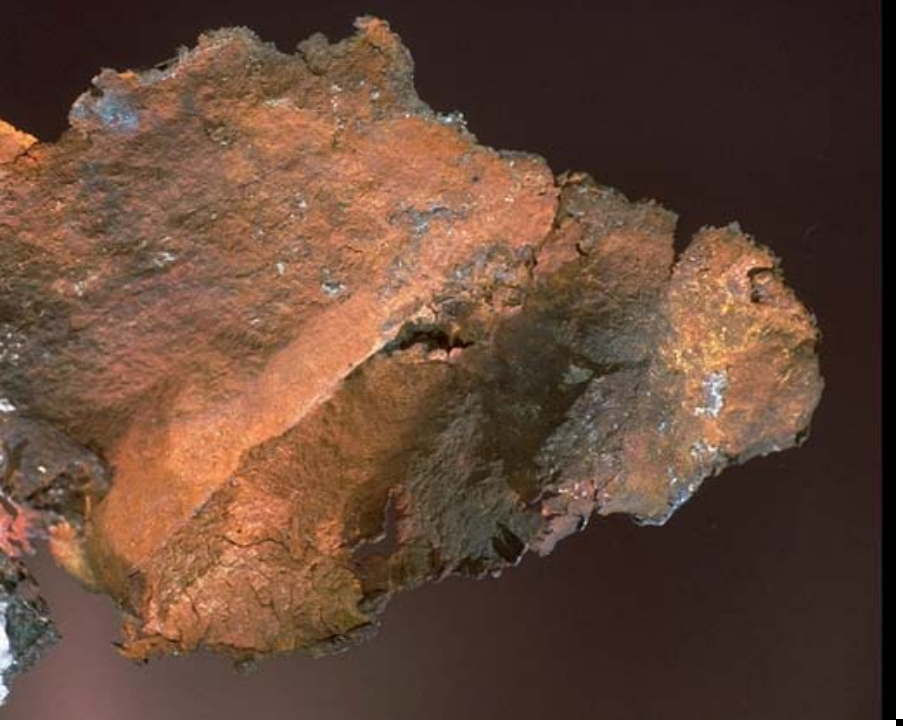
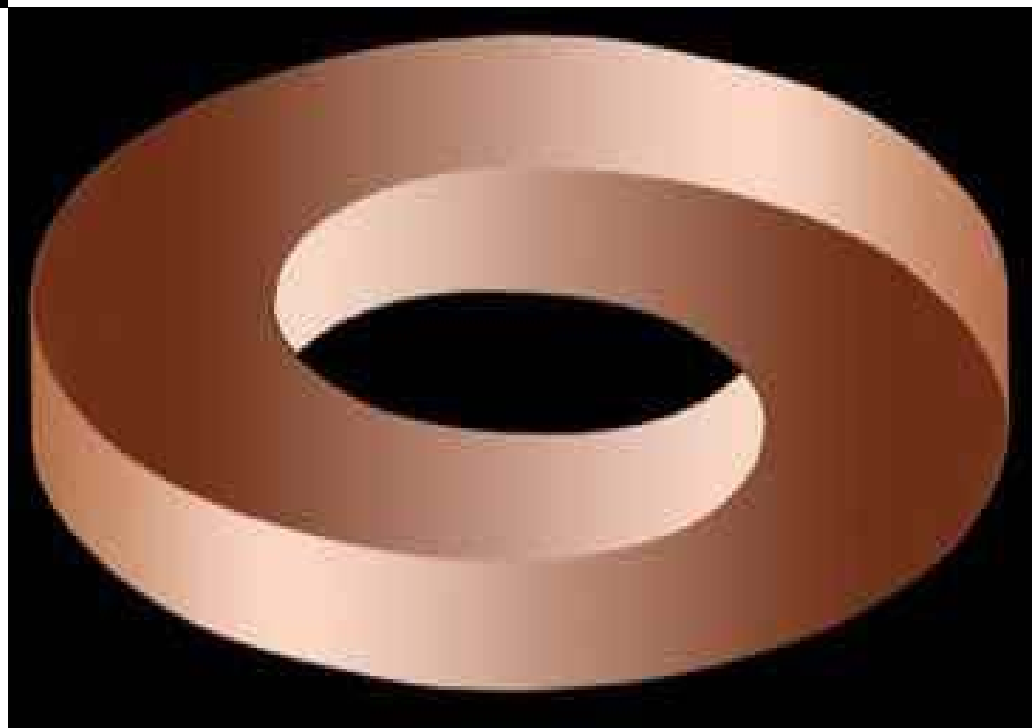


