

# Run 22 FCS QA

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Cold QCD Meeting

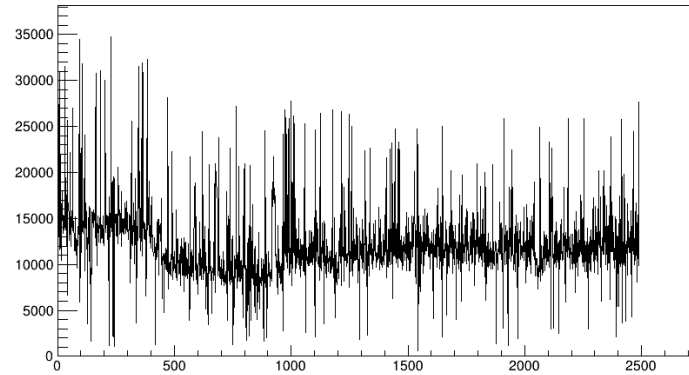
January 15, 2025

# Recap and Outline

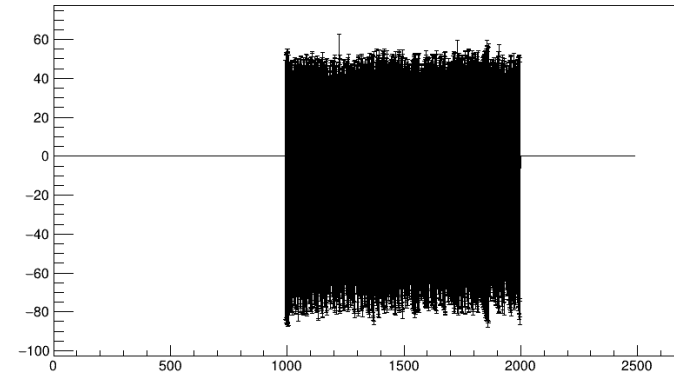
- Looking at Run 22 fwd\_stream production
  - Request page: <https://drupal.star.bnl.gov/STAR/blog/dkap7827/Run-22-Data-Production-Request>
  - Used a file from every single run number greater than 23005043
    - Only runs after and including this run are calibrated
    - When I included runs before this one got bad results
  - Spin database cross check finished
- Last update: Showed invariant mass distributions at different energy and phi bins
- This update: Run QA and looking at TSSA

# Entries and Vertex Information

Number of Entries vs. Run Index

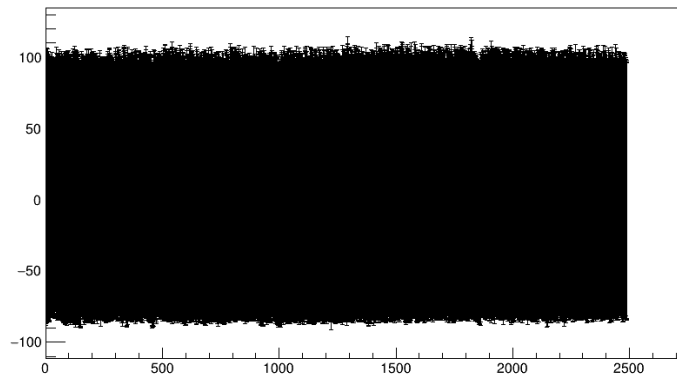


VPD vertex mean (Err=RMS) vs. Run index

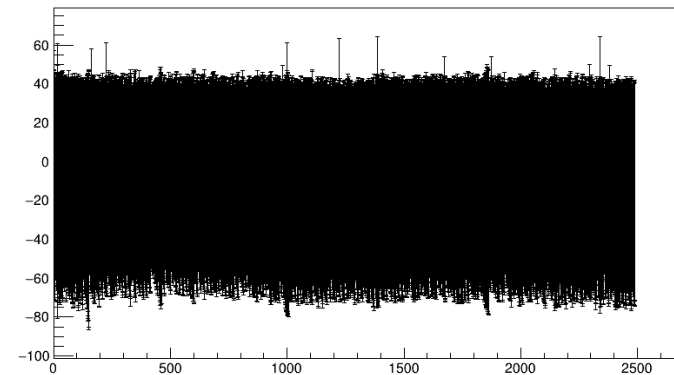


The first few runs is missing VPD because it was not in the production. I don't know why it is missing at the end

Bbc vertex mean (Err=RMS) vs. Run index



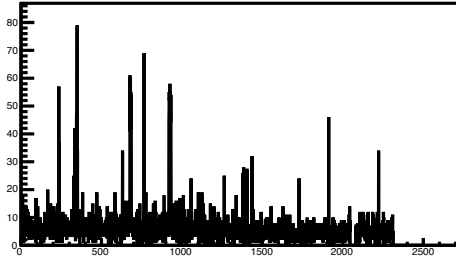
EPD vertex mean (Err=RMS) vs. Run index



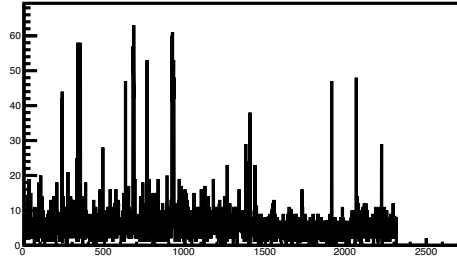
Fairly consistent in terms of entries and vertex over all runs

