# DC2 summary

| | | |
|---|---|---|
| 09:30 | **Jean Ballet** | Catalog pipeline (**ppt,pdf**) |
| 10:00 | **Vincent Loujon** | DC2 source identification with gtsrcid (**ppt,pdf**) |
| 10:15 | **Carlotta Pittori** | ASDC catalog results (**ppt,pdf**) |
| 10:30 | **Break** | |

**Session II Chair: Seth Digel**

| | | |
|---|---|---|
| 10:50 | **Tom Stephens** | source detection (**ppt,pdf**) |
| 11:05 | **Gino Tosti** | Source detection with Perugia wavelet code (**ppt,pdf**) |
| 11:20 | **Jean-Marc Casandjian** | 2D likelihood for source detection (**ppt,pdf**) |
| 11:35 | **Jean Ballet** | Optimam filter method for source detection (**ppt,pdf**) |
| 11:50 | **Giuseppe Romeo** | Source detection using Voronoi tesselation (**ppt,pdf**) |
| 12:05 | **Toby Burnett** | UW source finder and fast likelihood (**ppt,pdf**) |
| 12:30 | **Lunch** | |

**Session III AGN Studies       Chair: David Davis**

| | | |
|---|---|---|
| 14:00 | **Benoit Lott** | AGN lightcurves (**ppt,pdf**) |
| 14:15 | **Tosti/Ciprini** | Aperture photometry and time series analysis of selected Blazars (**ppt,pdf**) |
| 14:30 | **Rita Sambruna** | Study of the region around 3C 279 (**ppt,pdf**) |
| 14:45 | **Sara Cutini/Dario Gasparrini** | ASDC blazar spectral analysis (**ppt,pdf**) |
| 15:00 | **Luis Reyes** | EBL attenuation of DC2 sources (**pdf**) |
| 15:15 | **Jennifer Carson** | EBL attenuation of DC2 sources (**ppt,pdf**) |
| 15:30 | **Break** | **Afternoon Coffee** |

**Session IV   GRB Analysis Results       Chair: Valerie Connaughton**

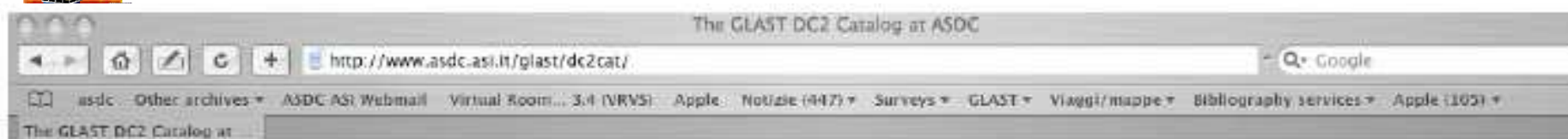| | | |
|---|---|---|
| 16:00 | **Nukri Komin** | Combined spectral analysis of GRB /blind search (**pdf**) |
| 16:15 | **David Band** | Burst localiation, likelihood fits, binned blind search for bursts (**ppt,pdf**) |
| 16:30 | **Michael Briggs** | Estimating the Systematic Error of the GBM Locations (**pdf**) |
| 16:45 | **Nicola Omodei** | Study of the IRF, sensitivity, raw data analysis (**ppt,pdf**) |
| 17:00 | **Jerry Bonnell** | LAT GRB triger: application to DC2 GRB (**ppt,pdf**) |
| 17:15 | **Fred Kuehn** | Onboard detection of GRB (**pdf**) |
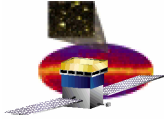
# Comparison with true sources (cont)

- **Preliminary, and using the crude source correspondence definition R = 1°**
- **For most methods, more 'True' sources are found than were in the DC2Cat, and the range of number of true detections is remarkably small (406-443)**
- **The DC2Cat has the lowest number of spurious detections – an expected tradeoff with sensitivity**

| Method | # Sources | True | Spurious |
|--------|-----------|------|----------|
| MRF2 | 644 | 430 | 214 |
| Optimal | 560 | 443 | 117 |
| UW | 1651 | 422 | 1229 |
| BIN | 540 | 406 | 134 |
| VR | 2548 | 129 | 2419 |
| SB | 1463 | 435 | 1028 |
| PGW | 934 | 443 | 491 |
| DC2Cat | 380 | 335 | 45 |
| *DC2Sky* | *1720* | | |

