



Fermi
Gamma-ray Space Telescope

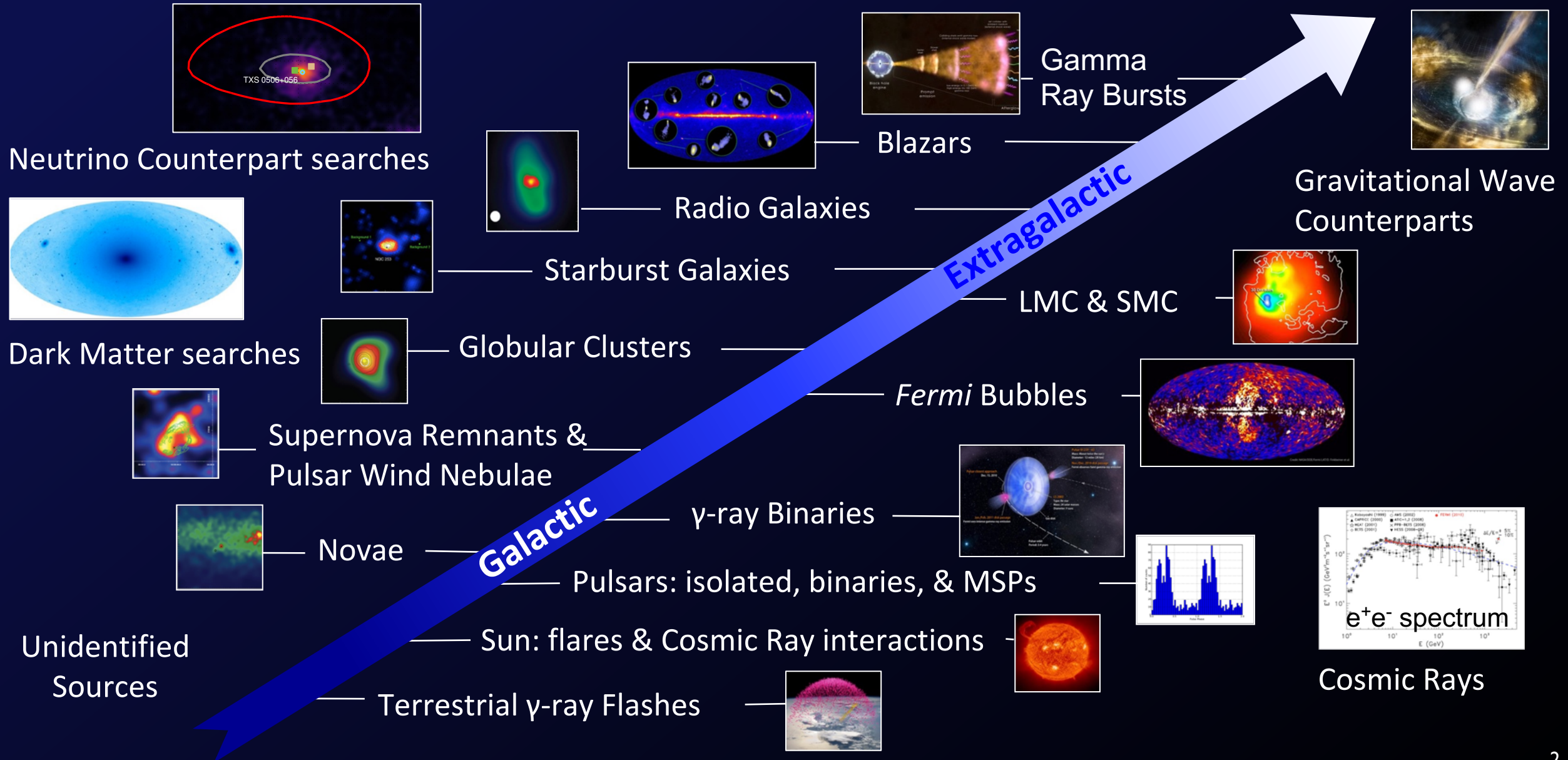
Fermi Proposer Workshop Mission Overview

Jan. 14, 2026

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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

