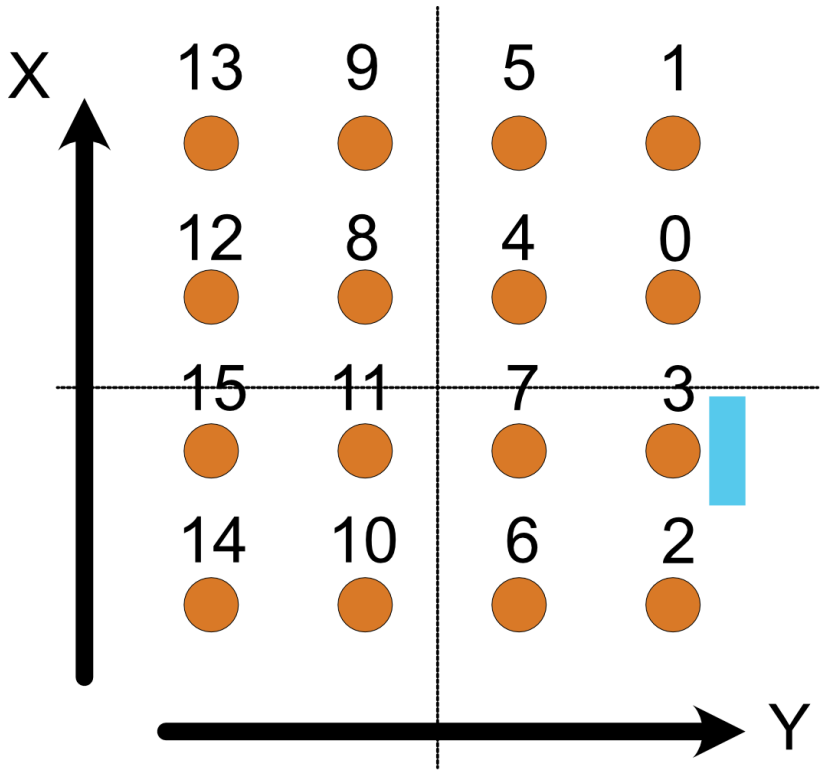
Some news

30/08/24

Conventions

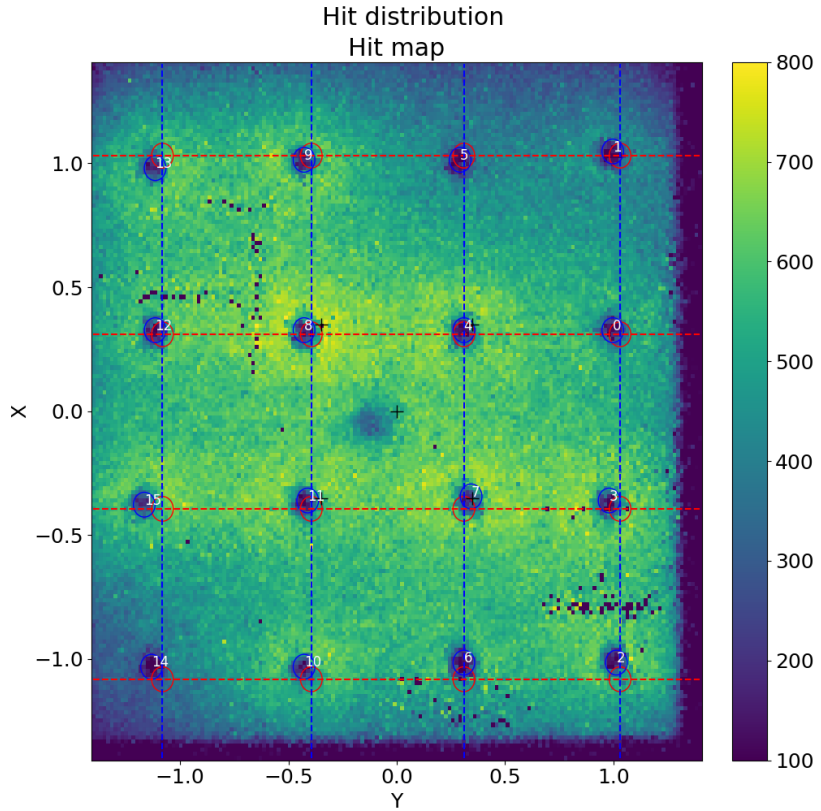


- X-Y convention derived from the drift chambers
- Propagated to the Xm-Ym variables
- Blue square is the drift chamber blind zone

Fibre position

Determining the actual fibre position

- Use the V2 processing (use 2 drift chamber/3)
- Cut : (eventType[i]==4) & (mVmax>hitTot[i]>0) & (diffTrack2[i]<1.) & (muonDZ[i]>0)
- Finding the minimum of the mean hit value (blue circle) around an approximate position (red)



