

Report of SOFIA International Summit Meeting
Palmdale, CA
8/9 October, 2018
Prepared by co-chairs Michael Werner and Juergen Stutzki

EXECUTIVE SUMMARY

The SIS met with the SOFIA project, including representatives of NASA, DLR, Ames Research Center, Armstrong Flight Center, and USRA on 8/9 October in Palmdale. An agenda for the meeting, as modified following the first day, is attached. There was much to be positive in the material presented, including [as examples] the success of HAWC+; the healthy oversubscription for Cycle 7 on both the US and the German sides, including the newly available legacy science opportunity; the high rate of successful flights being achieved in the replanned Cycle 6; the unexpectedly large number of proposals to the NASA 4th generation instrument opportunity; and the commitment to completion of the highest priority programs.

SIS members Michael Werner [US co-chair], Juergen Stutzki [German co-chair], Karl Gordon, Matt Greenhouse, and Karl Menten participated in person. Members Jay Lockman and Andy Harris participated remotely for good portions of the meeting and, like those participating in person, contributed to this report.

We thank the Armstrong Flight Center for their hospitality and for accommodating our meeting on a federal holiday, and we appreciated Armstrong Director David McBride joining our meeting on the holiday and telling us about the exciting activities at his Center. We also welcomed the lunch time science talk by Dr. Matt Hankins, who described his thesis work on galactic center HII regions with the FORCAST instrument. He and co-chair Werner bookend 50 years of Cornell astronomy, with SOFIA Deputy Project Scientist Tom Roellig somewhere in the middle.

We received status briefings from several elements of the SOFIA project, which were very valuable, but we do not recapitulate them [see agenda]. Instead, this report features numerous areas of concern for which the SIS has recommendations for the SOFIA team. However, we encourage the readers not to lose sight of the positives listed above, as well as others not mentioned specifically, while contemplating these recommendations. *We request that a written report on the Project's response to each of these recommendations be presented to the SIS prior to our next meeting.*

It was noted that Juergen Stutzki will be leaving his post as German co-chair of the SIS: he replaces Rolf Gusten as the PI of GREAT and will thus give up his role as chair of the German SOFIA Science Working Group (GSSWG) due to conflicts of interest; the GSSWG chair, according to the SIS charter, acts also as co-chair of the SIS. The SIS and members of the SOFIA project thanked Juergen for his excellent work on the SIS. We are also looking forward to working with his soon-to-be-named successor. Tentative plans for future SIS activities envision a telecon in the February period to understand and react to the results of the SOMER, followed by a face to face meeting in the April period to receive and respond to the results of the 5 yr Flagship science review. We anticipate that each of these reviews will generate a series of recommendations regarding which the SOFIA Project will want input from the SIS.

The SIS membership is up for replenishment. We would like to have two new US members in place for the meetings mentioned above and an additional two on board for the anticipated meeting in the Fall. Current US members are invited to make recommendations, with due regard to demographic and scientific diversity. It is important to reach outside of the SOFIA/airborne astronomy family to recruit these members

In this Executive Summary, we briefly address in rough priority order the top areas of concern to the SIS. In the body of the report, we expand on the recommendations in many of these areas and report on a number of lesser concerns that we flagged during the meeting. We highlight, with italics and underlining, key points and/or specific recommendations in each area.

1. **5-yr Flagship Review**

The first step in the 5-yr Flagship Review mandated by NASA is the SOMER [SOFIA Operations and Maintenance Efficiency Review], described by Program Executive Lucien Cox, which kicked off the day after our meeting ended but will extend over a period of several months. We recognize that the SOMER review was set up in response to HQ direction and trust that it will adequately address issues of aircraft maintenance and operations efficiency. We also expect that SOFIA science will be well-presented in the separate science portion of the upcoming 5-year Flagship Review. We are quite concerned that a number of issues in the general area of science operations [e.g. instrument changeover procedure, need for deployments for routine ops or targets of opportunity] may not be adequately addressed by either panel and thus go unanalyzed, which could lead to cost or complexity issues not encompassed by the current review process. Close coordination of the two reviews will be required to prevent such an oversight. We request that HQ and the SOFIA project office consider this concern while establishing the Terms of Reference (TOR) for the science review, and that consideration be given to a delta review covering the operational interface between the aircraft and the science if need be. We understand that members of the SOMER panel will be included in the science review to help mitigate this concern.

