



Fermi

Gamma-ray Space Telescope

Fermi Proposer Workshop Mission Overview

Jan. 21, 2024

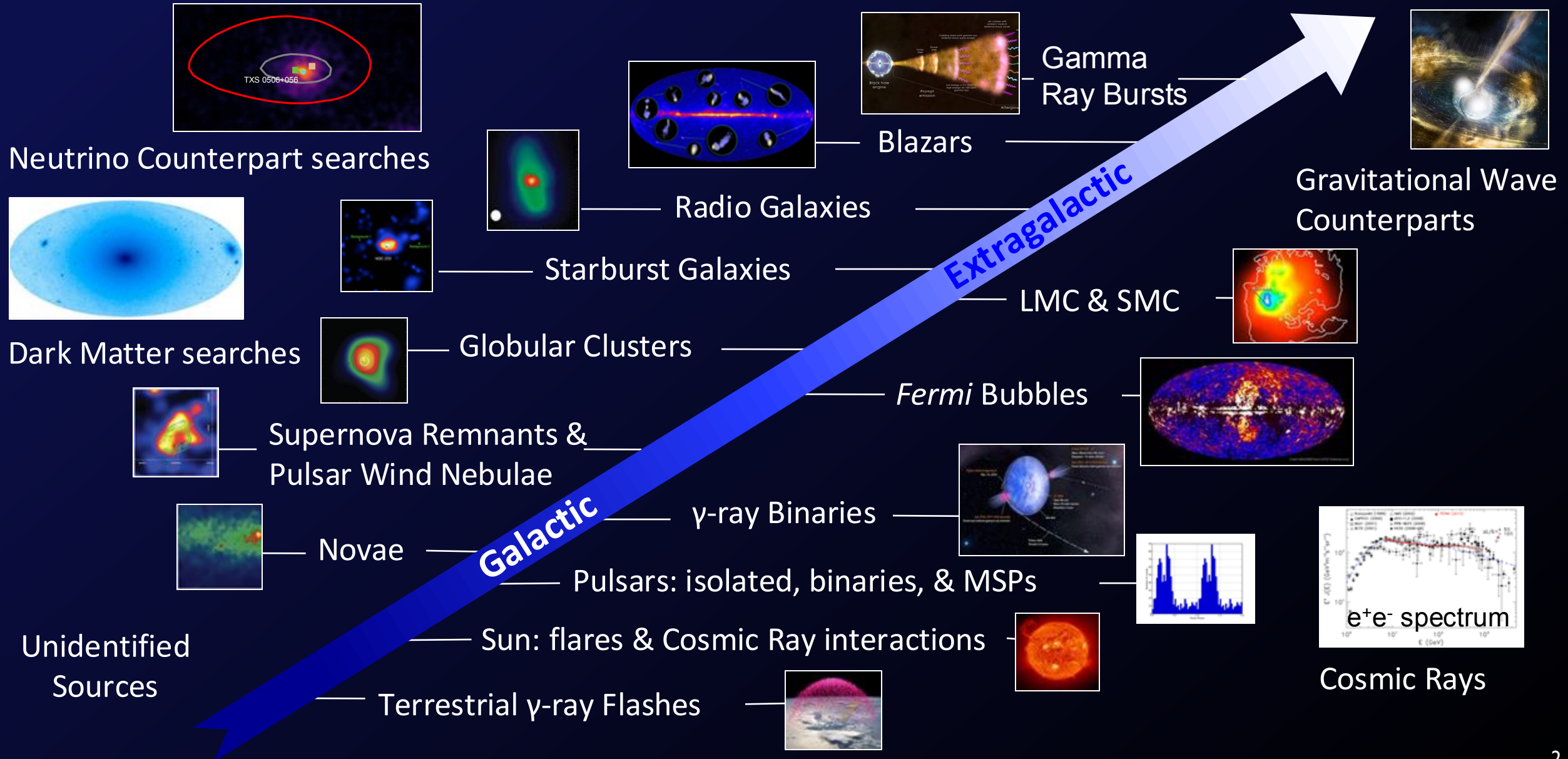
Liz Hays

Judy Racusin

Fermi Project Scientist

Fermi Deputy Project Scientist

Fermi discoveries cover a broad range of astrophysics



Fermi Users Make *Fermi* Science Excellent

- The GI program is the heart of *Fermi* science
 - Funds **all aspects of science investigation**: analysis, correlated studies, theory, and multiwavelength data collection
 - *Fermi* is the only mission program dedicated to high-energy gamma-ray data analysis
- *Fermi* science increases with time
 - New topics and questions, new discoveries, new synergies with multiwavelength and multimessenger facilities and capabilities
- *Fermi* support grows with the users
 - Continued updates to data products, analysis tools, catalogs, and joint observation opportunities



