

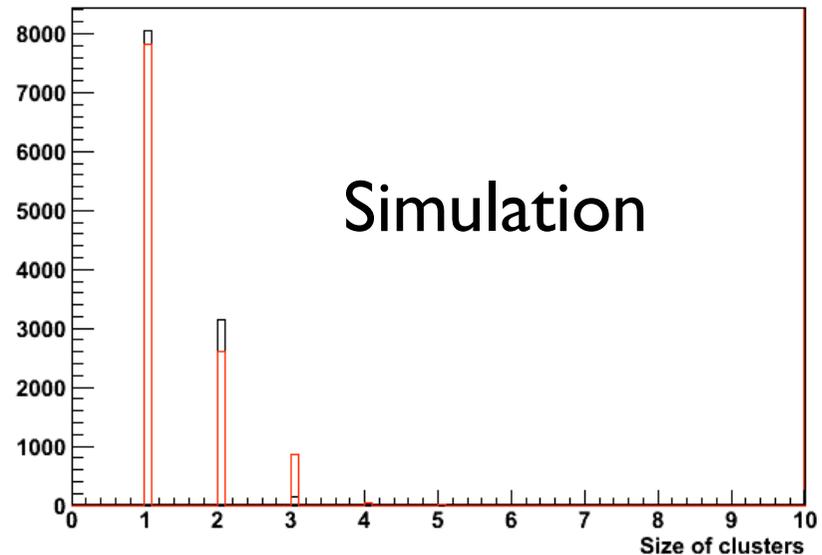
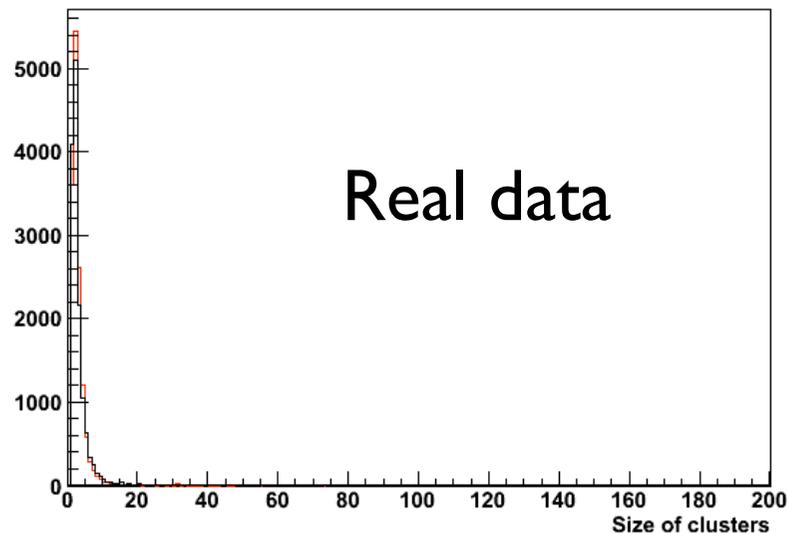
Comparison between simulation and real data

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Datasets

- real data :
 - a. bfc chain :
P2005b,DbV20070518,MakeEvent,ITTF,ToF,ssddat,spt,SsdlT,Svtlt,pmdRaw,SCEbyE,O
GridLeak,OShortR,OSpaceZ2,KeepSvtHit,hitfilt,skip1row
 - b. data :/star/data03/daq/2005/026/st_physics_6026055_3010004.daq
- simulation files :
 - a. bfc chain
chain :trs,srs,ssd,fss,y2006,ldst,lAna,l0,tpcl,fcf,ftpc,Tree,logger,ITTF,Sti,genvtx,Svtlt,Ss
dlt,geant,-evout,ldTruth,tags,bbcSim,tofsim,emcY2,EEfs,-GeantOut,big,-
dstout,fzin,clearmem
 - b. data :rcf1272_01_400evts_37_mix.fz
- Pedestal file used for both : ssdStripCalib.20050218.81219.root
- Run on 100 events for both

Size of clusters (number of strips)



