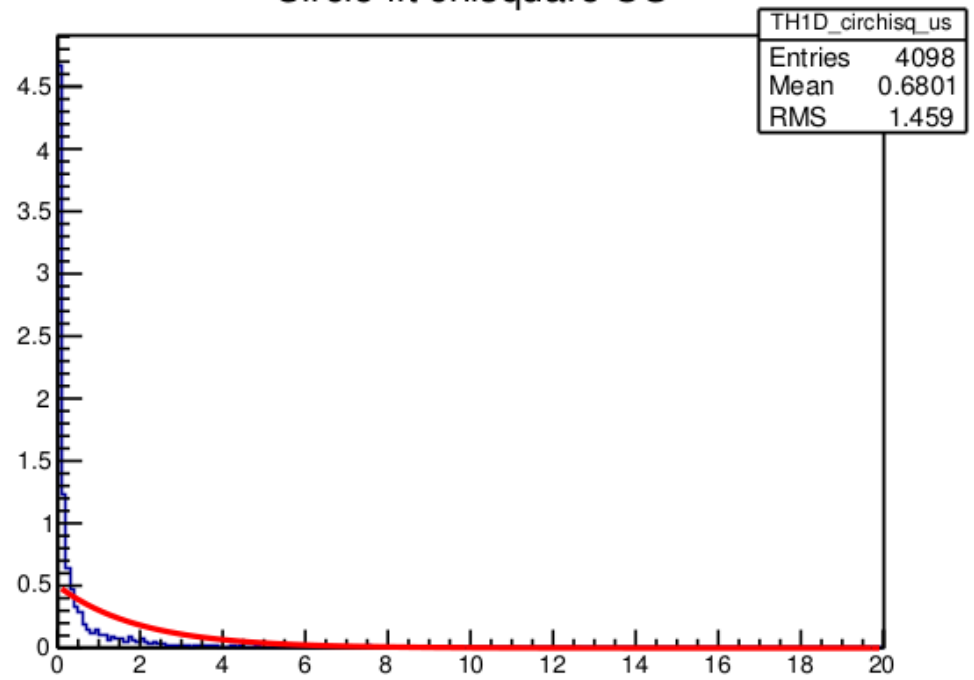
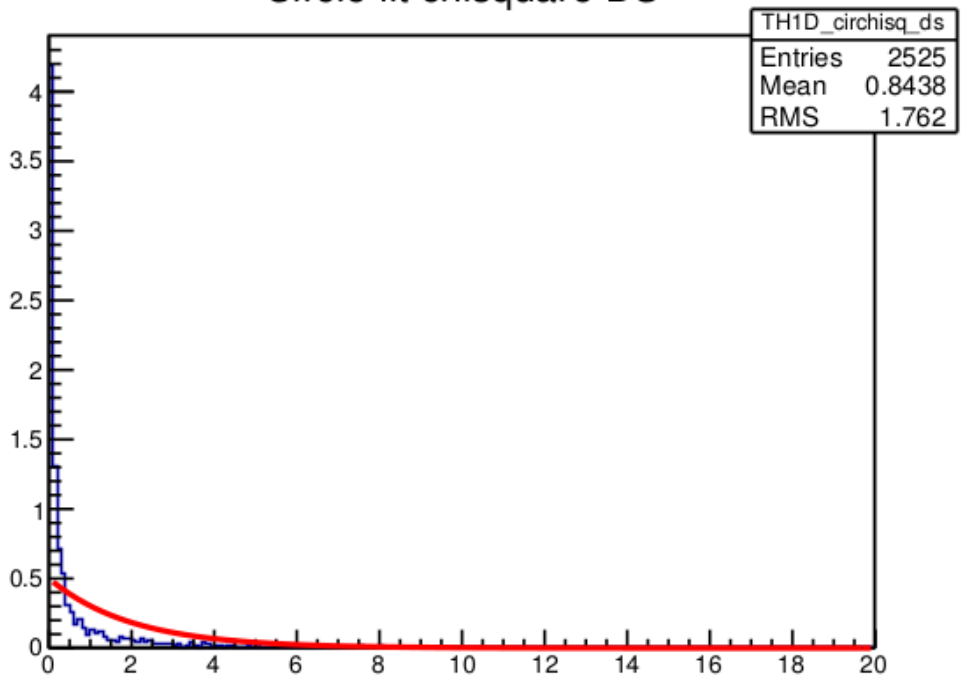
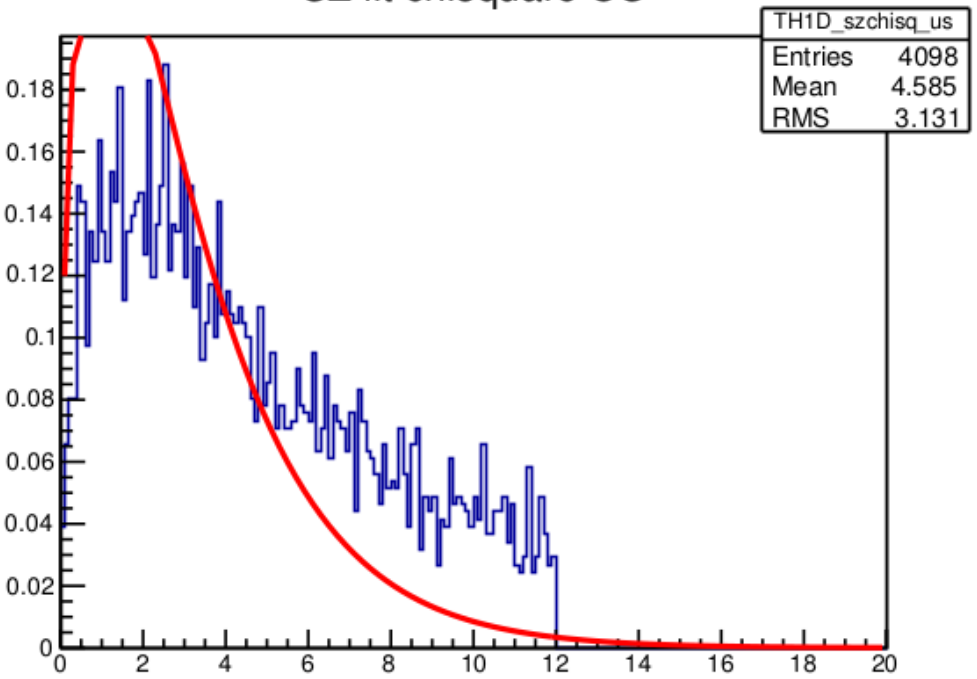
Update

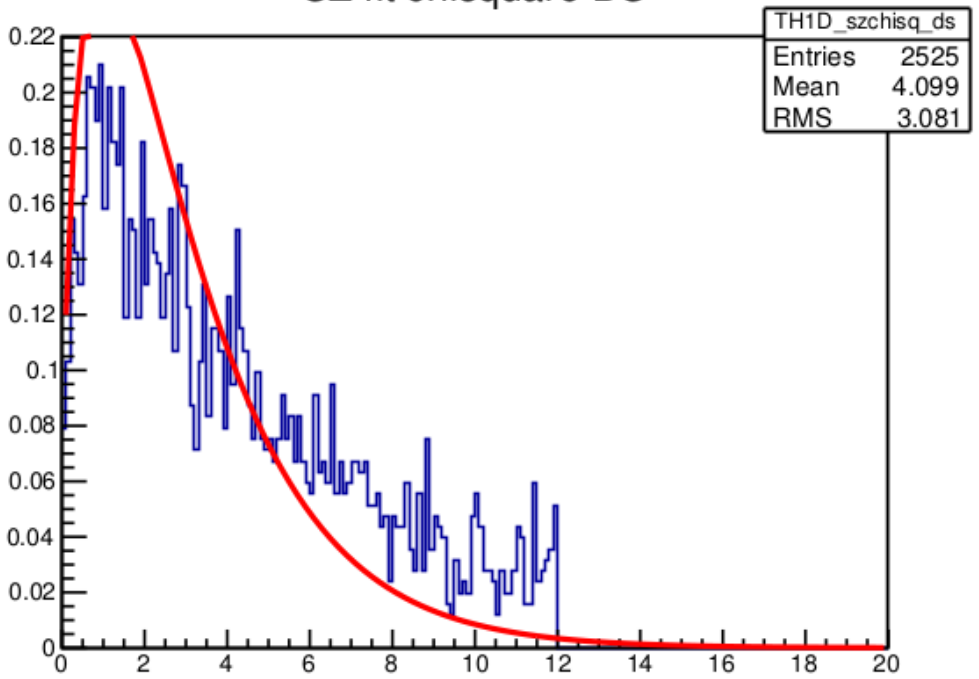
1. Funky chi-squares
2. Event Displays
3. dx-y, dy-x residuals for Data/MC