Best values in these columns are in red

Blazar VRVS meeting, June 20, 2006

**STAT CLIK**

FSRQ (84 sources)    Spectral index    BL Lacs (34 sources)
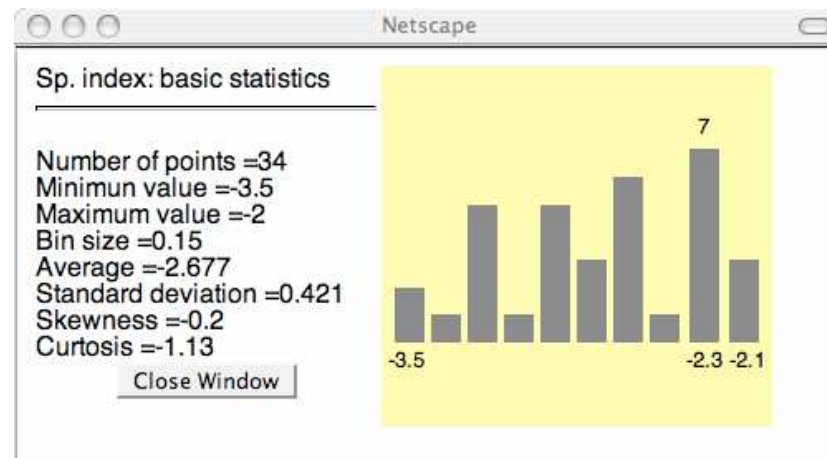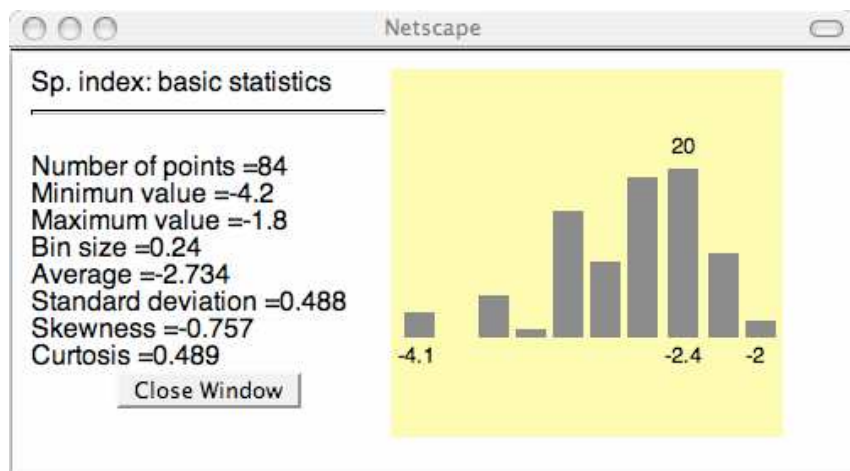
Redshift    (8 BL Lacs with redshift unknown)

Blazar VRVS meeting, June 20, 2006
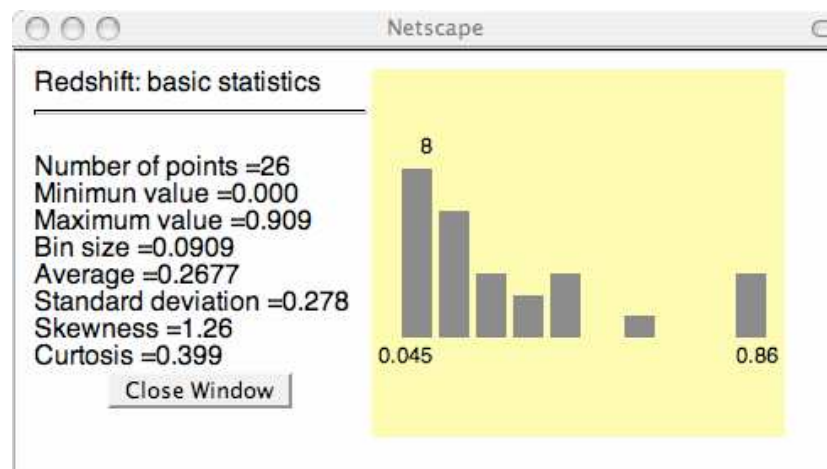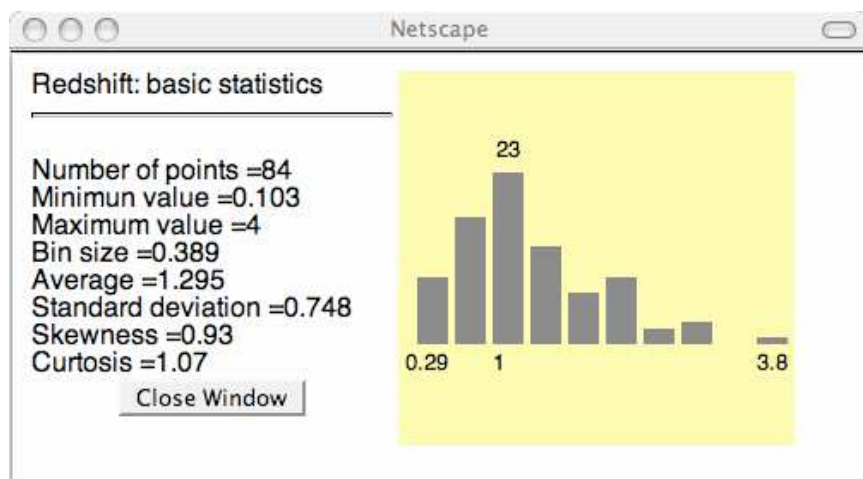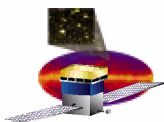
# <span style="color:red">VERY</span> PRELIMINARY: LogN –LogS

