



Finalized CRAFT-2009 DT Alignment

Jim Pivarski

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11 October, 2009

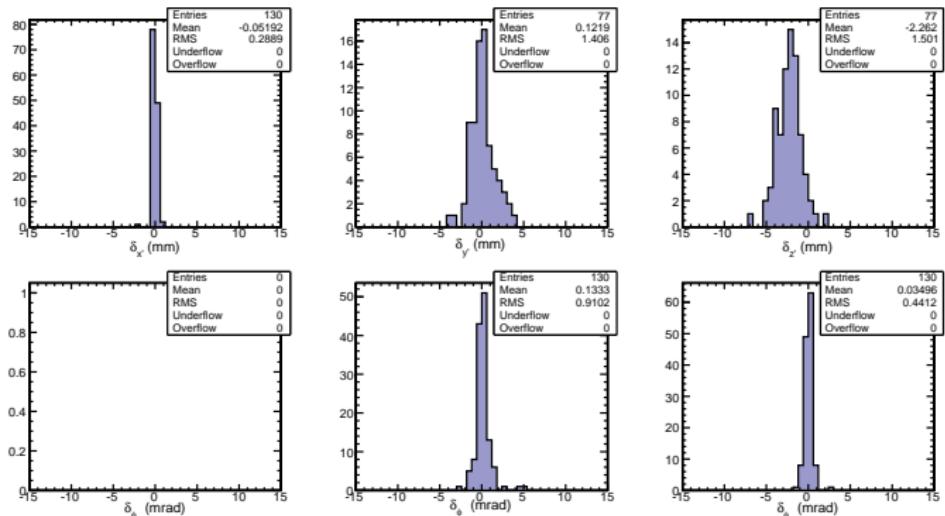
- ▶ Sequence:
 1. BarrelPG2009CorrectionsSurvey.db
 2. adjust whole barrel global δ_x , δ_y , δ_{ϕ_z} by hand
 3. track-based chamber alignment (keeping δ_{ϕ_x} fixed)
- ▶ Where each final aligned position/orientation comes from:
 - ▶ all internal layers/superlayers relative to chamber center: (1) survey
 - ▶ chambers poorly illuminated by cosmic rays, all parameters:
(1) BarrelPG2009 with (2) global adjustment
 - ▶ all chambers, local δ_{ϕ_x} , station 4 δ_y , δ_z , δ_{ϕ_y} : (1) and (2)
 - ▶ well-illuminated chambers, other parameters: (3) track-based chamber alignment
- ▶ Track-based chamber alignment parameters
 - ▶ Dataset: /Cosmics/CMSSW_3_2_7-CRAFT09_R_V4_CosmicsSeq_StreamMuAlGlobalCosmics-v1/ALCARECO
 - ▶ Release: CMSSW_3_2_7
 - ▶ GlobalTag: CRAFT09_R_V4::All
 - ▶ Aligned parameters: stations 1–3 δ_x , δ_y , δ_z , δ_{ϕ_y} , δ_{ϕ_z}
station 4 δ_x , δ_{ϕ_y} , δ_{ϕ_z}
 - ▶ Tracks: $100 < p_T < 200$ GeV, #tracker hits ≥ 15 , tracker $\chi^2/\text{ndf} < 10$, no rejection of TID/TEC
 - ▶ No special correction for $\vec{B}(\vec{x})$, dE/dx
 - ▶ Criterion for alignment: at least 5 hits and no Minuit fit failure
 - ▶ 5 iterations (2 are necessary for most chambers)

- Below: difference in chamber positions between

BarrelPG2009 Corrections → track-based chamber alignment (no internal alignment)

BarrelPG2009Survey Corrections → track-based chamber alignment (with internal alignment)

- What this shows: aligned layers are well-centered in chamber x , but not z (y is centered on average, but $\mathcal{O}(1.4 \text{ mm})$ variations)
- Reminder: track-based alignment optimizes layer positions as a rigid group, layer correction offset must be considered in comparisons



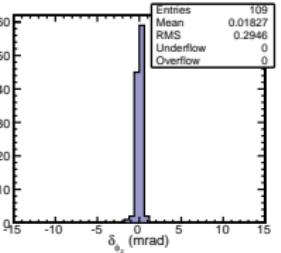
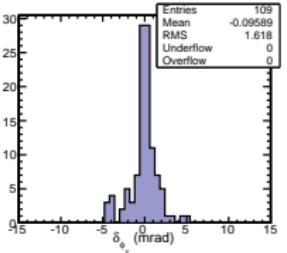
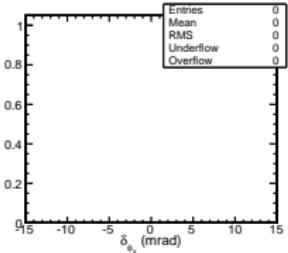
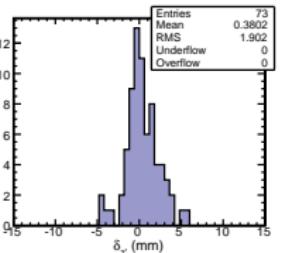
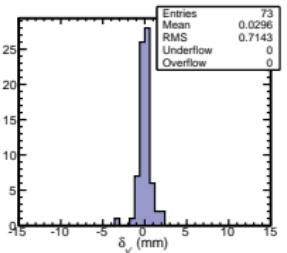
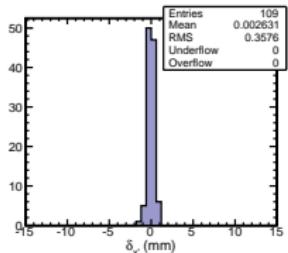
- Below: difference in chamber positions (wheels $-1, 0, +1$) between

CRAFT08 alignment \rightarrow '09 track-based chamber alignment (with last year's layers)

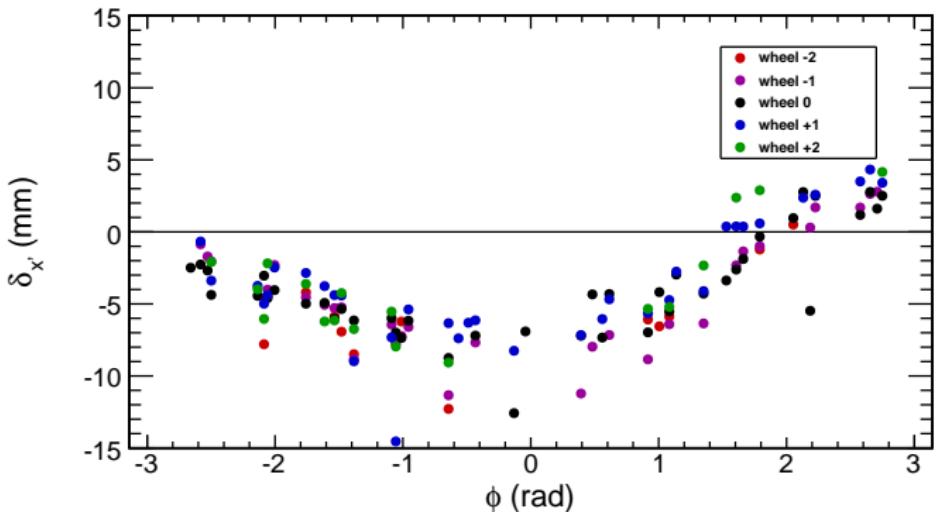
BarrelIPG2009SurveyCorrections \rightarrow '09 track-based chamber alignment (this year's layers)

This year's layers/superlayers are survey-only: no track-based corrections (Luca), unlike last year's

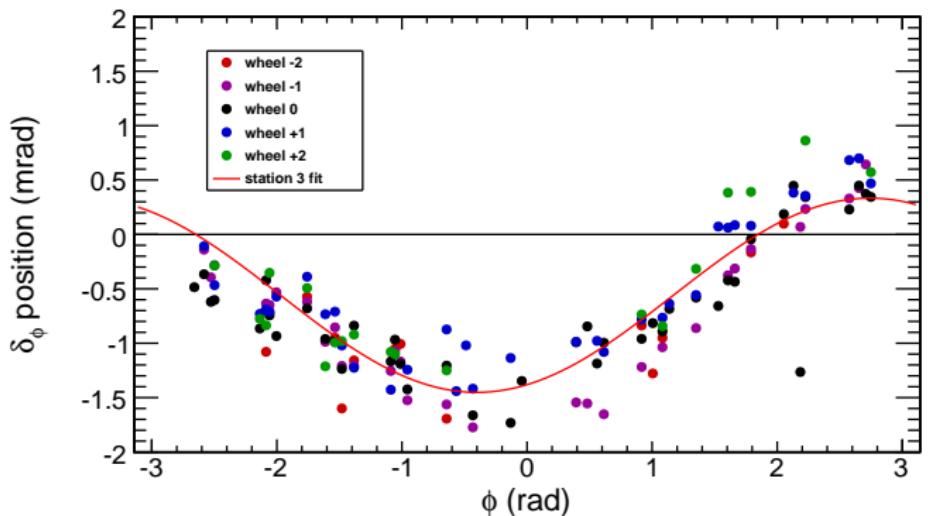
- What this shows: only significant differences in $\delta_{\phi y}$ (shear) and δ_z



- ▶ Below: difference in chamber positions between BarrelIPG2009SurveyCorrections and track-based chamber alignment
- ▶ What this shows: PG is a $\mathcal{O}(1.8 \text{ mm})$ alignment, but it has a 5 mm offset, 0.5 mrad rotation with respect to the tracker

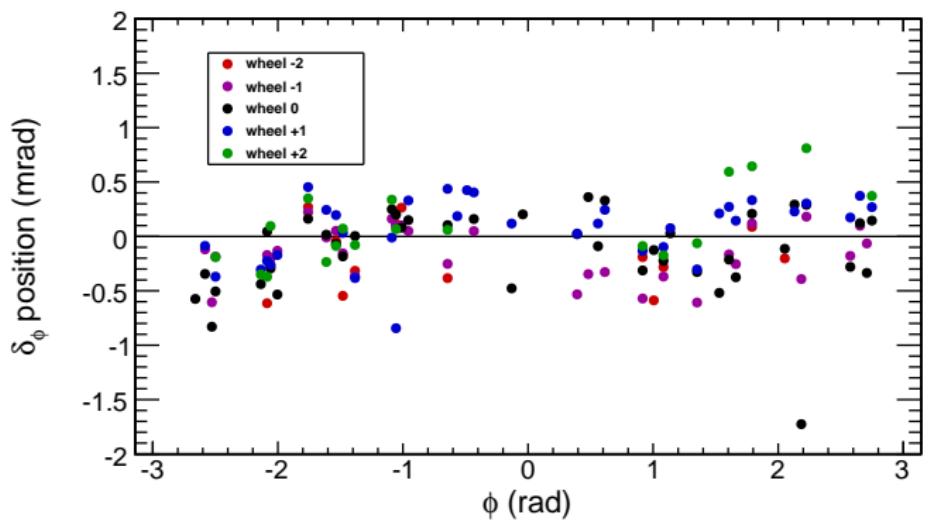


- ▶ Below: difference in chamber positions between BarrelIPG2009Survey Corrections and track-based chamber alignment
- ▶ What this shows: PG is a $\mathcal{O}(1.8 \text{ mm})$ alignment, but it has a 5 mm offset, 0.5 mrad rotation with respect to the tracker
- ▶ Result of fit: global $\delta_x = 2.2 \text{ mm}$, $\delta_y = 5.1 \text{ mm}$, $\delta_{\phi_z} = 0.56 \text{ mrad}$
 $\delta_\phi = \delta_x/R$ where R is the distance from the beamline



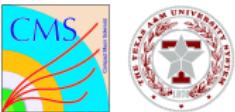
- Below: difference in chamber positions between

BarrelPG2009SurveyCorrections + adjustment and track-based chamber alignment

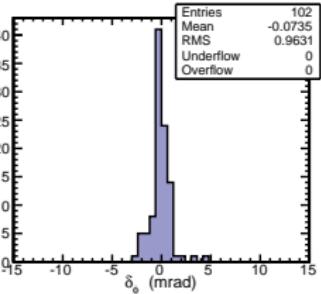
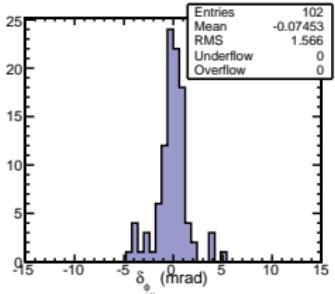
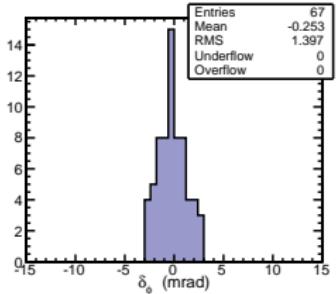
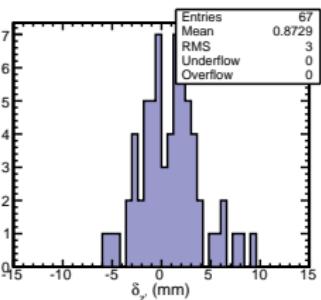
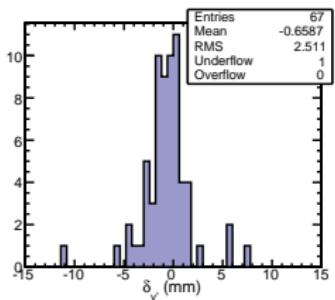
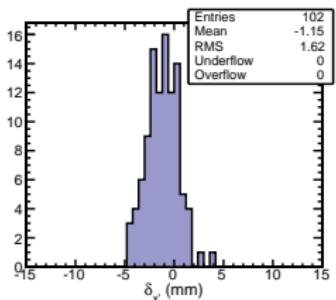


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to CRAFT-08 alignment
- ▶ Consistent with results shown in previous muon alignment meetings and Bologna, considering new layer/superlayer corrections

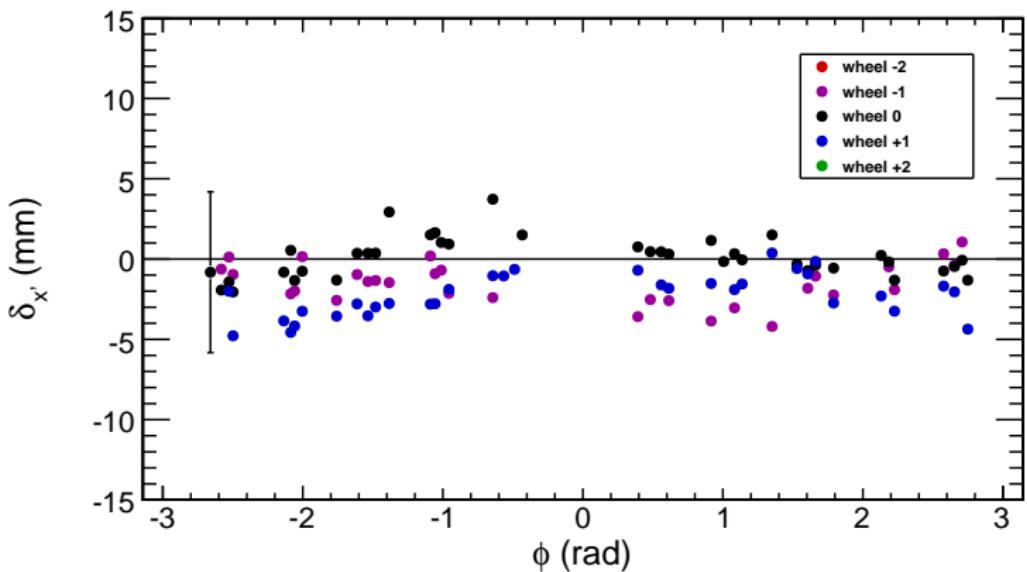


Final track-based alignment

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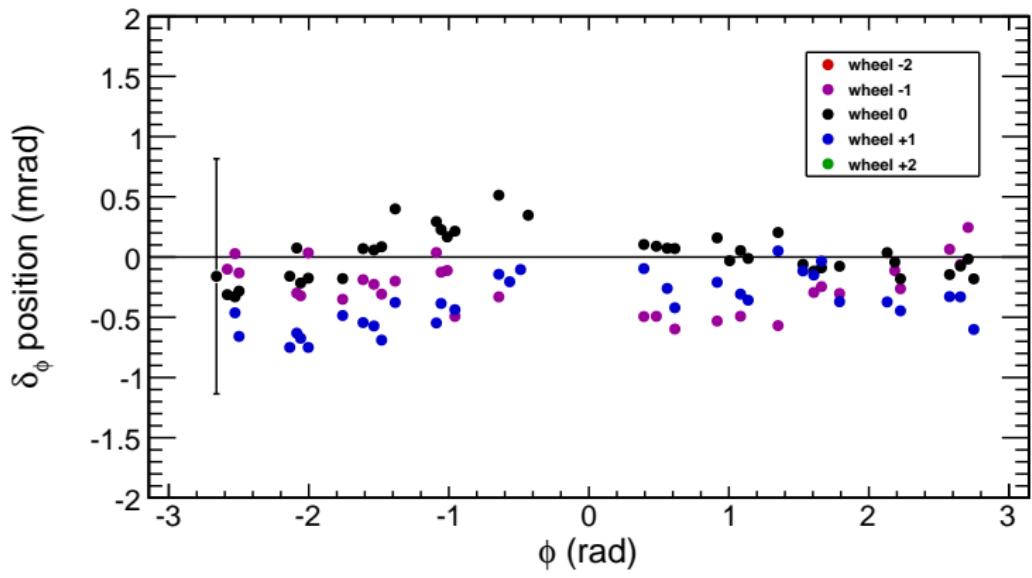


- ▶ After all steps in the procedure
- ▶ Below: differences with respect to CRAFT-08 alignment
 x' is local x with the same sign as global $r\phi$
- ▶ Consistent with results shown in previous muon alignment meetings and Bologna, considering new layer/superlayer corrections





- ▶ After all steps in the procedure
- ▶ Below: differences with respect to CRAFT-08 alignment
 $\phi = x'/R$ where R is the distance from the beamline
- ▶ Consistent with results shown in previous muon alignment meetings and Bologna, considering new layer/superlayer corrections

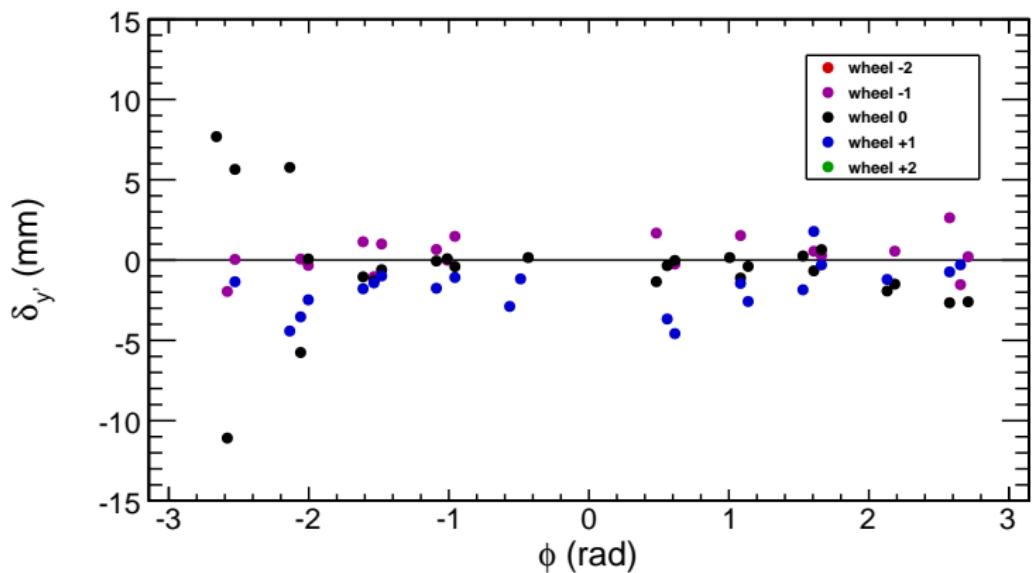


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to CRAFT-08 alignment
 y' is parallel to the beamline (local y with a consistent sign)
- ▶ Consistent with results shown in previous muon alignment meetings and Bologna, considering new layer/superlayer corrections

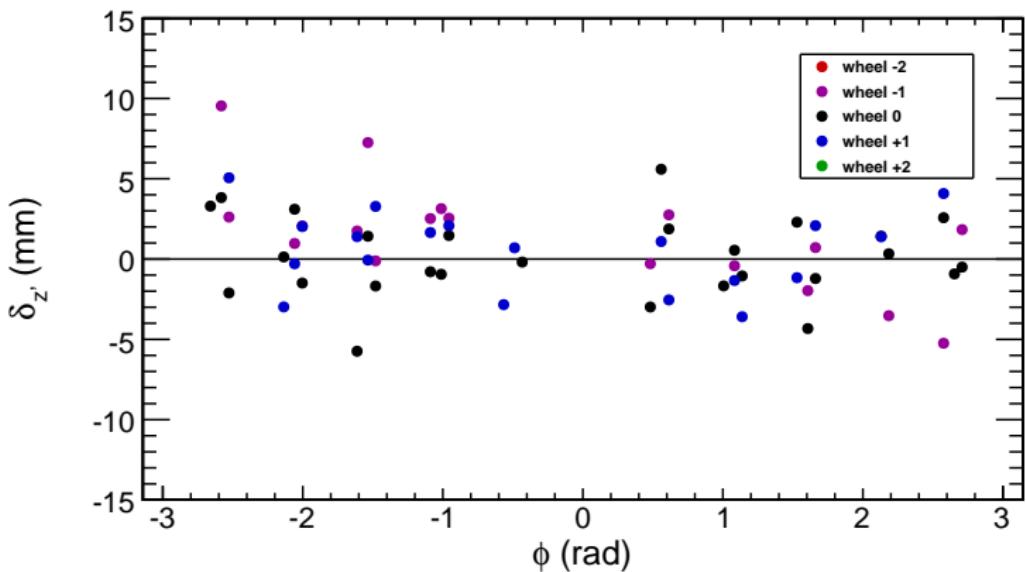


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to CRAFT-08 alignment
 z' is radial (local z with a consistent sign)
- ▶ Consistent with results shown in previous muon alignment meetings and Bologna, considering new layer/superlayer corrections

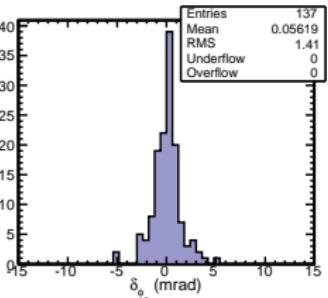
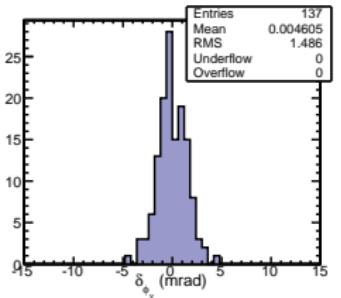
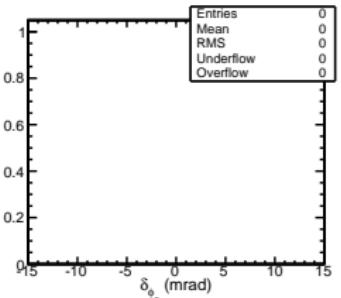
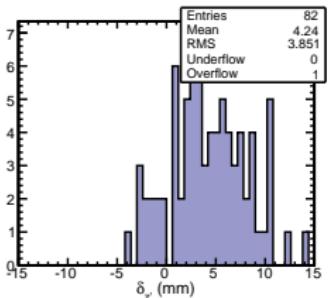
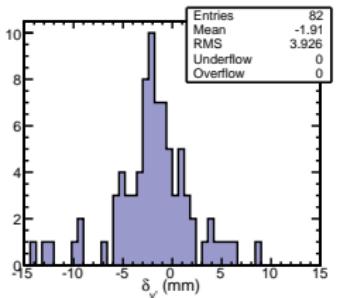
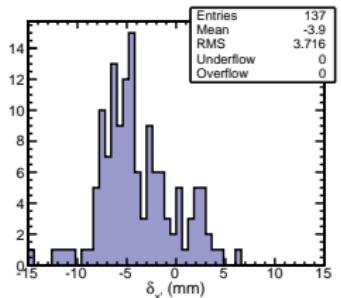


Final track-based alignment

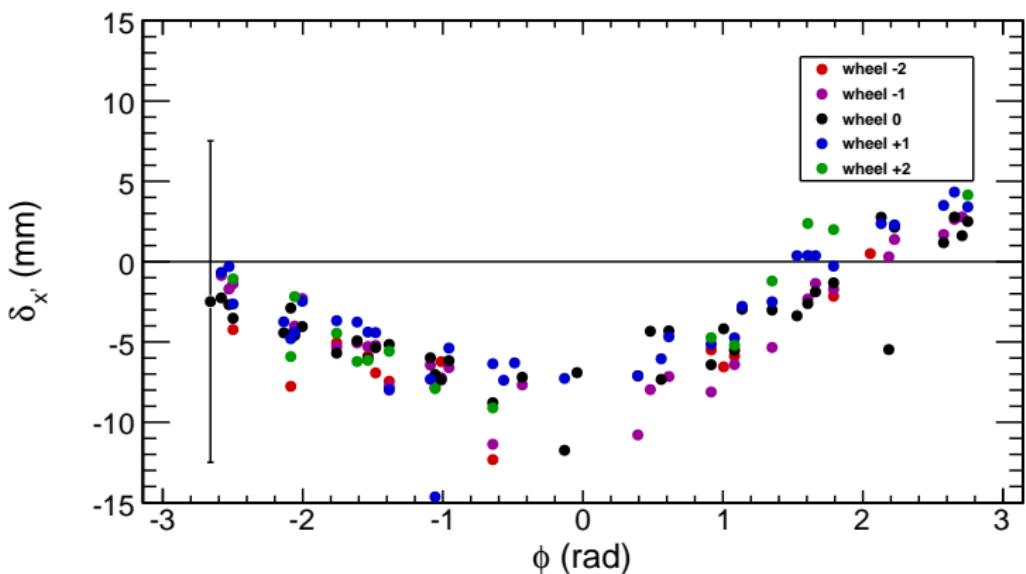
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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey



- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey
 x' is local x with the same sign as global $r\phi$

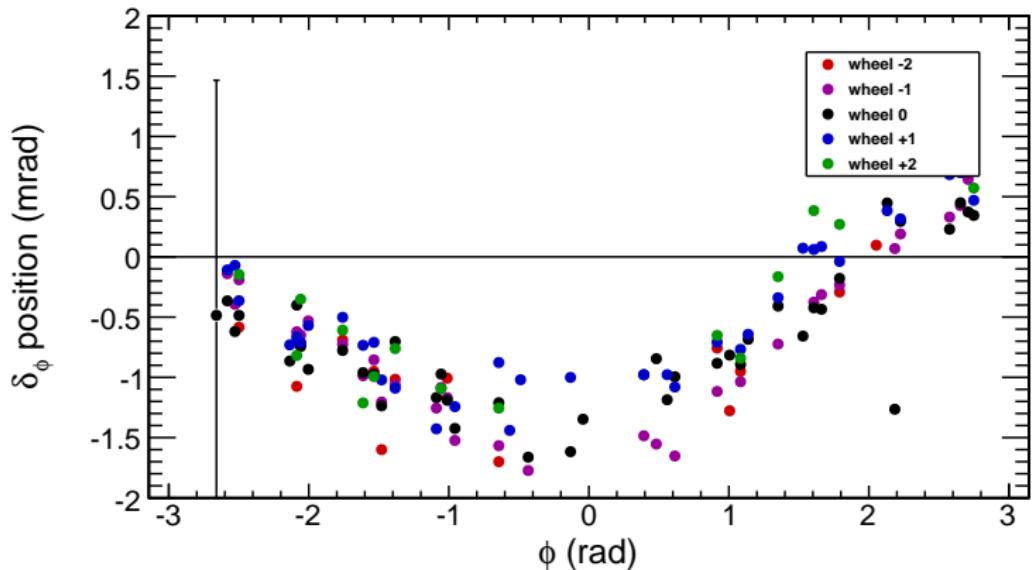


Final track-based alignment

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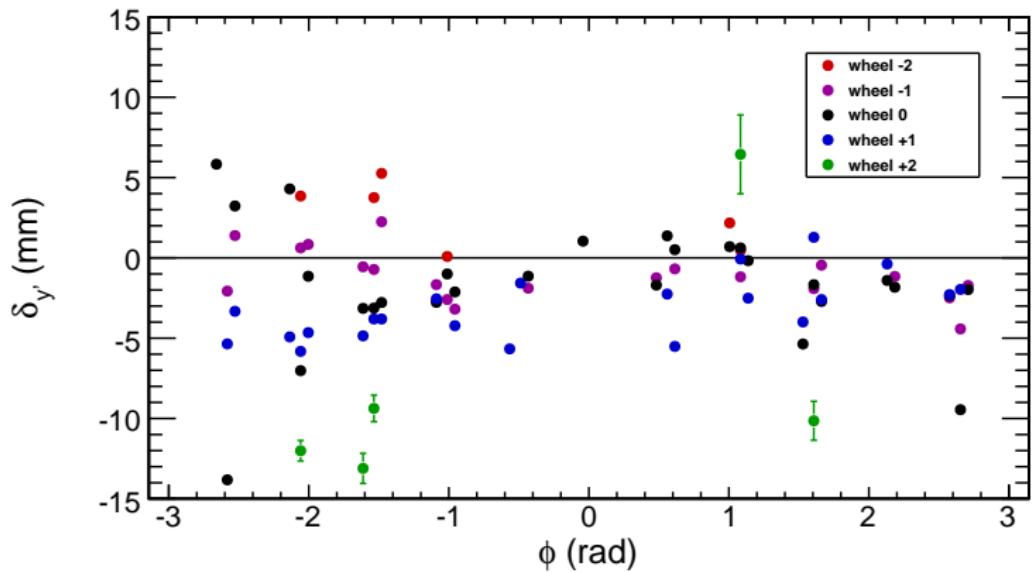


- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey
 $\phi = x'/R$ where R is the distance from the beamline



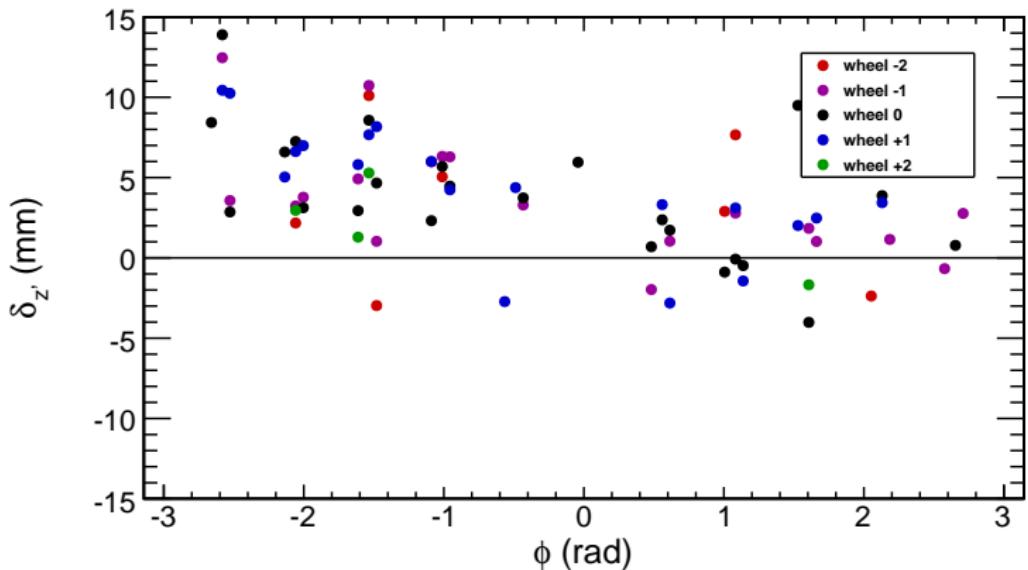


- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey
 y' is parallel to the beamline (local y with a consistent sign)





- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey
 z' is radial (local z with a consistent sign)

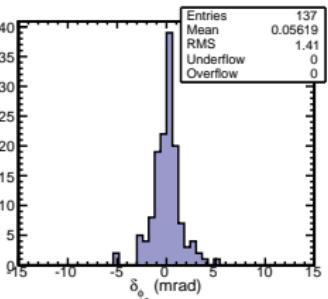
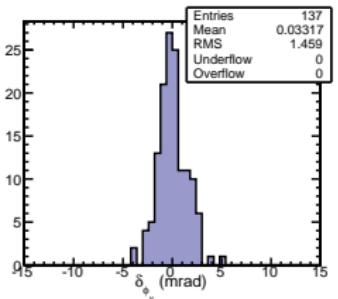
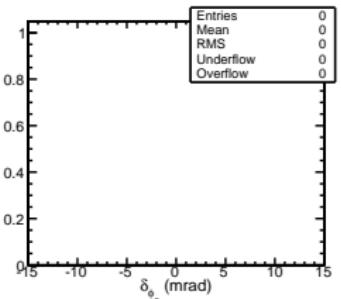
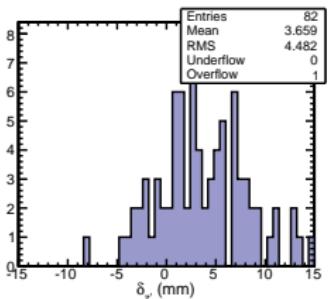
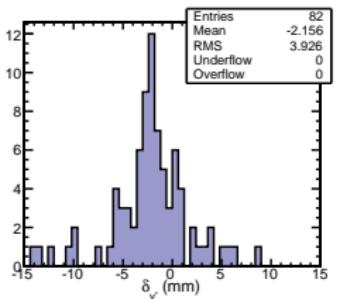
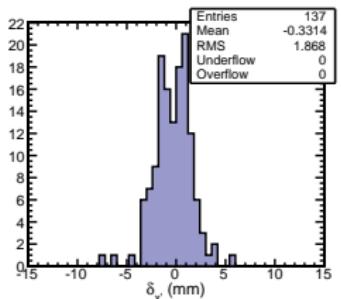


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelPG + Survey + global adjustment

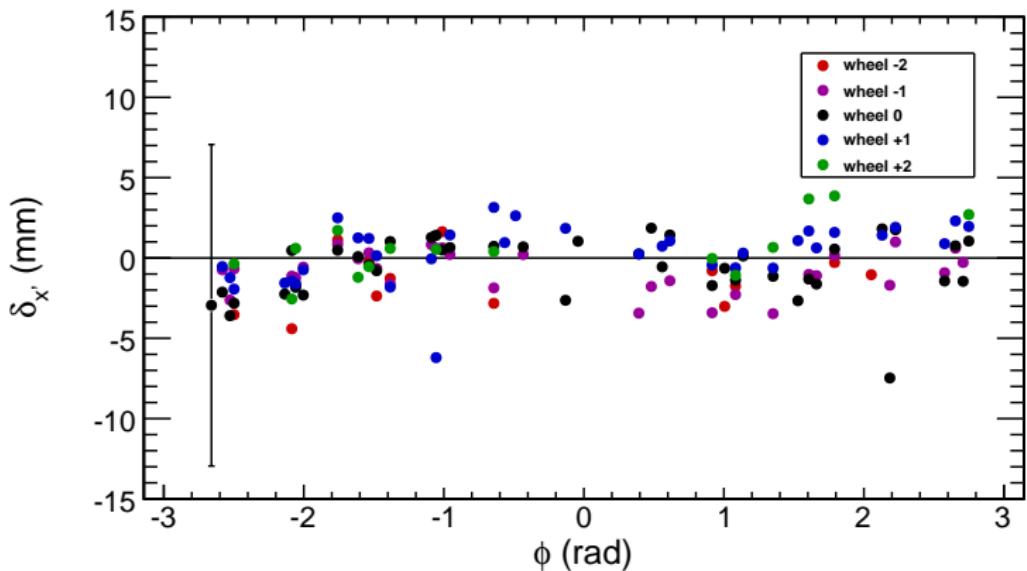


Final track-based alignment

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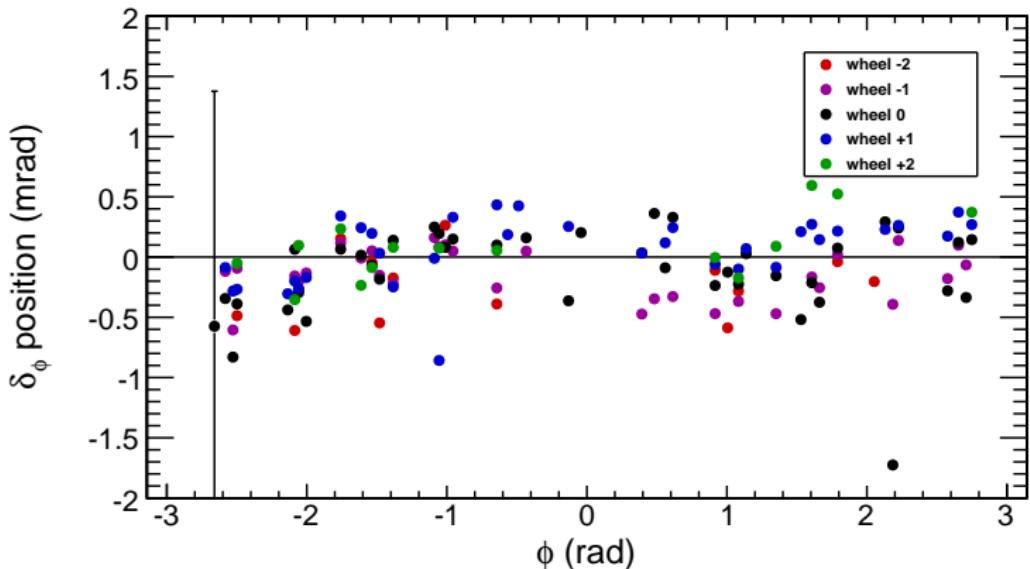
- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelIPG + Survey + global adjustment
 x' is local x with the same sign as global $r\phi$





- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelIPG + Survey + global adjustment

$\phi = x'/R$ where R is the distance from the beamline

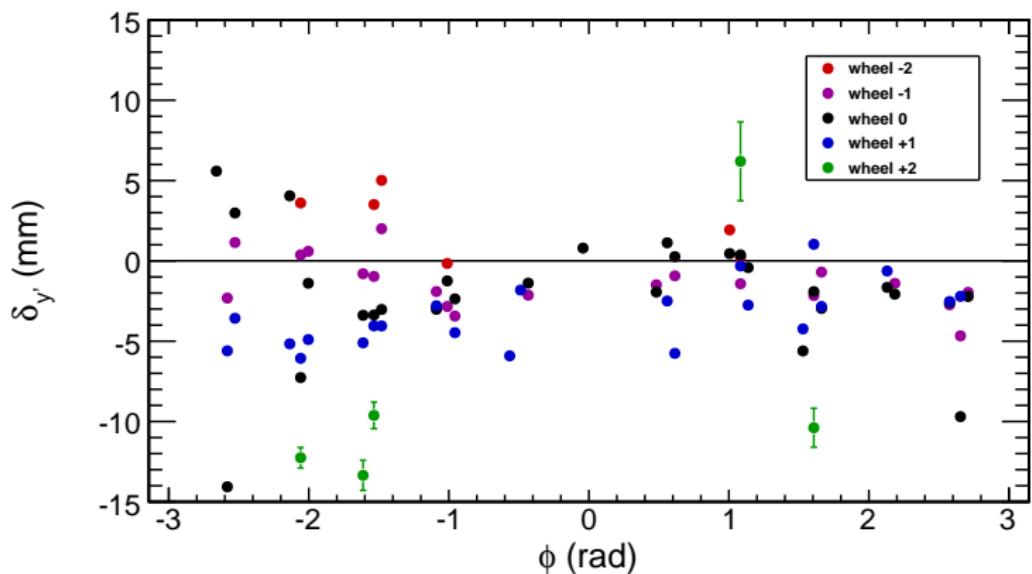


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelIPG + Survey + global adjustment
 y' is parallel to the beamline (local y with a consistent sign)

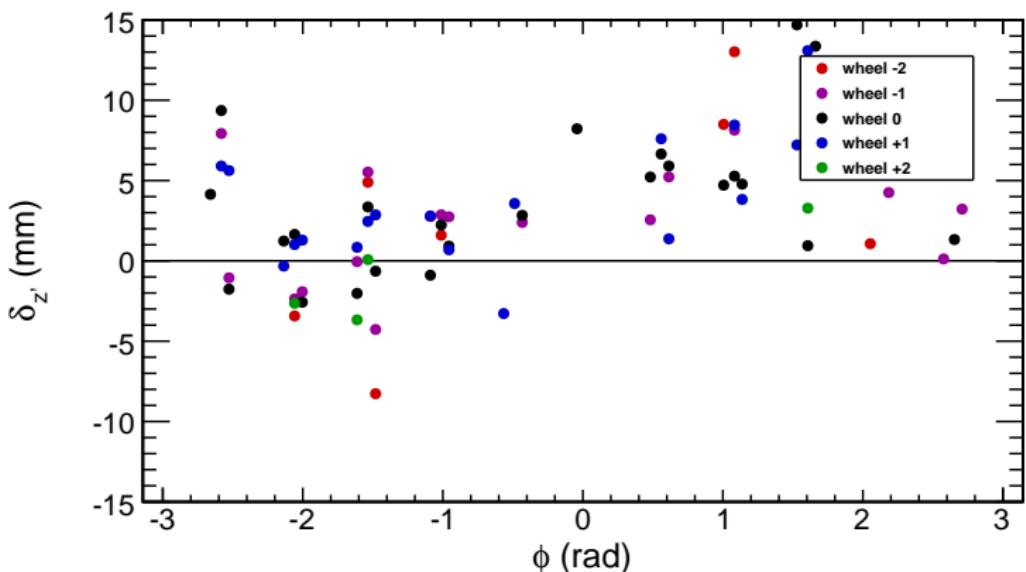


Final track-based alignment

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- ▶ After all steps in the procedure
- ▶ Below: differences with respect to BarrelIPG + Survey + global adjustment
 - z' is radial (local z with a consistent sign)



- ▶ This reprocessed dataset was based on the following runs:
110835 109470 110397 112389 110219 108889 110193 110440
110894 110437 109490
- ▶ The number of tracks passing cuts is: 17 779
- ▶ The prompt dataset, based on all CRAFT-09, has 41 202 tracks passing cuts
- ▶ The CRAFT-08 dataset had 100 000 tracks passing cuts
- ▶ Despite the lower statistics, we're using the reprocessed dataset because it has the latest calibrations (to minimize systematic error)

Convergence

- ▶ All chambers converged with $|\delta_x| < 10 \mu\text{m}$, $|\delta_y| < 100 \mu\text{m}$,
 $|\delta_z| < 100 \mu\text{m}$, $|\delta_{\phi_y}| < 100 \mu\text{rad}$, $|\delta_{\phi_z}| < 100 \mu\text{rad}$ except
 - ▶ wheel +1, station 2, sector 12
 - ▶ wheel +1, station 4, sector 9

- ▶ Lists of values of all chamber positions (layers/superlayers not listed)
- ▶ Map plots (residuals versus ϕ , z , with dashed lines at chamber boundaries)
- ▶ Fit functions (residuals and best-fit projected onto several axes)

Where to find the constants

`/afs/cern.ch/user/p/pivarski/public/DTAlignmentRcd.CRAFT09_survey-PG-globalMuons_31X.v1.offline.db`

- ▶ tag “DTAlignmentRcd”: the aligned geometry
- ▶ tag “DTAlignmentErrorRcd”: 0 for aligned chambers, 1000 cm for no track-based alignment step
- ▶ ignore tags “CSCAlignmentRcd” and “CSCAlignmentErrorRcd”

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x	y or ϕ_y	z or ϕ_z
-2 1 01	-2.26 -2.20 +5.30 +5.30 +0.00 -0.57 -0.57 -0.57	-0.54 +4.24 +4.49 +4.49 +0.03 -0.15 -0.71 -0.71	-6.04 -7.01 -8.95 -8.95 +0.32 +0.01 +0.01 +0.01
-2 1 02	-3.98 -4.04 +1.70 +1.70 +1.59 +0.15 +0.15 +0.15	-2.03 +3.60 +3.85 +3.85 -1.86 -2.20 -2.76 -2.76	-2.57 -2.66 -6.85 -6.85 -0.71 -0.70 -0.70 -0.70
-2 1 03	-1.09 -0.41 +2.67 +2.67 +0.73 +0.58 +0.58 +0.58	+0.70 +5.27 +5.52 +5.52 -1.36 -1.52 -2.08 -2.08	+2.87 +3.39 -1.87 -1.87 -2.04 -2.02 -2.02 -2.02
-2 1 04	-0.81 +0.20 +0.46 +0.46 +0.74 +0.09 +0.09 +0.09	-3.46 +2.70 +2.94 +2.94 -0.81 -0.49 -1.05 -1.05	+6.68 +7.41 +2.55 +2.55 -0.59 +0.14 +0.14 +0.14
-2 1 05	+4.31 +6.65 +4.66 +4.66 -0.17 +0.13 +0.13 +0.13	-0.86 +3.24 +3.49 +3.49 +2.16 +1.83 +1.27 +1.27	+2.56 +3.65 +0.55 +0.55 -2.19 +0.25 +0.25 +0.25
-2 1 06	+4.64 +5.95 +2.88 +2.88 +0.55 +0.63 +0.63 +0.63	-1.76 +3.26 +3.50 +3.50 +1.64 +1.68 +1.12 +1.12	-3.08 -2.59 -3.04 -3.04 +0.17 +0.28 +0.28 +0.28
-2 1 07	-0.32 +0.93 -1.73 -1.73 +0.15 +0.03 +0.03 +0.03	-0.77 +4.72 +4.97 +4.97 -0.15 -0.33 -0.89 -0.89	-6.05 -7.59 -5.22 -5.22 -0.56 -0.28 -0.28 -0.28
-2 1 08	-4.53 -3.30 -4.22 -4.22 +1.13 +0.39 +0.39 +0.39	-2.73 +14.68 +14.92 +14.92 -1.94 -2.09 -2.64 -2.64	-3.65 -5.47 -0.84 -0.84 -0.05 +1.36 +1.36 +1.36
-2 1 09	-3.24 -2.33 -0.59 -0.59 -0.14 +0.18 +0.17 +0.17	-3.14 +2.74 +2.98 +2.98 -1.70 -2.13 -2.68 -2.68	+2.85 +3.05 +8.75 +8.75 +1.91 +1.78 +1.78 +1.78
-2 1 10	-0.63 -1.90 +2.66 +5.03 +1.03 +1.15 +1.15 +1.15	+1.38 +7.06 +7.31 +12.32 +0.55 +0.39 -0.17 -0.99	+5.23 +4.90 +10.20 +1.93 +0.48 +2.53 +2.53 +1.57
-2 1 11	+2.46 +3.22 +10.04 +10.04 +1.02 +0.02 +0.02 +0.02	-2.34 +2.99 +3.23 +3.23 +2.52 +3.06 +2.50 +2.50	+0.24 -0.49 +3.05 +3.05 -0.06 -0.21 -0.21 -0.21
-2 1 12	+1.82 +2.44 +10.33 +10.33 +1.13 +0.51 +0.51 +0.51	-1.22 +4.04 +4.29 +4.29 +2.59 +2.38 +1.82 +1.82	-4.78 -4.57 -3.67 -3.67 +0.22 -0.36 -0.36 -0.36

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
-1 1 01	+0.04	+1.01	+8.51	+8.51	-0.07	+3.13	+3.38	+3.38	-5.91	-5.61	-7.54	-7.54
	+0.31	-0.54	-0.54	-0.54	+0.60	-0.11	-0.67	-0.67	+0.03	+0.23	+0.23	+0.23
-1 1 02	+0.47	-4.10	+1.63	+3.05	+2.14	+2.57	+2.82	+1.89	-4.71	-3.00	-7.19	-1.96
	+3.50	+1.29	+1.29	+1.29	+1.13	-2.03	-2.59	-2.78	+0.86	-0.31	-0.31	-0.31
-1 1 03	+0.56	-1.73	+1.35	+1.35	+3.06	+3.11	+3.36	+3.36	+3.11	+2.87	-2.39	-2.39
	+0.67	+1.03	+1.03	+1.03	-2.35	-1.55	-2.11	-2.11	+0.30	+0.07	+0.07	+0.07
-1 1 04	+1.71	+1.42	+1.67	+2.77	+3.34	+4.08	+4.32	+3.62	+5.96	+5.65	+0.79	+6.68
	+1.92	+2.24	+2.24	+2.24	-0.05	+0.55	-0.01	+0.20	-0.18	-0.36	-0.36	-0.07
-1 1 05	+5.75	+6.54	+4.54	+6.24	+1.36	+3.07	+3.32	+1.91	+7.07	+2.40	-0.70	+3.55
	-0.95	+0.48	+0.48	+0.48	+2.75	+1.25	+0.69	+2.10	-1.16	-0.54	-0.54	-1.61
-1 1 06	+4.18	+5.90	+2.83	+3.11	+1.02	+2.94	+3.19	+1.22	-0.36	-1.30	-1.75	+1.47
	-0.84	-0.36	-0.36	-0.36	+4.48	+1.40	+0.84	+3.42	+0.01	-0.93	-0.93	+0.36
-1 1 07	+1.24	+3.33	+0.66	+0.66	+1.97	+4.49	+4.73	+4.73	-4.86	-4.04	-1.66	-1.66
	-0.72	-0.45	-0.45	-0.45	+0.33	-0.24	-0.80	-0.80	-0.43	-0.78	-0.78	-0.78
-1 1 08	+1.74	-0.09	-1.00	+1.62	+3.18	+1.83	+2.08	+3.22	-1.53	-2.48	+2.14	+1.09
	+0.45	-1.40	-1.40	-1.40	-1.21	-2.54	-3.10	-1.53	-0.99	-0.01	-0.01	-1.43
-1 1 09	+2.08	-0.38	+1.36	+1.93	+1.00	-0.17	+0.07	+0.66	+5.44	+3.72	+9.42	+7.50
	-0.16	-0.90	-0.90	-0.91	-2.43	-2.36	-2.92	-3.33	-0.70	-0.15	-0.15	+0.52
-1 1 10	+5.02	+1.13	+5.69	+6.35	-0.48	-1.73	-1.49	+0.52	+7.83	+6.68	+11.99	+7.72
	+1.03	+0.07	+0.07	+0.07	+0.13	+0.47	-0.09	+0.46	+0.22	+0.16	+0.16	+0.30
-1 1 11	+9.60	+5.14	+11.95	+11.74	-2.67	+2.00	+2.25	-1.19	+6.57	+2.83	+6.38	+9.12
	-1.08	+0.07	+0.07	+0.07	+2.10	+2.30	+1.74	+2.12	+0.40	+0.02	+0.02	-0.30
-1 1 12	+2.63	+4.22	+12.11	+11.90	+0.45	+2.57	+2.82	+0.68	-3.90	-2.66	-1.76	+0.63
	+1.44	-0.01	-0.01	-0.01	+2.54	+1.92	+1.36	+1.50	+0.02	+0.10	+0.10	-0.39

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+0 1 01	-1.46	-1.23	+6.26	+6.26	+0.85	-0.47	-0.22	-0.22	-8.48	-7.64	-9.57	-9.57
	+0.23	+0.14	+0.14	+0.14	+0.15	+0.05	-0.51	-0.51	+0.56	+0.49	+0.49	+0.49
+0 1 02	+1.42	+6.03	+0.30	+1.73	+1.69	+2.22	+1.98	+1.71	-1.54	-1.39	-5.58	+0.33
	+1.23	-0.70	-0.70	-0.69	+6.17	+2.51	+3.07	+5.49	+0.55	+0.43	+0.43	+1.45
+0 1 03	+1.75	+4.66	+1.58	+1.70	+2.23	+2.45	+2.20	+2.62	+7.02	+6.45	+1.19	+5.97
	-0.23	-0.18	-0.18	-0.18	+3.99	+1.90	+2.46	+4.14	-0.49	+0.72	+0.72	-0.57
+0 1 04	+1.50	+0.00	+0.26	+1.88	-3.36	+0.00	+0.25	-2.71	+9.71	+0.00	-4.86	+8.50
	+1.21	-0.00	-0.00	-0.00	+2.55	+0.00	-0.56	+0.83	-0.08	+0.00	+0.00	-0.18
+0 1 05	+5.30	+0.00	-2.00	+5.48	-0.33	+0.00	+0.25	-1.83	+6.96	+0.00	-3.11	+7.29
	+0.70	+0.00	-0.00	-0.00	+2.68	+0.00	-0.56	+3.23	-0.49	+0.00	+0.00	-0.02
+0 1 06	-4.66	-6.35	-3.28	-4.74	+3.03	+3.65	+3.41	+5.63	+2.32	-4.91	-5.36	+1.82
	-0.04	-0.04	-0.05	-0.04	-4.33	-2.82	-2.26	-3.52	-1.29	-0.37	-0.37	-1.14
+0 1 07	-1.35	-1.98	+0.69	+0.69	-4.25	-3.77	-4.02	-4.02	-8.55	-9.31	-6.94	-6.94
	-0.27	-0.36	-0.36	-0.36	+0.14	+0.24	+0.79	+0.79	-0.08	-0.01	-0.01	-0.01
+0 1 08	-2.37	-3.63	-4.54	-0.94	-2.52	-0.11	+0.14	+3.12	-2.44	-7.41	-2.78	-4.55
	-0.33	+0.39	+0.39	+0.39	-3.15	-3.91	-4.47	-3.82	-1.35	-0.33	-0.33	-0.68
+0 1 09	-0.10	-3.39	-1.65	+0.66	-1.81	-0.60	-0.35	-1.74	+7.29	+2.67	+8.37	+5.79
	-0.24	+0.19	+0.19	+0.19	-3.58	-3.07	-3.63	-3.94	-0.67	-0.19	-0.19	-0.96
+0 1 10	-6.06	-0.34	-4.90	-5.69	+3.54	+1.36	+1.11	+4.14	+11.64	+5.30	+10.60	+9.96
	+0.98	-0.25	-0.25	-0.25	+2.31	+1.14	+1.70	+1.71	-0.82	-0.63	-0.63	-0.60
+0 1 11	-9.52	-2.43	-9.24	-8.59	+2.10	+0.38	+0.14	+2.51	+6.79	+3.79	+7.34	+8.26
	-0.55	-0.98	-0.98	-0.98	-3.14	-3.63	-3.07	-3.10	+0.11	-0.05	-0.05	-0.28
+0 1 12	+12.74	+4.04	+11.93	+11.24	-1.08	+0.21	+0.46	-0.93	-3.24	-7.16	-6.26	-3.43
	+0.45	+0.78	+0.78	+0.78	+3.75	+3.81	+3.25	+3.56	-0.58	+0.05	+0.05	-0.02

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+1 1 01	+1.78	-0.67	-8.17	-8.17	-1.69	+2.50	+2.26	+2.26	-6.00	-5.36	-7.30	-7.30
	-0.13	+0.11	+0.11	+0.11	+0.46	+0.82	+1.38	+1.38	+0.46	+0.31	+0.31	+0.31
+1 1 02	-0.17	+2.68	-3.06	-2.00	+4.51	+3.57	+3.33	+9.09	-3.59	-3.31	-7.50	-6.13
	+1.86	+1.95	+1.95	+1.95	+3.10	+1.92	+2.47	+3.79	-1.54	-1.01	-1.01	-1.46
+1 1 03	+1.61	+2.84	-0.25	+0.06	+1.65	+1.73	+1.48	+4.23	+4.70	+2.55	-2.71	+1.11
	-2.24	+0.03	+0.03	+0.03	+2.31	+1.71	+2.27	+2.50	-0.67	+0.18	+0.18	-0.39
+1 1 04	-1.57	-2.08	-2.34	-1.71	+4.23	+1.94	+1.69	+4.53	+5.53	+5.14	+0.27	+7.61
	-1.25	+1.59	+1.59	+1.59	-1.34	-0.21	+0.35	-0.01	-0.19	+0.06	+0.06	-0.47
+1 1 05	-2.01	-5.06	-3.07	-3.07	+1.07	+0.60	+0.36	+0.36	+3.70	+1.53	-1.57	-1.57
	-0.27	+1.12	+1.12	+1.12	-2.74	-1.79	-1.23	-1.23	+0.39	+0.92	+0.92	+0.92
+1 1 06	+0.03	-3.96	-0.89	-0.89	-0.57	+0.06	-0.18	-0.18	+2.34	-3.81	-4.27	-4.27
	-1.21	+1.24	+1.24	+1.24	-4.71	-1.64	-1.08	-1.08	-0.45	-0.00	-0.00	-0.00
+1 1 07	+0.10	-0.55	+2.12	+2.12	-2.28	-0.27	-0.52	-0.52	-6.72	-7.08	-4.71	-4.71
	-0.28	-0.52	-0.52	-0.52	+0.86	+1.22	+1.78	+1.78	+0.75	+0.90	+0.90	+0.90
+1 1 08	+5.44	+3.75	+4.66	+3.44	+2.06	+0.08	-0.16	+3.41	+1.98	-3.20	+1.42	+7.04
	+0.65	+0.03	+0.03	+0.03	+1.45	+2.37	+2.93	+1.34	+0.50	+0.39	+0.39	-0.05
+1 1 09	+2.93	+2.15	+0.42	-0.32	+2.58	+0.40	+0.15	+5.05	+8.39	+3.43	+9.12	+10.42
	-0.73	+0.15	+0.15	+0.15	+3.73	+2.01	+2.57	+3.74	+0.22	-0.13	-0.13	-0.03
+1 1 10	-2.39	-0.96	-5.51	-5.38	+4.26	+1.45	+1.20	+5.25	+10.54	+5.64	+10.95	+13.81
	-0.44	+1.22	+1.22	+1.22	+1.60	+0.77	+1.33	+1.39	+0.56	-0.12	-0.12	+0.56
+1 1 11	-7.57	-4.08	-10.90	-9.46	+5.17	+2.03	+1.79	+6.26	+5.63	+3.46	+7.01	+7.70
	-0.84	-0.32	-0.32	-0.32	-0.52	-1.87	-1.31	-1.38	-0.45	-0.26	-0.26	-0.16
+1 1 12	-10.63	-6.02	-13.91	-13.91	+0.74	+2.02	+1.77	+1.77	+1.64	-3.31	-2.41	-2.41
	-0.26	+0.46	+0.46	+0.46	-1.62	-1.60	-1.04	-1.04	+0.96	+0.35	+0.35	+0.35

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+2 1 01	+0.80	-0.02	-7.52	-7.52	-7.52	-2.17	-2.42	-2.42	-6.07	-5.03	-6.97	-6.97
	-0.04	-0.41	-0.41	-0.41	-0.83	-0.20	+0.36	+0.36	+0.52	+0.63	+0.63	+0.63
+2 1 02	+5.07	+2.54	-3.20	-3.20	-2.05	+2.84	+2.59	+2.59	-2.28	-1.74	-5.92	-5.92
	+0.83	-0.44	-0.44	-0.44	+1.32	+2.21	+2.76	+2.76	-0.81	+0.28	+0.28	+0.28
+2 1 03	+6.14	+5.60	+2.51	+2.51	-3.28	+1.50	+1.25	+1.25	+2.72	+4.99	-0.27	-0.27
	-0.05	-0.40	-0.40	-0.40	+1.04	+1.56	+2.12	+2.12	+0.53	+0.31	+0.31	+0.31
+2 1 04	-0.16	-2.47	-2.72	-2.72	-2.53	+1.26	+1.01	+1.01	+5.70	+7.17	+2.31	+2.31
	-0.47	+0.40	+0.40	+0.40	-0.34	+0.61	+1.17	+1.17	-0.12	+0.55	+0.55	+0.55
+2 1 05	-4.87	-6.42	-4.42	-2.31	-3.65	+12.14	+11.90	+2.97	+2.83	+4.70	+1.60	+8.64
	-0.24	+0.05	+0.05	+0.04	-1.91	-1.27	-0.71	-2.76	-0.13	-0.14	-0.14	+0.62
+2 1 06	-3.62	-6.20	-3.13	-3.13	-3.32	-0.37	-0.62	-0.62	-2.62	-2.17	-2.62	-2.62
	+0.89	-0.28	-0.28	-0.28	-1.72	-1.15	-0.59	-0.59	-0.50	-0.03	-0.03	-0.03
+2 1 07	-0.75	-2.11	+0.56	+0.56	-7.18	-4.18	-4.42	-4.42	-6.56	-5.75	-3.38	-3.38
	-0.27	-0.40	-0.40	-0.40	-0.48	-0.18	+0.38	+0.38	-0.06	-0.12	-0.12	-0.12
+2 1 08	+2.96	+1.29	+2.20	+2.20	-3.77	-0.95	-1.20	-1.20	-2.76	-1.97	+2.65	+2.65
	-0.26	-0.47	-0.47	-0.47	+1.98	+3.35	+3.90	+3.90	-0.35	-0.37	-0.37	-0.37
+2 1 09	+2.74	+1.70	-0.03	-1.14	-3.00	+0.54	+0.29	+3.99	+3.51	+3.10	+8.80	+15.17
	+0.04	-0.04	-0.04	-0.04	+1.94	+2.45	+3.01	+1.65	+0.08	-0.01	-0.01	+0.71
+2 1 10	-1.40	-0.74	-5.30	-5.76	-1.83	+2.58	+2.33	+8.74	+5.29	+6.54	+11.84	+13.94
	-0.02	-0.09	-0.09	-0.09	+0.26	+1.09	+1.65	+1.53	+0.00	-0.40	-0.40	-0.59
+2 1 11	-1.60	-1.41	-8.23	-8.23	-3.90	+0.83	+0.58	+0.58	+0.80	+2.56	+6.11	+6.11
	+0.45	-0.47	-0.47	-0.47	-2.03	-2.78	-2.22	-2.22	+0.67	+0.07	+0.07	+0.07
+2 1 12	-0.23	-1.73	-9.62	-9.62	-2.61	+3.35	+3.10	+3.10	-3.88	-3.16	-2.27	-2.27
	+0.11	+0.01	+0.01	+0.01	-1.64	-1.65	-1.09	-1.09	+0.64	-0.47	-0.47	-0.47

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
-2 2 01	-3.18	-2.86	+5.10	+5.10	-4.19	+0.24	+0.49	+0.49	-5.77	-6.24	-8.52	-8.52
	+0.13	-0.14	-0.14	-0.14	-0.31	-0.33	-0.89	-0.89	+0.21	-0.04	-0.04	-0.04
-2 2 02	-3.58	-2.99	+3.20	+3.20	-3.87	+0.64	+0.89	+0.89	-4.38	-4.03	-8.56	-8.56
	+0.37	+0.23	+0.23	+0.23	-1.81	-1.97	-2.53	-2.53	-1.46	-1.52	-1.52	-1.52
-2 2 03	-5.87	-5.08	-1.54	+1.48	-0.08	+4.36	+4.60	+6.53	+2.79	+3.20	-2.40	+6.09
	-0.39	-0.54	-0.54	-0.54	-1.78	-1.94	-2.50	-4.85	+0.01	+0.03	+0.03	+0.86
-2 2 04	-0.48	+0.54	+1.25	+2.75	-0.01	+4.56	+4.81	+5.35	+5.97	+6.35	+1.14	+5.73
	+0.62	+0.50	+0.50	+0.50	-1.54	-1.70	-2.26	-1.54	-0.02	+0.07	+0.07	+0.72
-2 2 05	+4.44	+6.20	+4.66	+5.70	-0.91	+3.50	+3.75	+12.27	+2.79	+3.29	-0.15	+0.92
	+0.20	-0.14	-0.14	-0.14	+1.05	+0.92	+0.36	+1.76	-0.43	-0.35	-0.35	-0.56
-2 2 06	+4.14	+5.41	+2.80	+2.80	-0.49	+4.77	+5.01	+5.01	-2.39	-2.40	-3.19	-3.19
	-0.45	-0.43	-0.43	-0.43	+1.64	+1.48	+0.93	+0.93	-0.34	-0.19	-0.19	-0.19
-2 2 07	+0.65	+1.75	-0.46	-0.46	-1.09	+4.19	+4.43	+4.43	-5.95	-6.75	-4.71	-4.71
	-0.63	-0.16	-0.16	-0.16	-0.42	-0.99	-1.55	-1.55	-0.54	-0.13	-0.13	-0.13
-2 2 08	-2.75	-1.68	-2.14	-2.14	-3.51	+2.38	+2.63	+2.63	-4.15	-4.57	-0.28	-0.28
	-0.72	-0.58	-0.58	-0.58	-2.09	-2.25	-2.81	-2.81	-0.06	-0.00	-0.00	-0.00
-2 2 09	-1.60	-0.69	+1.50	+1.50	-1.89	+4.09	+4.34	+4.34	+1.76	+2.08	+7.44	+7.44
	-0.39	+0.24	+0.24	+0.24	-1.86	-2.17	-2.73	-2.73	-0.80	-0.77	-0.77	-0.77
-2 2 10	-1.08	-0.46	+4.55	+4.96	-1.05	+4.79	+5.03	+10.99	+3.30	+2.86	+7.83	+1.89
	-0.11	+0.01	+0.01	+0.01	+0.73	+0.57	+0.01	+1.58	+0.70	+0.61	+0.61	-0.28
-2 2 11	+1.36	+2.67	+9.94	+9.88	-1.89	+3.83	+4.08	+15.25	+2.64	+2.03	+5.24	-4.93
	+0.53	-0.27	-0.27	-0.27	+1.55	+1.67	+1.11	+0.86	+0.21	-0.17	-0.17	+0.21
-2 2 12	+1.53	+1.91	+10.25	+10.25	-1.01	+4.13	+4.37	+4.37	-4.84	-4.89	-4.33	-4.33
	+1.10	+1.08	+1.08	+1.08	+2.69	+2.53	+1.97	+1.97	-0.06	-0.21	-0.21	-0.21

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
-1 2 01	-2.63	-1.12	+6.83	+6.83	-1.77	+0.83	+1.08	+1.08	-5.84	-5.65	-7.92	-7.92
	-0.02	-0.59	-0.58	-0.58	+0.33	-0.29	-0.85	-0.85	-0.44	-0.02	-0.02	-0.02
-1 2 02	+1.60	-3.85	+2.35	+4.12	+3.19	+6.11	+6.36	+4.87	-4.60	-2.92	-7.44	-4.89
	-1.07	-0.60	-0.60	-0.60	-4.06	-2.25	-2.81	-4.77	+1.01	+0.70	+0.70	+1.59
-1 2 03	+0.72	-2.85	+0.69	+0.69	+4.64	+4.28	+4.53	+4.53	-0.52	+2.61	-2.99	-2.99
	-3.14	-0.30	-0.30	-0.30	-2.26	-2.38	-2.94	-2.94	+0.04	-0.40	-0.40	-0.40
-1 2 04	+1.70	+0.42	+1.13	+1.13	+2.95	+3.79	+4.04	+4.04	+5.25	+4.27	-0.94	-0.94
	-1.19	+0.18	+0.18	+0.18	-1.94	-1.74	-2.30	-2.30	-0.13	-0.22	-0.22	-0.22
-1 2 05	+4.68	+4.41	+2.87	+2.87	-2.75	+1.43	+1.68	+1.68	+12.32	+1.99	-1.45	-1.45
	-3.03	+0.25	+0.25	+0.25	+2.11	+0.23	-0.33	-0.33	+0.28	+0.81	+0.81	+0.81
-1 2 06	+4.60	+5.96	+3.35	+4.27	-2.98	+2.13	+2.38	-0.35	+2.29	-2.28	-3.08	-2.96
	-3.18	-0.84	-0.84	-0.84	+3.33	+0.98	+0.42	+2.24	-0.17	+0.07	+0.07	-0.10
-1 2 07	+2.30	+4.58	+2.36	+2.36	-0.83	+1.80	+2.05	+2.05	-5.05	-5.62	-3.58	-3.58
	-0.53	-0.83	-0.83	-0.83	-0.16	-0.47	-1.03	-1.03	-0.42	-0.45	-0.45	-0.45
-1 2 08	-0.83	+1.63	+1.17	+1.17	-1.06	+1.91	+2.16	+2.16	-4.94	-4.00	+0.29	+0.29
	-0.98	-1.21	-1.21	-1.21	-2.36	-2.68	-3.24	-3.24	-0.65	-0.58	-0.58	-0.58
-1 2 09	+2.51	+0.30	+2.49	+2.49	+1.63	+1.75	+2.00	+2.00	+5.06	+1.71	+7.06	+7.06
	-2.17	-1.44	-1.44	-1.44	-3.19	-3.02	-3.58	-3.58	+0.24	-0.13	-0.13	-0.13
-1 2 10	+5.91	+1.82	+6.83	+6.88	-1.07	+0.63	+0.87	+0.07	+7.75	+4.58	+9.54	+9.49
	-0.58	-0.46	-0.46	-0.46	-0.50	-0.56	-1.12	-0.23	+0.38	+0.54	+0.54	+0.48
-1 2 11	+11.19	+4.56	+11.83	+10.99	-2.90	-0.57	-0.33	-2.24	+5.52	+2.06	+5.27	+8.04
	-2.54	-1.37	-1.37	-1.37	+1.11	+1.66	+1.10	+1.46	-0.57	-0.06	-0.06	+0.25
-1 2 12	+10.28	+2.86	+11.20	+11.20	-1.27	+1.08	+1.33	+1.33	+2.92	-3.12	-2.56	-2.56
	-2.79	-0.39	-0.39	-0.39	+0.94	+1.94	+1.38	+1.38	+0.45	-0.40	-0.40	-0.40

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x			y or ϕ_y			z or ϕ_z					
+0 2 01	-1.28	-0.96	+6.99	+5.95	+1.54	+0.20	+0.44	+1.24	-9.57	-8.80	-11.07	-2.84
	-1.18	-1.27	-1.27	-1.27	-0.75	-0.85	-1.41	-1.43	-1.13	-1.20	-1.20	-0.45
+0 2 02	+0.10	+4.89	-1.30	+0.56	+0.74	+0.39	+0.14	+2.08	-0.29	-3.97	-8.49	-3.27
	-0.55	-0.15	-0.15	-0.14	+1.84	+2.31	+2.87	+1.54	+0.06	+0.14	+0.14	+1.92
+0 2 03	+0.14	+4.17	+0.63	-0.01	-0.50	+0.04	-0.21	-0.66	+5.94	+5.16	-0.44	+4.27
	-1.97	-0.35	-0.35	-0.34	+2.71	+2.67	+3.23	+3.66	+1.35	+0.45	+0.45	+1.35
+0 2 04	+3.07	+0.00	+0.71	+3.37	-5.61	+0.00	+0.25	-5.36	+7.20	+0.00	-5.20	+9.49
	+1.18	-0.00	-0.00	+0.00	-3.58	+0.00	-0.56	-2.89	-0.07	+0.00	+0.00	-0.27
+0 2 05	+5.81	+7.31	+5.78	+5.78	+0.01	+0.41	+0.66	+0.66	+9.63	-4.73	-8.17	-8.17
	-0.30	-8.62	-8.62	-8.62	+0.04	+2.40	+1.84	+1.84	+0.66	-0.22	-0.22	-0.22
+0 2 06	-4.40	-6.33	-3.71	-5.15	+1.87	+2.18	+1.93	+4.53	+1.46	-2.36	-3.15	+4.03
	-2.26	-0.61	-0.61	-0.61	-4.17	-2.93	-2.37	-2.80	+0.39	+0.64	+0.64	+0.56
+0 2 07	-1.17	-1.88	+0.34	+0.34	+1.23	+1.68	+1.44	+1.44	-7.63	-8.45	-6.41	-6.41
	+0.19	+0.10	+0.10	+0.10	-0.26	-0.16	+0.40	+0.40	+0.62	+0.69	+0.69	+0.69
+0 2 08	-0.77	-2.44	-2.90	+0.05	-2.94	-1.09	-0.84	+4.74	-1.32	-6.45	-2.16	+1.98
	+0.19	+0.23	+0.23	+0.24	-3.75	-3.82	-4.38	-3.74	-0.69	+0.15	+0.15	-1.31
+0 2 09	+0.86	-2.75	-0.57	+1.68	-0.49	+0.99	+1.23	+5.28	+8.23	+1.77	+7.12	+8.36
	+0.25	+0.11	+0.11	+0.11	-3.81	-3.47	-4.03	-3.56	+0.32	-0.28	-0.28	-0.28
+0 2 10	-4.45	+0.84	-4.18	-4.09	+3.94	+1.84	+1.59	+4.98	+15.12	+6.44	+11.41	+9.38
	-1.29	-0.75	-0.75	-0.75	+0.33	+1.03	+1.59	+0.82	+0.13	-0.21	-0.21	+0.47
+0 2 11	-9.20	-1.70	-8.97	-7.69	+3.56	+0.85	+0.61	+3.62	+6.61	+3.50	+6.71	+5.81
	-0.59	-0.32	-0.32	-0.32	-4.99	-3.09	-2.53	-3.75	+1.10	-0.12	-0.12	+0.20
+0 2 12	+14.33	+4.22	+12.57	+12.57	-0.78	-0.36	-0.11	-0.11	-0.31	-5.96	-5.40	-5.40
	-0.24	+0.04	+0.04	+0.04	+2.17	+3.56	+3.00	+3.00	+0.50	-0.19	-0.19	-0.19

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1 2 01	+1.74 -1.01 -8.96 -8.96 -0.07 +0.17 +0.17 +0.17	+0.77 +5.07 +4.83 +4.83 -0.45 -0.09 +0.47 +0.47	-6.35 -5.93 -8.20 -8.20 -0.60 -0.75 -0.75 -0.75
+1 2 02	+5.93 +3.06 -3.14 -3.14 +0.16 +0.44 +0.44 +0.44	-2.42 +2.13 +1.88 +1.88 +1.92 +2.28 +2.84 +2.84	-3.38 -3.48 -8.00 -8.00 -0.04 -0.05 -0.05 -0.05
+1 2 03	-0.50 +2.07 -1.47 -1.47 -2.65 +0.15 +0.15 +0.15	+1.90 +3.32 +3.08 +3.08 +1.67 +1.98 +2.54 +2.54	+6.58 +1.40 -4.20 -4.20 +0.61 -0.22 -0.22 -0.22
+1 2 04	-1.20 -2.16 -2.87 -1.79 -2.04 +0.93 +0.93 +0.93	+4.89 +2.75 +2.51 +6.74 +1.38 -0.09 +0.47 +1.34	+5.78 +2.60 -2.60 +4.61 -0.58 -0.52 -0.52 -0.28
+1 2 05	-0.76 -4.58 -3.04 -3.04 -3.50 +0.18 +0.18 +0.18	+2.68 +2.62 +2.38 +2.38 -2.62 -1.56 -1.00 -1.00	+1.85 +1.86 -1.58 -1.58 -0.61 +0.31 +0.31 +0.31
+1 2 06	+1.14 -4.05 -1.44 -0.55 -2.82 +0.17 +0.17 +0.17	+3.69 +2.14 +1.90 +4.43 -3.61 -1.52 -0.96 -0.92	+0.23 -4.21 -5.01 +4.31 -0.58 +0.32 +0.32 -0.79
+1 2 07	-1.32 -2.27 -0.05 -0.05 -0.64 -0.88 -0.88 -0.88	-1.83 +0.07 -0.18 -0.18 +0.36 +0.72 +1.28 +1.28	-6.68 -7.25 -5.21 -5.21 -0.08 +0.07 +0.07 +0.07
+1 2 08	+5.21 +3.37 +3.83 +3.83 -3.19 -0.65 -0.65 -0.65	+1.31 +1.75 +1.50 +1.50 +3.03 +2.44 +3.00 +3.00	+6.82 -4.00 +0.28 +0.28 +0.01 +0.25 +0.25 +0.25
+1 2 09	+3.23 +3.13 +0.94 -0.62 -2.07 +0.01 +0.01 +0.01	+0.79 +0.29 +0.04 +5.21 +2.60 +2.26 +2.81 +3.28	+9.98 +1.97 +7.33 +7.00 +0.10 -0.00 -0.00 +0.44
+1 2 10	-1.93 -0.96 -5.97 -4.72 -1.28 -0.59 -0.59 -0.59	+5.98 +2.91 +2.67 +7.77 -0.53 +0.57 +1.13 -0.80	+9.05 +4.64 +9.60 +10.44 +0.79 +0.10 +0.10 +0.73
+1 2 11	-4.42 +0.10 -7.17 -7.22 -1.53 -0.41 -0.41 -0.41	+3.67 +2.87 +2.62 +5.42 -2.49 -0.43 +0.12 -2.45	+6.69 +2.34 +5.55 +8.34 +1.00 +0.19 +0.19 +1.05
+1 2 12	-6.34 +0.00 -8.34 -7.39 -1.41 +0.00 +0.00 -0.00	+2.78 +0.00 -0.25 +5.67 -1.18 +0.00 +0.56 -1.64	+0.11 +0.00 +0.56 -2.72 -0.24 -0.00 -0.00 +0.42

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+2 2 01	+2.01	+0.00	-7.95	-7.95	-5.05	+0.00	-0.25	-0.25	-6.10	+0.00	-2.27	-2.27
	+0.37	-0.00	+0.00	+0.00	-0.26	+0.00	+0.56	+0.56	+0.56	+0.00	-0.00	-0.00
+2 2 02	+6.23	+5.13	-1.06	-1.06	-2.82	+3.56	+3.32	+3.32	-2.99	-3.19	-7.72	-7.72
	-0.05	-0.48	-0.48	-0.48	+1.73	+1.77	+2.33	+2.33	+0.16	+0.82	+0.82	+0.82
+2 2 03	+5.77	+4.17	+0.63	+0.63	-2.76	+2.56	+2.31	+2.31	+2.30	+2.52	-3.08	-3.08
	-0.32	-0.49	-0.49	-0.49	+1.53	+2.25	+2.81	+2.81	+0.23	+0.64	+0.64	+0.64
+2 2 04	+0.35	-1.68	-2.39	-2.39	-1.78	+2.63	+2.38	+2.38	+4.68	+5.36	+0.16	+0.16
	-0.38	-0.85	-0.85	-0.85	-0.20	+0.44	+1.00	+1.00	-0.37	+0.33	+0.33	+0.33
+2 2 05	-2.84	-4.69	-3.15	-3.15	-0.76	+2.48	+2.23	+2.23	+3.66	+4.08	+0.64	+0.64
	-0.47	-1.50	-1.50	-1.50	-1.75	-1.08	-0.52	-0.52	+0.18	+0.55	+0.55	+0.55
+2 2 06	-3.42	-5.59	-2.98	-2.98	-2.23	-0.05	-0.29	-0.29	-2.92	-2.22	-3.02	-3.02
	-0.14	-0.43	-0.43	-0.43	-1.77	-1.25	-0.69	-0.69	-0.26	-0.06	-0.06	-0.06
+2 2 07	-2.27	-4.22	-2.01	-2.01	-4.29	-1.77	-2.01	-2.01	-6.72	-6.61	-4.58	-4.58
	+0.22	-0.48	-0.48	-0.48	-0.10	+0.36	+0.92	+0.92	+0.21	+0.47	+0.47	+0.47
+2 2 08	+3.25	+2.13	+2.59	+2.59	-2.40	-0.05	-0.30	-0.30	-4.12	-4.11	+0.18	+0.18
	-0.33	-0.42	-0.42	-0.42	+2.15	+2.85	+3.41	+3.41	-0.15	-0.21	-0.21	-0.21
+2 2 09	+2.69	+2.67	+0.48	-2.75	-2.90	+1.02	+0.77	+7.22	+2.20	+2.61	+7.97	+11.15
	+0.19	-0.20	-0.20	-0.20	+2.34	+2.45	+3.01	+1.37	-0.08	-0.03	-0.03	+0.21
+2 2 10	-0.16	+0.23	-4.79	-5.99	-2.12	+2.62	+2.37	+15.73	+3.91	+6.28	+11.25	+7.57
	-0.40	+0.48	+0.48	+0.48	+0.32	+0.59	+1.15	-1.32	+0.07	-0.52	-0.52	+1.80
+2 2 11	-0.21	-0.45	-7.72	-5.98	-2.41	+2.29	+2.04	+3.40	+2.35	+3.23	+6.44	+11.32
	+0.26	+0.62	+0.62	+0.63	-1.85	-2.02	-1.46	-1.29	+0.26	-0.32	-0.32	-1.36
+2 2 12	+0.63	-0.17	-8.52	-8.52	-0.47	+6.95	+6.70	+6.70	-3.74	-3.24	-2.68	-2.68
	+0.23	+0.13	+0.13	+0.13	-1.84	-2.43	-1.87	-1.87	+0.05	-0.09	-0.09	-0.09

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
-2 3 01	-1.91	-1.37	+7.17	+7.17	-1.71	+2.51	+2.75	+2.75	-5.81	-6.75	-8.78	-8.78
	+0.42	-0.44	-0.44	-0.44	+0.31	-0.11	-0.66	-0.66	-0.02	-0.18	-0.18	-0.18
-2 3 02	-3.08	-2.56	+4.22	+4.22	-1.75	+2.72	+2.97	+2.97	-2.83	-1.81	-6.10	-6.10
	+0.59	+0.04	+0.04	+0.04	-1.77	-1.85	-2.41	-2.41	+0.04	+0.07	+0.07	+0.07
-2 3 03	-2.28	-1.72	+2.41	+4.15	-1.39	+2.42	+2.67	+2.89	+1.95	+3.28	-2.08	+10.94
	+0.39	-0.04	-0.04	-0.04	-1.43	-1.59	-2.15	-1.48	+0.04	+0.34	+0.34	+0.03
-2 3 04	+0.17	+1.54	+2.84	+2.84	-0.87	+3.50	+3.75	+3.75	+4.64	+6.18	+1.22	+1.22
	-0.14	-0.48	-0.48	-0.48	+0.22	+0.19	-0.37	-0.37	+0.86	+0.82	+0.82	+0.82
-2 3 05	+4.70	+6.61	+5.66	+5.66	-1.11	+3.54	+3.79	+3.79	+2.62	+3.21	+0.02	+0.02
	+1.05	+0.72	+0.72	+0.72	+1.73	+1.72	+1.16	+1.16	+0.08	+0.08	+0.08	+0.08
-2 3 06	+4.99	+6.67	+4.64	+4.64	-0.90	+4.17	+4.42	+4.42	-3.09	-2.69	-3.24	-3.24
	-0.06	+0.13	+0.13	+0.13	+1.50	+1.45	+0.90	+0.90	-0.40	-0.25	-0.25	-0.25
-2 3 07	+1.68	+3.13	+1.50	+1.50	-1.68	+4.29	+4.53	+4.53	-4.90	-5.53	-3.26	-3.26
	-0.31	+0.15	+0.15	+0.15	+0.22	+0.08	-0.48	-0.48	-0.37	-0.08	-0.08	-0.08
-2 3 08	-1.04	+0.37	+0.50	+0.50	-2.89	+3.07	+3.32	+3.32	-2.43	-3.18	+1.35	+1.35
	-0.03	+0.72	+0.72	+0.72	-2.32	-2.14	-2.70	-2.70	+0.31	-0.11	-0.11	-0.11
-2 3 09	-0.59	+0.95	+3.72	+5.42	-4.09	+2.67	+2.92	+6.52	+3.02	+2.77	+8.37	+4.94
	-0.09	+0.44	+0.44	+0.44	-1.51	-1.79	-2.35	-2.77	+0.17	+0.08	+0.08	+0.69
-2 3 10	-0.75	+0.03	+5.63	+5.90	-2.62	+3.31	+3.55	+7.06	+4.23	+3.87	+9.08	+13.97
	-0.11	+0.01	+0.01	+0.01	+0.58	+0.42	-0.14	-1.50	+0.65	+0.56	+0.56	+1.41
-2 3 11	+2.00	+2.77	+10.63	+9.00	-1.54	+2.50	+2.75	+2.59	+1.77	+1.33	+4.78	+6.38
	+0.89	-0.16	-0.16	-0.16	+2.24	+1.95	+1.39	-0.04	-0.96	-0.34	-0.34	+0.89
-2 3 12	+1.01	+2.07	+11.01	+11.01	-1.50	+3.31	+3.55	+3.55	-4.64	-4.83	-4.03	-4.03
	+0.52	-0.60	-0.60	-0.60	+2.49	+2.23	+1.67	+1.67	+0.15	-0.03	-0.03	-0.03

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
-1 3 01	-4.20	-2.48	+6.06	+6.06	+0.18	+3.69	+3.93	+3.93	-5.79	-5.45	-7.48	-7.48
	+0.18	-0.19	-0.19	-0.19	+0.19	-0.36	-0.92	-0.92	-0.08	+0.42	+0.42	+0.42
-1 3 02	+3.18	-2.59	+4.19	+4.19	+2.16	+4.59	+4.84	+4.84	-2.18	-2.82	-7.11	-7.11
	-0.35	-0.60	-0.60	-0.60	-3.12	-1.50	-2.06	-2.06	+0.78	+1.30	+1.30	+1.30
-1 3 03	+2.09	-1.28	+2.85	+5.13	+0.78	+3.49	+3.73	+2.31	+6.79	+3.59	-1.77	+6.37
	-0.18	+0.15	+0.15	+0.15	-2.08	-1.76	-2.32	-2.58	-0.17	+0.08	+0.08	+0.03
-1 3 04	+2.59	+2.09	+3.39	+4.41	+1.90	+4.36	+4.61	+2.45	+9.21	+5.41	+0.45	+7.24
	+1.39	+0.48	+0.48	+0.48	-1.26	-0.73	-1.29	-1.50	+0.30	+0.56	+0.56	+0.59
-1 3 05	+3.24	+6.20	+5.25	+5.25	+1.23	+2.58	+2.82	+2.82	+6.99	+3.54	+0.34	+0.34
	-1.25	-0.30	-0.30	-0.30	+1.57	+1.36	+0.80	+0.80	+0.79	-0.27	-0.27	-0.27
-1 3 06	+7.58	+10.60	+8.57	+7.96	-2.14	+0.75	+1.00	-3.67	+2.85	-1.77	-2.32	+8.89
	-2.33	-0.74	-0.74	-0.74	+2.31	+1.53	+0.97	+1.73	+0.38	+0.10	+0.10	-0.32
-1 3 07	+3.78	+6.50	+4.88	+4.88	-0.98	+1.15	+1.40	+1.40	-4.36	-4.33	-2.05	-2.05
	-0.42	-0.26	-0.26	-0.26	+0.18	-0.02	-0.58	-0.58	+0.09	-0.31	-0.31	-0.31
-1 3 08	+3.90	+3.66	+3.79	+4.52	+1.26	+1.37	+1.62	-0.70	-0.53	-3.46	+1.08	+9.01
	+0.92	-0.52	-0.52	-0.52	-3.01	-2.42	-2.98	-2.18	-0.80	-0.73	-0.73	-1.63
-1 3 09	+4.22	+2.20	+4.97	+6.21	+0.47	-0.09	+0.16	+0.53	+4.93	+2.67	+8.27	+5.90
	+0.50	-0.54	-0.54	-0.54	-3.92	-2.19	-2.75	-3.98	-0.61	+0.15	+0.15	-0.58
-1 3 10	+6.33	+2.45	+8.05	+7.73	+2.12	+1.80	+2.05	+1.08	+8.81	+5.33	+10.54	+16.06
	+0.61	-0.77	-0.78	-0.77	-0.73	+0.09	-0.47	-1.02	+0.74	+0.59	+0.59	+0.05
-1 3 11	+10.24	+3.70	+11.56	+10.93	-1.11	+1.48	+1.72	-1.12	+5.98	+2.80	+6.25	+9.12
	-0.94	-0.99	-0.99	-0.99	+0.29	+1.76	+1.21	+0.15	-0.81	+0.36	+0.36	+0.70
-1 3 12	+10.05	+2.05	+10.99	+10.87	+0.03	+1.55	+1.80	+2.78	+0.54	-3.66	-2.86	-2.30
	-0.18	-0.55	-0.55	-0.56	+2.57	+1.93	+1.37	+1.71	+0.08	-0.07	-0.07	-1.68

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+0 3 01	-1.84	-1.42	+7.12	+7.12	+1.45	-0.02	+0.22	+0.22	-8.33	-7.51	-9.54	-9.54
	+0.10	+0.01	+0.01	+0.01	+0.07	-0.03	-0.59	-0.59	-0.06	-0.13	-0.13	-0.13
+0 3 02	-3.19	+4.60	-2.18	-2.74	+0.47	+2.19	+1.95	+0.82	-6.63	-3.41	-7.69	-1.04
	+1.87	-0.62	-0.62	-0.62	+3.84	+1.98	+2.54	+3.92	+1.19	+1.11	+1.11	+1.50
+0 3 03	-2.89	+2.95	-1.17	-2.56	+0.49	+2.23	+1.98	+1.61	+4.98	+5.61	+0.25	+5.53
	+2.73	+0.20	+0.20	+0.20	+3.65	+2.20	+2.76	+3.92	-0.04	+0.31	+0.31	+0.38
+0 3 04	+3.74	+1.85	+3.14	+4.46	-1.35	-0.35	-0.11	-2.02	+10.78	+10.47	+5.51	+6.46
	-0.81	-0.12	-0.12	-0.12	-0.03	-0.59	-1.15	-0.49	-0.38	+0.88	+0.88	+0.01
+0 3 05	+5.04	+7.58	+6.62	+4.81	+1.36	+0.84	+1.08	-0.57	+8.53	+6.09	+2.89	+9.96
	-0.93	+0.43	+0.43	+0.43	+4.07	+2.44	+1.88	+2.29	-0.50	-0.30	-0.30	-0.40
+0 3 06	-2.68	-5.92	-3.90	-3.14	-0.42	+9.05	+8.81	+18.51	-2.31	-4.02	-4.57	-3.24
	-0.01	-0.29	-0.29	-0.29	-3.29	-2.29	-1.73	-2.92	-0.45	-0.19	-0.19	-1.15
+0 3 07	-0.65	-1.46	+0.16	+0.16	+1.54	+1.86	+1.62	+1.62	-7.95	-8.73	-6.45	-6.45
	+0.29	+0.20	+0.20	+0.20	-0.35	-0.25	+0.31	+0.31	+0.13	+0.20	+0.20	+0.20
+0 3 08	-2.41	-2.74	-2.61	-0.48	-1.62	+1.11	+1.36	-12.70	+4.40	-5.66	-1.13	+8.23
	+0.32	-0.16	-0.16	-0.16	-4.34	-2.71	-3.27	-3.55	-0.65	+0.12	+0.12	+0.78
+0 3 09	+1.60	-1.67	+1.11	+2.93	-1.11	+0.16	+0.40	-6.86	+6.81	+2.67	+8.27	+9.91
	-0.04	+0.42	+0.42	+0.42	-2.69	-2.69	-3.25	-2.55	+0.20	+0.26	+0.26	+0.51
+0 3 10	-7.30	-0.91	-6.51	-6.94	+3.36	+1.52	+1.27	+4.64	+14.36	+7.21	+12.42	+15.78
	+1.63	-0.26	-0.26	-0.26	+1.19	+0.84	+1.40	+1.00	-0.16	-0.31	-0.31	+0.08
+0 3 11	-12.03	-3.64	-11.50	-11.00	+3.07	+1.99	+1.74	+2.99	+10.95	+4.32	+7.77	+10.00
	+0.01	-0.43	-0.43	-0.43	+1.83	-2.18	-1.62	-2.21	-0.05	-0.28	-0.28	-0.41
+0 3 12	+15.17	+4.29	+13.22	+13.22	-3.65	-2.18	-1.94	-1.94	-1.54	-5.32	-4.51	-4.51
	+1.69	+0.24	+0.24	+0.24	-0.08	+3.09	+2.53	+2.53	+0.14	+0.06	+0.06	+0.06

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+1 3 01	+2.69	-0.44	-8.98	-8.98	-0.42	+4.20	+3.96	+3.96	-5.81	-5.23	-7.26	-7.26
	-0.03	+0.21	+0.21	+0.21	-0.00	+0.36	+0.92	+0.92	+0.20	+0.05	+0.05	+0.05
+1 3 02	-1.93	+2.51	-4.27	-3.54	+1.10	+2.51	+2.27	+4.77	-0.24	-2.46	-6.75	+0.85
	+0.97	-0.06	-0.06	-0.07	+3.11	+1.70	+2.26	+3.38	+0.41	+0.56	+0.56	-0.74
+1 3 03	-2.54	+0.30	-3.83	-4.45	+1.64	+3.02	+2.78	+3.09	+5.36	+0.92	-4.43	+4.03
	-1.21	-0.16	-0.16	-0.16	+2.68	+1.93	+2.48	+2.93	-0.32	+0.11	+0.11	+0.48
+1 3 04	-1.49	-2.79	-4.09	-2.41	+4.63	+4.13	+3.88	+2.85	+5.18	+3.06	-1.90	+11.20
	-2.00	-0.36	-0.36	-0.36	+0.90	-0.01	+0.55	-0.14	+0.13	+0.30	+0.30	+0.38
+1 3 05	-0.60	-5.28	-4.32	-2.90	+1.39	+2.21	+1.97	+2.60	+3.52	+1.48	-1.72	+4.91
	-1.52	+0.60	+0.60	+0.60	-2.59	-0.65	-0.09	-1.95	-1.03	+0.05	+0.05	-0.86
+1 3 06	+0.21	-6.16	-4.14	-1.84	+3.40	+1.73	+1.48	+3.70	-1.61	-3.98	-4.53	+6.42
	-2.85	-0.29	-0.29	-0.29	-2.02	-1.08	-0.52	-2.34	-1.05	+0.26	+0.26	-0.13
+1 3 07	-0.67	-1.99	-0.37	-0.37	+0.23	+1.82	+1.57	+1.57	-5.77	-6.19	-3.91	-3.91
	+0.05	-0.19	-0.19	-0.19	+0.05	+0.41	+0.97	+0.97	+0.00	+0.15	+0.15	+0.15
+1 3 08	+3.06	+1.87	+1.74	+1.20	-0.64	+0.71	+0.46	+6.06	-4.56	-4.46	+0.07	+5.98
	-0.42	-0.70	-0.70	-0.71	+1.95	+2.31	+2.86	+3.51	+0.21	+0.21	+0.21	-1.89
+1 3 09	+1.09	+1.31	-1.46	-3.08	+2.06	-0.22	-0.47	+5.60	+9.63	+2.72	+8.32	+9.34
	+0.83	+0.32	+0.32	+0.32	+2.67	+1.95	+2.51	+2.75	-0.85	-1.19	-1.19	-0.38
+1 3 10	-4.22	-3.37	-8.97	-7.75	+4.41	+2.03	+1.78	+5.83	+12.87	+5.14	+10.34	+12.80
	-2.87	-0.57	-0.57	-0.57	-1.12	+0.94	+1.50	-0.35	-0.76	+0.01	+0.01	-0.96
+1 3 11	-7.20	-2.07	-9.92	-9.92	+3.08	+2.48	+2.23	+2.23	+9.15	+2.82	+6.27	+6.27
	+0.55	-0.63	-0.63	-0.63	-1.38	-1.72	-1.16	-1.16	+0.01	-0.06	-0.06	-0.06
+1 3 12	-9.85	-4.18	-13.12	-10.49	+2.35	+1.95	+1.71	+3.52	-0.32	-3.99	-3.19	+0.38
	+2.09	-0.49	-0.49	-0.49	+0.17	-1.68	-1.12	-0.57	-0.75	+0.04	+0.04	-0.15

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+2 3 01	+3.23	+2.52	-6.02	-6.02	-2.58	+2.92	+2.67	+2.67	-6.13	-6.03	-8.05	-8.05
	+0.77	+0.15	+0.15	+0.15	+0.30	+0.65	+1.21	+1.21	+0.61	+0.40	+0.40	+0.40
+2 3 02	+5.48	+4.00	-2.79	-2.79	-3.60	+1.63	+1.38	+1.38	-2.94	-2.32	-6.60	-6.60
	-0.02	+0.10	+0.10	+0.10	+1.39	+1.43	+1.99	+1.99	+0.46	+0.61	+0.61	+0.61
+2 3 03	+6.34	+4.73	+0.60	-0.47	-2.25	+2.72	+2.47	-3.73	+3.24	+3.29	-2.07	+19.70
	+0.16	-0.19	-0.19	-0.19	+1.63	+1.86	+2.42	+3.50	-0.09	+0.21	+0.21	+0.17
+2 3 04	-0.87	-3.07	-4.37	-0.69	-2.00	+0.59	+0.35	+10.73	+4.20	+5.60	+0.64	+3.92
	-0.81	-0.72	-0.72	-0.73	-0.03	+0.14	+0.70	+1.42	-0.23	-0.12	-0.12	-1.11
+2 3 05	-3.51	-6.94	-5.99	-5.99	-1.45	+1.38	+1.14	+1.14	+3.08	+3.12	-0.07	-0.07
	-0.11	-0.92	-0.92	-0.92	-1.18	-1.17	-0.61	-0.61	-0.29	+0.45	+0.45	+0.45
+2 3 06	-5.34	-7.90	-5.88	-5.88	-2.05	+4.19	+3.95	+3.95	-2.81	-2.49	-3.04	-3.04
	-0.60	-0.99	-0.99	-0.99	-1.69	-1.22	-0.67	-0.67	-0.28	-0.21	-0.21	-0.21
+2 3 07	-1.43	-3.03	-1.40	-1.40	-1.04	+1.00	+0.75	+0.75	-6.17	-5.60	-3.32	-3.32
	+0.44	+0.22	+0.22	+0.22	-0.07	+0.08	+0.64	+0.64	+0.69	+0.08	+0.08	+0.08
+2 3 08	+2.53	+1.18	+1.05	+1.05	-2.45	-0.01	-0.25	-0.25	-3.99	-2.71	+1.82	+1.82
	-1.12	+0.00	+0.00	+0.00	+2.19	+2.58	+3.14	+3.14	+0.04	-0.19	-0.19	-0.19
+2 3 09	+2.87	+0.90	-1.87	-1.27	-2.49	+2.07	+1.82	+14.08	+2.53	+3.15	+8.75	+6.11
	+0.32	+0.13	+0.13	+0.13	+1.79	+2.12	+2.68	+1.54	-0.61	-0.02	-0.02	+0.42
+2 3 10	-1.37	-1.03	-6.64	-7.18	-1.84	+2.77	+2.52	+12.14	+4.34	+5.96	+11.17	+11.25
	-0.47	+0.51	+0.51	+0.50	+0.81	+0.67	+1.23	+1.03	+0.26	-0.49	-0.49	-0.65
+2 3 11	-1.01	-1.14	-9.00	-9.00	-4.68	+1.32	+1.07	+1.07	+1.96	+3.06	+6.51	+6.51
	+0.42	+0.71	+0.71	+0.71	-2.29	-2.30	-1.74	-1.74	+0.39	+0.05	+0.05	+0.05
+2 3 12	-0.46	+0.02	-8.91	-8.91	-0.17	+1.81	+1.56	+1.56	-7.32	-3.00	-2.20	-2.20
	+0.37	+0.53	+0.53	+0.53	-2.98	-2.26	-1.70	-1.70	-0.22	+0.05	+0.05	+0.05

All the values

Jim Pivarski 40/24



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x	y or ϕ_y	z or ϕ_z
-2 4 01	-0.13 +0.58 +9.69 +9.69 +0.60 -0.35 -0.35 -0.35	-0.51 +4.10 +4.35 +4.35 +0.16 -0.44 -1.00 -1.00	-5.11 -6.39 -9.07 -9.07 -0.14 -0.34 -0.34 -0.34
-2 4 02	-1.71 -0.78 +6.57 +6.57 +0.52 -0.43 -0.43 -0.43	-0.50 +3.56 +3.81 +3.81 -1.04 -1.14 -1.70 -1.70	-5.20 -4.31 -9.25 -9.25 -1.23 -1.26 -1.26 -1.26
-2 4 03	-3.02 -1.12 +3.59 +4.38 +0.42 -0.51 -0.51 -0.52	-1.22 +2.71 +2.95 +2.95 -1.13 -1.35 -1.91 -3.58	-0.03 +0.80 -5.21 -5.20 -0.72 -0.65 -0.65 +2.29
-2 4 04	+0.93 +2.65 +4.52 +4.52 +0.67 -0.17 -0.17 -0.17	-3.95 +0.46 +0.70 +0.70 -0.47 -0.41 -0.96 -0.96	+4.80 +5.67 -0.31 -0.31 +0.18 +0.22 +0.22 +0.22
-2 4 05	+3.44 +5.61 +5.23 +5.23 +0.05 +0.29 +0.29 +0.29	-0.56 +4.07 +4.32 +4.32 +0.67 +0.77 +0.21 +0.21	+0.53 +1.91 -0.88 -0.88 +0.20 +0.11 +0.11 +0.11
-2 4 06	+3.79 +5.58 +4.13 +4.13 +0.20 +0.93 +0.93 +0.93	-1.74 +3.37 +3.62 +3.62 +0.82 +0.59 +0.03 +0.03	-4.66 -3.54 -3.68 -3.68 -0.44 -0.38 -0.38 -0.38
-2 4 07	+1.32 +2.92 +1.87 +1.87 +0.10 +0.44 +0.44 +0.44	+0.17 +6.33 +6.58 +6.58 -0.29 -0.11 -0.67 -0.67	-4.95 -5.89 -3.21 -3.21 -0.28 -0.11 -0.11 -0.11
-2 4 08	-1.65 -0.16 +0.54 +4.07 -0.67 +0.31 +0.31 +0.32	-1.99 +4.82 +5.06 +5.05 -1.34 -1.55 -2.11 -0.95	-2.40 -1.72 +3.17 +3.17 -0.39 -0.03 -0.03 -4.17
-2 4 09	-3.20 -2.01 +1.35 +5.76 -0.67 -0.52 -0.52 -0.52	-2.97 +3.30 +3.55 +3.54 -1.71 -1.87 -2.43 -0.21	+3.18 +2.73 +8.24 +8.25 -1.20 -1.22 -1.22 -4.43
-2 4 10	-0.06 +1.52 +7.69 +6.57 -0.42 -0.31 -0.31 -0.31	-3.15 +3.79 +4.03 +4.03 +0.27 +0.07 -0.49 -0.86	+5.57 +5.40 +9.72 +9.72 +0.09 -0.17 -0.17 +2.45
-2 4 11	+1.92 +3.34 +11.79 +11.79 +0.98 +0.02 +0.02 +0.02	-1.29 +4.70 +4.94 +4.94 +1.80 +1.39 +0.83 +0.83	+2.15 +2.19 +5.49 +5.49 -0.06 -0.25 -0.25 -0.25
-2 4 12	-1.11 +0.37 +9.88 +12.70 +0.32 -0.88 -0.88 -0.88	-0.75 +3.92 +4.17 +4.17 +1.52 +1.27 +0.71 +2.09	-3.53 -3.97 -3.77 -3.77 -0.34 -0.54 -0.54 -1.36
-2 4 13	+0.71 +2.54 +4.41 +4.69 -0.15 -0.28 -0.28 -0.28	-2.51 +1.86 +2.11 +2.11 -0.34 -0.15 -0.71 +1.40	+4.39 +5.97 +1.79 +1.79 +0.66 +0.50 +0.50 -1.97
-2 4 14	-1.21 +0.01 +6.18 +7.45 +0.33 +0.15 +0.15 +0.15	-1.59 +4.04 +4.28 +4.28 +0.08 -0.01 -0.57 +0.75	+4.97 +5.58 +11.43 +11.43 +0.31 -0.11 -0.11 -1.21

