Status report

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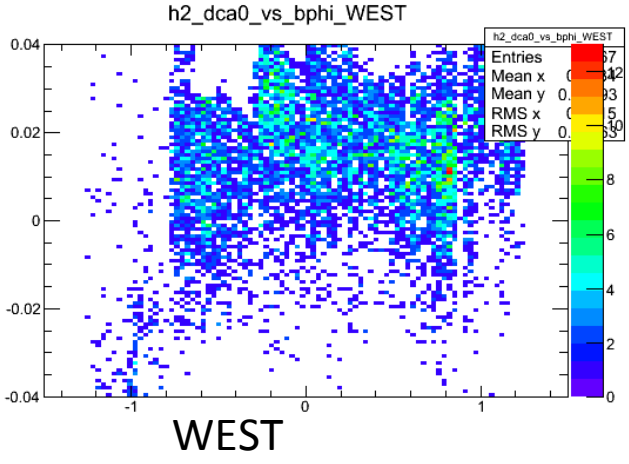
1. Ladder by ladder alignment in run12 p+p at 200GeV for production. (argent)
   - Needed to obtained several offsets
   - Needed to analyze Zero-field runs
   - Offsets were wrong several times…
2. Alignment QA in run11 Au+Au
3. (Simulation)

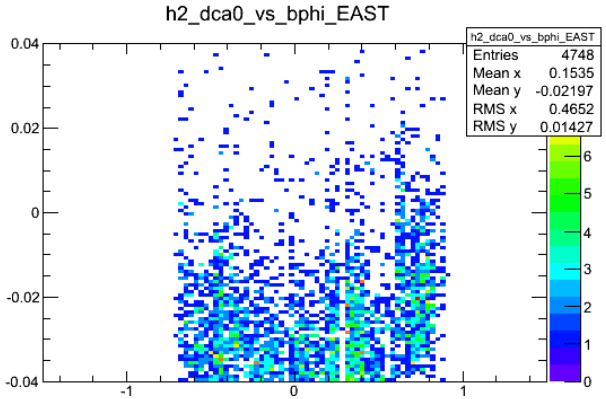
1. Ladder by ladder alignment in run12 p+p

- Problem was the confusing calculation of the offsets.
  - OffsetVtxToCnt = CNT beam center - VTX beam center
  - OffsetEastToWest = East beam center - West beam center
  - BeamCenter = Current beam center + OffsetVtxToCnt
- There may be still offset problem. (will check closely)

DCA from Beam Center vs. φ



WEST

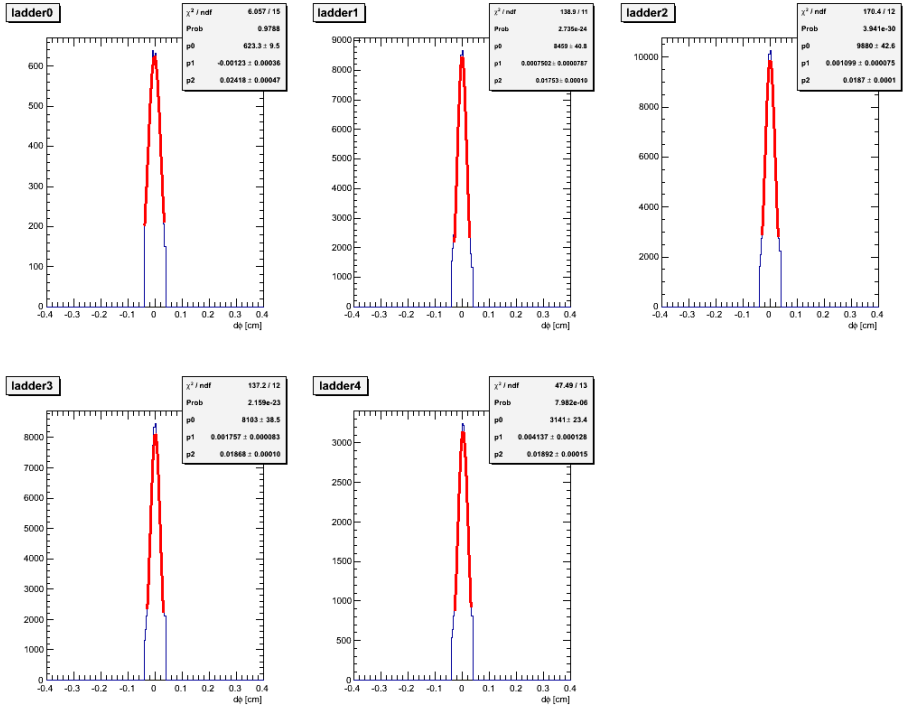


EAST

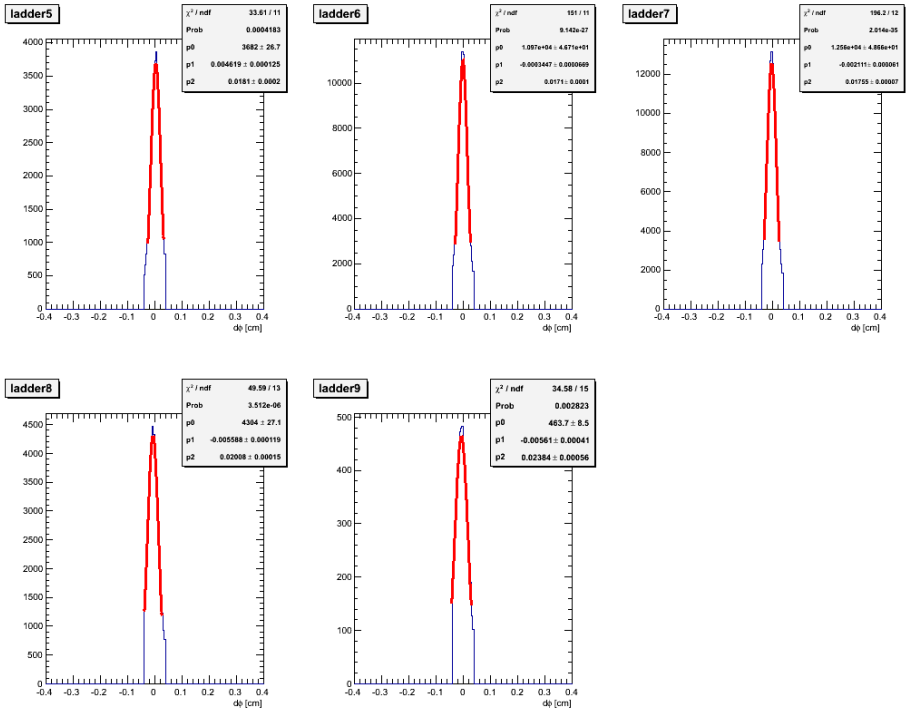
2. Alignment QA in run11 Au+Au (ex. run348030)

