

MC checks regarding the HE event using the standard and HE productions for ARCA21v9.1

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HE event

run: 14728, evt_id: 35656

Lik:	1415.17	# DOMs:	206
Nhits:	2224	# chereDOMs:	39
Zenith:	89.3641	# triggered_hits:	24893
LogEreco:	7.46875	# triggered_pmts:	3672
TrLen:	443.644	# triggered_lines:	19
SnpeT.:	25.0027	# cherenkov_pmts:	437
Logbeta0:	-2.93138	# cherenkov_lines:	8

→ **Checks following are performed after applying the All-sky diffuse selection:**

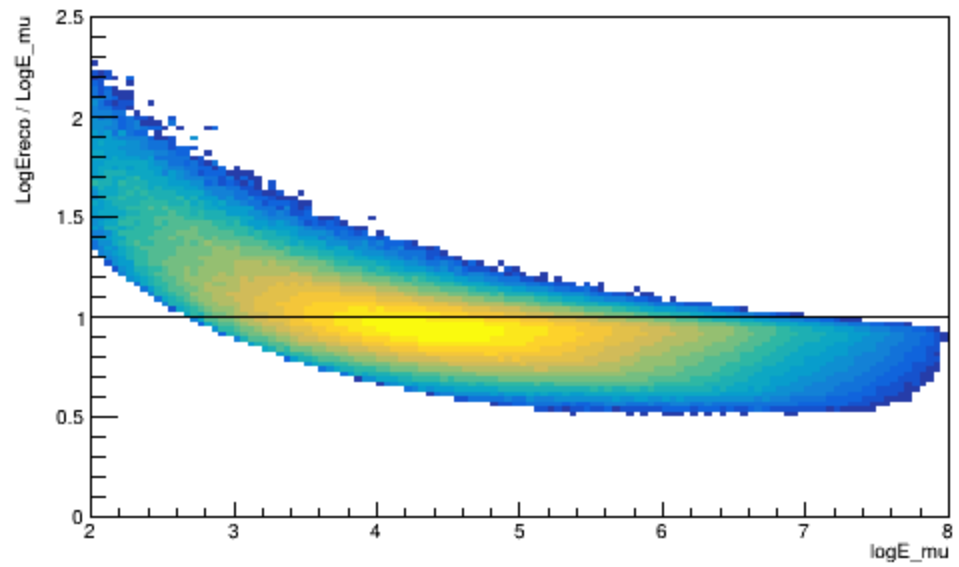
Firs level cuts:

- > Lik > 50
- > Slen (as given by the reconstruction) > 100
- > Logbeta0 < -1.5
- > LogEreco > 2.7
- > TrLen_IT2 (distance of the vertex and last emitted photon) > 100
- > TrLen_IT3 (distance of first and last emitted photons) > 100
- > # trig. DOMs >= 5

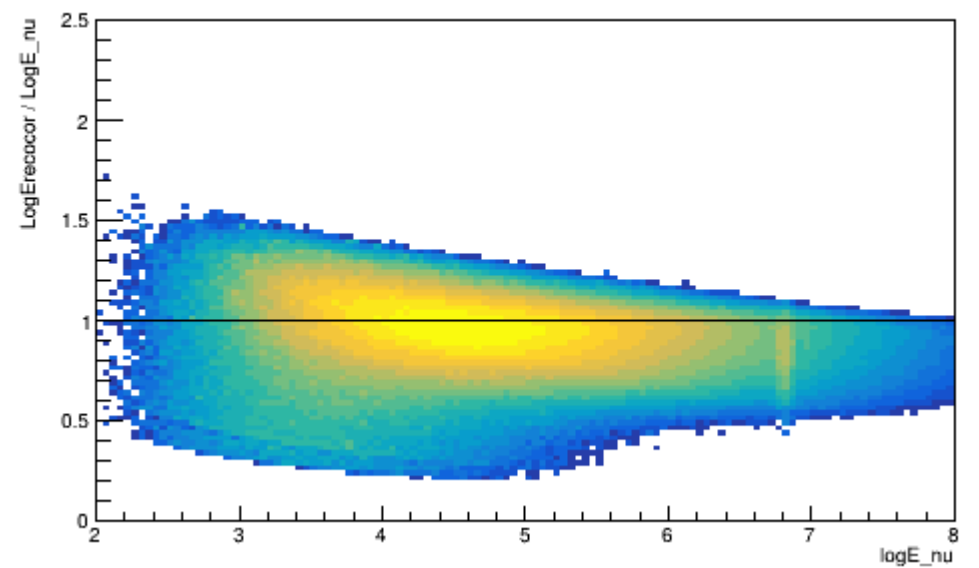
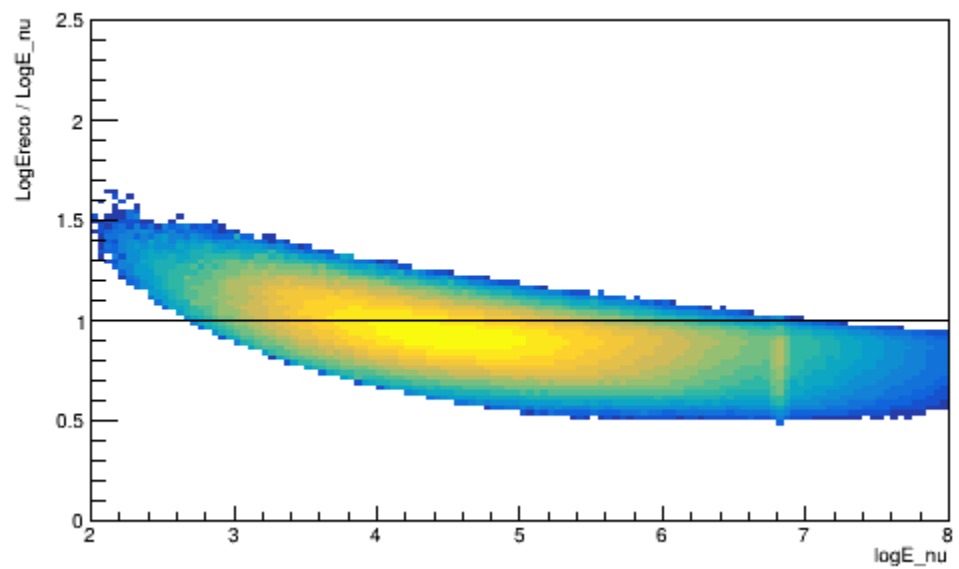
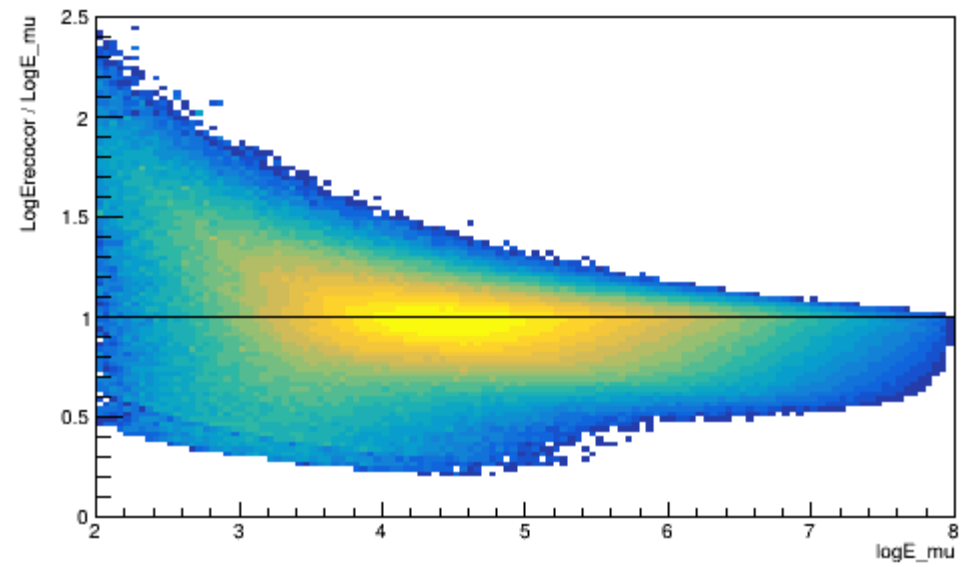
zenith > 80

