GLAST Science Policy Document

Version 1.2
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1 Purpose, Introduction and Scope

The general science policies for the GLAST mission are captured here. The content is based on the NASA Announcement of Opportunity and extensive discussions over many years with the GLAST Science Working Group (and previous Facility Science Definition Team), the GLAST Users Group and other members of the science community, and the Instrument PIs and their international teams. The intended audience is composed of general users across the science community as well as GLAST team members.

This document is not a formal requirements document, nor is it a detailed implementation plan, but rather a concise statement of the policies that drive operations choices.

To avoid duplication, this document will point as needed to other relevant documents. As new issues arise and are resolved, this document will be updated to reflect the new information.

1.1 Applicable Documents

NASA Announcement of Opportunity, AO-99-OSS-03
GLAST Science Requirements Document, 433-SRD-0001

2 Description of relevant mission elements

2.1 Project Scientist Office

The primary role of the Project Scientist at GSFC is to provide the scientific leadership necessary to assure that the mission implementation will meet or exceed the scientific requirements. The Project Scientist and her/his deputies are integral members of the Project management team. To accomplish this, the project scientist functions include the following:

1. Provides scientific oversight of all elements of the mission.
2. Reviews and recommends approval or disapproval of proposed modifications to the science requirements, or to the instruments.
3. Acts as the primary science interface between the science community and the project.
4. Chairs the Science Working Group.
5. Serves as a scientific spokesperson on behalf of the Project to the Principal Investigators and to NASA Center and Agency management.
6. Oversees the implementation of the science observation program of the mission, including guest observer programs and calibration and validation of the data.
7. Reviews and approves mission operations, data analysis and management plans.

8. Assures public dissemination of scientific results through professional groups, peer reviewed publications, conferences, workshops, and the relevant public affairs offices.

If Project Scientist is not available and action is required, Deputies will act in place of Project Scientist.

2.2 GSSC

The GLAST Science Support Center (GSSC) serves the user community as the primary point of contact with the mission. The GSSC runs the guest investigator program, creates and maintains the mission time line, provides analysis tools for the scientific community, and archives and serves the GLAST data.

2.3 Users Group (GUG)

The Users Group charter will be linked[1] to the GUG website, which is linked to the GSSC site. According to the charter,

> ***The GUG provides broad-based input from the GLAST User Community to the GLAST Project and NASA Headquarters. Its primary purpose is to ensure that interests of the Guest Investigator (GI) community are served by the GLAST Science Support Center (GSSC) and Instrument Teams in planning for and executing GLAST development and operations. Key areas that the Group shall consider and review include: analysis software and data distribution from the GSSC, data rights and policy issues, planning for NRAs for selection and execution of GI programs, balance of resources for GI programs and support for the analysis and data distribution tools developed by the GSSC and Instrument Teams, broad dissemination of GLAST science results through Symposia, and development of the field with a GLAST Fellows Program. The GUG shall be the primary interface between the user community and Project over its lifetime***

The membership is chosen by the NASA HQ Program Scientist and GUG chair, in concurrence. Membership reflects the broad range of scientific fields that are served by GLAST and includes international participation. GLAST Project Scientists, relevant staff of the GSSC, and Instrument Team PIs are *ex-officio*. The GUG reports to the GLAST Program Scientist at NASA HQ and GLAST Project Scientist.

2.4 Instrument PIs and their international teams

The Instrument PIs and their teams were selected competitively by NASA as part of the GLAST AO.

2.5 IDSs

Interdisciplinary scientists were selected competitively by NASA as part of the GLAST AO. IDSs are appointed as members of the Science Working Group (SWG).

[1] http://glast.gsfc.nasa.gov/ssc/resources/guc/GUC_Charter.pdf

2.6 SWG

As outlined in the GLAST AO, the SWG assists the GLAST Project by maintaining a broad and critical scientific overview of the GLAST development. The SWG advises the GLAST Project of new developments in related scientific fields that could have a potential impact on the objectives of GLAST. The Project Scientist chairs the SWG. At the appropriate time in the operating phase of the mission, the SWG functions will merge into the GUG and the SWG will cease to exist as a separate entity.

