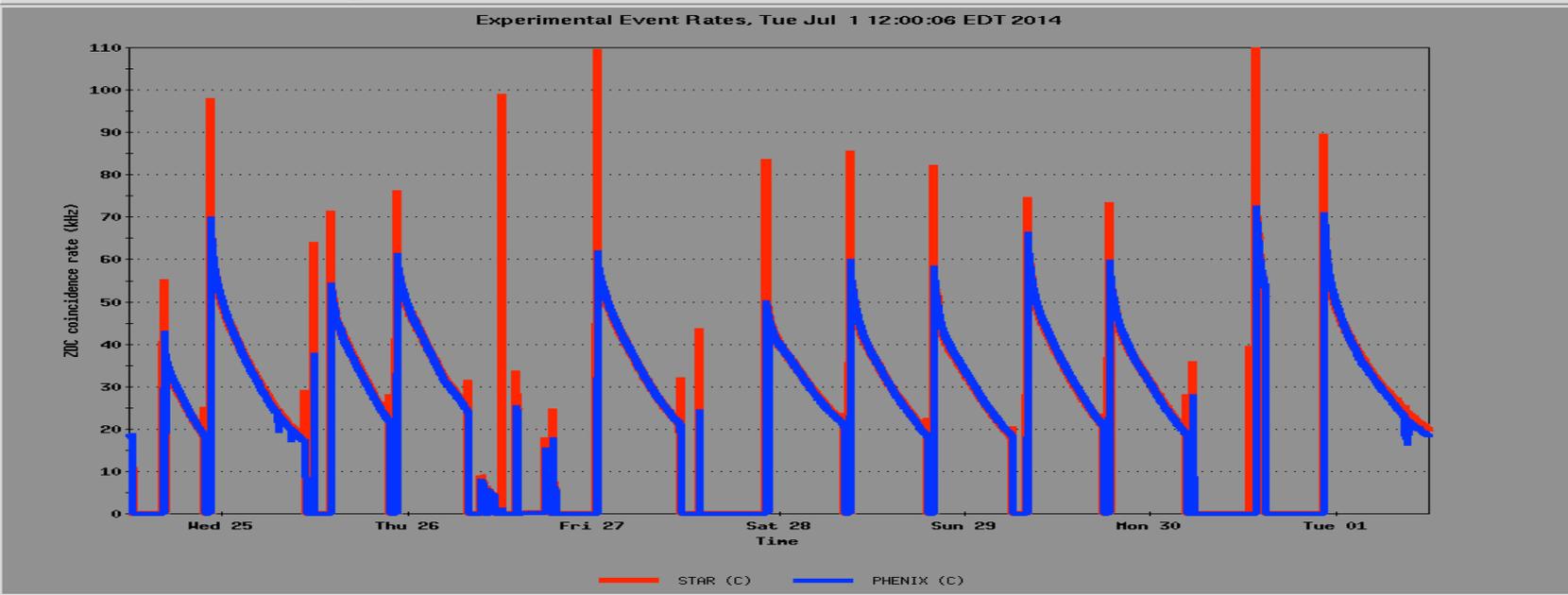
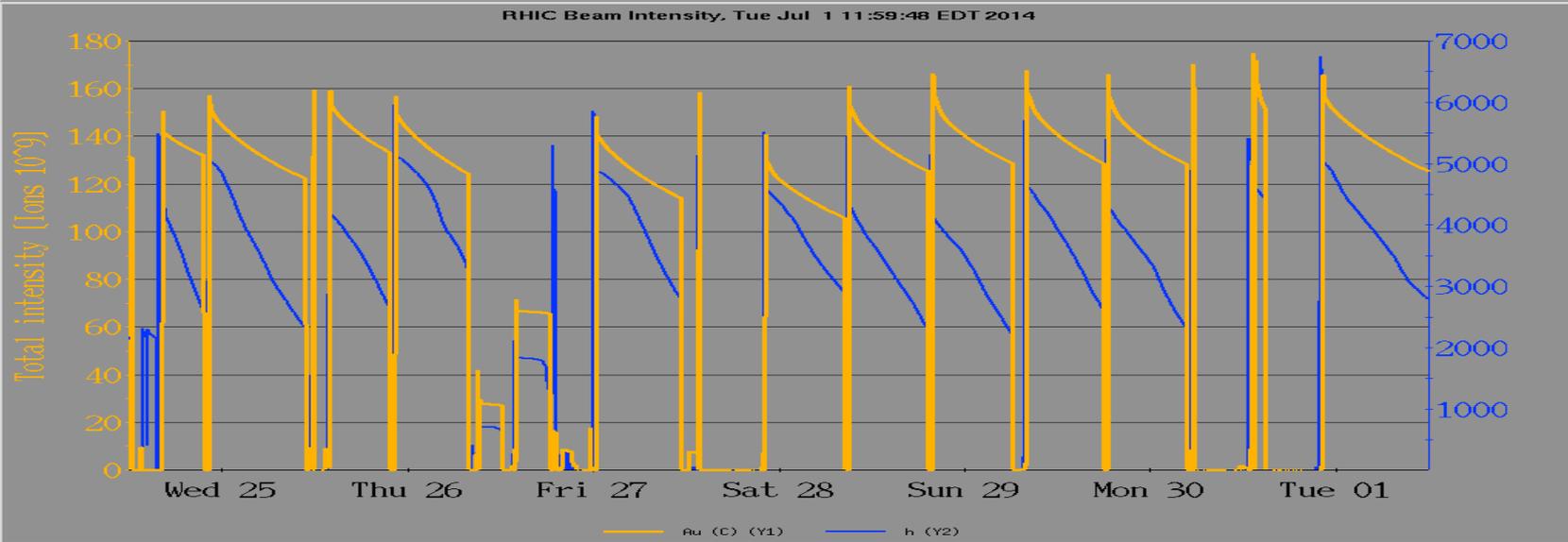




RHIC Run 14 Time Meeting

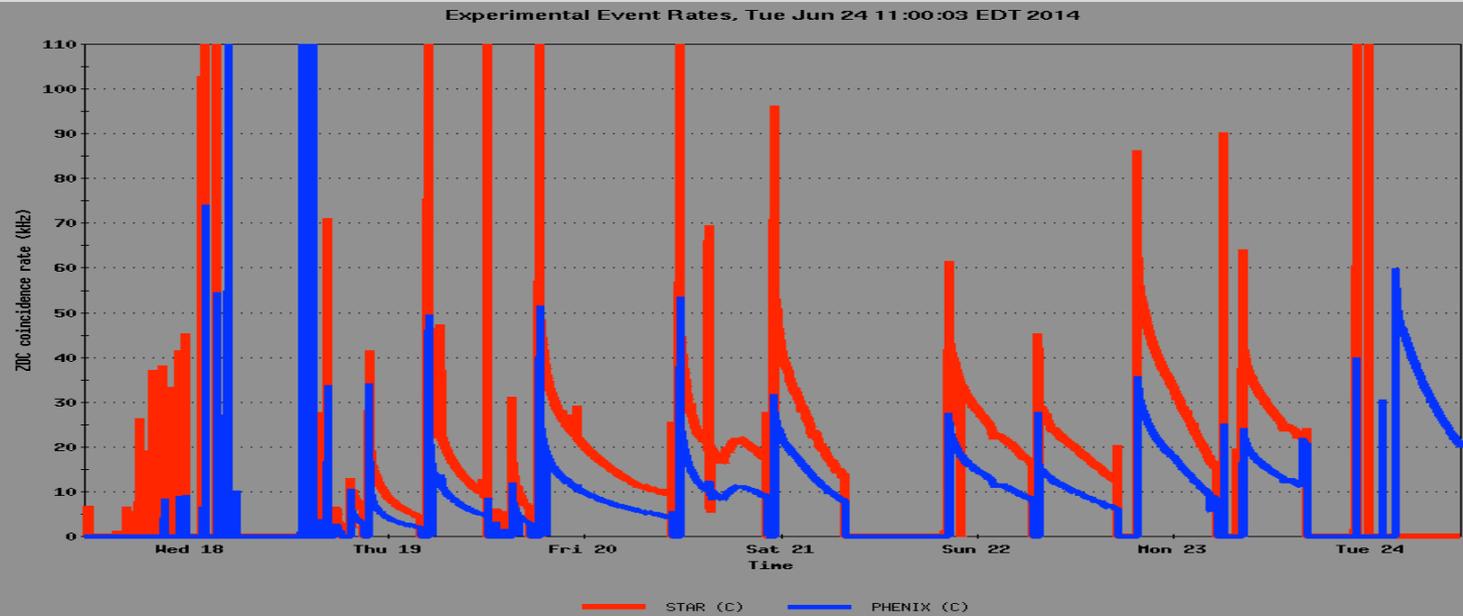
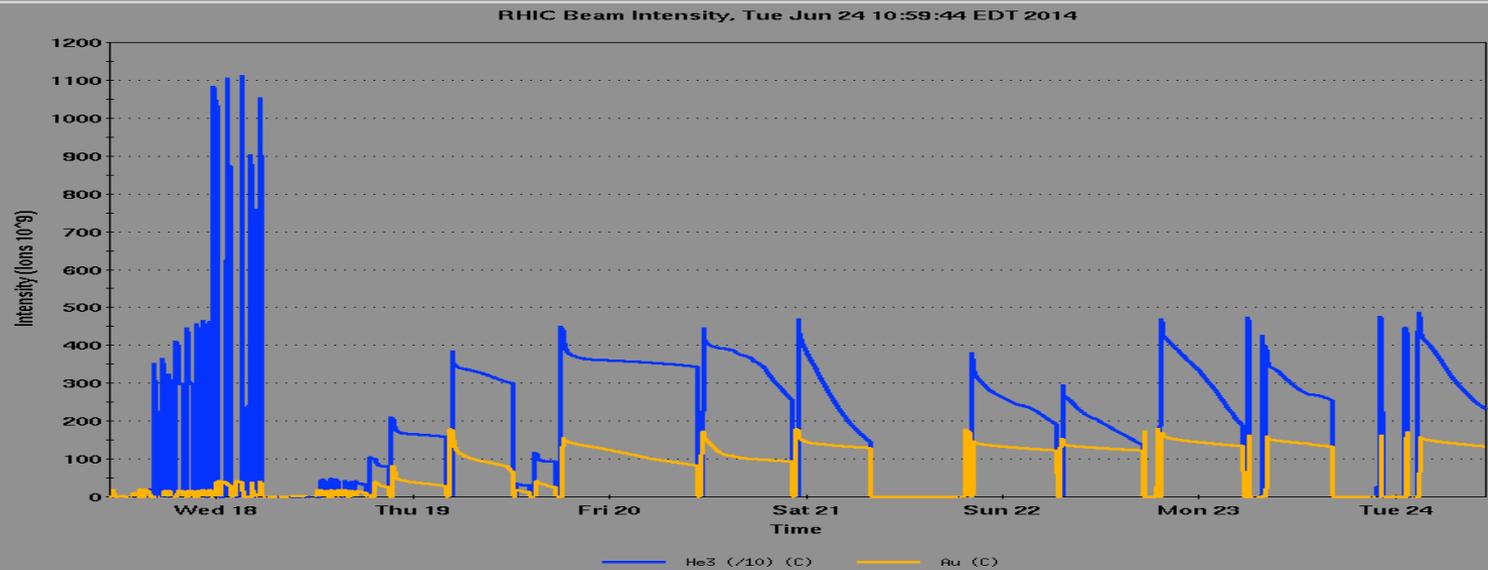
Run 14 Status – July 1

- Run is going well, stores over the past 7 days.
- Few hiccups:
 - lost a store to Yellow abort kicker prefire,
 - 56 MHz SRF cavity quench with a piece of equipment having to be replaced,
 - bi9-dhx-qp tripped the Blue quench link.
- S* knob was commissioned during APEX and tested operationally in PHENIX.
- Continuously monitoring radiation issues on the ramp up for STAR: loss spikes at injection have been taken care of, still a few spikes at the first 3-4 stones of the energy ramp. Collimator positions are looked at and changed on a store-to-store basis.
- Voltage regulator work planned for 7/6 starting at 06:00; DX move test to follow on 7/7 during the day shift. Cryo warmup scheduled right after it.



Run 14 Status – June 24

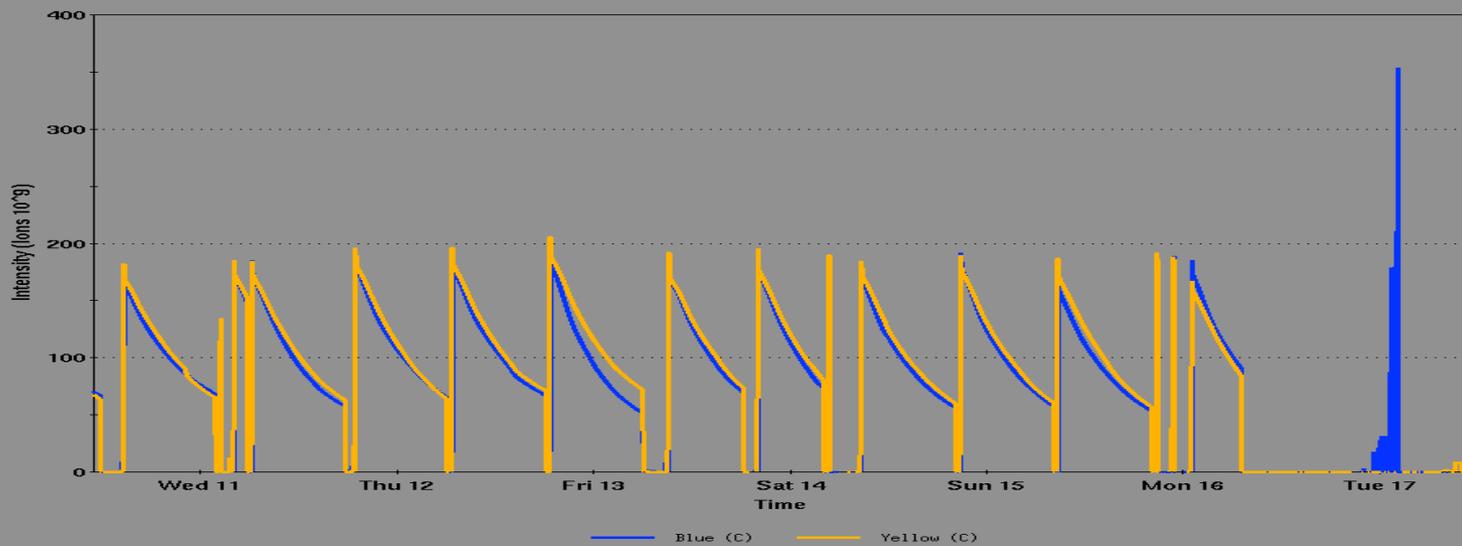
- Run 14 He3-Au physics declared on 6/20 with Fill #18460; stochastic cooling is ON for Au beam, longitudinal + vertical (all 3 planes cooled).
- Ramp development took from after maintenance recovery to Wednesday EVE shift, when first stores (56x56, then quickly to 111x111) were delivered to STAR and PHENIX for their setup.
- Orbit feedback and background control proved to be biggest hurdle; still need to address radiation issues on the ramp up (as reported by STAR).
- Difference of a factor x2 in ZDC rates: solved with change in High Voltage settings yesterday (6/23), and both STAR and PHENIX are now reporting comparable rates.
- APEX Thursday (6/26), no Maintenance planned.