The SIS was disappointed to hear from Dr. Judith Pipher, chair of the SOFIA Science Council, that the recent blue team review of written material being prepared for the now cancelled SOFIA Senior Review Proposal identified numerous concerns with the quality of the document. It is very important that these be ironed out prior to the upcoming “pink team” review of the document planned for early November. The individual members of the SIS are available to review this document or any other material being prepared for the Flagship Review.

2. **Review Process**

We thank NASA and DLR for responding to our earlier suggestion – made in a letter dated July 19, 2018 - about a joint review process and were pleased to learn from Kartik Sheth (NASA) and Heinz Hammes (DLR) that the 5-year Flagship Review will include Germans on both the operations and the scientific review panels. The SIS regards it as very important, that NASA and DLR define a periodic joint review process that is tuned to the specifics of the SOFIA

programmatics. It has to consider the science return of the investment into a newly developed or upgraded instrument, as well as the specific boundary conditions of the instrument funding in the two communities. It also has to consider the close connections between the science operation and the aircraft operations.

3. **Instrumentation**

We feel that the Project's current approach of periodically surveying its instrumentation for productivity is a good start toward ensuring that under-producing instruments are identified for corrective action or retirement. However, the process of acting on the survey results is not clear and does not seem to be guided by objective (trip point) criteria. Such criteria should be informed by accommodation and operations costs associated with the instrument in question.

Our deliberations touched on the possibility of joint (US German) instrument development projects, which was also specifically mentioned by Alessandra Roy. We recommend that this possibility be given very serious consideration, because it is a natural extension of the existing partnership that may have considerable scientific and programmatic benefit.

4. **Archives**

We were pleased to hear that the SOFIA archive at IRSA will be opening in the near future. However, we are uncertain as to whether the level of support provided by IRSA will allow the most effective use of the archived data. The data should be archived in a format which is understandable by any astronomer, not just those already familiar with submm and infrared observations. This will encourage use of SOFIA data in multiwavelength investigations as well as providing an entry into the more complex area of proposing for SOFIA observations.

5. **Efficiency**

SIS member Andy Harris raised concerns about the efficiency of SOFIA operations, which is a rather complex, multi-system issue requiring oversight at the Project level. We recommend that an Integrated Product Team including representatives from SOFIA working and management levels across the Project be established to recommend ways of improving SOFIA's efficiency and providing more science hours per dollar.

6. **Executive panel**

In the July 19, 2018 report of our July 13, 2018 telecon we recommended that a group which we labelled an "executive panel" for illustrative purposes and which brought together all the stakeholders in the project ought to be convened to discuss multinational/multicenter issues, such as the possibility of a joint instrumentation program. We feel that the roster of folks participating in the expanded weekly telecon which Eddie Zavala described, augmented by somebody from the aircraft engineering/operations side as needed, would be an appropriate group to discuss and act upon the types of issues we had in mind, either at their weekly telecons or in ad hoc meetings as required.

7. ROC lists

While a Reserved Object Catalog [ROC] - which declares certain measurements of certain targets off limit for proposals in a particular cycle - may have a place in the SOFIA project, we recommend that no target remain in the ROC for three or more proposal cycles without discussion with the SMO Director. Access to the ROC, and information related to possible collaboration with the instrument team on ROC observations, should both be improved.

