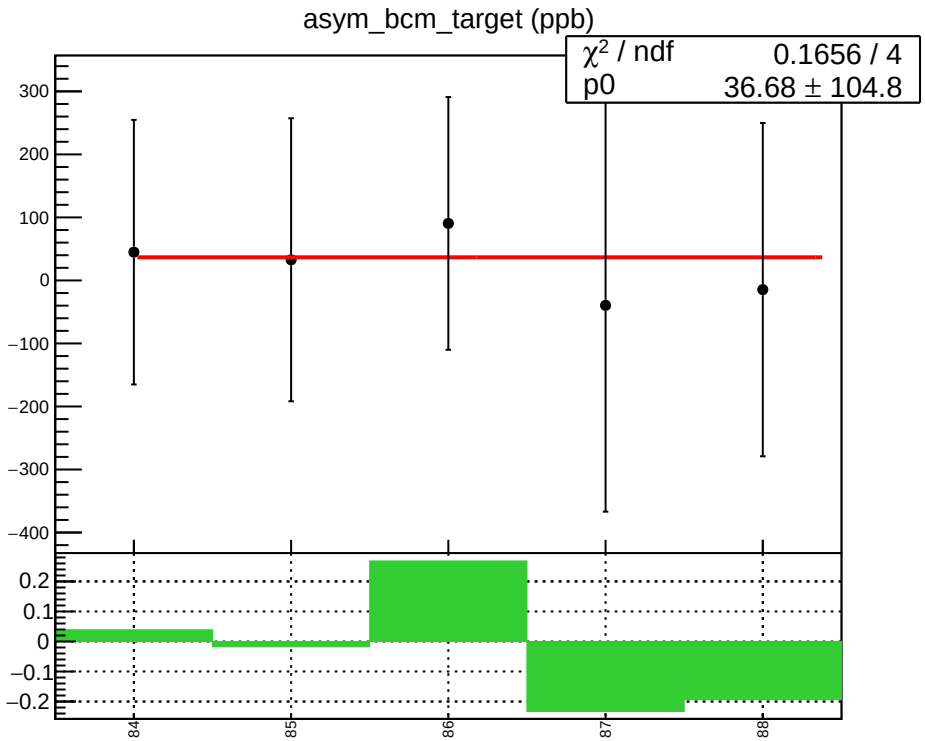
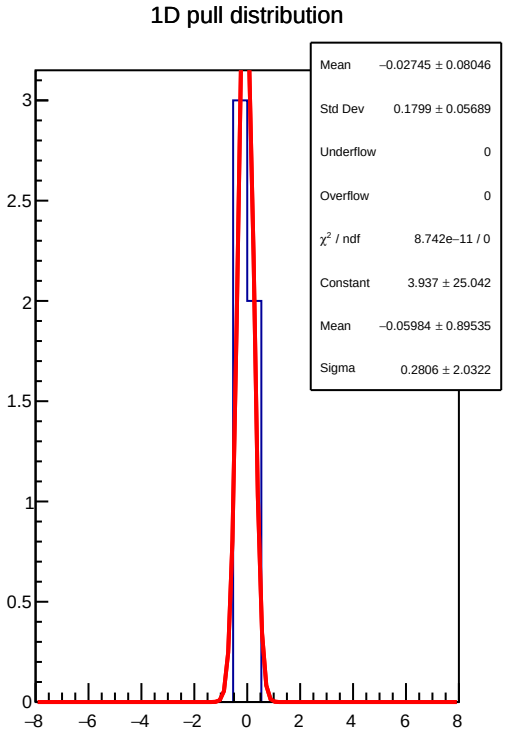
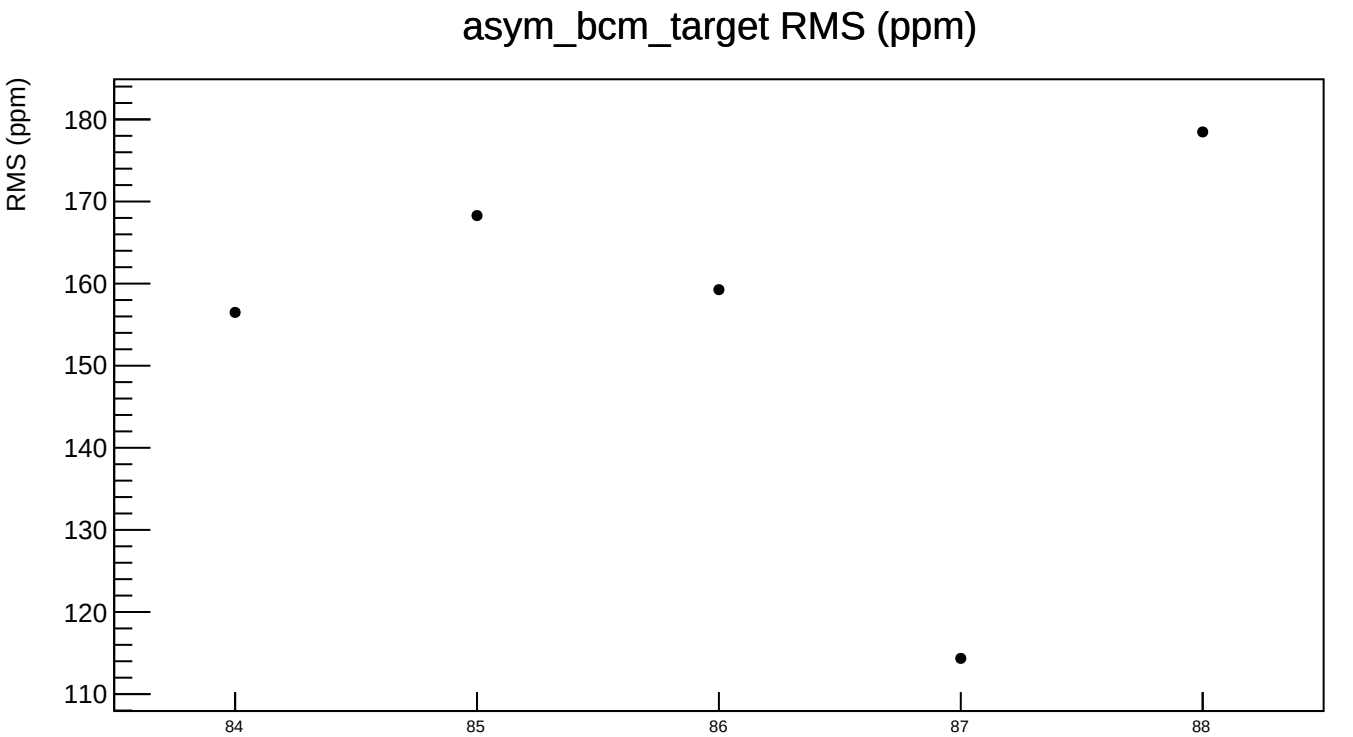
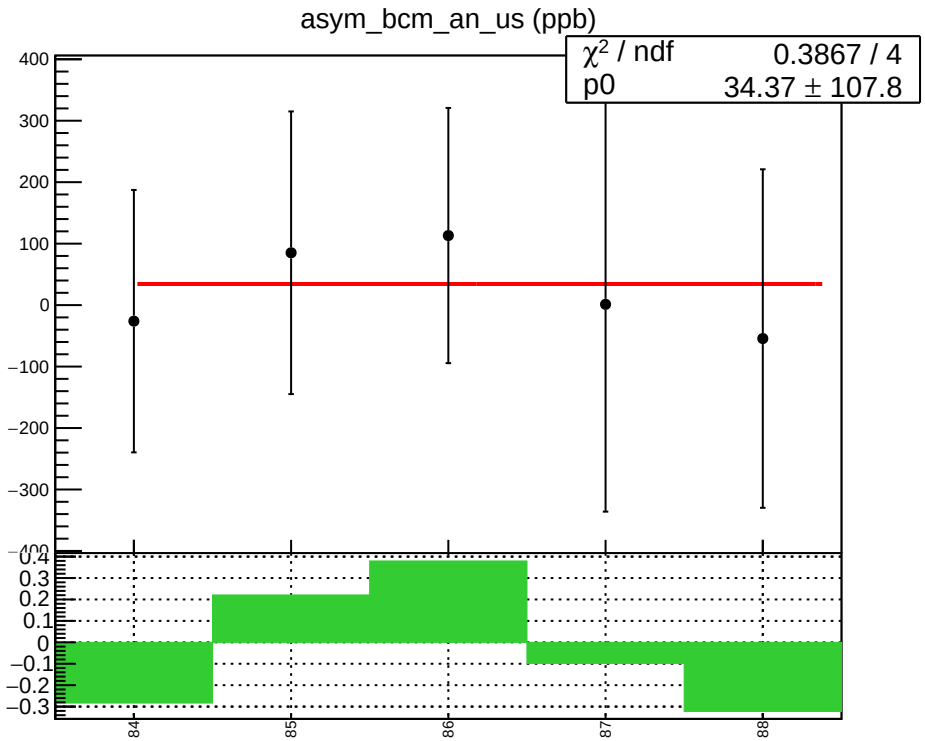
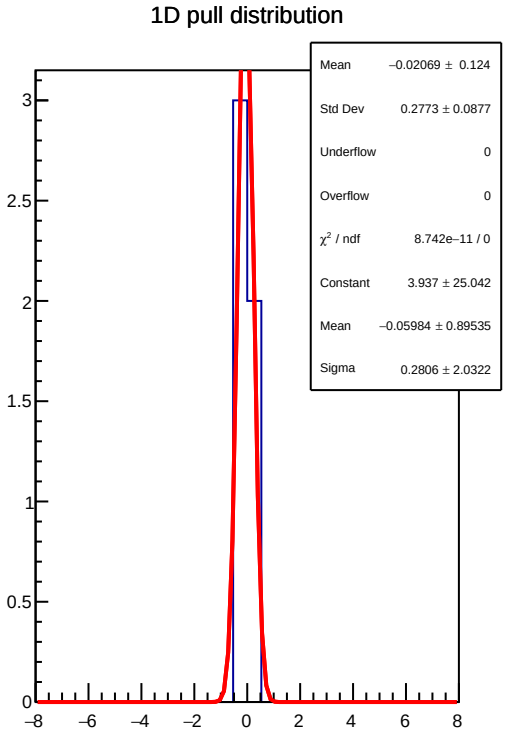
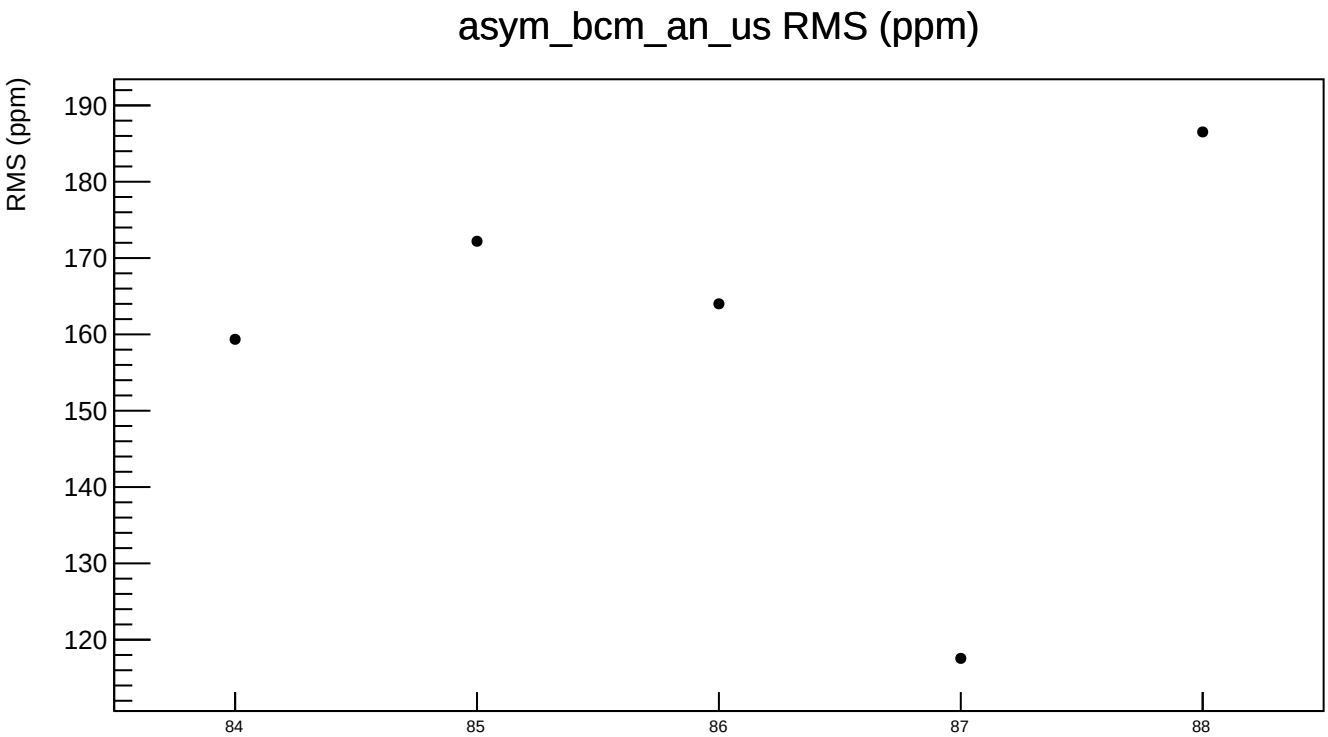

asym_bcm_target (ppb)
χ² / ndf 0.1656 / 4
p0 36.68 ± 104.8
300
200
100
0
−100
−200
−300
−400
0.2
0.1
0
−0.1
−0.2
84
85
86
87
88

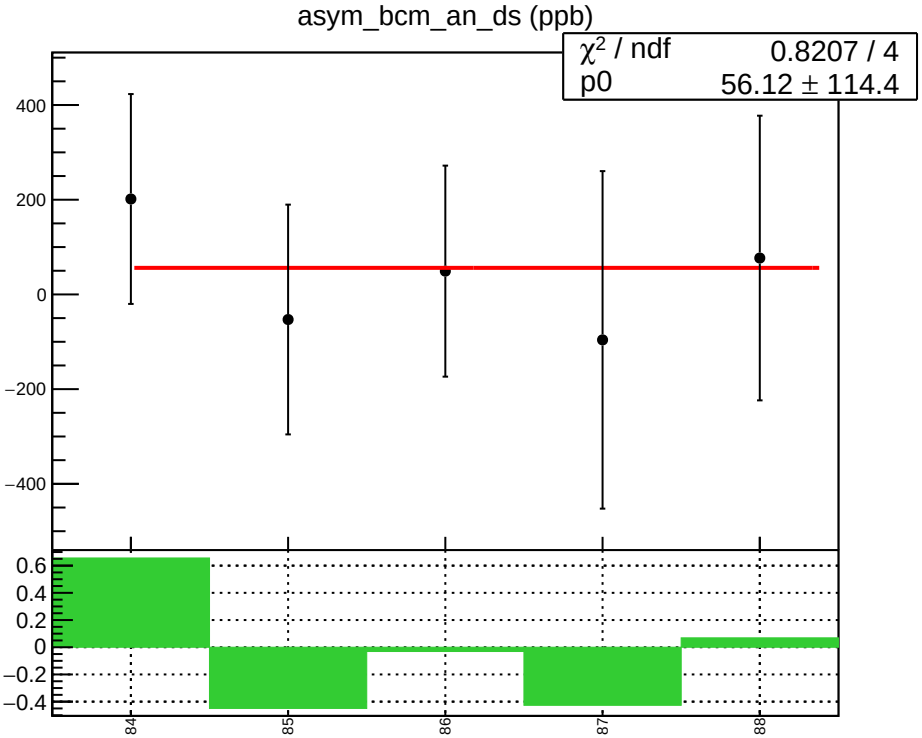

1D pull distribution
Mean −0.02745 ± 0.08046
Std Dev 0.1799 ± 0.05689
Underflow 0
Overflow 0
χ² / ndf 8.742e−11 / 0
Constant 3.937 ± 25.042
Mean −0.05984 ± 0.89535
Sigma 0.2806 ± 2.0322
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

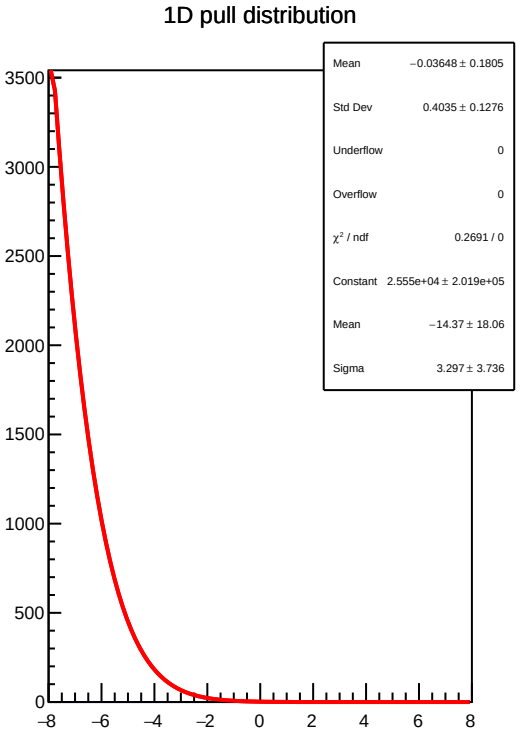

asym_bcm_target RMS (ppm)
RMS (ppm)
180
170
160
150
140
130
120
110
84
85
86
87
88

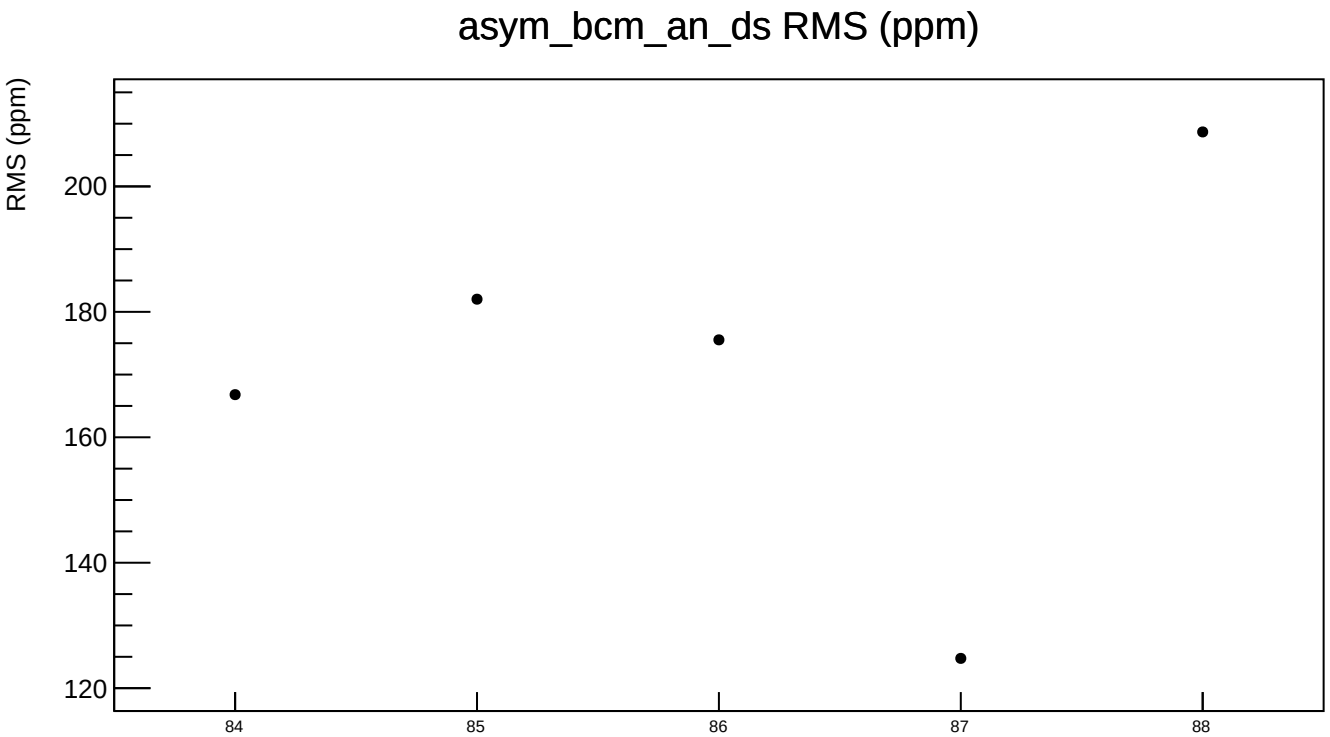

asym_bcm_an_us (ppb)
χ² / ndf 0.3867 / 4
p0 34.37 ± 107.8
400
300
200
100
0
−100
−200
−300
−400
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
84
85
86
87
88

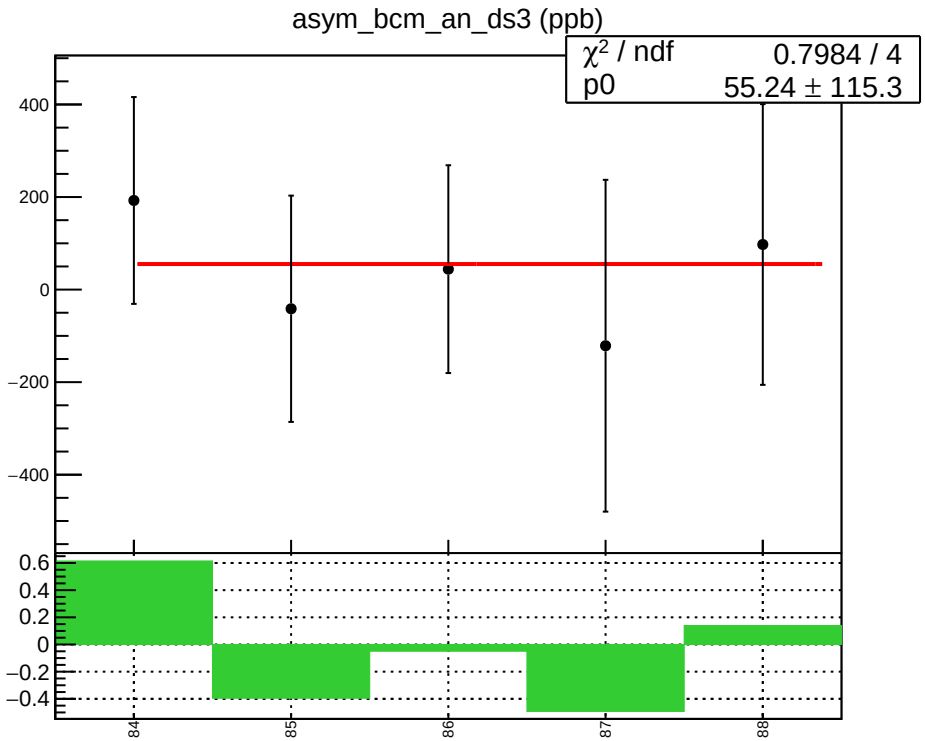

1D pull distribution
Mean −0.02069 ± 0.124
Std Dev 0.2773 ± 0.0877
Underflow 0
Overflow 0
χ² / ndf 8.742e−11 / 0
Constant 3.937 ± 25.042
Mean −0.05984 ± 0.89535
Sigma 0.2806 ± 2.0322
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