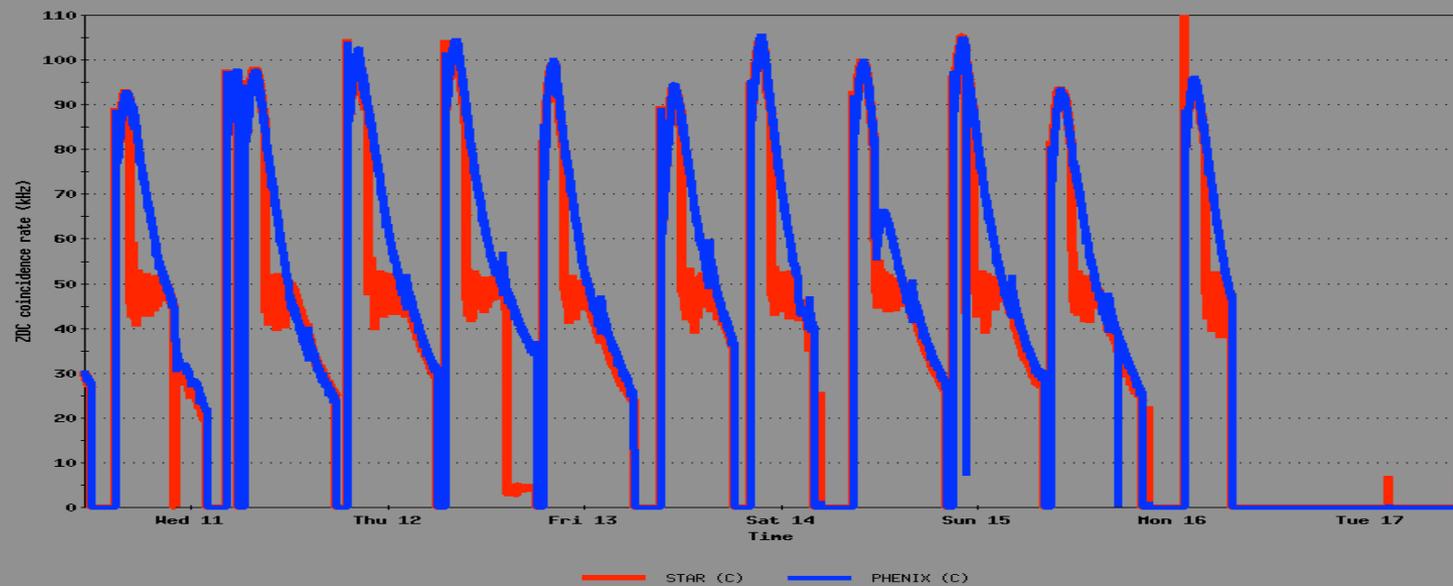
Run I4 Status – June 17

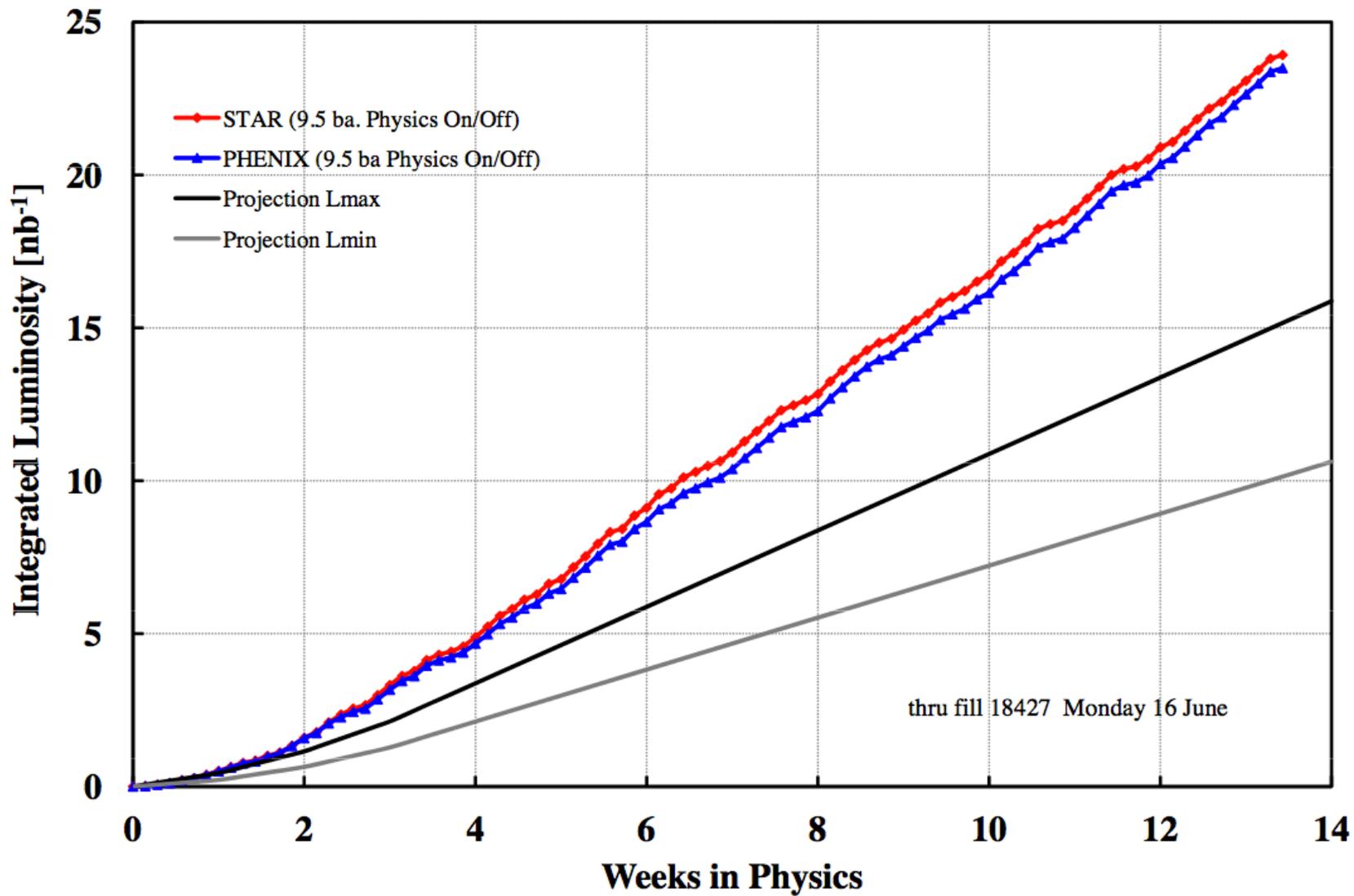
- Run I4 Au-Au collisions completed on 6/16 at 08:00, with all experiments goals reached!
- During this run, we successfully commissioned two new systems (e-lens, 56 MHz SRF) and performed ramp optics measurement/corrections and dynamic beta* squeeze in both STAR and PHENIX.
- Switched to He3-Au collisions after Maintenance + Blue D0 polarity reversal: projections call for physics stores starting 6/19 (Thursday) OWL shift .
- Currently: He3 and Au circulating and captured at injection; first attempts at ramping Yellow, then Blue lattice.
- No APEX, End-of-Run activities TBD, Maintenance pending on that decision. Main suggested test is DX magnet move (sector5 side of STAR).

RHIC Beam Intensity, Tue Jun 17 10:59:58 EDT 2014



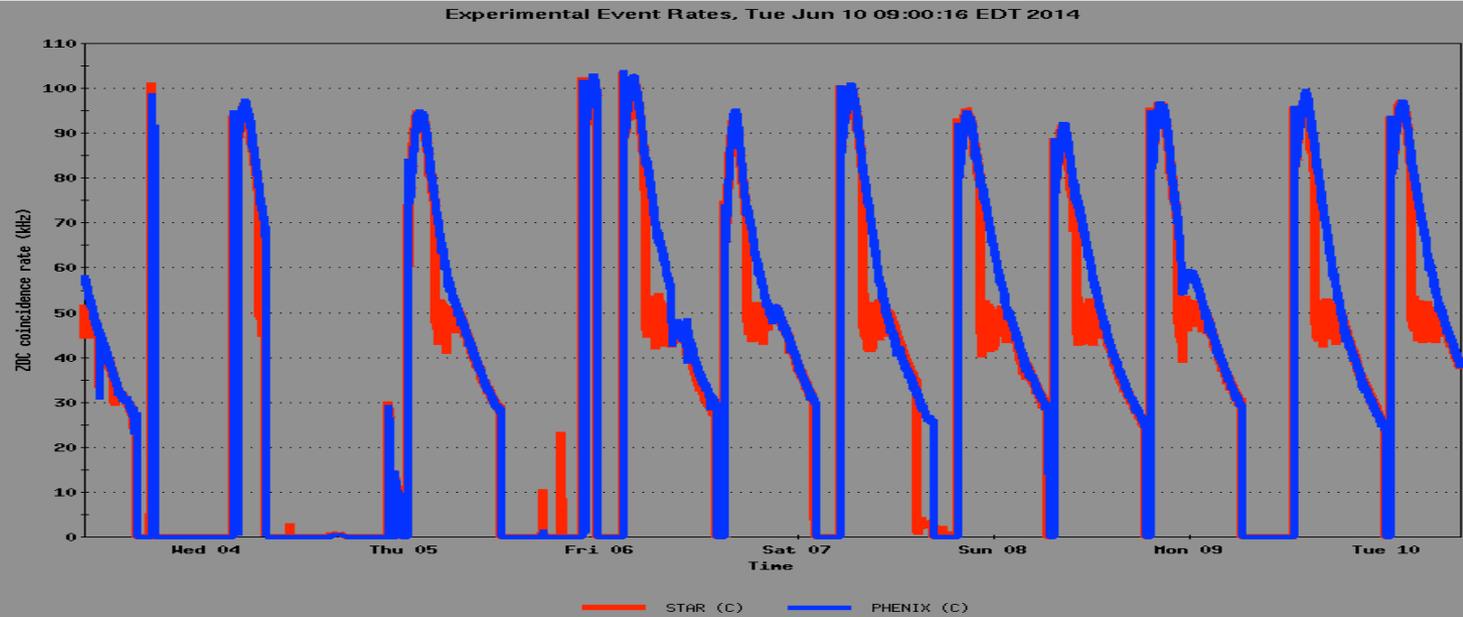
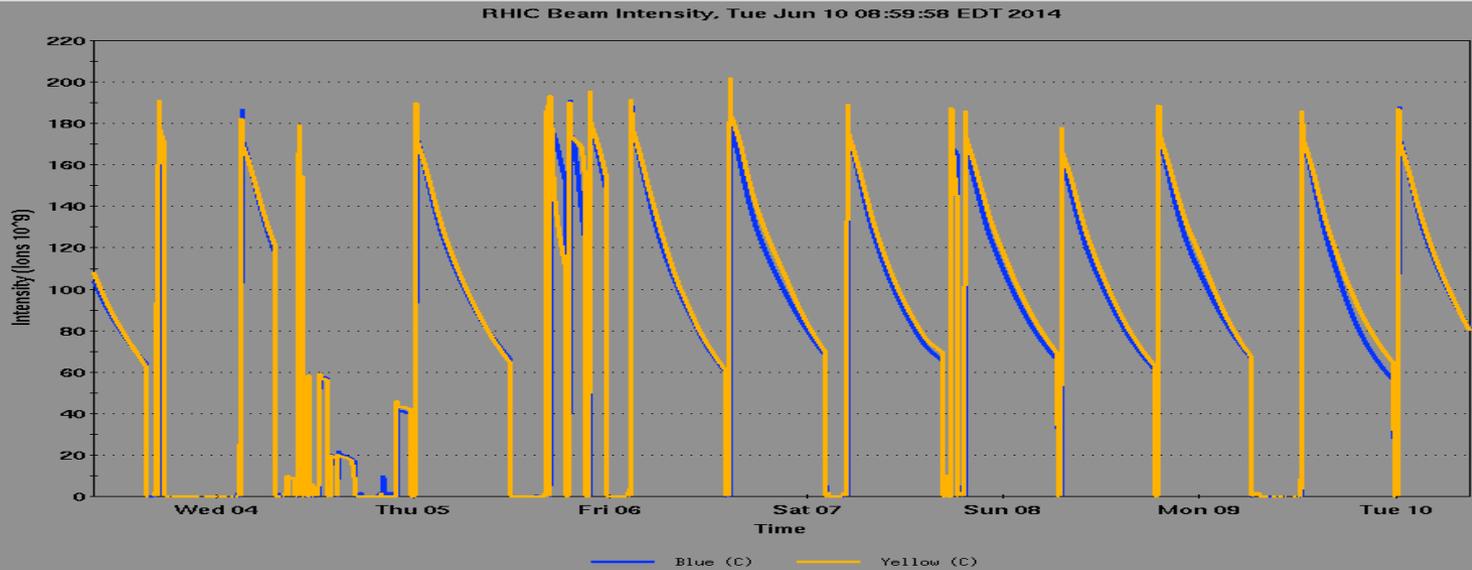
Experimental Event Rates, Tue Jun 17 11:00:18 EDT 2014

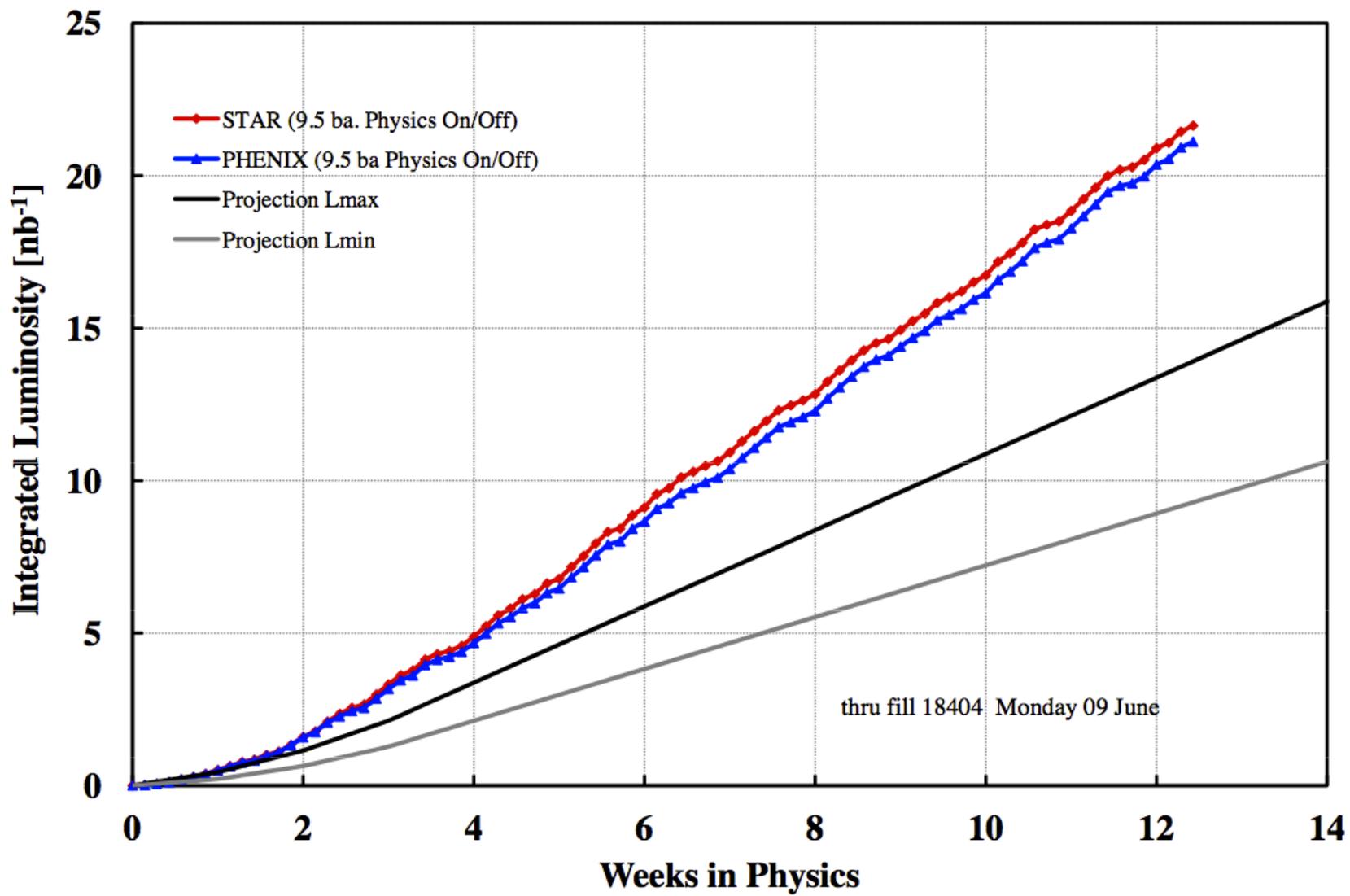




Run 14 Status – June 10

- Operations running well, 9 full stores over the past 7 days. Lost three stores because of quench detector problems (reset/replacement needed).
- 6h MD for 56 MHz SRF cavity conditioning with beam last Thursday: cavity ran successfully with a full machine (111x111). All relevant systems tested out and end-of-store tests are being discussed. Request for one more MD with beam this Thursday, pending decision on switchover date to He3-Au.
- Au14-thor ready for operational implementation: automated sequence to squeeze both STAR and PHENIX to $\beta^* = 0.5\text{m}$ 7h into each store will be finalized and ran today.
- AGS: completed polarized protons running, snake is off; switch to He3 on Maintenance.
- No APEX, Maintenance on 6/16.

