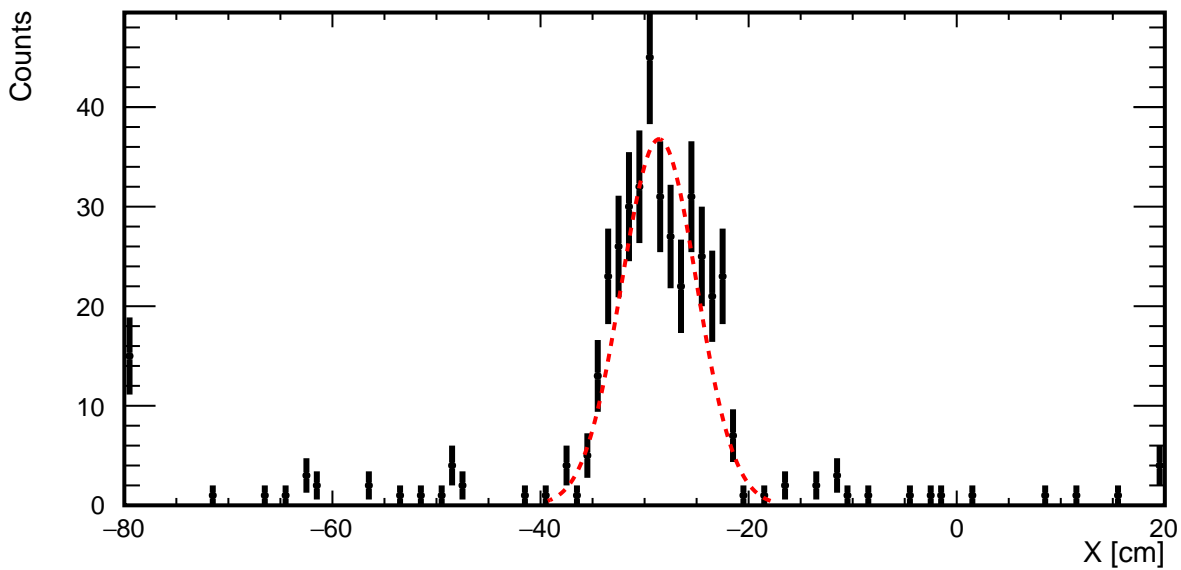
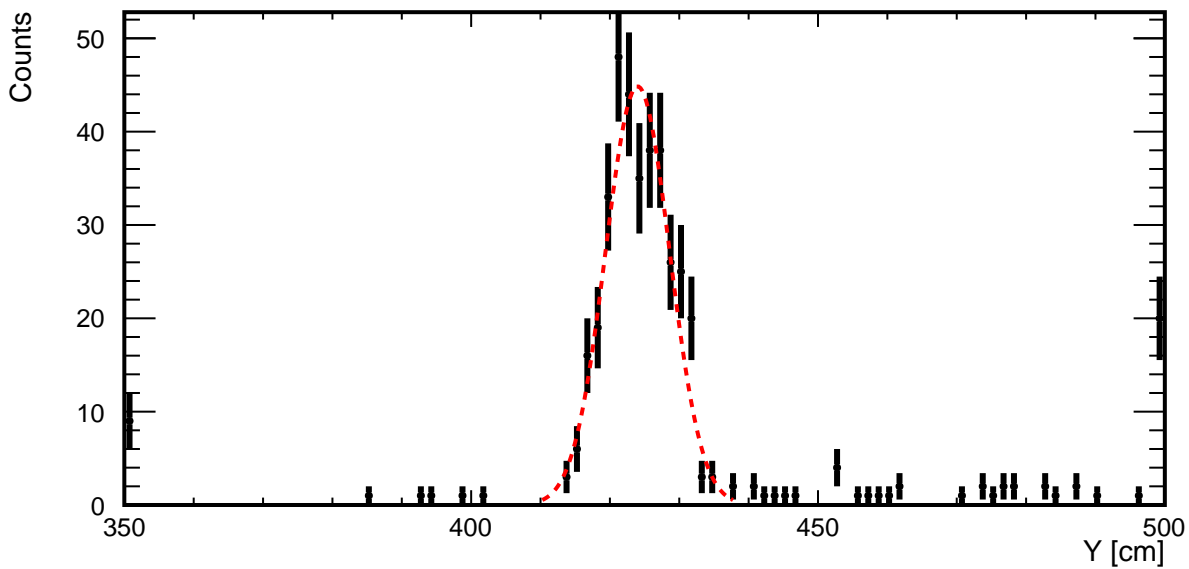
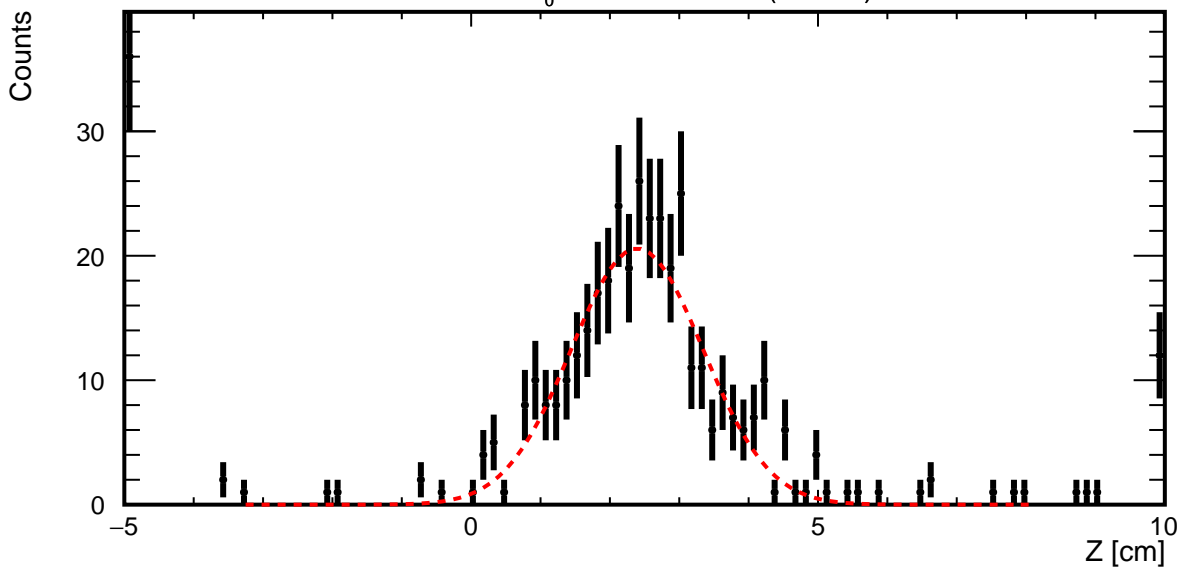
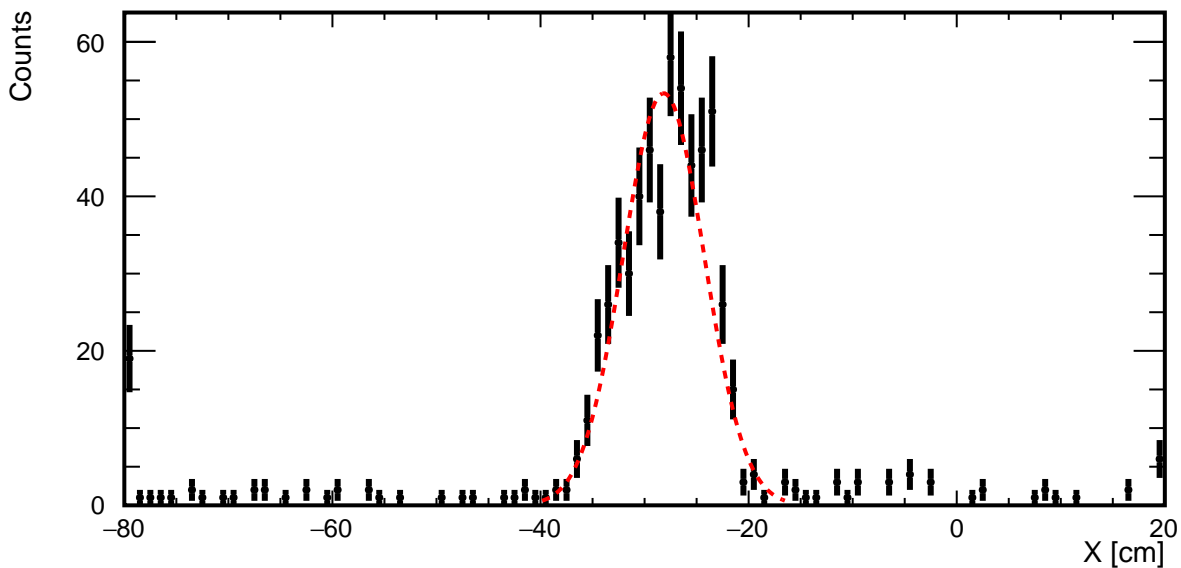
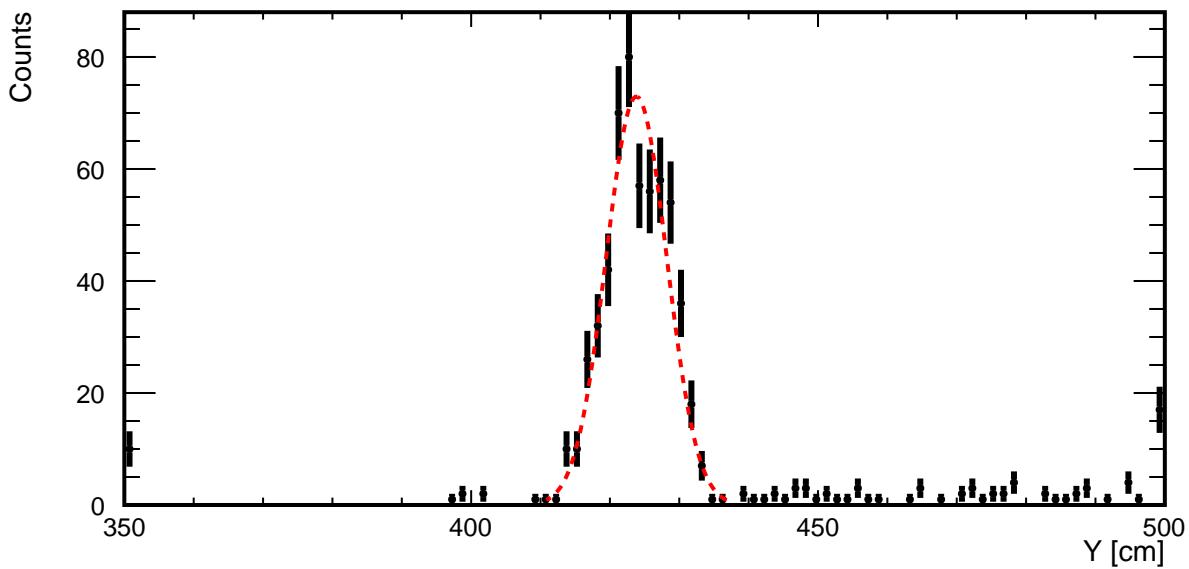
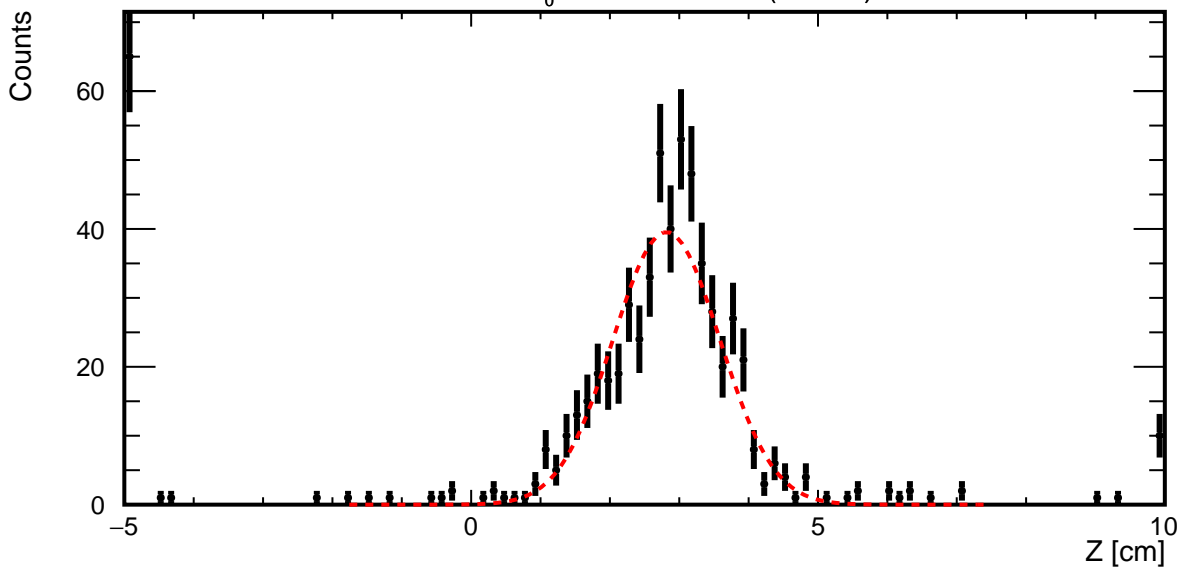


# Outline

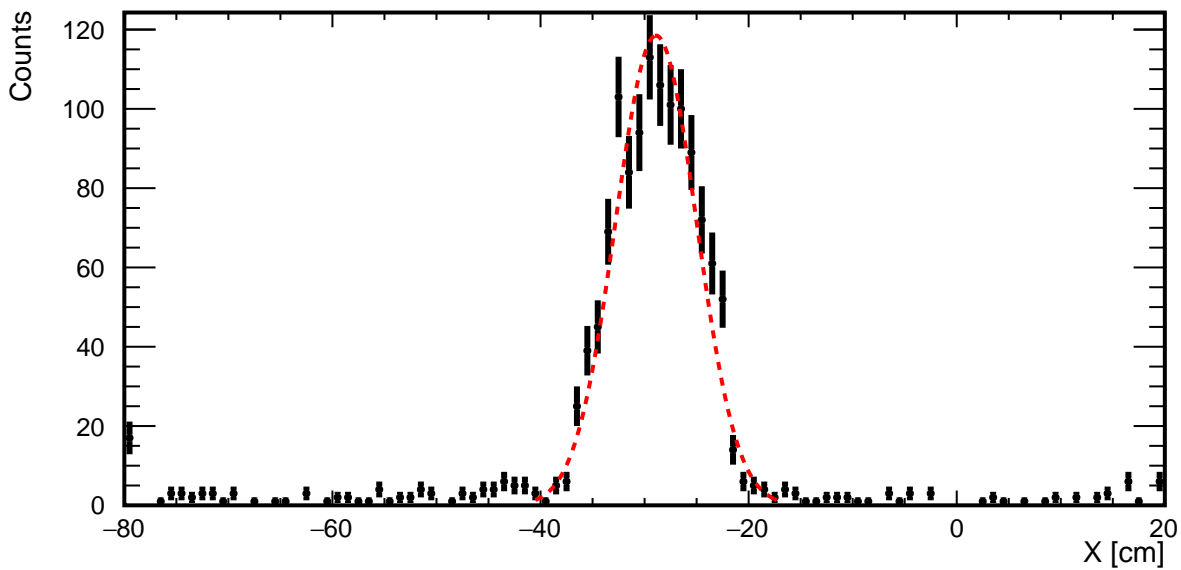
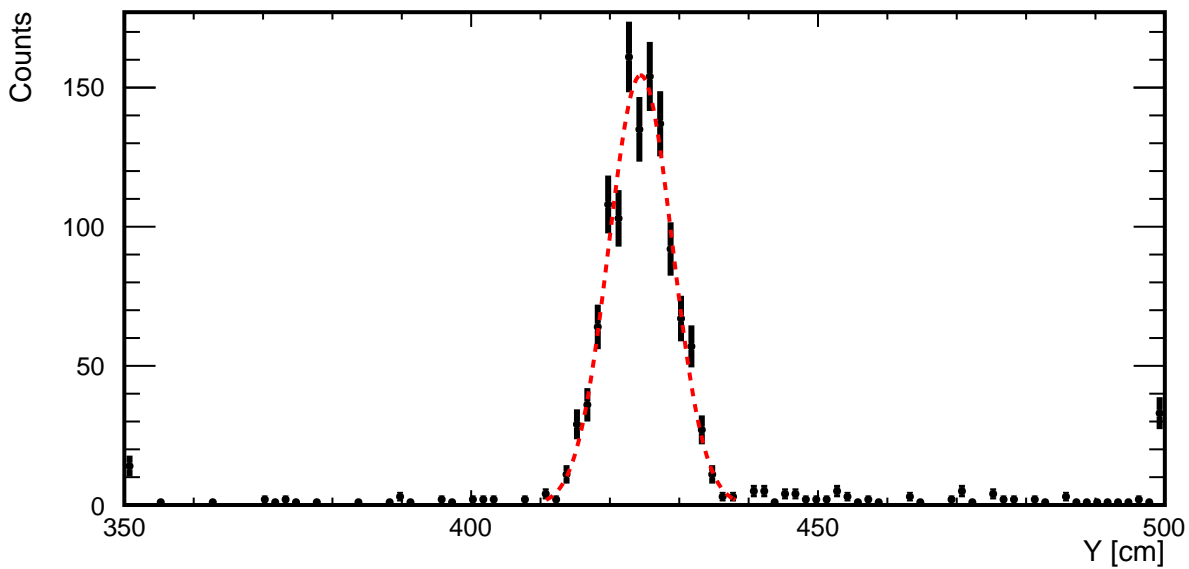
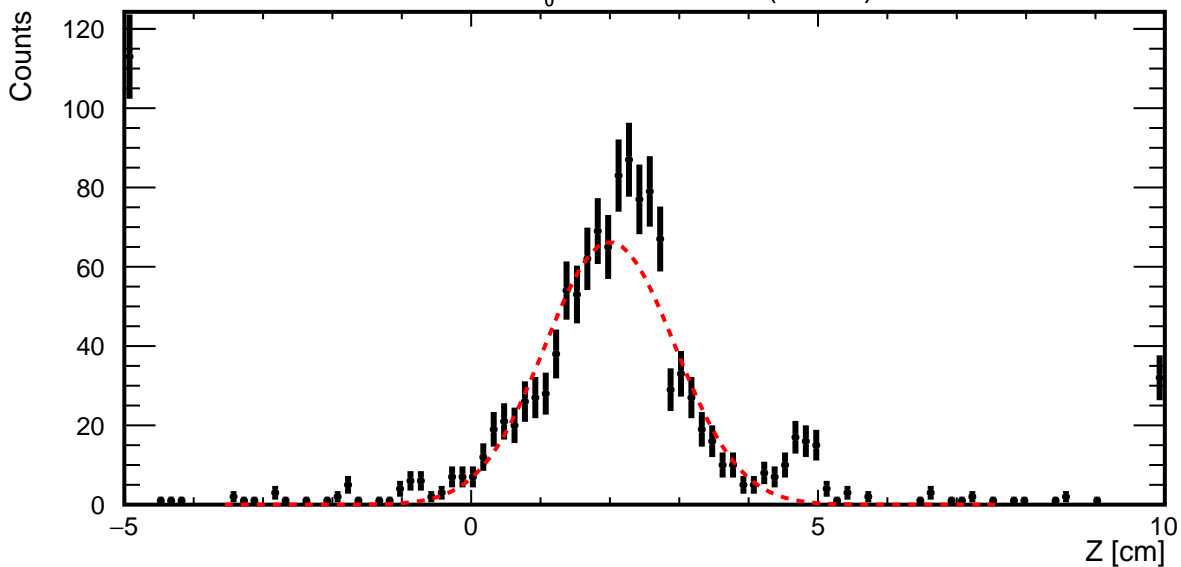
- ▶ Data Quality Check before merging all the runs
  - Position Cut, beam XY cut
- ▶ Data/MC Comparison using Sungbin's fit on TPC FF



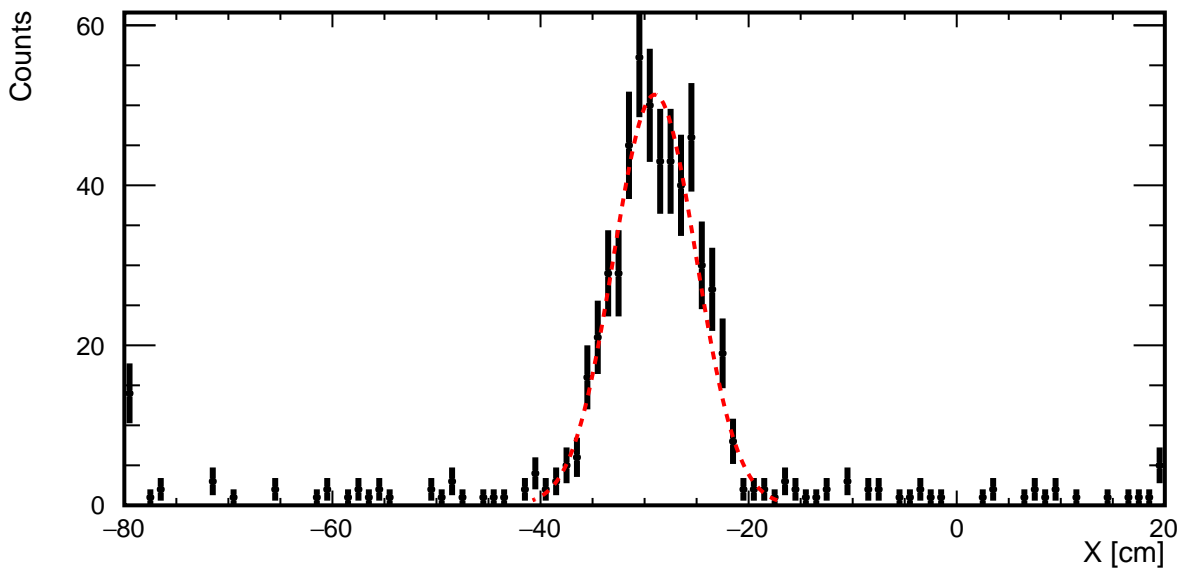
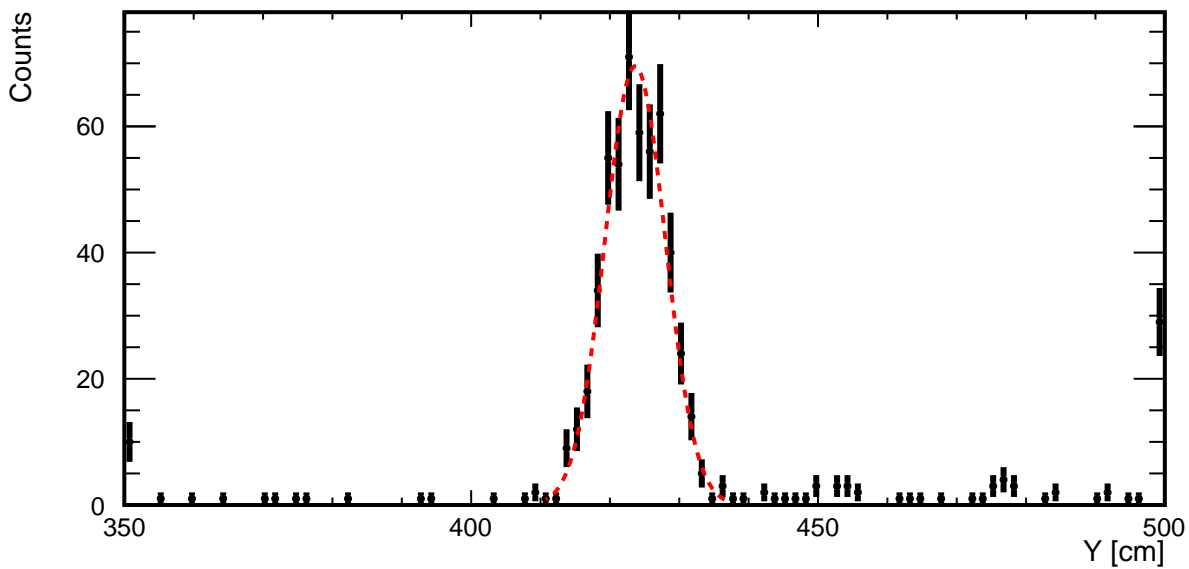
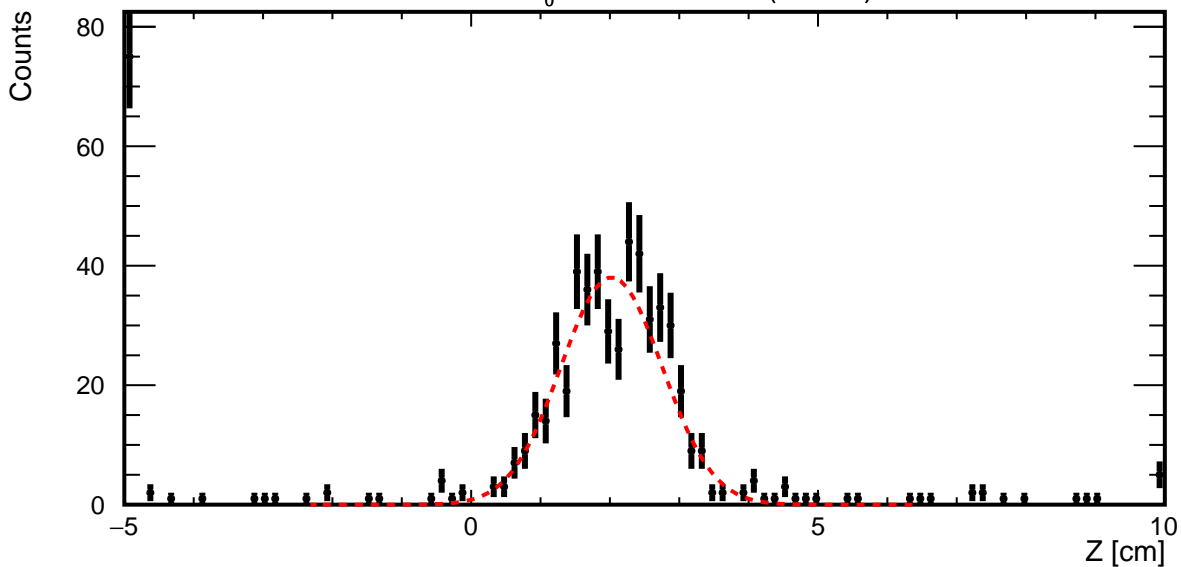
Run 5225:  $t_0$ : Oct 12 05:20 2018 (0.80 hrs)



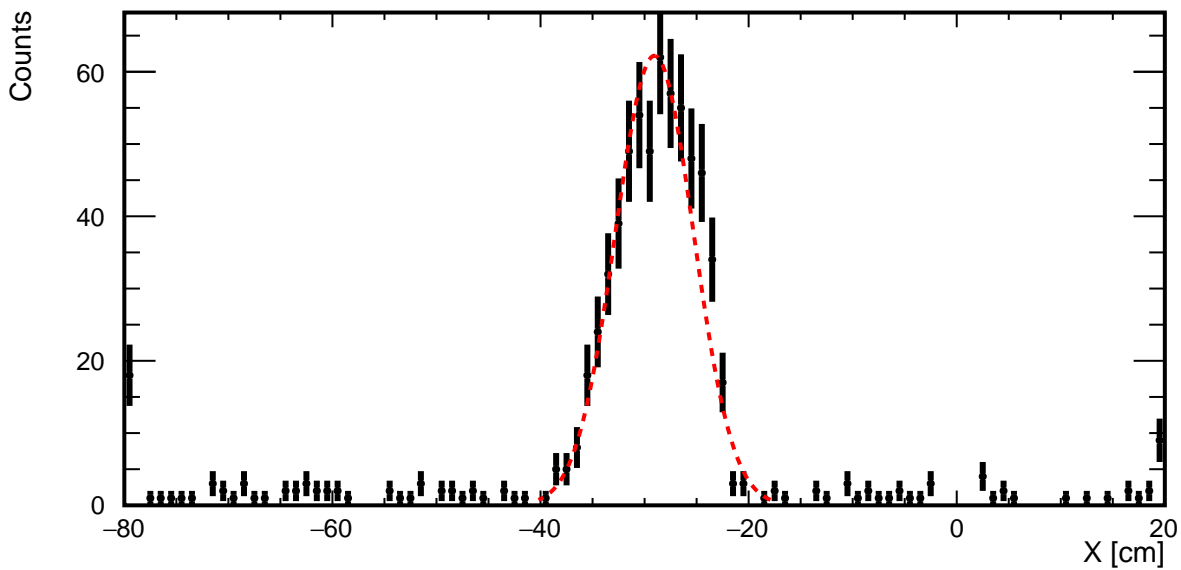
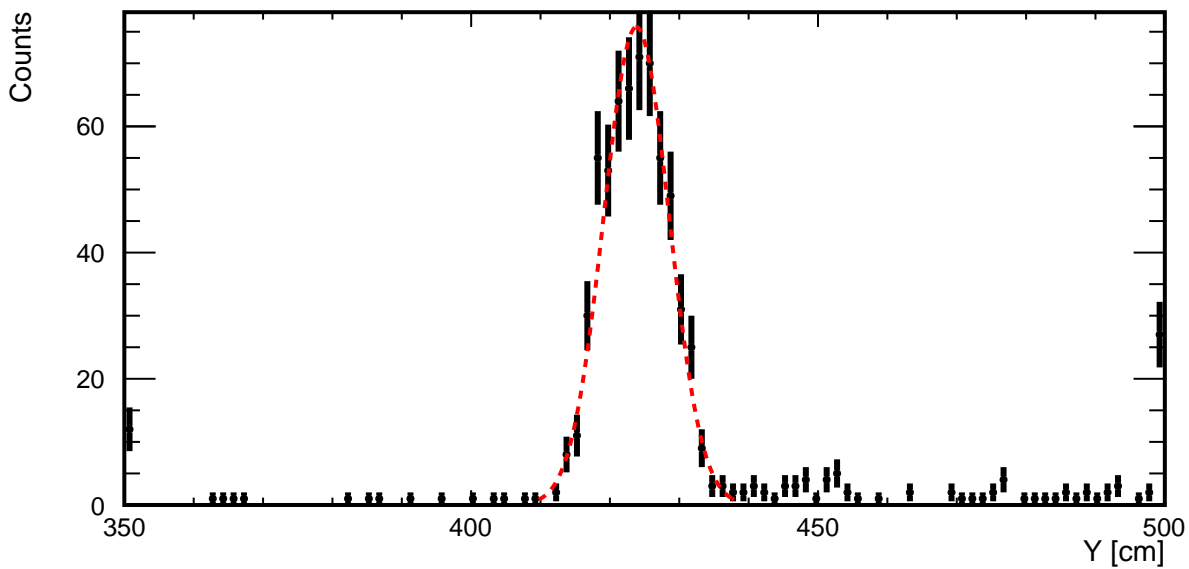
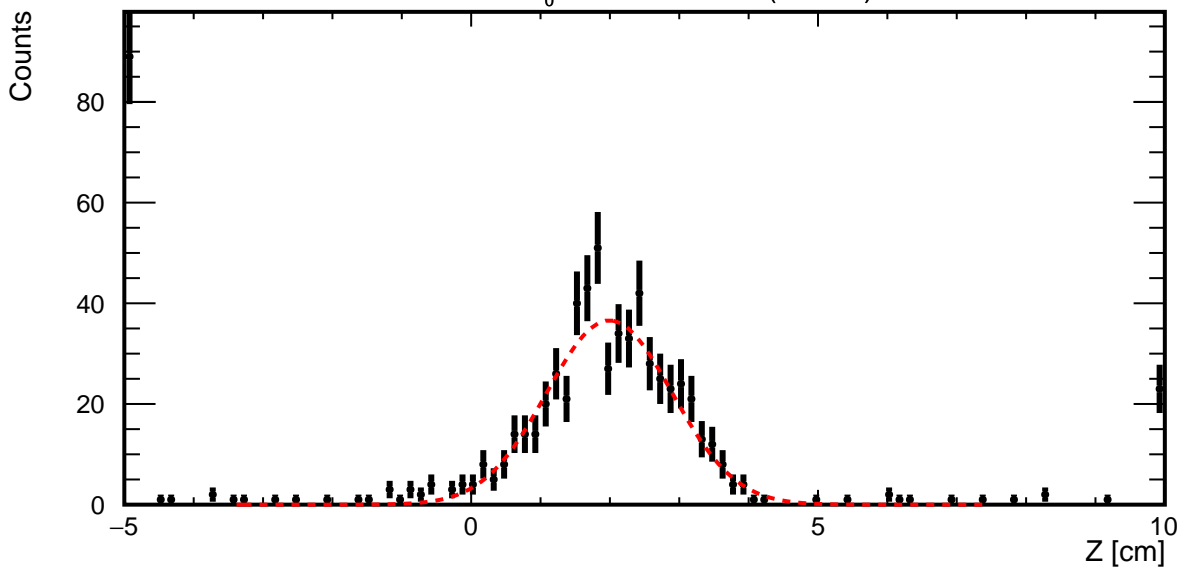
Run 5235:  $t_0$ : Oct 12 09:08 2018 (1.02 hrs)

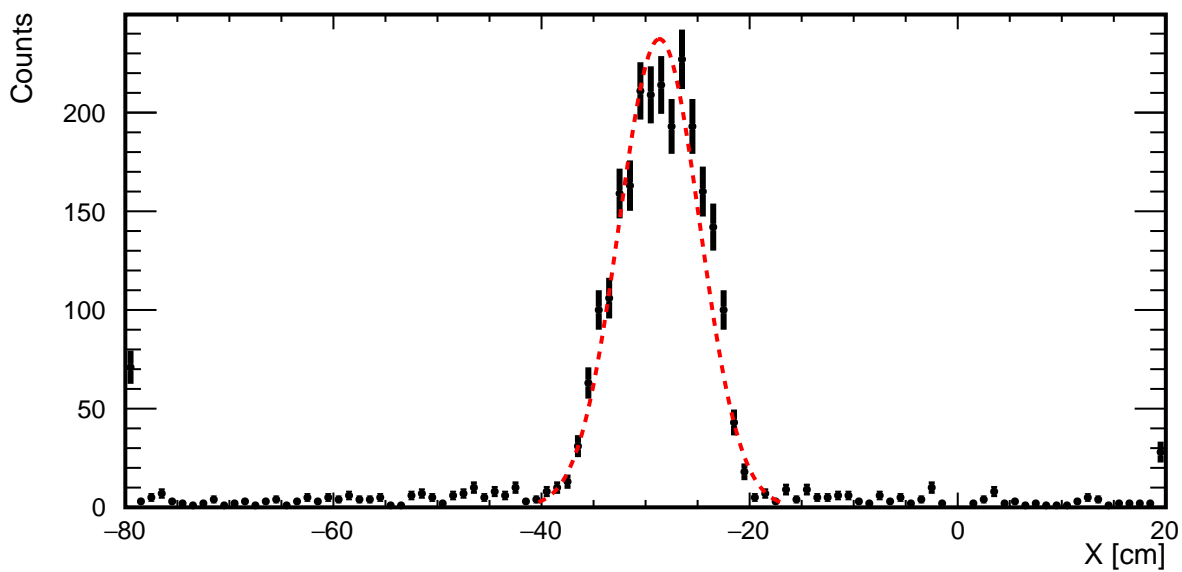
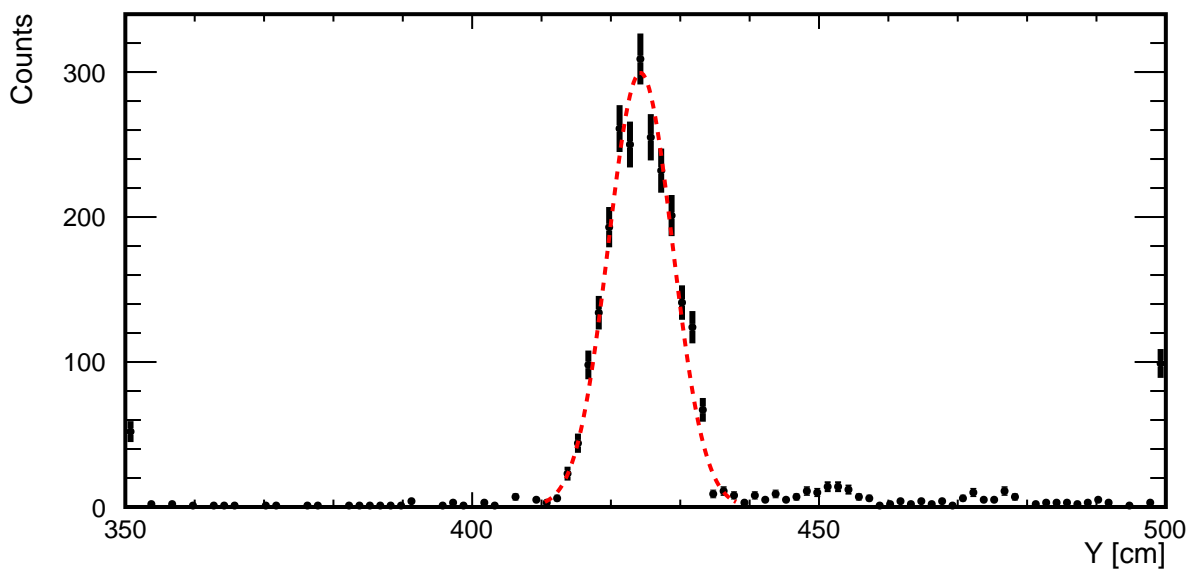
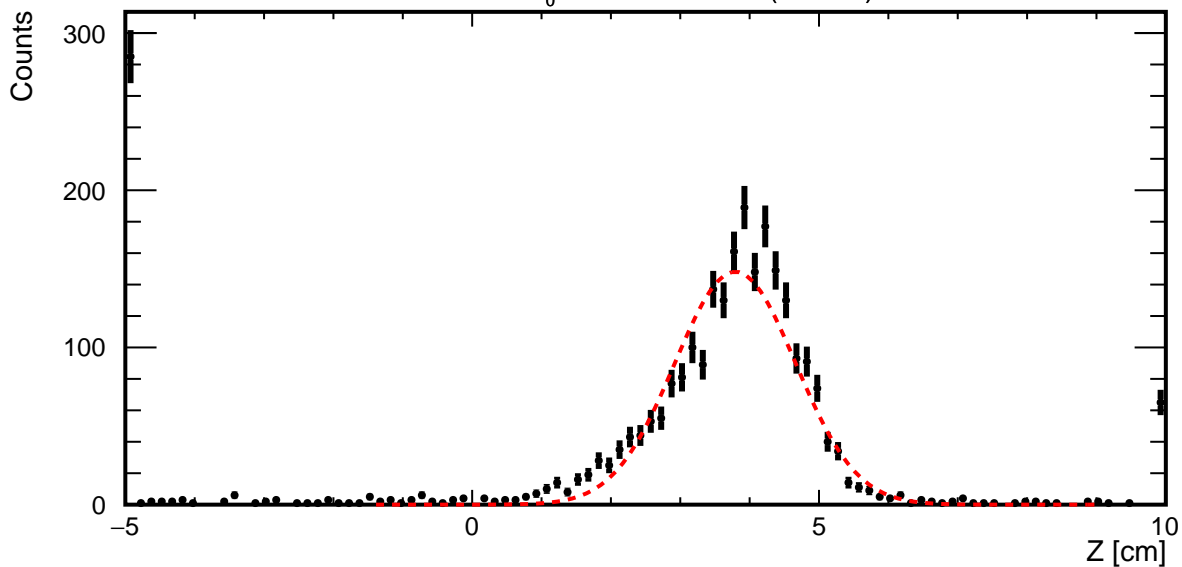


