# Offline zero suppression

Aim:
Understand the huge value of Missing $E_T$ at 1.5σ

Principally two runs have been studied from p11:
- 158541 1.5σ run
- 157581 2.5σ run

On QCD and Bias (zero bias and minimum bias) events

A method to simulate the cut at 2.5σ on 1.5σ has been developed
→ Look at the MET resolutions for the QCD and Bias events

# Determination of the sigma value

On a file of 1.5σ:

•Distribution of cell energy:

-by type of preamplifier

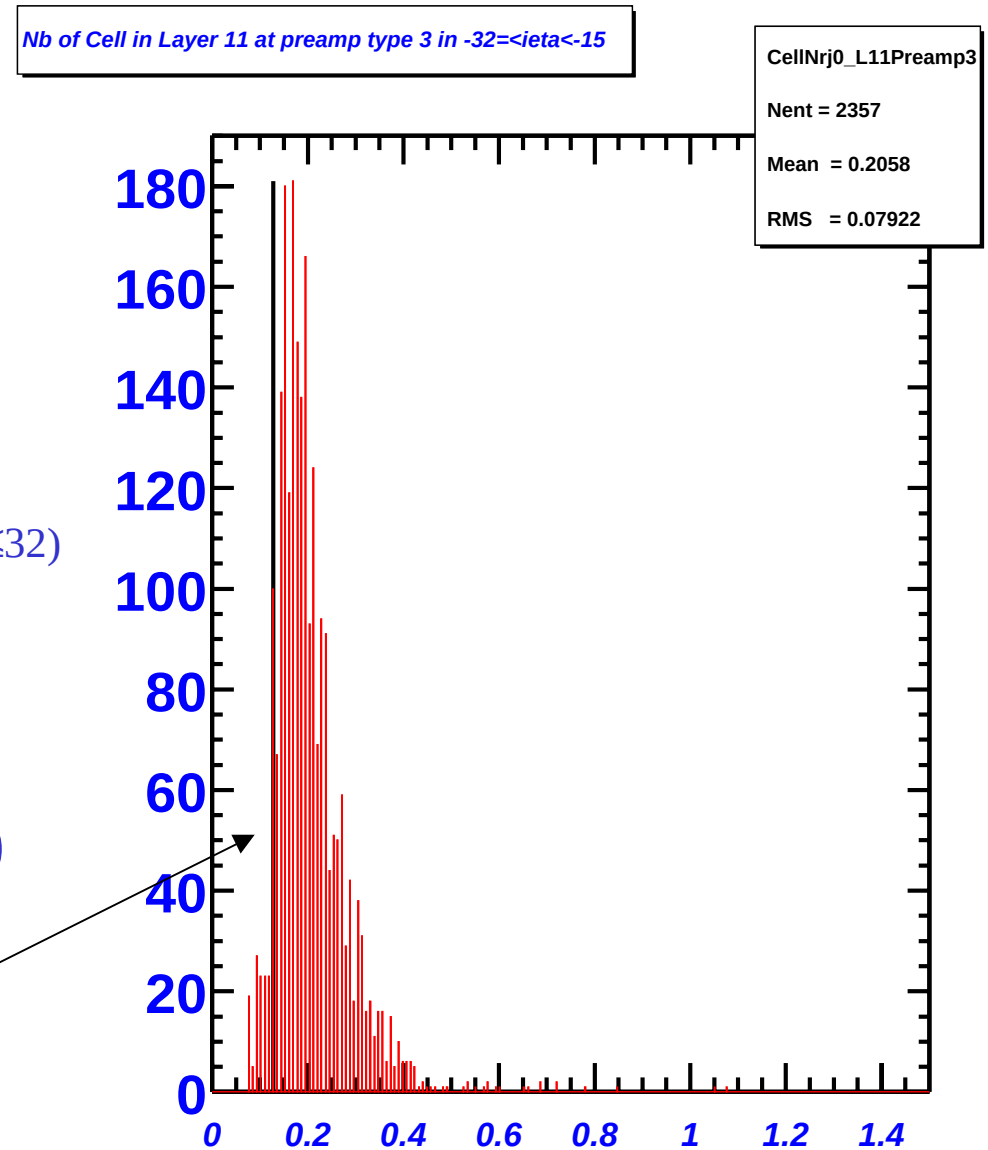
-by 4 zones of the calorimeter

(-32≤ieta<-15; -15≤ieta<0;0<ieta ≤ 15;15<ieta≤32)

-And by layer.

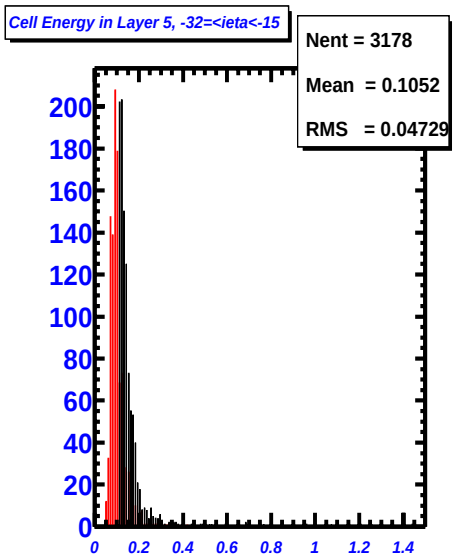
•Look for the maximum of the distribution,

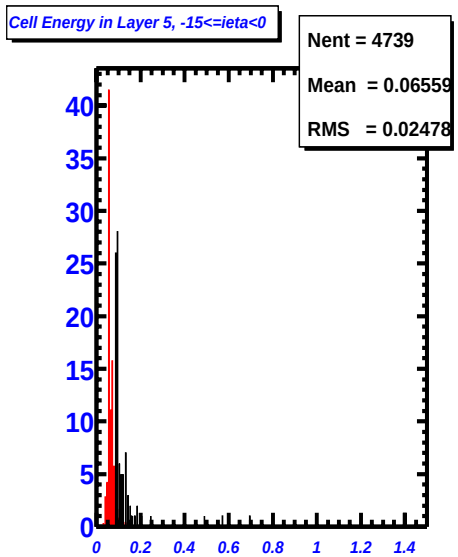
1.5σ=bin(20% of the maximum)

