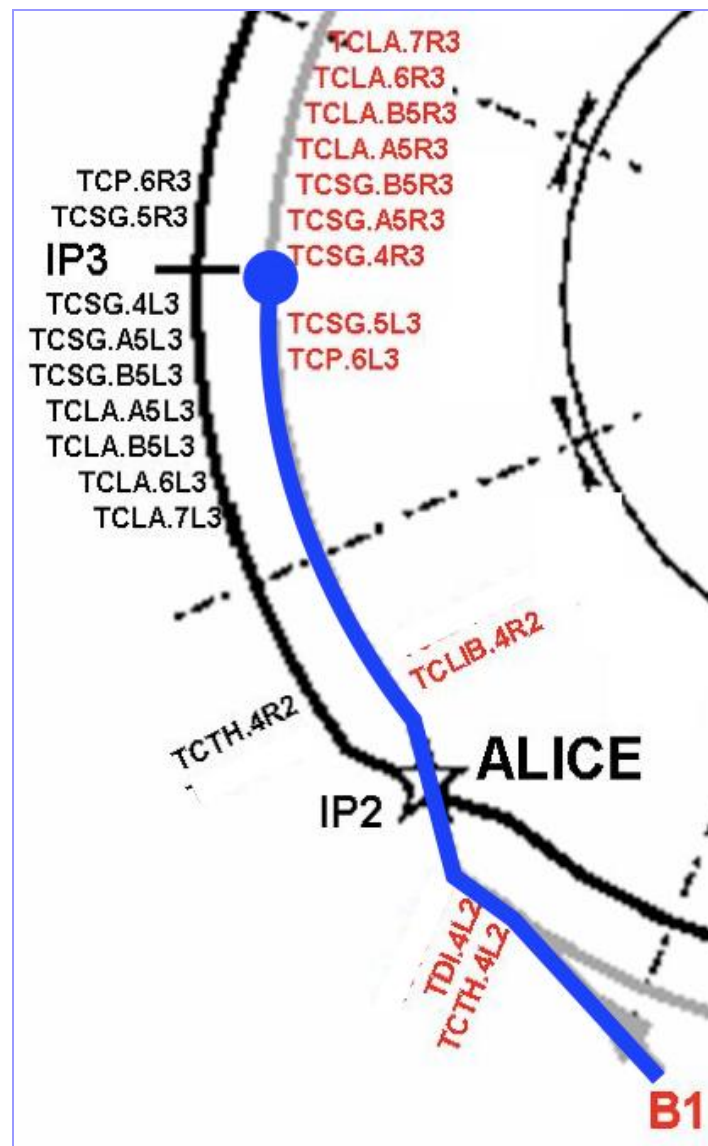
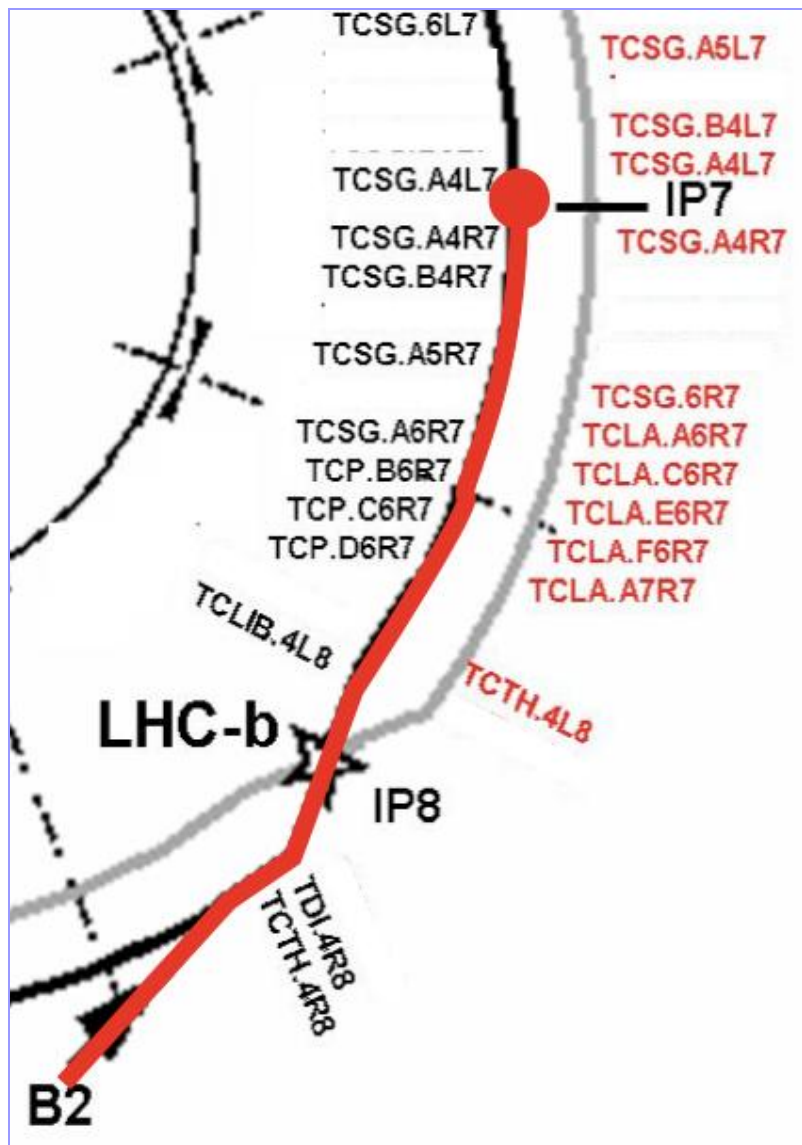