3 Processes

3.1 How policy is made (policy policy)

Responsibility for science policy rests with the Project Scientist, who develops the policy in close consultation with NASA HQ, the instrument teams, GSSC, SWG, other relevant mission elements, and the GLAST User Group. Each of the policies outlined here have been reviewed by the GUG.

3.2 Policy Document control

This document is controlled by the Project Scientist. All changes will be made with the concurrence of NASA HQ and the GUG, through the GUG chair, and the SWG. The policy document shall be posted on GSSC website and GUG websites. Anyone may propose a change at any time to the Project Scientist.

3.2.1 Baseline, tracking and revision

After initial release, the version history will be made available on the GUG website. The document will be reviewed and updated as necessary at least annually, prior to the GI program NRA.

3.3 Complaint and appeal

Complaints may arise from time to time about some aspect of the mission, including implementation of policy, perception of unfair treatment, or error.

3.3.1.1 Organization

The Project Scientist is generally responsible for resolving all complaints in a timely manner. After being informed of an issue, the Project Scientist will communicate with the person(s) making the complaint. The Project Scientist will attempt to resolve the complaint, in consultation as needed with NASA HQ and the GUG chair. Should complaints about the Project Scientist arise, they should be directed first to the Project Scientist for resolution; if the complaint is not resolved, it should be brought to the attention of the Goddard Astrophysics Division Head.

3.3.1.2 Peer review

The peer review process is managed by the GSSC on behalf of NASA HQ, which maintains overall responsibility. Complaints about the peer review process should be directed to the GLAST Program Scientist at NASA HQ and to the Project Scientist for resolution. Appeals will be handled by NASA HQ.

3.3.1.3 Data products, Software, and Support

The GSSC is responsible for the distribution of data products, associated software, and documentation to the user community. All complaints in this area should be directed first to the GSSC Help Desk, which is linked to the GSSC web pages. If the complaints are not resolved, they should be directed to the GSSC manager and then to the Project Scientist for resolution.

4 Science Observing Policy

Along with the highly variable nature of the gamma-ray sky, two key features of the LAT have a fundamental impact on the observing and data rights policies: (1) the field of view is unusually large (~20% of the sky at any time) and (2) exposures over the whole mission are easily superposed so, over time, the persistent-source sensitivity continues to improve. Thus, with an observing profile that repeatedly covers the sky with good uniformity, over long timescales, persistent sources will be seen more deeply and transient sources will be sampled with little spatial and temporal bias. The Sky Survey is designed for this purpose. Although the majority of GLAST science we expect will generally be best served by the Sky Survey, there are important exceptions, and the observatory includes a large amount of flexibility for pointed observations. The observing plan is therefore a matter of policy, driven by the science as described below. It should be noted that the default mode will be Sky Survey, which we expect to be in effect >70% of the time.

4.1 Definition of Sky Survey

The details of Sky Survey can be adjusted over the course of the mission (see section 4.8), but the initial implementation optimizes the exposure uniformity on the minimum possible timescale (two orbits) in a straightforward manner. In Sky Survey mode the observatory performs a modified zenith-pointed observation, with the observatory pointed 35 degrees above the orbit plane for one orbit and then pointed 35 degrees below the orbit plane for the next orbit. This pattern is then repeated. In this way, the whole sky is covered every three hours and each region is exposed for 20-30 minutes in each three-hour period. (Note that over the 55-day orbit precession period the exposure magnitude and temporal continuity will tend toward greater uniformity.)

4.2 GRBs

Both instruments will be capable of detecting gamma-ray bursts onboard. When this happens, the observatory can take two separate actions: send burst alerts to the ground and repoint the observatory to keep the GRB on the LAT FOV for an adjustable period of time.