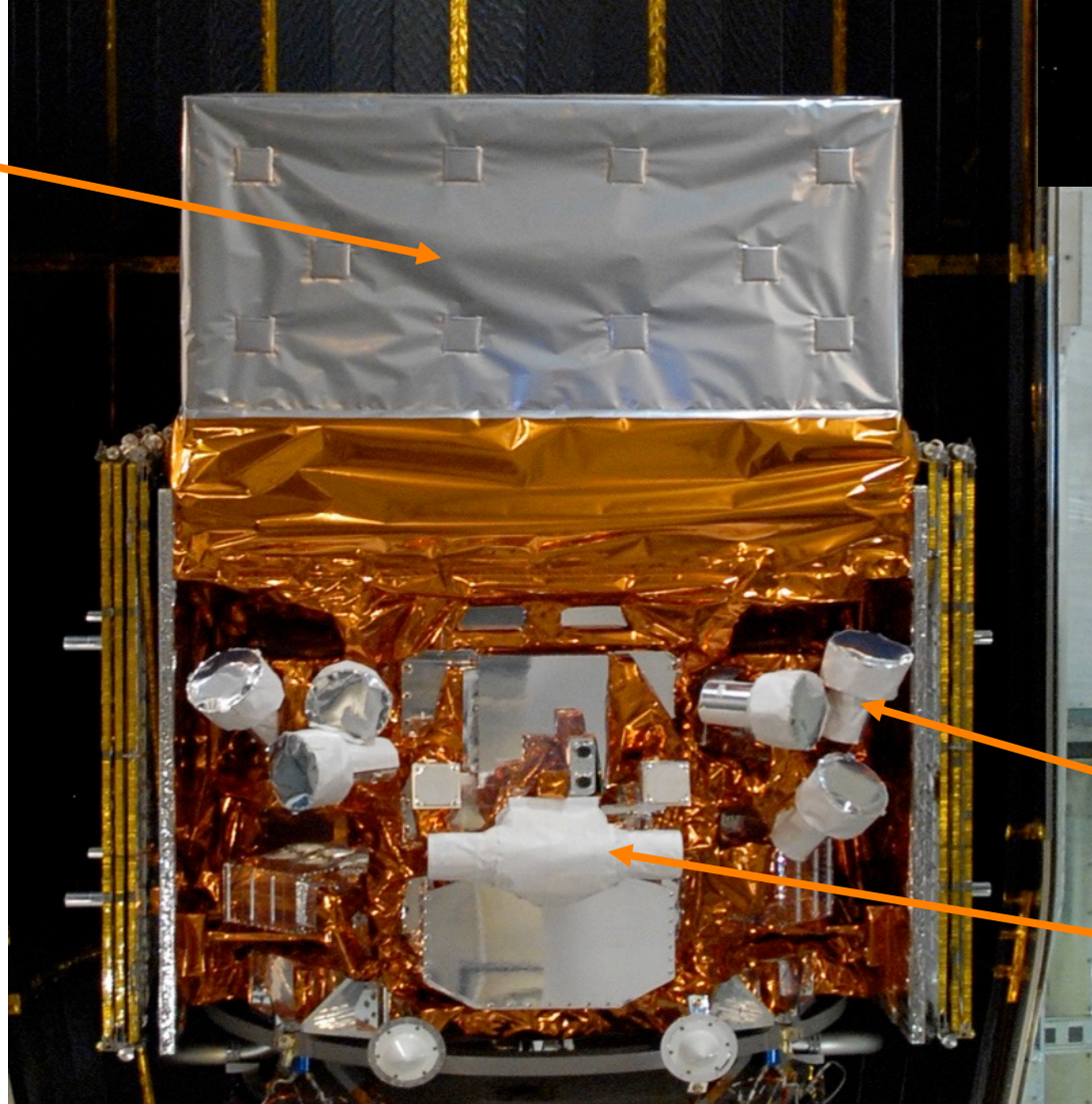
The Fermi Observatory

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)