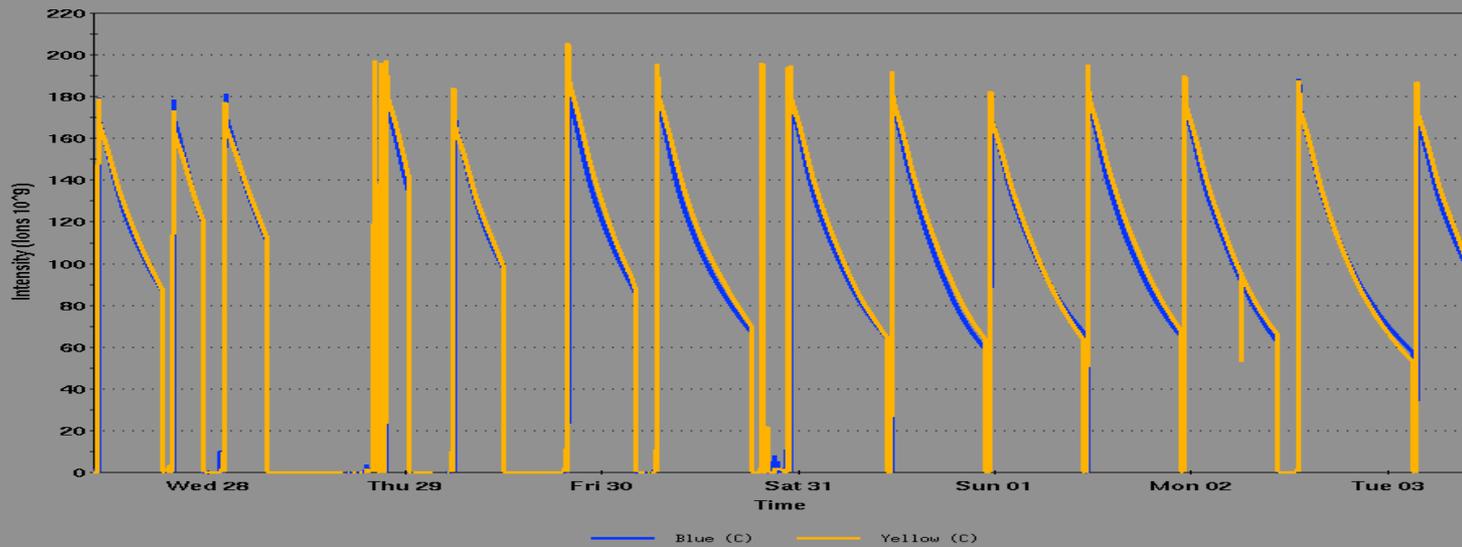




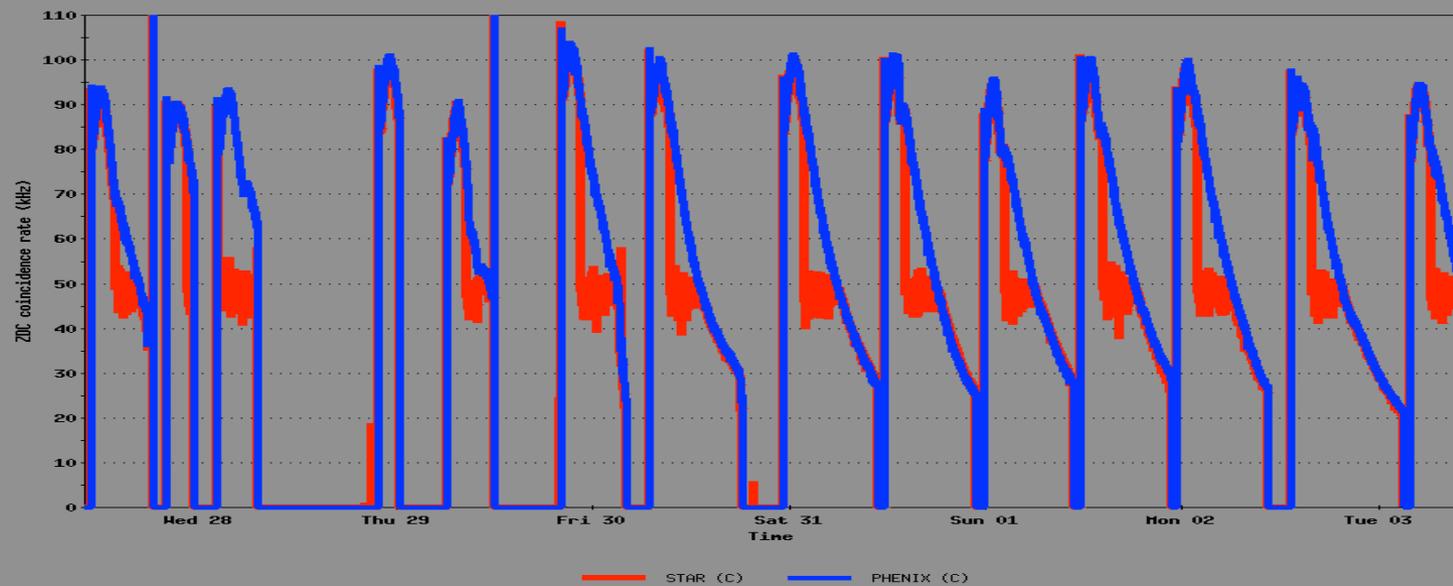
Run I 4 Status – June 3

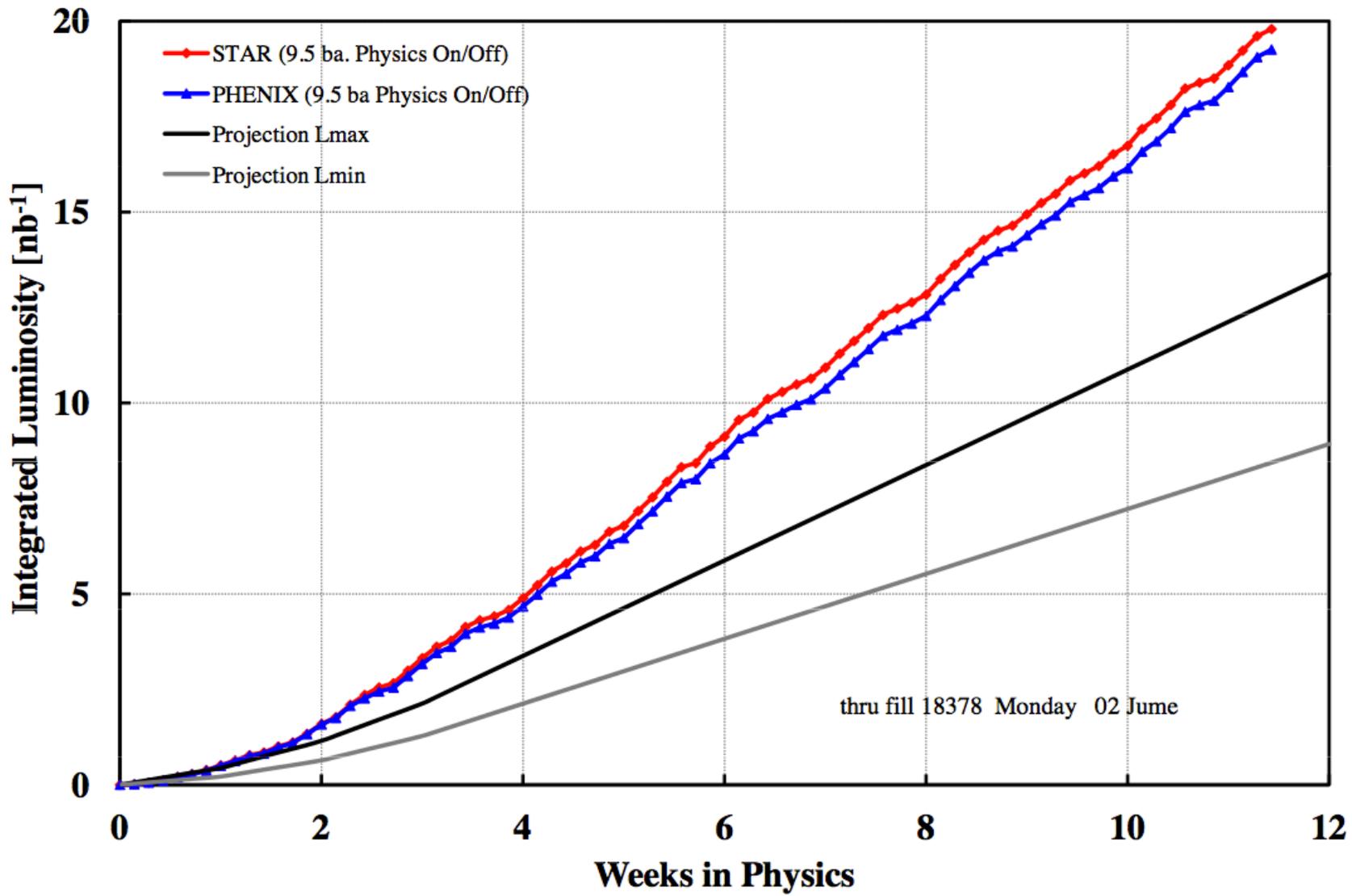
- Operations running well, 11 full stores over the past 7 days. With a switch to He3-Au on 6/16, the Maintenance Day scheduled for 6/11 is pushed to 6/16; polarity of the Blue D0 magnets have to be reverted for that Run.
- 6h MD for 56 MHz SRF cavity conditioning with beam last Thursday: software problems slowed down the effort, but all problems were found and addressed. Another 6h MD with beam was requested for this Thursday (6/5). Goal is still to test the cavity with a full machine (111x111).
- Another MD is scheduled to take place right after the 56 MHz SRF one: test ramp for He3-Au run preparation, 3 hours, with beam reaching flattop and using Au beam at corresponding B_p .
- Couple more end-of-store tests scheduled for AuI4-thor implementation in operations: need to test the sequence of events as tape would run it.
- AGS: polarized protons running behind store; established extraction to the W-dump with Au at higher energy for He3-Au run.
- APEX tomorrow, Maintenance on 6/16.

RHIC Beam Intensity, Tue Jun 3 10:00:04 EDT 2014



Experimental Event Rates, Tue Jun 3 10:00:23 EDT 2014

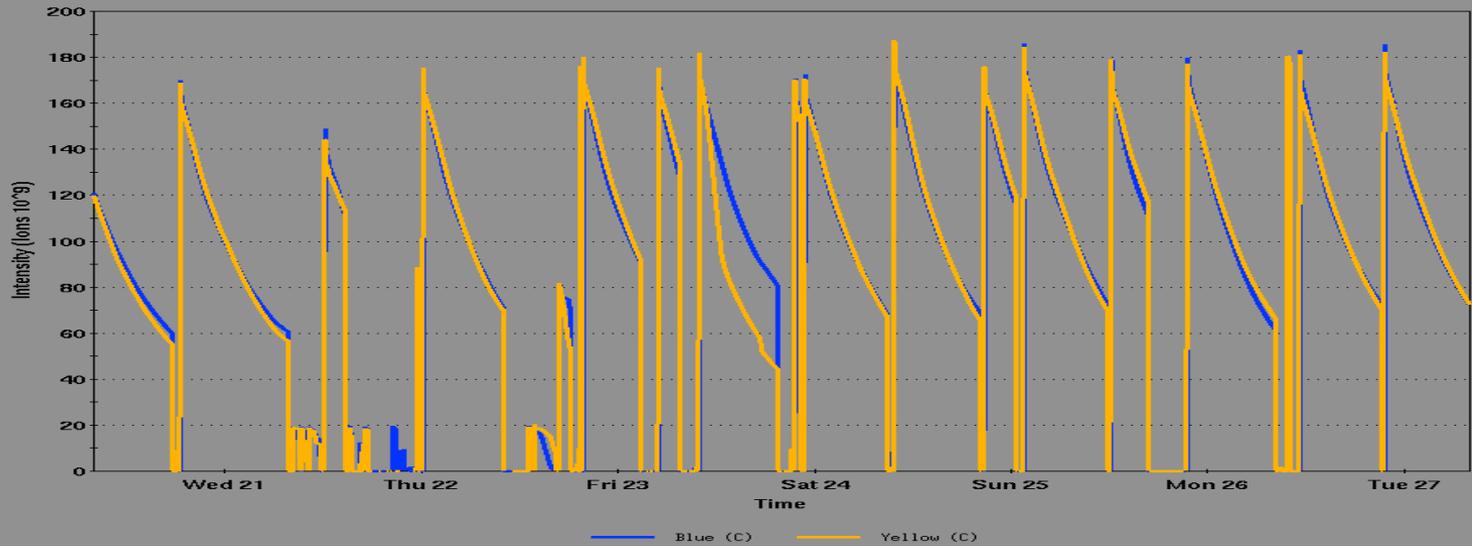




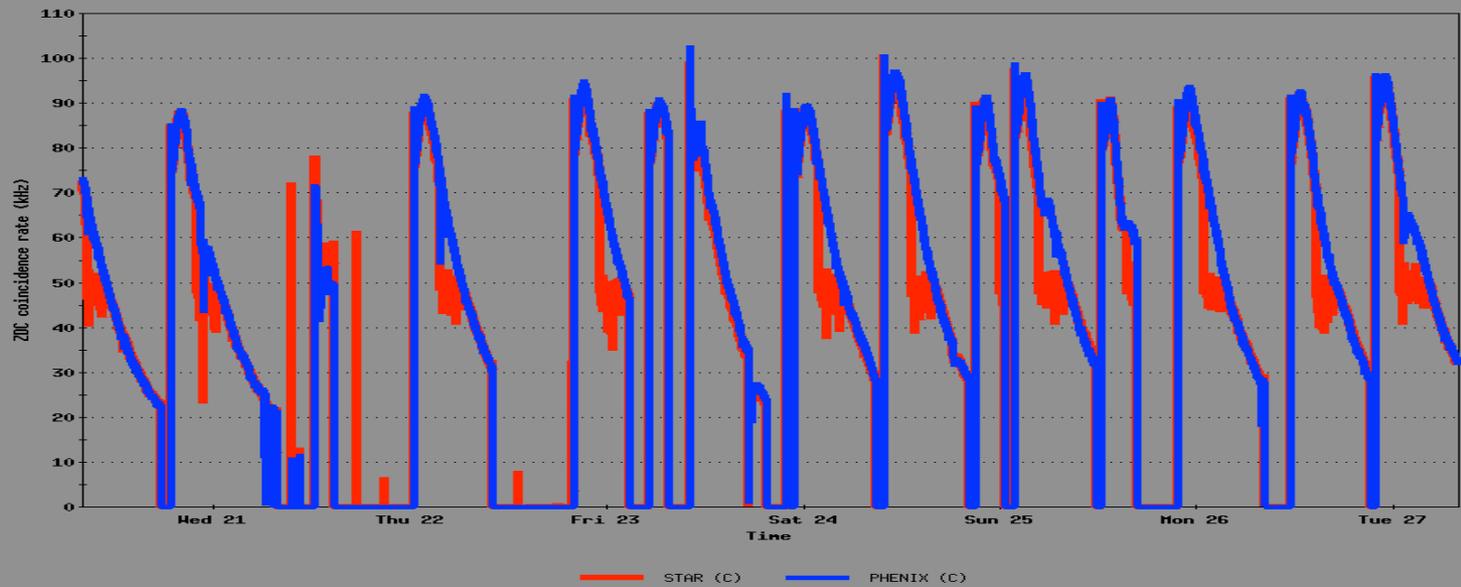
Run 14 Status – May 27

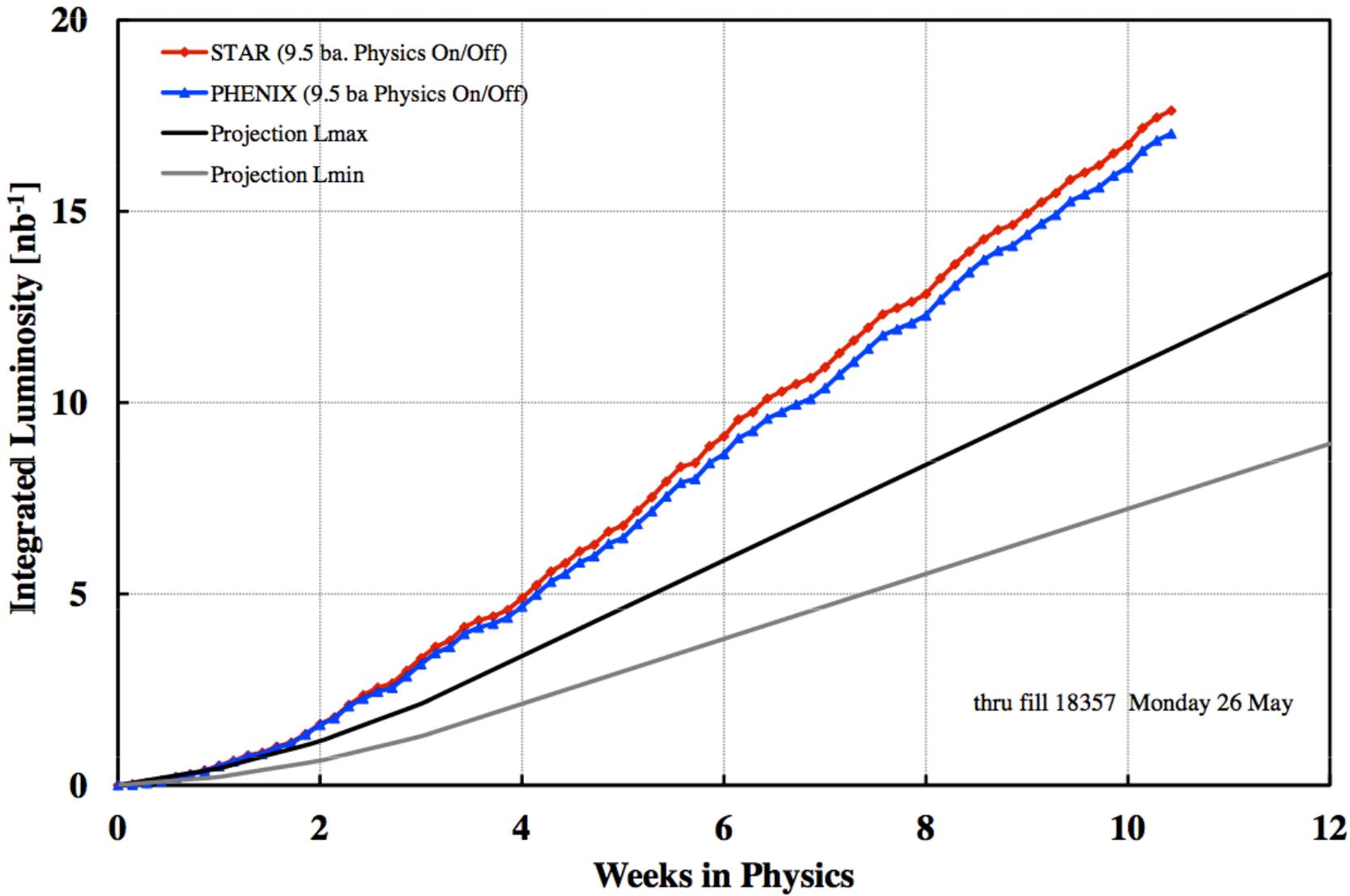
- Operations running well, 11 full stores over the past 7 days. Getting high intensity again from injectors, giving peak lumi in the high 90 kHz (once cooling ON). First effects of “nice weather” on orbit control were felt over the weekend.
- 6h MD for 56 MHz SRF cavity conditioning with beam last Thursday: first successful attempt at 56x56 ramp, goal for a fully loaded machine during this week’s MD. End of store activities possible next.
- With switch to He3-Au coming up on 6/16, strong push to deliver all Au-Au goals to both STAR and PHENIX: operational implementation of the 50 cm Au14-thor optics this week to flatten ZDC rates in later part of physics store (about 7h into each fill). Duration of store remains unchanged.
- AGS: He3 setup completed behind stores last week, still running protons.
- Maintenance tomorrow, APEX on 6/4.

RHIC Beam Intensity, Tue May 27 07:59:55 EDT 2014



Experimental Event Rates, Tue May 27 08:00:14 EDT 2014

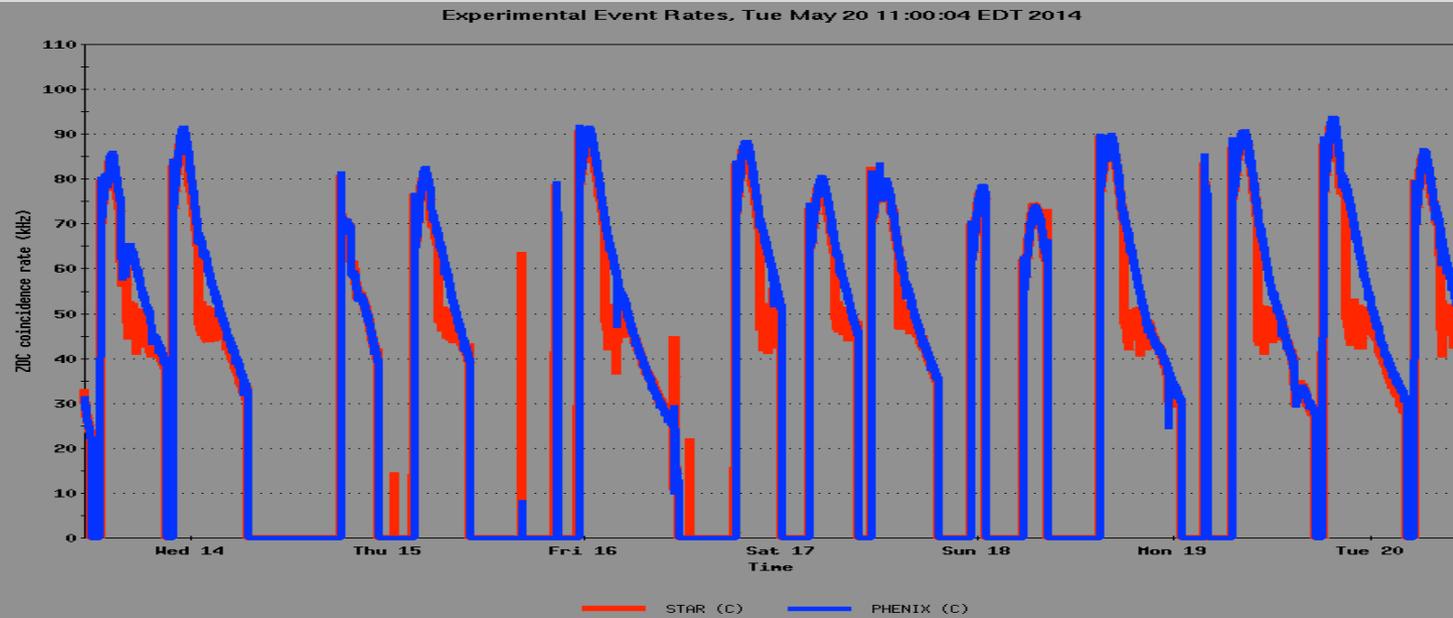
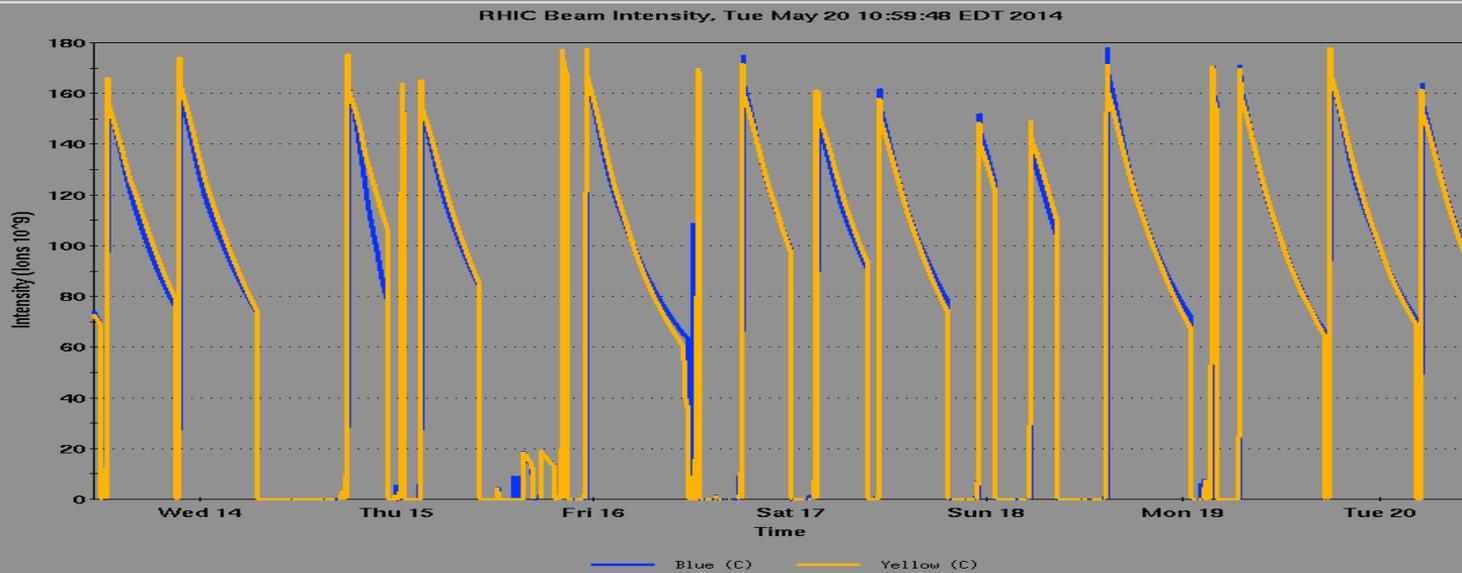


