

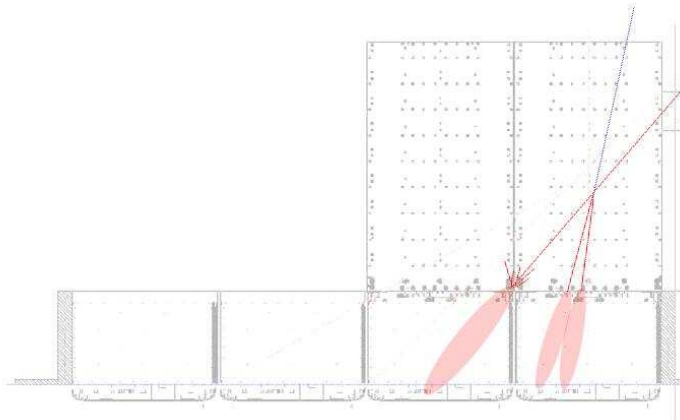
GLAST CERN 2006 Beamtest



TkrHits News

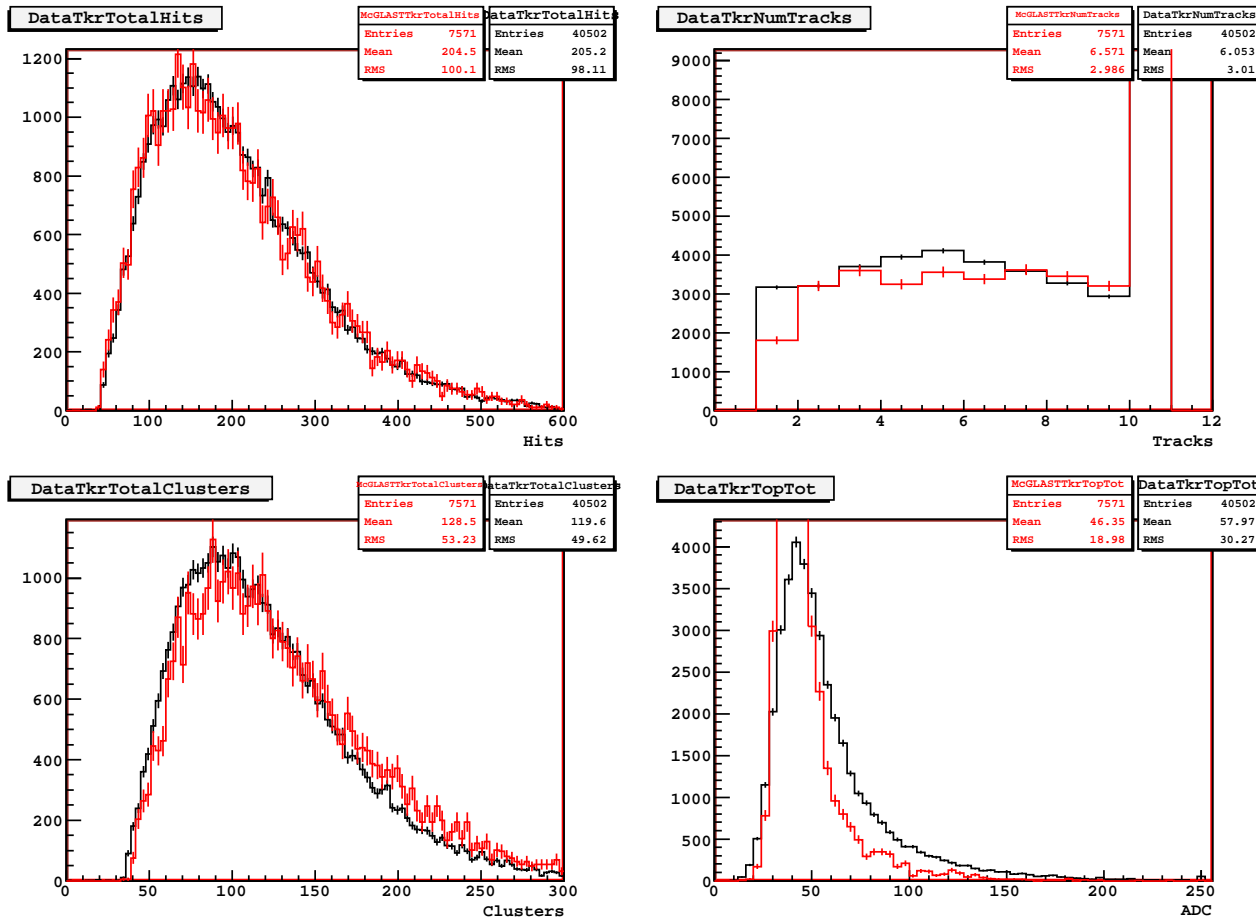
(from many people)

Beamtest Analysis - July 31th, 2007



Summary

- Debugging the BeamtestRelease HEAD1.130, we ended up producing the following plots : Black=DATA and Red=MC for 20GeV electrons)