Run 5240:  $t_0$ : Oct 12 10:35 2018 (0.45 hrs)

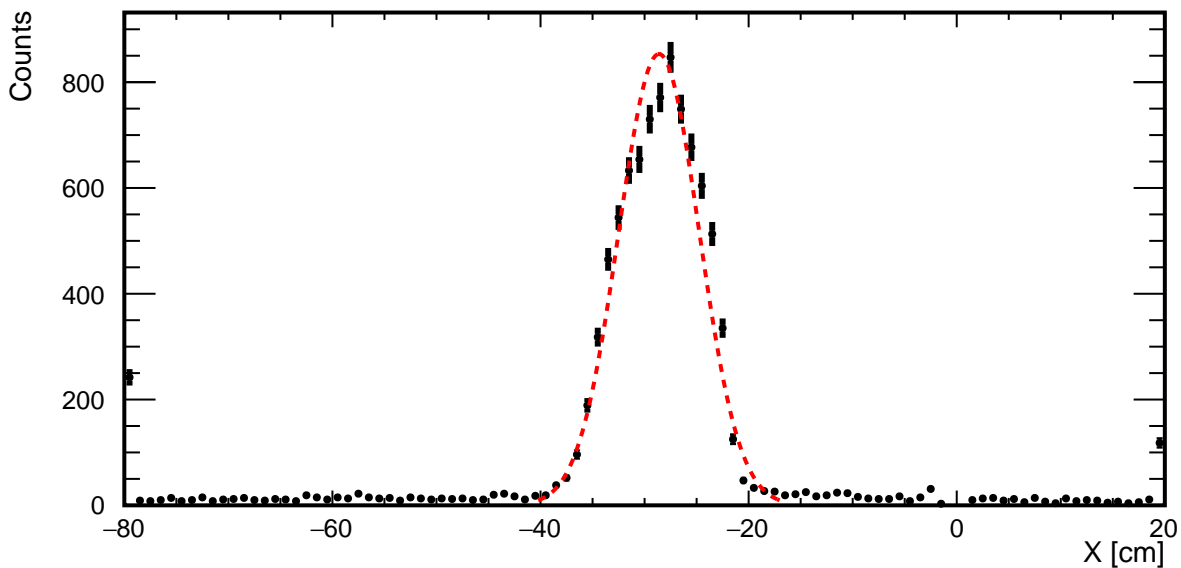
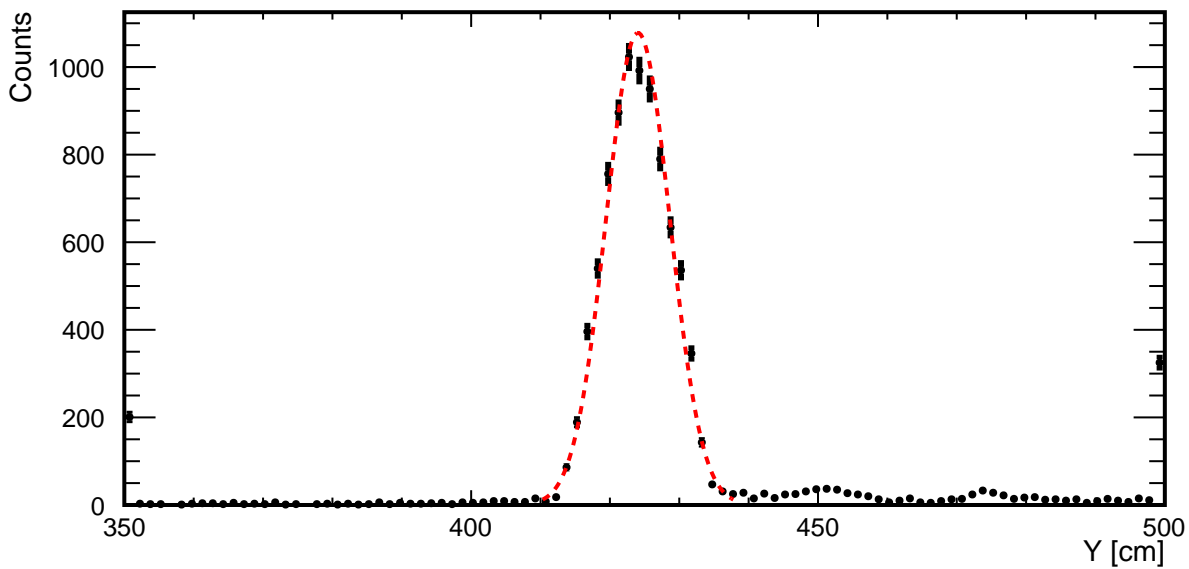
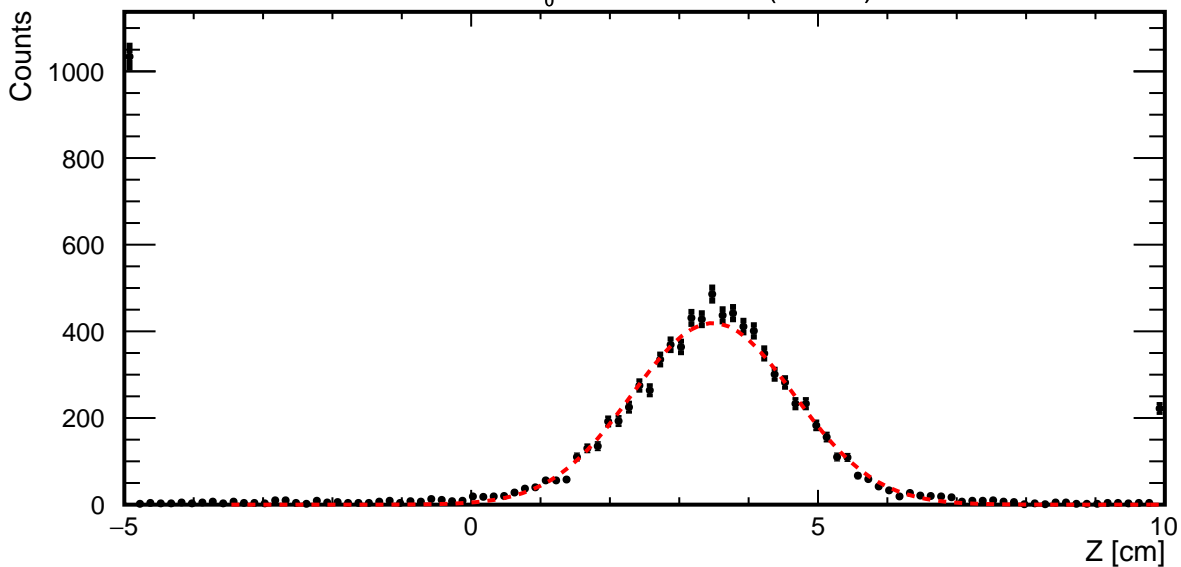


Run 5244:  $t_0$ : Oct 12 11:09 2018 (0.69 hrs)



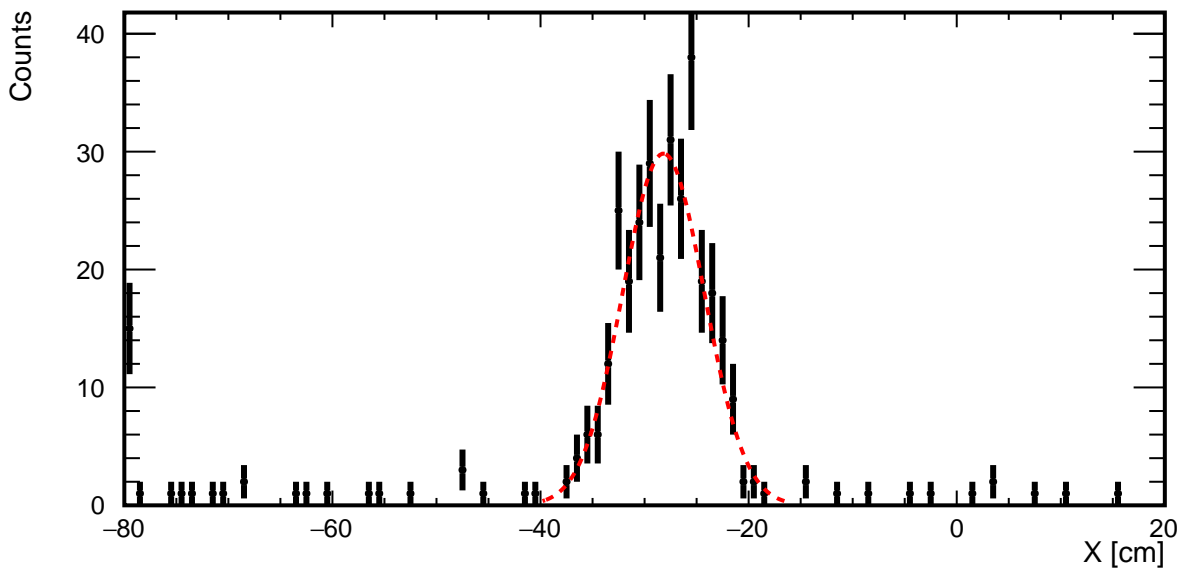
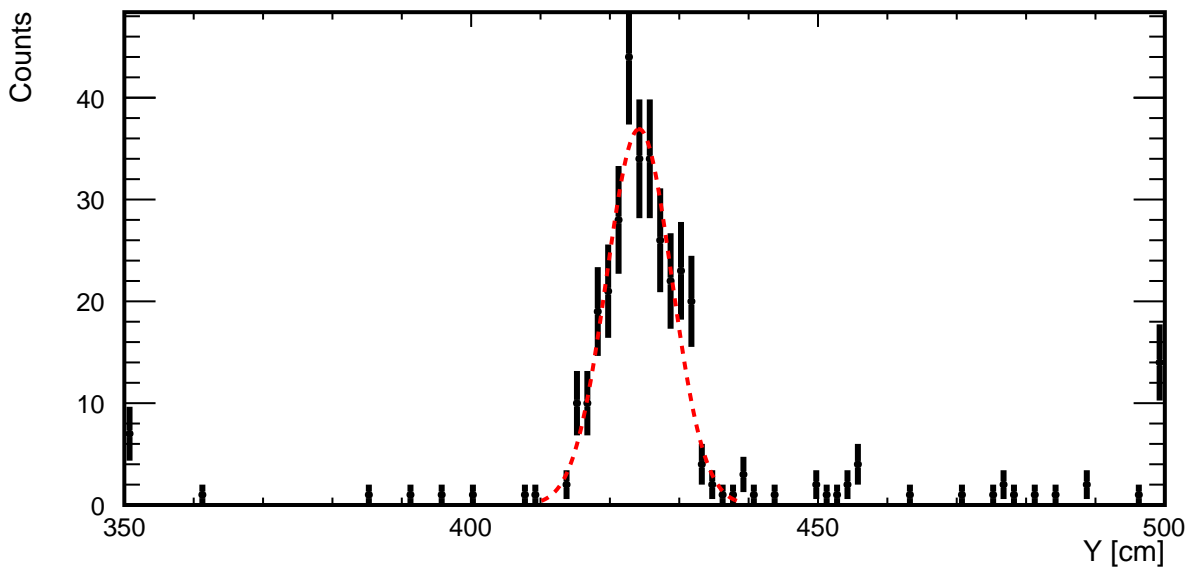
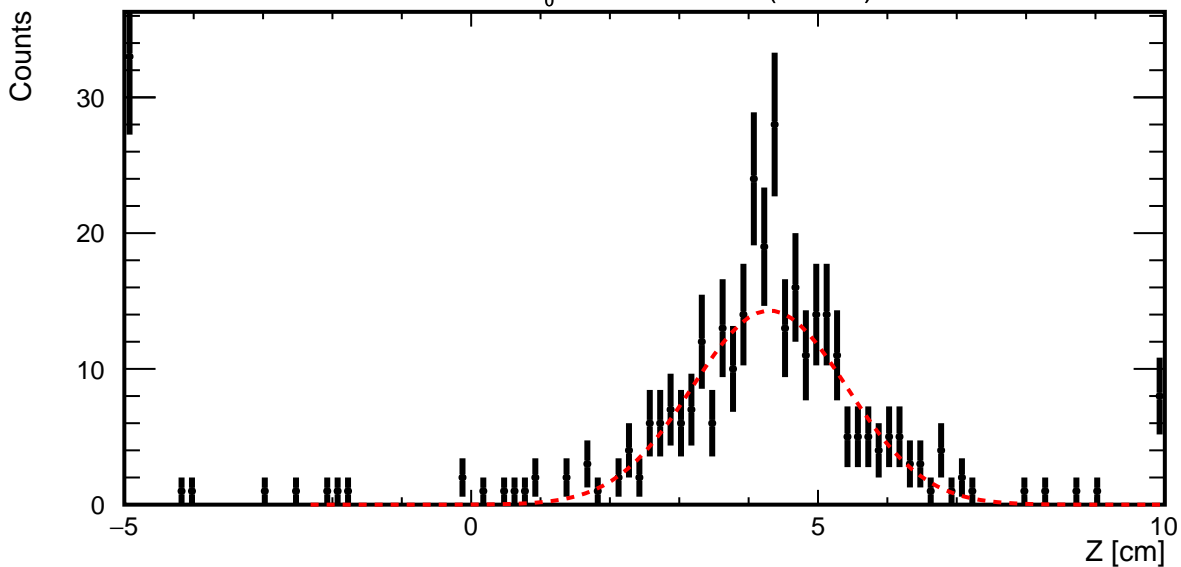


Run 5311:  $t_0$ : Oct 15 11:30 2018 (8.41 hrs)

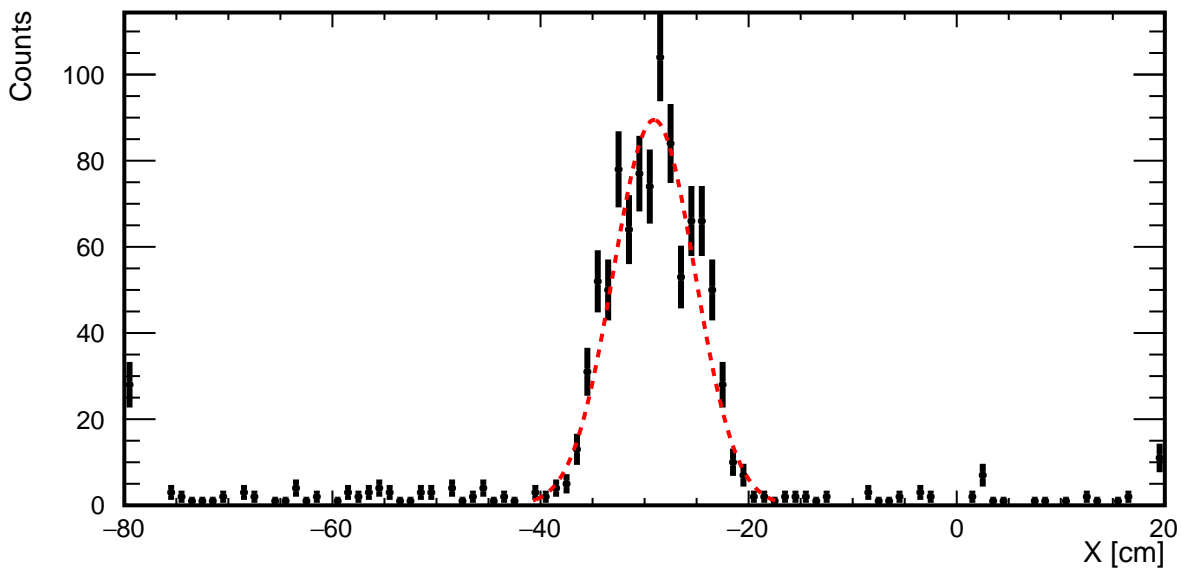
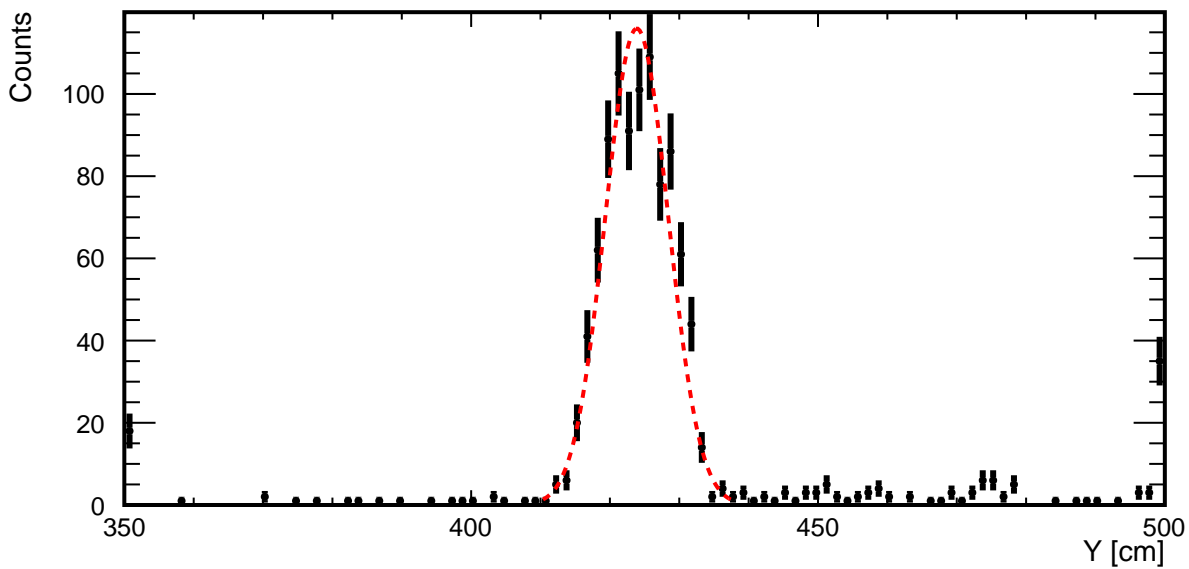
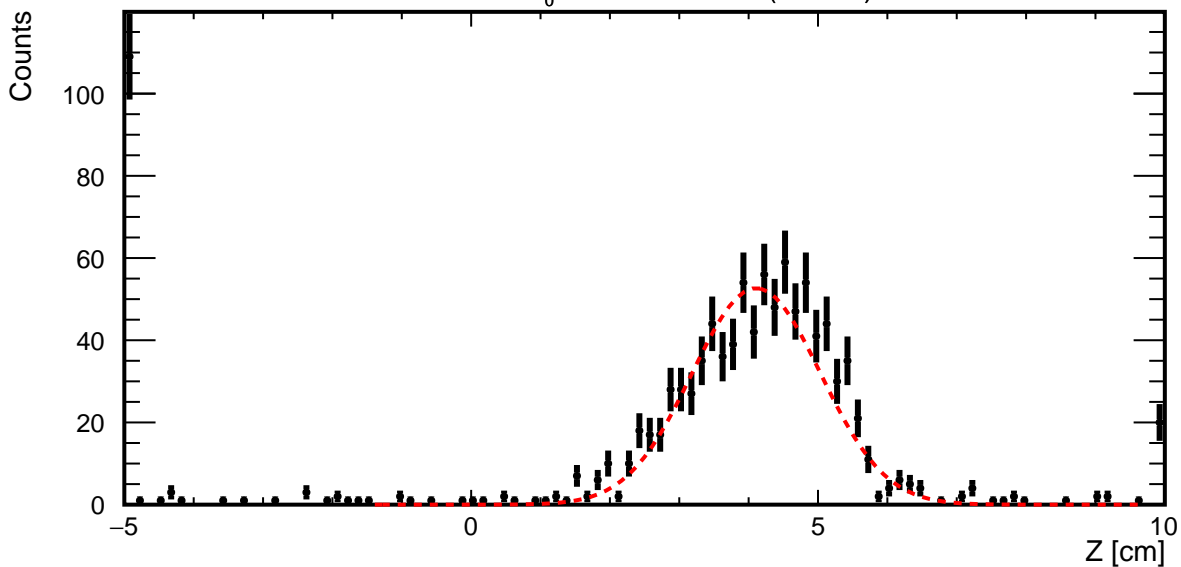




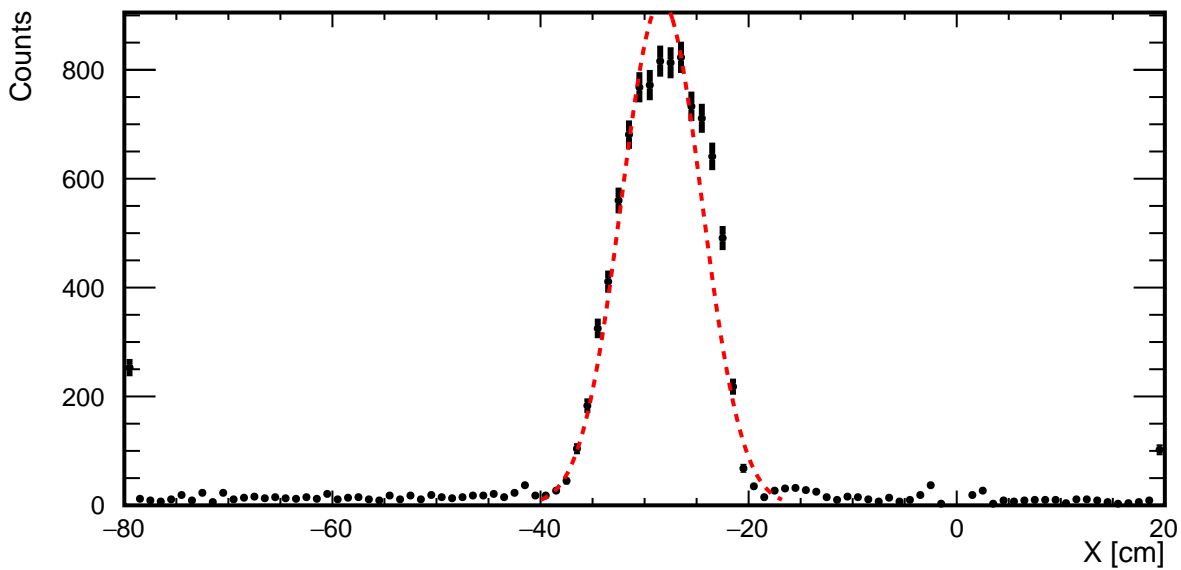
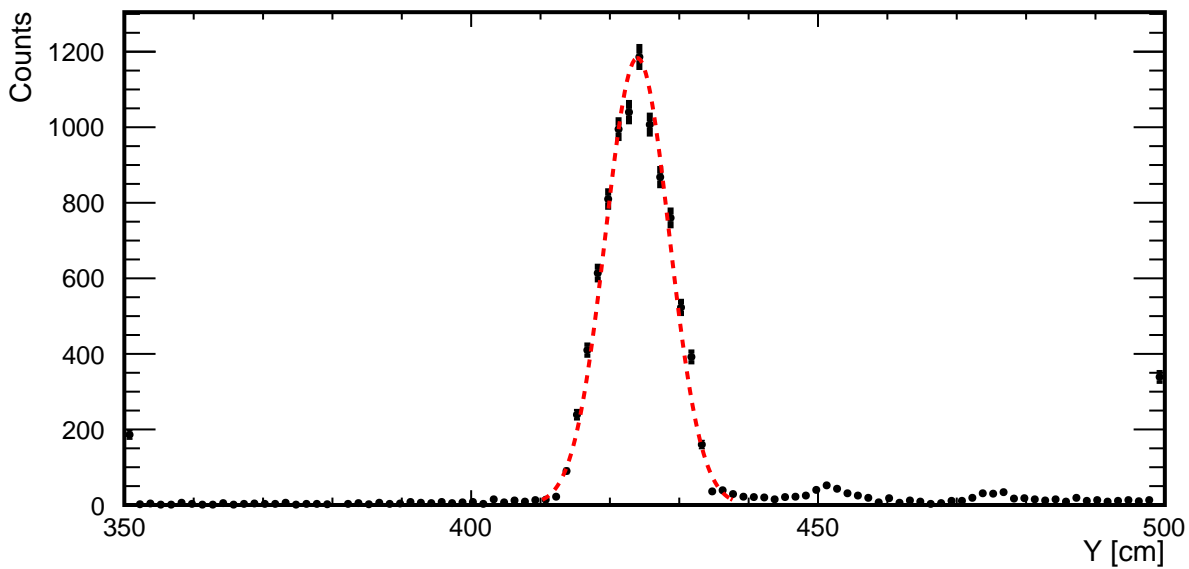
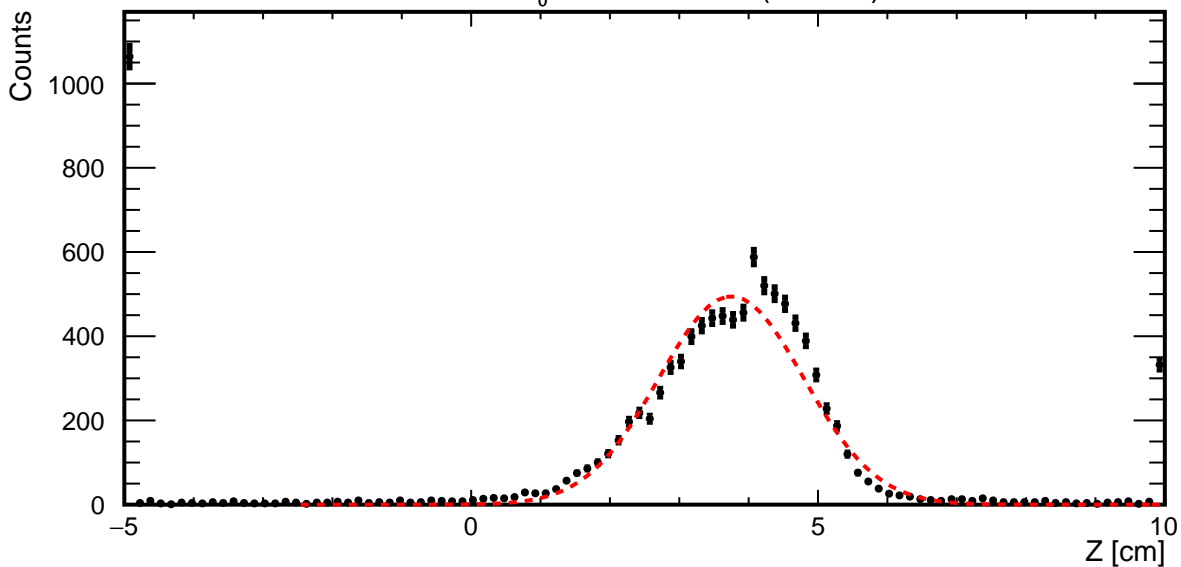
Run 5315:  $t_0$ : Oct 16 03:20 2018 (2.37 hrs)

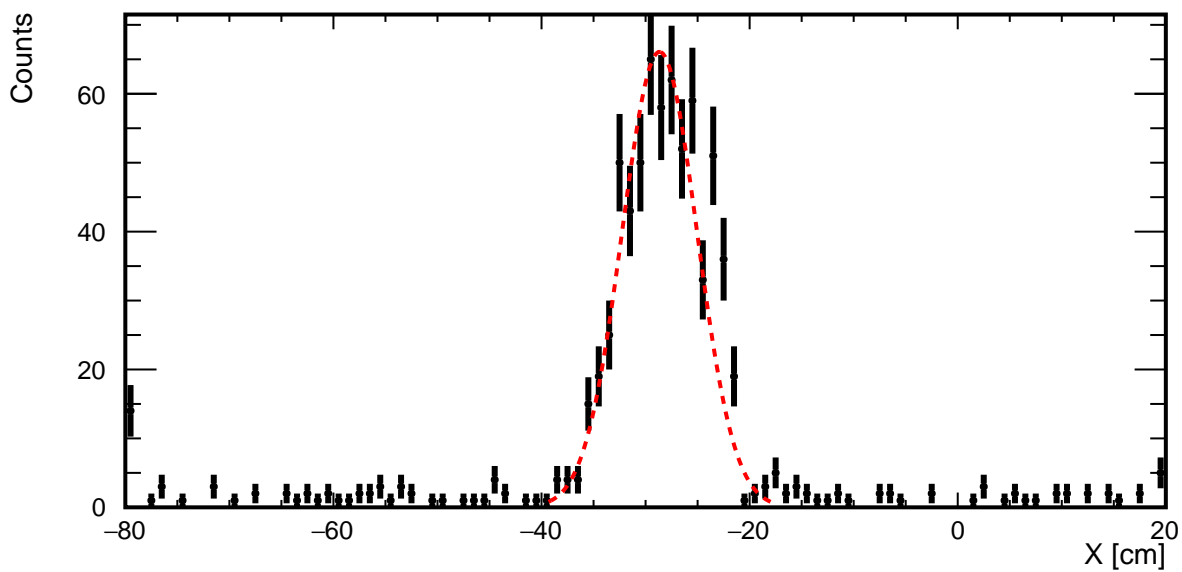
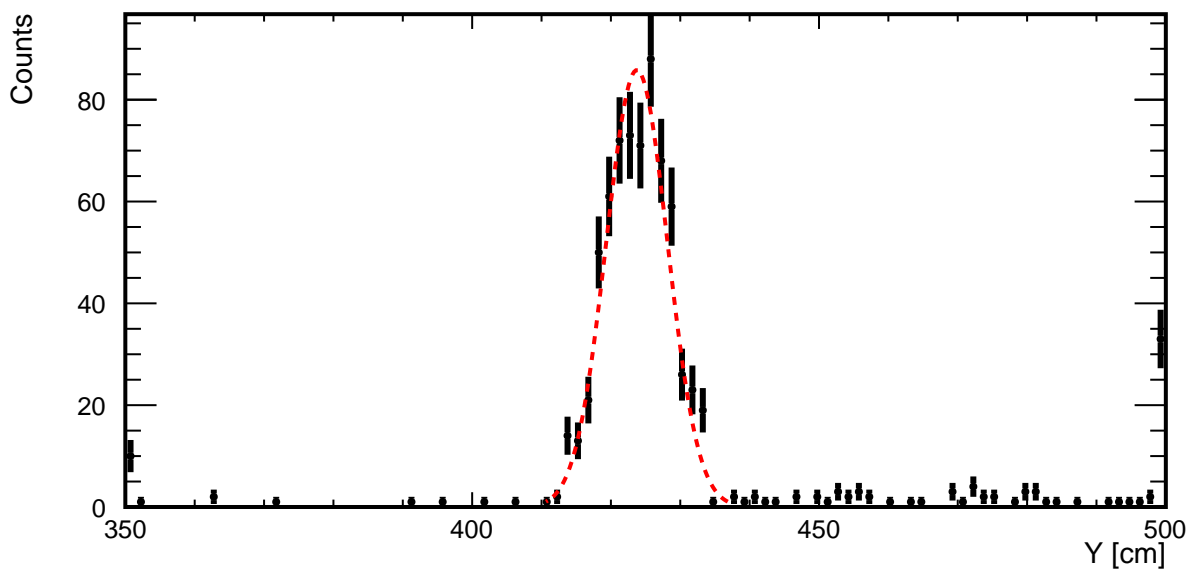
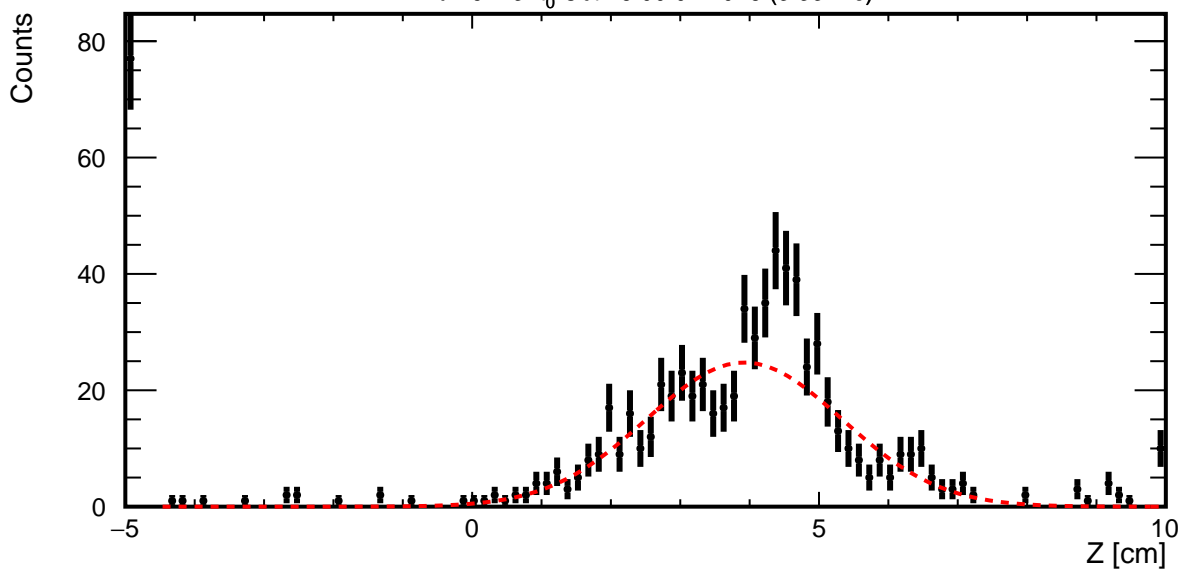


Run 5338:  $t_0$ : Oct 16 09:59 2018 (3.56 hrs)