## DC2 MRF Source Cat v1
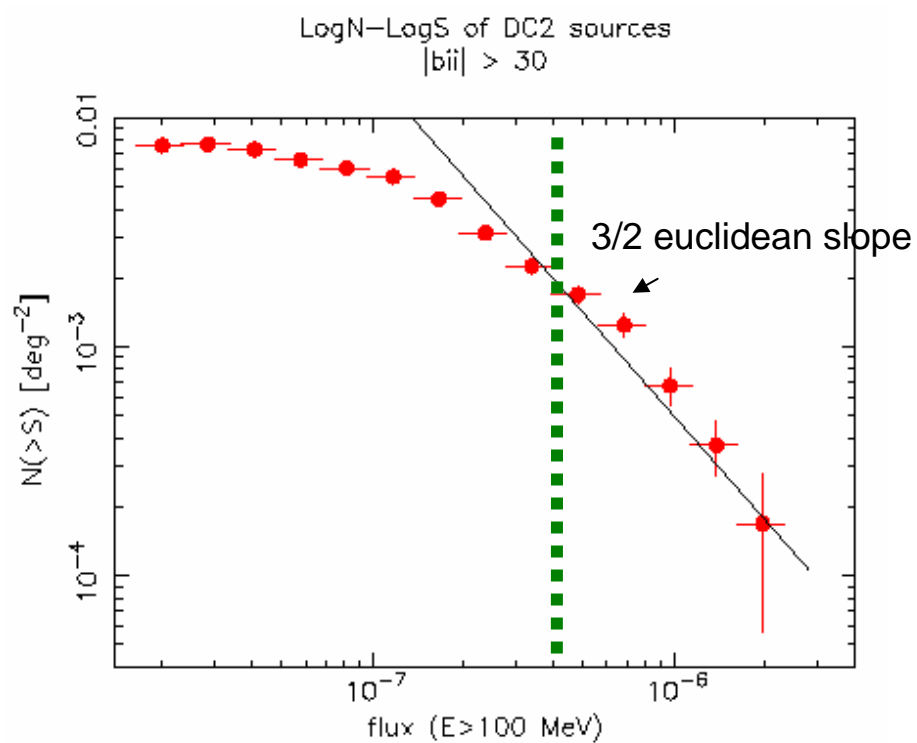
## Wavelet PG Cat



(135 MRF sources bii>30°)
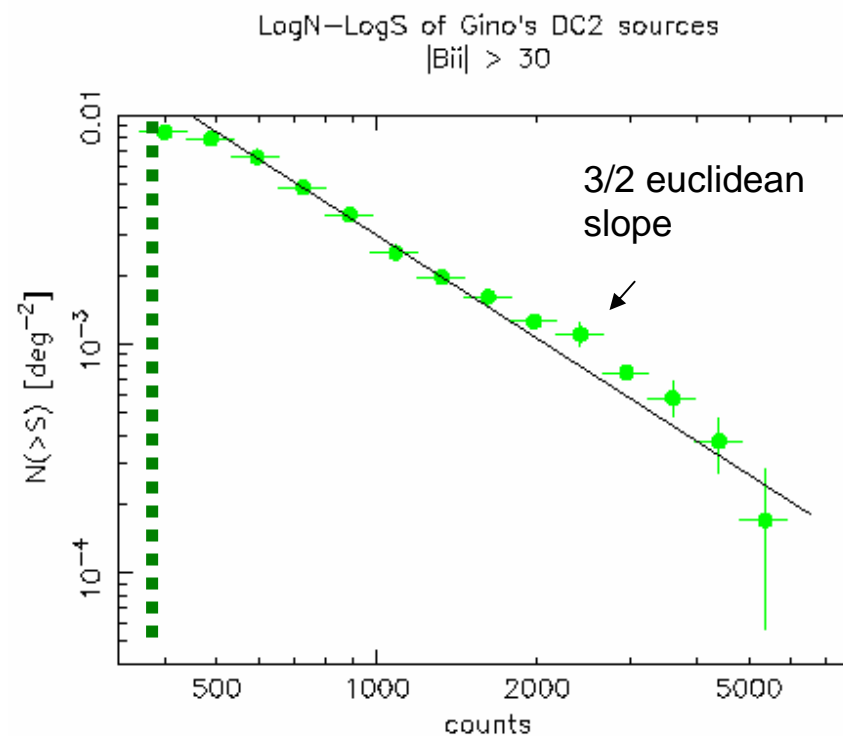
(154 PGW sources bii>30°)
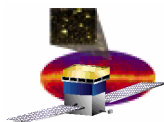
# Variable sources