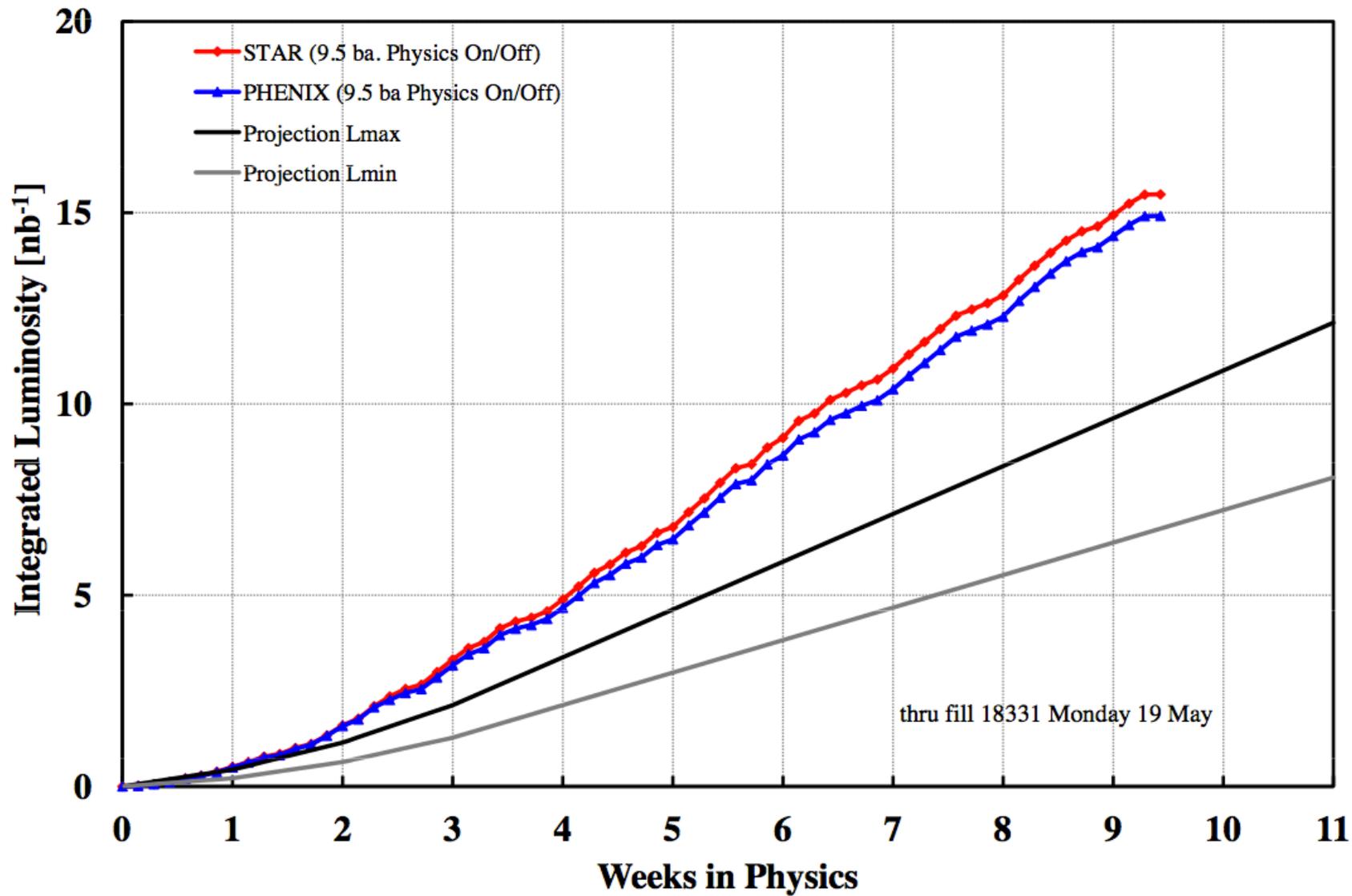


thru fill 18357 Monday 26 May

Run I4 Status – May 20

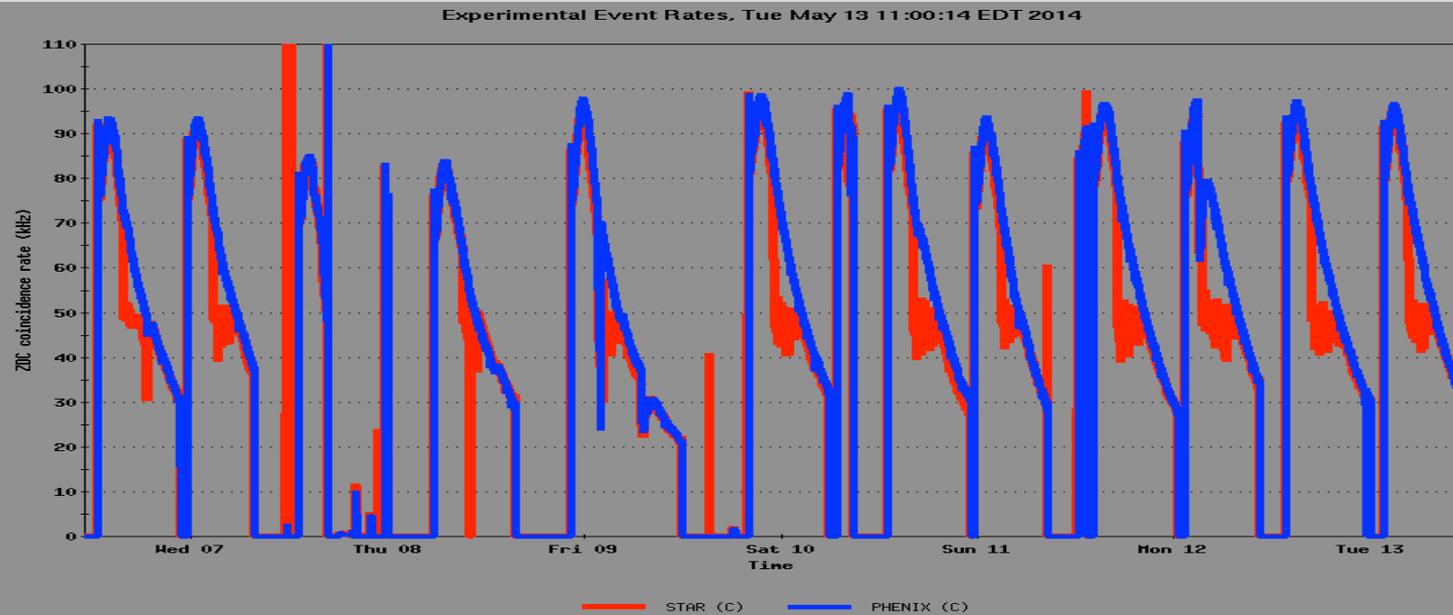
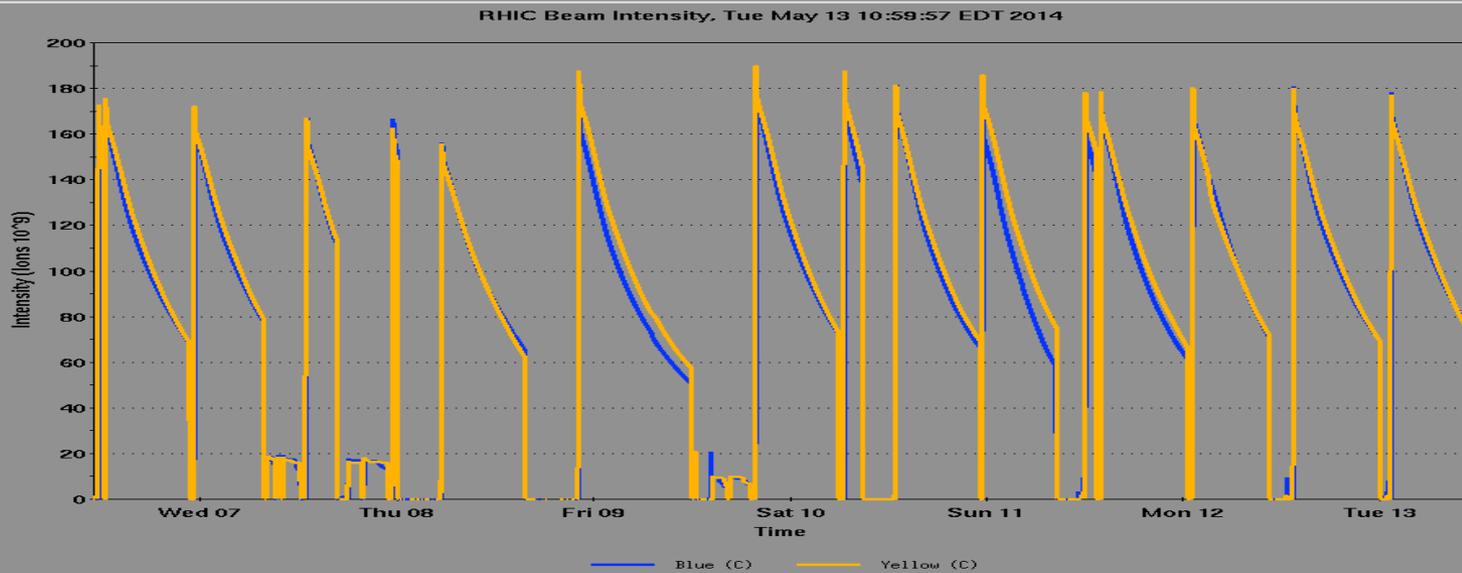
- Operations a bit hectic Fri-Sun, only 9 full stores over the past 7 days. Now preparing for 3 weeks of He3-Au at the end of the Run, with the possibility of wrapping up Run I4 a week early (still being discussed).
- 6h MD for 56 MHz SRF cavity conditioning with beam last Thursday showed very good progress, still some work left to do. Request for another 6h on Thursday.
- A few operations hiccups:
 - had to replace two q89 power supplies over the weekend;
 - post-maintenance, quick access to work on a new amplifier for Stochastic Cooling;
 - still have to go through a significant amount of fec's resets due to radiation damage (induced by pre-fire protection scheme).
- Worked on avoiding further abort kicker pre-fires: all Yellow modules reservoir voltages were lowered by 100mV, no more conditioning on down ramps.
- Further development of dynamic beta* squeeze to 50 cm: end-of-store test had very promising results, incl. the predicted increase in STAR/PHENIX ZDC rates. Have to work on sextupole PS dl/dt limitations on Au I4-thor ramp before planning further experiments.
- Polarized protons and He3 (starting this week) setup running behind stores.
- APEX tomorrow, Maintenance on 5/28.

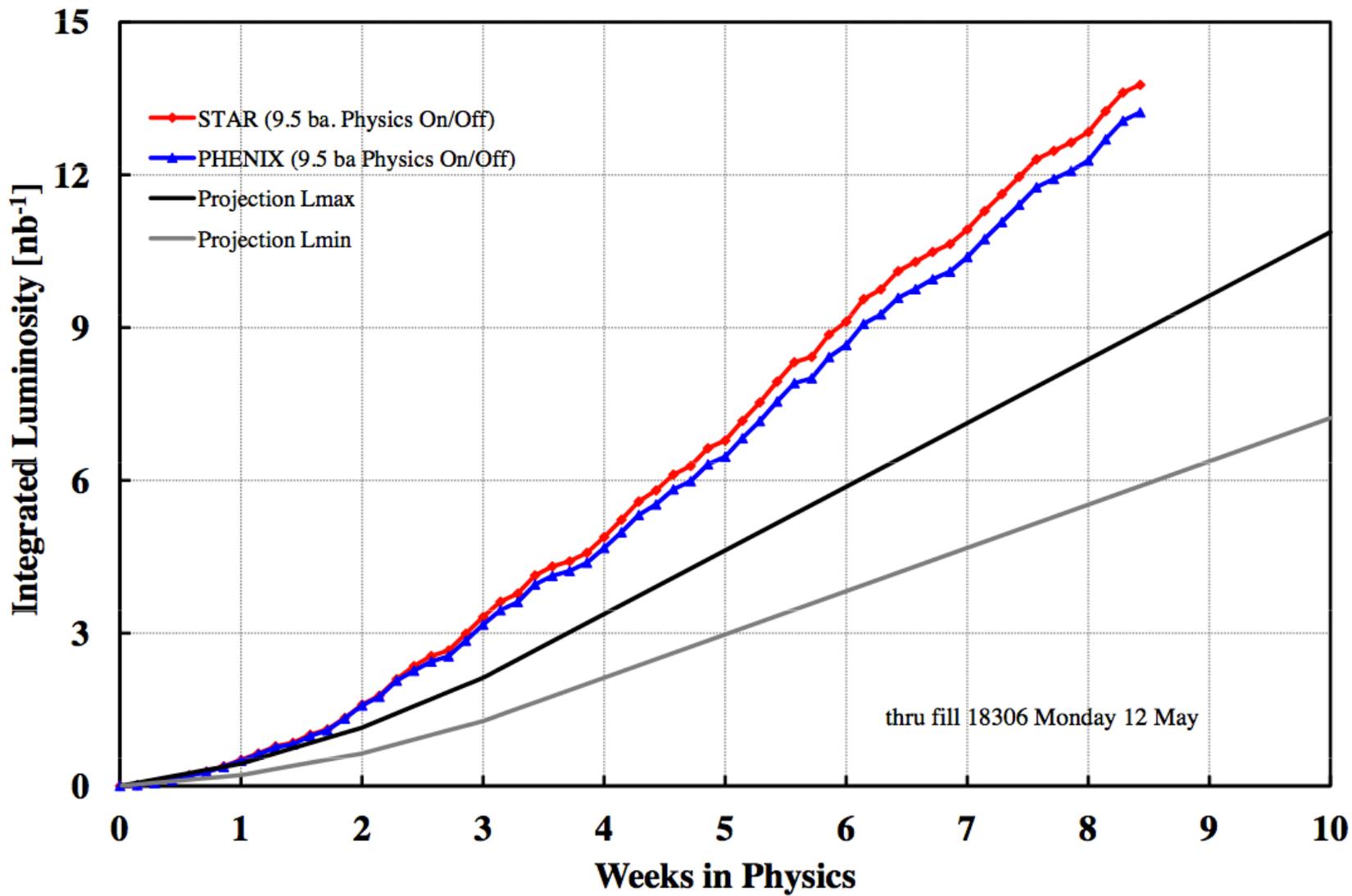




Run 14 Status – May 13

- Operations running well, 11 full stores over the past 7 days. Starting discussions this week on a He-Au (short) run.
- Ran Blue and Yellow beams at unequal RF frequencies in preparation for p-Au run.
- Two more MD periods for 56 MHz SRF cavity conditioning with beam: 4 hours last Friday, another 6 hours requested for this coming Thursday.
- Small interruptions in physics due to power supplies needing replacement.
- Still working on abort kicker conditioning on down ramps (after physics store): problem found where RF cavities tripping due to multiple “dump” events being issue.
- Further development of dynamic beta* squeeze to 50 cm, synchronized with STAR ZDC target rates: one more MD requested to investigate non-linear chromaticity correction. If successful, next is test with a full 111x111 train before implementation of Au14-thor in operations.
- Polarized protons setup running behind stores.
- Maintenance tomorrow, APEX on 5/21.

