M-file Calibration distributions

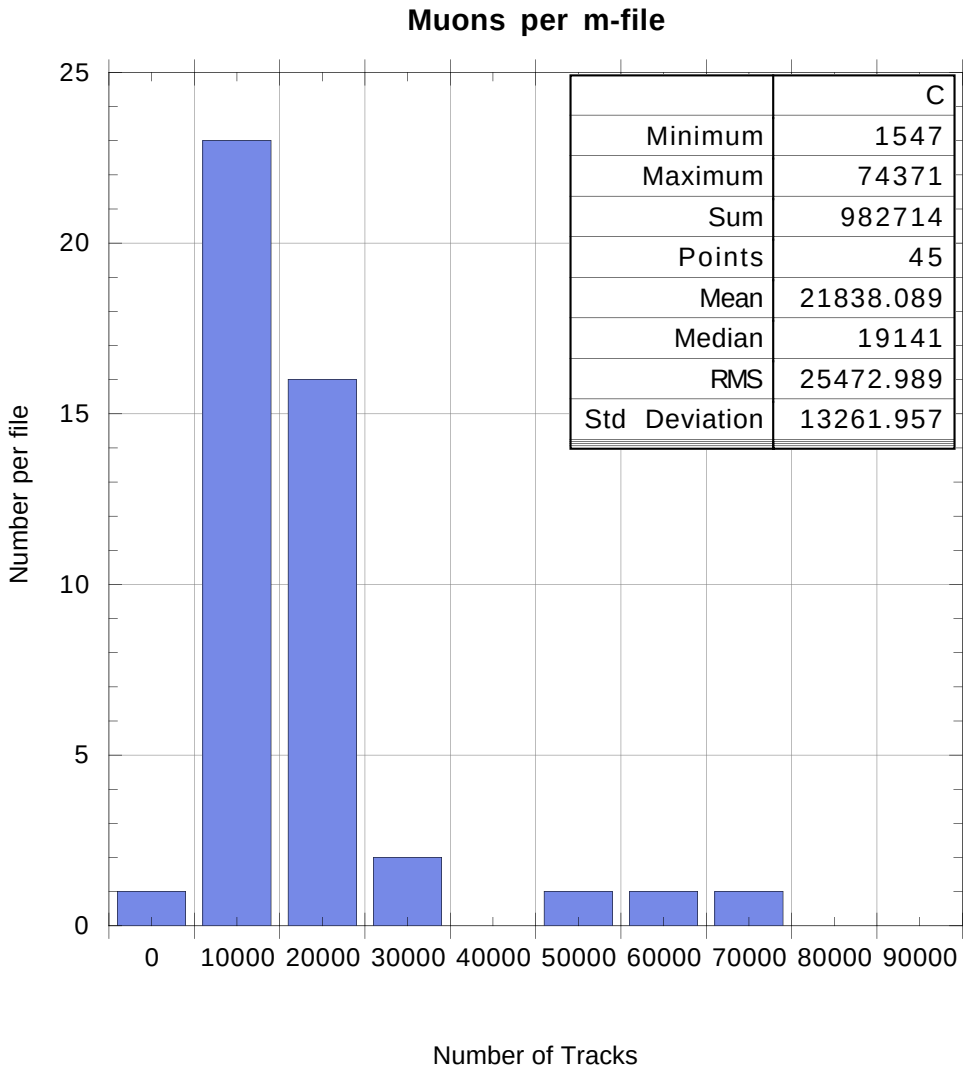
Recall that we can use the penetrating muons in the m-files for calibrating the emulsion data relative to the spectrometer (SFT) coordinate system.

