First G-APD Cherenkov Telescope

2 poster-presentations:

Status and Experience from Four Years of Operation with SiPMs in an IACT camera

Blazar Monitoring at TeV Energies

Daniela Dorner for the FACT Collaboration
presented by Roland Walter

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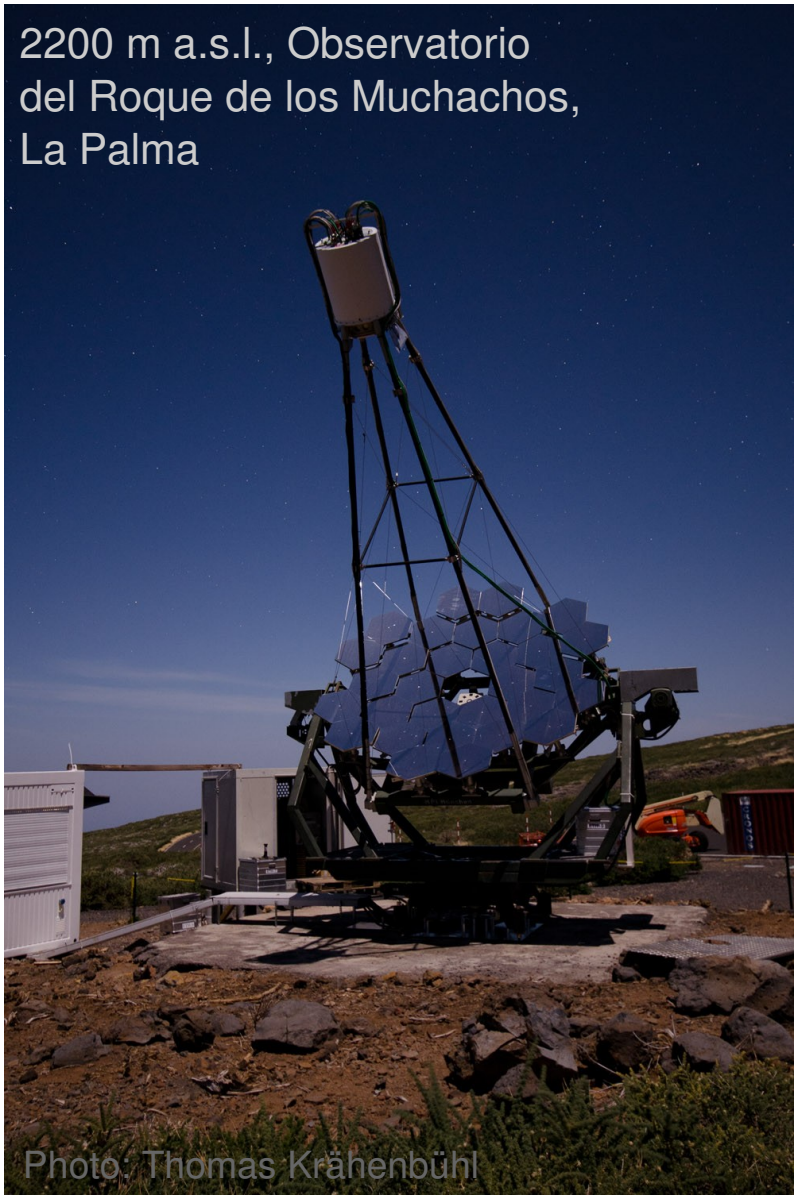
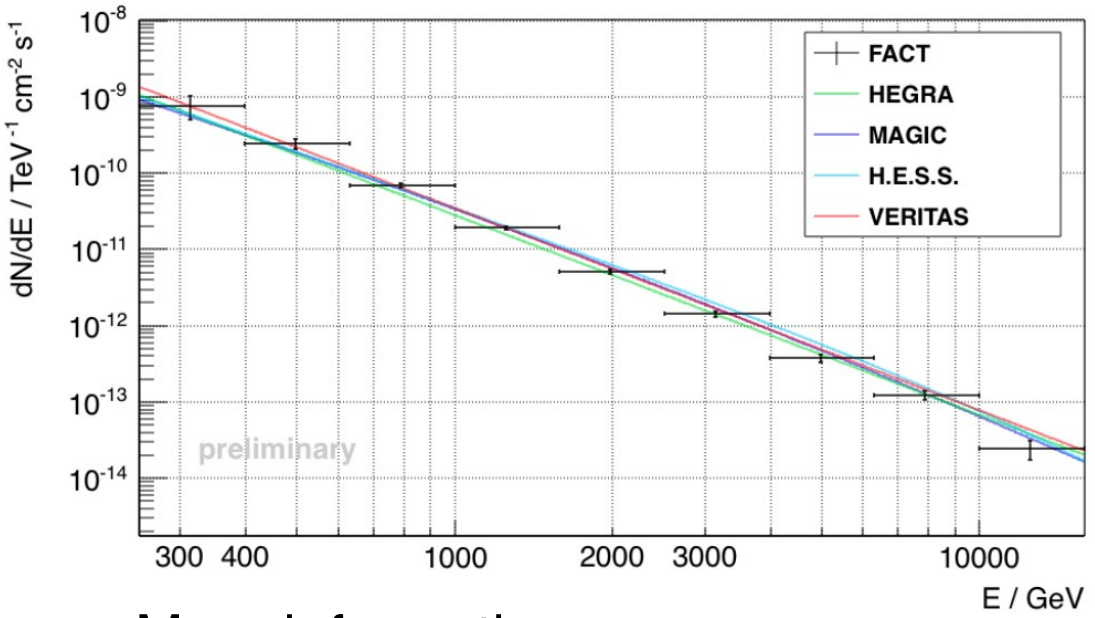
First G-APD Cherenkov Telescope



