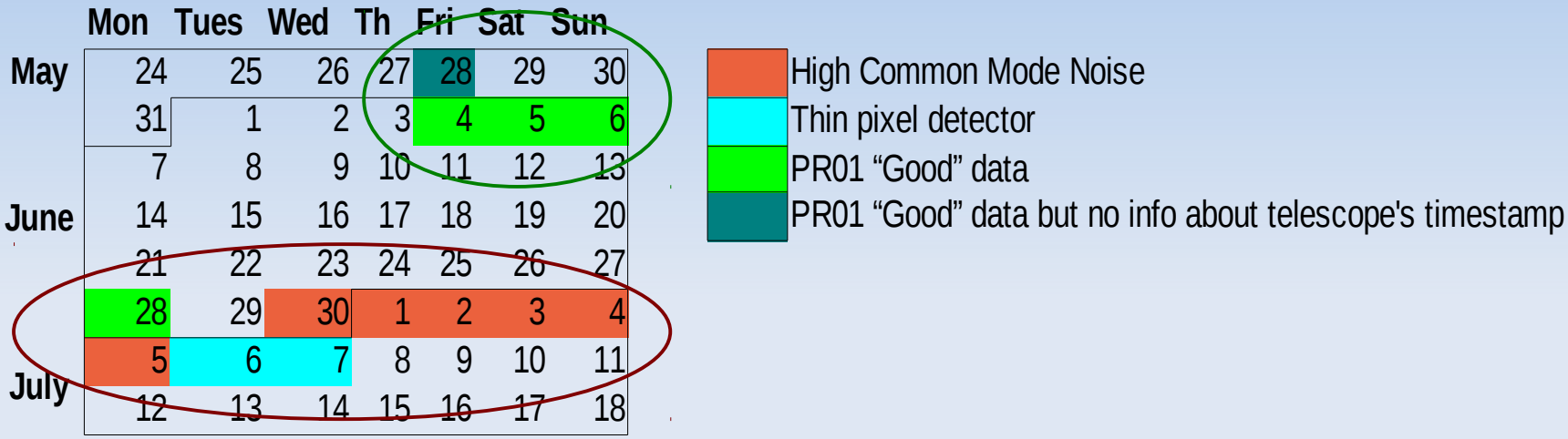
PR01 Analysis

I.Testbeam summary

II.PR01 Analysis status

I. Testbeam summary

Two stages:



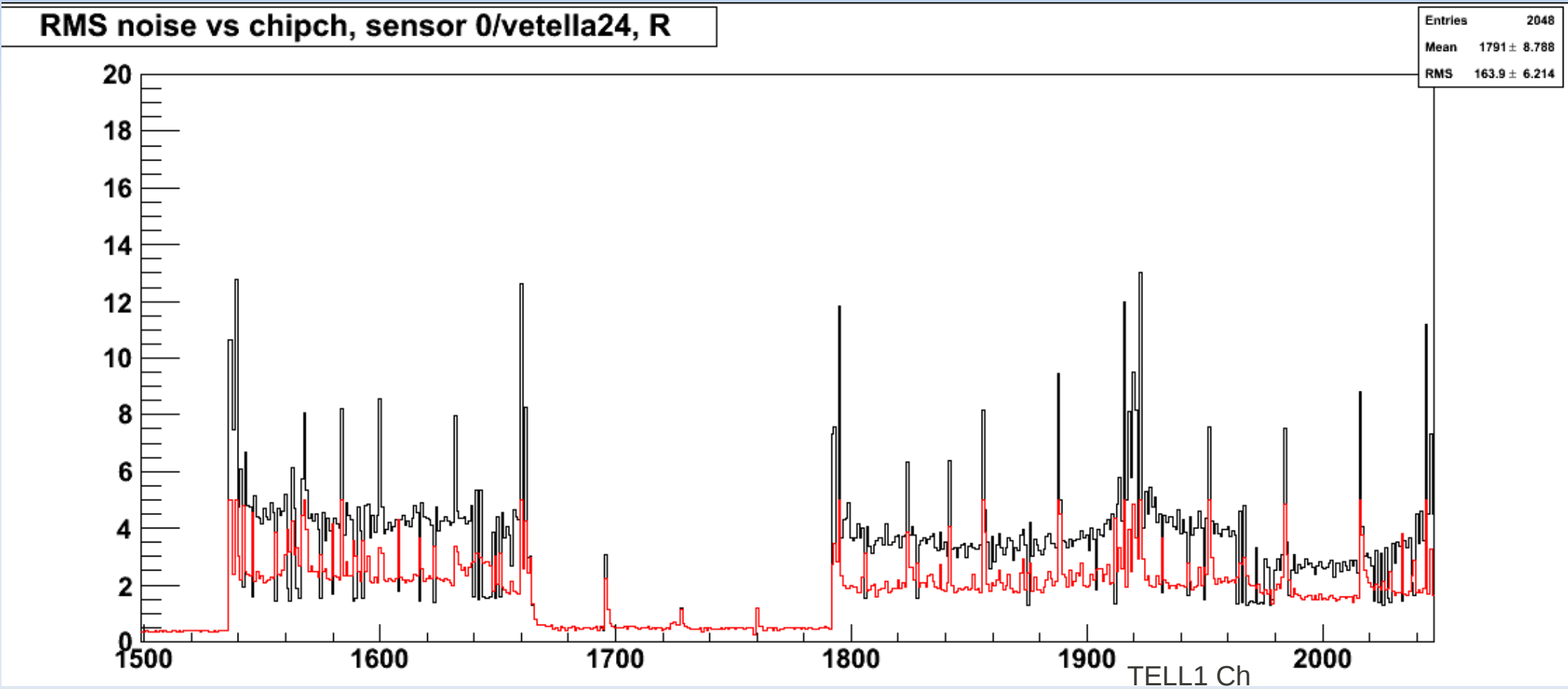
- June 4,5 and 6 (”spanish weekend”):
  - 11 Runs (~150kEvents/run) plus 2 ”long run over night”
  - Angle scan (14, 11.3, 10.1, 7.6, 5.1, 2.6, 0.1, -2.4, -3 degrees)
  - R scan (beam spot moved along R, 3 different positions)