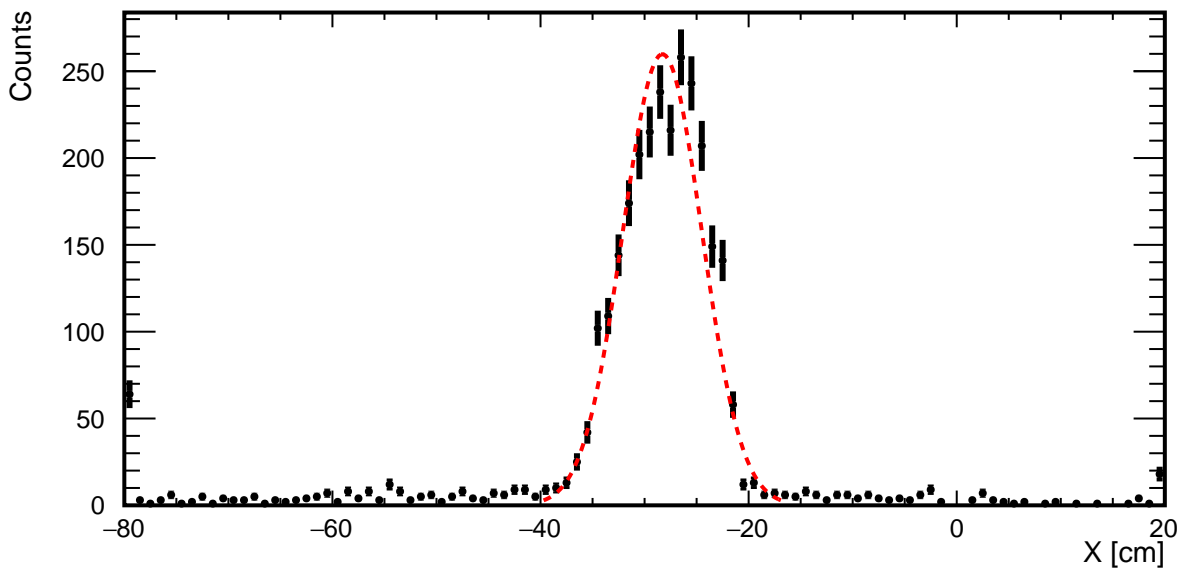
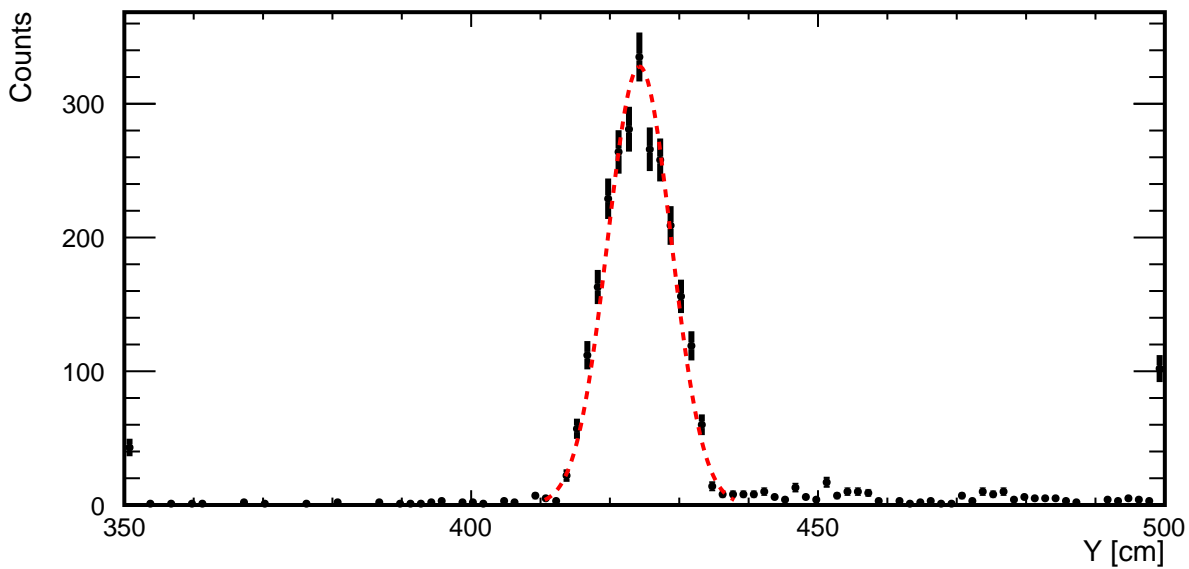
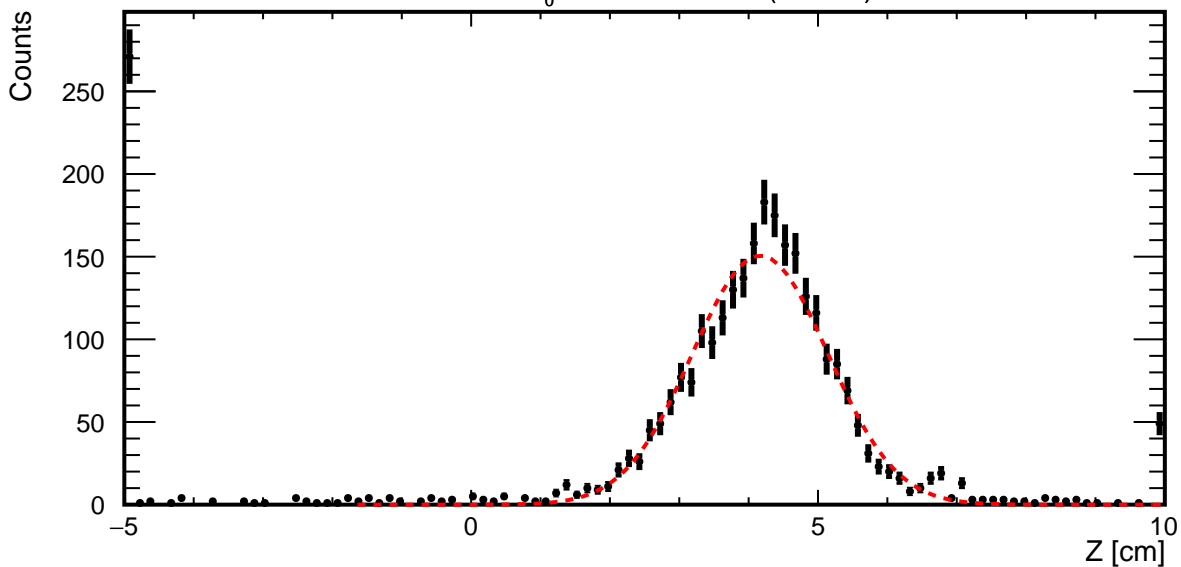


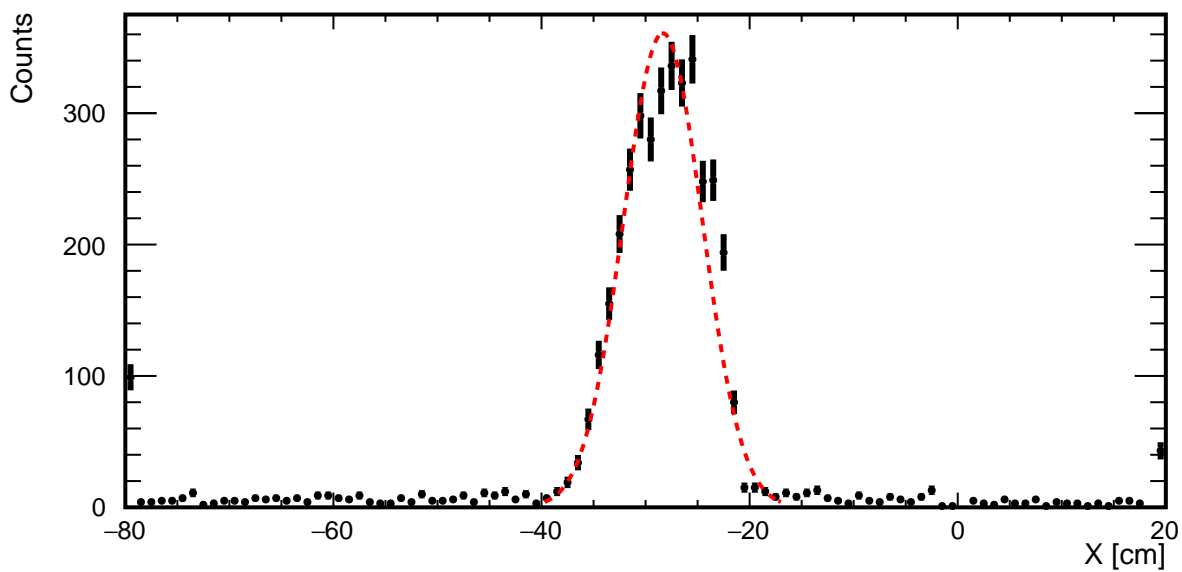
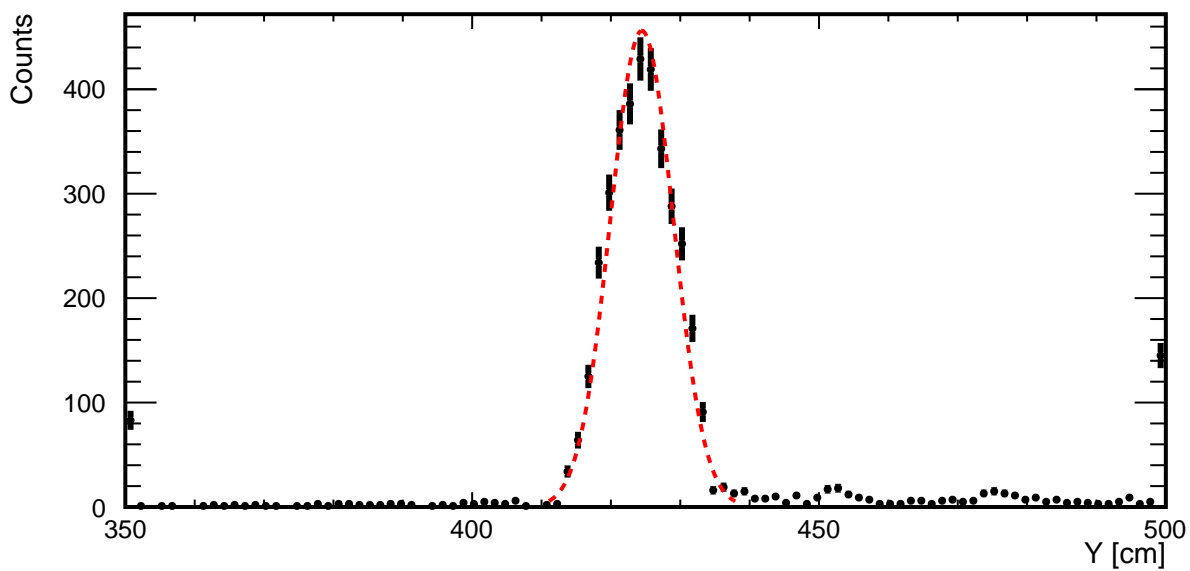
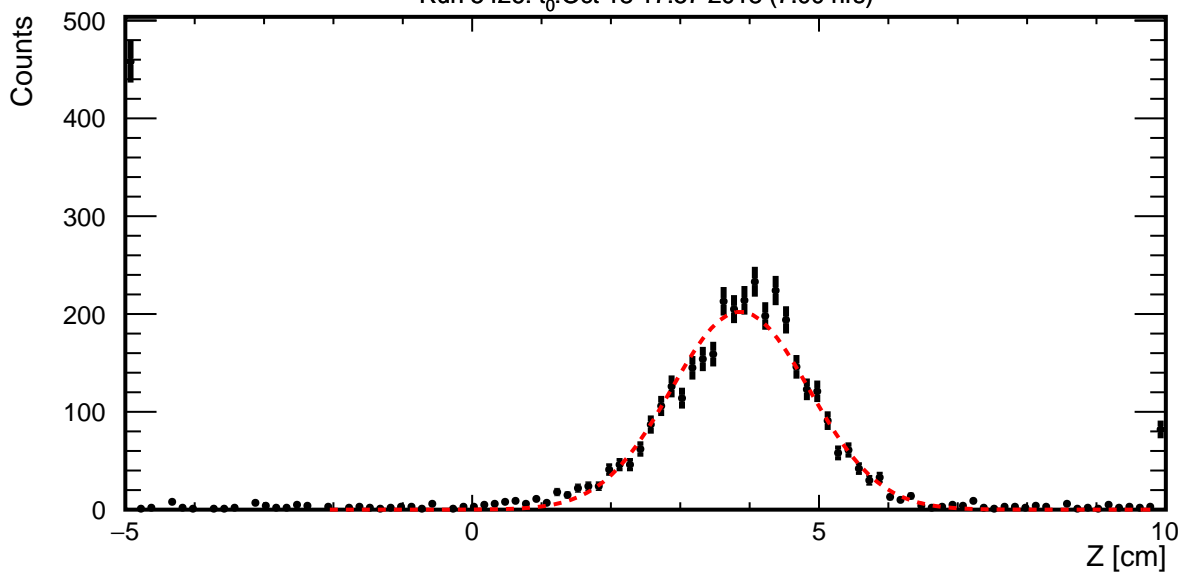
Run 5387:  $t_0$ : Oct 17 12:31 2018 (11.67 hrs)



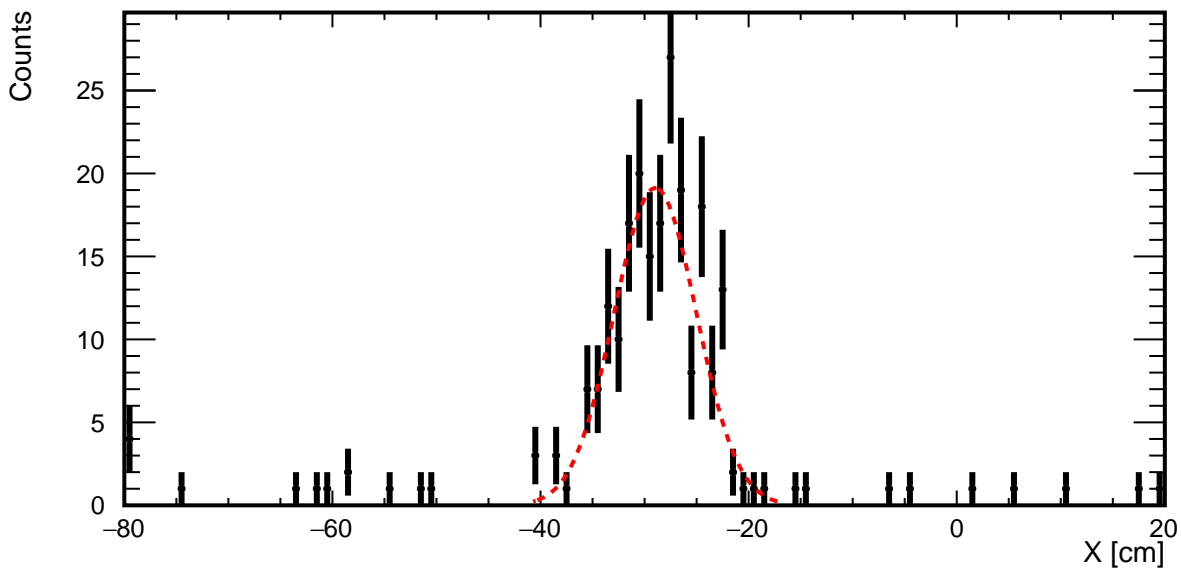
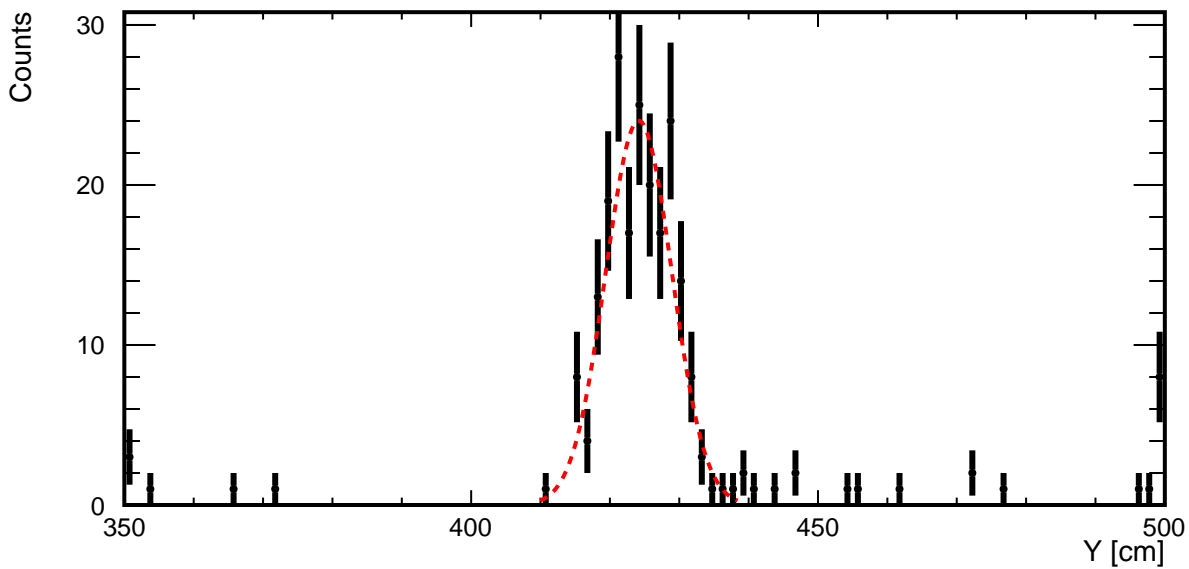
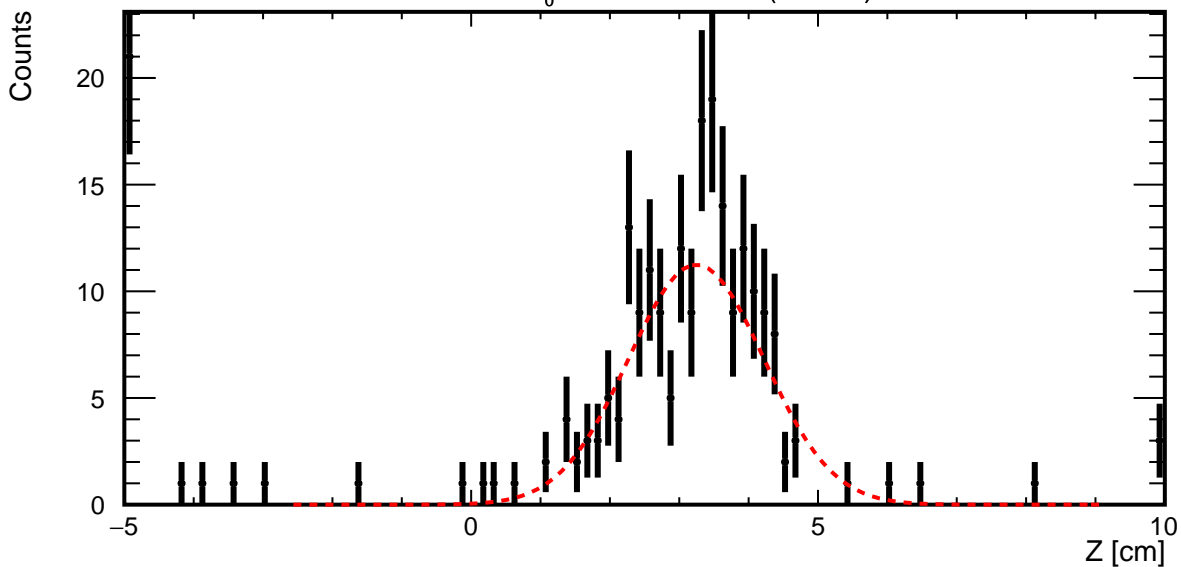


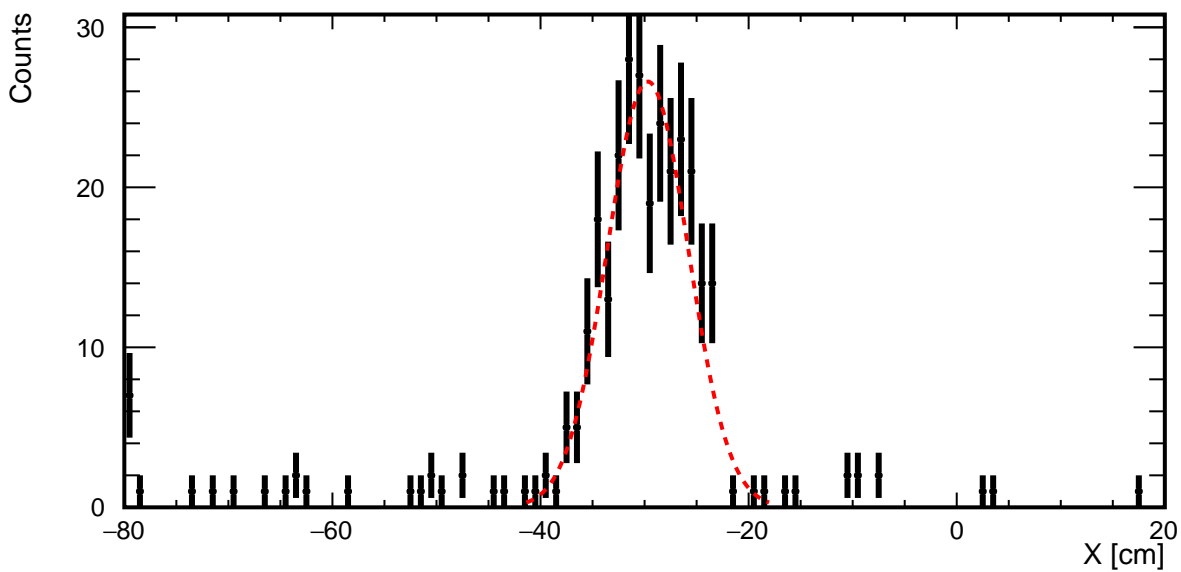
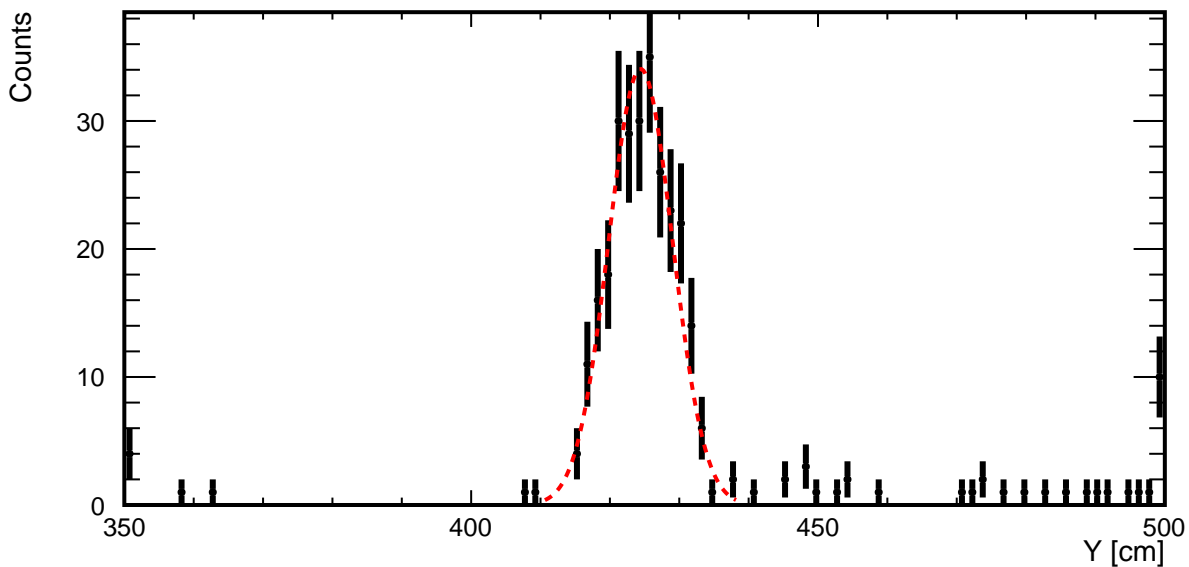
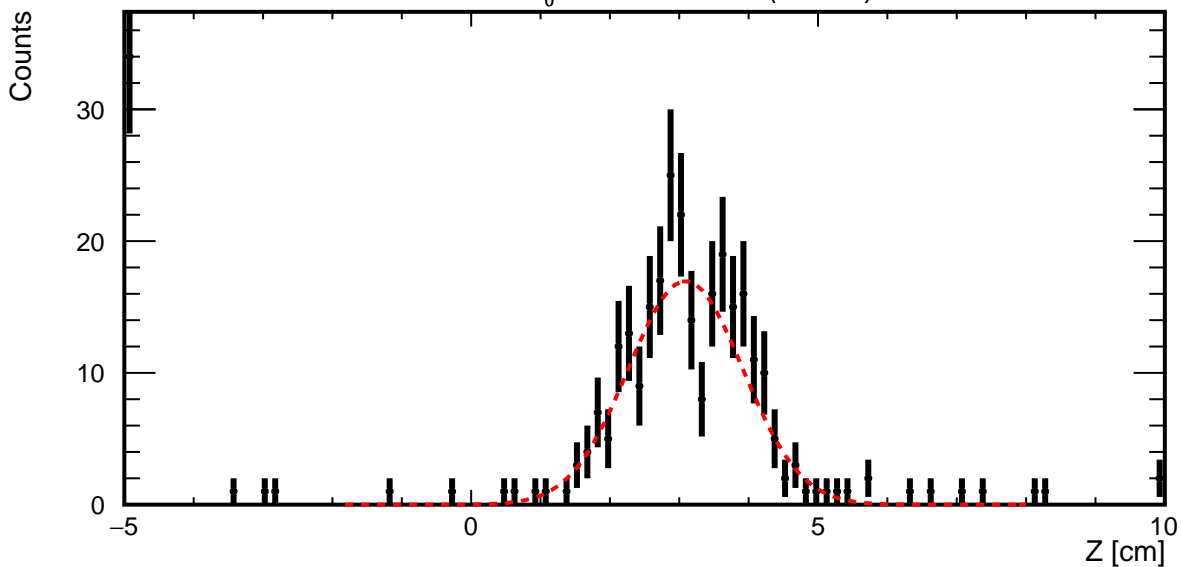
Run 5424:  $t_0$ : Oct 18 12:56 2018 (4.39 hrs)



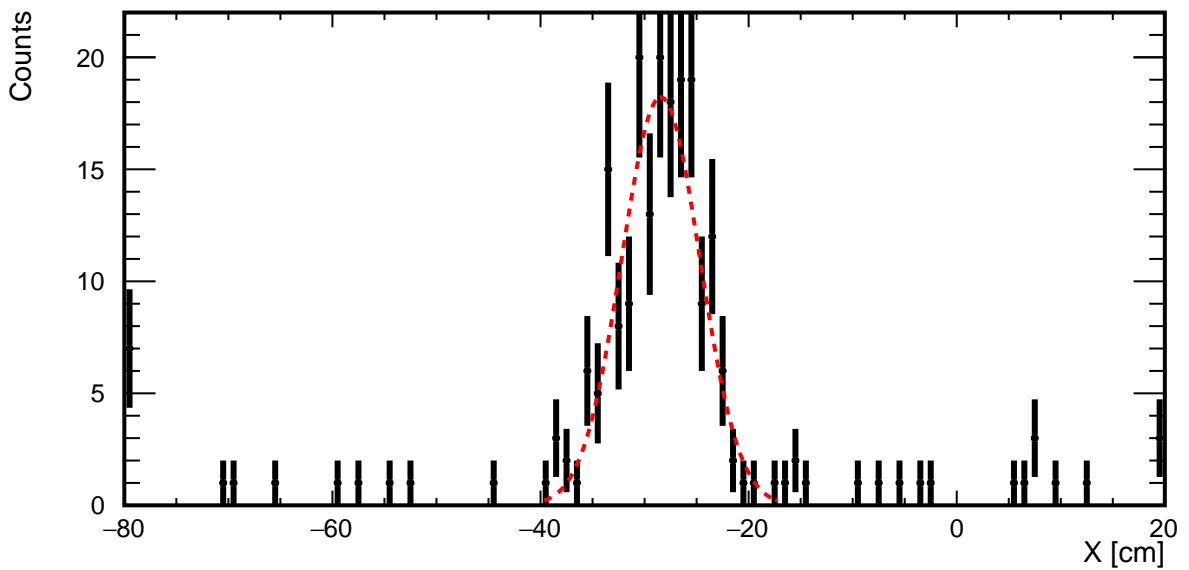
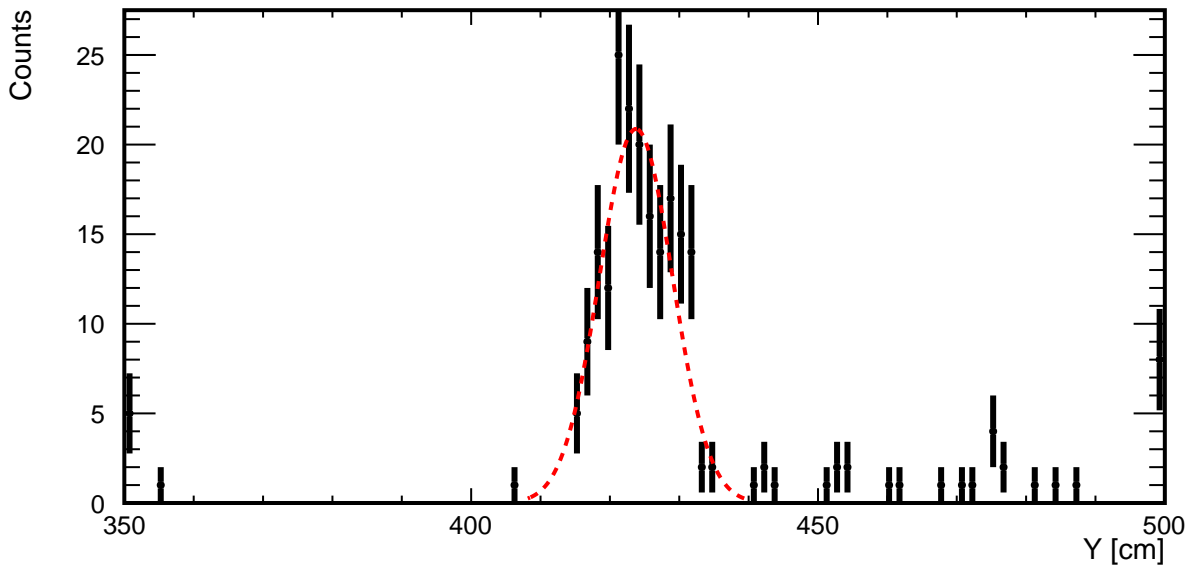
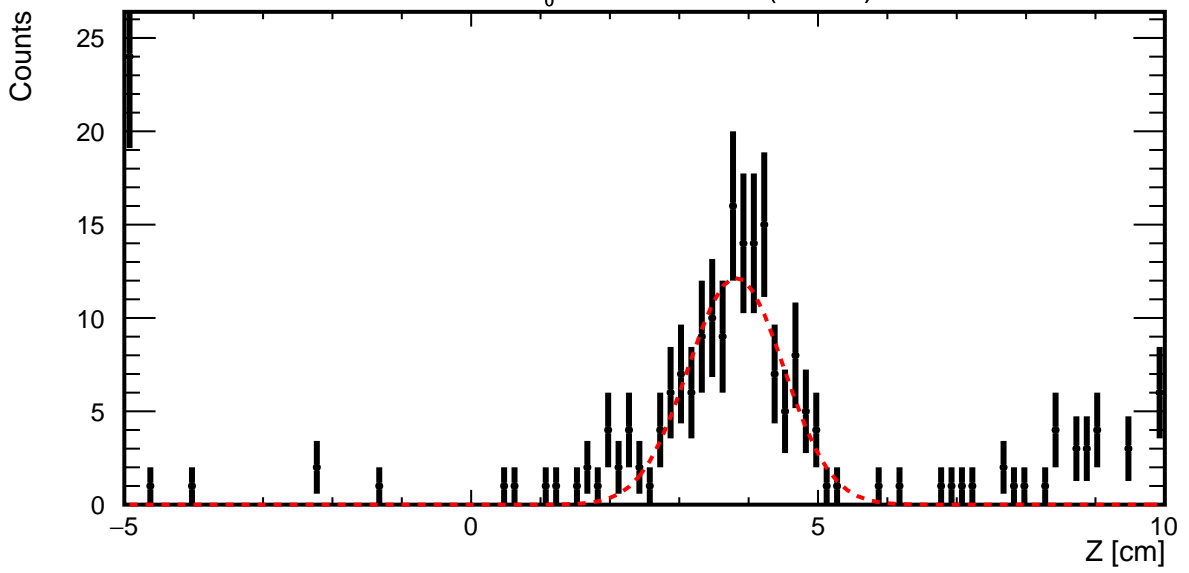


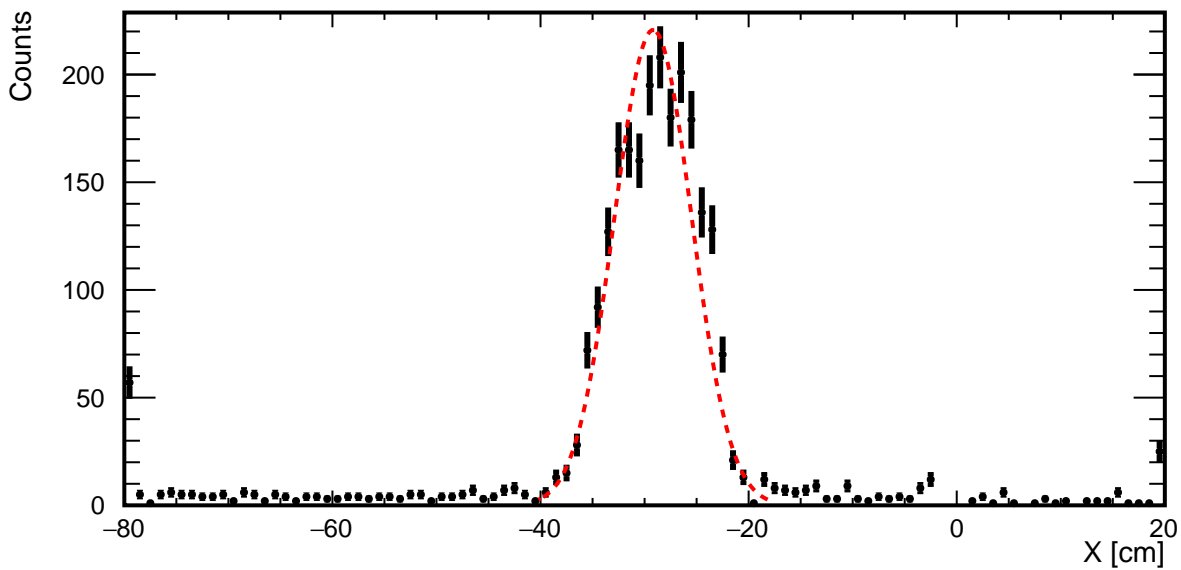
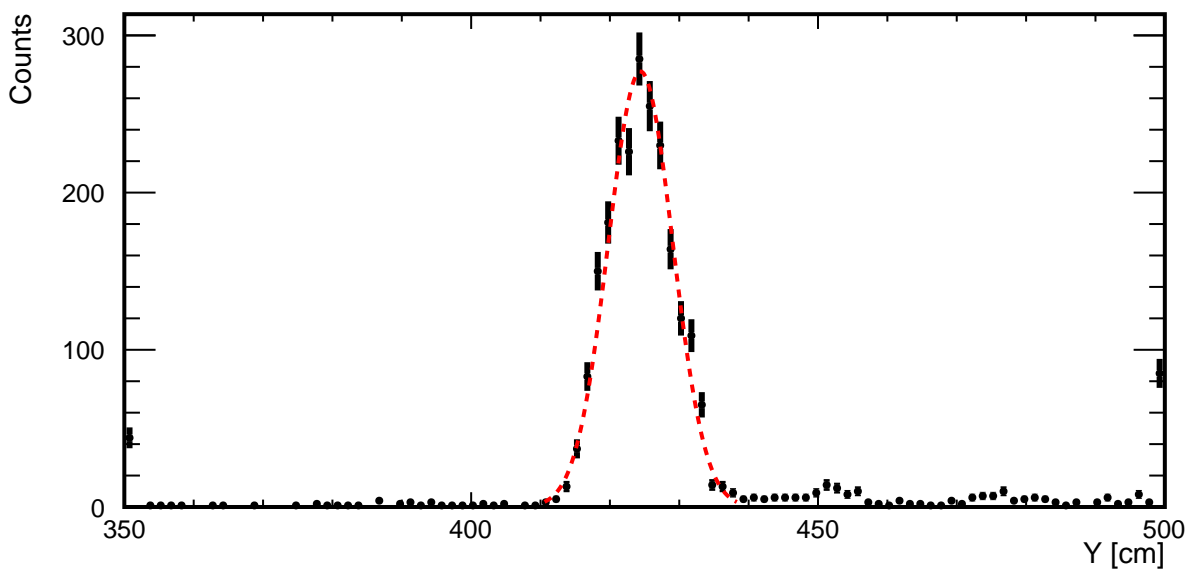
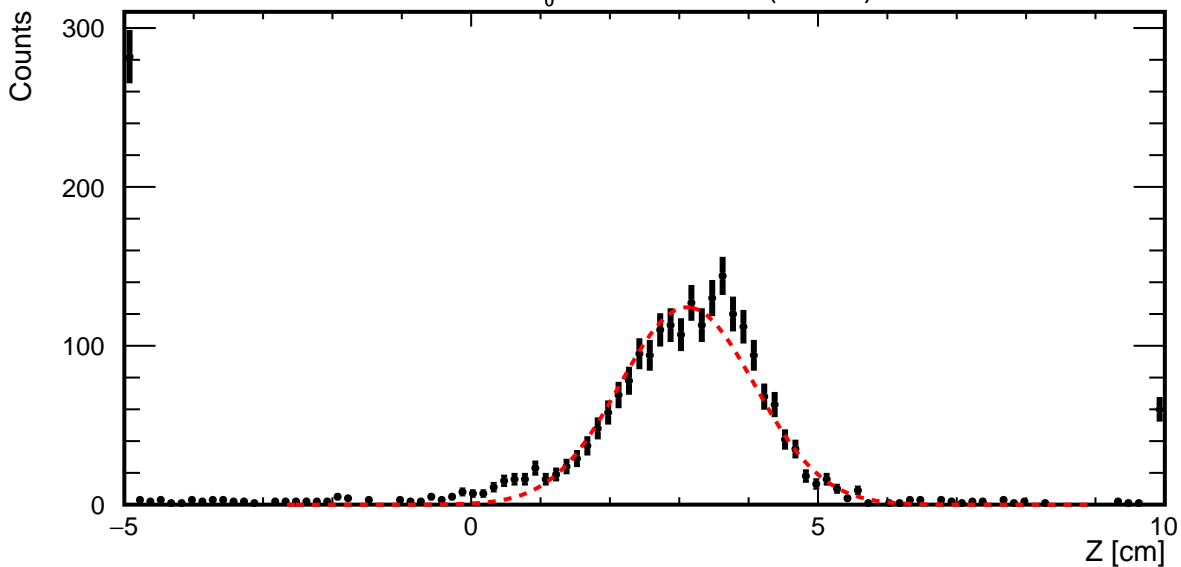
Run 5455:  $t_0$ : Oct 23 05:12 2018 (1.40 hrs)



