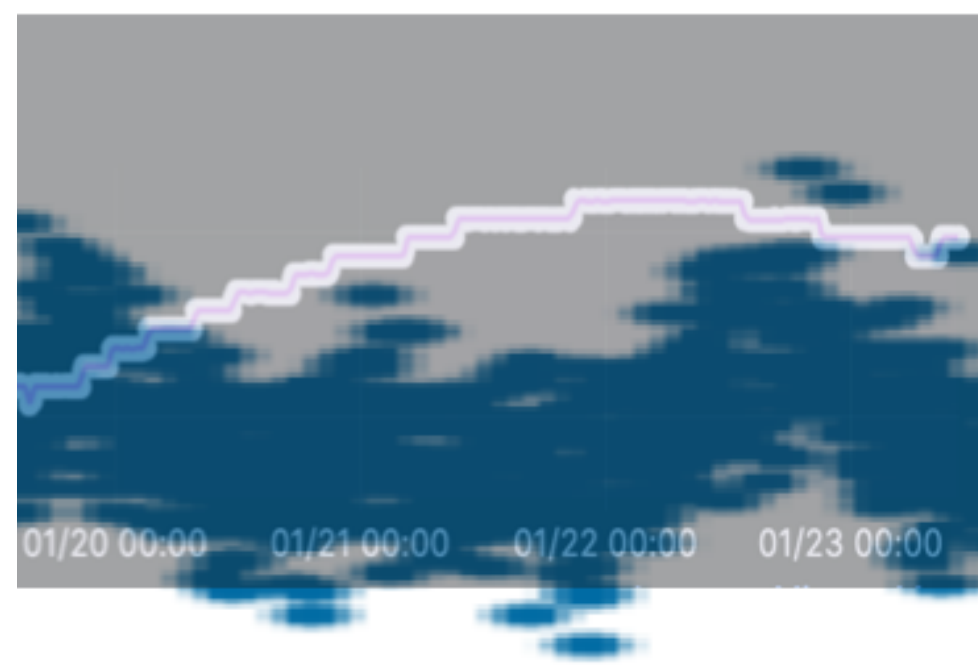


Weird behavior



45000