I. Testbeam summary

- June 28: 1 single Run (perpendicular) with good data
- June 30 to July 5:
  - 34 Runs with angle scan and R scan
  - Correlations between the PR01 and the telescope can not be recovered up to now
  - Very hight common mode noise. Some steps were taken in this direction but without improvements

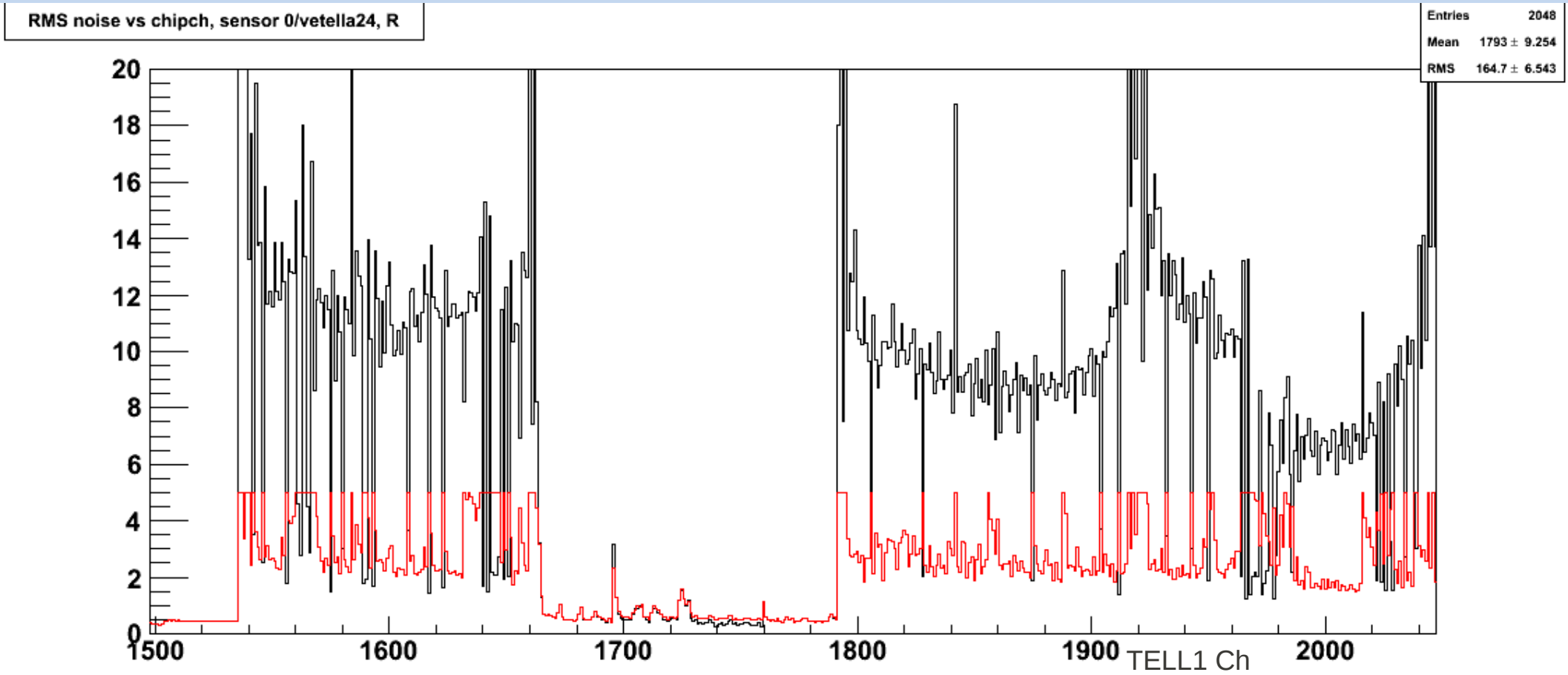
I. Testbeam summary

Noise before (black) and after (red) common mode substraction.
PR01Run100 taken on June 28th



I. Testbeam summary

Noise before (black) and after (red) common mode substraction.
PR01Run115 taken on July 2nd