- – **Requirement: Produce lightcurves for at least 20 bright sources (from the data release plan, these are the sources we will release high level data from in year 1)**

- – **Goal: look at lightcurves for many more sources**



By Benoit Lott

# Variable Sources
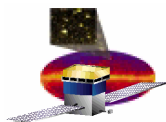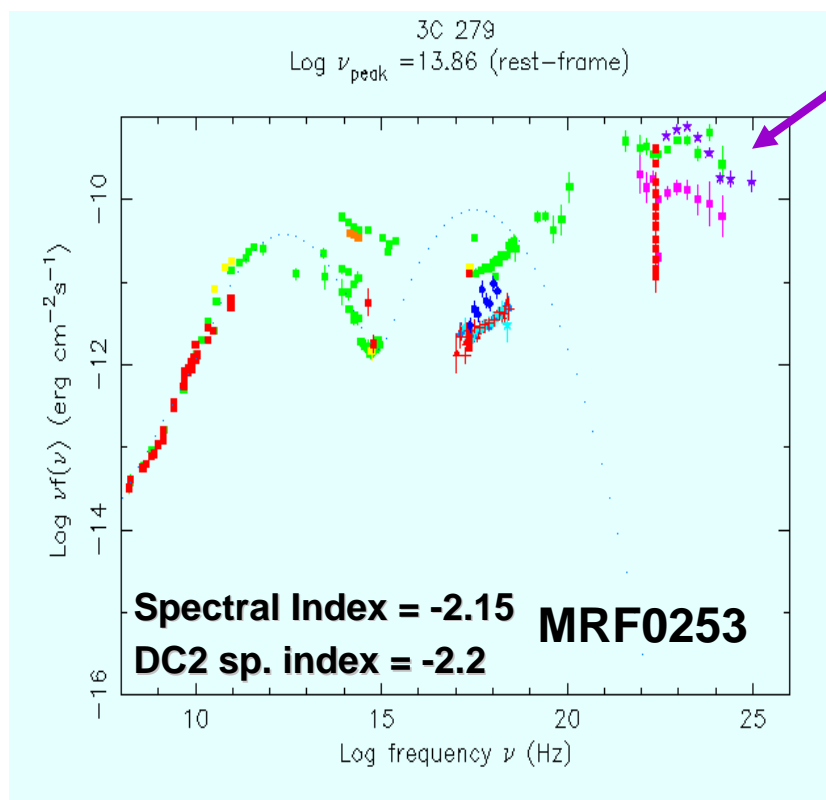


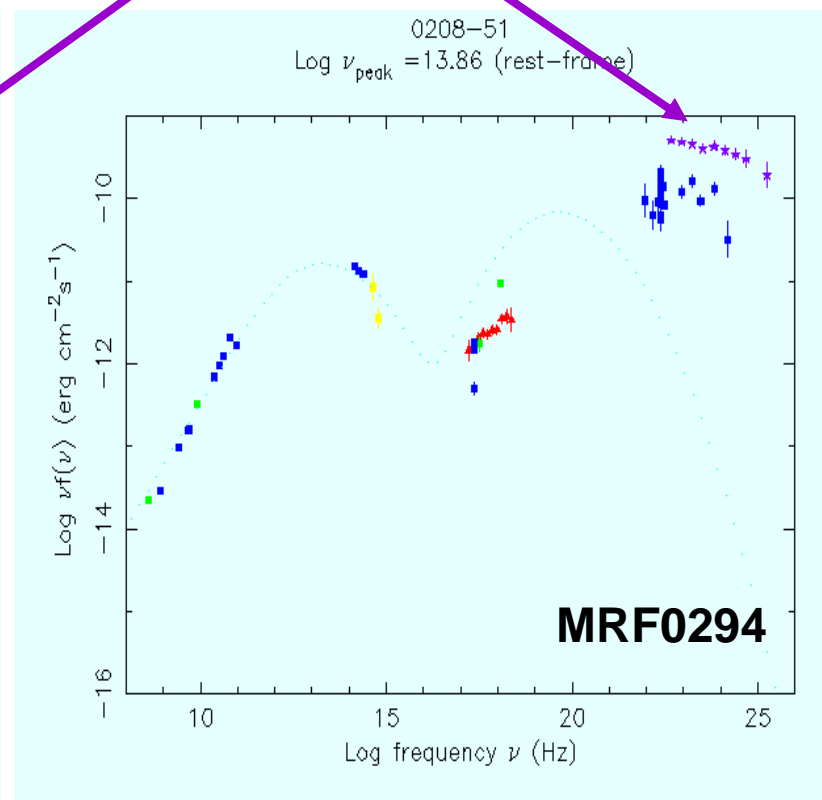Gino Tosti – Taking lightcurves to the next level…

# Spectral Studies

Sara Cutini and Dario Gasparini presented spectral studies
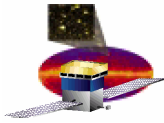of a sample of blazars using xspec.

