```
Pinhole radius: 1.500000 mm
Gap between window and detector: 31.500000 mm
Window thickness: 1000.000000 um
Shielding foil thickness: 10.000000 um
-------------------------------
Theta Angle (degrees), Standard deviation (degrees):
 0      16.5276
1      15.8741
2      15.5497
3      15.4237
4      15.1389
5      14.8570
6      14.0026
7      14.0922
8      13.6384
9      13.3140
10     12.5749
11     12.9354
12     12.4621
13     12.4999
14     12.0594
15     12.1491
16     11.7626
17     11.8489
18     11.5329
19     11.3239
20     11.1567
21     11.2130
22     11.4134
23     11.4761
24     11.9200
25     12.1994
26     12.1009
27     12.3137
28     12.5006
29     13.4504
30     13.2394
31     13.5582
32     13.6722
33     14.1794
34     14.1771
35     14.6601
36     15.0657
37     15.5898
38     14.9923
39     15.7390
40     16.1765
Name: Theta_std, dtype: float64
```
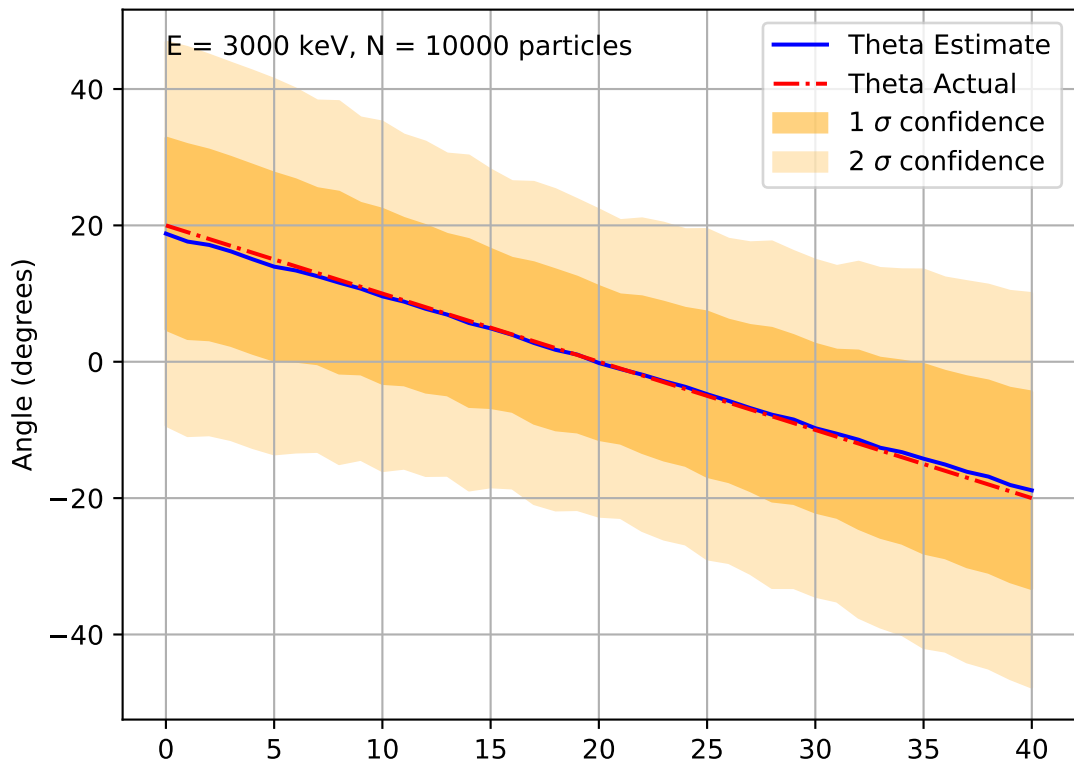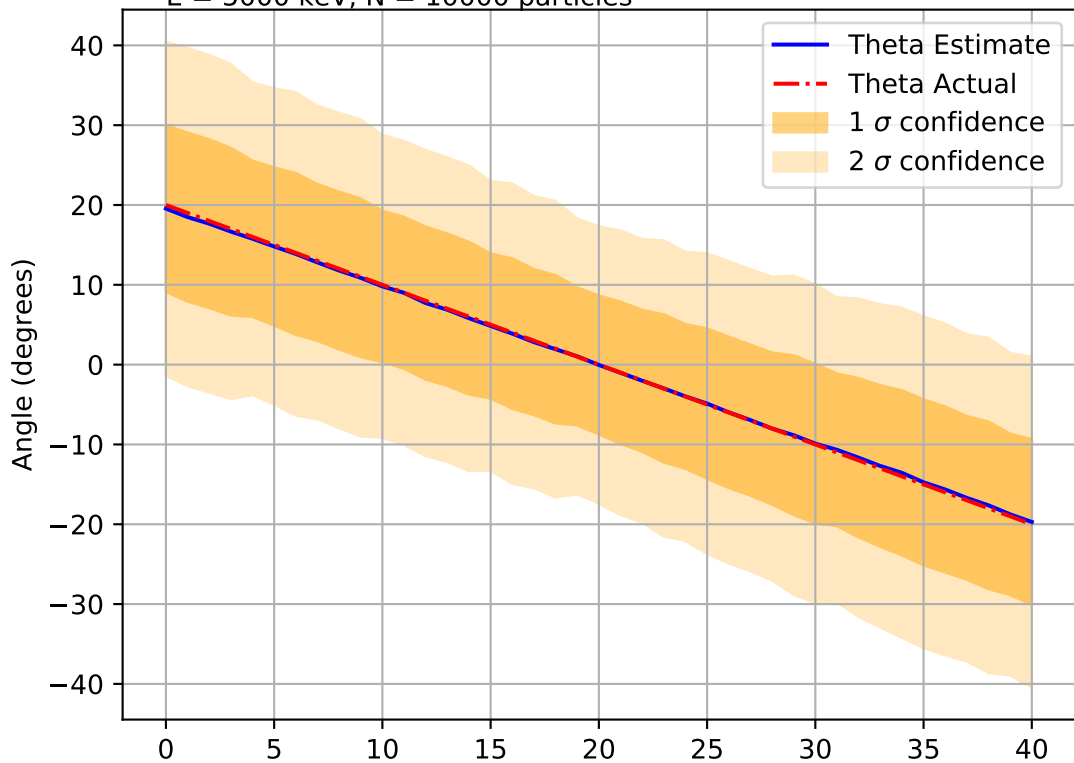
```
Pinhole radius: 1.500000 mm
Gap between window and detector: 31.500000 mm
Window thickness: 1000.000000 um
Shielding foil thickness: 10.000000 um
--------------------------------
Theta Angle (degrees), Standard deviation (degrees):
 0      14.0598
1       14.2425
2       13.9327
3       13.8145
4       13.8145
5       13.7459
6       13.3247
7       12.8597
8       13.2852
9       12.5310
10      12.7943
11      12.2262
12      12.2362
13      11.7889
14      12.2596