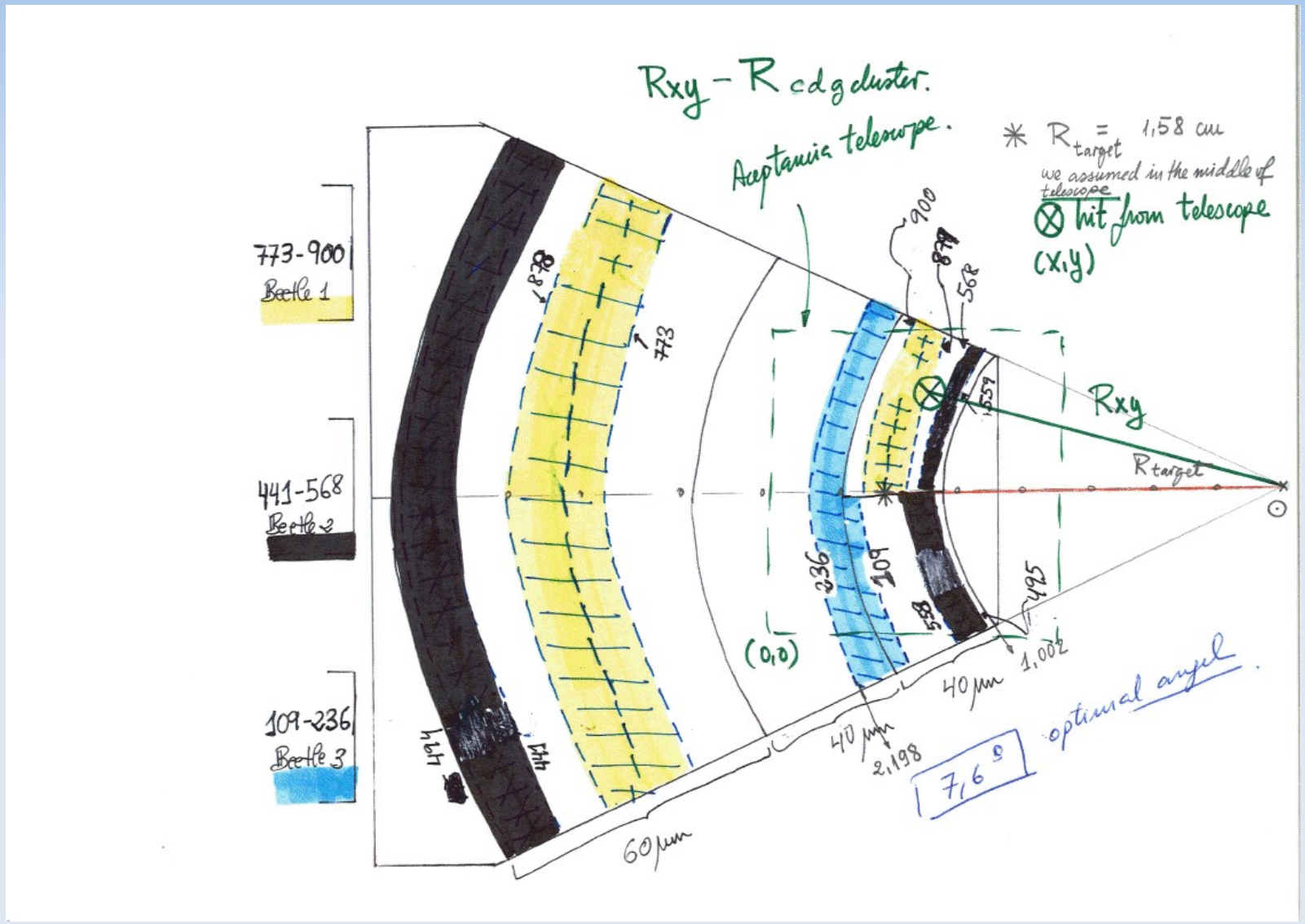
II. Analysis status

- Done:
  - Mapping between TELL1 channel and strip numbering
  - Clustering algorithm in PR01
  - Landau distributions
  - Delay distribution with respect to a 25ns synchronous clock (Beetle)
  - Time correlations between PR01 and telescope
  - Spatial correlations between PR01 and telescope
- Working on:
  - Eta correction

II. Analysis status

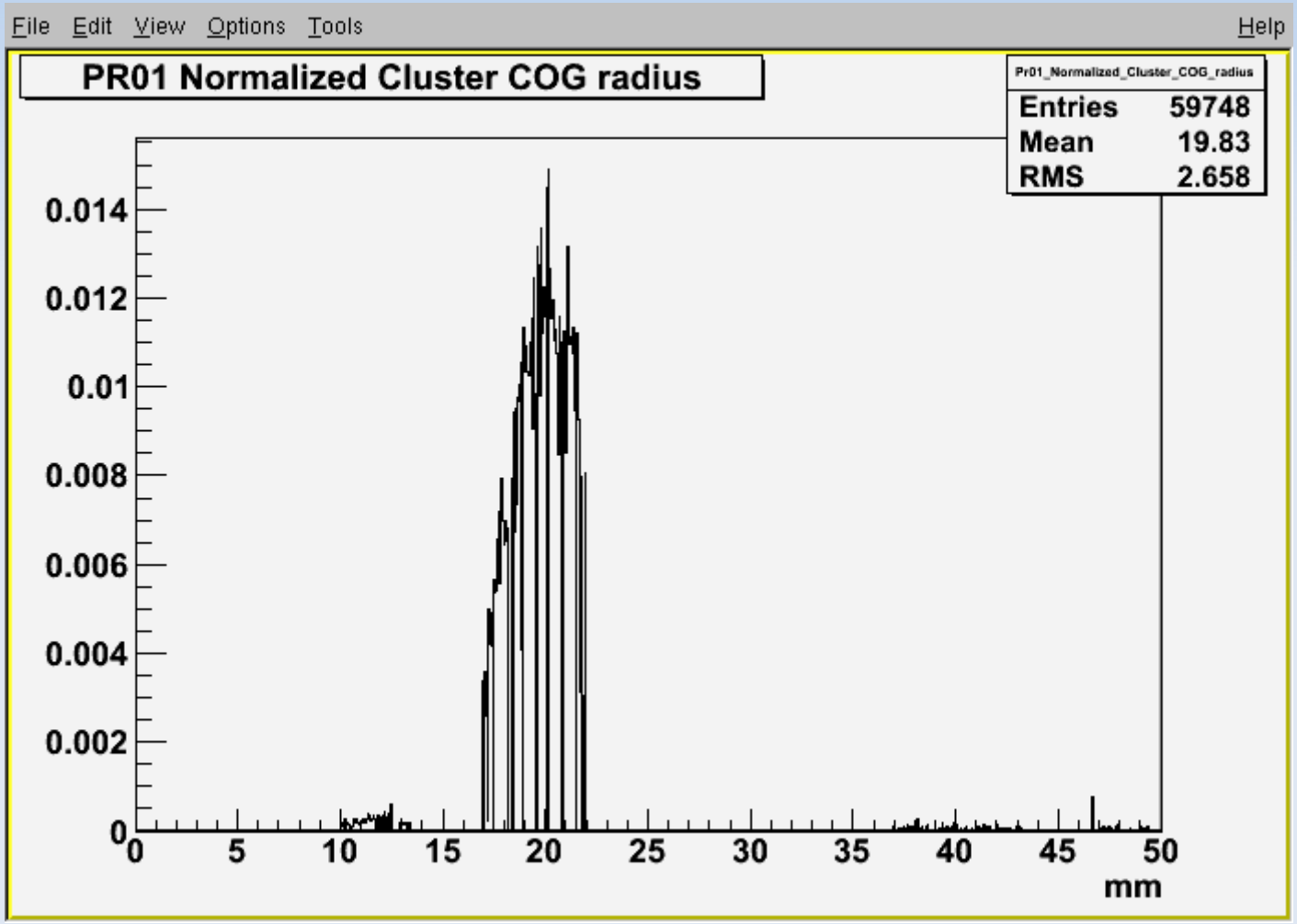
- From now on, all the plots will be related to Run038:
  - was taken on June 5th
  - PR01 at 7.6 degrees
  - Beam spot over strips bonded to Beetle 3 (blue area)

