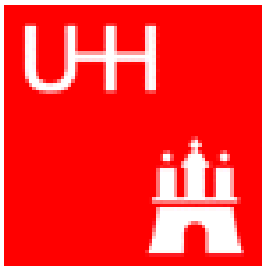


Millepede Alignment Strategy for October reprocessing



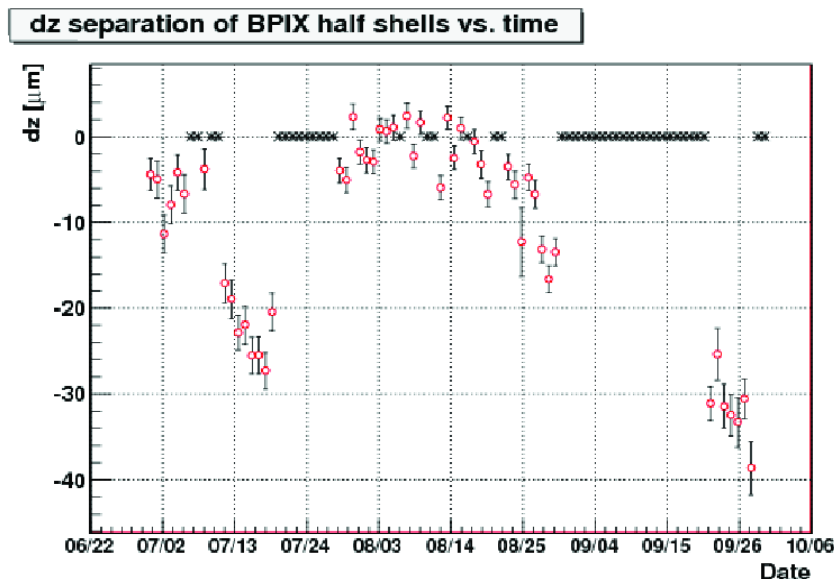
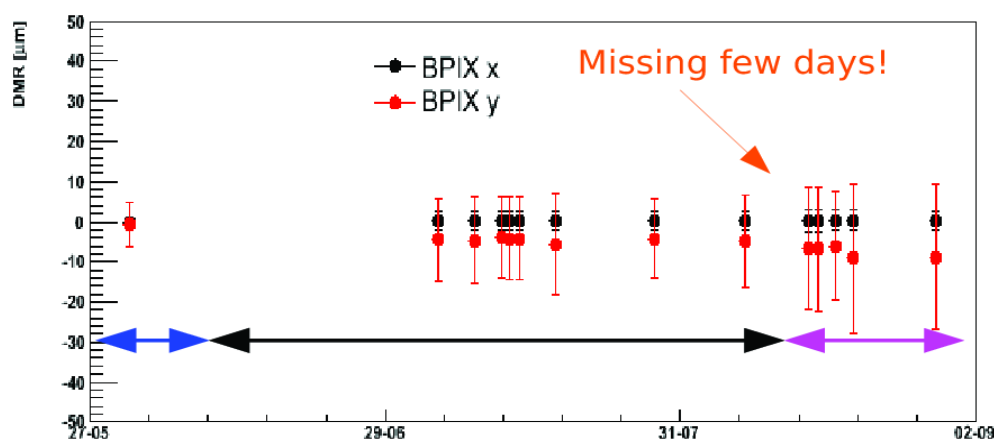
**Jula Draeger
University of Hamburg**





Definition of IOV

- Two main effects:
 - degradation of BPIX DMR in local-v
 - movements of BPIX half-shells



See Ernesto's talk at DPG:

<http://indico.cern.ch/getFile.py/access?contribId=3&sessionId=5&resId=0&materialId=slides&confId=82593>

- Different iov ranges for the pixel barrel layers:

period A: 132440 - 139964 [2010.03.30-2010.07.11]
 period B: 139965 - 140399 [2010.07.11-2010.07.19]
 period C: 140400 - 143487 [2010.07.19-2010.08.21]
 period D: 143488 - 146427 [2010.08.21-2010.09.22]
 period E: 146428 - 148126 [2010.09.22-2010.10.18]
 period F: 148127 - infinity [2010.09.18-infinity]

- Samples:MinBias

- /MinimumBias/Commissioning10-TkAlMinBias-Sep17ReReco_v2/ALCARECO
- /MinimumBias/Run2010A-TkAlMinBias-Sep17ReReco_v2/ALCARECO
- /MinimumBias/Run2010B-TkAlMinBias-v2/ALCARECO
- Only even run numbers for alignment -->(99Mio. Events)