- dϕ peak at ladder by ladder

B0 West

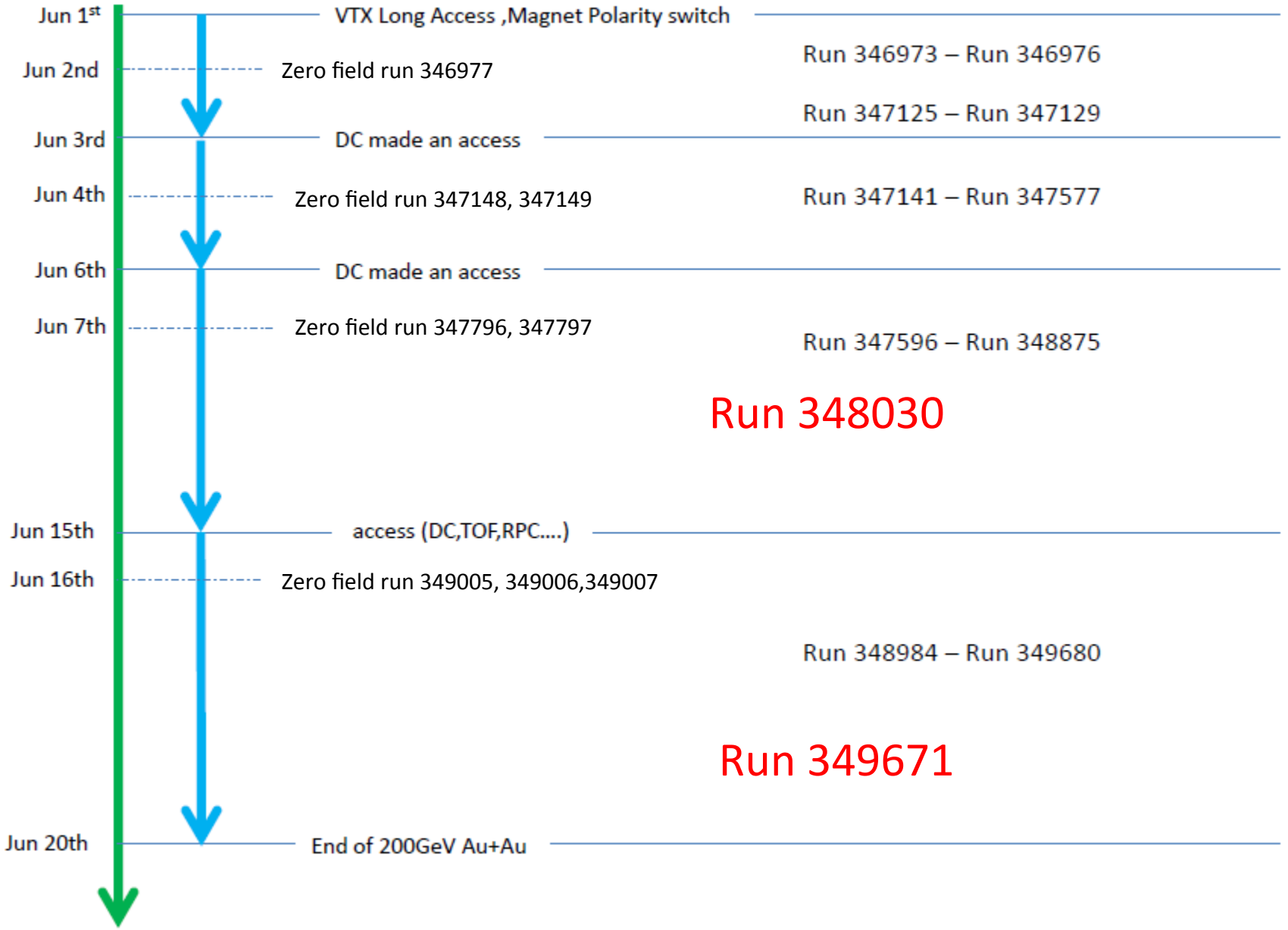


B0 East



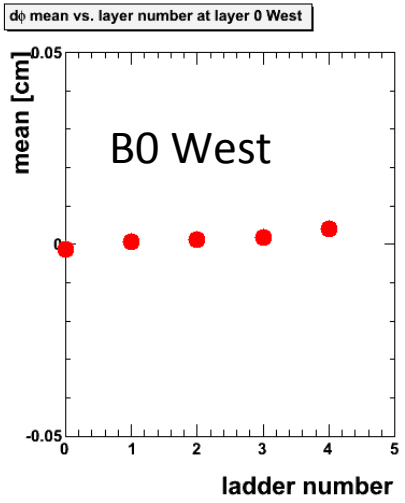
Using primary vertex not beam center.

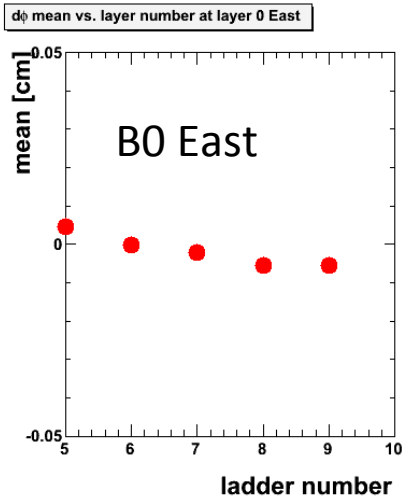
RUN11 Au+Au 200GeV run after VTX 4th repair

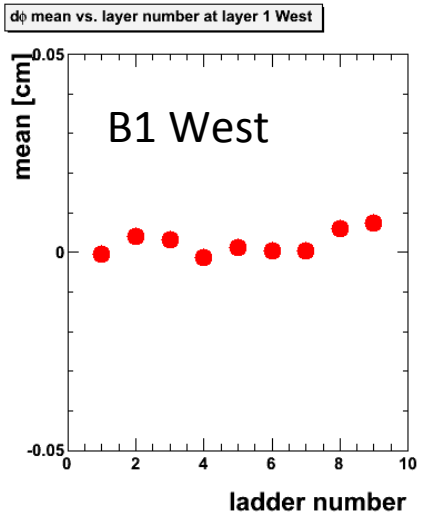


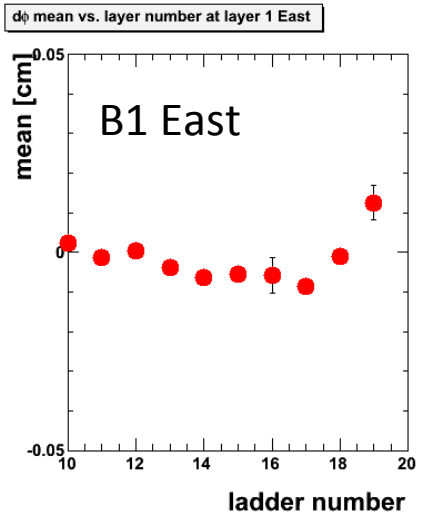
Alignment QA in run11 Au+Au (ex. run348030)

