

SDEU Baseline

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IIHE-ULB

April 6, 2021



- ▶ Baseline stability for pre-production batch of UUBs together with SPMT and SSD in the field.
- ▶ Data from CDAS: from 01/12/2020 to 28/02/2021

0871 1224

0868 0804 1225

0859 0864 1220 1218

+0863 0866 +1222 +1219 +1211

+1740 +1743 +1221 +1223 +1217

=1747 =1741 =1745 =1818 =1851

=1729 =1735 =1746 =1819 =1791

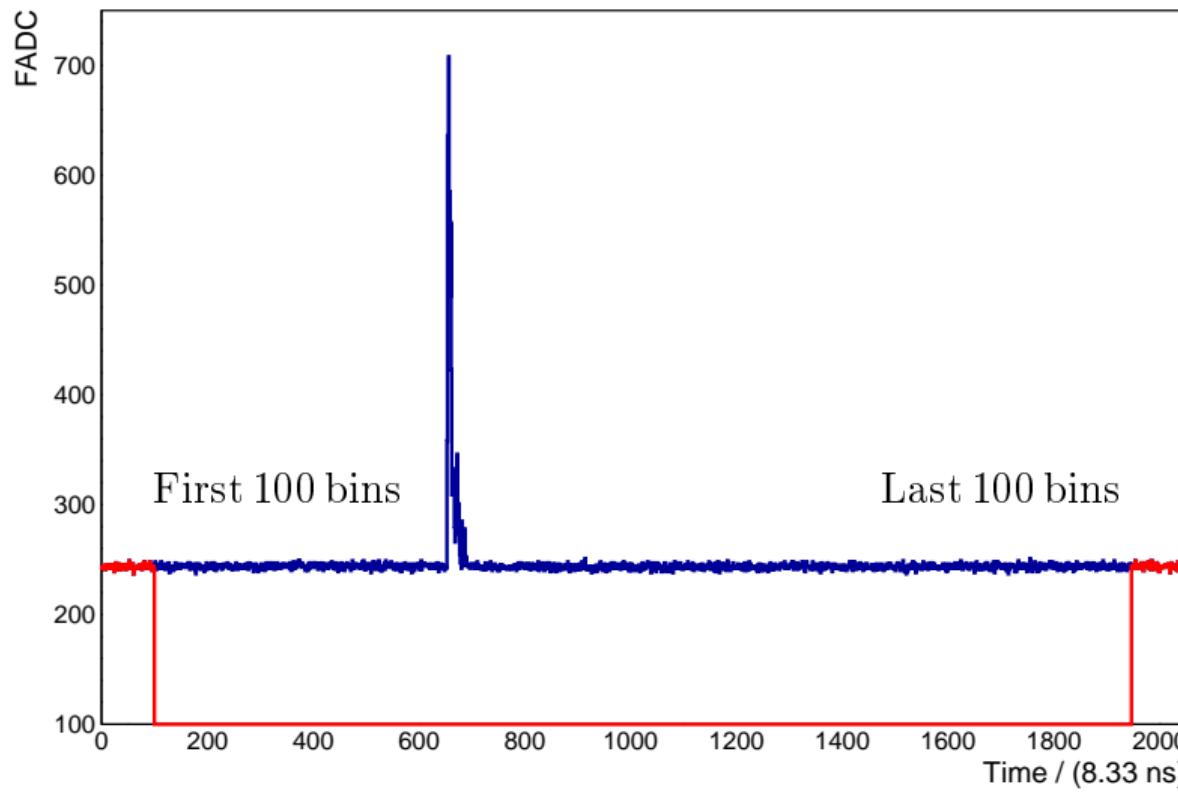
The stations installed are:

Dec. 07-11: "+"

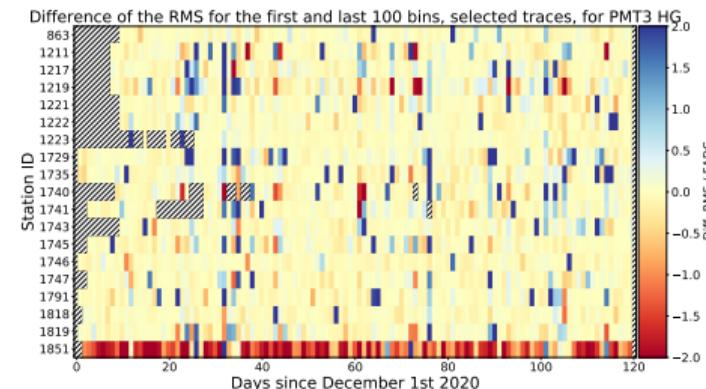
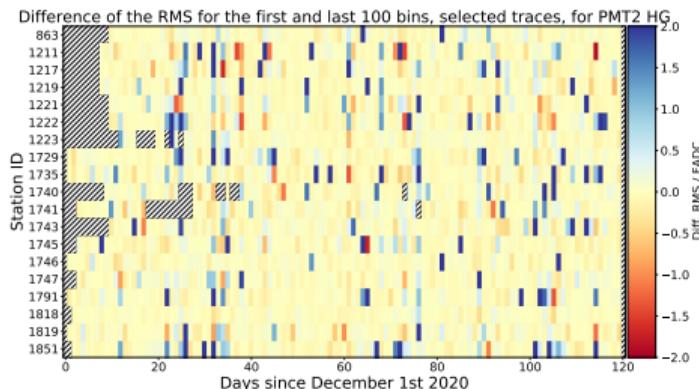
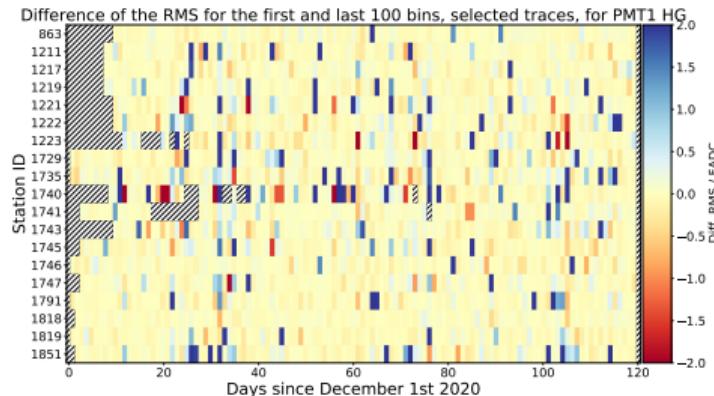
until Dec. 04: "="