II. Analysis status



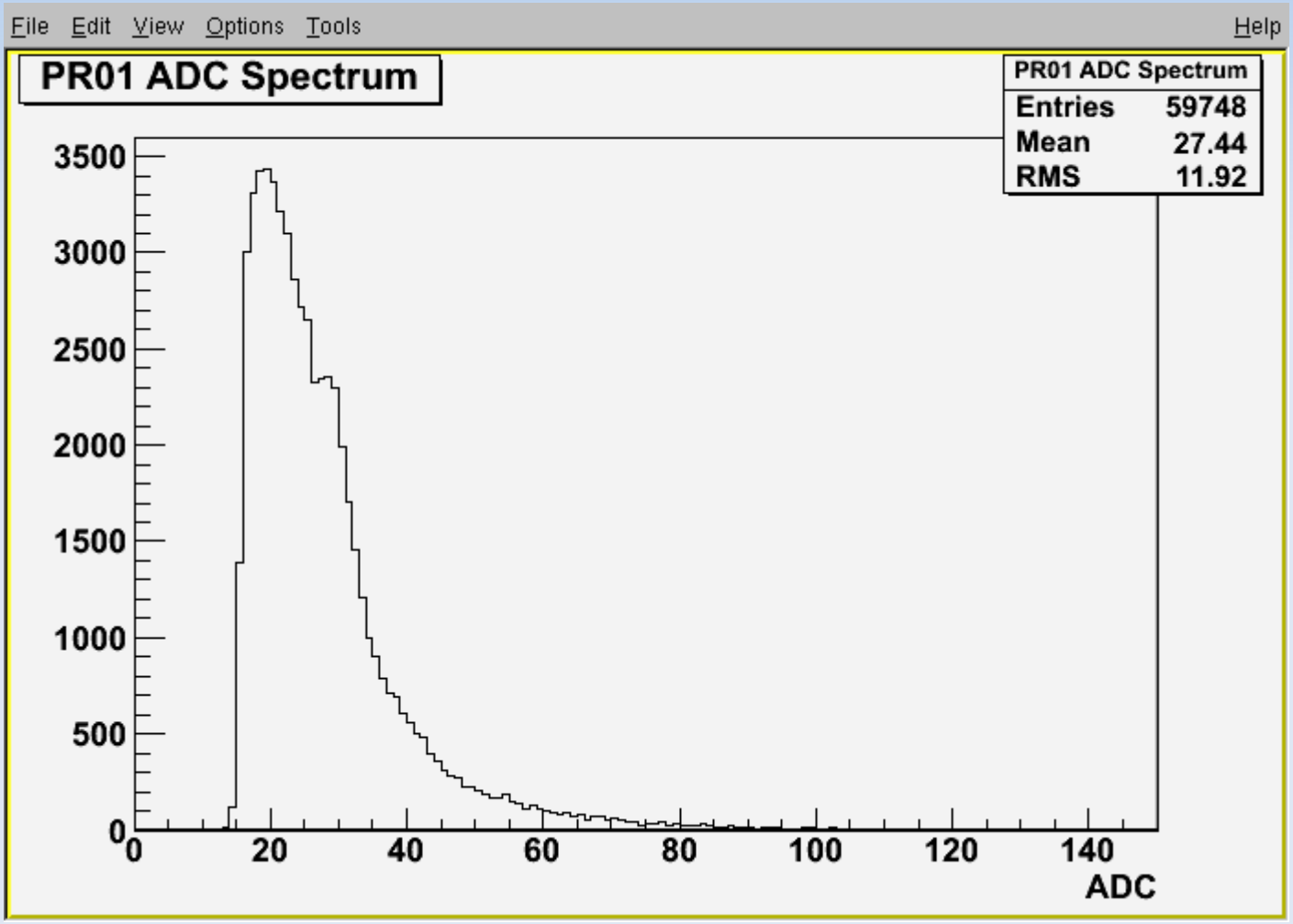
II. Analysis status: Mapping

Center of gravity's radius for all the clusters in PR01.
Radius from 16.9 to 21.98 mm belongs to strips bonded to Beetle 3