4.2.1 Alerts

Both instruments can issue alerts, which will propagate quickly to the ground system and result in GCN notices. The alert rate will be dominated by the GBM, which is expected to see approximately 200 GRBs per year. A false trigger rate of approximately 100-150 events/year is currently expected due to flaring sources, non-random fluctuations in the background, and other effects. The trigger threshold parameters are adjustable and are controlled through the process described in Section 4.8 below.

4.2.2 Repoints

Although exposure uniformity is a goal of the observing plan, there are other considerations. In particular, the science of short-timescale (< few orbits) transients such as bright GRBs is not always best supported by Sky Survey. For sufficiently bright GRBs, the observatory can repoint autonomously to keep the burst region within the LAT field of view for an adjustable dwell time. Instead of designing the spacecraft to resolve two repoint requests (in cases when both instruments generate repoint requests), all repoint requests from the GBM are routed through the LAT, since on onboard detection by the LAT will likely result in a better localization. If the GBM initiates a repoint request for a burst that is not detected by the LAT, the LAT will simply forward the request to the spacecraft.

The repoint request thresholds are adjustable and are controlled through the process described in Section 4.8 below. Bursts that begin within the LAT field of view are generally more interesting than those that start outside the LAT field of view, so the threshold for repoint will generally be lower. Initially, repoints for these bursts will occur approximately a few times per month (which is consistent with the GBM burst detection rate and the relative instrument fields of view, so the observatory will repoint for most of the bursts that start within the LAT field of view). Repoints for bursts that start outside the LAT field of view will only happen a few times per year, for extraordinarily bright bursts.

4.3 Solar Flares

In general, GLAST will regularly observe the sun along with all the other sources in Sky Survey mode. In addition, sun-pointed observations may be selected by peer review, just as with any pointed observation. Later in the mission, as we enter the part of the solar cycle with more intense flare activity, there may be brief periods in which solar flare induced backgrounds are so large that it is not possible to operate the LAT in the standard configuration. In that case, we may implement a special solar flare mode for the LAT for those periods, and the observatory will be pointed toward the sun. Since it would not otherwise be possible to operate the LAT anyway, loss of observing time on other sources due to this mode transition will not be an issue. The observatory may launch without this mode implemented.

4.4 TOOs

4.4.1 Definitions

There are two types of Targets of Opportunity: Planned and Unplanned.

A planned TOO is essentially a pointed observation that is triggered by a well-defined event (*e.g.*, transient source activity or multiwavelength campaign period). Planned TOOs are therefore selected by peer review in the same manner as other pointed observations.

An unplanned TOO is an unscheduled pointed observation that is triggered by an unanticipated and extraordinary event for which GLAST *pointed* observations are of great importance.

4.4.2 Initiation, approval process, scheduling path, and timing

A TOO is initiated by submission of the web-based form hosted on the GSSC site. A backup submission process by telephone/pager will be provided at all times in case of loss of web access. The TOO requests are reviewed and approved or rejected by the Project Scientist, based on guidelines from the peer review (for Planned TOOs) and the GUG (for Unplanned TOOs). Criteria for unplanned TOOs include: scientific motivation and likelihood of success, criticality of GLAST observations, peculiar requirements of any ongoing pointed observations that would be interrupted, and the remaining time in the year available for such observations.

The response time of the GLAST ground system (6 hours) is the same for both types of TOO.

4.4.3 Boundaries on observing time fraction for TOOs

Planned TOO observation time is taken from the annual allocation of pointed observation time, selected by peer review. Unplanned TOO observation time is taken from the annual allocation of Mission Discretionary Time.

4.5 Mission Discretionary Time (MDT)

Since GLAST will make breakthrough observations affecting many areas of science, we anticipate the possibility of new time-sensitive opportunities arising between peer review annual cycles. There may also be upgrades to instrument software or configurations that will be beneficial to science that must be tested. To build in flexibility in the observing schedule, Mission Discretionary Time is reserved annually. MDT use is at the discretion of the Project Scientist and is reported to the GUG through the GUG chair. Unallocated MDT will be used for additional Sky Survey time.

