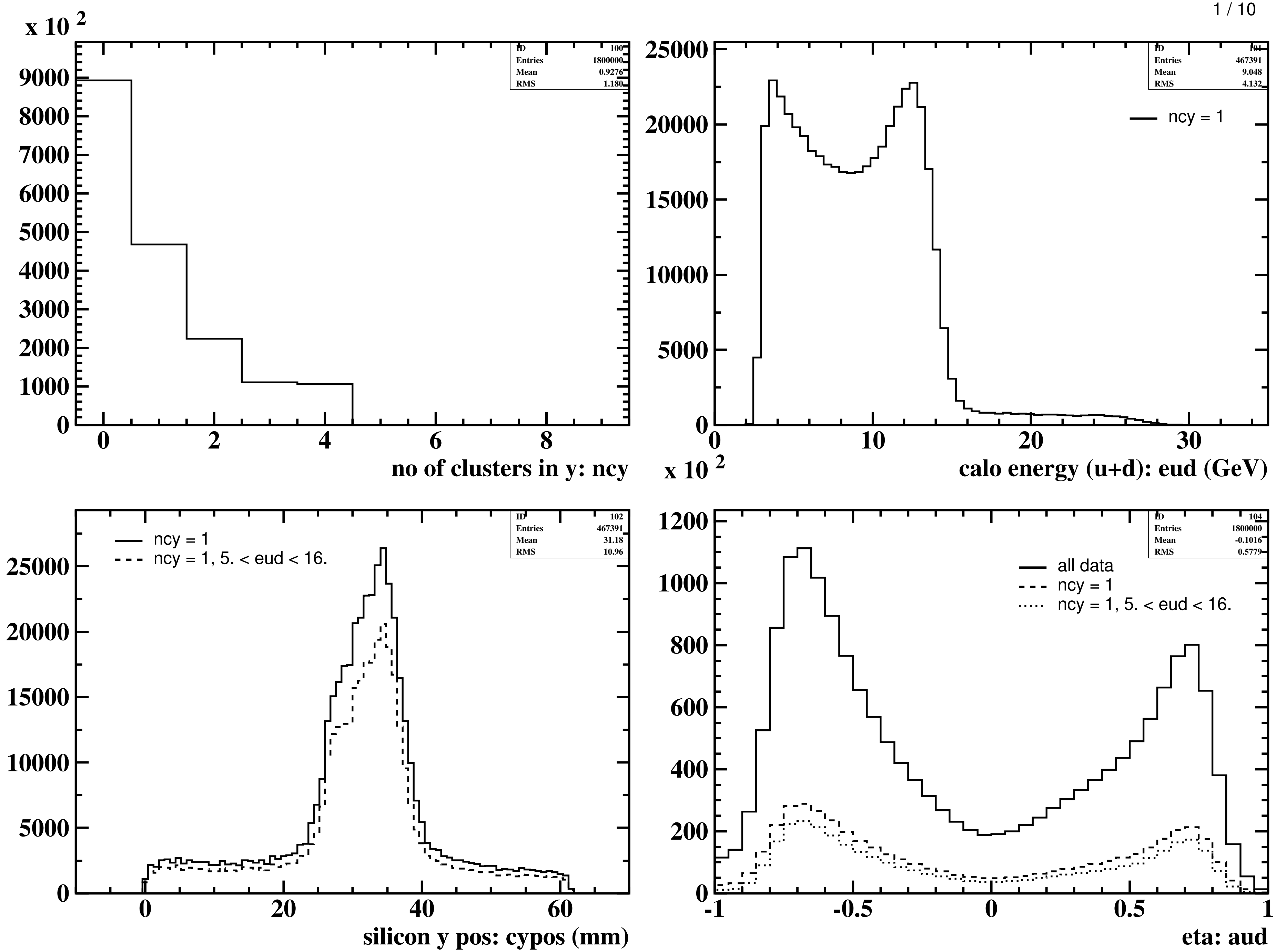
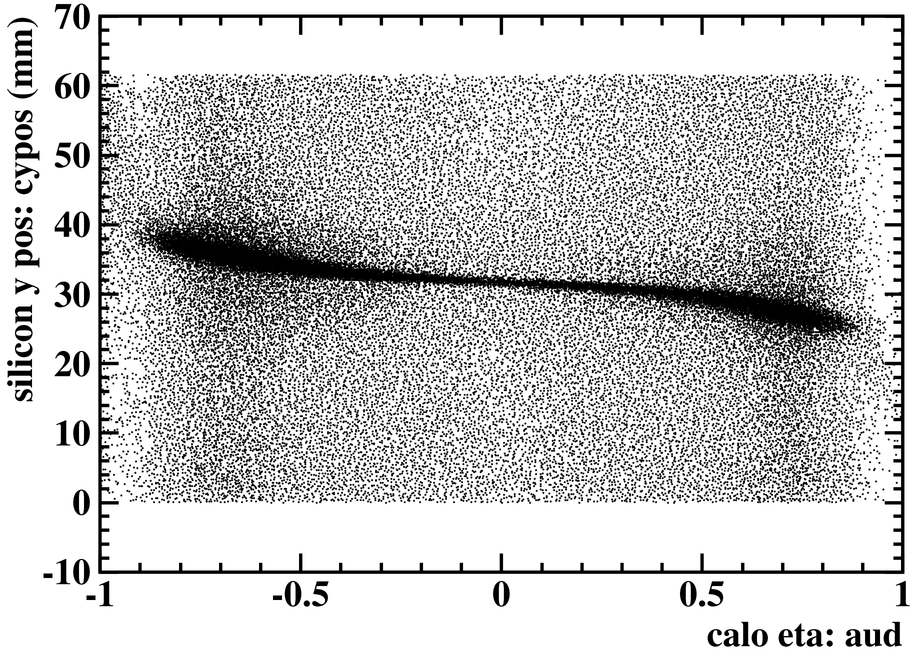

