Shower reco validation
Test sample

Aaron Higuera
University of Houston

Shower Reco Validation

Test sample (new)
MC: `/pnfs/dune/scratch/users/tjyang/v08_21_00/reco/`
`mcc12_protodune_beam_p1GeV_cosmics_12ms_test/files.list`
data: `/pnfs/dune/scratch/users/tjyang/mcc12test/r5809/v1/r5809.v1.txt`

Old sample
MC: `mcc11_pd_sp_sce_1.0GeV_histats`
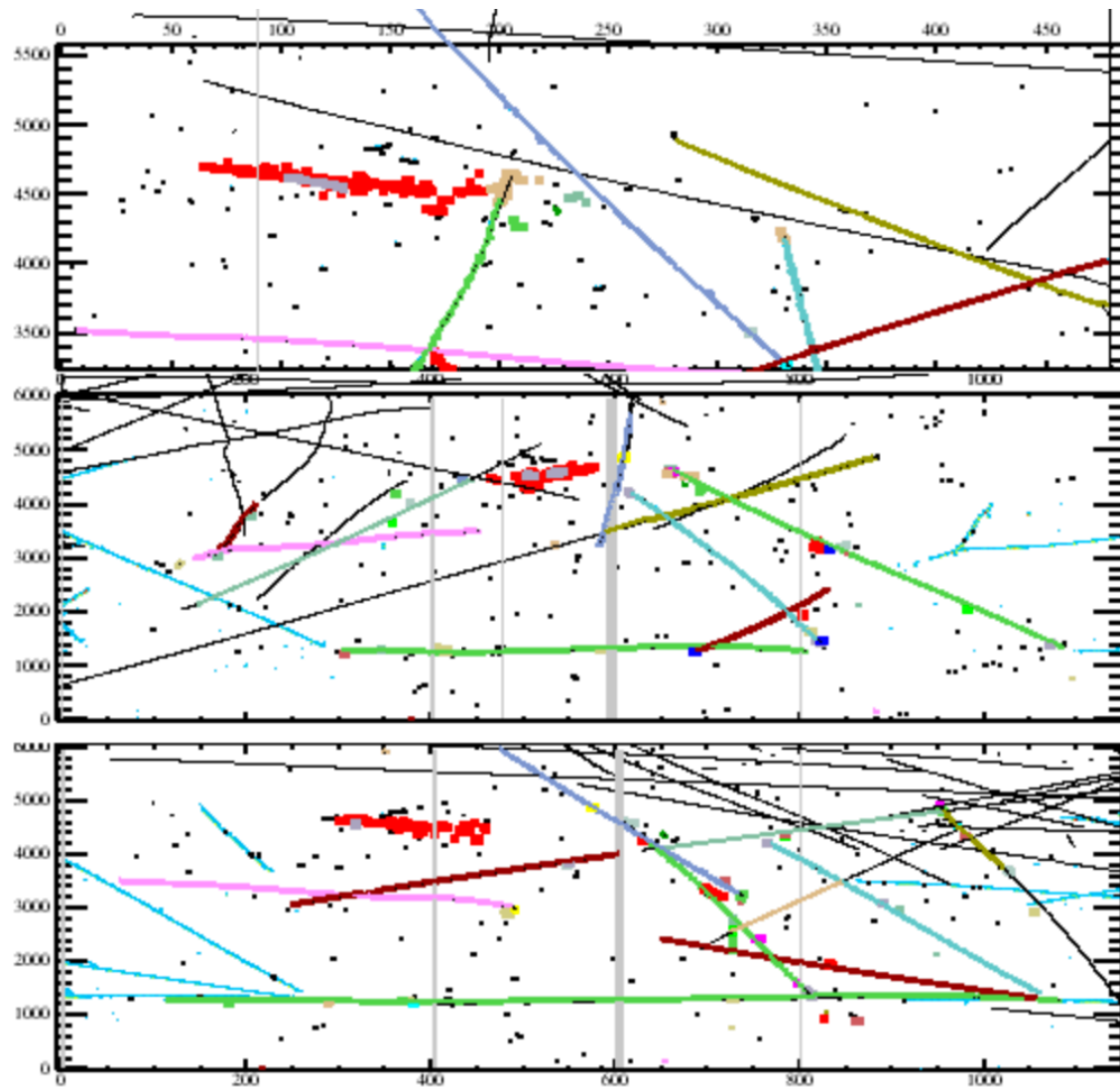data: `runset-5809-reco-unified-hv-180kV-beam-1GeV-v0`

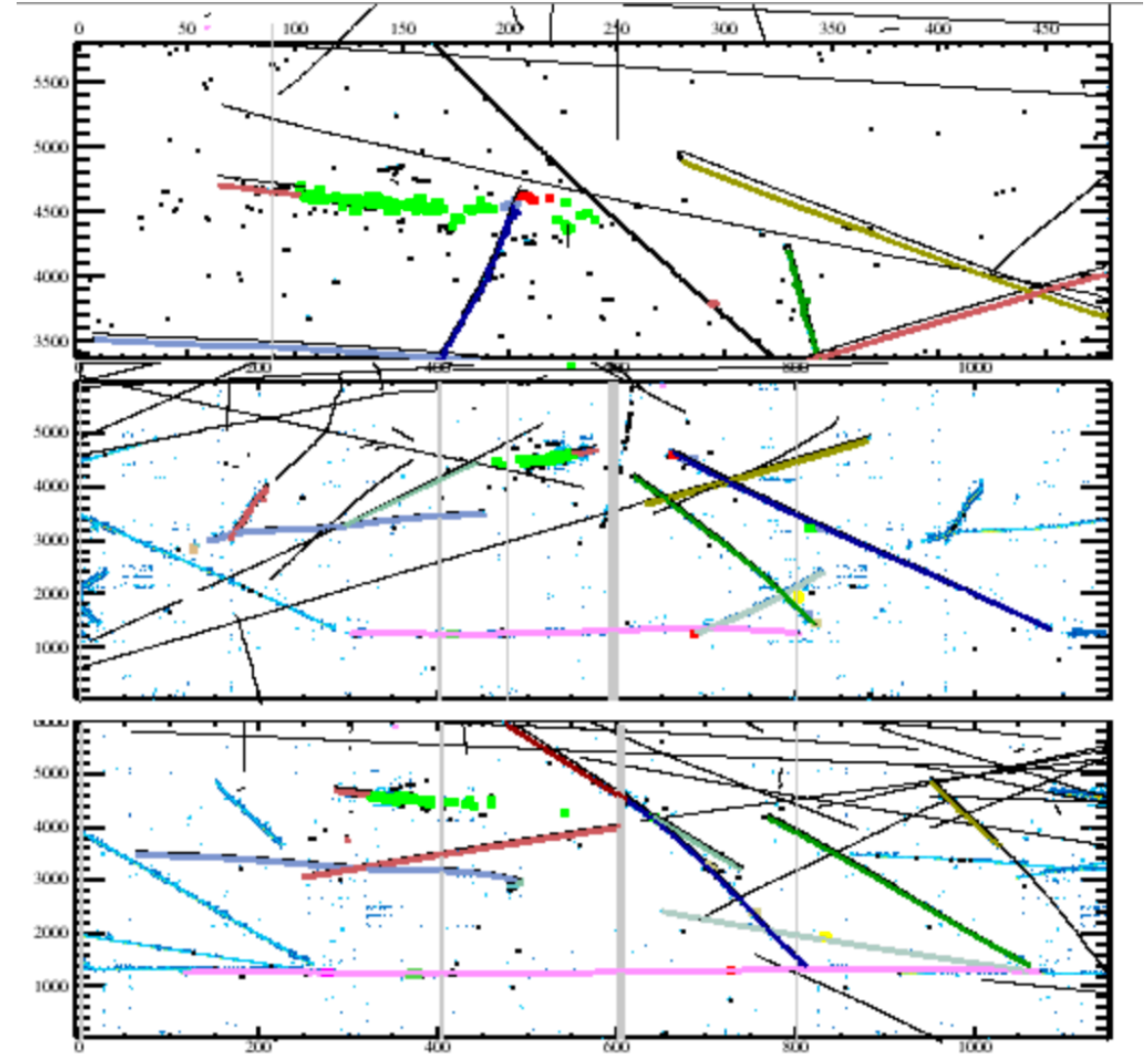|	old Data	Test sample Data	old MCC11	Test sample MCC12
electron trigger eff	61.5%	66.7%	N/A	N/A
primary as shower	52.2%	50.2%	61.5%	58.9%