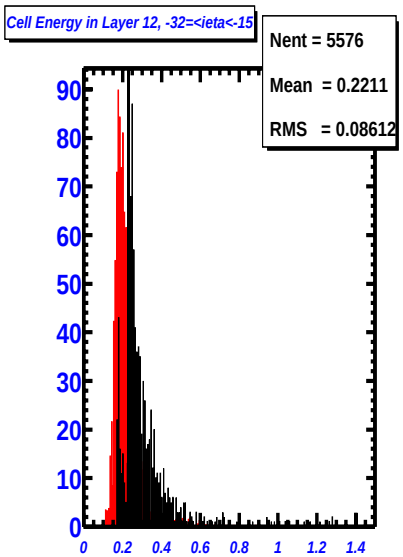


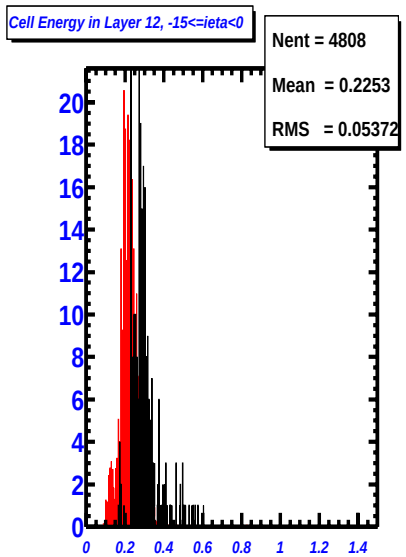

Value of 1.5 σ

# Example of cuts



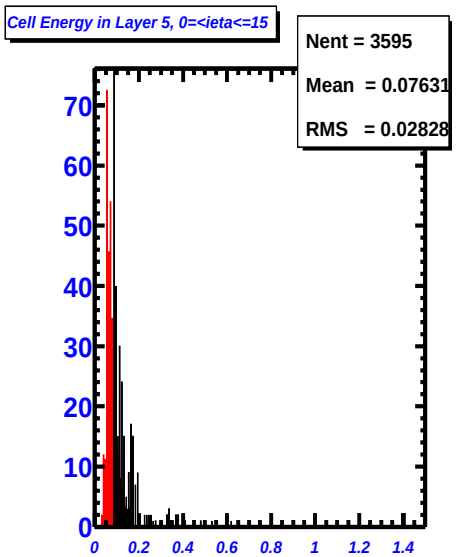



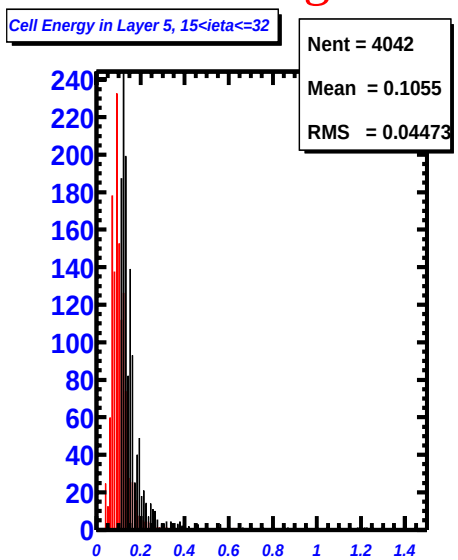



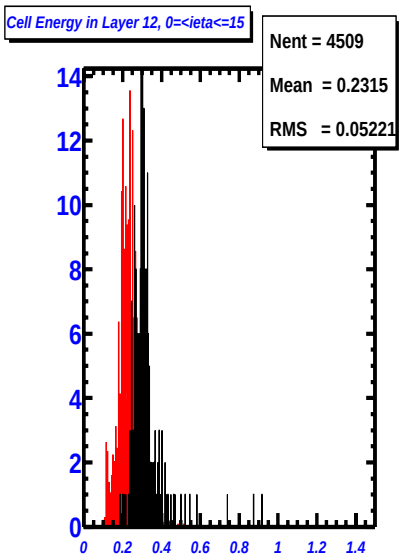



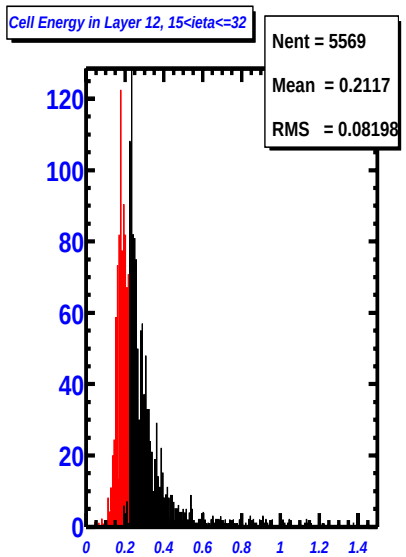

1.5 sigma cut at 2.5 sigma

2.5 sigma

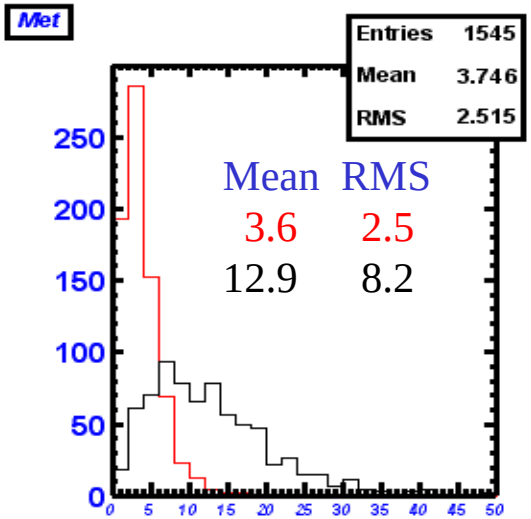