Summary

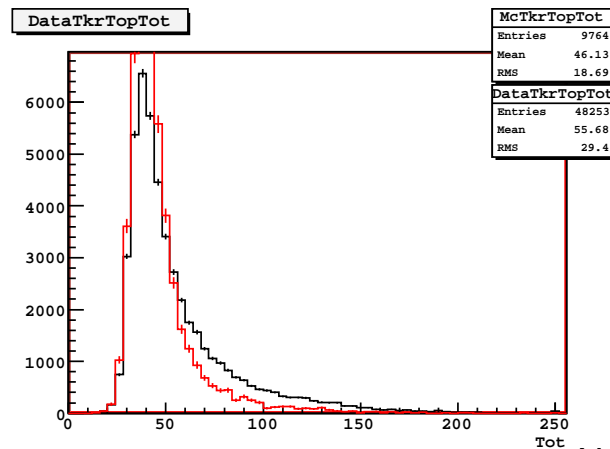
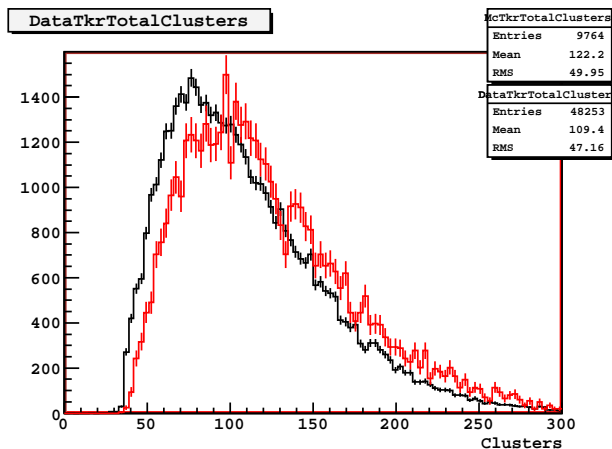
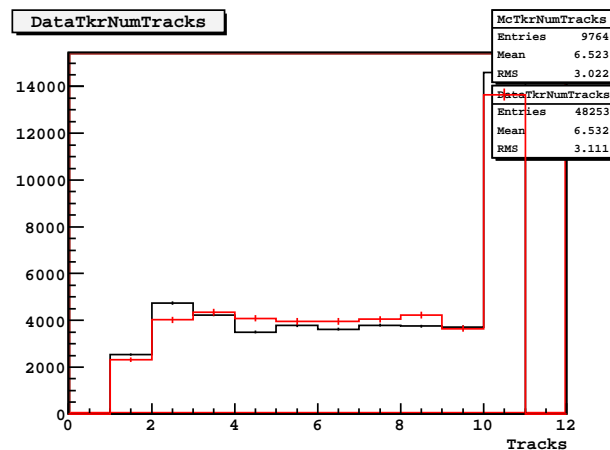
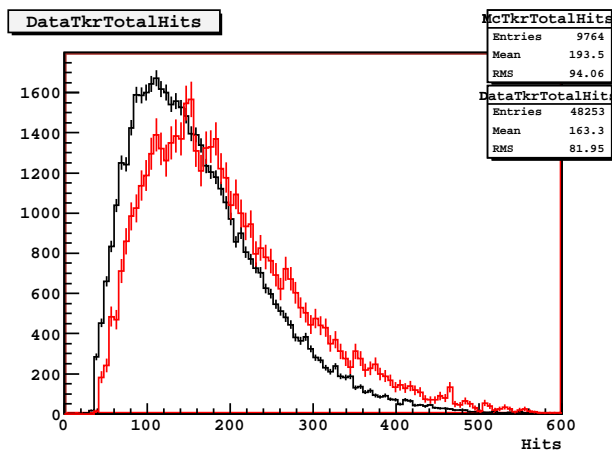
- Debugging the BeamtestRelease HEAD1.130, we ended up producing the following plots : Black=DATA and Red=MC for 20GeV electrons)
- but many things had changed...
 - △ Beamtransform : two versions, one with a bug fix
 - △ jobOption structure : synchronized with current GlastRelease
 - △ GEANT4 libraries : there was a known bug due to compilation in verbose mode.
 - △ Tkr Alignment : we realized we had never used TkrAlignment in our MC before.

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 - △ jobOption structure : synchronized with current GlastRelease
 - △ GEANT4 libraries : there was a known bug due to compilation in verbose mode.
 - △ Tkr Alignment : we realized we had never used TkrAlignment in our MC before.
- ⇒ need to understand what we exactly did...

TkrAlignment

- After a couple of days of confusion, we ended up running the old BeamtestRelease v6r0925p2 in the pipeline, WITH the TKR ALIGNMENT
- MC BT-2082-v6r0925p2-GLAST-NOTALIGNED : Black
- MC BT-2082-v6r0925p2-GLAST-ALIGNED : Red



done so far (HEAD1.130patched is equivalent to HEAD1.131)

- 20GeV electrons
 - △ BT-2082-HEAD1.131-GLAST-ALIGNED and BT-2082-HEAD1.131-GLAST-NOTALIGNED
 - △ BT-2082-HEAD1.130patched-GLAST-ALIGNED
 - △ BT-2082-v6r0925p2-GLAST-PIPEALIGNED and BT-2082-v6r0925p21-GLAST-PIPENOTALIGNED
- 100GeV electrons
 - △ BT-1834-HEAD1.130patched-GLAST-ALIGNED and BT-1834-HEAD1.131-GLAST-NOTALIGNED
- 2.5GeV electrons
 - △ BT-1433-HEAD1.130patched-GLAST-ALIGNED
- 1GeV electrons
 - △ BT-1259-HEAD1.130patched-GLAST-ALIGNED and BT-1259-HEAD1.131-GLAST-NOTALIGNED
- 150GeV protons
 - △ BT-1755-HEAD1.130patched-GLAST-ALIGNED and BT-1755-HEAD1.131-GLAST-NOTALIGNED