(a)numuCC

Ereco



Ereco_corr



logEreco: 3.0-3.5

logEreco: 6.0-6.5

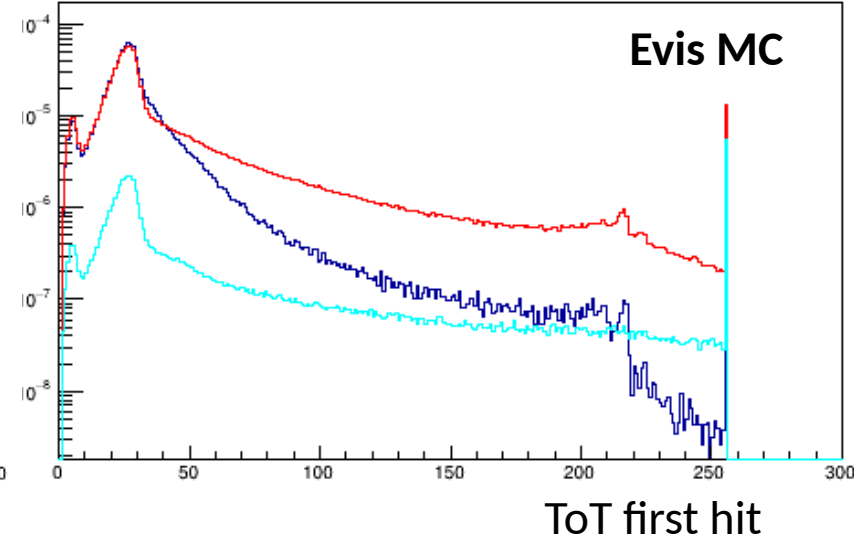
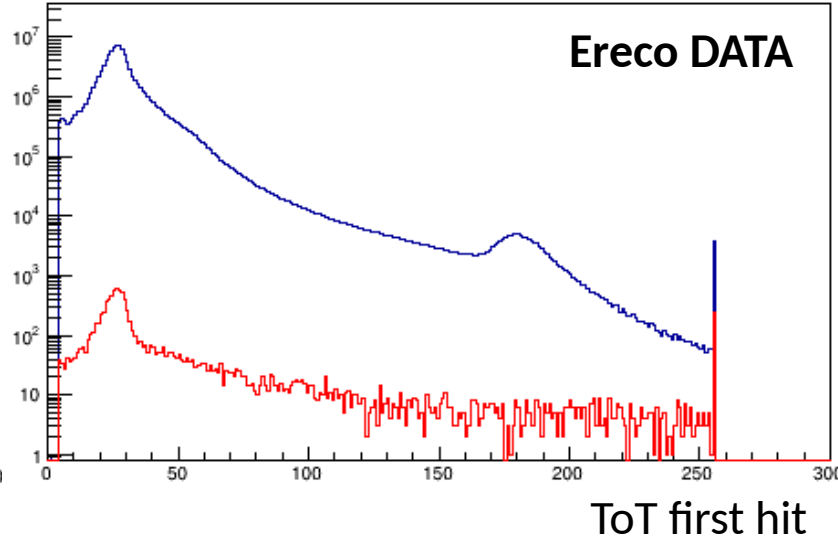
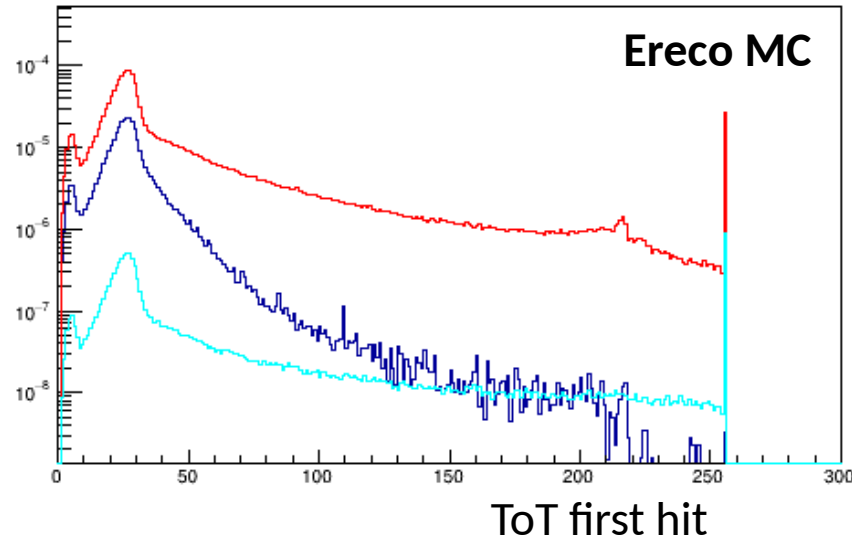
logEreco: 7.5-8.0