x 10 2
ID 100
Entries 1800000
Mean 0.9276
RMS 1.180
no of clusters in y: ncy
ID 101
Entries 467391
Mean 9.048
RMS 4.132
ncy = 1
calo energy (u+d): eud (GeV)
ID 102
Entries 467391
Mean 31.18
RMS 10.96
ncy = 1
ncy = 1, 5. < eud < 16.
silicon y pos: cypos (mm)
x 10 2
ID 104
Entries 1800000
Mean -0.1016
RMS 0.5779
all data
ncy = 1
ncy = 1, 5. < eud < 16.
eta: aud



Cuts applied: - ncy = 1

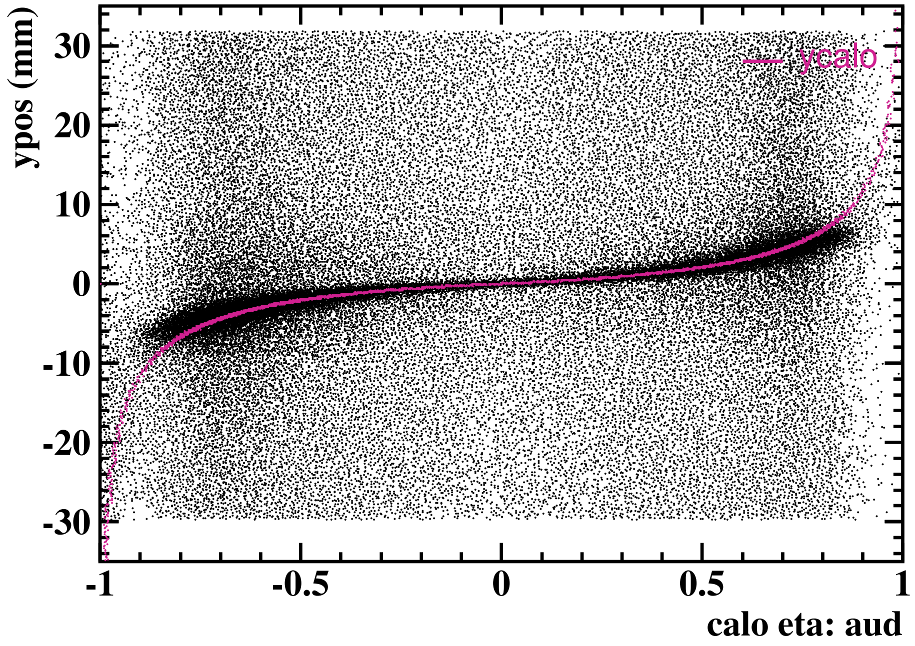
- 5. < eud < 16.

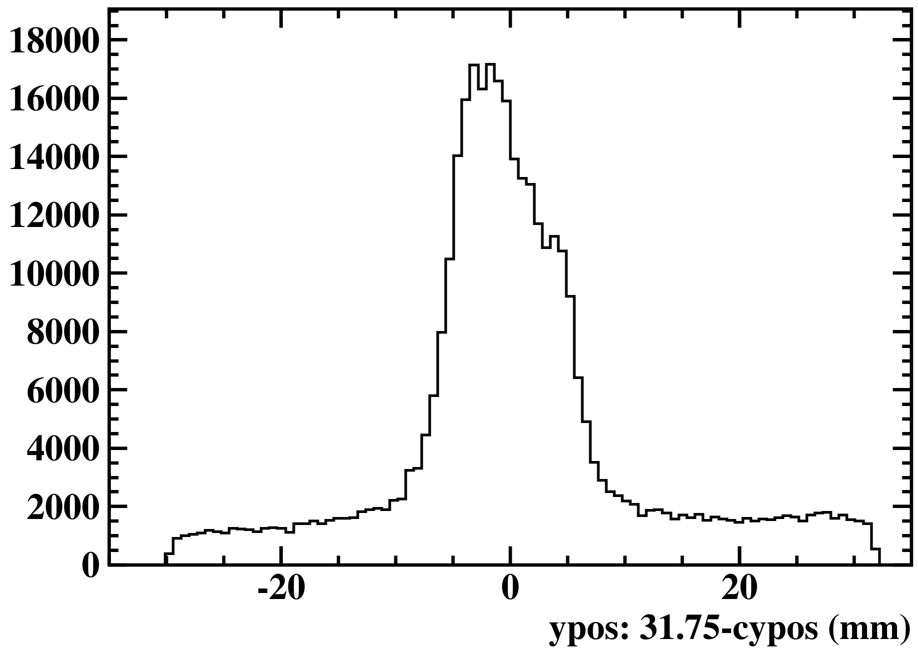
Apply rough position calibration to silicon data:

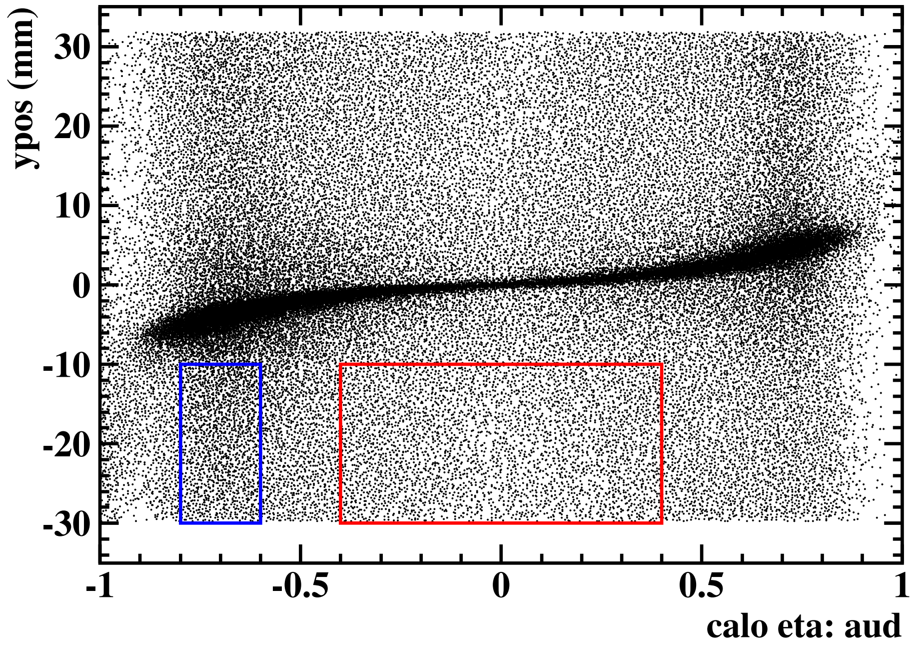
- Center silicon position at 31.75 mm
- Mirror data with respect to new center

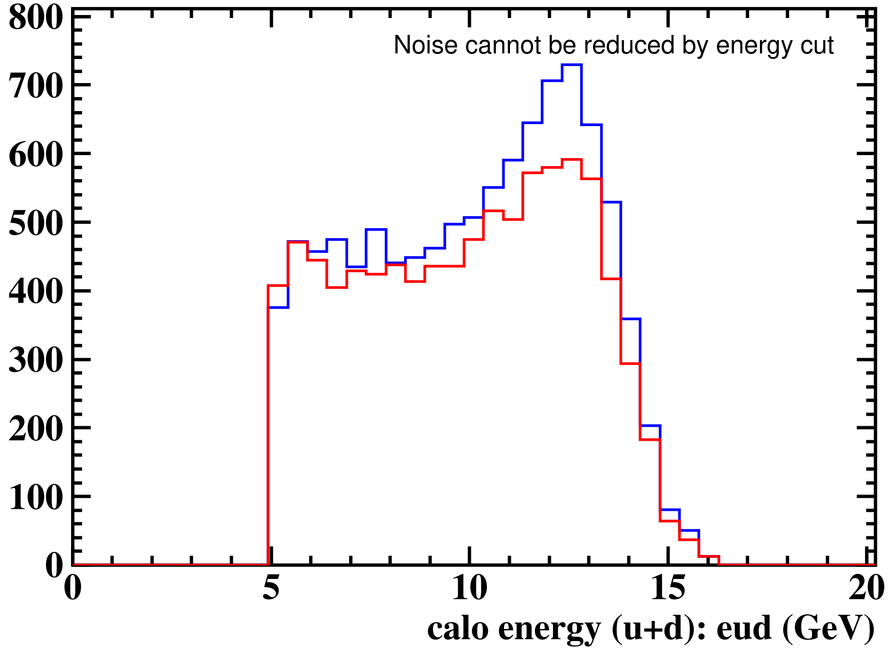
⇒ cypos → ypos = 31.75 - cypos

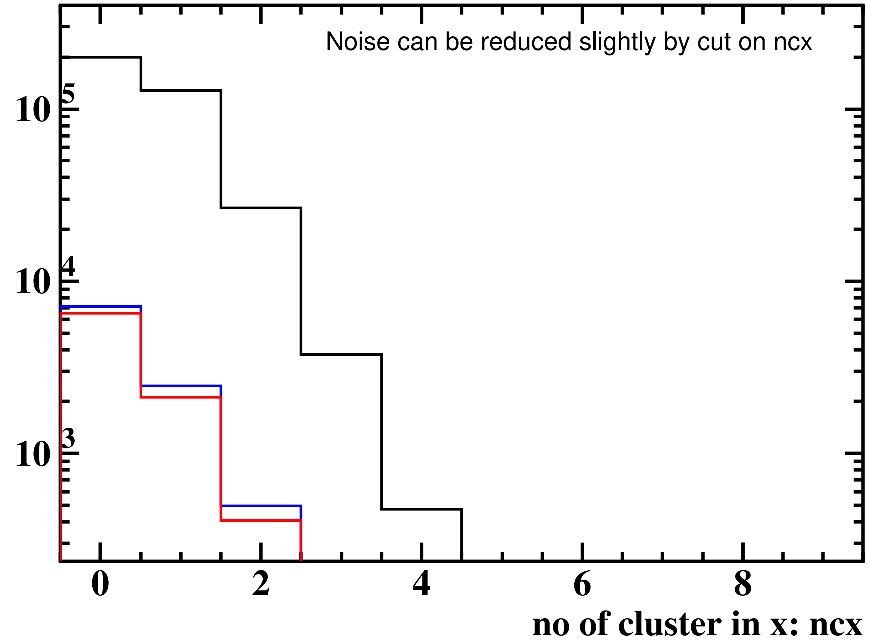
Comparision silicon y position with " ycalo "

