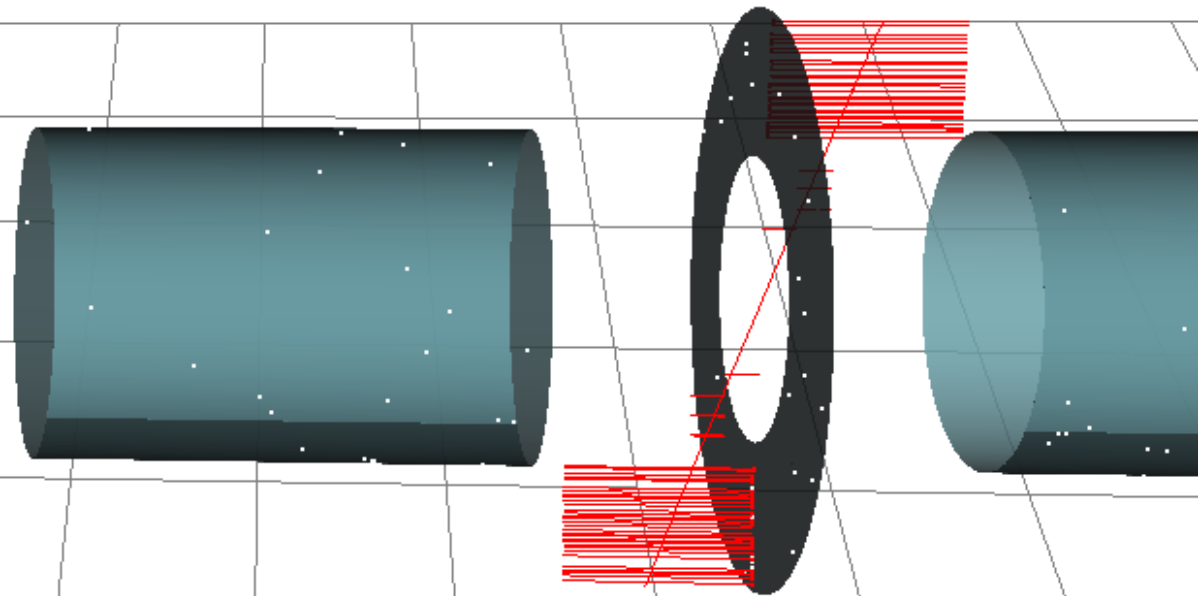




TRT L2 Alignment

John Alison
Andrea Bocci





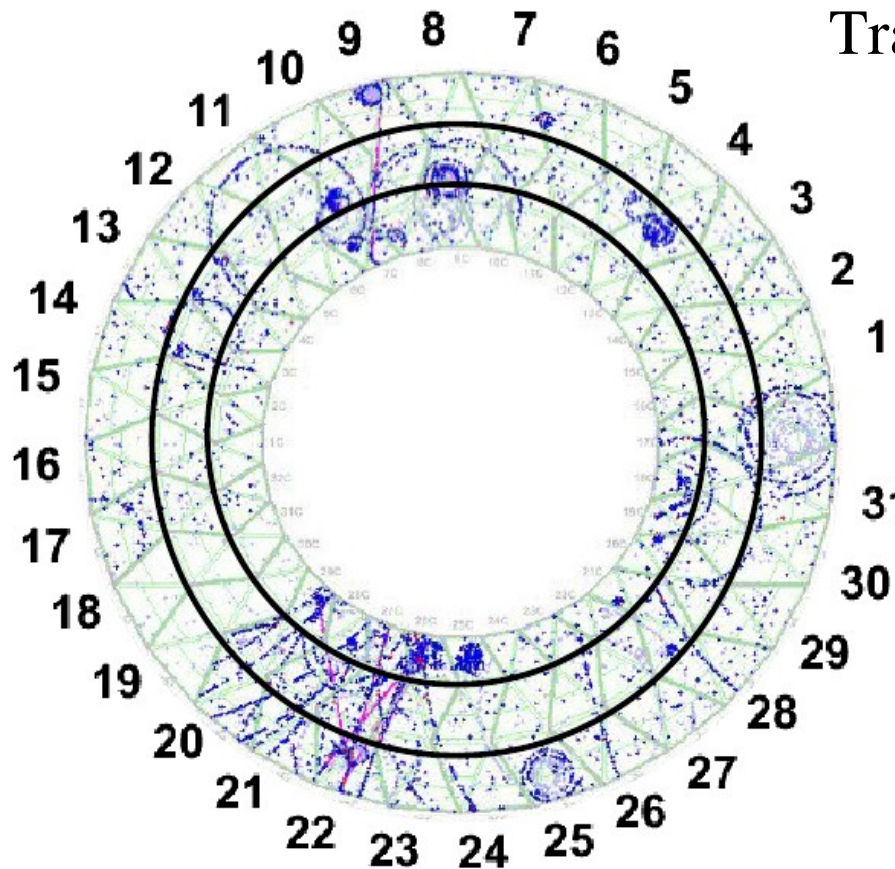
Release Change

Given the dramatic improvements seen in the newer releases with combined tracks TRT L1 alignment needed to be repeated.