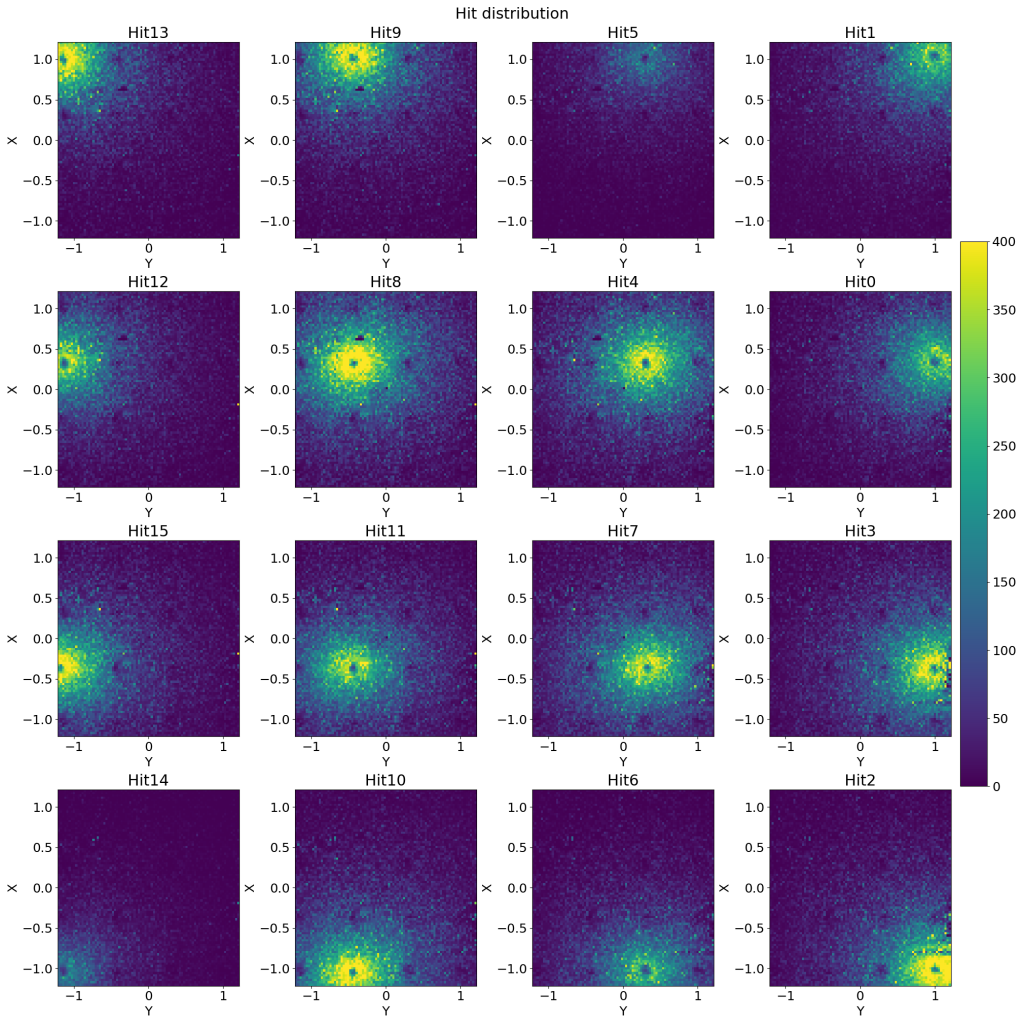
Results (cm) :

Fiber	0	1	2	3	4	5	6	7
X	0.33	1.05	-1.01	-0.36	0.33	1.01	-1.01	-0.34
Y	1.0	1.0	1.01	0.98	0.31	0.29	0.31	0.34

Fiber	8	9	10	11	12	13	14	15
X	0.33	1.01	-1.03	-0.36	0.33	0.98	-1.03	-0.38
Y	-0.43	-0.43	-0.43	-0.41	-1.11	-1.11	-1.13	-1.17

Homogenisation of the fibres responses

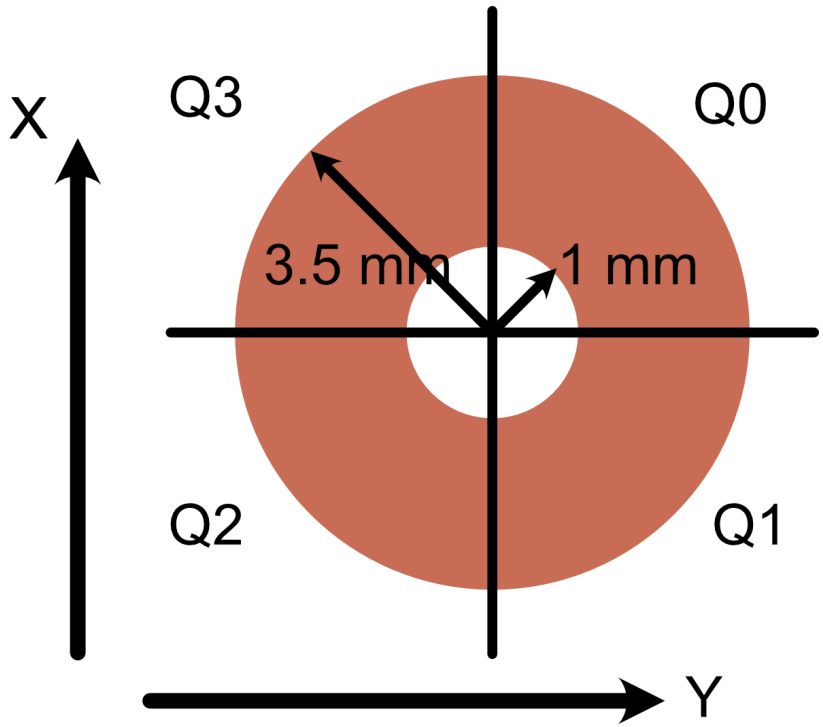
- Use muons data (V3 processing)



