

General (Stefan/Kin)

- EBIS switch August 2
- intensity now 1.6e9/bunch
- Background still higher than before June 28 (see below)

Current Priority Items (PC)

- Include MVTX in big partition
- Beam studies for MVTX background

Work Control Coordinators (Chris/Joel)

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Plan of the Day (Stefan/PC/all—to be revisited at end of meeting)

- MVTX: take runs in local mode to check if background depends on beam conditions throughout store?
- MVTX: work to include in big partition: done for today
- Tonight: data taking like last night
 - Postponed: take calorimeter only data with no prescale to maximize rate and shake out any DAQ issues: GI1, LI1, ZDC, MBD, HCal, EMCal (keep ZDC out for Dan's trigger work)
 - HCal only cosmics if no beam
- Tomorrow: maintenance day 7:00am - 5:00pm
 - TPC no beam, magnet on
 - repair/turn on heaters for IR air handlers
 - Install sEPD make-shift electronics box
 - Install sEPD cooling panel
 - INTT cooling system purge

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Evening (Xiaochun He)

- Overall, our shift went well.
- MCR called at 6pm for a new store. Beam was established shortly after.
- John Haggerty and JaenBeom worked on fixing one of the EMCAL SEB and stopped around 7:20pm.
- DAQ operator started taking beam data but failed, which seemed to have connection to the EMCAL work. JaenBeom helped fix the issue.
- Around 8:30pm, Dan Lis requested taking out ZDC in the big partition for a quick study.
- We also took one HCal LED run during the shift. No problem with running the DAQ for LED data taking..
- Beam data taking continued to the midnight shift change.

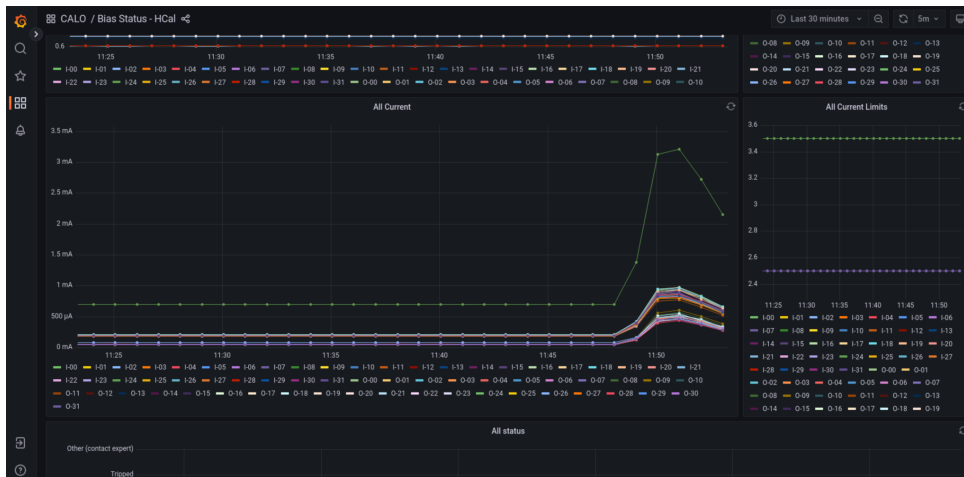
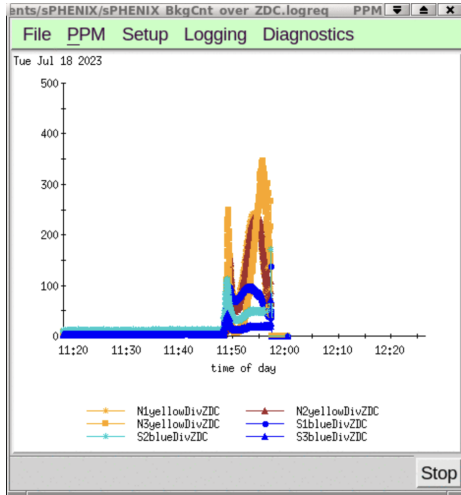
Night (Tony)

- Inherited store that was dumped on schedule at 02:30. MCR spent 30 minutes cleaning out unbunched beam before the dump. This generated a LOT of background.
- New store at 03:45, scheduled to dump at 11:44.
- Alternated collision data and HCal LED runs. DAQ was not very stable compared with the night before. Frequently hung on a couple of jsebs.

- Jaeboem worked on run control gui improvements.
- Attempted MBD laser run without success. The scripts to run this need to be debugged. See DAQ log for summary.