8. Joint Observations

The SOFIA project would benefit from a greater integration with the rest of the astronomical community. We recommend that the SOFIA project enter into programs of joint observations with other observatories as one way of achieving this integration

9. Flying the Review Panel

The SIS feels that it would be a bad idea to include participation in a research flight as part of the schedule for the review panel assembled for the science portion of the 5-yr Flagship Review.

More Detailed Comments.

1. 5-yr Review

We feel that the TOR for the science portion of the 5-yr review are adequately spelled out in the letter from Zurbuchen to Bridenstine outlining the review strategy. The SOFIA Project ought to be able to start planning for the review based on the statements in the letter. We also suggest that the SOFIA team consider submitting to the Decadal Review call for white papers the material on specific science questions being prepared for the document alluded to above. This may require some coordination with other far infrared groups, such as the OST team, as well as tailoring some of the material to make it less SOFIA-specific. Because the current call for white papers apparently emphasizes science rather than specific mission considerations, the team ought also to be prepared to submit SOFIA for consideration in any upcoming call for white papers related to specific missions.

2. Review Process

The SIS is pleased to see that the 5-year SOFIA Flagship Mission Review, replacing the participation of SOFIA in the Senior Review process, as well as the associated SOMER review, allows appropriate German participation in the review board and in the formulation of the terms-of-reference, so that the German partner is fully linked into the review process.

The SIS regards it as very important, that this kind of review is conducted regularly on a 3-5 year time scale, in order to evaluate SOFIA's performance and trigger appropriate measures in

the program to keep SOFIA on the track towards good science return and cost-efficient operation. As the instrumentation program, with its possibility to install newest technologies and thus continuously to adapt and optimize the science operation of SOFIA is an essential part of the SOFIA program, this regular review process needs to be in tune with the US and German instrument development programs. The German side should work towards establishing a stable framework for the future SOFIA instrumentation program, once the outcome of the SOMER and the first 5-year Flagship Mission Science Review confirm a basis for continued SOFIA operation. The possibility of a joint instrumentation program should be considered in this context.

Given the importance of predictability in this arena, the SIS recommends that one outcome of the current 5-yr review should be a statement of what the cadence of such reviews will be going into the future

3. **Instrument Issues**

HIRMES. The SIS heard from newly-appointed HIRMES PI Matt Greenhouse about a replan currently in progress to address technical, cost, and schedule issues. This activity will be completed through an IRT and HQ review process during December 2019, yielding a new schedule and cost to completion for HIRMES.

Instrument Oversight. We inferred from Matt's report that the SOFIA program was caught off guard by the magnitude of the HIRMES problems. *It is very important that both the completion of the HIRMES development and the development of 4th and successive generation instruments be carried out in an environment of open reporting and communication in which such disconnects do not occur.*

Instrumentation Solicitations. We note that the process for upgrading existing instrumentation is critical to SOFIA. As selected instruments fill the wavelength/resolution space for SOFIA, consideration may turn to instrument upgrades providing, for example, improved detectors for an existing instrument. Solicitation via an AO, as is done now, may not be the most effective means of providing an upgrade. *As a practical matter, instrument upgrades may be best provided by sole source-suppliers, such as the current instrument team, for which an AO solicitation might be inappropriate.* In a similar vein, returning to the wavelength/resolution space, *if it is felt that science requires coverage of a region of this phase space not covered by current instrumentation, consideration could be given to a directed solicitation aimed specifically at filling this gap.*

4. **Archiving**

The impact of SOFIA would be increased by a robust archive with the appropriate documentation, cookbooks, and reduction pipelines. The ingesting of the SOFIA data into the IRSA archive, as described by Bill Reach, is a great start. Based on experience with other

archives, principally HST and Spitzer, we recommend that the following points be considered in formulating the archival research environment for SOFIA:

Engaging the broader community requires reducing barriers to non-experts in using SOFIA observations in their research. One avenue to providing this is to have data in an archive that is straightforward to understand by any astronomer, not just those already trained in submm and infrared observations. This encourages astronomers to include SOFIA data in their multiwavelength investigations and provides an entry into the more complex area of proposing for SOFIA observations.