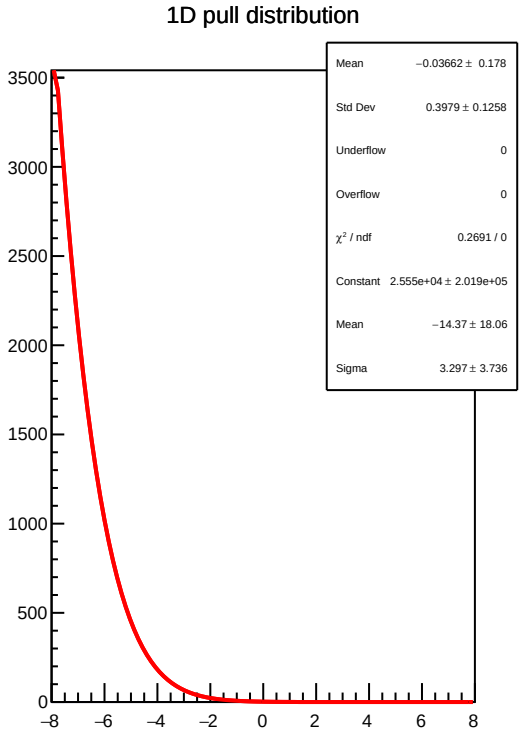

asym_bcm_an_us RMS (ppm)
RMS (ppm)
190
180
170
160
150
140
130
120
84
85
86
87
88

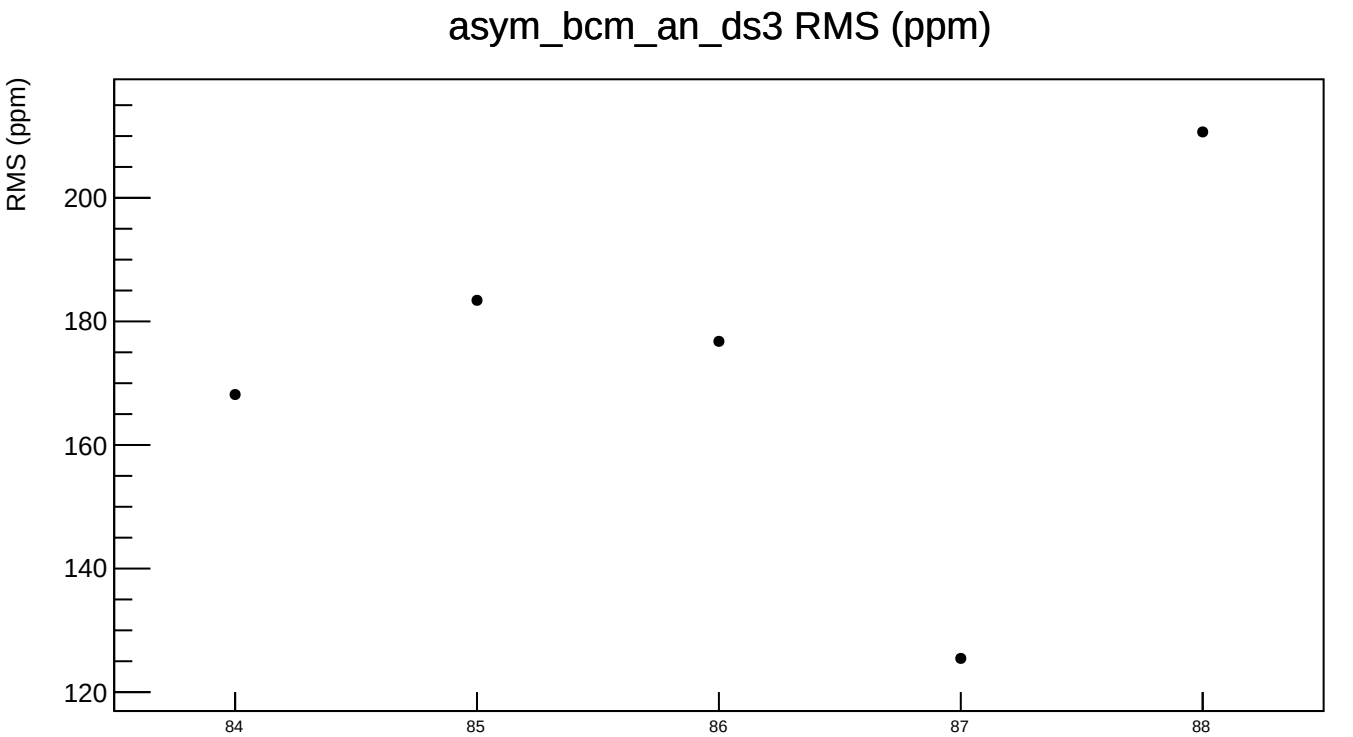

asym_bcm_an_ds (ppb)
χ² / ndf 0.8207 / 4
p0 56.12 ± 114.4
400
200
0
−200
−400
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

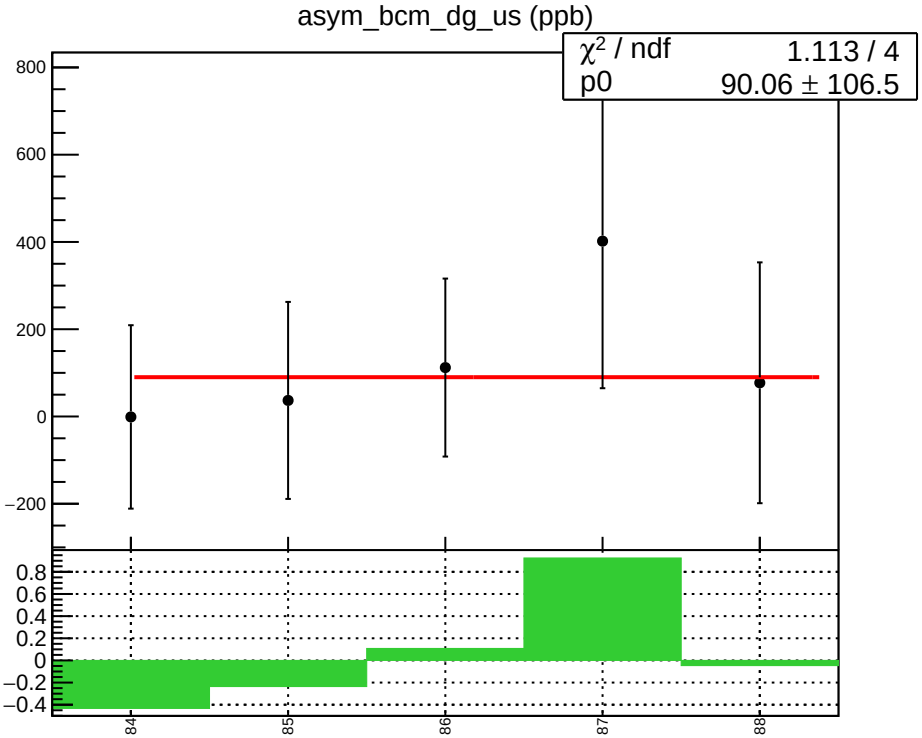

1D pull distribution
Mean −0.03648 ± 0.1805
Std Dev 0.4035 ± 0.1276
Underflow 0
Overflow 0
χ² / ndf 0.2691 / 0
Constant 2.555e+04 ± 2.019e+05
Mean −14.37 ± 18.06
Sigma 3.297 ± 3.736
3500
3000
2500
2000
1500
1000
500
0
−8
−6
−4
−2
0
2
4
6
8

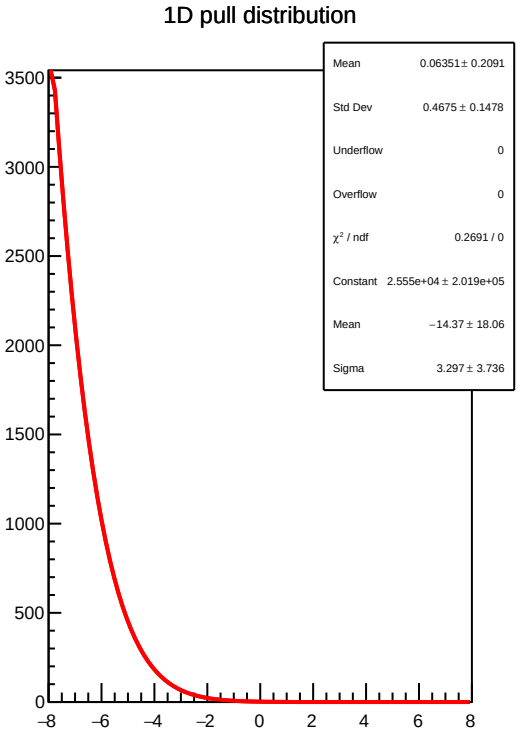

asym_bcm_an_ds RMS (ppm)
RMS (ppm)
200
180
160
140
120
84
85
86
87
88

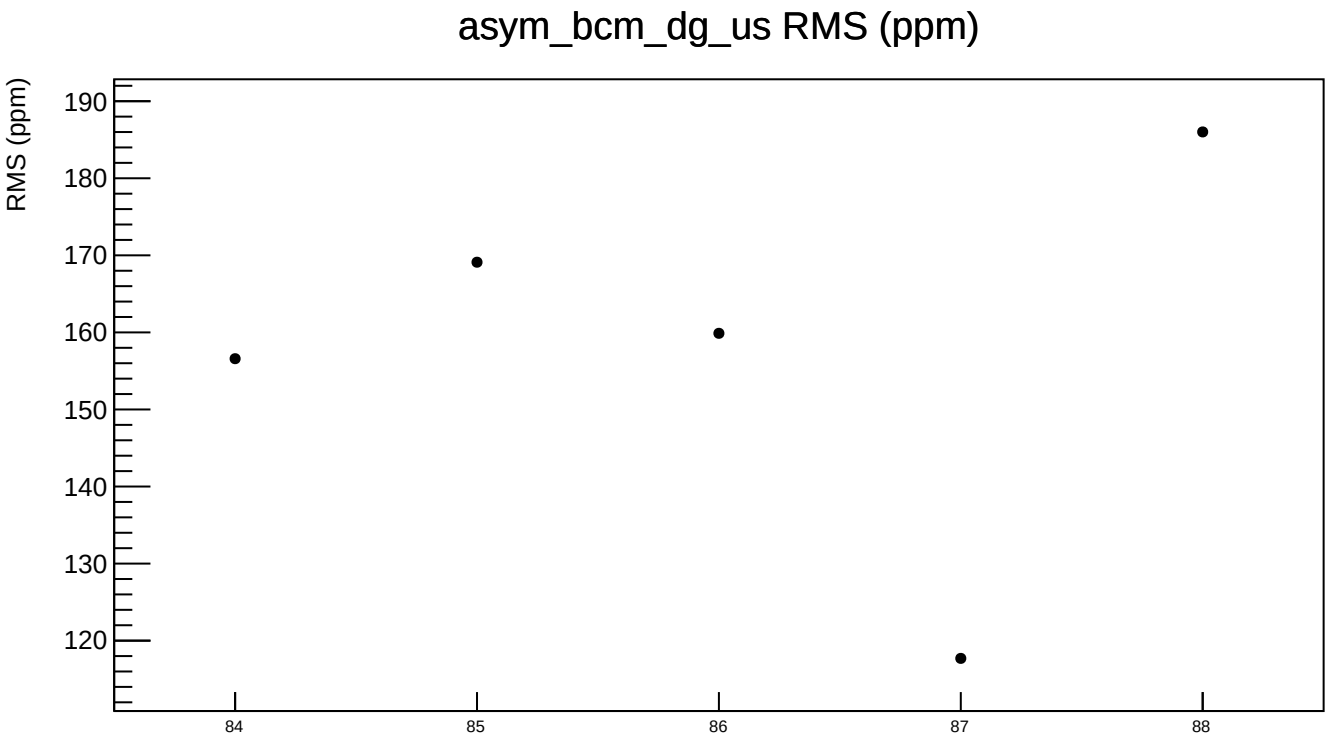

asym_bcm_an_ds3 (ppb)
χ² / ndf 0.7984 / 4
p0 55.24 ± 115.3
400
200
0
−200
−400
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

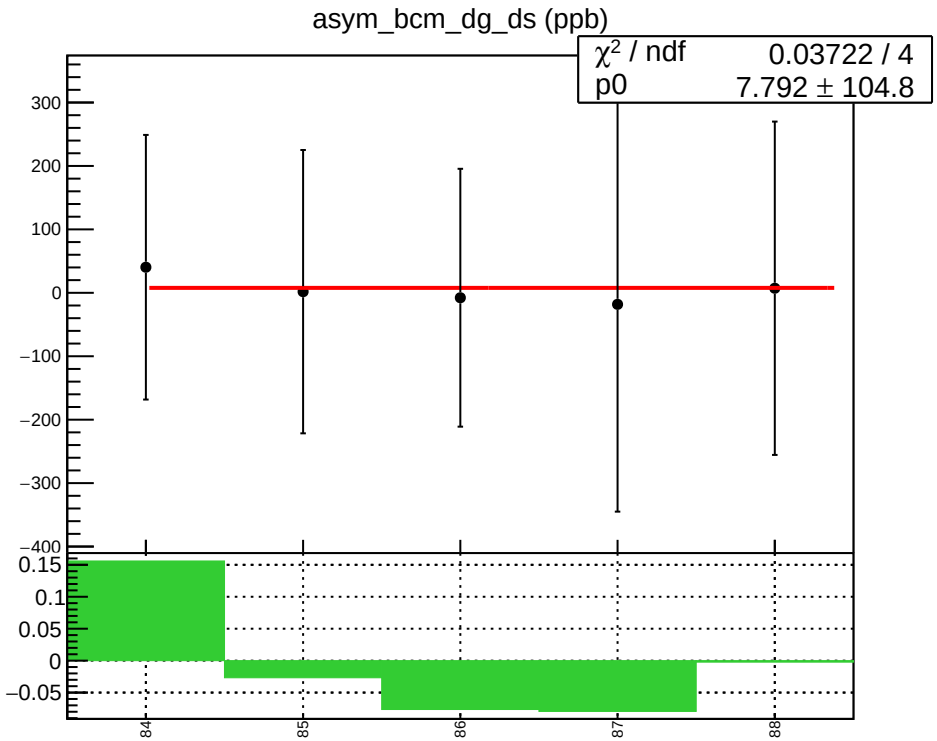

1D pull distribution
Mean −0.03662 ± 0.178
Std Dev 0.3979 ± 0.1258
Underflow 0
Overflow 0
χ² / ndf 0.2691 / 0
Constant 2.555e+04 ± 2.019e+05
Mean −14.37 ± 18.06
Sigma 3.297 ± 3.736
3500
3000
2500
2000
1500
1000
500
0
−8
−6
−4
−2
0
2
4
6
8

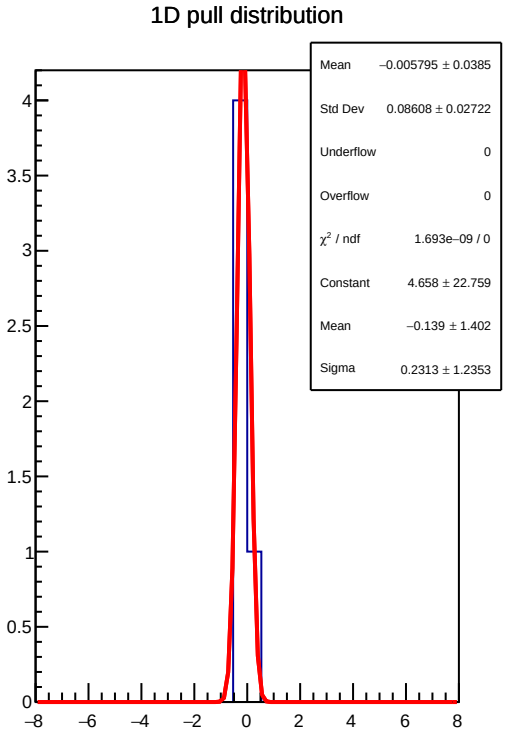

asym_bcm_an_ds3 RMS (ppm)
RMS (ppm)
200
180
160
140
120
84
85
86
87
88

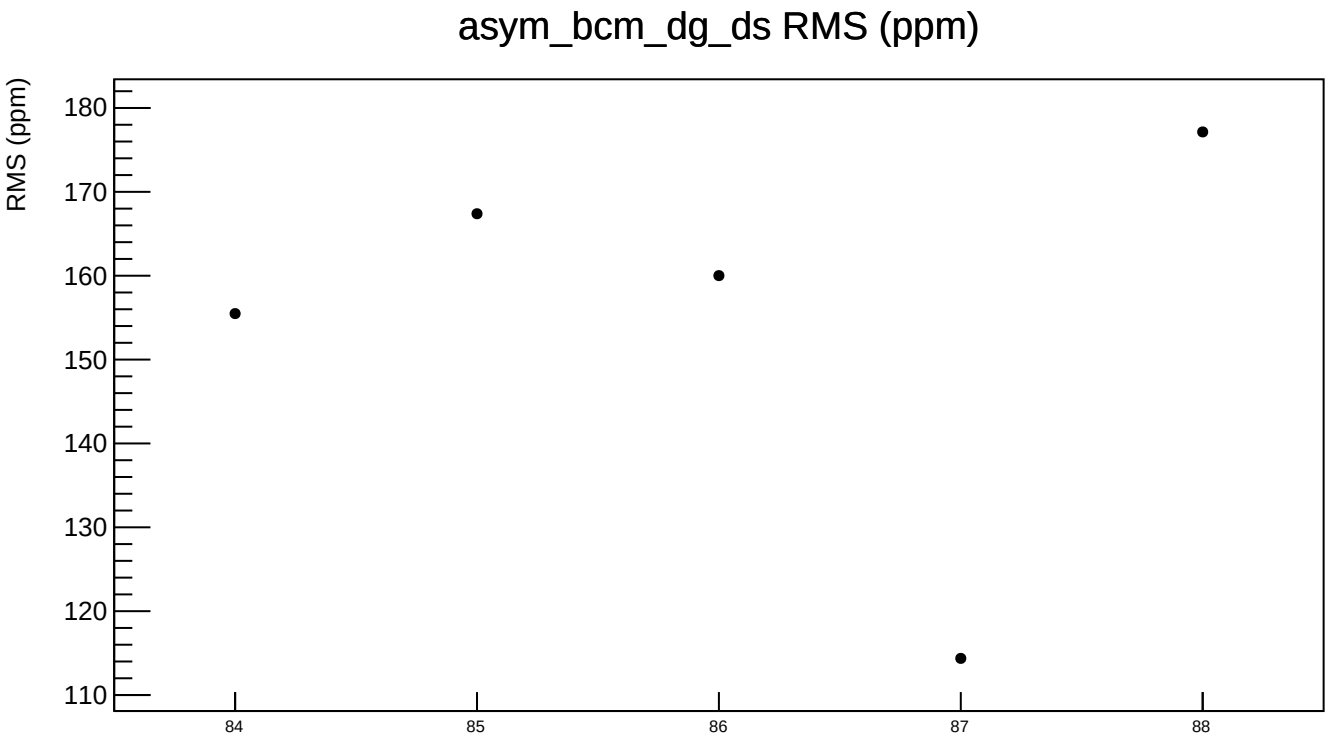

asym_bcm_dg_us (ppb)
χ² / ndf 1.113 / 4
p0 90.06 ± 106.5
800
600
400
200
0
−200
0.8
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

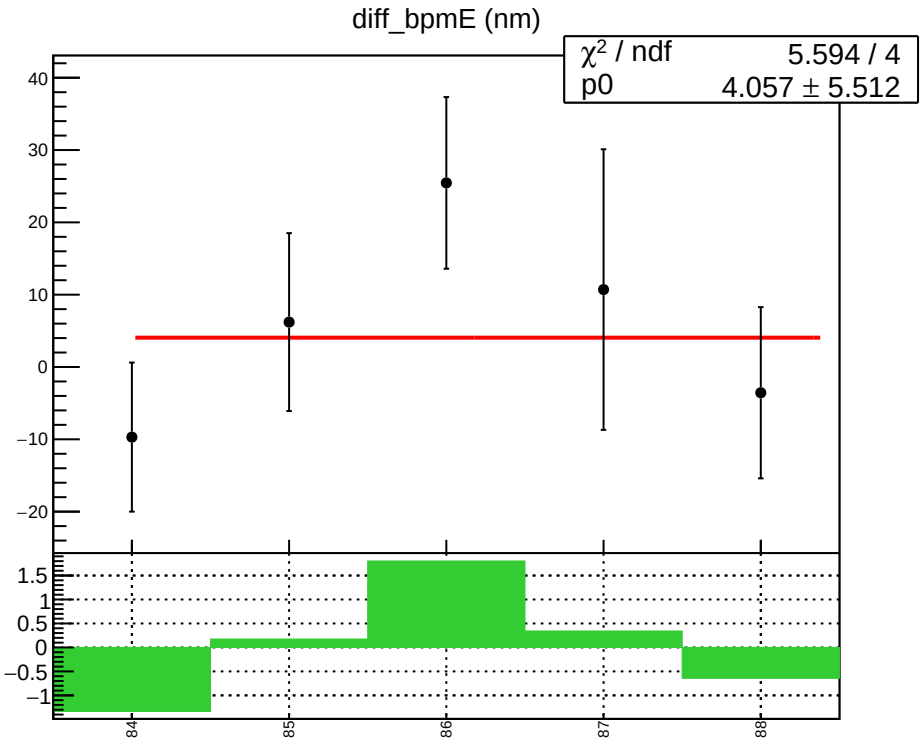

1D pull distribution
Mean 0.06351 ± 0.2091
Std Dev 0.4675 ± 0.1478
Underflow 0
Overflow 0
χ² / ndf 0.2691 / 0
Constant 2.555e+04 ± 2.019e+05
Mean −14.37 ± 18.06
Sigma 3.297 ± 3.736
3500
3000
2500
2000
1500
1000
500
0
−8
−6
−4
−2
0
2
4
6
8