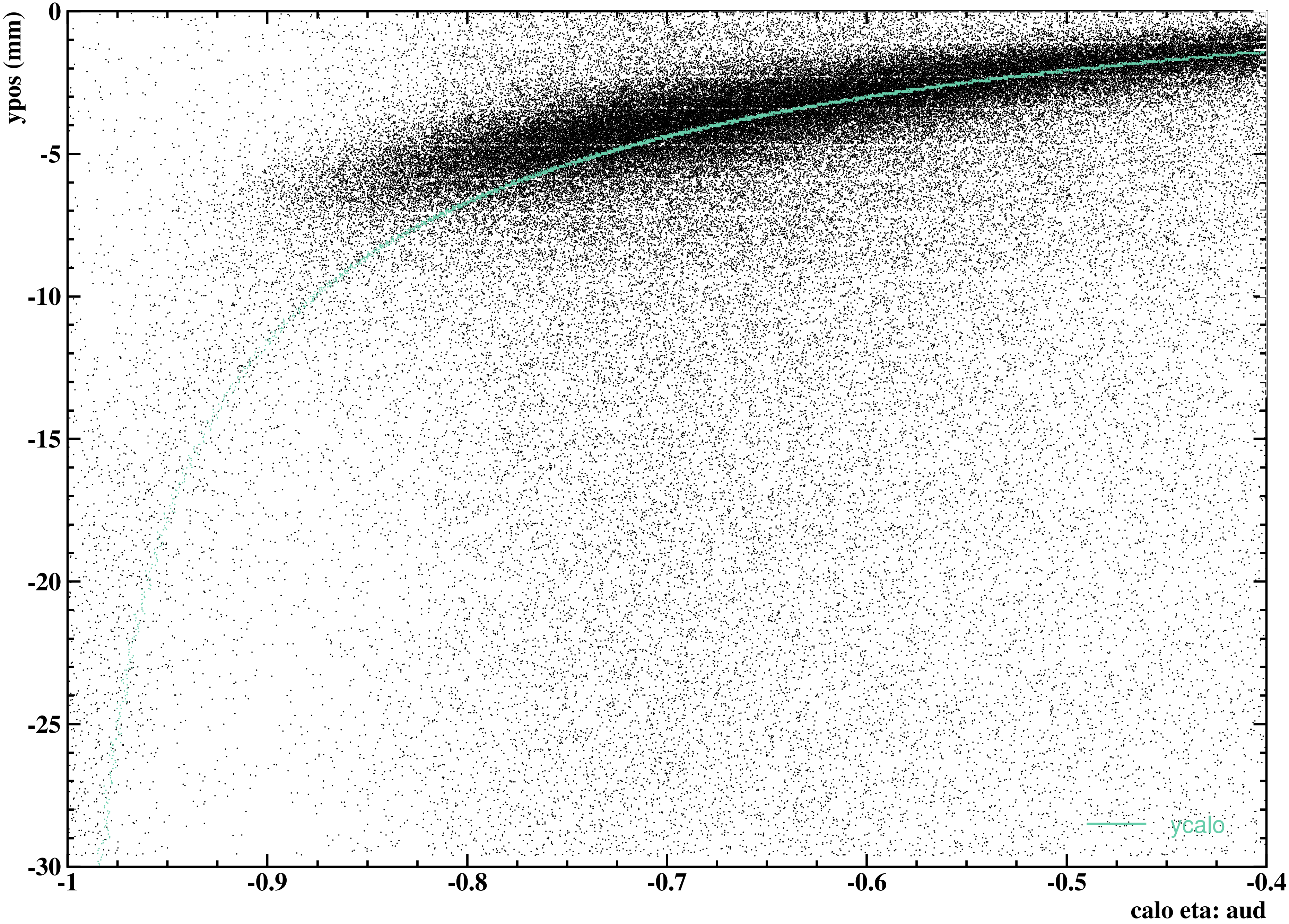


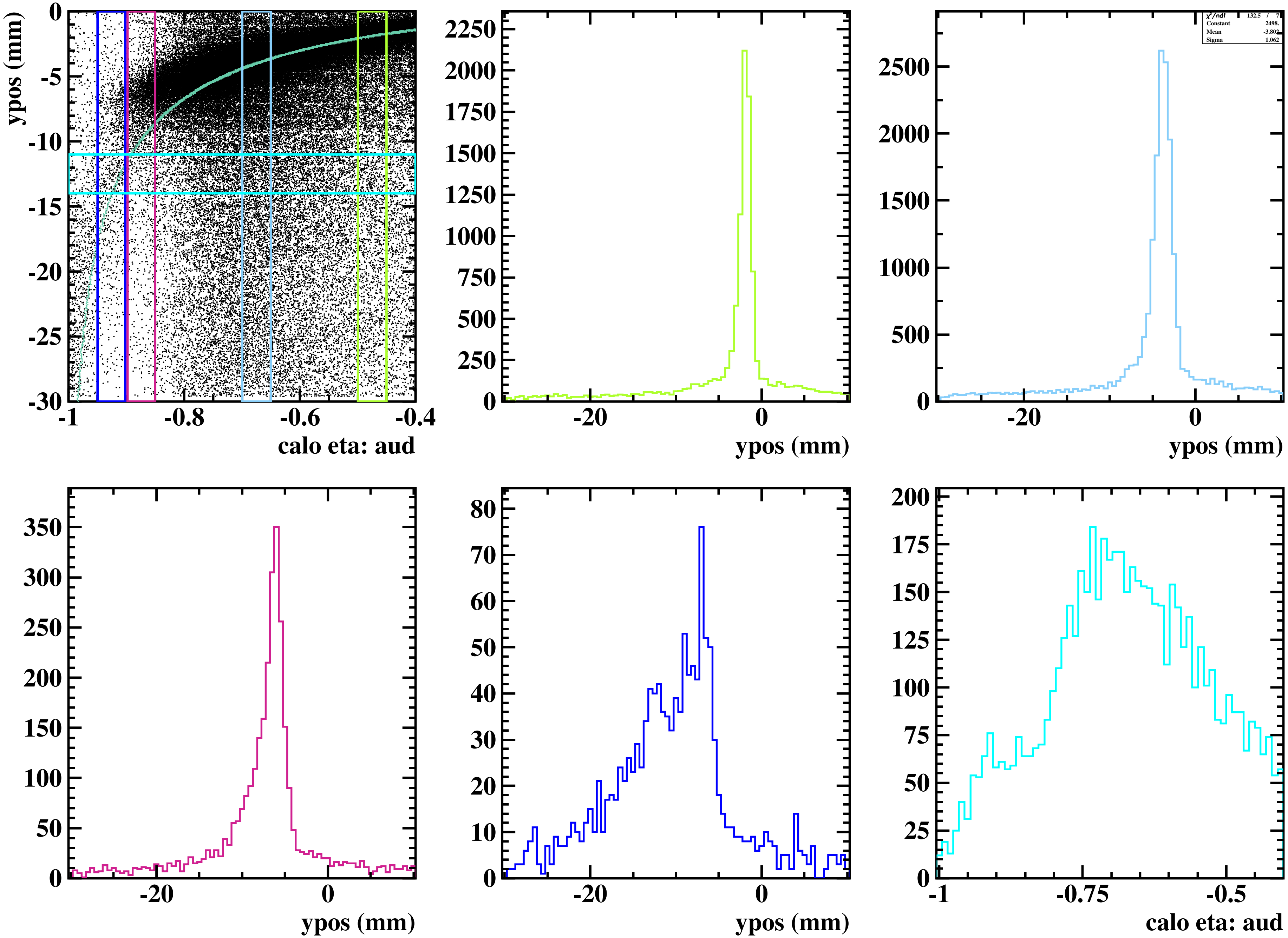


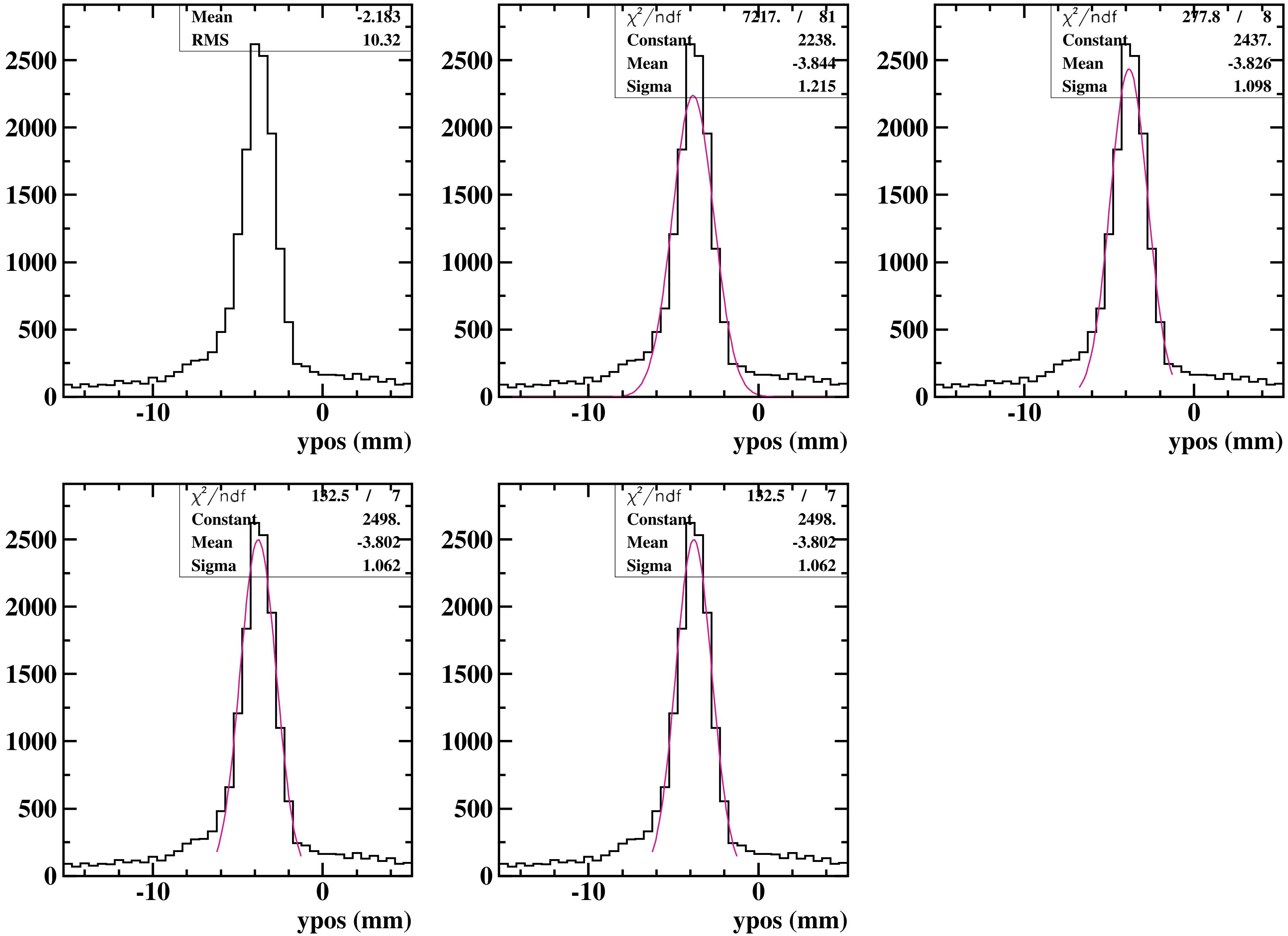

ypos (mm)
calo eta: aud

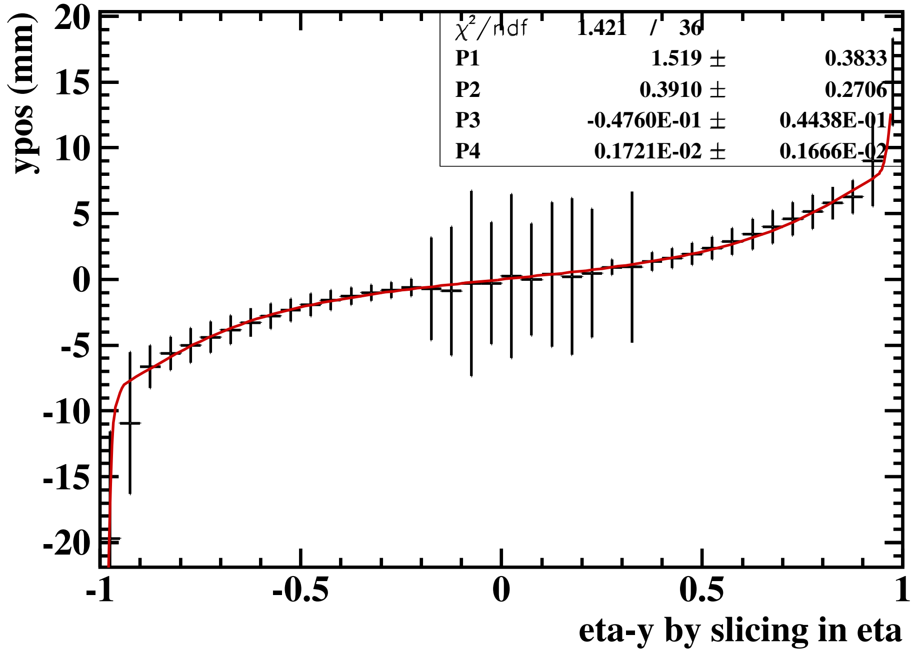

Noise cannot be reduced by energy cut
calo energy (u+d): eud (GeV)


Noise can be reduced slightly by cut on ncx
no of cluster in x: ncx


ypos (mm)
0
-5
-10
-15
-20
-25
-30