- done wrt InDetAlign-ES1-UPD1-01
- results are consistent with L1 from previous release at the micron and 10 micro rad level

TRT L2 Alignment

Modules in the TRT Barrel (both A and C side together) are aligned in 5 DoF



Tracks Selection:

- > 45 TRT hits
- > 2 GeV

1 Reconstruction in rel 15 (tag=15.0.0)

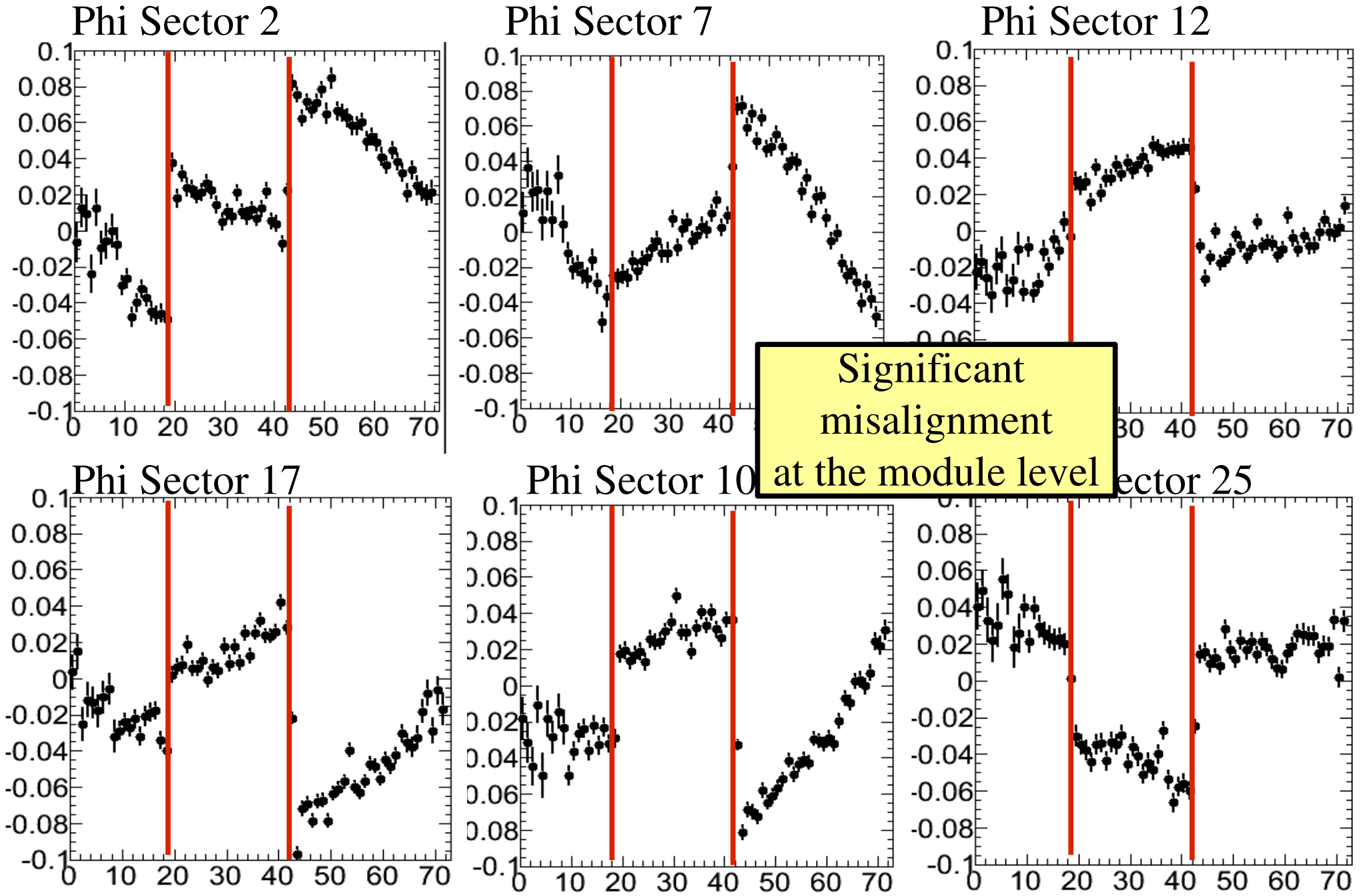
31 Input alignment from 2nd reprocessing

Convergence after 5 iterations.

Number of hits and tracks increased
with alignment



Average Residual Vs Straw Layer





Track Selection for monitoring
> 45 TRT hits
TRT-Only CTB Tracks

In the following:

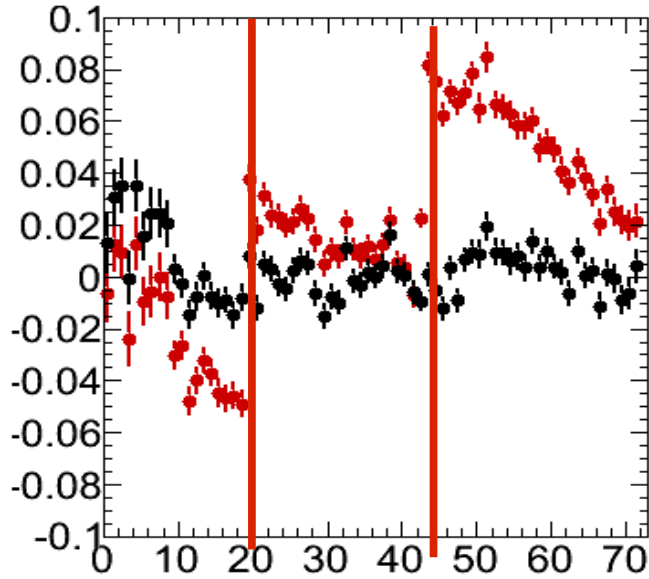
Before L2

After L2

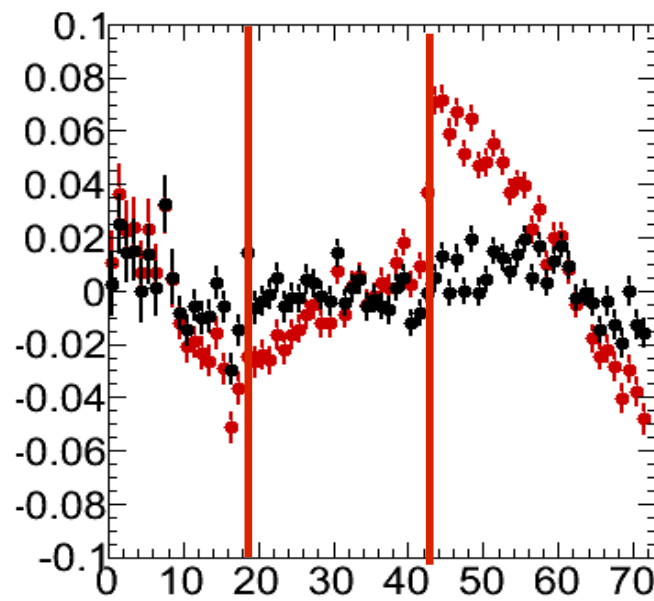
Average Residual Vs Straw Layer



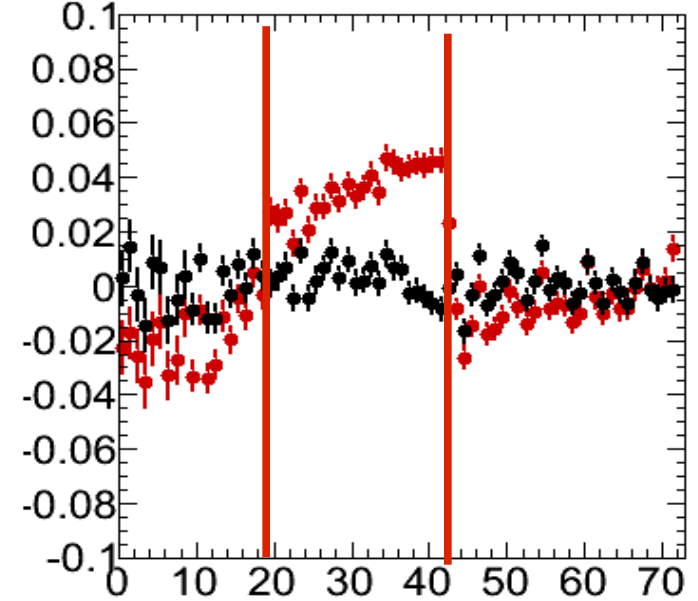