Shower Reco Validation
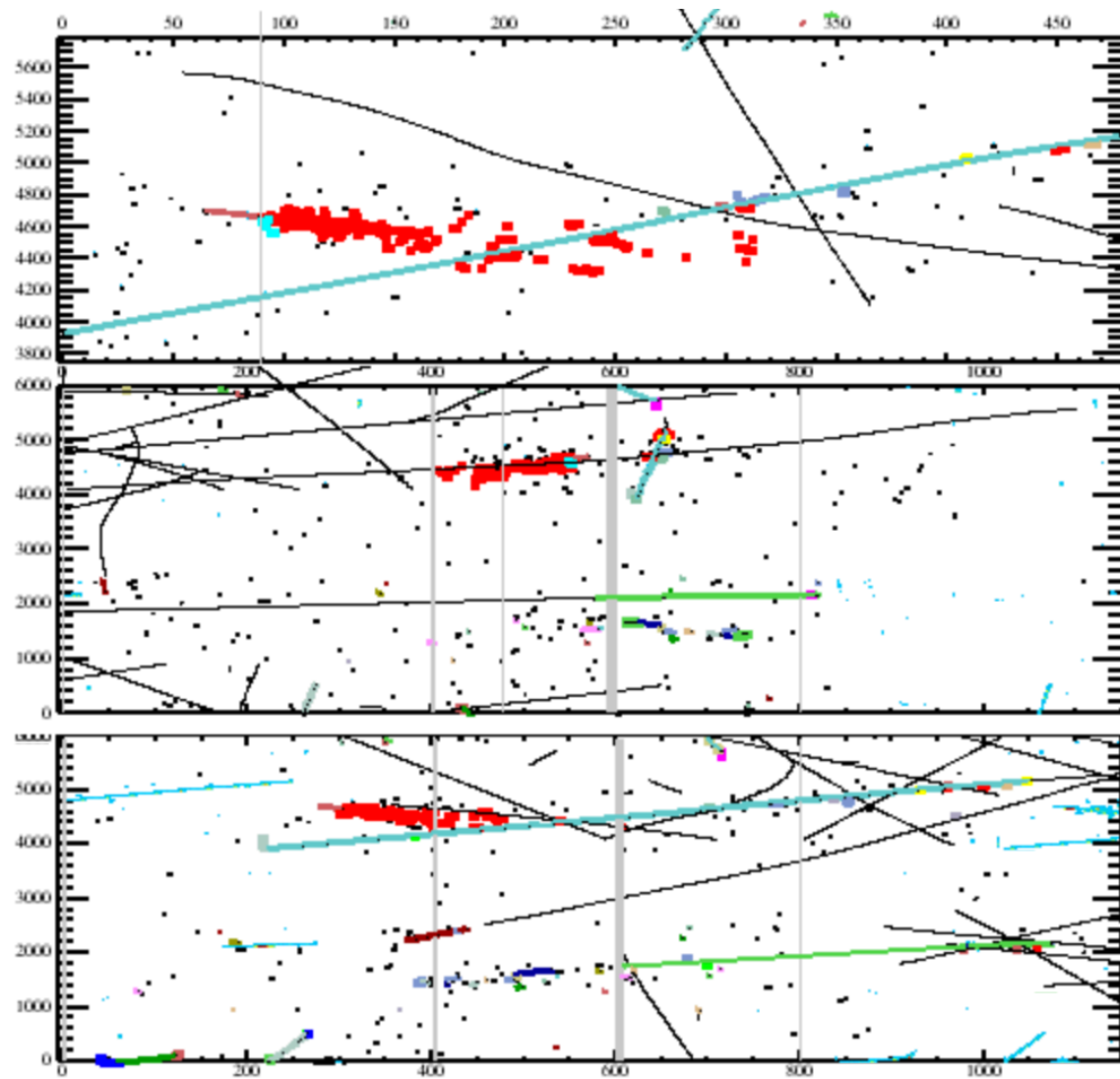
new

old

10599 primary as shower

10599 primary as track followed by a shower