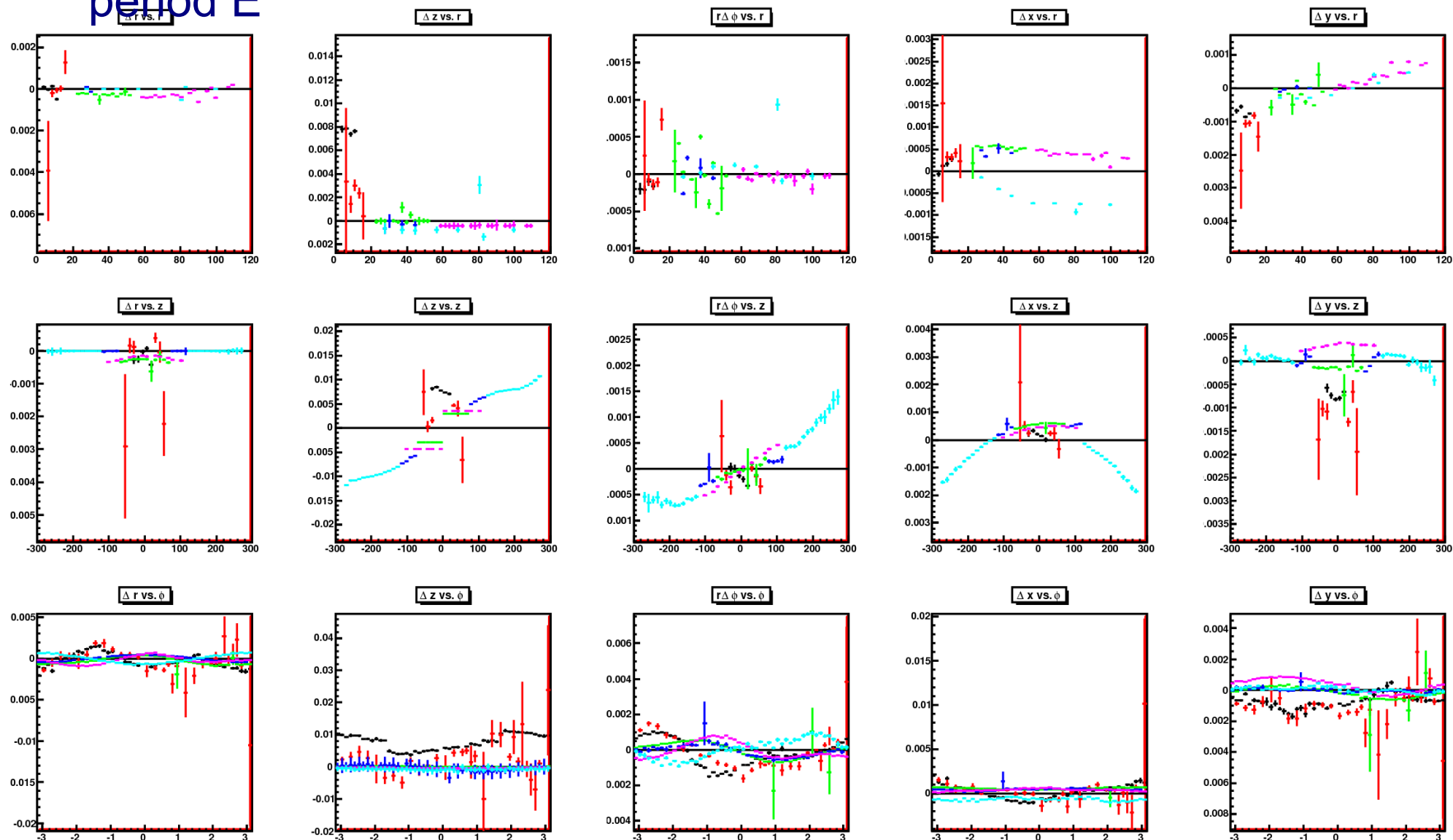
- TkAlMuonIsolated:

- /MinimumBias/Commissioning10-TkAlMuonIsolated-Sep17ReReco_v2/ALCARECO
- /Mu/Run2010A-TkAlMuonIsolated-Sep17ReReco_v2/ALCARECO
- /MinimumBias/Run2010B-TkAlMuonIsolated-v2/ALCARECO (10Mio. events)