# Trigger Plots 1

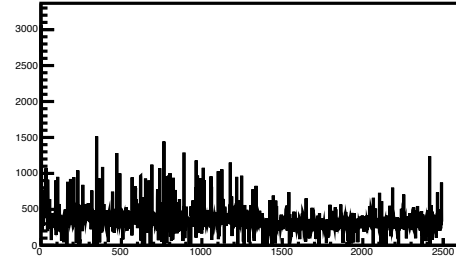
Number of Events for trigger fcs\_led vs. Run Index



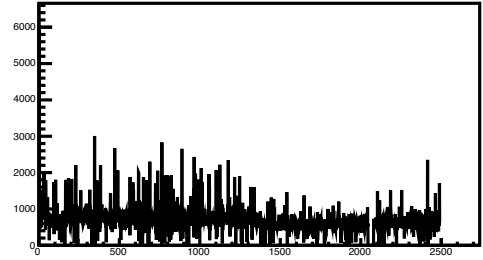
Number of Events for trigger fcs\_EcalTot vs. Run Index



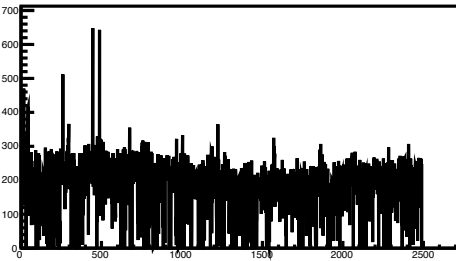
Number of Events for trigger FCSS7-HTOT-S vs. Run Index



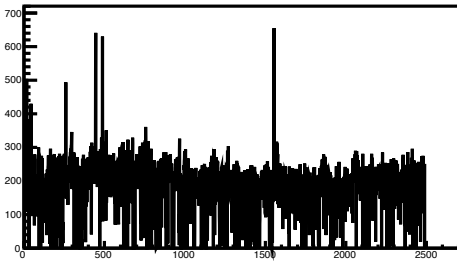
Number of Events for trigger fcsJPsi vs. Run Index



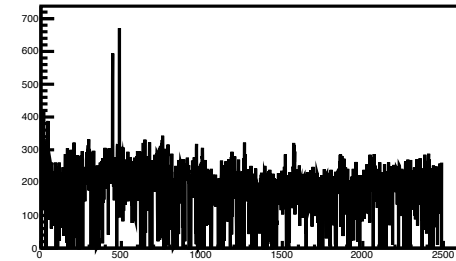
Number of Events for trigger fcsJPDE1 vs. Run Index



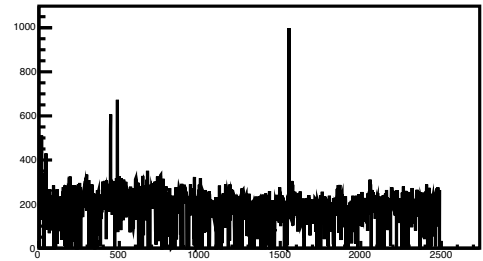
Number of Events for trigger fcsJPDE0 vs. Run Index



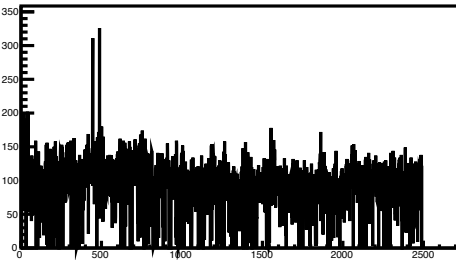
Number of Events for trigger fcsJPBC1 vs. Run Index



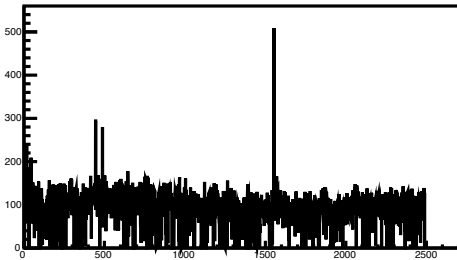
Number of Events for trigger fcsJPBC0 vs. Run Index



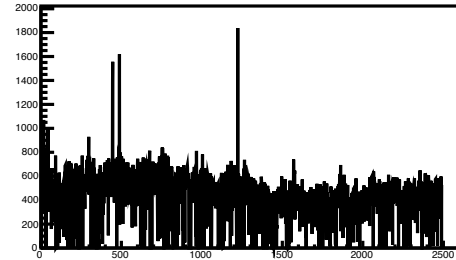
Number of Events for trigger fcsJPA1 vs. Run Index



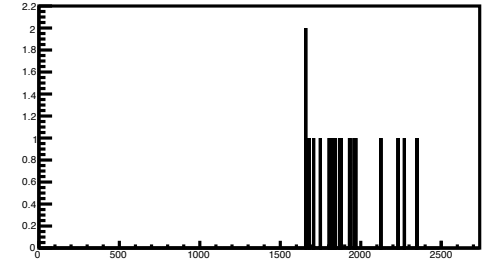
Number of Events for trigger fcsJPA0 vs. Run Index



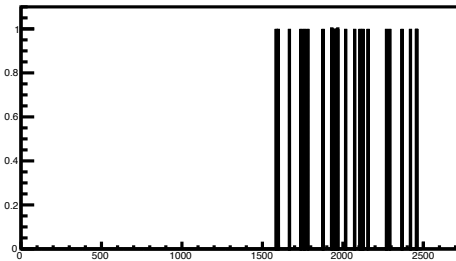
Number of Events for trigger fcsJP2 vs. Run Index