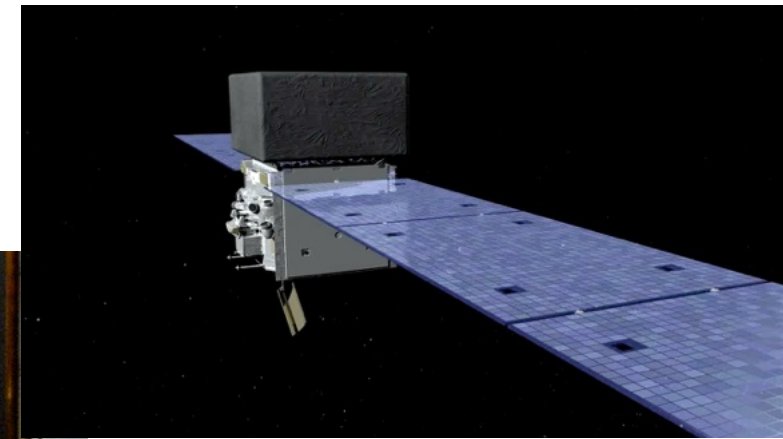


Gamma-ray Burst Monitor (GBM)

Views entire
unocculted sky

NaI: 8 keV - 1 MeV

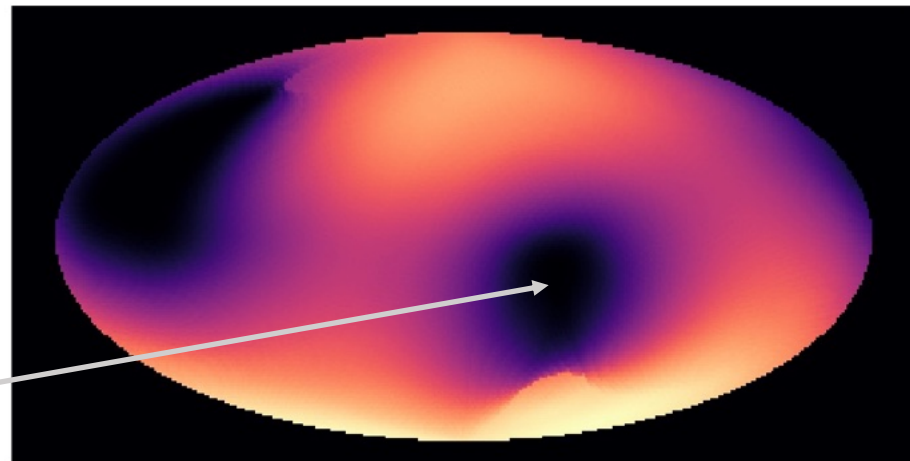
BGO: 150 keV - 40
MeV



Observatory Status: Excellent

- Operations stable and reliable.
 - Both instruments exceed original flight performance due to software and configuration improvements.
 - LAT Event Processor anomaly started in Nov 2025 – normally operate with 2 (EPU0/EPU1), have been operating only with EPU0, currently transitioning to add EPU2. Operational impacts have been minimal.
- 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)