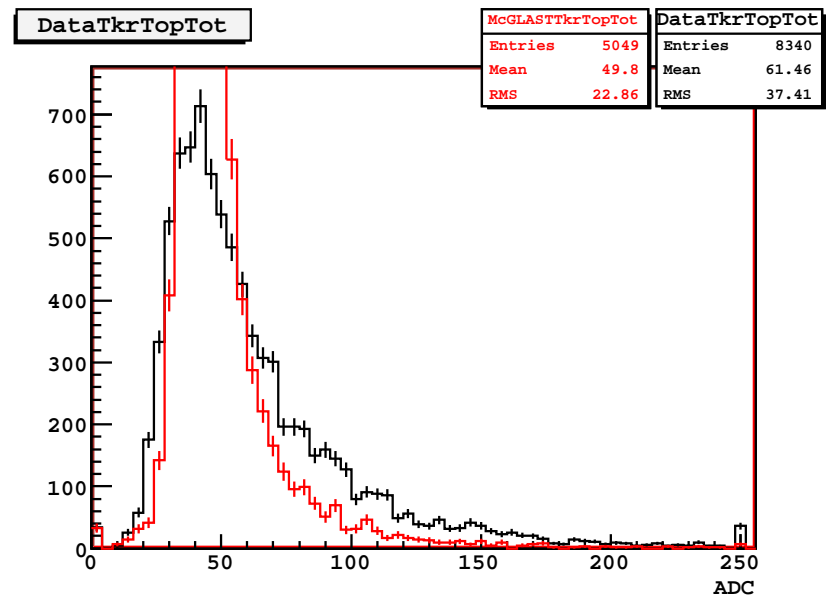
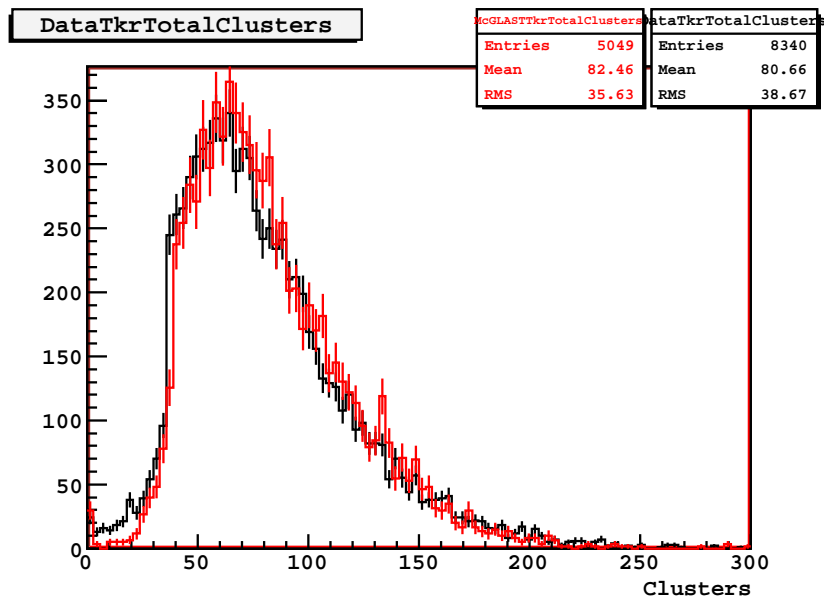
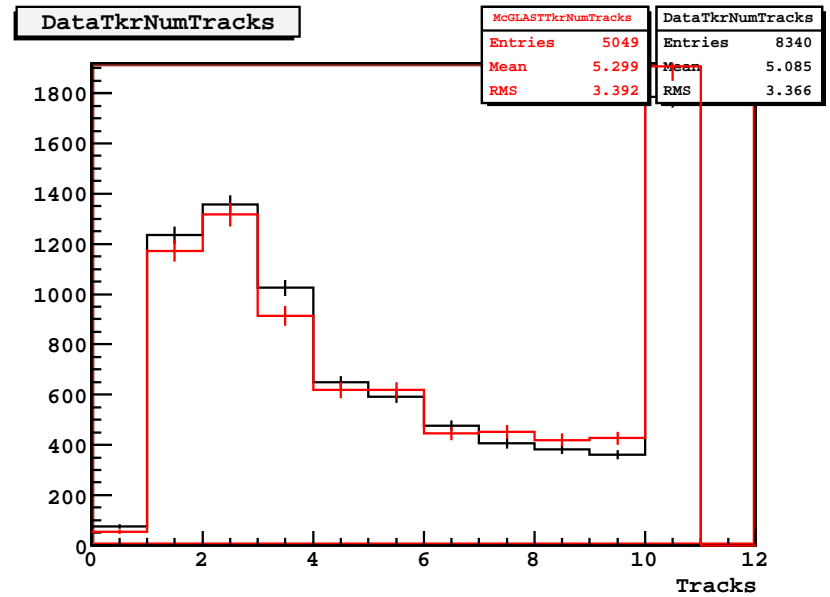
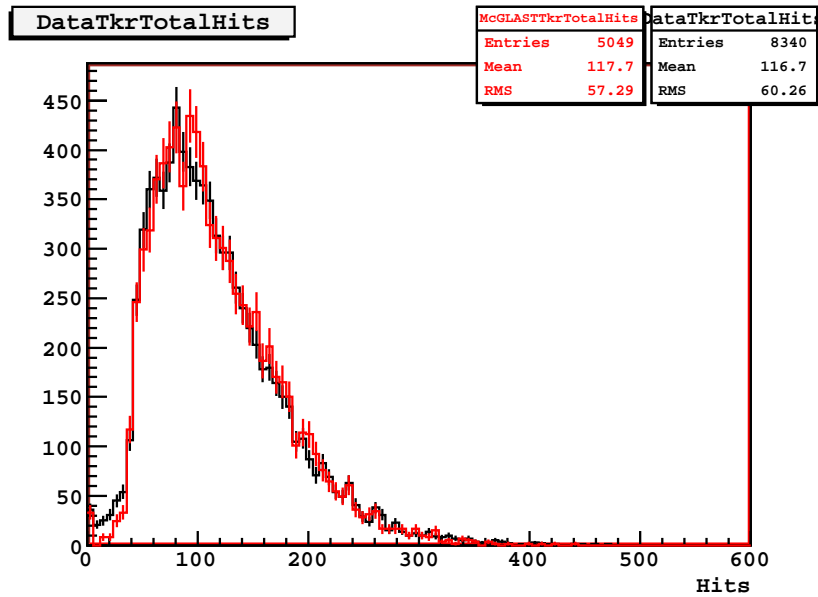
thoughts...