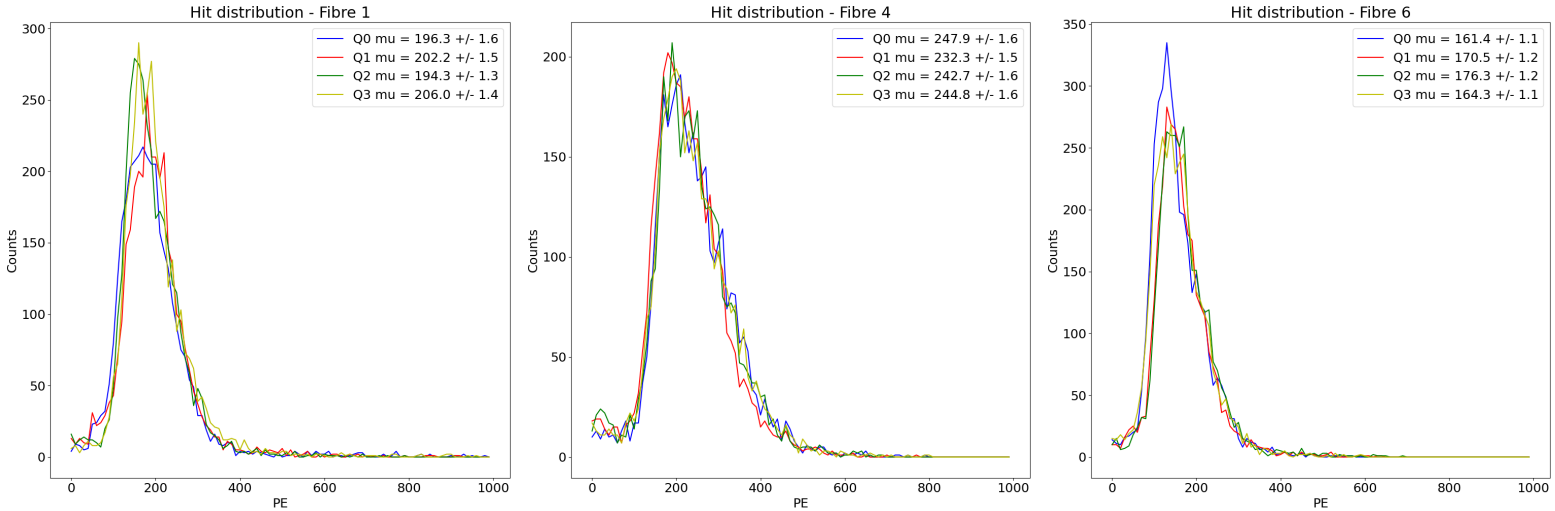
Hit Map for each fibre

Quarters definition

- Compute the mean value of the PE/track around each fibre
- Use quarters in order to avoid borders effects (1 quarter used in the corner, 2 in the boundaries and center)
- Homogenise to the mean value of the mean values



Example of mean computations



- Error driven by syst.
- For the 4 center fibres, use 2Q for calib., 2 for checking. Before :

Fibre	4	7	8	11
value	243.74	230.5	293.46	190.21

After (mean value 220.05) :

Fibre	4	7	8	11
value	216.77	208.69	216.3	254.08

Results

Coefficients :

$$hit[i]_{\text{corrected}} = \frac{hit[i]}{coeff[i]}$$

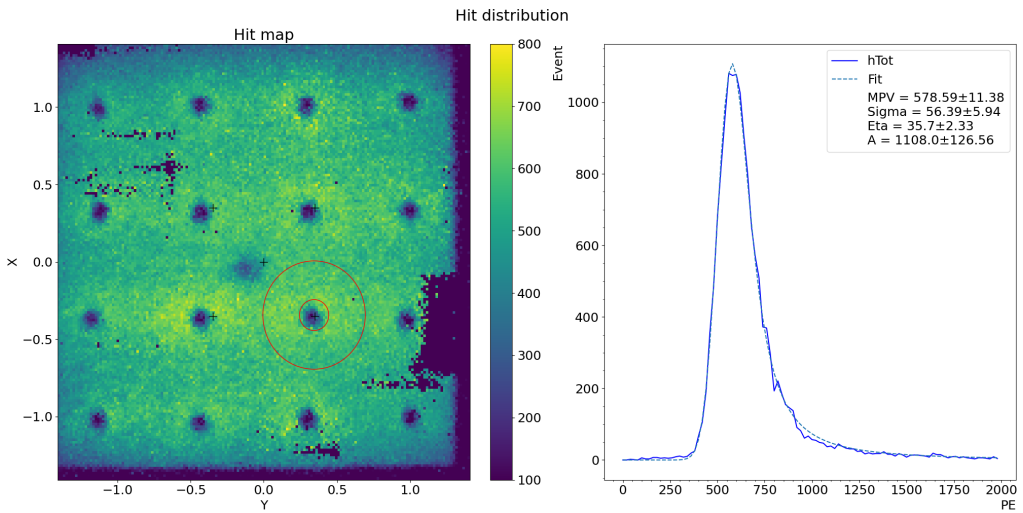
Fiber	0	1	2	3	4	5	6	7
Coeff	0.83	0.88	1.4	1.18	1.11	0.37	0.74	1.05