In order to leverage this work, the data reduction pipelines that transform the raw data to higher level products should be made public, including clear documentation on the pipeline/data formats and tutorials. Without public pipelines, a question of reproducibility hangs over the data, making it difficult for non-experts to understand or, frankly, trust the results. Regardless of the programming language the pipelines are written in, they should be made public (no waiting for conversion to Python). The project should consider adopting an open-development model (e.g., GitHub development repositories or astropy model) to leverage interest in the community in the pipelines.

Documentation of the contents of the pipeline and the data formats of the resulting products is critical for the long-term legacy of SOFIA and will allow all users to fully exploit the incredible SOFIA data. Accompanying tutorials and cookbooks are extremely valuable in encouraging non-experts to try out the pipelines and get invested in using SOFIA data.

The SIS is uncertain as to how these criteria will be met when the data are archived at IRSA. If these are not part of the IRSA-provided services, the SOFIA should consider implementing them for delivery through IRSA. In this case, or in implementing other recommendations relating to archiving, starting with a single instrument would lower the needed resources and provide a useful pilot study.

IRSA should be aware of the fact that the SOFIA data, because of variable atmospheric transmission and velocity shifts, will not be as uniform or as easily calibrated as is the data from Spitzer, as an example. The archived data should be accompanied by suitable cautions and warnings indicating when special care is required in either recalibrating or merely using the data; hopefully, expertise will be available at IRSA to help the users address these problems, which may be particularly acute for the GREAT instrument with its complexity of multiple configurations.

The SOFIA team is weighing the pros and cons of keeping archival research with SOFIA under the current ADAP umbrella or pulling it out and sponsoring it directly, perhaps at the \$500K/yr level. *The SIS recommends that for Cycle 8, the SMO consider entertaining archival research as part of the call for proposals without earmarking a specific amount of funding for this purpose.* The total [GO+archival] funding allocated might be increased modestly to support the anticipated additional proposals. If this is done, we recommend that the instructions emphasize the desirability of combining SOFIA archival data with new or archived data from other observatories, including ground-based observatories, without restrictions. This level of

flexibility is not generally achievable via the ADAP route. If instead the decision is made to keep SOFIA in the ADAP program, the next ADAP call might highlight the availability of the SOFIA archive and perhaps include augmented funding to support proposals requesting SOFIA data.

5. Efficiency

SIS member Andy Harris raised concerns about the efficiency of SOFIA operations, which is a complex, multi-system issue. Efficient operation and interactions within and between the science instrument, telescope, flight planning, and aircraft operation requires Project-level coordination. In discussion of the topic, it was not clear how and to what depth the coordination goes at present. Management is necessary because efficiencies are multiplicative; even a modest number of relatively high individual efficiencies can result in low overall efficiency. Even apparently small gains in time on individual flights have a large cumulative effect: If this work leads to an increase of science time of 30 minutes/flight, that would yield 50 hours over a 100 flight year, which would be a significant increase in science time and, we presume, scientific productivity.

We recommend that the SOFIA Users' Group work with the Project to identify places where science flight time might be gained, including the possibility of more accurate time estimators to improve scheduling precision. Bill Reach offered to support this activity by providing information about the time estimator and some of the parameters it contains.

The Program should also examine the reliability of the Upper Rigid Door mechanism to make a fully informed risk trade between prematurely terminating flights and potential damage from landing in precipitation.

The efficiency of the flight planning/scheduling process and the possibility of increasing automation or the use of artificial intelligence in this arduous task might be another area of consideration. For example, there is apparently a set of ~6 airports that are approved for SOFIA operations, but the SMO is not considering them in optimizing operations. If one wanted to ask a question like: 'Would cycle 5 have been more efficient if multiple airports were considered?', advanced flight planning tools probably not currently available might help to provide the answer.

