

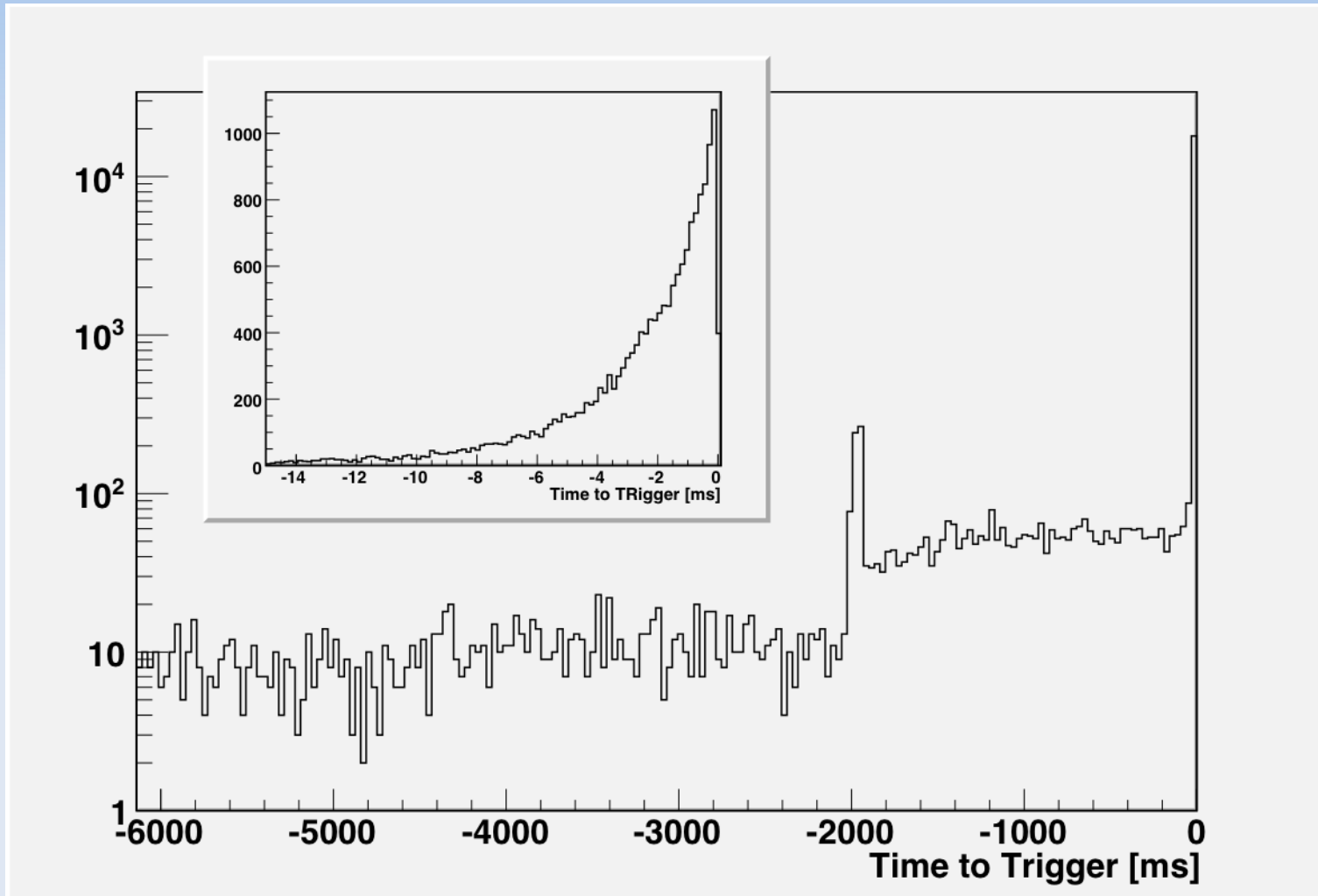
Noise studies of 2008 runs

Vincent Boudry
LLR, École polytechnique

SDHCAL analysis
CERN
13/07/2010

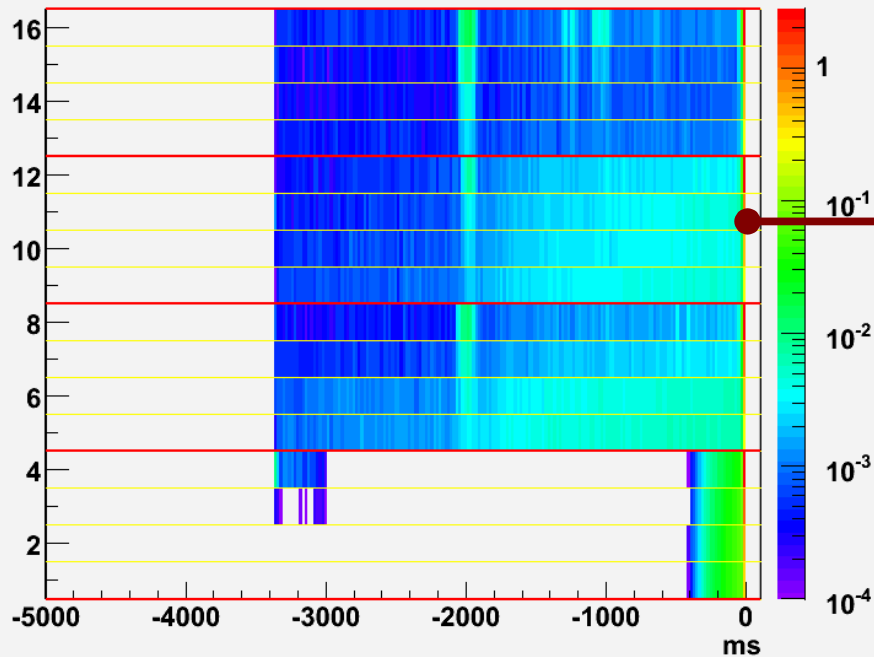


Beam time structure



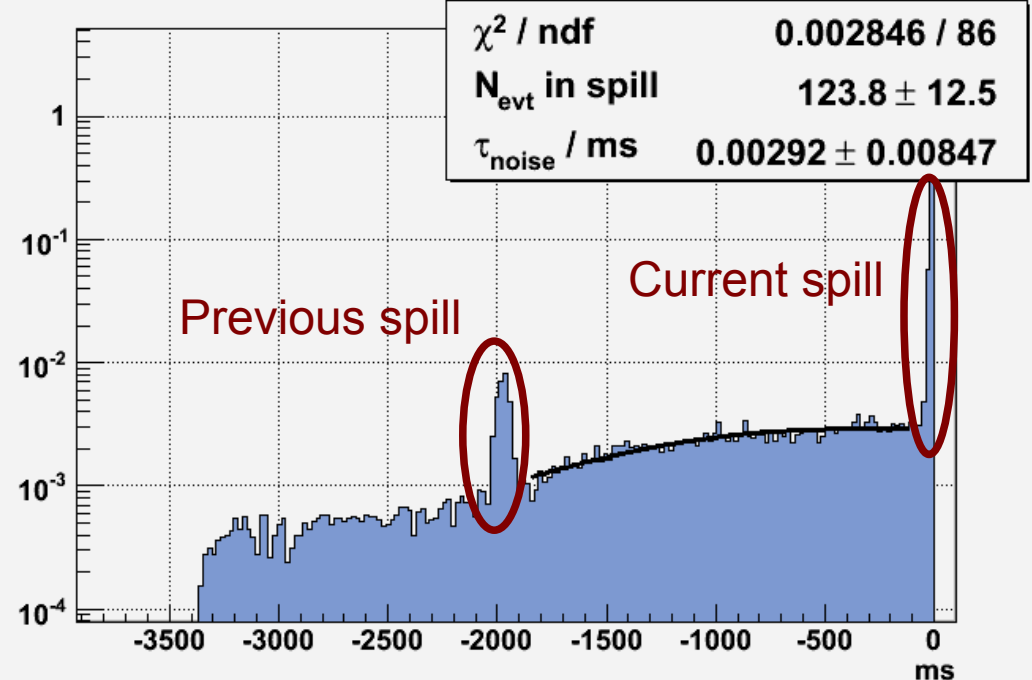
Noise & ROC study

Asic vs Time



Run00101
Hit rates for each triggered event

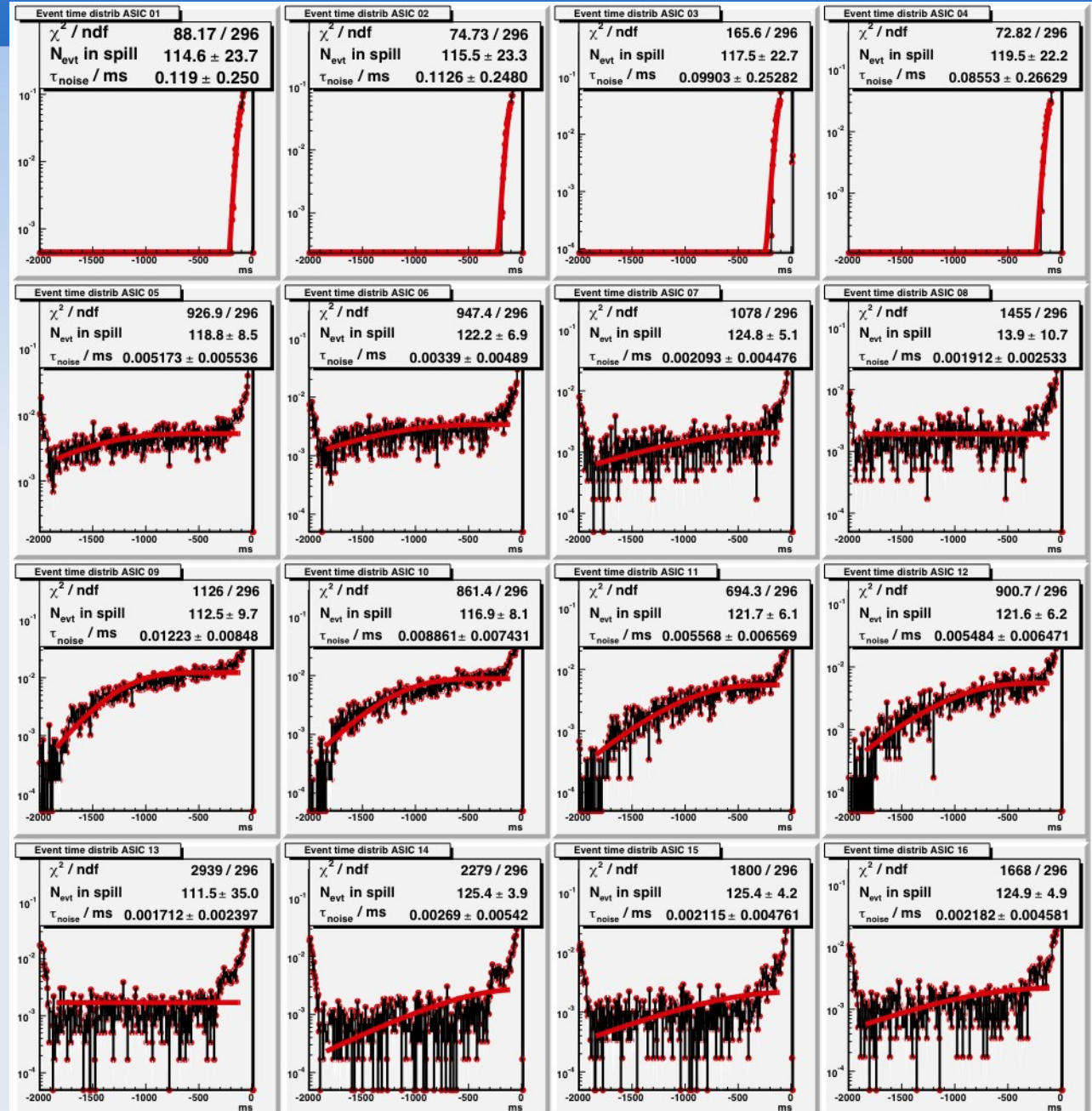
Event time distrib ASIC 12



- *Shape:*
- flat noise+event rate τ
- modified by RAMFull (Loss of memory)
- probability at $-t =$
 - $(1 - P(\text{avail. mem}, t \times \tau))$
 - $\text{avail. mem} = 128 \text{ evts} - N_{\text{evt}}$ in spill

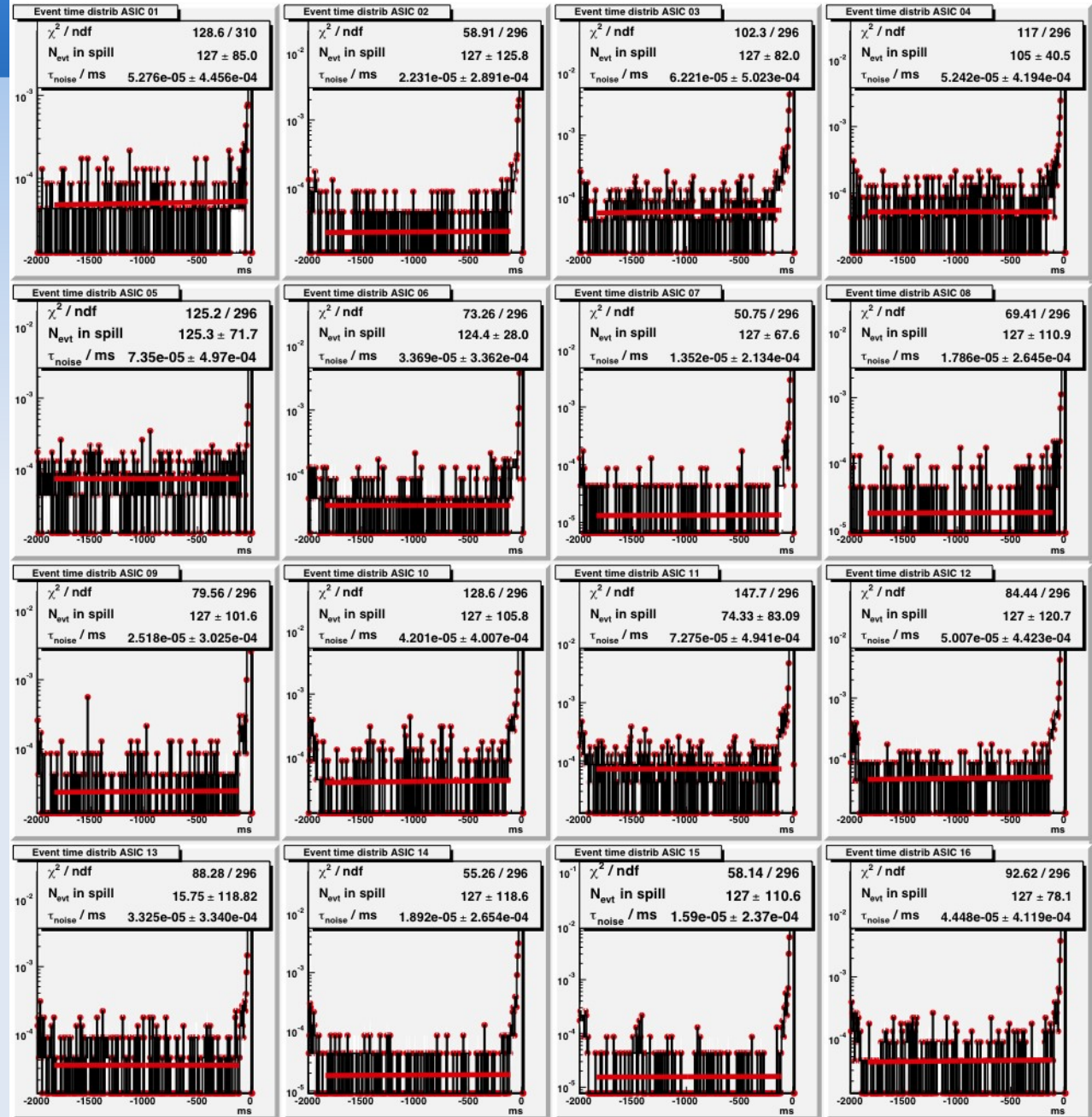
$$P(a, x) = \frac{1}{\Gamma(a)} \int_0^x t^{a-1} e^{-t} dt$$

Noise fits

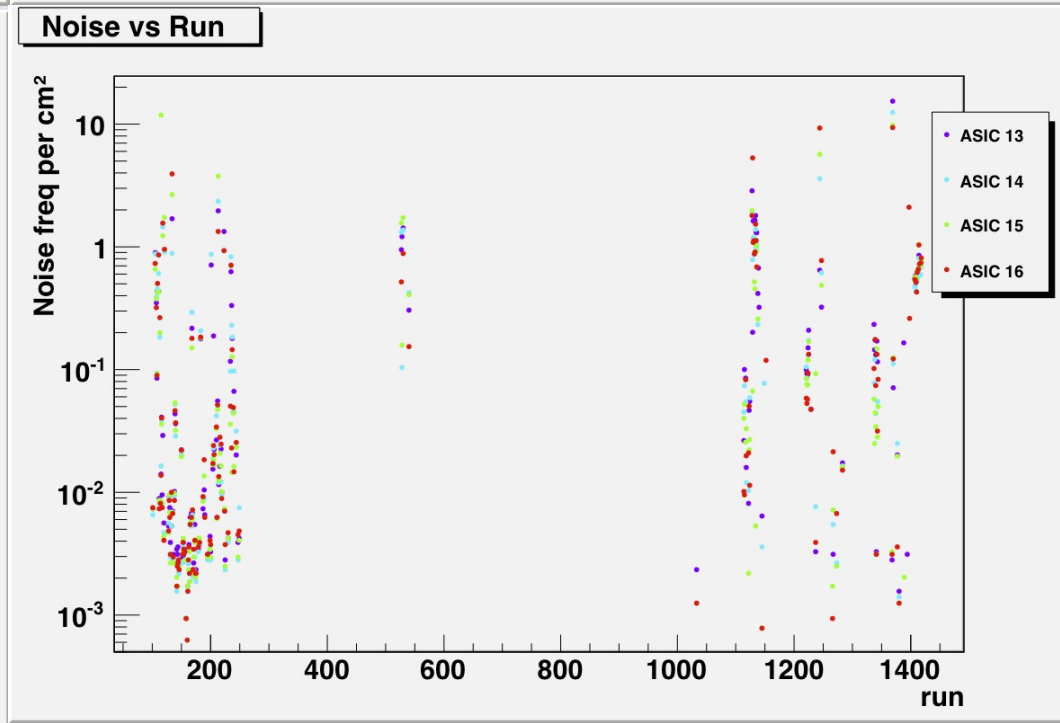
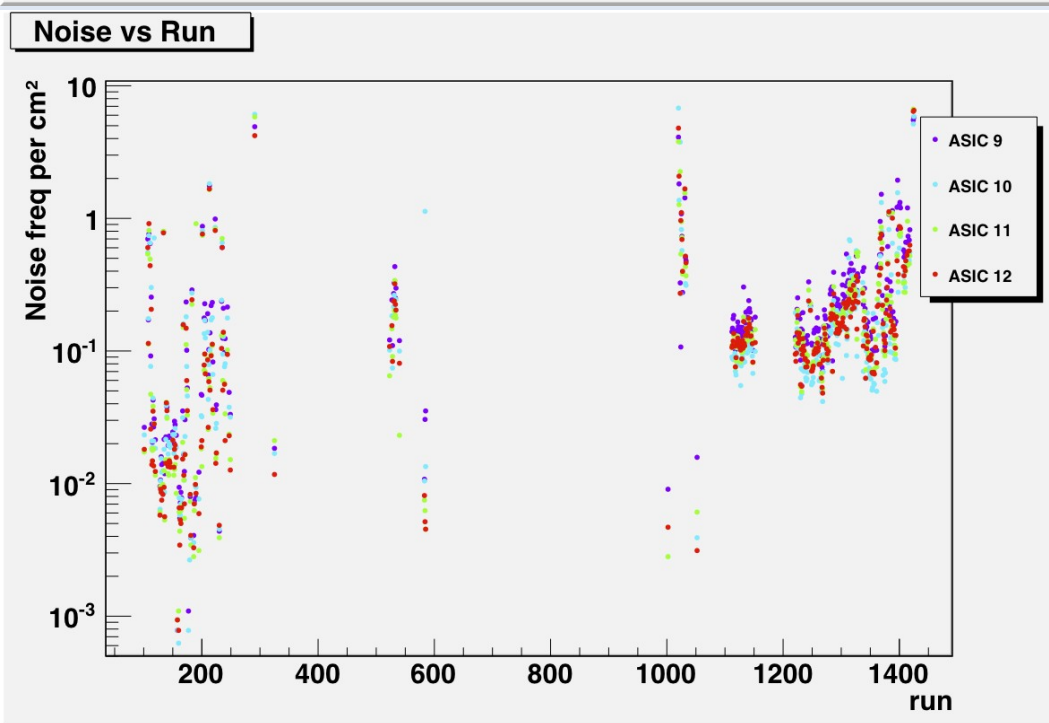
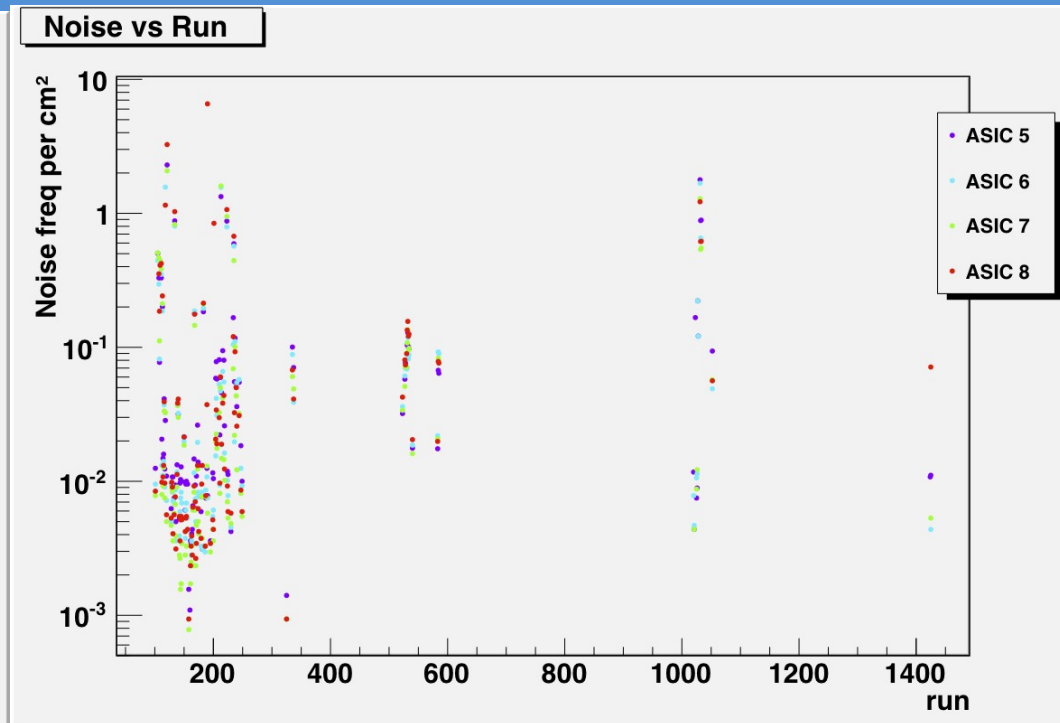
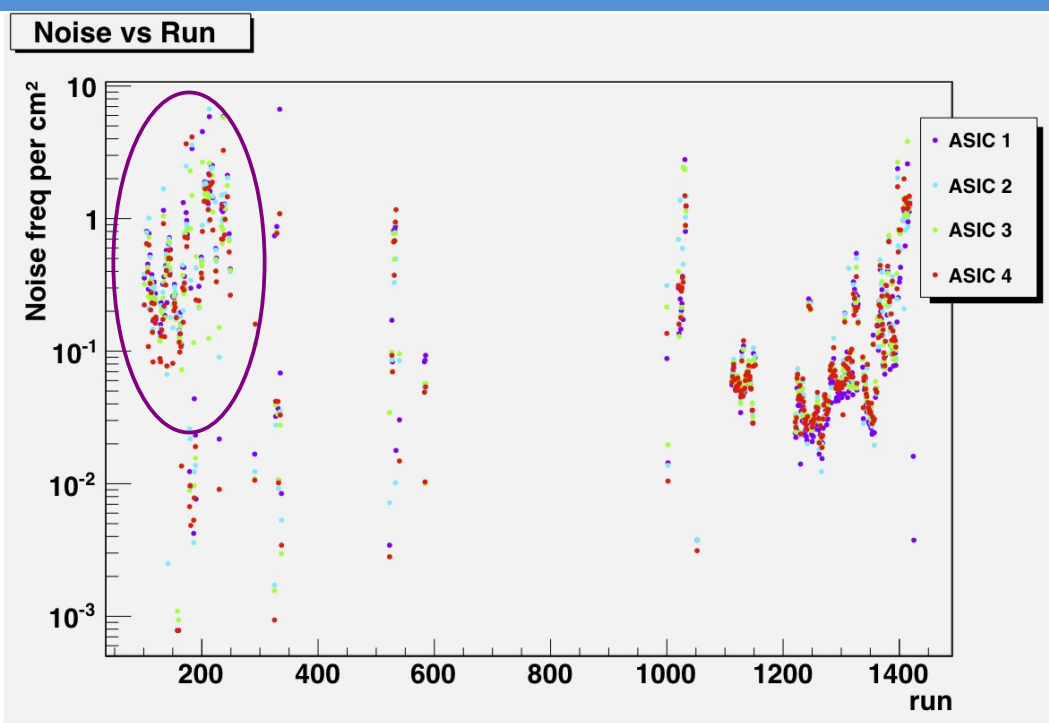


Noise fits

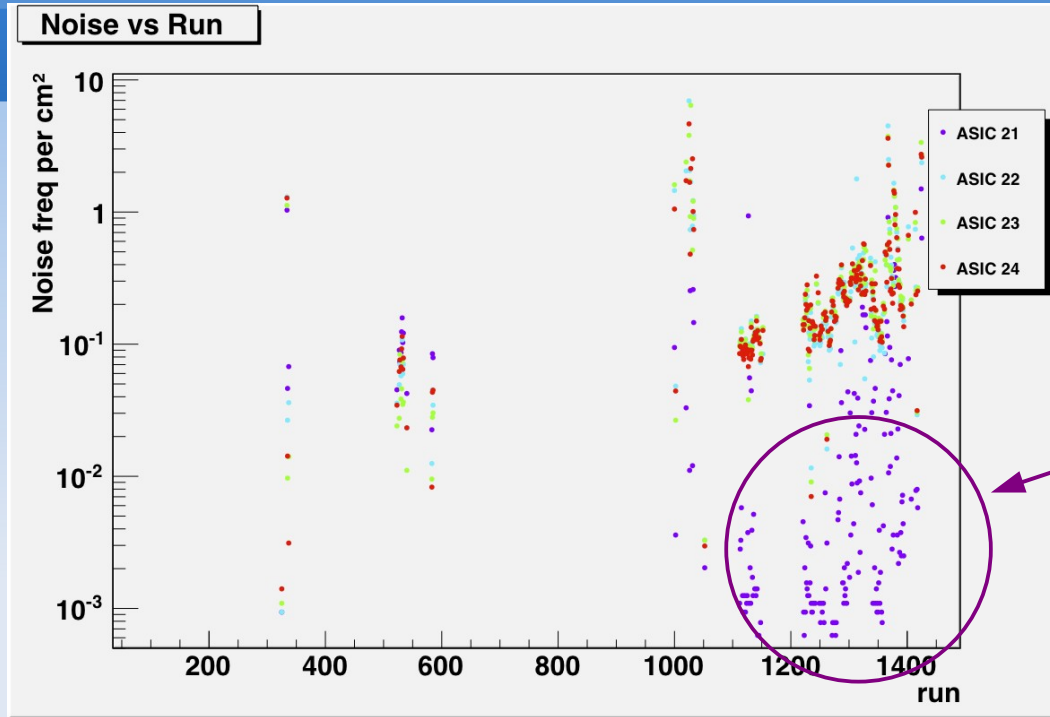
Low noise / low stat run



Global results



Global results



Different threshold ?

- Noise ≤ 1 Hz
- Time dependant : slow evolution, + peaks [HV/thr. scans ?]
 - ▶ To be correlated with HV, thr...
 - ▶ Aging (gas ?)
- PCB A rather noise in 1st period
 - ▶ Normalized after → chamber problem ?
 - ▶ To be checked with chambers numbers (in principle noted).