Run-5 Update

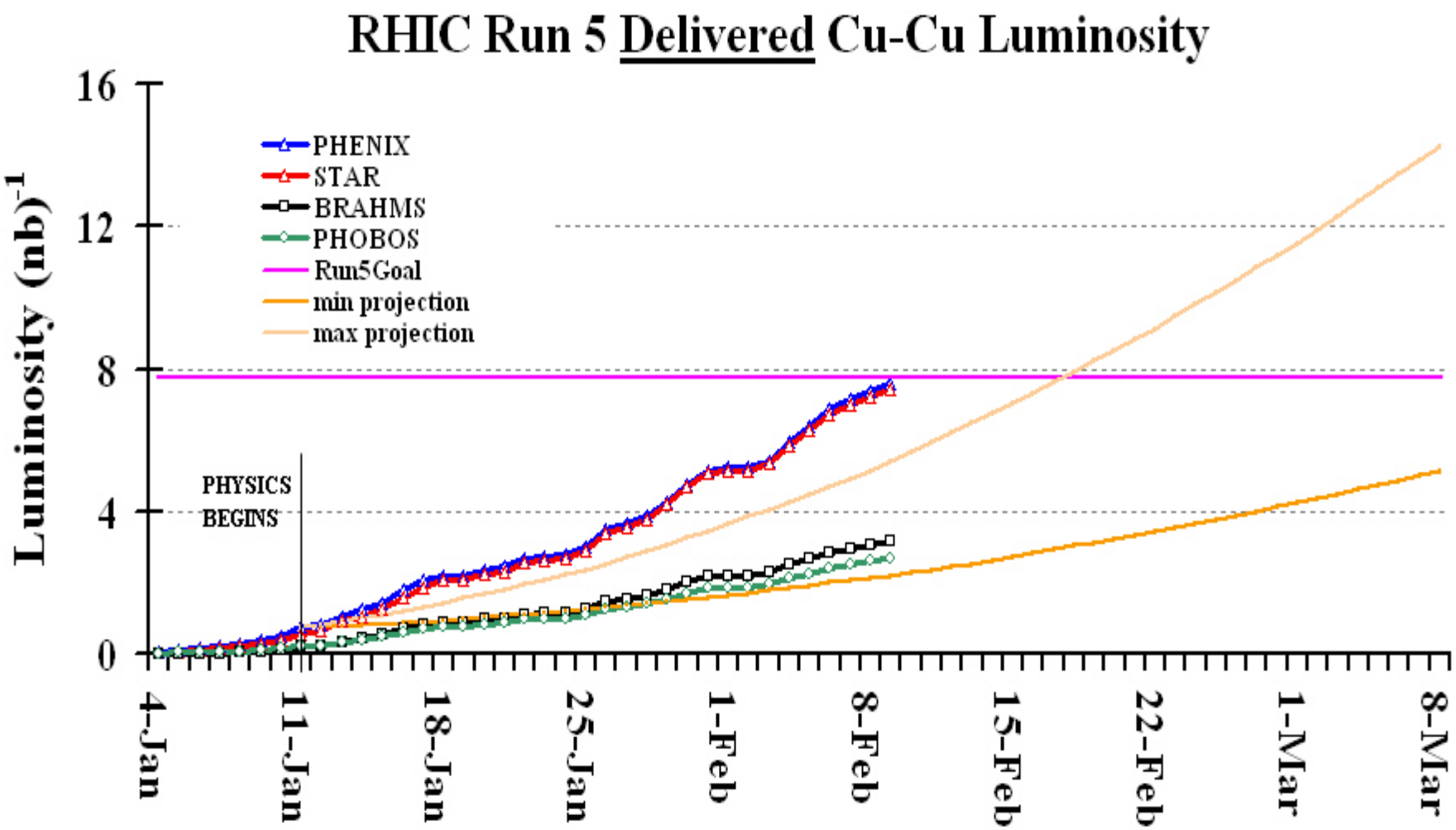
BROOKHAVEN
NATIONAL LABORATORY

Machine-Experiemnts
February 9, 2005



Status: 4 weeks

Total from January 11 (nbarn-1)	
Phenix:	6.82
Star:	6.83
Brahms:	2.95
Phobos:	2.45



Week 4 - Highlights

Power dip + access + recovery

→ first store thursday night (low rates)

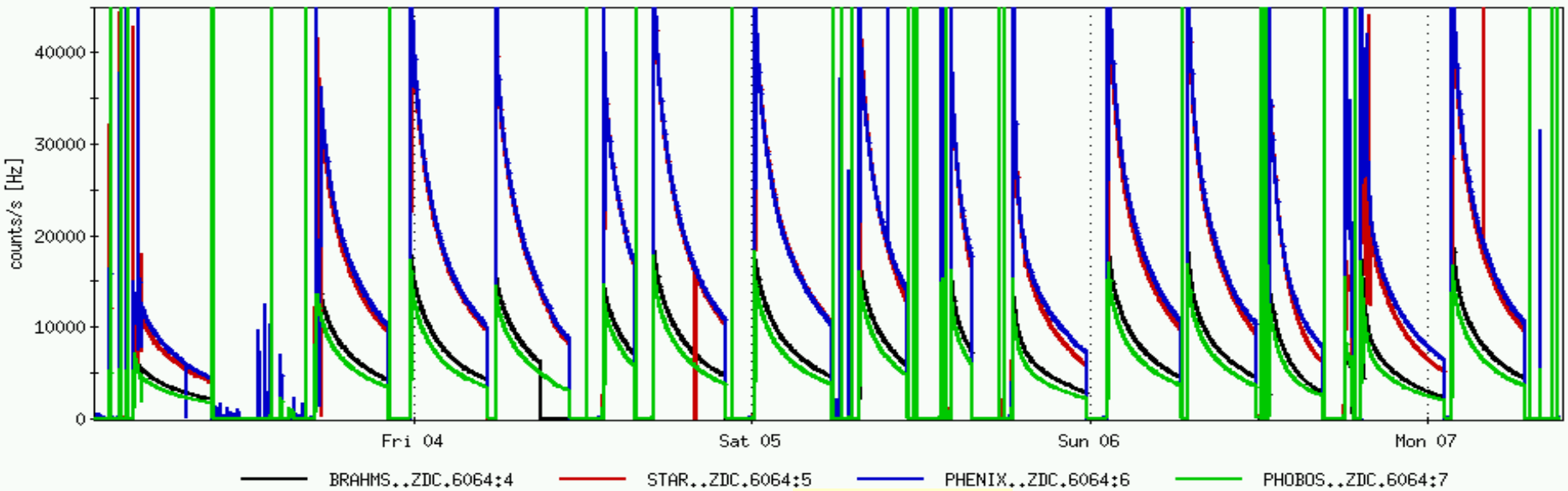
(still) mysterious **orbit shift** during the access (same machine settings) → permit pulls→ lower intensity