-1
-0.9
-0.8
-0.7
-0.6
-0.5
-0.4
calo eta: aud
ycalo


ypos (mm)
calo eta: aud
ypos (mm)
ypos (mm)
χ²/ndf 132.5 / 7
Constant 2498.
Mean -3.802
Sigma 1.062
ypos (mm)
ypos (mm)
calo eta: aud


Mean -2.183
RMS 10.32
χ^2/ndf 7217. / 81
Constant 2238.
Mean -3.844
Sigma 1.215
χ^2/ndf 277.8 / 8
Constant 2437.
Mean -3.826
Sigma 1.098
χ^2/ndf 132.5 / 7
Constant 2498.
Mean -3.802
Sigma 1.062
χ^2/ndf 132.5 / 7
Constant 2498.
Mean -3.802
Sigma 1.062
0
500
1000
1500
2000
2500
-10
0
ypos (mm)



Fitting: 0.05 wide slices in η, fitted with gaussian within $\pm$ 2 σ

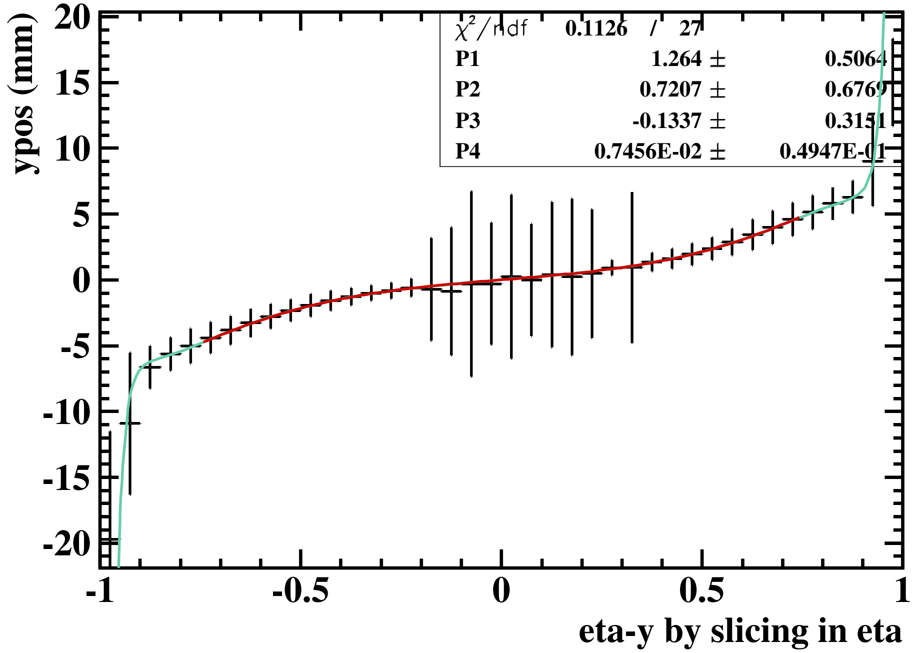
Error bars: $\pm$ 1 σ

Range: $-1. < \eta < 1.$

$F(\eta) = P1 \cdot f(\eta) + P2 \cdot f(\eta)^3 + P3 \cdot f(\eta)^5 + P4 \cdot f(\eta)^7$

