

# **Update of the temperature correction**

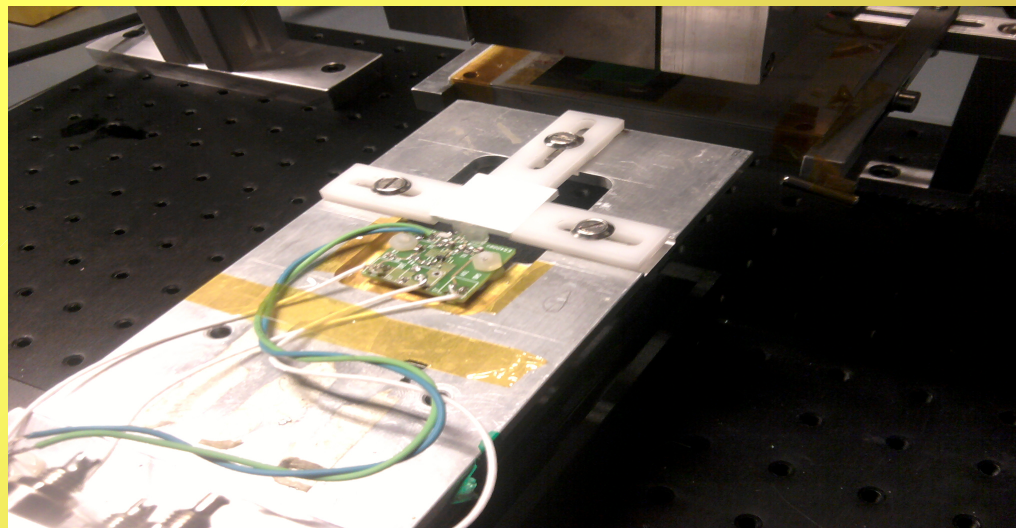
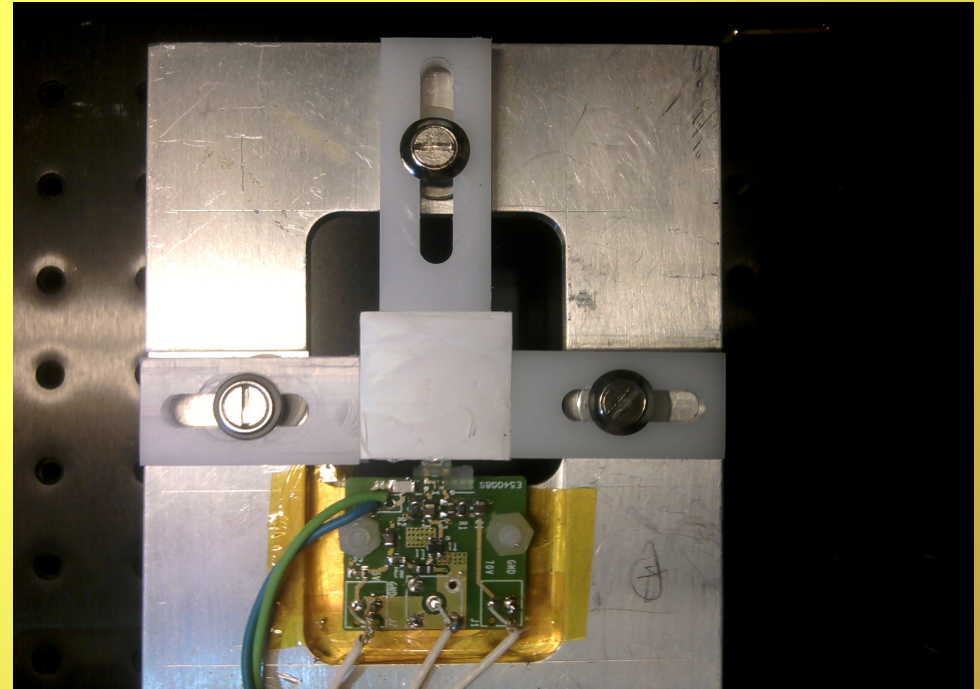
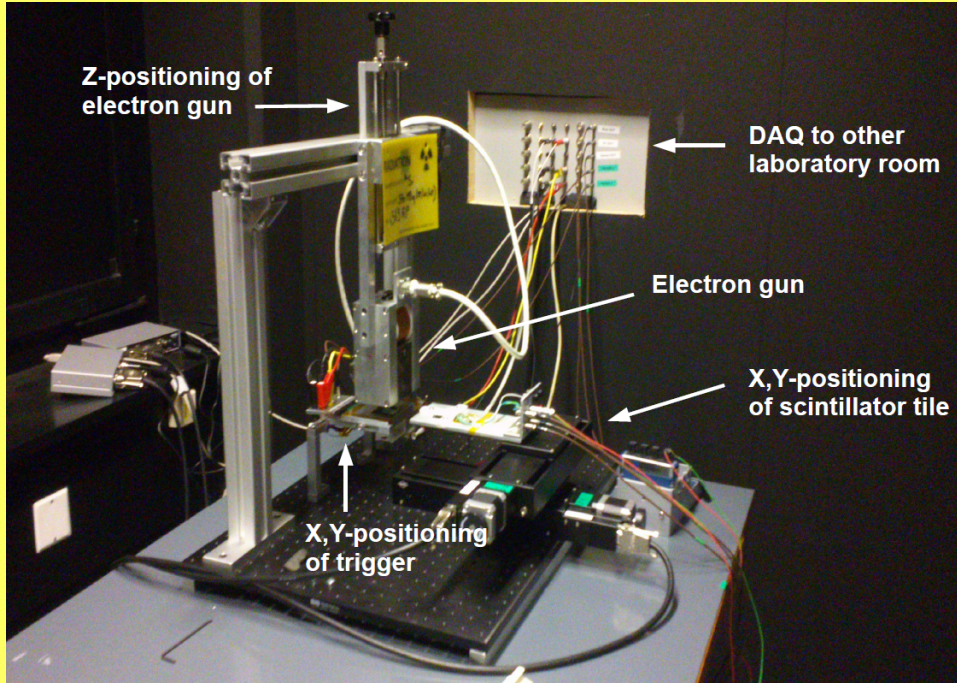
ECAL Lab Meeting  
2015.03.04