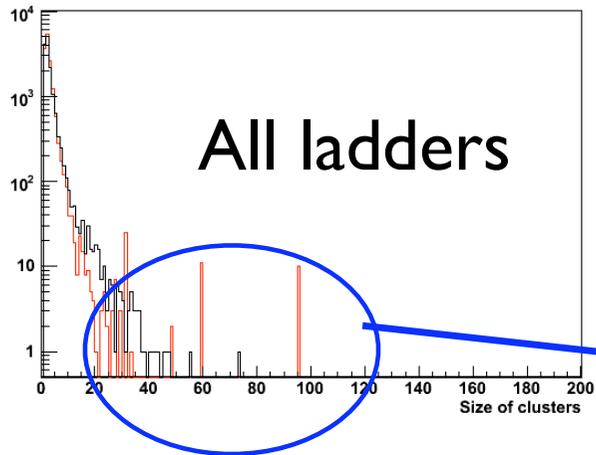
black: P-side ladders

red : N-side ladders

Size of clusters is bigger for real data than for simulation files

Reason : in simu, we allow the charge sharing of particles of 4 strips only

Size of clusters (number of strips)



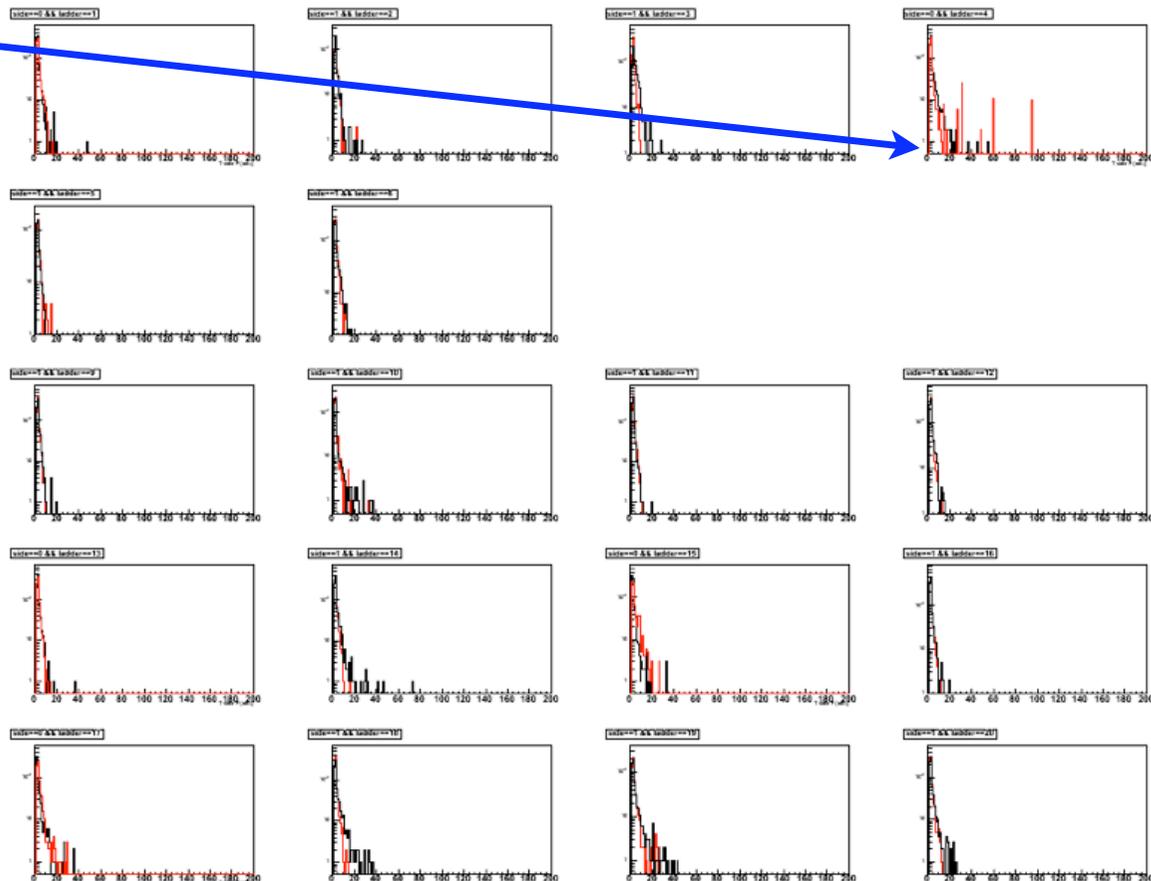
All ladders

In log scale, we see that the clusters where size > 5 strips do not contribute a lot.