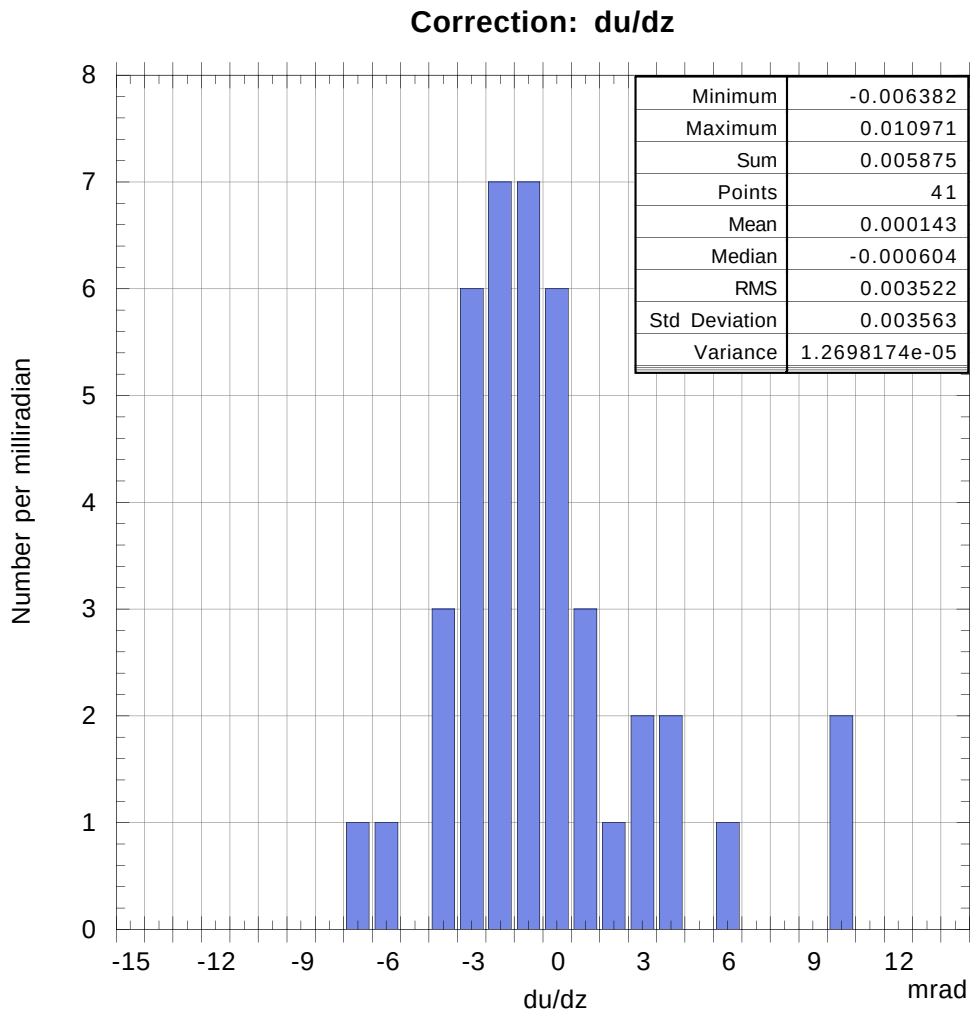
One can extract:

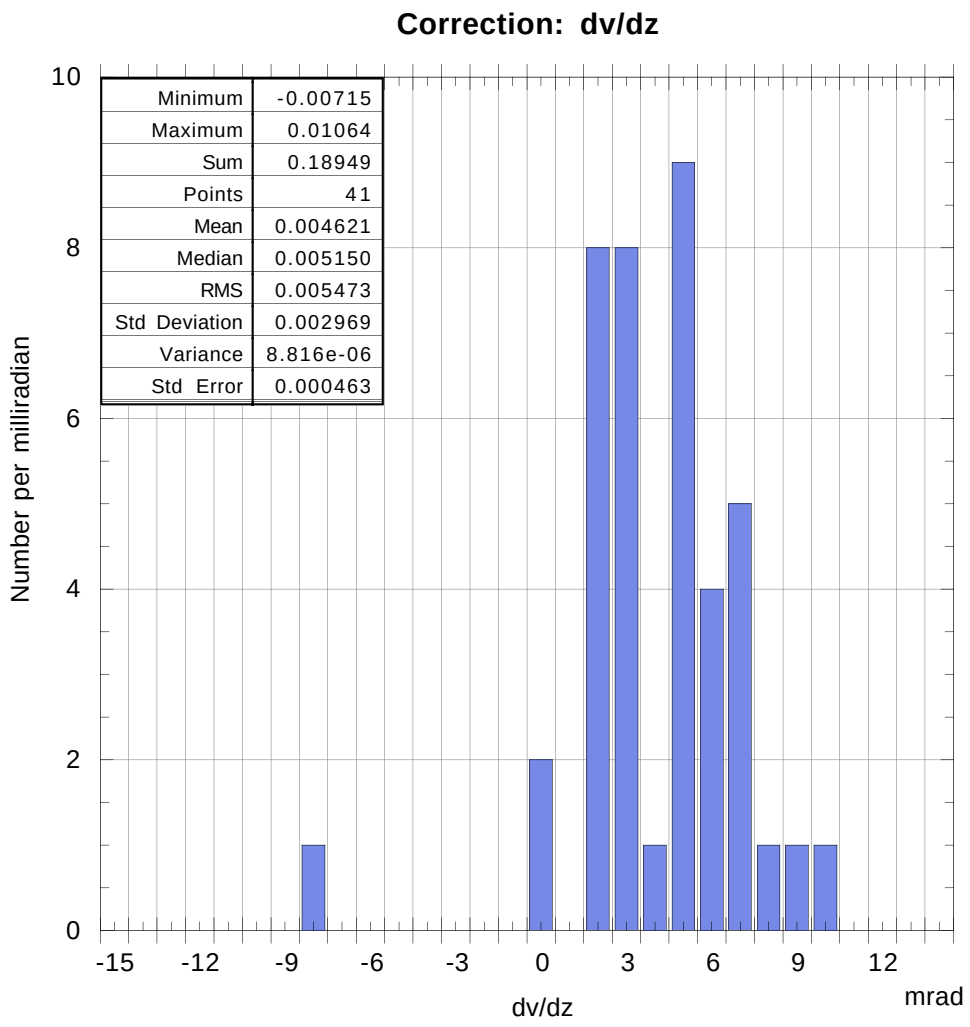
- correction to *du/dz* *(position of "eyes")*
- correction to *dv/dz* *(" " ")*
- *z*-scale correction *(distance between "eyes")*