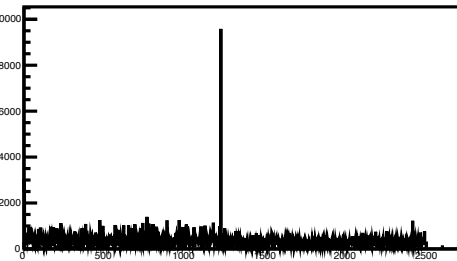
Number of Events for trigger fcsHHT-S vs. Run Index



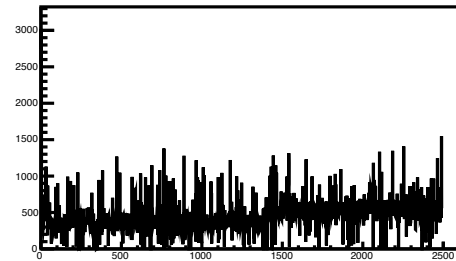
Number of Events for trigger fcsHHT-N vs. Run Index



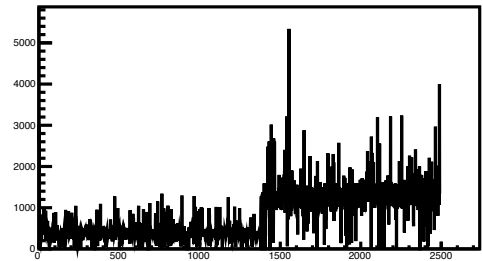
Number of Events for trigger fcsHad2 vs. Run Index



Number of Events for trigger fcsHad1 vs. Run Index

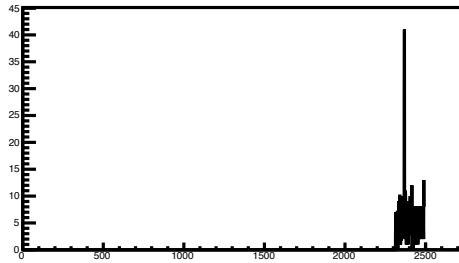


Number of Events for trigger fcsHad0 vs. Run Index

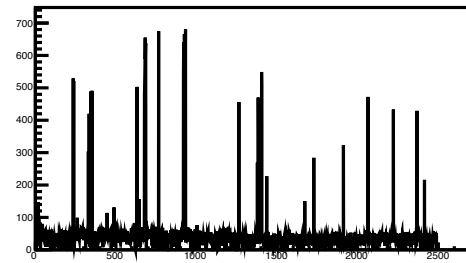


# Trigger Plots 2

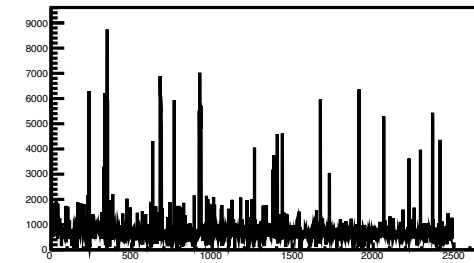
Number of Events for trigger fcsEM3 vs. Run Index



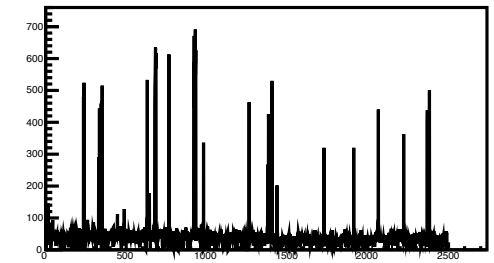
Number of Events for trigger fcsEM2\_tpc vs. Run Index



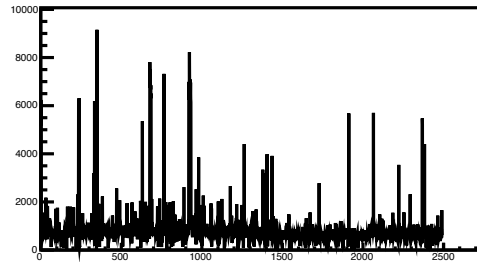
Number of Events for trigger fcsEM2 vs. Run Index



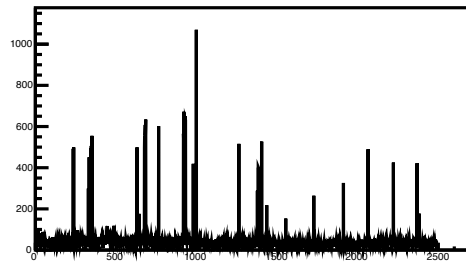
Number of Events for trigger fcsEM1\_tpc vs. Run Index



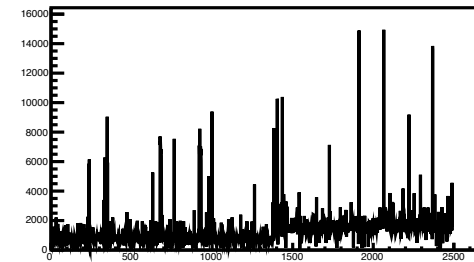
Number of Events for trigger fcsEM1 vs. Run Index