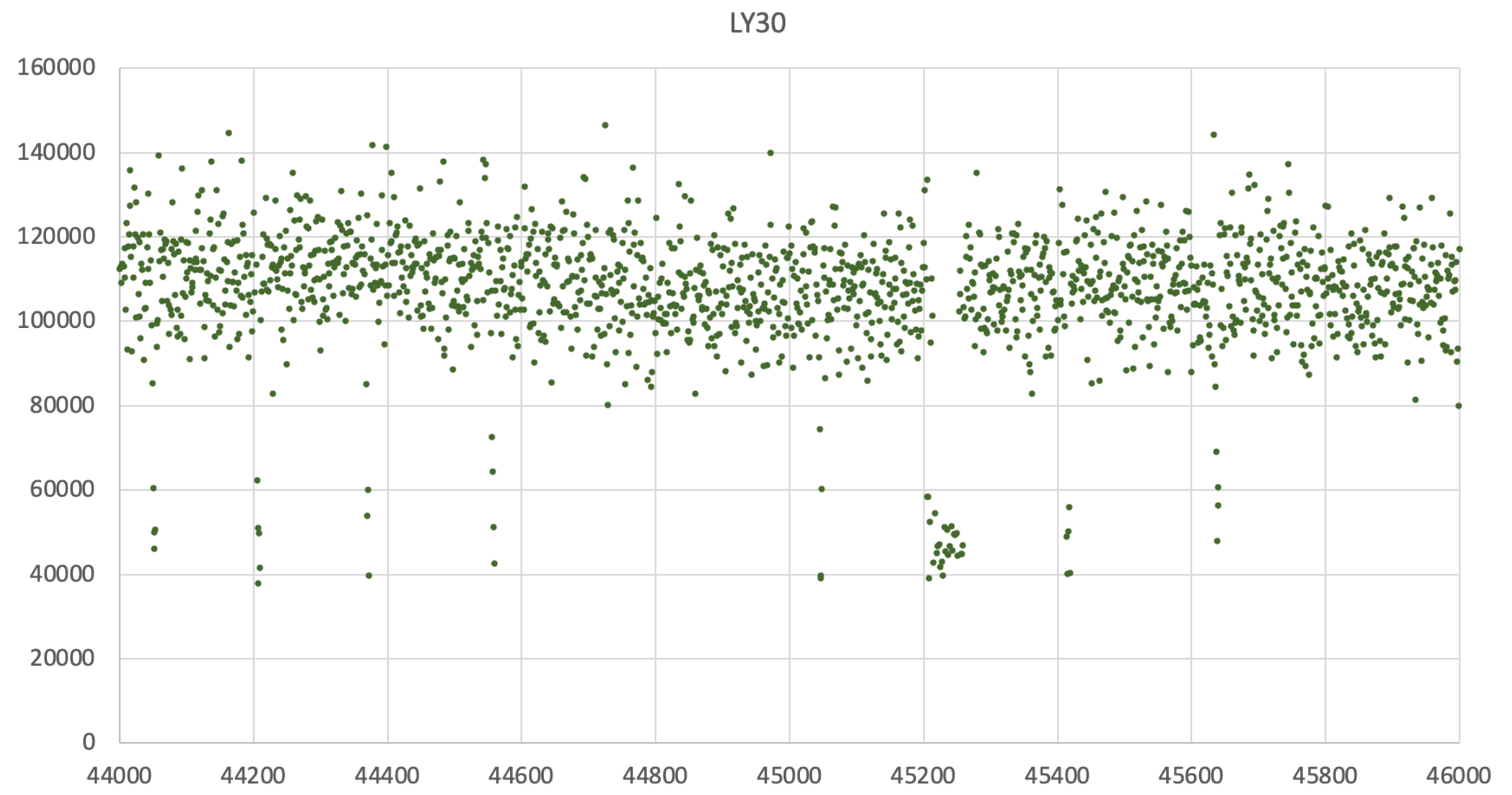
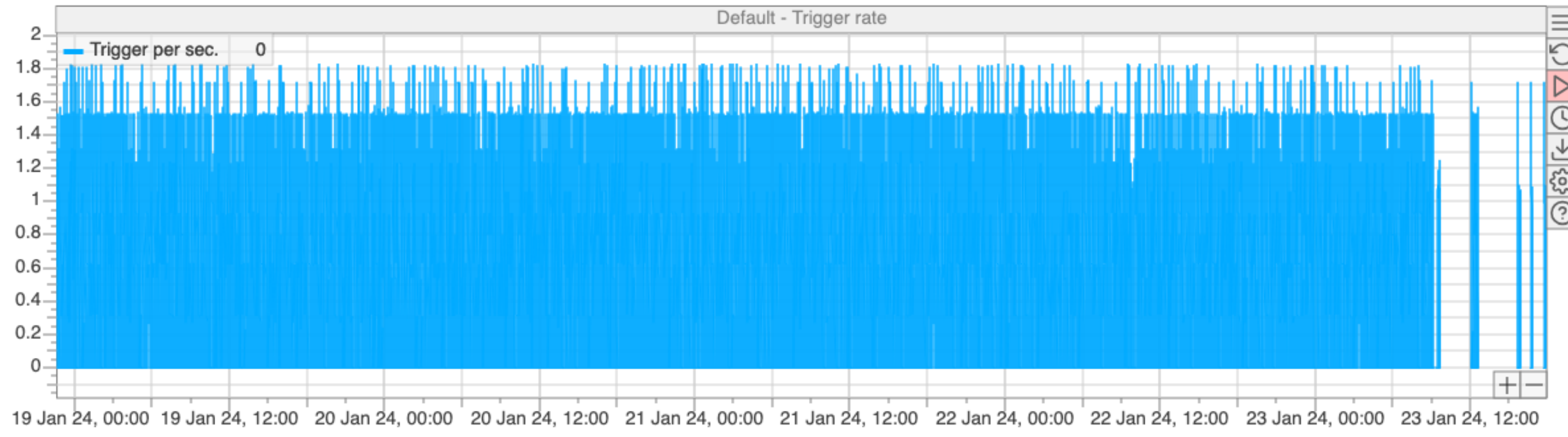