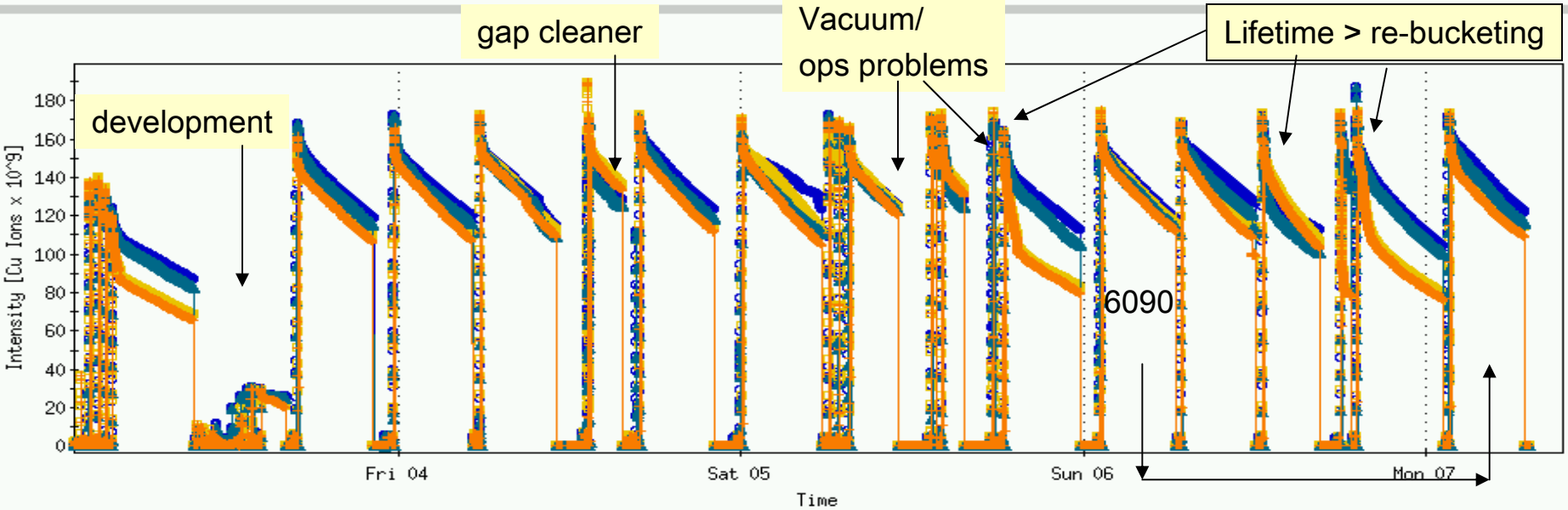
Development Thursday day (Vadim)