All the values

Jim Pivarski 41/24



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

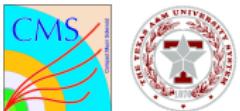
Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1 4 01	-1.75 +0.34 +9.45 +9.45 -0.34 -1.00 -1.00 -1.00	+0.62 +4.07 +4.32 +4.32 +0.57 +0.28 -0.28 -0.28	-5.31 -5.27 -7.95 -7.95 -0.19 -0.02 -0.02 -0.02
-1 4 02	+7.24 +0.04 +7.39 +10.83 -0.34 -0.94 -0.94 -0.94	-0.82 +3.51 +3.75 +3.76 -4.97 -1.46 -2.02 -0.95	-5.03 -2.71 -7.65 -7.64 -1.18 -0.10 -0.10 -2.26
-1 4 03	+5.77 +1.52 +6.22 +9.63 -0.39 -0.54 -0.54 -0.55	-0.26 +4.70 +4.95 +4.95 -7.05 -1.30 -1.85 -2.97	-1.19 +0.41 -5.60 -5.59 -0.42 +0.20 +0.20 +1.64
-1 4 04	+5.83 +4.69 +6.56 +10.03 +0.19 -0.01 -0.01 -0.01	+0.05 +5.21 +5.45 +5.45 -4.33 -0.27 -0.83 -1.79	+1.92 +3.16 -2.82 -2.81 +1.13 +0.34 +0.34 +1.57
-1 4 05	+3.88 +7.17 +6.78 +5.79 +1.04 -0.30 -0.29 -0.29	-0.66 +2.76 +3.01 +3.01 -1.87 +0.36 -0.19 -0.13	+1.05 +3.91 +1.12 +1.12 -1.55 -0.80 -0.80 -0.91
-1 4 06	+2.15 +7.15 +5.70 +5.70 -0.08 -0.01 -0.01 -0.01	-1.47 +1.48 +1.73 +1.73 -1.56 +0.39 -0.17 -0.17	-4.55 -3.98 -4.12 -4.12 -1.17 -1.02 -1.02 -1.02
-1 4 07	+2.64 +5.80 +4.75 +4.75 -0.17 -0.58 -0.58 -0.58	-1.95 +0.38 +0.63 +0.63 -0.25 -0.61 -1.17 -1.17	-4.85 -4.97 -2.29 -2.29 +0.02 -0.46 -0.46 -0.46
-1 4 08	+3.24 +2.82 +3.53 +4.20 -1.03 -1.31 -1.31 -1.31	-2.54 -1.49 -1.24 -1.24 -1.32 -1.50 -2.06 -1.46	-3.70 -2.42 +2.47 +2.47 -0.93 -0.70 -0.70 -0.72
-1 4 09	+3.92 +1.59 +4.95 +6.08 -1.05 -1.01 -1.01 -1.02	+0.22 +2.23 +2.48 +2.48 +0.68 -2.12 -2.68 -3.20	+1.69 +2.95 +8.46 +8.47 -0.35 -0.13 -0.13 +1.80
-1 4 10	+5.07 +2.32 +8.49 +7.64 -0.93 -0.91 -0.91 -0.91	+1.05 +2.39 +2.63 +2.63 -3.26 -0.75 -1.31 -0.74	+4.24 +5.99 +10.31 +10.31 +0.34 -0.20 -0.20 +0.44
-1 4 11	+11.73 +4.80 +13.25 +12.64 +0.27 -0.90 -0.90 -0.89	-0.74 +0.10 +0.34 +0.34 +6.37 +1.91 +1.35 +1.06	+2.16 +3.52 +6.81 +6.81 -0.35 -0.15 -0.15 +0.92
-1 4 12	+8.94 -0.03 +9.48 +11.34 -0.04 -0.81 -0.81 -0.81	-1.99 +0.53 +0.77 +0.77 -3.25 +0.87 +0.31 -0.90	-2.30 -3.02 -2.82 -2.82 +1.56 +0.34 +0.34 +3.00
-1 4 13	+3.84 +4.35 +6.22 +6.07 -0.22 -0.34 -0.34 -0.34	-1.05 +3.58 +3.82 +3.82 -3.00 +0.09 -0.47 +0.90	+2.92 +5.47 +1.29 +1.30 +0.58 -0.29 -0.29 +0.56
-1 4 14	+6.86 +0.53 +6.71 +8.33 +0.19 -0.15 -0.15 -0.15	+1.60 +2.29 +2.54 +2.54 -2.22 +0.28 -0.28 -1.35	+5.29 +7.14 +12.99 +12.99 +1.63 -0.19 -0.19 +0.81

All the values

Jim Pivarski 42/24



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+0 4 01	+2.25	+2.77	+11.89	+14.52	+2.22	+0.74	+0.99	+1.00	-7.10	-6.39	-9.07	-9.06
	+0.42	+0.33	+0.33	+0.33	+0.82	+0.72	+0.16	-2.47	-0.65	-0.72	-0.72	+1.84
+0 4 02	-5.65	+2.22	-5.14	-4.89	-0.48	+1.22	+0.97	+0.97	-6.34	-5.67	-10.60	-10.60
	-0.54	-0.42	-0.42	-0.42	+3.99	+1.56	+2.12	+1.83	-0.11	-0.22	-0.22	-0.41
+0 4 03	-6.09	+1.48	-3.22	-4.94	+1.37	+3.07	+2.83	+2.83	+1.51	+1.98	-4.03	-4.02
	-0.17	-0.07	-0.07	-0.07	+2.13	+1.65	+2.21	+3.64	-0.18	+0.44	+0.44	-0.39
+0 4 04	+8.10	+3.58	+5.45	+6.60	+0.16	-1.39	-1.14	-1.14	+6.60	+6.63	+0.66	+0.66
	+0.08	+0.01	+0.01	+0.01	-1.88	-0.74	-1.30	-1.63	-0.62	-0.26	-0.26	-0.09
+0 4 05	+3.50	+6.95	+6.57	+4.81	+0.61	-0.30	-0.05	-0.05	+4.85	+4.70	+1.91	+1.92
	-0.09	-0.11	-0.11	-0.11	-1.17	+1.37	+0.81	+2.57	-0.51	-0.25	-0.25	-0.34
+0 4 06	-2.40	-6.21	-4.76	-3.71	+1.26	+1.76	+1.51	+1.51	-4.91	-5.40	-5.55	-5.54
	-0.70	-0.74	-0.74	-0.74	-1.49	-1.25	-0.69	-1.70	-0.91	-0.63	-0.63	-2.29
+0 4 07	+0.33	-0.59	+0.46	+0.46	+0.40	+0.59	+0.34	+0.34	-8.12	-8.82	-6.14	-6.14
	-0.19	-0.28	-0.28	-0.28	-0.05	+0.05	+0.61	+0.61	-0.02	+0.05	+0.05	+0.05
+0 4 08	-0.17	-1.64	-0.94	+1.88	+1.20	+1.12	+1.37	+1.37	-9.72	-10.43	-5.54	-5.54
	-0.14	-0.02	-0.02	-0.03	+2.39	+0.84	+0.28	+1.26	-2.16	+0.12	+0.12	-2.65
+0 4 09	+1.29	-2.14	+1.22	+0.76	-2.96	-3.10	-2.85	-2.85	+4.95	+4.37	+9.88	+9.88
	+0.05	+0.16	+0.16	+0.16	-1.93	-3.06	-3.61	-2.95	-1.21	-0.09	-0.09	-0.90
+0 4 10	-6.40	-2.02	-8.19	-7.71	+1.22	+1.49	+1.24	+1.24	+7.99	+7.66	+11.98	+11.98
	-0.74	-0.81	-0.81	-0.81	-0.60	+0.61	+1.17	+1.16	+0.72	-0.33	-0.33	+1.02
+0 4 11	-12.60	-3.92	-12.36	-10.95	+1.26	+2.04	+1.79	+1.79	+4.82	+5.06	+8.35	+8.35
	+0.62	+0.60	+0.60	+0.60	-0.90	-2.14	-1.58	-1.93	-0.39	-0.50	-0.50	-0.58
+0 4 12	+16.31	+3.80	+13.31	+12.59	-0.13	-1.25	-1.00	-1.00	-5.11	-4.58	-4.38	-4.38
	+1.31	+1.27	+1.27	+1.27	+0.60	+1.16	+0.60	-0.26	-1.75	-0.53	-0.53	-1.68
+0 4 13	+4.96	+4.21	+6.08	+5.53	+1.16	-0.10	+0.14	+0.14	+6.88	+7.24	+3.06	+3.06
	-0.15	-0.22	-0.22	-0.22	+1.48	+0.12	-0.44	+0.14	-0.64	+0.17	+0.17	-0.96
+0 4 14	-9.29	-1.20	-7.38	-6.36	-0.61	-0.08	-0.33	-0.33	+3.31	+3.28	+9.13	+9.13
	-0.25	-0.34	-0.34	-0.33	-6.94	-4.48	-3.92	-3.63	-2.68	-0.25	-0.25	-3.49

All the values

All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+1 4 01	+0.58	-2.91	-12.02	-10.18	-0.10	+4.59	+4.34	+4.34	-6.61	-6.46	-9.14	-9.14
	+0.07	+0.31	+0.31	+0.31	-0.19	+0.17	+0.73	+1.30	+0.16	+0.01	+0.01	+0.51
+1 4 02	-7.18	-0.76	-8.12	-7.87	-2.71	+2.41	+2.16	+2.16	-4.73	-5.09	-10.03	-10.03
	+0.00	+0.28	+0.28	+0.28	+0.37	+0.91	+1.47	+1.18	+0.35	-0.81	-0.81	-2.01
+1 4 03	-5.35	-1.74	-6.44	-6.88	-1.78	+3.25	+3.00	+3.00	+0.56	-0.33	-6.34	-6.34
	+0.07	+0.32	+0.32	+0.31	+3.34	+1.25	+1.80	+2.32	-0.53	-0.39	-0.39	-0.72
+1 4 04	-6.30	-3.42	-5.30	-5.93	+0.38	+4.94	+4.70	+4.70	+3.64	+2.18	-3.80	-3.80
	-0.19	-0.04	-0.04	-0.05	+2.45	+1.32	+1.88	+3.00	+0.12	+0.47	+0.47	-1.03
+1 4 05	+0.23	-5.31	-4.93	-3.02	-0.13	+2.77	+2.53	+2.53	+2.03	+1.33	-1.46	-1.43
	+0.41	+0.42	+0.42	+0.42	-3.73	-0.12	+0.44	-3.69	+0.19	+0.03	+0.03	-0.23
+1 4 06	+2.37	-5.40	-3.95	-1.99	-1.18	+0.73	+0.48	+0.47	-3.86	-4.41	-4.55	-4.55
	+0.48	+0.35	+0.35	+0.35	-0.88	-0.62	-0.06	-0.05	-0.81	-0.29	-0.29	-5.19
+1 4 07	-1.15	-2.84	-1.79	-1.79	+1.59	+2.82	+2.57	+2.57	-5.63	-5.78	-3.10	-3.10
	-0.79	-1.03	-1.03	-1.03	+0.25	+0.61	+1.17	+1.17	-0.22	-0.07	-0.07	-0.07
+1 4 08	+0.80	-1.34	-2.04	-3.98	-0.18	+0.87	+0.63	+0.62	-3.92	-3.59	+1.30	+1.31
	+0.09	-0.19	-0.19	-0.19	+0.06	+0.97	+1.53	-1.28	+1.43	-0.20	-0.20	-1.62
+1 4 09	+0.65	+0.89	-2.48	-3.91	-1.45	-0.15	-0.39	-0.40	+1.74	+2.29	+7.81	+7.81
	-0.30	-0.55	-0.55	-0.55	+2.48	+1.46	+2.02	+2.26	-0.07	+0.10	+0.10	+2.24
+1 4 10	-2.75	-2.63	-8.81	-6.31	-1.67	+0.02	-0.23	-0.22	+3.56	+3.97	+8.29	+8.29
	+0.63	+0.49	+0.49	+0.47	-2.06	-0.97	-0.41	-3.01	+1.85	-0.67	-0.67	+4.30
+1 4 11	-11.86	+0.00	-8.44	-14.65	-0.62	+0.00	-0.25	-0.24	+1.69	+0.00	+3.29	+3.30
	-0.62	+0.00	+0.00	-0.00	-0.58	-0.00	+0.56	-1.64	-0.75	-0.00	-0.00	+1.50
+1 4 12	-10.92	-5.60	-15.11	-11.96	-1.35	+2.48	+2.23	+2.23	-3.98	-3.41	-3.22	-3.22
	+0.31	+0.44	+0.44	+0.44	+1.49	-0.46	+0.10	-0.35	-1.27	-1.03	-1.03	-0.81
+1 4 13	-1.87	-4.32	-6.20	-4.60	-0.33	+3.46	+3.22	+3.22	+3.31	+3.02	-1.16	-1.16
	-0.00	+0.15	+0.15	+0.15	-0.58	-0.23	+0.33	-1.15	+0.88	-0.07	-0.07	+1.25
+1 4 14	-5.23	+0.00	-6.18	-7.99	-1.05	+0.00	-0.25	-0.24	+2.18	+0.00	+5.85	+5.86
	-1.92	+0.00	+0.00	-0.00	-1.22	-0.00	+0.56	+3.21	-0.58	-0.00	-0.00	-0.58

All the values

All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

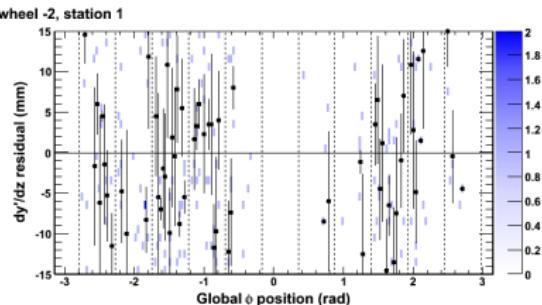
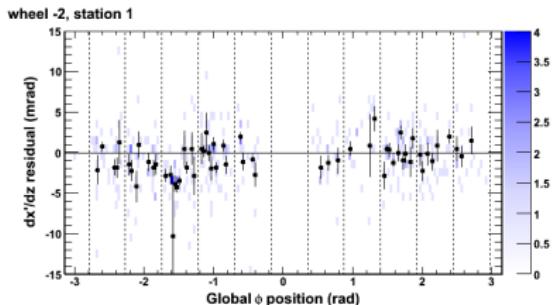
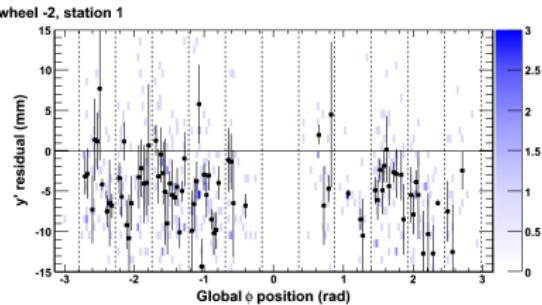
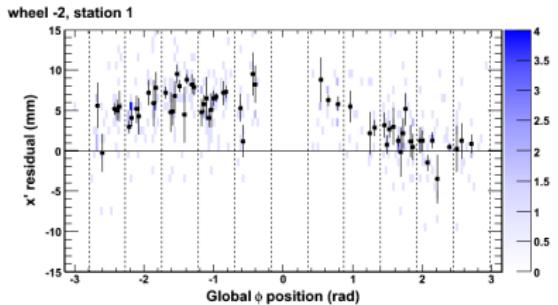
Columns: CRAFT08, PG09, PG09 + global adjustment, same + track-based chambers

(color applied only if chamber was aligned)

wh st sec	x or ϕ_x				y or ϕ_y				z or ϕ_z			
+2 4 01	+1.18	+0.29	-8.82	-8.82	-4.75	+1.88	+1.63	+1.63	-6.48	-5.42	-8.10	-8.10
	+0.95	+0.42	+0.42	+0.42	-0.09	-0.15	+0.40	+0.40	+0.04	+0.08	+0.08	+0.08
+2 4 02	+3.03	+1.32	-6.03	-6.03	-4.75	+0.88	+0.63	+0.63	-4.70	-3.42	-8.35	-8.35
	+0.02	-0.64	-0.64	-0.64	+0.55	+0.82	+1.38	+1.38	-0.55	-0.16	-0.16	-0.16
+2 4 03	+2.00	+0.20	-4.50	-4.53	-2.74	+2.46	+2.22	+2.22	+0.47	+1.81	-4.20	-4.20
	+0.08	-0.37	-0.37	-0.38	+0.98	+1.28	+1.84	+4.10	-0.23	+0.20	+0.20	-1.72
+2 4 04	-0.64	-2.70	-4.58	-3.91	-0.66	+3.37	+3.12	+3.12	+3.52	+3.61	-2.36	-2.37
	-0.21	-0.73	-0.73	-0.74	+0.61	+0.76	+1.32	+3.41	+0.19	+0.50	+0.50	-2.41
+2 4 05	-2.98	-6.16	-5.78	+0.01	+4.38	+3.02	+2.77	+2.77	+1.02	+2.56	-0.23	-0.23
	-0.15	-1.14	-1.14	-1.14	-1.02	-0.66	-0.10	+0.47	-0.33	+0.22	+0.22	-2.58
+2 4 06	-2.52	-4.82	-3.37	-0.67	-1.63	+1.68	+1.44	+1.47	-3.62	-1.86	-2.00	-1.97
	+0.17	-0.11	-0.11	-0.14	-0.89	-0.43	+0.13	-5.06	-0.40	-0.23	-0.23	+4.58
+2 4 07	-1.69	-4.45	-3.40	-3.40	-5.74	-3.04	-3.28	-3.28	-8.00	-6.15	-3.46	-3.46
	+0.02	-0.38	-0.38	-0.38	+0.30	+0.65	+1.21	+1.21	+0.08	+0.03	+0.03	+0.03
+2 4 08	+0.71	-0.84	-1.54	-1.91	-0.48	+3.64	+3.39	+3.39	-3.44	-1.40	+3.49	+3.49
	-1.01	-0.19	-0.19	-0.19	+0.92	+1.41	+1.97	+0.33	-0.35	-0.77	-0.77	+1.68
+2 4 09	+2.87	+1.34	-2.02	-4.57	-2.49	+2.66	+2.41	+2.41	+2.53	+4.05	+9.56	+9.57
	+0.32	+0.02	+0.02	+0.01	+1.79	+1.66	+2.22	+3.21	-0.61	+0.06	+0.06	-0.80
+2 4 10	-0.79	-2.03	-8.21	-6.49	-2.69	+1.54	+1.29	+1.29	+2.83	+7.34	+11.66	+11.66
	-1.96	+0.69	+0.69	+0.69	+0.39	+0.38	+0.94	+2.19	-0.32	-0.03	-0.03	-0.57
+2 4 11	-3.12	-3.16	-11.60	-11.07	-1.39	+4.67	+4.43	+4.43	+2.31	+3.21	+6.50	+6.50
	-0.33	+0.37	+0.37	+0.36	-1.93	-1.75	-1.19	-3.46	+0.00	-0.65	-0.65	+1.67
+2 4 12	-1.09	-1.03	-10.53	-10.14	-2.30	+4.78	+4.53	+4.53	-3.58	-2.61	-2.41	-2.40
	+0.14	+0.34	+0.34	+0.34	-1.14	-1.28	-0.72	+2.11	-0.27	-0.45	-0.45	-0.77
+2 4 13	-0.19	-3.31	-5.18	-1.31	-1.96	+1.41	+1.16	+1.17	+3.60	+6.05	+1.87	+1.88
	-0.34	+0.17	+0.17	+0.16	-0.37	+0.12	+0.67	-2.07	+0.28	+1.17	+1.17	+1.79
+2 4 14	-0.37	-0.40	-6.57	-5.98	-3.54	+5.01	+4.76	+4.77	+3.12	+11.96	+17.81	+17.84
	-1.38	-1.05	-1.05	-1.05	+0.44	+0.07	+0.63	+4.43	-0.04	-0.28	-0.28	-0.57

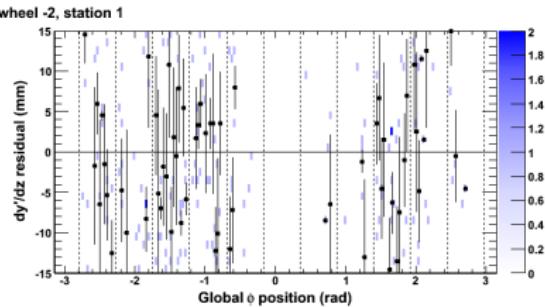
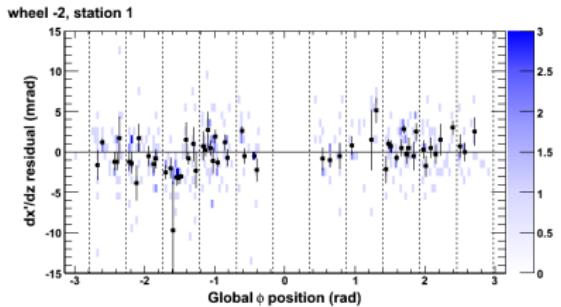
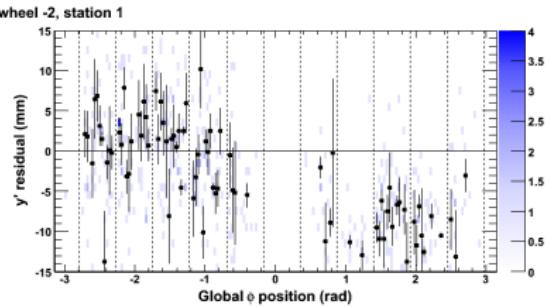
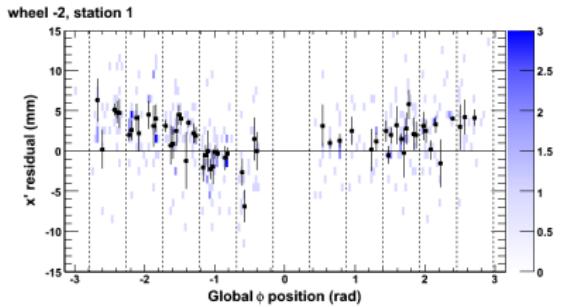
Map plots: station 1, wheel -2 Jim Pivarski 45/24

BarrelPG2009 Corrections Survey



Map plots: station 1, wheel -2 Jim Pivarski 46/24

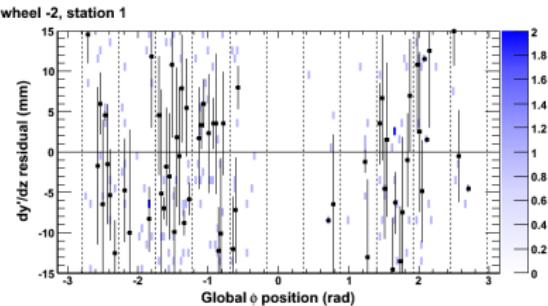
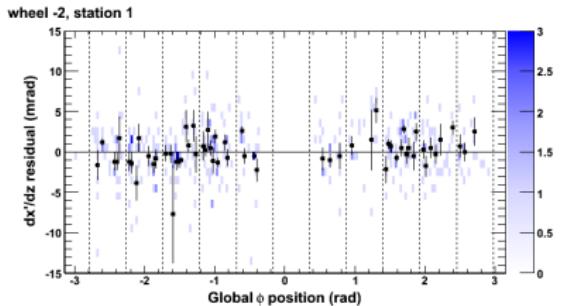
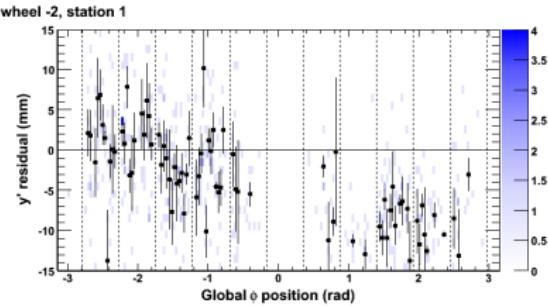
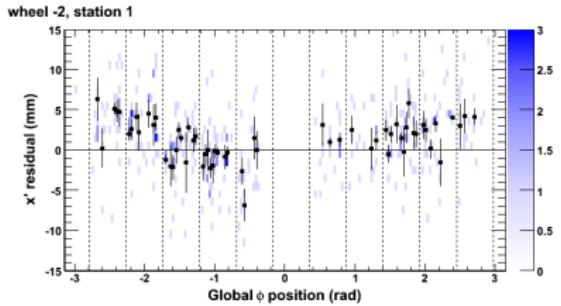
BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 1, wheel -2 Jim Pivarski 47/24

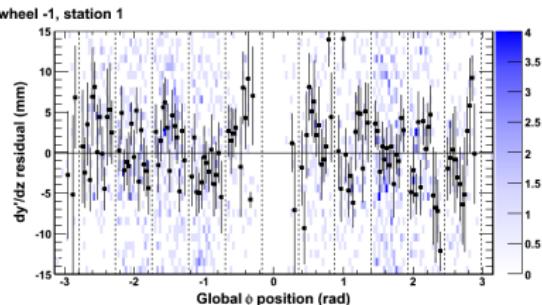
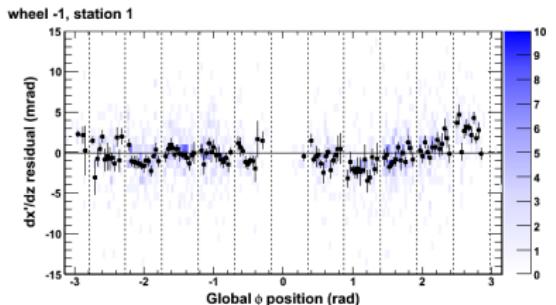
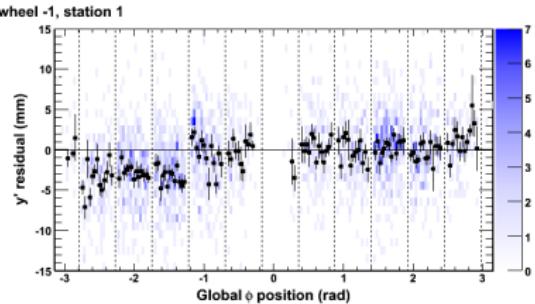
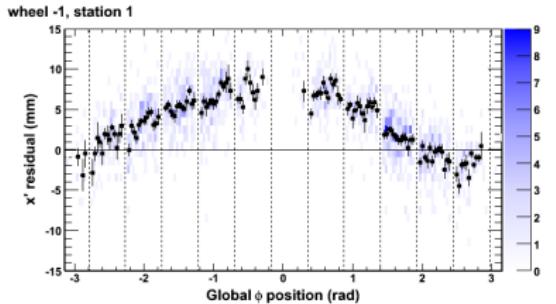


Track-based alignment



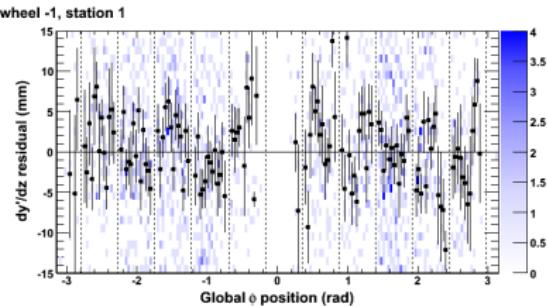
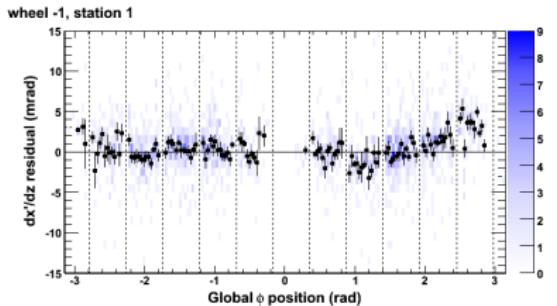
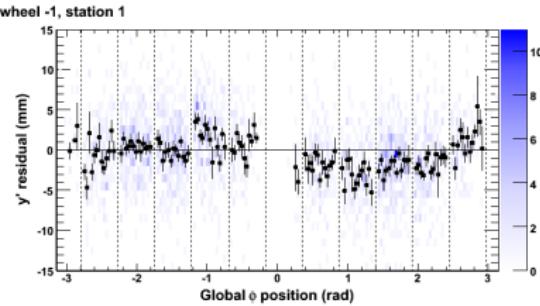
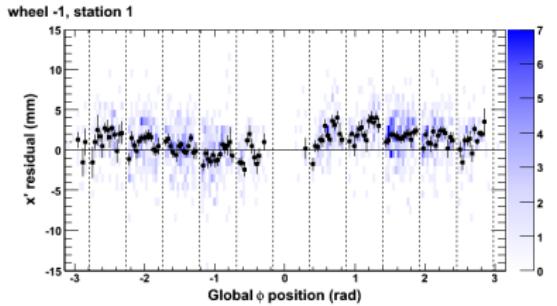
Map plots: station 1, wheel -1 Jim Pivarski 48/24

BarrelPG2009 Corrections Survey



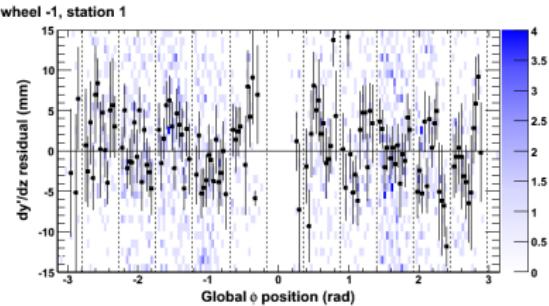
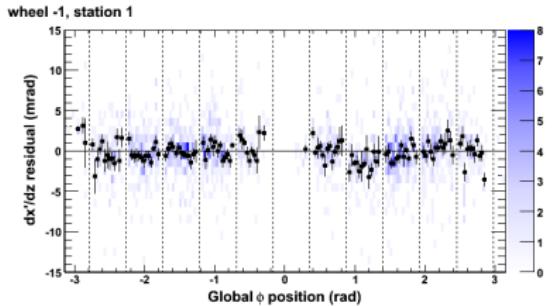
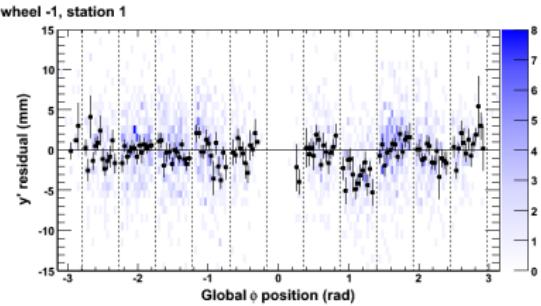
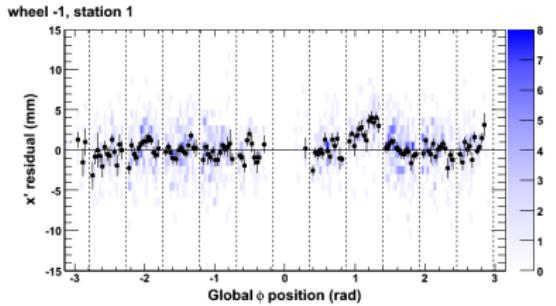
Map plots: station 1, wheel -1 Jim Pivarski 49/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 1, wheel -1 Jim Pivarski 50/24

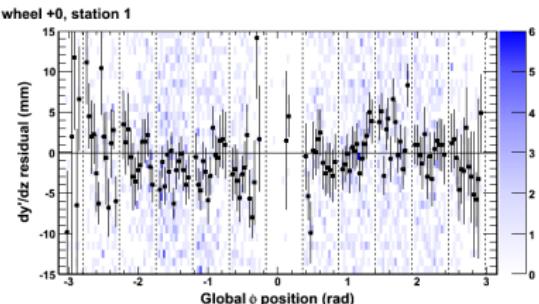
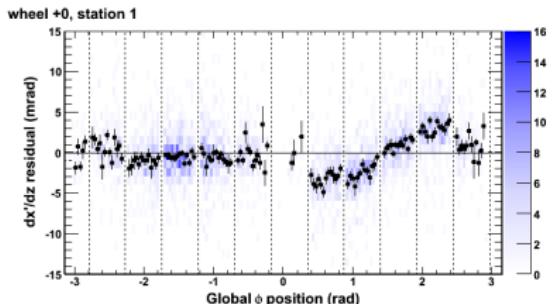
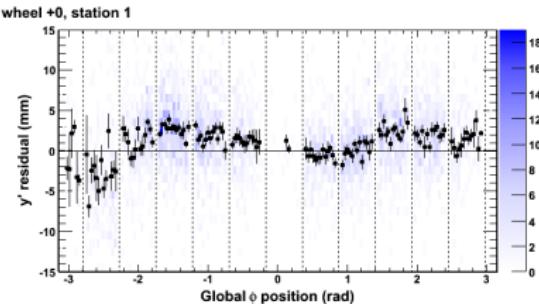
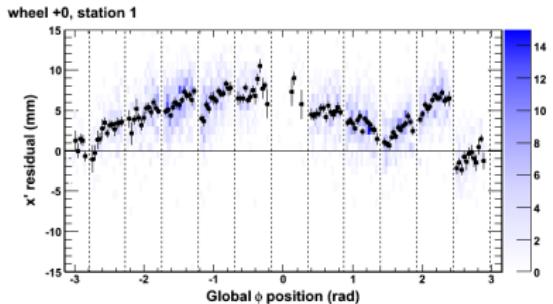
Track-based alignment



Map plots: station 1, wheel 0

Jim Pivarski 51/24

BarrelPG2009 Corrections Survey



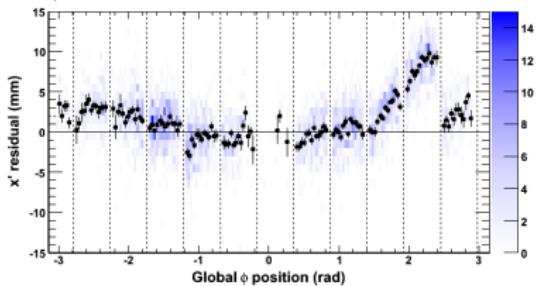
Map plots: station 1, wheel 0

Jim Pivarski 52/24

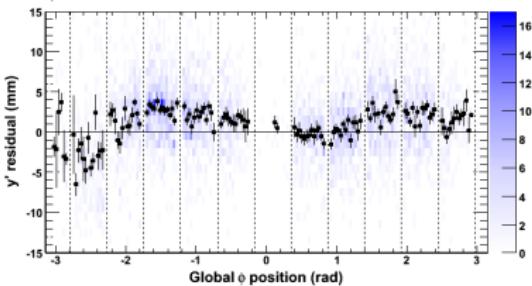


BarrelPG2009 Corrections Survey + global adjustment

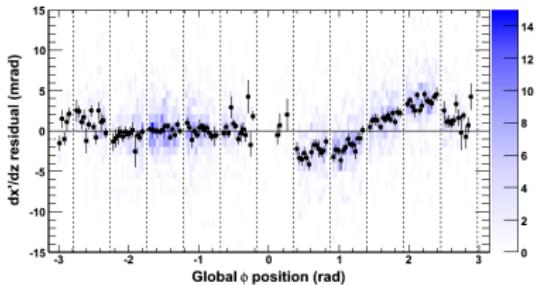
wheel +0, station 1



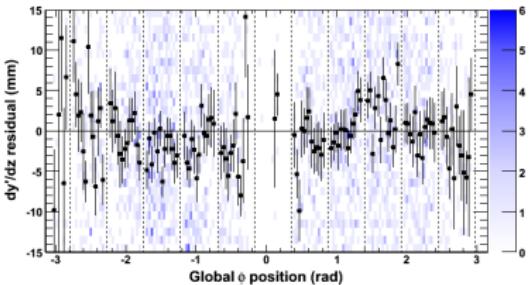
wheel +0, station 1



wheel +0, station 1



wheel +0, station 1

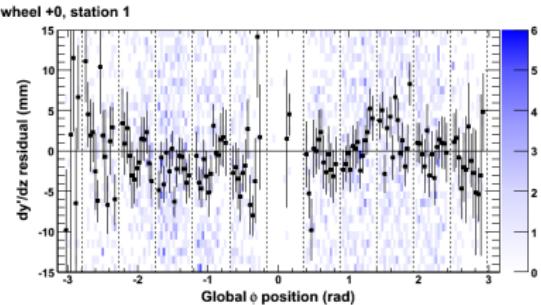
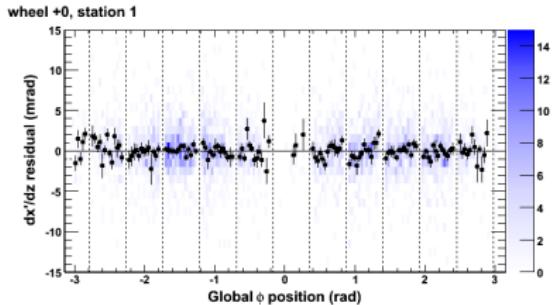
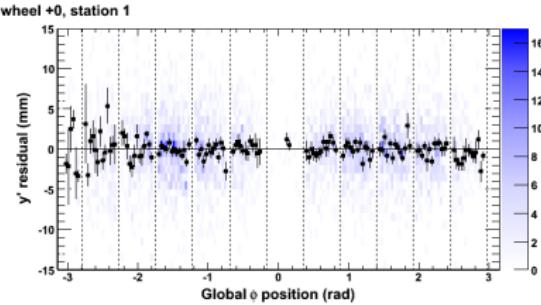
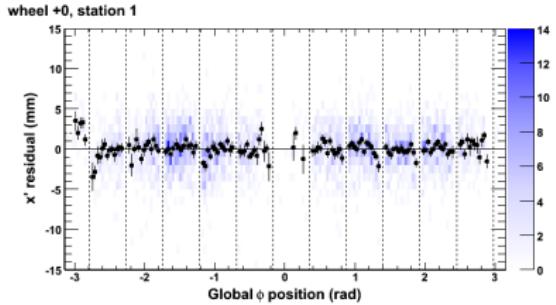


Map plots: station 1, wheel 0

Jim Pivarski 53/24

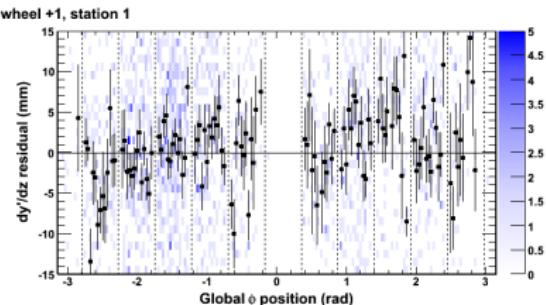
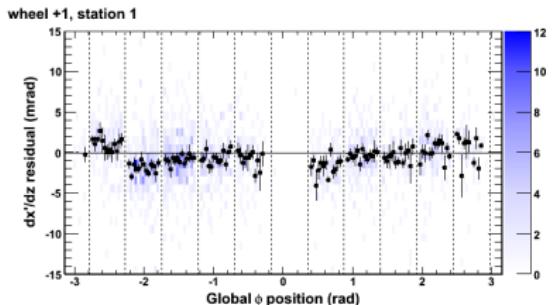
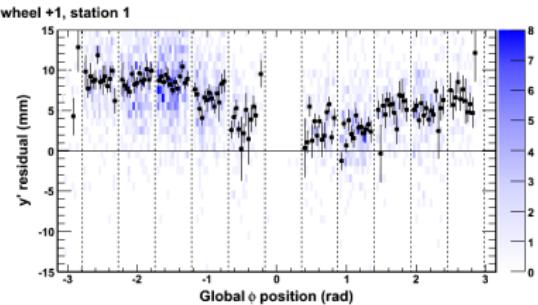
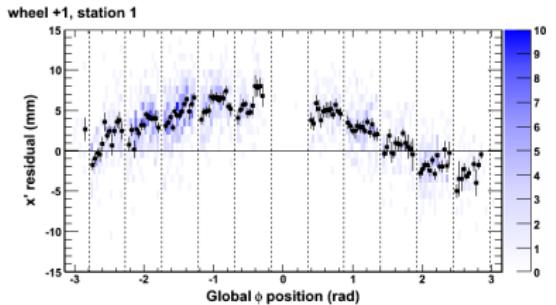


Track-based alignment



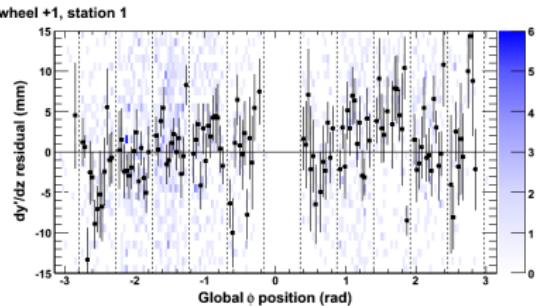
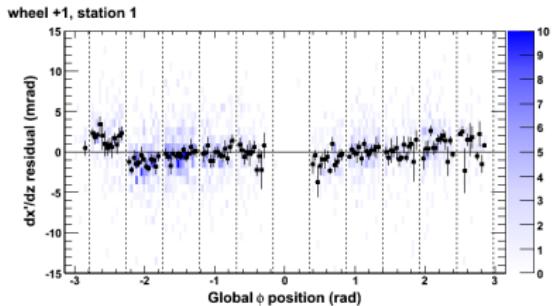
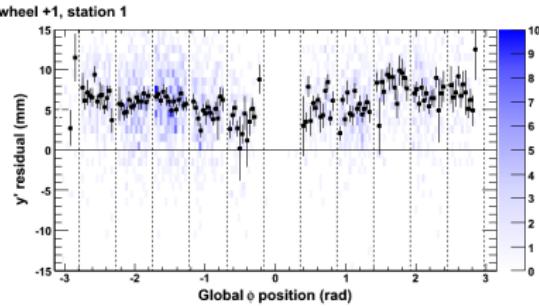
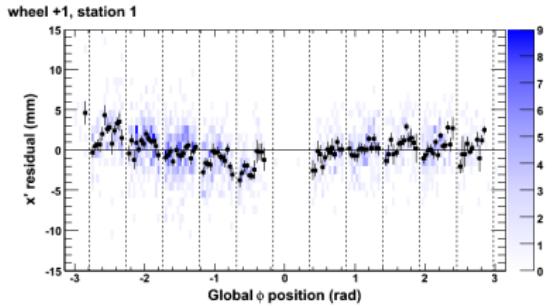
Map plots: station 1, wheel +1 Jim Pivarski 54/24

BarrelPG2009CorrectionsSurvey



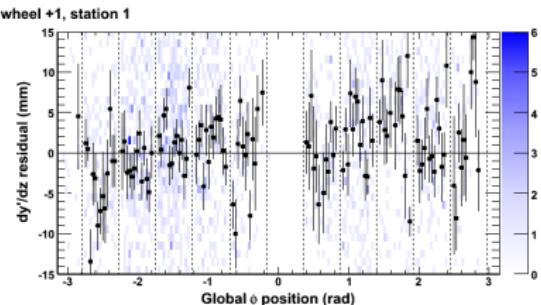
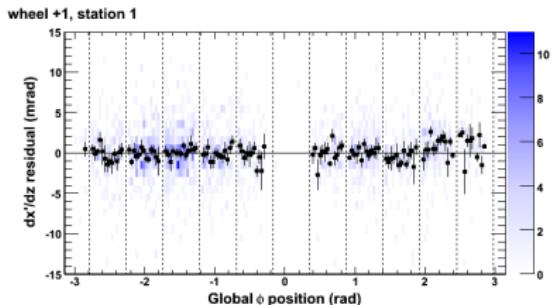
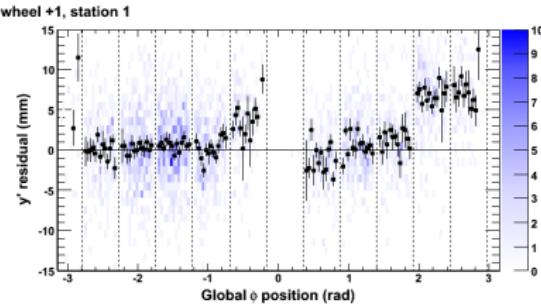
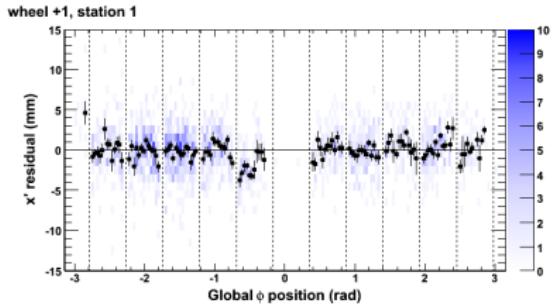
Map plots: station 1, wheel +1 Jim Pivarski 55/24

BarrelPG2009 Corrections Survey + global adjustment



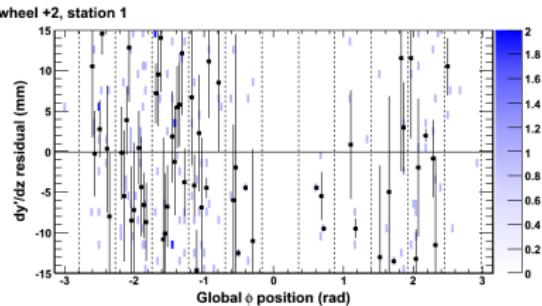
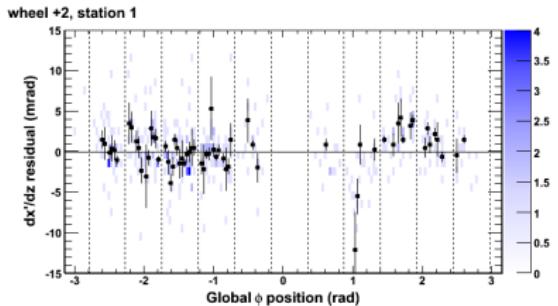
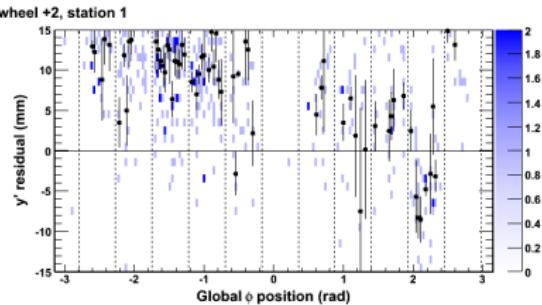
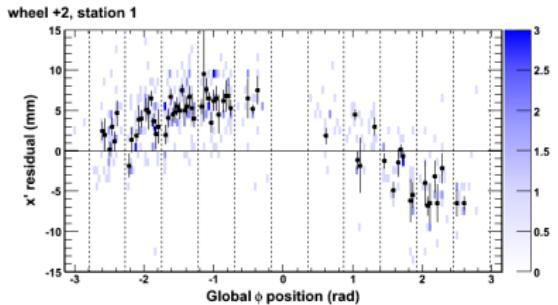
Map plots: station 1, wheel +1 Jim Pivarski 56/24

Track-based alignment



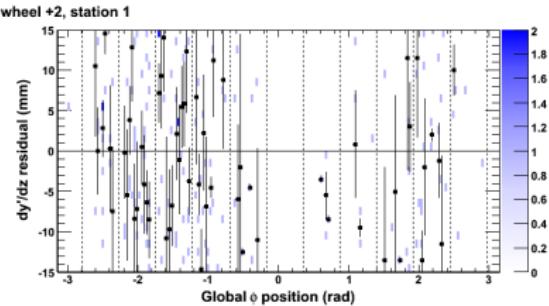
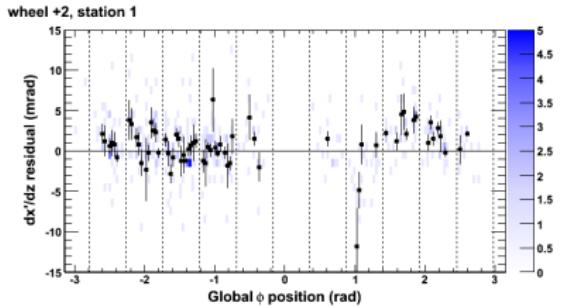
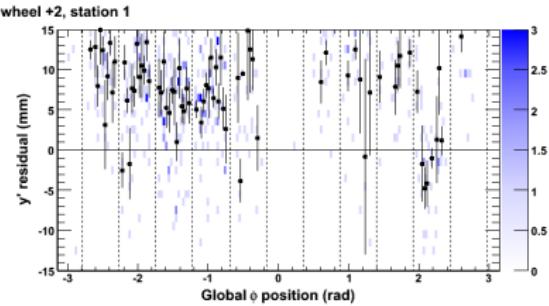
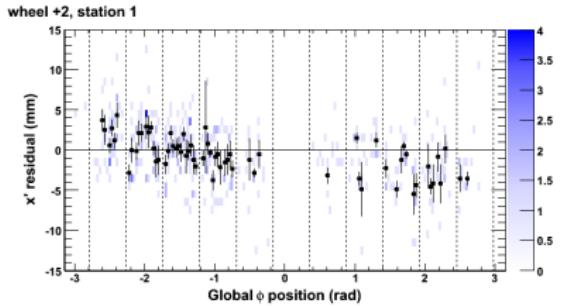
Map plots: station 1, wheel +2 Jim Pivarski 57/24

BarrelPG2009 Corrections Survey



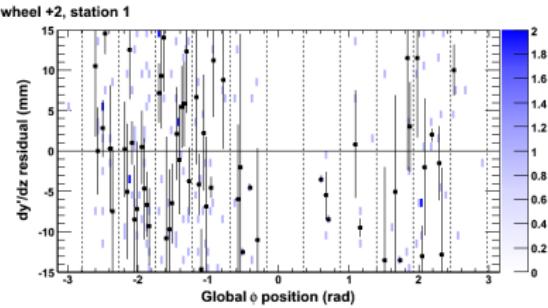
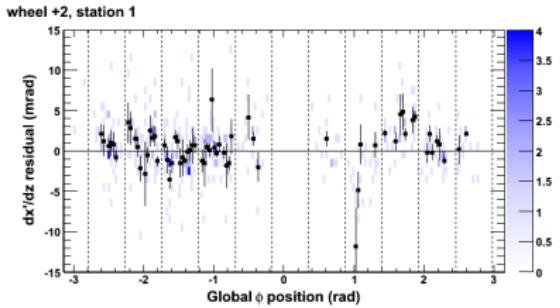
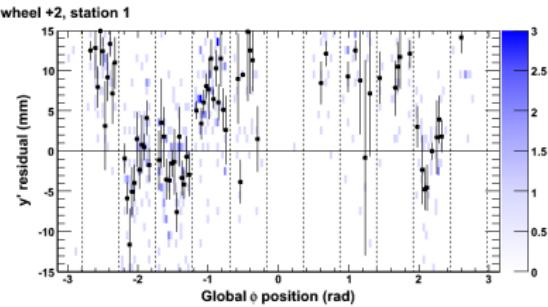
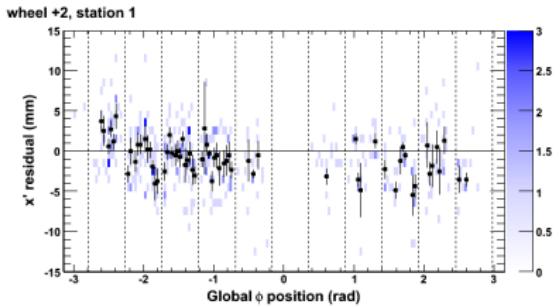
Map plots: station 1, wheel +2 Jim Pivarski 58/24

BarrelPG2009 Corrections Survey + global adjustment



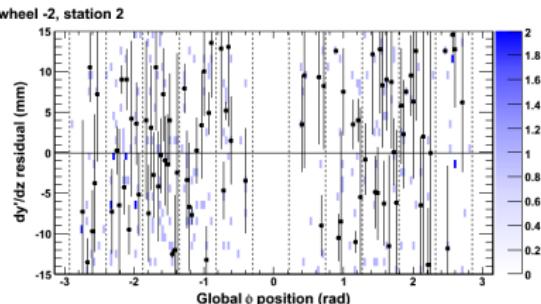
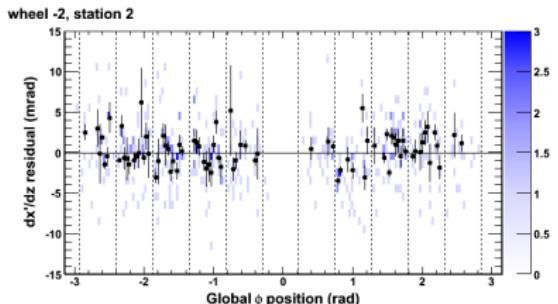
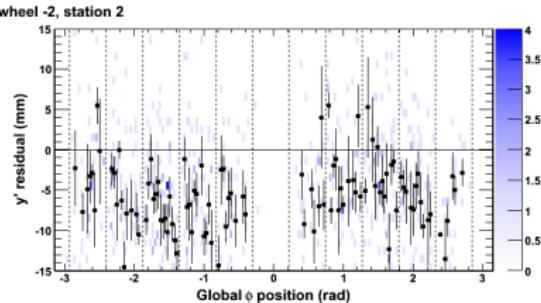
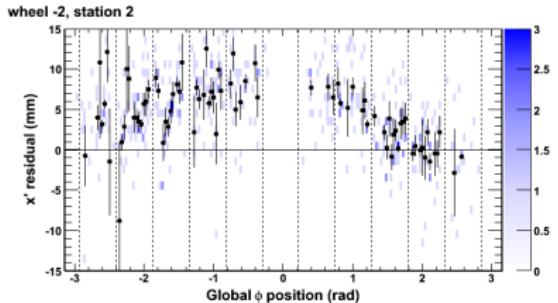
Map plots: station 1, wheel +2 Jim Pivarski 59/24

Track-based alignment



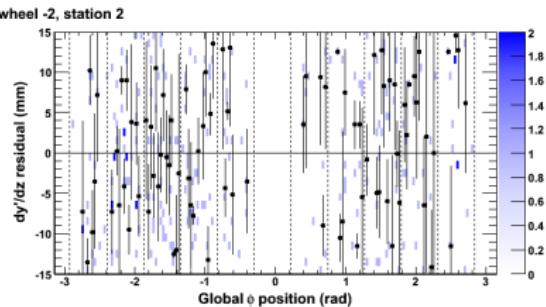
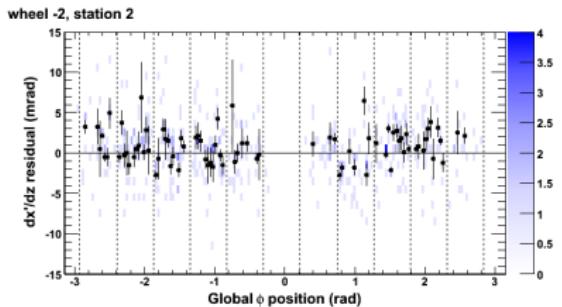
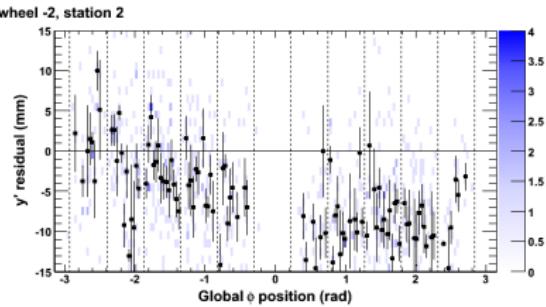
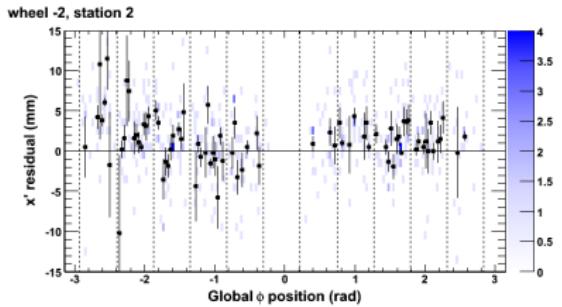
Map plots: station 2, wheel -2 Jim Pivarski 60/24

BarrelPG2009 Corrections Survey



Map plots: station 2, wheel -2 Jim Pivarski 61/24

BarrelPG2009 Corrections Survey + global adjustment

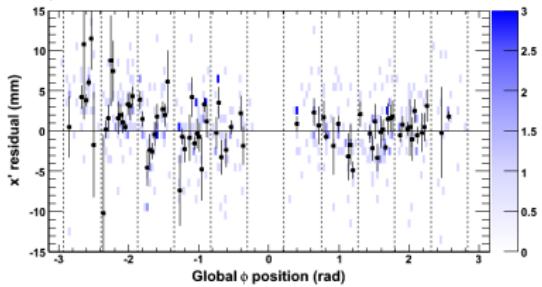


Map plots: station 2, wheel -2 Jim Pivarski 62/24

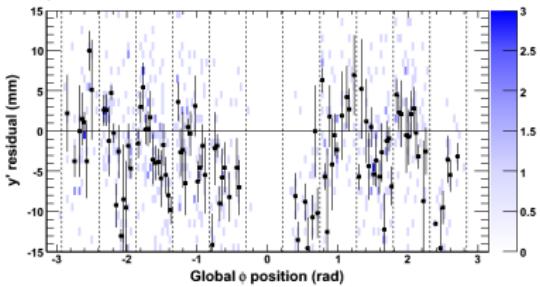


Track-based alignment

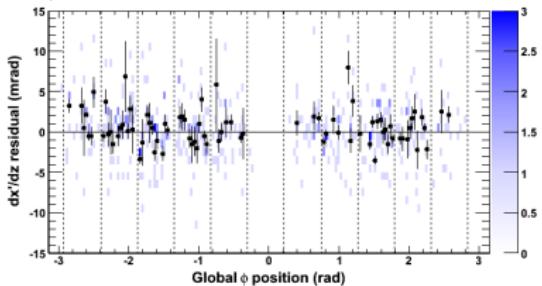
wheel -2, station 2



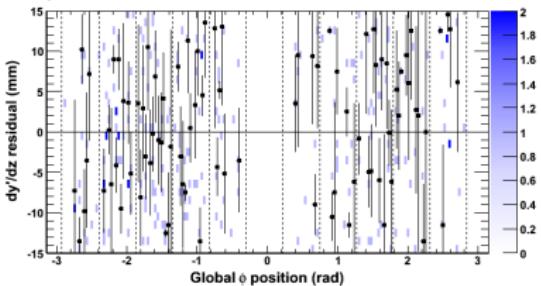
wheel -2, station 2



wheel -2, station 2

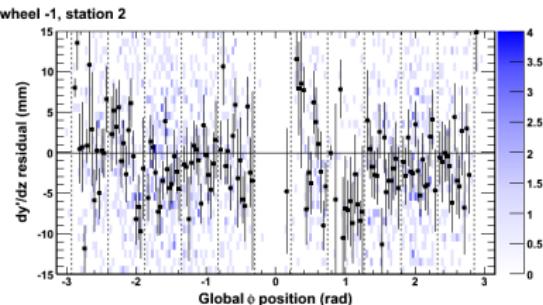
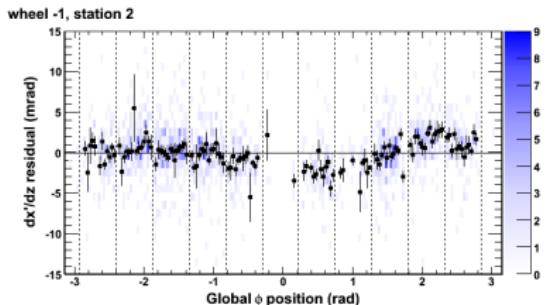
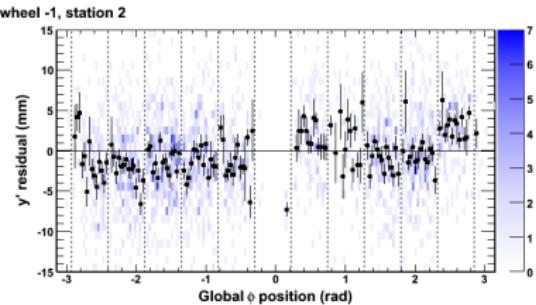
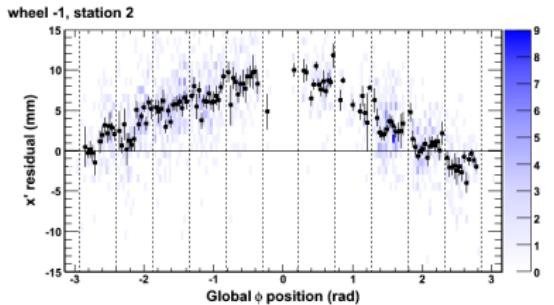


wheel -2, station 2



Map plots: station 2, wheel -1 Jim Pivarski 63/24

BarrelPG2009CorrectionsSurvey

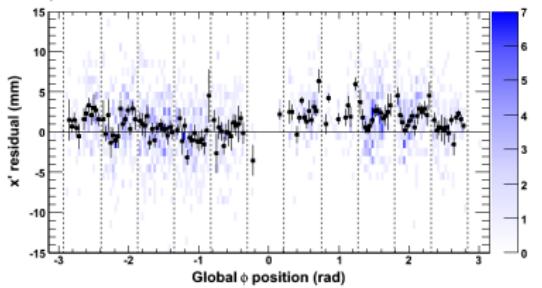


Map plots: station 2, wheel -1 Jim Pivarski 64/24

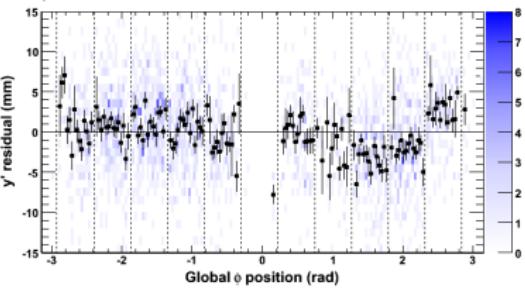
BarrelPG2009 Corrections Survey + global adjustment



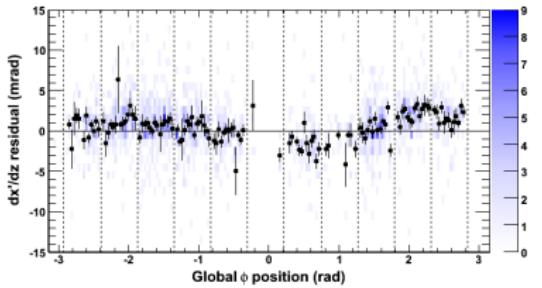
wheel -1, station 2



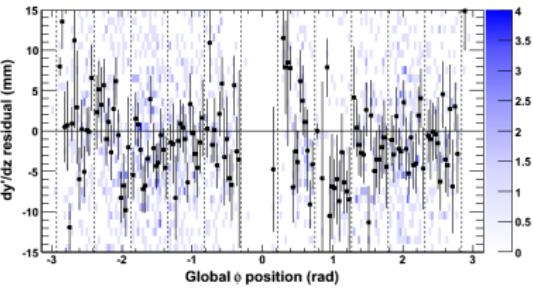
wheel -1, station 2



wheel -1, station 2

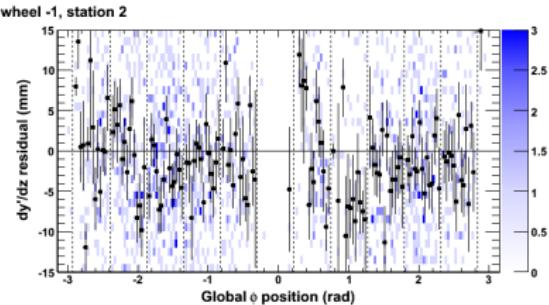
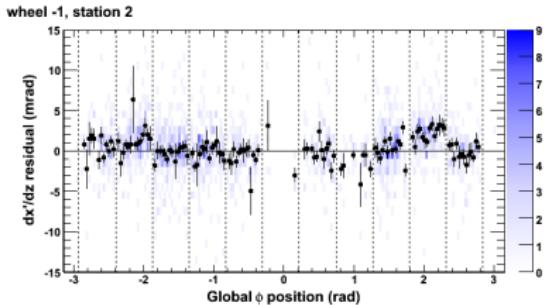
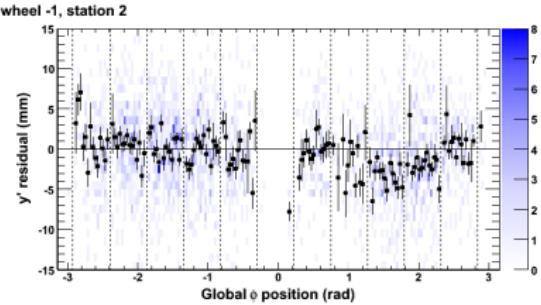
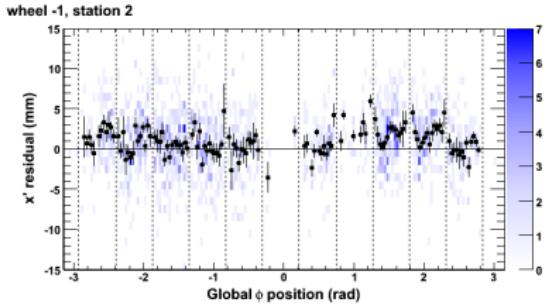


wheel -1, station 2



Map plots: station 2, wheel -1 Jim Pivarski 65/24

Track-based alignment



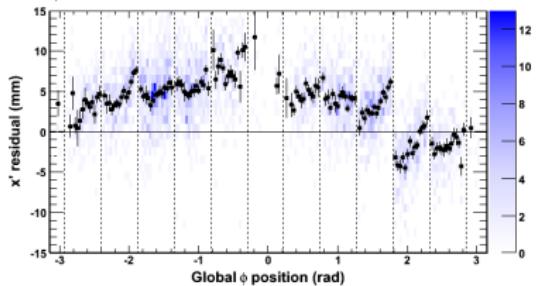
Map plots: station 2, wheel 0

Jim Pivarski 66/24

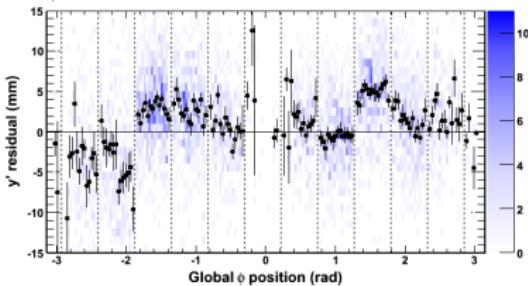
BarrelPG2009CorrectionsSurvey



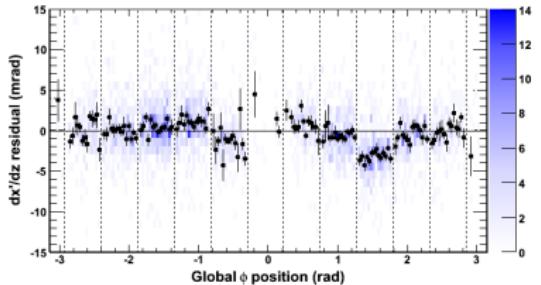
wheel +0, station 2



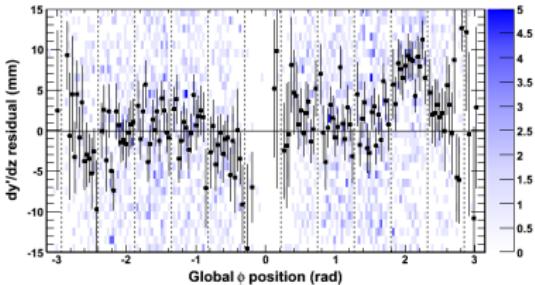
wheel +0, station 2



wheel +0, station 2



wheel +0, station 2



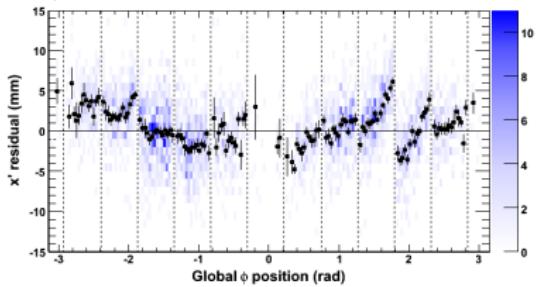
Map plots: station 2, wheel 0

Jim Pivarski 67/24

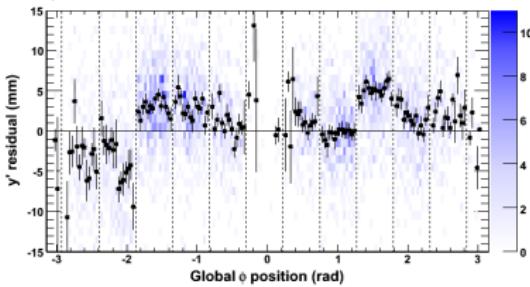
BarrelPG2009 Corrections Survey + global adjustment



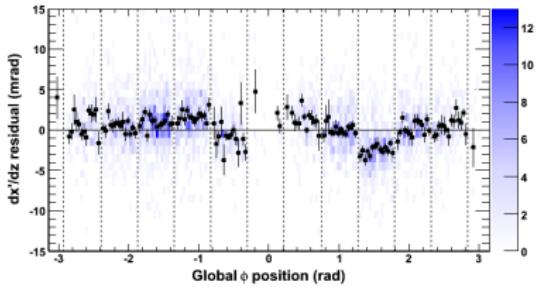
wheel +0, station 2



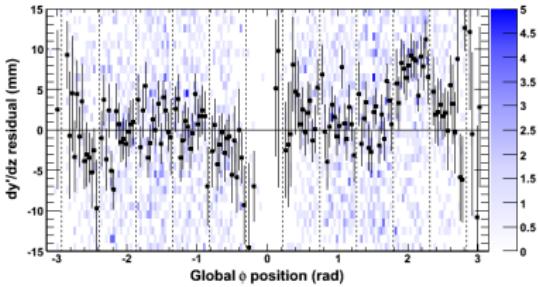
wheel +0, station 2



wheel +0, station 2



wheel +0, station 2



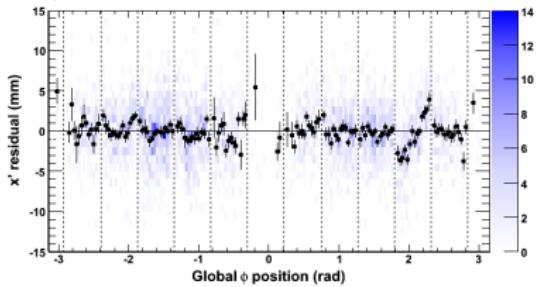
Map plots: station 2, wheel 0

Jim Pivarski 68/24

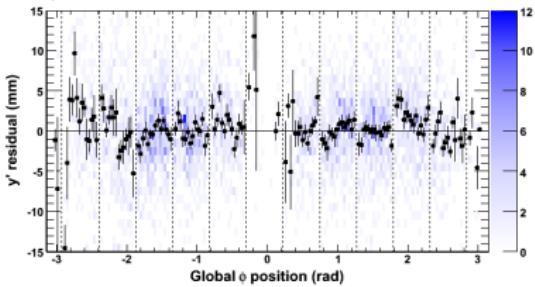


Track-based alignment

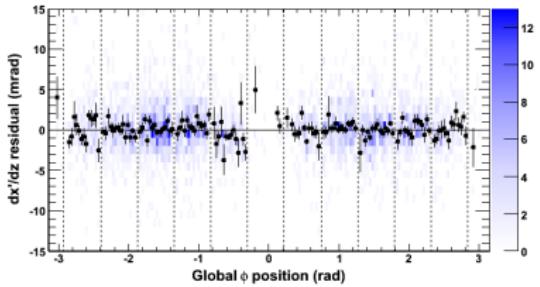
wheel +0, station 2



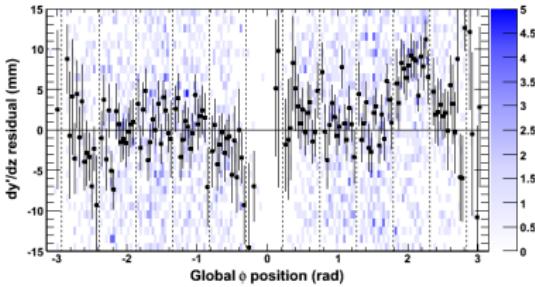
wheel +0, station 2



wheel +0, station 2

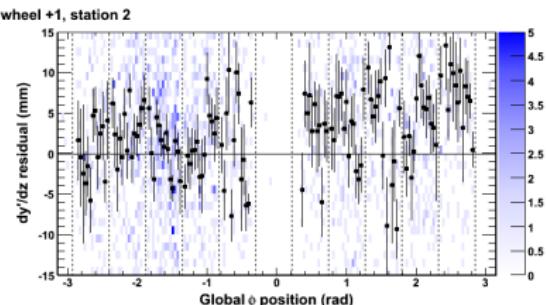
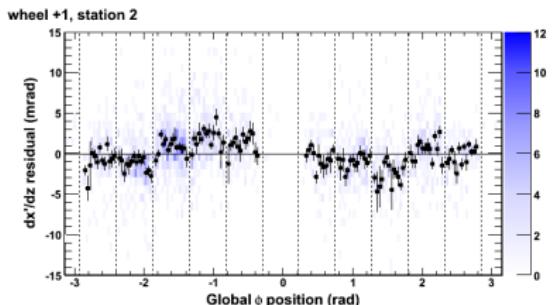
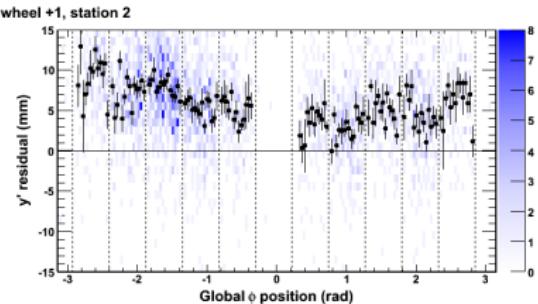
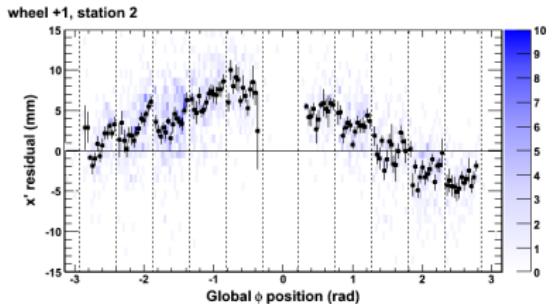


wheel +0, station 2



Map plots: station 2, wheel +1 Jim Pivarski 69/24

BarrelPG2009CorrectionsSurvey

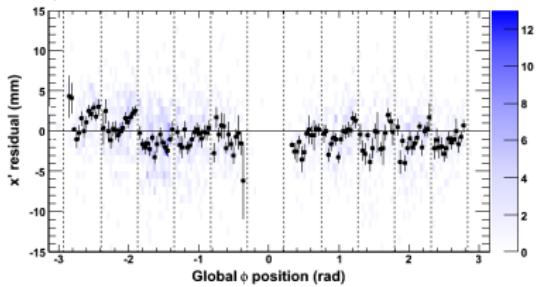


Map plots: station 2, wheel +1 Jim Pivarski 70/24

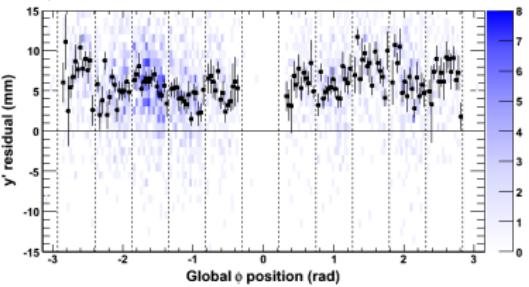
BarrelPG2009 Corrections Survey + global adjustment



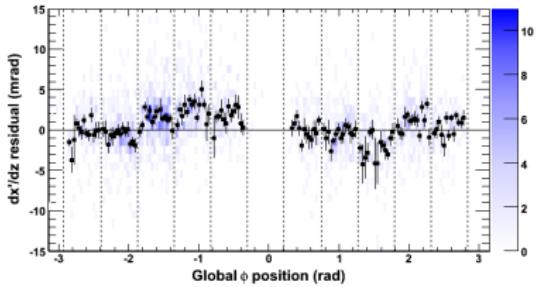
wheel +1, station 2



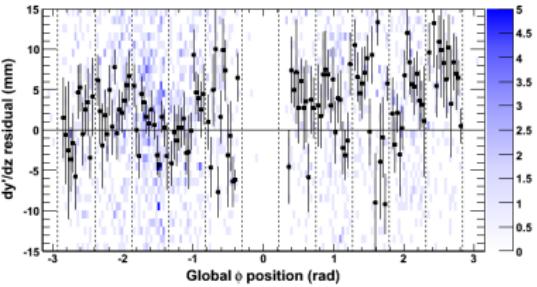
wheel +1, station 2



wheel +1, station 2

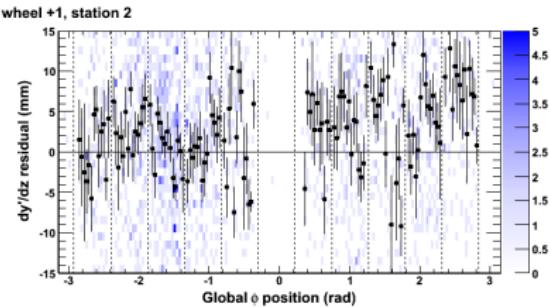
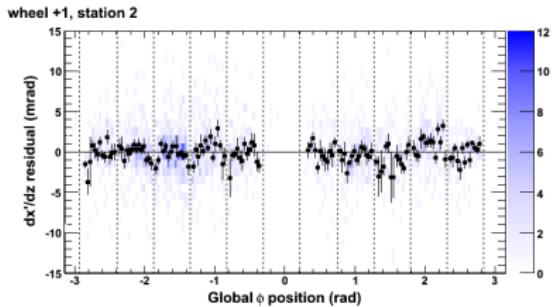
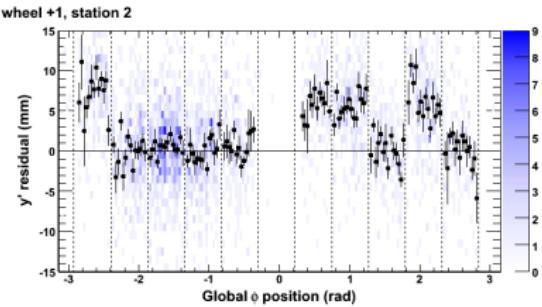
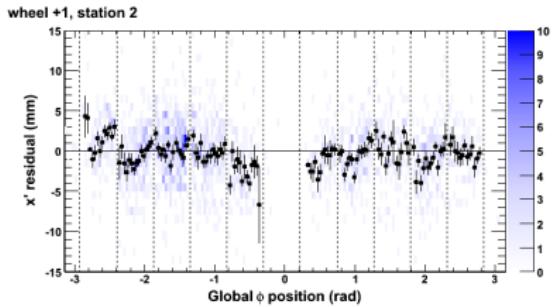


wheel +1, station 2



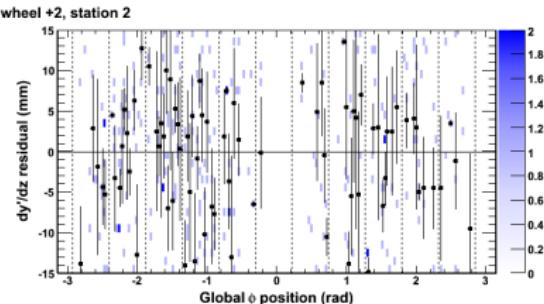
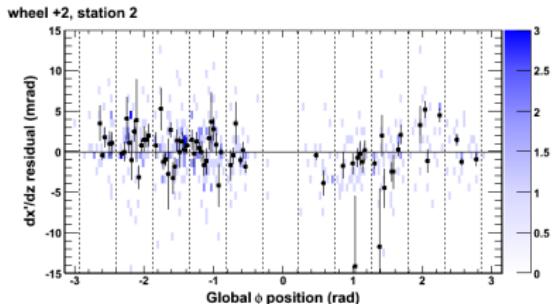
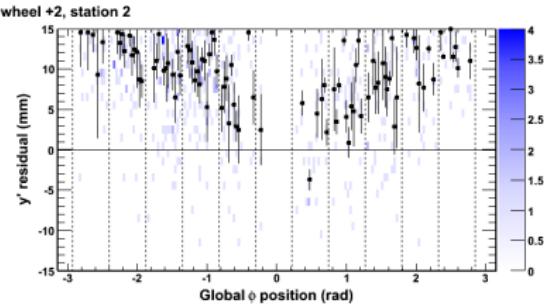
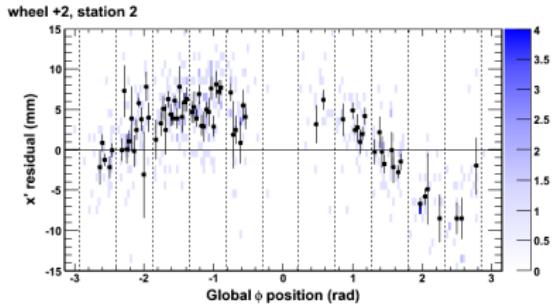
Map plots: station 2, wheel +1 Jim Pivarski 71/24

Track-based alignment



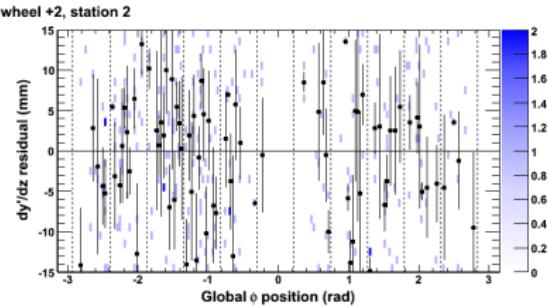
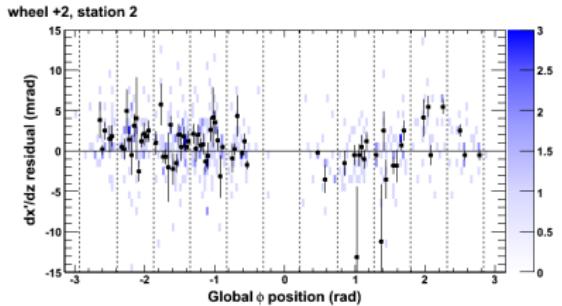
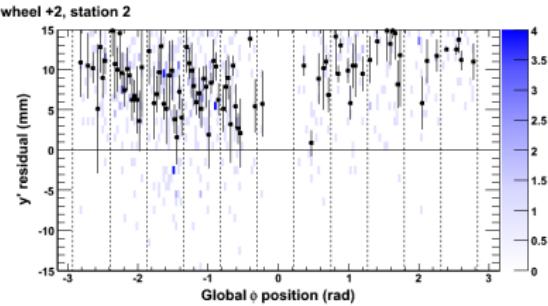
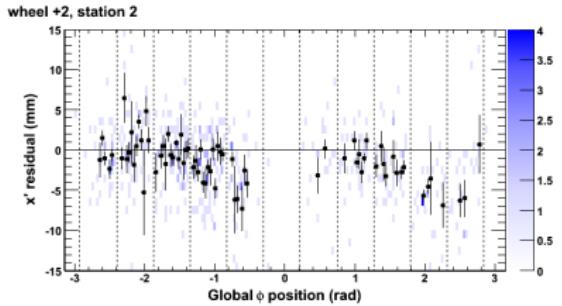
Map plots: station 2, wheel +2 Jim Pivarski 72/24

BarrelPG2009CorrectionsSurvey



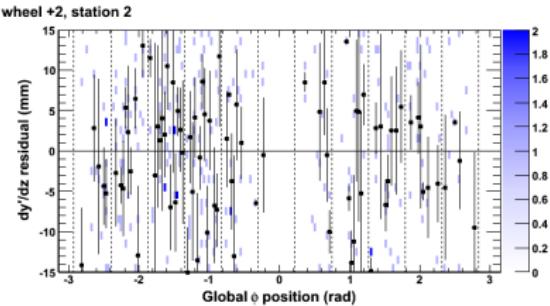
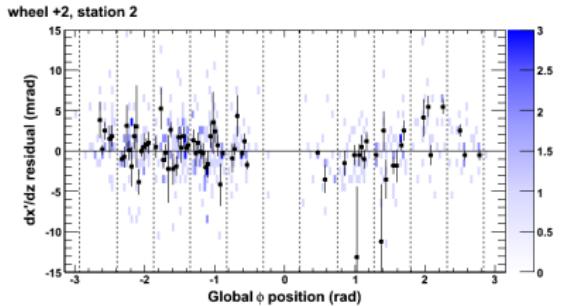
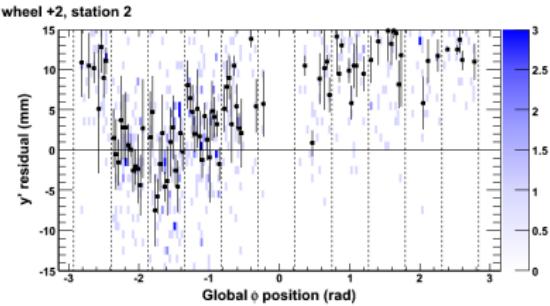
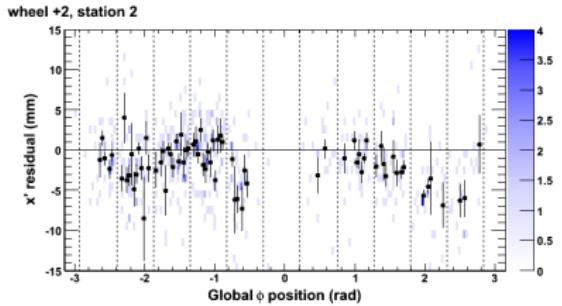
Map plots: station 2, wheel +2 Jim Pivarski 73/24

BarrelPG2009 Corrections Survey + global adjustment



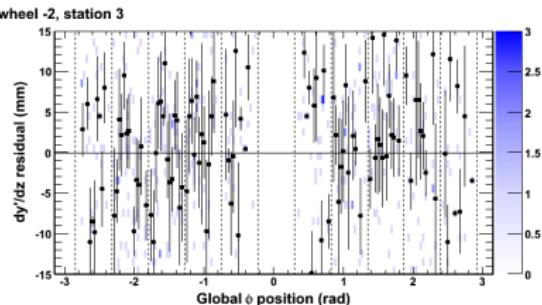
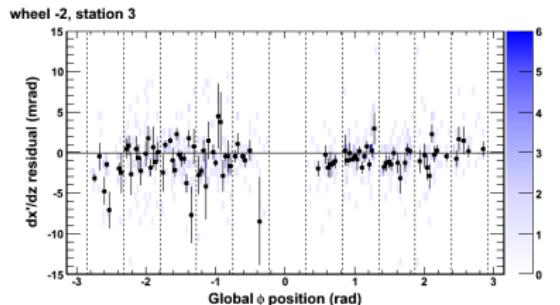
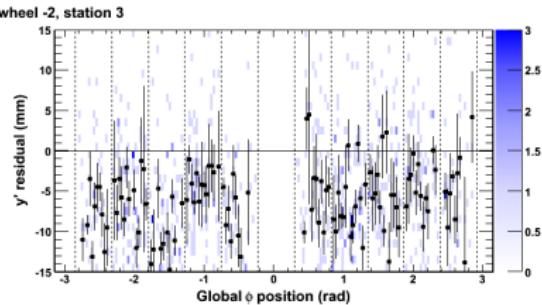
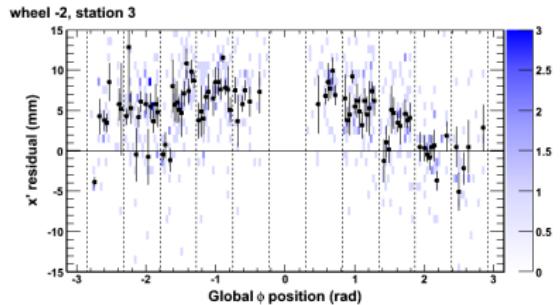
Map plots: station 2, wheel +2 Jim Pivarski 74/24

Track-based alignment



Map plots: station 3, wheel -2 Jim Pivarski 75/24

BarrelPG2009 Corrections Survey

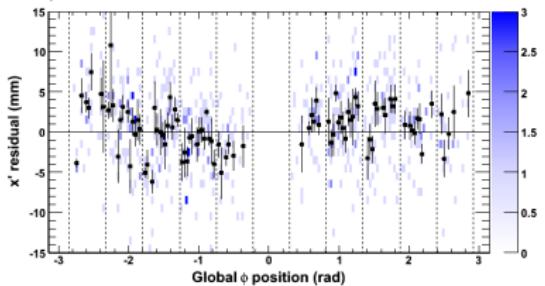


Map plots: station 3, wheel -2 Jim Pivarski 76/24

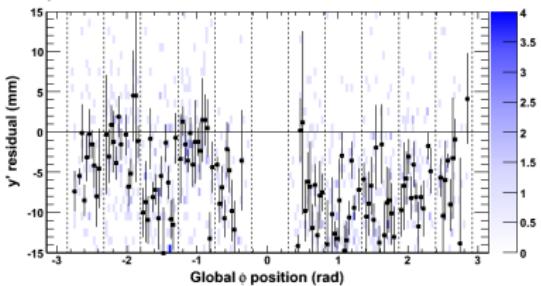
BarrelPG2009 Corrections Survey + global adjustment



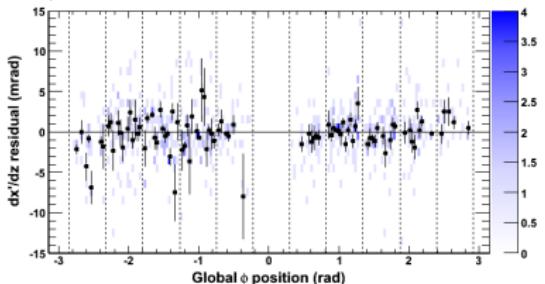
wheel -2, station 3



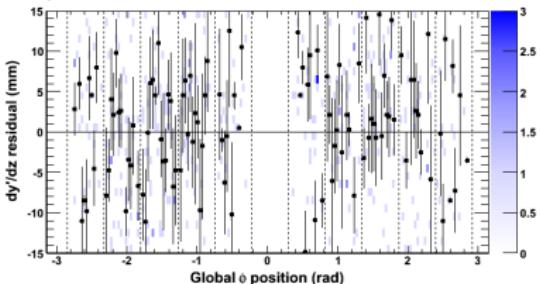
wheel -2, station 3



wheel -2, station 3

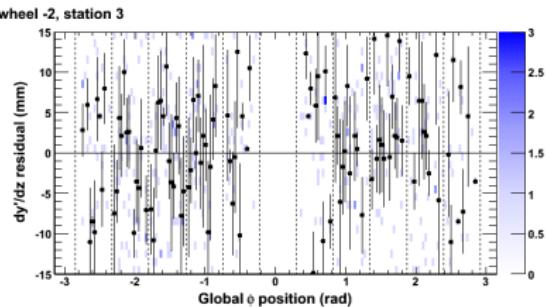
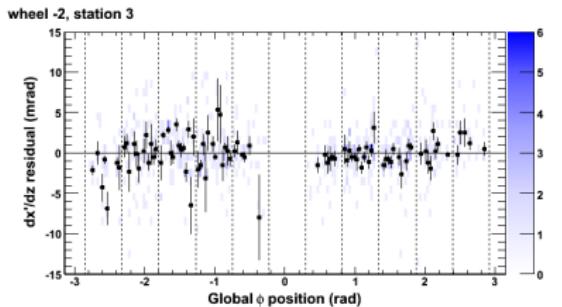
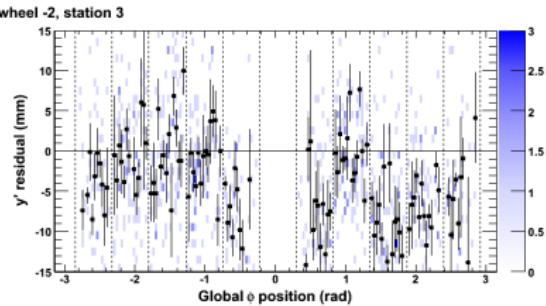
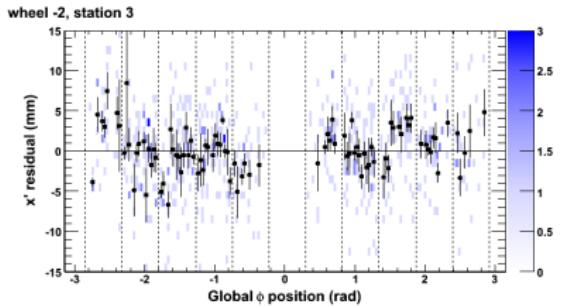


wheel -2, station 3



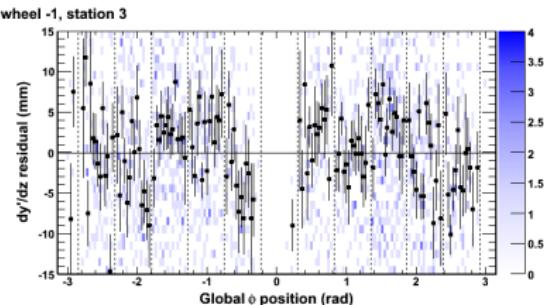
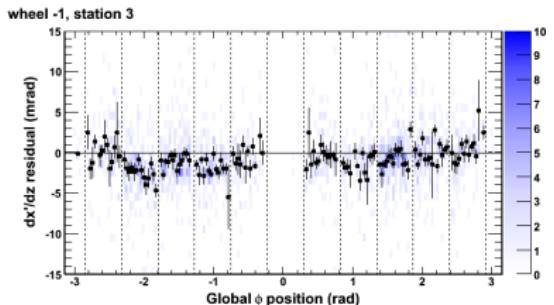
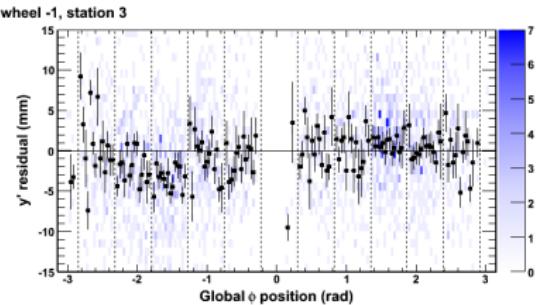
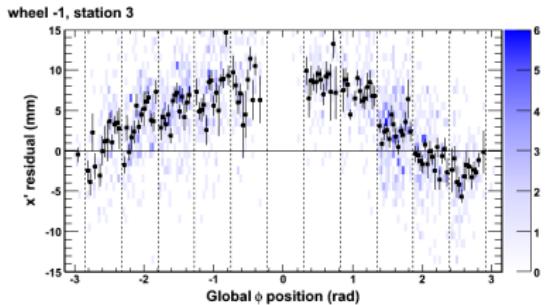
Map plots: station 3, wheel -2 Jim Pivarski 77/24

Track-based alignment



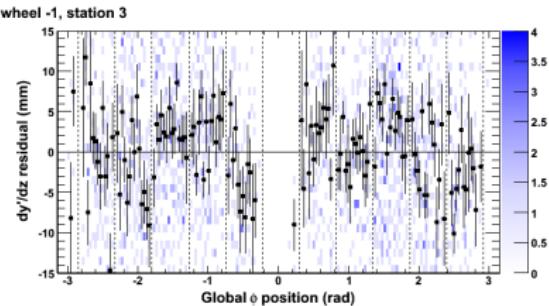
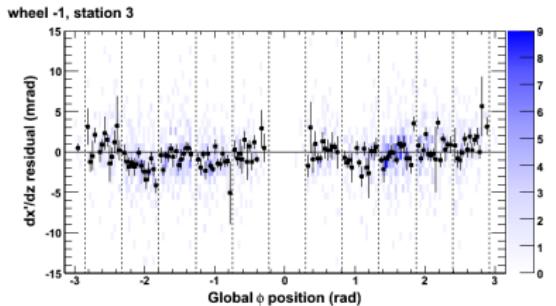
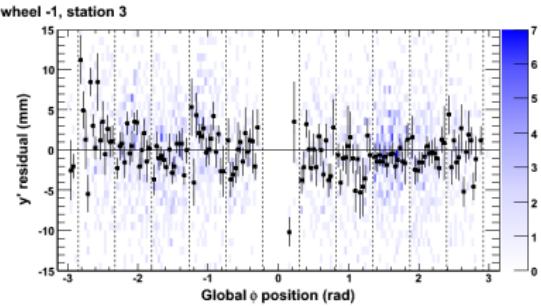
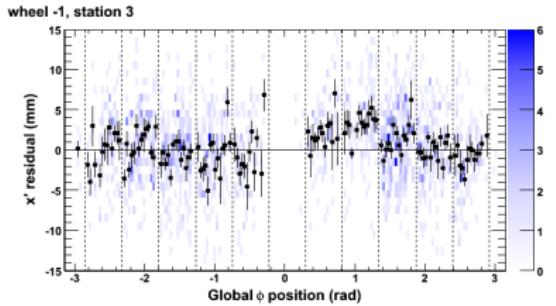
Map plots: station 3, wheel -1 Jim Pivarski 78/24

BarrelPG2009 Corrections Survey



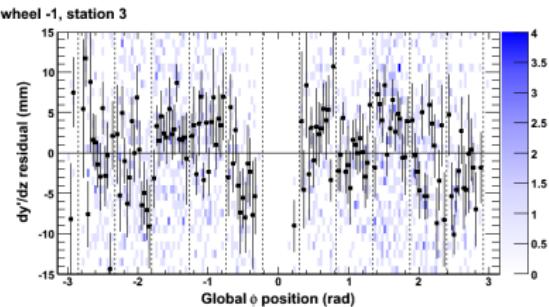
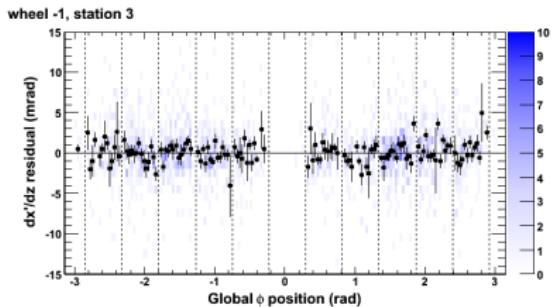
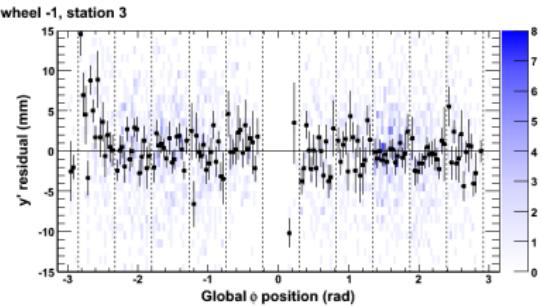
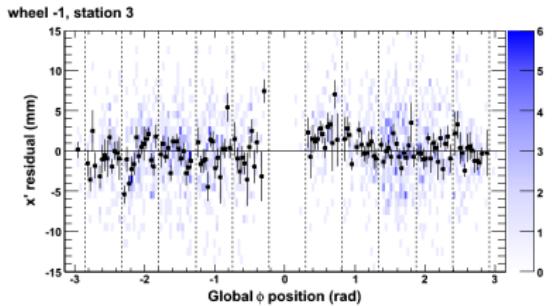
Map plots: station 3, wheel -1 Jim Pivarski 79/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 3, wheel -1 Jim Pivarski 80/24

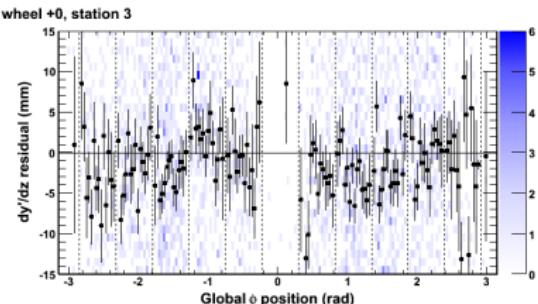
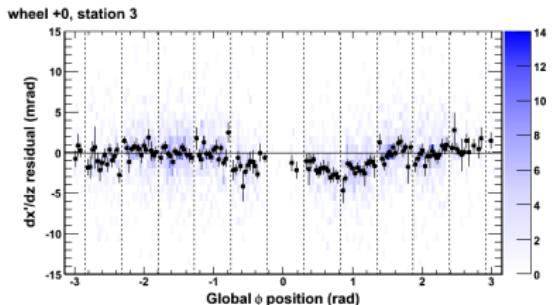
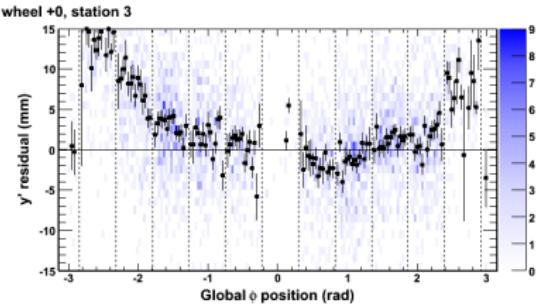
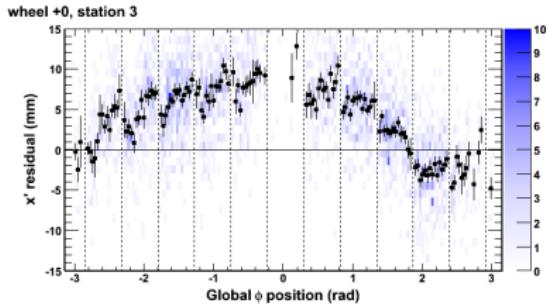
Track-based alignment