Phi Sector 2



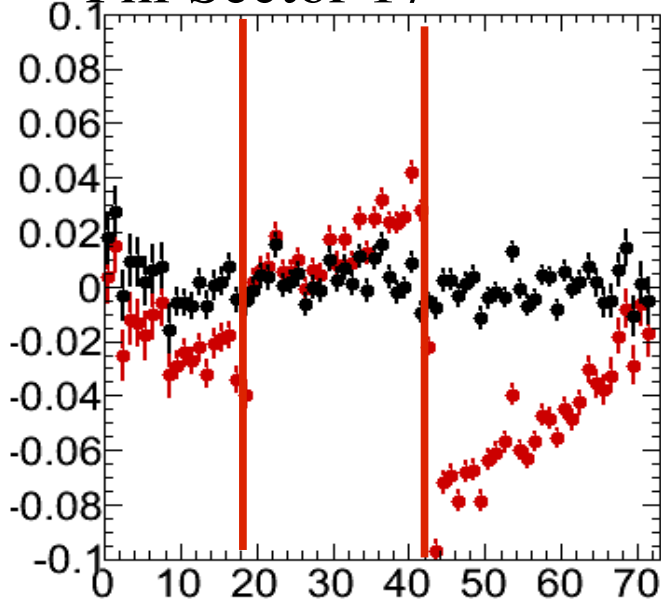
Phi Sector 7



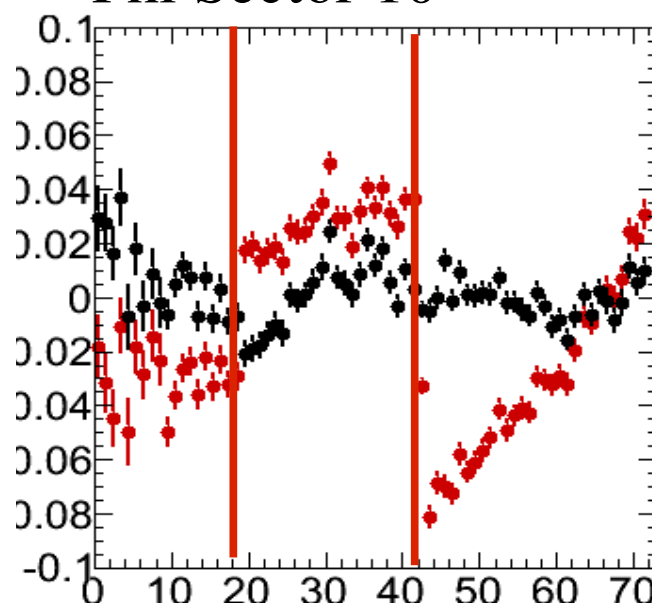
Phi Sector 12



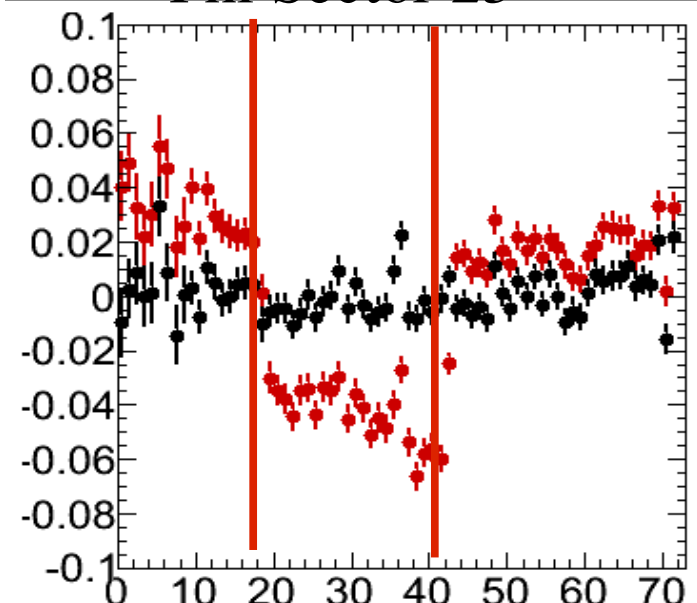