Shower Reco Validation

new

old
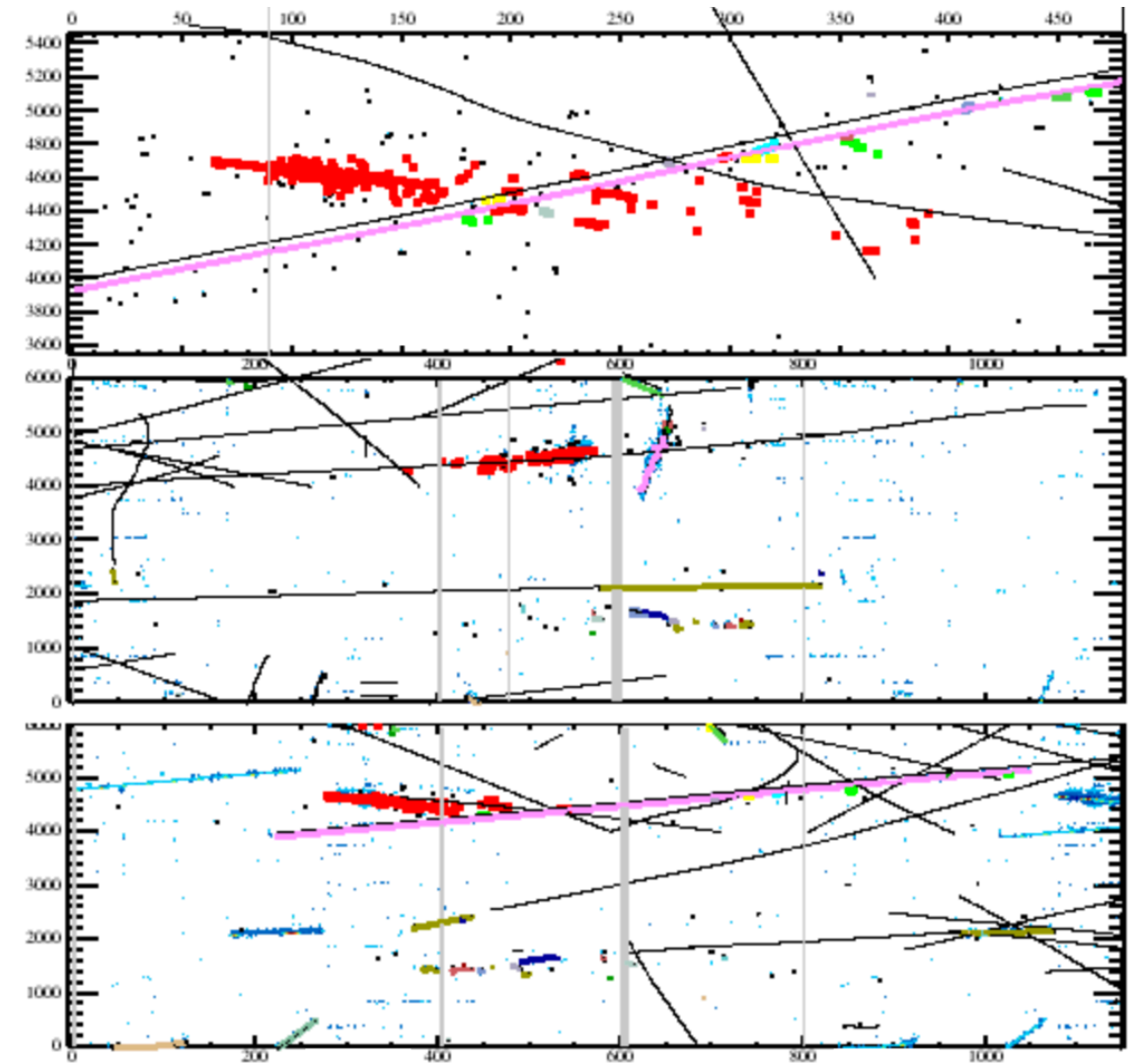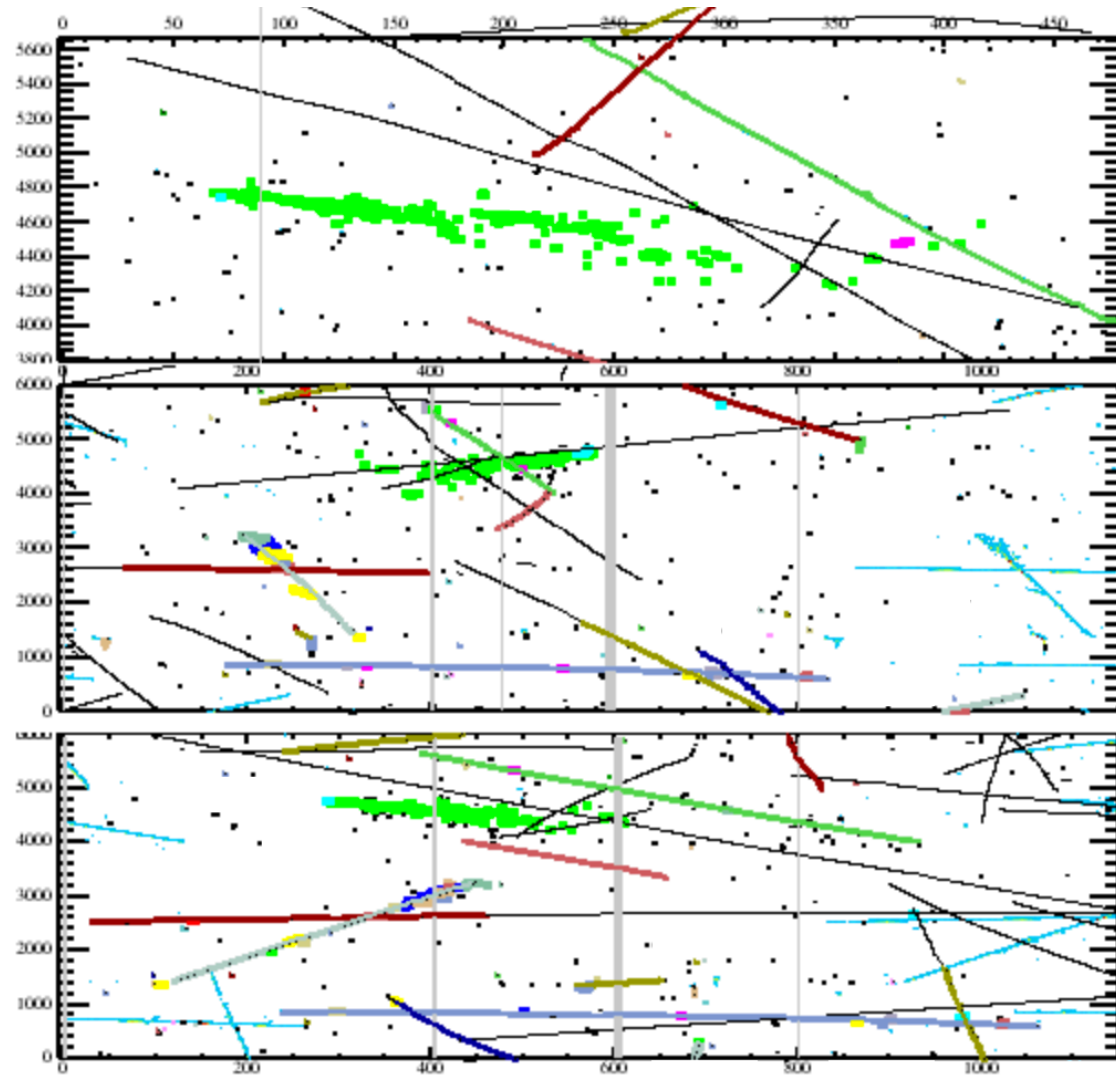
10608 primary as track followed by shower