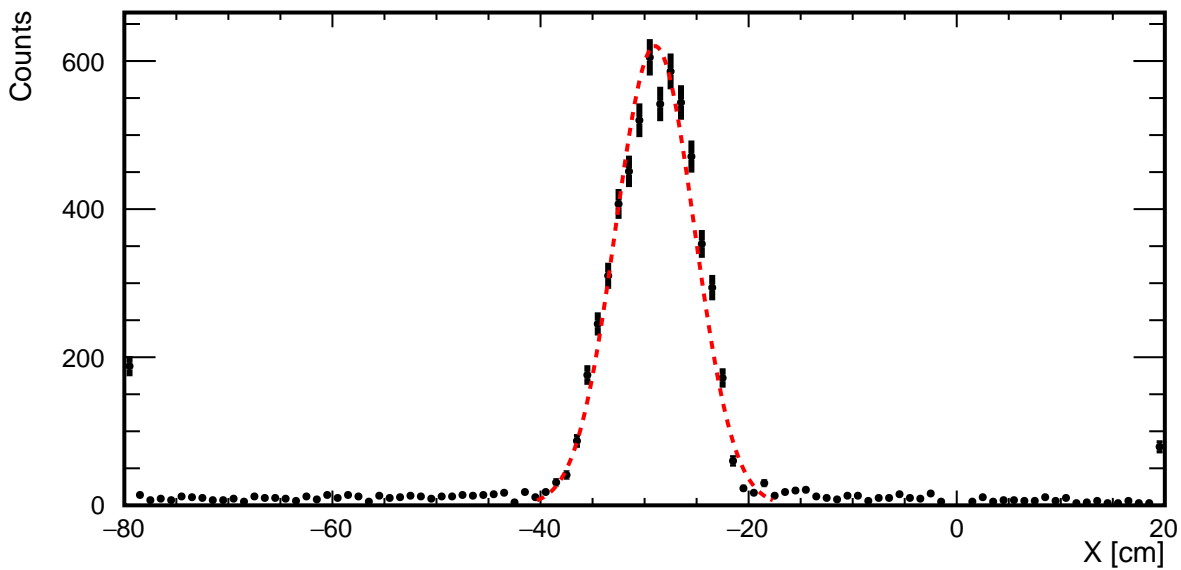
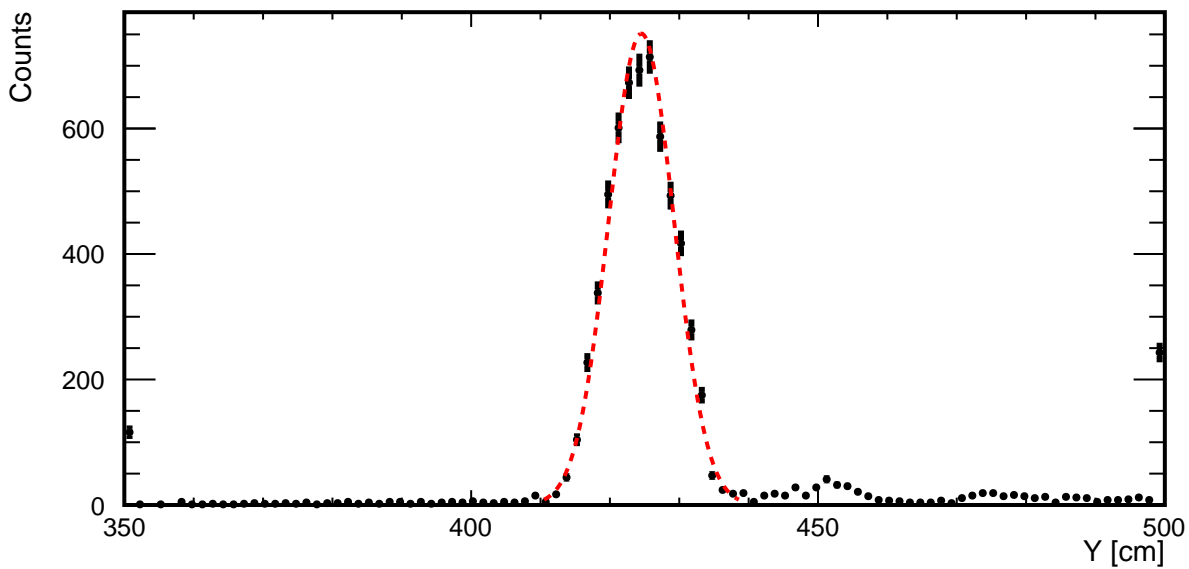
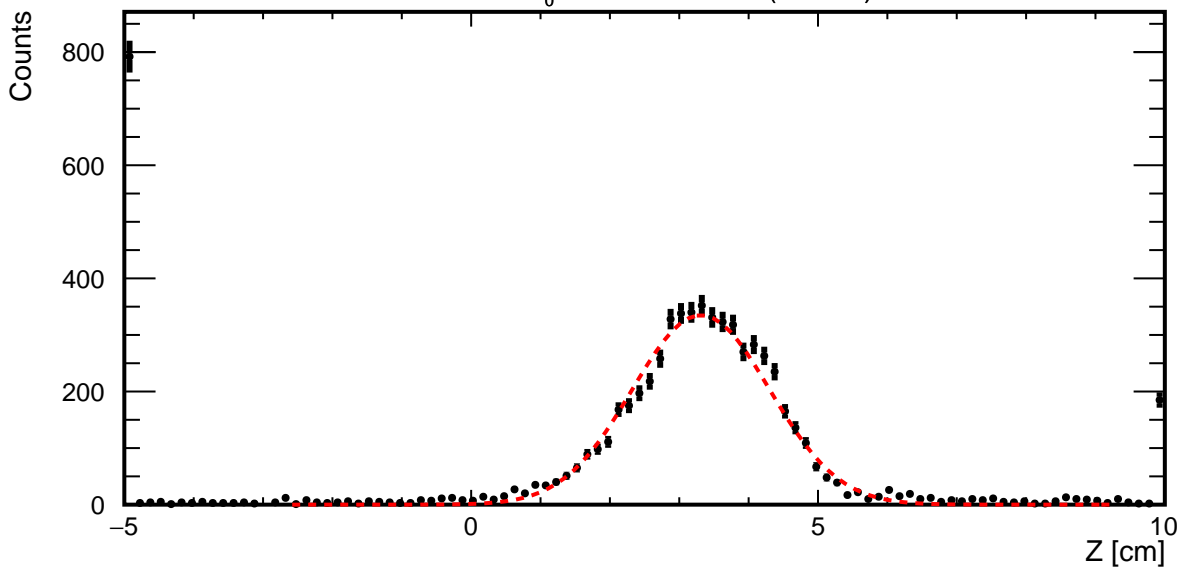


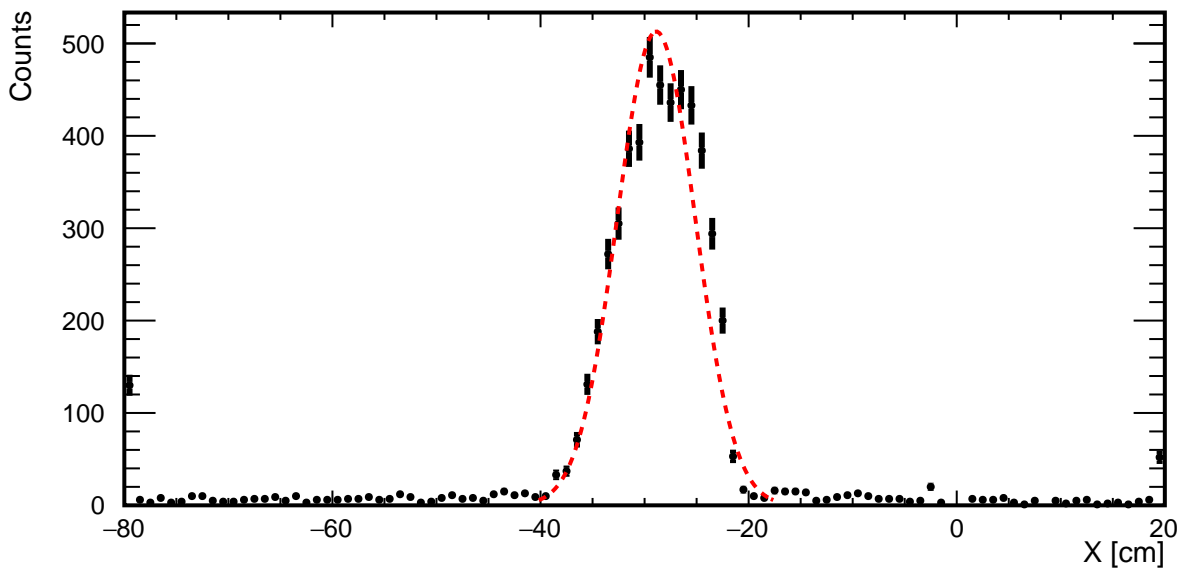
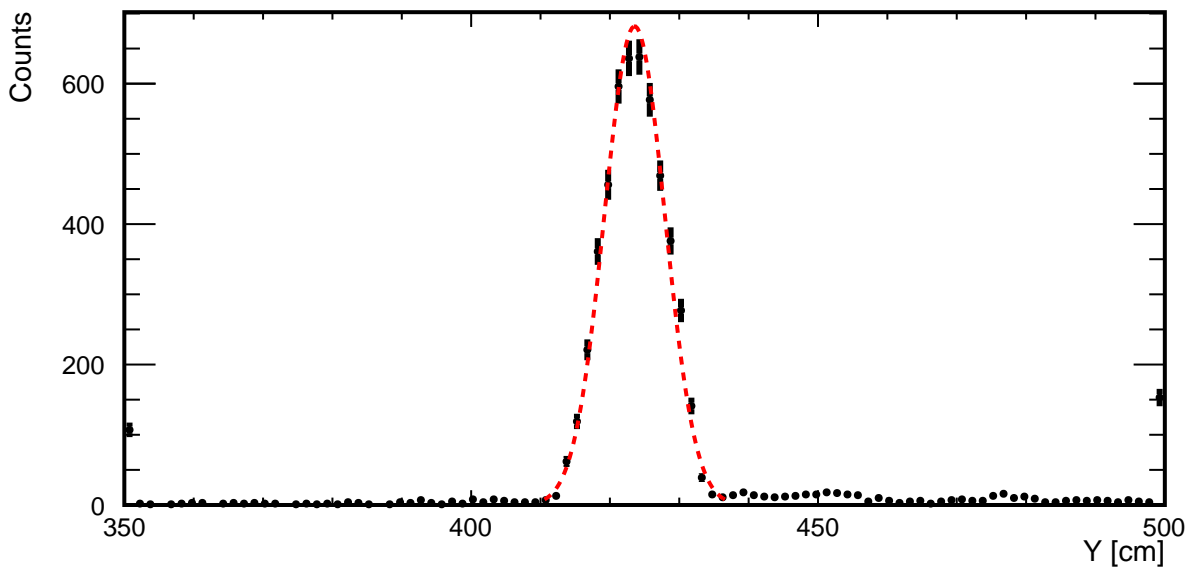
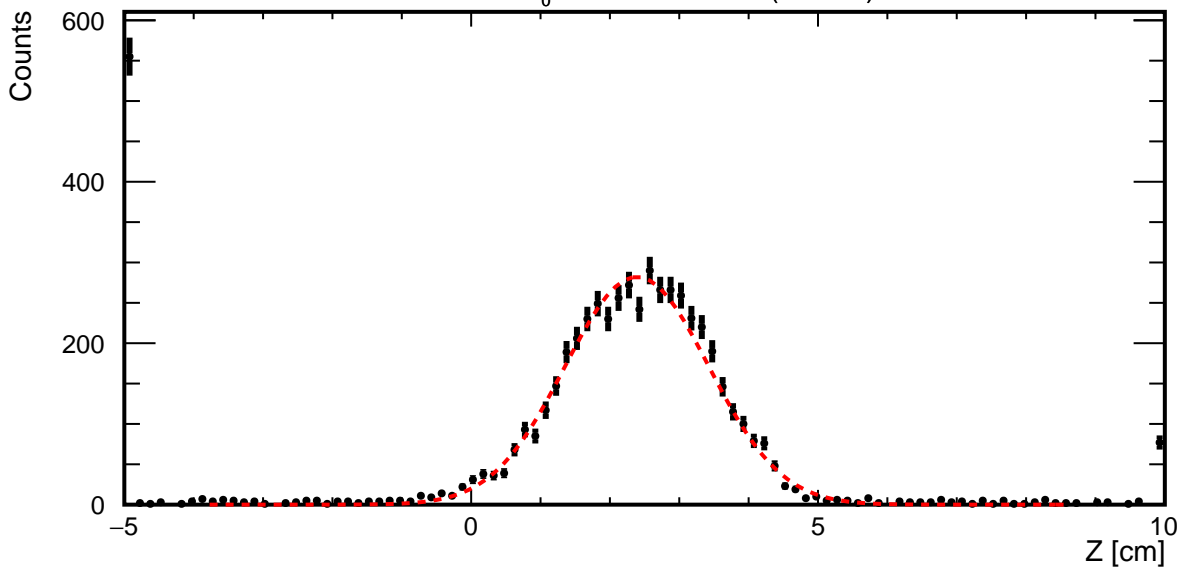




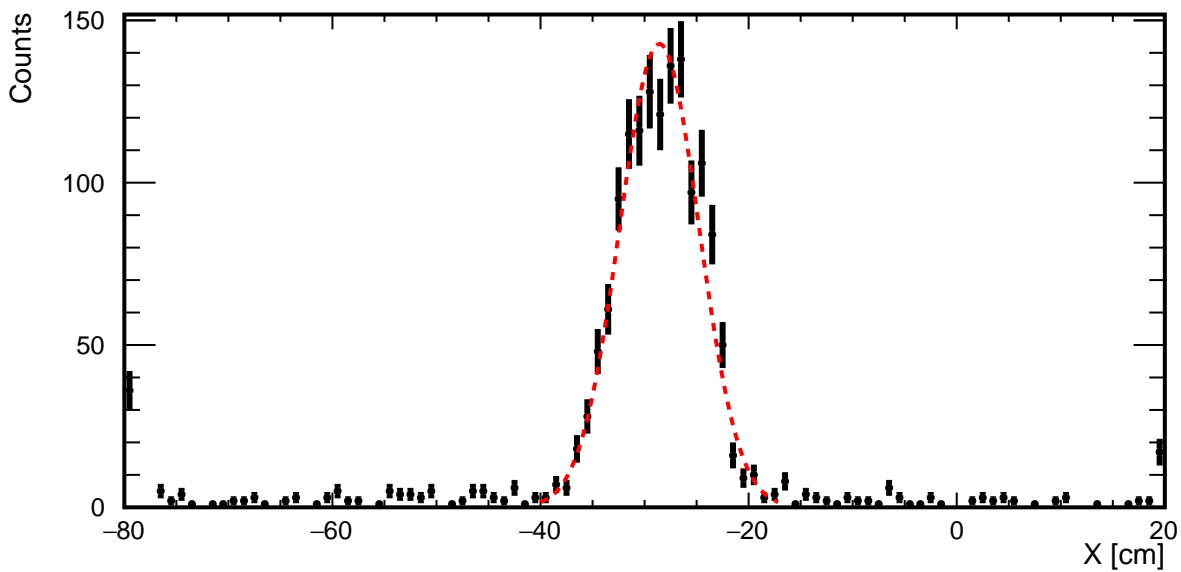
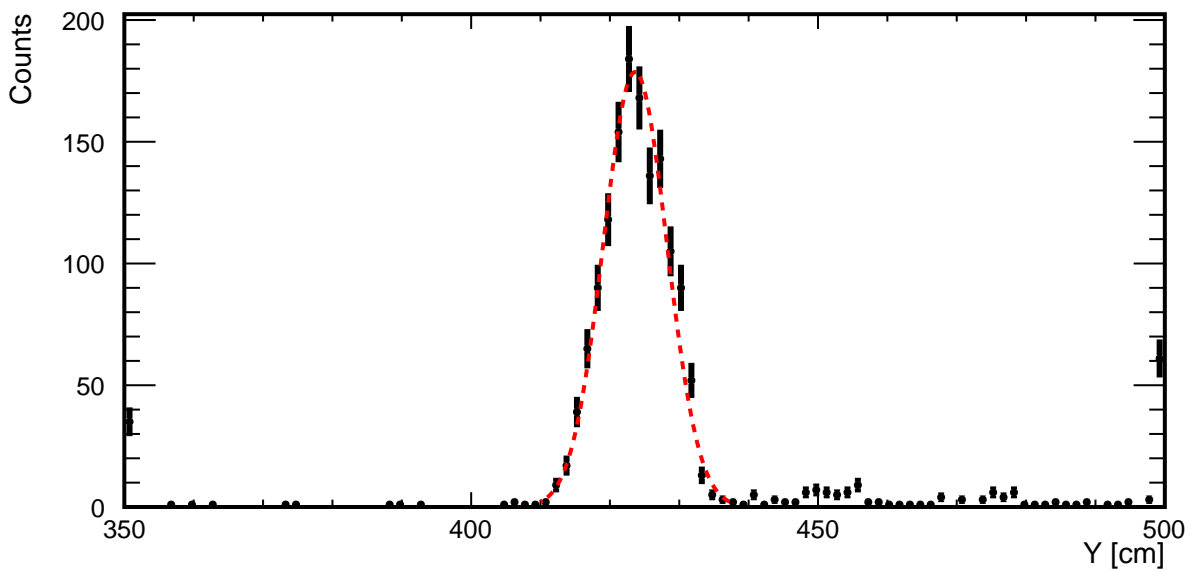
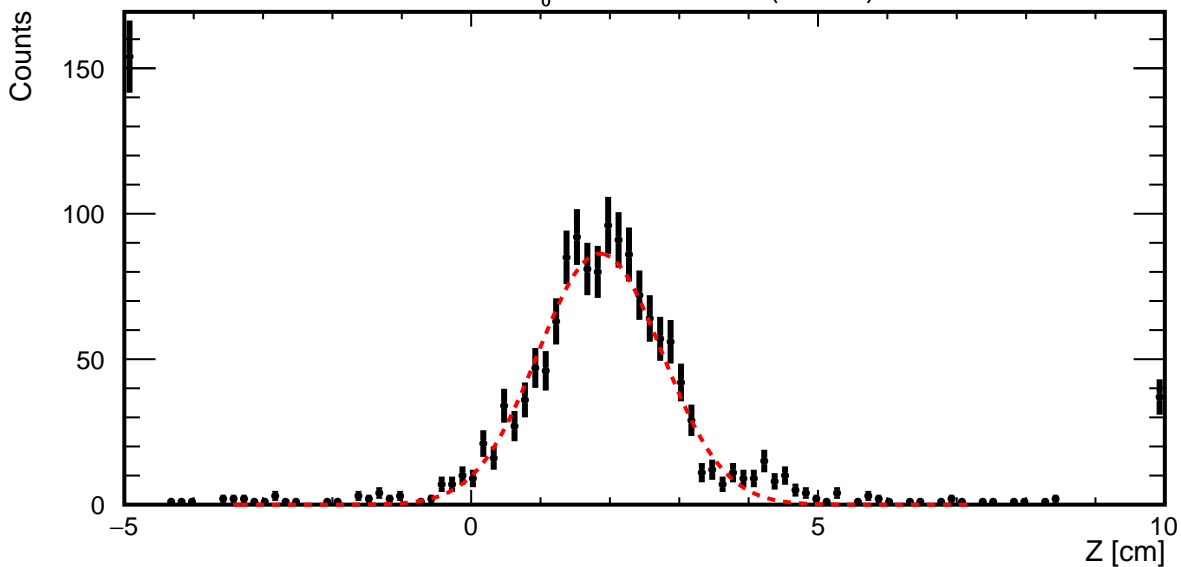


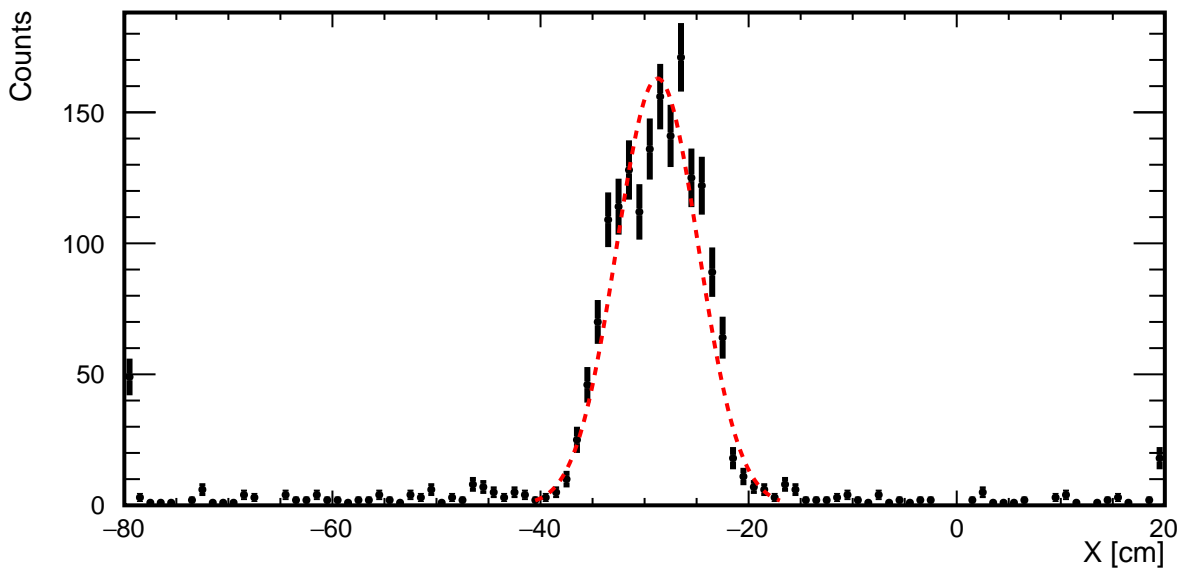
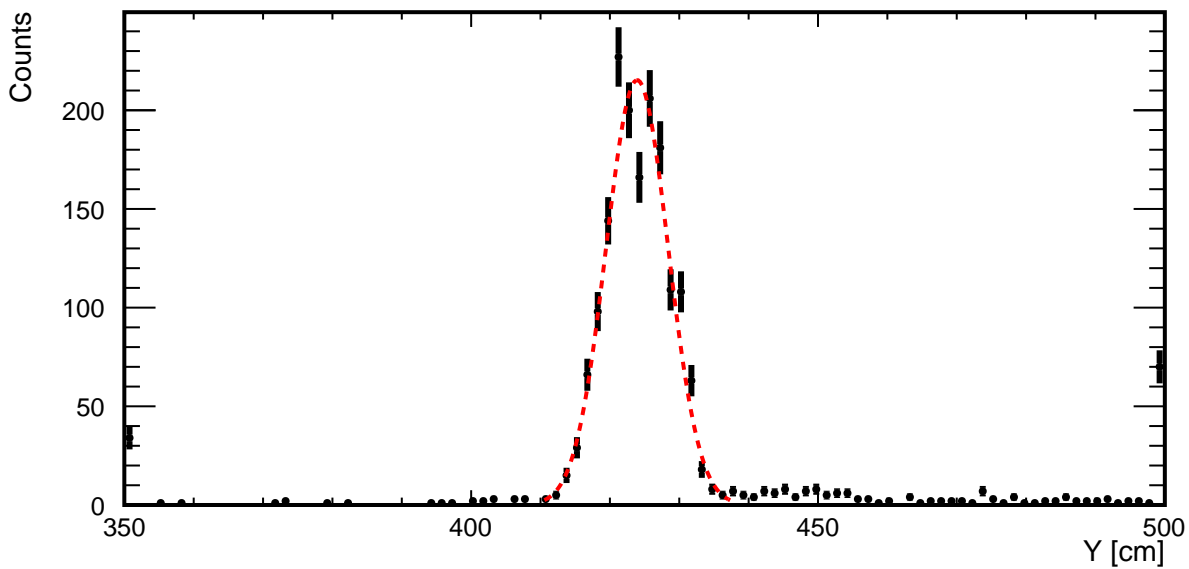
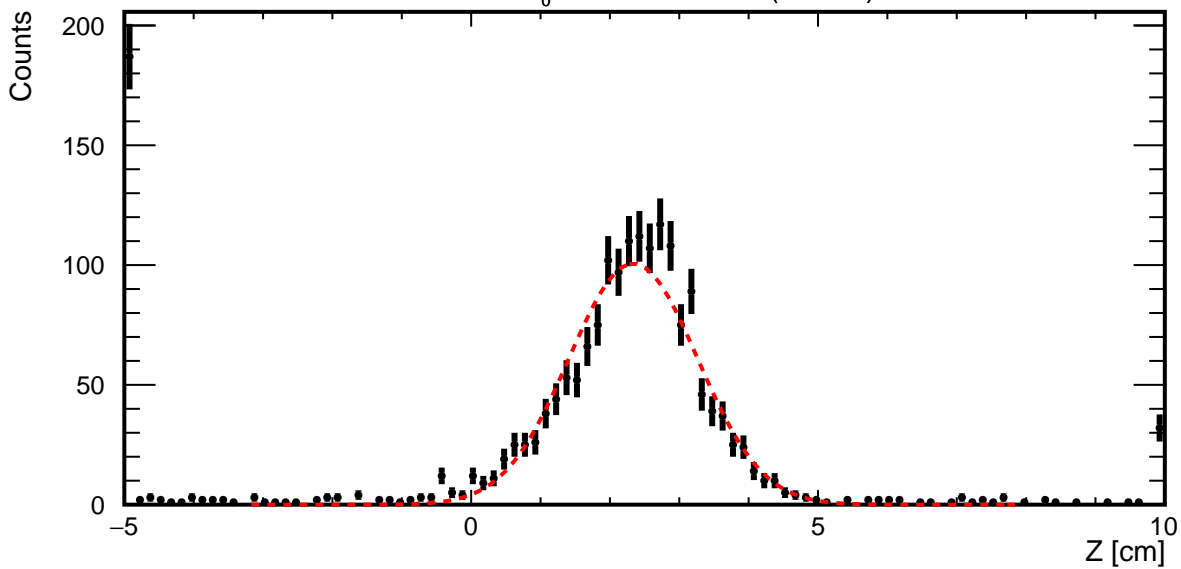
Run 5460:  $t_0$ : Oct 23 15:33 2018 (9.55 hrs)



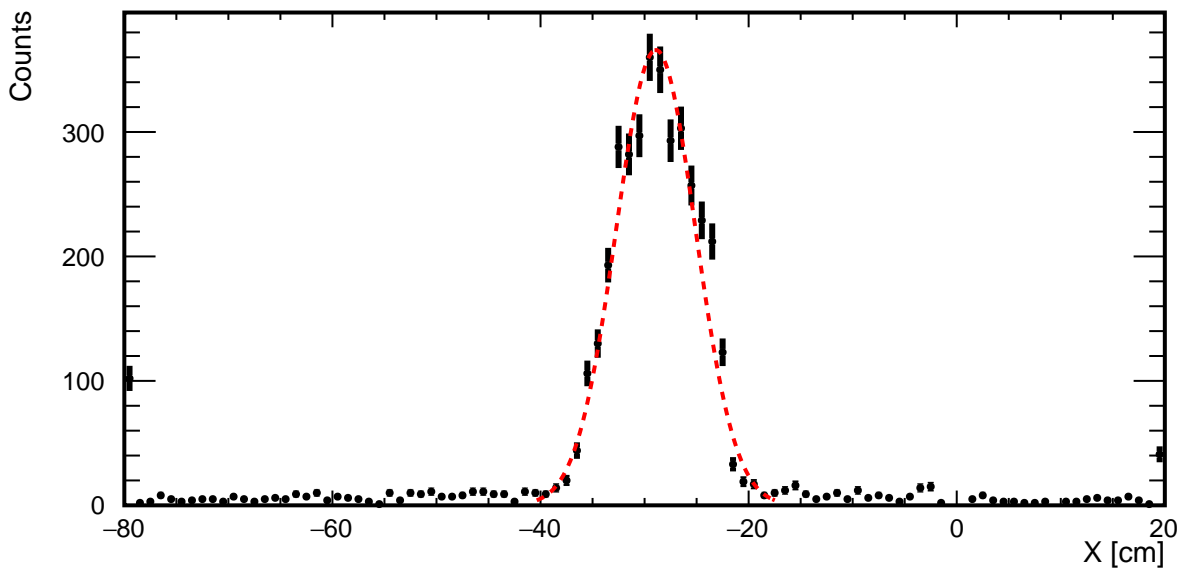
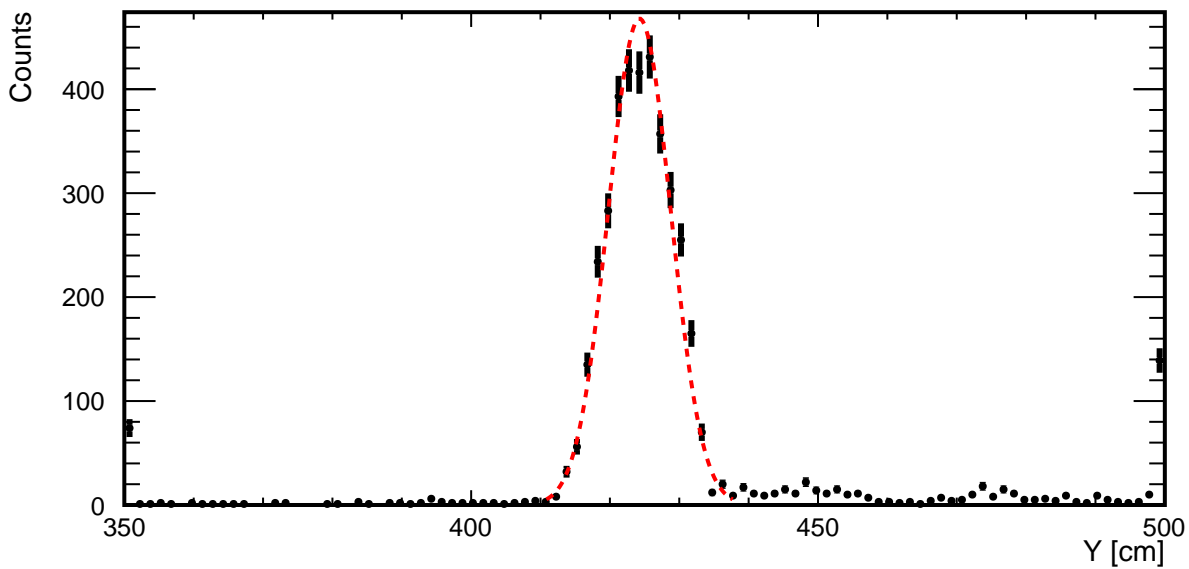
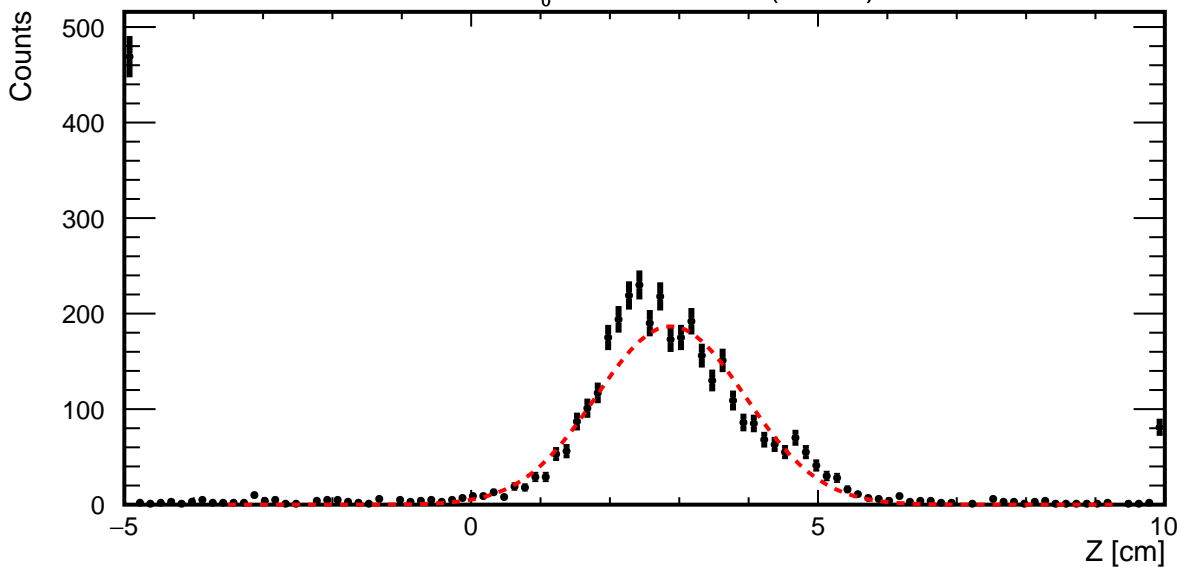


Run 5810:  $t_0$ : Nov 07 19:57 2018 (2.57 hrs)

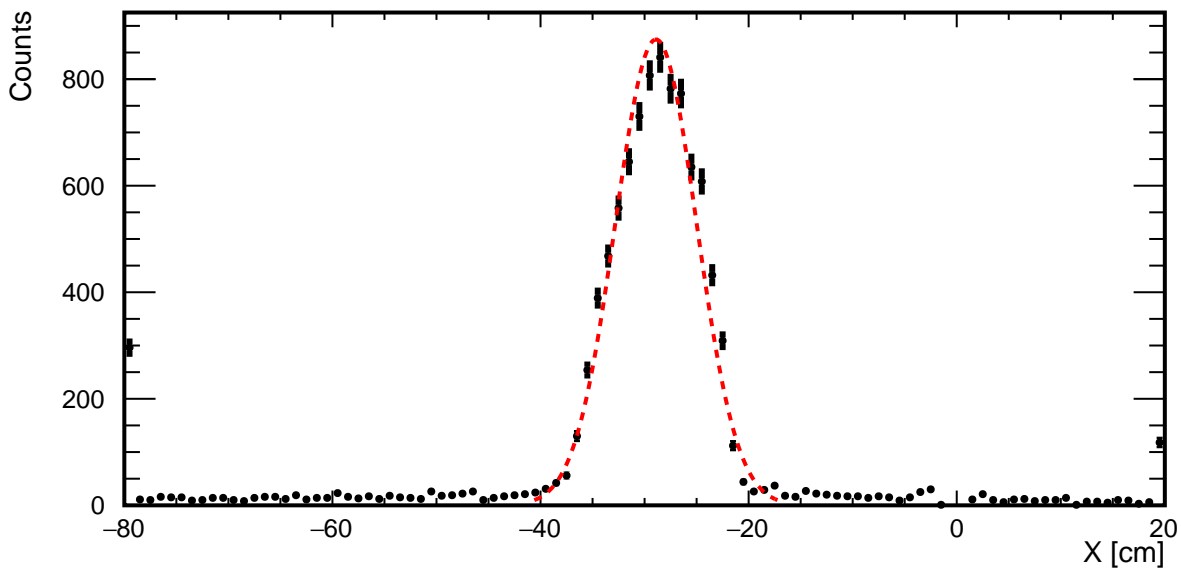
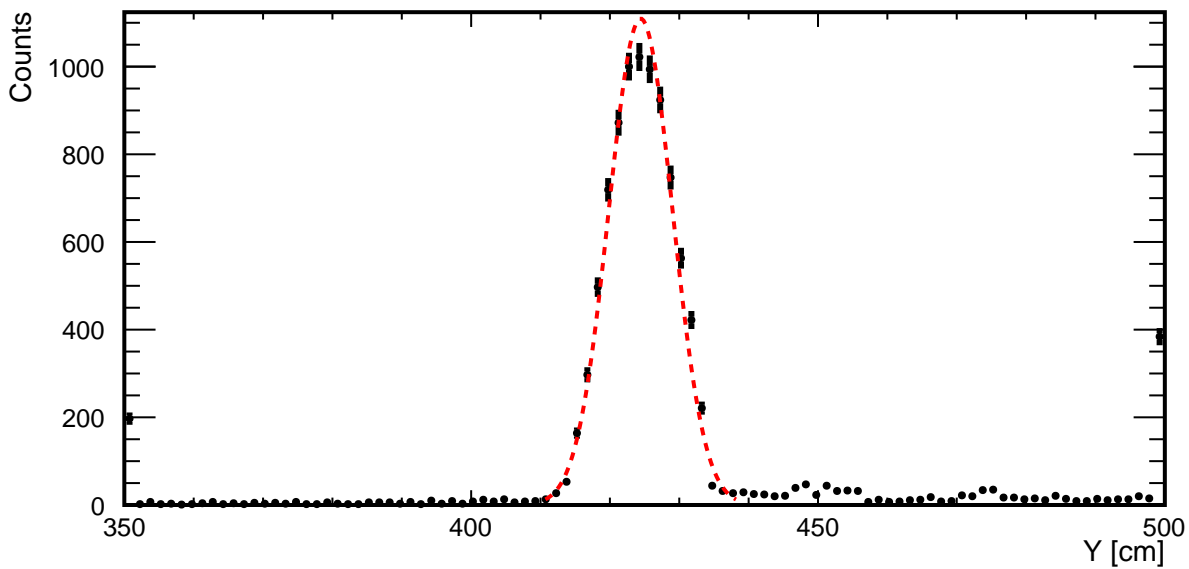
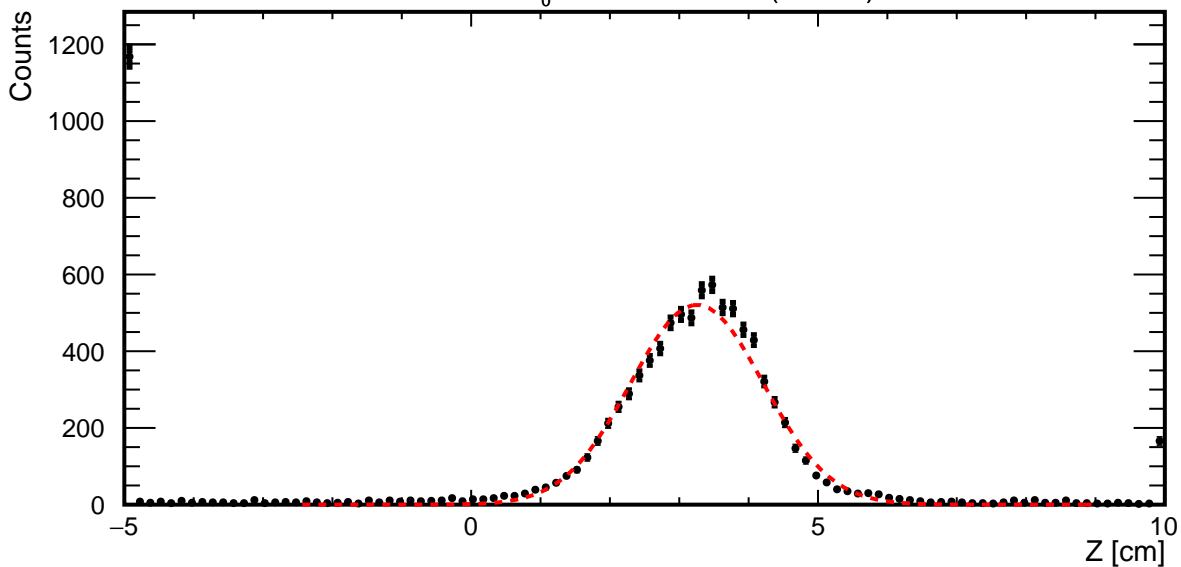