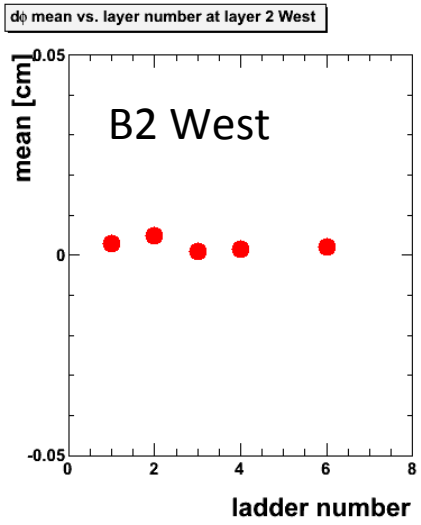
- dϕ peak vs. ladder

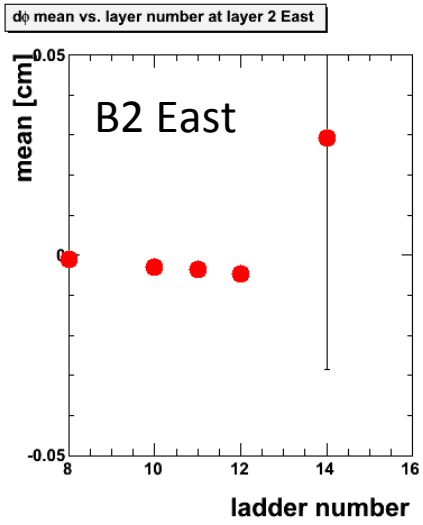


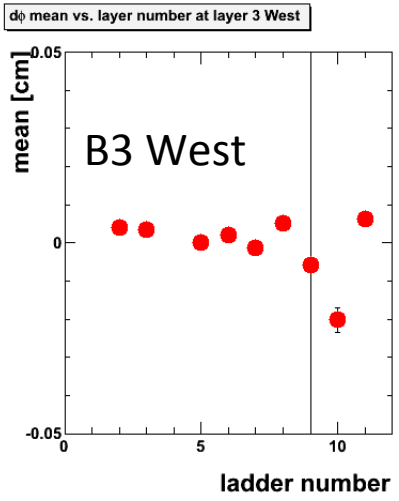


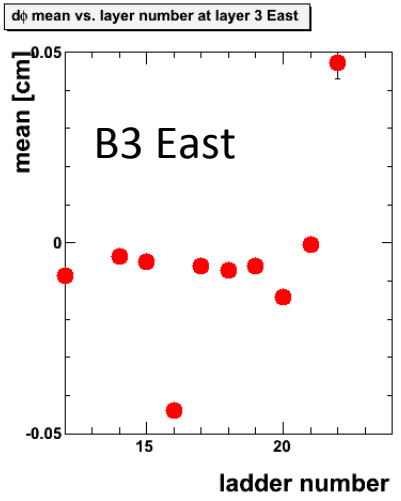






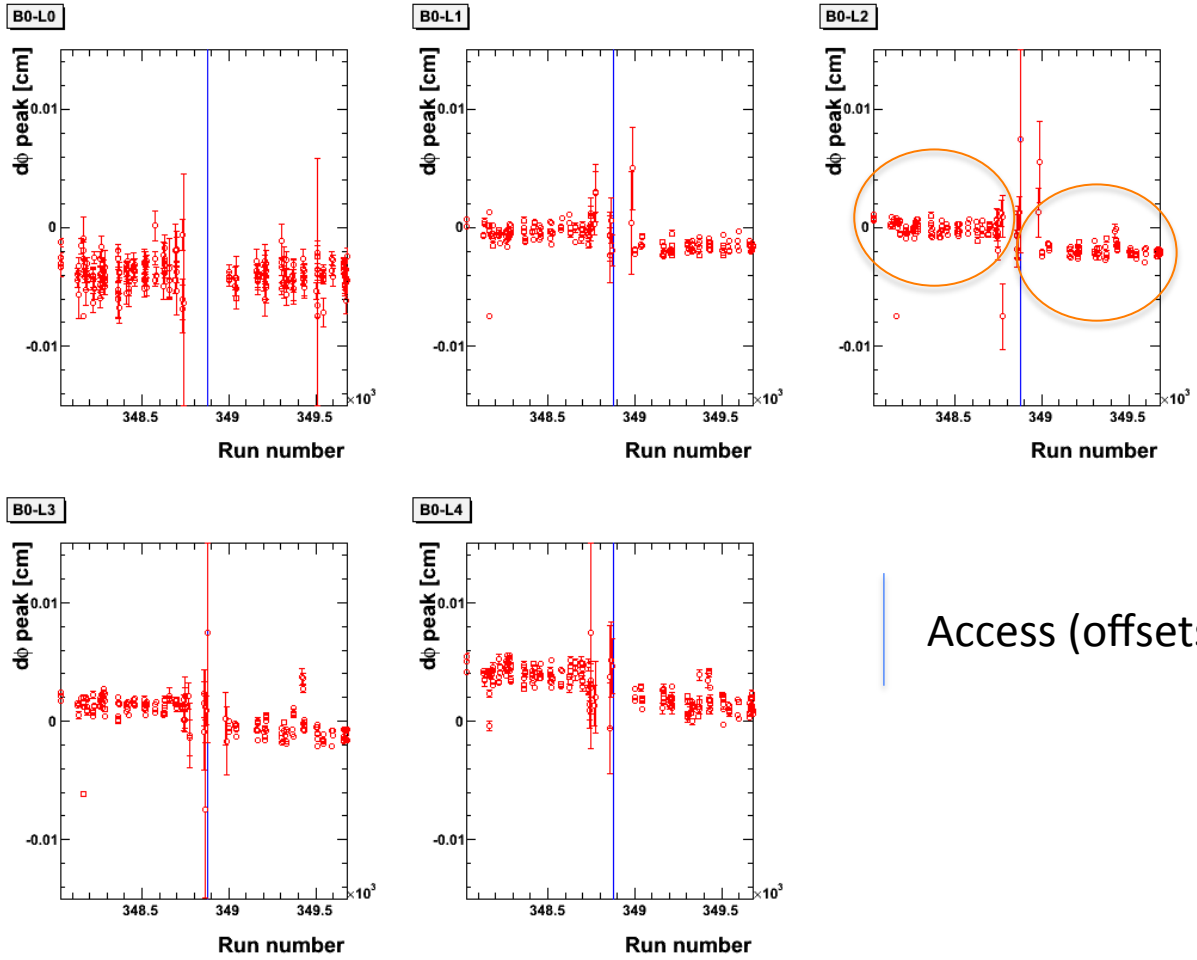






Alignment QA at B0-WEST

dϕ peak ladder by ladder vs. Run number

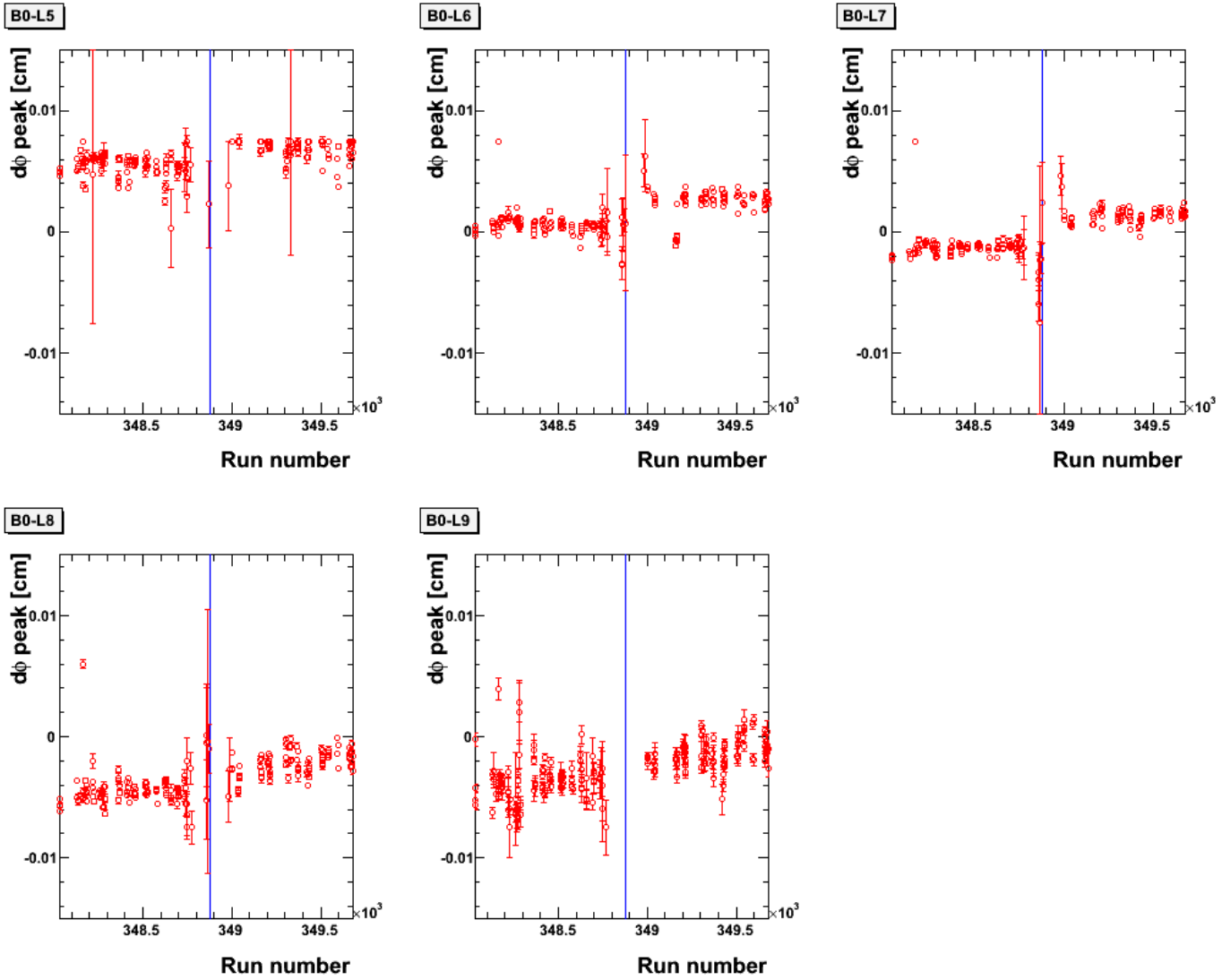


Access (offsets change.)

Peak positions are stable within 100 micron.