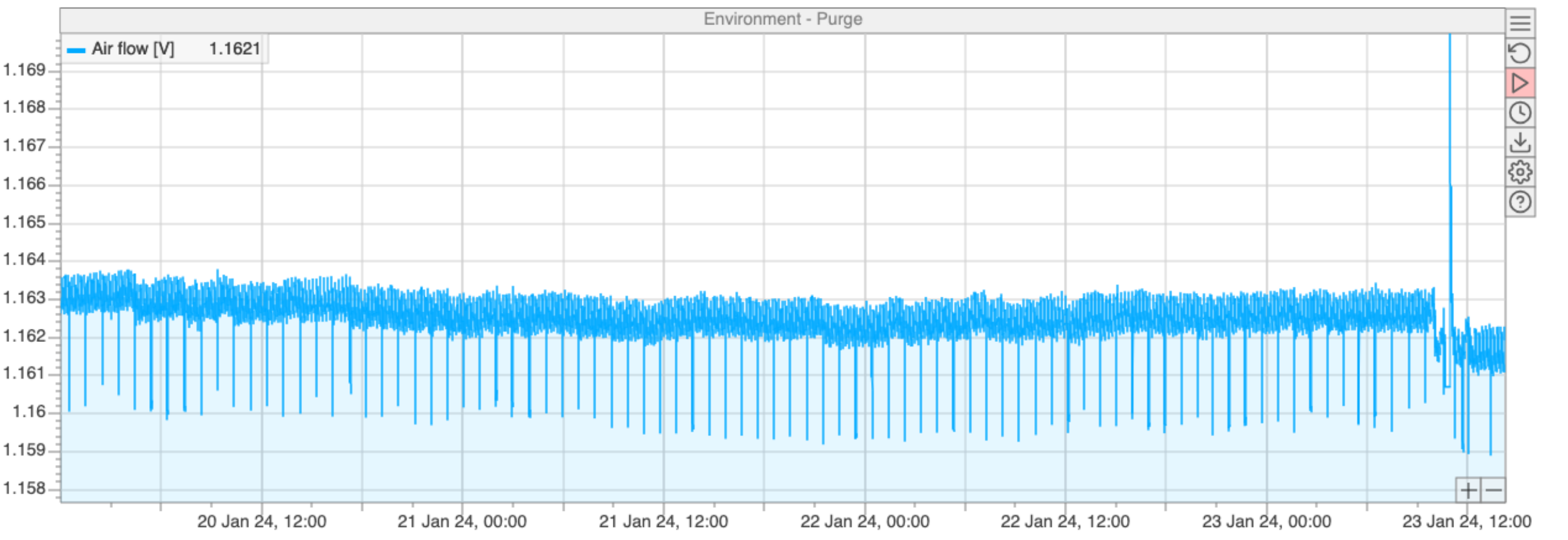
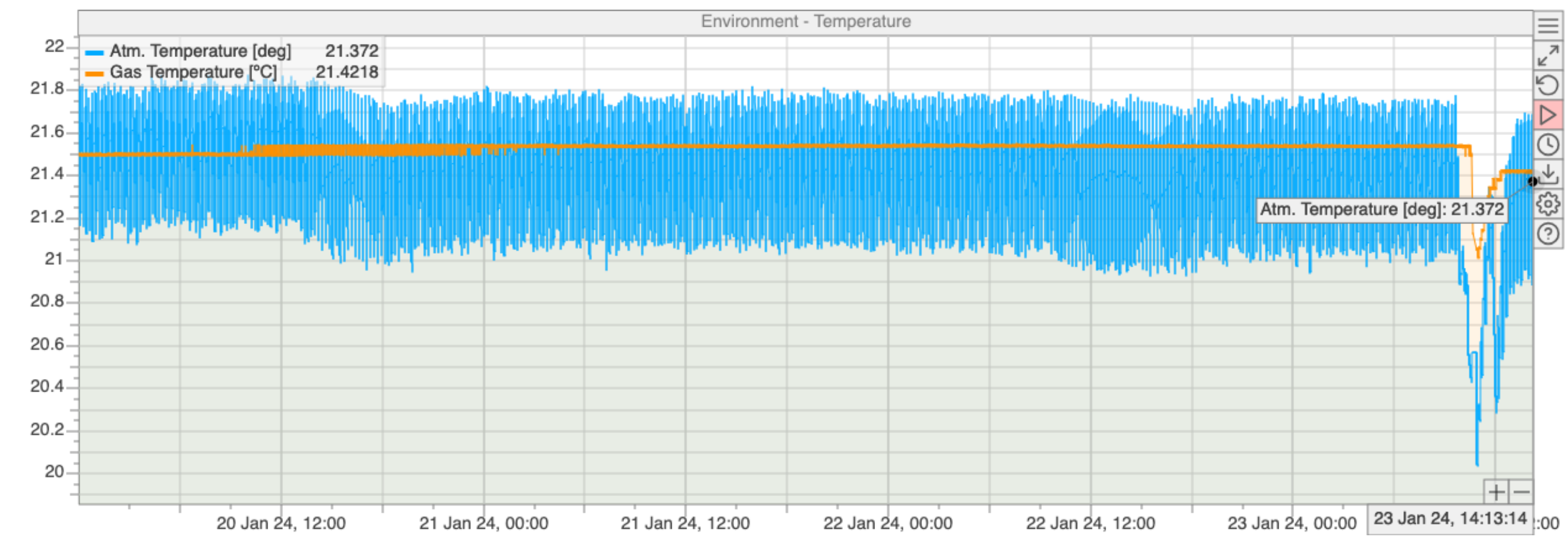