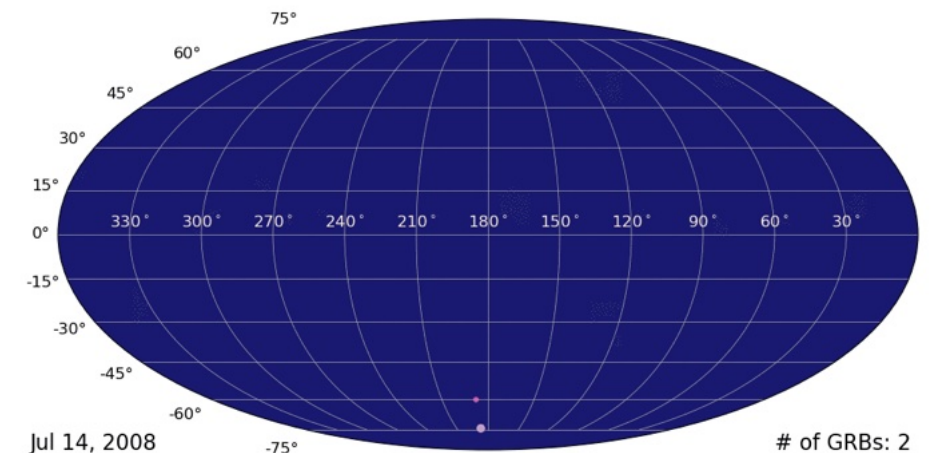
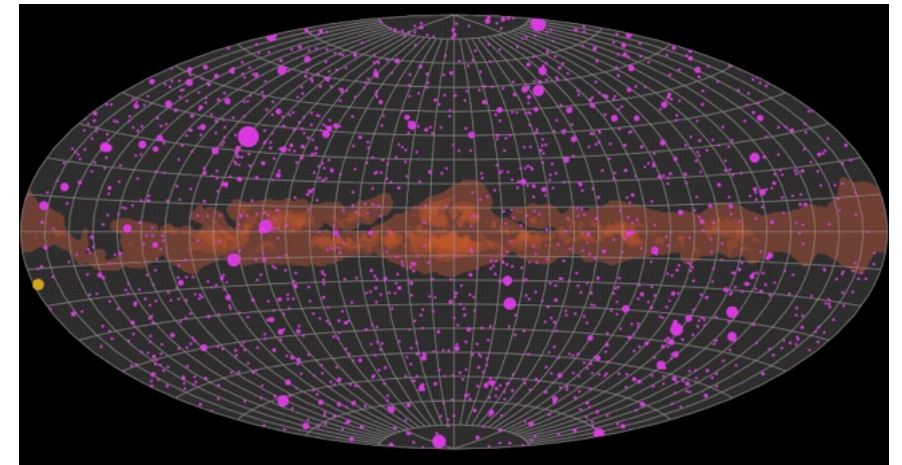
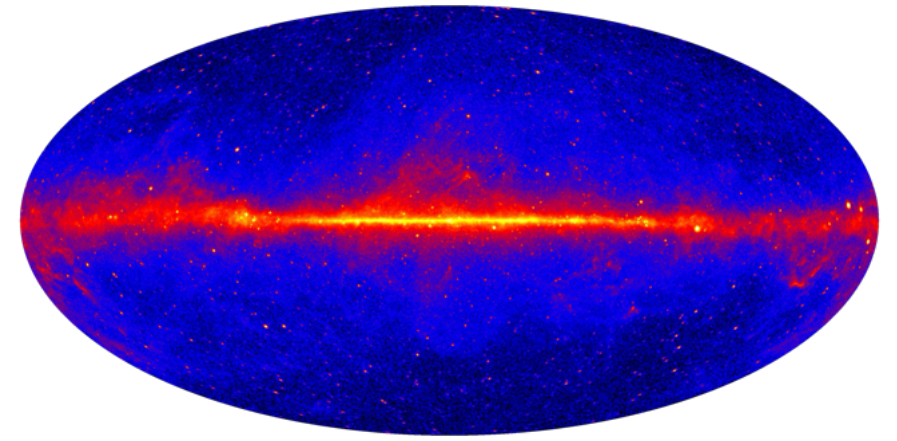
Return of Target of Opportunity Observations

- ToOs provide increased LAT exposure (by factor of up to ~ 2) for a target of interest for days-week timescale upon an extraordinary outburst, multiwavelength campaign, or some circumstance when survey observations are insufficient
 - Past examples include novae, bright GRBs, Crab flares, exceptional blazar flares
 - ~ 1 day latency – responses during Goddard working hours
- Fermi ceased ToO observations after the solar array anomaly in 2018. ToO capability is available again as long as the observations do not adversely affect the power margin.
- ToO pointed observations can be proposed for in Cycle 19 and are also accepted via ad hoc requests
- For more information: <https://fermi.gsfc.nasa.gov/ssc/observations/types/too/>
- Send questions to fermi-too@lists.nasa.gov – we may add them to the FAQ