Injection test(s) 2009





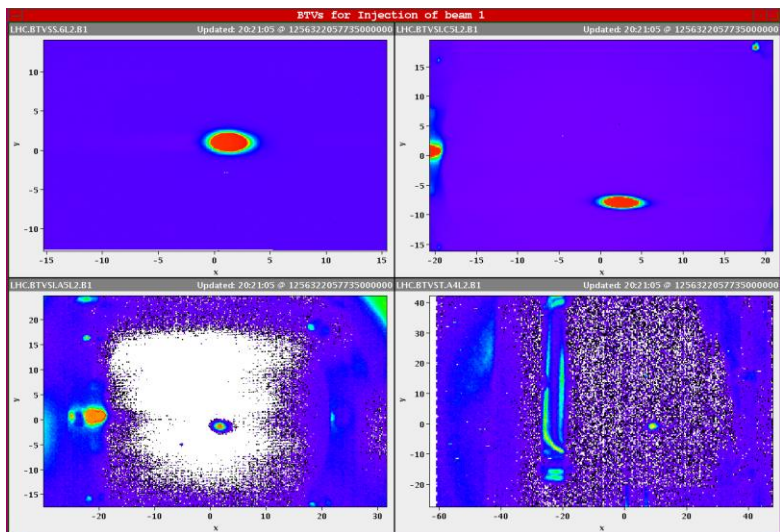
Main Objectives

- Injection region
 - aperture, protection, kickers
- Threading, energy matching
- Optics measurements
 - check re-matched lines and dispersion into LHC
 - polarities
- Beam instrumentation system response
 - BLMs, BPM (BST triggered acquisition)
- Aperture checks
- Check LHCb & Alice spectrometers