- Operational since Oct 2011
- 9.5 m² mirror area
- 4.5° FoV, 1440 pixels à 0.11°
- Energy range: 300 GeV – 10 TeV

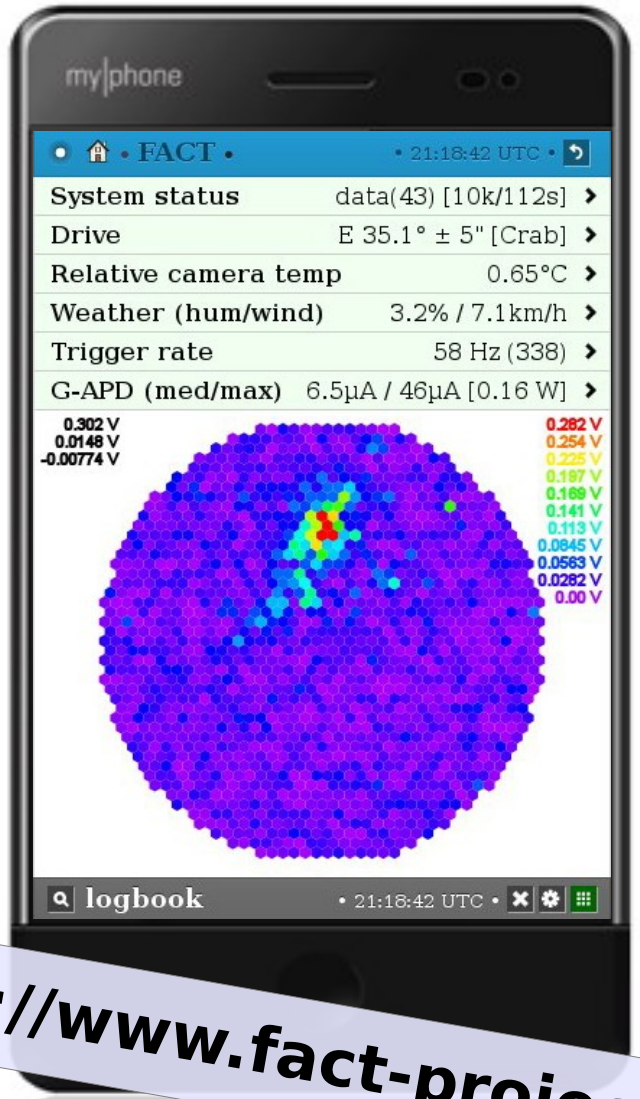


F. Temme et al. (FACT Collaboration), ICRC 2015

- More information

H Anderhub et al 2013 JINST 8 P06008
A Biland et al 2014 JINST 9 P10012

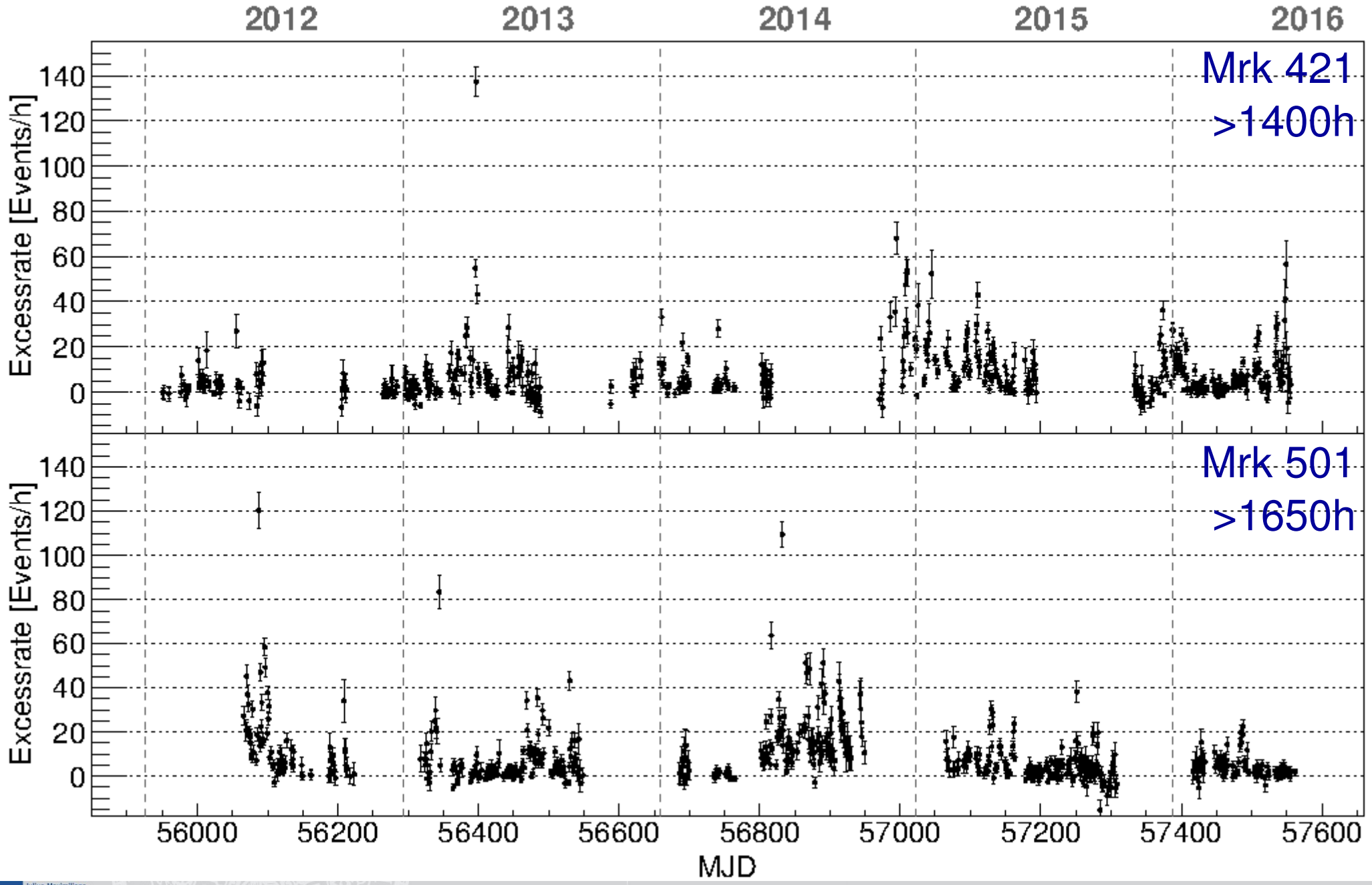
FACT – Ideal Monitoring Telescope