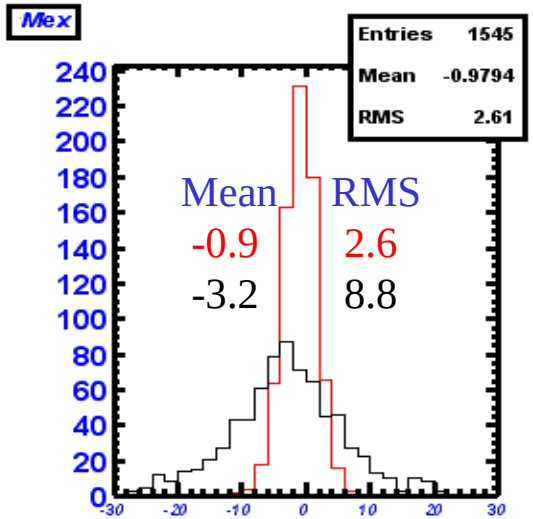



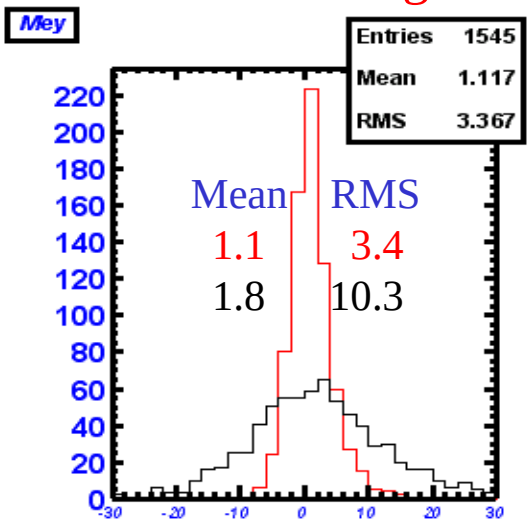
# Met and Set at 1.5σ and at 2.5σ on bias events

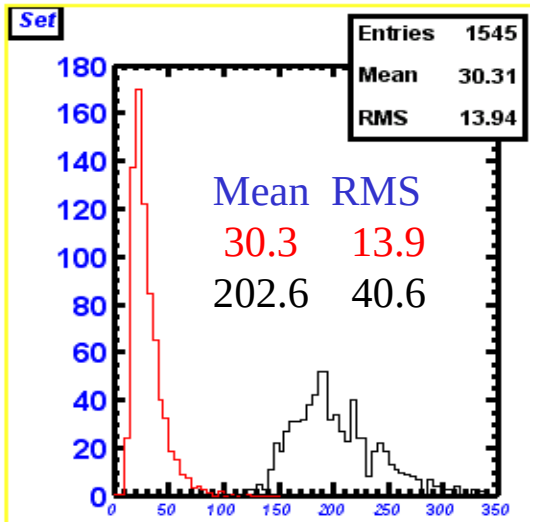



1.5 sigma

2.5 sigma



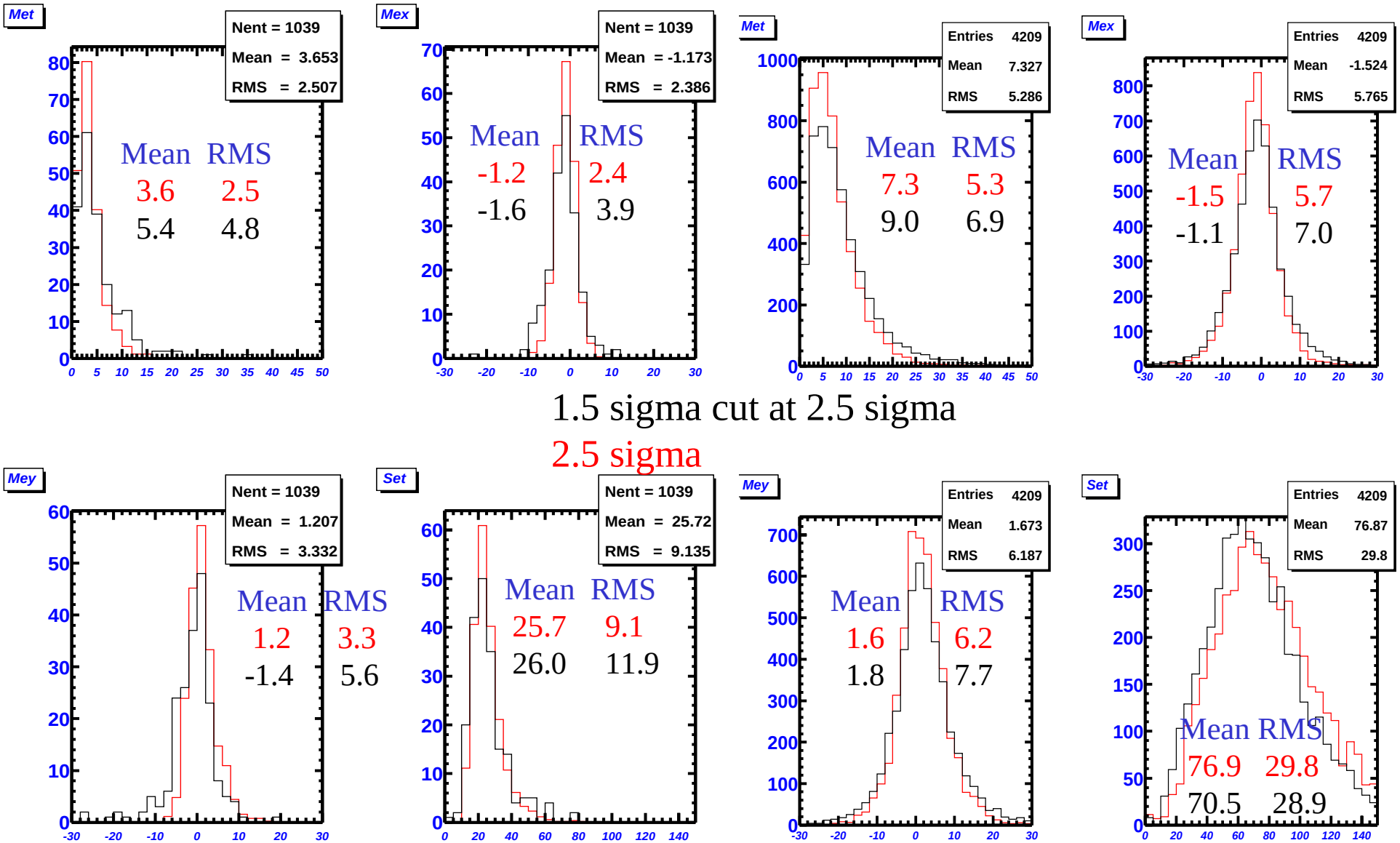

Met is 4 times more important in run 1.5σ.

In run 1.5σ, there is 6 times more energy than in run 2.5σ.