**Purple stars DC2 data**



**GLAST/MaxEGRET = 0.9**

**GLAST/MaxEGRET = 1.9**

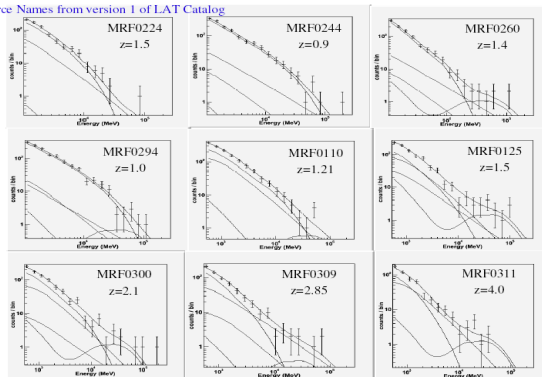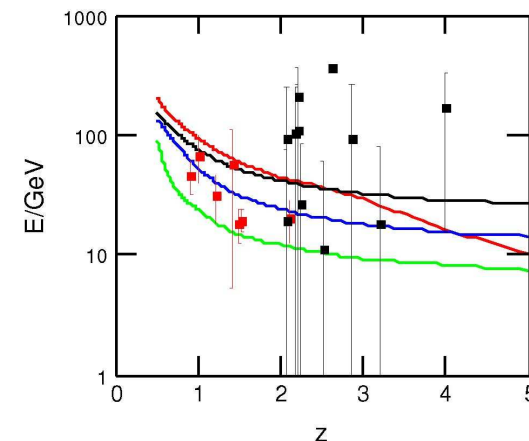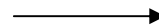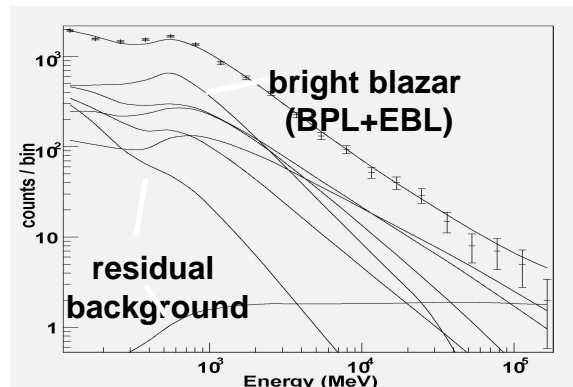# Spectral Studies

- Goal: Study spectra of pulsars to determine the shape of spectral cutoffs
- Goal: EBL attenuation studies (redshift dependent cutoffs)
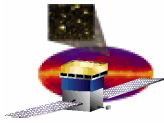- Goal: Search for spectral signatures of dark matter
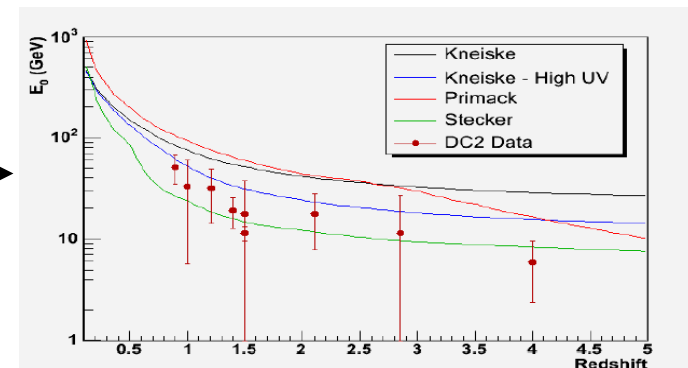


Luis Reyes



Jennifer Carson

# Likelihood accuracy/stabiliy

- **Several people examined the effect of residual background (Reyes, Carson, Cutini/Gasparini)**
- **Rita Sambruna presented a systematic study of the behaviour of the likelihood analysis in the presence of neighbouring sources and then took a closer look at the 3C279 region.**