11th International Fermi Symposium
College Park, MD, USA
September 2024

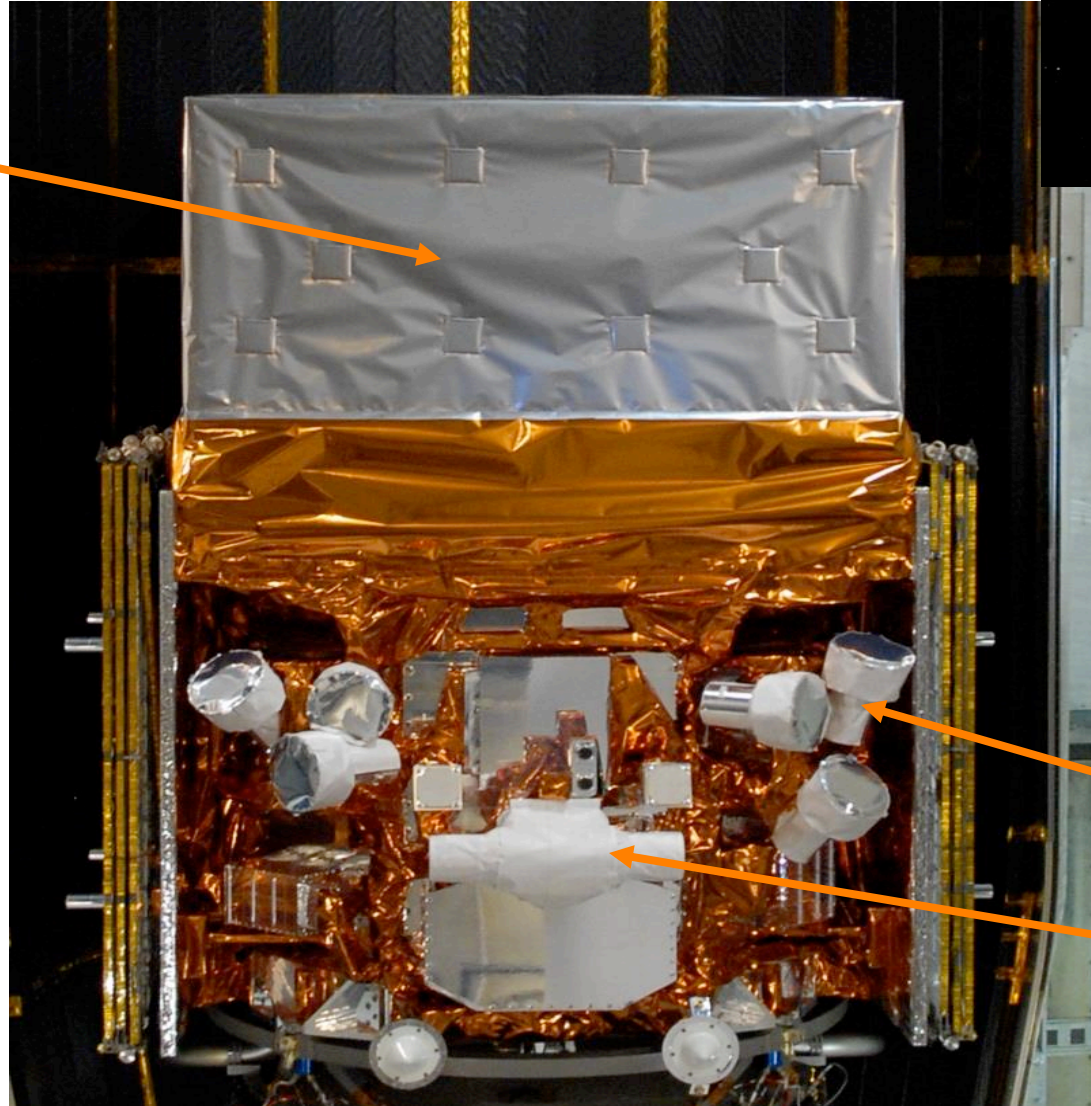
The Fermi Observatory

Large Area Telescope (LAT)