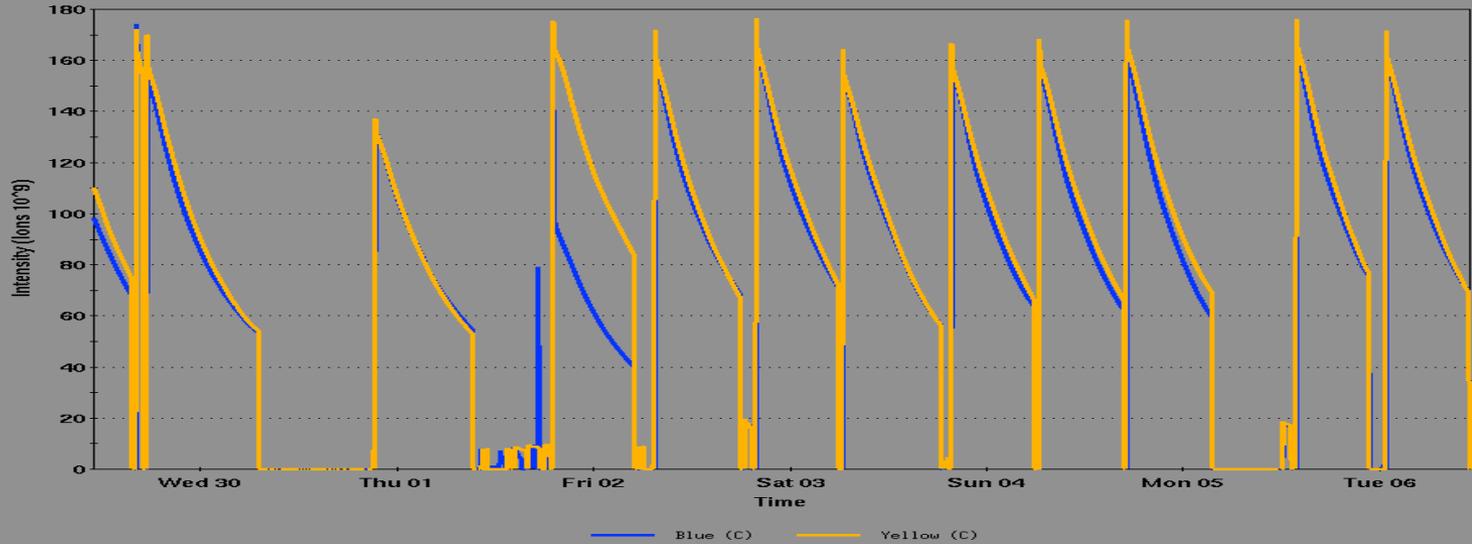




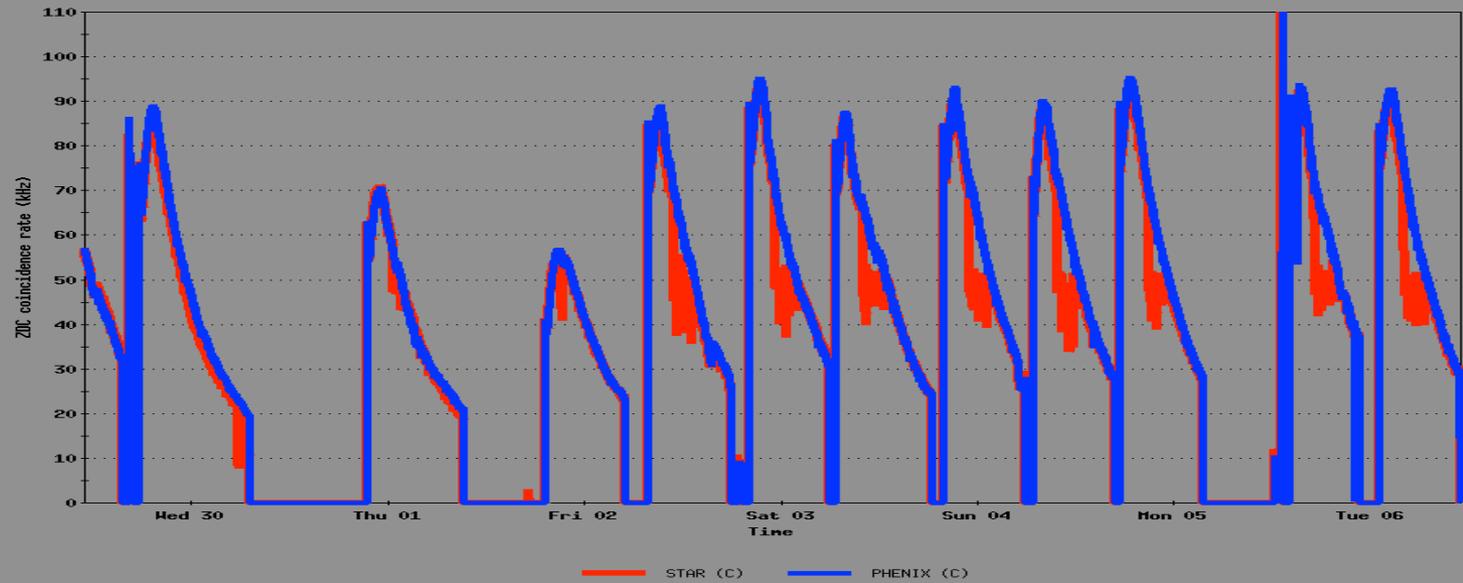
Run 14 Status – May 6

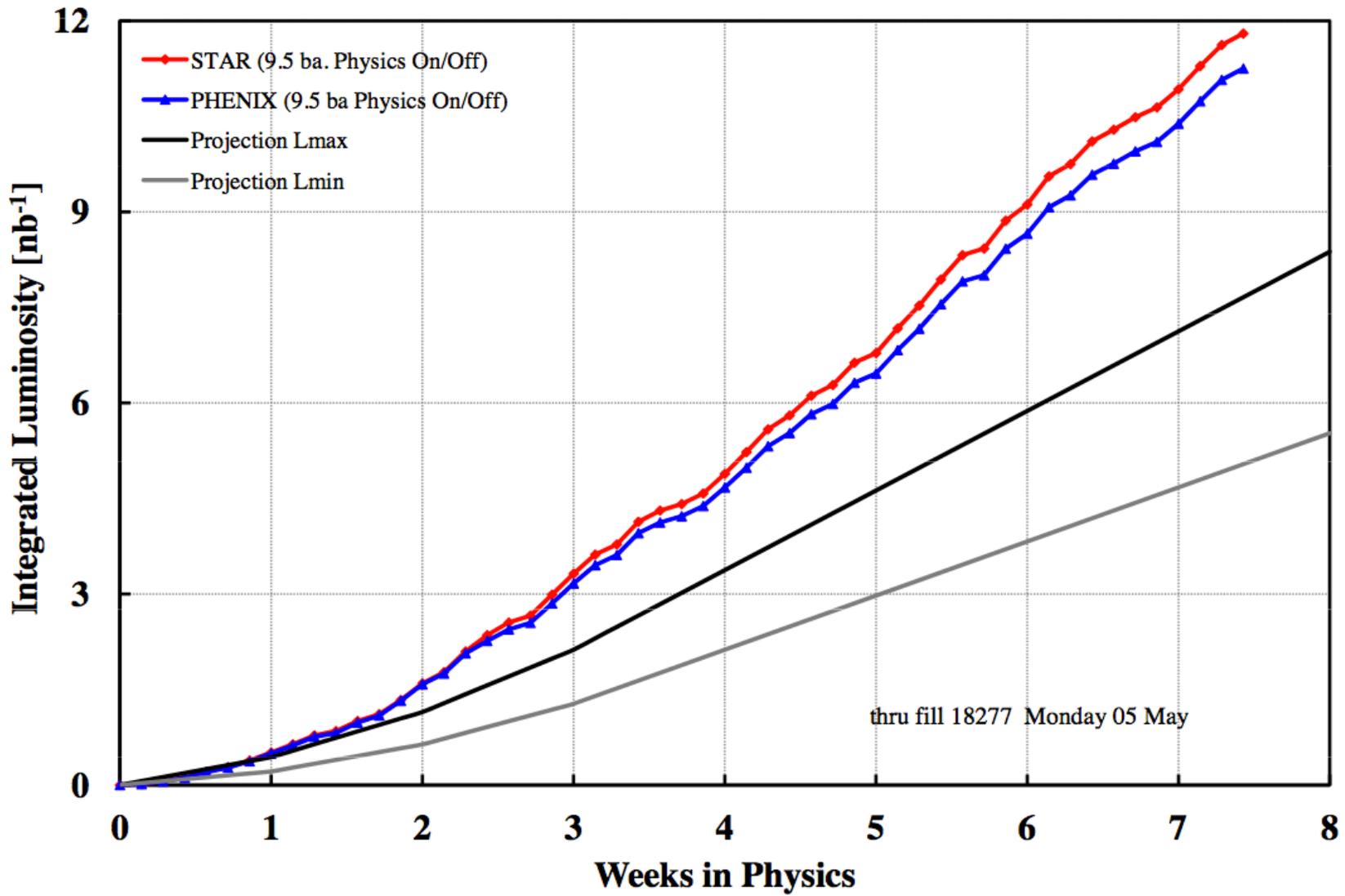
- Operations running well, 11 full stores over the past 7 days; setting STAR ZDC rates to 50 khz is now part of regular operations.
- First 56 MHz SRF cavity conditioning with beam started last Thursday (5/1); additional time requested for either Thursday/Friday, 4 hour session.
- e-lens commissioning: successful LISA steering in IR10.
- Plans for testing abort kicker conditioning on down ramps (after physics store) to reduce chances of pre-fires.
- Continue development of dynamic beta* squeeze to 50 cm, synchronized with STAR ZDC target rates: need additional MD time to complete setup with feedback systems.
- Polarized protons setup running behind stores.
- APEX tomorrow, Maintenance on 5/14.

RHIC Beam Intensity, Tue May 6 11:00:02 EDT 2014



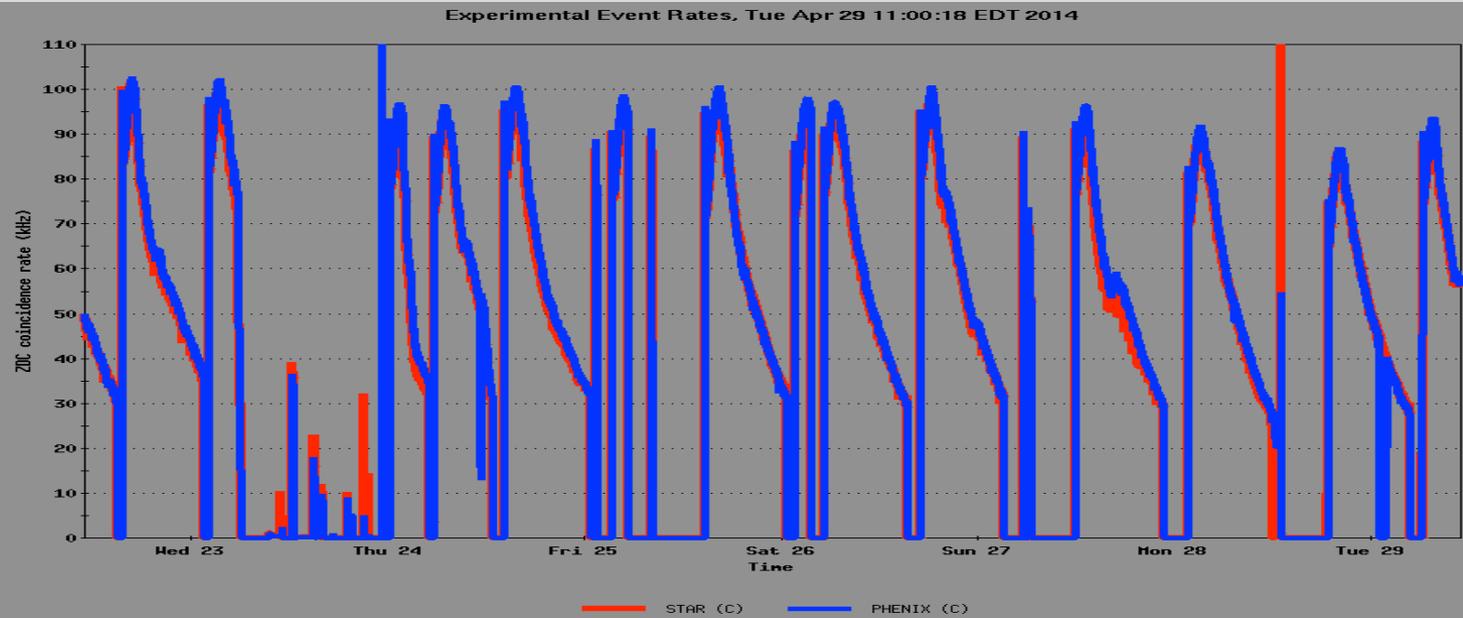
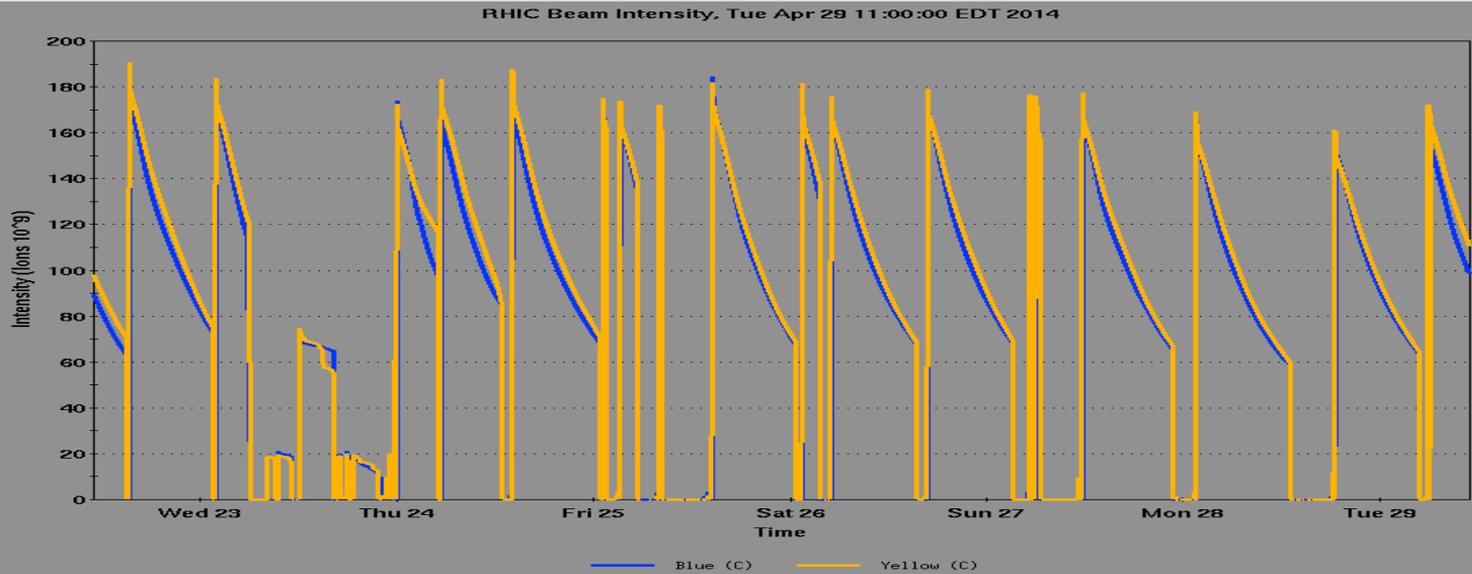
Experimental Event Rates, Tue May 6 11:00:21 EDT 2014

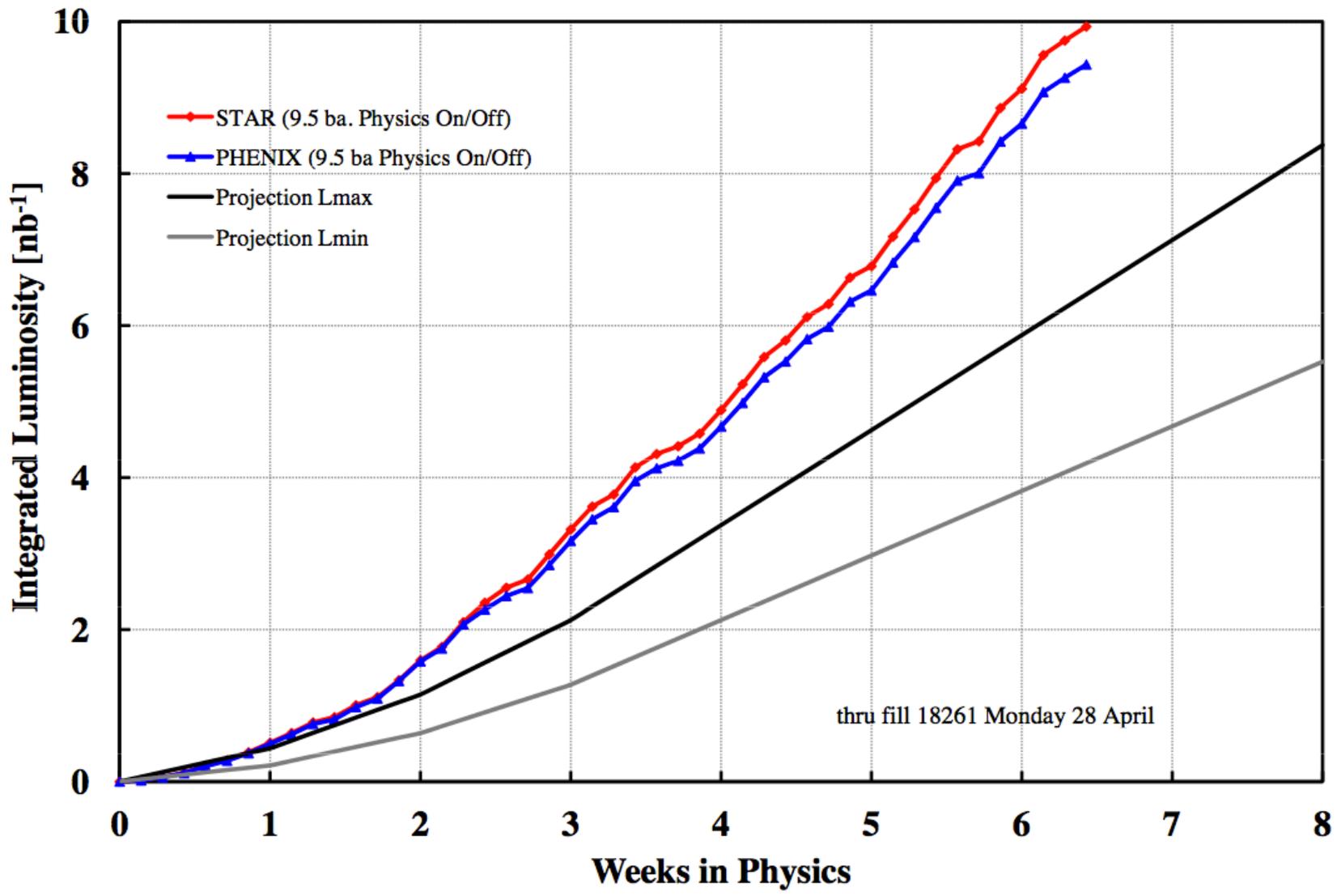




Run 14 Status – Apr. 29

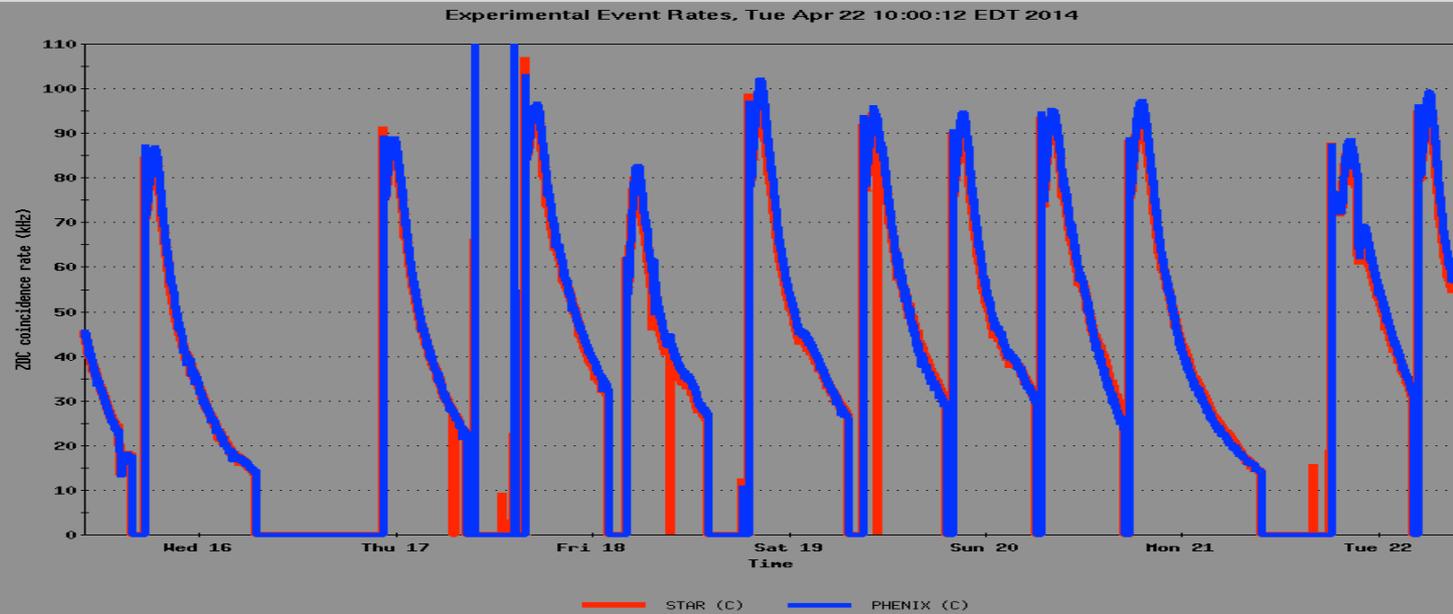
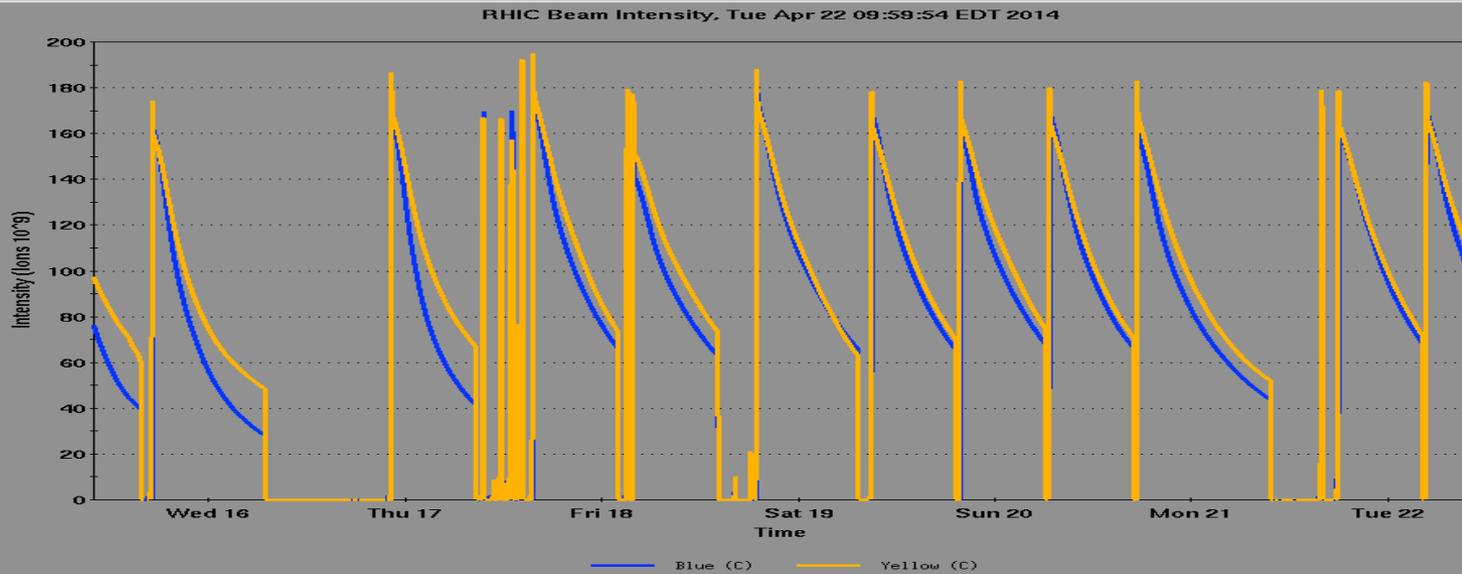
- Operations running well, 12 full stores over the past 7 days; lost 3 stores to abort kicker module trips, but one of these events raised the total radiation dose deposited in the 10-12 Arc to very close to its allowed limit => raised the Tritium limit via waiver
- Use LISA to optimize STAR ZDC rates 3 hours into each store to 50 khz: first attempt on today's second store?
- e-lens commissioning is still progressing well: basic functions (current, profile, position) all demonstrated; further tests with Au beam lined up.
- 56 MHz SRF cavity conditioning w/o beam ongoing, first tests with beam by end of week/beginning of next.
- APEX: successful implementation of 50cm optics (along w/ end-of-store exercise on 4/28) and ramp optics correction
- Polarized protons setup running behind stores.
- Maintenance tomorrow, APEX on 5/7.