DRMNGB        MINUIT

1    0-60%        5-60%

2    10-120%

3    0-110%

                30-500%

4    20-100%

5    20-50%

6    30-80%
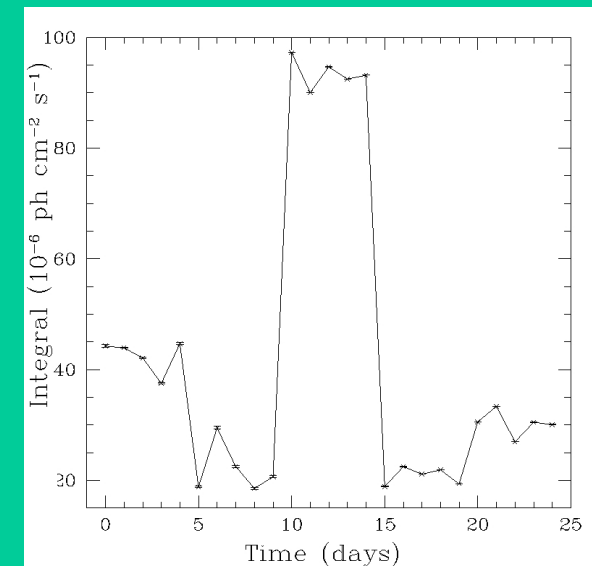
The wrong model overestimates the flux
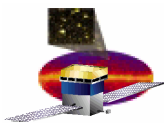
# Comparison with "truth" (1)
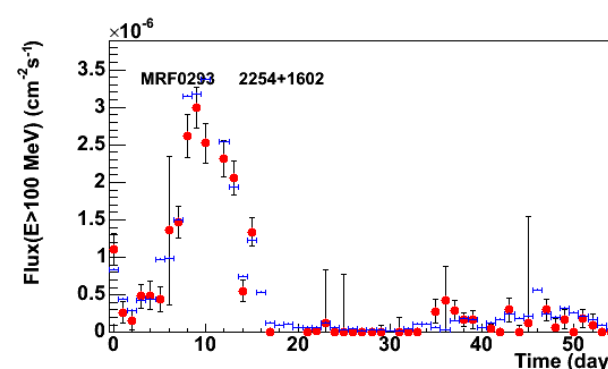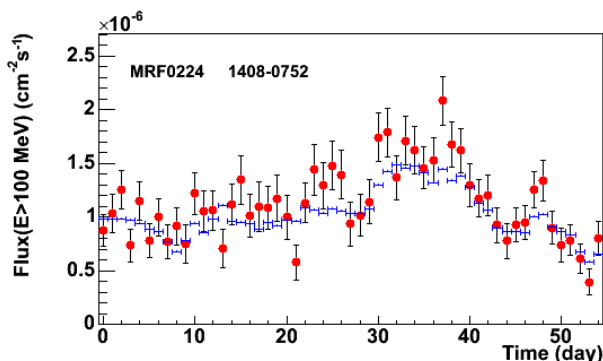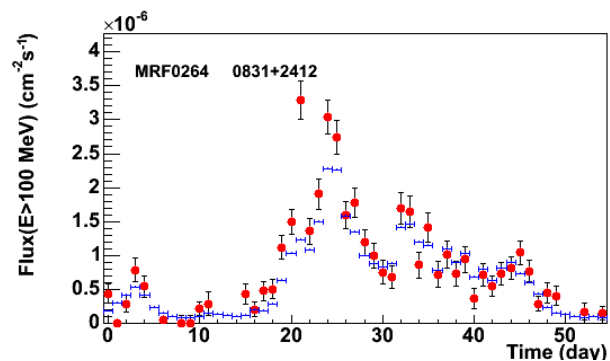