In the unlikely event that all the allocated MDT is used and additional time is needed in a particular year, the Project Scientist will consult with the GUG, through the chair, the Instrument PIs, and NASA HQ to reallocate a small portion of the Sky Survey time for this purpose.

4.6 Calibrations, engineering time

After the initial 60-day checkout period, there are no anticipated large blocks of time needed for special calibration modes or engineering studies. Both instruments record a large amount of data useful for calibration and monitoring throughout routine science data taking. It is quite possible, however, that such needs will arise during the mission. These will be handled through the MDT process and the Observatory time spent on them will be taken from the MDT allocation.

4.7 Observing

As described above, the primary goal of the observing strategy is to optimize across a wide variety of science topics. The planned primary observing mode throughout the mission is Sky Survey. Since our understanding of the gamma-ray sky is likely to evolve enormously during operations, and the observatory capabilities provide a great deal of flexibility, the observing plan will evolve over time.

4.7.1 Observing plan for year 1

After the initial turn-on, checkout, and calibration sequence, the mode of operation for year 1 will be Sky Survey. Repoints for GRBs will be enabled, and extraordinary (Unplanned) TOOs will be allowed. In year 1, >80% of the time will be spent in Sky Survey plus GRB repoints, and <20% will be spent in MDT on unplanned TOOs, calibrations, and engineering time.

4.7.2 Target fractions of scan vs point after year 1.

In year 2, the main observing mode (>70% of the time) will be Sky Survey plus GRB repoints. Up to 20% of the time may be spent on pointed and TOO observations, selected by peer review. If the peer review does not find sufficient cause to allocate all the possible pointed observation time, the remainder will be spent on Sky Survey. The division of time between Sky Survey and pointed observations, along with the Sky Survey parameters, will be reviewed and updated each year by the mission in close consultation with the instrument teams and the GUG, in advance of the proposal cycle. Up to 10% of the time will be spent on MDT (unplanned TOOs, calibration and engineering time), as described in sections 4.5 and 4.6. Unallocated MDT will be spent on Sky Survey.

4.7.3 Peer review process for observations.

Because pointed observations have a significant impact on the other science topics that are best accommodated by Sky Survey mode, pointing proposals must be carefully peer reviewed and balanced against competing interests. The peer review panel will use the guidelines developed and reviewed annually by the GUG. These guidelines will also be included in the NRA and posted on the GSSC website.

4.7.4 Timeline planning responsibilities

Responsibility for the scientific timeline planning and verification rests with the GSSC.

4.7.4.1 Replan and reobservation granting policy in case of TOOs, GRB repoints, errors, or problems.

4.7.4.1.1 Interruptions due to GRB repoints

Pointed observation proposals must take into account the possibility that the pointed observation will be interrupted by GRB repoints. In general, additional pointed observation time will not be granted due to interruptions caused by GRB repoints.

4.7.4.1.2 Interruptions due to Planned TOOs

Since both planned TOOs and pointed observations are peer reviewed together and are part of the annual allocation of pointed observation time, the GSSC will routinely reschedule a pointed observation that was interrupted due to a TOO. Best effort will be made to contact the PI of the pointed observation to discuss the details of the reobservation.

4.7.4.1.3 Interruptions due to Unplanned TOOs, errors, or problems

Reobservation time for pointed observations that are compromised by unplanned TOOs, errors, or problems is determined by the Project Scientist, based on the results of the peer review selection and the severity of the interruption. Reobservation time granted for this purpose will be taken from the MDT allocation.

4.8 Control of observatory operations parameters affecting science

The flexibility of the observatory implies that there are adjustable parameters for the spacecraft and the instruments that have a direct impact GLAST science. The set of relevant parameters will be developed and maintained by the GLAST project, in close consultation with the instrument teams, and posted on the GSSC website.

4.8.1 Division of responsibilities

The expertise on the spacecraft and instruments lies within the GLAST project and the instrument teams, respectively. These groups therefore hold the responsibility for configuration control of their respective parameters. Changes in these parameters are reported to the SOOG (see following section) as part of the change control process.