http://www.fact-project.org/smartfact

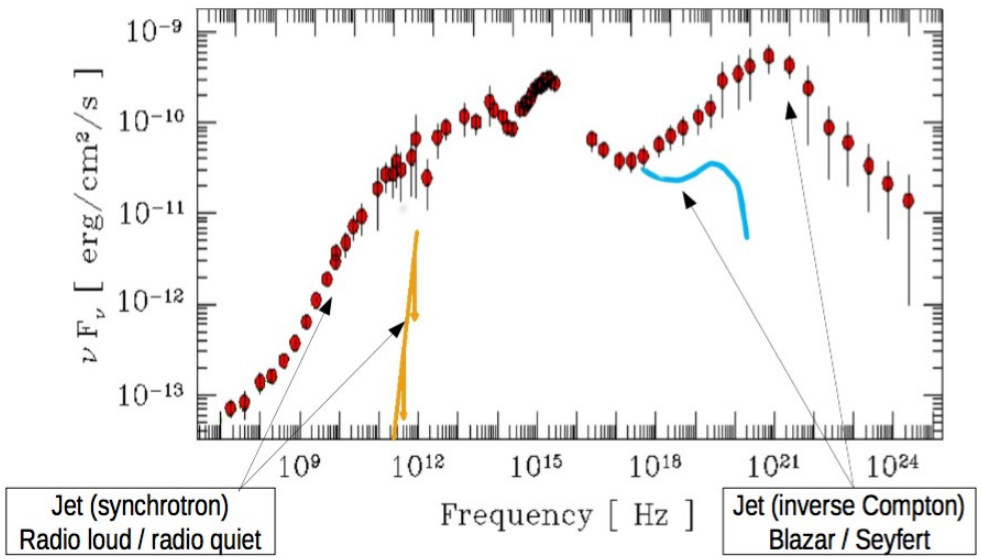
- Camera with SiPMs:
  robust and stable
  → Stable telescope performance
  → Remote and automatic operation
  → High data taking efficiency
- Gain of SiPMs does not degrade when exposed to bright light
  → Observations during strong moon light possible
  → Larger duty cycle
  → More complete data sample