Fiber	8	9	10	11	12	13	14	15
Coeff	1.33	1.18	1.18	0.86	0.98	1.21	0.45	1.21

Look at the Landau's

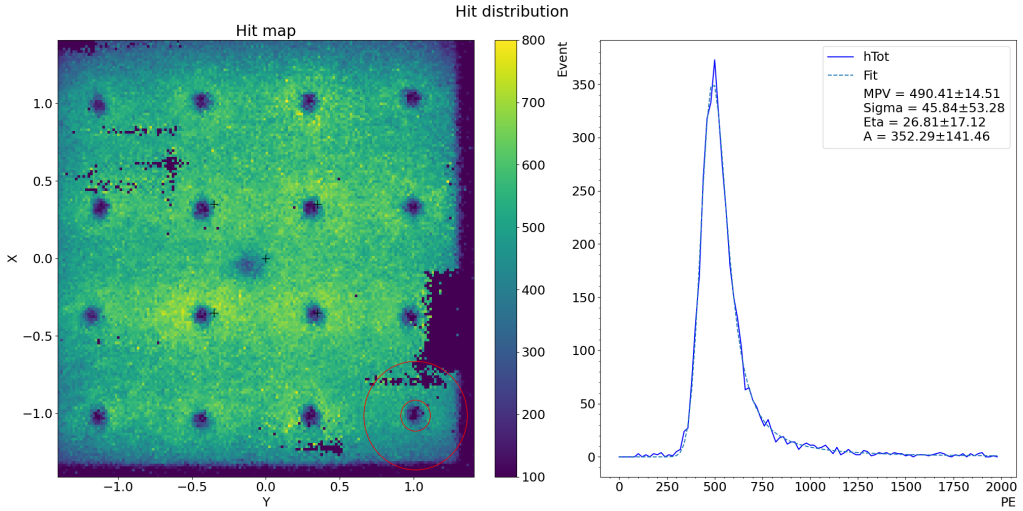
Conditions :

- Run 60 (Troll1, muons), V3 processing
- Use the same quarters definitions as for the homogenisation
- Fit with a Landau convoluted with a Gaussian
- Cut : eventType == 4 & hTotVal > 0 & diffTrack2 < 1. & muonDZ > 0 & dist2 > 0.1 & dist2 < 0.35 & isVmin & hTotVal > 0 & hTotVal < 2000 & grain1X > -1.3 & grain1X < 1.3 & grain1Y > -1.3 & grain1Y < 1.3