Pre-requisites and
procedures detailed

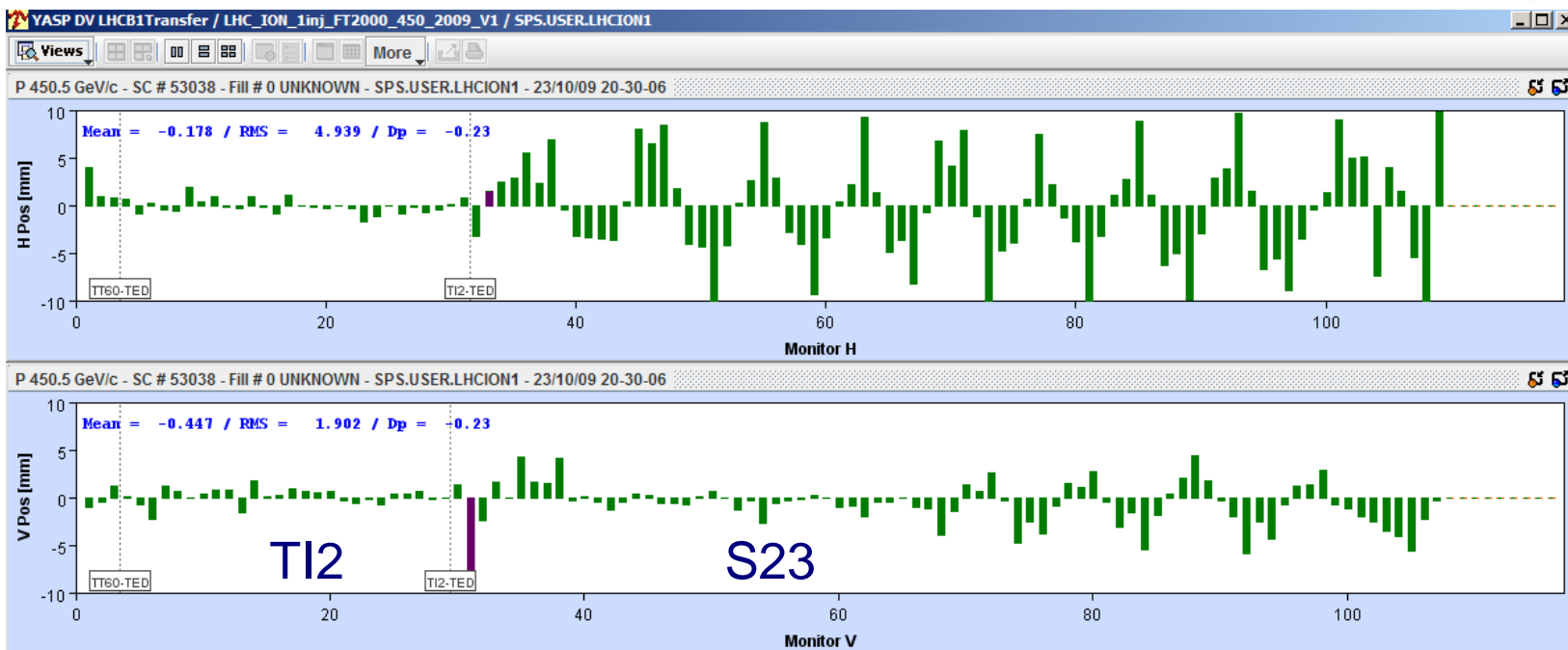


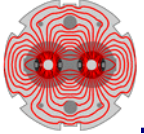
First lead ions in LHC



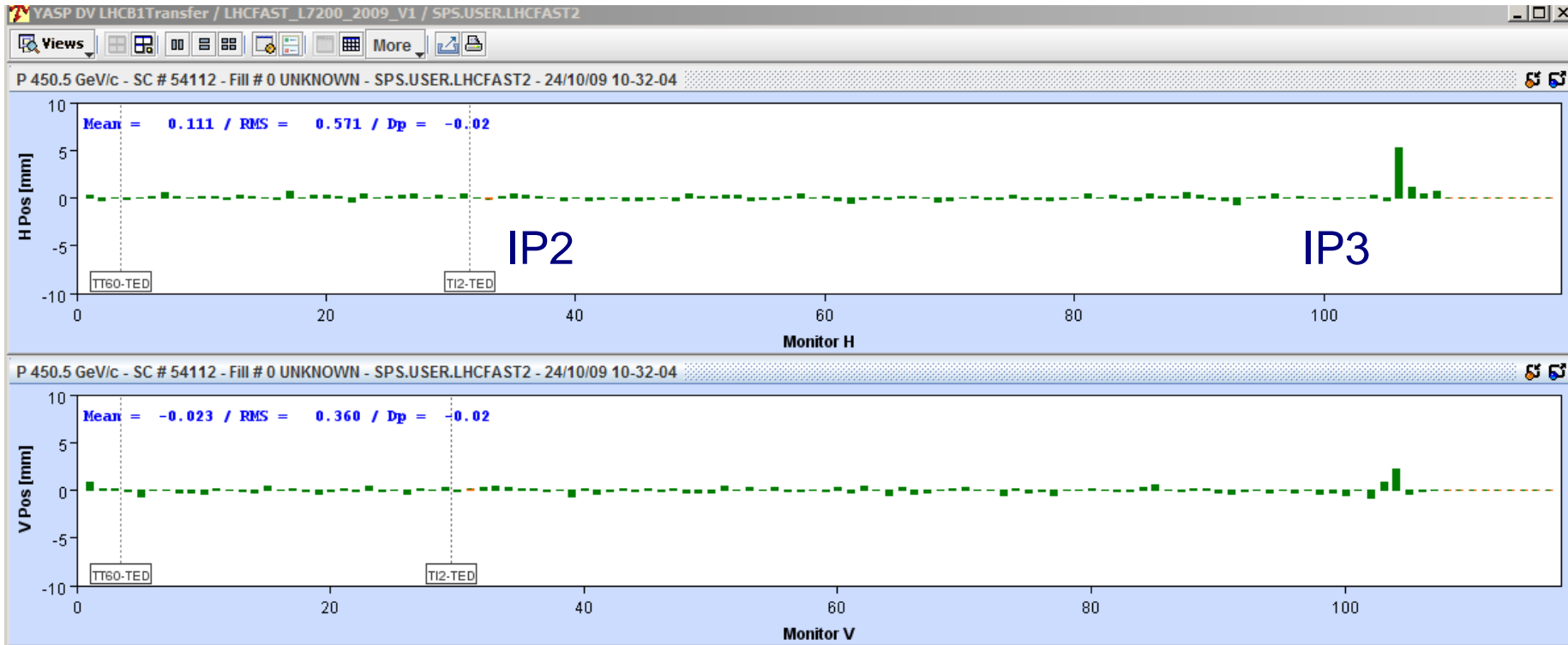
← Injection region screens

TI2/S23 – first trajectory

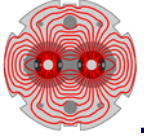




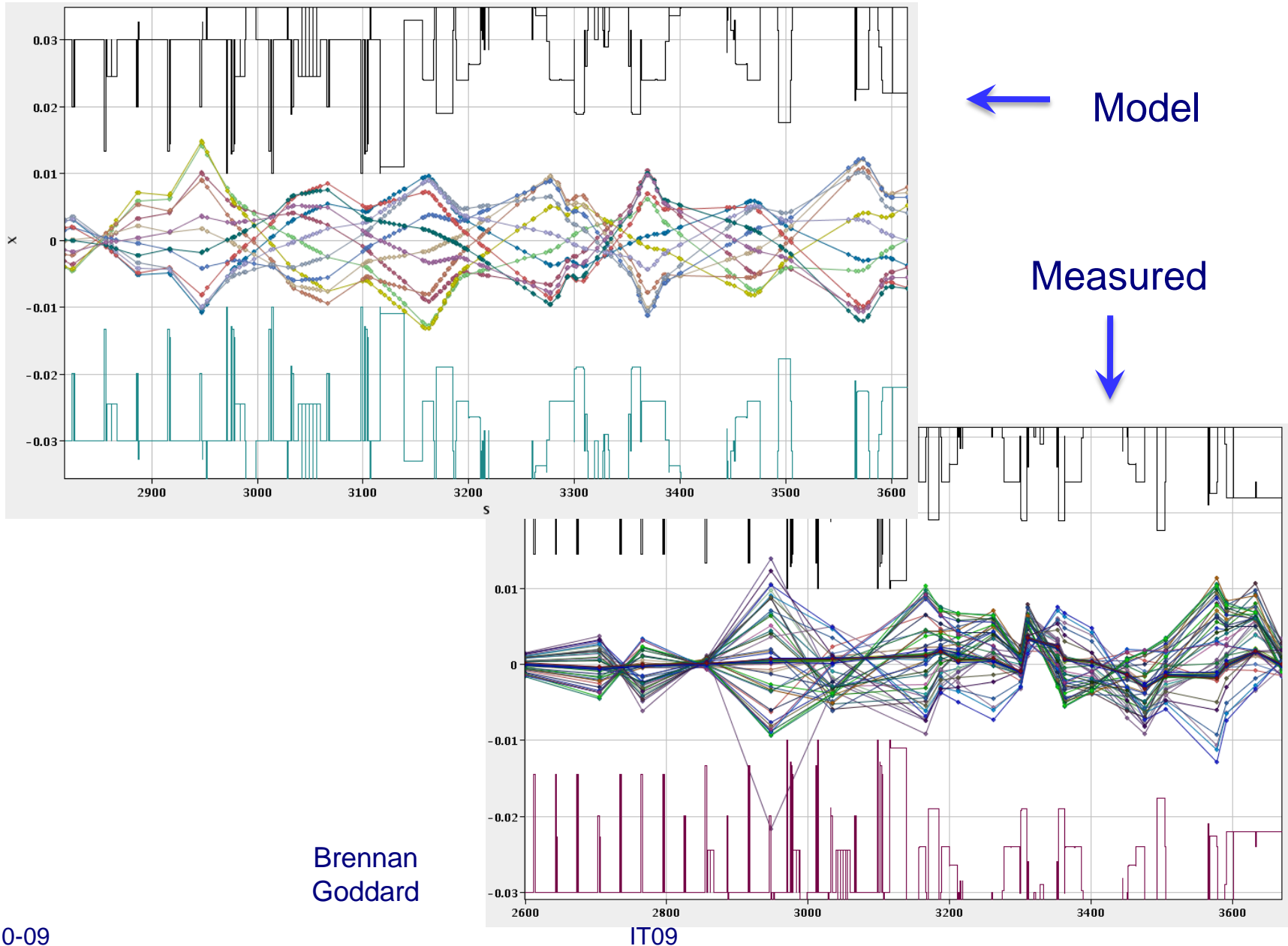
Trajectory difference before/after pre-cycle