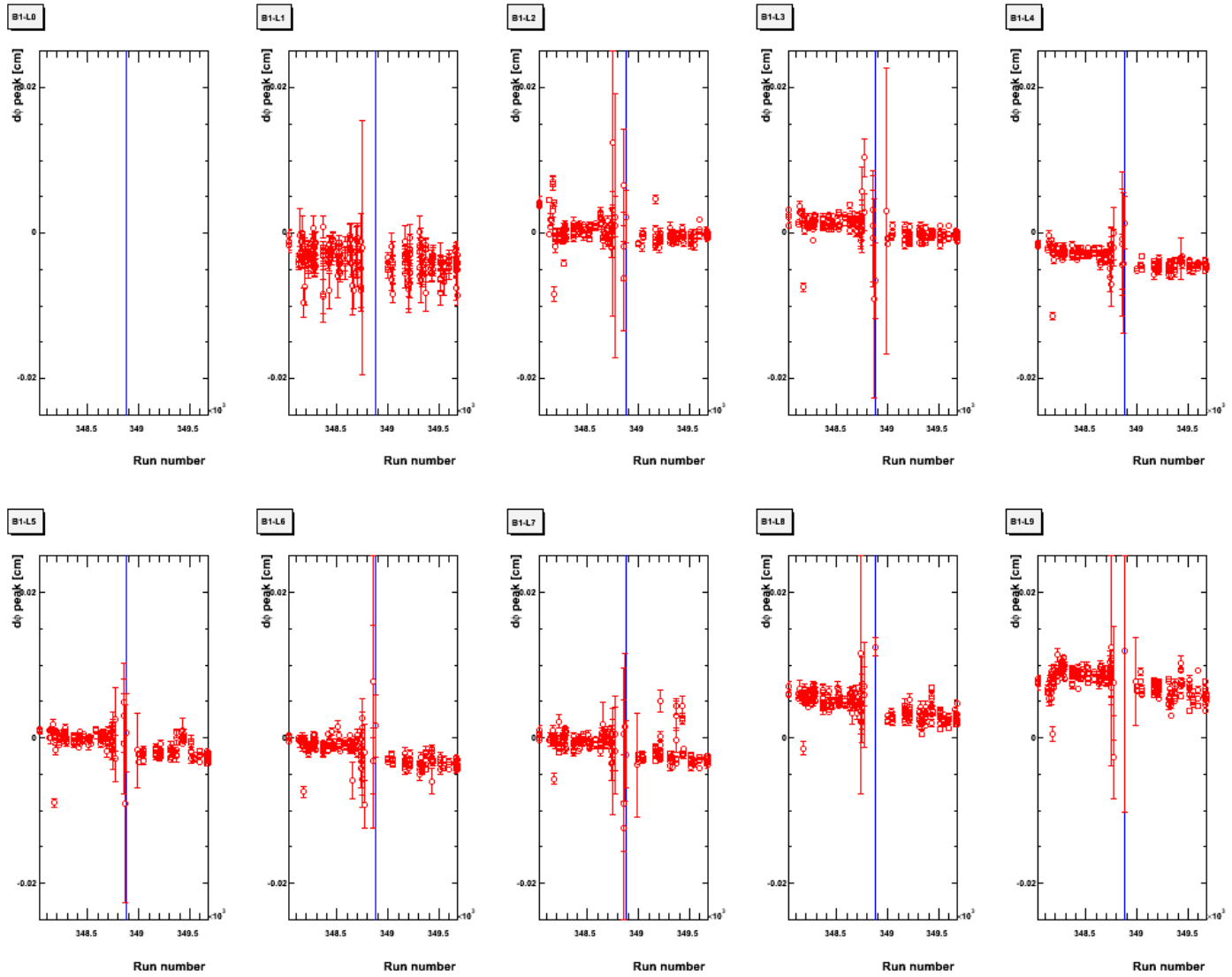
There are systematic difference before/after the access.