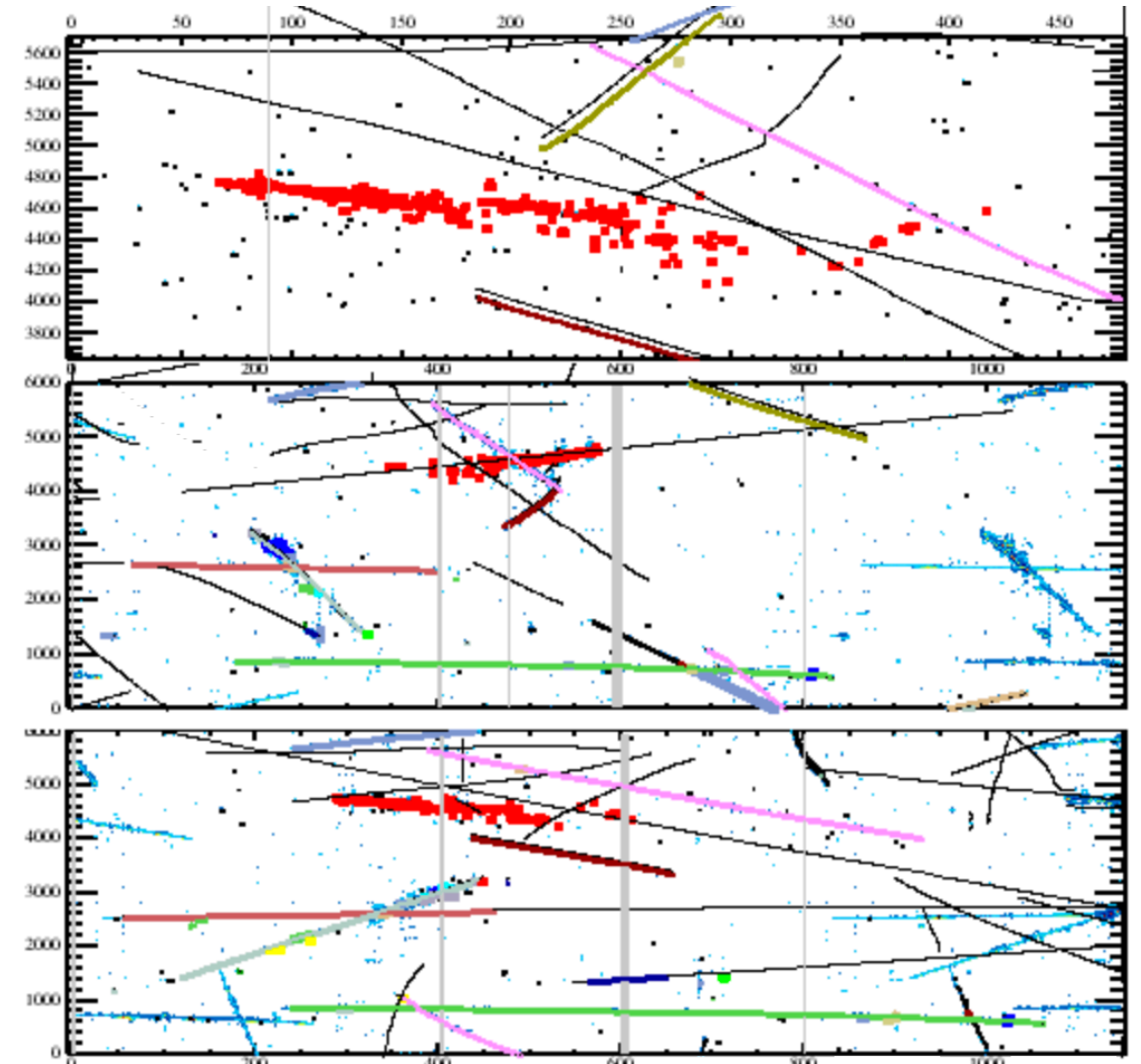10608 primary as single shower

Shower Reco Validation

new

old
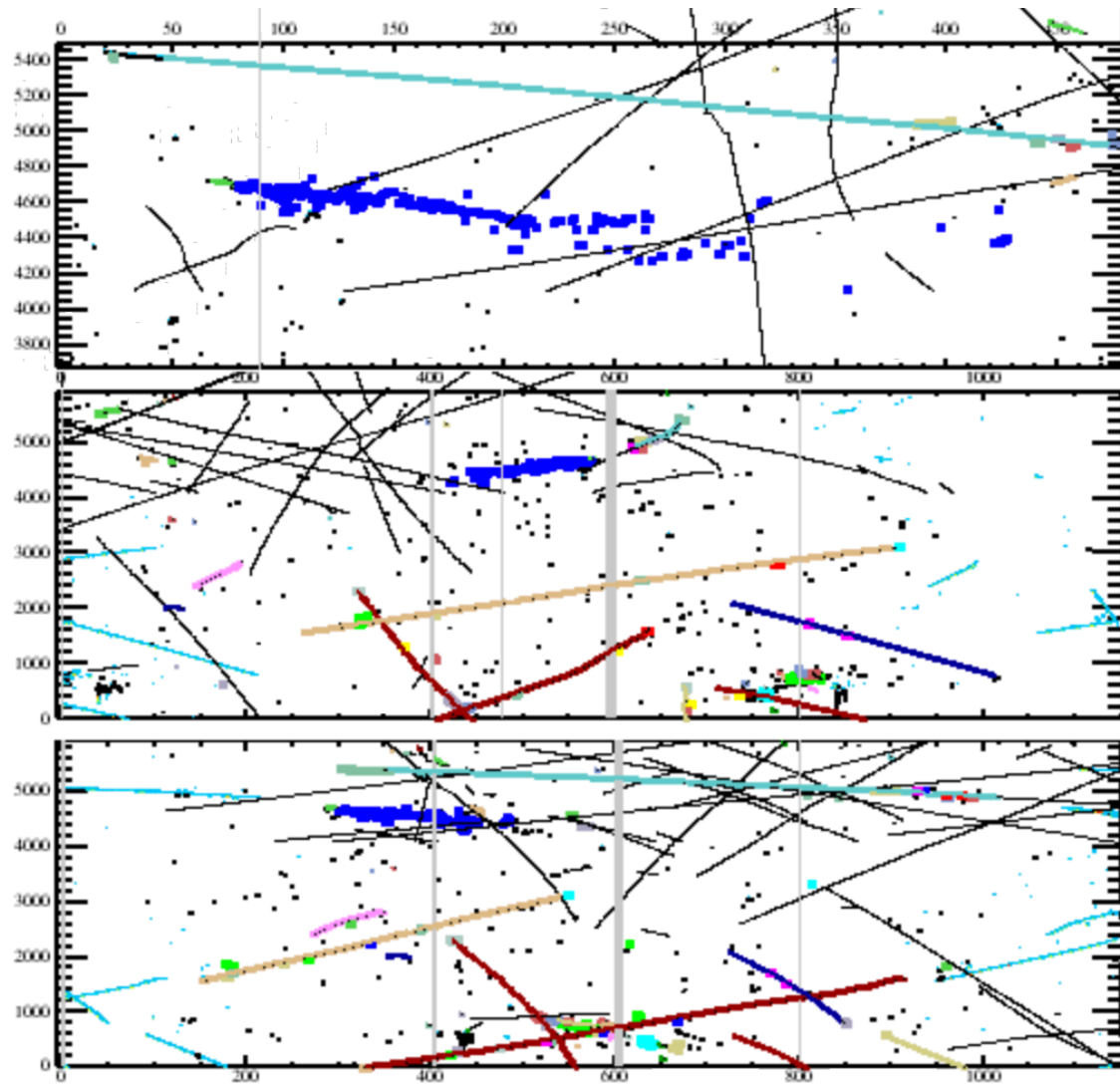
10682 primary as shower

5