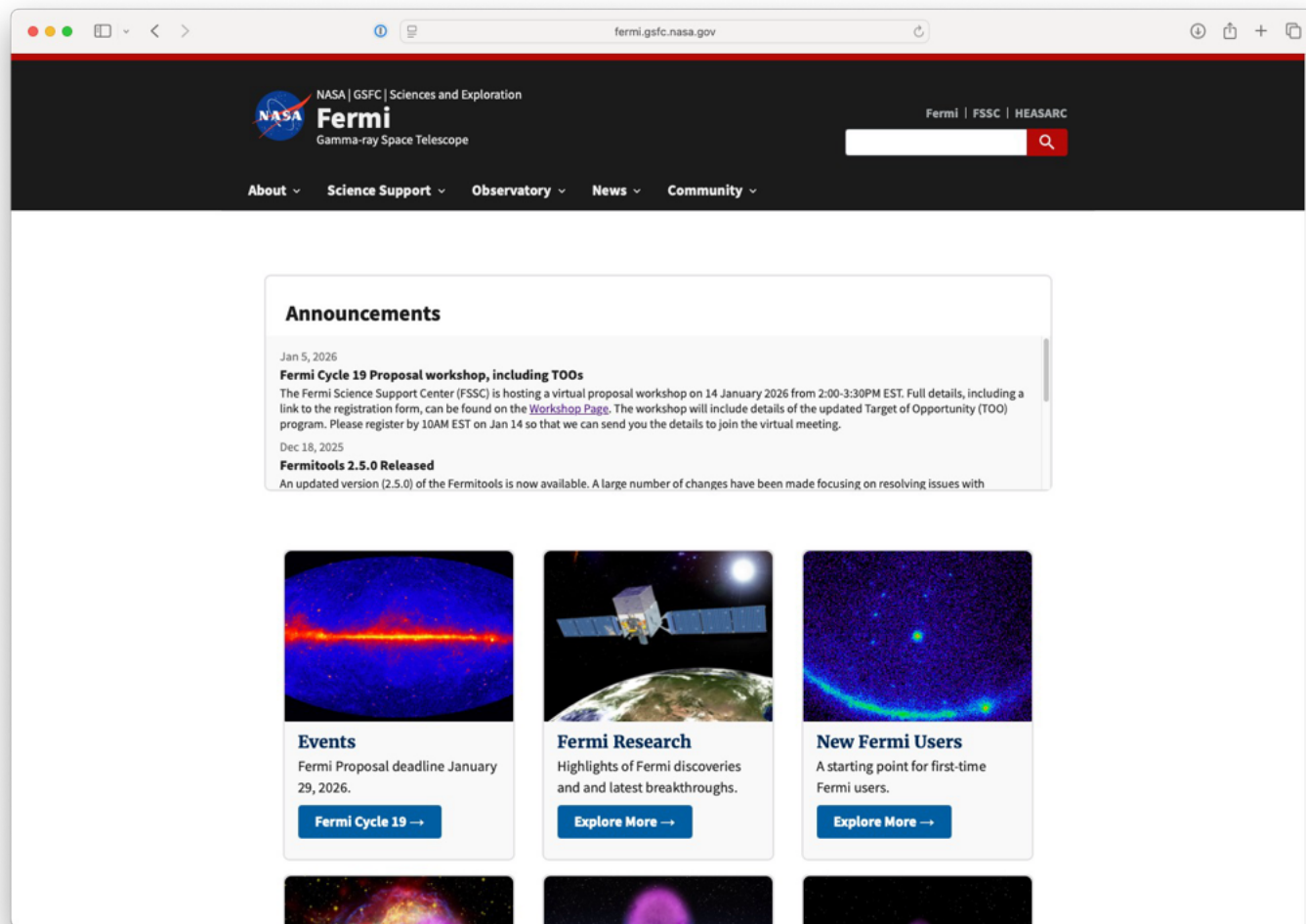
Data and Catalog Highlights

- 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



Fermitools & Fermi Website Refresh

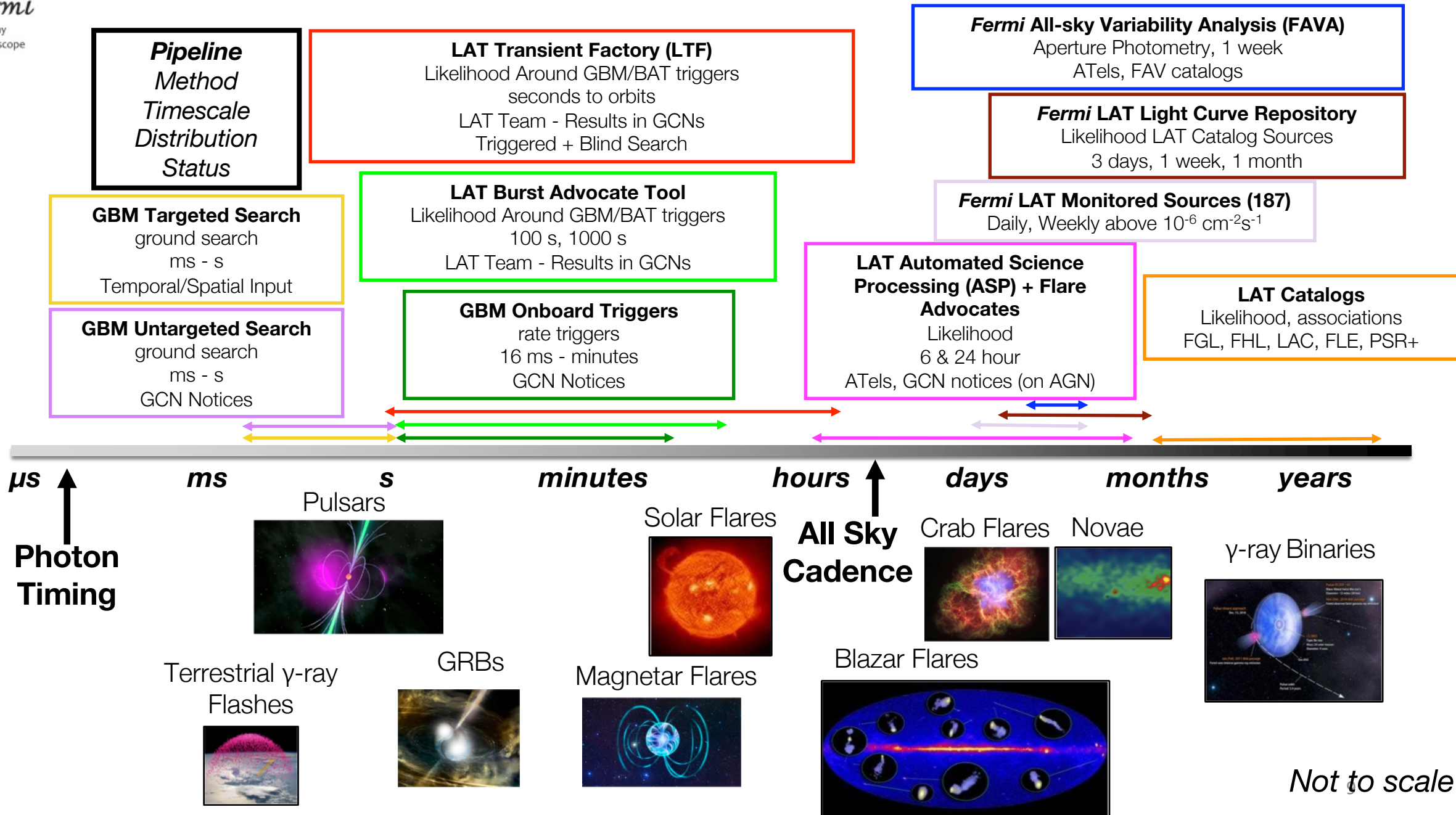


<https://fermi.gsfc.nasa.gov>

- Fermitools 2.5.0 Released – resolves issues with dependencies and performance
- Website for science community has been refreshed and reorganized
 - Feedback Welcome
<https://forms.gle/4AQaPBUoRwzApNcz8>
 - New pages of interest:
 - [New users](#)
 - [Multiwavelength Resources](#)
 - [Time-domain Resources](#)

Fermi Transient Searches

Transients Timescale Pipelines





Upcoming Events – Fermi Summer School

May 26 – June 5, 2026

Great for grad students and postdocs new to Fermi and gamma-rays

Applications are now open!