Large field of view
(>2.4 sr)

Entire sky every 3 hrs
(every 2 orbits)

Broad energy range
(20 MeV - >300 GeV)

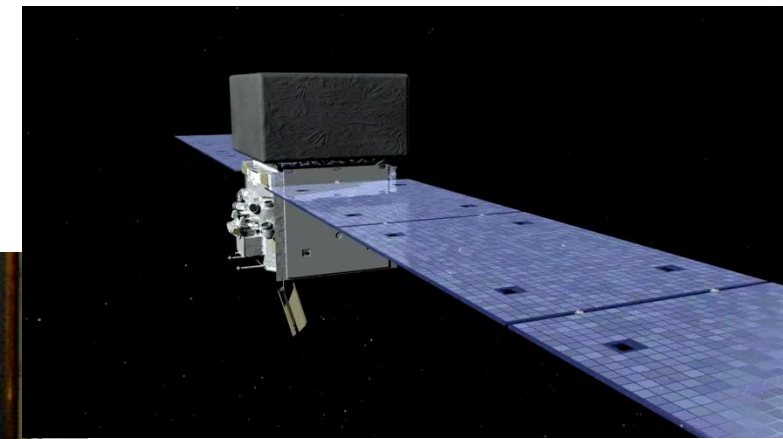


Gamma-ray Burst Monitor (GBM)

Views entire
unocculted sky

NaI: 8 keV - 1 MeV

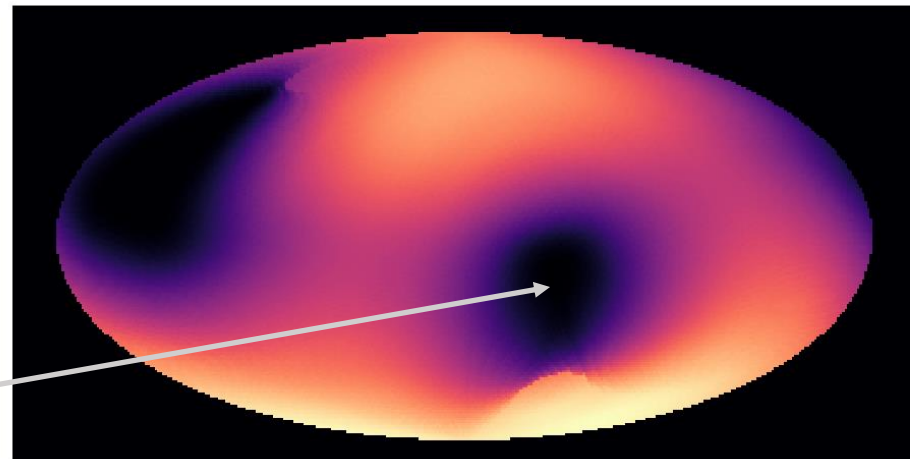
BGO: 150 keV - 40 MeV



Observatory Status: Excellent

- Operations stable and reliable.
 - Both instruments exceed original flight performance due to software and configuration improvements.
- No consumables; no expected instrument limitations
 - Orbit and current communications can be maintained into the 2030s.
- Survey modes provide LAT **all-sky coverage in 3 hours or 85% of the sky every 1.5 hours** reaching all-sky coverage in approximately 1 week during sine-modified survey intervals.

LAT exposure more limited toward Sun in sine-modified survey but is available at off-axis angles. A number of solar flares have been detected in the current solar cycle.