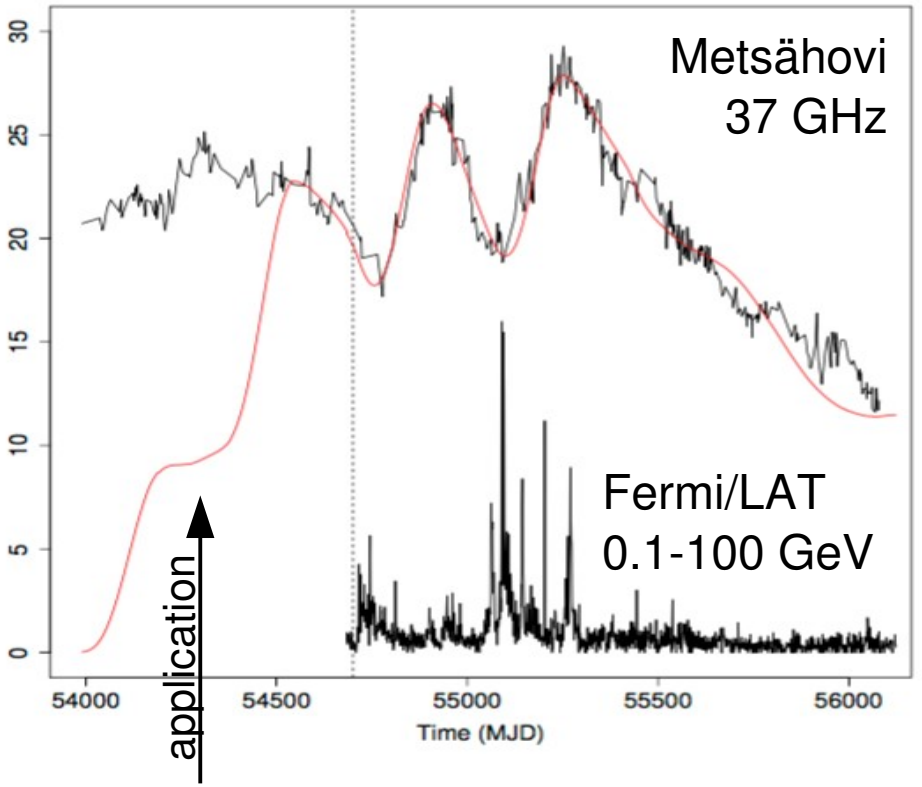
Long-term Monitoring

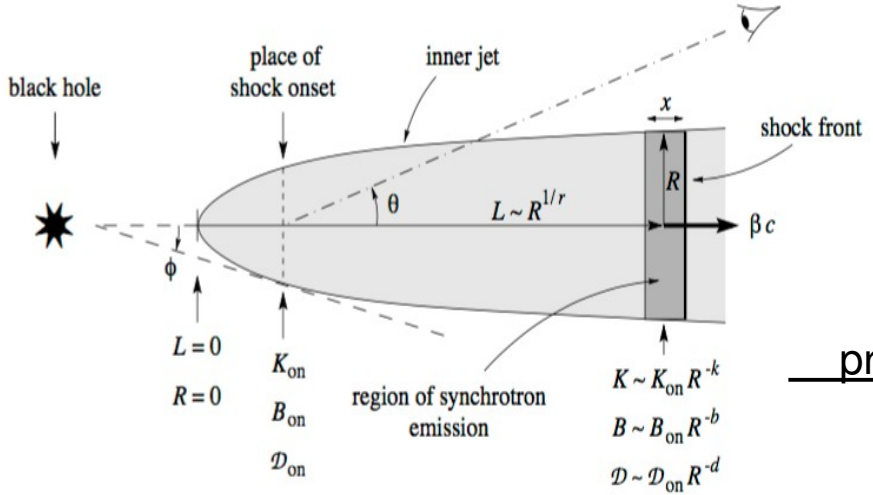


Continuous gamma-ray lightcurves

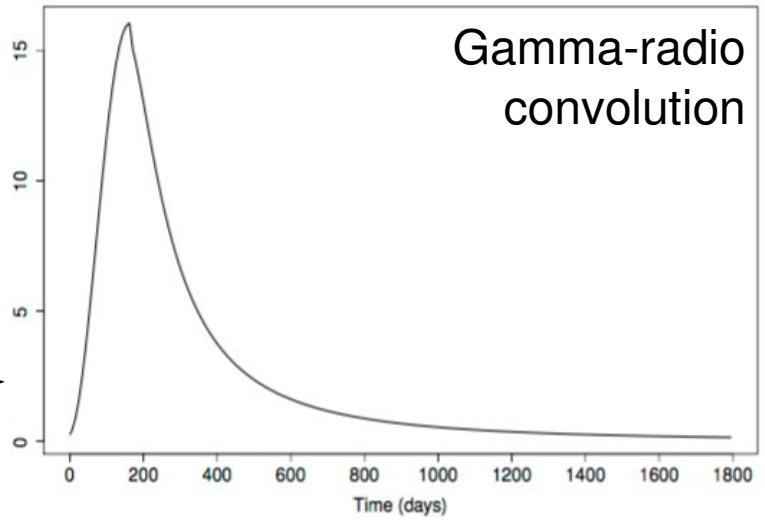
3C 273







prediction



Esposito, RW et al, 2015, A&A 576, 122

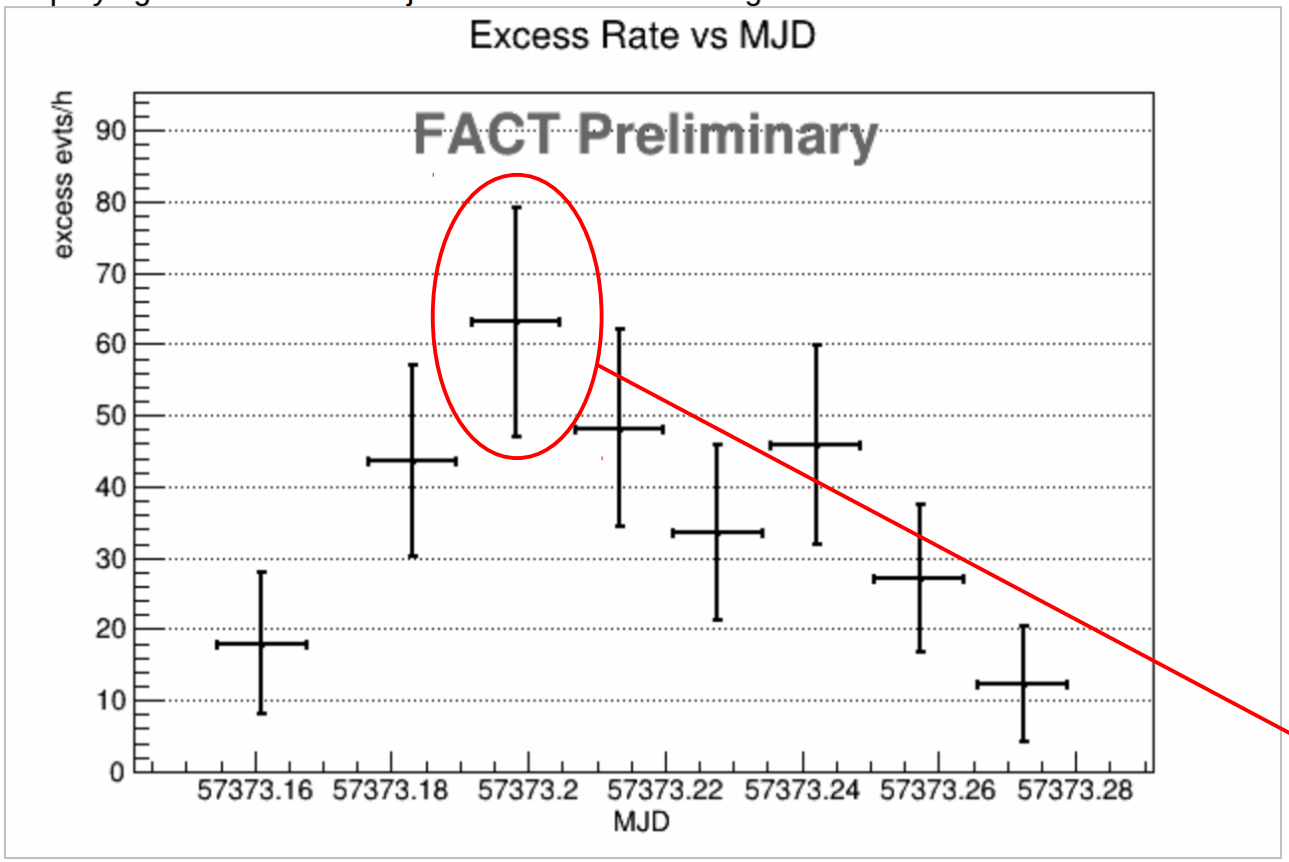
Flare Alerts – Example Dec. 2015

http://www.fact-project.org/monitoring

FACT Quick Look Analysis

Select date 2015 : 12 : 16 : source Mrk 421 :
Select time binning 20min : and range night : Reset

Displaying 'excess rate vs mjd' for Mrk 421 for the night 2015/12/16.

