



# *Fermi* Users Group

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## FSSC News

Chris Shrader,  
*Fermi* Science support Center  
NASA/GSFC

# Major Activities

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- Mid-November Science Tools release
- Ingest & test reprocessed LAT data
- Open updated archive in tandem w/STs
- Cycle-4 NRA and planning
- User Support Workshops
- Operations planning support

# Staffing Changes



- Since last FUG:
  - Key software support left FSFC
  - 0.5 FTE, “borrowed” from LAT team
  - Initiating recruitment for replacement hire
- Science staff level constant



# LAT – FSSC Interactions

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- FSSC participation in regular data/software steering group
  - more occasional: lower “nuts-and-bolts” level SW development
  - Various web-cast meetings regarding data analysis, calibrations, science planning
- Several FSSC scientists extensively involved w/LAT team science



# GBM – FSSC Interactions

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- Updates to GRB Browse table:
  - high-level products (light curve plots)
- Ready to ingest forthcoming GRB catalog
- Working with GBM & LAT teams on facilitating GRB + LAT analysis
  - Intermediate data types being explored
- Exploring RMFIT – XSPEC interoperability, self-consistency

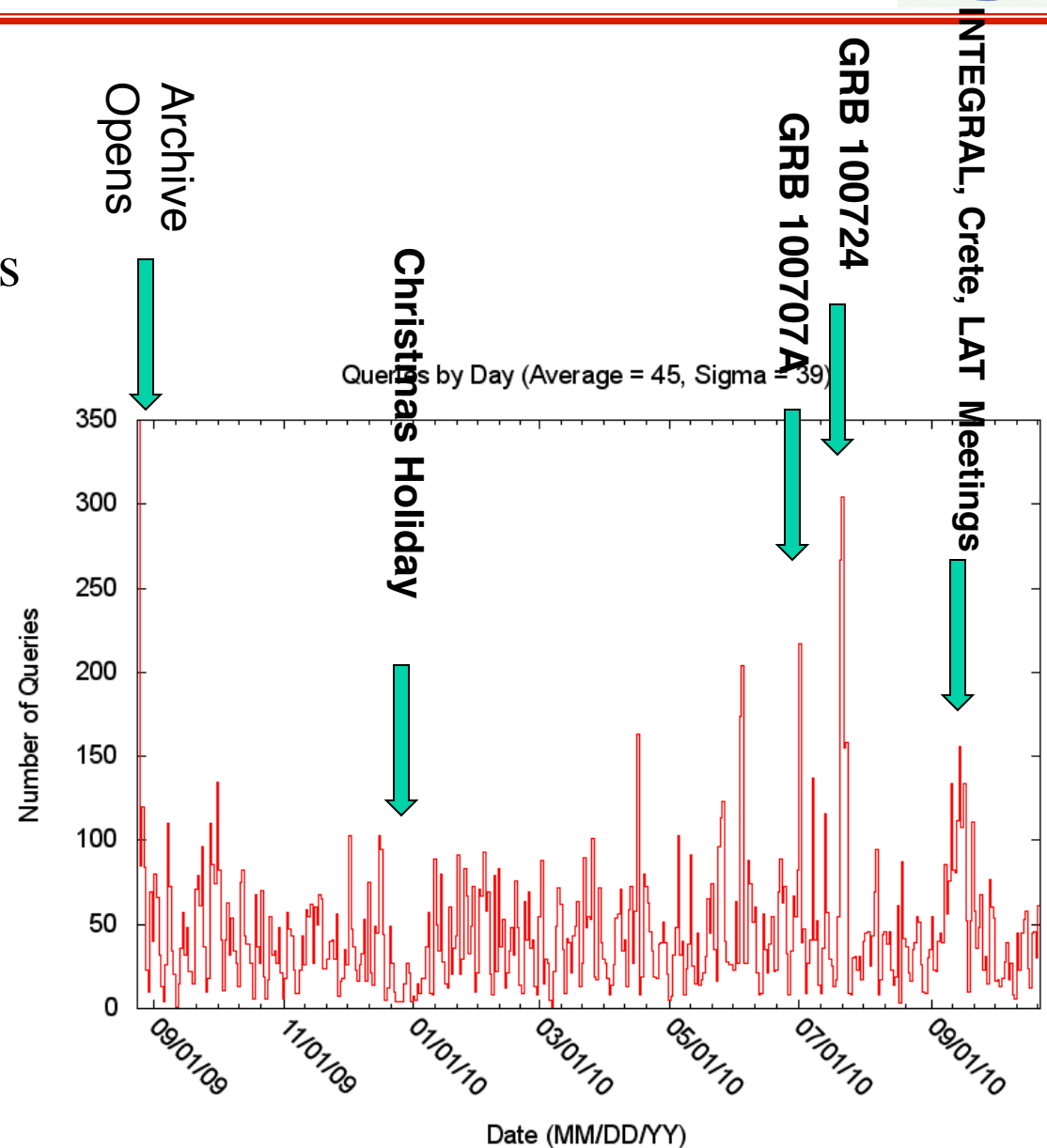
# Science Tools



- Mid November ST and data release
  - Separate presentations
- Future inclusion of “*pointlike*” tools planned
  - Timeframe currently under discussion
  - FSSC will add to local installation, acquire expertise & assess
  - Portability issues?