15      11.6320
16      11.2423
17      11.7884
18      11.7553
19      11.3760
20      11.2457
21      10.8970
22      11.4375
23      11.5946
24      11.5359
25      12.0873
26      11.8650
27      12.1350
28      12.6840
29      12.3332
30      12.3346
31      12.2820
32      13.0319
33      13.1568
34      13.3817
35      13.8556
36      13.6962
37      13.9542
38      14.0540
39      14.2094
40      14.4441
Name: Theta_std, dtype: float64
```

E = 5000 keV, N = 10000 particles

- Theta Estimate
- Theta Actual
- 1 σ confidence
- 2 σ confidence

```
Pinhole radius: 1.500000 mm
Gap between window and detector: 31.500000 mm
Window thickness: 1000.000000 um
Shielding foil thickness: 10.000000 um
--------------------------------
Theta Angle (degrees), Standard deviation (degrees):
 0      10.4403
1      10.5700
2      10.5609
3      10.4841
4       9.7776
5       9.8927
6      10.1189
7       9.8117
8       9.8685
9       9.9161
10      9.4779
11      9.5030
12      9.5723
13      9.5277
14      9.5551
15      9.0651
16      9.4057
17      9.1320
18      9.2723
19      8.6298
20      8.6804
21      8.8973
22      8.8770
23      9.2603
24      9.0461
25      9.4038
26      9.4643
27      9.4501
28      9.5109
29      9.9844
30      9.9726
31      9.5501
32      9.9601
33     10.1091
34     10.3255
35     10.3771
36     10.3830
37     10.2352
38     10.4850
39     10.0940
40     10.3561
Name: Theta_std, dtype: float64
```