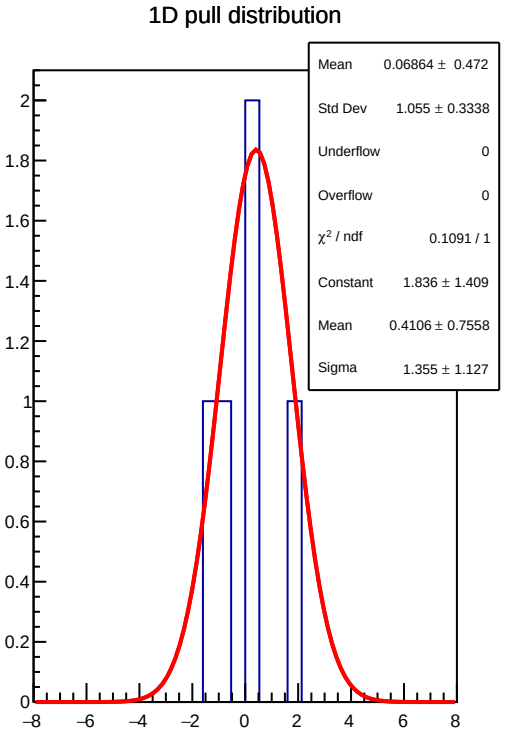

asym_bcm_dg_us RMS (ppm)
RMS (ppm)
190
180
170
160
150
140
130
120
84
85
86
87
88

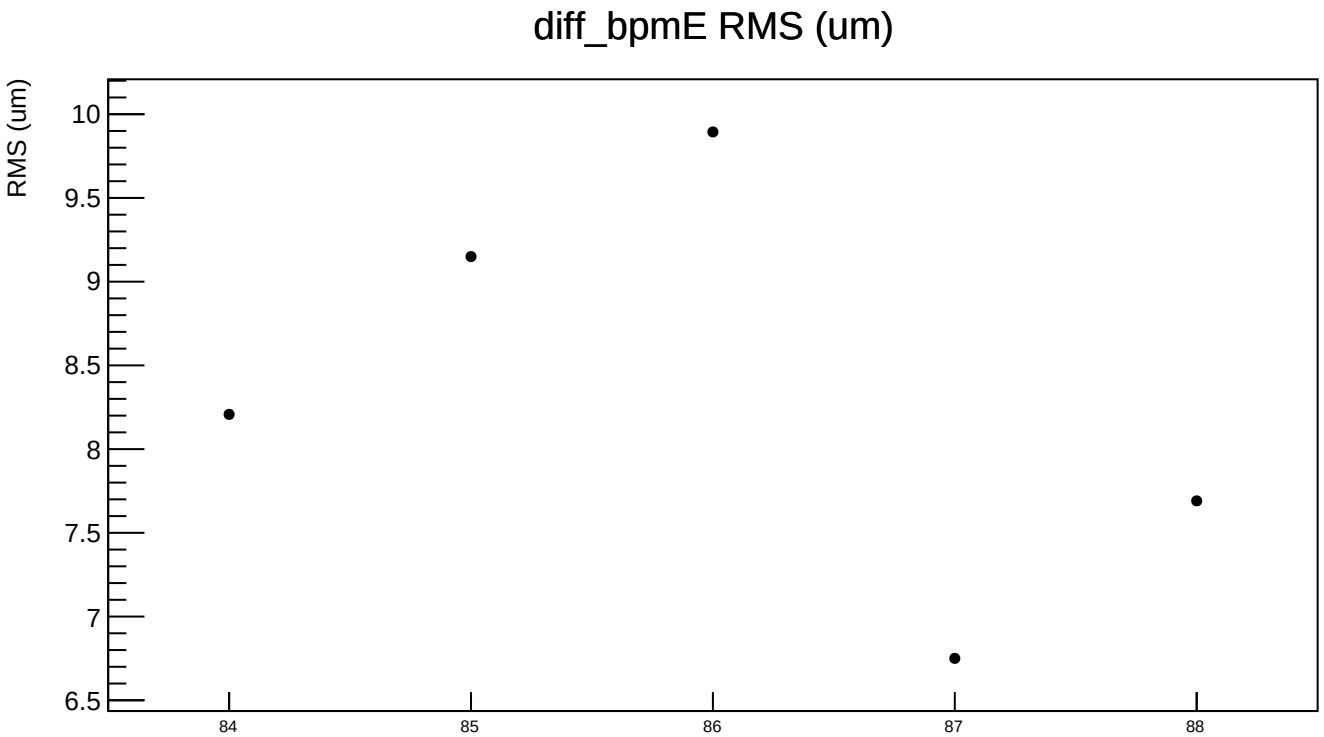

asym_bcm_dg_ds (ppb)
χ² / ndf 0.03722 / 4
p0 7.792 ± 104.8
300
200
100
0
−100
−200
−300
−400
0.15
0.1
0.05
0
−0.05
84
85
86
87
88

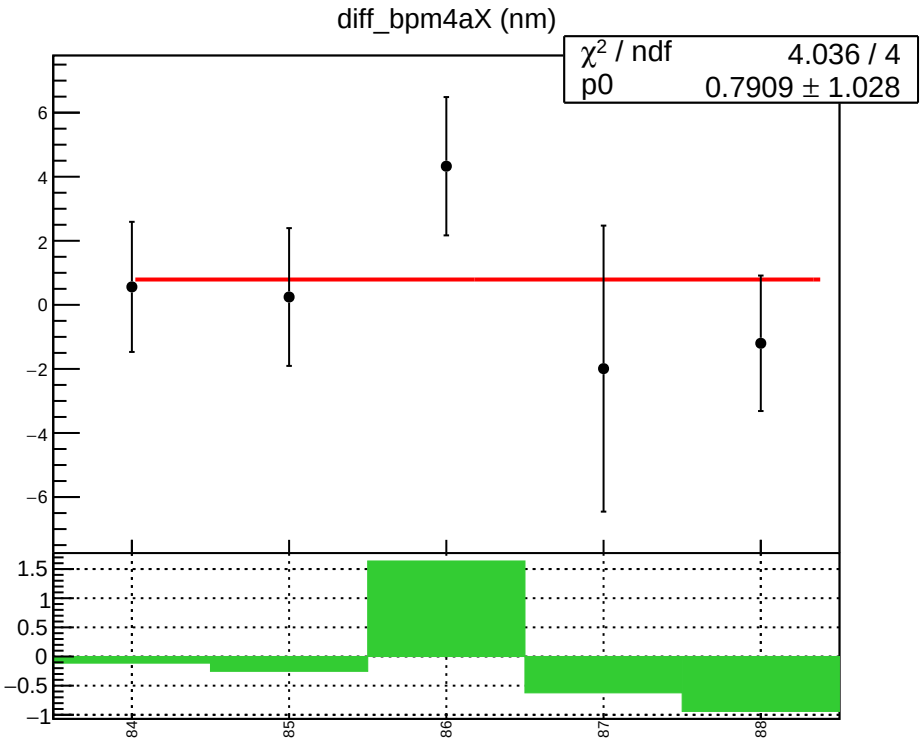

1D pull distribution
Mean −0.005795 ± 0.0385
Std Dev 0.08608 ± 0.02722
Underflow 0
Overflow 0
χ² / ndf 1.693e−09 / 0
Constant 4.658 ± 22.759
Mean −0.139 ± 1.402
Sigma 0.2313 ± 1.2353
4
3.5
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

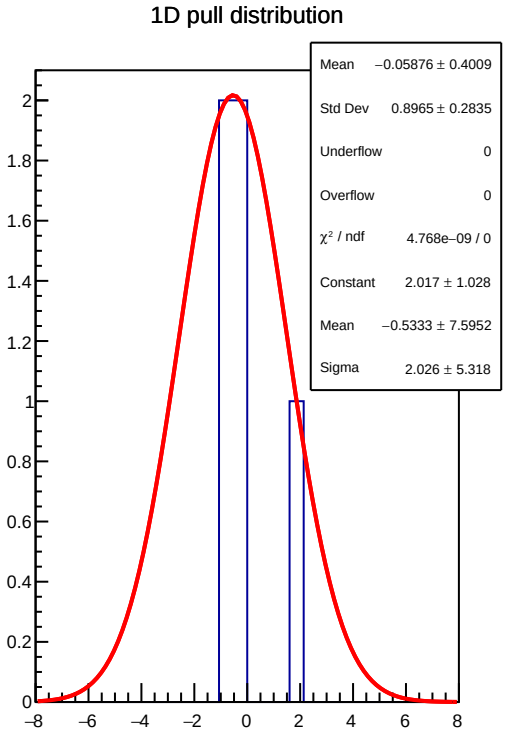

asym_bcm_dg_ds RMS (ppm)
RMS (ppm)
180
170
160
150
140
130
120
110
84
85
86
87
88

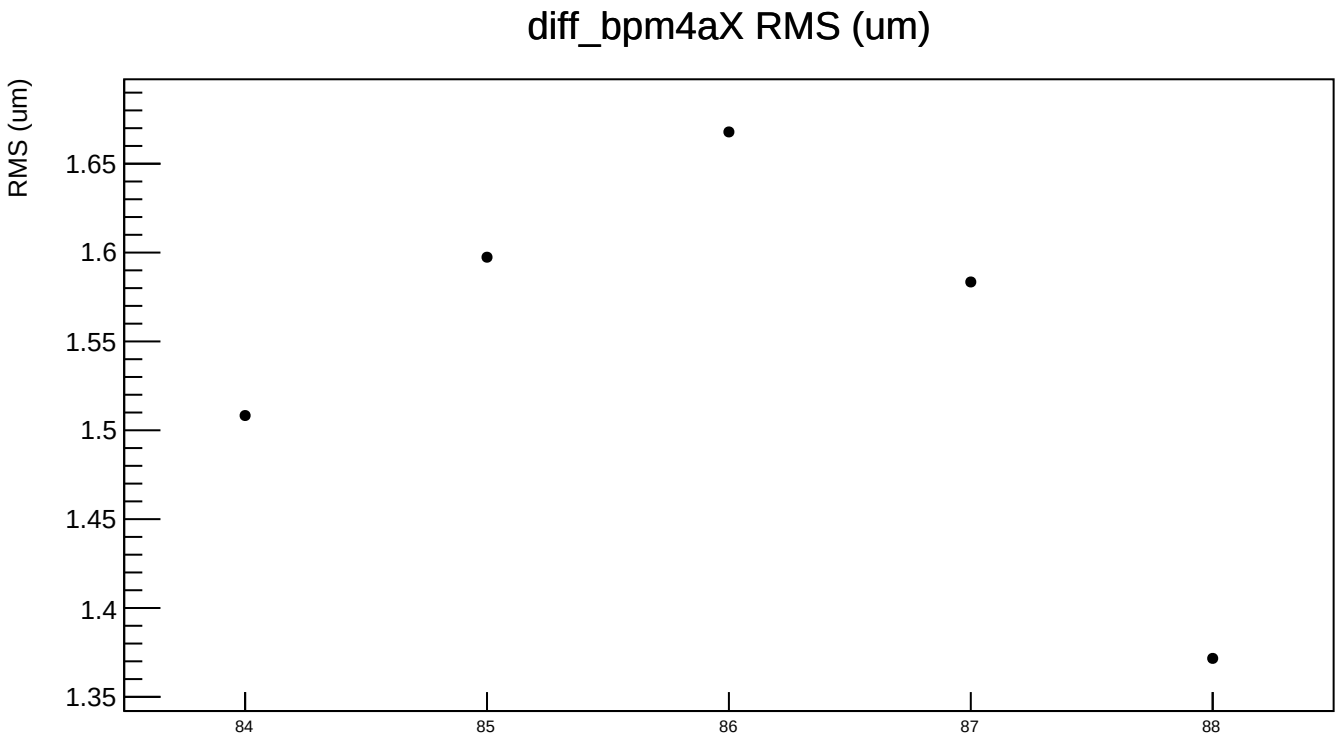

diff_bpmE (nm)
χ² / ndf 5.594 / 4
p0 4.057 ± 5.512
40
30
20
10
0
−10
−20
1.5
1
0.5
0
−0.5
−1
84
85
86
87
88

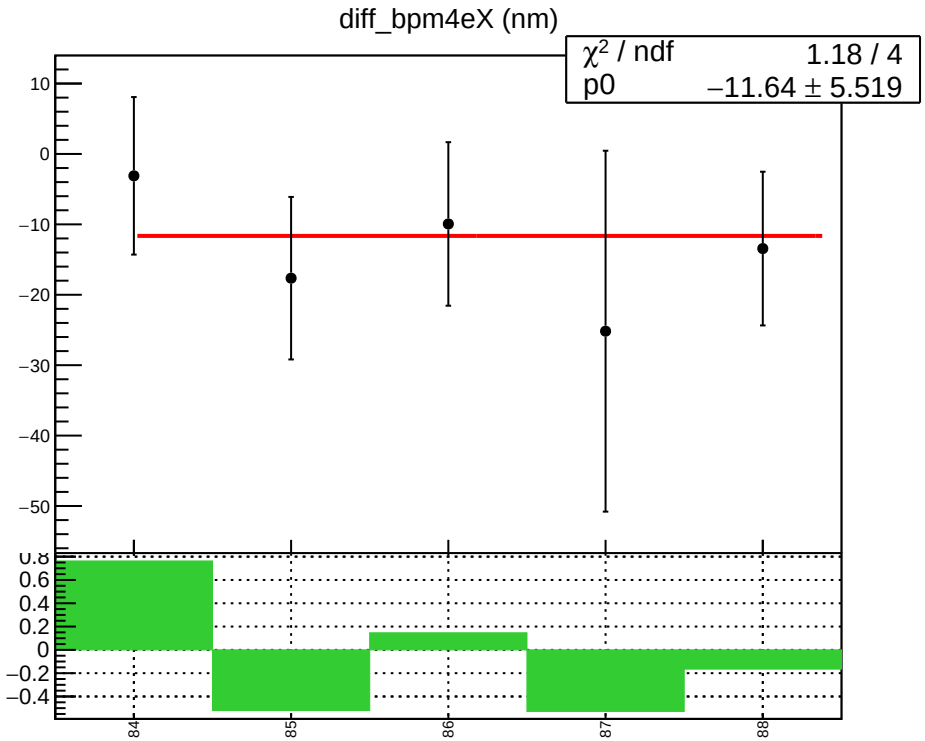

1D pull distribution
Mean 0.06864 ± 0.472
Std Dev 1.055 ± 0.3338
Underflow 0
Overflow 0
χ² / ndf 0.1091 / 1
Constant 1.836 ± 1.409
Mean 0.4106 ± 0.7558
Sigma 1.355 ± 1.127
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

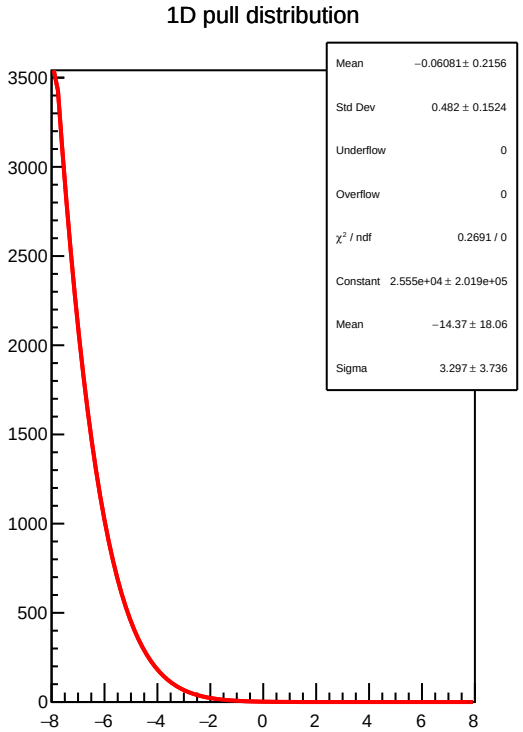

diff_bpmE RMS (um)
RMS (um)
10
9.5
9
8.5
8
7.5
7
6.5
84
85
86
87
88

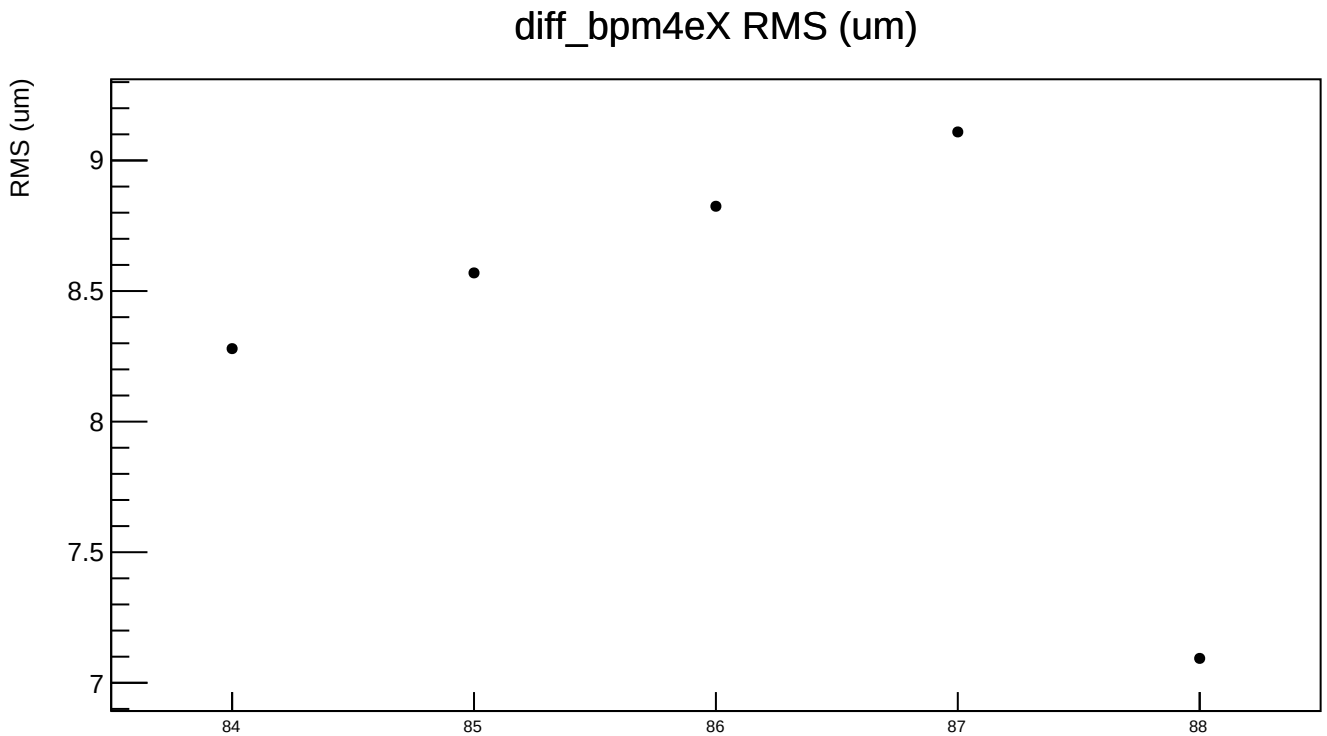

diff_bpm4aX (nm)
χ² / ndf 4.036 / 4
p0 0.7909 ± 1.028
84
85
86
87
88

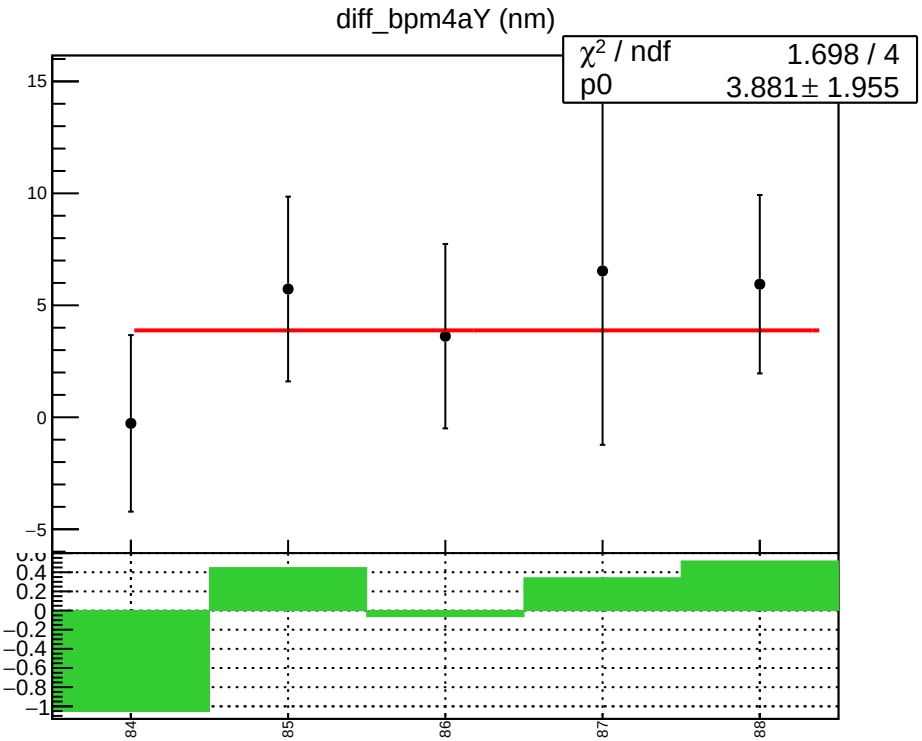

1D pull distribution
Mean −0.05876 ± 0.4009
Std Dev 0.8965 ± 0.2835
Underflow 0
Overflow 0
χ² / ndf 4.768e−09 / 0
Constant 2.017 ± 1.028
Mean −0.5333 ± 7.5952
Sigma 2.026 ± 5.318