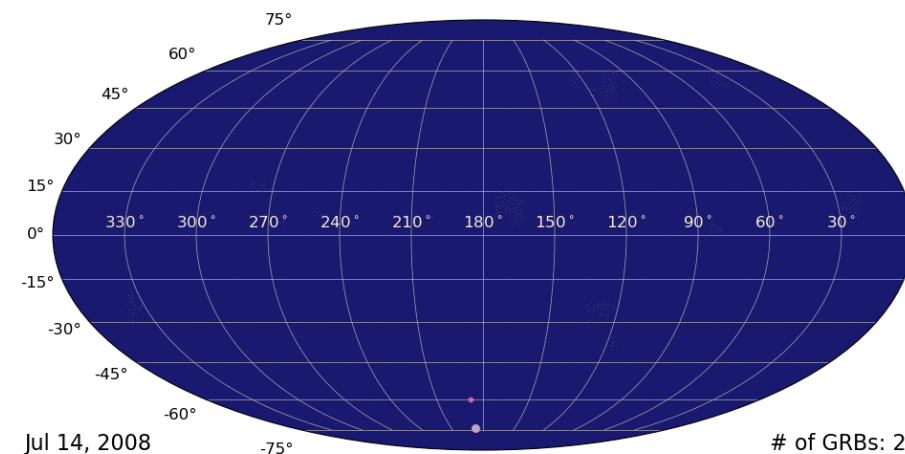
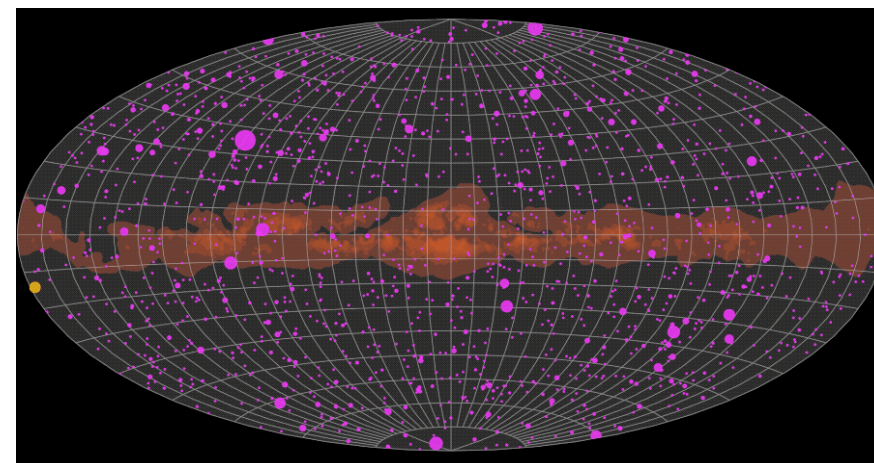
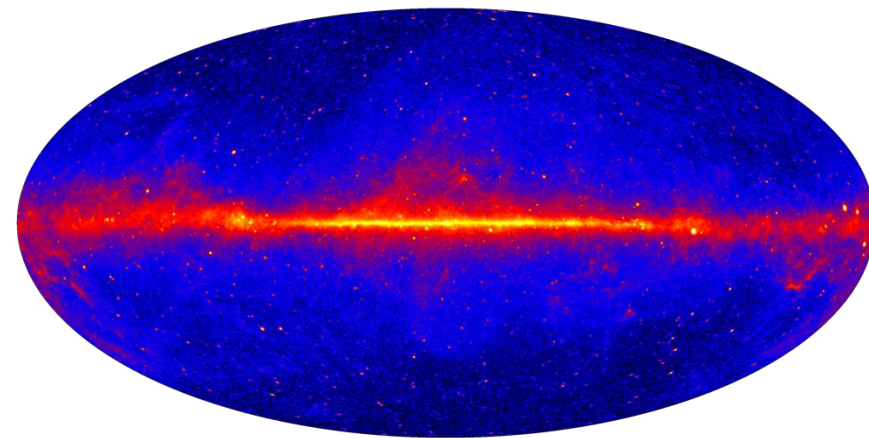


Sine-modified Survey Exposure Map (2 orbits)