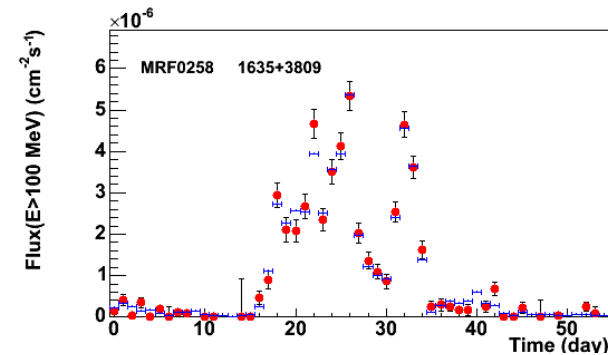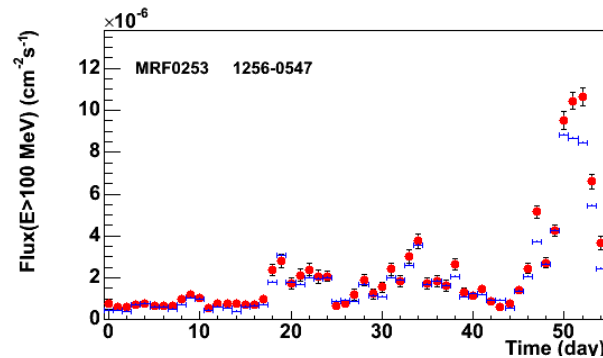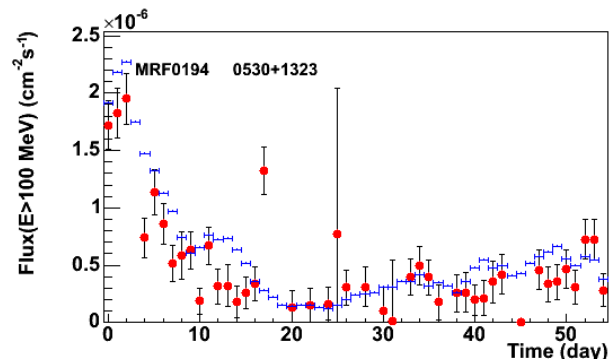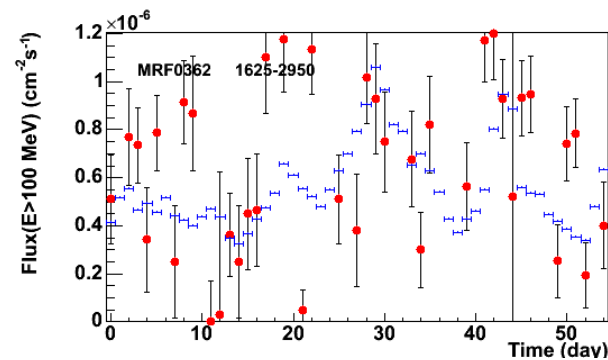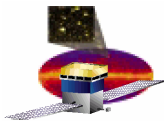
# Comparison with "truth" (2)
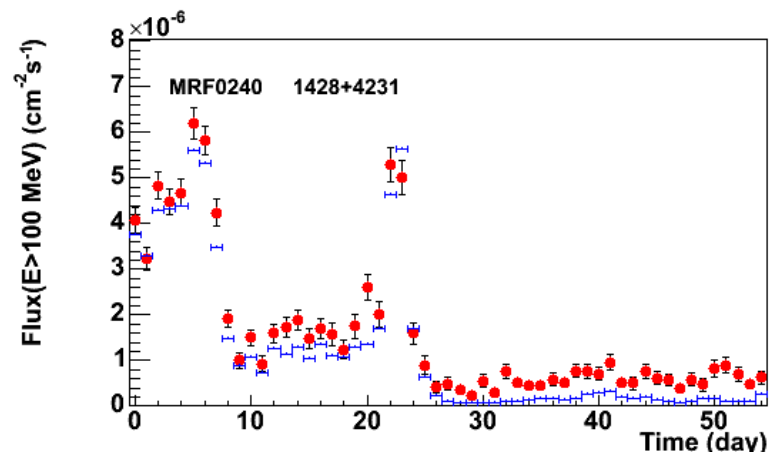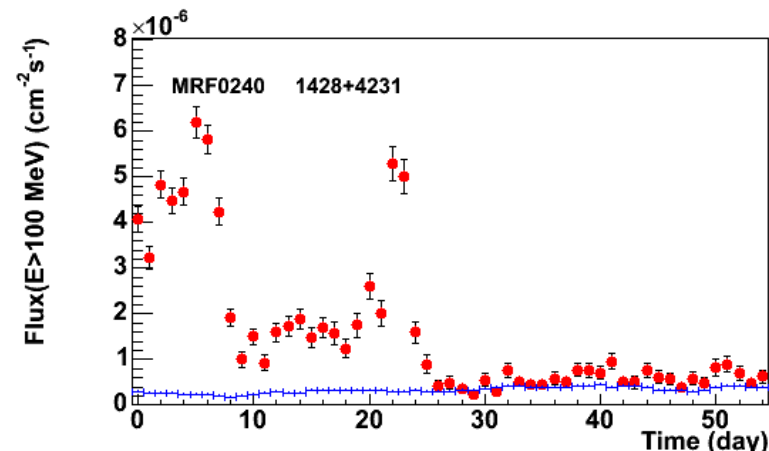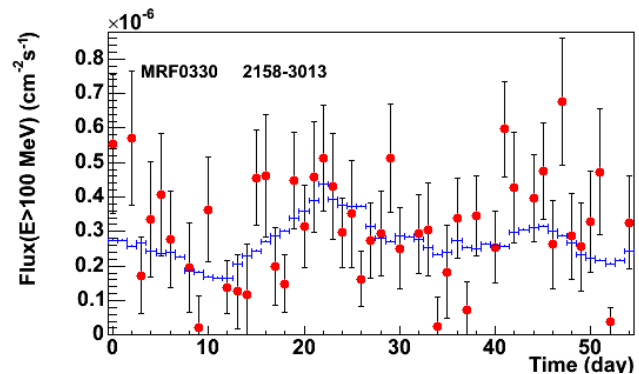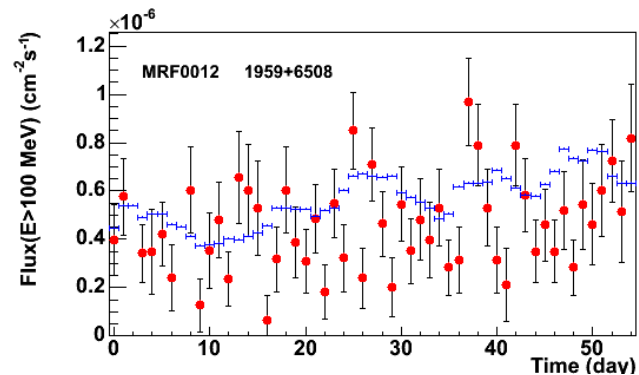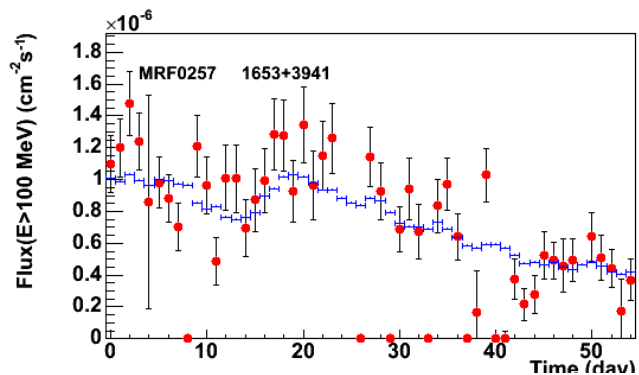