Alignment QA at B0-EAST
dϕ peak ladder by ladder vs. Run number



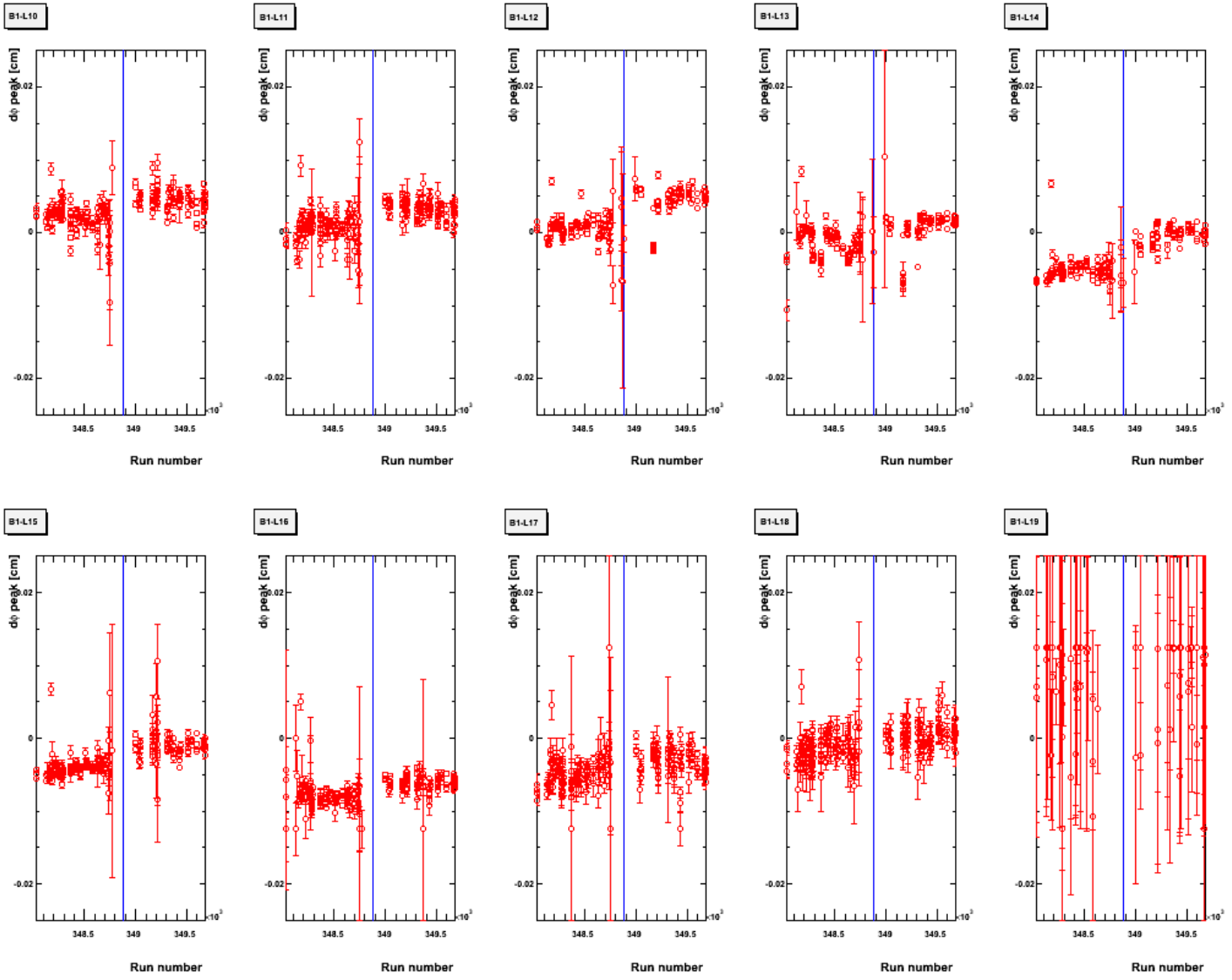
Alignment QA at B1-WEST

dϕ peak ladder by ladder vs. Run number

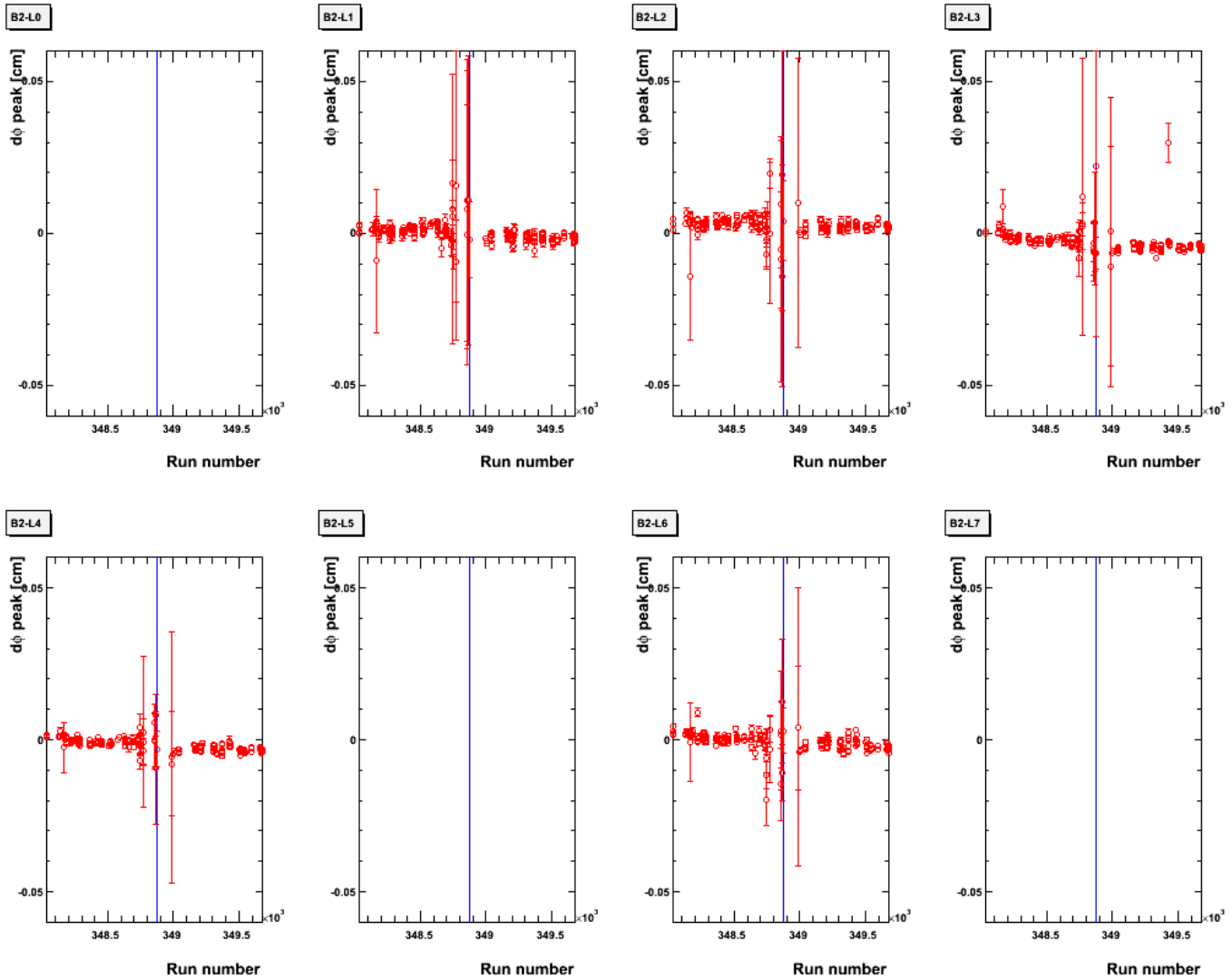


Alignment QA at B1-EAST

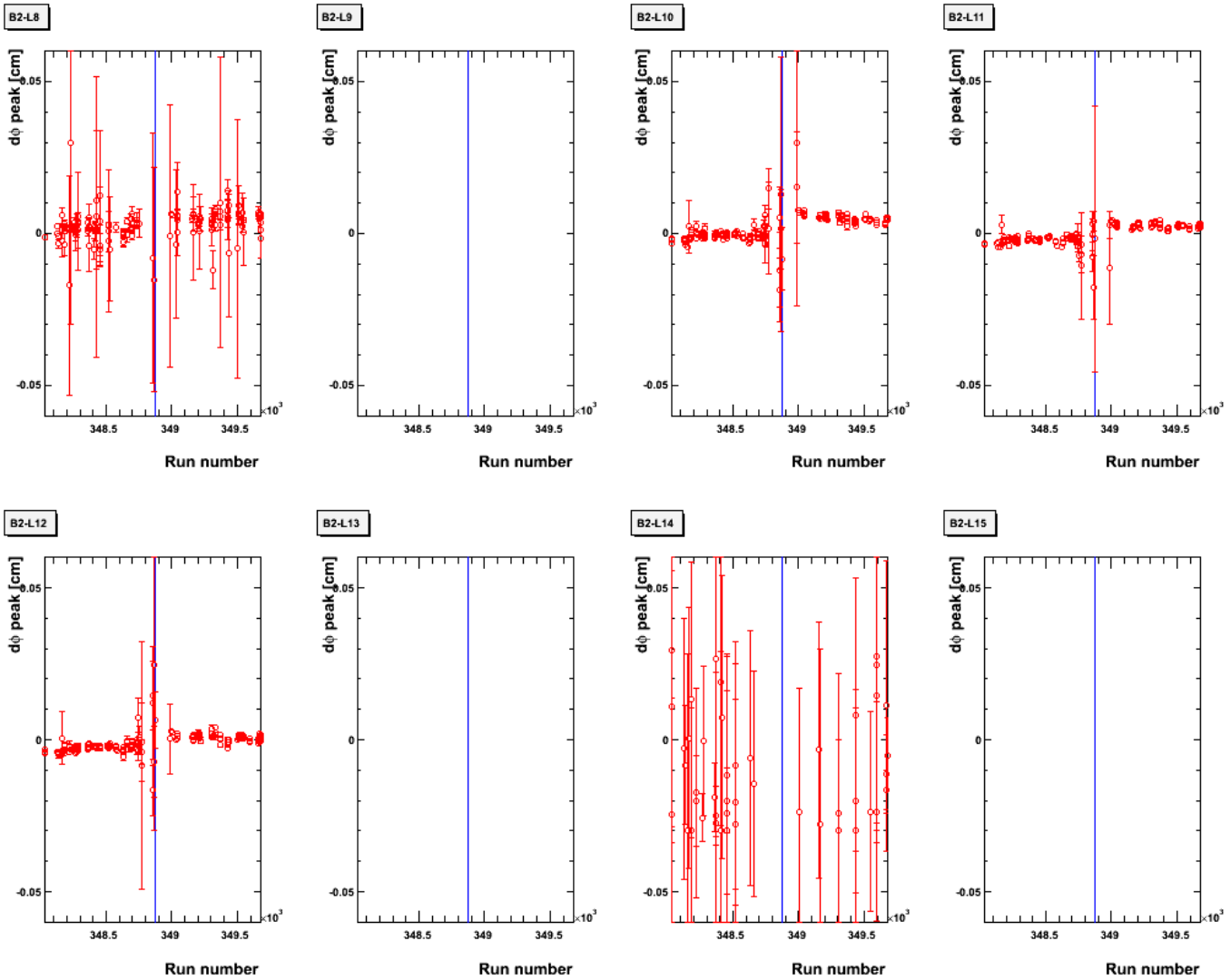
dϕ peak ladder by ladder vs. Run number



Alignment QA at B2-WEST
dϕ peak ladder by ladder vs. Run number

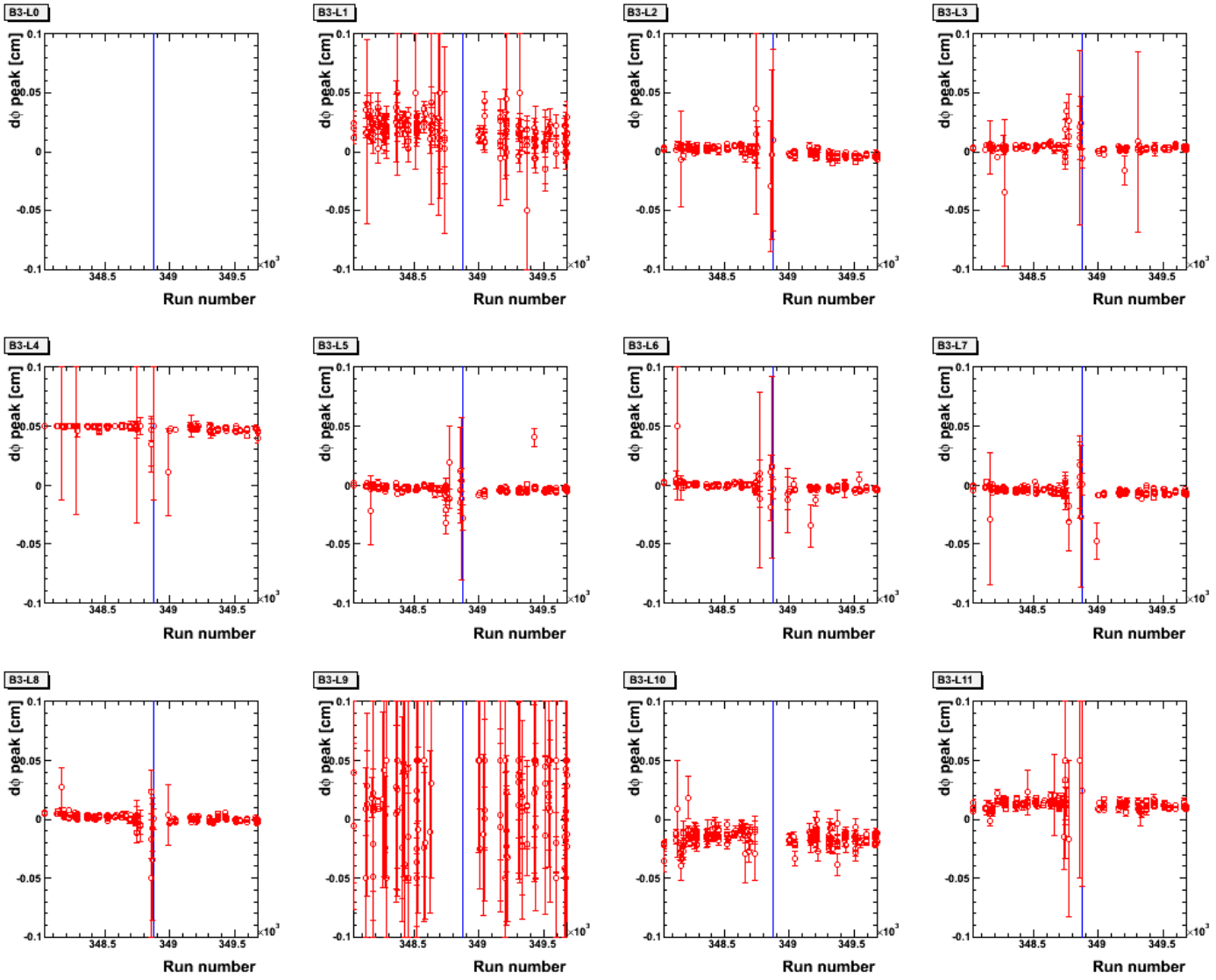


