

**SIRTF User's Panel (SUP)**  
**Meeting #2**  
**1999 May 10-11**

**Report submitted by Steve Strom (Chair)**

**A First Look Survey for SIRTF**

The SUP endorses the concept of an early, ~100 hour "first look survey" (FLS) with SIRTF aimed at imaging the mid-IR sky to levels ~100x deeper than the IRAS survey. We believe that such a survey will represent a significant contribution to maximizing the science return from SIRTF. The SUP concurs with the recommendation of SSC management that the time for the survey be scheduled from the Director's Discretionary Time (DDT) pool.

We believe that the SSC should design the FLS in consultation with representatives of the community, and develop the essential pipeline tools necessary for rapid and complete reduction of FLS images, and early public release.

To accomplish the latter will require accelerated software development to enable critical tasks such as cosmic ray reduction and image mosaicing. In turn, this requires bringing forward Phase E (operations) funding into Phase C/D (development). The far-reaching benefits to the community of early availability of the FLS and Legacy Science databases leads the SUP to recommend that some of the required funding be provided through liens on the future Legacy and GO funding pool.

The SUP urges that final data products from the FLS be made available as soon after IOC as possible, and under conditions that enable all potential communities of SIRTF users (GTOs, GOs and Legacy Teams) to take full advantage of FLS results in shaping their proposed programs. Ideally, the SSC should work toward a schedule that provides FLS data in time for planning Cycle 1 proposals. The SUP believes that the community would be accepting of a modest (~ 1 month) slip in the Cycle 1 GO due date if that slip enabled potential users to make use of the FLS for proposal planning purposes.

We finally urge that the SSC develop as an integral part of the FLS, a process for rapidly selecting a subset of sources from the FLS that appear to have characteristics that merit spectroscopic followup, and to obtain IRS spectra of them. Spectra of these targets should be disseminated to the community as soon as possible.

## **Legacy Science Program**

The SUP is unanimous in its belief that the community will respond vigorously and creatively to the call for Legacy proposals. In reviewing the current top level framework for the Legacy call, the SUP:

- Strongly supports the requirement that a proposal team establish a strong liaison with the SSC in order to ensure effective information flow in both directions. However, the SUP urges the SSC be receptive to a variety of proposed mechanisms for meeting this requirement rather than imposing a “one size fits all” solution.
- Strongly supports the assignment of an SSC scientist as a liaison to each Legacy team.
- Applauds the close, collegial and effective working relationships that appear to have developed between SSC instrument scientists and the Instrument Teams. We regard this as a model for the kind of relationship we would like to see as the “norm” between SSC staff and members of the Legacy Teams.
- Strongly supports the notion that ancillary databases (ground- and/or space-based) gathered in support of Legacy programs be made available publicly at the time that the Legacy deliverables are released by the team. We favor a “market-based” approach to encouraging release of these data: one in which proposing teams be cognizant of the intent to review availability of ancillary databases as a key criterion in proposal evaluation.
- Strongly supports an approach that provides an appropriate structure for inheriting algorithms, reduction techniques and pipelines from Legacy teams, and integrating these approaches into a robust community-available “toolbox.” This approach implies that SSC staff should work with the Legacy teams in a “systems overview” rather than a software development role.

In light of this recommendation, we urge the SSC to re-examine its initial plans to make a pool of 5-7 FTE programmers available to the Legacy teams, and instead to explore applying this manpower to: (i) expediting the early development of critical pipeline tools common to all GTO, GO and Legacy science; and (ii) downstream, providing the systems overview/integration role discussed above.

The SUP recognizes that the details of implementing this element of our recommendations will depend heavily on the outcome of upcoming negotiations with NASA regarding the “WIRE recovery program.”

- Strongly urges provision of a “template” to guide preparation of the management section of a Legacy program, and clear statements regarding the key review criteria that will be used in evaluating Legacy proposals.

- Agrees with SSC management that Legacy Teams be permitted to propose “second look” observations. However, the SUP would like to ensure that such observations be aligned in spirit with the original concept behind the Legacy Program: (i) enabling large coherent investigations whose scientific goals cannot be met by a number of smaller, uncoordinated projects; and (ii) providing a database of general and lasting use to the community, and of immediate utility in motivating and planing follow-on investigation.

The Call for Legacy Proposals should therefore include review criteria that give significant positive weight both to scientific excellence AND to the potential for community use of the databases produced by the Legacy Program for a broad variety of additional research using SIRTf.

### **Proposal Preparation Tools**

The SUP urges the SSC to accelerate the development of good EXPOSURE TIME CALCULATORS (e.g. estimates of exposure times and S/N ratios for point source and spectroscopic observations) so that they are available in time for Legacy proposal preparation. Without some mechanism to estimate (accurately) the time required to execute these potentially large programs efficiently, one runs a risk that these teams may not be able to develop intelligent science strategies.

We believe these tools will as well be essential for preparing proposals with accurate observing time requests -- an important element to successful comparative review of proposals that otherwise might have time estimates based on heterogeneous sets of assumptions.

We also urge that the SSC explore the cost and complexity of supplementing its extant plan to develop detailed manuals and nomograms not only with exposure time calculators, but with SIMULATION TOOLS provided via one of the following

- making tools developed by the GTO teams available on a shared risk or “caveat emptor” basis;
- modifying these tools to provide a minimum level of robustness;
- developing bullet-proof tools de novo.

Simulators should include realistic representations of transient phenomena associated with the data taking process. These would include cosmic ray hits, very high proper motion objects such as asteroids, and phenomena that affect the noise/sensitivity characteristics of the detectors.

The SUP believes strongly that simulators represent an important tool for planning science programs that make most efficient and effective use of valuable SIRTf observing time. The SUP thus requests a recommendation from the SSC regarding their favored approach for developing simulation tools prior to our next meeting.

## **Other Issues**

The SUP urges the following:

- That the 3 deferred AOTs be made available for use by Legacy Teams and all GTOs no later than launch+10 months, which is when they must be available to support the Cycle-2 Call for Proposals.
- That the SSC work closely and proactively with the Community Task Force to beta-test the SUTs as soon as feasible. The CTF will in turn both involve members of the SUP and be responsible for preparing a critical report to the SUP at our next meeting.
- That SUTs be developed for Linux, Solaris, Windows 95/98/00/NT, MAC OS; the need for ports to other platforms should be evaluated at a later date;

## **Near-Term and Future Activities**

(1) We agreed that Helou and Soifer will arrange for a telecon to discuss Legacy, SUT and other issues no later than 01 NOV, 1999 and preferably by 15 OCT, 1999. At that time, SUP wishes to review the Legacy selection/evaluation criteria and similar top-level information prior to its release to the community at the SIRTf workshop we anticipate taking place at the January, 2000 AAS meeting.

(2) The next meeting of the SUP is scheduled (tentatively) for early FEB, 2000. However, pending the outcome of the OCT/NOV telecon, we might want to hold open an early December meeting option.

(3) The SUP will provide commentary re the “science culture” at the SSC following e-mail communication among its members. Strom will prepare a strawman statement for review by the SUP by 15 JUN based on \*\*\*\*INPUT\*\*\*\* from the SUP prior to 20 MAY.