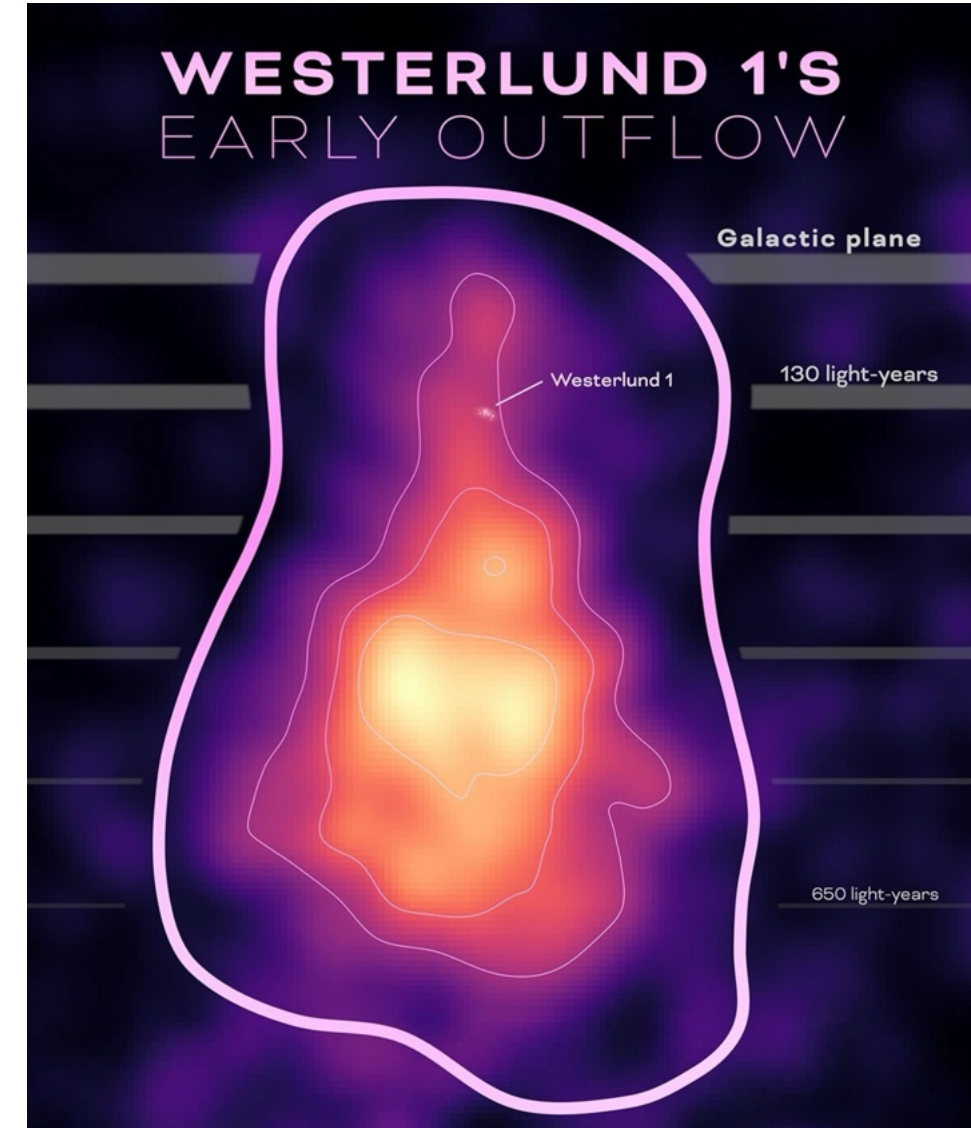
Deadline: Feb 6, 2026 (early applications will be favored)