4.8.2 Science Operations Oversight Group (SOOG)

Because the impact of changes in these parameters can reach across mission elements, the Science Operations Oversight Group will meet frequently as needed [initially weekly] during operations to review and coordinate any changes in these parameters.

4.8.2.1 SOOG Responsibilities

The SOOG will

- review weekly performance and address relevant Ops issues;
- be informed about changes to science operations parameters controlled by the various mission elements;
- approve changes on a limited list of mission-level controlled parameters;
- be informed about data reprocessing and re-release.

In many cases, particularly early in the mission, the controlled values will be managed in a range approved by the SOOG: the responsible mission element (*e.g.*, the instrument teams) will have freedom to change the parameter value within that range without CCR action.

4.8.2.2 SOOG Members

The SOOG consists of

- The Project Scientist or Deputies (chair)
- The LAT and GBM PIs or their delegates
- The GUG chair or his/her delegate
- The GSSC lead
- The MOC lead
- The LAT and GBM I(S)OC leads

5 Data Management Policy

5.1 Introduction

In all cases, releases of data are accompanied by associated analysis software tools and documentation. The definitions of the data products provided by the LAT and GBM are captured in ICDs. The software tools are developed jointly by the GSSC and the instrument teams.

The mission characteristics described in Section 4 have a fundamental impact on the data rights principles for GLAST. All released data are seen by all investigators, and pointed observation data are treated in the same manner as Sky Survey data. The details are contained in the Project Data Management Plan.

5.1.1 Definitions of data products levels

Level 0 Data: Raw data are provided by the spacecraft telemetry to the ground. Level 0 data will have undergone minimal processing (duplicate data packets will be removed, quality checks will be made, and the data packets will be time-ordered) and separated into spacecraft and instrument packets.

Level 1 data result from the application of basic sensor calibrations, and event reconstruction and classification processing performed by the instruments. Level 1 data are the inputs to the high-level science analysis tools.

Level 2 data are outputs of the high-level science analysis tools.

Level 3 data will consist of catalogs and compendia of Level 2 data, including summary information on individual sources. The summary information includes fluxes in bins of both energy and time (equivalently, energy-binned light curves or time-binned spectra) and associated errors. The time binning will be selected by the LAT team commensurate with the source intensity.

Ancillary Data The LAT team will produce, update and make public the diffuse Galactic interstellar and extragalactic emission models used for the analysis resulting in the LAT source catalogs.

5.2 Year 1 and later years

Starting in Year 2, all Level 1 photon candidate data will be released immediately after processing. During the first year, while the LAT team will be studying the detailed performance of the instrument and optimizing the basic data processing, it is quite likely that the individual photon events, and especially their associated errors, will be undergoing multiple revisions. Therefore, throughout Year 1, only Level 3 data will be released on a set of sources of interest to the community (see below). The LAT team will also provide a preliminary high-confidence source catalog (or source list) during Year 1 in advance of the second GI proposal cycle. At the end of Year 1, all Level 1 photon candidate data from Year 1 will be released.

5.3 Data release policy

5.3.1 LAT year 1 data releases

5.3.1.1 Sources of interest

Throughout Year 1, LAT will release Level 3 summary data on a list of approximately 20 sources of interest to the community. This list was developed in consultation with the SWG, GUG, and at various conferences and workshops.

5.3.1.1.1 Process for updating source list

Requests for updating the source list are coordinated by the Project Scientist, vetted by the GUG, and negotiated with the LAT PI.

5.3.1.2 Serendipitous flares

In addition to the list of sources in the previous subsection, any new flaring source (intensity $>2\times10^{-6}$ cm^{-2}s^{-1}, E>100 MeV, TBR) will be added to the list of Level 3 data releases until such time that the source intensity falls below 2×10^{-7} cm^{-2}s^{-1}, E>100 MeV, (TBR). Several new such transients or flaring sources are expected per month.