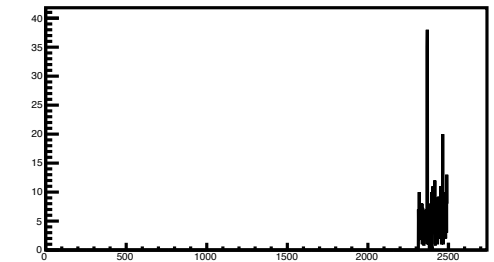
Number of Events for trigger fcsEM0\_tpc vs. Run Index



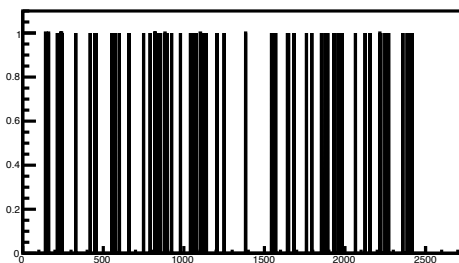
Number of Events for trigger fcsEM0 vs. Run Index



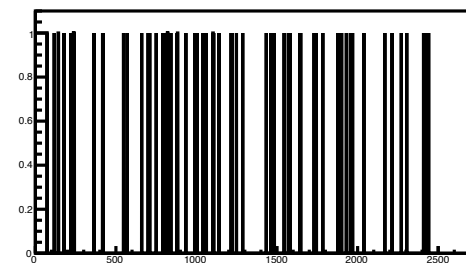
Number of Events for trigger fcsELE2 vs. Run Index



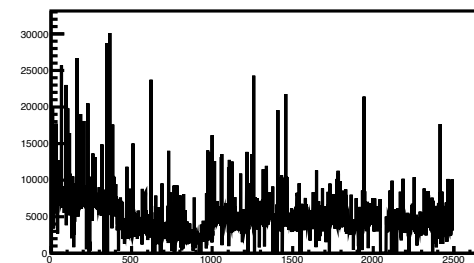
Number of Events for trigger fcsEHT-S vs. Run Index



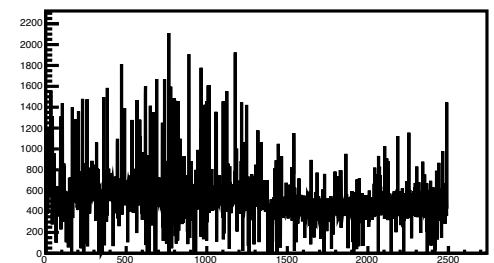
Number of Events for trigger fcsEHT-N vs. Run Index



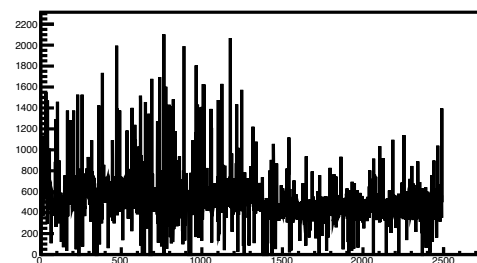
Number of Events for trigger fcsDY vs. Run Index



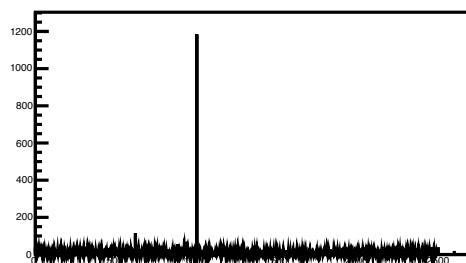
Number of Events for trigger fcsDiJPAsy vs. Run Index