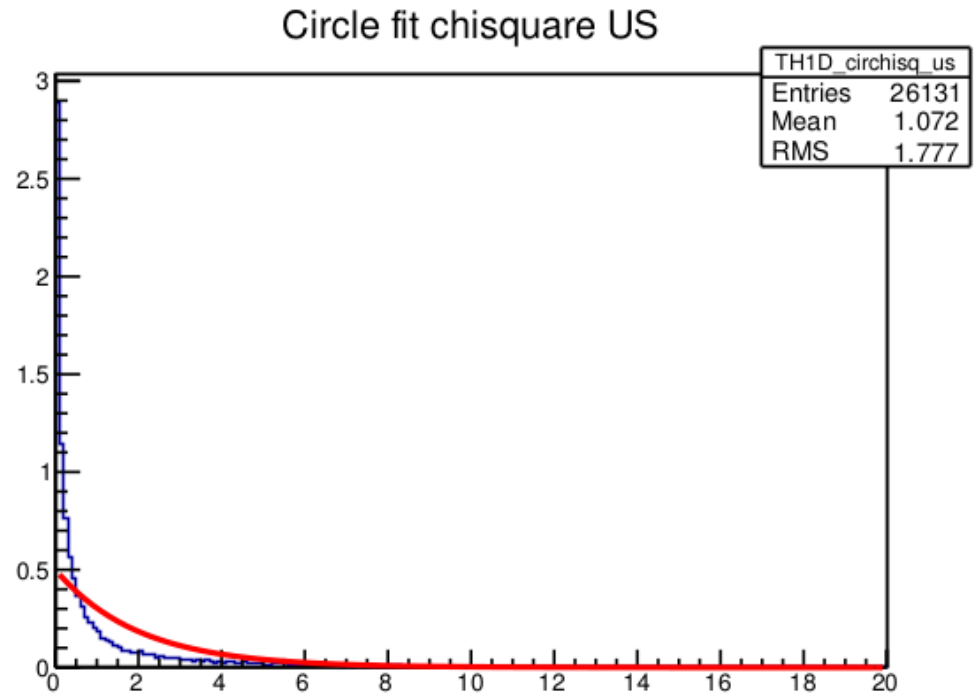

Circle fit chisquare US
TH1D_circhisq_us
Entries 4098
Mean 0.6801
RMS 1.459

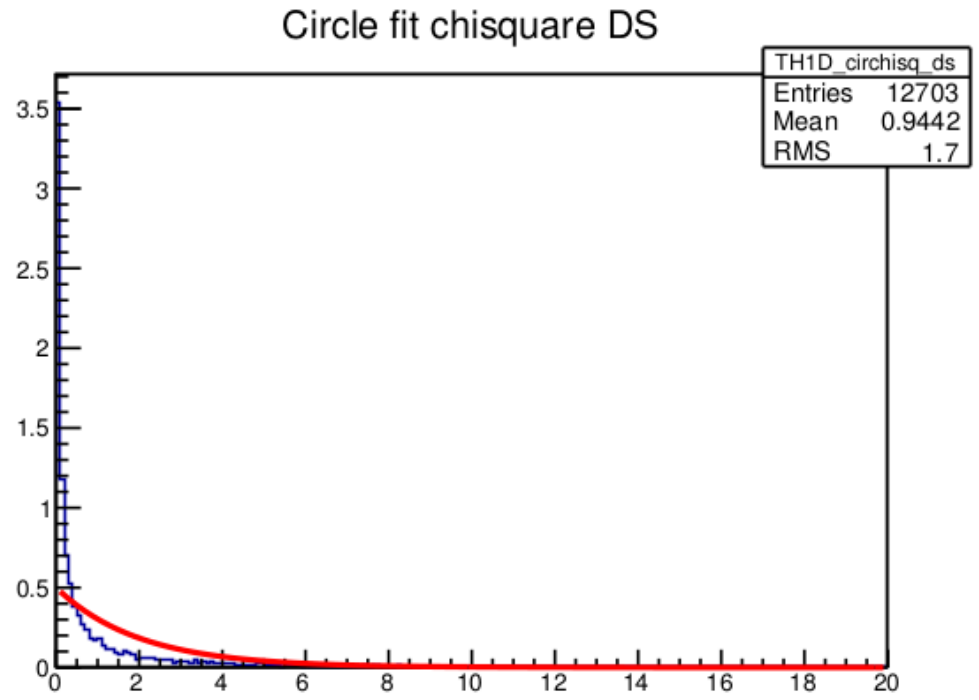

Circle fit chisquare DS
TH1D_circhisq_ds
Entries 2525
Mean 0.8438
RMS 1.762

MC-140MeV

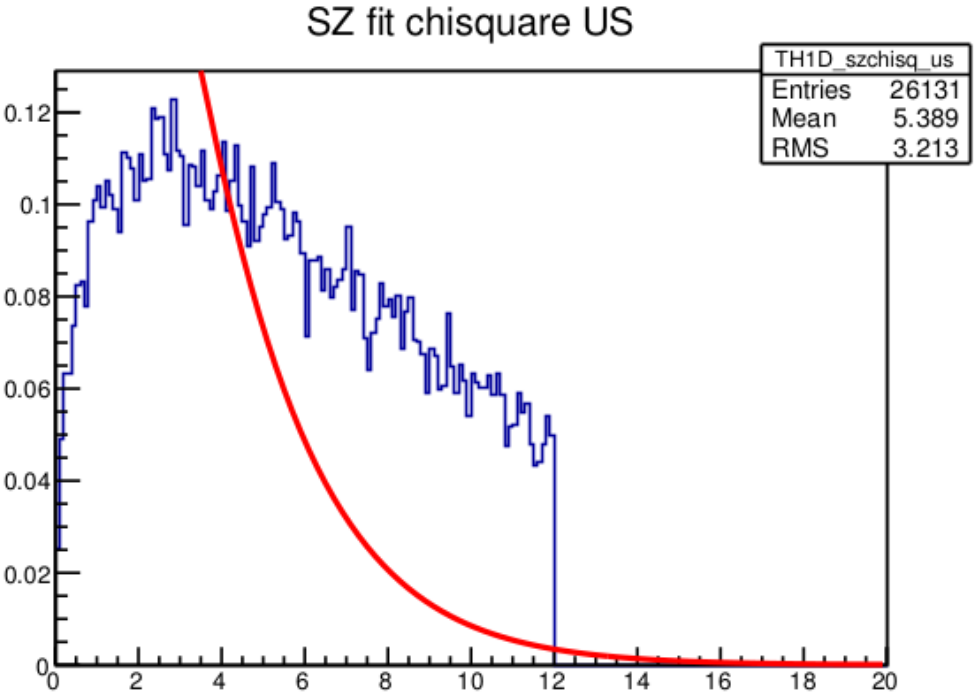

SZ fit chisquare US
TH1D_szchisq_us
Entries 4098
Mean 4.585
RMS 3.131

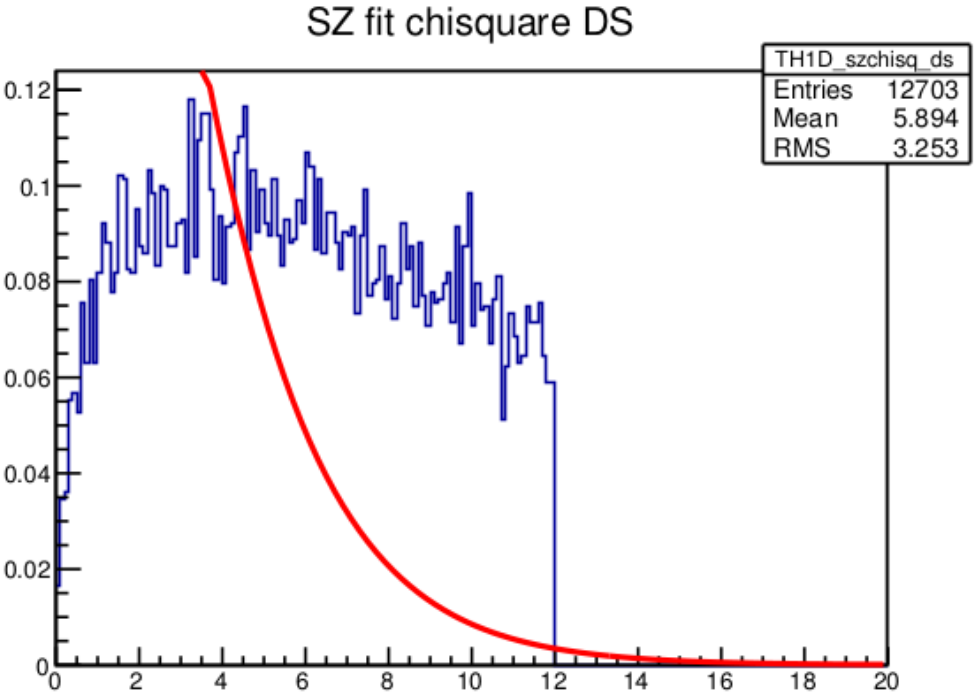

SZ fit chisquare DS
TH1D_szchisq_ds
Entries 2525
Mean 4.099
RMS 3.081

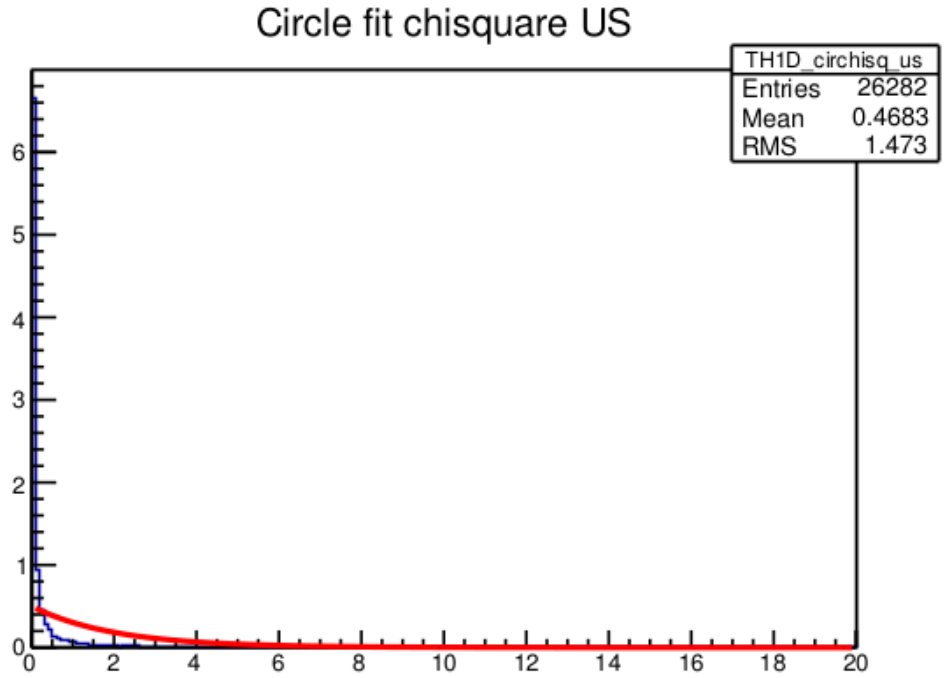

Circle fit chisquare US
TH1D_circhisq_us
Entries 26131
Mean 1.072
RMS 1.777

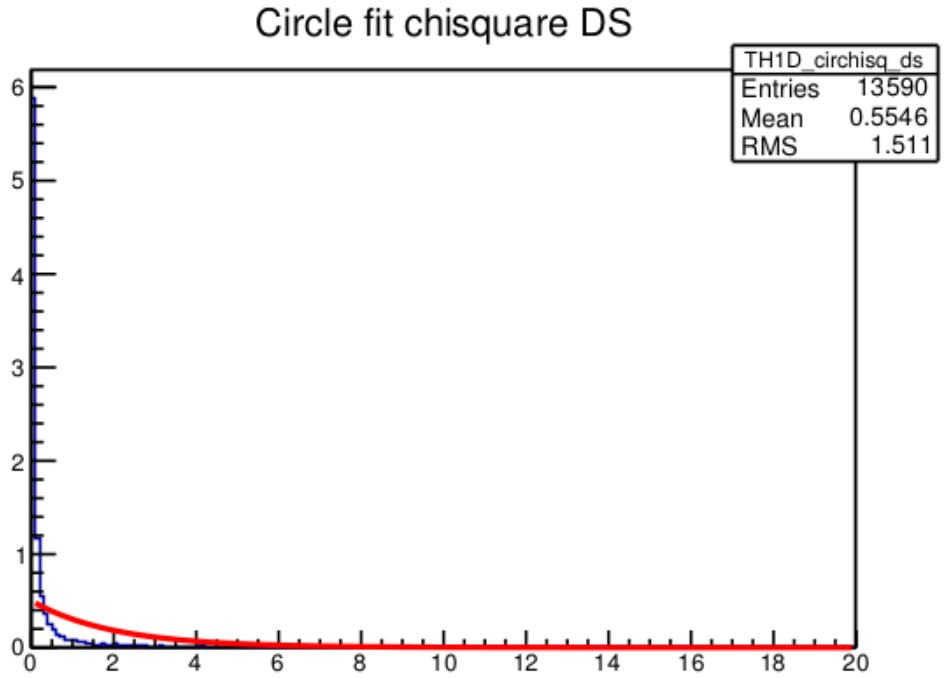

Circle fit chisquare DS
TH1D_circhisq_ds
Entries 12703
Mean 0.9442
RMS 1.7

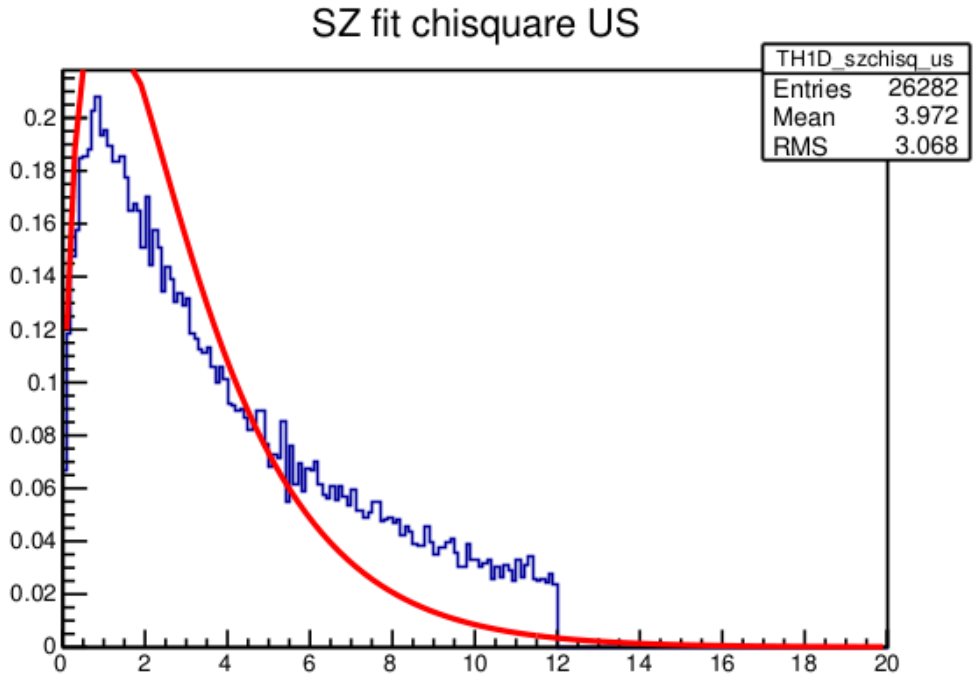
Data 140Mev

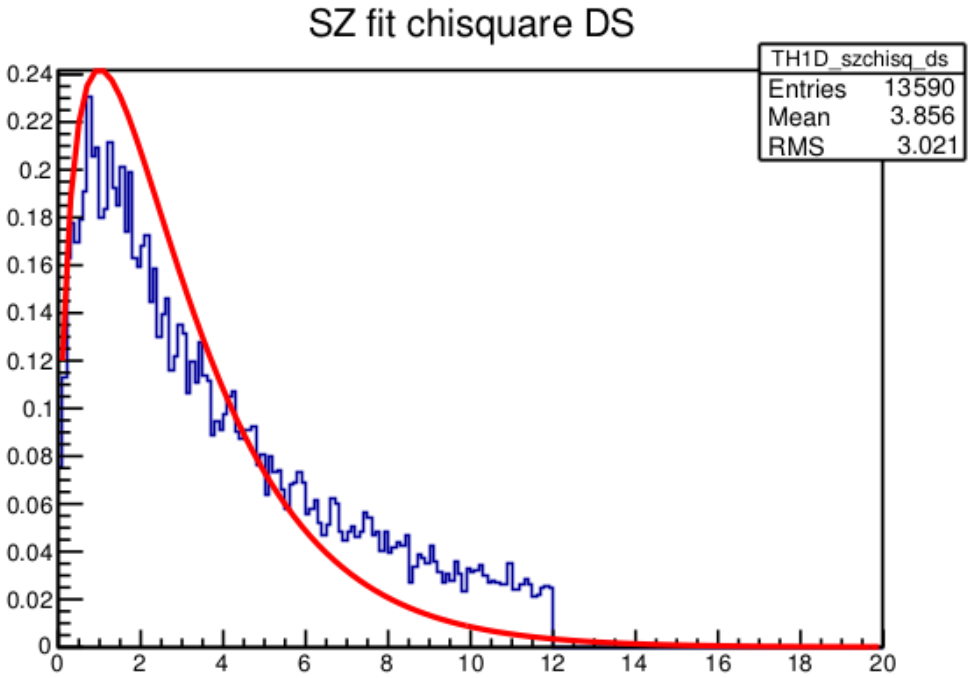

SZ fit chisquare US
TH1D_szchisq_us
Entries 26131
Mean 5.389
RMS 3.213


SZ fit chisquare DS
TH1D_szchisq_ds
Entries 12703
Mean 5.894
RMS 3.253


Circle fit chisquare US
TH1D_circhisq_us
Entries 26282
Mean 0.4683
RMS 1.473


Circle fit chisquare DS
TH1D_circhisq_ds
Entries 13590
Mean 0.5546
RMS 1.511

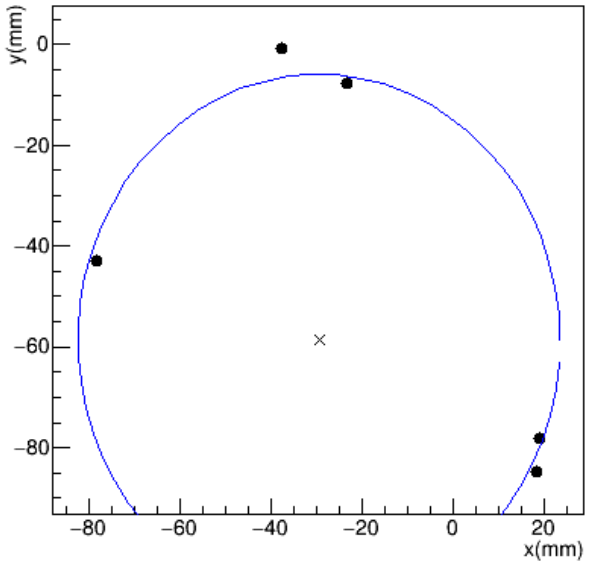

SZ fit chisquare US
TH1D_szchisq_us
Entries 26282
Mean 3.972
RMS 3.068


SZ fit chisquare DS
TH1D_szchisq_ds
Entries 13590
Mean 3.856
RMS 3.021

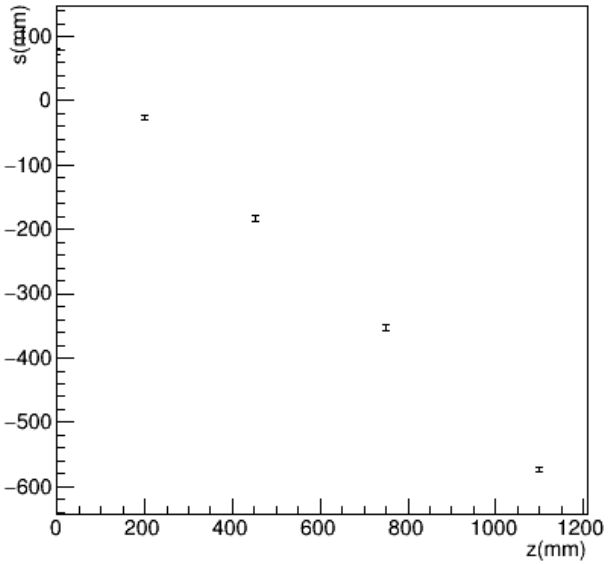
XY plots Event 1 (spill1, event 0)