45000
r

What happened between 44582 (19/01) and 45209 (23/01)?

- gas flow stable
- temperature was stable
- DAQ rate, stable
- LY30 quite stable



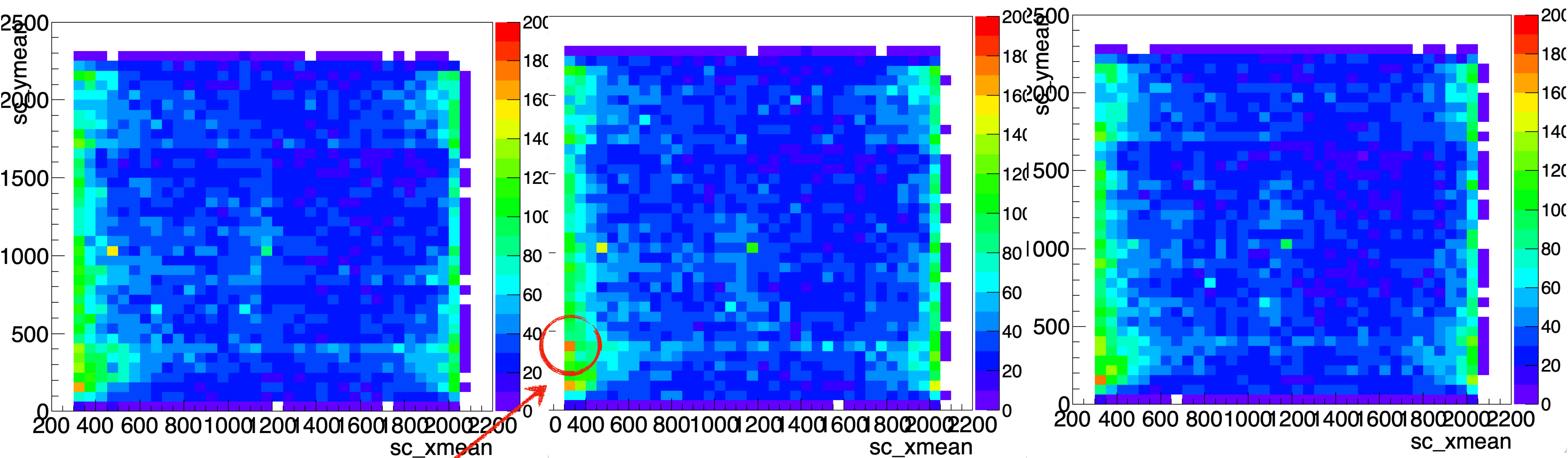
What happened between 44582 (19/01) and 44704 (23/01)?

I took 3 sets of 100 runs before, during and after the weird period and looked at the occupancy map;

runs: 44216-44316

runs: 44604-44704

runs: 46079-46179



In the weird one, a spot (present also in other periods) seems to be hotter than usual. Can it be the cause of a higher trigger rate and shorter run duration?

Conclusion

- The run duration (RD) seems to be a good indicator of LIME behavior:
 - the effect of the filter on radon induced radioactivity explains the difference between before and after 19/12/23;
 - it is sensitive to pressure and humidity effects on the light yield (probably more than LY30)
 - it can also indicate presence of faint hot-spots (which are not detectable by the LY30)