- TkrAlignment has a VERY BIG impact on the number of Tkr Hits and clusters
- Having run the old BTR in the pipeline WITH ALIGNMENT is really reliable test.
- **How TkrAlignment is creating hits ?**
- Using TkrAlignment with observe a significant improvement when comparing Data and MC for all Tkr variables for electrons at 1GeV, 2.5GeV, 20GeV and 100GeV at 0degree and for 150GeV protons.
- No consequence observed on Calorimeter variables
- Cerenkov pressure is also an important parameter for SPS electrons.
- Updating the Gleam's random seed is indispensable, even if beamtest06 particles have been "randomized"
- **Need people to analyze the new MC runs : /nfs/farm/g/glast/u37/MC-tasks/HEAD**
- run a simulation with alignment and alignment constants set to 0
- reprocess a data run w/o alignment
- generate gamma data and study PSF
- review the alignment code and follow particles through the alignment process

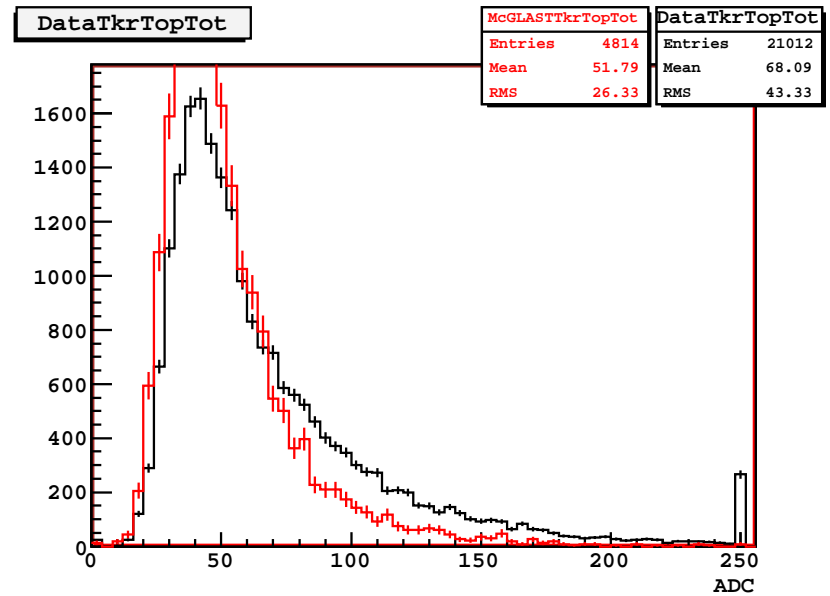
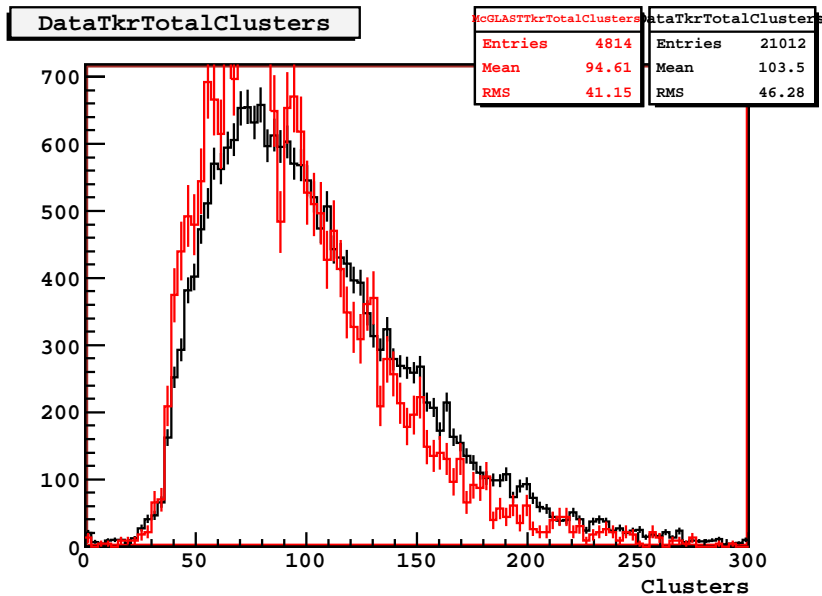
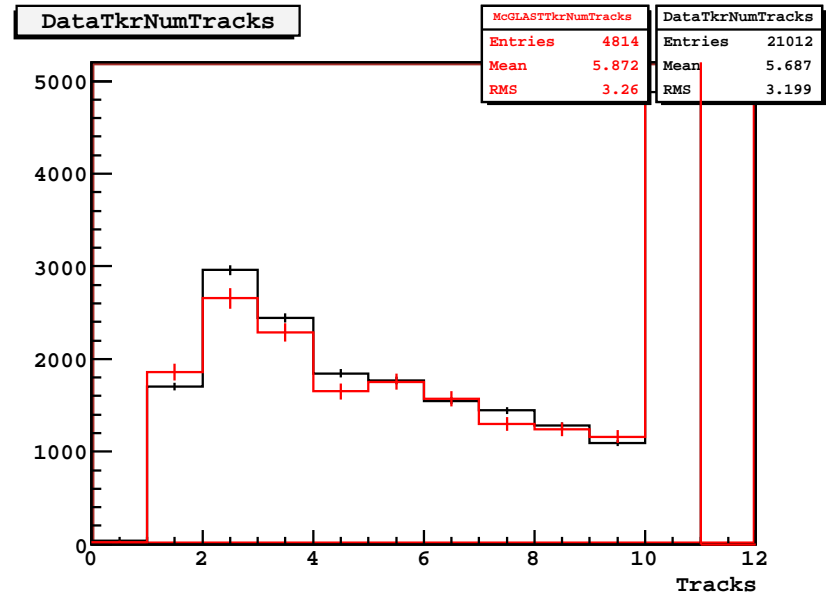
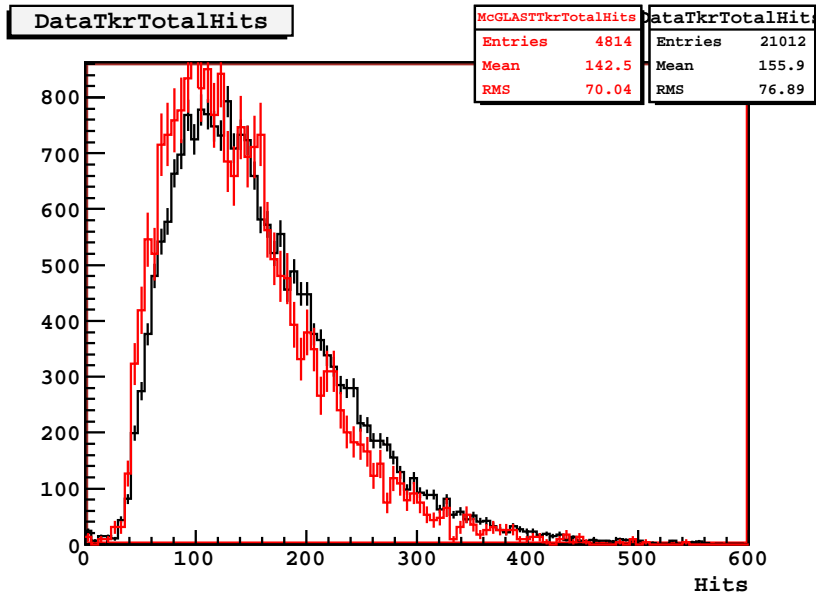
other thoughts...

- Need to scan more particles/energies/angles.
- how TKR Bari digit will behave using the alignment ?
- We had a Data/Mc agreement for the Tkr PSF, is that still true ?
- What about the hits discrepancy observed for muons when alignment is used ?
- BTR HEAD1.131 still suffers from a big memory leak
- If GEANT4 can really reproduce the shower in the Tkr's complex geometry, what happens in the CAL ?
- Shall alignment be used for next GlastRelease MC production ?