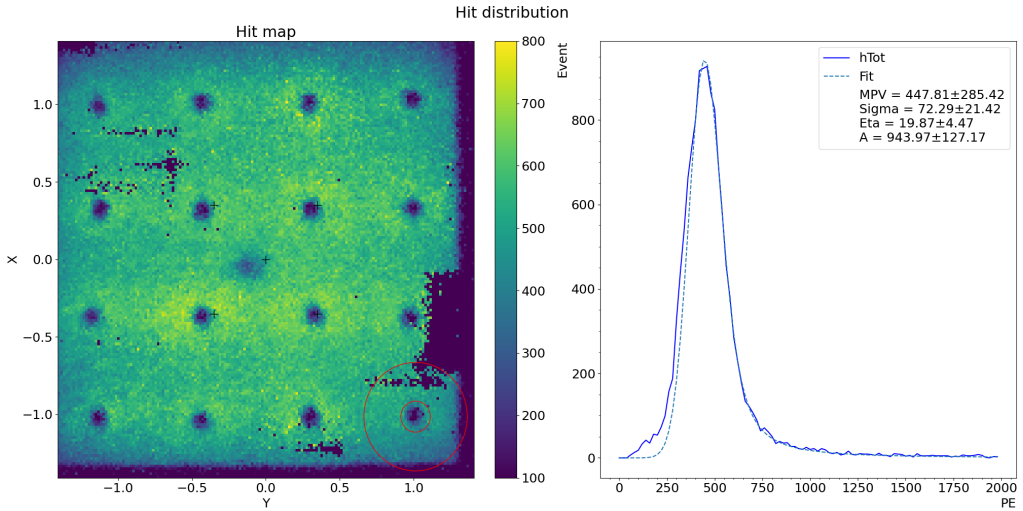


Look at the Landau's

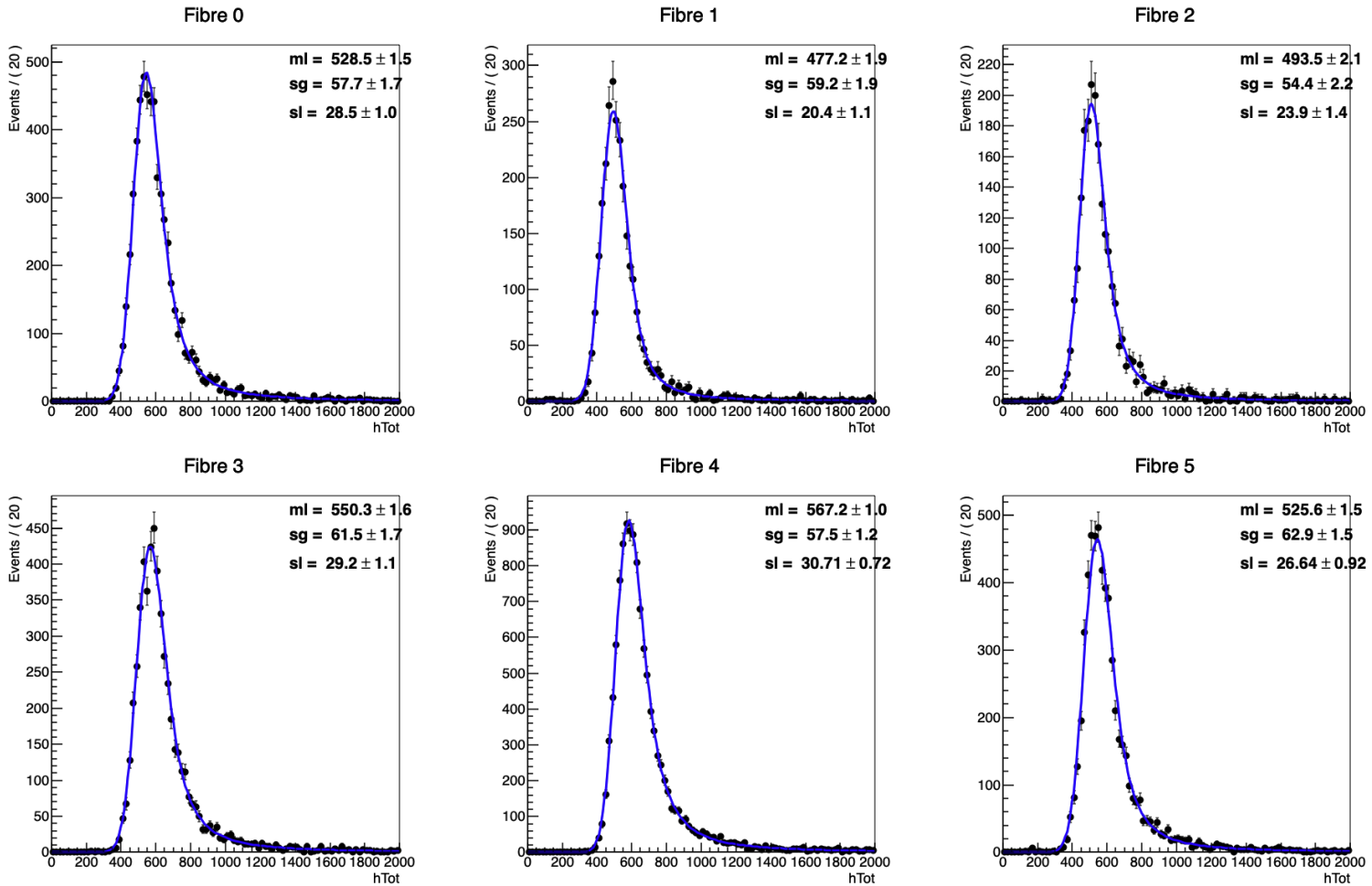
Using the quarter:



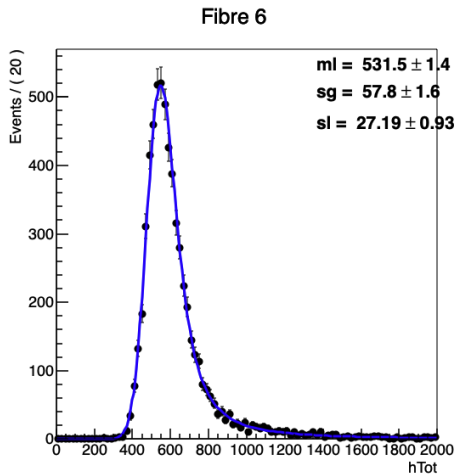
Without using the quarters :