Day (Tristan)

- Inherited beam from night shift, alternated big partition and LED run, ready to dump at 11:46. RHIC needed to be gap cleaned, during this we saw high backgrounds and increase in HCAL currents:



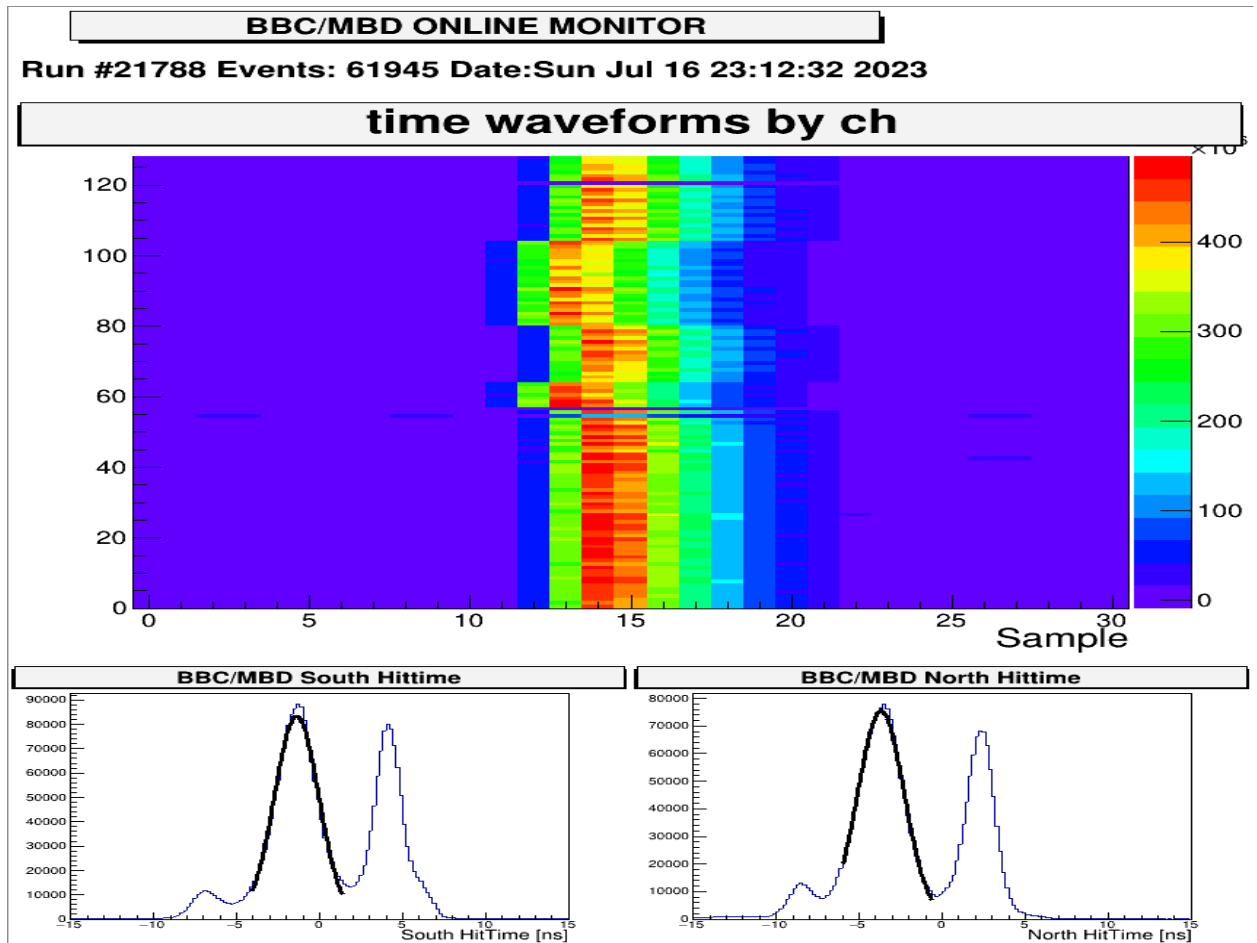
- MBD laser run between fills
- Physics declared on next 111x111 fill at 12:36, followed by unexpected beam dump at 12:38. A large section of the IHCAL tripped during this injection.
- Refilled and physics declared at 13:20, dump scheduled at 21:20. Jaebeom working on EMCAL and MVTX crew took multiple successful runs.
- Larger blue backgrounds during this run, likely due to STAR 80k ZDC rate. Went away when STAR went back to ~20k ZDC.