# Data Operations & Archive

- 8/25/2009 - present:
  - 19353 queries
  - 48,221,120,251 photons served (3.85 TB)
  - 1,794,195,055 events served (0.25 TB)
  - 12,352,728,970 spacecraft positions served (1.56 TB)
- Queries from  $>10^3$  separate IP addresses





# Operations & ToO Support

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- Operations continue to proceed smoothly.
- Target of Opportunity observations:
  - 3C 454.3. 2010-04-05, submitted by project.
  - Flare from Crab: ToO requested by project; observations started 2010-09-23
  - Project requested ToO for PKS 1830-21 (2010-11-04) but decision not to implement.



# Operations & ToO Support



- Survey mode change implemented in June:
  - 50 degree offset (previously 45 degrees)
- Minor change to survey profile starting September:
  - Rock angle direction-change-duration increased by ~120s
    - precaution to preserve reaction wheel performance.
  - Rock angle stayed at 50 degrees.

# User Support Activities



- User support workshops planned
  - Separate presentation
- Help desk activity:
  - 2 per day typical; 5 per day @milestones
- RPS changes: to be implemented
- Documentation
  - *fhhelp* files up to date
  - Web docs: updated & evolving

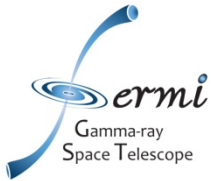


# User Support Workshops: New 2-day format

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- **2 single-day independent regional workshops**
  - **Allows for more flexibility in scheduling**
  - **Host institutions can choose one or both based on local level of interest**
- **Data Analysis Workshop (1 day)**
  - **Includes more advanced topics appropriate for longer datasets**
  - **Presenters from the FSSC interact hands-on with attendees**
- **Science and Proposal Workshop (1 day)**
  - **Showcases a broad range of science topics relating to gamma-ray astrophysics**
  - **Includes presenters from the regions where possible**
  - **Incorporates audience interest in 5-min “mini-talks”**



# New Data Analysis workshop program

## Mission Overview & Data Usage Caveats

### Introduction to the Data

- Data Access & Exploration
- Handling Livetime and Exposure Calculations
- LAT Catalogs & Generating source models for analysis

*Includes using catalog information, user contributed tools, and checking with modeeditor*

Basic data interaction

### Likelihood Analysis

- Unbinned Spectral Fitting - *plus using gtfndsrc, and generating TS maps*
- Binned Spectral Fitting - *plus fitting extended sources and generating residuals maps*
- Generating Lightcurves - *using both Aperture Photometry and Likelihood*

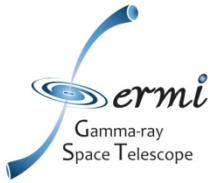
Standard point source analysis

### Using Python to Streamline Analysis

- pyLikelihood Spectral Analysis
- Calculating Upper Limits

Many new/  
expanded topics!

Highly successful in the  
past! Registration is  
happening now!



# Science / Proposals Workshop

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- Five or six 20-min talks from regional experts
  - Topics covered will vary from location to location
  - Fermi project and FSSC personnel can provide additional topics if needed
- 5-minute “mini-talks” to showcase ongoing work from attendees
  - Registration form asks for research topic
  - Can help connect researchers with local experts
- Discuss proposal opportunities throughout the day
  - NRA changes
  - Multiple discussion periods can help interest those who may not attend the entire session



# Fall 2010 Workshop Schedule

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- Goddard Space Flight Center
  - Nov 15 - Data Analysis
  - Nov 16 - Science/Proposals
  - Dates/location firm
  - Registration open
- University of Michigan
  - Dec 9 - Data Analysis
  - Dec 10 - Science/Proposers
  - Dates/locations firm
  - Registration open
- New York University
  - Nov 30 - Data Analysis
  - Dec 1 - Science/Proposers
  - Dates/locations known
  - Registration open
- UC Santa Cruz
  - Dec 15 - Data Analysis
  - Dec 16 - Science/Proposers
  - Dates/locations firm
  - Registration not yet open



# Workshop slides archived in FSSC library



**GODDARD  
SPACE FLIGHT CENTER**

[+ NASA Homepage](#)  
[+ GSFC Homepage](#)  
[+ Fermi Homepage](#)

SEARCH Fermi:  
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# Fermi

## Science Support Center

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### Resources

- Mission Status
- Observing Timeline
- Observations
- Users' Group
- Multiwavelength Observations
- Newsletter
- Library**
- Related Links
- News Archive

### FSSC Data Analysis Workshops

#### Workshop Presentations

These presentations are listed in reverse time order. It is advisable to use the more recent presentations, as older ones may be out of date or no longer applicable. The name of the presenter is included for each document.