$f(\eta) = \log((1+\eta)/(1-\eta))$

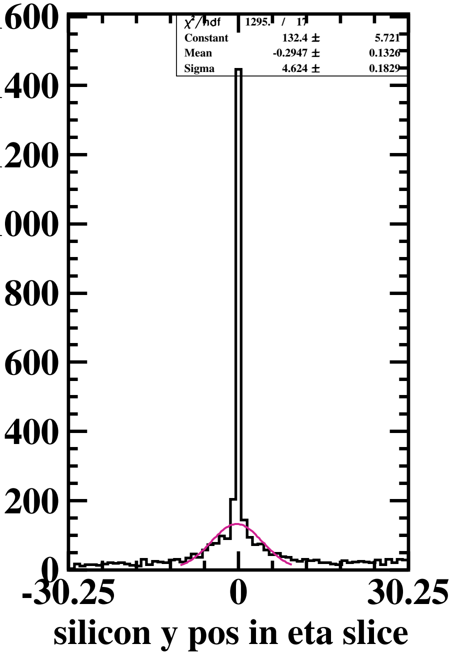
Why large error bars for small $|\eta|$?

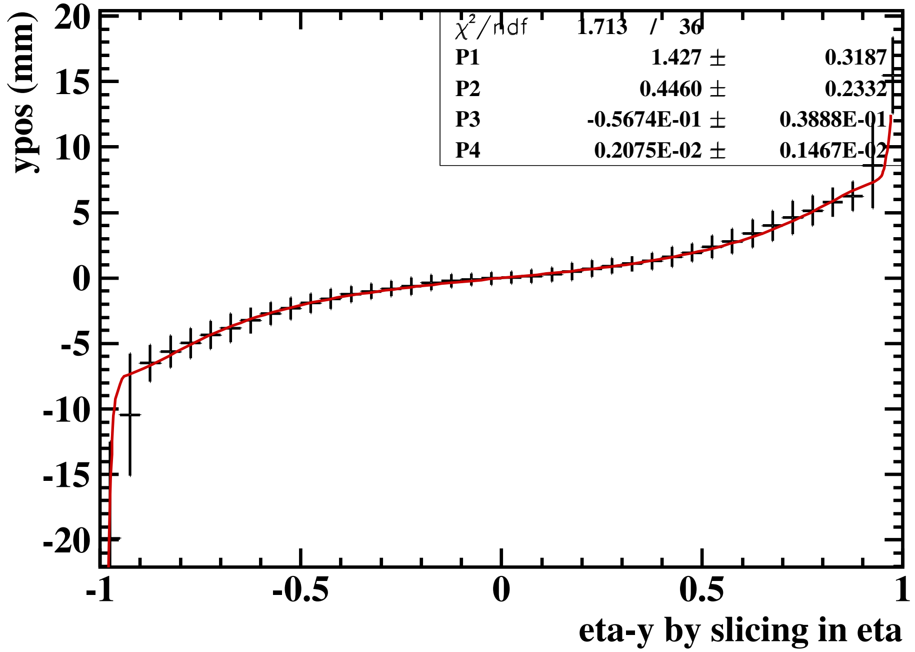


Fitting:

Error bars: $\pm$ 1 σ

Range: $-0.75 < \eta < 0.75$





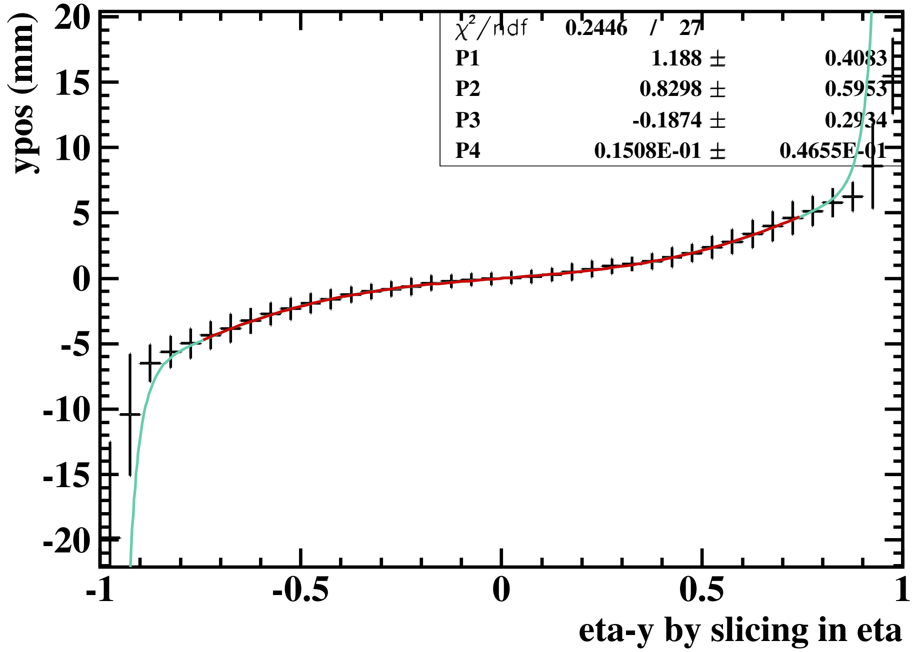
Fitting: 0.05 wide slices in η, fitted with gaussian within $\pm$ 1.5 σ