ToT saturation

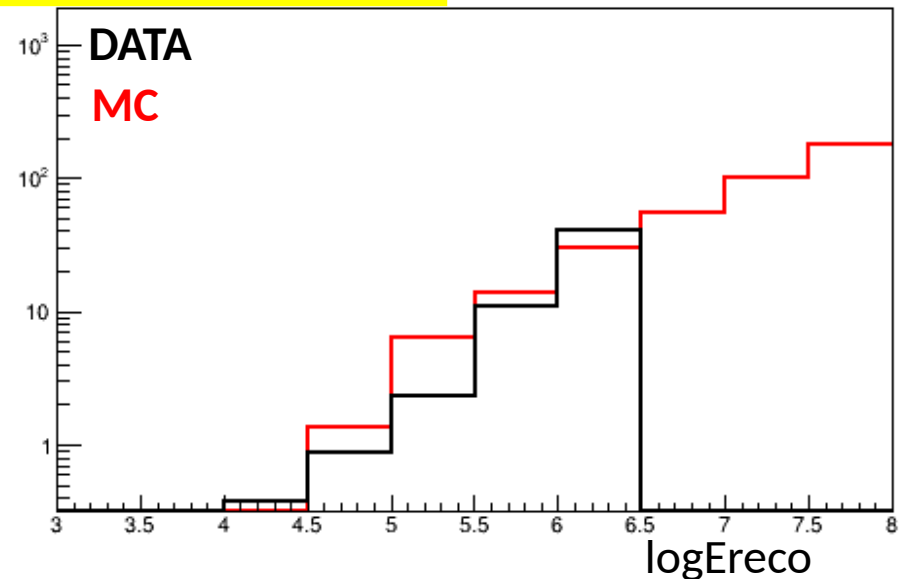
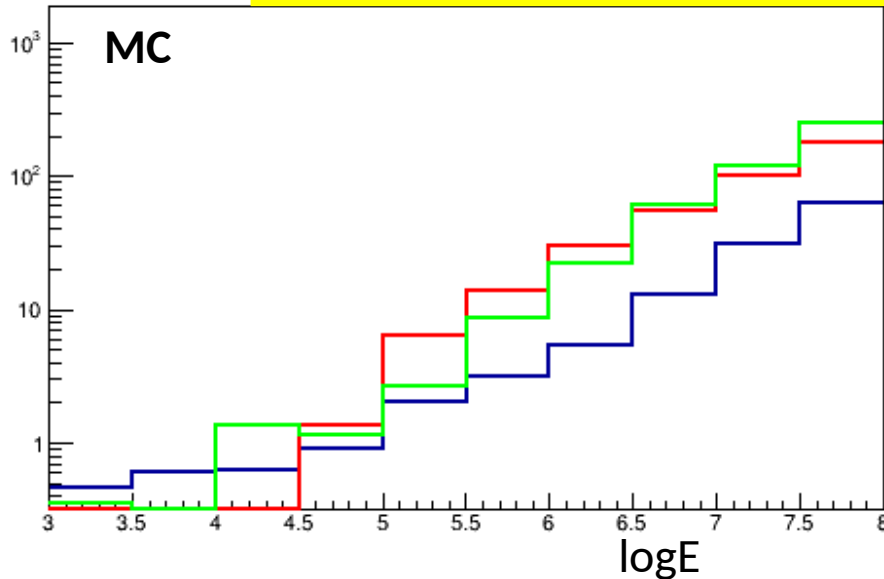
First_firsthitToTEreco1

First_firsthitToTEreco1

First_firsthitToTEvis1



ToT First_hit: Nentries(@255) / Nentries(@26)



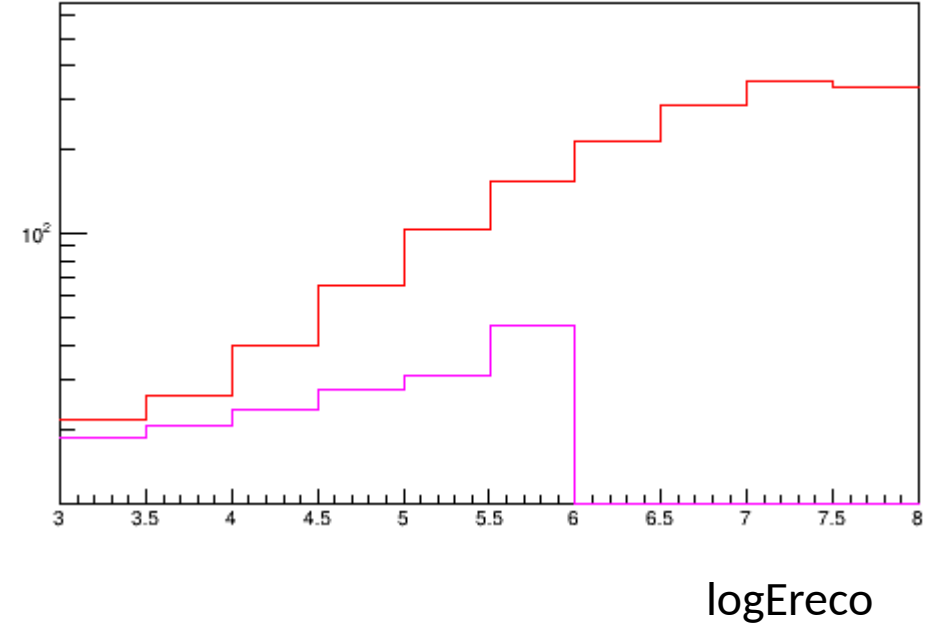
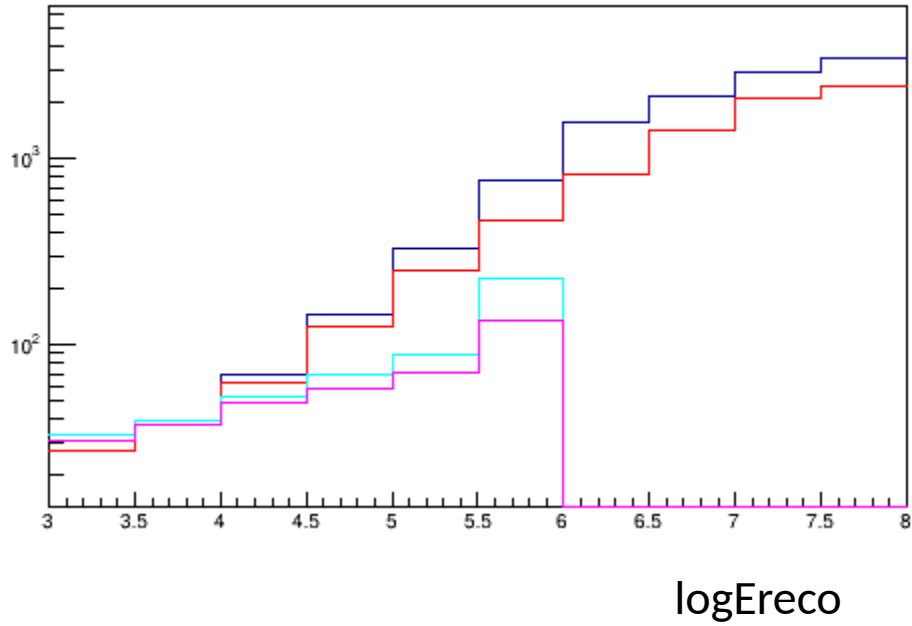
logEreco