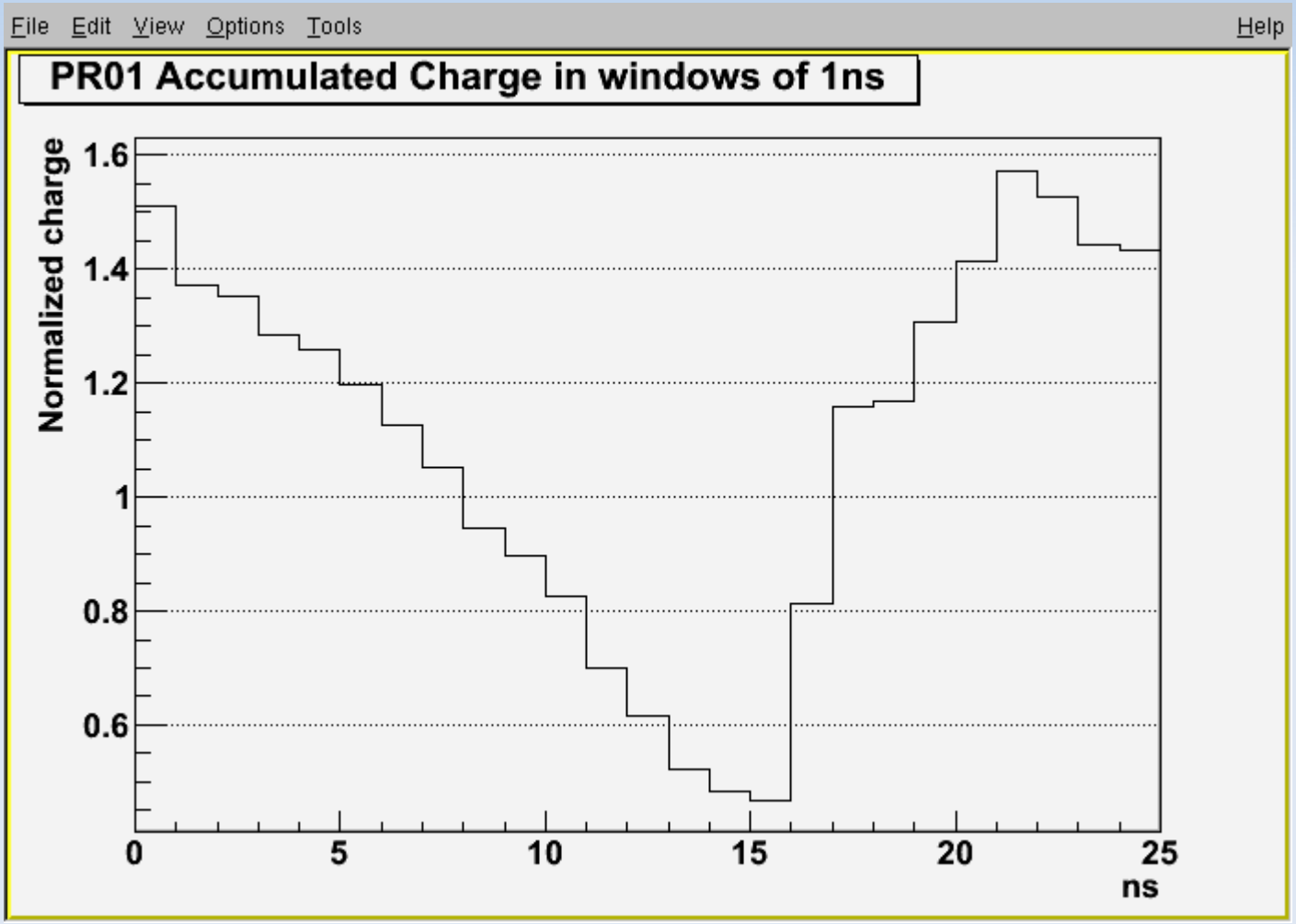
II. Analysis status: Landau distribution

Acumulated charge (ADC) of the PR01's clusters



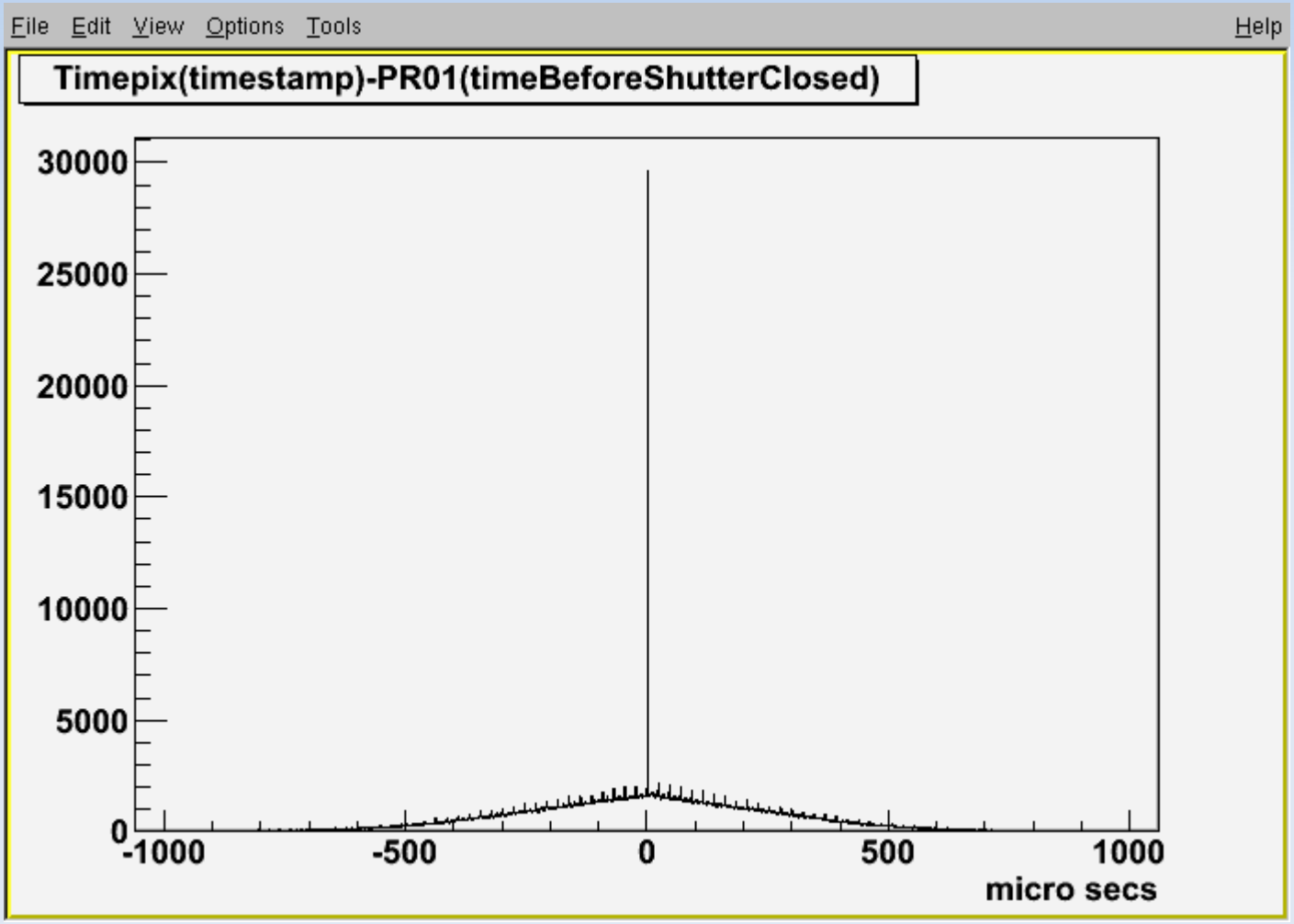
II. Analysis status: delay with 25 ns synchronous clock