→machine back at 5pm

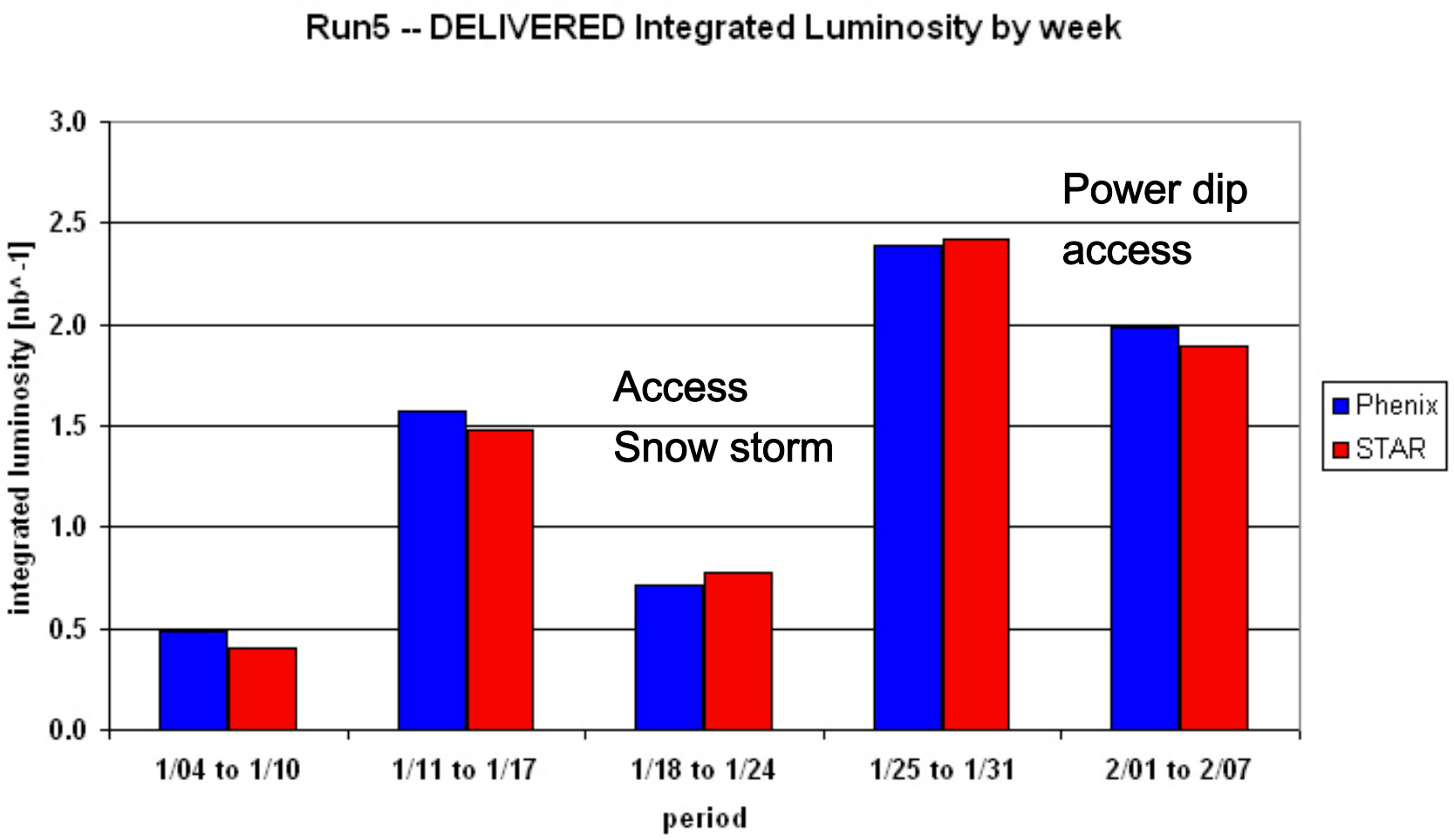
- Adjustment **orbit on the ramp**
- Orbit **correction at IR6 and IR8**
- Adjustment **yellow H tune** on beta* squeeze stones
- Adjustment yellow **injection**