There appears to be a good deal of relevant information scattered throughout the system, but a systematic examination of efficiency has the potential to identify places where a noticeable amount of science flight time could be gained. Eddie Zavala offered to share the relevant metrics.

This complex topic would be well served by the formation of an Integrated Product Team (IPT) similar in scope to the image quality IPT. We recommend that the SOFIA Users' Group (SUG), under new chair Chick Woodward, represent the SOFIA users in this IPT and are pleased to report that Chick has accepted this challenge on behalf of the SUG. We request that the SOFIA project appoint a representative to work with Chick to start laying out the terms of this important study.

7. Reserved Object Catalog

The SIS has several concerns with the ROC lists: ROC targets (defined in positions and wavelength) should not stay longer on the ROC for three or more GO cycles without discussion with the SMO Director. The Call for Proposals (CfP) should emphasize that the ROC targets in many cases may be available for collaborative projects with the Guaranteed Time holders who may have put a hold on them, and the ROC lists and their history should be easily accessible through web-search interfaces outside of the immediate CfP documentation. If the proposers are uncomfortable contacting the ROC list holders directly, a good point of contact would be the SMO instrument scientist, who could serve as an intermediary. As in any true collaboration, the PIs should be able to decline to collaborate, especially so on technical grounds.

8. Joint Observations and Other Interactions with Other Observatories

The SOFIA project would benefit from a greater integration with the rest of the astronomical community. We recommend that they begin by entering into programs of joint observations with other observatories. Lockman suggests that the NRAO observatories at Green Bank and the VLA might be good partners for this purpose and would be willing to help set up such a partnership.

In a joint observation, SOFIA would agree to allocate some small fraction of its observing time to projects chosen by another Observatory's TAC, and vice versa. Scientists would propose to the instrument that was most critical to their research. Joint observations would be appropriate for only a small set of programs, but they would advertise SOFIA's capabilities to a very large community who might otherwise be reluctant to propose for small amounts of time. Likewise, it would afford SOFIA users a way to acquire ancillary data from another telescope.

The Green Bank Telescope (GBT) and the Jansky Very Large Array (JVLA) would be appropriate partners for SOFIA's first involvement with joint observations. Both telescopes have science programs that overlap naturally with large areas of SOFIA science, and both telescopes have a long history of conducting joint observations with other NASA facilities including Chandra, HST, Swift, Fermi and XMM-Newton (e.g., see <https://science.nrao.edu/observing/call-for-proposals/2019a/hubble-space-telescope>). Karl Menten points out that the APEX 12-m radio/sub-mm telescope is another potentially complementary observatory.

9. Flying the Review Panel

In response to Joan Schmelz' presentation, the SIS considers that flying the 5-yr Flagship Review [science] panel on a research flight carries a high degree of risk of yielding a false but lasting impression of poor routine operations if there were to be a problem with the

observatory, and that it would be a bad idea. On the other hand, the panel would be more credible and effective if it included people with genuine research experience on SOFIA. *We strongly recommend that one or two such people be members of the review panel.* If this is considered inappropriate due to conflict of interest, the life cycle of a SOFIA observation should be clearly presented to the panel and the relevant operational expertise should be on tap. In addition, the presentations to the panel should emphasize the science user interface, showing proposal input templates, flight planning, data access, and the archive, amongst other things.