Map plots: station 3, wheel 0

Jim Pivarski 81/24

BarrelPG2009 Corrections Survey



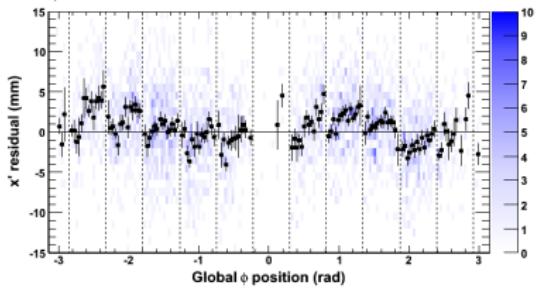
Map plots: station 3, wheel 0

Jim Pivarski 82/24

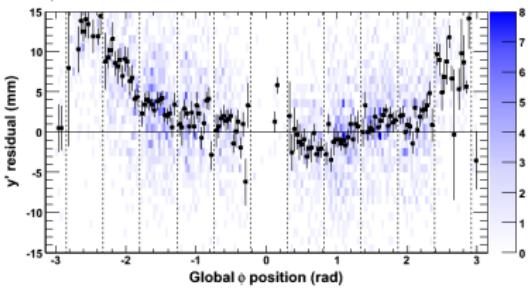


BarrelPG2009 Corrections Survey + global adjustment

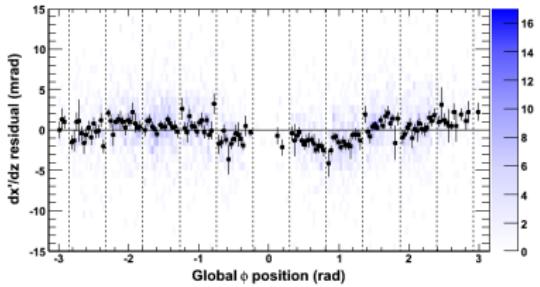
wheel +0, station 3



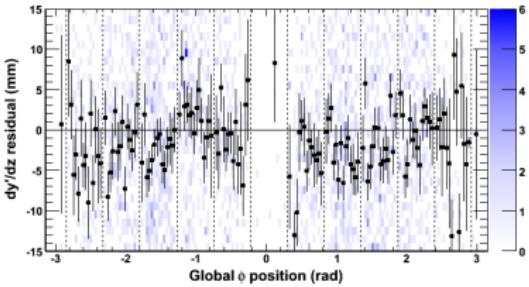
wheel +0, station 3



wheel +0, station 3



wheel +0, station 3



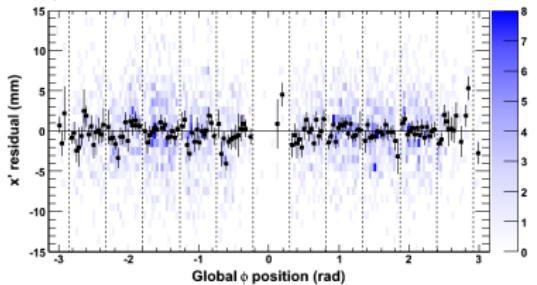
Map plots: station 3, wheel 0

Jim Pivarski 83/24

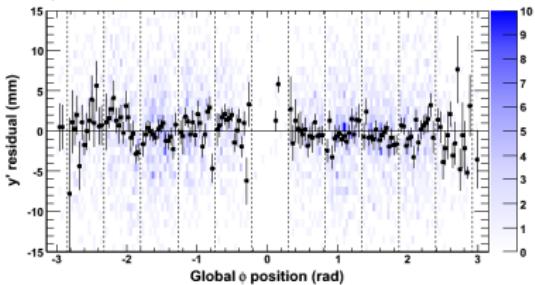


Track-based alignment

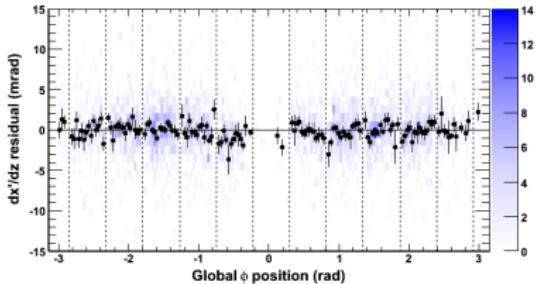
wheel +0, station 3



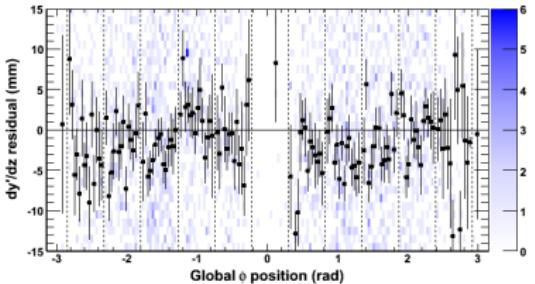
wheel +0, station 3



wheel +0, station 3



wheel +0, station 3

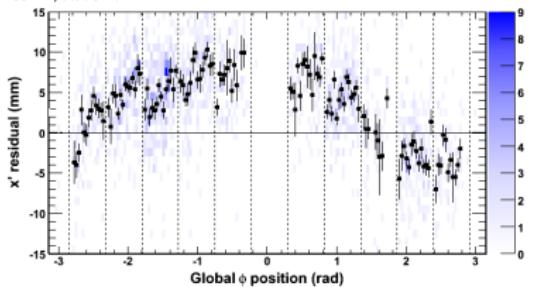


Map plots: station 3, wheel +1 Jim Pivarski 84/24

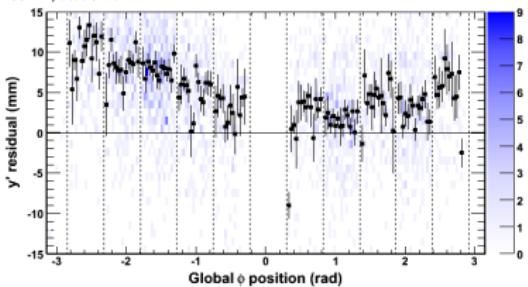
BarrelPG2009 Corrections Survey



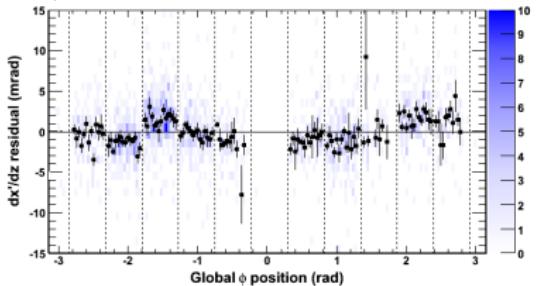
wheel +1, station 3



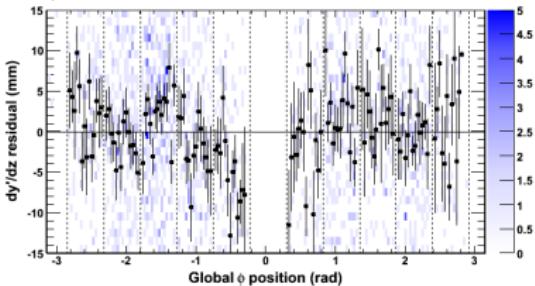
wheel +1, station 3



wheel +1, station 3



wheel +1, station 3

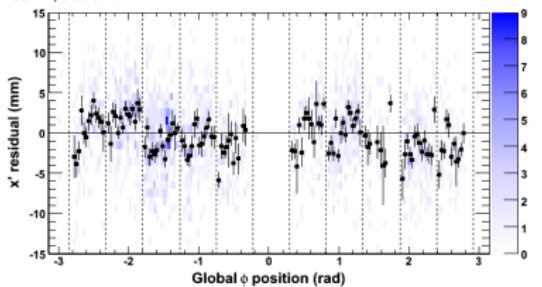


Map plots: station 3, wheel +1 Jim Pivarski 85/24

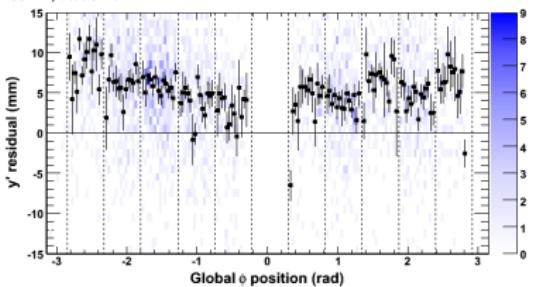
BarrelPG2009 Corrections Survey + global adjustment



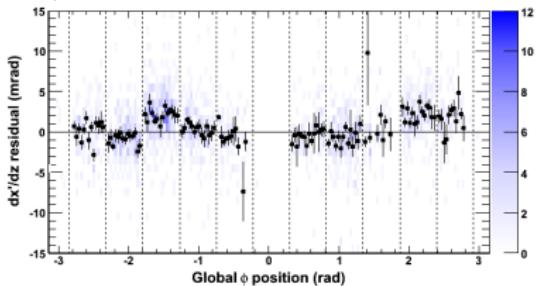
wheel +1, station 3



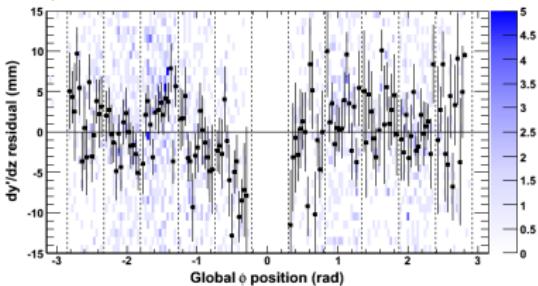
wheel +1, station 3



wheel +1, station 3

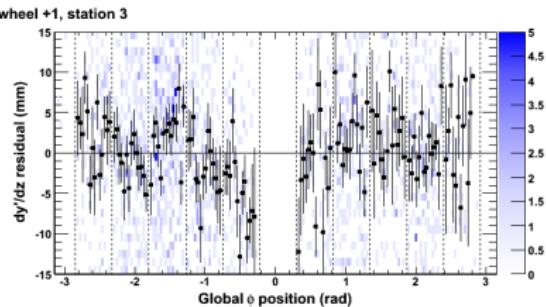
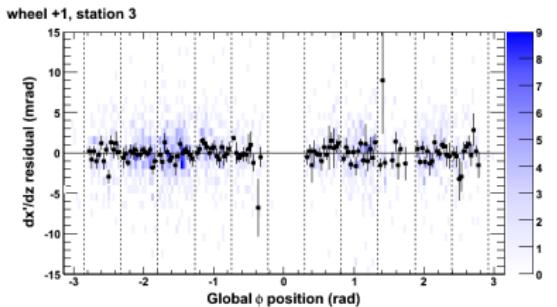
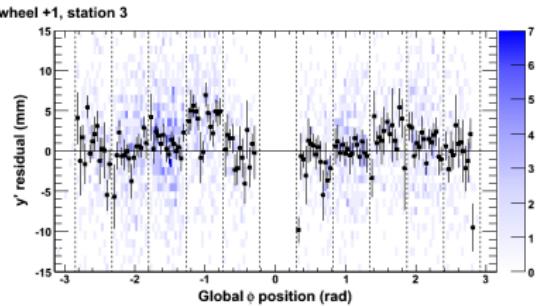
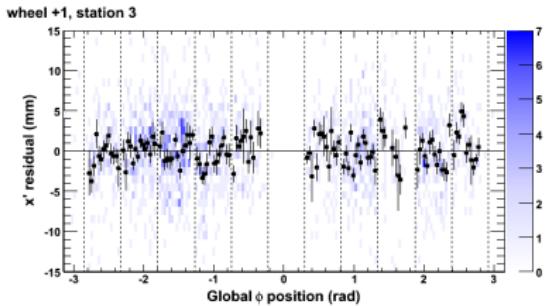


wheel +1, station 3



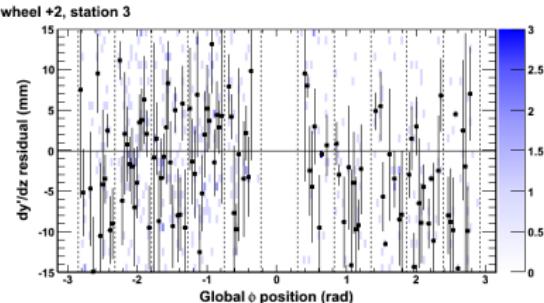
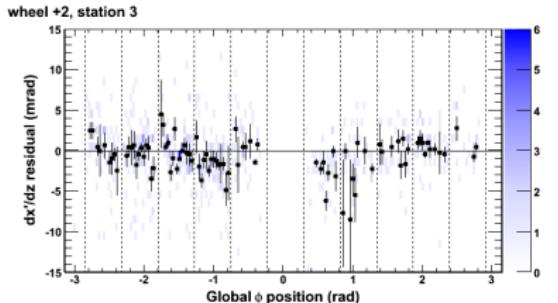
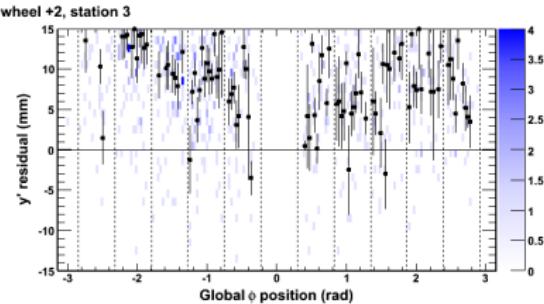
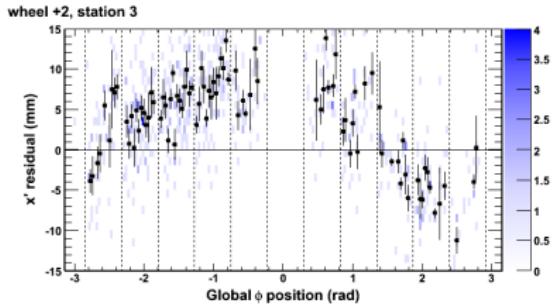
Map plots: station 3, wheel +1 Jim Pivarski 86/24

Track-based alignment



Map plots: station 3, wheel +2 Jim Pivarski 87/24

BarrelPG2009 Corrections Survey

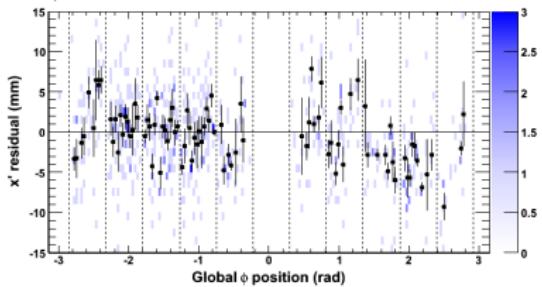


Map plots: station 3, wheel +2 Jim Pivarski 88/24

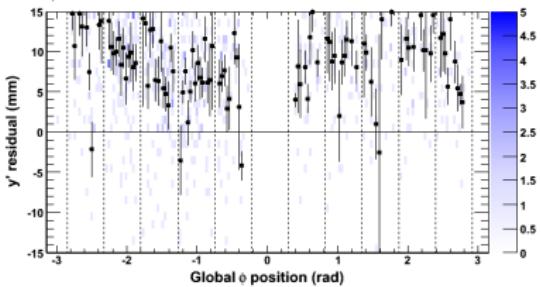
BarrelPG2009 Corrections Survey + global adjustment



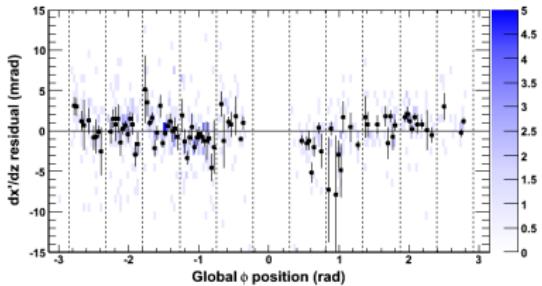
wheel +2, station 3



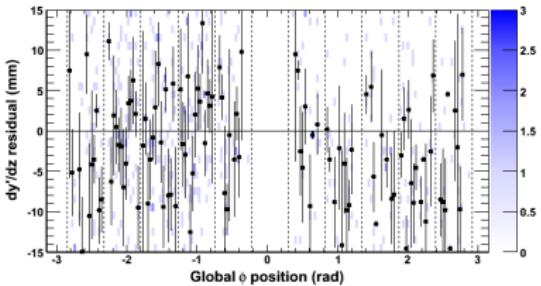
wheel +2, station 3



wheel +2, station 3

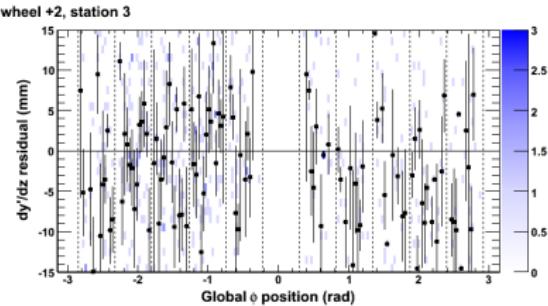
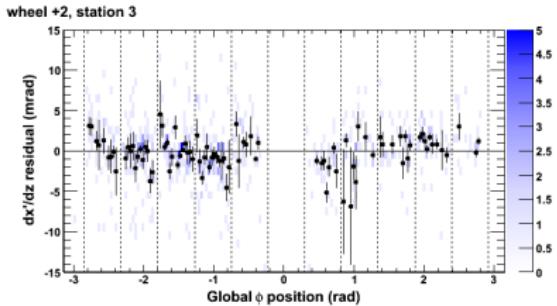
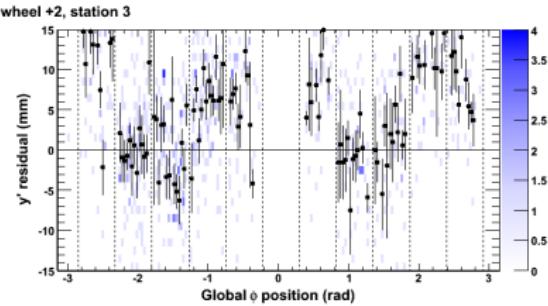
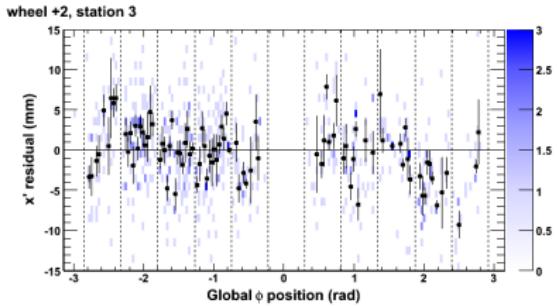


wheel +2, station 3



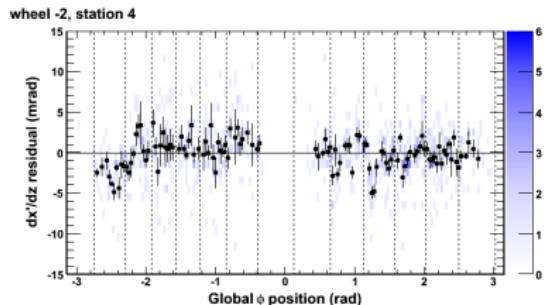
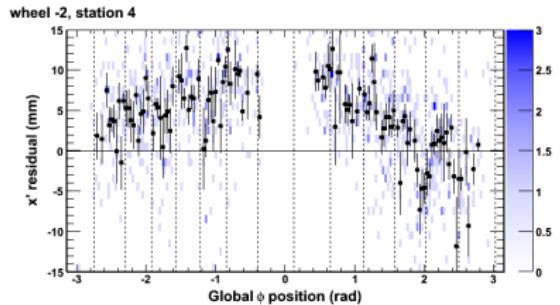
Map plots: station 3, wheel +2 Jim Pivarski 89/24

Track-based alignment



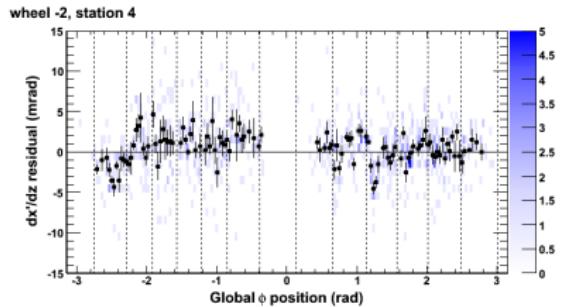
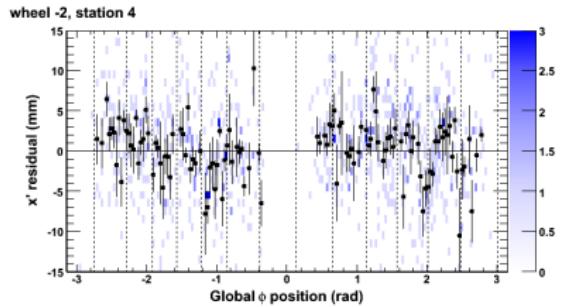
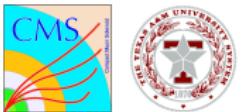
Map plots: station 4, wheel -2 Jim Pivarski 90/24

BarrelPG2009CorrectionsSurvey



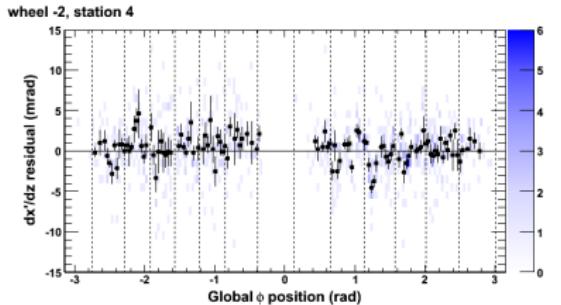
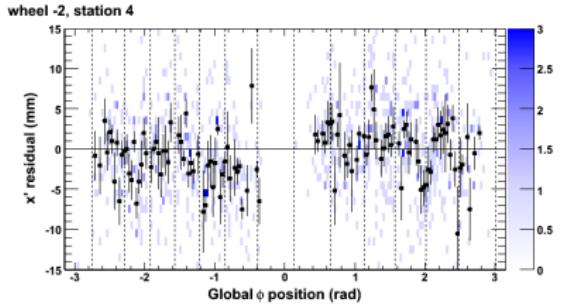
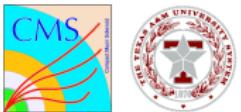
Map plots: station 4, wheel -2 Jim Pivarski 91/24

BarrelPG2009 Corrections Survey + global adjustment



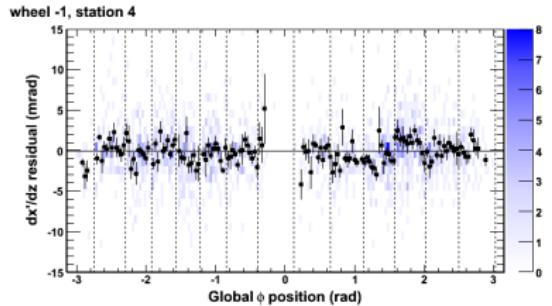
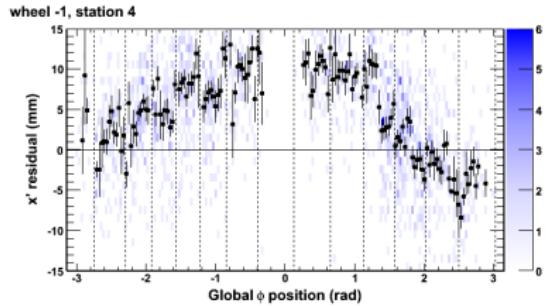
Map plots: station 4, wheel -2 Jim Pivarski 92/24

Track-based alignment



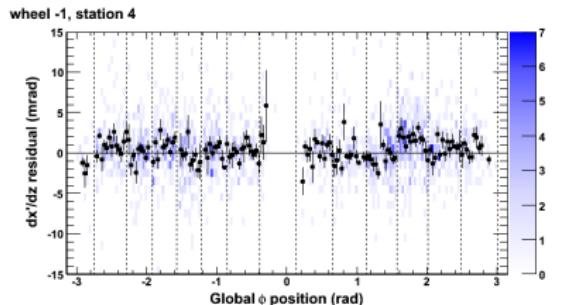
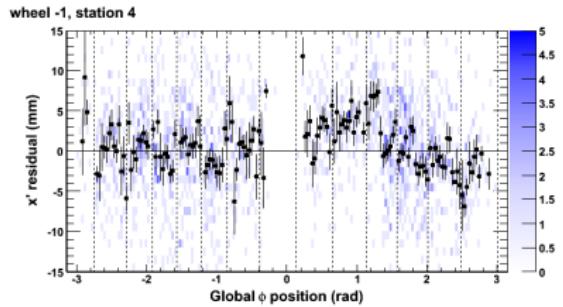
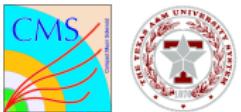
Map plots: station 4, wheel -1 Jim Pivarski 93/24

BarrelIPG2009 Corrections Survey



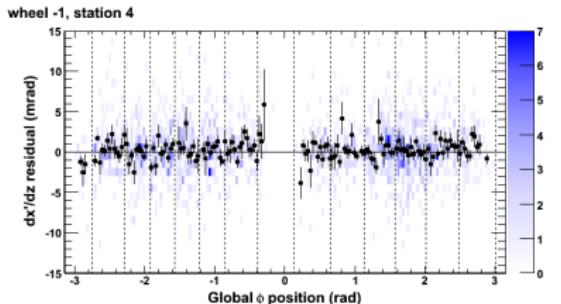
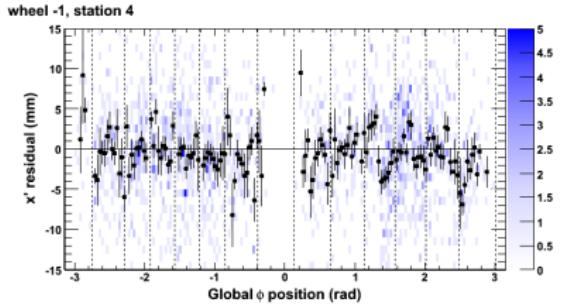
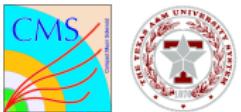
Map plots: station 4, wheel -1 Jim Pivarski 94/24

BarrelIPG2009 Corrections Survey + global adjustment



Map plots: station 4, wheel -1 Jim Pivarski 95/24

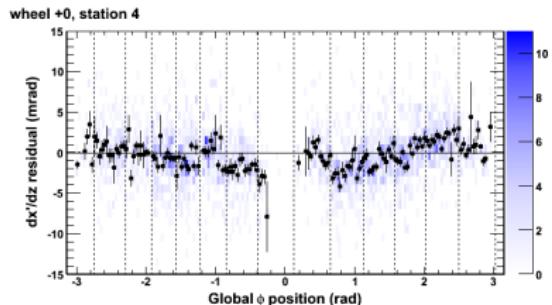
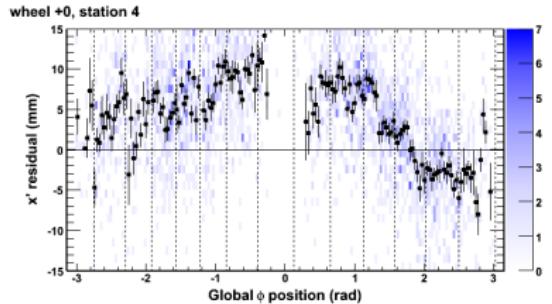
Track-based alignment



Map plots: station 4, wheel 0

Jim Pivarski 96/24

BarrelPG2009CorrectionsSurvey



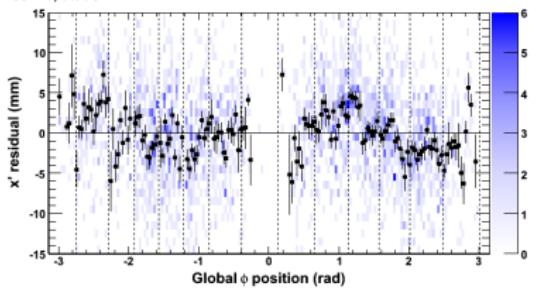
Map plots: station 4, wheel 0

Jim Pivarski 97/24

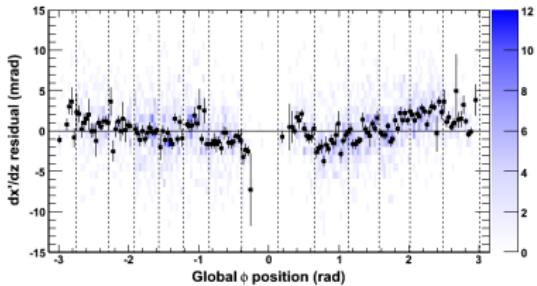
BarrelPG2009 Corrections Survey + global adjustment



wheel +0, station 4



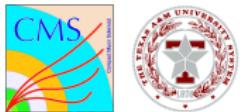
wheel +0, station 4



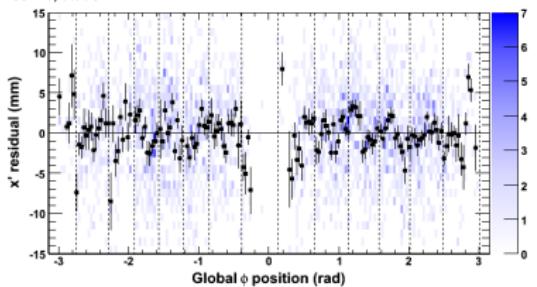
Map plots: station 4, wheel 0

Jim Pivarski 98/24

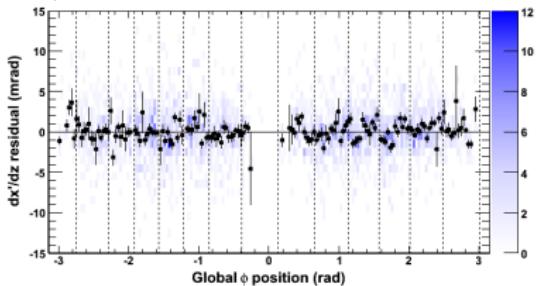
Track-based alignment



wheel +0, station 4

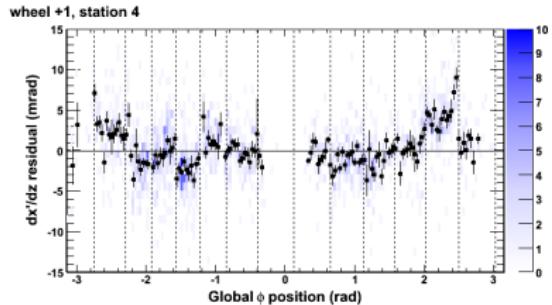
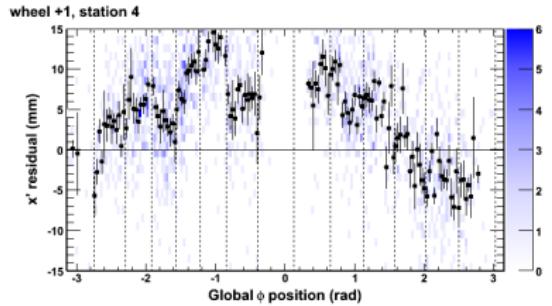


wheel +0, station 4



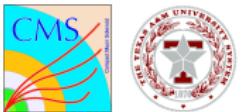
Map plots: station 4, wheel +1 Jim Pivarski 99/24

BarrelPG2009CorrectionsSurvey

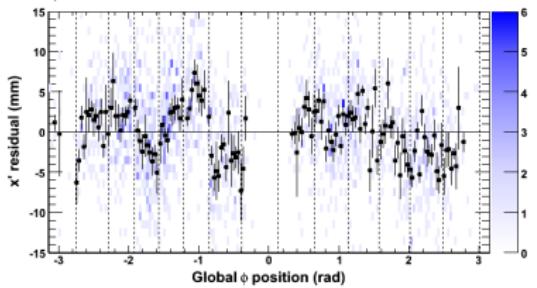


Map plots: station 4, wheel +1 Jim Pivarski 100/24

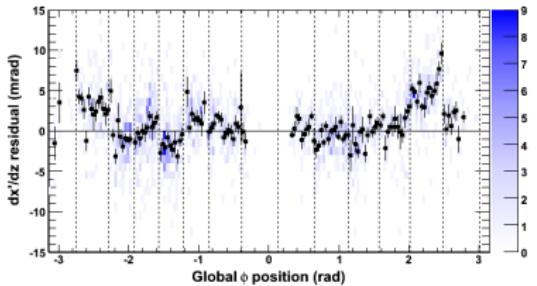
BarrelPG2009 Corrections Survey + global adjustment



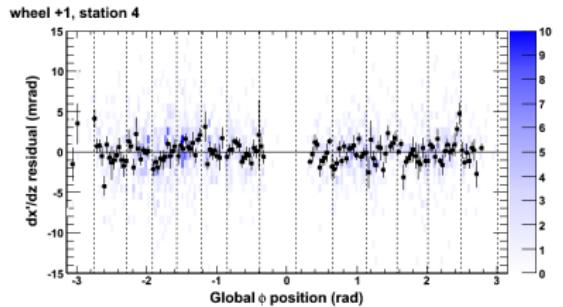
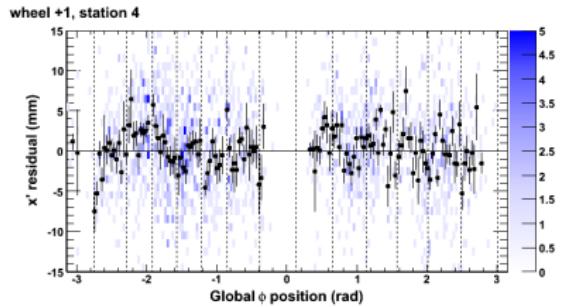
wheel +1, station 4



wheel +1, station 4

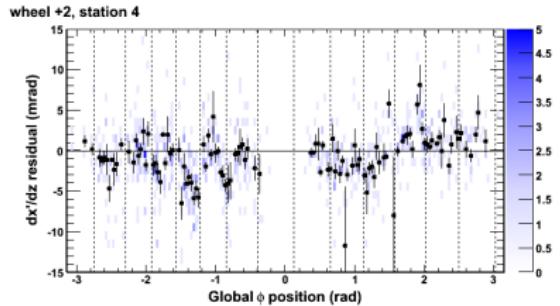
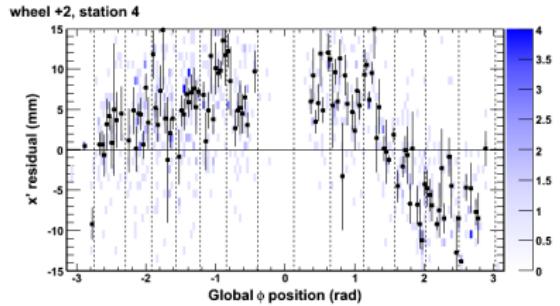


Track-based alignment



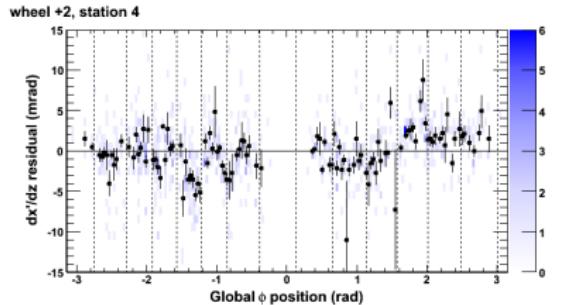
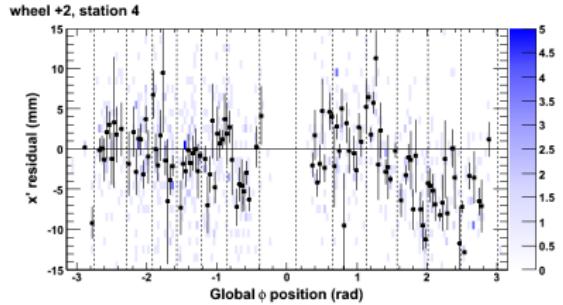
Map plots: station 4, wheel +2 Jim Pivarski 102/24

BarrelPG2009CorrectionsSurvey

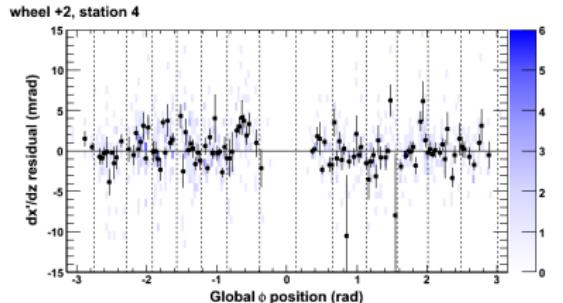
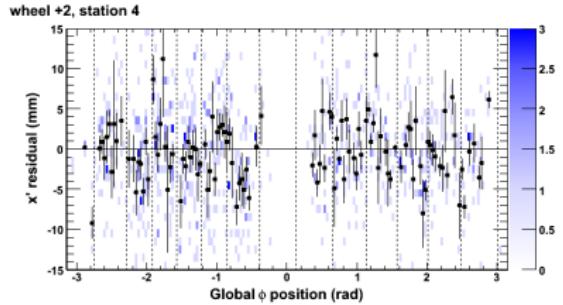
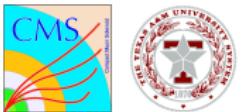


Map plots: station 4, wheel +2 Jim Pivarski 103/24

BarrelPG2009 Corrections Survey + global adjustment



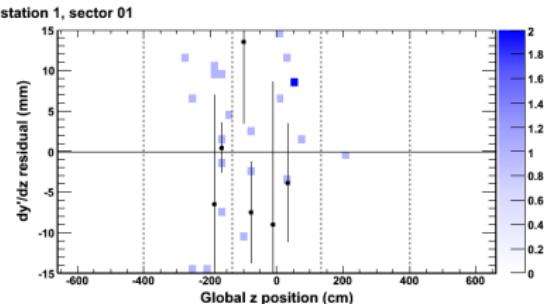
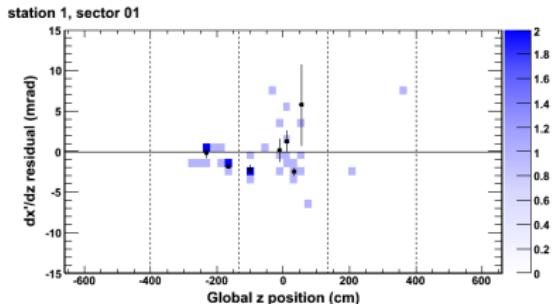
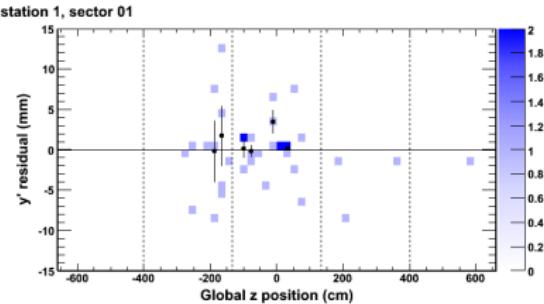
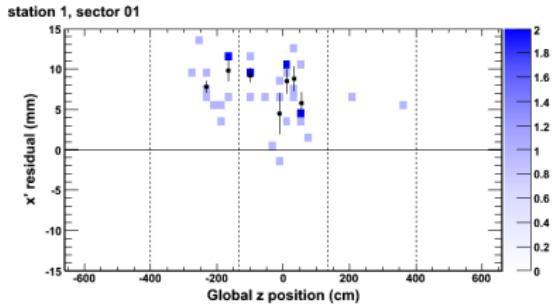
Track-based alignment



Map plots: station 1, sector 1

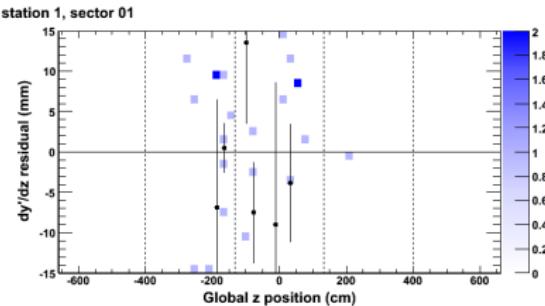
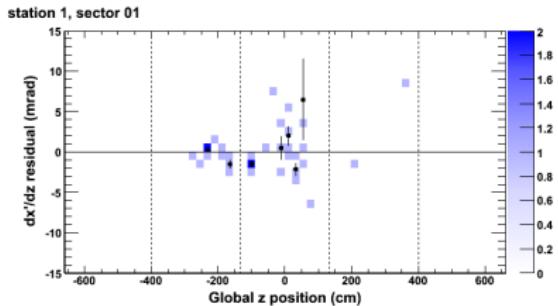
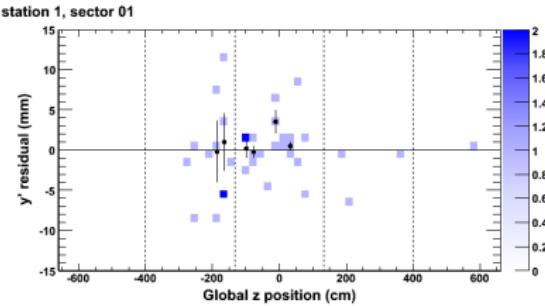
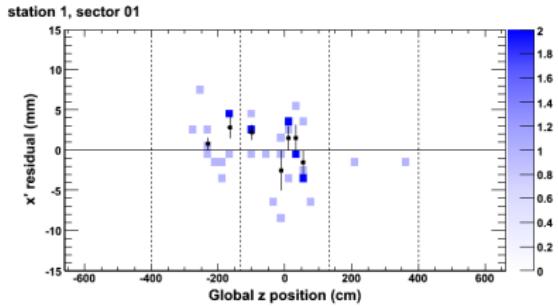
Jim Pivarski 105/24

BarrelPG2009 Corrections Survey



Map plots: station 1, sector 1 Jim Pivarski 106/24

BarrelPG2009 Corrections Survey + global adjustment



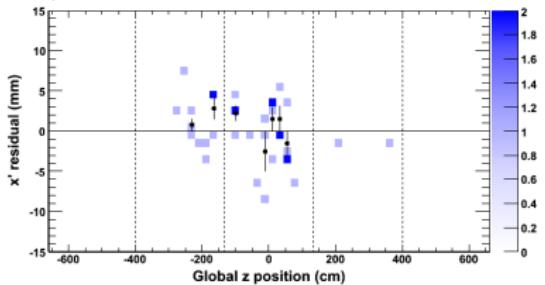
Map plots: station 1, sector 1

Jim Pivarski 107/24

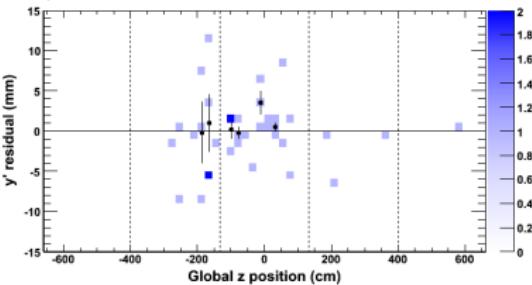


Track-based alignment

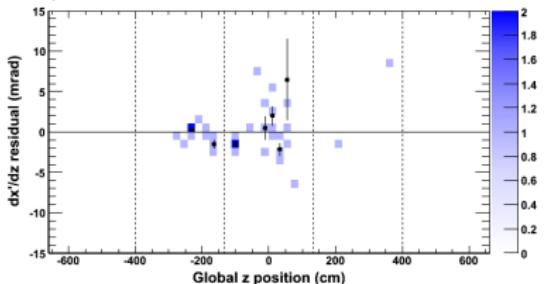
station 1, sector 01



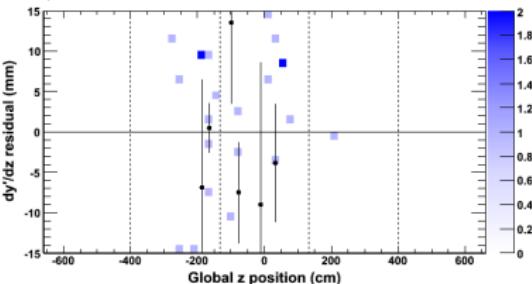
station 1, sector 01



station 1, sector 01



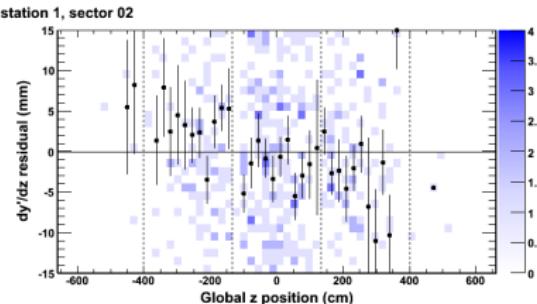
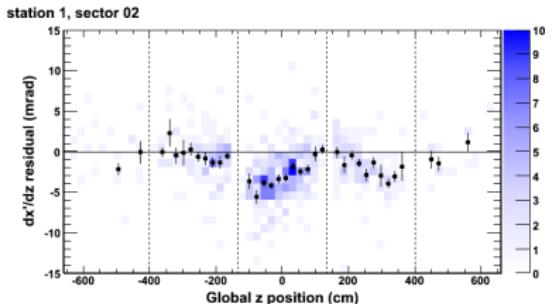
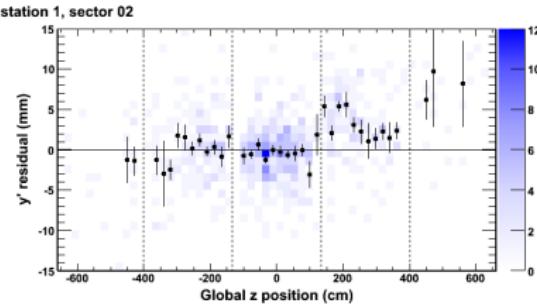
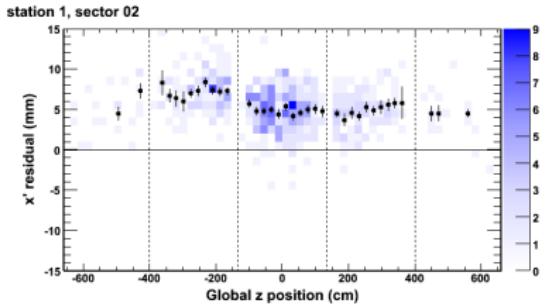
station 1, sector 01



Map plots: station 1, sector 2

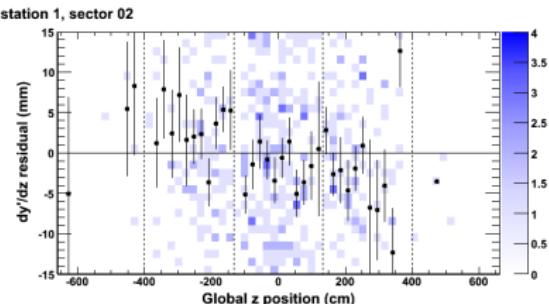
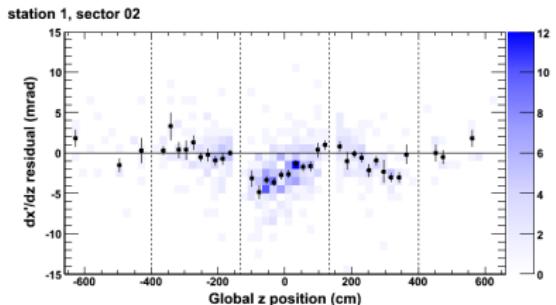
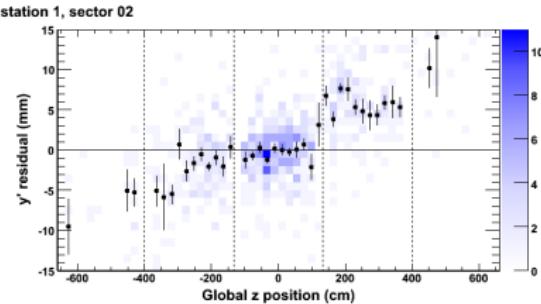
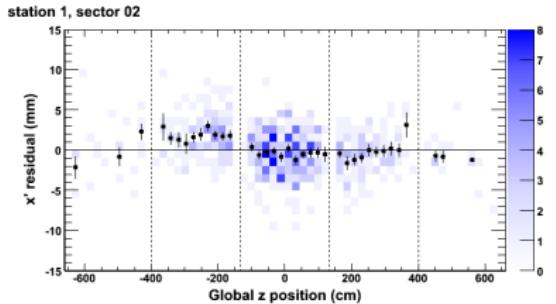
Jim Pivarski 108/24

BarrelPG2009CorrectionsSurvey



Map plots: station 1, sector 2 Jim Pivarski 109/24

BarrelPG2009 Corrections Survey + global adjustment

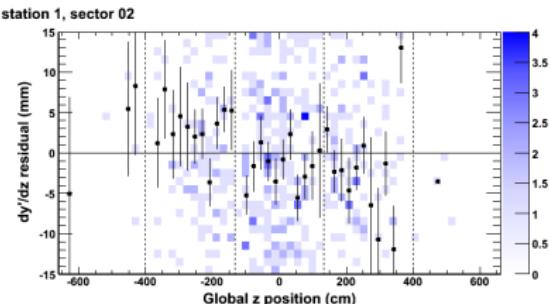
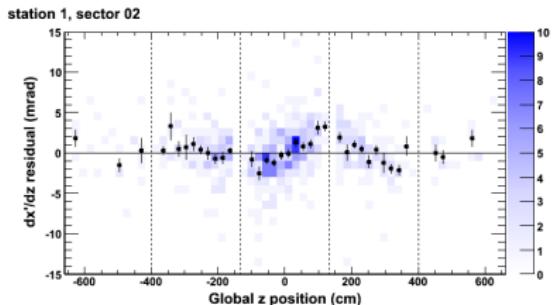
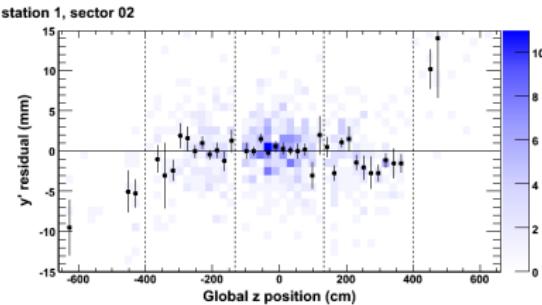
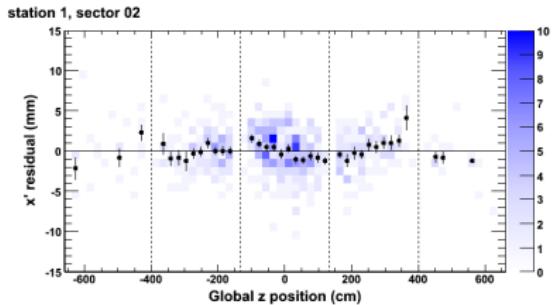


Map plots: station 1, sector 2

Jim Pivarski 110/24



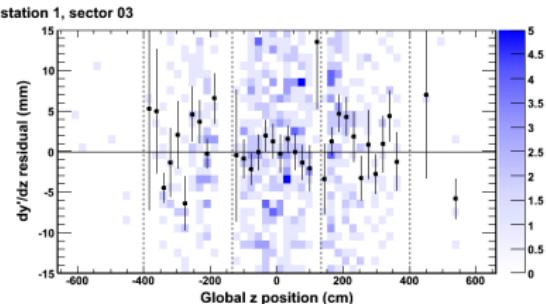
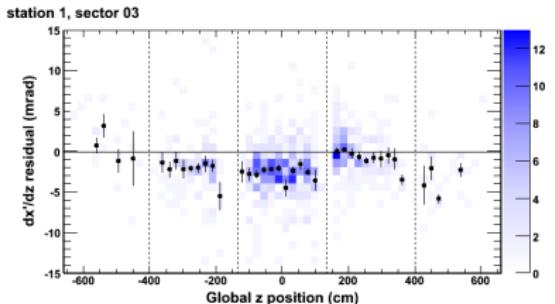
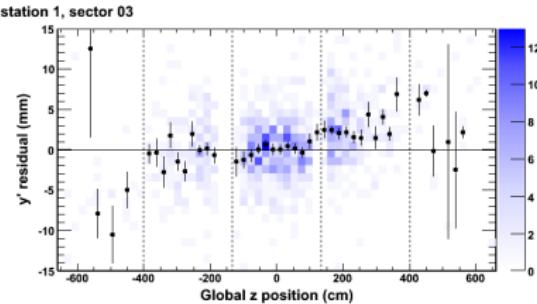
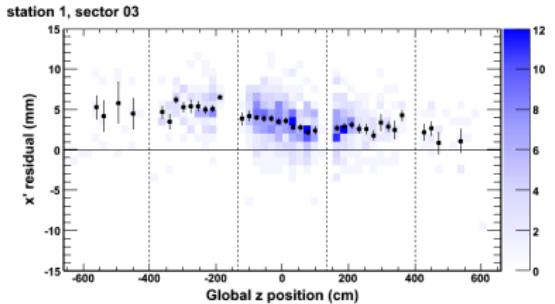
Track-based alignment



Map plots: station 1, sector 3

Jim Pivarski 111/24

BarrelPG2009 Corrections Survey

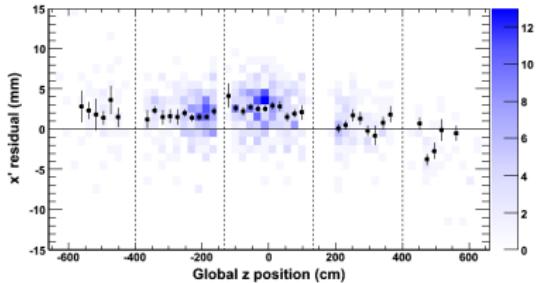


Map plots: station 1, sector 4 Jim Pivarski 112/24

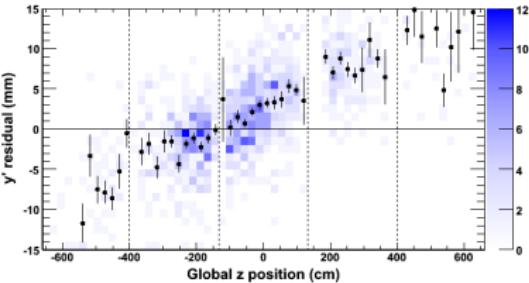
BarrelPG2009 Corrections Survey + global adjustment



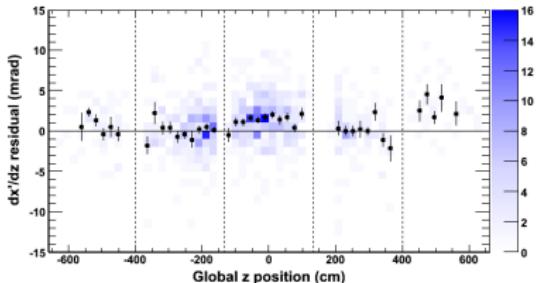
station 1, sector 04



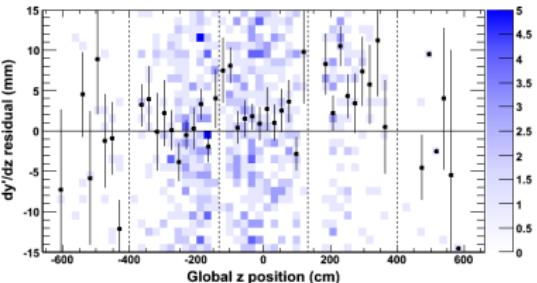
station 1, sector 04



station 1, sector 04



station 1, sector 04



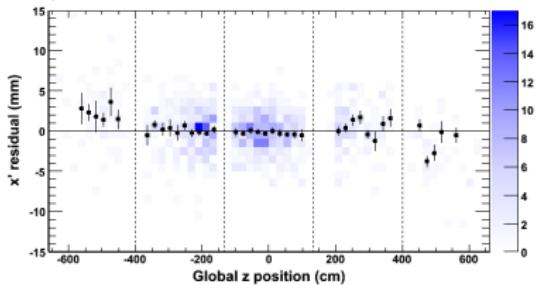
Map plots: station 1, sector 4

Jim Pivarski 113/24

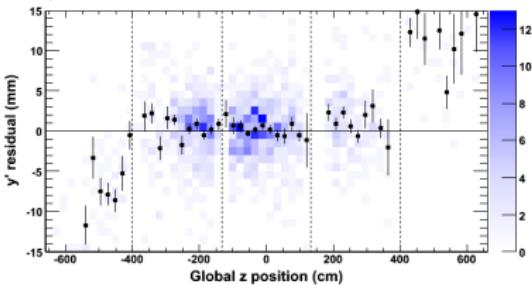


Track-based alignment

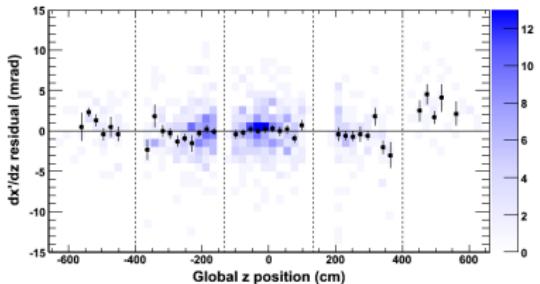
station 1, sector 04



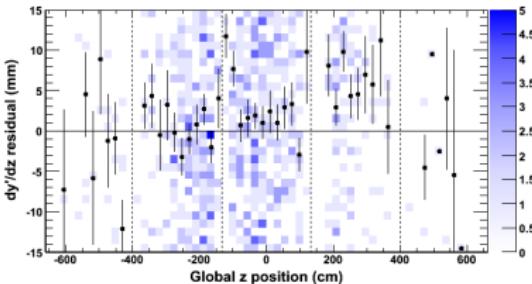
station 1, sector 04



station 1, sector 04



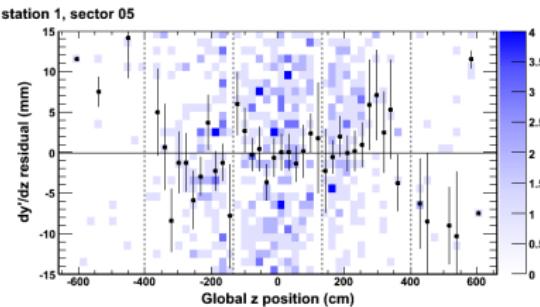
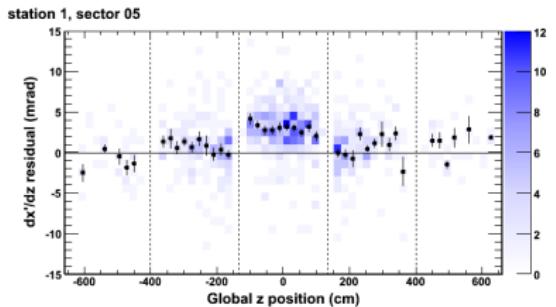
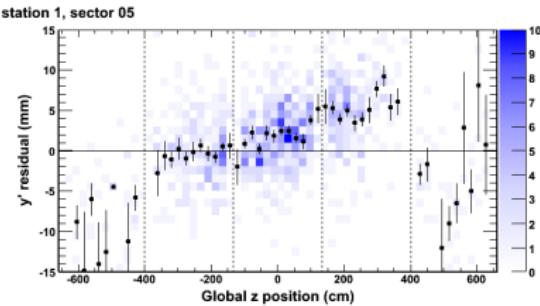
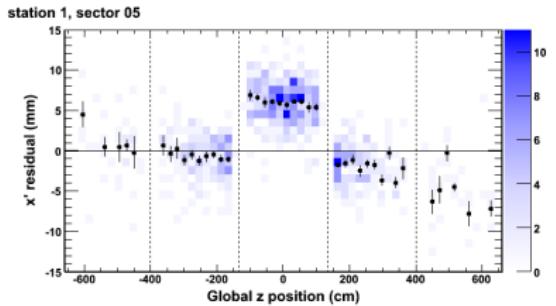
station 1, sector 04



Map plots: station 1, sector 5

Jim Pivarski 114/24

BarrelPG2009 Corrections Survey



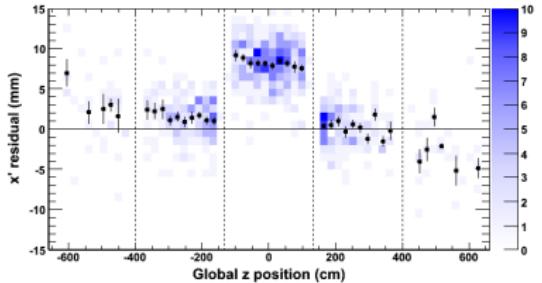
Map plots: station 1, sector 5

Jim Pivarski 115/24

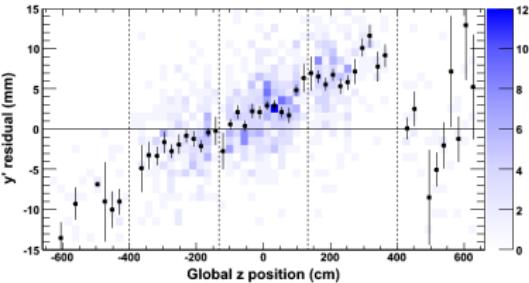


BarrelPG2009 Corrections Survey + global adjustment

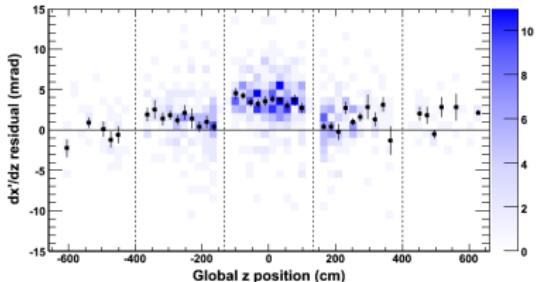
station 1, sector 05



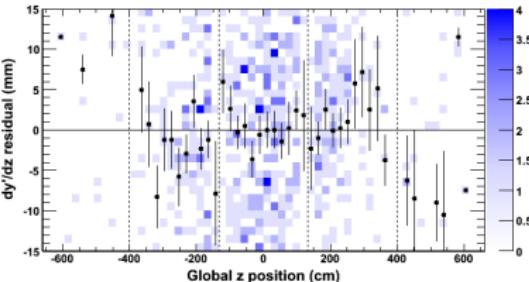
station 1, sector 05



station 1, sector 05



station 1, sector 05



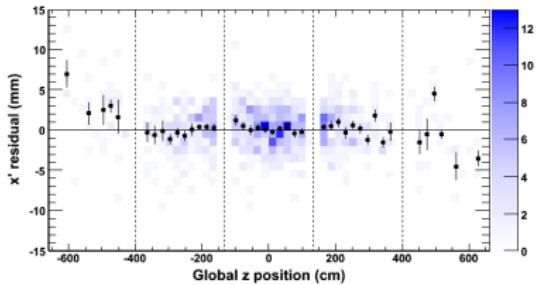
Map plots: station 1, sector 5

Jim Pivarski 116/24

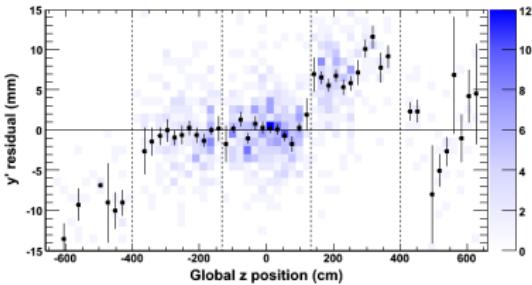


Track-based alignment

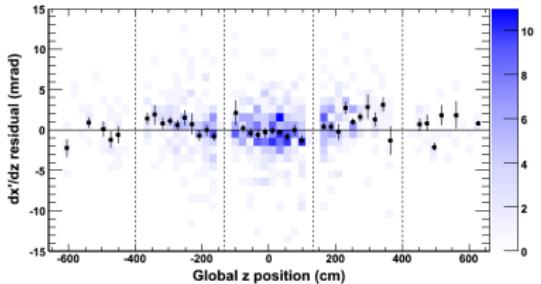
station 1, sector 05



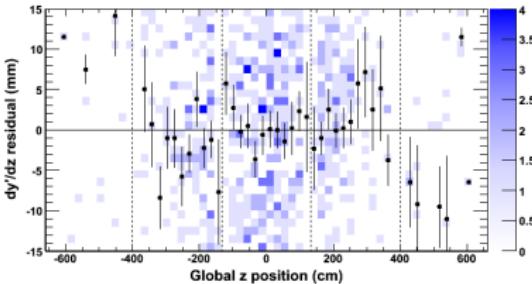
station 1, sector 05



station 1, sector 05



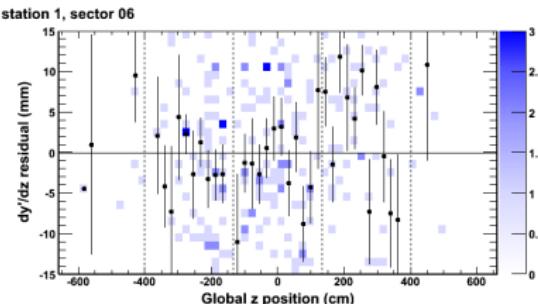
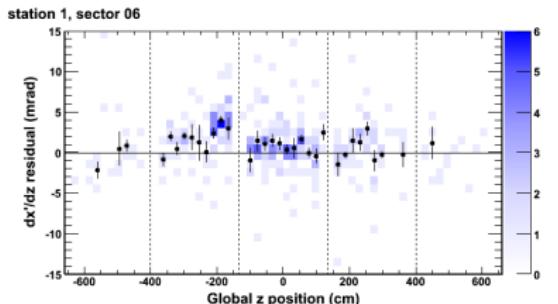
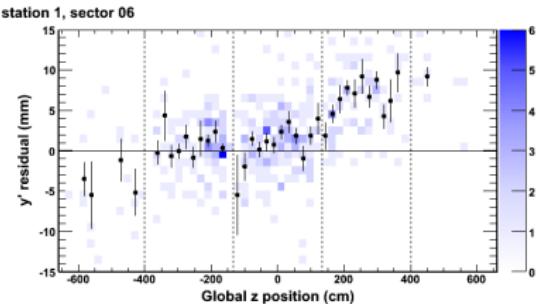
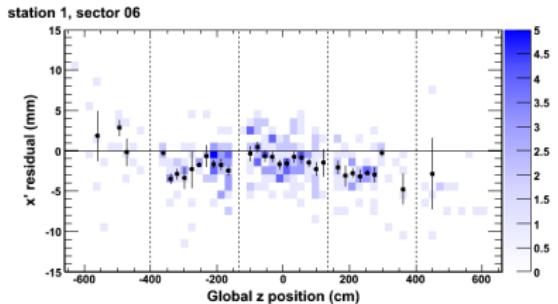
station 1, sector 05



Map plots: station 1, sector 6

Jim Pivarski 117/24

BarrelPG2009 Corrections Survey



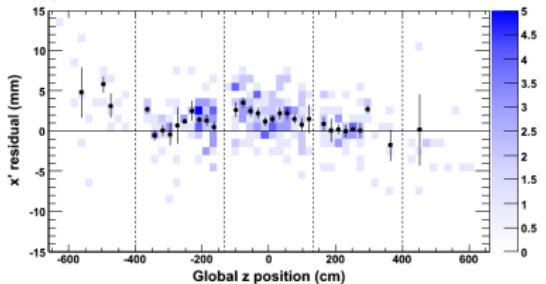
Map plots: station 1, sector 6

Jim Pivarski 118/24

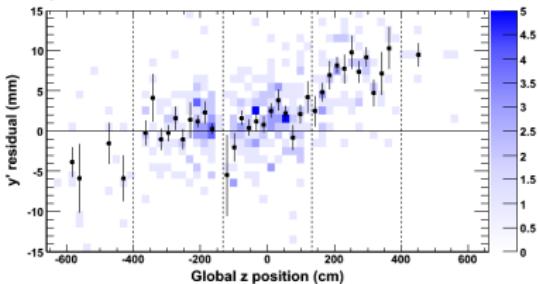


BarrelPG2009 Corrections Survey + global adjustment

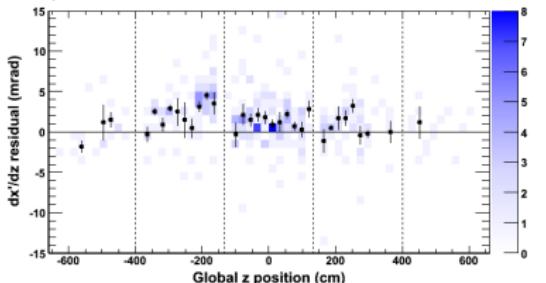
station 1, sector 06



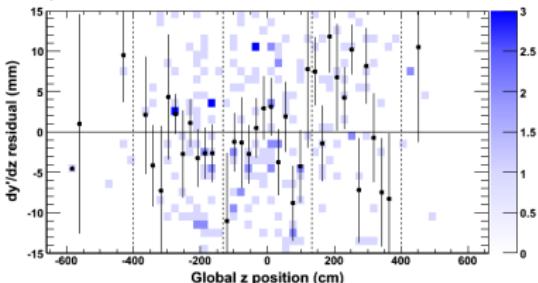
station 1, sector 06



station 1, sector 06



station 1, sector 06



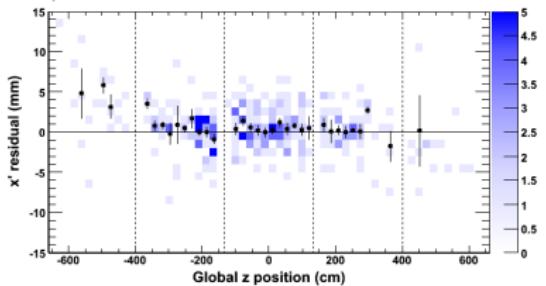
Map plots: station 1, sector 6

Jim Pivarski 119/24

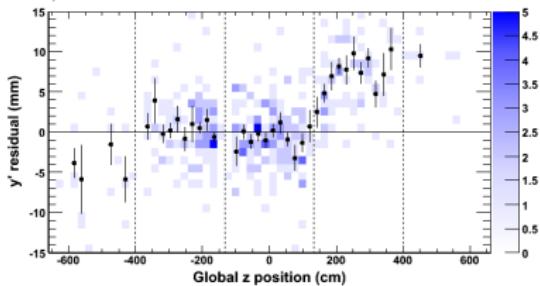


Track-based alignment

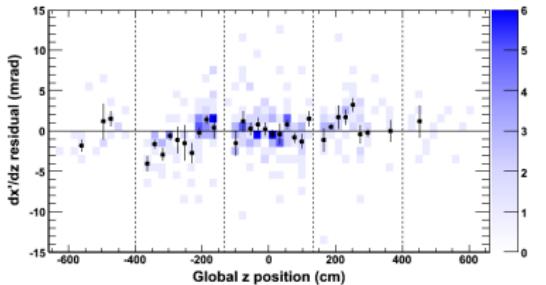
station 1, sector 06



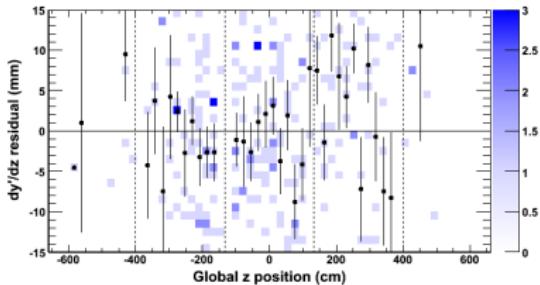
station 1, sector 06



station 1, sector 06



station 1, sector 06



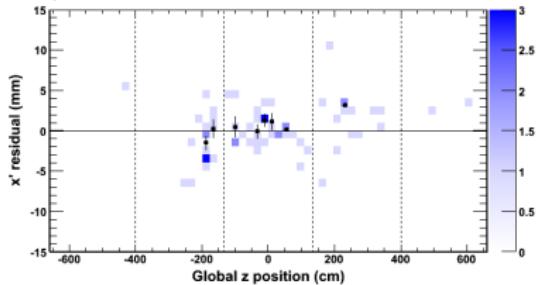
Map plots: station 1, sector 7

Jim Pivarski 120/24

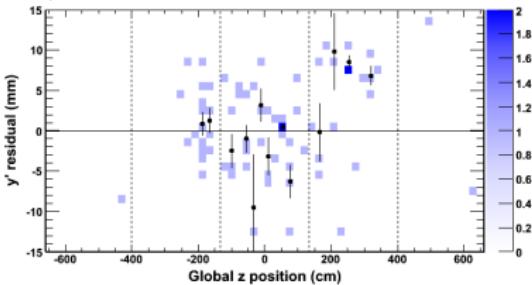


BarrelPG2009 Corrections Survey

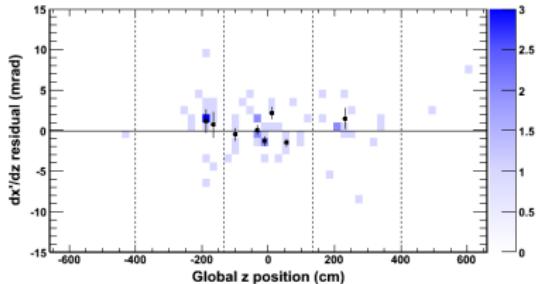
station 1, sector 07



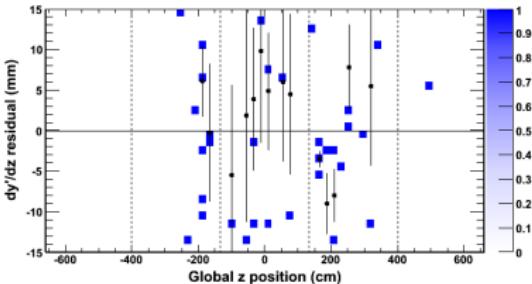
station 1, sector 07



station 1, sector 07



station 1, sector 07



Map plots: station 1, sector 7

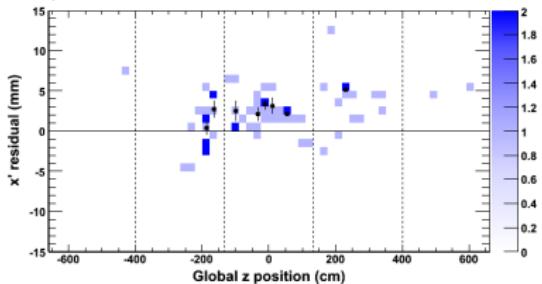
Jim Pivarski

121/24

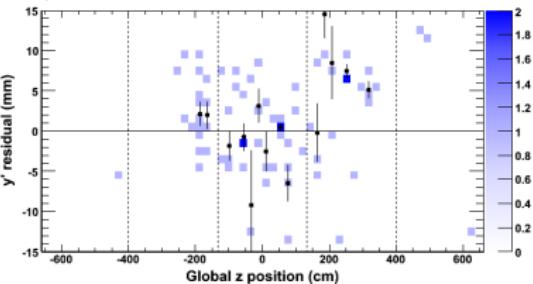


BarrelPG2009 Corrections Survey + global adjustment

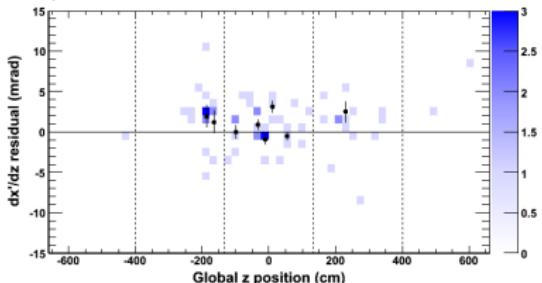
station 1, sector 07



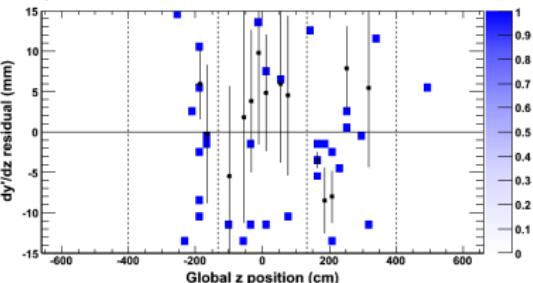
station 1, sector 07



station 1, sector 07



station 1, sector 07



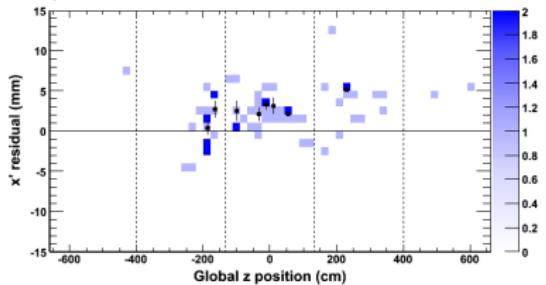
Map plots: station 1, sector 7

Jim Pivarski 122/24

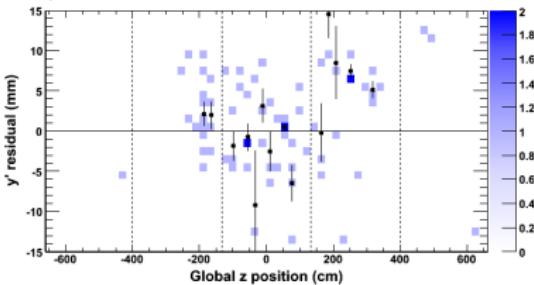


Track-based alignment

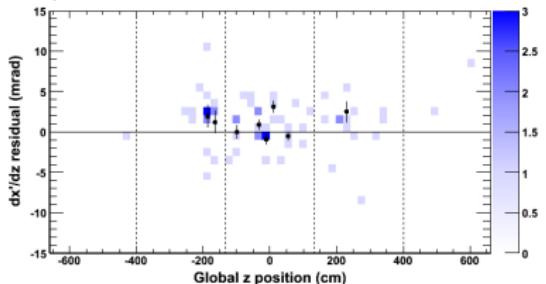
station 1, sector 07



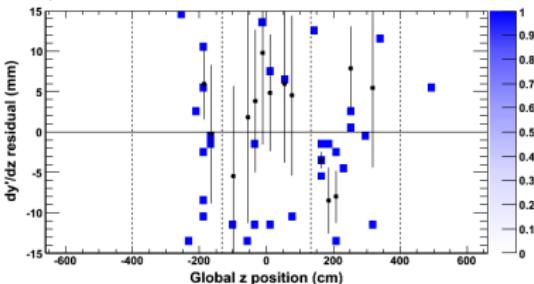
station 1, sector 07



station 1, sector 07



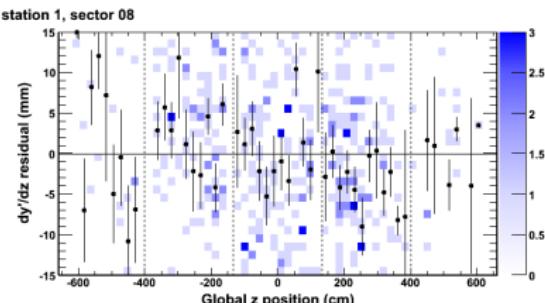
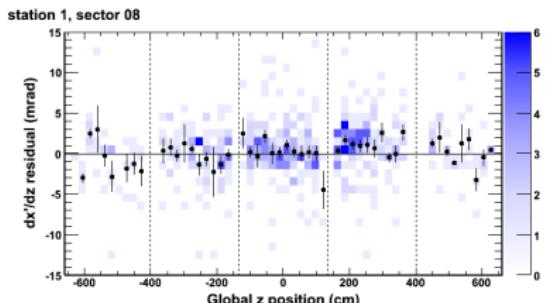
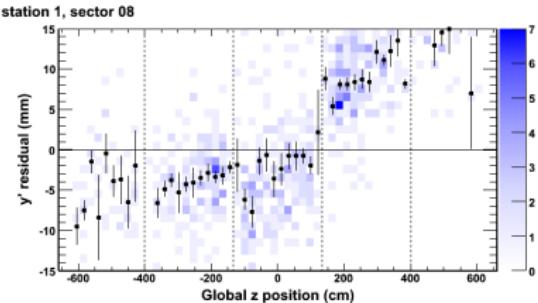
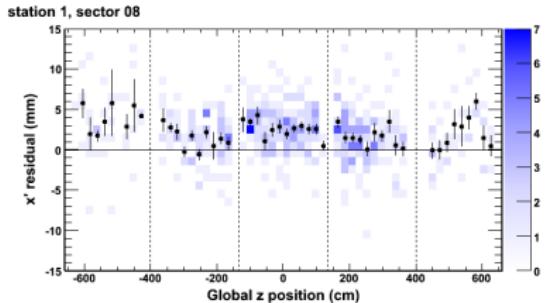
station 1, sector 07



Map plots: station 1, sector 8

Jim Pivarski 123/24

BarrelPG2009 Corrections Survey

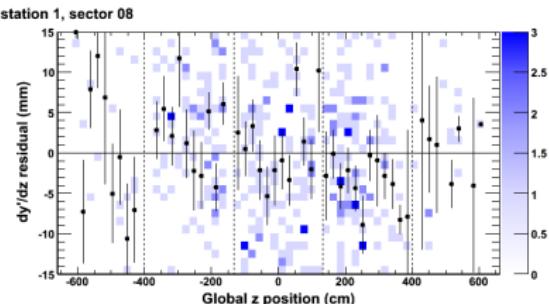
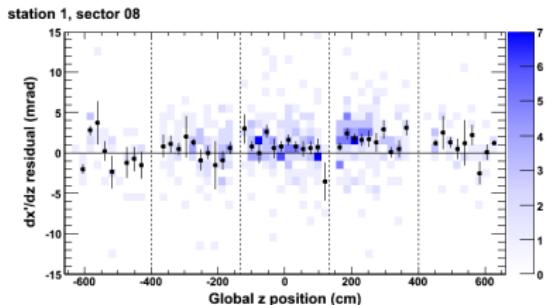
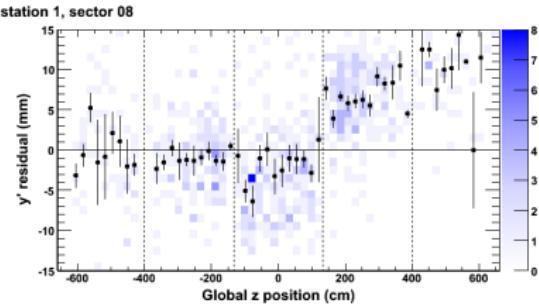
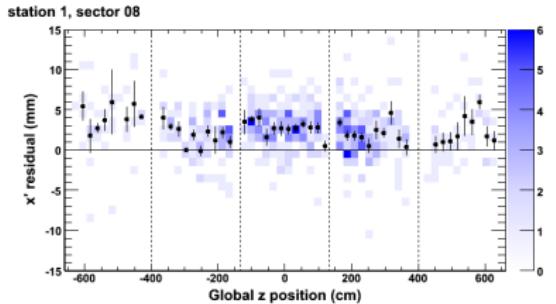


Map plots: station 1, sector 8

Jim Pivarski 124/24



BarrelPG2009 Corrections Survey + global adjustment



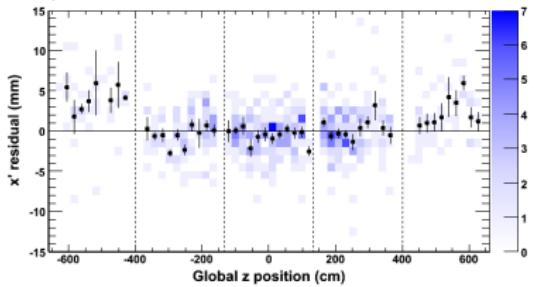
Map plots: station 1, sector 8

Jim Pivarski 125/24

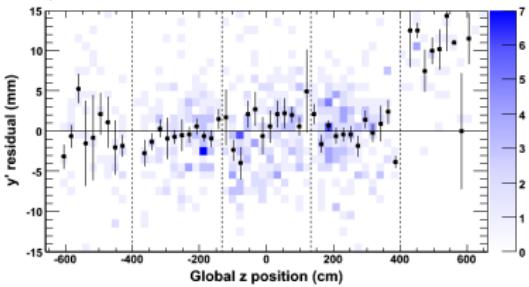


Track-based alignment

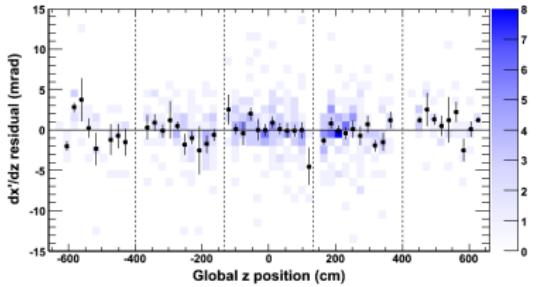
station 1, sector 08



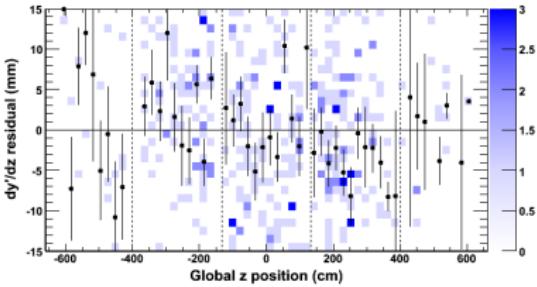
station 1, sector 08



station 1, sector 08



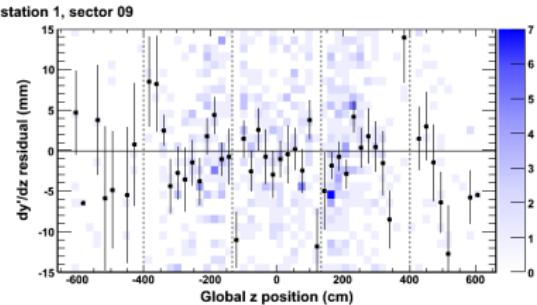
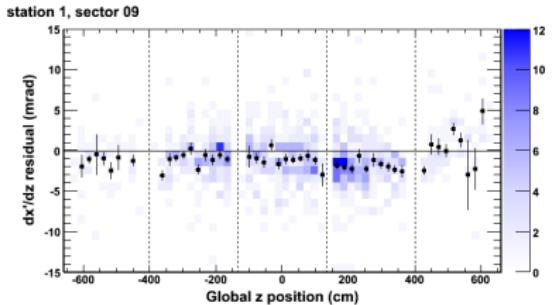
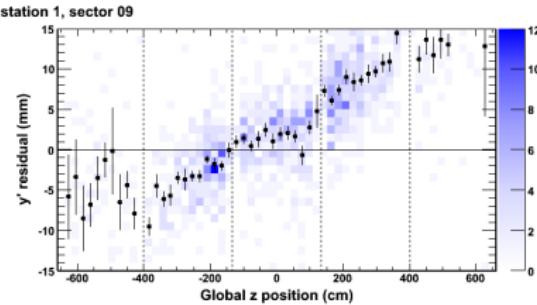
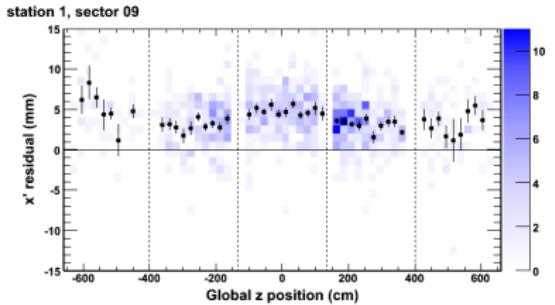
station 1, sector 08



Map plots: station 1, sector 9

Jim Pivarski 126/24

BarrelPG2009 Corrections Survey



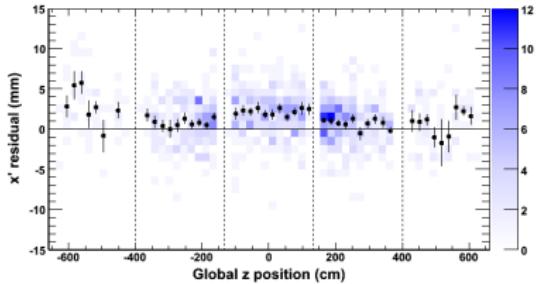
Map plots: station 1, sector 9

Jim Pivarski 127/24

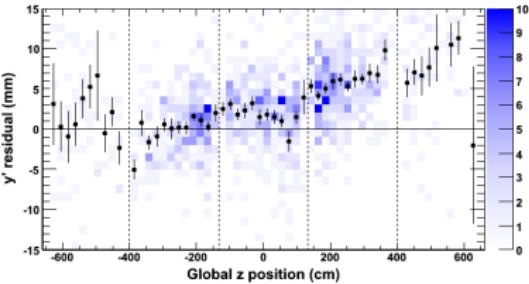


BarrelPG2009 Corrections Survey + global adjustment

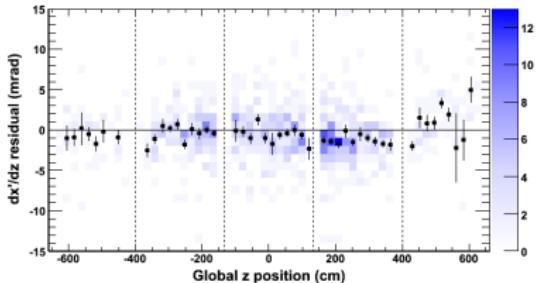
station 1, sector 09



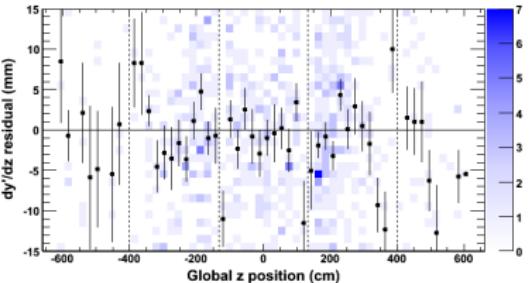
station 1, sector 09



station 1, sector 09



station 1, sector 09

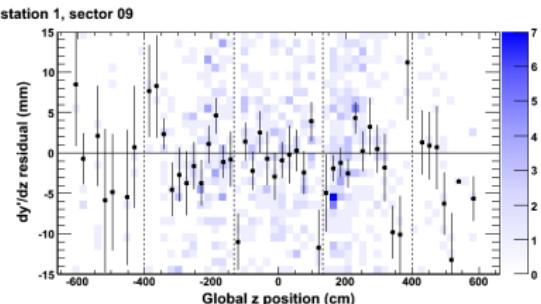
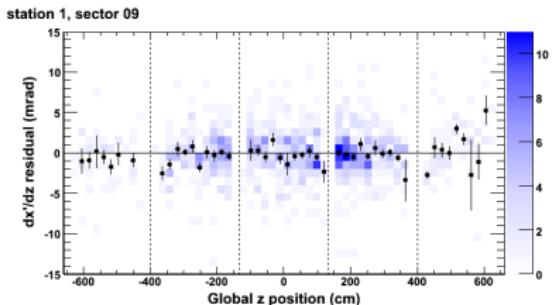
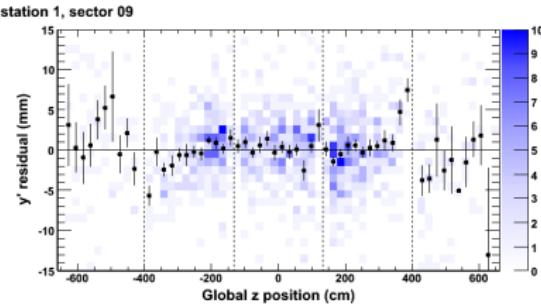
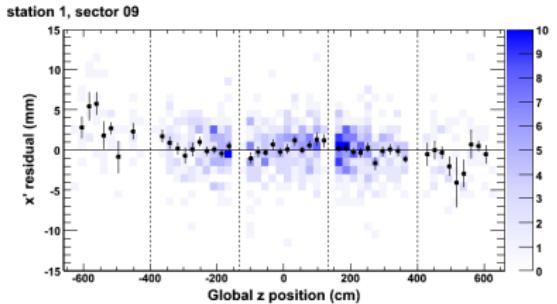


Map plots: station 1, sector 9

Jim Pivarski 128/24

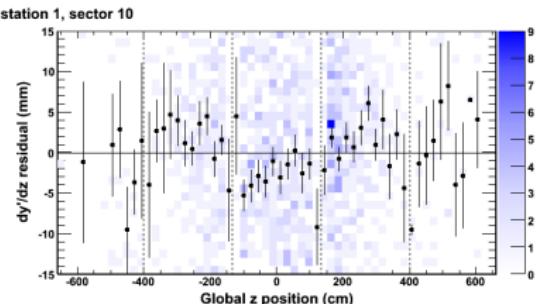
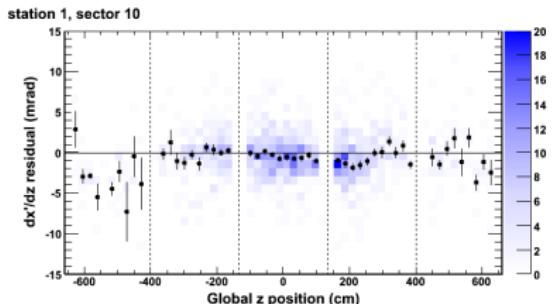
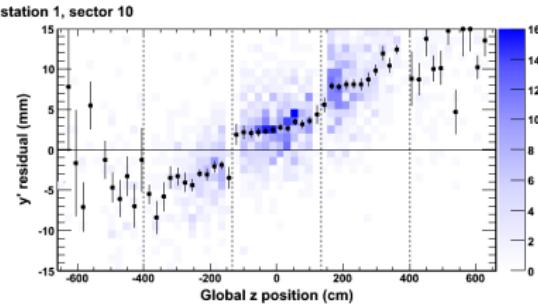
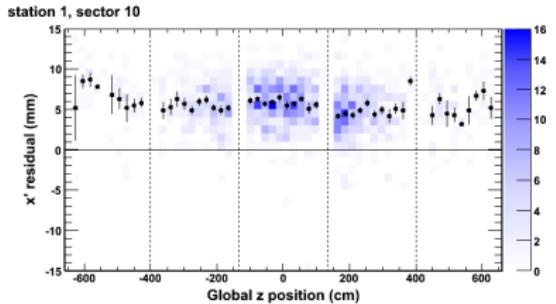


Track-based alignment



Map plots: station 1, sector 10 Jim Pivarski 129/24

BarrelPG2009 Corrections Survey

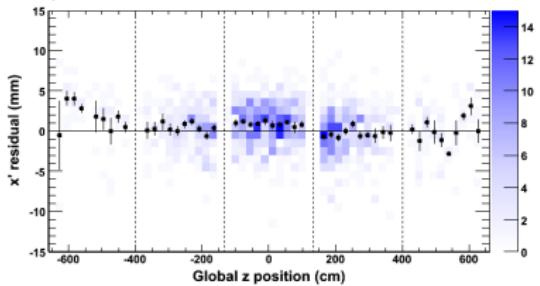


Map plots: station 1, sector 10 Jim Pivarski 130/24

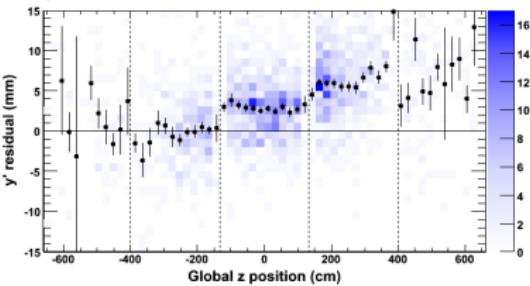
BarrelPG2009 Corrections Survey + global adjustment



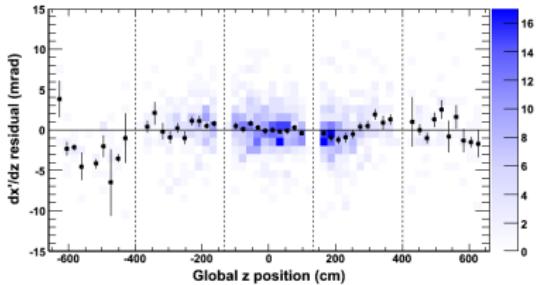
station 1, sector 10



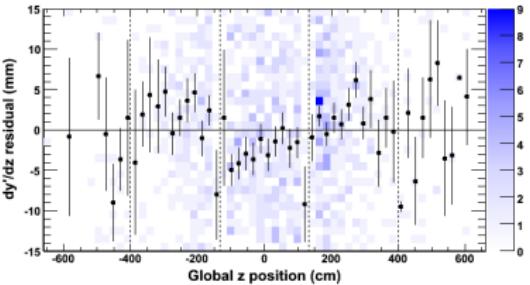
station 1, sector 10



station 1, sector 10

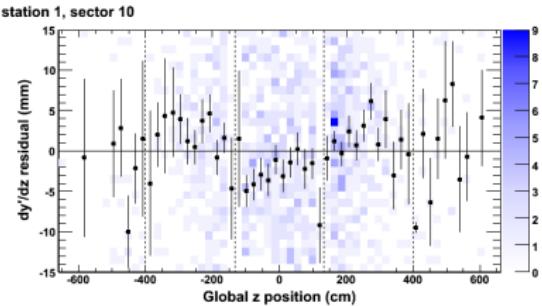
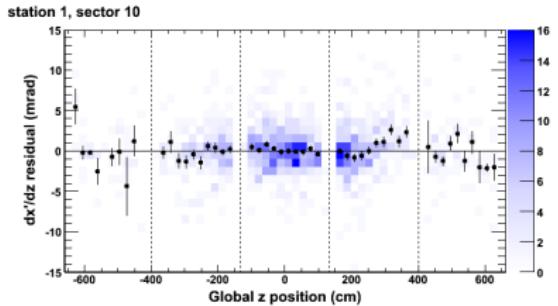
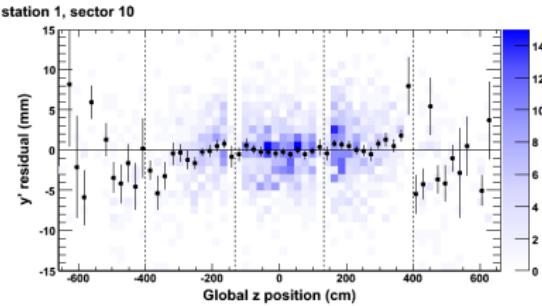
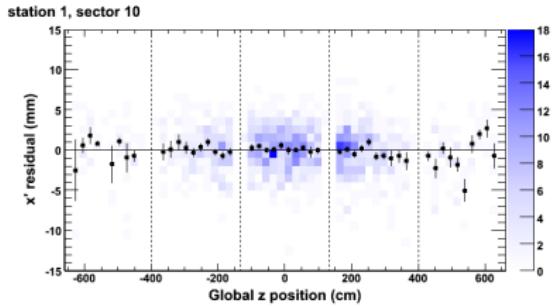


station 1, sector 10



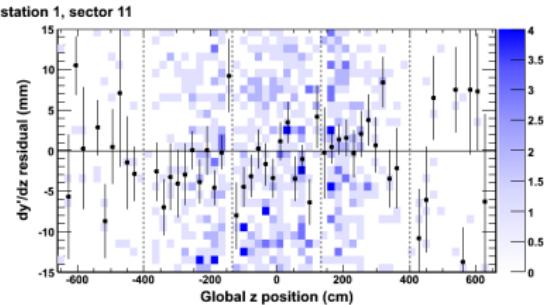
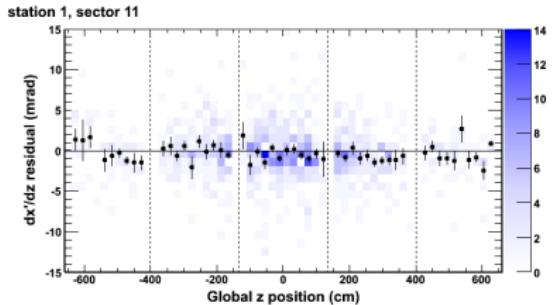
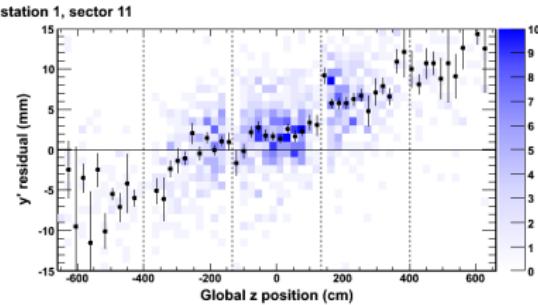
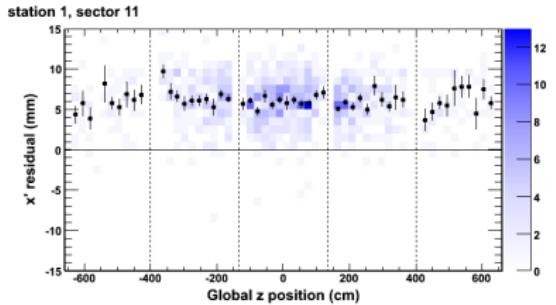
Map plots: station 1, sector 10 Jim Pivarski 131/24

Track-based alignment



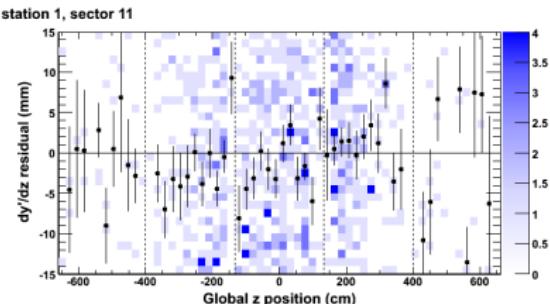
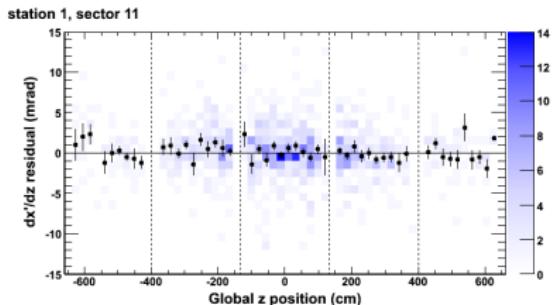
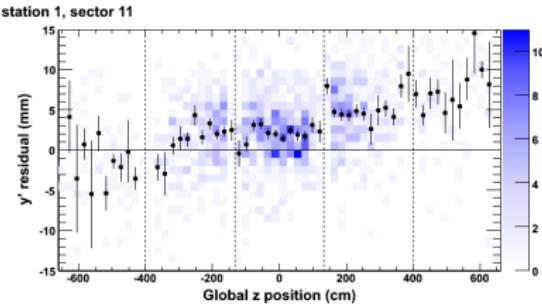
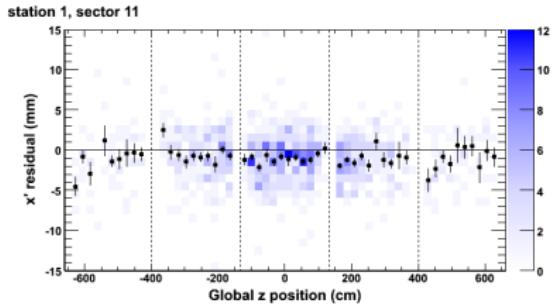
Map plots: station 1, sector 11 Jim Pivarski 132/24