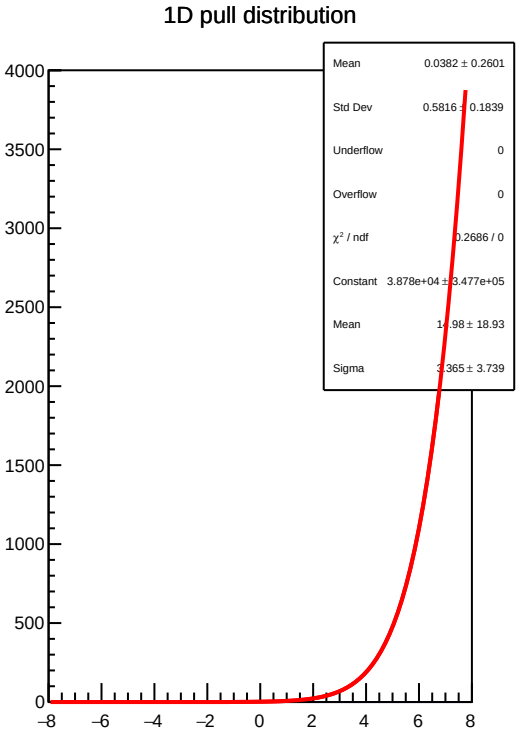

diff_bpm4aX RMS (um)
RMS (um)
1.65
1.6
1.55
1.5
1.45
1.4
1.35
84
85
86
87
88

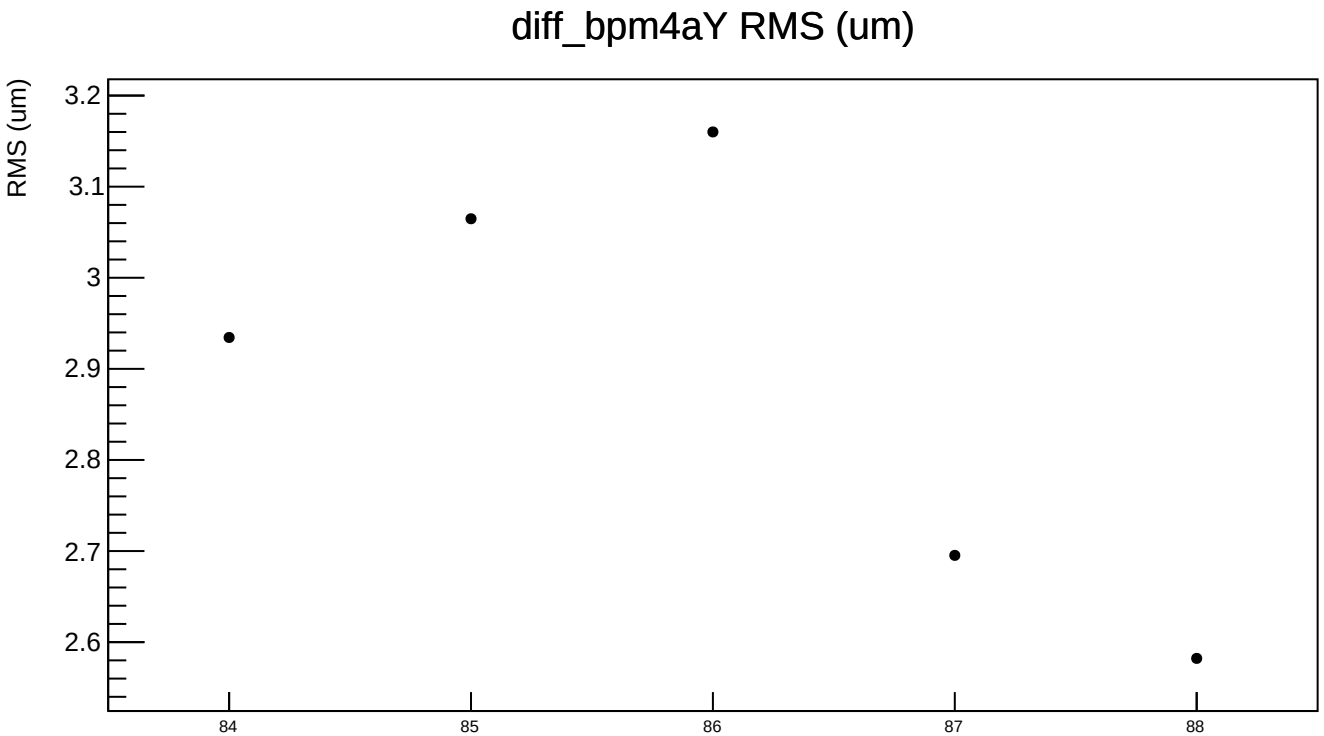

diff_bpm4eX (nm)
χ² / ndf 1.18 / 4
p0 −11.64 ± 5.519
10
0
−10
−20
−30
−40
−50
0.8
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

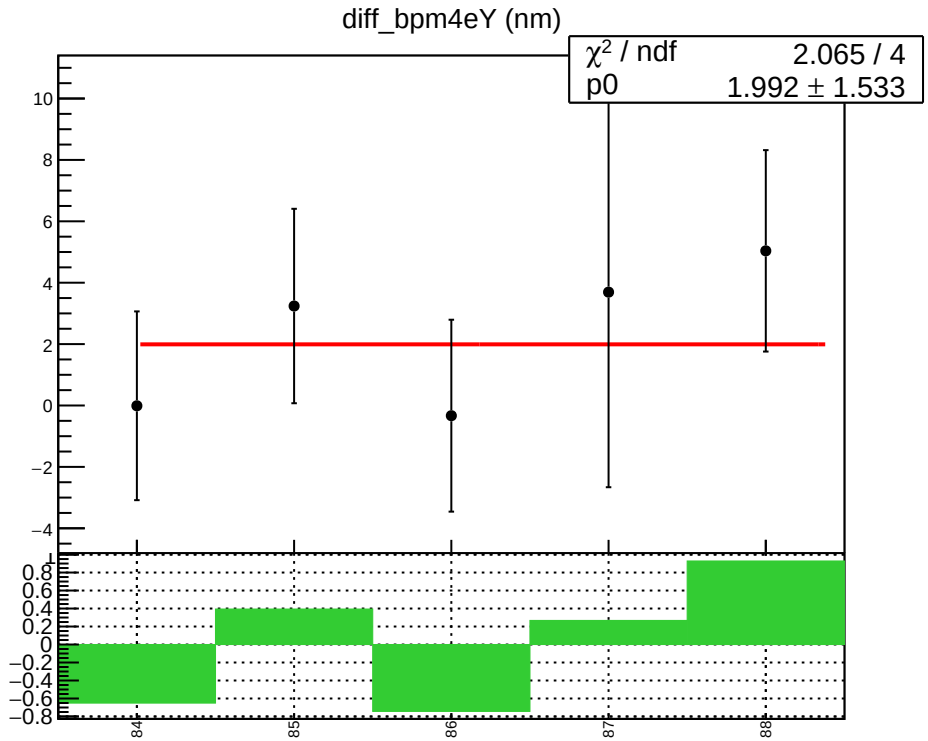

1D pull distribution
Mean −0.06081 ± 0.2156
Std Dev 0.482 ± 0.1524
Underflow 0
Overflow 0
χ² / ndf 0.2691 / 0
Constant 2.555e+04 ± 2.019e+05
Mean −14.37 ± 18.06
Sigma 3.297 ± 3.736
3500
3000
2500
2000
1500
1000
500
0
−8
−6
−4
−2
0
2
4
6
8

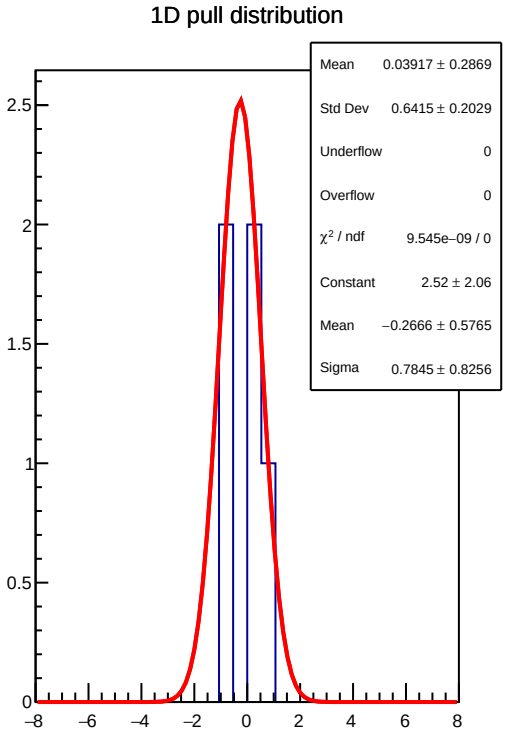

diff_bpm4eX RMS (um)
RMS (um)
9
8.5
8
7.5
7
84
85
86
87
88

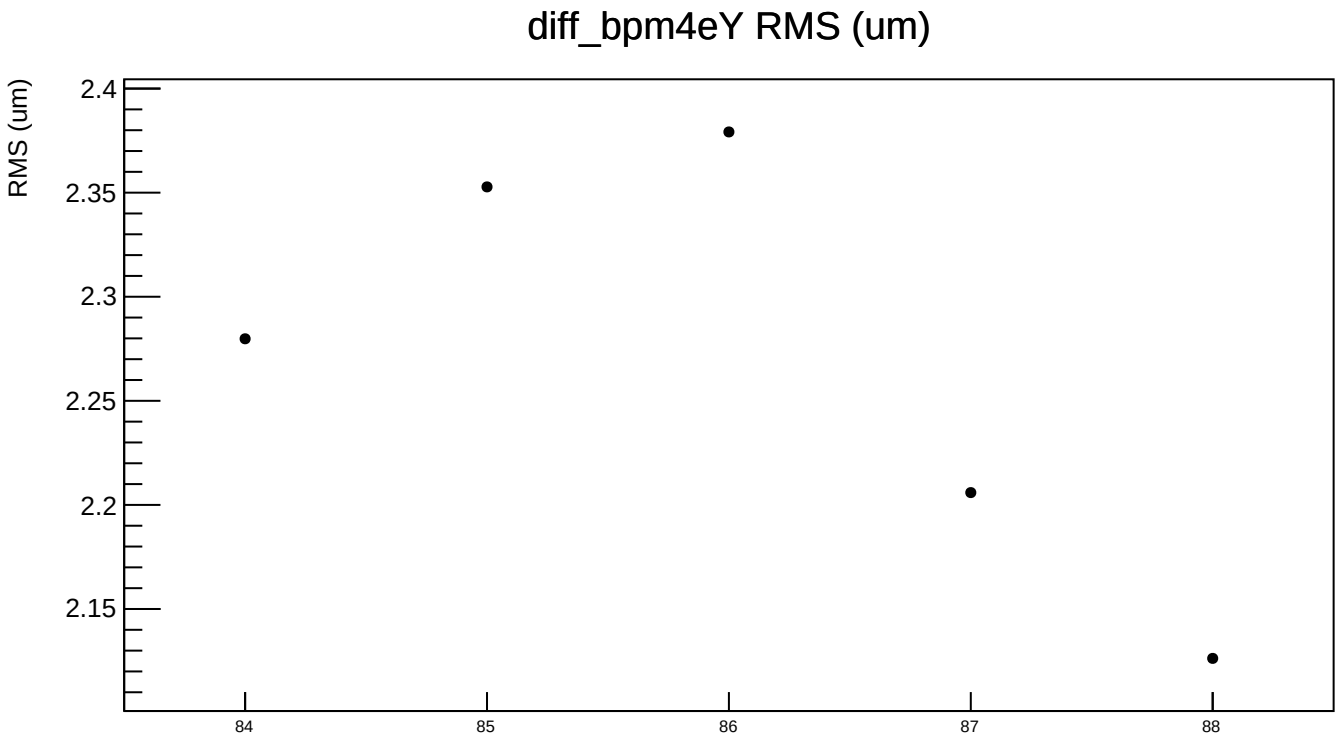

diff_bpm4aY (nm)
χ² / ndf 1.698 / 4
p0 3.881 ± 1.955
15
10
5
0
−5
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
84
85
86
87
88

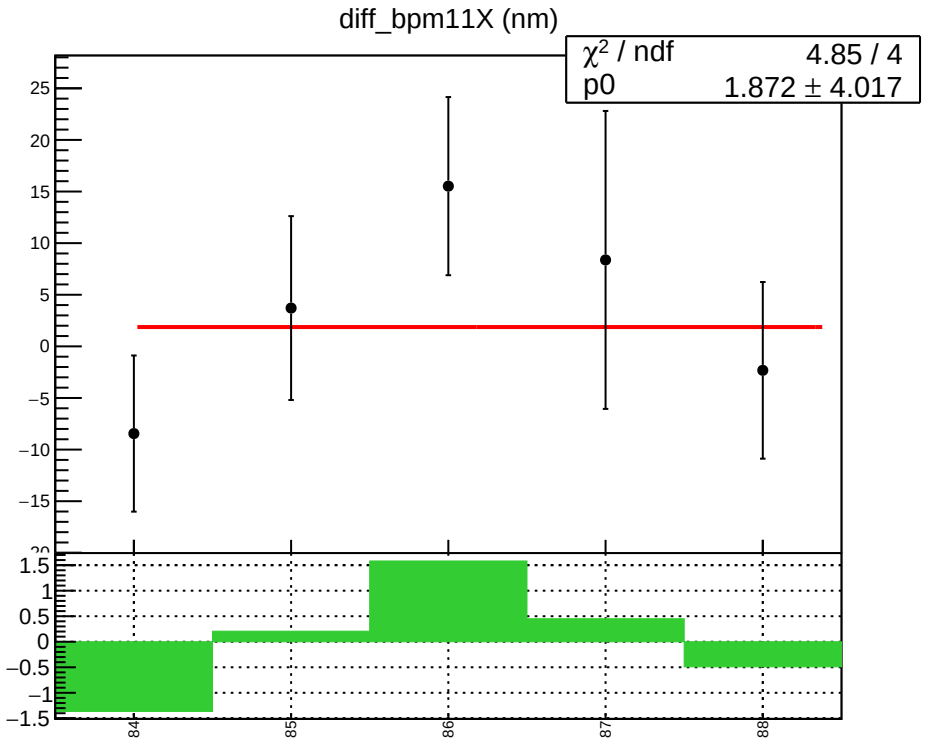

1D pull distribution
Mean 0.0382 ± 0.2601
Std Dev 0.5816 ± 0.1839
Underflow 0
Overflow 0
χ² / ndf 0.2686 / 0
Constant 3.878e+04 ± 3.477e+05
Mean 1[illegible].98 ± 18.93
Sigma 3.365 ± 3.739
4000
3500
3000
2500
2000
1500
1000
500
0
−8
−6
−4
−2
0
2
4
6
8

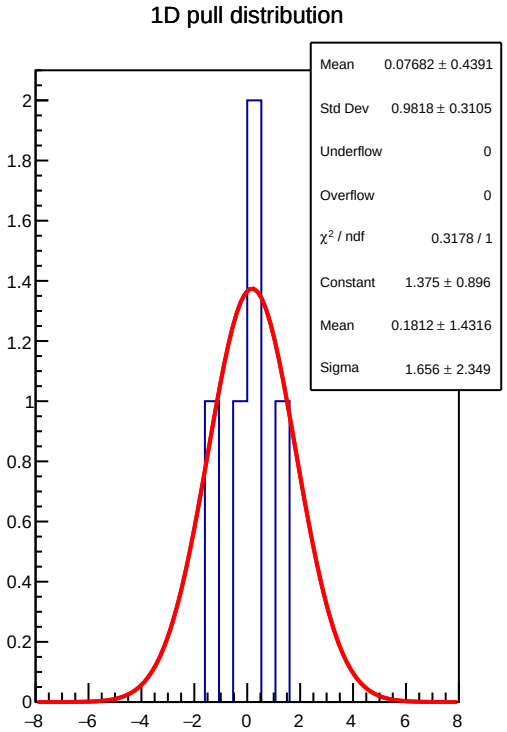

diff_bpm4aY RMS (um)
RMS (um)
3.2
3.1
3
2.9
2.8
2.7
2.6
84
85
86
87
88


diff_bpm4eY (nm)
χ² / ndf 2.065 / 4
p0 1.992 ± 1.533
10
8
6
4
2
0
−2
−4
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
84
85
86
87
88

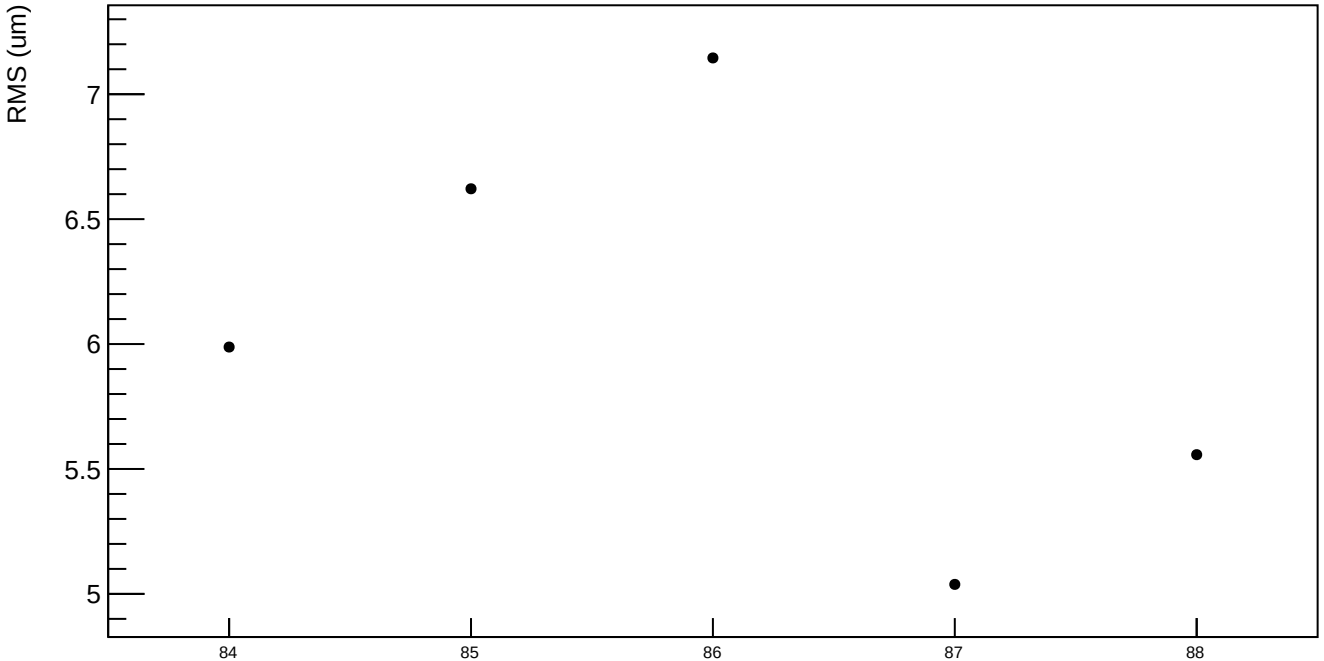

1D pull distribution
Mean 0.03917 ± 0.2869
Std Dev 0.6415 ± 0.2029
Underflow 0
Overflow 0
χ² / ndf 9.545e−09 / 0
Constant 2.52 ± 2.06
Mean −0.2666 ± 0.5765
Sigma 0.7845 ± 0.8256
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

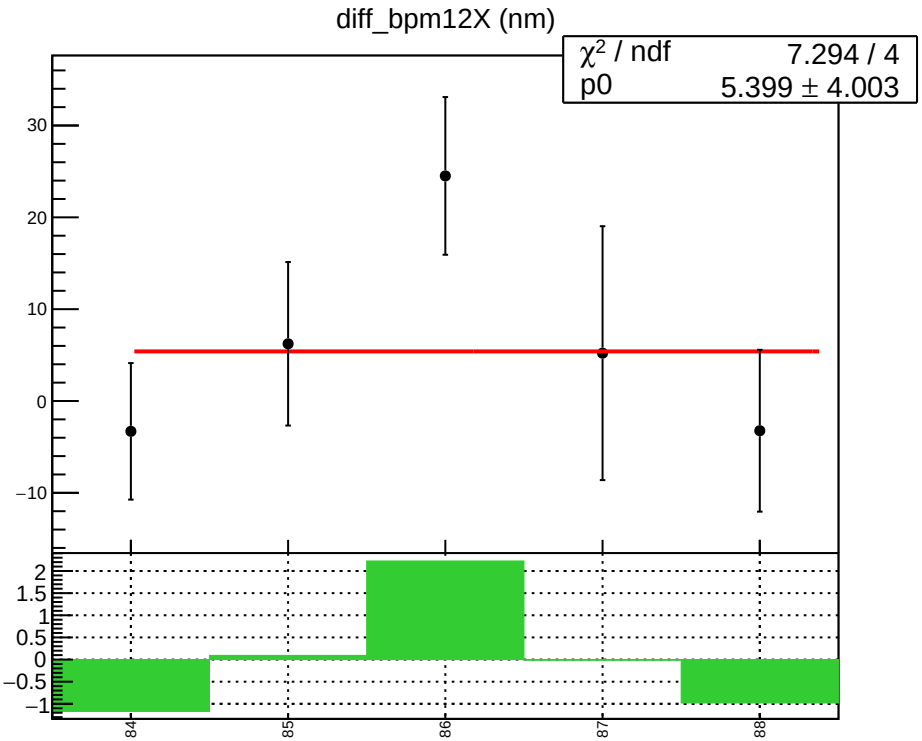

diff_bpm4eY RMS (um)
RMS (um)
2.4
2.35
2.3
2.25
2.2
2.15
84
85
86
87
88

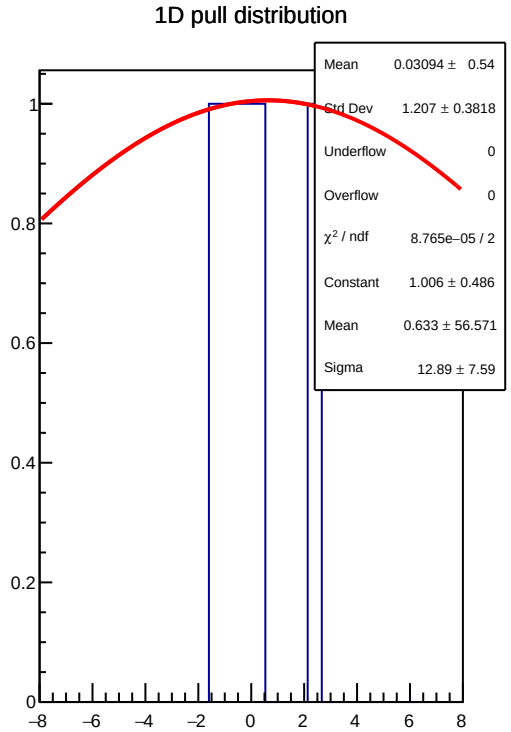

diff_bpm11X (nm)
χ² / ndf 4.85 / 4
p0 1.872 ± 4.017
25
20
15
10
5
0
−5
−10
−15
1.5
1
0.5
0
−0.5
−1
−1.5
84
85
86
87
88


1D pull distribution
Mean 0.07682 ± 0.4391
Std Dev 0.9818 ± 0.3105
Underflow 0
Overflow 0
χ² / ndf 0.3178 / 1
Constant 1.375 ± 0.896
Mean 0.1812 ± 1.4316
Sigma 1.656 ± 2.349
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