OTHER ITEMS

10. Science Staff Morale

Several presenters indicated that the SOFIA science staff is overworked. The SIS feel that this important issue ought to be addressed but did not have the opportunity to explore it in any detail. In addition, it is more in the bailiwick of the SOFIA Science Council, chaired by Dr. Judith Pipher. *We refer the SOFIA Project to Judy's report on the recent meeting of the SSC for a discussion of staff overwork and morale.*

11. Building a Community

Naseem Rangwala presented a set of sensible ideas related to building the SOFIA user community and awareness of SOFIA within the overall astronomical community. Amongst these, the SIS feel that a strong SOFIA presence at focused conferences and highlighting SOFIA synergy with other facilities [e.g. through the idea of joint proposals or cross-observatory archival programs, as discussed elsewhere in this report] seem particularly productive, but we encourage pursuit of all of these, and similar measures, as resources are available. The upcoming special SOFIA issue of the ApJ Letters is another step in this direction, although publicizing this issue in an all-electronic era where many scientists read astro-ph and not the ApJ may be a challenge. *We note in Kim Ennico's presentation that the SOFIA publication rate appears to be climbing and trust that the SMO will do all that it reasonably can to see that the climb continues.* We note also that for the next few years, including and beyond the decadal review, synergism with JWST may be of particular interest.

12. Improving Scientific Productivity

Kim Ennico presented several suggestions for means of improving the scientific productivity of SOFIA. We have addressed one of them, limiting the time a target can be in the ROC, or collaboration on ROC objects, in detail. A second suggestion related to completing programs, and we recommend below that consideration be given to completing Priority 2 programs once the true impact of completing Priority 1 program is understood. Kim also addressed the inefficiencies of multiple instrument changeovers which result from the broad interests of the user community. This is one consideration which might bear on the issue of retiring instruments alluded to above, although the proposal pressure for Cycle 7, as shown in Harold Yorke's presentation, does not single out a particular instrument as of lesser interest than the

others. Perhaps the time required to change instruments can be reduced. *We refer these and Kim's other suggestions, as well as those presented by Naseem, to the SMO for consideration.*

13. Scheduling Considerations

Several issues related to scheduling the observatory came up during the discussion, which the SIS wishes to comment on:

Pilot Projects. It seems inevitable that programs may be proposed to SOFIA which are attractive scientifically but may be of uncertain feasibility with the proposed instrumentation. *The SIS suggests that if such programs involve substantial amounts of observing time that the SMO consider awarding time for a pilot project to demonstrate the feasibility of the observations.* This could help to mitigate concerns expressed by the GREAT team that some programs accepted on the US side were unrealistic. Improved technical assessment of proposals during the TAC process would be another way of addressing these concerns.

Orange Flights. The SIS understands that the so-called "orange flights" introduced into the program can be used, if other considerations permit, for large discretionary programs, such as the HAWC+ observations of the LMC. The SIS notes that these flights may generate large amounts of data, which can go into the public domain immediately. *This is all good, but makes sense only if somebody take ownership of the data and prepares them for publication. Such data sets should be advertised aggressively in the appropriate SOFIA newsletters and websites to assure that they do not lie fallow.* The SIS suggests that policies related to allocation of time on Orange Flights and the disposition of the resulting data should be discussed with our German partners.

Completing Programs. The SIS applaud the new policy of completing all selected Priority 1 programs. If this proves feasible, we recommend that consideration be given to completing the Priority 2 programs as well. They will have survived considerable scrutiny and completing them will satisfy their investigators, who may then become ambassadors for SOFIA. *For the Cycle 7 call, perhaps the SOFIA Science Center can adopt and advertise its intent to complete the Priority 2 programs if at all possible.*

14. Mission Metrics

We understand from Eddie Zavala that SOFIA collects many metrics which may inform the discussion of efficiency alluded to above. These and other perhaps more science-related metrics [e.g. number of flight hours, number of publications, "science per dollar"] can also be used to compare the scientific return of SOFIA with that of other missions. We recommend that the SOFIA team minimize the use of such comparative metrics while being prepared to discuss them if they come up. *However, SOFIA advocates should focus with pride on presenting the unique capabilities, scientific accomplishments, and programmatic niche of the facility, including the instrumentation program.*

SOFIA INTERNATIONAL SUMMIT

Date: Oct 8th, 2018

Location: Armstrong Flight Research Center (BLDG 703; Room S211)