Intensity/collisions – Week 4

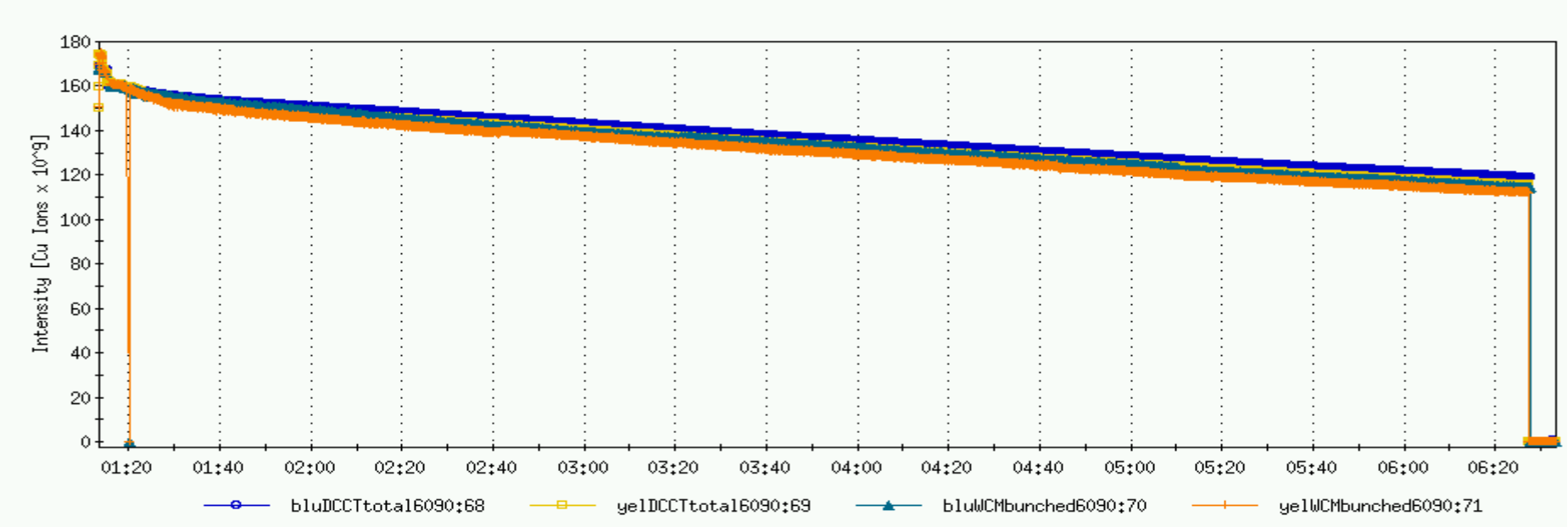


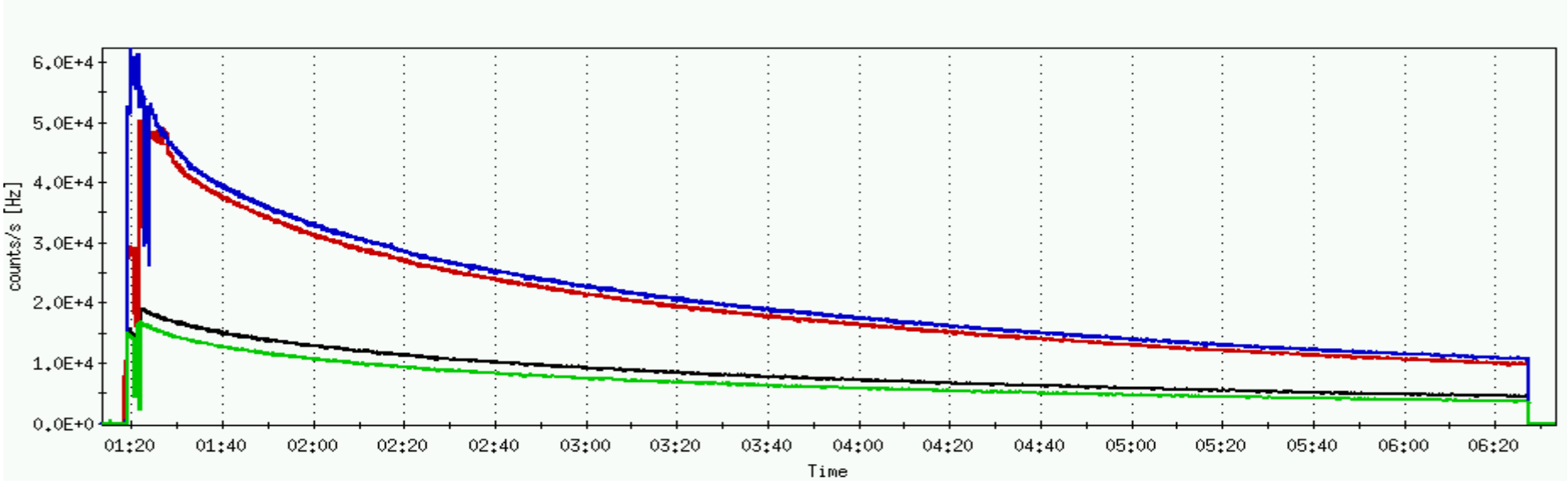


Luminosity / week

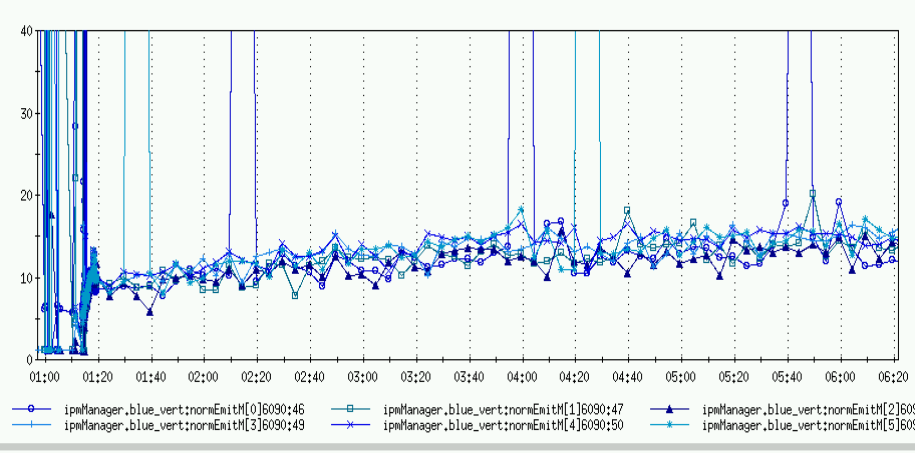


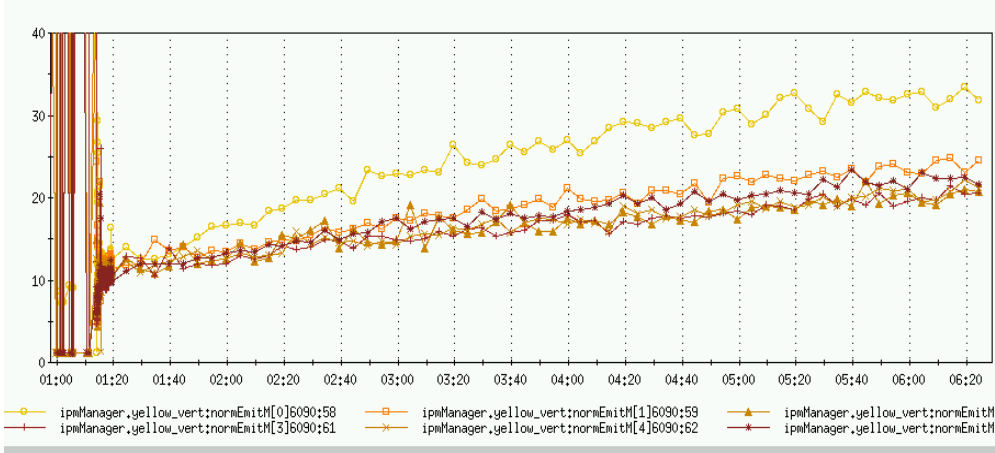
Store 6090

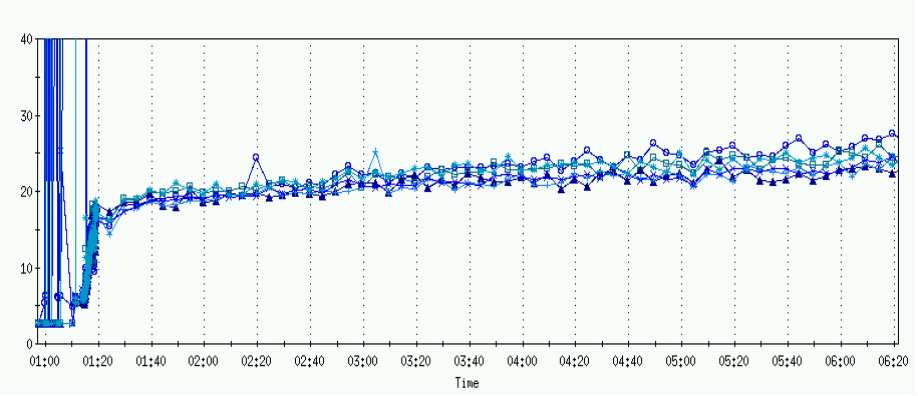

Intensity [Cu Ions x 10^9]
180
160
140
120
100
80
60
40
20
0
01:20
01:40
02:00
02:20