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

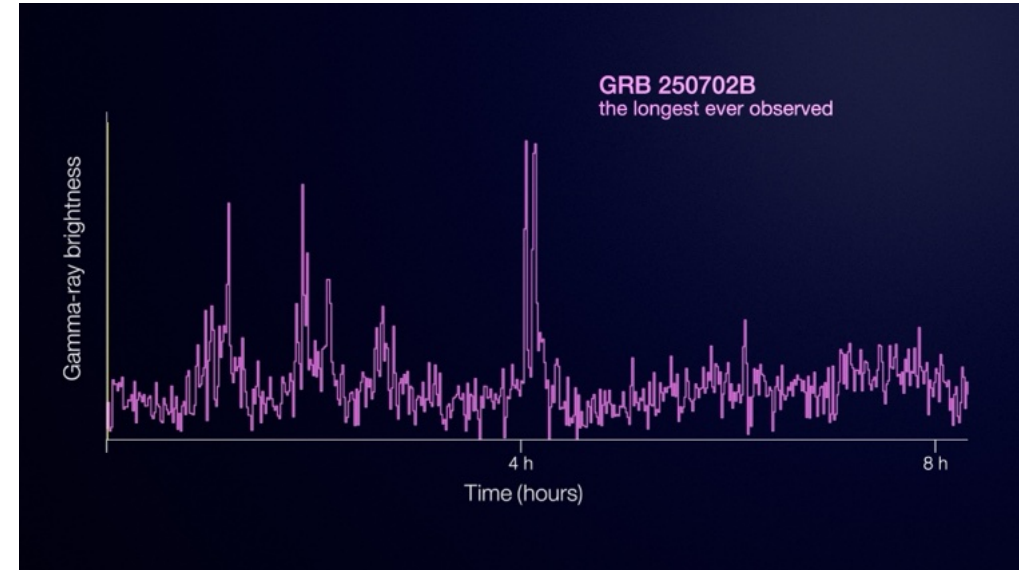
Science Highlight – Westerlund 1

- [NASA's Fermi Spots Young Star Cluster Blowing Gamma-Ray Bubbles](#)
- Paper: A cosmic-ray loaded nascent outflow driven by a massive star cluster – Lemoine-Goumard et al., Nature, 2025
- 17 years of LAT data show a nascent outflow driven by the massive star cluster Westerlund 1 offset from emission previously detected by HESS – implications for cosmic ray propagation in the Galaxy



Science Highlight – Longest GRB 250702B

- [Black Hole Eats Star: NASA Missions Discover Record-Setting Blast](#)
- Seen by Fermi-GBM as the longest GRB ever detected over 7 hours
- Observations also from other missions including Swift, Webb, Hubble, Chandra, NuSTAR, Konus-WIND, Psyche, MAXI, Einstein Probe
- Debate on progenitor system, with some possibilities: intermediate black hole TDE, stellar-mass black hole consuming companion helium star



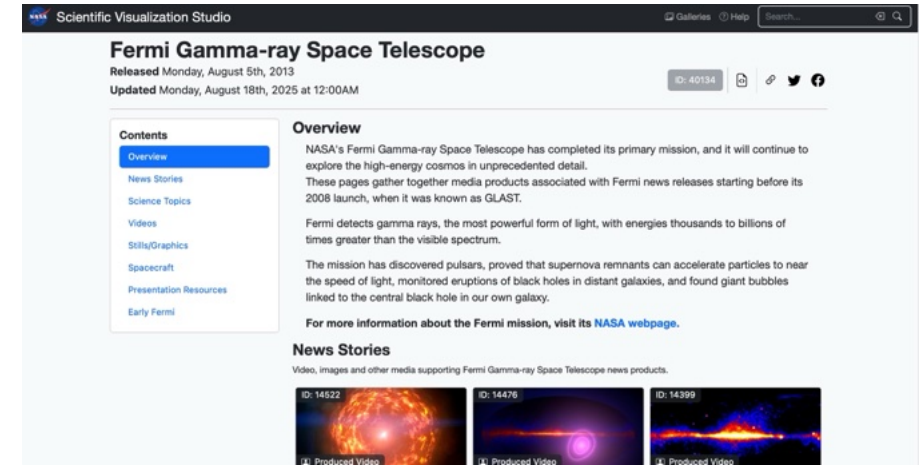
Papers featured in NASA Press Release:

Neights et al., 2025, MNRAS
Gompertz et al., 2025, ApJL
Carney et al., 2025, ApJL
O'Connor et al., 2025, ApJL
Levan et al., 2025, ApJL
Oganesyan et al., 2025, A&A



Got an exciting result? Let us know before submitting!

- NASA's Astro Comms provides
 - Help with message for public
 - Graphics
 - Amplified coverage and audience for your science
 - Coordination with journals and other teams
 - Graphics available for your uses at <https://svs.gsfc.nasa.gov/gallery/fermi5/>
- Requests have to come before submission of paper
 - Contact Judy Racusin (judith.racusin@nasa.gov), Liz Hays (elizabeth.a.hays@nasa.gov), Dave Thompson (david.j.thompson@nasa.gov) and/or Frank Reddy (Francis.J.Reddy@nasa.gov)
- Press Releases
 - NASA Press Releases reach a large audience
 - NASA will coordinate with institutional or other press on that paper and make graphics available
 - If NASA cannot support that result, we can potentially link to institutional releases
- Social Media @NASAUniverse on X, Facebook and Instagram
 - Posts on press releases, web features, stories
 - Social media posts using #FermiFriday for special days, interesting results, press releases, and #FermiPeople
 - Suggestions for future social media content are welcome, especially for evergreen gamma-ray and related stories
 - Contact judith.racusin@nasa.gov





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.
- Cycle 19 is proceeding normally
- Got a question? We're here to help!

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