Magnet (Kin)

- Nothing new to report.

MBD (Mickey, Lameck)

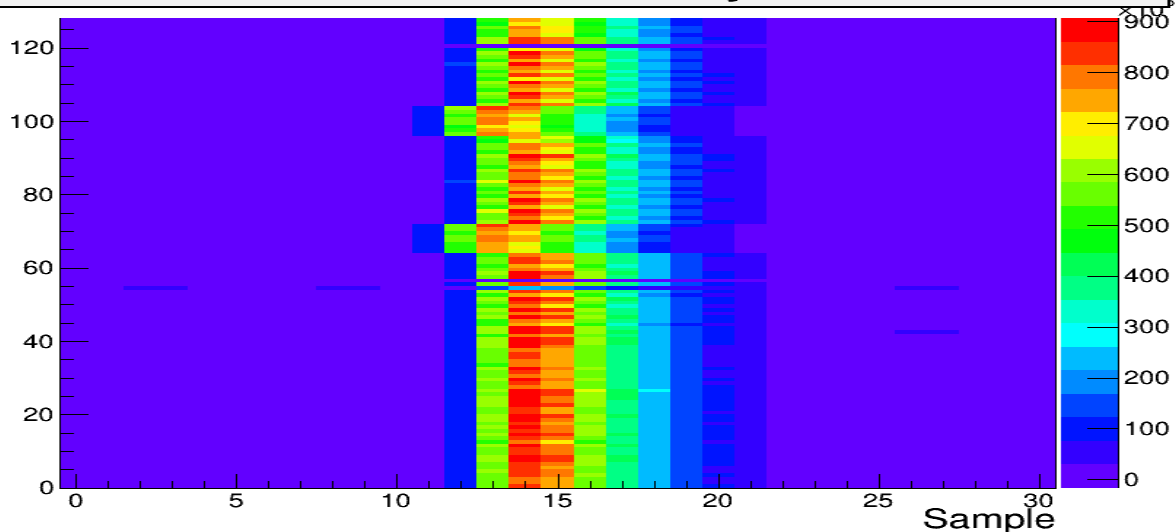
- We asked the DAQ operator to take an MBD laser run between the stores(i.e when there is no beam). Since there is some reason the script wasn't working (it worked when tested), there could be some interference with other things going on in the DAQ. If the beam is dumped during normal hours and the script doesn't work, we request the expert to be called so we can try running the script and debug it to be more reliable.
- Last night, the Onlinemon operator observed that in Run 21788 the MBD time waveforms, the misalignment was increasing gradually with each run. Then in Run 21796; secondary peak back to small in North and South Hittime.
 - There's nothing we know of at the moment that we can do until there is a firmware fix from Nevis. It's possible that there does already exist some initializing procedure which makes this timing stable, but so far everything we try has not worked. The "increase" in misalignment with run is probably just statistical noise.



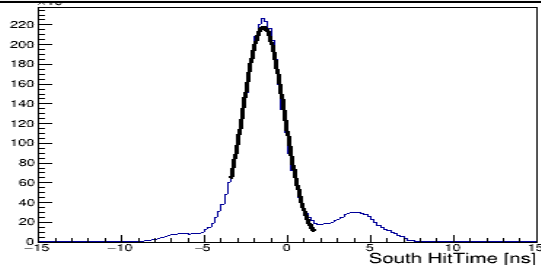
BBC/MBD ONLINE MONITOR

Run #21796 Events: 107246 Date: Mon Jul 17 02:32:11 2023

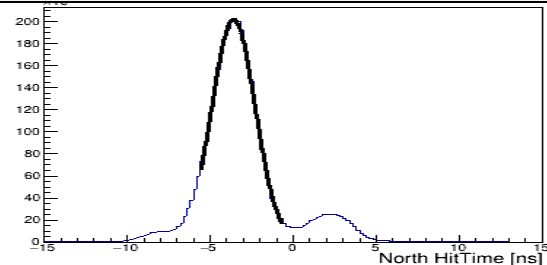
time waveforms by ch



BBC/MBD South Hittime



BBC/MBD North Hittime



Trigger (Dan)

- 1st priority: work on debugging sample shifting
 - To be continued with beam
- Threshold scan for cosmoics data? (premature; work on LUT first)
- Set up single MBD trigger with $n_{tubes} \geq 32$ for MVTX background studies?