Circle chisquare = 1.2

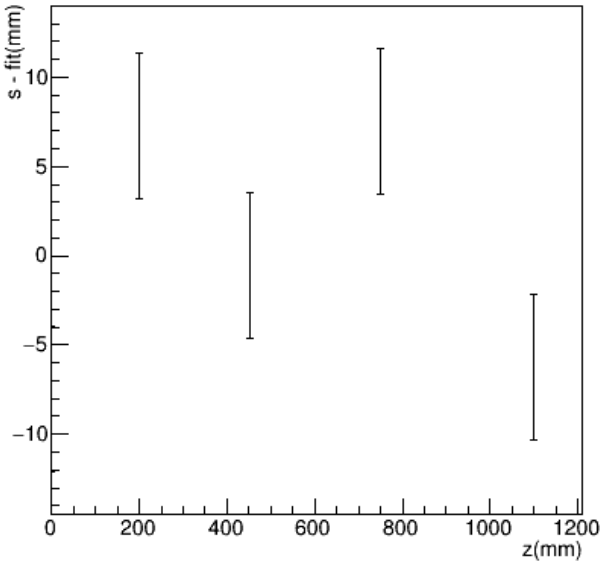
x-y



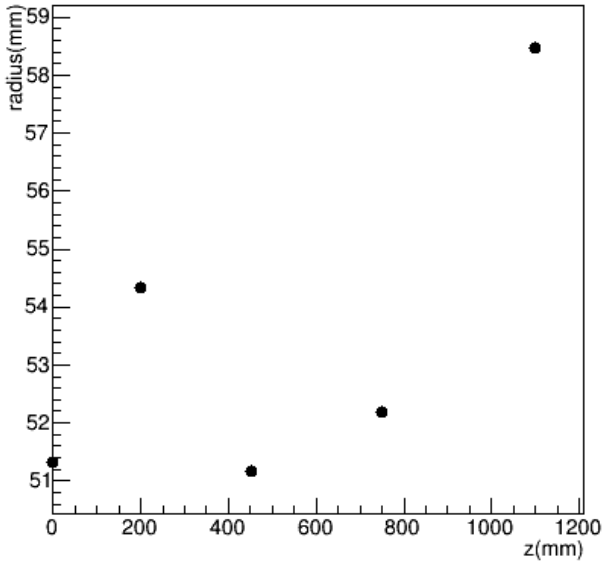
z-s



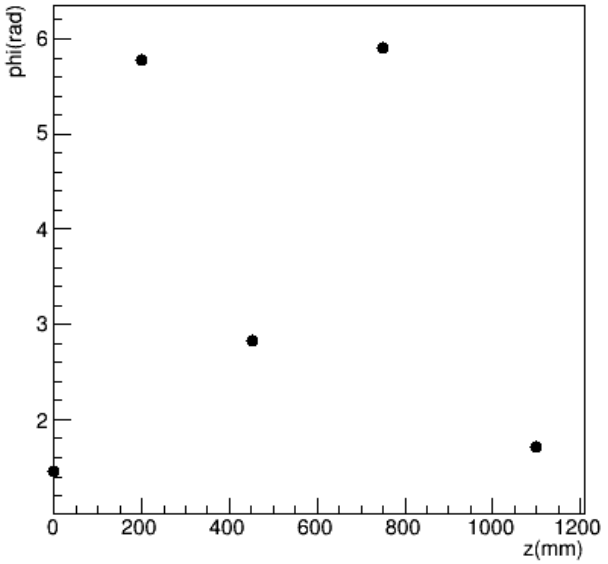
z-s



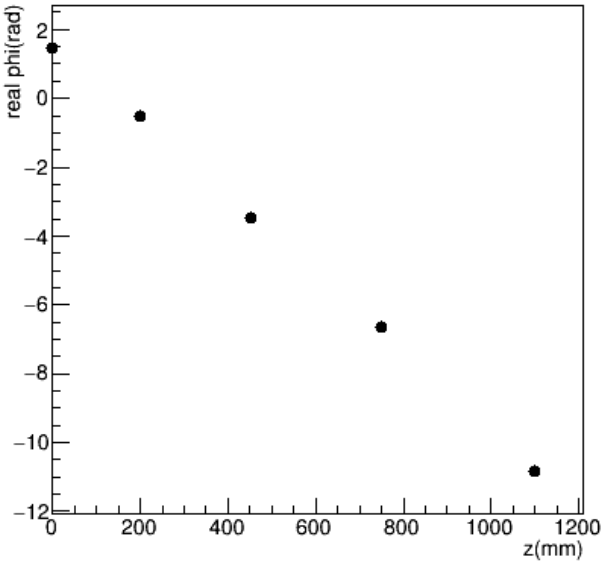
z-r



z-phi



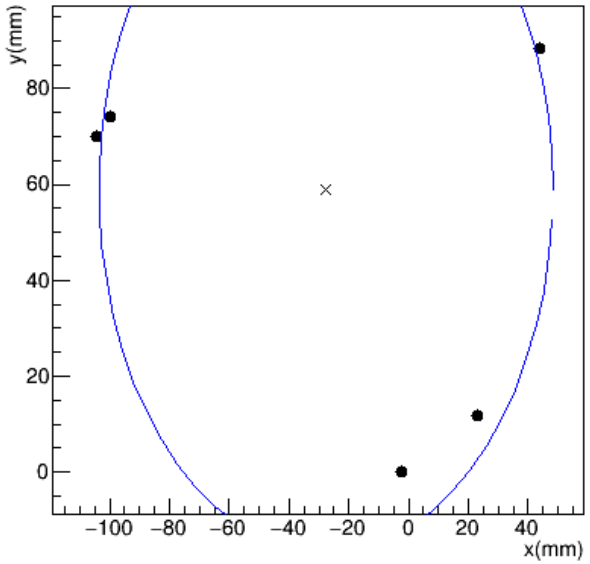
z-real phi



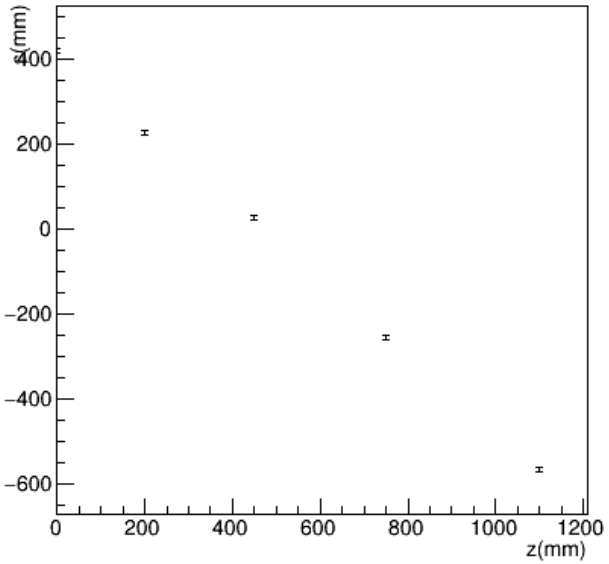
XY plots Event 2 (spill2, event 0)

Circle chisquare = 9.5

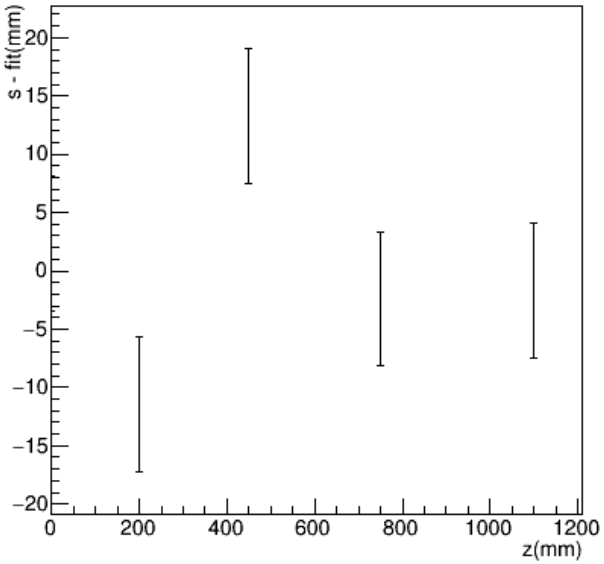
x-y



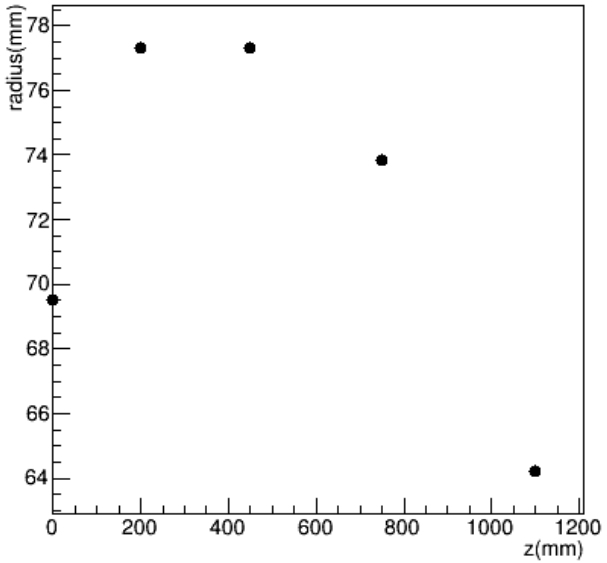
z-s



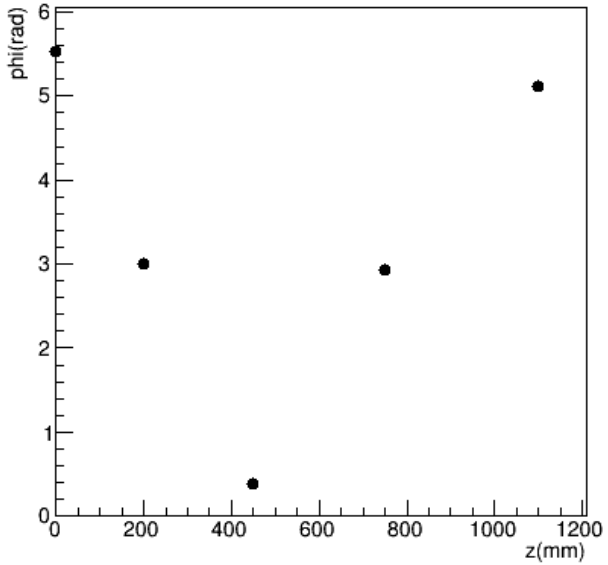
z-s



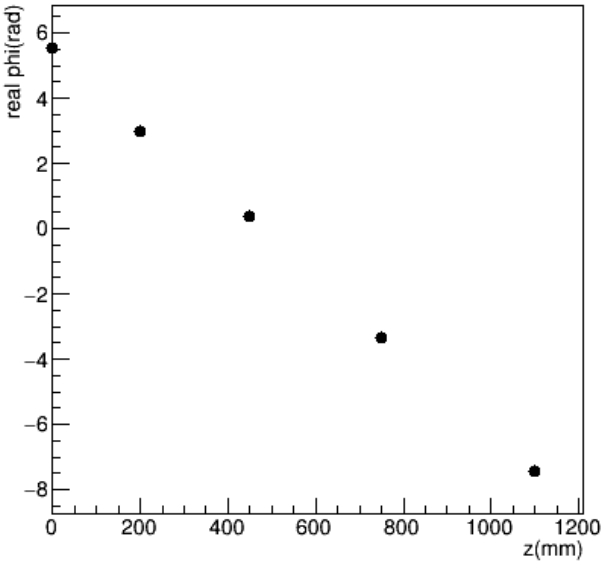
z-r



z-phi

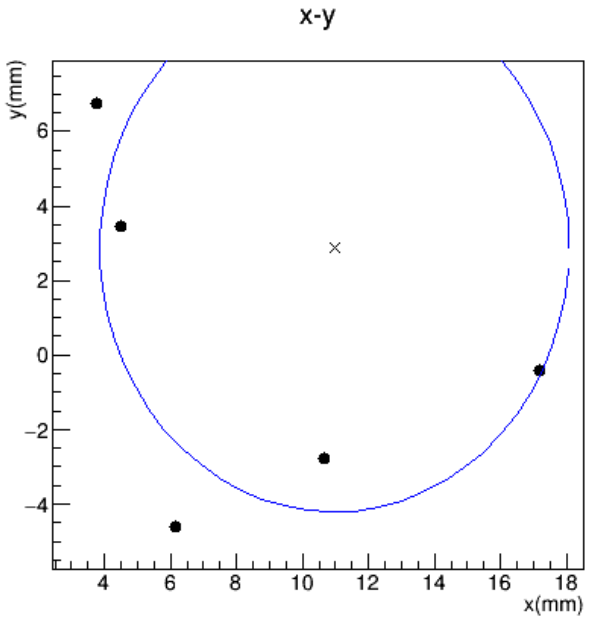


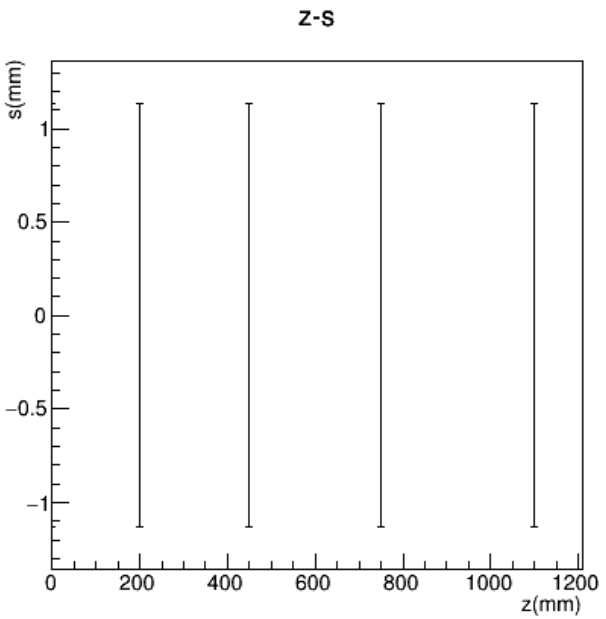
z-real phi

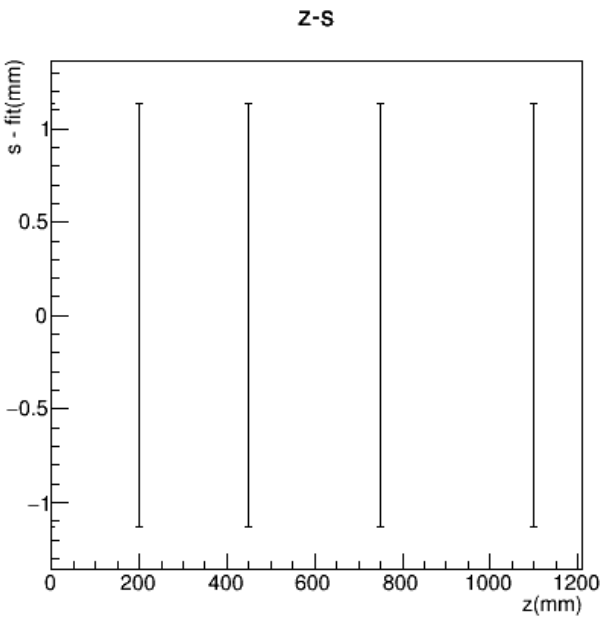


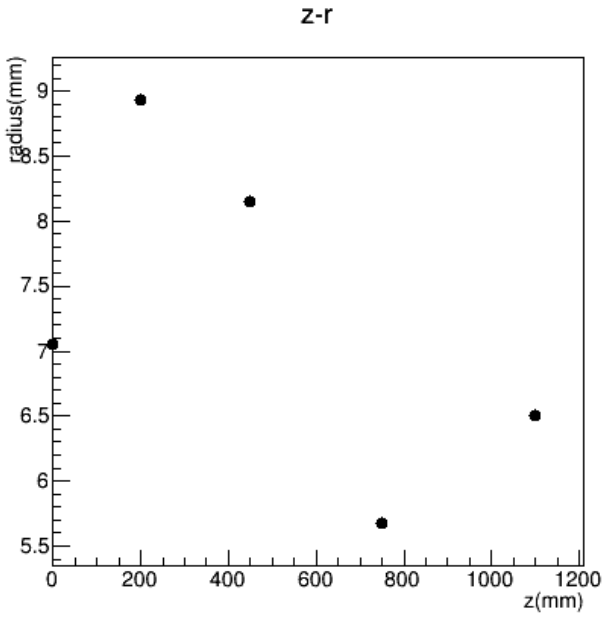
XY plots Event 3 (spill2, event 1)