Phi Sector 17



Phi Sector 10

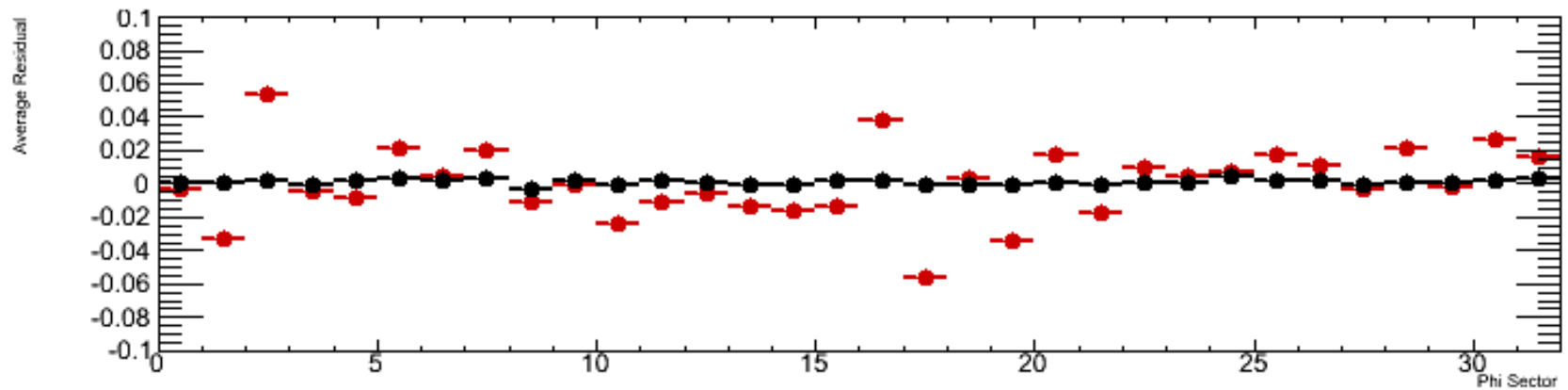
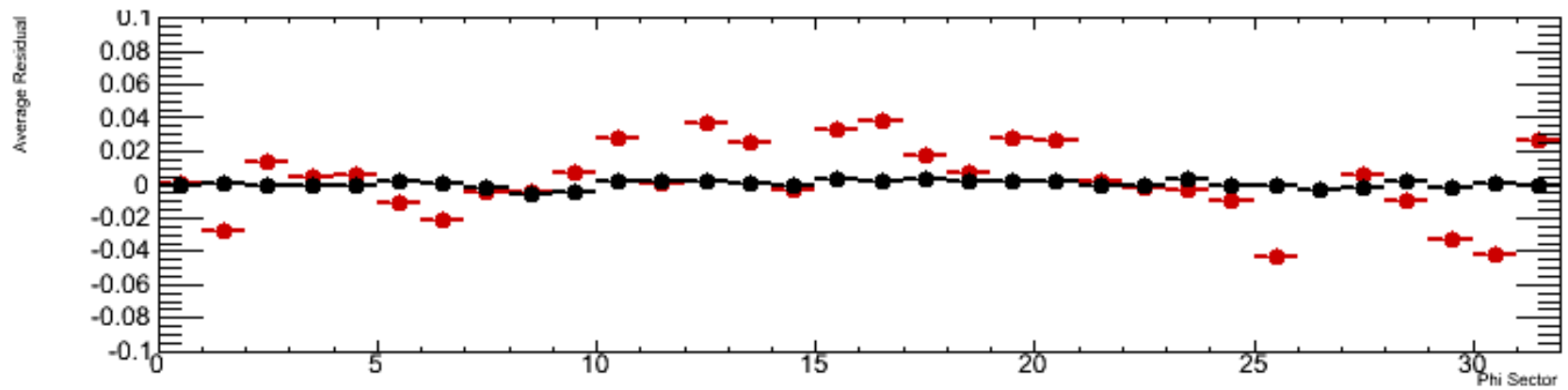
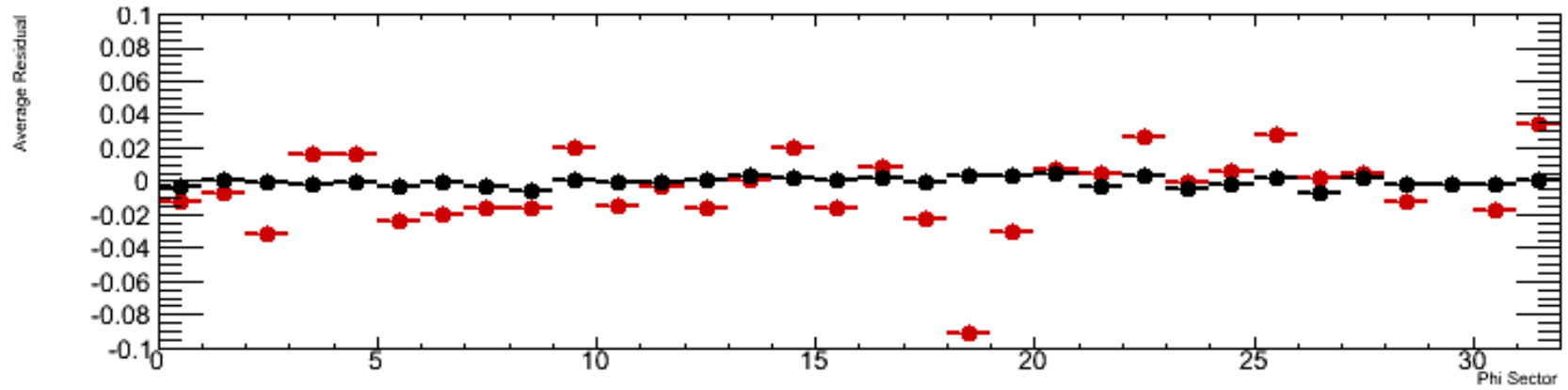