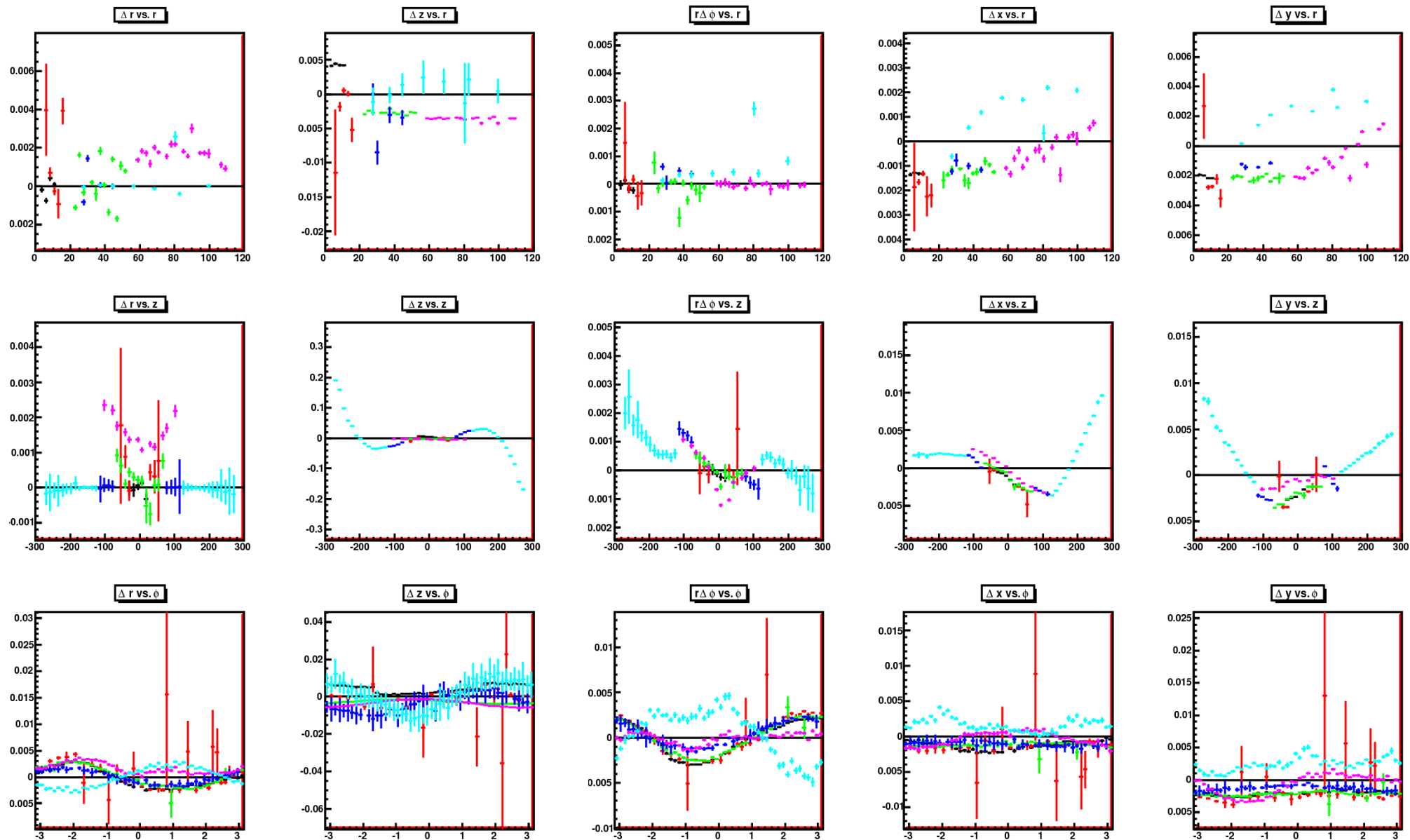
- Limiting factor are again the cosmics:
 - 2Mio CRAFT10 comsics reprocessed in CMSSW38X:
 - Included in /Cosmics/Commissioning10-TkAlCosmics0T-Sep17ReReco_v2/ALCARECO ? → Justyna
 - RunA included in RunB ??? → Justyna
 - /Cosmics/Run2010B-TkAlCosmics0T-Sep17ReReco_v2/ALCARECO
 - Prompt reco Run2010B → 400k events