Alignment QA at B2-EAST
dϕ peak ladder by ladder vs. Run number



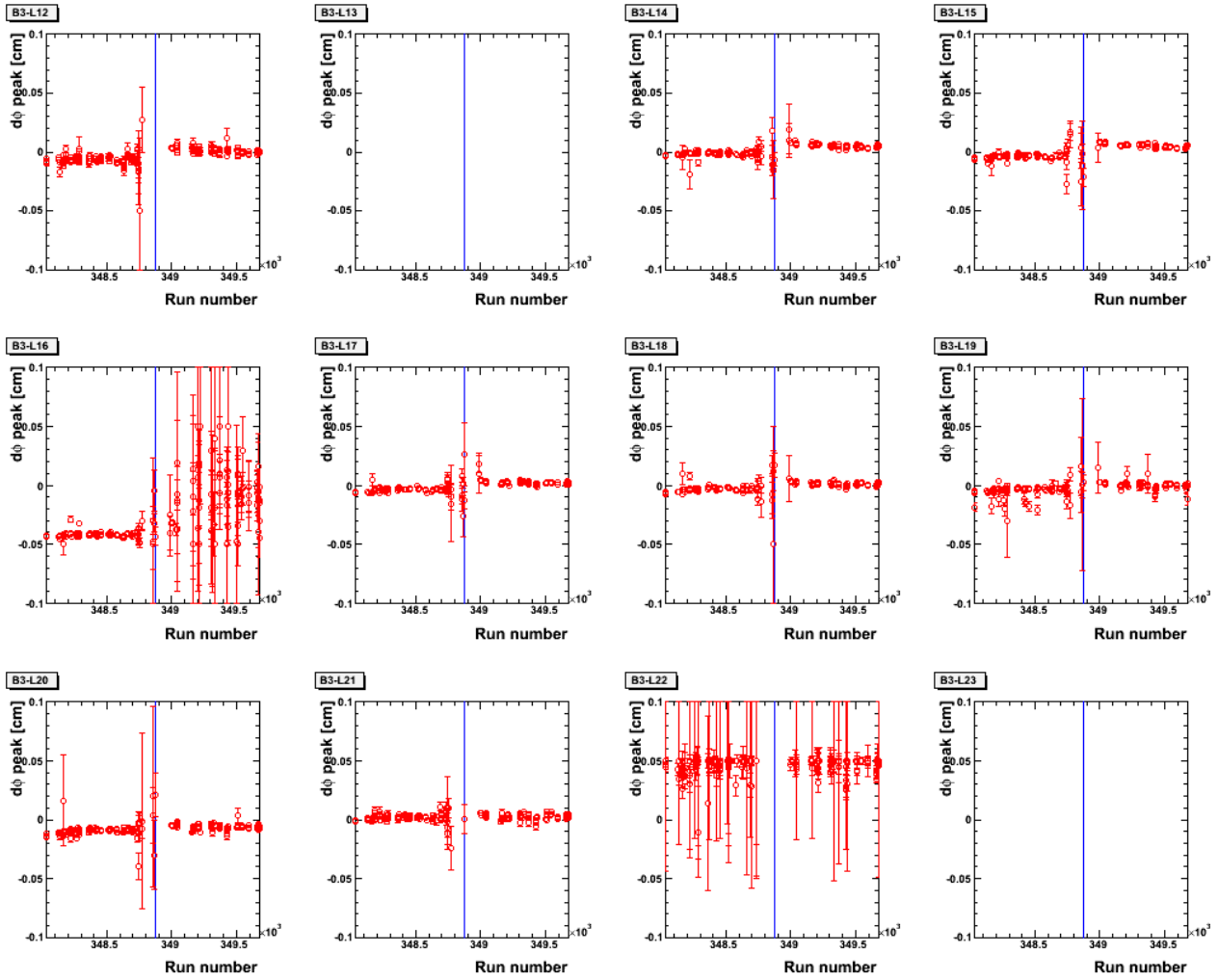
Alignment QA at B3-WEST

dϕ peak ladder by ladder vs. Run number



Alignment QA at B3-EAST

dϕ peak ladder by ladder vs. Run number

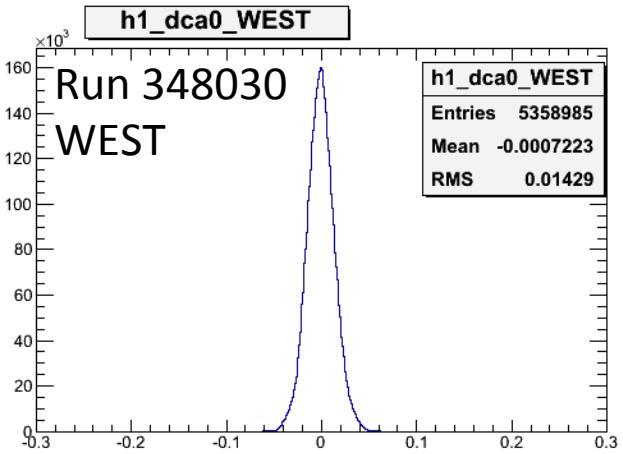


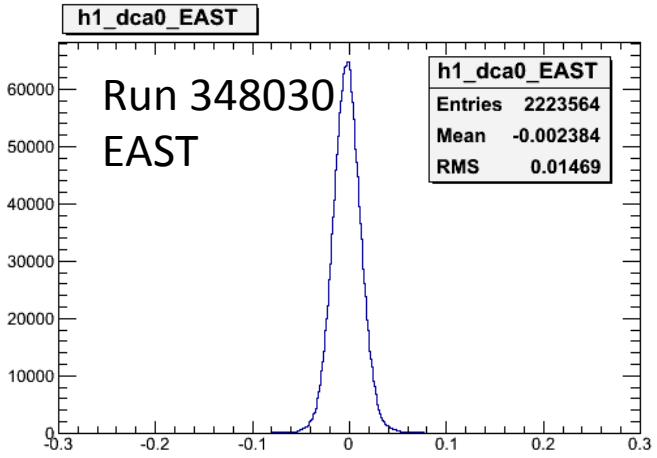
Need to check all run ranges.

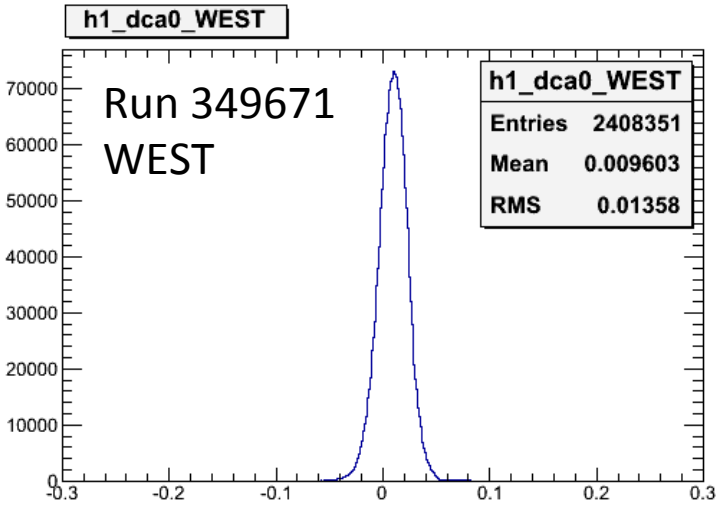
These can be used for re-calibration at ladder by ladder.