GTM/GL1 (Martin/Dan/John K)

- What's the status of the firmware upgrade?
 - Going to work during maintenance day (need GTM access, but not beam)

DAQ (Martin/John H)

- Runcontrol db?

MVTX (Michael (?)/ Zhaozhong)

- Worked out a consistent procedure for taking runs using full control software, default configuration
- Took several runs during physics fill with auto-recovery enabled
 - Logging of auto-recovery timing should be available for these runs, so we should have a decent estimate soon of how long auto-recovery takes
 - mvtx-flx1 "lagging behind" other MVTX FELIX servers, also problems with FELIX DMA; cause currently unknown, investigating.

- Next steps: working on adapting that consistent procedure to running in big partition
- Data analysis continues: Impossible to synchronize all 6 FELIXes of the single beam run for MVTX background studies on 06/29
- Correlation of internal MVTX detector: FEEID, staves, FELIX for all the runs
- Possible correlate MVTX first with TPOT (possible be done now) and then with INTT/MBD later

TPC (Luke, Tom Hemmick, Takao, Evgeny, Charles, Nick, Thomas, Adi, John K., Jin)

- Automatic stuck FEE masking:
 - Finding enabled for TPC and TPOT, masking enabled for EBDC01 first since 2AM today
 - Grafana alert rule to identify stuck FEEs by spotting ones with high (>400kHz for now) waveform rates (as if taking 700Hz level-1 trigger). High rate has to sustain for 3-min to issue a full alert. Grafana also keeps a record of past FEE stuck events.

The screenshot displays the Grafana alerting interface for the 'TPC > FEE' group. At the top, there are two alerts: 'TPC FEE Temp.' and 'TPC Stuck FEE Check', both in a 'Normal' state. Below the alerts, there are buttons for 'Silence' and 'Show state history'. The configuration for the alerts is shown: 'Evaluate' every 3m, 'For' 3m, and 'Labels' include 'Subsystem=TPC'. The 'Matching instances' section shows a search bar and a state filter set to 'Normal' with 26 instances. A list of instances is displayed below, each with a 'Normal' state and a set of labels including 'Subsystem=TPC', 'alertname=TPC Stuck FEE Check', 'dam_fpga_dna=3735929054', 'dam_fpga_firmware_build=3735929054', 'dam_fpga_firmware_build_datetime=2023-05-29 11:04:00', 'dam_fpga_firmware_build_githash=3823708185', 'dam_id=0', 'dam_sn=3735929054', 'dev_level=production', 'fee_id=00', 'grafana_folder=TPC', 'hostname=ebdc01', 'instance=ebdc01.sphenix.bnl.gov:9101', and 'job=TPC'.

- Once alerted, send a mattermost message for TPC operation team <https://chat.sdcc.bnl.gov/sphenix/pl/tww9t7bryfbbmyi8xtqoaup1ga>

tpc-grafana-bot BOT 1:55 AM

[FIRING:3] TPC Stuck FEE Check TPC (TPC 3735929054 3735929054 2023-05-29 11:04:00 3823708185 0 3735929054 production ebdc01 ebdc01.sphenix.bnl.gov:9101 TPC)