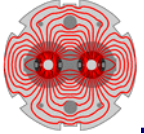
Reproducibility looks very good



Injection region aperture



Brennan
Goddard

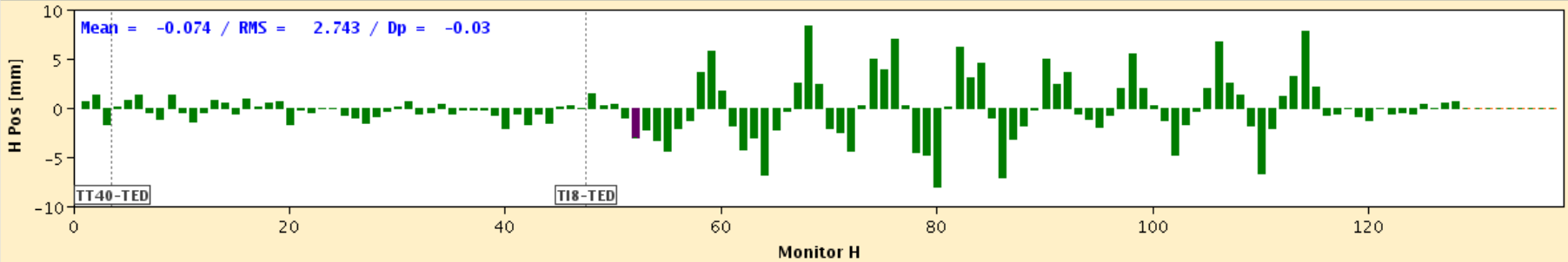


First beam to point 7

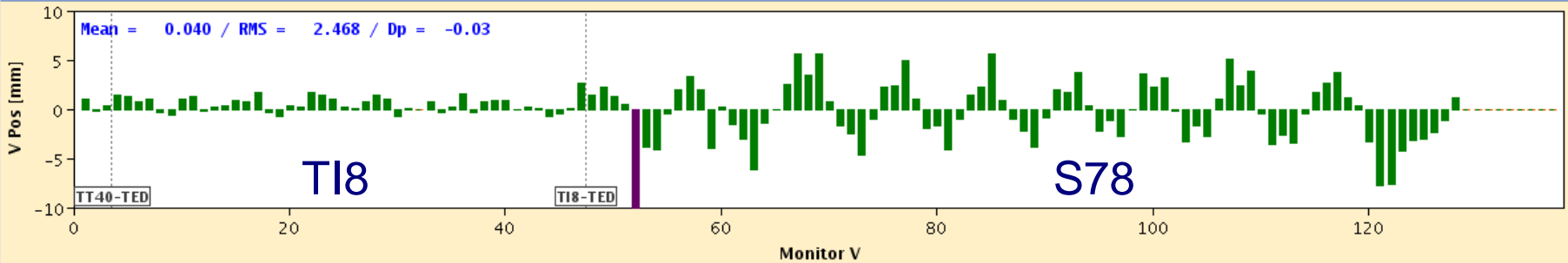
YASP DV LHC B2Transfer / LHCFast_L7200_2009_V1 / SPS.USER.LHCFast2

Views [Icons] More [Icons]

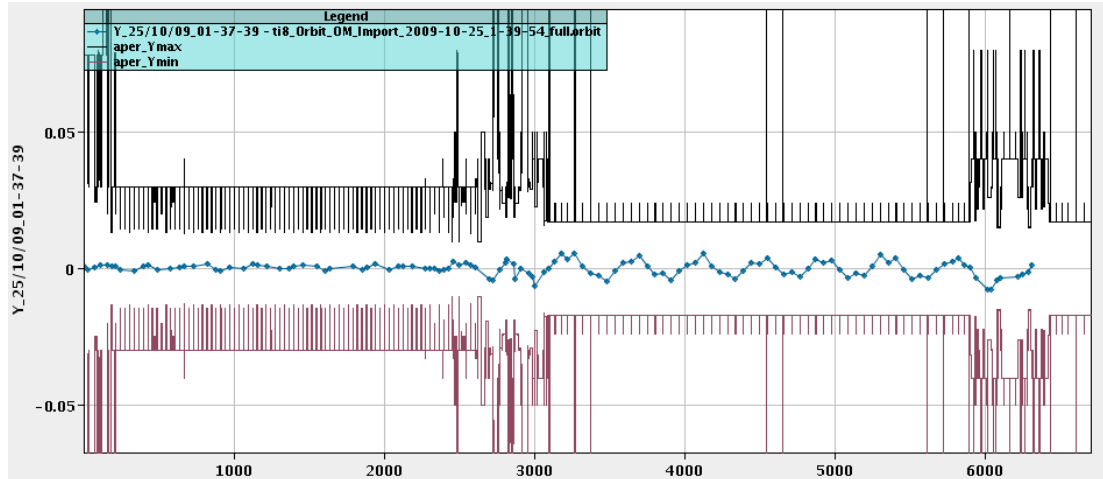
P 450.5 GeV/c - SC # 55273 - Fill # 0 UNKNOWN - SPS.USER.LHCFast2 - 25/10/09 01-37-39



P 450.5 GeV/c - SC # 55273 - Fill # 0 UNKNOWN - SPS.USER.LHCFast2 - 25/10/09 01-37-39