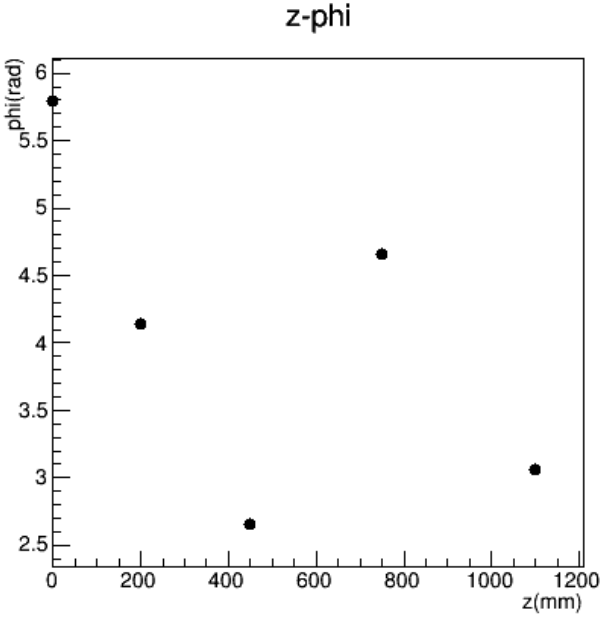
Circle chisquare = 1.65

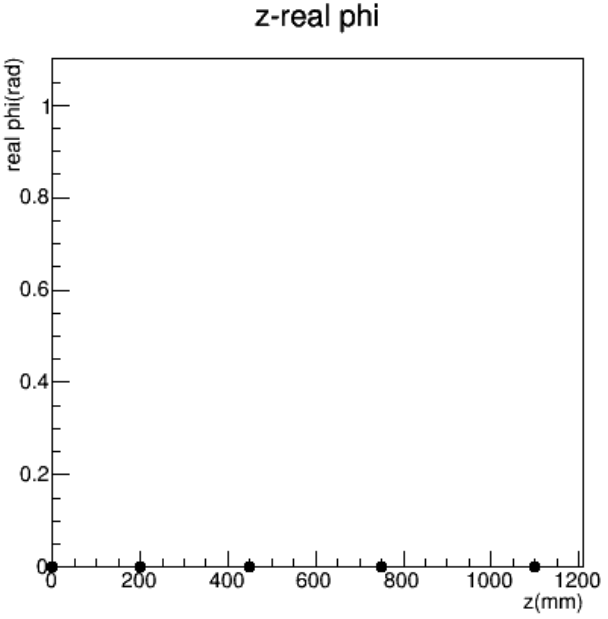






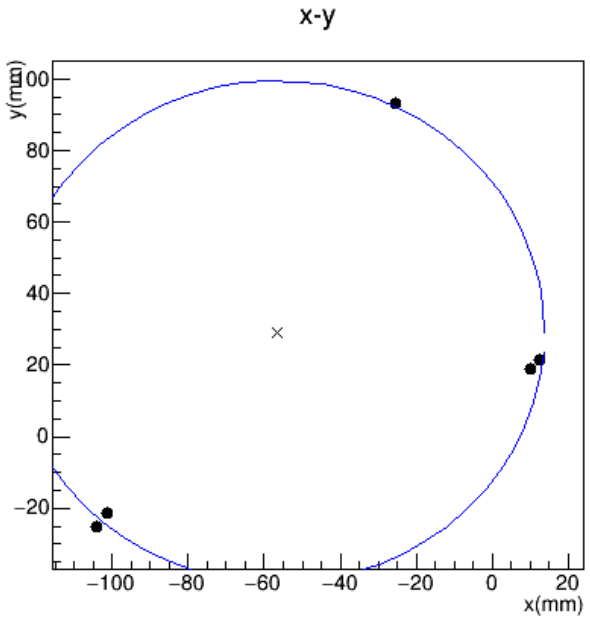


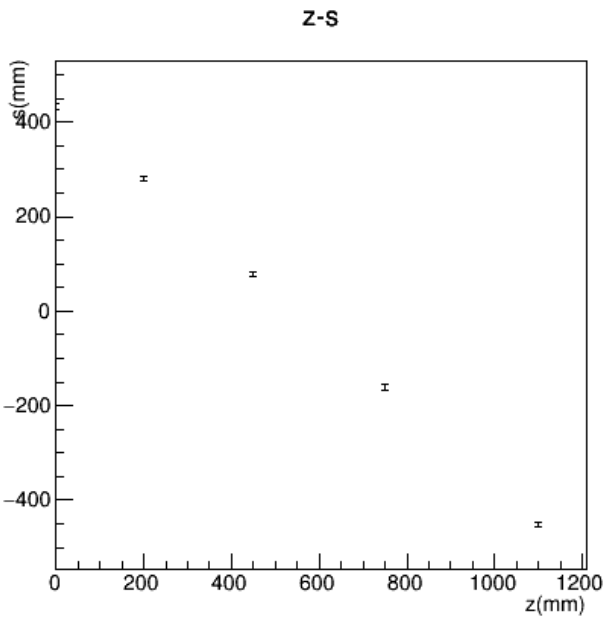


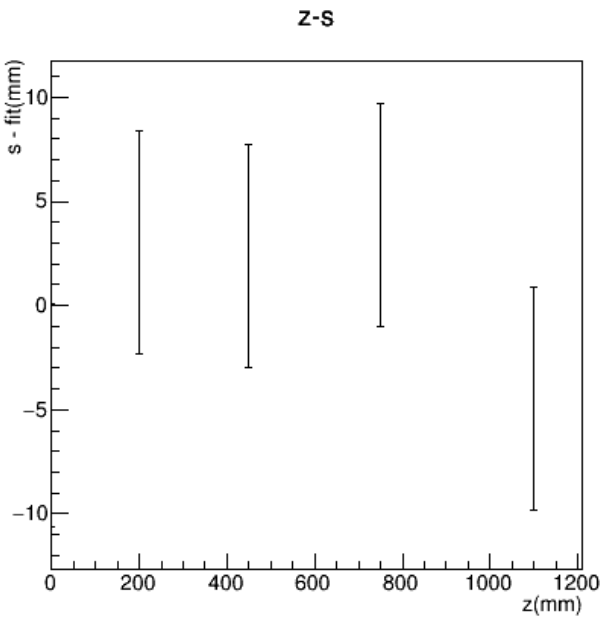


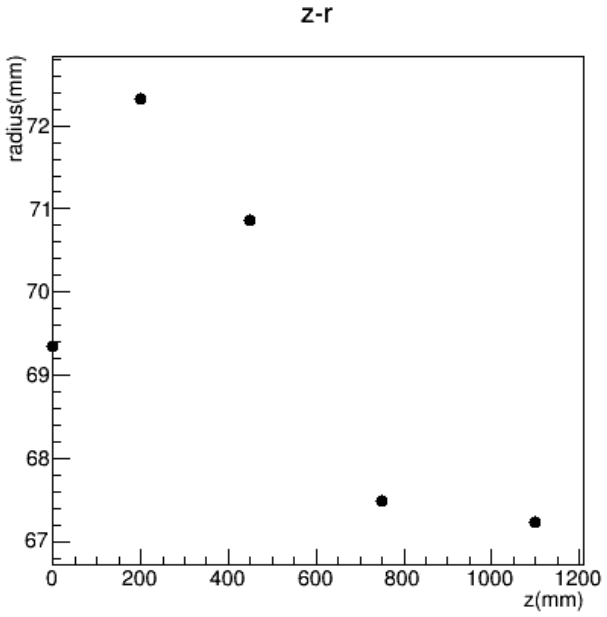
XY plots Event 4 (spill2, event 2)

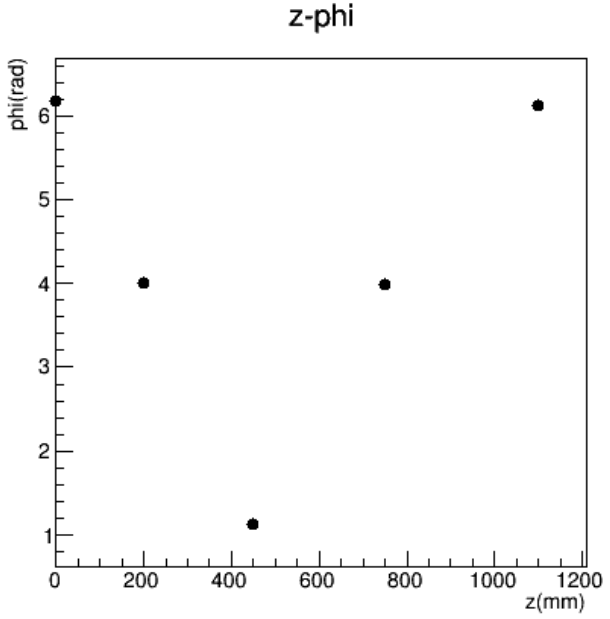
Circle chisquare = 3.8

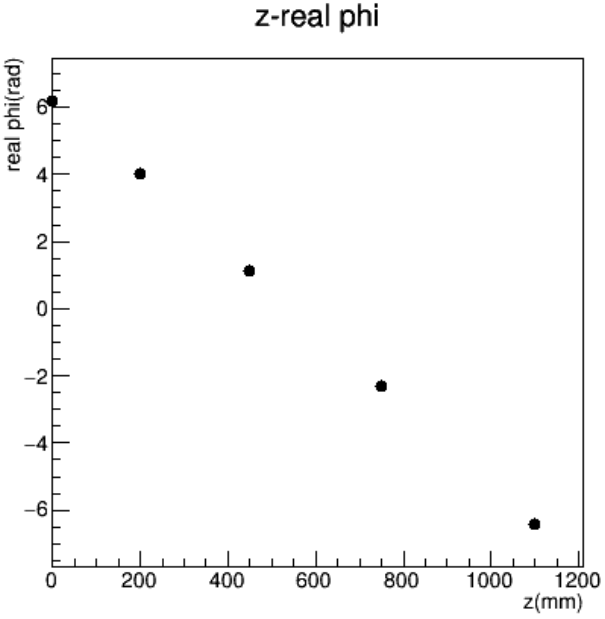








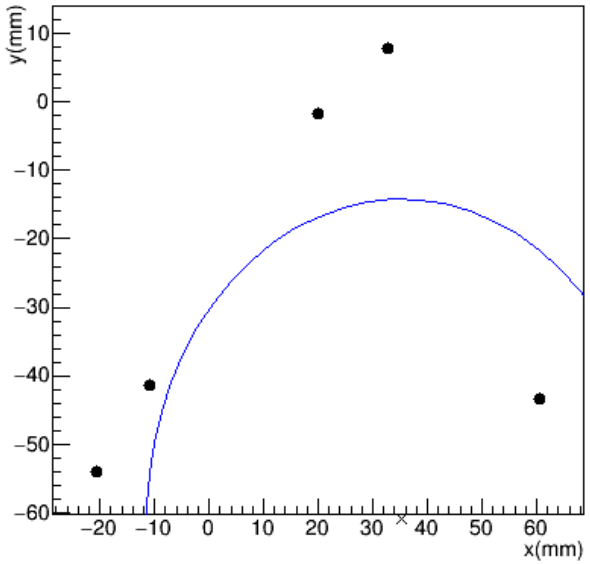




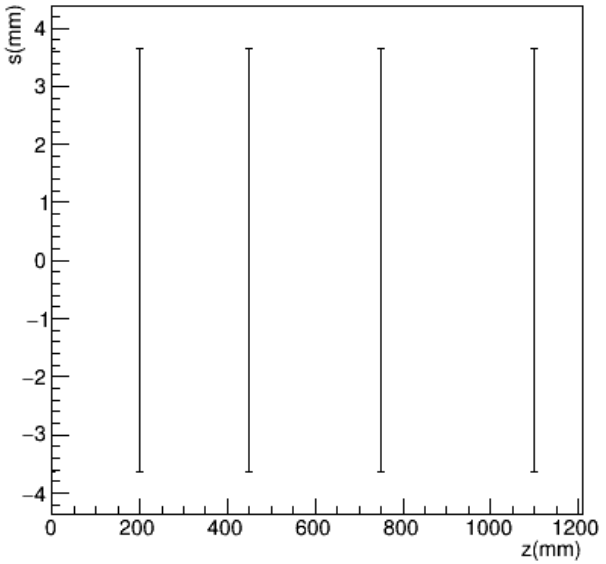
XY plots Event x (spill11, event 0)

Circle chisquare = 9

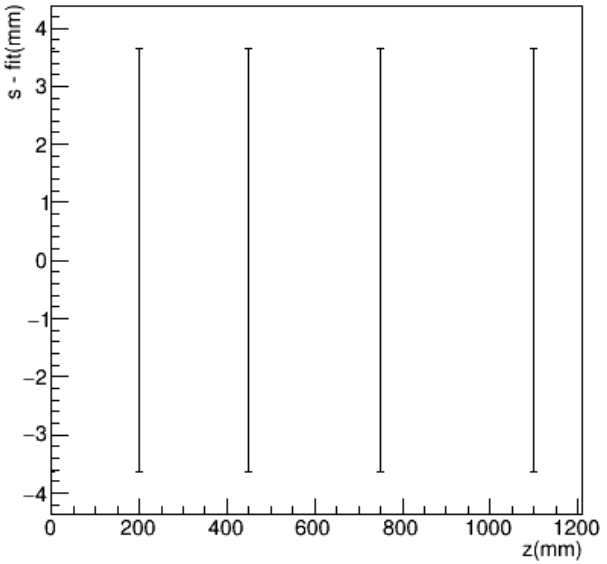
x-y



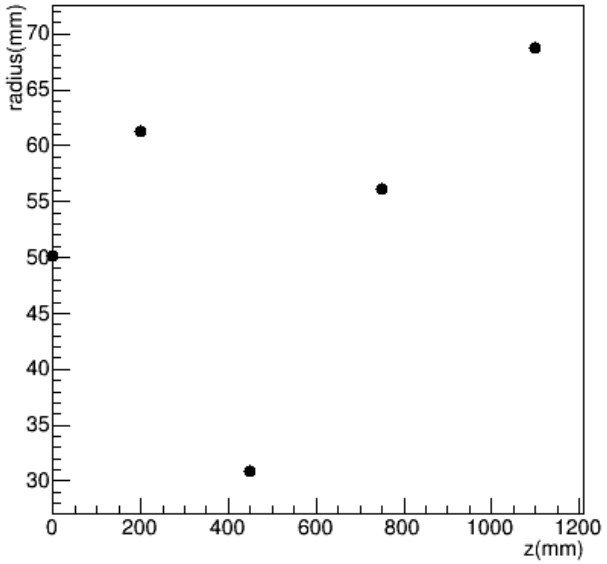
z-s



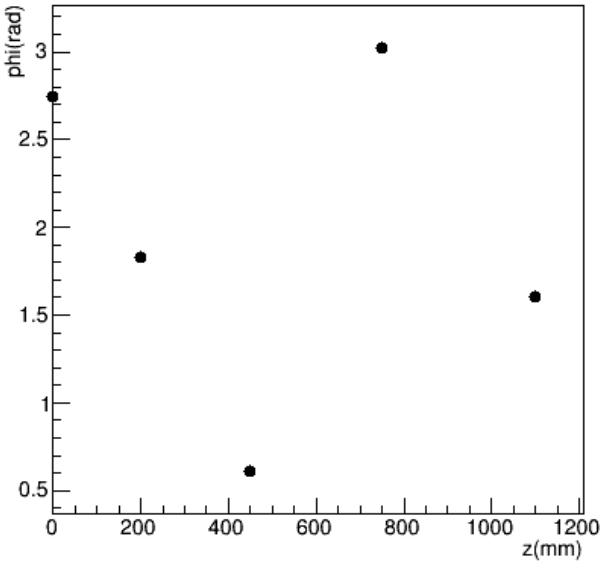
z-s



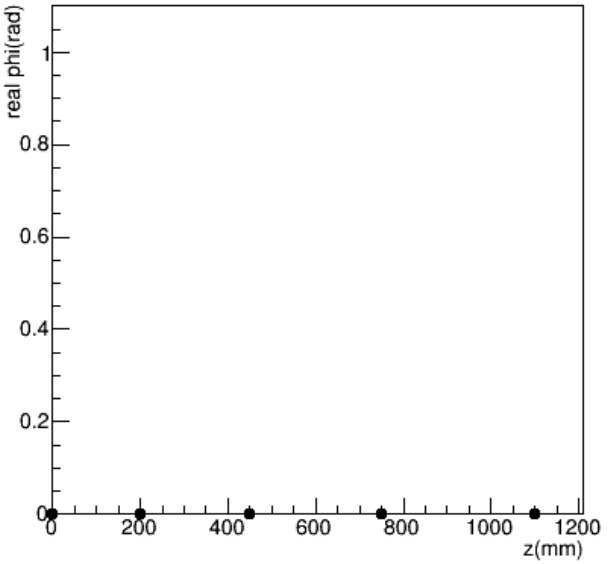
z-r



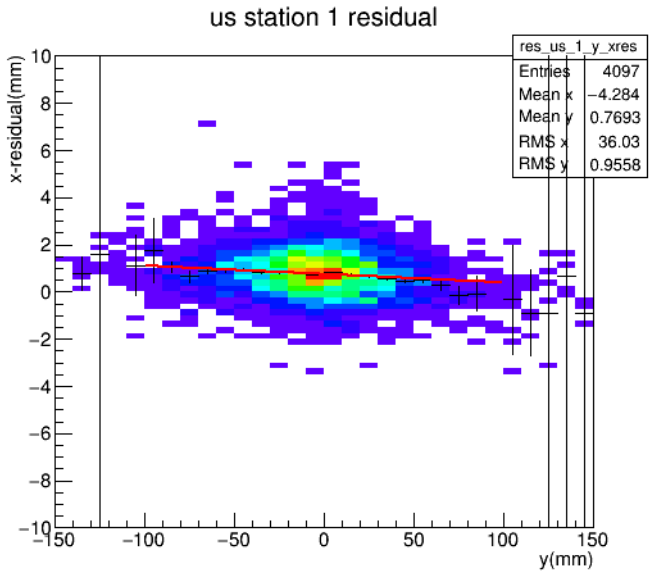
z-phi

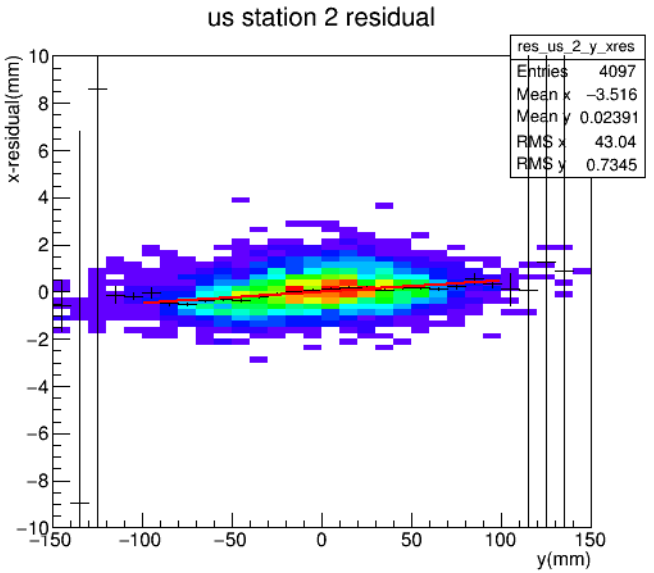


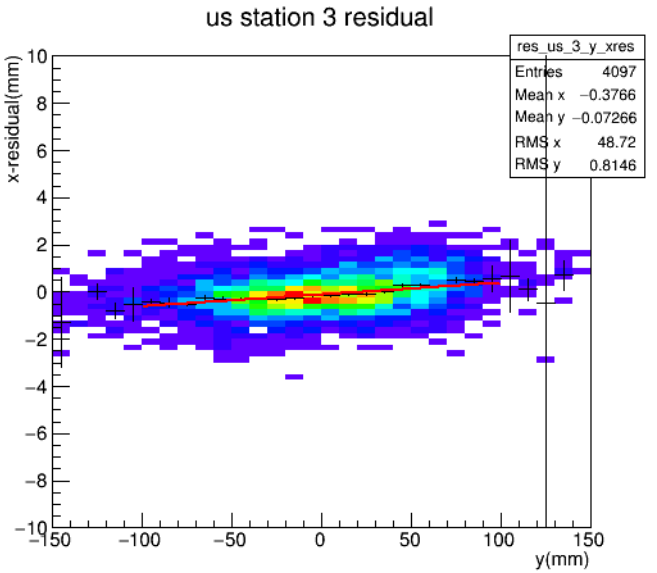
z-real phi

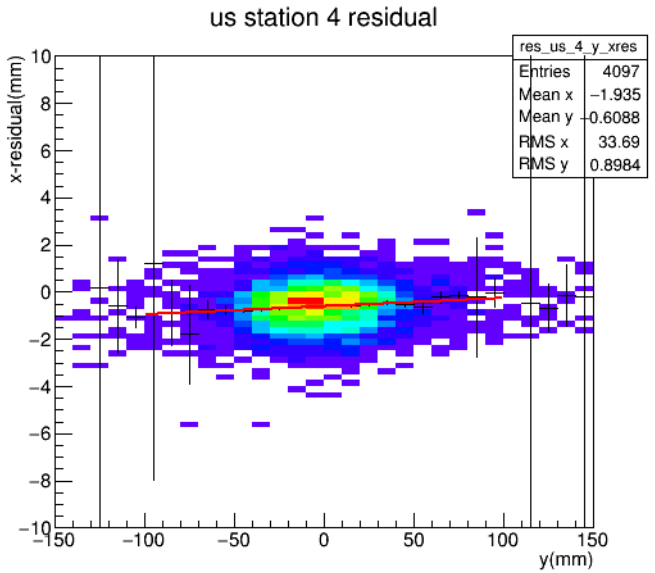


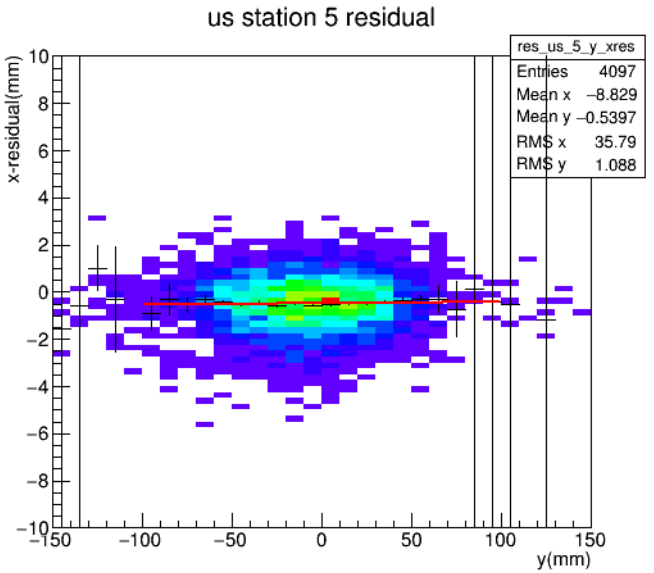
MC residuals US dx(y)