Firing

Value: FEE RX Start Of Burst Rate=3.9063686666666665e+06, Stuck FEE=1

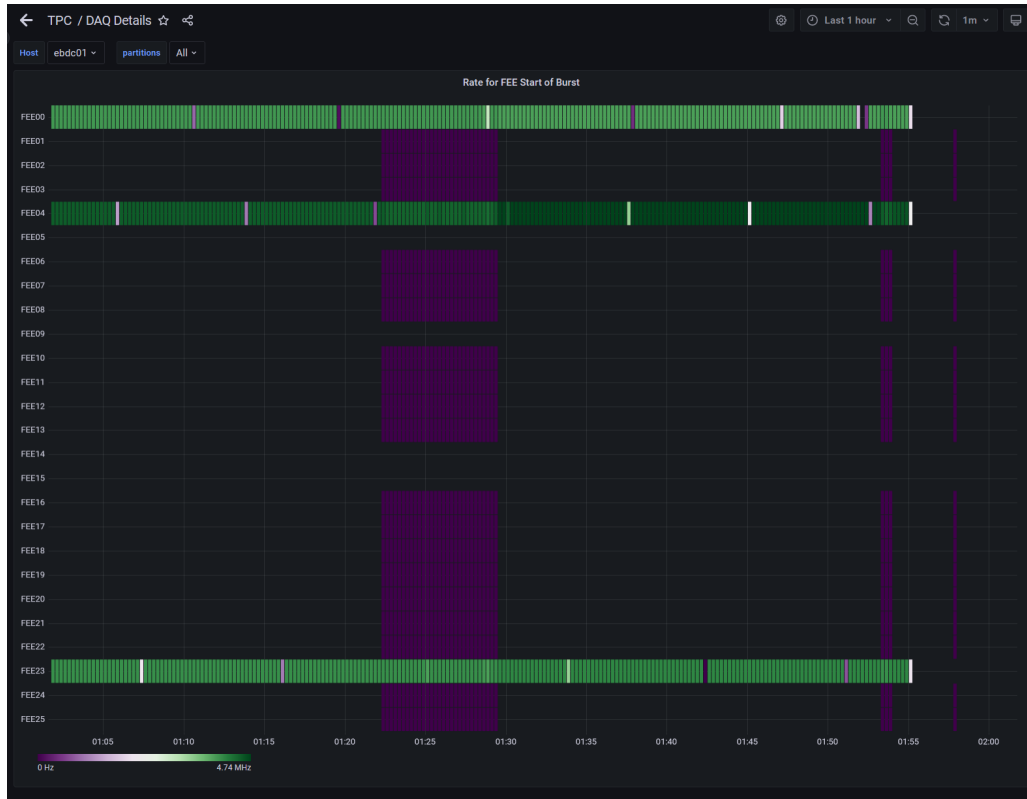
Labels:

- alertname = TPC Stuck FEE Check
- Subsystem = TPC
- dam_fpga_dna = 3735929054
- dam_fpga_firmware_build = 3735929054
- dam_fpga_firmware_build_datetime = 2023-05-29 11:04:00
- dam_fpga_firmware_build_githash = 3823708185
- dam_id = 0
- dam_sn = 3735929054
- dev_level = production
- fee_id = 00
- grafana_folder = TPC
- hostname = ebdc01
- instance = ebdc01.sphenix.bnl.gov:9101
- job = TPC

Annotations:

Source: <http://localhost:3000/alerting/grafana/Ov8TKPjvk/view>

- For selected EBDC, issue a FEE masking through a new control endpoint John K. installed. Confirmed masking of three FEEs during the owl shift



- Last, TPC expert (now, and future shift crew's macro like TPOT) to recover stuck FEEs to data taking between runs (takes ~5s per FEE for recovery, require no trigger period)
- Preparing for access (laser trigger electronics and FEE power supply) and field-on beam-off diffuse laser data (5hr) on Wed. - **1 PM - 6 PM 07/19**
 - Also talked to Rob Pisani - he will purge cooling lines tomorrow morning
 - Change of schedule, we will not start test until after lunch (1 PM)
 - Morning conflicts with training
 - Expect 5hr run time
- Preparing for field on beam on diffuse laser data (5hr) on Thursday: **10 AM - 3 PM 07/20**
 - **Request 1000 Hz** - not 100 Hz as usual (thanks to Ross for clarification)
 - First time we are trying this - may need to ask MCR to lower it if load on GEMs proves too high for us w/o full spark protection
 - MCR has proved they can level existing stores at higher rates
 - Necessary to get 1 collision / 100 laser flashes
 - HV still below OPS (for safety) - but can see delta electrons/bkgd
 - Useful for exercising the reconstruction algorithm in a minimal bkgd.

HCal (Virginia)