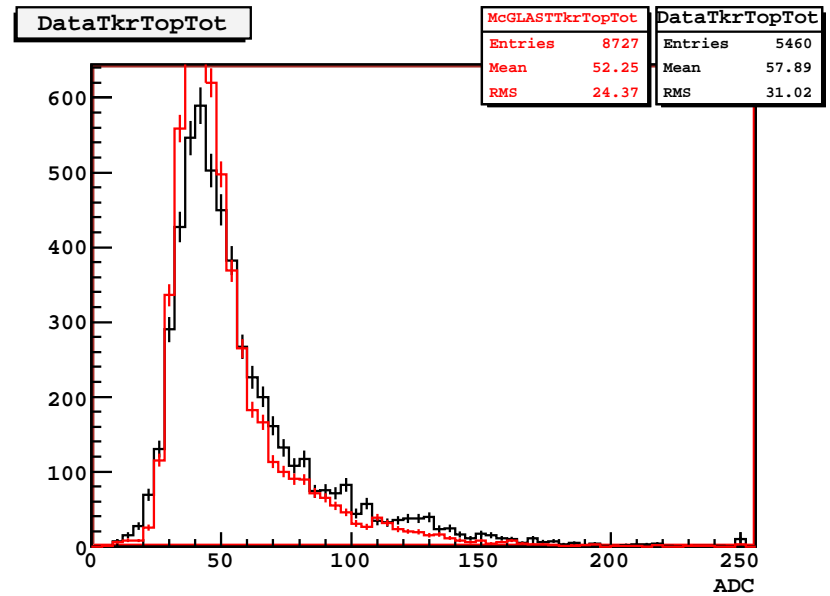
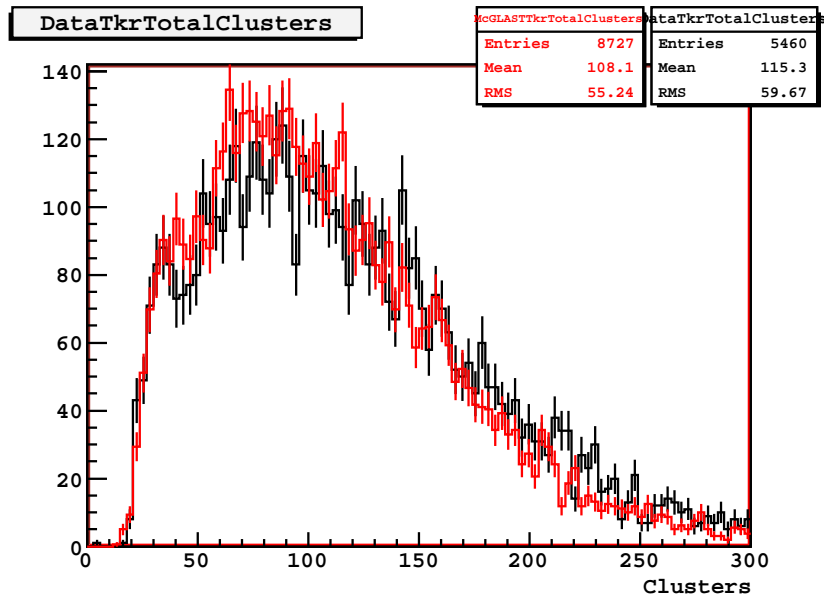
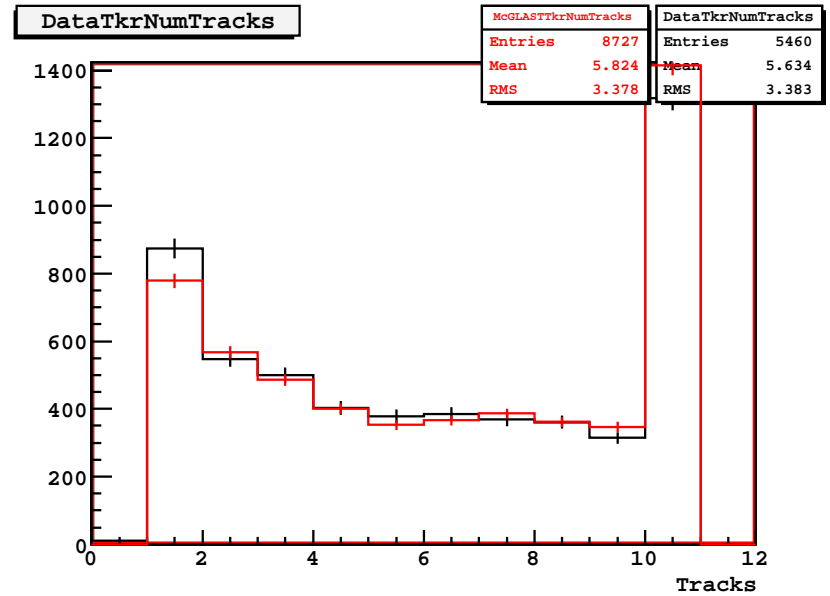
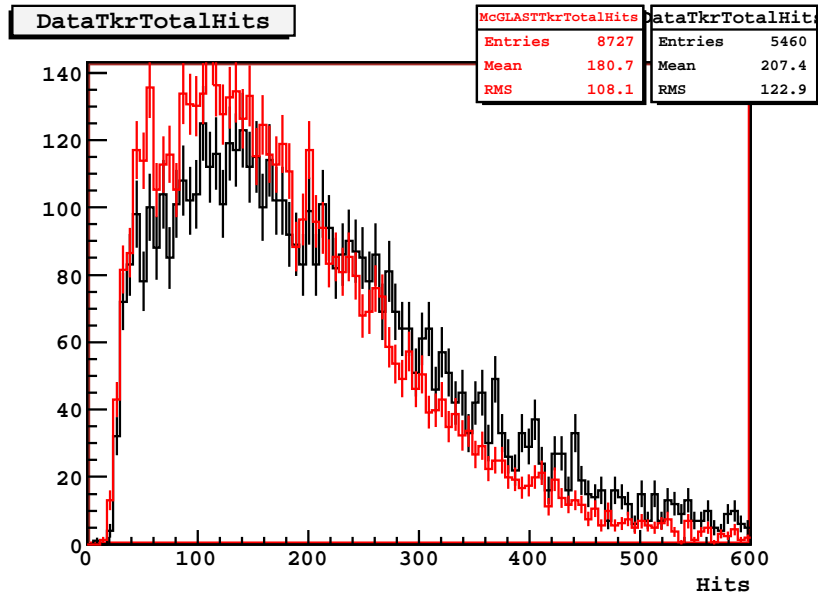
BT-1259 1GeV electrons