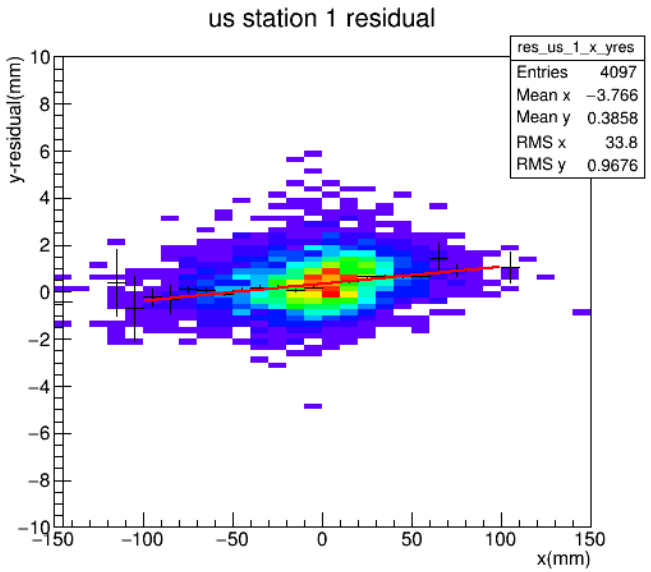


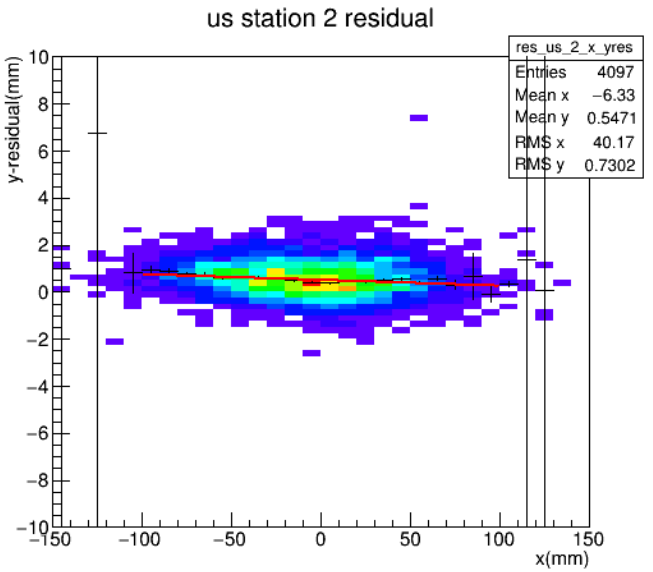


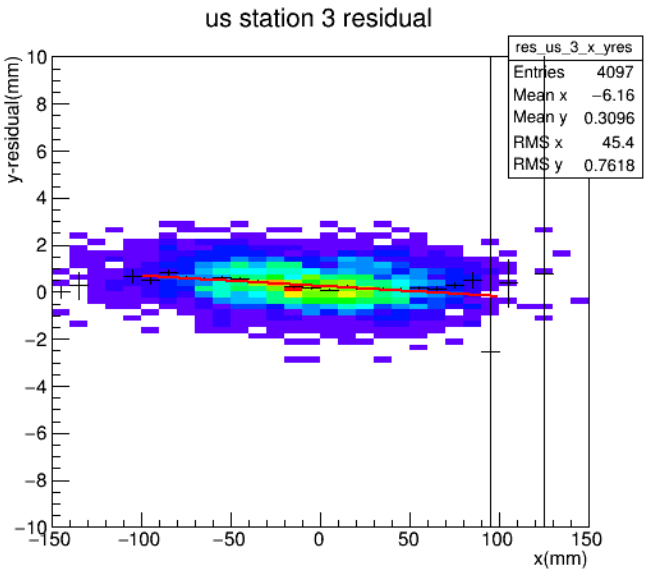


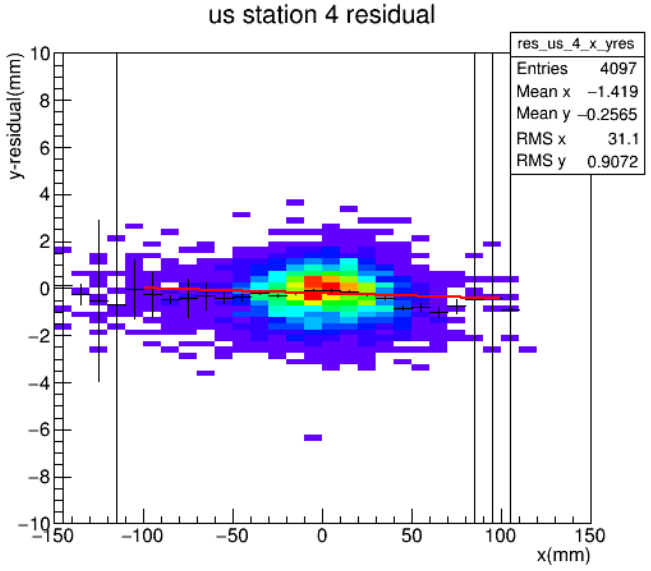


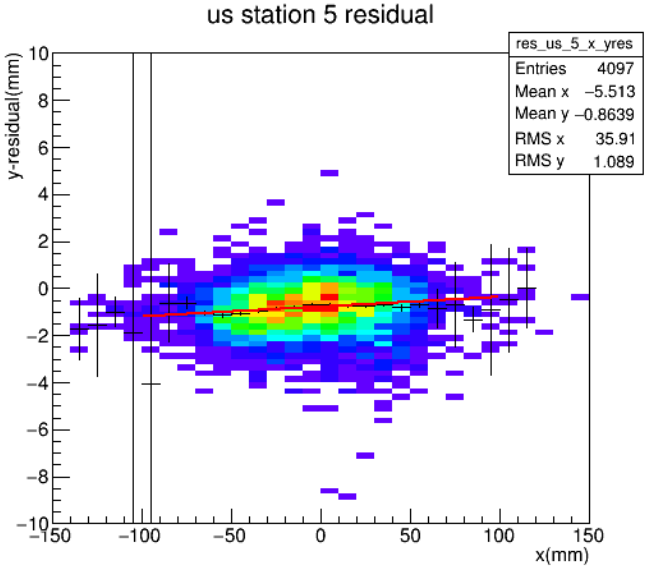
MC residuals US dy(x)



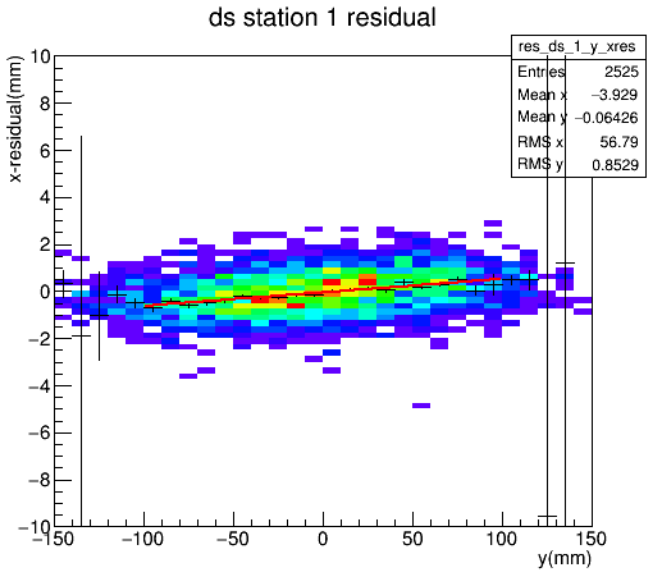


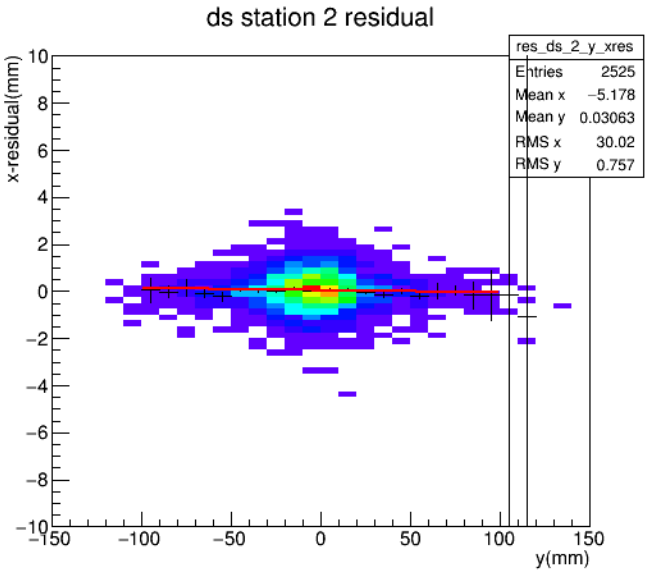


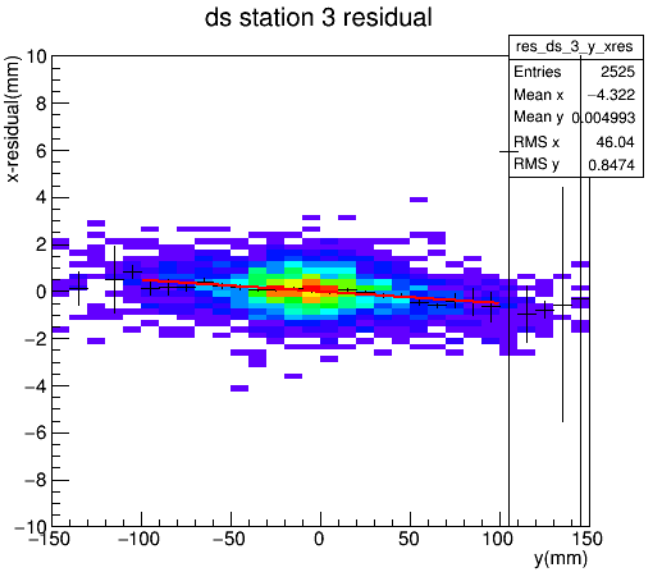


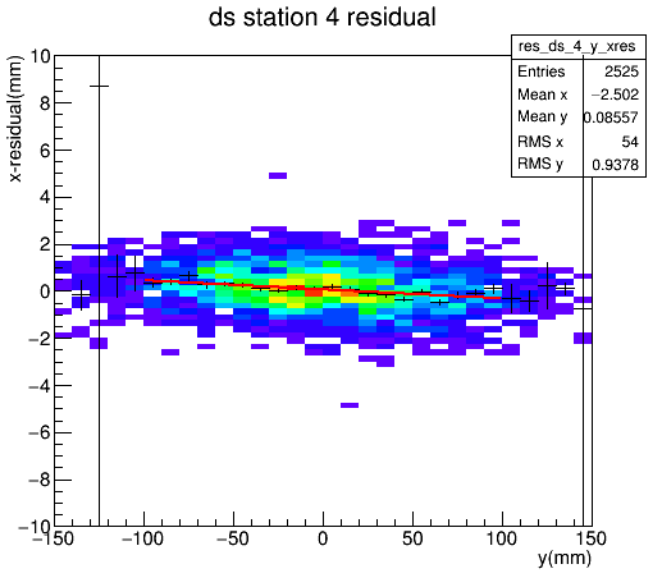


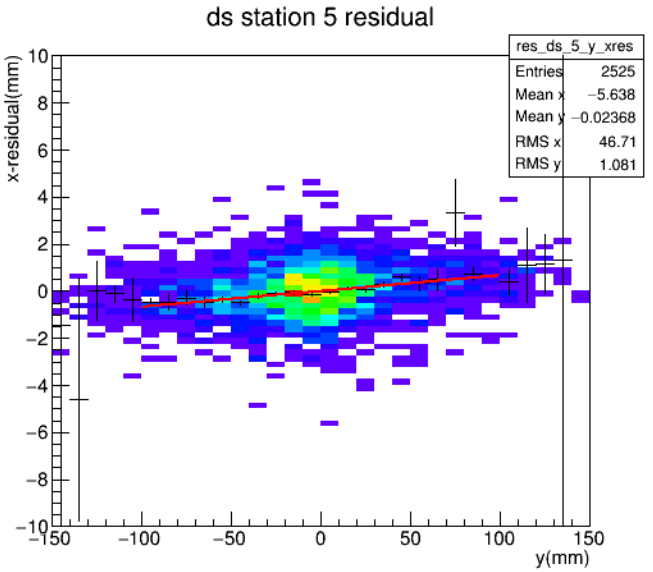
MC residuals DS dx(y)