- Nothing to report- working on analyzing beam and LED data from the weekend

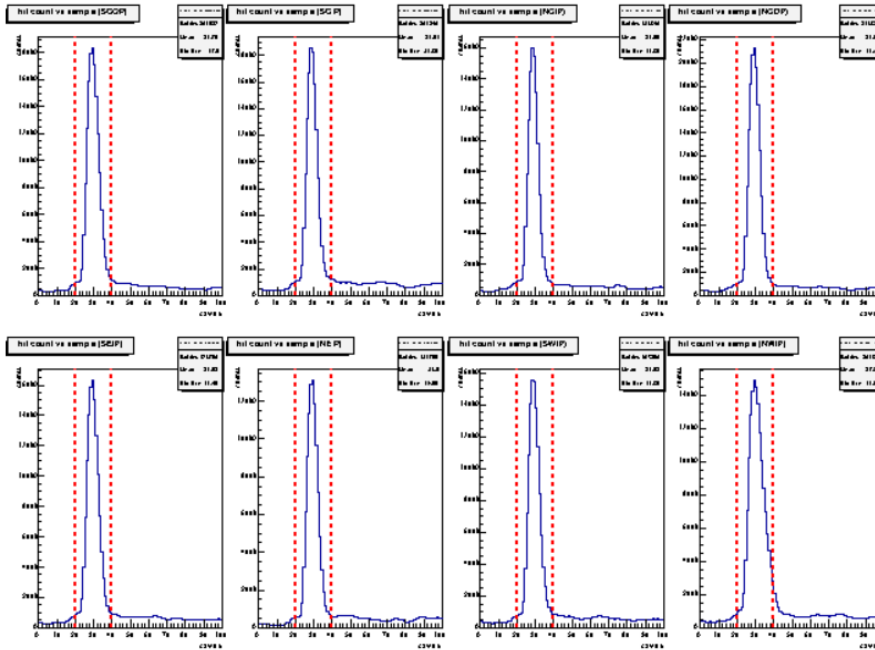
EMCal ()

- Status of seb07 read-out problem?
 - Jaebeom and John have been working on it. - update: SEB07 fixed.
 - No fibers masked now on all SEBs (jaebeom)

TPOT (Hugo)

- First implementation of FEE link recovery works. It is now in the hand of the shift crew (standing orders updated), and expert should only be called if recovery from shift crew somehow fails.
- John K. and Jaebeom have implemented FELIX DAM reset at each begin of runs in the big partition, to make sure that whatever data is read by RCDAQ does not contains remnants from previous runs/failures, etc, that remains in the buffer.
- Ongoing work by John K. to consolidate FEE initialization
- Also, TPOT is timed again:

POTMONDRAW Run 21889, Time: Tue Jul 18 09:16:41 20



INTT (Jaein)

- Nothing special request for tonight.
- We are planning to do air purging for the cooling during the tomorrow maintenance day (four hours needed)
- Once cooling system is ready, we would like to take the pedestal data to update the hot channel list.

sEPD(Rosi)

- Ready for tomorrow's access

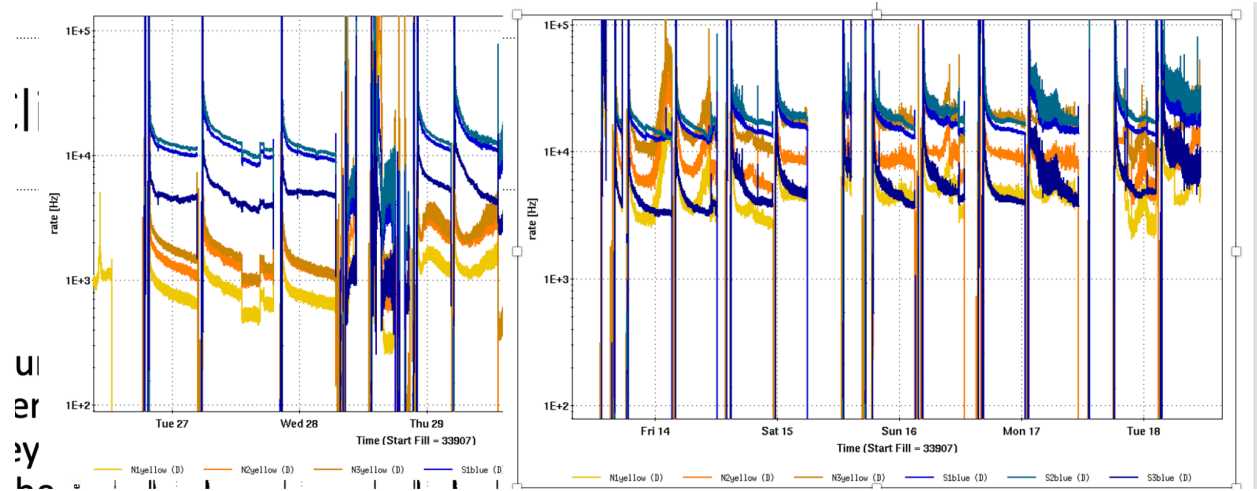
Gas/Cooling ()

- INTT still out

ZDC ()

- Planning to terminate SMD cables in tunnel tomorrow (John)

Background Counters (Stefan)



- Backgrounds still higher than in June
- Angelika will check background counter channel mapping tomorrow

Online Monitoring (Chris)

- Nothing new
- Suggestion to add ZDC online monitoring