logEvis

logEmu

Ntrighits, Ntrigpmts, Ncherehits in bins of Ereco

First level cuts (before BDT)



Ntrighits MC

Ntrighits DATA

Ntrigpmts MC

Ntrigpmts DATA

Ncherehits MC

Ncherehits DATA

Ncherepmts MC

Ncherepmts DATA

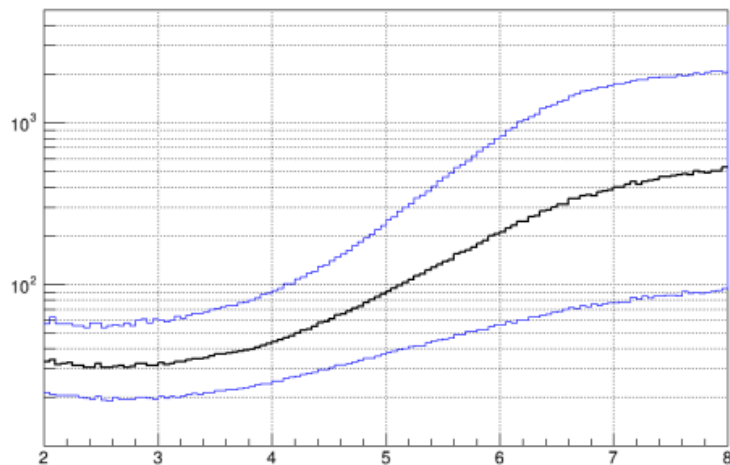
LogEreco < 5 : zenith > 90

LogEreco >=5 : zenith > 80

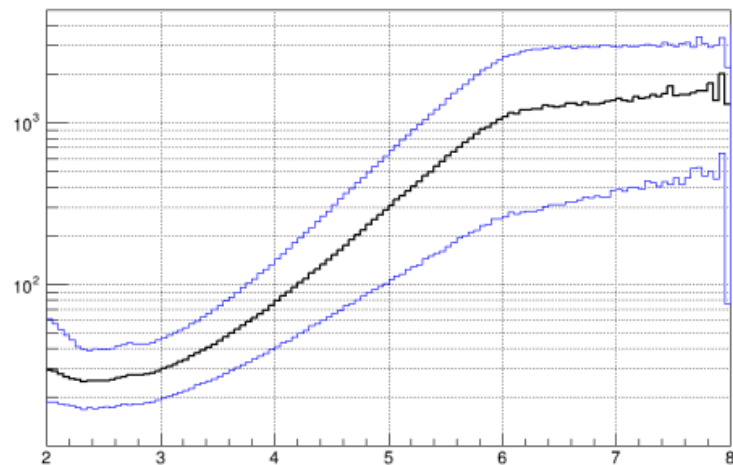
(a)numuCC

std prod

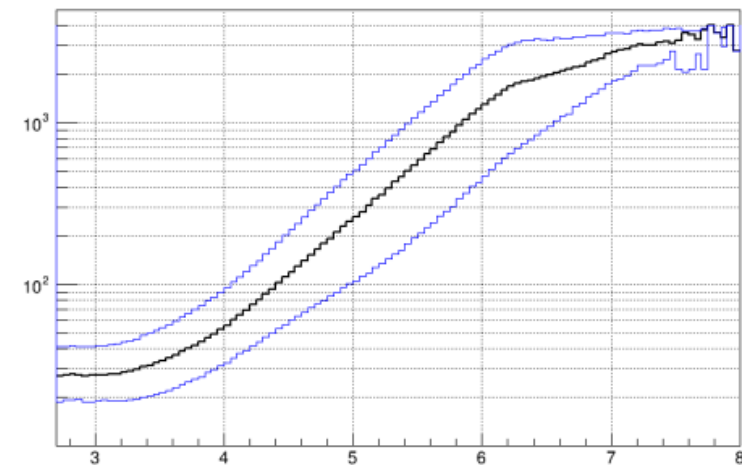
beforeBDT_Ntrighits_vs_LogEmu