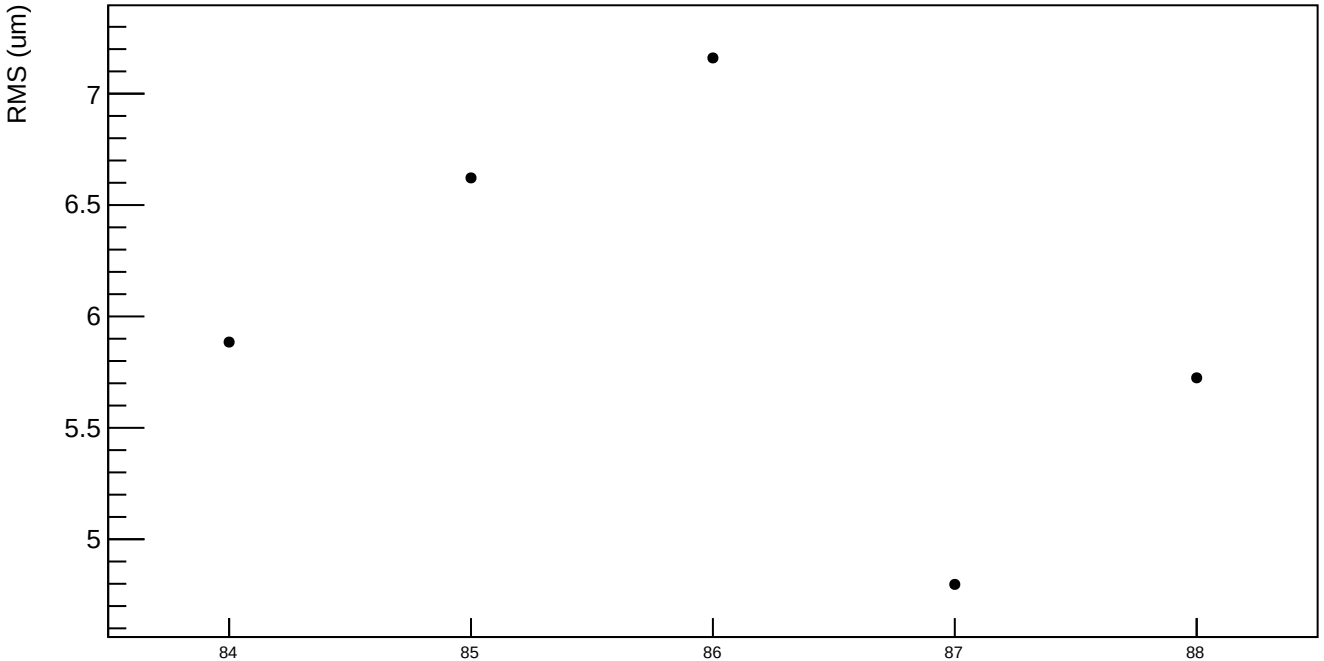
diff_bpm11X RMS (um)

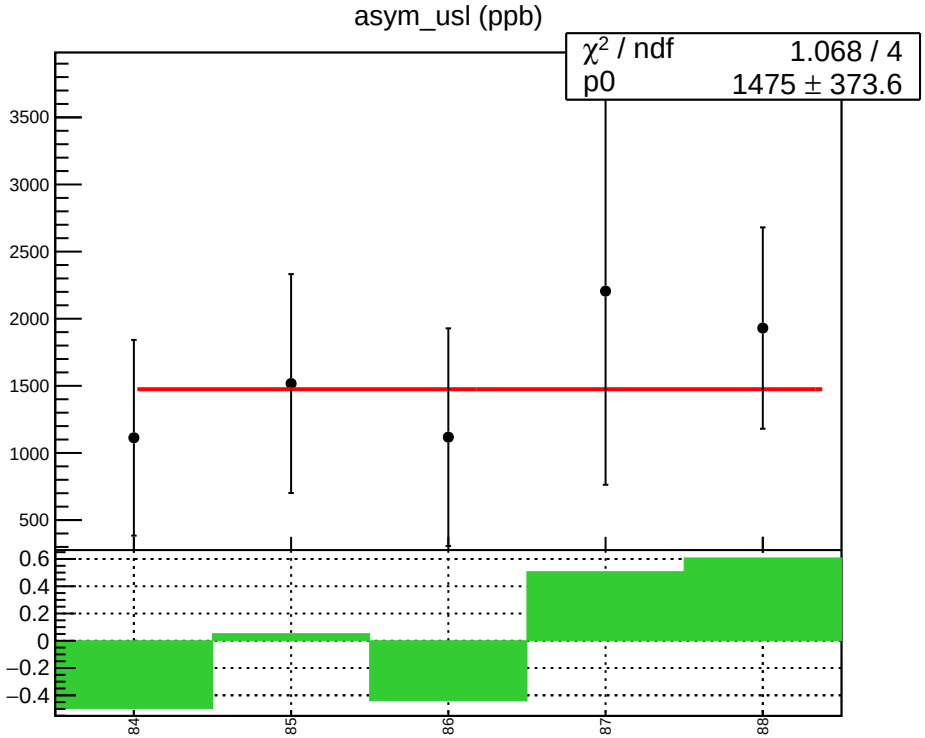


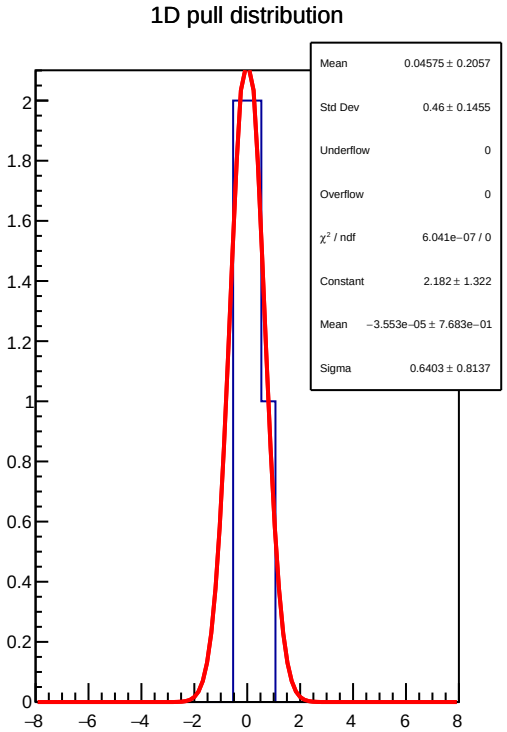

diff_bpm12X (nm)
χ² / ndf 7.294 / 4
p0 5.399 ± 4.003
30
20
10
0
−10
2
1.5
1
0.5
0
−0.5
−1
84
85
86
87
88

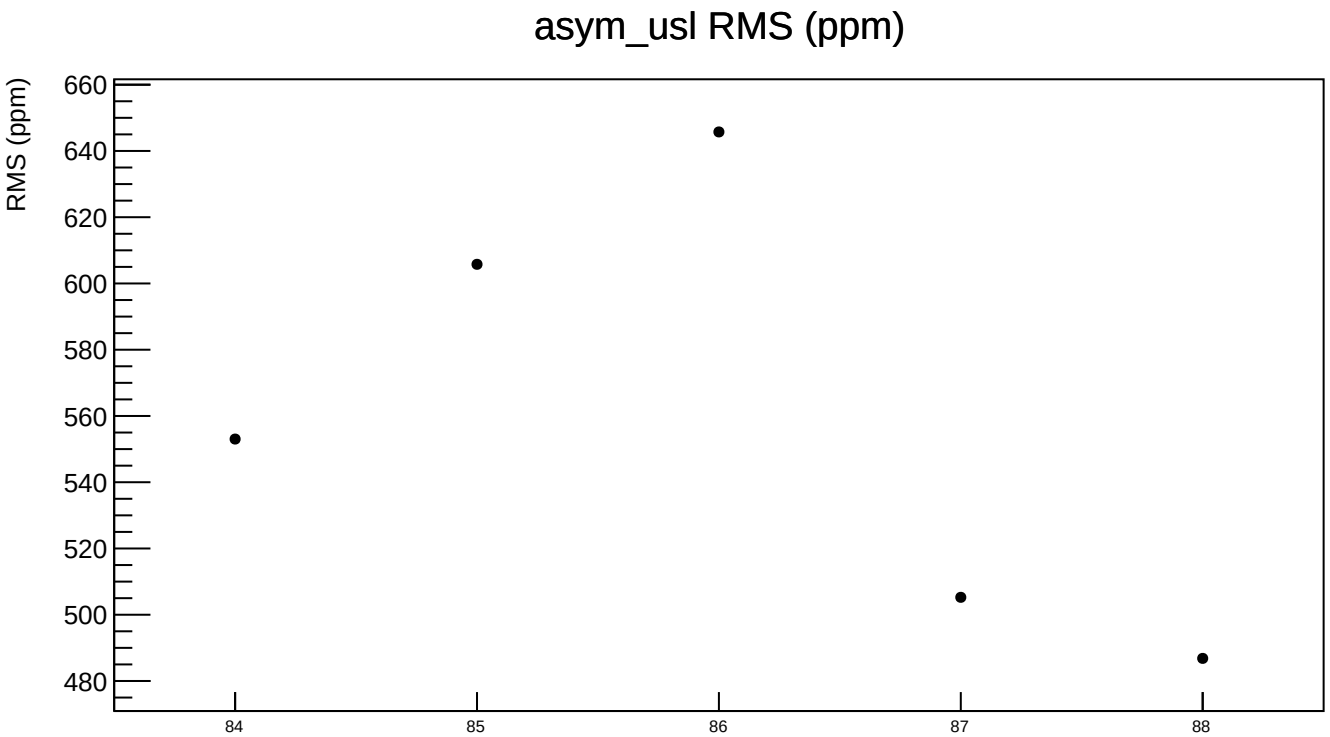

1D pull distribution
Mean 0.03094 ± 0.54
Std Dev 1.207 ± 0.3818
Underflow 0
Overflow 0
χ² / ndf 8.765e−05 / 2
Constant 1.006 ± 0.486
Mean 0.633 ± 56.571
Sigma 12.89 ± 7.59
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

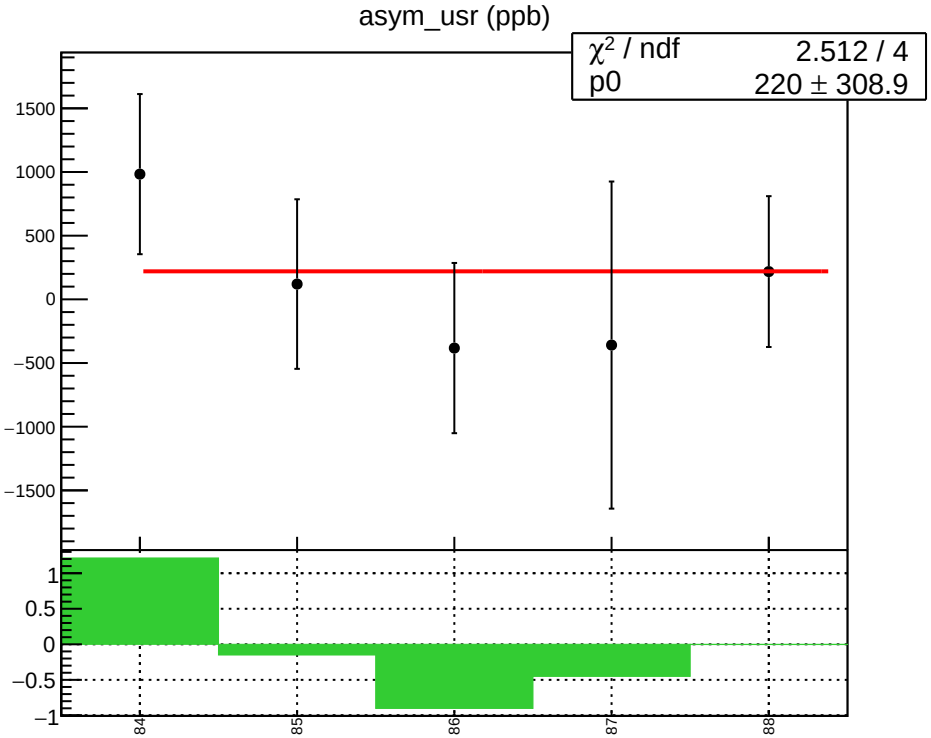
diff_bpm12X RMS (um)

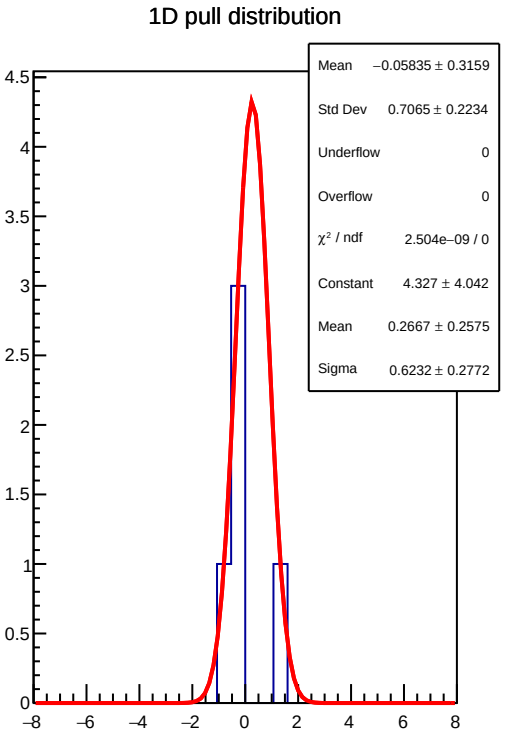


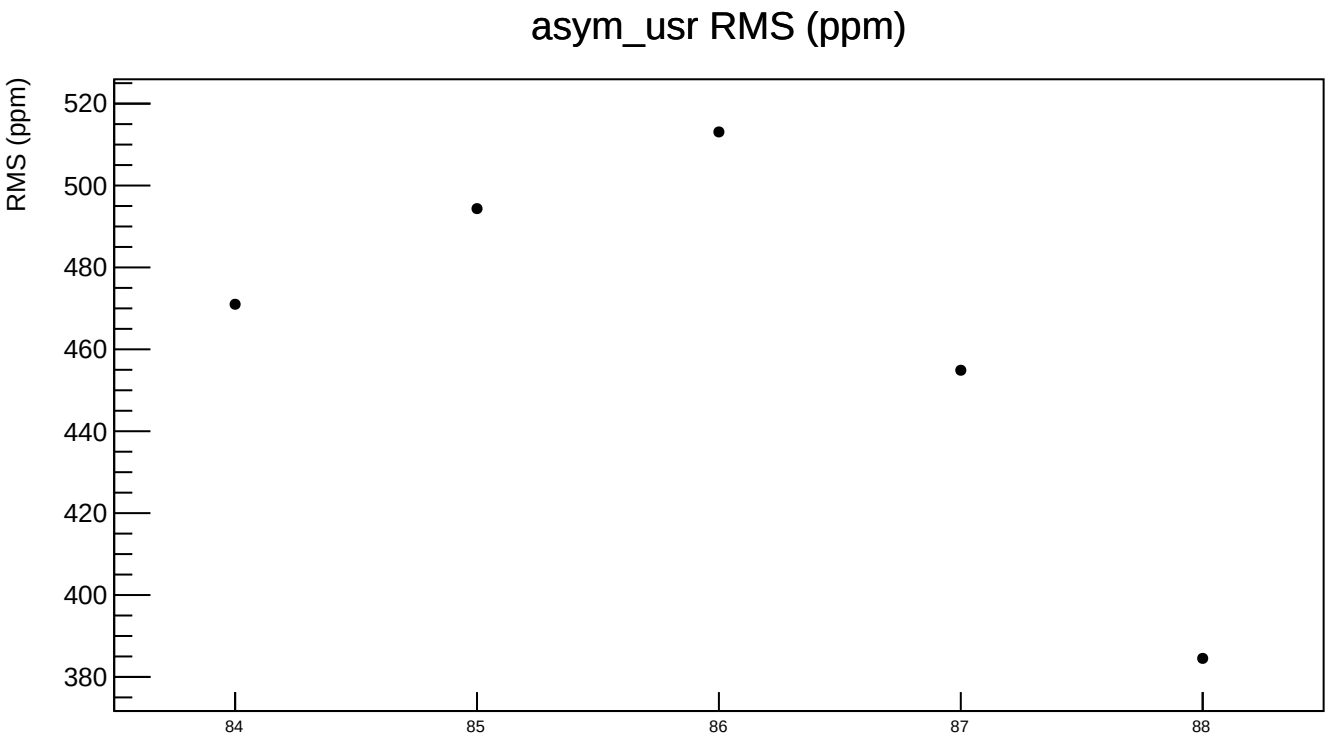

asym_usl (ppb)
χ² / ndf 1.068 / 4
p0 1475 ± 373.6
3500
3000
2500
2000
1500
1000
500
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

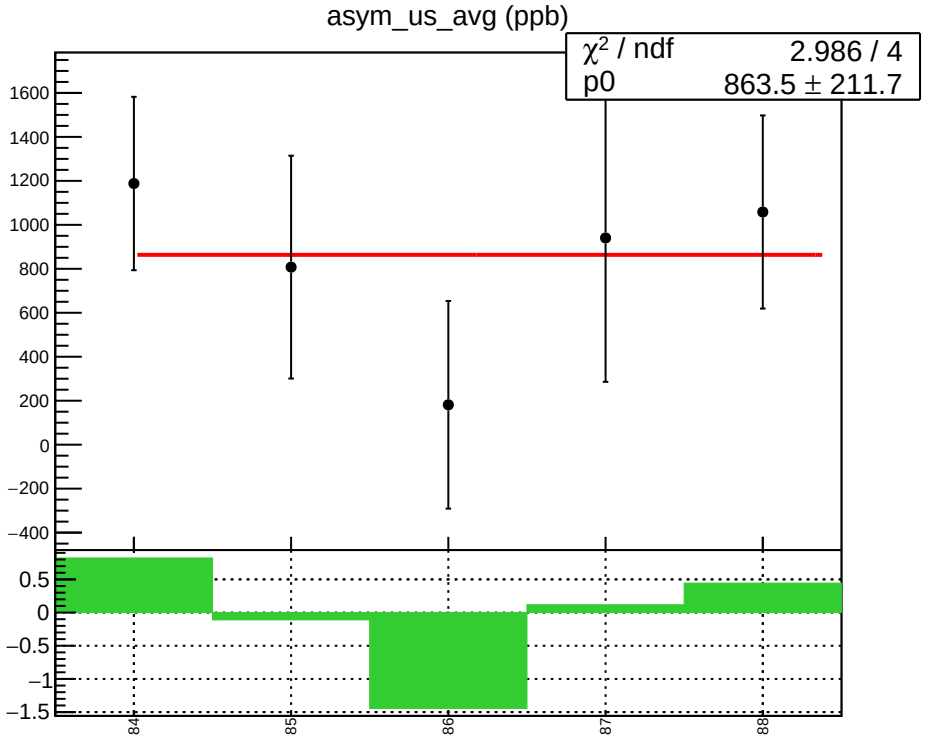

1D pull distribution
Mean 0.04575 ± 0.2057
Std Dev 0.46 ± 0.1455
Underflow 0
Overflow 0
χ² / ndf 6.041e−07 / 0
Constant 2.182 ± 1.322
Mean −3.553e−05 ± 7.683e−01
Sigma 0.6403 ± 0.8137
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

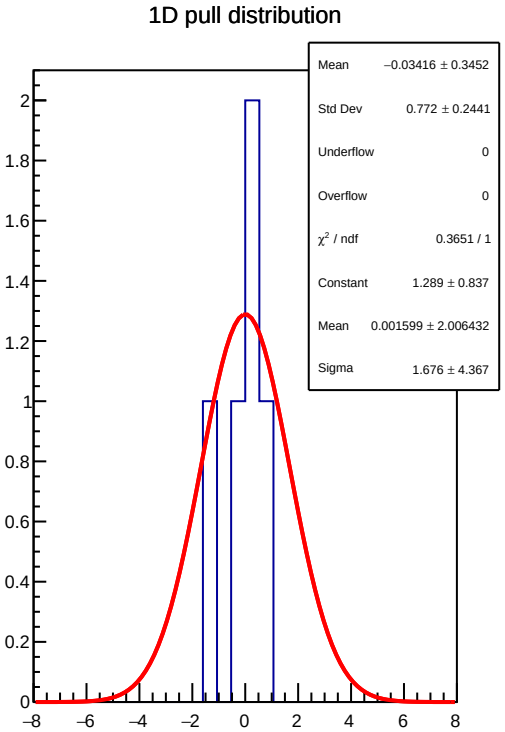

asym_usl RMS (ppm)
RMS (ppm)
660
640
620
600
580
560
540
520
500
480
84
85
86
87
88

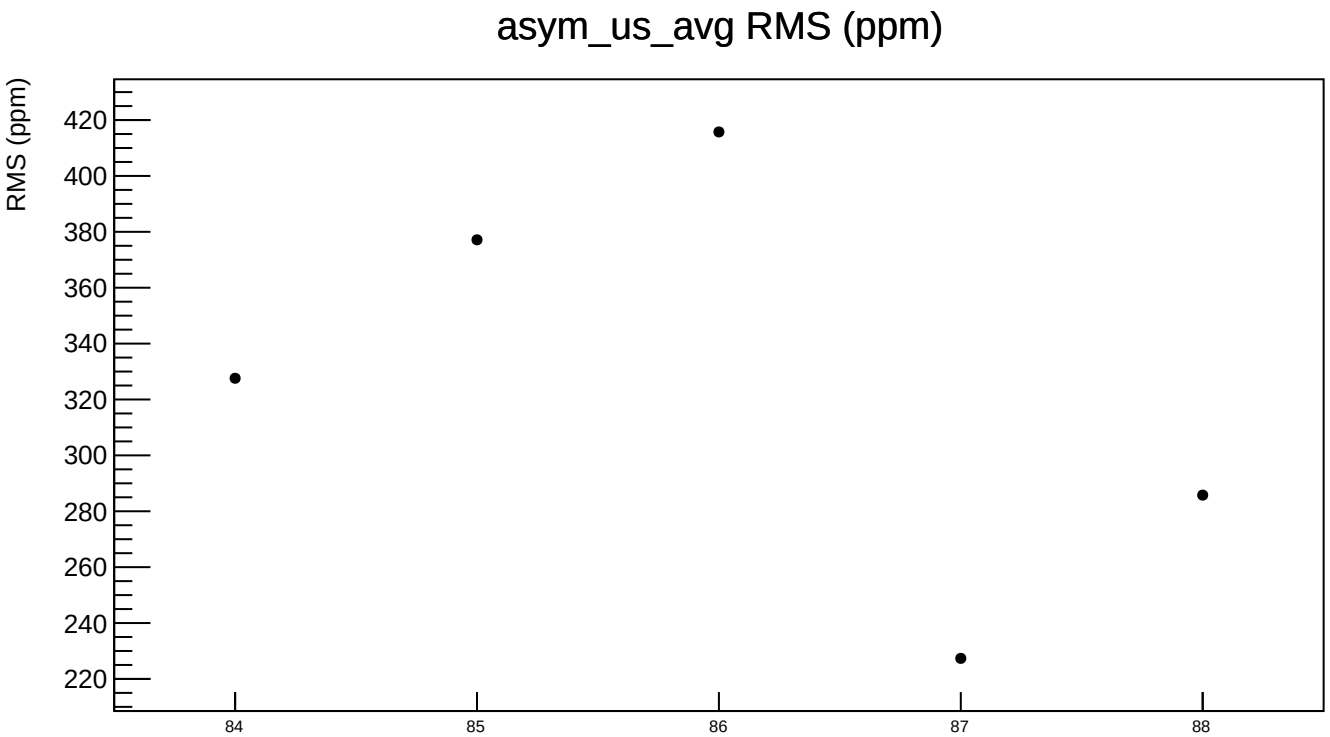

asym_usr (ppb)
χ² / ndf 2.512 / 4
p0 220 ± 308.9
1500
1000
500
0
−500
−1000
−1500
1
0.5
0
−0.5
−1
84
85
86
87
88