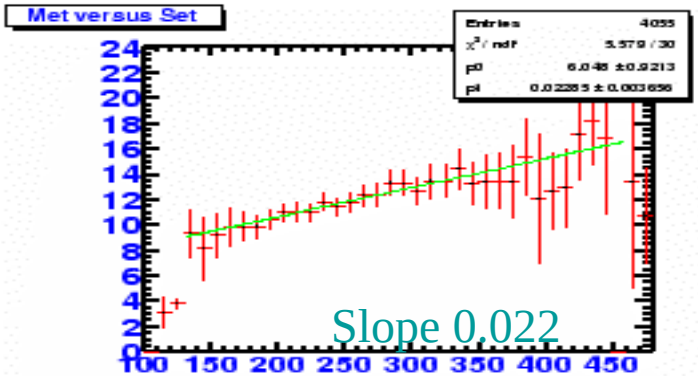
# Consequences of cuts on MET and SET

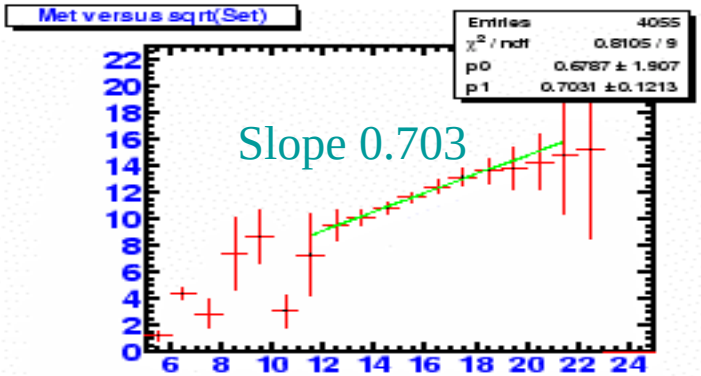
Zero Bias events

QCD events

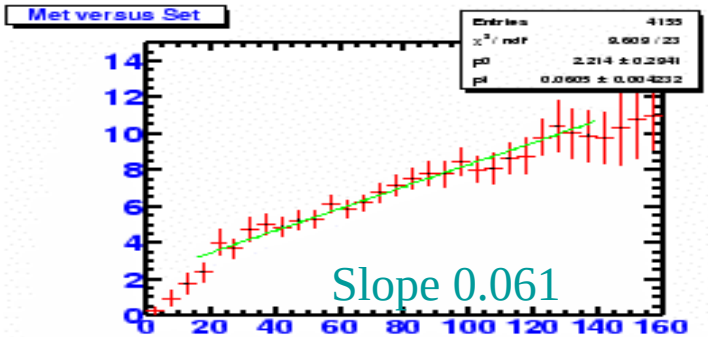


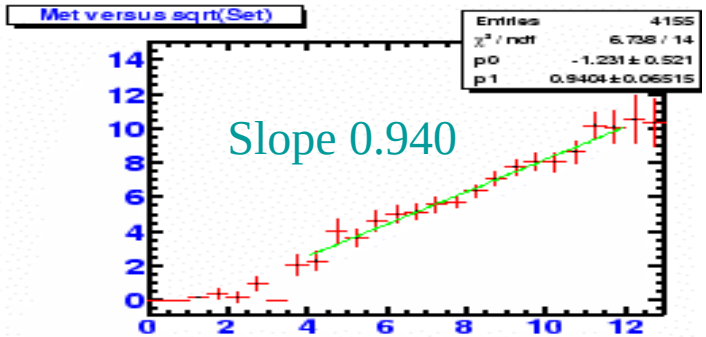
# Met resolutions for QCD events



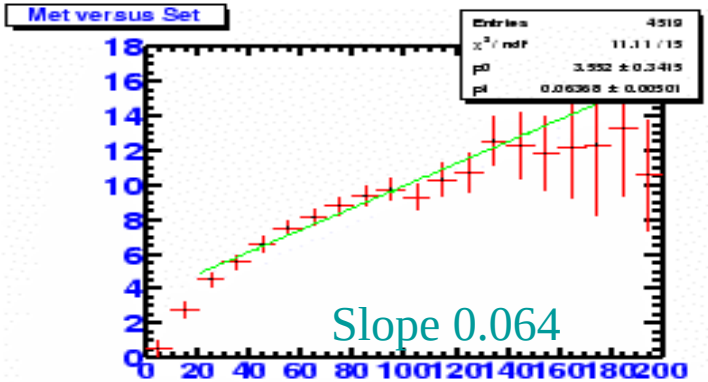



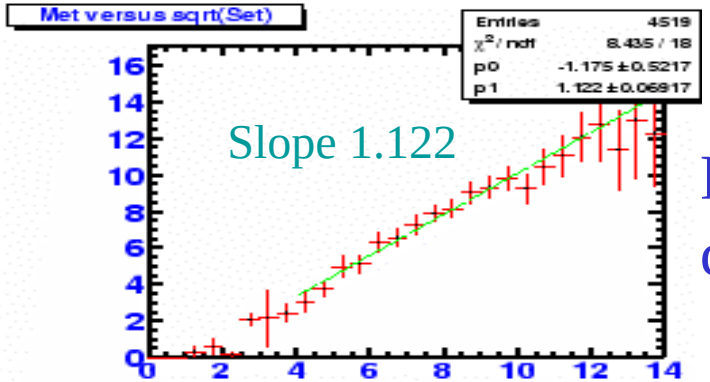

Run 1.5σ




Run 2.5σ