Laszlo Varga (CERN, Eotvos Lorand University HU)

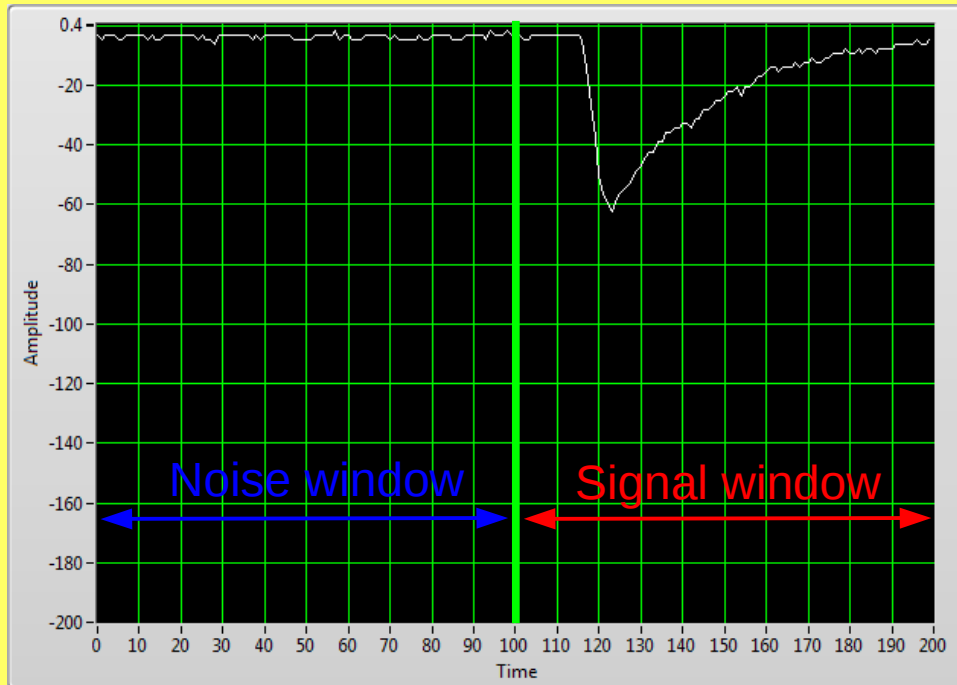
# Data sets

- All measurements were created with the initial setup before modifications of the tile holders
- Measurement point: approximately in the middle of the tile (position(x,y) = 0 mm,0 mm)
- The previous temperature correction contains 5 runs, the new one 2 additional runs
  - The first 5 runs: 08.02.2015
  - The 2 runs: 15.02.2015 & 19.02.2015

# The setup

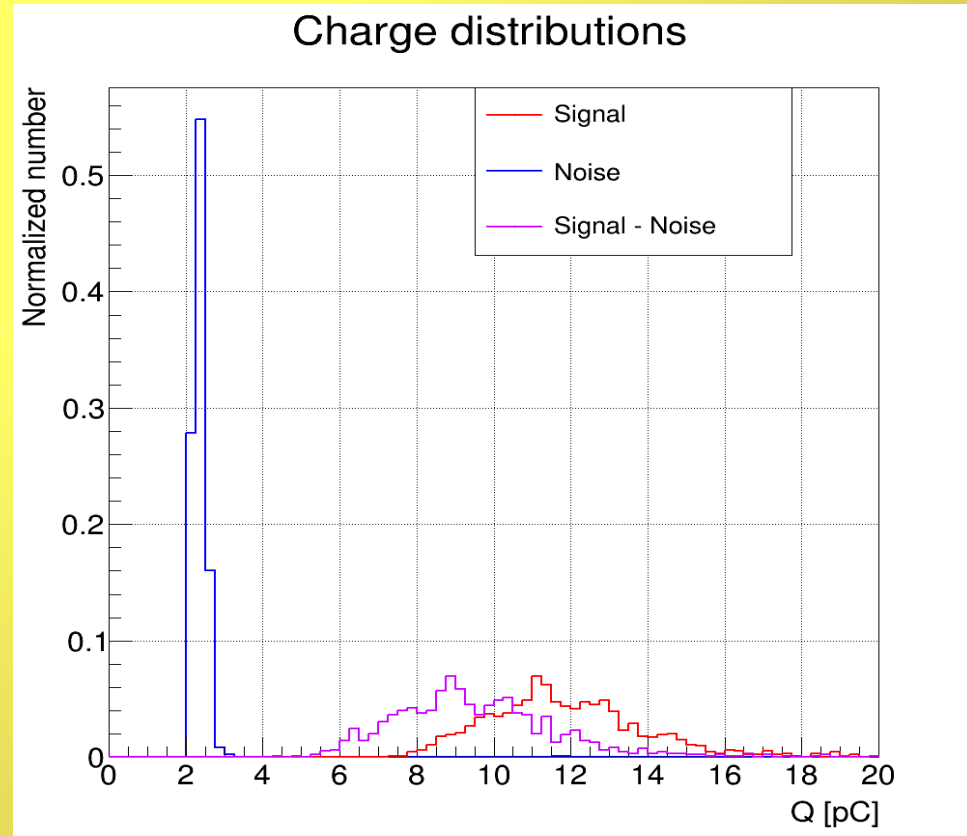


# Reminder: Method of the charge measurement



$\int dt$

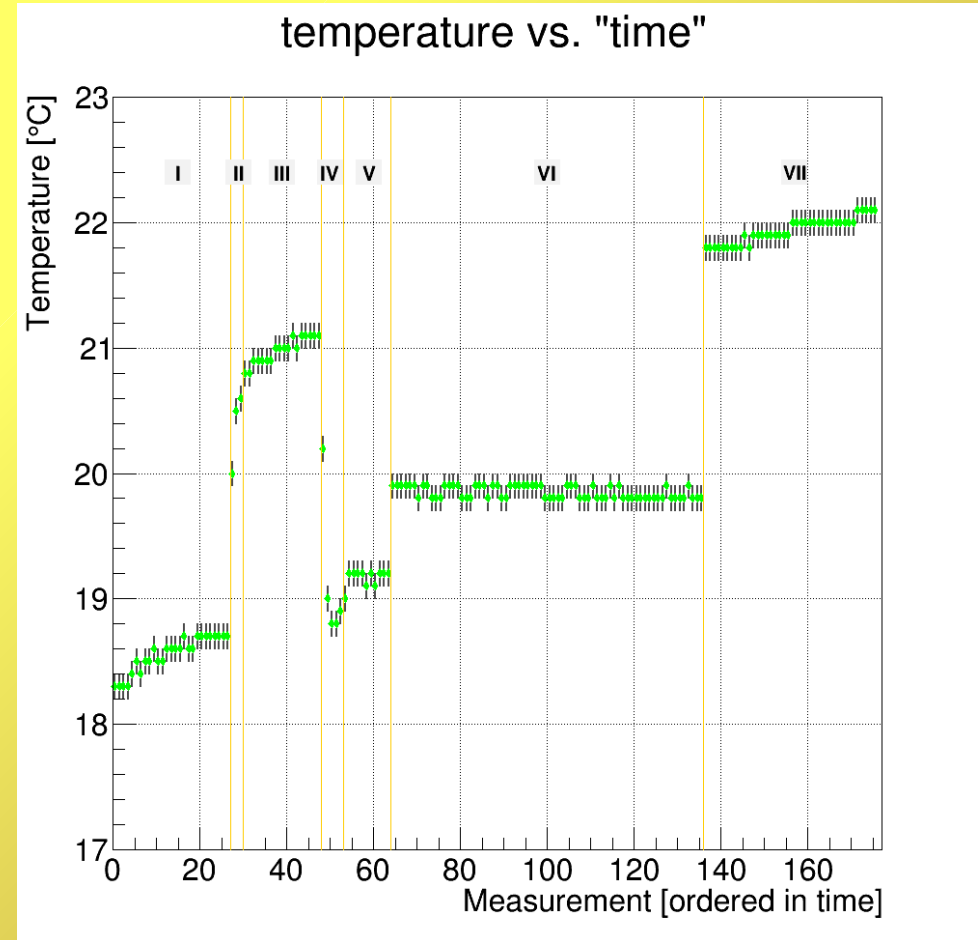
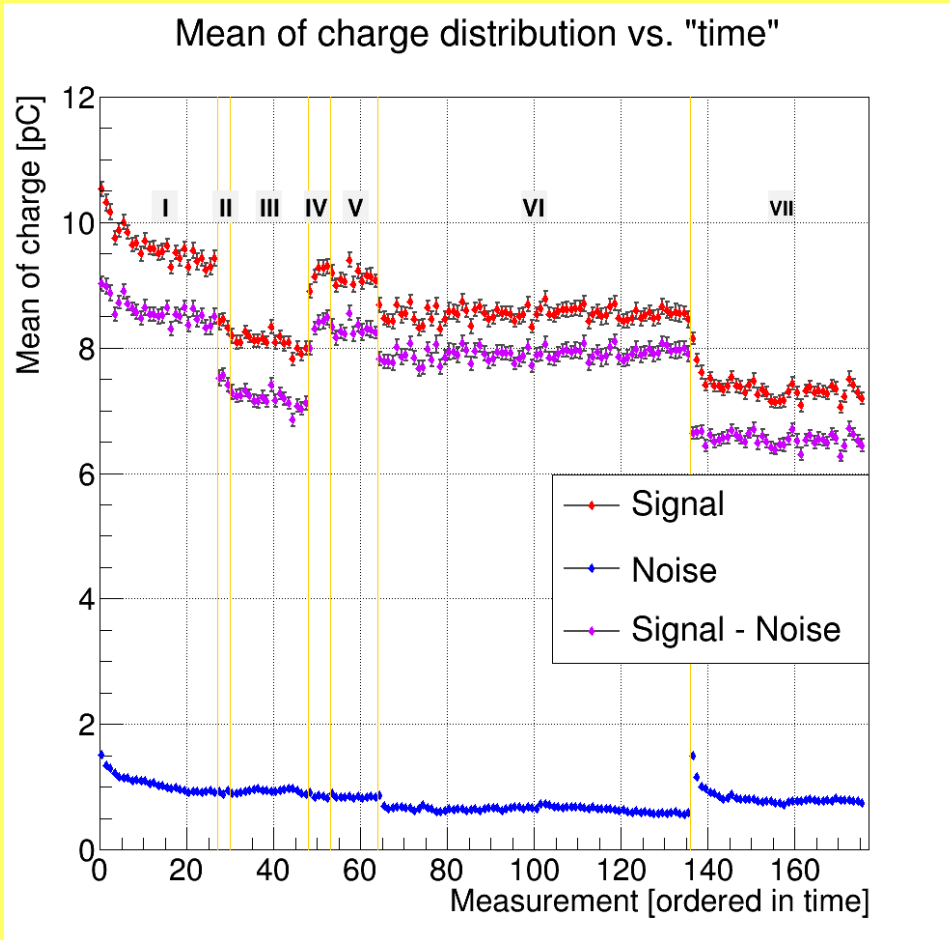
➔



- Two measurement windows for noise and signal
- Convert signal and noise to charge by time integration
- We subtract noise from signal event-by-event

# Quality of the data

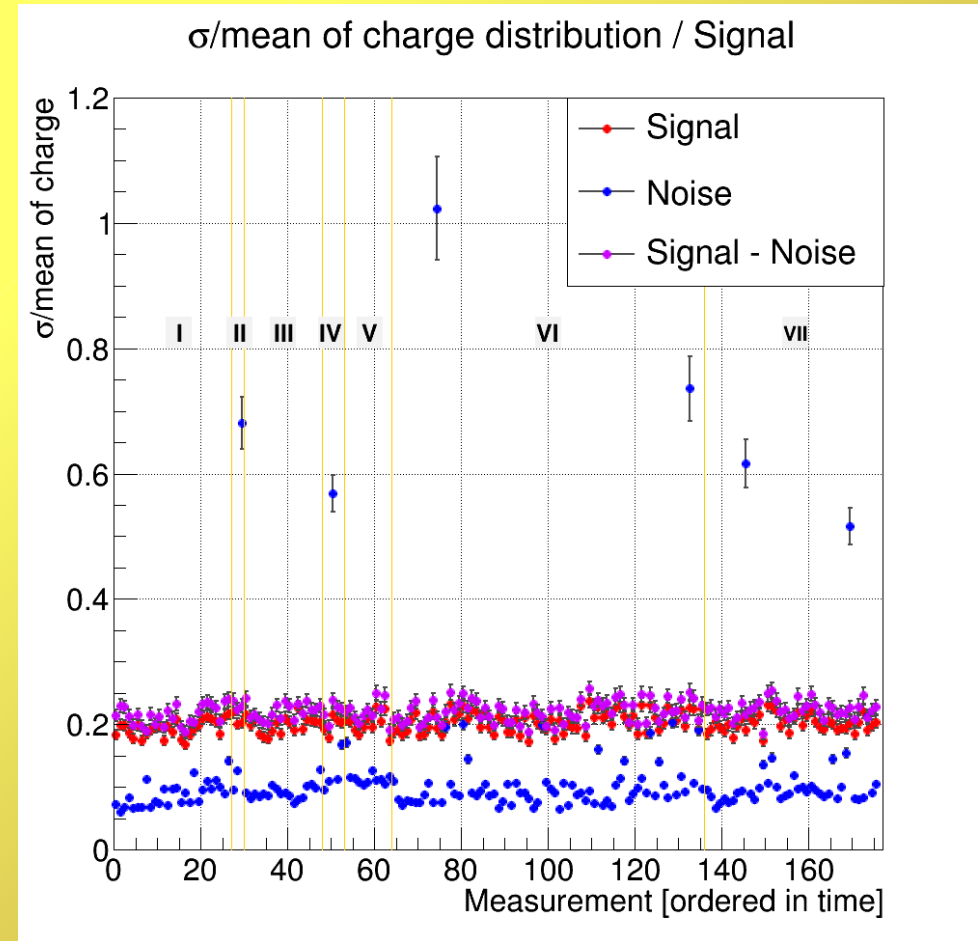
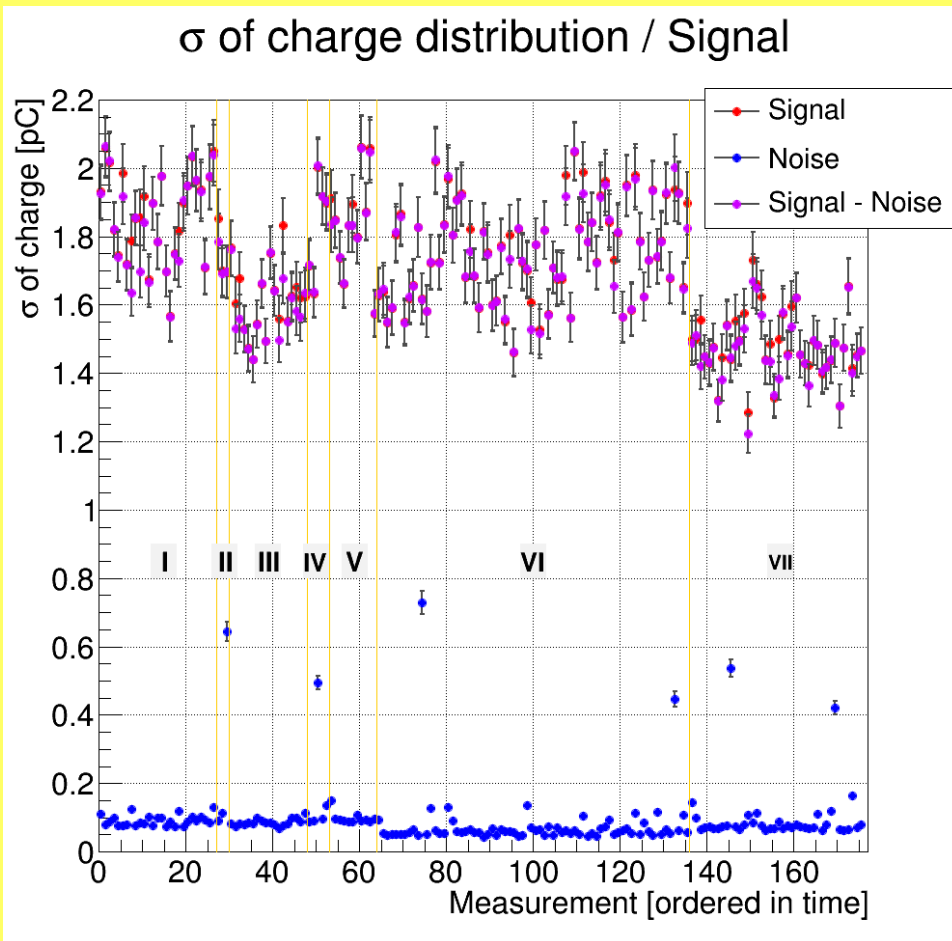
- Study mean charge as a function of the time



- Measured charge is expected to change with temperature  $\rightarrow Q \sim 1/T$
- Note: Not all variations in  $Q$  can be explained by temperature changes, for example at the beginning of run VII

# Quality of the data

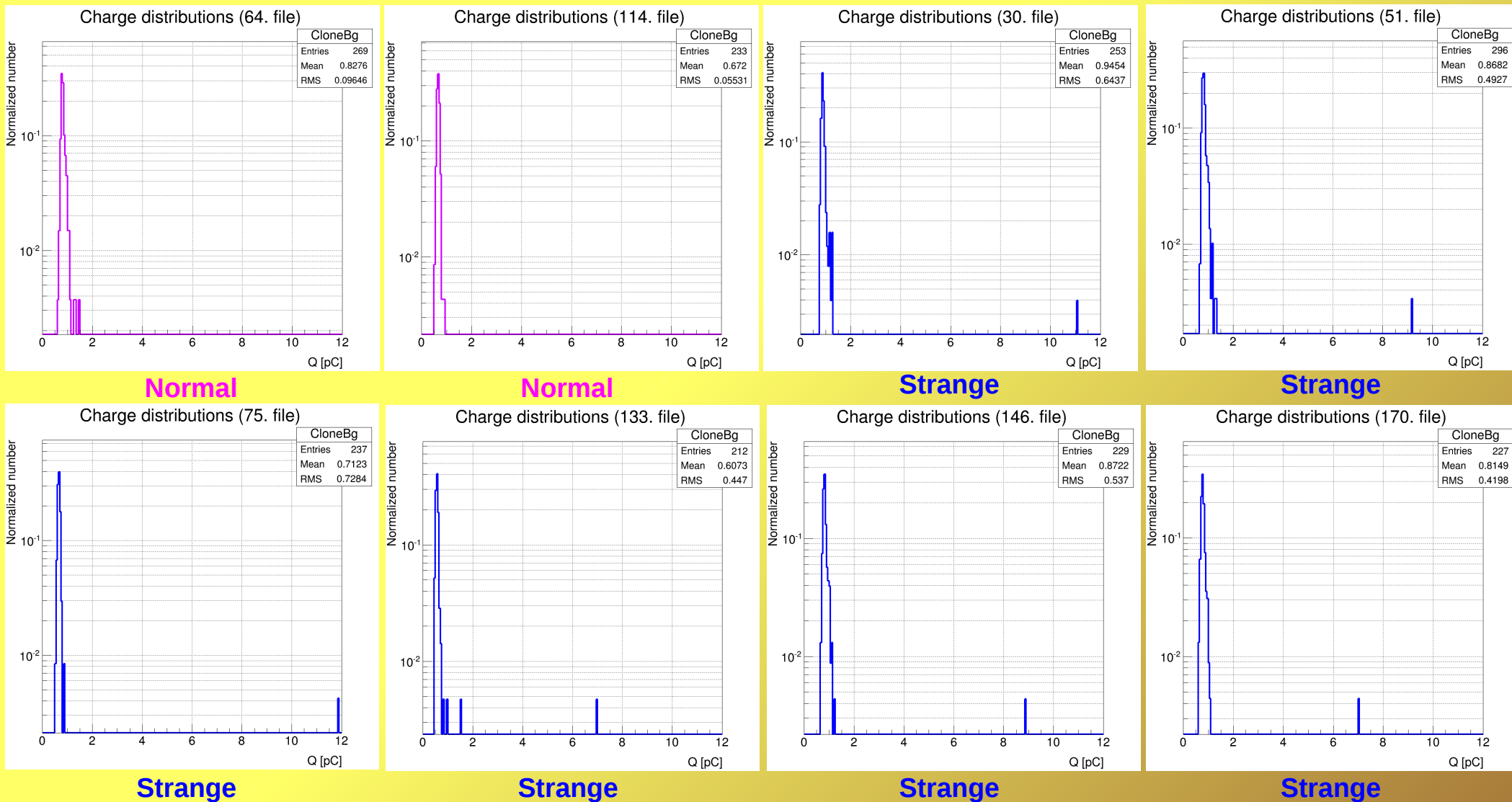
- Study width and width/mean of charge distribution as a function of the time



- For few runs, the width of the pedestal distribution is very large

# Quality of the data

## • Investigation of the charge distributions

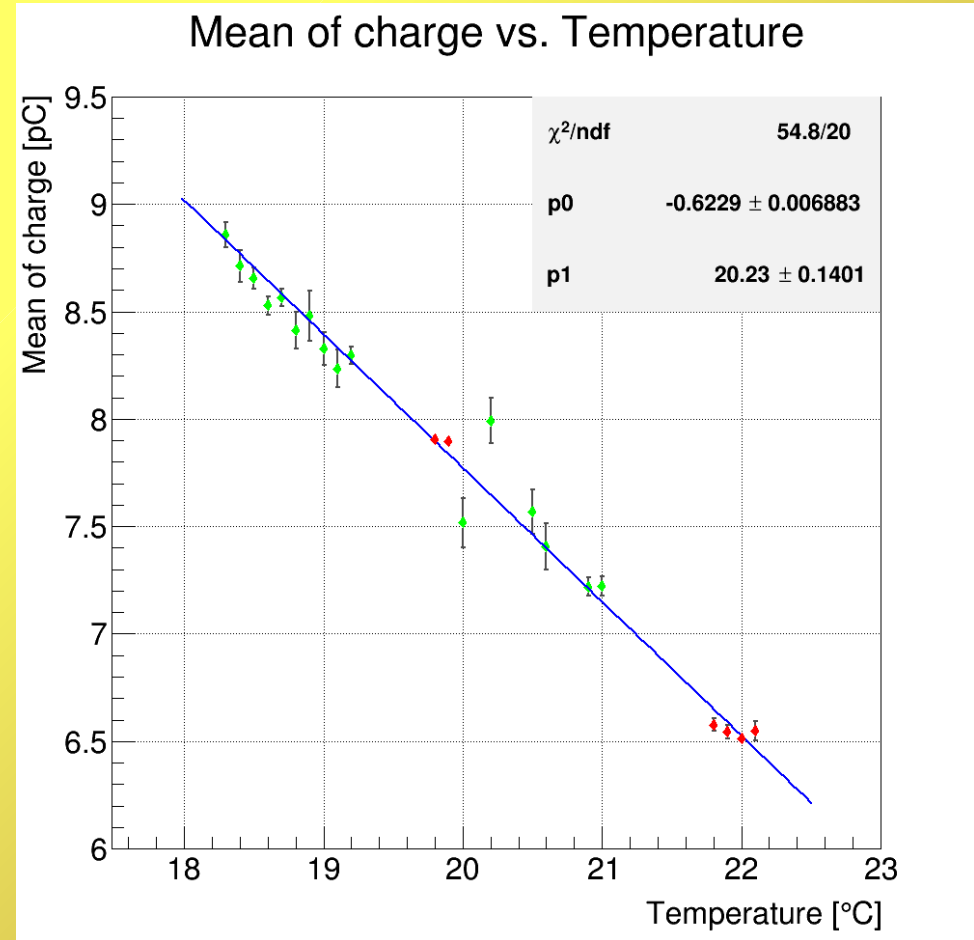
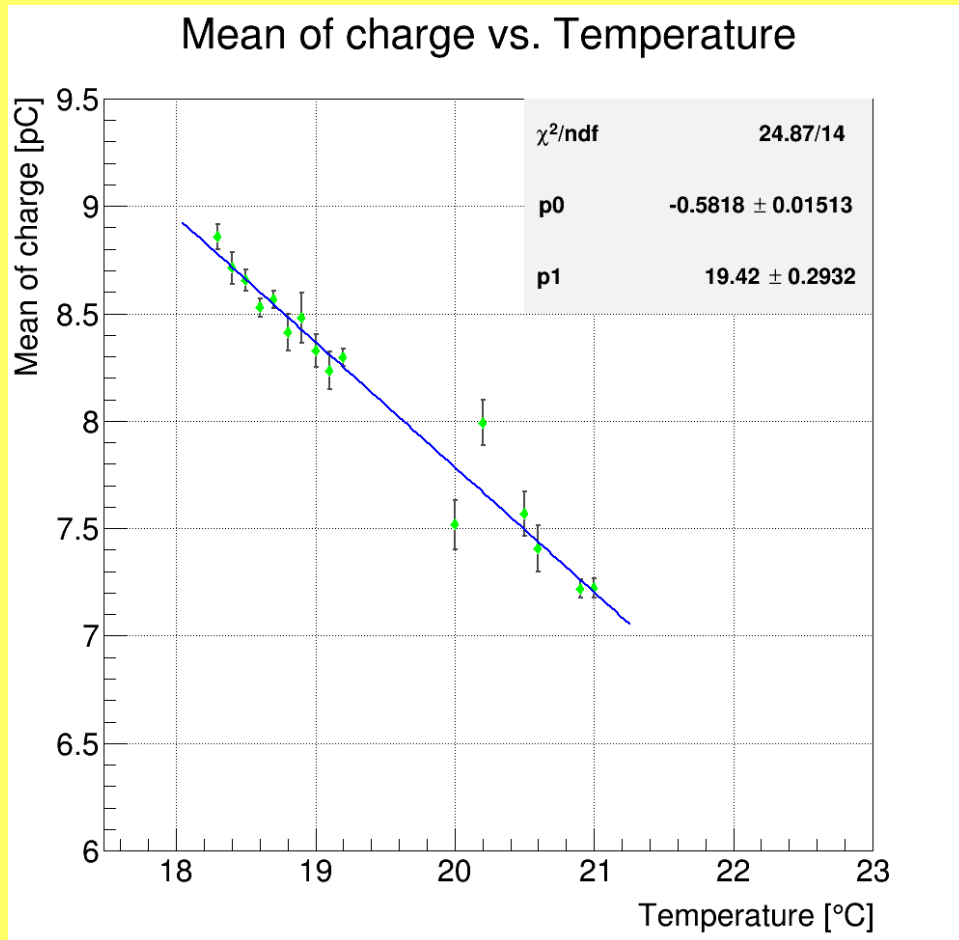


- Few events with very large pedestal values increase RMS dramatically
- These events could be due to after-pulses, noise-events in pedestal window
- In the mean of charge vs temperature fit this strange points were NOT ignored.

# Mean of charge vs temperature dependence

Previous

New



- Fit Q vs T dependence with linear fit function:  $Q = p0 * T + p1$
- After adding the new measurements, the fit results are similar but they do not agree with each other within the uncertainties
- Possible explanations: Slight variation in measurement setup (cables, power supplies, ...) between the two measurements



Thank you for your attention!