Error bars: $\pm$ 1 σ

Range: $-1. < \eta < 1.$

$F(\eta) = P1 \cdot f(\eta) + P2 \cdot f(\eta)^3 + P3 \cdot f(\eta)^5 + P4 \cdot f(\eta)^7$

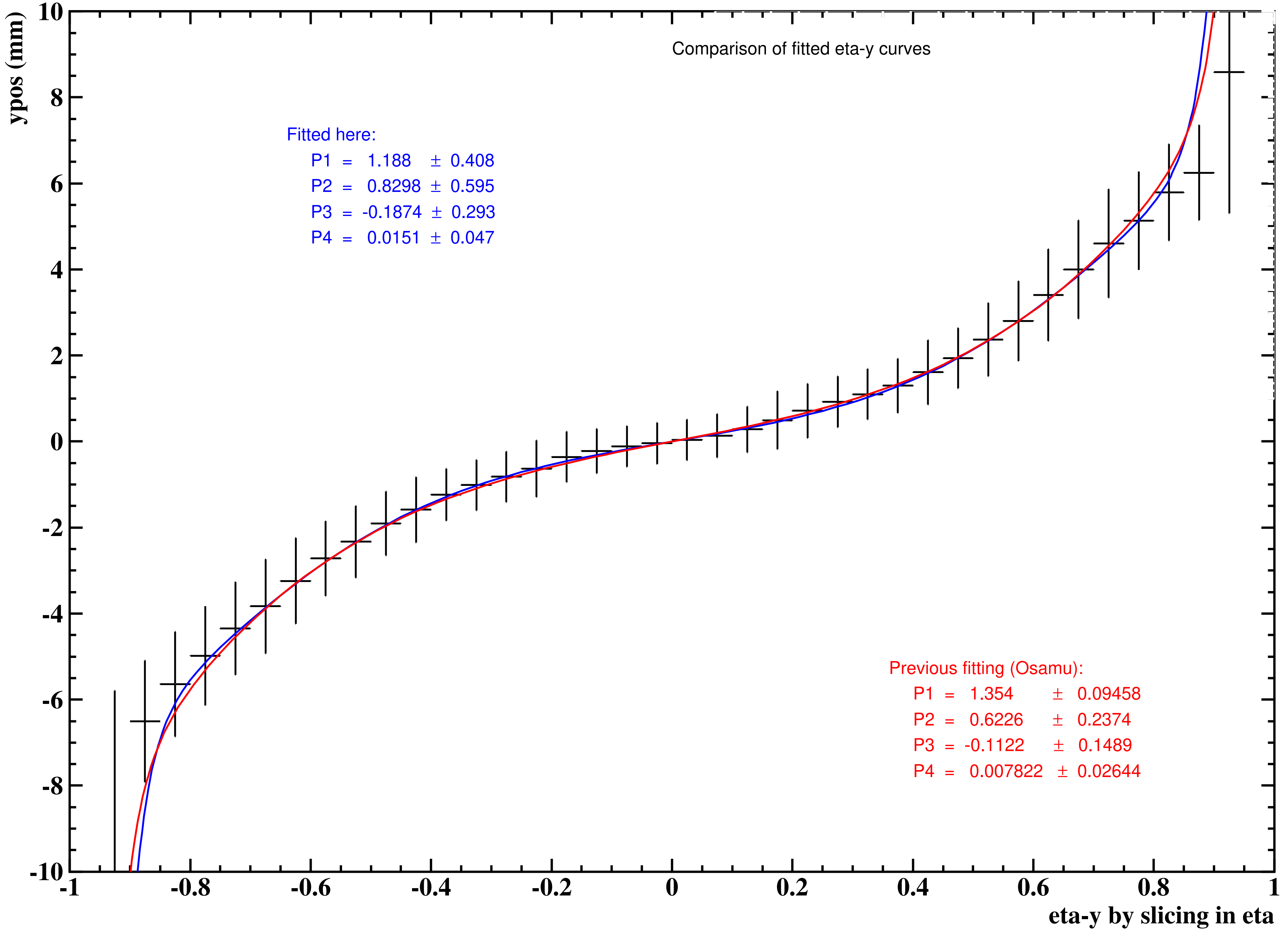
$f(\eta) = \log((1+\eta)/(1-\eta))$



Fitting:

Error bars: $\pm$ 1 σ

Range: $-0.75 < \eta < 0.75$


Comparison of fitted eta-y curves
Fitted here:
P1 = 1.188 ± 0.408
P2 = 0.8298 ± 0.595
P3 = -0.1874 ± 0.293
P4 = 0.0151 ± 0.047
Previous fitting (Osamu):
P1 = 1.354 ± 0.09458
P2 = 0.6226 ± 0.2374
P3 = -0.1122 ± 0.1489
P4 = 0.007822 ± 0.02644
ypos (mm)
eta-y by slicing in eta
10
8
6
4
2
0
-2
-4
-6
-8
-10
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1

Conclusion

Current table scan data:

- y range not wide enough
- data not homogenous enough
- still some discrepancies in the used data
- background data missing, need of BG subtraction
- data quality ?

Procedure to derive the eta-y curve:

- peak finding via gaussian fitting not robust with
  - range of gaussian fitting
  - bias induced by background and/or noise
- data inhomogeneity causes bias at large η, resp. large y
- slicing in y does not solve this problem
- still some discrepancies in the procedures used
- is parametrisation of eta-y curve suitable at all ?