The others which are not marked, still need to be installed.

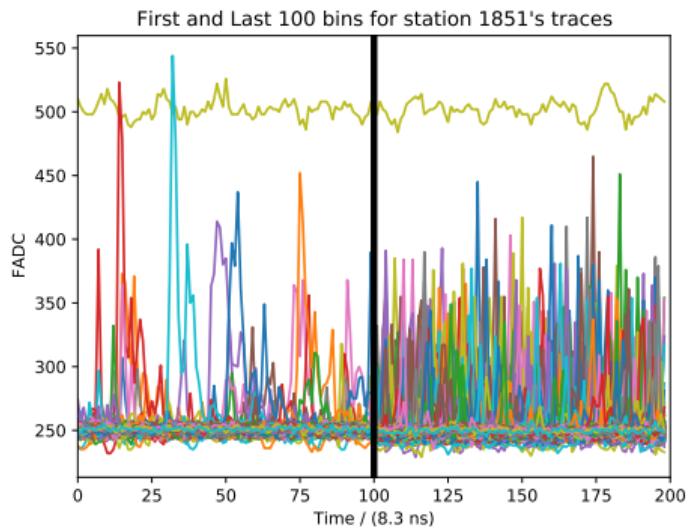
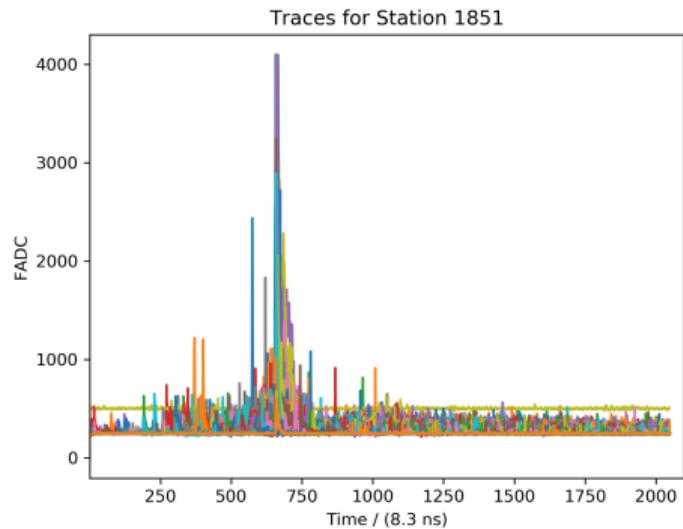
Trace selection method