Shower Reco Validation

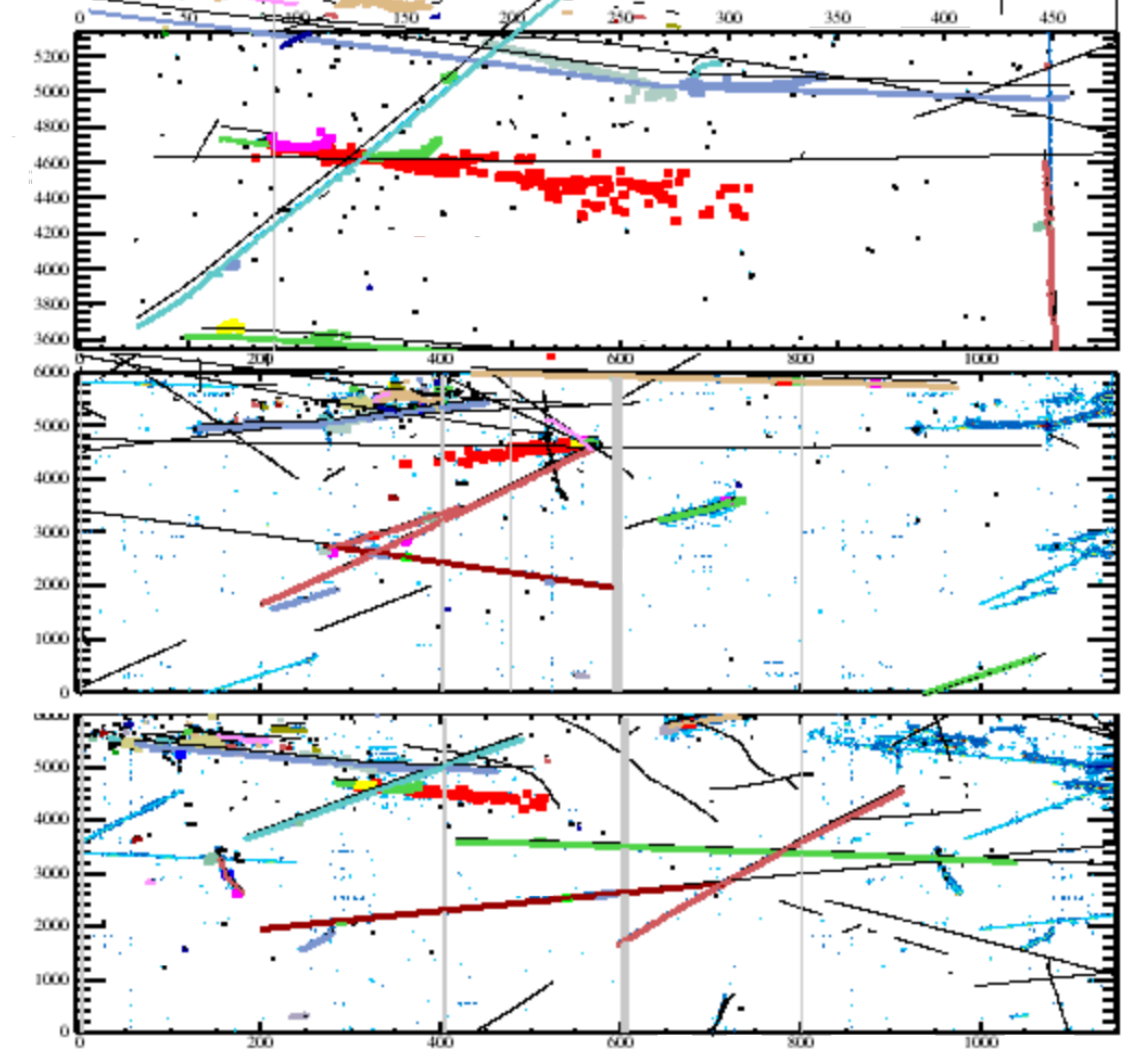new   old

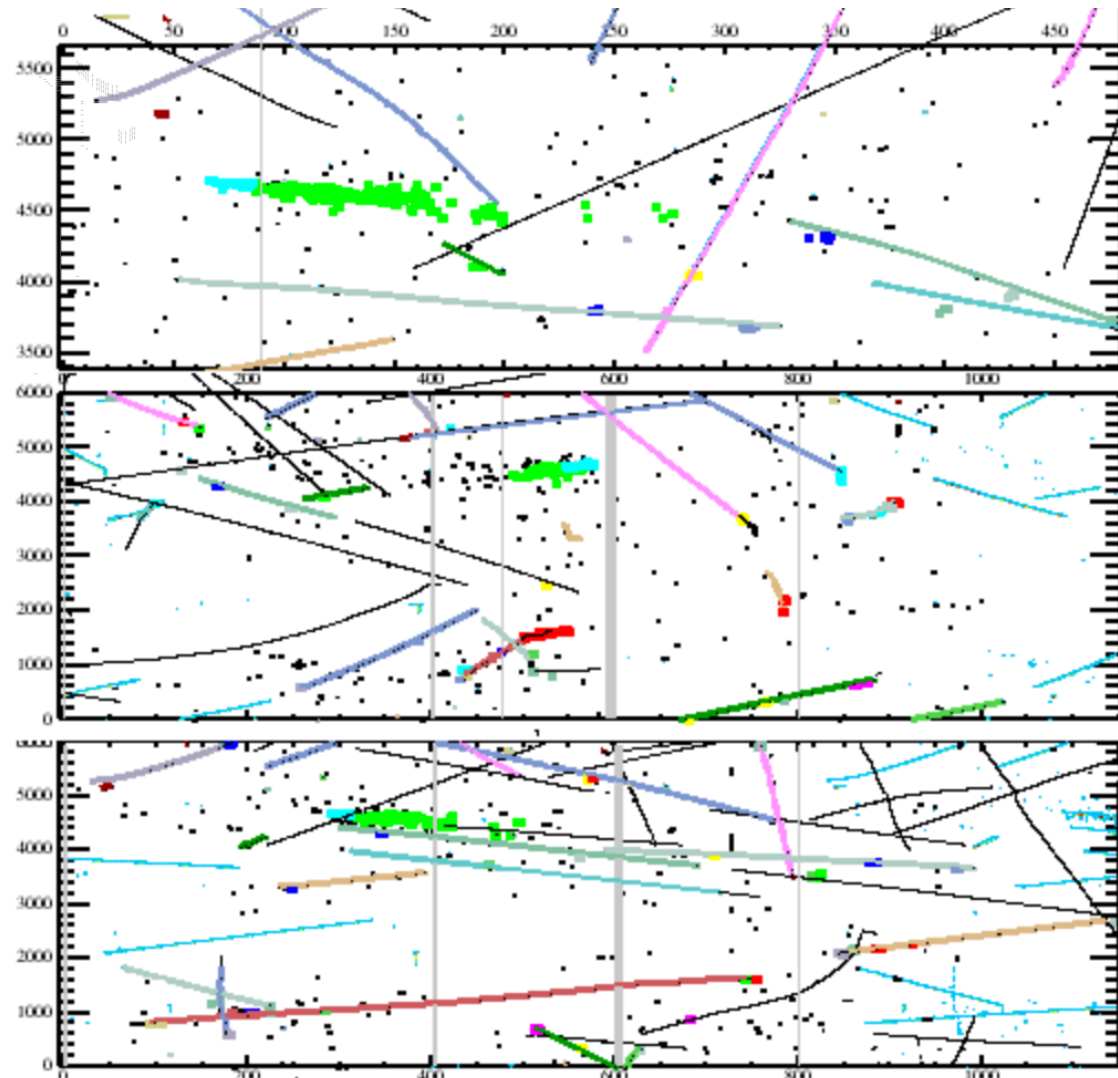10690 primary as track followed by a shower   10690 primary