BarrelPG2009 Corrections Survey



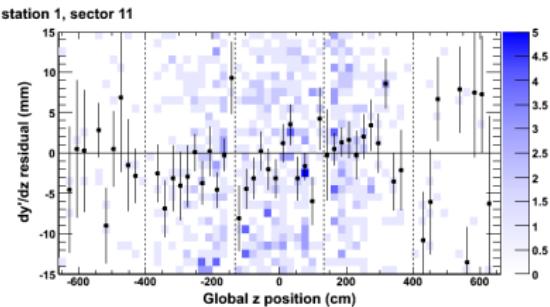
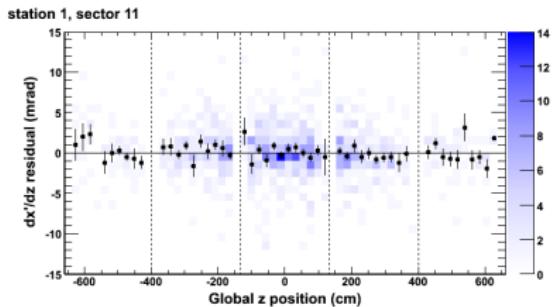
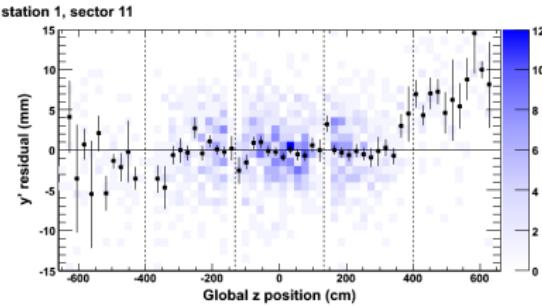
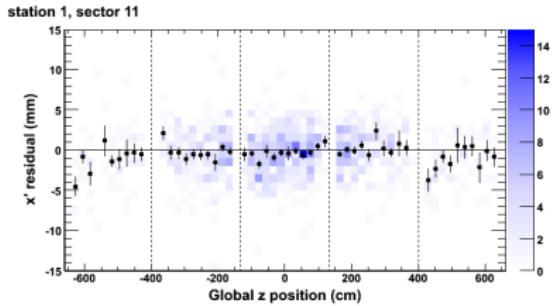
Map plots: station 1, sector 11 Jim Pivarski 133/24

BarrelPG2009 Corrections Survey + global adjustment



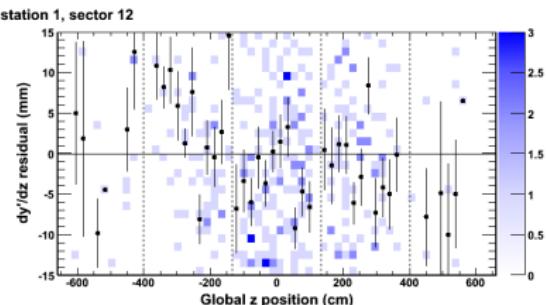
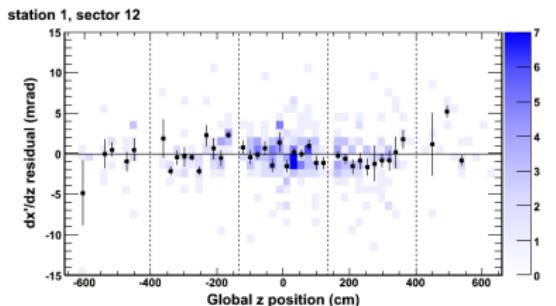
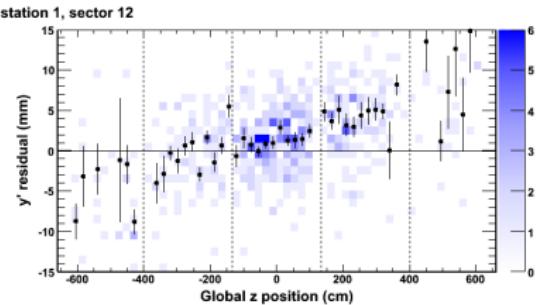
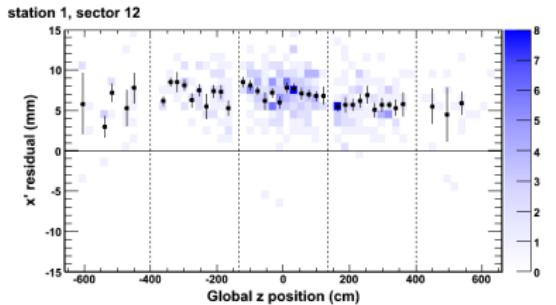
Map plots: station 1, sector 11 Jim Pivarski 134/24

Track-based alignment



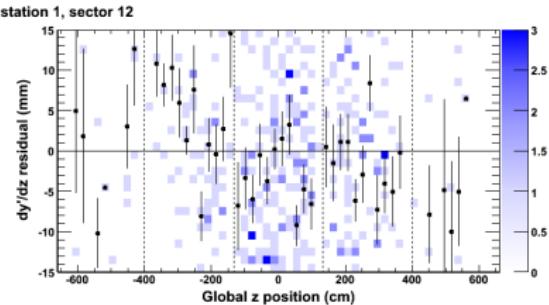
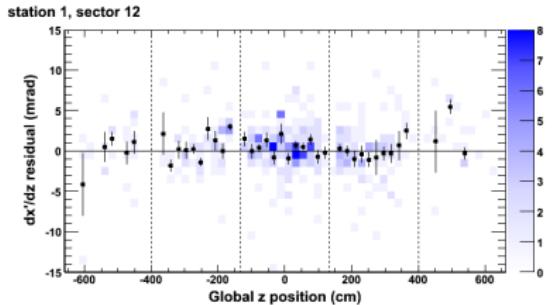
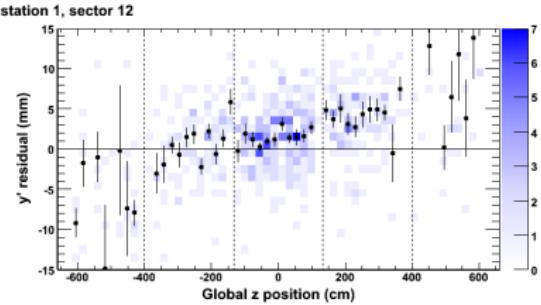
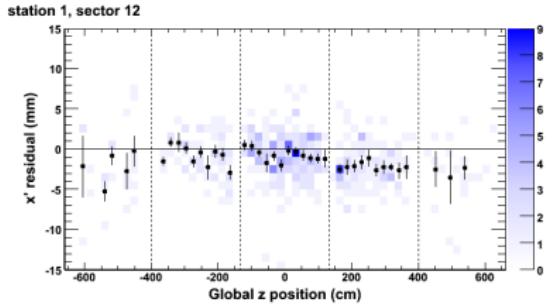
Map plots: station 1, sector 12 Jim Pivarski 135/24

BarrelPG2009 Corrections Survey



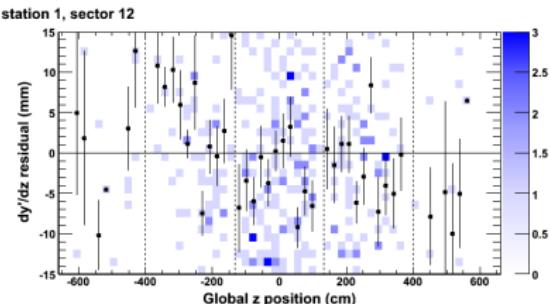
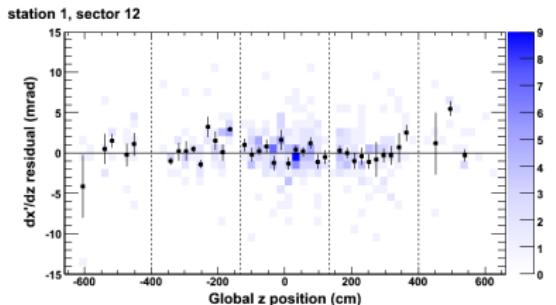
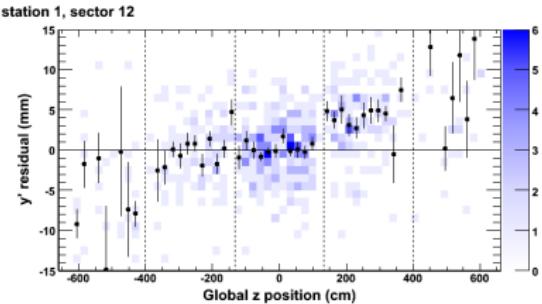
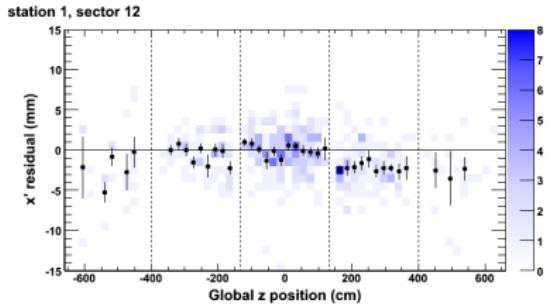
Map plots: station 1, sector 12 Jim Pivarski 136/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 1, sector 12 Jim Pivarski 137/24

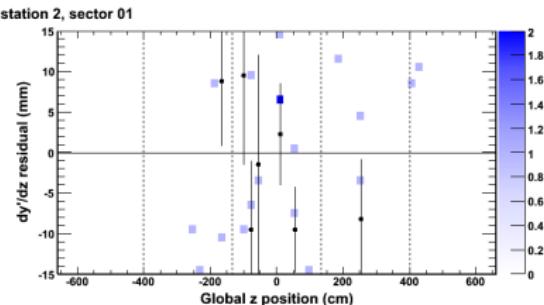
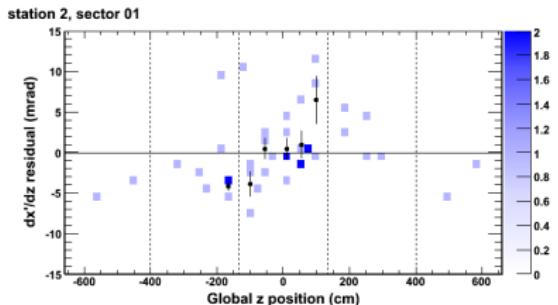
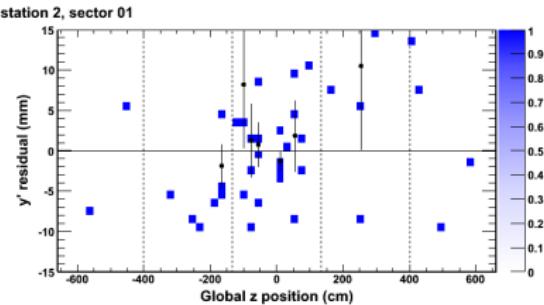
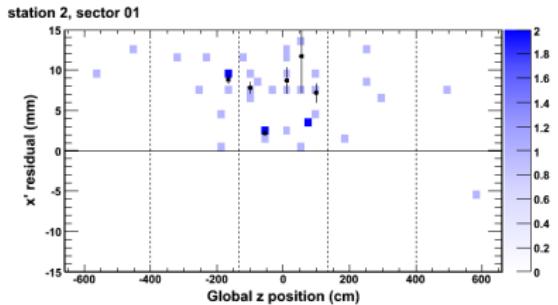
Track-based alignment



Map plots: station 2, sector 1

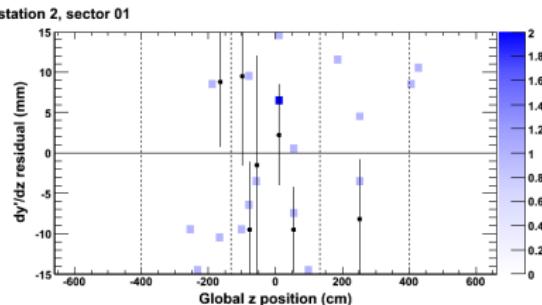
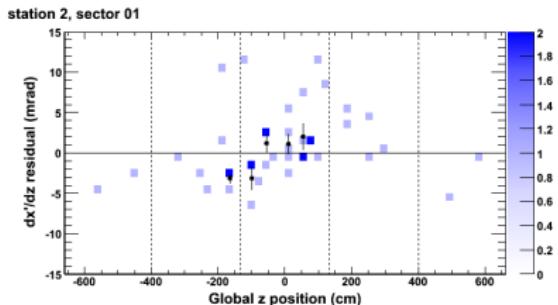
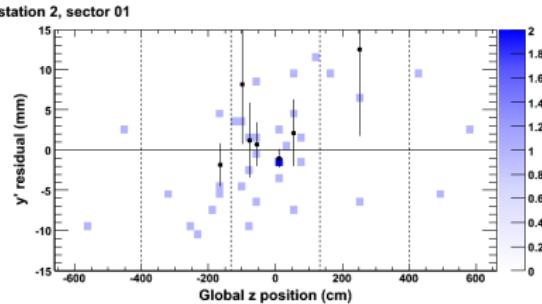
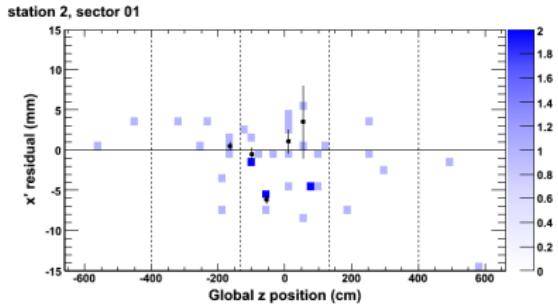
Jim Pivarski 138/24

BarrelPG2009 Corrections Survey



Map plots: station 2, sector 1 Jim Pivarski 139/24

BarrelPG2009 Corrections Survey + global adjustment



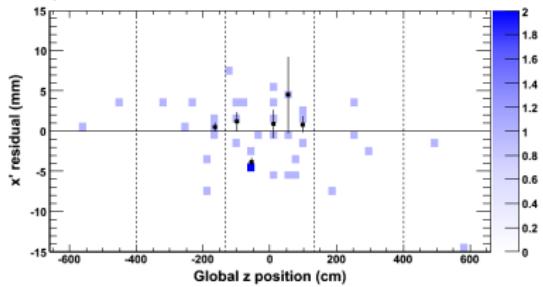
Map plots: station 2, sector 1

Jim Pivarski 140/24

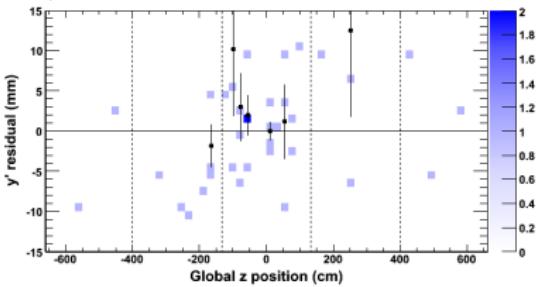


Track-based alignment

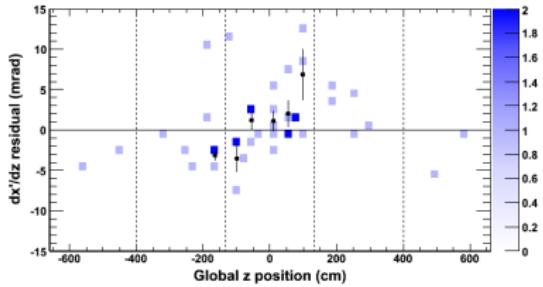
station 2, sector 01



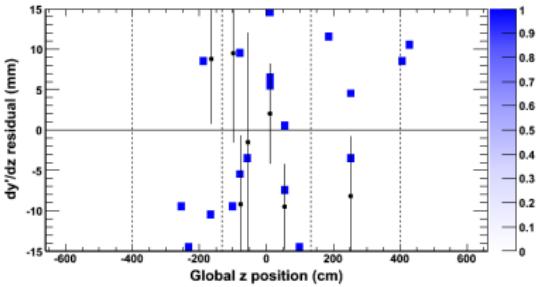
station 2, sector 01



station 2, sector 01



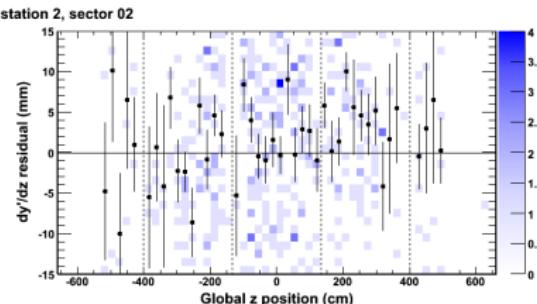
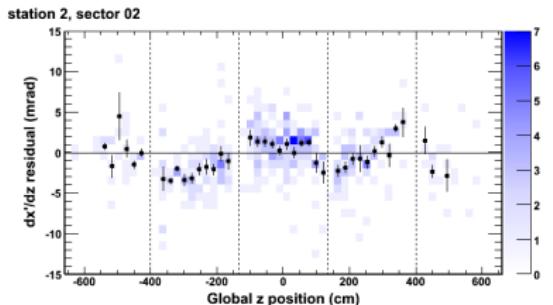
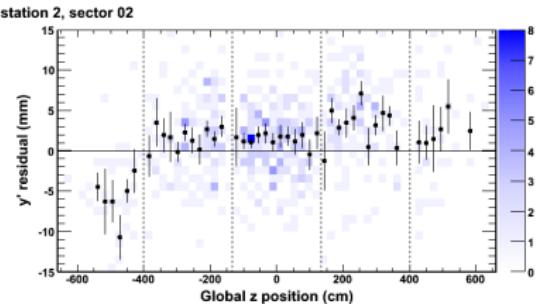
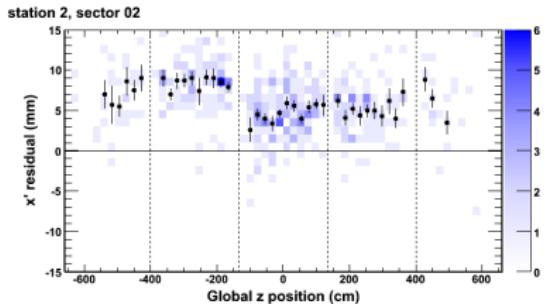
station 2, sector 01



Map plots: station 2, sector 2

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BarrelPG2009 Corrections Survey



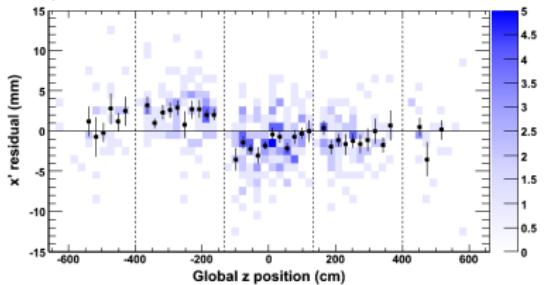
Map plots: station 2, sector 2

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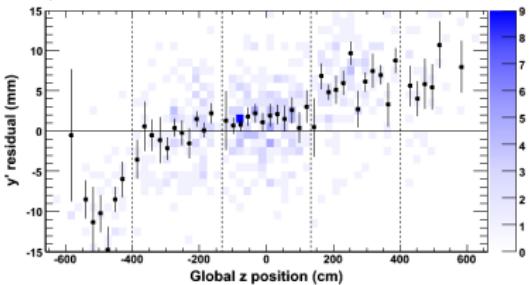


BarrelPG2009 Corrections Survey + global adjustment

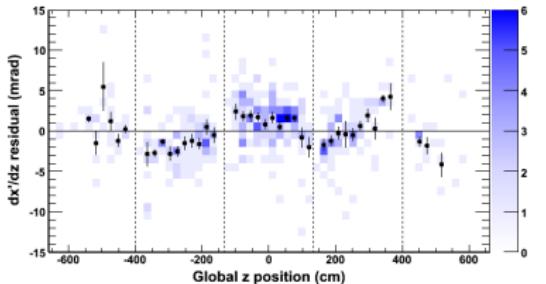
station 2, sector 02



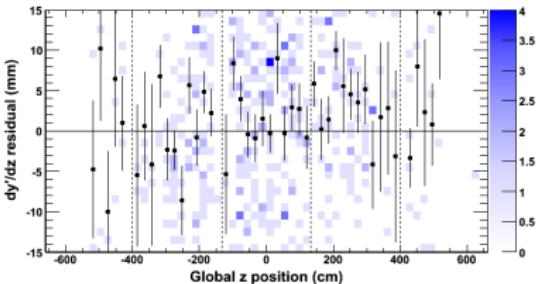
station 2, sector 02



station 2, sector 02



station 2, sector 02



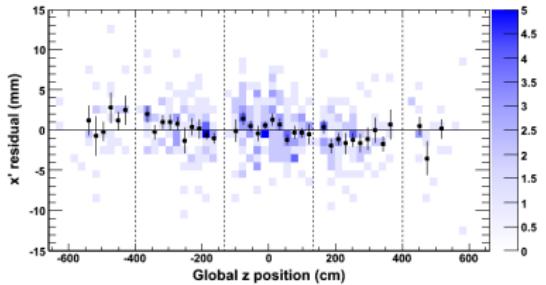
Map plots: station 2, sector 2

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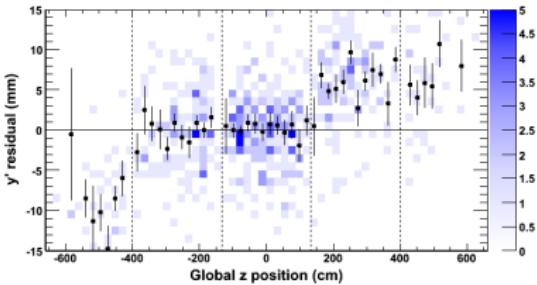


Track-based alignment

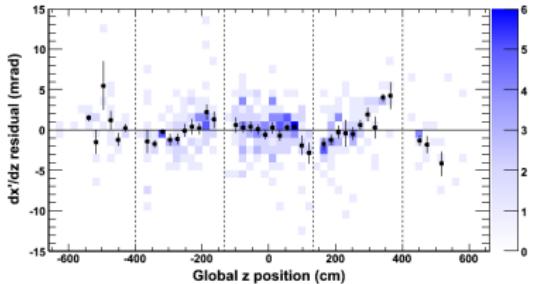
station 2, sector 02



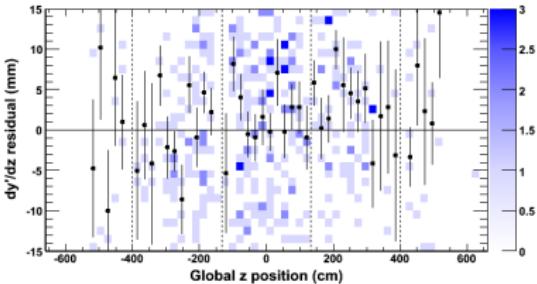
station 2, sector 02



station 2, sector 02



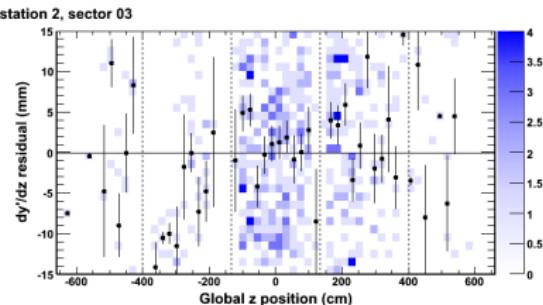
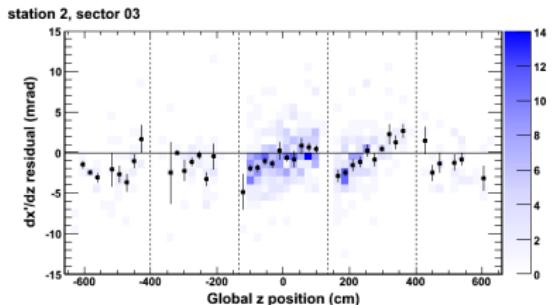
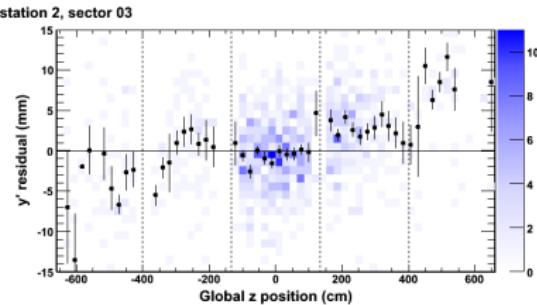
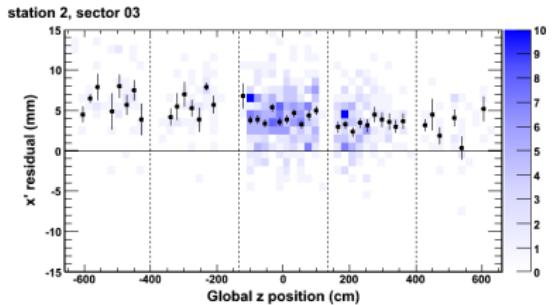
station 2, sector 02



Map plots: station 2, sector 3

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BarrelPG2009 Corrections Survey

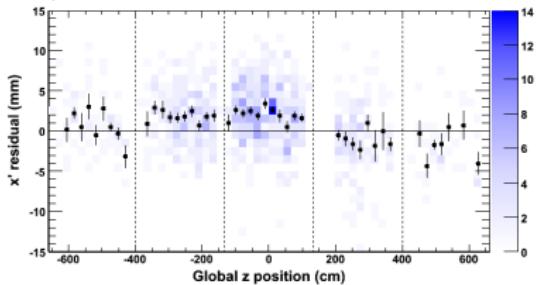


Map plots: station 2, sector 4 Jim Pivarski 145/24

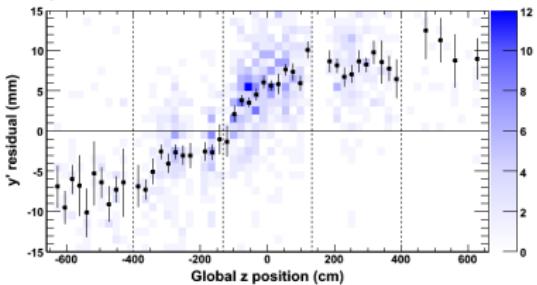
BarrelPG2009 Corrections Survey + global adjustment



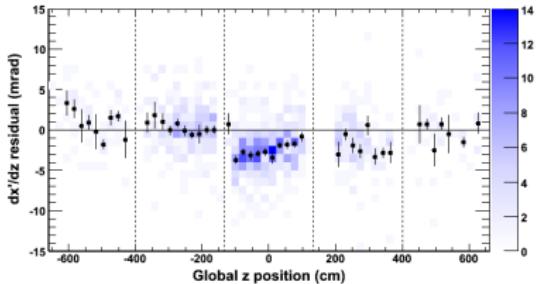
station 2, sector 04



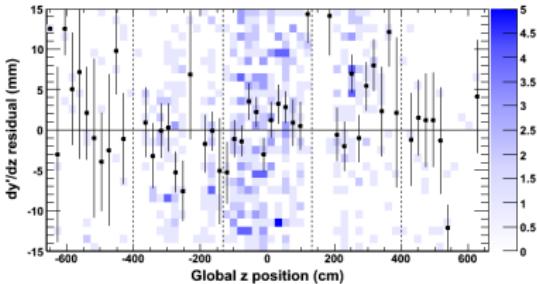
station 2, sector 04



station 2, sector 04



station 2, sector 04

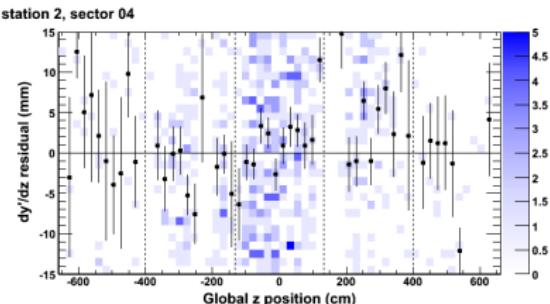
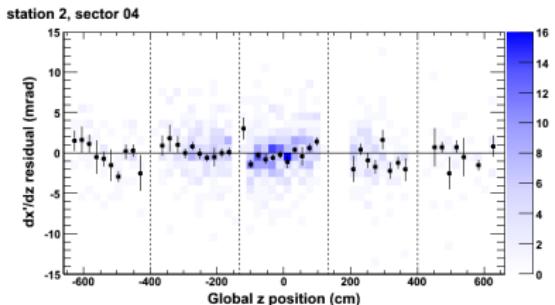
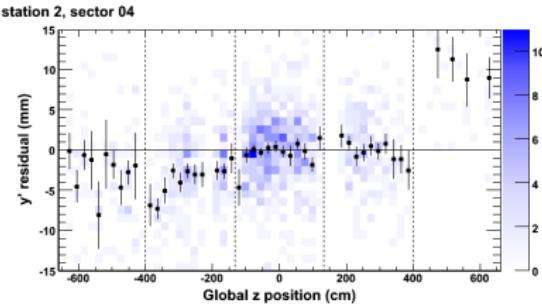
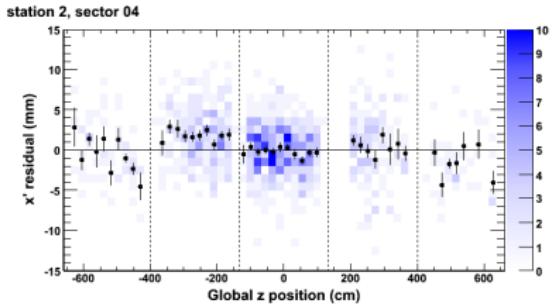


Map plots: station 2, sector 4

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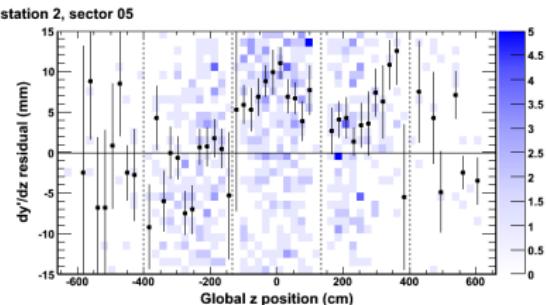
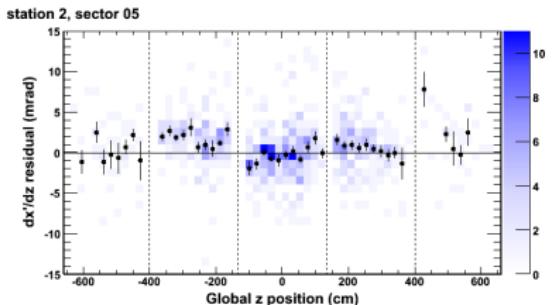
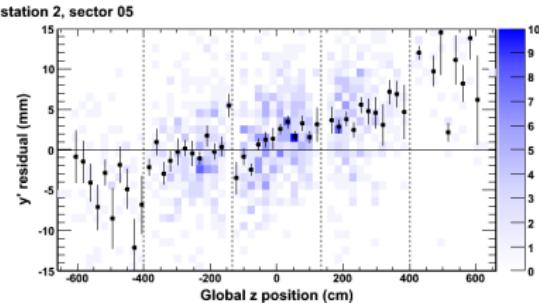
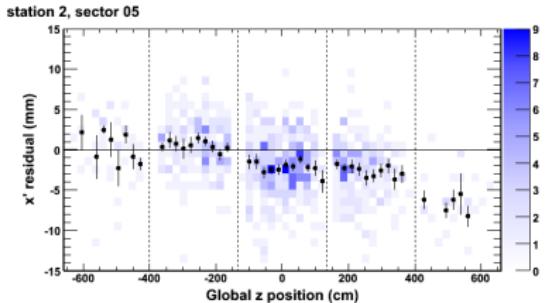
Track-based alignment



Map plots: station 2, sector 5

Jim Pivarski 147/24

BarrelPG2009 Corrections Survey

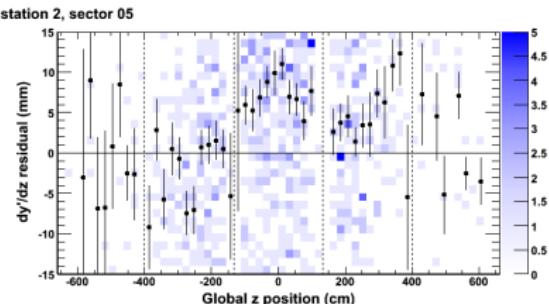
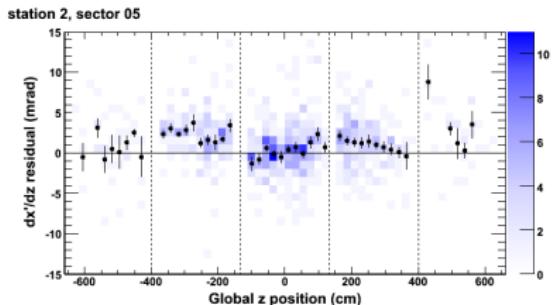
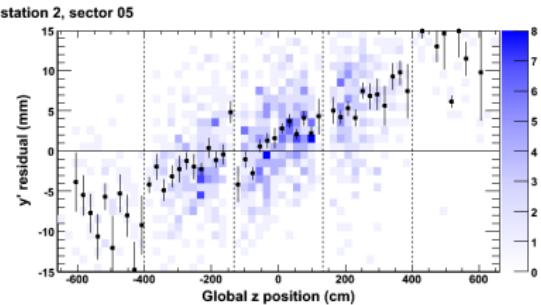
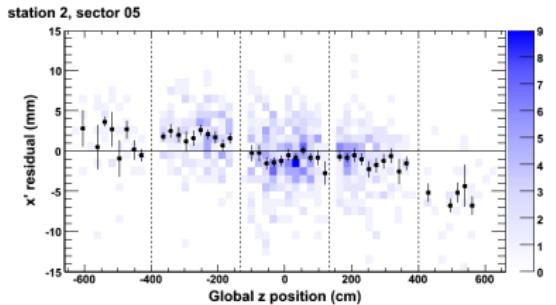


Map plots: station 2, sector 5

Jim Pivarski 148/24



BarrelPG2009 Corrections Survey + global adjustment



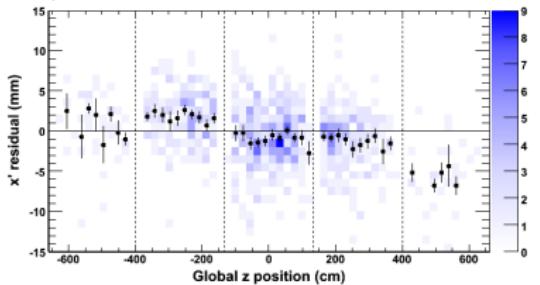
Map plots: station 2, sector 5

Jim Pivarski 149/24

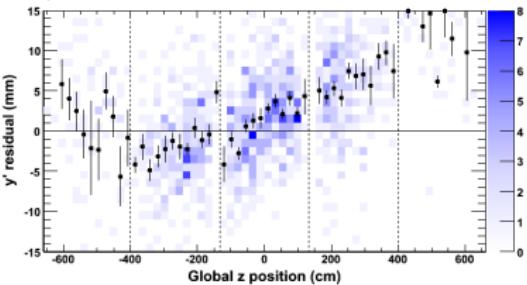


Track-based alignment

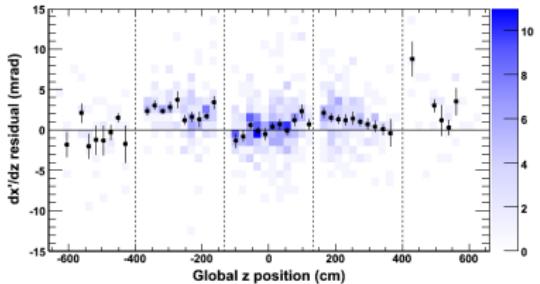
station 2, sector 05



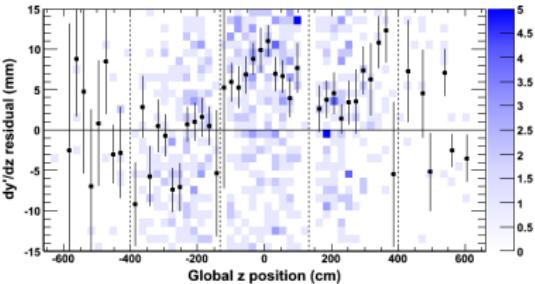
station 2, sector 05



station 2, sector 05



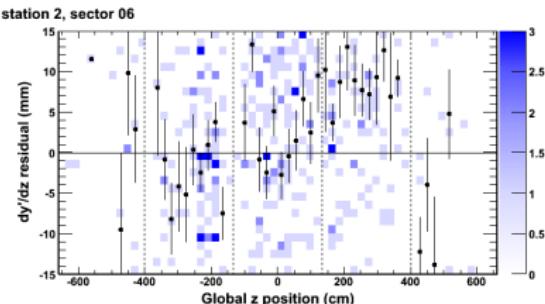
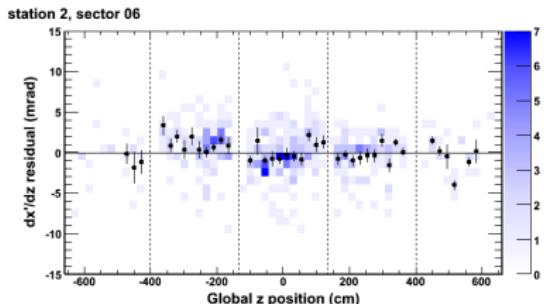
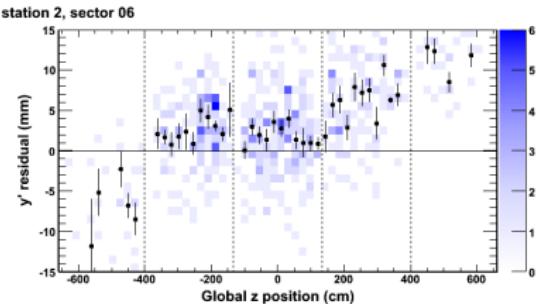
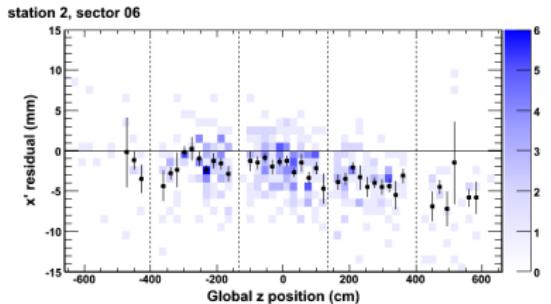
station 2, sector 05



Map plots: station 2, sector 6

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BarrelPG2009 Corrections Survey



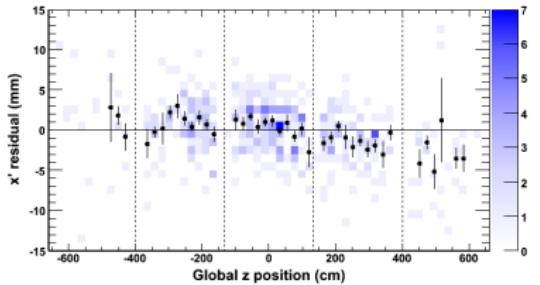
Map plots: station 2, sector 6

Jim Pivarski 151/24

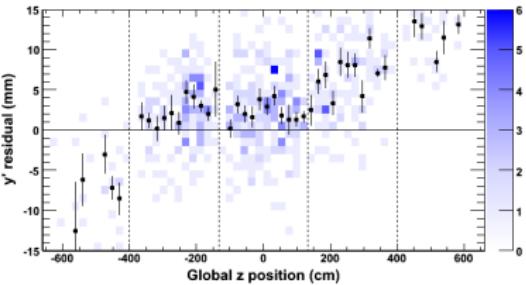


BarrelPG2009 Corrections Survey + global adjustment

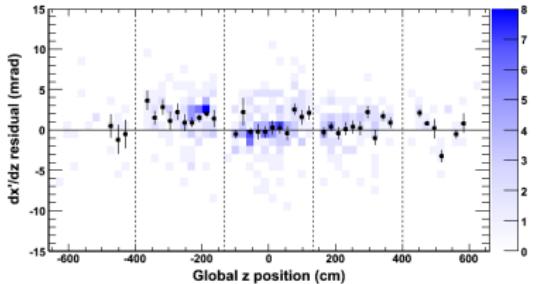
station 2, sector 06



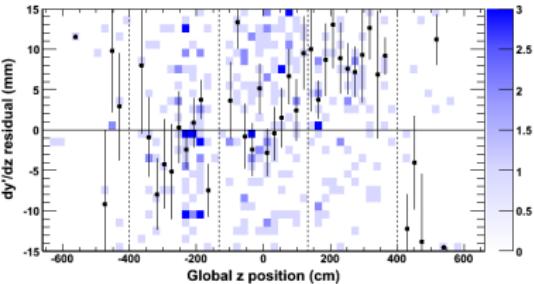
station 2, sector 06



station 2, sector 06



station 2, sector 06

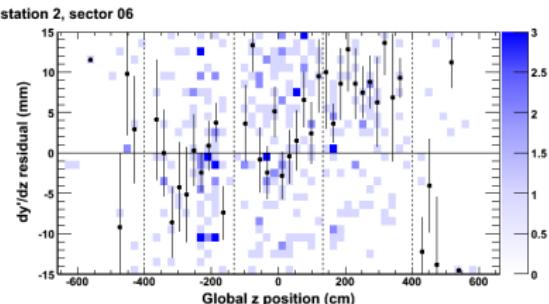
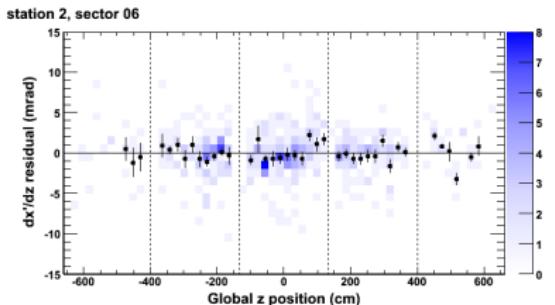
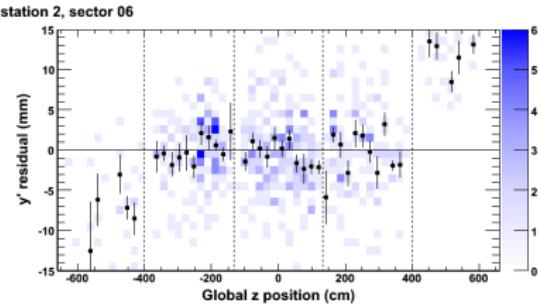
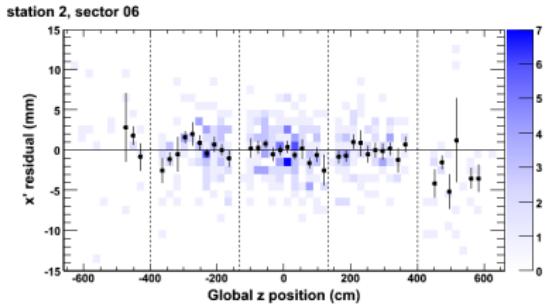


Map plots: station 2, sector 6

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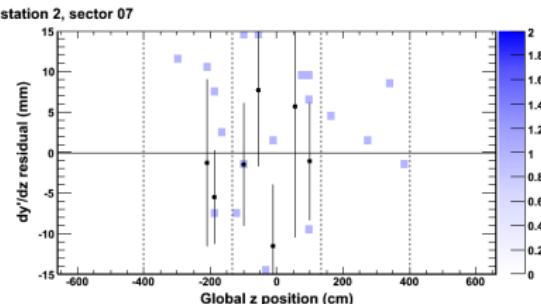
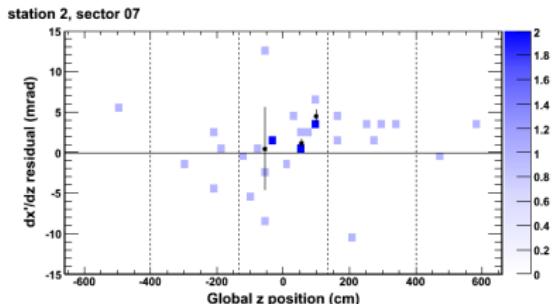
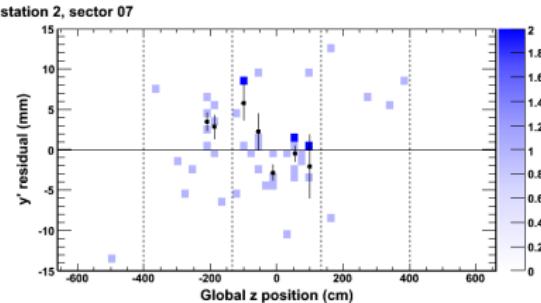
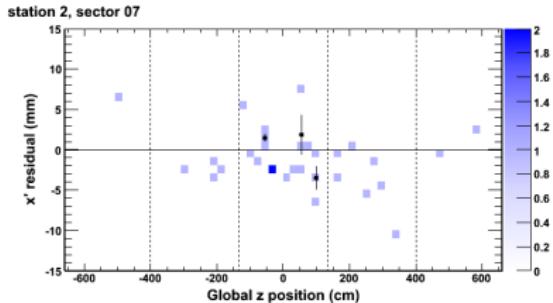
Track-based alignment



Map plots: station 2, sector 7

Jim Pivarski 153/24

BarrelPG2009 Corrections Survey



Map plots: station 2, sector 7

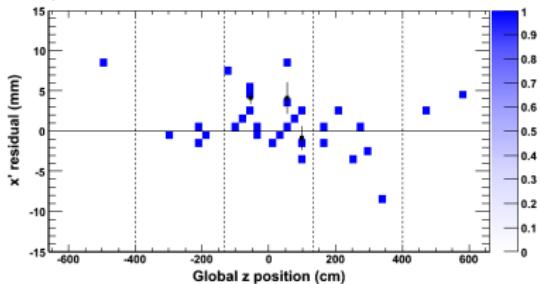
Jim Pivarski

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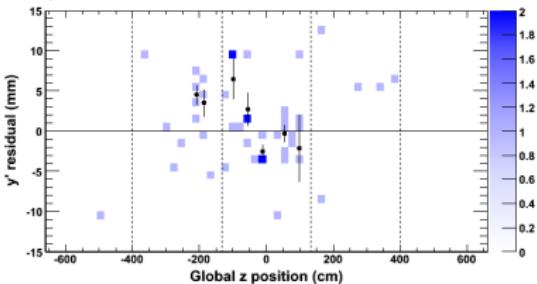


BarrelPG2009 Corrections Survey + global adjustment

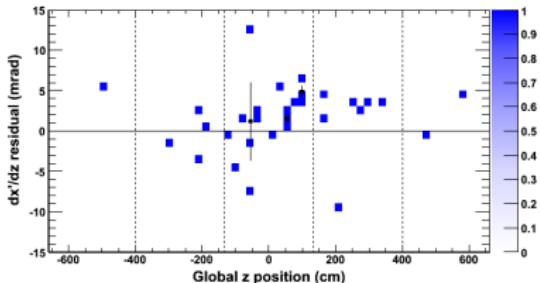
station 2, sector 07



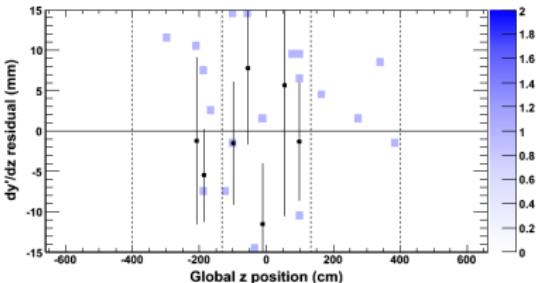
station 2, sector 07



station 2, sector 07



station 2, sector 07



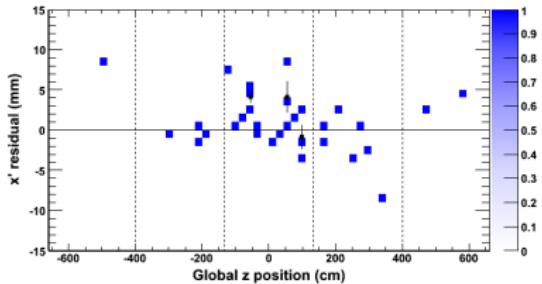
Map plots: station 2, sector 7

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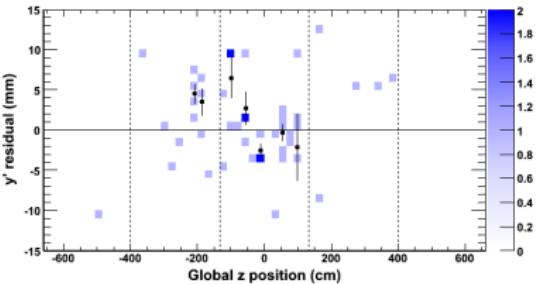


Track-based alignment

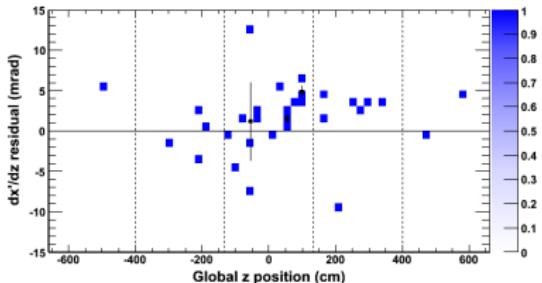
station 2, sector 07



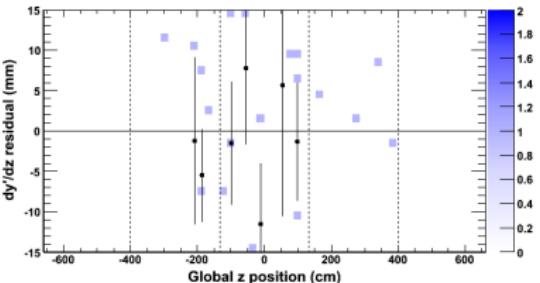
station 2, sector 07



station 2, sector 07



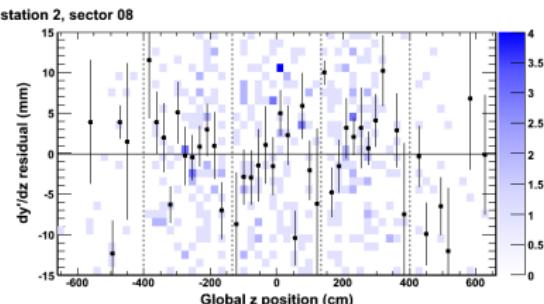
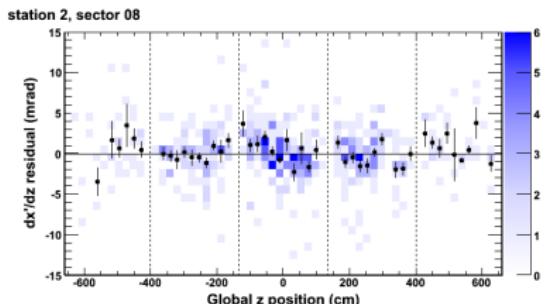
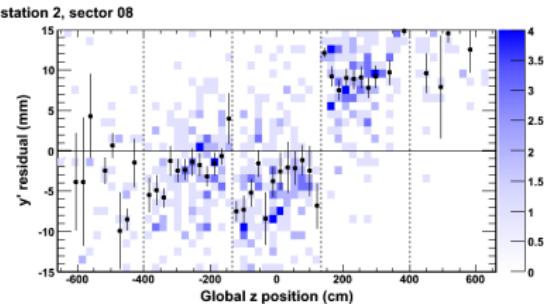
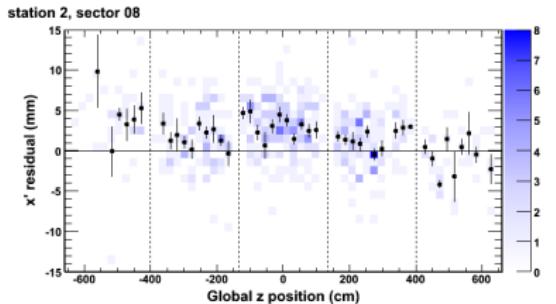
station 2, sector 07



Map plots: station 2, sector 8

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BarrelPG2009 Corrections Survey

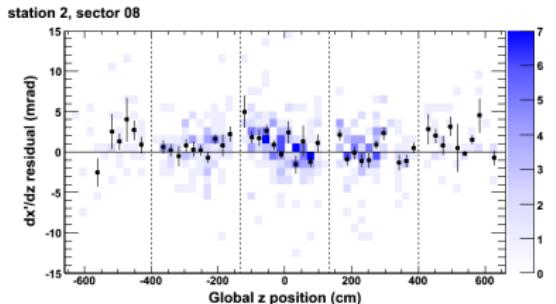
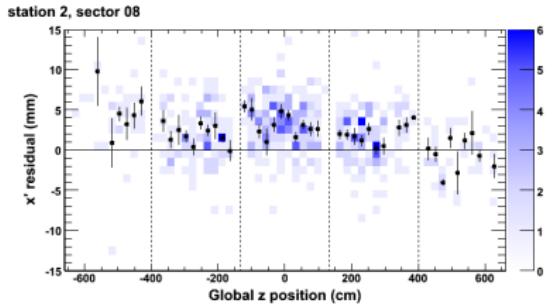


Map plots: station 2, sector 8

Jim Pivarski 157/24



BarrelPG2009 Corrections Survey + global adjustment

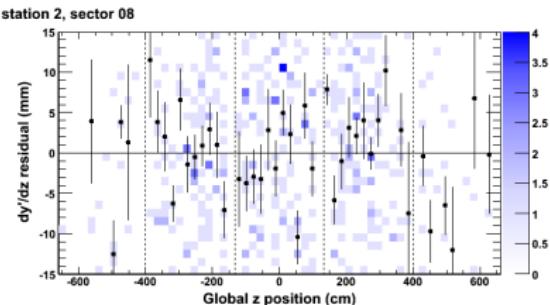
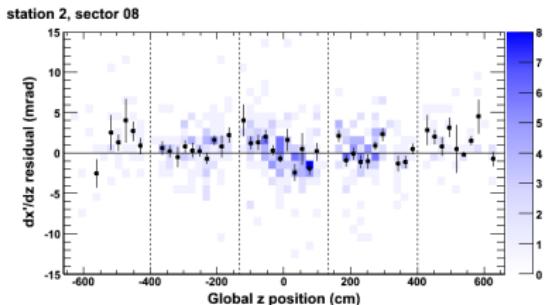
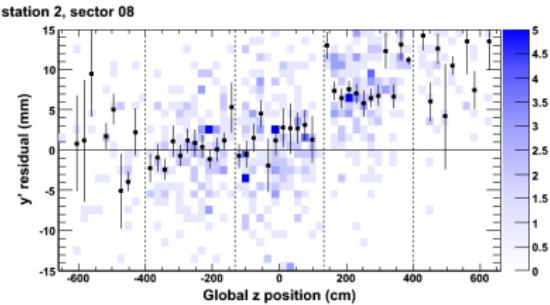
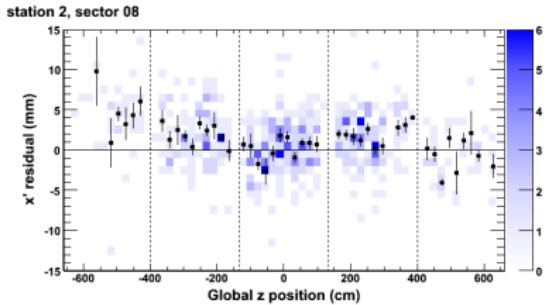


Map plots: station 2, sector 8

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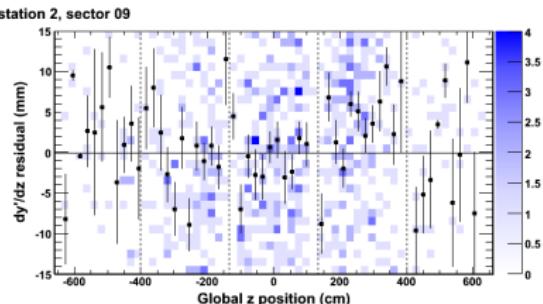
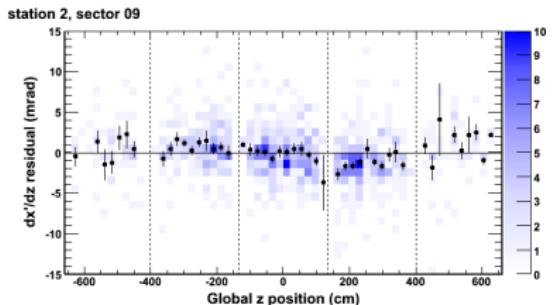
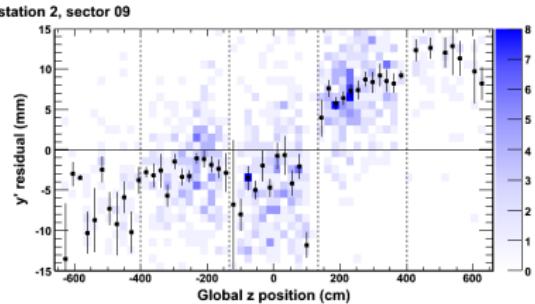
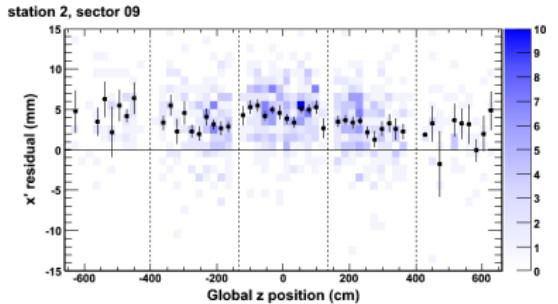
Track-based alignment



Map plots: station 2, sector 9

Jim Pivarski 159/24

BarrelPG2009 Corrections Survey



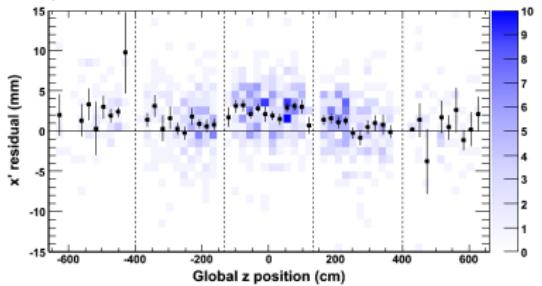
Map plots: station 2, sector 9

Jim Pivarski 160/24

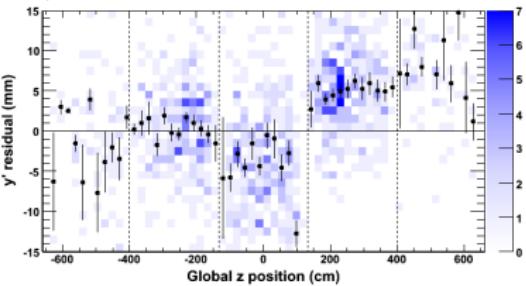
BarrelPG2009 Corrections Survey + global adjustment



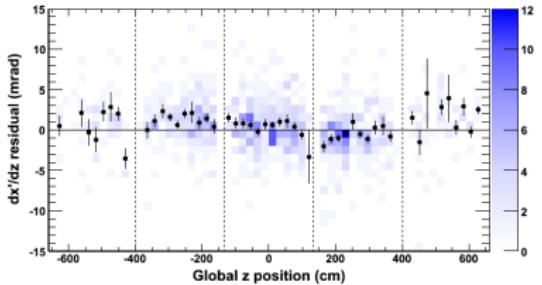
station 2, sector 09



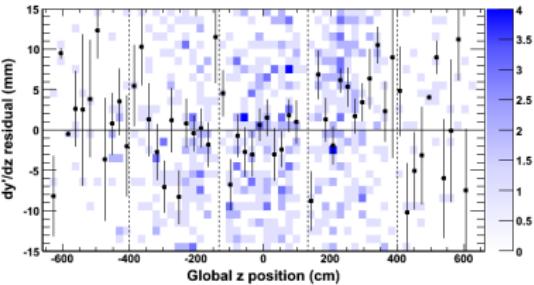
station 2, sector 09



station 2, sector 09



station 2, sector 09

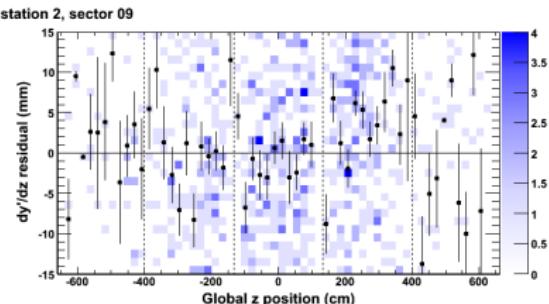
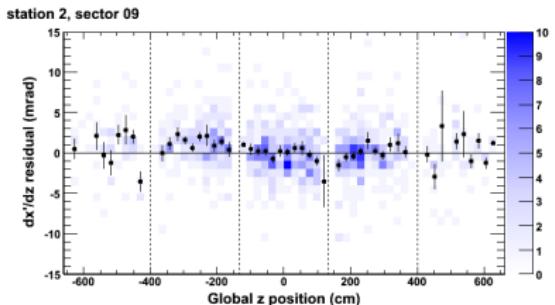
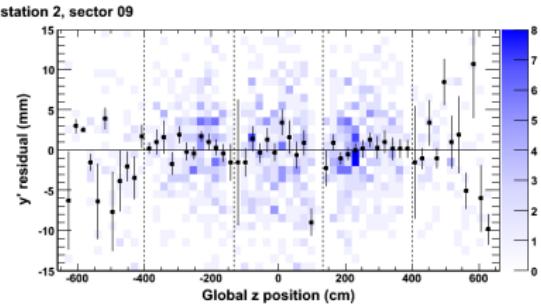
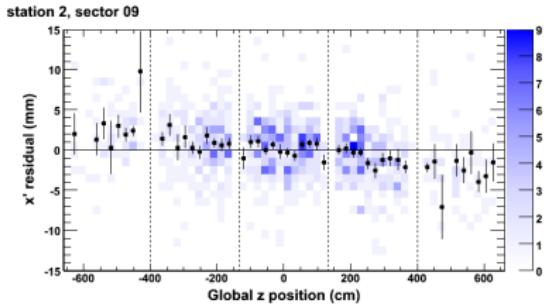


Map plots: station 2, sector 9

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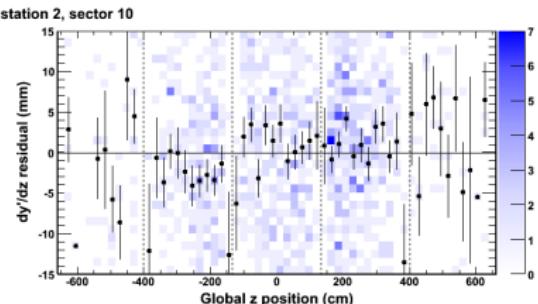
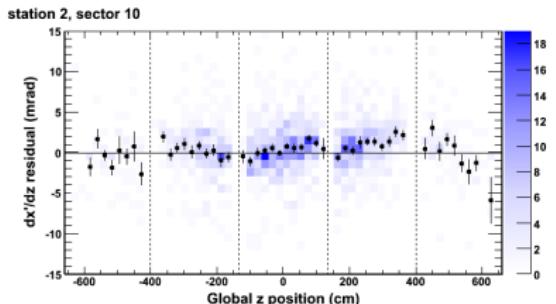
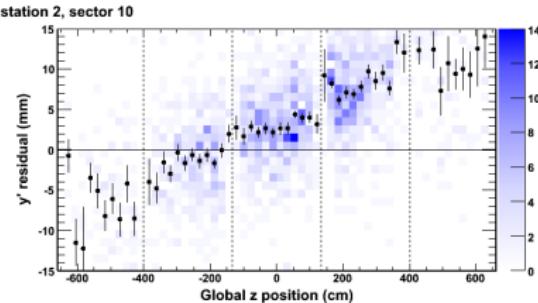
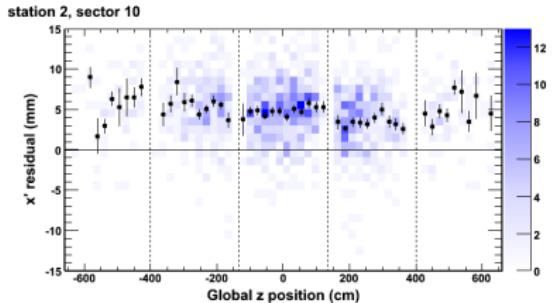


Track-based alignment



Map plots: station 2, sector 10 Jim Pivarski 162/24

BarrelPG2009 Corrections Survey

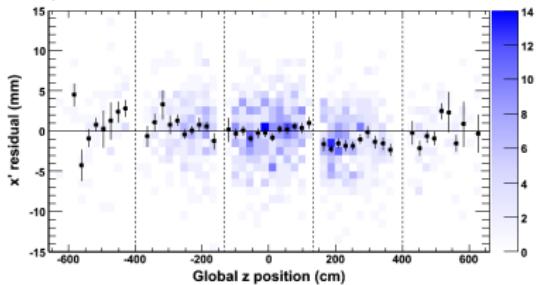


Map plots: station 2, sector 10 Jim Pivarski 163/24

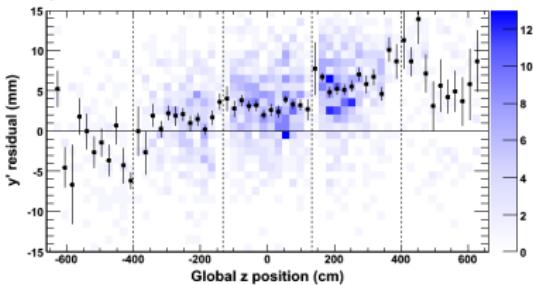
BarrelPG2009 Corrections Survey + global adjustment



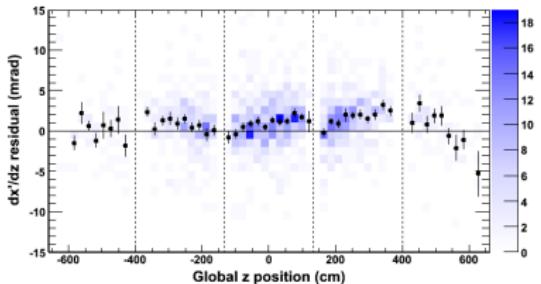
station 2, sector 10



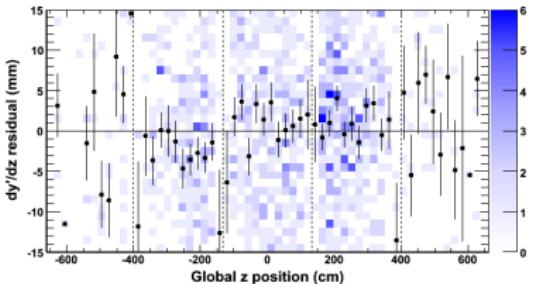
station 2, sector 10



station 2, sector 10



station 2, sector 10

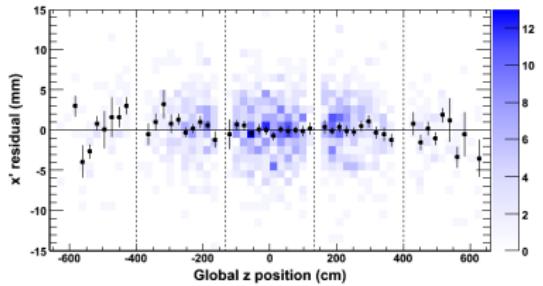


Map plots: station 2, sector 10 Jim Pivarski 164/24

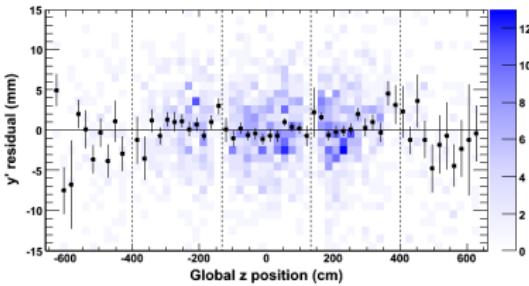


Track-based alignment

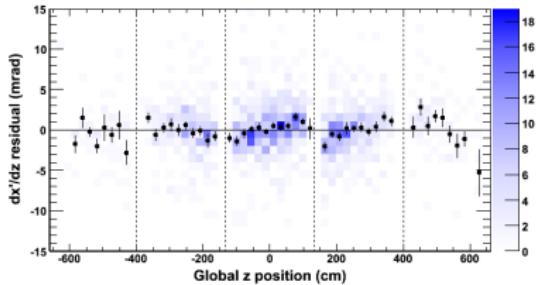
station 2, sector 10



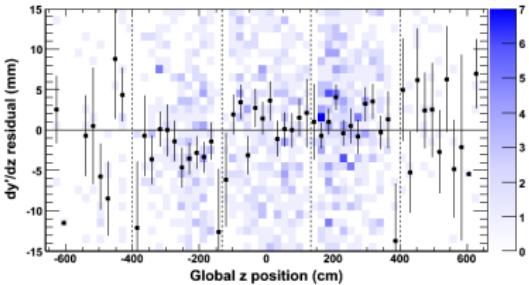
station 2, sector 10



station 2, sector 10

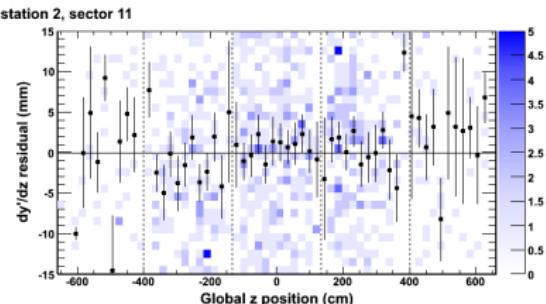
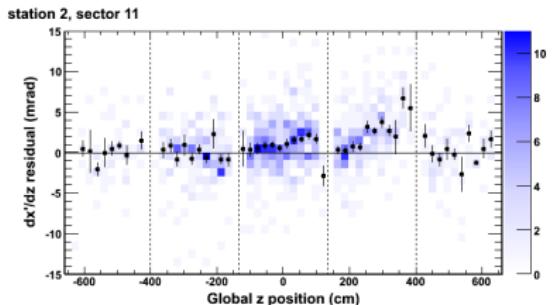
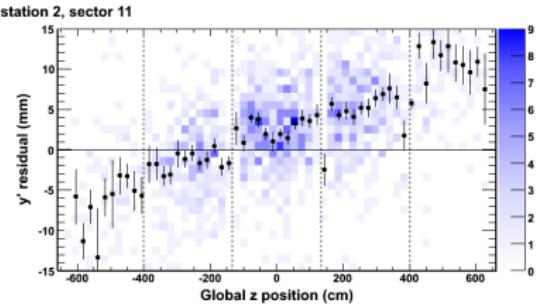
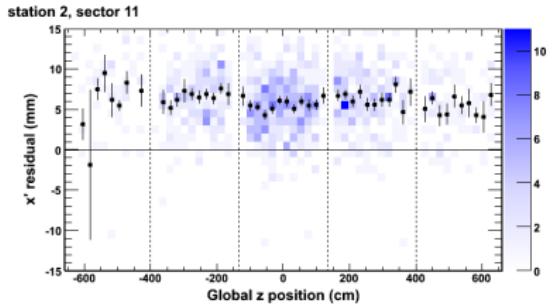


station 2, sector 10



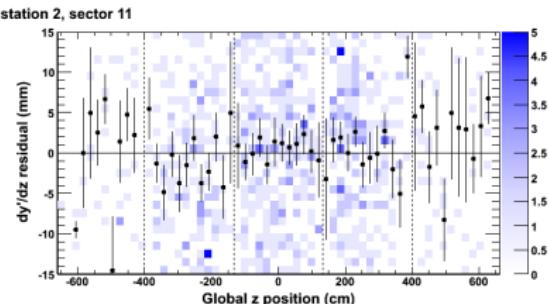
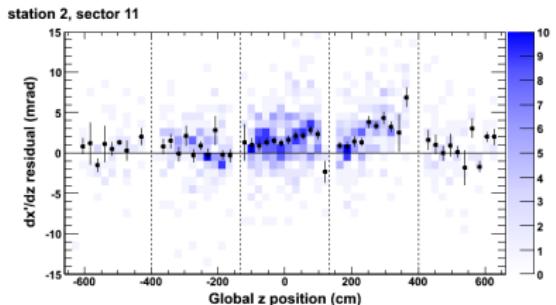
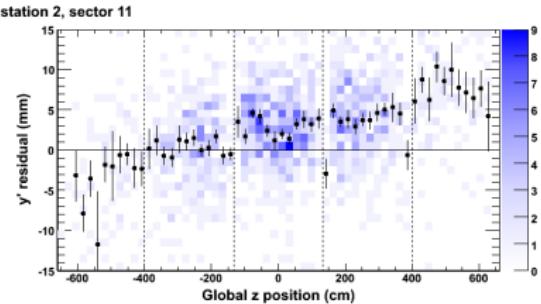
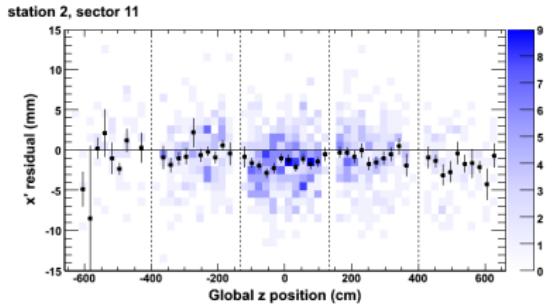
Map plots: station 2, sector 11 Jim Pivarski 165/24

BarrelPG2009 Corrections Survey



Map plots: station 2, sector 11 Jim Pivarski 166/24

BarrelPG2009 Corrections Survey + global adjustment

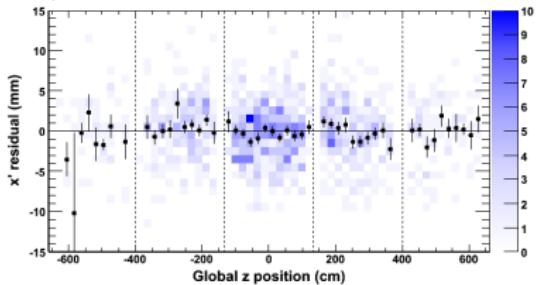


Map plots: station 2, sector 11 Jim Pivarski 167/24

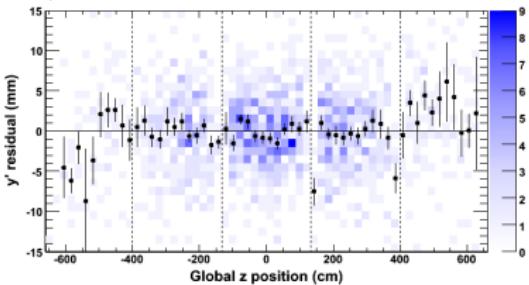
Track-based alignment



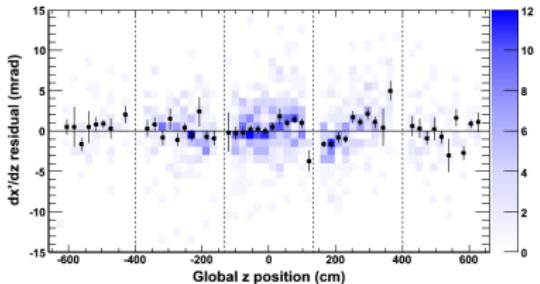
station 2, sector 11



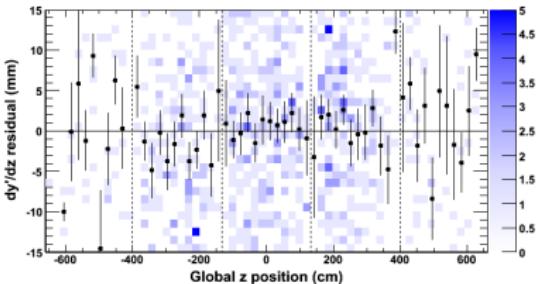
station 2, sector 11



station 2, sector 11

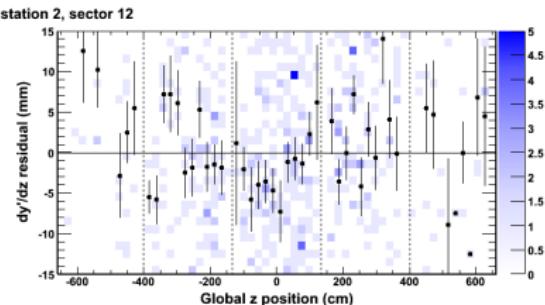
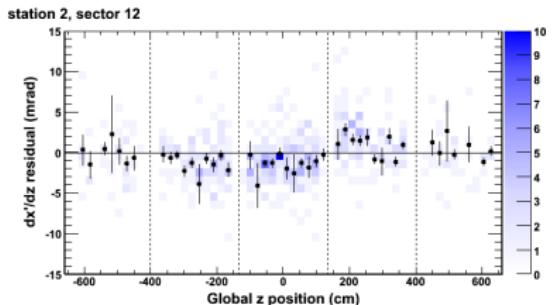
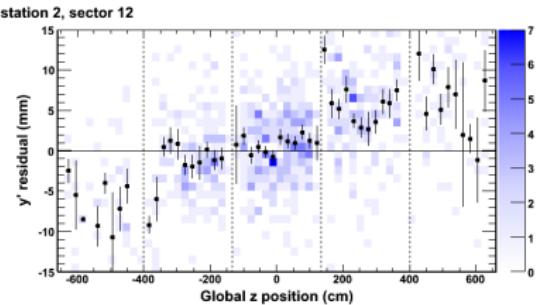
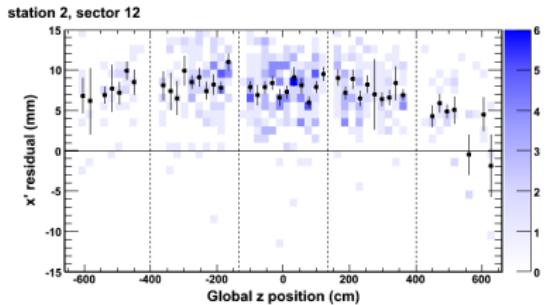


station 2, sector 11



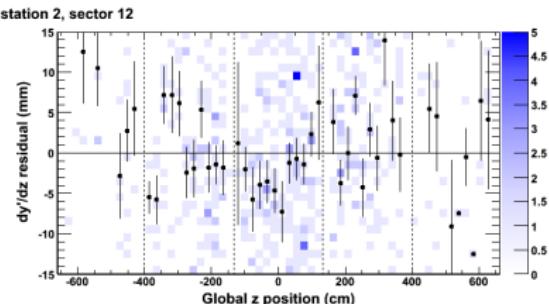
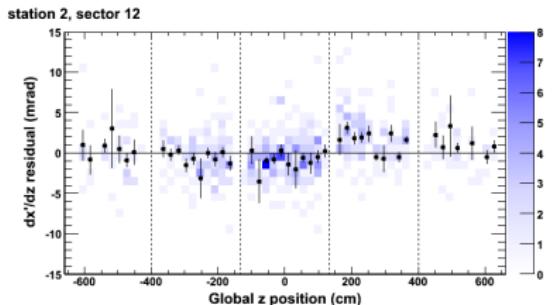
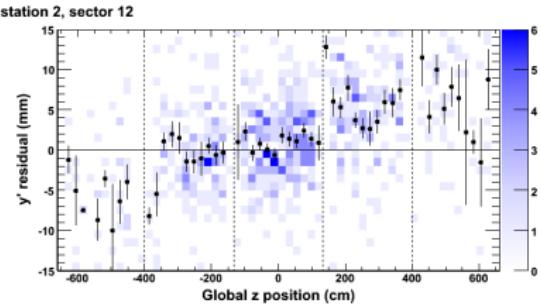
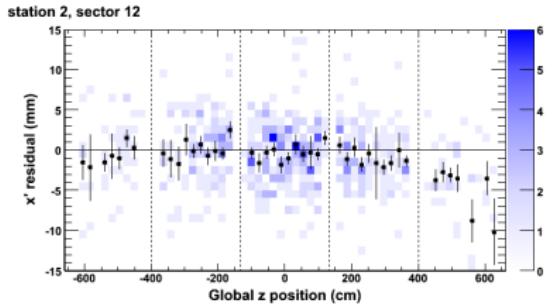
Map plots: station 2, sector 12 Jim Pivarski 168/24

BarrelPG2009 Corrections Survey



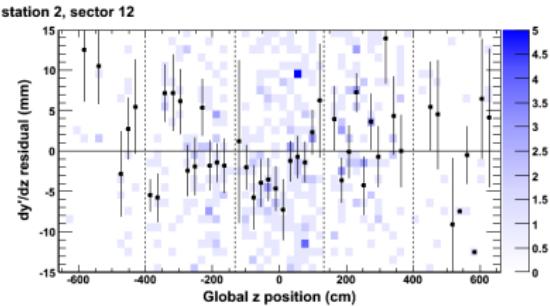
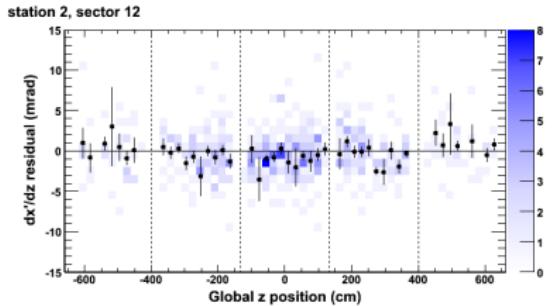
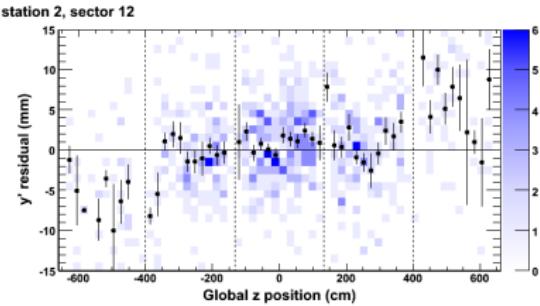
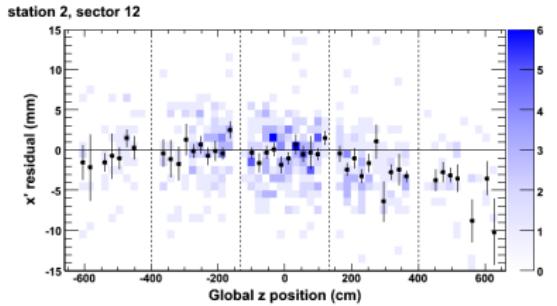
Map plots: station 2, sector 12 Jim Pivarski 169/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 2, sector 12 Jim Pivarski 170/24

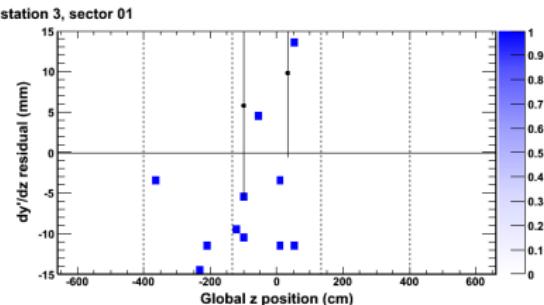
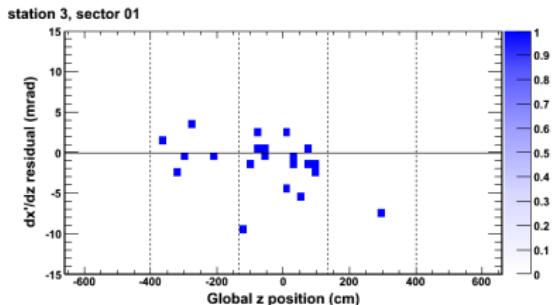
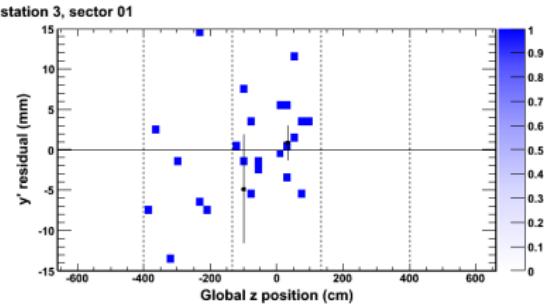
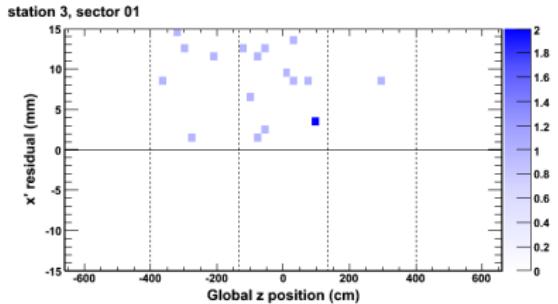
Track-based alignment



Map plots: station 3, sector 1

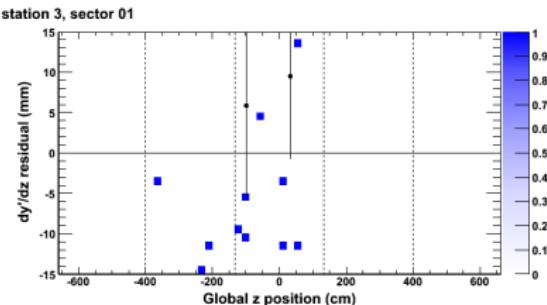
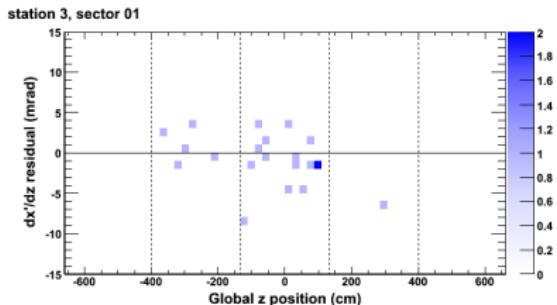
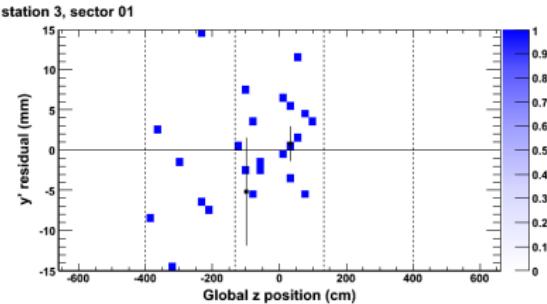
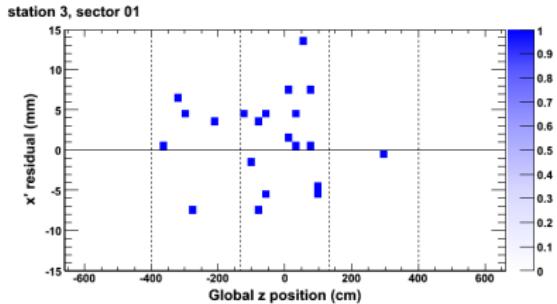
Jim Pivarski 171/24

BarrelPG2009 Corrections Survey



Map plots: station 3, sector 1 Jim Pivarski 172/24

BarrelPG2009 Corrections Survey + global adjustment

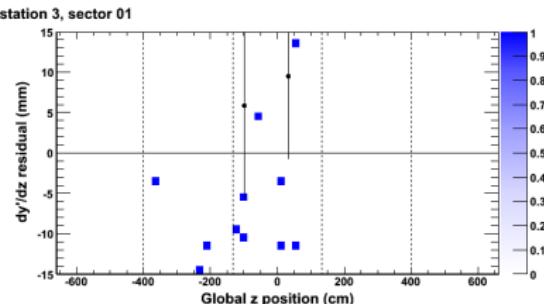
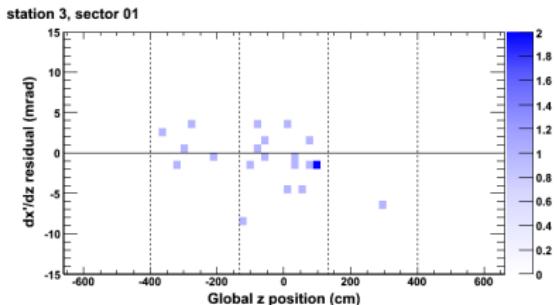
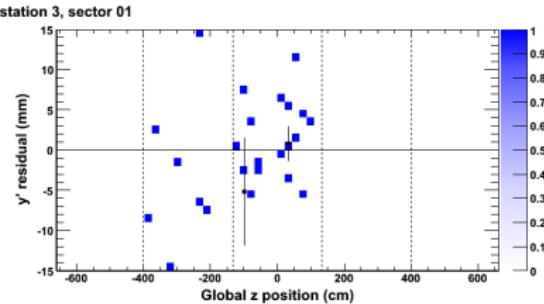
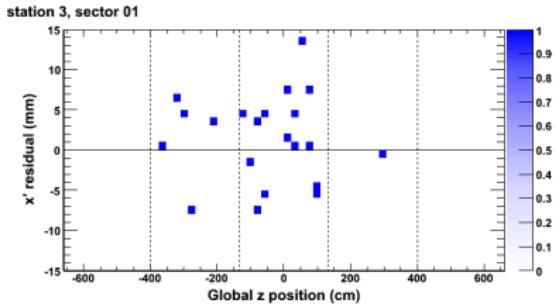


Map plots: station 3, sector 1

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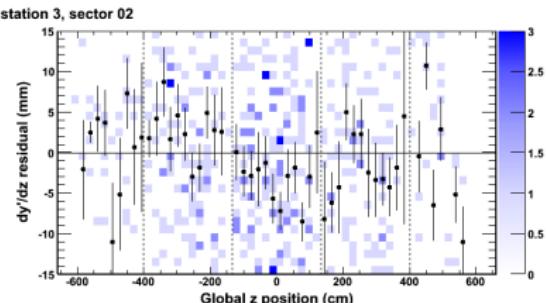
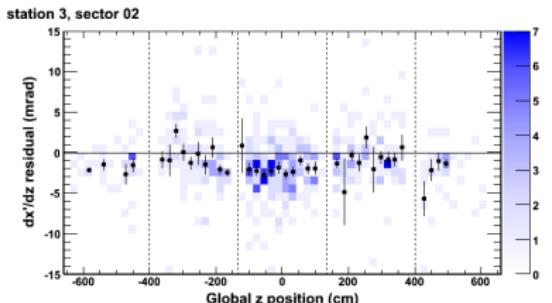
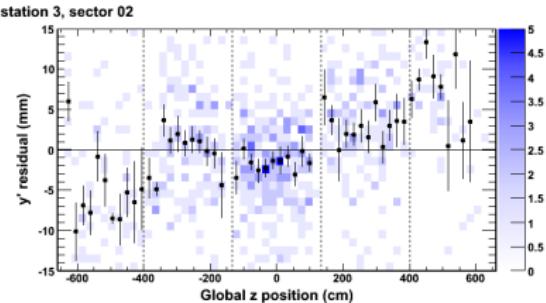
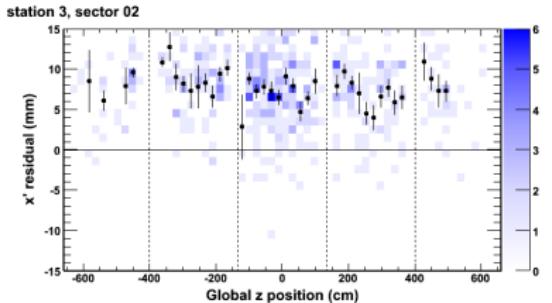
Track-based alignment



Map plots: station 3, sector 2

Jim Pivarski 174/24

BarrelPG2009 Corrections Survey



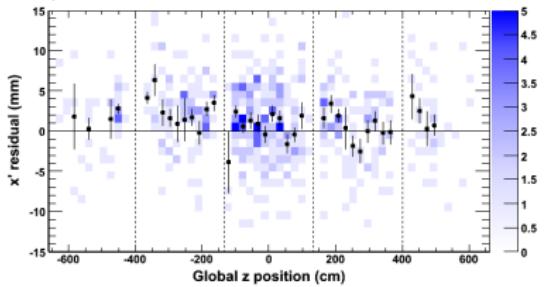
Map plots: station 3, sector 2

Jim Pivarski 175/24

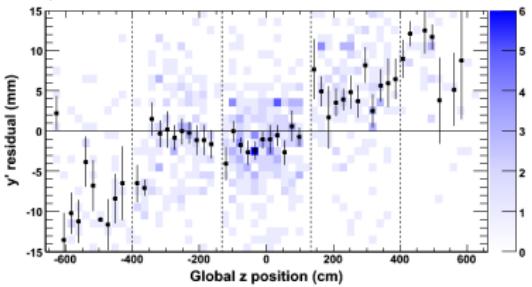
BarrelPG2009 Corrections Survey + global adjustment



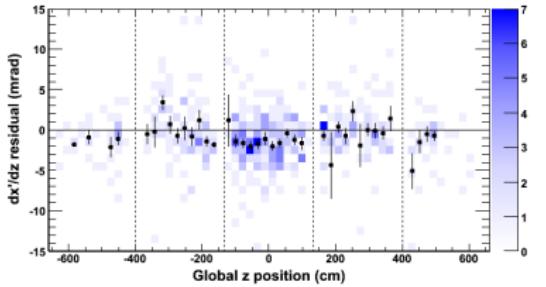
station 3, sector 02



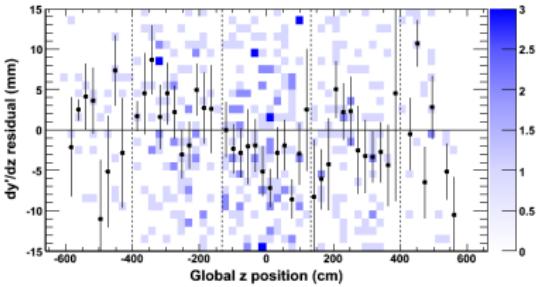
station 3, sector 02



station 3, sector 02



station 3, sector 02

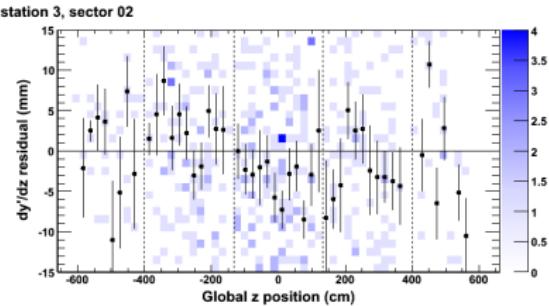
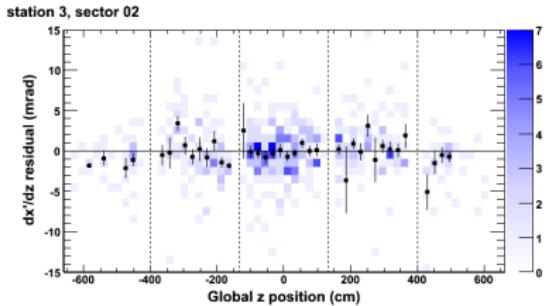
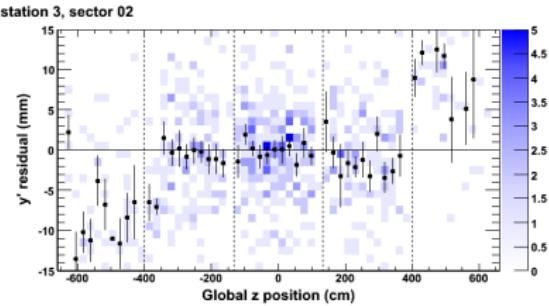
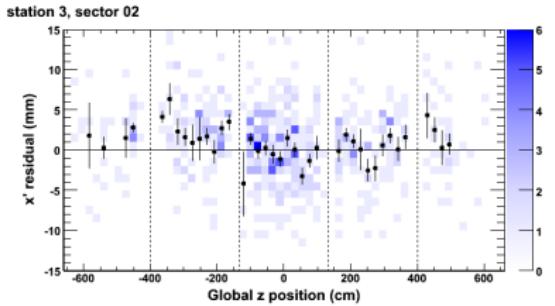


Map plots: station 3, sector 2

Jim Pivarski 176/24



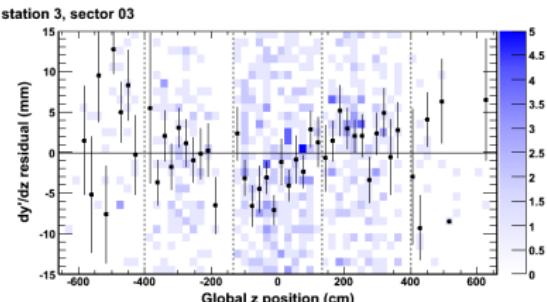
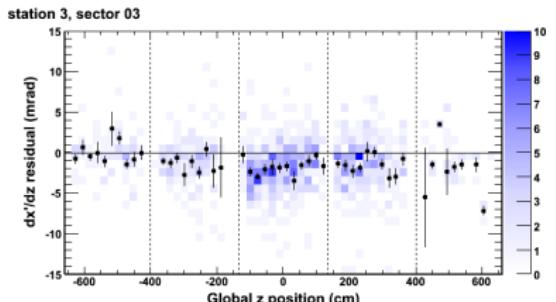
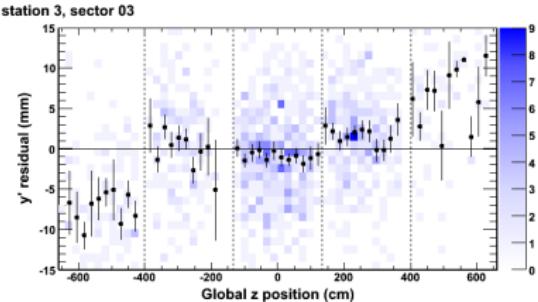
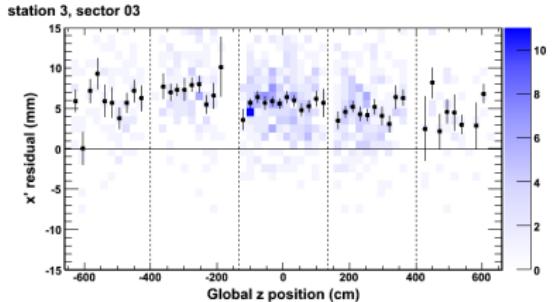
Track-based alignment



Map plots: station 3, sector 3

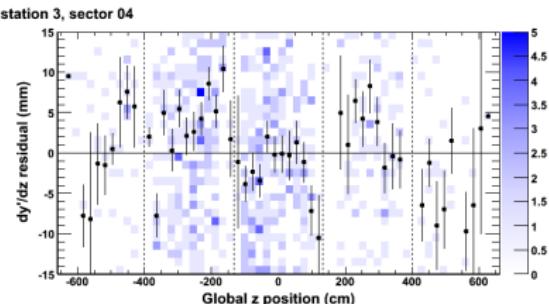
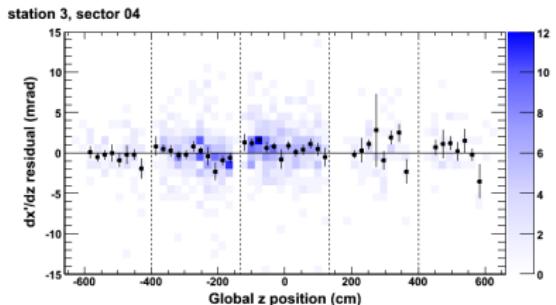
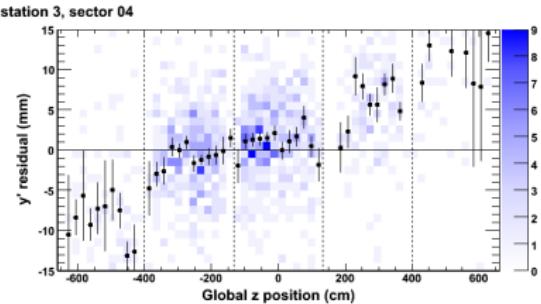
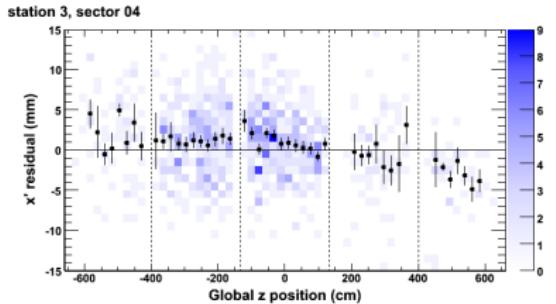
Jim Pivarski 177/24

BarrelPG2009 Corrections Survey



Map plots: station 3, sector 4 Jim Pivarski 178/24

BarrelPG2009 Corrections Survey + global adjustment

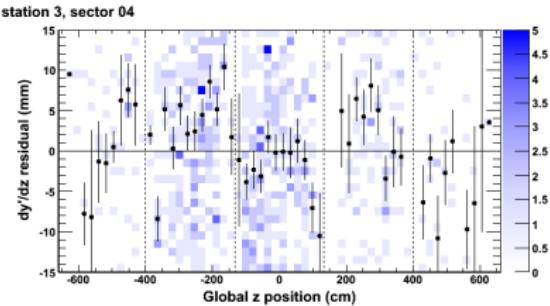
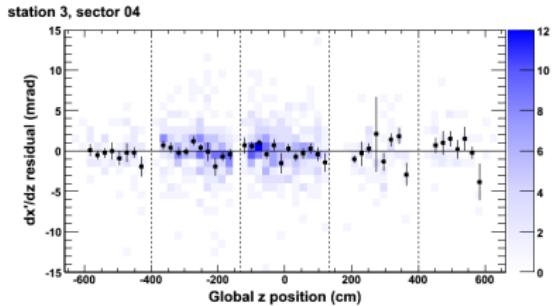
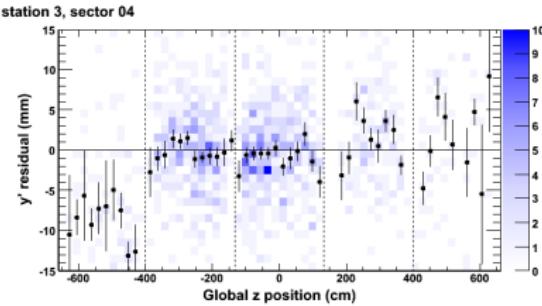
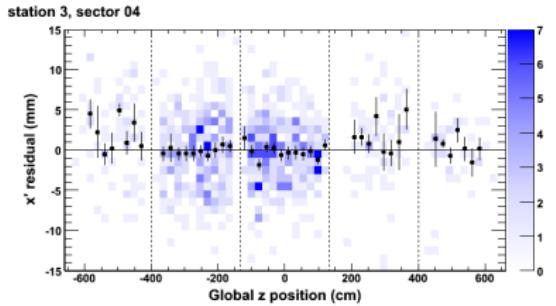