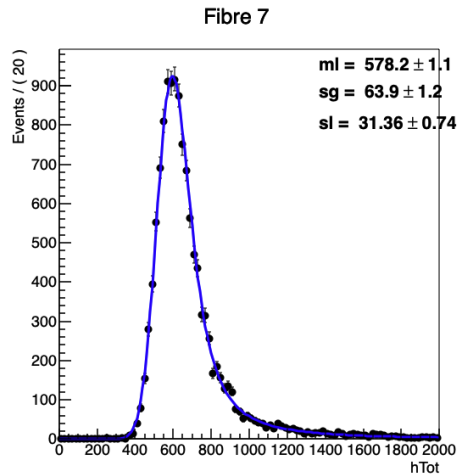


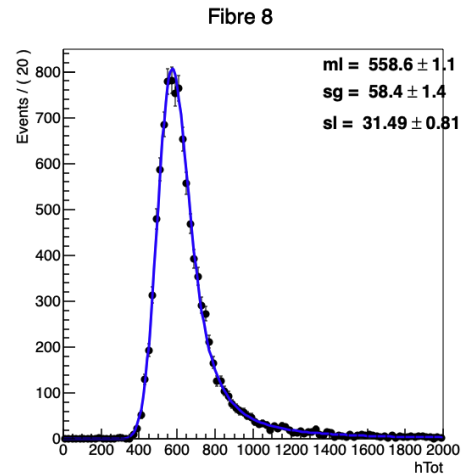
Moving to rooFit

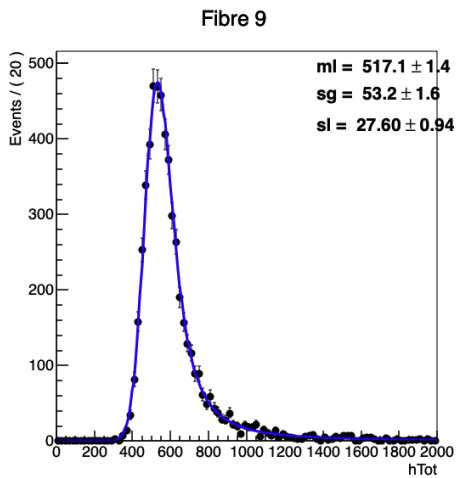


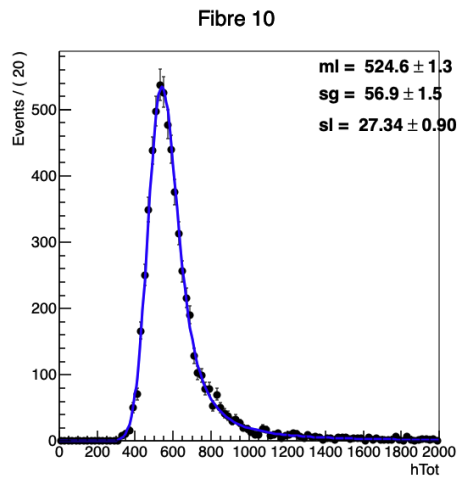
Moving to rooFit

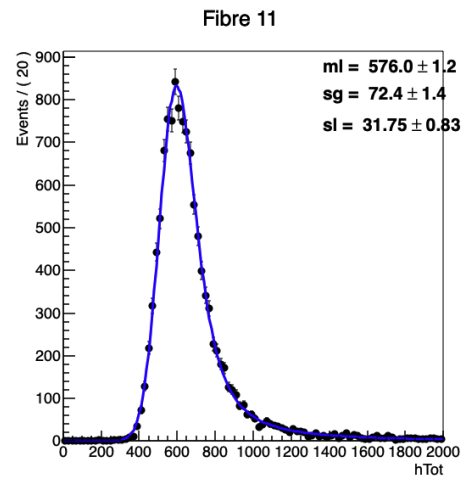