For example :

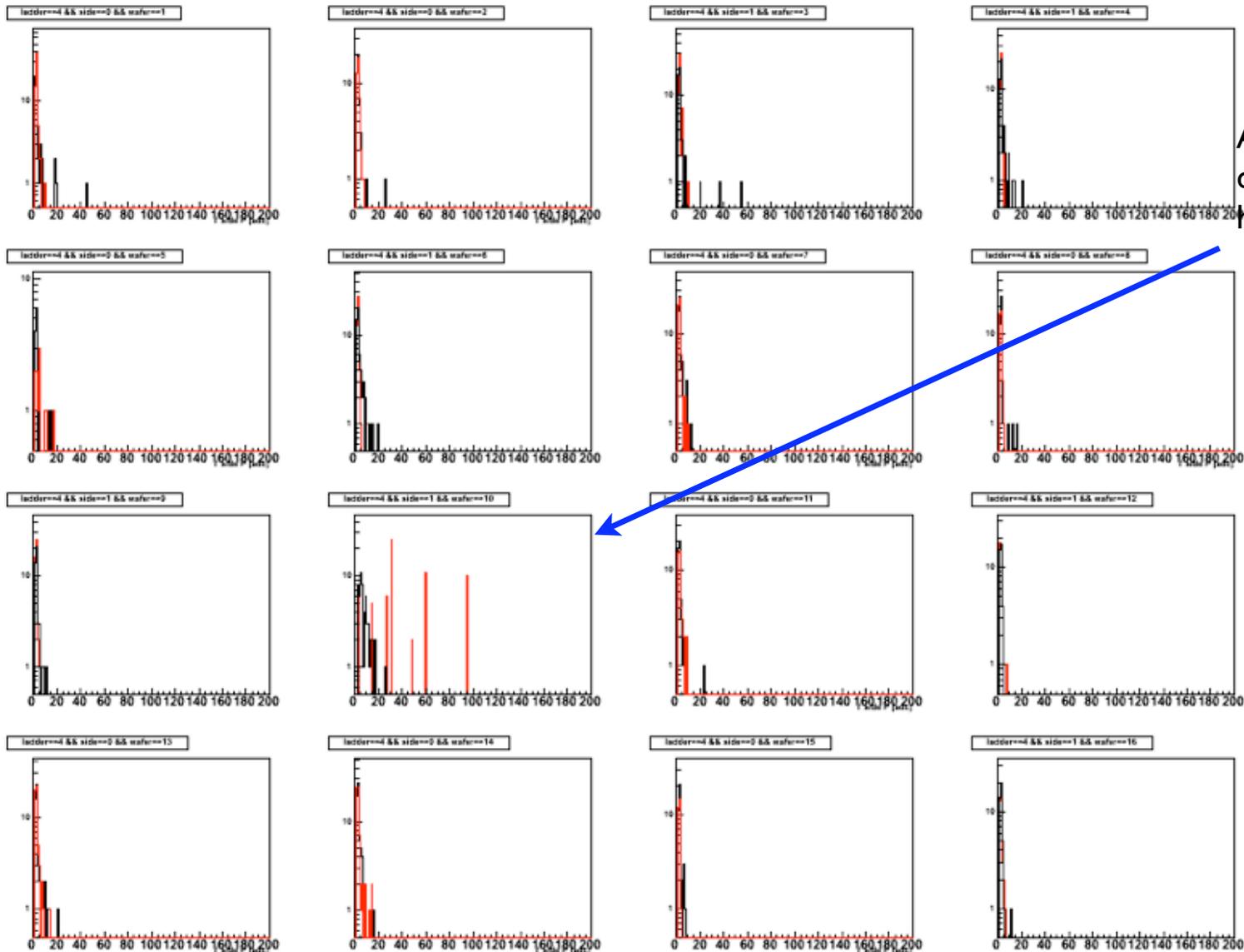
% of clusters with size > 6 strips :