beforeBDT_Ntrighits_vs_LogEvis

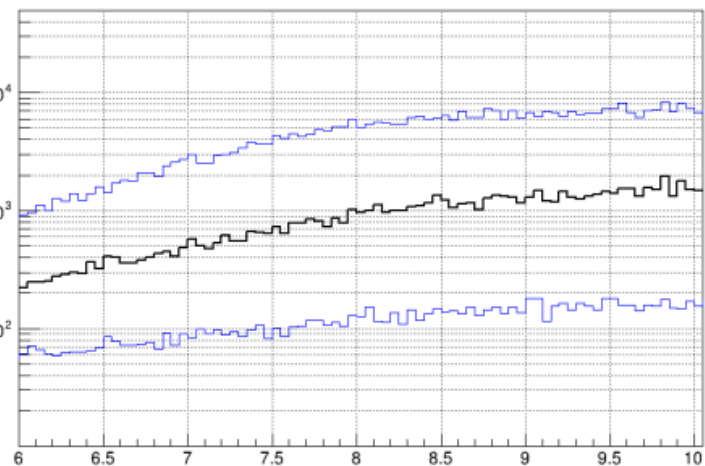


beforeBDT_Ntrighits_vs_LogEreco

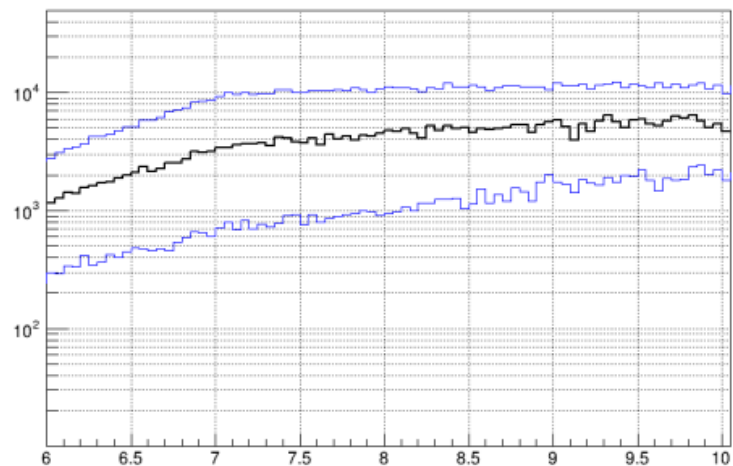


HE prod

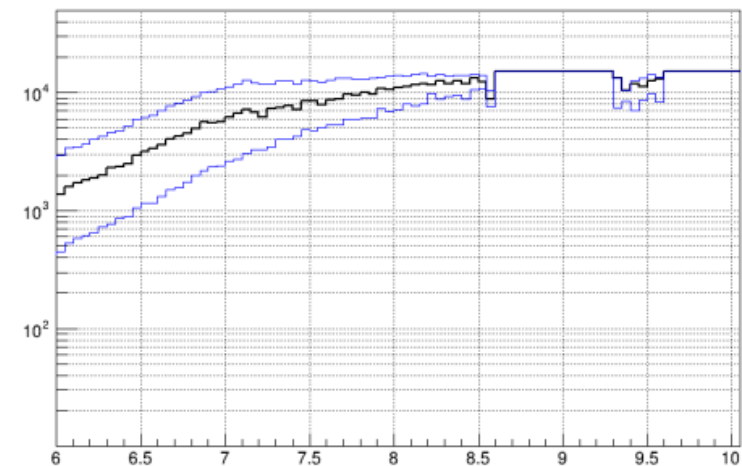
beforeBDT_Ntrighits_vs_LogEmu



beforeBDT_Ntrighits_vs_LogEvis



beforeBDT_Ntrighits_vs_LogEreco

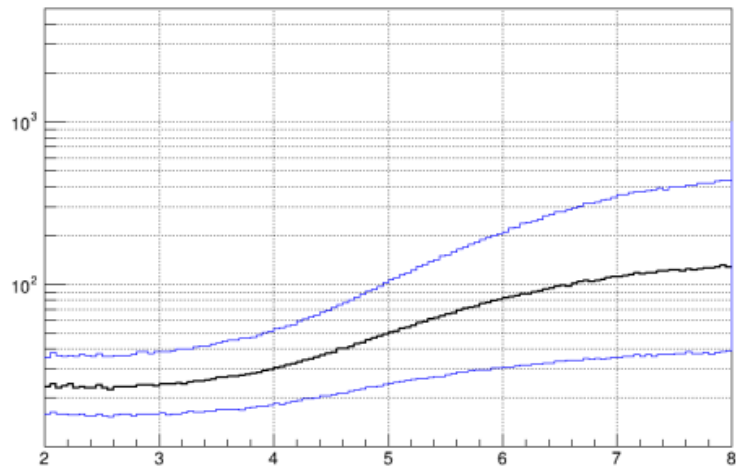


trig. hits

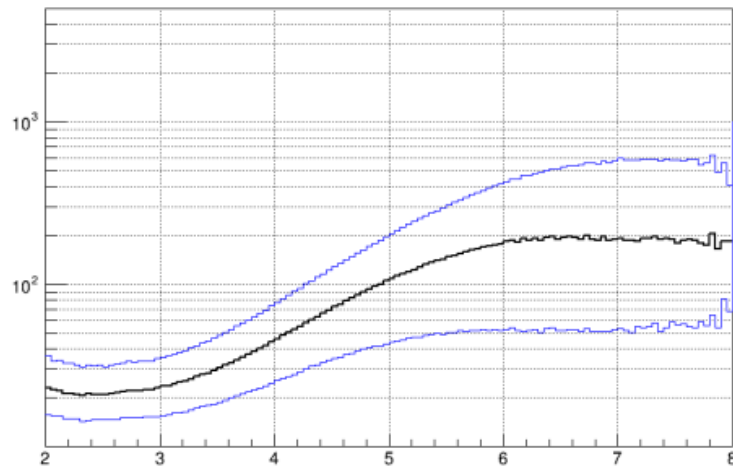
median
68% band

std prod

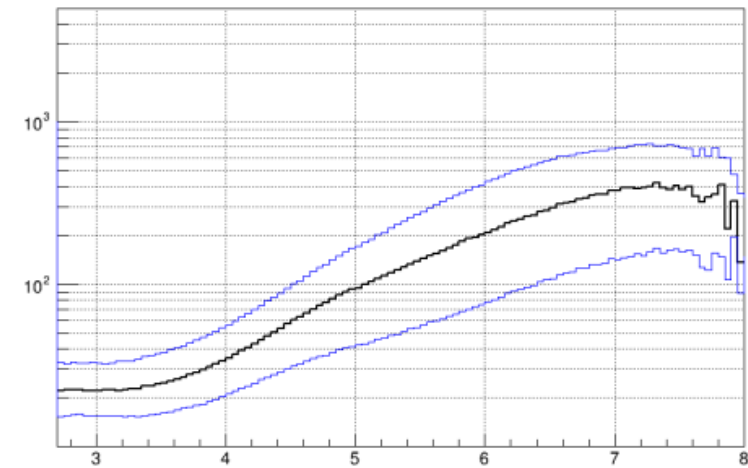