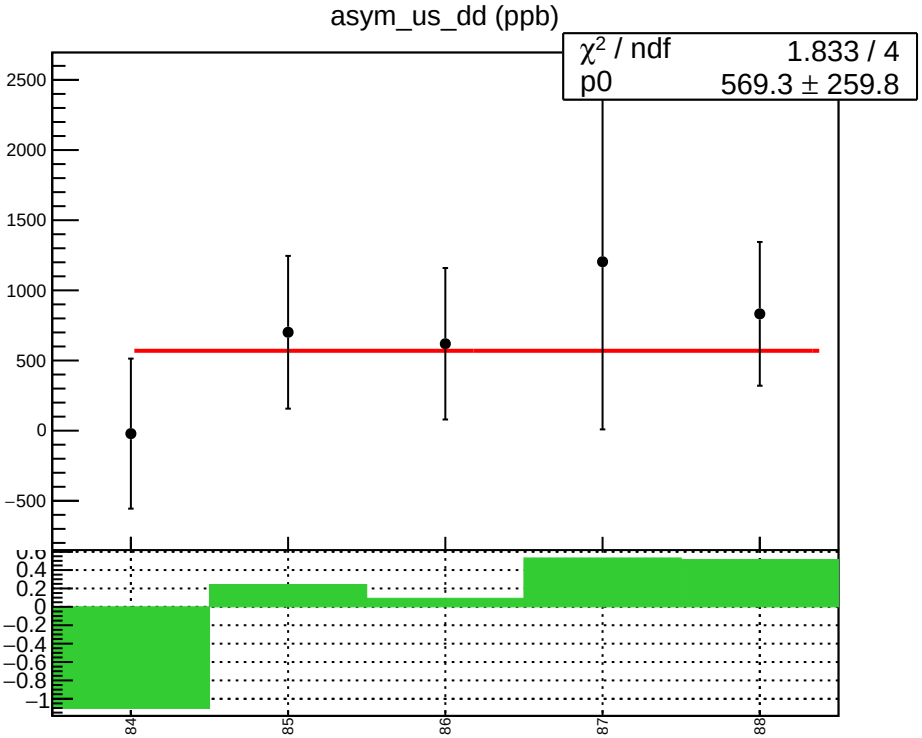

1D pull distribution
Mean −0.05835 ± 0.3159
Std Dev 0.7065 ± 0.2234
Underflow 0
Overflow 0
χ² / ndf 2.504e−09 / 0
Constant 4.327 ± 4.042
Mean 0.2667 ± 0.2575
Sigma 0.6232 ± 0.2772
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

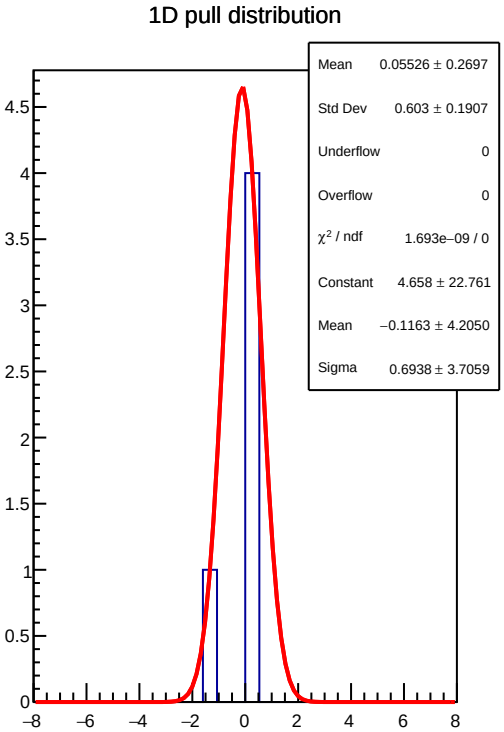

asym_usr RMS (ppm)
RMS (ppm)
520
500
480
460
440
420
400
380
84
85
86
87
88

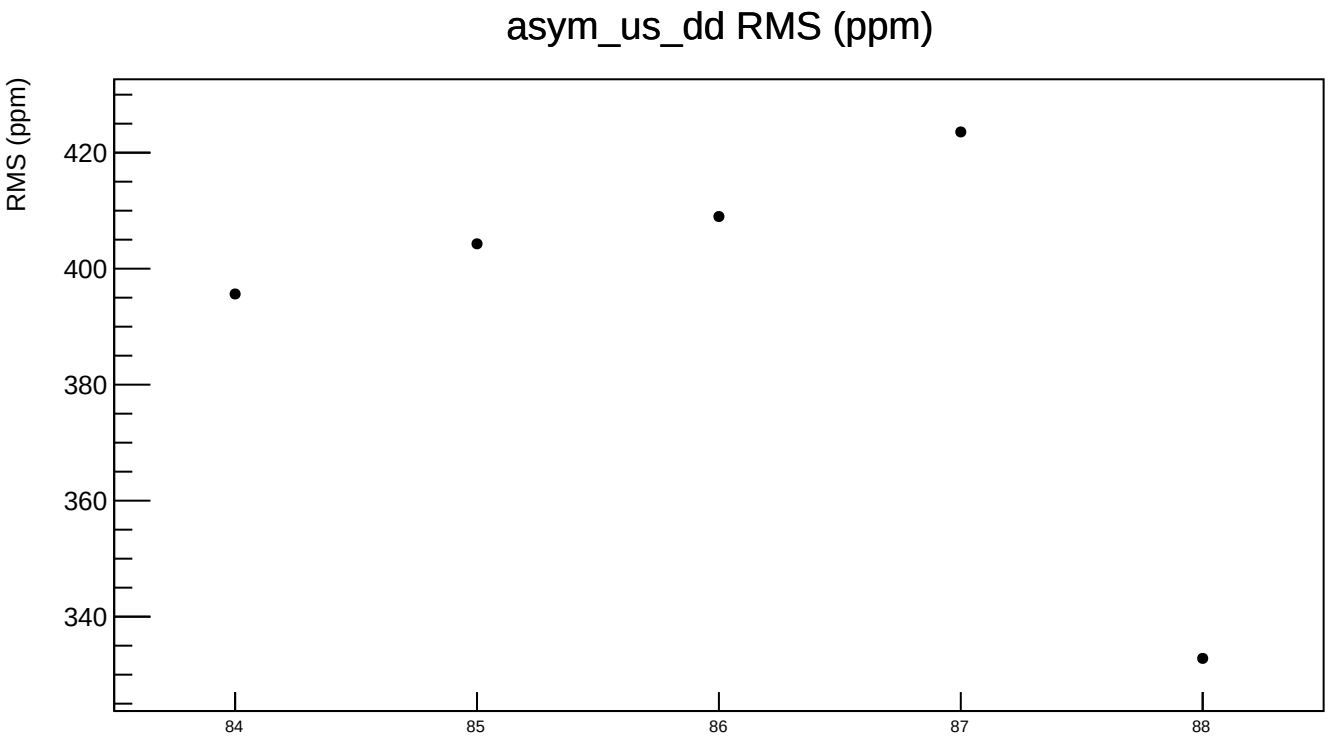

asym_us_avg (ppb)
χ² / ndf 2.986 / 4
p0 863.5 ± 211.7
1600
1400
1200
1000
800
600
400
200
0
−200
−400
0.5
0
−0.5
−1
−1.5
84
85
86
87
88

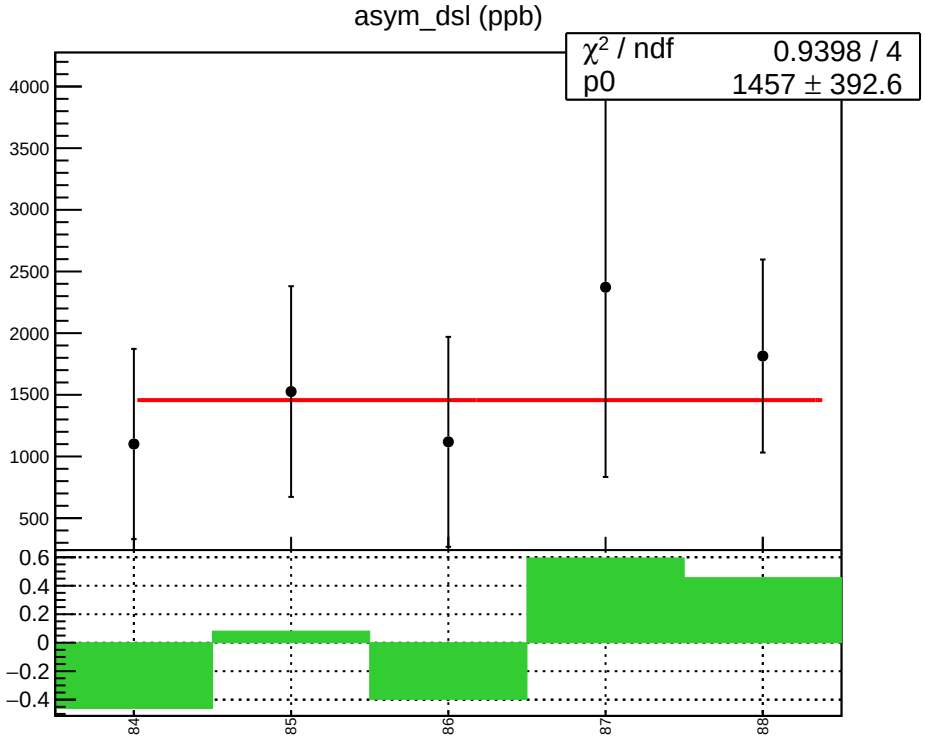

1D pull distribution
Mean −0.03416 ± 0.3452
Std Dev 0.772 ± 0.2441
Underflow 0
Overflow 0
χ² / ndf 0.3651 / 1
Constant 1.289 ± 0.837
Mean 0.001599 ± 2.006432
Sigma 1.676 ± 4.367
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

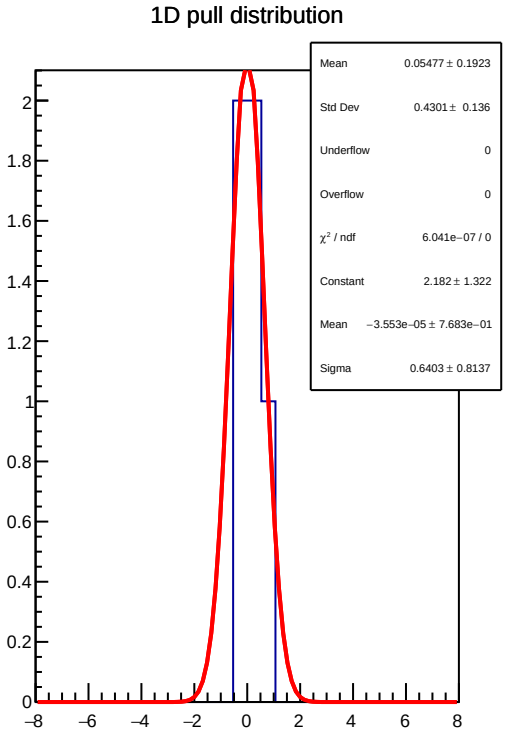

asym_us_avg RMS (ppm)
RMS (ppm)
420
400
380
360
340
320
300
280
260
240
220
84
85
86
87
88

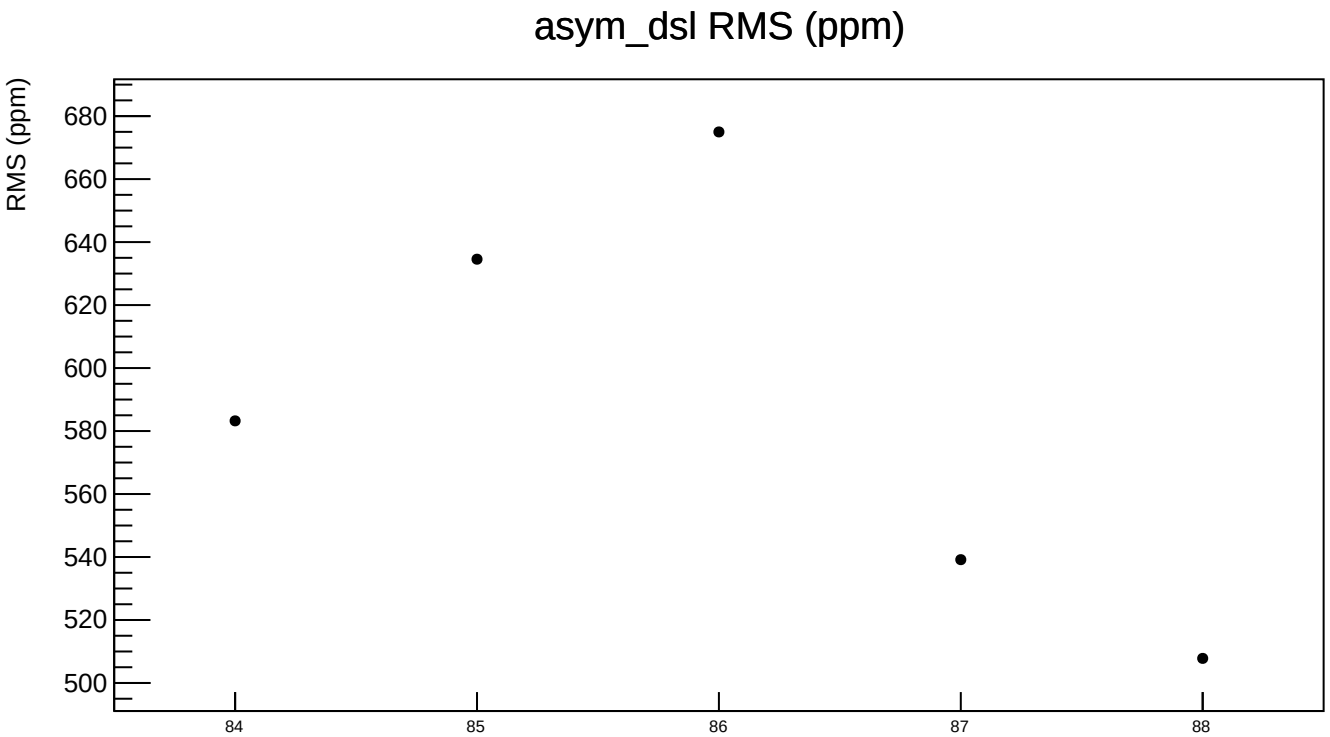

asym_us_dd (ppb)
χ² / ndf 1.833 / 4
p0 569.3 ± 259.8
2500
2000
1500
1000
500
0
−500
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
84
85
86
87
88

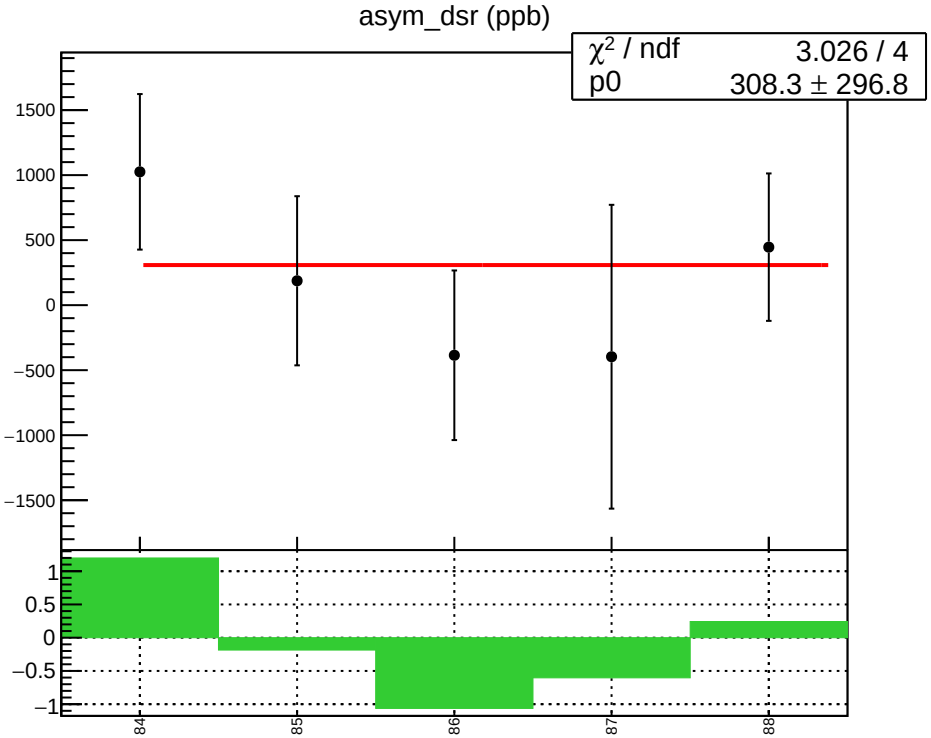

1D pull distribution
Mean 0.05526 ± 0.2697
Std Dev 0.603 ± 0.1907
Underflow 0
Overflow 0
χ² / ndf 1.693e−09 / 0
Constant 4.658 ± 22.761
Mean −0.1163 ± 4.2050
Sigma 0.6938 ± 3.7059
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

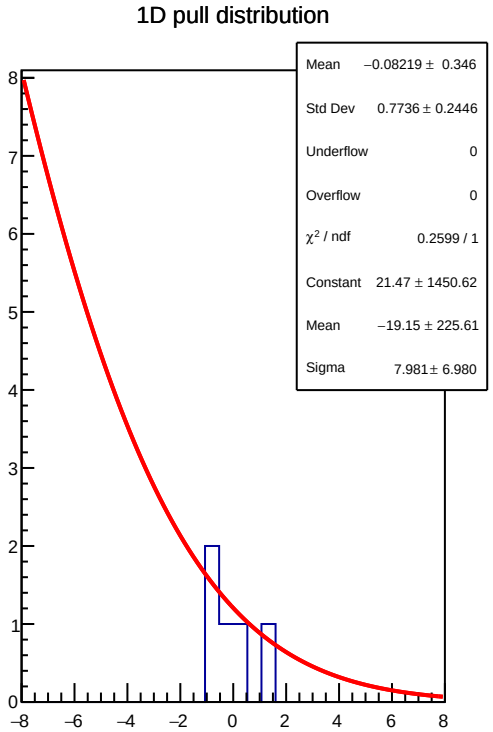

asym_us_dd RMS (ppm)
RMS (ppm)
420
400
380
360
340
84
85
86
87
88

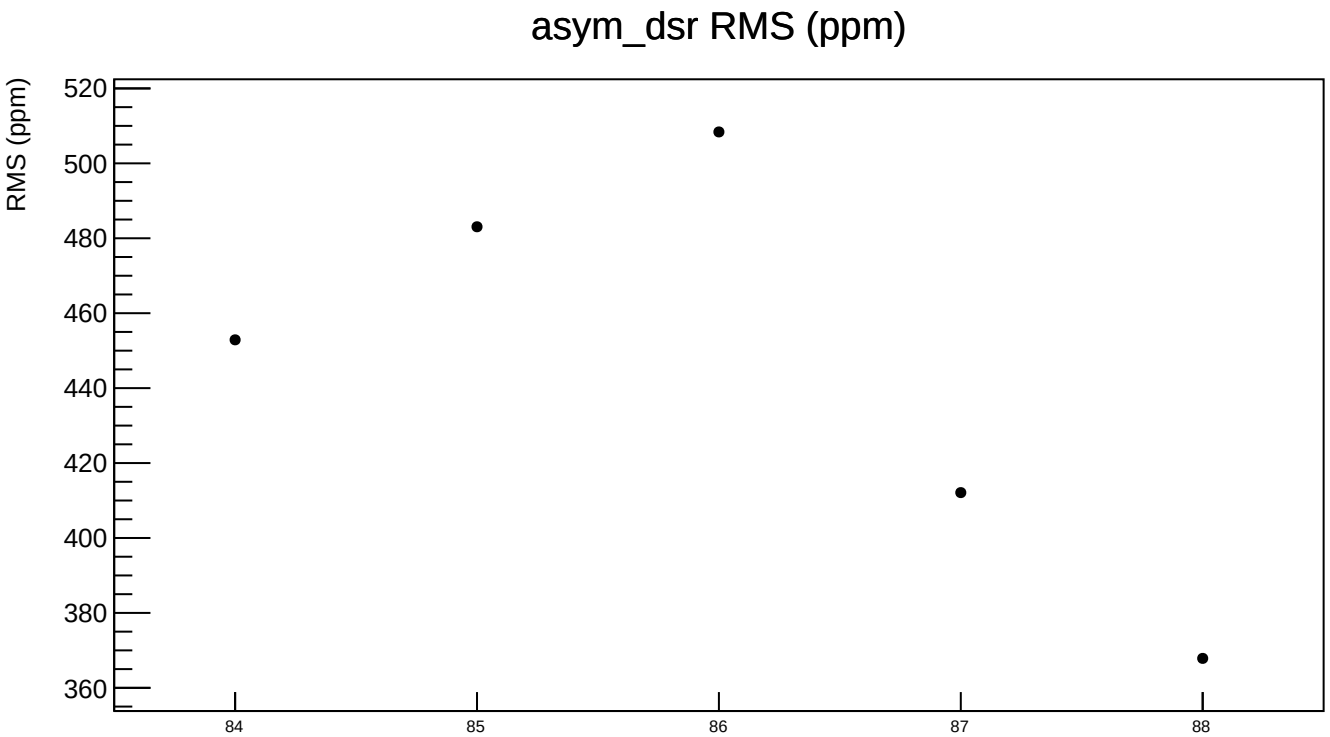

asym_dsl (ppb)
χ² / ndf 0.9398 / 4
p0 1457 ± 392.6
4000
3500
3000
2500
2000
1500
1000
500
0.6
0.4
0.2
0
−0.2
−0.4
84
85
86
87
88