Time (PDT)	Topic	Speaker
8:00 – 9:00	Badging, Light Breakfast, Set up internet, Order lunch	
9:00 – 9:20	Welcome from the Armstrong Director	D. McBride
9:20 – 9:35	Welcome from SIS co-chairs	M. Werner J. Stutzki
NASA HQ/DLR Reports		
9:35 – 11:00	<ul style="list-style-type: none"> SOFIA Prospects for Next Few Years (KS) Implications of Not Going to SR Review (KS) German Review Status and other DLR News (HH/AR) NASA/DLR Response to a Joint Review (KS/HH) Short Report on Next Generation Inst. Call (KS) Reflections on NZ Experience (KS) 	K. Sheth H. Hammes A. Roy
11:00 – 11:15	BREAK / Order Lunch	
SMO Reports		
11:15 – 12:30	<ul style="list-style-type: none"> Changes in the SMO (HY/BS) Summary of Cy7 proposal (GO/Legacy) (HY/BS) Expectations for TACs (HY/BS) Path to a Complete Science Archive (WR) 	H. Yorke B. Schulz W. Reach
LUNCH / Science Talk		
12:30 – 13:30	<p style="text-align: center;">Speaker: Dr. Matt Hankins (Caltech)</p> <p style="text-align: center;">Title: Examining the Extreme Environment of the Galactic Center with SOFIA/FORCAST</p>	
Project Office Reports		
13:30 – 15:00	<ul style="list-style-type: none"> SOFIA Steering Committee Proposal (EZ) Improving Science Productivity (KES) Building a Community for the Future (NR) 	E. Zavala K. Ennico N. Rangwala

Time (PDT)	Topic	Speaker
15:00 – 15:30	BREAK	
	Instrument Issues	T. Roellig
15:30 – 16:30	<ul style="list-style-type: none"> • Summary of Recent Inst. Surveys (TR) • Future Instrument Strategies (KS/AR) 	K. Sheth/A. Roy
16:30 – 17:30	SIS Executive Session	M. Werner
		J. Stutzki
18:30	GROUP DINNER	
	Fresco II, 1311 W Rancho Vista Blvd, Palmdale, CA 93551	

Webex/Phone (Oct 8th):

<https://nasa.webex.com/nasa/j.php?MTID=m594e9a1ab44c381203078aad4c779738>

Meeting number: 995 416 569

Meeting password: SIS2018!!!

Join by phone (for audio)

US: 844-467-4685

German: 0 800 320 2291

Passcode: 587133#

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Location: Armstrong Flight Research Center (BLDG 703; Room S211)

Time (PDT)	Topic	Speaker
8:00 – 8:30	Badging, Light Breakfast, Order Lunch	
8:30 – 9:00	SOFIA Efficiency Concerns	A. Harris
		M. Greenhouse
9:00 – 9:45	SUG, SSC & GSSWG Reports	J. Pipher
		J. Stutzki
	Preparations for Upcoming Reviews	K. Ennico
9 :45 – Noon	<ul style="list-style-type: none"> • Lessons from Blue Team #2 (KES) • BREAK (15 mins) • Preview of Site Visit (JS/NV) • Discussion of Flagship Mission Review (EZ/KES) 	J. Schmelz/N. Veronico
		E. Zavala
Noon – 13:00	LUNCH	SOFIA Science Talk - Hal Yorke
13:00 – 15:00	SIS Executive Session	
		M. Werner
15:00 – 16:00	Debrief to the SOFIA Team	J. Stutzki

Webex/Phone (Oct 9th)

<https://nasa.webex.com/nasa/j.php?MTID=m58e1752e3603ee24963b575147bad14d>

Meeting number: 995 962 035

Meeting password: SIS2018!!

Join by phone (for audio)

US: 844-467-4685

German: 0 800 320 2291

Passcode: 587133#