p-side : 7 % ; n-side : 4.5 %



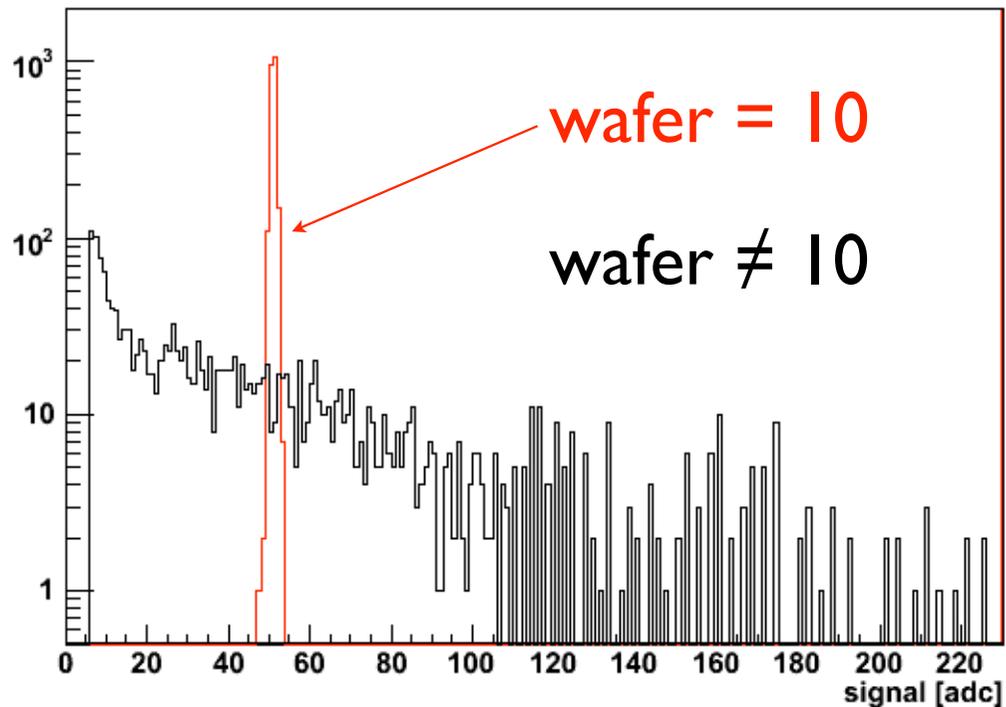
The peaks are due to clusters reconstructed in ladder 4

Size of clusters : investigating ladder 4



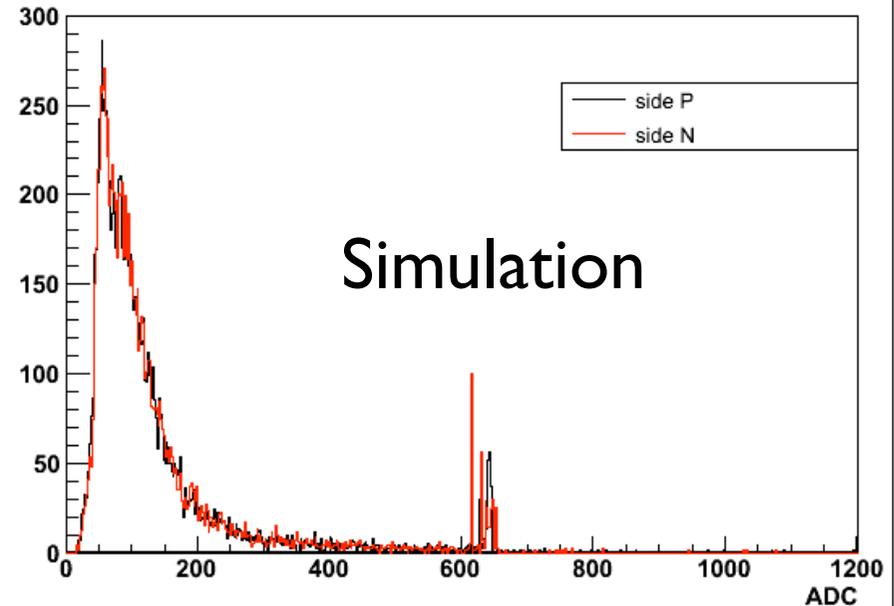
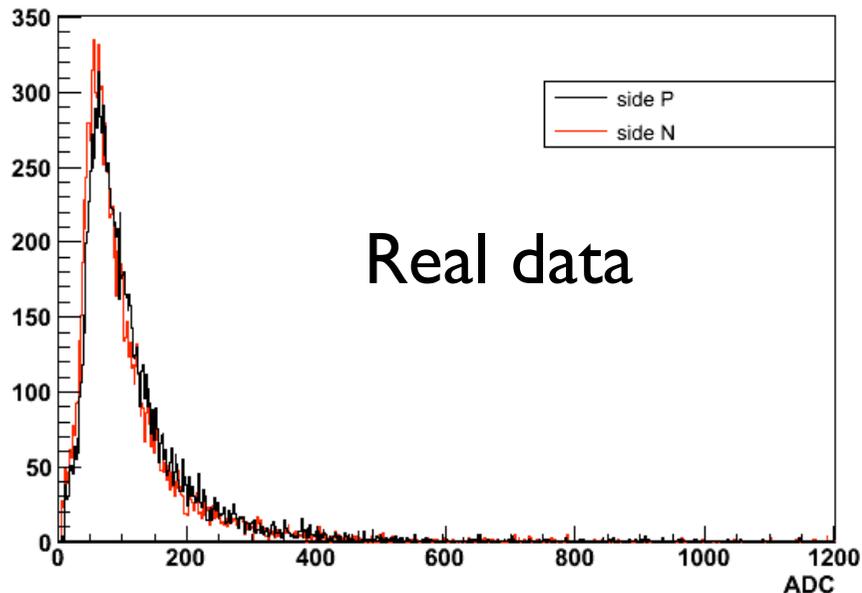
Again the peaks are due to 1 wafer, here the wafer 10