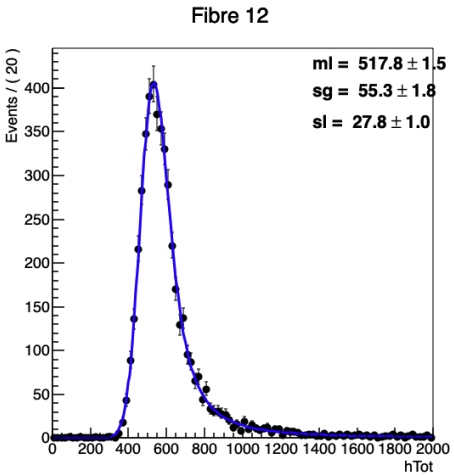


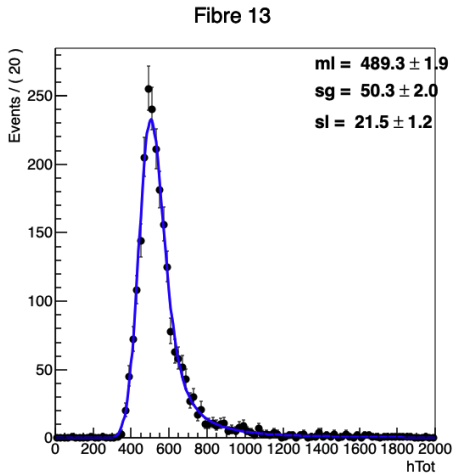


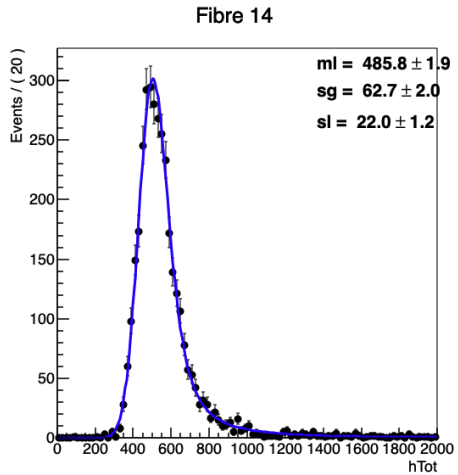


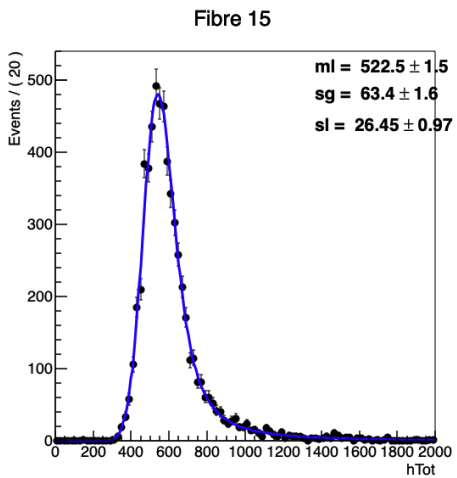


Moving to rooFit



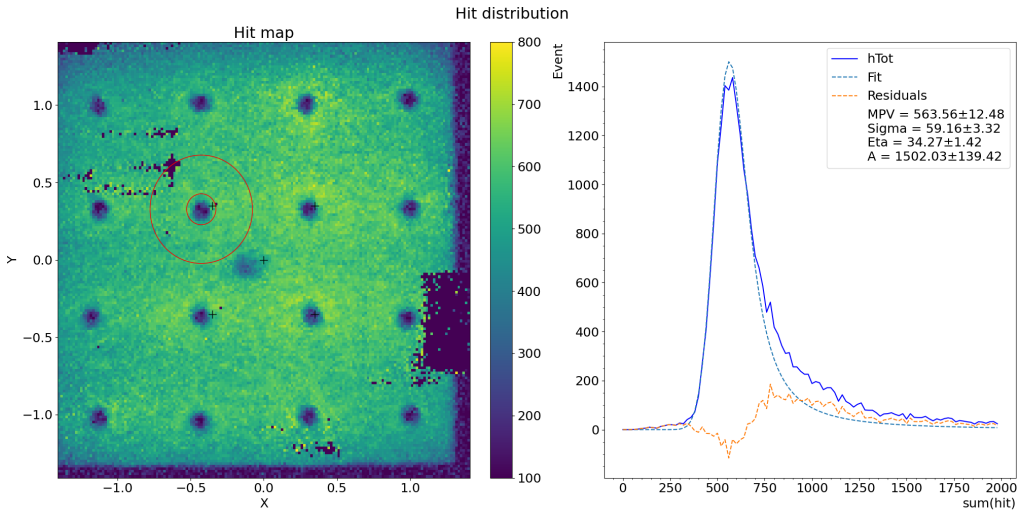