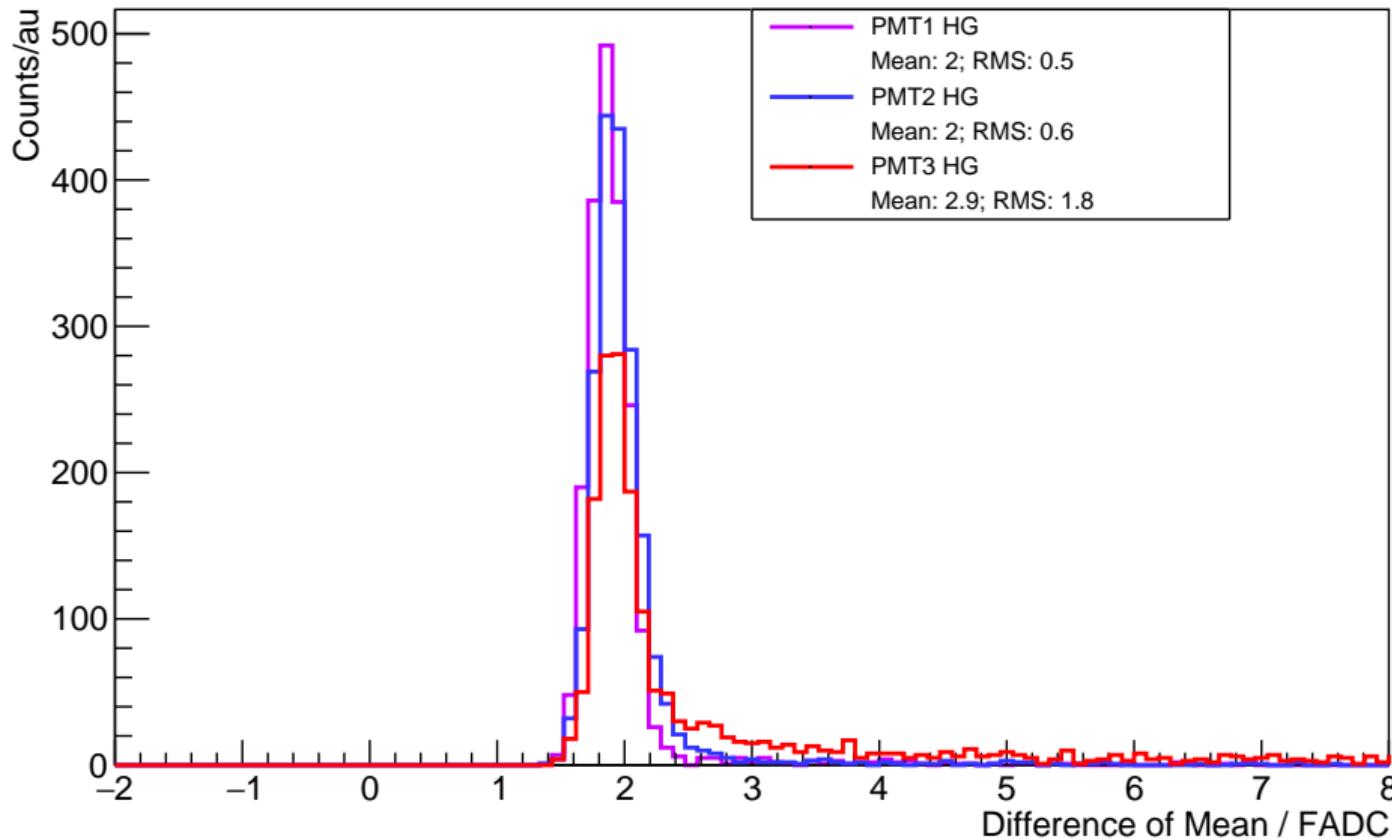
RMS difference for traces that agree with: $| \text{Mean}_f - \text{Mean}_l | < 2 (\text{RMS}_f)$



1851 station's PMT3 HG

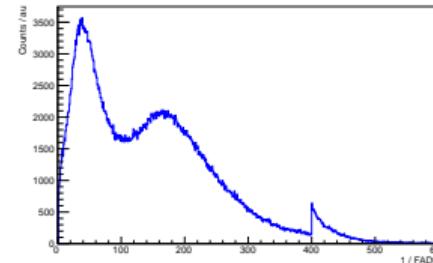
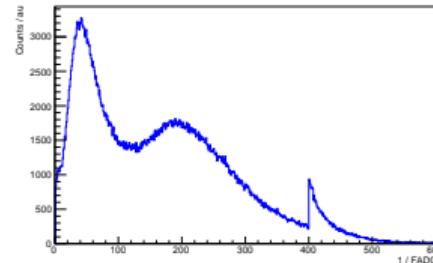
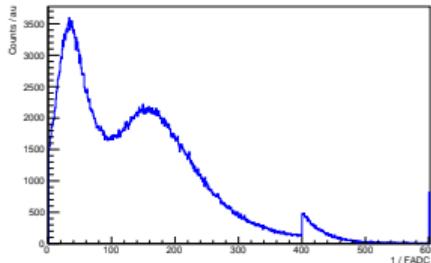


Distrubition of RMS for the last 100 bins of station 1851



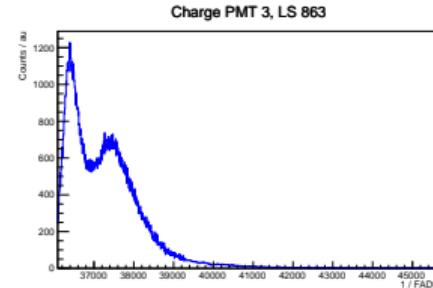
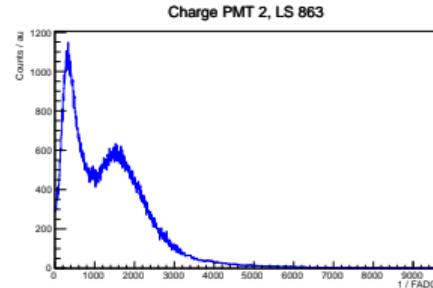
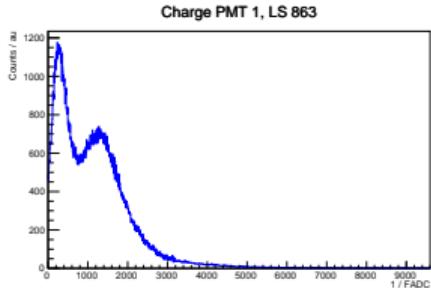
Charge Histograms, Station 863