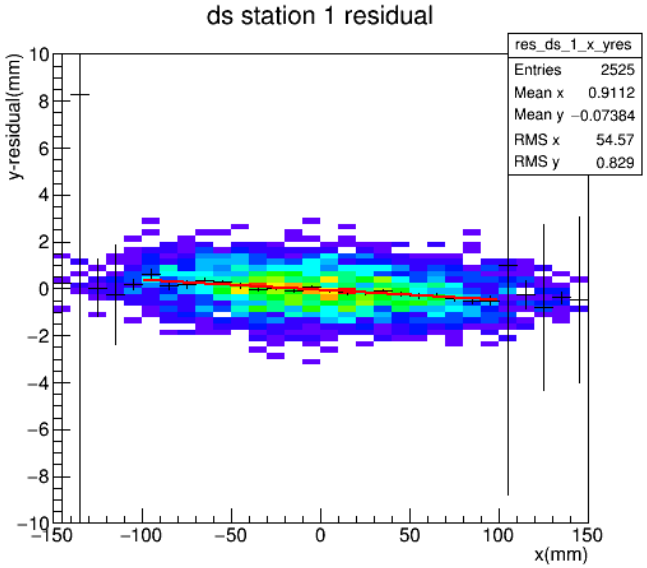


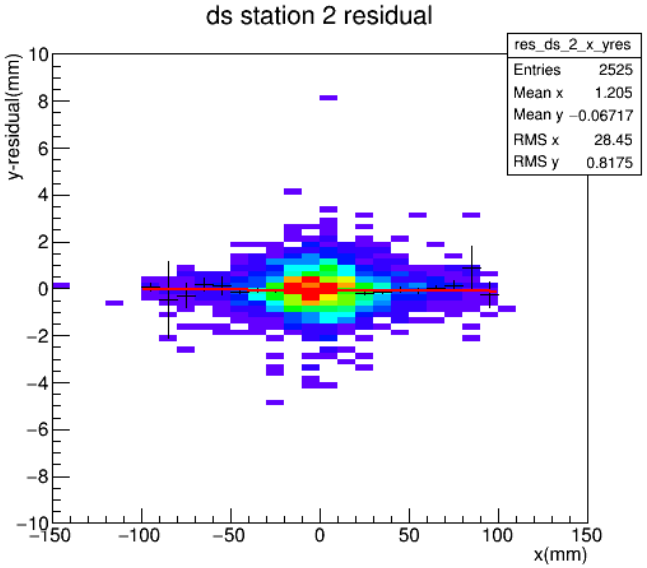


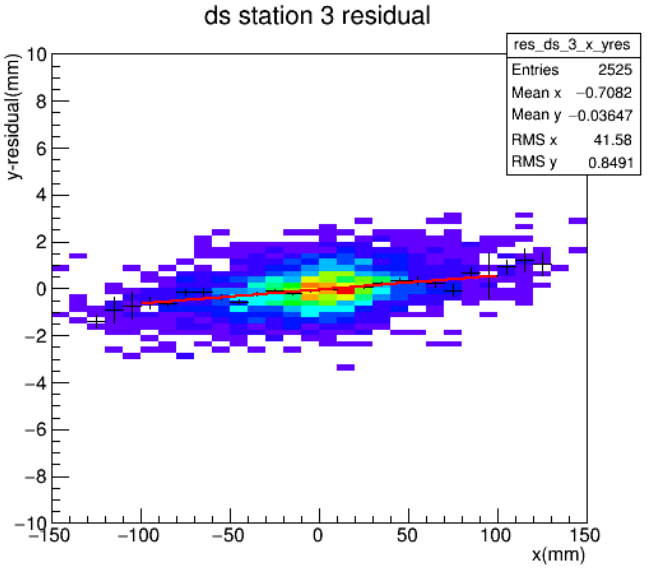


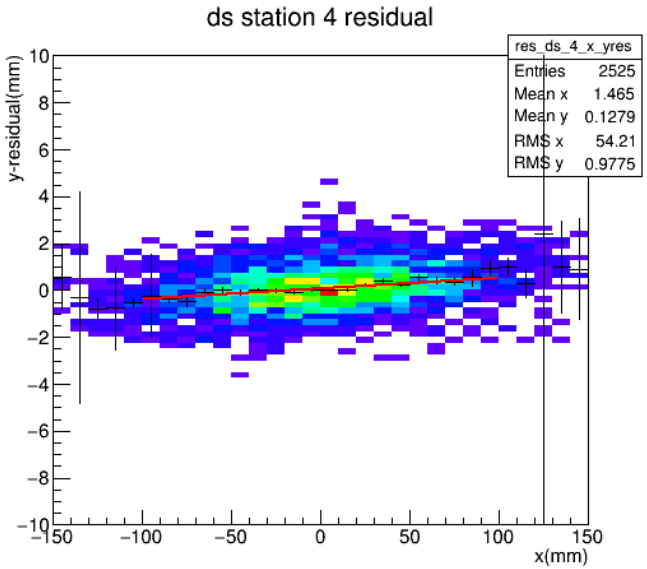


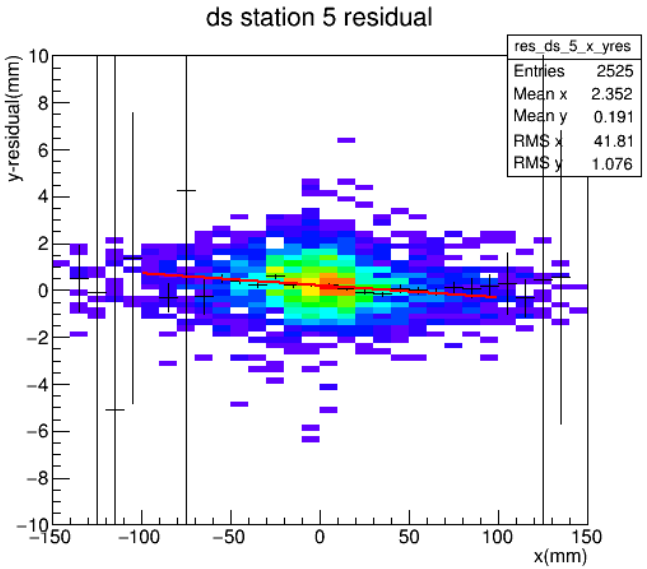
MC residuals DS dy(x)



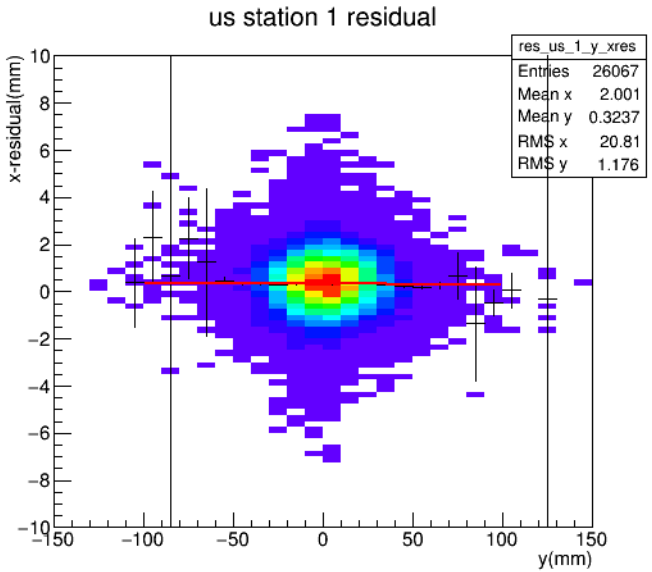


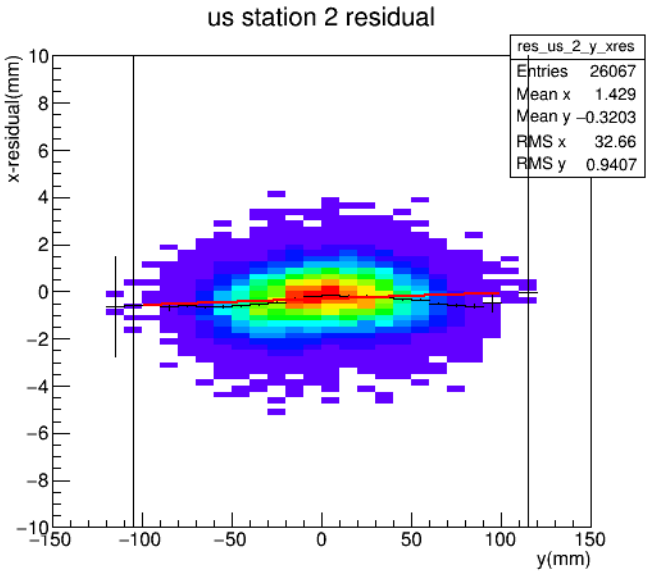


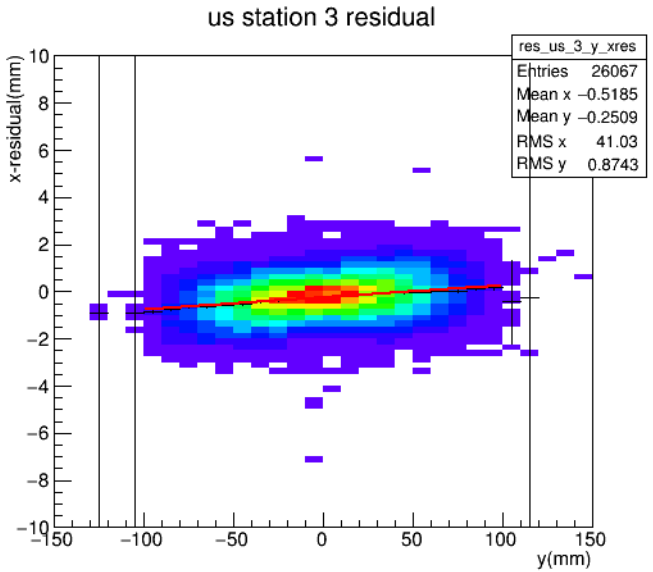


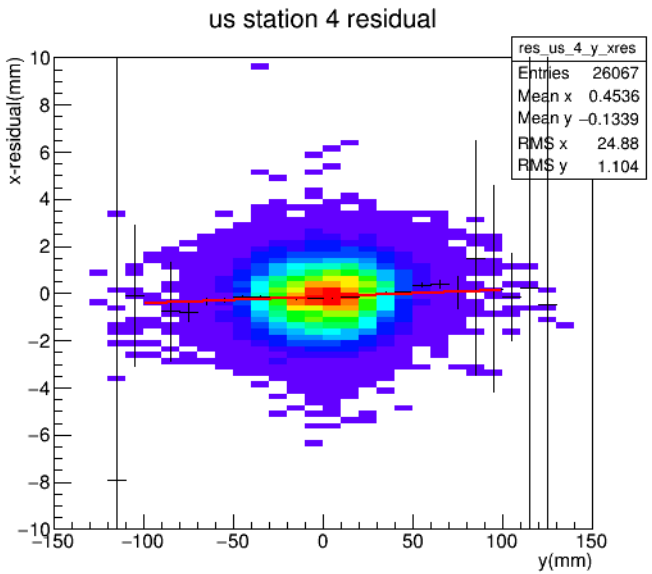


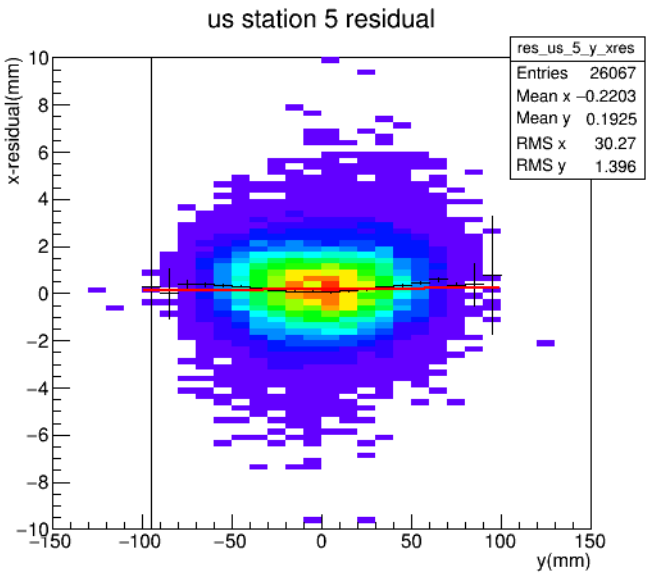
DATA residuals US dx(y)











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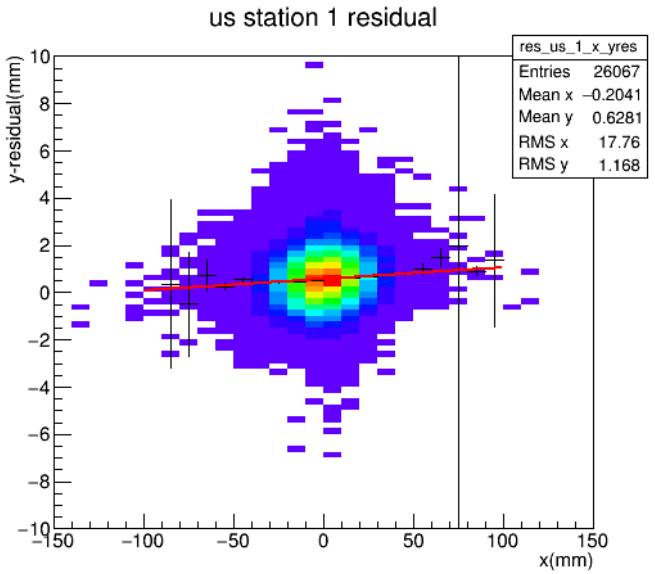