Run 5816:  $t_0$ : Nov 08 12:21 2018 (3.58 hrs)

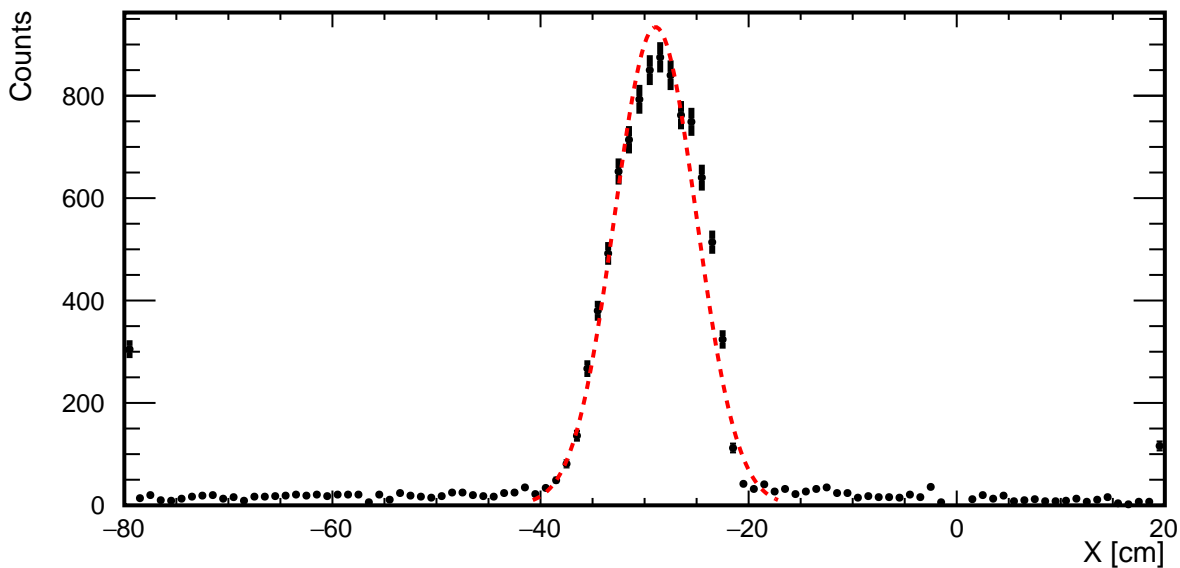
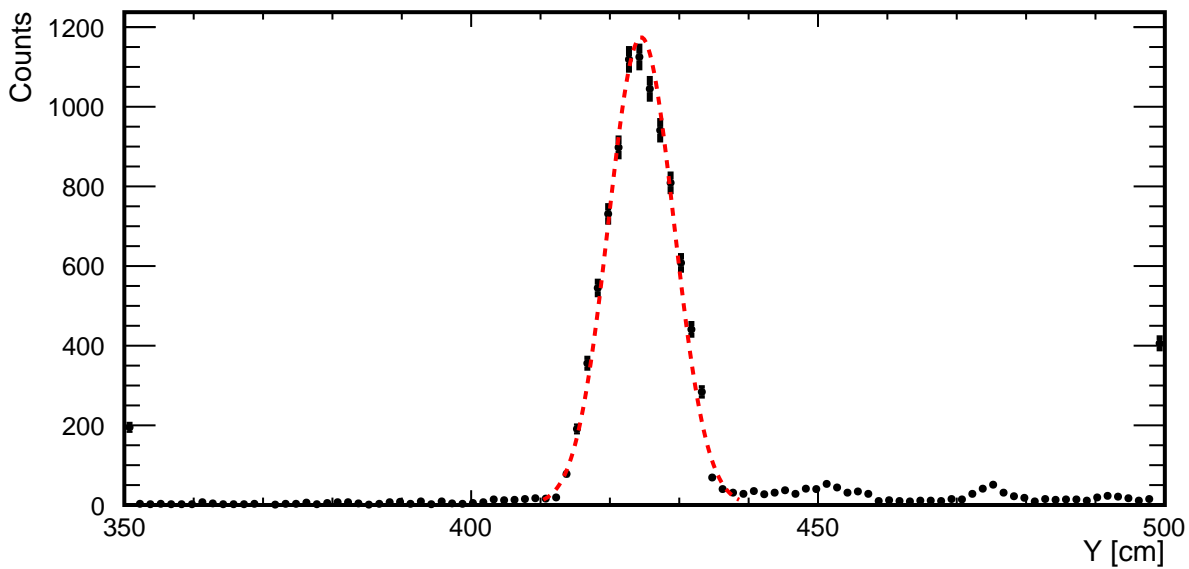
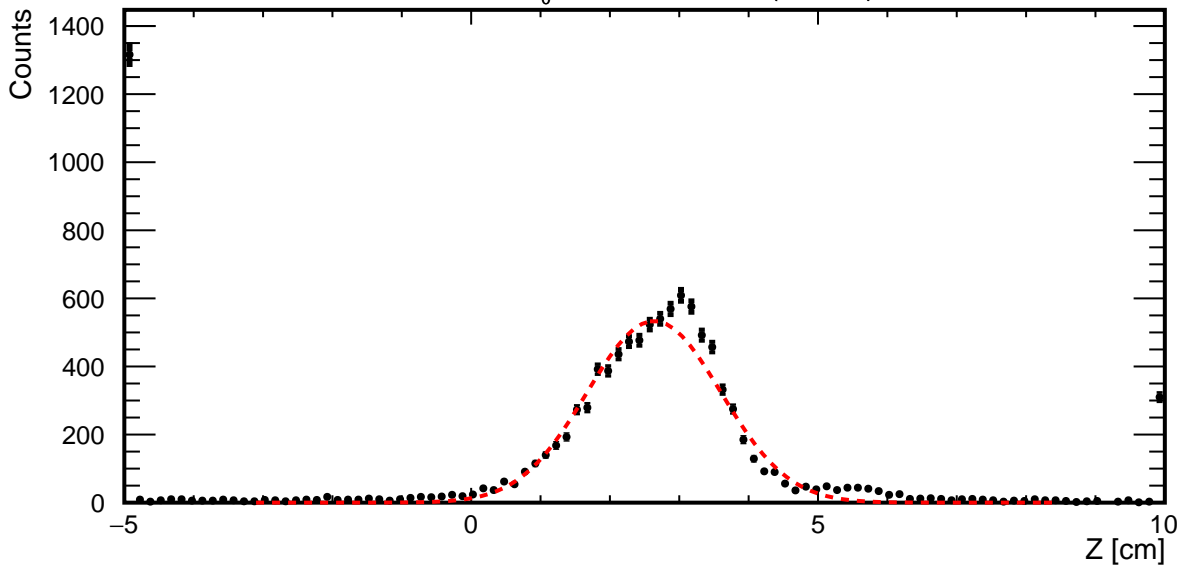


Run 5817:  $t_0$ : Nov 08 17:11 2018 (7.52 hrs)

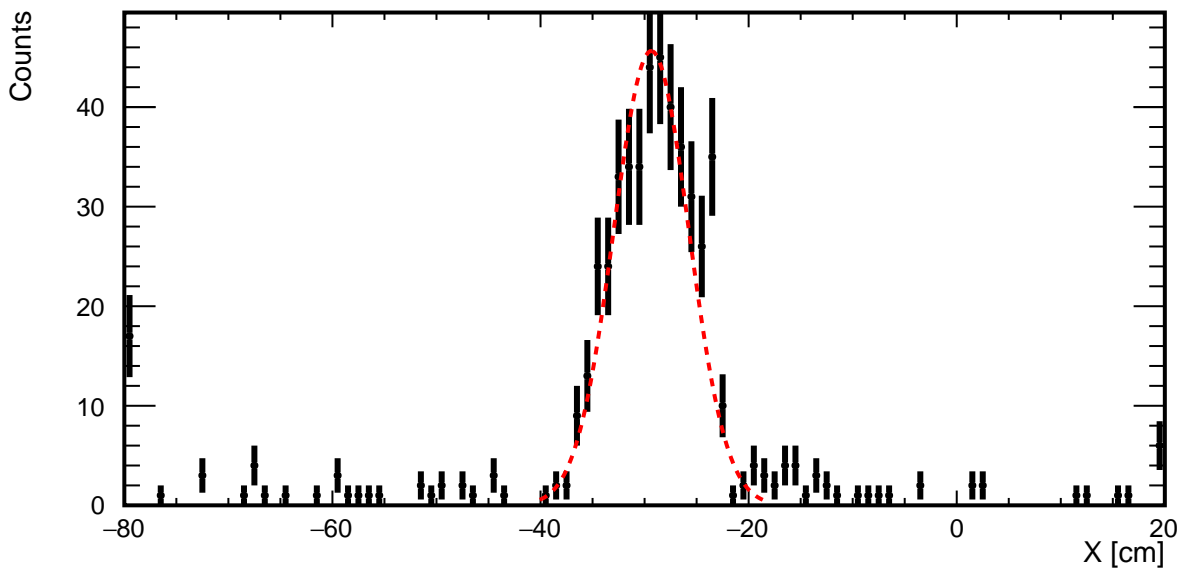
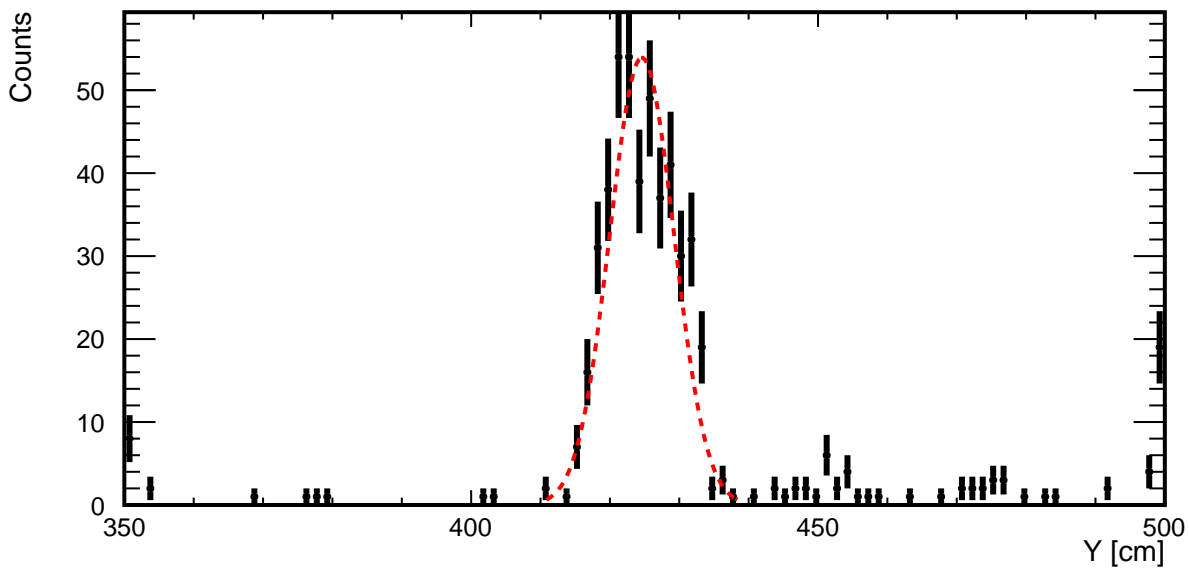
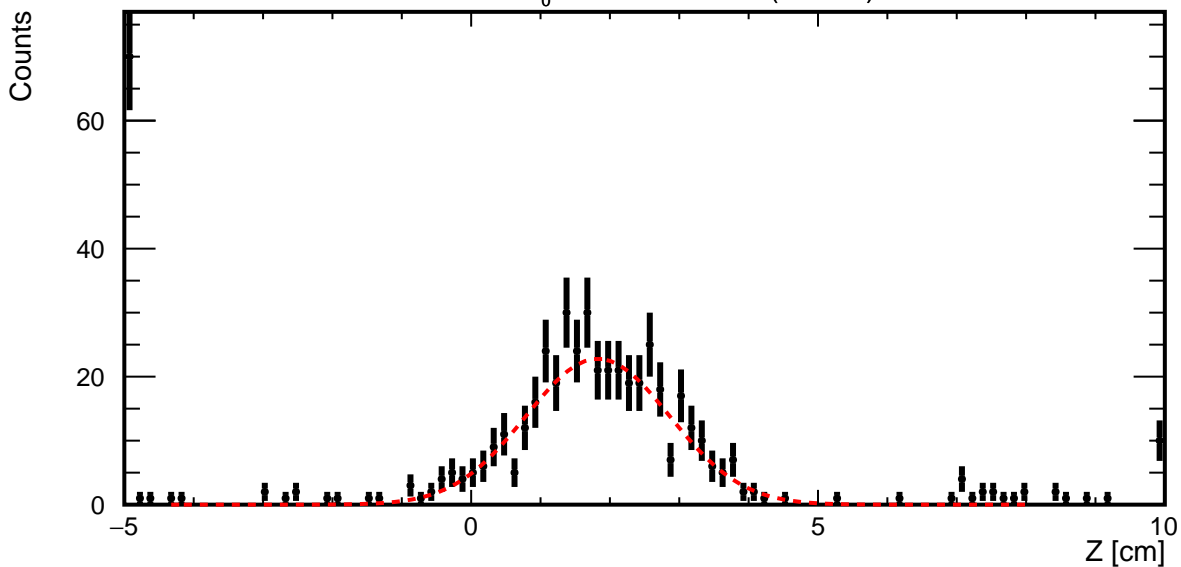


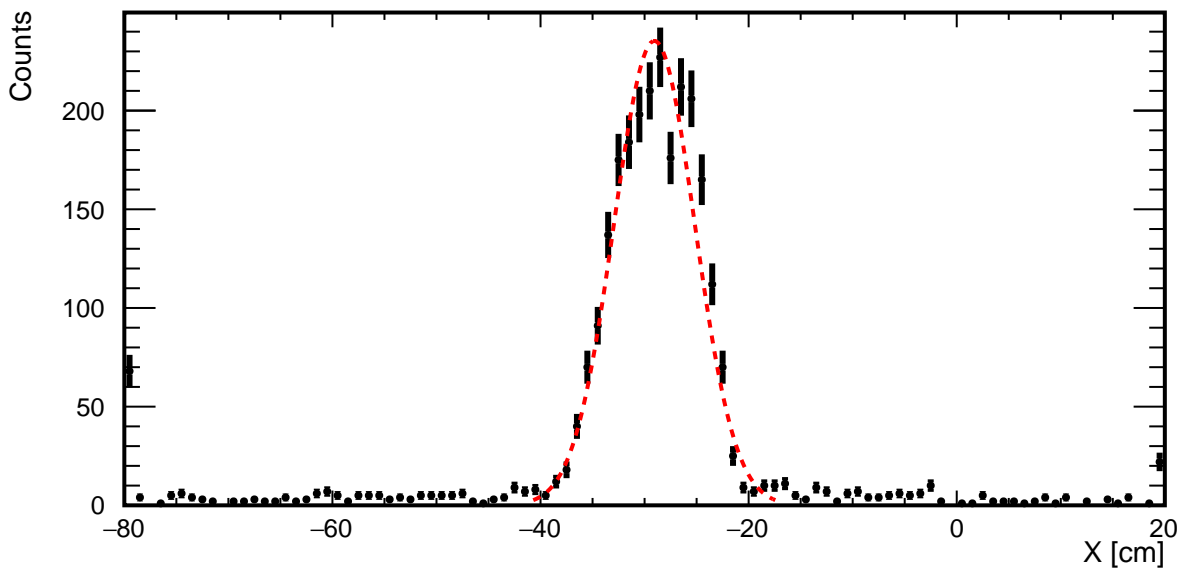
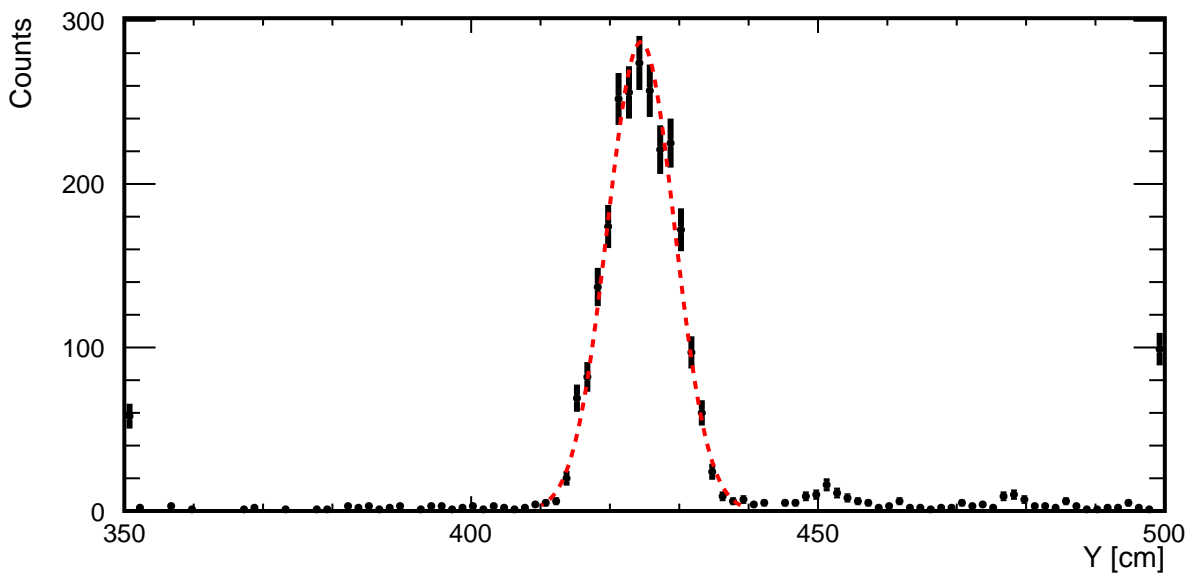
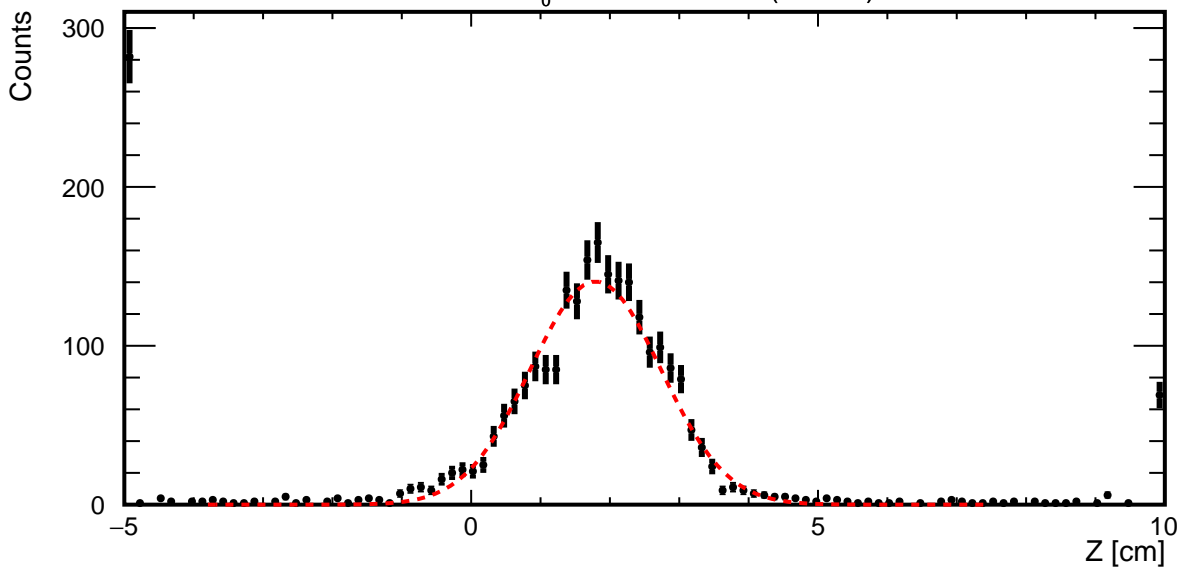


Run 5842:  $t_0$ : Nov 11 15:18 2018 (6.02 hrs)

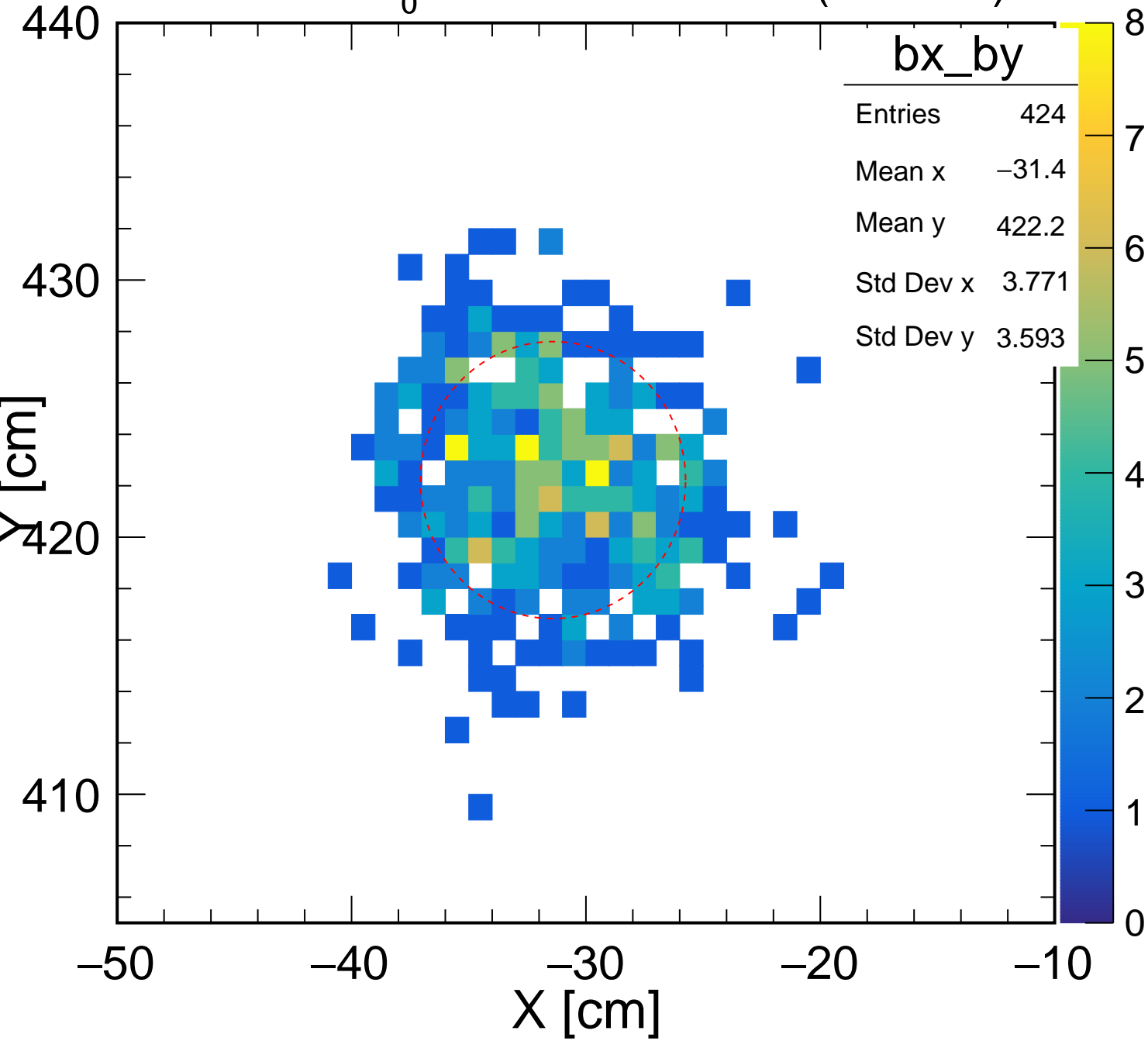


Run 5843:  $t_0$ : Nov 11 21:32 2018 (1.43 hrs)

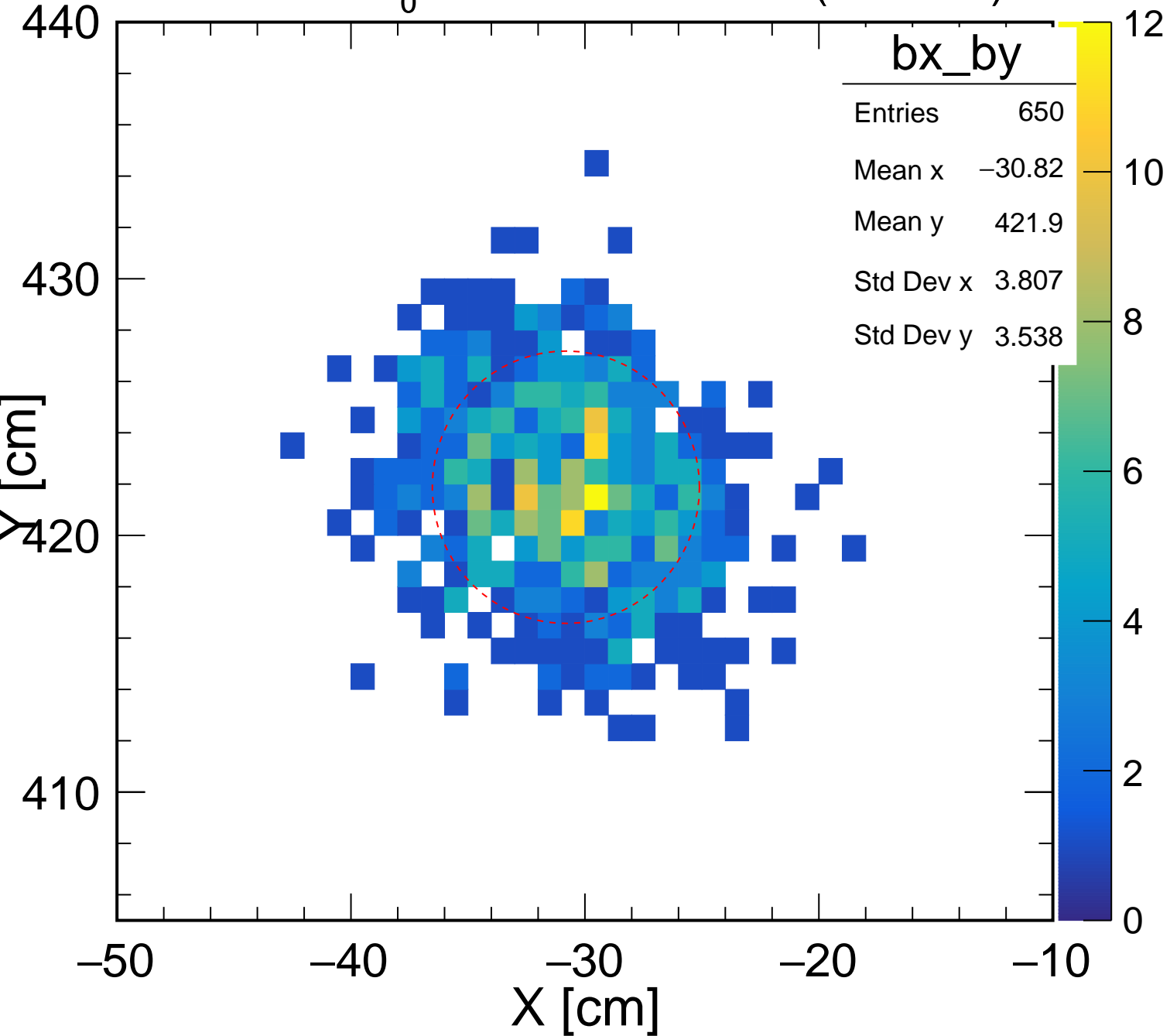




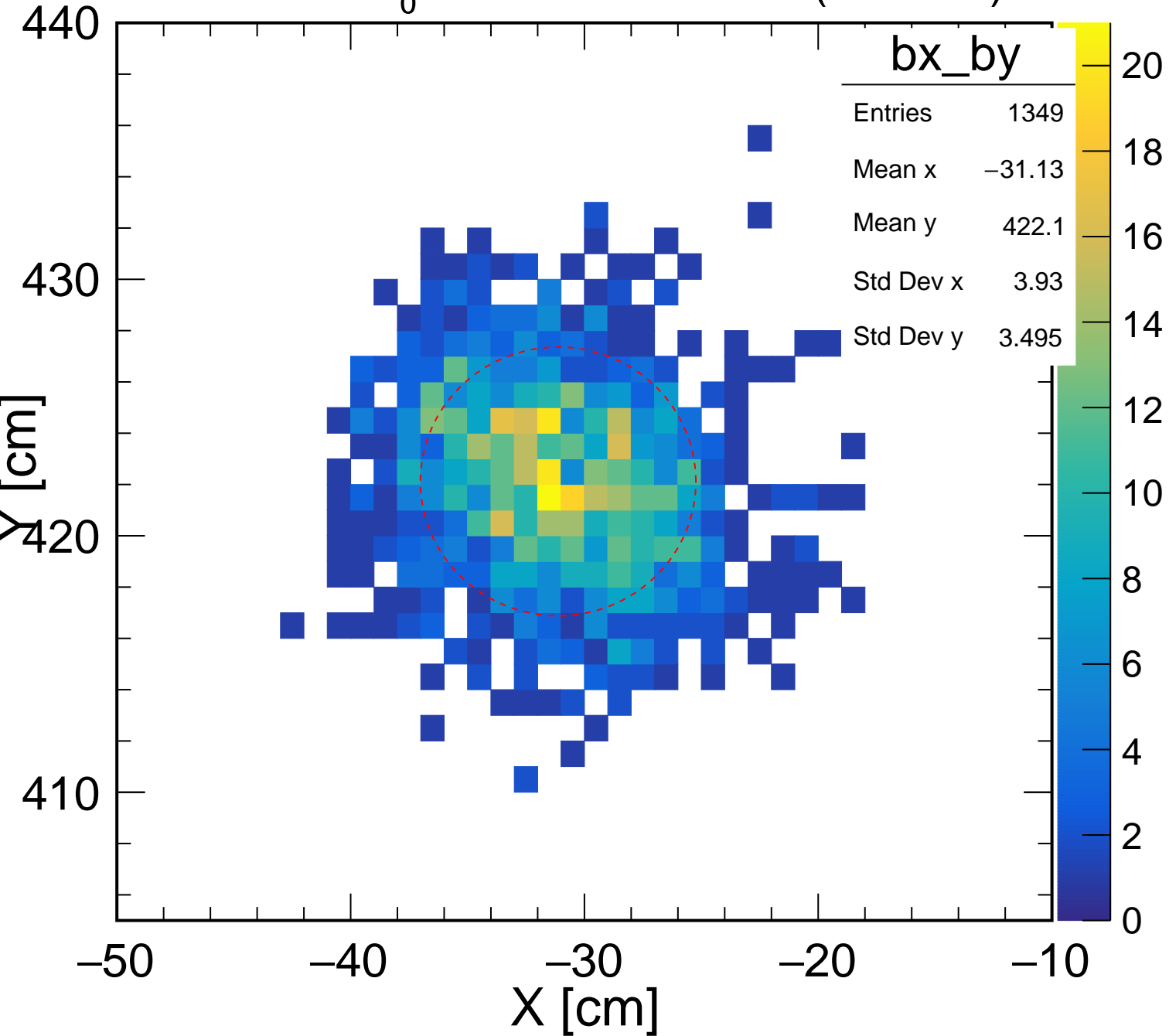
Run 5219:  $t_0$ : Oct 12 03:54 2018 (0.61 hrs)



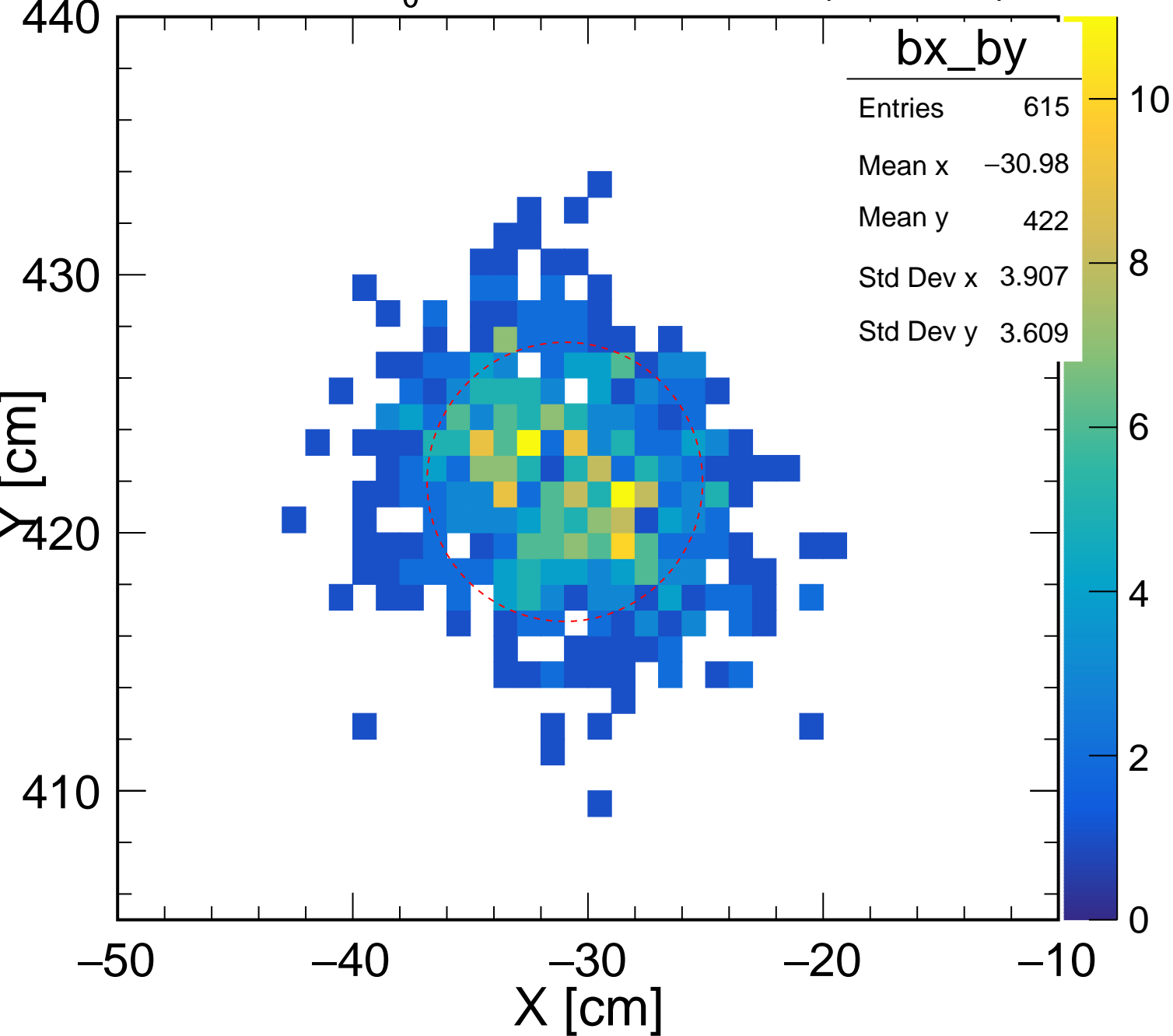
Run 5225:  $t_0$ : Oct 12 05:20 2018 (0.80 hrs)