Map plots: station 3, sector 4

Jim Pivarski 179/24



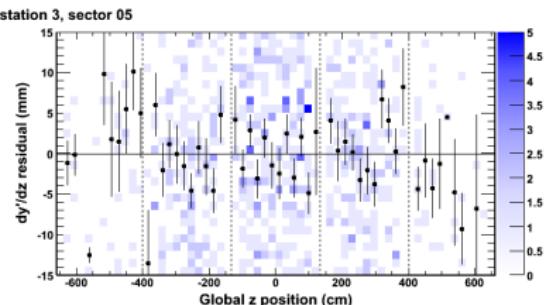
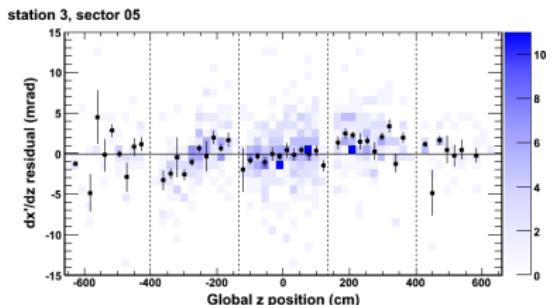
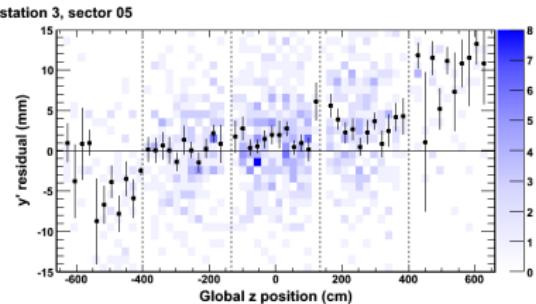
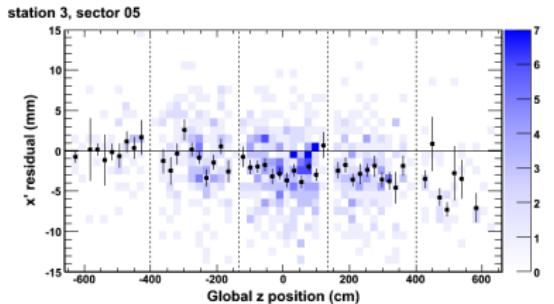
Track-based alignment



Map plots: station 3, sector 5

Jim Pivarski 180/24

BarrelPG2009 Corrections Survey



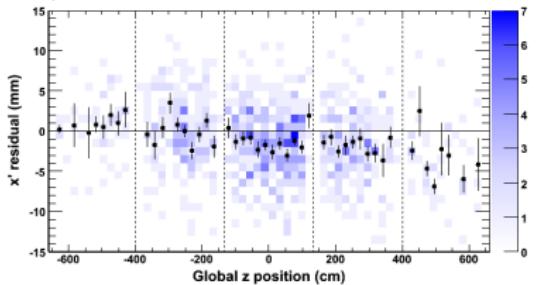
Map plots: station 3, sector 5

Jim Pivarski 181/24

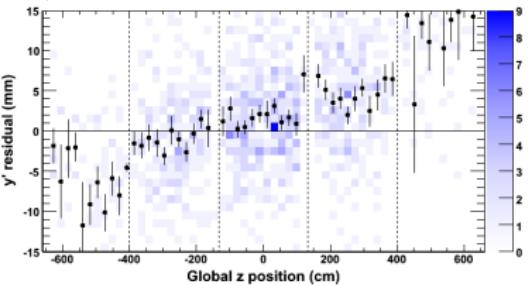


BarrelPG2009 Corrections Survey + global adjustment

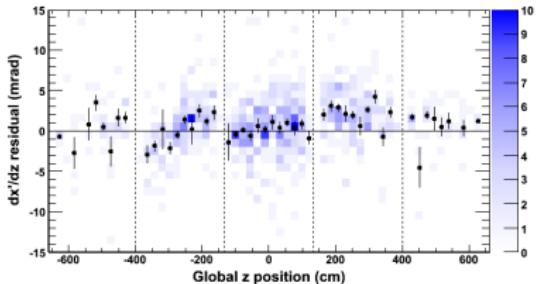
station 3, sector 05



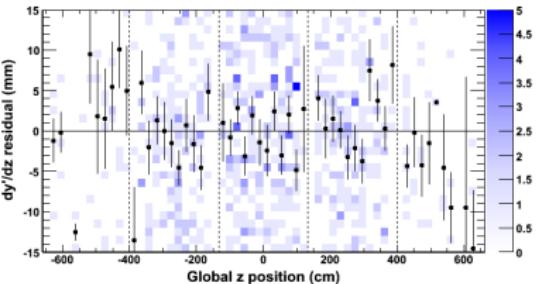
station 3, sector 05



station 3, sector 05



station 3, sector 05



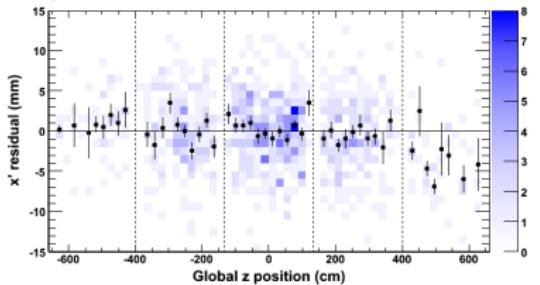
Map plots: station 3, sector 5

Jim Pivarski 182/24

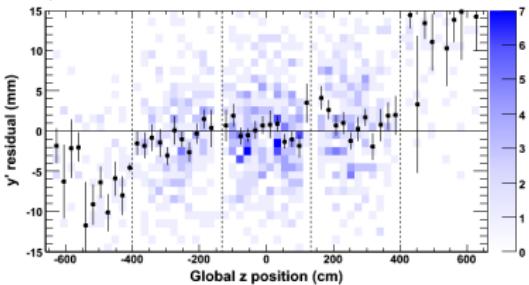


Track-based alignment

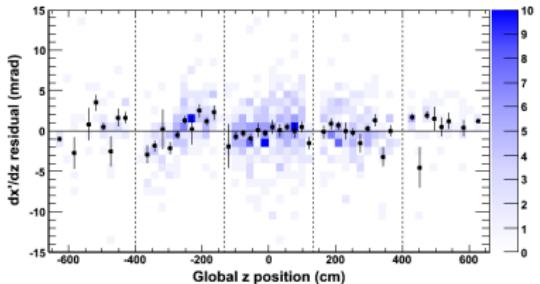
station 3, sector 05



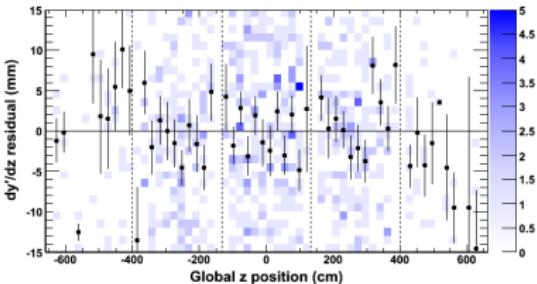
station 3, sector 05



station 3, sector 05



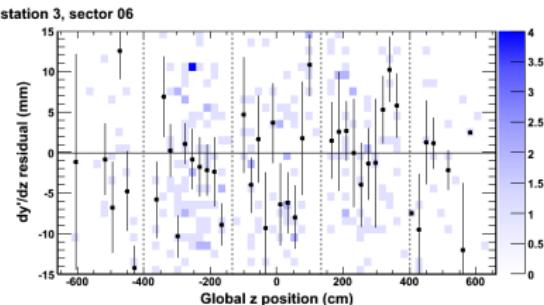
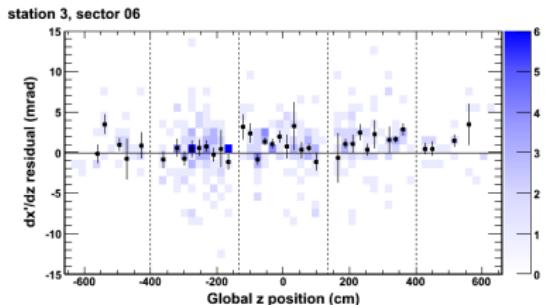
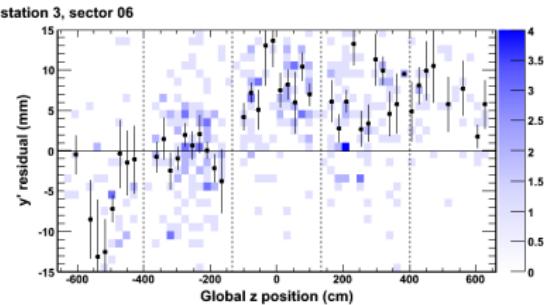
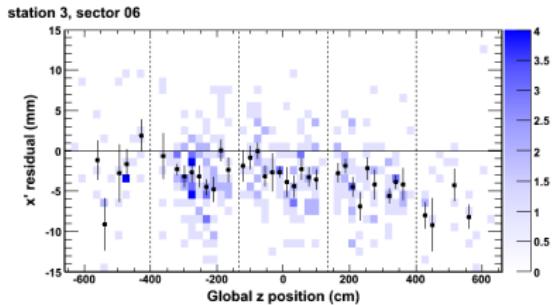
station 3, sector 05



Map plots: station 3, sector 6

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BarrelPG2009 Corrections Survey



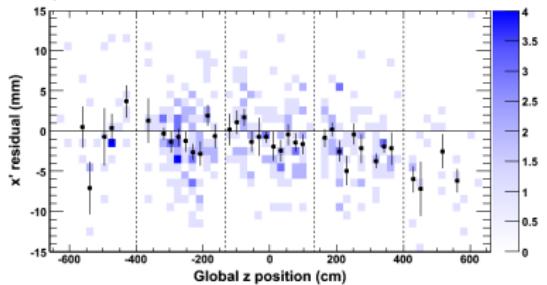
Map plots: station 3, sector 6

Jim Pivarski 184/24

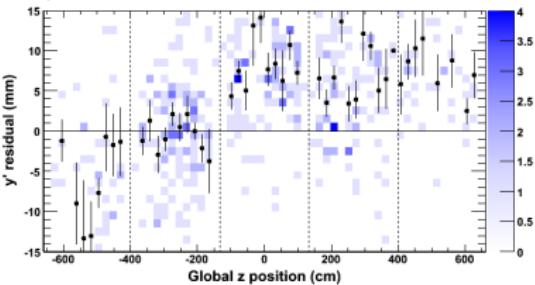


BarrelPG2009 Corrections Survey + global adjustment

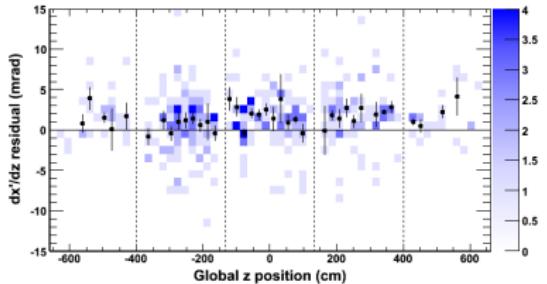
station 3, sector 06



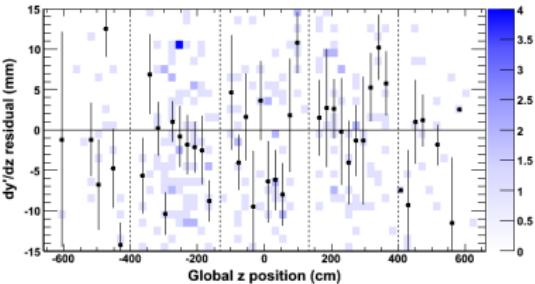
station 3, sector 06



station 3, sector 06



station 3, sector 06



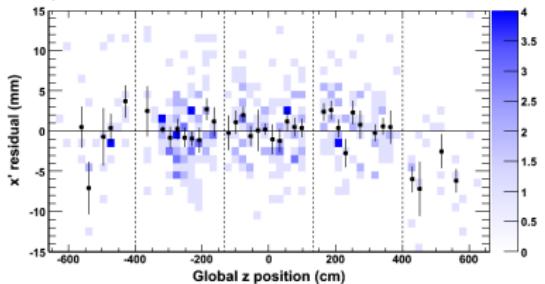
Map plots: station 3, sector 6

Jim Pivarski 185/24

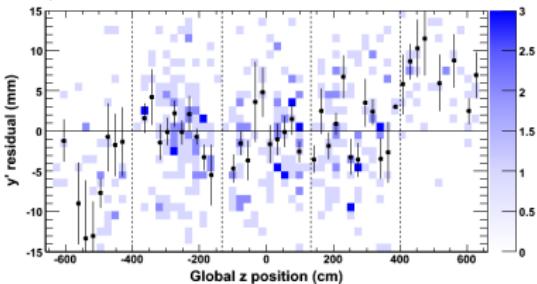


Track-based alignment

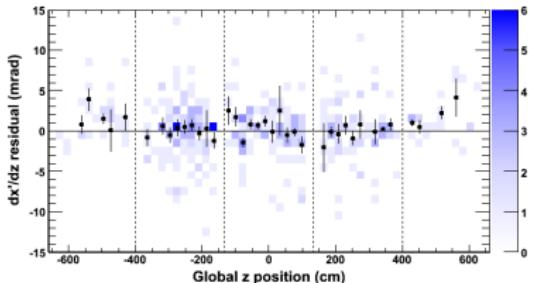
station 3, sector 06



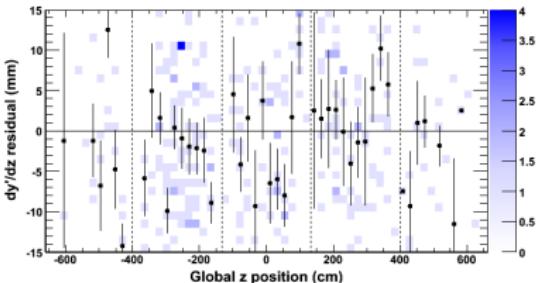
station 3, sector 06



station 3, sector 06



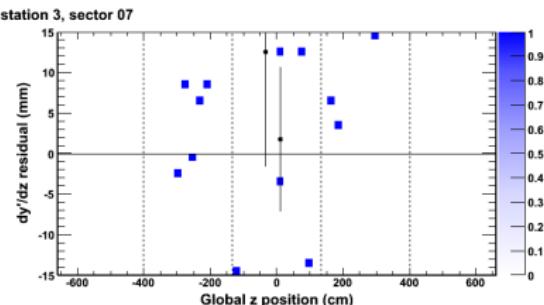
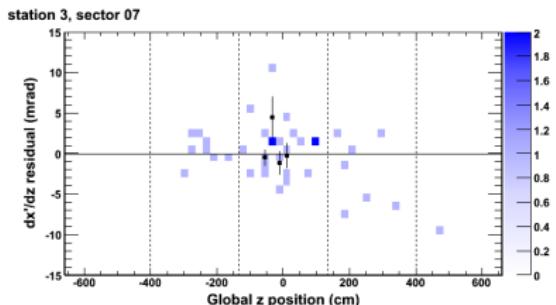
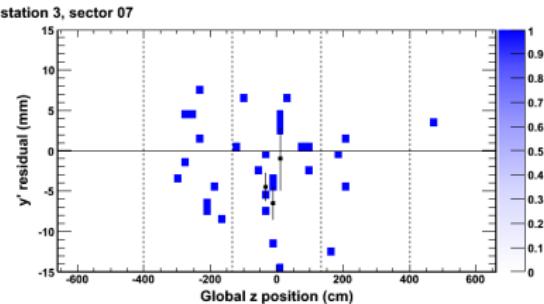
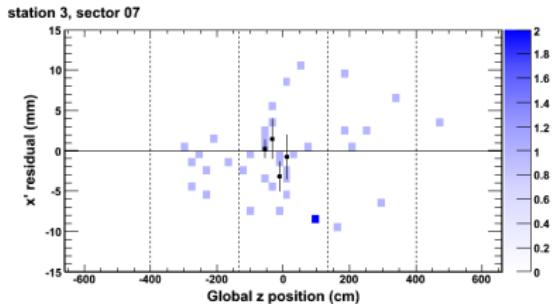
station 3, sector 06



Map plots: station 3, sector 7

Jim Pivarski 186/24

BarrelPG2009 Corrections Survey

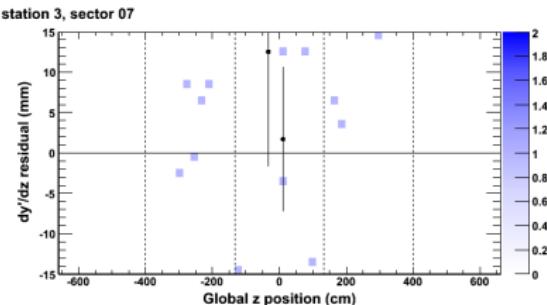
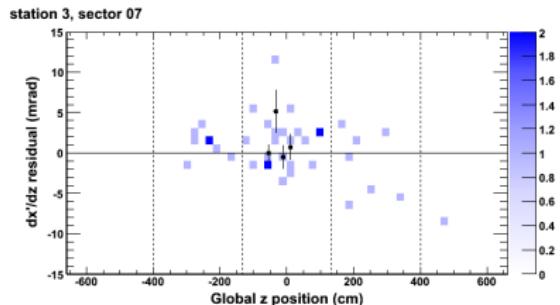
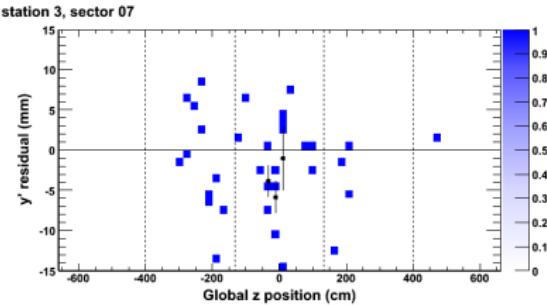
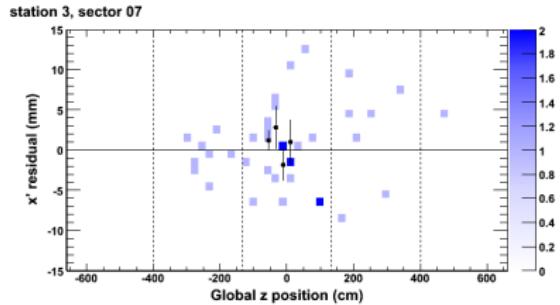


Map plots: station 3, sector 7

Jim Pivarski

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BarrelPG2009 Corrections Survey + global adjustment



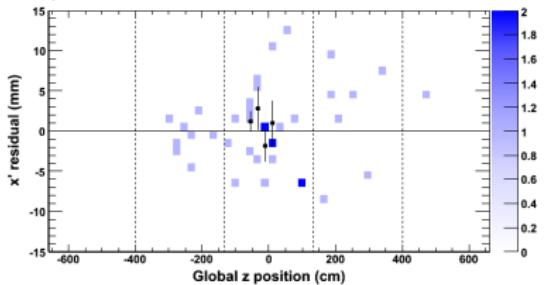
Map plots: station 3, sector 7

Jim Pivarski 188/24

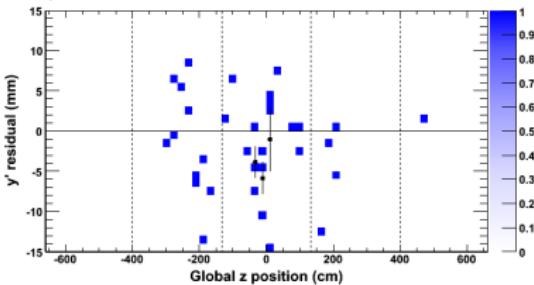


Track-based alignment

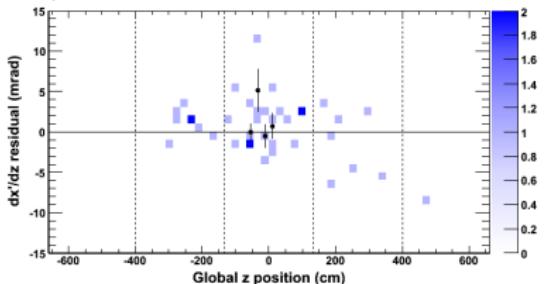
station 3, sector 07



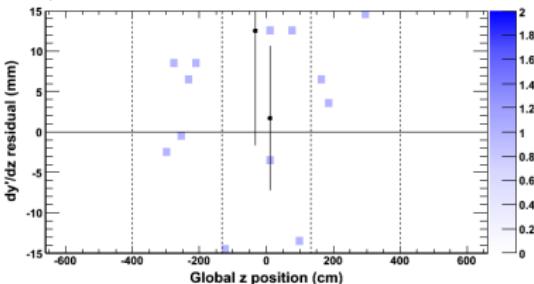
station 3, sector 07



station 3, sector 07



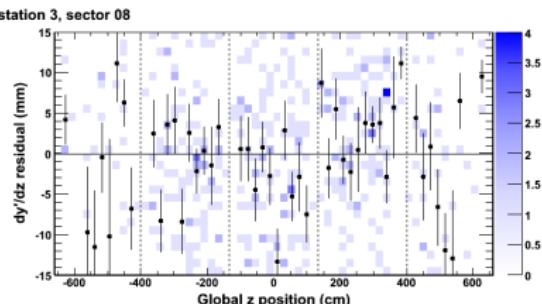
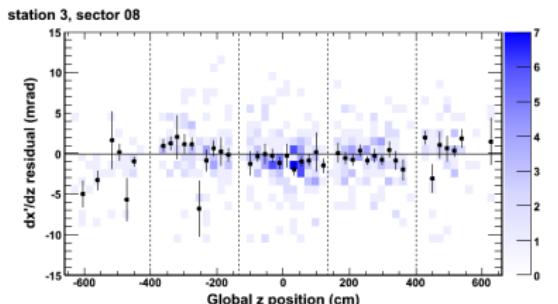
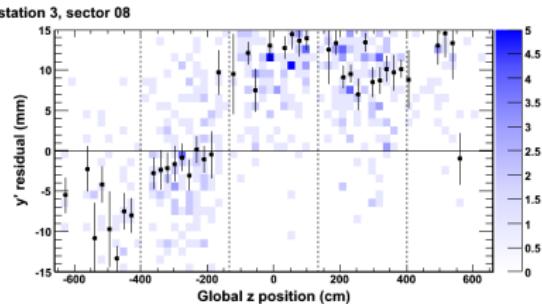
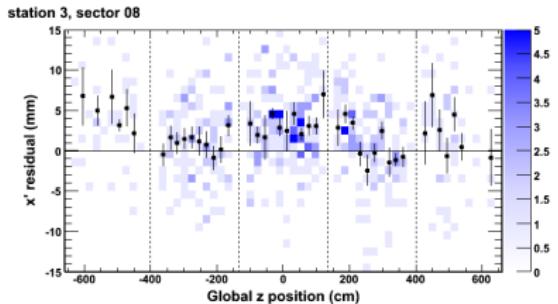
station 3, sector 07



Map plots: station 3, sector 8

Jim Pivarski 189/24

BarrelPG2009 Corrections Survey



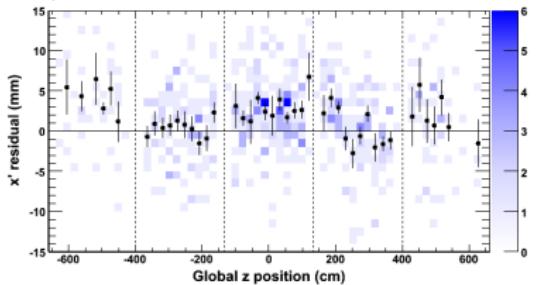
Map plots: station 3, sector 8

Jim Pivarski 190/24

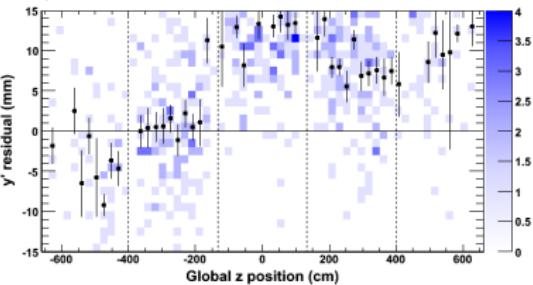
BarrelPG2009 Corrections Survey + global adjustment



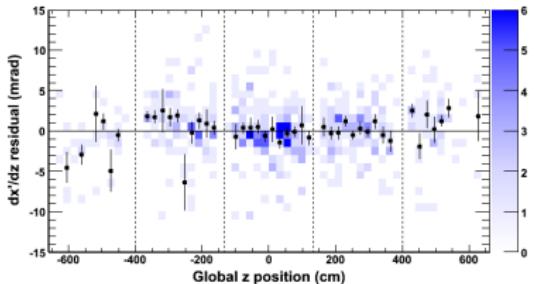
station 3, sector 08



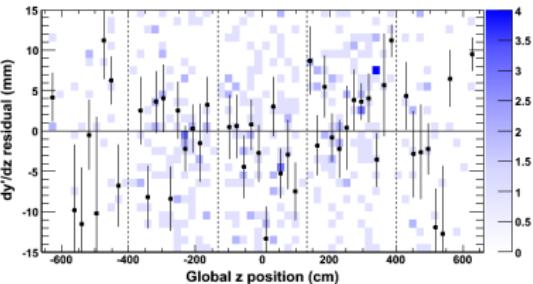
station 3, sector 08



station 3, sector 08



station 3, sector 08



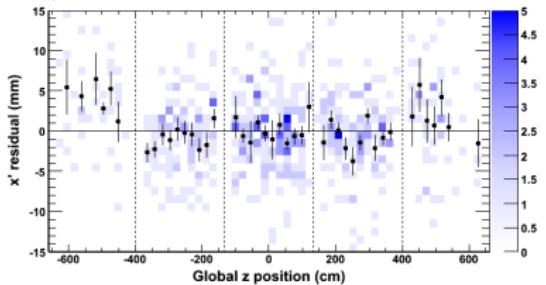
Map plots: station 3, sector 8

Jim Pivarski 191/24

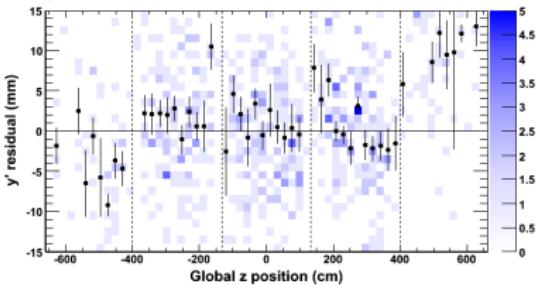


Track-based alignment

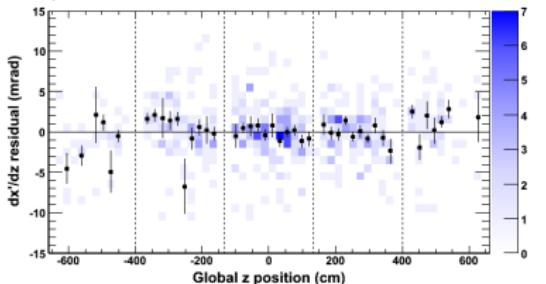
station 3, sector 08



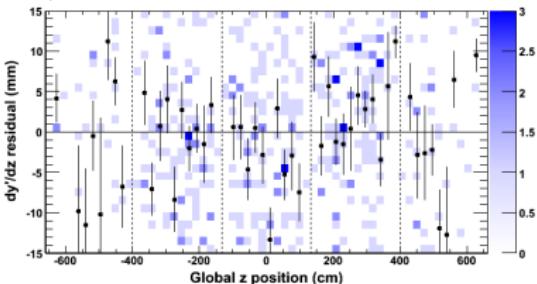
station 3, sector 08



station 3, sector 08



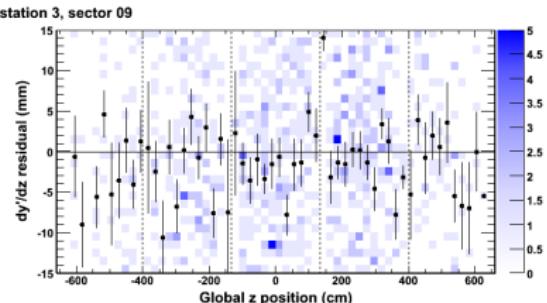
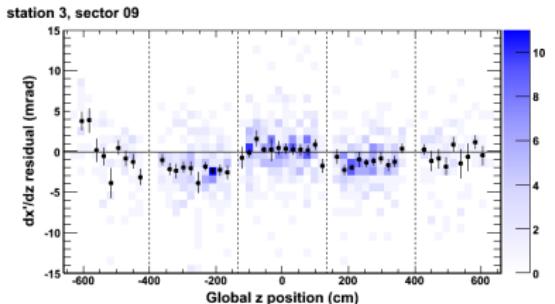
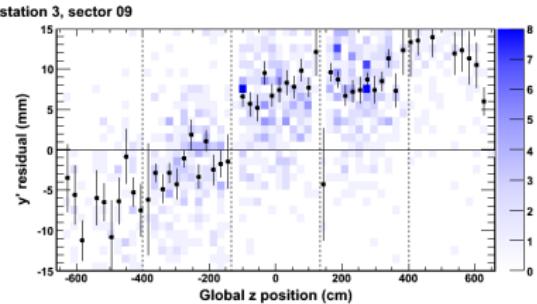
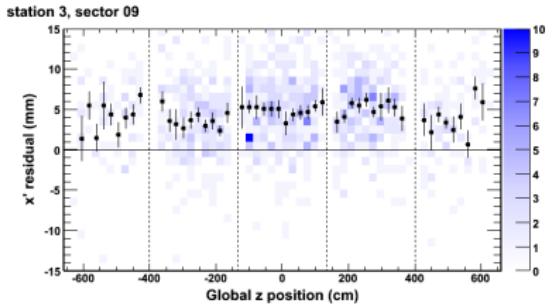
station 3, sector 08



Map plots: station 3, sector 9

Jim Pivarski 192/24

BarrelPG2009 Corrections Survey



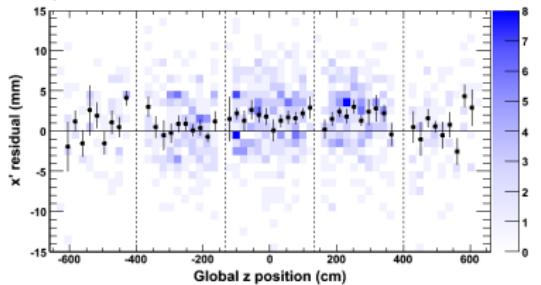
Map plots: station 3, sector 9

Jim Pivarski 193/24

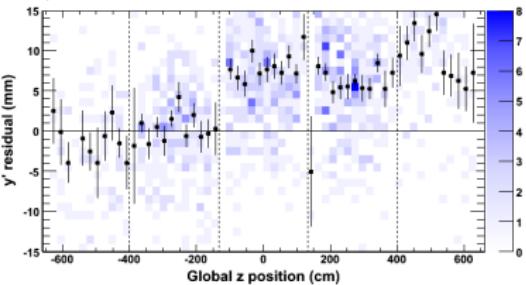


BarrelPG2009 Corrections Survey + global adjustment

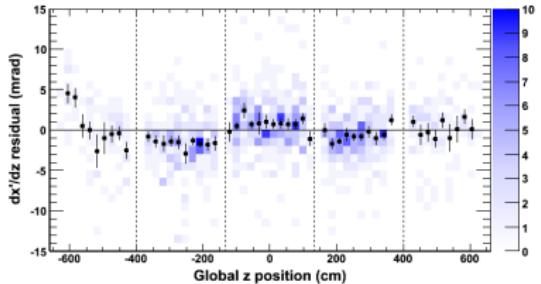
station 3, sector 09



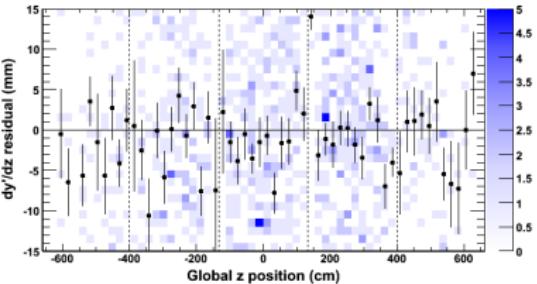
station 3, sector 09



station 3, sector 09



station 3, sector 09



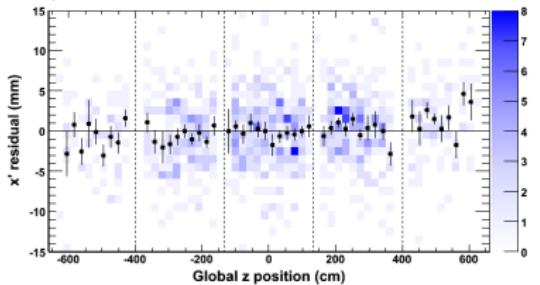
Map plots: station 3, sector 9

Jim Pivarski 194/24

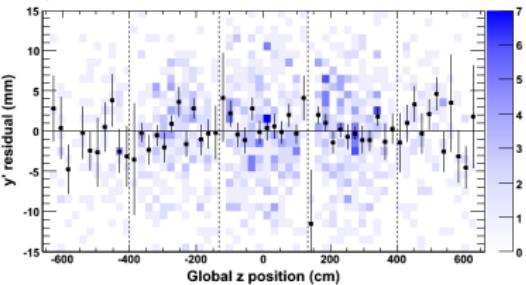


Track-based alignment

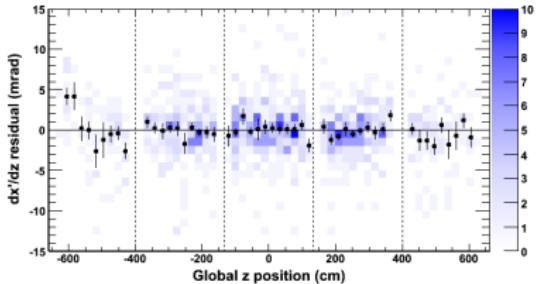
station 3, sector 09



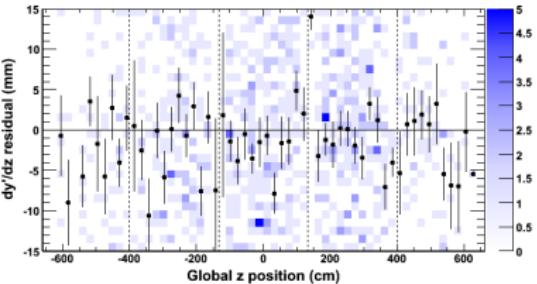
station 3, sector 09



station 3, sector 09

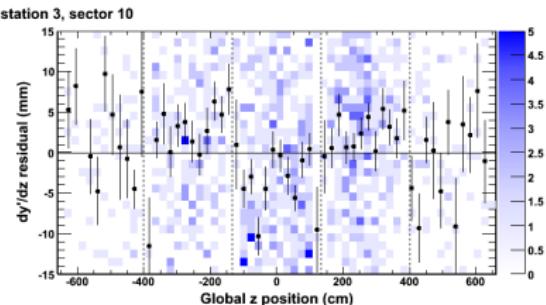
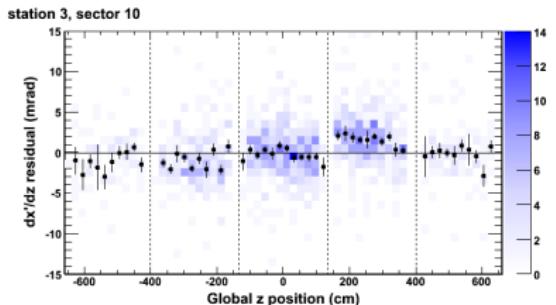
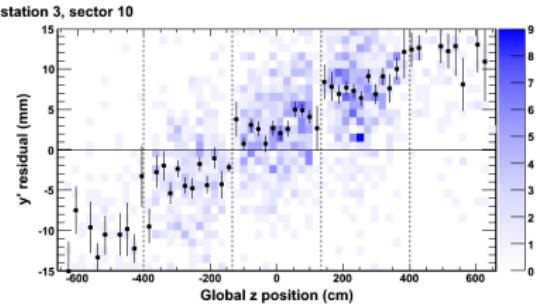
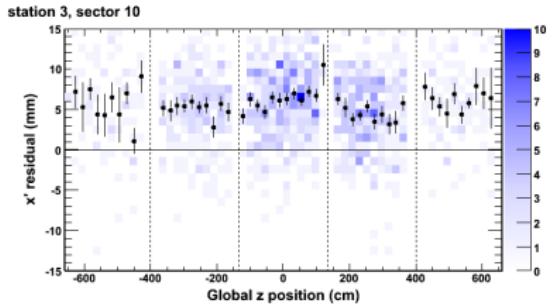


station 3, sector 09



Map plots: station 3, sector 10 Jim Pivarski 195/24

BarrelPG2009 Corrections Survey

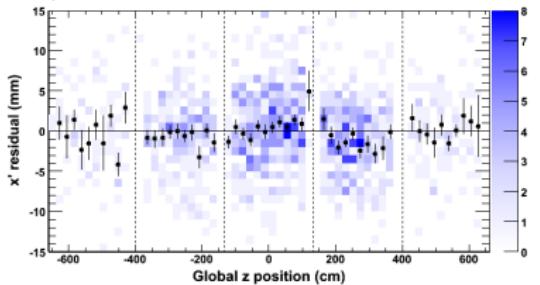


Map plots: station 3, sector 10 Jim Pivarski 196/24

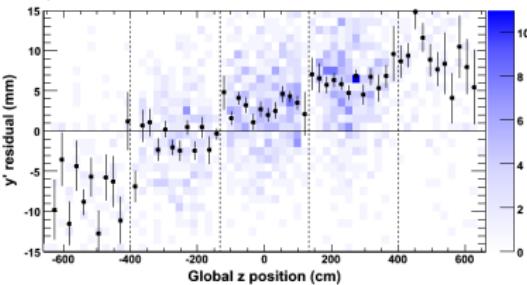
BarrelPG2009 Corrections Survey + global adjustment



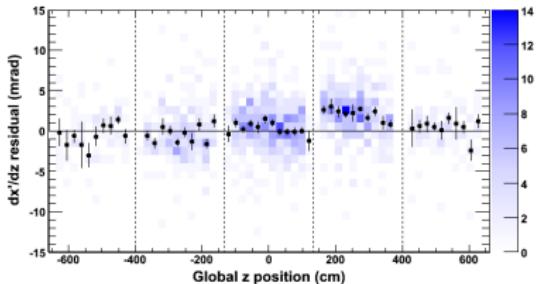
station 3, sector 10



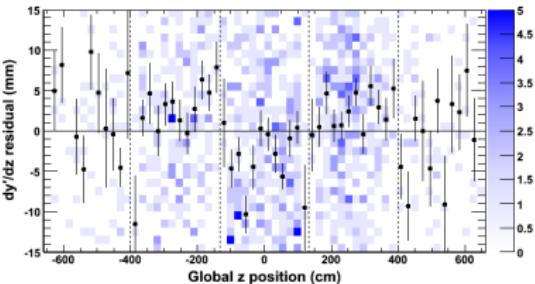
station 3, sector 10



station 3, sector 10



station 3, sector 10

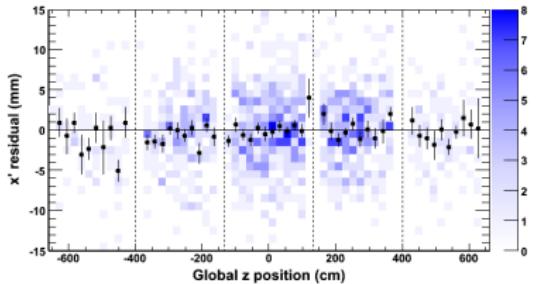


Map plots: station 3, sector 10 Jim Pivarski 197/24

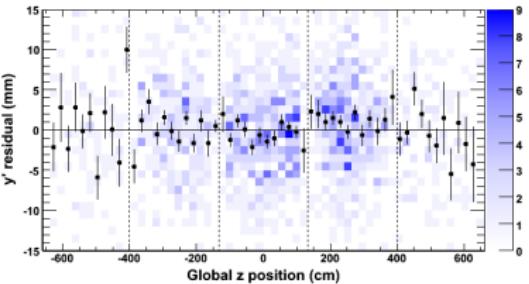
Track-based alignment



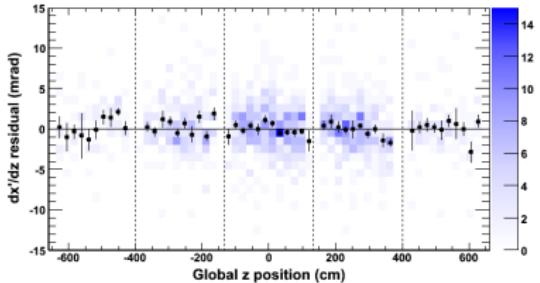
station 3, sector 10



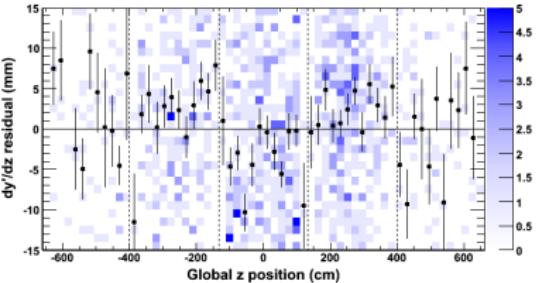
station 3, sector 10



station 3, sector 10

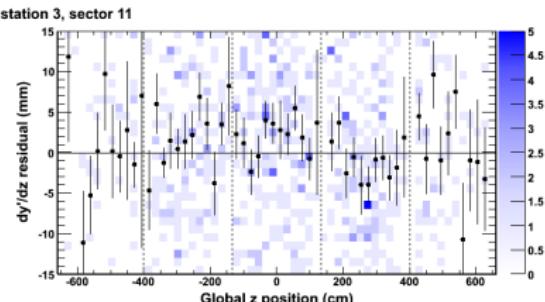
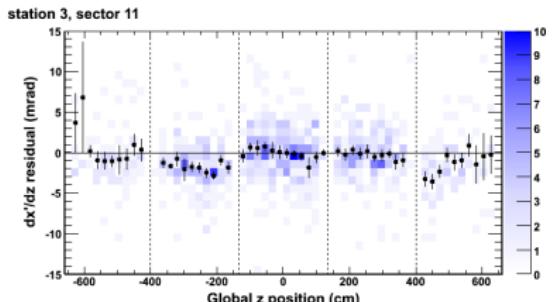
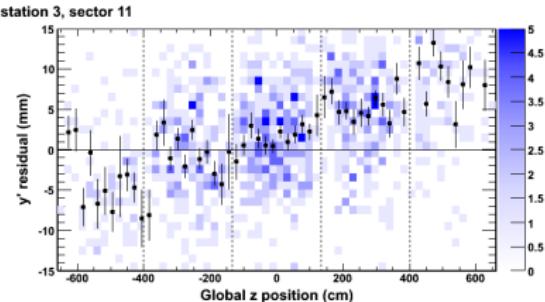
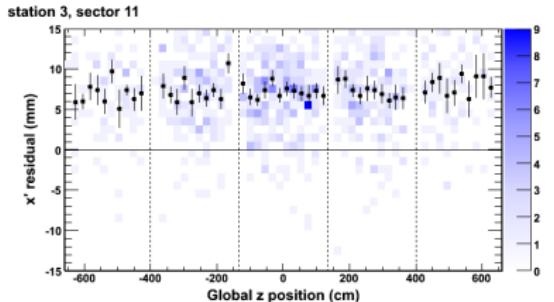


station 3, sector 10



Map plots: station 3, sector 11 Jim Pivarski 198/24

BarrelPG2009 Corrections Survey

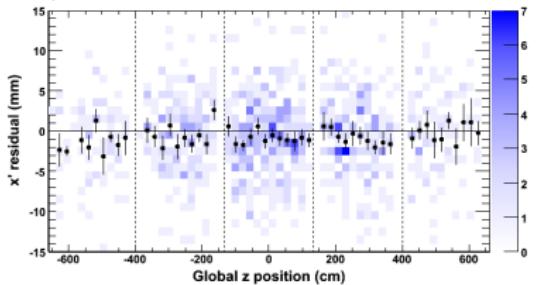


Map plots: station 3, sector 11 Jim Pivarski 199/24

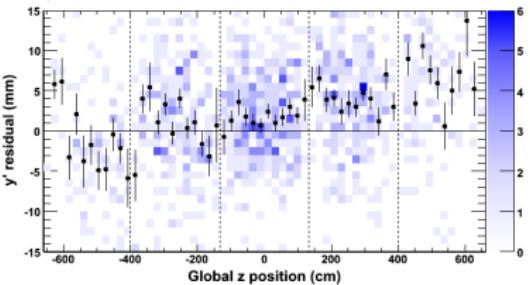
BarrelPG2009 Corrections Survey + global adjustment



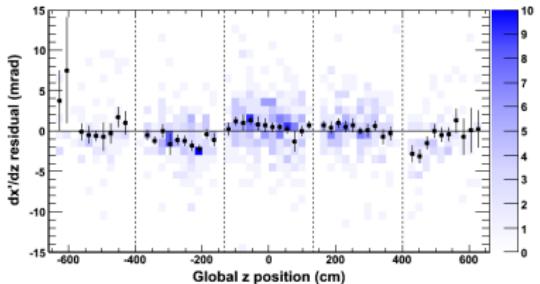
station 3, sector 11



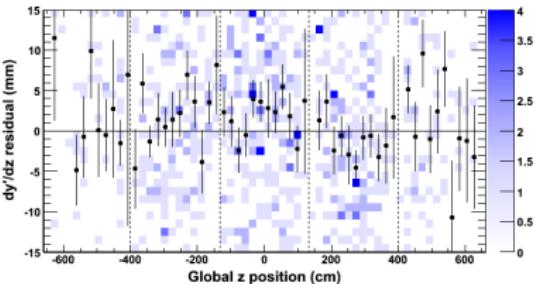
station 3, sector 11



station 3, sector 11



station 3, sector 11

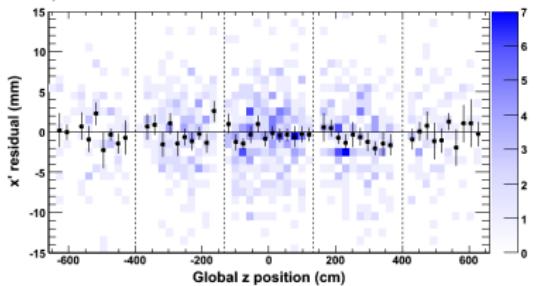


Map plots: station 3, sector 11 Jim Pivarski 200/24

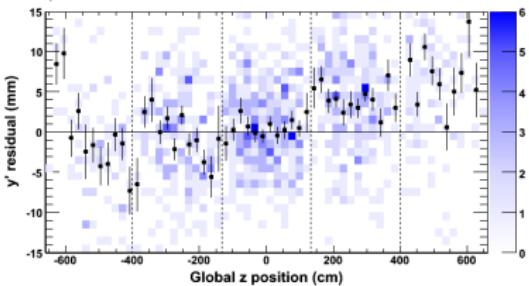
Track-based alignment



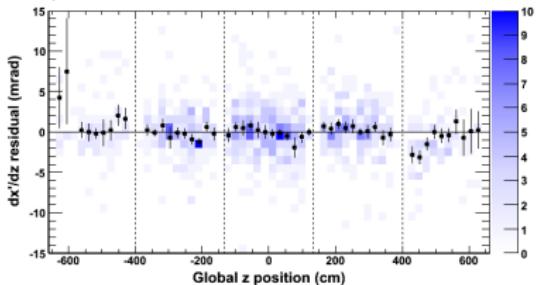
station 3, sector 11



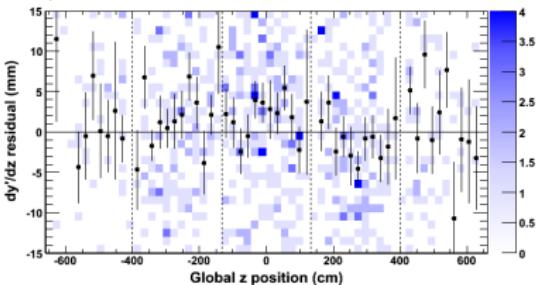
station 3, sector 11



station 3, sector 11



station 3, sector 11

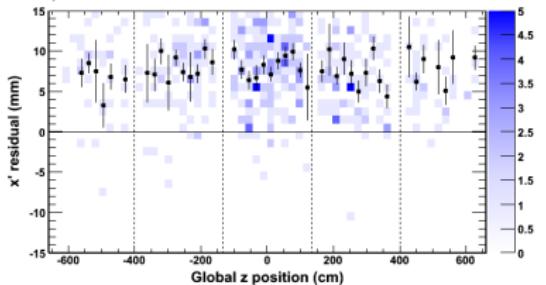


Map plots: station 3, sector 12 Jim Pivarski 201/24

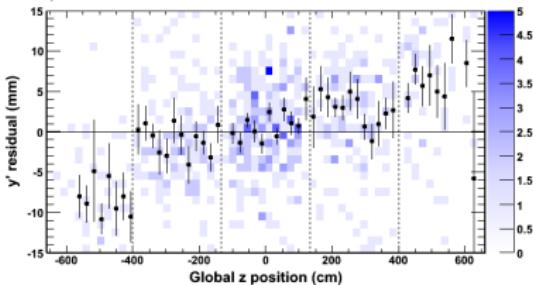
BarrelPG2009 Corrections Survey



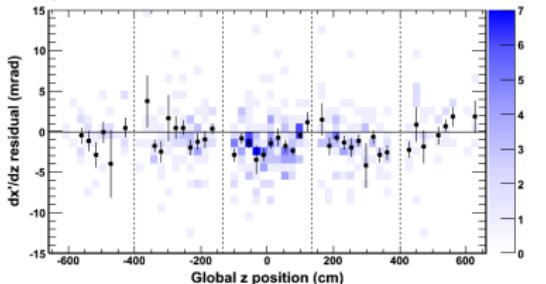
station 3, sector 12



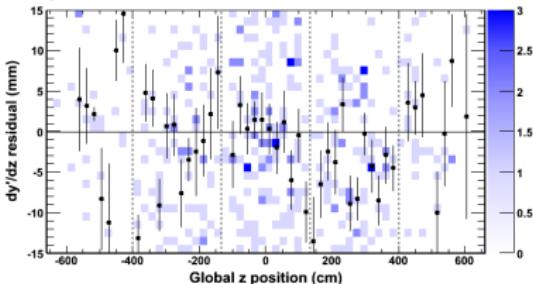
station 3, sector 12



station 3, sector 12

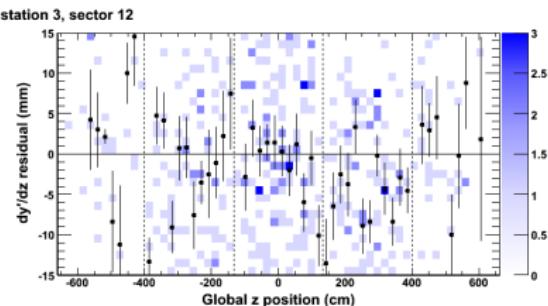
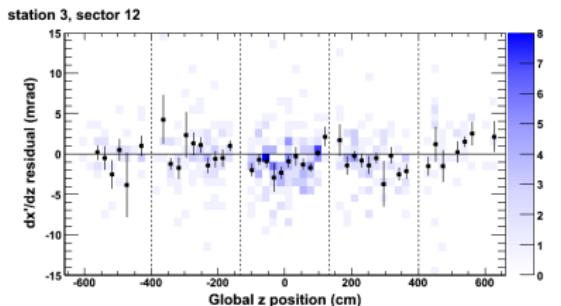
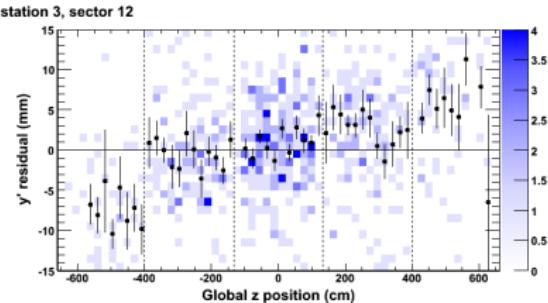
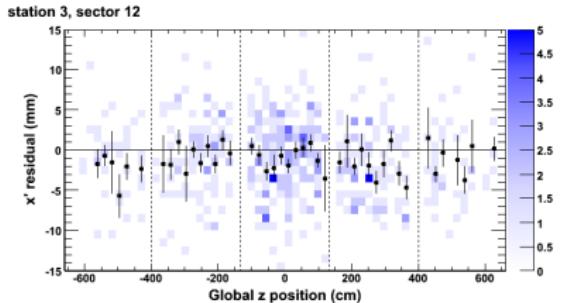


station 3, sector 12



Map plots: station 3, sector 12 Jim Pivarski 202/24

BarrelPG2009 Corrections Survey + global adjustment

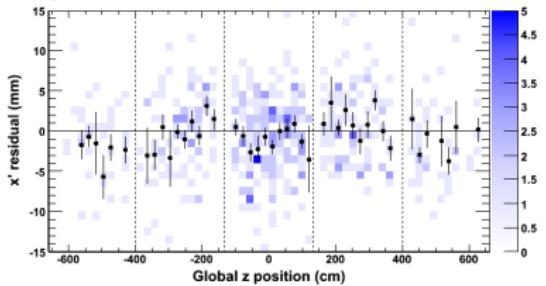


Map plots: station 3, sector 12 Jim Pivarski 203/24

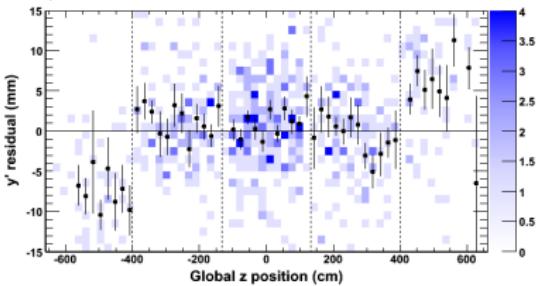
Track-based alignment



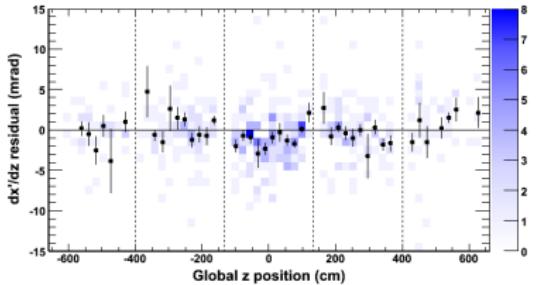
station 3, sector 12



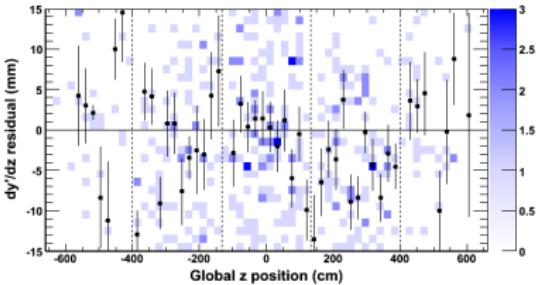
station 3, sector 12



station 3, sector 12



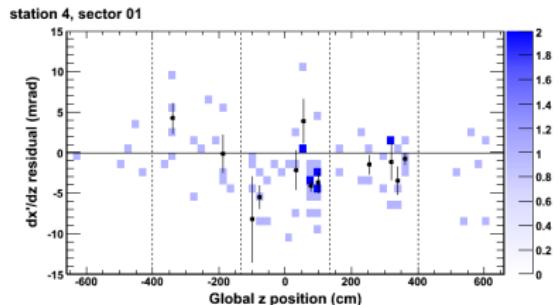
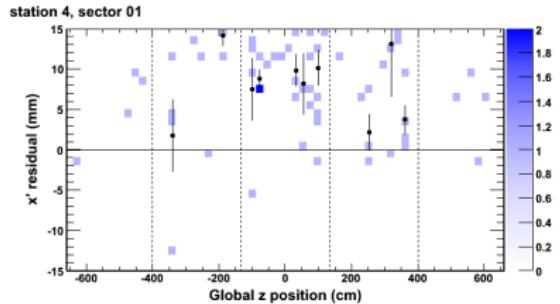
station 3, sector 12



Map plots: station 4, sector 1

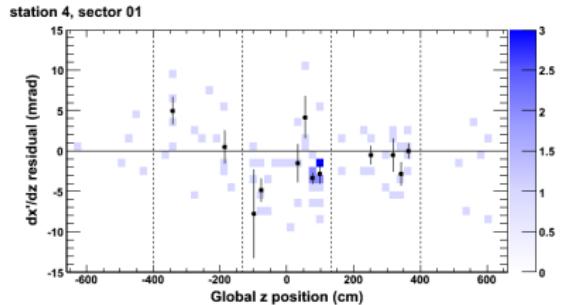
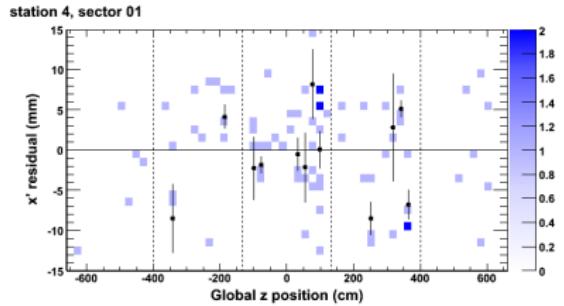
Jim Pivarski 204/24

BarrelPG2009 Corrections Survey



Map plots: station 4, sector 1 Jim Pivarski 205/24

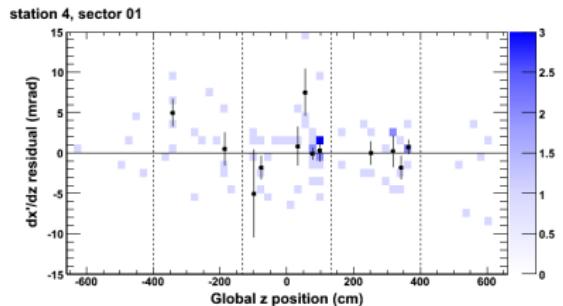
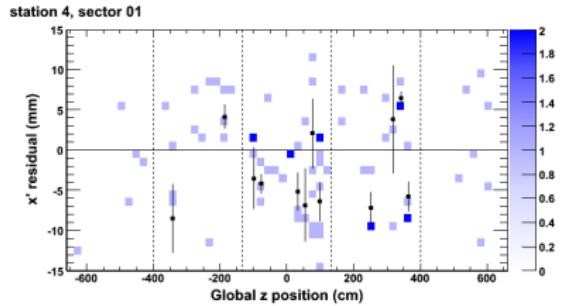
BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 4, sector 1

Jim Pivarski 206/24

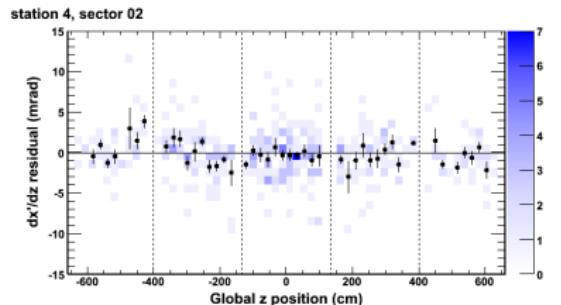
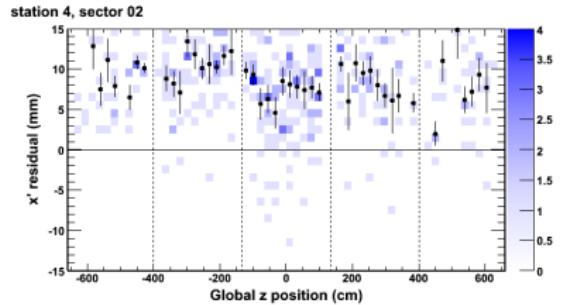
Track-based alignment



Map plots: station 4, sector 2

Jim Pivarski 207/24

BarrelPG2009 Corrections Survey



Map plots: station 4, sector 2

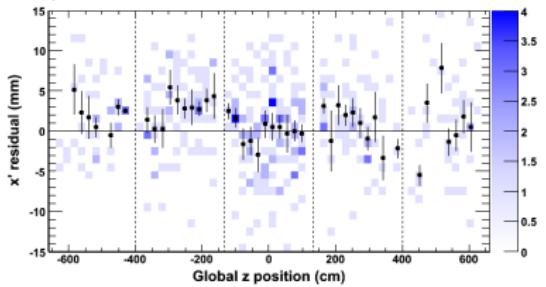
Jim Pivarski

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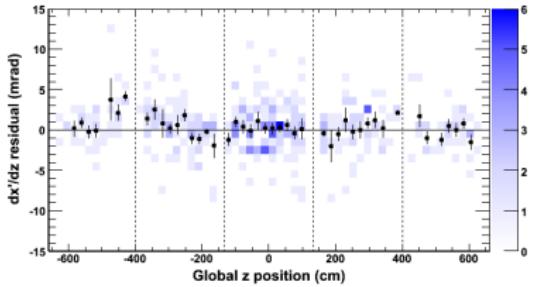
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 02

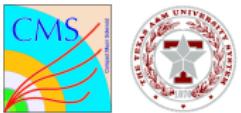


station 4, sector 02

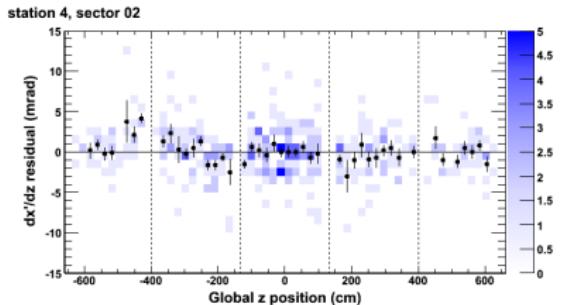
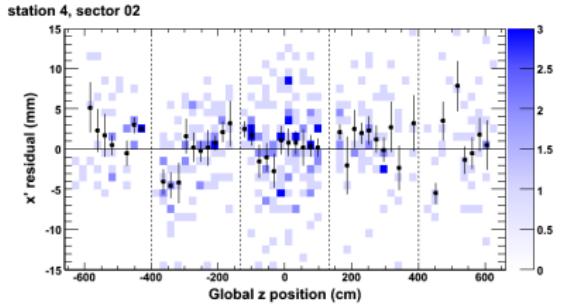


Map plots: station 4, sector 2

Jim Pivarski 209/24



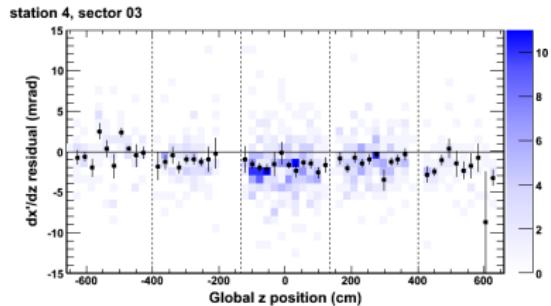
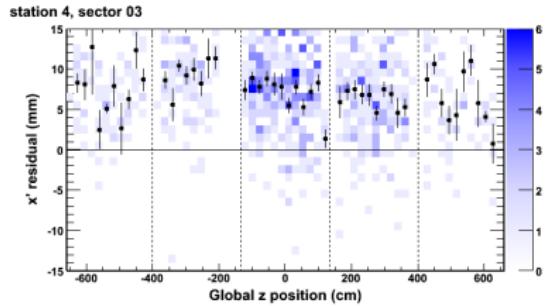
Track-based alignment



Map plots: station 4, sector 3

Jim Pivarski 210/24

BarrelPG2009 Corrections Survey



Map plots: station 4, sector 4

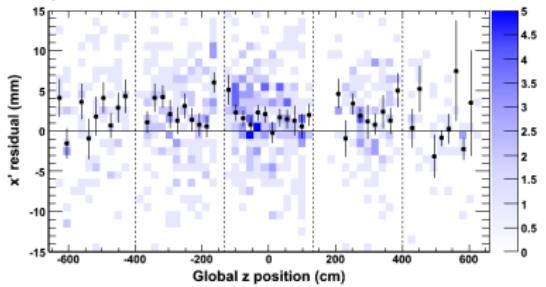
Jim Pivarski

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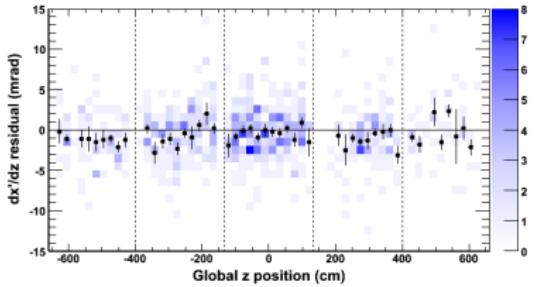
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 04



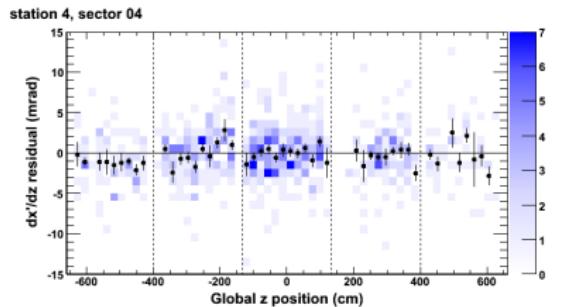
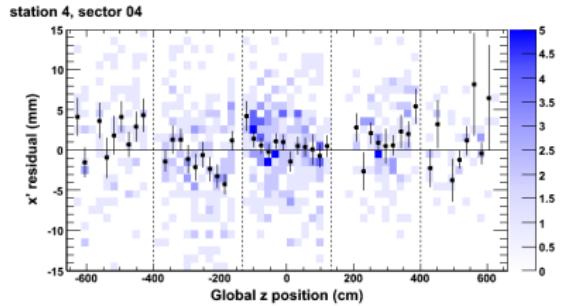
station 4, sector 04



Map plots: station 4, sector 4

Jim Pivarski 212/24

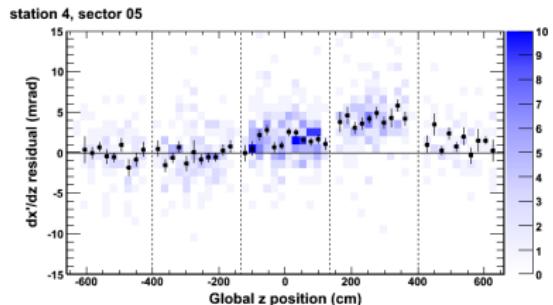
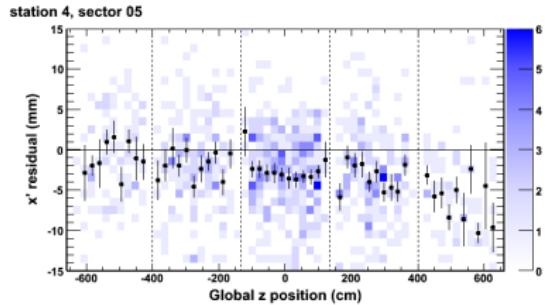
Track-based alignment



Map plots: station 4, sector 5

Jim Pivarski 213/24

BarrelPG2009CorrectionsSurvey



Map plots: station 4, sector 5

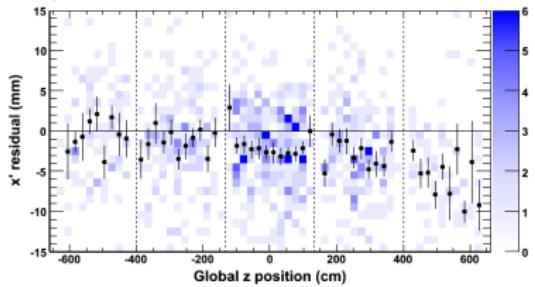
Jim Pivarski

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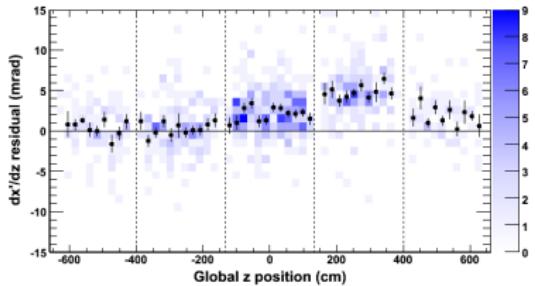
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 05



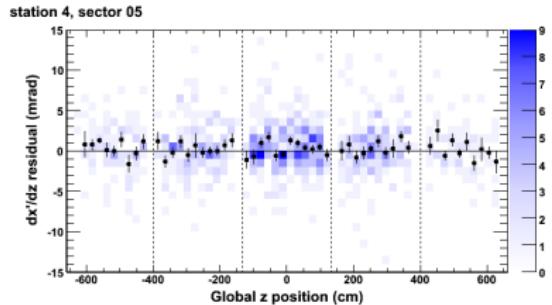
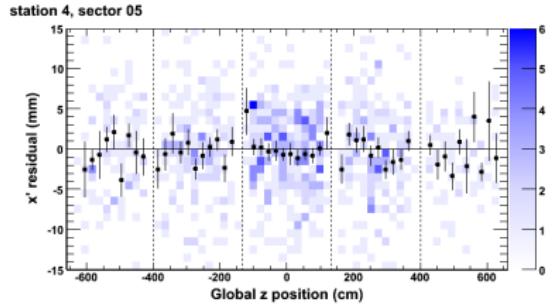
station 4, sector 05



Map plots: station 4, sector 5

Jim Pivarski 215/24

Track-based alignment



Map plots: station 4, sector 6

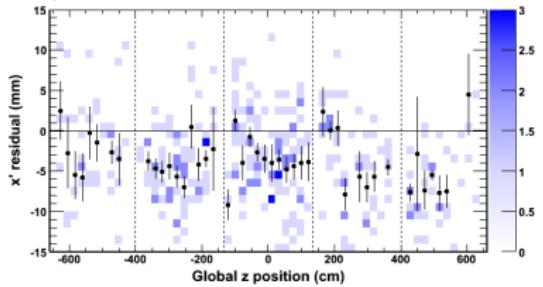
Jim Pivarski

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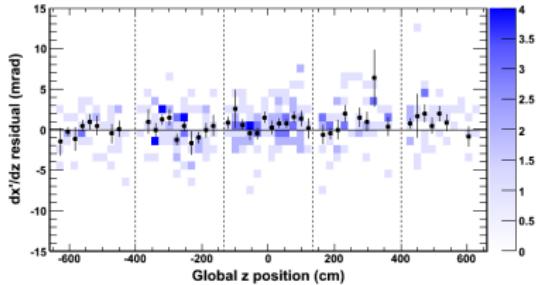
BarrelPG2009 Corrections Survey



station 4, sector 06



station 4, sector 06



Map plots: station 4, sector 6

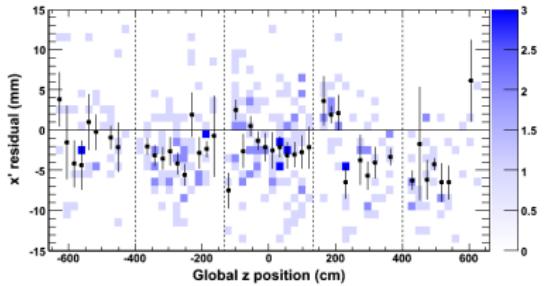
Jim Pivarski

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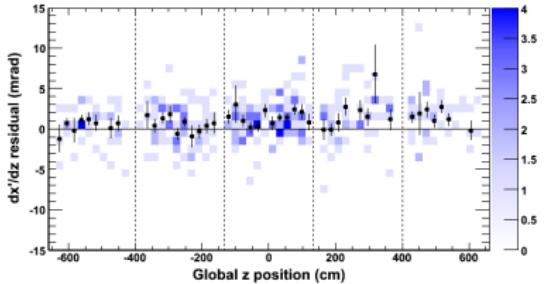
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 06



station 4, sector 06

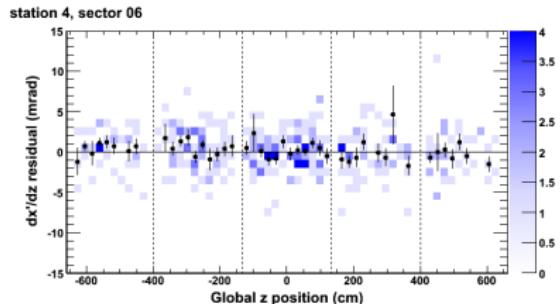
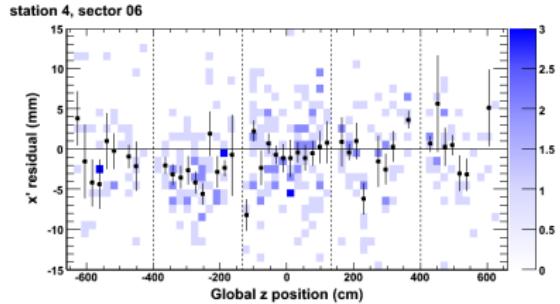


Map plots: station 4, sector 6

Jim Pivarski

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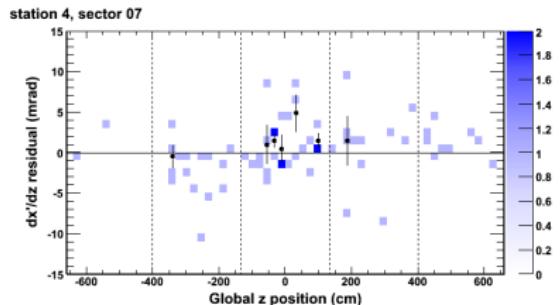
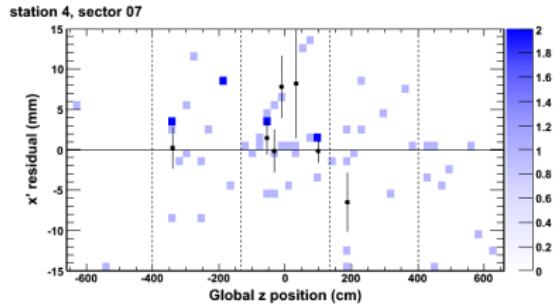
Track-based alignment



Map plots: station 4, sector 7

Jim Pivarski 219/24

BarrelPG2009 Corrections Survey



Map plots: station 4, sector 7

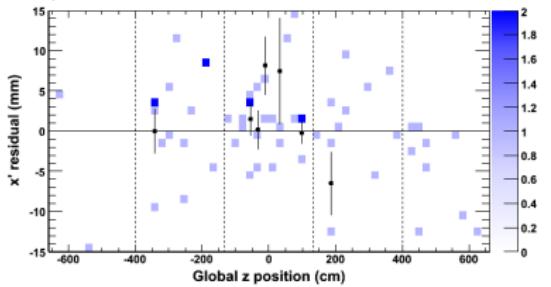
Jim Pivarski

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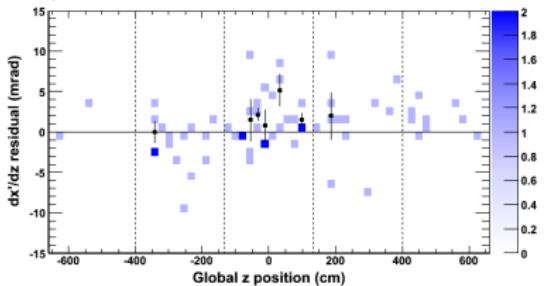
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 07



station 4, sector 07

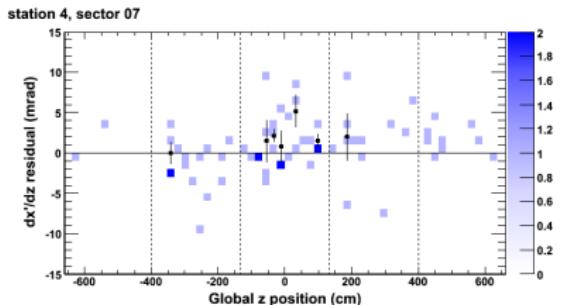
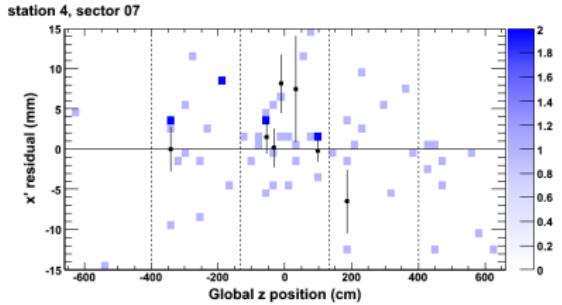


Map plots: station 4, sector 7

Jim Pivarski

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Track-based alignment



Map plots: station 4, sector 8

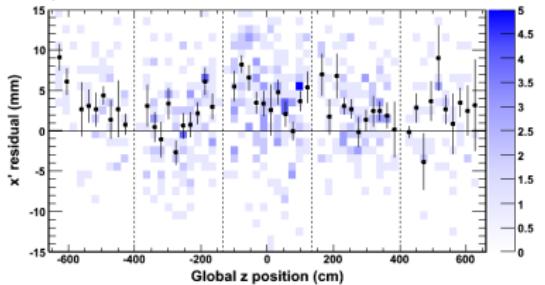
Jim Pivarski

222/24

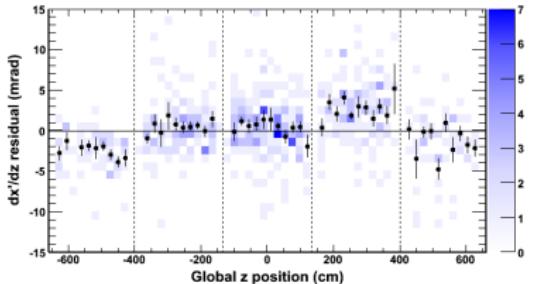
BarrelPG2009 Corrections Survey



station 4, sector 08



station 4, sector 08



Map plots: station 4, sector 8

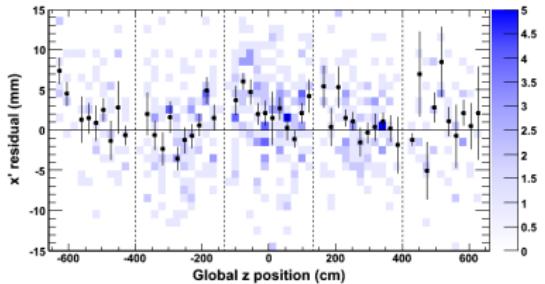
Jim Pivarski

223/24

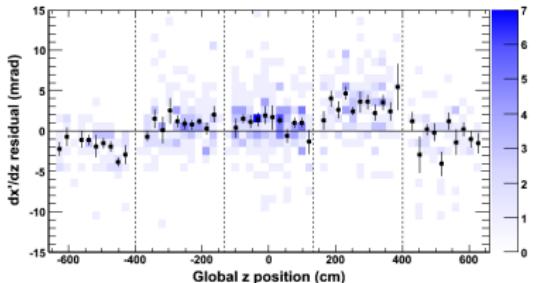
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 08



station 4, sector 08



Map plots: station 4, sector 8

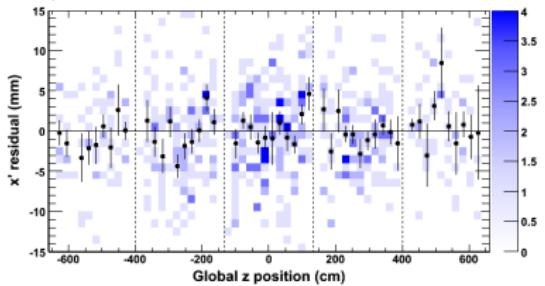
Jim Pivarski

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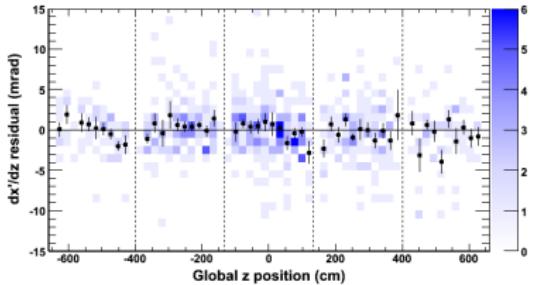
Track-based alignment



station 4, sector 08



station 4, sector 08



Map plots: station 4, sector 9

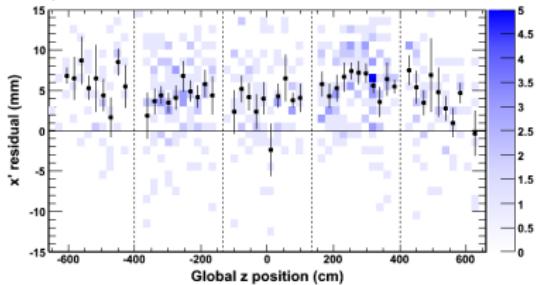
Jim Pivarski

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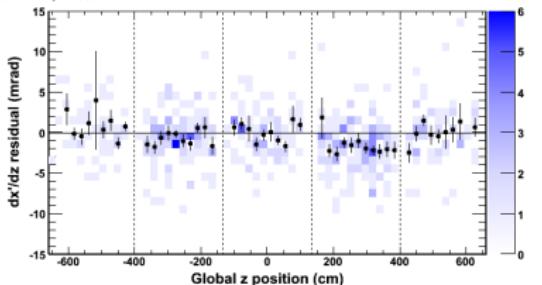
BarrelPG2009 Corrections Survey



station 4, sector 09



station 4, sector 09



Map plots: station 4, sector 9

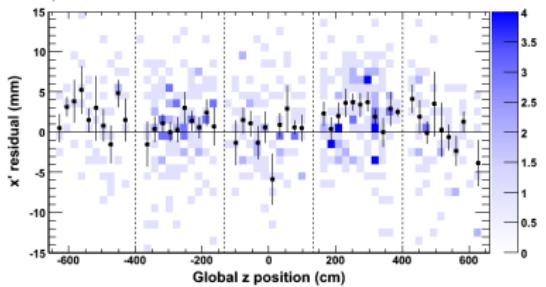
Jim Pivarski

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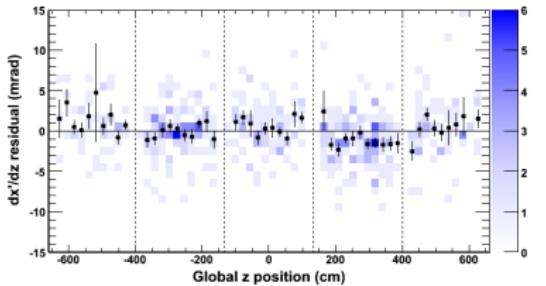
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 09



station 4, sector 09

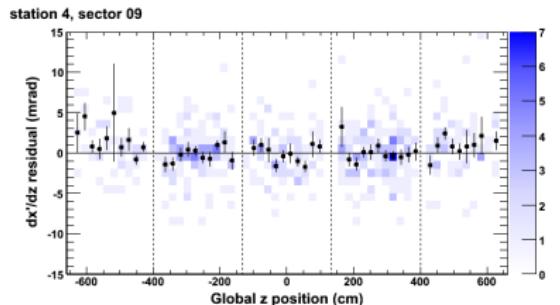
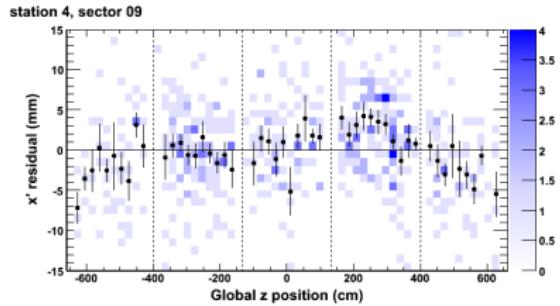


Map plots: station 4, sector 9

Jim Pivarski

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Track-based alignment



Map plots: station 4, sector 10

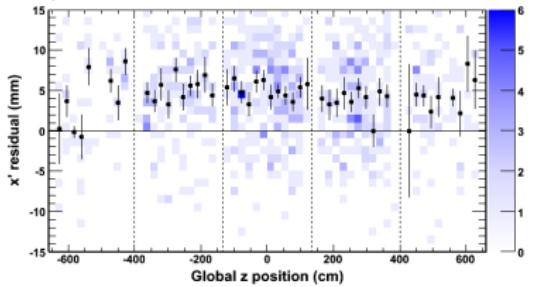
Jim Pivarski

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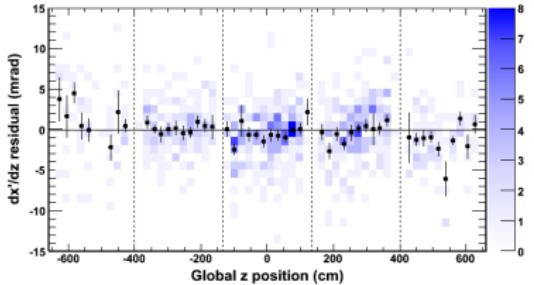
BarrelPG2009 Corrections Survey



station 4, sector 10

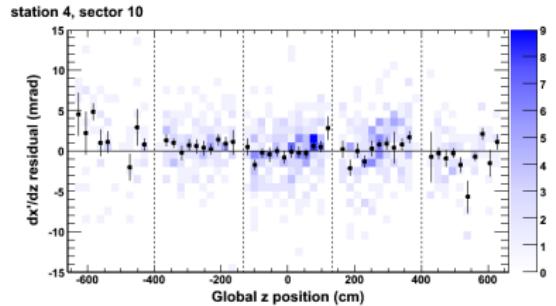
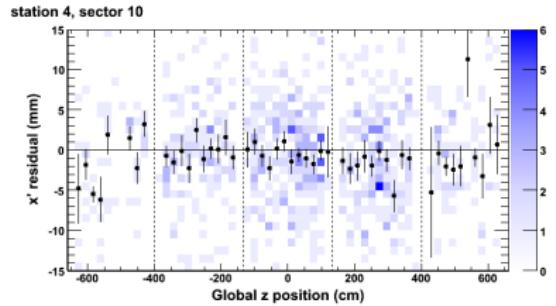


station 4, sector 10



Map plots: station 4, sector 10 Jim Pivarski 229/24

BarrelPG2009 Corrections Survey + global adjustment

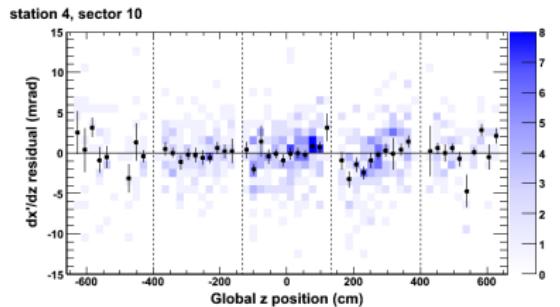
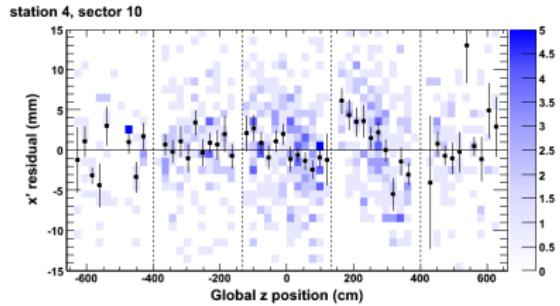


Map plots: station 4, sector 10

Jim Pivarski

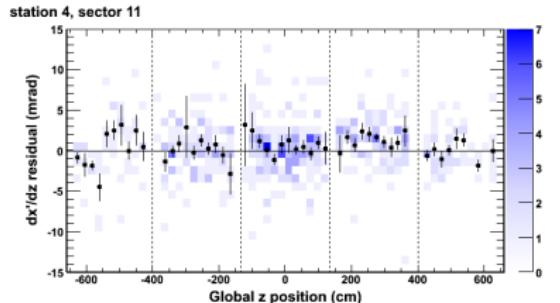
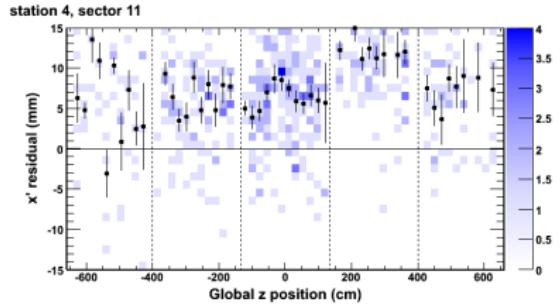
230/24

Track-based alignment



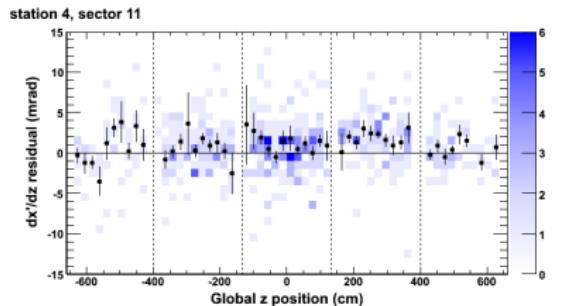
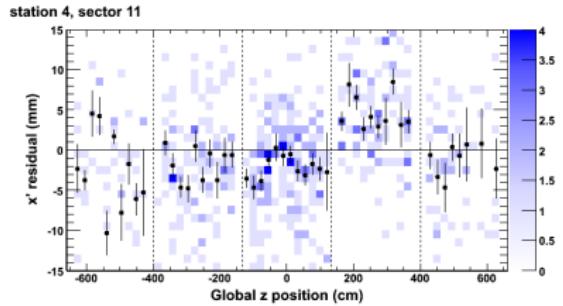
Map plots: station 4, sector 11 Jim Pivarski 231/24

BarrelPG2009 Corrections Survey



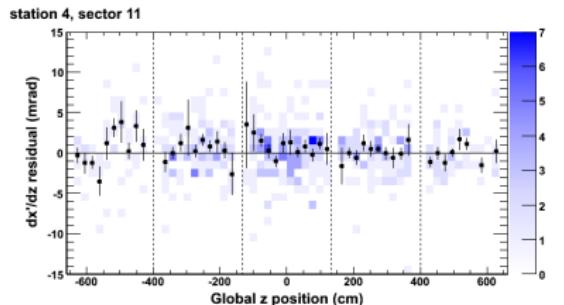
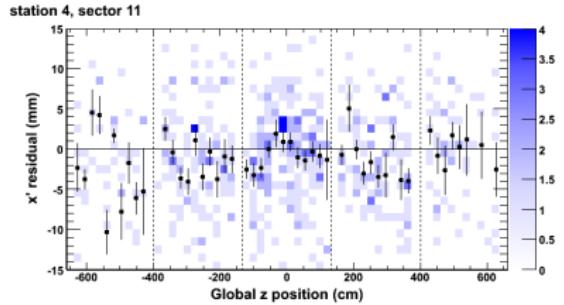
Map plots: station 4, sector 11 Jim Pivarski 232/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 4, sector 11 Jim Pivarski 233/24

Track-based alignment

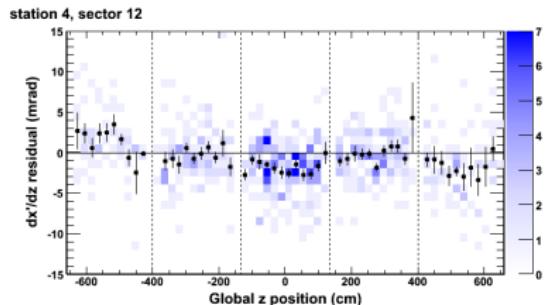
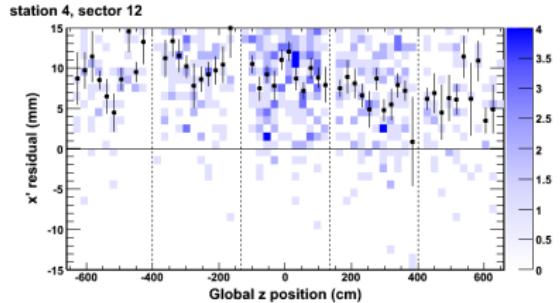


Map plots: station 4, sector 12

Jim Pivarski

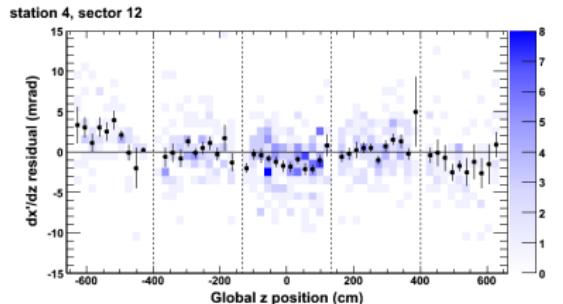
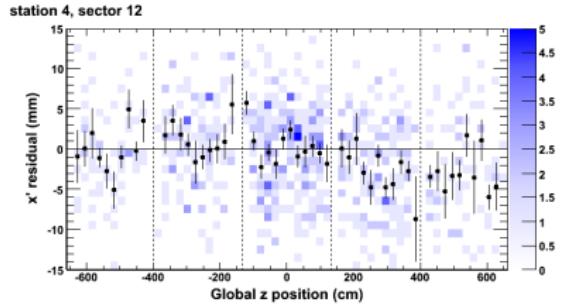
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BarrelPG2009 Corrections Survey



Map plots: station 4, sector 12 Jim Pivarski 235/24

BarrelPG2009 Corrections Survey + global adjustment

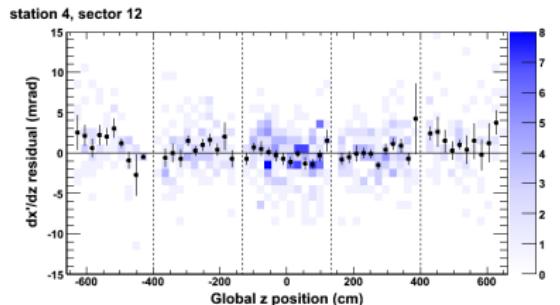
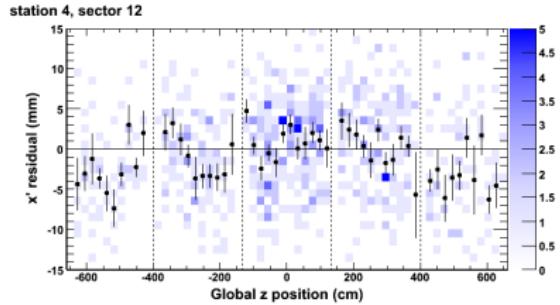


Map plots: station 4, sector 12

Jim Pivarski

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Track-based alignment



Map plots: station 4, sector 13

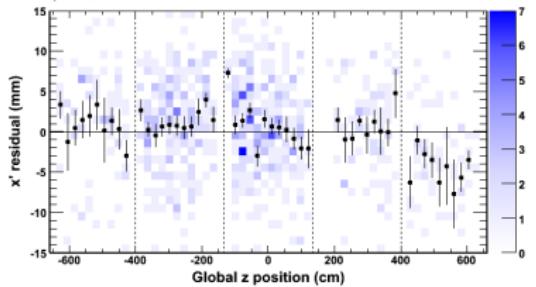
Jim Pivarski

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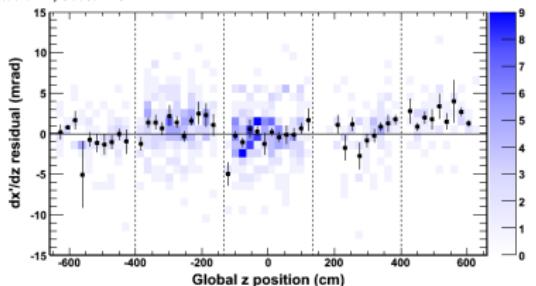
BarrelPG2009 Corrections Survey



station 4, sector 13



station 4, sector 13

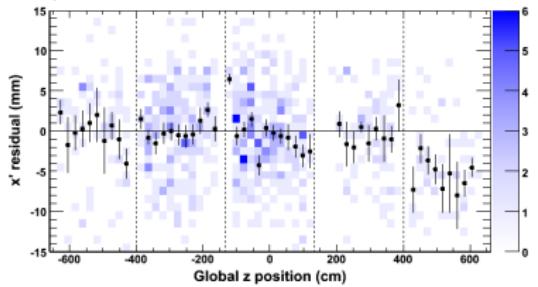


Map plots: station 4, sector 13 Jim Pivarski 238/24

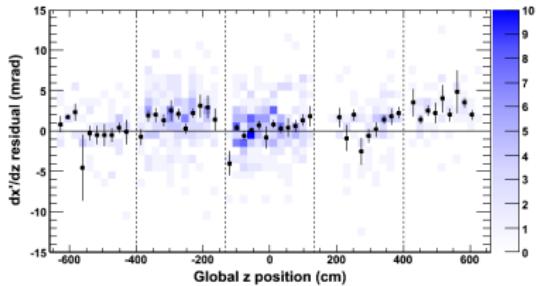
BarrelPG2009 Corrections Survey + global adjustment



station 4, sector 13



station 4, sector 13



Map plots: station 4, sector 13

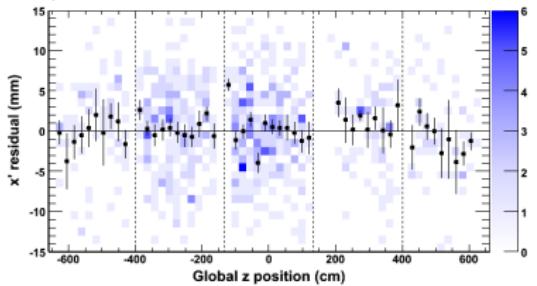
Jim Pivarski

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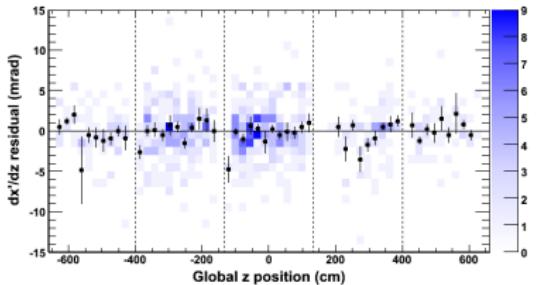
Track-based alignment



station 4, sector 13

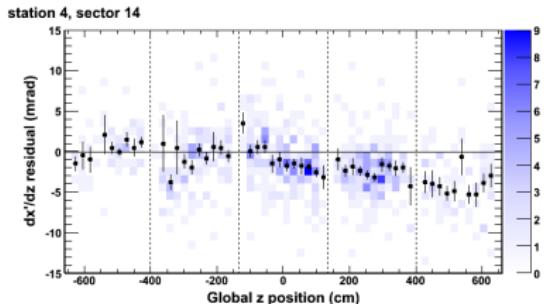
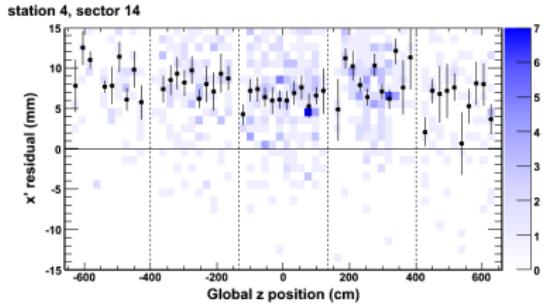


station 4, sector 13



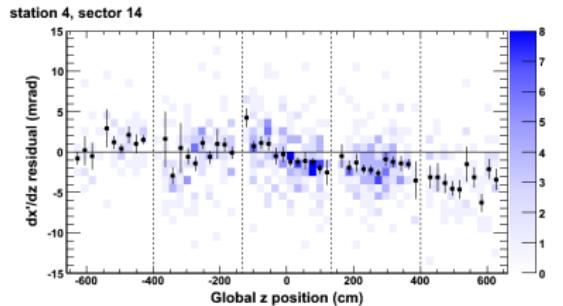
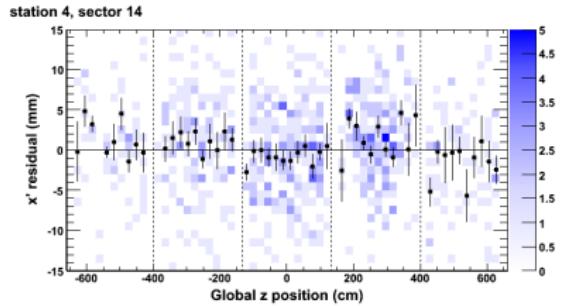
Map plots: station 4, sector 14 Jim Pivarski 240/24

BarrelPG2009 Corrections Survey



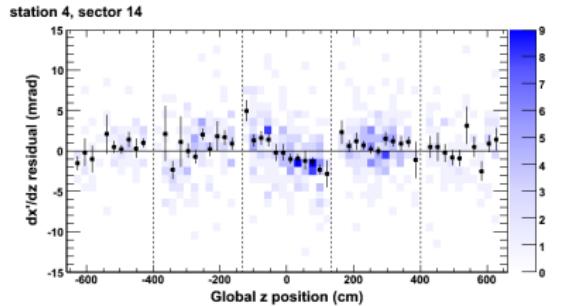
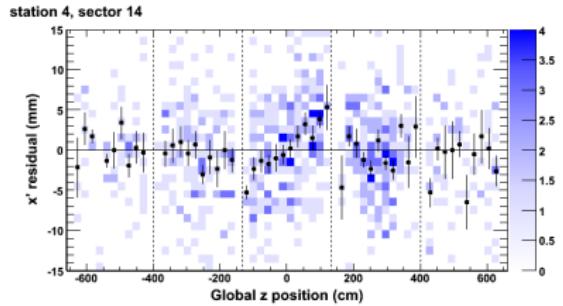
Map plots: station 4, sector 14 Jim Pivarski 241/24