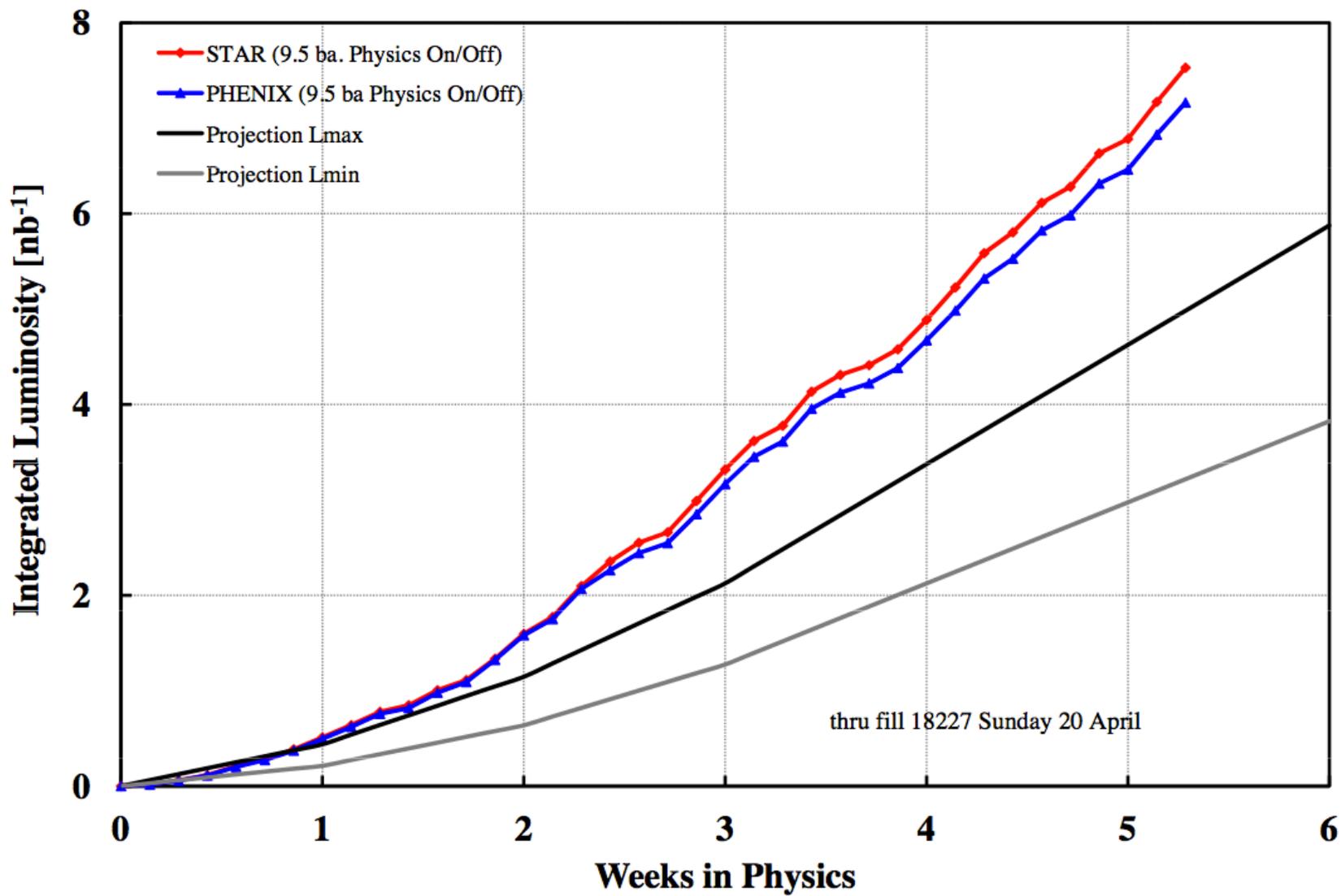




Run I 4 Status – Apr. 22

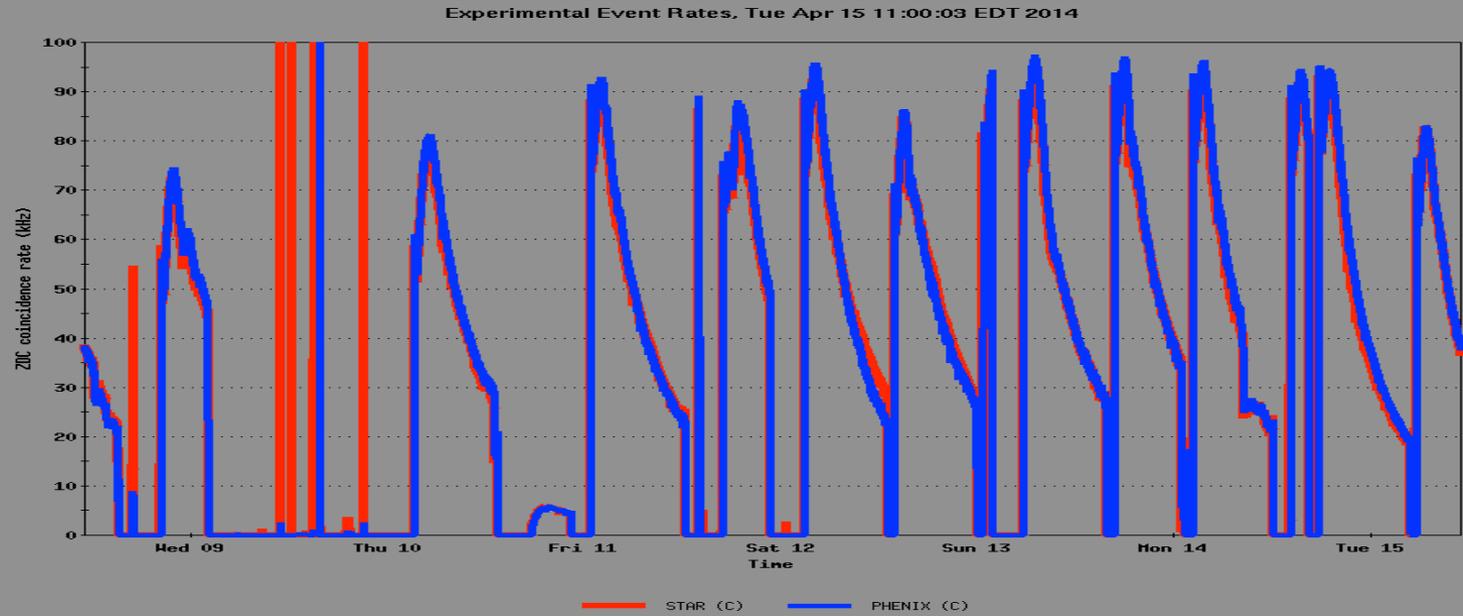
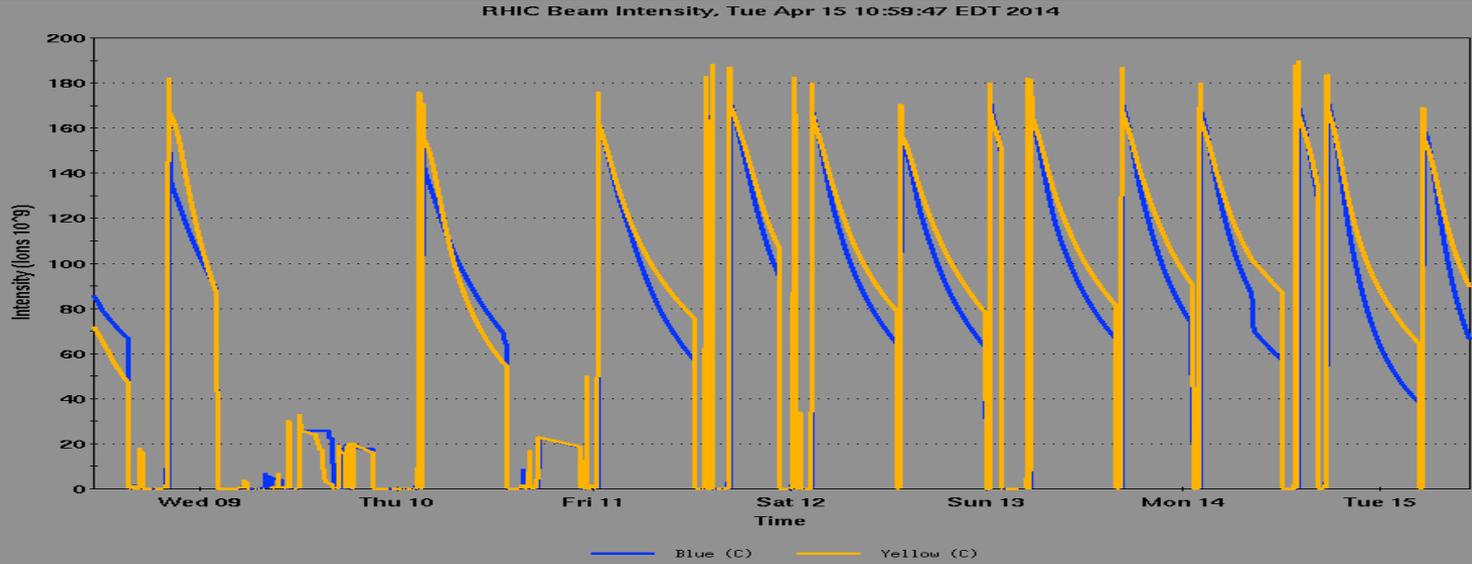
- Operations running well, 12 stores over the past 7 days with 1 “super store” of 17 hours. Repositioned STAR IP transverse location on 4/18: +2mm vertically, -2.8mm horizontally.
- Maintenance: all tasks for 56 MHz SRF worked on, allowed for 4 hours of “no beam” time yesterday (4/21).
- Polarized protons setup running behind stores.
- APEX tomorrow, maintenance on 4/30.

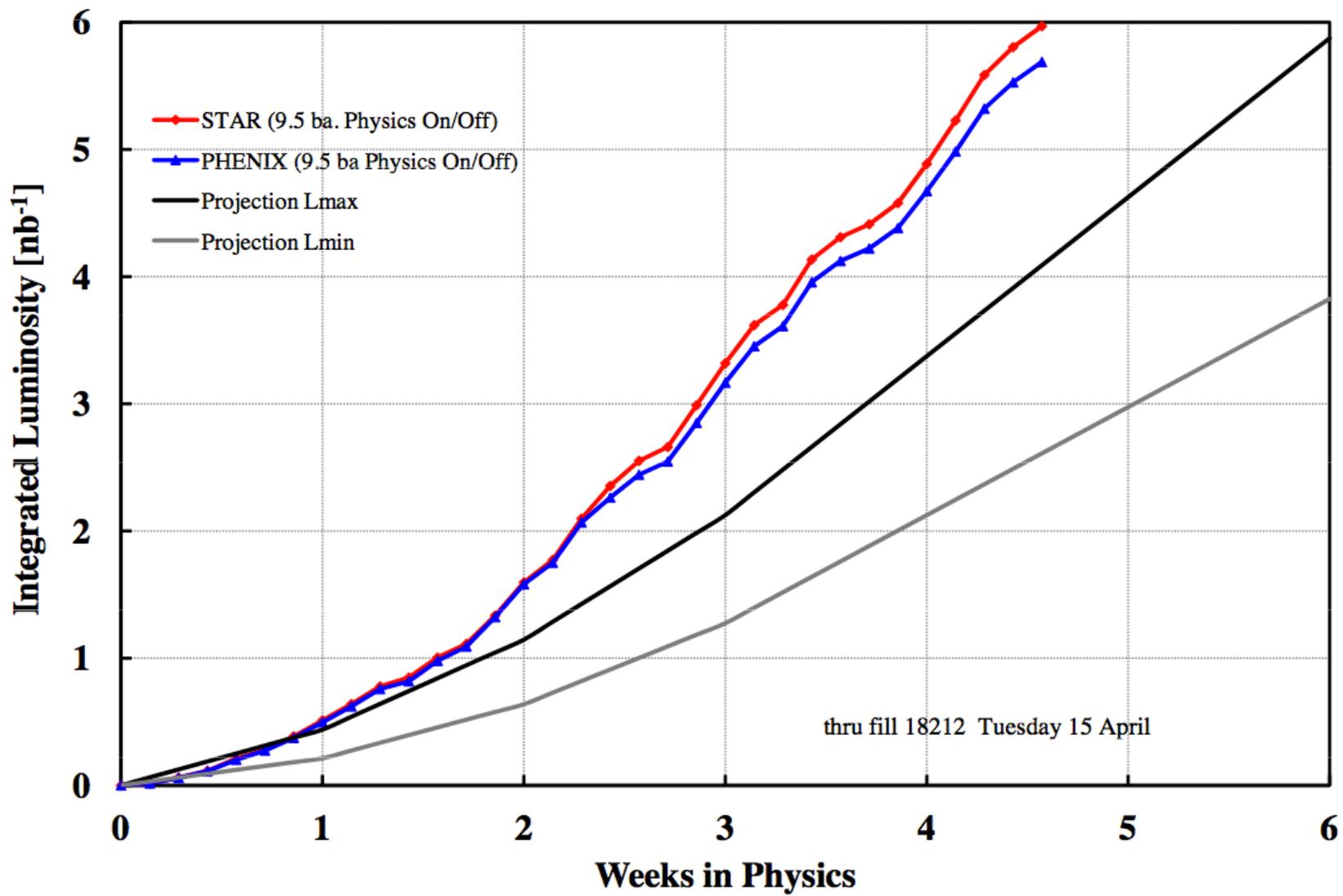




Run 14 Status – Apr. 15

- Operations running well, 12 stores over the past 7 days with 1 lost to another “super quench”. Testing fast gating for longitudinal cooling to reduce satellite bunches.
- APEX: Proof of principle of 60 cm optics in both Blue and Yellow with very reasonable lifetime despite (usual) large emittances at store.
- Last Friday (4/11): 3 quenches in 14 hours but problem is understood: superconducting solenoids are running at 10% of their current settings to limit frequency of event.
- Polarized protons setup running behind stores.
- Thursday (4/17): request for MD time to address PHENIX question on longitudinal position of collisions.
- 56 MHz SRF cavity commissioning in next few weeks, contingent on completion of all tasks scheduled for Maintenance.
- Maintenance tomorrow, APEX on 4/23.