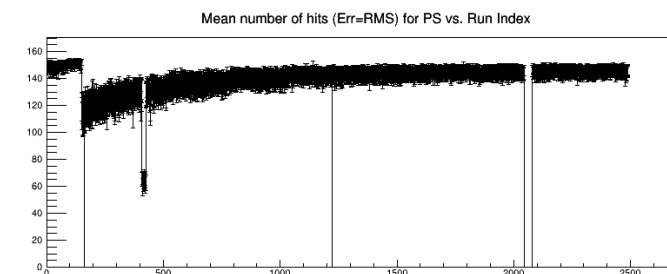
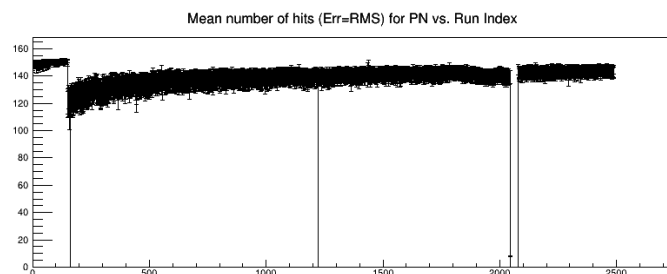
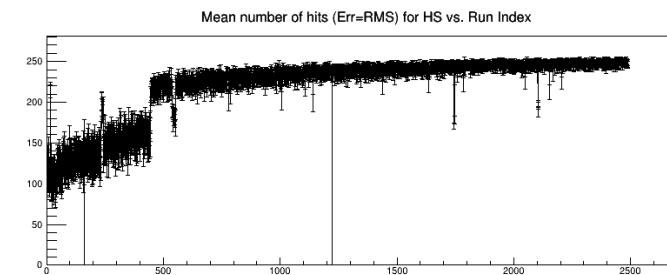
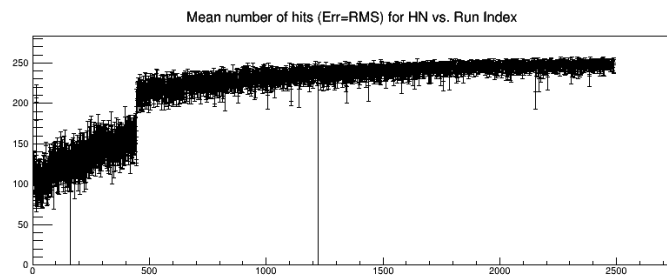
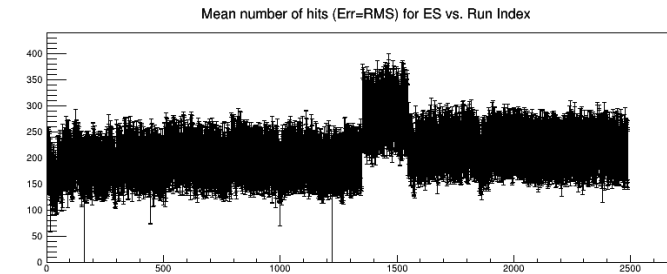
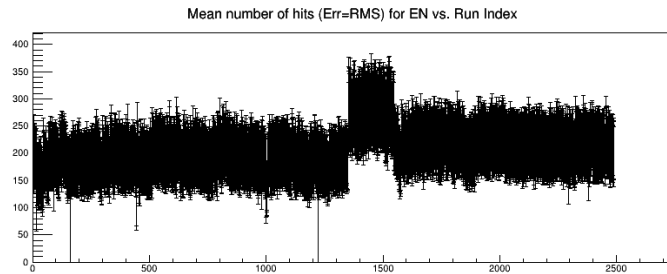
Number of Events for trigger fcsDJJP vs. Run Index



Number of Events with no trigger vs. Run Index

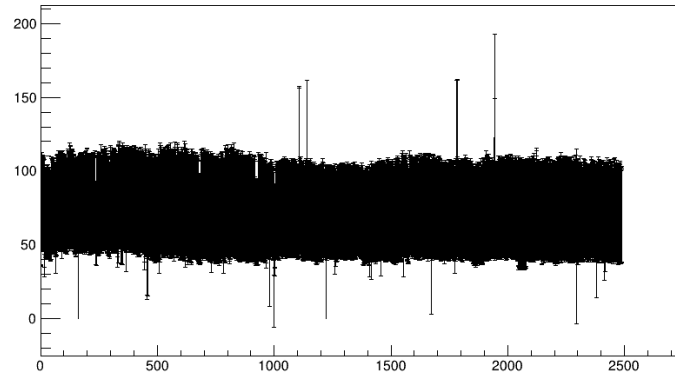


# Number of Hits

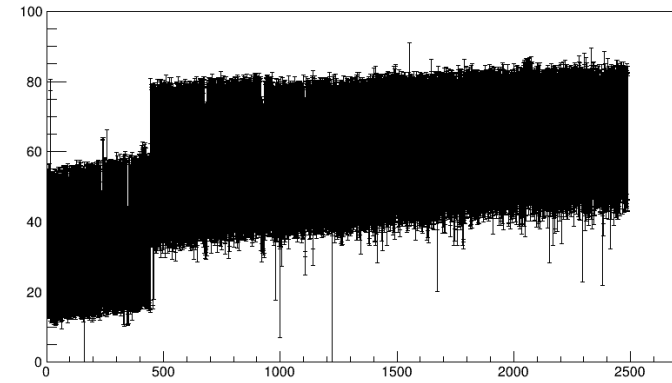


# Total Energy in FCS

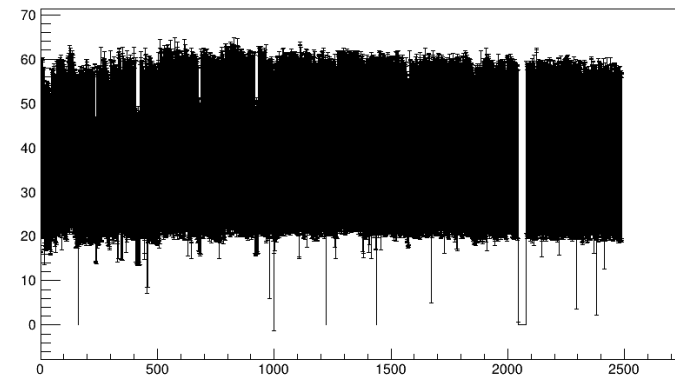
Ecal total energy (Err=RMS) vs. Run Index