Data and Catalog Highlights

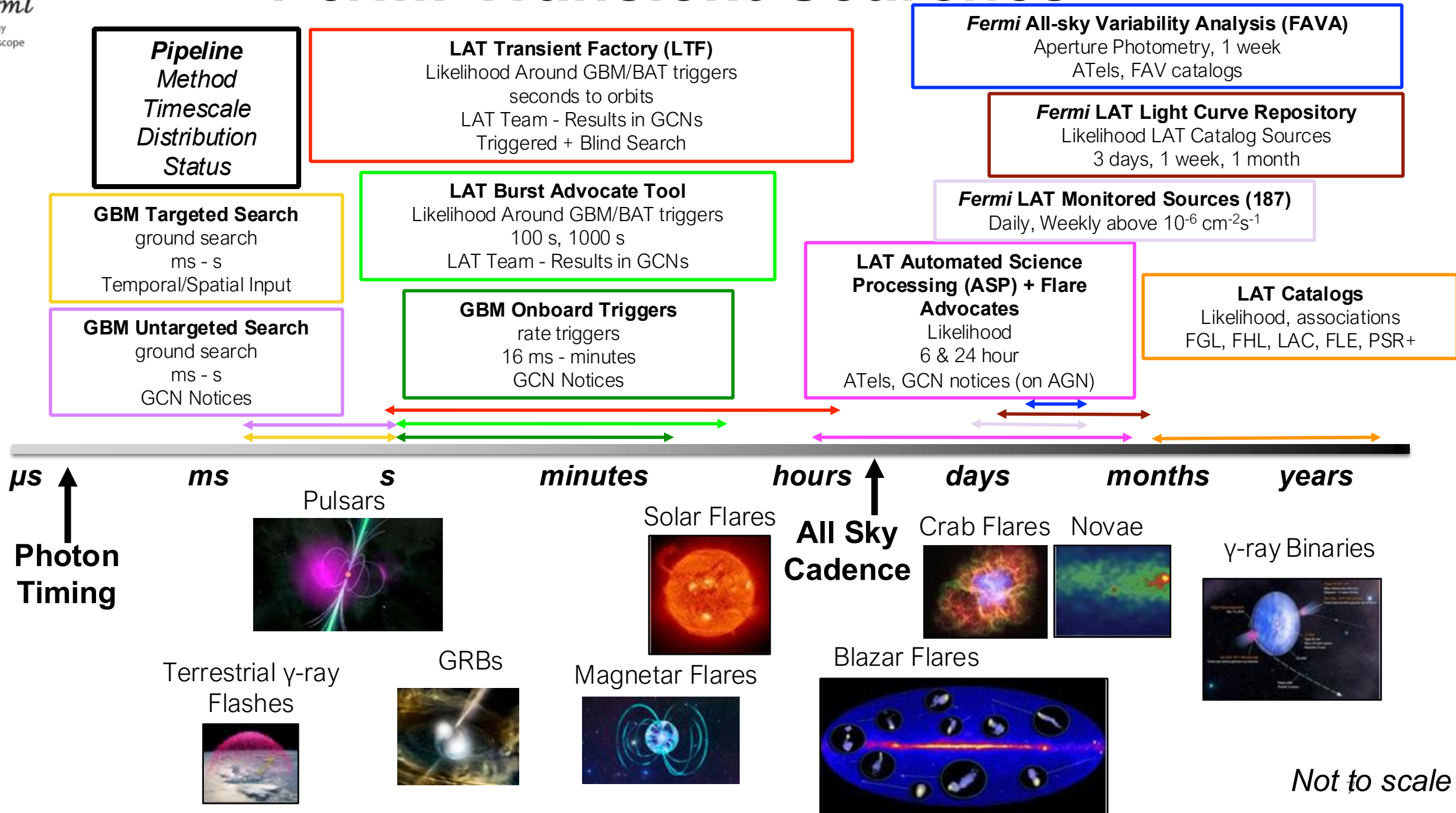
- Large Area Telescope
 - [14-year LAT catalog \(4FGL-DR4\)](#)
 - [12-year LAT AGN Catalog \(4LAC-DR3\)](#)
 - [10-year AGN Catalog \(4LAC-DR2\)](#)
 - [LAT Third Catalog of Gamma-ray Pulsars \(3PC\)](#)
 - [Individual timing models, pulse profiles and SED](#) available for many pulsars
 - [Solar Flare catalog \(FLSF\)](#)
 - [LAT Light Curve Repository](#)
- Gamma-ray Burst Monitor
 - GBM [Trigger Catalog](#), [Burst Catalog](#), and [Daily Data](#)
 - [GBM Data Tools](#)
 - [4th GBM GRB Catalog](#)
 - [Accreting Pulsars and Custom Pulsation Search](#)
 - [Earth Occultation Light Curves](#)

More at the [FSSC Data Products](#) page



Fermi Transient Searches

Transients Timescale Pipelines





Upcoming Events – Fermi Summer School

Applications Due January 30

May 27 – June 6, 2025



<https://fermi.gsfc.nasa.gov/science/mtgs/summerschool/2025/>



The future is bright – we hope you will add to it!

- Opportunities with Fermi continue to grow
 - Observatory and instruments in excellent health
 - Opportunities for new discoveries across wide range of Fermi science
 - Data, catalogs, and analysis tools and techniques available to dig deeper into the high-energy Universe and discover new events when they happen.
- Got a question? We're here to help!

[Liz Hays](#), Fermi Project Scientist

[Judy Racusin](#), Fermi Deputy Project Scientist

[Andrea Prestwich](#), Fermi Science Support Center Lead

[Fermi Help Desk](#) fermihelp@milkyway.gsfc.nasa.gov