- A) Full tracker alignment in period E and 5 alignment of only the pixel barrel layers for the different iov ranges over the summer
- B) Full tracker alignment over the whole period but with different labels for the pixel barrel layers over the summer according to the iov ranges (suggestion from Claus)
 - Advantage of using all cosmics taken during the summer +slightly less work → one MillePede job (manipulating output to get 6 db-files) → successfully tested and ready to use
 - Caveat: only valid if strip geometry stable

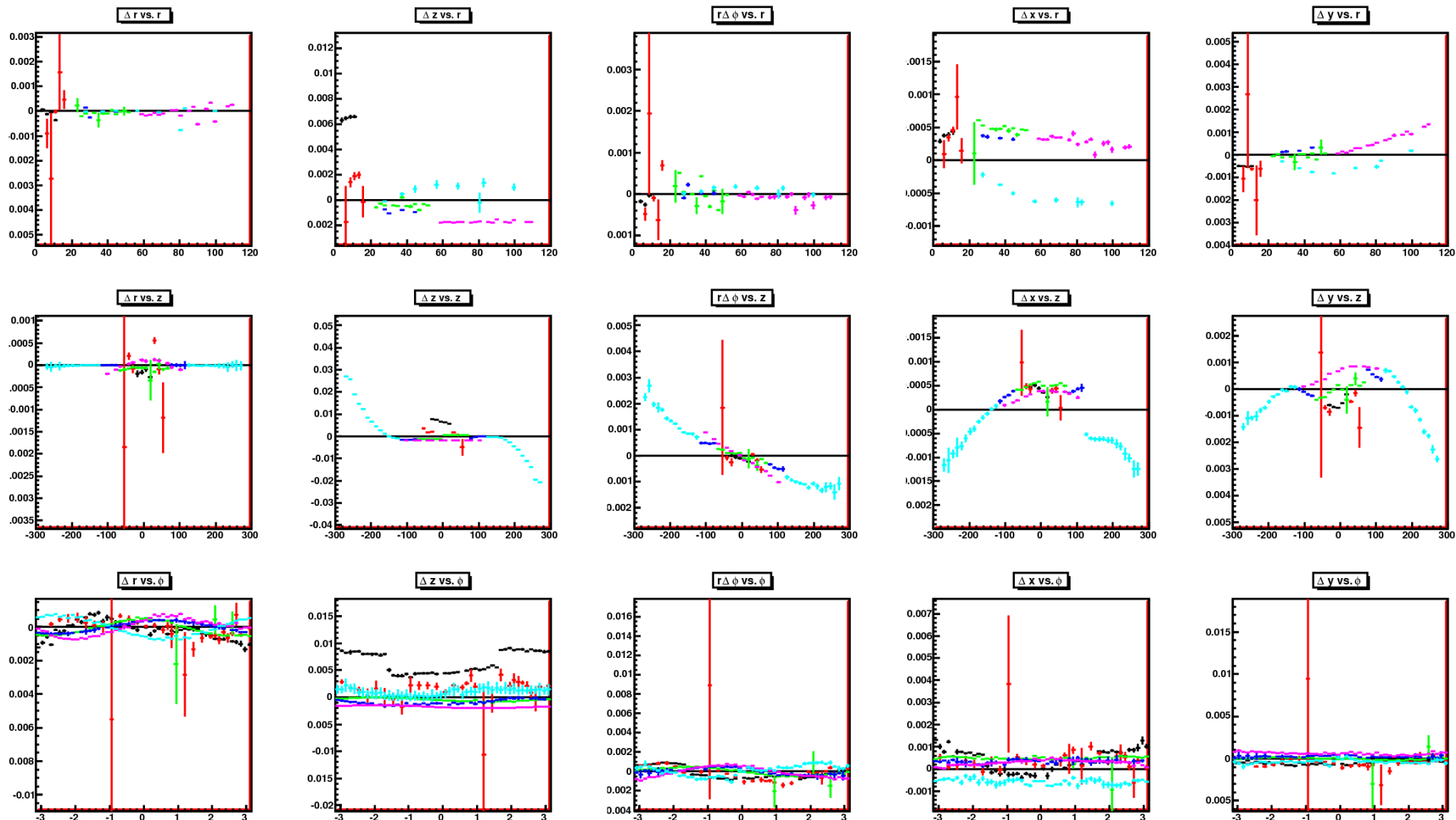
- CosMin approach sing CRAFT10 cosmics and MinBias RunB period E