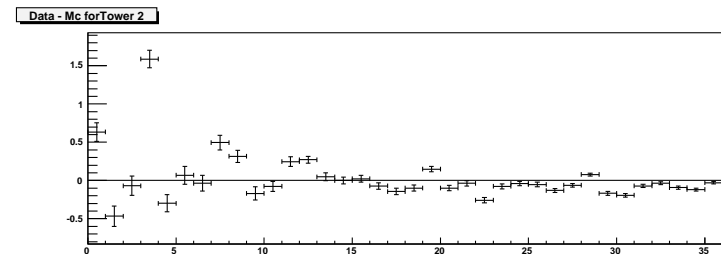
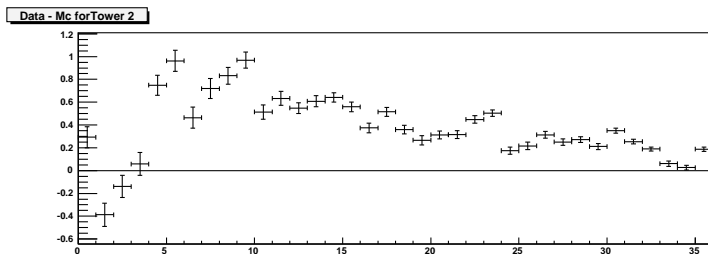
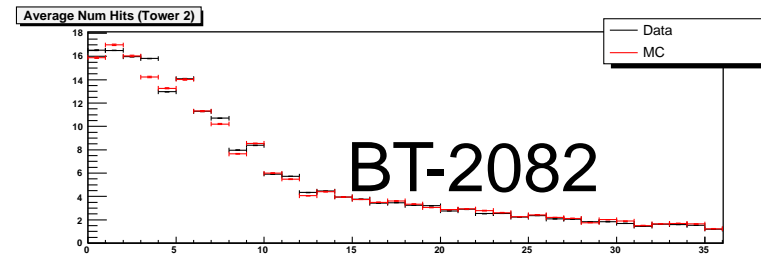
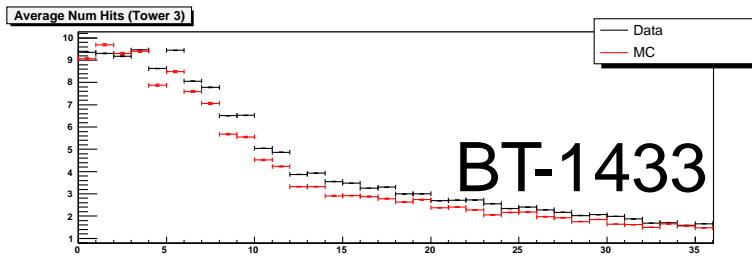
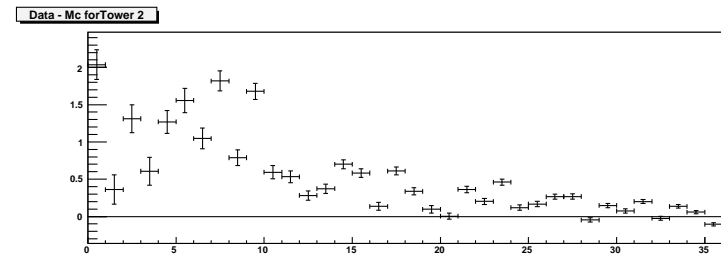
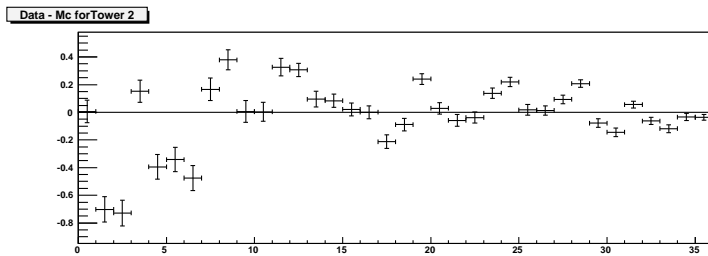
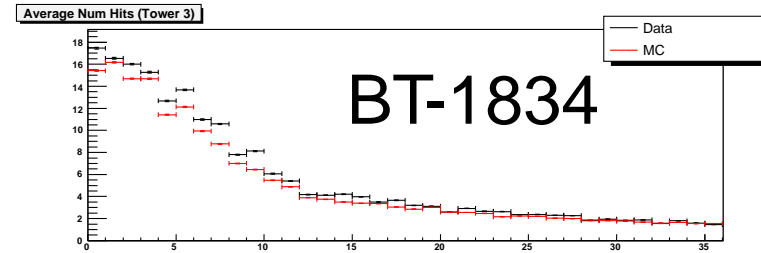
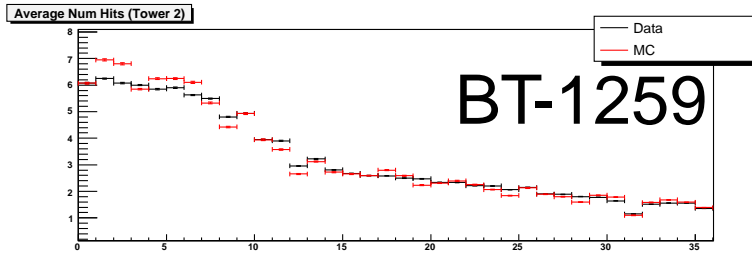
BT-1433 2.5GeV electrons