as track followed by a showers
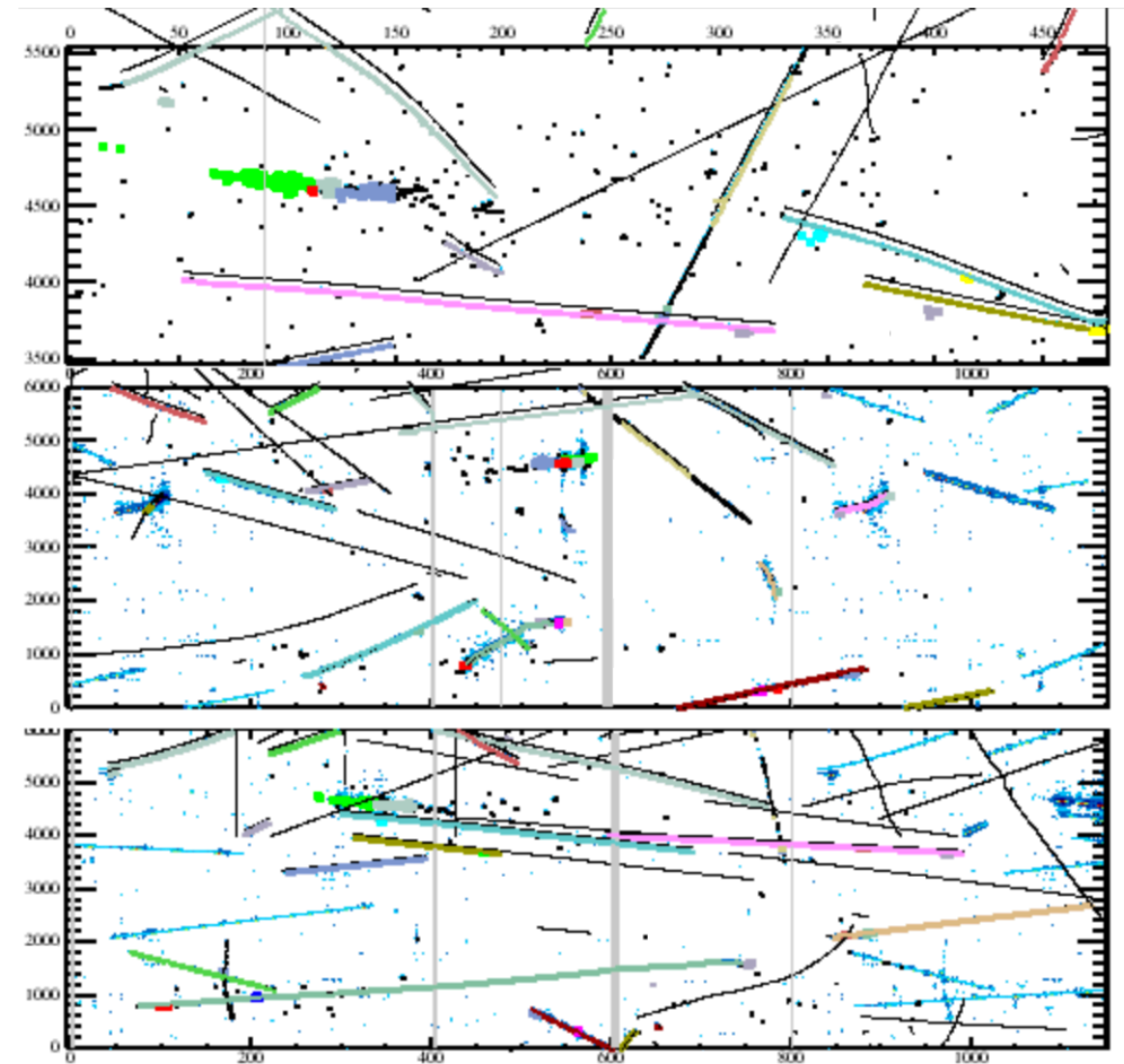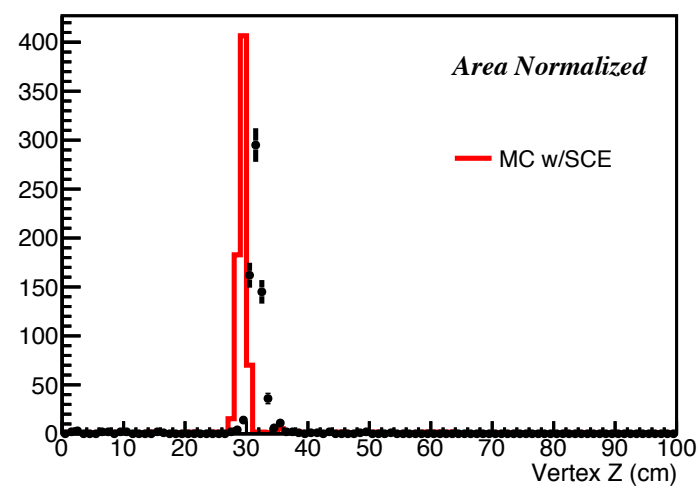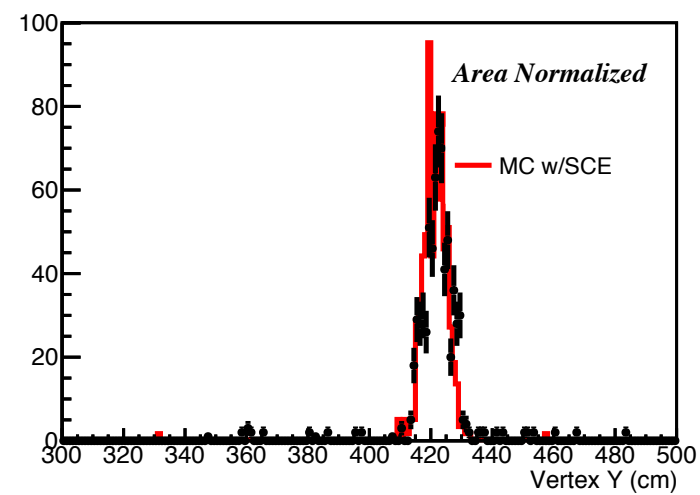
Shower Reco Validation