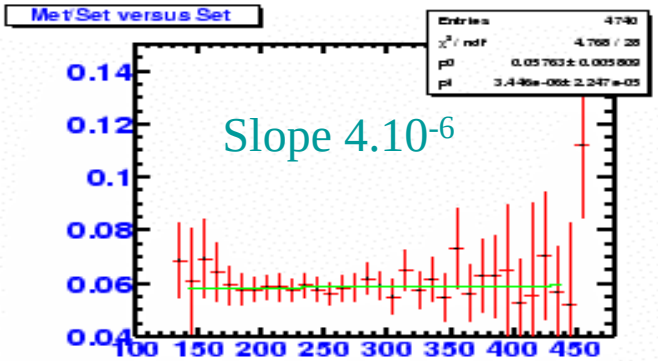


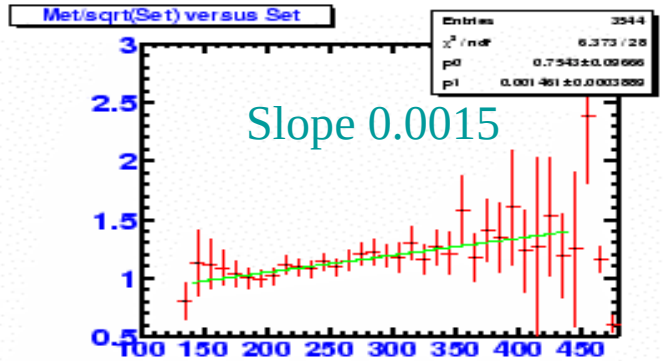




Run 1.5σ
cut at 2.5σ

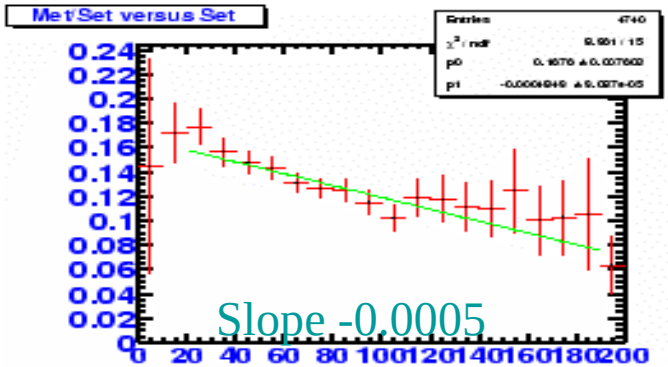
⇒ Met value at 1.5σ is understandable

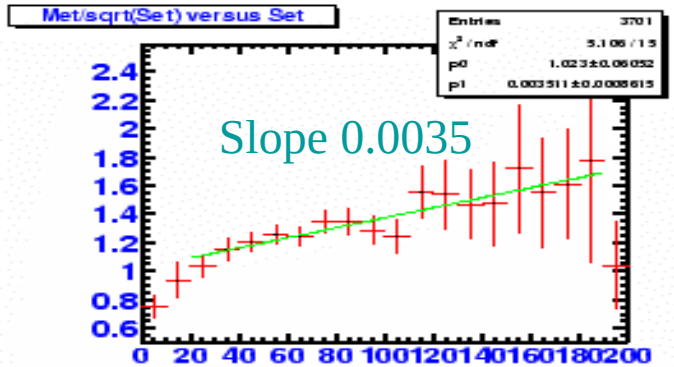
# Met/Set resolution for QCD events



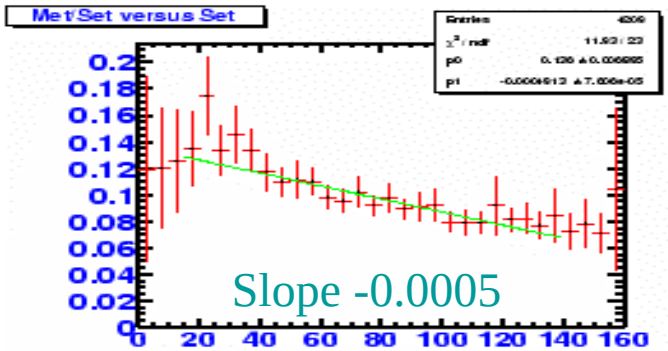



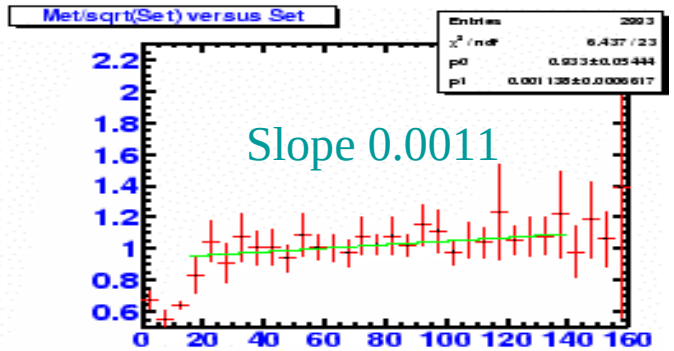

Run 1.5σ




Run 2.5σ