From IoSdHisto method



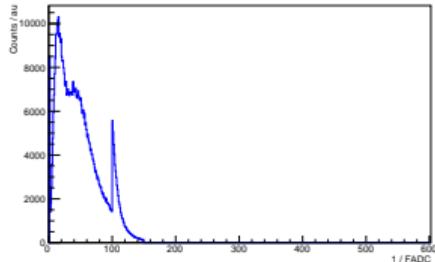
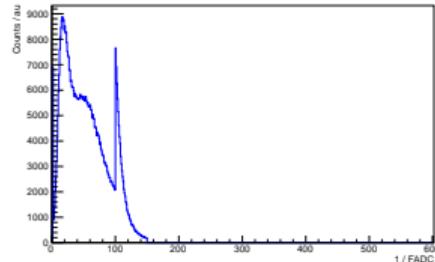
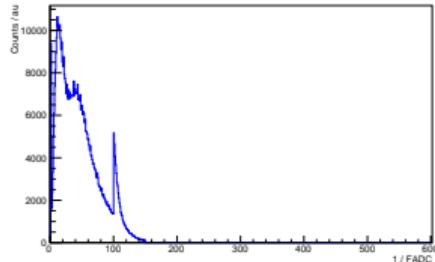
From IoSdStation::HCharge method:

$$xc[j] = \text{mult} * j + \text{offset}; \quad xc[400+j] = 400 * \text{mult} + \text{bigbins} * \text{mult} * j + \text{offset}$$



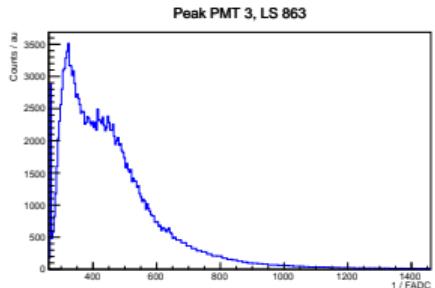
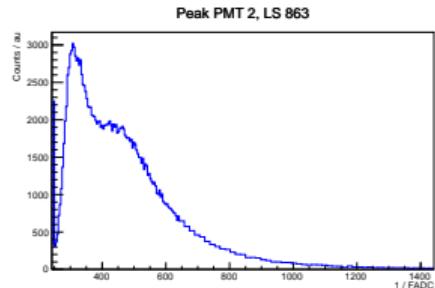
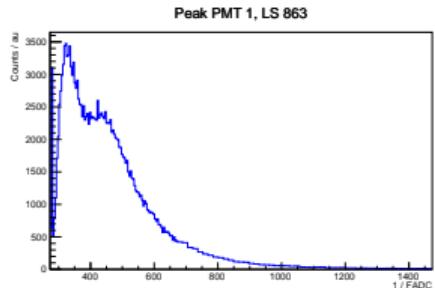
Peak Histograms, Station 863

From IoSdHisto method

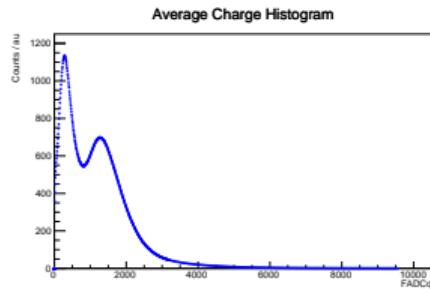


From IoSdStation::HPeak method:

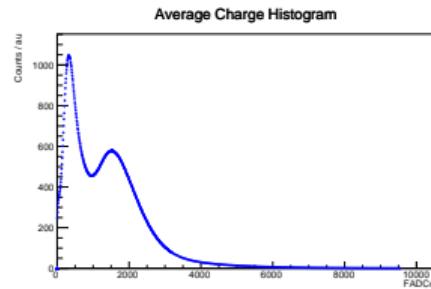
$$xc[j] = \text{mult}*j + \text{offset}; xc[400+j] = 400*\text{mult} + \text{bigbins}*\text{mult}*j + \text{offset}$$



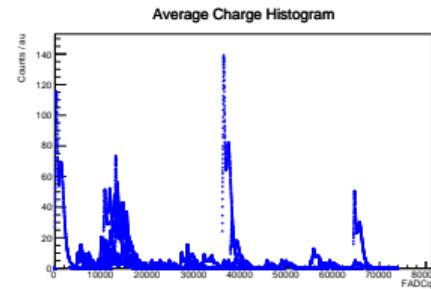
Averages histograms for Station 863:



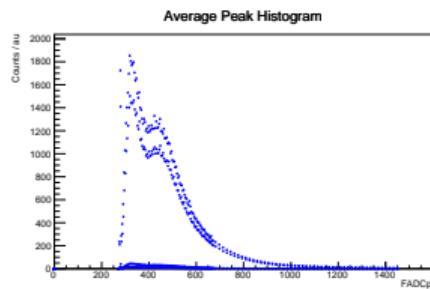
Charge UUB-LPMT1



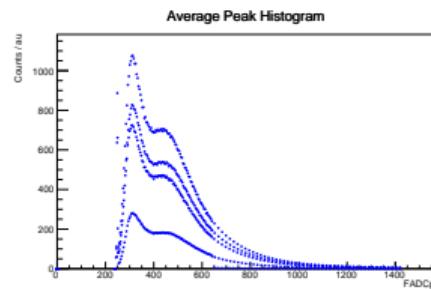
Charge UUB-LPMT2



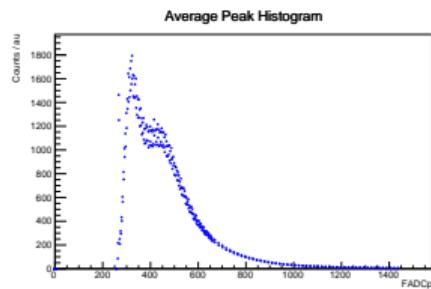
Charge UUB-LPMT3



Peak UUB-LPMT1



Peak UUB-LPMT2



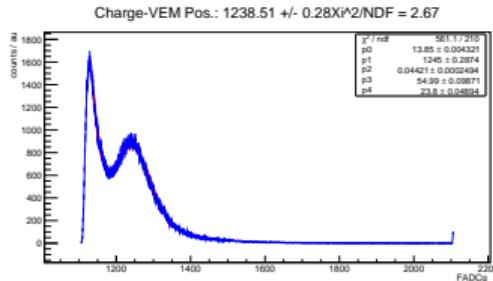
Peak UUB-LPMT3

Area/Peak inspection

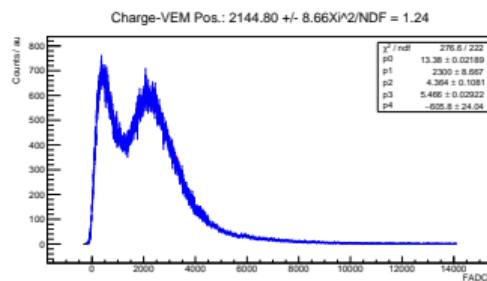
Fitting Histograms using:

$$e^{(a_0 - \frac{1}{x\tau})} + x^{-1} e^{-\left(\frac{(\ln x - \ln \mu)^2}{2\sigma^2}\right)}$$

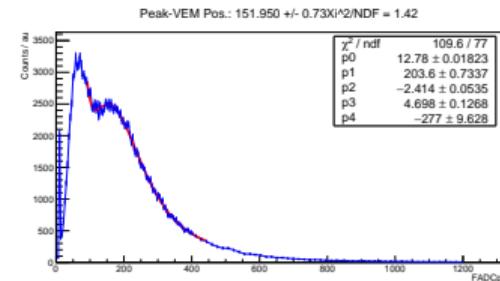
Charge histogram for Station 1223



Charge: UB-PMT1

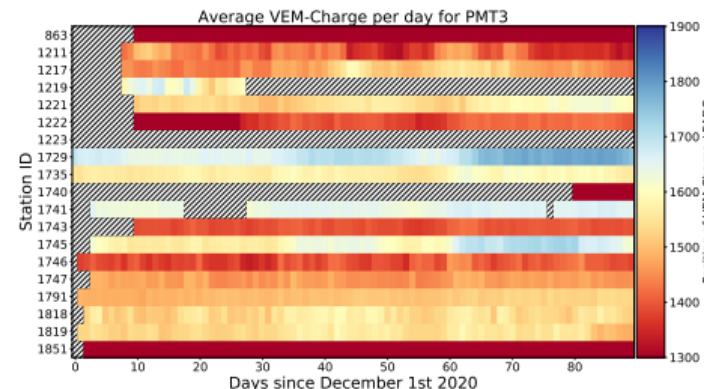
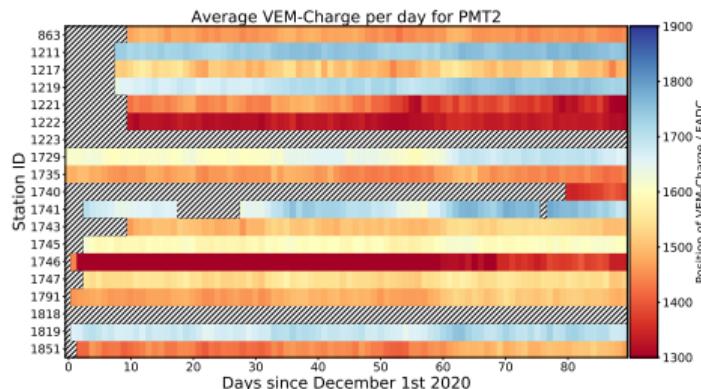
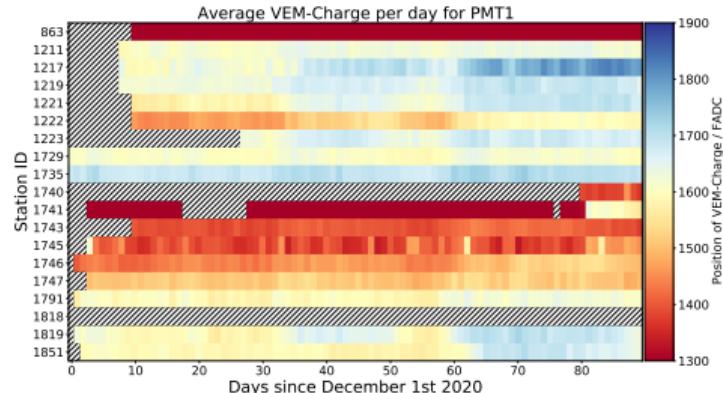