new

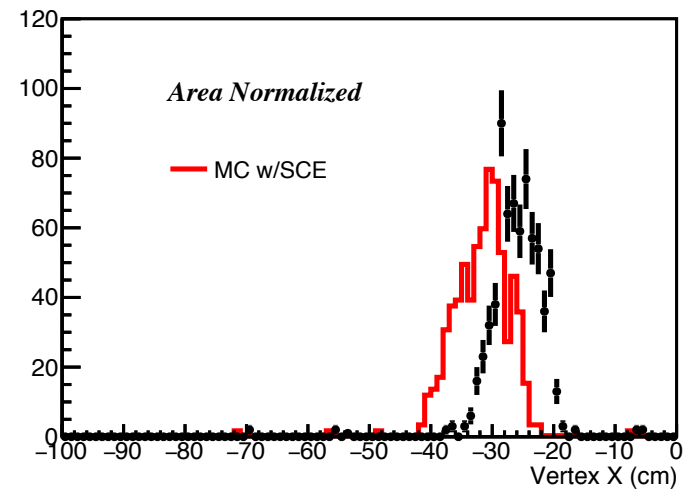old

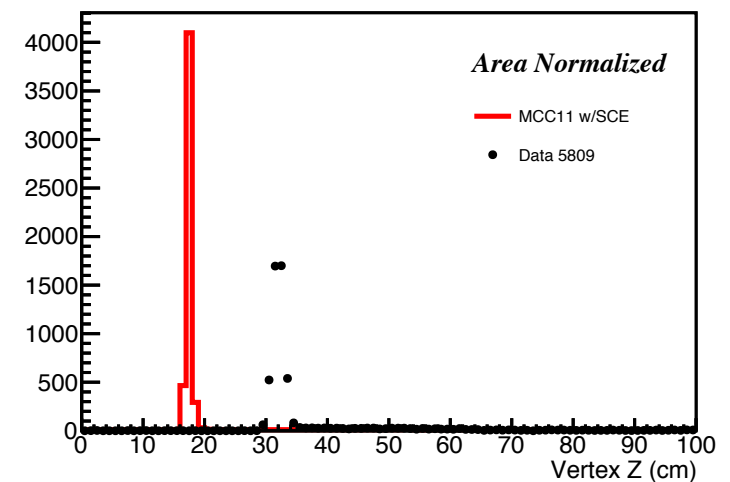10734 primary as shower followed by another shower
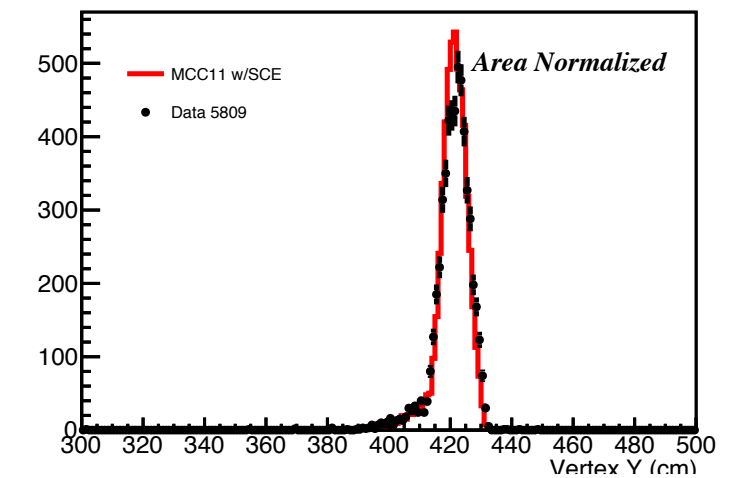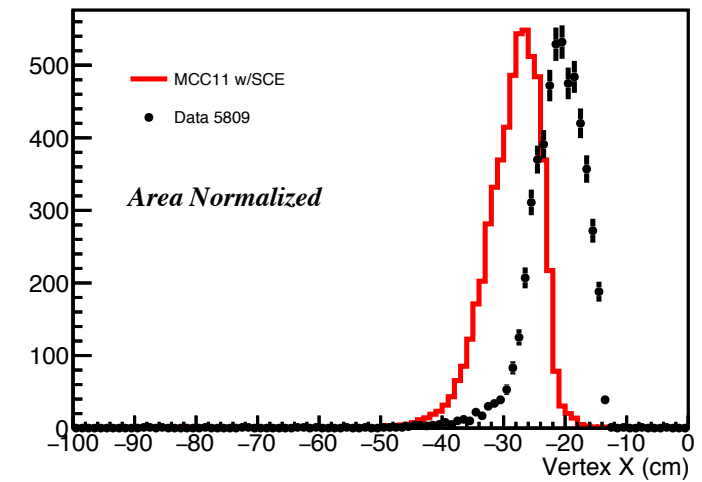
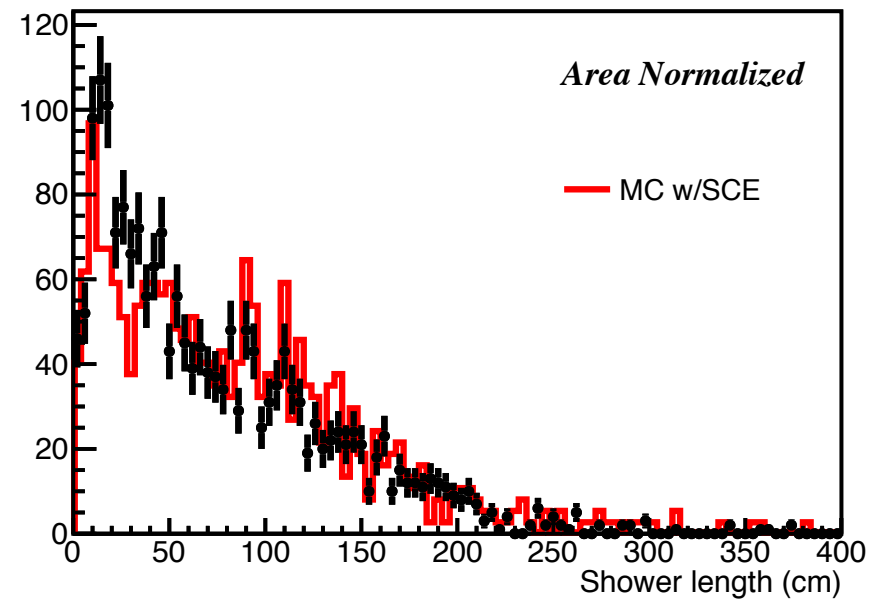10734 primary as shower followed by another shower