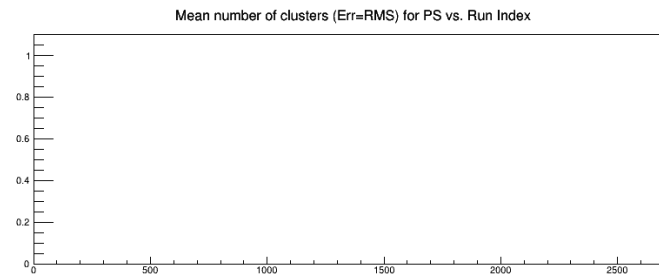
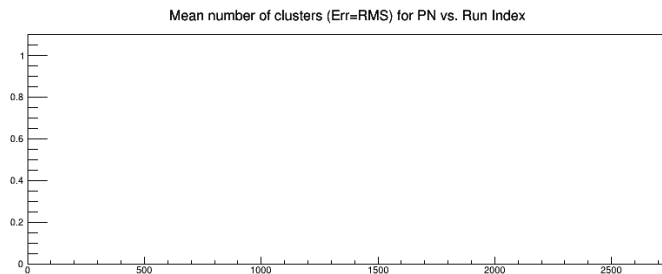
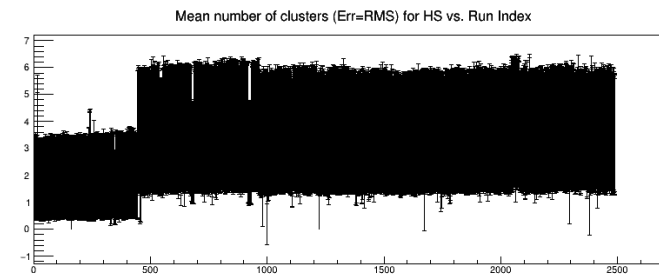
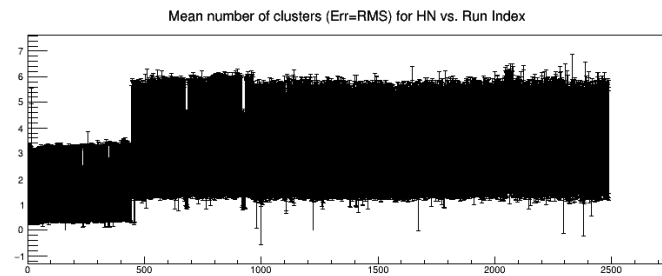
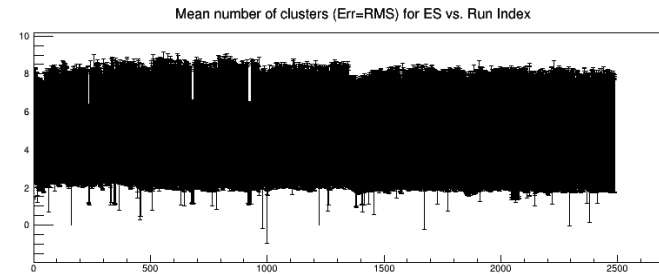
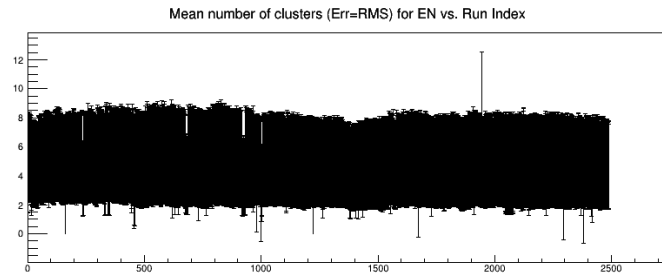
Hcal total energy (Err=RMS) vs. Run Index



Pres total energy (Err=RMS) vs. Run Index

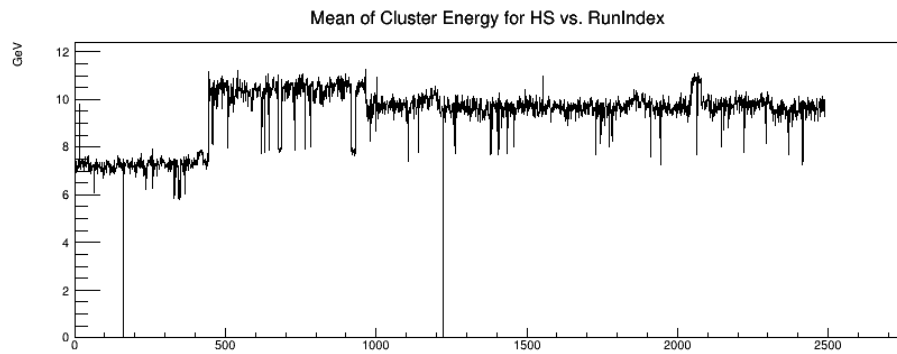
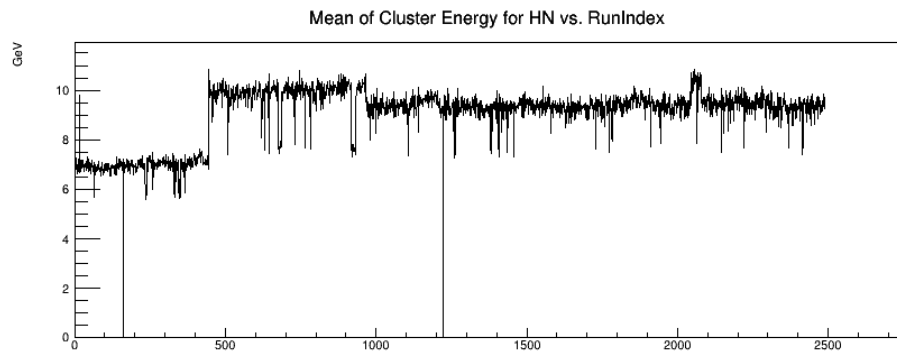
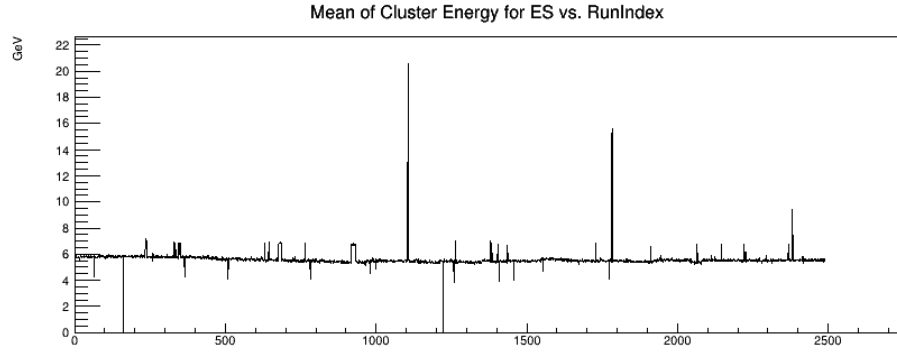
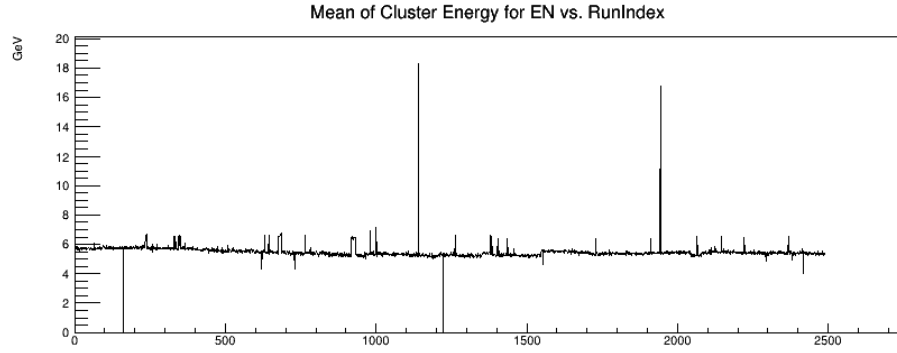