Normalized charge versus the difference between the synchronous and the asynchronous trigger, in mod 25



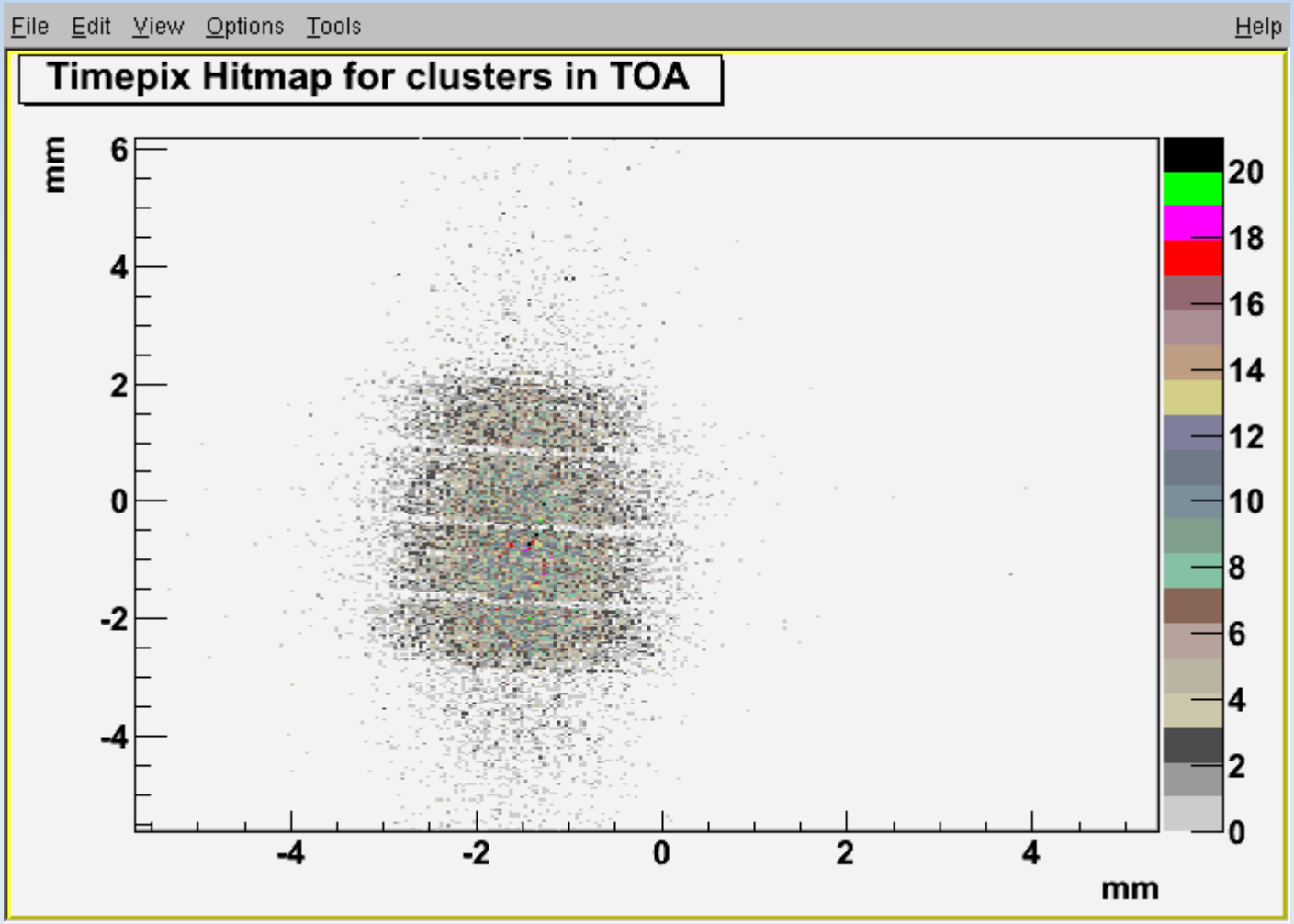
II. Analysis status: time correlation

Difference between the timestamp of each track in the telescope and the timestamp of all the clusters in the PR01