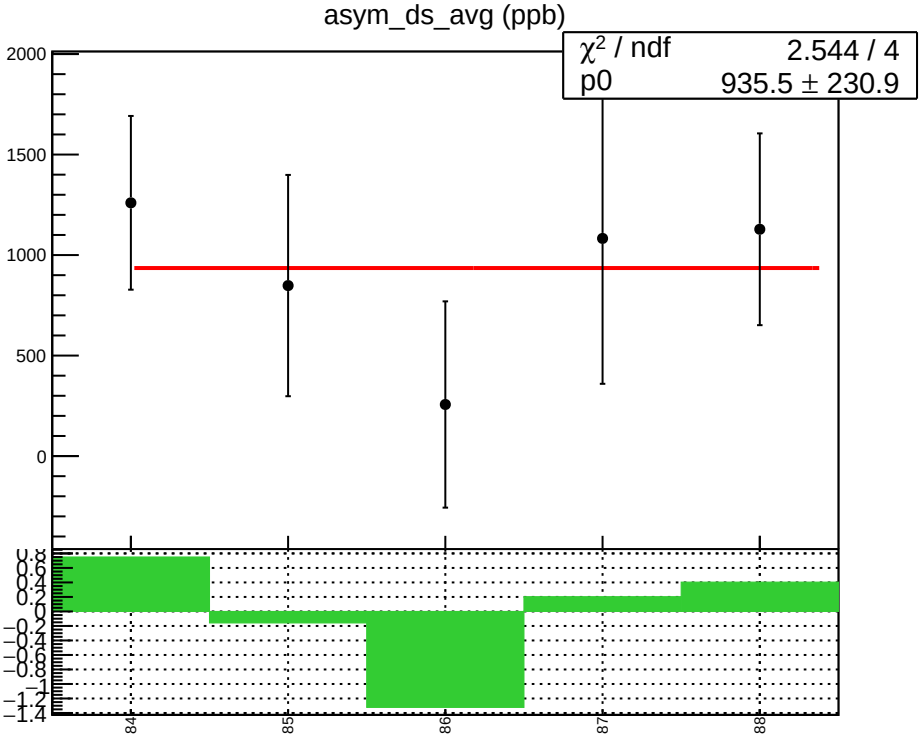

1D pull distribution
Mean 0.05477 ± 0.1923
Std Dev 0.4301 ± 0.136
Underflow 0
Overflow 0
χ² / ndf 6.041e−07 / 0
Constant 2.182 ± 1.322
Mean −3.553e−05 ± 7.683e−01
Sigma 0.6403 ± 0.8137
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

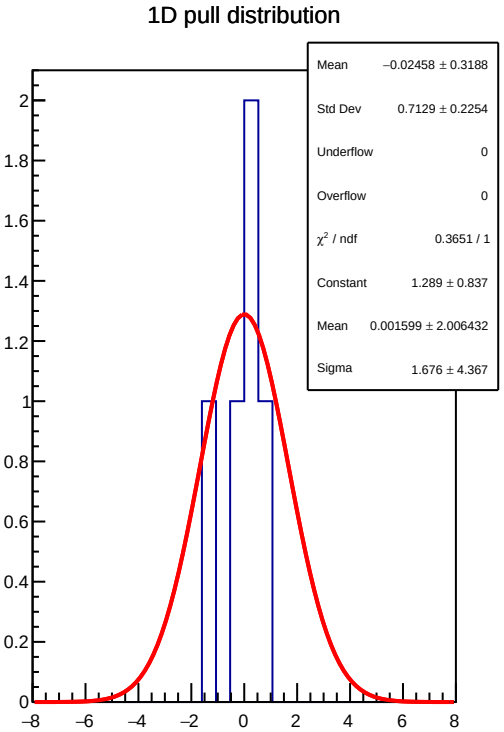

asym_dsl RMS (ppm)
RMS (ppm)
680
660
640
620
600
580
560
540
520
500
84
85
86
87
88

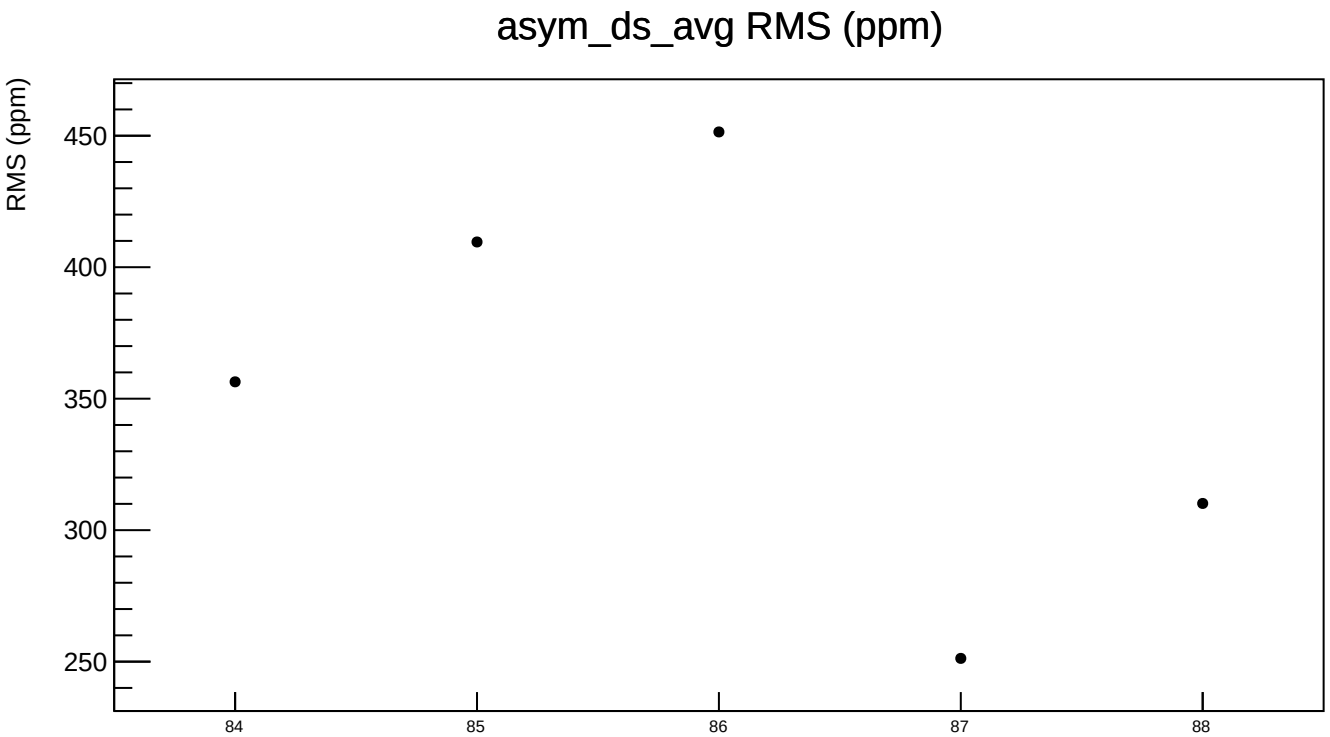

asym_dsr (ppb)
χ² / ndf 3.026 / 4
p0 308.3 ± 296.8
1500
1000
500
0
−500
−1000
−1500
1
0.5
0
−0.5
−1
84
85
86
87
88

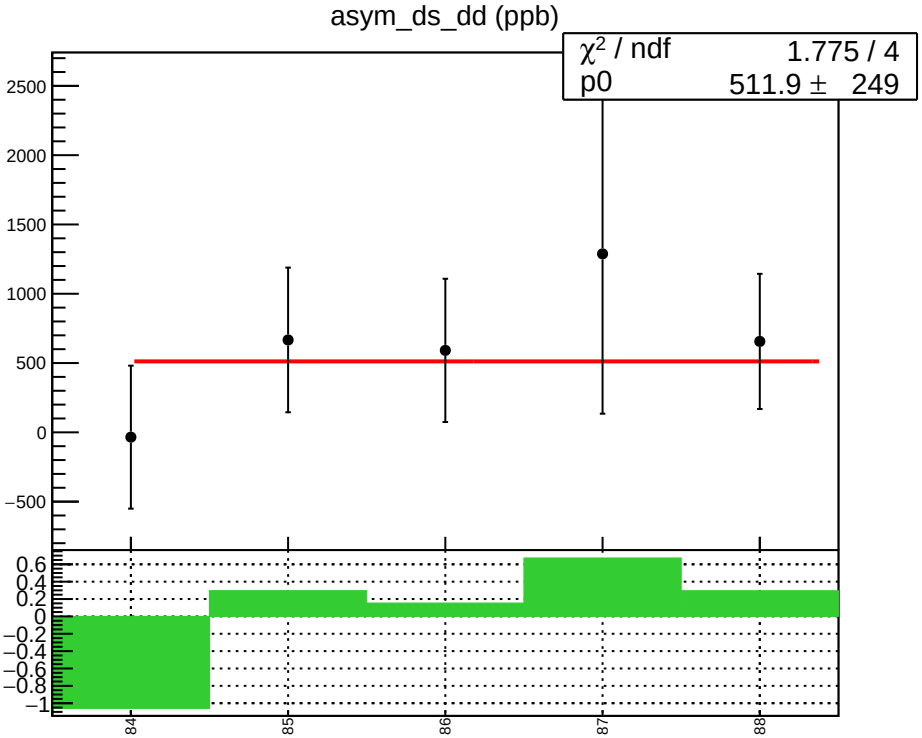

1D pull distribution
Mean −0.08219 ± 0.346
Std Dev 0.7736 ± 0.2446
Underflow 0
Overflow 0
χ² / ndf 0.2599 / 1
Constant 21.47 ± 1450.62
Mean −19.15 ± 225.61
Sigma 7.981 ± 6.980
8
7
6
5
4
3
2
1
0
−8
−6
−4
−2
0
2
4
6
8

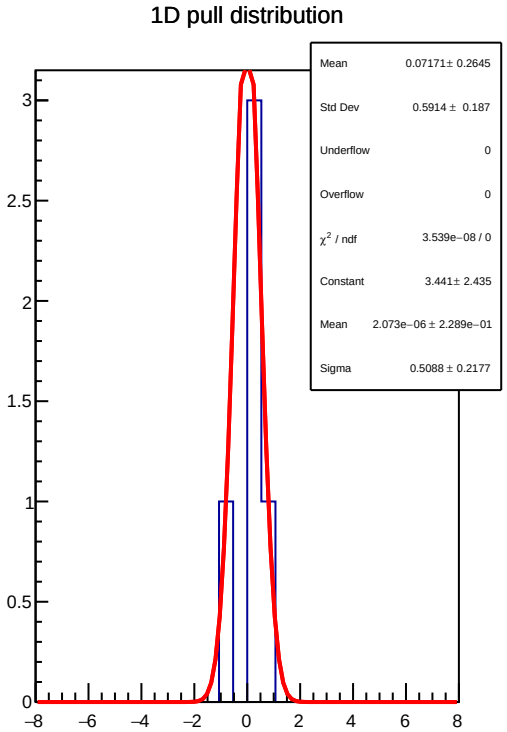

asym_dsr RMS (ppm)
RMS (ppm)
520
500
480
460
440
420
400
380
360
84
85
86
87
88

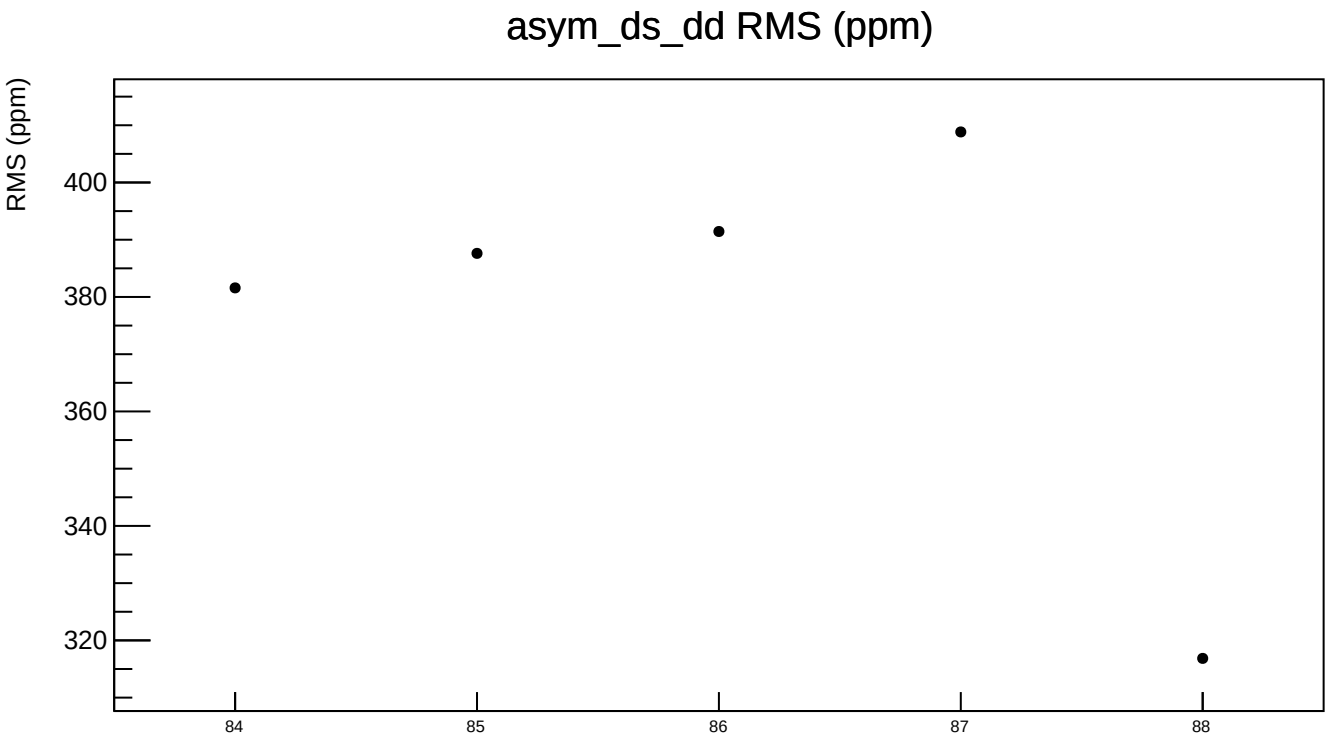

asym_ds_avg (ppb)
χ² / ndf 2.544 / 4
p0 935.5 ± 230.9
2000
1500
1000
500
0
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
−1.2
−1.4
84
85
86
87
88

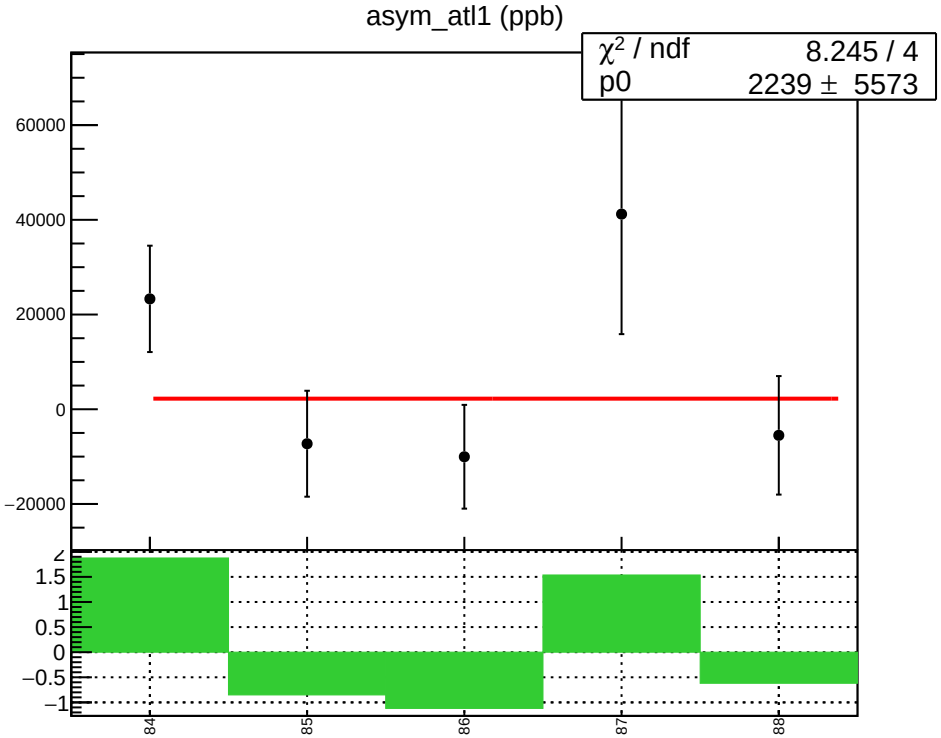

1D pull distribution
Mean −0.02458 ± 0.3188
Std Dev 0.7129 ± 0.2254
Underflow 0
Overflow 0
χ² / ndf 0.3651 / 1
Constant 1.289 ± 0.837
Mean 0.001599 ± 2.006432
Sigma 1.676 ± 4.367
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

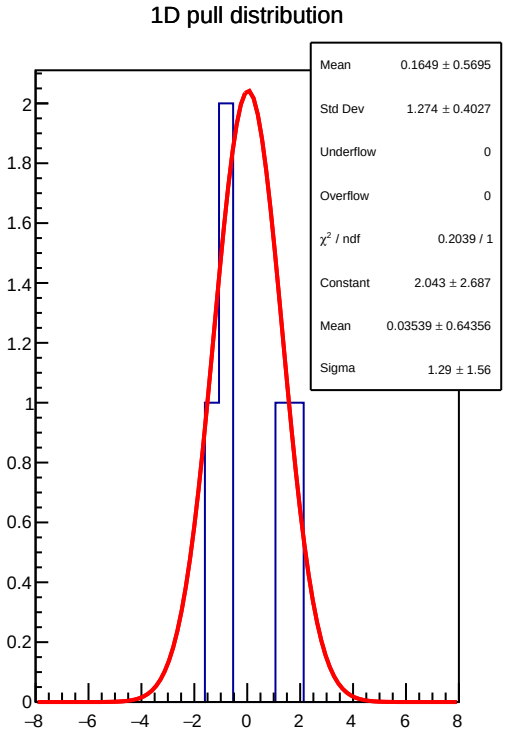

asym_ds_avg RMS (ppm)
RMS (ppm)
450
400
350
300
250
84
85
86
87
88

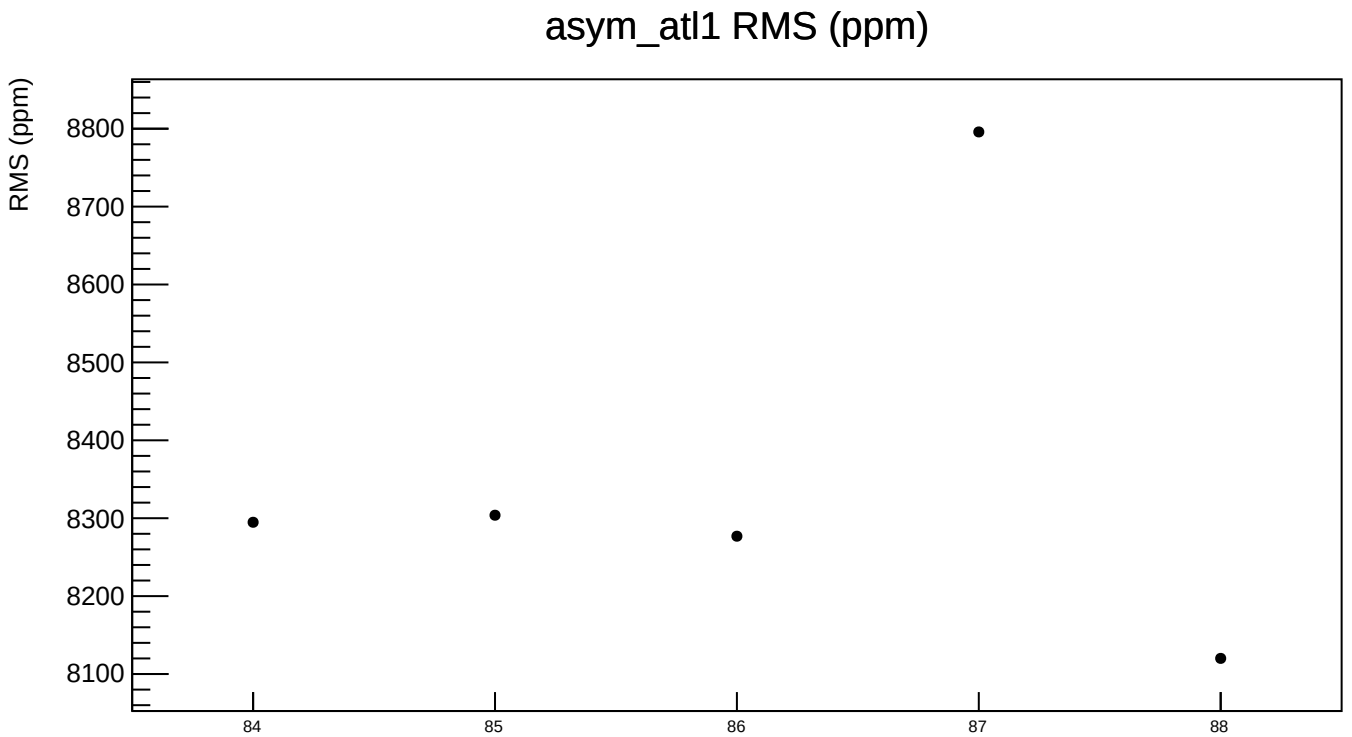

asym_ds_dd (ppb)
χ² / ndf 1.775 / 4
p0 511.9 ± 249
2500
2000
1500
1000
500
0
−500
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
84
85
86
87
88