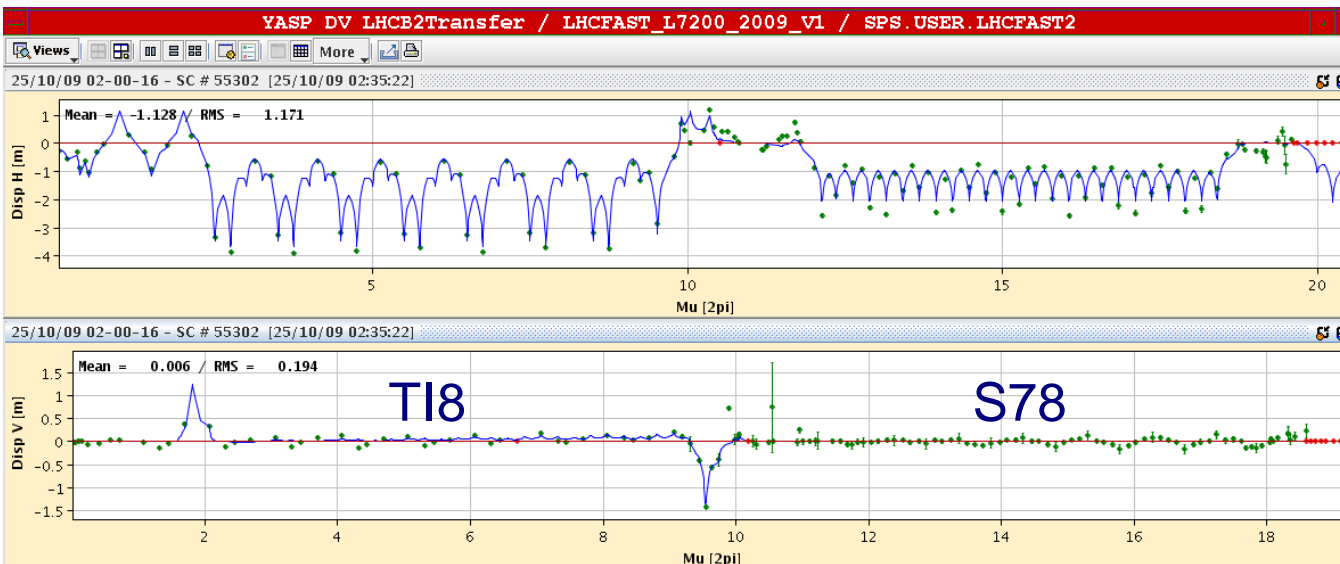


In the aperture model →

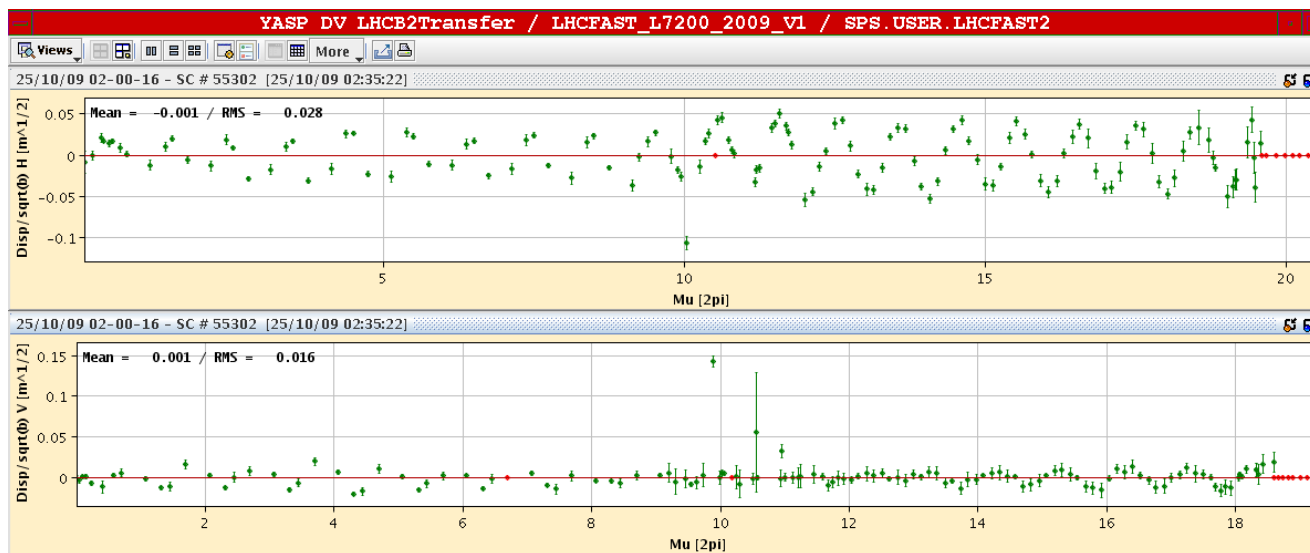




Dispersion TI8/S78



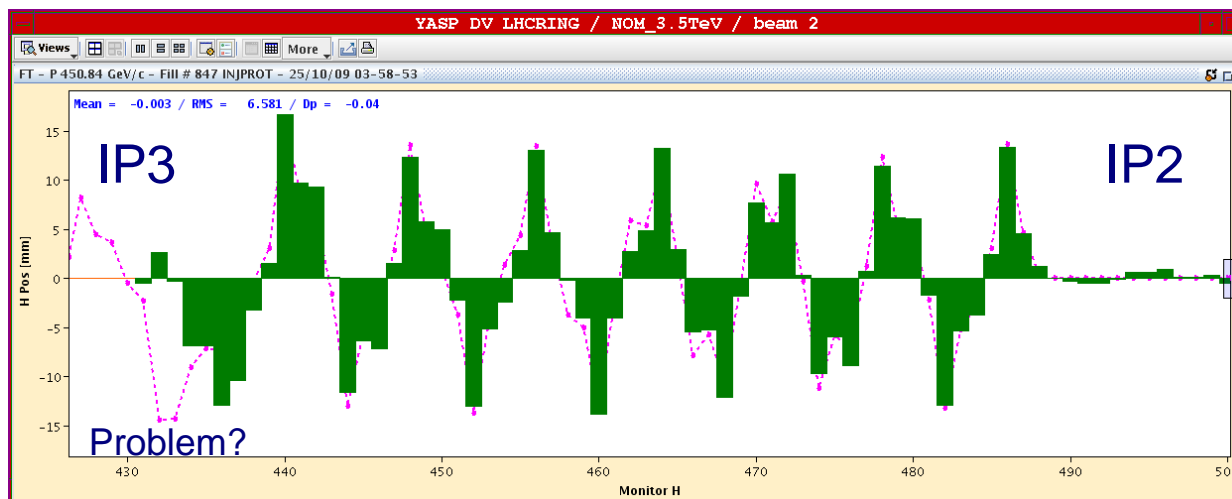
Measured
v. model



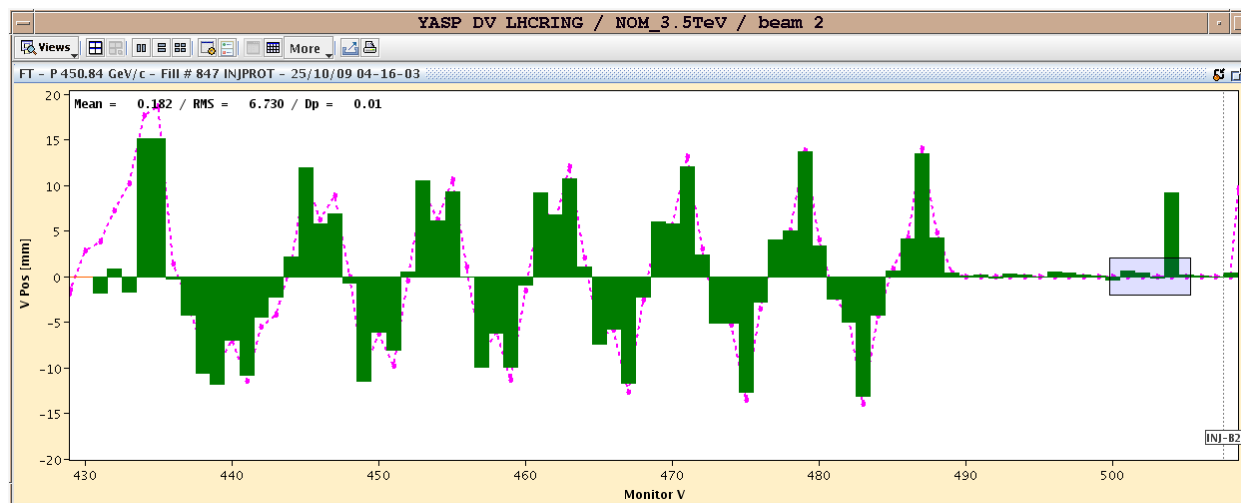
Normalized



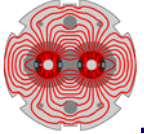
Kick response



