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Re: Meeting #11 of the [SOFIA Science Users Group](#):

The SOFIA Science Users Group (SUG) met at NASA Ames Research Center during 1 June 2017. This meeting was supported by 8 of 10 committee members (Graf and Tan absent). The focus of this meeting is reflected by the [agenda and presentations](#) that are available on-line. Recommendations of the SUG resulting from discussion of these presentations with SOFIA staff follow (in no order):

The SUG concurs with the Program's plan to prioritize cycle 6 selections into high, medium, and low categories. However, we caution that the funding plan for the medium category is likely to have the unintended consequence of increasing the latency of refereed publications from the resulting data. This plan, in which all but \$7K of the \$10K/hr funding would be withheld until the data is acquired, would prevent the PI from bringing science labor (graduate students, post-docs) onboard to support their project. The cost risk that the Program is trying to control with this policy has insignificant consequence to the Program. In contrast, reducing publication latency should be a primary Program objective.

R11.1: The SUG recommends that GO funding for projects in the "Priority 2" selection band be disbursed in a manner that enables staffing of the project by students or post-docs in advance of the flights.

The SUG strongly supports the Program's plan to create a "Thesis Enabling" proposal category that would be prioritized and funded as "Priority 1". We further support the planned "flash e-mail" experiment that is aimed at acquiring science targets for dead legs and executing them under DDT utilization policy.

The SUG is very encouraged by early results from HAWC+ and the unique high angular resolution polarimetry imaging capability that it brings to the astronomical community. We look forward to resolution of the acoustic dissipation issue ahead of the Jan 2018 acceptance review.

The SUG commends the Project on exhibiting good schedule performance wrt delivery of Level-3 data products. However, we are deeply concerned by the status of the Water Vapor Monitor (WVM).

The WVM is NASA Government Furnished Equipment (GFE). ARC is responsible for delivery of this system to the SOFIA Program. SOFIA is in its 5th operational year and this instrument has yet to produce useable data. It is clear to the SUG that: [a] ARC has failed to meet its obligation to produce this critical system, [b] the quality of pipeline products and the science productivity of SOFIA are negatively impacted as a consequence of this failure, [c] no progress has resulted from years of effort on this instrument in terms of producing useable calibration data. Although the WVM has become a standing agenda item for every SUG meeting, we have yet to see a coherent plan forward or any progress to the calibration end objective of the system.

R11.2: The SUG strongly recommends that the SOFIA Project Manager: [a] charter a NASA Failure Review Board (FRB) to determine the root cause(s) of the failure, and [b] recommend a plan forward for how SOFIA should proceed wrt water vapor calibration. All aspects of the WVM and its existing requirements should be in scope of

the FRB activity. The FRB should be chaired by ARC Engineering who is responsible for delivery of this system. The board should include broad external subject matter expertise. The FRB should produce a non-PowerPoint report following normal NASA FRB process. The FRB intensity of effort should be geared toward a near-term (Cycle 6) resolution. The SUG recommends that priority should be given to achieving precision (flight-to-flight long-term consistency) rather than absolute accuracy.

The SOFIA Guest Investigator survey reveals that the primary pacing item on the SOFIA publication rate is observing project completeness. The SUG commends the Project for its systematic survey effort to garner Guest Investigator feed-back revealing this limitation, their effort to adopt contingency flights as a mitigation, and their analysis on the effectiveness and limitations of this mitigation approach. As this matter is a primary limiting factor on SOFIA science productivity:

R11.3: The SUG recommends that Project Management continue to support efforts to broaden the applicability of contingency flights through provision of personnel resources and software tools to the extent practical (cf, Reach presentation chart 9).

The SUG notes that the FIFI-LS productivity of 360 hr/paper (~10X lower than FLITECAM) relative to the Program goal of 20 hr/paper is suggestive that the FIFI-LS instrument should be retired. The SUG suggests that the SSC develop a credible plan and timeline for improvement as part of determining future support for this instrument.

The SUG supports the Program's plan to release the next instrument and instrument upgrade solicitation during Q2 of FY18 with a draft released ahead of the January AAS meeting. We note that this schedule would enable the Senior Review proposal to speak to the science capability of selected instruments and/or upgrades. However, this generation of new instrumentation would likely not be realized before the end of the first 3 year mission extension. We suggest that the Project request an AAS meeting splinter session, to occur during the main meeting, at which the draft solicitation and overall SOFIA status can be discussed with the community.

We thank the Project for clear concise presentations and we appreciate the effort that went into producing them.

Sincerely,

Matt Greenhouse
Chair: SOFIA Science Users Group