

SCIENCE UTILIZATION  
POLICIES  
OF THE  
SPACE INFRARED  
TELESCOPE FACILITY

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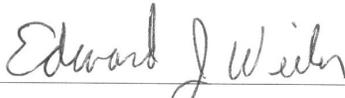
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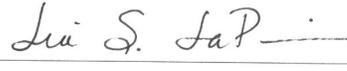
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## **STATEMENT OF PURPOSE**

This document contains the policies that serve as the basic agreement between the SIRTf Project and the Office of Space Science at NASA on the scientific operation of SIRTf. The primary goal of these policies is to maximize the scientific return from SIRTf and the public understanding of this science, subject to cost constraints. A secondary goal is to ensure fair access to the mission both for the astronomical community at large and for those who built it. A tertiary goal is to allow the SIRTf Project flexibility in the implementation of these policies.

The SIRTf Project during operations will be led by the SIRTf Project Manager, and will consist of a Science Office led by the Project Scientist, the SIRTf Science Center led by the Science Center Director, and the SIRTf Flight Operations Office led by the Flight Operations Manager.

## POLICY 1

### MISSION PROFILE

The SIRTf mission will begin with launch and will be divided into three phases: In-Orbit Checkout; Observatory Operations; and Extended Operations.

**In-Orbit Checkout**—This phase will begin immediately after launch and will last 60 days. The portion of this phase that requires or involves observations of astronomical targets with the science instruments will be referred to as *science verification*. The highest priority during science verification will be to realize and characterize the full capabilities of SIRTf. A second priority will be to obtain data for public outreach activities. Science verification observations will not be counted as part of any approved observing projects. If observations are made that are part of approved observing projects of any type the data will be handled as specified in Policy 4 for projects of that type.

**Observatory Operations**—This phase, the SIRTf “prime mission”, will begin at the end of In-Orbit Checkout and will extend until the onboard liquid helium is depleted. The current best estimate of the length of this phase is 60 months; the design requirement is a minimum of 30 months. Time during Observatory Operations will be divided between *science observing time* and various overheads, including calibration observations, ground communications, engineering tests and operations, and slews. Decisions about the division of time among these activities will be made by the SIRTf Project with the goal of maximizing the overall science returned by SIRTf within cost constraints.

The science observing time charged to a given observing project will be the sum of the actual instrument integration time, instrumental overheads (e.g., detector readout time, setup time, etc.) associated with the project observations themselves (but not including instrument turn-on times etc.), some fraction of the slewing and target acquisition times, and the time required for project-specific calibrations. Special calibration observations required by a particular observing project but of little benefit to the broad range of projects will be charged to the particular project. The method of accounting for slewing time between targets will be selected to encourage the most efficient use of SIRTf.

Time spent for engineering tests and operations, for ground communications, and for calibration of the science instruments and the pointing control system to a level adequate for the majority of observations will not be charged to individual observing projects.

**Extended Operations**—This phase begins when the liquid helium runs out. The telescope and instruments will then gradually warm up above 20 K. Useful observations with the Infrared Spectrograph and the Multiband Infrared Photometer for SIRTf will be impossible at that temperature. The Infrared Array Camera may continue to operate effectively from 3-5  $\mu\text{m}$  and the telescope background may remain low enough to permit useful astronomical observations in this band beyond the end of Observatory Operations.

## POLICY 2

### CATEGORIES OF OBSERVING PROJECTS

SIRTF science observing time will be allocated in four categories:

**Guaranteed**—Members of the Science Working Group are guaranteed observing time in return for their work in making SIRTF possible.

**Discretionary**—Discretionary time will be allocated by the Director of the SIRTF Science Center to cover emerging topics or areas missed in the proposal review process.

**Legacy**—Observing projects that satisfy the following three criteria will be called Legacy Projects: i) the project is a large, coherent investigation whose scientific goals could not be met by a number of smaller, uncoordinated projects; ii) the data will be of both general and lasting importance to the broad astronomical community and of immediate utility in motivating and planning follow-on investigations with SIRTF; iii) the data (unprocessed, pipeline processed, fully processed, and at important intermediate steps in processing specified in the project proposal) will be placed in the public archive as soon as they are available. Legacy Projects are expected to require hundreds or perhaps thousands of hours of observing time.