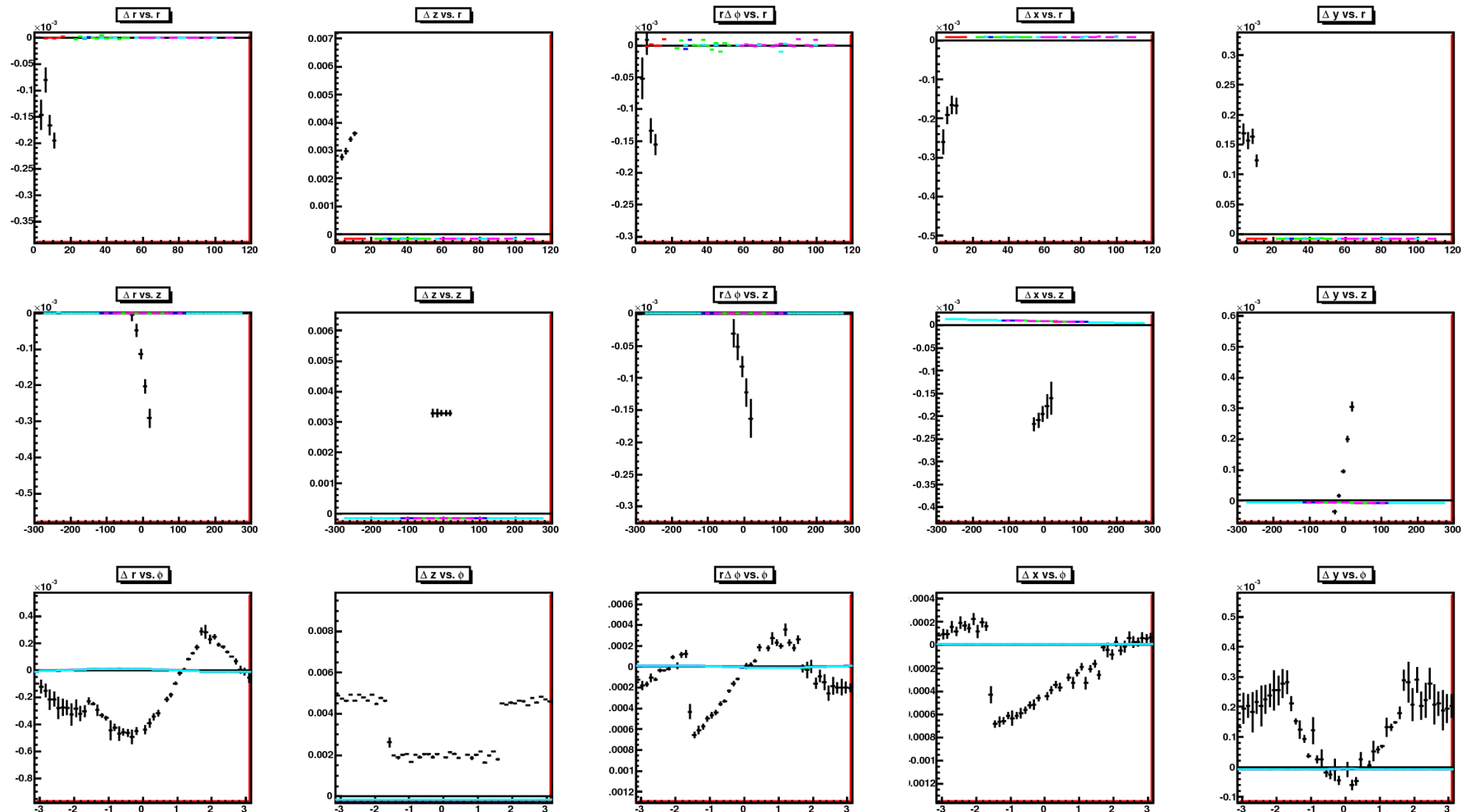
- * Cosmics during(only 170k) collisions and TkAllsoMu from RunB (10Mio.)



- Combination of CRAFT10, CDC, MinBias and TkAlMulso from runB period E



- Patched MP version to test Claus setup suggestion (full alignment only diff labels for pixel barrel layer) comp. Period A and E



- Known biases (momentum dependent?!?!) visible for different tests
- Combined data approach shows bias of 300 micron in TEC z
- Method B works as expected and should be used to profit from the complete cosmics statistic
- Run only period E alignment as reference check
- Need for complete dataset list for cosmics (and I am still puzzled concerning the calibration/global tags to use)