02:40
03:00
03:20
03:40
04:00
04:20
04:40
05:00
05:20
05:40
06:00
06:20
bluDCCTtotal6090:68
yelDCCTtotal6090:69
bluWCMbunched6090:70
yelWCMbunched6090:71

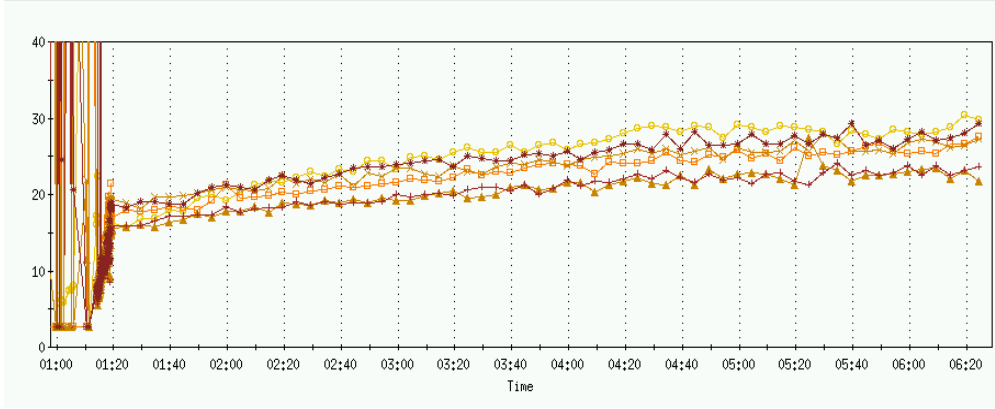

counts/s [Hz]
6.0E+4
5.0E+4
4.0E+4
3.0E+4
2.0E+4
1.0E+4
0.0E+0
01:20
01:40
02:00
02:20
02:40
03:00
03:20
03:40
04:00
04:20
04:40
05:00
05:20
05:40
06:00
06:20
Time