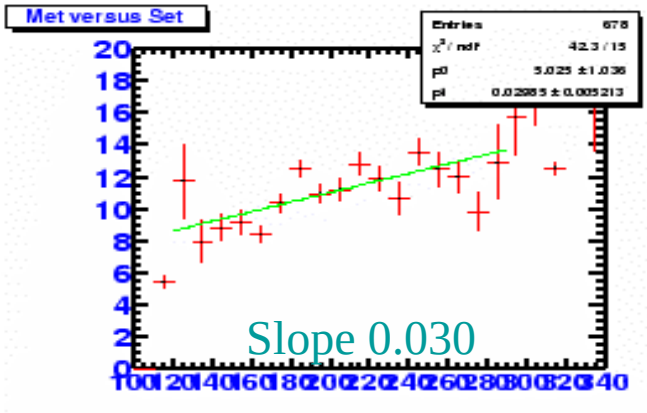


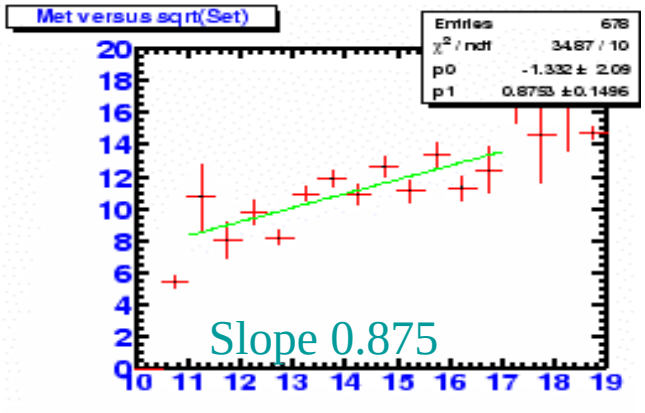




Run 1.5σ
cut at 2.5σ

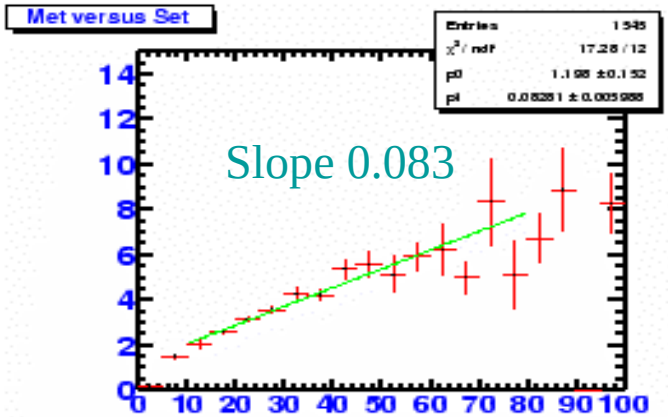
⇒ Met is varying as √Set

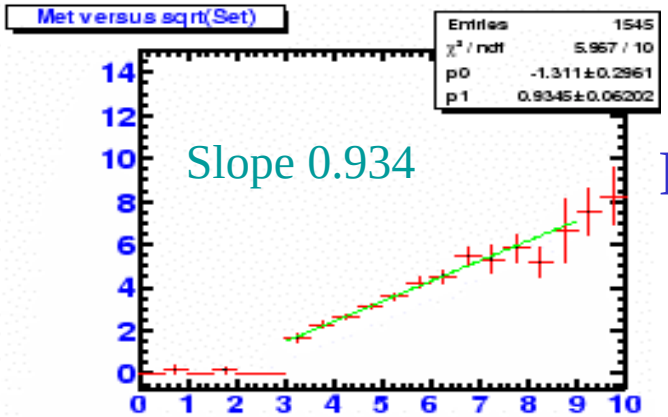
# Met resolution for Bias events



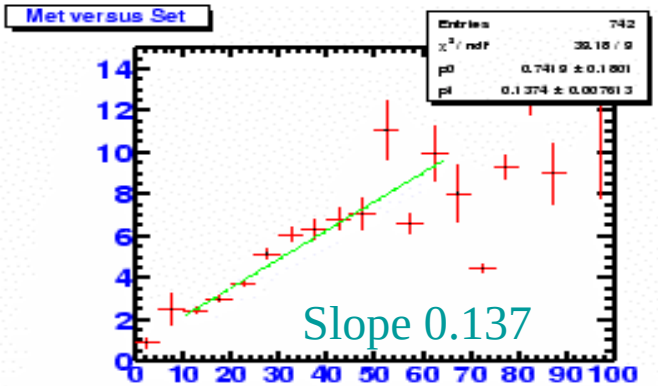



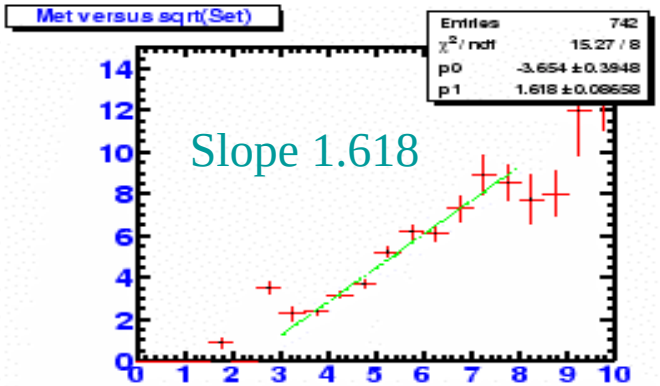

Run 1.5σ



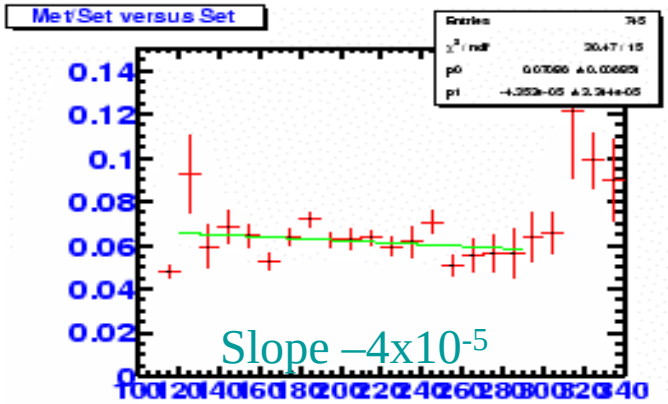