BarrelPG2009 Corrections Survey + global adjustment



Map plots: station 4, sector 14 Jim Pivarski 242/24

Track-based alignment

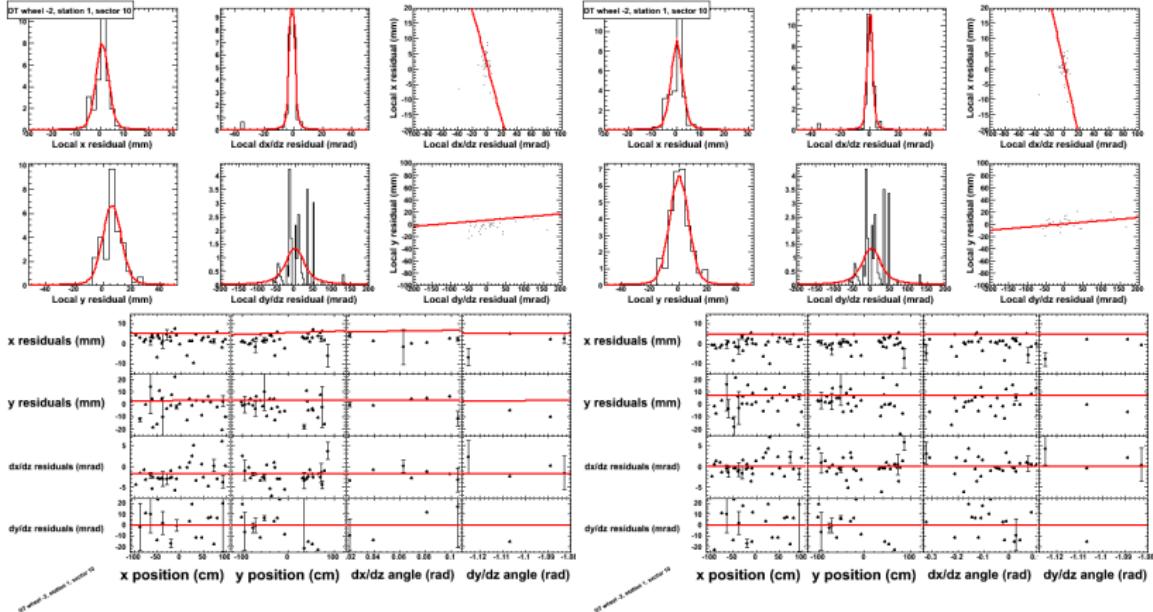


Fit functions

Jim Pivarski 243/24



before (left) and after (right) track-based alignment

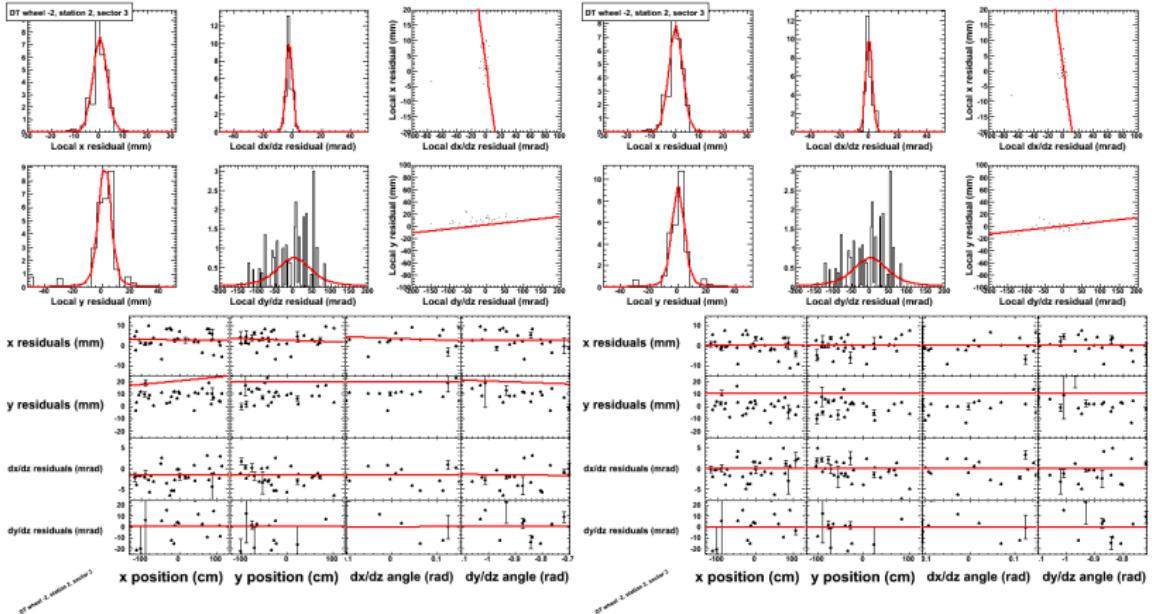


Fit functions

Jim Pivarski 244/24



before (left) and after (right) track-based alignment

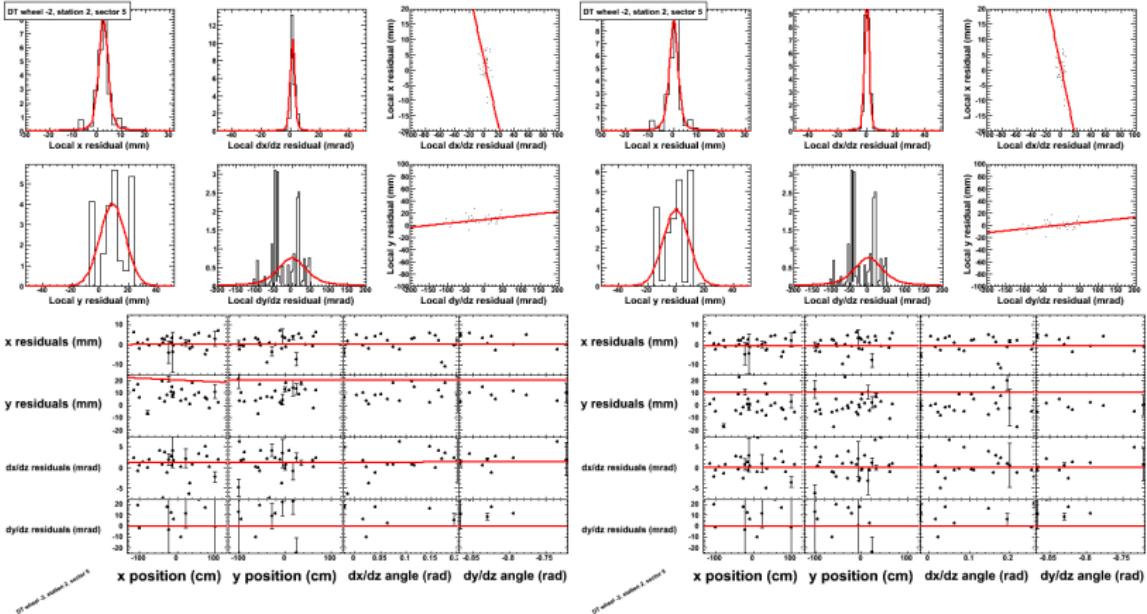


Fit functions

Jim Pivarski 245/24



before (left) and after (right) track-based alignment

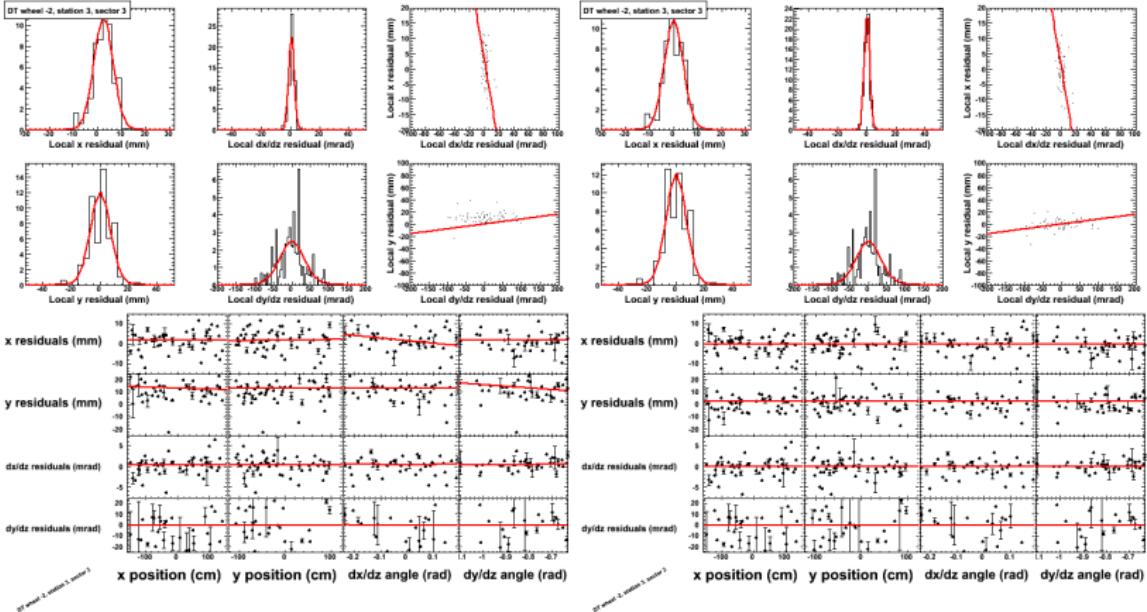


Fit functions

Jim Pivarski 246/24



before (left) and after (right) track-based alignment

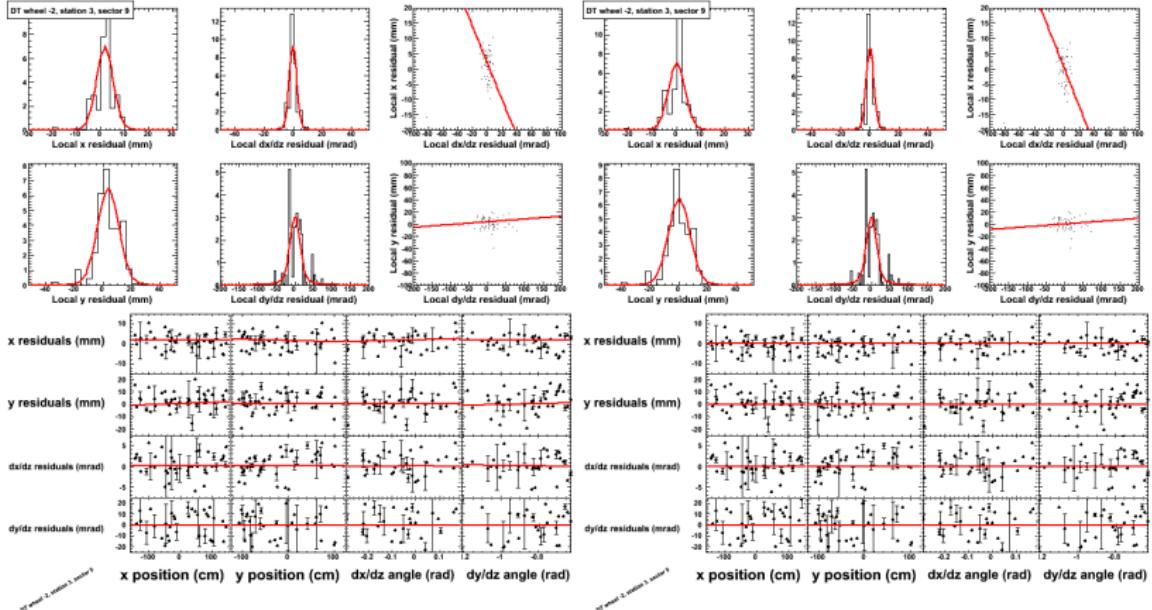


Fit functions

Jim Pivarski 247/24



before (left) and after (right) track-based alignment

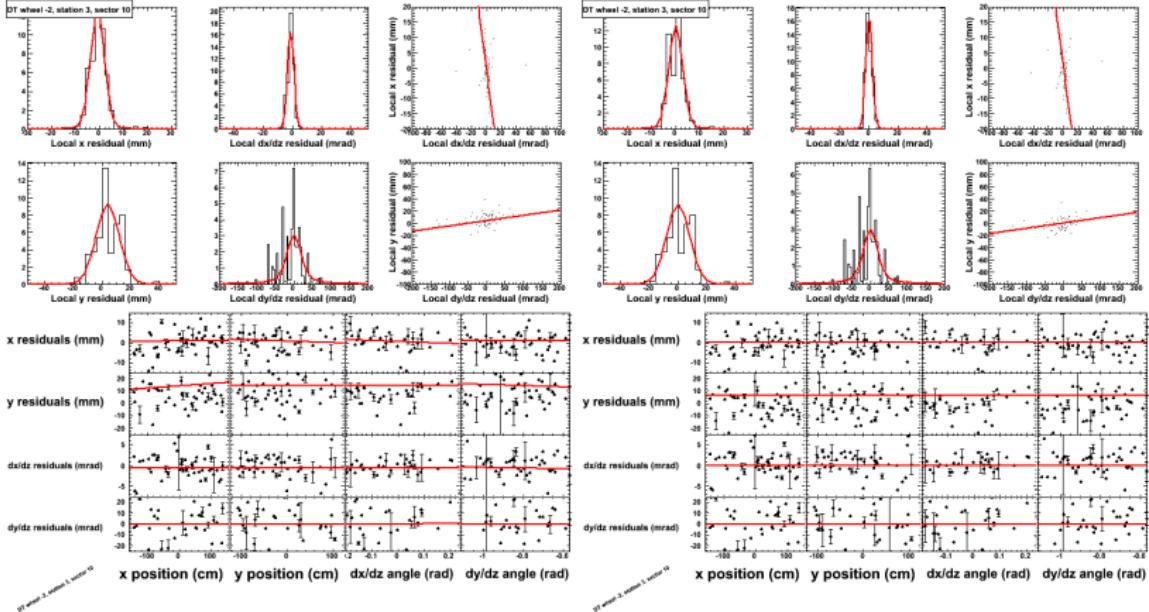


Fit functions

Jim Pivarski 248/24

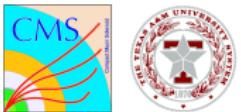


before (left) and after (right) track-based alignment

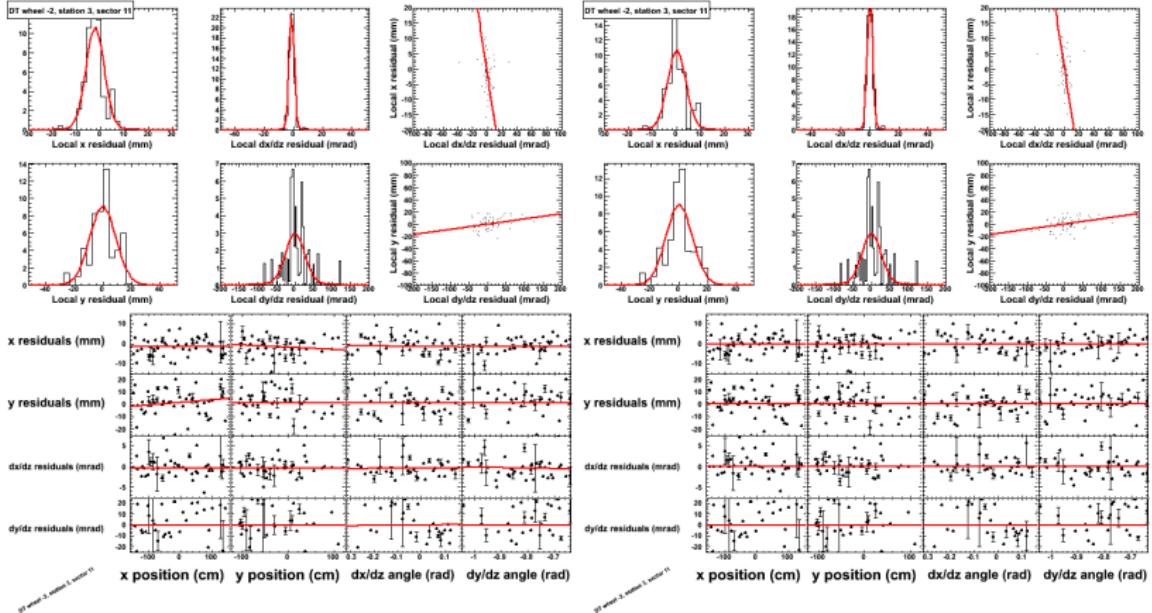


Fit functions

Jim Pivarski 249/24



before (left) and after (right) track-based alignment

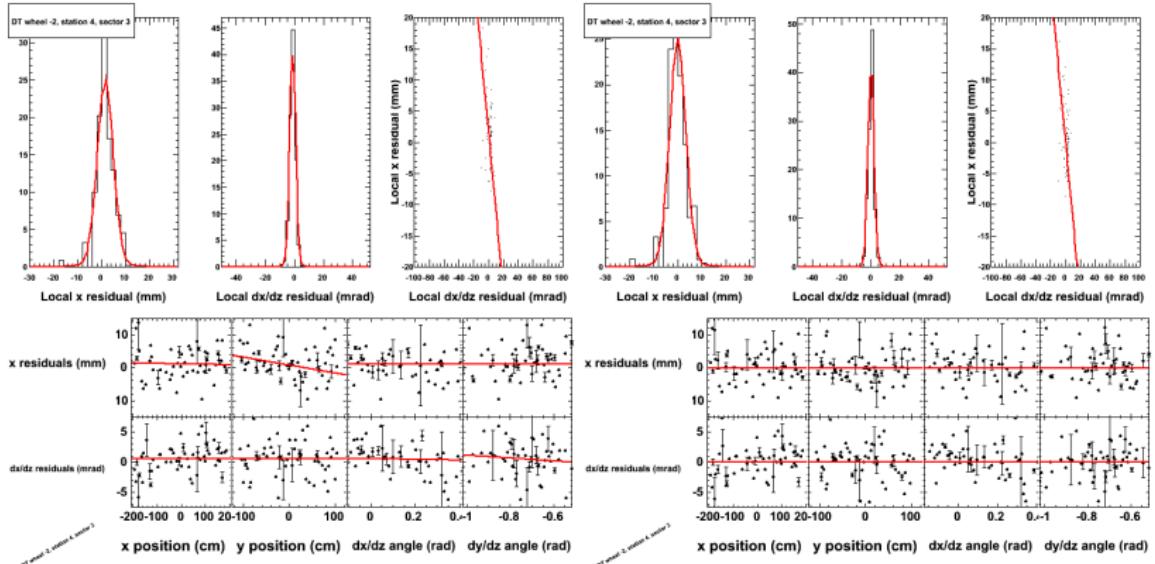


Fit functions

Jim Pivarski 250/24



before (left) and after (right) track-based alignment

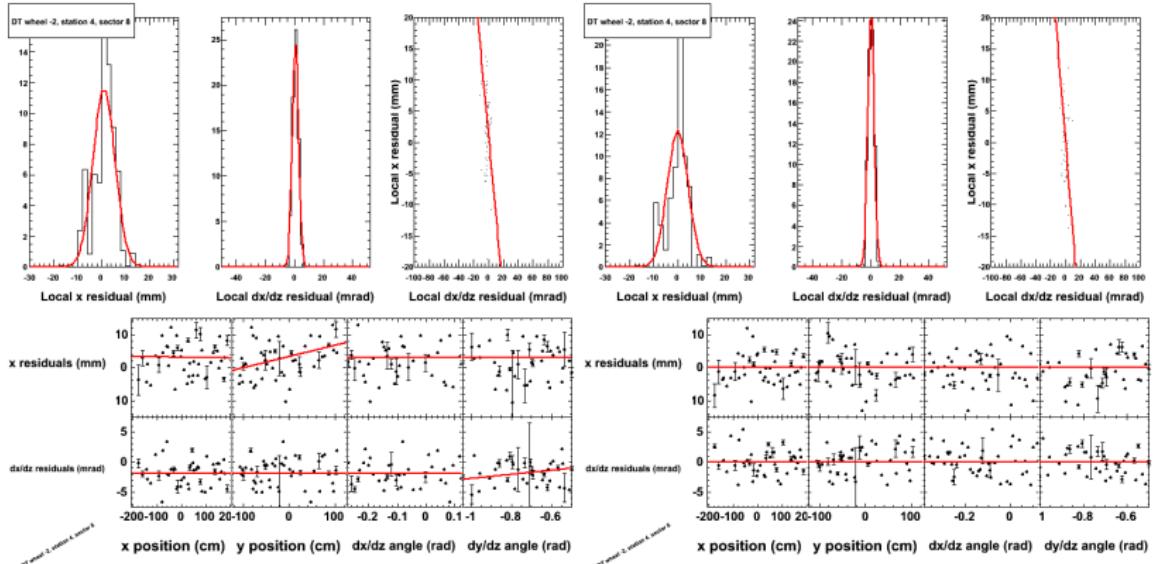


Fit functions

Jim Pivarski 251/24



before (left) and after (right) track-based alignment

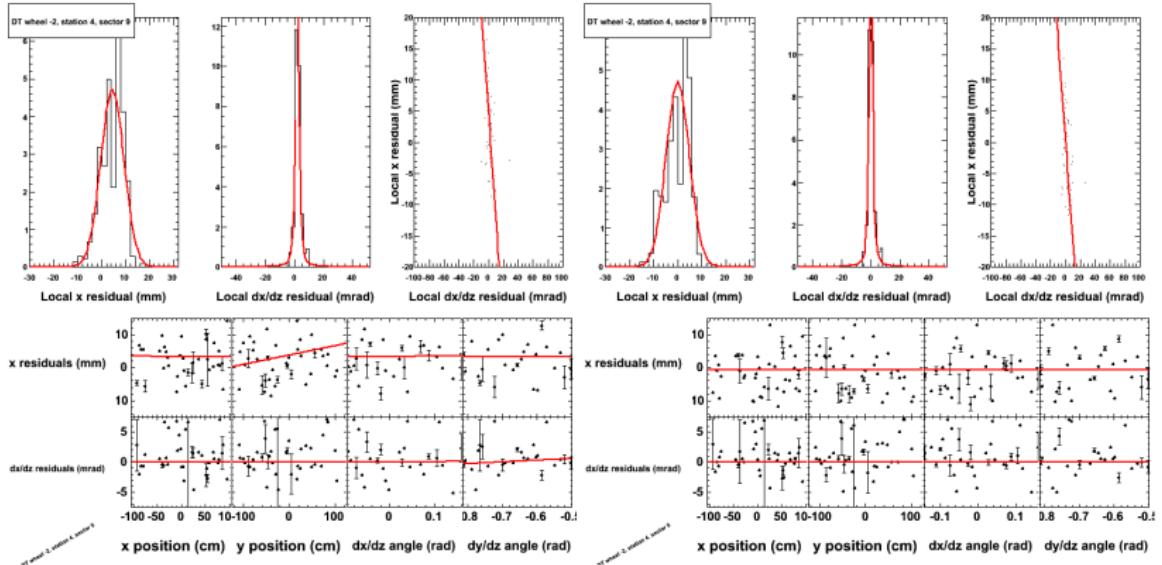


Fit functions

Jim Pivarski 252/24



before (left) and after (right) track-based alignment

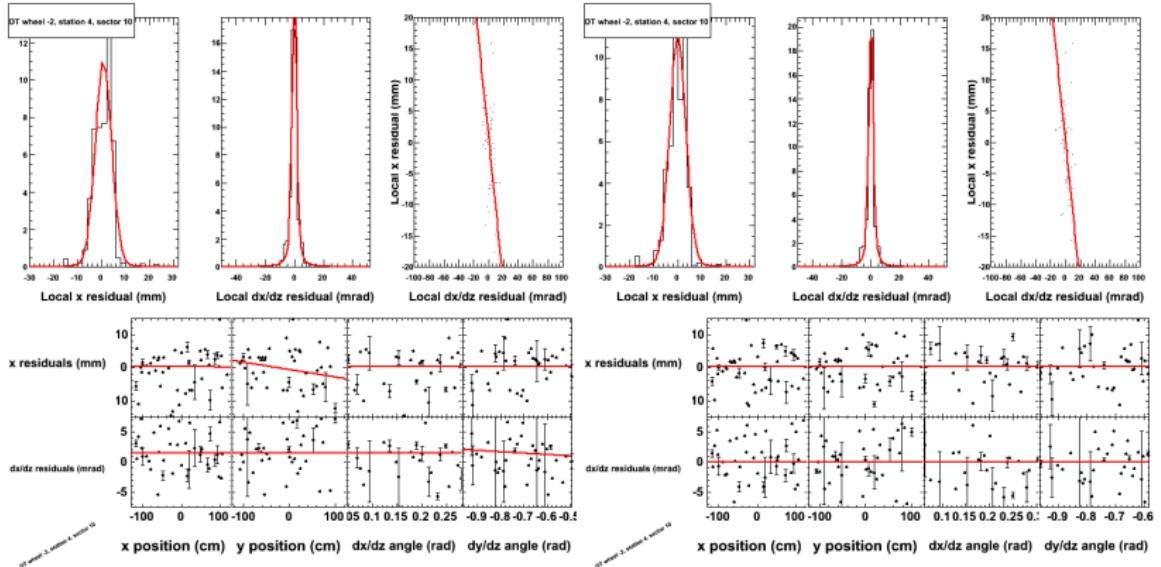


Fit functions

Jim Pivarski 253/24



before (left) and after (right) track-based alignment

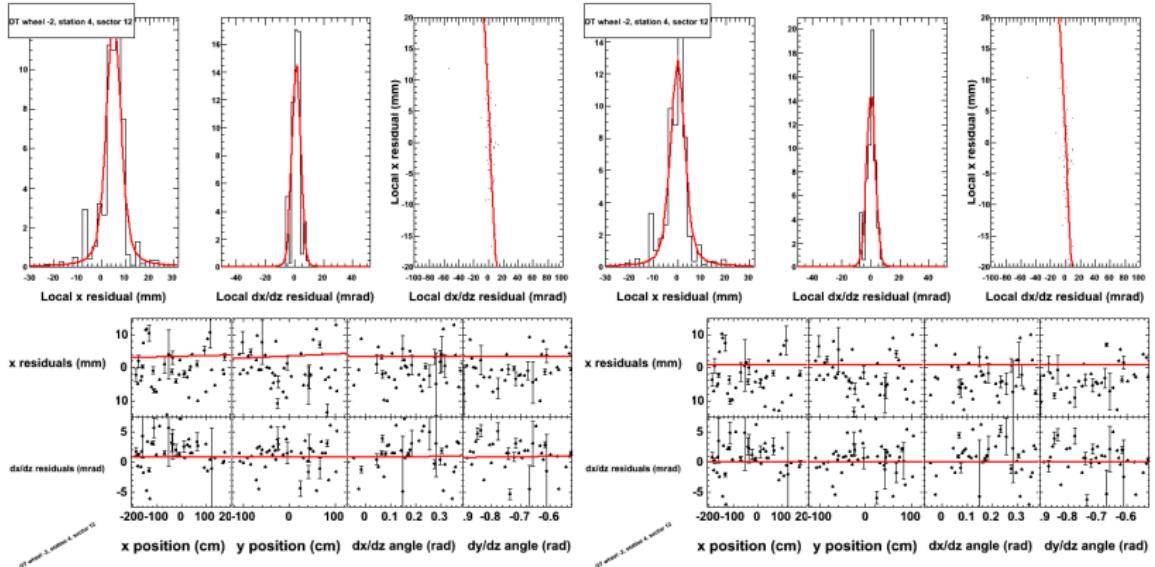


Fit functions

Jim Pivarski 254/24



before (left) and after (right) track-based alignment

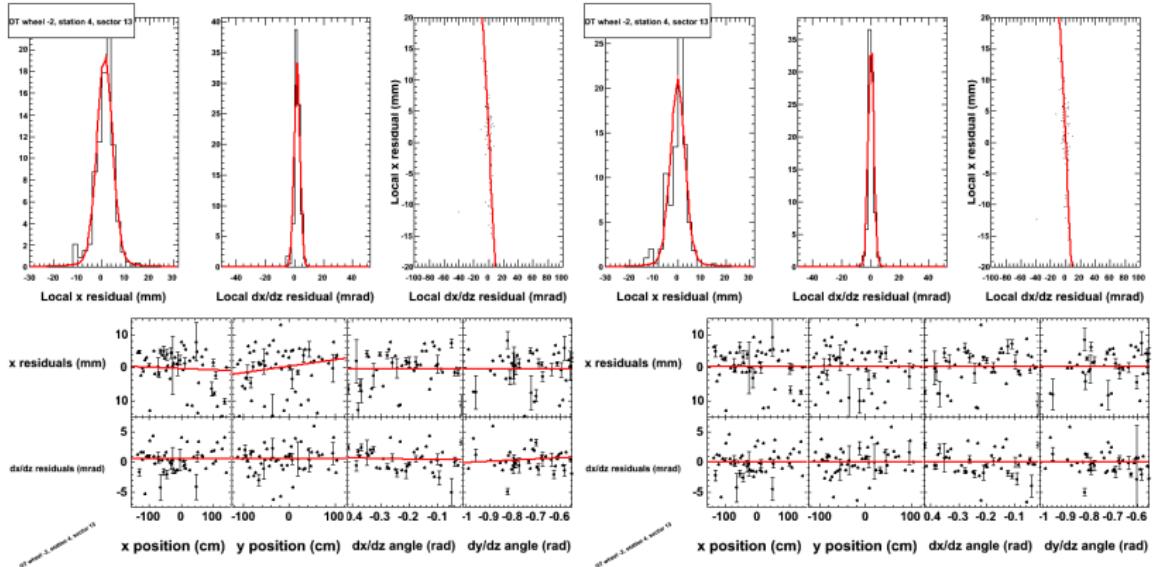


Fit functions

Jim Pivarski 255/24



before (left) and after (right) track-based alignment

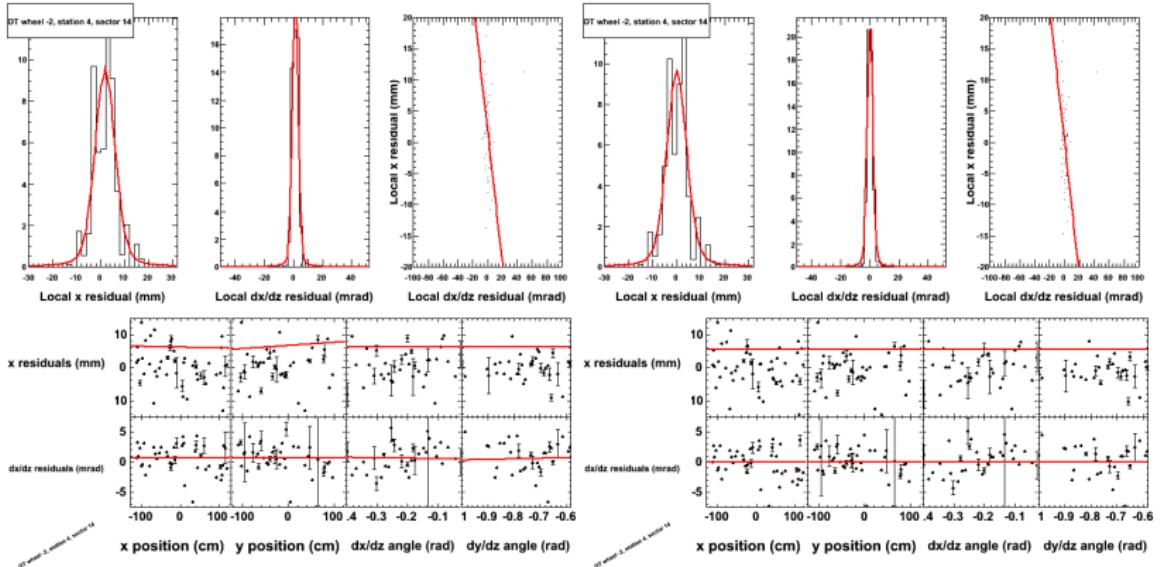


Fit functions

Jim Pivarski 256/24



before (left) and after (right) track-based alignment

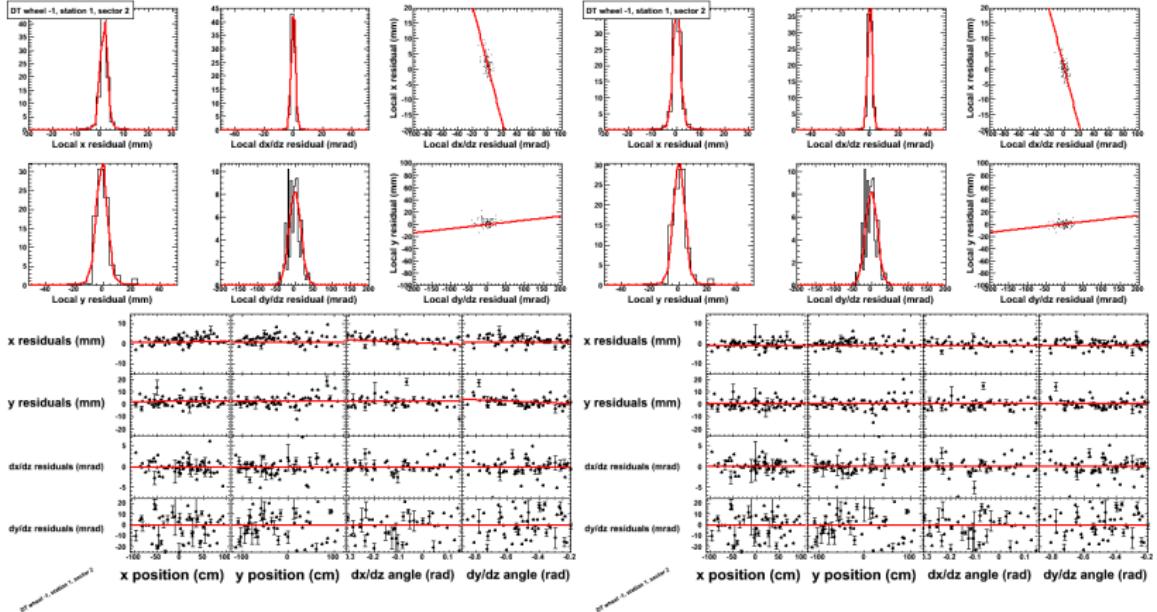


Fit functions

Jim Pivarski 257/24



before (left) and after (right) track-based alignment

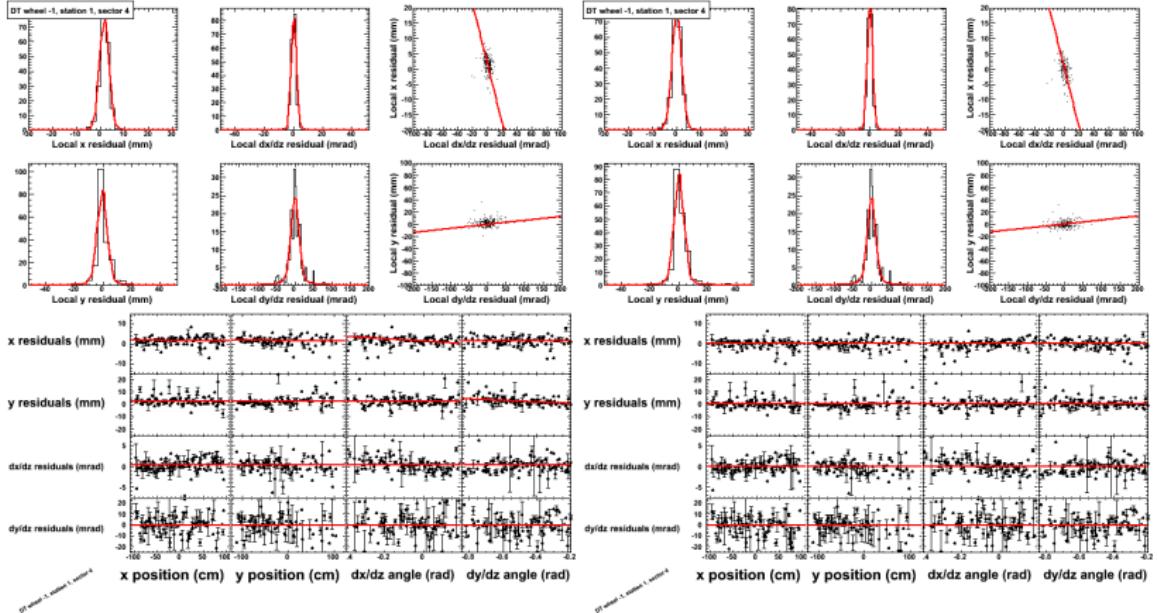


Fit functions

Jim Pivarski 258/24



before (left) and after (right) track-based alignment

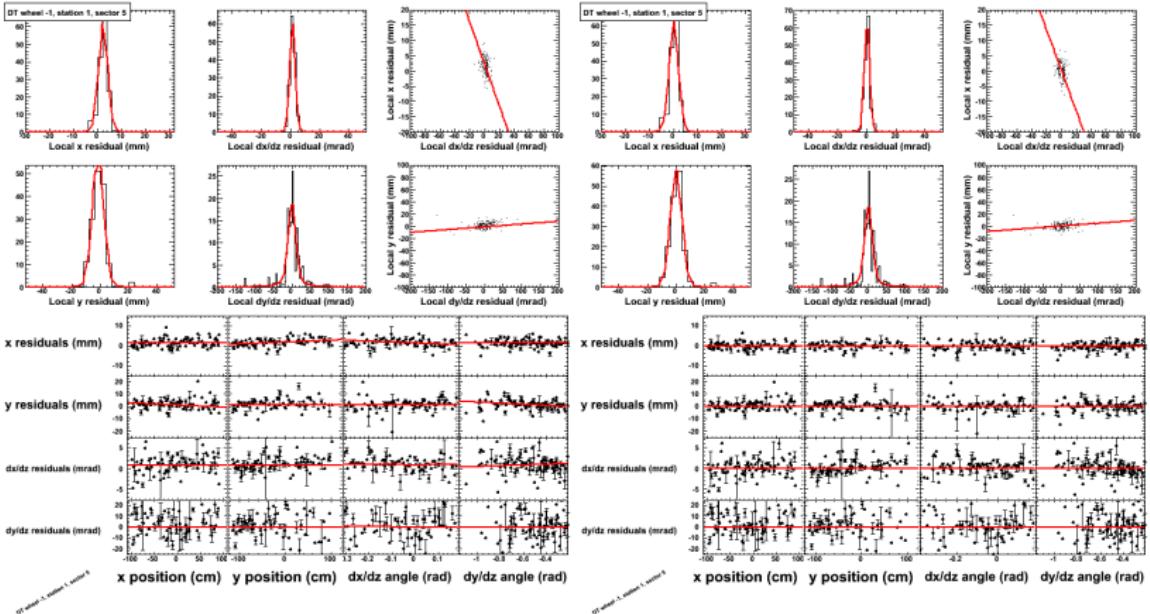


Fit functions

Jim Pivarski 259/24



before (left) and after (right) track-based alignment

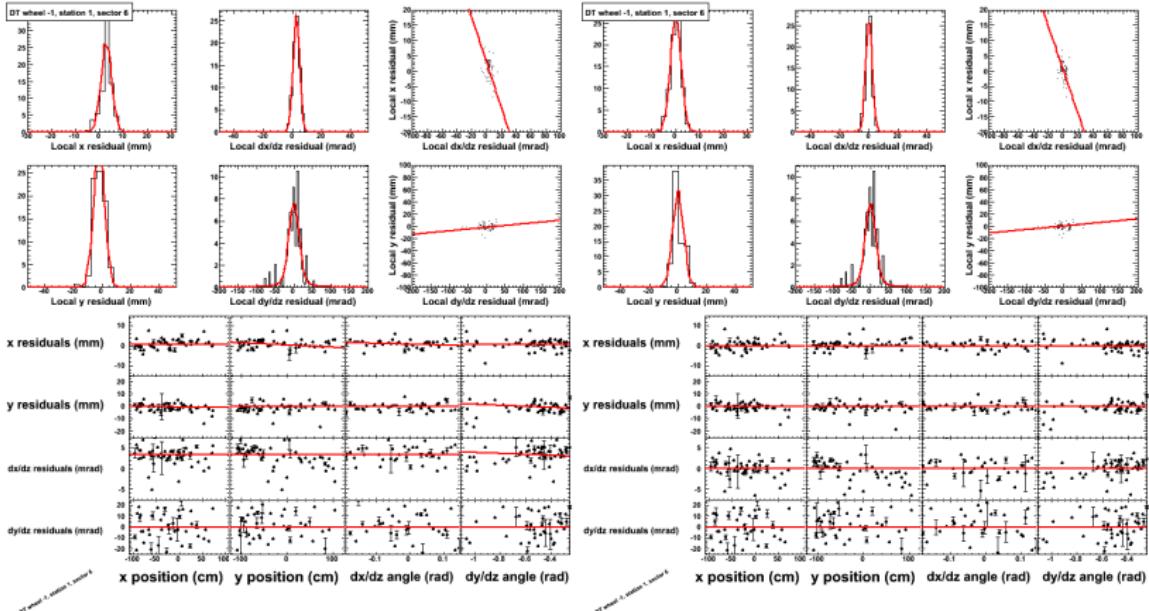


Fit functions

Jim Pivarski 260/24



before (left) and after (right) track-based alignment

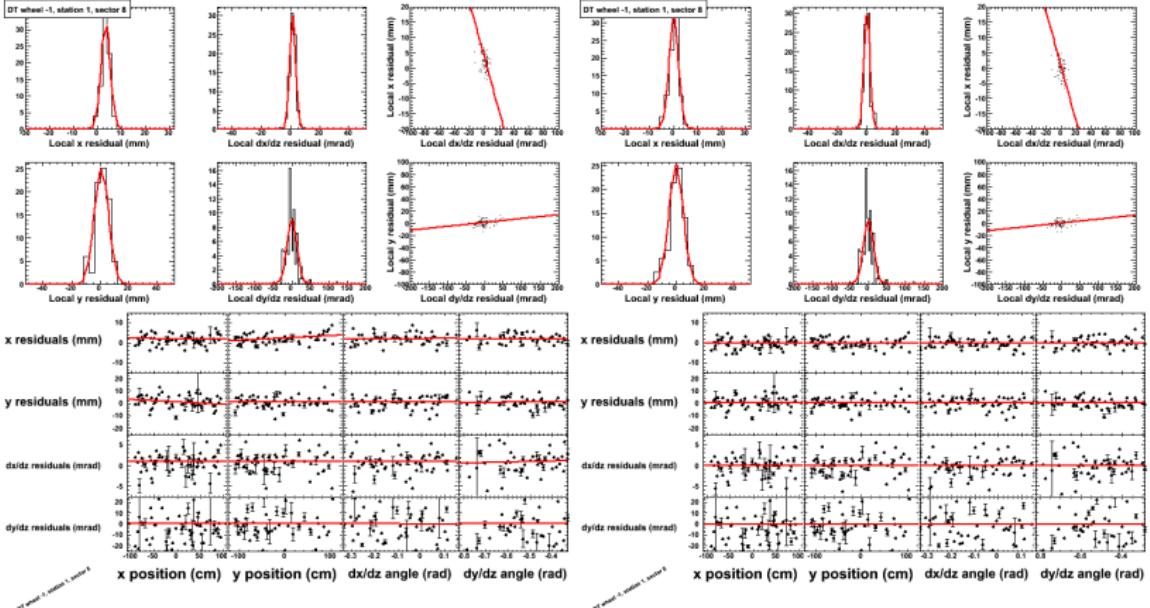


Fit functions

Jim Pivarski 261/24

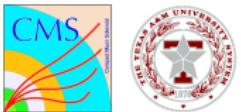


before (left) and after (right) track-based alignment

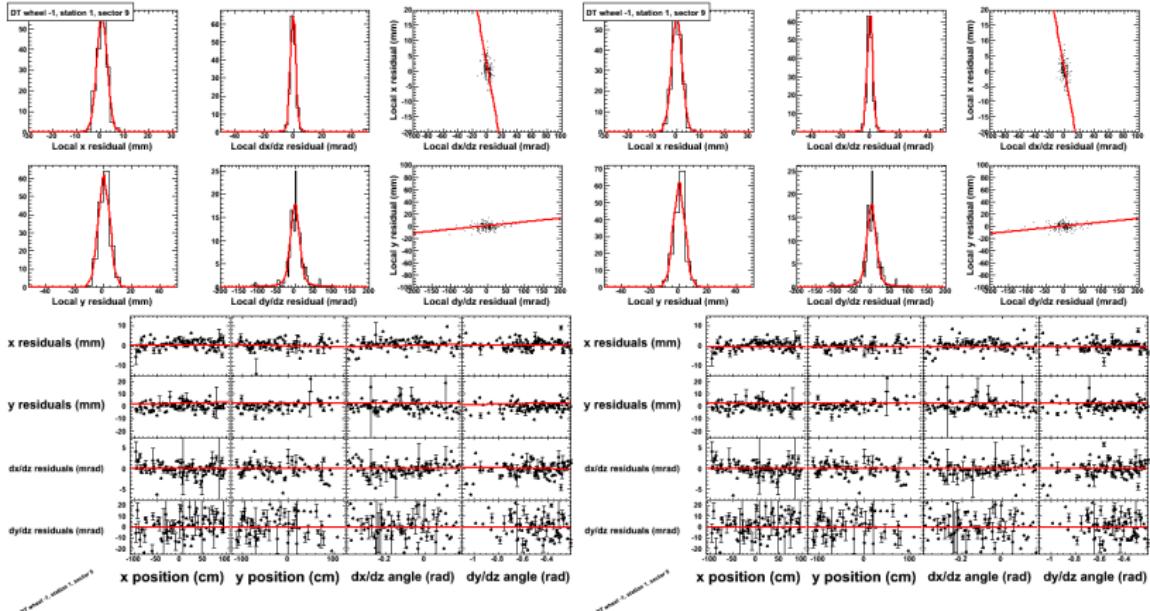


Fit functions

Jim Pivarski 262/24



before (left) and after (right) track-based alignment

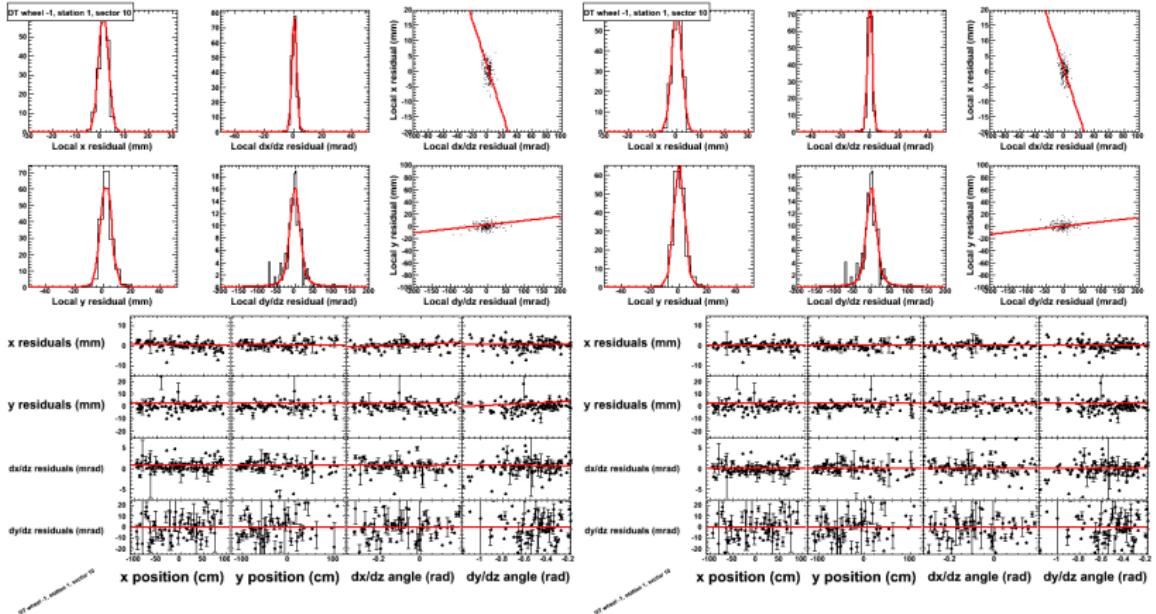


Fit functions

Jim Pivarski 263/24



before (left) and after (right) track-based alignment

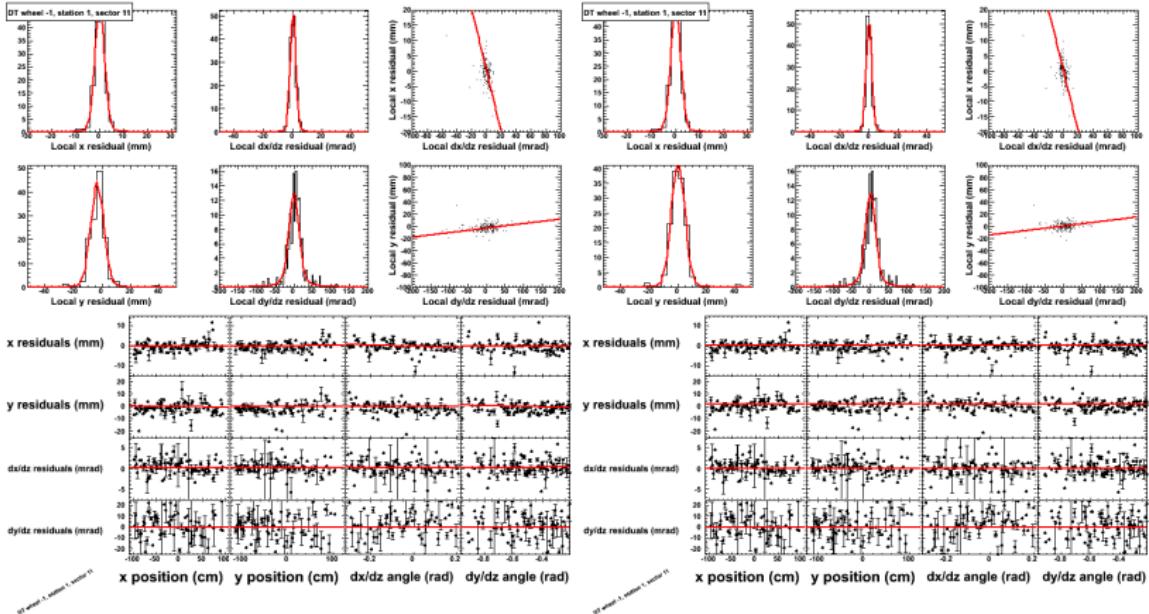


Fit functions

Jim Pivarski 264/24



before (left) and after (right) track-based alignment

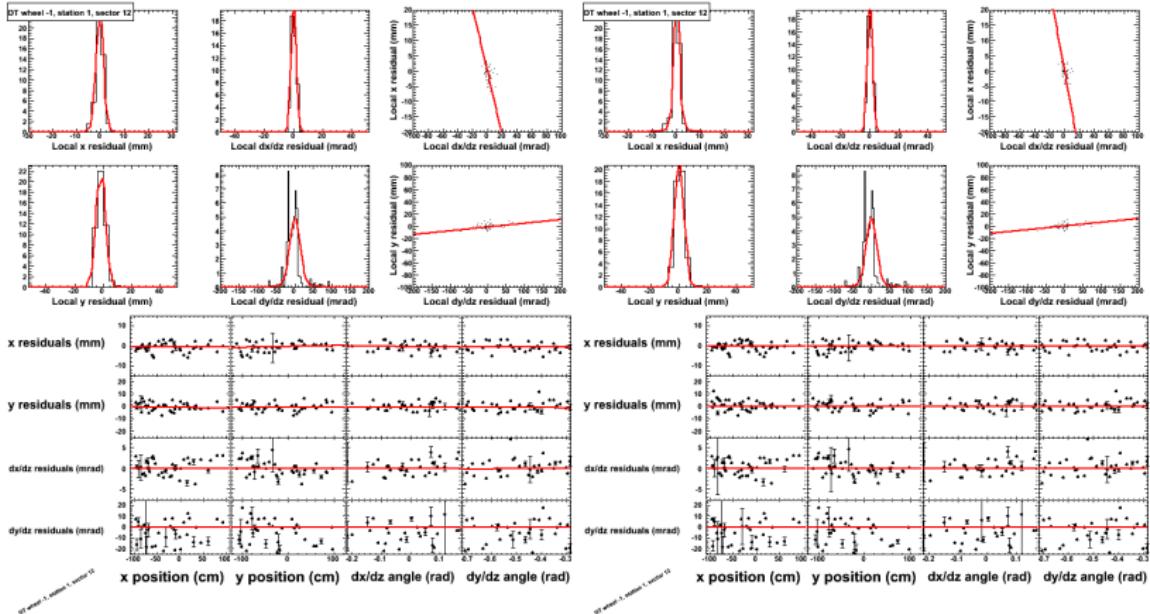


Fit functions

Jim Pivarski 265/24



before (left) and after (right) track-based alignment

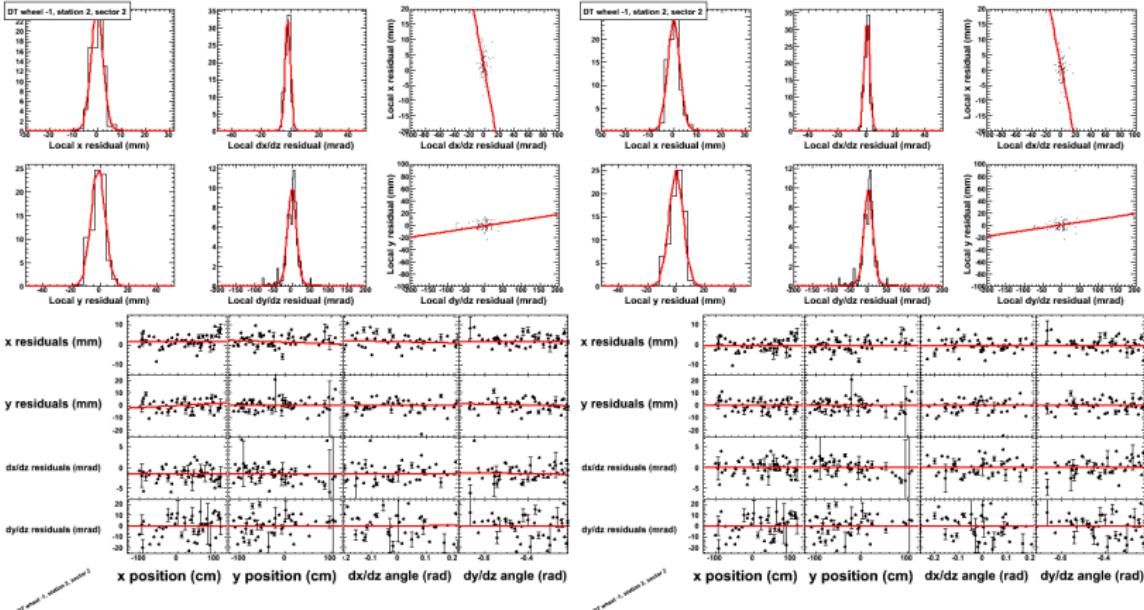


Fit functions

Jim Pivarski 266/24



before (left) and after (right) track-based alignment

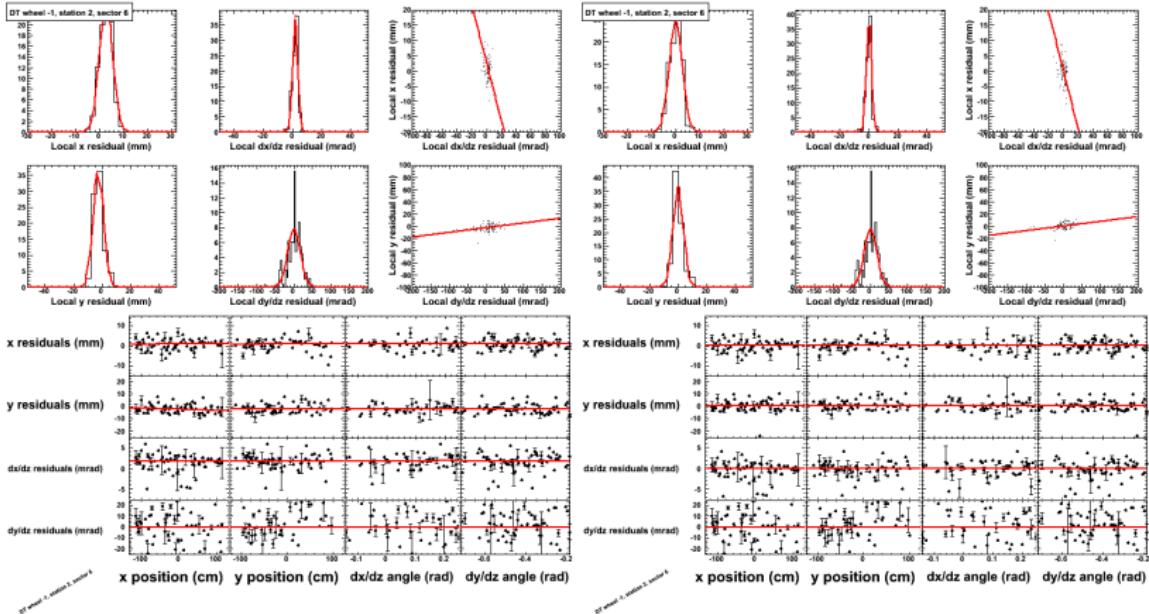


Fit functions

Jim Pivarski 267/24

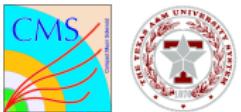


before (left) and after (right) track-based alignment

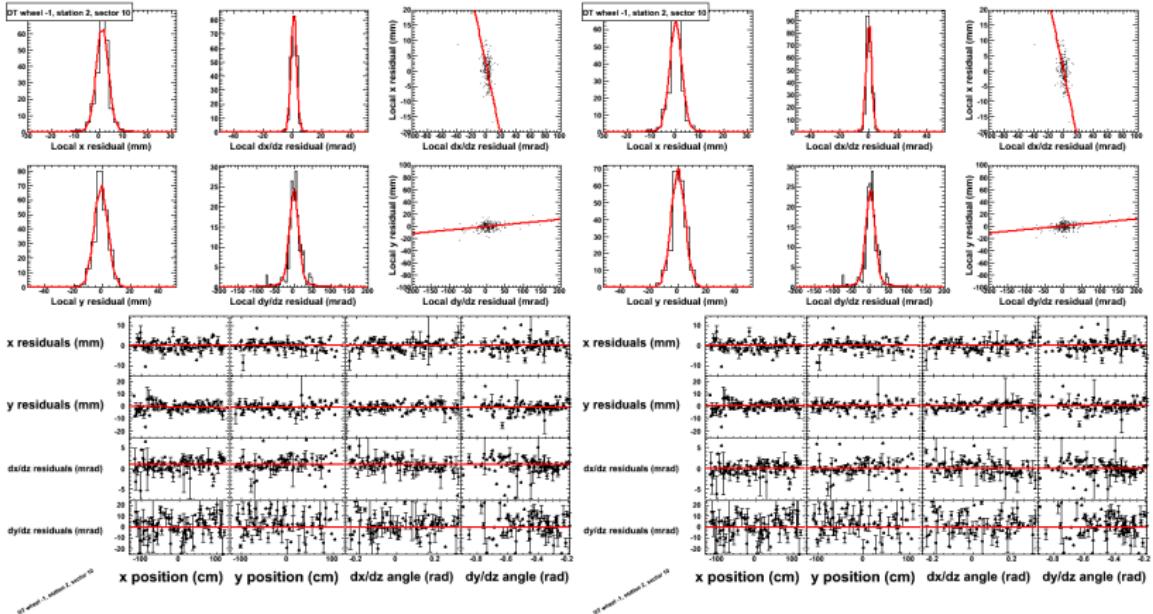


Fit functions

Jim Pivarski 268/24

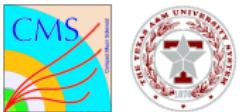


before (left) and after (right) track-based alignment

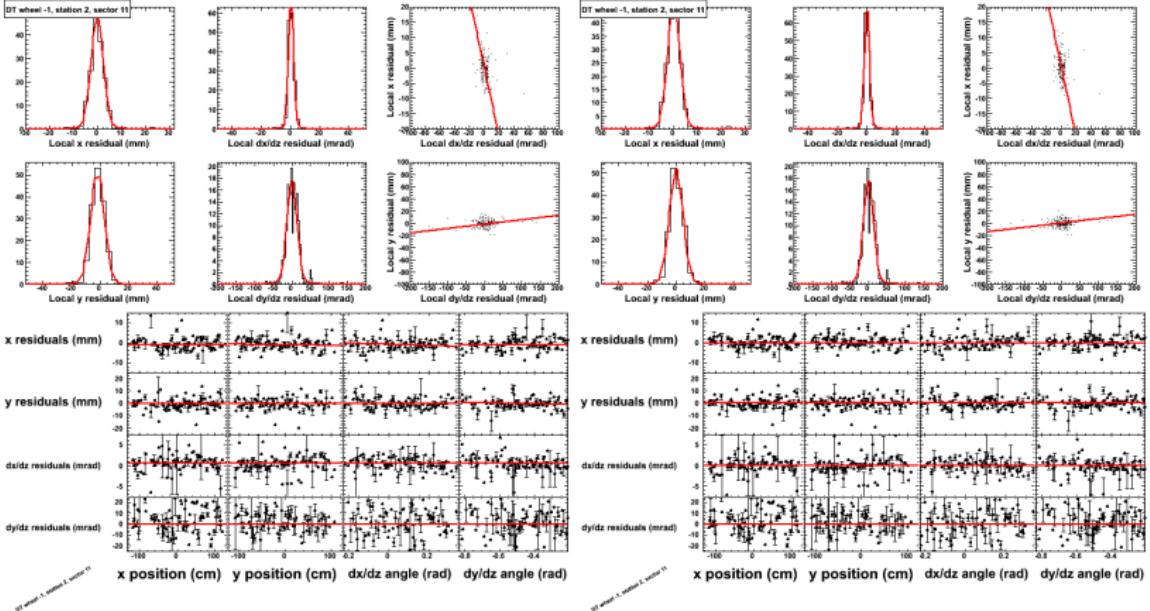


Fit functions

Jim Pivarski 269/24



before (left) and after (right) track-based alignment

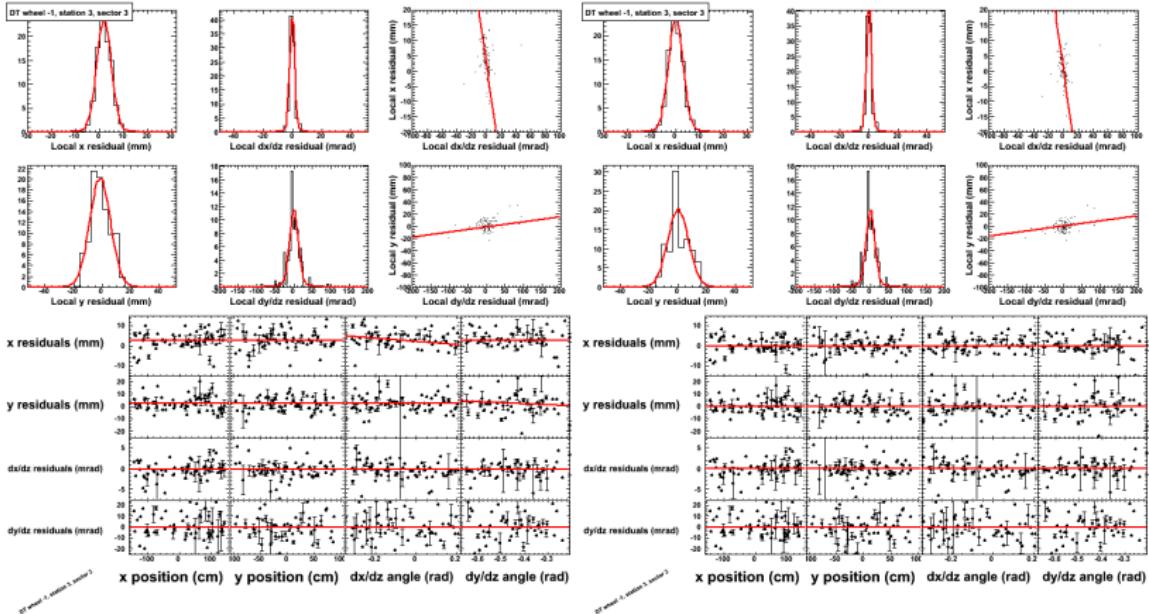


Fit functions

Jim Pivarski 270/24

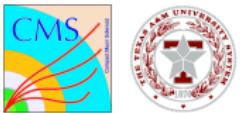


before (left) and after (right) track-based alignment

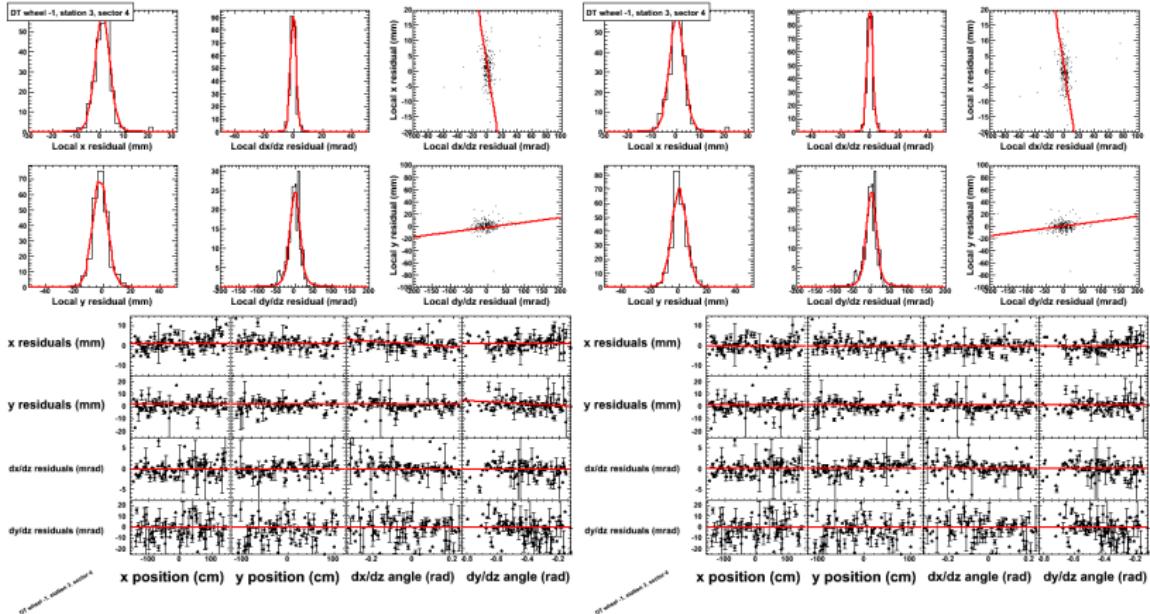


Fit functions

Jim Pivarski 271/24



before (left) and after (right) track-based alignment

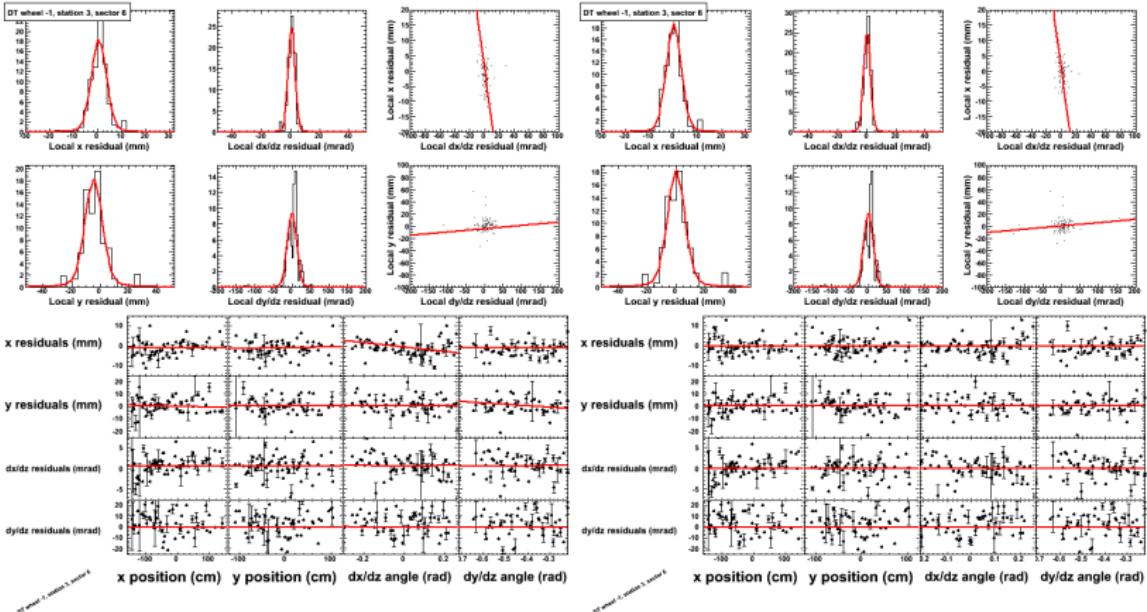


Fit functions

Jim Pivarski 272/24

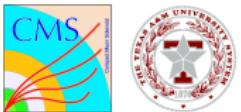


before (left) and after (right) track-based alignment

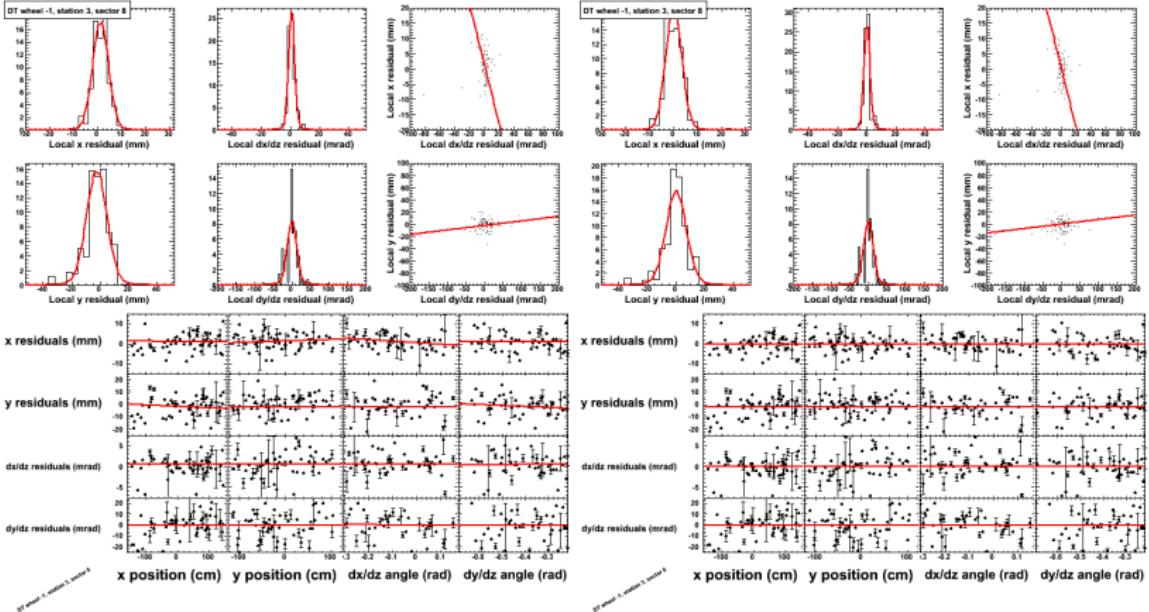


Fit functions

Jim Pivarski 273/24



before (left) and after (right) track-based alignment

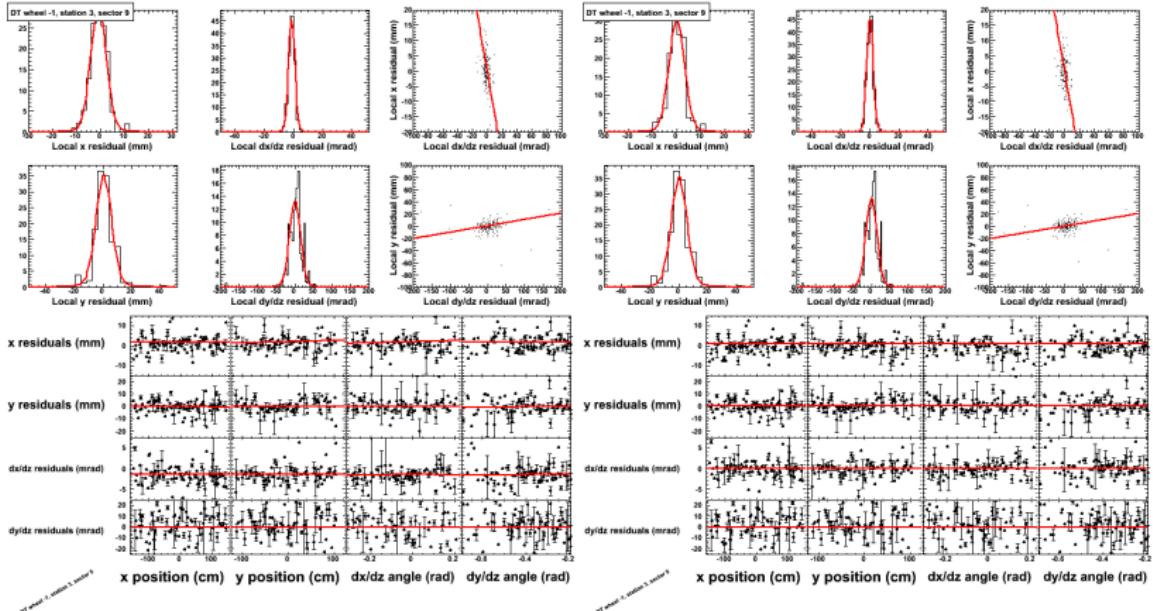


Fit functions

Jim Pivarski 274/24



before (left) and after (right) track-based alignment

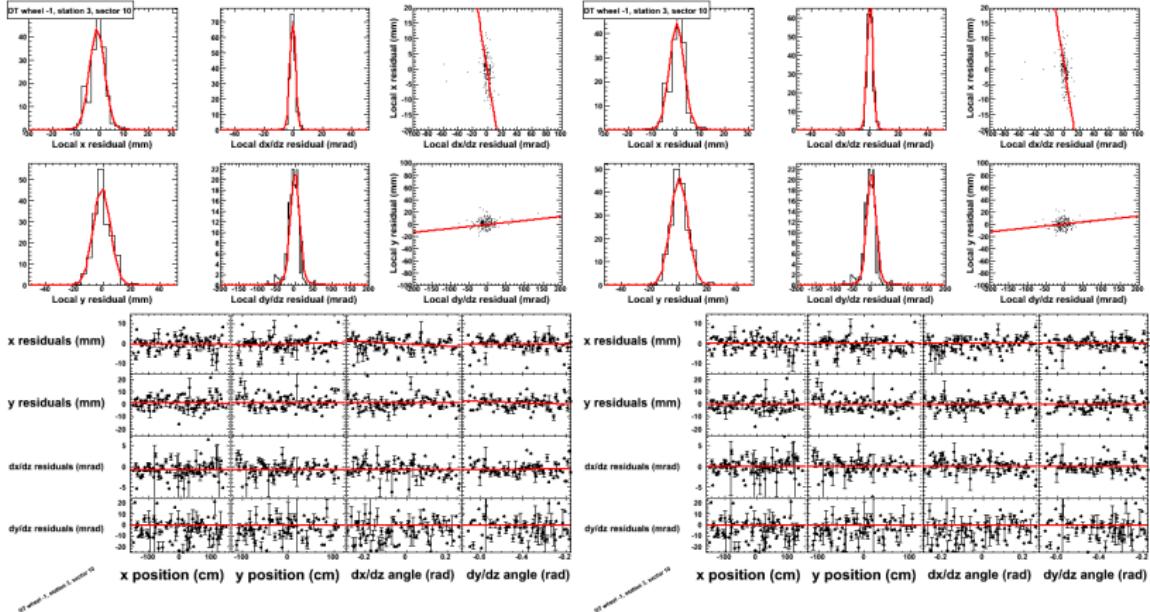


Fit functions

Jim Pivarski 275/24



before (left) and after (right) track-based alignment

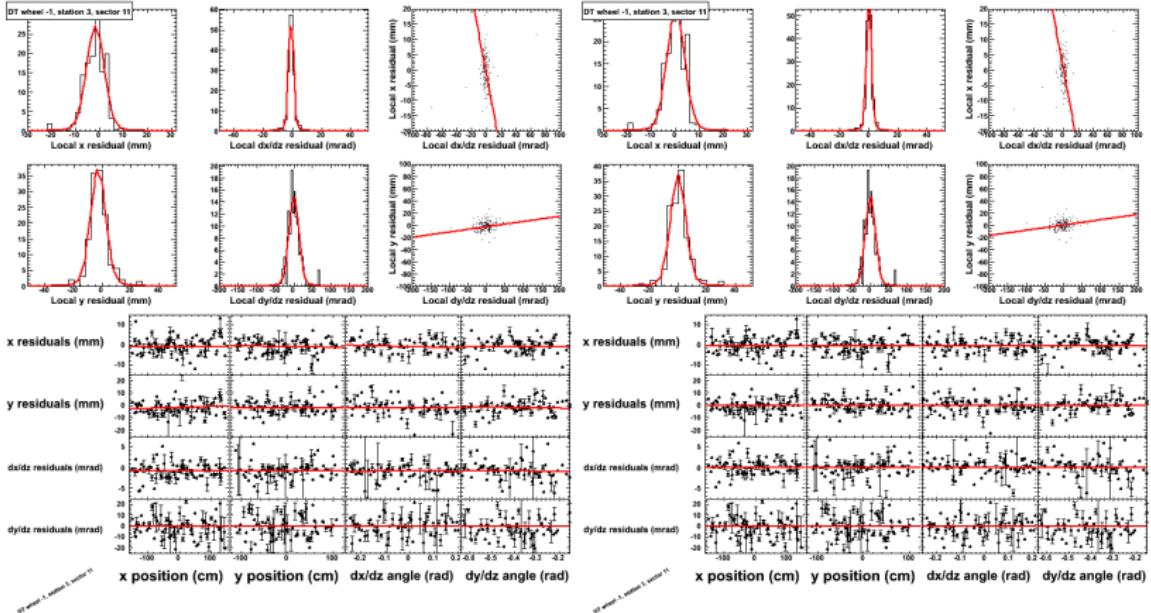


Fit functions

Jim Pivarski 276/24



before (left) and after (right) track-based alignment

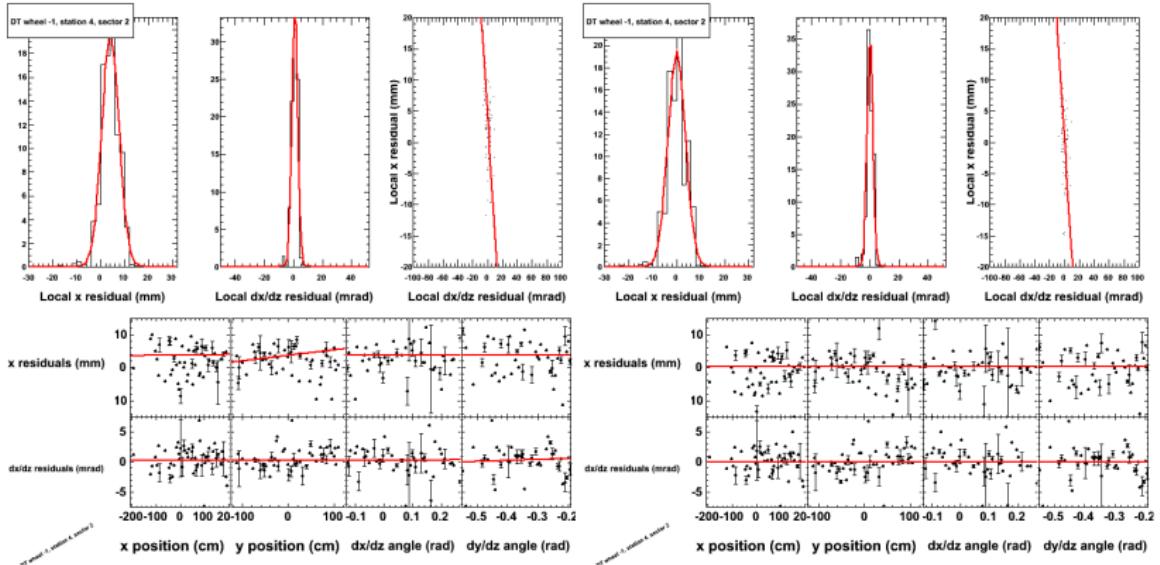


Fit functions

Jim Pivarski 277/24



before (left) and after (right) track-based alignment

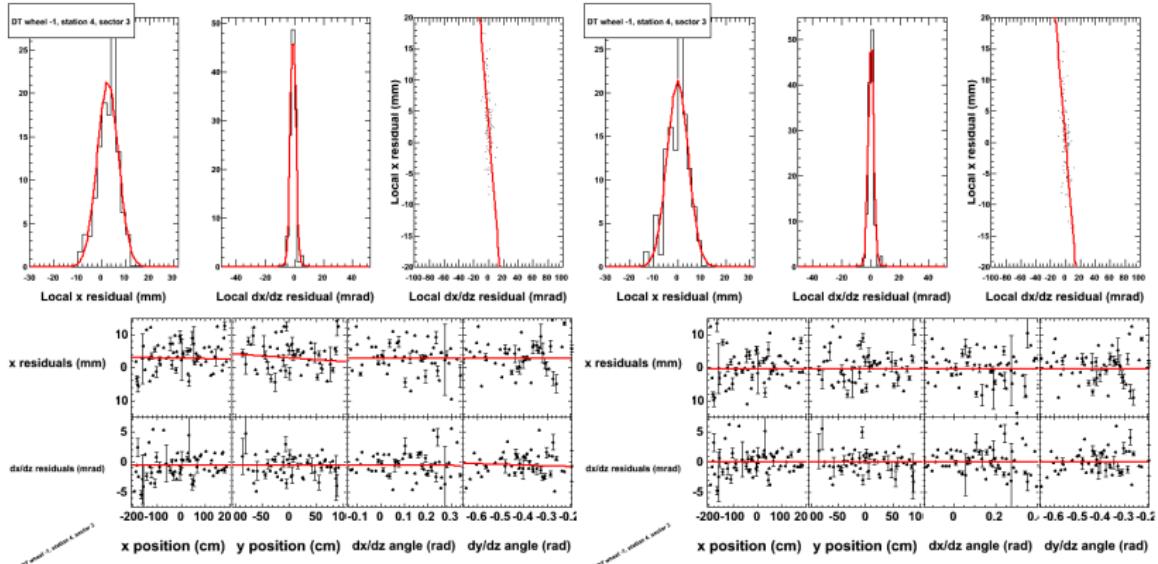


Fit functions

Jim Pivarski 278/24



before (left) and after (right) track-based alignment

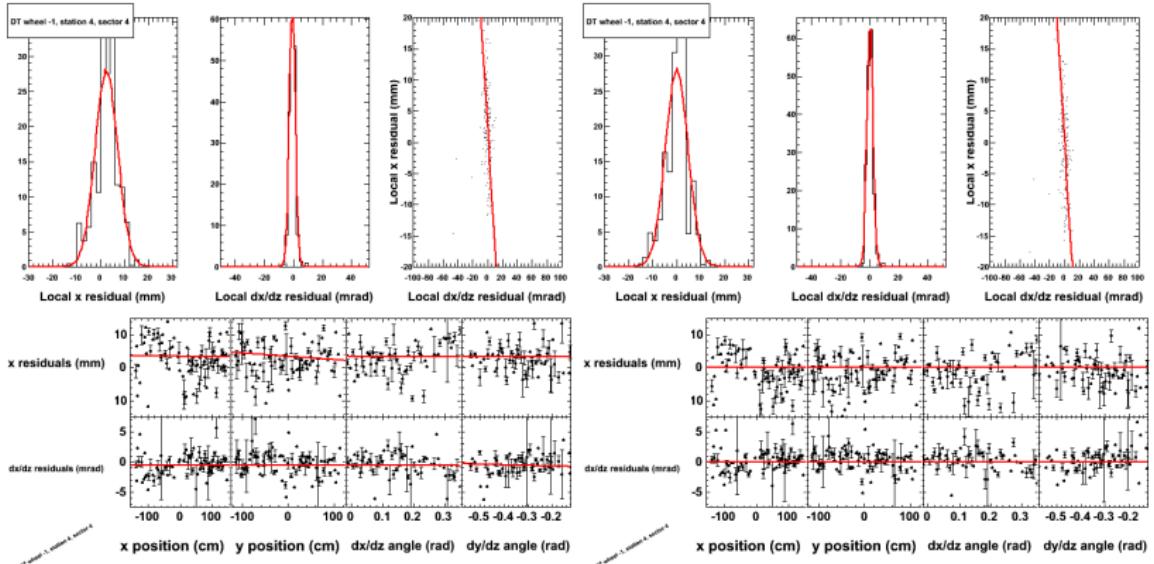


Fit functions

Jim Pivarski 279/24



before (left) and after (right) track-based alignment

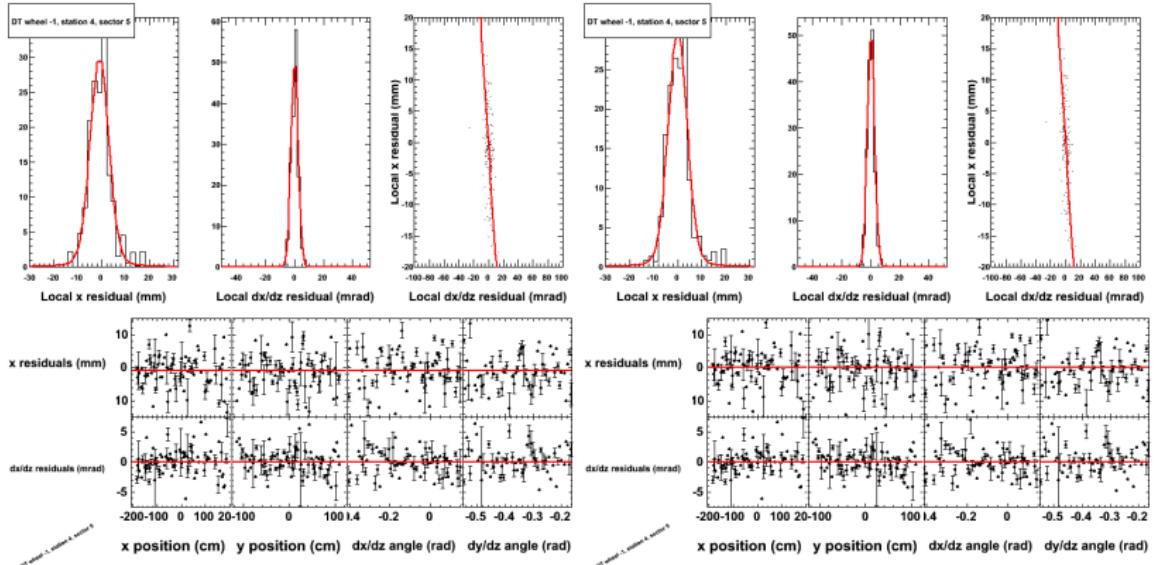


Fit functions

Jim Pivarski 280/24



before (left) and after (right) track-based alignment