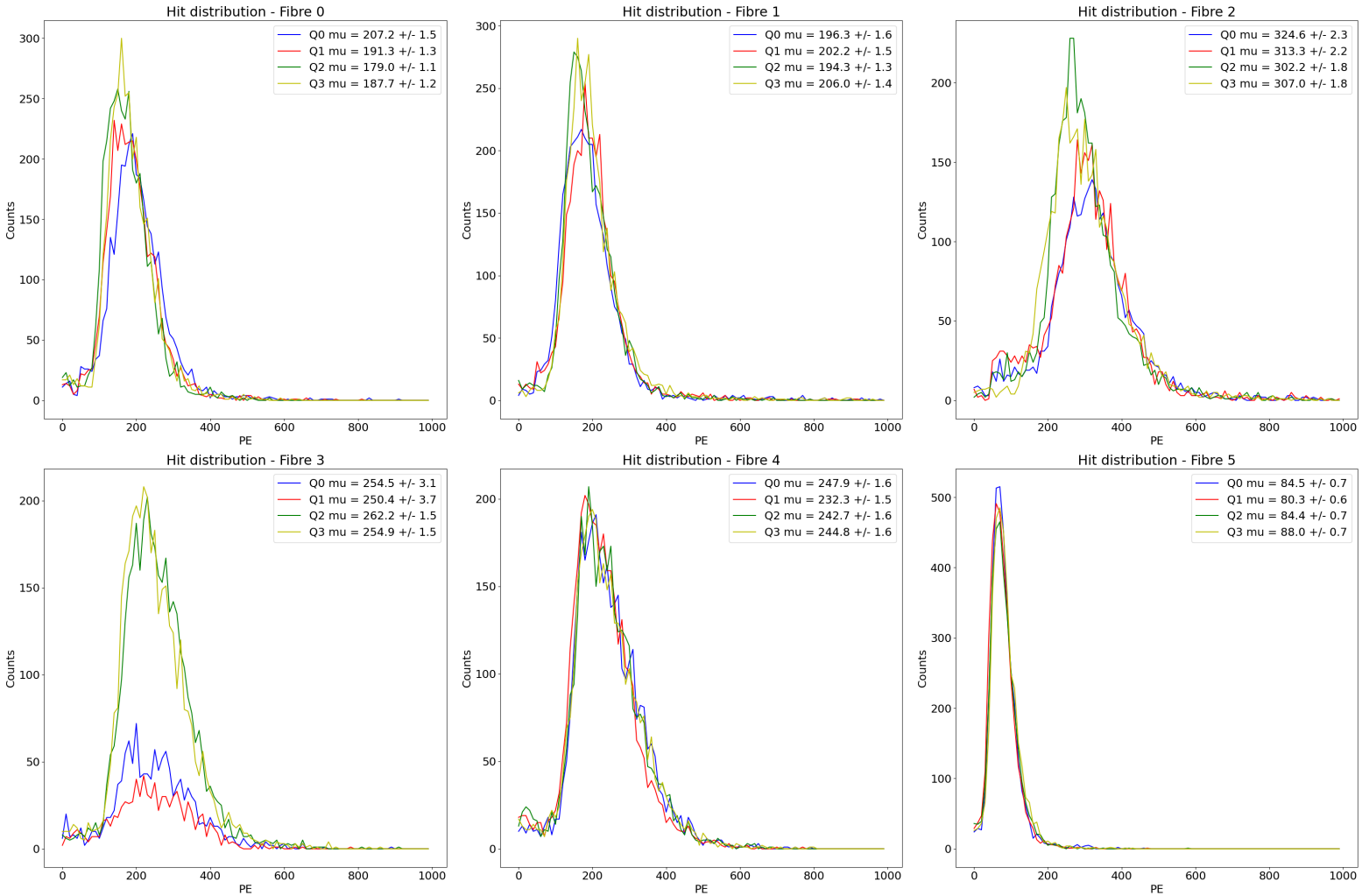


Look at the Pion Landau's

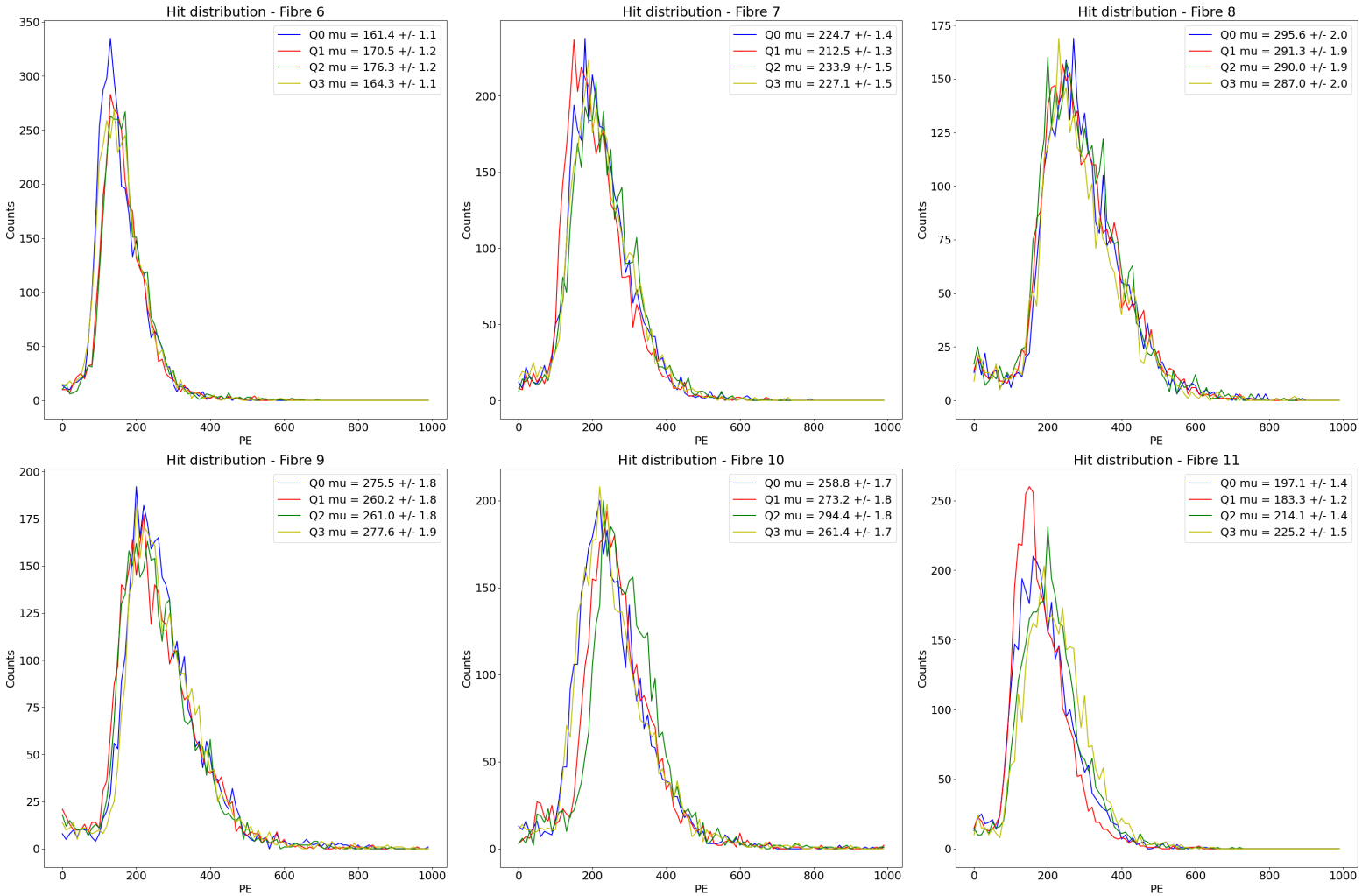
Using the fit of the Landau determined from the muon:



ANNEXE 1 : Mean computations 1/3



ANNEXE 1 : Mean computations 2/3



ANNEXE 1 : Mean computations 3/3