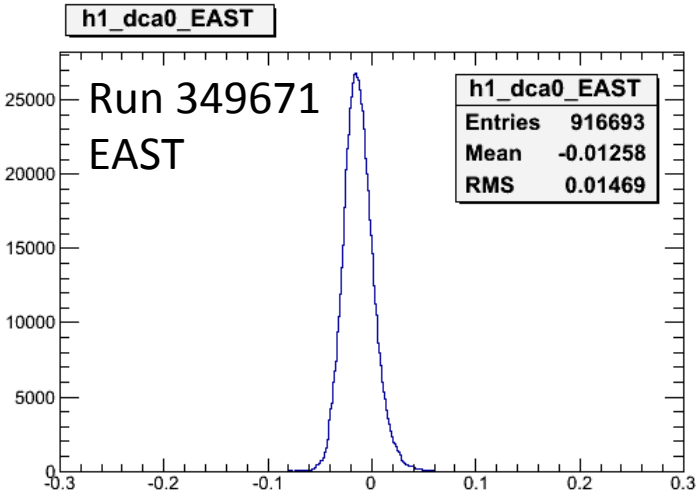
Internal alignment (BC)

- Beam Center in DB has ~ 100 microns shift after run 348984



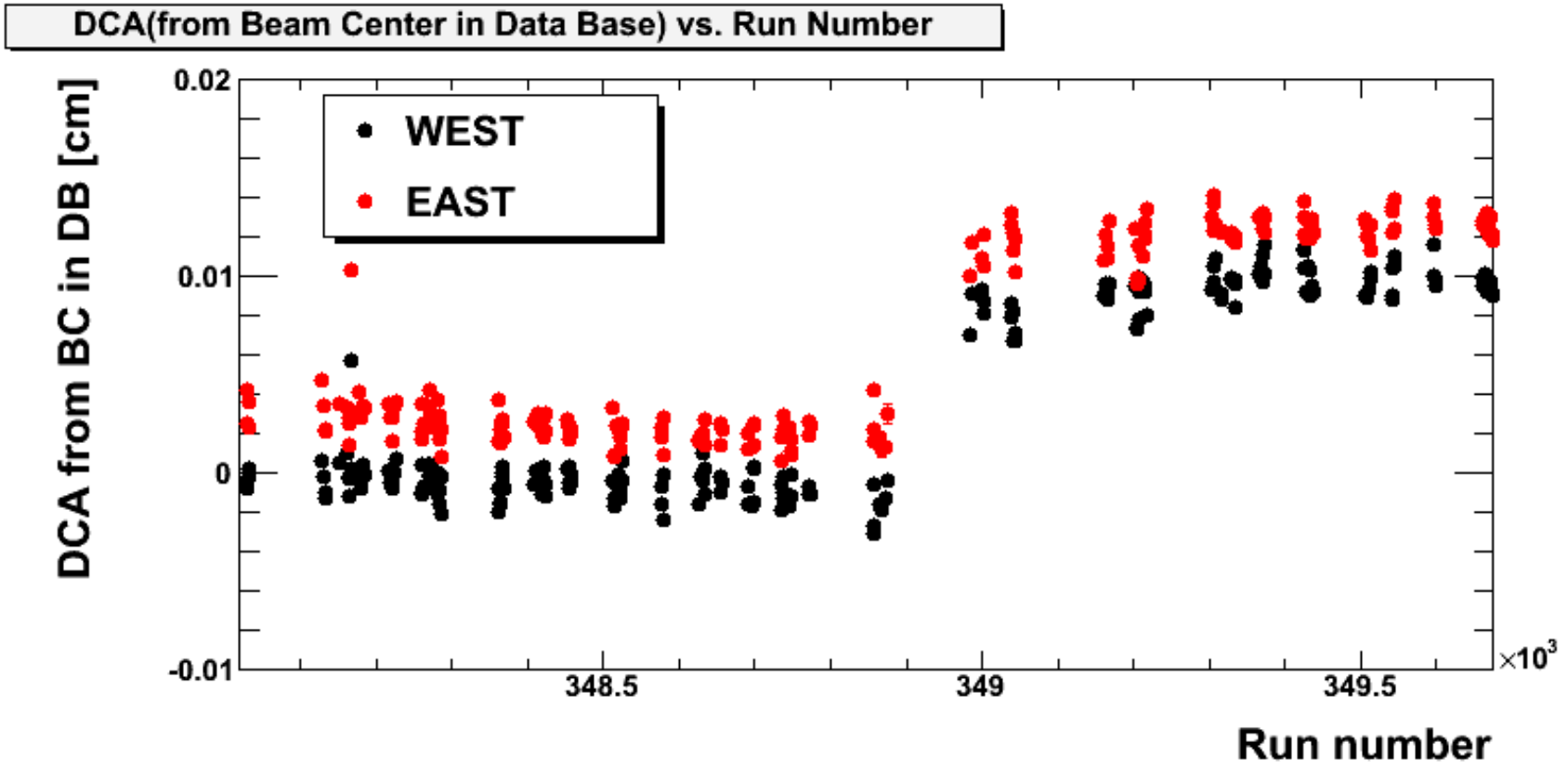






Internal alignment (BC)

- Beam Center in DB has ~ 100 microns shift after run 348984



3. Simulation

1. π0 single (for BG study)
   - Conversion BG study with embedding.
2. π+ single
3. (charm) : $D^0/D^+_s/D^+ \rightarrow$ electron
4. (bottom) : $B^0/B^0_s/B^+ \rightarrow$ electron
   - Purpose is to study DCA shape
   - 10M events
   - flat pT (0<pT<20 [GeV/c])
   - $-0.5 < \eta < 0.5$
   - |zvtx|<20 [cm]
   - $0<\phi< 6.283185$ [rad]
   - x,y = (0,0)

*Disk space may be the problem.

*Red lines are plan for next. (not started yet.)

1. π^0

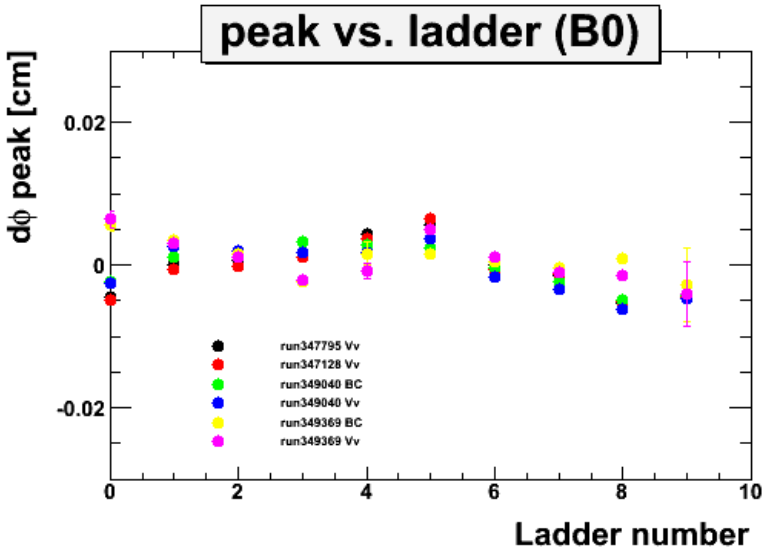
- # of event = ~14 M for pT= 0-20 GeV/c (so far)
- # of event = ~10 M for pT = 20-40 GeV/c (not yet done)
- Exodus
  - /phenix+hhj/mayap/simulation/exodus/oscar_single_pi0_input_*/
  - flat pT
  - $-0.5 < \eta < 0.5$
  - $|zvtx|<20$ [cm]
  - $0<\phi< 6.283185$ [rad]
- PISA
  - Ideal geometry is used.
  - Working dir: /phenix+hhj/mayap/simulation/pisa/
  - Data will be under hpss
- PISAtoDST
  - /phenix+zdata03/phnxreco/VTX/maya/simulation/pisaToDST_hachi/data_single_pi0_*)
- Analysis -- svxcentana
  - /phenix+zdata03/phnxreco/VTX/maya/simulation/cent_ana/wrk/svxanalysis_pi0_*.root
- Plan for Embedding study (not started yet)
  - Embed conversion electron to data with sasha's embedding code.
  - Purpose is to study the BG amount which survive from track cut requiring B0 hit.
  - → Random back ground on B0 can make this kind of BG tracks.