Phi Sector 25



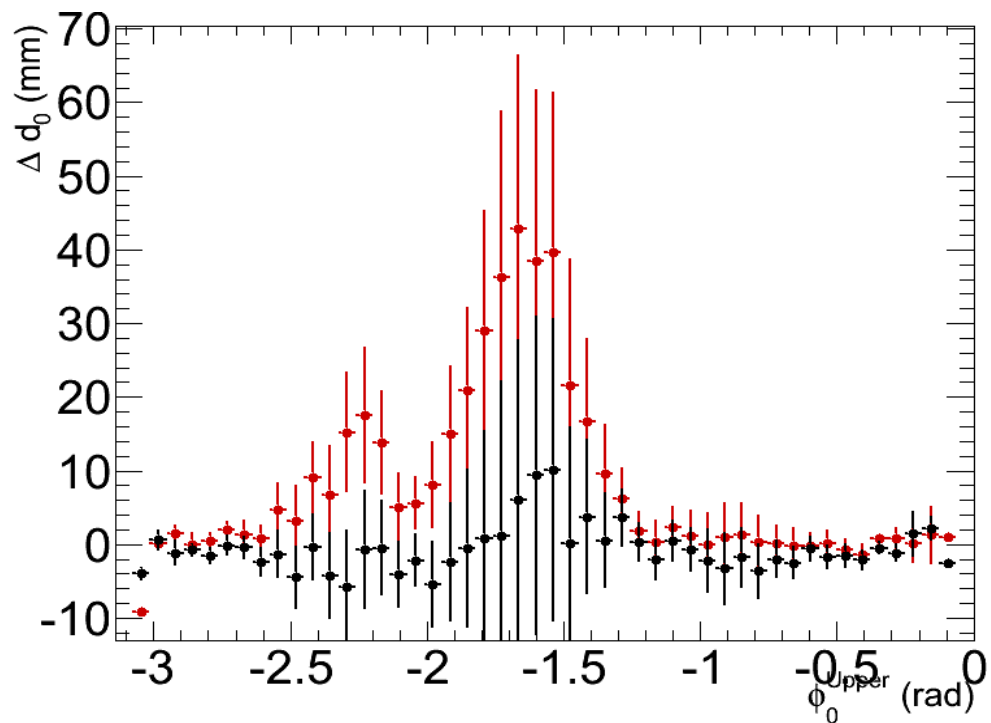
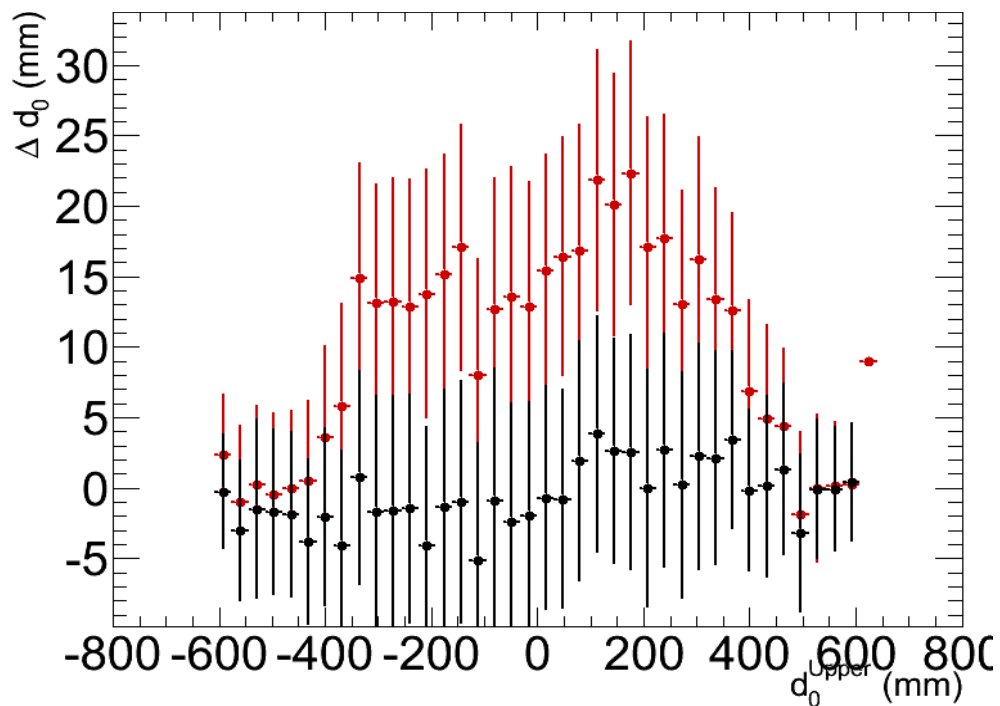
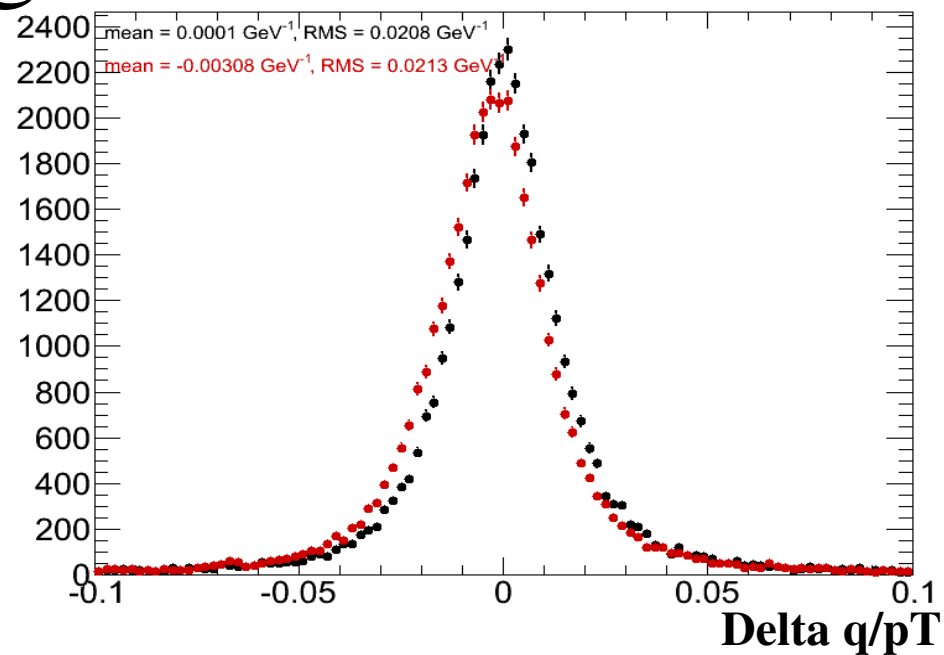
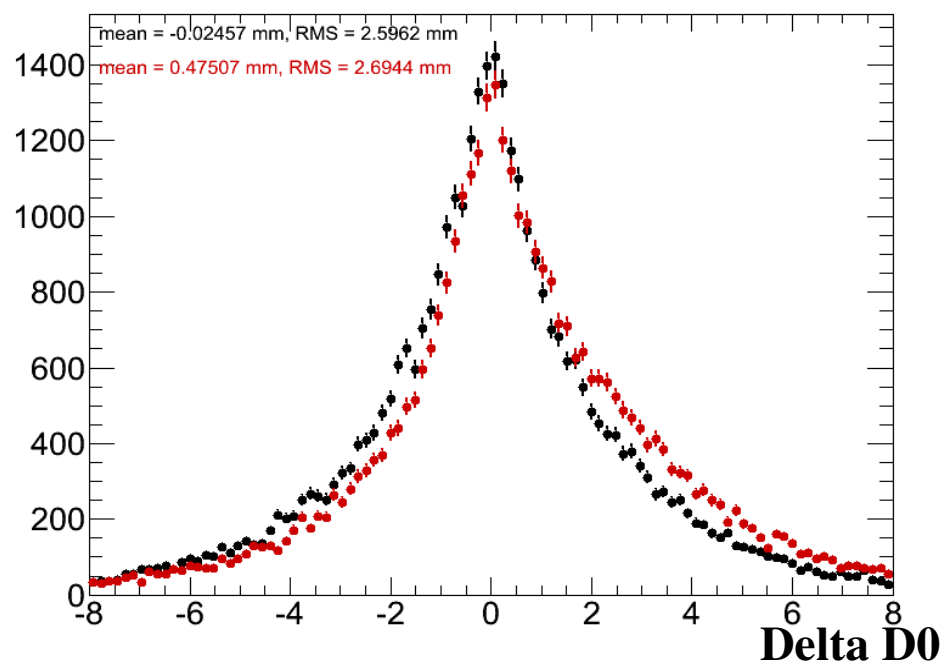