Charge: UUB-PMT1

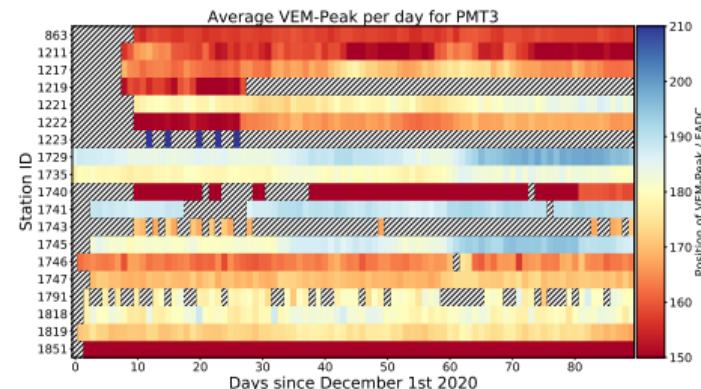
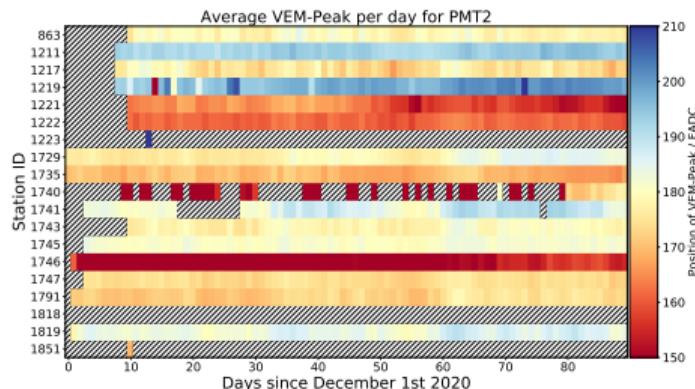
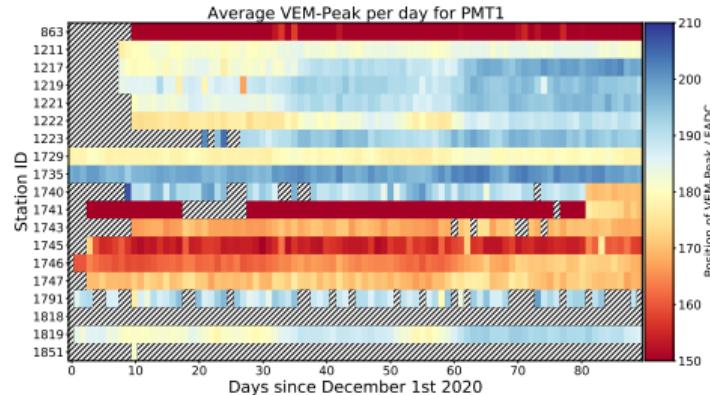


Peak: UUB-PMT1

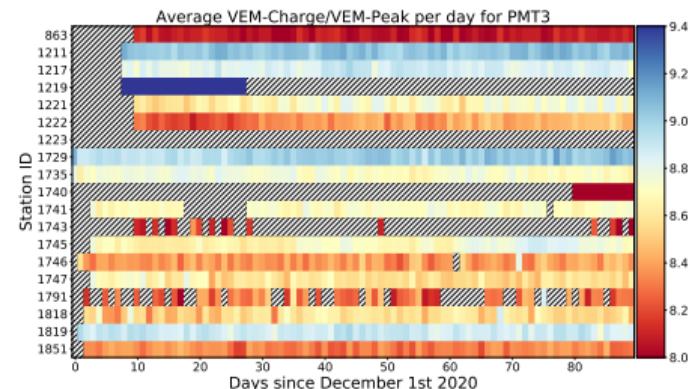
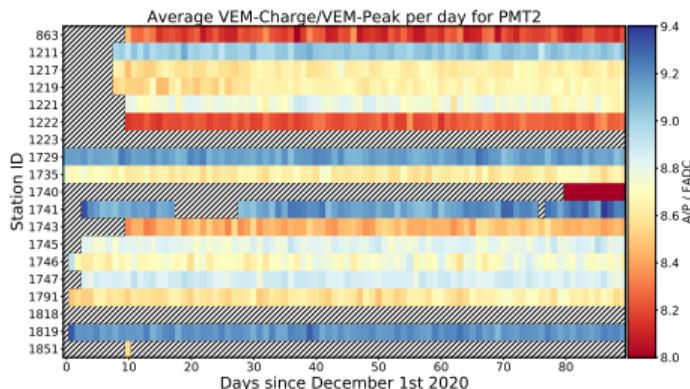
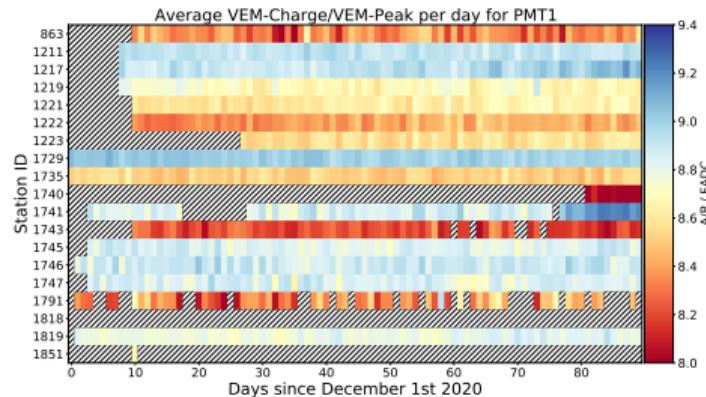
Position of VEM-Charge, average per day, traces agree with: $|M_f - M_i| < 2$ (RMS_f)