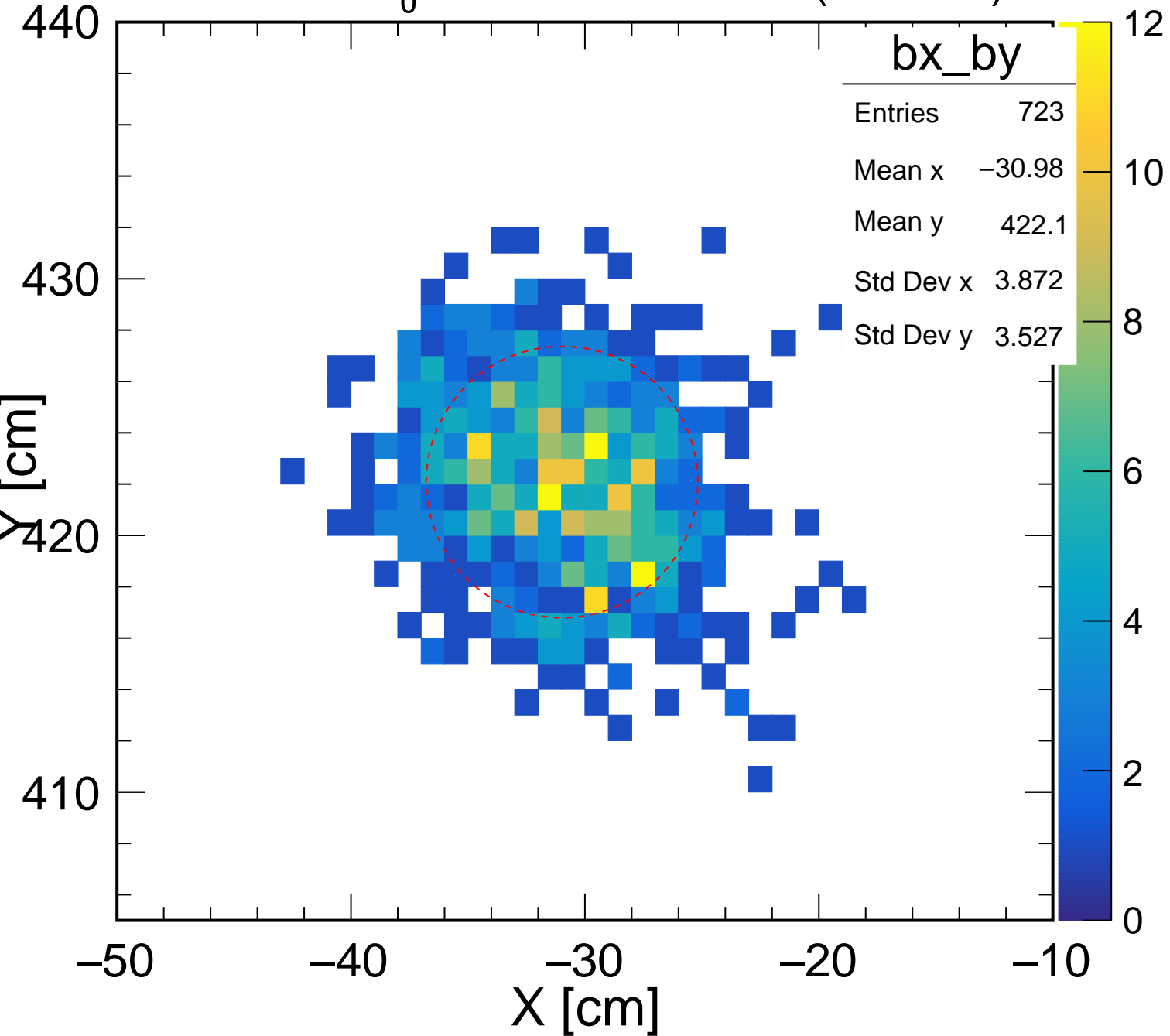
Run 5235:  $t_0$ : Oct 12 09:08 2018 (1.02 hrs)



Run 5240:  $t_0$ : Oct 12 10:35 2018 (0.45 hrs)

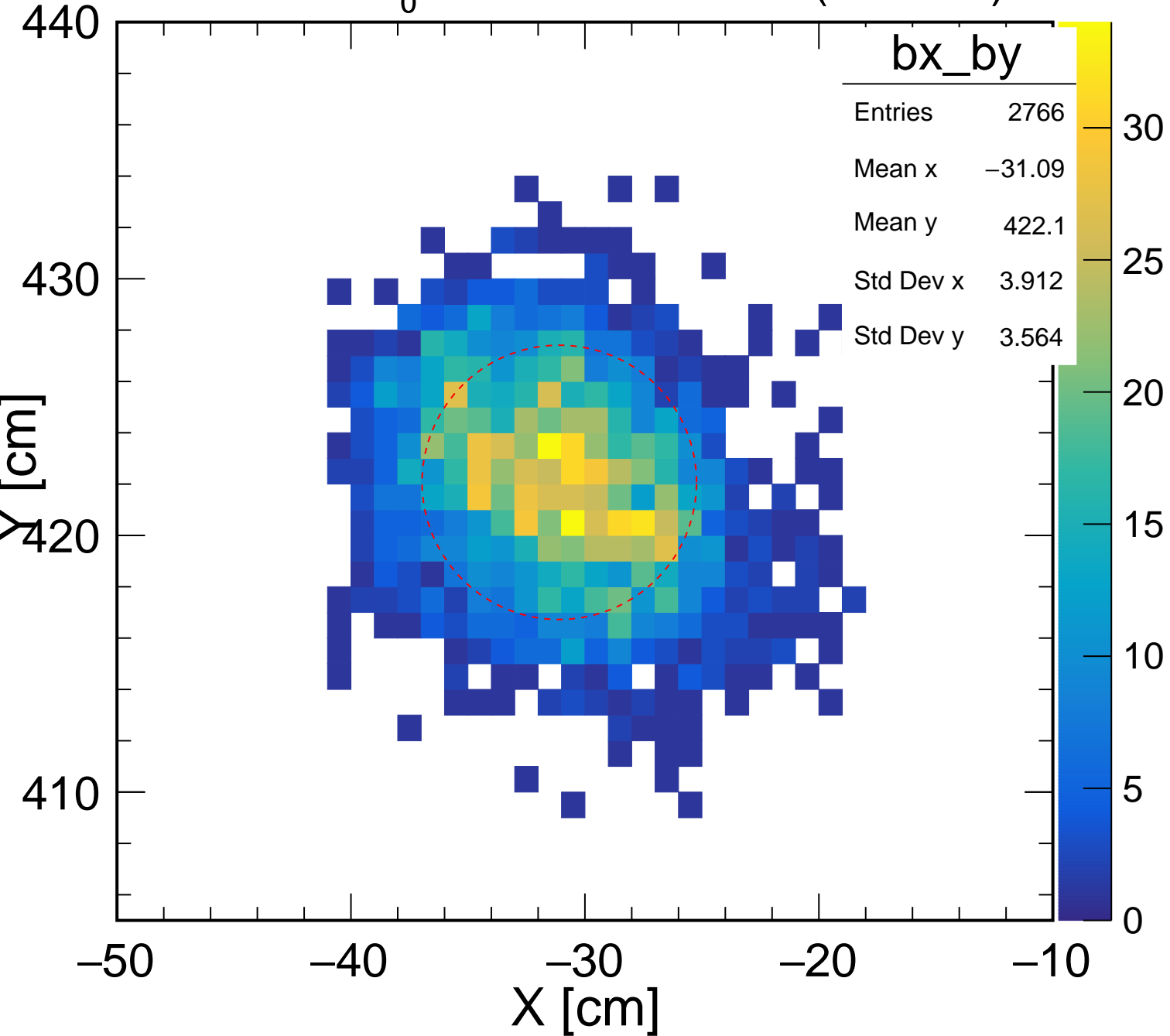


Run 5244:  $t_0$ : Oct 12 11:09 2018 (0.69 hrs)

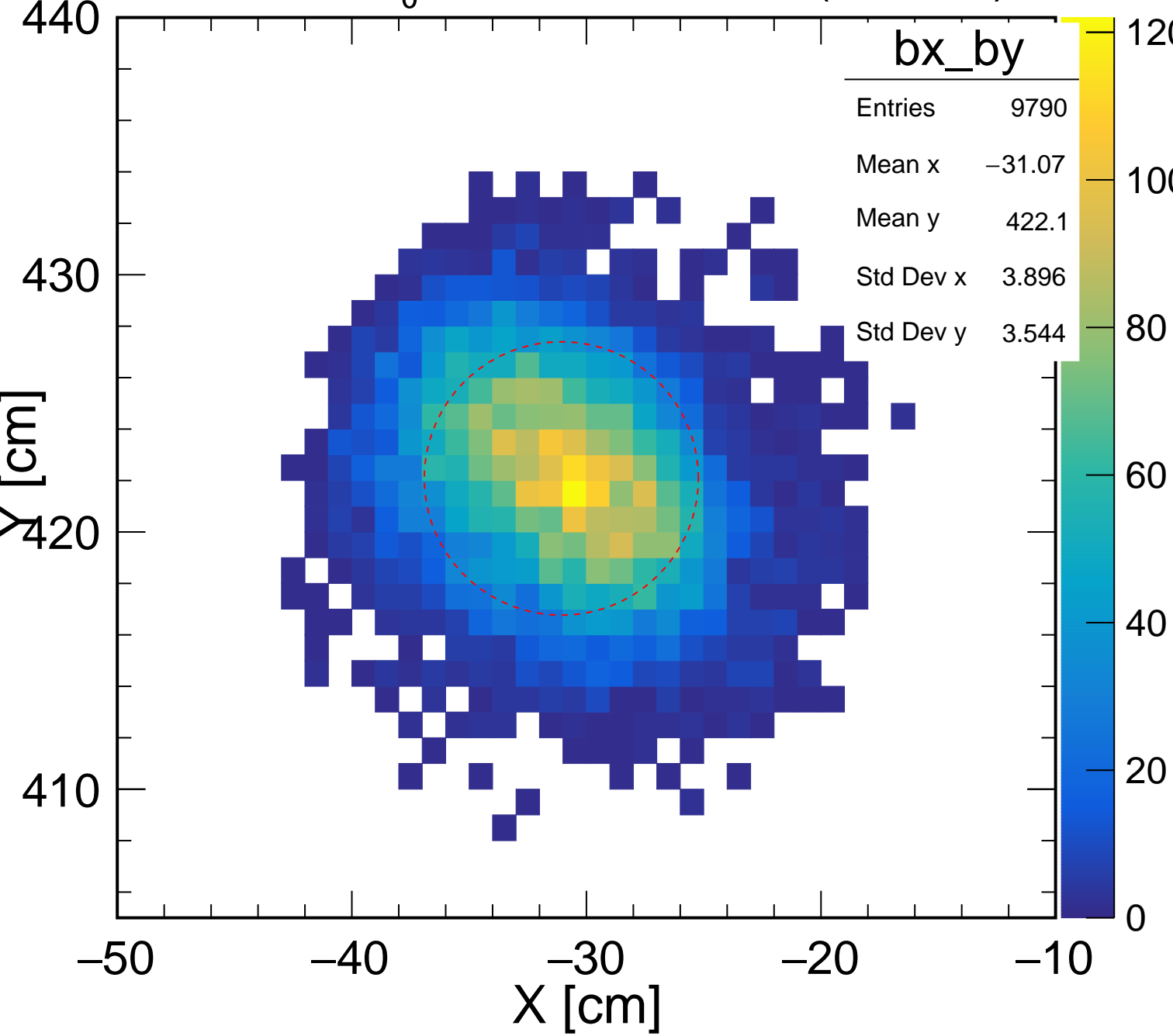




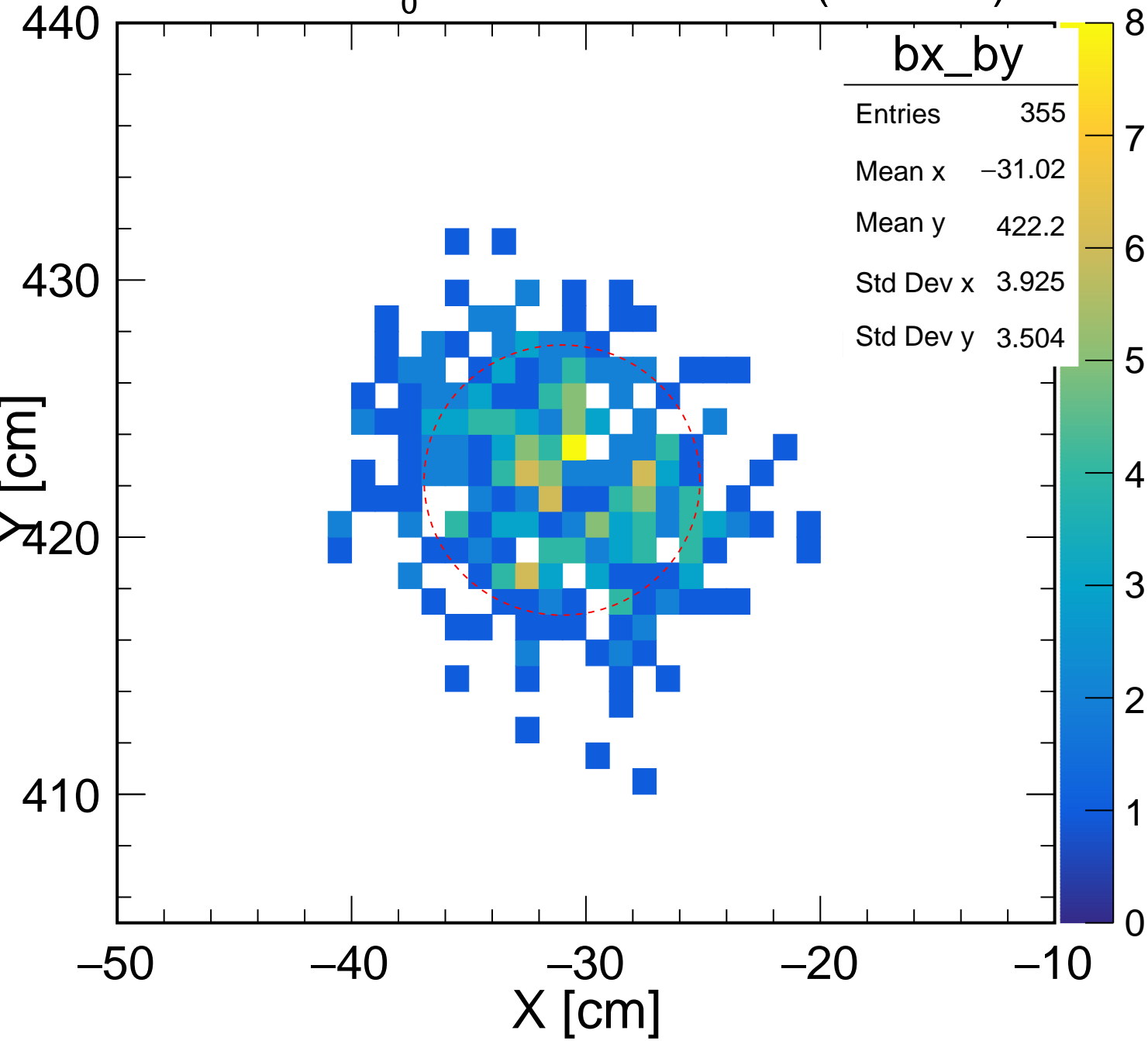
Run 5308:  $t_0$ : Oct 15 09:00 2018 (2.24 hrs)



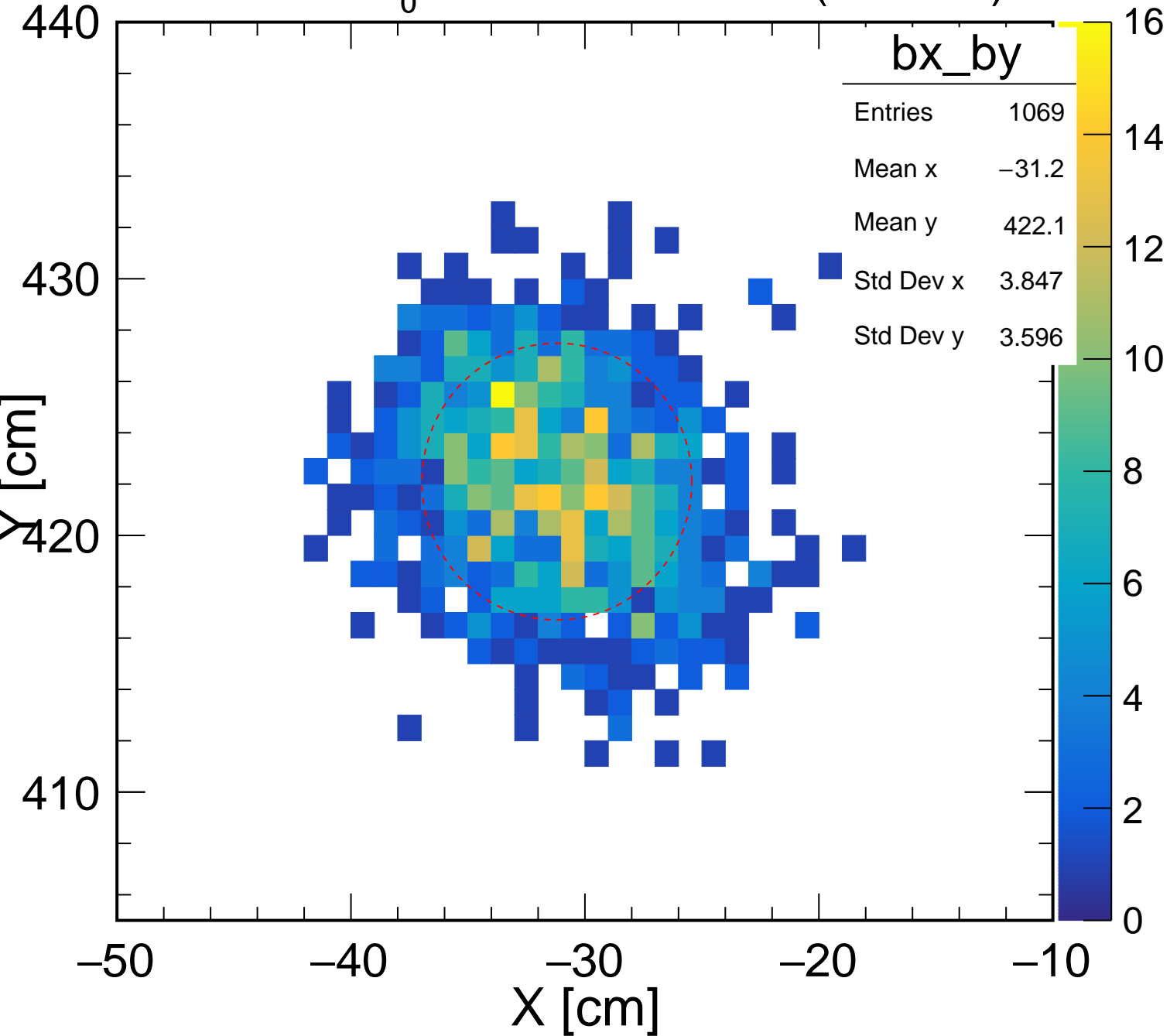
Run 5311:  $t_0$ : Oct 15 11:30 2018 (8.41 hrs)



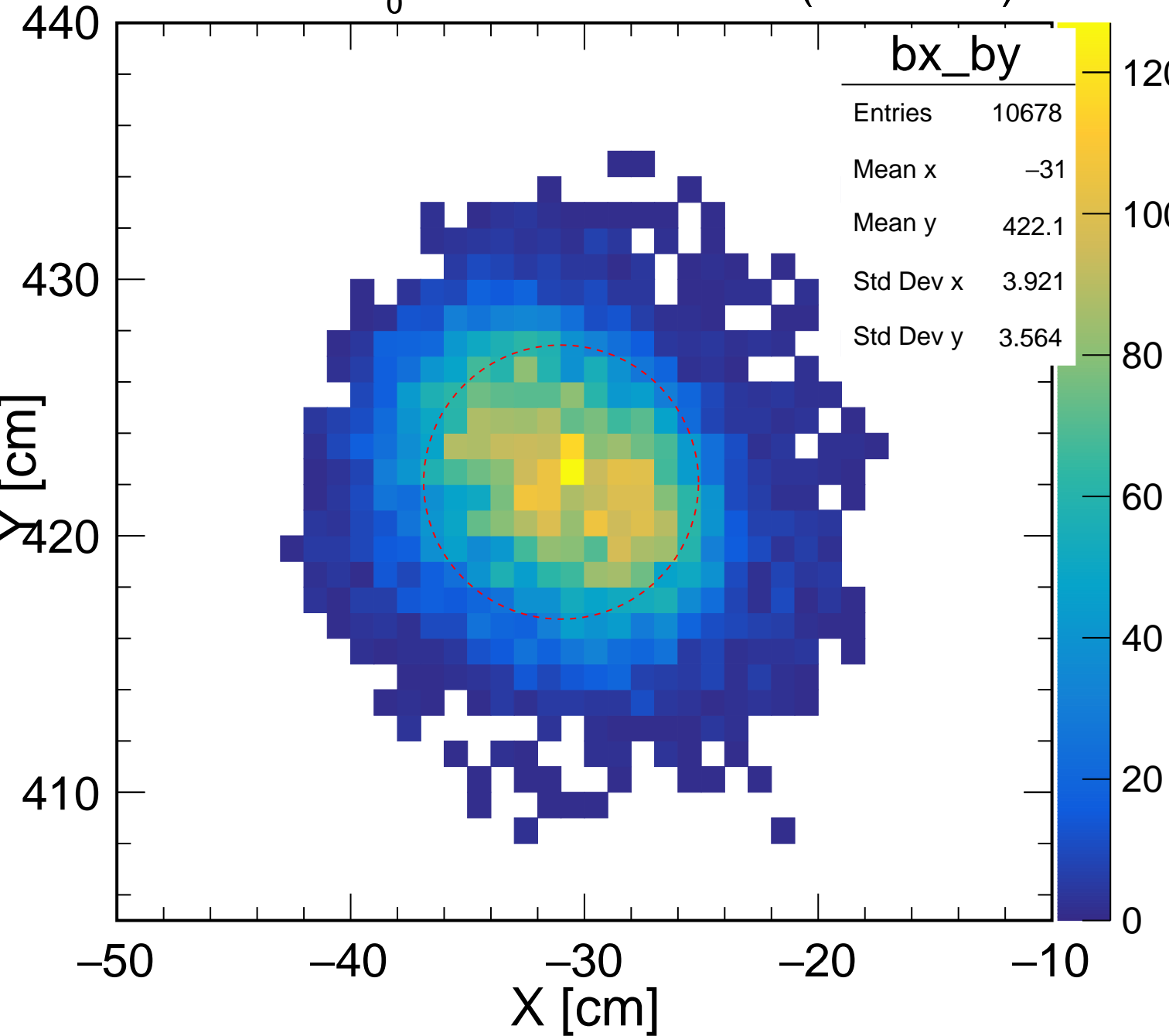
Run 5315:  $t_0$ : Oct 16 03:20 2018 (2.37 hrs)



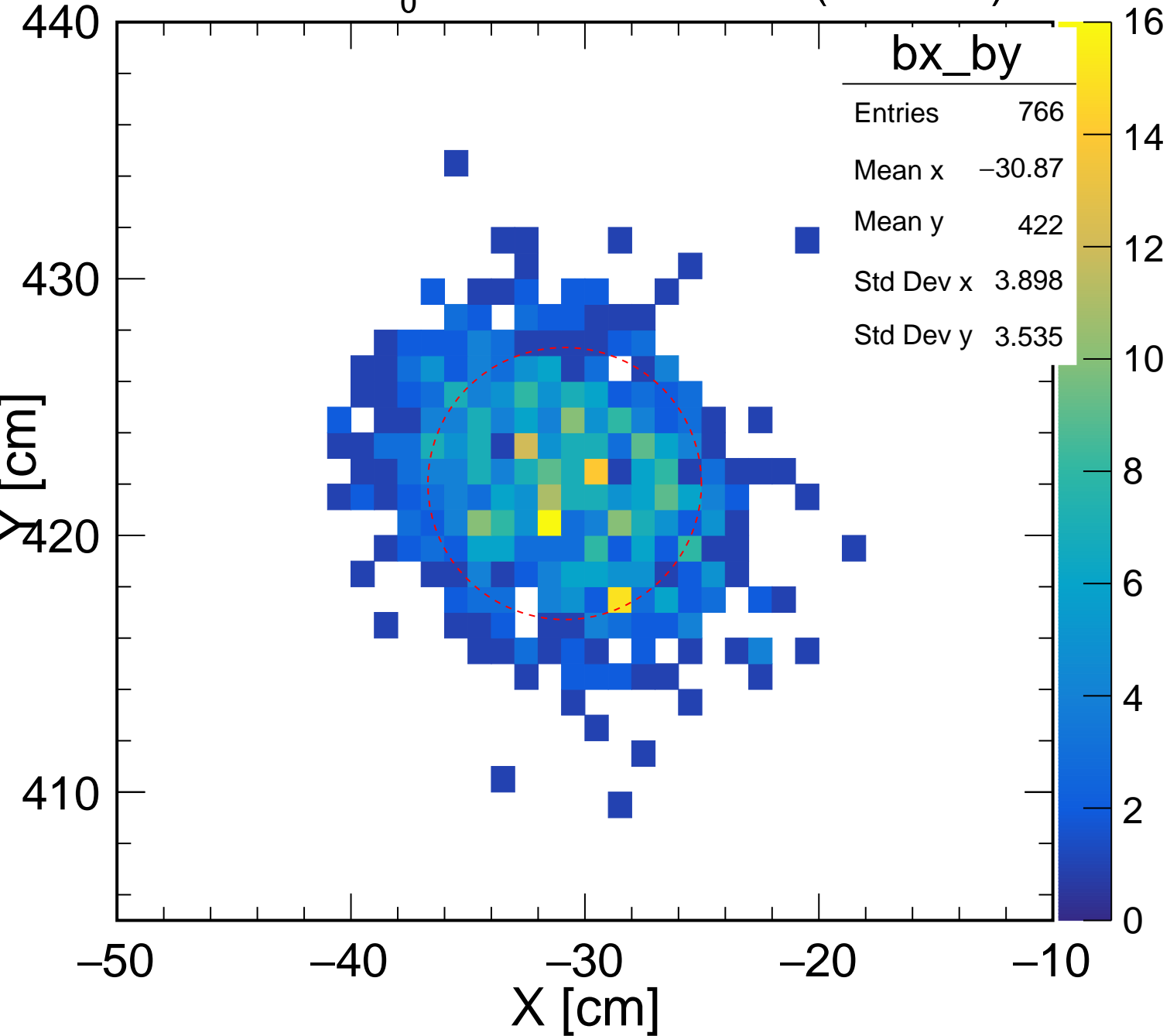
Run 5338:  $t_0$ : Oct 16 09:59 2018 (3.56 hrs)



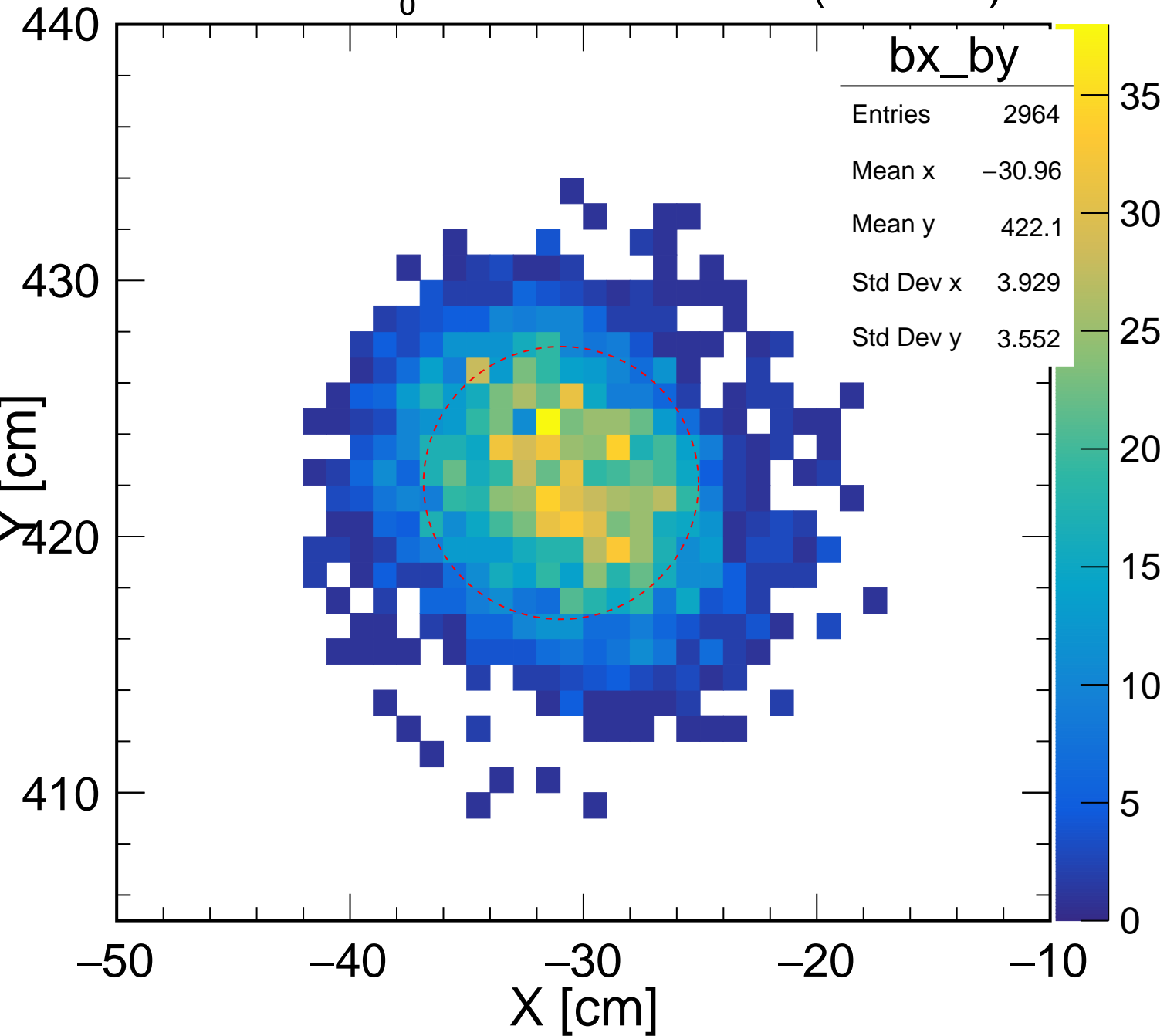
Run 5387:  $t_0$ : Oct 17 12:31 2018 (11.67 hrs)



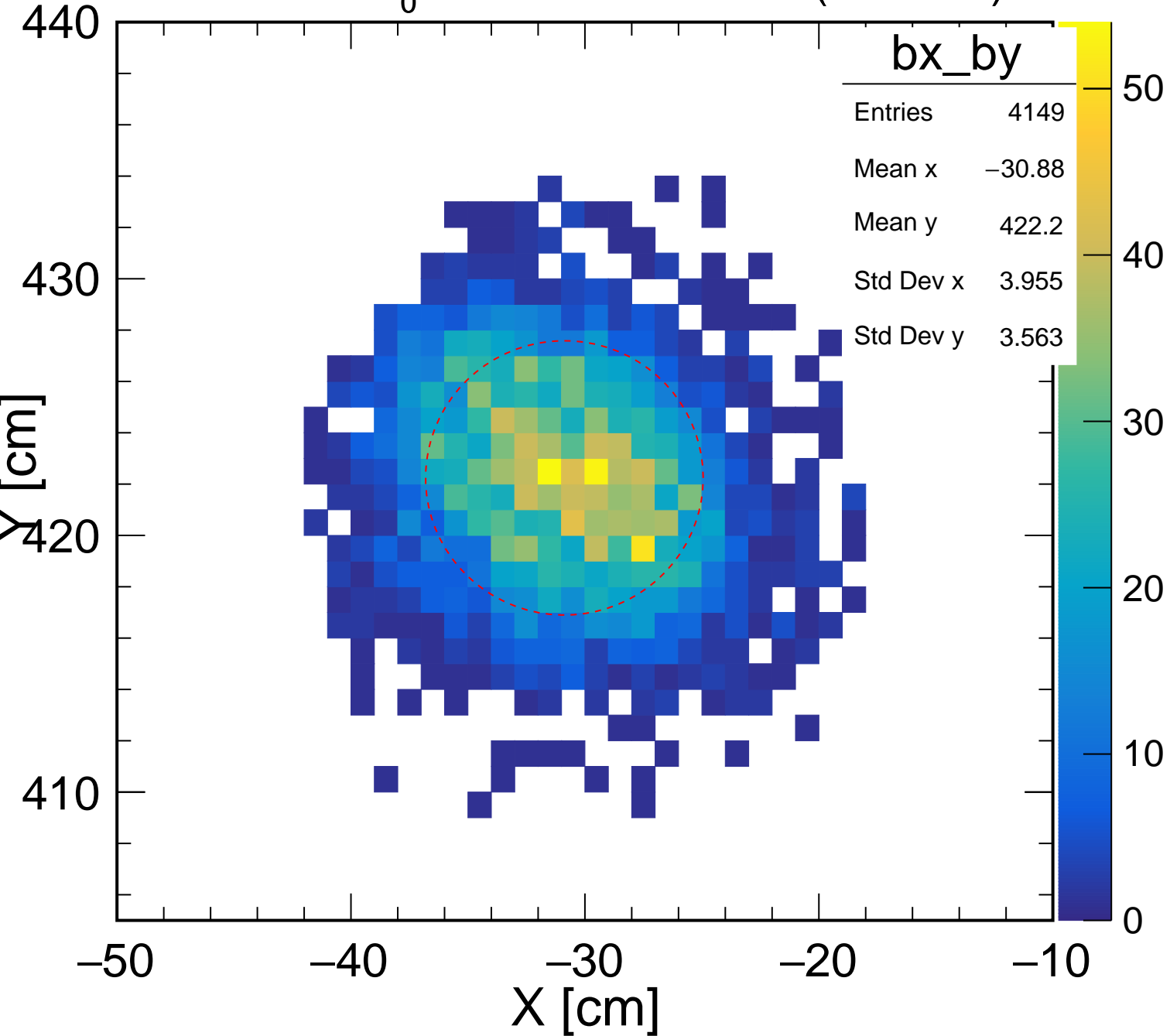
Run 5423:  $t_0$ : Oct 18 09:01 2018 (3.33 hrs)



Run 5424:  $t_0$ : Oct 18 12:56 2018 (4.39 hrs)

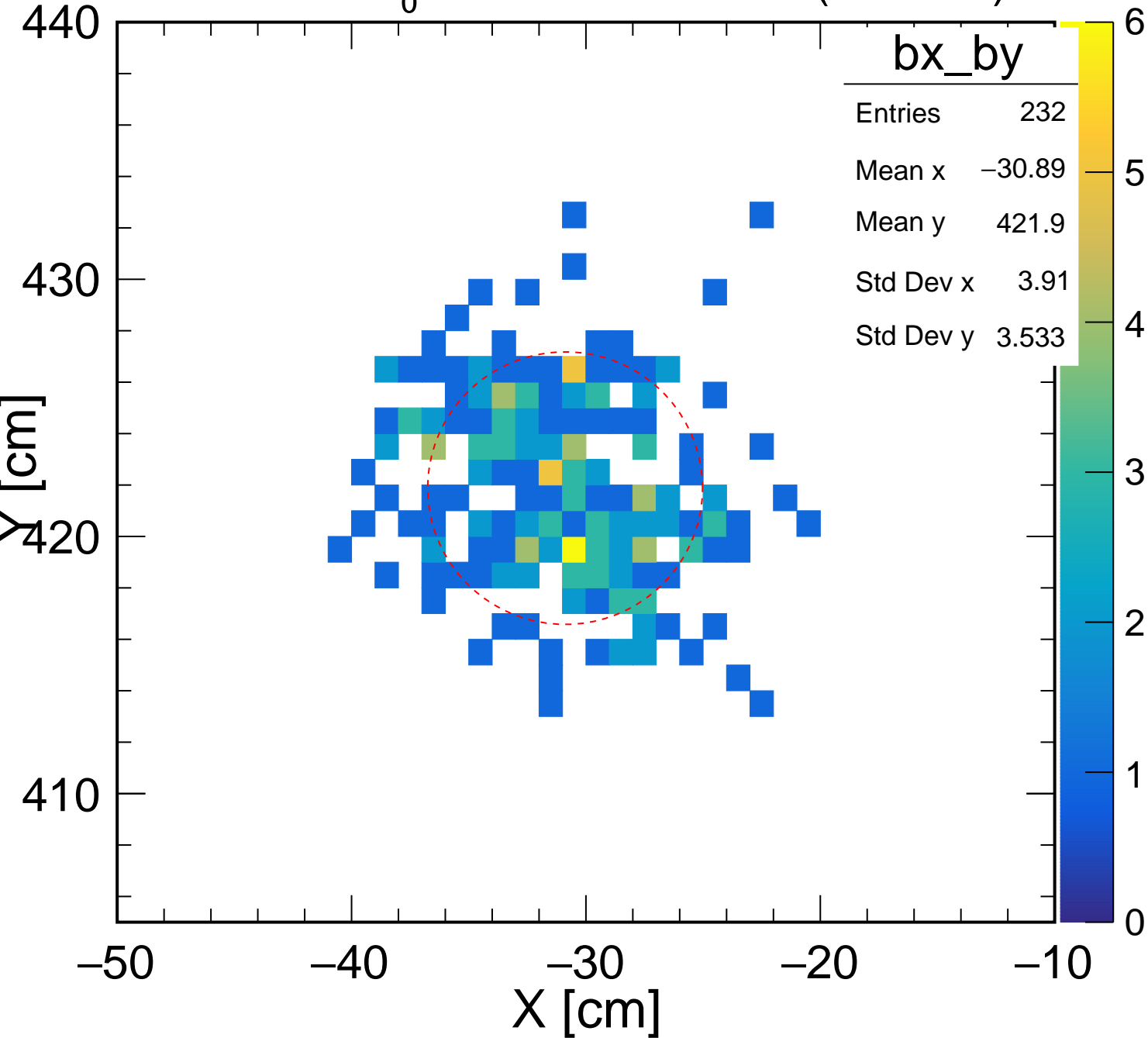


Run 5426:  $t_0$ : Oct 18 17:57 2018 (7.00 hrs)