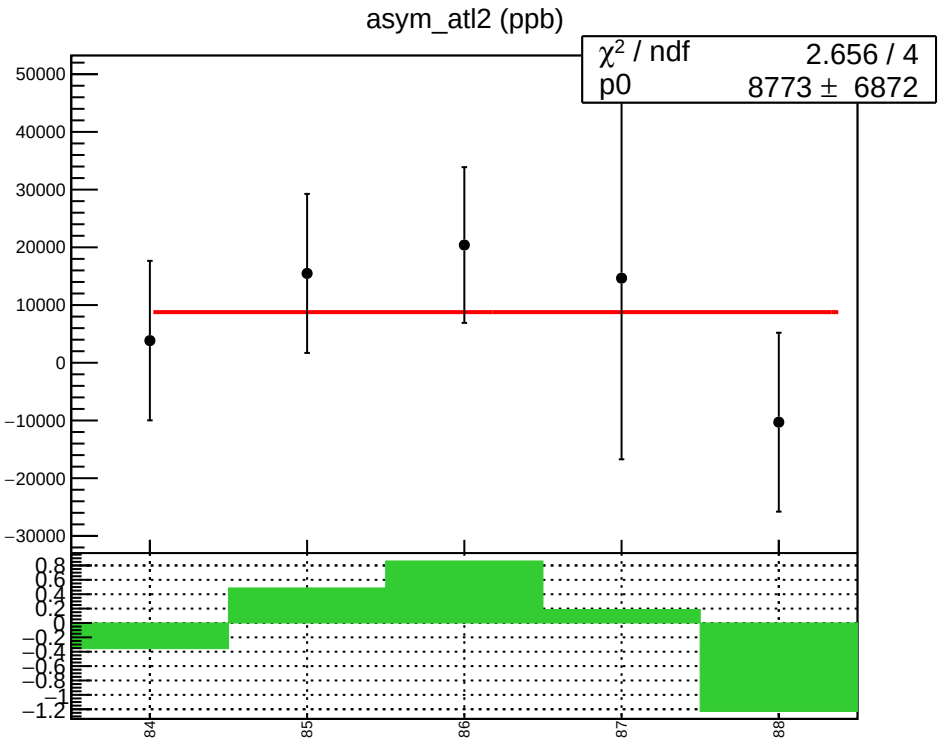

1D pull distribution
Mean 0.07171 ± 0.2645
Std Dev 0.5914 ± 0.187
Underflow 0
Overflow 0
χ² / ndf 3.539e−08 / 0
Constant 3.441 ± 2.435
Mean 2.073e−06 ± 2.289e−01
Sigma 0.5088 ± 0.2177
3
2.5
2
1.5
1
0.5
0
−8
−6
−4
−2
0
2
4
6
8

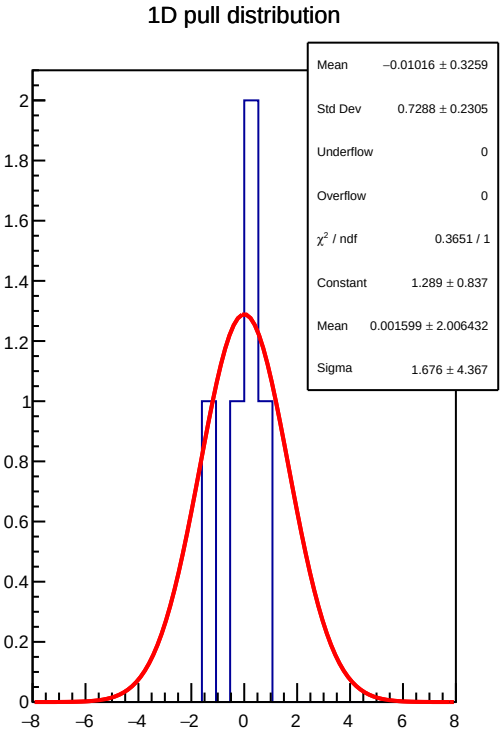

asym_ds_dd RMS (ppm)
RMS (ppm)
400
380
360
340
320
84
85
86
87
88

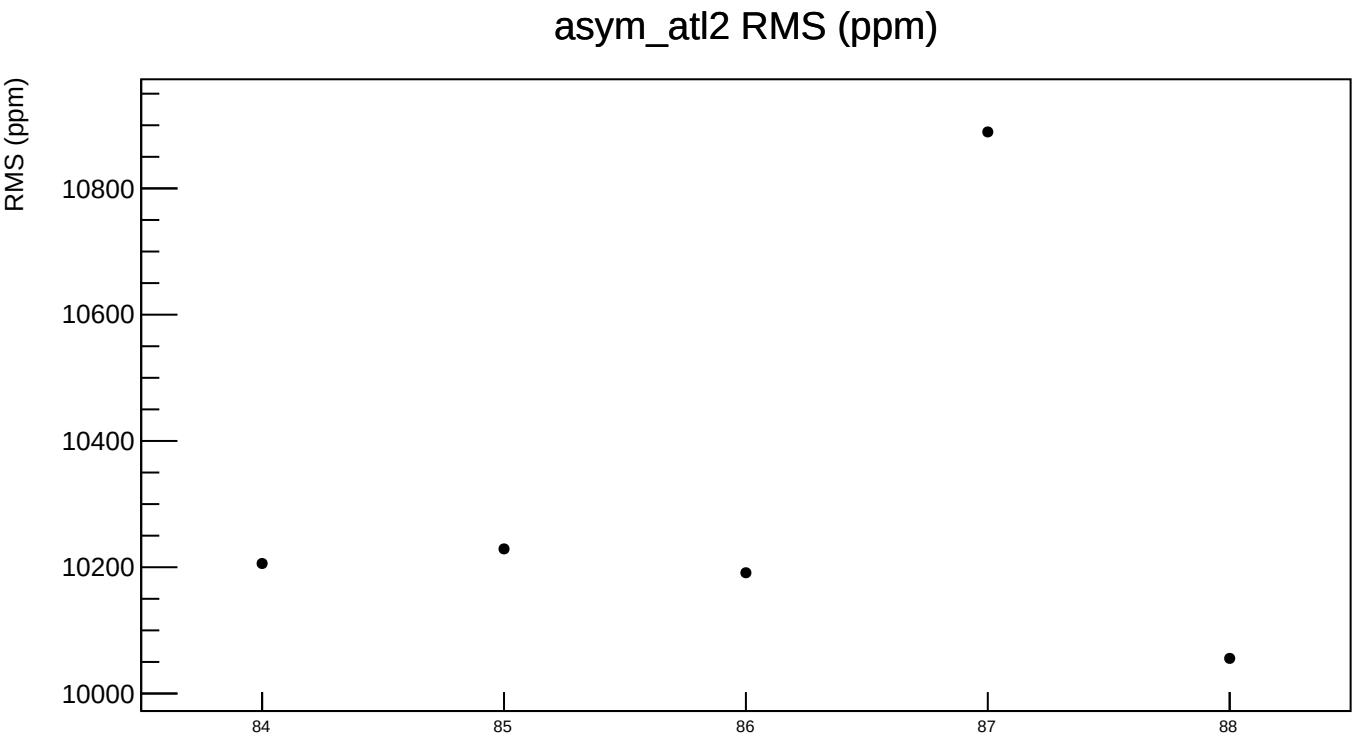

asym_atl1 (ppb)
χ² / ndf 8.245 / 4
p0 2239 ± 5573
60000
40000
20000
0
−20000
2
1.5
1
0.5
0
−0.5
−1
84
85
86
87
88

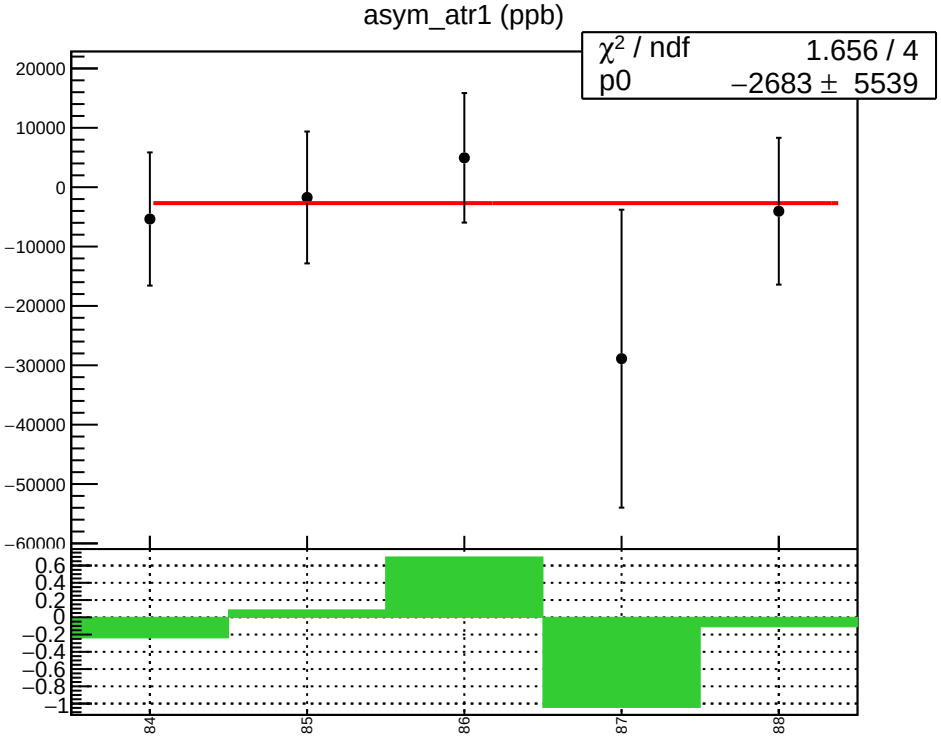

1D pull distribution
Mean 0.1649 ± 0.5695
Std Dev 1.274 ± 0.4027
Underflow 0
Overflow 0
χ² / ndf 0.2039 / 1
Constant 2.043 ± 2.687
Mean 0.03539 ± 0.64356
Sigma 1.29 ± 1.56
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

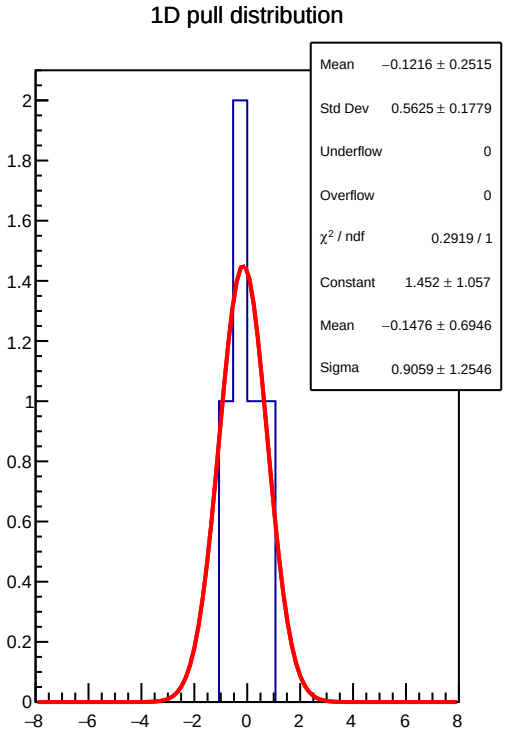

asym_atl1 RMS (ppm)
RMS (ppm)
8800
8700
8600
8500
8400
8300
8200
8100
84
85
86
87
88

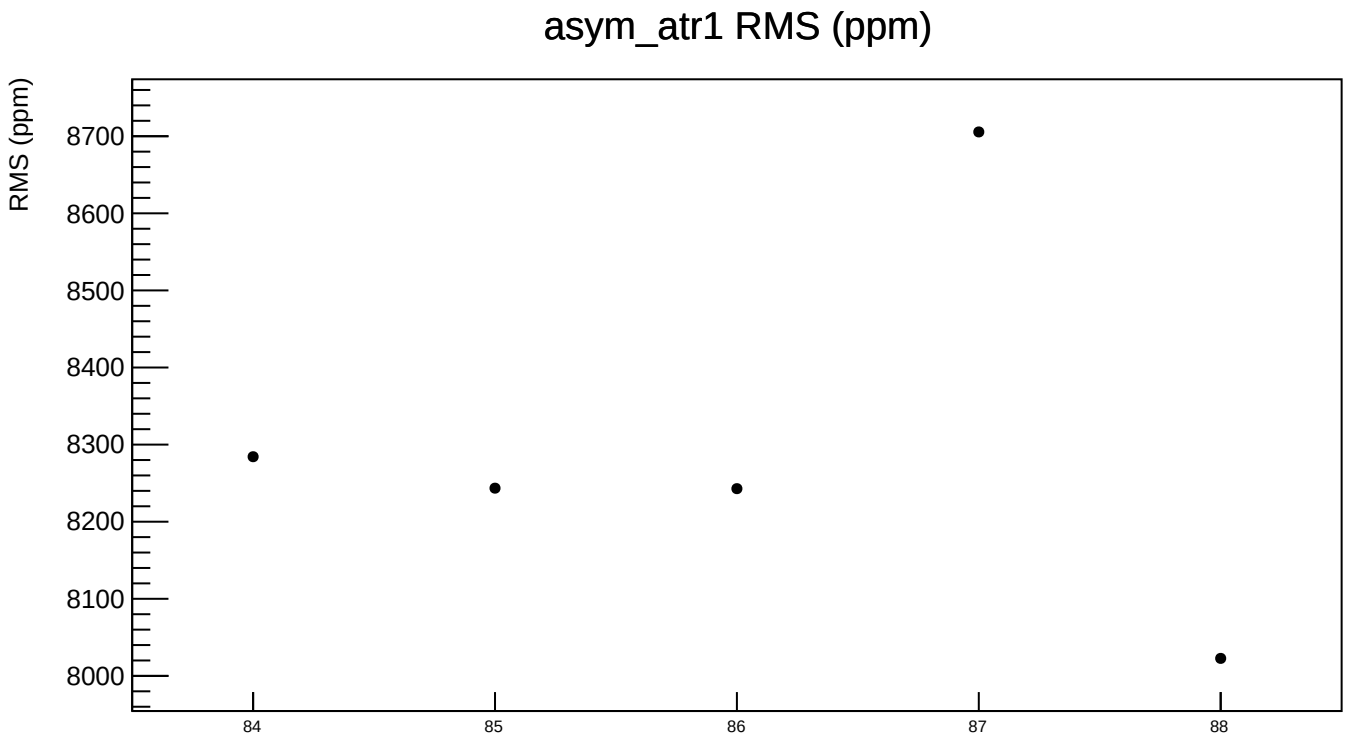

asym_atl2 (ppb)
χ² / ndf 2.656 / 4
p0 8773 ± 6872
50000
40000
30000
20000
10000
0
−10000
−20000
−30000
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
−1.2
84
85
86
87
88

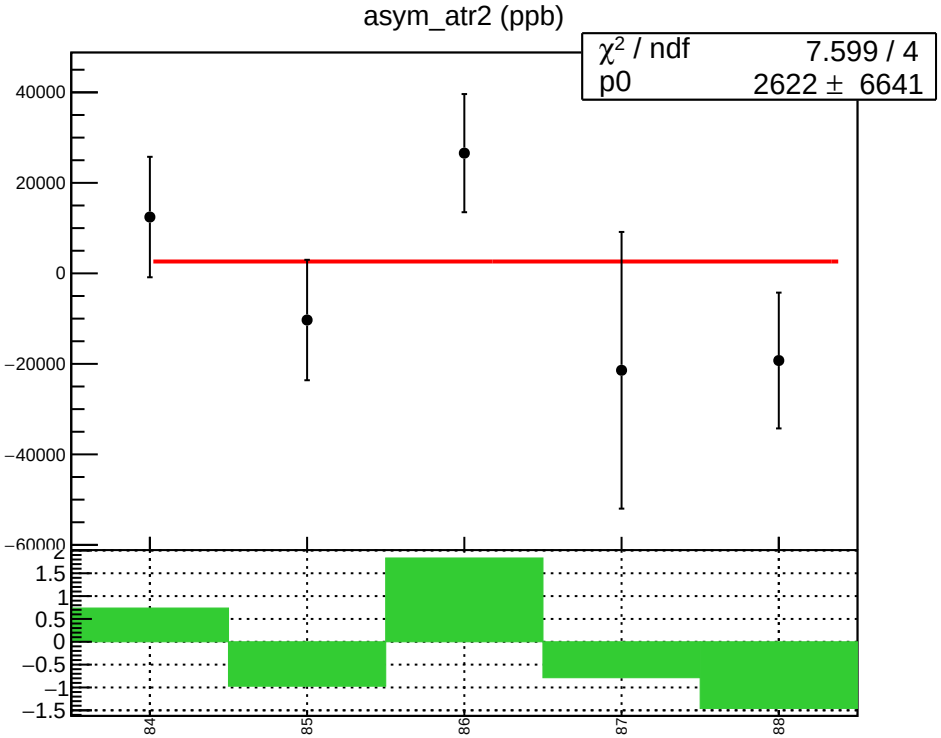

1D pull distribution
Mean −0.01016 ± 0.3259
Std Dev 0.7288 ± 0.2305
Underflow 0
Overflow 0
χ² / ndf 0.3651 / 1
Constant 1.289 ± 0.837
Mean 0.001599 ± 2.006432
Sigma 1.676 ± 4.367
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8

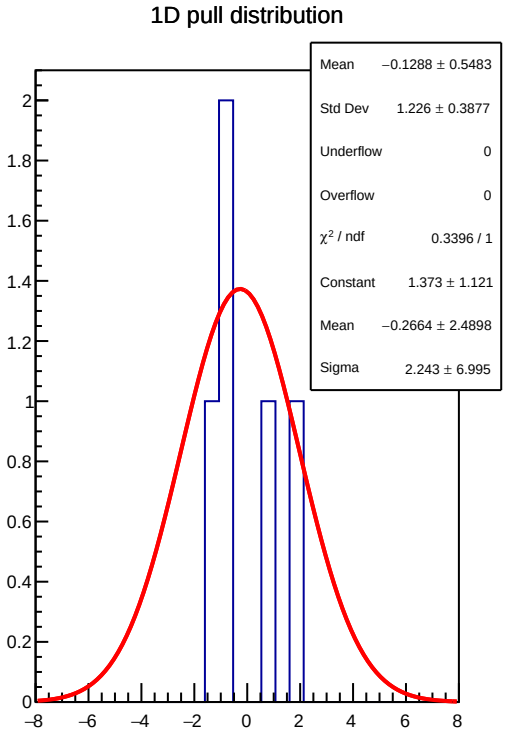

asym_atl2 RMS (ppm)
RMS (ppm)
10800
10600
10400
10200
10000
84
85
86
87
88

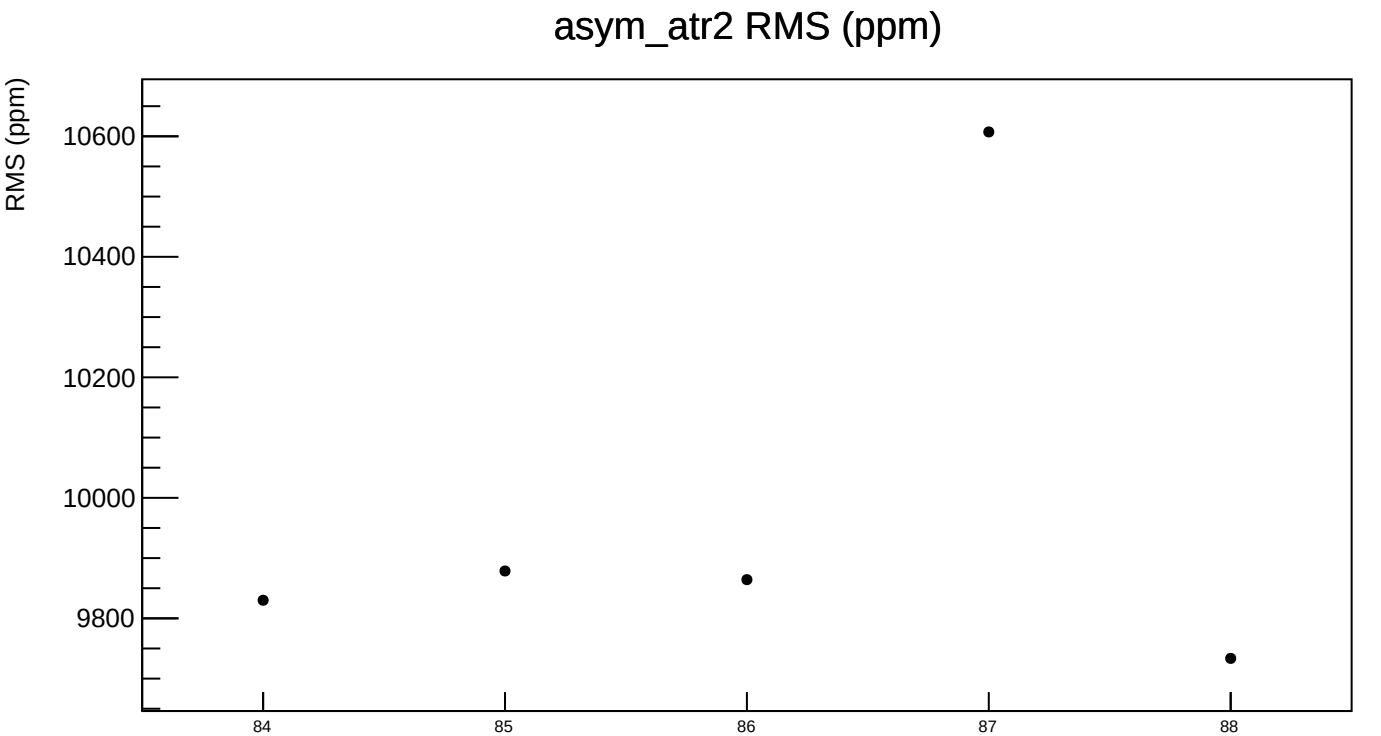

asym_atr1 (ppb)
χ² / ndf 1.656 / 4
p0 −2683 ± 5539
20000
10000
0
−10000
−20000
−30000
−40000
−50000
−60000
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
84
85
86
87
88


1D pull distribution
Mean −0.1216 ± 0.2515
Std Dev 0.5625 ± 0.1779
Underflow 0
Overflow 0
χ² / ndf 0.2919 / 1
Constant 1.452 ± 1.057
Mean −0.1476 ± 0.6946
Sigma 0.9059 ± 1.2546
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8


asym_atr1 RMS (ppm)
RMS (ppm)
8700
8600
8500
8400
8300
8200
8100
8000
84
85
86
87
88


asym_atr2 (ppb)
χ² / ndf 7.599 / 4
p0 2622 ± 6641
40000
20000
0
−20000
−40000
−60000
2
1.5
1
0.5
0
−0.5
−1
−1.5
84
85
86
87
88


1D pull distribution
Mean −0.1288 ± 0.5483
Std Dev 1.226 ± 0.3877
Underflow 0
Overflow 0
χ² / ndf 0.3396 / 1
Constant 1.373 ± 1.121
Mean −0.2664 ± 2.4898
Sigma 2.243 ± 6.995
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−8
−6
−4
−2
0
2
4
6
8


asym_atr2 RMS (ppm)
RMS (ppm)
10600
10400
10200
10000
9800
84
85
86
87
88