beforeBDT_Ncherehits_vs_LogEmu



beforeBDT_Ncherehits_vs_LogEvis

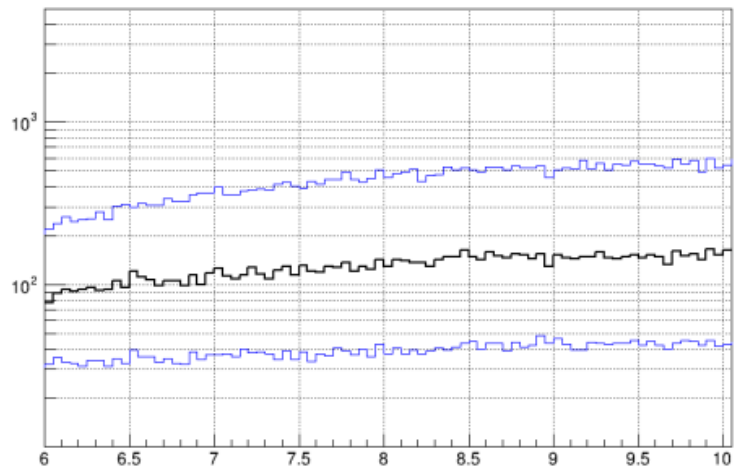


beforeBDT_Ncherehits_vs_LogEreco

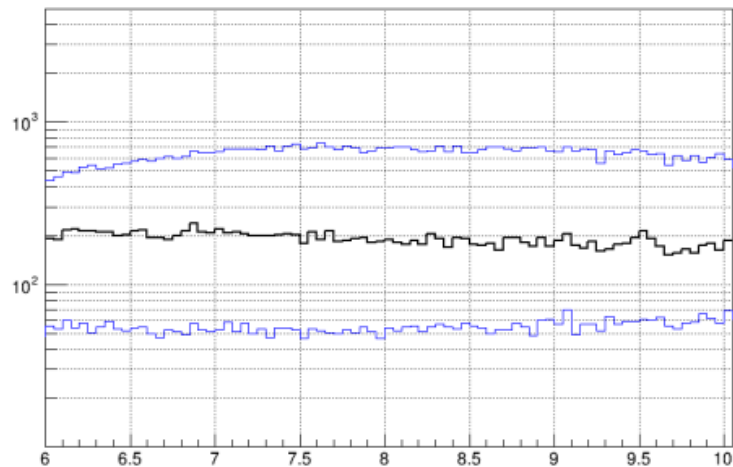


HE prod

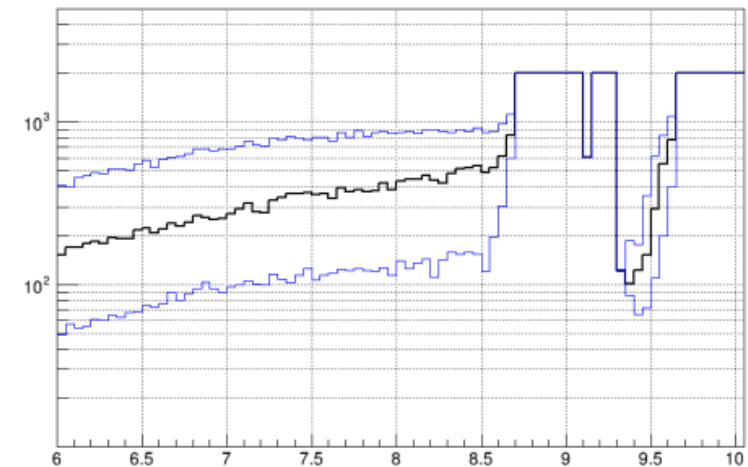
beforeBDT_Ncherehits_vs_LogEmu



beforeBDT_Ncherehits_vs_LogEvis



beforeBDT_Ncherehits_vs_LogEreco

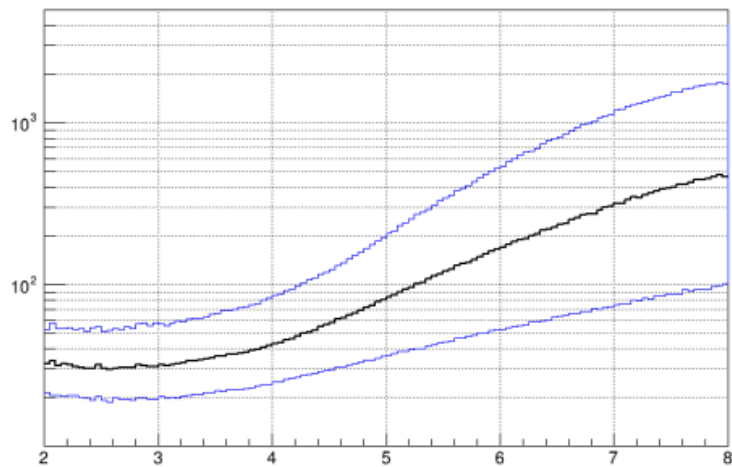


cherenkov hits

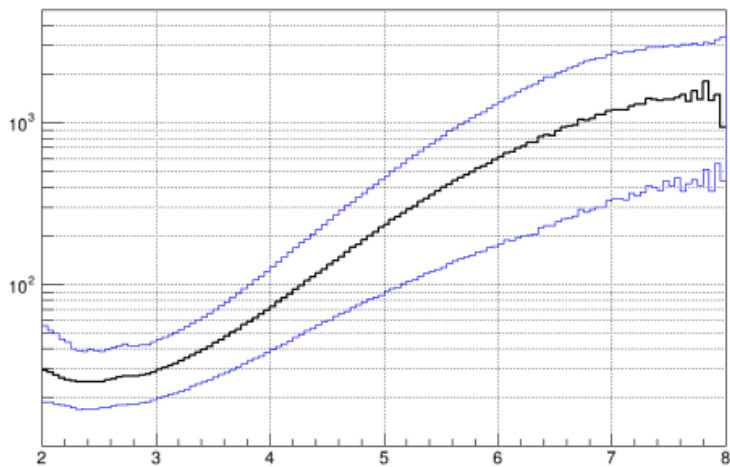
median
68% band