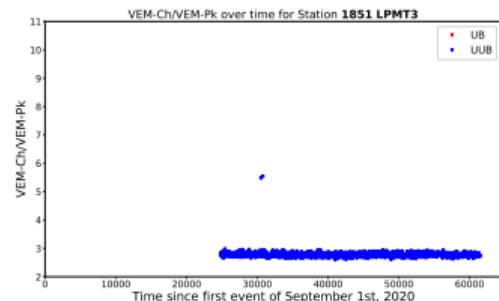
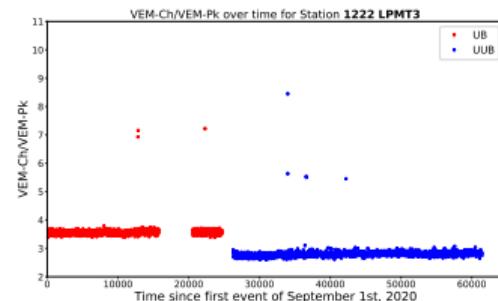
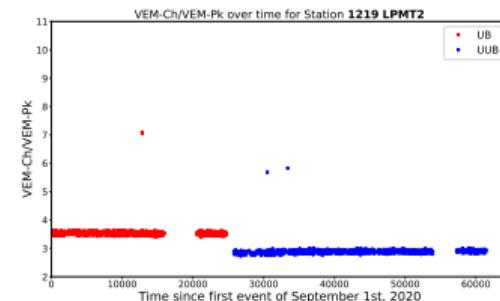
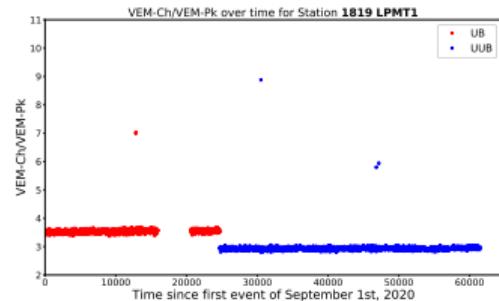
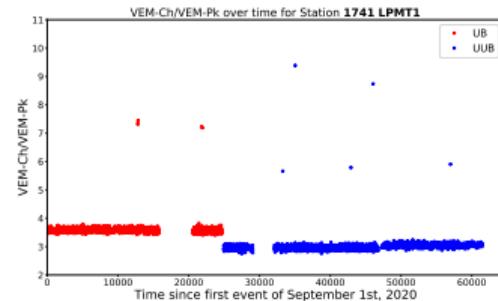
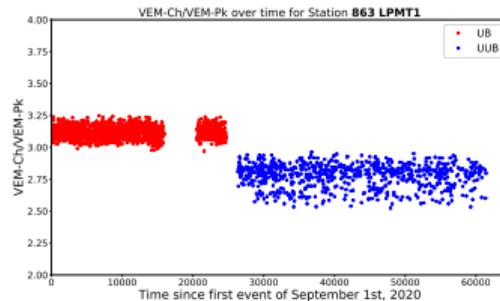
Position of VEM-Peak, average per day, traces agree with: $|M_f - M_I| < (2 * \text{RMS}_f)$



A/P average per day, traces that agree with: $| \text{Mean}_f - \text{Mean}_l | < 2$ (RMS_f)



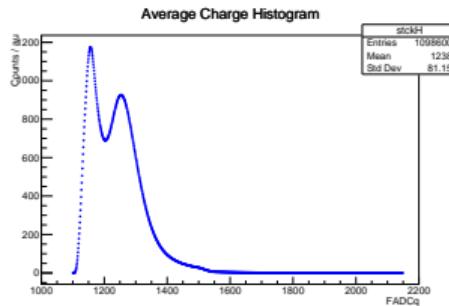
A/P along UB and UUB



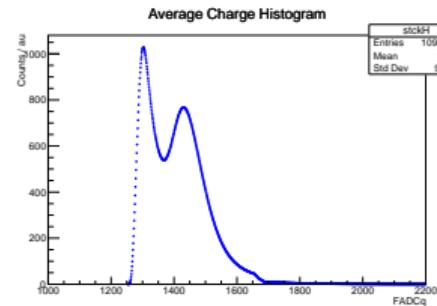
Thanks

Backup

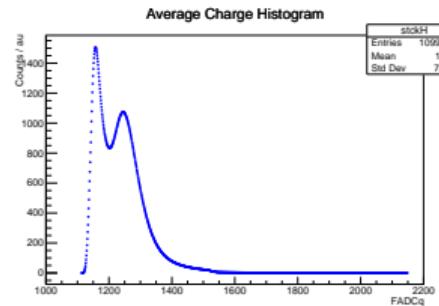
Averages histograms for Station 1223 (since december):



