

Waveforms analysis

D. P. and D. P.

Outline

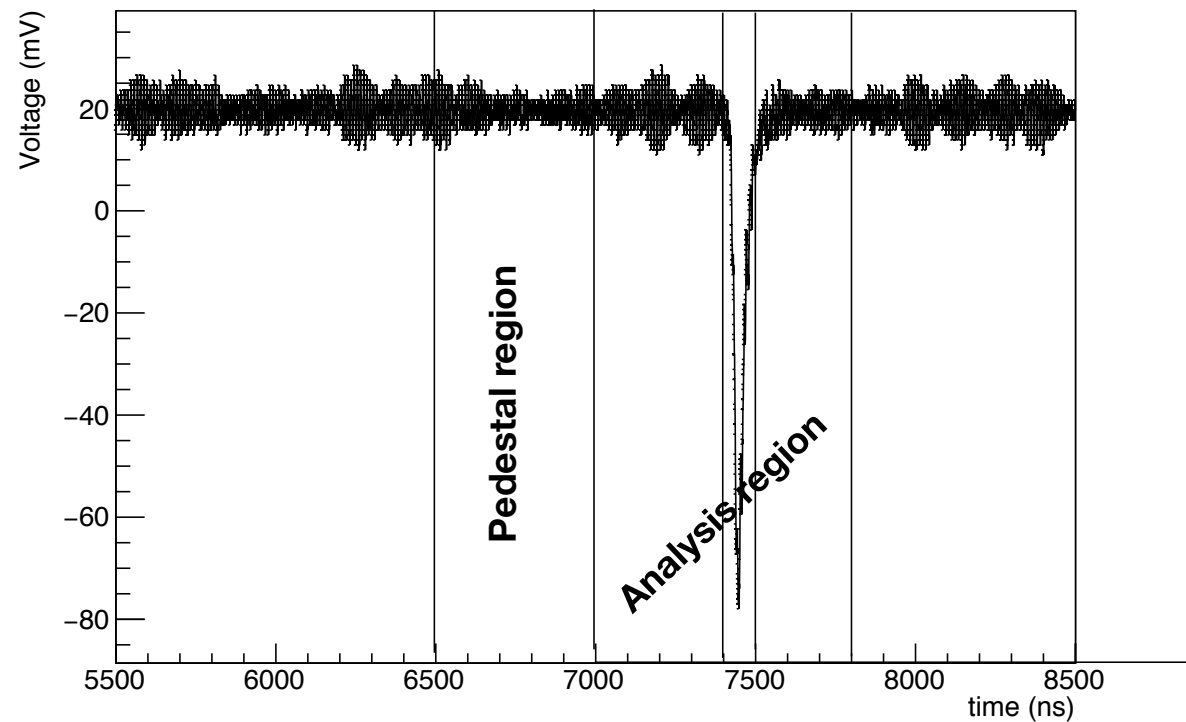
- Preliminary results of analysis of PMT waveforms
- Pedestal analysis
- Peak time and voltage
- Integrated light
- RUNs analyzed: Iron source Open, collimated, Cosmics