Distribution of the charge of clusters: investigating wafer 10



- The number of strips in this wafer is higher than the mean number of strips
- The signal seems to saturate at a given value whereas we see that for the others wafers, a large gamme of signal is found
- I looked at others ladders : the same behaviour is seen , ie for the clusters with a high size, i find that :
 - signal of strips ~ 50 ADC
 - the occupancy of the wafer where it appears is higher than the mean number of strips per wafer

Charge of clusters (all ladders)

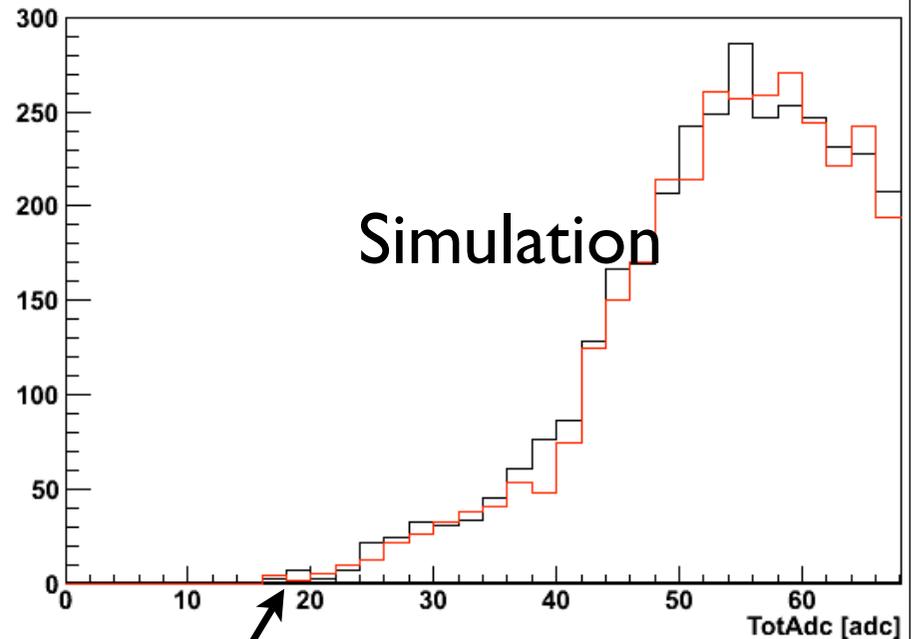
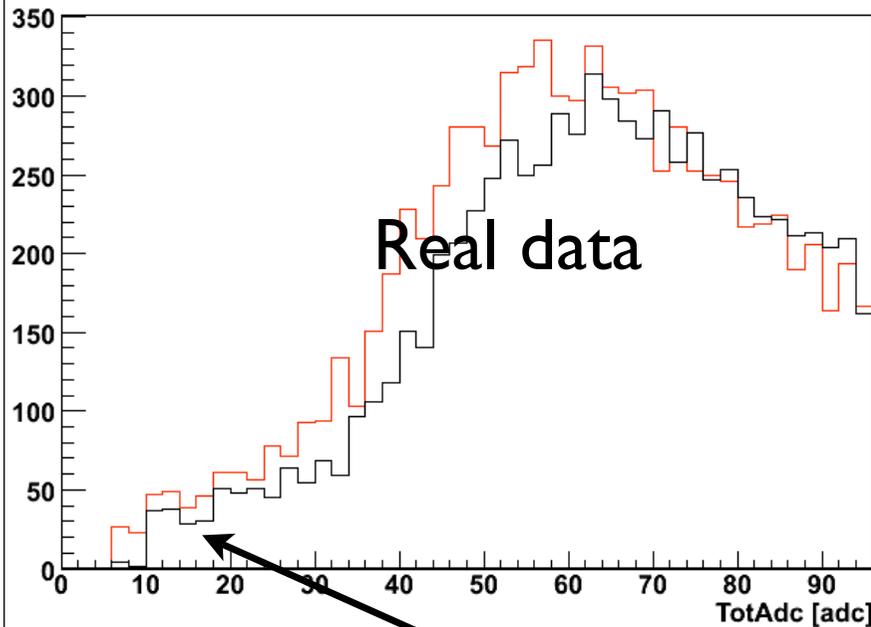