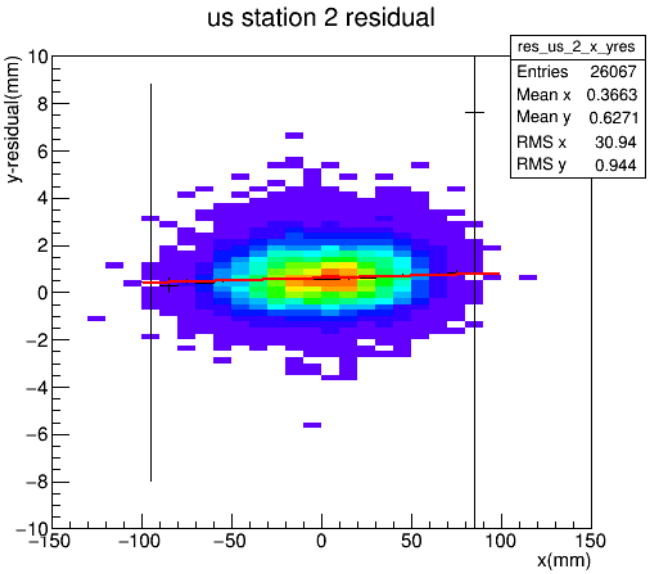

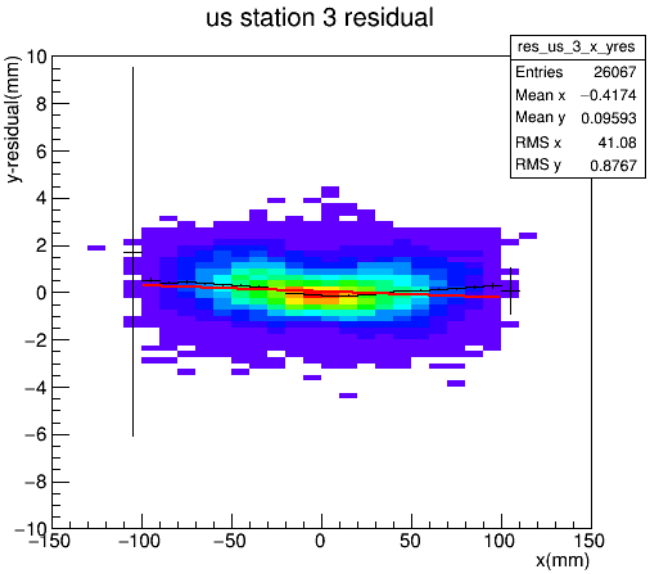

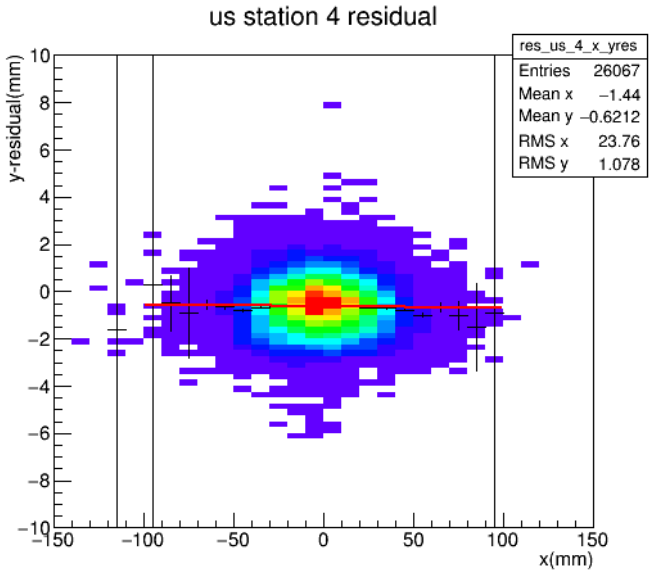

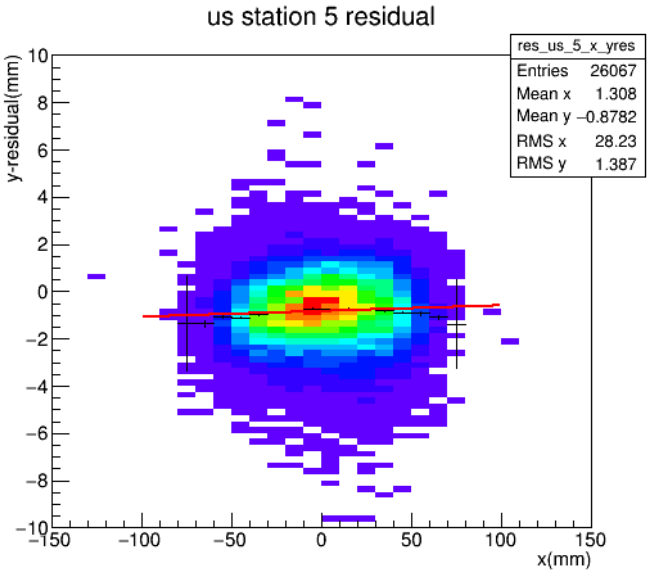

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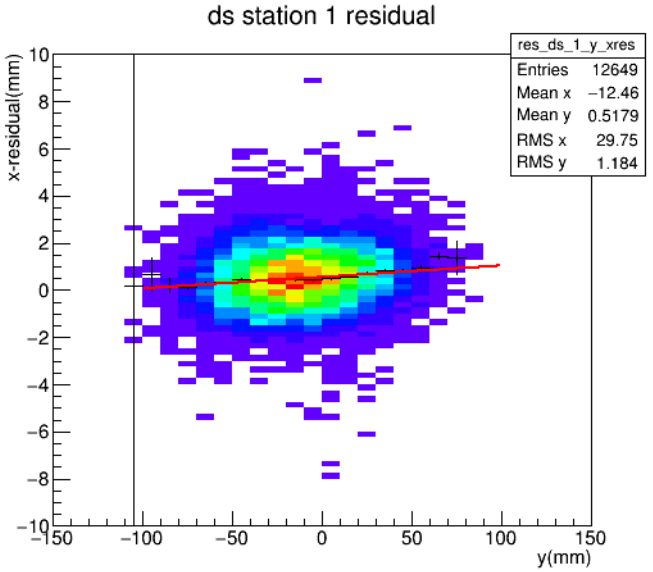
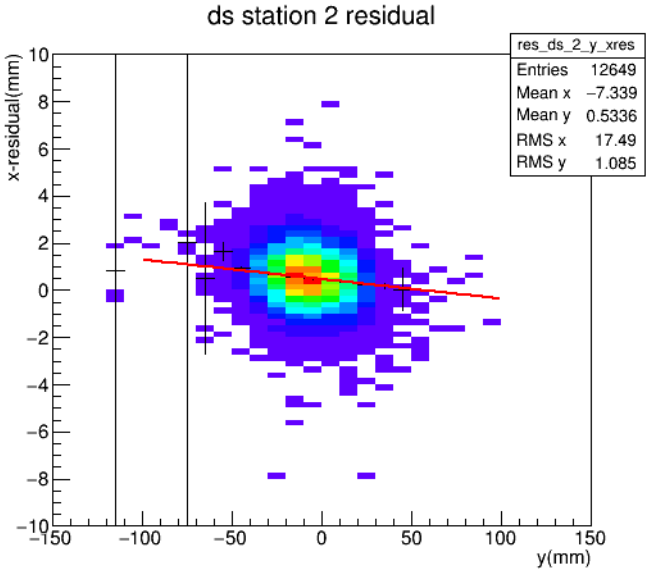
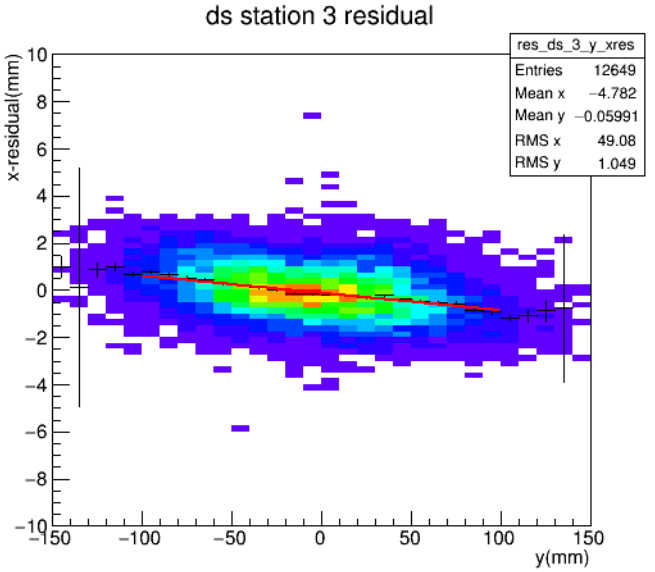
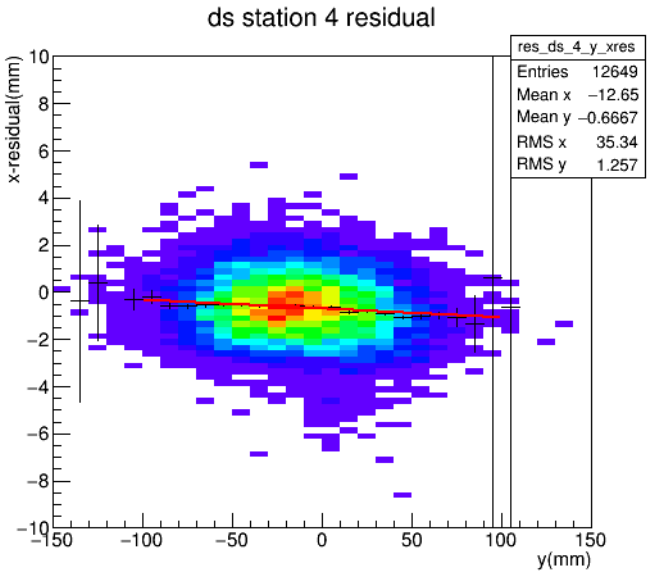
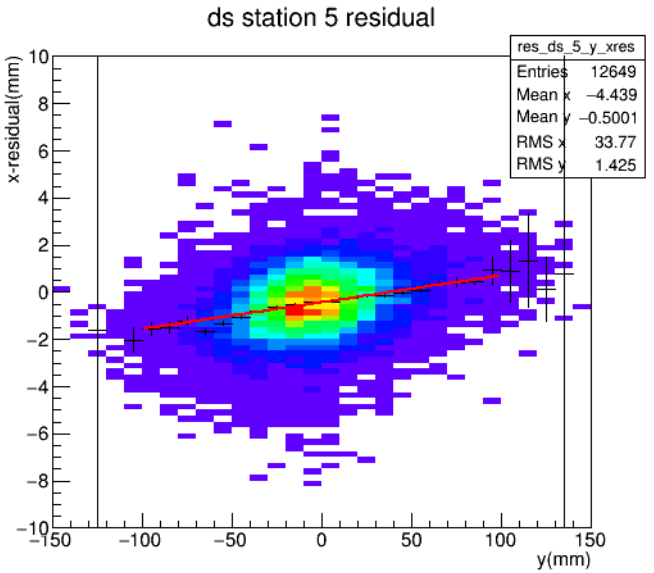


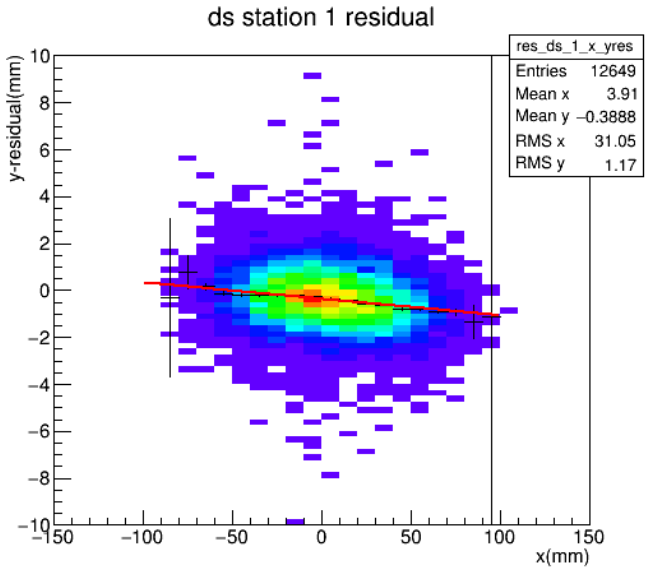


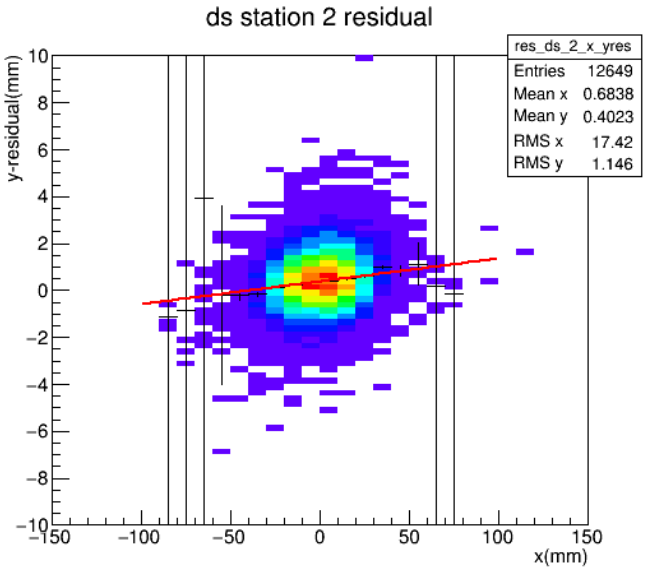


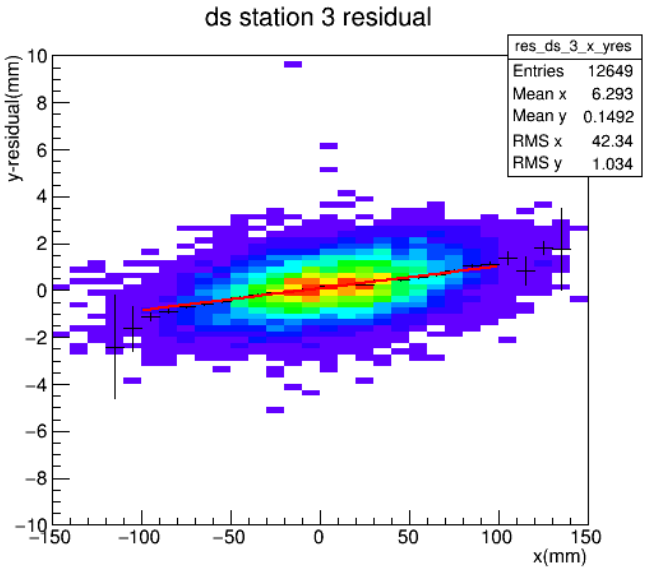


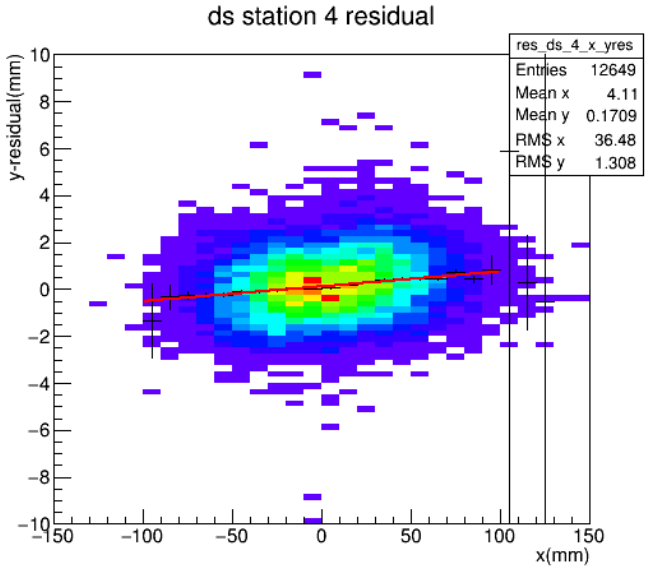


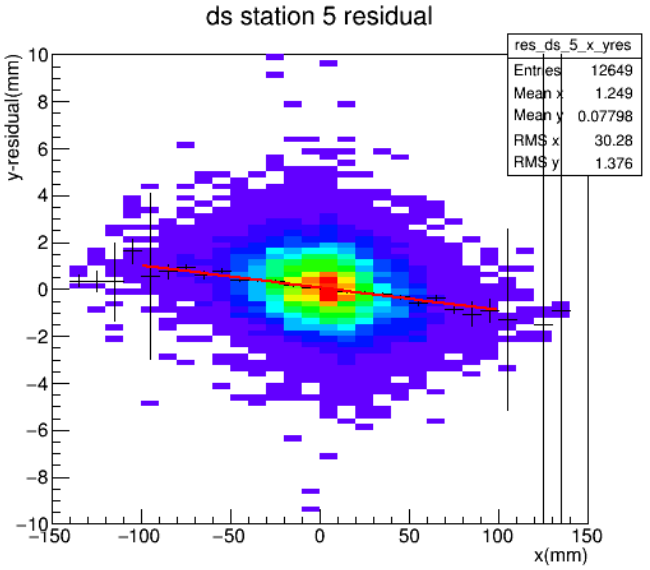
DATA residuals DS dy(x)











Gradients(mrad) / Offsets (mm)

MC:

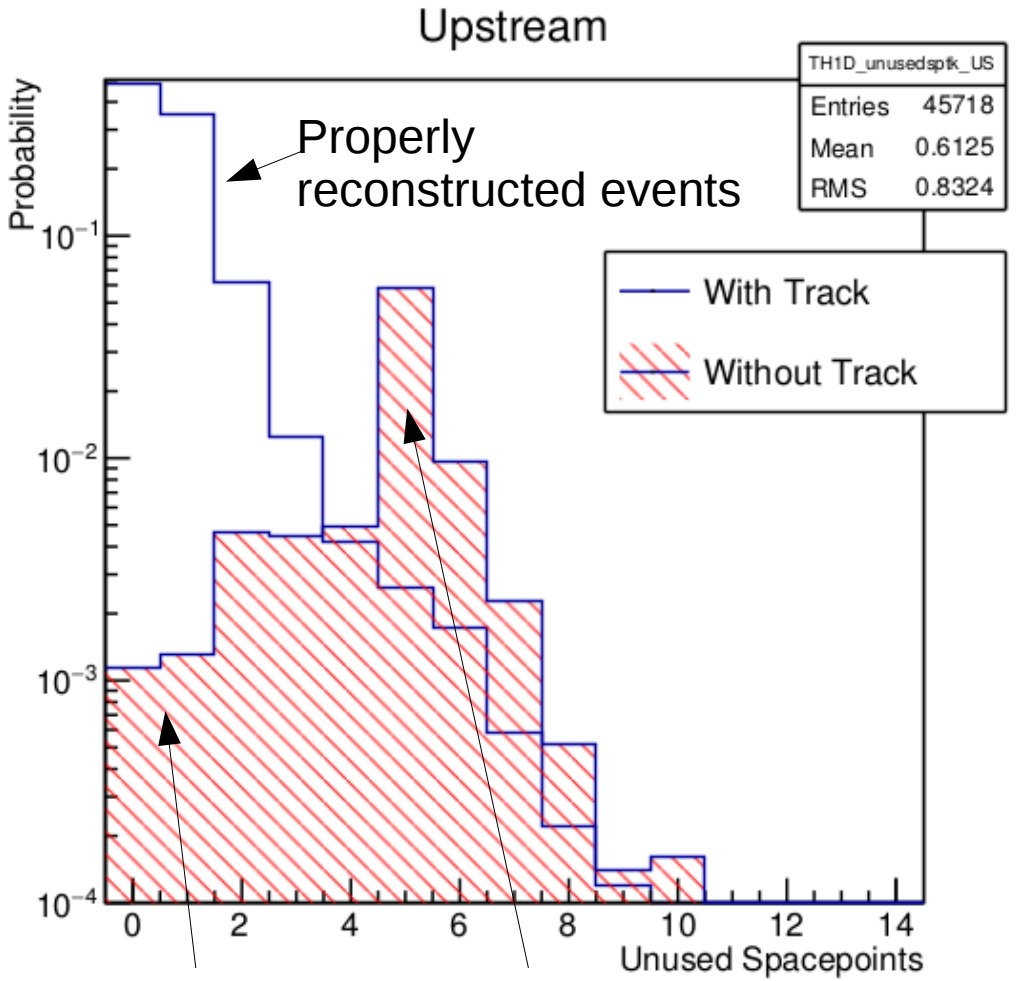
TK	Station	Residual	Gradient	Intercept
us	1	x_yres	7.25 +/- 0.51	0.352 +/- 0.014
us	2	x_yres	-2.45 +/- 0.31	0.508 +/- 0.012
us	3	x_yres	-4.37 +/- 0.34	0.254 +/- 0.012
us	4	x_yres	-2.24 +/- 0.61	-0.211 +/- 0.014
us	5	x_yres	4.15 +/- 0.54	-0.778 +/- 0.017
us	1	y_xres	-3.57 +/- 0.50	0.752 +/- 0.014
us	2	y_xres	4.76 +/- 0.28	0.002 +/- 0.011
us	3	y_xres	5.01 +/- 0.32	-0.112 +/- 0.012
us	4	y_xres	3.48 +/- 0.58	-0.605 +/- 0.014
us	5	y_xres	0.59 +/- 0.58	-0.478 +/- 0.017
ds	1	x_yres	-4.27 +/- 0.44	-0.057 +/- 0.019
ds	2	x_yres	-0.40 +/- 0.58	-0.075 +/- 0.015
ds	3	x_yres	5.99 +/- 0.51	-0.044 +/- 0.016
ds	4	x_yres	4.55 +/- 0.54	0.079 +/- 0.020
ds	5	x_yres	-5.16 +/- 0.81	0.204 +/- 0.023
ds	1	y_xres	5.76 +/- 0.42	-0.046 +/- 0.018
ds	2	y_xres	-0.94 +/- 0.61	0.047 +/- 0.015
ds	3	y_xres	-4.94 +/- 0.54	-0.012 +/- 0.017
ds	4	y_xres	-3.84 +/- 0.48	0.066 +/- 0.020
ds	5	y_xres	6.76 +/- 0.75	0.002 +/- 0.025