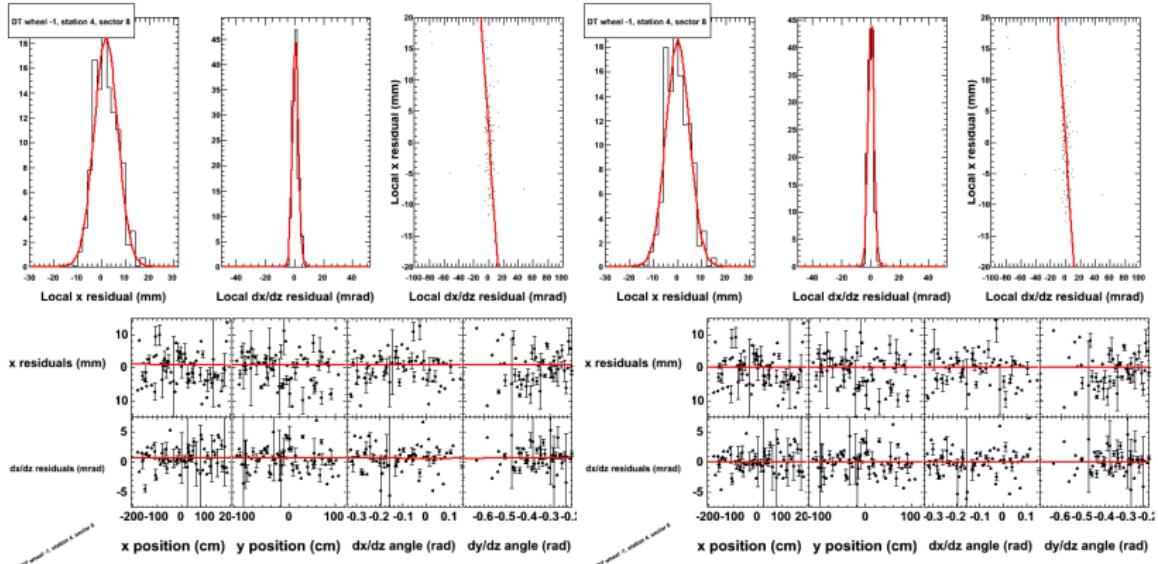


Fit functions

Jim Pivarski 281/24



before (left) and after (right) track-based alignment

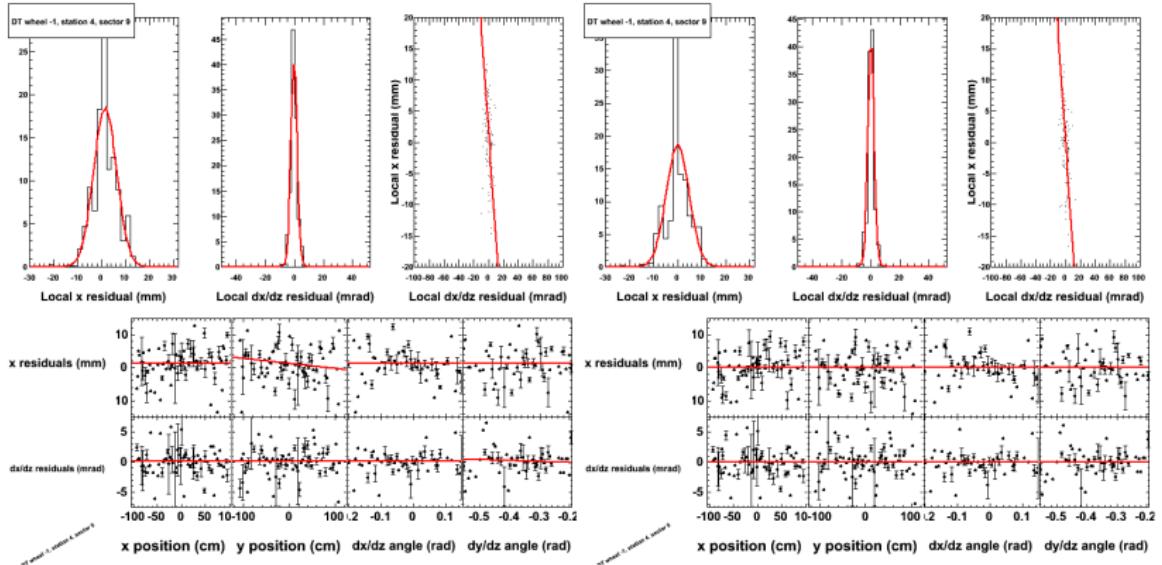


Fit functions

Jim Pivarski 282/24



before (left) and after (right) track-based alignment

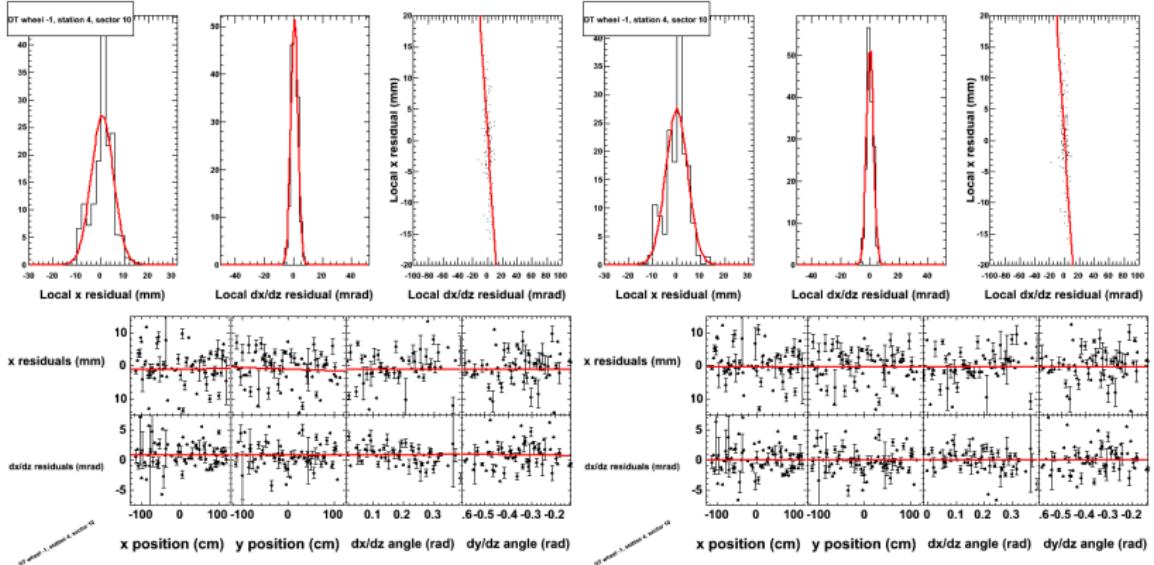


Fit functions

Jim Pivarski 283/24



before (left) and after (right) track-based alignment

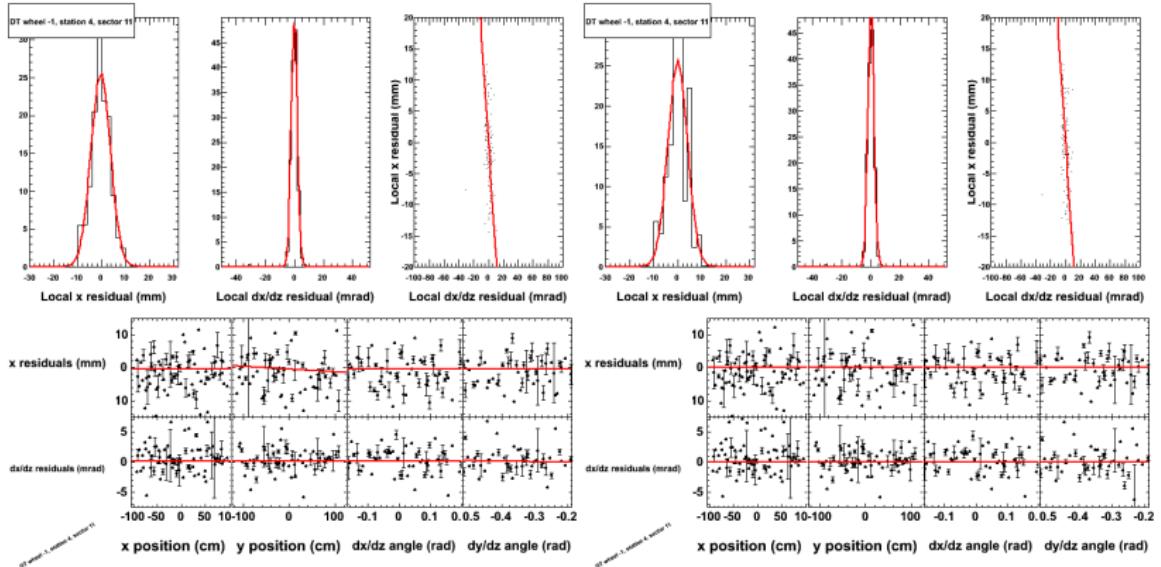


Fit functions

Jim Pivarski 284/24



before (left) and after (right) track-based alignment

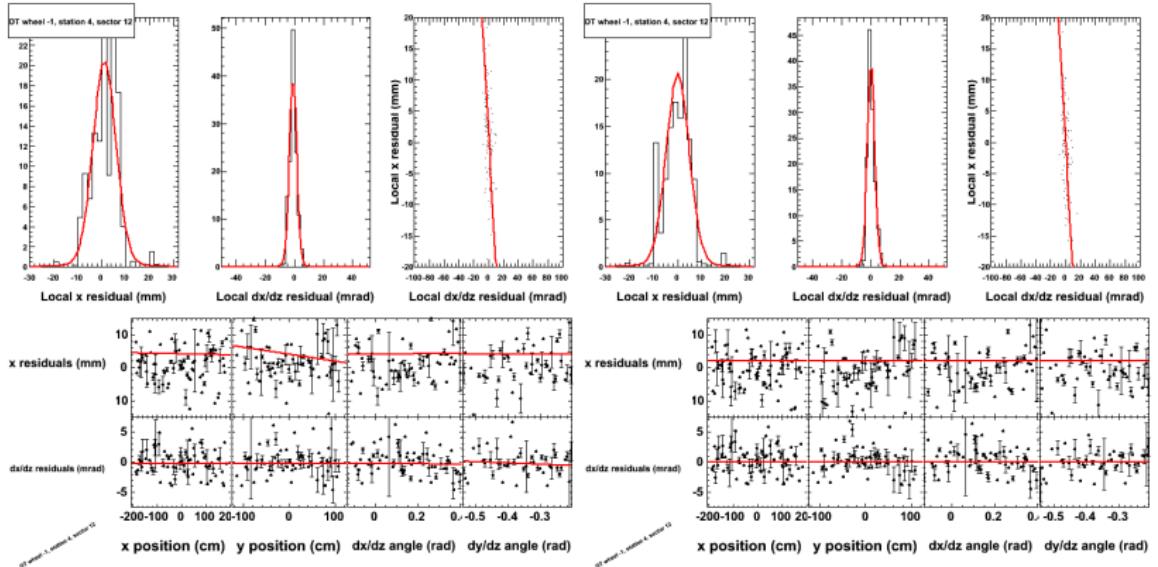


Fit functions

Jim Pivarski 285/24



before (left) and after (right) track-based alignment

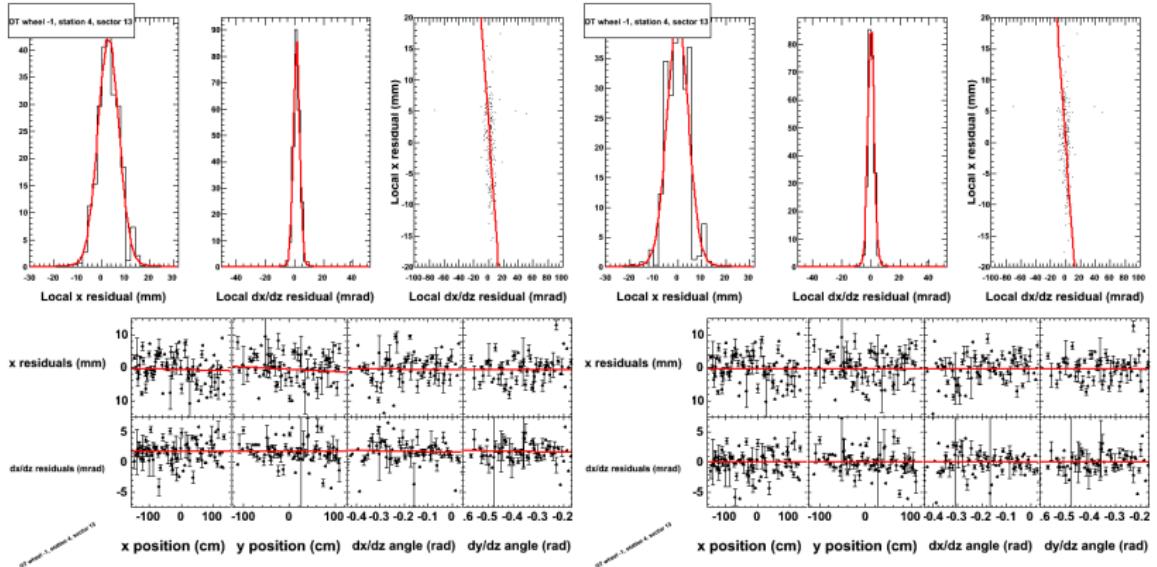


Fit functions

Jim Pivarski 286/24



before (left) and after (right) track-based alignment

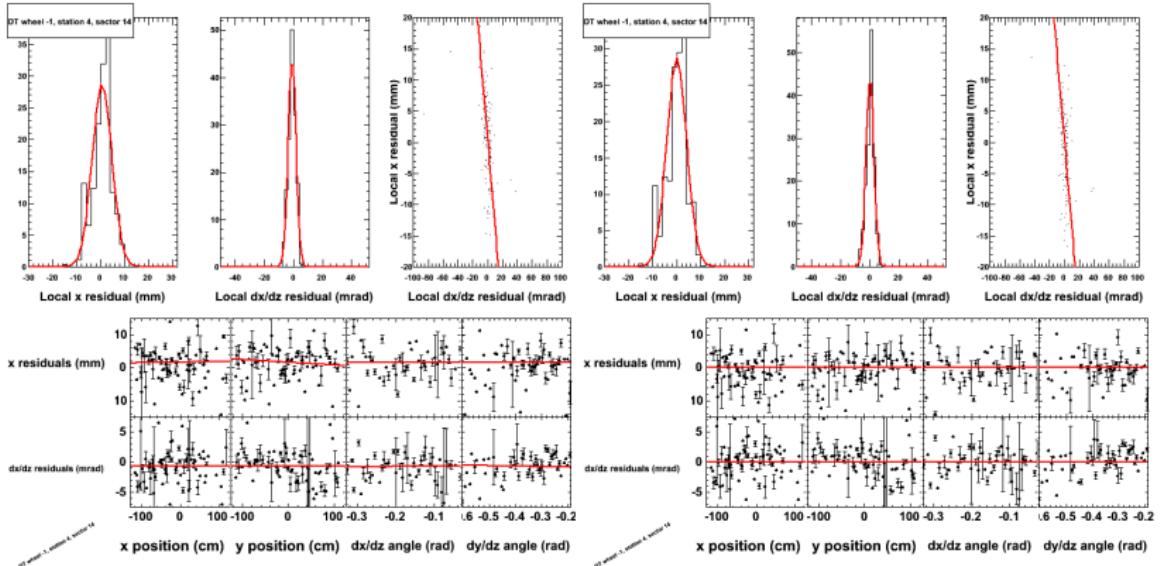


Fit functions

Jim Pivarski 287/24



before (left) and after (right) track-based alignment

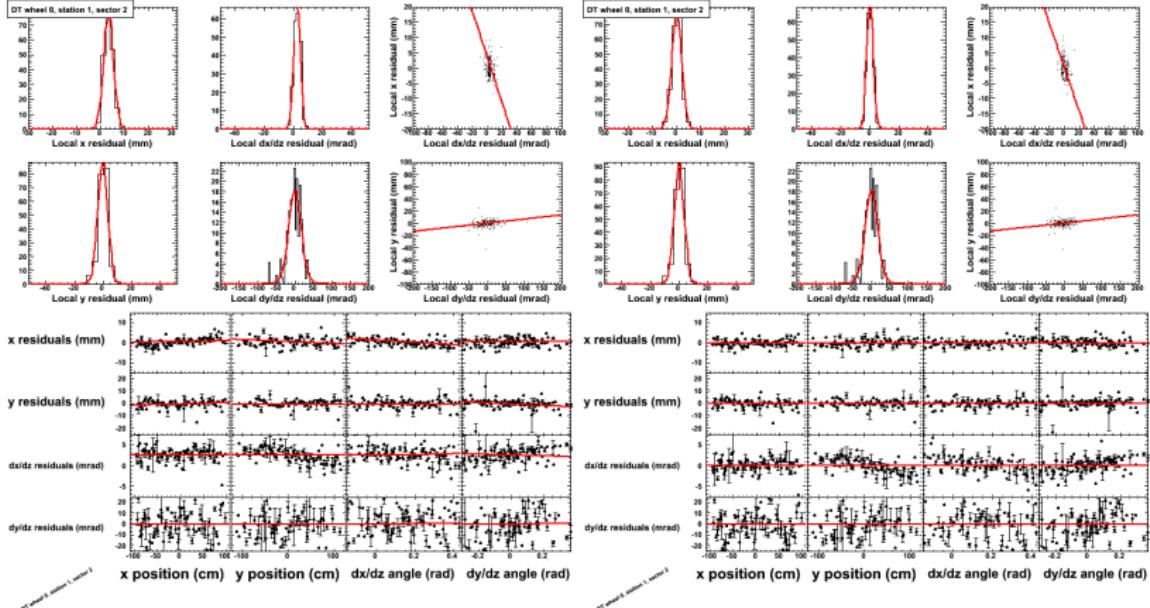


Fit functions

Jim Pivarski 288/24



before (left) and after (right) track-based alignment

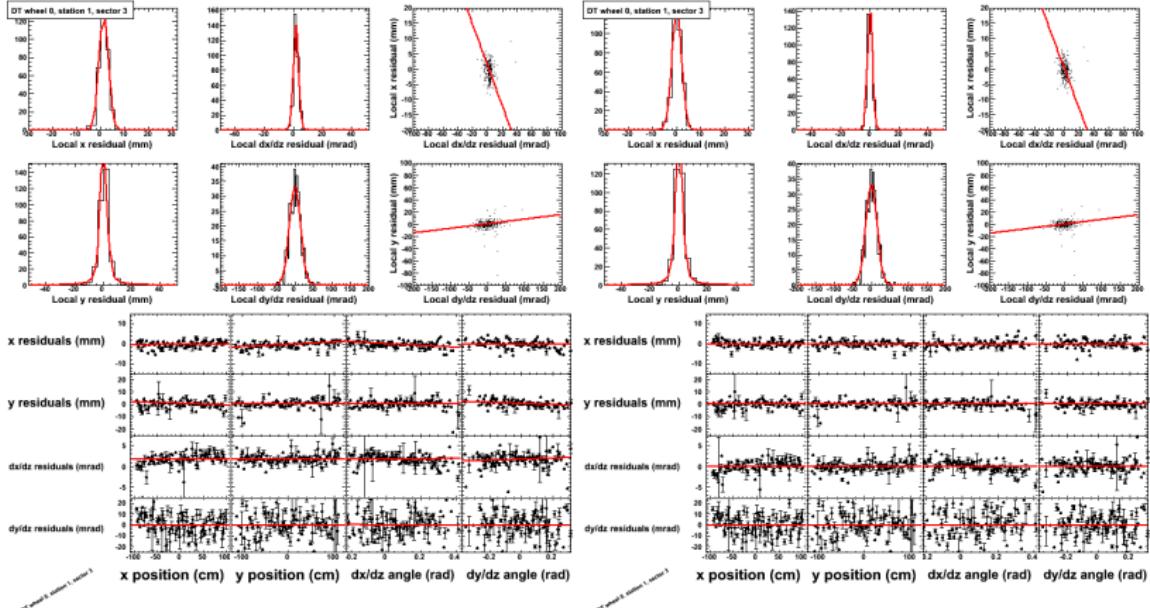


Fit functions

Jim Pivarski 289/24



before (left) and after (right) track-based alignment

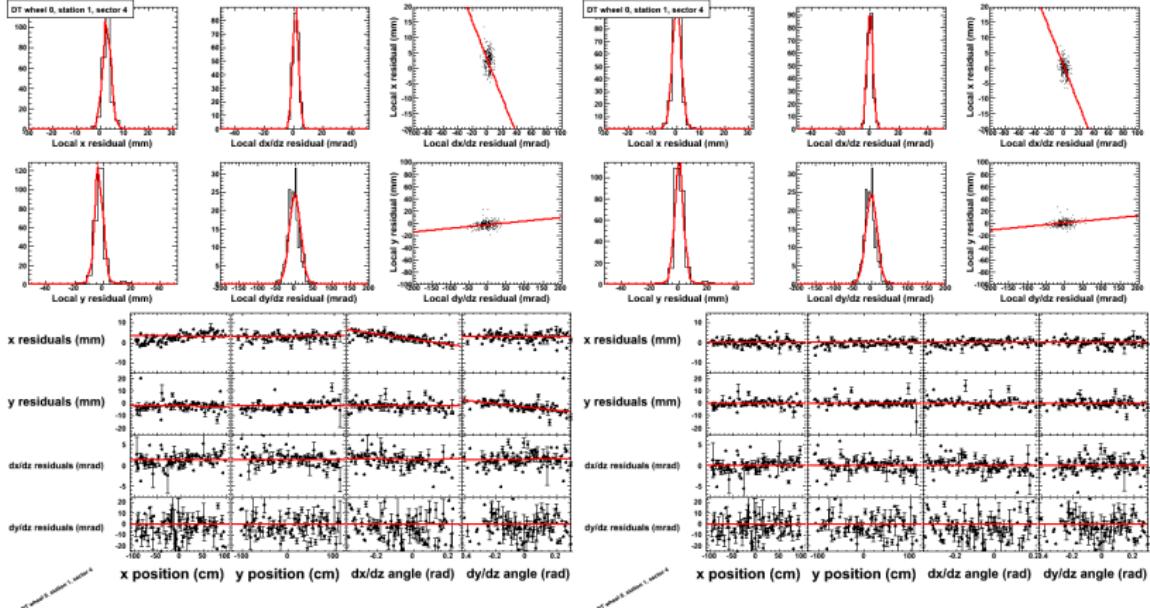


Fit functions

Jim Pivarski 290/24



before (left) and after (right) track-based alignment

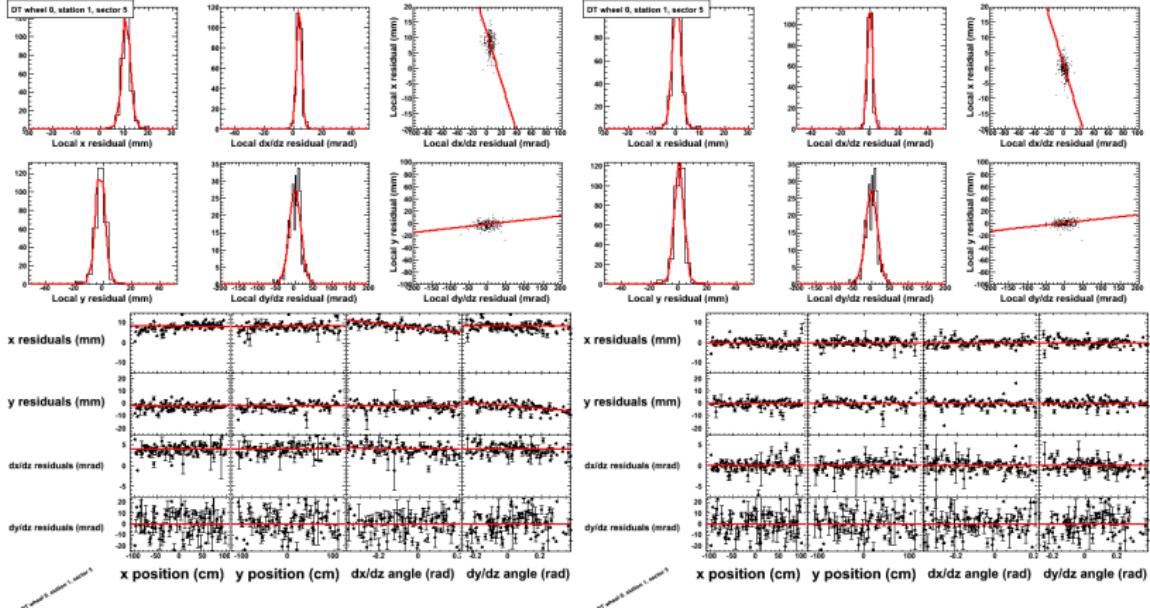


Fit functions

Jim Pivarski 291/24



before (left) and after (right) track-based alignment

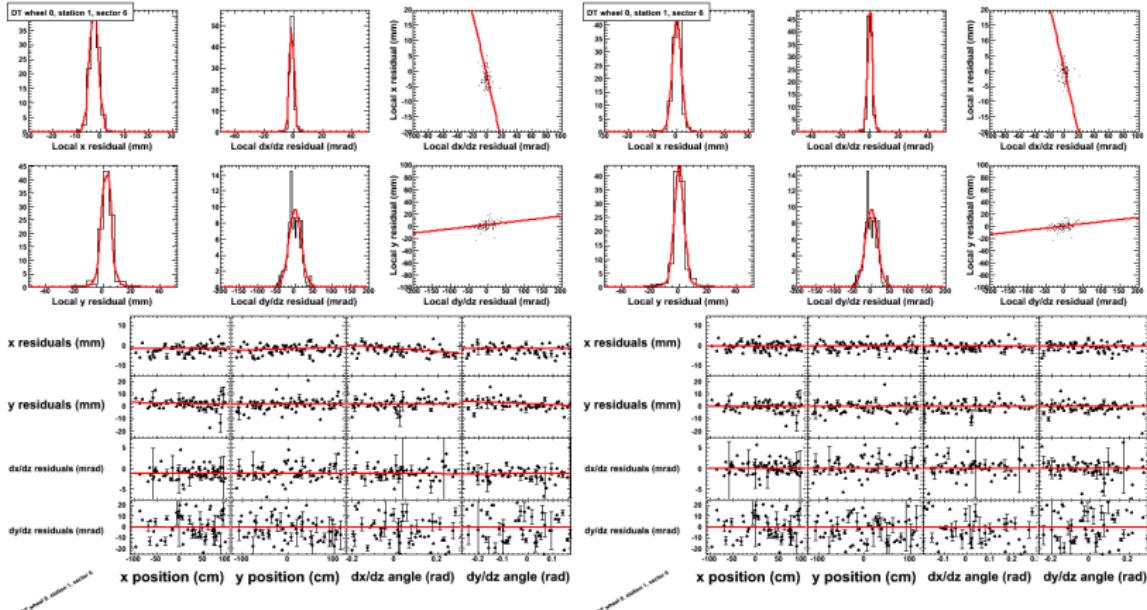


Fit functions

Jim Pivarski 292/24



before (left) and after (right) track-based alignment

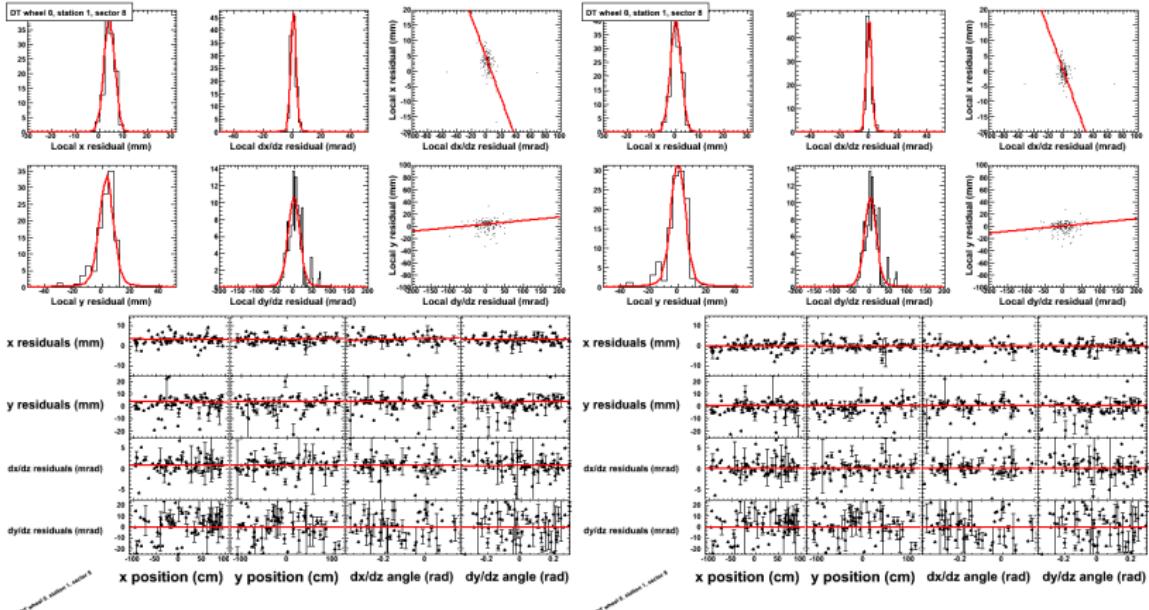


Fit functions

Jim Pivarski 293/24



before (left) and after (right) track-based alignment



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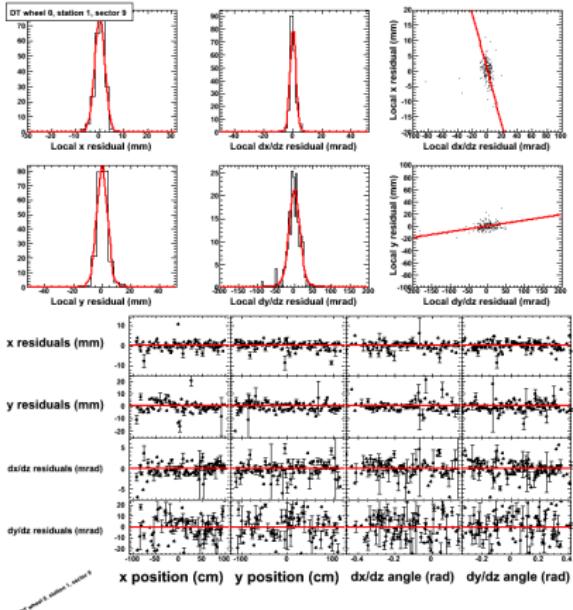
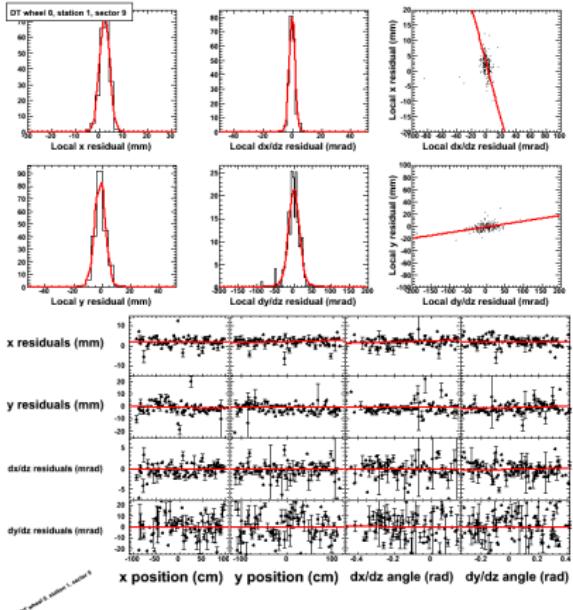
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Fit functions

Jim Pivarski 294/24



before (left) and after (right) track-based alignment

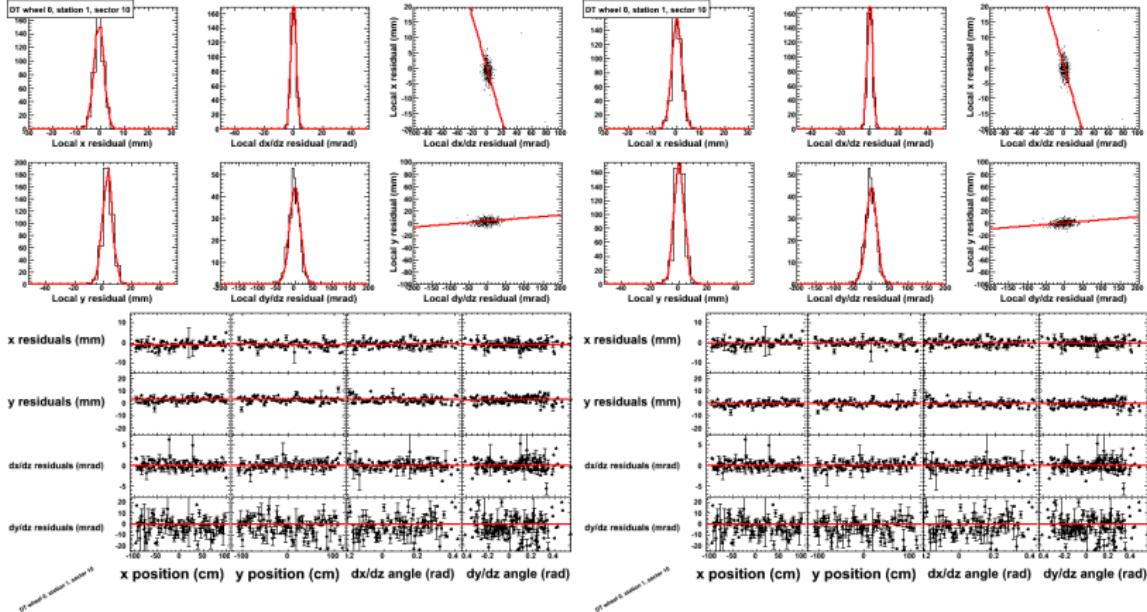


Fit functions

Jim Pivarski 295/24



before (left) and after (right) track-based alignment

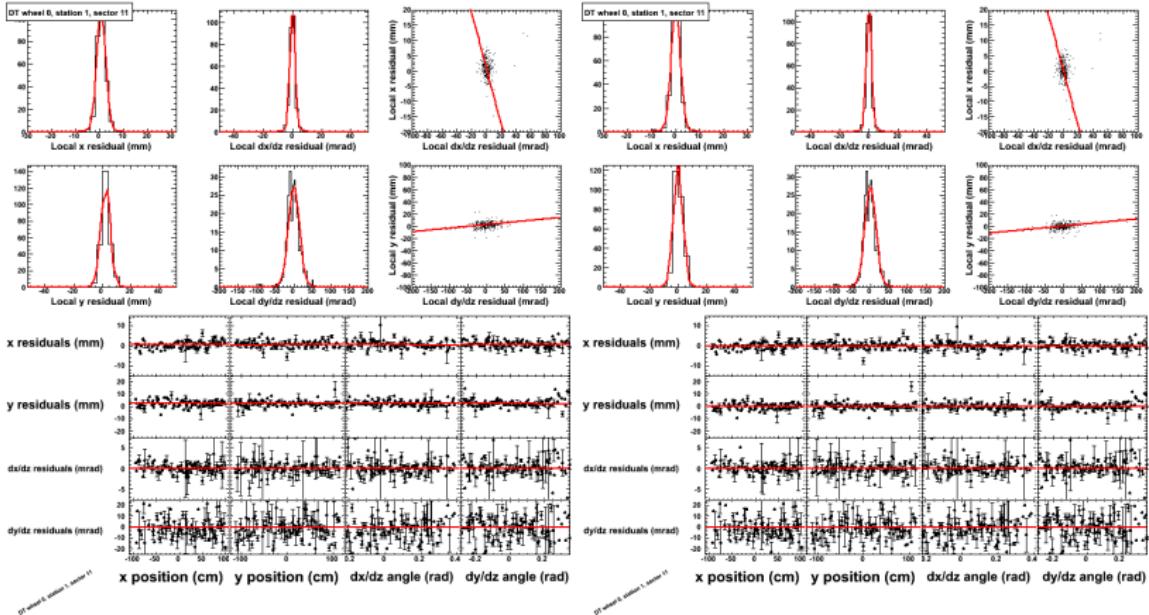


Fit functions

Jim Pivarski 296/24



before (left) and after (right) track-based alignment

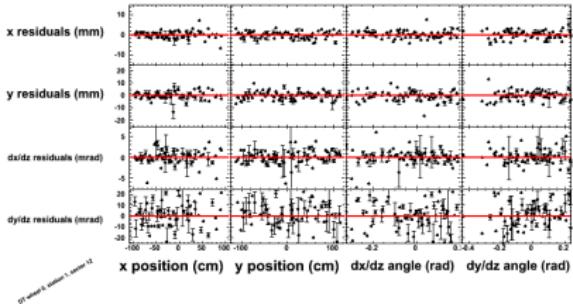
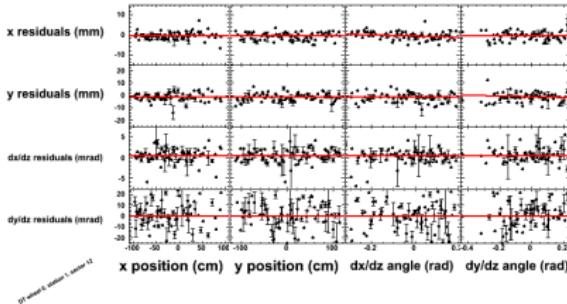
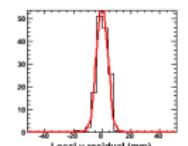
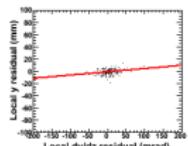
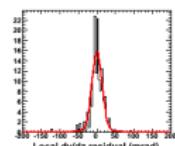
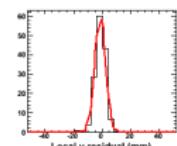
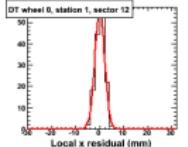
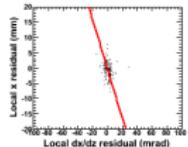
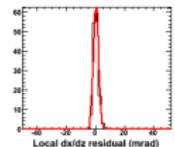
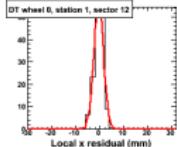


Fit functions

Jim Pivarski 297/24



before (left) and after (right) track-based alignment

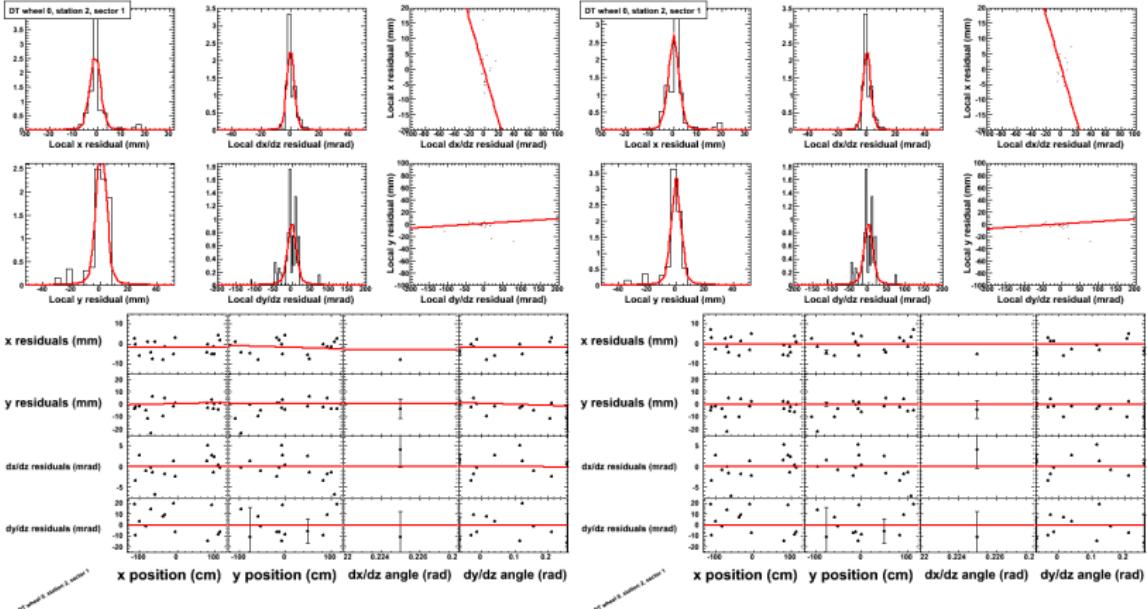


Fit functions

Jim Pivarski 298/24



before (left) and after (right) track-based alignment

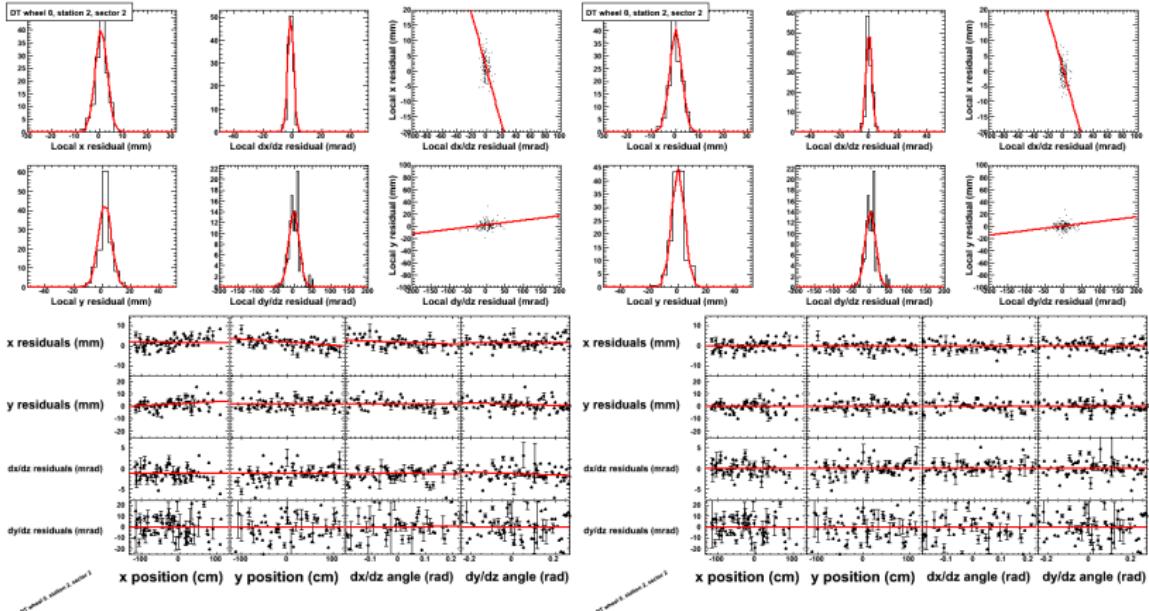


Fit functions

Jim Pivarski 299/24



before (left) and after (right) track-based alignment

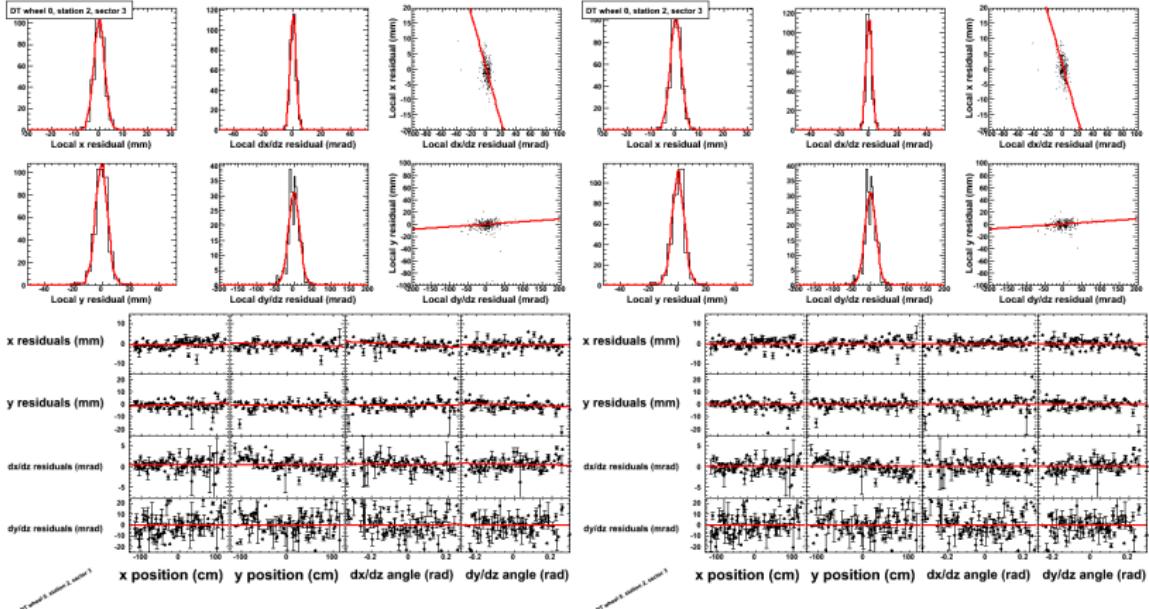


Fit functions

Jim Pivarski 300/24



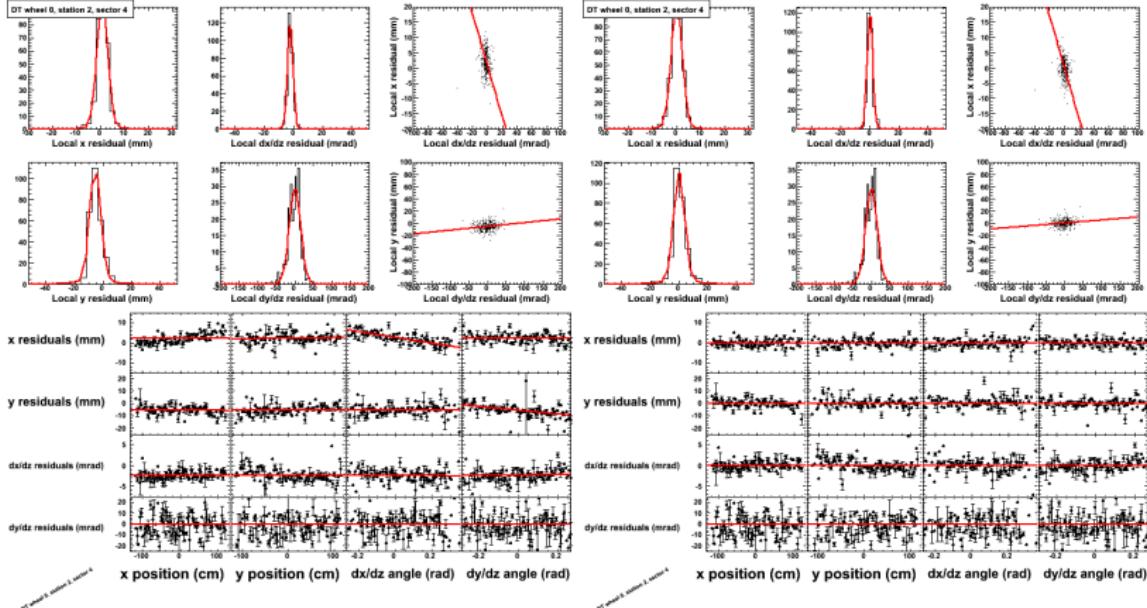
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 301/24

before (left) and after (right) track-based alignment

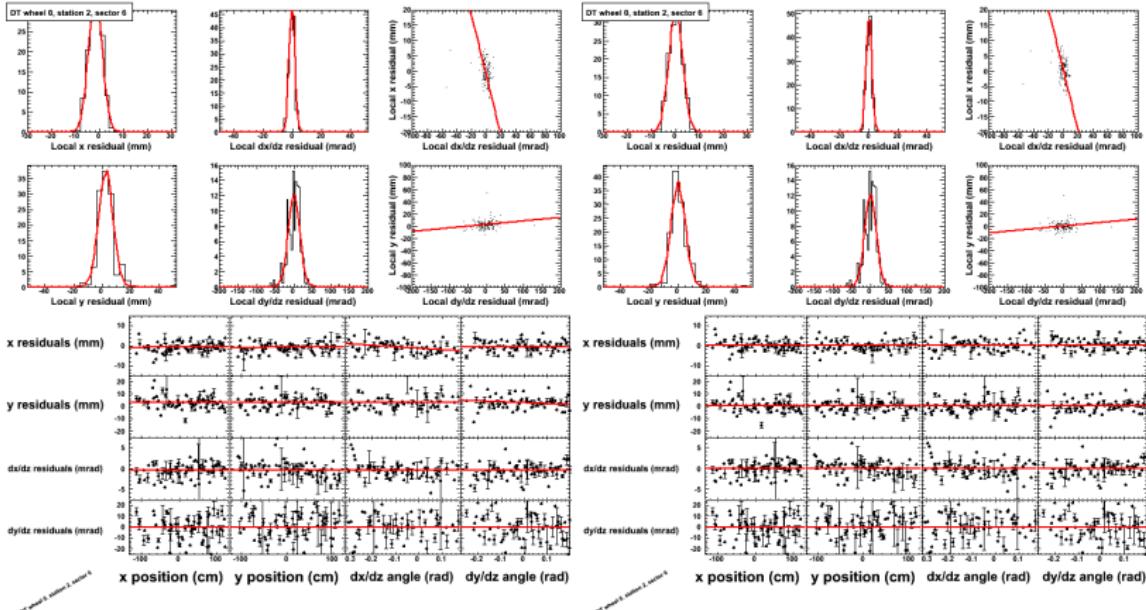


Fit functions

Jim Pivarski 302/24

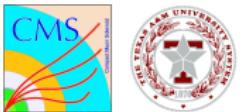


before (left) and after (right) track-based alignment

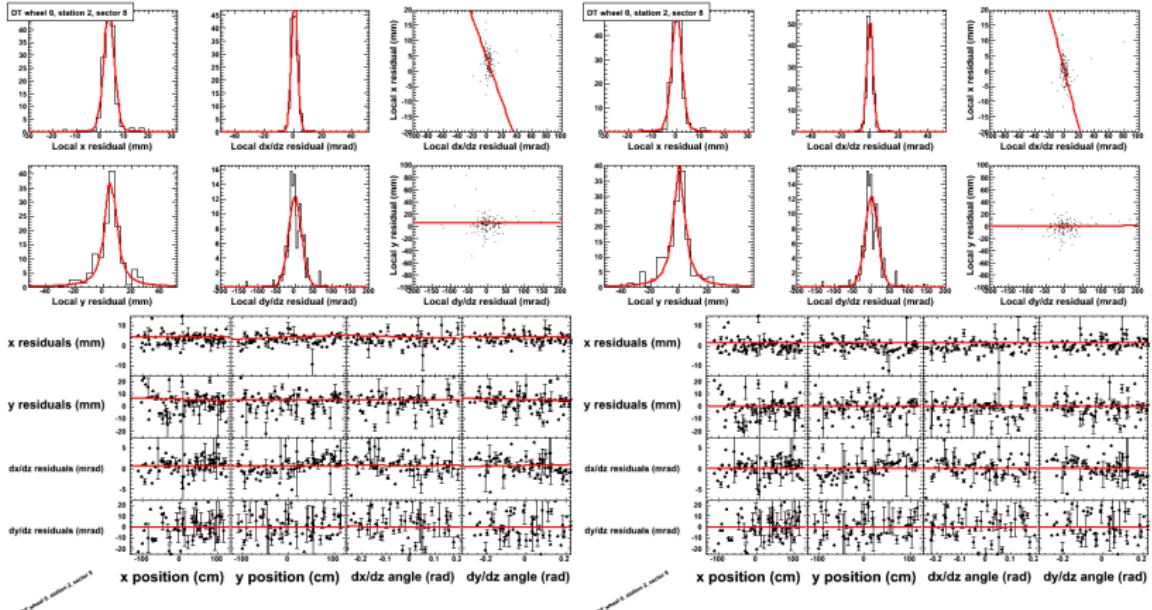


Fit functions

Jim Pivarski 303/24



before (left) and after (right) track-based alignment

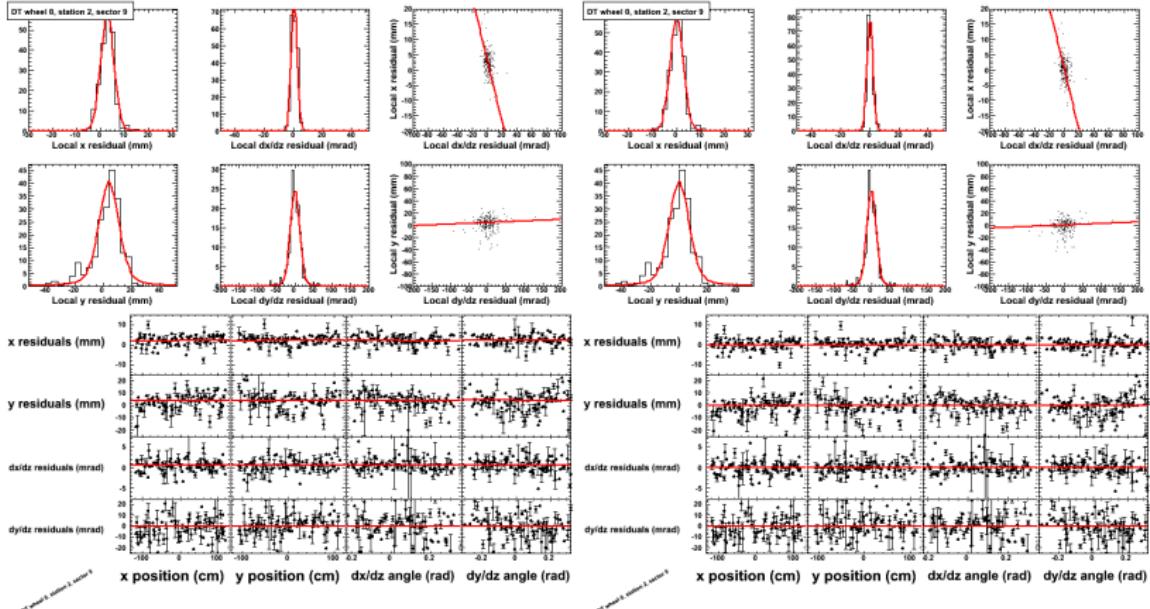


Fit functions

Jim Pivarski 304/24



before (left) and after (right) track-based alignment

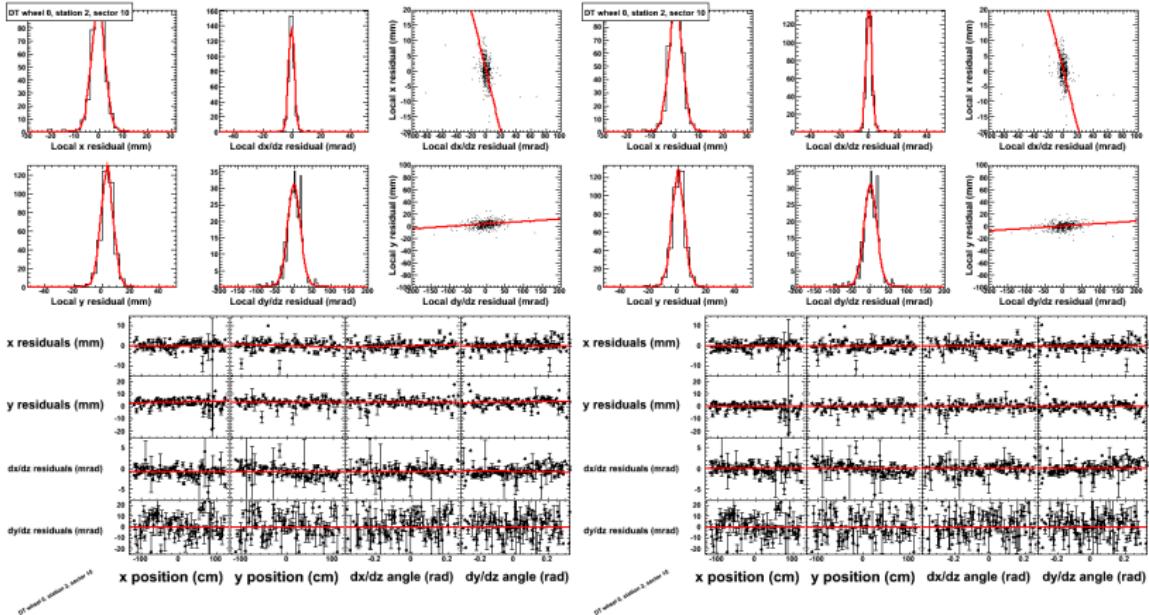


Fit functions

Jim Pivarski 305/24



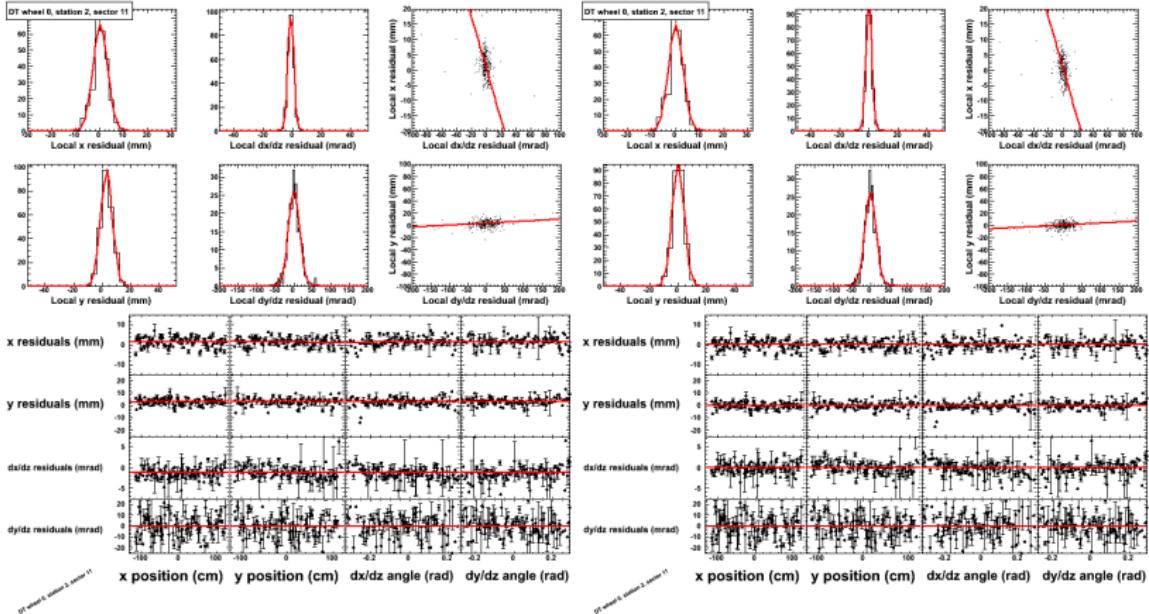
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 306/24

before (left) and after (right) track-based alignment

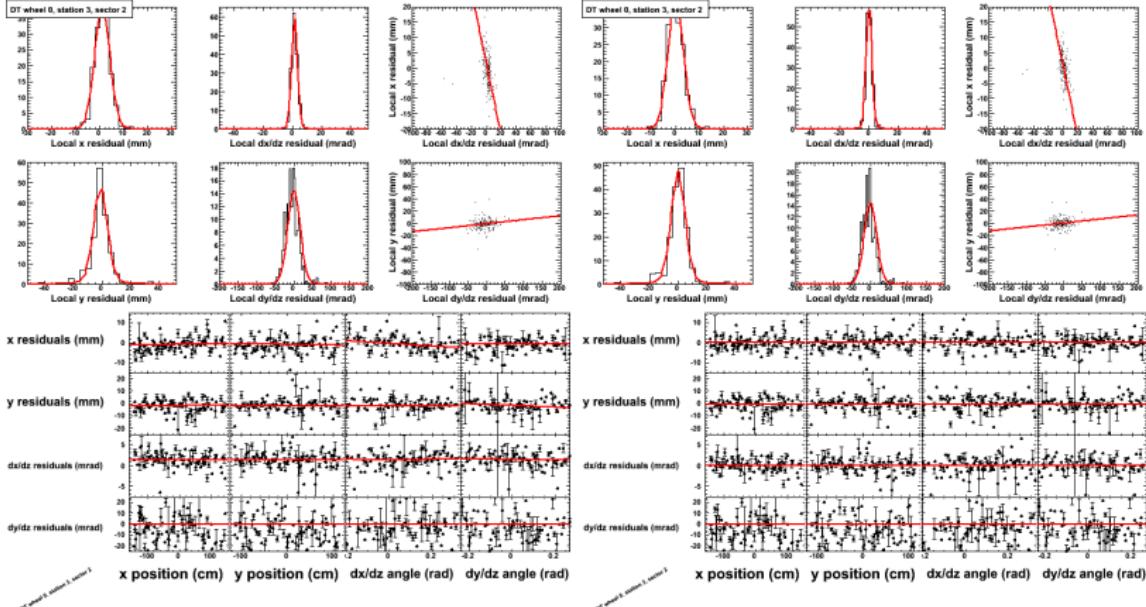


Fit functions

Jim Pivarski 307/24



before (left) and after (right) track-based alignment

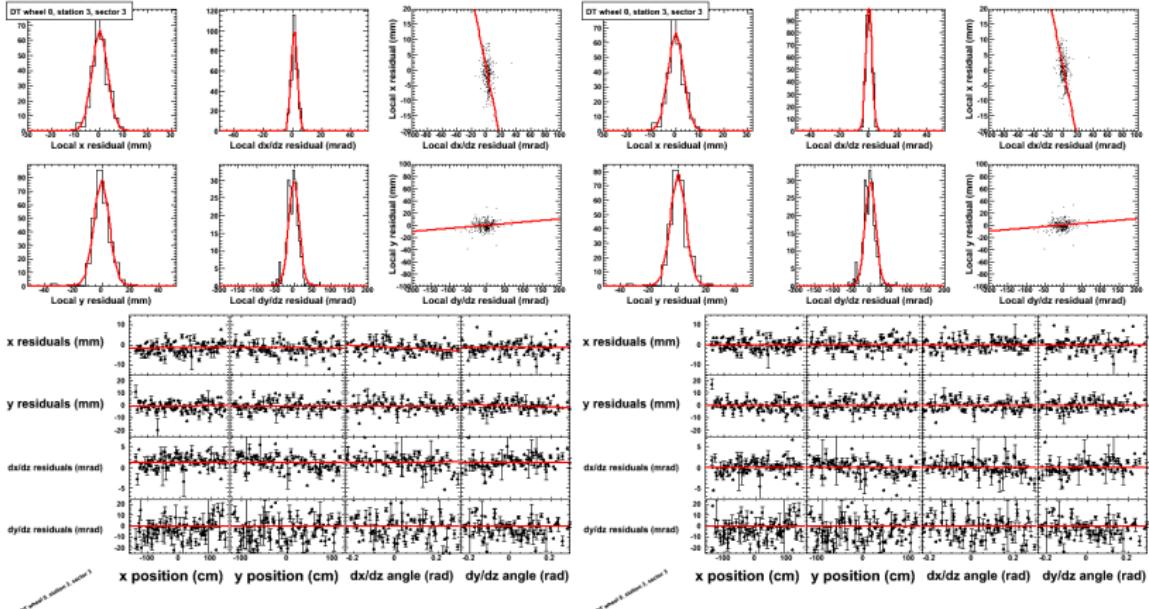


Fit functions

Jim Pivarski 308/24



before (left) and after (right) track-based alignment

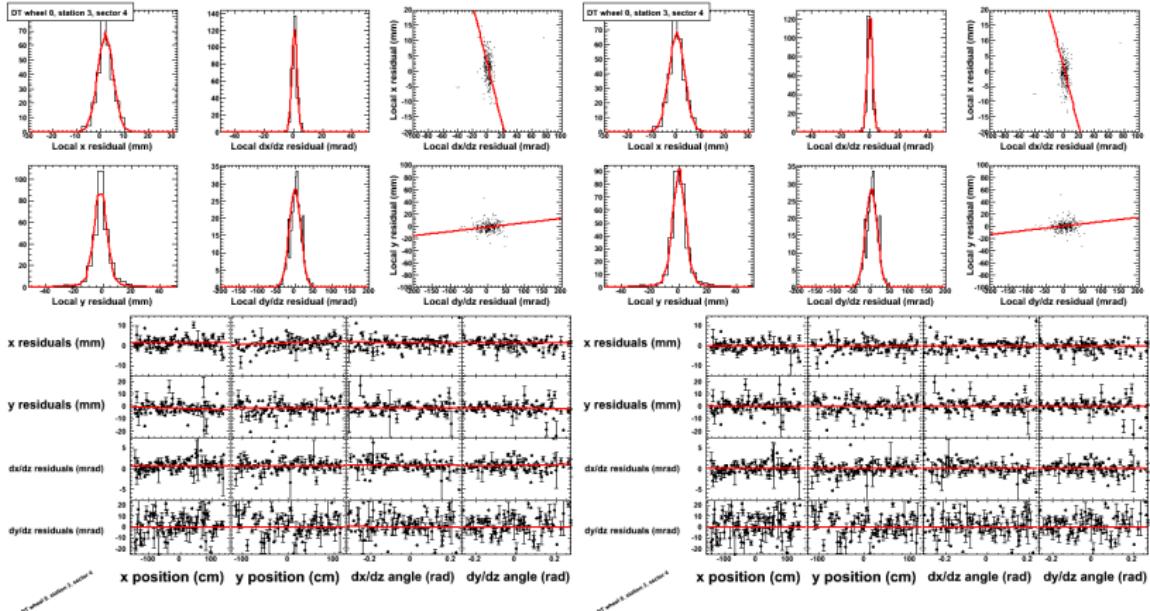


Fit functions

Jim Pivarski 309/24



before (left) and after (right) track-based alignment



07/09/2013, 10:31:44

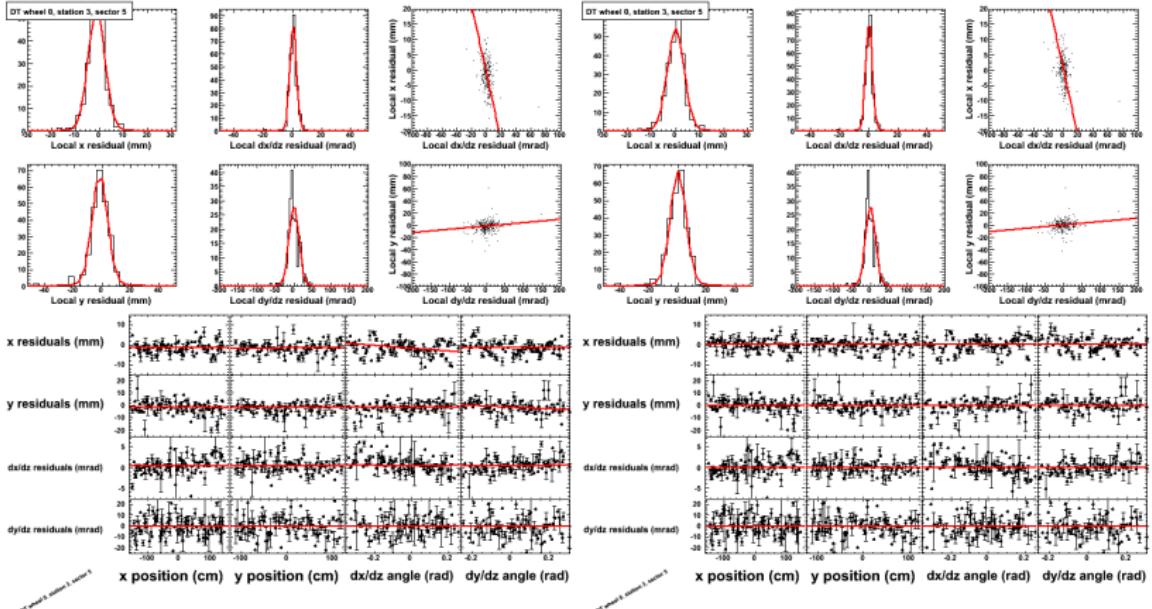
07/09/2013, 10:31:44

Fit functions

Jim Pivarski 310/24



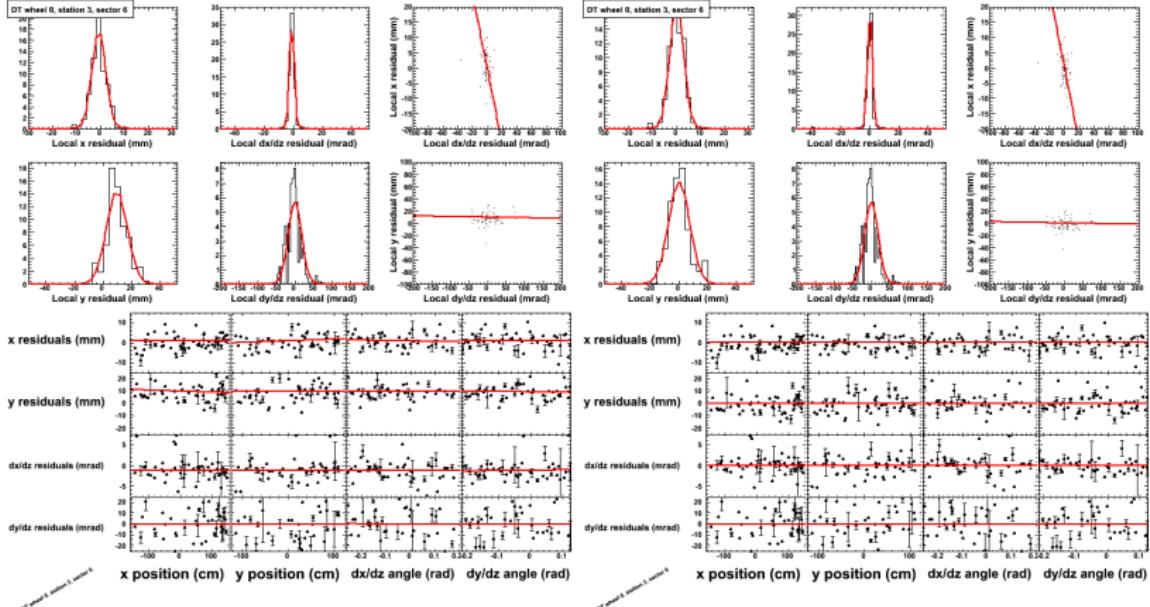
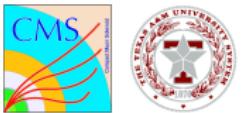
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 311/24

before (left) and after (right) track-based alignment

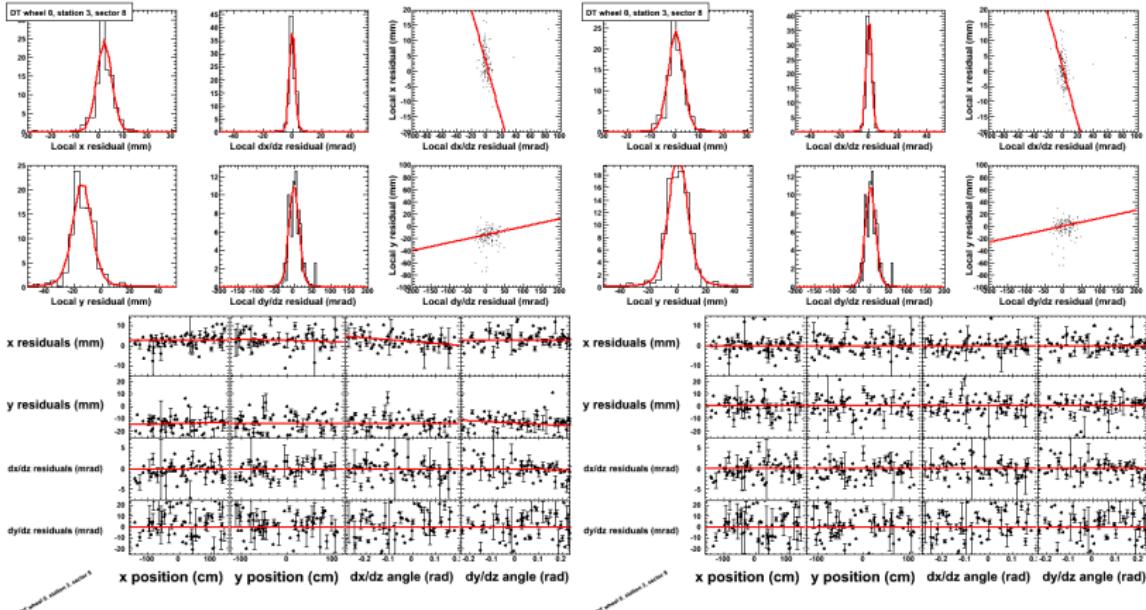


Fit functions

Jim Pivarski 312/24



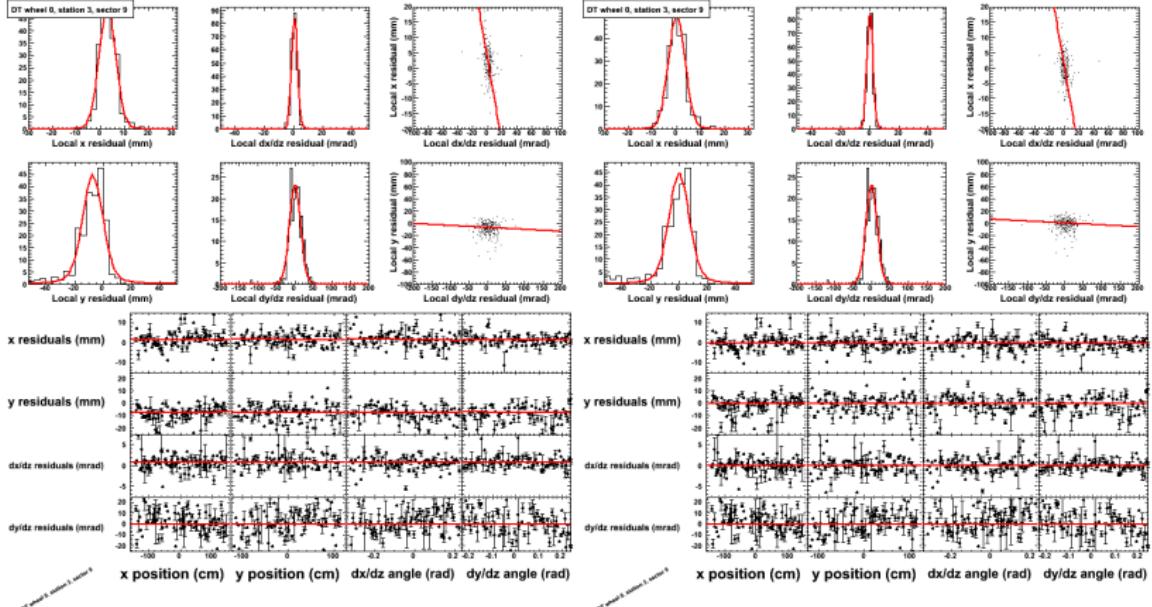
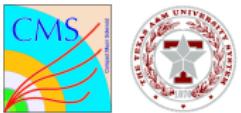
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 313/24

before (left) and after (right) track-based alignment

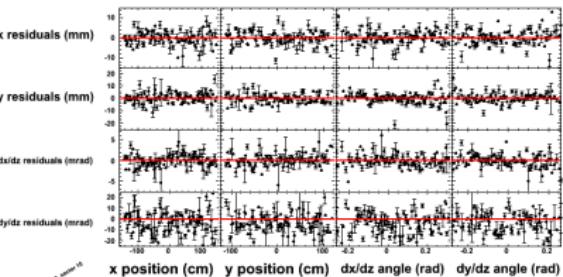
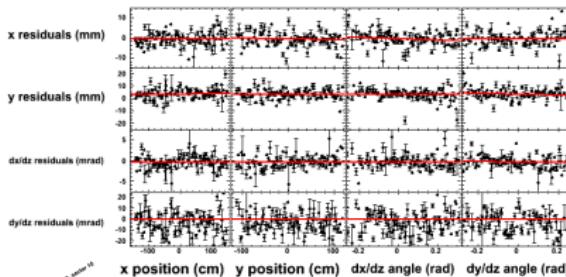
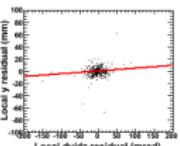
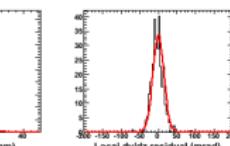
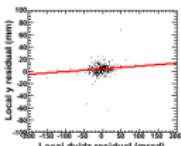
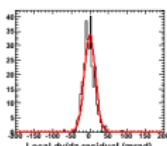
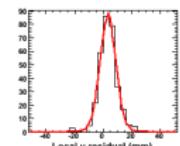
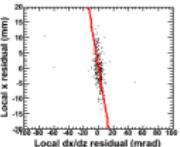
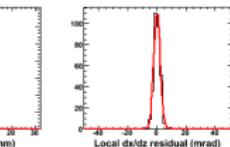
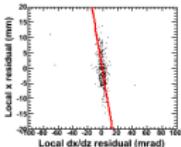
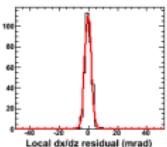
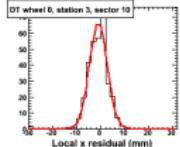