std prod

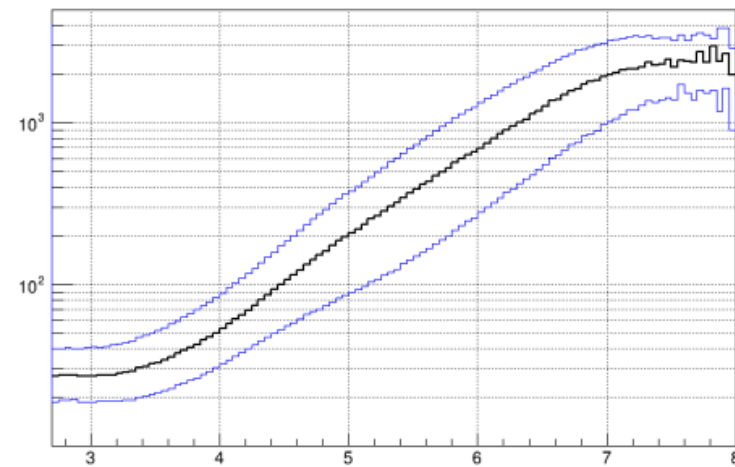
beforeBDT_Ntrigpmts_vs_LogEmu



beforeBDT_Ntrigpmts_vs_LogEvis

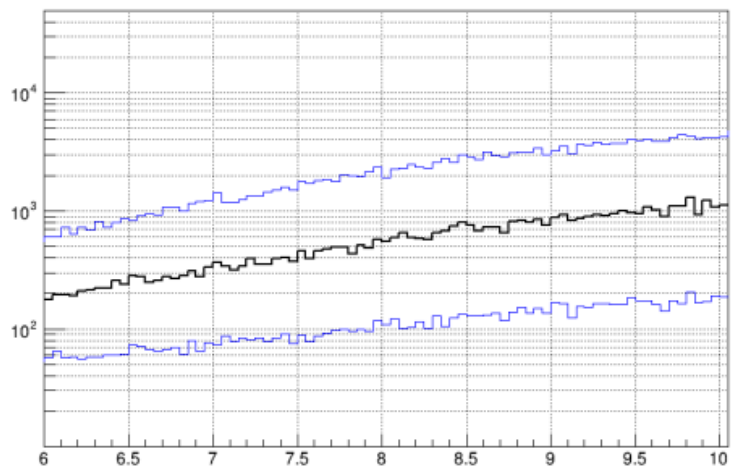


beforeBDT_Ntrigpmts_vs_LogEreco

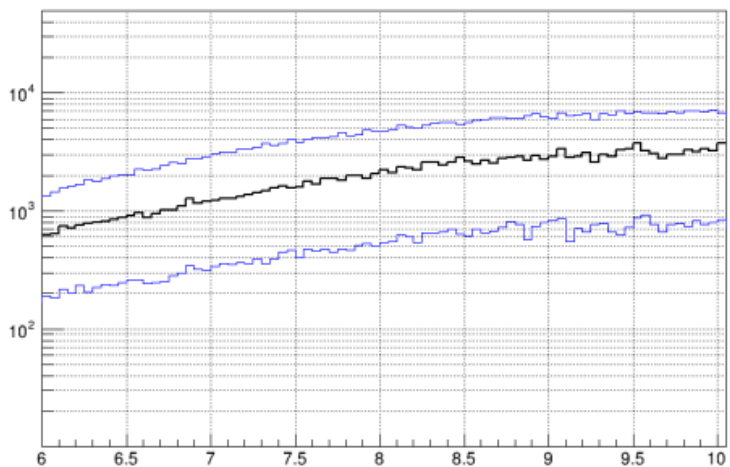


HE prod

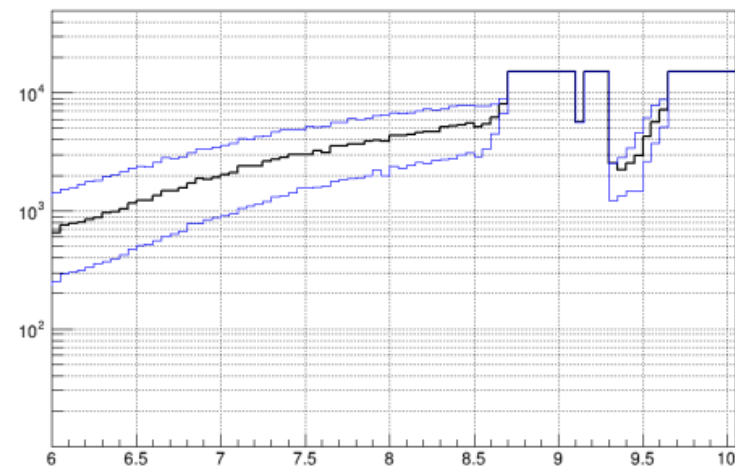
beforeBDT_Ntrigpmts_vs_LogEmu



beforeBDT_Ntrigpmts_vs_LogEvis



beforeBDT_Ntrigpmts_vs_LogEreco

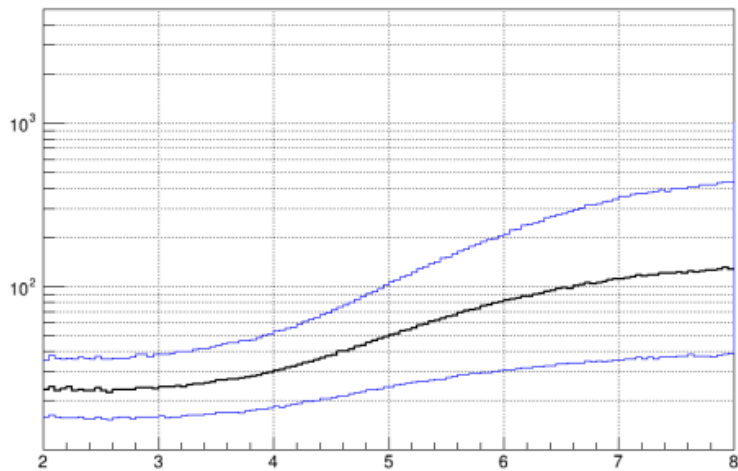


trig. pmts

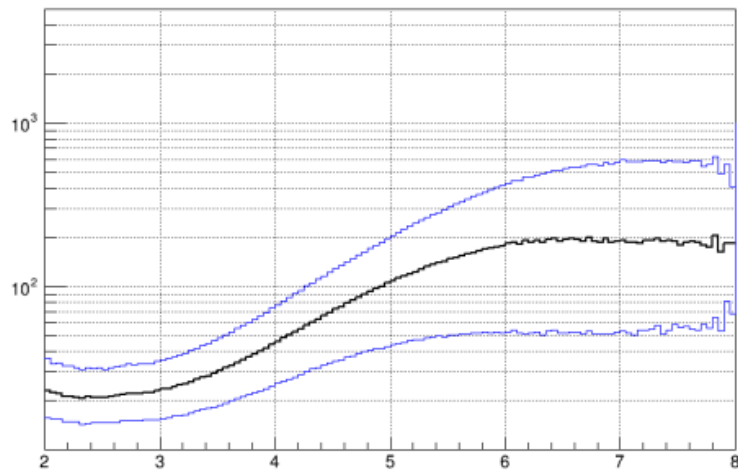