**2010 Feb 8-19: Fermi-Cospar - Bangalore, India**

These files were originally held at the [Fermi-Cospar website](#).

- Overview Slides:
  - [Introduction to High Energy Astrophysics, Gamma-ray Astronomy](#) Dave Thompson
  - [Gamma-ray Astronomy Instrumentation](#) Neil Gehrels
  - [Fermi Overview](#) Julie McEnery
  - [Fermi Archive, Search and Data Download](#) Robin Corbet
  - [Basics of Analysis of High Energy Data, Use of Statistics, Photon Counting](#) Mariano Mendez
  - [Statistics](#) Peter Willmore
  - [X-ray Astronomy Missions](#) Mariano Mendez
  - [Indian Astronomical Facilities](#) Biswajit Paul
- GBM Science & Analysis:

# Cycle-3



- Cycle 3 program implemented on schedule in August 2010
- Funded about 45% of Cy-3 grants in FY10 (by mid August)
- Balance in FY11, soon ...
- Solicited FY10/11 preference in selection letters
  - Accommodated as many requests as plausible





# Cycle-4: NRA Changes

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- Joint Fermi-Suzaku program
  - Analogous to NRAO, NRAO
  - Suzaku project is allocating 250 ksec
    - US Fermi GIs: time drawn from US Suzaku allocation
    - Non-US Fermi GIs: time drawn from Japanese allocation
- Multi-year proposals: distinct from “Large Projects”
  - Capped at same level (\$100k) as regular proposals
  - Review committee can recommend descope (unlike Large Projects)

# Cycle-4: NRA Changes

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- For 2-year projects:
  - NASA will review status report submitted in tandem with NSPIRES year-2 budget
- Large Projects: still require progress report at Stage-I for continuation
- New requirement for all classes of proposals:
  - Workplan Summary Sheet
  - Part of RPS submission forms



	Year 1			Year 2			Year 3		
	Rationale (when applicable)			Rationale (when applicable)			Rationale (when applicable)		
<b>Total Direct Labor</b>	<b>Type</b>	<b>FTEs</b>		<b>Type</b>	<b>FTEs</b>		<b>Type</b>		
	Student(s)			Student(s)			Student(s)		
	PostDoc(s)			PostDoc(s)			PostDoc(s)		
	Senior Researcher(s)			Senior Researcher(s)			Senior Researcher(s)		
<b>Travel</b>	<b>Purpose of Trip</b>	<b>Approximate Cost</b>		<b>Purpose of Trip</b>	<b>Approximate Cost</b>		<b>Purpose of Trip</b>		
<b>Publications</b>	<b>Journal Pages</b>	<b>Approximate Cost</b>		<b>Journal Pages</b>	<b>Approximate Cost</b>		<b>Journal Pages</b>		
<b>Equipment</b>	<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>		
<b>Facilities Resources</b>	<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>		
<b>Others (fees, contracts,... ). Do not include institutional overheads</b>	<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>	<b>Approximate Cost</b>		<b>Description</b>		
<b>Anticipated schedule</b>	<b>Activity</b>	<b>Start / Complete (months from grant initiation)</b>		<b>Activity</b>	<b>Start / Complete (months from grant initiation)</b>		<b>Activity</b>		
	Data Acquisition, Reduction			Data Acquisition, Reduction			Data Acquisition, Reduction		
	Software development			Software development			Software development		
	Data Analysis			Data Analysis			Data Analysis		
	Modeling			Modeling			Modeling		
	Interpretation			Interpretation			Interpretation		
Fermi Users Group Meeting	Presenting/writing paper	Goddard Space Flight Center, No		Presenting/writing paper	ember 5, 2010		C. Shrader, NASA/GSFC		

# Cycle-4: Schedule

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- NRA: Fermi Amendment posted on NSPIRES 10/22/2010
- RPS for Fermi Cy 4 opening soon
- Proposals due January 21, 2011
- Peer review April 4-7
- Stage-I selections in subsequent ~2-3 weeks
- Stage-II ~1 month subsequent
- Fund FY11 portion by July 2011