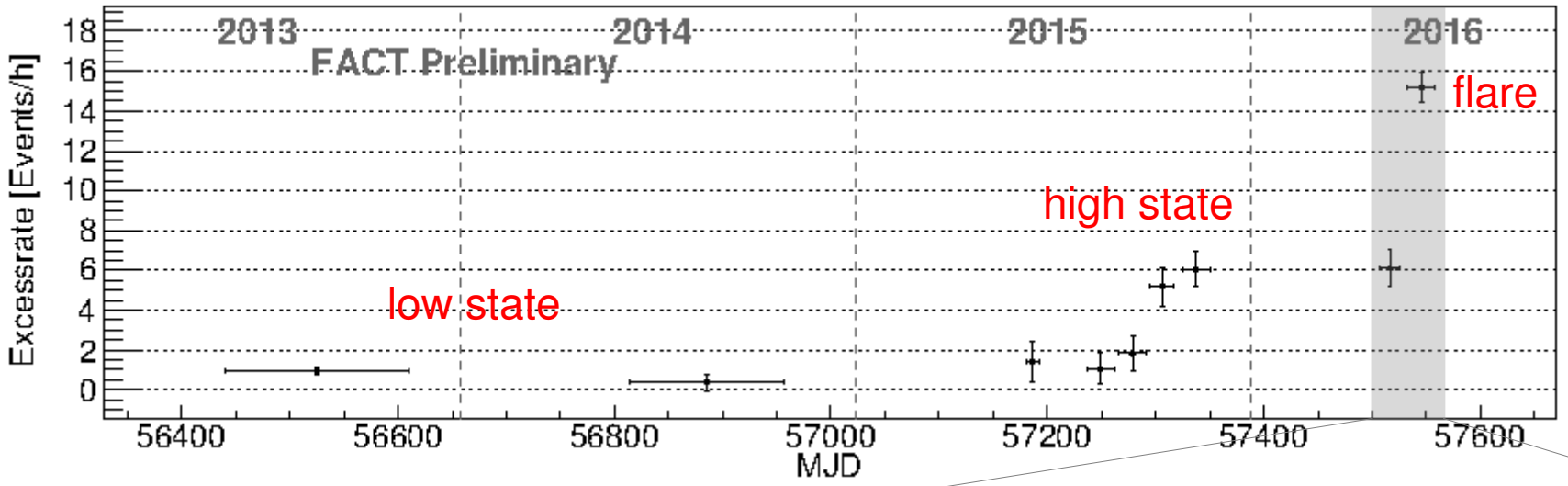


Quick Look Analysis
Immediate processing onsite
Results **publicly available**

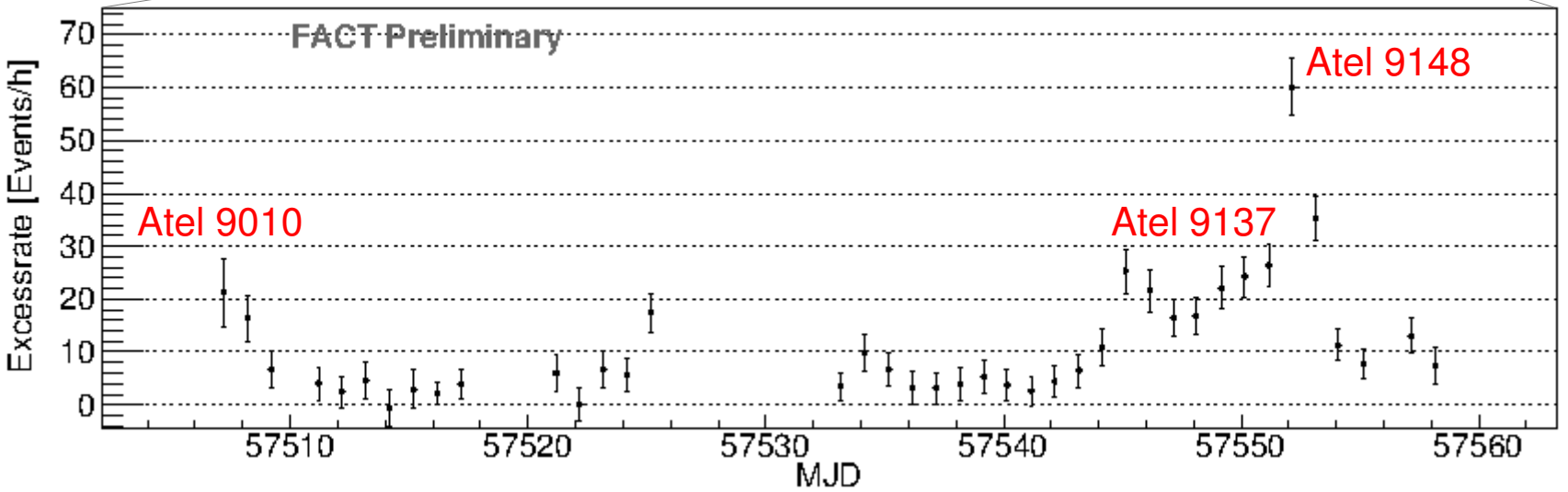
→ **24 flare alerts** sent to the community since March 2014
→ **4 Atels** in 2016
1ES 1959+650:
#9010, #9139, #9148
Mrk 421: #9137

ToO campaign with
INTEGRAL and *Swift*
→ Mrk 421: Trigger in Dec 2015

Recent Flare of 1ES 1959+650



Long-term Behaviour



Recent Activity
28.4.-18.6.2016