

Response to SUG Recommendations

Jim Jackson

SUG

June 17, 2020

SUG 15-1. Leadership

Margaret Meixner was selected as the new SOFIA SMO Director and assumed the role April 13, 2020.

SUG15-2. FMR/SOMER Performance Metrics

With consultation from NASA, the SMO has developed a set of performance metrics and processes to automate their collection. Among these are

- Impact:
 - observatory citations
 - observatory h-index
- Productivity:
 - # of publications
 - % of completed high-priority programs that result in a publication

SUG15-3. FORCAST

FORCAST remains part of the offered instrument suite and is offered in Cycle 9.

A plan for the future instrument suite will be included in the Instrument Roadmap after soliciting community feedback.

SUG15-4. GREAT

SMO had arrived an agreement for the GREAT team to support 47 flights (7 higher than the original MOU).

The Cycle 8 plan, however, has been altered due to covid-19.

SMO worked with the GREAT team to support additional flights by supplying USRA staff to help staff GREAT flights and by fostering an agreement with NASA to fund GREAT LOs.

SMO intends to work collaboratively with GREAT to increase SMO support.

GREAT was oversubscribed in Cycle 8. The original Cycle 8 plan emphasized Legacy Programs and priority 1 science.

SUG15-5. HIRMES

HIRMES instrument development was terminated by NASA. The SMO is leading an effort, requested by NASA, to generate a SOFIA Instrument Roadmap for the near future, in response to the HIRMES cancelation.

SUG15-6. Cycle 8 Solicitation Outcomes

The SMO is pleased with the growing oversubscription rate and growing SOFIA community. We have had good engagement with the community, especially at the last two AAS meetings, and are confident that the oversubscription rate will remain high in Cycle 9.

SUG15-7. Dual Anonymous Review and the TAC

The SMO will move to Dual Anonymous Review in Cycle 9.

The SMO has contracted IPAC to provide software and servers for the Cycle 9 TAC process to streamline the process.

SMO will socialize the new procedure to both its proposers and the TAC.

SUG15-8. Legacy Science Opportunities--Caps

The SMO allocated 23% of its time to Legacy proposals in Cycle 8.

The FMR recommended a somewhat higher percentage.

SUG15-9. Legacy Science Opportunities--Thematic Calls

The SMO would like the new director to weigh in and consider this idea for Cycle 10. A step in this direction is the implementation of “pilot” legacy programs.

SUG15-10. Publication Enhancement

The SMO continues to reach out to its proposers to encourage publication.

The SMO has surveyed the “unpublished” programs to evaluate status. Public data sets where publishable data are judged to be available are now advertised the SOFIA E-newsletter under the regular heading:

“Featured Public Archival Dataset”

SUG15-11. Archive Data Delivery and Impact

The conversion of the FIFI-LS and FORCAST pipelines to Python has enabled the production of several high fidelity Level 3 and 4 products. (cf SUG15-17)

Spectral cubes that are smoother, more artifact-free, and more faithful reconstructions of the underlying flux distributions for the **FIFI-LS data**.

Mosaicking that project data into a common coordinate system with very high accuracy, even for very large fields, with fewer edge artifacts for **FORACST imaging**.

High-quality spectral cube products for the **FORCAST slitscan mode**.

SUG15-12. SOFIA Utilization Statistics and Publication Metrics

Instrumentation papers are included in the SOFIA Publication list (under their own running ID)

SUG15-13. 15-14: Flight Surges/Optimization

The flight rate is limited by resources (aircrew fatigue rules etc.). The SOMER recommendation of 6x8h flights per week cannot be done with current staffing.

The SMO has performed a study of the pros and cons of fewer but longer (4x10h) vs. more and shorter flights (5x8h). The SMO also performed a trial 5x8h operational test. The SMO concludes that for most of the year (out for Palmdale) 4x10h yields more research hours above the tropopause. For late spring, summer, and early fall, 5x8h can be advantageous. For NZ, 4x10h is always better.

SUG15-15. Flexible Flight Plans

Several automation tools for Flight Planning have been delivered over the last year, including automated weather updates. These allow the flight planning staff more flexibility for alternative flight planning.

SUG15-16. Proposal Planning Tools

The ETCs have been verified. Other higher priorities tasks have limited development of other “enhanced proposal planning tools”

NASA conducted a study of satellite-based weather data to better estimate when and where the best observing conditions are realized. This study is a first step to build better data quality metrics and better Cycle planning based on varying time of year, location, and wavelength.

SUG15-17. Python Code Transition

The conversion to Python enables many Pipeline improvements

- More modern data structures
- More robust scientific libraries compared to IDL.
- Better development processes:
 - automated tests of every line of code, every time we make a change
 - Identifies bugs before release and speeds improvements

Public Release

- Our software is not licensed as an open source project.
- A limited public release process should not require additional staffing or great demands on staff time.
- We have not yet polled external groups for interest in collaboration and contribution to our pipelines.

SUG15-18. Mentoring

The SMO has been pursuing student mentoring, reviewing funding options and collaboration structures with USRA HQ and USRA LPI, primarily in terms of summer internships. Because of the Covid-19 situation limited progress has been made.