← Beam



Green – Measured
Purple - model

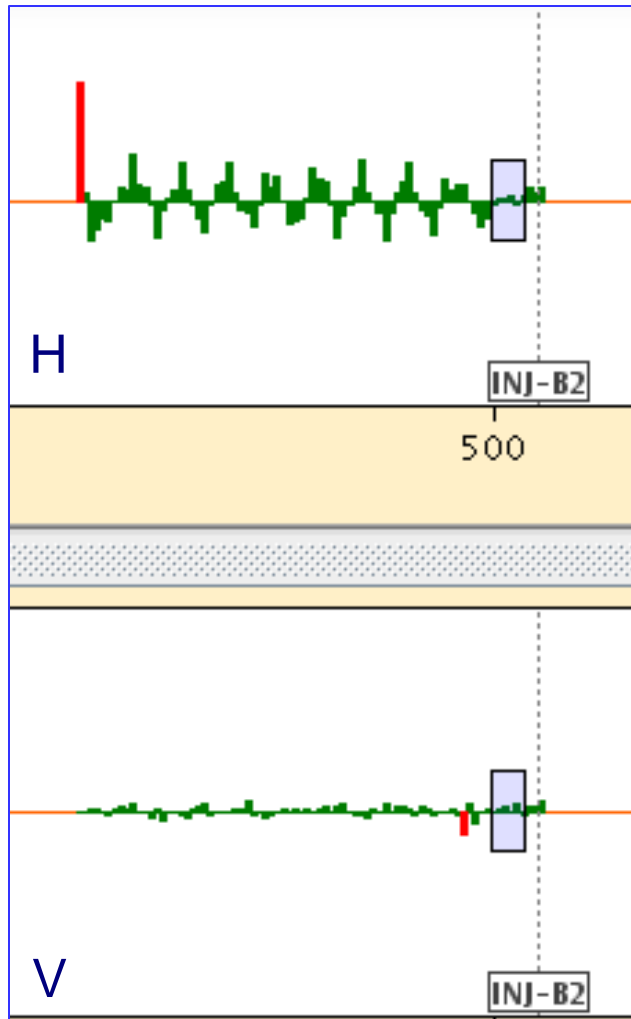


Sunday – Walter starts early...

```

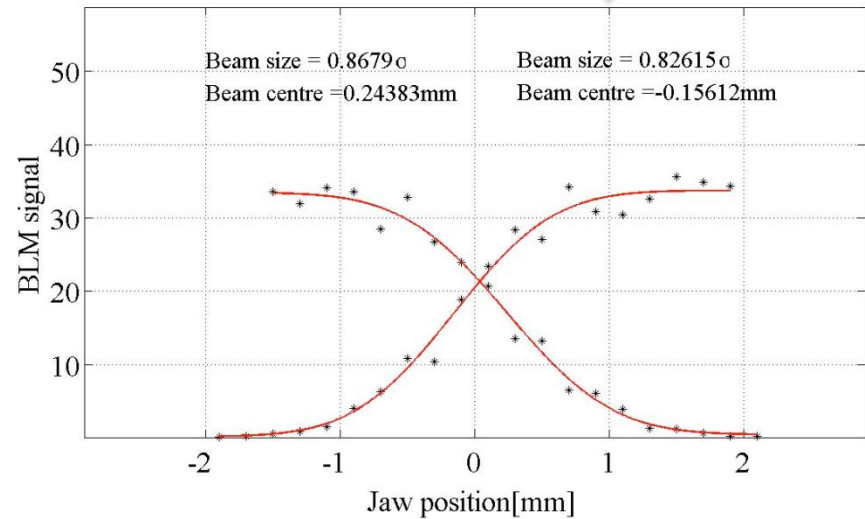
56 06:10 Walter (with an old clock): after the first moments of dismay, start pre cycle of s23.
For this we need to coordinate with the aperture