Store 6090 - emittance

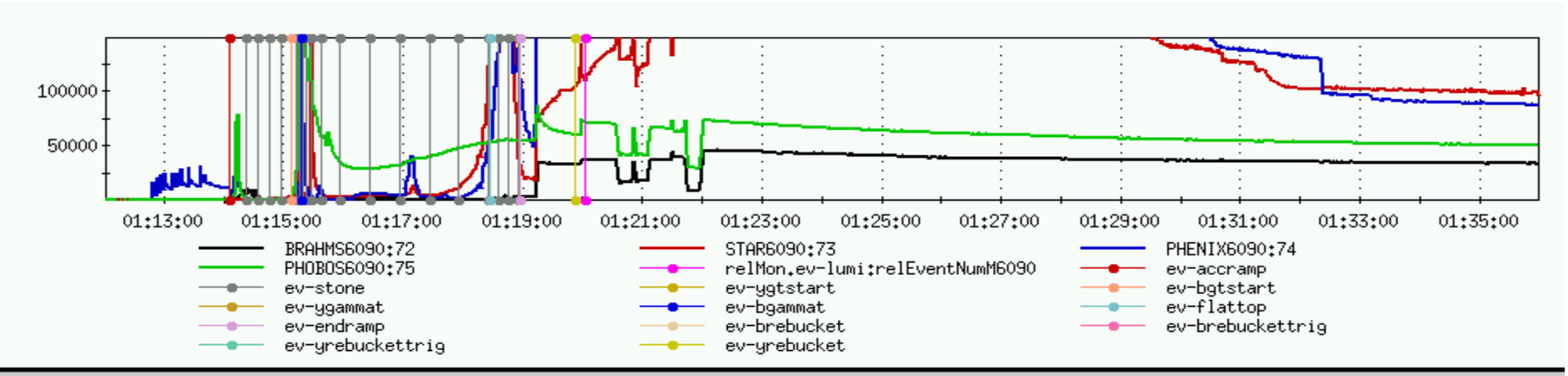


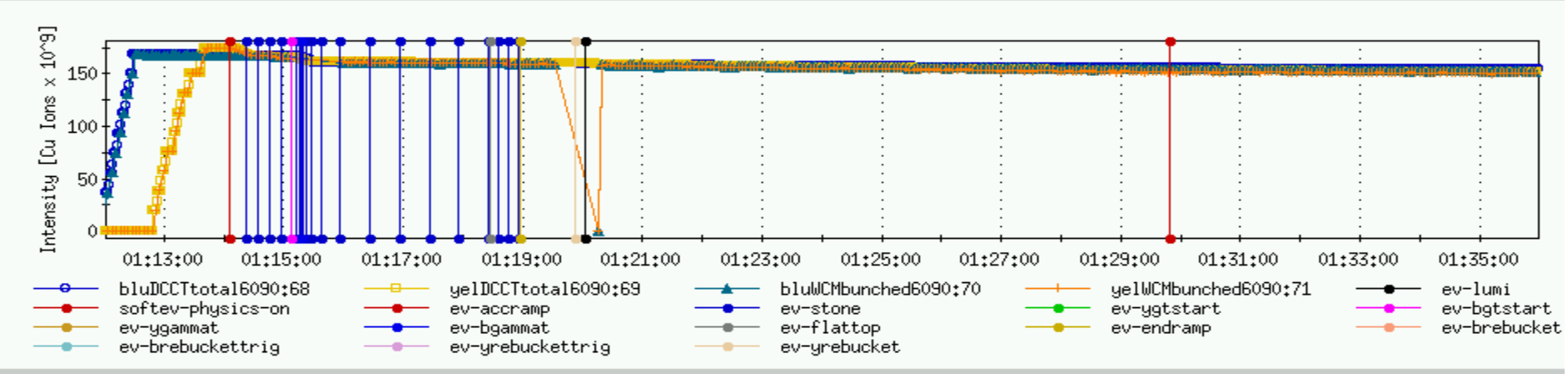


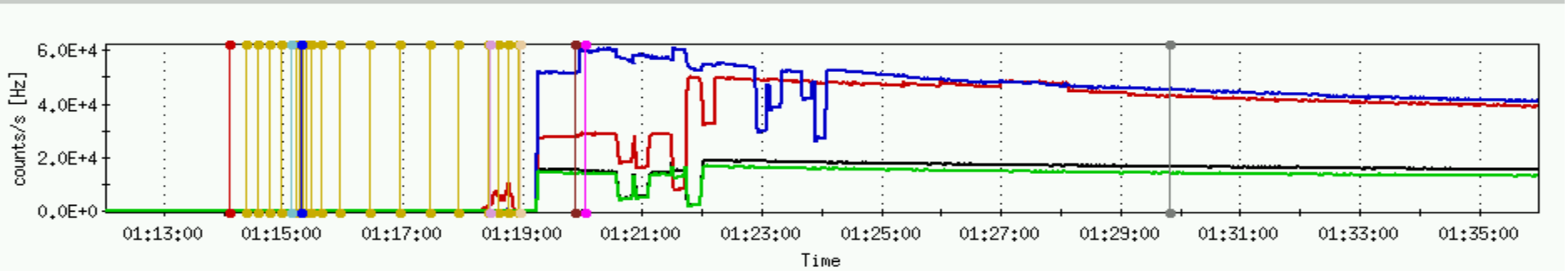




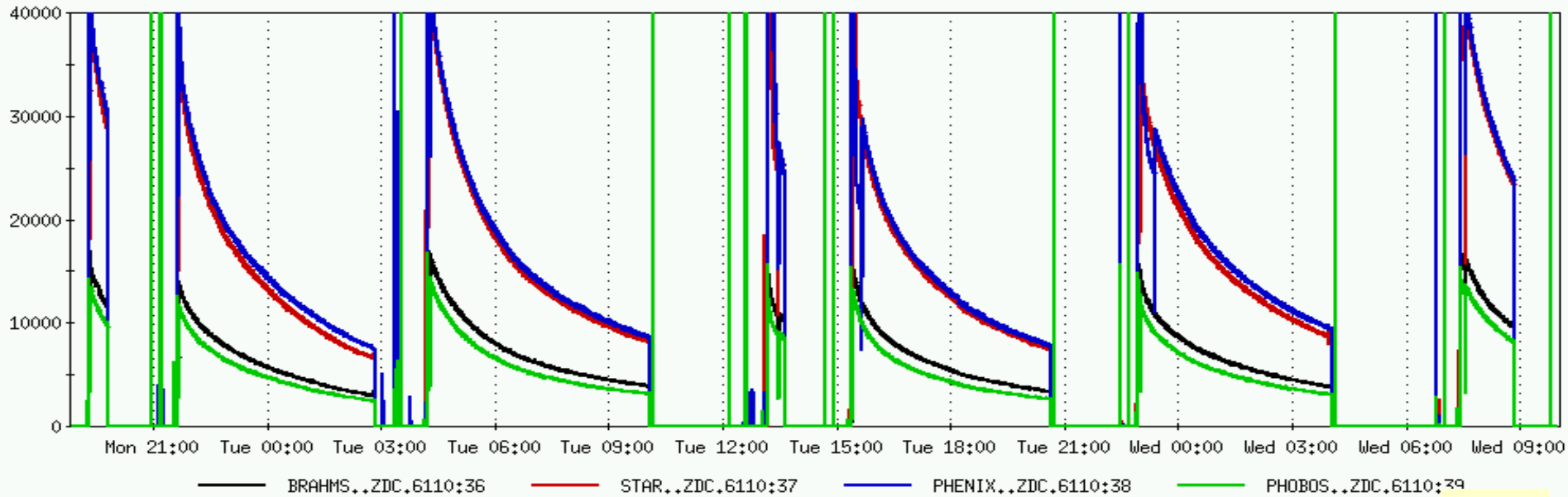
Store 6090 – first ½ hour

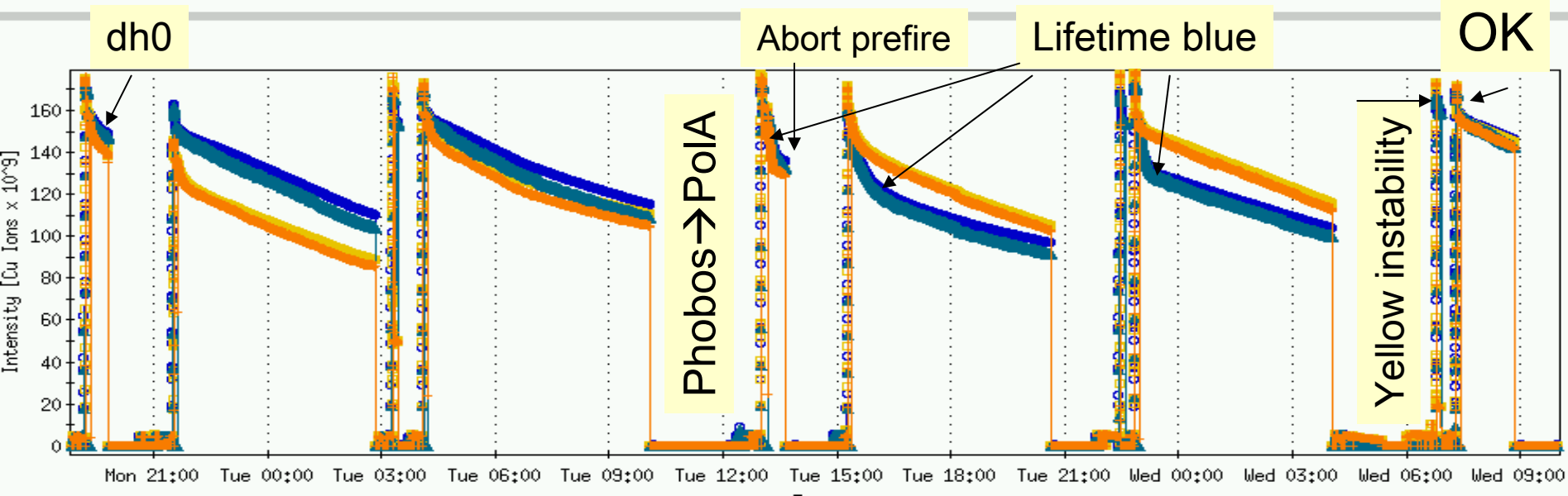






Stores after Monday Beam-Ex





Machine development week 5

- *"store restore" script (Todd)→tomorrow?*
- Orbit correction yellow vertical at beta* stones (Vadim)
- Coupling correction yellow beta* stones (Vadim, Yun, Fulvia)
- *IR BPM offsets→orbit (Todd)→tomorrow?*
- Slow loss in blue after transition (gammat-3) (S-Leader)
- Bring yellow tunes closer on the ramp (S-Leader)
- *IR corrections yellow (Fulvia)→next week*
- Emittance measurement at RHIC injection – test AGS, flag
- *Vernier scans at 4 experiments (Angelika)→next week*
- *Change Star and Phenix magnet polarity→Tuesday 15*

Lumi Development

- Increase bunch intensity to 5.5 e9
- *Increase progressively number of bunches*
- *Commission ramp for new working point*

Intensity development

Assuming β^*=0.90, Cu-Cu X-section 2.6 barn, 37 bunches

Present physics store: 37 x 4.7e9 at accramp, 92-93% transmission

Bunch intensity at lumi	Transverse Emittance (pi)	Initial collision rates (KHz)
4.2	18	42
4.5	18	48
4.8	18	54
5.1	18	62
5.4	18	69
5.7	18	77
6.0	18	85