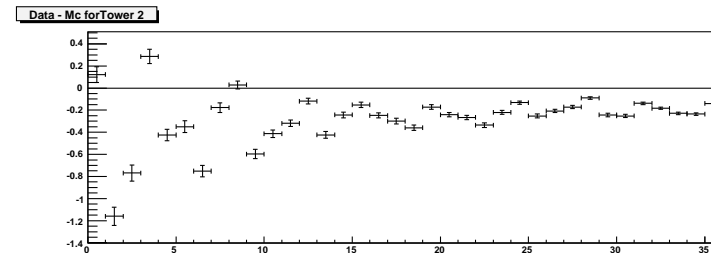
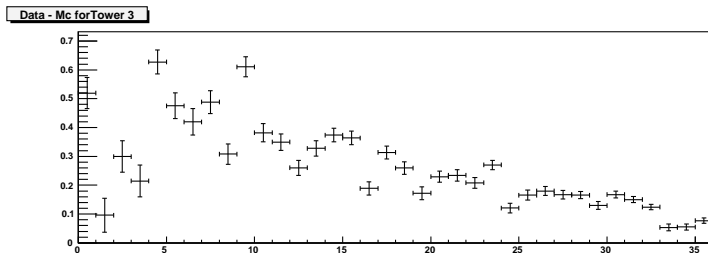
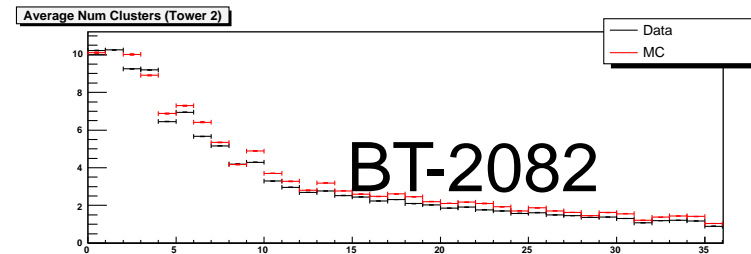
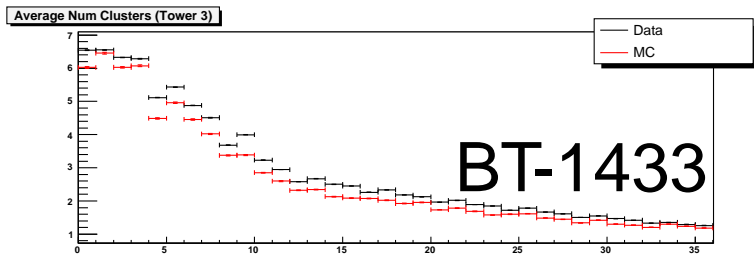
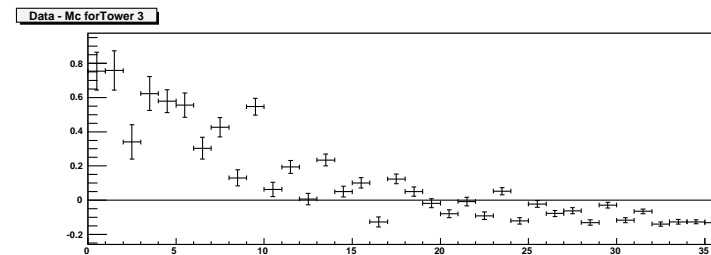
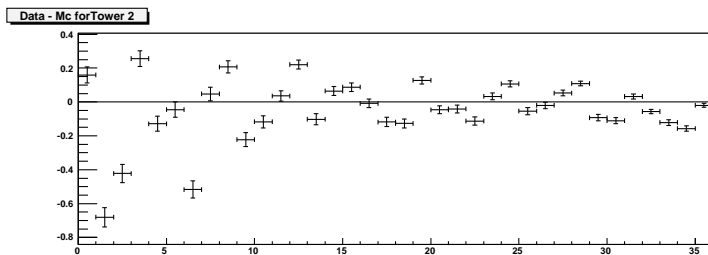
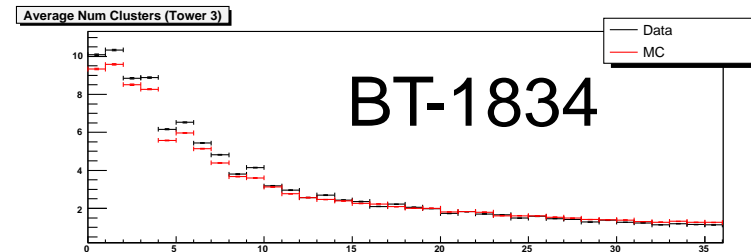
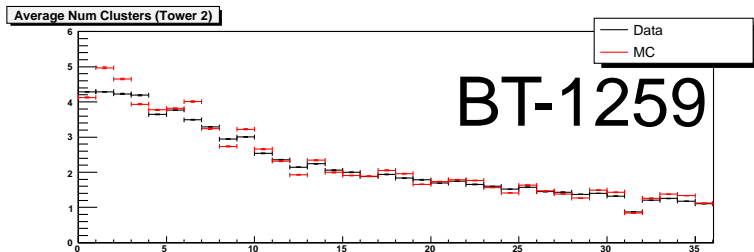
BT-1834 100GeV electrons



Hits Profiles



Clusters Profiles



BT-1755 150GeV proton (only non-interacting)