5.3.1.3 Bursts

All GRB alerts, localizations, and lightcurves from both LAT and GBM will be circulated as GCN notices and circulars throughout Year 1.

5.3.1.4 Unplanned TOOs

Level 3 LAT data from unplanned TOOs will be released in a manner similar to what is done for serendipitous flares.

5.3.2 LAT data releases in subsequent years

After Year 1, in addition to continuing the data releases started in Year 1, the LAT Level 2 data will be released immediately after processing. At the start of Year 2, all Level 2 data from Year 1 will be released.

5.3.3 GBM data release policy

All GBM Level 2 data will be released immediately after processing throughout the mission.

5.4 Archive plan and access

All publicly released data will be made available through the GSSC. All raw data will be permanently and redundantly archived.

5.5 Policy by data category

5.5.1 Science data

The release policy for the science data is described in Section 5.3.

5.5.2 Raw instrument data

Raw instrument data will be archived by the GSSC and the Instrument teams. Because meaningful analysis of the raw instrument data requires very detailed software reconstruction and analysis packages, which are not maintained for public use, raw instrument data will not be made public while the mission is operating. The GSSC will maintain the capability to develop a backup instrument data analysis pipeline.

5.5.3 Calibration data

Low-level calibration data from on-orbit operations and beam tests are essentially raw instrument data and are therefore managed according to the policy in subsection 5.5.2. High-level calibration data, characterizing the science performance of the instruments (Aeff, PSF, etc.) are released routinely as part of the software analysis tools accompanying the Level 2 data.

5.5.4 Housekeeping and engineering data

Housekeeping and engineering data from the instruments are essentially raw instrument data and are therefore managed according to the policy in subsection 5.5.2. Housekeeping and engineering data from the spacecraft are generally deemed to be ITAR-protected and are also not released to the public.

5.5.5 Monte Carlo simulations

The detailed single-event Monte Carlo simulation is a complex tool that can only be meaningfully used by the instrument teams, and it will therefore not be released. However, the Observation Simulator, which contains the science performance characteristics of the instruments, along with a flexible and detailed sky model, will be released as part of the standard public science analysis tool suite.

5.6 Policy on reprocessing of data

Data reprocessing will be initiated by the instrument teams and reported to the SOOG. The GSSC will maintain a history of the reprocessing of all publicly released data.

5.7 Data discarding

At no time will data will be discarded that can not be reconstructed from other archived data. Any intermediate temporary data files created in the data processing pipelines may be routinely discarded.

5.8 IDS roles and data access

All four Interdisciplinary Scientists are now Affiliated Members of the LAT team and will therefore access data during Year 1through the LAT team, following the internal LAT Collaboration rules. If the LAT team membership status of an IDS changes, the Project Scientist will work with that IDS and the LAT PI to work out an alternative arrangement.

6 GI Program

6.1 Purposes and Goals

Because there are no proprietary data rights, the main purposes of the GI program are for support of data analysis and to offer the option to propose to point the observatory. One significant consequence of the observing strategy and data rights policy is that total observing time is not generally the limiting resource for most of the peer review evaluations.

6.2 Types of support

In Cycle 1, corresponding to Year 1 of operations, support will be provided for:

- Analysis of released data
- GLAST-related correlated multiwavelength observations and/or data analysis on any sources related to GLAST science. These sources are not at all limited to those on the monitored source list.
- GLAST-related theory
- GLAST-relevant data analysis methodology development

In subsequent years, support will be given for all of the above plus detailed analysis of LAT event data and pointed observations. The theory component of the GI program will amount to approximately 10% of the total GI budget.

In all years, there will be two size categories for proposals:

- Regular proposals (typically $50k-$100k per investigation for one year)
- Large proposals (typically $50k-$300k per investigation per year for up to three years)

Large proposals generally produce key results or products that are useful by many GLAST scientists. Advice on the number of large proposals to select each year will be

reviewed by the GUG, and the NRA will include this number. Initially, approximately four large proposals per year will be selected.

The peer review panel will be informed of deliverables from the Instrument teams to avoid unnecessary duplication.