Run 2.5σ

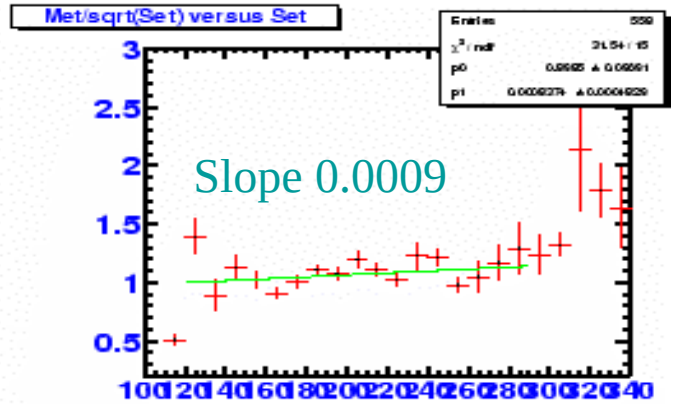


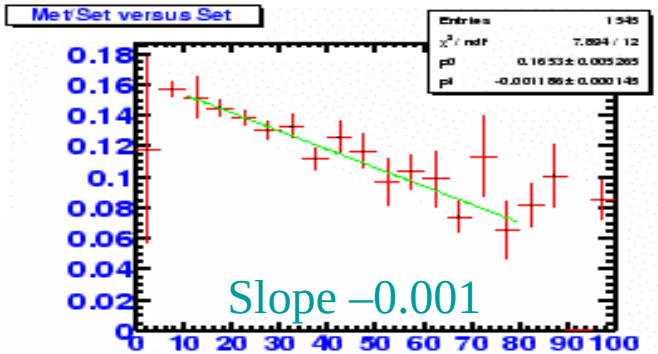

Run 1.5σ
cut at 2.5σ

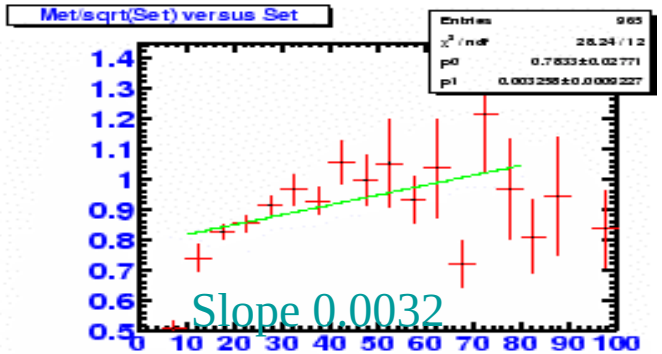
# Met/Set resolution for Bias events



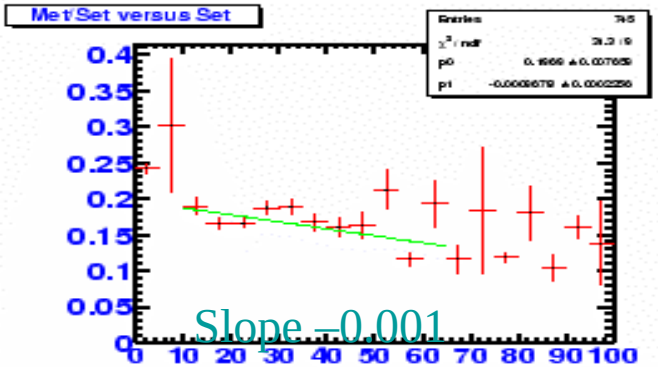



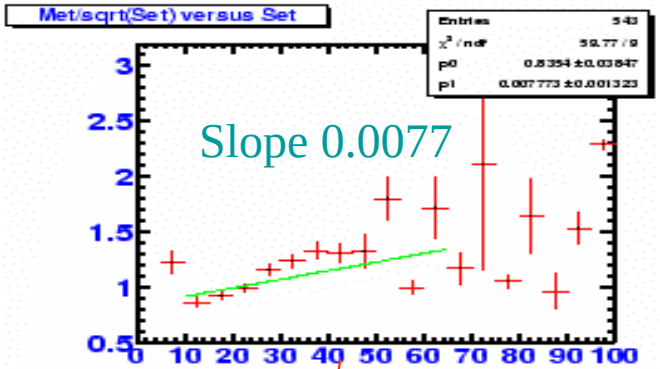

Run 1.5σ




Run 2.5σ



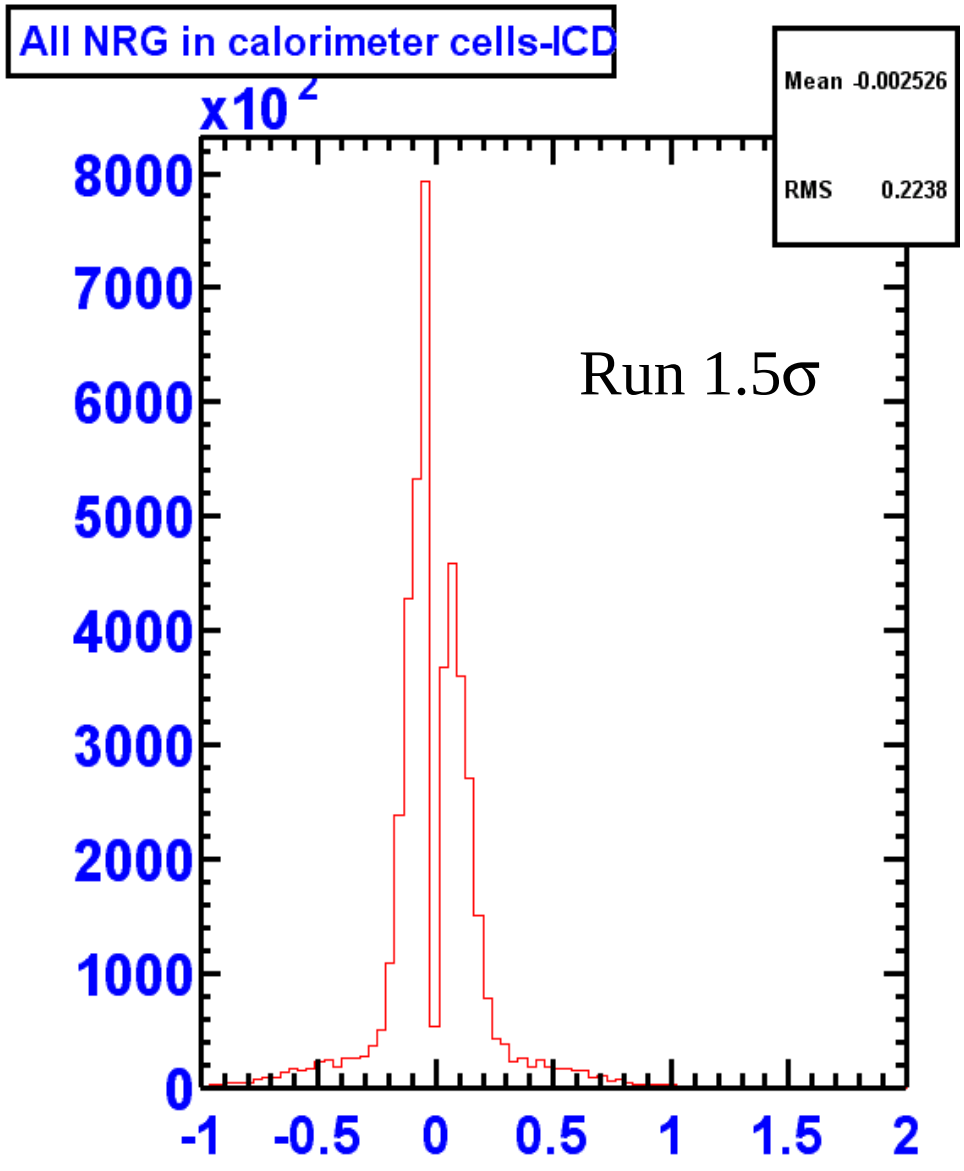



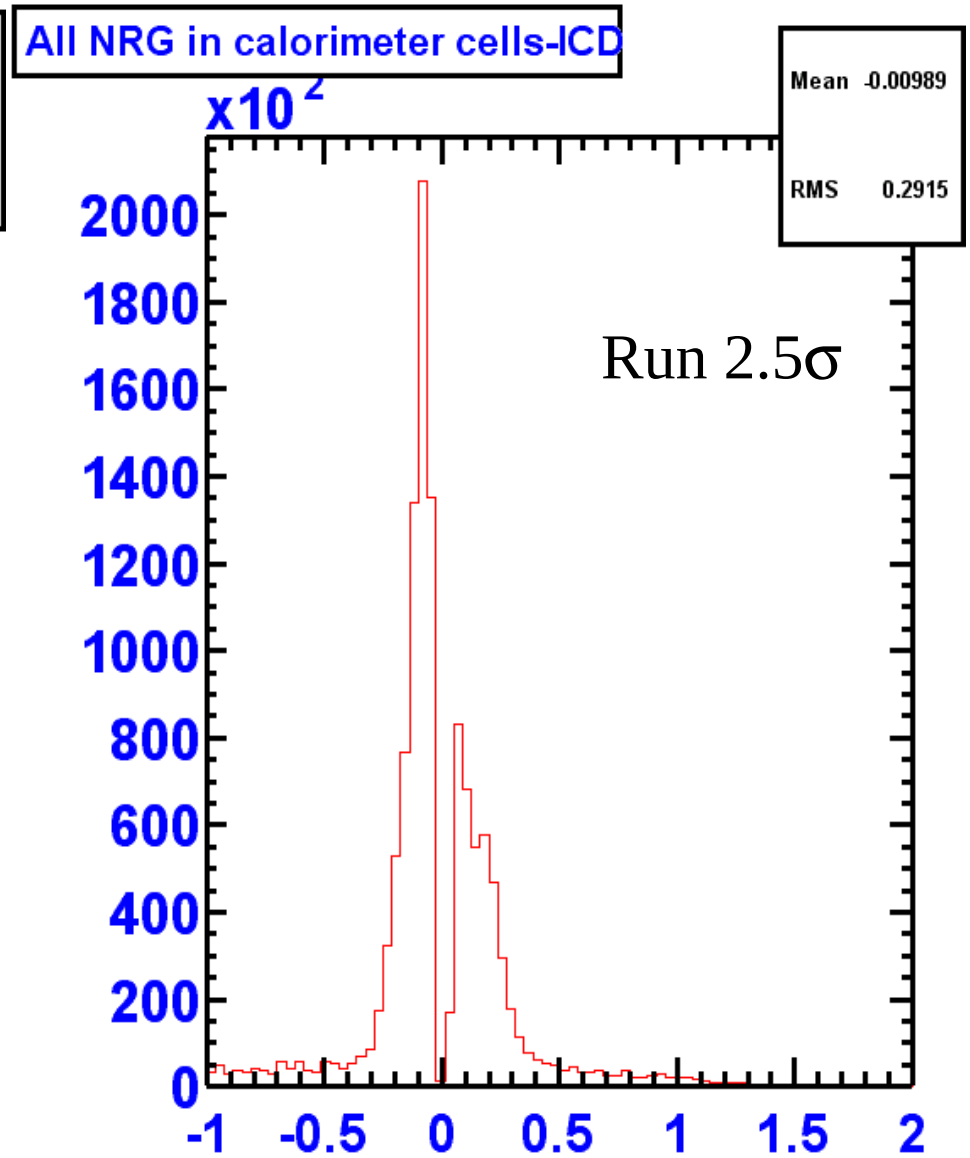