median
68% band

std prod

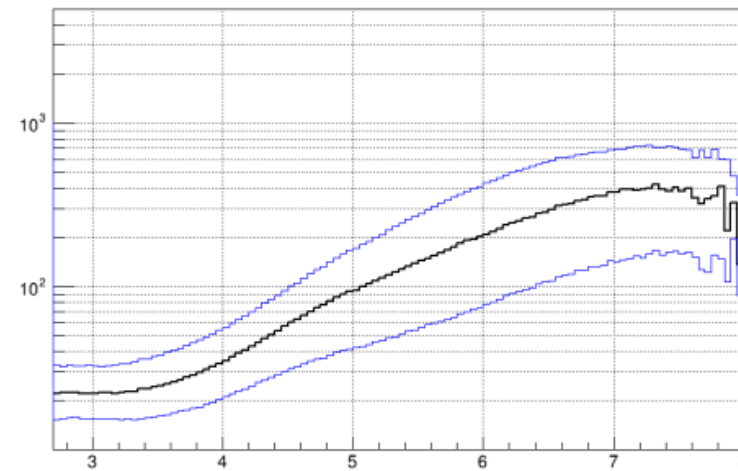
beforeBDT_Ncherepmts_vs_LogEmu



beforeBDT_Ncherepmts_vs_LogEvis

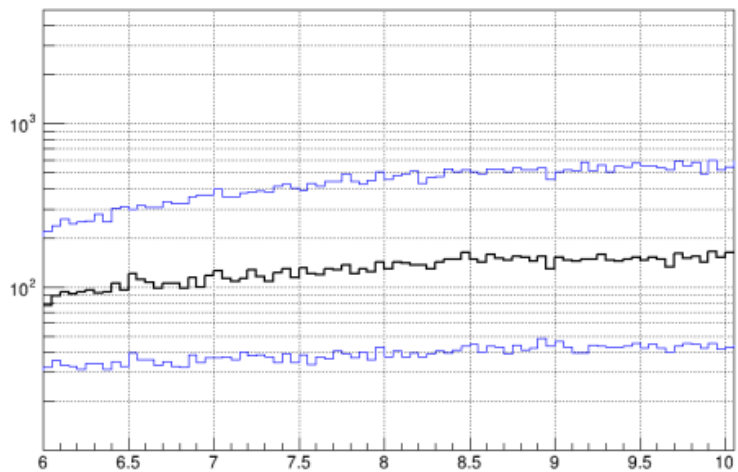


beforeBDT_Ncherepmts_vs_LogEreco

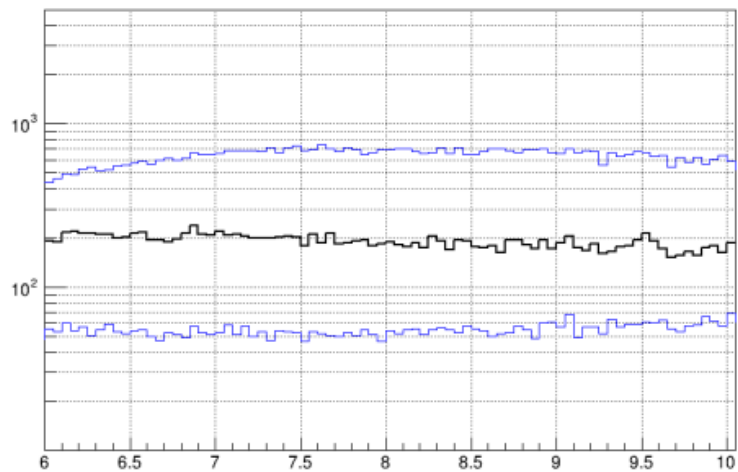


HE prod

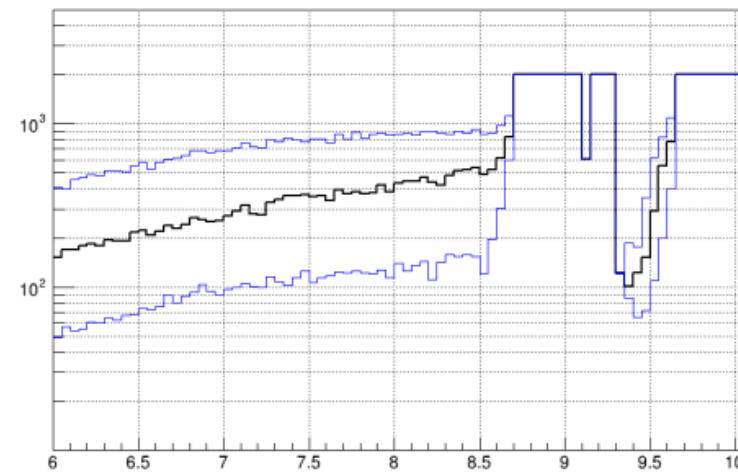
beforeBDT_Ncherepmts_vs_LogEmu



beforeBDT_Ncherepmts_vs_LogEvis



beforeBDT_Ncherepmts_vs_LogEreco



cherenkov pmts

median
68% band