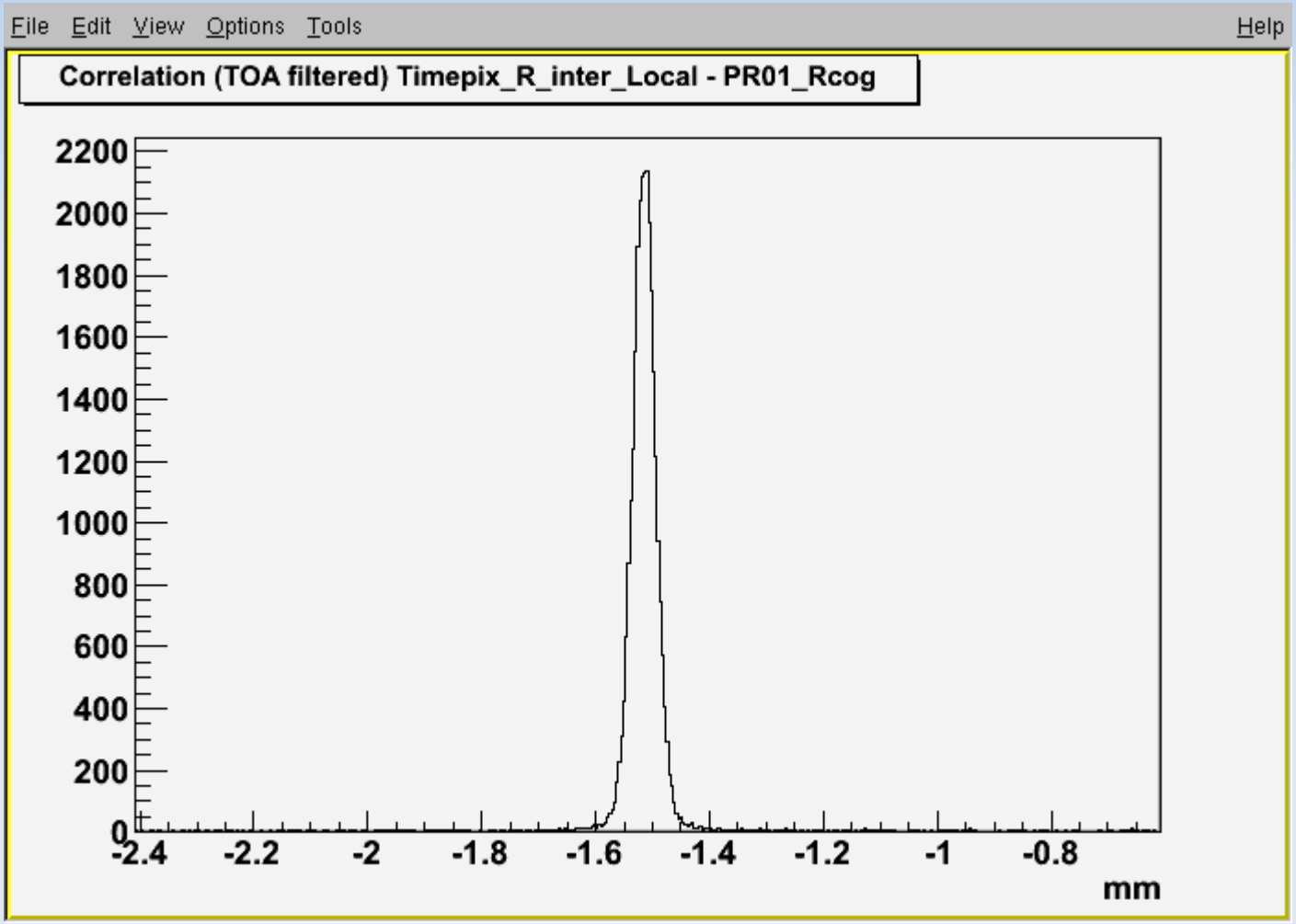
II. Analysis status: spatial correlation

Selection of tracks in the telescope with the same timestamp than clusters in the PR01.
We can see bands which correspond to strips rejected by cross talk



II. Analysis status: spatial correlation

Correlation between the cluster's radius and the tracks calculated radius, for those couples with the same timestamp



II. Analysis status: eta correction

- As first aproximation, eta correction is calculated only for clusters of 2 strips, using:

$$\eta = \frac{V_L}{V_L + V_R}$$

Where V_L is the ADC value of the inner strip, and V_R is the ADC value in the other strip

II. Analysis status: eta correction (what I will expect)

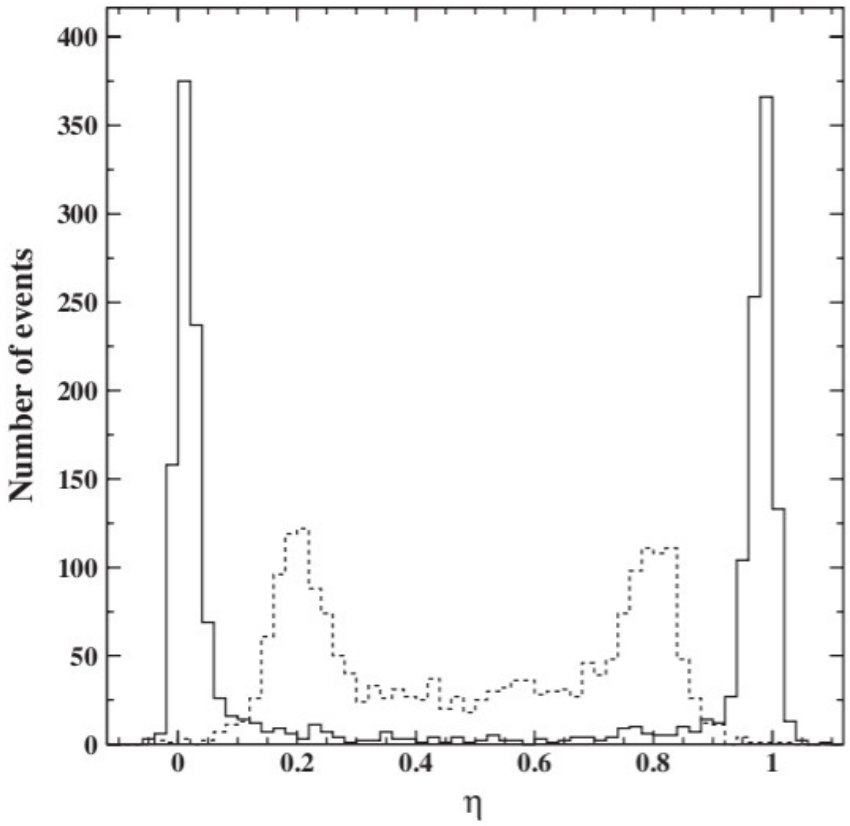


Fig. 28. Distribution of the η function for a sample of 3 GeV/c pions crossing the detector at null zenith angle. The results for the large (solid line) and small (dashed line) pitch configurations are shown.