measurements in s78, because the sequence changes the beam process

```



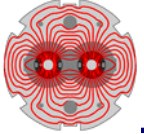
← Beam

Collimator scan ↓

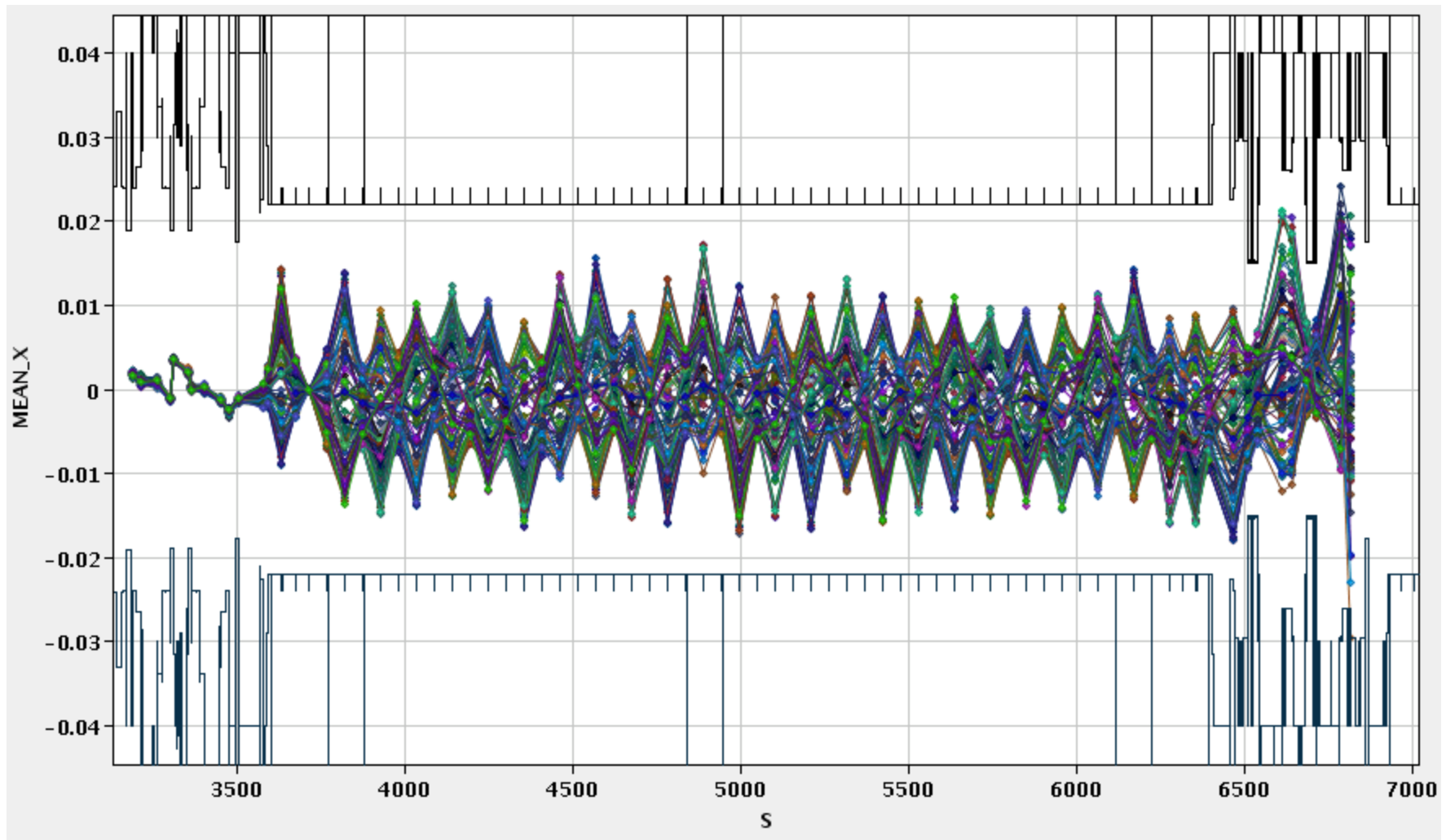


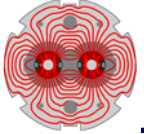
Non-closure of LHCb dipole and compensators with LHCb dipole at full field (rms ~ 1 mm)