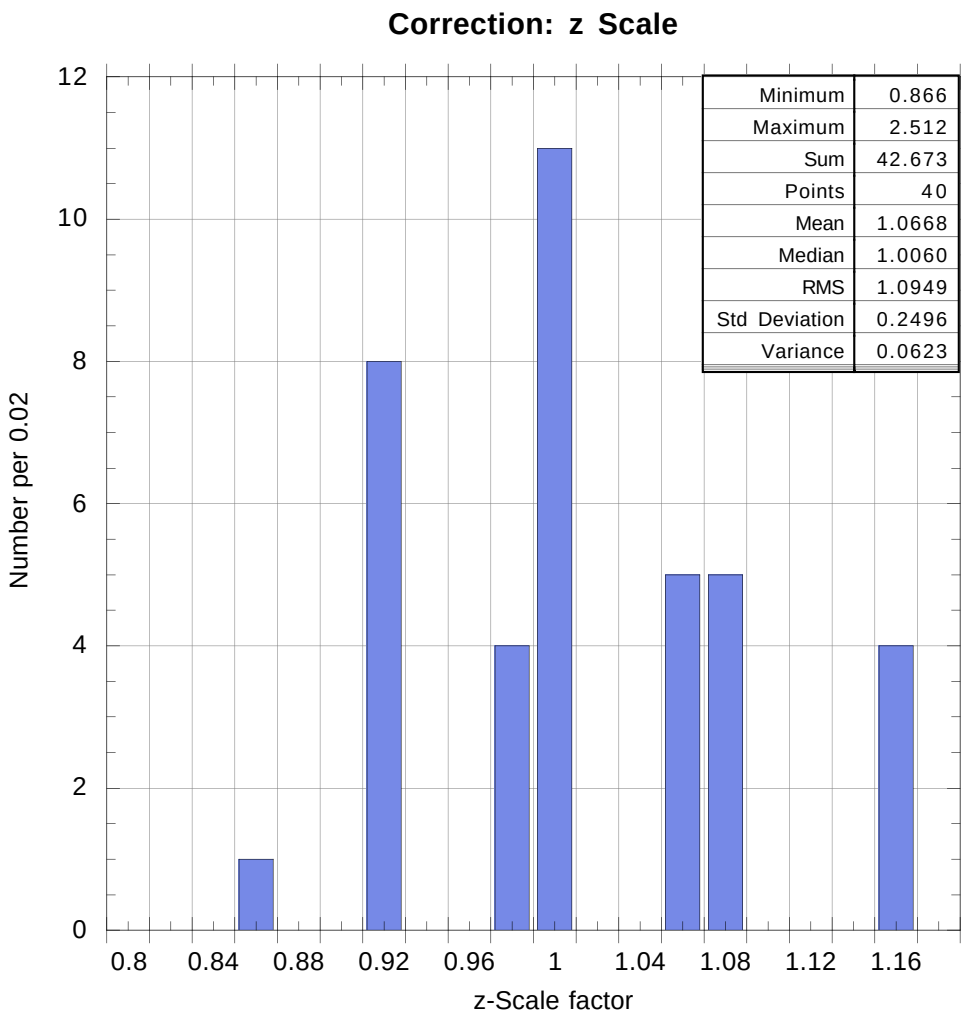
It requires at least 3000 tracks for a reliable calibration

Here, we show distributions from the first 44 m-files available


Muons per m-file
Number per file
Number of Tracks
0
5
10
15
20
25
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
C
Minimum 1547
Maximum 74371
Sum 982714
Points 45
Mean 21838.089
Median 19141
RMS 25472.989
Std Deviation 13261.957


Correction: du/dz
Minimum -0.006382
Maximum 0.010971
Sum 0.005875
Points 41
Mean 0.000143
Median -0.000604
RMS 0.003522
Std Deviation 0.003563
Variance 1.2698174e-05
Number per milliradian
0
1
2
3
4
5
6
7
8
-15
-12
-9
-6
-3
0
3
6
9
12
du/dz
mrad


Correction: dv/dz
Minimum -0.00715
Maximum 0.01064
Sum 0.18949
Points 41
Mean 0.004621
Median 0.005150
RMS 0.005473
Std Deviation 0.002969
Variance 8.816e-06
Std Error 0.000463
Number per milliradian
0
2
4
6
8
10
-15
-12
-9
-6
-3
0
3
6
9
12
dv/dz
mrad


Correction: z Scale
Minimum 0.866
Maximum 2.512
Sum 42.673
Points 40
Mean 1.0668
Median 1.0060
RMS 1.0949
Std Deviation 0.2496
Variance 0.0623
Number per 0.02
z-Scale factor
0
2
4
6
8
10
12
0.8
0.84
0.88
0.92
0.96
1
1.04
1.08
1.12
1.16