Run 1.5σ
cut at 2.5σ

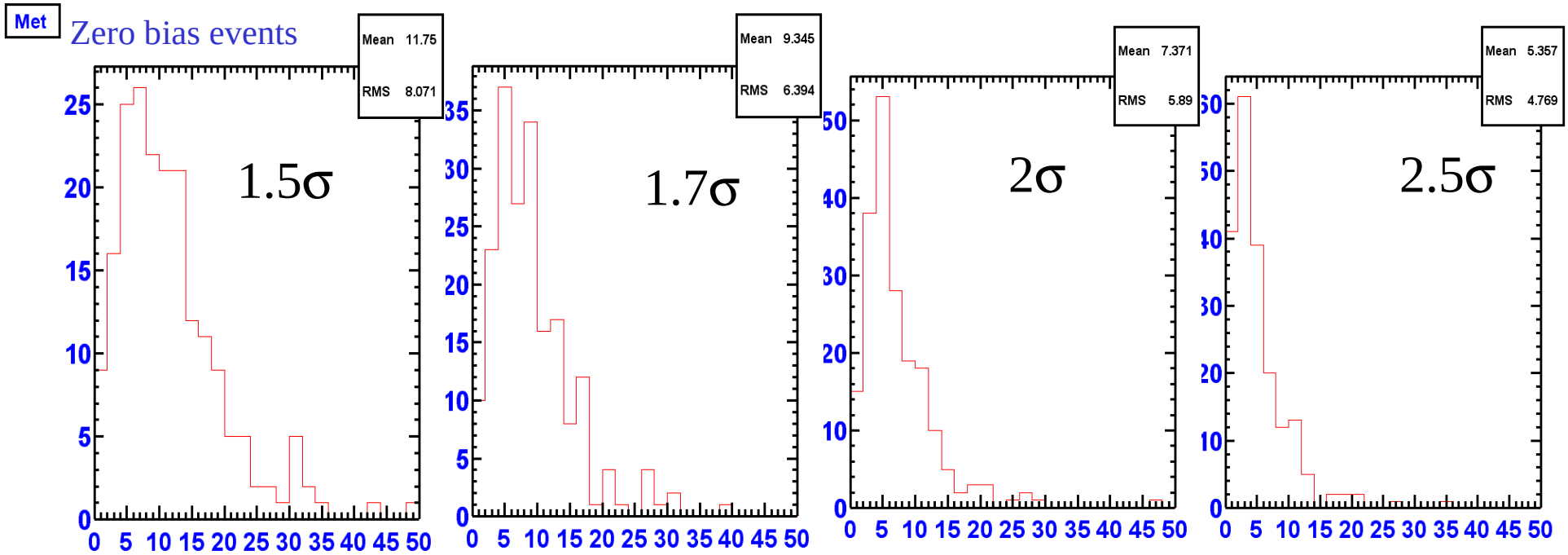
⇒ On run 1.5σ, Met is varying as √Set

# A lot of Negative Energy…

On bias events:



# Conclusion

- The method to cut on sigma value is valid
- For a cut at 1.5σ we have a MET greater than 10 GeV on Bias events
- MET is varying as Sqrt(Set) from QCD events
- Still to look at the negative energy cells…