TRT Residuals





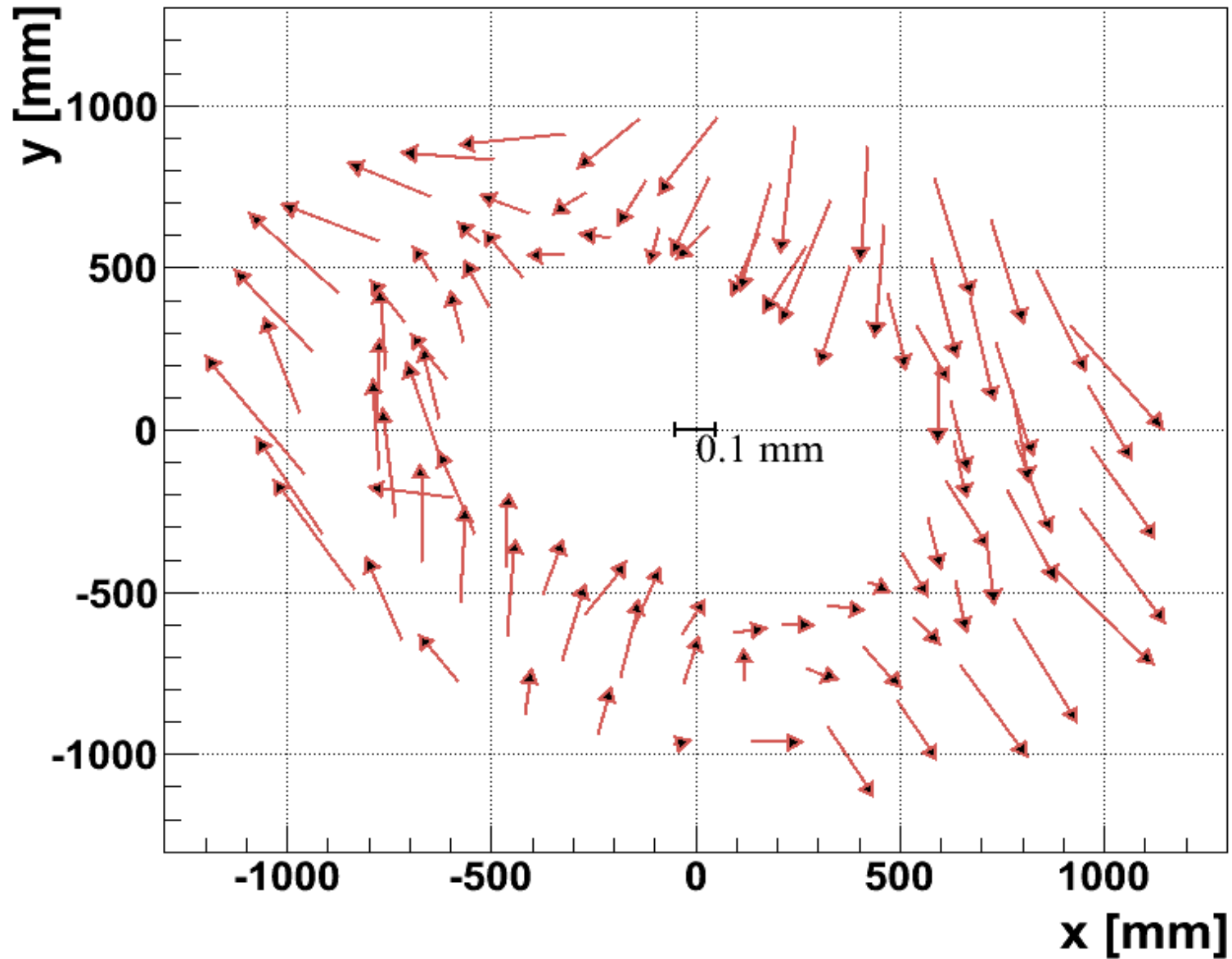
Track Segments





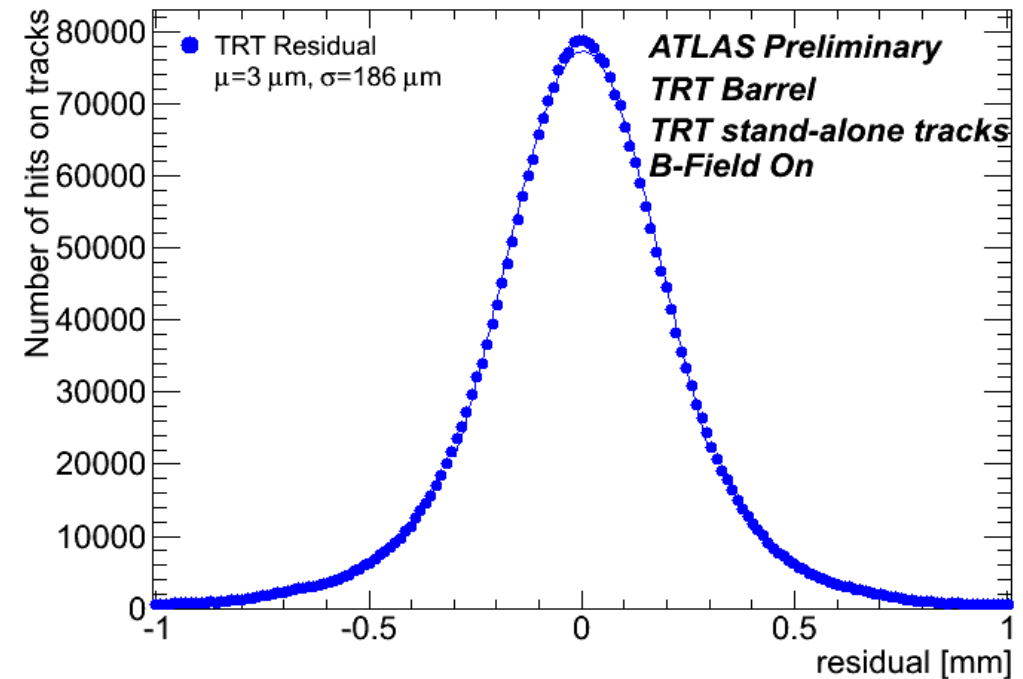
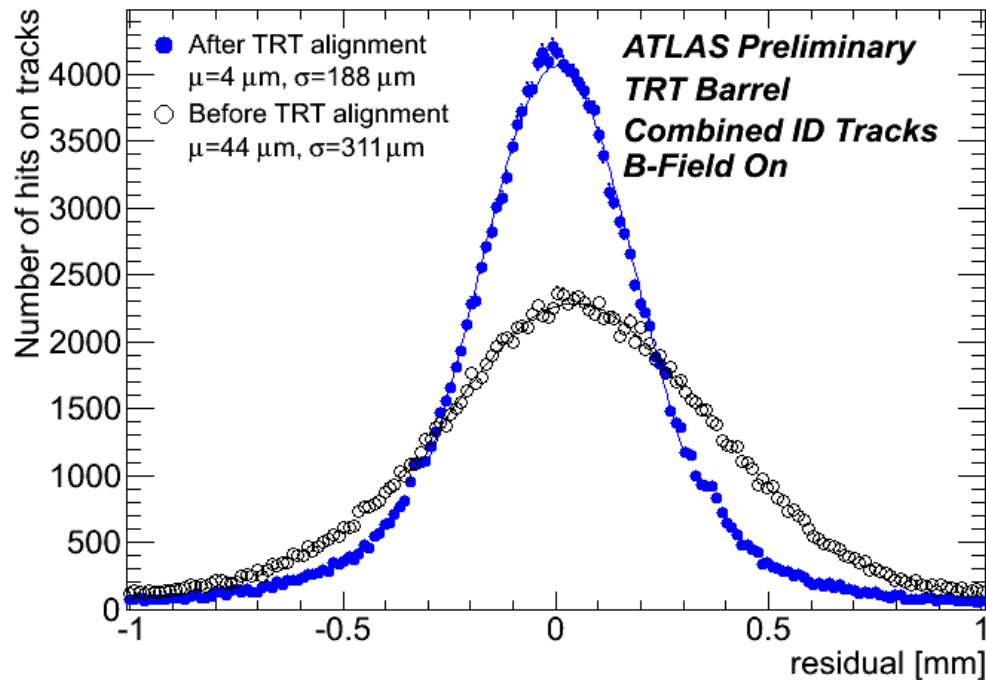
Measured Misalignment

translation x1000



TRT resolution

With the tracking improvements and the TRT L2 alignment the resolution for Combined ID tracks is approaching that of TRT Only



TRT Only:

> 2 Gev, > 45 TRT Hits, Event Phase Cut

Combined:

TRT Only + > 2 Pixel Hits, > 9 SCT Hits

Fit is single Gaussian to core.



Conclusion

- A lot more to do!
- A / C side differences seen, currently not handled in reconstruction
- See Manuel's talk for more validation:
<http://indico.cern.ch/conferenceDisplay.py?confId=55104>

NOTE:

- L2 alignment shown here is different than that in TRT_Cosmic_2008_05
- Results in db are from using 14.5.0.4
 - However validation results are very similar, not compared individual constants yet.



Bonus



Average Residual vs Phi Sector

A-Side

C-Side