**General**—Observing projects that do not satisfy the criteria for Guaranteed, Discretionary, or Legacy Projects will be called General Projects.

Observing projects in the latter two categories will be selected by peer review. The SIRTF Science Working Group will be responsible for coordination between Guaranteed and Legacy Projects to ensure the maximum science return and a homogeneous archive.

### POLICY 3

#### ALLOCATION OF OBSERVING TIME

Science observing time for the first 2.5 years of Observatory Operations will be divided among the categories defined in Policy 2 as follows:

Category	Fraction of science observing time
Legacy + General . . . . .	0.75
Guaranteed . . . . .	0.20
Discretionary . . . . .	0.05

Proposals for Legacy and General Projects will be solicited by the SIRTf Science Center, which will organize and conduct scientific and technical peer reviews of submitted proposals. Proposals may be submitted by anyone. The exact division between Legacy and General Time will be determined during the evaluation of Legacy proposals.

An accurate estimate of the duration of the Observatory Operations phase will be made during In-Orbit Checkout. If this estimate is between 2 and 2.5 years the fractional allocation of Guaranteed Time will increase to keep the absolute allocation of Guaranteed Time the same as for a 2.5 year Observatory Operations phase. Discretionary Time will remain at 5 % of the estimated science observing time. The remaining time will be divided between the Legacy and General programs. If the estimate is less than 2 years the fractional allocations of Guaranteed, Legacy, and General Time will be renegotiated by the SIRTf Project and the NASA Office of Space Science. The policy for allocation of Guaranteed time if the duration of the Observatory Operations phase exceeds 2.5 years is given below.

In the event of a post-launch failure significantly affecting the operation of the observatory or any of its instruments, observing time awards will be renegotiated by the SIRTf Project with the approval of the NASA Office of Space Science, taking into account both scientific priority and feasibility.

Duplicate observations (i.e., observations of the same target, using the same observing mode, with similar sensitivity) will not be scheduled without explicit approval by the Director of the SIRTf Science Center.

Scheduled observations missed or lost due to spacecraft, instrument, or other failures may be rescheduled at the discretion of the Director of the SIRTf Science Center, but there is no guarantee that they will be rescheduled.

**Legacy Time**—A single solicitation for proposals for Legacy Projects will be released approximately 13 months before launch. As a primary purpose of Legacy Projects is to motivate and enable followup observations with SIRTf, Legacy observations will be scheduled preferentially during the first year of operation.

**General Time**—Several solicitations for General Observations will be released at timely intervals, the first coming approximately 4 months before launch. Large, medium, and small projects will be considered.

**Guaranteed Time**—No new proposals are required for Guaranteed Time before launch. Approximately 14 months before launch, prior to the solicitation of Legacy Proposals, Guaranteed Time observers will be required to describe their observing projects for the first 2.5 years, including target lists and specific observations of targets if desired. Specified observations will be protected in the sense that Legacy and General observers will not be allowed to make duplicate observations. Guaranteed Time allocated for the first 2.5 years must be used during that period. Guaranteed Time observers will negotiate with the Director of the SIRTf Science Center about when during the 2.5 years the time will be assigned. Some projects will be best performed at the beginning of the period; others near the end. Guaranteed Time observers may choose to specify only a portion of their targets prior to the solicitation of Legacy Proposals; if so, they may protect additional observations prior to subsequent proposal solicitations provided these have not already been awarded to General Observers or Legacy teams.

Each of the three instrument teams will be assigned  $\frac{1}{4}$  of the Guaranteed time. The PI of each team is responsible for how the team's time is allocated. The remaining  $\frac{1}{4}$  of the guaranteed time will be allocated equally to the Interdisciplinary Scientists, the Facility Scientists, and the Project Scientist and Deputy Project Scientist.

There will be no restrictions on the objects or observing projects that the Guaranteed Time observers may pursue except that they must be broadly consistent with the original projects proposed in 1983 as interpreted by the Program Scientist. Any Guaranteed Time observer may use any instrument. If two observers or teams propose duplicate observations the team that built the instrument will have priority. Conflicts not resolved in this way will be resolved by the Project Scientist.