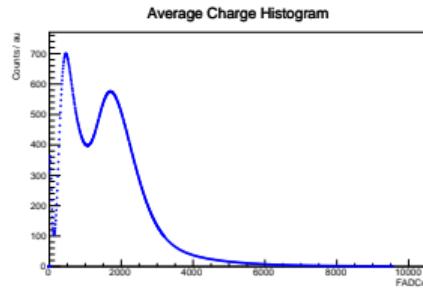
UB-LPMT1



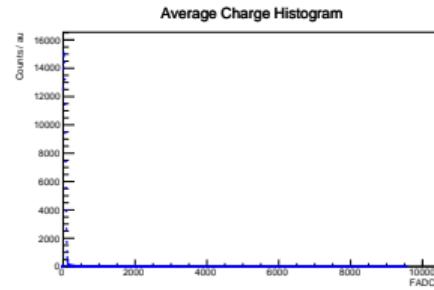
UB-LPMT2



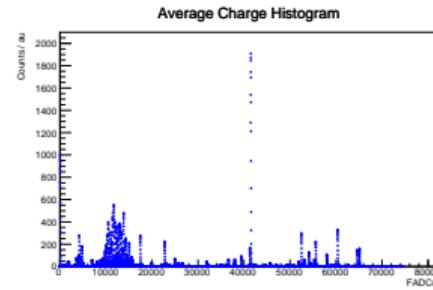
UB-LPMT3



UUB-LPMT1

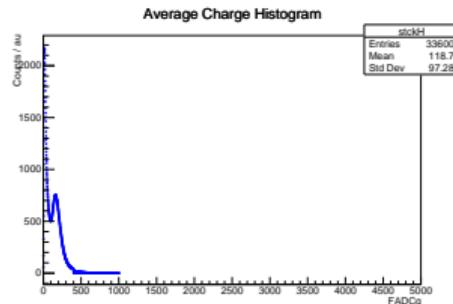


UUB-LPMT2

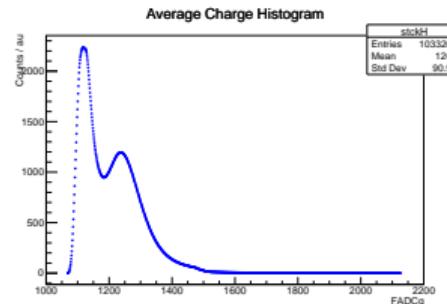


UUB-LPMT3

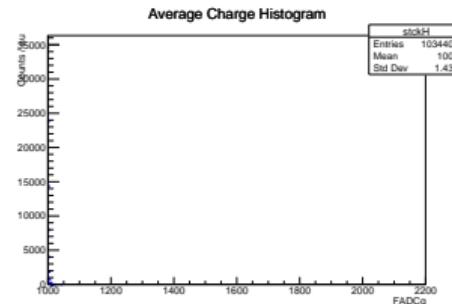
Averages histograms for Station 1851:



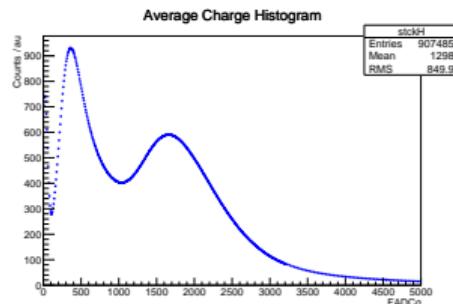
UB-LPMT1



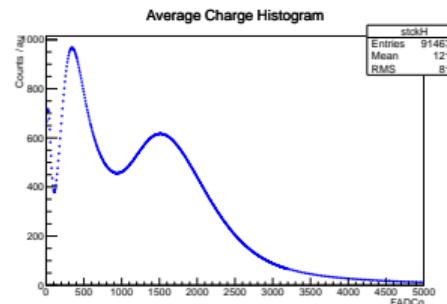
UB-LPMT2



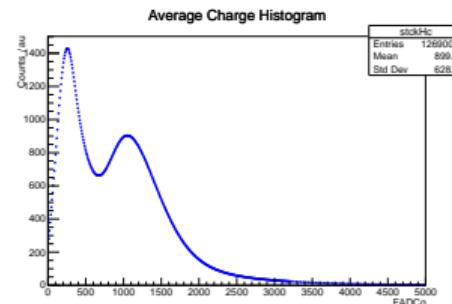
UB-LPMT3



UUB-LPMT1



UUB-LPMT2



UUB-LPMT3

UB:

A/P average per day, traces that agree with: $|\text{Mean}_f - \text{Mean}_l| < (2 * \text{RMS}_f)$