PMT Waveform analysis

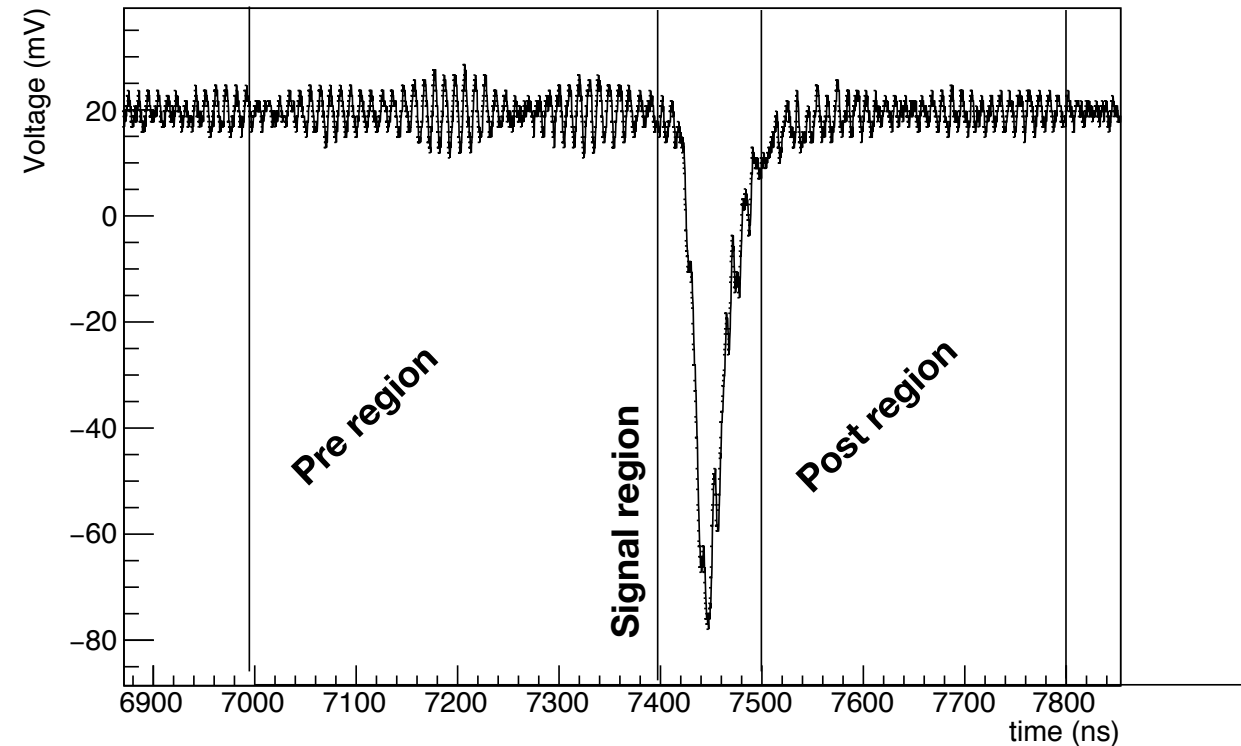
Full range of waveform is 25 us

The analysis concentrate on sub-range of the waveform

PMT, timestamp 1573142087

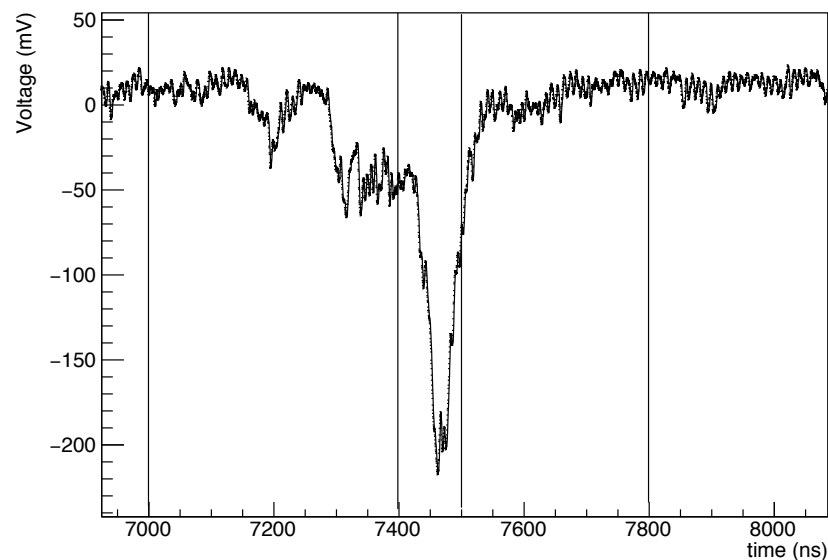


PMT, timestamp 1573142087



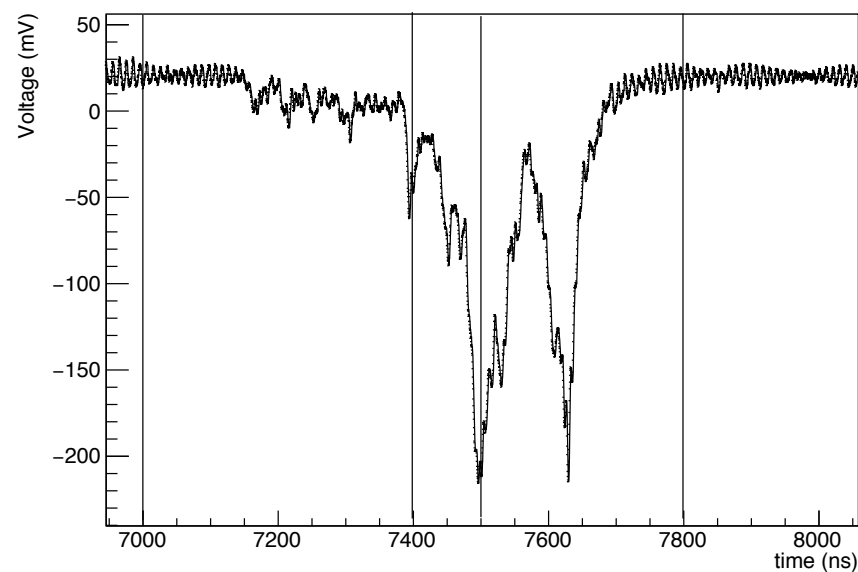
Pre event

PMT, timestamp 1573142166



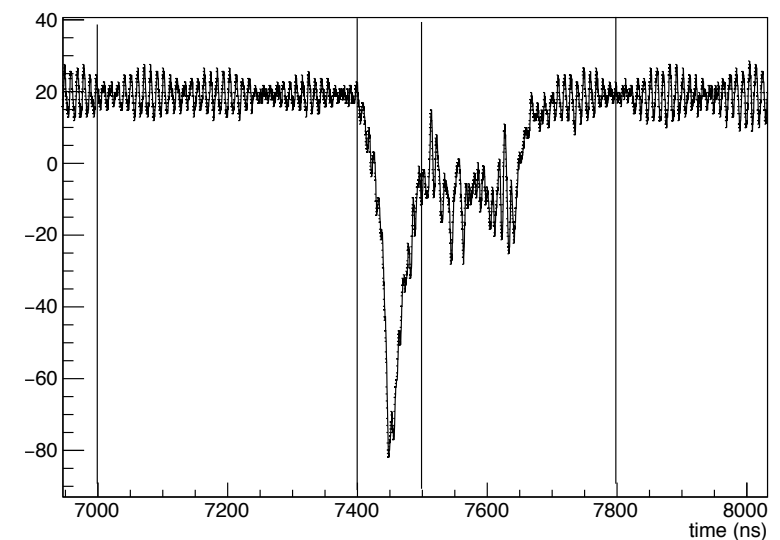
Pre-Post event

PMT, timestamp 1573142090



Post event

PMT, timestamp 1573142157

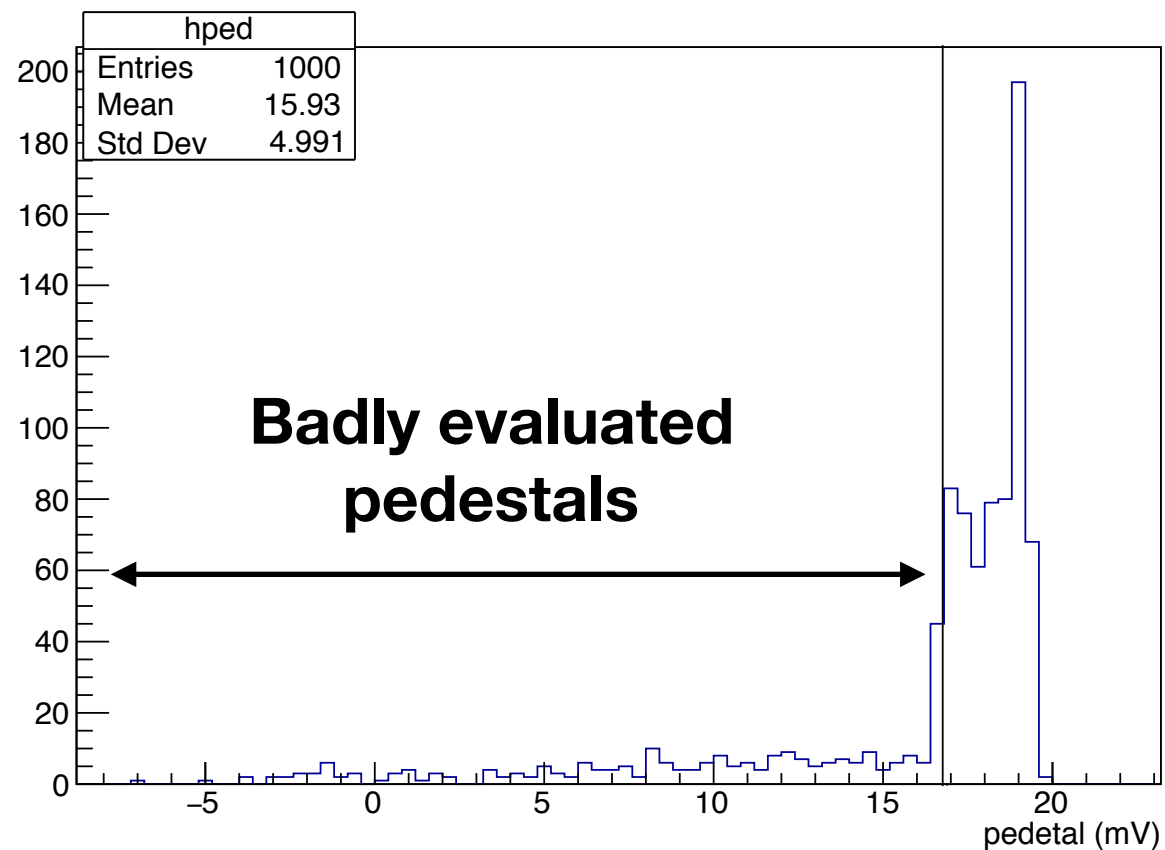


Pedestal

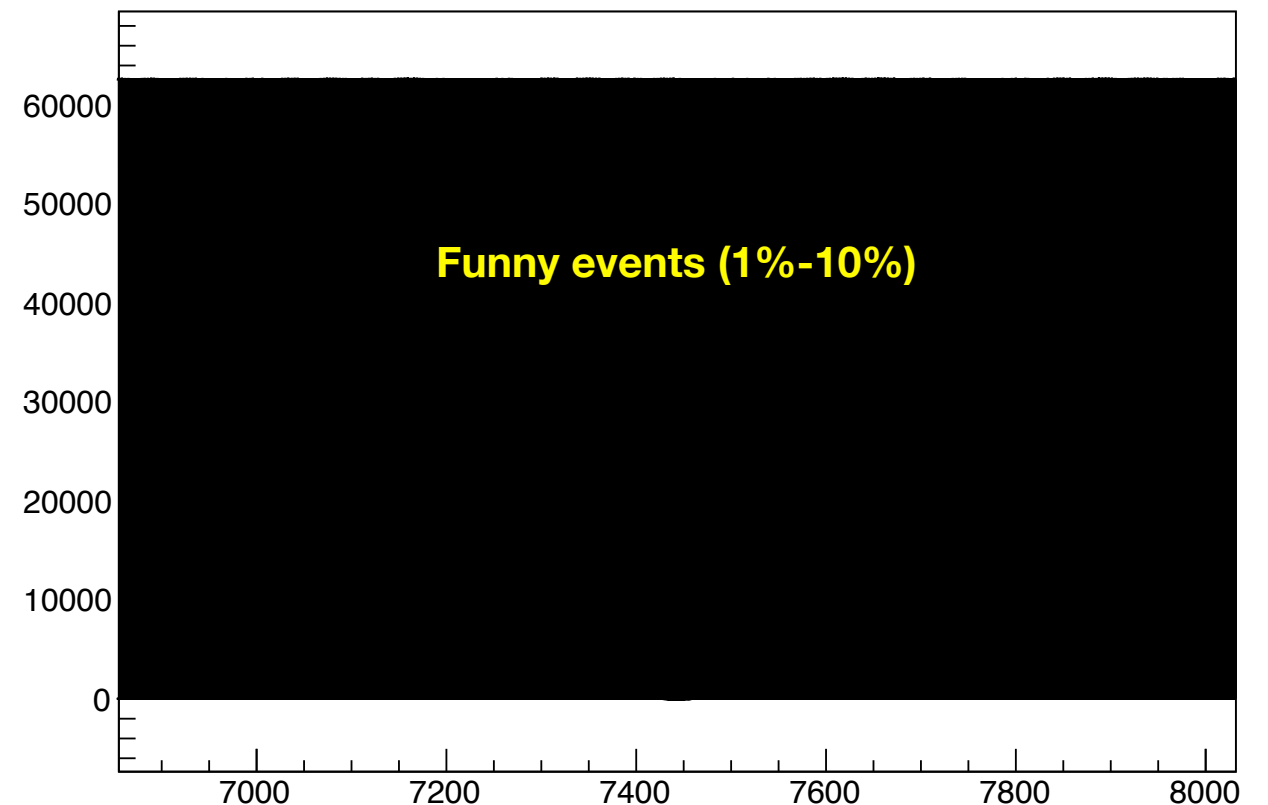
- Pedestal is evaluated between 6500 and 7000 ns: Typical value 20 mV
- Average values is subtracted to the waveforms points

Bad events:

- Pedestal below 17 mV are discarded
- Funny waveforms are discarded

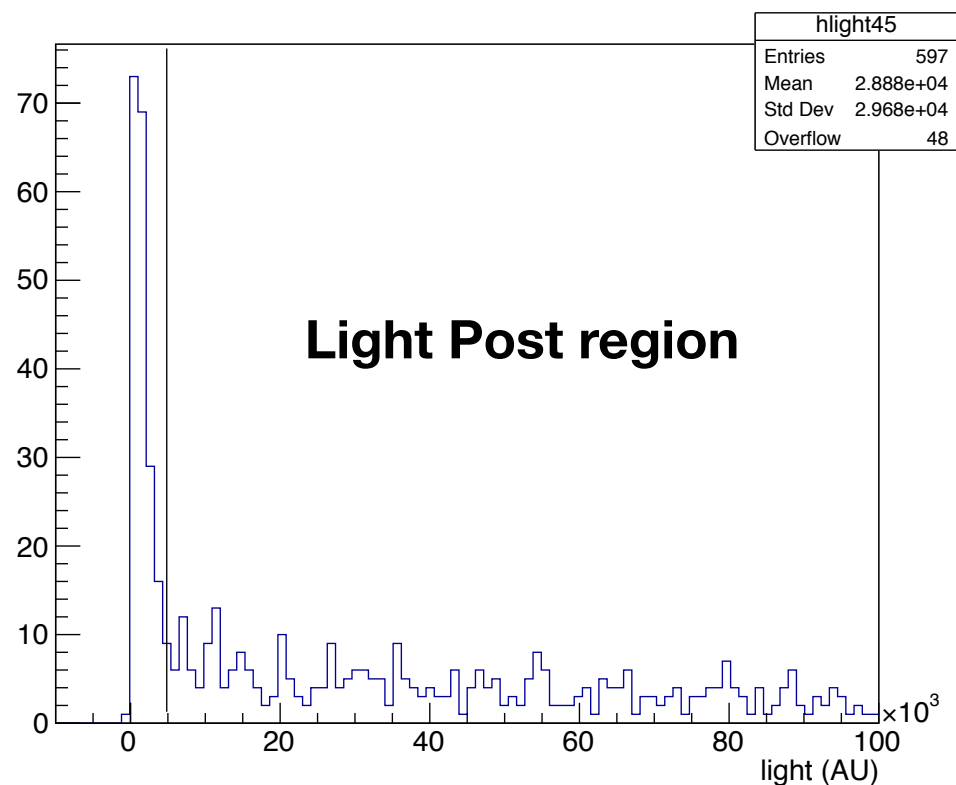
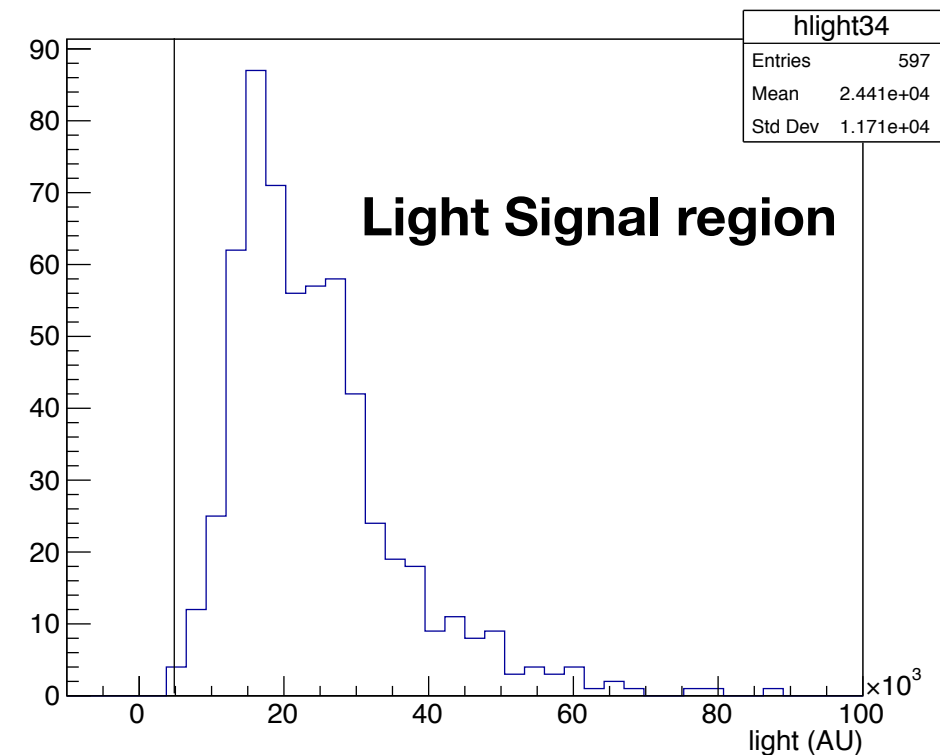
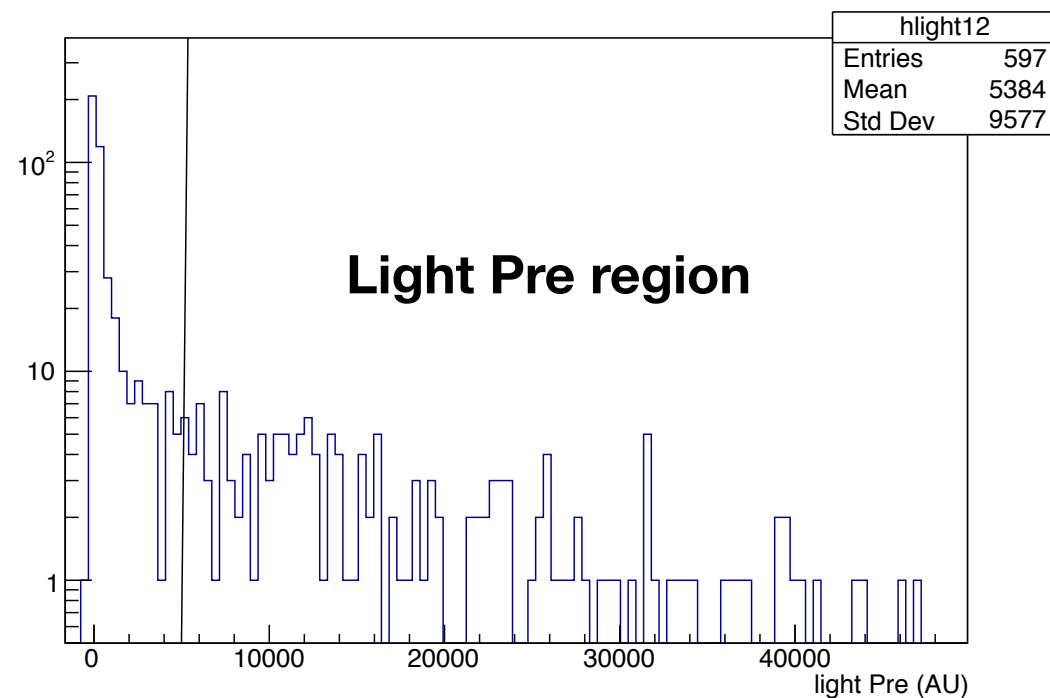


PMT, timestamp 1573142087



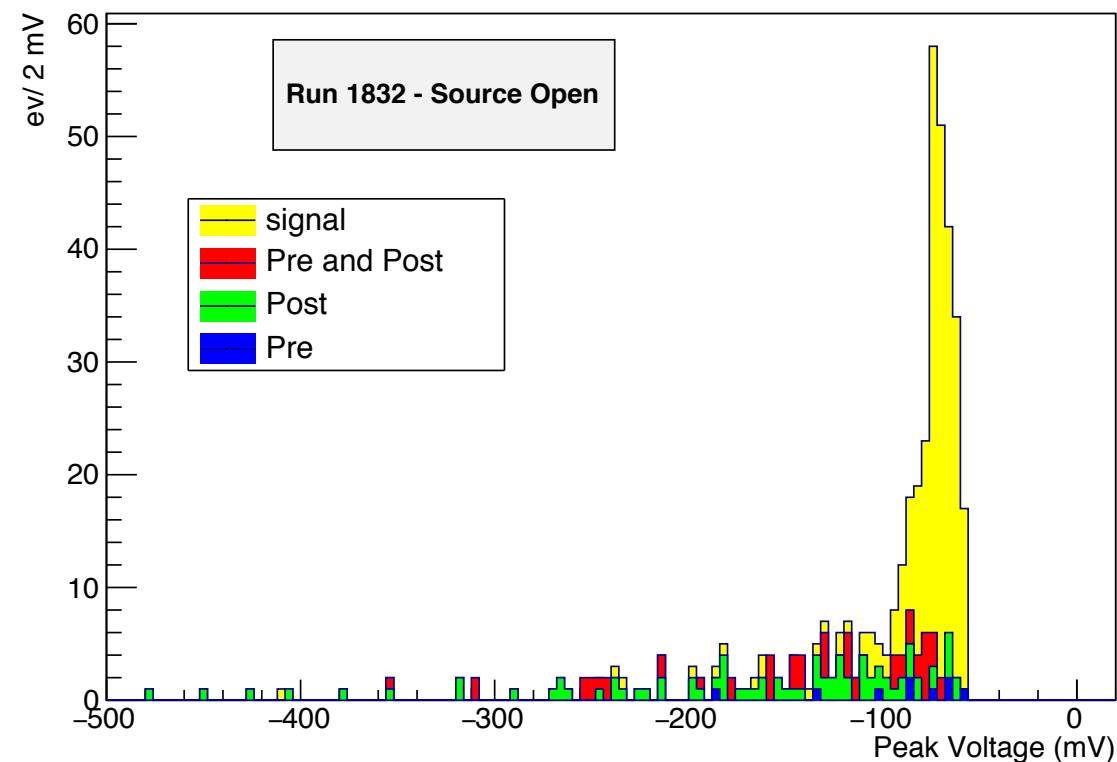
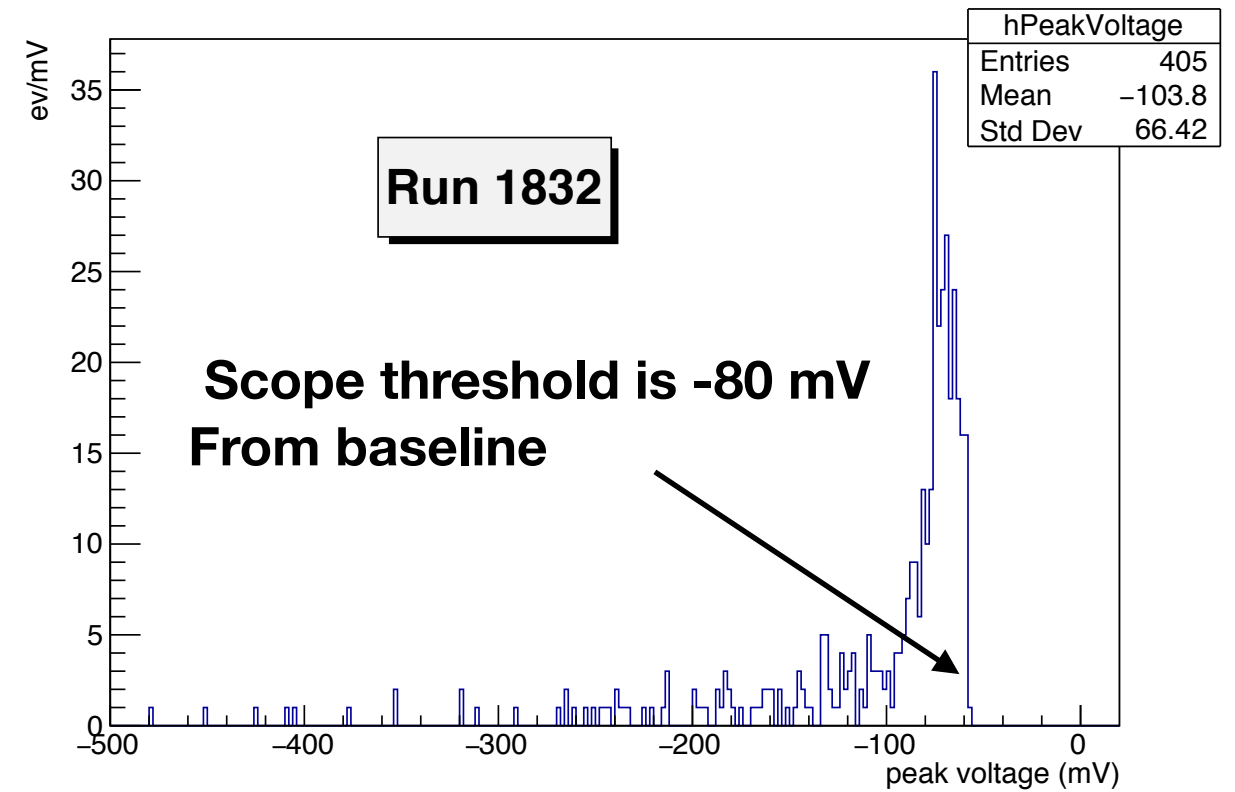
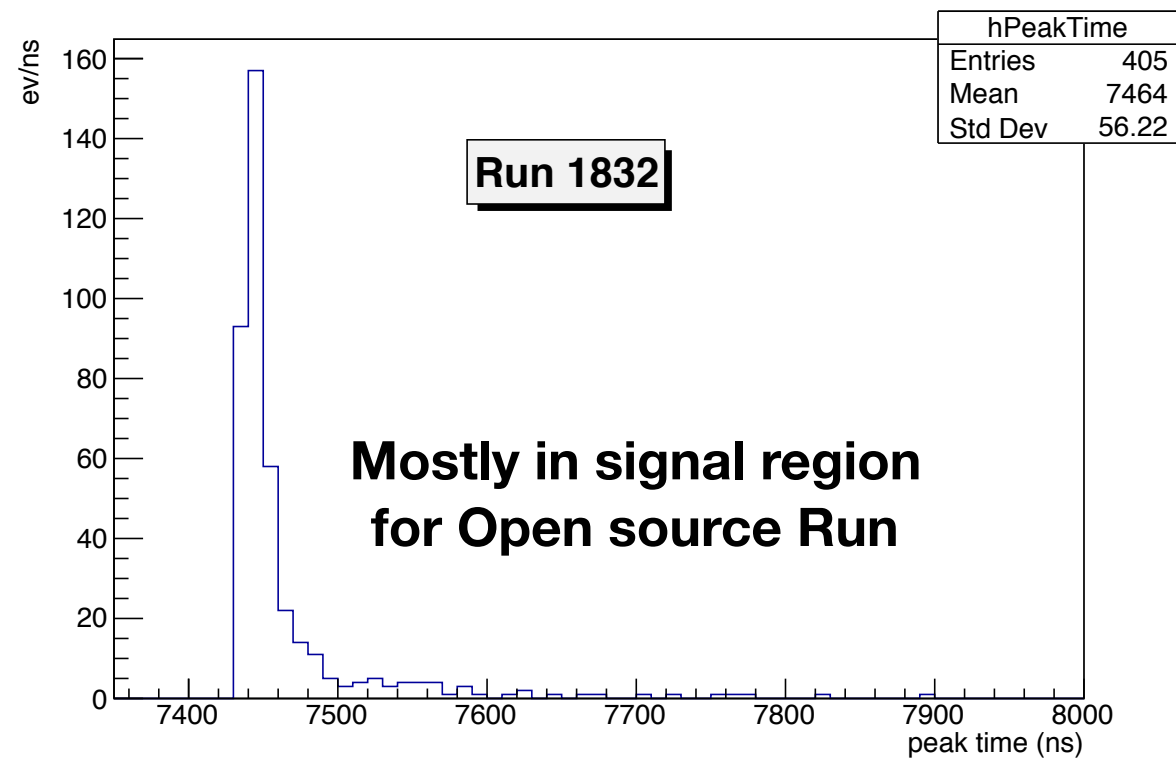
Light in different regions

Run 2165 - Open Source

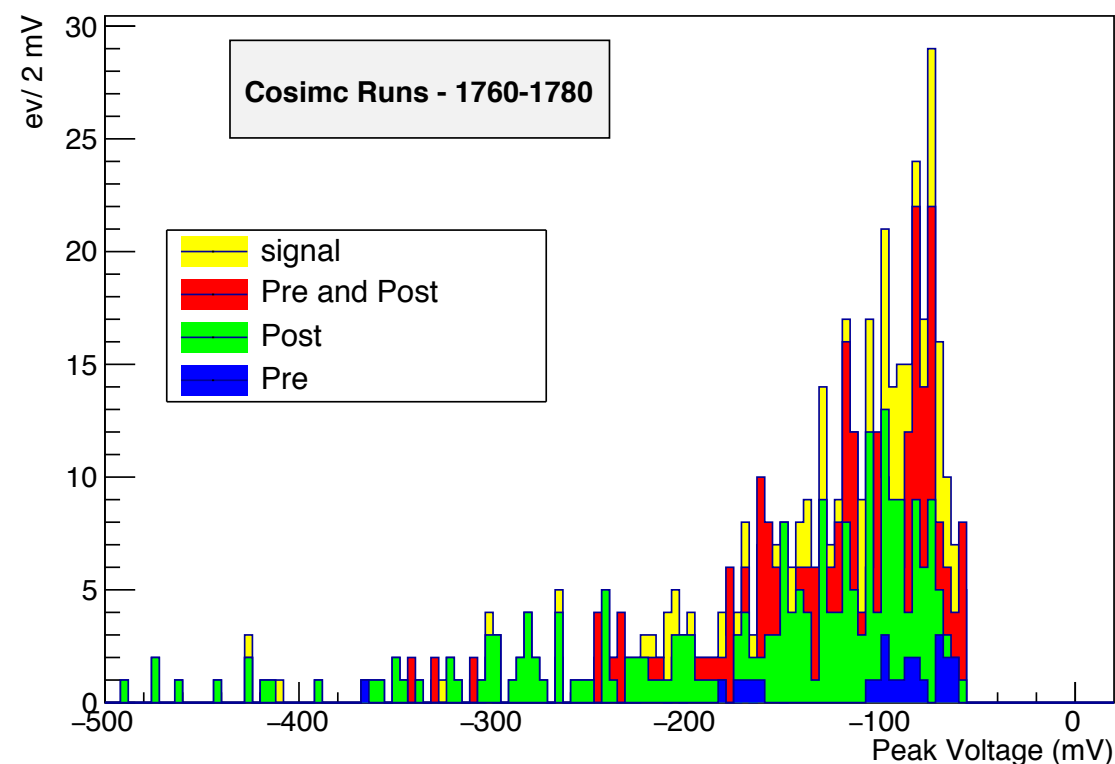
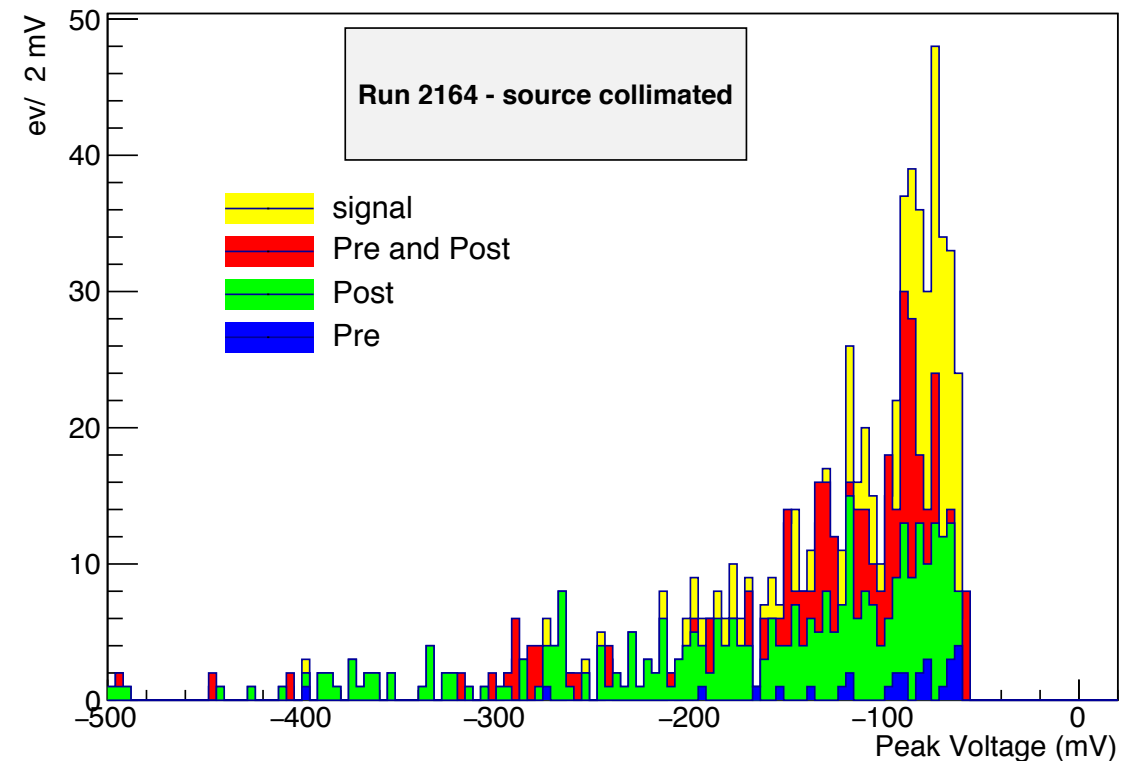
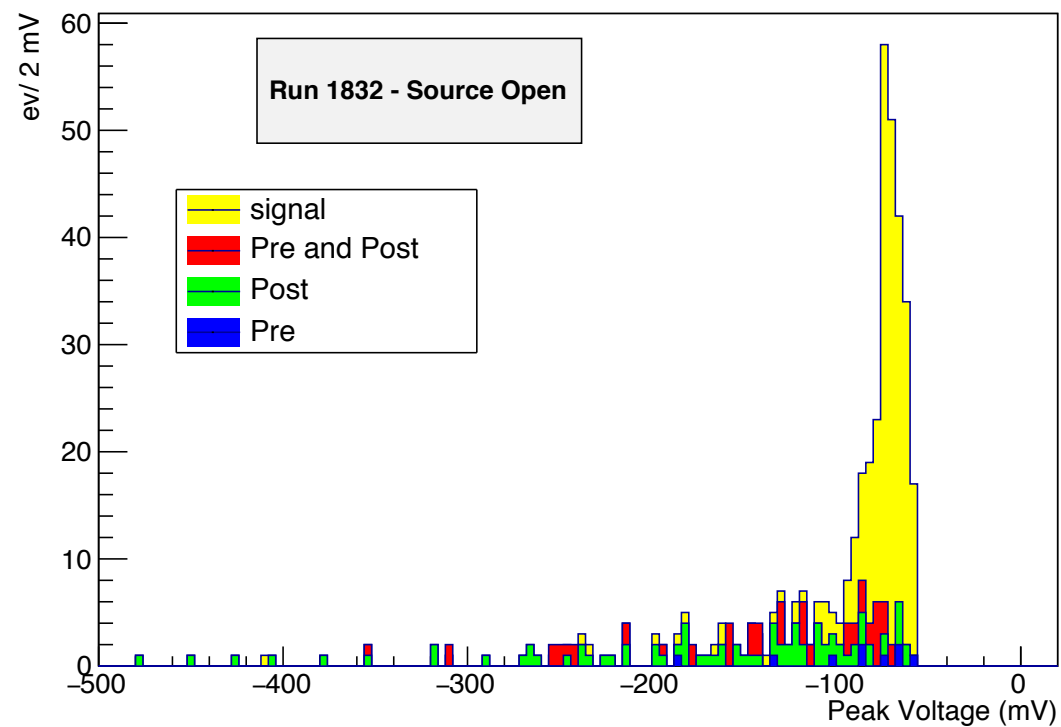


- **light > 5000 AU define activity in a specific region**
 - To be tuned
- **Define 4 types of Waveforms:**
 - **Signal:** activity only in signal region
 - **Pre:** activity only in Signal and Pre region
 - **Post:** activity only in Signal and Post region
 - **PrePost:** activity in all three regions

Peak time and voltage

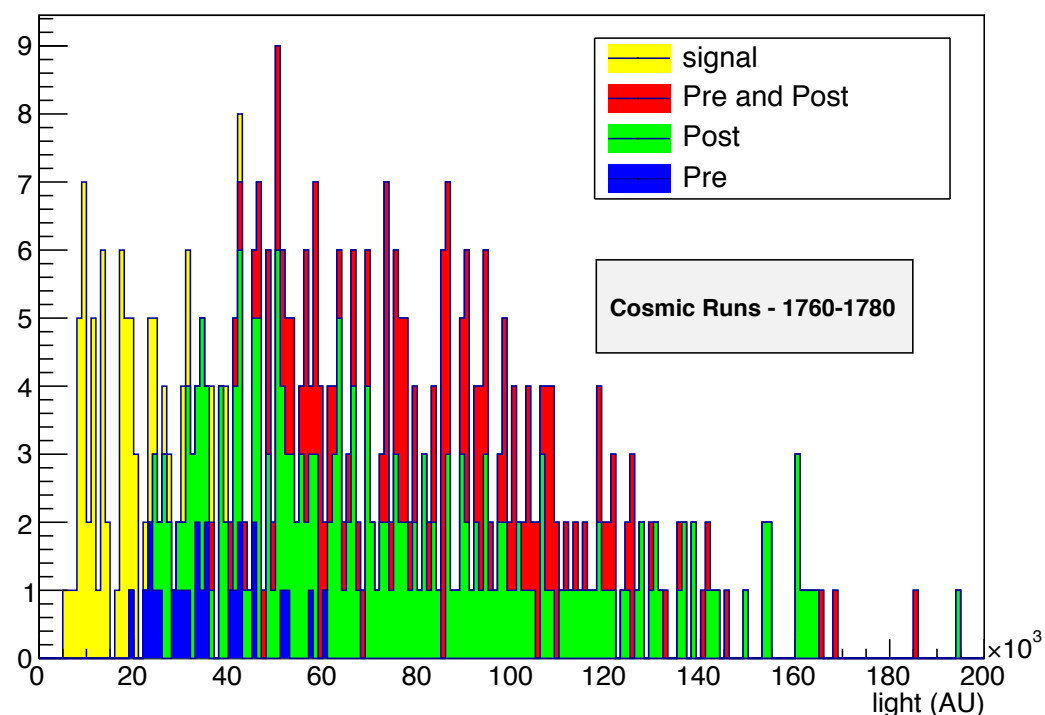
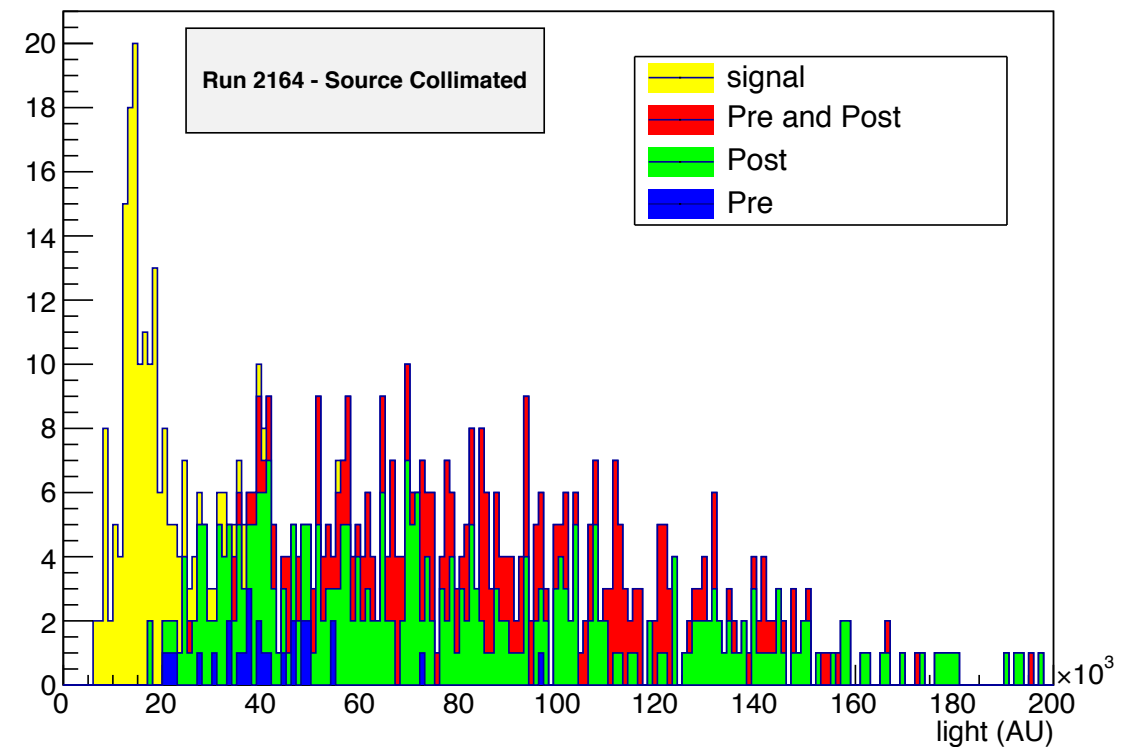
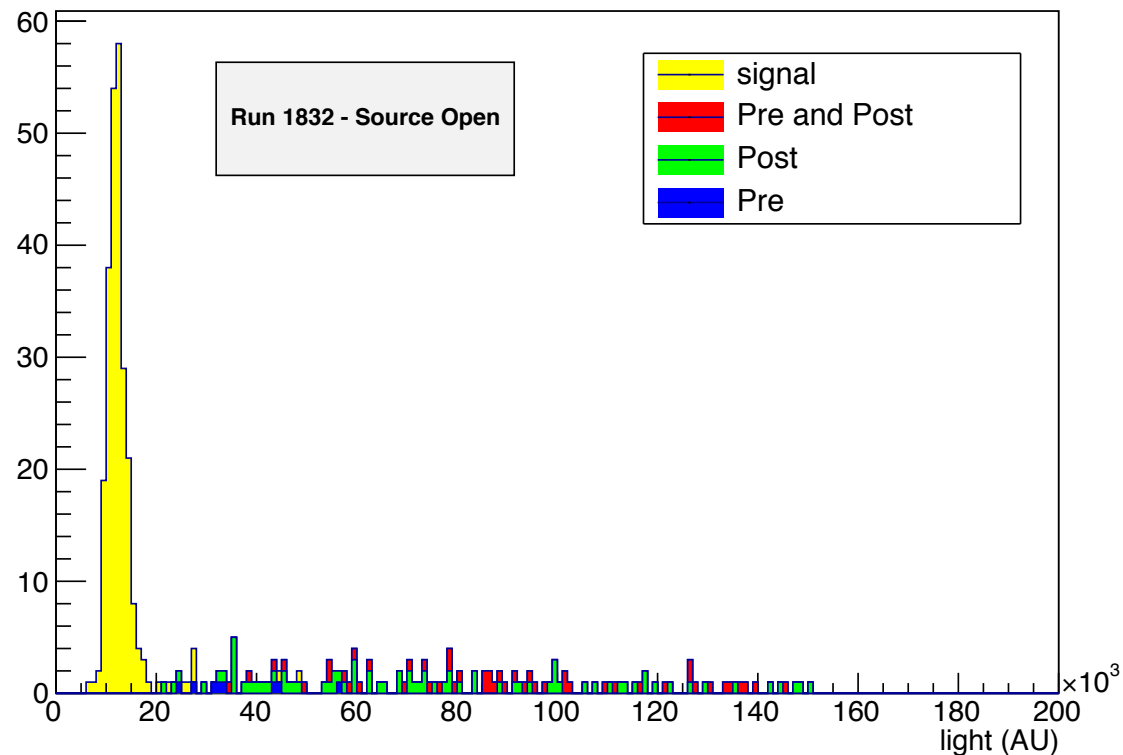


Peak time and voltage



- **Signal Region** events are mainly due to Iron
- **Other region** events span at higher peak voltages
 - Cosmics
 - Radioactivity
- **Open Source Run:** about **60 %** of signal region events
- **Collimated source Run:** about **25 %** of signal region ev
- **Cosmic Run:** about **12 %** of signal region events

Integrated light



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Conclusions

- Preliminary results on analysis of PMT waveforms
- Events selected on the base of waveform activity in different time regions
- Work in progress
 - Selection criteria to be tuned
 - Quantitative Summary of statistics
 - To run on neutrons and on more Cosmics