Shower Reco Validation

new

old

Shower Reco Validation

new

old

Shower Reco Validation

new

dE/dx at the beginning of the shower

Arbitrary Units

MC w/SCE

dE/dx (MeV/cm)

old

dE/dx at the beginning of the shower

Arbitrary Units

MCC11 w/SCE

● Data 5809

dE/dx (MeV/cm)
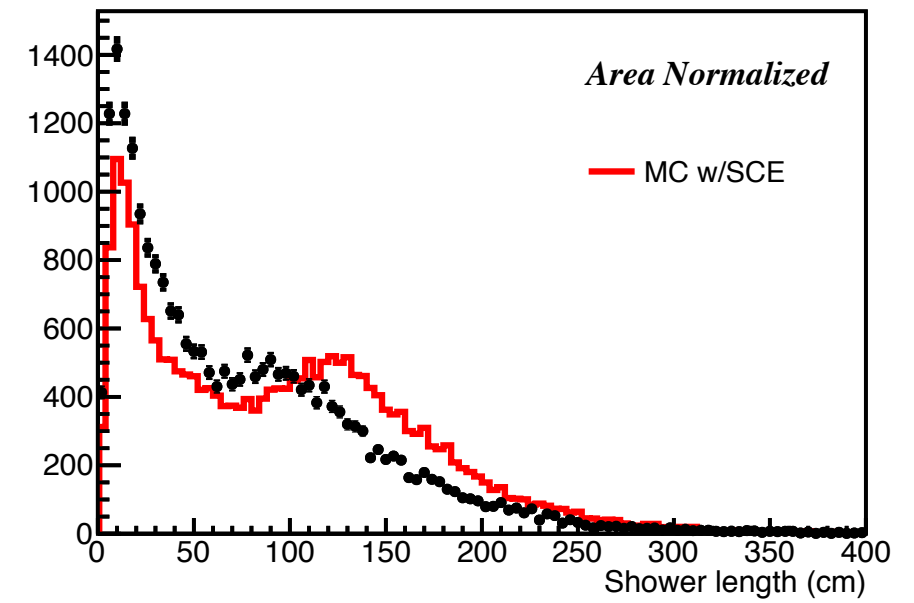
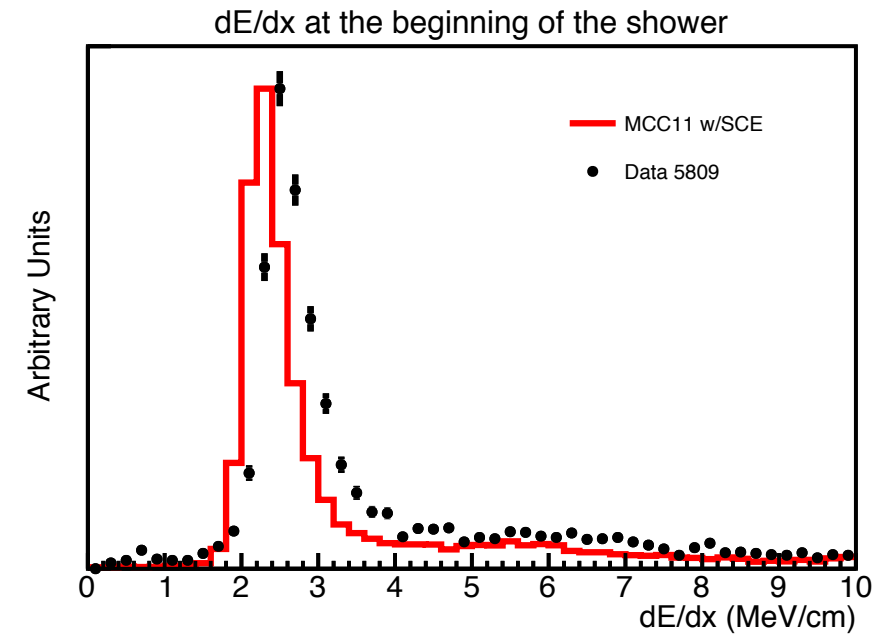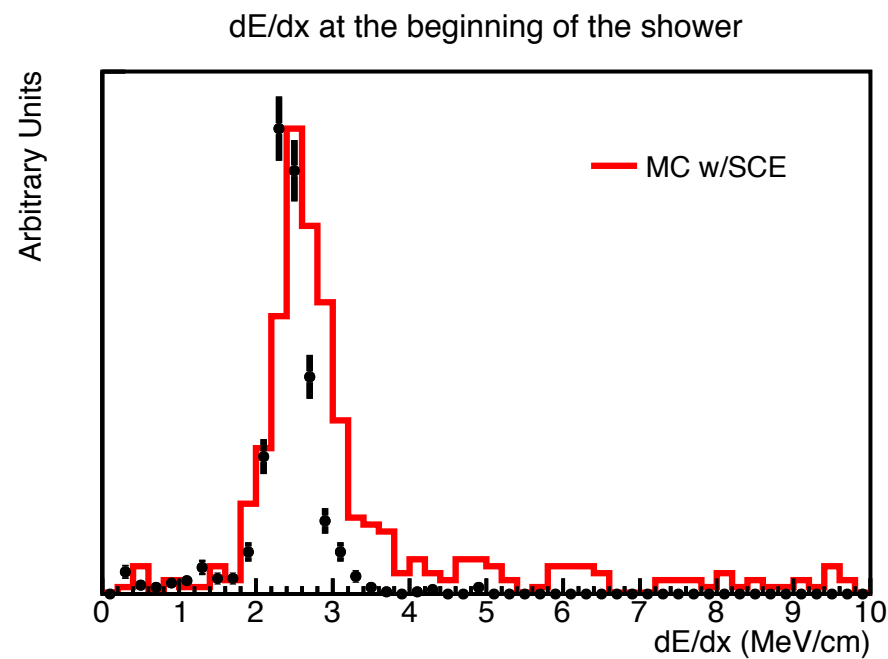**Warning**

X-corrections are from the old calibration

New X & YZ correction are calculated after SCE correction

There is no SCE correction infrastructure for showers

Summary

Overall everything looks OK

A known problem is still there, when shower breaks into small showers. What about shower stitching?

In some cases electrons are reconstructed as a track at the begging of the shower

A little tune up for the shower it is necessary e.g. if there is a very small track followed by a big shower probably we can merged everything into a single shower

SCE corrections? There is no calorimetry information from pandora and SCE corrections have been developed only for tracks

The End