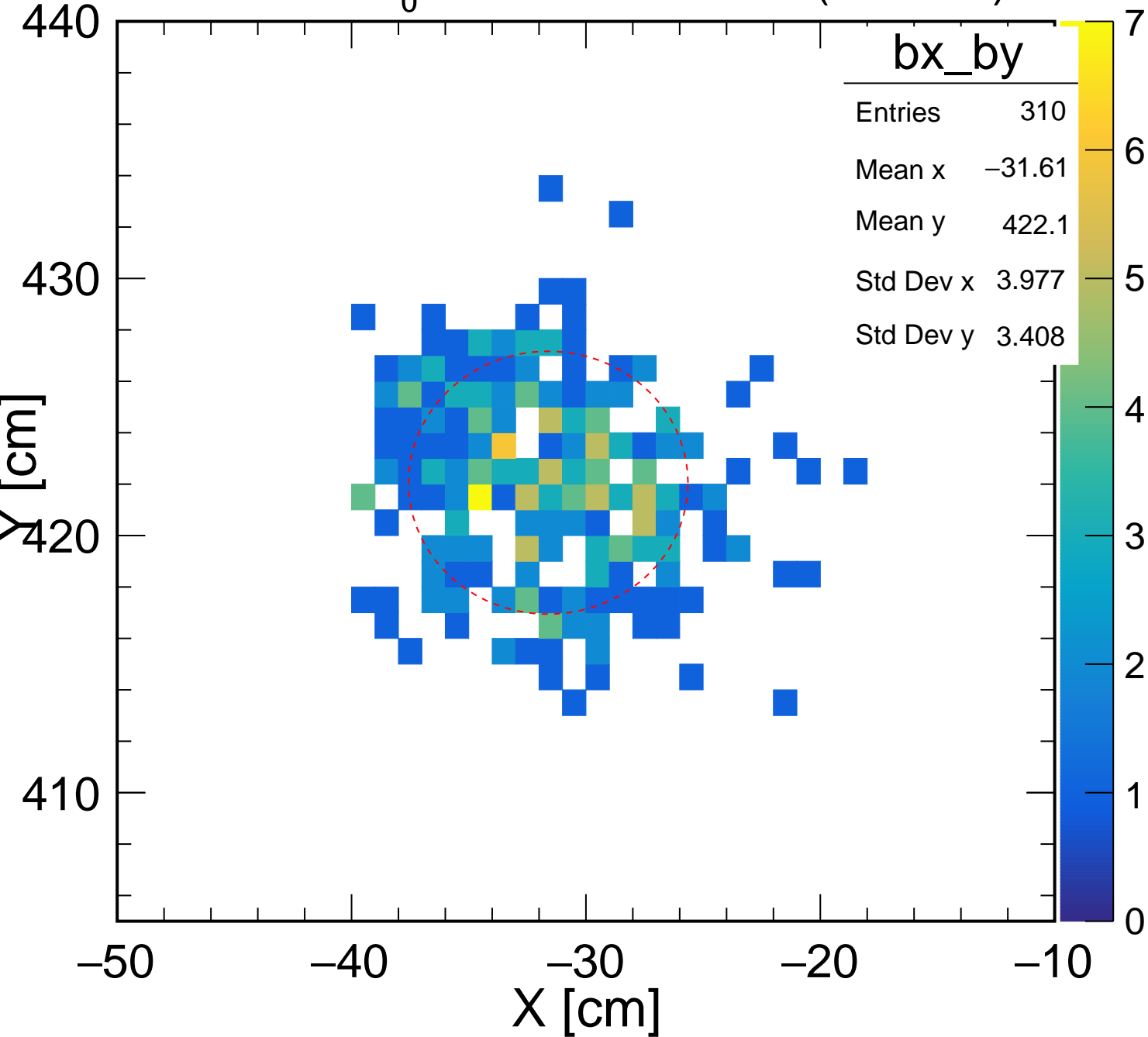




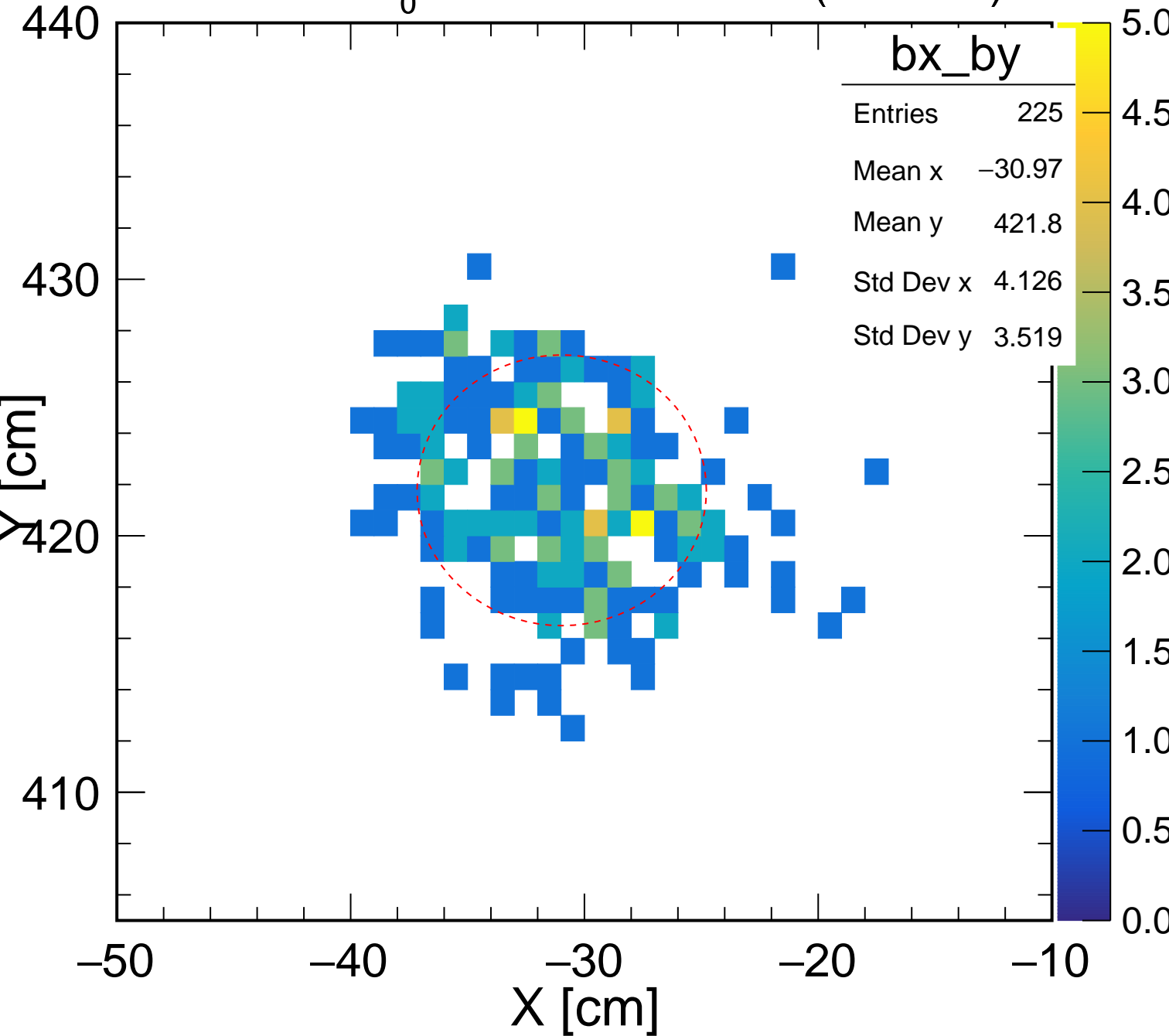
Run 5455:  $t_0$ : Oct 23 05:12 2018 (1.40 hrs)



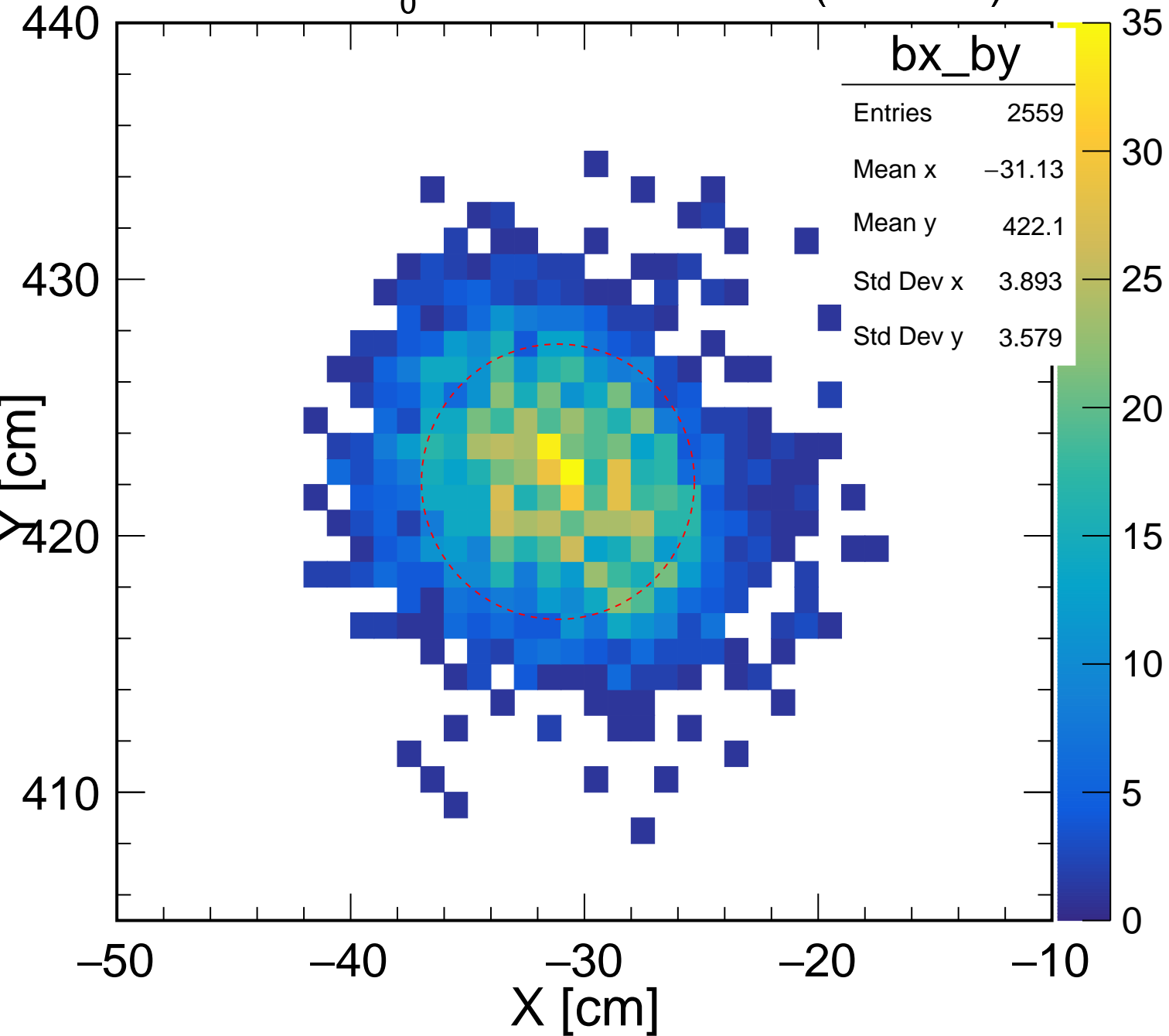
Run 5456:  $t_0$ : Oct 23 06:49 2018 (0.89 hrs)



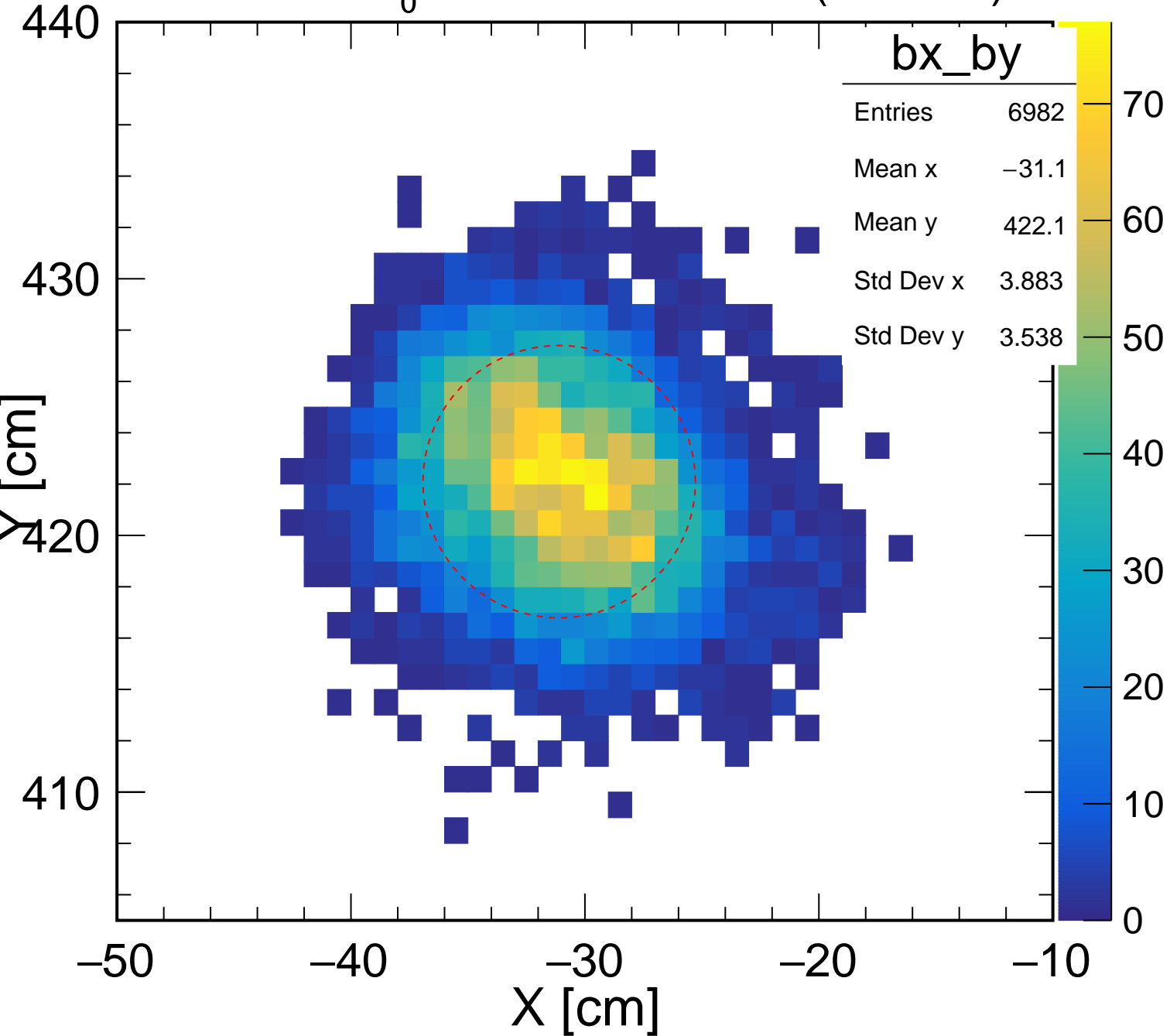
Run 5457:  $t_0$ : Oct 23 07:54 2018 (0.70 hrs)



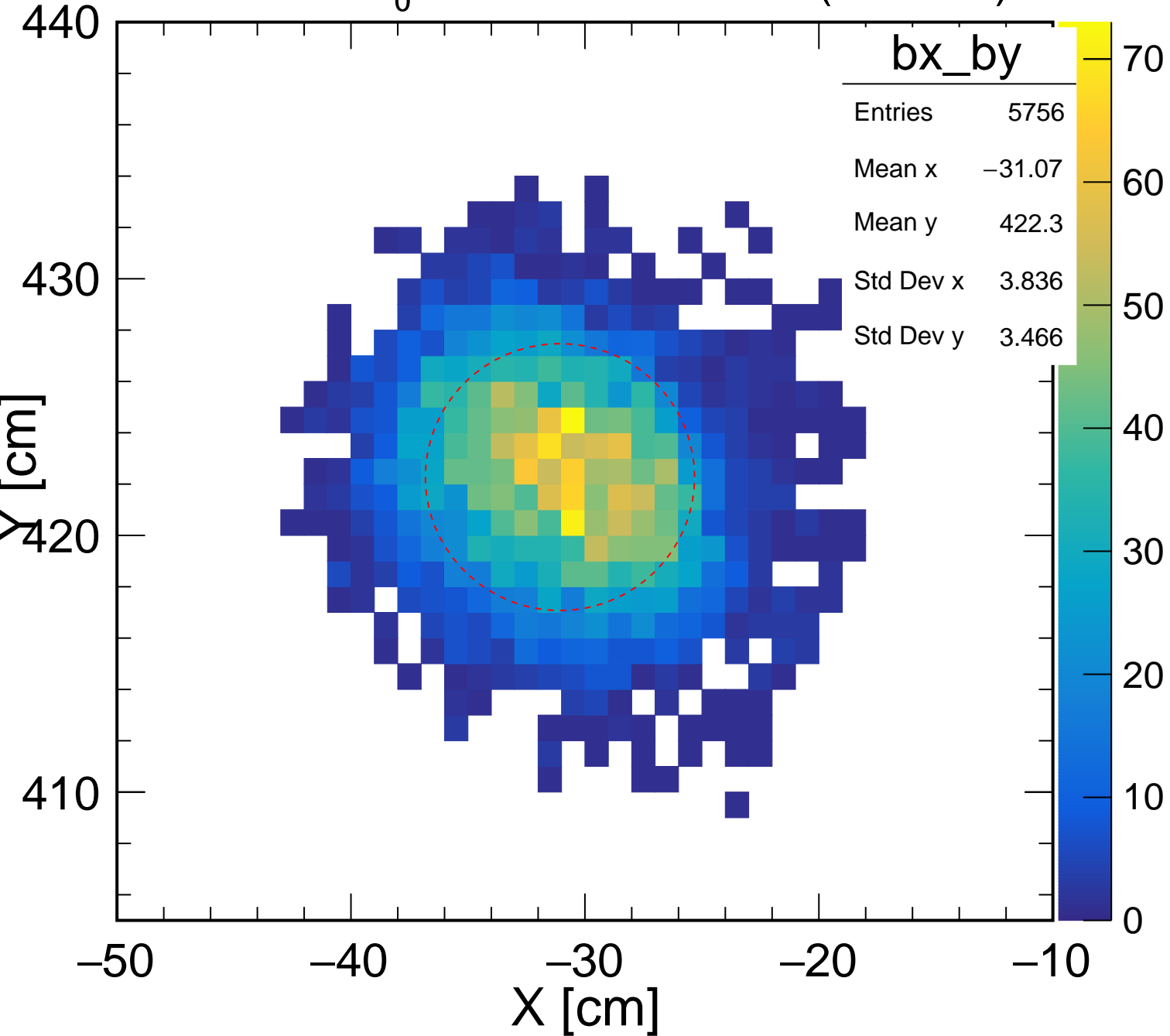
Run 5458:  $t_0$ : Oct 23 09:13 2018 (5.59 hrs)



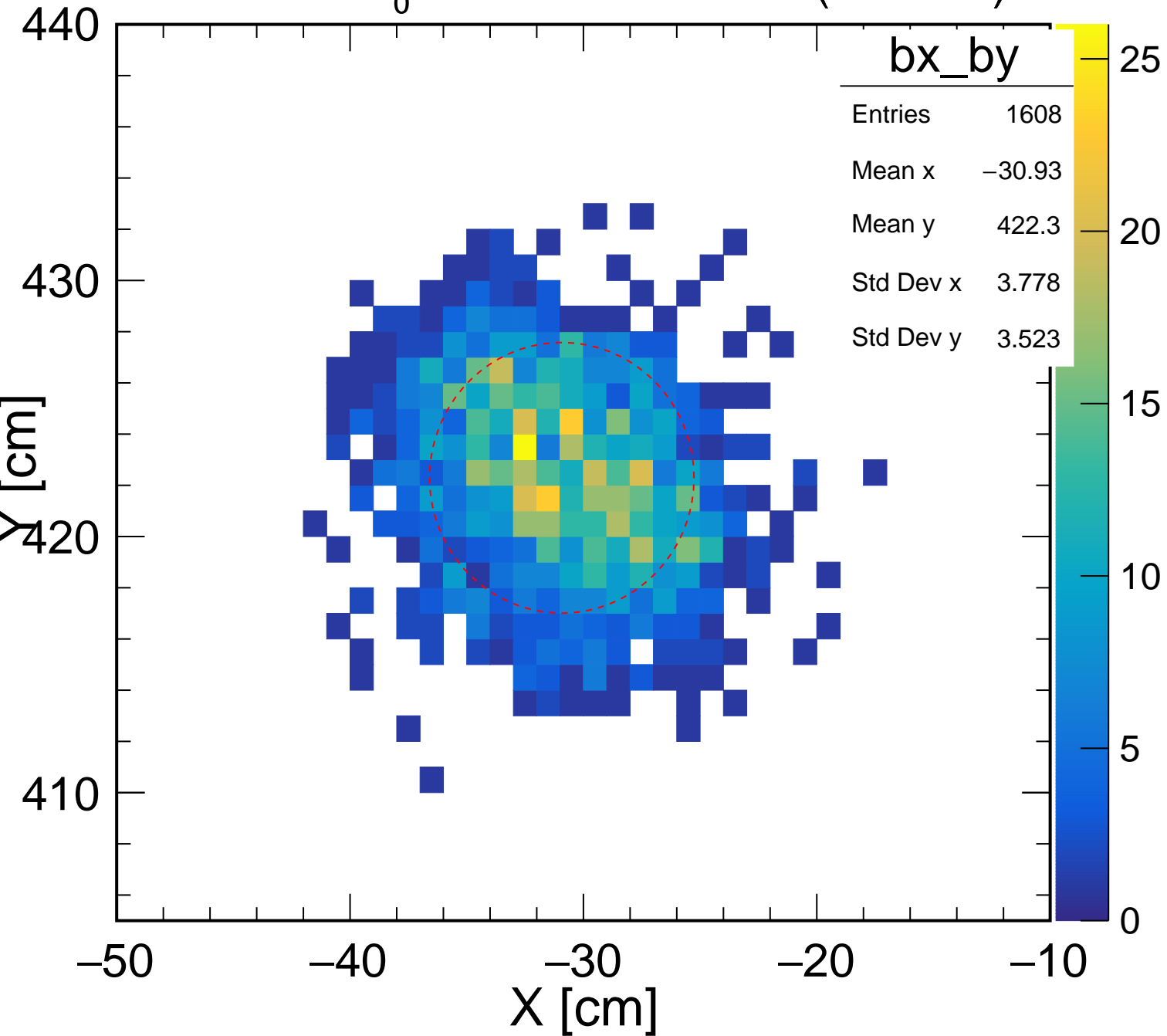
Run 5460:  $t_0$ : Oct 23 15:33 2018 (9.55 hrs)



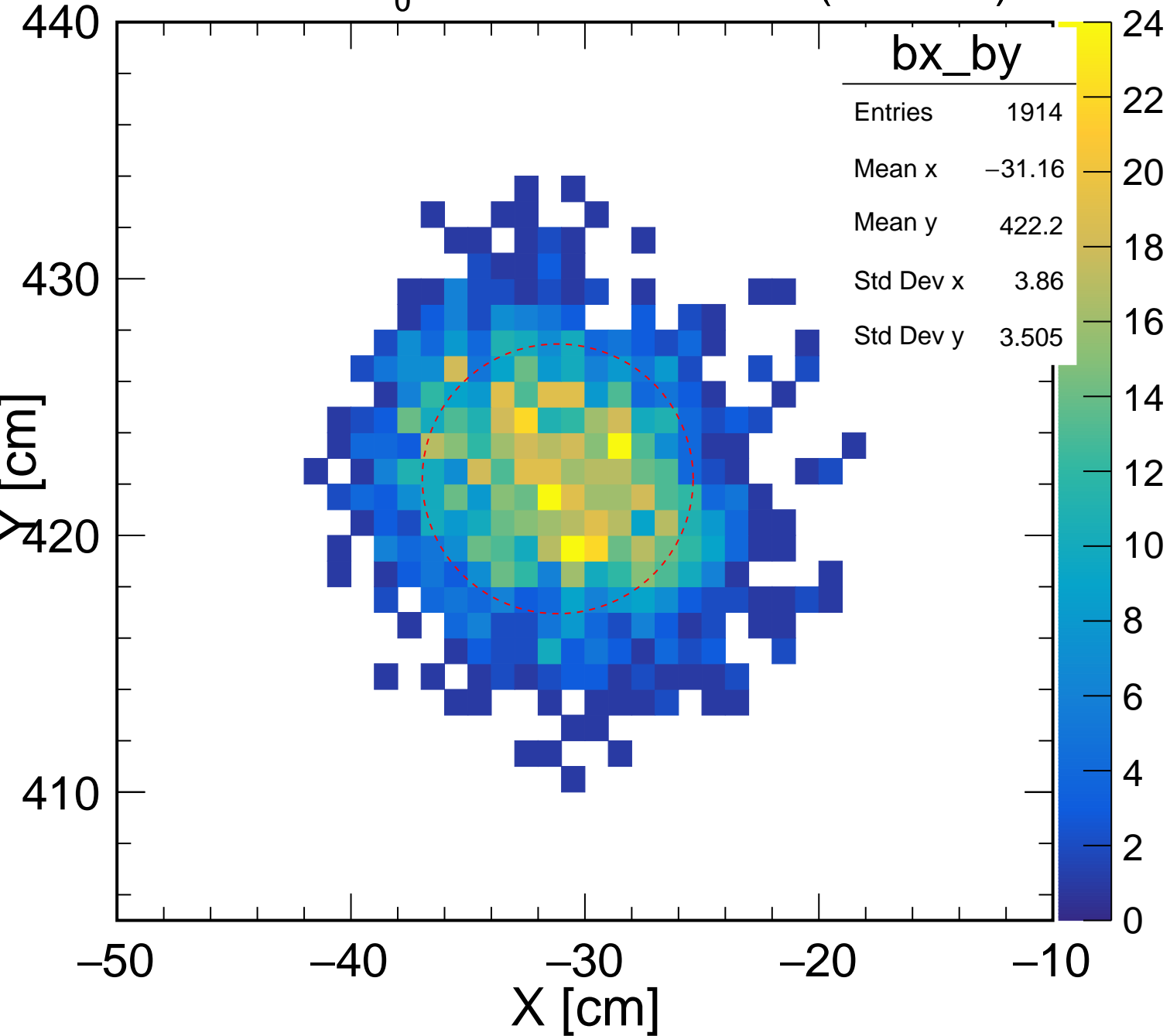
Run 5809:  $t_0$ : Nov 07 11:22 2018 (8.40 hrs)



Run 5810:  $t_0$ : Nov 07 19:57 2018 (2.57 hrs)

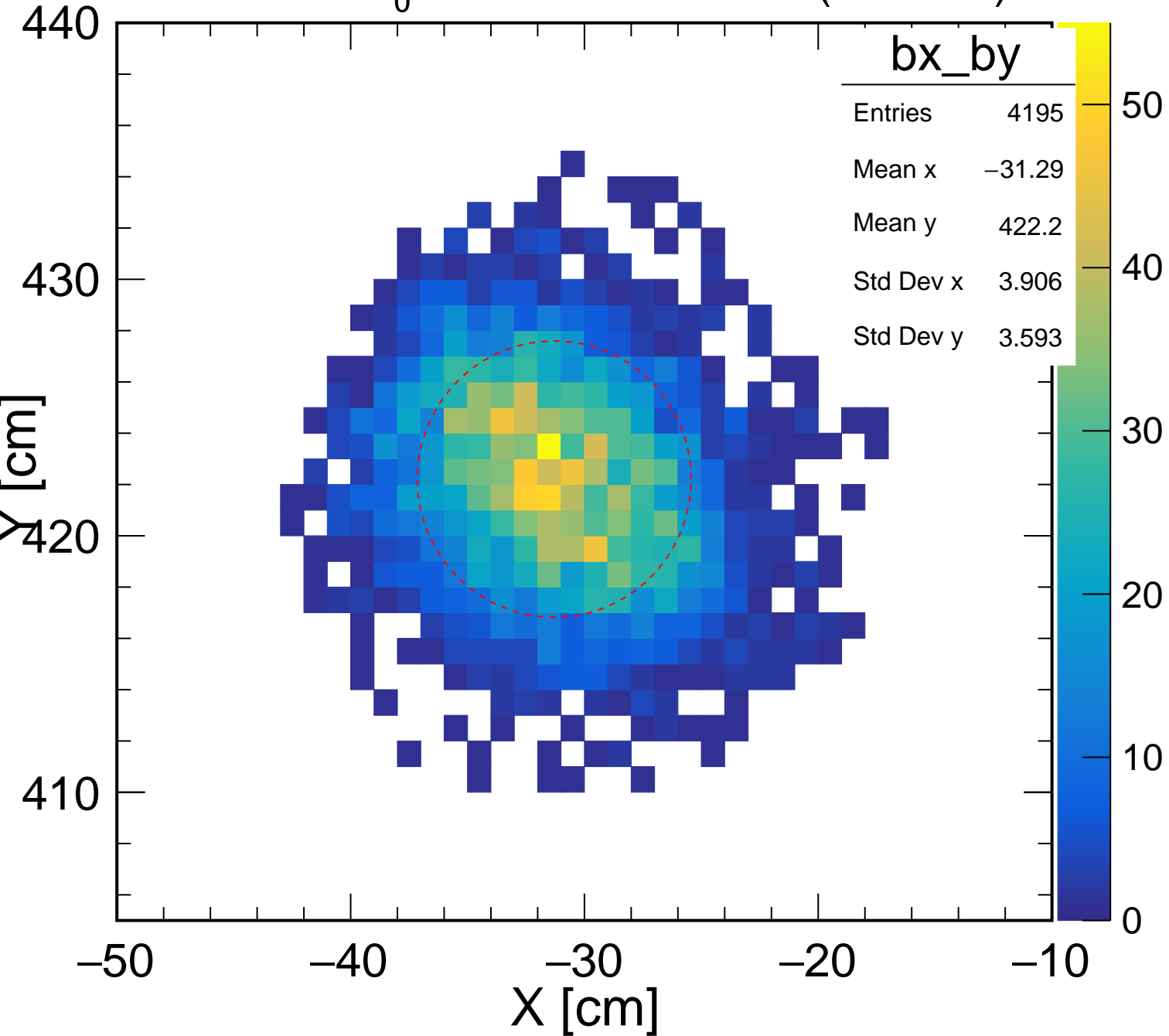


Run 5814:  $t_0$ : Nov 08 04:03 2018 (5.41 hrs)

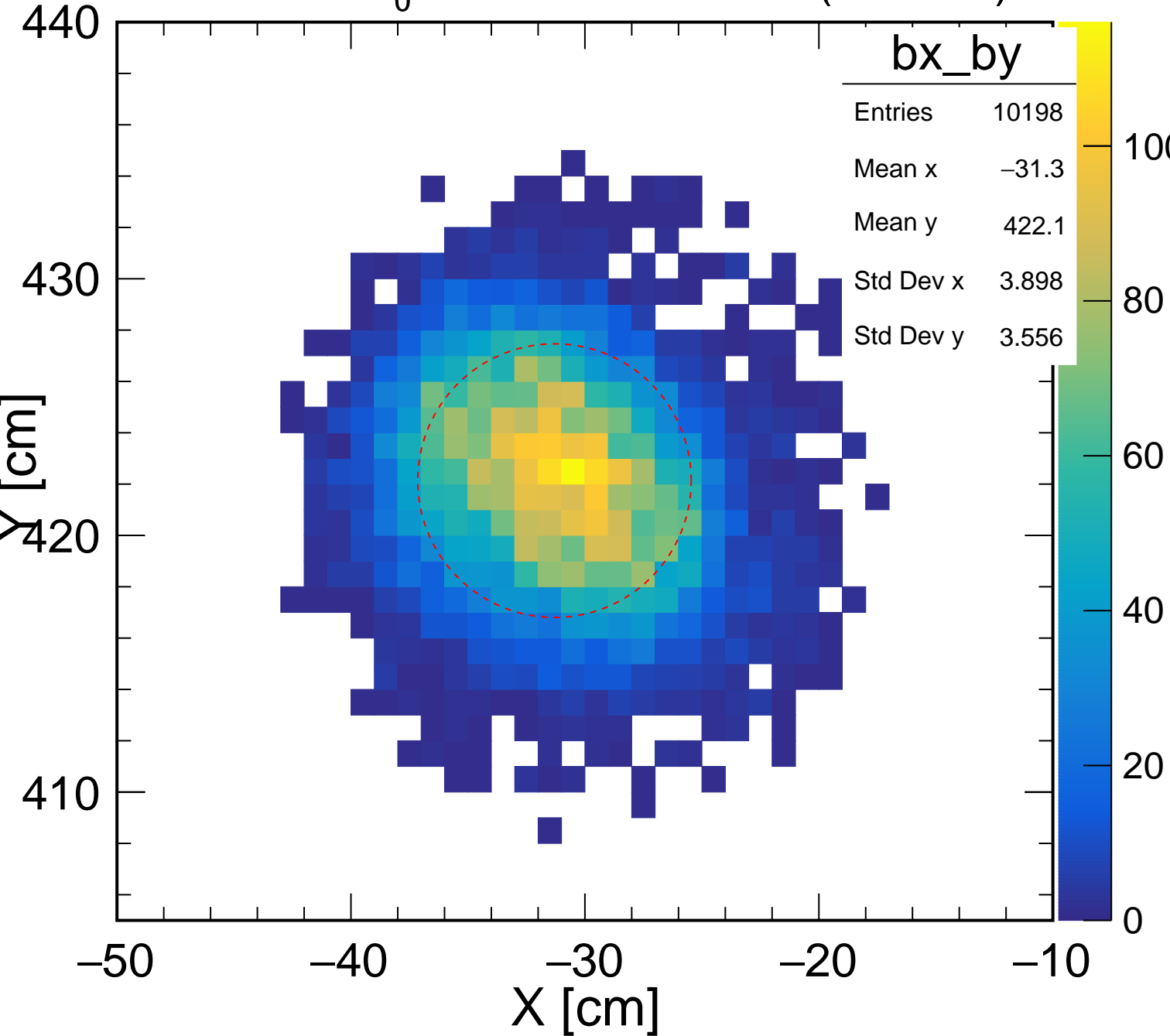




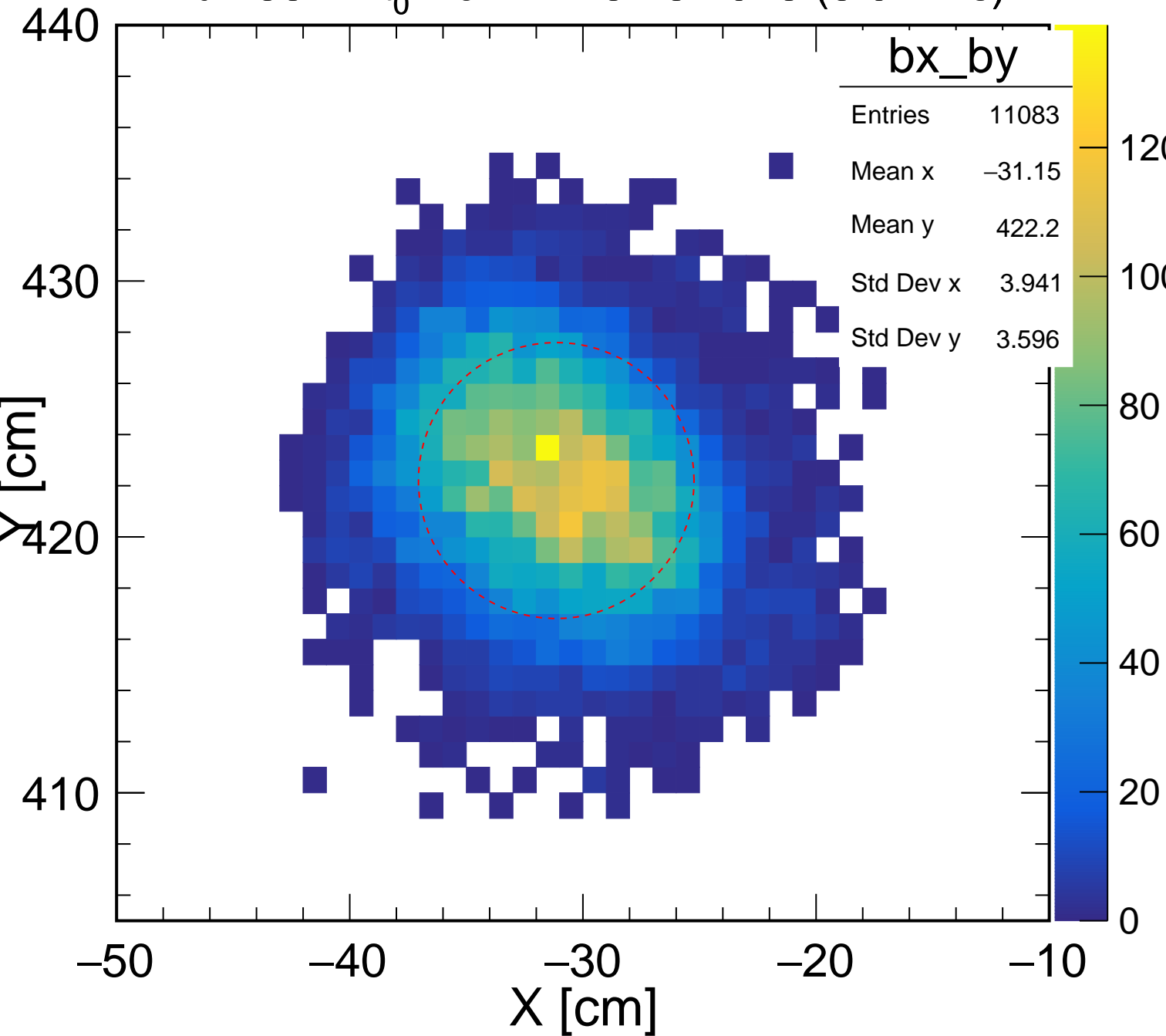
Run 5816:  $t_0$ : Nov 08 12:21 2018 (3.58 hrs)