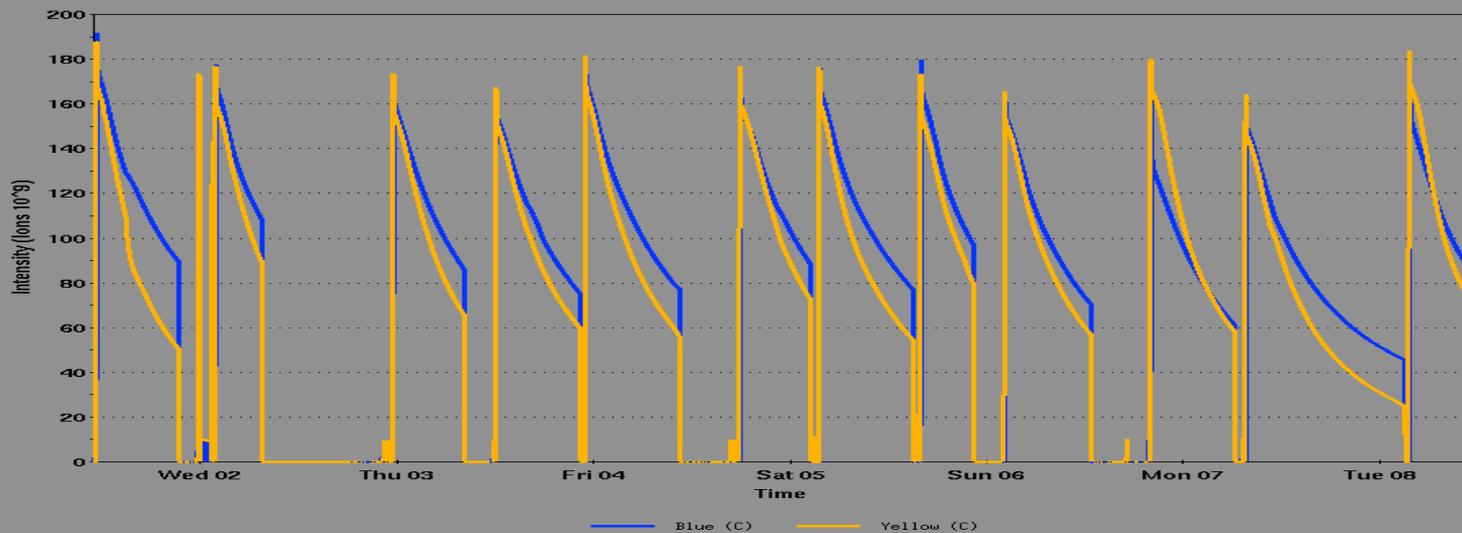




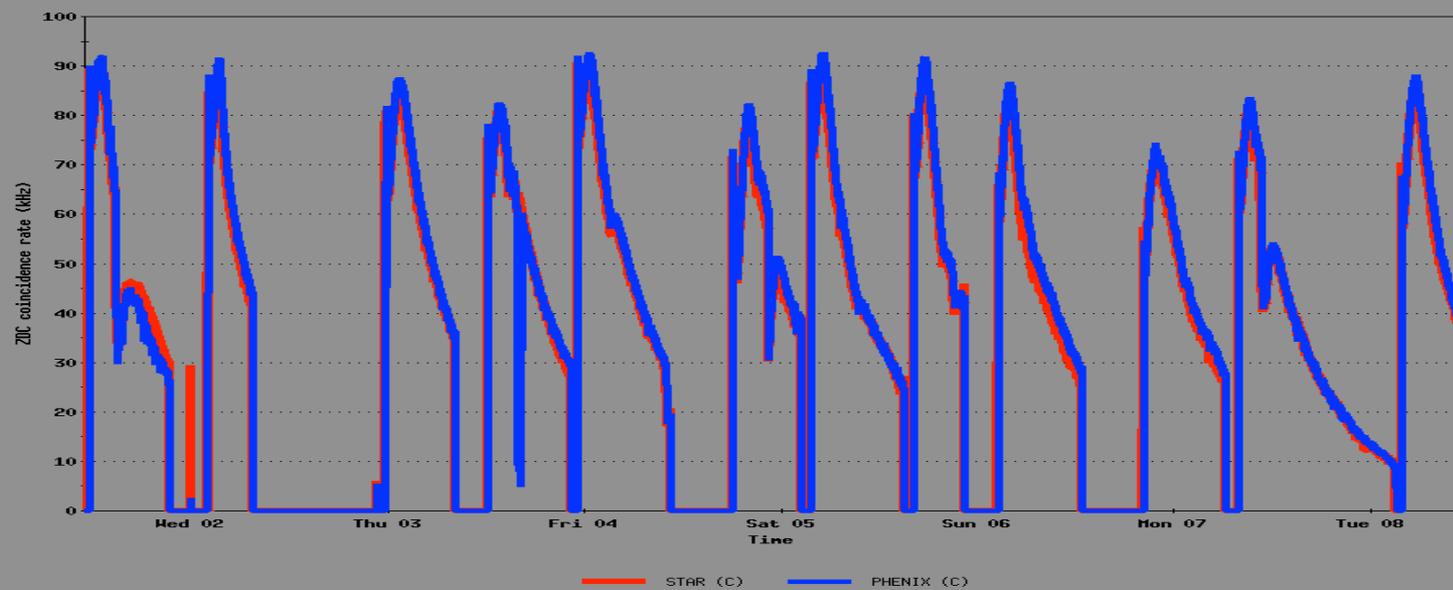
Run 14 Status – Apr. 8

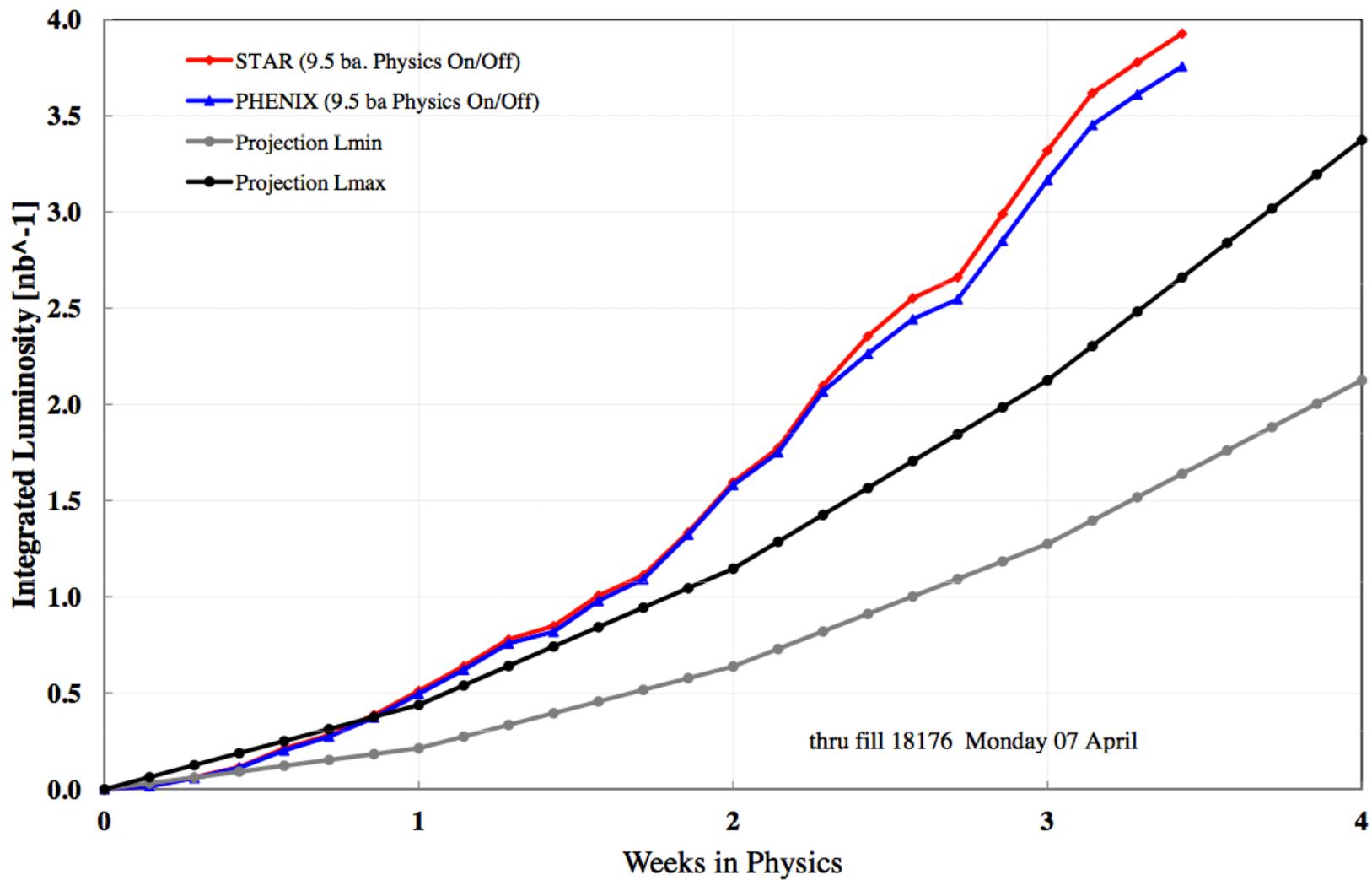
- Operations running well, 12 stores over the past 7 days. Emittances through stores are monitored so that tunes can be moved around to maximize the effect of stochastic cooling.
- Recovery from maintenance was delayed “first by a cooling fault in the xq1 magnet and then by problems with G10 kicker fine delay controls” [OC log]. Tried a couple of 6x6 ramps to test RF settings too, but had miscommunication with P. Sampson about it. Lesson learned...
- AGS main magnet running with Siemens MG after switching from Westinghouse on Thursday (4/3).
- Machine Development time was scheduled for Friday (4/4) AM, around PHENIX access to replace Teflon tubes:
 - end of store attempt failed due to orbit feedback using the wrong target orbit;
 - post PHENIX access, turns out ATR had other plans for us, and with increasing recovery time from this problem, priority was given to running physics, especially so close to the weekend. There was no beam in RHIC from ~11:00 to ~17:00.
- Sunday (4/6): “QLI in blue and yellow rings that fired all the DX heaters and resulted in extended cryo recovery. The ultimate cause was found to be a bad 5V supply for the blue main dipole” [OC log].
- MD pushed back to 2:45pm today: Ramp Optics measurement + beta* = 60cm commissioning for both Blue and Yellow beam.
- Thursday (4/10): low ZDC rates run, around 3-5 kHz only – translates to 0.25e9 ions/bunch with a 111x111 fill pattern. Need tests to make sure injectors and RHIC instrumentation can run this low.
- APEX tomorrow, Maintenance on 4/16.

RHIC Beam Intensity, Tue Apr 8 10:59:43 EDT 2014



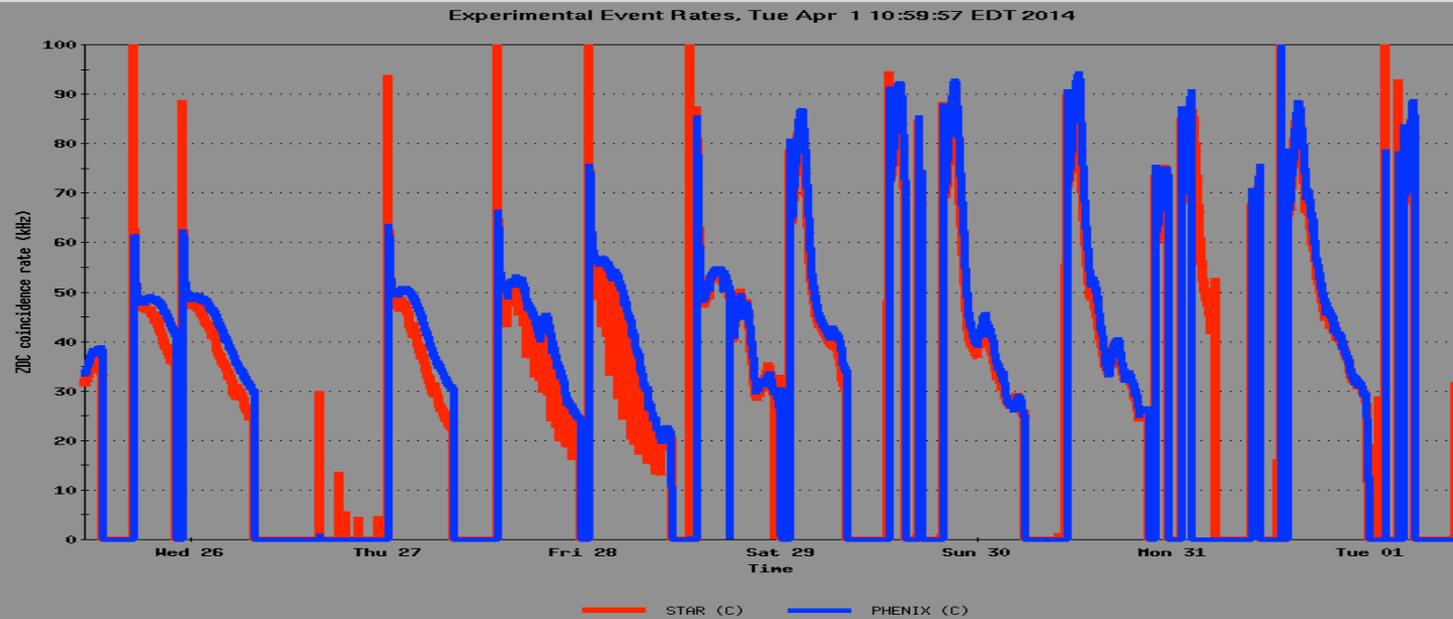
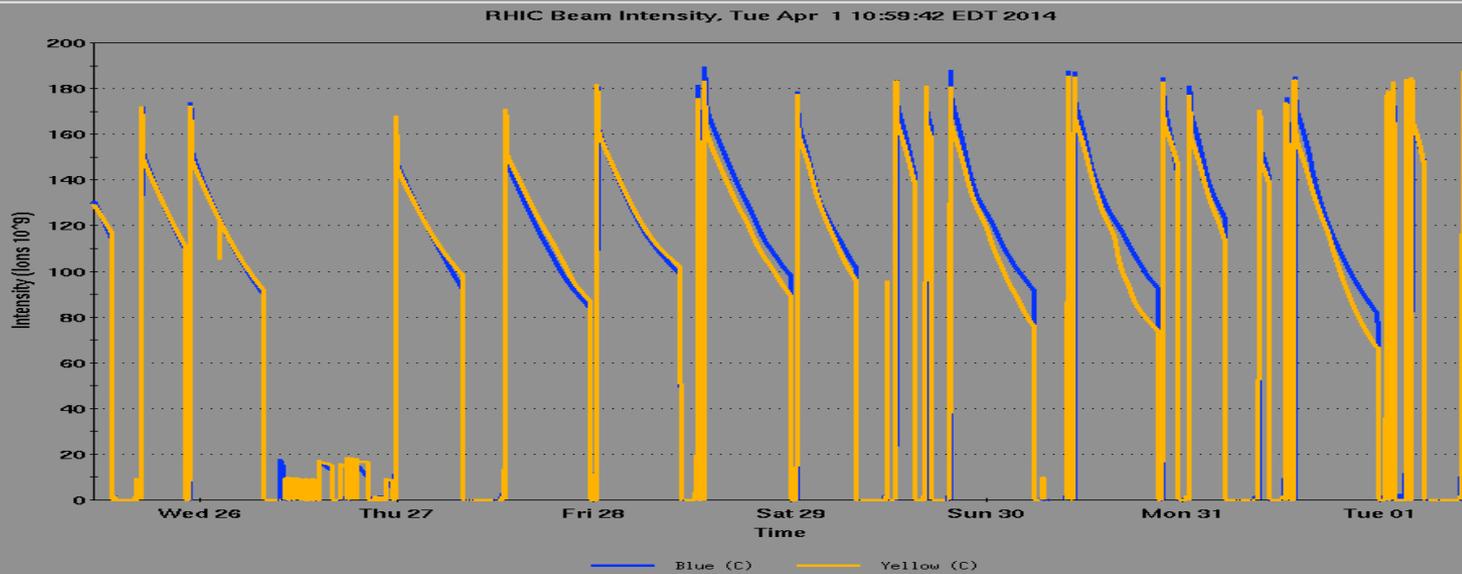
Experimental Event Rates, Tue Apr 8 11:00:00 EDT 2014

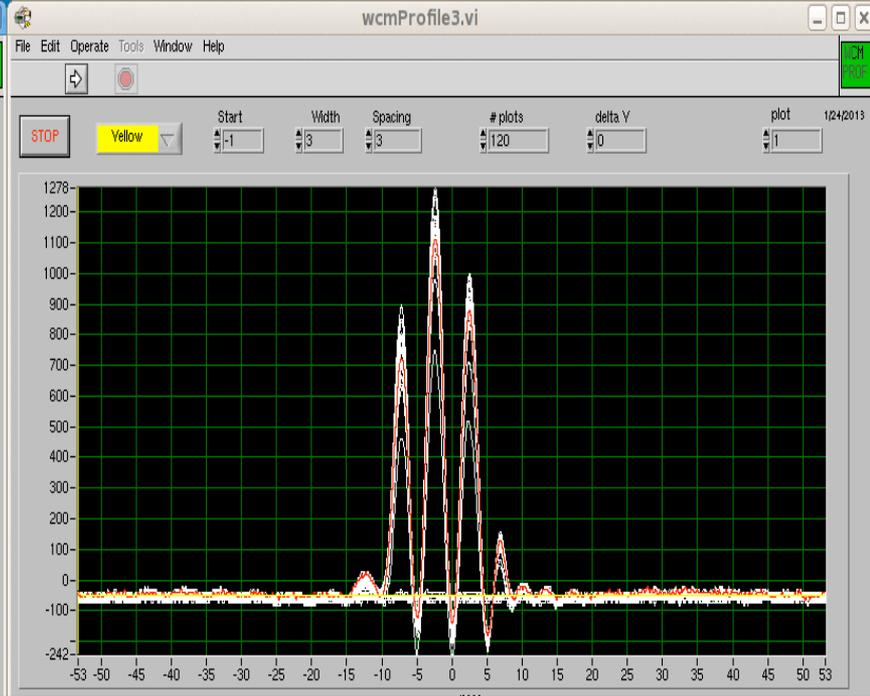
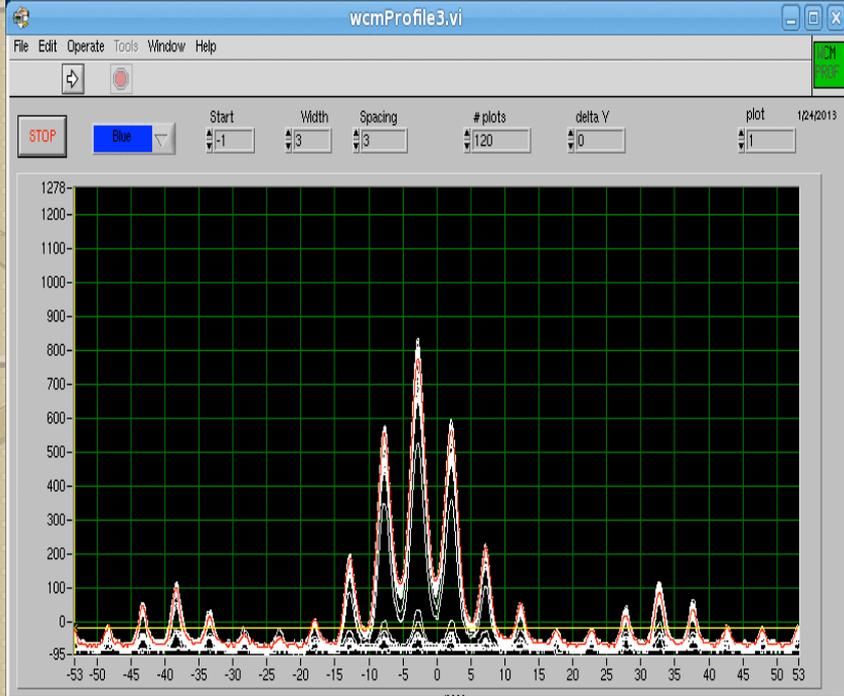