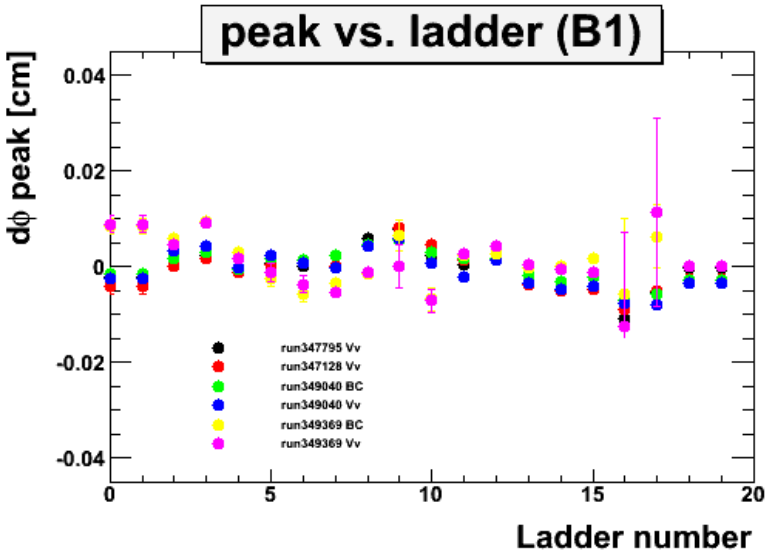
2. π^+

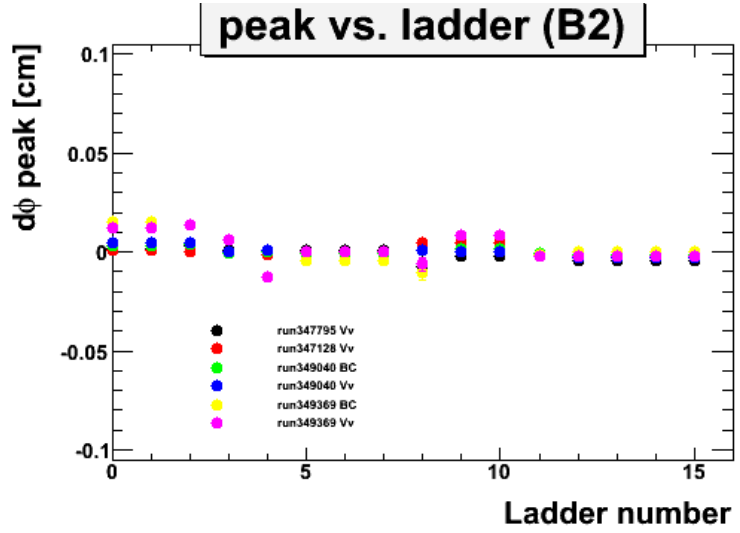
- # of event = ~10 M for pT= 0-20 GeV/c (so far)
- Exodus
  - /phenix+hhj/mayap/simulation/exodus/oscar_single_piplus_input_*/
  - flat pT
  - $-0.5 < \eta < 0.5$
  - $|zvtx|<20$ [cm]
  - $0<\phi< 6.283185$ [rad]
- PISA
  - Ideal geometry is used.
  - Working dir: /phenix+hhj/mayap/simulation/pisa/
  - Data will be under hpss
- PISAtoDST
  - /phenix+zdata03/phnxreco/VTX/maya/simulation/pisaToDST_hachi/data_single_piplus_*)
- Analysis -- svxcentana
  - /phenix+zdata03/phnxreco/VTX/maya/simulation/cent_ana/wrk/svxanalysis_piplus_*.root

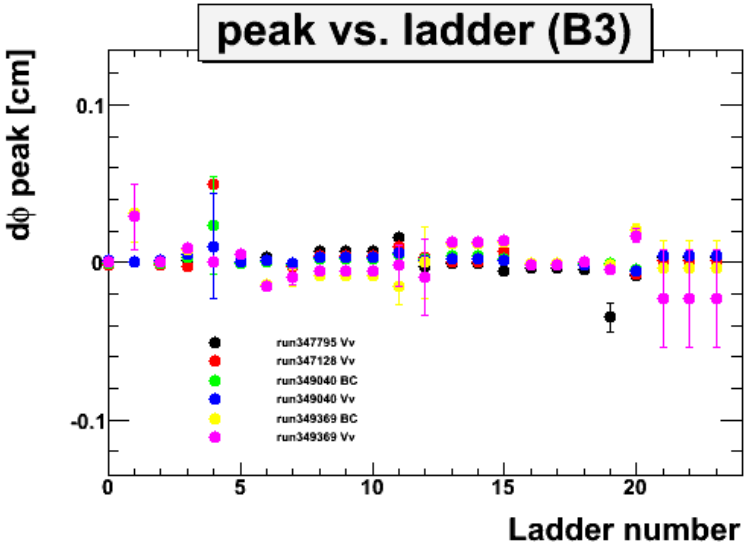
Back Up

Peak position vs. ladder number



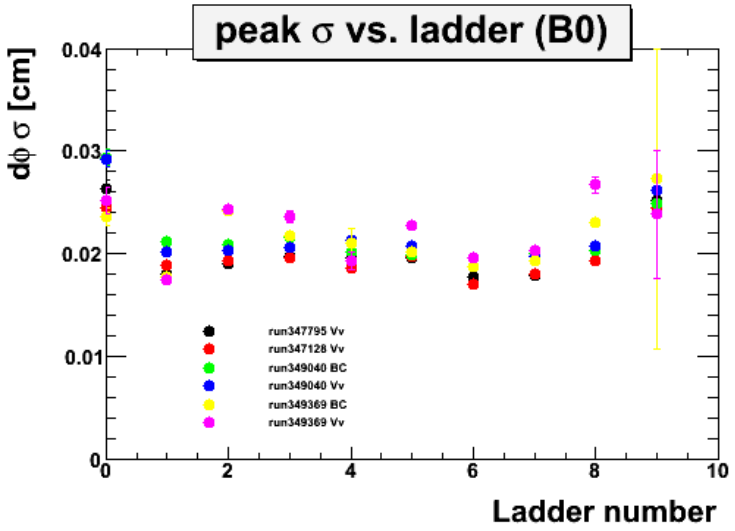


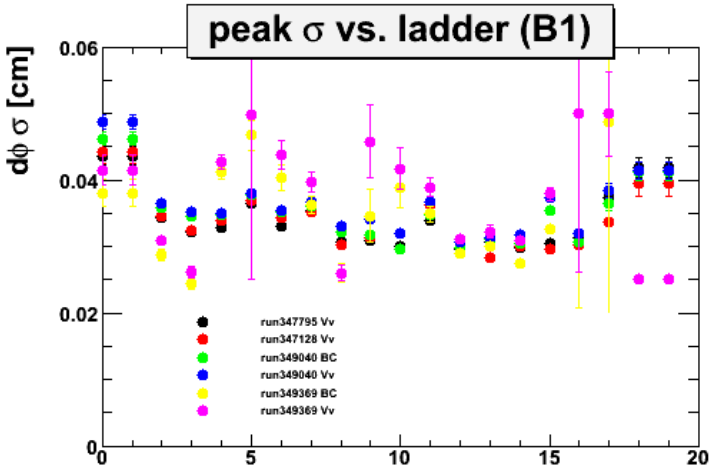


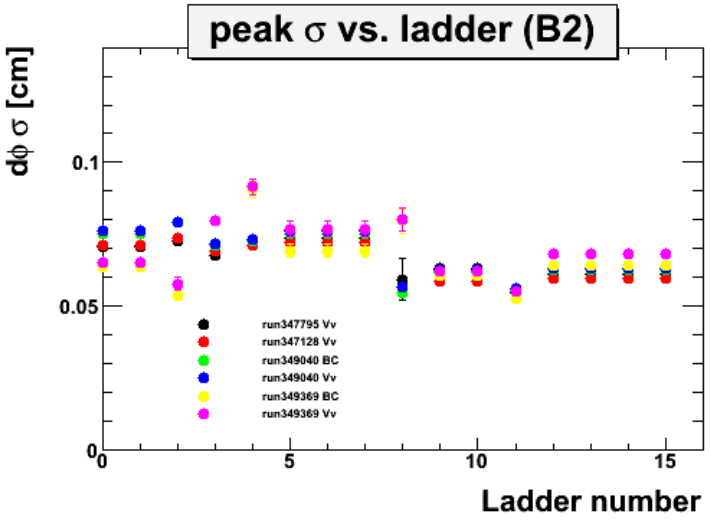


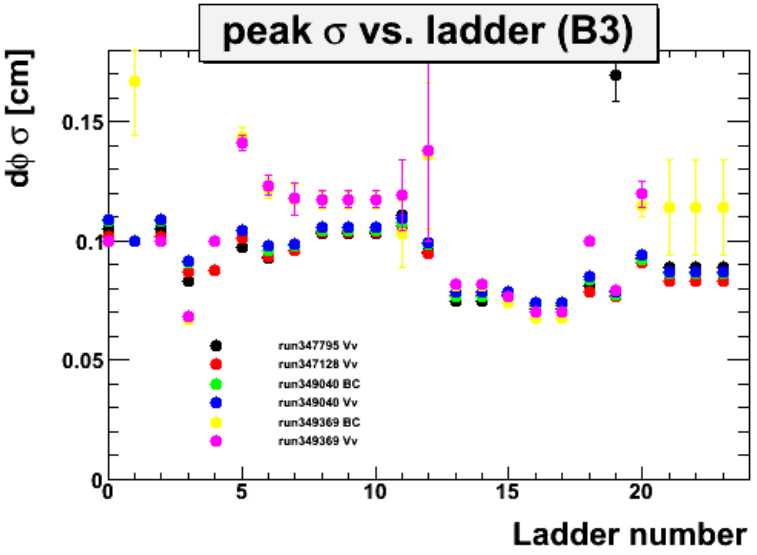
No significant differences are seen.

Peak σ vs. ladder numbers









- Systematically East and West are different.