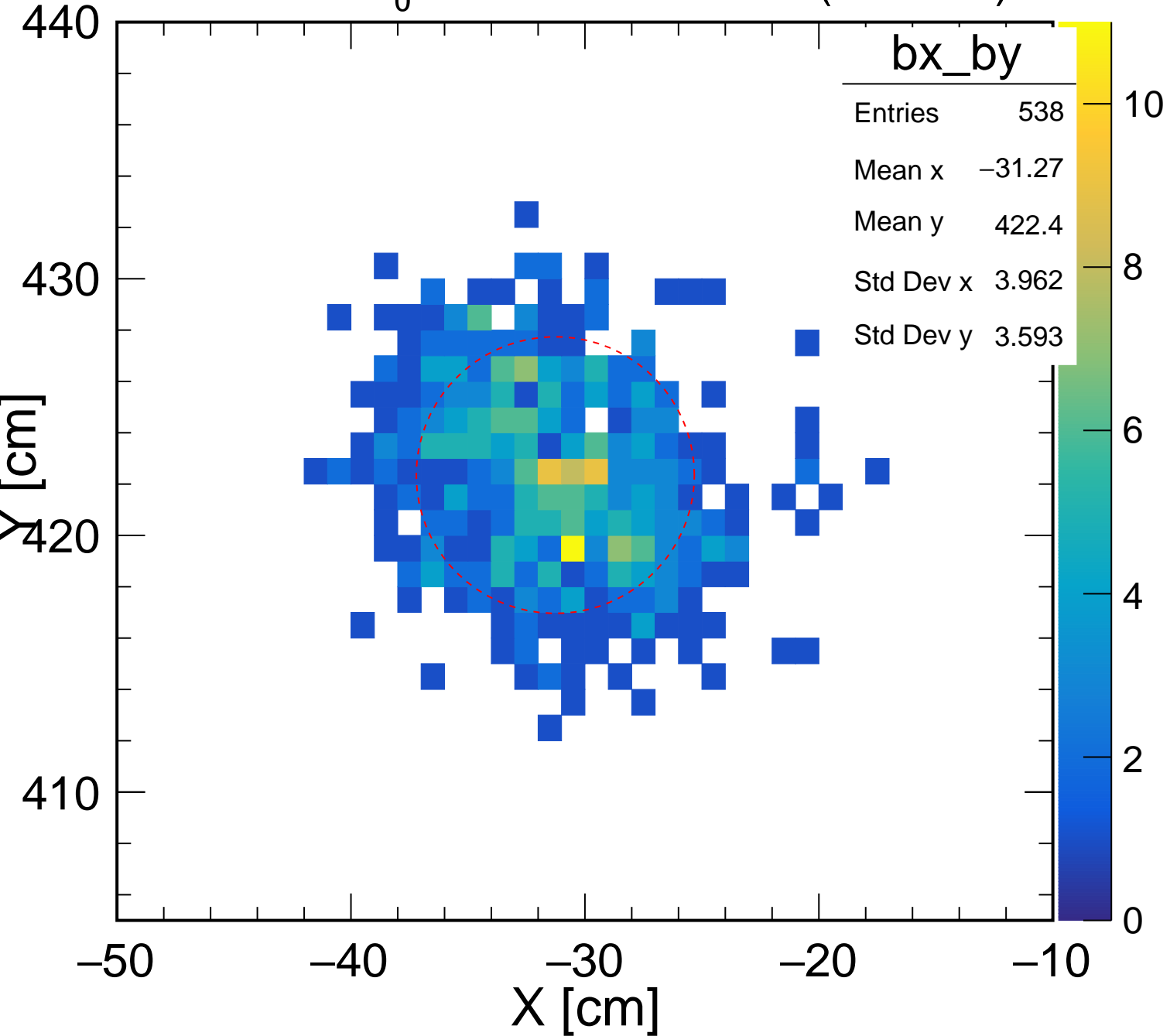
Run 5817:  $t_0$ : Nov 08 17:11 2018 (7.52 hrs)



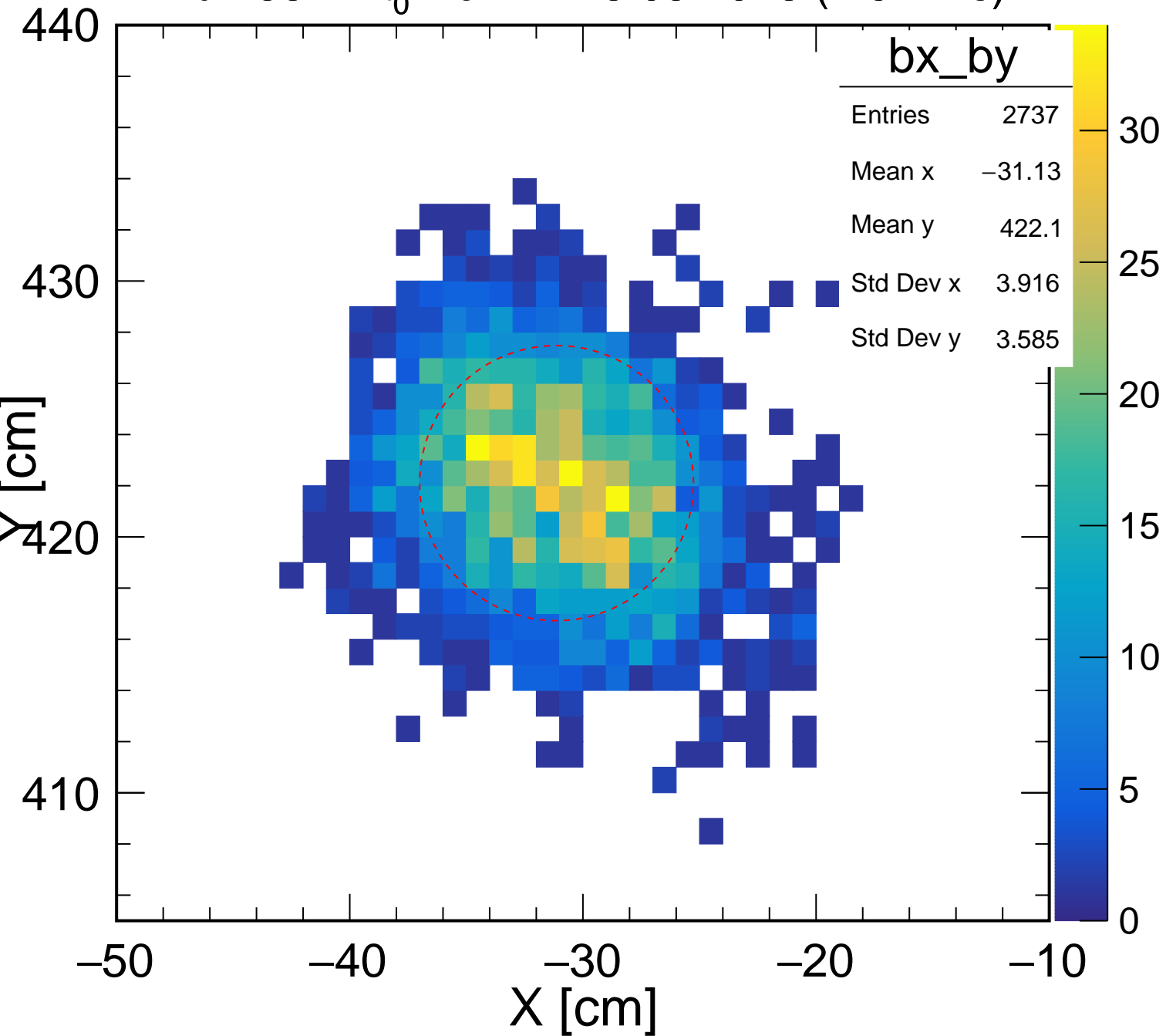
Run 5842:  $t_0$ : Nov 11 15:18 2018 (6.02 hrs)



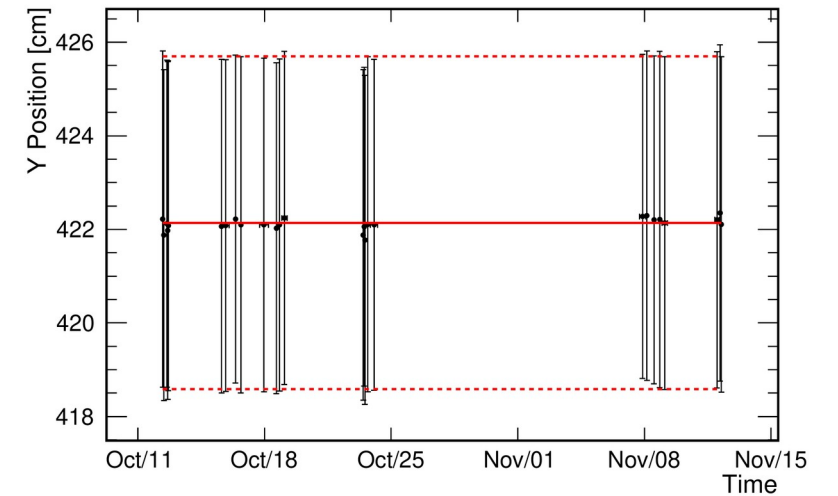
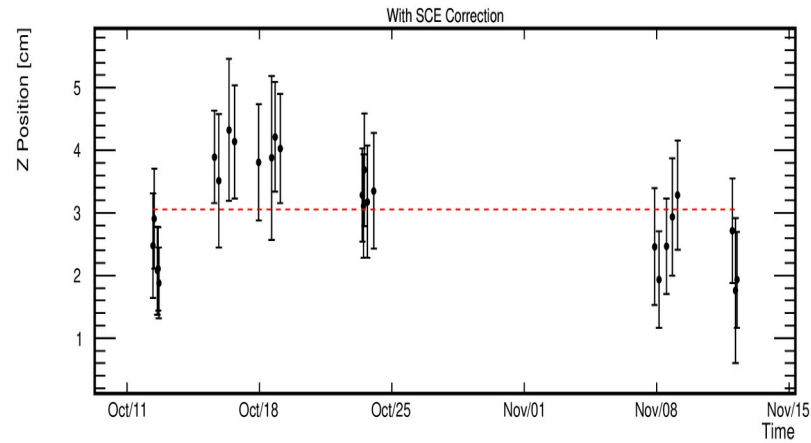
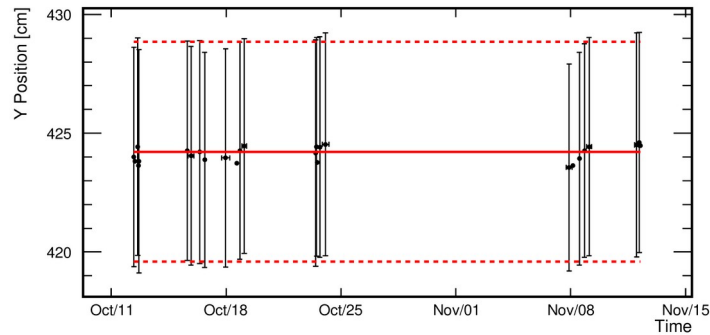
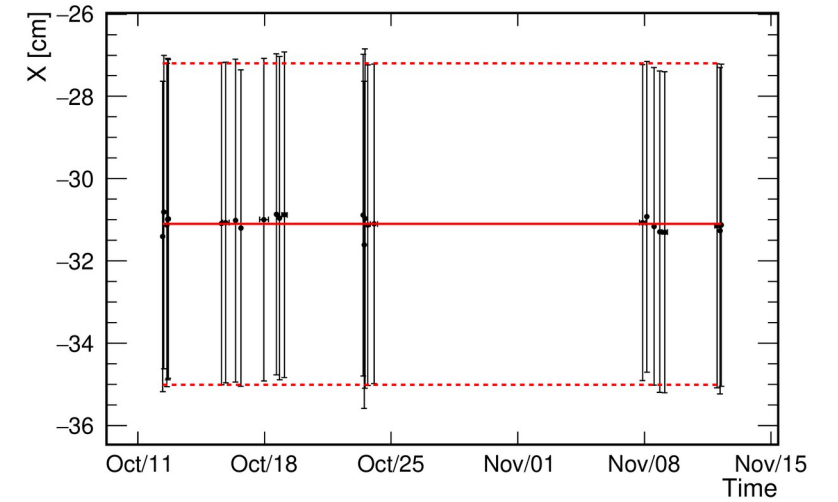
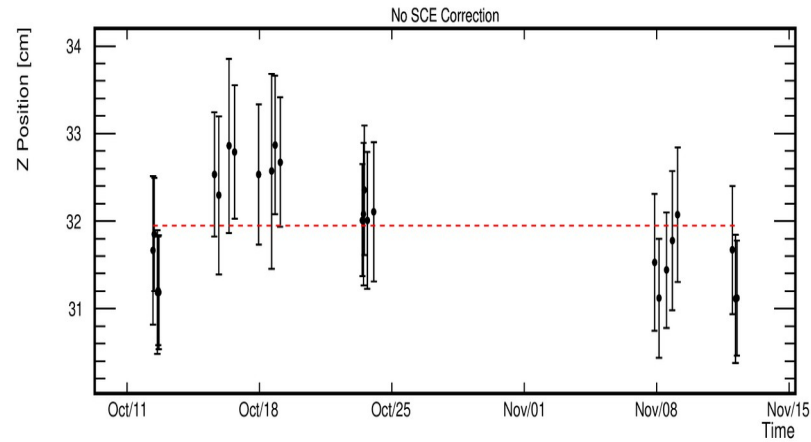
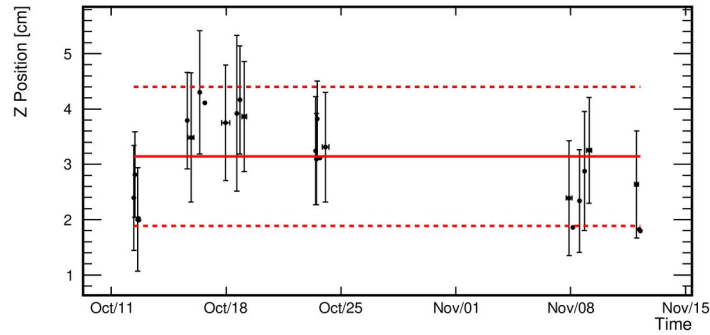
Run 5843:  $t_0$ : Nov 11 21:32 2018 (1.43 hrs)



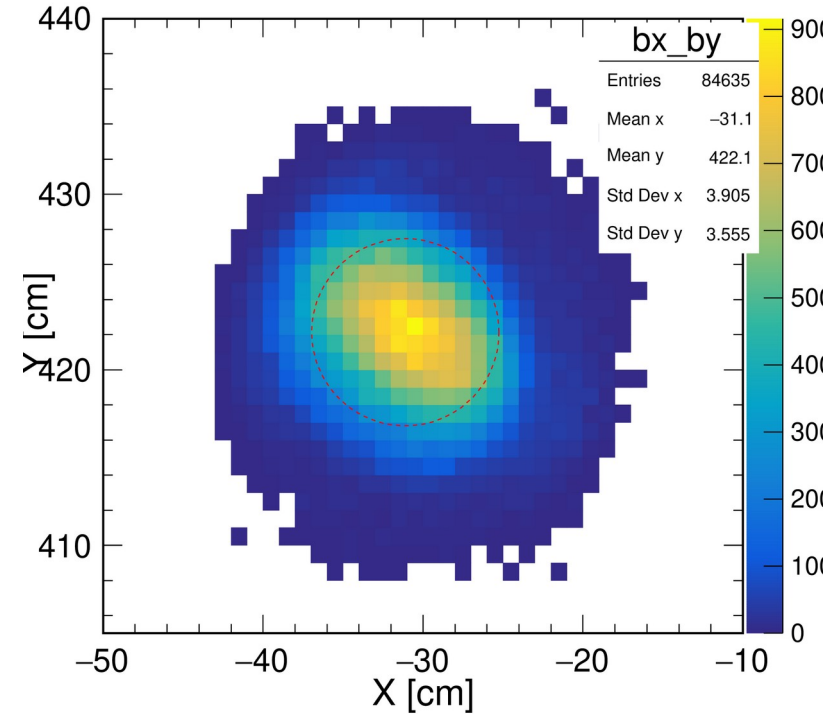
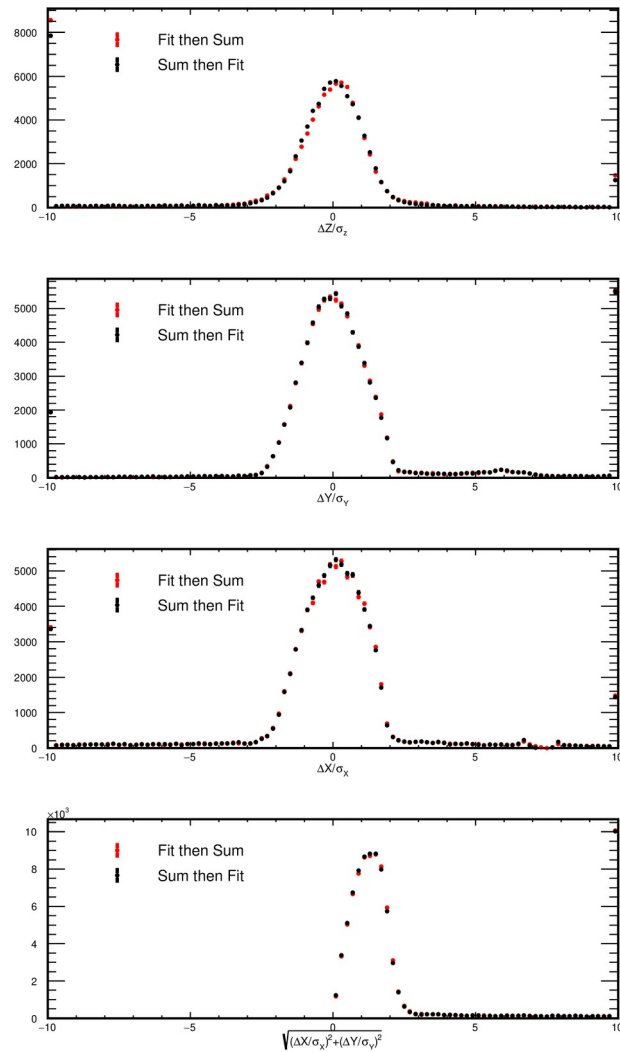
Run 5844:  $t_0$ : Nov 11 23:05 2018 (1.91 hrs)



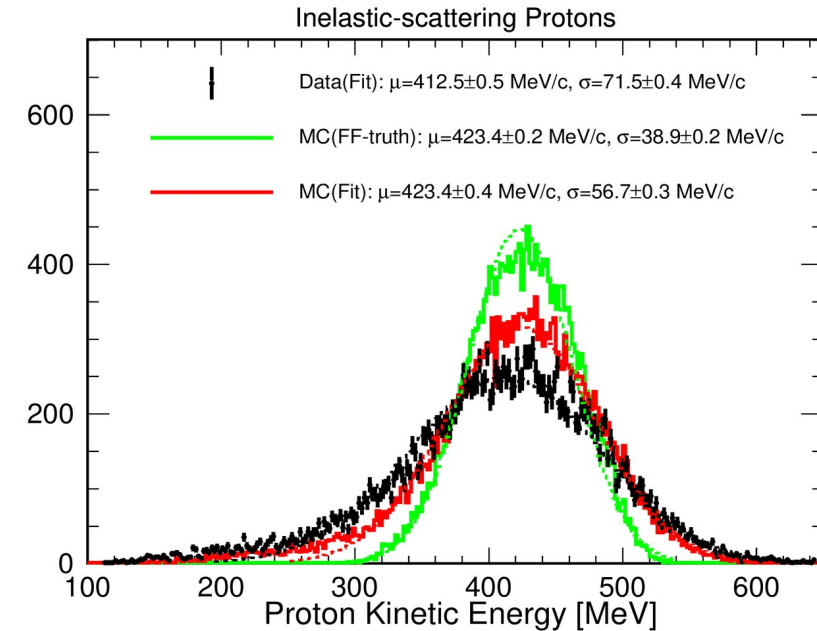
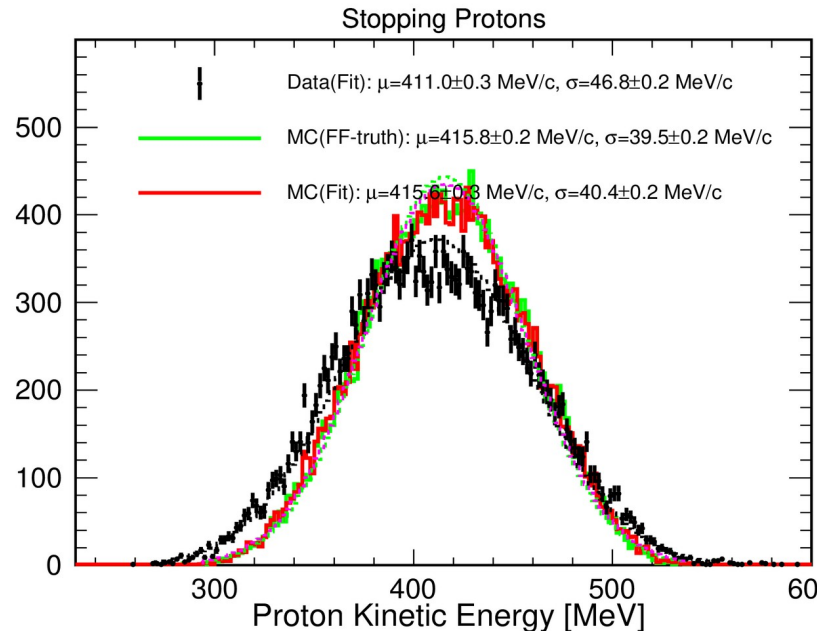
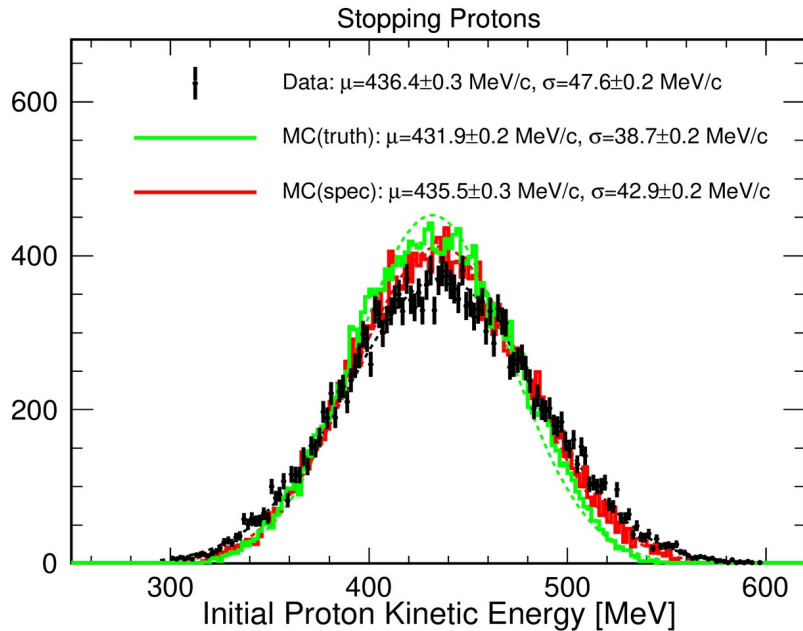
# Time Variations: Positions & Beam XY



# Global Cuts



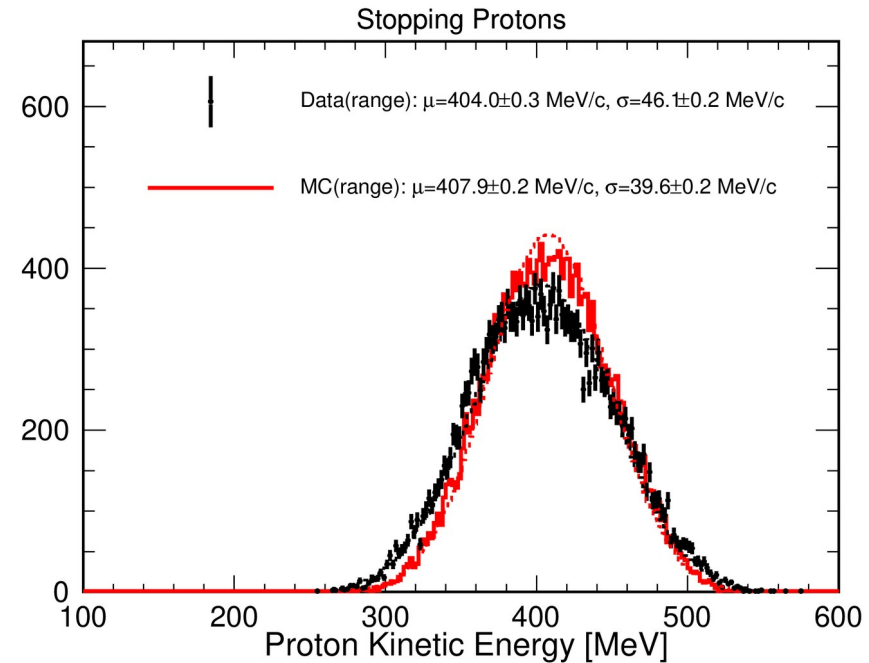
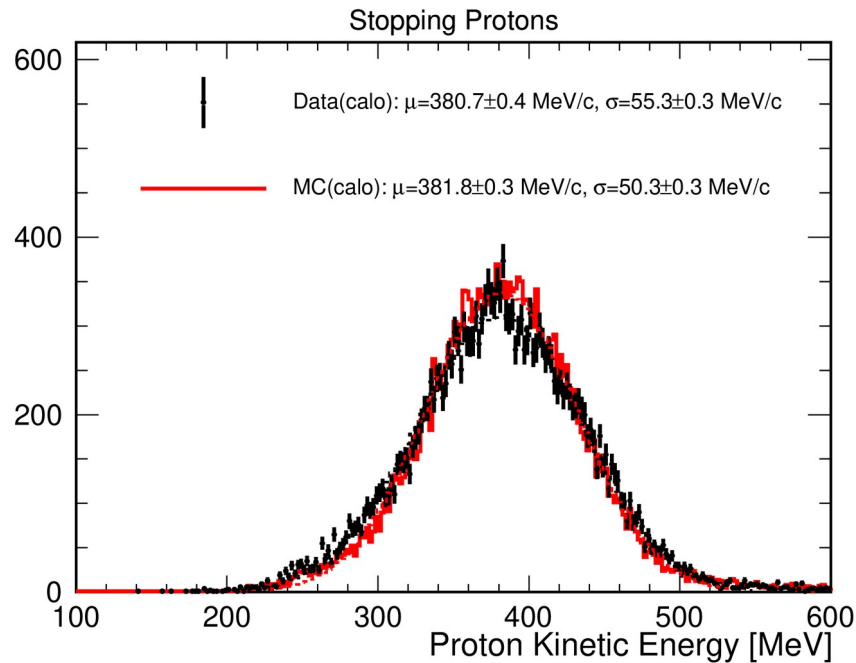
# KE using New Fit



- ▶ Data using all 1 GeV/c runs
- ▶ KE at TPC front-face using Sungbin's fit on RR:
  - Good performance on the elastic-scattering protons
  - Wider distribution for the inelastic ones

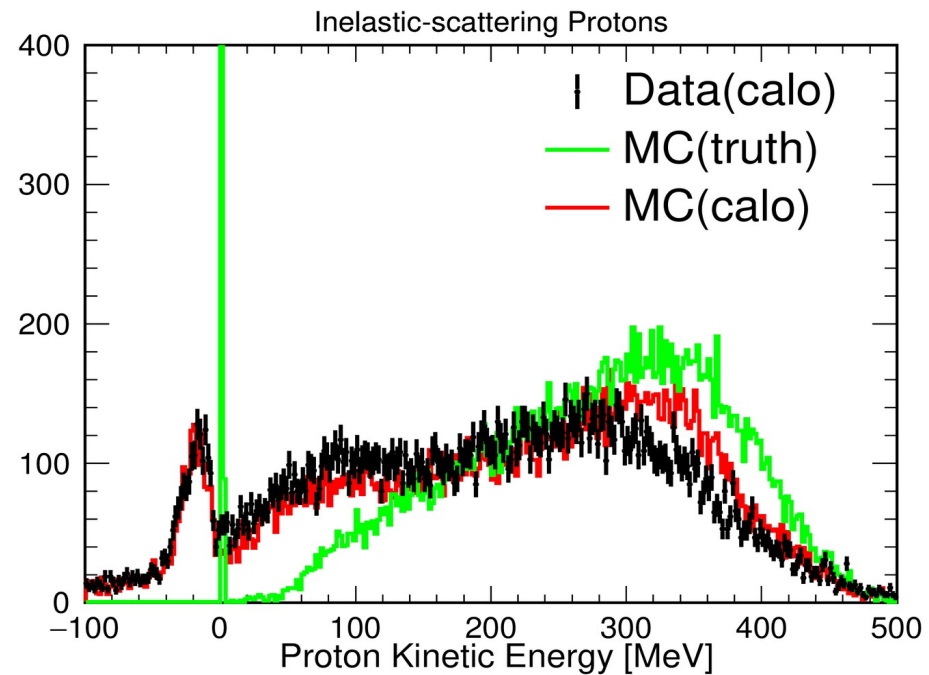
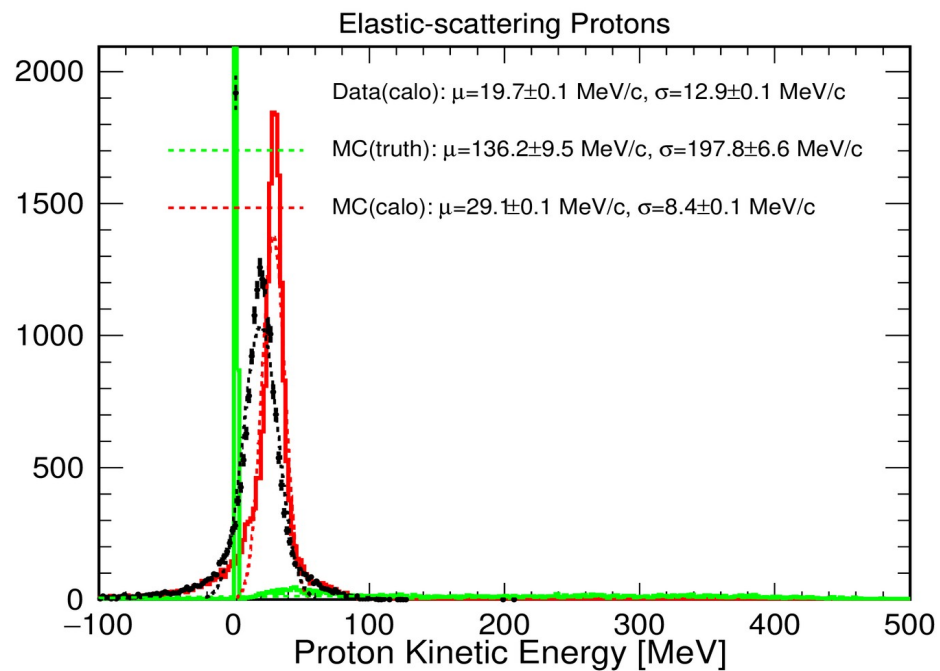


# Energy deposition



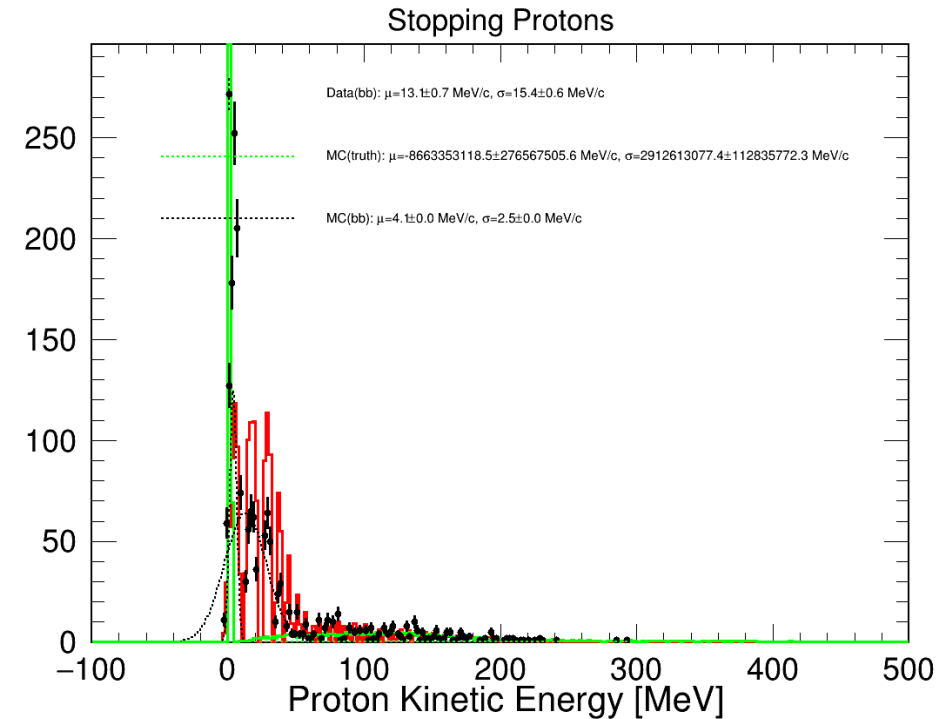
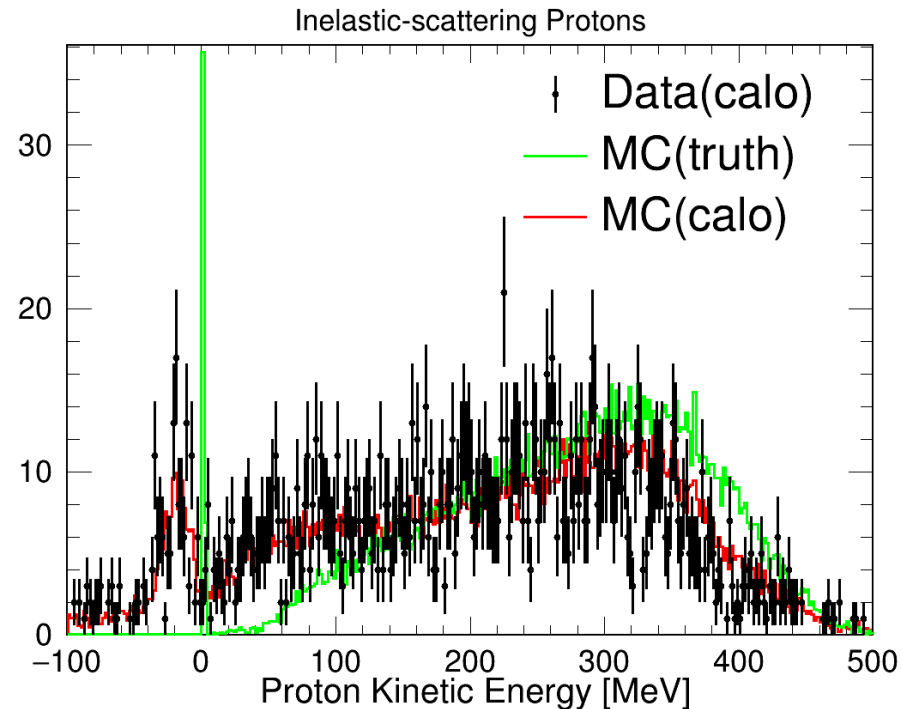
- ▶ Calo reco: Data has good agreement with MC
- ▶ Range reco: MC needs reweighting to catch up with data

# KE<sub>end</sub> - Calo



► KE<sub>ff</sub> estimation using the new fit

# KEend - Bethe-Bloch



- ▶ Partial data used for KEend (Bethe-Bloch) for the study
- ▶ Elastic KE has 'oscillation' pattern → Could be related to the range estimation