6.2.1 Multi-year proposals

Some projects are naturally multi-year endeavors, those falling into the Large proposal category. In those cases, the initial proposal may lay out a multi-year program, but a progress report must be submitted each year that includes clear milestones for the upcoming year and progress from the previous year. The report will be evaluated by HQ, the GLAST Project and, as needed, external review. Guidance from the GUG concerning this category of project will be given to the peer review panel and made public. There is an expectation that no more than 30% of the total GI program funding in any year will be devoted to all the multi-year investigations. It should be understood that an award for such a proposal one year does not guarantee funding in the subsequent years, even if all the milestones are met.

6.3 Eligibility

Some of the eligibility requirements are a consequence of NASA policy, while others are specific to GLAST. In general, the GI program is open to all scientists. There are additional considerations for funding, as described below.

6.3.1 U.S. and Non-U.S. scientists

Funding is available for scientists who submit their proposals through U.S. institutions, independent of the nationality of the scientists.

6.3.2 Instrument team members

Funding from the GLAST GI program is open to instrument team members who are not otherwise fully funded for their scientific research. Other support from the GLAST mission must be listed for consideration by the peer review panel. In Year 1, a LAT team member may not propose to the GI program for support for analysis of any data that are not publicly available (*i.e.*, the LAT Level 2 data during Year 1). In other words, the fact that a particular GI is also a LAT team member should not confer any advantage in the GI peer review process over anyone else in the community.

6.3.3 GSSC and other mission team members

The GI program is open to GSSC and other mission scientists. The funding eligibility policy for GSSC and other mission team scientists is similar to that of instrument team members, above. Other support from the GLAST mission must be listed for consideration by the peer review panel. The fact that a particular GI is also a GSSC scientist should not confer any advantage in the GI peer review process over anyone else in the community.

6.3.4 GUG and SWG members

GUG and SWG members are eligible to apply for GI funding. Other support from the GLAST mission must be listed for consideration by the peer review panel.

6.4 Policy with regard to other facilities

This section references separate documents detailing agreements on cooperative time, joint peer review processes, and support as they are signed. At present, there is a signed MOU with NRAO.

6.5 Observing proposals

6.5.1 Peer review and selection guidance

Because pointed observations have a significant impact on the other science topics that are best accommodated by Sky Survey mode, there must be peer review of pointing proposals for scientific merit and balance against competing interests. The peer review panel will use the guidelines developed and reviewed annually by the GUG. These guidelines will also be included in the NRA.

The mission will offer options for pointed observations to disable TOOs and to raise the burst repoint thresholds to a preset higher level. These options will not be approved by the peer review panel unless there is adequate justification in the proposal.

As stated in Section 4.7.2, the peer review panel may choose not to fill the pointed observation maximum time allocation. For any pointed observations that are approved, the peer review panel will assign a relative priority to guide the GSSC in science timeline planning.

Abstracts of the proposals that were selected for funding will be published on the GSSC site.

6.6 Fellows program

6.6.1 Purposes and goals

Because GLAST offers a large leap in key capabilities, it is very important to develop new and creative ways to use GLAST data. One new idea alone could have a profound impact on the scientific legacy of the mission. The GLAST Fellows program encourages this development.

6.6.2 Program description and eligibility

Three Fellows will be selected each year, for a three-year term. Any scientist working at a U.S. institution and who is not a funded instrument team member is eligible. There are no restrictions on career point (*e.g.*, years since Ph.D.). However, since GLAST Fellows must devote their time to GLAST-related research, and since they are expected to be GLAST experts, there is a general expectation that GLAST Fellows will often be at a relatively early point in their careers.

A GLAST Fellows Symposium will be held approximately annually.

6.7 Peer review process

The peer review process will be reviewed by the GUG and described in the NRAs and on the GSSC website. The peer review will be run by the GSSC on behalf of NASA HQ, which maintains responsibility for the process. The peer review will include technical feasibility evaluations by the instrument teams.