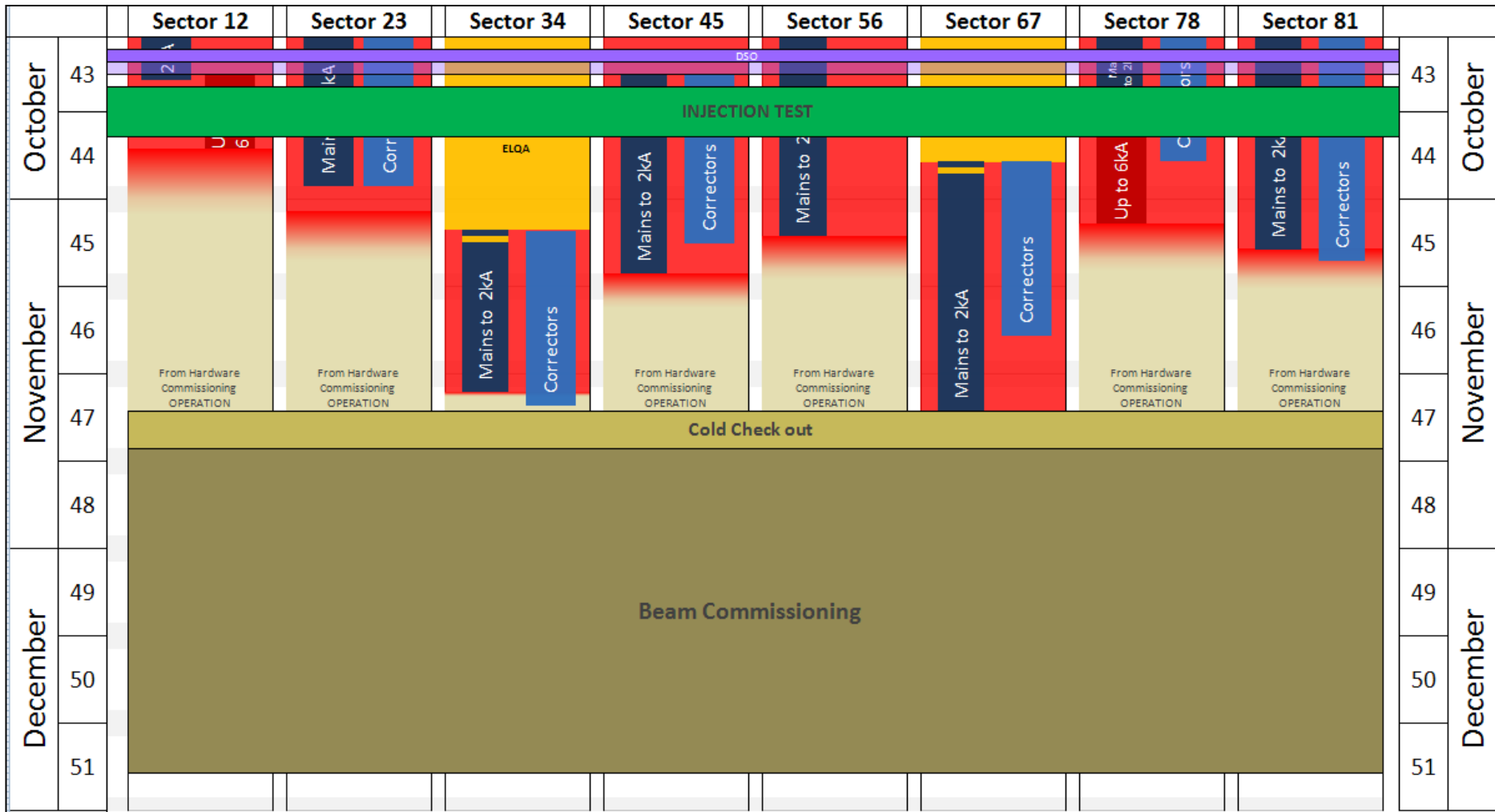


Aperture scans – Sector 23





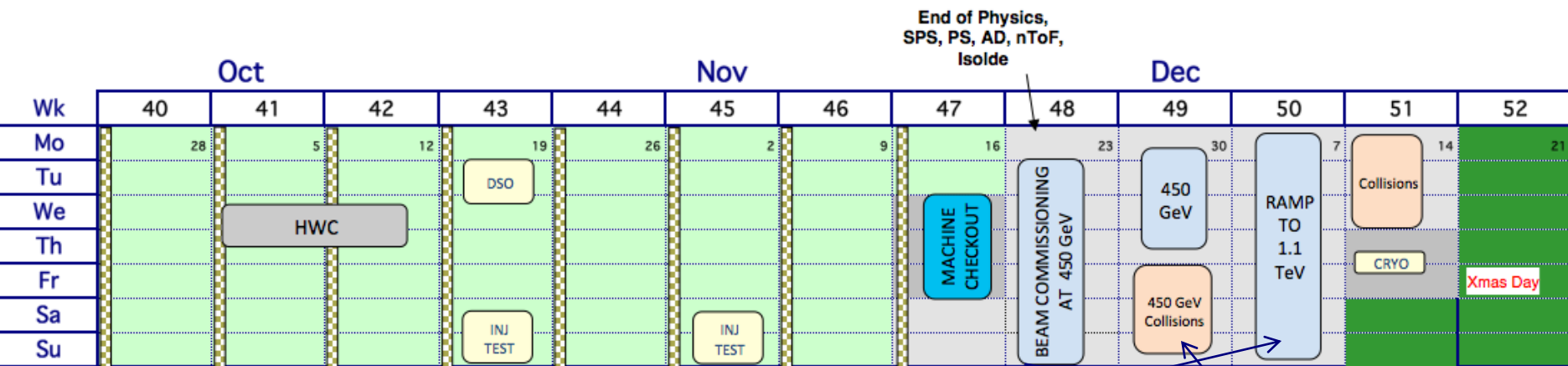
Schedule 2009



Katy Foraz



LHC 2009



End of Physics,
SPS, PS, AD, nToF,
Isolde

- Technical Stop
- Beam commissioning
- SPS et al physics

Probe
Single up to 3×10^{10}

Up to 4×4 with
 5×10^{10} per bunch

- All dates approximate...
- Reasonable machine availability assumed
- Stop LHC with beam $\sim 17^{\text{th}}$ December 2009, restart $\sim 7^{\text{th}}$ January 2010