Fit functions

Jim Pivarski 314/24

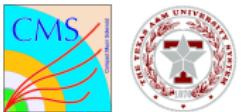


before (left) and after (right) track-based alignment

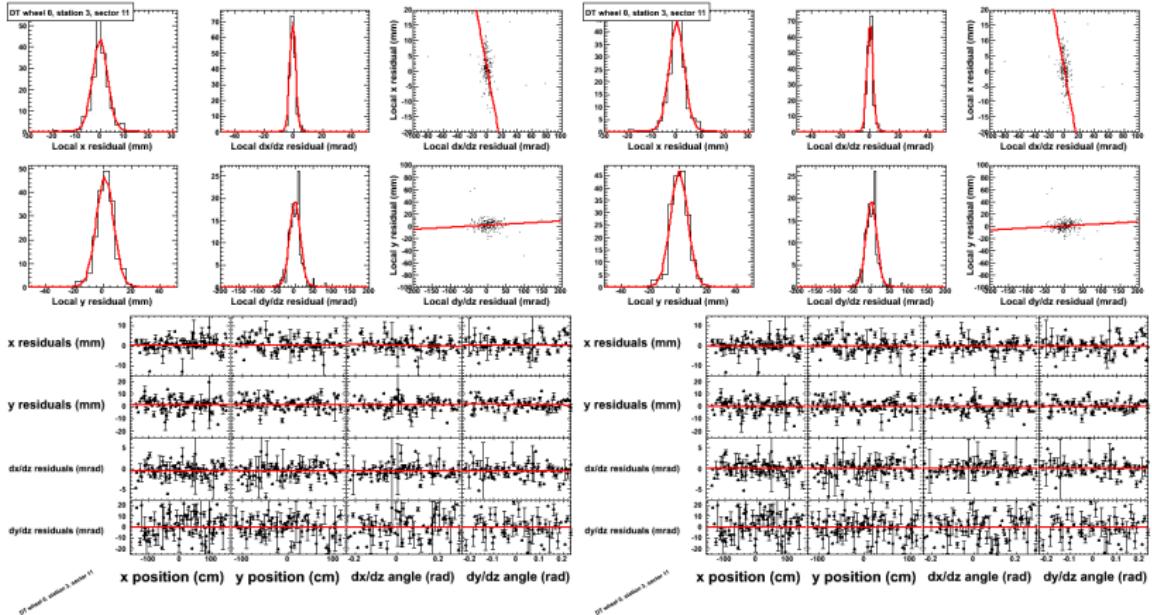


Fit functions

Jim Pivarski 315/24



before (left) and after (right) track-based alignment

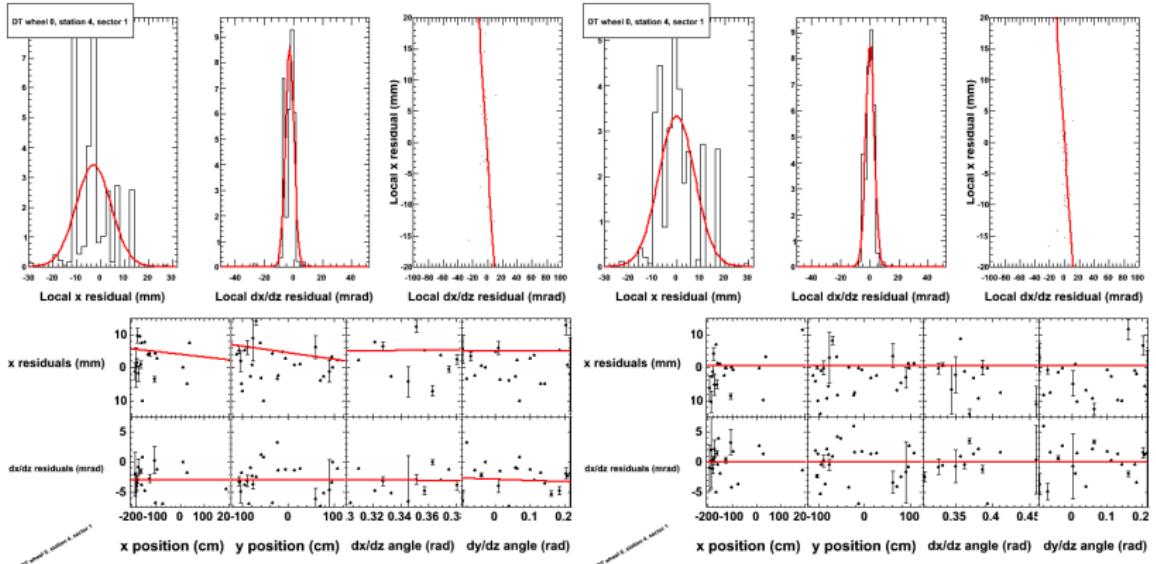


Fit functions

Jim Pivarski 316/24



before (left) and after (right) track-based alignment

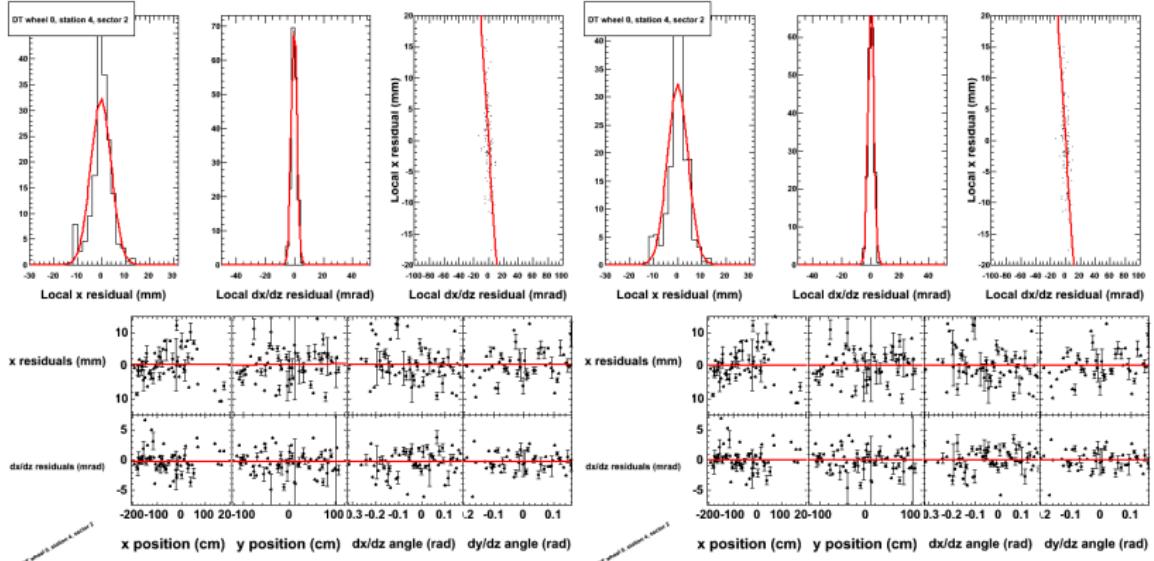


Fit functions

Jim Pivarski 317/24



before (left) and after (right) track-based alignment

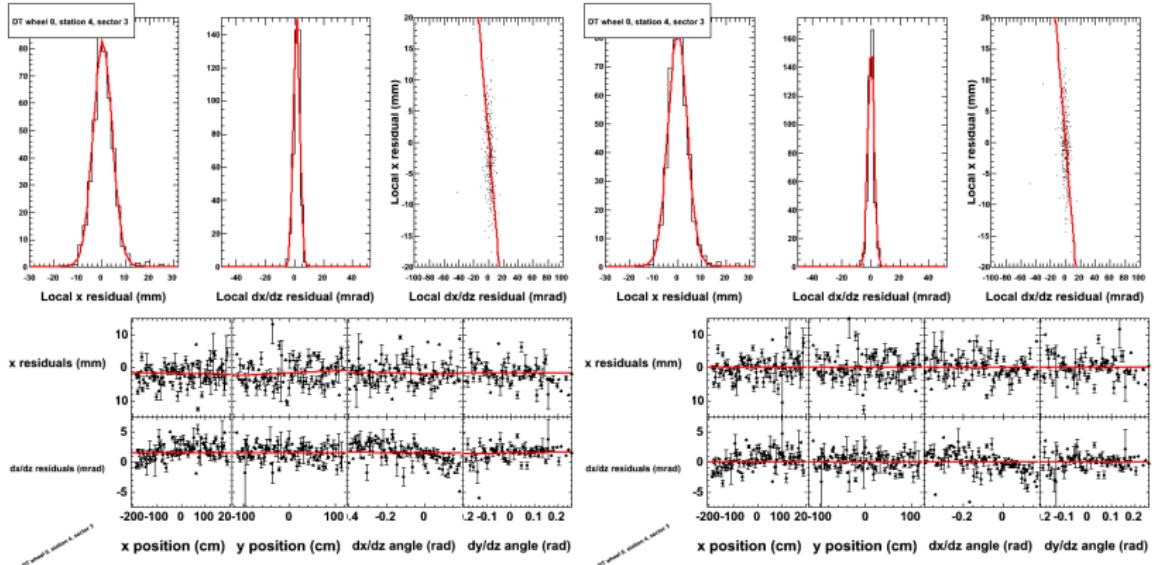


Fit functions

Jim Pivarski 318/24



before (left) and after (right) track-based alignment

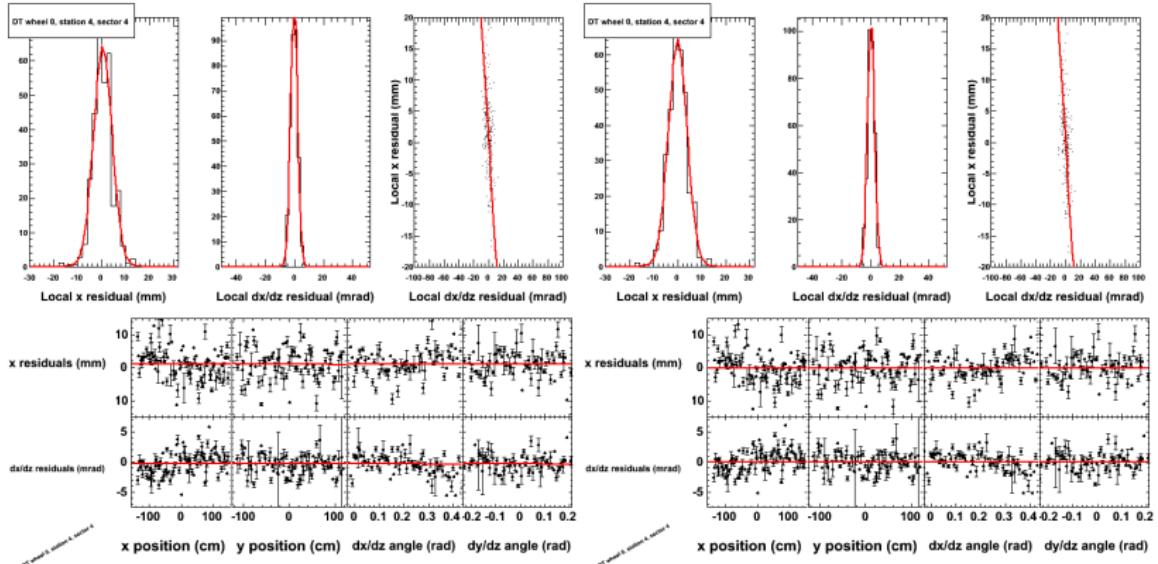


Fit functions

Jim Pivarski 319/24



before (left) and after (right) track-based alignment

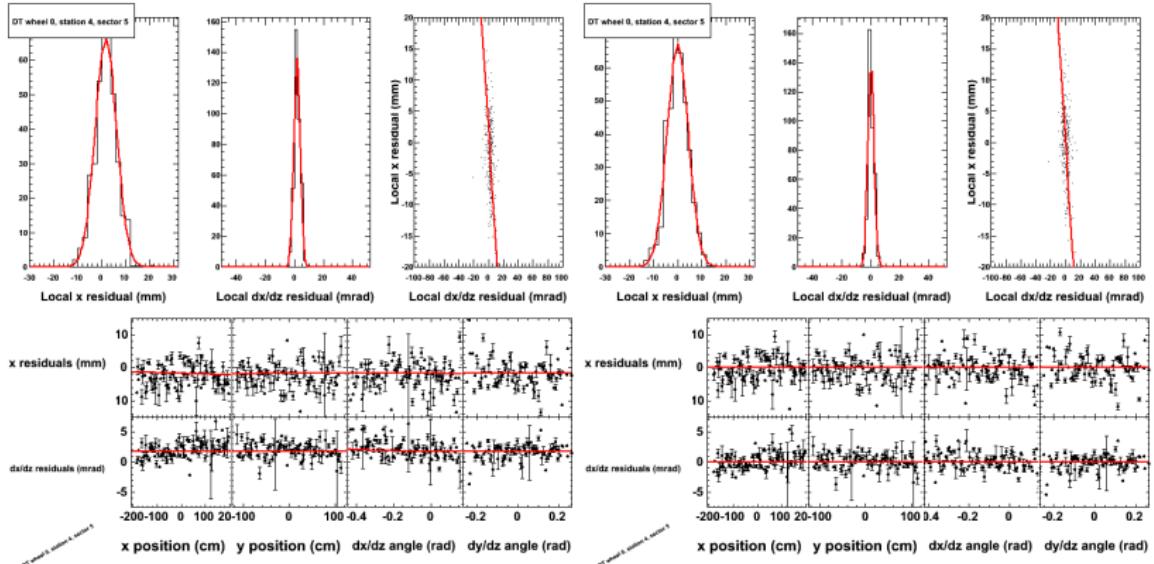


Fit functions

Jim Pivarski 320/24



before (left) and after (right) track-based alignment

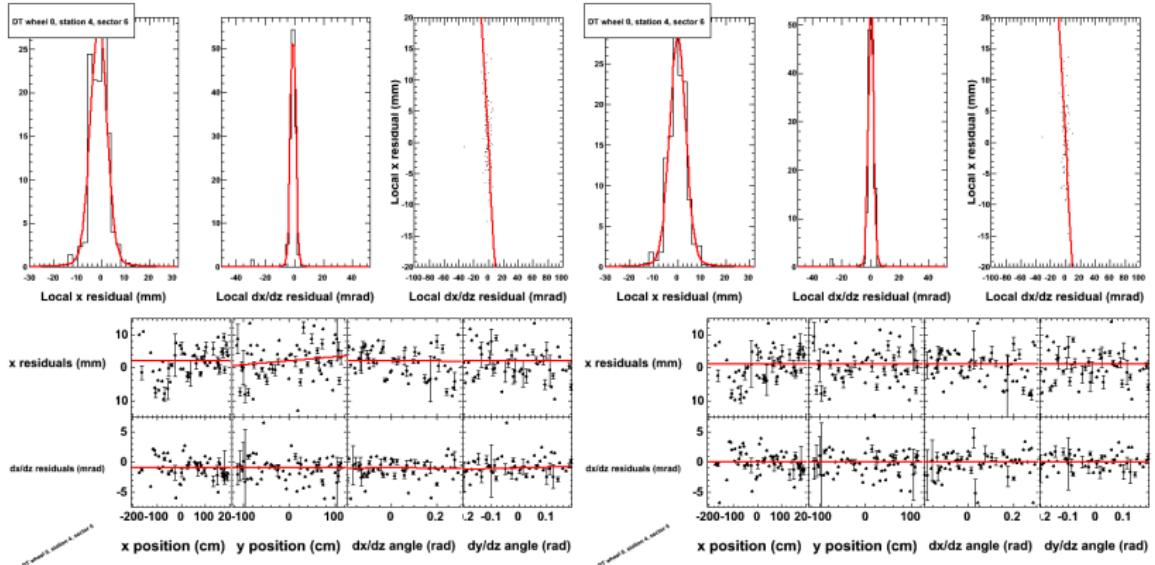


Fit functions

Jim Pivarski 321/24



before (left) and after (right) track-based alignment

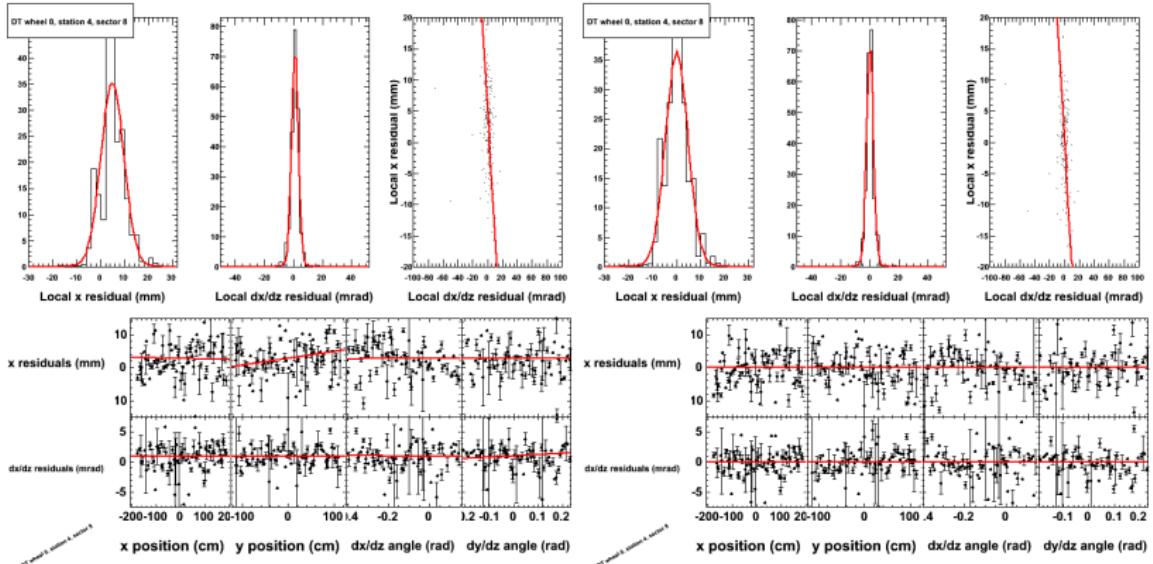


Fit functions

Jim Pivarski 322/24



before (left) and after (right) track-based alignment

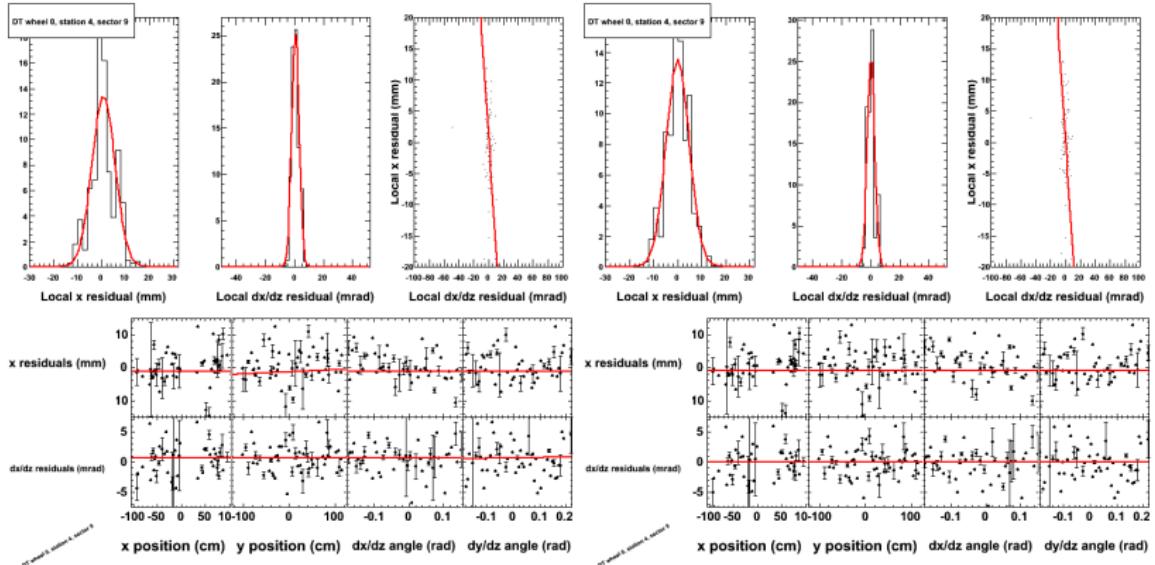


Fit functions

Jim Pivarski 323/24



before (left) and after (right) track-based alignment

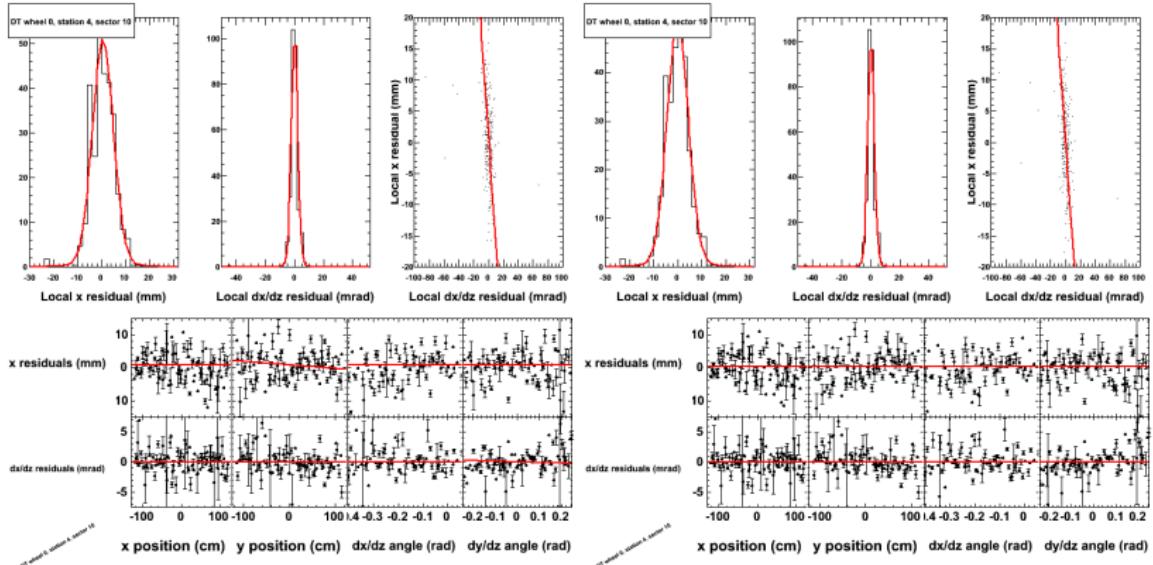


Fit functions

Jim Pivarski 324/24

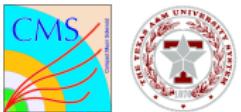


before (left) and after (right) track-based alignment

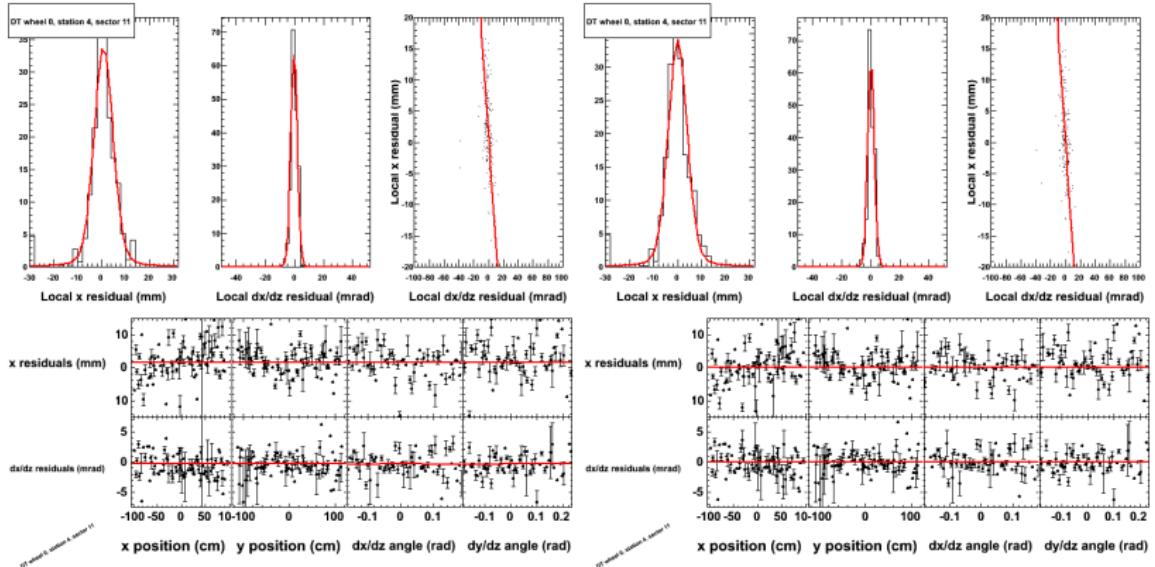


Fit functions

Jim Pivarski 325/24



before (left) and after (right) track-based alignment



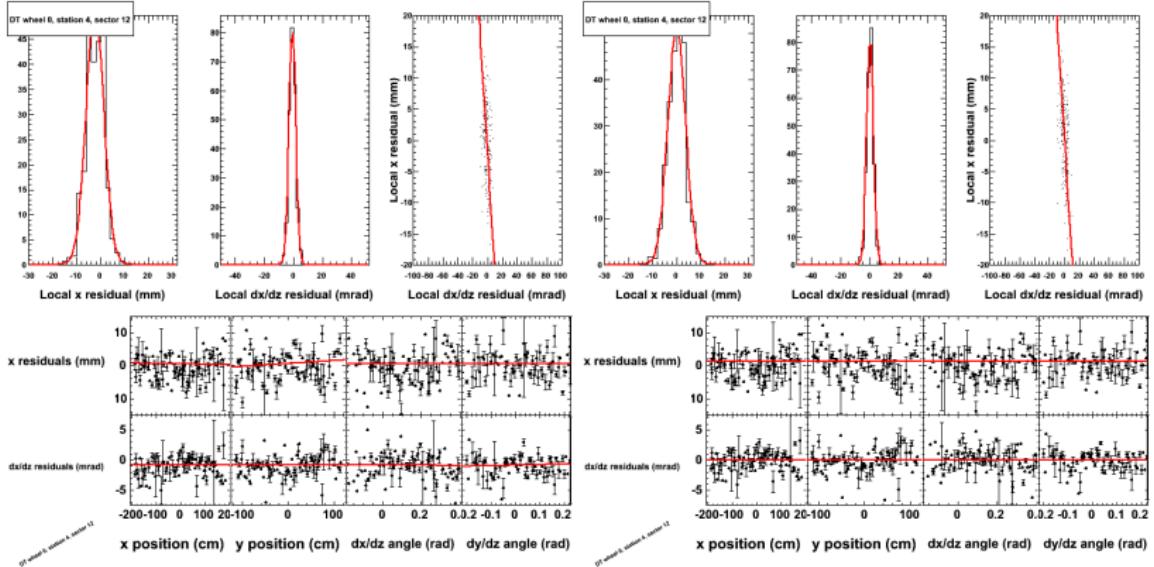
Fit functions

Jim Pivarski

326/24



before (left) and after (right) track-based alignment

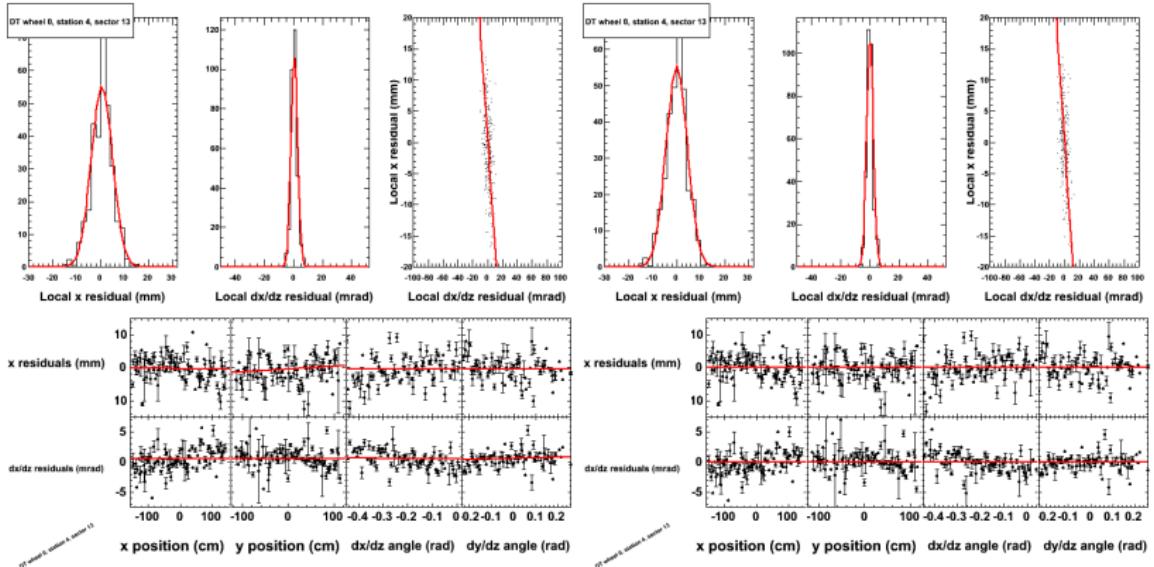


Fit functions

Jim Pivarski 327/24



before (left) and after (right) track-based alignment

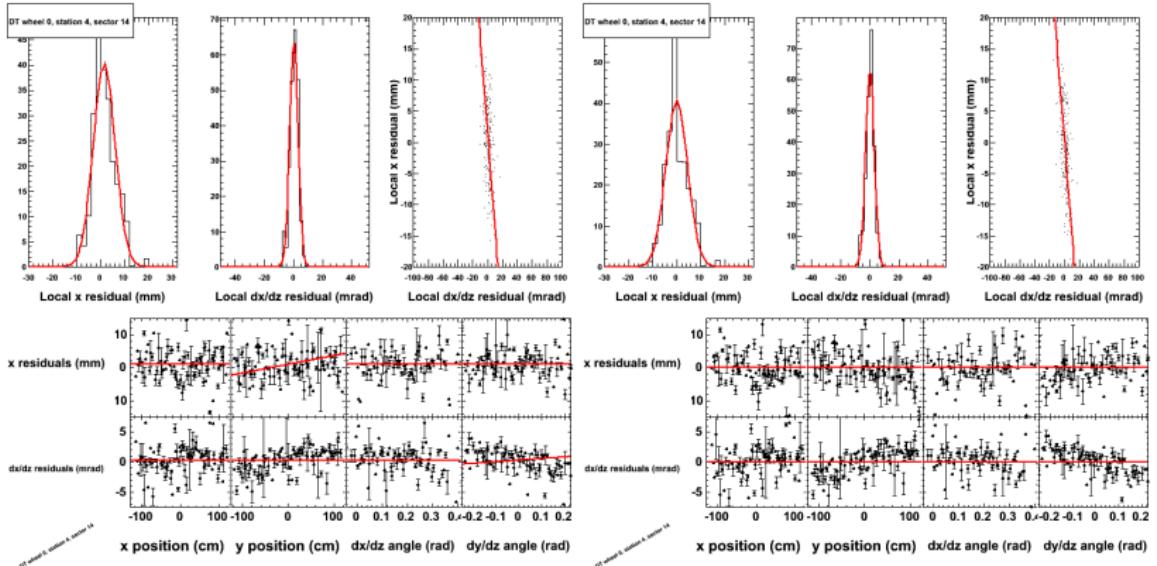


Fit functions

Jim Pivarski 328/24

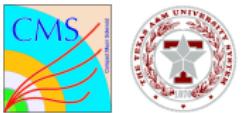


before (left) and after (right) track-based alignment

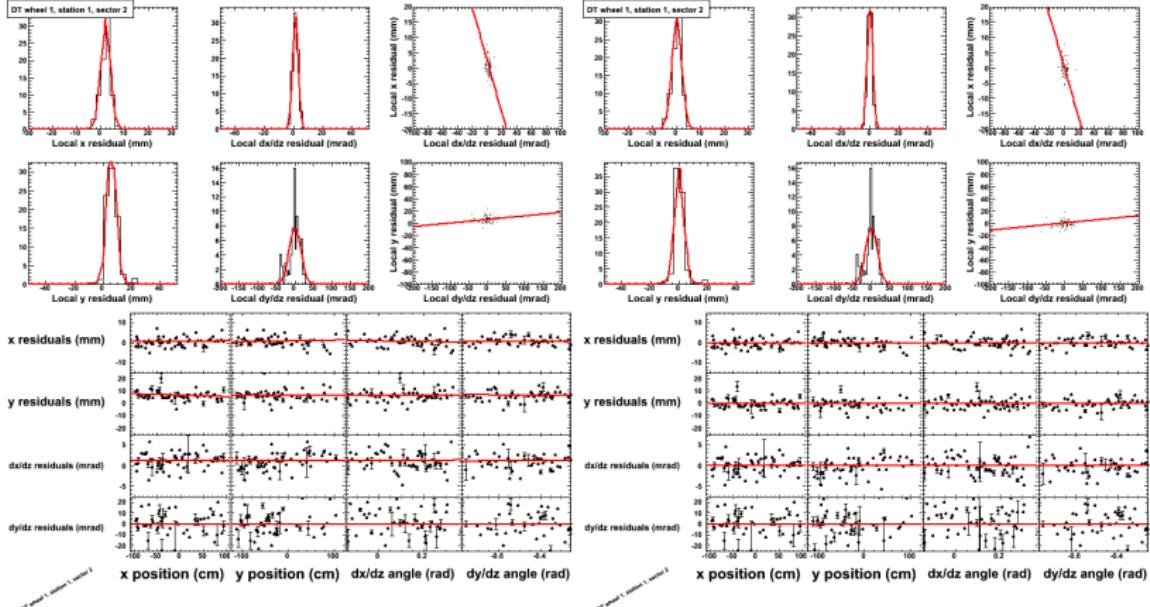


Fit functions

Jim Pivarski 329/24



before (left) and after (right) track-based alignment

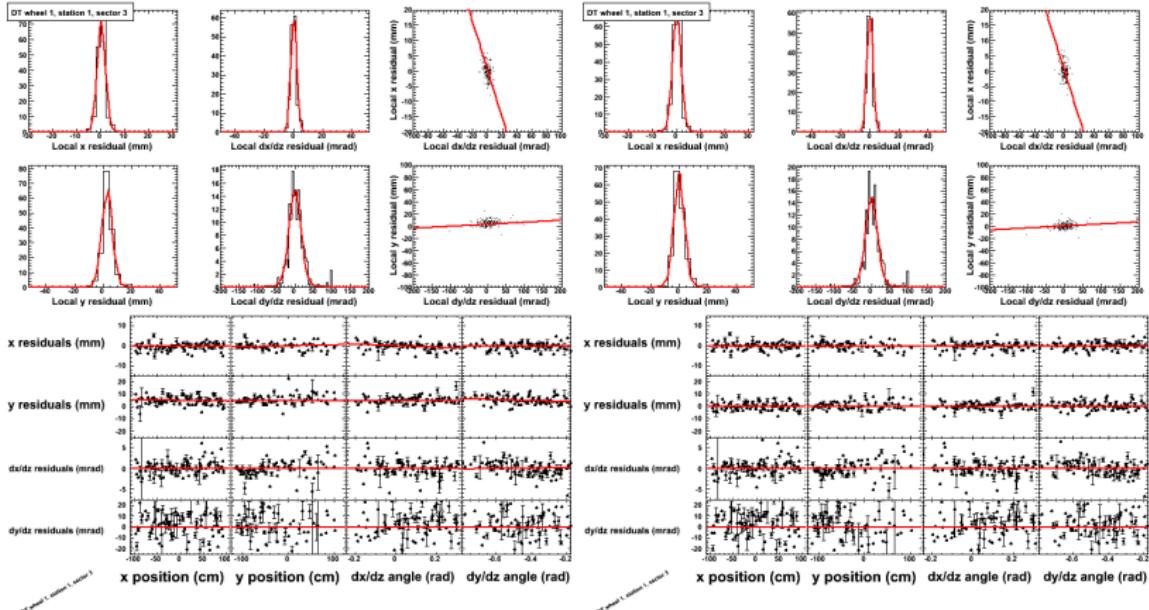


Fit functions

Jim Pivarski 330/24



before (left) and after (right) track-based alignment

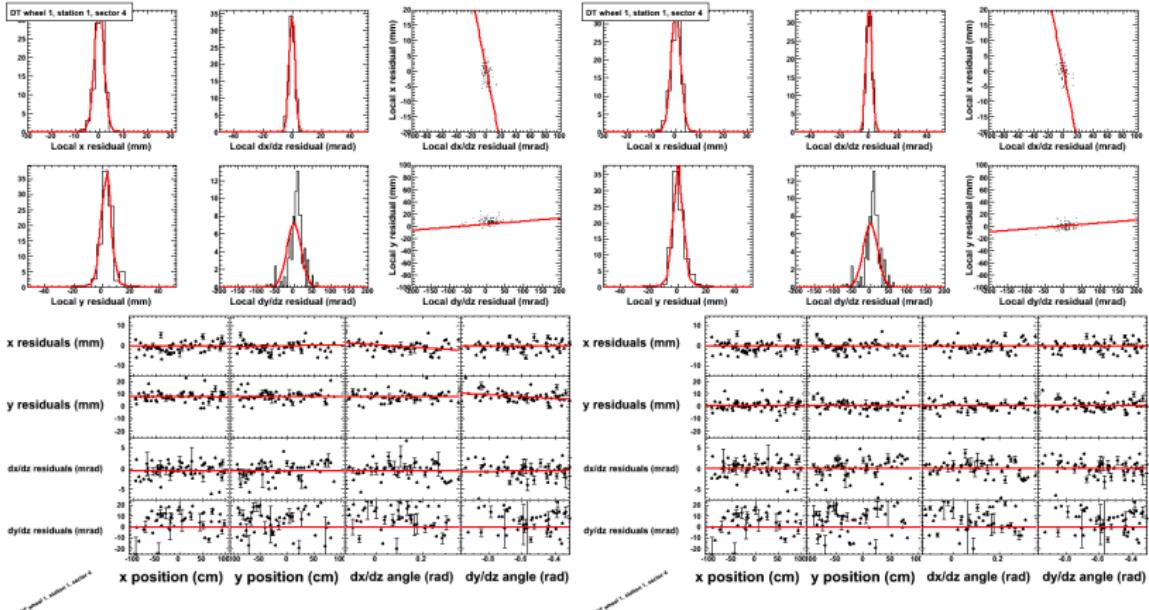


Fit functions

Jim Pivarski 331/24



before (left) and after (right) track-based alignment

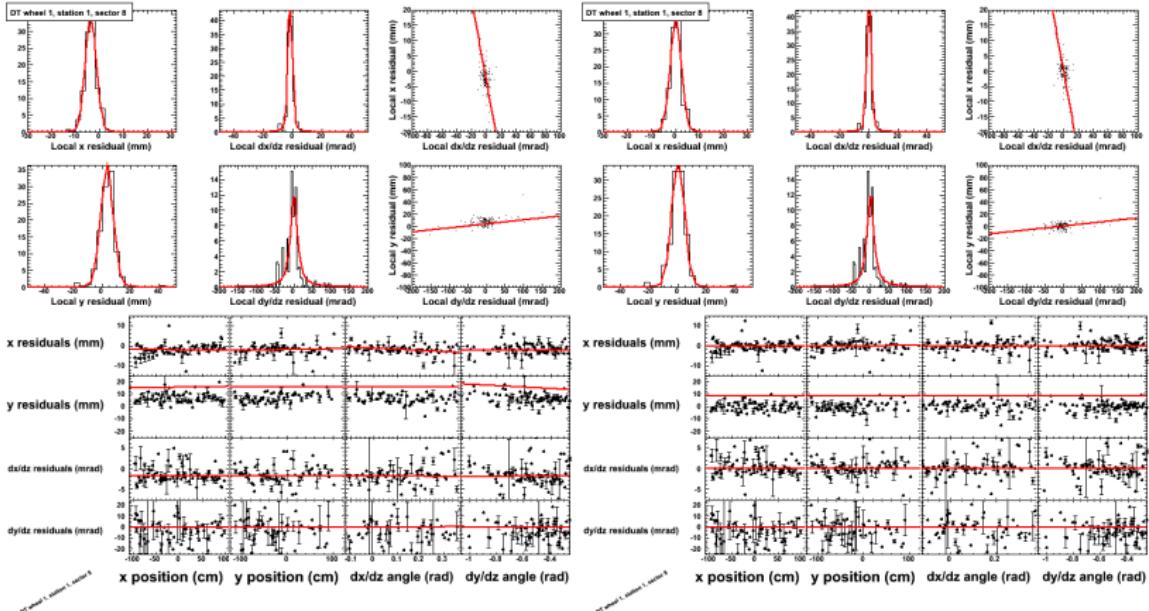


Fit functions

Jim Pivarski 332/24



before (left) and after (right) track-based alignment

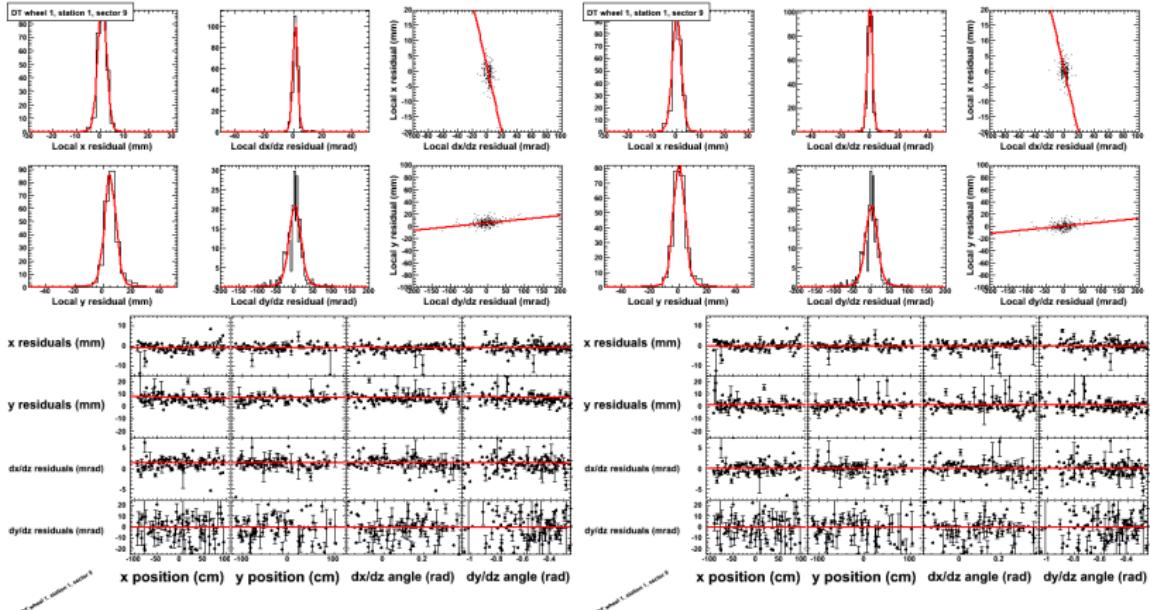


Fit functions

Jim Pivarski 333/24



before (left) and after (right) track-based alignment

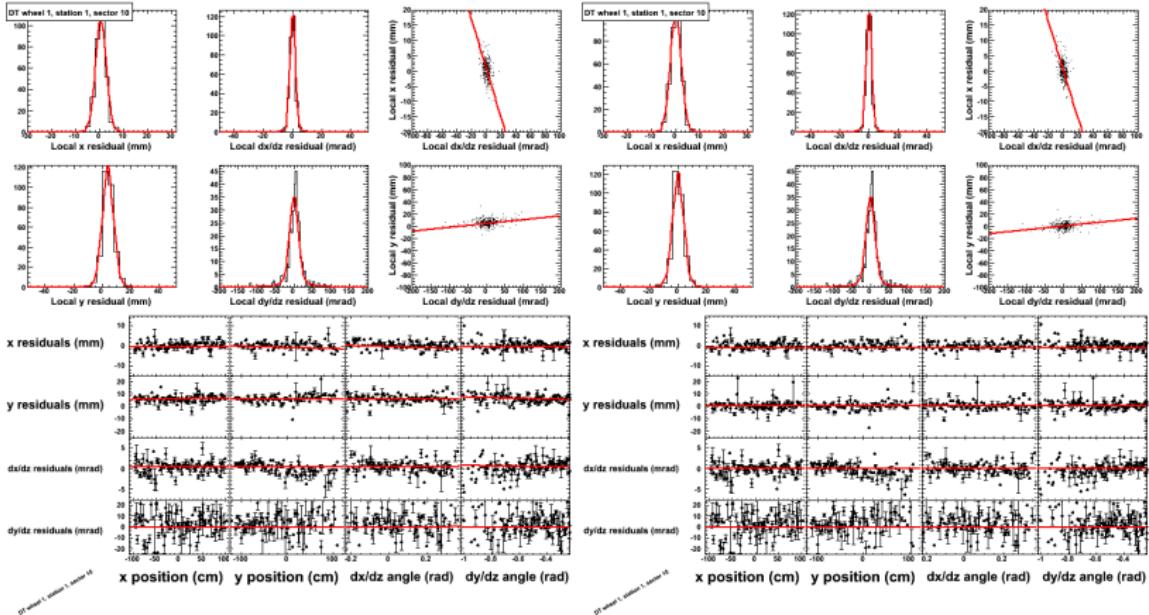


Fit functions

Jim Pivarski 334/24



before (left) and after (right) track-based alignment

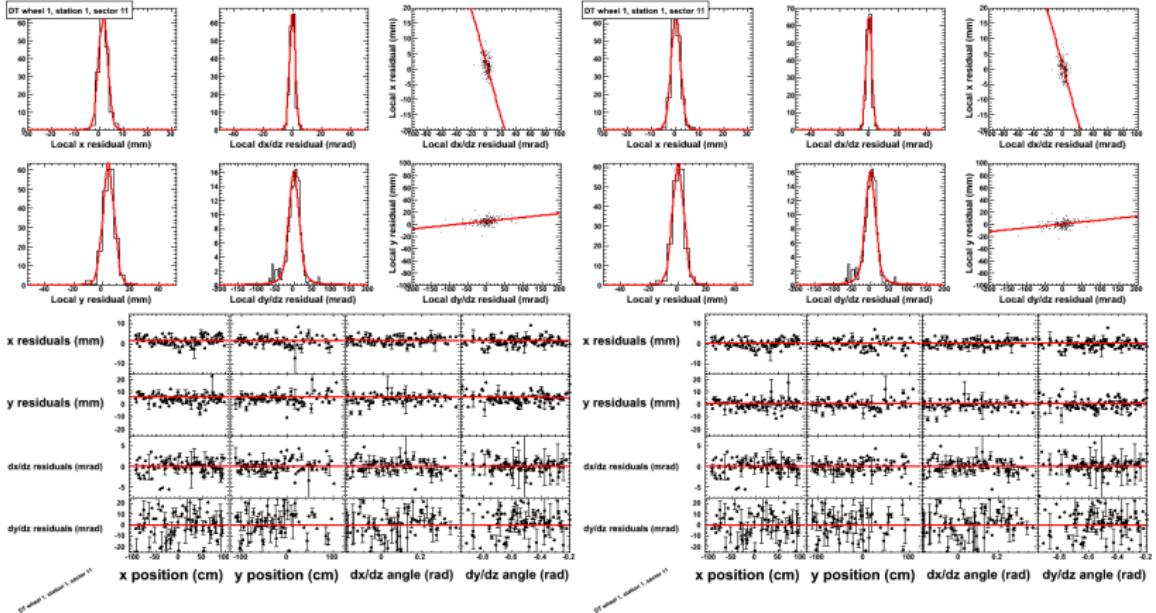


Fit functions

Jim Pivarski 335/24



before (left) and after (right) track-based alignment

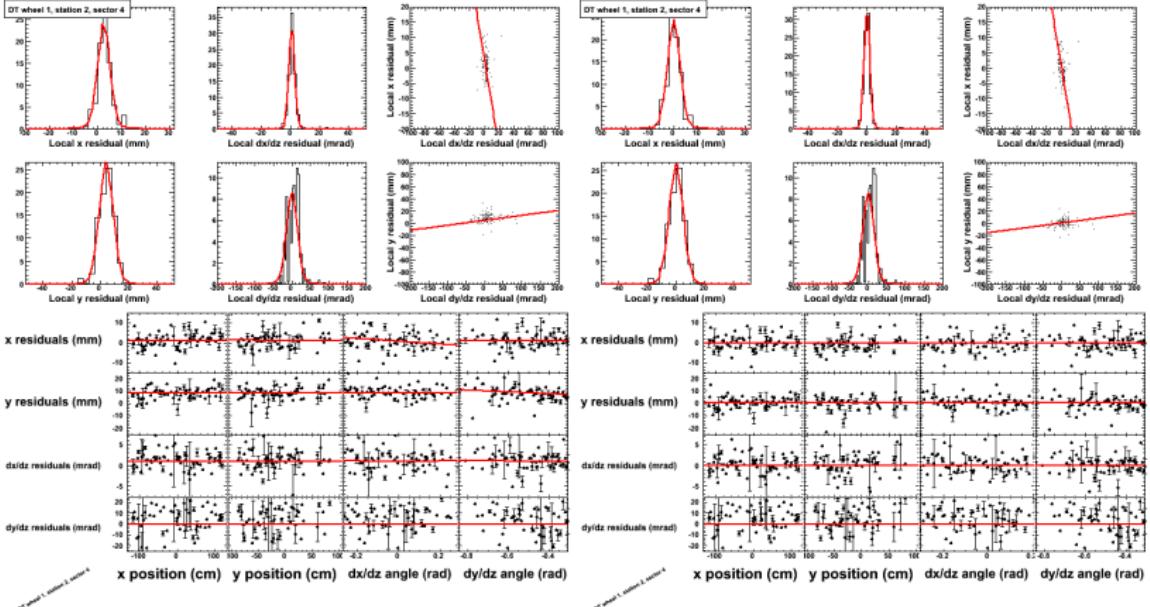


Fit functions

Jim Pivarski 336/24



before (left) and after (right) track-based alignment

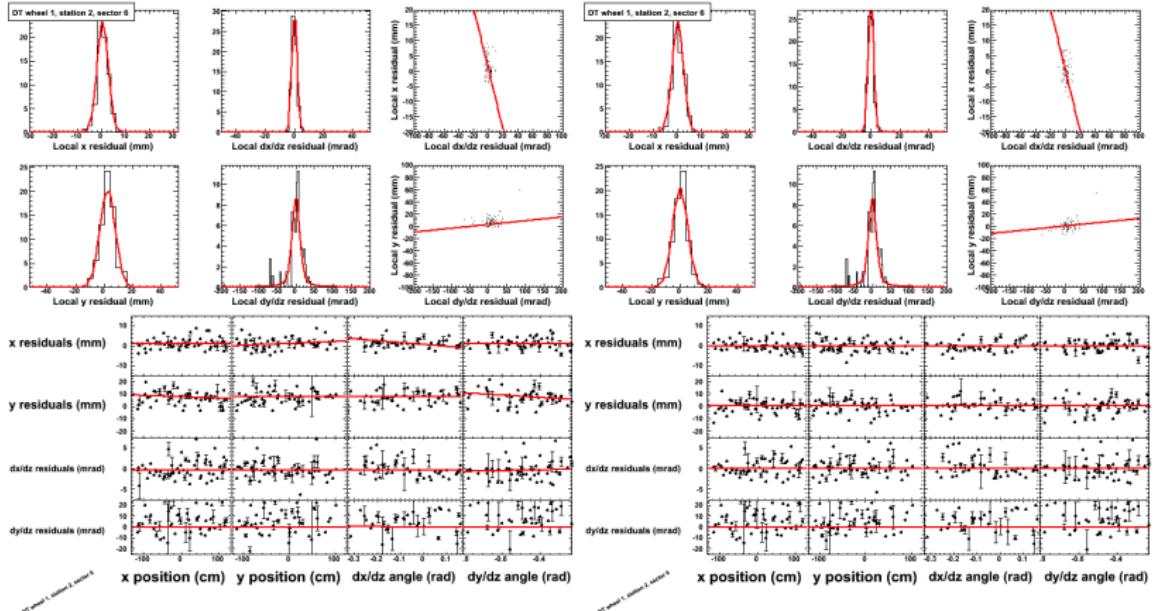


Fit functions

Jim Pivarski 337/24



before (left) and after (right) track-based alignment

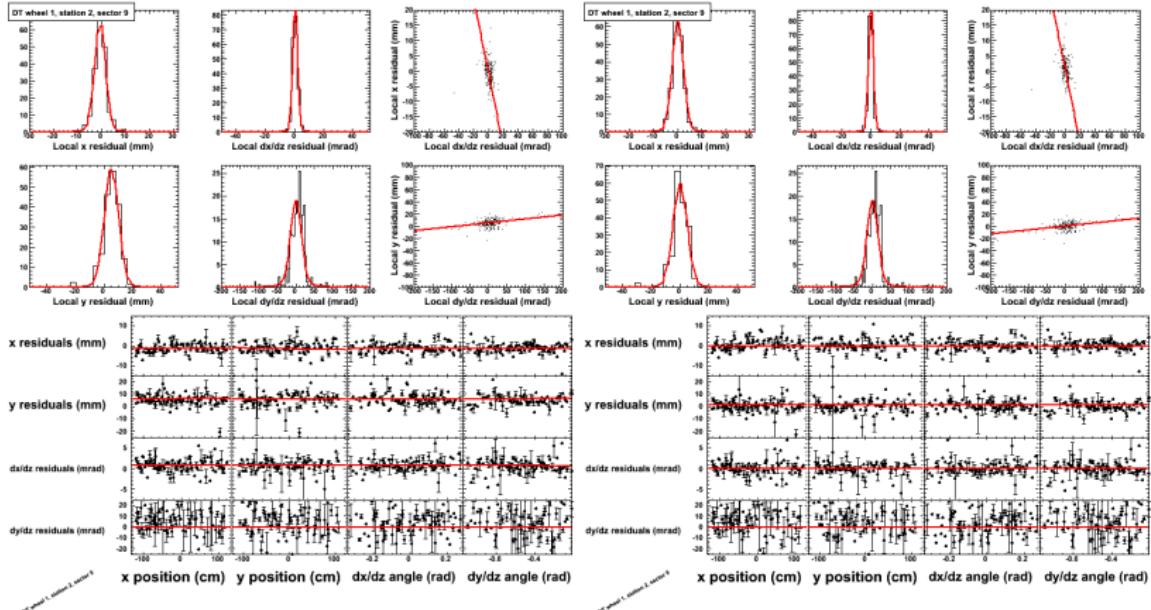


Fit functions

Jim Pivarski 338/24



before (left) and after (right) track-based alignment

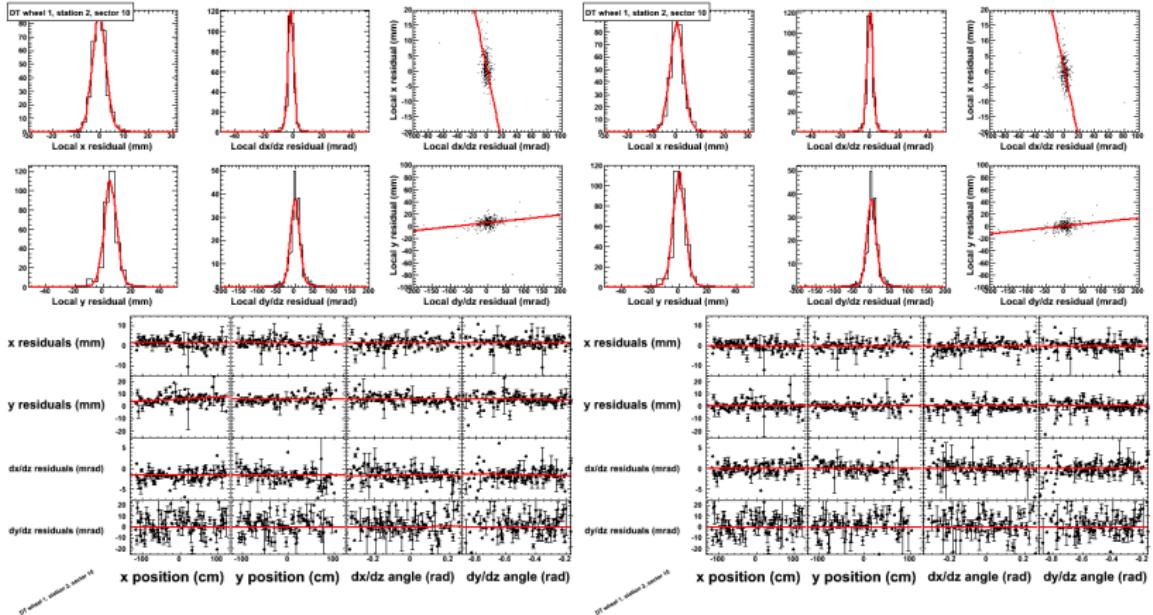


Fit functions

Jim Pivarski 339/24



before (left) and after (right) track-based alignment

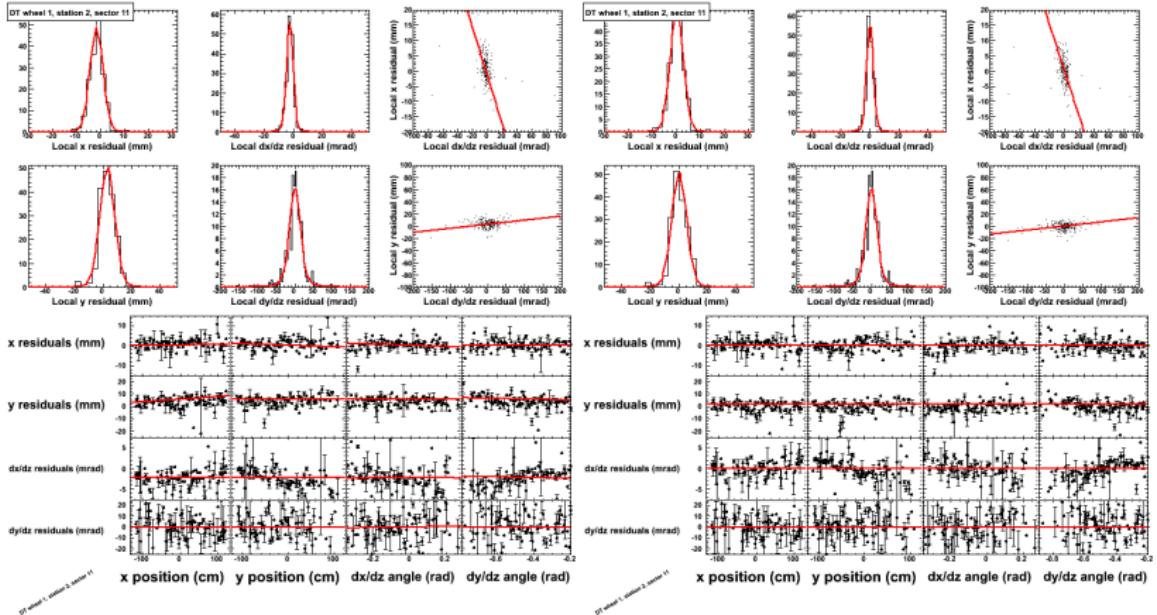


Fit functions

Jim Pivarski 340/24



before (left) and after (right) track-based alignment

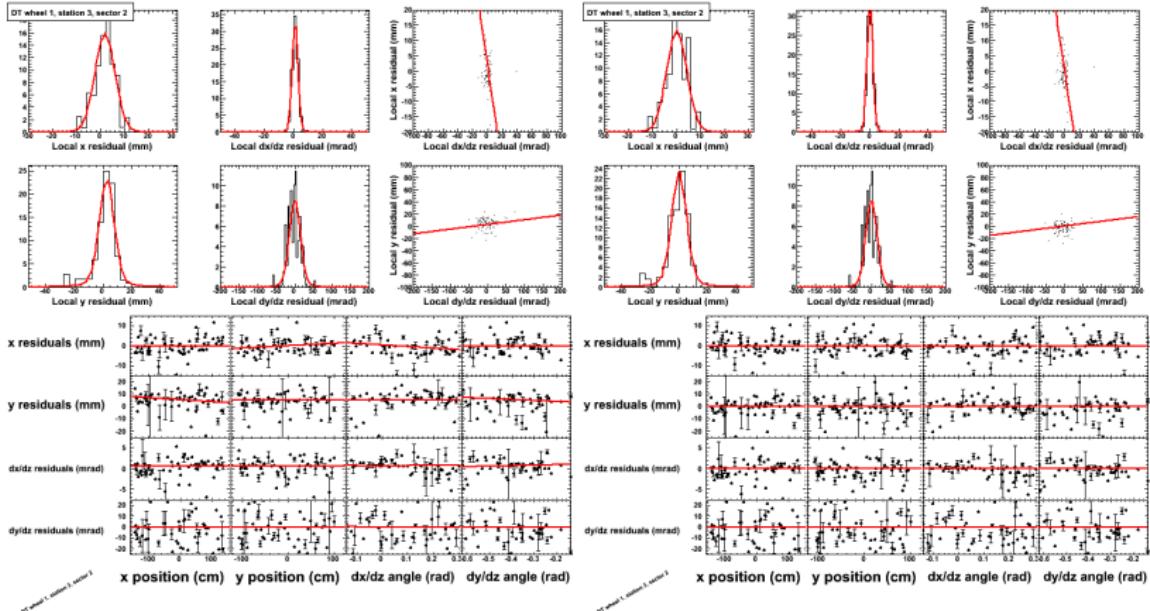


Fit functions

Jim Pivarski 341/24

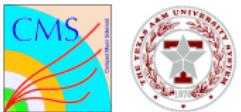


before (left) and after (right) track-based alignment

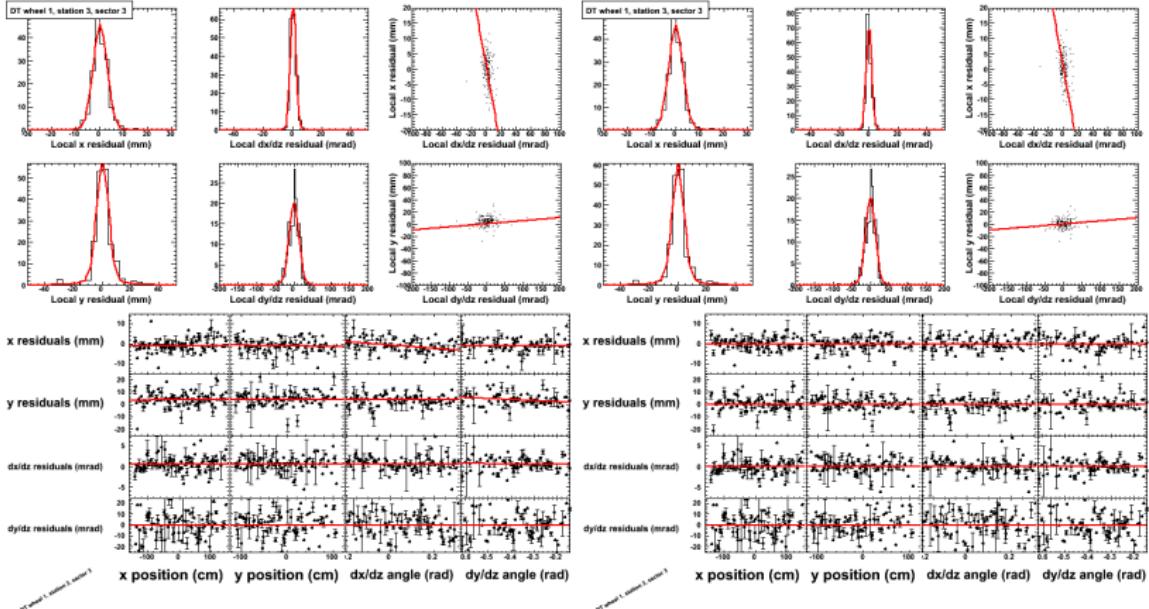


Fit functions

Jim Pivarski 342/24



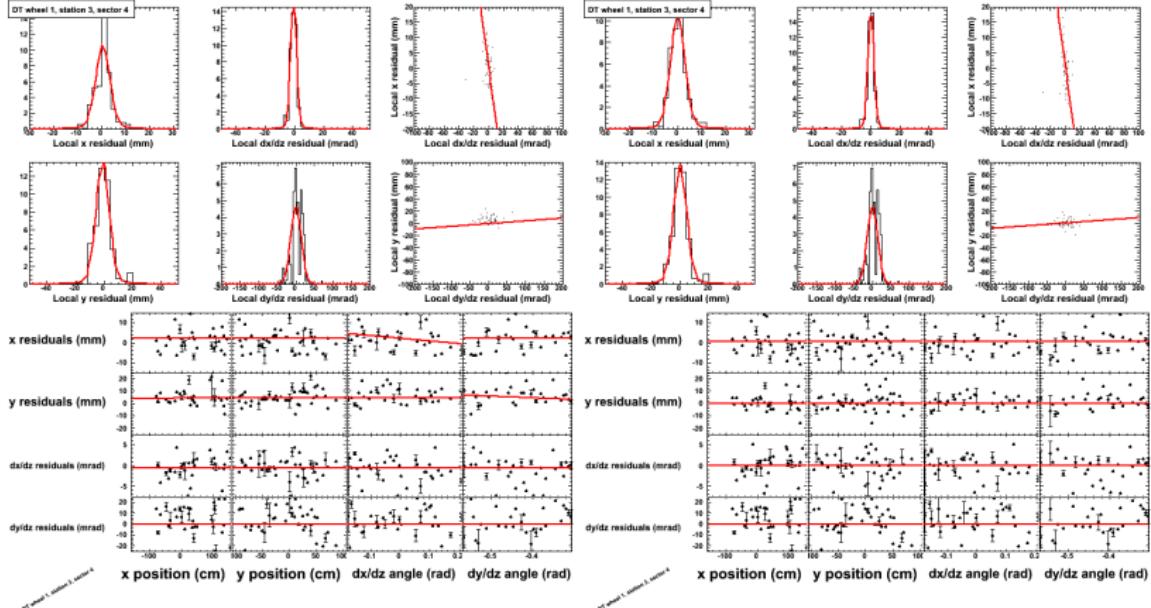
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 343/24

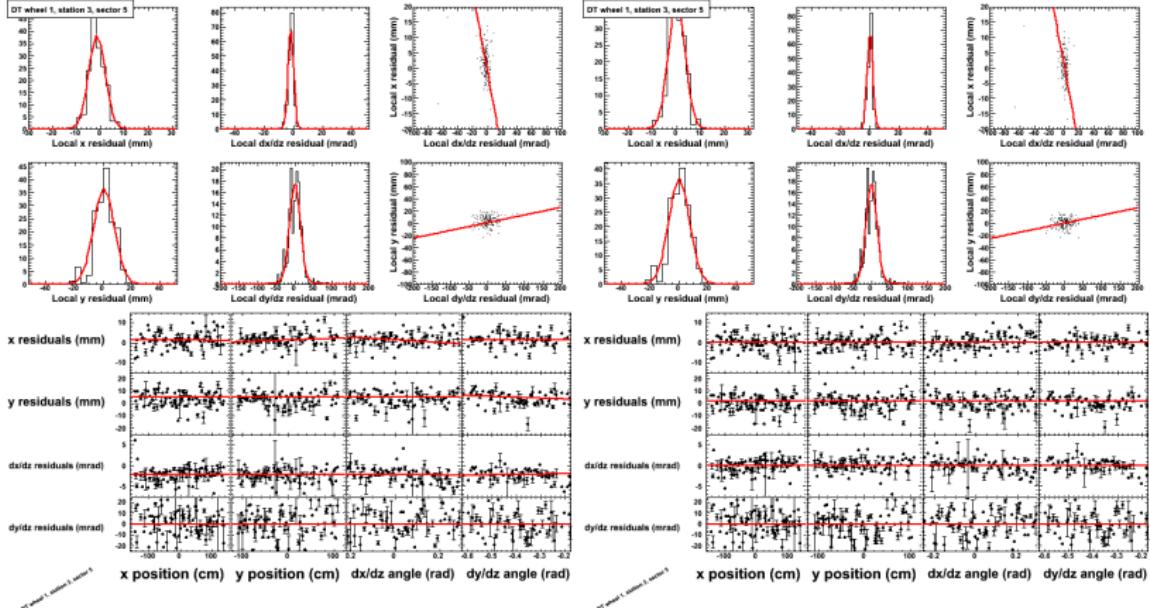
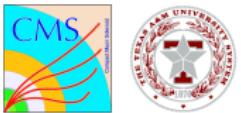
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 344/24

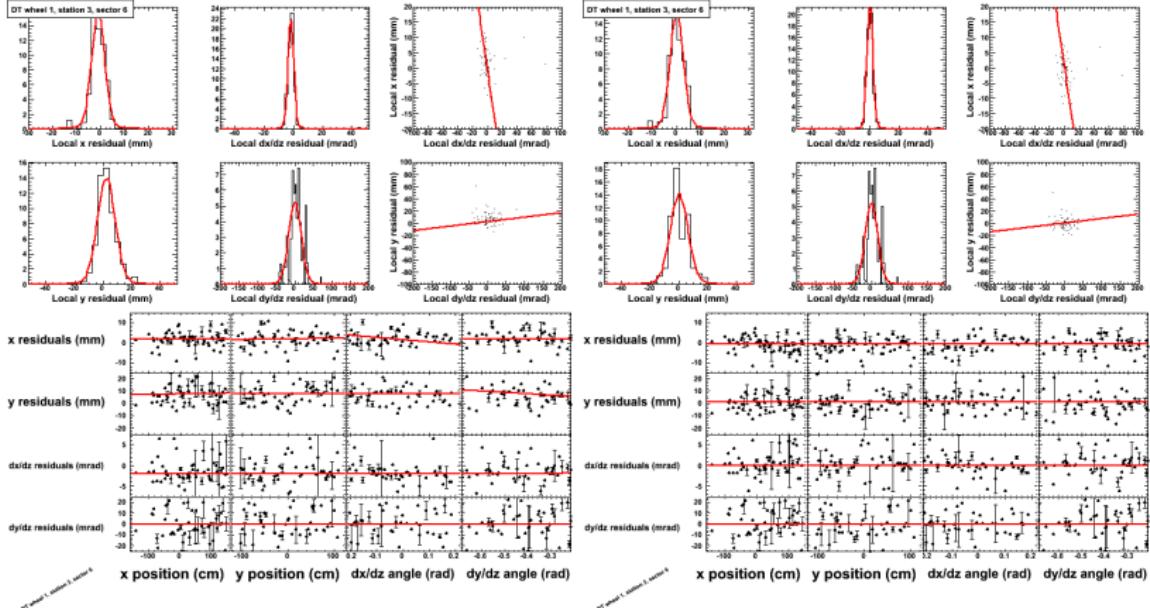
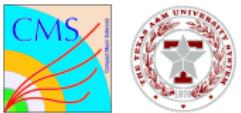
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 345/24

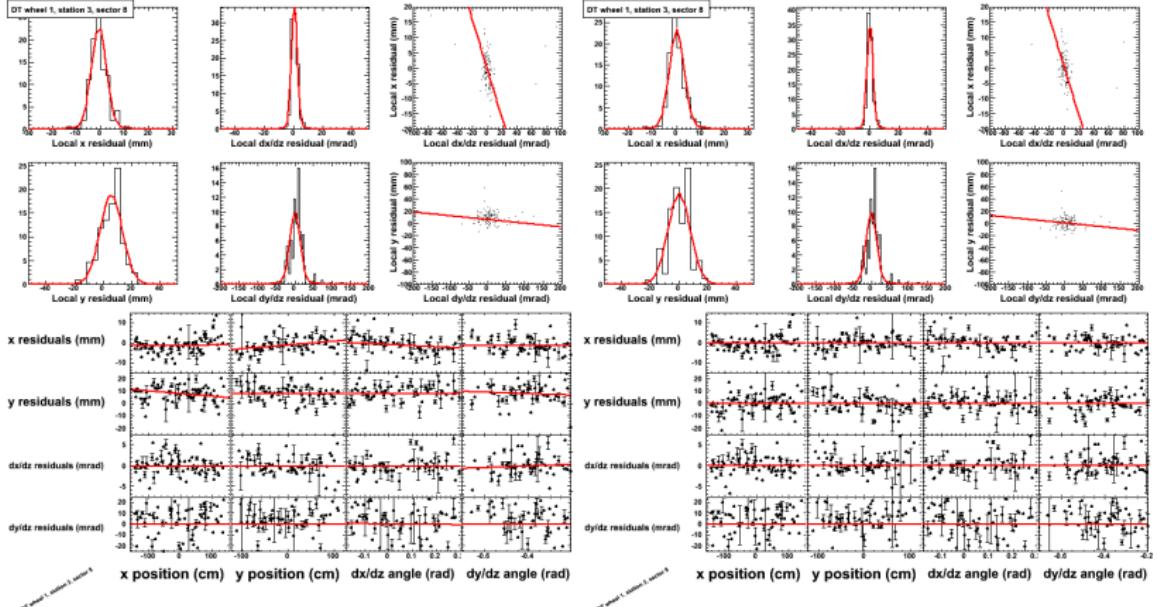
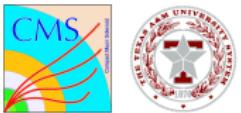
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 346/24

before (left) and after (right) track-based alignment

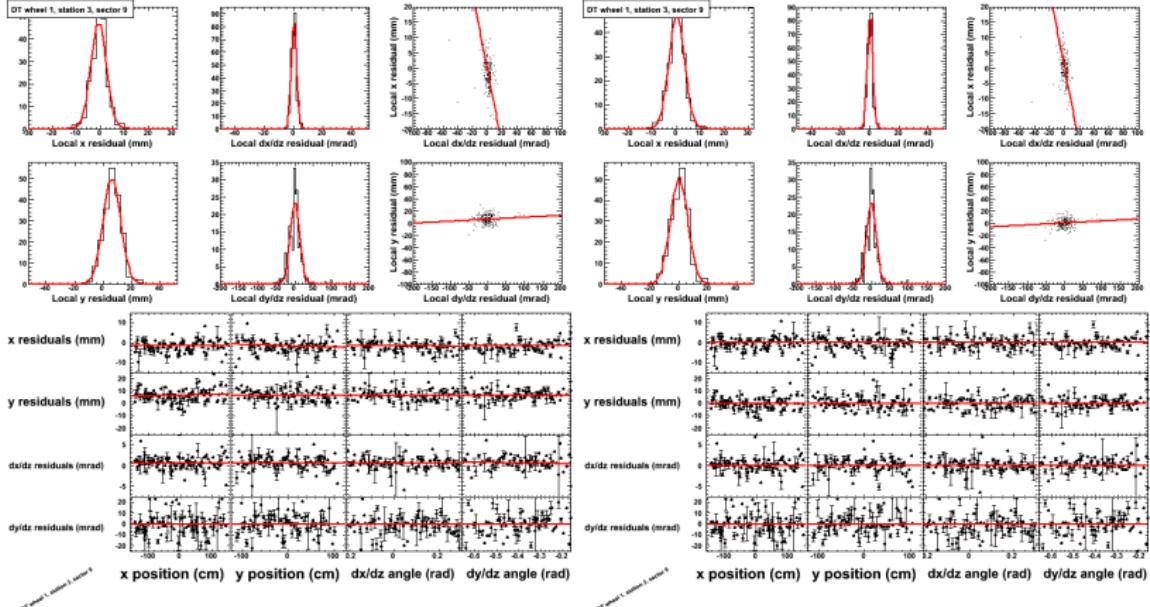


Fit functions

Jim Pivarski 347/24



before (left) and after (right) track-based alignment

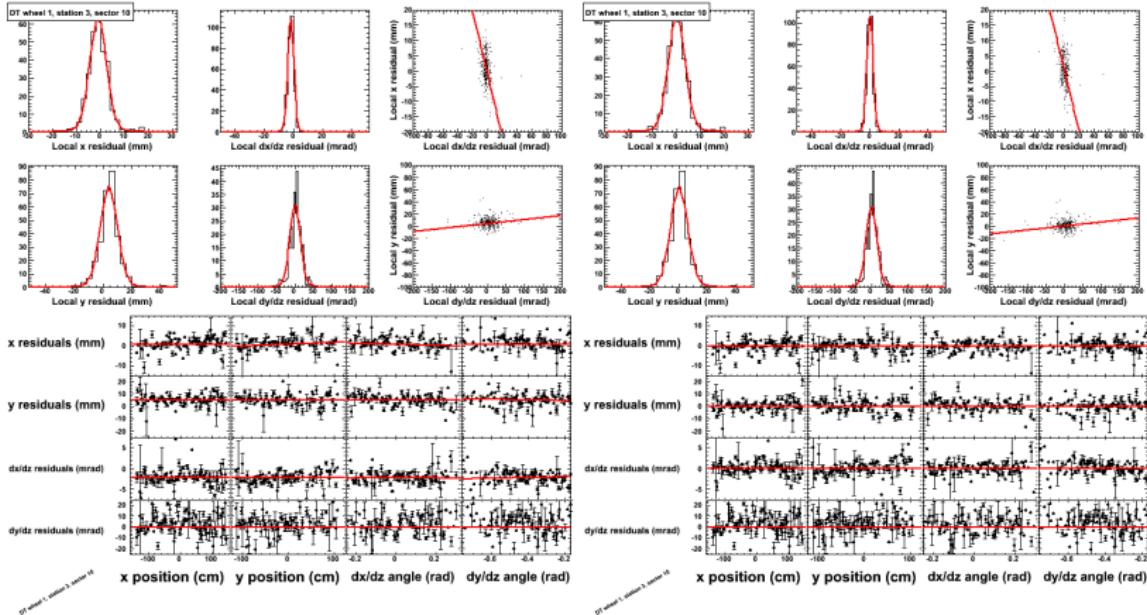


Fit functions

Jim Pivarski 348/24

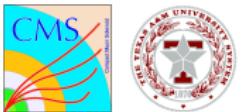


before (left) and after (right) track-based alignment

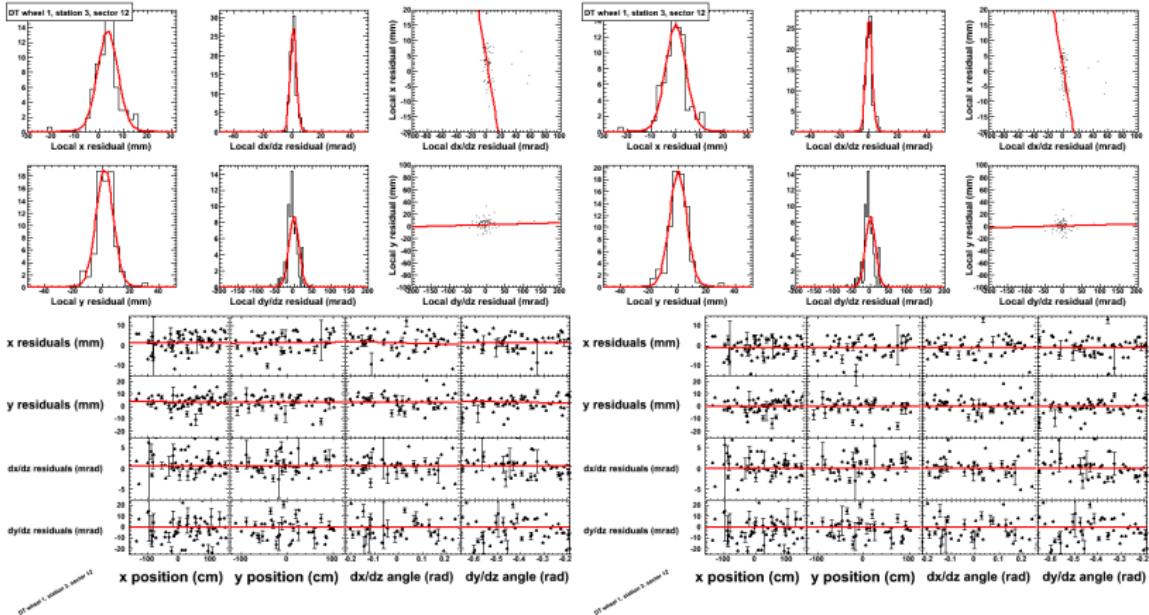


Fit functions

Jim Pivarski 349/24



before (left) and after (right) track-based alignment

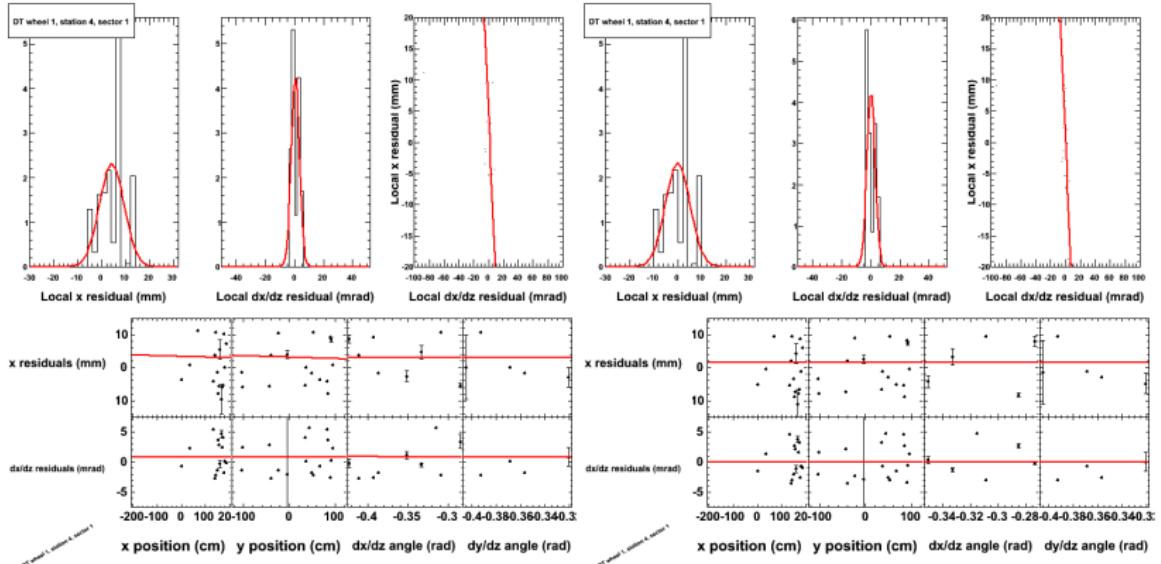


Fit functions

Jim Pivarski 350/24



before (left) and after (right) track-based alignment

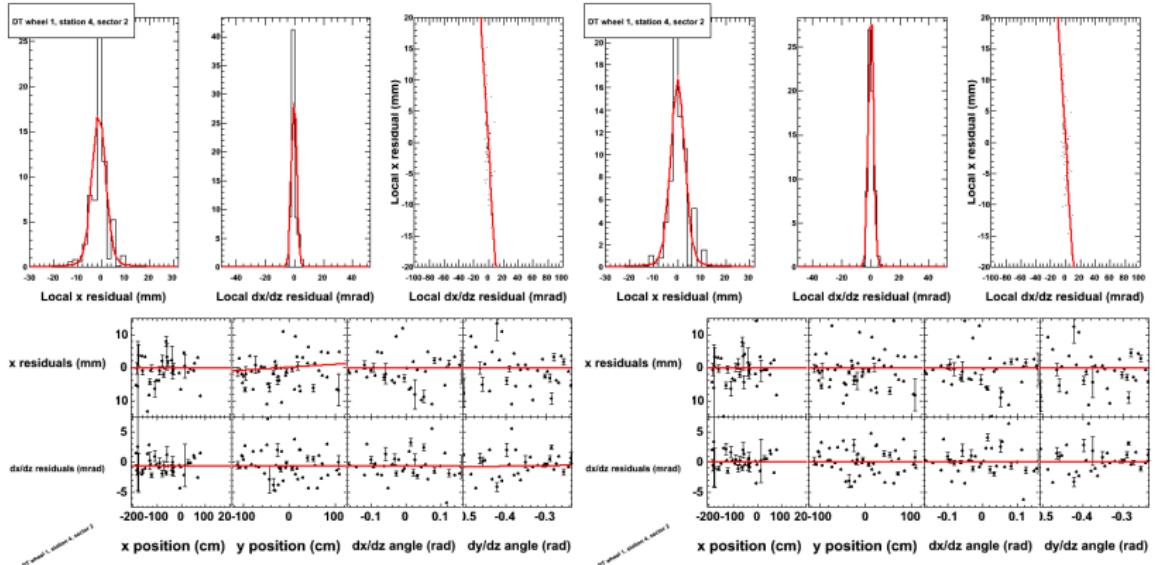


Fit functions

Jim Pivarski 351/24



before (left) and after (right) track-based alignment

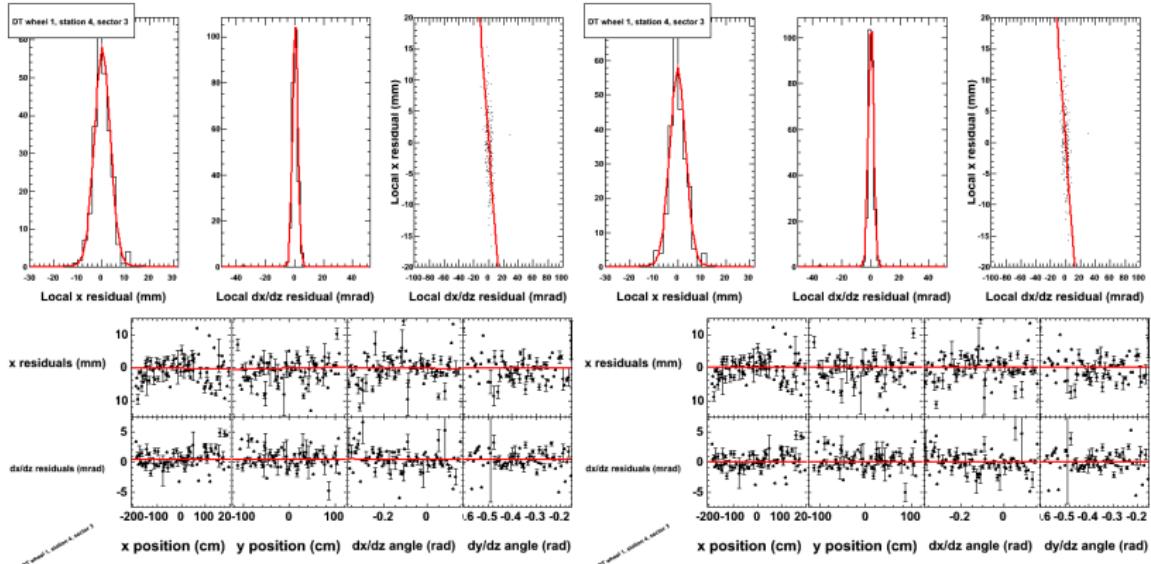


Fit functions

Jim Pivarski 352/24



before (left) and after (right) track-based alignment

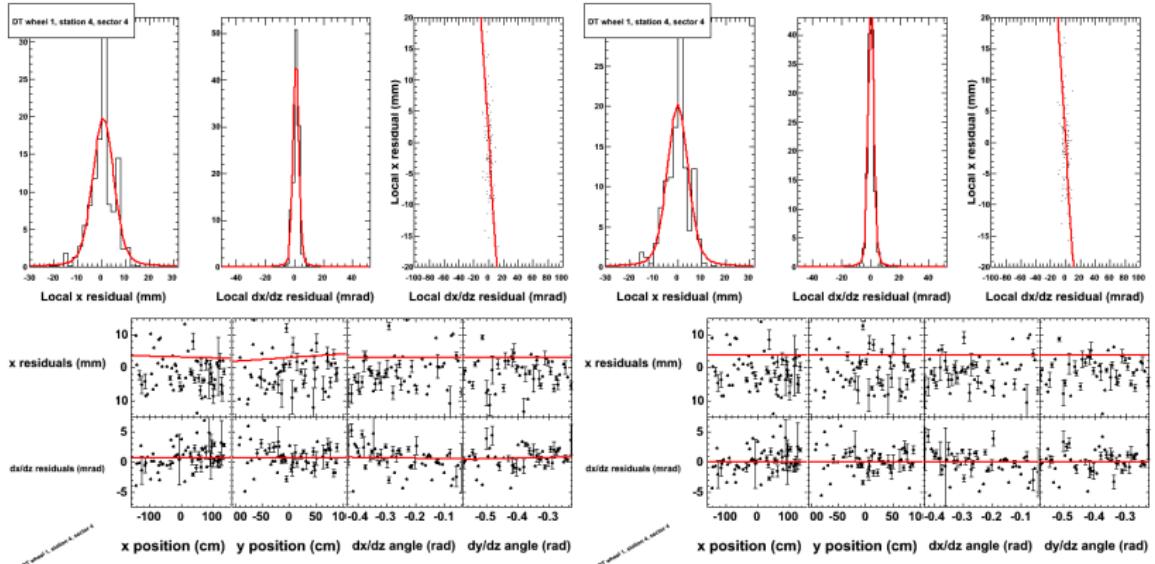


Fit functions

Jim Pivarski 353/24



before (left) and after (right) track-based alignment

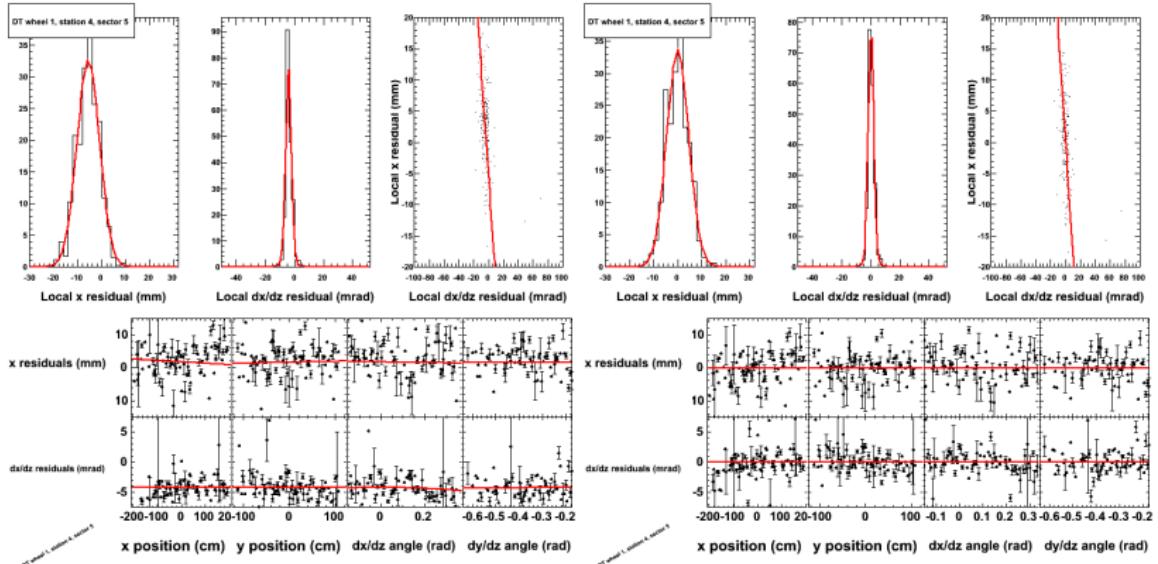


Fit functions

Jim Pivarski 354/24



before (left) and after (right) track-based alignment

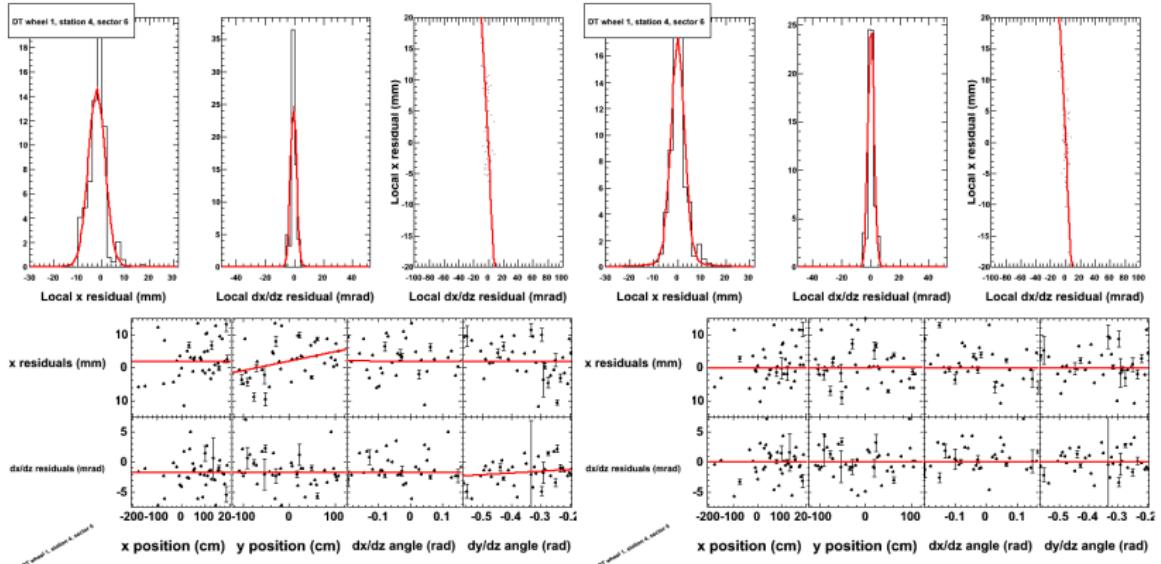


Fit functions

Jim Pivarski 355/24



before (left) and after (right) track-based alignment

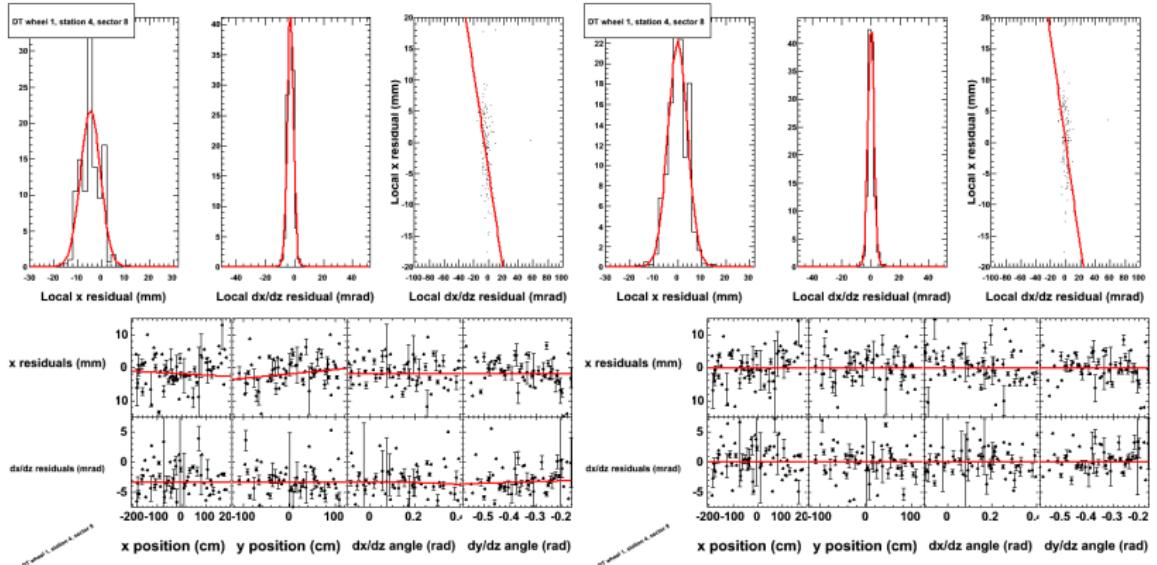


Fit functions

Jim Pivarski 356/24



before (left) and after (right) track-based alignment

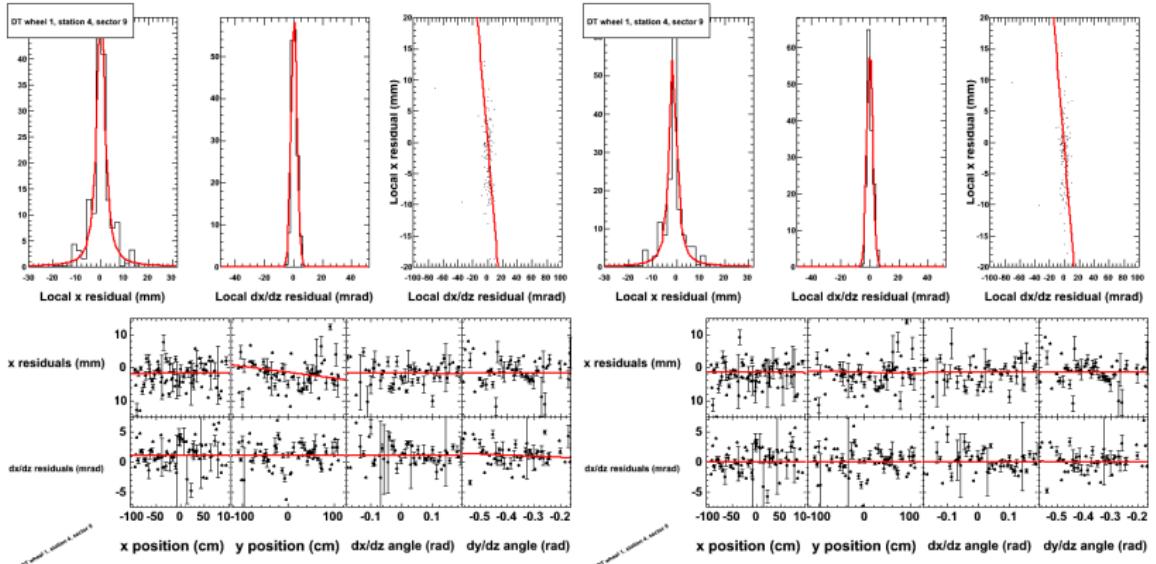


Fit functions

Jim Pivarski 357/24



before (left) and after (right) track-based alignment

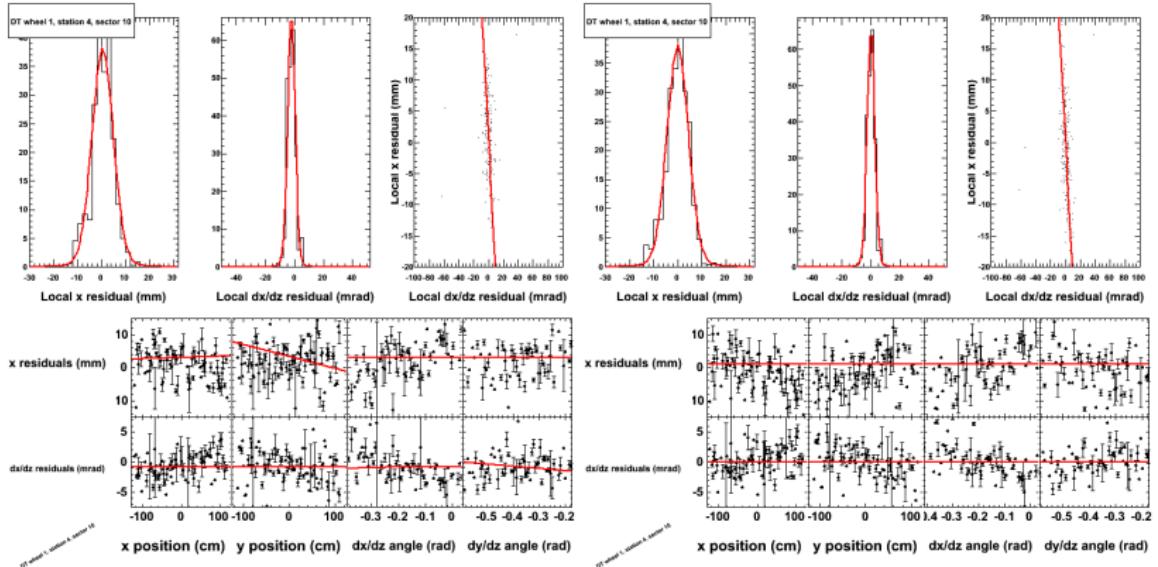


Fit functions

Jim Pivarski 358/24



before (left) and after (right) track-based alignment

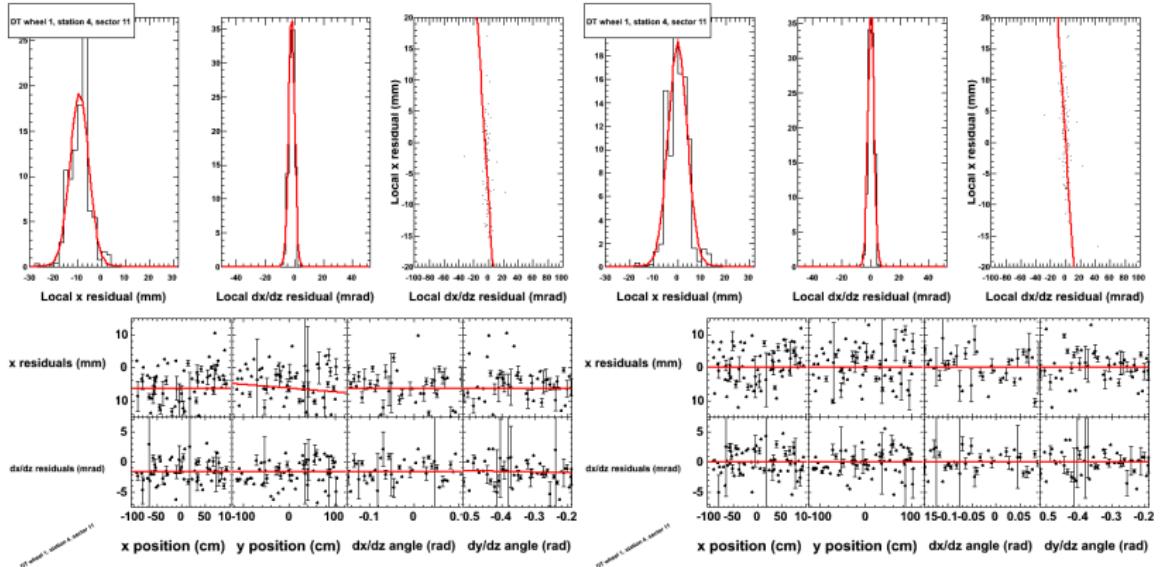


Fit functions

Jim Pivarski 359/24

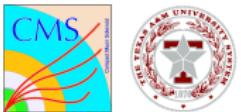


before (left) and after (right) track-based alignment

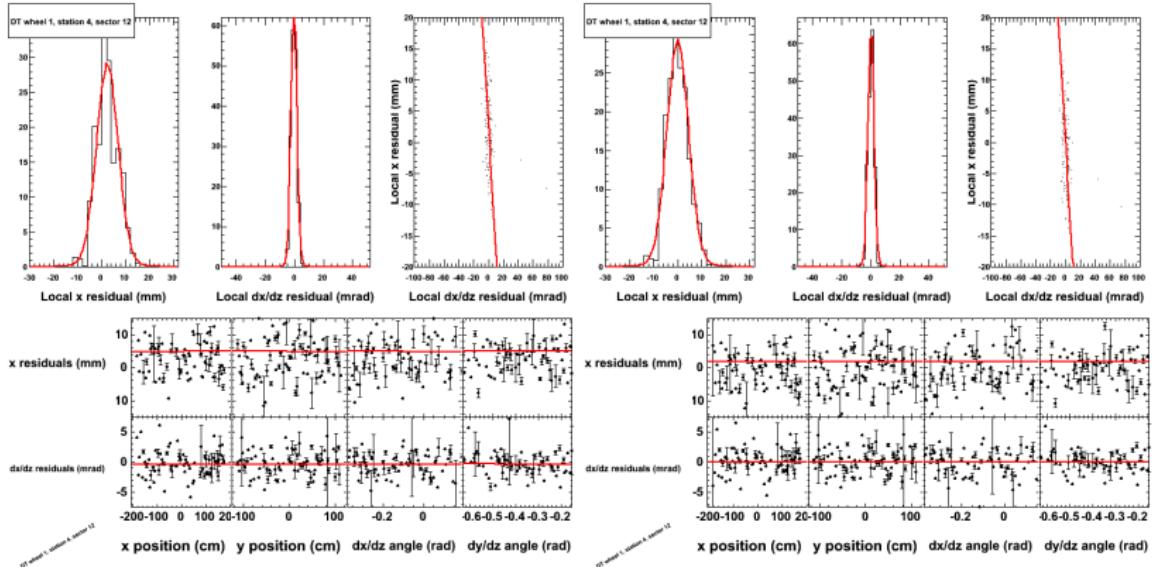


Fit functions

Jim Pivarski 360/24



before (left) and after (right) track-based alignment

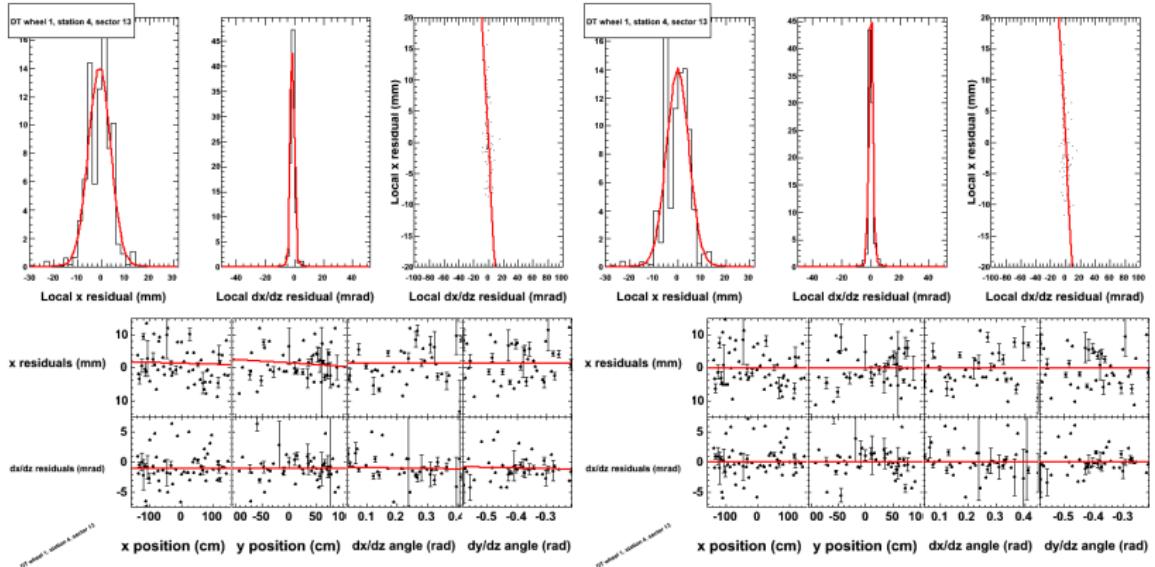


Fit functions

Jim Pivarski 361/24



before (left) and after (right) track-based alignment

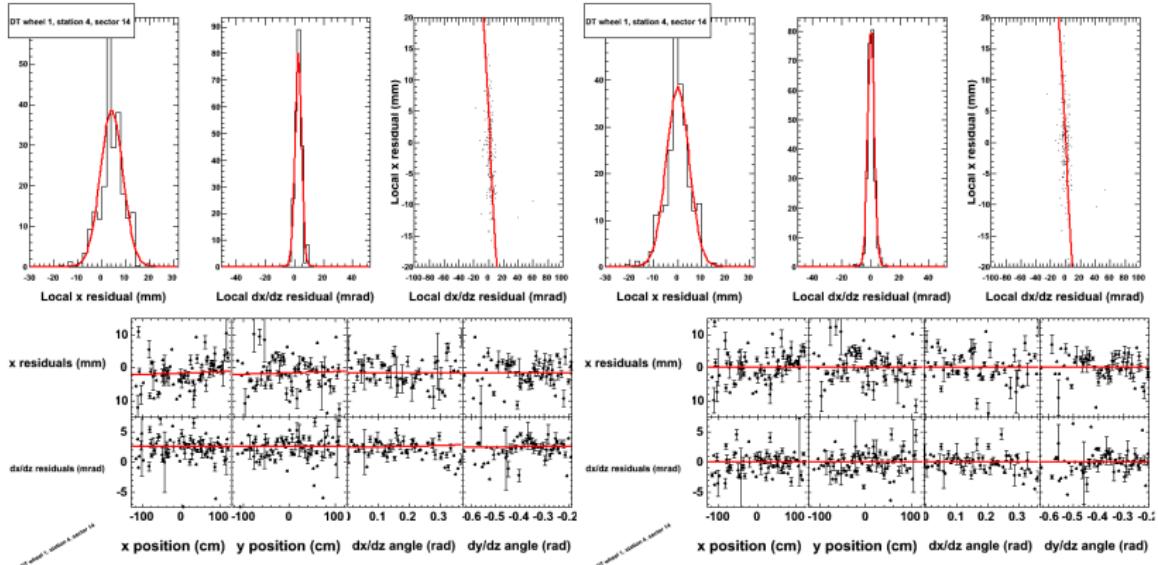


Fit functions

Jim Pivarski 362/24



before (left) and after (right) track-based alignment

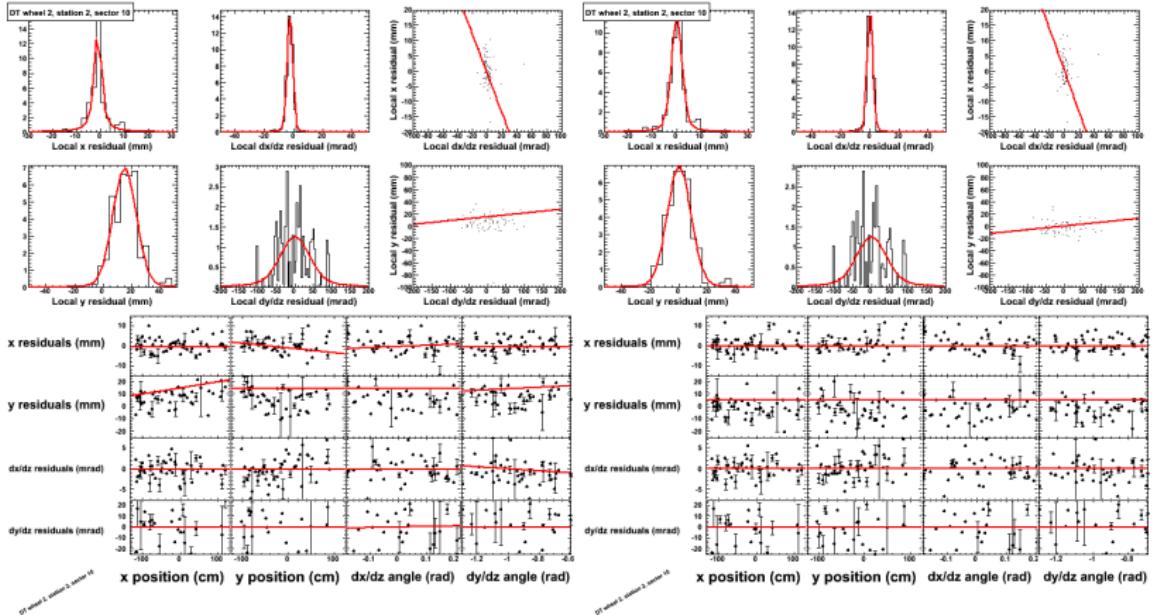


Fit functions

Jim Pivarski 363/24



before (left) and after (right) track-based alignment

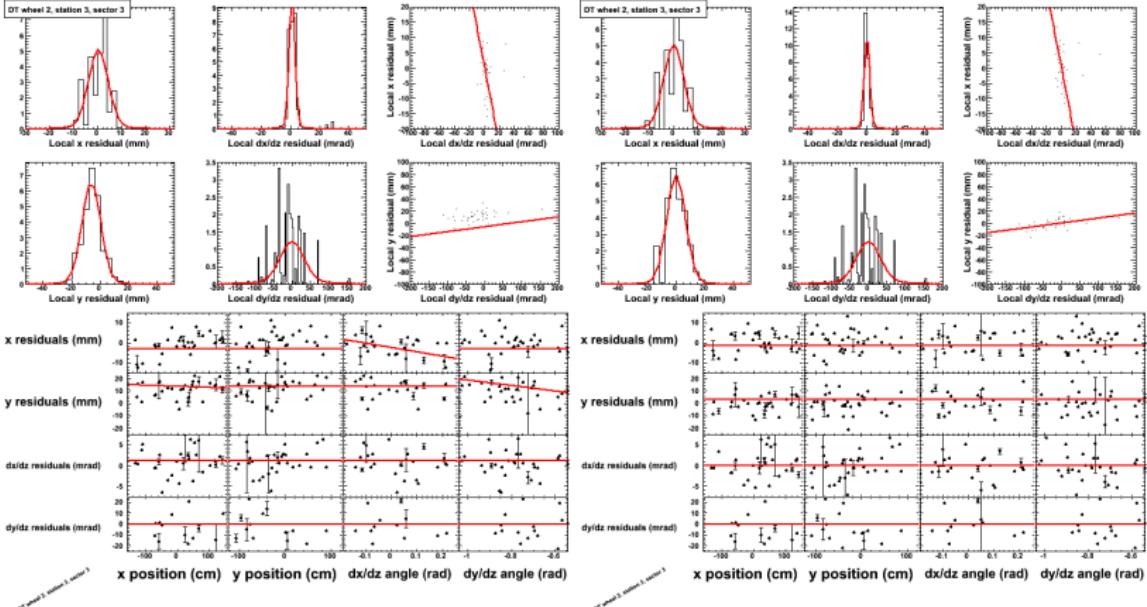


Fit functions

Jim Pivarski 364/24



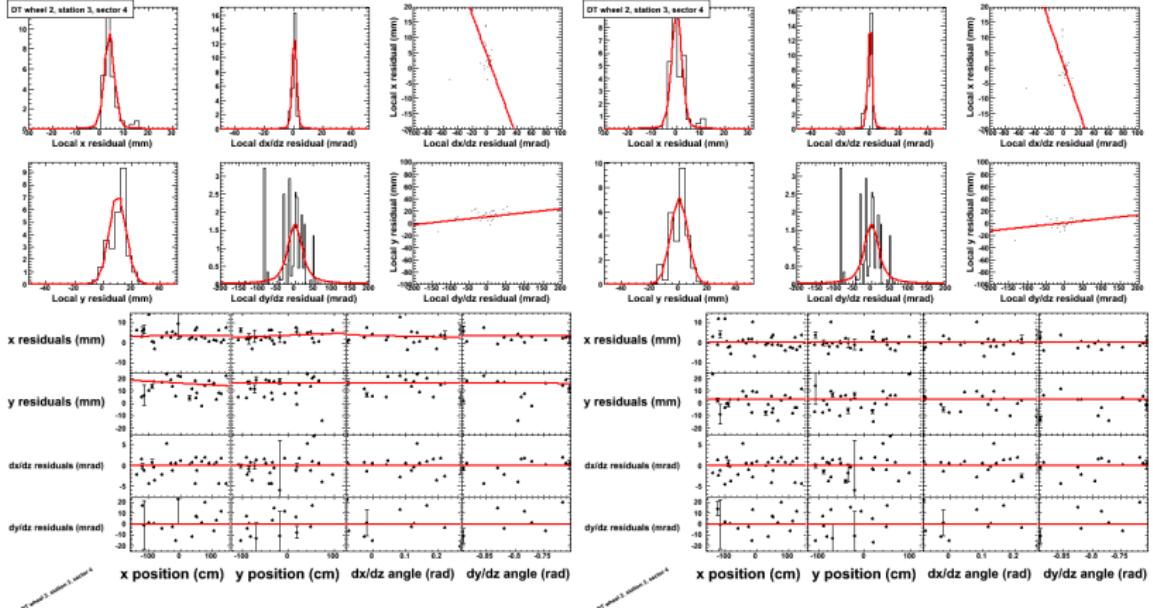
before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 365/24

before (left) and after (right) track-based alignment

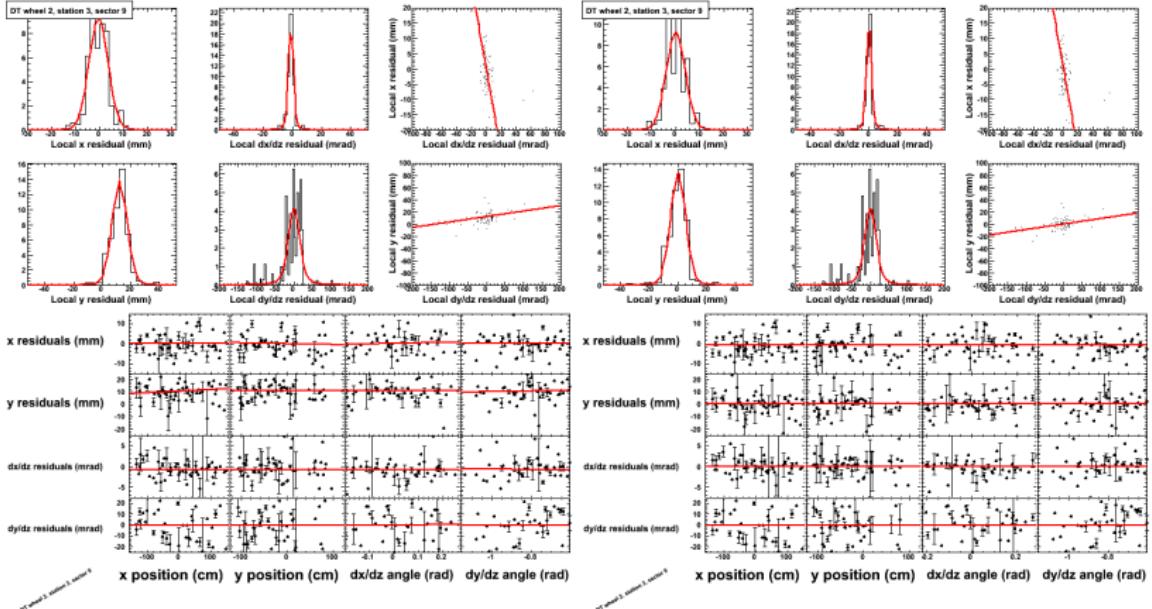


Fit functions

Jim Pivarski 366/24



before (left) and after (right) track-based alignment

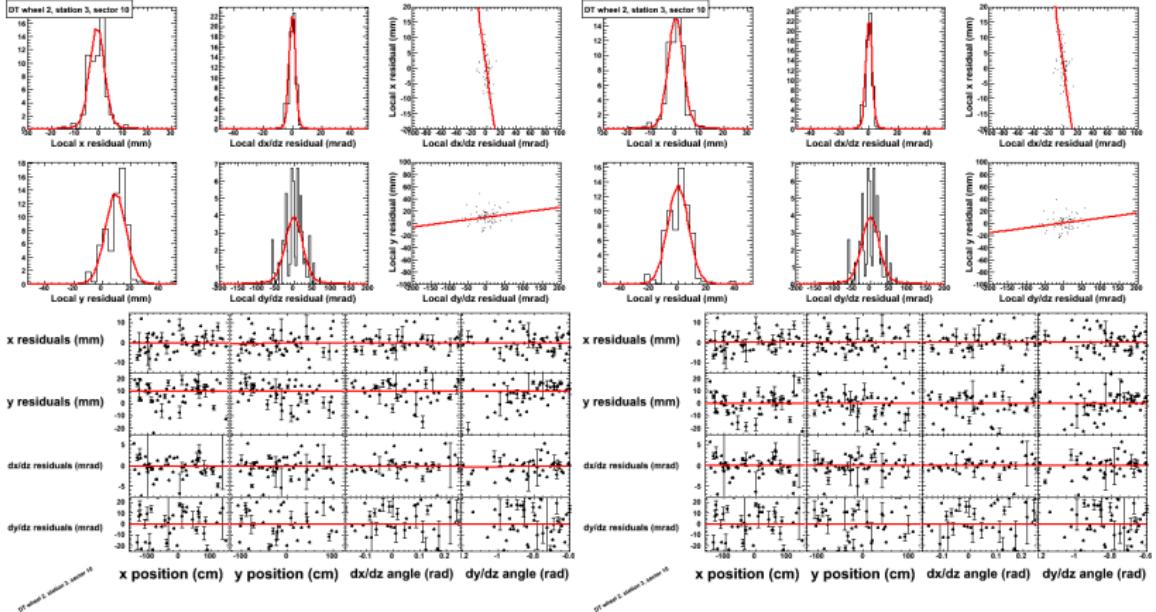


Fit functions

Jim Pivarski 367/24



before (left) and after (right) track-based alignment

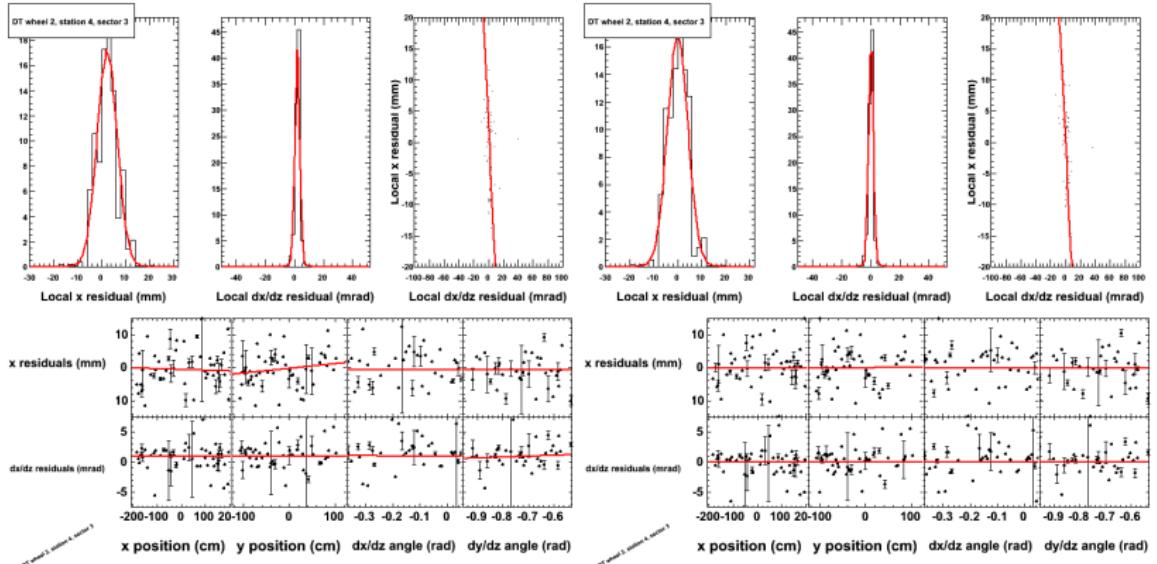


Fit functions

Jim Pivarski 368/24



before (left) and after (right) track-based alignment

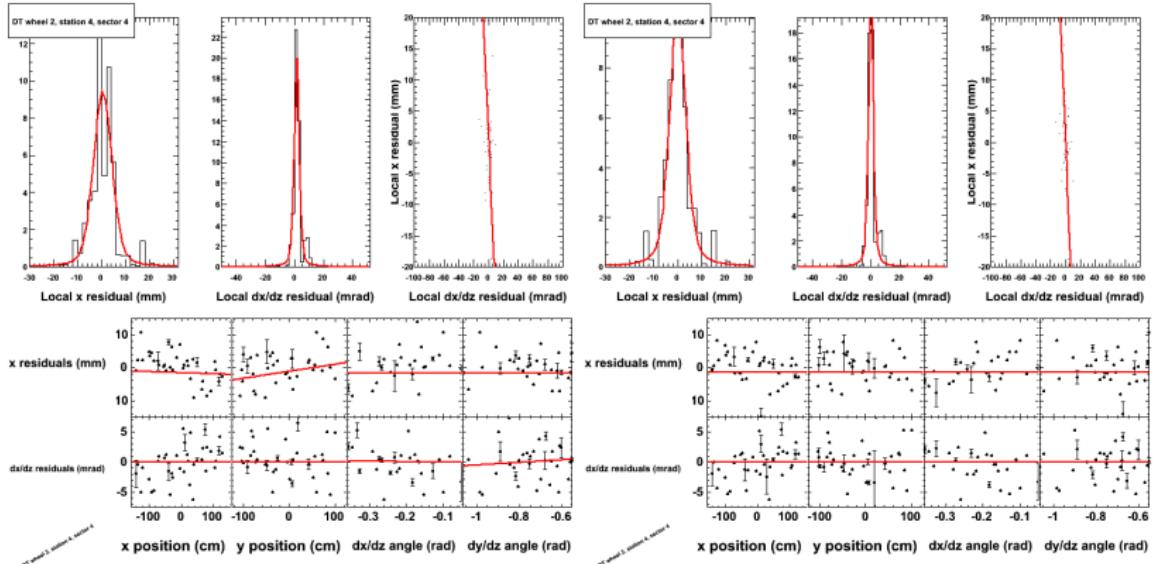


Fit functions

Jim Pivarski 369/24



before (left) and after (right) track-based alignment

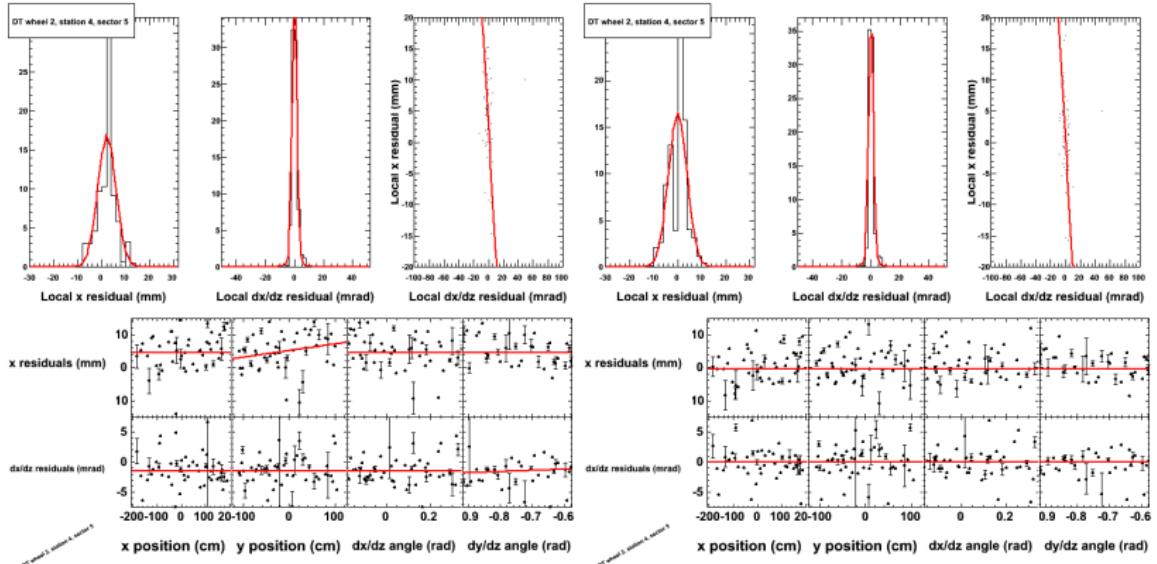


Fit functions

Jim Pivarski 370/24



before (left) and after (right) track-based alignment

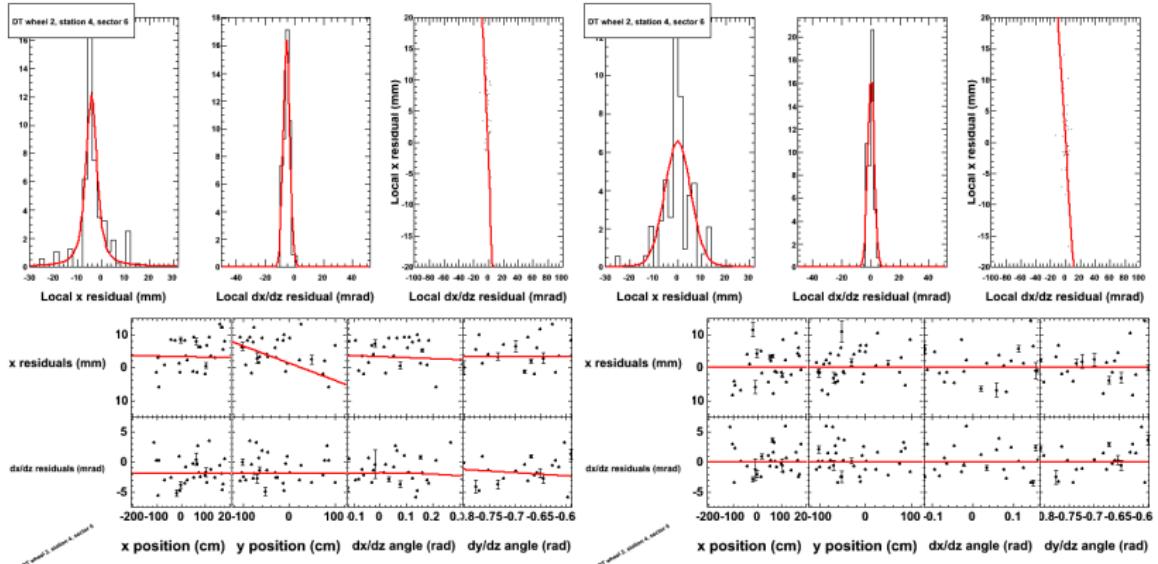


Fit functions

Jim Pivarski 371/24



before (left) and after (right) track-based alignment

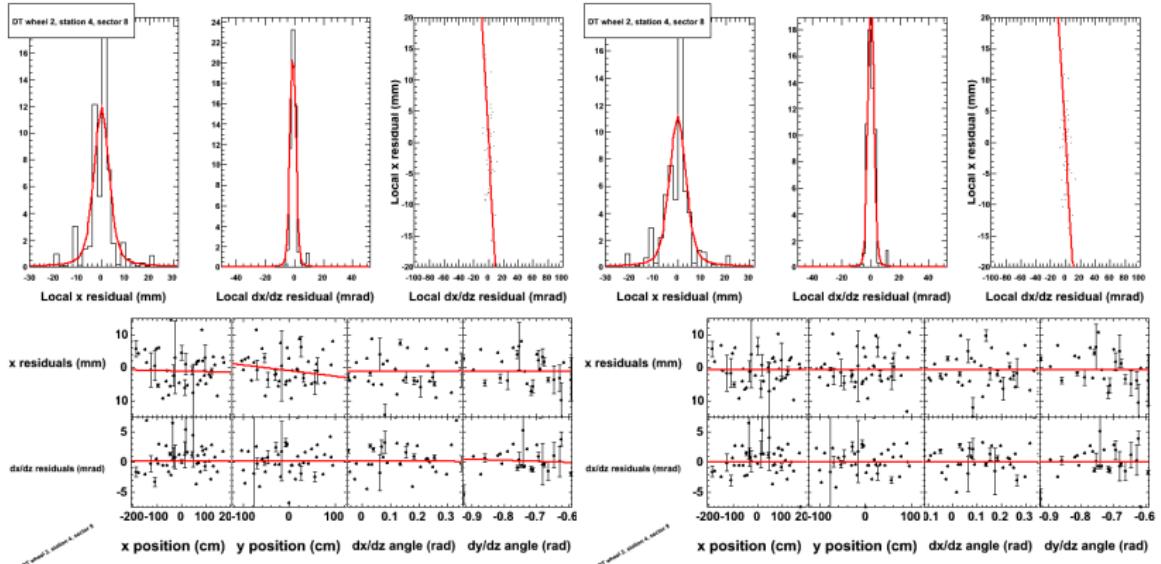


Fit functions

Jim Pivarski 372/24



before (left) and after (right) track-based alignment

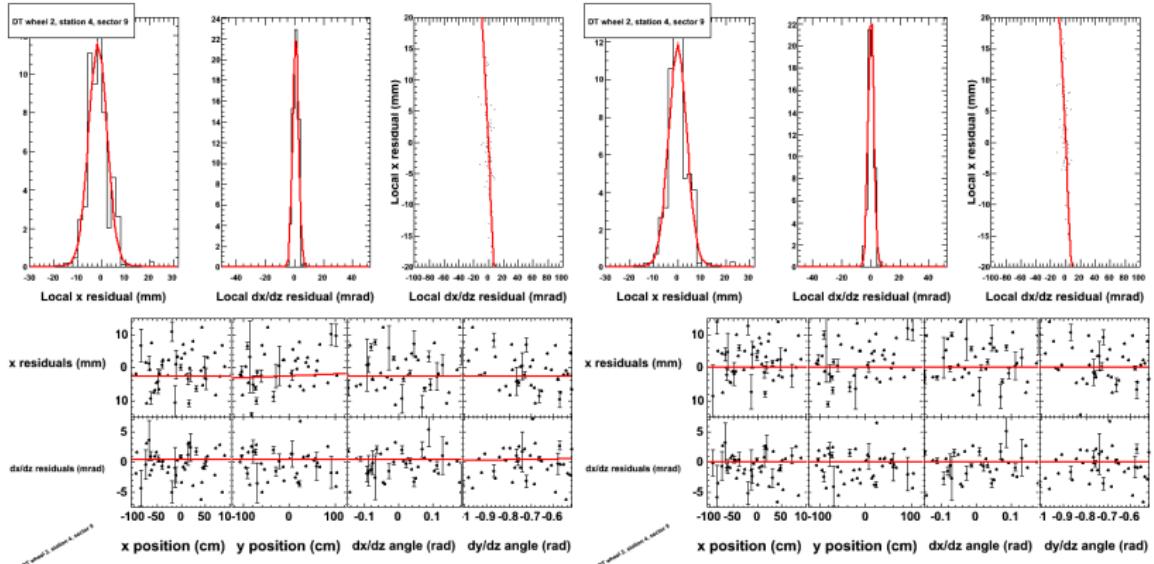


Fit functions

Jim Pivarski 373/24



before (left) and after (right) track-based alignment

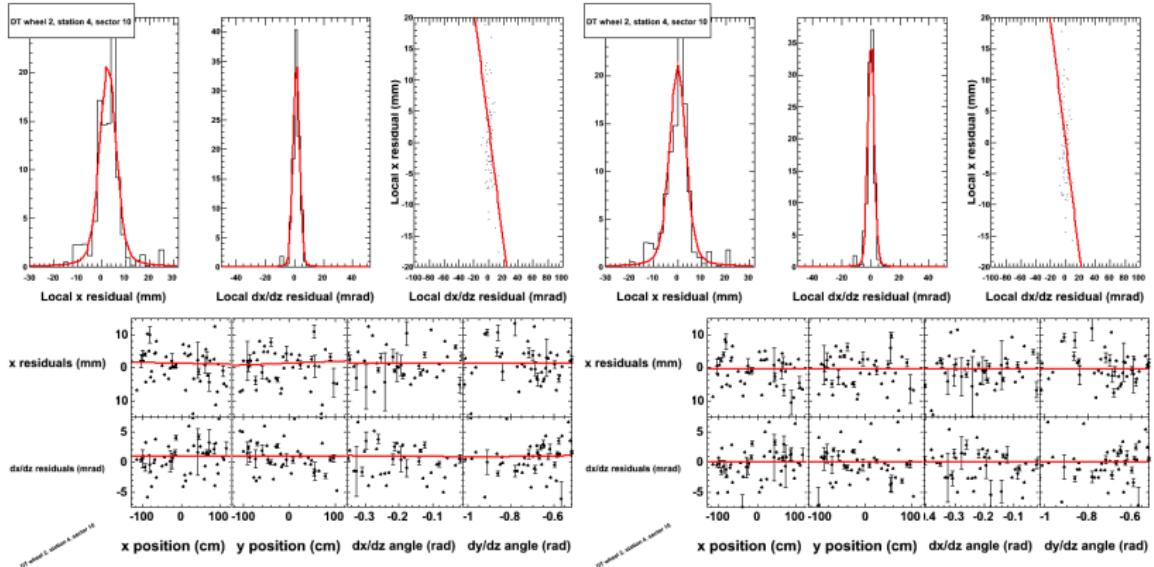


Fit functions

Jim Pivarski 374/24



before (left) and after (right) track-based alignment

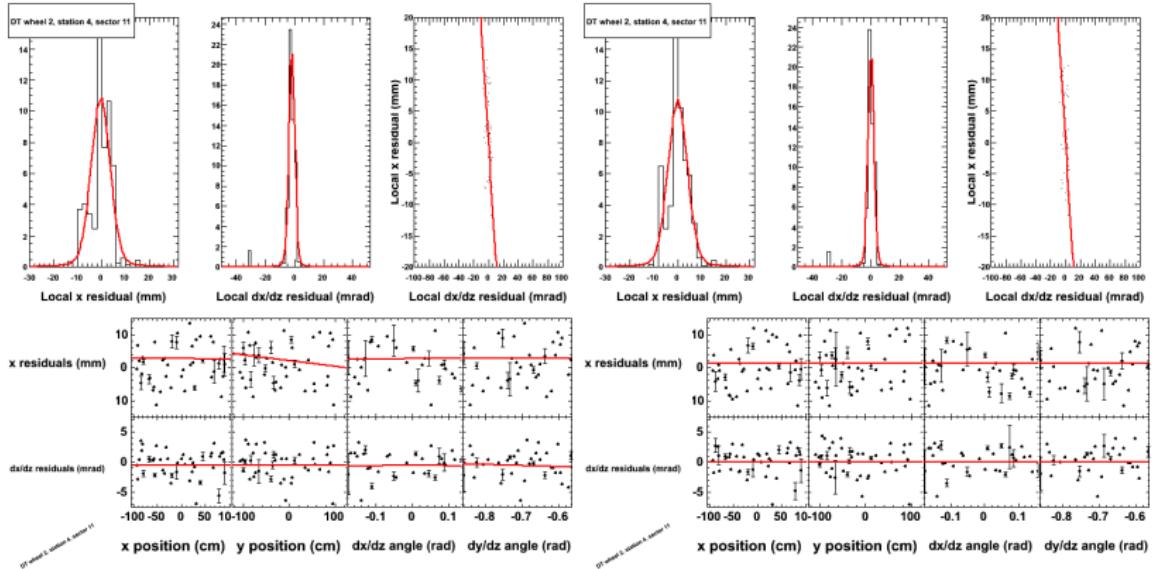


Fit functions

Jim Pivarski 375/24



before (left) and after (right) track-based alignment

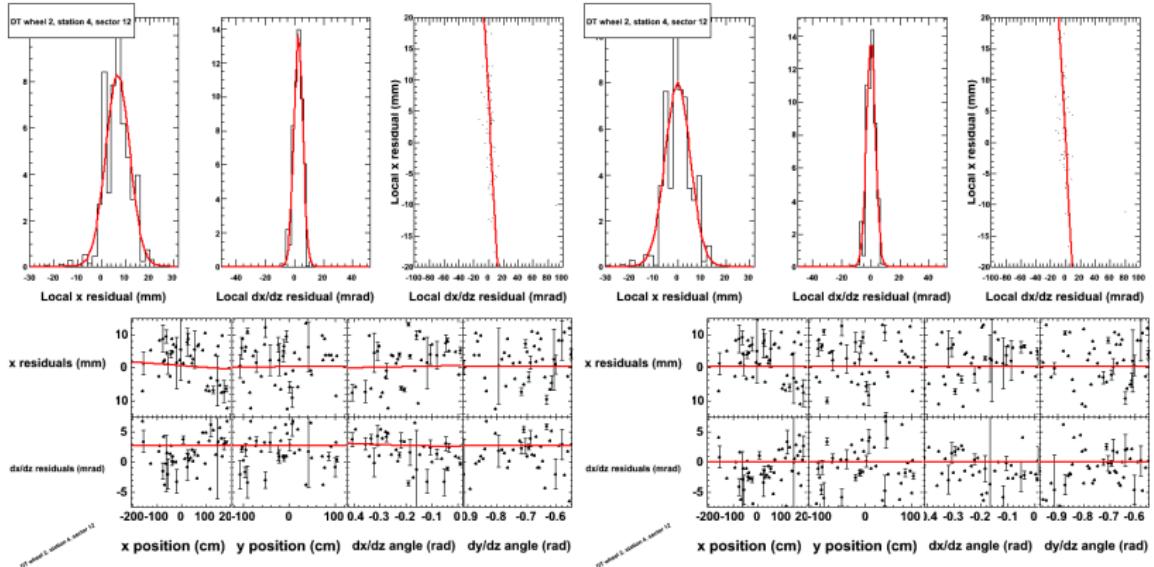


Fit functions

Jim Pivarski 376/24



before (left) and after (right) track-based alignment

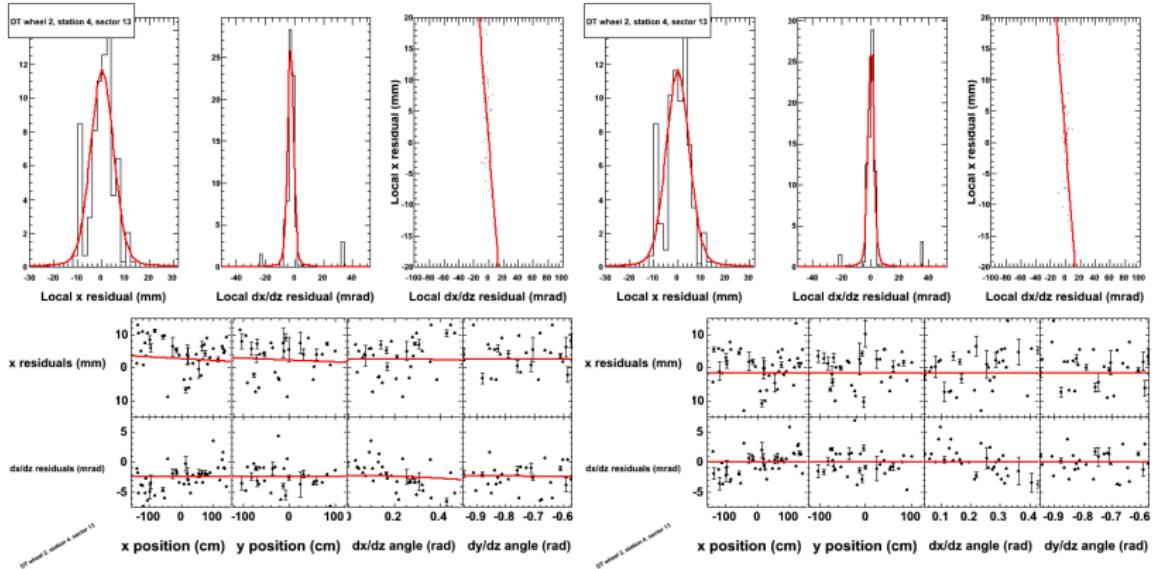


Fit functions

Jim Pivarski 377/24



before (left) and after (right) track-based alignment



Fit functions

Jim Pivarski 378/24



before (left) and after (right) track-based alignment