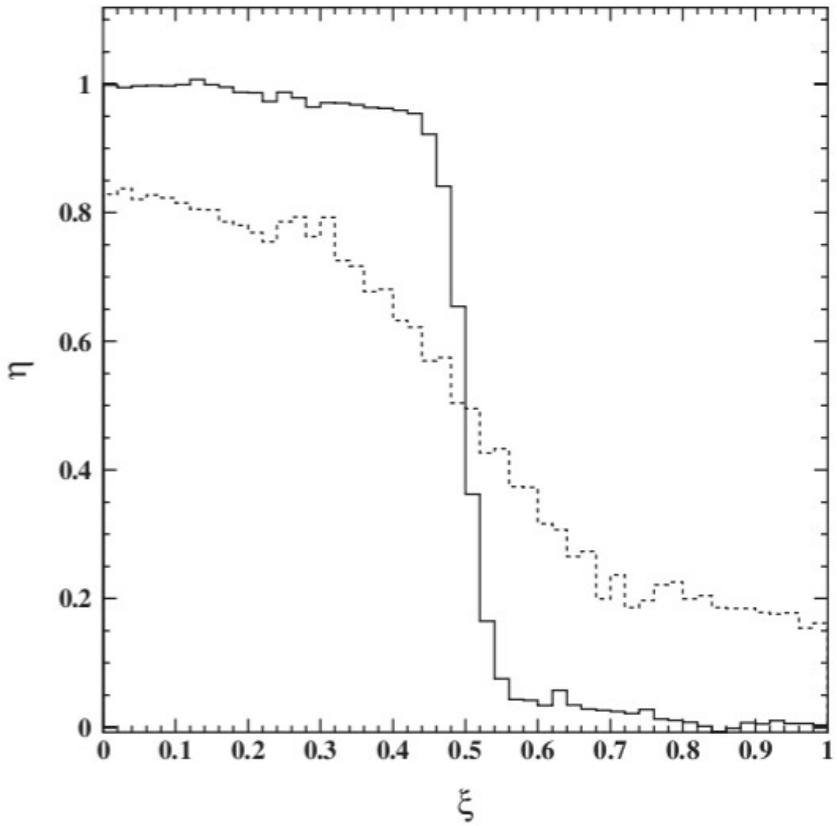
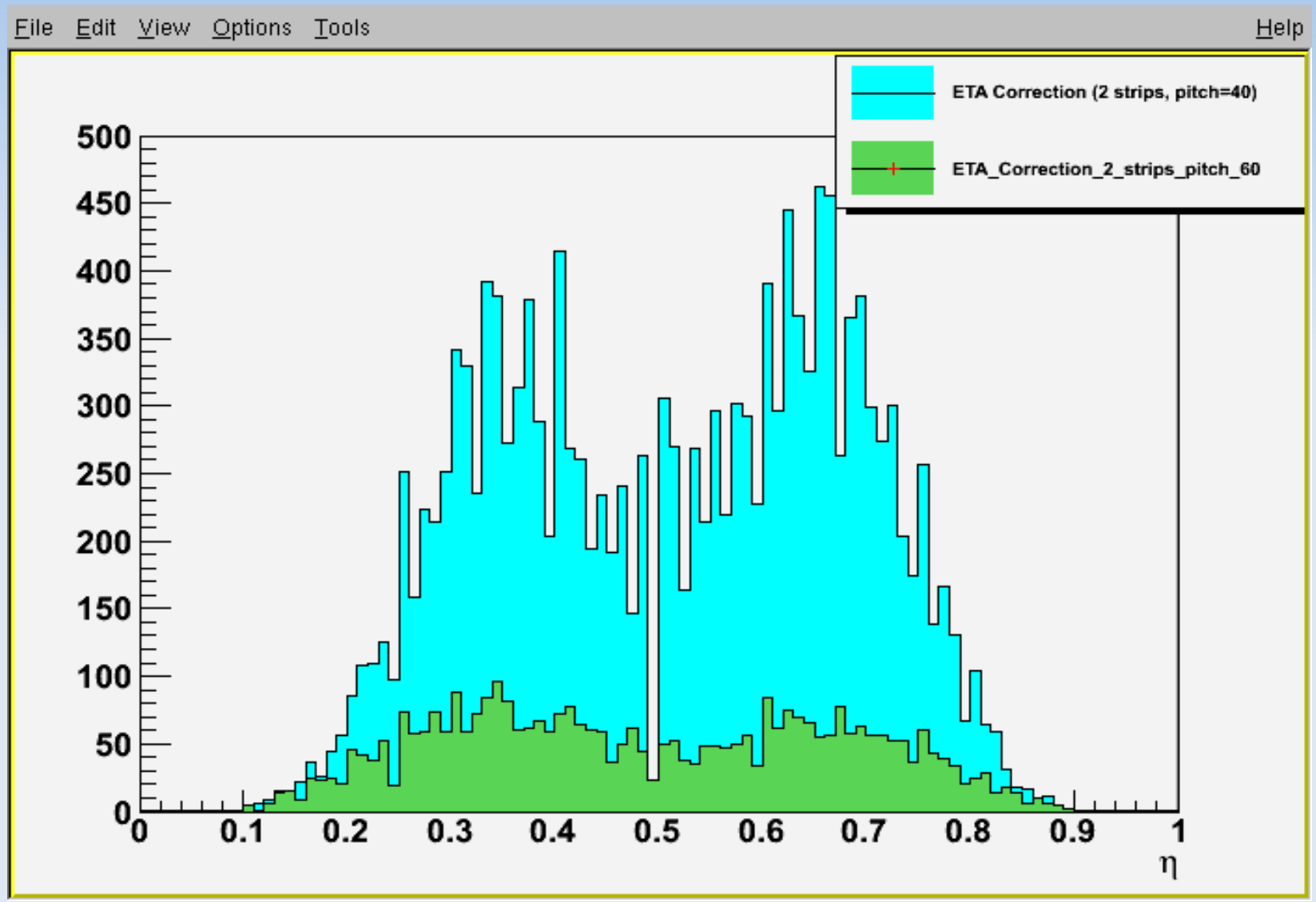


Fig. 29. Dependence of η from ξ for a sample of 3 GeV/c pions crossing the detector at null zenith angle. The results for the large (solid line) and small (dashed line) pitch configurations are shown.

II. Analysis status: eta correction (what I got)



II. Analysis status: eta correction (what I got)