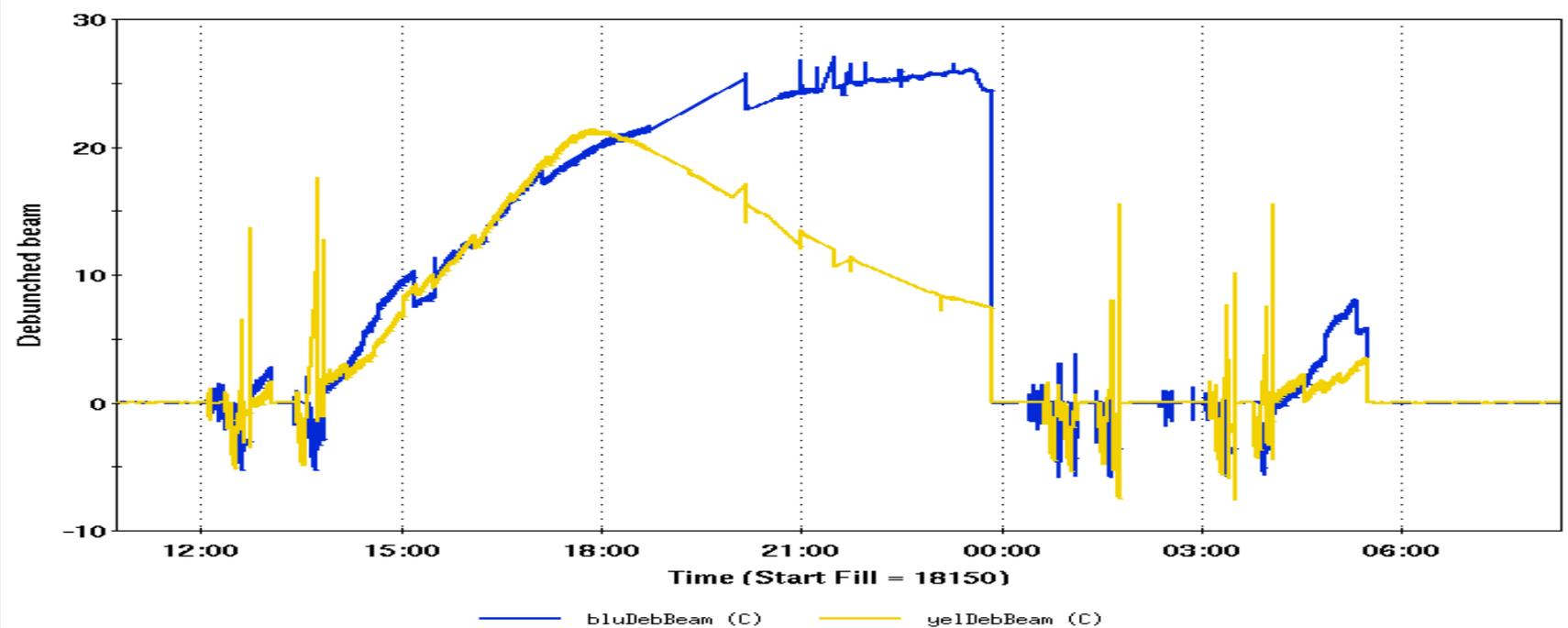
Run I 4 Status – Apr. I

- Stochastic Cooling: all 3 planes B+Y since 3/28; monitoring the effect of Yellow cooling on Blue emittances as the store progresses. Additionally, yesterday (3/31) the fast gate for longitudinal cooling in Yellow was turned on: main bunch and first 2 satellites only are being cooled
- First APEX on 3/26 was a success; dynamic β^* squeeze tested, will turn operational.
- First commissioning test of e-lens with beam, using last bunch(es) of train.
- Investigated Blue QLI's on the down ramp: no conclusive results, diagnostics hard considering the low frequency of events.
- Corrected store orbit feedback procedure to reduce orbit drift and seesaw ZDC rates.
- Recorded 2 Yellow Abort Kicker prefires.
- AC problems in 6 buildings: main problem was on 3/29, causing 2 QLI's at store due to a quench detector in I006B affected to the AC tripping.
- Maintenance tomorrow, APEX on 4/9.





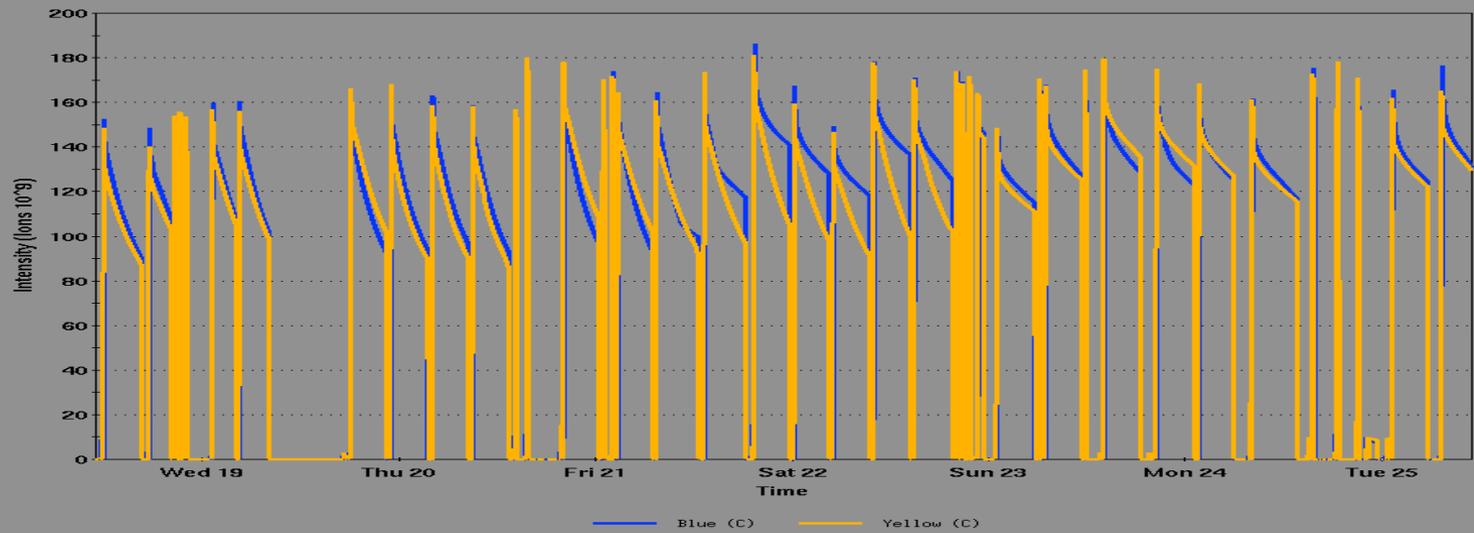
RHIC - debunched Beam (DCCT-WCM)



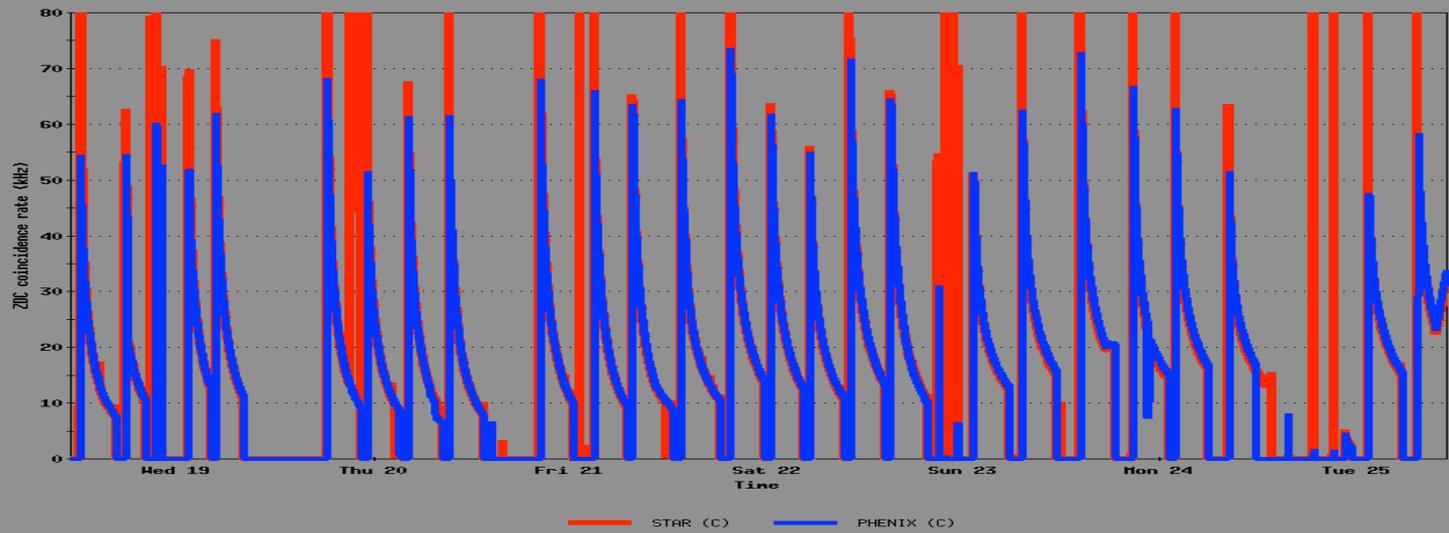
Run 14 Status – Mar. 25

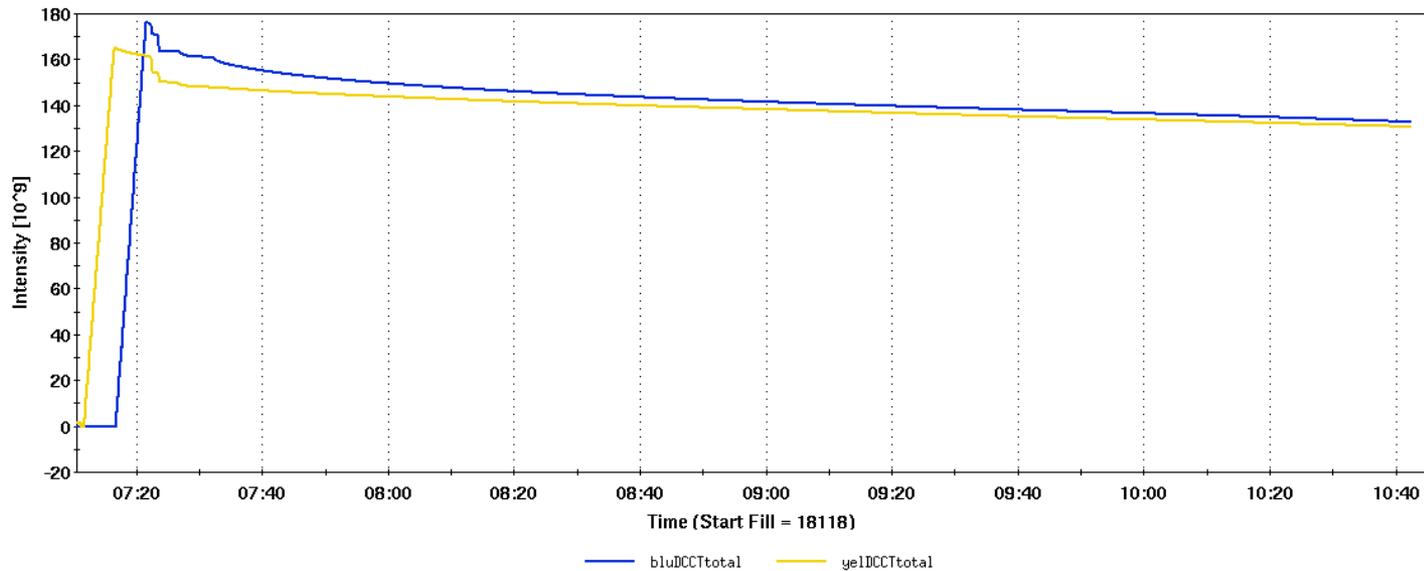
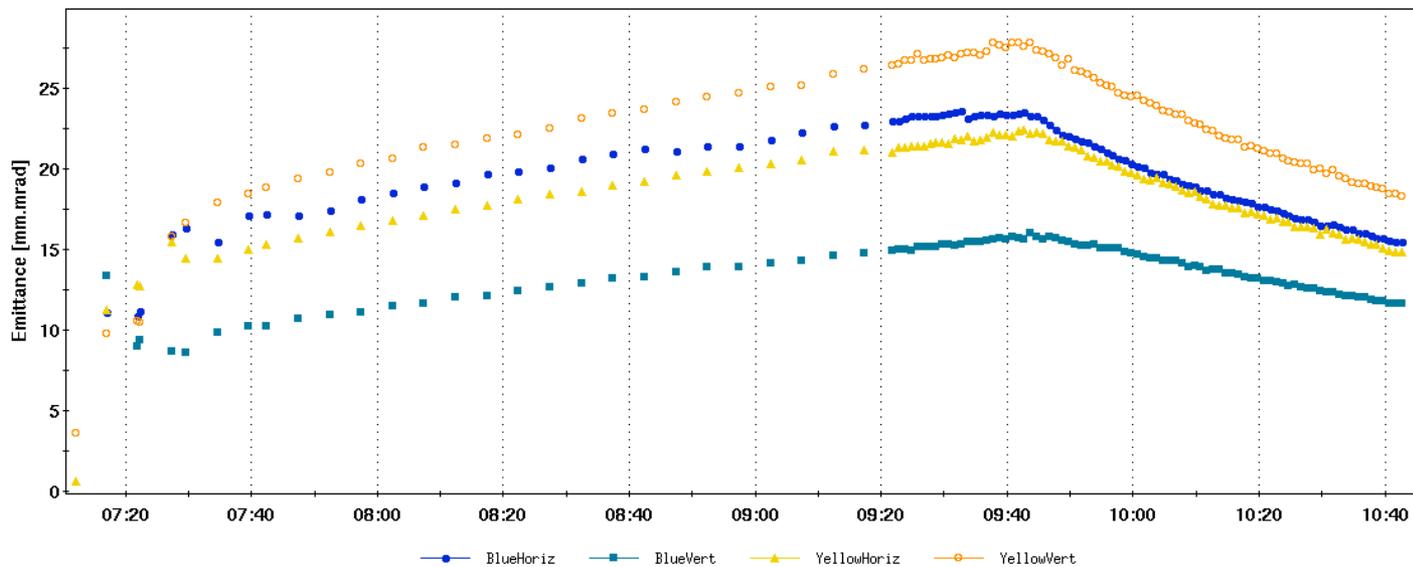
- 111x111 fills at $1.6e9$ ions/bunch w/ rebucketing at store; scrubbing essentially done.
- New record peak luminosity for Fill 18093 with $L > 60e26 \text{ cm}^{-2}\text{s}^{-1}$.
- Stochastic Cooling: longitudinal in B+Y since 3/21, horizontal just about operational.
- Few hiccups with intensities from EBIS.
- Sat. to Sun. (from eLog): “2 failed ramps due to Landau trips, a bad BPM messing up orbit, and a blue [QLI] that occurred when yellow feedback was engaged at store”.
=> all problems were addressed and solved/understood
- BS3-4 storage cavities tripping; work ongoing to troubleshoot, solution imminent.
- Fix for main magnet regulator loop card, to reduce risks of QLI on up/down ramps.
- First APEX: 16 hours tomorrow (3/26), back in physics for the following OWL shift.

RHIC Beam Intensity, Tue Mar 25 10:59:42 EDT 2014

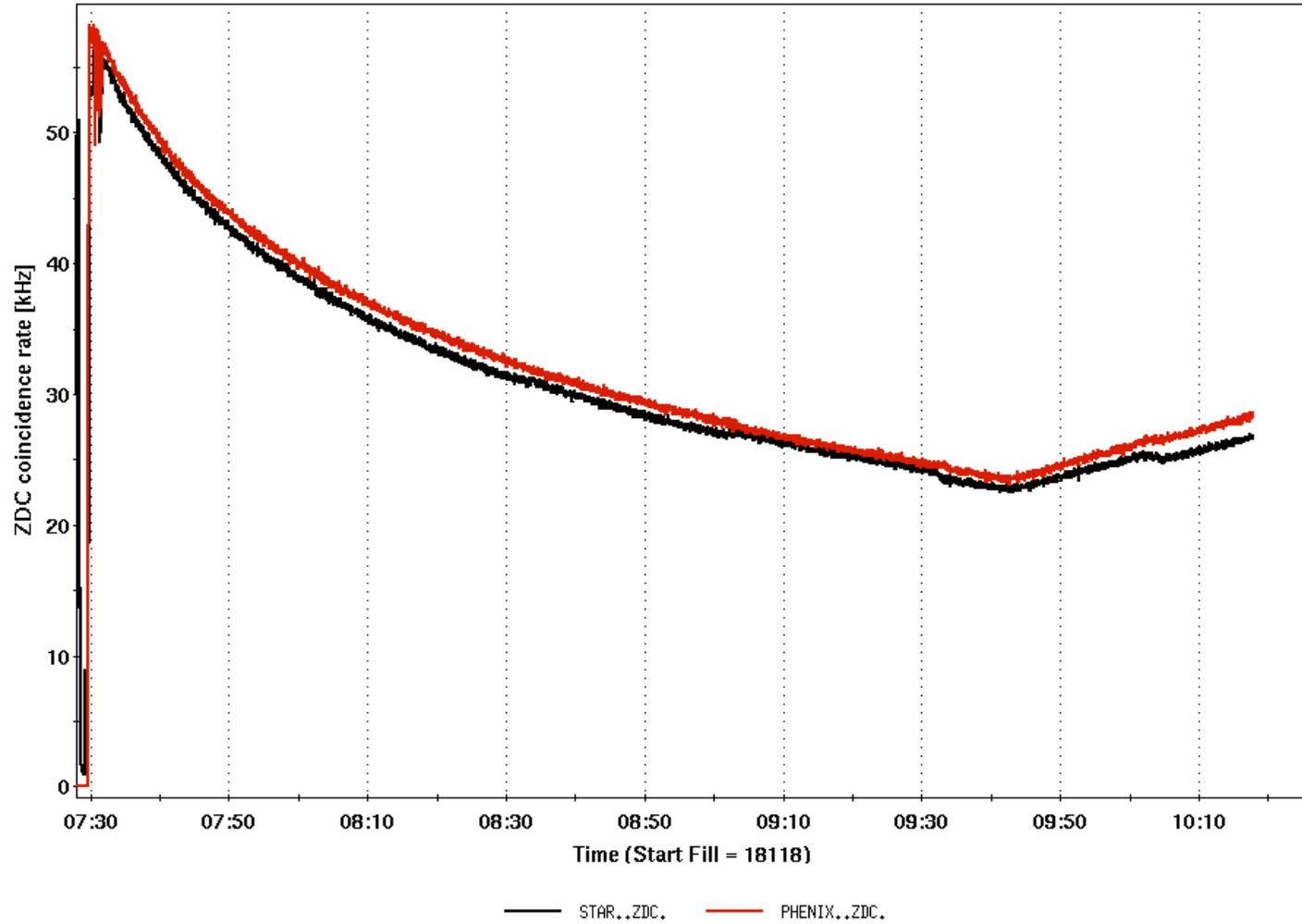


Experimental Event Rates, Tue Mar 25 10:59:58 EDT 2014





Experimental Coincidence Signals



Run 14 Status – Mar. 18

- Switched over from Low Energy Run on 3/11, with first beam circulating in RHIC at regular injection energy at 04:00 on 3/12. First 6x6 ramp at 11:30 on 3/13.
- Set up orbit bumps for pre-fire protection in both rings: initial peak amplitude was 30mm, but caused repeated QLI's with every regular beam dump. Amplitude scaled down to 20mm after careful aperture scan on 3/13-14.
- 111x111 fills at $0.8e9$ ions/bunch w/ rebucketing at store since 3/15 at 02:00. **Physics declared with Fill 18046, 14:10 on 3/15.**
- Slowly increasing the bunch intensity for scrubbing; goal is $1.3e9$ by 3/19 at 08:00 (prior to Maintenance Day).
- Continuing work on Landau cavities; Stochastic Cooling commissioning (all 3 planes) should start right after we recover from Maintenance.
- Chromaticity measured at injection, store and along the ramp (via radial offset); linear optics measured at injection and store.
- eLens commissioning running in parallel to operations.