# Number of Clusters



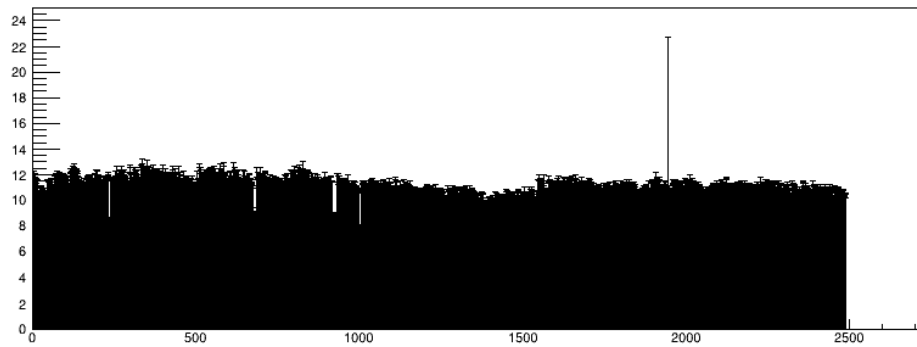


# Cluster Energy

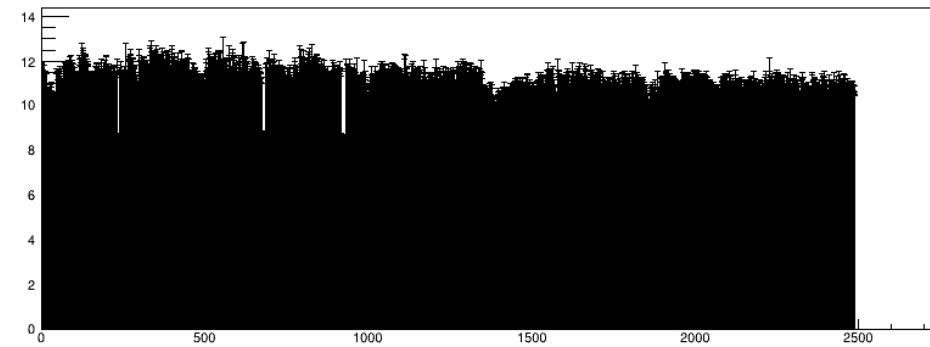


# Number of Points

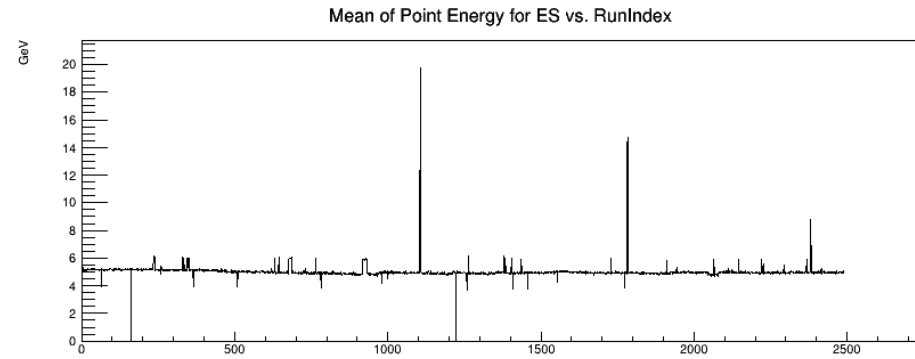
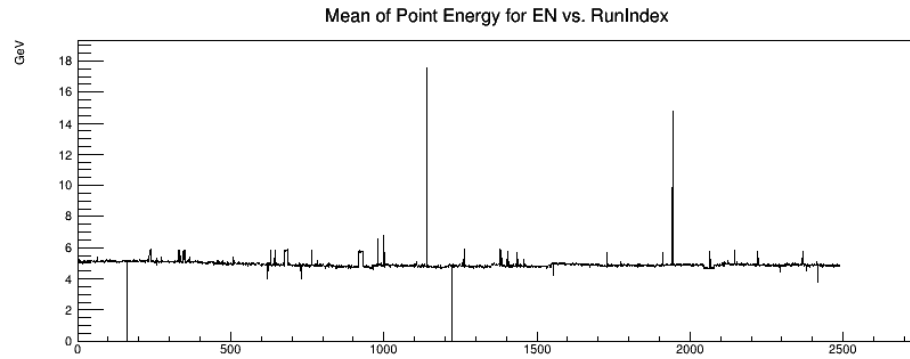
Mean number of points (Err=RMS) for EN vs. RunIndex



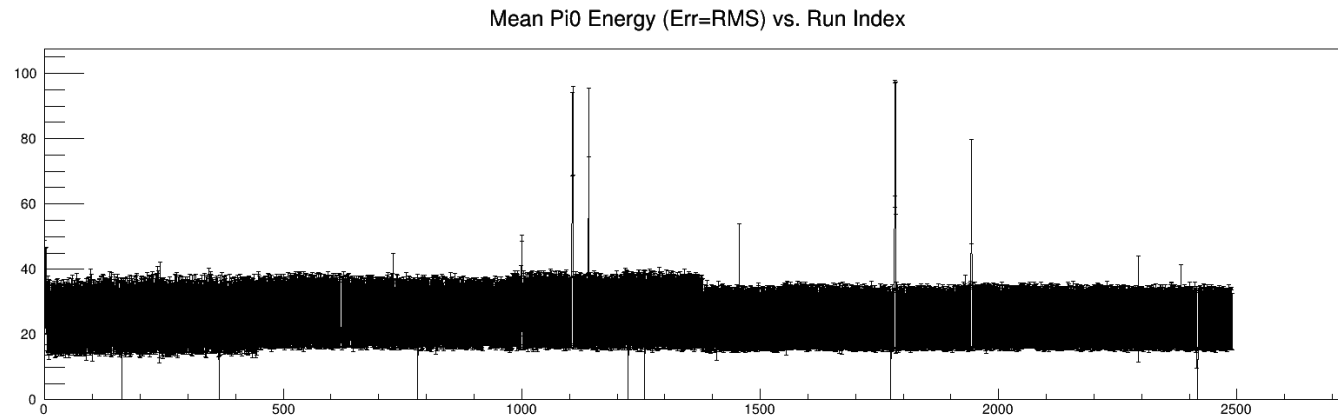
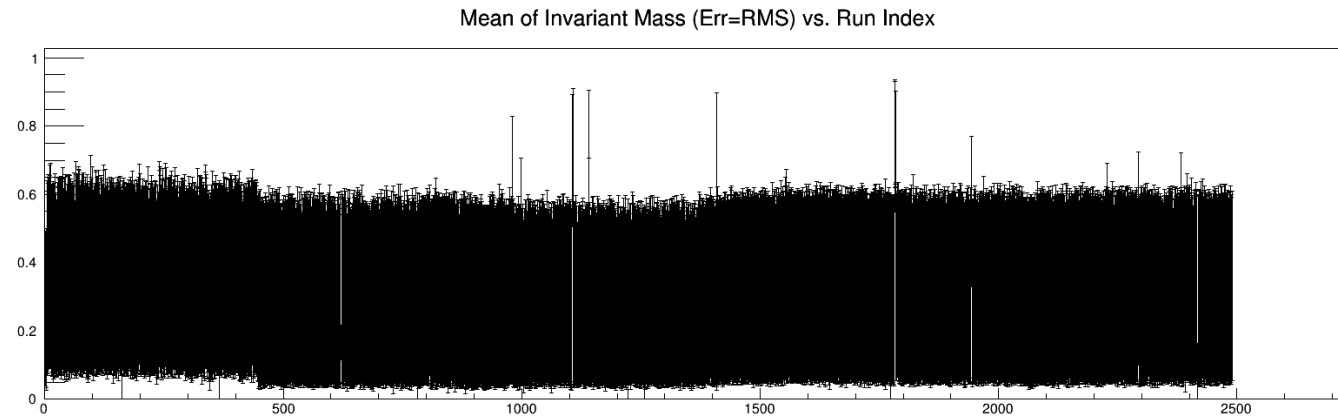
Mean number of points (Err=RMS) for ES vs. RunIndex



# Point Energy



# Pi0 Invariant Mass and Energy After Cuts



# Conclusions

- Things look good for the most part
  - Data is consistent except for some small kinks where things were changed
  - One or two files seem have large spikes so will be removed
- VPD vertex is missing from some runs
  - Some of this was expected and some of it not was not
- Other QA plots people would like to see
- Next step is to do the A\_N calculation and process a larger dataset