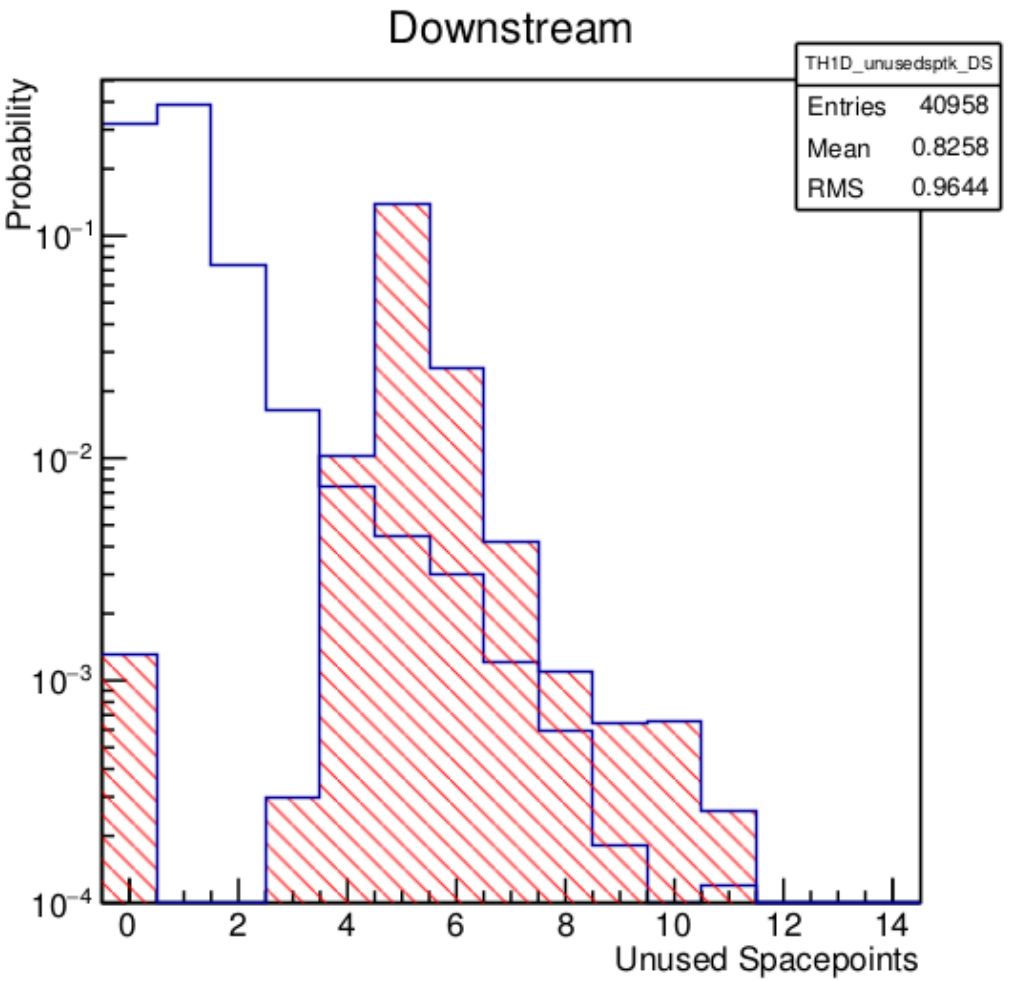
Data:

TK	Station	Residual	Gradient	Intercept
us	1	x_yres	4.88 +/- 0.38	0.574 +/- 0.007
us	2	x_yres	2.02 +/- 0.19	0.606 +/- 0.006
us	3	x_yres	-2.59 +/- 0.14	0.041 +/- 0.005
us	4	x_yres	-0.73 +/- 0.30	-0.623 +/- 0.007
us	5	x_yres	2.40 +/- 0.30	-0.829 +/- 0.008
us	1	y_xres	-0.35 +/- 0.33	0.335 +/- 0.007
us	2	y_xres	2.58 +/- 0.17	-0.314 +/- 0.006
us	3	y_xres	5.15 +/- 0.14	-0.246 +/- 0.005
us	4	y_xres	2.82 +/- 0.30	-0.137 +/- 0.007
us	5	y_xres	0.62 +/- 0.27	0.179 +/- 0.008
ds	1	x_yres	-7.00 +/- 0.33	-0.364 +/- 0.010
ds	2	x_yres	9.73 +/- 0.60	0.385 +/- 0.010
ds	3	x_yres	9.39 +/- 0.22	0.089 +/- 0.009
ds	4	x_yres	6.33 +/- 0.36	0.125 +/- 0.012
ds	5	x_yres	-9.50 +/- 0.42	0.067 +/- 0.011
ds	1	y_xres	4.85 +/- 0.36	0.559 +/- 0.011
ds	2	y_xres	-8.30 +/- 0.56	0.468 +/- 0.010
ds	3	y_xres	-7.34 +/- 0.22	-0.119 +/- 0.009
ds	4	y_xres	-3.74 +/- 0.36	-0.700 +/- 0.012
ds	5	y_xres	11.36 +/- 0.40	-0.425 +/- 0.011

Old slides:

Number of missed hits: 140MeV



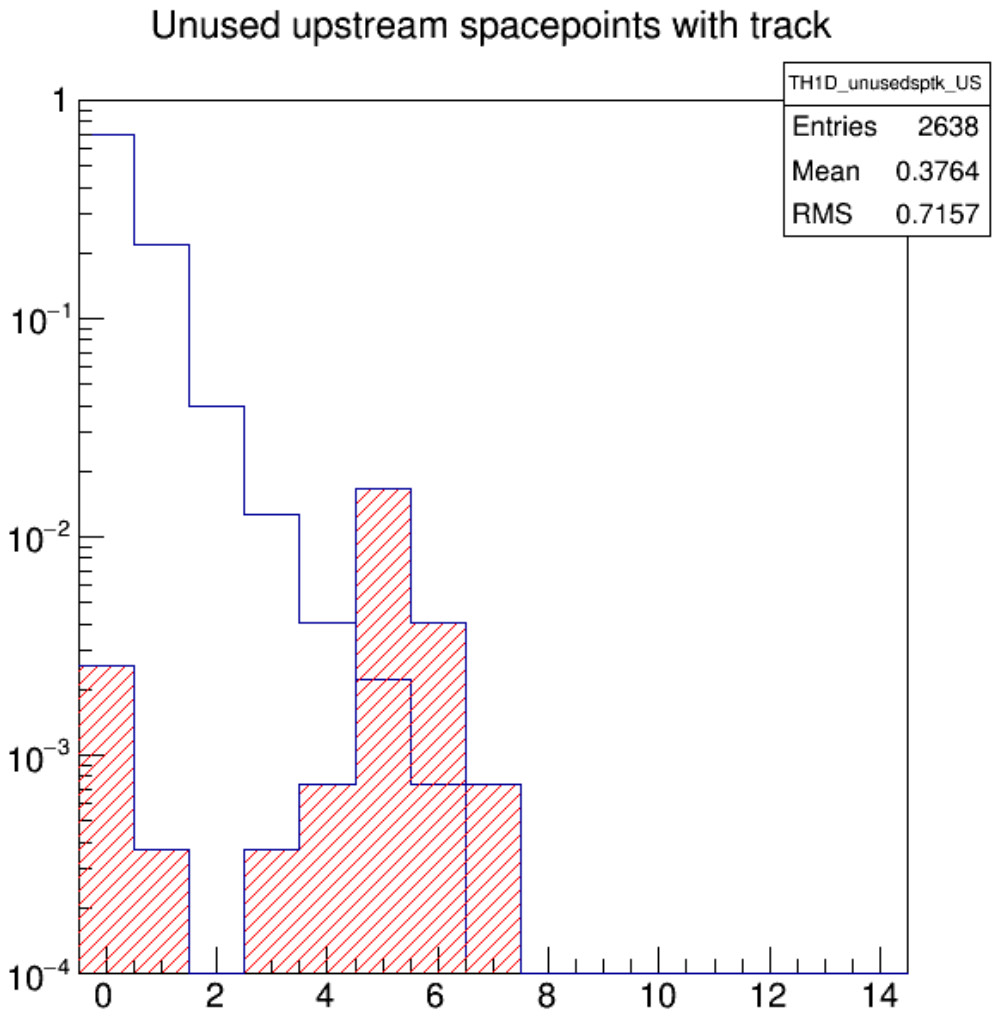


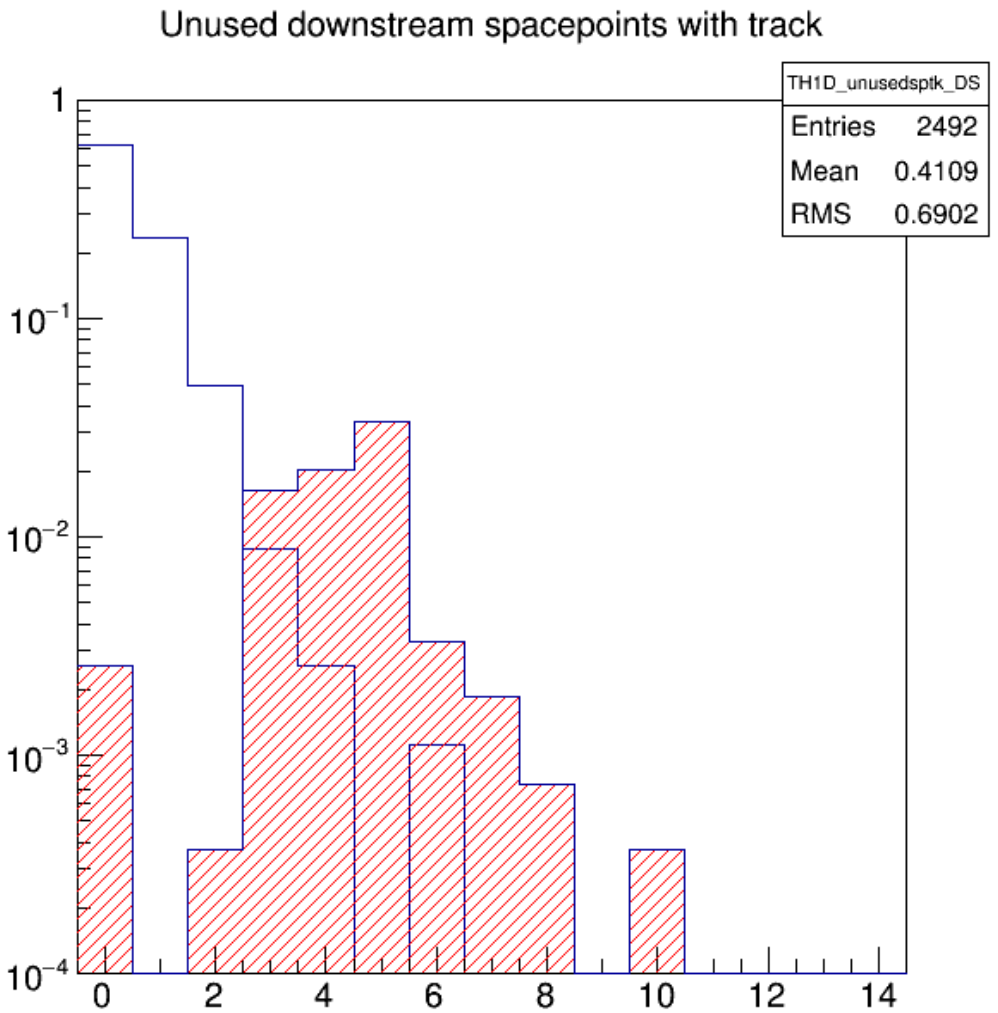
'Hardware' Inefficiencies

Pattern recognition inefficiencies

- Missing tracks for US(7%) and DS(13%)
- Dominant issue is pattern recognition

Number of missed hits: 240MeV

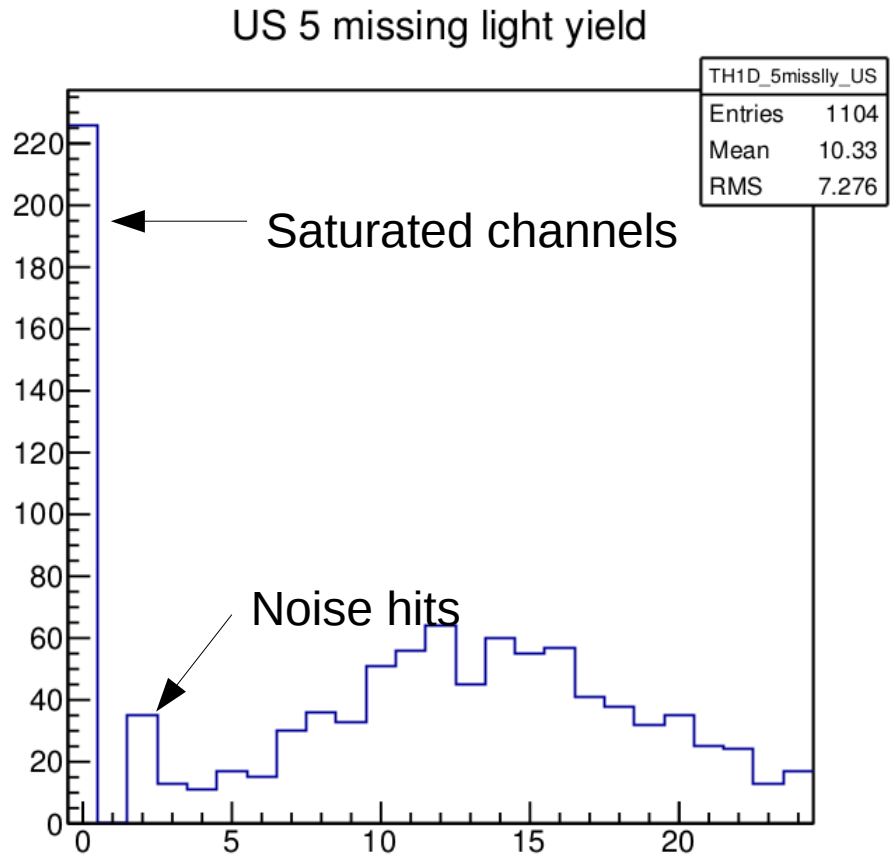


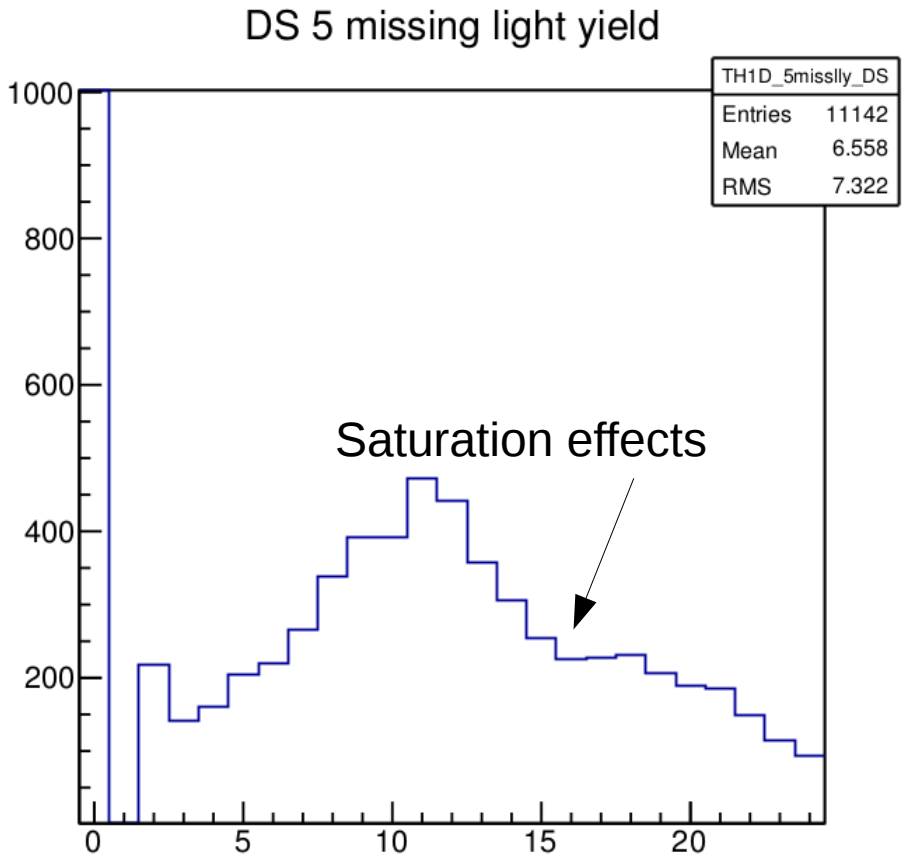


- Missing tracks for US(2%) and DS(4%)
- Not as bad at 240MeV
- Dominant issue is pattern recognition

How good are the doublets?

- Plot light yield of each cluster in doublet for events in the no-track 5-missed bin:





- Light yield looks consistent with expected detector performance.
- Small fraction of doublet hits (~2%) are contaminated with noise.
- Overall expect ~0.4% 'bad' space points

Old slides: