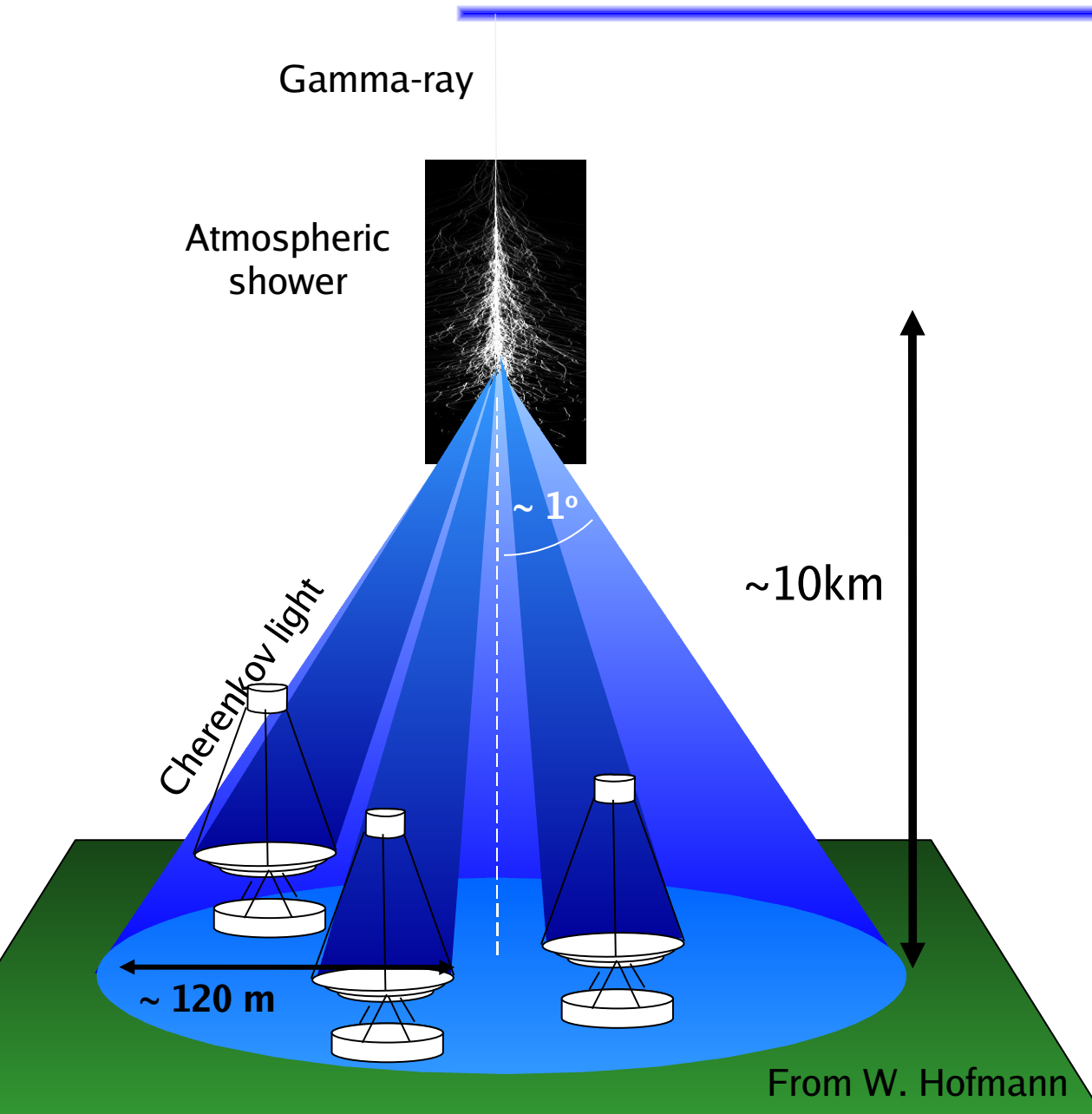




Run Quality and Run Selection

B. Khélifi

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IN2P3/CNRS



- 1) Atmospheric quality
 - Stability
 - Absolute transparency
- 2) Telescope accuracy
 - Pointing accuracy
- 3) Camera
 - Working channels
 - Individual trigger rate
- 4) Array trigger rate

Main variables

- Telescope trigger rate
- Central trigger rate
- Number of “broken pixels” (temporary non-usable pixels)

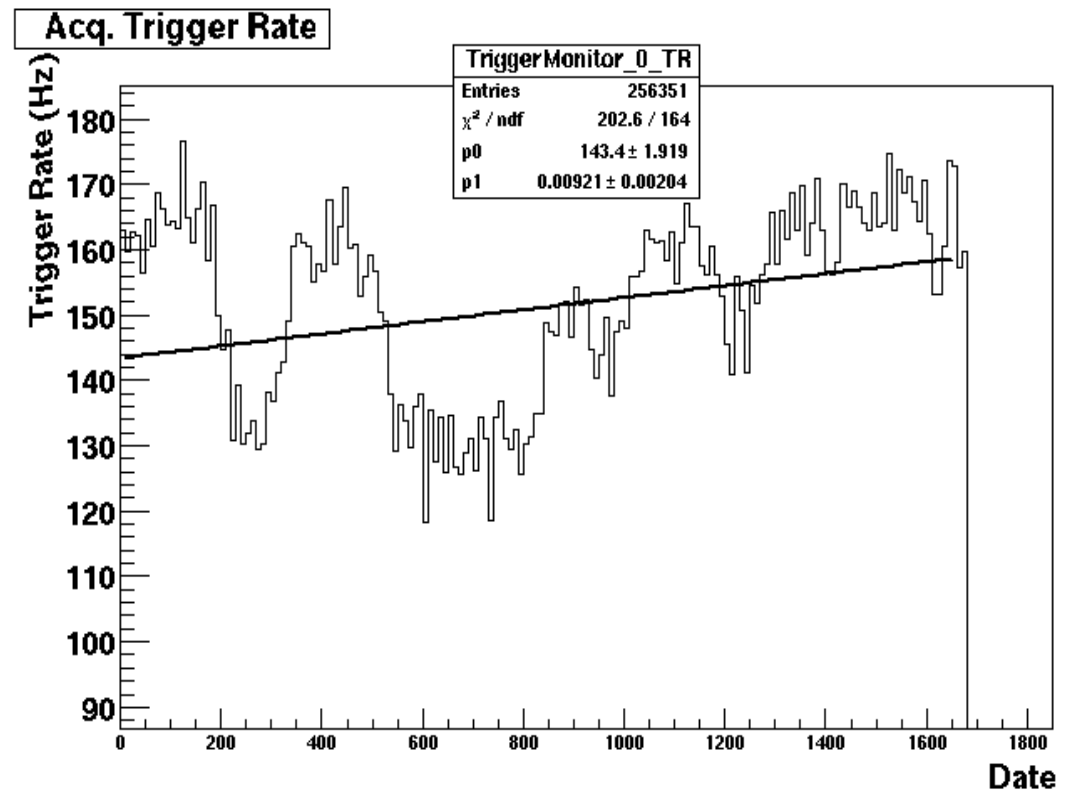
Secondary (optional) variables

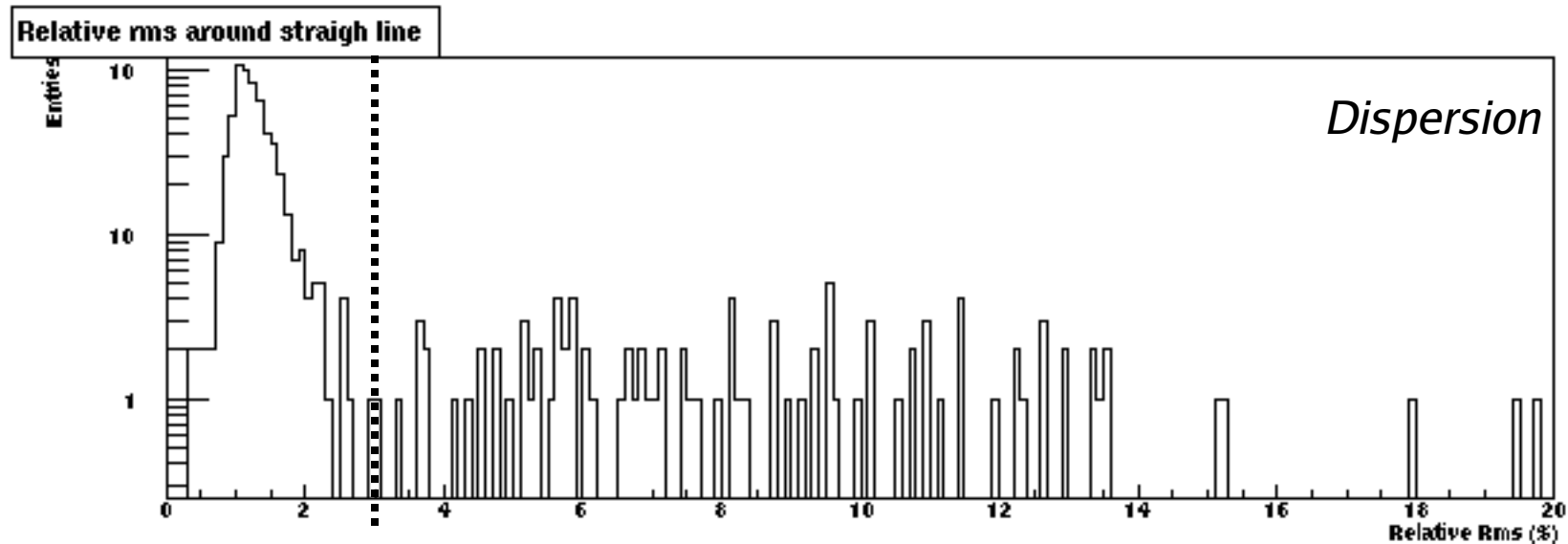
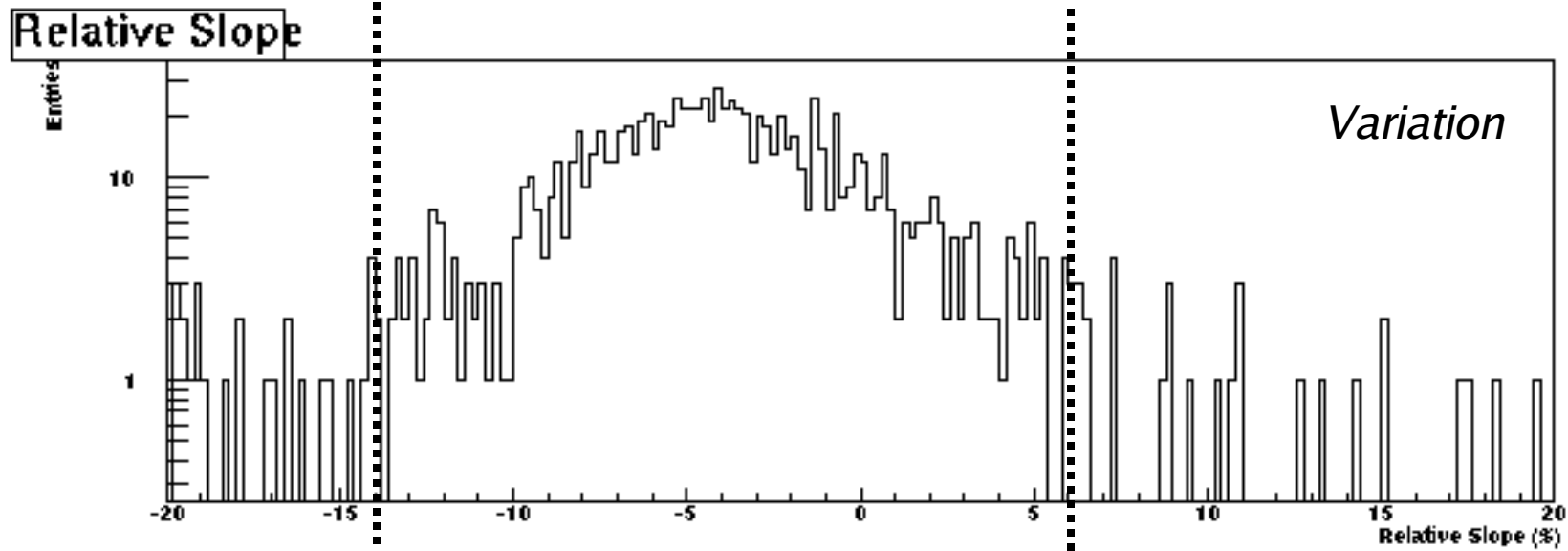
- Dead time fraction
- Tracking accuracy
- Data from radiometers, LIDAR, weather station
- Level of night sky background (NSB)

Stability of the trigger rate per run

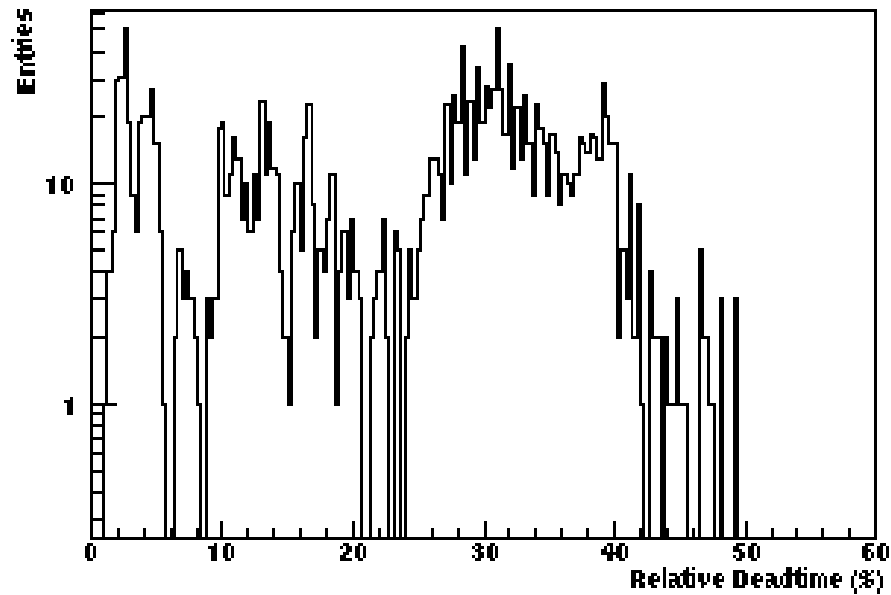
Straight line fit on:

- Acquisition rate
- “True” rate
- Relative slope or *Variation*:
 $p1 / \langle \text{rate} \rangle * 100$.
- *Dispersion*:
RMS around this line

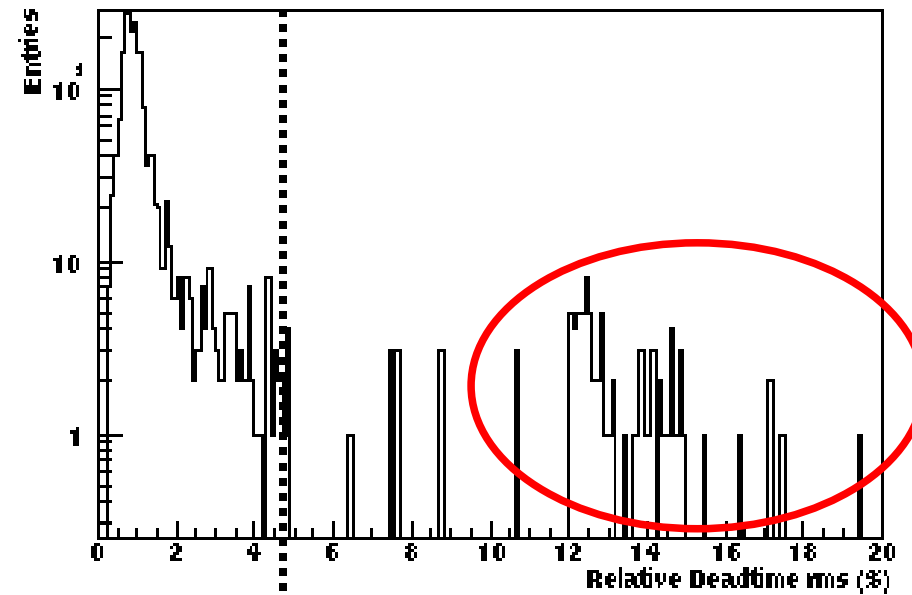




Relative Dead Time



Relative Dead Time rms



Mean value of the trigger rate

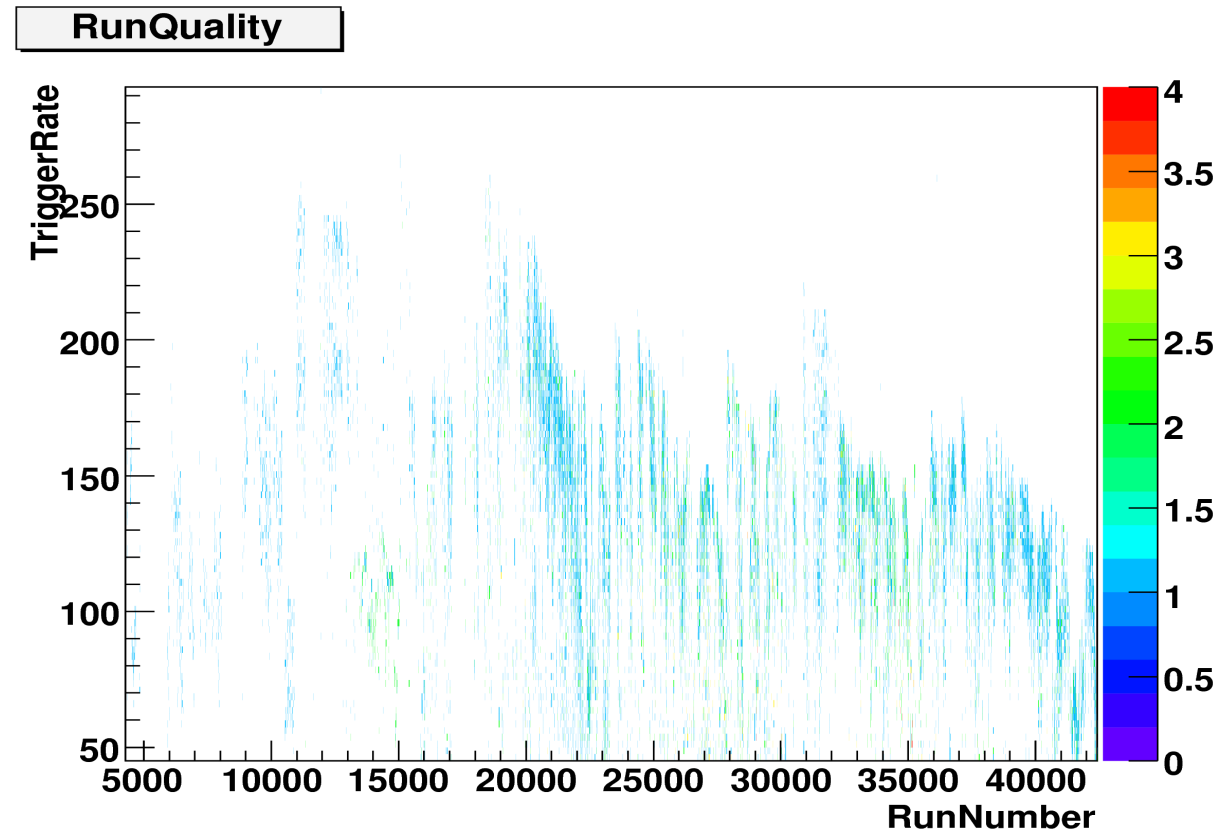
Dependency with:

- Dead time
- Zenith angle
- Time (ageing, PMT gain)

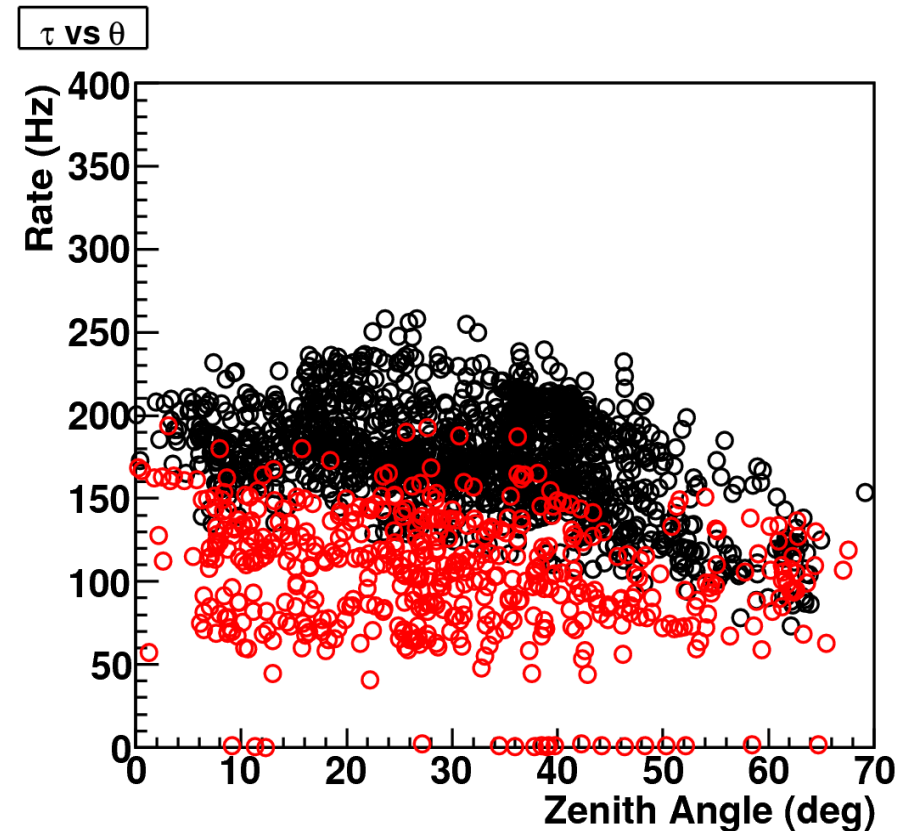
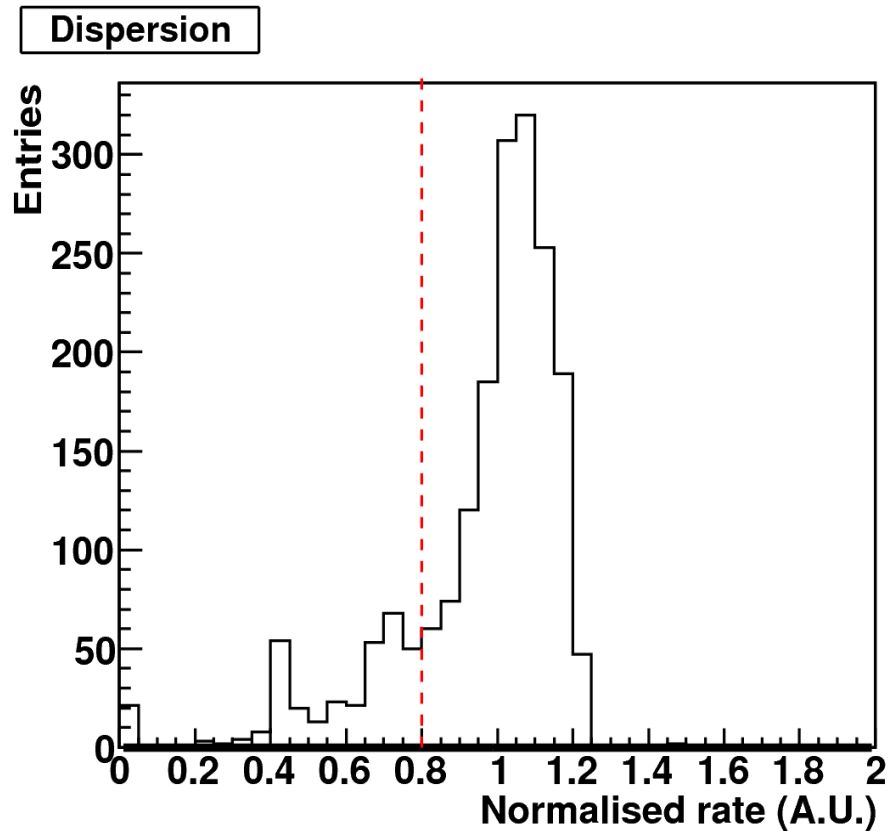
⇒ Needed to be “corrected”

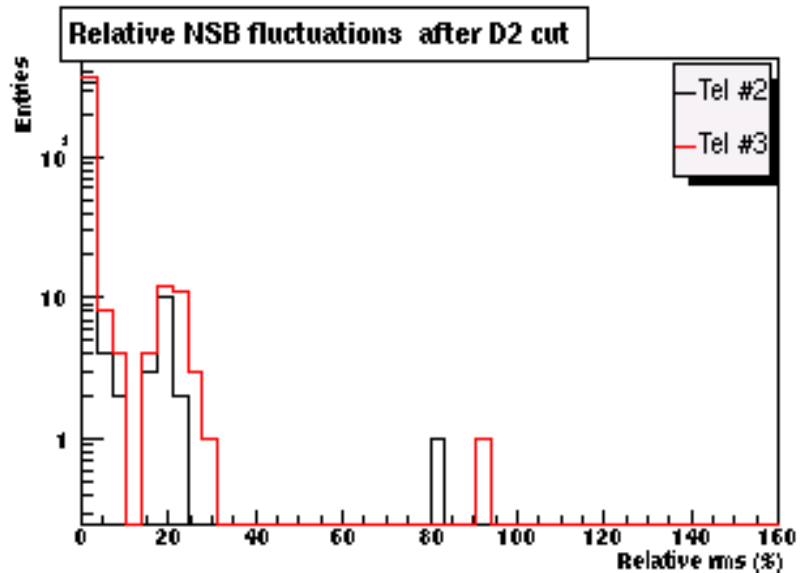
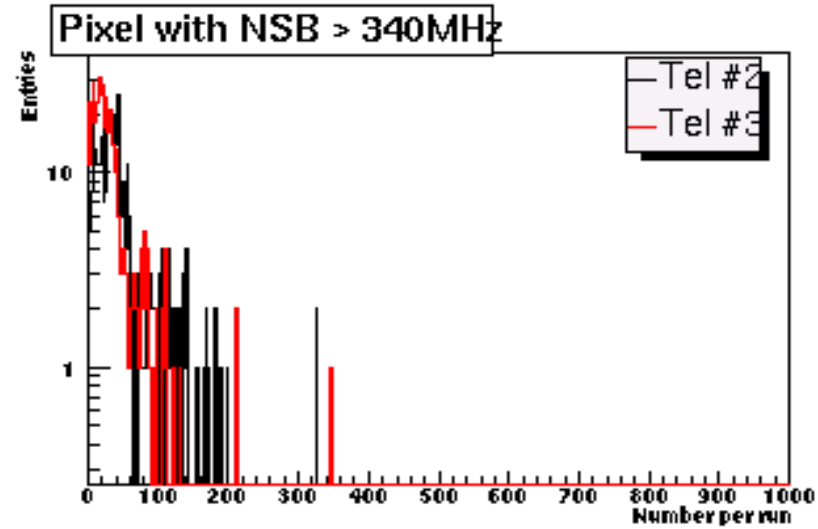
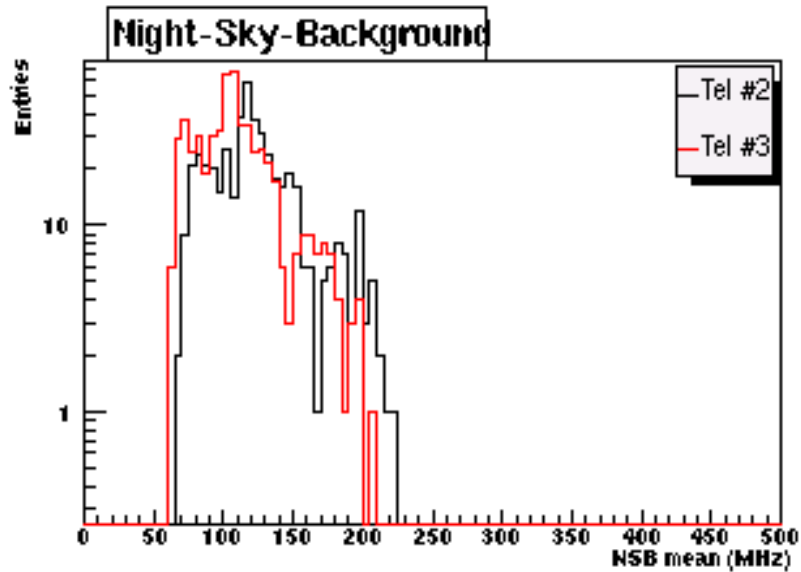
- Meteo issues
- Hardware issues (trigger, cameras, ...)

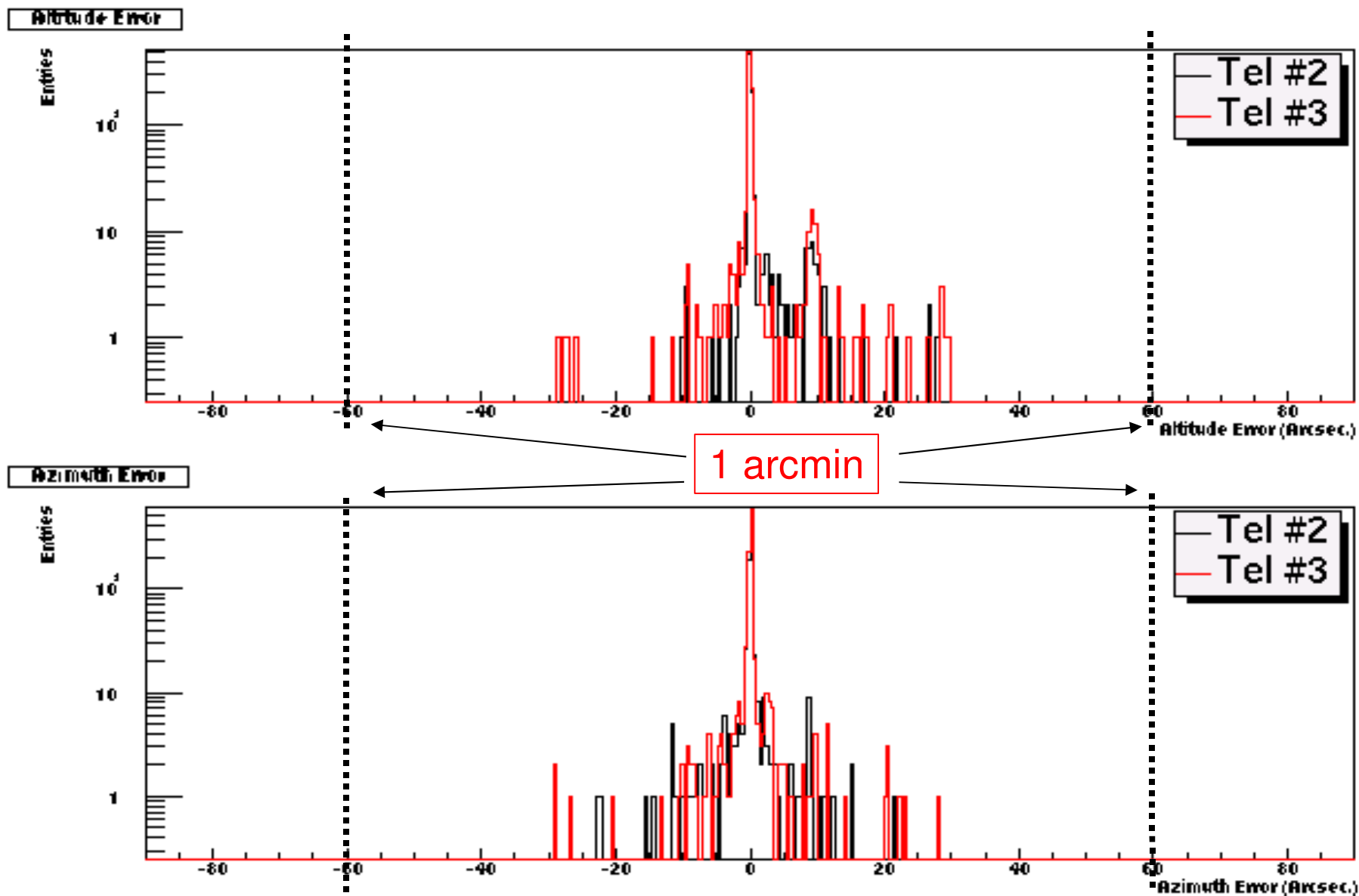
⇒ There have to be identified



- An example of selection:

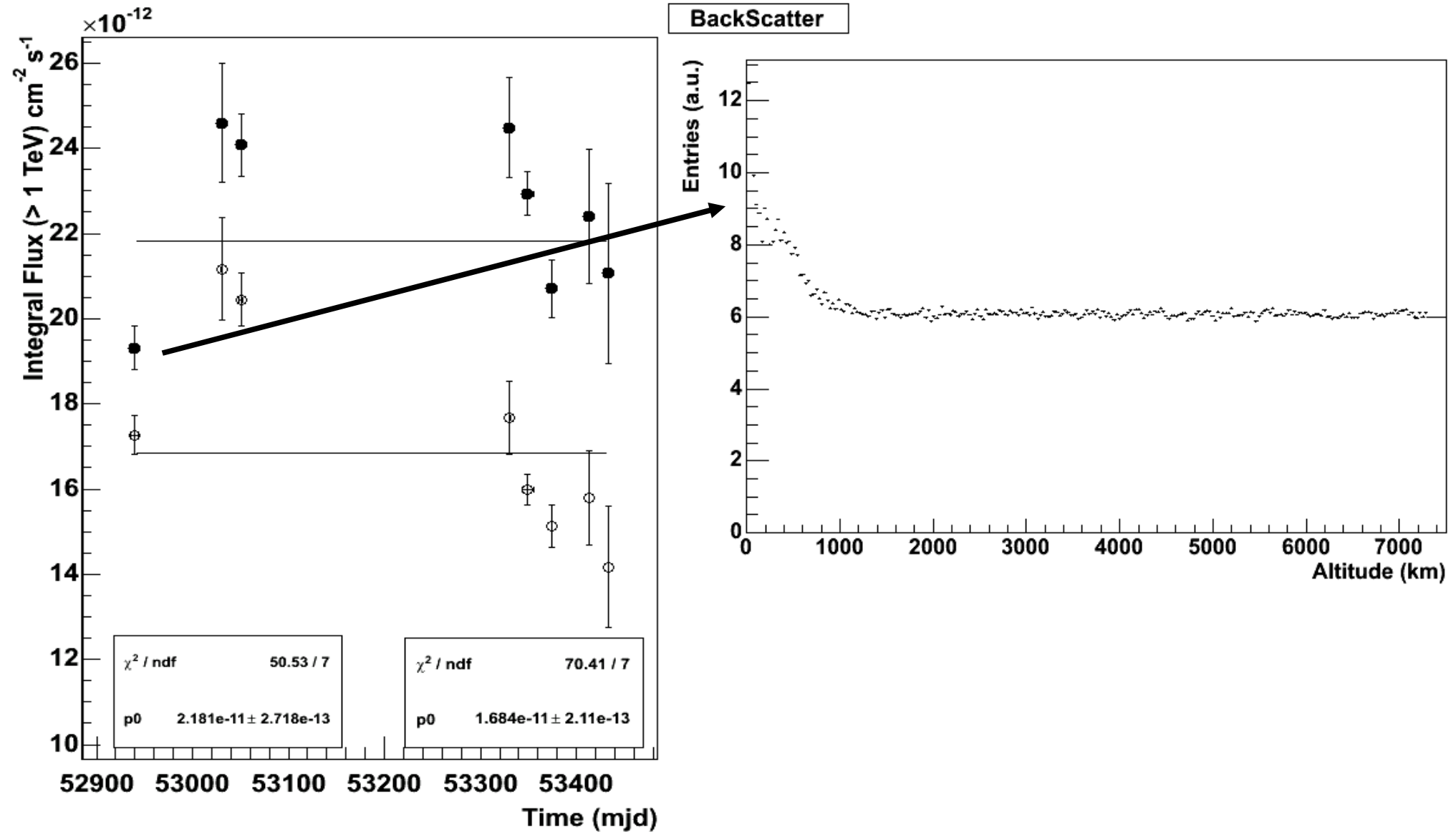


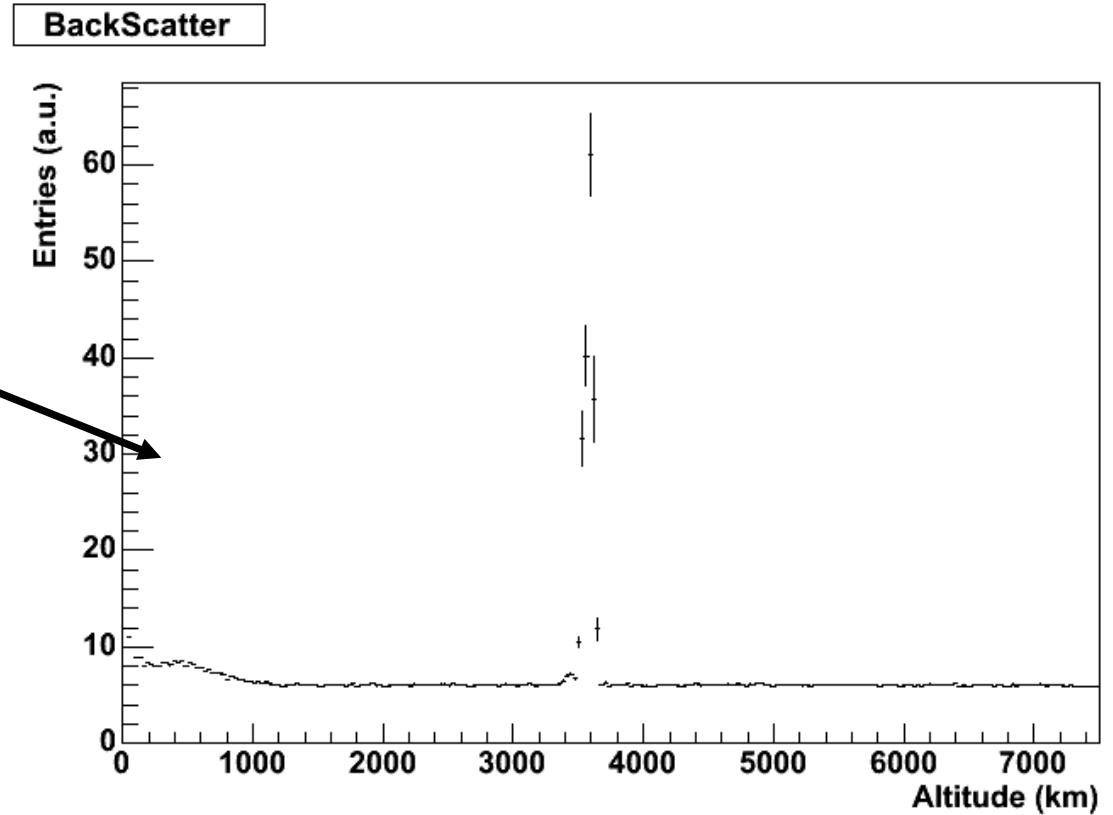
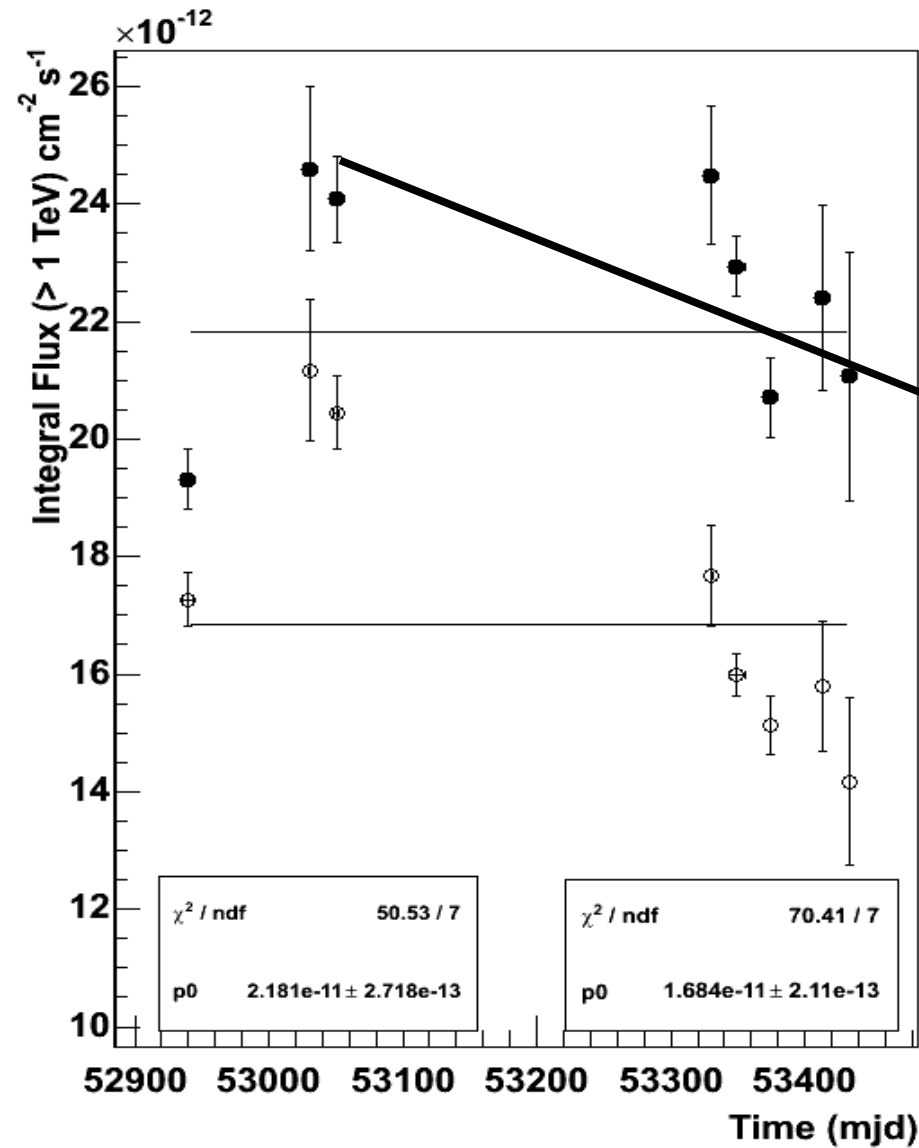


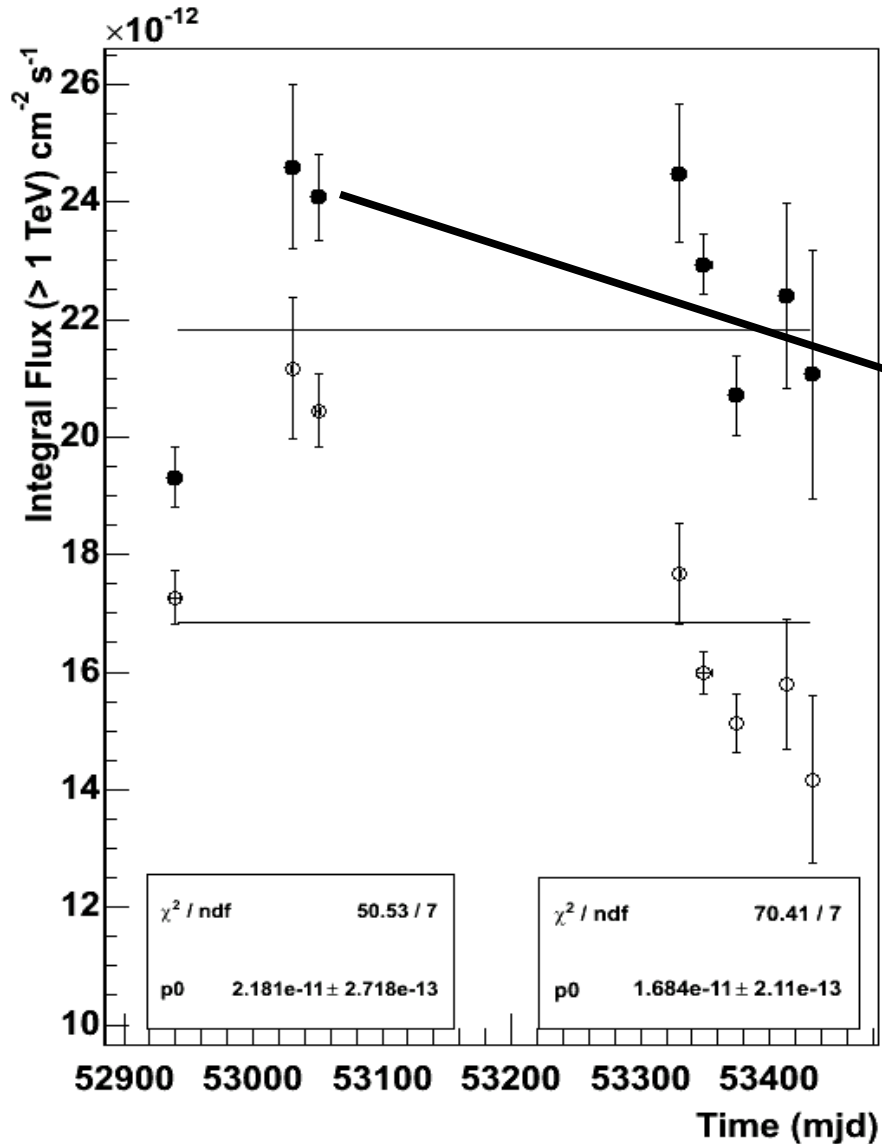


Use of meteo data (humidity, LIDAR, IR radiometer) is difficult

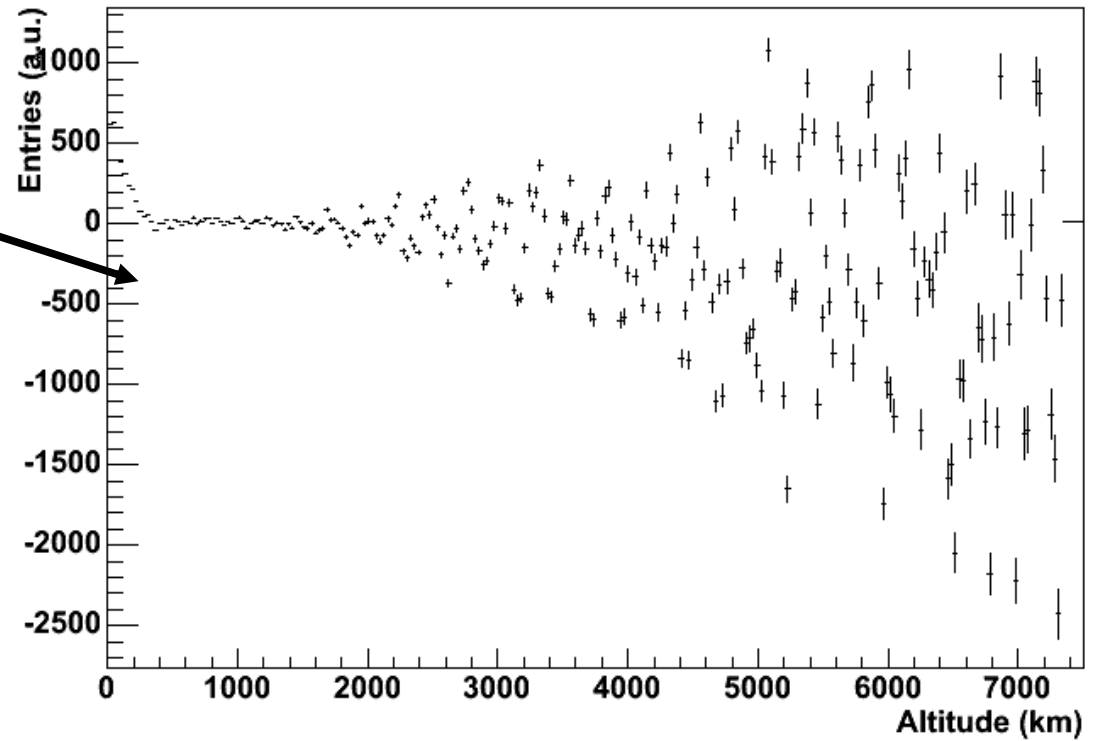
- No clear correlation between the current meteo data and the trigger rate after the “obvious” cuts on the trigger stability
- No clear correlation between the current meteo data and the integral flux variations
 - Ex: Light curve of the Crab

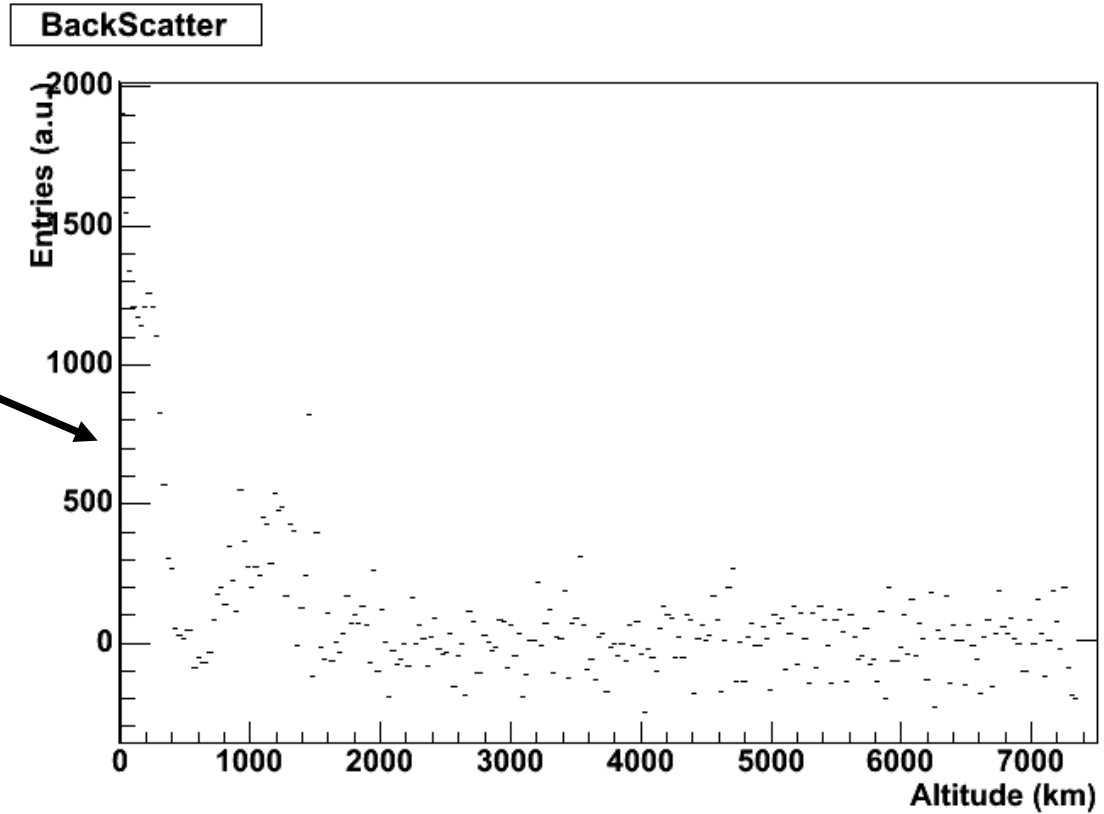
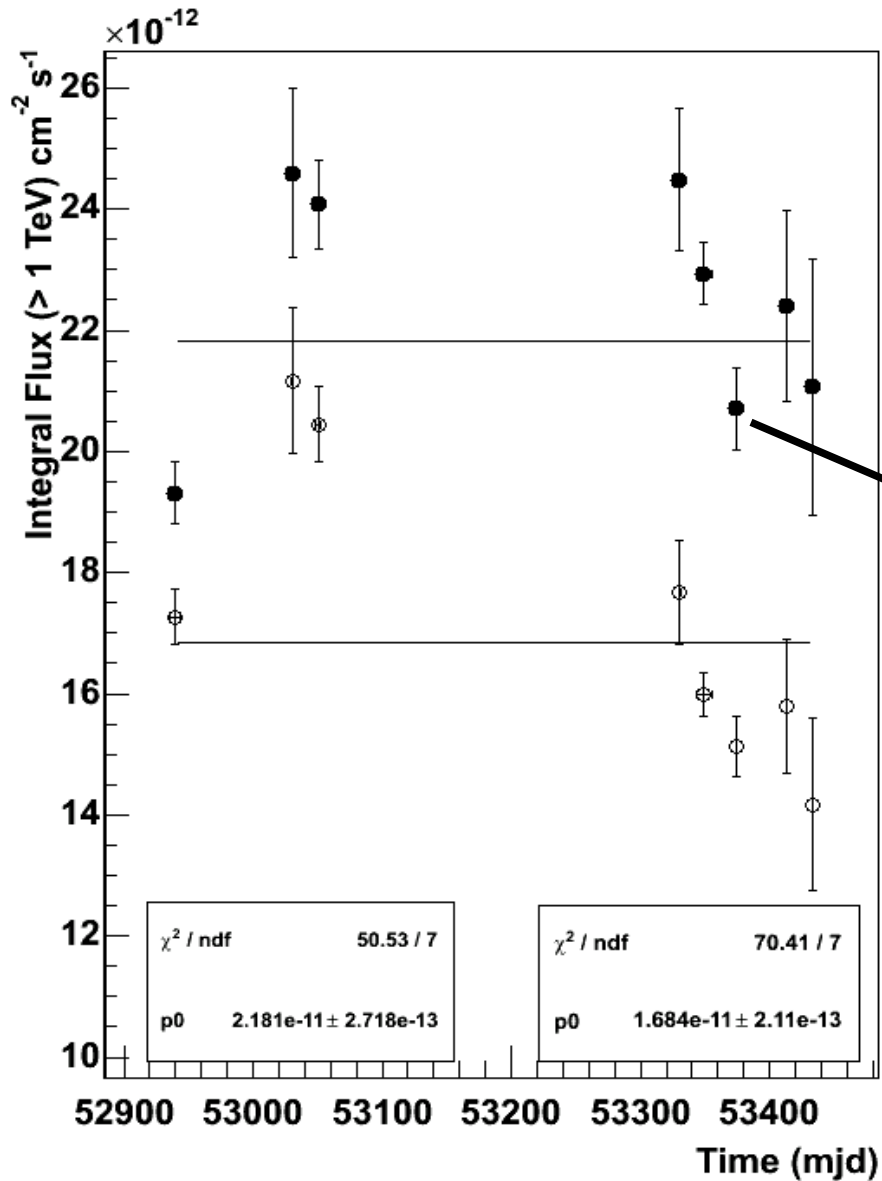


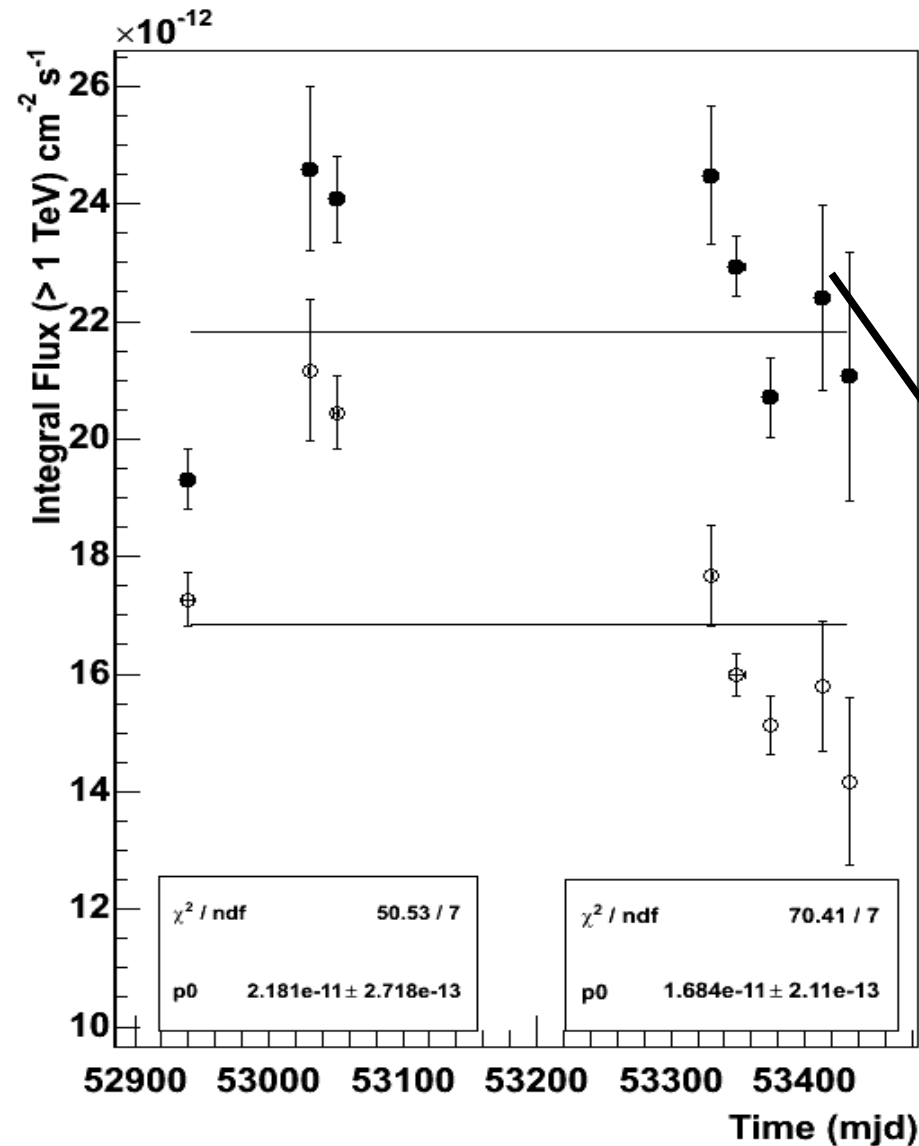




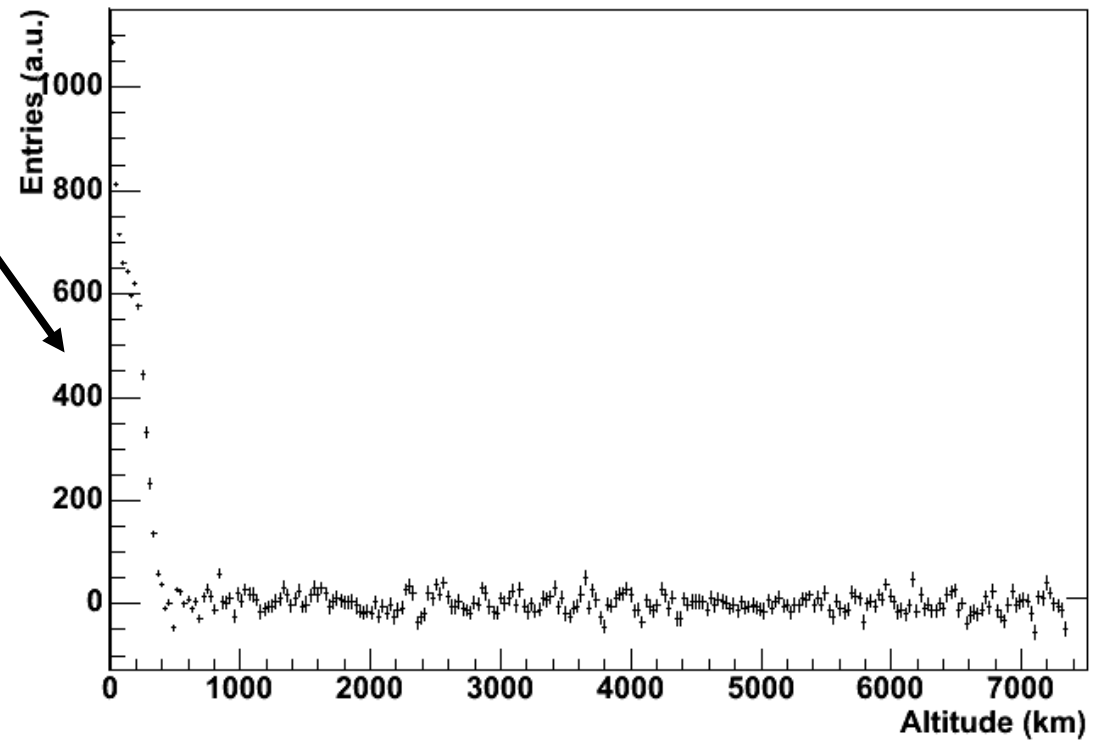
BackScatter





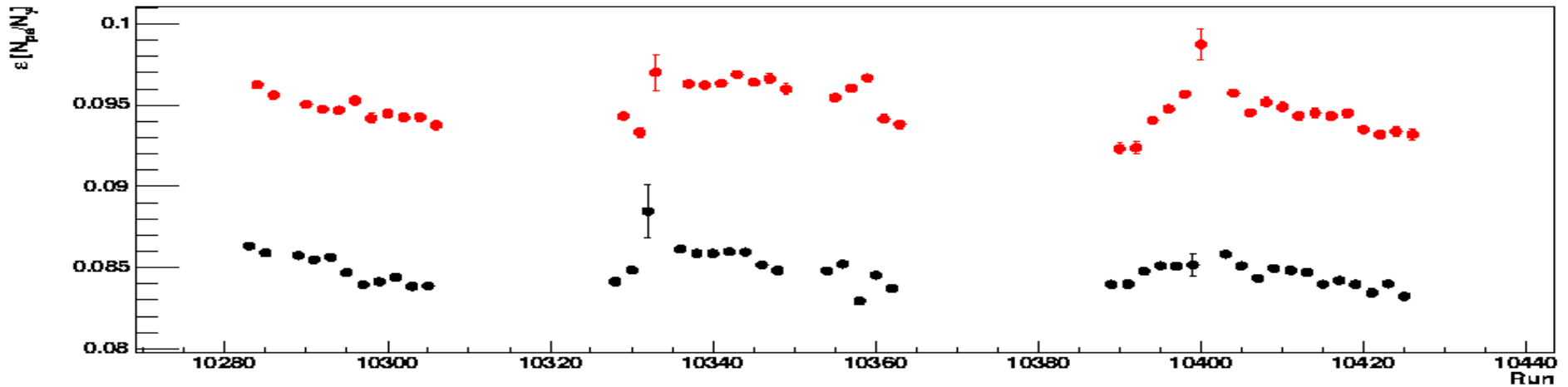


BackScatter

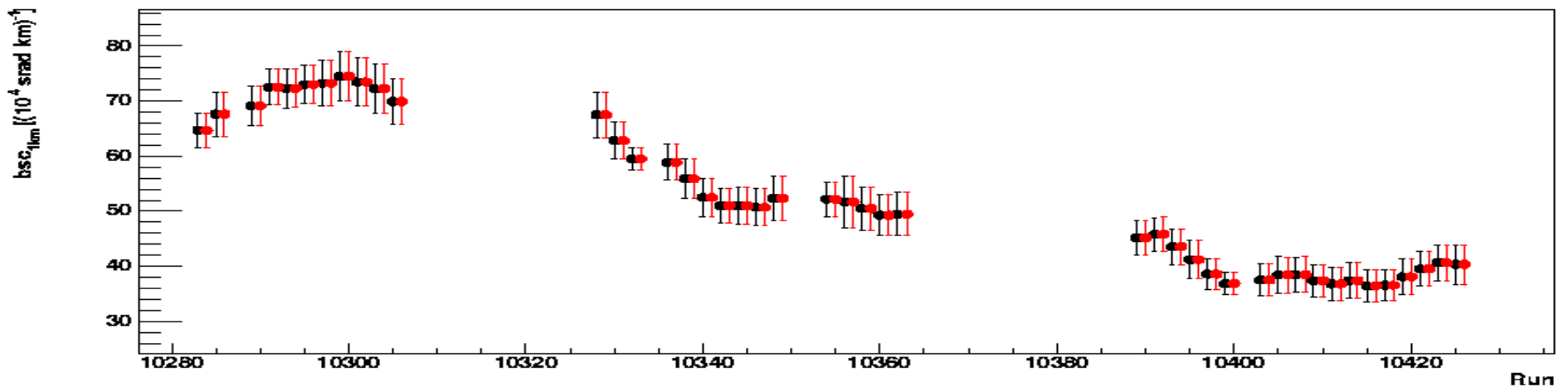


- LIDAR data: backscatter vs Muon efficiency

Efficiency vs Runnumber



Low Backscatter Mean vs Runnumber



- Main criteria are well identified and well known
- Three (four?) methods for the run selection:
 - APC (contact: Emma De Ona-Wilhelmi)
 - Berlin ??
 - Heidelberg (contact: Karl Kosack – to check)
 - Jussieu (contact: Mathieu de Naurois)



Jussieu interface



Windows taskbar: s Raccourcis Système ^Djl 13176.790 800 MHz

Run ID	Date	Time	Duration	Scan Type	RA	Dec	RA Off	Dec Off	RA Err	Dec Err	Filter
31577	2006-04-30	02:24:08	28 mn	Galactic Scan	266.553	-27.3764	0.0	0.0	1.39983	0.70026	C
31578	2006-04-30	02:54:36	12 mn	Galactic Scan	267.793	-28.2696	0.0	0.0	1.19983	-0.699739	C
31579	2006-04-30	03:00:13	28 mn	Galactic Scan	266.318	-27.7170	0.0	0.0	0.00026	0.70026	C

Run Statistics | TelTrigger | SystemTrigger | Tracking | Sky View | Deadtime | Meteo | Calibration | Trigger Plane Dev

File Zoom Options Fit

Number of selected runs : 94

Run properties | Trigger | Tracking | Meteo | Calibration | Trigger Plane Dev.

Telescope selection
 Activated
Minimum number: 4
Maximum number: 4

Run duration
 Activated
Minimum duration (mn): 5
Maximum duration (mn): 100

Run number
 Activated
Minimum run number: 30000
Maximum run number: 99999

Target
 Target : Crab Nebula
 RA Offset : 0.0 to: 0.0
 DEC Offset : 0.0 to: 0.0

Position
 Select from position
 RA/Dec Gal. Long/Lat From/To Pos/Dist
 RA : 266.416458333
 Dec : -29.007833333 radius : 2.5

Left sidebar:
Filter from target
Filter from target pos
Remove target filter
Filter selected runs
Remove run list filter
Rerun filters
List Name: Sgr A*
Save list
Export list (ASCII)
Load known run lists
Known List Names:
Load runs from list
(None)
Load runs from file list
Use All Runs
Use A List Of Runs

- Main criteria are well identified and well known
- Three (four?) methods for the run selection:
 - APC (contact: Emma De Ona-Wilhelmi)
 - Berlin ??
 - Heidelberg (contact: Karl Kosack – to check)
 - Jussieu (contact: Mathieu de Naurois)
- However, the meteo informations seem to be not sufficient to reduce our systematic errors on flux measurement