Flaring source: B31428+422
instead of 1ES1426+428
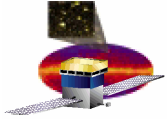
# DC3 perspectives

**DC1.  Modest goals.   Contains most essential features of a data challenge.**
**DC2.  More ambitious science goals.  Encourage further development, based on lessons from DC1.**
**DC3.  Support for flight science production.**

"Service challenge": systematic studies before launch
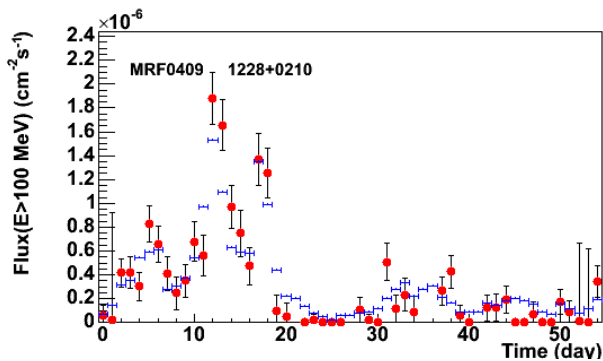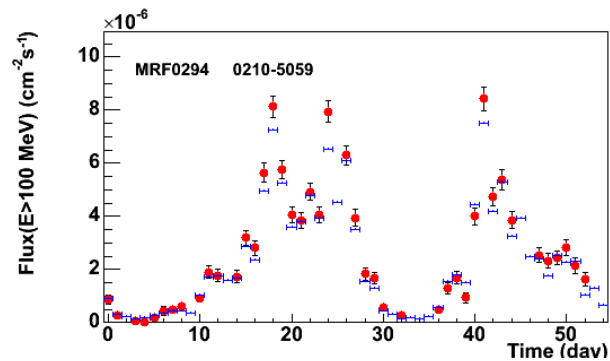The "truth" will be known from the start.
Completed by GLAST Science Symposium in February(?)
One year worth of data,
Possibility of different realizations of the sky,
but common data set + milestone enables strong interaction
between Science Groups

# Work to be Done: Responsibilities

## Systematic & Sensitivity Studies

– pt sources, extended sources, transients; upper limits

– diffuse analyses

– variability (incl. pulsars)

– neighboring sources

– flaring & diffuse effects

– focus on 1st papers analyses

*Analysis Coordinator and Science groups*

## Other Studies

*C&A group and ISOC jointly*

– PSR ("handoff review") performance

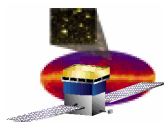– analysis tuning (signal/bkgd, quality knobs by topic)

– update simulation (s/c model, tune from beam test and IA data…)

– first light observations (simulate point, then scan); early ops analyses

– effects of burst repoints

– sky survey strategy checks

– background fluxes evaluation early ops

## Readiness

*ISOC*

– digital data problems

– instrument problems (bad channels, wrong rates, recognizing a few wrong constants, …)

– ASP (aka quicklook running and burst handling)

– receiving data dumps, running the pipeline, benchmarking resources and times, reliability

– idiosyncrasies vs. problems

– day(s) in the life

– performance monitoring

– documentation

**Collaboration participation needed for each of these!**