Except the peaks at TotCharge = 600 ADC,
the distribution look the same.

The saturation is due to a cut when we add the signal to the noise in
StSsdUtil::StSpaListNoise.cc :

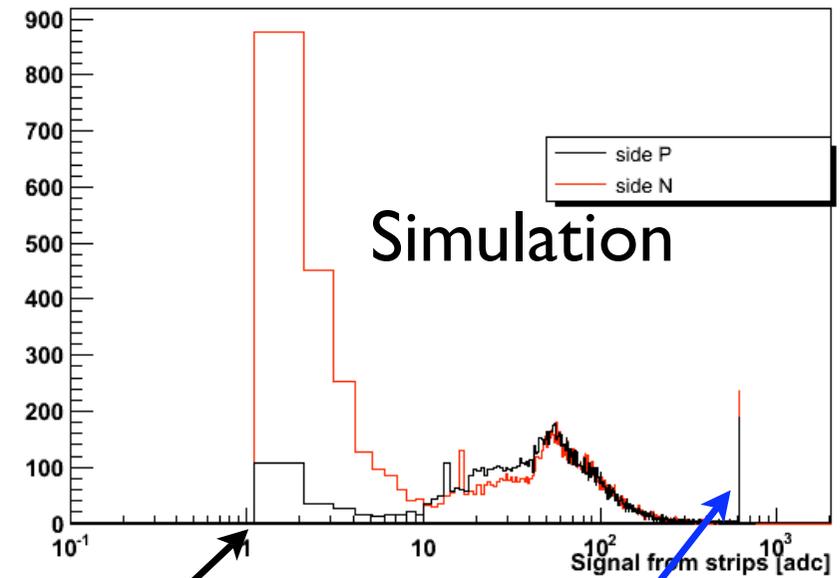
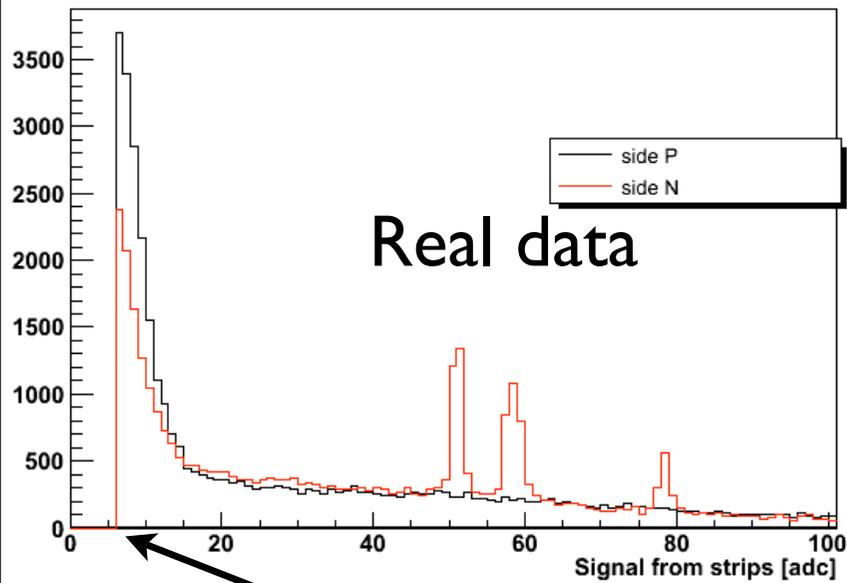
```
const Int_t NSaturationSignal = (int)a128Dynamic*nElectronInAMip;
```

charge of clusters (2) : zoom on the lower value



but small differences between real data and simulation

Signal from strips



Cut seen at the previous slide

It seems that there is no DAQ cut

To do

- Release the cut on the signal saturation
- look at the DAQ cut to see if it is properly set
- Identificate wafers (real data) where size of clusters are abnormally high