Following the first 2.5 years of Observatory Operations the fraction of science observing time allocated to Guaranteed Time observers will be reduced to 15% for the duration of Observatory Operations. Each of the three instrument teams will be assigned  $\frac{1}{3}$  of the Guaranteed Time. If they so desire, Guaranteed Time observers not previously part of any instrument team may affiliate themselves with one of the instrument teams and share in its Guaranteed Time.

Also following the first 2.5 years Guaranteed Time observers will be required to submit proposals for the use of their time, and they will no longer have automatic priority in the selection of targets. The proposals will be submitted and reviewed along with the General Time proposals covering the same time period. Proposals not satisfying the minimum standards for allocation of SIRTf observing time will be rejected and the time used for General Projects. Time allocated for a particular proposal cycle must be used during that cycle.

## **POLICY 4**

### **DISTRIBUTION OF DATA, DATA RIGHTS, AND ACCESS TO ARCHIVAL DATA**

Because of SIRTf's limited lifetime, rapid data reduction to enable scientific follow-up of new discoveries will be of central importance. The initial pipeline data processing will be performed by the SIRTf Science Center within a brief period following receipt of the telemetry data. Raw and pipeline processed data from all four categories of science projects will be delivered to the Principal Investigator (PI) of the investigation for which it was obtained for reduction and analysis using available calibrations.

The SIRTf Science Center will maintain the public archive of SIRTf data. All calibration and engineering data will be placed in the public archive as quickly as possible. Unprocessed and pipeline-processed data from Legacy Projects will be placed in the public archive at the same time they are delivered to the PI. Partially reduced Legacy Project data will be placed in the public archive immediately following important intermediate steps in processing, as specified in the project proposal; fully reduced Legacy Project data will be placed in the public archive as soon as the reductions are complete. All other classes of data will remain under the control of the PI for a period not to exceed one year following delivery of scientifically usable data, to allow the data to be verified and to ensure that the data are usable by others. Following this period unprocessed and pipeline processed data will be placed in the public archive. A quantitative description of the uncertainties in the data reduction should be placed in the archive along with the reduced data.

Data under the control of the PI may not be released for public information without the consent of the PI; however, given the importance of public information to the SIRTf mission, PIs should make every effort to release data for public use.

The contents of the SIRTf public archive will be a valuable scientific resource and will be widely and conveniently available on an international basis. The normal means of access will be electronic. In special cases normal electronic access to the archive may be unsatisfactory. In such cases there are likely to be extra costs to the SIRTf Science Center associated with distribution of the archival data. Such access must be approved in advance by the Director, with appropriate costs to be borne by the recipient of the data.

Proposals for Archival Research will be solicited by the SIRTf Science Center and evaluated by peer review. These solicitations will coincide with those for General Observations. Archival researchers selected through this process will be supported as described in Policy 5.

## **POLICY 5**

### **FUNDING OF DATA ANALYSIS**

The SIRTf Project will provide funds to support the acquisition, calibration, analysis, and publication of SIRTf data by all categories of observers and archival researchers. Funding will be available to Guaranteed Time Observers and Legacy Project teams before launch for preparation of observing projects. Funding for preparatory observations using other NASA facilities should be provided through the normal channels associated with those facilities. Funding requests will be considered in limited cases for preparatory observations using non-NASA facilities including ground-based telescopes that are essential to conducting SIRTf observations. They will be judged according to the expected contribution of the proposed work to the overall SIRTf science program, the availability of funds, and the availability of alternative sources of support.

## **POLICY 6**

### **COORDINATION WITH OTHER MISSIONS**

The ability to make coordinated or simultaneous observations of the same object with SIRTf and other space missions is one of the goals of the Great Observatory Program. Such observations will be a high priority for SIRTf. Special efforts will be made to accommodate requests for such observations, which may involve international missions as well as other NASA missions.

The Director of the SIRTf Science Center will work closely with his or her counterparts on other missions and with NASA to implement this policy and to develop appropriate agreements of reciprocity between missions.